

Micro Fiche Scan

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TU80

Test description:

TU80 FRONT-END PRTC

MAINDEC Number or Package Identifier (after SEP 1977):

CZTUYA0

Fiche Document Part Number:

AH-T335A-MC

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CZTUYAO TU80 FRONT END PRT C
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IDENTIFICATION

PRODUCT ID: AC-T334A-MC
PRODUCT TITLE: CZTUYAO TU80 FRONT-END PRT C
PRODUCT DATE: 23 - MARCH - 1983
MAINTAINER: T,PE DIAGNOSTIC ENGINEERING
AUTHOR: DICE SYSTEMS, INC.

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ABSTRACT

1.0 ABSTRACT

THIS IS A PDP-11 RESIDENT DIAGNOSTIC WHICH CHECKS THE FUNCTIONALITY OF A TU80 MAGTAPE SUBSYSTEM WHILE CONNECTED TO A PDP-11 SYSTEM. THE PROGRAM PROVIDES ERROR MESSAGES WHICH IDENTIFY FAILING FUNCTIONS THAT AID IN THE REPAIR OF THE DEVICE. REFERENCE THE FOLLOWING DIGITAL EQUIPMENT DOCUMENTS:

1. ENGINEERING SPECIFICATION FOR TU80 MAGTAPE CONTROLLER; DOCUMENT NUMBER: YM-C194D-022; REVISION NUMBER 2; DATE: 28-JUL-81.
2. ENGINEERING SPECIFICATION FOR TU80 DIAGNOSTIC PACKAGE; DOCUMENT NUMBER: YM-C194F-00; REVISION NUMBER 0; DATE: 2-SEP-81.
3. ENGINEERING SPECIFICATION FOR TU80 MAGTAPE SUBSYSTEM; DOCUMENT NUMBER: YM-C194S-02; REVISION NUMBER 3; DATE: 10-JUN-81.
4. CIQPMAD XXDP+ PROGRAMMER'S MANUAL; DOCUMENT NUMBER AC-S296A-AC; DATE: 14 JULY 1980.

HARDWARE, SOFTWARE REQUIREMENTS AND PREREQUISITES

2.0 HARDWARE, SOFTWARE REQUIREMENTS AND PREREQUISITES

2.1 HARDWARE REQUIREMENTS

PDP-11/LSI FAMILY PROCESSOR WITH 32K WORDS OF MEMORY
TU80 MAGTAPE SUBSYSTEM (DRIVE AND CONTROLLER)
CAUTION:DIAGNOSTIC REQUIRES 32K WORDS OF MEMORY
(28K USEABLE I.E. 4K FOR I/O PAGE)

2.2 OPTIONAL HARDWARE:

UP TO 8 TU80 CONTROLLERS PER PDP-11 UP TO 1 DRIVE PER CONTROLLER

2.3 SOFTWARE REQUIREMENTS

PDP-11 DIAGNOSTIC SUPERVISOR (HSAADO.SYS)
PDP-11 DIAGNOSTIC LOADER/MONITOR (XXDP+)

2.4 PREREQUISITES

FUNCTIONAL PDP-11 FAMILY CENTRAL PROCESSOR AND MEMORY
FUNCTIONAL CONSOLE TERMINAL
FUNCTIONAL STANDALONE DIAGNOSTIC SUPERVISOR

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OPERATING INSTRUCTIONS

3.0 OPERATING INSTRUCTIONS

3.1 OPERATOR COMMANDS

THE TUBO DIAGNOSTIC IS A PDP-11 DIAGNOSTIC SUPERVISOR COMPATIBLE PROGRAM. ALL LOADING AND RUNTIME INSTRUCTIONS CAN BE REFERENCED IN THE PDP-11 PROGRAMMER'S MANUAL "CIQPMO XXP+ PROGRAMMERS MANUAL, NUMBER AC-S296A-AC. THE OPERATOR RESPONSE IS IN QUOTES.

BOOT THE DIAGNOSTIC XXP MEDIA

```
CHMDLBO XXP+ DL MONITOR 28K
BOOTED VIA UNIT 0
ENTER DATE (DD-MMM-YR): "29-JAN-82"
RESTART ADDRESS: 153726
50 HZ? N " <CR> "
LSI? N " Y "
THIS IS XXP+. TYPE 'H' OR 'H/L' FOR DETAILS
R CZTUYAO
CZTUYABINDRS LOADED
DIAG. RUN-TIME SERVICES REV D. APR 79
CZTUY-A-0
****TUBO LOGIC DIAGNOSTIC****
UNIT IS TUBO
DR> " STA/FLA:PNT:HOE "
```

THE ABOVE COMMAND WILL START THE DIAGNOSTIC. THE COMMAND HAS TWO SWITCHES ON WHICH ARE 'PRINT EACH TEST NBR AS EXECUTED' AND 'HALT ON ERROR'.

3.2 HARDWARE PARAMETERS

AFTER INITIAL STARTING OF THE PROGRAM (START COMMAND TO THE DIAGNOSTIC SUPERVISOR), THE PROGRAM WILL ISSUE THE "CHANGE HW?" QUESTION TO ASK IF THE HARDWARE PARAMETERS ARE TO BE CHANGED (BY THE OPERATOR).

ON A 'N' (NO) RESPONSE TO THE "CHANGE HW?" QUESTION, THE DIAGNOSTIC WILL NOT RUN. IT WILL GIVE THE MESSAGE 'NO UNIT'. A 'Y' IS REQUIRED AND AT LEAST A '1' IS REQUIRED AT THE "# UNITS (D)?" QUESTION.

TSBA/TSDB = 172520, VECTOR = 224

ON A 'Y' (YES) RESPONSE TO THE QUESTION, THE FOLLOWING QUESTIONS WILL THEN BE ASKED TO ALLOW THE OPERATOR TO SELECT THE UNITS TO BE TESTED. A VALUE, IF PRESENT, LOCATED TO THE LEFT OF THE QUESTION MARK IS THE

OPERATING INSTRUCTIONS

DEFAULT VALUE THAT WILL BE TAKEN IF ONLY A CARRIAGE RETURN IS TYPED AS A RESPONSE. A "(D)" IN A QUESTION INDICATES THAT A DECIMAL NUMBER IS REQUIRED AS A RESPONSE. AN "(O)" INDICATES AN OCTAL NUMBER IS BEING SOLICITED. AN "(L)" INDICATES THAT A LOGICAL RESPONSE IS TO BE MADE: "Y" FOR YES, "N" FOR NO.

UNITS (D) ? <ENTER THE NUMBER OF CU132 CONTROLLERS
PRESENT TO BE TESTED>

UNIT 0

DEVICE ADDRESS (O) 172520 ? <ENTER THE ADDRESS OF THE
TSBA/TSDB REGISTER>

VECTOR (O) 224 ? <ENTER ADDRESS OF INTERRUPT
VECTOR>

THE ADDRESS AND VECTOR QUESTIONS WILL BE ASKED FOR EACH OF THE NUMBER OF UNITS (CONTROLLERS) SPECIFIED IN THE "# UNITS?" QUESTION. LOGICAL UNIT NUMBERS ARE ASSIGNED IN ORDER, BEGINNING AT 0. UP TO EIGHT UNITS CAN BE SELECTED FOR TESTING.

3.3 SOFTWARE PARAMETERS

THE FOLLOWING QUESTIONS ARE ASKED ON A START, RESTART, OR CONTINUE; THEY ALLOW FLEXIBILITY IN THE WAY THE PROGRAM BEHAVES.

CHANGE SW (L) ? <TYPE Y TO CAUSE THE FOLLOWING
QUESTIONS TO BE ASKED>

INHIBIT ITERATIONS (L) N ? <TYPE "Y" TO PREVENT MULTIPLE
ITERATIONS OF CERTAIN TESTS.
THIS CAUSES EACH TEST PASS TO
RUN AS QUICKLY AS POSSIBLE.
ONLY QUICK-RUNNING LOGIC
TESTS USE MULTIPLE
ITERATIONS.>

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OPERATING INSTRUCTIONS - SAMPLE PRINTOUTS

4.0 OPERATING INSTRUCTIONS - SAMPLE PRINTOUTS

4.1 SUCCESSFUL RUN EXAMPLE (PDP-11/LSI)

TST: 001 SPACE RECORDS TEST
TST: 002 REREADS TEST
TST: 003 WRITE DATA RETRY TEST
TST: 004 WRITE TAPE MARK TEST

0 ERRORS

NOTE: PROGRAM NOW STARTS OVER AGAIN AT TEST 1

OPERATING INSTRUCTIONS - SAMPLE ERROR MESSAGES

5.0 OPERATING INSTRUCTIONS - SAMPLE ERROR MESSAGES

ERROR MESSAGE EXAMPLE 1

TST: 001 FIFO EXERCISER TEST
 CZTUY HRD ERR 01610 ON UNIT 00 TST 016 SUB 002 PC: 040624
 FIFO STATUS (IN WORD 9) INCORRECT AFTER WRITE FIFO

TAPE BUS SIGNALS IN WORD #8: - DESIGNATOR <BIT #>
 PARERR<15> IEOT <12> IFMK <9> IRDY<6> IRWD<2>
 IRESV2<14> IIDENT<11> IHER <8> IONL<5> IFBY<1>
 IRESV1<13> ICER <10> ISPEED<7> ILDP<4> IFPT<0>

TAPE BUS SIGNALS IN WORD #9:
 DATMIS<7> ILW<6> OUTRDY<5> INRDY<4>

MESSAGE BUFFER ADDRESS = 047352

MESSAGE BUFFER CONTENTS:

WORD #0	EXPD: 100020	RECV: 100020	XOR: 000000
WORD #1	EXPD: 000012	RECV: 000012	XOR: 000000
WORD #2	EXPD: 000000	RECV: 000000	XOR: 000000
WORD #3	EXPD: 000010	RECV: 000010	XOR: 000000
WORD #4	EXPD: 000000	RECV: 000000	XOR: 000000
WORD #5	EXPD: 000000	RECV: 000000	XOR: 000000
WORD #6	EXPD: 000000	RECV: 000000	XOR: 000000
WORD #7	EXPD: 000000	RECV: 000000	XOR: 000000
WORD #8	EXPD: 070217	RECV: 070217	XOR: 000000
WORD #9	EXPD: 000074	RECV: 000034	XOR: 000040

ERROR MESSAGE EXAMPLE 2

CZTUY HRD ERR 00159 ON UNIT 00 TST 001 SUB 005 PC: 026202
 TSSR NOT CORRECT AFTER SPACE RECORDS COMMAND

TSSR = 100214

TSSR BITS SET: SC,SSR

TERMINATION CLASS CODE = UNRECOVERABLE ERROR

PACKET ADDRESS = 026420

PACKET WORD # = 140010

PACKET WORD # = 000010

PACKET WORD # = 000000

PACKET WORD # = 000024

ERROR MESSAGE EXAMPLE 3

CZTUY HRD ERR 00121 ON UNIT 00 TST 001 SUB 002 PC: 023306
 MOT BIT (XST0) NOT SET DURING REWIND (EXTENDED FEATURES MODE)
 EXPD: 000312 RECV: 000112 XOR: 000200

PROGRAM RUN TIMES

6.0 PROGRAM RUN TIMES

THE AVERAGE RUN TIMES OF THE PROGRAM ARE LISTED BELOW. THESE FIGURES ARE TO BE USED AS A GUIDE. THE TIMING WAS DONE ON A PDP-11/23 (LSI) PROCESSOR WITH A LA-34 CONSOLE.

THE PROGRAM RUNS IN TWO MODES: NO ITERATIONS AND DEFAULT MODE. IN THE NO ITERATIONS MODE, EACH TEST IS RUN ONCE, WITH NO ITERATIONS. IN THE DEFAULT MODE EACH TEST IS REPEATED BY THE NUMBER OF TIMES INDICATED BY THE ITERATION COUNT. NO ITERATIONS MODE IS SELECTED BY ANSWERING THE INHIBIT ITERATIONS QUESTION WITH A "Y" (YES).

TEST NUMBER	N/I SECS.	NUMBER ITER	DEF SECS.
1	1	1	0
2	1	1	0
3	1	1	0
4	1	1	0

THE TIMES REQUIRED TO RUN TESTS 1 THROUGH 8 IN ONE COMMAND:

Q.V.	7 MINUTES
DEFAULT	31 MINUTES

7.0 TEST SUMMARIES

7.1 TEST 1 - SPACE RECORDS TEST

 * NOTE: THIS TEST MUST HAVE A GOOD MAGTAPE IN THE DRIVE *
 * ANY TAPE ERRORS WILL BE DISPLAYED AS TAPE STATUS ALERT *

THIS TEST VERIFIES THAT THE SPACE RECORDS FORWARD AND SPACE RECORDS REVERSE POSITION COMMANDS OPERATE PROPERLY WHEN SPACING OVER NORMAL DATA RECORDS. OPERATION WHEN SPACING OVER TAPE MARKS IS VERIFIED IN A SUBSEQUENT TEST. THE BASIC WRITE DATA TEST SHOULD HAVE BEEN RUN SUCCESSFULLY FOR THIS TEST TO PRODUCE MEANINGFUL RESULTS. THIS TEST CONSISTS OF A SERIES OF SUBTESTS. IN EACH OF THE SUBTESTS, THE TAPE IS ENTIRELY WRITTEN WITH RECORDS OF VARYING SIZES AND DATA CONTENT; THE FIRST 4 BYTES OF EACH RECORD INDICATE THAT RECORD'S RELATIVE POSITION ON TAPE. AFTER EACH SPACING OPERATION, THE TAPE POSITION IS VERIFIED BY READING THE NEXT OR PREVIOUS RECORD AND COMPARING THE POSITION DATA WITH THE EXPECTED RESULT.

7.1.1 TEST 1, SUBTEST 1:-

THIS SUBTEST VERIFIES THAT A SPACE RECORDS FORWARD COMMAND WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE VOLUME CHECK FLAG (VCK) IS SET.

7.1.2 TEST 1, SUBTEST 2:-

THIS SUBTEST VERIFIES THAT A SPACE RECORDS REVERSE COMMAND WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET.

7.1.3 TEST 1, SUBTEST 3:-

THIS SUBTEST VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE ONE RECORD OFF BOT AND CAUSE BOT STATUS TO BE CLEARED.

7.1.4 TEST 1, SUBTEST 4:-

THIS SUBTEST VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE BACK OVER THE FIRST RECORD ON TAPE.

7.1.5 TEST 1, SUBTEST 5:-

THIS SUBTEST VERIFIES THAT SPACE RECORDS FORWARD CAN SPACE A MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K, OR THE MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE, WHICHEVER IS LESS.).

7.1.6 TEST 1, SUBTEST 6:-

THIS SUBTEST VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K, OR THE MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE, WHICH EVER IS LESS).

7.1.7 TEST 1, SUBTEST 7:-

THIS SUBTEST VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION WITH THE NON-EXECUTABLE FUNCTION (NEF) ERROR BIT SET.

7.1.8 TEST 1, SUBTEST 8:-

THIS SUBTEST VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT CAUSES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT TERMINATION AND SETS THE REVERSE INTO BOT (RIB) STATUS BIT.

7.2 TEST 2 - REREADS TEST

THIS TEST VERIFIES THAT THE REREAD PREVIOUS AND REREAD NEXT COMMANDS OPERATE PROPERLY. VARIOUS COMBINATIONS OF ODD AND EVEN DATA BUFFER BOUNDRIES, RECORD SIZES (UP TO 64K BYTES IF MEMORY SPACE IS AVAILIABLE), AND BYTE-SWAP (SWP) AND OPPOSITE (OPP) CONTRL ARE USED. ALSO TESTED ARE PROPER TERMINATIONS ON EXCEPTIONAL OR ERROR CONDITIONS: RECORD LENGTH LONG, RECORD LENGTH SHORT, READ REVERSE AT BOT, ILLEGAL DATA BUFFER ADDRESSES, AND DATA BUFFERS IN NONEXISTENT MEMORY.

7.2.1 TEST 2, SUBTEST 1:-

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0 AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN WITH A SERIES OF TAPE RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND AGAIN. FOR EACH RECORD THE TAPE IS SPACED FORWARD ONE RECORD AND THE REREAD PREVIOUS COMMAND IS ISSUED. RESULTS (STATUS, DATA, ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

7.2.2 TEST 2, SUBTEST 2:-

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=0 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS VERIFIED THAT DATA STORES BY THE COMMAND CONTAINS SWAPPED BYTES.

7.2.3 TEST 2, SUBTEST 3:-

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1 (READ REVERSE, SPACE FORWARD) AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST REWOUND, AND THEN WRITTEN WITH A SERIES OF TEST RECORDS OF VARYING LENGTH AND DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH TEST RECORD THE FOLLOWING SEQUENCE IS EXECUTED:

1. THE REREAD PREVIOUS COMMAND WITH OPP=1 IS ISSUED AND THE RESULTS ARE CHECKED.
2. A READ FORWARD COMMAND IS THEN ISSUED AND THE DATA IS CHECKED TO VERIFY THAT THE TAPE WAS POSITIONED PROPERLY AFTER THE REREAD PREVIOUS COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT POSITIONED AT THE START OF THE TEST RECORD.). THE READ FORWARD COMMAND LEAVES THE TAPE POSITIONED PROPERLY AT THE START OF THE NEXT RECORD.

THE BYTE COUNT ON EACH REREAD PREVIOUS COMMAND IS SET TO THE LENGTH OF THE EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

7.2.4 TEST 2, SUBTEST 4:-

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 3, BUT IT IS VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS SWAPPED BYTES.

7.2.5 TEST 2, SUBTEST 5:-

THIS SUBTEST VERIFIES THAT A REREAD PREVIOUS COMMAND READING A RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH STATES OF OPP (0 AND 1).

7.2.6 TEST 2, SUBTEST 6:-

THIS SUBTEST VERIFIES THAT A REREAD PREVIOUS COMMAND READING A RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER CONTAINS THE APPROPRIATE NONZERO VALUE (E.G. THE DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH STATES OF OPP (0 AND 1).

7.2.7 TEST 2, SUBTEST 7:-

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0 AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN

WRITTEN WITH A SERIES OF TEST RECORDS OF VARYING LENGTH AND DATA CONTENT. THE TAPE IS THEN REWOUND AGAIN. FOR EACH TEST RECORD THE TAPE IS SPACED FORWARD ONE RECORD AND A REREAD NEXT COMMAND IS ISSUED. RESULTS (STATUS, DATA, ETC.) IS VERIFIED. THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

7.2.8 TEST 2, SUBTEST 8:-

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 1, BUT IT IS VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS SWAPPED BYTES.

7.2.9 TEST 2, SUBTEST 9:-

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1 (READ FORWARD, SPACE REVERSE) AND SWB=0 OPERATES PROPERLY. THE TAPE IS FIRST REWOUND AND THEN WRITTEN WITH A SERIES OF TAPE RECORDS VARYING IN LENGTH AND DATA CONTENT; THE FIRST FOUR BYTES OF EACH RECORD CONTAIN ITS RECORD NUMBER (INDICATING POSITION ON TAPE). THE TAPE IS THEN REWOUND AGAIN. FOR EACH TEST RECORD THE FOLLOWING SEQUENCE IS EXECUTED:

1. THE REREAD NEXT COMMAND WITH OPP=1 IS ISSUED AND THE RESULT IS CHECKED.
2. A READ FORWARD COMMAND IS THEN ISSUED AND THE DATA IS CHECKED TO VERIFY THAT THE TAPE WAS POSITIONED PROPERLY AFTER THE REREAD NEXT COMMAND (E.G. THE TAPE SHOULD HAVE BEEN LEFT POSITIONED AT THE START OF THE TEST RECORD). THE READ FORWARD COMMAND LEAVES THE TAPE POSITIONED PROPERLY AT THE START OF THE NEXT TEST RECORD.

THE BYTE COUNT ON EACH REREAD NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

7.2.10 TEST 2, SUBTEST 10:-

THIS SUBTEST VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=1 AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS THE SAME AS THAT USED IN SUBTEST 3, BUT IT IS VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS SWAPPED BYTES.

7.2.11 TEST 2, SUBTEST 11:-

THIS SUBTEST VERIFIES THAT A REREAD NEXT COMMAND READING A RECORD LONGER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH LONG (RLL) BIT SET. RESULTS ARE VERIFIED FOR BOTH STATES OF OPP (1 AND 0).

7.2.12 TEST 2, SUBTEST 12:-

THIS SUBTEST VERIFIES THAT A REREAD NEXT COMMAND READING A RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE RESIDUAL BYTE COUNTER IN THE MESSAGE BUFFER CONTAINS THE PROPER NONZERO MESSAGE (E.G. THE DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH STATES OF OPP (0 AND 1).

7.2.13 TEST 2, SUBTEST 13:-

THIS SUBTEST VERIFIES THAT A DATA BUFFER ADDRESS REFERENCING NONEXISTANT MEMORY RECOVERABLE ERROR TERMINATION (TC=4 OR 5) WITH NXM=1 AND THAT THE TAPE IS ULTIMATELY POSITIONED PROPERLY. ALL COMBINATIONS OF REREAD PREVIOUS/NEXT AND OPP=0/1 ARE TESTED.

7.2.14 TEST 2, SUBTEST 14:-

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS WITH OPP=0 (SPACE REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=1 (READ REVERSE SPACE FORWARD) ISSUED WHEN THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT TERMINATION WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.

7.2.15 TEST 2, SUBTEST 15:-

THIS SUBTEST VERIFIES THAT THE REREAD PREVIOUS WITH OPP=1 (SPACE REVERSE, READ FORWARD) AND REREAD PREVIOUS WITH OPP=0 (READ REVERSE, SPACE FORWARD) ISSUED WHEN THE TAPE POSITIONED JUST BEFORE THE FIRST RECORD ON TAPE (BUT NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION WITH THE REVERSE INTO BOT (RIB) STATUS BIT SET.

7.3 TEST 3 - WRITE DATA RETRY TEST

* NOTE: THIS TAPE MUST HAVE A GOOD MAGTAPE IN THE DRIVE *
* ANY TAPE ERRORS WILL BE DISPLAYED AS TAPE STATUS ALERT. *

THIS TEST VERIFIES PROPER OPERATION OF THE WRITE DATA RETRY COMMAND (SPACE REVERSE, ERASE, WRITE DATA). THE TEST CONSISTS OF THE FOLLOWING FIVE SUBTESTS.

7.3.1 TEST 3, SUBTEST 1:-

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE THE TAPE IS POSITIONED AT BOT CAUSES FUNCTION REJECT TERMINATION WITH THE NON-EXECUTABLE FUNCTION (NEF) ERROR BIT SET.

7.3.2 TEST 3, SUBTEST 2:-

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND ISSUED WHILE THE TAPE IS POSITIONED BEFORE THE FIRST RECORD ON TAPE (BUT NOT AT BOT) CAUSES TAPE STATUS ALERT TERMINATION, WITH THE REVERSE INTO BOT (RI9) STATUS ERROR BIT SET.

7.3.3 TEST 3, SUBTEST 3:-

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=0 TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE (THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS BYTE COUNTS AND DATA PATTERNS ARE USED.

7.3.4 TEST 3, SUBTEST 4:-

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND WITH SWB=1 TERMINATES PROPERLY AND WRITES CORRECT DATA ON TAPE (THE WRITTEN RECORD IS READ AND CHECKED). VARIOUS BYTE COUNTS AND DATA PATTERNS ARE USED.

7.3.5 TEST 3, SUBTEST 5:-

THIS SUBTEST VERIFIES THAT A WRITE DATA RETRY COMMAND IS PERFORMING THE ERASE PART OF THE OPERATION BY PERFORMING THE FOLLOWING SERIES OF STEPS:

1. THE TAPE IS REWOUND AND A SERIES OF RECORDS ARE WRITTEN WITH THE NORMAL WRITE DATA COMMAND. THIS SHOULD RESULT IN RECORDS SEPERATED BY THE STANDARD INTERRECORD GAP.
2. A PROGRAM TIMING VALUE IS CALIBRATED BY REWINDING THE TAPE AND THEN CONTINUING THE NUMBER OF CYCLES THROUGH A PROGRAMMED LOOP REQUIRED TO SPACE OVER THE SERIES OF RECORDS WRITTEN IN THE PREVIOUS STEP.
3. THE TAPE IS AGAIN REWOUND AND THE SAME SERIES OF RECORDS WRITTEN AGAIN, THIS TIME USING THE WRITE DATA RETRY COMMAND. THIS HOULD RESULT IN RECORDS SEPERATED BY A LONG INTERRECORD GAP.
4. THE TAPE IS AGAIN REWOUND, THE SPACING COMMAND ISSUED, AND THE NUMBER OF TIMING LOOP CYCLES COUNTED TO COMPLETE THE OPERATION.
5. THE TWO LOOPS ARE COMPARED, CHECKING TO SEE THAT THEY DIFFER BY A SIGNIFICANT AMOUNT.

7.4 TEST 4 - WRITE/READ TAPE MARK

* NOTE: THIS TEST MUST HAVE A GOOD MAGTAPE IN THE DRIVE *

*** ANY TAPE ERRORS WILL BE DISPLAYED AS A TAPE STATUS ALERT ***

THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.

7.4.1 TEST 4, SUBTEST 1:-

THIS SUBTEST VERIFIES THAT A FORMAT COMMAND (WITH ANY LEGAL MODE CODE) WITH THE CLEAR VOLUME CHECK (CVC) BIT CLEAR IS REJECTED IF THE VOLUME CHECK (VCK) FLAG IS SET. ALL VALID MODE CODES ARE CHECKED.

7.4.2 TEST 4, SUBTEST 2:-

THIS SUBTEST VERIFIES THAT A FORMAT COMMAND WITH AN ILLEGAL MODE CODE CAUSES FUNCTION REJECT TERMINATION WITH THE ILLEGAL COMMAND (ILC) ERROR BIT SET. ALL ILLEGAL MODE CODES ARE CHECKED.

7.4.3 TEST 4, SUBTEST 3:-

THIS SUBTEST VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED TO DETECT THE WRITTEN TAPE MARK TERMINATE WITH THE TAPE STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED:

1. THE CONTROLLER IS INITIALIZED AND THE TAPE REWOUND. THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
2. A WRITE TAPE MARK COMMAND, WITH CVC=1, IS ISSUED AND PROPER TERMINATION AND STATUS IS VERIFIED (I.E. VCK=0, AND TMK=1).
3. SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH CVC=0, ARE ISSUED AND PROPER TERMINATION (NORMAL) AND STATUS (TMK) VERIFIED.
4. A READ REVERSE COMMAND IS ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS TRANSFERRED INTO MEMORY.
5. A SPACE RECORDS REVERSE COMMAND IS ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK) VERIFIED.
6. THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS

TRANSFERRED INTO MEMORY.

7. A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A RECORD COUNT GREATER THAN 1 IS ISSUED, AND IT IS VERIFIED THAT TAPE STATUS ALERT TERMINATION OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO VALUE. THIS OPERATION VERIFIES THAT DETECTION OF THE TAPE MARK CAUSE THE SPACE RECORDS OPERATION TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE POSITION JUST BEFORE THE FIRS RECORD ON THE TAPE.
8. TAPE POSITION IS VERIFIED BY ISSUING ANOTHER SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT TAPE STATUS ALERT TERMINATION OCCURS, WITH THE REVERSE INTO BOT (RIB) ERROR STATUS BIT SET.
9. A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A RECORD GREATER THAN 1 IS ISSUED AND IT IS VERIFIED THAT TAPE STATUS ALERT TERMINATION OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO VALUE. THIS OPERATION VERIFIES THAT DETECTION OF THE TAPE MARK CAUSES THE SPACE RECORDS OPERATIONS TO PREMATURELY TERMINATE.

```

791
792
798
799 000000
800
801
807 000000
808 002000 002000
809 002000 002000
810
811
812
813
814
815
816
817 002000
818 002000
002000
002000 103
002001 132
002002 124
002003 125
002004 131
002005 000
002006 000
002007 000
002010
002010 101
002011
002011 060
002012
002012 000001
002014
002014 001217
002016
002016 072246
002020
002020 072406
002022
002022 002124
002024
002024 002134
002026
002026 073350
002030
002030 000000
002032
002032 000000
002034
002034 000000
002036
002036 000000
002040
002040 072574
002042
    
```

```

.SBTTL PROGRAM HEADER
.MCALL SVC ; INITIALIZE SUPERVISOR MACROS
SVC
.ENABLE LC
.NLIST BEX,CND
.ENABL AMA,ABS
= 2000
BGNMOD TUV2A
TUV2A::

:++
: THE PROGRAM HEADER IS THE INTERFACE BETWEEN
: THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
:--

POINTER BGNSW,BGNSFT,BGNAU,BGNDU,BGNRPT,BGNSETUP
HEADER CZTUY,A,0,655,,0
LSNAME:: ;DIAGNOSTIC NAME
.ASCII /C/
.ASCII /Z/
.ASCII /T/
.ASCII /U/
.ASCII /Y/
.BYTE 0
.BYTE 0
.BYTE 0
LSREV:: ;REVISION LEVEL
.ASCII /A/
LSDEPO:: ;0
.ASCII /0/
LSUNIT:: ;NUMBER OF UNITS
.WORD TSPTHV
LSTIML:: ;LONGEST TEST TIME
.WORD 655.
LSHPCP:: ;POINTER TO H.W. QUES.
.WORD LSHARD
LSSPCP:: ;POINTER TO S.W. QUES.
.WORD LSSOFT
LSHPTP:: ;PTR. TO DEF. H.W. PTABLE
.WORD LSHW
LSSPTP:: ;PTR. TO S.W. PTABLE
.WORD LSSW
LSLADP:: ;DIAG. END ADDRESS
.WORD LSLAST
LSSTA:: ;RESERVED FOR APT STATS
.WORD 0
LSCO::
.WORD 0
LSDTYP:: ;DIAGNOSTIC TYPE
.WORD 0
LSAPT:: ;APT EXPANSION
.WORD 0
LSDTP:: ;PTR. TO DISPATCH TABLE
.WORD LSDISPATCH
LSPRIO:: ;DIAGNOSTIC RUN PRIORITY
    
```

CZTUYAO TUBO FRONT END PRT C
PROGRAM HEADER

MACRO M1200 29-MAR-83 13:43 PAGE 12-1

002042	000000				
002044		LSENV1::	.WORD	0	;FLAGS DESCRIBE HOW IT WAS SETUP
002044	000000		.WORD	0	
002046		LSEXP1::	.WORD	0	;EXPANSION WORD
002046	000000		.WORD	0	
002050		LSMREV::	.WORD	0	;SVC REV AND EDIT #
002050	003		.BYTE	CSREVISION	
002051	003		.BYTE	C\$EDIT	
002052		LSEF::			;DIAG. EVENT FLAGS
002052	000000		.WORD	0	
002054	000000		.WORD	0	
002056		LSSPC::			
002056	000000		.WORD	0	
002060		LSDEVP::			; POINTER TO DEVICE TYPE LIST
002060	003334		.WORD	0	
002062		LSREPP::			;PTR. TO REPORT CODE
002062	023062		.WORD	LSRVPT	
002064		LSEXP4::			
002064	000000		.WORD	0	
002066		LSEXP5::			
002066	000000		.WORD	0	
002070		LSAUT::			;PTR. TO ADD UNIT CODE
002070	022560		.WORD	LSAU	
002072		LSDUT::			;PTR. TO DROP UNIT CODE
002072	022656		.WORD	LSDU	
002074		LSLUN::			;LUN FOR EXERCISERS TO FILL
002074	000000		.WORD	0	
002076		LSDESP::			;PTR. TO DIAG. DESCRIPTION
002076	003342		.WORD	LSDESC	
002100		LSLOAD::			;GENERATE SPECIAL AUTOLOAD EMT
002100	104035		EMT	ESLOAD	
002102		LSETP::			;PTR. TO ERR TBL
002102	000000		.WORD	0	
002104		LSICP::			;PTR. TO INIT CODE
002104	021762		.WORD	LSINIT	
002106		LSCCP::			;PTR. TO CLEAN-UP CODE
002106	023040		.WORD	LSCLEAN	
002110		LSACP::			;PTR. TO AUTO CODE
002110	022764		.WORD	LSAUTO	
002112		LSPRT::			;PTR. TO PROTECT TABLE
002112	021752		.WORD	LSPROT	
002114		LSTEST::			;TEST NUMBER
002114	000000		.WORD	0	
002116		LSDLY::			;DELAY COUNT
002116	000000		.WORD	0	
002120		LSHIME::			;PTR. TO HIGH MEM
002120	000000		.WORD	0	

CZTUYAO TUBO FRONT END PRT C
DEFAULT HARDWARE P-TABLE

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.SBTTL DEFAULT HARDWARE P-TABLE

:+
: THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
: THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE
: IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.
:--

820
821
822
823
824
825
826
827 002122
002122 000003
002124
002124

BGNHW DFPTBL :DEFAULT HARD-P-TABLE
.WORD L10000-LSHW/2
LSHW::
DFPTBL::

828
829 002124 172522
830 002126 000224
831 002130 000240
832 002132
002132

.WORD 172522 : 2ND (OF 2) REGISTERS.
.WORD 224 : INTERRUPT VECTOR
.WORD PRI05 : INTERRUPT PRIORITY.
ENDHW
L10000:

CZTUYAO TU80 FRONT END PRT C
SOFTWARE P-TABLE

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.SBTTL SOFTWARE P-TABLE

834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849

002132
002132 000004
002134
002134
002134 000000
002136 000000
002140 000031
002142 000310
002144
002144

;++
: THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
: PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
:--
BGNSW SFPTBL
.WORD L10001-L\$SW/2
L\$SW::
SFPTBL::
TRANSTST:: .WORD 0 :ENABLE RAM DUMP IF =1
NOITS:: .WORD 0 : INHIBIT ITERATION OPTION.
: ... 0 = ITERATE.
: ...NZ = INHIBIT ITERATE.
LERRMAX:: .WORD 25. : LOCAL (PER TEST) ERROR LIMIT
GERRMAX:: .WORD 200. : GLOBAL (PER UNIT) ERROR LIMIT
ENDSW
L10001:

852
859
864
870
871
872
873
874
875
876
877
878
879
883 002144

.SBTTL GLOBAL EQUATES SECTION

.SBTTL GLOBAL EQUATES SECTION

:+
: THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
: ARE USED IN MORE THAN ONE TEST.
:--

EQUALS ; GET STANDARD EQUATES.

: BIT DIFINITIONS

100000	BIT15== 100000
040000	BIT14== 40000
020000	BIT13== 20000
010000	BIT12== 10000
004000	BIT11== 4000
002000	BIT10== 2000
001000	BIT09== 1000
000400	BIT08== 400
000200	BIT07== 200
000100	BIT06== 100
000040	BIT05== 40
000020	BIT04== 20
000010	BIT03== 10
000004	BIT02== 4
000002	BIT01== 2
000001	BIT00== 1

001000	BIT9== BIT09
000400	BIT8== BIT08
000200	BIT7== BIT07
000100	BIT6== BIT06
000040	BIT5== BIT05
000020	BIT4== BIT04
000010	BIT3== BIT03
000004	BIT2== BIT02
000002	BIT1== BIT01
000001	BIT0== BIT00

: EVENT FLAG DEFINITIONS
: EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION

000040	EF.START== 32.	: START COMMAND WAS ISSUED
000037	EF.RESTART== 31.	: RESTART COMMAND WAS ISSUED
000036	EF.CONTINUE== 30.	: CONTINUE COMMAND WAS ISSUED
000035	EF.NEW== 29.	: A NEW PASS HAS BEEN STARTED
000034	EF.PWR== 28.	: A POWER-FAIL/POWER-UP OCCURRED

: PRIORITY LEVEL DEFINITIONS

CZTUYAO TUBO FRONT END PRT C
GLOBAL EQUATES SECTION

MACRO M1200 29-MAR-83 13:43 PAGE 16-1

```
000340
000300
000240
000200
000140
000100
000040
000000
```

```
PRI07== 340
PRI06== 300
PRI05== 240
PRI04== 200
PRI03== 140
PRI02== 100
PRI01== 40
PRI00== 0
```

OPERATOR FLAG BITS

```
000004
000010
000020
000040
000100
000200
000400
001000
002000
004000
010000
020000
040000
100000
```

```
EVL== 4
LOT== 10
ADR== 20
IDU== 40
ISR== 100
UAM== 200
BOE== 400
PNT== 1000
PRI== 2000
IXE== 4000
IBE== 10000
IER== 20000
LOE== 40000
HOE== 100000
```

884
885 002144

```
000250
177572
177574
177576
172516
```

```
KT11 :DEFINE MEMORY MANAGEMENT REGISTERS
.SBTTL MEMORY MANAGEMENT DEFINITIONS
:*KT11 VECTOR ADDRESS
MMVEC= 250
:*KT11 STATUS REGISTER ADDRESSES
SR0= 177572
SR1= 177574
SR2= 177576
SR3= 172516
.IF NB
:*USER 'I' PAGE DESCRIPTOR REGISTERS
UIPDR0= 177600
UIPDR1= 177602
UIPDR2= 177604
UIPDR3= 177606
UIPDR4= 177610
UIPDR5= 177612
UIPDR6= 177614
UIPDR7= 177616
.IF NB
:*USER 'D' PAGE DESCRIPTOR REGISTERS
UDPDR0= 177620
UDPDR1= 177622
UDPDR2= 177624
UDPDR3= 177626
UDPDR4= 177630
UDPDR5= 177632
UDPDR6= 177634
UDPDR7= 177636
.ENDC
:*USER 'I' PAGE ADDRESS REGISTERS
```


CZTUYAO TUBO FRONT END PRT C
MEMORY MANAGEMENT DEFINITIONS

MACRO M1200 29-MAR-83 13:43 PAGE 16-2

```
UIPAR0= 177640
UIPAR1= 177642
UIPAR2= 177644
UIPAR3= 177646
UIPAR4= 177650
UIPAR5= 177652
UIPAR6= 177654
UIPAR7= 177656
. IF NB
;*USER 'D' PAGE ADDRESS REGISTERS
UDPAR0= 177660
UDPAR1= 177662
UDPAR2= 177664
UDPAR3= 177666
UDPAR4= 177670
UDPAR5= 177672
UDPAR6= 177674
UDPAR7= 177676
. ENDC
. ENDC
. IF NB
;*SUPERVISOR 'I' PAGE DESCRIPTOR REGISTERS
SIPDR0= 172200
SIPDR1= 172202
SIPDR2= 172204
SIPDR3= 172206
SIPDR4= 172210
SIPDR5= 172212
SIPDR6= 172214
SIPDR7= 172216
. IF NB
;*SUPERVISOR 'D' PAGE DESCRIPTOR REGISTERS
SDPDR0= 172220
SDPDR1= 172222
SDPDR2= 172224
SDPDR3= 172226
SDPDR4= 172230
SDPDR5= 172232
SDPDR6= 172234
SDPDR7= 172236
. ENDC
;*SUPERVISOR 'I' PAGE ADDRESS REGISTERS
SIPAR0= 172240
SIPAR1= 172242
SIPAR2= 172244
SIPAR3= 172246
SIPAR4= 172250
SIPAR5= 172252
SIPAR6= 172254
SIPAR7= 172256
. IF NB
;*SUPERVISOR 'D' PAGE ADDRESS REGISTERS
SDPAR0= 172260
SDPAR1= 172262
SDPAR2= 172264
SDPAR3= 172266
SDPAR4= 172270
```

CZTUYAO TUBO FRONT END PRT C
MEMORY MANAGEMENT DEFINITIONS

MACRO M1200 29-MAR-83 13:43 PAGE 16-3

```

SDPAR5= 172272
SDPAR6= 172274
SDPAR7= 172276
.ENDC
.ENDC
;*KERNEL 'I' PAGE DESCRIPTOR REGISTERS
172300 KIPDR0= 172300
172302 KIPDR1= 172302
172304 KIPDR2= 172304
172306 KIPDR3= 172306
172310 KIPDR4= 172310
172312 KIPDR5= 172312
172314 KIPDR6= 172314
172316 KIPDR7= 172316
.IF NB
;*KERNEL 'D' PAGE DESCRIPTOR REGISTERS
KDPDR0= 172320
KDPDR1= 172322
KDPDR2= 172324
KDPDR3= 172326
KDPDR4= 172330
KDPDR5= 172332
KDPDR6= 172334
KDPDR7= 172336
.ENDC
;*KERNEL 'I' PAGE ADDRESS REGISTERS
172340 KIPAR0= 172340
172342 KIPAR1= 172342
172344 KIPAR2= 172344
172346 KIPAR3= 172346
172350 KIPAR4= 172350
172352 KIPAR5= 172352
172354 KIPAR6= 172354
172356 KIPAR7= 172356
.IF NB
;*KERNEL 'D' PAGE ADDRESS REGISTERS
KDPAR0= 172360
KDPAR1= 172362
KDPAR2= 172364
KDPAR3= 172366
KDPAR4= 172370
KDPAR5= 172372
KDPAR6= 172374
KDPAR7= 172376
.ENDC

```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 17
 TU80 REGISTER AND PACKET DEFINITIONS

```

890                                     .SBTTL TU80 REGISTER AND PACKET DEFINITIONS
891
892                                     ;:
893                                     ;: SOME GENERAL EQUATES.
894                                     ;:
895
896         000004      ERRVEC==          4          ;: POINTER TO ERROR VECTOR FOR BUS TIME OUT.
897         000060      TTIVEC==         60          ;: INTERRUPT VECTOR FOR CONSOLE INPUT
898         177560      TTICSR==        177560       ;: BUS ADDRESS OF CONSOLE INPUT
899         177562      TTIBFR==        177562       ;: CONSOLE INPUT DATA BUFFER
900
901                                     ;:
902                                     ;: +
903                                     ;: BIT DEFINITIONS FOR TSSR REGISTER
904                                     ;: -
905
906         100000      SC=          BIT15          ;: SPECIAL CONDITION
907         040000      BIE=          BIT14          ;: BUS INTERFACE ERROR
908         020000      SCE=          BIT13          ;: SANITY CHECK ERROR
909         010000      RMR=          BIT12          ;: MODIFICATION REFUSED
910         004000      NXM=          BIT11          ;: NONEXISTANT MEMORY ERROR
911         002000      NBA=          BIT10          ;: NEED BUFFER ADDRESS
912         001400      HIADDR=       BIT9!BIT8      ;: EXTENDED ADDRESS BITS
913         000200      SSR=          BIT7           ;: SUB SYSTEM READY
914         000100      OFL=          BIT6           ;: OFF LINE BIT
915         000060      FATERR=       BIT4!BITS      ;: FATAL TERMINATION ERROR CODES
916         000016      TERCLS=       BIT3!BIT2!BIT1 ;: TERMINATION CODES
917
918                                     ;:
919                                     ;: +
920                                     ;: BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 0
921                                     ;: (XST0)
922                                     ;:
923                                     ;: -
924
925         100000      XSOTMK=        BIT15         ;: TAPE MARK DETECTED
926         040000      XSORLS=        BIT14         ;: RECORD LENGTH SHORT
927         020000      XSOLET=        BIT13         ;: LOGICAL END OF TAPE
928         010000      XSORLL=        BIT12         ;: RECORD LENGTH LONG
929         004000      XSOWLE=        BIT11         ;: WRITE LOCK ERROR
930         002000      XSONEF=        BIT10         ;: NON EXECUTABLE FUNCTION
931         001000      XSOILC=        BIT9          ;: ILLEGAL COMMAND
932         000400      XSOILA=        BIT8          ;: ILLEGAL ADDRESS
933         000200      XSOMOT=        BIT7          ;: TAPE IN MOTION
934         000100      XSOONL=        BIT6          ;: TRANSPORT ON LINE
935         000040      XSOIE=         BIT5          ;: INTERRUPT ENABLE
936         000020      XSOVCK=        BIT4          ;: VOLUME CHECK BIT
937         000010      XSOPED=        BIT3          ;: PHASE ENCODED DRIVE
938         000004      XSOWLK=        BIT2          ;: WRITE LOCKED
939         000002      XSOBOT=        BIT1          ;: BEGINNING OF TAPE
940         000001      XSOEOT=        BIT0          ;: END OF TAPE
941
942                                     ;:
943                                     ;: +
944                                     ;: BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 1
945                                     ;: (XST1)
946                                     ;: -

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 17-1
TUBO REGISTER AND PACKET DEFINITIONS

```

947      100000      X1.DLT = BIT15      ;DATA LATE
948      040000      X1.SPARE= BIT14      ;NOT USED
949      020000      X1.COR  = BIT13      ;CORRECTABLE DATA ERROR
950      017375      X1.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT0 ;ALWAYS 0
951      000400      X1.RBP  = BIT8      ;READ BUS PARITY ERROR
952      000002      X1.UNC  = BIT1      ;UNCORRECTABLE DATA OR HARD ERROR
953
954      ;+
955      ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 2
956      ;(XST2)
957      ;-
958      100000      X2.OPM  = BIT15      ;OPERATION IN PROGRESS (TAPE MOVING)
959      040000      X2.RCE  = BIT14      ;RAM CHECKSUM ERROR
960      035400      X2.SPARE= BIT13+BIT12+BIT11+BIT9+BIT8 ;NOT USED BY TUBO (ALWAYS=0)
961      002000      X2.WCF  = BIT10      ;WRITE CLOCK FAILURE (FIFO NOT EMPTIED BY TRANSPORT)
962      000200      X2.EXTF = BIT7      ;IF WRITE CHAR CMD THEN = EXTENDED FEATURES ENABLED
963      000100      X2.BUFE = BIT6      ;IF WRITE CHAR CMD THEN = BUFFERING ENABLED
964      000077      X2.REV  = 000077    ;IF WRITE CHAR CMD THEN = MICROCODE REVISION LEVEL
965      000007      X2.UNIT = BIT2+BIT1+BIT0 ;IF GET STATUS THEN = CURRENTLY SELECTED UNIT NO.
966
967      ;+
968      ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 3
969      ;(XST3)
970      ;-
971      177400      X3.MDE  = 177400    ;MICRO-DIAGNOSTIC ERROR CODE
972      000200      X3.SPARE= BIT7      ;NOT USED BY TUBO
973      000100      X3.OPI  = BIT6      ;OPERATION INCOMPLETE
974      000040      X3.REV  = BIT5      ;REVERSE
975      000020      X3.TRF  = BIT4      ;TRANSPORT RESPONSE FAILURE
976      000010      X3.DCK  = BIT3      ;DENSITY CHECK
977      000006      X3.MBZ  =BIT2+BIT1  ;NOT USED ALWAYS 0
978      000001      X3.RIB  = BIT0      ;REVERSE INTO BOT
979
980      ;+
981      ;BIT DEFINITIONS FOR EXTENDED STATUS REGISTER 4
982      ;(XST4)
983      ;-
984      100000      X4.HSP  = BIT15      ;HIGH SPEED
985      040000      X4.RCE  = BIT14      ;RETRY COUNT EXCEEDED
986      020000      X4.TSM  = BIT13      ;TRANSPORT SPECIAL MODE
987      017400      X4.MBZ  = BIT12+BIT11+BIT10+BIT9+BIT8 ;NOT USED ALWAYS 0
988      000377      X4.WRC  = 000377    ;WRITE RETRY COUNT FIELD
989
990
991      ;+
992      ;TSSR TERMINATION CODES (BIT 0-2)
993      ;-
994
995
996
997      000006      TSREJ= 3*2      ;COMMAND REJECTED
998      000006      UNREC= 6      ;UNRECOVERABLE ERROR
999
1000
1001      ;+
1002      ;DEVICE REGISTER OFFSETS
1003

```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 17-2
 TU80 REGISTER AND PACKET DEFINITIONS

```

1004      :-
1005
1006      177776      TSBA== -2
1007      177776      TSBAL== -2
1008      177776      TSDB== -2      :TSDB/TSBA REGISTER
1009      177776      TSDBL== -2     :TSDB/TSBA REGISTER
1010      177777      TSBAH== -1
1011      177777      TSDBH== -1     :TSDB/TSBA REGISTER HIGH BYTE
1012      000000      TSSR== 0      :TSSR REGISTER
1013      000001      TSSRH== 1     :TSSR REGISTER HIGH BYTE
1014
1015      :-+
1016      :-+ TSDB ADDRESS BIT DEFINITIONS
1017      :-+
1018      000003      A1716 = BIT1+BIT0      :ADDRESS BITS 17:16 ARE IN 1:0
1019
1020      :-+
1021      :-+ COMMAND DEFINITIONS
1022      :-+
1023      000017      P.GETSTAT = 17      :GET STATUS
1024      000013      P.INIT = 13        :INITIALIZE
1025      000012      P.CONTROL = 12     :CONTROL COMMANDS
1026      000011      P.FORMAT = 11     :FORMAT
1027      000010      P.POSITION = 10   :POSITION
1028      000006      P.WRTSUB = 6      :SUBSYSTEM WRITE
1029      000005      P.WRITE = 5       :WRITE
1030      000004      P.WRTCHAR = 4    :WRITE CHARACTERISTICS
1031      000001      P.READ = 1       :READ
1032
1033      :-+
1034      :-+ COMMAND PACKET HEADER WORD BIT DEFINITIONS
1035      :-+
1036      100000      P.ACK = BIT15      :BUFFER AVAIL FOR CONTROLLER
1037      040000      P.CVC = BIT14     :CLEAR VOLUME CHECK
1038      020000      P.OPP = BIT13     :REVERSE SEQUENCE OF DATA BITS
1039      010000      P.SWB = BIT12    :SWAP BYTES IN MEMORY
1040      007400      P.MODE = BIT11!BIT10!BIT9!BIT8 :EXTENDED COMMAND MODE FIELD
1041      000200      P.IE = BIT7      :INTERRUPT ENABLE
1042      000140      P.FMT= BIT6!BIT5  :PACKET HEADER TYPE (ALWAYS=0)
1043      000037      P.CMD = 37       :MAJOR COMMAND FIELD
1044
1045      :-+
1046      :-+ CONTROL COMMAND MODE CODES
1047      :-+
1047      000000      PC.RELEASE = 0*256. :RELEASE BUFFER
1048      000400      PC.REWIND = 1*256. :REWIND
1049      001000      PC.NOOP = 2*256.  :NO-OP
1050      002000      PC.IEREW = 4*256. :REWIND IMMEDIATE INTERRUPT
1051      002400      PC.ERASE = 5*256. :SECURITY ERASE
1052
1053      :-+
1054      :-+ CONTROLLER RAM DEFINITIONS
1055      :-+
1056      000167      RMCHBEG = 167      :CHARACTERISTICS IO DATA BEGIN RAM ADDRESS
1057      000200      RMCHEND = 200     :CHARACTERISTICS IO DATA END RAM ADDRESS
1058      000020      RMPKTBEGBEG= 20   :COMMAND PACKET BEGIN RAM ADDRESS
1059      000027      RMPKTBEGETD= 27   :COMMAND PACKET END RAM ADDRESS
1060      000104      RMMSGBEG= 104     :MESSAGE BUFFER BEGIN RAM ADDRESS

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 17-3
 TUBO REGISTER AND PACKET DEFINITIONS

```

1061      000117      RMMSGEND= 117      ;MESSAGE BUFFER END RAM ADDRESS
1062      :+
1063      :
1064      :REGISTER DEFINITIONS IN THE MESSAGE BUFFER
1065      :
1066      :-
1067
1068      000006      XST0== 6      ;EXTENDED STATUS REGISTER C (WORD 4)
1069      000010      XST1== 8      ;EXTENDED STATUS REGISTER 1 (WORD 5)
1070      000012      XST2== 10     ;EXTENDED STATUS REGISTER 2 (WORD 6)
1071      000014      XST3== 12     ;EXTENDED STATUS REGISTER 3 (WORD 7)
1072      000016      XST4== 14     ;EXTENDED STATUS REGISTER 4 (WORD 8)
1073
1074
1075      :+
1076      :
1077      :OFFSETS TO WORD LOCATIONS IN PACKET DEFINITIONS
1078      :
1079      :-
1080
1081      000002      PKLOW  = 2      ;LOW ORDER CHARACTERISTIC DATA POINTER
1082      000004      PKHI   = 4      ;HIGH ORDER CHARACTERISTIC DATA POINTER
1083      000006      PKBCNT = 6      ;NUMBER OF BYTES IN DATA PACKET
1084
1085      000010      EXBCNT=10      ;NUMBER OF BYTES IN EXTENDED DATA PACKET
1086
1087      :+
1088      :DATA PACKET OFFSETS FOR WRITE SUBSYSTEM COMMAND
1089      :
1090      :-
1091      000000      BSELO  = 0      ;BYTE 0
1092      000001      BSEL1  = 1      ;BYTE 1
1093      000002      SEL2   = 2      ;WORD 2
1094      000004      SELDATA = 4      ;WORD 3
1095
1096      :+
1097      :BSELO SELECT CODES FOR WRITE SUBSYSTEM COMMAND
1098      :
1099      :-
1100      000000      PW.NOP   = 0      ;NO-OP
1101      000001      PW.RDRAM = 1      ;READ RAM
1102      000002      PW.WTRAM = 2      ;WRITE RAM
1103      000003      PW.RFIFO = 3      ;READ FIFO
1104      000004      PW.WFIFO = 4      ;WRITE FIFO
1105      000005      PW.RDSTAT = 5      ;READ STATUS
1106      000006      PW.WCTL  = 6      ;WRITE TAPE CONTROL
1107      000007      PW.WFMT  = 7      ;WRITE TAPE FORMAT
1108      000010      PW.WMISC = 10     ;WRITE MISCELLANEOUS
1109      000011      PW.WNPR  = 11     ;WRITE NPR CONTROL
1110      000020      PW.D22   = 20     ;DO MICROTEST 22
1111      000021      PW.D11   = 21     ;DO MICROTEST 11
1112      000022      PW.D13   = 22     ;DO MICROTEST 13
1113      000023      PW.NO1311 = 23    ;DISABLE MICROTEST 11 AND 13
1114      000024      PW.RDXT  = 24     ;READ EXT. TAPE STATUS (NOT SUPPORTED BY ALL TRANSP
1115
1116      :+
1117      :BSEL1 CODES FOR WRITE TAPE CONTROL
1118      :
1119      :-
1120      000200      WC.IFAD   = BIT7    ;IFAD - FORMATTER ADDRESS

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 17-4
TUBO REGISTER AND PACKET DEFINITIONS

1113	000100	WC.I0TAD	= BIT6	:ITADO	- TRANSPORT ADDRESS BIT 0
1119	000040	WC.I1TAD	= BIT5	:ITAD1	- TRANSPORT ADDRESS BIT 1
1120	000020	WC.I5RESV	= BIT4	:IRESV5	- RESERVED #5
1121	000010	WC.IREW	= BIT3	:IREW	- REWIND
1122	000004	WC.IRWU	= BIT2	:IRWU	- REWIND AND UNLOAD
1123	000002	WC.IFEN	= BIT1	:IFEN	- FORMATTER ENABLE
1124	000001	WC.IGO	= BIT0	:GO	
1125					
1126		:+			
1127		:BSEL1 CODES FOR WRITE FORMAT			
1128		:-			
1129	000200	WF.IHISP	= BIT7	:IHISP	- HIGH SPEED
1130	000100	WF.IWRT	= BIT6	:IWRT	- WRITE
1131	000040	WF.IREV	= BIT5	:IREV	- REVERSE
1132	000020	WF.IWFM	= BIT4	:IWFM	- WRITE FILE MARK
1133	000010	WF.IEDIT	= BIT3	:IEDIT	- EDIT
1134	000004	WF.IERASE	= BIT2	:IERASE	- ERASE
1135	000002	WF.I3RESV	= BIT1	:IRESV3	- RESERVED #3
1136	000001	WF.I4RESV	= BIT0	:IRESV4	- RESERVED #4
1137					
1138					
1139		:+			
1140		:BSEL1 CODES FOR WRITE MISCELLANEOUS SUBCOMMAND			
1141		:-			
1142	000200	MS.EXT	= BIT7	:INVERT SENSE OF EXTENDED FEATURES SWITCH	
1143	000020	MS.RSFIFO	= BIT4	:RESET FIFO AND INPUT PARITY ERRORR	
1144	000010	MS.RSTAPE	= BIT3	:RESET TAPE STATUS IN 2 FLIP-FLOPS	
1145	000006	MS.ATTN	= BIT2!BIT1	:ATTENTION TRIGGER FIELD	
1146	000001	MS.RSD	= BIT0	:RESET TIMER A,B THEN DELAY TIMES IN SEL2	
1147					
1148		:+			
1149		:MS.ATTN SUBCODES			
1150	000000				
1151	000002	MSA.NOP = 0*2		:NO-OP (NOTHING TRIGGERED)	
1152	000004	MSA.VOL = 1*2		:SIMULATE ON-LINE/OFF-LINE TRANSITION	
1153	000006	MSA.NRAM= 2*2		:FORCE NON-FATAL RAM ERROR (FORCES ERRCODE 54)	
1154		MSA.FRAME= 3*2		:FORCE FATAL RAM ERROR (CAUSES SCE TO SET)	
1155					
1156		:+			
1157	000200	NP.IR	= BIT7	:INTERRUPT REQUEST (0-1 TRANSITION)	
1158	000100	NP.OUT	= BIT6	:TAPE DATA DIRECTION OUT (0= IN)	
1159	000040	NP.LOOP	= BIT5	:ENABLE TRANSPORT LOOPBACK	
1160	000020	NP.WRP	= BIT4	:WRITE CORRECT PARITY (SET=0 TO WRITE WRONG)	
1161					
1162		:+			
1163		:READ STATUS MESSAGE BUFFER BIT DEFINITIONS			
1164		:-			
1165	000200	S2.DIM	= BIT7	:WORD #9 BYTE 2 DATA IN MISS	
1166	000100	S2.ILW	= BIT6	:ILW H	
1167	000040	S2.OURDY	= BIT5	:OUT RDY H	
1168	000020	S2.INRDY	= BIT4	:IN RDY H	
1169	000010	S2.ATIMR	= BIT3	:TIMER A FLAG H	
1170	000004	S2.BTIMR	= BIT2	:TIMER B FLAG H	
1171	000003	S2.UNDEF	= BIT1+BIT0	:(UNDEFINED)	
1172	100000	S1.PARIN	= BIT15	:WORD #8 BYTE 1 PARIN H	
1173	040000	S1.I2RESV	= BIT14	:IRESV2	
1174	020000	S1.I1RESV	= BIT13	:IRESV1	

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 17-5
 TUBO REGISTER AND PACKET DEFINITIONS

1175	010000	S1.IEOT	= BIT12	:	IEOT L
1176	004000	S1.IIDENT	= BIT11	:	IIDENT H
1177	002000	S1.ICER	= BIT10	:	ICER H
1178	001000	S1.IFMK	= BIT9	:	IFMK H
1179	000400	S1.IHER	= BIT8	:	IHER H
1180	000200	SO.ISPEED	= BIT7	:	ISPEED H
1181	000100	SO.IRDY	= BIT6	:	IRDY L
1182	000040	SO.IONL	= BIT5	:	IONL L
1183	000020	SO.ILDP	= BIT4	:	ILDP L
1184	000010	SO.IDBY	= BIT3	:	IDBY L
1185	000004	SO.IRWD	= BIT2	:	IRWD L
1186	000002	SO.IFBY	= BIT1	:	IFBY L
1137	000001	SO.IFPT	= BIT0	:	IFPT L
1188		:		:	
1189		:		:	
1190	177560	TKS	=177560	:	:KEYBOARD STATUS REGISTER
1191	177562	TKB	=177562	:	:KEYBOARD DATA REGISTER
1192	177564	TPS	=177564	:	:CONSOLE PRINTER STATUS REGISTER
1193	177566	TPB	=177566	:	:CONSOLE PRINTER DATA REGISTER
1194	007776	HIMEM	=007776	:	:HIGH MEMORY MASK VALUE
1195		:		:	
1196	174400	CSR	=174400	:	:STATUS AND CONTROL REGISTER
1197	174402	BAR	=174402	:	:DL ADDRESS REGISTER
1198	174404	DAR	=174404	:	:PLATTER ADDRESS
1199	174406	MPR	=174406	:	:MULTIPURPOSE REGISTER
1200		:		:	
1201		:		:	
1202		:		:	
1203	000004	DLGETS	=4	:	:GET STATUS COMMAND
1204	000006	SEEK	=6	:	:SEEK TRACK AND HEAD SELECT
1205	000010	DLRDHD	=10	:	:READ SECTOR HEADER
1206	000014	READ	=14	:	:READ COMMAND
1207	000016	DLRDNH	=16	:	:READ SECTOR NO HEADER CHECK
1208		:		:	
1209	000001	READY	=1	:	:DRIVE READY BIT IN STATUS REG.
1210	000013	DLSR	=13	:	:STATUS AND RESET
1211	177730	DLEPR	=177730	:	:MASK FOR COVER OPEN
1212	000006	DLUN	=6	:	:HEADS UNLOADED
1213	000177	DLCYL	=000177	:	:MASK FOR CYLINDER ADDRESS
1214	100200	DLDNER	=100200	:	:DONE SET OR ERROR SET BITS
1215		:		:	
1216	072604	ROMBASE	= MOVER	:	:START OF THE BOOT ROM 00000
1217	177560	TTICSR	= 177560	:	:KEYBOARD INPUT STATUS
1218	177562	TTIBFR	= 177562	:	:KEYBOARD DATA REGISTER
1219	177564	TTOCSR	= 177564	:	:CONSOLE PRINTER STATUS REGISTER
1220	177566	TTOBFR	= 177566	:	:CONSOLE PRINTER DATA REGISTER

CZTUYAO TUBO FRONT END PRT C
SPECIAL MACROS AND OPDEFS.

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```

1222                .SBTTL SPECIAL MACROS AND OPDEFS.
1223
1224
1225                :+
1226                :SAVE GENERAL REGS 1 TO 5
1227                :-
1228
1229                .MACRO SAVREG
1230                JSR    R5,REGSAV
1231                .ENDM
1232
1233                :+
1234                :MACRO TO FORCE AN ERROR
1235                :-
1236                .MACRO FORCERROR TAG,NOTSSR
1237                .NLIST
1238                .IIF NDF LISTALL, .NLIST
1239                .LIST
1240                .IF B NOTSSR
1241                MOV    TSSR(R5),R1                ;READ TSSR
1242                .ENDC
1243                MOV    FORCER,FORCER                ;IS FORCER SET? (LEAVE C BIT ALONE)
1244                BNE    TAG                ;BR IF YES
1245                .NLIST
1246                .IIF NDF LISTALL, .LIST
1247                .LIST
1248                .ENDM
1249
1250                :+
1251                :MACRO TO FORCE AN EXIT TO AVOID SECTION ITERATIONS
1252                :WILL EXIT TO A LABEL IF FORCER IS NEGATIVE
1253                :SO TO FORCE ERRORS AND EXIT ON 1 ERROR SET
1254                :FORCER TO 177777
1255                :TO FORCE ERRORS AND ITERATIONS SET FORCER TO 1.
1256                :-
1257                .MACRO FORCEEXIT TAG
1258                .NLIST
1259                .IIF NDF LISTALL, .NLIST
1260                .LIST
1261                MOV    FORCER,FORCER                ;IS FORCER NEGATIVE?
1262                BMI    TAG                ;BR IF YES
1263                .NLIST
1264                .IIF NDF LISTALL, .LIST
1265                .LIST
1266                .ENDM
1267                :+
1268                :MACRO TO INCREMENT ERROR COUNTS
1269                :-
1270                .MACRO NEXT.ERRNO
1271                .NLIST
1272                ::::IIF NDF LISTALL, .NLIST
1273                :ERRNO=ERRNO+1
1274                ::::IIF NDF LISTALL, .LIST
1275                .LIST
1276                .ENDM
1277
1278                :+

```

CZTUYAO TUBO FRONT END PRT C
SPECIAL MACROS AND OPDEFS.

MACRO M1200 29-MAR-83 13:43 PAGE 18-1

```

1279          ;MACRO TO PERFORM XOR
1280          ;-
1281
1282          .MACRO XOR      A,B
1283          MOV      A,-(SP)
1284          BIC      B,(SP)
1285          BIC      A,B
1286          BIS      (SP)+,B
1287          .ENDM
1288
1289          000000          EN=0          ; INITIALIZE ERROR NUMBER
1290          .SBTTL FORCER - FORCE ERROR FLAG
1291
1292          ;
1293          ; THE FOLLOWING LOCATIONS MAY BE PATCHED BY THE USER
1294          ; TO OBTAIN THE RESULTS DESCRIBED FOR EACH.
1295          ;
1296
1297          002144 000000 FORCER::      0          ; FORCE TYPE ALL HARD ERRORS (THE ONES CALLED -
1298          ; - BY THE MACRO "IFERROR"). AN ERROR NEED NOT -
1299          ; - EXIST, JUST ASSUME AND TYPE THE MESSAGE.
1300
1301
1302

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 19
GLOBAL DATA SECTION

.SBTTL GLOBAL DATA SECTION

```

1304
1305
1306      :++
1307      :THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
1308      :IN MORE THAN ONE TEST.
1309      :--
1310
1311      :
1312      :THE FOLLOWING DATA ARE SET FOR EACH UNIT AT INIT TIME.
1313      :SINGLE UNIT DEFAULTS (LISTED) ARE IN THE DEFAULT P-TABLE.
1314      :
1315 002146 000000  EPRTSW::      .WORD 0      :PRINT SWITCH
1316 002150 000000  UNITN::      .WORD 0      :UNIT # UNDER TEST.
1317 002152 000000  QVP::      .WORD 0      :QUICK VERIFY FLAG.
1318 002154 000000  CSRADDR::   .WORD 0      :ADDRESS OF CSR FOR CURRENT DEVICE
1319 002156 000224  IVEC::      .WORD 224    :INTERRUPT VECTOR
1320 002160 000200  IPRI::      .WORD PRI04  :INTERRUPT PRIORITY.
1321 002162 000000  TSTCNT::   .WORD 0      :NUMBER OF TESTS RUN IN THIS PASS
1322 002164 000000  LOOPCNT::  .WORD 0      :REMAINING ITERATION COUNT FOR TEST
1323 002166 000000  DEVCNT::   .WORD 0      :NUMBER OF DEVICE UNDER TEST
1324 002170 000000  FATFLG::   .WORD 0      :SET IF FATAL ERROR IS DETECTED IN TEST
1325 002172 000000  INTRECV::  .WORD 0      :SET IF TAPE INTERRUPT WAS RECEIVED
1326 002174 000000  BENBSW::   .WORD 0      :BUFFER ENABLE SWITCH SW 0=OFF;1=ON
1327 002176 000000  EXPD::     .WORD 0      :EXPECTED RAM DATA FOR PRAMPKT ROUTINE
1328 002200 000000  RECV::     .WORD 0      :RECEIVED RAM DATA FOR PRAMPKT ROUTINE
1329 002202 000000  ERRHI::    .WORD 0      :HIGH ADDRESS MEMORY ERROR
1330 002204 000000  ERRLO::    .WORD 0      :LOW ADDRESS MEMORY ERROR
1331 002206 000000  RAMDATA::  .BLKW 16.    :DATA READ FROM RAM PACKET OR MESSAGE BUF AREA
1332 002246 000000  RAMSIZ::   .WORD 0      :RAM DATA SIZE FOR PRAMPKT ROUTINE
1333 002250 000000  RCVHIADD:: .WORD 0      :RECEIVED BUFFER HIGH ADDRESS
1334 002252 000000  RCVLOADD:: .WORD 0      :RECEIVED BUFFER LOW ADDRESS
1335 002254 000000  COUNT::    .WORD 0      :TEST COUNT PATTERN
1336 002256 000000  DATA::    .WORD 0      :TEST DATA
1337 002260 000000  TSTFLAG::  .WORD 0      :TEST FLAG WORD
1338 002262 000000  TSTPTR::   .WORD 0      :TSTBLK POINTER
1339 002264 000000  PRMNO::    .WORD 0      :PRINT ROUTINE TEMP
1340 002266 000000  EXPMSG::   .BLKB 100.   :EXPECTED MESSAGE BUFFER DATA
1341 002432 000000  RECMSG::   .BLKB 100.   :RECEIVED MESSAGE BUFFER DATA
1342 002576 000000  TI 3FR::   .BLKB 80.    :TEMPORARY STORAGE FOR PRINT
1343 002716 000000  MESBFA::   .WORD 0      :STORES ADDRESS OF MESSAGE BUFFER FOR ERR PRT

```

CZTUYAO TUBO FRONT END PRT C
TSTBLK - TEST DATA TABLE

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.SBTTL TSTBLK - TEST DATA TABLE

```

1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1360
1361 002720
1362 002720 000000
1363 002722 177777
1364 002724 000001
1365 002726 000002
1366 002730 000004
1367 002732 000010
1368 002734 000020
1369 002736 000040
1370 002740 000100
1371 002742 000200
1372 002744 000400
1373 002746 001000
1374 002750 002000
1375 002752 004000
1376 002754 010000
1377 002756 020000
1378 002760 040000
1379 002762 100000
1380 002764 177776
1381 002766 177775
1382 002770 177773
1383 002772 177767
1384 002774 177757
1385 002776 177737
1386 003000 177677
1387 003002 177577
1388 003004 177377
1389 003006 176777
1390 003010 175777
1391 003012 173777
1392 003014 167777
1393 003016 157777
1394 003020 137777
1395 003022 077777
1396 003024 125252
1397 003026 052525
1398 003030

```

```

: +
: THIS TABLE CONTAINS TEST DATA USED IN SEVERAL TESTS
: IN SEQUENCE THE DATA IS:
:
: ALL ZEROS
: ALL ONES
: WALKING ONES
: WALKING ZEROS
: ALTERNATING ONES AND ZEROS
: -

```

TSTBLK::

```

.WORD 0
.WORD 177777
.WORD BIT0
.WORD BIT1
.WORD BIT2
.WORD BIT3
.WORD BIT4
.WORD BIT5
.WORD BIT6
.WORD BIT7
.WORD BIT8
.WORD BIT9
.WORD BIT10
.WORD BIT11
.WORD BIT12
.WORD BIT13
.WORD BIT14
.WORD BIT15
.WORD ^CBIT0
.WORD ^CBIT1
.WORD ^CBIT2
.WORD ^CBIT3
.WORD ^CBIT4
.WORD ^CBIT5
.WORD ^CBIT6
.WORD ^CBIT7
.WORD ^CBIT8
.WORD ^CBIT9
.WORD ^CBIT10
.WORD ^CBIT11
.WORD ^CBIT12
.WORD ^CBIT13
.WORD ^CBIT14
.WORD ^CBIT15
.WORD 125252
.WORD 052525

```

```

:ALL ZEROS
:ALL ONES
:DATA FOR WALKING ONES

```

:DATA FOR WALKING ZEROS

```

:ALTERNATING ONES, ZEROS
:ALTERNATING ONES, ZERO OPPOSITE FROM ABOVE

```

TBLEND==.

CZTUYAO TUBO FRONT END PRT C
GLOBAL ENVIRONMENT STORAGE

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```

1400                                     .SBTTL GLOBAL ENVIRONMENT STORAGE
1401                                     ;
1402                                     ;STORAGE FOR DEVICE REGISTERS
1403                                     ;
1404 003030 000000 100000 000000 DUMMY: 0,100000,0,0           ;DUMMY DEVICE REGISTERS...
1405 003040 000000 000000 000000       0,0,0,0,0,0,0,0,0       ;...FOR MULTI-UNIT CHECKOUT.
1406                                     ;
1407                                     ;
1408                                     ;
1409 003060 000000 DUFLG::          .WORD 0           ;"DROPPED UNIT" FLAG.
1410                                     ;INHIBITS CODE IN "CLEAN-UP".
1411 003062 000000 NODEV::          .WORD 0           ;FLAG TO SAY NO DEVICE.
1412                                     ;
1413 003064 000000 TEMP1::           .WORD 0           ;SOME TEMP LOCATIONS.
1414 003066 000000 TEMP2::           .WORD 0           ;
1415 003070 000000 XXCOMM::          .WORD 0           ;XXDP+ COMM BLOCK POINTER.
1416 003072 000000 FREE::            .WORD 0           ;1ST FREE MEMORY ADDRESS...
1417 003074 000000 FRESIZ::          .WORD 0           ;...AND SIZE (IN WORDS).
1418 003076 000000 FREEHI::          .WORD 0           ;LAST WORD IN FREE SPACE
1419 003100 000000 KTFLG::           .WORD 0           ;KT11, MEM AVAIL FLAG -
1420                                     ;- .WORD 0 = <24K OR NO KT -
1421                                     ;- NZ = >24K AND KT.
1422 003102 000000 KTENABLE::         .WORD 0           ;SET BY TEST ROUTINES TO FLAG >28K UNDER TEST
1423 003104 002000 PST32W::           .WORD 2000        ;32W BLOCK ADDRESS FOR 32K START
1424 003106 000000 SIFLAG::          .WORD 0           ;
1425 003110 000000 BADDAT::          .WORD 0           ;ACTUAL DATA
1426 003112 000000 GDDAT::           .WORD 0           ;EXPECTED DATA
1427 003114 000000 LOOPFL::          .WORD 0           ;
1428 003116 000000 CTAB::            .WORD 0           ;CONFIGURATION TABLES.
1429 003116 000000 CTABM::           .WORD 0           ;CONFIG WORK.
1430 003120 000000                                     .WORD 0           ;
1431 003122 000000                                     .WORD 0           ;
1432 003124 000000                                     .WORD 0           ;
1433 003126 177777                                     .WORD -1          ;END OF MEM TABLE.
1434 003130 CTABE::
1435 ;ERROR STATISTICS TABLE (1 WORD PER UNIT), 64 UNITS MAX:
1436 ;
1437 ;      0 = UNIT NOT TESTED
1438 ;     100000 = UNIT ONLINE, NO ERRORS
1439 ;    10XXXX = UNIT ONLINE, ENCOUNTERED XXXX ERRORS
1440 ;    160000 = UNIT DROPPED, NON-EXISTENT DEVICE REGISTER
1441 ;    160001 = UNIT DROPPED, NOT IDLE AT START
1442 ;    14XXXX = UNIT DROPPED, ENCOUNTERED XXXX ERRORS
1443 ;
1444 003130 ERTABL:          .BLKW 64.
1445 003330 ERTABE:          .WORD 0
1446                                     ;
1447 003332 000000 SKIPT:          .WORD 0           ;1=SKIP SUBTEST 0=NO SKIP OF SUBTEST

```

.SBTTL GLOBAL TEXT MESSAGES

:+
: THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
: MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
: MORE THAN ONE TEST.
:--

:+
: NAMES OF DEVICES SUPPORTED
:--

1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462 003334
003334
003334 124 125 070

DEV TYP <TUBO>
LSDVTYP::
.ASCIZ /TUBO/
.EVEN

:+
: TEST DESCRIPTION
:--

1463
1464
1465
1466
1467 003342
003342
003342 103 132 124

DESCRIPT <CZTUYAO TUBO FRONT END PRT C>
LSDDESC::
.ASCIZ /CZTUYAO TUBO FRONT END PRT C/
.EVEN

:+
: BIT TO ASCII CONVERSION FOR TSSR REGISTER
:--

1468
1469
1470
1471
1472
1473 003400 003440 003443 003447
1474 003420 003501 003505 003511
1475 003440 123 103 000
1476 003443 102 111 105
1477 003447 123 103 105
1478 003453 122 115 122
1479 003457 116 130 115
1480 003463 116 102 101
1481 003467 102 111 124
1482 003474 102 111 124
1483 003501 123 123 122
1484 003505 117 106 114
1485 003511 102 111 124
1486 003516 102 111 124
1487 003523 102 111 124
1488 003530 102 111 124
1489 003535 102 111 124
1490 003542 102 111 124
1491
1492 003550 124 123 123
1493 003603 124 123 123
1494 003636 040 040 116
1495 003675 045 101 040
1496 003716 045 101 040
1497 003756 045 101 040
1498 004015 045 116 045
1499 004021 040 040 125

TSSRBIT:: .WORD 1\$, 2\$, 3\$, 4\$, 5\$, 6\$, 7\$, 8\$,
.WORD 9\$, 10\$, 11\$, 12\$, 13\$, 14\$, 15\$, 16\$
1\$: .ASCIZ 'SC'
2\$: .ASCIZ 'BIE'
3\$: .ASCIZ 'SCE'
4\$: .ASCIZ 'RMR'
5\$: .ASCIZ 'NXM'
6\$: .ASCIZ 'NBA'
7\$: .ASCIZ 'BIT9'
8\$: .ASCIZ 'BIT8'
9\$: .ASCIZ 'SSR'
10\$: .ASCIZ 'OFL'
11\$: .ASCIZ 'BIT5'
12\$: .ASCIZ 'BIT4'
13\$: .ASCIZ 'BIT3'
14\$: .ASCIZ 'BIT2'
15\$: .ASCIZ 'BIT1'
16\$: .ASCIZ 'BIT0'
.EVEN
SFIERR: .ASCIZ 'TSSR ERROR AFTER SOFT INIT'
SFHERR: .ASCIZ 'TSSR ERROR AFTER BUS RESET'
NXR: .ASCIZ '/ NON-EXISTANT DEVICE REGISTER/'
NXRX: .ASCIZ '/%A ADDRESS: %06/'
TSSX: .ASCIZ '/%A TSBA, TSSR EXP'D: %06%A, %06%N/'
.ASCIZ '/%A TSBA, TSSR REC'D: %06%A, %06/'
FUSI: .ASCIZ '/%N%/'
USI: .ASCIZ '/ UNEXPECTED INTERRUPT/'

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 22-1
GLOBAL TEXT MESSAGES

```

1500 004050      040      040      111  NSI:      .ASCIZ  / INTERRUPT EXPECTED, NOT RECEIVED/
1501 004113      045      116      045  FNOINTR:  .ASCII  /%NZA/
1502 004117      040      040      116  NOINTR:   .ASCIZ  / NO INTERRUPT WAS GENERATED/
1503 004154      040      040      111  IFAULT:  .ASCIZ  / INTERRUPT FAULT/
1504 004176      045      101      040  INTX:     .ASCIZ  /%A CPU PC: %06XA TSBA: %06/
1505 004233      040      040      042  NOINIT:  .ASCIZ  / 'BUS-INIT' DIDN'T INITIALIZE CONTROLLER/
1506 004305      040      040      042  NSINIT:  .ASCIZ  / 'SOFT-INIT' DIDN'T INITIALIZE THE DPU/
1507 004355      040      040      042  BRINIT:  .ASCIZ  / 'BUS-RESET' DIDN'T INITIALIZE THE DPU/
1508
1509 004425      000
1510 004426      045      116      000  NUL:      .ASCIZ  //
1511 004431      045      101      040  NULCR:    .ASCIZ  /%N/
1512 004465      045      116      045  EXPGOT:   .ASCIZ  /%A EXP'D: %06XA, REC'D: %06/
1513 004541      045      101      040  EXPGT2:   .ASCIZ  /%NZA EXP'D: %06XA, %06ZNZA REC'D: %0XA, %06/
1514 004643      045      101      040  DUAD12:   .ASCIZ  /%A REG(W) WRITTEN TO: %06XA REG(R) READ: EXP'D: %06XA, REC'D: %06/
1515 004711      040      040      115  PKTRAM:   .ASCIZ  'RAM Contents Do Not Match Packet Sent'
1516 004754      127      101      103  SCME:     .ASCIZ  / CONFIG DOESN'T MATCH MFG. MASTER/
1517 005011      124      122      111  WRTMSG:   .ASCIZ  'WRITE CHARACTERISTICS Failed'
1518 005104      124      123      123  WRTERR:   .ASCIZ  'TSSR Incorrect After WRITE Command, More Bits Set Than SSR'
1519           124      123      123  RDERR:    .ASCIZ  'TSSR Incorrect After READ Command, More Bits Set Than SSR'
1520           .EVEN
1521
1522

```

CZTUYAO TUBO FRONT END PRT C
GLOBAL ERROR REPORT SECTION

MACRO M1200 29-MAR-83 13:43 PAGE 23

.SBTTL GLOBAL ERROR REPORT SECTION

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1532 005176
      005176
1533 005176
      005176 013746 003062
      005202 012746 003675
      005206 012746 000002
      005212 010600
      005214 104415
      005216 062706 000006
1534 005222 004737 005230
1535 005226
      005226 104423
1536
1537
1538
1539
1540
1541
1542 005230 005727
1543 005232 000000
1544 005234 001402
1545 005236 004777 177770
1546 005242
      005242 012746 004426
      005246 012746 000001
      005252 010600
      005254 104415
      005256 062706 000004
1547 005262 000207
    
```

```

:++
: THE GLOBAL ERROR REPORT SECTION CONTAINS THE PRINTB AND PRINTX
: CALLS THAT ARE USED IN MORE THAN ONE TEST.
: ASCII TEXT STRINGS ARE FOUND IN THE GLOBAL TEXT SECTION.
:--
    
```

```

      BGNMSG  NXRERR                ;NON-EXISTANT DEVICE REGISTER.
NXRERR:  PRINTX  #NXRX,NODEV        ;NODEV = NEXM ADDRESS.
          MOV    NODEV,-(SP)
          MOV    #NXRX,-(SP)
          MOV    #2,-(SP)
          MOV    SP,R0
          TRAP  C$PNTX
          ADD    #6,SP
          JSR   PC,EXTEND           ; PRINT EXTENSION IF REQUIRED.
          ENDMSG
L10002:  TRAP   C$MSG
    
```

```

:
: THIS ROUTINE APPENDS A UNIQUE EXTENSION (IF REQUIRED)
: TO ANY OF THE ABOVE ERROR SIGNATURES.
:
    
```

```

EXTEND:  TST    (PC)+
EXTA:    0                ; 0 = NO EXTENSION.
          BEQ   1$
          JSR   PC,@EXTA    ; APPEND EXTENSION TEXT.
          PRINTX #NULCR      ; PRINT A BLANK LINE
          MOV   #NULCR,-(SP)
          MOV   #1,-(SP)
          MOV   SP,R0
          TRAP  C$PNTX
          ADD   #4,SP
          RTS   PC
    
```


CZTUYAO TUBO FRONT END PRT C
PRITSSR - PRINT TSSR CONTENTS

MACRO M1200 29-MAR-83 13:43 PAGE 25

.SBTTL PRITSSR - PRINT TSSR CONTENTS

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:+
:ROUTINE TO DISPLAY THE CONTENTS, AND BIT DEFINITIONS, OF
:THE TSSR REGISTER. THIS ROUTINE IS NORMALLY CALLED ONLY
:BY A MESSAGE PRINTING ROUTINE

:INPUTS:

: R1 CONTENTS OF TSSR

:SUBORDINATE ROUTINES:

:CHKAMB CHECK FOR AMBIGUOUS CONTENTS
:-

PRITSSR:

1568 005264
1569 005264
1570 005270 010104
1571 005272
005272 010446
005274 012746 006116
005300 012746 000002
005304 010600
005306 104414
005310 062706 000006
1572 005314 010400
1573 005316 004737 016714
1574 005322 103410
1575 005324
005324 012746 006336
005330 012746 000001
005334 010600
005336 104415
005340 062706 000004
1576 005344 010403
1577 005346 042703 001476
1578 005352 001434
1579 005354 012702 002576
1580 005360 012701 003400
1581 005364 005703
1582 005366 001413
1583 005370 000241
1584 005372 006103
1585 005374 103006
1586 005376 011100
1587 005400 112022
1588 005402 001376
1589 005404 112762 000054 177777
1590 005412 005721
1591 005414 000763
1592 005416 105042
1593 005420
005420 012746 002576
005424 012746 006307

SAVREG :SAVE GENERAL REGISTERS
MOV R1,R4 :SAVE THE TSSR CONTENTS
PRINTB #TSSRFOR,R4 :PRINT THE CONTENTS OF TSSR
MOV R4,-(SP)
MOV #TSSRFOR,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #6,SP
MOV R4,R0 :GET TSSR BACK FOR CHKAMB
JSR PC,CHKAMB :ARE CONTENTS AMBIGUOUS ?
BCS 5\$:BRANCH IF NOT
PRINTX #AMBTSSR :SHOW CONTENTS ARE AMBIGUOUS
MOV #AMBTSSR,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C\$PNTX
ADD #4,SP
5\$: MOV R4,R3 :CONTENTS OF TSSR
BIC #HIADDR!FATERR!TERCLS,R3 :CLEAR ALL MULTIPLE BIT FIELDS
BEQ 20\$:NO BITS ARE SET
MOV #TMPBFR,R2 :TEMPORARY ASCII BUFFER
MOV #TSSRBIT,R1 :ASCII EQUIVALENT OF BITS
10\$: TST R3 :REMAINING BITS TO CONVERT
BEQ 15\$:BRANCH WHEN ALL ARE DONE
CLC :CLEAR CARRY FOR SHIFT
ROL R3 :SHIFT NEXT BIT TO CARRY
BCC 13\$:BRANCH IF BIT NOT SET
MOV (R1),R0 :POINTER TO BIT DEFINITION
11\$: MOVB (R0)+,(R2)+ :MOVE ASCII TO BUFFER
BNE 11\$:MOVE ALL BITS
MOVB #' , -1(R2) :INSERT A COMMA TO TERMINATE
13\$: TST (R1)+ :POINT TO NEXT DESCRIPTION
BR 10\$:GET THE REMAINING BITS
15\$: CLRB -(R2) :TERMINATE THE LINE
PRINTX #TSSDEF,#TMPBFR :PRINT THE BIT DEFINITIONS
MOV #TMPBFR,-(SP)
MOV #TSSDEF,-(SP)

CZUYAO TUBO FRONT END PRT C
PRITSSR - PRINT TSSR CONTENTS

MACRO M1200 29-MAR-83 13:43 PAGE 25-1

005430	012746	000002			MOV	#2,-(SP)		
005434	010600				MOV	SP,R0		
005436	104415				TRAP	CSPNTX		
005440	062706	000006			ADD	#6,SP		
1594								
1595	005444	010403		20\$:	MOV	R4,R3	:GET THE TSSR CONTENTS	
1596	005446	042703	177761		BIC	#^CTERCLS,R3	:CLEAR ALL BUT TERMINATION	
1597	005452	016303	006400		MOV	TCOCOD(R3),R3	:GET THE TERMINATION CODE MEANING	
1598	005456				PRINTX	#TCOASC,R3	:PRINT THE TERMINATION CODE	
	005456	010346			MOV	R3,-(SP)		
	005460	012746	006177		MOV	#TCOASC,-(SP)		
	005464	012746	000002		MOV	#2,-(SP)		
	005470	010600			MOV	SP,R0		
	005472	104415			TRAP	CSPNTX		
	005474	062706	000006		ADD	#6,SP		
1599	005500	010403			MOV	R4,R3	:TSSR CONTENTS AGAIN	
1600	005502	042703	177717		BIC	#^CFATERR,R3	:CLEAR ALL BUT FATAL TERMINATION	
1601	005506	001421			BEQ	25\$:DON'T PRINT IF ZERO	
1602	005510	006203			ASR	R3		
1603	005512	006203			ASR	R3		
1604	005514	006203			ASR	R3	:ALINE TERMINATION CODE FOR INDEX	
1605	005516	016303	006740		MOV	TSFCOD(R3),R3	:GET THE FATAL TERMINATION CODE	
1606	005522				PRINTX	#TFCASC,R3	:PRINT THE FATAL TERMINATION CODE	
	005522	010346			MOV	R3,-(SP)		
	005524	012746	006240		MOV	#TFCASC,-(SP)		
	005530	012746	000002		MOV	#2,-(SP)		
	005534	010600			MOV	SP,R0		
	005536	104415			TRAP	CSPNTX		
	005540	062706	000006		ADD	#6,SP		
1607	005544	012737	000031	002170	MOV	#25,FATFLG	:DROP THIS UNIT AFTER ERROR MESSAGE	
1608	005552	010403			MOV	R4,R3	:GET TSSR CONTENTS	
1609	005554	042703	176377		BIC	#^CHIADDR,R3	:CLEAR ALL BUT EXTENDED ADDRESS	
1610	005560	001411			BEQ	30\$:DON'T PRINT IF ZERO	
1611	005562				PRINTX	#TEXASC,R3	:PRINT THE EXTENDED ADDRESS BITS	
	005562	010346			MOV	R3,-(SP)		
	005564	012746	006136		MOV	#TEXASC,-(SP)		
	005570	012746	000002		MOV	#2,-(SP)		
	005574	010600			MOV	SP,R0		
	005576	104415			TRAP	CSPNTX		
	005600	062706	000006		ADD	#6,SP		
1612	005604	022704	100210		30\$:	CMP	#100210,R4	:CHECK FOR MEDIA ERROR
1613	005610	001003			BNE	31\$:BR, IF PROBABLY NOT TAPE ERROR	
1614	005612	012737	006025	002146	MOV	#EPRT3,EPRTSW	: "PROBABLY MEDIA RELETED ERROR - BAD TAPE"	
1615	005620	005737	002146		31\$:	TST	EPRTSW	:CHECK FOR THE SWITCH EMPTY
1616	005624	001003			BNE	310\$:BR, IF SWITCH IS NOT EMPTY	
1617	005626	012737	005672	002146	MOV	#EPRT1,EPRTSW	:SET SWITCH TO DEFAULT	
1618	005634	013737	002146	005644	310\$:	MOV	EPRTSW,32\$+2	:PUT REAL SWITCHABLE MESSAGE IN PLACE
1619	005642				32\$:	PRINTB	#EPRT1	:PRINT THE ERROR MESSAGE
	005642	012746	005672		MOV	#EPRT1,-(SP)		
	005646	012746	000001		MOV	#1,-(SP)		
	005652	010600			MOV	SP,R0		
	005654	104414			TRAP	CSPNTB		
	005656	062706	000004		ADD	#4,SP		
1620	005662	012737	005672	002146	MOV	#EPRT1,EPRTSW	:RESET TO NORMAL ERROR POINTER	
1621	005670	000207			RTS	PC	:RETURN TO CALLER	
1622								
1623	005672	045	116	045	EPRT1:	.ASCIZ	'%N% *****CHECK CABLES BETWEEN M7454 AND TRANSPORT*****%S'	

CZTUYAO TUBO FRONT END PRT C
PRITSSR - PRINT TSSR CONTENTS

MACRO M1200 29-MAR-83 13:43 PAGE 25-2

1624	005764	045	116	045	EPRT2:	.ASCIZ	'XNZX *****CHECK TRANSPORT*****XS'
1625	006025	045	116	045	EPRT3:	.ASCIZ	'XNZX *****POSSIBLE MEDIA RELATED ERROR - BAD TAPE*****XS'
1626	006116	045	116	045	TSSRFOR:	.ASCIZ	'XNZX TSSR = X06'
1627	006136	045	116	045	TEXASC:	.ASCIZ	'XNZX Extended Address Bits = X06'
1628	006177	045	116	045	TCOASC:	.ASCIZ	'XNZX Termination Class Code = XT'
1629	006240	045	116	045	TFCASC:	.ASCIZ	'XNZX Fatal Termination Class Code = XT'
1630	006307	045	116	045	TSSDEF:	.ASCIZ	'XNZX TSSR Bits Set: XT'
1631	006336	045	116	045	AMBTSSR:	.ASCIZ	'XNZX TSSR Contents Are Ambiguous'
1632						.EVEN	
1633	006400	006420	006443	006471	TCOCOD:	.WORD	1\$,2\$,3\$,4\$,5\$,6\$,7\$,8\$
1634	006420	116	157	162	1\$:	.ASCIZ	'Normal Termination'
1635	006443	124	145	162	2\$:	.ASCIZ	'Termination Condition'
1636	006471	124	141	160	3\$:	.ASCIZ	'Tape Status Alert'
1637	006513	106	165	156	4\$:	.ASCIZ	'Function Reject'
1638	006533	122	145	143	5\$:	.ASCIZ	'Recoverable Error - Tape Position One Record Down'
1639	006615	122	145	143	6\$:	.ASCIZ	'Recoverable Error - Tape Was Not Moved'
1640	006664	125	156	162	7\$:	.ASCIZ	'Unrecoverable Error'
1641	006710	106	141	164	8\$:	.ASCIZ	'Fatal Controller Error'
1642						.EVEN	
1643							
1644	006740	006750	007004	007015	TSFCOD:	.WORD	1\$,2\$,3\$,4\$
1645	006750	111	156	164	1\$:	.ASCIZ	'Internal Diagnostic Failure'
1646	007004	122	145	163	2\$:	.ASCIZ	'Reserved'
1647	007015	102	165	163	3\$:	.ASCIZ	'Bus Interface or Sanity Check Error'
1648	007061	122	145	163	4\$:	.ASCIZ	'Reserved'
1649						.EVEN	

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 26
PRIPKT - PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET

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1661 007072
1662 007072
1663 007076 010005 003102
1664 007100 005737
1665 007104 001001
1666 007106 005003
1667 007110 010301
1668 007112 010400
1669 007114 006100
1670 007116 006101
1671 007120
    007120 010446
    007122 010146
    007124 012746 007276
    007130 012746 000003
    007134 010600
    007136 104414
    007140 062706 000010
1672 007144 010300
1673 007146 001404
1674 007150 010401
1675 007152 004737 020266
1676 007156 010004
1677 007160 005001
1678 007162 012402
1679 007164
    007164 010246
    007166 010146
    007170 012746 007240
    007174 012746 000003
    007200 010600
    007202 104414
    007204 062706 000010
1680 007210 005201
1681 007212 020105
1682 007214 002762
1683 007216
    007216 012746 007333
    007222 012746 000001
    007226 010600
    007230 104414
    007232 062706 000004
1684 007236 000207
1685 007240 045 116
1686 007276 045 116
1687 007333 045 116
1688

```

```

.SBTTL PRIPKT - PRINT THE ADDRESS/CONTENTS OF COMMAND PACKET
+
:THIS ROUTINE PRINTS THE ADDRESS AND CONTENTS OF A COMMAND PACKET.
:THIS ROUTINE IS NORMALLY ONLY CALLED FROM A PRINT ROUTINE.
:INPUT:
R0      NUMBER OF WORDS IN PACKET
R3      HIGH ORDER COMMAND PACKET ADDRESS
R4      ADDRESS OF COMMAND PACKET
NOTE:   R3 IS IGNORED IF THE KTENABLE FLAG IS CLEAR.
-
PRIPKT::
SAVREG          :SAVE THE REGISTERS
MOV R0,R5       :SAVE NO. OF WORDS IN PACKET
TST KTENABLE   :ABOVE 28K UNDER TEST?
BNE 10$        :BR IF YES
CLR R3         :SET HIGH ORDER ADDRESS TO 0
10$: MOV R3,R1   :COPY HIGH ORDER ADDRESS
     MOV R4,R0   :GET LOWER ADDRESS
     ROL R0      :SHIFT BIT 15 INTO C BIT
     ROL R1      :AND INTO HIGH ORDER.
     PRINTB #PKTADD,R1,R4 :PRINT PACKET ADDRESS
     MOV R4,-(SP)
     MOV R1,-(SP)
     MOV #PKTADD,-(SP)
     MOV #3,-(SP)
     MOV SP,R0
     TRAP CSPNTB
     ADD #10,SP
15$: MOV R3,R0   :GET HIGH ORDER ADDRESS
     BEQ 20$    :BR IF NOT ABOVE 28K.
     MOV R4,R1   :GET LOW ORDER ADDRESS
     JSR PC,SETMAP :SETUP PAR6 MAPPING FOR 18 BIT ADDRESS
     MOV R0,R4   :GET RETURNED PAR6 ADDRESS BIAS
20$: CLR R1      :SAVE WORD NUMBER
25$: MOV (R4)+,R2 :GET PACKET CONTENTS
     PRINTB #PKTFRM,R1,R2 :PRINT THE DATA
     MOV R2,-(SP)
     MOV R1,-(SP)
     MOV #PKTFRM,-(SP)
     MOV #3,-(SP)
     MOV SP,R0
     TRAP CSPNTB
     ADD #10,SP
     INC R1      :NEXT WORD NUMBER
     CMP R1,R5   :DONE ALL PACKET WORDS?
     BLT 25$    :LOOP TILL ALL DONE
     PRINTB #PKTNEW :JUST A COUPLE NEW LINES
     MOV #PKTNEW,-(SP)
     MOV #1,-(SP)
     MOV SP,R0
     TRAP CSPNTB
     ADD #4,SP
     RTS PC     :RETURN
045 PKTFRM: .ASCIZ 'ZXZA Packet Word #XD1XA = X06'
045 PKTADD: .ASCIZ 'ZXZA Packet Address = X01X05'
045 PKTNEW: .ASCIZ 'ZXZXZA '
.EVEN

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 27
 PRIBXOR - PRINT EXPD, RECV AND XOR BYTE

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007344
007344
007350 010203
007352
007362 012700 177400
007366 040001
007370 040002
007372 040003
007374
007374 010346
007376 010146
007400 010246
007402 012746 007426
007406 012746 000004
007412 010600
007414 104414
007416 062706 000012
007422 010300
007424 000207
007426 045 116 045

.SBTTL PRIBXOR - PRINT EXPD, RECV AND XOR BYTE

```

:PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE DATA BYTE
:THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.

```

```

:INPUTS:
      R1      RECEIVED DATA
      R2      EXPECTED DATA

:OUTPUT:
      R0      XOR OF EXPECTED/RECEIVED DATA

```

```

PRIBXOR::
      SAVREG          :SAVE THE REGISTERS
      MOV R2,R3      :EXPECTED DATA
      XOR R1,R3      :FORM THE EXCLUSIVE OR
      MOV #^C<377>,R0 :BYTE MASK
      BIC R0,R1      :SAVE LOW BYTE RECV
      BIC R0,R2      :SAVE LOW BYTE EXPD
      BIC R0,R3      :SAVE LOW BYTE XOR
      PRINTB #XORBFOR,R2,R1,R3 :PRINT THE MESSAGE
      MOV R3,-(SP)
      MOV R1,-(SP)
      MOV R2,-(SP)
      MOV #XORBFOR,-(SP)
      MOV #4,-(SP)
      MOV SP,R0
      TRAP C$PNTB
      ADD #12,SP
      MOV R3,R0      :R0 HAS XOR ON RETURN
      RTS PC         :RETURN TO CALLER

      .ASCIZ '%X%A EXPD: %03%A RECV: %03%A XOR: %03%'
      .EVEN

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 28
PRIXOR - PRINT EXPD, RECV AND XOR

.SBTTL PRIXOR - PRINT EXPD, RECV AND XOR

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007474
007474
007500 010203
007502
007512 010346
007514 010146
007516 010246
007520 012746 007544
007524 012746 000004
007530 010600
007532 104414
007534 062706 000012
007540 010300
007542 000207
007544 045 116 045

:+
:PRINT EXPECTED DATA, RECEIVED DATA, AND XOR OF THE TWO
:THIS ROUTINE IS NORMALLY CALLED ONLY FOR PRINT ROUTINES.
:INPUTS:
: R1 RECEIVED DATA
: R2 EXPECTED DATA
:OUTPUT:
: R0 XOR OF EXPECTED/RECEIVED DATA
:-

PRIXOR::
SAVREG R2,R3 ;SAVE THE REGISTERS
MOV R1,R3 ;EXPECTED DATA
XOR R1,R3 ;FORM THE EXCLUSIVE OR
PRINTB #XORFOR,R2,R1,R3 ;PRINT THE MESSAGE
MOV R3,-(SP)
MOV R1,-(SP)
MOV R2,-(SP)
MOV #XORFOR,-(SP)
MOV #4,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #12,SP
MOV R3,R0 ;R0 HAS XOR ON RETURN
RTS PC ;RETURN TO CALLER

XORFOR: .ASCIZ '%X%A EXPD: %06%A RECV: %06%A XOR: %06%'
.EVEN

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 29
 PRIEQU - PRINT BIT NUMBERS AS ASCII EQUIVALENT

1753
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 1767 007612
 1768 007612
 1769 007616 000207
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 1785 007620
 1786 007620
 1787 007624
 007624 010446
 007626 012746 007650
 007632 012746 000002
 007636 010600
 007640 104414
 007642 062706 000006
 1788 007646 000207
 1789
 1790 007650 045 116 045
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 1803

.SBTTL PRIEQU - PRINT BIT NUMBERS AS ASCII EQUIVALENT

```

:~+
:ROUTINE TO CONVERT BIT VALUES TO ASCII AND PRINT THE STRING
:THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
:
:INPUTS:
:
:   R0      OCTAL VALUE TO CONVERT
:   R1      TABLE OF POINTERS TO ASCII EQUIVALENT
:~
PRIEQU:
:   SAVREG      ;SAVE THE REGISTERS
:   RTS         PC      ;RETURN TO CALLER
    
```

.SBTTL PRIRAM - PRINT RAM ADDRESS

```

:~+
:PRINT CONTROLLER RAM ADDRESS.
:THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
:
:INPUTS:
:
:   R4      RAM ADDRESS
:~
PRIRAM:
:   SAVREG      ;SAVE R1-R5 UNTIL NEXT RETURN
:   PRINTB     #RAMFOR,R4 ;PRINT RAM ADDRESS IN ERROR
:   MOV        R4,-(SP)
:   MOV        #RAMFOR,-(SP)
:   MOV        #2,-(SP)
:   MOV        SP,R0
:   TRAP      CSPNTB
:   ADD        #6,SP
:   RTS       PC      ;RETURN
    
```

```

RAMFOR: .ASCIZ '%N%A CONTROLLER RAM ADDRESS = %06'
        .EVEN
    
```

.SBTTL PRIADD - PRINT MEMORY ERROR ADDRESS

```

:~+
:PRINT MEMORY ADDRESS
:THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
:
:IMPLICIT INPUTS
:
:   ERRHI     - HIGH ORDER ADDRESS
:   ERRLO     - LOW ORDER ADDRESS
:~
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 29-1
 PRIADD - PRINT MEMORY ERROR ADDRESS

```

1804
1805
1806 007712
1807 007712
1808 007716 013700 002202
1809 007722 013701 002204
1810 007726 010102
1811 007730 006101
1812 007732 006100
1813 007734
      007734 010246
      007736 010046
      007740 012746 007762
      007744 012746 000003
      007750 010600
      007752 104414
      007754 062706 000010
1814 007760 000207
1815
1816 007762 045 116 045 PRIA0: .ASCIZ '%NZA MEMORY ERROR ADDRESS = %01X05'
1817 .EVEN
1818
1819
1820 .SBTTL PRITADD - PRINT MEMORY TEST ADDRESS
1821
1822 +
1823 :PRINT MEMORY ADDRESS
1824 :THIS ROUTINE IS NORMALLY CALLED ONLY FROM PRINT ROUTINES.
1825
1826 :IMPLICIT INPUTS
1827
1828 ERRHI - HIGH ORDER ADDRESS
1829 ERRLO - LOW ORDER ADDRESS
1830
1831 -
1832 PRITADD: SAVREG ;SAVE R1-R5 UNTIL NEXT RETURN
1833 MOV ERRHI,R0 ;GET HIGH ADDRESS
1834 MOV ERRLO,R1 ;GET LOW ADDRESS
1835 MOV R1,R2 ;COPY LOW ADDRESS
1836 ROL R1 ;SHIFT BIT 15 TO C BIT
1837 ROL R0 ;SHIFT INTO HIGH ORDER
1838 PRINTB #PRIT0,R0,R2 ;PRINT MEMORY ADDRESS IN ERROR
1839 MOV R2,-(SP)
      MOV R0,-(SP)
      MOV #PRIT0,-(SP)
      MOV #3,-(SP)
      MOV SP,R0
      TRAP C$PNTB
      ADD #10,SP
1840 RTS PC ;RETURN
1841
1842 010076 045 116 045 PRIT0: .ASCIZ '%NZA MEMORY TEST ADDRESS = %01X05'
1843 .EVEN

```


CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 30
SPACE - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

.SBTTL SPACE - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

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ROUTINE TO ISSUE A SPACE RECORDS
COMMAND (FORWARD OR REVERSE)
INPUT:
R3 NUMBER OF RECORDS TO BE SPACED OVER
BIT15 CONTROLS DIRECTION
BIT15 = 0 IS FORWARD
BIT15 = 1 IS REVERSE
R5 FIRST DEVICE UNIBUS ADDRESS
REQUIRES A WRITE CHARACTERISTICS DONE PREVIOUSLY
OUTPUT:
CARRY SET - SPACE RECORDS COMMAND OK
CLR - SPACE RECORDS FAILED
R0 THE CONTENTS OF R4 IS MOVED TO R0
IMPLICIT OUTPUT:
TAPE HAS BEEN MOVED
SIDE EFFECTS:
-

1880 010140
1881 010140
1882 010144 012737 000764 010330
1883 010152 012737 140010 010320
1884 010160 005703
1885 010162 100403
1886 010164 010337 010322
1887 010170 000407
1888 010172 042703 100000
1889 010176 010337 010322
1890 010202 052737 000400 010320
1891 010210 012704 010320
1892 010214 010465 177776
1893 010220 004737 017120
1894 010224 103420
1895 010226
010226 012727 000250
010232 000000
010234 013727 002116
010240 000000
010242 005367 177772
010246 001375

SPACE::
SAVREG ;SAVE THE GENERAL REGISTERS
MOV #500, SDELAY ;SET UP DELAY
MOV #140010, 80\$;SET UP COMMAND, SPACE FORWARD
TST R3 ;CHECK FOR DIRECTION
BMI 5\$;BR, IF REVERSE INDICATED
MOV R3, 90\$;LOAD UP NUMBER OF RECORDS TO SPACE
BR 10\$;GO DO COMMAND
5\$: BIC #BIT15, R3 ;CLEAR DIRECTION BIT
MOV R3, 90\$;LOAD UP NUMBER OF RECORDS TO SPACE
BIS #BIT8, 80\$;SET REVERSE BIT IN COMMAND PACKET
10\$: MOV #80\$, R4 ;SET UP R4 WITH PACKET ADDRESS
MOV R4, T\$DB(R5) ;SEND OUT COMMAND
15\$: JSR PC, WAITF ;WAIT FOR SSR
BCS 20\$;BR, IF SSR IS SET AND OK
DELAY 250 ;DELAY ABOUT .25 SECONDS
MOV #250, (PC)+
.WORD 0
MOV LSDLY, (PC)+
.WORD 0
DEC -6(PC)
BNE -4

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 30-1
SPACE - SPACE RECORDS (FORWARD AND REVERSE) COMMAND

```

010250 005367 177756          DEC      -22(PC)
010254 001367          BNE      .-20
1896 010256 005337 010330    DEC      SDELAY      ;BUMP DELAY COUNTER DOWN
1897 010262 001356          BNE      15$         ;BR, IF MORE DELAY
1898 010264 000411          BR       60$         ;BR IF TROUBLE CARRY = CLEAR
1899 010266 016501 000000    20$:    MOV      TSSR(R5),R1 ;READ TSSR
1900 010272 012702 000200    MOV      #SSR,R2     ;SET UP EXPECTED
1901 010276 020201    25$:    CMP      R2,R1     ;ARE THEY OK
1902 010300 001401          BEQ      40$         ;BR, IF EQUAL = OK
1903 010302 000402          BR       60$         ;TROUBLE EXIT
1904 010304 000261    40$:    SEC          ;SET CARRY NO TROUBLE
1905 010306 000401          BR       70$         ;EXIT
1906 010310 000241    60$:    CLC          ;CARRY CLEAR = ERROR
1907 010312 010400    70$:    MOV      R4,R0     ;PASS PACKET ADDRESS
1908 010314 000207          RTS      PC         ;RETURN
1909
1910          ;PACKET FOR SPACE COMMAND
1911
1913 010316          .BLKB   10-<.-TUV2A&7>
1915          ;COMMAND WORD
1916 010320 000000    80$:    .WORD
1917          ;NUMBER OF RECORDS TO BE SPACED OVER WORD
1918 010322 000000    90$:    .WORD
1919 010324 000000          .WORD
1920 010326 000000          .WORD
1921 010330 000000    SDELAY: .WORD   0          ;DELAY COUNTER
1922          .EVEN

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 31
 WRTCHR - WRITE CHARACTERISTICS COMMAND

.SBTTL WRTCHR - WRITE CHARACTERISTICS COMMAND

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```

:ROUTINE TO ISSUE A WRITE CHARACTERISTICS
:COMMAND SO THAT OTHER COMMANDS WILL BE ACCEPTED
:INPUT:
      R4      ADDRESS OF PACKET FROM TEST
      R5      FIRST DEVICE UNIBUS ADDRESS
      REQUIRES A CALL TO SOFINIT BE DONE PREVIOUSLY
:OUTPUT:
      R0      TSSR CONTENTS
      CARRY   SET - WRITE CHARACTERISTICS COMMAND OK
             CLR - WRITE CHARACTERISTICS FAILED
:IMPLICIT OUTPUT:
      MESSAGE BUFFER AND OTHER BUFFERS ALL SET UP
      SOFTWARE SWITCHES SET AS FOLLOWS:
             BENBSW = BUFFER ENABLE SWITCH ON OR OFF
:SIDE EFFECTS:

```

1955 010332
 1956 010332
 1957 010336 005037 002174
 1958 010342 010465 177776
 1959 010346 004737 017234
 1960 010352 103401
 1961 010354 000423
 1962 010356 016501 000000
 1963 010362 012702 000200
 1964 010366 032701 000100
 1965 010372 001402
 1966 010374 052702 000100
 1967 010400 020201
 1968 010402 001401
 1969 010404 000407
 1970 010406 062704 000010
 1971 010412 011403
 1972 010414 010337 002716
 1973 010420 000261
 1974 010422 000401
 1975 010424 000241
 1976 010426 016500 000000
 1977 010432 000207

```

WRTCHR::
      SAVREG
      CLR      BENBSW
      MOV      R4,TSDB(R5)
      JSR      PC,CHKTSSR
      BCS     20$
      BR      60$
      MOV      TSSR(R5),R1
      MOV      #SSR,R2
      BIT      #OFL,R1
      BEQ     25$
      BIS      #OFL,R2
      CMP      R2,R1
      BEQ     40$
      BR      60$
      ADD      #8,R4
      MOV      (R4),R3
      MOV      R3,MESBFA
      SEC
      BR      70$
      CLC
      MOV      TSSR(R5),R0
      RTS     PC
      :SAVE THE GENERAL REGISTERS
      :CLEAR BUFFER ENABLE SWITCH
      :SEND OUT COMMAND
      :WAIT FOR SSR
      :BR, IF SSR IS SET AND OK
      :BR IF TROUBLE CARRY = CLEAR
      :READ TSSR
      :SET UP EXPECTED
      :WAS OFF LINE SET IN TSSR
      :BR, IF NO OFL SET
      :MAKE THEM LOOK ALIKE
      :ARE THEY OK
      :BR, IF EQUAL = OK
      :TROUBLE EXIT
      :POINT TO WRT CHARA DATA PACKET
      :GET ADDRESS OF MESSAGE BUFFER
      :STORE FOR PRINT ROUTINES
      :SET CARRY NO TROUBLE
      :EXIT
      :CARRY CLEAR = ERROR
      :RETURN TSSR CONTENTS
      :RETURN

```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 32
 REWIND - POSITION TAPE (REWIND) COMMAND

```

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1995 010434
1996 010434
1997 010440 012704 010530
1998 010444 010465 177776
1999 010450 012703 000550
2000 010454 004737 017120
2001 010460 103417
2002 010462
    010462 012727 000372
    010466 000000
    010470 013727 002116
    010474 000000
    010476 005367 177772
    010502 001375
    010504 005367 177756
    010510 001367
2003 010512 005303
2004 010514 001357
2005 010516 000241
2006 010520 010400
2007 010522 000207
2009 010524
2011 010530
2012 010530 102010
2013 010532 000000
    
```

```

.SBTTL REWIND - POSITION TAPE (REWIND) COMMAND
: +
: THIS ROUTINE WILL REWIND THE SELECTED TAPE.
: CAUTION: THE ROUTINE DOES NOT WAIT FOR BOT
: TO ARRIVE. ALSO THE CALLER MUST CHECK FOR
: SSR TO SET IN THE TSSR
: CALLING SEQUENCE:
: DO A SOFT INIT
: DO A WRITE CHARACTERISTICS
: JSR PC,REWIND
: INPUT:
: R5 FIRST DEVICE UNIBUS ADDRESS
: OUTPUT
: R0 THE CONTENTS OF R4 IS PASSED TO R0
: -
REWIND::
    SAVREG                                :SAVE R1-R5 UNTIL NEXT RETURN
    MOV #RWPACK,R4                        :GET PACKET ADDRESS
    MOV R4,TSDB(R5)                       :SEND PACKET ADDRESS TO EXECUTE
    MOV #360,R3                            :ENOUGH TIME FOR 2400' REEL TO REWIND
10$: JSR PC,WAITF                          :WAIT FOR SSR TO SET
    BCS 20$                                :LEAVE WHEN SSR IS SET
    DELAY 250.                             :WAIT FOR .25 SECONDS
    MOV #250.,(PC)+
    .WORD 0
    MOV LSDLY,(PC)+
    .WORD 0
    DEC -6(PC)
    BNE -4
    DEC -22(PC)
    BNE -20
    DEC R3                                  :BUMP COUNTER DOWN
    BNE 10$                                 :KEEP GOING
20$: CLC                                    :CLEAR CARRY TO SET ERROR
    MOV R4,R0                              :PASS THE PACKET ADDRESS
    RTS PC                                  :RETURN
RWPACK: .BLKB 10-<.-TUV2A&7>
    .WORD 102010                           :POSTION COMMAND (REWIND)
    .WORD 0                                :NOT USED
    
```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 33
 CKRAM - COMPARE RAM TO I/O PACKET

.SBTTL CKRAM - COMPARE RAM TO I/O PACKET

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```

:~+
:ROUTINE TO READ THE FIRST 8 BYTES FROM RAM
:MEMORY AND COMPARE THIS DATA TO A COMMAND PACKET.
:INPUT:
:      R4      ADDRESS OF THE COMMAND PACKET
:      R5      FIRST DEVICE UNIBUS ADDRESS
:OUTPUT:
:      CARRY   SET - RAM MATCHES PACKET
:             CLR - RAM DOES NOT MATCH PACKET
:IMPLICIT OUTPUT:
:      THE TABLE RAMDATA IS FILLED WITH THE
:      DATA HELD IN RAM.
:      RAMSIZ IS SET TO 8. FOR PRAMPKT ROUTINE
:SIDE EFFECTS:
:~
    
```

```

010534
010534
010540 012701 002206
010544 012702 000020
010550 005003
010552 004737 017234
010556 004737 017234
010562 110265 177777
010566 004737 017234
010572 116511 177776
010576 122124
010600 001401
010602 005203
010604 005202
010606 020227 000027
010612 003761
010614 005703
010616 001402
010620 000241
010622 000401
010624 000261
010626 012737 000010 002246
010634 000207
    
```

```

CKRAM::
  SAVREG                                :SAVE THE GENERAL REGISTERS
  MOV #RAMDATA,R1                       :ADDRESS TO SAVE THE RAM DATA
  MOV #RMPKTBEGR,R2                     :BYTE ADDRESS OF FIRST RAM DATA
  CLR R3                                 :CLEAR THE ERROR FLAG
  JSR PC,CHKTSSR                         :WAIT FOR SSR
10$: JSR PC,CHKTSSR                       :WAIT FOR SSR TO SET
  MOV R2,TSDBH(R5)                       :SELECT NEXT RAM ADDRESS
  JSR PC,CHKTSSR                         :WAIT FOR SSR TO SET
  MOV R1,TSBAL(R5),(R1)                  :READ THE RAM DATA
  CMPB (R1)+,(R4)+                       :COMPARE TO EXPECTED
  BEQ 20$                                :BRANCH IF OK
  INC R3                                  :SET ERROR FLAG
20$: INC R2                               :ADDRESS OF NEXT RAM LOCATION
  CMP R2,#RMPKTEND                       :REACHED END YET ?
  BLE 10$                                 :BRANCH TILL ALL READ
  TST R3                                  :WAS AN ERROR FOUND ?
  BEQ 30$                                :BRANCH IF NOT
  CLC                                     :CLEAR CARRY TO SHOW ERROR
  BR 50$                                  :AND EXIT
30$: SEC                                  :SHOW GOOD COMPARE
50$: MOV #8.,RAMSIZ                      :SETUP RAMSIZ FOR PRAMPKT ROUTINE
  RTS PC                                  :RETURN
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 34
 RAMER - READ AND DISPLAY SELECTED RAM

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2078 010636
2079 010636
2080 010642 013705 011022
2081 010646 012701 002206
2082 010652 013702 011020
2083 010656 013703 002246
2084 010662 004737 017234
2085 010666 110265 177777
2086 010672 004737 017234
2087 010676 116521 177776
2088 010702 062702 000001
2089 010706 077313
2090 010710 013704 002246
2091 010714 013702 011020
2092 010720 060204
2093 010722 162704 00C001
2094 010726
    010726 010446
    010730 010246
    010732 012746 011024
    010736 012746 000003
    010742 010600
    010744 104415
    010746 062706 000010
2095 010752 012701 002206
2096 010756 013703 002246
2097 010762 005004
2098 010764 112104
2099 010766 042704 177400
2100 010772
    010772 010446
    010774 012746 011075
    011000 012746 000002
    011004 010600
    011006 104415
    011010 062706 000006
2101 011014 077316
2102 011016 000207
2103 011020 000000
2104 011022 000000
2105 011024 045 116 045
2106 011075 045 101 040
2107
    
```

```

.SBTTL RAMER - READ AND DISPLAY SELECTED RAM
:+
:ROUTINE TO READ THE SELECTED RAM LOCATIONS
:INPUT:
:      R5      FIRST DEVICE UNIBUS ADDRESS
:      CONSOLE WILL ALSO BE PRINTED TO
:IMPLICIT OUTPUT:
:      THE TABLE RAMDATA IS FILLED WITH THE
:      DATA HELD IN RAM.
:-
RAMER::
    SAVREG          :SAVE THE GENERAL REGISTERS
    MOV RAMR5H,R5   :RESET R5 TO FIRST DEVICE REGISTER
    MOV #RAMDATA,R1 :ADDRESS TO SAVE THE RAM DATA
    MOV RAMHLD,R2   :BYTE ADDRESS OF THE FIRST RAM DATA
    MOV RAMSIZ,R3   :SET THE SIZE OF THE READ UP
10$: JSR PC,CHKTSSR :WAIT FOR THE SSR TO SET
    MOV R2,TSDBH(R5) :SELECT NEXT RAM ADDRESS
    JSR PC,CHKTSSR :WAIT FOR SSR TO SET
    MOV TSBAL(R5),(R1)+ :READ THE RAM DATA
20$: ADD #1,R2      :ADDRESS OF THE NEXT RAM LOCATION
    SOB R3,10$     :NUMBER OF LOCATIONS COUNTER
    MOV RAMSIZ,R4  :GET THE RAM SIZE
    MOV RAMHLD,R2  :GET THE STARTING RAM ADDRESS
    ADD R2,R4      :CALCULATE THE END ADDRESS
    SUB #1,R4      :CORRECT VALUE OF PRINTOUT
    PRINTX #RAMIOP,R2,R4 :RAM ADDRESS = 10 - 17, ETC.
    MOV R4,-(SP)
    MOV R2,-(SP)
    MOV #RAMIOP,-(SP)
    MOV #3,-(SP)
    MOV SP,R0
    TRAP C$PNTX
    ADD #10,SP
30$: MOV #RAMDATA,R1 :ADDRESS OF WHERE RAM DATA IS
    MOV RAMSIZ,R3   :THE SIZE OF THE RAM FIELD READ
    CLR R4          :NO EXTRA DATA LEFT OVER
    MOV R4,(R1)+,R4 :PICK UP BYTE OF RAM DATA
    BIC #177400,R4  :GET RID OF SIGN EXTEND
    PRINTX #RAMPD,R4 :'010 211 111 222 377 000 123 134 ETC.'"
    MOV R4,-(SP)
    MOV #RAMPD,-(SP)
    MOV #2,-(SP)
    MOV SP,R0
    TRAP C$PNTX
    ADD #6,SP
50$: SOB R3,30$     :LOOP UNTIL ALL PRINTED
    RTS PC          :RETURN
RAMHLD: .WORD 0    :RAM ADDR HOLDER 1ST ADDRESS
RAMR5H: .WORD 0    :HOLDS R5 FOR LATER
RAMIOP: .ASCIZ 'XNZA Ram Address (Octal) = %03XA - %03XN'
RAMPD:  .ASCIZ '%A %03XA '
        .EVEN
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 35
 CKRAM2 - COMPARE RAM TO I/O CHARACTERISTICS DATA

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011110			
011110			
011114	012701	002206	
011120	012702	000167	
011124	005003		
011126	004737	017234	
011132	004737	017234	
011136	110265	177777	
011142	004737	017234	
011146	116511	177776	
011152	122124		
011154	001401		
011156	005203		
011160	005202		
011162	012737	000010	002246
011170	020227	000176	
011174	003756		
011176	005703		
011200	001402		
011202	000241		
011204	000401		
011206	000261		
011210	000207		

```

.SBTTL CKRAM2 - COMPARE RAM TO I/O CHARACTERISTICS DATA
+
:ROUTINE TO READ THE FIRST 8 OR 10 BYTES FROM RAM
:MEMORY AND COMPARE THIS DATA TO A CHARACTERISTICS DATA BLOCK.
:INPUT:
R4 ADDRESS OF THE CHARACTERISTICS DATA
R5 FIRST DEVICE UNIBUS ADDRESS
:OUTPUT:
CARRY SET - RAM MATCHES PACKET
CLR - RAM DOES NOT MATCH PACKET
:IMPLICIT OUTPUT:
THE TABLE RAMDATA IS FILLED WITH THE
DATA HELD IN RAM.
RAMSIZ IS SET TO 8. OR 10. FOR PRAMPKT ROUTINE
:SIDE EFFECTS:
-
CKRAM2::
SAVREG :SAVE THE GENERAL REGISTERS
MOV #RAMDATA,R1 :ADDRESS TO SAVE THE RAM DATA
MOV #RMCHBEG,R2 :BYTE ADDRESS OF FIRST RAM DATA
CLR R3 :CLEAR THE ERROR FLAG
JSR PC,CHKTSSR :WAIT FOR SSR
10$: JSR PC,CHKTSSR :WAIT FOR SSR TO SET
MOVB R2,TSDBH(R5) :SELECT NEXT RAM ADDRESS
JSR PC,CHKTSSR :WAIT FOR SSR TO SET
MOVB TSBAL(R5),(R1) :READ THE RAM DATA
CMPB (R1)+,(R4)+ :COMPARE TO EXPECTED
BEQ 20$ :BRANCH IF OK
INC R3 :SET ERROR FLAG
20$: INC R2 :ADDRESS OF NEXT RAM LOCATION
MOV #8,RAMSIZ :ASSUME NORMAL NOT SET
CMP R2,#RMCHEND-2 :REACHED END YET ?
BLE 10$ :BRANCH TILL ALL READ
27$: TST R3 :WAS AN ERROR FOUND ?
BEQ 30$ :BRANCH IF NOT
CLC :CLEAR CARRY TO SHOW ERROR
BR 50$ :AND EXIT
30$: SEC :SHOW GOOD COMPARE
50$: RTS PC :RETURN
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 36
 CKMSG - COMPARE WRITE CHAR. MESSAGE BUFFERS

.SBTTL CKMSG - COMPARE WRITE CHAR. MESSAGE BUFFERS

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```

:ROUTINE TO COMPARE A WRITE CHARACTERISTICS EXPD AND RECV
:BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
:ERROR PRINT ROUTINES.
:INPUT:
      RO      RECV MESSAGE BUFFER HIGH ORDER ADDRESS
      R1      RECV MESSAGE BUFFER LOW ORDER ADDRESS
      R2      EXPD MESSAGE BUFFER ADDRESS
:OUTPUT:
      CARRY   SET - MESSAGE BUFFERS MATCH
             CLR -MESSAGE BUFFERS DON'T MATCH
:IMPLICIT OUTPUT:
      EXPMSG  BUFFER IS SET TO EXPD DATA
      RECMSG  BUFFER IS SET TO RECV DATA
      RCVHIADD SET TO HIGH ORDER ADDRESS OF RECV
      RCVLOADD SET TO LOW ORDER ADDRESS OF RECV
-
CKMSG::
      SAVREG
      MOV     RO,RCVHIADD      ;SAVE R1-R5 UNTIL NEXT RETURN
      MOV     R1,RCVLOADD     ;SAVE RECV HIGH ADDRESS
      MOV     R2,RCVLOADD     ;SAVE RECV LOW ADDRESS
      TST     KTENABLE        ;TESTING ABOVE 28K?
      BEQ     10$             ;BR IF NO
      JSR     PC,SETMAP       ;RETURN ADDRESS BIASED TO PAR6 IN RO
      MOV     R0,R1           ;GET RETURNED ADDRESS BIASED TO PAR6
10$:      CLR     R4           ;WORD IN BUFFER
      CLR     R3           ;CLEAR ERROR SEEN FLAG
      MOV     R2,R5         ;GET EXPD BUFFER ADDRESS
15$:      MOV     (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
      MOV     (R1),RECMSG(R4) ;SAVE RECV FOR ERROR REPORT
      CMP     (R2)+,(R1)+    ;EXPD EQUAL RECV?
      BEQ     25$           ;BR IF YES
      INC     R3           ;SET ERROR SEEN FLAG
25$:      ADD     #2,R4       ;POINT TO NEXT WORD ADDRESS
      CMP     R4,#14        ;DONE FIRST 7 WORDS?
      BLE     15$          ;BR IF NO
      BIT     #X2.EXTF,XST2(R5) ;IS EXTENDED FEATURES SET IN EXPD?
      BEQ     50$          ;BR IF NO
      CMP     R4,#16        ;DONE EXTENDED FEATURES WORD?
      BLE     15$          ;BR IF NO
50$:      TST     R3         ;ANY ERRORS SEEN?
      BEQ     55$          ;BR IF NO
      CLC                    ;SET FAILURE
      BR     60$
55$:      SEC                    ;SET SUCCESS
60$:      RTS     PC         ;RETURN
    
```

011212
011212
011216 010037 002250
011222 010137 002252
011226 005737 003102
011232 001403
011234 004737 020266
011240 010001
011242 005004
011244 005003
011246 010205
011250 011264 002266
011254 011164 002432
011260 022221
011262 001401
011264 005203
011266 062704 000002
011272 020427 000014
011276 003764
011300 032765 000200 000012
011306 001403
011310 020427 000016
011314 003755
011316 005703
011320 001402
011322 000241
011324 000401
011326 000261
011330 000207

CZTUYA0 TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 37
CKMSG2 - COMPARE EXPD RECV MESSAGE BUFFERS

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011332
011332
011336 020327 000144
011342 003412
011344 012703 000144
011350
011350 012746 011464
011354 012746 000001
011360 010600
011362 104417
011364 062706 000004
011370 010037 002250
011374 010137 002252
011400 005737 003102
011404 001403
011406 004737 020266
011412 010001
011414 005004
011416 005005
011420 111264 002266
011424 111164 002432
011430 122221
011432 001401
011434 005205
011436 062704 000001
011442 020403
011444 002001
011446 000764
011450 005705
011452 001402

.SBTTL CKMSG2 - COMPARE EXPD RECV MESSAGE BUFFERS
+
:ROUTINE TO COMPARE AN EXPECTED AND RECEIVED MESSAGE
:BUFFER. THE EXPECTED AND RECEIVED BUFFERS ARE STORED FOR
:ERROR PRINT ROUTINES.
:INPUT:
R0 RECV MESSAGE BUFFER HIGH ORDER ADDRESS
R1 RECV MESSAGE BUFFER LOW ORDER ADDRESS
R2 EXPD MESSAGE BUFFER ADDRESS
R3 NUMBER OF BYTES TO COMPARE
:OUTPUT:
CARRY SET - MESSAGE BUFFERS MATCH
CLR - MESSAGE BUFFERS DON'T MATCH
:IMPLICIT OUTPUT:
EXPMSG BUFFER IS SET TO EXPD DATA
RECMG BUFFER IS SET TO RECV DATA
RCVHIADD SET TO HIGH ORDER ADDRESS OF RECV
RCVLOADD SET TO LOW ORDER ADDRESS OF RECV

CKMSG2::
SAVREG ;SAVE R1-R5 UNTIL NEXT RETURN
CMP R3,#RECMG-EXPMSG ;IS COUNT ABOVE MAX ALLOWED?
5\$ BR ;BR IF NO
MOV #RECMG-EXPMSG,R3 ;
PRINTF #DEBUGMSG ;
MOV #DEBUGMSG,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP C\$PNTF
ADD #4,SP
5\$: MOV R0,RCVHIADD ;SAVE RECV HIGH ADDRESS
MOV R1,RCVLOAD ;SAVE RECV LOW ADDRESS
TST KTENABLE ;TESTING ABOVE 28K?
BEQ 10\$;BR IF NO
JSR PC,SETMAP ;RETURN ADDRESS BIASED TO PAR6 IN R0
MOV R0,R1 ;GET RETURNED ADDRESS BIASED TO PAR6
10\$: CLR R4 ;WORD IN BUFFER
CLR R5 ;CLEAR ERROR SEEN FLAG
15\$: MOV (R2),EXPMSG(R4) ;SAVE EXPD FOR ERROR REPORT
MOV (R1),RECMG(R4) ;SAVE RECV FOR ERROR REPORT
CMPB (R2)+,(R1)+ ;EXPD EQUAL RECV?
BEQ 25\$;BR IF YES
INC R5 ;SET ERROR SEEN FLAG
25\$: ADD #1,R4 ;POINT TO NEXT BYTE
CMP R4,R3 ;DONE ALL BYTES?
BGE 50\$;BR IF YES
BR 15\$;DO NEXT BYTE
50\$: TST R5 ;ANY ERRORS SEEN?
BEQ 55\$;BR IF NO

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 37-1
CKMSG2 - COMPARE EXPD RECV MESSAGE EUFFERS

```

2269 011454 000241          CLC          ;SET FAILURE
2270 011456 000401          BR          60$          ;
2271 011460 000261          55$: SEC          ;SET SUCCESS
2272 011462 000207          60$: RTS          PC          ;RETURN
2273
2274 011464          120          122          117 DEBUGMSG: .ASCIZ 'PROGRAM INTERNAL ERROR -CKMSG2 MESSAGE BUFFER EXCEEDED-';@@D
2275 011554          045          116          045 FERCM: .ASCII /ZNZA ***/
2276 011565          040          040          124 ERCM: .ASCIZ / TSSR ERROR CODE REC'D = /
2277 011620          056          056          056 SIMSG: .ASCIZ /..... AFTER DOING SOFT INIT/
2278 011653          124          105          123 TINERR: .ASCIZ /TEST: .../
2279

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 38
 CKMSG2 - COMPARE EXPD RECV MESSAGE BUFFERS

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004737 005264
011672 020152
011676
011676 104423
011700
011700
004737 005264
011704 000004
004737 007072
011714 002716
005001
004737 014062
011726
011726
011726 104423

```

: +
: PRINT ROUTINE TO FATAL SOFT INIT ERRORS
: INPUT:
:       R1      CONTENTS OF TSSR AT ERROR
: SIDE EFFECTS:
:       EXECUTES DROP UNIT TO CEASE TESTING
: -

```

```

BGNMSG SFMSG
SFMSG:: JSR PC,PRITSSR ;PRINT CONTENTS OF TSSR REGISTER
        JSR PC,CKDROP ;DROP UNIT, IF ALLOWED
        ENDMSG
L10003: TRAP CSMSG

```

```

: +
: PRINT ROUTINE TO PRINT THE CONTENTS OF
: TSSR AND A COMMAND PACKET OTHER THAN GET STATUS COMMAND PACKET.
: INPUTS:
:       R1      TSSR CONTENTS
:       R4      ADDRESS OF COMMAND PACKET
: -

```

```

BGNMSG PKTSSR
PKTSSR:: JSR PC,PRITSSR ;PRINT THE CONTENTS OF TSSR REGISTER
        MOV #4,R0 ;NO. OF WORDS IN PACKET
        JSR PC,PRIPKT ;PRINT THE CONTENTS OF COMMAND PACKET
        MOV MESBFA,R0 ;ADDRESS OF MESSAGE BUFFER
        CLR R1 ;ASSUME NO HIGH MEMORY
        JSR PC,PRMESS ;PRINT THE MESSAGE BUFFER ALSO
        ENDMSG
L10004: TRAP CSMSG

```

```

: +
: PRINT ROUTINE TO PRINT THE CONTENTS OF
: TSSR AND A GET STATUS COMMAND PACKET.
: INPUTS:
:       R1      TSSR CONTENTS
:       R4      ADDRESS OF COMMAND PACKET
: -

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 38-1
 CKMSG2 - COMPARE EXPD RECV MESSAGE BUFFERS

```

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2333 011730          BGNMSG  PKTGETS
      011730          PKTGETS::
2334 011730 004737 005264      JSR      PC,PRITSSR      ;PRINT THE CONTENTS OF TSSR REGISTER
2335 011734 012700 000002      MOV      #2,R0           ;NO. OF WORDS IN GET STATUS PACKET
2336 011740 004737 007072      JSR      PC,PRIPKT      ;PRINT THE CONTENTS OF COMMAND PACKET
2337 011744          ENDMSG
      011744          L10005:
      011744 104423      TRAP      CSMSG

2338
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2341          :+
2342          :PRINT TSSR ERRORS FOR INITIALIZATION TESTS
2343          :
2344          :INPUTS:
2345          :
2346          :      R1      TSSR CONTENTS
2347          :      R4      ADDRESS OF COMMAND PACKET
2348          :
2349          :
2350 011746          BGNMSG  SFFMSG
      011746          SFFMSG::
2351 011746 004737 005264      JSR      PC,PRITSSR      ;PRINT CONTENTS OF TSSR REGISTER
2352 011752          ENDMSG
      011752          L10006:
      011752 104423      TRAP      CSMSG

2353
2354          .SBTTL  PKTMES - PRINT TSSR AND MESSAGE BUFFER
2355          :+
2356          :PRINT ROUTINE TO PRINT THE CONTENTS OF TSSR AND MESSAGE
2357          :BUFFER FOR ERROR REPORTS
2358          :
2359          :INPUTS:
2360          :
2361          :      R1      CONTENTS OF TSSR
2362          :      R2      LOW ORDER MESSAGE BUFFER
2363          :      R3      HIGH ORDER MESSAGE BUFFER ADDRESS
2364          :      NOTE: R3 IS IGNORED IF KTENABLE FLAG IS CLEAR
2365          :
2366          :
2367 011754          BGNMSG  PKTMES
      011754          PKTMES::
2368 011754 004737 005264      JSR      PC,PRITSSR      ;PRINT CONTENTS OF TSSR
2369 011760 010200          MOV      R2,R0           ;LOW ORDER ADDRESS
2370 011762 010301          MOV      R3,R1           ;HIGH ORDER ADDRESS
2371 011764 004737 014062      JSR      PC,PRMESS      ;PRINT THE MESSAGE BUFFER
2372 011770          ENDMSG
      011770          L10007:
      011770 104423      TRAP      CSMSG

2373

```

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2387 011772
      011772
2388 011772 004737 010026
2389 011776 016501 000000
2390 012002 004737 005264
2391 012006
      012006
      012006 104423
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2406 012010
      012010
2407 012010 012700 000007
2408 012014 004737 015422
2409 012020
      012020
      012020 104423
2410
2411

```

```

.SBTTL ADDSSR - PRINT TEST ADDRESS AND TSSR
:+
:PRINT ROUTINE TO PRINT THE CONTENTS OF
:TSSR AND A MEMORY TEST ADDRESS
:
:INPUTS:
:
:R5      FIRST DEVICE UNIBUS ADDRESS
:ERRHI   HIGH ORDER MEMORY TEST ADDRESS
:ERRLO   LOW ORDER MEMORY TEST ADDRESS
:-
:
:      BGNMSG  ADDSSR
ADDSSR::
:      JSR    PC,PRITADD      ;PRINT MEMORY TEST ADDRESS
:      MOV    TSSR(R5),R1     ;GET CURRENT TSSR
:      JSR    PC,PRITSSR     ;PRINT THE CONTENTS OF TSSR REGISTER
:      ENDMSG
L10010:
:      TRAP   C$MSG

```

```

.SBTTL MSGEXP - PRINT WRITE CHAR. EXPD-RCV MESSAGE BUFFERS
:+
:PRINT ROUTINE TO PRINT WRITE CHARACTERISTIC MESSAGE BUFFER
:
:IMPLICIT INPUTS:
:
:EXPMSG  - EXPECTED MESSAGE BUFFER
:RCMSG   - RECEIVED MESSAGE BUFFER
:RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
:RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
:-
:      BGNMSG  MSGEXP
MSGEXP::
:      MOV    #7,R0           ;ASSUME NO EXT FEATURES
5$:
:      JSR    PC,PRMSGEXP    ;PRINT EXPD/RCV MESSAGE BUFFERS
:      ENDMSG
L10011:
:      TRAP   C$MSG

```

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2425 012022
      012022
2426 012022 010146 012074
      012024 012746 000002
      012030 012746
      012034 010600
      012036 104415
2427 012040 062706 000006
      012044
      012044 012746 012143
      012050 012746 000001
      012054 010600
      012056 104415
2428 012060 062706 000004
      012064 010100
2429 012066 004737 015772
2430 012072
      012072
      012072 104423
2431 012074 045 116
2432 012143 045 116
2433
2434

```

```

.SBTTL FIFEXP - PRINT FIFO EXP/REC DATA
:PRINT ROUTINE TO PRINT FIFO EXP/REC DATA
R1 - BYTE COUNT
:IMPLICIT INPUTS:
EXPMSG - EXPECTED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
RECMSG - RECEIVED MESSAGE BUFFER (CONTAINS FIFO DATA ONLY)
BGNMSG FIFEXP
FIFEXP::
PRINTX #FIF1MSG,R1 ;PRINT BYTES TRANSFERRED
MOV R1,-(SP)
MOV #FIF1MSG,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP CSPNTX
ADD #6,SP
PRINTX #FIF2MSG ;PRINT HEADER MSG
MOV #FIF2MSG,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP CSPNTX
ADD #4,SP
MOV R1,R0 ;GET BYTE COUNT
JSR PC,PRBYTEXP ;PRINT FIFO BYTES IN ERROR
ENDMSG
L10012:
TRAP CMSG
.ASCIZ 'XNZA NUMBER OF BYTES TRANSFERRED = %D2'
045 FIF1MSG: .ASCIZ 'XNZA FIFO DATA BYTES IN ERROR:'
.ASCIZ 'XNZA FIFO DATA BYTES IN ERROR:'
.EVEN

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 41
MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS

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012202 012701 012244
012206 012100
012210 001410
012212
012212 010046
012214 012746 000001
012220 010600
012222 104415
012224 062706 000004
012230 000766
012232 012700 000012
012236 004737 015422
012242
012242 104423
012244 012262 012324 012415
012262 045 116 045
012324 045 116 045
012415 045 116 045
012506 045 116 045
012577 045 116 045
012641 045 116 045
012716

```
.SBTTL MSGSTAT - PRINT STATUS HEADER AND MESSAGE BUFFERS
:PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RCV
:IMPLICIT INPUTS:
EXPMSG - EXPECTED MESSAGE BUFFER
RCMSG - RECEIVED MESSAGE BUFFER
RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
BGNMSG MSGSTAT
MSGSTAT::
10$: MOV #STATCOD,R1 :ASCII ADDRESS TABLE
MOV (R1)+,R0 :DONE ALL MSG LINES?
BEQ 20$ :BR IF YES
PRINTX R0 :PRINT STATUS BIT NAMES
MOV R0,-(SP)
MOV #1,-(SP)
MOV SP,R0
TRAP CSPNTX
ADD #4,SP
BR 10$ :DO ANOTHER MSG LINE
20$: MOV #10,R0 :NUMBER OF WORDS IN A READ STATUS BUFFER
JSR PC,PRMSGEXP :PRINT EXPD/RCV MESSAGE BUFFERS
ENDMSG
L10013: TRAP CSMSG
STATCOD: .WORD 1$,2$,3$,4$,5$,6$,0
1$: .ASCIZ 'XNZX Tape Bus Signals in Word #8:'
2$: .ASCIZ 'XNZX PARERR<15> IEOT <12> IFMK <9> IRDY<6> IRWD<2>'
3$: .ASCIZ 'XNZX IRESV2<14> IIDENT<11> IHER <8> IONL<5> IFBY<1>'
4$: .ASCIZ 'XNZX IRESV1<13> ICER <10> ISPEED<7> ILDP<4> IFPT<0>'
5$: .ASCIZ 'XNZX Tape Bus Signals in Word #9:'
6$: .ASCIZ 'XNZX DATMIS<7> ILW<6> OUTRDY<5> INRDY<4>'
.EVEN
.SBTTL MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS
:PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RCV
:IMPLICIT INPUTS:
EXPMSG - EXPECTED MESSAGE BUFFER
RCMSG - RECEIVED MESSAGE BUFFER
RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
BGNMSG MSGLOOP
```

CZTUAYO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 41-1
MSGLOOP - PRINT LOOPBACK HEADER AND MESSAGE BUFFERS

```

2485 012716 012701 012760      MSGLOOP::
2486 012722 012100      10$:  MOV     #LOOPCOD,R1      :ASCII ADDRESS TABLE
2487 012724 001410      BEQ     (R1)+,RO      :DONE ALL MSG LINES?
2488 012726      PRINTX  RO      :BR IF YES
      MOV     RO,-(SP)   :PRINT STATUS BIT NAMES
      MOV     #1,-(SP)
      MOV     SP,RO
      TRAP   C$PNTX
      ADD     #4,SP
2489 012744 000766      BR      10$          :DO ANOTHER MSG LINE
2490 012746 012700 000012    20$:  MOV     #10,,RO      :NUMBER OF WORDS IN A READ STATUS BUFFER
2491 012752 004737 015422    JSR     PC,PRMSGEXP   :PRINT EXPD/RECV MESSAGE BUFFERS
2492 012756      ENDMSG
      L10014:
      TRAP   C$MSG
2493 012756 104423
2494 012760 013000 013053 013152 LOOPCOD: .WORD 1$,2$,3$,4$,5$,6$,7$,0
2495 013000      045 116 045 1$: .ASCIZ 'XNZA Tape Bus Loopback Signals in Word #8:'
2496 013053      045 116 045 2$: .ASCIZ 'XNZA PARERR<15> IRESV2<14> IRESV1<13>'
2497 013152      045 116 045 3$: .ASCIZ 'XNZA IHISP=>IEOT<12> IWRT=>IIDENT<11> IREV =>ICER <10>'
2498 013251      045 116 045 4$: .ASCIZ 'XNZA IWFM =>IFMK<09> IEDIT=>IHER <08> IFAD =>ISPEED<07>'
2499 013350      045 116 045 5$: .ASCIZ 'XNZA ITADO=>IRDY<06> ITAD1=>IONL <05> IERASE=>ILDLP <04>'
2500 013447      045 116 045 6$: .ASCIZ 'XNZA IREW =>IDBY<03> IRWU =>IRWD <02> IFEN =>IFBY <01>'
2501 013546      045 116 045 7$: .ASCIZ 'XNZA IGO =>IFPT<00>'
2502      .EVEN
2503

```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 42
MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER

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013574
013574
013574 012700 000012
013600 004737 015422
013604
013604
013604 104423

013606
013606
013606 004737 007712
013612 013701 002176
013616 013702 002200
013622 004737 007474
013626
013626
013626 104423

```
.SBTTL MSGSUB - PRINT WRITE SUBSYSTEM MESSAGE BUFFER
:+
:PRINT ROUTINE TO PRINT MESSAGE BUFFER EXPD/RCV
:
:IMPLICIT INPUTS:
:
:   EXPMSG - EXPECTED MESSAGE BUFFER
:   RECMSG - RECEIVED MESSAGE BUFFER
:   RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
:   RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
:-
:
:   BGNMSG MSGSUB
MSGSUB::
:   MOV #10,R0 ;SIZE OF WRITE SUBSYSTEM BUFFER
:   JSR PC,PRMSGEXP ;PRINT EXPD/RCV MESSAGE BUFFERS
:   ENDMSG
L10015:
:   TRAP C$MSG
```

```
.SBTTL MEMADD - PRINT MEMORY ADDRESS DATA ERROR
:+
:PRINT ROUTINE TO PRINT MEMORY ADDRESS DATA COMPARE ERROR
:
:IMPLICIT INPUTS:
:
:   ERRHI - MEMORY ERROR HIGH ORDER ADDRESS
:   ERRLO - MEMORY ERROR LOW ORDER ADDRESS
:   EXP - EXPECTED DATA
:   RECV - RECEIVED DATA
:-
:
:   BGNMSG MEMADD
MEMADD::
:   JSR PC,PRIADD ;PRINT MEMORY ADDRESS IN ERROR
:   MOV EXPD,R1 ;GET EXPD DATA
:   MOV RECV,R2 ;GET RECEIVED DATA
:   JSR PC,PRIXOR ;PRINT EXPD/RCV
:   ENDMSG
L10016:
:   TRAP C$MSG
```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 43
 PRAMPKT - PRINT RAM AND PACKET DATA

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013630			
013634	012701	002206	
013640	005002		
013642	122124		
013644	001000		
013646	116105	177777	
013652	116403	177777	
013656			
013666	042703	177400	
013672	116137	177777	002200
013700	116437	177777	002176
013706			
013706	010346		
013710	013746	002176	
013714	013746	002200	
013720	010246		
013722	012746	013776	
013726	012746	000005	
013732	010600		
013734	104414		
013736	062706	000014	
013742	005202		
013744	005737	002246	
013750	001404		
013752	020237	002246	
013756	003731		
013760	000403		
013762	020227	000010	
013766	002725		
013770	005037	002246	
013774	000207		
013776	045	116	045

```

.SBTTL PRAMPKT - PRINT RAM AND PACKET DATA
+
:PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
:WHEN THE RAM DATA DOES NOT MATCH.
:INPUTS:
:      R4      POINTER TO COMMAND PACKET
:IMPLICIT INPUTS:
:      RAMDATA  DATA AS READ FROM THE RAM
:      RAMSIZ   NUMBER OF BYTES IN PACKET
:              IF RAMSIZ=0 THEN DEFAULT TO 8.
:IMPLICIT OUTPUTS:
:      RAMSIZ  SET TO 0
-
PRAMPKT:
    SAVREG          ;SAVE R1-R5 UNTIL NEXT RETURN
    MOV             #RAMDATA,R1 ;DATA FROM THE RAM
    CLR            R2          ;INIT BYTE NUMBER
    5$: CMPB        (R1)+,(R4)+ ;COMPARE EXPECTED, RECEIVED
    BNE            7$         ;BR IF NO MATCH
    7$: MOVB        -1(R1),R5   ;GET RECV RAM DATA
    MOVB          -1(R4),R3   ;GET EXPD PACKET DATA
    XOR            R5,R3      ;XOR EXPD/RECV
    BIC            #177400,R3 ;LOW BYTE ONLY
    MOVB          -1(R1),RCV   ;GET RECEIVED RAM DATA
    MOVB          -1(R4),EXPD  ;GET EXPECTED RAM DATA
    PRINTB        #RAMASC,R2,RCV,EXPD,R3
    MOV            R3,-(SP)
    MOV            EXPD,-(SP)
    MOV            RCV,-(SP)
    MOV            R2,-(SP)
    MOV            #RAMASC,-(SP)
    MOV            #5,-(SP)
    MOV            SP,R0
    TRAP          C$PNTB
    10$: ADD        #14,SP
    INC            R2          ;UPDATE BYTE COUNT
    TST            RAMSIZ     ;DEFAULT TO 8.?
    BEQ            15$       ;BR IF YES
    CMP            R2,RAMSIZ  ;DONE ALL BYTES?
    BLE            5$        ;BR IF NO
    BR            25$
    15$: CMP        R2,#8.    ;DONE DEFAULT NUMBER OF BYTES?
    20$: BLT        5$        ;BR IF NO
    25$: CLR        RAMSIZ    ;SET DEFAULT RAMSIZ
    RTS            PC        ;RETURN
045 RAMASC: .ASCIZ 'X%X BYTE: %D2%A RAM: %O3%A Packet: %O3%A XOR:%O3'
.EVEN
    
```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 44
 PRMESS - PRINT CONTENTS OF MESSAGE BUFFER

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014062
014066 010537 011022
014072 010005
014074 005737 003102
014100 001001
014102 005001
014104 010103
014106 006100
014110 006101
014112 010546
014114 010146
014116 012746 014713
014122 012746 000003
014126 010600
014130 104415
014132 062706 000010
014136 022715 177777
014142 001010
014144 012746 014633
014150 012746 000001
014154 010600
014156 104415
014160 062706 000004
014164 012746 014760
014170 012746 000001
014174 010600
014176 104415
014200 062706 000004
014204 005004
014206 010501
014210 010300
014212 001403
014214 004737 020266
014220 010005
014222
014222

.SBTTL PRMESS - PRINT CONTENTS OF MESSAGE BUFFER
 :+
 :THIS ROUTINE PRINTS THE CONTENTS OF
 :THE 7 WORD MESSAGE BUFFER RETURNED BY THE
 :TU80.
 :INPUT:
 : R0 LOW ORDER ADDRESS OF MESSAGE BUFFER
 : R1 HIGH ORDER ADDRESS OF MESSAGE BUFFER
 : NOTE: R1 IS IGNORED IF KENABLE FLAG IS CLEAR
 :THIS ROUTINE IS NORMALLY CALLED FROM A PRINT ROUTINE
 :-

PRMESS:
 SAVREG ;SAVE THE REGISTERS
 MOV R5,RAMR5H ;SAVE DEVICE REGISTER POINTER
 MOV R0,R5 ;SAVE LOW ORDER ADDRESS
 TST KENABLE ;ADDRESS ABOVE 28K?
 BNE 10\$;BR IF YES
 CLR R1 ;SET HIGH ORDER ADDRESS TO 0
 10\$: MOV R1,R3 ;SAVE HIGH ORDER ADDRESS
 ROL R0 ;SHIFT BIT15 TO C BIT
 ROL R1 ;SHIFT TO HIGH ORDER FOR PRINTOUT
 PRINTX #PROASC,R1,R5 ;PRINT MESSAGE BUFFER ADDRESS
 MOV R5,-(SP)
 MOV R1,-(SP)
 MOV #PROASC,-(SP)
 MOV #3,-(SP)
 MOV SP,R0
 TRAP CSPNTX
 ADD #10,SP
 CMP #177777,(R5) ;MESSAGE BUFFER FULL OF ONES
 BNE 15\$;BR IF BUFFER IS PROBABLY OKAY
 PRINTX #MESBFN ;'MESSAGE BUFFER PROBABLY NOT VALID'
 MOV #MESBFN,-(SP)
 MOV #1,-(SP)
 MOV SP,R0
 TRAP CSPNTX
 ADD #4,SP
 15\$: PRINTX #PR1ASC ;PRINT HEADER FOR CONTENTS
 MOV #PR1ASC,-(SP)
 MOV #1,-(SP)
 MOV SP,R0
 TRAP CSPNTX
 ADD #4,SP
 CLR R4 ;NUMBER OF THE NEXT WORD
 MOV R5,R1 ;COPY LOW ORDER ADDRESS
 MOV R3,R0 ;COPY HIGH ORDER ADDRESS
 BEQ 20\$;BR IF NOT ABOVE 28K
 JSR PC,SETMAP ;SETUP PAR ADDRESS IN R0
 MOV R0,R5 ;GET PAR FORMAT ADDRESS ABOVE 28K
 20\$: PRINTX #MESHEA,(R5)+ ;PRINT 'MESSAGE BUFFER HEADER ='

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 44-1
PRMESS - PRINT CONTENTS OF MESSAGE BUFFER

	014222	012546		MOV	(R5)+, -(SP)	
	014224	012746	015016	MOV	#MESHEA, -(SP)	
	014230	012746	000002	MOV	#2, -(SP)	
	014234	010600		MOV	SP, R0	
	014236	104415		TRAP	C\$PNTX	
2634	014240	062706	000006	ADD	#6, SP	
	014244			PRINTX	#DATAFL, (R5)+	:PRINT 'DATA FIELD LENGTH ='
	014244	012546		MOV	(R5)+, -(SP)	
	014246	012746	015063	MOV	#DATAFL, -(SP)	
	014252	012746	000002	MOV	#2, -(SP)	
	014256	010600		MOV	SP, R0	
	014260	104415		TRAP	C\$PNTX	
2635	014262	062706	000006	ADD	#6, SP	
	014266			PRINTX	#RBPCRA, (R5)+	:PRINT 'RESIDUAL BYTE COUNTER ='
	014266	012546		MOV	(R5)+, -(SP)	
	014270	012746	015130	MOV	#RBPCRA, -(SP)	
	014274	012746	000002	MOV	#2, -(SP)	
	014300	010600		MOV	SP, R0	
	014302	104415		TRAP	C\$PNTX	
2636	014304	062706	000006	ADD	#6, SP	
	014310			PRINTX	#XS0CON, (R5)+	:PRINT 'XSTAT0 CONTENTS ='
	014310	012546		MOV	(R5)+, -(SP)	
	014312	012746	015175	MOV	#XS0CON, -(SP)	
	014316	012746	000002	MOV	#2, -(SP)	
	014322	010600		MOV	SP, R0	
	014324	104415		TRAP	C\$PNTX	
2637	014326	062706	000006	ADD	#6, SP	
	014332			PRINTX	#XS1CON, (R5)+	:PRINT 'XSTAT1 CONTENTS ='
	014332	012546		MOV	(R5)+, -(SP)	
	014334	012746	015242	MOV	#XS1CON, -(SP)	
	014340	012746	000002	MOV	#2, -(SP)	
	014344	010600		MOV	SP, R0	
	014346	104415		TRAP	C\$PNTX	
2638	014350	062706	000006	ADD	#6, SP	
	014354			PRINTX	#XS2CON, (R5)+	:PRINT 'XSTAT2 CONTENTS ='
	014354	012546		MOV	(R5)+, -(SP)	
	014356	012746	015307	MOV	#XS2CON, -(SP)	
	014362	012746	000002	MOV	#2, -(SP)	
	014366	010600		MOV	SP, R0	
	014370	104415		TRAP	C\$PNTX	
2639	014372	062706	000006	ADD	#6, SP	
	014376			PRINTX	#XS3CON, (R5)+	:PRINT 'XSTAT3 CONTENTS ='
	014376	012546		MOV	(R5)+, -(SP)	
	014400	012746	015354	MOV	#XS3CON, -(SP)	
	014404	012746	000002	MOV	#2, -(SP)	
	014410	010600		MOV	SP, R0	
	014412	104415		TRAP	C\$PNTX	
2640	014414	062706	000006	ADD	#6, SP	
2641	014420	022737	000001	CMP	#1, TRANSTST	:CHECK FOR RAM DUMP REQUIRED
2642	014426	001402		BEQ	40\$:BR, IF DUMP REQUIRED
2643	014430	000137	014540	JMP	50\$:NO DUMP
	014434			PRINTX	#RAMFHR	
	014434	012746	014542	MOV	#RAMFHR, -(SP)	
	014440	012746	000001	MOV	#1, -(SP)	
	014444	010600		MOV	SP, R0	
	014446	104415		TRAP	C\$PNTX	
	014450	062706	000004	ADD	#4, SP	

002134

40\$:

CZTUAYO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 44-2
 PRMESS - PRINT CONTENTS OF MESSAGE BUFFER

2644	014454	012737	000010	002246	MOV	#8.,RAMSIZ	:RAM FIELD IS 8 BYTES LONG
2645	014462	012737	000020	011020	MOV	#20,RAMHLD	:FIELD STARTS AT 20 OCTAL (10 HEX)
2646	014470	004737	010636		JSR	PC,RAMER	:READ AND PRINT THEM
2647	014474	012737	000040	011020	MOV	#40,RAMHLD	:FIELD STARTS AT 40 OCTAL (20 HEX)
2648	014502	004737	010636		JSR	PC,RAMER	:READ AND PRINT THEM
2649	014506	012737	000060	011020	MOV	#60,RAMHLD	:FIELD STARTS AT 60 OCTAL (30 HEX)
2650	014514	004737	010636		JSR	PC,RAMER	:READ AND PRINT THEM
2651	014520	012737	000020	002246	MOV	#16.,RAMSIZ	:RAM FIELD IS SIXTEEN BYTES LONG
2652	014526	012737	000100	011020	MOV	#100,RAMHLD	:FIELD STARTS AT 100 OCTAL (40 HEX)
2653	014534	004737	010636		JSR	PC,RAMER	:READ AND PRINT THEM
2654	014540	000207			RTS	PC	:RETURN
2655	014542	045	116	045	RAMFHR: .ASCIZ	'ZNZA ***** SPECIAL M7454 RAM MEMORY DUMP *****'	
2656	014633	045	116	045	MESBFN: .ASCIZ	'ZNZA MESSAGE BUFFER CONTENTS PROBABLY NOT VALID'	
2657	014713	045	116	045	PROASC: .ASCIZ	'ZNZA Message Buffer Address = %01%05'	
2658	014760	045	116	045	PR1ASC: .ASCIZ	'ZNZA Message Buffer Contents:'	
2659							
2660	015016	045	116	045	MESHEA: .ASCIZ	'ZNZA Message Buffer Header	= %06'
2661	015063	045	116	045	DATAFL: .ASCIZ	'ZNZA Data Field Length	= %06'
2662	015130	045	116	045	RBPCRA: .ASCIZ	'ZNZA Residual Byte Counter	= %06'
2663	015175	045	116	045	XSOCON: .ASCIZ	'ZNZA XSTAT0 Contents	= %06'
2664	015242	045	116	045	XS1CON: .ASCIZ	'ZNZA XSTAT1 Contents	= %06'
2665	015307	045	116	045	XS2CON: .ASCIZ	'ZNZA XSTAT2 Contents	= %06'
2666	015354	045	116	045	XS3CON: .ASCIZ	'ZNZA XSTAT3 Contents	= %06'
2667					.EVEN		

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 45
PRMSGEXP - PRINT EXPD/RCV MESSAGE BUFFERS

```

2669          .SBTTL PRMSGEXP - PRINT EXPD/RCV MESSAGE BUFFERS
2670          :+
2671          :ROUTINE TO PRINT EXPECTED AND RECEIVED MESSAGE BUFFERS
2672          RO - NUMBER OF WORDS IN BUFFER
2673          :IMPLICIT INPUTS:
2674          EXPMSG - EXPECTED MESSAGE BUFFER
2675          RECMSG - RECEIVED MESSAGE BUFFER
2676          RCVHIADD- RECEIVED MESSAGE BUFFER HIGH ORDER ADDRESS
2677          RCVLOADD- RECEIVED MESSAGE BUFFER LOW ORDER ADDRESS
2678          :-
2679 PRMSGEXP::
2680          SAVREG          ;SAVE R1-R5 UNTIL NEXT RETURN
2681          MOV            RO,R5          ;SAVE NUMBER OF WORDS
2682          MOV            RCVLOADD,RO    ;GET RECV LOW ADDRESS
2683          MOV            RO,R4          ;COPY LOW ADDRESS
2684          MOV            RCVHIADD,R1    ;GET RECV HIGH ADDRESS
2685          ROL            RO             ;SHIFT BIT15 TO C BIT
2686          ROL            R1             ;SHIFT TO HIGH ORDER FOR PRINTOUT
2687          PRINTX        #PRMSGO,R1,R4  ;PRINT MESSAGE BUFFER ADDRESS
2688          MOV            R4,-(SP)
2689          MOV            R1,-(SP)
2690          MOV            #PRMSGO,-(SP)
2691          MOV            #3,-(SP)
2692          MOV            SP,RO
2693          TRAP           CSPNTX
2694          ADD            #10,SP
2695          PRINTX        #PRMSG1          ;PRINT HEADER FOR CONTENTS
2696          MOV            #PRMSG1,-(SP)
2697          MOV            #1,-(SP)
2698          MOV            SP,RO
2699          TRAP           CSPNTX
2700          ADD            #4,SP
2701          CLR            R4              ;NUMBER OF THE CURRENT WORD
2702          MOV            #EXPMSG,R1      ;GET EXPD BUFFER ADDRESS
2703          MOV            #RECMSG,R2      ;GET RECV BUFFER ADDRESS
2704          MOV            (R1),RO         ;GET EXPD
2705          MOV            (R2),R3         ;GET RECV
2706          XOR            RO,R3          ;XOR EXPD/RCV
2707          PRINTX        #PRMSG2,R4,(R1)+,(R2)+,R3
2708          MOV            R3,-(SP)
2709          MOV            (R2)+,-(SP)
2710          MOV            (R1)+,-(SP)
2711          MOV            R4,-(SP)
2712          MOV            #PRMSG2,-(SP)
2713          MOV            #5,-(SP)
2714          MOV            SP,RO
2715          TRAP           CSPNTX
2716          ADD            #14,SP
2717          INC            R4              ;NUMBER OF THE NEXT
2718          CMP            R4,R5          ;DONE ALL YET?
2719          BGE            50$           ;BR IF YES
2720          BR             20$           ;DO ANOTHER
2721          BR             20$           ;DO ANOTHER
2722          PC             RTS            ;RETURN
2723          50$:          PRMSGO: .ASCIZ  'XNZX Message Buffer Address = %01X05'
2724          045          PRMSG1: .ASCIZ  'XNZX Message Buffer Contents:'
2725          045          PRMSG2: .ASCIZ  'XNZX WORD #XD2XA EXPD: %06XA RECV: %06XA XOR: %06'
2726          .EVEN

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 46
 PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER

```

2706 .SBTTL PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER
2707
2708
2709 :ROUTINE TO PRINT ERROR BYTES IN MESSAGE BUFFERS
2710 :ONLY THE FIRST 8 ERRORS ENCOUNTERED ARE PRINTED DUE TO SCREEN SPACE
2711
2712 :RO - NUMBER OF BYTES IN BUFFER
2713
2714 :IMPLICIT INPUTS:
2715
2716 :EXPMSG - EXPECTED MESSAGE BUFFER
2717 :RECMSG - RECEIVED MESSAGE BUFFER
2718
2719 PRBYTEXP::
2720 SAVREG ;SAVE R1-R5 UNTIL NEXT RETURN
2721 MOV R0,R5 ;SAVE NUMBER OF BYTES
2722 CLR PRMNO ;INIT ERROR COUNT
2723 CLR R4 ;NUMBER OF THE CURRENT BYTE
2724 MOV #EXPMSG,R1 ;GET EXPD BUFFER ADDRESS
2725 MOV #RECMSG,R2 ;GET RECV BUFFER ADDRESS
2726 20$: MOVB (R1),R0 ;GET EXPD BYTE
2727 BIC #^C<377>,R0 ;CLEAR UPPER BYTE
2728 MOVB R0,PRBEXP ;SAVE FOR ERROR REPORT
2729 MOVB (R2),R3 ;GET RECV BYTE
2730 BIC #^C<377>,R3 ;CLEAR UPPER BYTE
2731 MOVB R3,PRBREC ;FOR ERROR REPORT
2732 XOR R0,R3 ;XOR EXPD/RECV
2733 CMPB (R1)+,(R2)+ ;EXPD = RECV?
2734 BEQ 30$ ;BR IF YES
2735 INC PRMNO ;UPDATE ERROR COUNT
2736 2736 016062 023727 002264 000010 CMP PRMNO,#8. ;PRINTED 8?
2737 BHI 30$ ;BR IF YES
2738 27$: PRINTX #PRBMSG,R4,PRBEXP,PRBREC,R3
2739 016072 010346 MOV R3,-(SP)
2740 016074 013746 016342 MOV PRBREC,-(SP)
2741 016100 013746 016340 MOV PRBEXP,-(SP)
2742 016104 010446 MOV R4,-(SP)
2743 016106 012746 016206 MOV #PRBMSG,-(SP)
2744 016112 012746 000005 MOV #5,-(SP)
2745 016116 010600 MOV SP,R0
2746 016120 104415 TRAP CSPNTX
2747 016122 062706 000014 ADD #14,SP
2748 016126 000404 FORCEEXIT 50$ ;aod
2749 016136 000404 BR 35$ ;aod
2750 016140 30$: FORCERROR 27$,NOTSSR ;aod
2751 016140 35$: ;aod
2752 016150 ;aod
2753 016150 005204 INC R4 ;NUMBER OF THE NEXT
2754 016152 020405 CMP R4,R5 ;DONE ALL YET?
2755 016154 002001 BGE 50$ ;BR IF YES
2756 016156 000717 BR 20$ ;DO ANOTHER
2757 016160 50$: PRINTX #PRBTOT,PRMNO ;PRINT TOTAL ERROR COUNT
2758 016160 013746 002264 MOV PRMNO,-(SP)
2759 016164 012746 016273 MOV #PRBTOT,-(SP)
2760 016170 012746 000002 MOV #2,-(SP)
2761 016174 010600 MOV SP,R0
2762 016176 104415 TRAP CSPNTX
    
```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 46-1
 PRBYTEXP - PRINT ERROR BYTES IN EXP/REC MESSAGE BUFFER

```

2749 016200 062706 000006          ADD #6,SP
      016204 000207          RTS      PC          ;RETURN
2750
2751 016206      045      116      045 PRBMSG: .ASCIZ 'ZNZA BYTE #ZD2ZA EXPD: %03ZA RECV: %03ZA XOR: %03'
2752 016273      045      116      045 PRBTOT: .ASCIZ 'ZNZA NUMBER OF BYTES IN ERROR = ZD2'
2753
2754 016340 000000          PRBEXP: .WORD 0          ;EXPD
2755 016342 000000          PRBREC: .WORD 0          ;RECV
2756
2757
2758
2759
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2761
2762
2763
2764
2765
2766
2767
2768 016344          ;+
      016344          ;PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
2769 016344 004737 007474          ;INPUTS:
2770 016350          ;
      016350          ;      R1      RECEIVED DATA
      016350          ;      R2      EXPECTED DATA
      016350          ;-
2771
2772          EXPREC: BGNMSG EXPREC
          JSR PC,PRIXOR ;PRINT THE DATA
          ENDMSG
          L10017: TRAP C$MSG
  
```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 47
 EXPBREC - PRINT EXPD/RECV BYTE DATA

```

2774          .SBTTL  EXPBREC - PRINT EXPD/RECV BYTE DATA
2775          :+
2776          :PRINT ROUTINE TO DISPLAY BYTE EXPD/RECV DATA
2777          :
2778          :INPUTS:
2779          :
2780          :       R1      RECEIVED DATA BYTE
2781          :       R2      EXPECTED DATA BYTE
2782          :
2783          :-
2784
2785          :
2786          :
2787          :       BGNMSG  EXPBREC
2788          :EXPBREC:: JSR      PC,PRIBXOR      ;PRINT THE DATA
2789          :       ENDMSG
2790          :L10020: TRAP      C$MSG
2791
2792
2793
2794          .SBTTL  RAMERR - PRINT RAM AND PACKET DATA
2795          :+
2796          :PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
2797          :
2798          :INPUTS:
2799          :
2800          :       R4      POINTER TO COMMAND PACKET
2801          :
2802          :IMPLICIT INPUTS:
2803          :
2804          :       RANDATA  DATA AS READ FROM THE RAM
2805          :       RAMSIZ  NUMBER OF BYTES IN PACKET
2806          :                   IF RAMSIZ=0 THEN DEFAULT TO 8.
2807          :
2808          :IMPLICIT OUTPUTS:
2809          :
2810          :       RAMSIZ  SET TO 0
2811          :
2812          :-
2813
2814          :
2815          :       BGNMSG  RAMERR
2816          :RAMERR:: JSR      PC,PRAMPKT      ;PRINT RAM/PACKET DATA
2817          :       ENDMSG
2818          :L10021: TRAP      C$MSG
2819
2820
2821          .SBTTL  RAMTADD - PRINT TEST ADDRESS, RAM AND PACKET DATA
2822          :+
2823          :PRINT ROUTINE TO DISPLAY RAM/PACKET DATA
2824          :INPUTS:

```

016352
 016352
 016352 004737 007344
 016356
 016356 104423

016360
 016360
 016360 004737 013630
 016364
 016364 104423

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 47-1
 RAMTADD - PRINT TEST ADDRESS, RAM AND PACKET DATA

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2841 016366
      016366
2842 016366 004737 010026
2843 016372 004737 013630
2844 016376
      016376
      016376 104423
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2859 016400
      016400
2860 016400 042701 177400
2861 016404 042702 177400
2862 016410 004737 007620
2863 016414 004737 007474
2864 016420
      016420
      016420 104423
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```

```

      R4      POINTER TO COMMAND PACKET
:IMPLICIT INPUTS:
      RAMDATA  DATA AS READ FROM THE RAM
      RAMSIZ   NUMBER OF BYTES IN PACKET
              IF RAMSIZ=0 THEN DEFAULT TO 8.
      ERRHI    HIGH ORDER TEST ADDRESS
      ERRLO    LOW ORDER TEST ADDRESS
:IMPLICIT OUTPUTS:
      RAMSIZ   SET TO 0
-
      BGNMSG   RAMTADD
RAMTADD::
      JSR      PC,PRITADD      ;PRINT TEST ADDRESS
      JSR      PC,PRAMPKT     ;PRINT RAM/PACKET DATA
      ENDMSG
L10022:
      TRAP     C$MSG
-
      .SBTTL   RAMEXP - PRINT RAM EXPD/RECV DATA
:PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
:INPUTS:
      R1      RECEIVED DATA
      R2      EXPECTED DATA
      R4      CONTROLLER RAM ADDRESS
-
      BGNMSG   RAMEXP
RAMEXP::
      BIC      #*C<377>,R1    ;SAVE EXPD RAM DATA BYTE
      BIC      #*C<377>,R2    ;SAVE EXPD RAM DATA BYTE
      JSR      PC,PRIRAM      ;PRINT THE RAM ADDRESS
      JSR      PC,PRIXOR      ;PRINT THE DATA
      ENDMSG
L10023:
      TRAP     C$MSG
-
      .SBTTL   TIMEXP - PRINT TIMER A,B AND EXP/REC
:PRINT ROUTINE TO DISPLAY EXPD/RECV DATA
:AND TIMER A,B HEADER MESSAGE
:INPUTS:
      R1      RECEIVED DATA
      R2      EXPECTED DATA

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 47-2
 TIMEXP - PRINT TIMER A,B AND EXP/REC

```

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2878 016422
      016422
2879 016422
      016422 012746 016450
      016426 012746 000001
      016432 010600
      016434 104415
      016436 062706 000004
2880 016442 004737 007474
2881 016446
      016446
      016446 104423
2882
2883
2884 016450 045 116 045
2885

```

```

;-
      BGNMSG  TIMEXP
TIMEXP:: PRINTX #TIMSGO          ;PRINT HEADER
          MOV   #TIMSGO, -(SP)
          MOV   #1, -(SP)
          MOV   SP, R0
          TRAP  C$PNTX
          ADD   #4, SP
          JSR   PC, PRIXOR        ;PRINT THE DATA
          ENDMSG
L10024: TRAP   C$MSG

```

```

TIMSGO: .ASCIZ  '%N% TIMER A STATUS IS IN BIT 3%N% TIMER B STATUS IS IN BIT 2'
        .EVEN

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.SBTTL BADSSR - PRINT TSSR ERRORS ON DATA TRANSFERS

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:+
:PRINT ROUTINE FOR TSSR ERRORS ON DATA TRANSFERS
:INPUTS:
:R1 CONTENTS OF TSSR
:R2 DATA WRITTEN (8 BITS)
:-

2900 016550
016550
2901 016550 010246
2902 016552 042702 177400
2903 016556
016556 010246
016560 012746 016610
016564 012746 000002
016570 010600
016572 104414
016574 062706 000006
2904 016600 012600
2905 016602 004737 005264
2906 016606
016606
016606 104423
2907 016610 045 116

BGNMSG BADSSR
BADSSR::
MOV R2,-(SP) ;SAVE DATA TRANSFERRED
BIC #177400,R2 ;GET JUST ONE BYTE
PRINTB #XFERASC,R2
MOV R2,-(SP)
MOV #XFERASC,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C\$PNTB
ADD #6,SP
MOV (SP)+,R2 ;RESTORE R2
JSR PC,PRITSSR ;DECODE TSSR CONTENTS
ENDMSG
L10025:
TRAP C\$MSG
045 XFERASC: .ASCIZ '%N% Data Transferred = %03'

.SBTTL SOFINIT - SOFT INITIALIZE OF CONTROLLER

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016644
016644
016650 012765 000000 000000
016656 004737 017120
016662 016500 000000
016666 010004
016670 042704 176277
016674 052704 002200
016700 020400
016702 001402
016704 000241
016706 000401
016710 000261
016712 000207

```

:ROUTINE TO DO A SOFT INITIALIZE OF THE CONTROLLER
:BY WRITING INTO THE TSSR REGISTER. AFTER THE INIT,
:THE TSSR REGISTER IS TESTED FOR ERRORS. ANY ERRORS
:DETECTED SHOULD BE TREATED AS DEVICE FATAL ERRORS.

:INPUTS:
      R5      ADDRESS OF FIRST REGISTER

:OUTPUTS:
      R0      CONTENTS OF TSSR, IF ERROR
      CARRY   SET IF INIT WAS OKAY
              CLEAR IF FATAL ERROR

:CALLING SEQUENCE:
      MOV     #ADDRESS,R5
      JSR     PC,SOFINIT
      BCS    ERRDF          ;REPORT FATAL ERROR
      ERRDF

SOFINIT::
      SAVREG          ; SAVE THE REGISTERS
      MOV     #0,TSSR(R5) ; DO THE INIT.
      JSR     PC,WAITF   ; WAIT FOR SSR
      MOV     TSSR(R5),R0 ;GET THE TSSR REGISTER
      MOV     R0,R4     ;TSSR CONTENTS
      BIC     #^C<HIADDR!OFL>,R4
      BIS     #SSR!NBA,R4 ;R4 HAS EXPECTED CONTENTS
      CMP     R4,R0     ;ONLY EXPECTED BITS SET ?
      BEQ     5$        ;BRANCH IF OKAY
      CLC     ;CLEAR THE CARRY FOR ERROR
      BR     10$        ;GO TO EXIT
5$:      SEC          ;SET THE CARRY BIT
10$:     RTS          ;RETURN TO CALLER

```

.SBTTL CHKAMB - CHECK TSSR FOR AMBIGUITY

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2990
2991
2992
2993
2994
2995
2996

016714
016714
016720 010004 100000
016722 032700 174077
016726 001004
016730 032700 000200
016734 001023
016736 000424
016740 032700 00040
016744 001011
016746 032700 177761
016752 001414 000016
016754 042704
016760 020427
016764 001007
016766 000410
016770 032700 000040
016774 001405
016776 032700 000006
017002 001002
017004 000241
017006 000401
017010 000261
017012 000207

```

: +
: THIS ROUTINE TESTS THE CONTENTS OF THE TSSR REGISTER
: FOR AMBIGUITY

```

```

: INPUT:
:          RO      CONTENTS OF TSSR
:
: OUTPUT:
:          RO      CONTENTS OF TSSR
:          CARRY   SET - NO AMBIGUITY
:                  CLR - AMBIGUOUS CONTENTS
: -

```

```

CHKAMB: SAVREG          ;SAVE THE GENERAL REGISTERS
MOV      RO,R4          ;CONTENTS OF TSSR
BIT      #SC,RO         ;IS BIT 15 SET ?
BNE      5$             ;BRANCH IF YES
BIT      #^C<NBA!OFL!SSR!HIADDR>,RO ;ANY OTHER BITS SET ?
BNE      40$           ;MUST BE AN ERROR
BR       45$           ;RETURN WITH SUCCESS
5$: BIT      #SSR,RO    ;IS READY BIT SET ?
BNE      10$          ;BRANCH IF READY BIT IS SET.
BIT      #BIT5,RO     ;IS FATAL ERROR BIT SET ?
BEQ      40$          ;ERROR IF NOT
BIC      #^CTERCLS,R4 ;CLEAR ALL BUT TERMINATION CODE
CMP      R4,#16       ;ALL THREE BITS MUST BE SET
BNE      40$          ;ERROR IF NOT SET
BR       45$          ;OK IF ALL ARE SET
10$: BIT      #BIT5,RO ;IS FATAL ERROR BIT SET ?
BEQ      45$          ;ERROR IF BIT IS SET WITH SSR
BIT      #BIT2!BIT1,RO ;IS THIS A FUNCTION REJECT
BNE      45$          ;BR, IF TSSR IS OK
40$: CLC              ;AMBIGUOUS CONTENTS
BR       50$
45$: SEC              ;SHOW SUCCESS - NO AMBIGUITY
50$: RTS              ;RETURN TO CALLER
PC

```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 51
 ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS

```

2998          .SBTTL ENAINT,DSBINT - ENABLE/DISABLE INTERRUPTS
2999          :
3000          : DEFAULT DISPLAY INTERRUPT HANDLERS.
3001          : IF DISPLAY TIME-OUT, REPORT DEV FATAL, AND ABORT PASS.
3002          : OTHERWISE, SAVE DPU REGISTERS AND DISMISS.
3003          :
3004          :
3005          : BIT DEFINITIONS FOR "INTMASK" AND "INTFLAG" BYTES:
3006          :
3007          : IOKCKIN=BIT7          ; DON'T CHECK FOR BAD INTERRUPTS -- TEST WILL.
3008          : IOKSTP=BIT0         ; EXPECT "STOP" INTERRUPT.
3009          :
3010          : INTERRUPT MASK -- SAYS EXPECTING INTERRUPTS
3011          INTMASK: .BYTE 0
3012          : INTERRUPT FLAG -- SAYS WE GOT ONE (IF POSITIVE)
3013          INTFLAG: .BYTE 0
3014          :
3015          : SAVED INTERRUPT VECTOR:
3016          INTVEC: .WORD 0
3017          : SAVE CPU PC
3018          INTCPC: .WORD 0
3019          :
3020          : SUBROUTINE TO ENABLE INTERRUPTS:
3021          ENAINT: MOV R0,-(SP)          ; SAVE R0
3022          MOV IVEC,R0                ; GET POINTER TO VECTORS
3023          MOV #INTR,(R0)+           ; SET UP INTERRUPT VECTOR
3024          MOV #PRI07,(R0)+
3025          MOV (SP)+,R0              ; RESTORE R0
3026          MOV (SP)-,(SP)
3027          MOV #0,2(SP)              ; SET CPU TO LEVEL 0
3028          RTI
3029          :
3030          : SUBROUTINE TO DISABLE INTERRUPTS (RAISE PRIORITY TO LEVEL 7)
3031          DSBINT: MOV (SP)-,(SP)
3032          MOV #PRI07,2(SP)
3033          RTI
3034
000200
000001
017014 000
017015 000
017016 000000
017020 000000
017022 010046
017024 013700 002156
017030 012720 017066
017034 012720 000340
017040 012600
017042 011646
017044 012766 000000 000000
017052 000002
017054 011646
017056 012766 000340 000002
017064 000002

```

CZTUAYAO TUBO FRONT END PRT C
INTR - INTERRUPT HANDLERS

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```

3036          .SBTTL  INTR  - INTERRUPT HANDLERS
3037
3038 017066    BGNSRV  INTR          ;DEFINE INTERRUPT ENTRY
3039 017066    INTR::
012737 000001 002172  MOV      #1,INTRECV ;SET FLAG TO SHOW INTERRUPT RECEIVED
017074 105037 017015  CLRB   INTFLAG ;CLEAR FLAG TO SAY WE GOT INTERRUPT
017100 132737 000001 017014  BITB   #IOKSTP,INTMASK ;EXPECTING STOP INTERRUPT?
017106 001003          BNE    1$ ;BR IF YES
017110 152737 000001 017015  BISB   #IOKSTP,INTFLAG ;NO. SET THE ERROR FLAG.
3044
3045          ;SAVE REGISTERS, MSG BUFFER, ETC.
3046 017116    1$:
3047 017116    ENDSRV
017116    L10026:
017116 000002    RTI
3048
3049

```



```

3051          .SBTTL WAITF - WAIT FOR SUBSYSTEM READY
3052          :
3053          : SUBROUTINE TO WAIT FOR THE SUBSYSTEM READY FLAG
3054          :
3055          : INPUTS:
3056          :
3057          :     R5      ADDRESS OF FIRST DEVICE REGISTER
3058          :
3059          : OUTPUTS:
3060          :
3061          :     R0      CONTENTS OF LAST TSSR READ
3062          :     CARRY   SET - READY BIT SET
3063          :           CLR - TIMEOUT WAITING FOR READY
3064          :
3065          WAITF:: BREAK          ; DO A SUPVSR BREAK FIRST.
3066          017120 104422 010000   TRAP      C$BRK
3067          017122 012746 010000   MOV       #10000,-(SP) ;BIG MSEC TIMER
3068          017126 012727 000001   DELAY    1           ;DELAY 100US
3069          017126 012727 000001   MOV       #1,(PC)+
3070          017132 000000           .WORD    0
3071          017134 013727 002116   MOV      LSDLY,(PC)+
3072          017140 000000           .WORD    0
3073          017142 005367 177772   DEC      -6(PC)
3074          017146 001375          BNE      -4
3075          017150 005367 177756   DEC      -22(PC)
3076          017154 001367          BNE      -20
3077          017156 016500 000000   2$: MOV    TSSR(R5),R0 ;READ THE TSSR REGISTER
3078          017162 105700          TSTB    R0          ;TEST FOR READY BIT SET
3079          017164 100420          BMI     3$          ; EXIT ON STOP FLAG.
3080          017166 012727 000001   DELAY    1           ; WAIT 100 USEC
3081          017166 012727 000001   MOV       #1,(PC)+
3082          017172 000000           .WORD    0
3083          017174 013727 002116   MOV      LSDLY,(PC)+
3084          017200 000000           .WORD    0
3085          017202 005367 177772   DEC      -6(PC)
3086          017206 001375          BNE      -4
3087          017210 005367 177756   DEC      -22(PC)
3088          017214 001367          BNE      -20
3089          017216 005316          DEC      (SP)       ;REDUCE DELAY COUNT
3090          017220 001356          BNE      2$        ;RETRY UNTIL TIMER EXPIRES
3091          017222 000241          CLC
3092          017224 000401          BR       4$        ; C = 0, CONTROLLER STILL RUNNING...
3093          017226 000261          SEC      ;...OR HUNG-UP AFTER 300 MSEC.
3094          017230 005326          3$: DEC    (SP)+   ; C = 1, CONTROLLER IS STOPPED.
3095          017232 000207          4$: RTS    PC      ;RESTORE STACK WITHOUT CHANGING CARRY BIT
    
```

CZTUYAO TUBO FRONT END PRT C
CHKTSSR - CHECK TSSR FOR READY

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.SBTTL CHKTSSR - CHECK TSSR FOR READY

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:+
:THIS ROUTINE WAITS FOR READY IN THE TSSR
:AND TESTS FOR AMBIGUOUS BIT SETTINGS IN TSSR.
:INPUT:
:R5 ADDRESS OF CSR REGISTERS
:OUTPUT:
:R0 CONTENTS OF TSSR
:CARRY SET - OKAY
:CLR - NOT READY AMBIGUOUS, OR SC SET
:-

3100 017234
3101 017234 004737 017120
3102 017240 103014
3103 017242 004737 016714
3104 017246 103006
3105 017250 032700 100000
3106 017254 001405
3107 017256 032700 074000
3108 017262 001402
3109 017264 000241
3110 017266 000401
3111 017270 000261
3112 017272 000207

CHKTSSR:
JSR PC, WAITF ;WAIT FOR READY
BCC 20\$;BRANCH IF TIME OUT
JSR PC, CHKAMB ;TSSR AMBIGUOUS?
BCC 10\$;BR IF YES
BIT #SC, R0 ;SPECIAL CONDITION SET?
BEQ 15\$;BR IF NO
BIT #<SCE!BIE!RMR!NXM>, R0 ;ANY ERROR BITS SET?
BEQ 15\$;BR IF NO
10\$: CLC ;SET FAILURE
BR 20\$;
15\$: SEC ;SET SUCCESS
20\$: RTS PC ;RETURN TO CALLER

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 55
 XNXM - CHECK FOR NONEXISTENT MEMORY

```

3114                                     .SBTTL XNXM - CHECK FOR NONEXISTENT MEMORY
3115
3116                                     :+
3117                                     ROUTINE TO TEST FOR A NEXM IN THE RANGE (R1) THRU (R2).
3118                                     ON RETURN, IF 'C' = 1, (R1) = NEXM ADDRESS.
3119                                     'C' = 0, ALL ADDRESSES OK.
3120
3121                                     :CALL: MOV ADR1,R1
3122                                     MOV ADR2,R2
3123                                     JSR PC,NXM
3124                                     RETURN                                     :TEST 'C' AND PROCEED.
3125 017274 012737 017326 000004 XNXM: MOV #2$,a#4                                     : SET BUSERR VECTOR.
3126 017302 012737 000200 000006 MOV #PRI04,a#6
3127 017310 005003 CLR R3                                     :FLAG.
3128 017312 005711 1$: TST (R1)                                     :TEST THE ADDRESS(ES).
3129                                     :IF ANY TRAP, CONTINUE AT 2$.
3130 017314 020102 CMP R1,R2                                     :OTHERWISE, CONTINUE HERE.
3131 017316 001407 BEQ 3$                                     :BR IF FINISHED (NO NEXM'S).
3132 017320 062701 000002 ADD #2,R1                                     :SET NEXT ADDRESS...
3133 017324 000772 BR 1$                                     :...AND CONTINUE.
3134
3135 017326 005103 2$: COM R3                                     :GOT ONE, SET FLAG...
3136 017330 012716 017336 MOV #3$, (SP)
3137 017334 000002 RTI                                     :...AND DISMISS INTERRUPT...
3138 017336 3$: CLRVEC #4                                     :...AND GIVE BACK THE VECTOR.
3139 017336 012700 000004 MOV #4,R0
3140 017342 104436 TRAP C$CVEC
3141 017344 005703 TST R3                                     :DID WE CATCH ONE ??
3142 017346 001401 BEQ .+4                                     :NO, 'C' = 0, SKIP NEXT.
3143 017350 000261 SEC                                     :YES, 'C' = 1, (R1) = NEXM ADDR.
3144 017352 000207 RTS PC
3145
3146                                     .SBTTL TSTLOOP - CHECK ITERATION COUNT
3147
3148                                     :+
3149                                     SUBROUTINE TO EXECUTE TEST ITERATIONS.
3150                                     EXIT WITH 'C' SET IF LOOPS ALLOWED AND LOOP COUNT NON-ZERO.
3151                                     LOOP COUNTER IS SET BY 'BEGIN.TEST' MACRO.
3152
3153                                     :CALL: LOOPTO ARG
3154
3155 017354 TSTLOOP:: TST NOITS                                     : ITERATIONS INHIBITED?
3156 017354 005737 002136 BNE 1$                                     : YES.
3157 017360 001006 TST QVP                                     : NO.
3158 017362 005737 002152 BMI 1$                                     :LOOPS DISALLOWED IN QUICK PASS.
3159 017366 100403 DEC LOOPCNT                                     : BUMP LOOP COUNTER.
3160 017370 005337 002164 BNE 2$
3161 017374 001002 1$: CLC                                     :LOOP DISALLOWED, OR DONE.
3162 017376 000241 BR 3$
3163 017400 000401 2$: SEC                                     :LOOP ENABLED.
3164 017402 000261 3$: RTS PC
3165 017404 000207

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 56
 TSTLOOP - CHECK ITERATION COUNT

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017406
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017410
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017442
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017462
017464
017466
017474
017474
017476
017500
017502
017504
017512
017512
017516
017520

010046
005037
005037
005037
105037
013700
006300
005737
001430
100010
052760
104455
000001
003636
005176
000407
052760
104455
000002
004233
000000
012737
013700
104451

003106
017654
005232
017014
002150
003062
160000
003130
160001
003130
177777
003060
002150

```

.SBTTL TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS
PRINT THE NUMBER AND NAME OF EACH TEST AS WE GO ALONG.
INCREMENT "TESTK" TO INDICATE THE NUMBER OF TESTS
IN THE CURRENT RUN SEQUENCE.
CLEAR THE ERROR COUNTER AND SIGNATURE EXTENSION FLAGS.
:INPUT:
      RO      POINTER TO TEST ID ASCIZ STRING
:OUTPUT:
      R5      ADDRESS OF FIRST DEVICE REGISTER
:IMPLICIT OUTPUTS:
      TSTCNT  UPDATED TO COUNT TESTS PERFORMED SINCE START OR RESTART
:SIDE EFFECTS:
      INTERRUPT LEVEL IS RASIED TO LEVEL OF
      THE DEVICE UNDER TEST
    
```

```

TSTSETUP::
MOV      RO,-(SP)          ;SAVE THE TEST ID MESSAGE
CLR      SIFLAG           ;CLEAR "SOFT INIT" FLAG
CLR      ERRK             ;CLEAR LOCAL ERROR COUNTER.
CLR      EXTA             ;CLEAR ERROR EXTENSION FLAG.
CLRB     INTMASK          ;CLEAR INTERRUPT MASK (CHECK ERROR)
MOV      UNITN,RO         ;GET THE UNIT NUMBER,
ASL      RO                ;... AND MAKE IT A WORD OFFSET.
TST      NODEV            ;DID STARTUP FIND THE DEVICE?
BEQ      4$                ;BR IF YES
BPL      3$                ;BR IF NOT IDLE
BIS      #160000,ERTABL(RO) ; FLAG ERROR IN THE ERROR TABLE
ERRDF   1,NXR,NXRERR      ; NO DEVICE HERE -- PRINT IT
TRAP    C$ERDF
        .WORD 1
        .WORD NXR
        .WORD NXRERR
BR      2$
BIS      #160001,ERTABL(RO) ; FLAG ERROR IN THE ERROR TABLE
ERRDF   2,NOINIT         ; DEVICE NOT IDLE
TRAP    C$ERDF
        .WORD 2
        .WORD NOINIT
        .WORD 0
MOV      #-1,DUFLG        ; DROP THE UNIT
DODU    UNITN
MOV      UNITN,RO
TRAP    C$DODU
DOCLN
        ; ABORT THE PASS
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 56-1
 TSTSETUP - PRINT TEST NAME AND INIT ERROR COUNTS

3214	017520	104444			TRAP	CSDCLN		
	017522	000423			BR	5\$		
3215								
3216	017524			4\$:	RFLAGS	R0	:	GET THE OPERATOR FLAGS.
	017524	104421			TRAP	CSRFLA		
3217	017526	032700	001000		BIT	#PNT,R0	:	PRINT THE TEST NUMBERS?
3218	017532	001412			BEQ	1\$:	BR IF NO
3219	017534	011600			MOV	(SP),R0	:	GET THE ID MESSAGE
3220	017536				PRINTF	#TNAM,R0	:	DISPLAY THE TEST ID
	017536	010046			MOV	R0,-(SP)		
	017540	012746	017602		MOV	#TNAM,-(SP)		
	017544	012746	000002		MOV	#2,-(SP)		
	017550	010600			MOV	SP,R0		
	017552	104417			TRAP	CSPNTF		
	017554	062706	000006		ADD	#6,SP		
3221	017560	005237	002162	1\$:	INC	TSTCNT	:	BUMP TEST COUNTER.
3222	017564				SETPRI	IPRI	:	PRIORITY THAT OF DEVICE
	017564	013700	002160		MOV	IPRI,R0		
	017570	104441			TRAP	CSSPRI		
3223	017572	005726		5\$:	TST	(SP)+	:	FIX UP THE STACK
3224	017574	013705	002154		MOV	CSRADDR,R5	:	ADDRESS OF TSV REGISTERS ON UNIBUS
3225	017600	000207			RTS	PC		
3226	017602	045	123	045	TNAM:	.ASCIZ		'%SXT%A Test'
3227						.EVEN		

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 57
TSTEND - PRINT ERRORS RECEIVED

```

3229
3230
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3232
3233
3234 017616
      017616 104421
3235 017620 030027 020000
3236 017624 001412
3237 017626
      017626 013746 017654
      017632 012746 017656
      017636 012746 000002
      017642 010600
      017644 104417
      017646 062706 000006
3238 017652 000207
3239
3240 017654 000000
3241 017656 045 101 040
3242 017675 105 122 122
3243
3244
3245
3246
3247
3248
3249 017742 005237 017654
3250 017746 010046
3251 017750 013700 002150
3252 017754 006300
3253 017756 062700 003130
3254 017762 005210
3255 017764 032710 007777
3256 017770 001001
3257 017772 005310
3258 017774 012600
3259 017776 000207
3260
3261 020000 010046
3262 020002 013700 002150
3263 020006 006300
3264 020010 016000 003130
3265 020014 042700 170000
3266 020020 020037 002142
3267 020024 103004
3268 020026 023737 017654 002140
3269 020034 103417
3270 020036
      020036 104421
3271 020040 032700 000040
3272 020044 001013
3273 020046 012737 177777 003060
3274 020054
      020054 104455
      020056 000004
      020060 017675

```

```

.SBTTL TSTEND - PRINT ERRORS RECEIVED
:
: AT END OF EACH TEST, PRINT THE NUMBER OF ERRORS RECEIVED
: IF NORMAL ERROR REPORTING IS DISABLED (FLA:IER).
:
TSTEND: RFLAGS R0
        TRAP CSRFLA
        BIT R0,#IER
        BEQ 1$ : BR IF 'IER' NOT SET.
        PRINTF #ESUM,ERRK : PRINT ERROR COUNT.
        MOV ERRK,-(SP)
        MOV #ESUM,-(SP)
        MOV #2,-(SP)
        MOV SP,R0
        TRAP C$PNTF
        ADD #6,SP
1$: RTS PC

ERRK: 0 : LOCAL ERROR COUNT.
ESUM: .ASCIZ /%A %D%A ERRORS/
EMAXDU: .ASCIZ /ERROR LIMIT REACHED -- DROPPING UNIT/
        .EVEN

.SBTTL INCERK - INCREMENT LOCAL ERROR COUNT
:
: ROUTINES TO INCREMENT LOCAL ERROR COUNT AND CHECK FOR LIMIT:
:
INCERK: INC ERRK : INCREMENT LOCAL ERROR COUNT
        MOV R0,-(SP) : SAVE R0
        MOV UNITN,R0 : GET UNIT NUMBER,
        ASL R0 : ... AND MAKE IT A WORD OFFSET.
        ADD #ERTABL,R0 : R0 GETS ADDRESS OF ERROR TABLE ENTRY.
        INC (R0) : INCREMENT THE DEVICE ERROR COUNT
        BIT #7777,(R0) : DID WE OVERFLOW THE FIELD?
        BNE 1$ : BR IF NO.
        DEC (R0) : YES -- BACK IT UP TO 7777.
1$: MOV (SP)+,R0 : RESTORE R0
        RTS PC : RETURN TO CALLER.

CKEMAX: MOV R0,-(SP) : SAVE R0
        MOV UNITN,R0 : GET UNIT NUMBER
        ASL R0 : ... AND MAKE IT A WORD OFFSET
        MOV ERTABL(R0),R0 : GET ERROR TABLE ENTRY
        BIC #170000,R0 : EXTRACT ERROR COUNT FIELD
        CMP R0,GERRMAX : IS GLOBAL LIMIT EXCEEDED FOR THIS UNIT?
        BHIS 1$ : BR IF YES
        CMP ERRK,LERRMAX : IS LOCAL LIMIT EXCEEDED FOR THIS TEST?
        BLO 2$ : BR IF NO
1$: RFLAGS R0 : GET OPERATOR FLAGS
        TRAP CSRFLA
        BIT #IDU,R0 : IS DROPPING INHIBITED?
        BNE 2$ : BR IF YES.
        MOV #-1,DUFLG : NO -- DROP THE UNIT
        ERDF 4,EMAXDU
        TRAP C$ERDF
        .WORD 4
        .WORD EMAXDU

```

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 57-1
INCERK - INCREMENT LOCAL ERROR COUNT

```

3275 020062 000000
      020064
      020064 013700 002150
      020070 104451
3276 020072
      020072 104444
3277 020074 012600
3278 020076 000207
3279
3280
3281
3282
3283
3284
3285
3286 020100
3287 020100
3288 020104 013701 002150
3289 020110 006301
3290 020112 062761 000001 003130
3291 020120 005237 002170
3292 020124 023727 002170 000031
3293 020132 002406
3294 020134
      020134 104421
3295 020136 032700 040000
3296 020142 001002
3297 020144 004737 020152
3298 020150 000207
3299
3300
3301

```

```

      .WORD 0
      DODU UNITN
      MOV UNITN,R0
      TRAP CSDODU
      DOCLN
      TRAP CSDCLN
2$: MOV (SP)+,R0 ; RESTORE R0
      RTS PC ; RETURN TO CALLER
      .SBTTL FATCHK - INC FATAL ERRORS AND CHECK FOR LIMIT

```

.....+
FATCHK: CHECK FATAL COUNTER, AFTER INC, FOR MORE THAN 25
ERRORS AND IF OVER CALL UNIT DROP ROUTINE

```

      SAVREG
      MOV UNITN,R1 ;BETTER SAVE THE REGISTERS
      ASL R1 ;PICK UP THE UNIT NUMBER
      ADD #1,ERTABL(R1) ;MAKE IT INTO A BYTE OFFSET
      INC FATFLG ;ADD 1 TO THE PROPER UNIT'S ERROR COUNTER
      CMP FATFLG,#25. ;BUMP FATAL ERROR COUNTER
      BLT 9$ ;CHECK AGAINST 25
      RFLAGS R0 ;BR, IF LESS THAN 25 ERRORS
      TRAP CSRFLA ;READ THE FLAGS INTO R0
      BIT #BIT14,R0 ;BR, IF LOOP ON ERROR IS SET
      BNE 9$ ;OTHERWISE NEVER BE ABLE TO SCOPE ETC.
      JSR PC,CKDROP ;DROP UNIT IF ALLOWED
      RTS PC ;RETURN ETC.

```

9\$:
.....

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 58
 CKDROP - CHECK IF UNIT SHOULD BE DROPPED

```

3303          .SBTTL CKDROP - CHECK IF UNIT SHOULD BE DROPPED
3304
3305          :+ CHECK IF UNIT SHOULD BE DROPPED
3306          :-
3307 020152 010046 CKDROP: MOV     RO,-(SP)
3308 020154          FORCERROR 1$,NOTSSR
3309 020164          RFLAGS    RO
3310 020164 104421 TRAP     CSRFLA
3311 020172 001010 BIT      #IDU,RO
3312 020174 011600 BNE     1$
3313 020176 012737 177777 003060 MOV     (SP),RO
3314 020204          DODU      UNITN
3315 020204 013700 002150 MOV     UNITN,RO
3316 020210 104451 TRAP     CSDODU
3317 020212          DOCLN
3318 020212 104444 TRAP     CSDCLN          ;ABORT THE PASS
3319 020214 012600 1$: MOV     (SP)+,RO
3320 020216 000207 RTS      PC
3321
3322          .SBTTL CONFIG - DETERMINE CONFIGURATION OF SYSTEM
3323          : SUBROUTINE - DETERMINE CONFIGURATION OF TUBO SYSTEM.
3324          :
3325          :
3326 020220          CONFIG: JSR     PC,SOFINIT
3327 020220 004737 016644 RTS     PC
3328 020224 000207
3329
3330
3331
    
```


CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 59
KTON,KTOFF - ENABLE/DISABLE MEMORY MANAGEMENT

```

3333          .SBTTL KTON,KTOFF          - ENABLE/DISABLE MEMORY MANAGEMENT
3334          ;
3335          ; SUBROUTINE - ENABLE MEM MGT.
3336          ;
3337 020226 005737 003100          KTON:  TST      KFLG      : GOT KT?
3338 020232 001403                BEQ      1$          : NO.
3339 020234 012737 000001 177572 1$:  MOV     #1,SRO    : YES. ENABLE KT11.
3340 020242 000207                RTS      PC
3341
3342
3343
3344          ;
3345          ; SUBROUTINE - DISABLE MEM MGT.
3346          ;
3347 020244 005737 003100          KTOFF:  TST      KFLG      : GOT KT11?
3348 020250 001405                BEQ      1$          : NO.
3349 020252 000240                NOP
3350 020254 000240                NOP
3351 020256 012737 000000 177572 1$:  MOV     #0,SRO    : DISABLE KT.
3352 020264 000207                RTS      PC
3353
3354

```

.SBTTL SETMAP - SETUP PAR6 MAPPING

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020266
020266
020272 005737 003100
020276 001433
020300 010102
000006
020332 042701 000177
020336 020137 003100
020342 103011
020344 010137 172354
020350 042702 160000
020354 062702 140000
020360 010200
020362 000261
020364 000401
020366 000241
020370 000207

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THIS ROUTINE SETS UP KERNEL PAR6 TP HANDLE
AN 18 BIT ADDRESS. THE OFFSET INTO THE PAGE
IS RETURNED BIASED TO PAR6.

INPUTS:

R0 HIGH ORDER ADDRESS BITS
R1 LOW ORDER ADDRESS BITS

OUTPUTS:

R0 OFFSET INTO BLOCK WITH PAR6 BIAS (I.E. THE ADDRESS)
CARRY SET IF SUCCESS
CLR IF ERROR

SETMAP:

SAVREG ;SAVE R1-R4 UNTIL NEXT RETURN
TST KTF LG ;SYSTEM HAVE ABOVE 28K?
BEQ 10\$;BR IF NO
MOV R1,R2 ;SAVE LOW ORDER BITS
.REPT 6
ASR R0 ;CONVERT WORD ADDRESS TO 32W BLOCKS
ROR R1 ;MAKE IT DOUBLE PRECISION
.ENDR
BIC #177,R1 ;ALINE FOR LOWER 4K BOUNDARY
CMP R1,KTF LG ;HIGHER THAN EXISTING MEMORY?
BHS 10\$;BR IF YES
MOV R1,@KIPAR6 ;SETUP MAPPING REGISTER PAR6
BIC #160000,R2 ;SETUP DISPLACEMENT IN PAGE
ADD #140000,R2 ;ADD IN PAR6 BIAS
MOV R2,R0 ;RETURN IN R0
SEC ;SET SUCCESS
BR 15\$;
10\$: CLC ;SET FAILURE
15\$: RTS PC ;RETURN

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 61
FILLMEM - FILL MEMORY WITH BACKGROUND PATTERN

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020372
020372
020376 004737 020244
020402 010003
020404 013701 003072
020410 013702 003074
020414 010321
020416 005302
020420 003375
020422 005737 003100
020426 001452
020430 004737 020226
020434 005000
020436 013701 003104
000006

020506 004737 020266
020512 010320
020514 020027 160000
020520 103774
020522 162700 020000
020526 062737 000200 172354
020534 023737 172354 003100
020542 001402
020544 000137 020512
020550 004737 020244
020554 000207

```
.SBTTL FILLMEM - FILL MEMORY WITH BACKGROUND PATTERN
+
FILL MEMORY WITH A BACKGROUND PATTERN
INPUTS:
RO = BACKGROUND PATTERN
FREE = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
KTFLG = SET TO HIGHEST MEMORY LOCATION IF > 28K.
OUTPUTS:
NONE
FILLMEM:
SAVREG ;SAVE R1-R5 UNTIL NEXT RETURN
JSR PC,KTOFF ;DISABLE KT.
MOV RO,R3 ;COPY TEST PATTERN
MOV FREE,R1 ;GET FIRST FREE LOCATION
MOV FRESIZ,R2 ;SIZE OF FREE SPACE BELOW 28K.
10$: MOV R3,(R1)+ ;STORE A BACKGROUND WORD
DEC R2 ;DONE ALL MEMORY IN FREE SPACE?
BGT 10$ ;BR IF NO
TST KTFLG ; GOT KT?
BEQ 55$ ; NO. GET OUT.
JSR PC,KTON ; YES. ENABLE KT.
CLR RO ;HIGH ORDER ADDRESS START
MOV PST32W,R1 ;GET >28K START ADDRESS (IN 32W BLOCKS)
.REPT 6
CLC ;CLEAR C BIT
ROL R1 ;CONVERT BLOCKS TO WORDS
ROL R0 ;MAKE IT DOUBLE PRECISION
.ENDR
30$: JSR PC,SETMAP ;SETUP PAR6 MAPPING REGISTER
MOV R3,(R0)+ ;STORE TEST PATTERN IN >28K ADDRESS
CMP RO,#160000 ;END OF PAR6 MAPPING AREA?
BLO 30$ ;BR IF NO
SUB #20000,R0 ;BACKUP INTO PAR6 MAPPING BEGIN
ADD #200,@#KIPAR6 ;POINT TO NEXT 4K BLOCK >28K.
CMP @#KIPAR6,KTFLG ;END OF MEMORY?
BEQ 50$ ;BR IF YES
JMP 30$ ;KEEP GOING ON ETC.
50$: JSR PC,KTOFF ;DISABLE KT.
55$: RTS PC
```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 62
 CMPMEM - COMPARE MEMORY TO BACKGROUND PATTERN

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3501

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020556
020556
020562 010003
020564 004737 020244
020570 013701 003072
020574 013702 003074
020600 020311
020602 001411
020604 010137 002204
020610 005037 002202
020614 010337 002176
020620 011137 002200
020624 000474
020626 005721
020630 005302
020632 003362
020634 005737 003100
020640 001472
020642 004737 020226
020646 005000
020650 013701 003104
000006
020704 042701 000177
020710 010046
020712 010146
020714 004737 020266
020720 010004
020722 012601
020724 012600
020726 020314
020730 001411
020732 010037 002202
    
```

```

.SBTTL CMPMEM - COMPARE MEMORY TO BACKGROUND PATTERN
:
: +
: COMPARE MEMORY WITH A BACKGROUND PATTERN
:
: INPUTS:
:
: RO = BACKGROUND PATTERN
: FREE = FIRST LOCATION AVAILABLE TO DIAGNOSTIC
: KTF LG = SET TO HIGHEST MEMORY LOCATION IF > 28K.
:
: OUTPUTS:
:
: CARRY - SET IF NO ERROR
: CARRY - CLR IF ERROR
:
: IMPLICIT OUTPUTS:
:
: ERRHI - ERROR HIGH ADDRESS
: ERRLO - ERROR LOW ADDRESS
: EXPD - EXPECTED DATA
: RECV - RECEIVED DATA
:
: -
: CMPMEM:
: SAVREG
: MOV R0,R3 :SAVE R1-R5 UNTIL NEXT RETURN
: JSR PC,KTOFF :COPY TEST PATTERN
: MOV FREE,R1 :DISABLE KT.
: MOV FRESIZ,R2 :GET FIRST FREE LOCATION
: MOV R3,(R1) :SIZE OF FREE SPACE BELOW 28K.
: 10$: CMP R3,(R1) :FREE SPACE LOCATION EQUAL TO EXPD?
: BEQ 15$ :BR IF YES
: MOV R1,ERRLO :SAVE ADDRESS IN ERROR
: CLR ERRHI :NO HIGH ADDRESS
: MOV R3,EXPD :SAVE EXPD FOR ERROR REPORT
: MOV (R1),RECV :SAVE RECV FOR ERROR REPORT
: BR 50$
: 15$: TST (R1)+ :POINT TO NEXT ADDRESS
: DEC R2 :DONE ALL MEMORY IN FREE SPACE?
: BGT 10$ :BR IF NO
: TST KTF LG : GOT KT?
: BEQ 55$ : NO. GET OUT.
: JSR PC,KTON : YES. ENABLE KT.
: CLR R0 :HIGH ORDER ADDRESS START
: MOV PST32W,R1 :GET >28K START ADDRESS (IN 32W BLOCKS)
: .REPT 6
: ROL R1 :CONVERT BLOCKS TO WORDS
: ROL R0 :MAKE IT DOUBLE PRECISION
: .ENDR
: BIC #177,R1 :ALINE 4K BOUNDARY
: MOV R0,-(SP) :SAVE HIGH ORDER
: MOV R1,-(SP) :SAVE LOW ORDER
: JSR PC,SETMAP :SETUP PAR6 MAPPING REGISTER
: MOV R0,R4 :COPY ADDRESS BIASED TO PAR6
: MOV (SP)+,R1 :RESTORE LOW ORDER IN NON PAR6 FORMAT
: MOV (SP)+,R0 :RESTORE HIGH ORDER IN NON PAR6 FORMAT
: 30$: CMP R3,(R4) :ABOVE 28K LOCATION EQUAL EXPD?
: BEQ 32$ :BR IF YES
: MOV R0,ERRHI :SAVE HIGH ORDER IN ERROR
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 62-1
 CMPMEM - COMPARE MEMORY TO BACKGROUND PATTERN

3502	020736	010137	002204		MOV	R1,ERRLO	:SAVE LOW ORDER IN ERROR
3503	020742	010337	002176		MOV	R3,EXPD	:SAVE EXPD FOR ERROR REPORT
3504	020746	011437	002200		MOV	(R4),RECV	:SAVE RECV FOR ERROR REPORT
3505	020752	000421			BK	50\$:
3506	020754	062701	000002	32\$:	ADD	#2,R1	:UPDATE NON PAR6 ADDRESS
3507	020760	005500			ADC	R0	:MAKE IT DOUBLE PRECISION ADD
3508	020762	062704	000002		ADD	#2,R4	:UPDATE PAR FORMAT ADDRESS
3509	020766	020427	160000		CMP	R4,#160000	:END OF PAR6 MAPPING AREA?
3510	020772	103755			BLO	30\$:BR IF NO
3511	020774	162704	020000		SUB	#20000,R4	:BACKUP INTO PAR6 MAPPING BEGIN
3512	021000	062737	000200	172354	ADD	#200,@#KIPAR6	:POINT TO NEXT 4K BLOCK >28K.
3513	021006	023737	172354	003100	CMP	@#KIPAR6,KTFLG	:END OF MEMORY?
3514	021014	101744			BLOS	30\$:BR IF NO
3515	021016	004737	020244	50\$:	JSR	PC,KTOFF	:TURN OFF MEMORY MAPPING
3516	021022	000241			CLC		:SET FAILURE
3517	021024	000403			BR	60\$:
3518	021026	004737	020244	55\$:	JSR	PC,KTOFF	:TURN OFF MEMORY MAPPING
3519	021032	000261			SEC		:SET SUCCESS
3520	021034	000207		60\$:	RTS	PC	
3521							

CZTUYAO TU80 FRONT END PRT C
REGSAV - SAVE R1-R5 ON STACK

MACRO M1200 29-MAR-83 13:43 PAGE 63

.SBTTL REGSAV - SAVE R1-R5 ON STACK

```

: +
: ROUTINE TO
: SAVE R1 THROUGH R5 ON THE STACK
: CALLING SEQUENCE:
: JSR R5,REGSAV
: THIS IS A COOROUTINE WHICH TRANSFER CONTROL BACK TO
: THE CALLING ROUTINE. AT THE END OF THE CALLING ROUTINE,
: THE RTS PC RETURNS CONTROL TO THIS ROUTINE TO RESTORE
: REGISTERS.
: THIS ROUTINE SHOULD ONLY BE CALLED FROM ROUTINES WHICH ARE
: CALLED VIA A JSR PC INSTRUCTION
: -

```

REGSAV:

```

BREAK ;LOOK FOR CNTL C
TRAP CSBRK
MOV R4,-(SP)
MOV R3,-(SP)
MOV R2,-(SP)
MOV R1,-(SP)
MOV R5,-(SP)
MOV 10.(SP),R5
JSR PC,@(SP)+
MOV (SP)+,R1
MOV (SP)+,R2
MOV (SP)+,R3
MOV (SP)+,R4
MOV (SP)+,R5
BREAK ;LOOK FOR CNTL C
TRAP CSBRK
RTS PC

```

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3544 021036 104422
021036 104422
3545 021040 010446
3546 021042 010346
3547 021044 010246
3548 021046 010146
3549 021050 010546
3550 021052 016605 000012
3551 021056 004736
3552 021060 012601
3553 021062 012602
3554 021064 012603
3555 021066 012604
3556 021070 012605
3557 021072
021072 104422
3558 021074 000207
3559

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 64
GETPAT - GET 8 BIT PATTERN FROM OPERATOR

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021076
021076
021102 104443
021102 000406
021104 021132
021110 000022
021112 021134
021114 000377
021116 000000
021120 000377
021122
021122 103367 021132
021124 013700
021130 000207
000000 116
105 124

```
.SBTTL GETPAT - GET 8 BIT PATTERN FROM OPERATOR
:+
:ROUTINE TO REQUEST AN 8 BIT DATA PATTERN FROM THE OPERATOR
:INPUTS:
:      NONE.
:OUTPUTS:
:      RO      OCTAL NUMBER FROM THE OPERATOR
:CALLING SEQUENCE:
:      JSR     PC,GETPAT
:-

GETPAT::
1$:      SAVREG          ;SAVE THE GENERAL REGISTERS
        GMANID DATASC,PATDAT,O,377,O,377,NO
        TRAP    CSGMAN
        BR      10000$
        .WORD   PATDAT
        .WORD   TSCODE
        .WORD   DATASC
        .WORD   377
        .WORD   T$LOLIM
        .WORD   T$HILIM
10000$:  BNCOMPLETE     1$      ;RETRY IF ERROR
        BCC     1$
        MOV     PATDAT,RO      ;DATA PATTERN FROM OPERATOR
        RTS     PC             ;RETURN TO CALLER

:+
:LOCAL DATA AREA
:-

PATDAT: .WORD   0              ;TEMPORARY STORAGE FOR DATA
DATASC: .ASCIZ  'ENTER DATA PATTERN'
        .EVEN
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 65
GETSEL - ISSUE MENU AND GET OPERATOR RESPONSE

```

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3601
3602
3603
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3605 021160
3606 021160
3607 021164 010002
3608 021166 010203
3609 021170 005713
3610 021172 001412
3611 021174
      021174 012346
      021176 012746 021344
      021202 012746 000002
      021206 010600
      021210 104417
      021212 062706 000006
3612 021216 000764
3613 021220
      021220 104443
      021222 000406
      021224 021400
      021226 000042
      021230 021351
      021232 177777
      021234 000000
      021236 177777
      021240
3614 021240
      021240 103352
3615 021242 013700 021400
3616 021246 020001
3617 021250 101411
3618 021252
      021252 012746 021276
      021256 012746 000001
      021262 010600
      021264 104417
      021266 062706 000004
3619 021272 000735
3620 021274 000207
3621 021276 045 116
3622 021344 045 116
3623 021351 105 156
3624
3625 021400 000000

```

```

.SBTTL GETSEL - ISSUE MENU AND GET OPERATOR RESPONSE
:+
:ROUTINE TO ISSUE A MENU AND GET
:THE OPERATOR'S RESPONSE.
:INPUTS:
:   R0 ADDRESS OF ASCIZ STRING OF MENU
:   R1 MAXIMUM ALLOWABLE OPERATOR RESPONSE
:OUTPUTS:
:   R0 NUMBER OF THE OPERATOR'S SELECTION
:-
GETSEL::
      SAVREG                ;SAVE GENERAL REGISTERS
      MOV R0,R2             ;SAVE THE MENU ADDRESS
      MOV R2,R3             ;START OF MENU STRING
1$:   MOV (R3)               ;END OF ASCII ?
2$:   TST (R3)
      BEQ 3$                ;BRANCH IF ALL LINES DISPLAYED
      PRINTF #SELASC,(R3)+ ;DISPLAY THE MENU
      MOV (R3)+,-(SP)
      MOV #SELASC,-(SP)
      MOV #2,-(SP)
      MOV SP,R0
      TRAP C$PNTF
      ADD #6,SP
      BR 2$
3$:   GMANID MENASC,MENRES,D,-1,0,-1,NO
      TRAP C$GMAN
      BR 10001$
      .WORD MENRES
      .WORD T$CODE
      .WORD MENASC
      .WORD -1
      .WORD T$LOLIM
      .WORD T$HILIM
10001$: BNCOMPLETE 1$ ;RETRY IF ERROR
      BCC 1$
      MOV MENRES,R0 ;GET THE OPERATOR'S REPLY
      CMP R0,R1 ;COMPARE TO MAXIMUM ALLOWED
      BLOS 5$ ;BRANCH IF OK
      PRINTF #MENERR ;DISPLAY ERROR MESSAGE
      MOV #MENERR,-(SP)
      MOV #1,-(SP)
      MOV SP,R0
      TRAP C$PNTF
      ADD #4,SP
      BR 1$ ;RETRY
      RTS PC ;RETURN TO CALLER
045 MENERR: .ASCIZ 'ZNZA *** Menu Selection Too Large ***'
045 SELASC: .ASCIZ 'ZNXT'
164 MENASC: .ASCIZ 'Enter Menu Selection: '
      .EVEN
      MENRES .WORD 0

```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 66
CHKMAN - CHECK MANUAL INTERVENTION LEGALITY

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3657
3658

021402
021402
021406 104450
021410 103411
021412 012746 021436
021416 012746 000001
021422 010600
021424 104417
021426 062706 000004
021432 000241
021434 000207
021436 045 116

.SBTTL CHKMAN - CHECK MANUAL INTERVENTION LEGALITY

↑
:ROUTINE TO TEST FOR MANUAL INTERVENTION LEGALITY.

:INPUT:
NONE.

:OUTPUT:
CARRY 0 MANUAL INTERVENTION NOT ALLOWED
1 MANUAL INTERVENTION IS OK

:SIDE EFFECTS:
A MESSAGE IS DISPLAYED WARNING THAT TEST IS
NOT EXECUTED IF MANUAL INTERVENTION IS NOT
ALLOWED.

CHKMAN::
SAVREG ;SAVE THE REGISTERS
MANUAL ;SEE IF MANUAL INTERVENTION OK
TRAP CSMANI
BCOMplete 1\$;BRANCH IF ALLOWED
BCS 1\$
PRINTF #NOMAN ;PRINT THE WARNING MESSAGE
MOV #NOMAN, -(SP)
MOV #1, -(SP)
MOV SP, R0
TRAP CSPNTF
ADD #4, SP
CLC ;CLEAR CARRY FOR ERROR
RTS PC ;RETURN

1\$:
NOMAN: .ASCIZ '%NZA *** Manual Intervention not Allowed - Test Aborted ***'
.even

CZTUJAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 67
 ENVIRN - SETUP FREE DIAGNOSTIC SPACE

```

3660                                     .SBTTL  ENVIRN  - SETUP FREE DIAGNOSTIC SPACE
3661                                     :
3662                                     : SUBROUTINE TO SET-UP VARIOUS ENVIRONMENTAL PARAMETERS.
3663                                     :
3664 ENVIRN: MEMORY  R0
3665 021532 104431 TRAP  CSMEM
3666 021534 010037 003072 MOV  R0, FREE      ; GET 1ST FREE ADDRESS...
3667 021540 062737 000002 003072 ADD  #2, FREE
3668 021546 011037 003074 MOV  (R0), FRESIZ  ; ...AND WORD COUNT.
3669 021552 162737 000004 003074 SUB  #4, FRESIZ
3670 021560 013702 002012 MOV  LSUNIT, R2    ; GET NUMBER OF UNITS
3671 021564 162737 000007 003074 10$: SUB #7, FRESIZ    ; TAKE AWAY 7 WORDS PER UNIT
3672 021572 005302 DEC  R2
3673 021574 001373 BNE  10$
3674 021576 013700 003072 MOV  FREE, R0      ; GET FIRST FREE ADDRESS
3675 021602 063700 003074 ADD  FRESIZ, R0    ; POINT TO LAST FREE ADDRESS
3676 021606 162700 000002 SUB  #2, R0        ; BACKUP 1 WORD
3677 021612 010037 003076 MOV  R0, FREEHI   ; STORE LAST FREE ADDRESS
3678 021616 000207 RTS  PC          ; RETURN

```

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 68
 KTINIT - SETUP KT11 MEMORY MANAGEMENT REGISTERS

```

3680                                     .SBTTL  KTINIT  - SETUP KT11 MEMORY MANAGEMENT REGISTERS
3681                                     :+
3682                                     :ROUTINE TO INIT KT-11
3683                                     :-
3684
3685
3686
3687 021620                               KTINIT:
3688 021620 005037 003100                 CLR    KTFLG           : INIT >28K MEMORY FLAG
3689 021624 005037 003102                 CLR    KTENABLE       : INIT TEST >28K FLAG
3690 021630 023727 002120 001577         CMP    LSHIME,#1577   : GOT ENOUGH MEMORY (>28K)?
3691 021636 101444                       BLOS   9$             : NO.
3692 021640 013700 000004                 MOV    @#ERRVEC,RO    : SAVE OLD ERR VEC PTR.
3693 021644 012737 021736 000004         MOV    #2$,@#ERRVEC  : SET ERR VEC PTR.
3694 021652 005737 177572                 TST   @#SRO          : GOT KT11?
3695 021656 000240                       NOP                    : (TRAP IF NO).
3696 021660 013737 002120 003100         MOV    LSHIME,KTFLG  : YES. SET KT FLAG.
3697 021666 042737 000177 003100         BIC   #177,KTFLG
3698 021674 010037 000004                 MOV    RO,@#ERRVEC   : RESTORE OLD ERR VEC PTR.
3699 021700 005000                       CLR    RO             : RO = AR DATA.
3700 021702 012701 172340                 MOV    #KIPARO,R1    : R1 = KI REGS PTR.
3701 021706 012761 077406 177740 1$:    MOV    #77406,-40(R1) : SET DESCRIPTOR REG.
3702 021714 010021                       MOV    RO,(R1)+      : SET KIPAR REG.
3703 021716 062700 000200                 ADD   #200,RO        : BUMP AR DATA BY '4K'.
3704 021722 020027 002000                 CMP   RO,#2000       : AT 'I/O'?
3705 021726 001367                       BNE   1$             : NO.
3706 021730 012741 177600                 MOV   #177600,-(R1)  : YES. SET KTPAR7 FOR I/O.
3707 021734 000405                       BR    9$
3708
3709 021736 012716 021744                 2$:   MOV   #6$, (SP)   : SET UP RETURN
3710 021742 000002                       RTI                    : RTI TO NEXT LOCATION
3711
3712 021744 010037 000004                 6$:   MOV   RO,@#ERRVEC : RESTORE OLD ERR VEC PTR.
3713
3714 021750 000207                       9$:   RTS   PC
3729 021752                               BGNPROT
3730 021752 177777 177777 177777         LSPROT:: .WORD  -1, -1, -1, -1 ;NO DEVICE PROTECTION REQUIRED.
3731 021762                               ENDPROT
3732
    
```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 70-1
INITIALIZE SECTION

3775	022120	005037	002170		CLR	FATFLG		:RESET FLAG TO ZERO 'FATAL ERRORS'
3776	022124	000406			BR	19\$:BR, IF THE FLAG IS NOT SET
3777								: (NO DEBUGGER ETC.)
3778	022126	012746	000340		MOV	#340,-(SP)		
3779	022132	012746	022146		MOV	#20\$,-(SP)		:RETURN TO DEBUGGER
3780	022136	000137	065446		JMP	O.ODT		:ENTER THE DEBUGGER
3781	022142	005037	003332		CLR	SKIPT		:CLEAR THE SUBTEST 'SKIPPER'
3782	022146							
3783	022146	012737	177777	002152	MOV	#-1,QVP		:...QUICK VERIFY...
3784	022154	004737	021532		JSR	PC,ENVIRN		:SET ENVIRONMENT.
3785	022160	004737	021620		JSR	PC,KTINIT		:INITIALIZE KT MEMORY MANAGEMENT
3786	022164	012700	003130		MOV	#ERTABL,RO		
3787	022170	005020			CLR	(RO)+		:CLEAR THE ERROR TABLE
3788	022172	020027	003330		CMP	RO,#ERTABE		
3789	022176	103774			BLO	30\$		
3790	022200	000404			BR	4\$		
3791	022202	005037	002152		CLR	QVP		
3792	022206	000137	022256		JMP	PASRPT		:GO REPORT THE STATUS
3793								
3794	022212							
3795	022212	012737	177777	002150	4\$: NEWPAS:	MOV	#-1,UNITN	:INIT UNIT NUMBER...
3796	022220	005037	002166		CLR	DEV CNT		:CLEAR COUNT OF DEVICES RUNNING
3797	022224				NXTU:	BREAK		
3798	022224	104422			TRAP	CSBRK		
3799	022226	005237	002150		INC	UNITN		:...AND SET NEXT UNIT NUMBER.
3800	022232	023737	002150	002012	CMP	UNITN,LSUNIT		
3801	022240	103423			BLO	SETU		
3802	022242	012737	177777	003060	MOV	#-1,DUFLG		
3803	022250	000401			BR	11\$		
3804	022252	104444			DOCLN			:ABORT, NO MORE UNITS.
3805	022254	000240			TRAP	CSDCLN		
3806	022256	023727	002012	000001	11\$: PASRPT:	NOP		
3807	022264	101752			CMP	LSUNIT,#1		:HOW MANY UNITS SELECTED?
3808	022266	005737	002166		BLOS	NEWPAS		:BR IF ONLY 1
3809	022272	001747			TST	DEV CNT		:ARE ANY STILL RUNNING?
3810	022274				BEQ	NEWPAS		:BR IF NO
3811	022274	104421			RFLAGS	RO		
3812	022276	032700	000100		TRAP	CSRFLA		
3813	022302	001343			BIT	#ISR,RO		:SHOULD WE PRINT STATISTICS
3814	022304				BNE	NEWPAS		:BR IF NO
3815	022304	104424						
3816	022306	000741			DORPT			
3817	022310				TRAP	CSDRPT		
3818	022310				BR	NEWPAS		
3819	022310	013700	002150		10\$: SETU:	GPHARD	UNITN,RO	:GET UNIT N P-TABLE POINTER.
3820	022314	104442			MOV	UNITN,RO		
3821	022316	103342			TRAP	CSGPHRD		
3822	022320	005037	003060		BNCOMPLETE	NXTU		:BR IF UNIT NOT AVAILABLE.
3823	022324	005237	002166		BCC	NXTU		
3824	022330	012001			CLR	DUFLG		:CLEAR 'DROPPED' FLAG.
3825	022332	010137	002154		INC	DEV CNT		
3826					MOV	(RO)+,R1		:GET 1ST REGISTER ADDRESS.
3827					MOV	R1,CSRADDR		:ADDRESS OF REGISTERS OF UNIT UNDER TEST

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 70-2
INITIALIZE SECTION

```

3825 022336 012001          MOV      (R0)+,R1      ;GET VECTOR ADDRESS.
3826 022340 011002          MOV      (R0),R2      ;GET INTERRUPT PRIORITY
3827 022342 010237 002160  MOV      R2,IPRI      ;SET INTERRUPT PRIORITY.
3828 022346 010137 002156  MOV      R1,IVEC      ;SET INTERRUPT VECTOR POINTER...
3829 022352 012721 017066  MOV      #INTR,(R1)+  ;...VECTOR...
3830 022356 010221          MOV      R2,(R1)+    ;...AND PRIORITY.
3831
3832 022360          1$:
3833          :          TST      QVP          ;1ST PASS ??
3834          :          BEQ      5$          ;NO, SKIP THE PASS 1 STUFF.
3835          :
3836          :
3837          :          ;1ST PASS, CHECK THAT DEVICE ADDRESSES ARE VALID, AND
3838          :          ;THAT THE DISPLAY STATUS IS PROPERLY INITIALIZED.
3839          :
3840 022360 013701 002150          MOV      UNITN,R1
3841 022364 006301          ASL      R1
3842 022366 052761 100000 003130  BIS      #BIT15,ERTABL(R1) ;SAY DEVICE RUNNING
3843 022374 005037 005232          CLR      EXTA          ;CLEAR ERROR EXTENSION FLAG.
3844 022400 023727 002012 000001  CMP      L$UNIT,#1     ;ARE WE TESTING MULTIPLE UNITS?
3845 022406 101416          BLOS     10$          ;BR IF NO.
3846 022410          RFLAGS   R0          ;YES -- GET OPERATOR FLAGS.
3847 022410 104421          TRAP    CSRFLA
3848 022412 032700 001000  BIT      #PNT,R0      ;SHOULD WE PRINT UNIT #?
3849 022416 001412          BEQ      10$          ;BR IF NOT.
3849 022420          PRINTF  #PUNIT,UNITN ;PRINT THE UNIT #
3849 022420 013746 002150          MOV      UNITN,-(SP)
3849 022424 012746 022512          MOV      #PUNIT,-(SP)
3849 022430 012746 000002          MOV      #2,-(SP)
3849 022434 010600          MOV      SP,R0
3849 022436 104417          TRAP    CSPNTF
3849 022440 062706 000006          ADD     #6,SP
3850 022444          10$:
3851 022444 005037 003062          CLR      NODEV
3852 022450 013701 002154          MOV      CSRADDR,R1  ;ADDRESS OF FIRST REGISTER
3853 022454 010102          MOV      R1,R2      ;START OF REGISTERS
3854 022456 062702 000000          ADD     #TSSR,R2    ;ADDRESS OF TSSR REGISTER
3855 022462 004737 017274          JSR     PC,XNXM     ;TEST BOTH CONTROLLER REGISTERS...
3856 022466 103005          BCC     2$          ;...AND BR IF ALL OK.
3857 022470 010137 003062          MOV      R1,NODEV   ;FLAG DEVICE AS NON-EXISTENT
3858 022474 012737 177777 003060  MOV      #-1,DUFLG  ;DROP THIS UNIT.
3859 022502          2$:
3860          :
3861          :          ;FINALLY, SET CPU PRIORITY AND WE'RE DONE.
3862          :
3863 022502          5$:          SETPRI  #PRI00        ;ENABLE INTERRUPTS.
3863 022502 012700 000000          MOV      #PRI00,R0
3863 022506 104441          TRAP    C$SPRI
3864 022510          ENDINIT
3864 022510          L10030:
3864 022510 104411          TRAP    C$INIT
3865
3866 022512 045 116 045 PUNIT: .ASCIZ /%N%N%A***** TESTING UNIT %D2%A *****/
3867          .EVEN

```

CZTUYAO TUBO FRONT END PRT C
ADD AND DROP UNITS SECTIONS

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.SBTTL ADD AND DROP UNITS SECTIONS

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022560
022560 010001
022562 006301
022564 052761 100000 003130
022572 042761 040000 003130
022600
022600 010046
022602 012746 022626
022606 012746 000002
022612 010600
022614 104417
022616 062706 000006
022622
022622 000167
022624 000026
022626 045 116 045 1\$:
022654
022654
022654 104452
022656
022656 012737 177777 003060
022664 010001
022666 006301
022670 052761 140000 003130
022676 000240 000240 000240
022704
022704 010046
022706 012746 022732
022712 012746 000002
022716 010600
022720 104417
022722 062706 000006
022726
022726 000167
022730 000030

++
: THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
: TO BE (A) ADDED TO THE TEST LIST FOR THE FIRST TIME,
: OR (B) RE-INSERTED IF IT HAD BEEN PREVIOUSLY DROPPED.
--

```
LSAU:: BGNAU
MOV R0,R1 ; GET UNIT TO BE ADDED (R0)
ASL R1 ; MAKE IT A WORD INDEX
BIS #100000,ERTABL(R1) ; SET THE 'ACTIVE' BIT
BIC #40000,ERTABL(R1) ; CLEAR THE 'DROPPED' BIT
PRINTF #1$,R0
MOV R0,-(SP)
MOV #1,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #6,SP
EXIT AU
.WORD JSJMP
.WORD L10031-2-.
.ASCIZ /%N% UNIT %D% ADDED/
.EVEN
```

```
ENDAU ; UNUSED.
L10031: TRAP C$AU
```

++
: THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
: TO BE REMOVED FROM THE TEST LIST.

SUPVSR DOES THE 'DROPPING'. THIS IS JUST TO TELL THE MAN.
'DROPPED' UNITS ARE RE-SELECTED ON OPERATOR 'STA' OR 'ADD'.
COMMAND, OTHERWISE REMAIN INACTIVE. THE 'DISPLAY' COMMAND
WILL PRINT ALL DROPPED UNITS, AND THE P-TABLES OF THOSE
WHICH ARE STILL ACTIVE.
UPON ENTRY, R0 CONTAINS THE UNIT TO BE DROPPED.

```
LSDU:: BGNDU
MOV #-1,DUFLG
MOV R0,R1
ASL R1
BIS #140000,ERTABL(R1) ; SAY DROPPED
240,240,240 ; ??????????
PRINTF #1$,R0
MOV R0,-(SP)
MOV #1,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C$PNTF
ADD #6,SP
EXIT DU
.WORD JSJMP
.WORD L10032-2-.
```

CZTUYAO TUBO FRONT END PRT C
ADD AND DROP UNITS SECTIONS

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```

3906 022732      045      116      045 1$: .ASCIZ /%N% UNIT %D% DROPPED/
3907          .EVEN
3908 022762          ENDDU
          022762          L10032: TRAP C$DU
          022762 104453      :++
3909          : AUTO-DROP CODE SECTION.
3910          :--
3911          BGNAUTO
3912 022764          L$AUTO::
          022764          MOV #360.,R3          ;ENOUGH TIME FOR 2400' REEL TO REWIND
3913 022764 012703 000550          JSR PC,WAITF          ;WAIT FOR SSR TO SET
3914 022770 004737 017120          BCS 20$          ;LEAVE WHEN SSR IS SET
3915 022774 103420          DELAY 250.          ;WAIT FOR .25 SECONDS
3916 022776 012727 000372          MOV #250.,(PC)+
          023002 000000          .WORD 0
          023004 013727 002116          MOV LSDLY,(PC)+
          023010 000000          .WORD 0
          023012 005367 177772          DEC -6(PC)
          023016 001375          BNE -4
          023020 005367 177756          DEC -22(PC)
          023024 001367          BNE -20
3917 023026 005303          DEC R3          ;BUMP COUNTER DOWN
3918 023030 001357          BNE 10$          ;KEEP GOING
3919 023032 004737 020152          JSR PC,CKDROP          ;TRY AND DROP UNIT
3920 023036          20$:          ; UNUSED.
3921 023036          ENDAUTO
          023036          L10033: TRAP C$AUTO
          023036 104461

```


.SBTTL CLEAN-UP AND REPORT CODING SECTIONS

```

3923
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3930 023040
      023040
3931 023040 005737 003060
3932 023044 100405
3933
3934
3935 023046 012765 000000 000000
3936 023054 004737 017120
3937 023060
3938 023060
      023060
      023060 104412
3939
3940
3941
3942
3943 023062
      023062
3944 023062
      023062 012746 023324
      023066 012746 000001
      023072 010600
      023074 104416
      023076 062706 000004
3945 023102 010246
3946 023104 010346
3947 023106 010446
3948 023110 012704 003130
3949 023114 005003
3950 023116 011402
3951 023120 001467
3952 023122 100066
3953 023124 032702 040000
3954 023130 001015
3955 023132 042702 170000
3956 023136
      023136 010246
      023140 010346
      023142 012746 023361
      023146 012746 000003
      023152 010600
      023154 104416
      023156 062706 000010
3957 023162 000446
3958 023164 020227 160000
3959 023170 001012
3960 023172
      023172 010346
      023174 012746 023431
      023200 012746 000002

```

```

:++
: THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS
: EXECUTED AT THE END OF EACH PASS (OR SUB-PASS).
: USE TO RETURN DEVICE UNDER TEST TO A NEUTRAL STATE.
:--
      BGNCLN
L$CLEAN::
      TST      DUFLG      ;'DROPPED' FLAG IS SET ON...
      BMI      1$        ;...AND GROSS CONTROLLER FAULT...
                          ;...DON'T TRY TO XCT CLEANUP CODE.
      MOV      #0,TSSR(R5) ;DO SOFT INIT
      JSR      PC,WAITF
1$:
2$:
L10034:
      FNDCLN
      TRAP     C$CLEAN
:++
: THE REPORT CODING SECTION CONTAINS THE
: 'PRINTS' CALLS THAT GENERATE STATISTICAL REPORTS.
:--
      BGNRPT
L$RPT::
      PRINTS   #DEVSUM
      MOV      #DEVSUM, -(SP)
      MOV      #1, -(SP)
      MOV      SP, R0
      TRAP     C$PNTS
      ADD      #4, SP
      MOV      R2, -(SP)
      MOV      R3, -(SP)
      MOV      R4, -(SP)
      MOV      #ERTABL, R4      ; GET START OF ERROR TABLE.
      CLR      R3              ; CLEAR UNIT NUMBER
1$:
      MOV      (R4), R2        ; GET ERROR TABLE ENTRY & TEST IT.
      BEQ      4$              ; ZERO IF UNIT NOT RUN
      BPL      4$
      BIT      #BIT14, R2      ; WAS UNIT DROPPED?
      BNE      2$              ; BR IF YES
      BIC      #^C7777, R2     ; GET ERROR COUNT FIELD
      PRINTS   #DEVONL, R3, R2 ; PRINT
      MOV      R2, -(SP)
      MOV      R3, -(SP)
      MOV      #DEVONL, -(SP)
      MOV      #3, -(SP)
      MOV      SP, R0
      TRAP     C$PNTS
      ADD      #10, SP
      BR       4$
2$:
      CMP      R2, #160000     ; WAS UNIT NON-EXISTENT?
      BNE      3$              ; BR IF NO
      PRINTS   #DEVNXR, R3
      MOV      R3, -(SP)
      MOV      #DEVNXR, -(SP)
      MOV      #2, -(SP)

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 72-1
CLEAN-UP AND REPORT CODING SECTIONS

```

023204 010600      MOV      SP,R0
023206 104416      TRAP     CSPNTS
023210 062706 00C006  ADD     #6,SP
3961 023214 000431      BR       4$
3962 023216 020227 160001  3$:    CMP     R2,#160001      : WAS UNIT NOT READY AT STARTUP?
3963 023222 001012      BNE     30$           : BR IF NO.
3964 023224      PRINTS  #DEVNRD,R3
023224 010346      MOV     R3,-(SP)
023226 012746 023513  MOV     #DEVNRD,-(SP)
023232 012746 000002  MOV     #2,-(SP)
023236 010600      MOV     SP,R0
023240 104416      TRAP     CSPNTS
023242 062706 000006  ADD     #6,SP
3965 023246 000414      BR       4$
3966 023250 042702 170000  30$:   BIC     #^C7777,R2
3967 023254      PRINTS  #DEVDRD,R3,R2
023254 010246      MOV     R2,-(SP)
023256 010346      MOV     R3,-(SP)
023260 012746 023574  MOV     #DEVDRD,-(SP)
023264 012746 000003  MOV     #3,-(SP)
023270 010600      MOV     SP,R0
023272 104416      TRAP     CSPNTS
023274 062706 000010  ADD     #10,SP
3968 023300 062704 000002  4$:   ADD     #2,R4
3969 023304 005203      INC     R3
3970 023306 020427 003330  CMP     R4,#ERTABE
3971 023312 103701      BLO    1$
3972 023314 012604      MOV     (SP)+,R4
3973 023316 012603      MOV     (SP)+,R3
3974 023320 012602      MOV     (SP)+,R2
3975 023322      ENDRPT      : UNUSED.
023322 104425  L10035:  TRAP     CSRPT
3976 023324 045 116 045  DEVSUM: .ASCIZ /XNZADEVICE STATUS SUMMARY:ZN/
3977 023361 045 101 040  DEVONL: .ASCIZ /XA UNIT XD3XA ONLINE, ERRORS = XDZN/
3978 023431 045 101 040  DEVNXR: .ASCIZ /XA UNIT XD3XA DROPPED, NON-EXISTENT REGISTERZN/
3979 023513 045 101 040  DEVNRD: .ASCIZ /XA UNIT XD3XA DROPPED, NOT READY AT STARTUPZN/
3980 023574 045 101 040  DEVDRD: .ASCIZ /XA UNIT XD3XA DROPPED, ERRORS = XDZN/
3981      .EVEN

```


CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 74-1
TEST 1: SPACE RECORDS

```

4054 023770 001367
4054 023772 005337 030262      DEC      T25DLY      ;DEC DELAY COUNTER      BNE      -20
4055 023776 001356      BNE      5$      ;BR, IF LOOP IS REQUIRED
4056 024000 004737 020100      JSR      PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
4060 024004 016501 000000      MOV      TSSR(R5),R1 ;CONTENTS OF TSSR REGISTER
4061 024010 104455      ERRDF    ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
                                TRAP      CSERDF
                                .WORD    101
                                .WORD    SFIERR
                                .WORD    SFIMSG
                                024010 000145
                                024012 003550
                                024014 011666
4062 024020 012704 030100      10$:    MOV      #T25PACKET,R4 ;SUBROUTINE NEEDS PACKET ADDRESS
                                *****
                                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
                                *****
                                JSR      PC,WRTCHR ;ISSUE WRITE CHARACTERISTICS
                                BCS      14$ ;BR, IF COMMAND ISSUED OK
                                JSR      PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                MOV      R0,R1 ;SAVE CONTENTS OF TSSR
                                ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
                                TRAP      CSERHRD
                                .WORD    102
                                .WORD    WRTMSG
                                .WORD    SFIMSG
                                024024 004737 010332
                                024030 103407
                                024032 004737 020100
                                024036 010001
                                024040 104456
                                024042 000146
                                024044 004754
                                024046 011666
                                :
                                ;CHECK FOR DRIVE OFF-LINE
                                14$:    MOV      TSSR(R5),R1 ;READ THE TSSR
                                BIT      #OFL,R1 ;CHECK FOR DRIVE OFF LINE
                                BEQ      15$ ;BR, IF DRIVE IS ON LINE (GOOD)
                                ERRDF    ERRNO,T21OFL,EXPREC ;"DRIVE IS OFF-LINE" (BAD)
                                TRAP      CSERDF
                                .WORD    103
                                .WORD    T21OFL
                                .WORD    EXPREC
                                024062 104455
                                024064 000147
                                024066 030264
                                024070 016344
                                024072 004737 020152
                                JSR      PC,CKDROP ;TRY AND DROP UNIT
                                *****
                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
                                *****
                                15$:    JSR      PC,REWIND ;CALL TAPE REWIND COMMAND
                                BCS      30$ ;BR, IF NO PROBLEM
                                MOV      R0,R1 ;SAVE TSSR
                                JSR      PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
                                ERRHRD  ERRNO,T25RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP      CSERHRD
                                .WORD    104
                                .WORD    T25RWN
                                .WORD    PKTSSR
                                024112 104456
                                024114 000150
                                024116 031257
                                024120 011700
                                024122 104406
                                30$:    CKLOOP ;LOOP IF SELECTED
                                TRAP      CSCLP1
                                *****
                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
                                :

```

CZTUAYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 74-2
TEST 1: SPACE RECORDS

```

4105
4106 024124 013701 030126
4107 024130 010102
4108 024132 052702 000002
4109 024136 020102
4110 024140 001406
4111 024142 004737 020100
4115 024146
      024146 104456
      024150 000151
      024152 030447
      024154 016344
4116 024156
      024156 104406
4117 024160 012703 000400
4118 024164 013737 003072 030232
4119
4120
4121
4122
4123
4124 024172 012737 140005 030230
4125 024200 012704 030230
4126 024204 010337 030236
4127 024210 013777 030260 156654
4128 024216 062737 000001 030260
4129 024224 010465 177776
4130 024230 004737 017120
4131 024234 016501 000000
4132 024240 012702 000200
4133 024244 020102
4134 024246 001411
4135 024250 032701 000004
4136 024254 001014
4137 024256 004737 020100
4141
4142
4143
4144 024262
      024262 104457
      024264 000152
      024266 005011
      024270 011700
4145 024272
      024272 104406
4146 024274 005203
4147 024276 022703 001000
4148 024302 001340
4149 024304 000415
4150 024306
4151
4152
4153
4154
4155
4156 024306 013701 030126
4157 024312 010102

```

```

:*****
MOV T25BFR+6,R1 :PICK UP XSTO
MOV R1,R2 :SET UP EXPECTED
BIS #BIT1,R2 :SET BOT BIT IN EXPECTED
CMP R1,R2 :DOES EXP = REC'D
BEQ 40$ :BR, IF EQUAL (OK)
JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
ERRHRD ERRNO,T25BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
TRAP CSERHRD
.WORD 105
.WORD T25BOT
.WORD EXPREC
40$: CKLOOP :LOOP IF SELECTED
TRAP CSCLP1
MOV #256.,R3 :RECORD SIZE
MOV FREE,T25RB :STARTING WRITE BUFFER ADDRESS
:*****
:WRITE DATA,ACK,CVC=1 COMMAND
:*****
MOV #140005,T25PK3 :WRITE DATA,ACK,CVC=1 COMMAND
MOV #T25PK3,R4 :SET UP R4 WITH PACKET ADDRESS
65$: MOV R3,T25S2 :SET UP RECORD SIZE IN PACKET
MOV T25CNT,@FREE :LOAD UP RECORD COUNTER IN WRT BUFFER
ADD #1,T25CNT :GET READY FOR NEXT RECORD
MOV R4,TSDB(R5) :ISSUE COMMAND
JSR PC,WAITF :WAIT FOR SSR TO SET
MOV TSSR(R5),R1 :GET TSSR CONTENTS
MOV #SSR,R2 :SET UP EXPECTED
CMP R1,R2 :ARE THEY EQUAL
BEQ 75$ :BR, IF OK
BIT #BIT2,R1 :CHECK FOR TAPE STATUS ALERT
BNE 120$ :BR, IF TSA IS SET (SUSPECT IS EOT)
JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
:SOFT ERROR GENERATED BECAUSE THE
:WRITE COMMAND IS NOT BEING CHECKED
:HERE. IT WAS CHECKED IN CZTUXA
ERRSOFT ERRNO,WRTERR,PKTSSR :TSSR INCORRECT AFTER WRITE DATA
TRAP CSERSOFT
.WORD 106
.WORD WRTERR
.WORD PKTSSR
75$: CKLOOP :LOOP IF SELECTED
TRAP CSCLP1
INC R3 :BUMP RECORD SIZE
CMP #512.,R3 :END OF RECORD YET
BNE 65$ :BR, IF MORE RECORDS TO WRITE
BR 125$ :ENOUGH RECORDS
120$:
:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****
MOV T25BFR+6,R1 :QUICK CHECK FOR EOT SET
MOV R1,R2 :SET UP EXPECTED

```


CZTUAYO TUBO FRONT END PRT C
TEST 1: SPACE RECORDS

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```

4238
4239
4240
4241
4242
4243 024524 013701 030126
4244 024530 010102
4245 024532 052702 000002
4246 024536 020102
4247 024540 001406
4248 024542 004737 020100
4252 024546
      024546 104456
      024550 000160
      024552 030447
      024554 016344
4253 024556
      024556 104406
4254 024560 012737 000001 030232
4255
4256
4257
4258
4259
4260 024566 012737 140010 030230
4261 024574 012704 030230
4262 024600 010465 177776
4263 024604 004737 017120
4264 024610 016501 000000
4265 024614 012702 000200
4266 024620 020102
4267 024622 001411
4268 024624 032701 000004
4269 024630 001006
4270 024632 004737 020100
4274 024636
      024636 104456
      024640 000161
      024642 030367
      024644 016344
4275 024646
      024646 104406
4276 024650
4277
4278
4279
4280
4281
4282 024650 013701 030126
4283 024654 010102
4284 024656 042702 000002
4285 024662 020102
4286 024664 001406
4287 024666 004737 020100
4291 024672
      024672 104456
      024674 000162

:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****
      MOV      T25BFR+6,R1      ;PICK UP XSTO
      MOV      R1,R2           ;SET UP EXPECTED
      BIS      #BIT1,R2        ;SET BOT BIT IN EXPECTED
      CMP      R1,R2           ;DOES EXP = REC'D
      BEQ      40$             ;BR, IF EQUAL (OK)
      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD   ERRNO,T25BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP   CSERHRD
                                .WORD  112
                                .WORD  T25BOT
                                .WORD  EXPREC
40$:   CKLOOP                  ;LOOP IF SELECTED
                                TRAP   CSCLP1
      MOV      #000001,T25RB    ;NUMBER OF RECORDS TO SPACE OVER
:*****
:SPACE FORWARD,ACK,CVC=1 COMMAND
:*****
      MOV      #140010,T25PK3   ;SPACE FORWARD,ACK,CVC=1 COMMAND
      MOV      #T25PK3,R4       ;SET UP R4 WITH PACKET ADDRESS
65$:   MOV      R4,TSDB(R5)     ;ISSUE COMMAND
      JSR      PC,WAITF         ;WAIT FOR SSR TO SET
      MOV      TSSR(R5),R1      ;GET TSSR CONTENTS
      MOV      #SSR,R2         ;SET UP EXPECTED
      CMP      R1,R2           ;ARE THEY EQUAL
      BEQ      75$             ;BR, IF OK
      BIT      #BIT2,R1        ;CHECK FOR TAPE STATUS ALERT
      BNE      75$             ;BR, IF TSA IS SET (SUSPECT IS EOT)
      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD   ERRNO,T25WDE,EXPREC ;TSSR INCORRECT AFTER READ DATA
                                TRAP   CSERHRD
                                .WORD  113
                                .WORD  T25WDE
                                .WORD  EXPREC
75$:   CKLOOP                  ;LOOP IF SELECTED
                                TRAP   CSCLP1
120$:
:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****
      MOV      T25BFR+6,R1      ;QUICK CHECK FOR BOT SET
      MOV      R1,R2           ;SET UP EXPECTED
      BIC      #BIT1,R2        ;CLEAR THE BOT BIT (XSTO)
      CMP      R1,R2           ;IS THE EOT BIT SET IN XSTO
      BEQ      125$           ;BR, IF SET (GOOD)
      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD   ERRNO,T25BNC,EXPREC ;BOT NOT CLEARED AFTER SPACE FROM BOT
                                TRAP   CSERHRD
                                .WORD  114

```


CZTUAYO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 75-2
TEST 1: SPACE RECORDS

```

024676 030742                                     .WORD T25BNC
024700 016344                                     .WORD EXPREC
4292 024702 004737 031624    125$:  JSR    PC,T25RT3        :CLEAN UP PACKET
4293 024706 012737 000401    030236   MOV    #257.,T25SZ      :SET THE CORRECT SIZE UP
4294                                     :*****
4295                                     :READ DATA COMMAND IN PLACE
4296                                     :*****
4297                                     :*****
4298                                     :*****
4299 024714 012737 140001    030230   MOV    #140001,T25PK3 :READ DATA COMMAND IN PLACE
4300 024722 013737 003072    030232   MOV    FREE,T25RB     :READ BUFFER ADDRESS TO PACKET
4301 024730 012704 030230               MOV    #T25PK3,R4     :R4 = POINTER TO PACKET
4302 024734 010465 177776               MOV    R4,TSDB(R5)    :ISSUE COMMAND
4303 024740 004737 017120               JSR    PC,WAITF       :WAIT FOR SSR TO SET
4304 024744 016501 000000               MOV    TSSR(R5),R1   :GET TSSR CONTENTS
4305 024750 012702 000200               MOV    #SSR,R2       :SET UP EXPECTED
4306 024754 020102               CMP    R1,R2         :ARE THEY EQUAL
4307 024756 001406               BEQ    190$          :BR, IF OK ESP. FUNCTION REJECT
4308 024760 004737 020100               JSR    PC,FATCHK    :INC AND CHECK FOR MORE THAN 25 ERRORS
4312 024764                               ERRHRD  ERRNO,RDERR,PKTSSR :TSSR INCORRECT AFTER READ DATA CMD
                                024764 104456                               TRAP  CSERHRD
                                024766 000163                               .WORD 115
                                024770 005104                               .WORD RDERR
                                024772 011700                               .WORD PKTSSR
4313 024774    190$:  CKLOOP                      :LOOP IF SELECTED
                                024774 104406                               TRAP  C$CLP1
4314 024776 017701 156070               MOV    @FREE,R1      :GET FIRST WORD FROM BUFFER
4315 025002 012702 000001               MOV    #1,R2         :SET UP EXPECTED
4316 025006 020102               CMP    R1,R2         :WAS RECORD NUMBERED 1
4317 025010 001406               BEQ    200$          :BR, IF CORRECT RECORD
4318 025012 004737 020100               JSR    PC,FATCHK    :INC AND CHECK FOR MORE THAN 25 ERRORS
4322 025016                               ERRHRD  ERRNO,T25WNG,EXPREC :SHOULD HAVE BEEN RECORD NUMBER: 1
                                025016 104456                               TRAP  CSERHRD
                                025020 000164                               .WORD 116
                                025022 030657                               .WORD T25WNG
                                025024 016344                               .WORD EXPREC
4323 025026    200$:  ENDSUB                      :>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
                                025026    L10040:                               TRAP  C$ESUB
4324 025030 023727 002170    000031   CMP    FATFLG,#25.   :IS ERROR COUNT AT 25
4325 025036 002402                               BLT    999$          :BR, IF LESS THAN 25
4326 025040 004737 020152               JSR    PC,CKDROP    :TRY TO DROP THE UNIT
4327 025044    999$:

```


CZTUAYAO TUBO FRONT END PRT C
TEST 1: SPACE RECORDS

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```

4380 025164 104406 30$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      025164
4381 .....
4382 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4383 .....
4384 .....
4385 .....
4386 025166 013701 030126 MOV T25BFR+6,R1 ;PICK UP XSTO
4387 025172 010102 MOV R1,R2 ;SET UP EXPECTED
4388 025174 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
4389 025200 020102 CMP R1,R2 ;DOES EXP = REC'D
4390 025202 001406 BEQ 40$ ;BR, IF EQUAL (OK)
4391 025204 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
4395 025210 ERRHRD ERRNO,T25BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      025210 104456 TRAP C$SERHRD
      025212 000170 .WORD 120
      025214 030447 .WORD T25BOT
      025216 016344 .WORD EXPREC
4396 025220 104406 40$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      025220
4397 .....
4398 :ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
4399 :BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
4400 .....
4401 .....
4402 .....
4403 025222 012703 000001 MOV #000001,R3 ;NUMBER OF RECORDS TO SPACE FORWARD
4404 025226 004737 010140 JSR PC,SPACE ;CALL SPACE COMMAND
4405 025232 103410 BCS 50$ ;CHECK FOR ERROR
4406 025234 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
4407 025240 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
4411 025244 ERRHRD ERRNO,T25WDE,SFFMSG ;SPACE FORWARD FAILED
      025244 104456 TRAP C$SERHRD
      025246 000171 .WORD 121
      025250 030367 .WORD T25WDE
      025252 011746 .WORD SFFMSG
4412 025254 104406 50$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      025254 012737 000001 030232 MOV #1,T25RB ;NUMBER OF RECORDS TO SPACE OVER
4413 .....
4414 .....
4415 :SPACE REVERSE,ACK,CVC=1 COMMAND
4416 .....
4417 .....
4418 .....
4419 025264 012737 140410 030230 MOV #140410,T25PK3 ;SPACE REVERSE,ACK,CVC=1 COMMAND
4420 025272 012704 030230 MOV #T25PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
4421 025276 010465 177776 65$: MOV R4,TSDB(R5) ;ISSUE COMMAND
4422 025302 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
4423 025306 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
4424 025312 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED
4425 025316 020102 CMP R1,R2 ;ARE THEY EQUAL
4426 025320 001406 BEQ 75$ ;BR, IF OK
4427 025322 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
4431 025326 ERRHRD ERRNO,T25WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
      025326 104456 TRAP C$SERHRD
      025330 000172 .WORD 122
      025332 030367 .WORD T25WDE

```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 79
TEST 1: SPACE RECORDS

```

4604
4605
4606
4607
4608
4609
4610
4611
4612 026230
      026230
      026230 104402
4613 026232 004737 031470
4614 026236 013737 030260 030256
4615 026244 004737 031562
4616 026250 004737 031624
4617 026254 013737 030260 030262
4618
4619
4620
4621
4622
4623 026262 004737 016644
4624 026266 103427
4625 026270
      026270 012727 000250
      026274 000000
      026276 013727 002116
      026302 000000
      026304 005367 177772
      026310 001375
      026312 005367 177756
      026316 001367
4626 026320 005337 030262
4627 026324 001356
4628 026326 016501 000000
4629 026332 004737 020100
4633 026336
      026336 104455
      026340 000203
      026342 003550
      026344 011666
4634 026346 012704 030100
4635
4636
4637
4638
4639
4640 026352 004737 010332
4641 026356 103407
4642 026360 004737 020100
4646 026364 110001
4647 026366
      026366 104456
      026370 000204
      026372 004754
      026374 011666
4648 026376

:TEST 1, SUBTEST 5
:VERIFIES THAT SPACE RECORDS REVERSE CAN SPACE A
:MULTIPLE NUMBER OF RECORDS (2 THROUGH 64K OR THE
:MAXIMUM NUMBER OF RECORDS WRITTEN ON THE TAPE
:WHICH EVER IS LESS.
:
:*****
:BGNSUB
:*****
:BEGIN SUBTEST *****
T1.5:
TRAP CSBSUB
:SET COMMAND PACKET
:SET UP RECORD COUNTER
:SET UP OTHER COMMAND PACKET
:SET UP OTHER COMMAND PACKET
:SET UP REWIND DELAY COUNTER
:*****
:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
:*****
10$: JSR PC,SOFINIT ;DO INITIALIZE ON CONTROLLER
BCS 20$ ;BR IF INIT WAS OK
DELAY 250 ;WAIT ABOUT .25 SECONDS
MOV #250,(PC)+
.WORD 0
MOV LSDLY,(PC)+
.WORD 0
DEC -6(PC)
BNE -4
DEC -22(PC)
BNE -20
DEC T25DLY ;DEC COUNTER
BNE 10$ ;BR, IF MORE LOOPS REQUIRED
MOV TSSR(R5),R1 ;CONTENTS OF TSSR REGISTER
JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
ERRDF ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
TRAP CSERDF
.WORD 131
.WORD SFIERR
.WORD SFIMSG
20$: MOV #T25PACKET,R4 ;SUBROUTINE NEEDS PACKET ADDRESS
:*****
:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
:*****
JSR PC,WRTCHR ;ISSUE WRITE CHARACTERISTICS
BCS 25$ ;BR, IF COMMAND ISSUED OK
JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
MOV R0,R1 ;SAVE CONTENTS OF TSSR
ERRHRD ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
TRAP CSERHRD
.WORD 132
.WORD WRTMSG
.WORD SFIMSG
25$: CKLOOP ;LOOP IF SELECTED

```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 79-1
TEST 1: SPACE RECORDS

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026376 104406
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4654 026400 004737 010434
4655 026404 103407
4656 026406 010001
4657 026410 004737 020100
4661 026414
    026414 104456
    026416 000205
    026420 031257
    026422 011700
4662 026424
    026424 104406
4663
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4665
4666
4667
4668 026426 013701 030126
4669 026432 010102
4670 026434 052702 000002
4671 026440 020102
4672 026442 001406
4673 026444 004737 020100
4677 026450
    026450 104456
    026452 000206
    026454 030447
    026456 016344
4678 026460
    026460 104406
4679 026462 013701 030256
4680 026466 012702 177776
4681 026472 020201
4682 026474 003002
4683 026476 010103
4684 026500 000401
4685 026502 010203
4686 026504 010337 030232
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4692 026510 012737 140010 030230
4693 026516 012704 030230
4694 026522 010465 177776
4695 026526 013737 030256 030262
4696 026534 004737 017120
4697 026540 016501 000000
4698 026544 012702 000200
4699 026550 020102
4700 026552 001425

:*****
:ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
:*****
JSR    PC,REWIND          ;CALL TAPE REWIND COMMAND
BCS    30$                ;BR, IF NO PROBLEM
MOV    R0,R1              ;SAVE TSSR
JSR    PC,FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
ERRHRD ERRNO,T25RWN,PKTSSR ;REWIND NOT ACCEPTED
TRAP   CSERHRD
      .WORD 133
      .WORD T25RWN
      .WORD PKTSSR
30$:   CKLOOP              ;LOOP IF SELECTED
:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****
MOV    T25BFR+6,R1       ;PICK UP XSTO
MOV    R1,R2              ;SET UP EXPECTED
BIS    #BIT1,R2           ;SET BOT BIT IN EXPECTED
CMP    R1,R2              ;DOES EXP = REC'D
BEQ    40$                ;BR, IF EQUAL (OK)
JSR    PC,FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
ERRHRD ERRNO,T25BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
TRAP   CSERHRD
      .WORD 134
      .WORD T25BOT
      .WORD EXPREC
40$:   CKLOOP              ;LOOP IF SELECTED
:*****
MOV    T25CN2,R1          ;NUMBER OF RECORDS ON TAPE
MOV    #65534.,R2         ;MAX IT CAN SPACE OVER
CMP    R2,R1              ;WHICH VALUE CAN WE USE
BGT    46$                ;BR, IF # WRITTEN > 64K
MOV    R1,R3              ;# WRITTEN CAN BE USED
BR     47$                ;MOVE ON
46$:   MOV    R2,R3         ;USE MAX NUMBER
47$:   MOV    R3,T25RB      ;NUMBER OF RECORDS TO SPACE OVER
:*****
:SPACE FORWARD,ACK,CVC=1 COMMAND
:*****
MOV    #140010,T25PK3     ;SPACE FORWARD,ACK,CVC=1 COMMAND
MOV    #T25PK3,R4         ;SET UP R4 WITH PACKET ADDRESS
MOV    R4,TSDB(R5)        ;ISSUE COMMAND
MOV    T25CN2,T25DLY      ;SET UP DELAY COUNTER
48$:   JSR    PC,WAITF      ;WAIT FOR SSR TO SET
MOV    TSSR(R5),R1        ;GET TSSR CONTENTS
MOV    #SSR,R2            ;SET UP EXPECTED
CMP    R1,R2              ;ARE THEY EQUAL
BEQ    50$                ;BR, IF OK

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CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 79-2
TEST 1: SPACE RECORDS

```

4701 026554          DELAY 250          :WAIT .25 SECONDS          MOV #250,(PC)+
      026554 012727 000250          .WORD 0
      026560 0C0000          MOV LSDLY,(PC)+
      026562 013727 002116          .WORD 0
      026566 000000          DEC -6(PC)
      026570 005367 177772          BNE -4
      026574 001375          DEC -22(PC)
      026576 005367 177756          BNE -20
      026602 001367
4702 026604 005337 030262          DEC T25DLY          :DEC THE DELAY COUNTER
4703 026610 001351          BNE 48$          :BR, IF COUNTER HASN'T EXPIRED
4704 026612 004737 020100          JSR PC,FATCHK          :INC AND CHECK FOR MORE THAN 25 ERRORS
4708 026616          ERRHRD ERRNO,T25WDE,EXPREC          :TSSR INCORRECT AFTER READ DATA
      026616 104456          TRAP CSERHRD
      026620 000207          .WORD 135
      026622 030367          .WORD T25WDE
      026624 016344          .WORD EXPREC
4709 026626 013701 030256          50$: MOV T25CN2,R1          :NUMBER OF RECORDS ON TAPE
4710 026632 012702 177776          MOV #65534.,R2          :MAX IT CAN SPACE OVER
4711 026636 020201          CMP R2,R1          :WHICH VALUE CAN WE USE
4712 026640 003002          BGT 55$          :BR, IF # WRITTEN > 64K
4713 026642 010103          MOV R1,R3          :# WRITTEN CAN BE USED
4714 026644 000401          BR 60$          :MOVE ON
4715 026646 010203          55$: MOV R2,R3          :USE MAX NUMBER
4716 026650 162703 000001          60$: SUB #1,R3          :DON'T GO ALL THE WAY YET
4717 026654 010337 030232          MOV R3,T25RB          :NUMBER OF RECORDS TO SPACE OVER
4718
4719
4720          :*****
4721          :SPACE REVERSE,ACK,CVC=1 COMMAND
4722          :*****
4723 026660 012737 140410 030230          MOV #140410,T25PK3          :SPACE REVERSE,ACK,CVC=1 COMMAND
4724 026666 012704 030230          MOV #T25PK3,R4          :SET UP R4 WITH PACKET ADDRESS
4725 026672 010465 177776          MOV R4,TSDB(R5)          :ISSUE COMMAND
4726 026676 013737 030256 030262          MOV T25CN2,T25DLY          :SET UP COUNTER
4727 026704 004737 017120          70$: JSR PC,WAITF          :WAIT FOR SSR TO SET
4728 026710 016501 000000          MOV TSSR(R5),R1          :GET TSSR CONTENTS
4729 026714 012702 000200          MOV #SSR,R2          :SET UP EXPECTED
4730 026720 020102          CMP R1,R2          :ARE THEY EQUAL
4731 026722 001425          BEQ 75$          :BR, IF OK
4732 026724          DELAY 250          :WAIT ABOUT .25 SECONDS
      026724 012727 000250          MOV #250,(PC)+
      026730 000000          .WORD 0
      026732 013727 002116          MOV LSDLY,(PC)+
      026736 000000          .WORD 0
      026740 005367 177772          DEC -6(PC)
      026744 001375          BNE -4
      026746 005367 177756          DEC -22(PC)
      026752 001367          BNE -20
4733 026754 005337 030262          DEC T25DLY          :BUMP COUNTER DOWN
4734 026760 001351          BNE 70$          :BR, IF COUNTER HASN'T EXPIRED
4735 026762 004737 020100          JSR PC,FATCHK          :INC AND CHECK FOR MORE THAN 25 ERRORS
4739 026766          ERRHRD ERRNO,T25WDE,EXPREC          :TSSR INCORRECT AFTER READ DATA
      026766 104456          TRAP CSERHRD
      026770 000210          .WORD 136
      026772 030367          .WORD T25WDE
      026774 016344          .WORD EXPREC

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CZTUYAQ TUBO FRONT END PRT C
 TEST 1: SPACE RECORDS
 MACRO M1200 29-MAR-83 13:43 PAGE 79-3

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4740 026776             75$:  CKLOOP                      :LOOP IF SELECTED
      026776 104406                                 TRAP  CSCLP1
4741 027000 012703 010000 030232          MOV  #4096,R3          :RECORD SIZE
4742 027004 013737 003072          MOV  FREE,T25RB       :STARTING READ BUFFER ADDRESS
4743                                     :*****
4744                                     :READ DATA,ACK COMMAND
4745                                     :*****
4746                                     :READ DATA,ACK COMMAND
4747                                     :*****
4748 027012 012737 100001 030230          MOV  #100001,T25PK3    :READ DATA,ACK COMMAND
4749 027020 012704 030230 165$:  MOV  #T25PK3,R4          :SET UP R4 WITH PACKET ADDRESS
4750 027024 012700 177777          MOV  #177777,R0       :SET ALL ONES INTO CORRECT REGISTER
4751 027030 004737 020372          JSR  PC,FILLMEM       :FILL MEMORY WITH RECORD SIZE
4752 027034 010337 030236          MOV  R3,T25SZ         :SET UP RECORD SIZE IN PACKET
4753 027040 010465 177776          MOV  R4,T5DB(R5)     :ISSUE COMMAND
4754 027044 004737 017120          JSR  PC,WAITF         :WAIT FOR SSR TO SET
4755 027050 016501 000000          MOV  T5SR(R5),R1     :GET T5SR CONTENTS
4756 027054 012702 000200          MOV  #SSR,R2         :SET UP EXPECTED
4757 027060 020102          CMP  R1,R2           :ARE THEY EQUAL
4758 027062 001411          BEQ  170$            :BR, IF OK
4759 027064 032701 000004          BIT  #BIT2,R1        :CHECK FOR TAPE STATUS ALERT
4760 027070 001006          BNE  170$            :BR, IF BIT SET
4761 027072 004737 020100          JSR  PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
4765 027076          ERRHRD  ERRNO,RDERR,EXPREC    :T5SR INCORRECT AFTER READ DATA
      027076 104456                                 TRAP  CSERHRD
      027100 000211                                 .WORD 137
      027102 005104                                 .WORD RDERR
      027104 016344                                 .WORD EXPREC
4766 027106             170$:  CKLOOP                      :LOOP IF SELECTED
      027106 104406                                 TRAP  CSCLP1
4767 027110 017701 153756          MOV  @FREE,R1        :GET FIRST WORD FROM BUFFER
4768 027114 012702 000001          MOV  #1,R2           :SET UP EXPECTED
4769 027120 020102          CMP  R1,R2           :WAS RECORD NUMBERED R3
4770 027122 001406          BEQ  200$            :BR, IF CORRECT RECORD
4771 027124 004737 020100          JSR  PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
4775 027130          ERRHRD  ERRNO,T25WNH,EXPREC    :SHOULD HAVE BEEN RECORD NUMBER 1
      027130 104456                                 TRAP  CSERHRD
      027132 000212                                 .WORD 138
      027134 031032                                 .WORD T25WNH
      027136 016344                                 .WORD EXPREC
4776 027140             200$:  ENDSUB                      :>>>>>>>>>>>>> END SUBTEST >>>>>>>>>>
      027140          L10043:
      027140 104403                                 TRAP  CSesub
4777 027142 023727 002170 000031          CMP  FATFLG,#25      :IS ERROR COUNT AT 25
4778 027150 002402          BLT  999$           :BR, IF LESS THAN 25
4779 027152 004737 020152          JSR  PC,CKDROP       :TRY TO DROP THE UNIT
4780 027156             999$:
    
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4782
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4788
4789 027156
      027156
      027156 104402
4790 027160 004737 031470
4791 027164 004737 031562
4792 027170 004737 031624
4793
4794
4795
4796
4797
4798 027174 004737 016644
4799 027200 103407
4800 027202 004737 020100
4804 027206 010001
4805 027210
      027210 104455
      027212 000213
      027214 003550
      027216 011666
4806 027220 012704 030100
4807
4808
4809
4810
4811
4812 027224 004737 010332
4813 027230 103407
4814 027232 004737 020100
4818 027236 010001
4819 027240
      027240 104456
      027242 000214
      027244 004754
      027246 011666
4820 027250
      027250 104406
4821
4822
4823
4824
4825
4826 027252 004737 010434
4827 027256 103407
4828 027260 010001
4829 027262 004737 020100
4833 027266
      027266 104456
      027270 000215
      027272 031257

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:TEST 1. SUBTEST 6
:VERIFIES THAT SPACE RECORDS REVERSE ISSUED WHILE THE
:TAPE IS AT BOT RESULTS IN FUNCTION REJECT TERMINATION
:WITH THE NONEXECUTABLE FUNCTION (NEF) ERROR BIT SET.
:
:-----
          BGNSUB                                :>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>
          T1.6:                                TRAP      CSBSUB
          JSR      PC,T25REST                    :SET COMMAND PACKET
          JSR      PC,T25RT2                    :SET UP OTHER COMMAND PACKET
          JSR      PC,T25RT3                    :SET UP OTHER COMMAND PACKET
:*****
:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
:*****
          JSR      PC,SOFINIT                    :DO INITIALIZE ON CONTROLLER
          BCS      20$                           :BR IF INIT WAS OK
          JSR      PC,FATCHK                      :INC AND CHECK FOR MORE THAN 25 ERRORS
          MOV      R0,R1                          :CONTENTS OF TSSR REGISTER
          ERRDF   ERRNO,SFIERR,SFIMSG           :FATAL ERROR TSSR WAS NOT OK
          TRAP    CSERDF
          .WORD   139
          .WORD   SFIERR
          .WORD   SFIMSG
20$:      MOV      #T25PACKET,R4                 :SUBROUTINE NEEDS PACKET ADDRESS
:*****
:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
:*****
          JSR      PC,WRTCHR                      :ISSUE WRITE CHARACTERISTICS
          BCS      25$                           :BR, IF COMMAND ISSUED OK
          JSR      PC,FATCHK                      :INC AND CHECK FOR MORE THAN 25 ERRORS
          MOV      R0,R1                          :SAVE CONTENTS OF TSSR
          ERRHRD  ERRNO,WRTMSG,SFIMSG           :WRITE CHARACTERISTIC FAILED
          TRAP    CSERHRD
          .WORD   140
          .WORD   WRTMSG
          .WORD   SFIMSG
25$:      CKLOOP                                :LOOP IF SELECTED
          TRAP    CSCLP1
:*****
:ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
:*****
          JSR      PC,REWIND                      :CALL TAPE REWIND COMMAND
          BCS      30$                           :BR, IF NO PROBLEM
          MOV      R0,R1                          :SAVE TSSR
          JSR      PC,FATCHK                      :INC AND CHECK FOR MORE THAN 25 ERRORS
          ERRHRD  ERRNO,T25RWN,PKTSSR         :REWIND NOT ACCEPTED
          TRAP    CSERHRD
          .WORD   141
          .WORD   T25RWN

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CZTUAYO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 80-1
TEST 1: SPACE RECORDS

```

4834 027274 011700          30$:  CKLOOP                :LOOP IF SELECTED      .WORD  PKTSSR
      027276 104406          :*****
      027276 104406          :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4835  :*****
4836  :*****
4837  :*****
4838  :*****
4839  :*****
4840 027300 013701 030126      MOV      T25BFR+6,R1      :PICK UP XSTO
4841 027304 010102          MOV      R1,R2           :SET UP EXPECTED
4842 027306 052702 000002      BIS      #BIT1,R2        :SET BOT BIT IN EXPECTED
4843 027312 020102          CMP      R1,R2           :DOES EXP = REC'D
4844 027314 001406          BEQ      40$             :BR, IF EQUAL (OK)
4845 027316 004737 020100      JSR      PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
4849 027322          ERRHRD  ERRNO,T25BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
      027322 104456          TRAP          CSERHRD
      027324 000216          .WORD        142
      027326 030447          .WORD        T25BOT
      027330 016344          .WORD        EXPREC
4850 027332          40$:  CKLOOP                :LOOP IF SELECTED      TRAP   CSCLP1
      027332 104406          MOV      #1,T25RB        :NUMBER OF RECORDS TO SPACE OVER
4851 027334 012737 000001 030232 :*****
4852  :*****
4853  :SPACE REVERSE,ACK COMMAND
4854  :*****
4855  :*****
4856  :*****
4857 027342 012737 100410 030230      MOV      #100410,T25PK3  :SPACE REVERSE,ACK COMMAND
4858 027350 012704 030230          MOV      #T25PK3,R4     :SET UP R4 WITH PACKET ADDRESS
4859 027354 010465 177776      65$:  MOV      R4,TSDB(R5)  :ISSUE COMMAND
4860 027360 004737 017120      JSR      PC,WAITF        :WAIT FOR SSR TO SET
4861 027364 016501 000000          MOV      TSSR(R5),R1    :GET TSSR CONTENTS
4862 027370 012702 100206      MOV      #SSR!SC!BIT1!BIT2,R2 :SET UP EXPECTED
4863 027374 020102          CMP      R1,R2          :ARE THEY EQUAL
4864 027376 001406          BEQ      75$            :BR, IF OK
4865 027400 004737 020100      JSR      PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
4869 027404          ERRHRD  ERRNO,T25WDE,PKTSSR :TSSR INCORRECT AFTER READ DATA
      027404 104456          TRAP          CSERHRD
      027406 000217          .WORD        143
      027410 030367          .WORD        T25WDE
      027412 011700          .WORD        PKTSSR
4870 027414          75$:  CKLOOP                :LOOP IF SELECTED      TRAP   CSCLP1
      027414 104406          :*****
4871  :*****
4872  :*****
4873  :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
4874  :*****
4875  :*****
4876 027416 013701 030126      MOV      T25BFR+6,R1    :GET XSTO STATUS WORD
4877 027422 010102          MOV      R1,R2          :SET UP EXPECTED
4878 027424 052702 002000      BIS      #BIT10,R2       :SET THE NEF BIT
4879 027430 020102          CMP      R1,R2          :ARE THEY EQUAL
4880 027432 001406          BEQ      170$           :BR, IF EQUAL (GOOD)
4881 027434 004737 020100      JSR      PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
4885 027440          ERRHRD  ERRNO,T25NEF,EXPREC :NEF SHOULD BE SET
      027440 104456          TRAP          CSERHRD
      027442 000220          .WORD        144

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CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 80-2
TEST 1: SPACE RECORDS

	027444	031115					
	027446	016344					
4886	027450		170\$:	ENDSUB			
	027450						
	027450	104403					
4887	027452	023727	002170	000031	CMP	FATFLG.#25.	
4888	027460	002402			BLT	999\$	
4889	027462	004737	020152		JSR	PC,CKDROP	
4890	027466		999\$:				

	.WORD	T25NEF
	.WORD	EXPREC
	L10044:	
		TRAP
		C\$ESUB
		;IS ERROR COUNT AT 25
		;BR, IF LESS THAN 25
		;TRY TO DROP THE UNIT

```

4892
4893
4894
4895
4896
4897
4898
4899
4900
4901 027466      BGNSUB               :>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>
      027466      T1.7:
      027466 104402      TRAP      CSBSUB
4902 027470 004737 031470      JSR      PC,T25REST      :SET COMMAND PACKET
4903 027474 004737 031562      JSR      PC,T25RT2      :SET UP OTHER COMMAND PACKET
4904 027500 004737 031624      JSR      PC,T25RT3      :SET UP OTHER COMMAND PACKET
4905
4906
4907
4908
4909
4910 027504 004737 016644      *****
      JSR      PC,SOFINIT      :DO INITIALIZE ON CONTROLLER
4911 027510 103407      BCS      20$              :BR IF INIT WAS OK
4912 027512 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
4916 027516 010001      MOV      R0,R1          :CONTENTS OF TSSR REGISTER
4917 027520      ERRDF      ERRNO,SFIERR,SFIMSG :FATAL ERROR TSSR WAS NOT OK
      027520 104455      TRAP      CSERDF
      027522 000221      .WORD    145
      027524 003550      .WORD    SFIERR
      027526 011666      .WORD    SFIMSG
4918 027530 012704 030100      20$:   MOV      #T25PACKET,R4 :SUBROUTINE NEEDS PACKET ADDRESS
4919
4920
4921
4922
4923
4924 027534 004737 010332      *****
      JSR      PC,WRTCHR      :ISSUE WRITE CHARACTERISTICS
4925 027540 103407      BCS      25$              :BR, IF COMMAND ISSUED OK
4926 027542 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
4930 027546 010001      MOV      R0,R1          :SAVE CONTENTS OF TSSR
4931 027550      ERRHRD     ERRNO,WRTMSG,SFIMSG :WRITE CHARACTERISTIC FAILED
      027550 104456      TRAP      CSERHRD
      027552 000222      .WORD    146
      027554 004754      .WORD    WRTMSG
      027556 011666      .WORD    SFIMSG
4932 027560      25$:   CKLOOP                :LOOP IF SELECTED      TRAP      CSCLP1
      027560 104406
4933
4934
4935
4936
4937
4938 027562 004737 010434      *****
      JSR      PC,REWIND      :CALL TAPE REWIND COMMAND
4939 027566 103407      BCS      30$              :BR, IF NO PROBLEM
4940 027570 010001      MOV      R0,R1          :SAVE TSSR
4941 027572 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
4945 027576      ERRHRD     ERRNO,T25RWN,PKTSSR :REWIND NOT ACCEPTED
      027576 104456      TRAP      CSERHRD
  
```

```

:TEST 1, SUBTEST 7
:VERIFIES THAT A SPACE RECORDS REVERSE COMMAND THAT
:CAUSES THE TAPE TO RUN INTO BOT (WITH THE TAPE NOT
:INITIALLY AT BOT) CAUSES A TAPE STATUS ALERT
:TERMINATION AND SETS THE REVERSE INTO BOT (RIB)
:STATUS BIT
:

```

```

:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR

```

```

:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)

```

```

:ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE

```

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 81-1
TEST 1: SPACE RECORDS

```

027600 000223 .WORD 147
027602 031257 .WORD T25RWN
027604 011700 .WORD PKTSSR
4946 027606 104406 30$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
027606 104406
4947
4948
4949
4950
4951
4952 027610 013701 030126
4953 027614 010102
4954 027616 052702 000002
4955 027622 020102
4956 027624 001406
4957 027626 004737 020100
4961 027632
027632 104456
027634 000224
027636 030447
027640 016344
4962 027642 012737 000001 030232 40$: MOV #1,T25RB ;NUMBER OF RECORDS TO SPACE OVER
4963
4964
4965
4966
4967
4968 027650 012737 140210 030230
4969 027656 012704 030230
4970 027662 010465 177776
4971 027666 004737 017120
4972 027672 016501 000000
4973 027676 012702 000200
4974 027702 020102
4975 027704 001406
4976 027706 004737 020100
4980 027712
027712 104456
027714 000225
027716 030367
027720 016344
4981 027722
027722 104406
4982 027724 012737 000020 030232
4983
4984
4985
4986
4987
4988 027732 012737 100610 030230
4989 027740 012704 030230
4990 027744 010465 177776
4991 027750 004737 017120
4992 027754 016501 000000
4993 027760 012702 100204
4994 027764 020102
4995 027766 001406

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5023
5024
5025
5027 030074
5029 030100
5030 030100 100004
5031 030102 030110
5032 030104 000000
5033 030106 000010
5034 030110
5035 030110 030120
5036 030112 000000
5037 030114 000012
5038 030116 000000
5039 030120
5040
5041
5042
5044 030202
5046 030210
5047 030210 100006
5048 030212 030240
5049 030214 000000
5050 030216 000006
5051
5053 030220
5055 030230
5056 030230 100005
5057 030232
5058 030232 003072
5059 030234 000000
5060 030236 000000
5061
5062
5063
5064
5065 030240
5066 030240 010
5067 030241 200
5068 030242 000000
5069 030244 000000
5070
5071
5072
5073
5074
5075 030246 100005
5076 030250 100405
5077 030252 102005
5078 030254 177777
5079
5080

```

:LOCAL STORAGE FOR THIS TEST
:-
      .BLKB  10-<.-TUV2A&7>
T25PACKET:
      .WORD  100004
      .WORD  T25DATA
      .WORD  0
      .WORD  8.
T25DATA:
      .WORD  T25BFR
      .WORD  0
      .WORD  10.
      .WORD  0
T25BFR:  .BLKW  25.

:WRITE SUBSYSTEM MEMORY COMMAND PACKET
:
      .BLKB  10-<.-TUV2A&7>
T25PK2:
      .WORD  100006
      .WORD  T25BF2
      .WORD  0
      .WORD  6.
T25PK3:
      .BLKB  10-<.-TUV2A&7>
      .WORD  100005
T25RB:
T25WB:  .WORD  FREE
      .WORD  0
T25SZ:  .WORD  0
      .EVEN

:
:
T25BF2:
T25BS0: .BYTE  10
T25BS1: .BYTE  200
T25S2:  .WORD  0
T25S3:  .WORD  0

:
:
      .EVEN
:TAPE MOTION PACKET COMMAND VALUES
T25RN:  .WORD  100005
T25WDR: .WORD  100405
T25CON: .WORD  102005
      .WORD  177777

```

```

:COMMAND PACKET FOR TEST
:WRITE CHARACTERISTICS COMMAND, WITH ACK
:ADDRESS OF CHARACTERISTICS BLOCK

:STARTING VALUE OF BLOCK SIZE
:CHARACTERISTICS DATA BLOCK
:ADDRESS OF MESSAGE BUFFER

:LENGTH OF MESSAGE BUFFER

:MESSAGE BUFFER

:WRITE SUB SYS MEM COMMAND, AND ACK
:ADDRESS OF SELECT BLOCK DATA

:SIZE OF DATA PACKET

:READ COMMAND, AND ACK

:ADDRESS OF WRITE BUFFER

:SIZE OF BUFFER (EXTENT)

:BSEL0 AREA
:BSEL1 AREA
:SEL 2 AREA
:DATA AREA

:READ DATA (NEXT)
:READ DATA RETRY
:WRITE CONTINUOUS
:END OF DATA

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 83
 TEST 1: SPACE RECORDS

5082	030256	000000			T25CN2: .WORD	0		:COUNTER FOR RECORDS
5083	030260	000000			T25CNT: .WORD	0		:COUNTER FOR RECORDS
5084	030262	000000			T25DLY: .WORD	0		:COUNTER FOR RECORDS

5085
 5086
 5087
 5088
 5089
 5090
 :+
 :LOCAL TEXT MESSAGES FOR TEST
 :-

5091	030264	104	122	111	T210FL: .ASCIZ	'DRIVE IS OFF-LINE'		
5092	030306	127	122	111	T25SSR: .ASCIZ	'WRITE SUBSYSTEM Miscellaneous Read Status Failed'		
5093	030367	124	123	123	T25WDE: .ASCIZ	'TSSR Not Correct After POSITION (SPACE) Command'		
5094	030447	124	141	160	T25BOT: .ASCIZ	'Tape Not At BOT After REWIND Command'		
5095	030514	124	123	123	T25TM: .ASCIZ	'TSSR Not Correct After POSITION (Space Command) Reject'		
5096	030603	127	162	151	T25NET: .ASCIZ	'Write Tape, Status Alert, But No EOT Sensed'		
5097	030657	123	160	141	T25WNG: .ASCIZ	'Space Forward Failed To Position On Correct Record'		
5098	030742	123	160	141	T25BNC: .ASCIZ	'Space Forward, From BOT, Failed To Clear BOT Indication'		
5099	031032	123	160	141	T25WNH: .ASCIZ	'Space Reverse Failed To Position On Correct Record'		
5100	031115	123	160	141	T25NEF: .ASCIZ	'Space Reverse, At BOT, Failed To Set NEF (XST0)'		
5101	031175	123	160	141	T25RIB: .ASCIZ	'Space Reverse, Into BOT, Failed To Set RIB (XST3)'		
5102	031257	122	145	167	T25RWN: .ASCIZ	'Rewind (POSITION) Command Not Accepted'		
5103	031326	104	162	151	T25OFL: .ASCIZ	'Drive 7 Select Failed To Set 'OFL' In TSSR'		
5104	031401	124	123	123	T25WDC: .ASCIZ	'TSSR Not Correct After READ DATA Command'		
5105	031452	123	160	141	TST25ID: .ASCIZ	'Space Records'		
5106						.EVEN		

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 5108
 5109
 5110
 5111
 5112
 5113
 :+
 :ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
 :WRITE SUBSYSTEM MEMORY COMMAND
 :-

5114	031470				T25REST:			
5115	031470				SAVREG			:SAVE THE REGISTERS
5116	031474	012701	030100		MOV	#T25PACKET,R1		:START OF THE PACKET
5117	031500	012721	100004		MOV	#100004,(R1)+		:WRITE SUBSYSTEM MEM. WITH ACK
5118	031504	012721	030110		MOV	#T25DATA,(R1)+		:ADDRESS OF CHARAISTICS DATA BLOCK
5119	031510	005021			CLR	(R1)+		:EXTENDED ADDRESS
5120	031512	012721	000012		MOV	#10,(R1)+		:SIZE OF DATA BLOCK IN BYTES
5121	031516	012721	030120		MOV	#T25BFR,(R1)+		:ADDRESS OF MESSAGE BUFFER
5122	031522	005021			CLR	(R1)+		
5123	031524	012721	000024		MOV	#20,(R1)+		:LENGTH OF MESSAGE BUFFER
5124	031530	005021			CLR	(R1)+		
5125	031532	012711	000000		MOV	#0,(R1)		:SELECT DRIVE ZERO
5126	031536	012702	000030		MOV	#24,R2		:NUMBER OF LOCATIONS TO BE CLEARED
5127	031542	012762	177777	030120	MOV	#177777,T25BFR(R2)		:ALL ONES TO MESSAGE BUFFER
5128	031550	005742			TST	-(R2)		:NEXT LOCATION
5129	031552	022702	000000		CMP	#0,R2		:IS R2 AT ZERO YET
5130	031556	001371			BNE	64\$:KEEP GOING UNTIL DONE
5131	031560	000207			RTS	PC		:RETURN

5132								
5133	031562				T25RT2:			
5134	031562				SAVREG			:SAVE THE REGISTERS
5135	031566	012701	030210		MOV	#T25PK2,R1		:START OF THE PACKET
5136	031572	012721	100006		MOV	#100006,(R1)+		:WRITE SUBSYSTEM MEM. WITH ACK,
5137	031576	012721	030240		MOV	#T25BF2,(R1)+		:ADDRESS OF DATA BLOCK
5138	031602	005021			CLR	(R1)+		:EXTENDED ADDRESS

TEST 1: SPACE RECORDS

5139 031604 012721 000006
5140 031610 005021
5141 031612 012701 030240
5142 031616 005021
5143 031620 005011
5144 031622 000207
5145 031624
5146 031624
5147 031630 012701 030230
5148 031634 012721 000000
5149 031640 012721 000000
5150 031644 005021
5151 031646 012721 000000
5152 031652 000207
5153 031654
031654
031654 104401

T25RT3:

MOV #6,(R1)+
CLR (R1)+
MOV #T25BF2,R1
CLR (R1)+
CLR (R1)
RTS PC

SAVREG
MOV #T25PK3,R1
MOV #0,(R1)+
MOV #0,(R1)+
CLR (R1)+
MOV #0,(R1)+
RTS PC
ENDTST

;SIZE OF DATA BLOCK IN BYTES

;POINT TO DATA SEL AREA

;RETURN

;SAVE THE REGISTERS

;START OF THE PACKET

;WRITE SUBSYSTEM MEM. WITH ACK,

;ADDRESS OF DATA BLOCK

;EXTENDED ADDRESS

;SIZE OF DATA BLOCK IN BYTES

;RETURN

L10036:

TRAP

CSETST

CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

5213
5214
5215
5216
5217
5218
5219 031746 004737 016644
5220 031752 103426
5221 031754
      031754 012727 000250
      031760 000000
      031762 013727 002116
      031766 000000
      031770 005367 177772
      031774 001375
      031776 005367 177756
5222 032002 001367
5222 032004 005337 046104
5223 032010 001356
5224 032012 004737 020100
5228 032016 010001
5229 032020
      032020 104455
      032022 000311
      032024 003550
      032026 011666
5230 032030
5231
5232 032030 012704 045720
5233
5234
5235
5236
5237
5238
5239
5240 032034 004737 010332
5241 032040 103407
5242 032042 004737 020100
5246 032046 010001
5247 032050
      032050 104456
      032052 000312
      032054 004754
      032056 011666
5248 032060
      032060 104406
5249
5250
5251
5252
5253
5254
5255
5256 032062 004737 010434
5257 032066 103413
5258 032070 016501 000000

```

```

:*****
:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
:*****

10$: JSR PC,SOFINIT ;DO INITIALIZE ON CONTROLLER
      BCS 20$ ;BR IF INIT WAS OK
      DELAY 250 ;DELAY FOR A REWIND TO FINISH
      MOV #250,(PC)+
      .WORD 0
      MOV LSDLY,(PC)+
      .WORD 0
      DEC -6(PC)
      BNE -4
      DEC -22(PC)
      BNE -20

      DEC T26DLY ;DEC COUNTER
      BNE 10$ ;BR, IF DELAY NOT READY
      JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
      MOV R0,R1 ;CONTENTS OF TSSR REGISTER
      ERRDF ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
      TRAP CSERDF
      .WORD 201
      .WORD SFIERR
      .WORD SFIMSG

20$: MOV #T26PACKET,R4 ;SUBROUTINE NEEDS PACKET ADDRESS

:*****
:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
:*****

      JSR PC,WRTCHR ;ISSUE WRITE CHARACTERISTICS
      BCS 26$ ;BR, IF COMMAND ISSUED OK
      JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
      MOV R0,R1 ;SAVE CONTENTS OF TSSR
      ERRHRD ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTICSC FAILED
      TRAP CSERHRD
      .WORD 202
      .WORD WRTMSG
      .WORD SFIMSG

26$: CKLOOP ;LOOP IF SELECTED
      TRAP CSCLP1

:*****
:ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
:*****

      JSR PC,REWIND ;CALL TAPE REWIND COMMAND
      BCS 30$ ;BR, IF NO PROBLEM
      MOV TSSR(R5),R1 ;GET TSSR

```

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TEST 2: REREADS

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5259 032074 012702 000200      MOV      #SSR,R2      ;SET UP EXPECTED TSSR
5260 032100 010004      MOV      R0,R4      ;PACKET ADDRESS SET UP
5261 032102 004737 020100      JSR      PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
5265 032106      ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
      032106 104456      TRAP    CSERHRD
      032110 000313      .WORD  203
      032112 047404      .WORD  T26RWN
      032114 011700      .WORD  PKTSSR
5266 032116      30$:   CKLOOP      ;LOOP IF SELECTED      TRAP    CSCLP1
      032116 104406
5267
5268      :*****
5269      :
5270      :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
5271      :
5272      :*****
5273
5274 032120 013701 045746      MOV      T26BFR+6,R1 ;PICK UP XSTO
5275 032124 010102      MOV      R1,R2      ;SET UP EXPECTED
5276 032126 052702 000002      BIS      #BIT1,R2   ;SET BOT BIT IN EXPECTED
5277 032132 020102      CMP      R1,R2      ;DOES EXP = REC'D
5278 032134 001406      BEQ     40$         ;BR, IF EQUAL (OK)
5279 032136 004737 020100      JSR      PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
5283 032142      ERRHRD  ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      032142 104456      TRAP    CSERHRD
      032144 000314      .WORD  204
      032146 047115      .WORD  T26BOT
      032150 016344      .WORD  EXPREC
5284 032152      40$:   CKLOOP      ;LOOP IF SELECTED      TRAP    CSCLP1
      032152 104406
5285 032154 012703 000400      MOV      #256.,R3   ;RECORD SIZE
5286 032160 013737 003072 046052      MOV      FREE,T26RB ;STARTING WRITE BUFFER ADDRESS
5287
5288      :*****
5289      :
5290      :WRITE DATA,ACK,CVC=1 COMMAND
5291      :
5292      :*****
5293
5294 032166 012737 140005 046050      MOV      #140005,T26PK3 ;WRITE DATA,ACK,CVC=1 COMMAND
5295 032174 012704 046050      MOV      #T26PK3,R4  ;SET UP R4 WITH PACKET ADDRESS
5296 032200      65$:
5297 032200 010300      MOV      R3,R0      ;SET PATTERN IN CORRECT REGISTER
5298 032202 004737 020372      JSR      PC,FILLMEM  ;FILL MEMORY WITH RECORD SIZE
5299 032206 010337 046056      MOV      R3,T26SZ   ;SET UP RECORD SIZE IN PACKET
5300 032212 010465 177776      MOV      R4,TSDB(R5) ;ISSUE COMMAND
5301 032216 004737 017120      JSR      PC,WAITF    ;WAIT FOR SSR TO SET
5302 032222 016501 000000      MOV      TSSR(R5),R1 ;GET TSSR CONTENTS
5303 032226 012702 000200      MOV      #SSR,R2   ;SET UP EXPECTED
5304 032232 020102      CMP      R1,R2      ;ARE THEY EQUAL
5305 032234 001406      BEQ     75$         ;BR, IF OK
5306 032236 004737 020100      JSR      PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
5310      ;SOFT ERROR GENERATED BECAUSE THE
5311      ;WRITE COMMAND IS NOT BEING CHECKED
5312      ;HERE. IT WAS CHECKED IN CZTUXA
5313 032242      ERRSOFT ERRNO,WRTERR,EXPREC ;TSSR INCORRECT AFTER WRITE DATA
      032242 104457      TRAP    CSERSOFT

```

```

032244 000315 .WORD 205
032246 005011 .WORD WRTERR
032250 016344 .WORD EXPREC
5314 032252 75$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
032252 104406
5315 032254 005723 TST (R3)+ ;BUMP RECORD SIZE
5316 032256 022703 000414 CMP #268.,R3 ;END OF RECORD YET
5317 032262 001346 BNE 65$ ;BR, IF MORE RECORDS TO WRITE
5318 032264 80$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
032264 104406
5319 032266 120$:
5320
5321 :*****
5322 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5323 :*****
5324
5325
5326 JSR PC,REWIND ;CALL TAPE REWIND COMMAND
5327 032266 004737 010434 BCS 130$ ;BR, IF NO PROBLEM
5328 032272 103413 MOV TSSR(R5),R1 ;GET TSSR
5329 032274 016501 000000 MOV #SSR,R2 ;SET UP EXPECTED TSSR
5330 032300 012702 000200 MOV R0,R4 ;PACKET ADDRESS SET UP
5331 032304 010004 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
5332 032306 004737 020100 ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
5333 032312 104456 TRAP CSERHRD
032312 000316 .WORD 206
032314 047404 .WORD T26RWN
032316 011700 .WORD PKTSSR
5337 032322 130$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
032322 104406
5338
5339 :*****
5340 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
5341 :*****
5342
5343
5344
5345 032324 013701 045746 MOV T26BFR+6,R1 ;PICK UP XSTO
5346 032330 010102 MOV R1,R2 ;SET UP EXPECTED
5347 032332 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
5348 032336 020102 CMP R1,R2 ;DOES EXP = REC'D
5349 032340 001406 BEQ 140$ ;BR, IF EQUAL (OK)
5350 032342 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
5351 032346 104456 ERRHRD ERRNO,T26BOT,PKTSSR ;TAPE NOT AT BOT AFTER REWIND
5352 032346 104456 TRAP CSERHRD
032350 000317 .WORD 207
032352 047115 .WORD T26BOT
032354 011700 .WORD PKTSSR
5355 032356 140$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
032356 104406
5356 032360 012737 000400 046102 MOV #256.,T26RSZ ;SET RECORD SIZE
5357
5358 :*****
5359 :ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
5360 :BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
5361

```



```

5362
5363
5364
5365 032366 012703 000001
5366 032372 004737 010140
5367 032376 103412
5368 032400 016501 000000
5369 032404 012702 000200
5370 032410 004737 020100
5374 032414
      032414 104456
      032416 000320
      032420 046517
      032422 016344
5375 032424
5376 032424 013703 046102
5377 032430 013737 003072 046052
5378
5379
5380
5381
5382
5383
5384
5385 032436 012737 141001 046050
5386 032444 012704 046050
5387 032450 010337 046056
5388 032454 010465 177776
5389 032460 004737 017120
5390 032464 016501 000000
5391 032470 012702 000200
5392 032474 020102
5393 032476 001406
5394 032500 004737 020100
5398 032504
      032504 104456
      032506 000321
      032510 047740
      032512 011700
5399 032514
      032514 104406
5400 032516 013702 003072
5401 032522 010304
5402 032524 162704 000400
5403 032530 060204
5404 032532 021403
5405 032534 001410
5406 032536 011401
5407 032540 010302
5408 032542 004737 020100
5412 032546
      032546 104456
      032550 000322
      032552 047162
      032554 016344
5413 032556
      032556 104406

```

```

:*****
145$:  MOV      #1,R3           :SPACE ONE RECORD PARAMETER
      JSR      PC,SPACE       :CALL SPACE ROUTINE
      BCS      150$          :BR, IF NO PROBLEM WITH SPACE COMMAND
      MOV      TSSR(R5),R1    :GET TSSR
      MOV      #SSR,R2       :SET UP EXPECTED TSSR
      JSR      PC,FATCHK     :INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD  ERRNO,T26SC,EXPREC :POSITION (SPACE RECORDS) FAILED
                                   TRAP  CSERHRD
                                   .WORD 208
                                   .WORD T26SC
                                   .WORD EXPREC
150$:  MOV      T26RSZ,R3     :RECORD SIZE
      MOV      FREE,T26RB    :STARTING READ BUFFER ADDRESS
:*****
:REREREAD DATA,CVC=1,ACK COMMAND
:*****
165$:  MOV      #141001,T26PK3 :REREREAD DATA,CVC=1,ACK COMMAND
      MOV      #T26PK3,R4    :SET UP R4 WITH PACKET ADDRESS
      MOV      R3,T26SZ     :SET UP RECORD SIZE IN PACKET
      MOV      R4,TSDB(R5)  :ISSUE COMMAND
      JSR      PC,WAITF     :WAIT FOR SSR TO SET
      MOV      TSSR(R5),R1  :GET TSSR CONTENTS
      MOV      #SSR,R2     :SET UP EXPECTED
      CMP      R1,R2       :ARE THEY EQUAL
      BEQ      170$        :BR, IF OK
      JSR      PC,FATCHK   :INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD  ERRNO,T26WDC,PKTSSR :TSSR INCORRECT AFTER REREAD DATA
                                   TRAP  CSERHRD
                                   .WORD 209
                                   .WORD T26WDC
                                   .WORD PKTSSR
170$:  CKLOOP                :LOOP IF SELECTED
                                   TRAP  CSCLP1
      MOV      FREE,R2     :CURRENT BUFFER ADDRESS TO R2
      MOV      R3,R4       :CURRENT RECORD SIZE
      SUB      #256.,R4    :FIRST LOCATION IN BUFFER
173$:  ADD      R2,R4       :SET UP POINTER
      CMP      (R4),R3    :CHECK DATA READ (R3=DATA ALSO)
      BEQ      180$        :BR, IF ALL IS WELL
      MOV      (R4),R1    :RECD DATA
      MOV      R3,R2     :EXPECTED DATA
      JSR      PC,FATCHK   :INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD  ERRNO,T26DTA,EXPREC :DATA READ NOT = WRITTEN
                                   TRAP  CSERHRD
                                   .WORD 210
                                   .WORD T26DTA
                                   .WORD EXPREC
180$:  CKLOOP                :LOOP IF SELECTED
                                   TRAP  CSCLP1

```


CZTUJAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

5481 .....
5482 .....
5483 .....
5484 .....
5485 .....
5486 .....
5487 032720 004737 010434      JSR      PC,REWIND      ;CALL TAPE REWIND COMMAND
5488 032724 103413              BCS      30$            ;BR, IF NO PROBLEM
5489 032726 016501 000000      MOV      TSSR(R5),R1    ;GET TSSR
5490 032732 012702 000200      MOV      #SSR,R2       ;SET UP EXPECTED TSSR
5491 032736 010004              MOV      R0,R4          ;PACKET ADDRESS SET UP
5492 032740 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
5496 032744              ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP      CSERHRD
                                .WORD     213
                                .WORD     T26RWN
                                .WORD     PKTSSR
5497 032754 104406      30$:    CKLOOP              ;LOOP IF SELECTED      TRAP      CSCLP1
                                .WORD     104406
5498 .....
5499 .....
5500 .....
5501 .....
5502 .....
5503 .....
5504 .....
5505 032756 013701 045746      MOV      T26BFR+6,R1    ;PICK UP XST0
5506 032762 010102              MOV      R1,R2          ;SET UP EXPECTED
5507 032764 052702 000002      BIS      #BIT1,R2       ;SET BOT BIT IN EXPECTED
5508 032770 020102              CMP      R1,R2          ;DOES EXP = REC'D
5509 032772 001406              BEQ      40$            ;BR, IF EQUAL (OK)
5510 032774 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
5514 033000              ERRHRD  ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP      CSERHRD
                                .WORD     214
                                .WORD     T26BOT
                                .WORD     EXPREC
5515 033010 104406      40$:    CKLOOP              ;LOOP IF SELECTED      TRAP      CSCLP1
                                .WORD     104406
5516 033012 012703 000400      MOV      #256.,R3       ;RECORD SIZE
5517 033016 013737 003072 046052  MOV      FREE,T26RB     ;STARTING WRITE BUFFER ADDRESS
5518 .....
5519 .....
5520 .....
5521 .....
5522 .....
5523 .....
5524 .....
5525 033024 012737 110005 046050  MOV      #110005,T26PK3 ;WRITE DATA,ACK,SWB COMMAND
5526 033032 012704 046050              MOV      #T26PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
5527 033036              65$:
5528 033036 010300              MOV      R3,R0          ;SET PATTERN IN CORRECT REGISTER
5529 033040 004737 020372      JSR      PC,FILLMEM     ;FILL MEMORY WITH RECORD SIZE
5530 033044 010337 046056      MOV      R3,T26SZ       ;SET UP RECORD SIZE IN PACKET
5531 033050 010465 177776      MOV      R4,TSDB(R5)    ;ISSUE COMMAND
5532 033054 004737 017120      JSR      PC,WAITF       ;WAIT FOR SSR TO SET
5533 033060 016501 000000      MOV      TSSR(R5),R1    ;GET TSSR CONTENTS

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 85-2
TEST 2: REREADS

```

5534 033064 012702 000200      MOV      #SSR,R2      ;SET UP EXPECTED
5535 033070 020102      CMP      R1,R2      ;ARE THEY EQUAL
5536 033072 001406      BEQ      75$        ;BR, IF OK
5537 033074 004737 020100      JSR      PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
5541                                ;SOFT ERROR GENERATED BECAUSE THE
5542                                ;WRITE COMMAND IS NOT BEING CHECKED
5543                                ;HERE. IT WAS CHECKED IN CZTUXA
5544 033100      ERRSOFT ERRNO,WRTErr,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
      033100 104457                                TRAP      CSERSOFT
      033102 000327                                .WORD    215
      033104 005011                                .WORD    WRTErr
      033106 011700                                .WORD    PKTSSR
5545 033110      75$:  CKLOOP      ;LOOP IF SELECTED                                TRAP      CSCLP1
      033110 104406                                ;BUMP RECORD SIZE
5546 033112 005723      TST      (R3)+      ;END OF RECORD YET
5547 033114 022703 000414      CMP      #268.,R3  ;BR, IF MORE RECORDS TO WRITE
5548 033120 001346      BNE      65$        ;LOOP IF SELECTED
5549 033122      80$:  CKLOOP      ;LOOP IF SELECTED                                TRAP      CSCLP1
      033122 104406
5550 033124      120$:
5551
5552      ;*****
5553      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5554      ;*****
5555
5556
5557
5558 033124 004737 010434      JSR      PC,REWIND  ;CALL TAPE REWIND COMMAND
5559 033130 103413      BCS      130$      ;BR, IF NO PROBLEM
5560 033132 016501 000000      MOV      TSSR(R5),R1 ;GET TSSR
5561 033136 012702 000200      MOV      #SSR,R2   ;SET UP EXPECTED TSSR
5562 033142 010004      MOV      R0,R4     ;PACKET ADDRESS SET UP
5563 033144 004737 020100      JSR      PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
5567 033150      ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
      033150 104456                                TRAP      CSERHRD
      033152 000330                                .WORD    216
      033154 047404                                .WORD    T26RWN
      033156 011700                                .WORD    PKTSSR
5568 033160      130$:  CKLOOP      ;LOOP IF SELECTED                                TRAP      CSCLP1
      033160 104406
5569
5570      ;*****
5571      ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
5572      ;*****
5573
5574
5575
5576 033162 013701 045746      MOV      T26BFR+6,R1 ;PICK UP XSTO
5577 033166 010102      MOV      R1,R2     ;SET UP EXPECTED
5578 033170 052702 000002      BIS      #BIT1,R2  ;SET BOT BIT IN EXPECTED
5579 033174 020102      CMP      R1,R2     ;DOES EXP = REC'D
5580 033176 001406      BEQ      140$      ;BR, IF EQUAL (OK)
5581 033200 004737 020100      JSR      PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
5585 033204      ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      033204 104456                                TRAP      CSERHRD
      033206 000331                                .WORD    217
      033210 047115                                .WORD    T26BOT

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 85-3
 TEST 2: REREADS

```

5586 033212 016344          140$:  CKLOOP                ;LOOP IF SELECTED      .WORD  EXPREC
      033214                TRAP  CSCLP1
5587 033214 104406          MOV    #256.,T26RSZ      ;SET UP RECORD SIZE
5588 033216 012737 000400 046102
5589
5590
5591
5592
5593
5594
5595
5596 033224 012703 000001      145$:  MOV    #1,R3          ;SPACE ONE RECORD PARAMETER
5597 033230 004737 010140      JSR    PC,SPACE          ;CALL SPACE ROUTINE
5598 033234 103412          BCS    150$              ;BR, IF NO PROBLEM WITH SPACE COMMAND
5599 033236 016501 000000      MOV    TSSR(R5),R1       ;GET TSSR
5600 033242 012702 000200      MOV    #SSR,R2          ;SET UP EXPECTED TSSR
5601 033246 004737 020100      JSR    PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS
5605 033252          ERRHRD  ERRNO,T26SC,EXPREC ;POSITION (SPACE RECORDS) FAILED
      033252 104456          TRAP  CSERHRD
      033254 000332          .WORD 218
      033256 046517          .WORD T26SC
      033260 016344          .WORD  EXPREC
5606 033262          150$:
5607 033262 013703 046102      MOV    T26RSZ,R3         ;RECORD SIZE
5608 033266 013737 003072 046052  MOV    FREE,T26RB        ;STARTING READ BUFFER ADDRESS
5609
5610
5611
5612
5613
5614
5615
5616 033274 012737 151001 046050      165$:  MOV    #151001,T26PK3     ;REREAD DATA,CVC=1,ACK,SWB COMMAND
5617 033302 012704 046050      MOV    #T26PK3,R4        ;SET UP R4 WITH PACKET ADDRESS
5618 033306 010337 046056      MOV    R3,T26SZ          ;SET UP RECORD SIZE IN PACKET
5619 033312 010465 177776      MOV    R4,TSDB(R5)       ;ISSUE COMMAND
5620 033316 004737 017120      JSR    PC,WAITF          ;WAIT FOR SSR TO SET
5621 033322 016501 000000      MOV    TSSR(R5),R1       ;GET TSSR CONTENTS
5622 033326 012702 000200      MOV    #SSR,R2          ;SET UP EXPECTED
5623 033332 020102          CMP    R1,R2             ;ARE THEY EQUAL
5624 033334 001406          BEQ    170$              ;BR, IF OK
5625 033336 004737 020100      JSR    PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS
5629 033342          ERRHRD  ERRNO,T26WDC,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
      033342 104456          TRAP  CSERHRD
      033344 000333          .WORD 219
      033346 047740          .WORD T26WDC
      033350 011700          .WORD  PKTSSR
5630 033352          170$:  CKLOOP                ;LOOP IF SELECTED      TRAP  CSCLP1
      033352 104406
5631 033354 013702 003072      MOV    FREE,R2          ;CURRENT BUFFER ADDRESS TO R2
5632 033360 010304          MOV    R3,R4            ;CURRENT RECORD SIZE
5633 033362 162704 000400      SUB    #256.,R4         ;FIRST LOCATION IN BUFFER
5634 033366 060204          173$:  ADD    R2,R4            ;SET UP POINTER
5635 033370 021403          CMP    (R4),R3         ;CHECK DATA READ (R3=DATA ALSO)
5636 033372 001410          BEQ    180$              ;BR, IF ALL IS WELL
5637 033374 011401          MOV    (R4),R1         ;RECD DATA

```

CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

MACRO M1200 29-MAR-83 13:43 PAGE 85-4

5638	033376	010302			MOV	R3,R2		:EXPECTED DATA
5639	033400	004737	020100		JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS
5643	033404				ERRHRD	ERRNO,T26DTA,EXPREC		:DATA READ NOT = WRITTEN
	033404	104456						TRAP CSERHRD
	033406	000334						.WORD 220
	033410	047162						.WORD T26DTA
	033412	016344						.WORD EXPREC
5644	033414			180\$:	CKLOOP			:LOOP IF SELECTED
	033414	104406						TRAP CSCLP1
5645	033416	005724			TST	(R4)+		:BUMP TO NEXT LOCATION
5646	033420	160204			SUB	R2,R4		:CORRECT RECORDS SIZE VALUE
5647	033422	020403			CMP	R4,R3		:END OF RECORD YET
5648	033424	001360			BNE	173\$:BR, IF NOT AT END OF RECORD
5649	033426	005723			TST	(R3)+		:BUMP RECORD SIZE
5650	033430	010337	046102		MOV	R3,T26RSZ		:STORE RECORD SIZE
5651	033434	022703	000412		CMP	#266.,R3		:END OF RECORD YET
5652	033440	001271			BNE	145\$:BR, IF MORE RECORDS TO READ
5653	033442			190\$:	CKLOOP			:LOOP IF SELECTED
	033442	104406						TRAP CSCLP1
5654	033444				ENDSUB			:>>>>>>>>> END SUBTEST >>>>>>>>>
	033444							L10050:
	033444	104403						TRAP CSESUB
5655	033446	023727	002170 000031		CMP	FATFLG,#25.		:IS ERROR COUNT AT 25
5656	033454	002402			BLT	999\$:BR, IF LESS THAN 25
5657	033456	004737	020152		JSR	PC,CKDROP		:TRY TO DROP THE UNIT
5658	033462			999\$:				


```

5714
5715 033530 012704 045720          MOV      #T26PACKET,R4          :SUBROUTINE NEEDS PACKET ADDRESS
5716
5717          :*****
5718          :WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
5719          :*****
5720
5721
5722
5723 033534 004737 010332          JSR      PC,WRTCHR          :ISSUE WRITE CHARACTERISTICS
5724 033540 103407          BCS      26$              :BR, IF COMMAND ISSUED OK
5725 033542 004737 020100          JSR      PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
5729 033546 010001          MOV      R0,R1           :SAVE CONTENTS OF TSSR
5730 033550          ERRHRD  ERRNO,WRTMSG,SFMSG :WRITE CHARACTERISTIC FAILED
5731 033560          TRAP    CSERHRD
5732 033560 104456          .WORD   222
5733 033552 000336          .WORD   WRTMSG
5734 033554 004754          .WORD   SFMSG
5735 033556 011666
5736
5737 26$:  CKLOOP          :LOOP IF SELECTED          TRAP    C$CLP1
5738 033560 104406
5739
5740          :*****
5741          :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5742          :*****
5743
5744
5745
5746
5747
5748 033562 004737 010434          JSR      PC,REWIND        :CALL TAPE REWIND COMMAND
5749 033566 103413          BCS      30$              :BR, IF NO PROBLEM
5750 033570 016501 000000          MOV      TSSR(R5),R1     :GET TSSR
5751 033574 012702 000200          MOV      #SSR,R2        :SET UP EXPECTED TSSR
5752 033600 010004          MOV      R0,R4          :PACKET ADDRESS SET UP
5753 033602 004737 020100          JSR      PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
5754 033606          ERRHRD  ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
5755          TRAP    CSERHRD
5756          .WORD   223
5757          .WORD   T26RWN
5758          .WORD   PKTSSR
5759
5760 30$:  CKLOOP          :LOOP IF SELECTED          TRAP    C$CLP1
5761 033616 104406
5762
5763          :*****
5764          :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5765          :*****
5766
5767
5768
5769
5770
5771
5772
5773 033620 013701 045746          MOV      T26BFR+6,R1     :PICK UP XST0
5774 033624 010102          MOV      R1,R2          :SET UP EXPECTED
5775 033626 052702 000002          BIS      #BIT1,R2        :SET BOT BIT IN EXPECTED
5776 033632 020102          CMP      R1,R2          :DOES EXP = REC'D
5777 033634 001406          BEQ      40$            :BR, IF EQUAL (OK)
5778 033636 004737 020100          JSR      PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
5779 033642          ERRHRD  ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
5780          TRAP    CSERHRD
5781          .WORD   224
5782          .WORD   T26BOT

```

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 86-2
TEST 2: REREADS

```

5767 033650 016344          40$:  CKLOOP          :LOOP IF SELECTED      .WORD  EXPREC
      033652          :RECORD SIZE          TRAP   CSCLP1
      033652 104406
5768 033654 012703 000400    MOV    #256.,R3
5769 033660 013737 003072 046052  MOV    FREE,T26RB      :STARTING WRITE BUFFER ADDRESS
5770
5771          :*****
5772          :WRITE DATA,CVC=1,ACK COMMAND
5773          :*****
5774
5775
5776
5777 033666 012737 140005 046050    MOV    #140005,T26PK3  :WRITE DATA,CVC=1,ACK COMMAND
5778 033674 012704 046050          MOV    #T26PK3,R4      :SET UP R4 WITH PACKET ADDRESS
5779 033700          65$:
5780 033700 010300          MOV    R3,R0           :SET PATTERN IN CORRECT REGISTER
5781 033702 004737 020372          JSR   PC,FILLMEM       :FILL MEMORY WITH RECORD SIZE
5782 033706 010337 046056          MOV    R3,T26SZ        :SET UP RECORD SIZE IN PACKET
5783 033712 013777 046076 147152  MOV    T26CNT,@FREE    :MOVE TAPE RECORD NUMBER TO BUFFER
5784 033720 062737 000001 046076  ADD    #1,T26CNT       :NUMBER READY FOR NEXT RECORD
5785 033726 010465 177776          MOV    R4,TSDB(R5)     :ISSUE COMMAND
5786 033732 004737 017120          JSR   PC,WAITF         :WAIT FOR SSR TO SET
5787 033736 016501 000000          MOV    TSSR(R5),R1     :GET TSSR CONTENTS
5788 033742 012702 000200          MOV    #SSR,R2         :SET UP EXPECTED
5789 033746 020102          CMP   R1,R2           :ARE THEY EQUAL
5790 033750 001406          BEQ   75$             :BR, IF OK
5791 033752 004737 020100          JSR   PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
5795          :SOFT ERROR GENERATED BECAUSE THE
5796          :WRITE COMMAND IS NOT BEING CHECKED
5797          :HERE. IT WAS CHECKED IN CZTUXA
5798          ERRSOF  ERRNO,WRTErr,PKTSSR :TSSR INCORRECT AFTER WRITE DATA
      033756          TRAP  CSERSOFT
      033760 000341          .WORD 225
      033762 005011          .WORD WRTErr
      033764 011700          .WORD PKTSSR
5799 033766          75$:  CKLOOP          :LOOP IF SELECTED      .WORD  EXPREC
      033766 104406          :RECORD SIZE          TRAP   CSCLP1
      033770 005723
5800 033772 022703 000414    TST   (R3)+
5801 033776 001401          CMP   #268.,R3        :MAXIMUM SIZE YET
5802 034000 000737          BEQ   120$            :BR, IF AT END OF WRITE SEQUENCE
5803 034002          BR    65$             :WRITE MORE RECORDS
5804 034002 005037 046076    120$: CLR    T26CNT         :SET RECORD COUNTER BACK TO ZERO
5805
5806          :*****
5807          :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5808          :*****
5809
5810
5811
5812
5813 034006 004737 010434          JSR   PC,REWIND        :CALL TAPE REWIND COMMAND
5814 034012 103413          BCS  130$             :BR, IF NO PROBLEM
5815 034014 016501 000000          MOV    TSSR(R5),R1     :GET TSSR
5816 034020 012702 000200          MOV    #SSR,R2         :SET UP EXPECTED TSSR
5817 034024 010004          MOV    R0,R4           :PACKET ADDRESS SET UP
5818 034026 004737 020100          JSR   PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
5822 034032          ERRHRD ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED

```

```

034032 104456 TRAP CSERHRD
034034 000342 .WORD 226
034036 047404 .WORD T26RWN
034040 011700 .WORD PKTSSR
5823 034042 130$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
034042 104406

5824
5825
5826
5827
5828
5829
5830
5831 034044 013701 045746 MOV T26BFR+6,R1 ;PICK UP XSTO
5832 034050 010102 MOV R1,R2 ;SET UP EXPECTED
5833 034052 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
5834 034056 020102 CMP R1,R2 ;DOES EXP = REC'D
5835 034060 001406 BEQ 140$ ;BR, IF EQUAL (OK)
5836 034062 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
5840 034066 ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
034066 104456 TRAP CSERHRD
034070 000343 .WORD 227
034072 047115 .WORD T26BOT
034074 016344 .WORD EXPREC
5841 034076 140$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
034076 104406

5842
5843
5844
5845
5846
5847
5848
5849
5850 034100 012703 000001 MOV #1,R3 ;SPACE 1 RECORD FORWARD
5851 034104 004737 010140 JSR PC,SPACE ;SPACE CALL
5852 034110 012703 000400 MOV #256,R3 ;RECORD SIZE
5853 034114 013737 003072 046052 150$: MOV FREE,T26RB ;STARTING READ BUFFER ADDRESS
5854
5855
5856
5857
5858
5859
5860
5861 034122 012737 161001 046050 165$: MOV #161001,T26PK3 ;REREAD DATA,CVC=1,ACK, OPP COMMAND
5862 034130 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
5863 034134 010337 046056 MOV R3,T26SZ ;SET UP RECORD SIZE IN PACKET
5864 034140 010465 177776 MOV R4,TSDB(R5) ;ISSUE COMMAND
5865 034144 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
5866 034150 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
5867 034154 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED
5868 034160 020102 CMP R1,R2 ;ARE THEY EQUAL
5869 034162 001406 BEQ 170$ ;BR, IF OK
5870 034164 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
5874 034170 ERRHRD ERRNO,T26RRG,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
034170 104456 TRAP CSERHRD

```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 87
TEST 2: REREADS

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5921
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5926
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5928
5929
5930
5931

:+
:TEST 2, SUBTEST 4
:VERIFIES THAT THE REREAD PREVIOUS COMMAND WITH OPP=1
:AND SWB=1 OPERATES PROPERLY. THE TEST SEQUENCE IS
:THE SAME THAT IS USED IN SUBTEST 3, BUT IT IS
:VERIFIED THAT DATA STORED BY THE COMMAND CONTAINS
:SWAPPED BYTES.
:-

5931 034346
034346
034346 104402
5932 034350 004737 050640
5933 034354 005037 046076
5934 034360 004737 050732
5935 034364 004737 050774
5936
5937
5938
5939
5940
5941
5942
5943 034370 004737 016644
5944 034374 103407
5945 034376 004737 020100
5949 034402 010001
5950 034404
034404 104455
034406 000347
034410 003550
034412 011666
5951 034414

BGNSUB
:>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>
T2.4:
TRAP CSBSUB
JSR PC,T26REST :SET COMMAND PACKET
CLR T26CNT :CLEAR TAPE RECORD COUNTER
JSR PC,T26RT2 :SET UP OTHER COMMAND PACKET
JSR PC,T26RT3 :SET UP OTHER COMMAND PACKET

:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR

JSR PC,SOFINIT :DO INITIALIZE ON CONTROLLER
BCS 20\$:BR IF INIT WAS OK
JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
MOV RO,R1 :CONTENTS OF TSSR REGISTER
ERRDF ERNO,SFIERR,SFIMSG :FATAL ERROR TSSR WAS NOT OK
TRAP CSERDF
.WORD 231
.WORD SFIERR
.WORD SFIMSG

20\$:
5952
5953 034414 012704 045720
5954

MOV #T26PACKET,R4 :SUBROUTINE NEEDS PACKET ADDRESS

:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)

5956
5957
5958
5959
5960
5961 034420 004737 010332
5962 034424 103407
5963 034426 004737 020100
5967 034432 010001
5968 034434
034434 104456
034436 000350
034440 004754
034442 011666

JSR PC,WRTCHR :ISSUE WRITE CHARACTERISTICS
BCS 26\$:BR, IF COMMAND ISSUED OK
JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
MOV RO,R1 :SAVE CONTENTS OF TSSR
ERRHRD ERNO,WRTMSG,SFIMSG :WRITE CHARACTERISTICSC FAILED
TRAP CSERHRD
.WORD 232
.WORD WRTMSG
.WORD SFIMSG

CZTUYAO TU80 FRONT END PRT C
TEST 2: REREADS

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```

5969 034444      26$:  CKLOOP                ;LOOP IF SELECTED          TRAP  CSCLP1
      034444 104406
5970
5971 :*****
5972 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
5973 :*****
5974
5975
5976
5977 034446 004737 010434      JSR    PC,REWIND          ;CALL TAPE REWIND COMMAND
5978 034452 103413      BCS    30$                ;BR, IF NO PROBLEM
5979 034454 016501 000000      MOV    TSSR(R5),R1       ;GET TSSR
5980 034460 012702 000200      MOV    #SSR,R2          ;SET UP EXPECTED TSSR
5981 034464 010004      MOV    R0,R4            ;PACKET ADDRESS SET UP
5982 034466 004737 020100      JSR    PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS
5986 034472      ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
      034472 104456          TRAP  CSERHRD
      034474 000351          .WORD 233
      034476 047404          .WORD T26RWN
      034500 011700          .WORD PKTSSR
5987 034502      30$:  CKLOOP                ;LOOP IF SELECTED          TRAP  CSCLP1
      034502 104406
5988
5989 :*****
5990 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
5991 :*****
5992
5993
5994
5995 034504 013701 045746      MOV    T26BFR+6,R1      ;PICK UP XST0
5996 034510 010102      MOV    R1,R2            ;SET UP EXPECTED
5997 034512 052702 000002      BIS    #BIT1,R2         ;SET BOT BIT IN EXPECTED
5998 034516 020102      CMP    R1,R2            ;DOES EXP = REC'D
5999 034520 001406      BEQ    40$              ;BR, IF EQUAL (OK)
6000 034522 004737 020100      JSR    PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS
6004 034526      ERRHRD  ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      034526 104456          TRAP  CSERHRD
      034530 000352          .WORD 234
      034532 047115          .WORD T26BOT
      034534 016344          .WORD EXPREC
6005 034536      40$:  CKLOOP                ;LOOP IF SELECTED          TRAP  CSCLP1
      034536 104406
6006 034540 012703 000400      MOV    #256,R3          ;RECORD SIZE
6007 034544 013737 003072 046052  MOV    FREE,T26RB       ;STARTING WRITE BUFFER ADDRESS
6008
6009 :*****
6010 :WRITE DATA,CVC=1,ACK COMMAND
6011 :*****
6012
6013
6014
6015 034552 012737 140005 046050      MOV    #140005,T26PK3   ;WRITE DATA,CVC=1,ACK COMMAND
6016 034560 012704 046050      MOV    #T26PK3,R4       ;SET UP R4 WITH PACKET ADDRESS
6017 034564
6018 034564 010300      65$:  MOV    R3,R0          ;SET PATTERN IN CORRECT REGISTER
6019 034566 004737 020372      JSR    PC,FILLMEM       ;FILL MEMORY WITH RECORD SIZE
6020 034572 010337 046056      MOV    R3,T26SZ        ;SET UP RECORD SIZE IN PACKET

```

TEST 2: REREADS

```

6021 034576 013777 046076 146266      MOV      T26CNT,@FREE      ;MOVE TAPE RECORD NUMBER TO BUFFER
6022 034604 062737 000001 046076      ADD      #1,T26CNT        ;NUMBER READY FOR NEXT RECORD
6023 034612 010465 177776      MOV      R4,TSDB(R5)      ;ISSUE COMMAND
6024 034616 004737 017120      JSR      PC,WAITF        ;WAIT FOR SSR TO SET
6025 034622 016501 000000      MOV      TSSR(R5),R1      ;GET TSSR CONTENTS
6026 034626 012702 000200      MOV      #SSR,R2         ;SET UP EXPECTED
6027 034632 020102      CMP      R1,R2           ;ARE THEY EQUAL
6028 034634 001406      BEQ      75$             ;BR, IF OK
6029 034636 004737 020100      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
6033                                     ;SOFT ERROR GENERATED BECAUSE THE
6034                                     ;WRITE COMMAND IS NOT BEING CHECKED
6035                                     ;HERE. IT WAS CHECKED IN CZTUXA
6036 034642                                     ERRSOFT ERRNO,WRERR,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
        034642 104457                                     TRAP      CSERSOFT
        034644 000353                                     .WORD    235
        034646 005011                                     .WORD    WRERR
        034650 011700                                     .WORD    PKTSSR
6037 034652 104406      75$:  CKLOOP                ;LOOP IF SELECTED
        034652 005723      TST      (R3)+           ;BUMP THE RECORD SIZE
6038 034654 022703 000412      CMP      #266.,R3       ;MAXIMUM SIZE YET
6039 034656 001401      BEQ      120$           ;BR, IF AT END OF WRITE SEQUENCE
6040 034662 000737      BR       65$            ;WRITE MORE RECORDS
6041 034664 005037 046076      120$: CLR      T26CNT     ;SET RECORD COUNTER BACK TO ZERO
6042 034666
6043
6044
6045
6046
6047
6048
6049
6050
6051 034672 004737 010434      JSR      PC,REWIND       ;CALL TAPE REWIND COMMAND
6052 034676 103413      BCS      130$           ;BR, IF NO PROBLEM
6053 034700 016501 000000      MOV      TSSR(R5),R1    ;GET TSSR
6054 034704 012702 000200      MOV      #SSR,R2       ;SET UP EXPECTED TSSR
6055 034710 010004      MOV      R0,R4         ;PACKET ADDRESS SET UP
6056 034712 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
6060 034716 104456      ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
        034716 000354                                     TRAP      CSERHRD
        034720 047404                                     .WORD    236
        034722 011700                                     .WORD    T26RWN
        034724 011700                                     .WORD    PKTSSR
6061 034726 104406      130$: CKLOOP                ;LOOP IF SELECTED
        034726
6062
6063
6064
6065
6066
6067
6068
6069 034730 013701 045746      MOV      T26BFR+6,R1    ;PICK UP XST0
6070 034734 010102      MOV      R1,R2         ;SET UP EXPECTED
6071 034736 052702 000002      BIS      #BIT1,R2      ;SET BOT BIT IN EXPECTED
6072 034742 020102      CMP      R1,R2         ;DOES EXP = REC'D
6073 034744 001406      BEQ      140$           ;BR, IF EQUAL (OK)

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 87-3
TEST 2: REREADS

```

6074 034746 004737 020100      JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
6078 034752      ERRHRD  ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      034752 104456      TRAP   CSERHRD
      034754 000355      .WORD 237
      034756 047115      .WORD T26BOT
      034760 016344      .WORD EXPREC
6079 034762      140$:  CKLOOP      ;LOOP IF SELECTED      TRAP   CSCLP1
      034762 104406
6080
6081
6082
6083
6084
6085
6086
6087
6088 034764 012703 000001      MOV    #1,R3          ;SET UP SPACE FORWARD 1
6089 034770 004737 010140      JSR    PC,SPACE      ;ISSUE SPACE COMMAND
6090 034774 012703 000400      MOV    #256.,R3      ;RECORD SIZE
6091 035000 013737 003072 046052 150$:  MOV    FREE,T26RB     ;STARTING READ BUFFER ADDRESS
6092
6093
6094
6095
6096
6097
6098
6099 035006 012737 171001 046050 165$:  MOV    #171001,T26PK3 ;REREAD DATA,CVC=1,ACK, OPP COMMAND
6100 035014 012704 046050      MOV    #T26PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
6101 035020 010337 046056      MOV    R3,T26SZ      ;SET UP RECORD SIZE IN PACKET
6102 035024 010465 177776      MOV    R4,T26S2      ;ISSUE COMMAND
6103 035030 004737 017120      JSR    PC,WAITF      ;WAIT FOR SSR TO SET
6104 035034 016501 000000      MOV    T26S2,R5      ;GET TSSR CONTENTS
6105 035040 012702 000200      MOV    #SSR,R2       ;SET UP EXPECTED
6106 035044 020102      CMP    R1,R2         ;ARE THEY EQUAL
6107 035046 001406      BEQ   170$          ;BR. IF OK
6108 035050 004737 020100      JSR    PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
6112 035054      ERRHRD  ERRNO,T26RRF,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
      035054 104456      TRAP   CSERHRD
      035056 000356      .WORD 238
      035060 046325      .WORD T26RRF
      035062 011700      .WORD PKTSSR
6113 035064      170$:  CKLOOP      ;LOOP IF SELECTED      TRAP   CSCLP1
      035064 104406
6114 035066 017701 146000      MOV    @FREE,R1      ;FIRST WORD FROM READ BUFFER
6115 035072 013702 046076      MOV    T26CNT,R2     ;SET UP EXPECTED
6116 035076 000302      SWAB   R2            ;SWAP BYTES IN EXPECTED
6117 035100 020102      CMP    R1,R2         ;IS TAPE POSITION CORRECT
6118 035102 001406      BEQ   190$          ;KEEP GOING POSITION OK
6119 035104 004737 020100      JSR    PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
6123 035110      ERRHRD  ERRNO,T26WNG,EXPREC ;TAPE POSITION INCORRECT
      035110 104456      TRAP   CSERHRD
      035112 000357      .WORD 239
      035114 046106      .WORD T26WNG
      035116 016344      .WORD EXPREC
6124 035120      190$:  CKLOOP
      035120 104406      TRAP   CSCLP1

```


CZTUAYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 87-4
TEST 2: REREADS

```

6125 035122 005723           TST      (R3)+       :NEXT RECORD SIZE
6126 035124 062737 000001 046076    ADD      #1,T26CNT    :BUMP TAPE RECORD COUNTER
6127
6128  :*****
6129  :
6130  :READ DATA, CVC=1, ACK COMMAND
6131  :
6132  :*****
6133
6134 035132 012737 140001 046050    MOV      #140001,T26PK3  :READ DATA, CVC=1, ACK COMMAND
6135 035140 010337 046056          MOV      R3,T26S2      :SET SIZE INTO PACKET
6136 035144 010465 177776          MOV      R4,TSDB(R5)   :ISSUE READ DATA COMMAND
6137 035150 004737 017120          JSR      PC,WAITF      :WAIT FOR SSR
6138 035154 016501 000000          MOV      TSSR(R5),R1   :PICK UP THE TSSR
6139 035160 012702 000200          MOV      #SSR,R2      :SET UP EXPECTED
6140 035164 020102          CMP      R1,R2        :IS THE TSSR OK
6141 035166 001406          BEQ      215$         :BR, IF TSSR OK (GOOD)
6142 035170 004737 020100          JSR      PC,FATCHK     :INC AND CHECK FOR MORE THAN 25 ERRORS
6146 035174          ERRHRD  ERRNO,T26RDF,PKTSSR  :READ DATA COMMAND FAILED
        035174 104456          TRAP    CSERHRD
        035176 000360          .WORD  240
        035200 046256          .WORD  T26RDF
        035202 011700          .WORD  PKTSSR
6147 035204          215$:  CKLOOP          :LOOP IF SELECTED          TRAP    CSCLP1
        035204 104406          :FIRST WORD FROM READ BUFFER
6148 035206 017701 145660          MOV      @FREE,R1      :SET UP EXPECTED
6149 035212 013702 046076          MOV      T26CNT,R2    :IS TAPE POSITION CORRECT
6150 035216 020102          CMP      R1,R2        :KEEP GOING POSITION OK
6151 035220 001406          BEQ      217$         :INC AND CHECK FOR MORE THAN 25 ERRORS
6152 035222 004737 020100          JSR      PC,FATCHK     :TAPE POSITION INCORRECT
6156 035226          ERRHRD  ERRNO,T26WNG,EXPREC  TRAP    CSERHRD
        035226 104456          .WORD  241
        035230 000361          .WORD  T26WNG
        035232 046106          .WORD  EXPREC
        035234 016344          .WORD
6157 035236          217$:  CKLOOP          TRAP    CSCLP1
        035236 104406          :AT MAX SIZE YET
6158 035240 022703 000410          CMP      #264.,R3     :BR, IF AT END OF THE SUBTEST
6159 035244 001401          BEQ      220$         :KEEP GOING MORE RECORDS
6160 035246 000654          BR       150$
6161 035250          220$:  ENDSUB          :>>>>>>>>>> END SUBTEST >>>>>>>>>>
6162 035250          L10052:
        035250 104403          TRAP    CSESUB
6163 035252 023727 002170 000031          CMP      FATFLG,#25.  :IS ERROR COUNT AT 25
6164 035260 002402          BLT     999$         :BR, IF LESS THAN 25
6165 035262 004737 020152          JSR      PC,CKDROP    :TRY TO DROP THE UNIT
6166 035266          999$:

```



```

035360 104406 TRAP CSCLP1
6221
6222
6223
6224
6225
6226
6227
6228 035362 004737 010434 JSR PC,REWIND ;CALL TAPE REWIND COMMAND
6229 035366 103413 BCS 30$ ;BR, IF NO PROBLEM
6230 035370 016501 000000 MOV TSSR(R5),R1 ;GET TSSR
6231 035374 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED TSSR
6232 035400 010004 MOV R0,R4 ;PACKET ADDRESS SET UP
6233 035402 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6237 035406 ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
035406 104456 TRAP CSERHRD
035410 000364 .WORD 244
035412 047404 .WORD T26RWN
035414 011700 .WORD PKTSSR
6238 035416 30$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
035416 104406
6239
6240
6241
6242
6243
6244
6245
6246 035420 013701 045746 MOV T26BFR+6,R1 ;PICK UP XSTO
6247 035424 010102 MOV R1,R2 ;SET UP EXPECTED
6248 035426 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
6249 035432 020102 CMP R1,R2 ;DOES EXP = REC'D
6250 035434 001406 BEQ 40$ ;BR, IF EQUAL (OK)
6251 035436 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6255 035442 ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
035442 104456 TRAP CSERHRD
035444 000365 .WORD 245
035446 047115 .WORD T26BOT
035450 016344 .WORD EXPREC
6256 035452 40$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
035452 104406
6257 035454 012703 001000 MOV #512,R3 ;RECORD SIZE
6258 035460 013737 003072 046052 MOV FREE,T26RB ;STARTING WRITE BUFFER ADDRESS
6259
6260
6261
6262
6263
6264
6265
6266 035466 012737 140005 046050 MOV #140005,T26PK3 ;WRITE DATA,CVC=1,ACK COMMAND
6267 035474 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
6268 035500
6269 035500 010337 046056 65$: MOV R3,T26SZ ;SET UP RECORD SIZE IN PACKET
6270 035504 010465 177776 MOV R4,TSDB(R5) ;ISSUE COMMAND
6271 035510 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
6272 035514 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS

```

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TEST 2: REREADS

```

6273 035520 012702 000200      MOV      #SSR,R2      ;SET UP EXPECTED
6274 035524 020102      CMP      R1,R2      ;ARE THEY EQUAL
6275 035526 001406      BEQ     75$         ;BR, IF OK
6276 035530 004737 020100      JSR     PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
6280                                ;SOFT ERROR GENERATED BECAUSE THE
6281                                ;WRITE COMMAND IS NOT BEING CHECKED
6282                                ;HERE. IT WAS CHECKED IN CZTUXA
6283 035534      ERRSOFT ERRNO,WRTErr,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
                                TRAP      CSERSOFT
                                .WORD    246
                                .WORD    WRTErr
                                .WORD    PKTSSR
                                TRAP      CSCLP1
6284 035544      75$: CKLOOP      ;LOOP IF SELECTED
                                TRAP      CSCLP1
6285 035546 005303      DEC     R3          ;SET RECORD SIZE TO 511.
6286 035550 013737 003072 046052  MOV     FREE,T26RB  ;STARTING READ BUFFER ADDRESS
6287
6288      ;*****
6289      ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6290
6291      ;*****
6292
6293
6294 035556 012737 161001 046050  MOV     #161001,T26PK3 ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
6295 035564 012704 046050 165$: MOV     #T26PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
6296 035570 010337 046056      MOV     R3,T26SZ    ;SET UP RECORD SIZE IN PACKET
6297 035574 010465 177776      MOV     R4,TSDB(R5) ;ISSUE COMMAND
6298 035600 004737 017120      JSR     PC,WAITF    ;WAIT FOR SSR TO SET
6299 035604 016501 000000      MOV     TSSR(R5),R1 ;GET TSSR CONTENTS
6300 035610 012702 100204      MOV     #SSR!SC!BIT2,R2 ;SET UP EXPECTED
6301 035614 020102      CMP     R1,R2      ;ARE THEY EQUAL
6302 035616 001406      BEQ     170$       ;BR, IF OK
6303 035620 004737 020100      JSR     PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
6307 035624      ERRHRD ERRNO,T26TRL,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
                                TRAP      CSERHRD
                                .WORD    247
                                .WORD    T26TRL
                                .WORD    PKTSSR
                                TRAP      CSCLP1
6308 035634      170$: CKLOOP      ;LOOP IF SELECTED
                                TRAP      CSCLP1
6309
6310      ;*****
6311      ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6312
6313      ;*****
6314
6315
6316 035636 013701 045746      MOV     T26BFR+6,R1 ;GET MESSAGE BUFFER
6317 035642 010102      MOV     R1,R2      ;SET UP EXPECTED
6318 035644 052702 010000      BIS     #BIT12,R2  ;SET THE RLL BIT IN EXPECTED
6319 035650 020102      CMP     R1,R2      ;ARE THEY EQUAL
6320 035652 001406      BEQ     180$       ;BR, IF EQUAL (ALL IS WELL)
6321 035654 004737 020100      JSR     PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
6325 035660      ERRHRD ERRNO,T26LON,EXPREC ;THE RLL BIT WAS NOT SET IN XST0
                                TRAP      CSERHRD
                                .WORD    248
                                .WORD    T26LON
6325 035660 104456
6325 035662 000370
6325 035664 050230

```


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 TEST 2: REREADS

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6378
6379
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6381
6382
6383
6384
6385
6386
6387
6388
6389 036034      BGNSUB                ;>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
                               T2.6:
                               TRAP      CSBSUB
6390 036034      104402                JSR      PC,T26REST          ;SET COMMAND PACKET
6391 036036      004737      050640          JSR      PC,T26RT2          ;SET UP OTHER COMMAND PACKET
6392 036042      004737      050732          JSR      PC,T26RT3          ;SET UP OTHER COMMAND PACKET
6392 036046      004737      050774
6393
6394
6395
6396
6397
6398
6399
6400 036052      004737      016644          JSR      PC,SOFINIT          ;DO INITIALIZE ON CONTROLLER
6401 036056      103407                BCS      20$                ;BR IF INIT WAS OK
6402 036060      004737      020100          JSR      PC,FATCHK          ;INC AND CHECK FOR MORE THAN 25 ERRORS
6406 036064      010001                MOV      R0,R1              ;CONTENTS OF TSSR REGISTER
6407 036066      104455                ERDF     ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
                               TRAP      CSERDF
                               .WORD     251
                               .WORD     SFIERR
                               .WORD     SFIMSG
6408 036070      000373
6409 036072      003550
6410 036074      011666
6408 036076      20$:
6409
6410 036076      012704      045720          MOV      #T26PACKET,R4      ;SUBROUTINE NEEDS PACKET ADDRESS
6411
6412
6413
6414
6415
6416
6417
6418 036102      004737      010332          JSR      PC,WRTCHR          ;ISSUE WRITE CHARACTERISTICS
6419 036106      103407                BCS      26$                ;BR, IF COMMAND ISSUED OK
6420 036110      004737      020100          JSR      PC,FATCHK          ;INC AND CHECK FOR MORE THAN 25 ERRORS
6424 036114      010001                MOV      R0,R1              ;SAVE CONTENTS OF TSSR
6425 036116      104456                ERHRD    ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
                               TRAP      CSERHRD
                               .WORD     252
                               .WORD     WRTMSG
036116      104456
036120      000374
036122      004754

```

:+

:TEST 2, SUBTEST 6

:VERIFIES THAT A REREAD PREVIOUS COMMAND READING A
 :RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
 :TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
 :SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
 :RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
 :CONTAINS THE PROPER NONZERO VALUE (E.G., THE
 :DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
 :ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
 :STATES OF OPP (0 AND 1).

:-

BGNSUB

;>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>
T2.6:

TRAP CSBSUB

JSR PC,T26REST

:SET COMMAND PACKET

JSR PC,T26RT2

:SET UP OTHER COMMAND PACKET

JSR PC,T26RT3

:SET UP OTHER COMMAND PACKET

:*****

:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR

:*****

JSR PC,SOFINIT

:DO INITIALIZE ON CONTROLLER

BCS 20\$

:BR IF INIT WAS OK

JSR PC,FATCHK

:INC AND CHECK FOR MORE THAN 25 ERRORS

MOV R0,R1

:CONTENTS OF TSSR REGISTER

ERDF ERRNO,SFIERR,SFIMSG

:FATAL ERROR TSSR WAS NOT OK

TRAP CSERDF

.WORD 251

.WORD SFIERR

.WORD SFIMSG

20\$:

MOV #T26PACKET,R4

:SUBROUTINE NEEDS PACKET ADDRESS

:*****

:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)

:*****

JSR PC,WRTCHR

:ISSUE WRITE CHARACTERISTICS

BCS 26\$

:BR, IF COMMAND ISSUED OK

JSR PC,FATCHK

:INC AND CHECK FOR MORE THAN 25 ERRORS

MOV R0,R1

:SAVE CONTENTS OF TSSR

ERHRD ERRNO,WRTMSG,SFIMSG

:WRITE CHARACTERISTIC FAILED

TRAP CSERHRD

.WORD 252

.WORD WRTMSG

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TEST 2: REREADS

```

6426 036124 011666          26$:  CKLOOP          :LOOP IF SELECTED          .WORD  SFIMSG
      036126 104406          TRAP  C$CLP1
6427
6428
6429
6430
6431
6432
6433
6434 036130 004737 010434      JSR    PC,REWIND          :CALL TAPE REWIND COMMAND
6435 036134 103413          BCS    30$                :BR, IF NO PROBLEM
6436 036136 016501 000000      MOV    TSSR(R5),R1        :GET TSSR
6437 036142 012702 000200      MOV    #SSR,R2           :SET UP EXPECTED TSSR
6438 036146 010004          MOV    R0,R4             :PACKET ADDRESS SET UP
6439 036150 004737 020100      JSR    PC,FATCHK         :INC AND CHECK FOR MORE THAN 25 ERRORS
6443 036154          ERRHRD  ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
      036154 104456          TRAP  C$ERHRD
      036156 000375          .WORD 253
      036160 047404          .WORD T26RWN
      036162 011700          .WORD PKTSSR
6444 036164          30$:  CKLOOP          :LOOP IF SELECTED          TRAP  C$CLP1
      036164 104406
6445
6446
6447
6448
6449
6450
6451
6452 036166 013701 045746      MOV    T26BFR+6,R1       :PICK UP XSTO
6453 036172 010102          MOV    R1,R2             :SET UP EXPECTED
6454 036174 052702 000002      BIS    #BIT1,R2          :SET BOT BIT IN EXPECTED
6455 036200 020102          CMP    R1,R2             :DOES EXP = REC'D
6456 036202 001406          BEQ    40$                :BR, IF EQUAL (OK)
6457 036204 004737 020100      JSR    PC,FATCHK         :INC AND CHECK FOR MORE THAN 25 ERRORS
6461 036210          ERRHRD  ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
      036210 104456          TRAP  C$ERHRD
      036212 000376          .WORD 254
      036214 047115          .WORD T26BOT
      036216 016344          .WORD EXPREC
6462 036220          40$:  CKLOOP          :LOOP IF SELECTED          TRAP  C$CLP1
      036220 104406
6463 036222 012703 000400      MOV    #256,R3           :RECORD SIZE
6464 036226 013737 003072 046052  MOV    FREE,T26RB        :STARTING WRITE BUFFER ADDRESS
6465
6466
6467
6468
6469
6470
6471
6472 036234 012737 140005 046050      MOV    #140005,T26PK3    :WRITE DATA,CVC=1,ACK COMMAND
6473 036242 012704 046050      MOV    #T26PK3,R4        :SET UP R4 WITH PACKET ADDRESS
6474 036246
6475 036246 010337 046056      65$:  MOV    R3,T26SZ      :SET UP RECORD SIZE IN PACKET
6476 036252 010465 177776      MOV    R4,TSDB(R5)       :ISSUE COMMAND

```

TEST 2: REREADS

```

6477 036256 004737 017120 JSR PC, WAITF ;WAIT FOR SSR TO SET
6478 036262 016501 000000 MOV TSSR(R5), R1 ;GET TSSR CONTENTS
6479 036266 012702 000200 MOV #SSR, R2 ;SET UP EXPECTED
6480 036272 020102 CMP R1, R2 ;ARE THEY EQUAL
6481 036274 001406 BEQ 75$ ;BR, IF OK
6482 036276 004737 020100 JSR PC, FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6486 ;SOFT ERROR GENERATED BECAUSE THE
6487 ;WRITE COMMAND IS NOT BEING CHECKED
6488 ;HERE. IT WAS CHECKED IN CZTUXA
6489 036302 ERRSOF ERRNO, WRTERR, PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
036302 104457 TRAP CSERSOFT
036304 000377 .WORD 255
036306 005011 .WORD WRTERR
036310 011700 .WORD PKTSSR
6490 036312 75$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
036312 104406 ;RECORD SIZE
6491 036314 012703 001000 MOV #512, R3 ;STARTING READ BUFFER ADDRESS
6492 036320 013737 003072 046052 MOV FREE, T26RB
6493 ;*****
6494 ;REREAD PREVIOUS, ACK, CVC=1, OPP=1
6495 ;*****
6496
6497
6498
6499
6500 036326 012737 161001 046050 165$: MOV #161001, T26PK3 ;REREAD PREVIOUS, ACK, CVC=1, OPP=1
6501 036334 012704 046050 MOV #T26PK3, R4 ;SET UP R4 WITH PACKET ADDRESS
6502 036340 010337 046056 MOV R3, T26SZ ;SET UP RECORD SIZE IN PACKET
6503 036344 010465 177776 MOV R4, TSDB(R5) ;ISSUE COMMAND
6504 036350 004737 017120 JSR PC, WAITF ;WAIT FOR SSR TO SET
6505 036354 016501 000000 MOV TSSR(R5), R1 ;GET TSSR CONTENTS
6506 036360 012702 100204 MOV #SSR!SC!BIT2, R2 ;SET UP EXPECTED
6507 036364 020102 CMP R1, R2 ;ARE THEY EQUAL
6508 036366 001406 BEQ 170$ ;BR, IF OK
6509 036370 004737 020100 JSR PC, FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6513 036374 ERRHRD ERRNO, T26TRL, PKTSSR ;TSSR INCORRECT AFTER READ DATA
036374 104456 TRAP CSERHRD
036376 000400 .WORD 256
036400 050462 .WORD T26TRL
036402 011700 .WORD PKTSSR
6514 036404 170$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
036404 104406
6515 ;*****
6516 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6517 ;*****
6518
6519
6520
6521
6522 036406 013701 045746 MOV T26BFR+6, R1 ;GET MESSAGE BUFFER
6523 036412 010102 MOV R1, R2 ;SET UP EXPECTED
6524 036414 052702 040000 BIS #BIT14, R2 ;SET THE RLS BIT IN EXPECTED
6525 036420 020102 CMP R1, R2 ;ARE THEY EQUAL
6526 036422 001406 BEQ 180$ ;BR, IF EQUAL (ALL IS WELL)
6527 036424 004737 020100 JSR PC, FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6531 036430 ERRHRD ERRNO, T26LOP, EXPREC ;THE RLL BIT WAS NOT SET IN XSTO
036430 104456 TRAP CSERHRD

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CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 89-3
TEST 2: REREADS

```

036432 000401 .WORD 257
036434 050312 .WORD T26LOP
036436 016344 .WORD EXPREC
6532 036440 180$:
6533 036440 013701 045744 MOV T26BFR+4,R1 ;PICK UP RESIDUAL BYTE COUNTER
6534 036444 012702 000400 MOV #256.,R2 ;THIS SHOULD BE THE DIFFERENCE
6535 036450 020102 CMP R1,R2 ;IS THE DIFFERENCE CORRECT
6536 036452 001406 BEQ 190$ ;BR, IF CORRECT
6537 036454 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6541 036460 ERRHRD ERRNO,T26PBP,EXPREC ;RBPCR NOT CORRECT
036460 104456 TRAP CSERHRD
036462 000402 .WORD 258
036464 050374 .WORD T26PBP
036466 016344 .WORD EXPREC
6542 036470 190$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
036470 104406
6543 036472 012703 001000 MOV #512.,R3 ;RECORD SIZE
6544 036476 013737 003072 046052 MOV FREE,T26RB ;STARTING READ BUFFER ADDRESS
6545
6546 :*****
6547 :REREAD PREVIOUS,ACK,CVC=1,OPP=0
6548 :
6549 :*****
6550
6551
6552 036504 012737 141001 046050 MOV #141001,T26PK3 ;REREAD PREVIOUS,ACK,CVC=1,OPP=0
6553 036512 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
6554 036516 010337 046056 MOV R3,T26SZ ;SET UP RECORD SIZE IN PACKET
6555 036522 010465 177776 MOV R4,TSDB(R5) ;ISSUE COMMAND
6556 036526 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
6557 036532 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
6558 036536 012702 100204 MOV #SSR!SC!BIT2,R2 ;SET UP EXPECTED
6559 036542 020102 CMP R1,R2 ;ARE THEY EQUAL
6560 036544 001406 BEQ 270$ ;BR, IF OK
6561 036546 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6565 036552 ERRHRD ERRNO,T26TRL,PKTSSR ;TSSR INCORRECT AFTER READ DATA
036552 104456 TRAP CSERHRD
036554 000403 .WORD 259
036556 050462 .WORD T26TRL
036560 011700 .WORD PKTSSR
6566 036562 270$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
036562 104406
6567
6568 :*****
6569 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
6570 :
6571 :*****
6572
6573
6574 036564 013701 045746 MOV T26BFR+6,R1 ;GET MESSAGE BUFFER
6575 036570 010102 MOV R1,R2 ;SET UP EXPECTED
6576 036572 052702 040000 BIS #BIT14,R2 ;SET THE RLS BIT IN EXPECTED
6577 036576 020102 CMP R1,R2 ;ARE THEY EQUAL
6578 036600 001406 BEQ 280$ ;BR, IF EQUAL (ALL IS WELL)
6579 036602 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6583 036606 ERRHRD ERRNO,T26LOP,EXPREC ;THE RLL BIT WAS NOT SET IN XSTO
036606 104456 TRAP CSERHRD

```

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 TEST 2: REREADS

036610	000404						.WORD	260
036612	050312						.WORD	T26LOP
036614	016344						.WORD	EXPREC
6584 036616				280\$:				
6585 036616	013701	045744			MOV	T26BFR+4,R1	:	PICK UP RESIDUAL BYTE COUNTER
6586 036622	012702	000400			MOV	#256,R2	:	THIS SHOULD BE THE DIFFERENCE
6587 036626	020102				CMP	R1,R2	:	IS THE DIFFERENCE CORRECT
6588 036630	001405				BEQ	290\$:	BR, IF CORRECT
6592 036634					ERRHRD	ERRNO,T26PBP,EXPREC	:	RBPCR NOT CORRECT
036634	104456						TRAP	CSERHRD
036636	000404						.WORD	260
036640	050374						.WORD	T26PBP
036642	016344						.WORD	EXPREC
6593 036644				290\$:	CKLOOP		:	LOOP IF SELECTED
036644	104406						TRAP	CSCLP1
6594 036646					ENDSUB		:	>>>>>>>>>> END SUBTEST >>>>>>>>>>
036646								L10054:
036646	104403						TRAP	CSesub
6595 036650	023727	002170	000031		CMP	FATFLG,#25.	:	IS ERROR COUNT AT 25
6596 036656	002402				BLT	999\$:	BR, IF LESS THAN 25
6597 036660	004737	020152			JSR	PC,CKDROP	:	TRY TO DROP THE UNIT
6598 036664				999\$:				

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TEST 6, SUBTEST 7
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:
:VERIFIES THAT THE REREAD NEXT COMMAND WITH OPP=0
:AND SUB=0 OPERATES PROPERLY. THE TAPE IS FIRST
:REWOUND AND THEN WRITTEN WITH A SERIES OF TEST
:RECORDS VARYING IN LENGTH AND DATA CONTENT. THE TAPE
:IS THEN REWOUND AGAIN. FOR EACH TEST RECORD, THE
:TAPE IS SPACED FORWARD ONE RECORD AND A REREAD
:NEXT COMMAND ISSUED. RESULTS (STATUS, DATA,
:ETC.) ARE VERIFIED. THE BYTE COUNT ON EACH REREAD
:NEXT COMMAND IS SET TO THE LENGTH OF THE EXPECTED
:RECORD, SO NO EXCEPTIONAL CONDITIONS SHOULD OCCUR.

```

BGNSUB                                         :>>>>>>>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>>>>>>>
                                                T2.7:
                                                TRAP     CSBSUB
      JSR   PC,T26REST                          :SET COMMAND PACKET
      JSR   PC,T26RT2                            :SET UP OTHER COMMAND PACKET
      JSR   PC,T26RT3                            :SET UP OTHER COMMAND PACKET

:*****
:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
:*****

      JSR   PC,SOFINIT                          :DO INITIALIZE ON CONTROLLER
      BCS   20$                                 :BR, IF INIT WAS OK
      JSR   PC,FATCHK                           :INC AND CHECK FOR MORE THAN 25 ERRORS
      MOV   R0,R1                               :CONTENTS OF TSSR REGISTER
      ERRDF ERRNO,SFIERR,SFIMSG                :FATAL ERROR TSSR WAS NOT OK
                                                TRAP     CSERDF
                                                .WORD   261
                                                .WORD   SFIERR
                                                .WORD   SFIMSG

20$:
      MOV   #T26PACKET,R4                       :SUBROUTINE NEEDS PACKET ADDRESS

:*****
:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
:*****

      JSR   PC,WRTCHR                            :ISSUE WRITE CHARACTERISTICS
      BCS   26$                                 :BR, IF COMMAND ISSUED OK
      JSR   PC,FATCHK                           :INC AND CHECK FOR MORE THAN 25 ERRORS
      MOV   R0,R1                               :SAVE CONTENTS OF TSSR
      ERRHRD ERRNO,WRTMSG,SFIMSG               :WRITE CHARACTERISTICS FAILED
    
```

036664
036664 104402
036664 004737 050640
036672 004737 050732
036676 004737 050774

036702 004737 016644
036706 103407
036710 004737 020100
036714 010001
036716 104455
036720 000405
036722 003550
036724 011666
036726 012704 045720

036732 004737 010332
036736 103407
036740 004737 020100
036744 010001
036746

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TEST 2: REREADS

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036746 104456 TRAP CSERHRD
036750 000406 .WORD 262
036752 004754 .WORD WRTMSG
036754 011666 .WORD SFIMSG
6657 036756 104406 26$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
036756 104406
6658
6659
6660
6661 :*****
6662 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6663 :*****
6664
6665 036760 004737 010434 JSR PC,REWIND ;CALL TAPE REWIND COMMAND
6666 036764 103413 BCS 30$ ;BR, IF NO PROBLEM
6667 036766 016501 000000 MOV TSSR(R5),R1 ;GET TSSR
6668 036772 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED TSSR
6669 036776 010004 MOV R0,R4 ;PACKET ADDRESS SET UP
6670 037000 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6674 037004 ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
037004 104456 TRAP CSERHRD
037006 000407 .WORD 263
037010 047404 .WORD T26RW!
037012 011700 .WORD PKTSSR
6675 037014 104406 30$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
037014 104406
6676
6677 :*****
6678 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6679 :*****
6680
6681
6682
6683 037016 013701 045746 MOV T26BFR+6,R1 ;PICK UP XST0
6684 037022 010102 MOV R1,R2 ;SET UP EXPECTED
6685 037024 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
6686 037030 020102 CMP R1,R2 ;DOES EXP = REC'D
6687 037032 001406 BEQ 40$ ;BR, IF EQUAL (OK)
6688 037034 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
6692 037040 ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
037040 104456 TRAP CSERHRD
037042 000410 .WORD 264
037044 047115 .WORD T26BOT
037046 016344 .WORD EXPREC
6693 037050 104406 40$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
037050 104406
6694 037052 012703 000400 MOV #256,R3 ;RECORD SIZE
6695 037056 013737 003072 046052 MOV FREE,T26RB ;STARTING WRITE BUFFER ADDRESS
6696
6697 :*****
6698 :WRITE DATA,CVC=1,ACK COMMAND
6699 :*****
6700
6701
6702
6703 037064 012737 140005 046050 MOV #140005,T26PK3 ;WRITE DATA,CVC=1,ACK COMMAND
6704 037072 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS

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6705 037076          65$:      MOV      R3,R0          ;SET PATTERN IN CORRECT REGISTER
6706 037076 010300      JSR      PC,FILLMEM      ;FILL MEMORY WITH RECORD SIZE
6707 037100 004737 020372  MOV      R3,T26SZ        ;SET UP RECORD SIZE IN PACKET
6708 037104 010337 046056  MOV      R4,TSDB(R5)     ;ISSUE COMMAND
6709 037110 010465 177776  JSR      PC,WAITF        ;WAIT FOR SSR TO SET
6710 037114 004737 017120  MOV      TSSR(R5),R1     ;GET TSSR CONTENTS
6711 037120 016501 000000  MOV      #SSR,R2        ;SET UP EXPECTED
6712 037124 012702 000200  CMP      R1,R2          ;ARE THEY EQUAL
6713 037130 020102          BEQ      75$            ;BR, IF OK
6714 037132 001406          JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
6715 037134 004737 020100          ;SOFT ERROR GENERATED BECAUSE THE
6719          ;WRITE COMMAND IS NOT BEING CHECKED
6720          ;HERE. IT WAS CHECKED IN CZTUXA
6721          ;TSSR INCORRECT AFTER WRITE DATA
6722 037140          ERRSOFT ERRNO,WRERR,PKTSSR
        037140 104457          TRAP    CSERSOFT
        037142 000411          .WORD  265
        037144 005011          .WORD  WRERR
        037146 011700          .WORD  PKTSSR
6723 037150          75$:      CKLOOP          ;LOOP IF SELECTED
        037150 104406          TRAP    CSCLP1
6724 037152 005723          TST     (R3)+          ;BUMP RECORD SIZE
6725 037154 022703 000414  CMP     #268.,R3      ;END OF RECORD YET
6726 037160 001346          BNE     65$            ;BR, IF MORE RECORDS TO WRITE
6727 037162          80$:      CKLOOP          ;LOOP IF SELECTED
        037162 104406          TRAP    CSCLP1
6728 037164          120$:
6729          ;*****
6730          ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6731          ;*****
6732          ;*****
6733          ;*****
6734          ;*****
6735          ;*****
6736 037164 004737 010434      JSR     PC,REWIND      ;CALL TAPE REWIND COMMAND
6737 037170 103413          BCS    130$          ;BR, IF NO PROBLEM
6738 037172 016501 000000  MOV     TSSR(R5),R1    ;GET TSSR
6739 037176 012702 000200  MOV     #SSR,R2        ;SET UP EXPECTED TSSR
6740 037202 010004          MOV     R0,R4          ;PACKET ADDRESS SET UP
6741 037204 004737 020100  JSR     PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
6745 037210          ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
        037210 104456          TRAP    CSERHRD
        037212 000412          .WORD  266
        037214 047404          .WORD  T26RWN
        037216 011700          .WORD  PKTSSR
6746 037220          130$:      CKLOOP          ;LOOP IF SELECTED
        037220 104406          TRAP    CSCLP1
6747          ;*****
6748          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6749          ;*****
6750          ;*****
6751          ;*****
6752          ;*****
6753          ;*****
6754 037222 013701 045746      MOV     T26BFR+6,R1    ;PICK UP XST0
6755 037226 010102          MOV     R1,R2          ;SET UP EXPECTED
6756 037230 052702 000002      BIS     #BIT1,R2      ;SET BOT BIT IN EXPECTED

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TEST 2: REREADS

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6757 037234 020102          CMP      R1,R2          :DOES EXP = REC'D
6758 037236 001406          BEQ      140$          :BR, IF EQUAL (OK)
6759 037240 004737 020100    JSR      PC,FATCHK     :INC AND CHECK FOR MORE THAN 25 ERRORS
6763 037244          ERRHRD  ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
                                TRAP      CSERHRD
                                .WORD    267
                                .WORD    T26BOT
                                .WORD    EXPREC
                                TRAP      CSCLP1
6764 037254          140$:  CKLOOP          :LOOP IF SELECTED
                                .WORD    267
                                .WORD    T26BOT
                                .WORD    EXPREC
6765 037256 012737 000400 046102  MOV      #256.,T26RSZ   :STORE START RECORD SIZE
6766 037264 000420          BR       150$          :SKIP THE SAPCE THIS TIME
6767
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6773
6774
6775 037266 012703 000001    145$:  MOV      #1,R3          :SPACE ONE RECORD PARAMETER
6776 037272 004737 010140    JSR      PC,SPACE      :CALL SPACE ROUTINE
6777 037276 103413          BCS     150$          :BR, IF NO PROBLEM WITH SPACE COMMAND
6778 037300 016501 000000    MOV      TSSR(R5),R1   :GET TSSR
6779 037304 012702 000200    MOV      #SSR,R2      :SET UP EXPECTED TSSR
6780 037310 010004          MOV      R0,R4        :PACKET ADDRESS SET UP
6781 037312 004737 020100    JSR      PC,FATCHK     :INC AND CHECK FOR MORE THAN 25 ERRORS
6785 037316          ERRHRD  ERRNO,T26SC,EXPREC :POSITION (SPACE RECORDS) FAILED
                                TRAP      CSERHRD
                                .WORD    268
                                .WORD    T26SC
                                .WORD    EXPREC
6786 037326          150$:  MOV      T26RSZ,R3      :RECORD SIZE
6787 037326 013703 046102          MOV      FREE,T26RB    :STARTING READ BUFFER ADDRESS
6788 037332 013737 003072 046052
6789
6790
6791
6792
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6795
6796 037340 012737 141401 046050    165$:  MOV      #141401,T26PK3 :REREREAD DATA,CVC=1,ACK COMMAND
6797 037346 012704 046050    MOV      #T26PK3,R4   :SET UP R4 WITH PACKET ADDRESS
6798 037352 010337 046056    MOV      R3,T26SZ     :SET UP RECORD SIZE IN PACKET
6799 037356 010465 177776    MOV      R4,TSDB(R5)  :ISSUE COMMAND
6800 037362 004737 017120    JSR      PC,WAITF     :WAIT FOR SSR TO SET
6801 037366 016501 000000    MOV      TSSR(R5),R1  :GET TSSR CONTENTS
6802 037372 012702 000200    MOV      #SSR,R2     :SET UP EXPECTED
6803 037376 020102          CMP      R1,R2        :ARE THEY EQUAL
6804 037400 001406          BEQ      170$          :BR, IF OK
6805 037402 004737 020100    JSR      PC,FATCHK     :INC AND CHECK FOR MORE THAN 25 ERRORS
6809 037406          ERRHRD  ERRNO,T26WDC,PKTSSR :TSSR INCORRECT AFTER REREAD DATA
                                TRAP      CSERHRD
                                .WORD    269
                                .WORD    T26WDC
                                .WORD    PKTSSR
037406 104456
037410 000415
037412 047740
037414 011700

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CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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6898 037622 004737 010434      JSR      PC,REWIND      ;CALL TAPE REWIND COMMAND
6899 037626 103413      BCS      30$            ;BR, IF NO PROBLEM
6900 037630 016501 000000      MOV      TSSR(R5),R1    ;GET TSSR
6901 037634 012702 000200      MOV      #SSR,R2       ;SET UP EXPECTED TSSR
6902 037640 010004      MOV      R0,R4         ;PACKET ADDRESS SET UP
6903 037642 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
6907 037646      ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
        037646 104456      TRAP     CSERHRD
        037650 000421      .WORD   273
        037652 047404      .WORD   T26RWN
        037654 011700      .WORD   PKTSSR
6908 037656      30$:    CKLOOP          ;LOOP IF SELECTED      TRAP     C$CLP1
        037656 104406
6909
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6912
6913
6914
6915
6916 037660 013701 045746      MOV      T26BFR+6,R1    ;PICK UP XST0
6917 037664 010102      MOV      R1,R2         ;SET UP EXPECTED
6918 037666 052702 000002      BIS      #BIT1,R2      ;SET BOT BIT IN EXPECTED
6919 037672 020102      CMP      R1,R2         ;DOES EXP = REC'D
6920 037674 001406      BEQ      40$           ;BR, IF EQUAL (OK)
6921 037676 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
6925 037702      ERRHRD  ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
        037702 104456      TRAP     CSERHRD
        037704 000422      .WORD   274
        037706 047115      .WORD   T26BOT
        037710 016344      .WORD   EXPREC
6926 037712      40$:    CKLOOP          ;LOOP IF SELECTED      TRAP     C$CLP1
        037712 104406
6927 037714 012703 000400      MOV      #256.,R3      ;RECORD SIZE
6928 037720 013737 003072 046052      MOV      FREE,T26RB    ;STARTING WRITE BUFFER ADDRESS
6929
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6934
6935
6936 037726 012737 150005 046050      MOV      #150005,T26PK3 ;WRITE DATA,CVC=1,ACK,SWB COMMAND
6937 037734 012704 046050      MOV      #T26PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
6938 037740
6939 037740 010300      65$:    MOV      R3,R0      ;SET PATTERN IN CORRECT REGISTER
6940 037742 004737 020372      JSR      PC,FILLMEM    ;FILL MEMORY WITH RECORD SIZE
6941 037746 010337 046056      MOV      R3,T26SZ     ;SET UP RECORD SIZE IN PACKET
6942 037752 010465 177776      MOV      R4,TSDB(R5)  ;ISSUE COMMAND
6943 037756 004737 017120      JSR      PC,WAITF     ;WAIT FOR SSR TO SET
6944 037762 016501 000000      MOV      TSSR(R5),R1  ;GET TSSR CONTENTS
    
```

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6945 037766 012702 000200      MOV    #SSR,R2      ;SET UP EXPECTED
6946 037772 020102      CMP    R1,R2        ;ARE THEY EQUAL
6947 037774 001406      BEQ    75$          ;BR, IF OK
6948 037776 004737 020100      JSR    PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
6952                                ;SOFT ERROR GENERATED BECAUSE THE
6953                                ;WRITE COMMAND IS NOT BEING CHECKED
6954                                ;HERE. IT WAS CHECKED IN CZTUXA
6955 040002      ERRSOFT ERRNO,WRTErr,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
                                TRAP    CSERSOFT
                                .WORD   275
                                .WORD   WRTErr
                                .WORD   PKTSSR
                                TRAP    CSCLP1
                                TRAP    CSCLP1
6956 040012      75$: CKLOOP          ;LOOP IF SELECTED
                                TRAP    CSCLP1
6957 040012 104406      TST    (R3)+        ;BUMP RECORD SIZE
6958 040014 005723      CMP    #268.,R3    ;END OF RECORD YET
6959 040016 022703 000414      BNE    65$          ;BR, IF MORE RECORDS TO WRITE
6960 040022 001346      80$: CKLOOP        ;LOOP IF SELECTED
                                TRAP    CSCLP1
6961 040024 104406      120$:
6962                                ;*****
6963                                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
6964                                ;*****
6965                                ;*****
6966                                ;*****
6967                                ;*****
6968                                ;*****
6969 040026 004737 010434      JSR    PC,REWIND   ;CALL TAPE REWIND COMMAND
6970 040032 103413      BCS    130$        ;BR, IF NO PROBLEM
6971 040034 016501 000000      MOV    TSSR(R5),R1 ;GET TSSR
6972 040040 012702 000200      MOV    #SSR,R2    ;SET UP EXPECTED TSSR
6973 040044 010004      MOV    R0,R4       ;PACKET ADDRESS SET UP
6974 040046 004737 020100      JSR    PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
6978 040052      ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP    CSERHRD
                                .WORD   276
                                .WORD   T26RWN
                                .WORD   PKTSSR
6979 040062 104406      130$: CKLOOP      ;LOOP IF SELECTED
                                TRAP    CSCLP1
6980                                ;*****
6981                                ;*****
6982                                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
6983                                ;*****
6984                                ;*****
6985                                ;*****
6986                                ;*****
6987 040064 013701 045746      MOV    T26BFR+6,R1 ;PICK UP XST0
6988 040070 010102      MOV    R1,R2       ;SET UP EXPECTED
6989 040072 052702 000002      BIS    #BIT1,R2    ;SET BOT BIT IN EXPECTED
6990 040076 020102      CMP    R1,R2       ;DOES EXP = REC'D
6991 040100 001406      BEQ    140$        ;BR, IF EQUAL (OK)
6992 040102 004737 020100      JSR    PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
6996 040106      ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP    CSERHRD
                                .WORD   277
                                .WORD   T26BOT
    
```

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TEST 2: REREADS

```

6997 040114 016344          140$:  CKLOOP                ;LOOP IF SELECTED          .WORD  EXPREC
      040116 104406          ;START RECORD SIZE        TRAP   CSCLP1
6998 040120 012737 000400 046102  MOV   #256.,T26RSZ        ;SKIP SPACE THIS TIME
6999 040126 000420          BR    150$
7000
7001  ;*****
7002  ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7003  ;BIT 15 SETS DIRECTION - 0=FORWARD  1=REVERSE
7004  ;*****
7005
7006
7007
7008 040130 012703 000001 145$:  MOV   #1,R3          ;SPACE ONE RECORD PARAMETER
7009 040134 004737 010140  JSR   PC,SPACE           ;CALL SPACE ROUTINE
7010 040140 103413          BCS   150$              ;BR, IF NO PROBLEM WITH SPACE COMMAND
7011 040142 016501 000000  MOV   TSSR(R5),R1        ;GET TSSR
7012 040146 012702 000200  MOV   #SSR,R2           ;SET UP EXPECTED TSSR
7013 040152 010004          MOV   R0,R4             ;PACKET ADDRESS SET UP
7014 040154 004737 020100  JSR   PC,FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
7018 040160          ERRHRD  ERRNO,T26SC,EXPREC ;POSITION (SPACE RECORDS) FAILED
      040160 104456          TRAP   CSERHRD
      040162 000426          .WORD  278
      040164 046517          .WORD  T26SC
      040166 016344          .WORD  EXPREC
7019 040170          150$:
7020 040170 013703 046102  MOV   T26RSZ,R3          ;RECORD SIZE
7021 040174 013737 003072 046052  MOV   FREE,T26RB        ;STARTING READ BUFFER ADDRESS
7022
7023  ;*****
7024  ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7025  ;*****
7026
7027
7028
7029 040202 012737 151401 046050 165$:  MOV   #151401,T26PK3    ;REREAD DATA,ACK,CVC=1,SWB COMMAND
7030 040210 012704 046050  MOV   #T26PK3,R4        ;SET UP R4 WITH PACKET ADDRESS
7031 040214 010337 046056  MOV   R3,T26SZ         ;SET UP RECORD SIZE IN PACKET
7032 040220 010465 177776  MOV   R4,TSDB(R5)      ;ISSUE COMMAND
7033 040224 004737 017120  JSR   PC,WAITF         ;WAIT FOR SSR TO SET
7034 040230 016501 000000  MOV   TSSR(R5),R1      ;GET TSSR CONTENTS
7035 040234 012702 000200  MOV   #SSR,R2         ;SET UP EXPECTED
7036 040240 020102          CMP   R1,R2            ;ARE THEY EQUAL
7037 040242 001406          BEQ   170$            ;BR, IF OK
7038 040244 004737 020100  JSR   PC,FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
7042 040250          ERRHRD  ERRNO,T26WDC,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
      040250 104456          TRAP   CSERHRD
      040252 000427          .WORD  279
      040254 047740          .WORD  T26WDC
      040256 011700          .WORD  PKTSSR
7043 040260          170$:  CKLOOP                ;LOOP IF SELECTED          TRAP   CSCLP1
      040260 104406          ;CURRENT BUFFER ADDRESS TO R2
7044 040262 013702 003072  MOV   FREE,R2          ;CURRENT RECORD SIZE
7045 040266 010304          MOV   R3,R4           ;FIRST LOCATION IN BUFFER
7046 040270 162704 000400  SUB   #256.,R4         ;SET UP POINTER
7047 040274 060204          173$:  ADD   R2,R4           ;CHECK DATA READ (R3=DATA ALSO)
7048 040276 021403          CMP   (R4),R3

```


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TEST 2: REREADS

```

7127
7128 040436 012704 045720          MOV      #T26PACKET,R4          ;SUBROUTINE NEEDS PACKET ADDRESS
7129
7130          :*****
7131          :WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
7132          :*****
7133
7134
7135
7136 040442 004737 010332          JSR      PC,WRTCHR          ;ISSUE WRITE CHARACTERISTICS
7137 040446 103407                  BCS      26$                ;BR, IF COMMAND ISSUED OK
7138 040450 004737 020100          JSR      PC,FATCHK          ;INC AND CHECK FOR MORE THAN 25 ERRORS
7142 040454 010001                  MOV      R0,R1              ;SAVE CONTENTS OF TSSR
7143 040456                  ERRHRD   ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
                                TRAP      CSERHRD
                                .WORD     282
                                .WORD     WRTMSG
                                .WORD     SFIMSG
7144 040466 104406          26$:   CKLOOP                ;LOOP IF SELECTED
                                TRAP      C$CLP1
7145
7146          :*****
7147          :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7148          :*****
7149
7150
7151
7152 040470 004737 010434          JSR      PC,REWIND          ;CALL TAPE REWIND COMMAND
7153 040474 103413                  BCS      30$                ;BR, IF NO PROBLEM
7154 040476 016501 000000          MOV      TSSR(R5),R1        ;GET TSSR
7155 040502 012702 000200          MOV      #SSR,R2           ;SET UP EXPECTED TSSR
7156 040506 010004                  MOV      R0,R4              ;PACKET ADDRESS SET UP
7157 040510 004737 020100          JSR      PC,FATCHK          ;INC AND CHECK FOR MORE THAN 25 ERRORS
7161 040514                  ERRHRD   ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP      CSERHRD
                                .WORD     283
                                .WORD     T26RWN
                                .WORD     PKTSSR
7162 040524 104406          30$:   CKLOOP                ;LOOP IF SELECTED
                                TRAP      C$CLP1
7163
7164          :*****
7165          :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7166          :*****
7167
7168
7169
7170 040526 013701 045746          MOV      T26BFR+6,R1        ;PICK UP XSTO
7171 040532 010102                  MOV      R1,R2              ;SET UP EXPECTED
7172 040534 052702 000002          BIS      #BIT1,R2           ;SET BOT BIT IN EXPECTED
7173 040540 020102                  CMP      R1,R2              ;DOES EXP = REC'D
7174 040542 001406                  BEQ      40$                ;BR, IF EQUAL (OK)
7175 040544 004737 020100          JSR      PC,FATCHK          ;INC AND CHECK FOR MORE THAN 25 ERRORS
7179 040550                  ERRHRD   ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP      CSERHRD
                                .WORD     284
                                .WORD     T26BOT
040550 104456
040552 000434
040554 047115

```

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TEST 2: REREADS

```

7180 040556 016344          40$:  CKLOOP          :LOOP IF SELECTED      .WORD  EXPREC
      040560          104406          :RECORD SIZE          TRAP   CSCLP1
7181 040562 012703 000400          MOV    #256.,R3
7182 040566 013737 003072 046052  MOV    FREE,T26RB      :STARTING WRITE BUFFER ADDRESS
7183
7184          :*****
7185          :WRITE DATA,..C=1,ACK COMMAND
7186          :*****
7187
7188
7189
7190 040574 012737 140005 046050  MOV    #140005,T26PK3  :WRITE DATA,CVC=1,ACK COMMAND
7191 040602 012704 046050          MOV    #T26PK3,R4      :SET UP R4 WITH PACKET ADDRESS
7192 040606
7193 040606 010337 046056 65$:  MOV    R3,T26SZ        :SET UP RECORD SIZE IN PACKET
7194 040612 013777 046076 142252  MOV    T26CNT,@FREE    :MOVE TAPE RECORD NUMBER TO BUFFER
7195 040620 062737 000001 046076  ADD    #1,T26CNT       :NUMBER READY FOR NEXT RECORD
7196 040626 010465 177776          MOV    R4,TSDB(R5)     :ISSUE COMMAND
7197 040632 004737 017120          JSR    PC,WAITF        :WAIT FOR SSR TO SET
7198 040636 016501 000000          MOV    TSSR(R5),R1    :GET TSSR CONTENTS
7199 040642 012702 000200          MOV    #SSR,R2        :SET UP EXPECTED
7200 040646 020102          CMP    R1,R2          :ARE THEY EQUAL
7201 040650 001406          BEQ    75$            :BR, IF OK
7202 040652 004737 020100          JSR    PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
7206          :SOFT ERROR GENERATED BECAUSE THE
7207          :WRITE COMMAND IS NOT BEING CHECKED
7208          :HERE. IT WAS CHECKED IN CZTUXA
7209 040656          ERRSOFT ERRNO,WRERR,PKTSSR :TSSR INCORRECT AFTER REREAD DATA
      040656 104457          TRAP   CSERSOFT
      040660 000435          .WORD 285
      040662 005011          .WORD WRERR
      040664 011700          .WORD PKTSSR
7210 040666          75$:  CKLOOP          :LOOP IF SELECTED      .WORD  CSCLP1
      040666 104406          TRAP
7211 040670 005723          TST    (R3)+          :BUMP THE RECORD SIZE
7212 040672 022703 000414          CMP    #268.,R3      :MAXIMUM SIZE YET
7213 040676 001401          BEQ    120$          :BR, IF AT END OF WRITE SEQUENCE
7214 040700 000742          BR     65$            :WRITE MORE RECORDS
7215 040702
7216 040702 005037 046076 120$: CLR    T26CNT         :SET RECORD COUNTER BACK TO ZERO
7217
7218          :*****
7219          :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7220          :*****
7221
7222
7223
7224 040706 004737 010434          JSR    PC,REWIND      :CALL TAPE REWIND COMMAND
7225 040712 103411          BCS    130$          :BR, IF NO PROBLEM
7226 040714 016501 000000          MOV    TSSR(R5),R1    :GET TSSR
7227 040720 010004          MOV    R0,R4          :PACKET ADDRESS SET UP
7228 040722 004737 020100          JSR    PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
7232 040726          ERRHRD ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
      040726 104456          TRAP   CSERHRD
      040730 000436          .WORD 286
      040732 047404          .WORD T26RWN

```

CZTUVAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

7233 040734 011700          130$:  CKLOOP          :LOOP IF SELECTED          .WORD  PKTSSR
      040736 104406          TRAP  CSCLP1
7234
7235  :*****
7236  :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7237  :*****
7238
7239
7240
7241 040740 013701 045746      MOV     T26BFR+6,R1      :PICK UP XSTO
7242 040744 010102          MOV     R1,R2           :SET UP EXPECTED
7243 040746 052702 000002      BIS     #BIT1,R2        :SET BOT BIT IN EXPECTED
7244 040752 020102          CMP     R1,R2           :DOES EXP = REC'D
7245 040754 001406          BEQ    135$             :BR, IF EQUAL (OK)
7246 040756 004737 020100      JSR    PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
7250 040762          ERRHRD  ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
      040762 104456          TRAP  CSERHRD
      040764 000437          .WORD 287
      040766 047115          .WORD T26BOT
      040770 016344          .WORD EXPREC
7251 040772          135$:  CKLOOP          :LOOP IF SELECTED          TRAP  CSCLP1
      040772 104406          TRAP
7252 040774 012737 000400 046102  MOV     #256.,T26RSZ     :STARTING RECORD SIZE
7253 041002 000420          BR     140$            :SKIP OVER THE SAPCE THIS TIME
7254
7255  :*****
7256  :ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7257  :BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
7258  :*****
7259
7260
7261
7262 041004 012703 000001      132$:  MOV     #000001,R3  :SET UP SPACE COMMAND (1 FORWARD)
7263 041010 004737 010140      JSR    PC,SPACE        :CALL SPACE ROUTINE
7264 041014 103413          BCS    140$            :BR, IF NO TROUBLE
7265 041016 016501 000000      MOV     TSSR(R5),R1     :GET TSSR
7266 041022 012702 000200      MOV     #SSR,R2        :SET UP EXPECTED TSSR
7267 041026 010004          MOV     R0,R4          :PACKET ADDRESS SET UP
7268 041030 004737 020100      JSR    PC,FATCHK       :INC AND CHECK FOR MORE THAN 25 ERRORS
7272 041034          ERRHRD  ERRNO,T26SC,PKTSSR :SPACE (FORWARD) FAILED
      041034 104456          TRAP  CSERHRD
      041036 000440          .WORD 288
      041040 046517          .WORD T26SC
      041042 011700          .WORD PKTSSR
7273 041044          140$:  CKLOOP          :LOOP IF SELECTED          TRAP  CSCLP1
      041044 104406          TRAP
7274 041046 013703 046102      MOV     T26RSZ,R3      :RECORD SIZE
7275 041052 013737 003072 046052 150$:  MOV     FREE,T26RB     :STARTING READ BUFFER ADDRESS
7276
7277  :*****
7278  :REREAD DATA,CVC=1,ACK, OPP COMMAND
7279  :*****
7280
7281
7282
7283 041060 012737 161401 046050      MOV     #161401,T26PK3  :REREAD DATA,CVC=1,ACK, OPP COMMAND

```


CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

7374 041334 104406 26$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
041334
7375
7376 :*****
7377 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7378 :*****
7379
7380
7381
7382 041336 004737 010434 JSR PC,REWIND ;CALL TAPE REWIND COMMAND
7383 041342 016501 000000 MOV TSSR(R5),R1 ;GET TSSR
7384 041346 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED TSSR
7385 041352 103407 BCS 30$ ;BR, IF NO PROBLEM
7386 041354 010004 MOV R0,R4 ;PACKET ADDRESS SET UP
7387 041356 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
7391 041362 ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
041362 104456 TRAP CSERHRD
041364 000445 .WORD 293
041366 047404 .WORD T26RWN
041370 011700 .WORD PKTSSR
7392 041372 104406 30$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
041372
7393
7394 :*****
7395 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7396 :*****
7397
7398
7399
7400 041374 013701 045746 MOV T26BFR+6,R1 ;PICK UP XST0
7401 041400 010102 MOV R1,R2 ;SET UP EXPECTED
7402 041402 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
7403 041406 020102 CMP R1,R2 ;DOES EXP = REC'D
7404 041410 001406 BEQ 40$ ;BR, IF EQUAL (OK)
7405 041412 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
7409 041416 ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
041416 104456 TRAP CSERHRD
041420 000446 .WORD 294
041422 047115 .WORD T26BOT
041424 016344 .WORD EXPREC
7410 041426 104406 40$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
041426
7411 041430 012703 000400 MOV #256,R3 ;RECORD SIZE
7412 041434 013737 003072 046052 MOV FREE,T26RB ;STARTING WRITE BUFFER ADDRESS
7413
7414 :*****
7415 :WRITE DATA,CVC=1,ACK COMMAND
7416 :*****
7417
7418
7419
7420 041442 012737 140005 046050 MOV #140005,T26PK3 ;WRITE DATA,CVC=1,ACK COMMAND
7421 041450 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
7422 041454
7423 041454 010337 046056 65$: MOV R3,T26SZ ;SET UP RECORD SIZE IN PACKET
7424 041460 013777 046076 141404 MOV T26CNT,@FREE ;MOVE TAPE RECORD NUMBER TO BUFFER
7425 041466 062737 000001 046076 ADD #1,T26CNT ;NUMBER READY FOR NEXT RECORD

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 93-2
 TEST 2: REREADS

```

7426 041474 010465 177776      MOV      R4,TSDB(R5)      :ISSUE COMMAND
7427 041500 004737 017120      JSR      PC,WAITF        :WAIT FOR SSR TO SET
7428 041504 016501 000000      MOV      TSSR(R5),R1    :GET TSSR CONTENTS
7429 041510 012702 000200      MOV      #SSR,R2        :SET UP EXPECTED
7430 041514 020102                CMP      R1,R2           :ARE THEY EQUAL
7431 041516 001406                BEQ      75$             :BR, IF OK
7432 041520 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
7436                                :SOFT ERROR GENERATED BECAUSE THE
7437                                :WRITE COMMAND IS NOT BEING CHECKED
7438                                :HERE. IT WAS CHECKED IN CZTUXA
7439 041524                ERRSOFTE ERRNO,WRTErr,PKTSSR :TSSR INCORRECT AFTER WRITE DATA
                                TRAP      CSERSOFT
                                .WORD    295
                                .WORD    WRTErr
                                .WORD    PKTSSR
                                TRAP      CSCLP1
7440 041534                75$: CKLOOP                :LOOP IF SELECTED
                                TRAP      CSCLP1
                                .WORD    104457
                                .WORD    000447
                                .WORD    005011
                                .WORD    011700
7441 041536 005723                TST      (R3)+           :BUMP THE RECORD SIZE
7442 041540 022703 000414      CMP      #268.,R3       :MAXIMUM SIZE YET
7443 041544 001401                BEQ      120$           :BR, IF AT END OF WRITE SEQUENCE
7444 041546 000742                BR       65$            :WRITE MORE RECORDS
7445 041550                120$:                :SET RECORD COUNTER BACK TO ZERO
7446 041550 005037 046076      CLR      T26CNT
                                :*****
7447                                :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7448                                :*****
7449                                :*****
7450                                :*****
7451                                :*****
7452                                :*****
7453                                :*****
7454 041554 004737 010434      JSR      PC,REWIND      :CALL TAPE REWIND COMMAND
7455 041560 103411                BCS     130$           :BR, IF NO PROBLEM
7456 041562 016501 000000      MOV      TSSR(R5),R1    :GET TSSR
7457 041566 010004                MOV      R0,R4          :PACKET ADDRESS SET UP
7458 041570 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
7462 041574                ERRHRD ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
                                TRAP      CSERHRD
                                .WORD    296
                                .WORD    T26RWN
                                .WORD    PKTSSR
7463 041604                130$: CKLOOP                :LOOP IF SELECTED
                                TRAP      CSCLP1
                                .WORD    104406
7464                                :*****
7465                                :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7466                                :*****
7467                                :*****
7468                                :*****
7469                                :*****
7470                                :*****
7471 041606 013701 045746      MOV      T26BFR+6,R1    :PICK UP XSTO
7472 041612 010102                MOV      R1,R2          :SET UP EXPECTED
7473 041614 052702 000002      BIS      #BIT1,R2       :SET BOT BIT IN EXPECTED
7474 041620 020102                CMP      R1,R2          :DOES EXP = REC'D
7475 041622 001406                BEQ     135$           :BR, IF EQUAL (OK)
7476 041624 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
7480 041630                ERRHRD ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
                                TRAP      CSERHRD
                                .WORD    104456
    
```

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 TEST 2: REREADS

```

041632 000451
041634 047115
041636 016344
7481 041640 135$: CKLOOP ;LOOP IF SELECTED .WORD 297
041640 104406 TRAP C$CLP1 .WORD T26BOT
7482 041642 000400 046102 MOV #256.,T26RSZ ;START RECORD SIZE .WORD EXPREC
7483 041650 000420 BR 140$ ;SKIP OVER SPACE .WORD
7484
7485 :*****
7486 :ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
7487 :BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
7488 :*****
7489
7490
7491
7492 041652 012703 000001 136$: MOV #000001,R3 ;SET UP SPACE COMMAND (1 FORWARD)
7493 041656 004737 010140 JSR PC,SPACE ;CALL SPACE ROUTINE
7494 041662 103413 BCS 140$ ;BR, IF NO TROUBLE
7495 041664 016501 000000 MOV TSSR(R5),R1 ;GET TSSR
7496 041670 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED TSSR
7497 041674 010004 MOV R0,R4 ;PACKET ADDRESS SET UP
7498 041676 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
7502 041702 004737 020100 ERRHRD ERRNO,T26SC,PKTSSR ;SPACE (FORWARD) FAILED
041702 104456 TRAP C$ERHRD
041704 000452 .WORD 298
041706 046517 .WORD T26SC
041710 011700 .WORD PKTSSR
7503 041712 140$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
041712 104406
7504 041714 013703 046102 MOV T26RSZ,R3 ;RECORD SIZE
7505 041720 013737 003072 046052 150$: MOV FREE,T26RB ;STARTING READ BUFFER ADDRESS
7506
7507 :*****
7508 :REREAD DATA,CVC=1,ACK, OPP COMMAND
7509 :*****
7510
7511
7512
7513 041726 012737 161401 046050 165$: MOV #161401,T26PK3 ;REREAD DATA,CVC=1,ACK, OPP COMMAND
7514 041734 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
7515 041740 010337 046056 MOV R3,T26SZ ;SET UP RECORD SIZE IN PACKET
7516 041744 010465 177776 MOV R4,TSDB(R5) ;ISSUE COMMAND
7517 041750 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
7518 041754 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
7519 041760 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED
7520 041764 020102 CMP R1,R2 ;ARE THEY EQUAL
7521 041766 001406 BEQ 170$ ;BR, IF OK
7522 041770 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
7526 041774 004737 020100 ERRHRD ERRNO,T26RRF,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
041774 104456 TRAP C$ERHRD
041776 000453 .WORD 299
042000 046325 .WORD T26RRF
042002 011700 .WORD PKTSSR
7527 042004 170$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
042004 104406 ;FIRST WORD FROM READ BUFFER
7528 042006 017701 141060 MOV @FREE,R1 ;SET UP EXPECTED
7529 042012 013702 046076 MOV T26CNT,R2
    
```


CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

042176 104406 TRAP CSCLP1
7604
7605 :*****
7606 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7607 :*****
7608
7609
7610
7611 042200 004737 010434 JSR PC,REWIND :CALL TAPE REWIND COMMAND
7612 042204 016501 000000 MOV TSSR(R5),R1 :GET TSSR
7613 042210 012702 000200 MOV #SSR,R2 :SET UP EXPECTED TSSR
7614 042214 103407 BCS 30$ :BR, IF NO PROBLEM
7615 042216 010004 MOV R0,R4 :PACKET ADDRESS SET UP
7616 042220 004737 020100 JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
7620 042224 ERRHRD ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
042224 104456 TRAP CSERHRD
042226 000457 .WORD 303
042230 047404 .WORD T26RWN
042232 011700 .WORD PKTSSR
7621 042234 30$: CKLOOP :LOOP IF SELECTED TRAP CSCLP1
042234 104406
7622
7623 :*****
7624 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7625 :*****
7626
7627
7628
7629 042236 013701 045746 MOV T26BFR+6,R1 :PICK UP XST0
7630 042242 010102 MOV R1,R2 :SET UP EXPECTED
7631 042244 052702 000002 BIS #BIT1,R2 :SET BOT BIT IN EXPECTED
7632 042250 020102 CMP R1,R2 :DOES EXP = REC'D
7633 042252 001406 BEQ 40$ :BR, IF EQUAL (OK)
7634 042254 004737 020100 JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
7638 042260 ERRHRD ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
042260 104456 TRAP CSERHRD
042262 000460 .WORD 304
042264 047115 .WORD T26BOT
042266 016344 .WORD EXPREC
7639 042270 40$: CKLOOP :LOOP IF SELECTED TRAP CSCLP1
042270 104406
7640 042272 012703 001000 MOV #512.,R3 :RECORD SIZE
7641 042276 013737 003072 046052 MOV FREE,T26RB :STARTING WRITE BUFFER ADDRESS
7642
7643 :*****
7644 :WRITE DATA,CVC=1,ACK COMMAND
7645 :*****
7646
7647
7648
7649 042304 012737 140005 046050 MOV #140005,T26PK3 :WRITE DATA,CVC=1,ACK COMMAND
7650 042312 012704 046050 MOV #T26PK3,R4 :SET UP R4 WITH PACKET ADDRESS
7651 042316 65$:
7652 042316 010337 046056 MOV R3,T26SZ :SET UP RECORD SIZE IN PACKET
7653 042322 010465 177776 MOV R4,TSDB(R5) :ISSUE COMMAND
7654 042326 004737 017120 JSR PC,WAITF :WAIT FOR SSR TO SET
7655 042332 016501 000000 MOV TSSR(R5),R1 :GET TSSR CONTENTS

```


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TEST 2: REREADS

```

7656 042336 012702 000200      MOV      #SSR,R2      ;SET UP EXPECTED
7657 042342 020102      CMP      R1,R2      ;ARE THEY EQUAL
7658 042344 001406      BEQ      75$        ;BR, IF OK
7659 042346 004737 020100      JSR      PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
7663                                ;SOFT ERROR GENERATED BECAUSE THE
7664                                ;WRITE COMMAND IS NOT BEING CHECKED
7665                                ;HERE. IT WAS CHECKED IN CZTUXA
7666 042352      ERRSOFT ERRNO,WRterr,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
                                TRAP      CSERSOFT
                                .WORD    305
                                .WORD    WRterr
                                .WORD    PKTSSR
                                TRAP      CSCLP1
7667 042362 104406      75$:   CKLOOP      ;LOOP IF SELECTED
                                TRAP      CSCLP1
7668
7669      ;*****
7670      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7671      ;*****
7672
7673
7674
7675 042364 004737 010434      JSR      PC,REWIND  ;CALL TAPE REWIND COMMAND
7676 042370 016501 000000      MOV      TSSR(R5),R1 ;GET TSSR
7677 042374 012702 000200      MOV      #SSR,R2    ;SET UP EXPECTED TSSR
7678 042400 103407      BCS      130$       ;BR, IF NO PROBLEM
7679 042402 010004      MOV      R0,R4      ;PACKET ADDRESS SET UP
7680 042404 004737 020100      JSR      PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
7684 042410      ERRHRD  ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP      CSERHRD
                                .WORD    306
                                .WORD    T26RWN
                                .WORD    PKTSSR
                                TRAP      CSCLP1
7685 042420 104406      130$:  CKLOOP      ;LOOP IF SELECTED
                                TRAP      CSCLP1
7686
7687      ;*****
7688      ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7689      ;*****
7690
7691
7692
7693 042422 013701 045746      MOV      T26BFR+6,R1 ;PICK UP XST0
7694 042426 010102      MOV      R1,R2      ;SET UP EXPECTED
7695 042430 052702 000002      BIS      #BIT1,R2   ;SET BOT BIT IN EXPECTED
7696 042434 020102      CMP      R1,R2      ;DOES EXP = REC'D
7697 042436 001406      BEQ      140$       ;BR, IF EQUAL (OK)
7698 042440 004737 020100      JSR      PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
7702 042444      ERRHRD  ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP      CSERHRD
                                .WORD    307
                                .WORD    T26BOT
                                .WORD    EXPREC
                                TRAP      CSCLP1
7703 042454 104406      140$:  CKLOOP      ;LOOP IF SELECTED
                                TRAP      CSCLP1
7704 042456 005303      DEC      R3          ;SET RECORD SIZE TO 511.
7705 042460 013737 003072 046052  MOV      FREE,T26RB ;STARTING READ BU:ER ADDRESS
7706

```

CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

7707
7708
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7710
7711
7712
7713 042466 012737 161401 046050
7714 042474 012704 046050
7715 042500 010337 046056
7716 042504 010465 177776
7717 042510 004737 017120
7718 042514 016501 000000
7719 042520 012702 100204
7720 042524 020102
7721 042526 001406
7722 042530 004737 020100
7726 042534
      042534 104456
      042536 000464
      042540 050462
      042542 011700
7727 042544
      042544 104406
7728
7729
7730
7731
7732
7733
7734
7735 042546 013701 045746
7736 042552 010102
7737 042554 052702 010000
7738 042560 020102
7739 042562 001406
7740 042564 004737 020100
7744 042570
      042570 104456
      042572 000465
      042574 050230
      042576 016344
7745 042600
7746 042600 012703 000777
7747 042604 013737 003072 046052
7748
7749
7750
7751
7752
7753
7754
7755 042612 012737 141401 046050
7756 042620 012704 046050
7757 042624 010337 046056
7758 042630 010465 177776
7759 042634 004737 017120
7760 042640 016501 000000

```

```

:*****
:REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
:*****
165$: MOV #161401,T26PK3 ;REREAD DATA,CVC=1,ACK,OPP=1 COMMAND
      MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
      MOV R3,T26S2 ;SET UP RECORD SIZE IN PACKET
      MOV R4,TSDB(R5) ;ISSUE COMMAND
      JSR PC,WAITF ;WAIT FOR SSR TO SET
      MOV TSSR(R5),R1 ;GET TSSR CONTENTS
      MOV #SSR!SC!BIT2,R2 ;SET UP EXPECTED
      CMP R1,R2 ;ARE THEY EQUAL
      BEQ 170$ ;BR, IF OK
      JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD ERRNO,T26TRL,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
                                TRAP CSERHRD
                                .WORD 308
                                .WORD T26TRL
                                .WORD PKTSSR
170$: CKLOOP ;LOOP IF SELECTED
                                TRAP CSCLP1
:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
:*****
      MOV T26BFR+6,R1 ;GET MESSAGE BUFFER
      MOV R1,R2 ;SET UP EXPECTED
      BIS #BIT12,R2 ;SET THE RLL BIT IN EXPECTED
      CMP R1,R2 ;ARE THEY EQUAL
      BEQ 180$ ;BR, IF EQUAL (ALL IS WELL)
      JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD ERRNO,T26LON,EXPREC ;THE RLL BIT WAS NOT SET IN XST0
                                TRAP CSERHRD
                                .WORD 309
                                .WORD T26LON
                                .WORD EXPREC
180$: MOV #511.,R3 ;SET UP SIZE OF RECORD
      MOV FREE,T26RB ;STARTING READ BUFFER ADDRESS
:*****
:REREAD DATA,CVC=1,ACK COMMAND
:*****
365$: MOV #141401,T26PK3 ;REREAD DATA,CVC=1,ACK COMMAND
      MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
      MOV R3,T26S2 ;SET UP RECORD SIZE IN PACKET
      MOV R4,TSDB(R5) ;ISSUE COMMAND
      JSR PC,WAITF ;WAIT FOR SSR TO SET
      MOV TSSR(R5),R1 ;GET TSSR CONTENTS

```

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TEST 2: REREADS

```
7761 042644 012702 100204      MOV    #SSR!SC!BIT2,R2      ;SET UP EXPECTED
7762 042650 020102      CMP    R1,R2                ;ARE THEY EQUAL
7763 042652 001406      BEQ    370$                  ;BR, IF OK
7764 042654 004737 020100      JSR    PC,FATCHK            ;INC AND CHECK FOR MORE THAN 25 ERRORS
7768 042660      ERRHRD  ERRNO,T26TRL,PKTSSR ;TSSR INCORRECT AFTER REREAD DATA
      042660 104456          TRAP   CSERHRD
      042662 000466          .WORD  310
      042664 050462          .WORD  T26TRL
      042666 011700          .WORD  PKTSSR
7769 042670      370$:  CKLOOP                  ;LOOP IF SELECTED          TRAP   CSCLP1
      042670 104406
7770
7771      ;*****
7772      ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
7773      ;*****
7774
7775
7776
7777 042672 013701 045746      MOV    T26BFR+6,R1          ;GET MESSAGE BUFFER
7778 042676 010102      MOV    R1,R2                ;SET UP EXPECTED
7779 042700 052702 010000      BIS    #BIT12,R2            ;SET THE RLL BIT IN EXPECTED
7780 042704 020102      CMP    R1,R2                ;ARE THEY EQUAL
7781 042706 001406      BEQ    380$                  ;BR, IF EQUAL (ALL IS WELL)
7782 042710 004737 020100      JSR    PC,FATCHK            ;INC AND CHECK FOR MORE THAN 25 ERRORS
7786 042714      ERRHRD  ERRNO,T26LON,EXPREC ;THE RLL BIT WAS NOT SET IN XSTO
      042714 104456          TRAP   CSERHRD
      042716 000467          .WORD  311
      042720 050230          .WORD  T26LON
      042722 016344          .WORD  EXPREC
7787 042724      380$:  ENDSUB
7788 042724      ;>>>>>>>>>>>> END SUBTEST >>>>>>>>>>>>
      042724 104403          L10061:
      042724 023727 002170 000031      CMP    FATFLG,#25.          TRAP   CSESUB
7789 042726 002402      BLT    999$                  ;IS ERROR COUNT AT 25
7790 042734 004737 020152      JSR    PC,CKDROP            ;BR, IF LESS THAN 25
7791 042736 004737 020152      999$:  ;TRY TO DROP THE UNIT
7792 042742
```

CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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7795
7796
7797
7798
7799
7800
7801
7802
7803
7804
7805
7806
7807
7808
7809
7810

```
:+
:TEST 2, SUBTEST 12
:VERIFIES THAT A REREAD NEXT COMMAND READING A
:RECORD SHORTER THAN THE SPECIFIED BYTE COUNT CAUSES
:TAPE STATUS ALERT TERMINATION WITH THE RECORD LENGTH
:SHORT (RLS) BIT SET. IT IS VERIFIED THAT THE
:RESIDUAL BYTE COUNTER (RBPCR) IN THE MESSAGE BUFFER
:CONTAINS THE PROPER NONZERO VALUE (E.G., THE
:DIFFERENCE BETWEEN THE ORIGINAL BYTE COUNT AND THE
:ACTUAL RECORD LENGTH). RESULTS ARE VERIFIED FOR BOTH
:STATES OF OPP (0 AND 1).
```

7811
7812
7813
7814

```
042742
042742 104402
042744 004737 050640
042750 004737 050732
042754 004737 050774
```

```
-
BGNSUB ;>>>>>>>>>> BEGIN SUBTEST >>>>>>>>>>
T2.12: TRAP CSBSUB
JSR PC,T26REST ;SET COMMAND PACKET
JSR PC,T26RT2 ;SET UP OTHER COMMAND PACKET
JSR PC,T26RT3 ;SET UP OTHER COMMAND PACKET
```

7815
7816
7817
7818
7819
7820
7821

```
*****
:ISSUE CONTROLLER "SOFT" INITIALIZE - CARRY BIT CLEAR IF ERROR
*****
```

7822
7823
7824
7828
7829

```
042760 004737 016644
042764 103407
042766 004737 020100
042772 010001
042774 104455
042776 000470
043000 003550
043002 011666
```

```
JSR PC,SOFINIT ;DO INITIALIZE ON CONTROLLER
BCS 20$ ;BR IF INIT WAS OK
JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
MOV RO,R1 ;CONTENTS OF TSSR REGISTER
ERRDF ERNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
TRAP CSERDF
WORD 312
WORD SFIERR
WORD SFIMSG
```

7830

20\$:

7831

```
043004 012704 045720
```

```
MOV #T26PACKET,R4 ;SUBROUTINE NEEDS PACKET ADDRESS
```

7833
7834
7835
7836
7837
7838
7839

```
*****
:WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
*****
```

7840
7841
7842
7846
7847

```
043010 004737 010332
043014 103407
043016 004737 020100
043022 010001
043024 104456
043026 000471
043030 004754
```

```
JSR PC,WRTCHR ;ISSUE WRITE CHARACTERISTICS
BCS 26$ ;BR, IF COMMAND ISSUED OK
JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
MOV RO,R1 ;SAVE CONTENTS OF TSSR
ERRHRD ERNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
TRAP CSERHRD
WORD 313
WORD WRTMSG
```

```

7848 043032 011666          26$:  CKLOOP          :LOOP IF SELECTED      .WORD  SFIMSG
      043034 104406          TRAP  CSCLP1
7849
7850          :*****
7851          :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
7852          :*****
7853
7854
7855
7856 043036 004737 010434      JSR    PC,REWIND          :CALL TAPE REWIND COMMAND
7857 043042 016501 000000      MOV    TSSR(R5),R1       :GET TSSR
7858 043046 012702 000200      MOV    #SSR,R2          :SET UP EXPECTED TSSR
7859 043052 103407          BCS    30$              :BR, IF NO PROBLEM
7860 043054 010004          MOV    R0,R4            :PACKET ADDRESS SET UP
7861 043056 004737 020100      JSR    PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
7865 043062          ERRHRD  ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
      043062 104456          TRAP  CSERHRD
      043064 000472          .WORD 314
      043066 047404          .WORD T26RWN
      043070 011700          .WORD PKTSSR
7866 043072          30$:  CKLOOP          :LOOP IF SELECTED      .WORD  CSCLP1
      043072 104406          TRAP
7867
7868          :*****
7869          :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
7870          :*****
7871
7872
7873
7874 043074 013701 045746      MOV    T26BFR+6,R1      :PICK UP XST0
7875 043100 010102          MOV    R1,R2            :SET UP EXPECTED
7876 043102 052702 000002      BIS    #BIT1,R2        :SET BOT BIT IN EXPECTED
7877 043106 020102          CMP    R1,R2            :DOES EXP = REC'D
7878 043110 001406          BEQ    40$              :BR, IF EQUAL (OK)
7879 043112 004737 020100      JSR    PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
7883 043116          ERRHRD  ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
      043116 104456          TRAP  CSERHRD
      043120 000473          .WORD 315
      043122 047115          .WORD T26BOT
      043124 016344          .WORD EXPREC
7884 043126          40$:  CKLOOP          :LOOP IF SELECTED      .WORD  CSCLP1
      043126 104406          TRAP
7885 043130 012703 000400      MOV    #256.,R3         :RECORD SIZE
7886 043134 013737 003072 046052  MOV    FREE,T26RB       :STARTING WRITE BUFFER ADDRESS
7887
7888          :*****
7889          :WRITE DATA,CVC=1,ACK COMMAND
7890          :*****
7891
7892
7893
7894 043142 012737 140005 046050      MOV    #140005,T26PK3   :WRITE DATA,CVC=1,ACK COMMAND
7895 043150 012704 046050          MOV    #T26PK3,R4      :SET UP R4 WITH PACKET ADDRESS
7896 043154
7897 043154 010337 046056      65$:  MOV    R3,T26SZ        :SET UP RECORD SIZE IN PACKET
7898 043160 010465 177776          MOV    R4,TSDB(R5)     :ISSUE COMMAND

```


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TEST 2: REREADS

```

7950 043314 012703 001000          MOV    #512.,R3          ;RECORD SIZE
7951 043320 013737 003072 046052  MOV    FREE,T26RB      ;STARTING READ BUFFER ADDRESS
7952
7953
7954
7955
7956
7957
7958
7959 043326 012737 161401 046050 165$:  MOV    #161401,T26PK3  ;REREAD NEXT,ACK,CVC=1,OPP=1
7960 043334 012704 046050          MOV    #T26PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
7961 043340 010337 046056          MOV    R3,T26S2        ;SET UP RECORD SIZE IN PACKET
7962 043344 010465 177776          MOV    R4,TSDB(R5)     ;ISSUE COMMAND
7963 043350 004737 017120          JSR    PC,WAITF        ;WAIT FOR SSR TO SET
7964 043354 016501 000000          MOV    TSSR(R5),R1     ;GET TSSR CONTENTS
7965 043360 012702 100204          MOV    #SSR!SC!BIT2,R2 ;SET UP EXPECTED
7966 043364 020102          CMP    R1,R2           ;ARE THEY EQUAL
7967 043366 001406          BEQ    170$           ;BR, IF OK
7968 043370 004737 020100          JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
7972 043374          ERRHRD  ERRNO,T26TRL,PKTSSR ;TSSR INCORRECT AFTER READ DATA
          TRAP    CSERHRD
          .WORD  319
          .WORD  T26TRL
          .WORD  PKTSSR
7973 043404 170$:  CKLOOP          ;LOOP IF SELECTED
          TRAP    CSCLP1
          .WORD  104406
7974
7975
7976
7977
7978
7979
7980
7981 043406 013701 045746          MOV    T26BFR+6,R1     ;GET MESSAGE BUFFER
7982 043412 010102          MOV    R1,R2           ;SET UP EXPECTED
7983 043414 052702 040000          BIS    #BIT14,R2       ;SET THE RLS BIT IN EXPECTED
7984 043420 020102          CMP    R1,R2           ;ARE THEY EQUAL
7985 043422 001406          BEQ    180$           ;BR, IF EQUAL (ALL IS WELL)
7986 043424 004737 020100          JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
7990 043430          ERRHRD  ERRNO,T26LOP,EXPREC ;THE RLL BIT WAS NOT SET IN XSTO
          TRAP    CSERHRD
          .WORD  320
          .WORD  T26LOP
          .WORD  EXPREC
7991 043440 180$:
7992 043440 013701 045744          MOV    T26BFR+4,R1     ;PICK UP RESIDUAL BYTE COUNTER
7993 043444 012702 000400          MOV    #256.,R2        ;THIS SHOULD BE THE DIFFERENCE
7994 043450 020102          CMP    R1,R2           ;IS THE DIFFERENCE CORRECT
7995 043452 001405          BEQ    190$           ;BR, IF CORRECT
7999 043456          ERRHRD  ERRNO,T26PBP,EXPREC ;RBPBR NOT CORRECT
          TRAP    CSERHRD
          .WORD  320
          .WORD  T26PBP
          .WORD  EXPREC
8000 043466 190$:  CKLOOP          ;LOOP IF SELECTED
          TRAP    CSCLP1
          .WORD  104406
8001 043470 012703 001000          MOV    #512.,R3          ;RECORD SIZE

```

CZUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 95-4
 TEST 2: REREADS

```

8002 043474 013737 003072 046052          MOV      FREE, T26RB          ;STARTING READ BUFFER ADDRESS
8003
8004          :*****
8005          :
8006          :REREAD NEXT,ACK,CVC=1,OPP=0
8007          :
8008          :*****
8009
8010 043502 012737 141401 046050          MOV      #141401, T26PK3      ;REREAD NEXT,ACK,CVC=1,OPP=0
8011 043510 012704 046050                  MOV      #T26PK3, R4         ;SET UP R4 WITH PACKET ADDRESS
8012 043514 010337 046056                  MOV      R3, T26SZ          ;SET UP RECORD SIZE IN PACKET
8013 043520 010465 177776                  MOV      R4, TSDB(R5)       ;ISSUE COMMAND
8014 043524 004737 017120                  JSR      PC, WAITF          ;WAIT FOR SSR TO SET
8015 043530 016501 000000                  MOV      TSSR(R5), R1       ;GET TSSR CONTENTS
8016 043534 012702 100204                  MOV      #SSR!SC!BIT2, R2   ;SET UP EXPECTED
8017 043540 020102                          CMP      R1, R2             ;ARE THEY EQUAL
8018 043542 001406                          BEQ      270$               ;BR, IF OK
8019 043544 004737 020100                  JSR      PC, FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
8023 043550                          ERRHRD  ERRNO, T26TRL, PKTSSR ;TSSR INCORRECT AFTER READ DATA
8023 043550 104456                          TRAP    CSERHRD
8023 043552 000501                          .WORD  321
8023 043554 050462                          .WORD  T26TRL
8023 043556 011700                          .WORD  PKTSSR
8024 043560                          270$: CKLOOP                ;LOOP IF SELECTED
8024 043560 104406                          TRAP    CSCLP1
8025
8026          :*****
8027          :
8028          :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8029          :
8030          :*****
8031
8032 043562 013701 045746                  MOV      T26BFR+6, R1       ;GET MESSAGE BUFFER
8033 043566 010102                          MOV      R1, R2             ;SET UP EXPECTED
8034 043570 052702 040000                  BIS      #BIT14, R2         ;SET THE RLS BIT IN EXPECTED
8035 043574 020102                          CMP      R1, R2             ;ARE THEY EQUAL
8036 043576 001406                          BEQ      280$               ;BR, IF EQUAL (ALL IS WELL)
8037 043600 004737 020100                  JSR      PC, FATCHK         ;INC AND CHECK FOR MORE THAN 25 ERRORS
8041 043604                          ERRHRD  ERRNO, T26LOP, EXPREC ;THE RLL BIT WAS NOT SET IN XSTO
8041 043604 104456                          TRAP    CSERHRD
8041 043606 000502                          .WORD  322
8041 043610 050312                          .WORD  T26LOP
8041 043612 016344                          .WORD  EXPREC
8042 043614                          280$:
8043 043614 013701 045744                  MOV      T26BFR+4, R1       ;PICK UP RESIDUAL BYTE COUNTER
8044 043620 012702 000400                  MOV      #256, R2           ;THIS SHOULD BE THE DIFFERENCE
8045 043624 020102                          CMP      R1, R2             ;IS THE DIFFERENCE CORRECT
8046 043626 001405                          BEQ      290$               ;BR, IF CORRECT
8050 043632                          ERRHRD  ERRNO, T26PBP, EXPREC ;RBPCR NOT CORRECT
8050 043632 104456                          TRAP    CSERHRD
8050 043634 000502                          .WORD  322
8050 043636 050374                          .WORD  T26PBP
8050 043640 016344                          .WORD  EXPREC
8051 043642                          290$: CKLOOP                ;LOOP IF SELECTED
8051 043642 104406                          TRAP    CSCLP1
8052 043644                          ENDSUB                       ;>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
8052 043644                                L10062:
    
```


CZTUYAO TUPO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 95-5
TEST 2: REREADS

8053	043644	104403		
8054	043646	023727	002170	000031
8055	043654	002402		
8056	043656	004737	020152	

999\$:

CMP	FATFLG,#25.
BLT	999\$
JSR	PC,CKDROP

	TRAP	C\$ESUB
:IS ERROR COUNT AT 25		
:BR, IF LESS THAN 25		
:TRY TO DROP THE UNIT		


```

      043764 000504
      043766 004754
      043770 011666
8114 043772 104406      26$: CKLOOP                :LOOP IF SELECTED      TRAP  CSCLP1
      043772 104406
8115
8116
8117
8118
8119
8120
8121
8122 043774 004737 010434      JSR    PC,REWIND          :CALL TAPE REWIND COMMAND
8123 044000 103411      BCS    30$                :BR, IF NO PROBLEM
8124 044002 016501 000000      MOV    TSSR(R5),R1       :GET TSSR
8125 044006 010004      MOV    R0,R4             :PACKET ADDRESS SET UP
8126 044010 004737 020100      JSR    PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
8130 044014      ERRHRD ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
      044014 104456      TRAP  CSERHRD
      044016 000505      .WORD 325
      044020 047404      .WORD T26RWN
      044022 011700      .WORD PKTSSR
8131 044024      30$: CKLOOP                :LOOP IF SELECTED      TRAP  CSCLP1
      044024 104406
8132
8133
8134
8135
8136
8137
8138
8139 044026 013701 045746      MOV    T26BFR+6,R1      :PICK UP XSTO
8140 044032 010102      MOV    R1,R2            :SET UP EXPECTED
8141 044034 052702 000002      BIS    #BIT1,R2        :SET BOT BIT IN EXPECTED
8142 044040 020102      CMP    R1,R2           :DOES EXP = REC'D
8143 044042 001406      BEQ    40$             :BR, IF EQUAL (OK)
8144 044044 004737 020100      JSR    PC,FATCHK        :INC AND CHECK FOR MORE THAN 25 ERRORS
8148 044050      ERRHRD ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
      044050 104456      TRAP  CSERHRD
      044052 000506      .WORD 326
      044054 047115      .WORD T26BOT
      044056 016344      .WORD EXPREC
8149 044060      40$: CKLOOP                :LOOP IF SELECTED      TRAP  CSCLP1
      044060 104406      MOV    FREE,T26RB       :STARTING WRITE BUFFER ADDRESS
8150 044062 013737 003072 046052
8151
8152
8153
8154
8155
8156
8157
8158 044070 012737 140005 046050      MOV    #140005,T26PK3   :WRITE DATA,CVC=1,ACK COMMAND
8159 044076 012704 046050      MOV    #T26PK3,R4      :SET UP R4 WITH PACKET ADDRESS
8160 044102 012737 000400 046056      MOV    #256,T26SZ      :SET UP RECORD SIZE IN PACKET
8161 044110 013777 046076 136754      MOV    T26CNT,@FREE    :MOVE TAPE RECORD NUMBER TO BUFFER
8162 044116 062737 000001 046076      ADD    #1,T26CNT        :NUMBER READY FOR NEXT RECORD

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 96-2
 TEST 2: REREADS

```

8163 044124 010465 177776      MOV      R4,TSDB(R5)      :ISSUE COMMAND
8164 044130 004737 017120      JSR      PC,WAITF        :WAIT FOR SSR TO SET
8165 044134 016501 000000      MOV      TSSR(R5),R1    :GET TSSR CONTENTS
8166 044140 012702 000200      MOV      #SSR,R2       :SET UP EXPECTED
8167 044144 020102              CMP      R1,R2          :ARE THEY EQUAL
8168 044146 001406              BEQ      75$            :BR, IF OK
8169 044150 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
8173                                :SOFT ERROR GENERATED BECAUSE THE
8174                                :WRITE COMMAND IS NOT BEING CHECKED
8175                                :HERE. IT WAS CHECKED IN CZTUXA
8176 044154              ERRSOF  ERRNO,WRTErr,PKTSSK :TSSR INCORRECT AFTER WRITE DATA
                                TRAP      CSERSOFT
                                .WORD    327
                                .WORD    WRTErr
                                .WORD    PKTSSR
8177 044164              75$:  CKLOOP          :LOOP IF SELECTED
                                TRAP      CSCLP1
8178 044166 022737 000013 046076  CMP      #11.,T26CNT    :CHECK NUMBER OF RECORDS WRITTEN
8179 044174 001401              BEQ      120$          :BR, IF AT END OF WRITE SEQUENCE
8180 044176 000741              BR       65$           :WRITE MORE RECORDS
8181 044200              120$:
8182 044200 005037 046076      CLR      T26CNT        :SET RECORD COUNTER BACK TO ZERO
8183
8184      :*****
8185      :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8186      :*****
8187
8188
8189
8190 044204 004737 010434      JSR      PC,REWIND      :CALL TAPE REWIND COMMAND
8191 044210 103411              BCS     130$           :BR, IF NO PROBLEM
8192 044212 016501 000000      MOV      TSSR(R5),R1    :GET TSSR
8193 044216 010004              MOV     R0,R4          :PACKET ADDRESS SET UP
8194 044220 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
8198 044224              ERRHRD  ERRNO,T26RWN,PKTSSR :REWIND NOT ACCEPTED
                                TRAP      CSERHRD
                                .WORD    328
                                .WORD    T26RWN
                                .WORD    PKTSSR
8199 044234              130$:  CKLOOP          :LOOP IF SELECTED
                                TRAP      CSCLP1
8200
8201      :*****
8202      :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8203      :*****
8204
8205
8206
8207 044236 013701 045746      MOV      T26BFR+6,R1    :PICK UP XSTO
8208 044242 010102              MOV     R1,R2          :SET UP EXPECTED
8209 044244 052702 000002      BIS     #BIT1,R2        :SET BOT BIT IN EXPECTED
8210 044250 020102              CMP     R1,R2          :DOES EXP = REC'D
8211 044252 001406              BEQ     140$           :BR, IF EQUAL (OK)
8212 044254 004737 020100      JSR      PC,FATCHK      :INC AND CHECK FOR MORE THAN 25 ERRORS
8216 044260              ERRHRD  ERRNO,T26BOT,EXPREC :TAPE NOT AT BOT AFTER REWIND
                                TRAP      CSERHRD
                                .WORD    329
    
```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 96-3
TEST 2: REREADS

```

      044264 047115
      044266 016344
8217 044270 104406 140$: CKLOOP :LOOP IF SELECTED .WORD T26BOT
      044270 104406 :COMMAND BUFFER ADDRESS .WORD EXPREC
8218 044272 012703 046066 150$: MOV #T26RN,R3 :STARTING READ BUFFER ADDRESS TRAP C$CLP1
8219 044276 012737 177376 046052 MOV #177376,T26RB :SET UP HIGH ORDER ADDRESS BITS
8220 044304 012737 000003 046054 MOV #000003,T26RB+2
8221
8222 :*****
8223 :REREAD DATA,IE,ACK, OPP COMMAND
8224 :*****
8225
8226
8227
8228 044312 011337 046050 165$: MOV (R3),T26PK3 :REREAD DATA,IE,ACK, OPP COMMAND
8229 044316 012704 046050 MOV #T26PK3,R4 :SET UP R4 WITH PACKET ADDRESS
8230 044322 012737 000400 046056 MOV #256.,T26SZ :SET UP RECORD SIZE IN PACKET
8231 044330 010465 177776 MOV R4,TSDB(R5) :ISSUE COMMAND
8232 044334 004737 017120 JSR PC,WAITF :WAIT FOR SSR TO SET
8233 044340 016501 000000 MOV TSSR(R5),R1 :GET TSSR CONTENTS
8234 044344 012702 104210 MOV #SSR!NXM!SC!BIT3,R2 :SET UP EXPECTED
8235 044350 020102 CMP R1,R2 :ARE THEY EQUAL
8236 044352 001414 BEQ 170$ :BR, IF OK
8237 044354 031327 001000 BIT (R3),#BIT9 :CHECK FOR A READ COMMAND
8238 044360 001403 BEQ 168$ :BR, IF IT WAS A READ COMMAND
8239 044362 030127 000002 BIT R1,#BIT1 :WAS BIT1 SET
8240 044366 001006 BNE 170$ :BR, IF REREAD AND BIT1 SET
8241 044370
8242 044370 004737 020100 168$: JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
8246 044374 104456 ERRHRD ERRNO,T26RRF,PKTSSR :TSSR INCORRECT AFTER REREAD DATA
      044374 104456 TRAP C$SERHRD
      044376 000512 .WORD 330
      044400 046325 .WORD T26RRF
      044402 011700 .WORD PKTSSR
8247 044404 104406 170$: CKLOOP :LOOP IF SELECTED TRAP C$CLP1
      044404 104406
8248
8249 :*****
8250 :READ DATA, ACK,CVC=1 COMMAND
8251 :*****
8252
8253
8254
8255 044406 012737 140001 046050 MOV #140001,T26PK3 :READ DATA, ACK,CVC=1 COMMAND
8256 044414 012737 000400 046056 MOV #256.,T26SZ :SET SIZE INTO PACKET
8257 044422 005037 046054 CLR T26RB+2 :CLEAR OUT HIGH ADDRESS BITS
8258 044426 013737 003072 046052 MOV FREE,T26RB :GIVE READ A GOOD BUFFER
8259 044434 010465 177776 MOV R4,TSDB(R5) :ISSUE READ DATA COMMAND
8260 044440 004737 017120 JSR PC,WAITF :WAIT FOR SSR
8261 044444 016501 000000 MOV TSSR(R5),R1 :PICK UP THE TSSR
8262 044450 012702 000200 MOV #SSR,R2 :SET UP EXPECTED
8263 044454 020102 CMP R1,R2 :IS THE TSSR OK
8264 044456 001406 BEQ 180$ :BR, IF TSSR OK (GOOD)
8265 044460 004737 020100 JSR PC,FATCHK :INC AND CHECK FOR MORE THAN 25 ERRORS
8269 044464 104456 ERRHRD ERRNO,RDERR,PKTSSR :READ DATA COMMAND FAILED
      044464 104456 TRAP C$SERHRD
      044466 000513 .WORD 331

```

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TEST 2: REREADS

```

      044470 005104
      044472 011700
8270 044474 104406 180$: CKLOOP ;LOOP IF SELECTED .WORD RDERR
      044474 104406 TRAP PKTSSR
      044476 017701 136370 :FIRST WORD FROM READ BUFFER .WORD C$CLP1
8271 044476 017701 136370 MOV @FREE,R1 ;SET UP EXPECTED TRAP C$CLP1
8272 044502 012702 000001 MOV #1,R2 ;IS TAPE POSITION CORRECT
8273 044506 020102 CMP R1,R2 ;KEEP GOING POSITION OK
8274 044510 001406 BEQ 190$ ;INC AND CHECK FOR MORE THAN 25 ERRORS
8275 044512 004737 020100 JSR PC,FATCHK ;TAPE POSITION INCORRECT
8279 044516 ERRHRD ERRNO,T26WNG,EXPREC TRAP C$SERHRD
      044516 104456 .WORD 332
      044520 000514 .WORD T26WNG
      044522 046106 .WORD EXPREC
      044524 016344
8280 044526 190$: CKLOOP TRAP C$CLP1
      044526 104406
8281
8282 :*****
8283 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8284 :*****
8285
8286
8287 JSR PC,REWIND ;CALL TAPE REWIND COMMAND
8288 044530 004737 010434 BCS 194$ ;BR, IF NO PROBLEM
8289 044534 103411 MOV TSSR(R5),R1 ;GET TSSR
8290 044536 016501 000000 MOV R0,R4 ;PACKET ADDRESS SET UP
8291 044542 010004 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8292 044544 004737 020100 ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
8296 044550 TRAP C$SERHRD
      044550 104456 .WORD 333
      044552 000515 .WORD T26RWN
      044554 047404 .WORD PKTSSR
      044556 011700
8297 044560 194$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      044560 104406
8298
8299 :*****
8300 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8301 :*****
8302
8303
8304
8305 044562 013701 045746 MOV T:BFR+6,R1 ;PICK UP XST0
8306 044566 010102 MOV R1,R2 ;SET UP EXPECTED
8307 044570 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
8308 044574 020102 CMP R1,R2 ;DOES EXP = REC'D
8309 044576 001406 BEQ 196$ ;BR, IF EQUAL (OK)
8310 044600 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8314 044604 ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      044604 104456 TRAP C$SERHRD
      044606 000516 .WORD 334
      044610 047115 .WORD T26BOT
      044612 016344 .WORD EXPREC
8315 044614 196$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      044614 104406
8316 044616 010302 MOV R3,R2 ;SAVE R3 FOR A MOMENT
8317

```

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 96-5
TEST 2: REREADS

```

8318
8319
8320
8321
8322
8323
8324
8325 044620 012703 000001          MOV    #1,R3           ;SPACE ONE RECORD
8326 044624 004737 010140          JSR    PC,SPACE       ;CALL SPACE ROUTINE
8327 044630 010203                MOV    R2,R3         ;RESTORE R3
8328 044632 005723                TST    (R3)+         ;BUMP COUNTER
8329 044634 021327 177777          CMP    (R3),#177777 ;END OF COMMAND BUFFER YET
8330 044640 001216                BNE    150$          ;MORE COMMANDS KEEP GOING
8331 044642
8332 044642          200$:  ENDSUB           ;>>>>>>>>>> END SUBTEST >>>>>>>>>>
      044642          L10063:
      044642 104403                TRAP   C$ESUB
8333 044644 023727 002170 000031          CMP    FATFLG,#25.   ;IS ERROR COUNT AT 25
8334 044652 002402                BLT    999$          ;BR, IF LESS THAN 25
8335 044654 004737 020152          JSR    PC,CKDROP    ;TRY TO DROP THE UNIT
8336 044660          999$:

```


CZTUYAO TUBO FRONT END PRT C
TEST 2: REREADS

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```

8390
8391
8392
8393
8394
8395
8396
8397 044756 004737 010434
8398 044762 016501 000000
8399 044766 012702 000200
8400 044772 103407
8401 044774 010004
8402 044776 004737 020100
8406 045002
      045002 104456
      045004 000521
      045006 047404
      045010 011700
8407 045012
      045012 104406
8408
8409
8410
8411
8412
8413
8414
8415 045014 013701 045746
8416 045020 010102
8417 045022 052702 000002
8418 045026 020102
8419 045030 001406
8420 045032 004737 020100
8424 045036
      045036 104456
      045040 000522
      045042 047115
      045044 016344
8425 045046
      045046 104406
8426 045050 012737 000400 046056
8427 045056 013737 003072 046052
8428 045064 005703
8429 045066 001404
8430
8431
8432
8433
8434
8435
8436
8437 045070 012737 161001 046050
8438 045076 000403
8439
8440
8441
8442

```

```

:*****
:ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
:*****
26$: JSR PC,REWIND ;CALL TAPE REWIND COMMAND
      MOV TSSR(R5),R1 ;GET TSSR
      MOV #SSR,R2 ;SET UP EXPECTED TSSR
      BCS 30$ ;BR, IF NO PROBLEM
      MOV R0,R4 ;PACKET ADDRESS SET UP
      JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
                                     TRAP CSERHRD
                                     .WORD 337
                                     .WORD T26RWN
                                     .WORD PKTSSR
30$: CKLOOP ;LOOP IF SELECTED
                                     TRAP CSCLP1
:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****
      MOV T26BFR+6,R1 ;PICK UP XSTO
      MOV R1,R2 ;SET UP EXPECTED
      BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
      CMP R1,R2 ;DOES EXP = REC'D
      BEQ 40$ ;BR, IF EQUAL (OK)
      JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
      ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                     TRAP CSERHRD
                                     .WORD 338
                                     .WORD T26BOT
                                     .WORD EXPREC
40$: CKLOOP ;LOOP IF SELECTED
                                     TRAP CSCLP1
      MOV #256.,T26SZ ;SET UP RECORD SIZE IN PACKET
      MOV FREE,T26RB ;ADDRESS OF READ BUFFER
      TST R3 ;CHECK NUMBER OF TIMES THROUGH HERE
      BEQ 50$ ;BR, IF FIRST TIME THROUGH HERE
:*****
:REREAD,CVC=1,ACK COMMAND
:*****
      MOV #161001,T26PK3 ;REREAD,CVC=1,ACK COMMAND
      BR 55$ ;SKIP NEXT COMMAND
:*****
:REREAD,ACK COMMAND

```

CZTUVAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 97-2
TEST 2: REREADS

```

8443
8444
8445
8446 045100 012737 141001 046050 50$: MOV #141001,T26PK3 ;REREAD,ACK COMMAND
8447 045106 55$:
8448 045106 012704 046050 MOV #T26PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
8449 045112 65$:
8450 045112 010465 177776 MOV R4,TSDB(R5) ;ISSUE COMMAND
8451 045116 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
8452 045122 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
8453 045126 012702 100206 MOV #SSR!SC!BIT1!BIT2,R2 ;SET UP EXPECTED
8454 045132 020102 CMP R1,R2 ;ARE THEY EQUAL
8455 045134 001406 BEQ 75$ ;BR, IF OK
8456 045136 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8460 045142 ERRHRD ERRNO,T26WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
      045142 104456 TRAP CSERHRD
      045144 000523 .WORD 339
      045146 047043 .WORD T26WDE
      045150 011700 .WORD PKTSSR
8461 045152 75$: CKLOOP ;LOOP IF SELECTED
      045152 104406 TRAP CSCLP1
8462
8463
8464
8465
8466
8467
8468
8469 045154 013701 045746 MOV T26BFR+6,R1 ;GET XST0 STATUS WORD
8470 045160 010102 MOV R1,R2 ;SET UP EXPECTED
8471 045162 052702 002000 BIS #BIT10,R2 ;SET THE NEF BIT
8472 045166 020102 CMP R1,R2 ;ARE THEY EQUAL
8473 045170 001406 BEQ 170$ ;BR, IF EQUAL (GOOD)
8474 045172 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8478 045176 ERRHRD ERRNO,T26NEF,EXPREC ;NEF SHOULD BE SET
      045176 104456 TRAP CSERHRD
      045200 000524 .WORD 340
      045202 046174 .WORD T26NEF
      045204 016344 .WORD EXPREC
8479 045206 170$:
8480 045206 005103 COM R3 ;RESET THE SWITCH
8481 045210 001262 BNE 26$ ;BR, IF FIRST TIME THROUGH HERE
8482 045212 ENDSUB
      L10064:
      045212 104403 TRAP CSesub
8483 045214 023727 002170 000031 CMP FATFLG,#25. ;IS ERROR COUNT AT 25
8484 045222 002402 BLT 999$ ;BR, IF LESS THAN 25
8485 045224 004737 020152 JSR PC,CKDROP ;TRY TO DROP THE UNIT
8486 045230 999$:

```



```

045326 104406 TRAP CSCLP1
8541
8542
8543
8544
8545
8546
8547
8548 045330 004737 010434 26$: JSR PC,REWIND ;CALL TAPE REWIND COMMAND
8549 045334 016501 000000 MOV TSSR(R5),R1 ;GET TSSR
8550 045340 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED TSSR
8551 045344 103407 BCS 30$ ;BR, IF NO PROBLEM
8552 045346 010004 MOV R0,R4 ;PACKET ADDRESS SET UP
8553 045350 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8557 045354 ERRHRD ERRNO,T26RWN,PKTSSR ;REWIND NOT ACCEPTED
045354 104456 TRAP CSERHRD
045356 000527 .WORD 343
045360 047404 .WORD T26RWN
045362 011700 .WORD PKTSSR
8558 045364 104406 30$: CKLOOP ;LOOP IF SELECTED TRAP CSCLP1
8559
8560
8561
8562
8563
8564
8565
8566 045366 013701 045746 MOV T26BFR+6,R1 ;PICK UP XSTO
8567 045372 010102 MOV R1,R2 ;SET UP EXPECTED
8568 045374 052702 000002 BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
8569 045400 020102 CMP R1,R2 ;DOES EXP = REC'D
8570 045402 001406 BEQ 40$ ;BR, IF EQUAL (OK)
8571 045404 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8575 045410 ERRHRD ERRNO,T26BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
045410 104456 TRAP CSERHRD
045412 000530 .WORD 344
045414 047115 .WORD T26BOT
045416 016344 .WORD EXPREC
8576 045420 40$:
8577
8578
8579
8580
8581
8582
8583
8584
8585 045420 012703 000001 MOV #000001,R3 ;SET UP SPACE FORWARD 1 RECORD
8586 045424 004737 010140 JSR PC,SPACE ;ISSUE SPACE COMMAND
8587 045430 103411 BCS 75$ ;BR, IF OK
8588 045432 016501 000000 MOV TSSR(R5),R1 ;GET STATUS DATA
8589 045436 010004 MOV R0,R4 ;GET PACKET ADDRESS
8590 045440 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
8594 045444 ERRHRD ERRNO,T26WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
045444 104456 TRAP CSERHRD
045446 000531 .WORD 345

```

CZTUYAO TU80 FRONT END PRT C
TEST 2: REREADS

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```

      045450 047043
      045452 011/00
8595 045454          75$:   CKLOOP                ;LOOP IF SELECTED      .WORD  T26WDE
      045454 104406          TRAP                CSCLP1          .WORD  PKTSSR
8596
8597
8598
8599
8600
8601
8602
8603
8604 045456 012703 100001      MOV      #100001,R3      ;SET SPACE REVERSE 1 RECORD
8605 045462 004737 010140      JSR      PC,SPACE      ;ISSUE COMMAND
8606 045466 103411          BCS      175$          ;GO ON IF ALL IS WELL
8607 045470 016501 000000      MOV      TSSR(R5),R1   ;GET TSSR CONTENTS
8608 045474 010004          MOV      R0,R4         ;SET UP EXPECTED (PACKET CONTENTS)
8609 045476 004737 020100      JSR      PC,FATCHK    ;INC AND CHECK FOR MORE THAN 25 ERRORS
8613 045502          ERRHRD  ERRNO,T26WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
      045502 104456          TRAP                CSERHRD
      045504 000532          .WORD                346
      045506 047043          .WORD                T26WDE
      045510 011700          .WORD                PKTSSR
8614 045512          175$:   CKLOOP                ;LOOP IF SELECTED      TRAP    CSCLP1
      045512 104406          TRAP                CSCLP1
8615 045514 013737 003072 046052  MOV      FREE,T26RB    ;ADDRESS OF BUFFER
8616 045522 005737 046100      TST      T26CNU       ;CHECK FOR TIMES THROUGH HERE
8617 045526 001404          BEQ      176$         ;BR, IF FIRST TIME THROUGH
8618
8619
8620
8621
8622
8623
8624
8625 045530 012737 161001 046050  MOV      #161001,T26PK3 ;REREAD (PREVIOUS),IE,ACK,OPP=1 CMD.
8626 045536 000403          BR       178$         ;SKIP NEXT COMMAND
8627
8628
8629
8630
8631
8632
8633
8634 045540 012737 141001 046050 176$:   MOV      #141001,T26PK3 ;REREAD ,ACK,OPP=1 COMMAND
8635 045546          178$:
8636 045546 012704 046050      MOV      #T26PK3,R4   ;SET UP R4 WITH PACKET ADDRESS
8637 045552 010465 177776      MOV      R4,TSDB(R5)  ;ISSUE COMMAND
8638 045556 004737 017120      JSR      PC,WAITF     ;WAIT FOR SSR TO SET
8639 045562 016501 000000      MOV      TSSR(R5),R1  ;GET TSSR CONTENTS
8640 045566 012702 100204      MOV      #SSR!SC!BIT2,R2 ;SET UP EXPECTED
8641 045572 020102          CMP      R1,R2        ;ARE THEY EQUAL
8642 045574 001406          BEQ      180$         ;BR, IF OK
8643 045576 004737 020100      JSR      PC,FATCHK    ;INC AND CHECK FOR MORE THAN 25 ERRORS
8647 045602          ERRHRD  ERRNO,T26WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
      045602 104456          TRAP                CSERHRD
      045604 000533          .WORD                347

```


CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 99
 TEST 2: REREADS

```

8676
8677
8678
8680 045710
8682 045720
8683 045720 014004
8684 045722 045730
8685 045724 000000
8686 045726 000012
8687 045730
8688 045730 045740
8689 045732 000000
8690 045734 000024
8691 045736 000000
8692 045740
8693
8694
8695
8697 046022
8699 046030
8700 046030 100006
8701 046032 046060
8702 046034 000000
8703 046036 000006
8704
8706 046040
8708 046050
8709 046050 140005
8710 046052
8711 046052 003072
8712 046054 000000
8713 046056 000000
8714
8715
8716 046060
8717 046060 010
8718 046061 200
8719 046062 000000
8720 046064 000000
8721
8722
8723
8724 046066 140001
8725 046070 141401
8726 046072 161401
8727 046074 177777
8728
8729 046076 000000
8730 046100 000000
8731 046102 000000
8732 046104 000000

;+
;LOCAL STORAGE FOR THIS TEST
;-
      .BLKB 10-<.-TUV2A&7>
T26PACKET:
      .WORD 14004
      .WORD T26DATA
      .WORD 0
      .WORD 10.
T26DATA:
      .WORD T26BFR
      .WORD 0
      .WORD 20.
      .WORD 0
T26BFR: .BLKW 25.

;COMMAND PACKET FOR TEST
;WRITE CHARACTERISTICS COMMAND, WITH CVC=1, ACK
;ADDRESS OF CHARACTERISTICS BLOCK

;STARTING VALUE OF BLOCK SIZE
;CHARACTERISTICS DATA BLOCK
;ADDRESS OF MESSAGE BUFFER

;LENGTH OF MESSAGE BUFFER

;MESSAGE BUFFER

;WRITE SUBSYSTEM MEMORY COMMAND PACKET
      .BLKB 10-<.-TUV2A&7>
T26PK2:
      .WORD 100006
      .WORD T26BF2
      .WORD 0
      .WORD 6.
      .BLKB 10-<.-TUV2A&7>
T26PK3:
      .WORD 140005
T26RB:
T26WB: .WORD FREE
      .WORD 0
T26SZ: .WORD 0
      .EVEN

;WRITE SUB SYS MEM COMMAND, AND ACK
;ADDRESS OF SELECT BLOCK DATA

;SIZE OF DATA PACKET

;REREAD COMMAND, CVC=1 AND ACK

;ADDRESS OF WRITE BUFFER

;SIZE OF BUFFER (EXTENT)

;BSELO AREA
;BSEL1 AREA
;SEL 2 AREA
;DATA AREA

;EVEN
;TAPE MOTION PACKET COMMAND VALUES
T26RN: .WORD 140001
      .WORD 141401
      .WORD 161401
      .WORD 177777

;READ DATA
;REREAD NEXT OPP=0
;REREAD NEXT OPP=1
;END OF DATA

;TAPRECORD COUNTER STORAGE AREA
;TAPRECORD COUNTER STORAGE AREA
;RECORD STORAGE SIZE AREA
;DELAY COUNTER AREA
T26CNT: .WORD 0
T26CNU: .WORD 0
T26RSZ: .WORD 0
T26DLY: .WORD 0

```

CZTUYAO TU80 FRONT END PRT C
TEST 2: REREADS

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```

8734
8735
8736
8737
8738
8739
8740 046106      124      141      160  T26WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPP=1)'
8741 046174      122      105      122  T26NEF: .ASCIZ  'REREAD PREVIOUS, At BOT, Failed To Set NEF (XST0)'
8742 046256      124      123      123  T26RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
8743 046325      122      105      122  T26RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
8744 046422      122      105      122  T26RRG: .ASCIZ  'REREAD Previous (Read Reverse, Space Forward) Command Failed'
8745 046517      120      117      123  T26SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
8746 046601      122      111      102  T26LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
8747 046651      124      123      123  T26WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
8748 046726      111      154      154  T26LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
8749 047007      122      105      122  T26SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
8750 047043      124      123      123  T26WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA Command'
8751 047115      124      141      160  T26BOT: .ASCIZ  'Tape Not At BOT After REWIND Command'
8752 047162      104      141      164  T26DTA: .ASCIZ  'Data Written To Tape Not Equal To Data Read From Tape'
8753 047250      122      105      122  T26EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
8754 047327      124      123      123  T26TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
8755 047404      122      145      167  T26RW:  .ASCIZ  'Rewind (POSITION) Command Not Accepted'
8756 047453      122      101      115  T26RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
8757 047526      124      123      123  T26AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
8758 047575      104      162      151  T26OFL: .ASCIZ  'Drive 7 Select Failed To Set "OFL" In TSSR'
8759 047650      124      123      123  T26WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
8760 047740      124      123      123  T26WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
8761 050013      103      126      103  T26VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
8762 050066      124      123      102  T26BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
8763 050141      127      122      111  T26WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
8764 050230      122      145      141  T26LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
8765 050312      122      145      141  T26LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
8766 050371      122      145      163  T26PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
8767 050462      122      145      141  T26TRL: .ASCIZ  'Reading Long Record Failed To Give Tape Status Alert'
8768 050550      104      141      164  T26NEQ: .ASCIZ  'Data REREAD From Tape Not Correct, After SWB=1'
8769 050627      122      145      162  T26ID:  .ASCIZ  'Rereads'
8770
8771
8772
8773
8774
8775
8776
8777
8778 050640
8779 050640
8780 050644      012701  045720
8781 050650      012721  140004
8782 050654      012721  045730
8783 050660      005021
8784 050662      012721  000012
8785 050666      012721  045740
8786 050672      005021
8787 050674      012721  000024
8788 050700      005021
8789 050702      012711  000000
8790 050706      012702  000030

```

```

: +
: LOCAL TEXT MESSAGES FOR TEST
: -

```

T26REST:

```

SAVREG
MOV #T26PACKET,R1
MOV #140004,(R1)+
MOV #T26DATA,(R1)+
CLR (R1)+
MOV #10,(R1)+
MOV #T26BFR,(R1)+
CLR (R1)+
MOV #20,(R1)+
CLR (R1)+
MOV #0,(R1)
MOV #24,R2
:SAVE THE REGISTERS
:START OF THE PACKET
:WRITE SUBSYSTEM MEM. WITH ACK, CVC=1
:ADDRESS OF CHARAISTICS DATA BLOCK
:EXTENDED ADDRESS
:SIZE OF DATA BLOCK IN BYTES
:ADDRESS OF MESSAGE BUFFER
:LENGTH OF MESSAGE BUFFER
:SELECT DRIVE ZERO (0)
:NUMBER OF LOCATIONS TO BE CLEARED

```


CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 100-1
 TEST 2: REREADS

```

8791 050712 012762 177777 045740 64$: MOV #177777,T26BFR(R2) ;ALL ONES TO MESSAGE BUFFER
8792 050720 005742 TST -(R2) ;NEXT LOCATION
8793 050722 020227 000000 CMP R2,#0 ;CHECK FOR END OF LOOP
8794 050726 001371 BNE 64$ ;KEEP GOING UNTIL DONE
8795 050730 000207 RTS PC ;RETURN
8796
8797
8798 050732 T26RT2: SAVREG ;SAVE THE REGISTERS
8799 050732 MOV #T26PK2,R1 ;START OF THE PACKET
8800 050736 012701 046030 MOV #140006,(R1)+ ;WRITE SUBSYSTEM MEM. WITH ACK,CVC=1,
8801 050742 012721 140006 MOV #T26BF2,(R1)+ ;ADDRESS OF DATA BLOCK
8802 050746 012721 046060 CLR (R1)+ ;EXTENDED ADDRESS
8803 050752 005021 MOV #6,(R1)+ ;SIZE OF DATA BLOCK IN BYTES
8804 050754 012721 000006 CLR (R1)+
8805 050760 005021 MOV #T26BF2,R1 ;POINT TO DATA SEL AREA
8806 050762 012701 046060 CLR (R1)+
8807 050766 005021 CLR (R1)
8808 050770 005011 CLR (R1)
8809 050772 000207 RTS PC ;RETURN
8810 050774 T26RT3: SAVREG ;SAVE THE REGISTERS
8811 050774 MOV #T26PK3,R1 ;START OF THE PACKET
8812 051000 012701 046050 MOV #0,(R1)+ ;WRITE SUBSYSTEM MEM. WITH ACK,
8813 051004 012721 000000 MOV #0,(R1)+ ;ADDRESS OF DATA BLOCK
8814 051010 012721 000000 CLR (R1)+ ;EXTENDED ADDRESS
8815 051014 005021 MOV #0,(R1) ;SIZE OF DATA BLOCK IN BYTES
8816 051016 012711 000000 RTS PC ;RETURN
8817 051022 000207 ENDTST
8818 051024
051024
051024 104401 L10046: TRAP CSETST

```


CZTUAYO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

051142 013727 002116          MOV      LSDLY,(PC)+
051146 000000                .WORD    0
051150 005367 177772          DEC      -6(PC)
051154 001375                BNE      -4
051156 005367 177756          DEC      -22(PC)
051162 001367                BNE      -20
8876 051164 005337 055672      DEC      T27DLY          ;BUMP COUNTER
8877 051170 001356                BNE      10$           ;BR, IF COUNTER NOT DONE
8878 051172 004737 020100      JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
8882 051176 010001                MOV      R0,R1          ;CONTENTS OF TSSR REGISTER
8883 051200                ERRDF   ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
051200 104455                TRAP    C$ERDF
051202 000455                .WORD   301
051204 003550                .WORD   SFIERR
051206 011666                .WORD   SFIMSG
8884 051210
8885 051210 012704 055510      20$:    MOV      #T27PACKET,R4 ;SUBROUTINE NEEDS PACKET ADDRESS
8887                ;*****
8888                ;WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
8889                ;*****
8891                JSR      PC,WRTCHR      ;ISSUE WRITE CHARACTERISTICS
8893 051214 004737 010332      BCS      25$           ;BR, IF COMMAND ISSUED OK
8894 051220 103407                JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
8895 051222 004737 020100      MOV      R0,R1          ;SAVE CONTENTS OF TSSR
8899 051226 010001                ERRHRD  ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
8900 051230                TRAP    C$ERHRD
051230 104456                .WORD   302
051232 000456                .WORD   WRTMSG
051234 004754                .WORD   SFIMSG
051236 011666
8901 051240                25$:    CKLOOP          ;LOOP IF SELECTED
051240 104406                TRAP    C$CLP1
8902
8903                ;*****
8904                ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
8905                ;*****
8906
8907                JSR      PC,REWIND      ;CALL TAPE REWIND COMMAND
8908                BCS      30$           ;BR, IF NO PROBLEM
8909 051242 004737 010434      MOV      R0,R4          ;SET UP REWIND PACKET ADDRESS
8910 051246 103407                JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
8911 051250 010004                ERRHRD  ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
8912 051252 004737 020100                TRAP    C$ERHRD
8916 051256                .WORD   303
051256 104456                .WORD   T27RWN
051260 000457                .WORD   PKTSSR
051262 057045
051264 011700
8917 051266                30$:    CKLOOP          ;LOOP IF SELECTED
051266 104406                TRAP    C$CLP1
8918
8919                ;*****
8920                ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
8921                ;*****
8922

```

CZTUYAO TU80 FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

8923 051270 013701 055536      MOV      T27BFR+6,R1      ;PICK UP XSTO
8924 051274 010102              MOV      R1,R2           ;SET UP EXPECTED
8925 051276 052702 000002      BIS      #BIT1,R2        ;SET BOT BIT IN EXPECTED
8926 051302 020102              CMP      R1,R2           ;DOES EXP = REC'D
8927 051304 001406              BEQ      40$             ;BR, IF EQUAL (OK)
8928 051306 004737 020100      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
8932 051312              ERRHRD  ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP      C$ERHRD
                                .WORD     304
                                .WORD     T27BOT
                                .WORD     EXPREC
8933 051322              40$:  CKLOOP              ;LOOP IF SELECTED
                                TRAP      C$CLP1
8934 051324 104406              MOV      #256.,T27SZ     ;SET UP RECORD SIZE
8935 051332 012737 000400 055646  MOV      FREE,T27WB      ;ADDRESS OF WRITE BUFFER
8936 051332 013737 003072 055642  ;*****
8938 ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
8940 ;*****
8941 051340 012737 141005 055640  MOV      #141005,T27PK3  ;WRITE DATA RETRY,ACK,CVC=1 COMMAND
8942 051346 012704 055640      MOV      #T27PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
8943 051352 010465 177776      MOV      R4,TSDB(R5)     ;ISSUE COMMAND
8944 051356 004737 017120      JSR      PC,WAITF        ;WAIT FOR SSR TO SET
8945 051362 016501 000000      MOV      TSSR(R5),R1     ;GET TSSR CONTENTS
8946 051366 012702 100206      MOV      #SSR!SC!BIT1!BIT2,R2 ;SET UP EXPECTED
8947 051372 020102              CMP      R1,R2           ;ARE THEY EQUAL
8948 051374 001406              BEQ      75$             ;BR, IF OK
8949 051376 004737 020100      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
8953 051402              ERRHRD  ERRNO,T27WDE,PKTSSR ;TSSR INCORRECT AFTER READ DATA
                                TRAP      C$ERHRD
                                .WORD     305
                                .WORD     T27WDE
                                .WORD     PKTSSR
8954 051412              75$:  CKLOOP              ;LOOP IF SELECTED
                                TRAP      C$CLP1
8955 051412 104406              ;*****
8957 ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
8959 ;*****
8960 051414 013701 055536      MOV      T27BFR+6,R1     ;GET XSTO STATUS WORD
8961 051420 010102              MOV      R1,R2           ;SET UP EXPECTED
8962 051422 052702 002000      BIS      #BIT10,R2       ;SET THE NEF BIT
8963 051426 020102              CMP      R1,R2           ;ARE THEY EQUAL
8964 051430 001406              BEQ      170$           ;BR, IF EQUAL (GOOD)
8965 051432 004737 020100      JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
8969 051436              ERRHRD  ERRNO,T27NEF,EXPREC ;NEF SHOULD BE SET
                                TRAP      C$ERHRD
                                .WORD     306
                                .WORD     T27NEF
                                .WORD     EXPREC
8970 051446              170$:  ENDSUB
                                L10067:  TRAP      C$ESUB
8971 051450 023727 002170 000031  CMP      FATFLG,#25.     ;IS ERROR COUNT AT 25
8972 051456 002402              BLT      999$           ;BR, IF LESS THAN 25
8973 051460 004737 020152      JSR      PC,CKDROP       ;TRY TO DROP THE UNIT
8974 051464              999$:

```


CZTUVAO TU80 FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9028
9029
9030
9031
9032
9033 051560 004737 010434      JSR    PC,REWIND      ;CALL TAPE REWIND COMMAND
9034 051564 103411              BCS    26$            ;BR, IF NO PROBLEM
9035 051566 010004              MOV    R0,R4         ;SET UP REWIND PACKET ADDRESS
9036 051570 016501 000000      MOV    TSSR(R5),R1   ;GET TSSR CONTENTS
9037 051574 004737 020100      JSR    PC,FATCHK    ;INC AND CHECK FOR MORE THAN 25 ERRORS
9041 051600              ERRHRD  ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP    CSERHRD
                                .WORD   309
                                .WORD   T27RWN
                                .WORD   PKTSSR
9042 051610              26$:  CKLOOP          ;LOOP IF SELECTED
                                TRAP    CSCLP1
9043 051612 012703 000400      MOV    #256,R3       ;STARTING RECORD SIZE
9044 051616 013737 003072 055642  MOV    FREE,T27WB    ;STARTING WRITE BUFFER ADDRESS
9045
9046
9047
9048
9049
9050
9051
9052 051624 012737 140005 055640      MOV    #140005,T27PK3 ;WRITE DATA,CVC=1,ACK COMMAND
9053 051632 012704 055640      MOV    #T27PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
9054 051636 010337 055646      MOV    R3,T27SZ      ;SET UP RECORD SIZE IN PACKET
9055 051642 010465 177776      MOV    R4,TSDB(R5)   ;ISSUE COMMAND
9056 051646 004737 017120      JSR    PC,WAITF      ;WAIT FOR SSR TO SET
9057 051652 016501 000000      MOV    TSSR(R5),R1   ;GET TSSR CONTENTS
9058 051656 012702 000200      MOV    #SSR,R2       ;SET UP EXPECTED
9059 051662 020102              CMP    R1,R2         ;ARE THEY EQUAL
9060 051664 001406              BEQ    28$           ;BR, IF OK
9061 051666 004737 020100      JSR    PC,FATCHK    ;INC AND CHECK FOR MORE THAN 25 ERRORS
9065
9066
9067
9068 051672              ERRSOFT ERRNO,WRTErr,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
                                TRAP    CSERSOFT
                                .WORD   310
                                .WORD   WRTErr
                                .WORD   PKTSSR
9069 051702              28$:  CKLOOP          ;LOOP IF SELECTED
                                TRAP    CSCLP1
9070
9071
9072
9073
9074
9075
9076
9077 051704 004737 010434      JSR    PC,REWIND      ;CALL TAPE REWIND COMMAND
9078 051710 103411              BCS    30$            ;BR, IF NO PROBLEM
9079 051712 016501 000000      MOV    TSSR(R5),R1   ;GET TSSR CONTENTS
9080 051716 010004              MOV    R0,R4         ;SET UP REWIND PACKET ADDRESS

```

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TEST 3: WRITE DATA RETRY

```

9081 051720 004737 020100      JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9085 051724      ERRHRD  ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
      051724 104456      TRAP   C$ERHRD
      051726 000467      .WORD  311
      051730 057045      .WORD  T27RWN
      051732 011700      .WORD  PKTSSR
9086 051734      30$:   CKLOOP      ;LOOP IF SELECTED
      051734 104406      TRAP   C$CLP1

```

```

9087
9088
9089
9090
9091
9092
9093
:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****

```

```

9094 051736 013701 055536      MOV    T27BFR+6,R1   ;PICK UP XSTO
9095 051742 010102      MOV    R1,R2         ;SET UP EXPECTED
9096 051744 052702 000002      BIS   #BIT1,R2       ;SET BOT BIT IN EXPECTED
9097 051750 020102      CMP   R1,R2         ;DOES EXP = REC'D
9098 051752 001406      BEQ   40$           ;BR, IF EQUAL (OK)
9099 051754 004737 020100      JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9103 051760      ERRHRD  ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
      051760 104456      TRAP   C$ERHRD
      051762 000470      .WORD  312
      051764 056541      .WORD  T27BOT
      051766 016344      .WORD  EXPREC

```

```

9104 051770      40$:   CKLOOP      ;LOOP IF SELECTED
      051770 104406      TRAP   C$CLP1

```

```

9105
9106
9107
9108
9109
9110
9111
9112
:*****
:ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
:BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
:*****

```

```

9113 051772 012703 000001      MOV   #1,R3         ;PARAMETER SPACE FORWARD 1 RECORD
9114 051776 004737 010140      JSR   PC,SPACE      ;CALL SPACE RECORDS ROUTINE
9115 052002 103413      BCS   50$           ;BR, IF NO ERRORS
9116 052004 016501 000000      MOV   TSSR(R5),R1   ;GET TSSR CONTENTS
9117 052010 012702 000200      MOV   #SSR,R2       ;SET UP EXPECTED
9118 052014 010004      MOV   R0,R4         ;SET UP REWIND PACKET ADDRESS
9119 052016 004737 020100      JSR   PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9123 052022      ERRHRD  ERRNO,T27SCF,PKTSSR ;SPACE RECORDS COMMAND FAILED
      052022 104456      TRAP   C$ERHRD
      052024 000471      .WORD  313
      052026 060307      .WORD  T27SCF
      052030 011700      .WORD  PKTSSR

```

```

9124 052032      50$:   CKLOOP      ;LOOP IF SELECTED
      052032 104406      TRAP   C$CLP1

```

```

9125
9126
9127
9128
9129
9130
9131
:*****
:ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
:BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
:*****

```


CZTUYAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9237      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9238      :
9239      :*****
9240
9241 052332 004737 010434      JSR      PC,REWIND      ;CALL TAPE REWIND COMMAND
9242 052336 103407      BCS      30$            ;BR, IF NO PROBLEM
9243 052340 010004      MOV      R0,R4          ;SET UP REWIND PACKET ADDRESS
9244 052342 004737 020100      JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9248 052346      ERRHRD  ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
          052346 104456      TRAP     CSERHRD
          052350 000477      .WORD   319
          052352 057045      .WORD   T27RWN
          052354 011700      .WORD   PKTSSR
9249 052356      30$:      CKLOOP      ;LOOP IF SELECTED      TRAP     CSCLP1
          052356 104406
9250
9251      :*****
9252      :
9253      :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9254      :
9255      :*****
9256
9257 052360 013701 055536      MOV      T27BFR+6,R1    ;PICK UP XSTO
9258 052364 010102      MOV      R1,R2          ;SET UP EXPECTED
9259 052366 052702 000002      BIS      #BIT1,R2       ;SET BOT BIT IN EXPECTED
9260 052372 020102      CMP      R1,R2          ;DOES EXP = REC'D
9261 052374 001406      BEQ     40$            ;BR, IF EQUAL (OK)
9262 052376 004737 020100      JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9266 052402      ERRHRD  ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
          052402 104456      TRAP     CSERHRD
          052404 000500      .WORD   320
          052406 056541      .WORD   T27BOT
          052410 016344      .WORD   EXPREC
9267 052412      40$:      CKLOOP      ;LOOP IF SELECTED      TRAP     CSCLP1
          052412 104406
9268 052414 012703 000024      MOV      #20.,R3        ;STARTING RECORD SIZE
9269 052420 013737 003072 055642  MOV      FREE,T27WB      ;STARTING WRITE BUFFER ADDRESS
9270
9271      :*****
9272      :
9273      :WRITE DATA,CVC=1,ACK COMMAND
9274      :
9275      :*****
9276
9277 052426 012737 140005 055640 65$:  MOV      #140005,T27PK3 ;WRITE DATA,CVC=1,ACK COMMAND
9278 052434 012704 055640      MOV      #T27PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
9279 052440 010300      MOV      R3,R0          ;SET PATTERN IN CORRECT REGISTER
9280 052442 004737 020372      JSR      PC,FILLMEM     ;FILL MEMORY WITH RECORD SIZE
9281 052446 010337 055646      MOV      R3,T27SZ       ;SET UP RECORD SIZE IN PACKET
9282 052452 010465 177776      MOV      R4,TSDB(R5)    ;ISSUE COMMAND
9283 052456 004737 017120      JSR      PC,WAITF       ;WAIT FOR SSR TO SET
9284 052462 016501 000000      MOV      TSSR(R5),R1    ;GET TSSR CONTENTS
9285 052466 012702 000200      MOV      #SSR,R2        ;SET UP EXPECTED
9286 052472 020102      CMP      R1,R2          ;ARE THEY EQUAL
9287 052474 001406      BEQ     80$            ;BR, IF OK
9288 052476 004737 020100      JSR      PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9292      :SOFT ERROR GENERATED BECAUSE THE

```

CZTUYAO TU80 FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9293                                     ;WRITE COMMAND IS NOT BEING CHECKED
9294                                     ;HERE. IT WAS CHECKED IN CZTJXA
9295 052502 ERRSOF ERRNO,WRTE RR,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
      052502 104457 TRAP CSERSOFT
      052504 000501 .WORD 321
      052506 005011 .WORD WRTERR
      052510 011700 .WORD PKTSSR
9296 052512 80$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      052512 104406
9297
9298 :*****
9299 :WRITE DATA RETRY,CVC=1,ACK COMMAND
9300 :*****
9301
9302
9303
9304 052514 012737 141005 055640 MOV #141005,T27PK3 ;WRITE DATA RETRY,CVC=1,ACK COMMAND
9305 052522 010465 177776 MOV R4,TSDB(R5) ;ISSUE COMMAND
9306 052526 004737 017120 JSR PC,WAITF ;WAIT FOR SSR TO SET
9307 052532 016501 000000 MOV TSSR(R5),R1 ;GET TSSR CONTENTS
9308 052536 012702 000200 MOV #SSR,R2 ;SET UP EXPECTED
9309 052542 020102 CMP R1,R2 ;ARE THEY EQUAL
9310 052544 001406 BEQ 90$ ;BR, IF OK
9311 052546 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
9315 052552 ERRHRD ERRNO,T27WRF,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA RETRY
      052552 104456 TRAP CSERHRD
      052554 000502 .WORD 322
      052556 060446 .WORD T27WRF
      052560 011700 .WORD PKTSSR
9316 052562 90$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      052562 104406
9317 052564 005723 TST (R3)+ ;BUMP RECORD SIZE COUNTER
9318 052566 020327 000050 CMP R3,#40. ;AT 40 SIZE YET
9319 052572 001315 BNE 65$ ;BR, IF MORE RECORDS TO WRITE
9320
9321 :*****
9322 :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9323 :*****
9324
9325
9326
9327 052574 004737 010434 JSR PC,REWIND ;CALL TAPE REWIND COMMAND
9328 052600 103407 BCS 230$ ;BR, IF NO PROBLEM
9329 052602 010001 MOV R0,R1 ;SAVE TSSR
9330 052604 004737 020100 JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
9334 052610 ERRHRD ERRNO,T27RWN,EXPREC ;REWIND NOT ACCEPTED
      052610 104456 TRAP CSERHRD
      052612 000503 .WORD 323
      052614 057045 .WORD T27RWN
      052616 016344 .WORD EXPREC
9335 052620 230$: CKLOOP ;LOOP IF SELECTED TRAP C$CLP1
      052620 104406
9336
9337 :*****
9338 :READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9339
9340

```


CZTUVAO TU80 FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9453 053172 004737 020100      JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9457 053176 010001              MOV    RO,R1          ;SAVE CONTENTS OF TSSR
9458 053200              ERRHRD ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTICS FAILED
                                TRAP    CSERHRD
                                .WORD   328
                                .WORD   WRTMSG
                                .WORD   SFIMSG
9459 053210 104406      23$:  CKLOOP              ;LOOP IF SELECTED
                                TRAP    CSCLP1
9460
9461      ;*****
9462      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9463      ;*****
9464
9465
9466
9467 053212 004737 010434      JSR    PC,REWIND      ;CALL TAPE REWIND COMMAND
9468 053216 103411              BCS    30$            ;BR, IF NO PROBLEM
9469 053220 016501 000000      MOV    TSSR(R5),R1    ;GET TSSR CONTENTS
9470 053224 010004              MOV    RO,R4          ;GET PACKET ADDRESS
9471 053226 004737 020100      JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9475 053232              ERRHRD ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP    CSERHRD
                                .WORD   329
                                .WORD   T27RWN
                                .WORD   PKTSSR
9476 053242 104406      30$:  CKLOOP              ;LOOP IF SELECTED
                                TRAP    CSCLP1
9477
9478      ;*****
9479      ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XST0)
9480      ;*****
9481
9482
9483
9484 053244 013701 055536      MOV    T27BFR+6,R1    ;PICK UP XST0
9485 053250 010102              MOV    R1,R2          ;SET UP EXPECTED
9486 053252 052702 000002      BIS    #BIT1,R2       ;SET BOT BIT IN EXPECTED
9487 053256 020102              CMP    R1,R2          ;DOES EXP = REC'D
9488 053260 001406              BEQ    40$            ;BR, IF EQUAL (OK)
9489 053262 004737 020100      JSR    PC,FATCHK      ;INC AND CHECK FOR MORE THAN 25 ERRORS
9493 053266              ERRHRD ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP    CSERHRD
                                .WORD   330
                                .WORD   T27BOT
                                .WORD   EXPREC
9494 053276 104406      40$:  CKLOOP              ;LOOP IF SELECTED
                                TRAP    CSCLP1
9495 053300 012703 000024      MOV    #20.,R3        ;STARTING RECORD SIZE
9496 053304 013737 003072 055642 MOV    FREE,T27WB     ;STARTING WRITE BUFFER ADDRESS
9497
9498      ;*****
9499      ;WRITE DATA,CVC=1,ACK COMMAND
9500      ;*****
9501
9502
9503

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 104-2
TEST 3: WRITE DATA RETRY

```

9504 053312 012737 140005 055640 65$:  MOV      #140005,T27PK3      ;WRITE DATA,CVC=1,ACK COMMAND
9505 053320 012704 055640      MOV      #T27PK3,R4      ;SET UP R4 WITH PACKET ADDRESS
9506 053324 010300      MOV      R3,R0          ;SET PATTERN IN CORRECT REGISTER
9507 053326 004737 020372      JSR      PC,FILLMEM     ;FILL MEMORY WITH RECORD SIZE
9508 053332 010337 055646      MOV      R3,T27SZ      ;SET UP RECORD SIZE IN PACKET
9509 053336 010465 177776      MOV      R4,TSDB(R5)   ;ISSUE COMMAND
9510 053342 004737 017120      JSR      PC,WAITF      ;WAIT FOR SSR TO SET
9511 053346 016501 000000      MOV      TSSR(R5),R1   ;GET TSSR CONTENTS
9512 053352 012702 000200      MOV      #SSR,R2      ;SET UP EXPECTED
9513 053356 020102      CMP      R1,R2         ;ARE THEY EQUAL
9514 053360 001406      BEQ      80$           ;BR, IF OK
9515 053362 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9519      ;SOFT ERROR GENERATED BECAUSE THE
9520      ;WRITE COMMAND IS NOT BEING CHECKED
9521      ;HERE. IT WAS CHECKED IN CZTUXA
9522 053366      ERRSOFT ERRNO,WRterr,PKTSSR ;TSSR INCORRECT AFTER WRITE DATA
9523 053370 000513      TRAP     CSERSOFT
9524 053372 005011      .WORD   331
9525 053374 011700      .WORD   WRterr
9526 053376 104406      .WORD   PKTSSR
9527 053376 104406      TRAP     CSCLP1
9528      ;*****
9529      ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
9530      ;*****
9531 053400 012737 111005 055640      MOV      #111005,T27PK3 ;WRITE DATA RETRY,ACK,SWB=1 COMMAND
9532 053406 010465 177776      MOV      R4,TSDB(R5)   ;ISSUE COMMAND
9533 053412 004737 017120      JSR      PC,WAITF      ;WAIT FOR SSR TO SET
9534 053416 016501 000000      MOV      TSSR(R5),R1   ;GET TSSR CONTENTS
9535 053422 012702 000200      MOV      #SSR,R2      ;SET UP EXPECTED
9536 053426 020102      CMP      R1,R2         ;ARE THEY EQUAL
9537 053430 001406      BEQ      90$           ;BR, IF OK
9538 053432 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9542 053436      ERRHRD ERRNO,T27WRF,EXPREC ;TSSR INCORRECT AFTER WRITE DATA RETRY
9543 053436 104456      TRAP     CSERHRD
9544 053440 000514      .WORD   332
9545 053442 060446      .WORD   T27WRF
9546 053444 016344      .WORD   EXPREC
9547 053446 104406      TRAP     CSCLP1
9548 053450 005723      TST      (R3)+         ;BUMP RECORD SIZE COUNTER
9549 053452 020327 000050      CMP      R3,#40.      ;AT 40 SIZE YET
9550 053456 001315      BNE      65$           ;BR, IF MORE RECORDS TO WRITE
9551      ;*****
9552      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9553      ;*****
9554 053460 004737 010434      JSR      PC,REWIND     ;CALL TAPE REWIND COMMAND
9555 053464 103411      BCS      230$          ;BR, IF NO PROBLEM
9556 053466 016501 000000      MOV      TSSR(R5),R1   ;GET TSSR CONTENTS

```


CZTUYAO TU80 FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9557 053472 010004          MOV      R0,R4          ;GET PACKET ADDRESS
9558 053474 004737 020100  JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9562 053500          ERRHRD  ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
          053500 104456          TRAP      CSERHRD
          053502 000515          .WORD    333
          053504 057045          .WORD    T27RWN
          053506 011700          .WORD    PKTSSR
9563 053510          230$:  CKLOOP          ;LOOP IF SELECTED          TRAP      C$CLP1
          053510 104406
9564
9565          ;*****
9566          ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9567          ;*****
9568
9569
9570
9571 053512 013701 055536          MOV      T27BFR+6,R1   ;PICK UP XSTO
9572 053516 010102          MOV      R1,R2         ;SET UP EXPECTED
9573 053520 052702 000002          BIS      #BIT1,R2      ;SET BOT BIT IN EXPECTED
9574 053524 020102          CMP      R1,R2         ;DOES EXP = REC'D
9575 053526 001406          BEQ      240$          ;BR, IF EQUAL (OK)
9576 053530 004737 020100  JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9580 053534          ERRHRD  ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
          053534 104456          TRAP      CSERHRD
          053536 000516          .WORD    334
          053540 056541          .WORD    T27BOT
          053542 016344          .WORD    EXPREC
9581 053544          240$:  CKLOOP          ;LOOP IF SELECTED          TRAP      C$CLP1
          053544 104406
9582 053546 012703 000024          MOV      #20.,R3       ;STARTING RECORD SIZE
9583 053552 013737 003072 055642  MOV      FREE,T27RB    ;STARTING READ BUFFER ADDRESS
9584
9585          ;*****
9586          ;READ DATA,ACK COMMAND
9587          ;*****
9588
9589
9590
9591 053560 012737 100001 055640 265$:  MOV      #100001,T27PK3 ;READ DATA,ACK COMMAND
9592 053566 012704 055640          MOV      #T27PK3,R4   ;SET UP R4 WITH PACKET ADDRESS
9593 053572 010337 055646          M.JV    R3,T27SZ      ;SET UP RECORD SIZE IN PACKET
9594 053576 010465 177776          MOV      R4,TSDB(R5)  ;ISSUE COMMAND
9595 053602 004737 017120          JSR      PC,WAITF     ;WAIT FOR SSR TO SET
9596 053606 016501 000000          MOV      TSSR(R5),R1  ;GET TSSR CONTENTS
9597 053612 012702 000200          MOV      #SSR,R2     ;SET UP EXPECTED
9598 053616 020102          CMP      R1,R2         ;ARE THEY EQUAL
9599 053620 001406          BEQ      280$          ;BR, IF OK
9600 053622 004737 020100  JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9604 053626          ERRHRD  ERRNO,RDERR,PKTSSR ;TSSR INCORRECT AFTER READ DATA
          053626 104456          TRAP      CSERHRD
          053630 000517          .WORD    335
          053632 005104          .WORD    RDERR
          053634 011700          .WORD    PKTSSR
9605 053636          280$:  CKLOOP          ;LOOP IF SELECTED          TRAP      C$CLP1
          053636 104406
9606 053640 013702 003072          MOV      FREE,R2      ;GET BUFFER ADDRESS
9607 053644 010304          MOV      R3,R4        ;GET RECORD SIZE

```

CZTU80 TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 104-4
TEST 3: WRITE DATA RETRY

9608	053646	162704	000024		SUB	#20.,R4		:POINT BACK TO 1ST RECORD
9609	053652	060204		285\$:	ADD	R2,R4		:POINT TO 1ST LOC IN BUFFER
9610	053654	000303			SWAB	R3		:SWAP BYTES SWB=1 ETC.
9611	053656	021403			CMP	(R4),R3		:DATA WRITTEN = READ
9612	053660	001410			BEQ	290		:BR, IF DATA OK (GOOD)
9613	053662	011401			MOV	(R4),R1		:PICK UP BAD DATA
9614	053664	010302			MOV	R3,R2		:SET UP EXPECTED
9615	053666	004737	020100		JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS
9619	053672				ERRHRD	ERRNO,T27DTA,EXPREC		:DATA IN BUFFER NOT CORRECT
	053672	104456						TRAP CSERHRD
	053674	000520						.WORD 336
	053676	060526						.WORD T27DTA
	053700	016344						.WORD EXPREC
9620	053702			290\$:	CKLOOP			:LOOP IF SELECTED
	053702	104406						TRAP CSCLP1
9621	053704	005724			TST	(R4)+		:BUMP TO NEXT ADDRESS
9622	053706	160204			SUB	R2,R4		:BACK TO RECORD SIZE
9623	053710	000303			SWAB	R3		:PUT R3 BACK INTO SHAPE
9624	053712	020403			CMP	R4,R3		:AT END OF RECORD YET
9625	053714	001356			BNE	285\$:BR, IF MORE DATA TO CHECK
9626	053716	005723			TST	(R3)+		:BUMP RECORD SIZE
9627	053720	020327	000046		CMP	R3,#38.		:DONE YET
9628	053724	001315			BNE	265\$:BR, IF NOT DONE YET (MORE READS)
9629	053726			300\$:	CKLOOP			:LOOP IF SELECTED
	053726	104406						TRAP CSCLP1
9630	053730				ENDSUB			:>>>>>>>>>> END SUBTEST >>>>>>>>>>
	053730							L10072:
	053730	104403						TRAP CSESUB
9631	053732	023727	002170 000031		CMP	FATFLG,#25.		:IS ERROR COUNT AT 25
9632	053740	002402			BLT	999\$:BR, IF LESS THAN 25
9633	053742	004737	020152		JSR	PC,CKDROP		:TRY TO DROP THE UNIT
9634	053746			999\$:				

CZTUYAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

054020 000C00
054022 013727 002116
054026 000000
054030 005367 177772
054034 001375
054036 005367 177756
054042 001367
9690 054044 005337 055672
9691 054050 001356
9692 054052 004737 020100
9696 054056 010001
9697 054060
054060 104455
054062 000521
054064 003550
054066 011666
9698 054070
9699
9700 054070 012704 055510
9701
9702
9703
9704
9705
9706
9707
9708 054074 004737 010332
9709 054100 103407
9710 054102 004737 020100
9714 054106 010001
9715 054110
054110 104456
054112 000522
054114 004754
054116 011666
9716 054120
054120 104406
9717
9718
9719
9720
9721
9722
9723
9724 054122 004737 010434
9725 054126 103411
9726 054130 016501 000000
9727 054134 010004
9728 054136 004737 020100
9732 054142
054142 104456
054144 000523
054146 057045
054150 011700
9733 054152
054152 104406
9734

```

```

          DEC      T27DLY          ;BUMP COUNTER
          BNE      10$             ;BR, IF COUNTER NOT DONE
          JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
          MOV      R0,R1           ;CONTENTS OF TSSR REGISTER
          ERRDF    ERRNO,SFIERR,SFIMSG ;FATAL ERROR TSSR WAS NOT OK
                                     TRAP    C$ERDF
                                     .WORD   337
                                     .WORD   SFIERR
                                     .WORD   SFIMSG
20$:
          MOV      #T27PACKET,R4   ;SUBROUTINE NEEDS PACKET ADDRESS
          *****
          :WRITE CHARACTERISTICS COMMAND (CALL TO WRTCHR)
          *****
          JSR      PC,WRTCHR        ;ISSUE WRITE CHARACTERISTICS
          BCS      23$             ;BR, IF COMMAND ISSUED OK
          JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
          MOV      R0,R1           ;SAVE CONTENTS OF TSSR
          ERRHRD   ERRNO,WRTMSG,SFIMSG ;WRITE CHARACTERISTIC FAILED
                                     TRAP    C$ERHRD
                                     .WORD   338
                                     .WORD   WRTMSG
                                     .WORD   SFIMSG
23$:  CKLOOP                      ;LOOP IF SELECTED
                                     TRAP    C$CLP1
          *****
          :ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
          *****
          JSR      PC,REWIND        ;CALL TAPE REWIND COMMAND
          BCS      30$             ;BR, IF NO PROBLEM
          MOV      TSSR(R5),R1     ;GET TSSR CONTENTS
          MOV      R0,R4           ;GET PACKET ADDRESS
          JSR      PC,FATCHK       ;INC AND CHECK FOR MORE THAN 25 ERRORS
          ERRHRD   ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
                                     TRAP    C$ERHRD
                                     .WORD   339
                                     .WORD   T27RWN
                                     .WORD   PKTSSR
30$:  CKLOOP                      ;LOOP IF SELECTED
                                     TRAP    C$CLP1

```

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9735
9736
9737
9738
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9740
9741 054154 013701 055536
9742 054160 010102
9743 054162 052702 000002
9744 054166 020102
9745 054170 001406
9746 054172 004737 020100
9750 054176
    054176 104456
    054200 000524
    054202 056541
    054204 016344
9751 054206
    054206 104406
9752 054210 012703 000144
9753 054214 013737 003072 055642
9754
9755
9756
9757
9758
9759
9760
9761 054222 012737 140005 055640
9762 054230 012704 055640
9763 054234 012737 000024 055646
9764 054242 010465 177776
9765 054246 004737 017120
9766 054252 016501 000000
9767 054256 012702 000200
9768 054262 020102
9769 054264 001406
9770 054266 004737 020100
9774
9775
9776
9777 054272
    054272 104457
    054274 000525
    054276 005011
    054300 011700
9778 054302
    054302 104406
9779 054304 005303
9780 054306 001345
9781
9782
9783
9784
9785
9786
9787

:*****
:READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
:*****

MOV T27BFR+6,R1 ;PICK UP XSTO
MOV R1,R2 ;SET UP EXPECTED
BIS #BIT1,R2 ;SET BOT BIT IN EXPECTED
CMP R1,R2 ;DOES EXP = REC'D
BEQ 40$ ;BR, IF EQUAL (OK)
JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
ERRHRD ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
TRAP CSERHRD
.WORD 340
.WORD T27BOT
.WORD EXPREC

40$: CKLOOP ;LOOP IF SELECTED
TRAP CSCLP1

MOV #100,R3 ;NUMBER OF RECORDS TO BE WRITTEN
MOV FREE,T27WB ;STARTING WRITE BUFFER ADDRESS

:*****
:WRITE DATA,ACK,CVC=1 COMMAND
:*****

65$: MOV #140005,T27PK3 ;WRITE DATA,ACK,CVC=1 COMMAND
MOV #T27PK3,R4 ;SET UP R4 WITH PACKET ADDRESS
MOV #20,T27SZ ;SET UP RECORD SIZE IN PACKET
MOV R4,T$DB(R5) ;ISSUE COMMAND
JSR PC,WAITF ;WAIT FOR SSR TO SET
MOV T$SR(R5),R1 ;GET T$SR CONTENTS
MOV #SSR,R2 ;SET UP EXPECTED
CMP R1,R2 ;ARE THEY EQUAL
BEQ 70$ ;BR, IF OK
JSR PC,FATCHK ;INC AND CHECK FOR MORE THAN 25 ERRORS
ERRSOFT ERRNO,WRTErr,PKTSSR ;SOFT ERROR GENERATED BECAUSE THE
;WRITE COMMAND IS NOT BEING CHECKED
;HERE. IT WAS CHECKED IN CZTUXA
;T$SR INCORRECT AFTER WRITE DATA
TRAP CSERSOFT
.WORD 341
.WORD WRTErr
.WORD PKTSSR

70$: CKLOOP ;LOOP IF SELECTED
TRAP CSCLP1

DEC R3 ;DEC RECORD COUNTER
BNE 65$ ;BR, IF MORE RECORDS TO WRITE

:*****
:ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
:*****

```

CZTUAYO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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9788 054310 004737 010434      JSR      PC,REWIND      ;CALL TAPE REWIND COMMAND
9789 054314 103411              BCS      130$           ;BR, IF NO PROBLEM
9790 054316 016501 000000      MOV      TSSR(R5),R1   ;GET TSSR CONTENTS
9791 054322 010004              MOV      R0,R4         ;GET PACKET ADDRESS
9792 054324 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9796 054330              ERRHRD   ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP      C$ERHRD
                                .WORD     342
                                .WORD     T27RWN
                                .WORD     PKTSSR
9797 054340 104406      130$:   CKLOOP              ;LOOP IF SELECTED
                                TRAP      C$CLP1
9798
9799
9800
9801
9802
9803
9804
9805 054342 013701 055536      MOV      T27BFR+6,R1   ;PICK UP XST0
9806 054346 010102              MOV      R1,R2         ;SET UP EXPECTED
9807 054350 052702 000002      BIS      #BIT1,R2     ;SET BOT BIT IN EXPECTED
9808 054354 020102              CMP      R1,R2         ;DOES EXP = REC'D
9809 054356 001406              BEQ      140$          ;BR, IF EQUAL (OK)
9810 054360 004737 020100      JSR      PC,FATCHK     ;INC AND CHECK FOR MORE THAN 25 ERRORS
9814 054364              ERRHRD   ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP      C$ERHRD
                                .WORD     343
                                .WORD     T27BOT
                                .WORD     EXPREC
9815 054374 104406      140$:   CKLOOP              ;LOOP IF SELECTED
                                TRAP      C$CLP1
9816 054376 012704 055640      MOV      #T27PK3,R4   ;SET UP PACKET ADDRESS
9817 054402 012737 000010 055642      MOV      #10,T27RB    ;SET UP RECORDS TO SPACE OVER
9818
9819
9820
9821
9822
9823
9824
9825 054410 012737 140010 055640      MOV      #140010,T27PK3 ;ACK,CVC=1,SPACE FORWARD COMMAND
9826 054416 010465 177776      150$:   MOV      R4,TSDB(R5) ;ISSUE COMMAND
9827 054422 005237 055666      152$:   INC      T27CNT   ;BUMP TIMER
9828 054426              DELAY    1             ;DELAY ABOUT 100US
                                MOV      #1,(PC)+
                                .WORD     0
                                MOV      L$DLY,(PC)+
                                .WORD     0
                                DEC      -6(PC)
                                BNE     -.4
                                DEC     -22(PC)
                                BNE     .-20
9829 054456 016501 000000      MOV      TSSR(R5),R1   ;GET TSSR
9830 054462 032701 000200      BIT      #BIT7,R1     ;CHECK FOR TSSR'S SSR SET
9831 054466 001755              BEQ      152$          ;KEEP COUNTING UNTIL SET
9832 054470 016501 000000      MOV      TSSR(R5),R1   ;GET STATUS FROM TSSR

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CZTUVAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9833 054474 012702 000200      MOV    #SSR,R2      ;SET UP EXPECTED
9834 054500 020201      CMP    R2,R1      ;WAS EVERYTHING OK
9835 054502 001406      BEQ    160$      ;BR, IF ALL IS WELL
9836 054504 004737 020100      JSR    PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
9840 054510 004737 020100      ERRHRD ERRNO,T27SCF,PKTSSR ;SPACE FORWARD DIDN'T WORK OUT
                                TRAP    CSERHRD
                                .WORD   344
                                .WORD   T27SCF
                                .WORD   PKTSSR
9841 054520 104406      160$: CKLOOP      ;LOOP IF SELECTED
                                TRAP    CSCLP1
9842
9843      ;*****
9844      ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9845      ;*****
9846
9847
9848
9849 054522 004737 010434      JSR    PC,REWIND  ;CALL TAPE REWIND COMMAND
9850 054526 004737 017234      JSR    PC,CHKTSSR ;SEE HOW TSSR IS
9851 054532 103407      BCS    170$      ;BR, IF NO PROBLEM
9852 054534 010001      MOV    R0,R1      ;SAVE TSSR
9853 054536 004737 020100      JSR    PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
9857 054542 004737 020100      ERRHRD ERRNO,T27RWN,PKTSSR ;REWIND NOT ACCEPTED
                                TRAP    CSERHRD
                                .WORD   345
                                .WORD   T27RWN
                                .WORD   PKTSSR
9858 054552 104406      170$: CKLOOP      ;LOOP IF SELECTED
                                TRAP    CSCLP1
9859
9860      ;*****
9861      ;READ MESSAGE BUFFER EXTENDED STATUS REGISTER ZERO (XSTO)
9862      ;*****
9863
9864
9865
9866 054554 013701 055536      MOV    T27BFR+6,R1 ;PICK UP XSTO
9867 054560 010102      MOV    R1,R2      ;SET UP EXPECTED
9868 054562 052702 000002      BIS    #BIT1,R2   ;SET BOT BIT IN EXPECTED
9869 054566 020102      CMP    R1,R2      ;DOES EXP = REC'D
9870 054570 001406      BEQ    175$      ;BR, IF EQUAL (OK)
9871 054572 004737 020100      JSR    PC,FATCHK  ;INC AND CHECK FOR MORE THAN 25 ERRORS
9875 054576 004737 020100      ERRHRD ERRNO,T27BOT,EXPREC ;TAPE NOT AT BOT AFTER REWIND
                                TRAP    CSERHRD
                                .WORD   346
                                .WORD   T27BOT
                                .WORD   EXPREC
9876 054606 104406      175$: CKLOOP      ;LOOP IF SELECTED
                                TRAP    CSCLP1
9877 054610 012703 000144      MOV    #100.,R3   ;STARTING RECORD SIZE
9878 054614 013737 003072 055642 177$: MOV    FREE,T27WB ;STARTING WRITE BUFFER ADDRESS
9879
9880      ;*****
9881      ;WRITE DATA,CVC=1,ACK COMMAND
9882
9883

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CZTUYAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9884 ;*****
9885
9886 054622 012737 140005 055640      MOV      #140005,T27PK3      ;WRITE DATA,CVC=1,ACK COMMAND
9887 054630 012704 055640              MOV      #T27PK3,R4        ;SET UP R4 WITH PACKET ADDRESS
9888 054634 012737 000024 055646      MOV      #20.,T27SZ        ;SET UP RECORD SIZE IN PACKET
9889 054642 010465 177776              MOV      R4,TSD8(R5)       ;ISSUE COMMAND
9890 054646 004737 017120              JSR      PC,WAIF           ;WAIT FOR SSR TO SET
9891 054652 016501 000003              MOV      TSSR(R5),R1      ;GET TSSR CONTENTS
9892 054656 012702 000200              MOV      #SSR,R2         ;SET UP EXPECTED
9893 054662 020102              CMP      R1,R2            ;ARE THEY EQUAL
9894 054664 001406              BEQ      180$             ;BR, IF OK
9895 054666 004737 020100              JSR      PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS
9899
9900
9901
9902 054672              ERRSOF  ERRNO,WRERR,PKTSSR ;SOFT ERROR GENERATED BECAUSE THE
                                ;WRITE COMMAND IS NOT BEING CHECKED
                                ;HERE. IT WAS CHECKED IN CZTUXA
                                ;TSSR INCORRECT AFTER WRITE DATA
                                TRAP      CSERSOFT
                                .WORD    347
                                .WORD    WRERR
                                .WORD    PKTSSR
054672 104457
054674 000533
054676 005011
054700 011700
9903 054702 180$: CKLOOP              ;LOOP IF SELECTED
                                TRAP      CSCLP1
054702 104406
9904 054704 005303              DEC      R3                ;COUNT NUMBER OF RECORDS
9905 054706 001342              BNE     177$              ;BR, IF MORE RECORDS TO WRITE
9906
9907 ;*****
9908 ;ISSUE REWIND COMMAND TO SELECTED TAPE DRIVE
9909 ;*****
9910
9911
9912
9913 054710 004737 010434              JSR      PC,REWIND        ;ISSUE REWIND
9914 054714 103411              BCS     182$              ;BR, IF ALL IS WELL
9915 054716 010004              MOV      R0,R4            ;GET PACKET ADDRESS
9916 054720 016501 000000              MOV      TSSR(R5),R1     ;GET TSSR CONTENTS
9917 054724 004737 020100              JSR      PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS
9921 054730              ERRHRD  ERRNO,T27RWN,PKTSSR ;REWIND FAILED
                                TRAP      CSERHRD
                                .WORD    348
                                .WORD    T27RWN
                                .WORD    PKTSSR
054730 104456
054732 000534
054734 057045
054736 011700
9922 054740 182$: CKLOOP              ;SELECT LOOP MAYBE
                                TRAP      CSCLP1
054740 104406
9923
9924 ;*****
9925 ;ISSUE SPACE RECORDS COMMAND - VALUE IN R3 SETS NUMBER OF RECORDS
9926 ;BIT 15 SETS DIRECTION - 0=FORWARD 1=REVERSE
9927 ;*****
9928
9929
9930
9931 054742 012703 000001              MOV      #1.,R3          ;SPACE 1 RECORD FORWARD
9932 054746 004737 010140              JSR      PC,SPACE        ;ISSUE SPACE COMMAND
9933 054752 103411              BCS     185$              ;BR, IF COMMAND OK
9934 054754 010004              MOV      R0,R4            ;GET PACKET ADDRESS
9935 054756 016501 000000              MOV      TSSR(R5),R1     ;GET TSSR STATUS
9936 054762 004737 020100              JSR      PC,FATCHK        ;INC AND CHECK FOR MORE THAN 25 ERRORS

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CZTUYAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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```

9940 054766          ERRHRD  ERRNO,T27SCF,PKTSSR      ;SPACE FORWARD COMMAND FAILED
      054766 104456          TRAP                      CSERHRD
      054770 000535          .WORD                    349
      054772 060307          .WORD                    T27SCF
      054774 011700          .WORD                    PKTSSR
9941 054776          185$:  CKLOOP                      ;LOOP IF SELECTED          TRAP  CSCLP1
      054776 104406          MOV      #100.,R3      ;NUMBER OF RECORDS TO BE WRITTEN
9942 055000 012703 000144  MOV      FREE,T27WB  ;STARTING WRITE BUFFER ADDRESS
9943 055004 013737 003072 055642
9944
9945      ;*****
9946      ;WRITE DATA RETRY,ACK COMMAND
9947      ;*****
9948
9949
9950
9951 055012 012737 101005 055640 190$:  MOV      #101005,T27PK3  ;WRITE DATA RETRY,ACK COMMAND
9952 055020 012704 055640          MOV      #T27PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
9953 055024 012737 000024 055646  MOV      #20.,T27SZ   ;SET UP RECORD SIZE IN PACKET
9954 055032 010465 177776          MOV      R4,T$DB(R5)  ;ISSUE COMMAND
9955 055036 004737 017120          JSR      PC,WAITF     ;WAIT FOR SSR TO SET
9956 055042 016501 000000          MOV      TSSR(R5),R1  ;GET TSSR CONTENTS
9957 055046 012702 000200          MOV      #SSR,R2     ;SET UP EXPECTED
9958 055052 020102          CMP      R1,R2       ;ARE THEY EQUAL
9959 055054 001406          BEQ     200$        ;BR, IF OK
9960 055056 004737 020100          JSR      PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
9964 055062          ERRHRD  ERRNO,T27WDC,PKTSSR  ;TSSR INCORRECT AFTER WRITE DATA
      055062 104456          TRAP                      CSERHRD
      055064 000536          .WORD                    350
      055066 057401          .WORD                    T27WDC
      055070 011700          .WORD                    PKTSSR
9965 055072          200$:  CKLOOP                      ;LOOP IF SELECTED          TRAP  CSCLP1
      055072 104406          MOV      FREE,T27WB  ;STARTING WRITE BUFFER ADDRESS
9966 055074 013737 003072 055642
9967
9968      ;*****
9969      ;WRITE DATA,CVC=1,ACK COMMAND
9970      ;*****
9971
9972
9973
9974 055102 012737 140005 055640          MOV      #140005,T27PK3  ;WRITE DATA,CVC=1,ACK COMMAND
9975 055110 012704 055640          MOV      #T27PK3,R4    ;SET UP R4 WITH PACKET ADDRESS
9976 055114 012737 000024 055646  MOV      #20.,T27SZ   ;SET UP RECORD SIZE IN PACKET
9977 055122 010465 177776          MOV      R4,T$DB(R5)  ;ISSUE COMMAND
9978 055126 004737 017120          JSR      PC,WAITF     ;WAIT FOR SSR TO SET
9979 055132 016501 000000          MOV      TSSR(R5),R1  ;GET TSSR CONTENTS
9980 055136 012702 000200          MOV      #SSR,R2     ;SET UP EXPECTED
9981 055142 020102          CMP      R1,R2       ;ARE THEY EQUAL
9982 055144 001406          BEQ     210$        ;BR, IF OK
9983 055146 004737 020100          JSR      PC,FATCHK   ;INC AND CHECK FOR MORE THAN 25 ERRORS
9987          ;SOFT ERROR GENERATED BECAUSE THE
9988          ;WRITE COMMAND IS NOT BEING CHECKED
9989          ;HERE. IT WAS CHECKED IN CZTUXA
9990 055152          ERRSFT  ERRNO,WRTErr,PKTSSR  ;TSSR INCORRECT AFTER WRITE DATA
      055152 104457          TRAP                      CSERSOFT
      055154 000537          .WORD                    351

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CZTUVAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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10083
10084
10085
10087 055502
10089 055510
10090 055510 100004
10091 055512 055520
10092 055514 000000
10093 055516 000012
10094 055520
10095 055520 055530
10096 055522 000000
10097 055524 000024
10098 055526 000000
10099 055530
10100
10101
10102
10104 055612
10106 055620
10107 055620 100006
10108 055622 055650
10109 055624 000000
10110 055626 000006
10111
10113 055630
10115 055640
10116 055640 100005
10117 055642
10118 055642 003072
10119 055644 000000
10120 055646 000000
10121
10122
10123
10124
10125 055650
10126 055650 010
10127 055651 200
10128 055652 000000
10129 055654 000000
10130
10131
10132
10133
10134
10135 055656 100205
10136 055660 100605
10137 055662 102205
10138 055664 177777
10139
10140
10141 055666 000000
10142 055670 000000
10143 055672 000000
10144

;+
;LOCAL STORAGE FOR THIS TEST
;-
      .BLKB 10-<.-TUV2A&7>
T27PACKET:
      .WORD 100004
      .WORD T27DATA
      .WORD 0
      .WORD 10.
T27DATA:
      .WORD T27BFR
      .WORD 0
      .WORD 20.
      .WORD 0
T27BFR: .BLKW 25.

;COMMAND PACKET FOR TEST
;WRITE CHARACTERISTICS COMMAND, WITH , ACK
;ADDRESS OF CHARACTERISTICS BLOCK

;STARTING VALUE OF BLOCK SIZE
;CHARACTERISTICS DATA BLOCK
;ADDRESS OF MESSAGE BUFFER

;LENGTH OF MESSAGE BUFFER

;MESSAGE BUFFER

;WRITE SUBSYSTEM MEMORY COMMAND PACKET
      .BLKB 10-<.-TUV2A&7>
T27PK2:
      .WORD 100006
      .WORD T27BF2
      .WORD 0
      .WORD 6.
      .BLKB 10-<.-TUV2A&7>
T27PK3:
      .WORD 100005
T27RB:
T27WB: .WORD FREE
      .WORD 0
T27SZ: .WORD 0
      .EVEN

;WRITE SUB SYS MEM COMMAND, AND ACK
;ADDRESS OF SELECT BLOCK DATA

;SIZE OF DATA PACKET

;REREAD COMMAND, AND ACK

;ADDRESS OF WRITE BUFFER

;SIZE OF BUFFER (EXTENT)

      .EVEN
T27BF2:
T27BS0: .BYTE 10
T27BS1: .BYTE 200
T27S2: .WORD 0
T27S3: .WORD 0

;BSEL0 AREA
;BSEL1 AREA
;SEL 2 AREA
;DATA AREA

      .EVEN
;TAPE MOTION PACKET COMMAND VALUES
T27RN: .WORD 100205
T27WDR: .WORD 100605
T27CON: .WORD 102205
      .WORD 177777

;REREAD DATA (NEXT)
;REREAD DATA RETRY
;WRITE CONTINUOUS
;END OF DATA

      .
T27CNT: .WORD 0
T27CNU: .WORD 0
T27DLY: .WORD 0

;TAPE TIMER COUNTER STORAGE AREA
;TAPE TIMER COUNTER STORAGE AREA
;DELAY COUNTER

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CZTUYAO TU80 FRONT END PRT C
TEST 3: WRITE DATA RETRY

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10146
10147
10148
10149
10150
10151
10152 055674      124      141      160  T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPF=1)'
10153 055762      124      123      123  T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
10154 056031      122      105      122  T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
10155 056126      120      117      123  T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
10156 056210      122      111      102  T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
10157 056260      124      123      123  T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
10158 056335      111      154      154  T27LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
10159 056416      122      105      122  T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
10160 056452      124      123      123  T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command, At BOT'
10161 056541      124      141      160  T27BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
10162 056634      127      122      111  T27TIM: .ASCIZ  'WRITE DATA RETRY'S Erase Tape Not Long Enough'
10163 056711      122      105      122  T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
10164 056770      124      123      123  T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
10165 057045      122      145      167  T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
10166 057114      122      101      115  T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
10167 057167      124      123      123  T27AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
10168 057236      104      162      151  T27OFL: .ASCIZ  'Drive 7 Select Failed To Set 'OFL' In TSSR'
10169 057311      124      123      123  T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
10170 057401      124      123      123  T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
10171 057454      103      126      103  T27VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
10172 057527      124      123      102  T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
10173 057602      127      122      111  T27WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
10174 057671      122      145      141  T27LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
10175 057753      122      145      141  T27LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
10176 060035      122      145      163  T27PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
10177 060123      122      145      141  T27TRL: .ASCIZ  'Reading Long Record Failed To Give Tape Status Alert'
10178 060211      127      122      111  T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
10179 060307      124      123      123  T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
10180 060364      124      123      123  T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
10181 060446      124      123      123  T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
10182 060526      104      141      164  T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
10183 060623      127      162      151  T27ID:  .ASCIZ  'Write Data Retry'
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10192 060644
10193 060644
10194 060650      012701  055510
10195 060654      012721  100004
10196 060660      012721  055520
10197 060664      005021
10198 060666      012721  000012
10199 060672      012721  055530
10200 060676      005021
10201 060700      012721  000024
10202 060704      005021

          ;+
          ;LOCAL TEXT MESSAGES FOR TEST
          ;-

          T27WNG: .ASCIZ  'Tape Position Incorrect After REREAD Previous (OPF=1)'
          T27RDF: .ASCIZ  'TSSR Incorrect After READ DATA Command'
          T27RRF: .ASCIZ  'REREAD Previous (Space Reverse, Read Forward) Command Failed'
          T27SC:  .ASCIZ  'POSITION (Space Command) Failed, TSSR Not Correct'
          T27LOR: .ASCIZ  'RIB NOT SET AFTER READ REVERSE INTO BOT'
          T27WDF: .ASCIZ  'TSSR Not Correct After Illegal Mode Bits Set'
          T27LOQ: .ASCIZ  'Illegal Mode Bits, Failed To Set ILC Bit In XST0'
          T27SSR: .ASCIZ  'REREAD COMMAND Not Accepted'
          T27WDE: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command, At BOT'
          T27BOT: .ASCIZ  'Tape Not At BOT After REWIND Command (BOT Not Set In XST0)'
          T27TIM: .ASCIZ  'WRITE DATA RETRY'S Erase Tape Not Long Enough'
          T27EOT: .ASCIZ  'REREAD DATA OVER EOT GAVE NO TAPE STATUS ALERT'
          T27TM:  .ASCIZ  'TSSR Not Correct After REREAD COMMAND Reject'
          T27RWN: .ASCIZ  'Rewind (POSITION) Command Not Accepted'
          T27RNC: .ASCIZ  'RAM Error, Correct Data Pattern Not In Ram'
          T27AM3: .ASCIZ  'TSSR Init. Failed After REREAD COMMAND'
          T27OFL: .ASCIZ  'Drive 7 Select Failed To Set 'OFL' In TSSR'
          T27WDD: .ASCIZ  'TSSR Not Correct After REREAD DATA Command, SWB Bit Set'
          T27WDC: .ASCIZ  'TSSR Not Correct After REREAD DATA Command'
          T27VCK: .ASCIZ  'CVC Set, Didn't Reset VCK In Message Buffer'
          T27BA:  .ASCIZ  'TSBA Not Correct After REREAD DATA Command'
          T27WSS: .ASCIZ  'WRITE SUBSYSTEM MEMORY Command Not Accepted (RAM Read)'
          T27LON: .ASCIZ  'Reading Long Record Failed To Set RLL Bit In XST0'
          T27LOP: .ASCIZ  'Reading Long Record Failed To Set RLS Bit In XST0'
          T27PBP: .ASCIZ  'Residual Byte Count Incorrect After Short Record Read'
          T27TRL: .ASCIZ  'Reading Long Record Failed To Give Tape Status Alert'
          T27NEF: .ASCIZ  'WRITE DATA RETRY, At First Record, Failed To Set RIB Bit XST3'
          T27SCF: .ASCIZ  'TSSR Not Correct After SPACE RECORDS Command'
          T27TSA: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY, Into BOT'
          T27WRF: .ASCIZ  'TSSR Not Correct After WRITE DATA RETRY Command'
          T27DTA: .ASCIZ  'Data Compare Error, Data Read From Tape Not Equal To Written'
          T27ID:  .ASCIZ  'Write Data Retry'

          .EVEN

          ;+
          ;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
          ;WRITE SUBSYSTEM MEMORY COMMAND
          ;-

          T27REST:
          SAVREG
          MOV     #T27PACKET,R1
          MOV     #100004,(R1)+
          MOV     #T27DATA,(R1)+
          CLR     (R1)+
          MOV     #10.,(R1)+
          MOV     #T27BFR,(R1)+
          CLR     (R1)+
          MOV     #20.,(R1)+
          CLR     (R1)+

          ;SAVE THE REGISTERS
          ;START OF THE PACKET
          ;WRITE SUBSYSTEM MEM. WITH ACK,
          ;ADDRESS OF CHARAISTICS DATA BLOCK
          ;EXTENDED ADDRESS
          ;SIZE OF DATA BLOCK IN BYTES
          ;ADDRESS OF MESSAGE BUFFER
          ;LENGTH OF MESSAGE BUFFER

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CZTUYAO TUBO FRONT END PRT C
TEST 3: WRITE DATA RETRY

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10203	060706	012711	000000		MOV	#0,(R1)		:SELECT DRIVE ZERO
10204	060712	012702	000030		MOV	#24,R2		:NUMBER OF LOCATIONS TO BE CLEARED
10205	060716	012762	177777	055530 64\$:	MOV	#177777,T27BFR(R2)		:ALL ONES TO MESSAGE BUFFER
10206	060724	005742			TST	-(R2)		:NEXT LOCATION
10207	060726	022702	000000		CMP	#0,R2		:AT END OF LOOP YET
10208	060732	001371			BNE	64\$:KEEP GOING UNTIL DONE
10209	060734	000207			RTS	PC		:RETURN
10210								
10211								
10212	060736				T27RT2:			
10213	060736				SAVREG			:SAVE THE REGISTERS
10214	060742	012701	055620		MOV	#T27PK2,R1		:START OF THE PACKET
10215	060746	012721	100006		MOV	#100006,(R1)+		:WRITE SUBSYSTEM MEM. WITH ACK,
10216	060752	012721	055650		MOV	#T27BF2,(R1)+		:ADDRESS OF DATA BLOCK
10217	060756	005021			CLR	(R1)+		:EXTENDED ADDRESS
10218	060760	012721	000006		MOV	#6,(R1)+		:SIZE OF DATA BLOCK IN BYTES
10219	060764	005021			CLR	(R1)+		
10220	060766	012701	055650		MOV	#T27BF2,R1		:POINT TO DATA SEL AREA
10221	060772	005021			CLR	(R1)+		
10222	060774	005011			CLR	(R1)		
10223	060776	000207			RTS	PC		:RETURN
10224	061000				T27RT3:			
10225	061000				SAVREG			:SAVE REGISTERS
10226	061004	012701	055640		MOV	#T27PK3,R1		:SET UP POINTER ADDRESS
10227	061010	005021			CLR	(R1)+		:COMMAND SPACE
10228	061012	005021			CLR	(R1)+		:ADDRESS OF DATA BLOCK
10229	061014	005021			CLR	(R1)+		:EXTENDED ADDRESS
10230	061016	005011			CLR	(R1)		:SIZE OF DATA TRANSFER BLOCK
10231	061020	000207			RTS	PC		:RETURN
10232	061022				ENDTST			
	061022							
	061022	104401						

L10066: TRAP CSETST

CZTUYAO TUBO FRONT END PRT C
TEST 4: WRITE/READ TAPE MARK

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.SBTTL TEST 4: WRITE/READ TAPE MARK

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: +
: THIS TEST VERIFIES THAT THE WRITE TAPE MARK COMMAND OPERATES
: PROPERLY. IT IS VERIFIED THAT THE TAPE MARK IS WRITTEN ONTO TAPE
: BY CHECKING THAT THE READ AND SPACE RECORDS COMMANDS DETECT THE
: TAPE MARK. IN ADDITION, SINCE WRITE TAPE MARK IS THE FIRST
: SUBCOMMAND UNDER THE FORMAT COMMAND BEING TESTED, IT IS VERIFIED
: THAT THE CLEAR VOLUME CHECK (CVC) BIT OPERATES PROPERLY AND THAT
: FORMAT COMMANDS WITH ILLEGAL MODE CODES ARE REJECTED.

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: THE TEST CONSISTS OF THE FOLLOWING 3 SUBTESTS
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10251 061024          BGNTST
      061024
10252 061024 005037 002170          CLR  FATFLG          T4::
      061024 005037 003100          CLR  KTFLG          ;CLEAR FATAL ERROR FLAG
10253 061030 005037 003100          CLR  KTFLG          ;HOLD OFF KT11
10254 061034 012737 005764 002146  MOV  #EPRT2,EPRTSW ;SECONDARY ERROR MESSAGE
10255 061042 005037 003102          CLR  KTENABLE       ;TURN KT11 OFF
10256 061046 004737 020244          JSR  PC,KTOFF        ;TURN KT11 BACK OFF IF THERE
10261 061052 012700 065241          MOV  #TST28ID,R0    ;ASCII MESSAGE TO IDENTIFY TEST
10262 061056 004737 017406          JSR  PC,TSTSETUP    ;DO INITIAL TEST SETUP
10263 061062 012737 000001 002164  MOV  #1,LOOPCNT     ;PERFORM 1 ITERATIONS
10264 061070
      T28LOOP:

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CZTUYAO TUBO FRONT END PRT C
TEST 4: WRITE/READ TAPE MARK

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: *
: TEST 4, SUBTEST 1
: VERIFIES THAT WRITE TAPE MARK COMMANDS OPERATE
: PROPERLY, AND THAT READ COMMANDS SUBSEQUENTLY ISSUED
: TO DETECT THE WRITTEN TAPE MARKS TERMINATE WITH TAPE
: STATUS ALERT WITH THE TAPE MARK DETECTED (TMK) STATUS
: BIT SET. THE FOLLOWING SEQUENCE IS EXECUTED.
:
: 1. THE CONTROLLER IS INITIALIZED AND TAPE REWOUND.
: THIS SETS THE VOLUME CHECK (VCK) STATUS BIT.
:
: 2. A WRITE TAPE MARK COMMAND WITH CVC=1 IS ISSUED
: AND PROPER TERMINATION AND STATUS IS VERIFIED
: (I.E. VCK=0 AND TMK=1).
:
: 3. SEVERAL MORE WRITE TAPE MARK COMMANDS, THESE WITH
: CVC=0 ARE ISSUED AND PROPER TERMINATION (NORMAL)
: AND STATUS (TMK) VERIFIED.
:
: 4. A READ REVERSE COMMAND IS ISSUED AND PROPER
: TERMINATION (TAPE STATUS ALERT) AND STATUS (TMK)
: VERIFIED. IT IS ALSO VERIFIED THAT NO DATA IS
: TRANSFERRED INTO MEMORY.
:
: 5. A SPACE RECORDS REVERSE COMMAND IS ISSUED AND
: PROPER TERMINATION (TAPE STATUS ALERT) AND STATUS
: (TMK) VERIFIED.
:
: 6. THE TAPE IS REWOUND AND A READ FORWARD COMMAND IS
: ISSUED AND PROPER TERMINATION (TAPE STATUS ALERT)
: AND STATUS (TMK) VERIFIED. IT IS ALSO VERIFIED
: THAT NO DATA IS TRANSFERRED INTO MEMORY.
:
: 7. A SPACE RECORDS REVERSE COMMAND THAT CONTAINS A
: RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
: VERIFIED THAT TAPE STATUS ALERT TERMINATION
: OCCURED, TMK=1 AND THAT RBPCR (RESIDUAL
: BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
: VALUE. THIS OPERATION VERIFIES THAT DETECTION OF
: THE TAPE MARK CAUSES THE SPACE RECORDS OPERATION
: TO BE PREMATURELY TERMINATED. THIS SHOULD LEAVE
: THE POSITION JUST BEFORE THE FIRST RECORD ON
: TAPE.
:
: 8. TAPE POSITION IS VERIFIED BY ISSUING ANOTHER
: SPACE RECORDS REVERSE COMMAND AND VERIFYING THAT
: TAPE STATUS ALERT TERMINATION OCCURS, WITH THE
: REVERSE INTO BOT (RIB) STATUS ERROR BIT SET.
:
: 9. A SPACE RECORDS FORWARD COMMAND THAT CONTAINS A
: RECORD COUNT GREATER THAN 1 IS ISSUED AND IT IS
: VERIFIED THAT TAPE STATUS ALERT TERMINATION
: OCCURED, TMK=1, AND THAT RBPCR (RESIDUAL
: BYTE/RECORD COUNTER) CONTAINS THE PROPER NONZERO
: VALUE. THIS OPERATION VERIFIES THAT DETECTION OF

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CZTUVAO TU80 FRONT END PRT C
TEST 4: WRITE/READ TAPE MARK

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10368	061254	064321									.WORD	T28RWN
	061256	011700									.WORD	PKTSSR
	061260	104406			30\$:	CKLOOP			:LOOP IF SELECTED		TRAP	C\$CLP1
10369	061262	013701	063226			MOV	T28BFR+6,R1		:PICK UP XSTO			
10370	061266	010102				MOV	R1,R2		:SET UP EXPECTED			
10371	061270	052702	000002			BIS	#BIT1,R2		:SET BOT BIT IN EXPECTED			
10372	061274	020102				CMP	R1,R2		:DOES EXP = REC'D			
10373	061276	001406				BEQ	40\$:BR, IF EQUAL (OK)			
10374	061300	004737	020100			JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS			
10378	061304					ERRHRD	ERRNO,T28BOT,EXPREC		:TAPE NOT AT BOT AFTER REWIND			
	061304	104456									TRAP	C\$SERHRD
	061306	000624									.WORD	404
	061310	064177									.WORD	T28BOT
	061312	016344									.WORD	EXPREC
10379	061314				40\$:	CKLOOP			:LOOP IF SELECTED		TRAP	C\$CLP1
	061314	104406										
10380	061316	012704	063200			MOV	#T28PACKET,R4		:SUBROUTINE NEEDS PACKET ADDRESS			
10381	061322	004737	010332			JSR	PC,WRTCHR		:ISSUE WRITE CHARACTERISTICS			
10382	061326	103407				BCS	68\$:BR, IF COMMAND ISSUED OK			
10383	061330	004737	020100			JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS			
10387	061334	010001				MOV	R0,R1		:SAVE CONTENTS OF TSSR			
10388	061336					ERRHRD	ERRNO,WRTMSG,SFMSG		:WRITE CHARACTERISTICSC FAILED			
	061336	104456									TRAP	C\$SERHRD
	061340	000625									.WORD	405
	061342	004754									.WORD	WRTMSG
	061344	011666									.WORD	SFMSG
10389	061346				68\$:	CKLOOP			:LOOP IF SELECTED		TRAP	C\$CLP1
	061346	104406										
10390	061350	012737	140011	063330		MOV	#140011,T28PK3		:WRITE TAPE MARK,ACK,CVC=1 COMMAND			
10391	061356	012704	063330			MOV	#T28PK3,R4		:SET UP R4 WITH PACKET ADDRESS			
10392	061362	010465	177776			MOV	R4,TSDB(R5)		:ISSUE COMMAND			
10393	061366	004737	017120			JSR	PC,WAITF		:WAIT FOR SSR TO SET			
10394	061372	016501	000000			MOV	TSSR(R5),R1		:GET TSSR CONTENTS			
10395	061376	012702	000200			MOV	#SSR,R2		:SET UP EXPECTED			
10396	061402	020102				CMP	R1,R2		:ARE THEY EQUAL			
10397	061404	001406				BEQ	70\$:BR, IF OK			
10398	061406	004737	020100			JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS			
10402	061412					ERRHRD	ERRNO,T28WDC,PKTSSR		:TSSR INCORRECT AFTER WRITE TAPE MARK			
	061412	104456									TRAP	C\$SERHRD
	061414	000626									.WORD	406
	061416	064443									.WORD	T28WDC
	061420	011700									.WORD	PKTSSR
10403	061422				70\$:	CKLOOP			:LOOP IF SELECTED		TRAP	C\$CLP1
	061422	104406										
10404	061424	013701	063226			MOV	T28BFR+6,R1		:PICK UP XSTO (VCK CHECK)			
10405	061430	010102				MOV	R1,R2		:SET UP EXPECTED			
10406	061432	042702	000020			BIC	#BIT4,R2		:VCK SHOULD BE 0			
10407	061436	020102				CMP	R1,R2		:IS VCK SET CORRECTLY			
10408	061440	001406				BEQ	80\$:BR, IF VCK IS CLEAR			
10409	061442	004737	020100			JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS			
10413	061446					ERRHRD	ERRNO,T28VCK,EXPREC		:VCK WAS NOT CLEAR AFTER CVC=1			
	061446	104456									TRAP	C\$SERHRD
	061450	000627									.WORD	407
	061452	064522									.WORD	T28VCK
	061454	016344									.WORD	EXPREC
10414	061456				80\$:	CKLOOP			:LOOP IF SELECTED			

CZTUYAO TUBO FRONT END PRT C
TEST 4: WRITE/READ TAPE MARK

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10415	061456	104406			MOV	T28BFR+6,R1	:PICK UP XSTO (CHECK TMK)	TRAP	C\$CLP1
10416	061460	013701	063226		MOV	R1,R2	:SET UP EXPECTED		
10417	061464	010102			BIS	#BIT15,R2	:TMK SHOULD BE SET		
10418	061466	052702	100000		CMP	R1,R2	:WAS TMK SET		
10419	061472	020102			BEQ	90\$:BR, IF TMK WAS SET		
10420	061474	001406			JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10424	061476	004737	020100		ERRHRD	ERRNO,T28TMK,EXPREC	:TMK WAS NOT SET AFTER WRT TAPE MARK		
	061502	104456						TRAP	C\$ERHRD
	061504	000630						.WORD	408
	061506	064575						.WORD	T28TMK
	061510	016344						.WORD	EXPREC
10425	061512			90\$:	CKLOOP		:LOOP IF SELECTED		
	061512	104406						TRAP	C\$CLP1
10426	061514	004737	010434		JSR	PC,REWIND	:CALL TAPE REWIND COMMAND		
10427	061520	103411			BCS	130\$:BR, IF NO PROBLEM		
10428	061522	010004			MOV	R0,R4	:SAVE PACKET ADDRESS		
10429	061524	016501	000000		MOV	TSSR(R5),R1	:GET TSSR STATUS		
10430	061524	016501	000000		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10434	061530	004737	020100		ERRHRD	ERRNO,T28RWN,PKTSSR	:REWIND NOT ACCEPTED		
	061534	104456						TRAP	C\$ERHRD
	061536	000631						.WORD	409
	061540	064321						.WORD	T28RWN
	061542	011700						.WORD	PKTSSR
10435	061544			130\$:	CKLOOP		:LOOP IF SELECTED		
	061544	104406						TRAP	C\$CLP1
10436	061546	013701	063226		MOV	T28BFR+6,R1	:PICK UP XSTO		
10437	061552	010102			MOV	R1,R2	:SET UP EXPECTED		
10438	061554	052702	000002		BIS	#BIT1,R2	:SET BOT BIT IN EXPECTED		
10439	061560	020102			CMP	R1,R2	:DOES EXP = REC'D		
10440	061562	001406			BEQ	140\$:BR, IF EQUAL (OK)		
10441	061564	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10445	061570				ERRHRD	ERRNO,T28BOT,EXPREC	:TAPE NOT AT BOT AFTER REWIND		
	061570	104456						TRAP	C\$ERHRD
	061572	000632						.WORD	410
	061574	064177						.WORD	T28BOT
	061576	016344						.WORD	EXPREC
10446	061600			140\$:	CKLOOP		:LOOP IF SELECTED		
	061600	104406						TRAP	C\$CLP1
10447	061602	012703	000012		MOV	#10,R3	:NUMBER OF RECORDS TO WRITE TM		
10448	061606	012737	140011	063330	MOV	#140011,T28PK3	:WRITE TAPE MARK,ACK,CVC=1 COMMAND		
10449	061614	012704	063330		MOV	#T28PK3,R4	:SET UP R4 WITH PACKET ADDRESS		
10450	061620	010465	177776		MOV	R4,TSD(BR5)	:ISSUE COMMAND		
10451	061624	004737	017120		JSR	PC,WAITF	:WAIT FOR SSR TO SET		
10452	061630	016501	000000		MOV	TSSR(R5),R1	:PICK UP TSSR		
10453	061634	012702	000200		MOV	#SSR,R2	:SET UP EXPECTED (SSR ONLY)		
10454	061640	020102			CMP	R1,R2	:WAS STATUS GOOD		
10455	061642	001406			BEQ	165\$:BR, IF TERMINATION WAS GOOD		
10456	061644	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10460	061650				ERRHRD	ERRNO,T28WDC,PKTSSR	:TSSR NOT CORRECT AFTER WRT TAPE M.		
	061650	104456						TRAP	C\$ERHRD
	061652	000633						.WORD	411
	061654	064443						.WORD	T28WDC
	061656	011700						.WORD	PKTSSR
10461	061660			165\$:	CKLOOP		:LOOP IF SELECTED		
	061660	104406						TRAP	C\$CLP1
10462	061662	013701	063226		MOV	T28BFR+6,R1	:PICK UP XSTO		

CZTUYAO TUBO FRONT END PRT C
TEST 4: WRITE/READ TAPE MARK

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10463	061666	010102		MOV	R1,R2		:SET UP EXPECTED
10464	061670	052702	100000	BIS	#BIT15,R2		:SET TMK BIT IN EXPECTED
10465	061674	020102		CMP	R1,R2		:DOES EXP = REC'D
10466	061676	001406		BEQ	180\$:BR, IF EQUAL (OK)
10467	061700	004737	020100	JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS
10471	061704			ERRHRD	ERRNO,T28TMK,EXPREC		:TMK NOT SET AFTER WRT TAPE MARK
	061704	104456					TRAP CSERHRD
	061706	000634					.WORD 412
	061710	064575					.WORD T28TMK
	061712	016344					.WORD EXPREC
10472	061714			180\$:	CKLOOP		:LOOP IF SELECTED
	061714	104406					TRAP CSCLP1
10473	061716	005303		DEC	R3		:BUMP COUNTER DOWN
10474	061720	001337		BNE	155\$:BR, IF LESS THAN 10 TAPE MARKS
10475	061722	012700	177777	MOV	#177777,R0		:VALUE TO WRITTEN TO MEMORY
10476	061726	004737	020372	JSR	PC,FILLMEM		:FILL MEM WITH ALL ONES
10477	061732	013737	003072	MOV	FREE,T28WB	063332	:STARTING READ BUFFER ADDRESS
10478	061740	012737	140401	MOV	#140401,T28PK3	063330	:READ REVERSE,ACK, COMMAND
10479	061746	012704	063330	MOV	#T28PK3,R4		:SET UP R4 WITH PACKET ADDRESS
10480	061752	013737	000024	MOV	20,T28SZ	063336	:SET UP RECORD SIZE IN PACKET
10481	061760	010465	177776	MOV	R4,T28SZ		:ISSUE COMMAND
10482	061764	004737	017120	JSR	PC,WAITF		:WAIT FOR SSR TO SET
10483	061770	016501	000000	MOV	TSSR(R5),R1		:GET TSSR CONTENTS
10484	061774	012702	100204	MOV	#SSR!SC!BIT2,R2		:SET UP EXPECTED
10485	062000	020102		CMP	R1,R2		:ARE THEY EQUAL
10486	062002	001406		BEQ	200\$:BR, IF OK
10487	062004	004737	020100	JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS
10491	062010			ERRHRD	ERRNO,T28RDF,PKTSSR		:TSSR INCORRECT AFTER WRITE DATA
	062010	104456					TRAP CSERHRD
	062012	000635					.WORD 413
	062014	063534					.WORD T28RDF
	062016	011700					.WORD PKTSSR
10492	062020			200\$:	CKLOOP		:LOOP IF SELECTED
	062020	104406					TRAP CSCLP1
10493	062022	013701	063226	MOV	T28BFR+6,R1		:PICK UP XSTO
10494	062026	010102		MOV	R1,R2		:SET UP EXPECTED
10495	062030	052702	100000	BIS	#BIT15,R2		:TMK SHOULD BE SET
10496	062034	020102		CMP	R1,R2		:IS TMK SET
10497	062036	001406		BEQ	210\$:BR, IF TMK WAS SET (GOOD)
10498	062040	004737	020100	JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS
10502	062044			ERRHRD	ERRNO,T28RRM,EXPREC		:TMK NOT SET AFTER READ REV
	062044	104456					TRAP CSERHRD
	062046	000636					.WORD 414
	062050	064647					.WORD T28RRM
	062052	016344					.WORD EXPREC
10503	062054			210\$:	CKLOOP		:LOOP IF SELECTED
	062054	104406					TRAP CSCLP1
10504	062056	017701	121010	MOV	@FREE,R1		:FIRST LOC IN READ BUFFER
10505	062062	012702	177777	MOV	#177777,R2		:EXPECTED IF NO DATA TRANS.
10506	062066	020102		CMP	R1,R2		:DID ANY DATA GET TRANSFERRED
10507	062070	001406		BEQ	220\$:BR, IF NO DATA TRANS (GOOD)
10508	062072	004737	020100	JSR	PC,FATCHK		:INC AND CHECK FOR MORE THAN 25 ERRORS
10512	062076			ERRHRD	ERRNO,T28DTR,EXPREC		:DATA TRANSFERRED ON READ TAPE MARK
	062076	104456					TRAP CSERHRD
	062100	000637					.WORD 415
	062102	065062					.WORD T28DTR
	062104	016344					.WORD EXPREC

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TEST 4: WRITE/READ TAPE MARK

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10513	062106			220\$:	CKLOOP		:LOOP IF SELECTED		
	062106	104406						TRAP	C\$CLP1
10514	062110	012737	100410	063330	MOV	#100410,T28PK3	:SPACE REVERSE,ACK, COMMAND		
10515	062116	012737	000001	063332	MOV	#1,T28RB	:NUMBER OF RECORDS TO SPACE BACK		
10516	062124	012704	063330		MOV	#T28PK3,R4	:SET UP R4 WITH PACKET ADDRESS		
10517	062130	010465	177776		MOV	R4,TSDB(R5)	:ISSUE COMMAND		
10518	062134	004737	017120		JSR	PC,WAITF	:WAIT FOR SSR TO SET		
10519	062140	016501	000000		MOV	TSSR(R5),R1	:GET TSSR CONTENTS		
10520	062144	012702	100204		MOV	#SSR!SC!BIT2,R2	:SET UP EXPECTED		
10521	062150	020102			CMP	R1,R2	:ARE THEY EQUAL		
10522	062152	001406			BEQ	222\$:BR, IF OK		
10523	062154	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10527	062160				ERRHRD	ERRNO,T28RDG,PKTSSR	:TSSR INCORRECT AFTER SPACE CMD.		
	062160	104456						TRAP	C\$SERHRD
	062162	000640						.WORD	416
	062164	063615						.WORD	T28RDG
	062166	011700						.WORD	PKTSSR
10528	062170			222\$:	CKLOOP		:LOOP IF SELECTED		
	062170	104406						TRAP	C\$CLP1
10529	062172	013701	063226		MOV	T28BFR+6,R1	:PICK UP XSTO		
10530	062176	010102			MOV	R1,R2	:SET UP EXPECTED		
10531	062200	052702	100000		BIS	#BIT15,R2	:TMK SHOULD BE SET		
10532	062204	020102			CMP	R1,R2	:IS TMK SET		
10533	062206	001406			BEQ	226\$:BR, IF TMK WAS SET (GOOD)		
10534	062210	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10538	062214				ERRHRD	ERRNO,T28RRN,EXPREC	:TMK NOT SET AFTER SPACE REV		
	062214	104456						TRAP	C\$SERHRD
	062216	000641						.WORD	417
	062220	064725						.WORD	T28RRN
	062222	016344						.WORD	EXPREC
10539	062224			226\$:	CKLOOP		:LOOP IF SELECTED		
	062224	104406						TRAP	C\$CLP1
10540	062226	004737	010434		JSR	PC,REWIND	:CALL TAPE REWIND COMMAND		
10541	062232	103411			BCS	230\$:BR, IF NO PROBLEM		
10542	062234	010004			MOV	R0,R4	:SAVE PACKET ADDRESS		
10543	062236	016501	000000		MOV	TSSR(R5),R1	:GET TSSR		
10544	062242	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10548	062246				ERRHRD	ERRNO,T28RWN,PKTSSR	:REWIND NOT ACCEPTED		
	062246	104456						TRAP	C\$SERHRD
	062250	000642						.WORD	418
	062252	064321						.WORD	T28RWN
	062254	011700						.WORD	PKTSSR
10549	062256			230\$:	CKLOOP		:LOOP IF SELECTED		
	062256	104406						TRAP	C\$CLP1
10550	062260	013701	063226		MOV	T28BFR+6,R1	:PICK UP XSTO		
10551	062264	010102			MOV	R1,R2	:SET UP EXPECTED		
10552	062266	052702	000002		BIS	#BIT1,R2	:SET BOT BIT IN EXPECTED		
10553	062272	020102			CMP	R1,R2	:DOES EXP = REC'D		
10554	062274	001406			BEQ	240\$:BR, IF EQUAL (OK)		
10555	062276	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS		
10559	062302				ERRHRD	ERRNO,T28BOT,EXPREC	:TAPE NOT AT BOT AFTER REWIND		
	062302	104456						TRAP	C\$SERHRD
	062304	000643						.WORD	419
	062306	064177						.WORD	T28BOT
	062310	016344						.WORD	EXPREC
10560	062312			240\$:	CKLOOP		:LOOP IF SELECTED		
	062312	104406						TRAP	C\$CLP1

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TEST 4: WRITE/READ TAPE MARK

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10561	062314	012700	177777		MOV	#177777,R0	:VALUE TO WRITTEN TO MEMORY
10562	062320	004737	020372		JSR	PC,FILLMEM	:FILL MEM WITH ALL ONES
10563	062324	013737	003072	063332	MOV	FREE,T28RB	:STARTING READ BUFFER ADDRESS
10564	062332	012737	100001	063330	MOV	#100001,T28PK3	:READ FORWARD,ACK, COMMAND
10565	062340	012704	063330		MOV	#T28PK3,R4	:SET UP R4 WITH PACKET ADDRESS
10566	062344	013737	000024	063336	MOV	20.,T28SZ	:SET UP RECORD SIZE IN PACKET
10567	062352	010465	177776		MOV	R4,TSDB(R5)	:ISSUE COMMAND
10568	062356	004737	017120		JSR	PC,WAITF	:WAIT FOR SSR TO SET
10569	062362	016501	000000		MOV	TSSR(R5),R1	:GET TSSR CONTENTS
10570	062366	012702	100204		MOV	#SSR!SC!BIT2,R2	:SET UP EXPECTED
10571	062372	020102			CMP	R1,R2	:ARE THEY EQUAL
10572	062374	001406			BEQ	245\$:BR, IF OK
10573	062376	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS
10577	062402				ERRHRD	ERRNO,T28WDE,PKTSSR	:TSSR INCORRECT AFTER WRITE DATA
	062402	104456					TRAP CSERHRD
	062404	000644					.WORD 420
	062406	064106					.WORD T28WDE
	062410	011700					.WORD PKTSSR
10578	062412			245\$:	CKLOOP		:LOOP IF SELECTED
	062412	104406					TRAP CSCLP1
10579	062414	013701	063226		MOV	T28BFR+6,R1	:PICK UP XSTO
10580	062420	010102			MOV	R1,R2	:SET UP EXPECTED
10581	062422	052702	100000		BIS	#BIT15,R2	:TMK SHOULD BE SET
10582	062426	020102			CMP	R1,R2	:IS TMK SET
10583	062430	001406			BEQ	247\$:BR, IF TMK WAS SET (GOOD)
10584	062432	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS
10588	062436				ERRHRD	ERRNO,T28RRP,EXPREC	:TMK NOT SET AFTER READ REV
	062436	104456					TRAP CSERHRD
	062440	000645					.WORD 421
	062442	065004					.WORD T28RRP
	062444	016344					.WORD EXPREC
10589	062446			247\$:	CKLOOP		:LOOP IF SELECTED
	062446	104406					TRAP CSCLP1
10590	062450	017701	120416		MOV	@FREE,R1	:FIRST LOC IN READ BUFFER
10591	062454	012702	177777		MOV	#177777,R2	:EXPECTED IF NO DATA TRANS.
10592	062460	020102			CMP	R1,R2	:DID ANY DATA GET TRANSFERRED
10593	062462	001406			BEQ	250\$:BR, IF NO DATA TRANS (GOOD)
10594	062464	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS
10598	062470				ERRHRD	ERRNO,T28DTR,EXPREC	:DATA TRANSFERRED ON READ TAPE MARK
	062470	104456					TRAP CSERHRD
	062472	000646					.WORD 422
	062474	065062					.WORD T28DTR
	062476	016344					.WORD EXPREC
10599	062500			250\$:	CKLOOP		:LOOP IF SELECTED
	062500	104406					TRAP CSCLP1
10600	062502	012737	100410	063330	MOV	#100410,T28PK3	:SPACE REVERSE,ACK, COMMAND
10601	062510	012737	000005	063332	MOV	#5,T28RB	:NUMBER OF RECORDS TO SPACE BACK
10602	062516	012704	063330		MOV	#T28PK3,R4	:SET UP R4 WITH PACKET ADDRESS
10603	062522	010465	177776		MOV	R4,TSDB(R5)	:ISSUE COMMAND
10604	062526	004737	017120		JSR	PC,WAITF	:WAIT FOR SSR TO SET
10605	062532	016501	000000		MOV	TSSR(R5),R1	:GET TSSR CONTENTS
10606	062536	012702	100204		MOV	#SSR!SC!BIT2,R2	:SET UP EXPECTED
10607	062542	020102			CMP	R1,R2	:ARE THEY EQUAL
10608	062544	001406			BEQ	260\$:BR, IF OK
10609	062546	004737	020100		JSR	PC,FATCHK	:INC AND CHECK FOR MORE THAN 25 ERRORS
10613	062552				ERRHRD	ERRNO,T28RDG,PKTSSR	:TSSR INCORRECT AFTER SPACE REV CMD.
	062552	104456					TRAP CSERHRD

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TEST 4: WRITE/READ TAPE MARK

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	062554	000647							.WORD	423
	062556	063615							.WORD	T28RDG
	062560	011700							.WORD	PKTSSR
10614	062562		260\$:	CKLOOP					:LOOP IF SELECTED	
	062562	104406							TRAP	C\$CLP1
10615	062564	013701	063226	MOV	T28BFR+6,R1				:PICK UP XST0	
10616	062570	010102		MOV	R1,R2				:SET UP EXPECTED	
10617	062572	052702	100000	BIS	#BIT15,R2				:TMK SHOULD BE SET	
10618	062576	020102		CMP	R1,R2				:IS TMK SET	
10619	062600	001406		BEQ	270\$:BR, IF TMK WAS SET (GOOD)	
10620	062602	004737	020100	JSR	PC,FATCHK				:INC AND CHECK FOR MORE THAN 25 ERRORS	
10624	062606			ERRHRD	ERRNO,T28RRN,EXPREC				:TMK NOT SET AFTER READ REV	
	062606	104456							TRAP	C\$SERHRD
	062610	000650							.WORD	424
	062612	064725							.WORD	T28RRN
	062614	016344							.WORD	EXPREC
10625	062616		270\$:	CKLOOP					:LOOP IF SELECTED	
	062616	104406							TRAP	C\$CLP1
10626	062620	013701	063224	MOV	T28BFR+4,R1				:PICK UP RESIDUAL BYTE COUNTER	
10627	062624	012702	000004	MOV	#4.,R2				:SHOULD BE THE DIFFERENCE	
10628	062630	020102		CMP	R1,R2				:IS COUNTER CORRECT	
10629	062632	001406		BEQ	280\$:BR, IF COUNTER CORRECT	
10630	062634	004737	020100	JSR	PC,FATCHK				:INC AND CHECK FOR MORE THAN 25 ERRORS	
10634	062640			ERRHRD	ERRNO,T28PBP,EXPREC				:RESIDUAL BYTE COUNTER NOT CORRECT	
	062640	104456							TRAP	C\$SERHRD
	062642	000651							.WORD	425
	062644	063451							.WORD	T28PBP
	062646	016344							.WORD	EXPREC
10635	062650		280\$:	CKLOOP					:LOOP IF SELECTED	
	062650	104406							TRAP	C\$CLP1
10636	062652	012737	100410	MOV	#100410,T28PK3				:SPACE REVERSE,ACK, COMMAND	
10637	062660	012737	000001	MOV	#1,T28RB				:NUMBER OF RECORDS TO SPACE BACK	
10638	062666	012704	063330	MOV	#T28PK3,R4				:SET UP R4 WITH PACKET ADDRESS	
10639	062672	010465	177776	MOV	R4,TSDB(R5)				:ISSUE COMMAND	
10640	062676	004737	017120	JSR	PC,WAITF				:WAIT FOR SSR TO SET	
10641	062702	016501	000000	MOV	TSSR(R5),R1				:GET TSSR CONTENTS	
10642	062706	012702	100204	MOV	#SSR!SC!BIT2,R2				:SET UP EXPECTED	
10643	062712	020102		CMP	R1,R2				:ARE THEY EQUAL	
10644	062714	001406		BEQ	290\$:BR, IF OK	
10645	062716	004737	020100	JSR	PC,FATCHK				:INC AND CHECK FOR MORE THAN 25 EPORRS	
10649	062722			ERRHRD	ERRNO,T28RDG,PKTSSR				:TSSR INCORRECT AFTER SPACE CHD.	
	062722	104456							TRAP	C\$SERHRD
	062724	000652							.WORD	426
	062726	063615							.WORD	T28RDG
	062730	011700							.WORD	PKTSSR
10650	062732		290\$:	CKLOOP					:LOOP IF SELECTED	
	062732	104406							TRAP	C\$CLP1
10651	062734	013701	063234	MOV	T28BFR+14,R1				:PICK UP XST3	
10652	062740	010102		MOV	R1,R2				:SET UP EXPECTED	
10653	062742	052702	000001	BIS	#BIT0,R2				:RIB SHOULD BE SET	
10654	062746	020102		CMP	R1,R2				:IS RIB SET	
10655	062750	001406		BEQ	300\$:BR, IF RIB WAS SET (GOOD)	
10656	062752	004737	020100	JSR	PC,FATCHK				:INC AND CHECK FOR MORE THAN 25 ERRORS	
10660	062756			ERRHRD	ERRNO,T28RIB,EXPREC				:RIB NOT SET AFTER READ REV	
	062756	104456							TRAP	C\$SERHRD
	062760	000653							.WORD	427
	062762	063374							.WORD	T28RIB

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TEST 4: WRITE/READ TAPE MARK

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10708 063164 000137 061070
10709 063170
10710 063170
063170 104432
063172 002252

163\$: JMP T28LOOP
EXIT TST

;EXECUTE AGAIN
;ALL DONE THIS TEST

TRAP C\$EXIT
.WORD L10074-

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TEST 4: WRITE/READ TAPE MARK

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10712
10713
10714
10716 063174
10718 063200
10719 063200 100004
10720 063202 063210
10721 063204 000000
10722 063206 000012
10723 063210
10724 063210 063220
10725 063212 000000
10726 063214 000024
10727 063216 000000
10728 063220
10729
10730
10731
10733 063302
10735 063310
10736 063310 100006
10737 063312 063340
10738 063314 000000
10739 063316 000006
10741 063320
10743 063330
10744 063330 100005
10745 063332
10746 063332 003072
10747 063334 000000
10748 063336 000000
10749
10750
10751 063340
10752 063340 010
10753 063341 200
10754 063342 000000
10755 063344 000000
10756
10757
10758
10759 063346
10760 063346 101411
10761 063350 102011
10762 063352 103411
10763 063354 177777
10764 063356 100011
10765 063360 100411
10766 063362 101011
10767 063364 177777
10768
10769 063366 000000
10770 063370 000000
10771 063372 000000
10772

;+
;LOCAL STORAGE FOR THIS TEST
;-
      .BLKB 10-<.-TUV2A&7>
T28PACKET:
      .WORD 100004
      .WORD T28DATA
      .WORD 0
      .WORD 10.
T28DATA:
      .WORD T28BFR
      .WORD 0
      .WORD 20.
      .WORD 0
T28BFR: .BLKW 25.

;WRITE SUBSYSTEM MEMORY COMMAND PACKET
      .BLKB 10-<.-TUV2A&7>
T28PK2:
      .WORD 100006
      .WORD T28BF2
      .WORD 0
      .WORD 6.
      .BLKB 10-<.-TUV2A&7>
T28PK3:
      .WORD 100005
T28RB:
T28WB: .WORD FREE
      .WORD 0
T28SZ: .WORD 0
      .EVEN
;
T28BF2:
T28BS0: .BYTE 10
T28BS1: .BYTE 200
T28S2: .WORD 0
T28S3: .WORD 0
;
      .EVEN
;TAPE MOTION PACKET COMMAND VALUES
T28IMV:
      .WORD 101411
      .WORD 102011
      .WORD 103411
      .WORD 177777
T28RN: .WORD 100011
T28WDR: .WORD 100411
T28CON: .WORD 101011
      .WORD 177777
;
T28CNT: .WORD 0
T28CNU: .WORD 0
T28DLY: .WORD 0
      .EVEN

```

;COMMAND PACKET FOR TEST
;WRITE CHARACTERISTICS COMMAND, WITH IE, ACK
;ADDRESS OF CHARACTERISTICS BLOCK

;STARTING VALUE OF BLOCK SIZE
;CHARACTERISTICS DATA BLOCK
;ADDRESS OF MESSAGE BUFFER

;LENGTH OF MESSAGE BUFFER

;MESSAGE BUFFER

;WRITE SUB SYS MEM COMMAND, IE AND ACK
;ADDRESS OF SELECT BLOCK DATA

;SIZE OF DATA PACKET

;REREAD COMMAND, AND ACK

;ADDRESS OF WRITE BUFFER

;SIZE OF BUFFER (EXTENT)

;BSEL0 AREA
;BSEL1 AREA
;SEL 2 AREA
;DATA AREA

;ILLEGAL MODE BITS TEST DATA

;WRITE TAPE MARK COMMAND
;ERASE COMMAND
;WRITE TAPE MARK RETRY
;END OF DATA

;TAPE TIMER COUNTER STORAGE AREA
;TAPE TIMER COUNTER STORAGE AREA
;DELAY COUNTER

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TEST 4: WRITE/READ TAPE MARK

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10774
10775
10776
10777
10778
10779
10780 063374      124      141      160  T28RIB: .ASCIZ 'Tape Position Not Correct, RIB Should Be Set'
10781 063451      122      145      163  T28PBP: .ASCIZ 'Residual Byte Counter Register (RBPCR) Not Correct'
10782 063534      124      123      123  T28RDF: .ASCIZ 'TSSR Incorrect After READ REVERSE Into TAPE MARK'
10783 063615      124      123      123  T28RDG: .ASCIZ 'TSSR Incorrect After SPACE Command Into TAPE MARK'
10784 063677      124      123      123  T28WDF: .ASCIZ 'TSSR Not Correct After Illegal Mode Bits Set'
10785 063754      111      154      154  T28LOQ: .ASCIZ 'Illegal Mode Bits, Failed To Set ILC Bit In XSTO'
10786 064035      127      122      111  T28SSR: .ASCIZ 'WRITE MISCELLANEOUS Command Not Accepted'
10787 064106      124      123      123  T28WDE: .ASCIZ 'TSSR Not Correct After READ DATA Command, Into TAPE MARK'
10788 064177      124      141      160  T28BOT: .ASCIZ 'Tape Not At BOT After REWIND Command'
10789 064244      124      123      123  T28TM: .ASCIZ 'TSSR Not Correct After FORMAT Command Reject'
10790 064321      122      145      167  T28RWN: .ASCIZ 'Rewind (POSITION) Command Not Accepted'
10791 064370      104      162      151  T28OFL: .ASCIZ 'Drive 7 Select Failed To Set 'OFL' In TSSR'
10792 064443      124      123      123  T28WDC: .ASCIZ 'TSSR Not Correct After WRITE TAPE MARK Command'
10793 064522      103      126      103  T28VCK: .ASCIZ 'CVC Set, Didn't Reset VCK In Message Buffer'
10794 064575      124      115      113  T28TMK: .ASCIZ 'TMK Not Set After WRITE TAPE MARK Command'
10795 064647      124      115      113  T28RRM: .ASCIZ 'TMK Not Set After READ REVERSE Into TAPE MARK'
10796 064725      124      115      113  T28RRN: .ASCIZ 'TMK Not Set After SPACE REVERSE Into TAPE MARK'
10797 065004      124      115      113  T28RRP: .ASCIZ 'TMK Not Set After READ FORWARD Into TAPE MARK'
10798 065062      104      141      164  T28DTR: .ASCIZ 'Data Transferred On READ REVERSE Into A TAPE MARK'
10799 065144      104      141      164  T28DTA: .ASCIZ 'Data Compare Error, Data Read From Tape Not Equal To Written'
10800 065241      127      162      151  TST28ID: .ASCIZ 'Write/Read Tape Mark'
10801
10802
10803
10804
10805
10806
10807
10808

```

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;+
;LOCAL TEXT MESSAGES FOR TEST
;-

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;+
;ROUTINE TO RESTORE COMMAND PACKET TO START-UP (DEFAULT) VALUES
;WRITE SUBSYSTEM MEMORY COMMAND
;-

```

```

10809 065266
10810 065266
10811 065272      012701      063200
10812 065276      012721      100004
10813 065302      012721      063210
10814 065306      005021
10815 065310      012721      000012
10816 065314      012721      063220
10817 065320      005021
10818 065322      012721      000024
10819 065326      005021
10820 065330      012711      000000
10821 065334      012702      000030
10822 065340      012762      177777      063220      64$:
10823 065346      005742
10824 065350      020227      000000
10825 065354      001371
10826 065356      000207
10827
10828
10829 065360
10830 065360

```

```

T28REST:
        SAVREG
        MOV      #T28PACKET,R1
        MOV      #100004,(R1)+
        MOV      #T28DATA,(R1)+
        CLR      (R1)+
        MOV      #10,(R1)+
        MOV      #T28BFR,(R1)+
        CLR      (R1)+
        MOV      #20,(R1)+
        CLR      (R1)+
        MOV      #0,(R1)
        MOV      #24,R2
        MOV      #177777,T28BFR(R2)
        TST      -(R2)
        CMP      R2,#0
        BNE     64$
        RTS     PC

;SAVE THE REGISTERS
;START OF THE PACKET
;WRITE SUBSYSTEM MEM. WITH ACK,
;ADDRESS OF CHARAISTICS DATA BLOCK
;EXTENDED ADDRESS
;SIZE OF DATA BLOCK IN BYTES
;ADDRESS OF MESSAGE BUFFER
;LENGTH OF MESSAGE BUFFER
;SELECT DRIVE ZERO
;NUMBER OF LOCATIONS TO BE CLEARED
;ALL ONES TO MESSAGE BUFFER
;NEXT LOCATION
;CHECK FOR END
;KEEP GOING UNTIL DONE
;RETURN

```

```

T28RT2:
        SAVREG
;SAVE THE REGISTERS

```

CZTUVAO TU80 FRONT END PRT C
TEST 4: WRITE/READ TAPE MARK

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10831	065364	012701	063310
10832	065370	012721	100006
10833	065374	012721	063340
10834	065400	005021	
10835	065402	012721	000006
10836	065406	005021	
10837	065410	012701	063340
10838	065414	005021	
10839	065416	005011	
10840	065420	000207	
10841	065422		
10842	065422		
10843	065426	012701	063330
10844	065432	005021	
10845	065434	005021	
10846	065436	005021	
10847	065440	005011	
10848	065442	000207	
10849	065444		
	065444		
	065444	104401	

T28RT3:

```

MOV #T28PK2,R1
MOV #100006,(R1)+
MOV #T28BF2,(R1)+
CLR (R1)+
MOV #6,(R1)+
CLR (R1)+
MOV #T28BF2,R1
CLR (R1)+
CLR (R1)
RTS PC

SAVREG
MOV #T28PK3,R1
CLR (R1)+
CLR (R1)+
CLR (R1)+
CLR (R1)
RTS PC
ENDTST

```

```

:START OF THE PACKET
:WRITE SUBSYSTEM MEM. WITH ACK,
:ADDRESS OF DATA BLOCK
:EXTENDED ADDRESS
:SIZE OF DATA BLOCK IN BYTES

:POINT TO DATA SEL AREA

:RETURN

:GET PACKET ADDRESS
:CLEAR COMMAND AREA
:CLEAR ADDRESS AREA
:CLEAR EXTENDED ADDRESS AREA
:SIZE OF DATA TRANSFER
:RETURN

```

L10074: TRAP CSETST

11923
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11948
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11950

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11952

11953
11954
11955
11956
11957

072244
072244 000015
072246

072246
072246 000031
072250 072300
072252 160000
072254 177776

072256
072256 001031
072260 072327
072262 000000
072264 000776

072266
072266 002032
072270 072353
072272 000340
072274 000000
072276 000007

072300

072300 104
072327 111
072353 111

105
105
105
105

.SBTTL HARDWARE PARAMETER CODING SECTION

++
: THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
: THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
: MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
: INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
: MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
: WITH THE OPERATOR.
--

BGNHRD
.WORD L10076-LSHARD/2
LSHARD::

GPRMA HPM1,0,0,160000,177776,YES ;GET TSBA/TSDB REGISTER ADDRESS.
.WORD TSCODE
.WORD HPM1
.WORD TSLOLIM
.WORD TSHILIM
GPRMA HPM2,2,0,0,776,YES ;GET VECTOR ADDRESS.
.WORD TSCODE
.WORD HPM2
.WORD TSLOLIM
.WORD TSHILIM
GPRMD HPM3,4,0,340,0,7,YES ;GET INTERRUPT PRIORITY.
.WORD TSCODE
.WORD HPM3
.WORD 340
.WORD TSLOLIM
.WORD TSHILIM
ENDHRD
.EVEN
L10076:
HPM1: .ASCIZ 'DEVICE ADDRESS (TSSR) '
HPM2: .ASCIZ 'INTERRUPT VECTOR '
HPM3: .ASCIZ 'INTERRUPT PRIORITY '
.EVEN

.SBTTL SOFTWARE PARAMETER CODING SECTION

11959
11960
11961
11962
11963
11964
11965
11966
11967
11968
11969 072404
072404 000006
072406
11970 072406
072406 000130
072410 072422
072412 177777
11971 072414
072414 001130
072416 072461
072420 177777
11972
11973
11974 072422
072422
11975
11976
11977 072422 105 116 101
11978 072461 111 116 110
11979 072511 120 105 122
11980 072541 120 105 122
11981
11982
11983
11984
11985
11986
11987
11988 072572
072572 000004
072574
072574 023644
072576 031656
072600 051026
072602 061024
11989
11990
11991
11992
11993
11994
11995 072604

..++
: THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS
: THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
: MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
: INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
: MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
: WITH THE OPERATOR.
:--
BGNSFT
.WORD L10077-LSSOFT/2
LSSOFT::
GPRML SPM1,0,-1,YES ;GET RAM DUMP FLAG
.WORD TSCODE
.WORD SPM1
.WORD -1
GPRML SPM4,2,-1,YES ; GET ITERATION CONTROL.
.WORD TSCODE
.WORD SPM4
.WORD -1
: GPRMD SPM6,4,D,7777,0,7777,YES ; GET LOCAL ERROR LIMIT
: GPRMD SPM7,6,D,7777,0,7777,YES ; GET GLOBAL ERROR LIMIT
ENDSFT
.EVEN
L10077:
SPM1: .ASCIZ 'ENABLE M7454 RAM DUMP ON ERROR'
SPM4: .ASCIZ 'INHIBIT ITERATIONS'
SPM6: .ASCIZ 'PER TEST ERROR LIMIT'
SPM7: .ASCIZ 'PER UNIT ERROR LIMIT'
.EVEN
.SBTTL PATCH AREA
..+
:DISPATCH TABLE
: *** MOVE TO FRONT OF PROGRAM FOR RELEASE ***
:--
DISPATCH TESTNO
.WORD 4
LSDISPATCH::
.WORD T1
.WORD T2
.WORD T3
.WORD T4
: FINALLY A GENEROUS PATCH AREA.
: AND AN ADJUSTMENT TO ACCOUNT FOR THE 'LASTAD BIT7' HACK
: DESCRIBED IN 'SUPPRG.MEM' (FOR REV C).
PATCH::

11997	072604					MOVER:	MOV	#1000,SP	:SET STACK AT LOC 1000
11998	072604	012706	001000				RESET		:GET THINGS IN PLACE
11999	072610	000005					MOV	#-1,R1	:SET UP COUNTER
12000	072612	012701	177777			5\$:	DEC	R1	:BUMP COUNTER
12001	072616	005301					BNE	5\$:BR, IF MORE COUNTING TO DO
12002	072620	001376					MOV	#MHDR+ROMBASE-MOVER,R3	:POINT TO MESSAGE
12003	072622	012703	073020				JSR	PC,PRINT	: "MOVER REV ??"
12004	072626	004737	072774			TEST5A:	MOV	#KIPAR0,R1	:MOVER OF KIPAR REGISTERS
12005	072632	012701	172340				MOV	#KIPDR0,R5	:MOVER OF THE KIPDR REGISTERS
12006	072636	012705	172300				CLR	R0	:FIRST PAGE BASE ADDRESS
12007	072642	005000				20\$:	MOV	R0,(R1)+	:SET BASE FOR NEXT MAP
12008	072644	010021					MOV	#77406,(R5)+	:4K READ/WRITE EACH PAGE
12009	072646	012725	077406				ADD	#200,R0	:BASE FOR THE NEXT PAGE
12010	072652	062700	000200				CMP	R0,#1600	:DONE ALL PAGES ?
12011	072656	020027	001600				BLE	20\$:SET UP ALL MEMORY MANAGEMENT PAGES
12012	072662	003770					MOV	#7600,-(R1)	:SET UP I/O PAGE
12013	072664	012741	007600			16\$:	MOV	#2000,@#KIPAR6	:MOVER MEMORY PAGE 32KWORDS
12014	072670	012737	002000	172354			CLR	R5	:INITIAL LOCATION 0 MOVER
12015	072676	005005				17\$:	MOV	#140000,R1	:MOVER AT LOC 0, RELATIVE TO KIPAR6
12016	072700	012701	140000			10\$:	MOV	(R5)+,R4	:GET MEMORY CONTENTS
12017	072704	012504					BIS	#1,@#SRO	:ENABLE MEMORY MANAGEMENT
12018	072706	052737	000001	177572			MOV	R4,(R1)+	:PUT INTO UPPER MEMORY
12019	072714	010421					BIC	#1,@#SRO	:TURN OFF MEMORY MANGEMENT
12020	072716	042737	000001	177572			CMP	R1,#157776	:END OF MEMORY PAGE YET ?
12021	072724	020127	157776				BLOS	10\$:LOOP TILL WHOLE PAGE WRITTEN
12022	072730	101765					ADD	#200,@#KIPAR6	:MAP INTO NEXT PAGE
12023	072732	062737	000200	172354			CMP	@#KIPAR6,#3600	:UP TO 64K YET
12024	072740	023727	172354	003600			BLT	17\$:LOOP UNTIL ALL MEMORY WRITTEN
12025	072746	002754					BIC	#1,@#SRO	:TURN OFF MEMORY MANGEMENT
12026	072750	042737	000001	177572			MOV	#GOOD+ROMBASE-MOVER,R3	:POINT TO MESSAGE
12027	072756	012703	073107				JSR	PC,PRINT	: "CODE HAS BEEN MOVED"
12028	072762	004737	072774				HALT		:WAIT FOR DISK SWAP
12029	072766	000000					JMP	RLBOOT	:GO BOOT THE XXDP PACK
12030	072770	000137	073156						
12031						...			
12032						...			
12033						...			
12034	072774					PRINT:			
12035	072774	004737	073004			1\$:	JSR	PC,TTYPR	:GO TO PRINT ROUTINE
12036	073000	001375					BNE	1\$:LOOP UNTIL 000000 IS FOUND
12037	073002	000207					RTS	PC	:RETURN TO CALLER
12038						...			
12039						...			
12040						...			
12041	073004	105737	177564			TTYPR:	TSTB	@#TTOCSR	:CHECK TTY FOR DONE
12042	073010	100375					BPL	TTYPR	:LOOP UNTIL DONE SETS
12043	073012	112337	177566				MOVB	(R3)+,@#TTOBFR	:SEND OUT CORRECT CHARACTER
12044	073016	000207					RTS	PC	:RETURN TO CALLER
12045						...			
12046						...			
12047						...			
12048	073020	015	012	115		MHDR:	.ASCII	<15><12>/MOVER REV 0.0/	
12049	073037	015	012	103			.ASCIIZ	<15><12>/CODE FROM 0-32K MOVES TO 32-64K WORDS/	
12050	073107	015	012	103		GOOD:	.ASCIIZ	<15><12>/CODE HAS BEEN MOVED/<15><12>	
12051	073137	015	012	102		BOOT:	.ASCIIZ	<15><12>/BOOTING XXDP/	
12052							.EVEN		

```

12054 073156
12055 073156 012701 174400
12056 073162 012700 174404
12057 073166 012720 000013
12058 073172 004537 073320
12059 073176 000004
12060 073200 032711 000001
12061 073204 001010
12062 073206 011004
12063 073210 042704 177730
12064 073214 001451
12065 073216 022704 000006
12066 073222 101446
12067 073224 000756
12068 073226 004537 073320
12069 073232 000010
12070 073234 011004
12071 073236 042704 000177
12072 073242 005204
12073 073244 010440
12074 073246 004537 073320
12075 073252 000006
12076 073254 005037 174402
12077 073260 005020
12078 073262 012710 177400
12079 073266 004537 073320
12080 073272 000014
12081 073274 005000
12082 073276 022737 000240 000000
12083 073304 001016
12084 073306 012703 073137
12085 073312 004737 072774
12086 073316 005007
12087
12088
12089
12090
12091

```

```

RLBOOT:
1$:  MOV #CSR,R1
      MOV #DAR,R0
      MOV #DLSR,(R0)+
      JSR R5,3$
      .WORD DLGETS
      BIT #READY,@R1
      BNE 2$
      MOV (R0),R4
      BIC #DLERR,R4
      BEQ 7$
      CMP #DLUN,R4
      BLOS 7$
      BR 1$
2$:  JSR R5,3$
      .WORD DLRDHD
      MOV @R0,R4
      BIC #DLCYL,R4
      INC R4
      MOV R4,-(R0)
      JSR R5,3$
      .WORD SEEK
      CLR @#BAR
      CLR (R0)+
      MOV #-256.,@R0
      JSR R5,3$
      .WORD READ
      CLR R0
      CMP #240,@#0
      BNE 8$
      MOV #BOOT+ROMBASE-MOVER,R3
      JSR PC,PRINT
      CLR PC

```

```

:DL'S CSR REGISTER ADDRESS
:ADDRESS OF RL'S REGISTERS
:SET RESET AND GET STATUS
:MOVER PULSE
:GET STATUS COMMAND
:CHECK FOR DRIVE READY
:BR IF READY
:GET STATUS INFO
:ERROR MASK
:BR IF NO PACK
:UNLOAD HEADS CHECK
:BR IF YES
:JUST WAIT AROUND FOR READY
:RETURN TO SAVE CODE
:GET CURRENT HEAD POSITION
:GET ADDRESS
:JUST CYLINDER ADDRESS
:SET UP FOR SEEK
:CYLINDER OFFSET IN
:DO THE SEEK
:SEEK COMMAND
:ADDRESS 0
:CYLINDER 0 SECTOR 0
:256 WORD TRANSFER 2'S COMP
:DO THE READ
:READ COMMAND
:POINT TO DRIVE 0
:LOC 0 = TO NOP
:NOT TRUE BOOT RECORD
:POINTER TO PRINT ROUTINE
:ABOUT TO BOOT XXDP
:LOOKS GOOD JUMP 0

```

END TEST NUMBER SIXTEEN

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 138
PATCH AREA

```

12093 073320 012511      3$:  MOV      (R5)+,@R1      ;ACTUAL MOVER WITH COMMAND
12094 073322 032711 100200 4$:  BIT      #DLNÉR,@R1    ;CHECK FOR DONE OR ERROR BITS
12095 073326 001775      BEQ      4$              ;WAIT FOR SAME
12096 073330 100401      BMI      5$              ;BR ON ERROR
12097 073332 000205      RTS      R5              ;OK KEEP GOING
12098 073334 077266      5$:  SOB      R2,1$      ;RETRY MINUS ONE
12099 073336 000000      HALT                                ;HALT ON ERROR
12100 073340 000000      7$:  HALT                                ;HALT ON ERROR
12101 073342 000000      8$:  HALT                                ;HALT ON ERROR
12102
12103      :      .IF      NZ,..8377
12104      :      .=.!377+1
12105      :      .ENDC
12106 073344      LASTAD      ;SET LAST USED ADDRESS.
           073344 073362      .EVEN
           073346 000005      .WORD T$FREE
           073350      .WORD T$SIZE
LSLAST::      .SBTTL  HARD CODED P-TABLE
           :++
           :      DIAGNOSTIC IS PRE-PARAMETERIZED PER THIS TABLE
           :--
12107      BGNSETUP      1
12108      BGNPTAB
           073350 000000      .WORD 0
           073352 000003      .WORD L10102-./2-1
12109
12110
12111 073350
12112 073350
           073354 172522      L10100: .WORD 172522
           073356 000224      .WORD 224
           073360 000240      .WORD PRI05
           073362      ENDPTAB
12113 073354
12114 073356
12115 073360
12116 073362
           073362      L10102: ENDSETUP
12117 073362
12118
12119      000001      .END

```

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 138-1
 SYMBOL TABLE

ADDSSR	011772	G	CTABM	003116	G	DATASC	021134	FATERR=	000060	G\$YES	=	000010				
ADR	=	000020	G	CSAU	=	000052	DEBUGM	011464	FATFLG	002170	G	HIADDR=	001400			
AMBTSS	006336		CSAUTO=	000061		DEVcnt	002166	G	FERCM	011554		HIMEM	=	007776		
ASSEMB=	000010		CSBRK	=	000022	DEVDR0	023574	G	FIFEXP	012022	G	HOE	=	100000	G	
A1716	=	000003	CSBSEG=	000004		DEVNRD	023513		FIF1MS	012074		HPM1	072300			
BADDAT	003110	G	CSBSUB=	000002		DEVNXR	023431		FIF2MS	012143		HPM2	072327			
BADSSR	016550	G	CSCEFG=	000045		DEVONL	023361		FILLME	020372		HPM3	072353			
BAR	=	174402	CSCCLK=	000062		DEVSUM	023324		FNOINT	004113		IBE	=	010000	G	
BENBSW	002174	G	CSCLEA=	000012		DFPTBL	002124	G	FORCER	002144	G	IDU	=	000040	G	
BIE	=	040000	CSCLOS=	000035		DIAGMC=	000000		FREE	003072	G	IER	=	020000	G	
BIT0	=	000001	G	CSCCLP1=	000006	DLCYL	=	000177	FREEHI	003076		IFault	004154			
BIT00	=	000001	G	CSCVEC=	000036	DLDNER=	100200		FRESIZ	003074	G	INCERK	017742			
BIT01	=	000002	G	CSDCLN=	000044	DLERR	=	177730	FUSI	004015		INTCPC	017020			
BIT02	=	000004	G	CSDODU=	000051	DLGETS=	000004		FSAU	=	000015	INTFLA	017015			
BIT03	=	000010	G	CSDRPT=	000024	DLRDHD=	000010		FSAUTO=	000020		INTMAS	017014			
BIT04	=	000020	G	CSDU	=	000053	DLRDNH=	000016	FSBGN	=	000040	INTR	017066	G		
BIT05	=	000040	G	CSEDIT=	000003		DLSR	=	000013	FSCLEA=	000007	INTREC	002172	G		
BIT06	=	000100	G	CSERDF=	000055		DLUN	=	000006	FSDU	=	000016	INTVEC	017016		
BIT07	=	000200	G	CSEHR=	000056		DSBINT	017054	FSEND	=	000041	INTX	004176			
BIT08	=	000400	G	CSEHR0=	000060		DUAD12	004541	FSHARD=	000004		IOKCKI=	000200			
BIT09	=	001000	G	CSEHRF=	000054		DUFLG	003060	G	FSHW	=	000013	IOKSTP=	000001		
BIT1	=	000002	G	CSEHR0=	000057		DUMMY	003030		FSINIT=	000006	IPRI	002160	G		
BIT10	=	002000	G	CSEHR0=	000010		EF.CON=	000036	G	FSJMP	=	000050	ISR	=	000100	G
BIT11	=	004000	G	CSEHR0=	000005		EF.NEW=	000035	G	FSMOD	=	000000	IVEC	002156	G	
BIT12	=	010000	G	CSEHR0=	000003		EF.PWR=	000034	G	FSMSG	=	000011	IXE	=	004000	G
BIT13	=	020000	G	CSEHR0=	000001		EF.RES=	000037	G	FSPROT=	000021	ISAU	=	000041		
BIT14	=	040000	G	CSEHR0=	000032		EF.STA=	000040	G	FSPWR	=	000017	ISAUTO=	000041		
BIT15	=	100000	G	CSEHR0=	000026		EMAXDU	017675		FSRPT	=	000012	ISCLN	=	000041	
BIT2	=	000004	G	CSEHR0=	000027		EN	=	000000	FSSEG	=	000003	ISDU	=	000041	
BIT3	=	000010	G	CSEHR0=	000043		ENAINI	017022		FSOFT=	000005	ISHRD	=	000041		
BIT4	=	000020	G	CSEHR0=	000042		ENVIRN	021532		FSSRV	=	000010	ISINIT=	000041		
BIT5	=	000040	G	CSEHR0=	000030		EPRTSW	002146	G	FSSUB	=	000002	ISMOD	=	000040	
BIT6	=	000100	G	CSEHR0=	000040		EPRT1	005672		FSSW	=	000014	ISMSG	=	000041	
BIT7	=	000200	G	CSEHR0=	000011		EPRT2	005764		FSTEST=	000001	ISPTAB=	000041			
BIT8	=	000400	G	CSEHR0=	000020		EPRT3	006025		GDDAT	003112	G	ISPWR	=	000041	
BIT9	=	001000	G	CSEHR0=	000050		ERRCM	011565		GERRMA	002142	G	ISRPT	=	000041	
BOE	=	000400	G	CSEHR0=	000031		ERRHI	002202	G	GETPAT	021076	G	ISSEG	=	000041	
BOOT	073137		CSEHR0=	000023		ERRK	017654		GETSEL	021160	G	ISSETU=	000041			
BRINIT	004355		CSEHR0=	000034		ERRLO	002204	G	GOOD	073107		ISSFT	=	000041		
BSELO	=	000000		CSEHR0=	000014		ERRNO	=	000656	G\$CNT0=	000200	ISSRV	=	000041		
BSEL1	=	000001		CSEHR0=	000017		ERRVEC=	000004	G	G\$DELM=	000372	ISSUB	=	000041		
CHKAMB	016714		CSEHR0=	000016		ERTABE	003330		G\$DISP=	000003	ISTST	=	000041			
CHKMAN	021402	G	CSEHR0=	000015		ERTABL	003130		G\$EXCP=	000400	JSJMP	=	000167			
CHKTSS	017234		CSEHR0=	000377		ESUM	017656		G\$HILI=	000002	KIPAR0=	172340				
CKDROP	020152		CSEHR0=	000007		EVL	=	000004	G	G\$LOLI=	000001	KIPAR1=	172342			
CKEMAX	020000		CSEHR0=	000047		EXBCNT=	000010		G\$NO	=	000000	KIPAR2=	172344			
CKMSG	011212	G	CSEHR0=	000033		EXPBRE	016352	G	G\$OFFS=	000400	KIPAR3=	172346				
CKMSG2	011332	G	CSEHR0=	000003		EXPD	002176	G	G\$OFFSI=	000376	KIPAR4=	172350				
CKRAM	010534	G	CSEHR0=	000021		EXPGOT	004431		G\$PRMA=	000001	KIPAR5=	172352				
CKRAM2	011110	G	CSEHR0=	000025		EXPGT2	004465		G\$PRMD=	000002	KIPAR6=	172354				
CMEM	020556		CSEHR0=	000046		EXPMSG	002266	G	G\$PRML=	000000	KIPAR7=	172356				
CONFIG	020220		CSEHR0=	000041		EXPREC	016344	G	G\$RADA=	000140	KIPDR0=	172300				
COUNT	002254	G	CSEHR0=	000037		EXTA	005232		G\$RADB=	000000	KIPDR1=	172302				
CSR	=	174400		CSEHR0=	000013	EXTEND	005230		G\$RADD=	000040	KIPDR2=	172304				
CSRADD	002154	G	DAR	=	174404	ESEND	=	002100	G\$RADL=	000120	KIPDR3=	172306				
CTAB	003116	G	DATA	002256	G	E\$LOAD=	000035		G\$RADO=	000020	KIPDR4=	172310				
CTABE	003130	G	DATAFL	015063		FATCHK	020100		G\$XFER=	000004						

CZTUYAO TUBO FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 138-3
 SYMBOL TABLE

O.URO	072120	PRMSG1	015647	READY =	000001	SO.IRW=	000004	TSTSET	017406	G
O.USP	072134	PRMSG2	015705	RECMG	002432	SO.ISP=	000200	TST25I	031452	
O.WB1	066302	PROASC	014713	RECV	002200	S1.ICE=	002000	TST26I	050627	
O.WDFG	071516	PR1ASC	014760	REGSAV	021036	S1.IEO=	010000	TST27I	060623	
O.WRD	066252	PST32W	003104	REWIND	010434	S1.IFM=	001000	TST28I	065241	
O.WRD1	066316	PUNIT	022512	RLBOOT	073156	S1.IHE=	000400	TTIBFR=	177562	G
O.WSCH	067102	PW.D11=	000021	RMCHBE=	000167	S1.IID=	004000	TTICSR=	177560	G
O.XXX	071514	PW.D13=	000022	RMCHEN=	000200	S1.I1R=	020000	TTIVEC=	000060	G
PASRPT	022256	PW.D22=	000020	RMMSGB=	000104	S1.I2R=	040000	TTOBFR=	177566	
PATCH	072604	PW.NOP=	000000	RMPKTB=	000020	S1.PAR=	100000	TTOCSR=	177564	
PATDAT	021132	PW.NO1=	000023	RMPKTE=	000027	S2.ATI=	000010	TTYPR	073004	
PC.ERA=	002400	PW.RDE=	000024	RMR	= 010000	S2.BTI=	000004	TUV2A	002000	G
PC.IER=	002000	PW.RDR=	000001	RMBAS=	072604	S2.DIM=	000200	TSARGC=	000003	
PC.NOO=	001000	PW.RDS=	000005	RWPACK	010530	S2.ILW=	000100	TSCODE=	001130	
PC.REL=	000000	PW.RFI=	000003	SC	= 100000	S2.INR=	000020	TSERN=	000656	
PC.REW=	000400	PW.WCT=	000006	SCE	= 020000	S2.OUT=	000040	TSEXCP=	000000	
PKBCNT=	000006	PW.WFI=	000004	SCME	004711	S2.UND=	000003	TSFLAG=	000040	
PKHI	= 000004	PW.WFM=	000007	SDELAY	010330	TBLEND=	003030	TSFREE=	073362	
PKLOW	= 000002	PW.WMI=	000010	SEEK	= 000006	TCOASC	006177	TSGMAN=	000000	
PKTADD	007276	PW.WNP=	000011	SELASC	021344	TCOCOD	006400	TSHILI=	000007	
PKTFRM	007240	PW.WTR=	000002	SELDAT=	000004	TEMP1	003064	TSLAST=	000001	
PKTGET	011730	P.ACK =	100000	SEL2	= 000002	TEMP2	003066	TSLOLI=	000000	
PKTMES	011754	P.CMD =	000037	SETMAP	020266	TERCLS=	000016	TSLSYM=	010000	
PKTNEW	007333	P.CONT=	000012	SETU	022310	TESTNO=	000004	TSLTNO=	000004	
PKTRAM	004643	P.CVC =	040000	SFFMSG	011746	TEXASC	006136	TSNEST=	000000	
PKTSSR	011700	P.FMT =	000140	SFHERR	003603	TFCASC	006240	TSNSO =	000000	
PNT	= 001000	P.FORM=	000011	SFIERR	003550	TIMEXP	016422	TSNS1 =	000005	
PRAMPK	013630	P.GETS=	000017	SFIMSG	011666	TIMSGO	016450	TSNS2 =	000002	
PRBEXP	016340	P.IE =	000200	SFPTBL	002134	TINERR	011653	TSPCNT=	000000	
PRBMSG	016206	P.INIT=	000013	SIFLAG	003106	TKB	= 177562	TSPTAB=	010101	
PRBREC	016342	P.MODE=	007400	SIMSG	011620	TKS	= 177560	TSPTHV=	000001	
PRBTOT	016273	P.OPP =	020000	SKIPT	003332	TMPBFR	002576	TSPTNU=	000001	
PRBYTE	015772	P.POSI=	000010	SOFINI	016644	TNAM	017602	TSSAVL=	177777	
PRI	= 002000	P.READ=	000001	SPACE	010140	TPB	= 177566	TSSEGL=	177777	
PRIADD	007712	P.SWB =	010000	SPM1	072422	TPS	= 177564	TSSIZE=	000005	
PRIAO	007762	P.WRIT=	000005	SPM4	072461	TRANST	002134	TSSUBN=	000001	
PRIBXO	007344	P.WRTC=	000004	SPM6	072511	TSBA	= 177776	TSTAGL=	177777	
PRIEQU	007612	P.WRTS=	000006	SPM7	072541	TSBAH =	177777	TSTAGN=	010103	
PRINT	072774	QVP	002152	SR0	= 177572	TSBAL =	177776	TSTEMP=	000005	
PRIPKT	007072	RAMASC	013776	SR1	= 177574	TSDB =	177776	TSTEST=	000004	
PRIRAM	007620	RAMDAT	002206	SR2	= 177576	TSDBH =	177777	TSTSTM=	177777	
PRITAD	010026	RAMER	010636	SR3	= 172516	TSDBL =	177776	TSTSTS=	000001	
PRITSS	005264	RAMERR	016360	SSR	= 000200	TSFCOD	006740	TSSAU =	010031	
PRITO	010076	RAMEXP	016400	STATCO	012244	TSREJ =	000006	TSSAUT=	010033	
PRI XOR	007474	RAMFHR	014542	SVCGBL=	000000	TSSDEF	006307	TSSCLE=	010034	
PRI00 =	000000	RAMFOR	007650	SVCINS=	000000	TSSR	= 000000	TSSDAT=	010102	
PRI01 =	000040	RAMHLD	011020	SVCSUB=	000001	TSSRBI	003400	TSSDU =	010032	
PRI02 =	000100	RAMIOP	011024	SVCTAG=	000000	TSSRFO	006116	TSSHAR=	010076	
PRI03 =	000140	RAMPD	011075	SVCTST=	000001	TSSRH =	000001	TSSHW =	010000	
PRI04 =	000200	RAMR5H	011022	S&LSYM=	010000	TSSX	003716	TSSINI=	010030	
PRI05 =	000240	RAMSIZ	002246	SO.IDB=	000010	TSTBLK	002720	TSSMSG=	010025	
PRI06 =	000300	RAMTAD	016366	SO.IFB=	000002	TSTCNT	002162	TSSPC =	000001	
PRI07 =	000340	RBPCRA	015130	SO.IFP=	000001	TSTEND	017613	TSSPRO=	010027	
PRMESS	014062	RCVHIA	002250	SO.IFD=	000020	TSTFLA	002260	TSSPTA=	010101	
PRMNO	002264	RCVLOA	002252	SO.ION=	000040	TSTLOO	017354	TSSRPT=	010035	
PRMSG	015422	RDERR	005104	SO.IRD=	000100	TSTPTR	002262	TSSSOF=	010077	
PRMSGO	015602	READ =	000014					TSSSRV=	010026	

CZTUYAO TUBO FRONT END PRT C
SYMBOL TABLE

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T\$\$\$SUB=	010075	T25TM	030514	T26WSS	050141	T28BOT	064177	WC.IG0=	000001
T\$\$\$SW =	010001	T25WB	030232	T27AM3	057167	T28BS0	063340	WC.IRF=	000010
T\$\$\$TES=	010074	T25WDC	031401	T27BA	057527	T28BS1	063341	WC.IRW=	000004
T1	023644 G	T25WDE	030367	T27BFR	055530	T28CNT	063366	WC.IOT=	000100
T1.1	023704	T25WDR	030250	T27BF2	055650	T28CNU	063370	WC.I1T=	000040
T1.2	024404	T25WNG	030657	T27BOT	056541	T28CON	063362	WC.I5R=	000020
T1.3	025044	T25WNH	031032	T27BS0	055650	T28DAT	063210	WF.IED=	000010
T1.4	025500	T26AM3	047526	T27BS1	055651	T28DLY	063372	WF.IER=	000004
T1.5	026230	T26BA	050066	T27CNT	055666	T28DTA	065144	WF.IHI=	000200
T1.6	027156	T26BFR	045740	T27CNU	055670	T28DTR	065062	WF.IRE=	000040
T1.7	027466	T26BF2	046060	T27CON	055662	T28IMV	063346	WF.IWF=	000020
T2	031656 G	T26BOT	047115	T27DAT	055520	T28LOO	061070	WF.IWR=	000100
T2.1	031722	T26BS0	046060	T27DLY	055672	T28LOQ	063754	WF.I3R=	000002
T2.10	041236	T26BS1	046061	T27DTA	060526	T28OFL	064370	WF.I4R=	000001
T2.11	042104	T26CNT	046076	T27EOT	056711	T28PAC	063200	WRTCHR	010332 G
T2.12	042742	T26CNU	046100	T27LON	057671	T28PBP	063451	WRTERR	005011
T2.13	043662	T26DAT	045730	T27LOO	051076	T28PK2	063310	WRTMSG	004754
T2.14	044660	T26DLY	046104	T27LOP	057753	T28PK3	063330	XFERAS	016610
T2.15	045230	T26DTA	047162	T27LOQ	056335	T28RB	063332	XNXM	017274
T2.2	032624	T26EOT	047250	T27LOR	056210	T28RDF	063534	XORBFO	007426
T2.3	033462	T26LON	050230	T27NEF	060211	T28RDG	063615	XORFOR	007544
T2.4	034346	T26LOO	031722	T27OFL	057236	T28RES	065266	XST0 =	000006 G
T2.5	035266	T26LOP	050312	T27PAC	055510	T28RIB	063374	XST1 =	000010 G G
T2.6	036034	T26LOQ	046726	T27PBP	060035	T28RN	063356	XST2 =	000012 G G
T2.7	036664	T26LOQ	046726	T27PBP	060035	T28RRM	064647	XST3 =	000014 G G
T2.8	037526	T26LOR	046601	T27PK2	055620	T28RRN	064725	XST4 =	000016 G
T2.9	040370	T26NEF	046174	T27PK3	055640	T28RRP	065004	XSOBOT=	000002
T21OFL	030264	T26NEQ	050550	T27RB	055642	T28RRP	065004	XSOCON	015175
T25BFR	030120	T26OFL	047575	T27RDF	055762	T28RT2	065360	XSOEOT=	000001
T25BF2	030240	T26PAC	045720	T27RES	060644	T28RT3	065422	XSOIE =	000040
T25BNC	030742	T26PBP	050374	T27RN	055656	T28RWN	064321	XSOILA=	000400
T25BOT	030447	T26PK2	046030	T27RNC	057114	T28SSR	064035	XSOILC=	001000
T25BS0	030240	T26PK3	046050	T27RRF	056031	T28SZ	063336	XSOLET=	020000
T25BS1	030241	T26RB	046052	T27RT2	060736	T28S2	063342	XSOMOT=	000200
T25CNT	030260	T26RDF	046256	T27RT3	061000	T28S3	063344	XSONEF=	002000
T25CN2	030256	T26RES	050640	T27RWN	057045	T28TM	064244	XSOONL=	000100
T25CON	030252	T26RN	046066	T27SC	056126	T28TMK	064575	XSOPEL=	000010
T25DAT	030110	T26RNC	047453	T27SCF	060307	T28VCK	064522	XSORLL=	010000
T25DLY	030262	T26RRF	046325	T27SSR	056416	T28WB	063332	XSORLS=	040000
T25LOO	023704	T26RFG	046422	T27SZ	055646	T28WDC	064443	XSOTMK=	100000
T25NEF	031115	T26RSZ	046102	T27S2	055652	T28WDE	064106	XSOVCK=	000020
T25NET	030603	T26RT2	050732	T27S3	055654	T28WDF	063677	XSOWLE=	004000
T25OFL	031326	T26RT3	050774	T27TIM	056634	T28WDR	063360	XSOWLK=	000004
T25PAC	030100	T26RWN	047404	T27TM	056770	T3	051026 G	XS1CON	015242
T25PK2	030210	T26SC	046517	T27TRL	060123	T3.1	051076	XS2CON	015307
T25PK3	030230	T26SSR	047007	T27TSA	060364	T3.2	051464	XS3CON	015354
T25RB	030232	T26SZ	046056	T27VCK	057454	T3.3	052236	XXCOMM	003070 G
T25RES	031470	T26S2	046062	T27WB	055642	T3.4	053052	XSALWA=	000000
T25RIB	031175	T26S3	046064	T27WDC	057401	T3.5	053746	XFALS=	000040
T25RN	030246	T26TM	047327	T27WDD	057311	T4	061024 G	XSOFFS=	000400
T25RT2	031562	T26TRL	050462	T27WDE	056452	T4.1	061070	XSTRUE=	000020
T25RT3	031624	T26VCK	050013	T27WDF	056260	UAM =	000200 G	X1.COR=	020000
T25RWN	031257	T26VCK	050013	T27WDR	055660	UNITN =	002150 G	X1.DLT=	100000
T25SSR	030306	T26WB	046052	T27WNG	055674	UNREC =	000006	X1.MBZ=	017375
T25SZ	030236	T26WDC	047740	T27WRF	060446	USI	004021	X1.RBP=	000400
T25S2	030242	T26WDD	047650	T27WSS	057602	WAITF	017120 G	X1.SPA=	040000
T25S3	030244	T26WDE	047043	T28BFR	063220	WC.IFA=	000200	X1.UNC=	000002
		T26WDF	046651	T28BF2	063340	WC.IFE=	000002		
		T26WNG	046106						

CZTUYAO TU80 FRONT END PRT C MACRO M1200 29-MAR-83 13:43 PAGE 138-5
SYMBOL TABLE

X2.BUF= 000100	X2.SPA= 035400	X3.MBZ= 000006	X3.RIB= 000001	X4.MBZ= 017400
X2.EXT= 000200	X2.UNI= 000007	X3.MDE= 177400	X3.SPA= 000200	X4.RCE= 040000
X2.OPM= 100000	X2.WCF= 002000	X3.OPI= 000100	X3.TRF= 000020	X4.TSM= 020000
X2.RCE= 040000	X3.DCK= 000010	X3.REV= 000040	X4.HSP= 100000	X4.WRC= 000377
X2.REV= 000077				

. ABS. 073362 000
000000 001
ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 36912 WORDS (145 PAGES)
DYNAMIC MEMORY: 20060 WORDS (77 PAGES)
ELAPSED TIME: 00:14:32
CZTUYA.BIC,CZTUYA/-SP=SVC.MLB/ML,CZTUYA.MAC