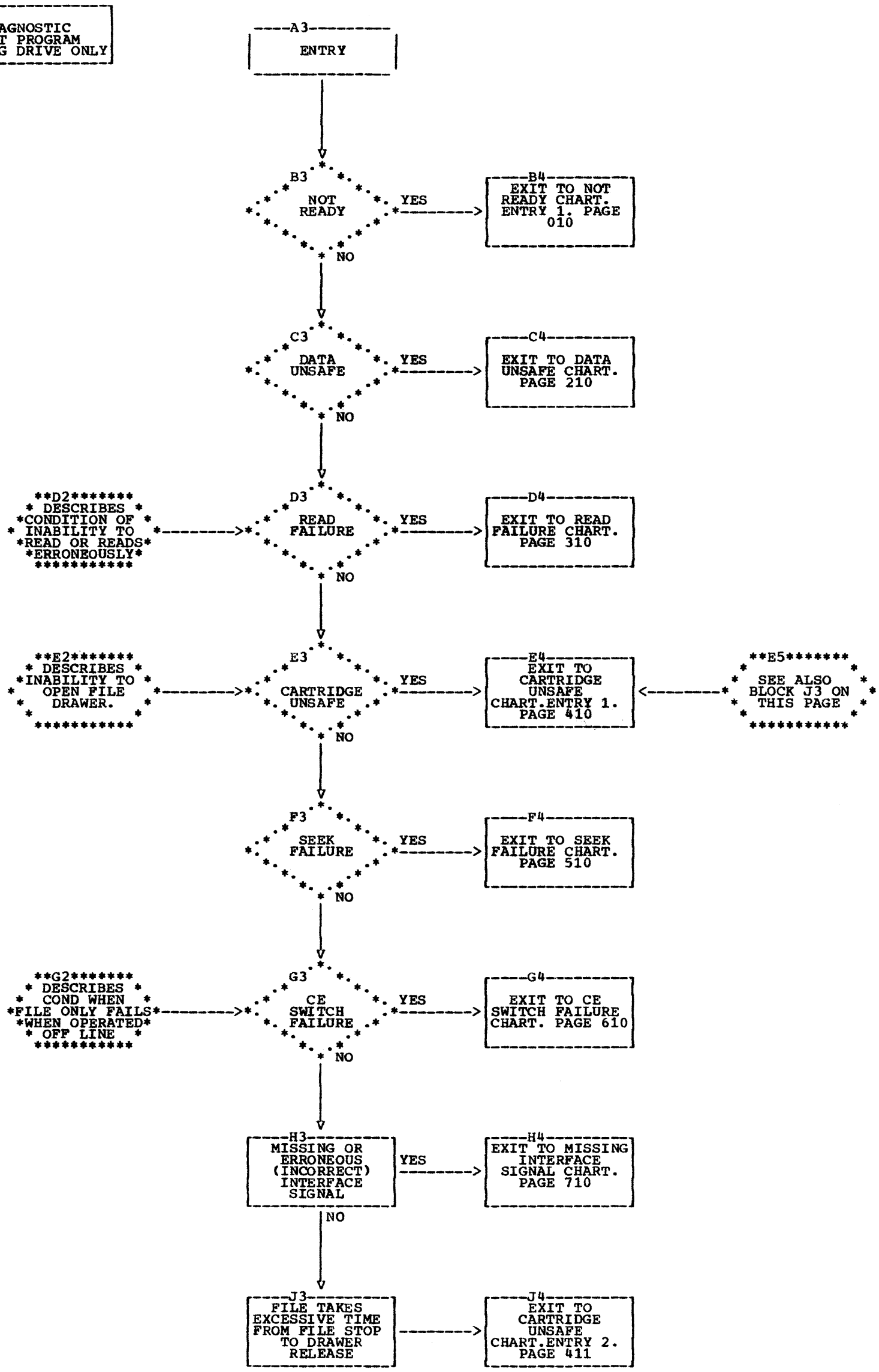
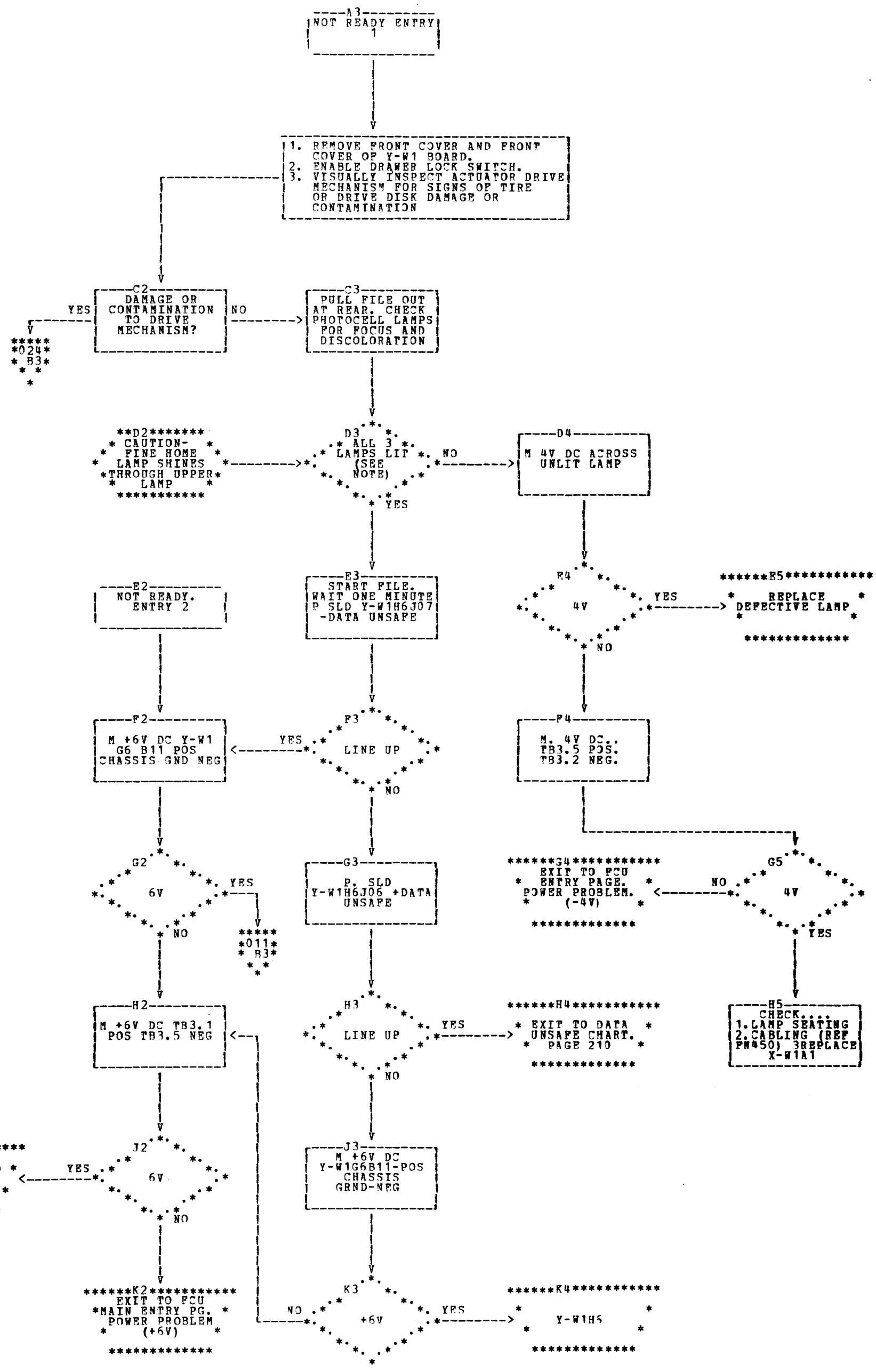
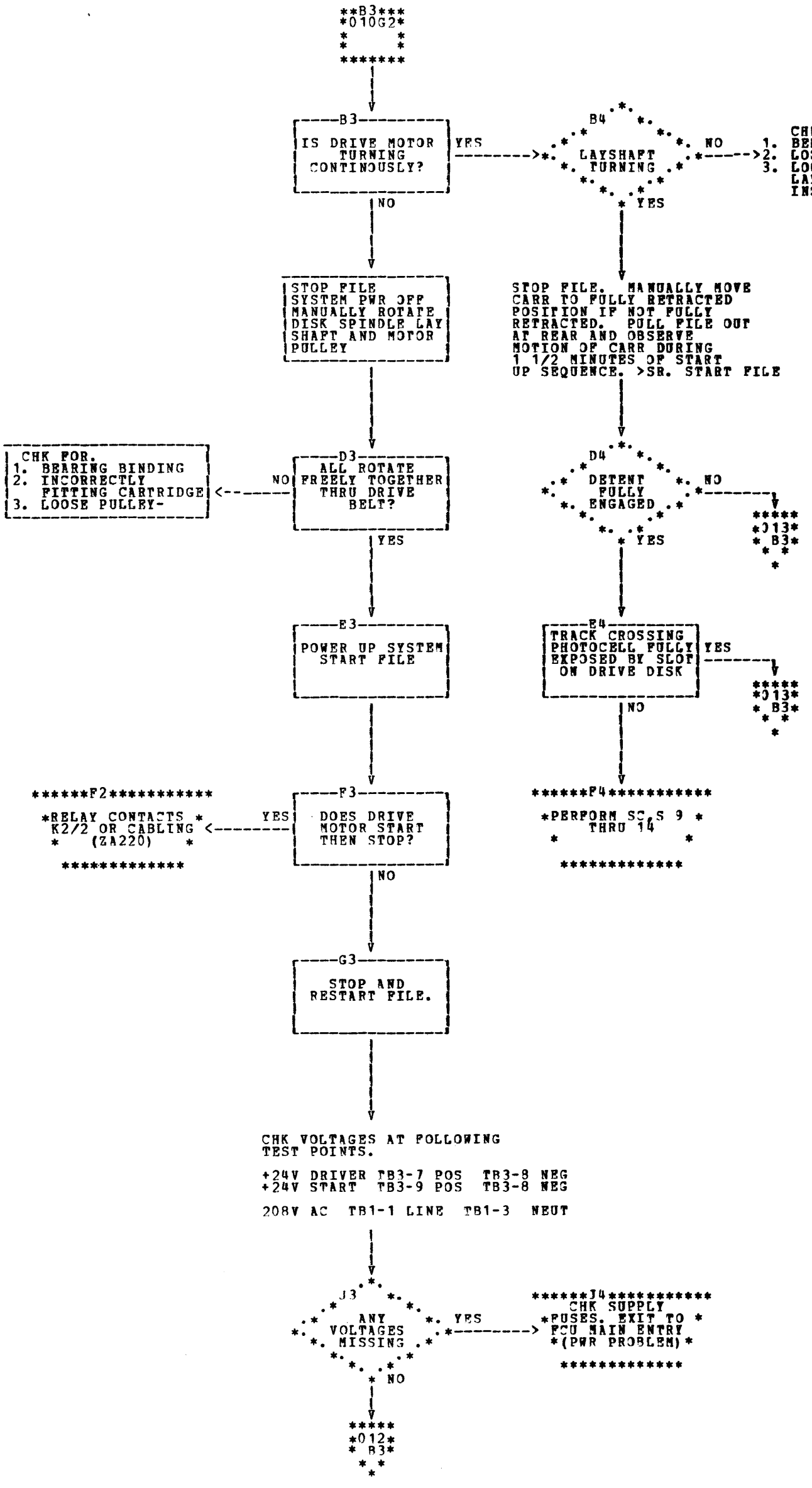
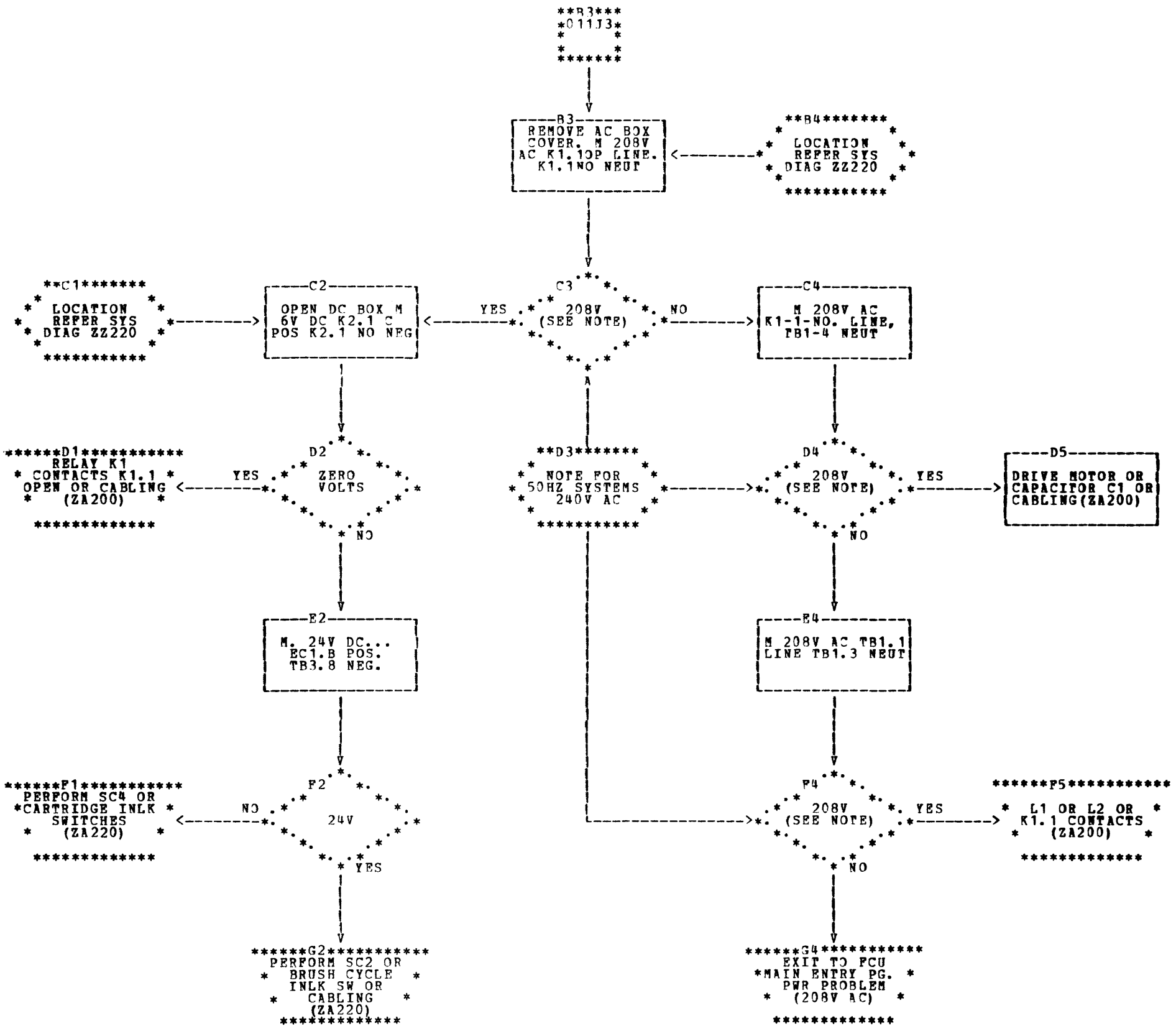
CHART NAME	PART NUMBER	PRES EC
5444 ENTRY	2598104	392133
NOT READY	2598105	392140
DATA UNSAFE	2598106	392133
READ FAILURE	2598107	392133
CARTRIDGE UNSAFE	2598108	392140
SEEK FAILURE	2598109	392140
CE SWITCH FAILURE	2598110	392133
MISSING INTERFACE SIGNAL	2598111	392133
APPENDIX A SERVICE CHECKS	2598112	392140
APPENDIX B TIMING ANALYSIS PROGRAMS	2598113	392133
APPENDIX C CLUTCH ADJUSTMENT PROGRAM 'BOB'	5144459	392140

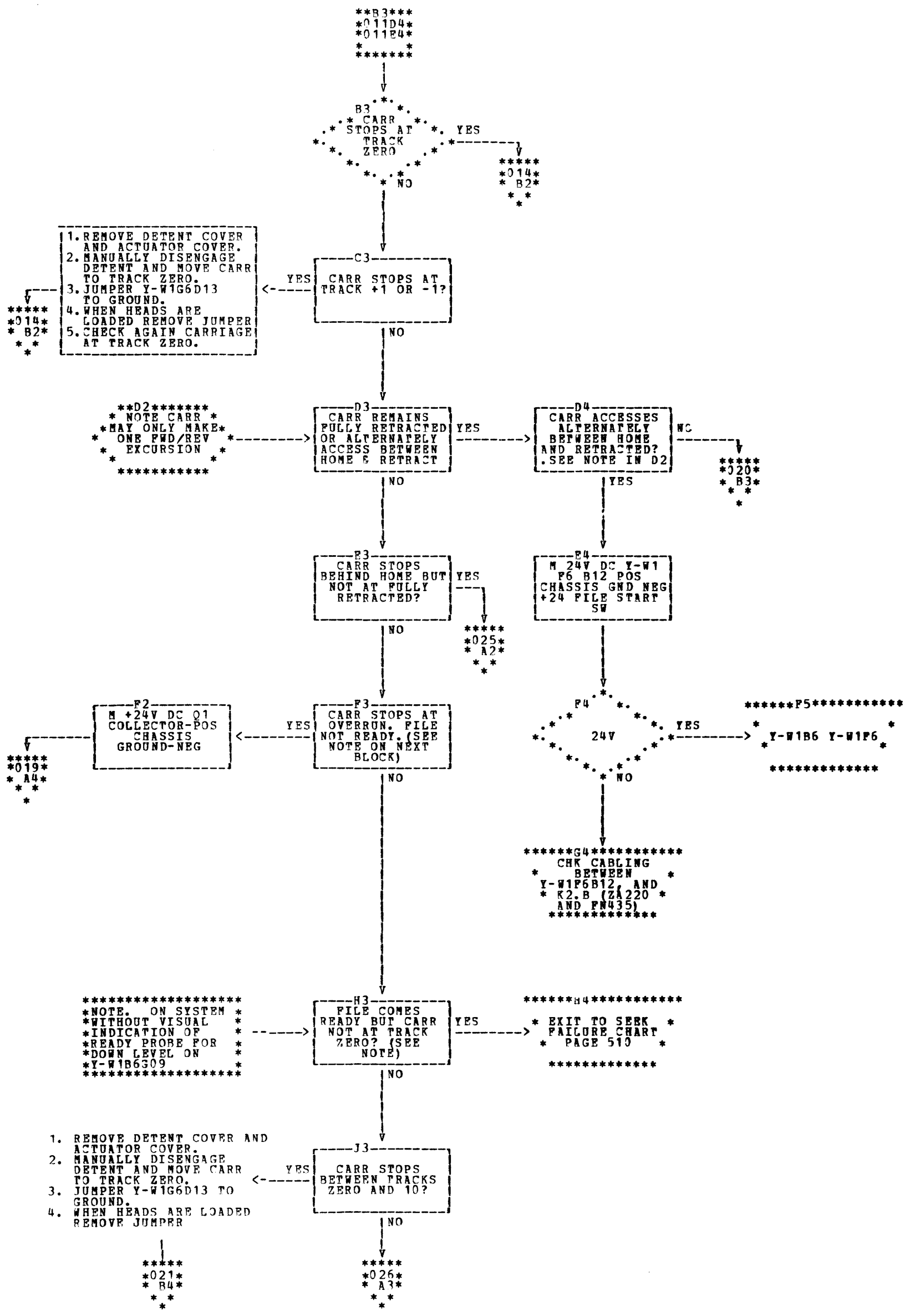
NOTE- WHEN LOOPING ON A DIAGNOSTIC PROGRAM IT IS REQUIRED THAT PROGRAM SHOULD BE LOOPED ON FAILING DRIVE ONLY

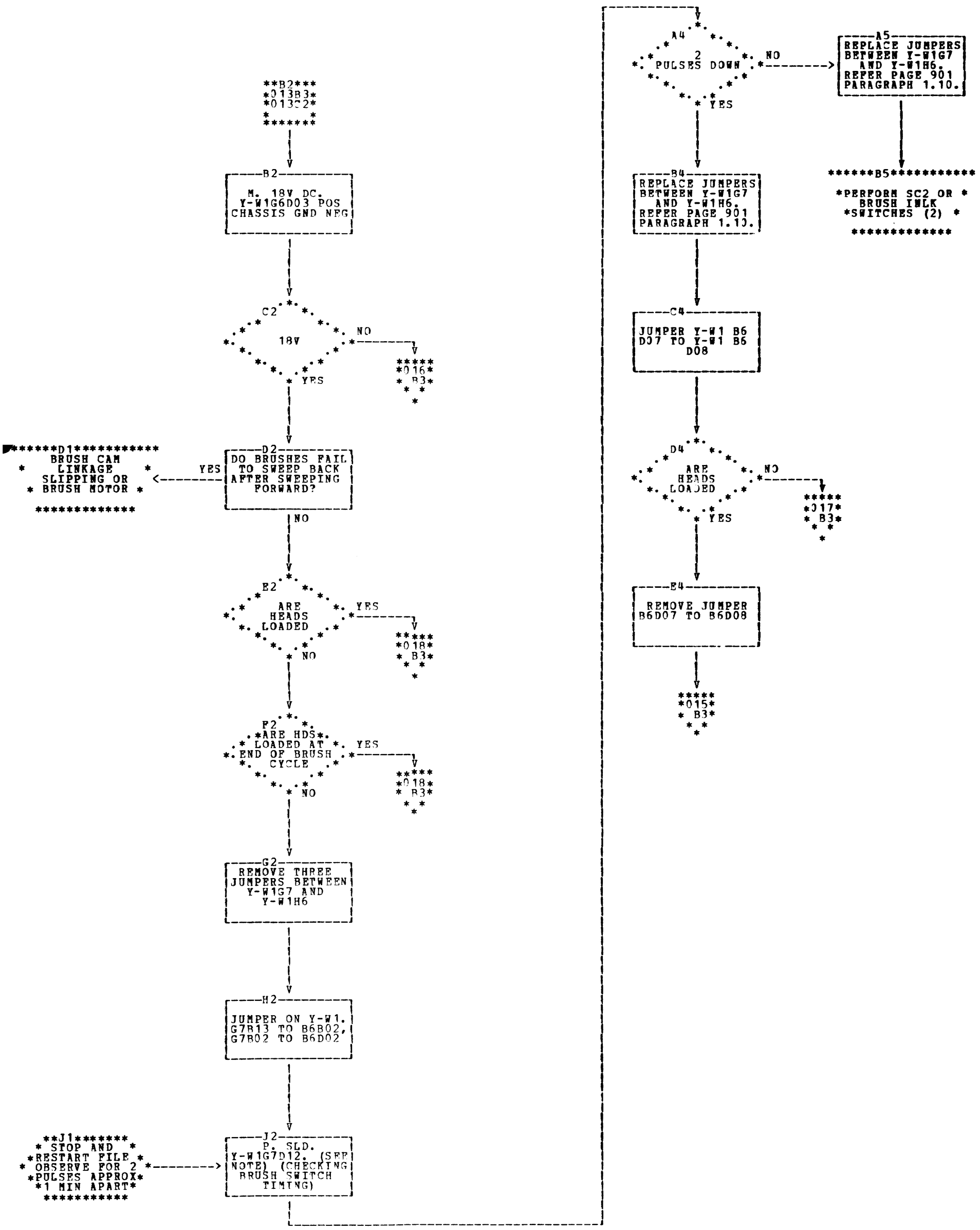


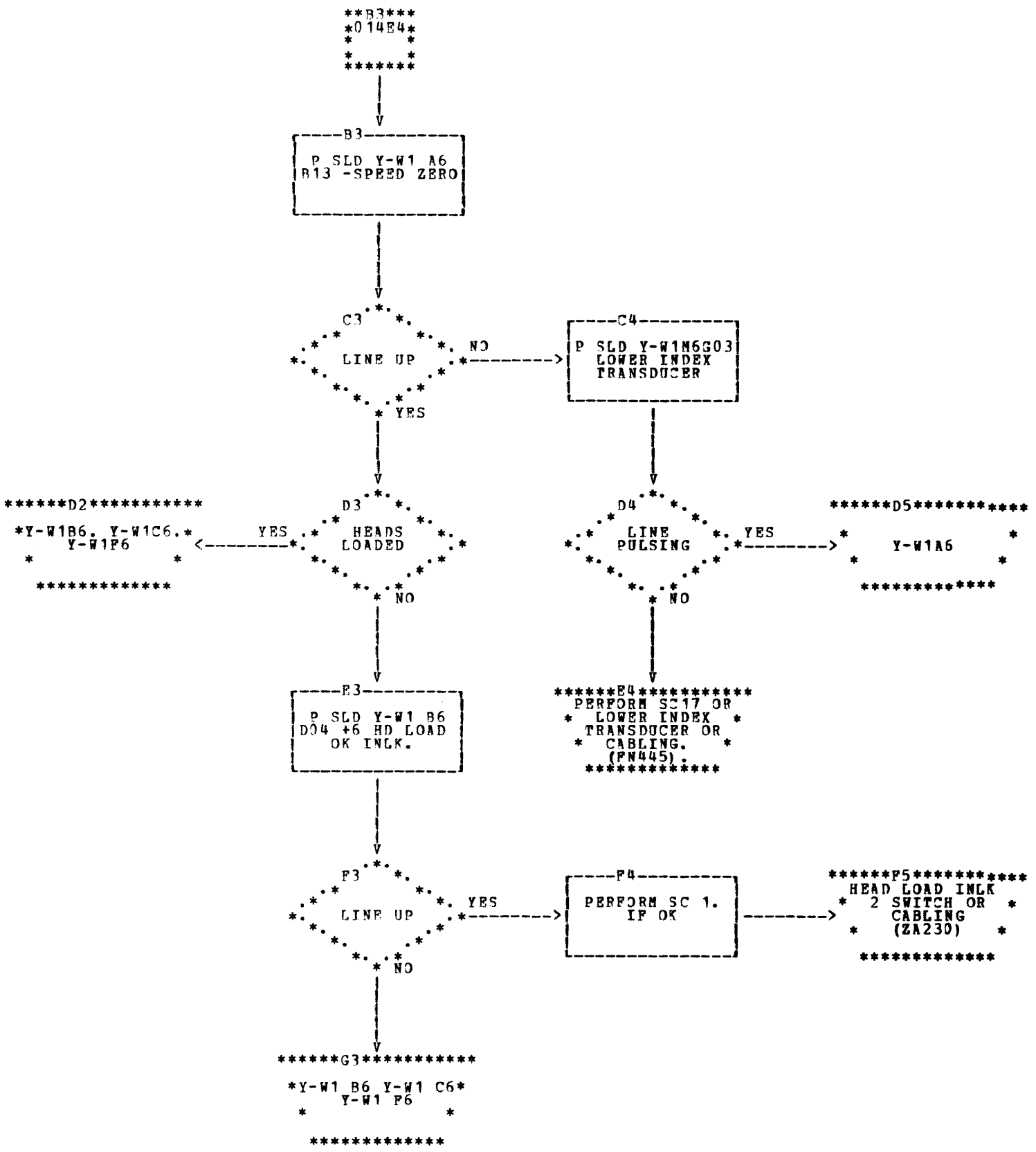

A3
NOT READY ENTRY 1
1. REMOVE FRONT COVER AND FRONT COVER OF Y-W1 BOARD.
2. ENABLE DRAWER LOCK SWITCH.
3. VISUALLY INSPECT ACTUATOR DRIVE MECHANISM FOR SIGNS OF TIRE OR DRIVE DISK DAMAGE OR CONTAMINATION
C2
DAMAGE OR CONTAMINATION TO DRIVE MECHANISM?
YES
NO
C3
PULL FILE OUT AT REAR. CHECK PHOTOCELL LAMPS FOR FOCUS AND DISCOLORATION
024 B3*
D2
CAUTION- FINE HOME LAMP SHINES THROUGH UPPER LAMP
D3
ALL 3 LAMPS LIT (SEE NOTE)
NO
YES
D4
M 4V DC ACROSS UNLIT LAMP
E2
NOT READY. ENTRY 2
E3
START FILE. WAIT ONE MINUTE P SLD Y-W1H6J07 -DATA UNSAFE
E4
4V
YES
NO
E5
REPLACE DEFECTIVE LAMP
F2
M +6V DC Y-W1 G6 B11 POS CHASSIS GND NEG
F3
LINE UP
YES
NO
F4
M. 4V DC.. TB3.5 POS. TB3.2 NEG.
G2
6V
YES
NO
011 B3*
G3
P. SLD Y-W1H6J06 +DATA UNSAFE
G4
EXIT TO PCU ENTRY PAGE. POWER PROBLEM. (-4V)
G5
4V
NO
YES
H2
M +6V DC TB3.1 POS TB3.5 NEG
H3
LINE UP
YES
NO
H4
EXIT TO DATA UNSAFE CHART. PAGE 210
H5
CHECK.... 1.LAMP SEATING 2.CABLING (REF PN450) 3REPLACE X-W1A1
J1
CHK FOR OPEN LINE TB3-1 TO Y-W1G6B11 (ZA210)
J2
6V
YES
NO
J3
M +6V DC Y-W1G6B11-POS CHASSIS GRND-NEG
K2
EXIT TO PCU *MAIN ENTRY PG. POWER PROBLEM (+6V)
K3
+6V
NO
YES
K4
Y-W1H5

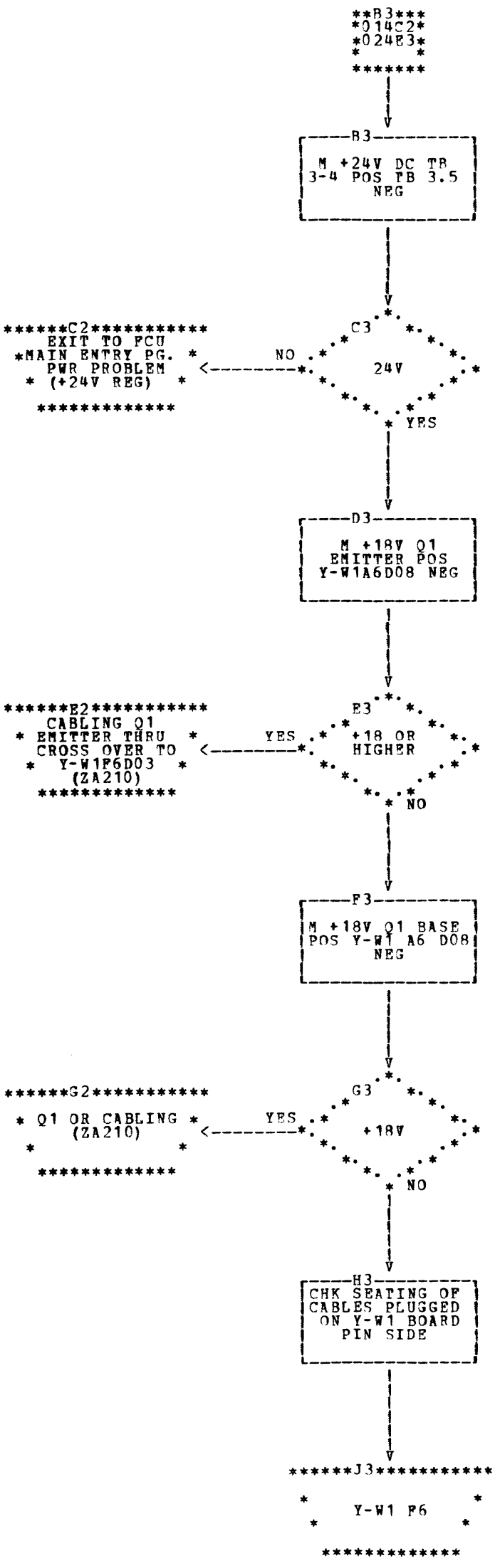

B3*
010G2
B3
IS DRIVE MOTOR TURNING CONTINOUSLY?
YES
B4
LAYSHAFT TURNING
NO
1. CHK FOR. BELT OFF
2. LOOSE JOCKEY PULLEY
3. LOOSE PULLEY ON LAY SHAFT OR BIND-ING LAY SHAFT.
YES
NO
STOP FILE SYSTEM PWR OFF MANUALLY ROTATE DISK SPINDLE LAY SHAFT AND MOTOR PULLEY
STOP FILE. MANUALLY MOVE CARR TO FULLY RETRACTED POSITION IF NOT FULLY RETRACTED. PULL FILE OUT AT REAR AND OBSERVE MOTION OF CARR DURING 1 1/2 MINUTES OF START UP SEQUENCE. >SR. START FILE
D3
ALL ROTATE FREELY TOGETHER THRU DRIVE BELT?
NO
CHK FOR.
1. BEARING BINDING
2. INCORRECTLY FITTING CARTRIDGE
3. LOOSE PULLEY-
YES
D4
DETENT FULLY ENGAGED
NO
*****
013
* B3*
YES
E3
POWER UP SYSTEM START FILE
E4
TRACK CROSSING PHOTOCELL FULLY EXPOSED BY SLOT ON DRIVE DISK
YES
*****
013
* B3*
NO
******F2**********
*RELAY CONTACTS * K2/2 OR CABLING * (ZA220) *
****
F3
DOES DRIVE MOTOR START THEN STOP?
YES
NO
******F4**********
*PERFORM SC S 9 THRU 14 *
****
G3
STOP AND RESTART FILE.
CHK VOLTAGES AT FOLLOWING TEST POINTS.
+24V DRIVER TB3-7 POS TB3-8 NEG
+24V START TB3-9 POS TB3-8 NEG
208V AC TB1-1 LINE TB1-3 NEUT
J3
ANY VOLTAGES MISSING
YES
NO
******J4**********
CHK SUPPLY *FUSES. EXIT TO * FCU MAIN ENTRY *(PWR PROBLEM)*
****
*****
012
* B3*

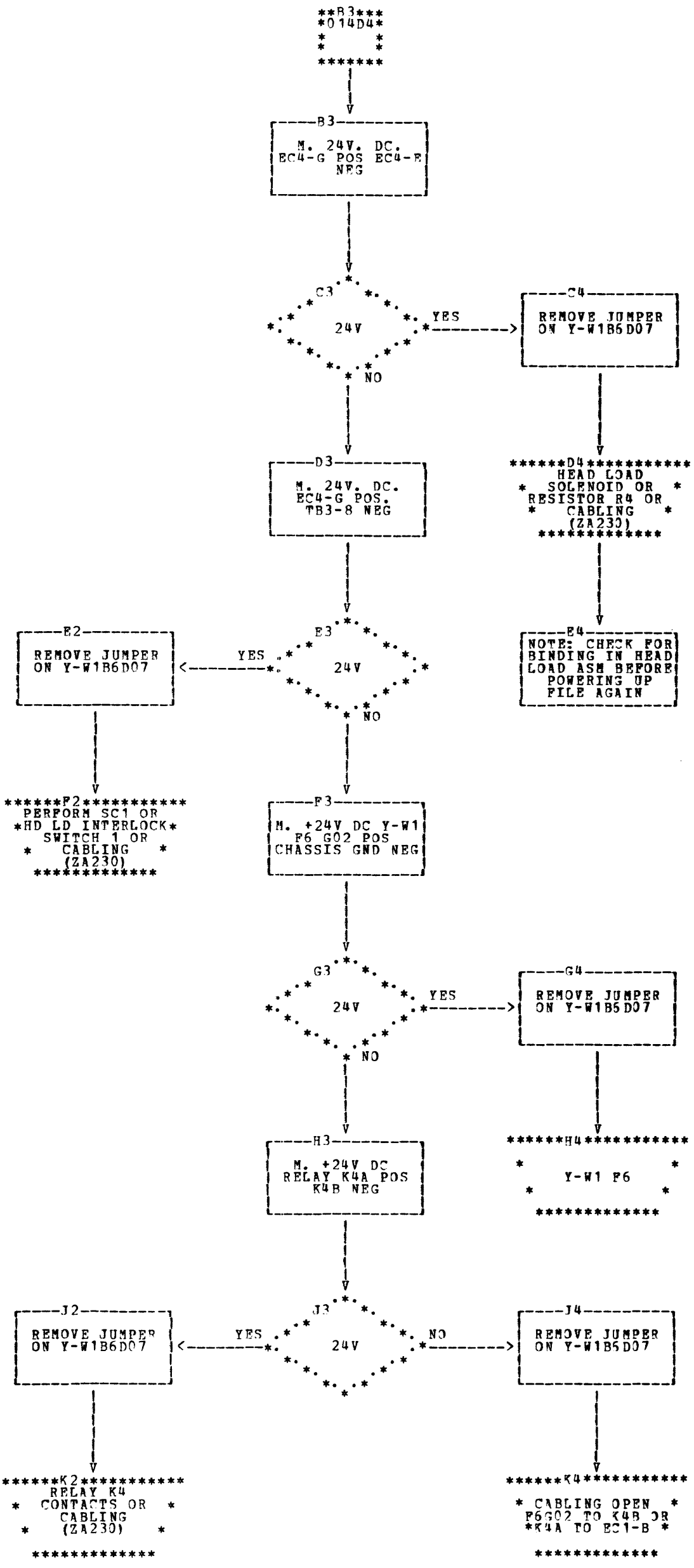

B3*
01103
****
B3
REMOVE AC BOX COVER. M 208V AC K1.1OP LINE. K1.1NO NEUT
B4*****
LOCATION REFER SYS DIAG ZZ220
****
C1*******
LOCATION REFER SYS DIAG ZZ220
****
C2
OPEN DC BOX M 6V DC K2.1 C POS K2.1 NO NEG
C3
208V (SEE NOTE)
YES
NO
C4
M 208V AC K1-1-NO. LINE, TB1-4 NEUT
A
******D1**********
RELAY K1 CONTACTS K1.1 OPEN OR CABLING (ZA200)
****
D2
ZERO VOLTS
YES
NO
D3****
NOTE FOR 50HZ SYSTEMS 240V AC
****
D4
208V (SEE NOTE)
YES
NO
D5
DRIVE MOTOR OR CAPACITOR C1 OR CABLING(ZA200)
E2
M. 24V DC... EC1.B POS. TB3.8 NEG.
E4
M 208V AC TB1.1 LINE TB1.3 NEUT
******F1**********
PERFORM SC4 OR CARTRIDGE INLK SWITCHES (ZA220)
****
F2
24V
NO
YES
F4
208V (SEE NOTE)
YES
NO
******F5**********
L1 OR L2 OR K1.1 CONTACTS (ZA200)
****
******G2**********
PERFORM SC2 OR BRUSH CYCLE INLK SW OR CABLING (ZA220)
****
******G4**********
EXIT TO FCU *MAIN ENTRY PG. * PWR PROBLEM (208V AC)
****

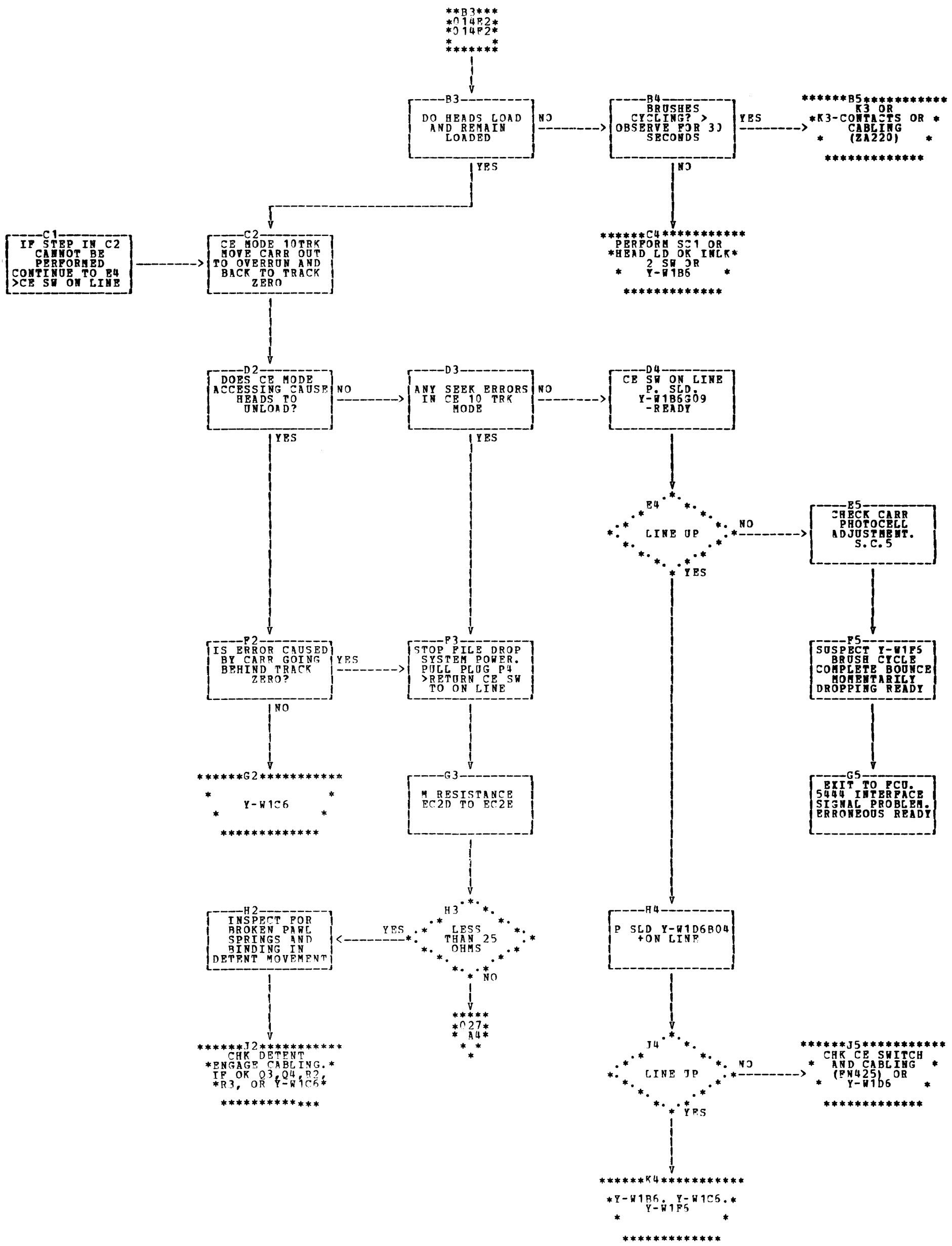

B3*
011D4
011E4
****
B3 CARR STOPS AT TRACK ZERO
YES
*****
014
* B2*
NO
1. REMOVE DETENT COVER AND ACTUATOR COVER.
2. MANUALLY DISENGAGE DETENT AND MOVE CARR TO TRACK ZERO.
3. JUMPER Y-W1G6D13 TO GROUND.
4. WHEN HEADS ARE LOADED REMOVE JUMPER
5. CHECK AGAIN CARRIAGE AT TRACK ZERO.
C3 CARR STOPS AT TRACK +1 OR -1?
YES
NO
D2****
* NOTE CARR *
MAY ONLY MAKE
* ONE FWD/REV *
* EXCURSION *
****
D3 CARR REMAINS FULLY RETRACTED OR ALTERNATELY ACCESS BETWEEN HOME & RETRACT
YES
D4 CARR ACCESSES ALTERNATELY BETWEEN HOME AND RETRACTED? .SEE NOTE IN D2
NO
*****
020
* B3*
NO
YES
E3 CARR STOPS BEHIND HOME BUT NOT AT FULLY RETRACTED?
YES
*****
025
* A2*
NO
E4 M 24V DC Y-W1 F6 B12 POS CHASSIS GND NEG +24 FILE START SW
F2 M +24V DC Q1 COLLECTOR-POS CHASSIS GROUND-NEG
YES
*****
019
* A4*
F3 CARR STOPS AT OVERRUN. FILE NOT READY. (SEE NOTE ON NEXT BLOCK)
NO
F4 24V
YES
******F5**********
* Y-W1B6 Y-W1F6 *
****
NO
******G4**********
CHK CABLING BETWEEN Y-W1F6B12, AND K2.B (ZA220 AND FN435)
****
****
*NOTE. ON SYSTEM *
*WITHOUT VISUAL *
*INDICATION OF *
*READY PROBE FOR *
*DOWN LEVEL ON *
*Y-W1B6G09 *
****
H3 FILE COMES READY BUT CARR NOT AT TRACK ZERO? (SEE NOTE)
YES
******H4**********
* EXIT TO SEEK FAILURE CHART PAGE 510 *
****
NO
1. REMOVE DETENT COVER AND ACTUATOR COVER.
2. MANUALLY DISENGAGE DETENT AND MOVE CARR TO TRACK ZERO.
3. JUMPER Y-W1G6D13 TO GROUND.
4. WHEN HEADS ARE LOADED REMOVE JUMPER
J3 CARR STOPS BETWEEN TRACKS ZERO AND 10?
YES
NO
*****
021
* B4*
*****
026
* A3*


B2*
013B3
013C2
****
B2
M. 18V DC.
Y-W1G6D03 POS
CHASSIS GND NEG
C2
18V
NO
YES
*****
016
* B3*
D1
BRUSH CAM
LINKAGE
SLIPPING OR
BRUSH MOTOR
D2
DO BRUSHES FAIL
TO SWEEP BACK
AFTER SWEEPING
FORWARD?
YES
NO
E2
ARE
HEADS
LOADED
YES
NO
B4*
018B3
018C2
F2
ARE HDS
LOADED AT
END OF BRUSH
CYCLE
YES
NO
G2
REMOVE THREE
JUMPERS BETWEEN
Y-W1G7 AND
Y-W1H6
H2
JUMPER ON Y-W1.
G7B13 TO B6B02,
G7B02 TO B6D02
J1
STOP AND
RESTART FILE
OBSERVE FOR 2
PULSES APPROX
1 MIN APART
J2
P. SLD.
Y-W1G7D12. (SEE
NOTE) (CHECKING
BRUSH SWITCH
TIMING)
A4
2
PULSES DOWN
NO
YES
A5
REPLACE JUMPERS
BETWEEN Y-W1G7
AND Y-W1H6.
REFER PAGE 901
PARAGRAPH 1.10.
B5
*PERFORM SC2 OR
BRUSH INLK
SWITCHES (2)
B4
REPLACE JUMPERS
BETWEEN Y-W1G7
AND Y-W1H6.
REFER PAGE 901
PARAGRAPH 1.10.
C4
JUMPER Y-W1 B6
D07 TO Y-W1 B6
D08
D4
ARE
HEADS
LOADED
NO
YES
*****
017
* B3*
E4
REMOVE JUMPER
B6D07 TO B6D08
*****
015
* B3*


B3*
014E4
B3
P SLD Y-W1 A6
B13 -SPEED ZERO
C3
LINE UP
NO
YES
C4
P SLD Y-W1N6G03
LOWER INDEX
TRANSDUCER
D3
HEADS
LOADED
YES
NO
******D2**********
Y-W1B6, Y-W1C6.
Y-W1F6
D4
LINE
PULSING
YES
NO
******D5**********
Y-W1A6
E3
P SLD Y-W1 B6
D04 +6 HD LOAD
OK INLK.
******E4**********
PERFORM SC17 OR
LOWER INDEX
TRANSDUCER OR
CABLING.
(FN445).
F3
LINE UP
YES
NO
F4
PERFORM SC 1.
IF OK
******F5**********
HEAD LOAD INLK
2 SWITCH OR
CABLING
(ZA230)
******G3**********
Y-W1 B6 Y-W1 C6
Y-W1 F6

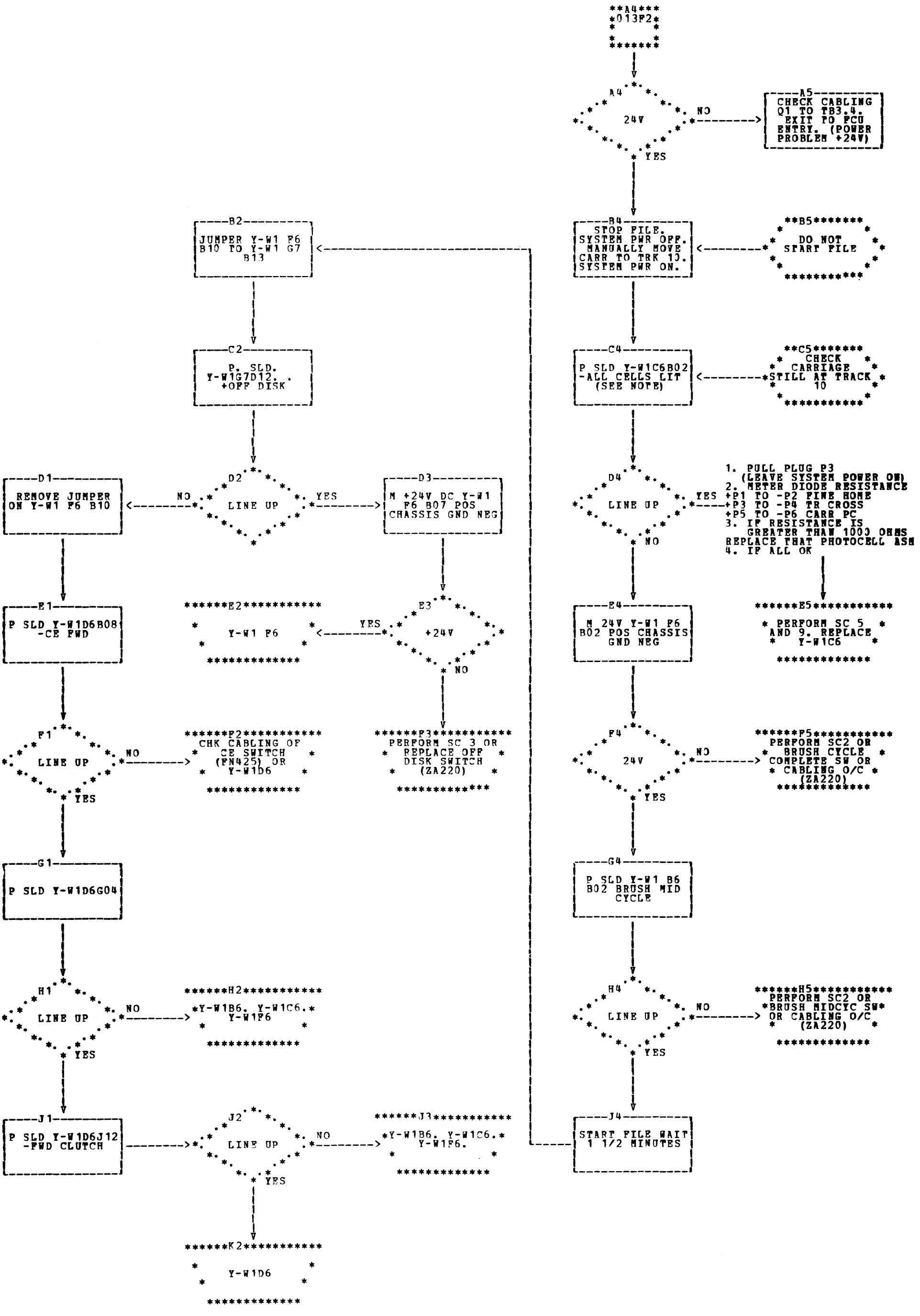

B3*
014C2
024E3
*
****
B3
M +24V DC TP
3-4 POS TB 3.5
NEG
C3
24V
NO
YES
******C2**********
EXIT TO PCU
*MAIN ENTRY PG.
PWR PROBLEM
(+24V REG)
D3
M +18V Q1
EMITTER POS
Y-W1A6D08 NEG
E3
+18 OR
HIGHER
YES
NO
******E2**********
CABLING Q1
EMITTER THRU
CROSS OVER TO
Y-W1F6D03
(ZA210)
F3
M +18V Q1 BASE
POS Y-W1 A6 D08
NEG
G3
+18V
YES
NO
******G2**********
Q1 OR CABLING
(ZA210)
H3
CHK SEATING OF
CABLES PLUGGED
ON Y-W1 BOARD
PIN SIDE
******J3**********
Y-W1 P6

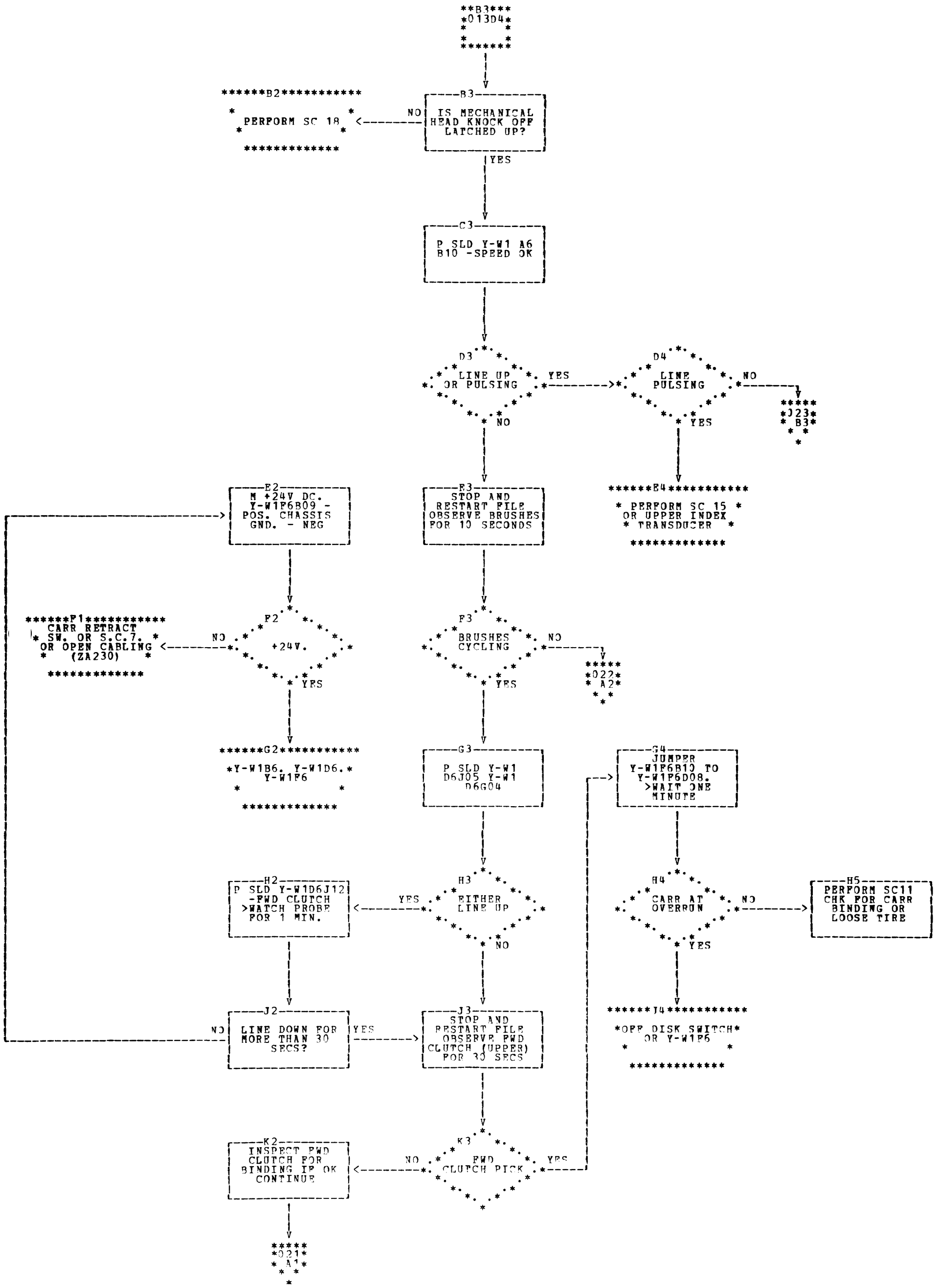

B3*
014D4
B3
M. 24V. DC.
EC4-G POS EC4-E
NEG
C3
24V
YES
NO
C4
REMOVE JUMPER
ON Y-W1B6D07
D3
M. 24V. DC.
EC4-G POS.
TB3-8 NEG
******D4**********
HEAD LOAD
SOLENOID OR
RESISTOR R4 OR
CABLING
(ZA230)
E3
24V
YES
NO
E2
REMOVE JUMPER
ON Y-W1B6D07
E4
NOTE: CHECK FOR
BINDING IN HEAD
LOAD ASM BEFORE
POWERING UP
FILE AGAIN
******F2**********
PERFORM SC1 OR
HD LD INTERLOCK
SWITCH 1 OR
CABLING
(ZA230)
F3
M. +24V DC Y-W1
F6 G02 POS
CHASSIS GND NEG
G3
24V
YES
NO
G4
REMOVE JUMPER
ON Y-W1B5D07
H3
M. +24V DC
RELAY K4A POS
K4B NEG
******H4**********
Y-W1 P6
J3
24V
YES
NO
J2
REMOVE JUMPER
ON Y-W1B6D07
J4
REMOVE JUMPER
ON Y-W1B5D07
******K2**********
RELAY K4
CONTACTS OR
CABLING
(ZA230)
******K4**********
CABLING OPEN
P6G02 TO K4B OR
*K4A TO EC1-B *

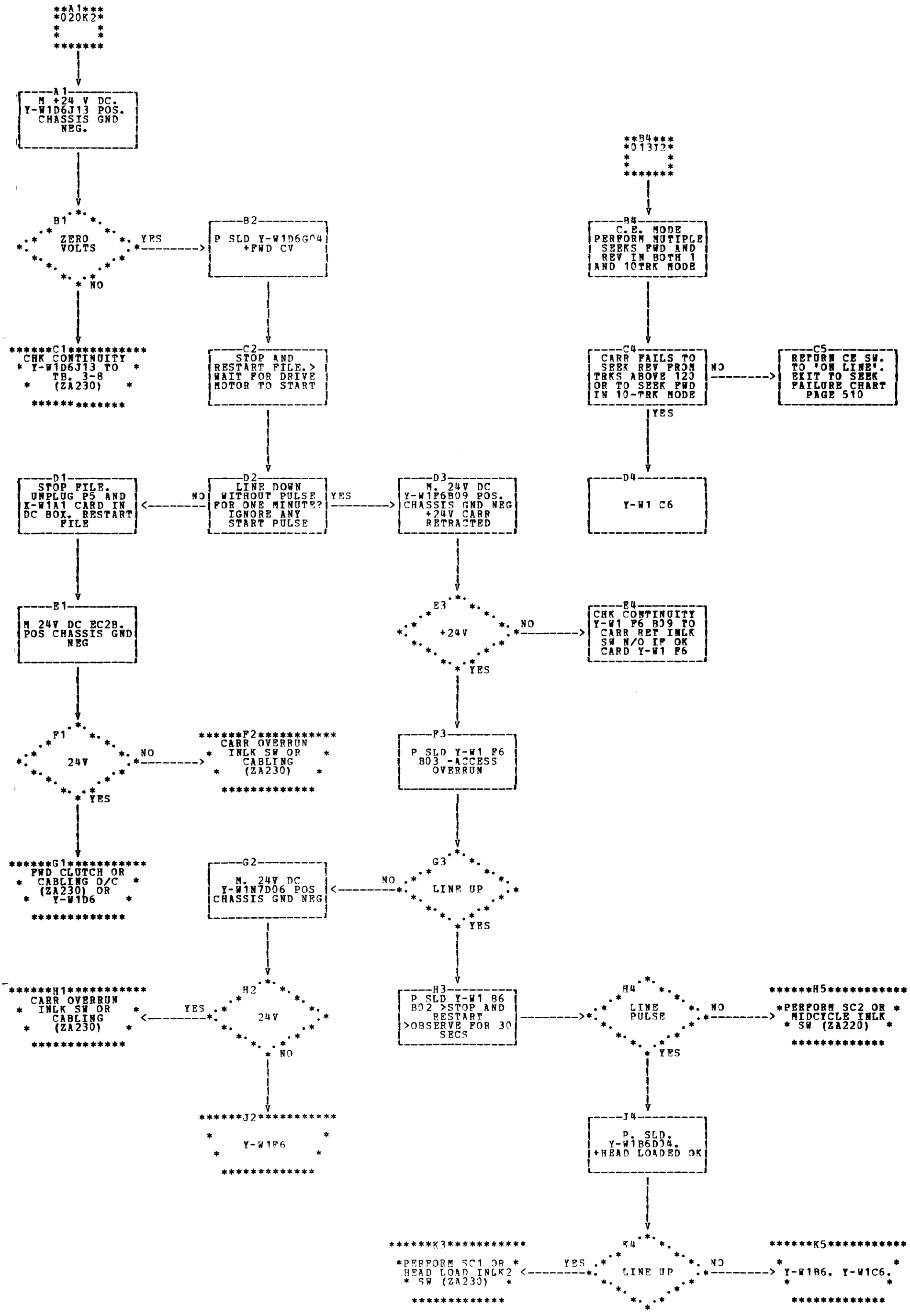

B3*
014B2
014F2
****
B3
DO HEADS LOAD AND REMAIN LOADED
NO
B4
BRUSHES CYCLING? > OBSERVE FOR 30 SECONDS
YES
******B5**********
K3 OR
*K3-CONTACTS OR *
CABLING
* (ZA220) *
****
YES
NO
C1
IF STEP IN C2 CANNOT BE PERFORMED CONTINUE TO E4 >CE SW ON LINE
C2
CE MODE 10TRK MOVE CARR OUT TO OVERRUN AND BACK TO TRACK ZERO
******C4**********
PERFORM SC1 OR
HEAD LD OK INLK
2 SW OR
* Y-W1B6 *
****
D2
DOES CE MODE ACCESSING CAUSE HEADS TO UNLOAD?
NO
D3
ANY SEEK ERRORS IN CE 10 TRK MODE
NO
D4
CE SW ON LINE P. SLD. Y-W1B6G09 -READY
YES
YES
E4
LINE UP
NO
E5
CHECK CARR PHOTOCELL ADJUSTMENT. S.C.5
YES
F2
IS ERROR CAUSED BY CARR GOING BEHIND TRACK ZERO?
YES
F3
STOP FILE DROP SYSTEM POWER. PULL PLUG P4 >RETURN CE SW TO ON LINE
F5
SUSPECT Y-W1F5 BRUSH CYCLE COMPLETE BOUNCE MOMENTARILY DROPPING READY
NO
******G2**********
* *
Y-W1C6
* *
****
G3
M RESISTANCE EC2D TO EC2E
G5
EXIT TO PCU. 5444 INTERFACE SIGNAL PROBLEM. ERRONEOUS READY
H2
INSPECT FOR BROKEN PAWL SPRINGS AND BINDING IN DETENT MOVEMENT
YES
H3
LESS THAN 25 OHMS
NO
*****
027
* A4*
H4
P SLD Y-W1D6B04 +ON LINE
******J2**********
CHK DETENT
ENGAGE CABLING.
IF OK Q3,Q4,R2,
R3, OR Y-W1C6
****
J4
LINE UP
NO
******J5**********
CHK CE SWITCH AND CABLING
* AND CABLING *
(FN425) OR
* Y-W1D6 *
****
YES
******K4**********
Y-W1B6, Y-W1C6.
Y-W1F5
* *
****

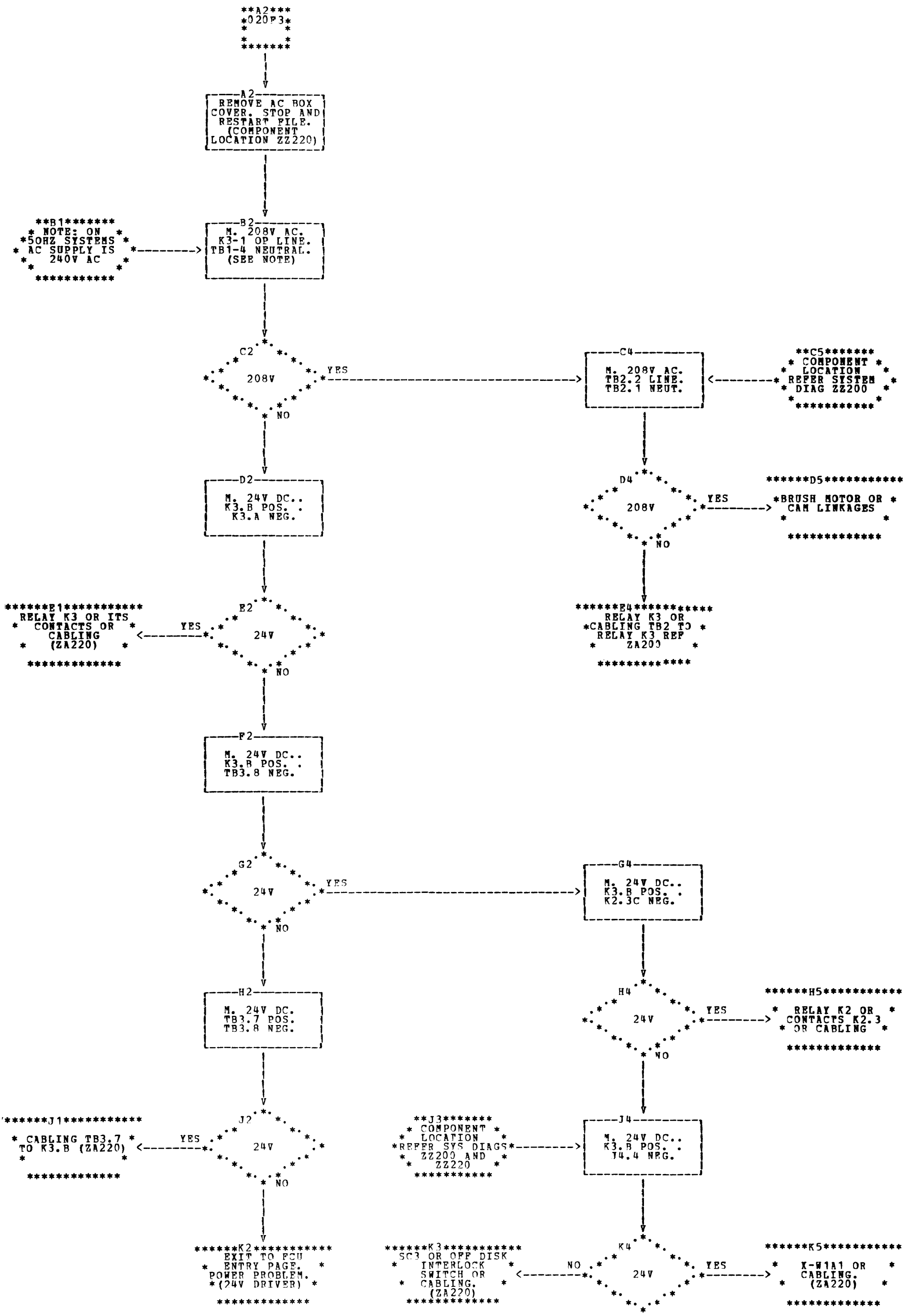
FIELD USE ONLY.

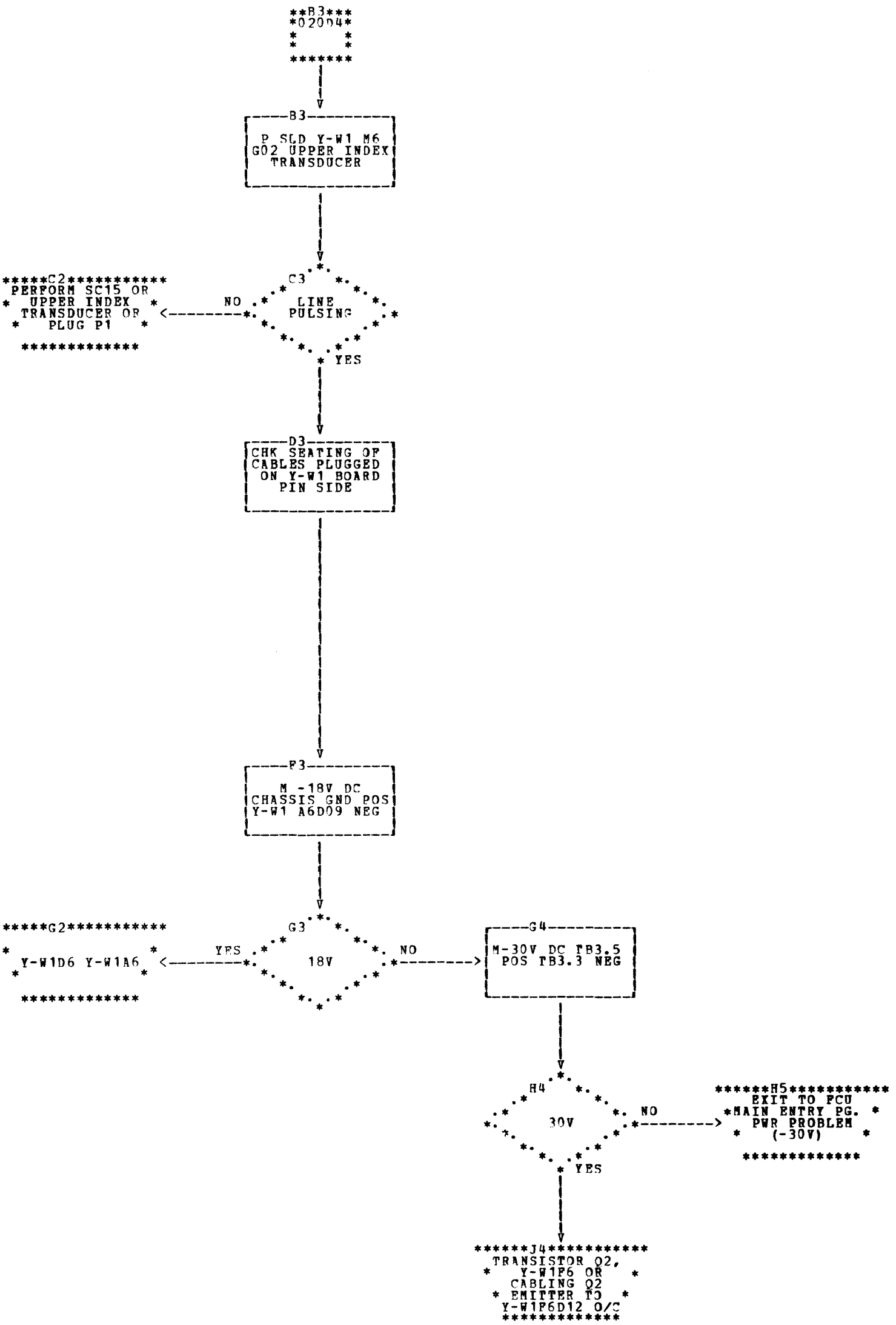
PREV EC 392133 PRES EC 392140 PN 2598105 SHEET 10 OF 18

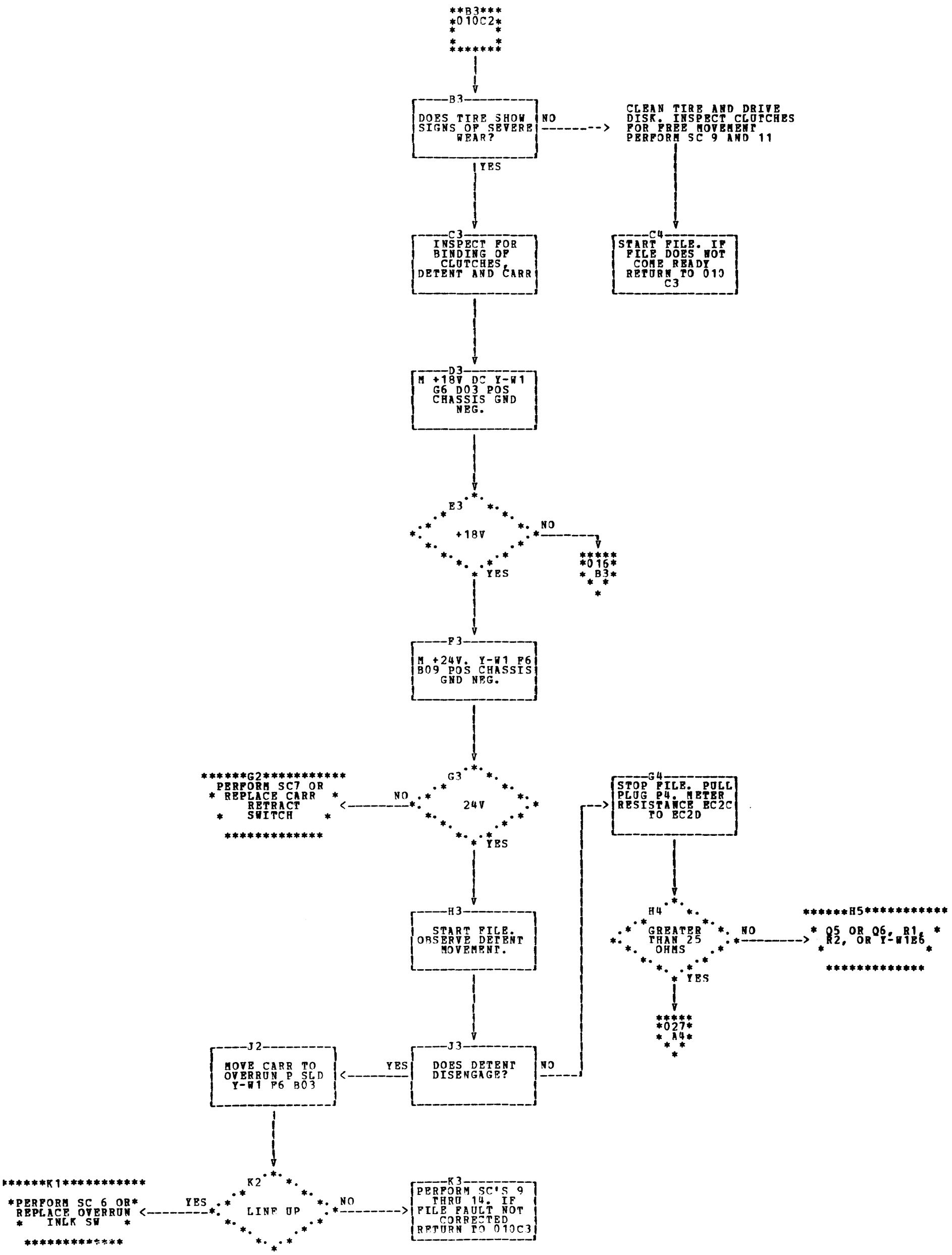


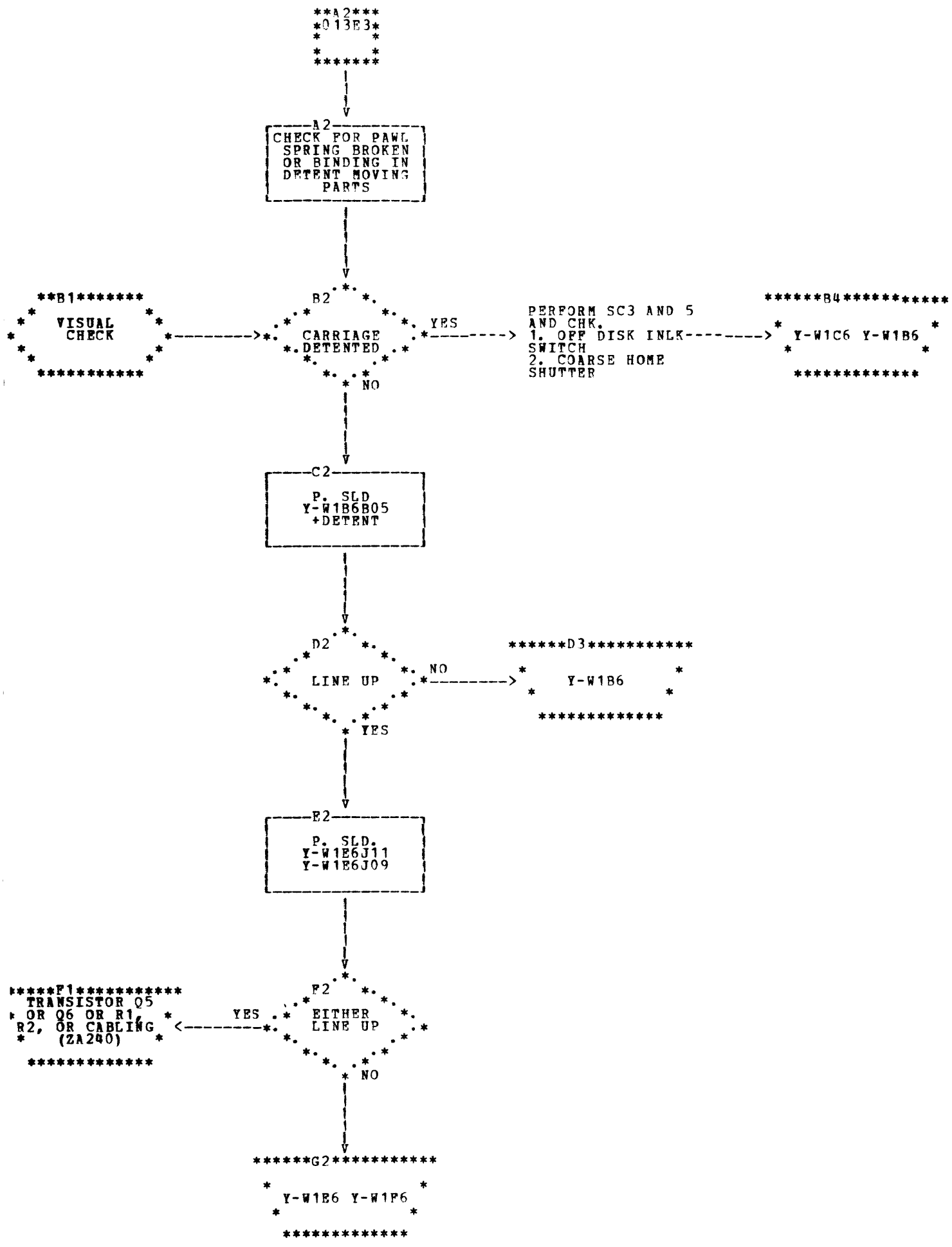

B3*
013D4
****
B3
IS MECHANICAL HEAD KNOCK OFF LATCHED UP?
NO
******B2**********
PERFORM SC 18
YES
C3
P SLD Y-W1 A6 B10 -SPEED OK
D3
LINE UP OR PULSING
YES
D4
LINE PULSING
NO
*****
J23
* B3*
NO
YES
E2
M +24V DC. Y-W1F6B09 - POS. CHASSIS GND. - NEG
E3
STOP AND RESTART FILE OBSERVE BRUSHES FOR 10 SECONDS
******E4**********
PERFORM SC 15 OR UPPER INDEX TRANSDUCER
F2
+24V.
NO
YES
******F1**********
CARR RETRACT SW. OR S.C.7. OR OPEN CABLING (ZA230)
F3
BRUSHES CYCLING
NO
YES
*****
022
* A2*
******G2**********
Y-W1B6. Y-W1D6. Y-W1F6
G3
P SLD Y-W1 D6J05 Y-W1 D6G04
G4
JUMPER Y-W1F6B10 TO Y-W1P6D08. >WAIT ONE MINUTE
H2
P SLD Y-W1D6J12 -FWD CLUTCH >WATCH PROBE FOR 1 MIN.
H3
EITHER LINE UP
YES
NO
H4
CARR AT OVERRUN
NO
YES
H5
PERFORM SC11 CHK FOR CARR BINDING OR LOOSE TIRE
J2
LINE DOWN FOR MORE THAN 30 SECS?
NO
YES
J3
STOP AND RESTART FILE OBSERVE FWD CLUTCH (UPPER) FOR 30 SECS
******J4**********
OFF DISK SWITCH OR Y-W1F6
K2
INSPECT FWD CLUTCH FOR BINDING IF OK CONTINUE
K3
FWD CLUTCH PICK
NO
YES
*****
021
* A1*

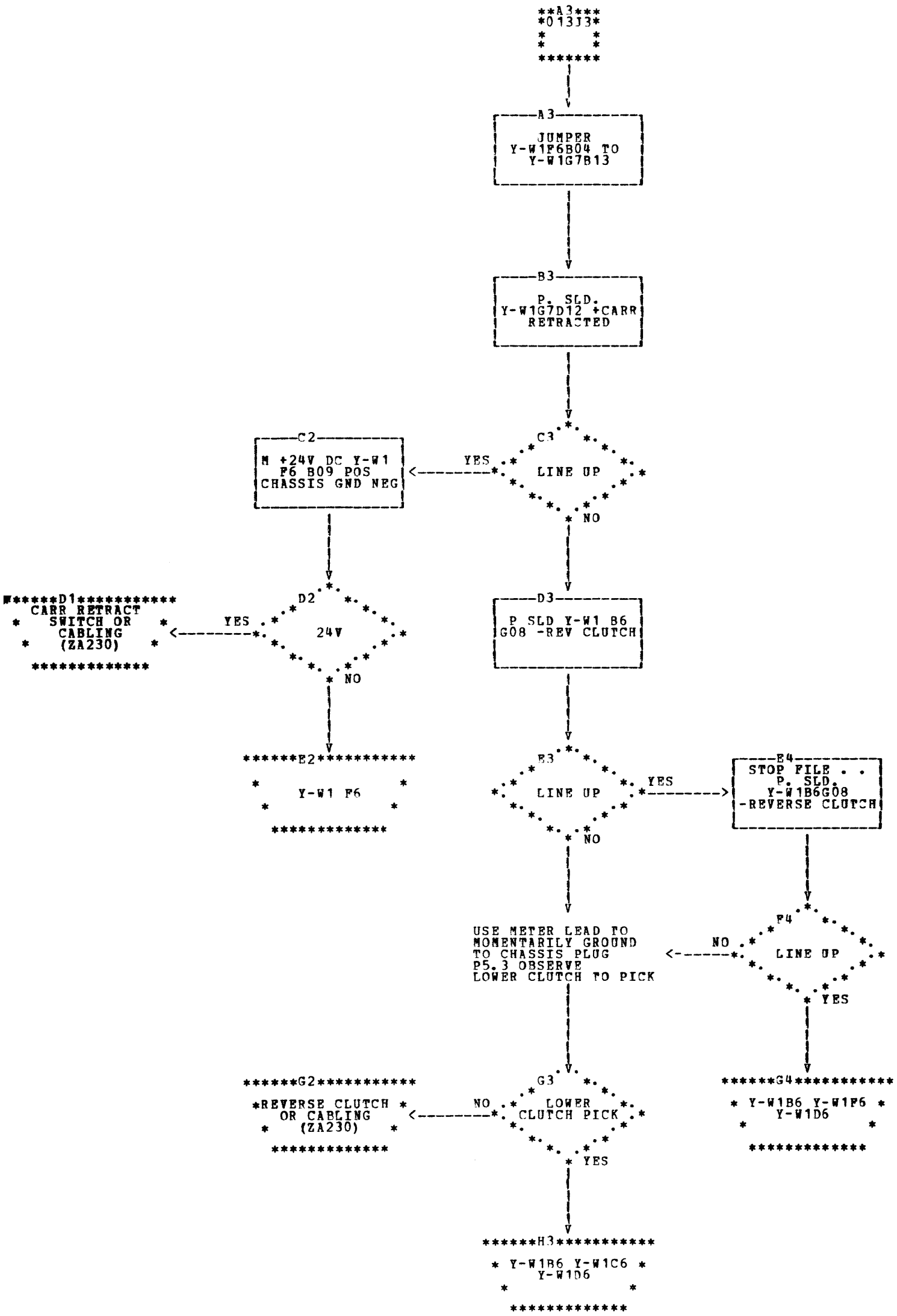

A1*
020K2
A1
M +24 V DC.
Y-W1D6J13 POS.
CHASSIS GND
NEG.
B1
ZERO VOLTS
YES
NO
B2
P SLD Y-W1D6G04
+FWD CV
B4*
01312
B4
C.E. MODE
PERFORM MUTIPLE
SEEKS FWD AND
REV IN BOTH 1
AND 10TRK MODE
******C1**********
CHK CONTINUITY
Y-W1D6J13 TO
TB. 3-8
(ZA230)
C2
STOP AND
RESTART FILE.>
WAIT FOR DRIVE
MOTOR TO START
C4
CARR FAILS TO
SEEK REV FROM
TRKS ABOVE 120
OR TO SEEK FWD
IN 10-TRK MODE
NO
C5
RETURN CE SW.
TO 'ON LINE'.
EXIT TO SEEK
FAILURE CHART
PAGE 510
YES
D1
STOP FILE.
UNPLUG P5 AND
X-W1A1 CARD IN
DC BOX. RESTART
FILE
D2
LINE DOWN
WITHOUT PULSE
FOR ONE MINUTE?
IGNORE ANY
START PULSE
NO
YES
D3
M. 24V DC
Y-W1F6B09 POS.
CHASSIS GND NEG
+24V CARR
RETRACTED
D4
Y-W1 C6
E1
M 24V DC EC2B.
POS CHASSIS GND
NEG
E3
+24V
NO
YES
E4
CHK CONTINUITY
Y-W1 F6 B09 TO
CARR RET INLK
SW N/O IF OK
CARD Y-W1 F6
F1
24V
NO
YES
******F2**********
CARR OVERRUN
INLK SW OR
CABLING
(ZA230)
F3
P SLD Y-W1 F6
B03 -ACCESS
OVERRUN
******G1**********
FWD CLUTCH OR
CABLING O/C
(ZA230) OR
Y-W1D6
G2
M. 24V DC
Y-W1N7D06 POS
CHASSIS GND NEG
G3
LINE UP
NO
YES
******H1**********
CARR OVERRUN
INLK SW OR
CABLING
(ZA230)
H2
24V
YES
NO
H3
P SLD Y-W1 B6
B02 >STOP AND
RESTART
>OBSERVE FOR 30
SECS
H4
LINE PULSE
NO
YES
******H5**********
*PERFORM SC2 OR *
MIDCYCLE INLK
SW (ZA220)
******J2**********
Y-W1F6
J4
P. SLD.
Y-W1B6D04.
+HEAD LOADED OK
******K3**********
*PERFORM SC1 OR *
HEAD LOAD INLK2
SW (ZA230)
K4
LINE UP
YES
NO
******K5**********
Y-W1B6. Y-W1C6.


A2*
020F3
A2
REMOVE AC BOX COVER. STOP AND RESTART FILE. (COMPONENT LOCATION ZZ220)
B1*****
NOTE: ON 50HZ SYSTEMS AC SUPPLY IS 240V AC
B2
M. 208V AC. K3-1 OP LINE. TB1-4 NEUTRAL. (SEE NOTE)
C2
208V
YES
NO
C4
M. 208V AC. TB2.2 LINE. TB2.1 NEUT.
C5*****
COMPONENT LOCATION REFER SYSTEM DIAG ZZ200
D2
M. 24V DC.. K3.B POS. . K3.A NEG.
D4
208V
YES
NO
******D5***********
BRUSH MOTOR OR CAM LINKAGES
******E1***********
RELAY K3 OR ITS CONTACTS OR CABLING (ZA220)
E2
24V
YES
NO
******E4***********
RELAY K3 OR CABLING TB2 TO RELAY K3 REF ZA200
F2
M. 24V DC.. K3.B POS. . TB3.8 NEG.
G2
24V
YES
NO
G4
M. 24V DC.. K3.B POS. . K2.3C NEG.
H2
M. 24V DC. TB3.7 POS. TB3.8 NEG.
H4
24V
YES
NO
******H5***********
RELAY K2 OR CONTACTS K2.3 OR CABLING
******J1***********
CABLING TB3.7 TO K3.B (ZA220)
J2
24V
YES
NO
J3*****
COMPONENT LOCATION REFER SYS DIAGS ZZ200 AND ZZ220
J4
M. 24V DC.. K3.B POS. . J4.4 NEG.
******K2***********
EXIT TO FCU ENTRY PAGE. POWER PROBLEM. (24V DRIVER)
******K3***********
SC3 OR OFF DISK INTERLOCK SWITCH OR CABLING. (ZA220)
K4
24V
NO
YES
******K5***********
X-W1A1 OR CABLING. (ZA220)

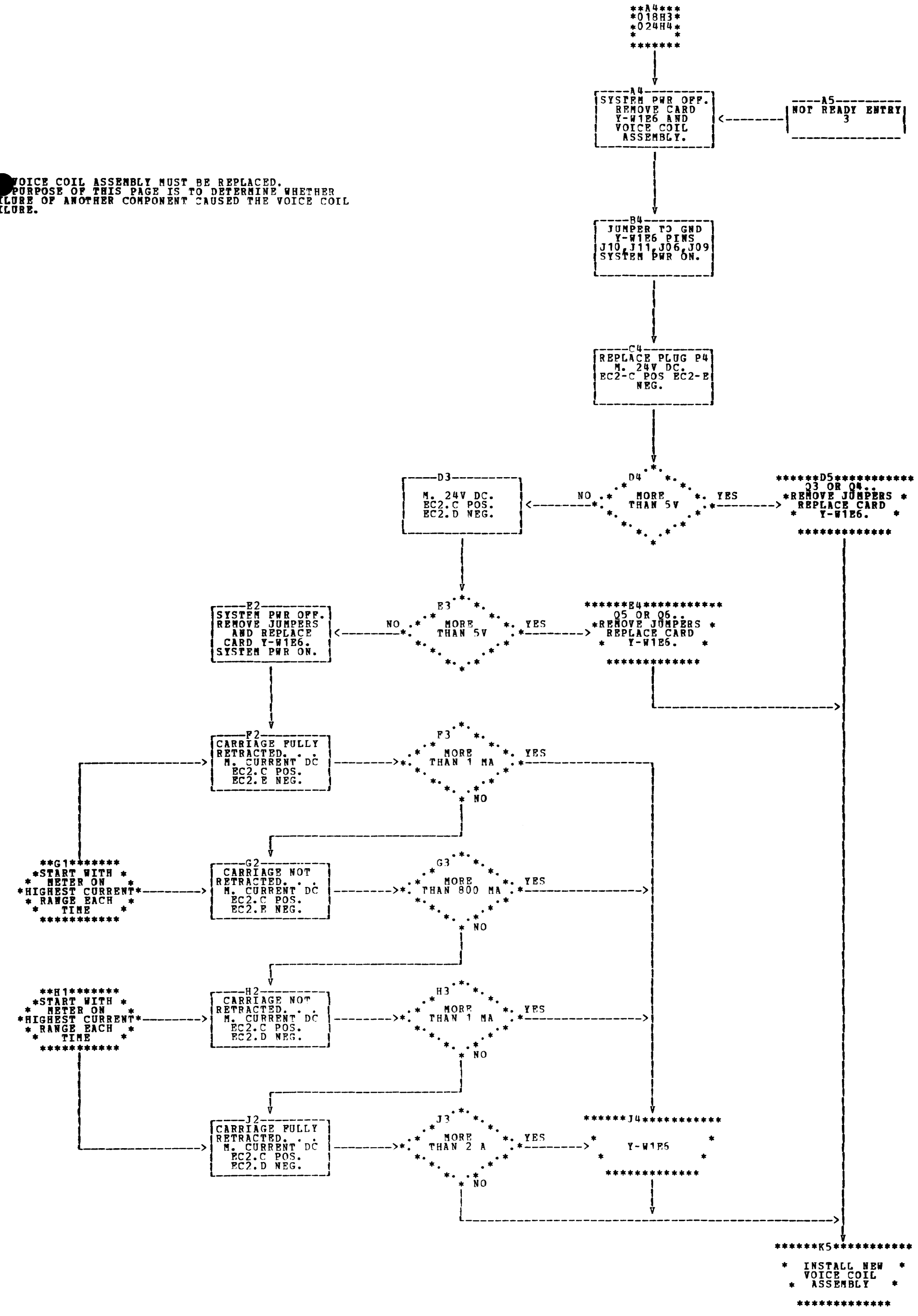

B3*
02004
B3
P SLD Y-W1 M6
G02 UPPER INDEX
TRANSDUCER
C3
NO
LINE PULSING
YES
******C2**********
PERFORM SC15 OR
UPPER INDEX
TRANSDUCER OR
PLUG P1
D3
CHK SEATING OF
CABLES PLUGGED
ON Y-W1 BOARD
PIN SIDE
F3
M -18V DC
CHASSIS GND POS
Y-W1 A6D09 NEG
G3
18V
YES
NO
******G2**********
Y-W1D6 Y-W1A6
G4
M-30V DC TB3.5
POS TB3.3 NEG
H4
30V
NO
YES
******H5**********
EXIT TO FCU
MAIN ENTRY PG.
PWR PROBLEM
(-30V)
******J4**********
TRANSISTOR Q2,
Y-W1F6 OR
CABLING Q2
EMITTER TO
Y-W1F6D12 O/C

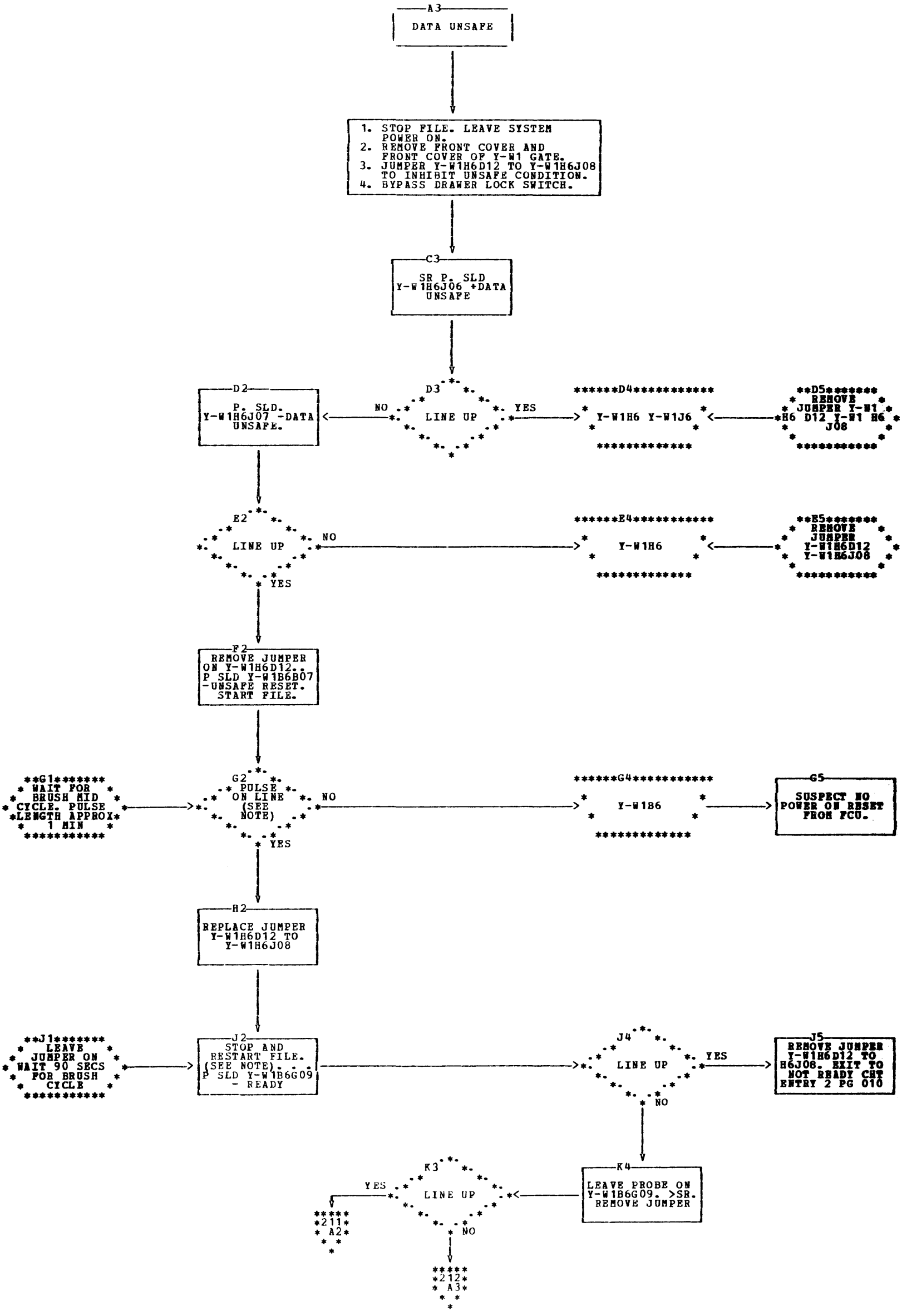

B3*
010C2
B3
DOES TIRE SHOW SIGNS OF SEVERE WEAR?
NO
CLEAN TIRE AND DRIVE DISK. INSPECT CLUTCHES FOR FREE MOVEMENT PERFORM SC 9 AND 11
YES
C3
INSPECT FOR BINDING OF CLUTCHES, DETENT AND CARR
C4
START FILE. IF FILE DOES NOT COME READY RETURN TO 010 C3
D3
M +18V DC Y-W1 G6 D03 POS CHASSIS GND NEG.
E3
+18V
NO
*****
016
* B3*
YES
F3
M +24V. Y-W1 F6 B09 POS CHASSIS GND NEG.
*****G2*********
PERFORM SC7 OR REPLACE CARR RETRACT SWITCH
G3
24V
NO
YES
G4
STOP FILE. PULL PLUG P4. METER RESISTANCE EC2C TO EC2D
H3
START FILE. OBSERVE DETENT MOVEMENT.
H4
GREATER THAN 25 OHMS
NO
******H5**********
Q5 OR Q6, R1, R2, OR Y-W1E6
YES
*****
027
* A4*
J2
MOVE CARR TO OVERRUN P SLD Y-W1 P6 B03
YES
J3
DOES DETENT DISENGAGE?
NO
******K1**********
PERFORM SC 6 OR REPLACE OVERRUN INLK SW
YES
K2
LINE UP
NO
K3
PERFORM SC'S 9 THRU 14. IF FILE FAULT NOT CORRECTED RETURN TO 010C3

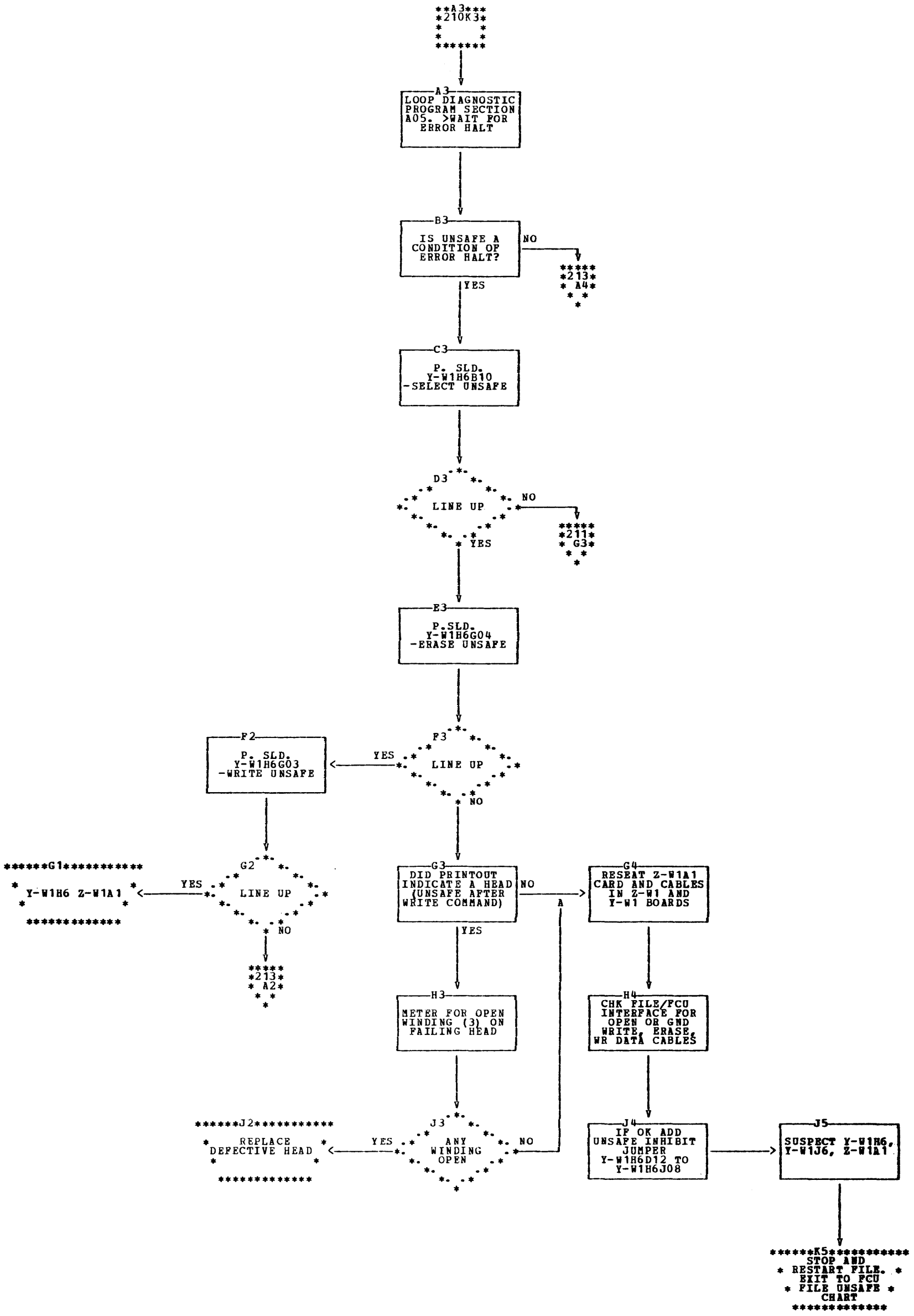

A2*
013E3
A2
CHECK FOR PAWL SPRING BROKEN OR BINDING IN DETENT MOVING PARTS
B1*****
VISUAL CHECK
B2
CARRIAGE DETENTED
YES
NO
PERFORM SC3 AND 5 AND CHK.
1. OFF DISK INLK SWITCH
2. COARSE HOME SHUTTER
******B4***********
Y-W1C6 Y-W1B6
C2
P. SLD
Y-W1B6B05
+DETENT
D2
LINE UP
NO
YES
******D3***********
Y-W1B6
E2
P. SLD.
Y-W1E6J11
Y-W1E6J09
F2
EITHER LINE UP
YES
NO
*****F1***********
TRANSISTOR Q5 OR Q6 OR R1, R2, OR CABLING (ZA240)
******G2***********
Y-W1E6 Y-W1F6

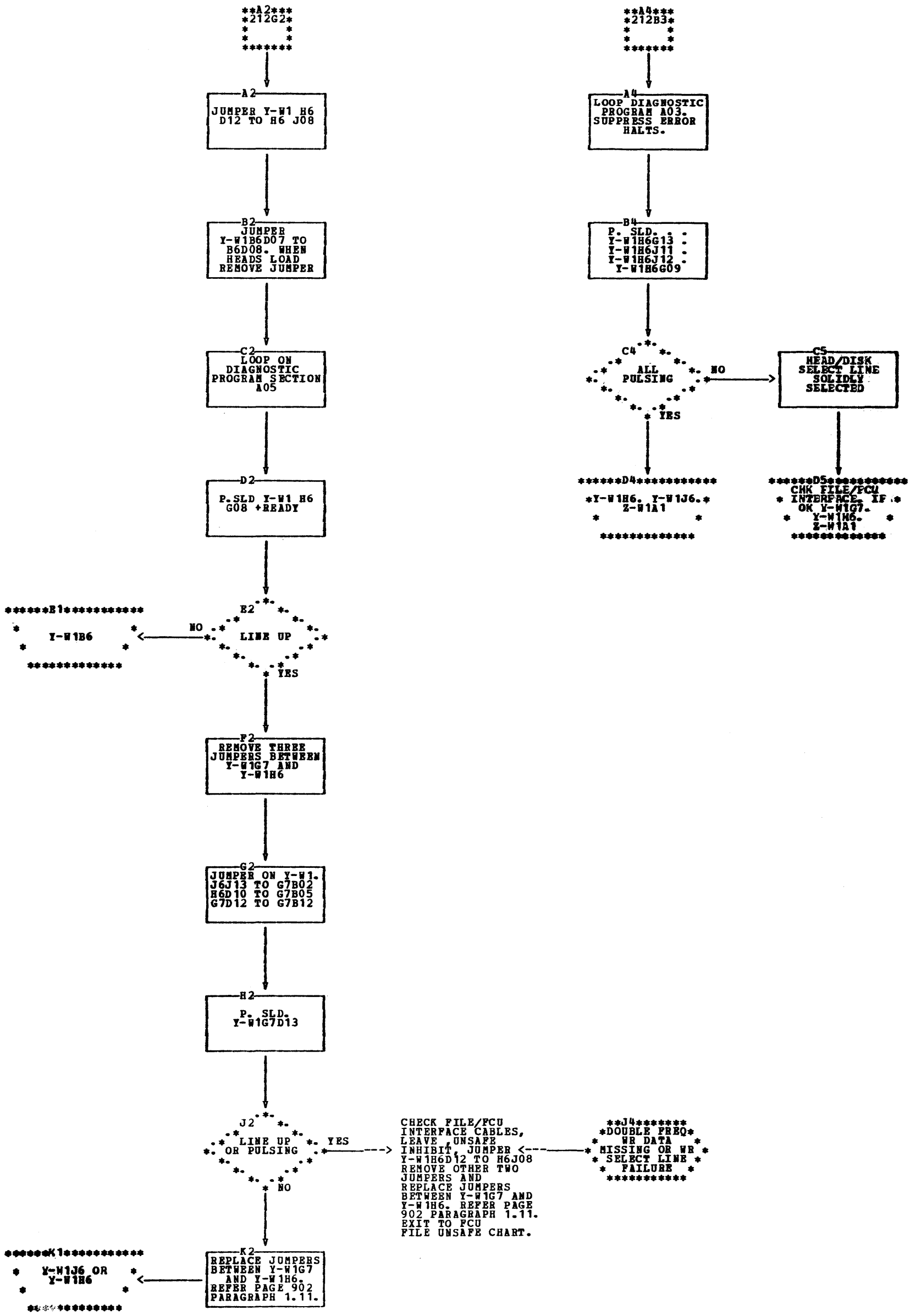

A3*
013J3
A3
JUMPER
Y-W1F6B04 TO
Y-W1G7B13
B3
P. SLD.
Y-W1G7D12 +CARR
RETRACTED
C2
M +24V DC Y-W1
F6 B09 POS
CHASSIS GND NEG
C3
LINE UP
YES
NO
******D1**********
CARR RETRACT
SWITCH OR
CABLING
(ZA230)
D2
24V
YES
NO
D3
P SLD Y-W1 B6
G08 -REV CLUTCH
******E2**********
Y-W1 F6
E3
LINE UP
YES
NO
E4
STOP FILE . .
P. SLD.
Y-W1B6G08
-REVERSE CLUTCH
USE METER LEAD TO
MOMENTARILY GROUND
TO CHASSIS PLUG
P5.3 OBSERVE
LOWER CLUTCH TO PICK
F4
LINE UP
NO
YES
******G2**********
*REVERSE CLUTCH *
OR CABLING
(ZA230)
G3
LOWER
CLUTCH PICK
NO
YES
******G4**********
* Y-W1B6 Y-W1F6 *
Y-W1D6
******H3**********
* Y-W1B6 Y-W1C6 *
Y-W1D6

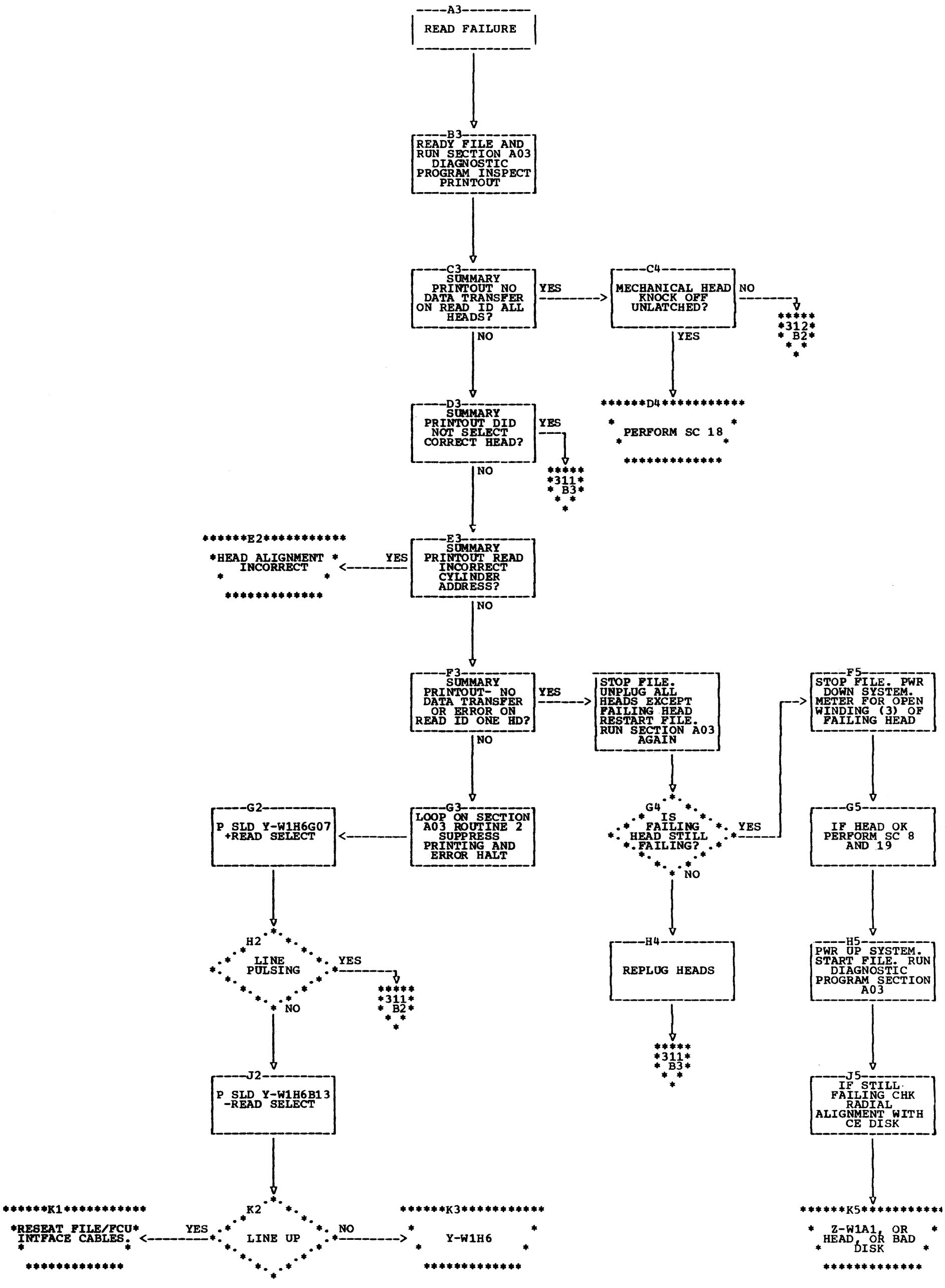
THE VOICE COIL ASSEMBLY MUST BE REPLACED.
THE PURPOSE OF THIS PAGE IS TO DETERMINE WHETHER FAILURE OF ANOTHER COMPONENT CAUSED THE VOICE COIL FAILURE.

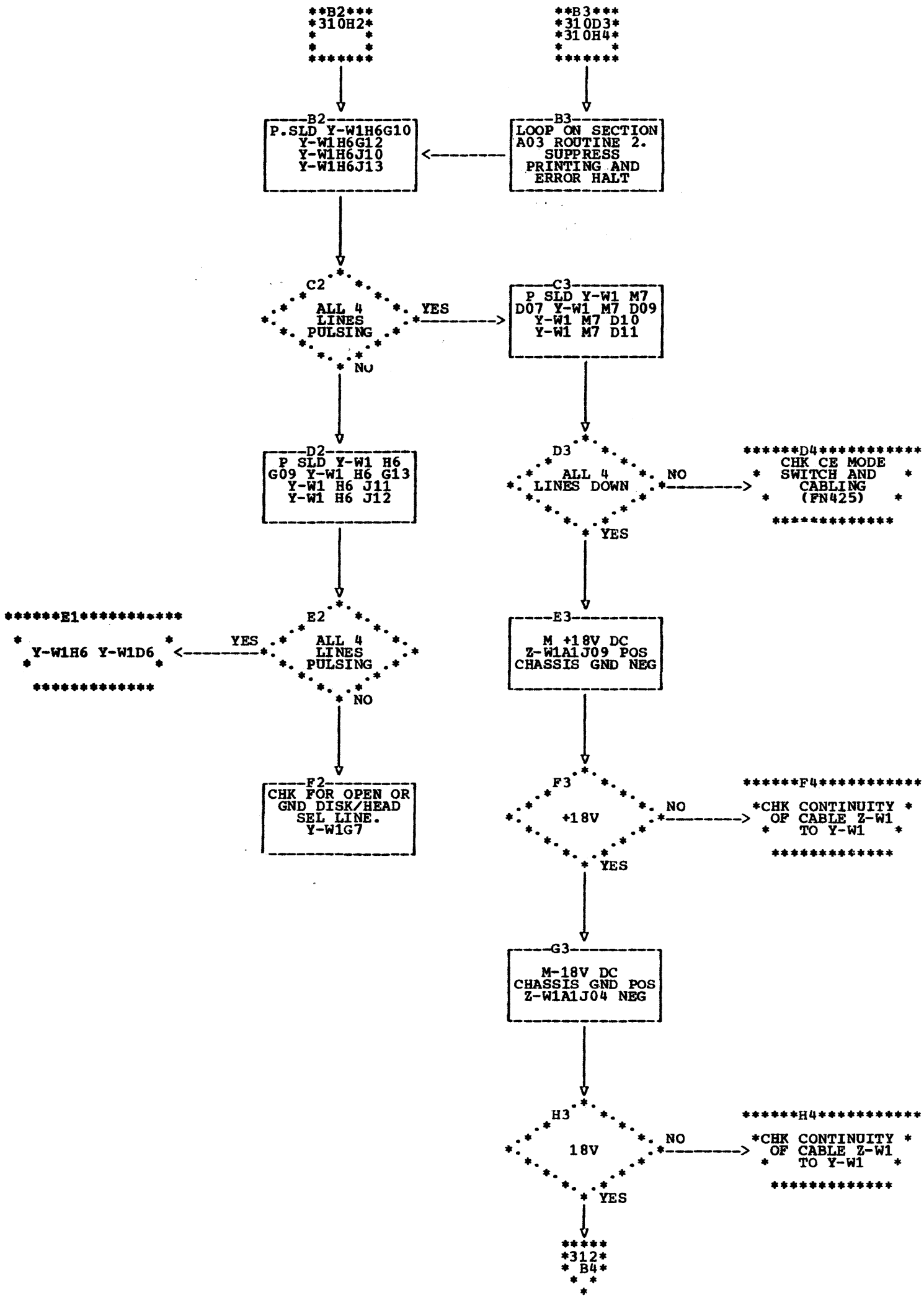


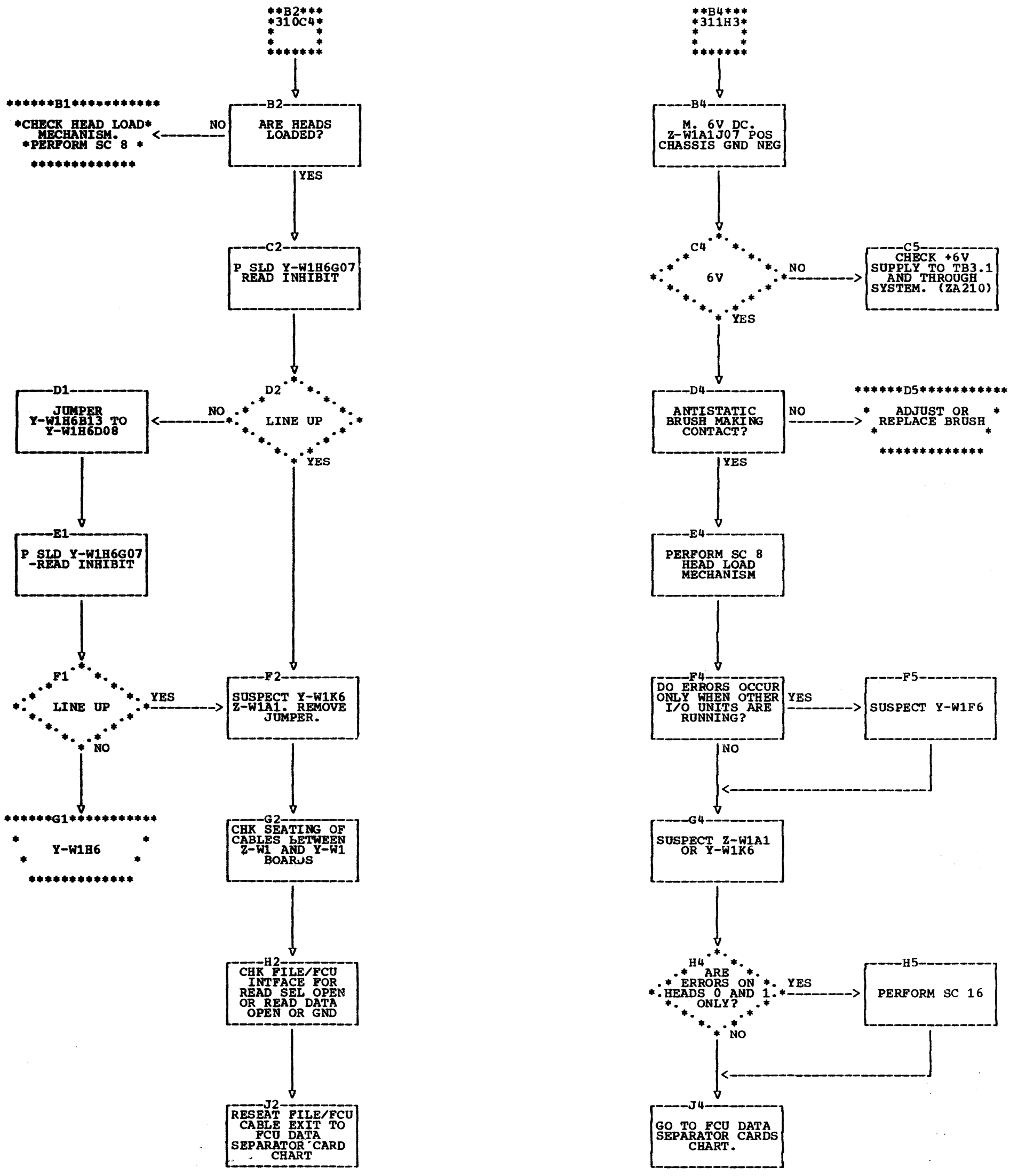

A3
DATA UNSAFE
1. STOP FILE. LEAVE SYSTEM POWER ON.
2. REMOVE FRONT COVER AND FRONT COVER OF Y-W1 GATE.
3. JUMPER Y-W1H6D12 TO Y-W1H6J08 TO INHIBIT UNSAFE CONDITION.
4. BYPASS DRAWER LOCK SWITCH.
C3
SR P. SLD Y-W1H6J06 +DATA UNSAFE
D2
P. SLD. Y-W1H6J07 -DATA UNSAFE.
D3
LINE UP
NO
YES
******D4**********
Y-W1H6 Y-W1J6
D5*****
REMOVE JUMPER Y-W1 H6 D12 Y-W1 H6 J08
E2
LINE UP
NO
YES
******E4**********
Y-W1H6
E5*****
REMOVE JUMPER Y-W1H6D12 Y-W1H6J08
F2
REMOVE JUMPER ON Y-W1H6D12.. P SLD Y-W1B6B07 -UNSAFE RESET. START FILE.
G1*****
WAIT FOR BRUSH MID CYCLE. PULSE LENGTH APPROX 1 MIN
G2
PULSE ON LINE (SEE NOTE)
NO
YES
******G4**********
Y-W1B6
G5
SUSPECT NO POWER ON RESET FROM PCU.
H2
REPLACE JUMPER Y-W1H6D12 TO Y-W1H6J08
J1*****
LEAVE JUMPER ON WAIT 90 SECS FOR BRUSH CYCLE
J2
STOP AND RESTART FILE. (SEE NOTE). . . P SLD Y-W1B6G09 - READY
J4
LINE UP
YES
NO
J5
REMOVE JUMPER Y-W1H6D12 TO H6J08. EXIT TO NOT READY CHT ENTRY 2 PG 010
K4
LEAVE PROBE ON Y-W1B6G09. >SR. REMOVE JUMPER
K3
LINE UP
YES
NO
*****
211
* A2*
*****
212
* A3*

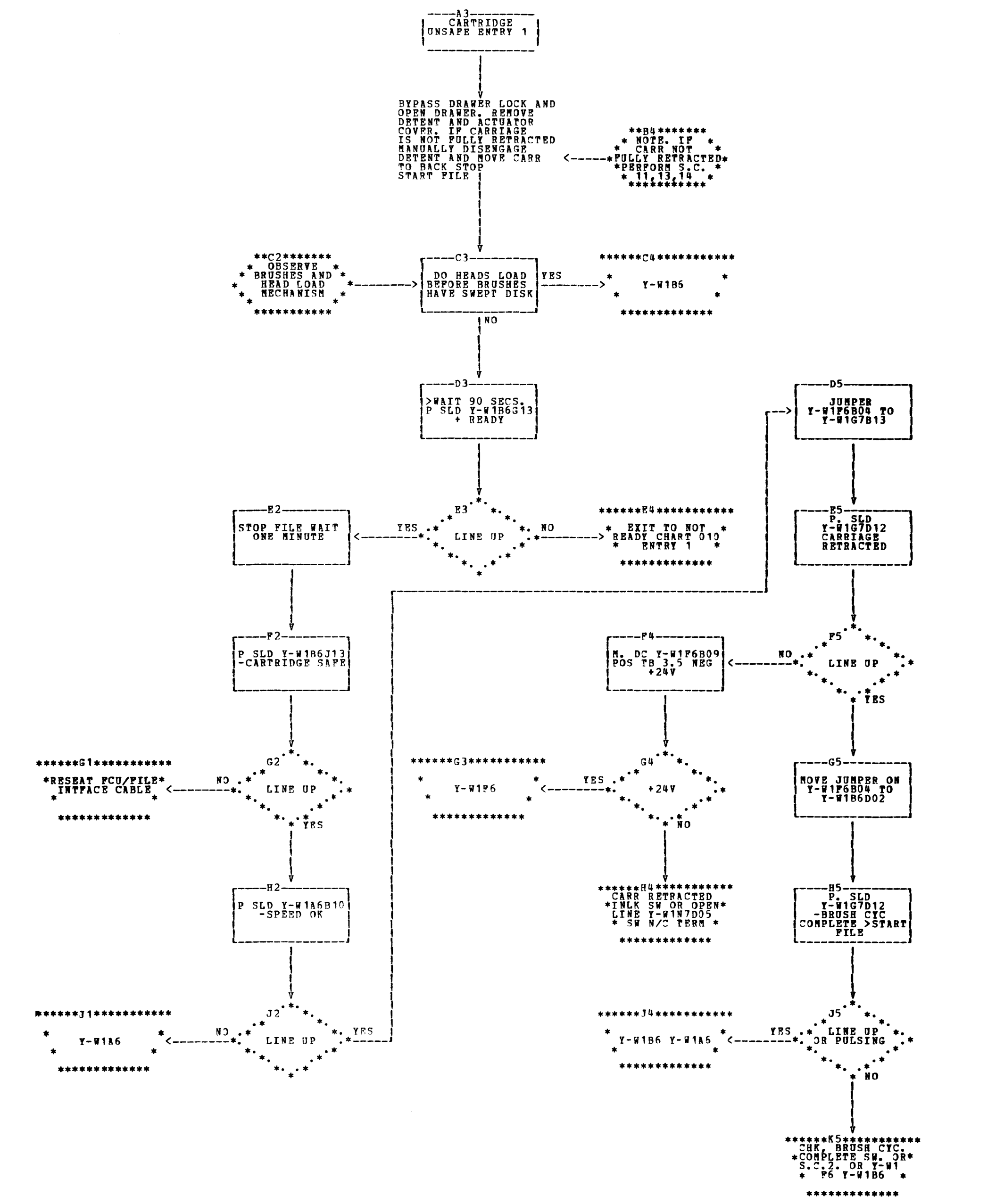

A3*
210K3
A3
LOOP DIAGNOSTIC PROGRAM SECTION A05. >WAIT FOR ERROR HALT
B3
IS UNSAFE A CONDITION OF ERROR HALT?
NO
*****
213
* A4*
YES
C3
P. SLD. Y-W1H6B10 -SELECT UNSAFE
D3
LINE UP
NO
*****
211
* G3*
YES
E3
P.SLD. Y-W1H6G04 -ERASE UNSAFE
F3
LINE UP
YES
F2
P. SLD. Y-W1H6G03 -WRITE UNSAFE
NO
******G1**********
Y-W1H6 Z-W1A1
G2
LINE UP
YES
NO
*****
213
* A2*
G3
DID PRINTOUT INDICATE A HEAD (UNSAFE AFTER WRITE COMMAND)
NO
YES
G4
RESEAT Z-W1A1 CARD AND CABLES IN Z-W1 AND Y-W1 BOARDS
A
H3
METER FOR OPEN WINDING (3) ON FAILING HEAD
H4
CHK FILE/FCU INTERFACE FOR OPEN OR GND WRITE, ERASE, WR DATA CABLES
******J2**********
REPLACE DEFECTIVE HEAD
YES
J3
ANY WINDING OPEN
NO
J4
IF OK ADD UNSAFE INHIBIT JUMPER Y-W1H6D12 TO Y-W1H6J08
J5
SUSPECT Y-W1H6, Y-W1J6, Z-W1A1
******K5**********
STOP AND
* RESTART FILE. *
EXIT TO FCU
* FILE UNSAFE *
CHART

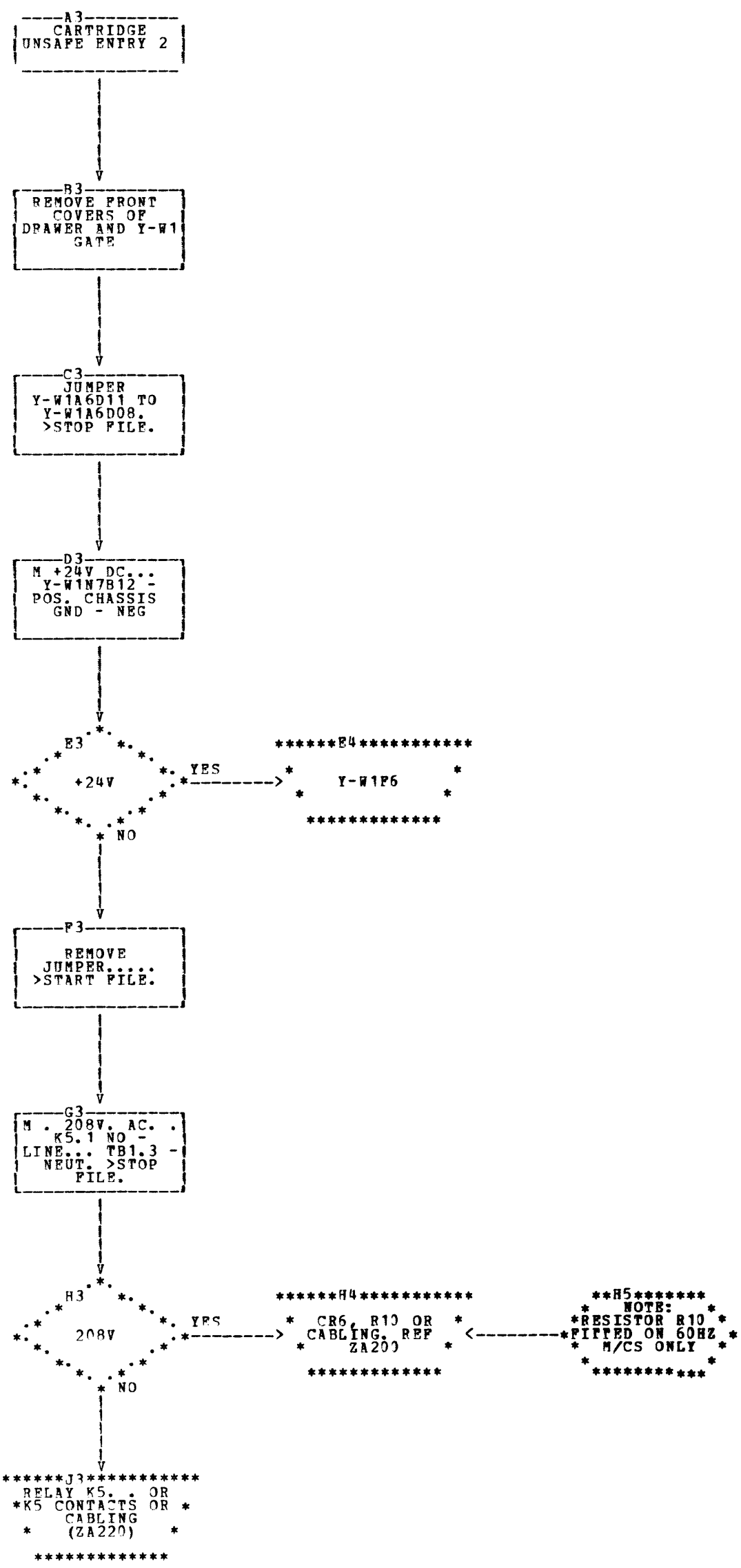

A2*
212G2
****
A2
JUMPER Y-W1 H6 D12 TO H6 J08
B2
JUMPER Y-W1B6D07 TO B6D08. WHEN HEADS LOAD REMOVE JUMPER
C2
LOOP ON DIAGNOSTIC PROGRAM SECTION A05
D2
P.SLD Y-W1 H6 G08 +READY
E2
LINE UP
NO
YES
******E1**********
Y-W1B6
F2
REMOVE THREE JUMPERS BETWEEN Y-W1G7 AND Y-W1H6
G2
JUMPER ON Y-W1. J6J13 TO G7B02 H6D10 TO G7B05 G7D12 TO G7B12
H2
P. SLD. Y-W1G7D13
J2
LINE UP OR PULSING
YES
NO
CHECK FILE/FCU INTERFACE CABLES, LEAVE ,UNSAFE INHIBIT, JUMPER Y-W1H6D12 TO H6J08 REMOVE OTHER TWO JUMPERS AND REPLACE JUMPERS BETWEEN Y-W1G7 AND Y-W1H6. REFER PAGE 902 PARAGRAPH 1.11. EXIT TO FCU FILE UNSAFE CHART.
J4*****
DOUBLE FREQ
WR DATA
MISSING OR WR
SELECT LINE
FAILURE
K2
REPLACE JUMPERS BETWEEN Y-W1G7 AND Y-W1H6. REFER PAGE 902 PARAGRAPH 1.11.
******K1**********
Y-W1J6 OR Y-W1H6
A4*
212B3
****
A4
LOOP DIAGNOSTIC PROGRAM A03. SUPPRESS ERROR HALTS.
B4
P. SLD. Y-W1H6G13 Y-W1H6J11 Y-W1H6J12 Y-W1H6G09
C4
ALL PULSING
NO
YES
C5
HEAD/DISK SELECT LINE SOLIDLY SELECTED
******D4**********
Y-W1H6. Y-W1J6.
Z-W1A1
******D5**********
CHK FILE/FCU INTERFACE. IF OK Y-W1G7. Y-W1H6. Z-W1A1

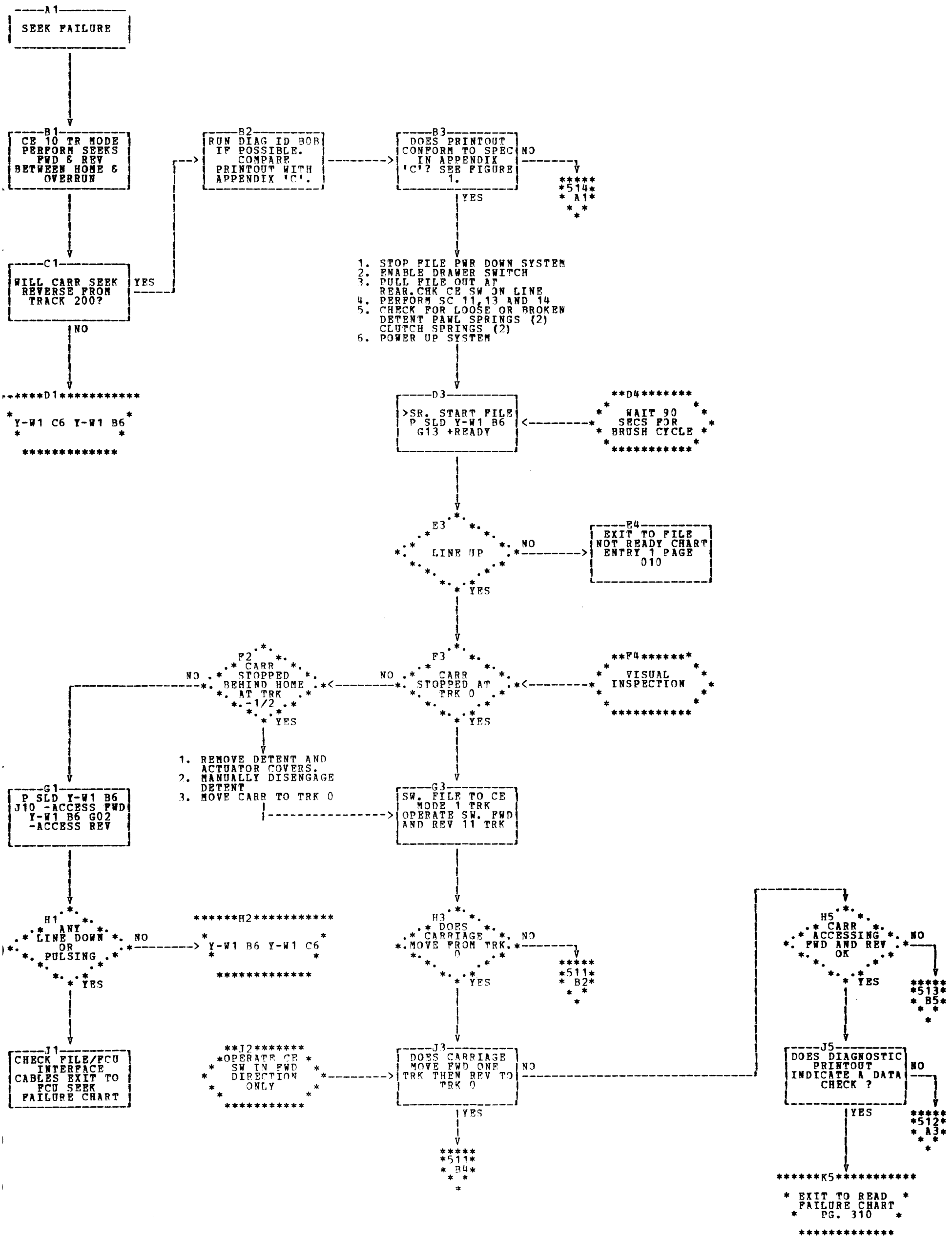

A3
READ FAILURE
B3
READY FILE AND RUN SECTION A03 DIAGNOSTIC PROGRAM INSPECT PRINTOUT
C3
SUMMARY PRINTOUT NO DATA TRANSFER ON READ ID ALL HEADS?
YES
C4
MECHANICAL HEAD KNOCK OFF UNLATCHED?
NO
*****
312
* B2*
YES
NO
D3
SUMMARY PRINTOUT DID NOT SELECT CORRECT HEAD?
YES
*****
311
* B3*
NO
******D4**********
PERFORM SC 18
****
******E2**********
*HEAD ALIGNMENT INCORRECT
****
YES
E3
SUMMARY PRINTOUT READ INCORRECT CYLINDER ADDRESS?
NO
F3
SUMMARY PRINTOUT- NO DATA TRANSFER OR ERROR ON READ ID ONE HD?
YES
STOP FILE. UNPLUG ALL HEADS EXCEPT FAILING HEAD RESTART FILE. RUN SECTION A03 AGAIN
F5
STOP FILE. PWR DOWN SYSTEM. METER FOR OPEN WINDING (3) OF FAILING HEAD
NO
G2
P SLD Y-W1H6G07 +READ SELECT
G3
LOOP ON SECTION A03 ROUTINE 2 SUPPRESS PRINTING AND ERROR HALT
G4
IS FAILING HEAD STILL FAILING?
YES
NO
G5
IF HEAD OK PERFORM SC 8 AND 19
H2
LINE PULSING
YES
*****
311
* B2*
NO
H4
REPLUG HEADS
*****
311
* B3*
H5
PWR UP SYSTEM. START FILE. RUN DIAGNOSTIC PROGRAM SECTION A03
J2
P SLD Y-W1H6B13 -READ SELECT
J5
IF STILL FAILING CHK RADIAL ALIGNMENT WITH CE DISK
K2
LINE UP
YES
NO
******K1**********
RESEAT FILE/FCU INTFACE CABLES.
****
******K3**********
Y-W1H6
****
******K5**********
Z-W1A1, OR HEAD, OR BAD DISK
****

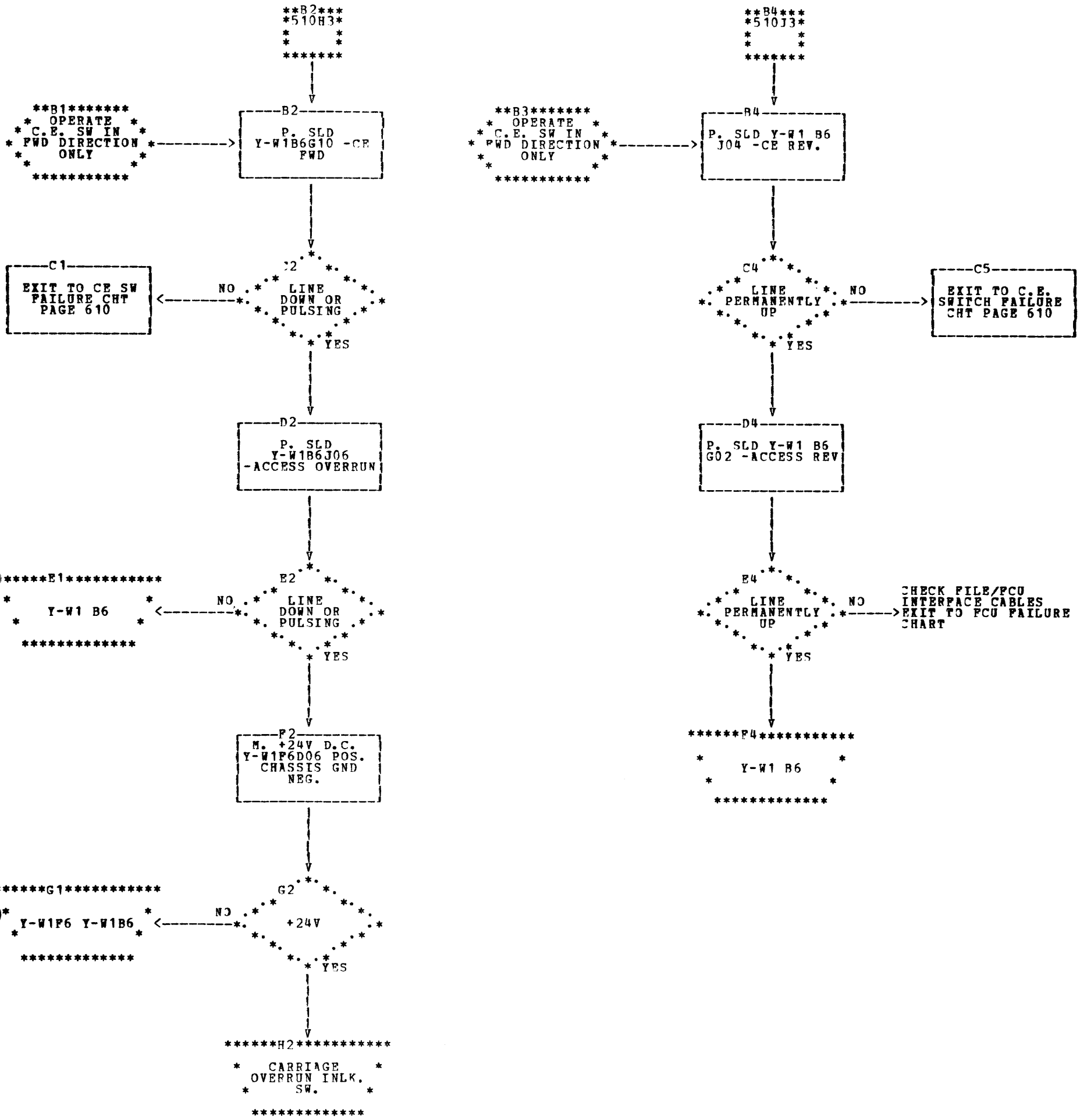

B2*
310H2
****
B2
P.SLD Y-W1H6G10
Y-W1H6G12
Y-W1H6J10
Y-W1H6J13
B3*
310D3
310H4
****
B3
LOOP ON SECTION
A03 ROUTINE 2.
SUPPRESS
PRINTING AND
ERROR HALT
C2
ALL 4
LINES
PULSING
YES
NO
C3
P SLD Y-W1 M7
D07 Y-W1 M7 D09
Y-W1 M7 D10
Y-W1 M7 D11
D2
P SLD Y-W1 H6
G09 Y-W1 H6 G13
Y-W1 H6 J11
Y-W1 H6 J12
D3
ALL 4
LINES DOWN
NO
YES
******D4**********
CHK CE MODE
SWITCH AND
CABLING
(FN425)
****
******E1**********
Y-W1H6 Y-W1D6
****
E2
ALL 4
LINES
PULSING
YES
NO
E3
M +18V DC
Z-W1A1J09 POS
CHASSIS GND NEG
F2
CHK FOR OPEN OR
GND DISK/HEAD
SEL LINE.
Y-W1G7
F3
+18V
NO
YES
******F4**********
*CHK CONTINUITY *
OF CABLE Z-W1
TO Y-W1
****
G3
M-18V DC
CHASSIS GND POS
Z-W1A1J04 NEG
H3
18V
NO
YES
******H4**********
*CHK CONTINUITY *
OF CABLE Z-W1
TO Y-W1
****
*****
312
* B4*

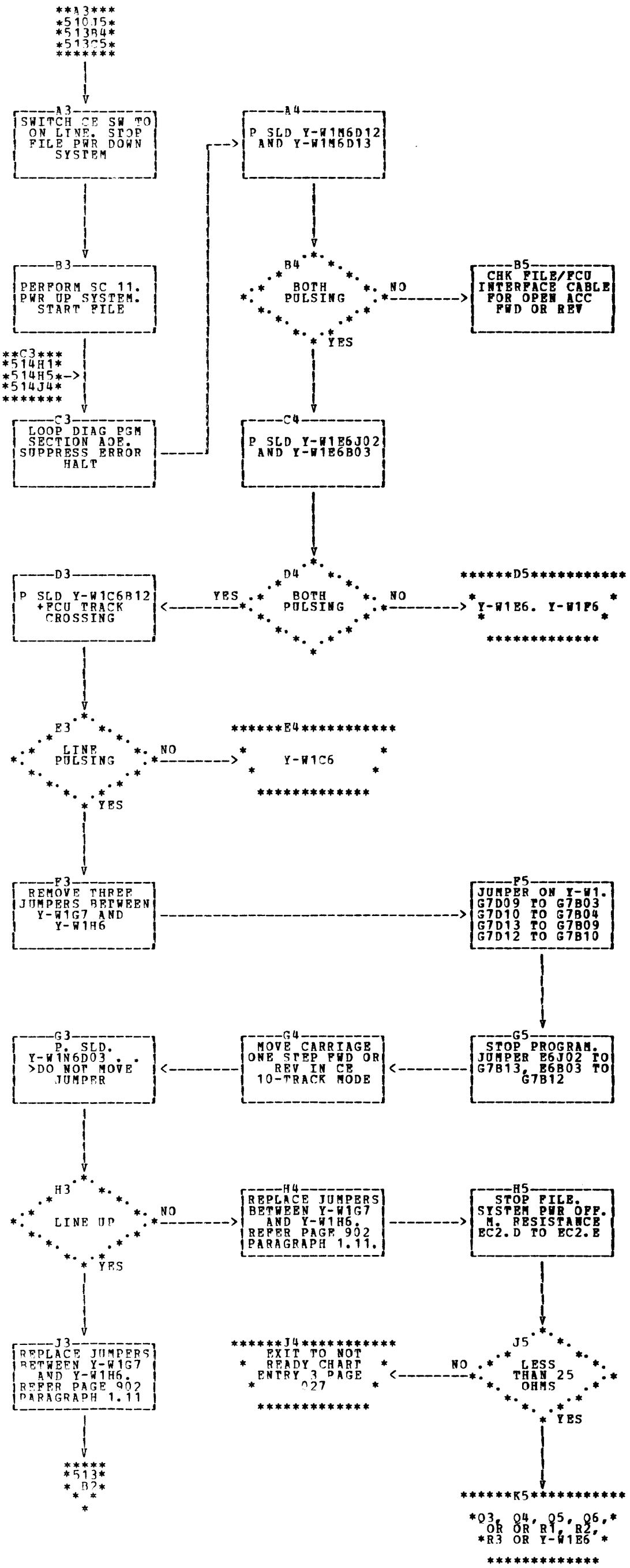

B2*
310C4
****
B2
ARE HEADS LOADED?
NO
YES
******B1**********
CHECK HEAD LOAD MECHANISM. *PERFORM SC 8 *
****
C2
P SLD Y-W1H6G07 READ INHIBIT
D2
LINE UP
NO
YES
D1
JUMPER Y-W1H6B13 TO Y-W1H6D08
E1
P SLD Y-W1H6G07 -READ INHIBIT
F1
LINE UP
YES
NO
F2
SUSPECT Y-W1K6 Z-W1A1. REMOVE JUMPER.
******G1**********
Y-W1H6
****
G2
CHK SEATING OF CABLES BETWEEN Z-W1 AND Y-W1 BOARDS
H2
CHK FILE/FCU INTFACE FOR READ SEL OPEN OR READ DATA OPEN OR GND
J2
RESEAT FILE/FCU CABLE EXIT TO FCU DATA SEPARATOR CARD CHART
B4*
311H3
****
B4
M. 6V DC. Z-W1A1J07 POS CHASSIS GND NEG
C4
6V
NO
YES
C5
CHECK +6V SUPPLY TO TB3.1 AND THROUGH SYSTEM. (ZA210)
D4
ANTISTATIC BRUSH MAKING CONTACT?
NO
YES
******D5**********
ADJUST OR REPLACE BRUSH
****
E4
PERFORM SC 8 HEAD LOAD MECHANISM
F4
DO ERRORS OCCUR ONLY WHEN OTHER I/O UNITS ARE RUNNING?
YES
NO
F5
SUSPECT Y-W1F6
G4
SUSPECT Z-W1A1 OR Y-W1K6
H4
ARE ERRORS ON HEADS 0 AND 1. ONLY?
YES
NO
H5
PERFORM SC 16
J4
GO TO FCU DATA SEPARATOR CARDS CHART.

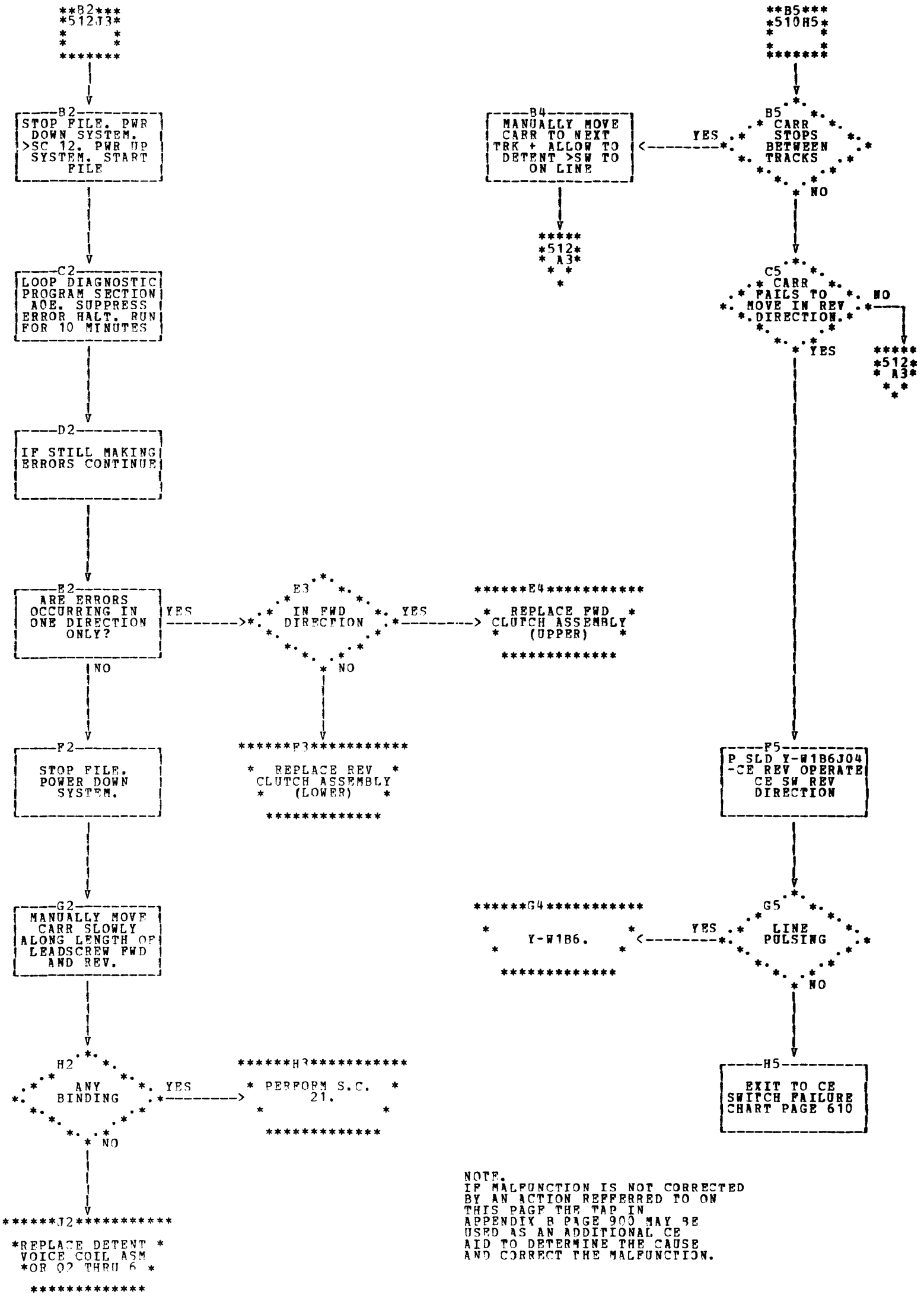

A3
CARTRIDGE UNSAFE ENTRY 1
BYPASS DRAWER LOCK AND OPEN DRAWER. REMOVE DETENT AND ACTUATOR COVER. IF CARRIAGE IS NOT FULLY RETRACTED MANUALLY DISENGAGE DETENT AND MOVE CARR TO BACK STOP START FILE
B4*****
* NOTE. IF *
* CARR NOT *
FULLY RETRACTED
*PERFORM S.C. *
* 11,13,14 *
C2*****
* OBSERVE *
* BRUSHES AND *
* HEAD LOAD *
* MECHANISM *
C3
DO HEADS LOAD BEFORE BRUSHES HAVE SWEPT DISK
YES
******C4**********
* *
* Y-W1B6 *
NO
D3
>WAIT 90 SECS. P SLD Y-W1B6G13 + READY
D5
JUMPER Y-W1F6B04 TO Y-W1G7B13
E2
STOP FILE WAIT ONE MINUTE
E3
LINE UP
YES
NO
******E4**********
* EXIT TO NOT *
READY CHART 010
* ENTRY 1 *
E5
P. SLD Y-W1G7D12 CARRIAGE RETRACTED
F2
P SLD Y-W1B6J13 -CARTRIDGE SAFE
F4
M. DC Y-W1F6B09 POS TB 3.5 NEG +24V
F5
LINE UP
NO
YES
******G1**********
RESEAT FCU/FILE
INTFACE CABLE
G2
LINE UP
NO
YES
******G3**********
* Y-W1F6 *
G4
+24V
YES
NO
G5
MOVE JUMPER ON Y-W1F6B04 TO Y-W1B6D02
H2
P SLD Y-W1A6B10 -SPEED OK
******H4**********
CARR RETRACTED
INLK SW OR OPEN
LINE Y-W1N7D05
* SW N/C TERM *
H5
P. SLD Y-W1G7D12 -BRUSH CYC COMPLETE >START FILE
******J1**********
* Y-W1A6 *
J2
LINE UP
NO
YES
******J4**********
* Y-W1B6 Y-W1A6 *
J5
LINE UP OR PULSING
YES
NO
******K5**********
CHK, BRUSH CYC. *COMPLETE SW. OR*
S.C.2. OR Y-W1
* P6 Y-W1B6 *


A3
CARTRIDGE UNSAFE ENTRY 2
B3
REMOVE FRONT COVERS OF DRAWER AND Y-W1 GATE
C3
JUMPER Y-W1A6D11 TO Y-W1A6D08. >STOP FILE.
D3
M +24V DC... Y-W1N7B12 - POS. CHASSIS GND - NEG
E3
+24V
YES
NO
******E4**********
Y-W1P6
F3
REMOVE JUMPER..... >START FILE.
G3
M . 208V. AC. . K5.1 NO - LINE... TB1.3 - NEUT. >STOP FILE.
H3
208V
YES
NO
******H4**********
CR6, R10 OR CABLING, REF ZA200
H5*****
NOTE:
RESISTOR R10 FITTED ON 60HZ M/CS ONLY
******J3**********
RELAY K5. . OR K5 CONTACTS OR CABLING (ZA220)

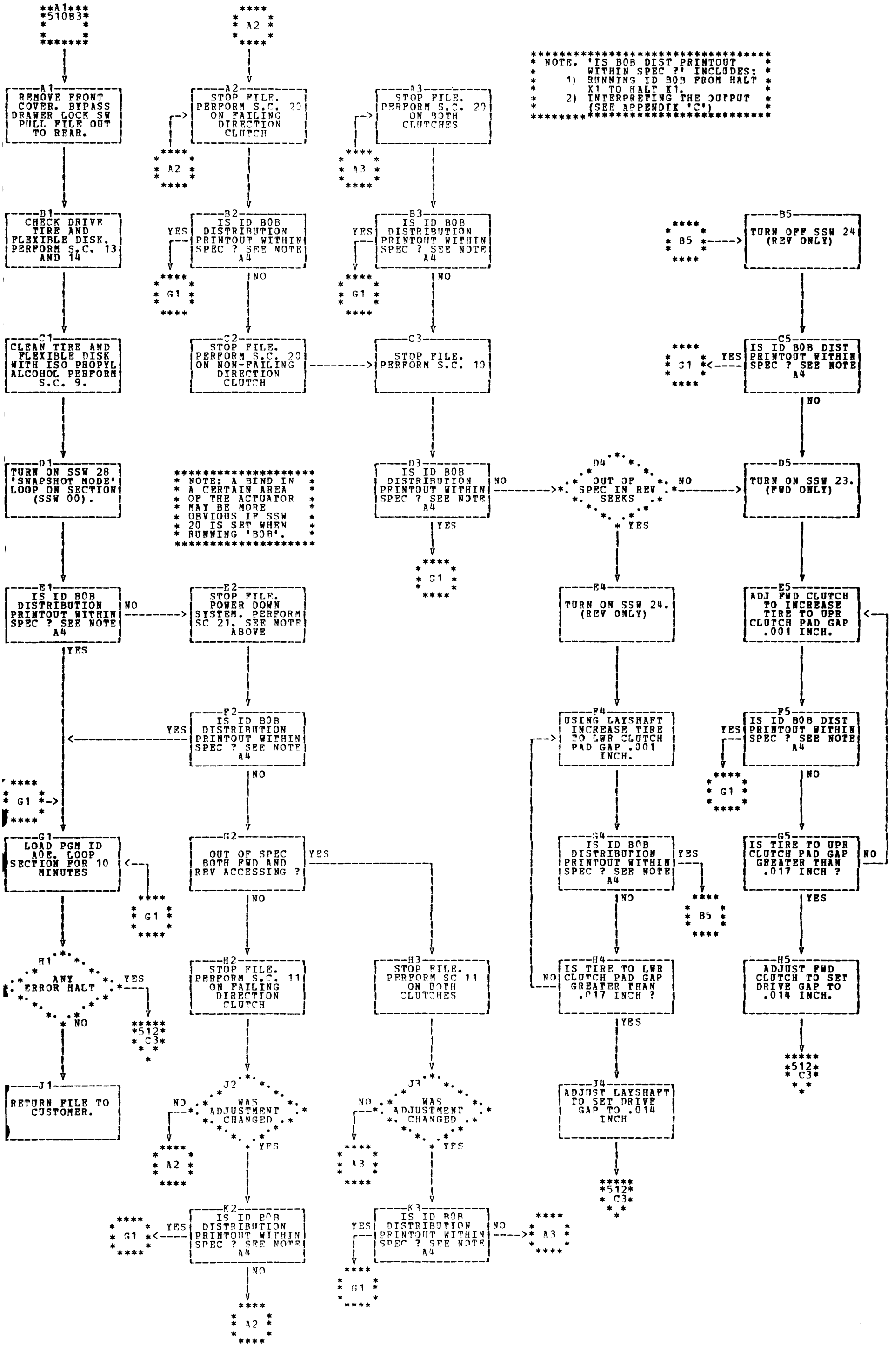

A1
SEEK FAILURE
B1
CE 10 TR MODE PERFORM SEEKS FWD & REV BETWEEN HOME & OVERRUN
B2
RUN DIAG ID B0B IF POSSIBLE. COMPARE PRINTOUT WITH APPENDIX 'C'.
B3
DOES PRINTOUT CONFORM TO SPEC IN APPENDIX 'C'? SEE FIGURE 1.
NO
*****
514
* A1*
YES
C1
WILL CARR SEEK REVERSE FROM TRACK 200?
YES
NO
1. STOP FILE PWR DOWN SYSTEM
2. ENABLE DRAWER SWITCH
3. PULL FILE OUT AT REAR.CHK CE SW ON LINE
4. PERFORM SC 11,13 AND 14
5. CHECK FOR LOOSE OR BROKEN DETENT PAWL SPRINGS (2) CLUTCH SPRINGS (2)
6. POWER UP SYSTEM
D1
Y-W1 C6 Y-W1 B6
D3
>SR. START FILE P SLD Y-W1 B6 G13 +READY
D4
WAIT 90 SECS FOR BRUSH CYCLE
E3
LINE UP
NO
E4
EXIT TO FILE NOT READY CHART ENTRY 1 PAGE 010
YES
F2
CARR STOPPED BEHIND HOME AT TRK -1/2
NO
YES
F3
CARR STOPPED AT TRK 0
NO
YES
F4
VISUAL INSPECTION
1. REMOVE DETENT AND ACTUATOR COVERS.
2. MANUALLY DISENGAGE DETENT
3. MOVE CARR TO TRK 0
G1
P SLD Y-W1 B6 J10 -ACCESS FWD Y-W1 B6 G02 -ACCESS REV
G3
SW. FILE TO CE MODE 1 TRK OPERATE SW. FWD AND REV 11 TRK
H1
ANY LINE DOWN OR PULSING
NO
YES
H2
Y-W1 B6 Y-W1 C6
H3
DOES CARRIAGE MOVE FWD ONE TRK THEN REV TO TRK 0
NO
YES
*****
511
* B2*
H5
CARR ACCESSING FWD AND REV OK
NO
YES
*****
513
* B5*
J1
CHECK FILE/FCU INTERFACE CABLES EXIT TO FCU SEEK FAILURE CHART
J2
OPERATE CE SW IN FWD DIRECTION ONLY
J3
DOES CARRIAGE MOVE FWD ONE TRK THEN REV TO TRK 0
NO
YES
*****
511
* B4*
J5
DOES DIAGNOSTIC PRINTOUT INDICATE A DATA CHECK ?
NO
YES
*****
512
* A3*
K5
EXIT TO READ FAILURE CHART PG. 310

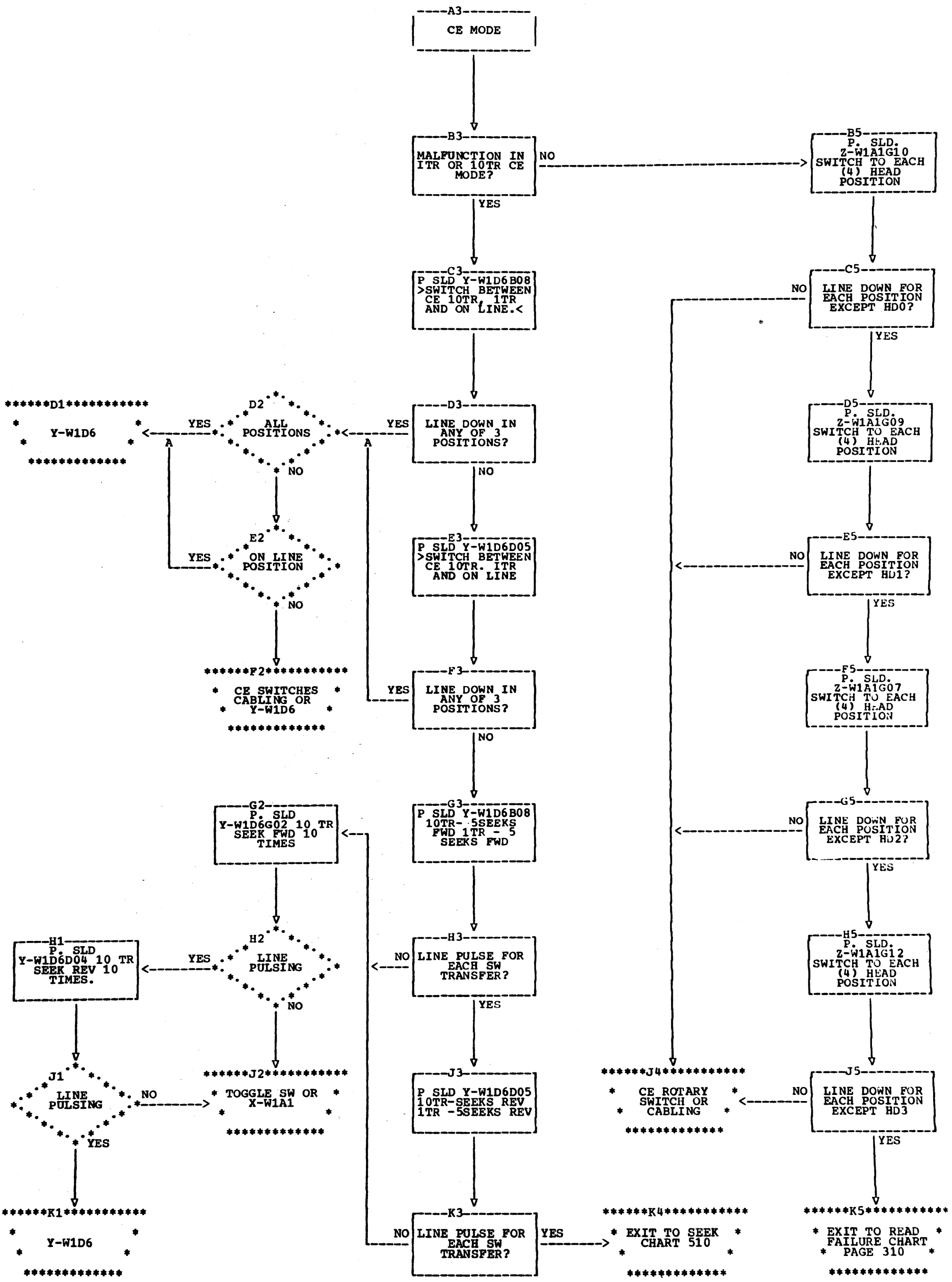

B2*
510H3
****
B2
P. SLD Y-W1B6G10 -CE FWD
B1*****
OPERATE C.E. SW IN FWD DIRECTION ONLY
****
B4*
510J3
****
B4
P. SLD Y-W1 B6 J04 -CE REV.
B3*****
OPERATE C.E. SW IN FWD DIRECTION ONLY
****
C1
EXIT TO CE SW FAILURE CHT PAGE 610
C2
LINE DOWN OR PULSING
NO
YES
C4
LINE PERMANENTLY UP
NO
YES
C5
EXIT TO C.E. SWITCH FAILURE CHT PAGE 610
D2
P. SLD Y-W1B6J06 -ACCESS OVERRUN
D4
P. SLD Y-W1 B6 G02 -ACCESS REV
E2
LINE DOWN OR PULSING
NO
YES
*****E1**********
Y-W1 B6
****
E4
LINE PERMANENTLY UP
NO
YES
CHECK FILE/FCU INTERFACE CABLES EXIT TO FCU FAILURE CHART
F2
M. +24V D.C. Y-W1F6D06 POS. CHASSIS GND NEG.
******F4**********
Y-W1 B6
****
G2
+24V
NO
YES
*****G1**********
Y-W1F6 Y-W1B6
****
******H2**********
CARRIAGE OVERRUN INLK. SW.
****

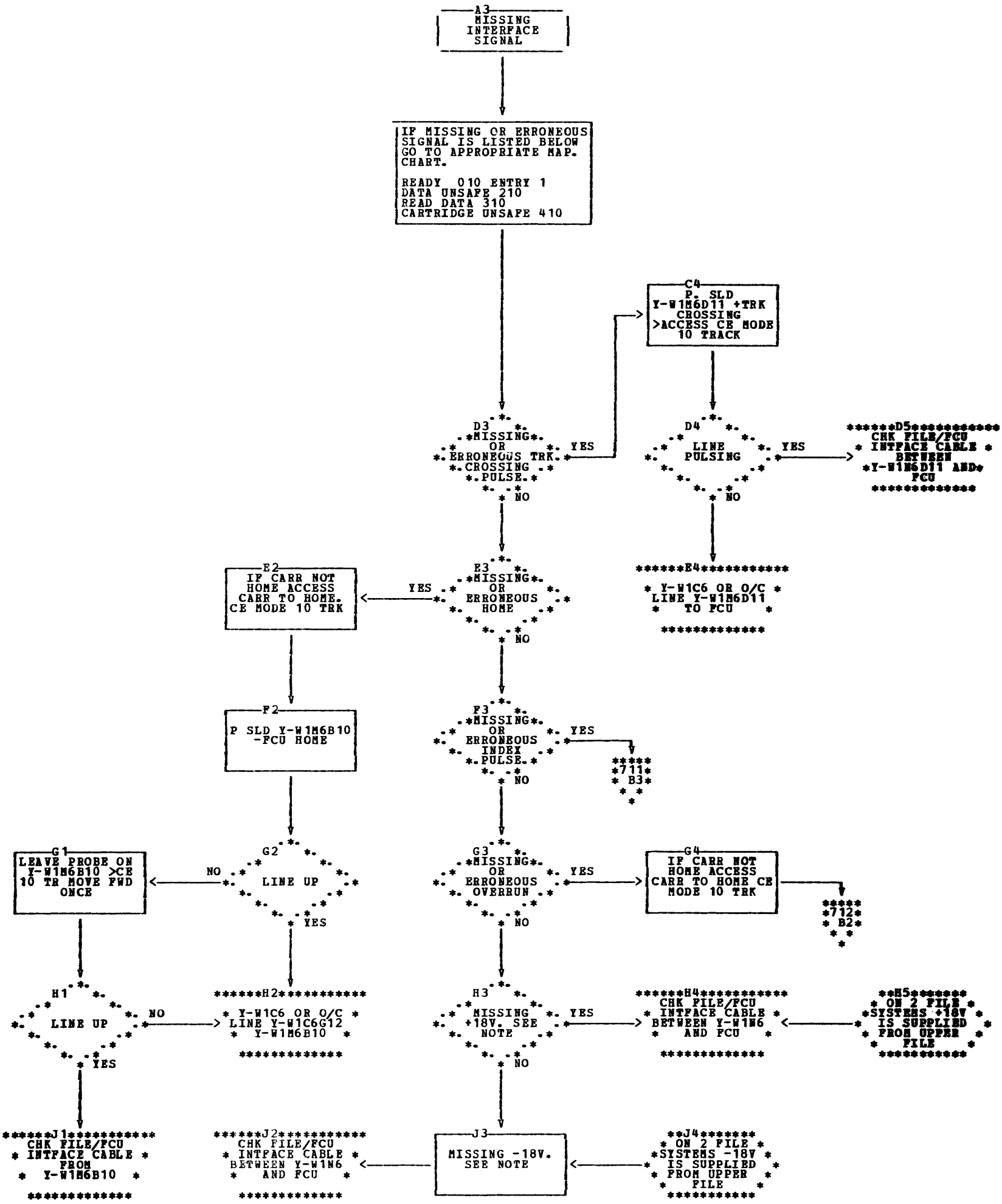

A3*
510J5
513B4
513C5
****
A3
SWITCH CE SW TO ON LINE. STOP FILE PWR DOWN SYSTEM
B3
PERFORM SC 11. PWR UP SYSTEM. START FILE
C3*
514H1
514H5->
514J4
****
C3
LOOP DIAG PGM SECTION A0E. SUPPRESS ERROR HALT
A4
P SLD Y-W1M6D12 AND Y-W1M6D13
B4
BOTH PULSING
NO
B5
CHK FILE/FCU INTERFACE CABLE FOR OPEN ACC FWD OR REV
YES
C4
P SLD Y-W1E6J02 AND Y-W1E6B03
D4
BOTH PULSING
YES
NO
******D5**********
Y-W1E6. Y-W1P6
****
D3
P SLD Y-W1C6B12 +FCU TRACK CROSSING
E3
LINE PULSING
NO
******E4**********
Y-W1C6
****
YES
F3
REMOVE THREE JUMPERS BETWEEN Y-W1G7 AND Y-W1H6
F5
JUMPER ON Y-W1.
G7D09 TO G7B03
G7D10 TO G7B04
G7D13 TO G7B09
G7D12 TO G7B10
G3
P. SLD. Y-W1N6D03 . . .
>DO NOT MOVE JUMPER
G4
MOVE CARRIAGE ONE STEP FWD OR REV IN CE 10-TRACK MODE
G5
STOP PROGRAM. JUMPER E6J02 TO G7B13, E6B03 TO G7B12
H3
LINE UP
NO
YES
H4
REPLACE JUMPERS BETWEEN Y-W1G7 AND Y-W1H6. REFER PAGE 902 PARAGRAPH 1.11.
H5
STOP FILE. SYSTEM PWR OFF. M. RESISTANCE EC2.D TO EC2.E
J3
REPLACE JUMPERS BETWEEN Y-W1G7 AND Y-W1H6. REFER PAGE 902 PARAGRAPH 1.11
*****
513
* B2*
* *
*
******J4**********
EXIT TO NOT READY CHART ENTRY 3 PAGE 027
****
J5
LESS THAN 25 OHMS
NO
YES
******K5**********
Q3, Q4, Q5, Q6,
OR OR R1, R2,
*R3 OR Y-W1E6 *
****

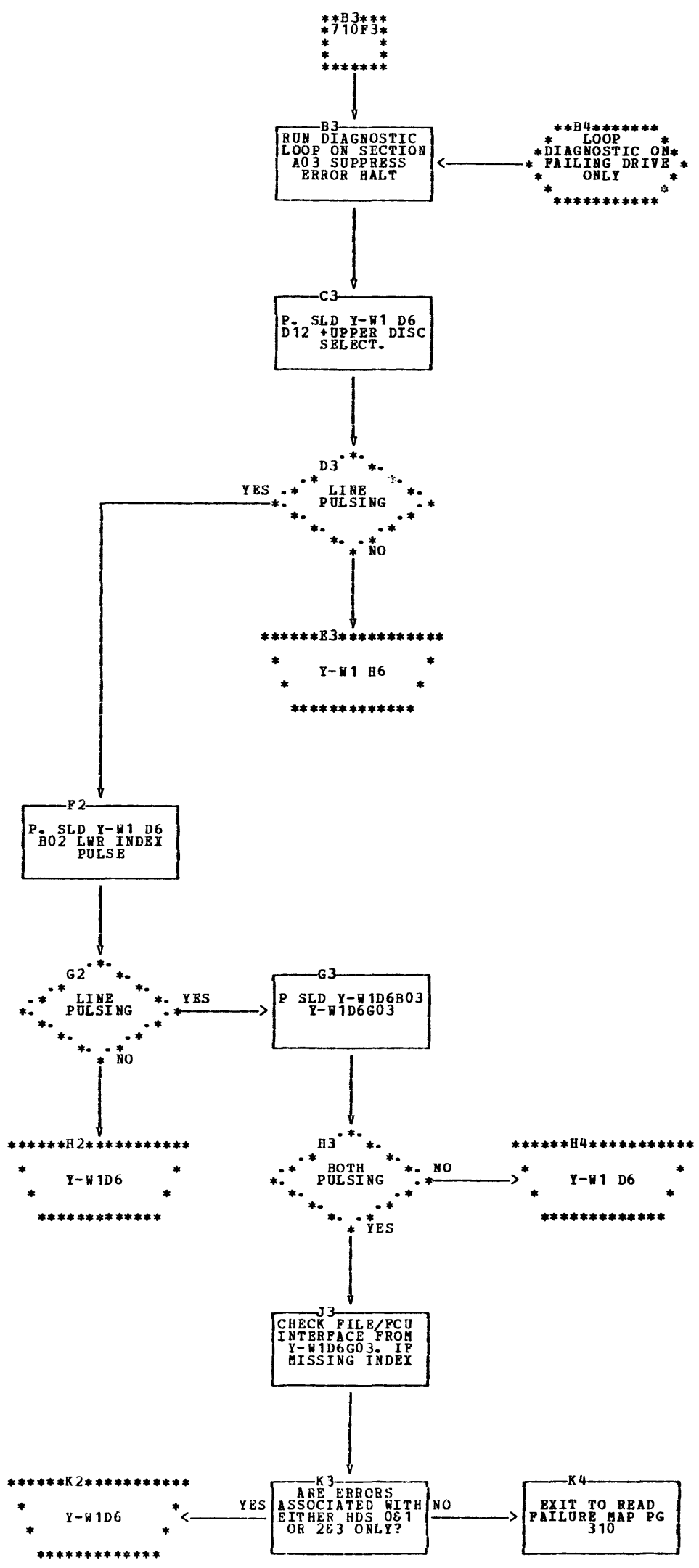


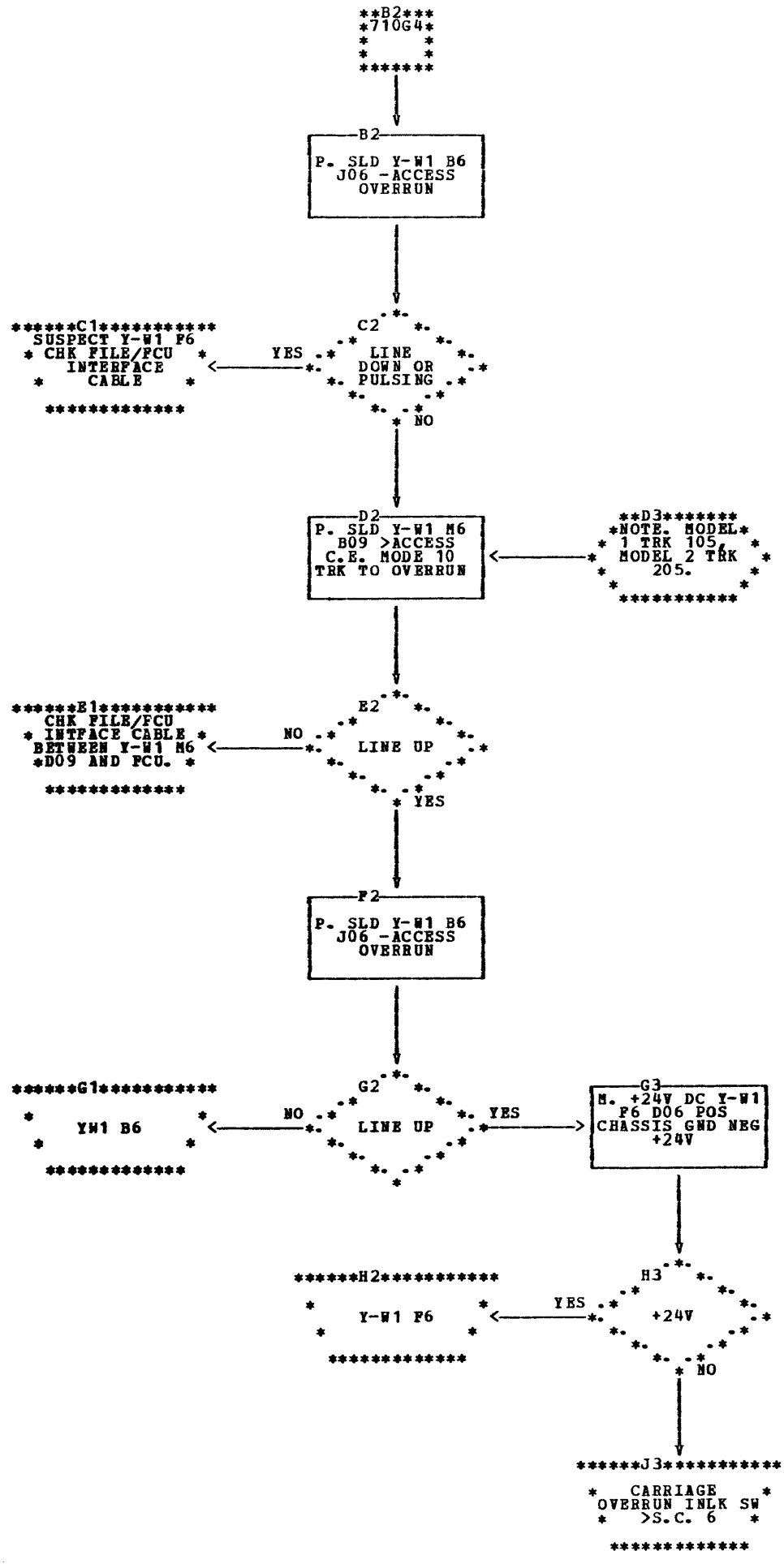
NOTE.
IF MALFUNCTION IS NOT CORRECTED BY AN ACTION REFERRED TO ON THIS PAGE THE TAP IN APPENDIX B PAGE 900 MAY BE USED AS AN ADDITIONAL CE AID TO DETERMINE THE CAUSE AND CORRECT THE MALFUNCTION.


A1*
510B3
A1
REMOVE FRONT COVER. BYPASS DRAWER LOCK SW PULL FILE OUT TO REAR.
B1
CHECK DRIVE TIRE AND FLEXIBLE DISK. PERFORM S.C. 13 AND 14
C1
CLEAN TIRE AND FLEXIBLE DISK WITH ISO PROPYL ALCOHOL PERFORM S.C. 9.
D1
TURN ON SSW 28 'SNAPSHOT MODE' LOOP ON SECTION (SSW 00).
NOTE: A BIND IN A CERTAIN AREA OF THE ACTUATOR MAY BE MORE OBVIOUS IF SSW 20 IS SET WHEN RUNNING 'BOB'.
E1
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
YES
NO
F2
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
G1
LOAD PGM ID A0E. LOOP SECTION FOR 10 MINUTES
H1
ANY ERROR HALT
YES
NO
512 C3*
J1
RETURN FILE TO CUSTOMER.
A2
STOP FILE. PERFORM S.C. 20 ON FAILING DIRECTION CLUTCH
B2
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
C2
STOP FILE. PERFORM S.C. 20 ON NON-FAILING DIRECTION CLUTCH
E2
STOP FILE. POWER DOWN SYSTEM. PERFORM SC 21. SEE NOTE ABOVE
G2
OUT OF SPEC BOTH FWD AND REV ACCESSING ?
YES
NO
H2
STOP FILE. PERFORM S.C. 11 ON FAILING DIRECTION CLUTCH
J2
WAS ADJUSTMENT CHANGED
NO
YES
K2
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
A3
STOP FILE. PERFORM S.C. 20 ON BOTH CLUTCHES
B3
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
C3
STOP FILE. PERFORM S.C. 10
H3
STOP FILE. PERFORM SC 11 ON BOTH CLUTCHES
J3
WAS ADJUSTMENT CHANGED
NO
YES
K3
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
NO
YES
NOTE. 'IS BOB DIST PRINTOUT WITHIN SPEC ?' INCLUDES:
1) RUNNING ID BOB FROM HALT X1 TO HALT X1.
2) INTERPRETING THE OUTPUT (SEE APPENDIX 'C')
B5
TURN OFF SSW 24 (REV ONLY)
C5
IS ID BOB DIST PRINTOUT WITHIN SPEC ? SEE NOTE A4
D3
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
D4
OUT OF SPEC IN REV SEEKS
NO
YES
E4
TURN ON SSW 24. (REV ONLY)
F4
USING LAYSHAFT INCREASE TIRE TO LWR CLUTCH PAD GAP .001 INCH.
G4
IS ID BOB DISTRIBUTION PRINTOUT WITHIN SPEC ? SEE NOTE A4
H4
IS TIRE TO LWR CLUTCH PAD GAP GREATER THAN .017 INCH ?
J4
ADJUST LAYSHAFT TO SET DRIVE GAP TO .014 INCH
D5
TURN ON SSW 23. (FWD ONLY)
E5
ADJ FWD CLUTCH TO INCREASE TIRE TO UPR CLUTCH PAD GAP .001 INCH.
F5
IS ID BOB DIST PRINTOUT WITHIN SPEC ? SEE NOTE A4
G5
IS TIRE TO UPR CLUTCH PAD GAP GREATER THAN .017 INCH ?
NO
YES
H5
ADJUST FWD CLUTCH TO SET DRIVE GAP TO .014 INCH.
512 C3*


A3
CE MODE
B3
MALFUNCTION IN ITR OR 10TR CE MODE?
NO
B5
P. SLD. Z-W1A1G10 SWITCH TO EACH (4) HEAD POSITION
YES
C3
P SLD Y-W1D6B08 >SWITCH BETWEEN CE 10TR, 1TR AND ON LINE.<
C5
NO
LINE DOWN FOR EACH POSITION EXCEPT HD0?
YES
D1
Y-W1D6
D2
ALL POSITIONS
YES
A
D3
LINE DOWN IN ANY OF 3 POSITIONS?
YES
A
NO
D5
P. SLD. Z-W1A1G09 SWITCH TO EACH (4) HEAD POSITION
E2
ON LINE POSITION
YES
NO
E3
P SLD Y-W1D6D05 >SWITCH BETWEEN CE 10TR. ITR AND ON LINE
NO
E5
LINE DOWN FOR EACH POSITION EXCEPT HD1?
YES
F2
CE SWITCHES CABLING OR Y-W1D6
F3
LINE DOWN IN ANY OF 3 POSITIONS?
YES
NO
F5
P. SLD. Z-W1A1G07 SWITCH TO EACH (4) HEAD POSITION
G2
P. SLD Y-W1D6G02 10 TR SEEK FWD 10 TIMES
G3
P SLD Y-W1D6B08 10TR- 5SEEKS FWD 1TR - 5 SEEKS FWD
G5
NO
LINE DOWN FOR EACH POSITION EXCEPT HD2?
YES
H1
P. SLD Y-W1D6D04 10 TR SEEK REV 10 TIMES.
H2
LINE PULSING
YES
NO
H3
NO
LINE PULSE FOR EACH SW TRANSFER?
YES
H5
P. SLD. Z-W1A1G12 SWITCH TO EACH (4) HEAD POSITION
J1
LINE PULSING
NO
YES
J2
TOGGLE SW OR X-W1A1
J3
P SLD Y-W1D6D05 10TR-SEEKS REV 1TR -5SEEKS REV
J4
CE ROTARY SWITCH OR CABLING
J5
NO
LINE DOWN FOR EACH POSITION EXCEPT HD3
YES
K1
Y-W1D6
K3
NO
LINE PULSE FOR EACH SW TRANSFER?
YES
K4
EXIT TO SEEK CHART 510
K5
EXIT TO READ FAILURE CHART PAGE 310


A3
MISSING INTERFACE SIGNAL
IF MISSING OR ERRONEOUS SIGNAL IS LISTED BELOW GO TO APPROPRIATE MAP. CHART.
READY 010 ENTRY 1
DATA UNSAFE 210
READ DATA 310
CARTRIDGE UNSAFE 410
C4
P. SLD Y-W1M6D11 +TRK CROSSING >ACCESS CE MODE 10 TRACK
D3
MISSING OR ERRONEOUS TRK CROSSING PULSE
YES
NO
D4
LINE PULSING
YES
NO
******D5**********
CHK FILE/FCU INTFACE CABLE BETWEEN Y-W1M6D11 AND FCU
****
******E4**********
Y-W1C6 OR O/C LINE Y-W1M6D11 TO FCU
****
E2
IF CARR NOT HOME ACCESS CARR TO HOME. CE MODE 10 TRK
E3
MISSING OR ERRONEOUS HOME
YES
NO
F2
P SLD Y-W1M6B10 -FCU HOME
F3
MISSING OR ERRONEOUS INDEX PULSE
YES
NO
*****
711
* B3*
G1
LEAVE PROBE ON Y-W1M6B10 >CE 10 TR MOVE FWD ONCE
G2
LINE UP
NO
YES
G3
MISSING OR ERRONEOUS OVERRUN
YES
NO
G4
IF CARR NOT HOME ACCESS CARR TO HOME CE MODE 10 TRK
*****
712
* B2*
H1
LINE UP
NO
YES
******H2**********
Y-W1C6 OR O/C LINE Y-W1C6G12 Y-W1M6B10
****
H3
MISSING +18V. SEE NOTE
YES
NO
******H4**********
CHK FILE/FCU INTFACE CABLE BETWEEN Y-W1M6 AND FCU
****
H5*****
ON 2 FILE SYSTEMS +18V IS SUPPLIED FROM UPPER FILE
****
******J1**********
CHK FILE/FCU INTFACE CABLE FROM Y-W1M6B10
****
******J2**********
CHK FILE/FCU INTFACE CABLE BETWEEN Y-W1M6 AND FCU
****
J3
MISSING -18V. SEE NOTE
J4*****
ON 2 FILE SYSTEMS -18V IS SUPPLIED FROM UPPER FILE
****


B3*
710F3
**B3
RUN DIAGNOSTIC LOOP ON SECTION A03 SUPPRESS ERROR HALT
B4*****
LOOP DIAGNOSTIC ON FAILING DRIVE ONLY
C3
P. SLD Y-W1 D6 D12 +UPPER DISC SELECT.
D3
LINE PULSING
YES
NO
******E3**********
Y-W1 H6
F2
P. SLD Y-W1 D6 B02 LWR INDEX PULSE
G2
LINE PULSING
YES
G3
P SLD Y-W1D6B03 Y-W1D6G03
******H2**********
Y-W1D6
H3
BOTH PULSING
NO
YES
******H4**********
Y-W1 D6
J3
CHECK FILE/FCU INTERFACE FROM Y-W1D6G03. IF MISSING INDEX
******K2**********
Y-W1D6
K3
ARE ERRORS ASSOCIATED WITH EITHER HDS 0&1 OR 2&3 ONLY?
YES
NO
K4
EXIT TO READ FAILURE MAP PG 310


B2*
710G4
B2
P. SLD Y-W1 B6 J06 -ACCESS OVERRUN
C2
LINE DOWN OR PULSING
YES
******C1**********
SUSPECT Y-W1 P6 CHK FILE/FCU INTERFACE CABLE
NO
D2
P. SLD Y-W1 M6 B09 >ACCESS C.E. MODE 10 TRK TO OVERRUN
D3*****
NOTE. MODEL 1 TRK 105, MODEL 2 TRK 205.
E2
LINE UP
NO
******E1**********
CHK FILE/FCU INTFACE CABLE BETWEEN Y-W1 M6 *D09 AND FCU.
YES
F2
P. SLD Y-W1 B6 J06 -ACCESS OVERRUN
G2
LINE UP
NO
YES
******G1**********
YW1 B6
G3
M. +24V DC Y-W1 F6 D06 POS CHASSIS GND NEG +24V
H3
+24V
YES
******H2**********
Y-W1 F6
NO
******J3**********
CARRIAGE OVERRUN INLK SW >S.C. 6

NOTE: SERVICE CHECKS ARE UNDER ENGINEERING CHANGE CONTROL THEREFORE THEY REFLECT THE MOST UP TO DATE AND CORRECT INFORMATION. THE S.C. PROCEDURES HAVE PRIORITY IF ANY DIFFERENCES EXIST BETWEEN S.C. AND FETMM.

S.C.1 HEAD LOAD MICROSWITCHES.

REF: FETMM, SECTION 4.8.3.

1. SET CARRIAGE TO FULLY RETRACTED POSITION.
2. REMOVE HEAD LOAD ASSEMBLY COVER PLATE.
3. INSERT LINT-FREE TISSUE BETWEEN THE HEADS.
4. SLOWLY DEPRESS THE SOLENOID PLUNGER UNTIL IT BOTTOMS.
   CAUTION. THIS ACTION BRINGS THE HEADS TOGETHER SO MUST BE DONE GENTLY AND NOT REPEATED MORE THAN NECESSARY.
5. MARK THE BOTTOMED POSITION OF THE PLUNGER WITH A PENCIL OR TAPE.
6. LET THE PLUNGER OUT 1/10 INCH.
7. LOOSEN THE SWITCH MOUNTING BRACKET SCREW IN THE SLOT AND SWING THE ASSEMBLY TO MAKE BOTH SWITCHES OPERATE WITH THE SOLENOID 1/10 INCH FROM THE BOTTOM POSITION.
8. LET THE PLUNGER GENTLY COME RIGHT OUT, THEN DEPRESS AGAIN TO CHECK THE OPERATING POSITION.

S.C.2 BRUSH MICROSWITCHES

REF. FETMM, SECTION 4. 3. 2.

1. REMOVE THE FILE COVER. REMOVE THE AIR FILTER COVER AND AIR FILTER. BLOCK THE AIR DUCT WITH A LINT-FREE TISSUE AND STORE THE FILTER CAREFULLY.
2. UNCLIP AND TAKE OFF THE BRUSH ARM. REMOVE THE COVER PLATE.
3. WITH THE CAM ARM ON THE RETRACTED STOP, CHECK THE GAP BETWEEN THE BODY OF THE SWITCHES AND THE CAM SURFACE. THE CLEARANCE SHOULD BE 0.045 INCH. TO ADJUST , SLACKEN OFF THE PIVOT SCREW AND MOUNTING SCREW AND MOVE THE SWITCH. THE NUTS BELOW THE SCREWS ARE CAPTIVE.
4. CHECK THE ORDER IN WHICH THE SWITCHES OPERATE. WHEN THE CAM ARM IS MOVING FROM RETRACTED TO FORWARD STOP, THE CYCLE COMPLETE SWITCH SHOULD TRANSFER BEFORE THE MID-CYCLE SWITCH. ON RETURN, CAM ARM MOVING FROM FORWARD TO RETRACTED STOP, MID-CYCLE SWITCH MUST TRANSFER BEFORE CYCLE COMPLETE SWITCH. THE 0.045 INCH GAP MAY BE EXTENDED ±0.005 INCH TO OBTAIN THESE CONDITIONS.

S.C.3 OFF-DISK INTERLOCK SWITCH.

REF: FETMM 4.5.7.2.

1. LOOSEN THE SIX-FLUTE SOCKET SCREW HOLDING THE BRACKET BELOW THE SWITCH.
2. ADJUST THE SWITCH TO TRANSFER BETWEEN TRACKS -03 AND -05.(THAT IS, 3 TO 5 TRACKS AFTER TRACK ZERO WHEN RETRACTING THE CARRIAGE). WHILE MAKING THIS ADJUSTMENT ENSURE THAT THE SWITCH ROLLER CLEARS THE STRIKER PLATE BY 0.005 ±0.003 INCH WHEN THE SWITCH ARM IS LIGHTLY BOTTOMED.

S.C.4 CARTRIDGE INTERLOCK SWITCHES.

REF: FETMM, SECTION 4.2.2

EACH CLAMP ARM ASSEMBLY CONTAINS AN INTERLOCK MICROSWITCH.

NOTE: SOME FILES HAVE SWITCH ON ONE ARM ASSEMBLY ONLY

1. OPEN THE CLAMP ARMS AND REMOVE THE DISK CARTRIDGE
2. DETACH THE ARMS. (3 SOCKET SCREWS PER ARM).

DANGER. THE TOGGLE SPRING ASSEMBLY UNDER EACH ARM IS UNDER TENSION. KEEP FINGERS CLEAR WHEN LIFTING, IN THE FOLLOWING STEPS

3. IN TURN, LIFT THE TOGGLE SPRING ASSEMBLY FOR EACH ARM AND FEEL THE FREE PLAY OF 1/16 INCH APPROX.
4. PLACE A 0.005 FEELER GAGE BETWEEN THE UPPER PLATE AND SWITCH PLUNGER.
5. LIFT UP THE ASSEMBLY ENSURING THAT THE SLOT ABOVE THE UPPER PLATE BOTTOMS ON THE NYLON BUSHING.
6. POSITION THE SWITCH AGAINST THE UPPER PLATE WITH THE 0.005 FEELER GAGE INSERTED AND THE SWITCH FULLY DEPRESSED.
7. REMOVE FEELER GAGE AND TIGHTEN SWITCH MOUNTING SCREWS.
8. MAKE SURE THAT THE SWITCH TRANSFERS IN BOTH DIRECTIONS AND REFIT THE CLAMP ARMS.

S.C.5. CARRIAGE PHOTOCELL ASSEMBLY

REF: FETMM 4.5.6.

INSPECT LAMP FOR DISCOLORATION AND FOCUS.

1. P.SLD. Y-W1C6B13 (+ CARRIAGE PHOTOCELL LIT).
2. POSITION CARR AT TRK 06 AND CHECK FOR UP LEVEL.
3. POSITION CARR AT TRK 04 AND CHECK FOR DOWN LEVEL.
4. IF EITHER IS WRONG ADJUST AS FOLLOWS:-
5. DETENT THE CARRIAGE AT TRACK 05.
6. POSITION THE COARSE HOME FLAG SO THAT Y-W1C6B13 HAS JUST CHANGED FROM UP TO DOWN LEVEL.
7. RECHECK AT TRACKS 04 AND 06.

S.C.6. CARRIAGE OVERRUN SWITCH

REF: FETMM 4.5.7.1.

1. SET THE CARRIAGE OVERRUN INTERLOCK SWITCH TO TRANSFER 2 1/2 TO 3 TRACKS BEFORE THE INNER LIMIT STOP, WHEN MOVING THE CARRIAGE TOWARDS THE LIMIT OF TRAVEL.

S.C.7. CARRIAGE RETRACTED SWITCH REF: FETMM 4.5.7.1.

1. SET THE CARRIAGE RETRACTED INTERLOCK SWITCH TO TRANSFER 2 1/2 TO 3 TRACKS BEFORE THE OUTER LIMIT STOP, WHEN MOVING THE CARRIAGE TOWARDS THE LIMIT OF TRAVEL.

S.C.8. HEAD LOAD ADJUSTMENTS REF: FETMM 4.8.1.1.

1. WITH CARRIAGE FULLY RETRACTED, REMOVE THE COVER FROM THE HEAD LOAD ASSEMBLY
2. INSERT LINT-FREE TISSUE BETWEEN THE HEADS.
3. GENTLY PUSH THE SOLENOID PLUNGER UNTIL IT BOTTOMS. CAUTION: THIS ACTION BRINGS THE HEADS TOGETHER SO MUST BE DONE WITH CARE AND NOT REPEATED MORE THAN NECESSARY
4. THE GAP BETWEEN THE PLASTIC PAD ON THE LOAD LEVER AND THE CARRIAGE FRAME SHOULD BE 0.230 (+0.005 -0.000) INCH. CHECK BY INSERTING THE 'GO' ARM OF THE HEAD-LOAD GAUGE AND SEEING THAT THE 'NO-GO' ARM CANNOT BE INSERTED.
5. IF ADJUSTMENT IS NEEDED, SLACKEN THE CABLE ADJUSTER LOCKNUT AND TURN THE ADJUSTER SCREW. AFTER ADJUSTMENT SECURE THE ADJUSTER LOCKNUT.
6. CHECK THAT WHEN THE SOLENOID PLUNGER IS RELEASED THE HEAD LOAD LEVER TOUCHES THE CARRIAGE FRAME. IF IT DOES NOT, PERFORM SERVICE CHECK 19.

S.C.9. TRACK CROSSING AND FINE HOME PHOTOCELL ASSEMBLY.

REF: FETMM 4.5.5.1.

1. INSPECT THE TWO MASK HOLES FOR CONTAMINATION.
2. WHEN THE LEADSCREW IS DETENTED AT TRACK 000 THE ZERO SLOT IN THE DRIVE DISK SHOULD BE OPPOSITE THE TRACK CROSSING PHOTOCELL HOLE IN THE MASK. VIEWING THE HOLE THROUGH THE SLOT ADJUST THE PHOTOCELL ASSEMBLY TO CENTER THE HOLE
3. ENSURE THAT EACH LAMP IS SECURE IN LAMP HOLDER AND MAKING GOOD CONTACT.
4. WITH SYSTEM POWER ON CHECK THAT LAMPS ARE FOCUSSED CENTRALLY OVER THEIR RESPECTIVE HOLES IN THE PHOTOCELL MASK AND ARE NOT DISCOLORED.

S.C.10 LAYSHAFT ADJUSTMENT. REF: FETMM 4.5.1.

1. USING THE CLUTCH SETUP GAGE, PART 2597940, SET THE LOWER CLUTCH TO THE LEADSCREW. DRIVE DISK AND TIRE REMOVED.
2. FIT THE TIRE AND SET THE LAYSHAFT FOR 0.015 ±0.002 INCH GAP BETWEEN LOWER CLUTCH PAD AND TIRE DRIVE SURFACE. SECURE LAYSHAFT AND SET UPPER CLUTCH.
3. REMOVE THE TIRE AND FIT DRIVE DISK.
4. PERFORM S.C.11, 13 AND 14.

S.C.11 CLUTCH ADJUSTMENT (UPPER AND LOWER)

REF: FETMM 4.5.4.

1. HOOK BACK YOKE TO DISENGAGE DETENT PAWLS.
2. INSERT A 0.01 IN FEELER GAUGE BETWEEN CLUTCH PAD AND DRIVE DISK. THE TYRE SHOULD NOT DRIVE THE DISK
3. INSERT A 0.014 IN FEELER GAUGE IN THE SAME WAY. THE TYRE SHOULD NOW DRIVE THE DISK.
4. IF ADJUSTMENT IS NECESSARY, INSERT A 0.012 INCH FEELER GAUGE AND, WITH PIVOT SCREW AND HOLDING SCREW LOOSENED, ADJUST CLUTCH BRACKET ECCENTRIC SO THAT DISK IS DEFLECTED TO TOUCH THE TYRE.

NOTE: SERVICE CHECKS ARE UNDER ENGINEERING CHANGE CONTROL THEREFORE THEY REFLECT THE MOST UP TO DATE AND CORRECT INFORMATION. THE S.C. PROCEDURES HAVE PRIORITY IF ANY DIFFERENCES EXIST BETWEEN S.C. AND FETMM.

S.C.12 DETENT PAWL ADJUSTMENT. REF: FETMM 4.6.2.2.

1. INSPECT DETENT MECHANISM FOR DAMAGED OR LOOSE PAWL DAMPERS, BROKEN PAWL SPRINGS (2) OR YOKE.
2. SLACKEN FOUR SCREWS ON VOICE COIL ASSEMBLY LEAVING THE ASSEMBLY FREE TO MOVE. LOOSEN PAWL BRACKET HOLDING SCREWS.
3. INSERT THE ACTUATOR PIN GAGE, PART 2597946, IN BETWEEN THE CRESTS OF THE DETENT WHEEL. SLIDE THE VOICE COIL ASSEMBLY FORWARD UNTIL THE VEE SHAPED EXTENSION GRIPS THE GAGE WITH NO CLEARANCE. DO NOT USE FORCE TIGHTEN DOWN THE HOLDING SCREWS.
4. LEAVE THE GAGE IN PLACE, ADJUST THE LOWER PAWL BRACKET ECCENTRIC SO THAT THE DETENT STANDS ON THE DETENT WHEEL TOOTH CREST. CONTINUE TURNING UNTIL THE DETENT JUST DROPS DOWN THE FLANK OF THE TOOTH. TIGHTEN DOWN THE BRACKET HOLDING SCREW.
5. WITHDRAW THE ACTUATOR PIN GAGE AND ADJUST THE UPPER PAWL BRACKET IN A SIMILAR MANNER. TURN THE ECCENTRIC TO BRING THE DETENT ON TO THE CREST OF THE DETENT TOOTH THEN CONTINUE UNTIL THE DETENT DROPS. KEEP THE LOWER PAWL AGAINST ITS TOOTH FLANK BUT DO NOT DEFLECT THE PIVOT SPRING. TIGHTEN THE UPPER BRACKET HOLDING SCREW.
6. CHECK THE REMAINDER OF THE TEETH TO ENSURE THAT BOTH PAWLS DROP INTO THE ROOT OF THE TEETH. IF ONE TOOTH IS FOUND THAT WILL NOT ALLOW THIS READJUST THE UPPER BRACKET SLIGHTLY.
7. REPLACE DRIVE DISK, TIRE AND COVER.

S.C.13. TIRE CHECK. REF: FETMM 4.5.2.

ENSURE CORRECT TIRE IS FITTED AND IS SECURE ON LAYSHAFT.
NOTE: CORRECT TIRE IS IDENTIFIED BY 3 PIPS OR RINGS ON CENTRE CIRCUMFERENCE OF TIRE.

CHECK THE DRIVING SURFACES OF THE TIRE FOR WEAR WITH THE 'NO GO' TIRE WEAR GAGE P/N 2597962. IF THE TIRE IS SMALL ENOUGH FOR THE GAGE JAWS TO PASS OVER THE DRIVING SURFACES THE TYRE IS TOO WORN AND MUST BE SCRAPPED. VISUALLY INSPECT THE TIRE SURFACES FOR:

1. STAINING OR POLISHING OF THE DRIVING EDGE
2. RAGGED EDGES OR TAPERED DRIVING SURFACES

CLEANING
THE TIRE SHOULD BE CLEANED AFTER ANY ACTIVITY WITH ISOPROPYL ALCOHOL. APPLY WITH A LINT FREE TISSUE WHILE ROTATING LAYSHAFT BY HAND.

DANGER: DO NOT RISK A SAFETY HAZARD BY CLEANING WHEN THE FILE IS RUNNING.

S.C.14 DRIVE DISK CHECK

REF: FETMM 4.5.3.1

A DRIVE DISK THAT IS BUCKLED OR DISHED, THAT IS CONCAVE OR CONVEX, CANNOT PERFORM CORRECTLY. VIEW THE DISK FROM THE SIDE MOVING THE CARRIAGE WITH THE YOKE DISENGAGED. WHEN THE DISK IS TURNING ANY UNEVENESS WILL BE APPARENT. REPLACE A SUSPECTED DISK.

CAUTION: EXERCISE CARE WHEN WORKING NEAR OR CLEANING THE DISK. IT IS EASILY DAMAGED. CLEAN THE DISK WITH ISOPROPYL ALCOHOL AFTER ANY ACTIVITY TO PREVENT THE TRANSFER OF CONTAMINANTS TO DRIVE TIRE.

S.C.15 UPPER INDEX TRANSDUCER ALIGNMENT.

RADIAL ADJUSTMENT. OSCILLOSCOPE REQUIRED

1. SET THE OSCILLOSCOPE UP AS FOLLOWS:
   CONNECT X10 PROBE TO CH1

A SWEEP MODE	TO NORM TRIG
LEVEL	TO 0 (A TRIGGERING)
SLOPE	TO - (A TRIGGERING)
COUPLING	TO DC (A TRIGGERING)
SOURCE	TO INT (A TRIGGERING)
MODE	TO CH1
TRIGGER	TO CH1 ONLY
CH1 VOLTS/DIV	TO CAL 0.2V
INPUT	TO DC (CH1)
A TIME/DIV	TO CAL 0.5MS
CH2 VOLTS/DIV	TO CAL 0.2

2. IF AVAILABLE SELECT A DISK PACK WITH A .080 INCH WIDE SENSE SLOT IN THE CARTRIDGE ARMATURE PLATE (SEE STEP 4) OTHERWISE USE ONE WITH A .040 INCH SLOT.
3. START THE FILE AND DISPLAY UPPER INDEX PULSE ON PIN Y-W1D6D13.
4. CHECK THAT WAVEFORM HAS A PEAK OF
   A. -1.5V TO -5.0V IF USING A DISK PACK WITH .080 (2.032MM) SLOT.
   B. -1.0V TO -4.0V IF USING A DISK PACK WITH .040 (1.016MM) SLOT.
5. IF OUTPUT IS OUTSIDE LIMITS STATED IN STEP 4, STOP FILE AND REMOVE CARTRIDGE.
   SLACKEN 4 SREWS HOLDING THE UPPER INDEX TRANSDUCER ASM. TO INCREASE OUTPUT ADD SHIMS IN PAIRS UNDER THE ASM, TO DECREASE OUTPUT REMOVE SHIMS IN PAIRS FROM UNDER THE ASM. A 0.003IN SHIM IS APPROXIMATELY EQUAL TO A VOLTAGE DIFFERENCE OF 2 VOLTS.
   NOTE: SHIMS MAY HAVE NOTCHES.
   2 NOTCHES INDICATE .002 INCH SHIM.
   3 NOTCHES INDICATE .003 INCH SHIM.

CAUTION.. DO NOT DROP ANY METAL PARTICLES ON TO THE FIXED DISK SURFACE.

6. BEFORE RECHECKING THE OUTPUT, CARRY OUT THE MECHANICAL CHECKS STEPS 11 THROUGH 16.
7. REPEAT STEPS 5 AND 6 TO OBTAIN LIMITS STATED IN STEP 4. IF THE NEGATIVE PEAK VALUE CANNOT BE OBTAINED REPLACE THE TRANSDUCER.
8. CHANGE OSCILLOSCOPE SETTING TO
   MODE TO CHOP
   A TIME/DIV TO CAL 50 MICROSECONDS.
9. LEAVE CH 1 PROBE ON Y-W1D6D13. DISPLAY UPPER INDEX PULSE ON CH 2 PROBE PIN Y-W1D6B03.
10. IF THE POSITIVE GOING EDGE OF THE INDEX PULSE DOES NOT COINCIDE WITH WAVEFORM CROSSOVER POINT, CHANGE THE INDEX AMPLIFIER CARD Y-W1D6.
11. STOP FILE AND REMOVE THE DISK CARTRIDGE.
12. PLACE HUB TOOL P/N 2537550 ON THE SPINDLE WITH THE PROJECTING TIP CLEAR OF TRANSDUCER POLE PIECE LOWER THE HANDLE AND LOCATE THE TOOL FIRMLY.
13. ROTATE THE TOOL UNTIL THE TIP OVERLAPS THE TRANSDUCER POLE PIECE. DO NOT HIT IT.
14. USING 0.003 INCH FEELER GAGE P/N 2536581, CHECK THAT THE VERTICAL GAP BETWEEN THE TIP OF THE HUB TOOL AND THE POLE PIECE IS NOT LESS THAN 0.003 INCH. DO THIS CHECK AT LEAST TWICE, WITH THE HUB TOOL IN DIFFERENT POSITIONS.
15. CHECK THAT THE HORRIZONTAL GAP BETWEEN THE POLE PIECE AND THE TIP OF THE HUB TOOL IS 0.007 INCH ± 0.002 (0,18 MM ±0,05 MM). ADJUST BY SLACKENING THE TRANSDUCER MOUNTING SCREWS, MOVING THE TRANSDUCER AND TIGHTENING THE SCREWS.
16. REMOVE THE HUB TOOL.

S.C.16 UPPER INDEX TRANSDUCER CIRCUMFERENTIAL ALIGNMENT. OSCILLOSCOPE REQUIRED.

1. LOAD THE CE DISK CARTRIDGE.
2. START UP FILE. WAIT FOR FILE TO COME READY
3. SET THE CE MODE-SELECT SWITCH TO 1 TRK AND ACCESS THE CARRIAGE TO TRACK 005.
4. SET THE CE MODE-SELECT SWITCH TO HD0 OR HD1
5. SET THE OSCILLOSCOPE UP (USING X1 PROBES) AS FOLLOWS:

A SWEEP MODE	TO NORM TRIG
LEVEL	TO 0 (A TRIGGERING)
SLOPE	TO + (A TRIGGERING)
COUPLING	TO AC (A TRIGGERING)
SOURCE	TO EXT (A TRIGGERING)
MODE	TO ADD
TRIGGER	TO NORM
CH1 VOLTS/DIV	TO CAL 50MV
CH2 VOLTS/DIV	TO CAL 50MV (INVERT)
INPUT	TO AC
A TIME/DIV	TO 50US
CH1 PROBE	TO Y-W1K6J12
CH2 PROBE	TO Y-W1K6J10
EXT TRIG INPUT PROBE	TO Y-W1D6B03.

6. LOOSEN THE CIRCUMFERENTIAL ADJUSTMENT SCREW LOCKNUTS.
7. THE OSCILLOSCOPE SHOULD DISPLAY A MARKER PULSE PRECEDING A TRAIN OF PULSES BY 10 MICROSECONDS. THE MARKER PULSE SHOULD OCCUR 30 + OR - 5 MICROSECONDS FROM THE START OF THE TRACE. TO ADJUST THE MARKER PULSE, BACK OFF ONE ADJUSTING SCREW AND TIGHTEN THE OTHER, TO PIVOT THE BOOM ABOUT THE CLAMP SCREW. BACKING OFF THE RIGHT SCREW AND TURNING IN ON THE LEFT MOVES THE MARKER PULSE TOWARDS THE START OF THE TRACE,THAT IS, SHORTENS THE DELAY TIME.
8. ENSURE THE MARKER PULSE OCCURS AT 30 MICROSECONDS, WITH THE CIRCUMFERENTIAL ADJUSTMENT SCREWS BACKED OFF. THE ADJUSTMENT MAY CHANGE AS SCREWS ARE BACKED OFF.
9. OPEN Y LOGIC GATE TO LOCATE A SCREWDRIVER ON THE HEAD OF THE CLAMP SCREWS
10. LOOSEN THE CLAMP SCREW ONE HALF TURN AND RETIGHTEN
NOTE: IF THE CLAMP SCREW IS REMOVED OR REPLACED, LIGHTLY LUBRICATE THE SCREW SHANK WITH IBM NO6 OIL
11. CHECK THAT THE MARKER PULSE STILL OCCURS WITHIN 25 TO 35 MICROSECS WITH HD0 AND HD1 SELECTED IN TURN. IF IT DOES NOT, REPEAT THE ADJUSTMENT FROM STEP 7
12. LOCK THE CIRCUMFERENTIAL ADJUSTMET SCREWS IN THE BACKED OFF POSITION
13. CLOSE THE Y GATE.

NOTE: SERVICE CHECKS ARE UNDER ENGINEERING CHANGE CONTROL THEREFORE THEY REFLECT THE MOST UP TO DATE AND CORRECT INFORMATION. THE S.C. PROCEDURES HAVE PRIORITY IF ANY DIFFERENCES EXIST BETWEEN S.C. AND FETMM.

S.C.17 LOWER INDEX TRANSDUCER.

1. SET UP THE OSCILLOSCOPE AS IN SERVICE CHECK 15
2. START THE FILE AND DISPLAY LOWER INDEX PULSE ON PIN Y-W1D6J07.
3. CHECK THAT THE WAVEFORM HAS A NEGATIVE PEAK OF -1.5V TO -5.0V.
4. IF THE OUTPUT IS OUTSIDE THE VOLTAGE LIMITS STATED IN STEP 3, STOP FILE, SLACKEN THE LOCK NUT AND SETSCREW AND MOVE TRANSDUCER ASSEMBLY TOWARDS THE SPINDLE PULLEY TO INCREASE OUTPUT OR AWAY TO DECREACE OUTPUT.
5. CHECK THAT GAP BETWEEN TRANSDUCER AND THE FACE OF THE SPINDLE PULLEY IS NOT LESS THAN 0.001 INCH AT. THE HIGHEST POINT ON THE PULLEY FACE.
6. IF THE NEGATIVE PEAK VALUE IS STILL NOT WITHIN THE VOLTAGE LIMITS STATED IN STEP 3 REPLACE THE TRANSDUCER.
7. TIGHTEN SETSCREW AND LOCKNUT (DO NOT OVERTIGHTEN) AND REPEAT STEPS 2 AND 3.
8. CHANGE OSCILLOSCOPE SETTING TO
   MODE TO CHOP
   A TIME/DIV TO CAL
9. LEAVE CH1 PROBE ON Y-W1D6J07. DISPLAY LOWER INDEX PULSE ON CH2 PIN Y-W1D6B02 USING X10 PROBE.
10. IF THE POSITIVE GOING EDGE OF THE INDEX PULSE DOES NOT COINCIDE WITH THE WAVEFORM CROSSOVER POINT, CHANGE THE INDEX AMPLIFIER CARD Y-W1D6.

S.C.18 RELATCHING MECHANICAL HEAD KNOCK-OFF.

1. STOP FILE
2. REMOVE ACTUATOR COVER AND MANUALLY MOVE CARRIAGE TO FULLY RETRACTED POSITION.
3. RELATCH KNOCK OF MECHANISM AND CHECK FOR PROPER SEATING OF BOWDEN CABLE. ENSURE HEADS ARE NOT LOADED TOGETHER.
4. START FILE AND WAIT FOR FILE TO COME READY. THEN SWITCH OFF FILE.
5. IF MECHANICAL HEAD KNOCK-OFF IS UNLATCHED, EXAMINE HEAD LOADING MECHANISM FOR BINDING PARTS.
6. PERFORM SERVICE CHECK 8.

S.C.19 HEAD LOAD SPRING SHAFTS.

1. IF DATA HAS TO BE RETAINED ALL ATTEMPTS SHOULD BE MADE TO TRANSFER TO A SCRATCH DISK PACK.
2. STOP FILE AND REMOVE DISK CARTRIDGE.
3. SWITCH OFF SYSTEM POWER, REMOVE TOP COVER AND DETENT COVER.
4. HOOK BACK DETENT YOKE, TO DISENGAGE PAWLS.
5. ENSURE THAT CARRIAGE IS FULLY RETRACTED THEN REMOVE HEAD ARM ASSEMBLIES. REF FETMM 4.7.1.4.
6. REMOVE CABLE CLAMP PILLAR, LOCATE THE DISK CLEARANCE AND HEAD-LOAD SPRING GAGE (P/N 5144375) ON THE HOLE IN THE MACHINE PAD AND SECURE WITH CAPTIVE SCREW.

NOTE: IF HEAD-LOAD SPRING GAGE P/N 2600555 IS BEING USED REFER TO FETMM 4.8.4.3.

7. REMOVE HEAD LOAD KNOCK-OFF TRIP BRACKET.
8. REMOVE COVER OVER POWER TRANSISTORS.
9. TAKE OUT HEAD-LOAD CABLE FROM CABLE GUIDE AND FROM HEAD-LOAD LEVER.
10. SET LINKS IN THE SEQUENCE 02,03,01 AND 00. (02 IS THE MASTER SHAFT CARRYING THE HEAD-LOAD LEVER).

CAUTION: IN THE FOLLOWING STEPS, MAKE SURE THE HEAD-LOAD SPRINGS ARE CLEAR OF THE FIXED DISK SURFACE BEFORE MOVING THE CARRIAGE.

NOTE: EACH LINK IS DEPENDENT UPON THE OTHER AND, THEREFORE, ALL LINKS MUST BE CHECKED IF ONE IS ADJUSTED.

11. MOVE CARRIAGE FORWARD UNTIL IT IS POSSIBLE TO

INSERT THE TORQUE WRENCH P/N 2598187 AND ADAPTER P/N 2597971 INTO THE SOCKET HEADS OF THE LINK CLAMP SCREWS. CHECK THAT, AT THE SAME TIME, THE HEAD-LOAD SPRINGS CAN BE COVERED BY THE GAGE PLATE OF P/N 5144375.

12. LOOSEN THE CLAMP SCREWS OF ALL FOUR LINKS AND OF THE HEAD-LOAD LEVER.
13. FEED THE SETTING SLOTS OF THE GAGE OVER THE FOUR HEAD LOAD SPRINGS.
14. WITH THE HEAD-LOAD LEVER RESTING AGAINST SIDE OF CARRIAGE FRAME AND CENTRAL IN THE CAST RECESS, TIGHTEN CLAMP SCREW OF THE HEAD-LOAD LEVER USING TORQUE WRENCH (P/N 2598187).
15 WITH HEAD-LOAD SPRINGS STILL LOCATED BY GAGE PLATE SET LINK 02 VERTICAL AND TIGHTEN THE LINK CLAMP SCREW TO 8LB IN WITH TORQUE WRENCH. CHECK THAT END PLAY OF SHAFT 02 DOES NOT EXCEED 0.003 IN. (0,076 MM).
16 ADJUST LINK 03 TO TOUCH LINK 02 AND LIGHTLY TIGHTEN CLAMP SCREW OF LINK 03. CHECK THAT END PLAY OF SHAFT 03 DOES NOT EXCEED 0.003 IN. THEN TIGHTEN THE CLAMP SCREW TO 8LB IN. WITH TORQUE WRENCH.
17 REPEAT STEP 16 FOR LINK 01. ENSURE THAT LINK 01 TOUCHES LINK 02 IN THE CORRECT PLACE. REF FETMM FIG 2-41.
18 REPEAT STEP 16 FOR LINK 00. ENSURE THAT LINK 00 TOUCHES LINK 01 IN THE CORRECT PLACE.
19 RETRACT CARRIAGE TO DISENGAGE THE HEAD-LOAD SPRINGS FROM GAGE PLATE.
20 REMOVE GAGE PLATE AND RE-ASSEMBLE IT TO ITS PILLAR SO THAT CHECKING SLOTS ARE PRESENTED TO HEAD-LOAD SPRINGS.
21 MOVE CARRIAGE FORWARD AND CHECK THAT HEAD-LOAD SPRINGS PASS FREELY THROUGH CHECKING SLOTS OF GAGE PLATE, DURING THIS CHECK, LINK 00 MUST BE SUPPORTED SO THAT IT TOUCHES LINK 01 AND THE HEAD LOAD LEVER MUST REST AGAINST CARRIAGE CASTING. IF THE SPRINGS ARE DISTORTED OR DO NOT PASS THROUGH THE CHECKING SLOTS, REPEAT STEPS 11 THROUGH 21.
22 REMOVE GAGE AND RE-INSTALL HEAD-LOAD CABLE
23 REFIT THE TRANSISTOR COVER.
24 RETRACT CARRIAGE AND REFIT HEAD ARM ASSEMBLIES.
25 REFIT THE HEAD KNOCK-OFF TRIP BRACKET.
26 RELEASE DETENT YOKE, TO ENGAGE DETENT PAWLS.
27 REFIT DETENT COVER AND TOP COVER.
28 INSTALL DISK CARTRIDGE AND RE-INITIALIZE THE FIXED DISK.

S.C.20. CLUTCH RETURN SPRING AND BACKSTOP ADJUSTMENT.

CAUTION: TAKE CARE IN ORDER TO AVOID DAMAGE TO THE DRIVE DISK WHEN CARRYING OUT THESE ADJUSTMENTS

1. REMOVE THE DETENT COVER.
2. REMOVE THE CLUTCH PIVOT AND HOLDING SCREWS AND WITHDRAW THE CLUTCH ASSEMBLY COMPLETE WITH ECCENTRIC. REF FETMM PAGE 2.29, FIG 2-28.
3. CHECK THE ARMATURE-CORE GAP BY INSERTING FEELER GAUGES BETWEEN THE ARMATURE AND THE BACKSTOP. THIS GAP SHOULD BE 0.028INCHES ± 0.002INCHES.
4. SET THE BACKSTOP AS NECESSARY TO ACHIEVE THE CORRECT GAP. REF FETMM PAGE 2.29,FIG 2-30.

CAUTION: DO NOT ATTEMPT TO ACHIEVE A GAP OF 0.028INCHES PRECISELY AS EXCESSIVE FORMING OF THE BACKSTOP MAY RESULT IN METAL FATIUGE CAUSING THE BACKSTOP TO FRACTURE.

5. USING CE GRAM GUAGE PN 450459 CHECK THAT A FORCE OF 50 ± 10 GRAMS IS NEEDED TO MOVE THE ARMATURE FROM THE BACKSTOP. REF FETMM PAGE 2.29,FIG 2-30.
6. SET THE SPRING RETAINING HOOK AS NECESSARY TO ACHIEVE THE CORRECT FORCE.
NOTE. THIS CAN CHANGE ADJUSTMENT MADE IN STEP 5. CHECK THE BACK STOP AGAIN.
7. INSERT ECCENTRIC INTO THE CLUTCH SUPPORT BRACKET THEN CAREFULLY INSERT THE CLUTCH ASSEMBLY INTO PLACE WITHOUT DAMAGING THE DRIVE DISK. LIGHTLY TIGHTEN THE SCREWS.
8. POSITION THE CLUTCH ASSEMBLY SUCH THAT THE PAD IS CLEAR OF THE DRIVE DISK BY ROTATING THE ECCENTRIC.
9. ADJUST THE CLUTCH PAD-DRIVE DISK CLEARANCE AS PER SC 11.

S.C.21. CARRIAGE FRICTION CHECK.

1. REMOVE THE FILE TOP COVER.
2. REMOVE THE DETENT COVER.
3. HOOK BACK THE DETENT YOKE TO DISENGAGE THE PAWLS REFER FETMM SECTION 2.4.3.
4. USING THE CE GRAM GAUGE PN 450459, CHECK THE FORCE TO OVER COME THE ROLLING FRICTION OF THE CARRIAGE, I.E. TO MAINTAIN CARRIAGE MOVEMENT AFTER THE CARRIAGE HAS STARTED TO MOVE.
THIS CHECK MUST BE CARRIED OUT IN THREE PLACES OVER THE LENGTH OF THE LEADSCREW IN BOTH FORWARD AND AND REVERSE DIRECTIONS.
THE FORCE TO MAINTAIN CARRIAGE MOVEMENT IN EITHER DIRECTION MUST NOT EXCEED 550 GRAMS.
THE CONTACT POINT FOR THE GRAM GAUGE SHOULD BE ON THE CARRIAGE SHOULDER WHICH CARRIES THE TRACK INDICATING POINTER.
5. IF THE FORCE TO MAINTAIN CARRIAGE MOVEMENT IN ANY POSITION, FORWARD OR REVERSE, EXCEEDS 550 GRAMS, THE LUBRICATION PROCEDURE SPECIFIED IN THE FETMM SECTION 3.2.1, MUST BE CARRIED OUT. DO NOT REFIT THE TOP COVER AT THIS STAGE.
6. AFTER REMOVING THE EXCESS LUBRICANT MOVE THE CARRIAGE BACK AND FORTH OVER THE FULL TRAVEL RANGE AT LEAST THIRTY TIMES IN EACH DIRECTION BEFORE RECHECKING THE CARRIAGE FRICTION.
7. CHECK THE CARRIAGE FRICTION AS DETAILED IN STEP 4.
8. IF THE CARRIAGE FRICTION STILL EXCEEDS 550 GRAMS, WORK THE CARRIAGE AGAIN,AS DETAILED IN STEP 6.
9. RECHECK THE CARRIAGE FRICTION AS IN STEP 4.
10. IF CARRIAGE FRICTION IS LESS THAN 550 GRAMS UNHOOK THE DETENT YOKE. TIGHTEN THE HOOK SCREW WITH THE HOOK IN THE CLEAR POSITION.
11. IF THE CARRIAGE FRICTION STILL EXCEEDS 550 GRAMS THE ACTUATOR MUST BE REPLACED. REF FETMM 4.4.1.

1.1 PURPOSE - THIS TAPS FACILITY CAN BE USED IN PLACE OF AN OSCILLOSCOPE TO ASSIST WITH THE ISOLATION OF MALFUNCTIONS THAT CANNOT BE CORRECTED BY MAPS.

1.2 TAP TEST DECK LOADING FROM EITHER CARD OR DISK IS DESCRIBED IN THE MASTER TIMING ANALYSIS PROGRAM (M TAP) USER'S GUIDE. ALL OF THE FOLLOWING TAP TESTS RUN UNDER THE CONTROL OF M TAP (MASTER TIMING ANALYSIS PROGRAM).

1.3 JUMPERS ARE PERMANENTLY WIRED IN THE FILE CONTROL UNIT. JUMPERING IN THE 5444 FILE IS MADE FROM THE TAPS LINE DRIVERS ACCOMODATED ON CARD Y-W1G7.

1.4 PERFORM THE FOLLOWING OPERATIONS PRIOR TO LOADING TAP TEST SECTION/S.

1.4.1. REMOVE THE THREE CODED HALT JUMPERS ON Y-W1 BOARD.

Y-W1G7B03	TO	Y-W1H6B10
Y-W1G7B04	TO	Y-W1H6G03
Y-W1G7B05	TO	Y-W1H6G04

1.4.2. REMOVE INSULATORS FROM PINS Y-W1E6G04 AND Y-W1E6G05

1.4.3. INSTALL THE FOLLOWING JUMPERS TO PERFORM TAP TEST OPTIONS OBO TROUGH OBB.

Y-W1 F6J07	TO	Y-W1 G7B09	DETENT (A)
Y-W1 E6G05	TO	Y-W1 G7B03	(1ST AND
Y-W1 E6G04	TO	Y-W1 G7B10	2ND PICK) (B)
Y-W1 C6D09	TO	Y-W1 G7B05	TRACK CROSSING (C)

1.4.4. ACCESS THE CARRIAGE TO A TRACK ADDRESS GREATER THAN 10 USING CE CONTROLS.

1.5 SELECT TAP TEST OPTION/S FROM THE FOLLOWING.

DISK DRIVE 1	DISK DRIVE 2	TAPS TEST DESCRIPTION
0B0 P/N 5129677 EC 571540	0B6 P/N 5129683 EC 571540	THIS TEST PROVIDES A 20 SEEK SUMMARY PRINTOUT FROM DETENT DISENGAGE FOR 75.0 M SECONDS DISPLAYING FORWARD SEEK WAVEFORMS ONLY.
0B1 P/N 5129678 EC 571540	0B7 P/N 5129684 EC 571540	THIS TEST PROVIDES A 20 SEEK SUMMARY PRINTOUT FROM DETENT DISENGAGE FOR 75.0 M SECONDS DISPLAYING REVERSE SEEK WAVEFORMS ONLY.
0B2 P/N 5129679 EC 571540	0B8 P/N 5129685 EC 571540	THIS TEST PROVIDES A 20 SEEK SUMMARY PRINTOUT FROM DETENT DISENGAGE FOR 7.5 M SECONDS DISPLAYING FORWARD SEEK WAVEFORMS ONLY.
0B3 P/N 5129680 EC 571540	0B9 P/N 5129686 EC 571540	THIS TEST PROVIDES A 20 SEEK SUMMARY PRINTOUT FROM DETENT DISENGAGE FOR 7.5 M SECONDS DISPLAYING REVERSE SEEK WAVEFORMS ONLY.
0B4 P/N 5129681 EC 571540	0BA P/N 5129687 EC 571540	THIS TEST PROVIDES A 20 SEEK SUMMARY PRINTOUT FROM DETENT ENGAGE FOR 20.0 M SECONDS DISPLAYING FORWARD SEEK WAVEFORMS ONLY.
0B5 P/N 5129682 EC 571540	0BB P/N 5129688 EC 571540	THIS TEST PROVIDES A 20 SEEK SUMMARY PRINTOUT FROM DETENT ENGAGE FOR 20.0 M SECONDS DISPLAYING REVERSE SEEK WAVEFORMS ONLY.

MASTER TAPS CONTROL CARD LISTING OB0 THROUGH OBB

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COLUMN  12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456
        M0         PN 5129677 EC 571540 5444 TAPS TEST OPTION OB0.                                                  OB020000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB020001
        M1  A000A0000000                                                                                            OB020002
        M2  A30070           0006 250 0020 H A6A6A60000010AA37840000000                                  00          OB020003
        M3   LINE        LINE       LINE                                                                          OB020004
        M4    A(SYNC)     B          C                                                                            OB020005
        M5  FE                                                                                                      OB020006
        ME                                                                                                          OB020007

        M0         PN 5129678 EC 571540 5444 TAPS TEST OPTION OB1.                                                  OB120000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB120001
        M1  A000A0000000                                                                                            OB120002
        M2  A30070           0006 250 0020 H A6A6A60000000AA37840000000                                  01          OB120003
        M3   LINE        LINE       LINE                                                                          OB120004
        M4    A(SYNC)     B          C                                                                            OB120005
        M5  FE                                                                                                      OB120006
        ME                                                                                                          OB120007

        M0         PN 5129679 EC 571540 5444 TAPS TEST OPTION OB2.                                                  OB220000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB220001
        M1  A000A0000000                                                                                            OB220002
        M2  A30070           0001 150 0020 H A6A6A60000000AA37840000000                                  01          OB220003
        M3   LINE        LINE       LINE                                                                          OB220004
        M4    A(SYNC)     B          C                                                                            OB220005
        M5  FE                                                                                                      OB220006
        ME                                                                                                          OB220007

        M0         PN 5129680 EC 571540 5444 TAPS TEST OPTION OB3.                                                  OB320000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB320001
        M1  A000A0000000                                                                                            OB320002
        M2  A30070           0001 150 0020 H A6A6A60000010AA37840000000                                  00          OB320003
        M3   LINE        LINE       LINE                                                                          OB320004
        M4    A(SYNC)     B          C                                                                            OB320005
        M5  FE                                                                                                      OB320006
        ME                                                                                                          OB320007

        M0         PN 5129681 EC 571540 5444 TAPS TEST OPTION OB4.                                                  OB420000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB420001
        M1  A000A0000000                                                                                            OB420002
        M2  A30070           0002 200 0020 H A6A6A60000010AA37940000000                                  00          OB420003
        M3   LINE        LINE       LINE                                                                          OB420004
        M4    A(SYNC)     B          C                                                                            OB420005
        M5  FE                                                                                                      OB420006
        ME                                                                                                          OB420007

        M0         PN 5129682 EC 571540 5444 TAPS TEST OPTION OB5.                                                  OB520000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB520001
        M1  A000A0000000                                                                                            OB520002
        M2  A30070           0002 200 0020 H A6A6A60000000AA37940000000                                  01          OB520003
        M3   LINE        LINE       LINE                                                                          OB520004
        M4    A(SYNC)     B          C                                                                            OB520005
        M5  FE                                                                                                      OB520006
        ME                                                                                                          OB520007

        M0         PN 5129683 EC 571540 5444 TAPS TEST OPTION OB6.                                                  OB620000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB620001
        M1  B000B0000000                                                                                            OB620002
        M2  B30070           0006 250 0020 H B6B6B60000010AB37840000000                                  00          OB620003
        M3   LINE        LINE       LINE                                                                          OB620004
        M4    A(SYNC)     B          C                                                                            OB620005
        M5  FE                                                                                                      OB620006
        ME                                                                                                          OB620007

        M0         PN 5129684 EC 571540 5444 TAPS TEST OPTION OB7.                                                  OB720000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB720001
        M1  B000B0000000                                                                                            OB720002
        M2  B30070           0006 250 0020 H B6B6B60000000AB37840000000                                  01          OB720003
        M3   LINE        LINE       LINE                                                                          OB720004
        M4    A(SYNC)     B          C                                                                            OB720005
        M5  FE                                                                                                      OB720006
        ME                                                                                                          OB720007

        M0         PN 5129685 EC 571540 5444 TAPS TEST OPTION OB8.                                                  OB820000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB820001
        M1  B000B0000000                                                                                            OB820002
        M2  B30070           0001 150 0020 H B6B6B60000010AB37840000000                                  00          OB820003
        M3   LINE        LINE       LINE                                                                          OB820004
        M4    A(SYNC)     B          C                                                                            OB820005
        M5  FE                                                                                                      OB820006
        ME                                                                                                          OB820007

        M0         PN 5129686 EC 571540 5444 TAPS TEST OPTION OB9.                                                  OB920000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OB920001
        M1  B000B0000000                                                                                            OB920002
        M2  B30070           0001 150 0020 H B6B6B60000000AB37840000000                                  01          OB920003
        M3   LINE        LINE       LINE                                                                          OB920004
        M4    A(SYNC)     B          C                                                                            OB920005
        M5  FE                                                                                                      OB920006
        ME                                                                                                          OB920007

        M0         PN 5129687 EC 571540 5444 TAPS TEST OPTION OBA.                                                  OBA20000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OBA20001
        M1  B000B0000000                                                                                            OBA20002
        M2  B30070           0002 200 0020 H B6B6B60000010AB37940000000                                  00          OBA20003
        M3   LINE        LINE       LINE                                                                          OBA20004
        M4    A(SYNC)     B          C                                                                            OBA20005
        M5  FE                                                                                                      OBA20006
        ME                                                                                                          OBA20007

        M0         PN 5129688 EC 571540 5444 TAPS TEST OPTION OBB.                                                  OBB20000
        M0    REFER TO 5444 MAPS APPENDIX B PAGE 900 BEFORE CONTINUING                                              OBB20001
        M1  B000B0000000                                                                                            OBB20002
        M2  B30070           0002 200 0020 H B6B6B60000000AB37940000000                                  01          OBB20003
        M3   LINE        LINE       LINE                                                                          OBB20004
        M4    A(SYNC)     B          C                                                                            OBB20005
        M5  FE                                                                                                      OBB20006
        ME                                                                                                          OBB20007
```

1.6 GRAPHICAL PRINTOUT IS PROVIDED TO DISPLAY THE FOLLOWING LOGIC LEVEL WAVEFORMS.

LINE A - DETENT AT TAB PIN Y-W1 F6J07 LOGIC PAGE FN495
LINE B - 1ST AND 2ND PICK PULSE AT TAB PINS Y-W1 E6G04 AND Y-W1 E6G05 LOGIC PAGE FN495
LINE C - RAW TRACK CROSSING PULSES AT TABPIN Y-W1C6D09 LOGIC PAGE FN450.

THE DISPLAY PROVIDES SUMMARY GRAPHICAL PRINTOUT OF 20 CONSECTIVE SEEK COMMANDS BETWEEN TWO ADDRESSES 10 TRACKS APART ON A SINGLE PRINTOUT UNLESS A SENSE SWITCH OPTION IN SECTION 1.7 IS USED.

1.7 SENSE SWITCH OPTIONS - SENSE SWITCHES MAY BE SET BY PUTTING 'F1XX' IN CONSOLE ADDRESS SWITCHES, THEN RESETTING THE HALT. 'F0XX' TURNS IT OFF. 'XX'IS THE SENSE SWITCH NUMBER.

SENSE SWITCH NUMBER	OPTION IN EFFECT WHEN THE SWITCH IS ON
28	LOOP ON A TAP TEST AND PRINT RESULTS OF THE LAST COMMAND WHEN 5444 FILE DROPS READY. THE PRINTOUT IS OF THE LAST COMMAND.
29	PRINT RESULTS IN TABULAR FORM.(NOTE: A SCOPE TYPE PRINTOUT OF THE SAME DATA MAY BE OBTAINED AFTER THE TABULAR FORM IF THE RIGHT-MOST 2 CONSOLE ADDRESS SWITCHES ARE AT 'FF' WHEN THE TABULAR FORM IS COMPLETED.)

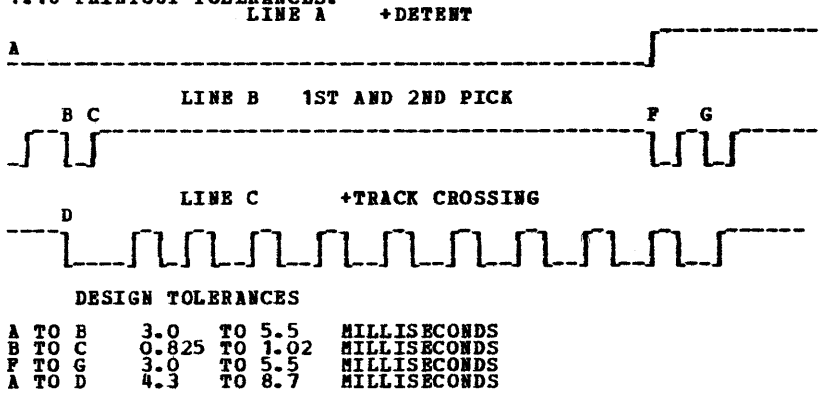
1.8 A STOP ON ERROR USING SENSE SWITCH OPTION 28 MAY BE PROVIDED BY SEEKING BETWEEN TWO TRACK ADDRESSES THAT ARE A MULTIPLE OF 10. EG. 10 AND 20, 120 AND 130, AND INSTALLING THE FOLLOWING JUMPERS AFTER FILE IS READY AND CARRIAGE ACCESSED TO A TRACK THAT IS A MULTIPLE OF 10.

Y-W1 G7B13 TO Y-W1 C6D02 - ACCESS IN MOTION (470)
Y-W1 G7B02 TO Y-W1 C6J10 - FINE HOME AREA (450)
Y-W1 G7D12 TO Y-W1 H6B10 (UNSAFE LATCH) (230)

IF A SEEK ERROR OCCURS (I.E. A SEEK OF MORE OR LESS THAN 10 TRACKS) THE UNSAFE LATCH WILL SET AND CAUSE THE FILE TO GO NOT READY. IT WILL BE NECESSARY TO SELECT THE APPROPRIATE TAPS TEST TO DISPLAY THE SEEK CAUSING THE ERROR.

1.9 DETERMINATION OF ERROR CONDITION MAY BE MADE BY COMPARING THE TAPS TEST PRINTOUT WITH PREVIOUS PRINTOUT WHEN THE FILE WAS PERFORMING CORRECTLY OR BY COMPARING WITH THE DESIGN TOLERANCES IN SECTION 1.10 BELOW.

1.10 PRINTOUT TOLERANCES.



DESIGN TOLERANCES

A TO B	3.0	TO 5.5	MILLISECONDS
B TO C	0.825	TO 1.02	MILLISECONDS
F TO G	3.0	TO 5.5	MILLISECONDS
A TO D	4.3	TO 8.7	MILLISECONDS

1.11 CODED HALT JUMPERS AND INSULATORS MUST BE REINSTALLED ON COMPLETION OF TAPS.
JUMPERS ARE INSTALLED AS FOLLOWS.

Y-W1G7B03 TO Y-W1H6B10
Y-W1G7B04 TO Y-W1H6G03
Y-W1G7B05 TO Y-W1H6G04

REPLACE INSULATORS OVER PINS
Y-W1E6G04 AND Y-W1E6G05.

1. PURPOSE - THIS DIAGNOSTIC PROGRAM IS FOR USE WITH THE SEEK FAILURE MAP CHARTS TO ASSIST IN ESTABLISHING GOOD MECHANICAL ADJUSTMENTS IN THE ACCESS DRIVE AREA.

2. PROGRAM LOADING - FROM EITHER CARD OR DISK IS DESCRIBED IN OPERATING PROCEDURES OF THE DIAGNOSTIC USERS GUIDE.

3. PRINTOUT INTERPRETATION - COMPARE THE DISTRIBUTION PRINTOUT PRODUCED FROM FAILING DRIVE WITH THE FIGURES BELOW TO DETERMINE WHETHER SINGLE TRACK ACCESS TIMES OVER THE FULL RANGE, FWD AND REV,LIE WITHIN THE SPECIFIED LIMITS.

FIGURE 1: EXAMPLE OF AN ACCEPTABLE DISTRIBUTION PRINTOUT FOR 203 SINGLE TRACK FORWARD SEEKS.

```
ID A011. PROG B0B3-01. SSWS 06,09
DIRECTION, SIO CYCLES, SEEK LENGTH, DISK ... LIMITS - LOW  VAR  HIGH ... STATUS BYTES
 FORWARD       203        1 TRACK     F1  ... IN MS    4.3   .9   8.7 ... 00 00 03 51

----- 4.3MS
  A    A
  |    |
  |    |
  |    |
RANGE  |
- - - -|-  5.6
       |   5.7   9 *********
       |   5.8  41 ****************************************
VARIATION  5.9  84 ********************************************************************************
 = 0.6MS   6.0  54 ******************************************************
       |   6.1  14 **************
       |   6.2   1 *
- - - -|-  6.3
       |
       |
       V
----- 8.7MS
```

PRINTOUT.

1. THE FIRST COLUMN SHOWS THE TIME PER SEEK IN MILLISECONDS FROM START OF ACCESS COMMAND UNTIL THE TRACK CROSSING PHOTOCELL IS COVERED.
2. THE SECOND COLUMN SHOWS THE NUMBER OF SEEKS THAT OCCURRED FOR THE ADJACENT TIME IN FIRST COLUMN.
3. EACH ROW OF *'S IS EQUAL TO THE NUMBER IN THE SECOND COLUMN UNLESS THAT NUMBER IS GREATER THAN 82. DCP ENDS PRINT LINE AT POSITION 96 SO THAT ALL *'S CANNOT BE PRINTED.
4. FOR REVERSE SEEKS THE PRINTOUT SHOULD BE SIMILAR BUT THE TIME FOR EACH SEEK (FIRST COL) MAY BE RETARDED DUE TO HIGHER CARRIAGE FRICTION IN THE REVERSE DIRECTION. PHOTO CELL POSITION (SC 09) CAN ALSO CAUSE FWD AND REV TIME TO BE DIFFERENT.

SPECIFICATION.

1. RANGE - THE GRAPHS FOR BOTH FORWARD AND REVERSE SEEKS MUST LIE COMPLETELY WITHIN THE LIMITS OF 4.3MS TO 8.7MS.
2. VARIATION - THIS MUST NOT EXCEED 0.9 MILLISECONDS.

FIGURE 2: UNACCEPTABLE PRINTOUT WITH ERROR MESSAGES.

```
*ID A011. PROG B0B3-01. SSW 07
 DIRECTION, SIO CYCLES, SEEK LENGTH, DISK ... LIMITS - LOW  VAR  HIGH ... STATUS BYTES
  REVERSE       203        1 TRACK     F1  ... IN MS    4.3   .9   8.7 ... 00 40 03 51

  8.2
  8.3   1 *
  8.4   4 ****
  8.5  20 ********************
  8.6  27 ***************************
  8.7  19 *******************
  8.8  25 *************************
  8.9  30 ******************************
  9.0  33 *********************************
  9.1  24 ************************
  9.2  17 *****************
  9.3   2 **
  9.4
  9.5   1 *
  9.6
```

ANY OF THESE ERRORS MAY BE PRINTED FOLLOWING THE DISTRIBUTION GRAPH.
SOME MEASUREMENTS ARE ABOVE THE HIGH LIMIT.
SOME MEASUREMENTS ARE BELOW THE LOW LIMIT.
DISK ERROR DURING MEASUREMENT RUN.
DIPS OR SKIPS IN GRAPH.
VARIATION FROM LOWEST TO HIGHEST EXCEEDS LIMIT.
INCORRECT NUMBER OF SEEKS WITH NO DISK ERROR.
CARRIAGE DID NOT MOVE DURING A SEEK.

```
*ID A000. PROG B0B3-01. SSW  07

 SOME MEASUREMENTS ARE ABOVE THE HIGH LIMIT.
 DIPS OR SKIPS IN GRAPH.
 VARIATION FROM LOWEST TO HIGHEST EXCEEDS LIMIT.
```

FIGURE 3: EXAMPLE OF ERROR PRINTOUT WHEN CARRIAGE SEEKS TWO TRACKS WHEN IT SHOULD ONLY SEEK ONE.

```
*ID A000. PROG B0B3-01. SSWS
 CYLINDER ID TABLE.

      01  02  03  04  05  06  07  08  09  0A  0B  0C  0D  0E  0F
  10  11  12  13  14  15  16  17  18  19  1A  1B  1D* 1E  0F  20
  21  22  23  24  25  26  27  28  29  2A  2B  2C  2D  2E  2F  30
  31  32  33  34  35  36  37  38  39  3A  3B  3C  3D  3E  3F  40
  41  42  43  44  45  46  47  48  49  4A  4B  4C  4D  4E  4F  50
  51  52  53  54  55  56  57  58  59  5A  5B  5C  5D  5E  5F  60
  61  62  63  64  65  66  67  68  69  6A  6B  6C  6D  6E  6F  70
 72*  73  74  75  76  77  78  79  7A  7B  7C  7D  7E  7F  80  81
  82  83  84  85  86  87  88  89  8A  8B  8C  8D  8E  8F  90  91
  92  93  94  95  96  97  98  99  9A  9B  9C  9D  9E  9F  A0  A1
  A2  A3  A4  A5  A6  A7  A8  A9  AA  AB  AC  AD  AE  AF  B0  B1
  B2  B3  B4  B5  B6  B7  B8  B9  BA  BB  BC  BD  BE  BF  C0  C1
  C2  C3  C4  C5  C6  C7  C8  C9  CA  CB

   ID FIELD WAS 00CB14 AFTER LAST SEEK -- XXXXFF MEANS RD ID NOT COMPLETED.

* - ACCESS MOVED WRONG NUMBER OF TRACKS ON THIS SEEK.

*ID A011. PROG B0B3-01. SSWS
 DIRECTION, SIO CYCLES, SEEK LENGTH, DISK ... LIMITS - LOW  VAR  HIGH ... STATUS BYTES
  FORWARD      201        1 TRACK     F1  ... IN MS    4.3   .9  8.7  ... 00 00 03 51


    5.7
    5.8   1 *
    5.9  21 **********************
    6.0  62 ****************************************************************
    6.1  70 **********************************************************************
    6.2  33 *********************************
    6.3  13 *************
    6.4   1 *
    6.5

   *ID A000. PROG B0B3-01. SSWS
    INCORRECT NUMBER OF SEEKS WITH NO DISK ERROR
```

FIGURE 4: EXAMPLE OF AN ACCEPTABLE DISTRIBUTION PRINTOUT ALONG WITH THE BEGINING AND END OF THE 'PER CYCLE' PRINTOUT FOR THE SAME MEASUREMENT. (SSW 20 SET).

```
ID A011. PROG B0B3-01. SSWS 20,23
DIRECTION, SIO CYCLES, SEEK LENGTH, DISK ... LIMITS - LOW  VAR  HIGH ... STATUS BYTES
 FORWARD      203        1 TRACK     F1       IN MS   4.3   .9  8.7     00 00 03 51


  5.3
  5.4   3 ***
  5.5   6 ******
  5.6  12 ************
  5.7  42 ******************************************
  5.8  59 ***********************************************************
  5.9  52 ****************************************************
  6.0  26 **************************
  6.1   3 ***
  6.2


SEEK    SEEK
 NO     TIME
       MILLISECS        GRAPHIC SEEK TIME
 001    6.0  *********
 002    6.0  *********
 003    6.1  ***********
 004    6.1  ***********
 005    6.0  *********
 006    5.8  *******
 007    5.8  *******
 008    5.7  ******
 009    5.6  *****
 010    5.9  ********
  |      |     |
  V      V     V     THE 'PER CYCLE' PRINTOUT SHOWS THE TIME FOR EACH SEEK.
                     NOTE: THE 1ST AND 2ND SEEK TOOK 6.0MS TO COVER THE TRACK
                     CROSSING CELL, AND THE 3RD AND 4TH SEEK EACH TOOK 6.1MS
                     COVER THE CELL.
                     ALSO NOTE FROM THE DISTRIBUTION PRINTOUT THAT ONLY 3 SEEKS
                     TOOK 6.1MS. YOU CAN TELL FROM THE'PER CYCLE' PRINTOUT
                     THAT 2 OF THESE 3 OCCURRED ON SEEK NUMBERS 3 AND 4.

                     SINCE THE 'PER CYCLE' PRINTOUT WILL PRINT A MAXIMUM OF 203 LINES, IT IS NORMALLY
                     NOT USED UNLESS THE 'PER CYCLE' INFORMATION IS DESIRED. IT IS SELECTED WITH SSW 20.


                     WITH THE 'PER CYCLE' OPTION. THE NUMBER OF *'S DOES NOT EQUAL THE FIGURE IN COL 2.
                     THIS GRAPH IS ADJUSTED SO THAT THE LOWEST FIGURE (IN THIS CASE 5.4 MS)
                     PRINTS 3 *'S. ALL HIGHER FIGURES PRINT A NUMBER OF *'S RELATIVE TO THE LOWEST
                     FIGURE, I.E. 5.5 PRINTS 4 *,S.  THIS OPTION IS USEFUL IF THE DISTRIBUTION
                     GRAPH IS NOT GOOD, AND THE CLUTCH ADJUSTMENTS SEEM ALRIGHT.
                     THIS OPTION MIGHT INDICATE THAT THE EXCESSIVE VARIATION ALL OCCURRED
                     AT A PARTICULAR PART OF THE DISK. OR IT MIGHT SHOW THE EXCESSIVE TIME
                     TO BE AT A PARTICULAR POINT ALONG THE WAY FROM TRACK 000 TO TRACK 203
  A      A      A
  |      |      |
198    5.5  ****
199    5.4  ***
200    5.6  *****
201    5.7  ******
202    5.8  *******
203    6.0  *********
```