

1. CHECK ALL MATERIAL RECEIVED AGAINST SHIPPING CHECK OFF LIST CONTAINED IN SYSTEM INSTALLATION PARTS PACKAGE (THIS PACKAGE CONTAINS ALL DETACHABLE CABLES ETC).
2. REMOVE ALL SHIPPING TAPE, BRACES AND OTHER MATERIAL AS PER PACKING AND UNPACKING INSTRUCTIONS INCLUDED WITH EACH UNIT.
- AT THIS TIME MAKE A THOROUGH PHYSICAL CHECK FOR DAMAGED, BROKEN OR LOOSE PARTS RESULTING FROM SHIPMENT (INCLUDING EDGE CONNECTORS). CAUTION - TURN FEED OVER MANUALLY WHEN REINSERTING BRUSH ASSEMBLY TO PREVENT BRUSH DAMAGE.
3. INSTALL THE FILE FEED MAGAZINE ON THE 1402. (AS PER REVISED 1402 CE REFERENCE MANUAL). PLACE FILTERS IN 1401.
4. CHECK THE 1402 RELAY GATE FOR LOOSE RELAYS AND DISPLACED ARMATURES.
5. MANUALLY TRIP CLUTCHES AND FEED CARDS THROUGH THE READ AND PUNCH FEEDS. CHECK FOR BINDS.
6. CHECK ALL MANUAL KNOBS, LEVERS, AND COVERS ON THE 1403 FOR PROPER OPERATION.
7. INSTALL (2) ANTI-WALK FOOT COMPONENT PARTS (2 SETS) TO THE 1403 FRAME NEAR THE CASTERS BY THE FOLLOWING PROCEDURE:
INSERT THE MOUNTING STUD IN THE MACHINE FRAME FOR ITS FULL THREADED LENGTH. ASSEMBLE THE FOOT COVER AND MOUNTING FOOT TO THE STUD. BACK THE MOUNTING STUD OFF FOR THE REQUIRED DISTANCE TO STABILIZE THE MACHINE.
8. 1403-CHECK FOR OIL IN THE HYDRAULIC RESERVIOR. APPROX LEVEL TO BOTTOM OF MAGNETS.
9. 1403-CHECK FOR OIL IN THE RESERVOIR AT THE RIGHT END OF THE "T" CASTING (IBM #6)-1403.
10. ALL 1401 MACHINES FROM SERIAL NUMBER 20890 AND UP WILL BE DESIGNED FOR CABLES TO EXIT UNDERNEATH THE MACHINE. THE MACHINE WILL BE SHIPPED WITH CABLES ABOVE FRAME AND SHOULD BE INSTALLED AS DESCRIBED BELOW:
- (A) AT 01B1-01B8 - REMOVE THROW AWAY COVER AND DISCARD
- (B) AT 01B1 - REMOVE COVER SUPPORT BRACKET (194370) AND RETAIN. OPEN GATE 01B1.
- (C) AT 01B8 - RUN ALL CABLES DOWN THROUGH THE OPENING AT 01B1-01B8. STARTING WITH CABLE NEAREST REAR OF MACHINE, PLACE A LOOP THROUGH THE OPENING SUCH THAT THE CABLE CONNECTOR GOES THROUGH LAST.
- (D) AT 01B1-01B8 -
INSTALL HOUSING (723351).
INSTALL FILTER (723354).
INSTALL COVER SUPPORT BRACKET, (194370) REMOVED IN STEP B, AT THE CENTER OF THE FRAME.
INSTALL COVER (194372).
FOR RAISED FLOOR INSTALLATION INSTALL KICK PLATE (597329).
FOR ABOVE FLOOR INSTALLATION INSTALL KICK PLATE (723359).
CLOSE GATE 01B1.
- (E) AT 02B4-02B5 -
REMOVE COVER (194372).
OPEN GATE 02B4.
CONNECT CABLES - FIRST PASSING THEM UP FROM UNDERNEATH FRAME.
INSTALL HOUSING (723352).
FOR ABOVE FLOOR INSTALLATIONS INSTALL CLAMP (723353) TO HOLD CABLES AT 02B5 SIDE OF MACHINE. THIS INCLUDES THE THREE 1403 CABLES IF THEY PASS UNDERNEATH THE LENGTH OF THE 1401.
INSTALL FILTER (723354).
FOR ABOVE - FLOOR INSTALLATIONS INSTALL KICK PLATE (723360).
FOR RAISED FLOOR INSTALLATIONS INSTALL KICK PLATE (597329).
INSTALL COVER (194372).
CLOSE GATE 02B4.
11. CONNECT CABLES FROM THE 1401 TO THE 1402. (WILL ONLY FIT ONE WAY).
12. CONNECT CABLES FROM THE 1401 TO THE 1403. (SHOE WITH GOLD PLATED PINS CONNECTS TO FRONT RECEPTACLE. ON CURRENT MACHINES THESE WILL ONLY FIT ONE WAY).
- 12A. IF SYSTEM HAS EXPANDED MEMORY, CONNECT POWER AND SIGNAL CABLES FROM 1401 TO THE 1406 (06B7) (WILL ONLY FIT ONE WAY AFTER 1401-20010).
13. CONNECT THE MAIN POWER CABLE TO THE UPPER TERMINALS ON THE INNER CIRCUIT BREAKER OF THE 1402 UNIT. THE GREEN (GROUND) WIRE SHOULD BE CONNECTED TO THE FRAME OF THE 1402. REFER TO 1402 WIRING DIAGRAM #609400, PAGE 11.01.11.1. ON SYSTEMS WITHOUT THE 1402 THE MAIN POWER CABLE WILL BE CONNECTED TO THE 1401 AT THE BULK POWER SUPPLY AT GATE LOCATIONS 02B7 AND 02B8. REFER TO 1401 POWER SUPPLY DIAGRAM. (BE SURE TO TIGHTEN ALL TERMINAL SCREWS FIRMLY).
14. DO NOT CONNECT TAPE UNIT CABLES AT THIS TIME.
15. CHECK CUSTOMERS POWER RECEPTACLE FOR THE PROPER TYPE OF VOLTAGE SUPPLY AND GROUND. IF IT IS NECESSARY TO CHANGE THE SYSTEM FROM 208V TO 230V COMPLETE THE FOLLOWING:
- 1401
- (A) EXPANDED BULK REGULATOR (ALL MODELS EXCEPT A)
GATE 02A3 - MOVE WIRE OR WIRES ON BULK REGULATOR TB-4 TO TB-5.
- (B) 1250 WATT REGULATOR. LOCATED IN THE LEFT SIDE OF THE 1402. ON MODEL D SYSTEMS LOCATED ON GATE 02A7. MOVE THE WIRE ON THE 1250 WATT REGULATOR TB-4 TO TB-5.

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(C) 115V AC ISOLATION TRANSFORMER. LOCATED BEHIND THE RELAY PANEL ASSEMBLY IN THE 1402. ON MODEL D SYSTEMS LOCATED IN 02B7-8 GATE AREA. REMOVE THE WIRE ON THE TRANSFORMER SOLDER TERMINAL 6 AND SOLDER TO TERMINAL 7. ON LATER MODEL D MACHINES TERMINAL 7 IS WIRED TO TERMINAL POSITION 7 OF THE 8 POSITION BLOCK NEAR THIS TRANSFORMER. ON THESE MACHINES REMOVE THE WIRE ON TERMINAL POSITION 6 OF THIS BLOCK AND INSTALL ON TERMINAL 7.

(D) 24V AC STEP DOWN TRANSFORMER. LOCATED IN THE 1402 BEHIND THE FUSE PANEL. (DOES NOT EXIST ON SYSTEMS BELOW 20000) ON MODEL D SYSTEMS LOCATED IN 02B7-8 GATE AREA. REMOVE THE WIRE ON STEP DOWN TRANSFORMER TB POSITION 2 AND INSTALL ON TB POSITION 3.

(E) -60V AT 10 AMP OR -60V AT 20 AMP SUPPLY. LOCATED IN THE BACK OF THE 1402. ON MODEL D MACHINES LOCATED IN GATE AREA 01B4. REMOVE WIRE FROM VRI-4 AND INSTALL ON VRI-5. (VRI IS THE 12 POSITION TERMINAL BLOCK LOCATED TO THE BOTTOM OF THIS UNIT.)

(F) 3V MARGINAL CHECK SUPPLY. (EXCEPT PORTABLE SUPPLIES) LOCATED IN THE LEFT END OF THE 1402. LOCATED IN GATE 02A8 ON MODEL D. REMOVE WIRE ON MC POWER SUPPLY POSITION VRI-4 AND INSTALL ON POSITION VRI-5. (THIS WIRING CHANGE IS MADE INTERNALLY OF THE SUPPLY ASSEMBLY DIRECTLY ON THE TRANSFORMER.)

1406

(A) 415 WATT REGULATOR IN 1406 GATE 06B8. (NOT ON EARLIER SYSTEMS) REMOVE WIRE FROM TB POSITION 4 AND INSTALL ON TB POSITION 5.

1403

(A) ONLY THE CHAIN MOTOR IS AFFECTED. WIRE TB7 AS PER WIRING DIAGRAM PAGE 01.09.1.

1405

(A) CHANGE TRANSFORMER TAPS FOR 3 TRANSFORMERS AS SHOWN ON LOGIC PAGES 75.58.11 AND 75.58.21.

1407

(A) NO CHANGE REQUIRED.

7330

(A) CHANGE LEAD GOING TO CONNECTION 2 TO CONNECTION 3 ON TRANSFORMER 556643 IN POWER SUPPLY 556810, GATE A8.

(B) CHANGE LEAD GOING TO TB-4 TO TB-5 ON TRANSFORMER 556920 IN POWER SUPPLY 556810, GATE A8.

(C) CHANGE LEAD GOING TO TB2-10 TO TB2-9 IN POWER SUPPLY 556751, GATE A5.

729

(A) ADD FB 352075. THIS BILL INCLUDES A 230V TO 208V STEP DOWN TRANSFORMER.

15B. IF IT IS NECESSARY TO CHANGE THE SYSTEM FROM 230V TO 208V REVERSE THE INSTRUCTIONS IN STEP 15 ABOVE.

15C. IF A VOLTAGE CHANGE IS MADE ON THE SYSTEM ENTER AN MES ORDER SO THAT RECORDS WILL BE PROPERLY UPDATED.

16. LIFT CARRIAGE BRUSHES AND OPEN "T" CASTING ON THE 1403 BEFORE APPLYING POWER.

17. APPLY POWER. CHECK ALL BLOWERS FOR OPERATION ON THE 1401 (AND 1406) ESPECIALLY THE ONE OVER THE CORE STORAGE UNITS. ALSO CHECK THE CARRIAGE BLOWER ON THE RIGHT SIDE OF THE 1403. PLACE A CARD OVER THE LOUVERS IN THIS COVER. IF THE CARD IS DRAWN AGAINST THE COVER, THE BLOWER IS OPERATING.

18. CHECK FOR PROPER PHASE ROTATION ON THE 1403. SLIP A PIECE OF PAPER OR TAB CARD THROUGH THE PAPER FEED ROLLERS ON THE BACK OF THE MACHINE. THE PAPER OR CARD SHOULD BE FED DOWN. IF THIS IS CORRECT CLOSE THE "T" CASTING AND CHECK TO SEE THAT THE CHAIN IS TURNING COUNTER CLOCKWISE, LOOKING DOWN AT IT. FINALLY CHECK TO SEE THAT AIR IS BLOWING INTO THE HAMMER UNIT. THIS CHECK CAN BE MADE BY PLACING A CARD OVER THE LOUVERS IN THE COVER ON THE LEFT SIDE OF THE 1403. IF THE CARD IS DRAWN AGAINST THE COVER, AIR IS BEING BLOWN INTO THE MACHINE. COMPLETE THE CHECK BY FEELING THAT AIR IS BEING BLOWN OUT OF THE HAMMER UNIT AT THE SIDES OF THE UNIT. IF ALL THREE OF THE ABOVE ARE INCORRECT REVERSE ANY TWO LEADS ON THE MAIN POWER CABLE. IF ONE OR TWO ARE INCORRECT FOLLOW PROCEDURE OUTLINED IN THE 1403 REFERENCE MANUAL PAGE 6, FORM #225-6493.

19. IF ALL PHASING IS CORRECT IT IS NOW SAFE TO LOWER CARRIAGE BRUSHES. A CARRIAGE TAPE SHOULD BE INSTALLED.

20. CHECK 1401, 1402 (AND 1406) POWER SUPPLY VOLTAGES. THEY SHOULD BE $\pm 2\%$ WHEN MEASURED AS DESCRIBED BELOW

(A) MEASURE -6V, +6V, AND -12 VOLT OUTPUT AT GATE LOCATION 01B3. ADJUST FOR PROPER OUTPUT. ALWAYS ADJUST -6V BEFORE ADJUSTING -12V. SEE 1401 WIRING DIAGRAM FOR LOCATION OF SUPPLIES LOCATED ON 02A4 AND 02A5 (1401 ONLY).

(B) MEASURE -6V, +6V, -12V, AND -36 VOLTS (IF THERE ARE NO TAPE ADAPTER UNIT GATES OR IF MACHINE IS EQUIPPED WITH TAU 9 -36V IS NOT PRESENT). AT GATE LOCATION 02B2 ON MACHINES WITH TAPES. IF THIS FEATURE IS NOT PRESENT, MEASURE AT GATE LOCATION 02A7, 02A8 OR 02B6 DEPENDING ON WHICH MAY BE PRESENT. ADJUST FOR PROPER OUTPUT FROM THE SUPPLIES WHICH ARE LOCATED ON 02A3 AND 02A6. ALWAYS ADJUST -6V BEFORE ADJUSTING -12V. REFER TO 1401 WIRING DIAGRAM. (1401 ONLY).

(C) MEASURE -60 VOLTS ON 01B8 AT THE -60 VOLT BUS BAR. ADJUST FOR THE PROPER OUTPUT FROM THE SUPPLY LOCATED IN THE 1402. IN MODEL D THIS SUPPLY IS LOCATED ON 01B4 (1401 ONLY).

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- (D) MEASURE -20 VOLTS ON O1A1 AT F26R AND ADJUST FOR PROPER OUTPUT FROM THE SUPPLY LOCATED IN THE 1402. IN MODEL D, SUPPLY IS LOCATED ON GATE O2A8. (TURN OFF ALL POWER-INCLUDING LINE POWER INPUT TO 1402- AND MOVE TAPS ON SUPPLY IF ADJUSTMENT IS NECESSARY).
- (E) MEASURE +30 VOLTS ON O1A1 (AND 1406 CORE ARRAY GATES) AT F26H. MEASURE +12V FIXED ON O1A1 (AND 1406 CORE ARRAY GATES) AT F26Q. MEASURE +12V VARIABLE (18V DIFF) ON O1A1 (AND 1406 CORE ARRAY GATES) AT F13Q. ALWAYS ADJUST +30V BEFORE ADJUSTING +12 V. OPTIMUM VOLTAGE FOR THE +12 IS NOTED ON DECALS FOR EACH CORE ARRAY.
- (F) THE MARGINAL VOLTAGES ARE NOT MEASURED. (IF THE ABOVE STEPS ARE FOLLOWED, THESE VOLTAGES SHOULD BE WITHIN TOLERANCES).
- (G) ON LATER MACHINES THE MARGINAL VOLTAGE SUPPLY WILL NOT BE PERMANENTLY INSTALLED IN THE SYSTEM. A PORTABLE SUPPLY WILL BE MADE AVAILABLE. THIS WILL PROVIDE GREATER FLEXIBILITY FOR CHECKING THE SYSTEM INCLUDING ANY PERIPHERAL EQUIPMENT. A SPACE FOR STORAGE OF THE PORTABLE SUPPLY IS AVAILABLE IN THE LEFT END OF THE 1402 DIRECTLY UNDER THE PUNCH DRIVE MOTOR. THE PORTABLE SUPPLY CAN BE PLUGGED INTO ANY 115V RECEPTACLE AND IS USED THE SAME AS THE FIXED MARGINAL SUPPLY.
21. RUN READER AND PUNCH WITH NON-PROCESS RUNDOUT KEY.
22. RUN READ WITH PROCESS UNIT. (PUT IN READ OP MANUALLY).
23. RUN PUNCH WITH PROCESS UNIT.
24. RUN PRINTER WITH PROCESS UNIT WITH NO INFORMATION IN THE PRINT AREA.
- 25A. IF THE 1401 IS A STAGE I, PROCEED NEXT TO STEP 26.
- B. IF THE 1401 IS A STAGE II, SKIP STEP 26 AND PROCEED NEXT TO STEP 27.
26. TEST RESET CHECK CIRCUIT AS FOLLOWS:
- (A) CLEAR THE ENTIRE PRINT AREA AND EXECUTE A PRINT OPERATION WITH THE SCOPE SYNC ON C17N +U NOT FIRST SCAN GOING PLUS ON 36.35.11.1 (O1A6).
- (B) SCOPE B03N AND B04N ON GATE O1B5, LOGIC 36.37.51.1 SHOULD GO TO +T WHEN NOT PRINTING AND -T WHEN PRINTING. SCOPE D03H, G AND D04G LOGIC 36.37.41.1 AND C04H, G AND D04H LOGIC 36.39.91.1 THEY SHOULD BE AT +T WHEN NOT PRINTING. WHEN PRINTING, THEY WILL GO +T IN THE HALF OF A SUBSCAN JUST PRIOR TO THE TIME 1/6 OF THE HAMMERS MAY BE OPTIONED TO PRINT (SIX RESETS PER PRINT SCAN).
- (C) SCOPE PIN E OF TRIGGER IN E21 ON O1B5, LOGIC 36.37.51.1 SHOULD TURN ON (GO TO +U) 110 USEC AFTER SYNC GOES POSITIVE. SHOULD TURN OFF 220 USEC AFTER IT TURNS ON. PATTERN SHOULD REPEAT ITSELF EVERY 555 USEC WHILE PRINTING.
- (D) SCOPE PIN E OF TRIGGER IN F20 ON O1B5, LOGIC 36.37.51.1 SHOULD TURN ON (GO TO +U) 190 USEC AFTER SYNC GOES POSITIVE. SHOULD TURN OFF 220 USEC AFTER IT TURNS ON. PATTERN SHOULD REPEAT ITSELF EVERY 555 USEC WHILE PRINTING.
- (E) IF ABOVE TRIGGERS ARE OPERATING PROPERLY, PROCEED TO STEP F. IF NOT, THE HAMMER DRIVER RESETS ARE NOT WORKING PROPERLY. CHECK LOGIC ON 36.37.41.1 TO GET RESETS WORKING PROPERLY. THEN REPEAT STEPS C AND D THEN PROCEED TO F IF C AND D ARE O.K.
- (F) SCOPE PIN G OF F02 ON O1B5 (LOGIC 36.37.51.1) FOR THE FOLLOWING STEPS.
- (G) BEING VERY CAREFUL, TIE PIN E OF TRIGGER IN E21 TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4B ON 36.37.51.1, AND PIN G OF F02 ON O1B5 SHOULD GO TO +U AND STAY THERE BECAUSE THE RESET CHECK LATCH HAS BEEN "SET" WHICH WILL HOLD ALL THE HAMMER DRIVERS RESET. AFTER REMOVING CLIP LEAD, RESET THE LATCH WITH THE I-O CHECK RESET SWITCH.
- (H) TIE E21H TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4C AND RESULT SHOULD BE AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (I) TIE F20E TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4D AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (J) TIE F20H TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4E AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (K) A WITH PRINT STORAGE - TIE E20B TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCKS 3F AND 4F AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
B WITHOUT PRINT STORAGE - TIE F15B TO "GROUND" WITH CLIP LEAD WHILE EXECUTING A PRINT OPERATION. THIS CHECKS LOGIC BLOCK 2G AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (L) A WITH PRINT STORAGE - OPEN T-FRAME ON 1403 WHILE EXECUTING THE ABOVE PRINT OPERATION WITH THE PRINT AREA CLEAR. THIS CHECKS LOGIC BLOCKS 5J AND 6J ON LOGIC 36.31.01.1 (GATE O1A6). RESULT SHOULD BE THE SAME AS FOR STEP G. RESET THE LATCH WITH THE I-O CHECK RESET SWITCH.
B WITHOUT PRINT STORAGE - OPEN T-FRAME ON 1403 WHILE EXECUTING THE ABOVE PRINT OPERATION WITH THE PRINT AREA CLEAR. THIS CHECKS LOGIC BLOCKS 4J, 5J, AND 6J ON LOGIC 36.31.01.1 (GATE O1A6) AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET THE LATCH WITH THE I-O CHECK RESET SWITCH.
- (M) TRY TO PRINT IN ONE POSITION ONLY. IF O.K., EXPAND THE PRINT FIELD. AFTER PRINTING IN ALL POSITIONS CHECK TO SEE THAT THE -60V HAMMER RESPONSE COMMON FUSES (2) ARE NOT BLOWN. IF FUSES HAVE BLOWN AND BLOW A SECOND TIME, CHECK FOR GROUNDS ON THE HAMMER RESPONSE LINES.

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(N) PROCEED NEXT TO STEP 28.

27. TEST RESET CHECK CIRCUIT AS FOLLOWS:

- (A) CLEAR THE ENTIRE PRINT AREA AND EXECUTE A PRINT OPERATION WITH THE SCOPE SYNC ON CIIN -T NOT FIRST SCAN GOING NEGATIVE ON 36.35.11.2(01A6).
- (B) SCOPE B03N AND B04N ON GATE 01B5, LOGIC 36.37.51.2 SHOULD GO TO +T WHEN NOT PRINTING AND -T WHEN PRINTING. SCOPE D03H, G AND D04G LOGIC 36.37.41.2 AND C04H, G AND D04H LOGIC 36.39.91.2. THEY SHOULD BE AT +T WHEN NOT PRINTING. WHEN PRINTING, THEY WILL GO +T IN THE HALF OF A SUBSCAN JUST PRIOR TO THE TIME 1/6 OF THE HAMMERS MAY BE OPTIONED TO PRINT (SIX RESETS PER PRINT SCAN).
- (C) SCOPE PIN E OF TRIGGER IN E21 ON 01B5, LOGIC 36.37.51.2 SHOULD TURN ON (GO TO +U) 110 USEC AFTER SYNC GOES NEGATIVE. SHOULD TURN OFF 220 USEC AFTER IT TURNS ON. PATTERN SHOULD REPEAT ITSELF EVERY 555 USEC WHILE PRINTING.
- (D) SCOPE PIN E OF TRIGGER IN F20 ON 01B5, LOGIC 36.37.51.2 SHOULD TURN ON (GO TO +U) 190 USEC AFTER SYNC GOES NEGATIVE. SHOULD TURN OFF 220 USEC AFTER IT TURNS ON. PATTERN SHOULD REPEAT ITSELF EVERY 555 USEC WHILE PRINTING.
- (E) IF ABOVE TRIGGERS ARE OPERATING PROPERLY, PROCEED TO STEP F. IF NOT THE HAMMER DRIVER RESETS ARE NOT WORKING PROPERLY. CHECK LOGIC ON 36.37.41.2 TO GET RESETS WORKING PROPERLY. THEN REPEAT STEPS C AND D. THEN PROCEED TO F IF C AND D ARE O.K.
- (F) SCOPE PIN G OF F02 ON 01B5 (LOGIC 36.37.51.2) FOR THE FOLLOWING STEPS.
- (G) BEING VERY CAREFUL, TIE PIN E OF TRIGGER IN E21 TO "GROUND" WITH CLIP LEAD. THIS CHECKS BLOCK 4B AND 36.37.51.2 AND PIN G OF F02 ON 01B5. SHOULD GO TO +U AND STAY THERE BECAUSE THE RESET CHECK LATCH HAS BEEN "SET" WHICH WILL HOLD ALL THE HAMMER DRIVERS RESET. AFTER REMOVING CLIP LEAD, RESET THE LATCH WITH THE I-O CHECK RESET SWITCH.
- (H) TIE E21H TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4C AND RESULT SHOULD BE AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (I) TIE F20E TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4D AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (J) TIE F20H TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCK 4E AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (K) A WITH PRINT STORAGE - TIE E20B TO "GROUND" WITH CLIP LEAD. THIS CHECKS LOGIC BLOCKS 3F AND 4F AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
B WITHOUT PRINT STORAGE - TIE F15B TO "GROUND" WITH CLIP LEAD WHILE EXECUTING A PRINT OPERATION. THIS CHECKS LOGIC BLOCK 2G AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET LATCH AS FOR STEP G.
- (L) A WITH PRINT STORAGE - OPEN T-FRAME ON 1403 WHILE EXECUTING THE ABOVE PRINT OPERATION WITH THE PRINT AREA CLEAR. THIS CHECKS BLOCK 6G (OR 6F) LOGIC 36.31.11.2 (GATE 01A6) AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET THE LATCH WITH THE I-O CHECK RESET SWITCH.
B WITHOUT PRINT STORAGE - OPEN T-FRAME ON 1403 WHILE EXECUTING THE ABOVE PRINT OPERATION WITH THE PRINT AREA CLEAR. THIS CHECKS LOGIC BLOCK 6G ON LOGIC 36.31.11.2 (GATE 01A6) AND RESULT SHOULD BE THE SAME AS FOR STEP G. RESET THE LATCH WITH THE I-O CHECK RESET SWITCH.
- (M) TRY TO PRINT IN ONE POSITION ONLY. IF O.K., EXPAND THE PRINT FIELD. AFTER PRINTING IN ALL POSITIONS CHECK TO SEE THAT THE -60V HAMMER RESPONSE COMMON FUSES (2) ARE NOT BLOWN. IF FUSES HAVE BLOWN AND BLOW A SECOND TIME, CHECK FOR GROUNDS ON THE HAMMER RESPONSE LINES.

28. RUN COMBINATION OF CODES 3,5,6 AND 7.

29. REMOVE POWER AND INSTALL TAPE UNIT CABLES.

- (A) FOR C,D AND F SYSTEMS - WHEN 729 AND 7330 TAPE UNITS ARE INTERMIXED, CABLES CANNOT BE CROSS CONNECTED. I.E. EACH END OF ANY TAPE CABLE MUST CONNECT TO THE SAME TYPE TAPE UNIT ON EITHER END. THE FIRST TAPE UNIT IN THE SYSTEM MUST ALSO BE CONNECTED TO THE PROPER CONNECTOR IN THE PROCESSING UNIT. AFTER THE INITIAL CABLE HOOKUP HAS BEEN MADE AND CHECKED OUT, THE CONNECTORS ON EACH END OF THE CABLES MUST BE IDENTIFIED WITH "729" OR "7330" LABELS PROVIDED IN THE SYSTEM MAINTENANCE PACKAGE FOR THIS PURPOSE.

30. IF SYSTEM HAS TYPE 729 TAPE DRIVES APPLY POWER AND CHECK ROTATION OF MOTORS BY HITTING LOAD REWIND. IF THE HEAD DOES NOT COME DOWN, CHECK FOR VACUUM IN COLUMNS. IF AIR IS BLOWING OUT, THE PHASING IS REVERSED. IF AIR IS BEING SUCKED IN, PHASING IS CORRECT AND SOMETHING ELSE IS PREVENTING THE HEAD FROM COMING DOWN. IF ROTATION IS INCORRECT, TURN OFF ALL POWER TO SYSTEM (LINE POWER INCLUDED) AND REVERSE ANY TWO PHASES AT CIRCUIT BREAKER #2 IN THE 1402 (REFER TO 1402 LOGICS FOR DIAGRAM-SEC 1A).

NOTE: ON MOD D SYSTEMS, CIRCUIT BREAKER IS LOCATED 02B8.
TURN POWER ON AND RECHECK ROTATION.

30A. IF SYSTEM HAS TYPE 7330 TAPE DRIVES:

- (A) CLEAN TRANSPORT AND CHAMBER.
(B) CHECK 7330 POWER CONTROL SWITCHES OFF.
(C) INSTALL TERMINATOR SHOE.
CAUTION: DO NOT, AT ANY TIME, TURN POWER ON WITHOUT A TERMINATOR SHOE INSTALLED.

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- (D) TURN ON 1401 MAIN LINE POWER.
- (E) TURN ON 7330 POWER CONTROL SWITCHES.
- (F) CHECK: READ BUS SIGNAL LEVEL, WRITE CIRCUIT FEED THROUGH, SKEW AND TRACKING AS PER 7330 C.E. REFERENCE MANUAL.
31. CHECK TAPE OPERATION FROM THE C.E. CONSOLE (02A1)
- (A) WRITE TAPE WITH TERMINAL AT A26 ON PIN A FOR CONTINUOUS WRITING, ON PINS B, C, AND D FOR WRITING WITH GAPS AND ON PIN J FOR I CHARACTER RECORDS.
- (B) WRITE TAPE MARK
- (C) BACK SPACE AND READ 1 RECORD TO CHECK TAPE INDICATE.
- (D) REWIND AND READ.
32. CHECK TAPES WITH PROCESS UNIT
- (A) MANUAL TAPE OP WRITE
- (B) MANUAL TAPE OP READ
33. IF SYSTEM HAS EXPANDED MEMORY, RUN THE PROGRAMS SHOWN BELOW TO INSURE THAT THE 1406 SIGNAL CABLES CONTACTS ARE MAKING:
- (A) FOR 8K SYSTEM, MANUALLY ENTER A "C" BIT IN LOCATION 7999 AND THEN ENTER L 7999 7998. IN ANY MEMORY LOCATIONS. BY STARTING THE LOAD OP, THE ENTIRE MEMORY SHOULD BE LOADED WITH "C" BITS. STORAGE SCAN. MANUALLY ENTER C, A, B, 8, 4, 2, 1 INTO 7999. THEN PROCEED AS ABOVE BY LOADING C, A, B, 8, 4, 2, 1 INTO THE ENTIRE MEMORY. STORAGE SCAN.
- (B) FOR 12K SYSTEM, MANUALLY ENTER IN LOCATION 11,999 AND USING PROGRAM L 11,999 11,999. PROCEED AS IN STEP (A).
- (C) FOR 16K SYSTEM, MANUALLY ENTER IN LOCATION 15,999 AND USING PROGRAM L 15,999 15,998. PROCEED AS IN STEP (A).
34. RUN CE DIAGNOSTIC TEST AS OUTLINED IN THE 1401 INSTALLATION TESTING PROCEDURE ON PAGE 5, 6 AND 7.
35. IF SYSTEM HAS EXPANDED MEMORY, PERFORM A FULL STORAGE PRINT OUT.

1401 SYSTEM
INSTALLATION TESTING PROCEDURE

THE 1401 DIAGNOSTIC FUNCTION TESTS ARE FURNISHED IN THREE BOXES OF CARDS. TWO ARE FOR MODELS A AND B SYSTEMS, AND A THIRD BOX OF TAPE TESTS IS FOR MODEL C SYSTEMS. TESTS FOR MODEL D SYSTEMS ARE FURNISHED ON MAGNETIC TAPE (REFER TO PAGE 7, BLOCK 5310 FOR DETAILS).

BOX 1 CONTAINS ALL OF THE STANDARD FEATURES TESTS. THESE TESTS MAY BE RUN INDIVIDUALLY OR, IF THE ENTIRE BOX IS PLACED IN THE FILE FEED TRAY, THEY WILL RUN CHAINED (SEQUENTIALLY). IN EITHER CASE, THE FOLLOWING PRELIMINARY STEPS MUST BE TAKEN:

- ON MODELS A AND B WITHOUT THE EXPANDED EDIT OPTION, REMOVE CARDS 59-66 OF THE EDIT TEST DECK, BLOCK 0370.
- CORE STORAGE WORST PATTERN TEST, BLOCK 9100, MUST BE CUSTOMIZED TO YOUR SYSTEM'S STORAGE SIZE AS FOLLOWS:

IF STORAGE SIZE IS	REMOVE CARD NO
16K	NONE
12K	95
8K	94 AND 95
4K	93, 94 AND 95
2K	92, 93, 94 AND 95
1.4K	91, 92, 93, 94 AND 95

- RIPPLE READ TEST, BLOCK 1040, SHOULD BE THE LAST DECK TO RUN SINCE THIS TEST USES AS DETAIL CARDS THE 60 CARDS PUNCHED BY THE RIPPLE PUNCH TEST, BLOCK 1030. CHECK DECKS TO DETERMINE WHETHER OR NOT A RIPPLE PUNCH DECK HAS BEEN INCLUDED. IN ANY CASE, RUN ONLY 1 RIPPLE PUNCH TEST.
- USE THE CARRIAGE TAPE SHIPPED WITH SYSTEM. IT IS DESIGNED FOR USE WITH FORMS SPACING TEST, BLOCK 2000, FORMS SKIPPING TEST, BLOCK 2010, AND BRANCH ON CHANNELS 9 AND 12 TEST, BLOCK NO. 2020.
- USE SENSE SWITCHES AS FOLLOWS (NORMAL PROCEDURE):
 - SENSE SWITCH B - ON TO PERMIT SCOPING OF THE MAIN INSTRUCTION OF THE TEST (FOR EXAMPLE, EDIT INSTRUCTION IN EDIT TEST).
 - SENSE SWITCH C - ON TO PRINT CORRECT RESULTS.
 - SENSE SWITCH D - ON TO REPEAT PROGRAM FOR AN INDIVIDUAL CARD OR SET OF FACTORS AS OFTEN AS DESIRED.
 - SENSE SWITCH E - ON TO STOP ON ERRORS, OFF TO PRINT ERROR RESULTS.
- IF TITLE AND HEADINGS PRINTOUT IS DESIRED, MANUALLY ENTER "I" IN 1252.
- THERE MUST NOT BE A GROUP MARK IN 1398 WHEN RUNNING THE TESTS FROM CARDS.
- IF ERROR PRINTOUTS OR STOPS OCCUR REFER TO THE DETAILED WRITE-UP OF THAT TEST.

BOX 2 CONTAINS OPTIONAL FEATURES TESTS WITH THE EXCEPTION OF BLOCKS 0001, 0002,

DATE	EC NO	DATE	EC NO	DATE	EC NO
12-13-60	109998				
2-6-61	110738				
3-27-61	110306				
8-28-61	110301E				
11-28-61	113401				

9000 AND 9999. RUN ONLY THOSE TESTS IN THIS BOX THAT CORRESPOND TO THE FEATURES IN YOUR SYSTEM.

MOVE AND LOAD - BLOCKS 0001 AND 0002

DO NOT RUN THIS TEST UNLESS YOU THOROUGHLY UNDERSTAND IT AND THE DESCRIPTION OF IT. THESE TESTS SHOULD NOT BE RUN AS A GENERAL TEST. IN THE CASE OF TROUBLE WITH THE LOAD OR MOVE OP CODES, THEY MAY PROVE BENEFICIAL.

SENSE SWITCHES (B THROUGH G) - BLOCK 0003

TURN ON ALL THE SENSE SWITCHES AND LOAD THE PROGRAM DECK. AFTER THE "ON" POSITIONS HAVE BEEN TESTED, A PROGRAM STOP WILL OCCUR (I STAR=700). TURN "OFF" ALL SENSE SWITCHES. PRESS THE START KEY. A PROGRAM STOP WILL OCCUR (I STAR=900). IN CASE OF ERROR PRINT OUT, REFER TO DIAGNOSTIC WRITE UP.

READ-PUNCH RELEASE - BLOCK 3500

I/O CHECK STOP SWITCH OFF AND CHECK STOP SWITCH OFF. THE PROGRAM READS 50 DETAIL CARDS WITH MAXIMUM ALLOWABLE DELAY BETWEEN CARDS. FOR THE LAST CARD AN ADDITIONAL DELAY FORCES A READ CHECK STOP WITH THE I STAR AT 599 OR 600. TO RUN THE PUNCH PART OF THE TEST, DO A NONPROCESS RUNOUT AND START THE PROGRAM AT LOCATION 600. A FORCED PUNCH CHECK STOP IN THIS PROGRAM STOPS THE MACHINE AND ENDS THE TEST WITH THE I STAR AT 799 OR 800.

PUNCH FEED READ - BLOCK 3600

TURN I/O AND CHECK STOP SWITCHES ON, ALL SENSE SWITCHES OFF, AND LOAD THE PROGRAM. 80 CARDS WILL BE PUNCHED WITH THE NORMAL PUNCH OP CODE AND THE PROGRAM WILL STOP WITH I STAR = 500.

LOAD THE PUNCHED CARDS BACK IN THE PUNCH HOPPER WITH 2 BLANK CARDS BEHIND THEM. PRESS THE START KEY. THE PROGRAM THEN READS THESE CARDS, TRANSPOSES THE INFORMATION IN COL 1-40 AND 41-80 AND PUNCHES IT BACK IN THE SAME CARD.

READ ERRORS WILL BE INDICATED BY AN ERROR PRINTOUT. PUNCH ERRORS WILL STOP THE MACHINE.

SELECT STACKER - BLOCK 9000

SET THE CHECK STOP SWITCHES AND SENSE SWITCH A "ON" CLEAR PUNCH FEED.

THE PUNCH IN COLUMN 1 OF EACH DETAIL CARD INDICATES INTO WHICH POCKET THE CARD WILL SORT. AFTER THE LAST CARD IN THE READ FEED HAS BEEN SENSED, THE PUNCH WILL START AND CARDS WILL BE SELECTED INTO EACH OF THE POCKETS FROM THE PUNCH. A HOLE WILL BE PUNCHED IN COLUMN 1 CORRESPONDING TO THE POCKET INTO WHICH THE CARD IS TO BE SORTED.

IF SENSE SWITCH C IS "ON", CARDS FROM THE READ FEED WILL SORT IN POCKET 1, AND THE CARDS FROM THE PUNCH FEED WILL SORT IN POCKET 4. SENSE SWITCH D "ON" WILL CAUSE THEM TO MERGE IN THE B/2 POCKET.

BRANCH LAST CARD (SENSE SW A) - BLOCK 9999

TURN SENSE SWITCH A, I/O CHECK, STOP "ON". RUN THE DECK IN; IT WILL BRANCH ON LAST CARD 4000 TIMES AND COME TO A PROGRAM STOP WITH I STAR AT 600. TURN SENSE SWITCH A "OFF" AND PRESS THE START KEY. THE PROGRAM WILL TEST BRANCH ON LAST CARD 4000 TIMES BUT WILL NOT BRANCH BECAUSE SWITCH A IS OFF. WHEN THE PROGRAM IS FINISHED, IT COMES TO A PROGRAM STOP WITH I STAR AT 700 IF TEST WORKS CORRECTLY (645 IF SWITCH A IS STILL ON OR SHORTED).

COLUMN BINARY TESTS (BLOCKS 3000-3040), ADVANCED PROGRAMMING TESTS (BLOCKS 3100-3130), MULTIPLY-DIVIDE-BRANCH DIVIDE OVERFLOW TESTS (BLOCKS 3200-3220), AND HIGH-LOW-EQUAL COMPARE TESTS (BLOCKS 3300-3320). (PRINT OUT ON EQUAL ONLY).

WITH SENSE SWITCH C AND E ON, THESE TESTS MAY BE RUN INDIVIDUALLY OR CHAINED USING STEPS 5 THROUGH 8 FOR THE STANDARD FEATURES TESTS. READ COLUMN BINARY (BLOCK 3030) SHOULD BE RUN LAST SINCE THIS TEST USES AS DETAIL CARDS THE 60 CARDS PUNCHED BY THE PUNCH COLUMN BINARY TEST (BLOCK 3020).

BOX 3 CONTAINS ALL OF THE TAPE TESTS. THEY MAY BE RUN INDIVIDUALLY OR CHAINED USING STEPS 5 THROUGH 8 FOR THE STANDARD FEATURES TESTS. IT IS SUGGESTED THAT SENSE SWITCH E BE LEFT OFF SO THAT TAPE ERRORS DO NOT STOP THE 1401. ADDITIONAL STEPS MUST BE TAKEN AS FOLLOWS:

1. ALL TAPE TESTS USE DRIVE 4 IN BLOCKS 5000 THROUGH 5080 WHICH ARE CHAINED. TAPE TO TAPE TEST (BLOCK 5020) USES DRIVES 4 AND 5.
2. IRG MEASUREMENT TEST (BLOCK 5500) REQUIRES DIFFERENT SENSE SWITCH SETTINGS THAN THE OTHER TESTS. THEREFORE, IT HAS A STOP CODE AT THE BEGINNING OF THE TEST (I STAR AT 400) TO ALLOW THE OPERATOR TO:
 - A. SET SENSE SWITCH C ON IF 729 MODEL IV
OFF IF 729 MODEL II
 - B. SET SENSE SWITCH B ON TO WRITE VARIABLE LENGTH RECORDS
OFF TO WRITE FIXED LENGTH RECORDS
 - C. SET SENSE SWITCH G ON IF INDEXING FEATURE IN THIS SYSTEM.
 - D. SET DRIVE 4 TO HIGH DENSITY.
 - E. TO OBTAIN PRINTOUT RESULTS, MANUALLY ENTER "I" IN 1252.

3. COMPRESSED TAPE READ AND EXPAND (5330B)

USE DRIVE 4, RUN THIS BLOCK ONLY IF YOUR 1401 HAS THE EXPAND COMPRESS TAPE FEATURE.

ROUTINES FOR WRITING, READING, AND COPYING TESTS ON TAPE

(TESTS ARE CHAINED. PUT DETAIL CARDS BEHIND THE TEST. SENSE SWITCH A "ON".)

DATE	EC NO	DATE	EC NO	DATE	EC NO
2-13-60	109998				
2-6-61	110738				
3-27-61	110306				
8-28-61	110301E				
11-20-61	113401				

WRITE TEST TAPE ROUTINE (BLOCK 5300)

THIS ROUTINE IS USED WITH AT LEAST A 2K STORAGE TO TRANSFER THE TEST PROGRAMS FROM CARDS TO TAPE (DRIVE 6). THE FOLLOWING PROGRAMS CANNOT BE WRITTEN ON TAPE:
BLOCKS 0001, 0002, DETAIL CARDS FOR 1040 AND 5000, 1050 THROUGH 1080, 3500, 9000 AND 9999. NORMALLY, BLOCKS 5000, 5010, AND 5020 SHOULD BE RUN ONLY FROM CARDS.

PLACE THE WRITE, READ, AND COPY ROUTINES (BLOCKS 5300, 5310 AND 5320) IN THE FILE FEED IN FRONT OF ALL PROGRAMS TO BE WRITTEN ON TAPE. SET SENSE SWITCH A "ON". PRESS THE 1402 LOAD KEY TO CAUSE ALL OF THE TESTS TO BE WRITTEN ON TAPE DRIVE 6. BLOCK 5300 STAYS IN 1401 STORAGE AND DOES NOT GO ON TAPE.

READ TEST TAPE ROUTINE (BLOCK 5310) (FIRST RECORD ON TAPE)

THIS ROUTINE IS THE FIRST RECORD WRITTEN ON TAPE BY THE WRITE TEST TAPE ROUTINE. IT PROVIDES A PROGRAM TO RUN TESTS FROM TAPE AND IS SETUP AS FOLLOWS:

1. LOAD THE MASTER TAPE REEL ON DRIVE 1.
2. PRESS THE TAPE LOAD KEY. A PROGRAM STOP WILL OCCUR WITH THE I STAR AT 1366 TO PERMIT THE OPERATOR TO SET UP THE MACHINE:
 - A. ENTER A "1" IN 1252 IF TITLE AND HEADINGS PRINTOUT IS DESIRED.
 - B. SET SENSE SWITCHES AS DESIRED.
 - C. MANUALLY ENTER SELECTION CODES FOR OPTIONAL FEATURES TESTS. FOR EXAMPLE, ENTER A "1" IN 1257 TO RUN ADVANCED PROGRAMMING TESTS. REFER TO PAGES 12 AND 13 OF INTRODUCTION TO TEST DESCRIPTIONS (BLOCK 0000B) FOR LISTING OF SELECTION CODES.
3. PRESS THE START KEY.
4. TESTS WILL RUN REPEATEDLY UNTIL STOPPED BY THE OPERATOR.

COPY TEST TAPE ROUTINE (BLOCK 5320) (SECOND RECORD ON TAPE)

THIS ROUTINE IS USED TO REPRODUCE THE MASTER TAPE REEL. IT MAY BE RUN FROM CARDS OR FROM THE MASTER TAPE REEL. IF RUN FROM TAPE:

1. PRESS THE TAPE LOAD KEY.
2. A PROGRAM STOP WILL OCCUR WITH THE I STAR AT 1366.
3. MANUALLY ENTER A "1" IN 1254.
4. PRESS START KEY TO CAUSE THE COPY TEST TAPE ROUTINE TO READ FROM DRIVE 1 AND WRITE ON DRIVE 2.

IF SENSE SWITCH D IS "ON", DRIVE 1 WILL BE WRITTEN REPEATEDLY ON DRIVE 2 UNTIL END OF REEL OCCURS ON DRIVE 2 OR SENSE SWITCH D IS TURNED "OFF". WHEN WRITING IS COMPLETED A TAPE MARK WILL BE WRITTEN ON DRIVE 2 AND THE PROGRAM ENDS AT THE STOP CODE IN LOCATION 240.

ON TAPE, THE PROGRAM TEST DECKS FOLLOW IN THE SAME ORDER AS THE CARD TEST THAT FOLLOWED BLOCKS 5300, 5310, AND 5320.

DATE	EC NO	DATE	EC NO	DATE	EC NO
2-13-60	10998				
2-6-61	110738				
3-27-61	110306				
8-28-61	110301E				
11-25-61	13401				

LOGIC #
99.99.99.0

NACH
1401

STAGE II.

PART #
723183

EC #
113544

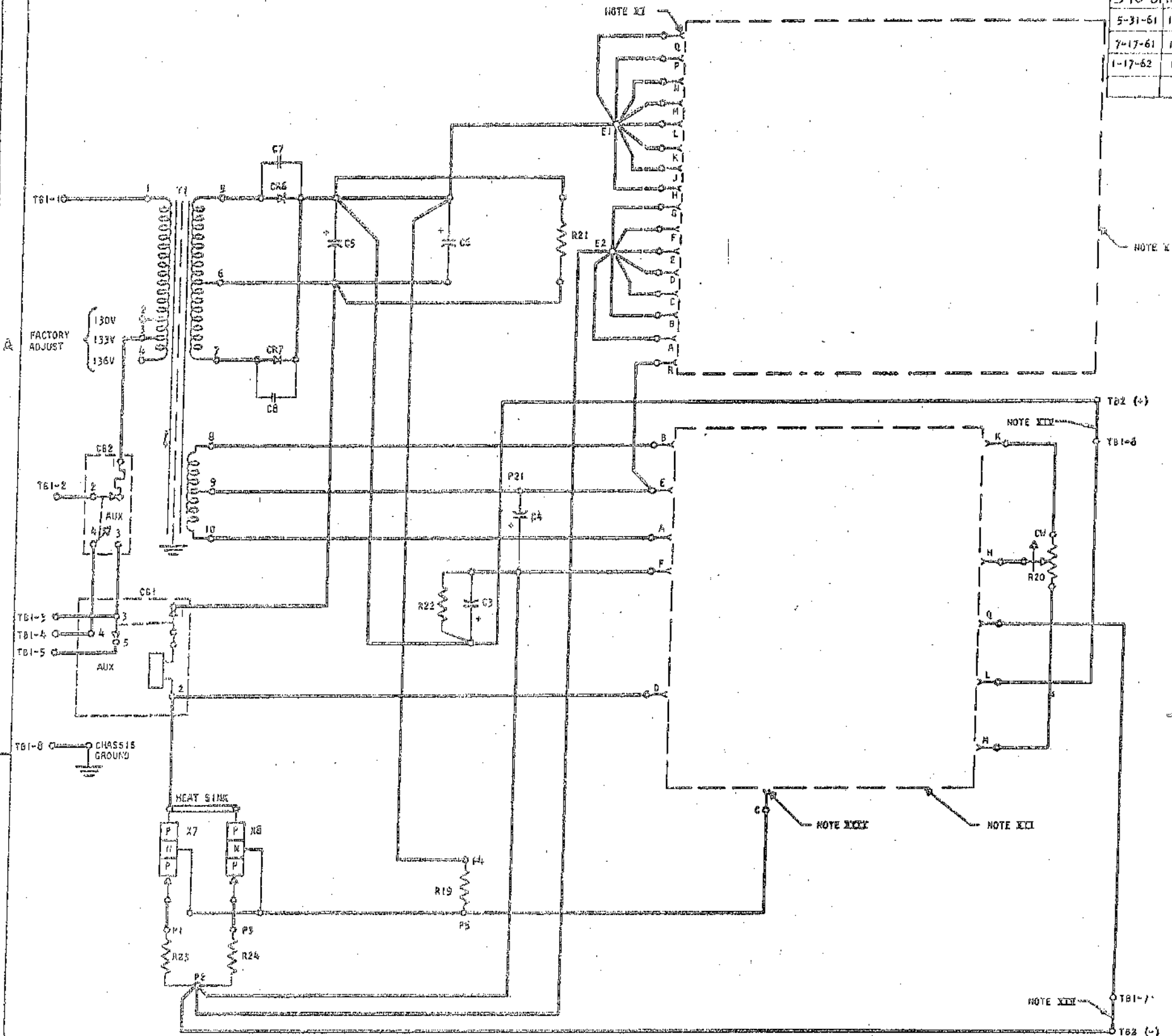
POWER SUPPLY WIRING SCHEMATIC

PLUS/MINUS 6V AT 8 AMPS	473401
PLUS/MINUS 6V AT 12 AMPS	207208
PLUS/MINUS 6V AT 12 AMPS	473461
PLUS/MINUS 6V AT 16 AMPS	207211
PLUS/MINUS 6V AT 16 AMPS	473471
PLUS/MINUS 12V AT 12 AMPS	207232
PLUS/MINUS 12V AT 12 AMPS	473501
PLUS/MINUS 20V AT 6 AMPS	477221
PLUS/MINUS 20V AT 15 AMPS	207241
PLUS/MINUS 20V AT 15 AMPS	473431
PLUS/MINUS 30V AT 7 AMPS	210089
PLUS/MINUS 30V AT 7 AMPS	473561
PLUS/MINUS 3V MC AT 5 AMPS	477281
PLUS/MINUS 3V MC AT 5 AMPS	210864
PLUS/MINUS 12V AT 20 AMPS	208259
PLUS/MINUS 12V AT 20 AMPS	473381
PLUS/MINUS 60V AT 10 AMPS	220903
PLUS/MINUS 60V AT 20 AMPS	480766

SMS O/V PROTECTION SCHEMATIC

6V SUPPLIES	208948
12V SUPPLIES	208961
30V SUPPLIES	208968

DATE	CHANGE
5-10-61	111444
5-31-61	111455
7-17-61	111466
1-17-62	113176



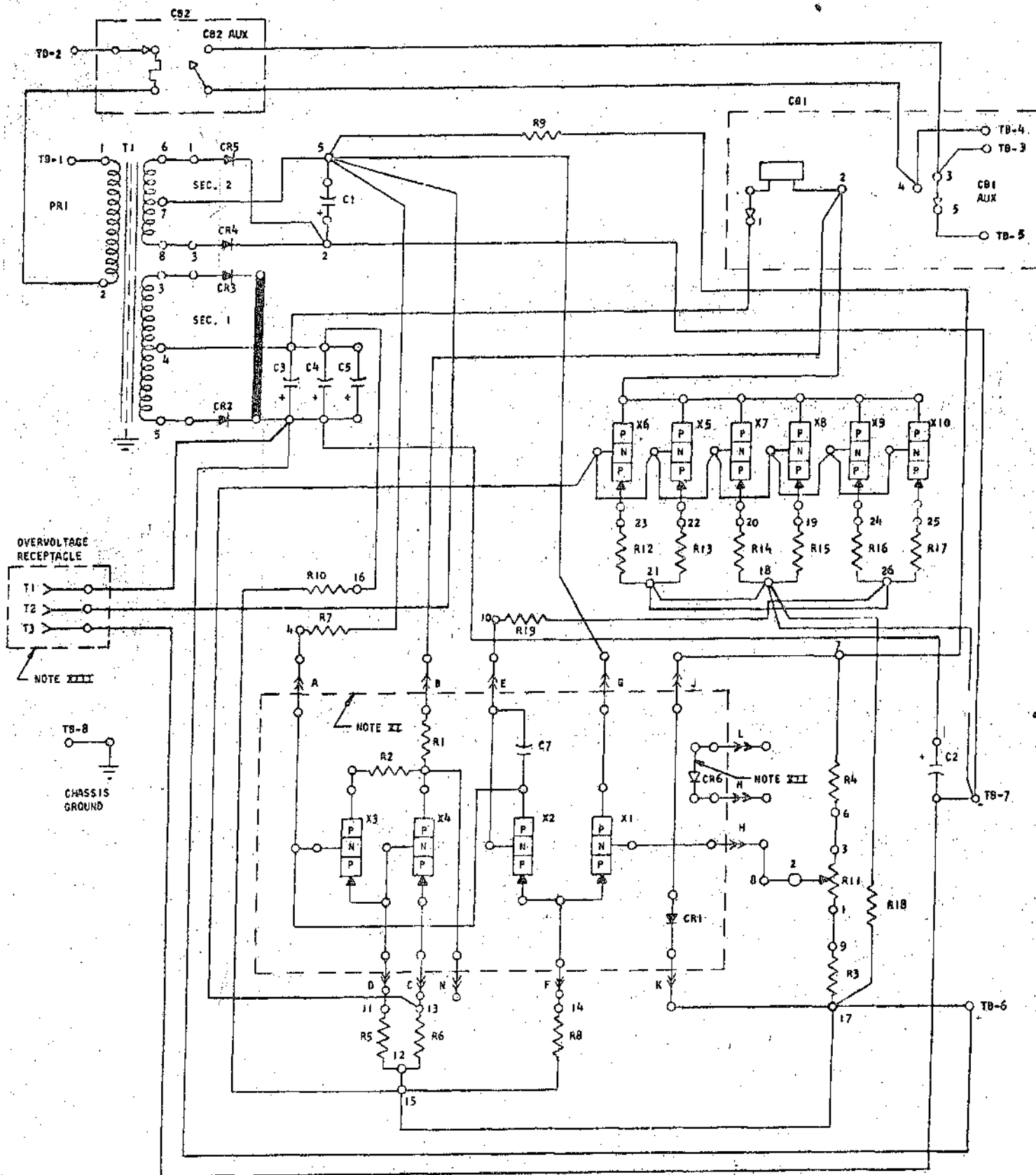
COMPONENT CHART

CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
			R20	207340	POTENTIOMETER 250 OHM 1/2W
C3	208296	CAPACITOR 7.75MHFD 10V DC	R21	322880	RESISTOR 100 OHM 2W
C4	208362	CAPACITOR 610MHFD 25V DC	R22	317609	RESISTOR 350 OHM 1/2W
C5-6	208224	CAPACITOR 14,000 MFD 15V DC	R23-24	207324	RESISTOR 0.1 OHM 5W
C7-8	492447	CAPACITOR			
CB1	208204	CIRCUIT BREAKER			
CB2	220913	CIRCUIT BREAKER			
CR6-7	216197	RECTIFIER CELL	T1	473516	TRANSFORMER
E1-2	2102430	CONNECTOR	T81		TERMINAL BLOCK
A & B		RECEPTACLE	T82		TERMINAL BLOCK
R19	322888	RESISTOR 100 OHM 2W	X7-8	363214	TRANSISTOR TYPE 10B

- NOTES
 XI OVERVOLTAGE CARD ASSEMBLY 370575
 XII UNIT RECEPTACLE "M"
 XIII COMPONENT CARD ASSEMBLY 370612
 XIV UNIT RECEPTACLE "M"
 XV FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN T81-6 AND T81-7

INTERNATIONAL BUSINESS MACHINES CORP			
NAME		WIRING DIAGRAM-POWER	
SUPPLY- 6V DC AT 8 AMP			
DESIGN		TYPE	MISC
DETAIL		SCALE	NONE
CHECK		DRAW	MDE 3-4-61
APPRO		CHECK	

6-22-59	105580B
10-1-59	105583B
11-11-59	105584K
12-31-59	105584Y
2-2-60	105585C
3-23-60	105585W
10-26-60	105587L
3-6-61	111215
3-27-61	111432



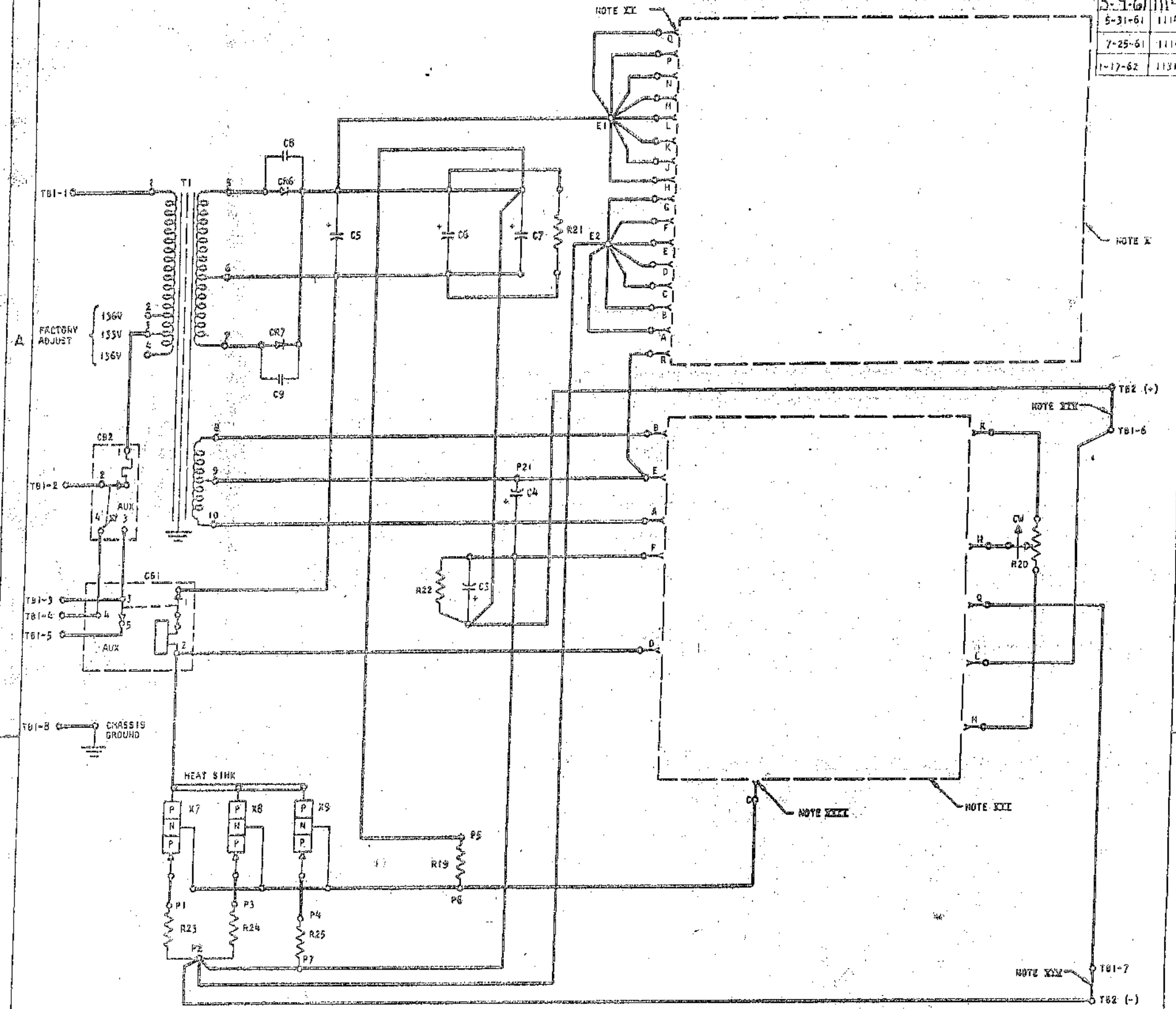
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	207302	TRANSFORMER	R3	208256	RESISTOR 1.9K 5W
C1	207362	CAPACITOR 610 MFD 25V DC	R4	207374	RESISTOR 1.2K 5W
C2	207296	CAPACITOR 7750 MFD 10V DC	R5	317011	RESISTOR 470Ω 1/2W
C3-C5	208224	CAPACITOR 14,000 MFD 13V DC	R6	335329	RESISTOR 47Ω 2W
C7	492411	CAPACITOR .01 MFD 100V DC	R7	317095	RESISTOR 9.1K 2W
CR1	209002 *	DIODE	R8	2102532	RESISTOR 2K 5W
CR2, CR3	598479	DIODE	R9	207290	RESISTOR 770 Ω 5W
CR4, CR5	207316	DIODE	R10	208190	RESISTOR 70Ω 5W
CB1	208198	CIRCUIT BREAKER	R11	207340	POTENTIOMETER 250Ω 1/2W
X1, X2	535441 *	TRANSISTOR TYPE 026	R12-R17	207324	RESISTOR 0.1Ω 5W
X3	518689 *	TRANSISTOR TYPE 028	R18	317009	RESISTOR 390Ω 1/2W
X4	207363 *	TRANSISTOR TYPE 036	CR6	491300*	DIODE TYPE AU
X5-X10	209001	TRANSISTOR TYPE	CB2	220915	CIRCUIT BREAKER
R1	207320	RESISTOR 1Ω 5W	R19	317019	RESISTOR 2K 1/2W
R2	207321 *	RESISTOR 2Ω 1W			

NOTES
 * - INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY.
 XI COMPONENT CARD ASSEMBLY 371656
 XII NOT USED ON 6V SUPPLIES
 XIII WHEN THE 6 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208947 IS USED, REFER TO O/V WIRING DIAGRAM NUMBER 203348

INTERNATIONAL BUSINESS MACHINES CORP.
 WIRING DIAGRAM - POWER SUPPLY -
 PLUS-MINUS 6V DC AT 1.3 AMP
 ACME 5-11-59 MISC
 ACME 5-11-59 NONE
 207 7-22-59 MDK 6-27-59
 207 7-22-59 RDD 1-2-59

DATE	CHANGE NO
5-9-61	111448-1
5-31-61	111448-5
7-25-61	111448A
1-17-62	113176

NOTE XI



NOTE X

NOTE XII

NOTE XIII

NOTE XIV

NOTE XV

COMPONENT CHART

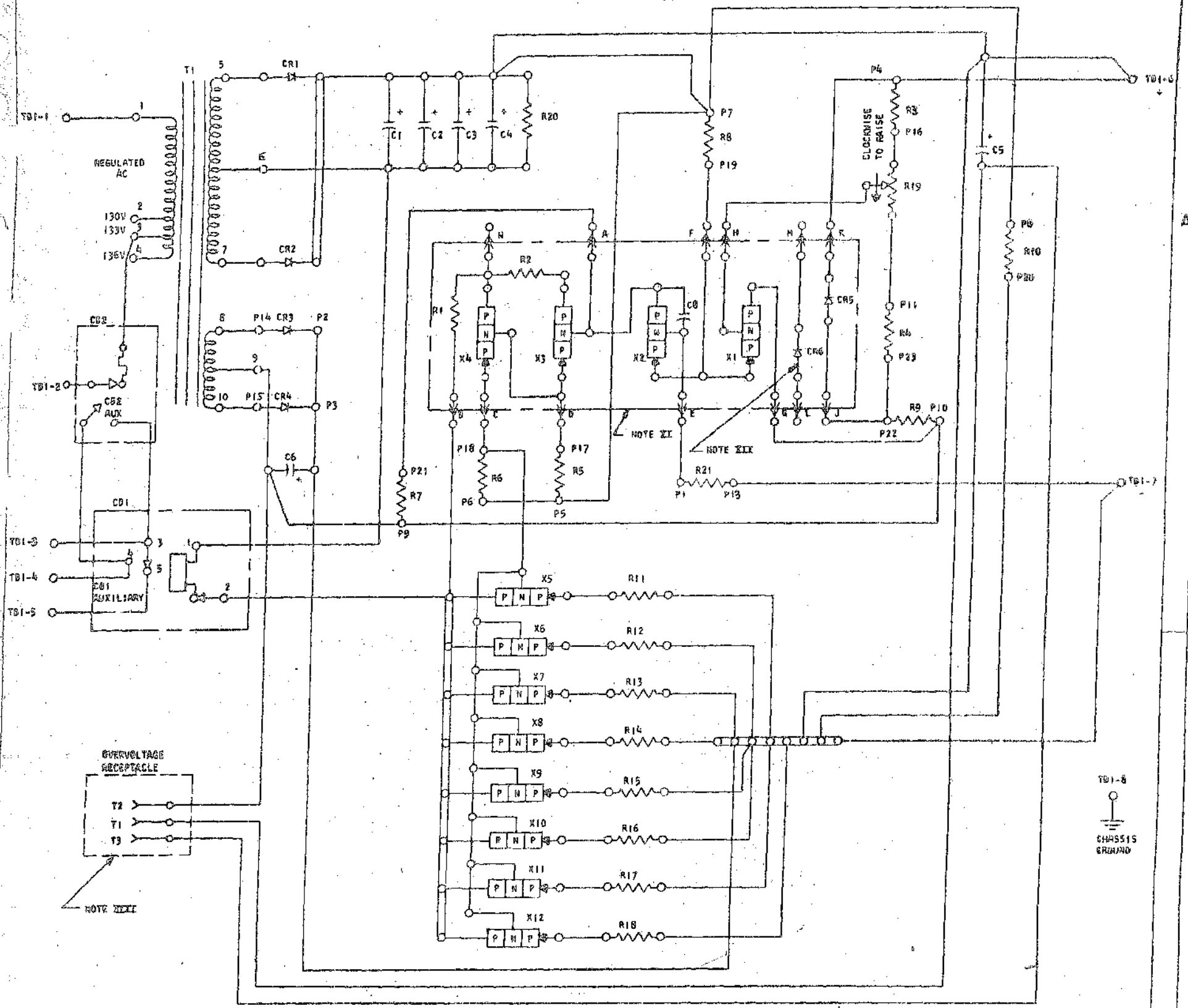
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
C5	207295	CAPACITOR 7.750 MFD 10V DC	R20	207346	POTENTIOMETER 250 OHM 1/2W
C4	207362	CAPACITOR 610 MFD 25V DC	R21	208190	RESISTOR 70 OHM 5W
C5-7	208224	CAPACITOR 14,000 MFD 13V DC	R22	317007	RESISTOR 390 OHM 1/2W
CB-9	492447	CAPACITOR	R23-25	207324	RESISTOR 0.1 OHM 5W
CB1	208199	CIRCUIT BREAKER			
CB2	220915	CIRCUIT BREAKER			
CR6-7	216198	RECTIFIER CELL	T1	473566	TRANSFORMER
E1-2	2102430	CONNECTOR	TB1		TERMINAL BLOCK
A & B		RECEPTACLE	TB2		TERMINAL BLOCK
R19	322888	RESISTOR 100 OHM 2W	X7-9	369214	TRANSISTOR TYPE 10B

NOTES
 X OVERVOLTAGE CARD ASSEMBLY 370575
 XI UNIT RECEPTACLE "M"
 XII COMPONENT CARD ASSEMBLY 370612
 XIII UNIT RECEPTACLE "M"
 XIV FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN TB1-6 AND TB1-7

INTERNATIONAL BUSINESS MACHINES CORP			
NAME	WIRING DIAGRAM - POWER		
	SUPPLY - 6V DC AT 12 AMP		
DESIGN		TYPE	MISC
DETAIL		SCALE	NONE
CHECK		DRAW	MDE 3-11-61
APPRO		CHECK	

207211-B

DATE	CHANGE NO.
8-31-59	105580Y
12-18-59	105580A
1-28-60	105580B
4-5-60	105580V
10-26-60	105587L



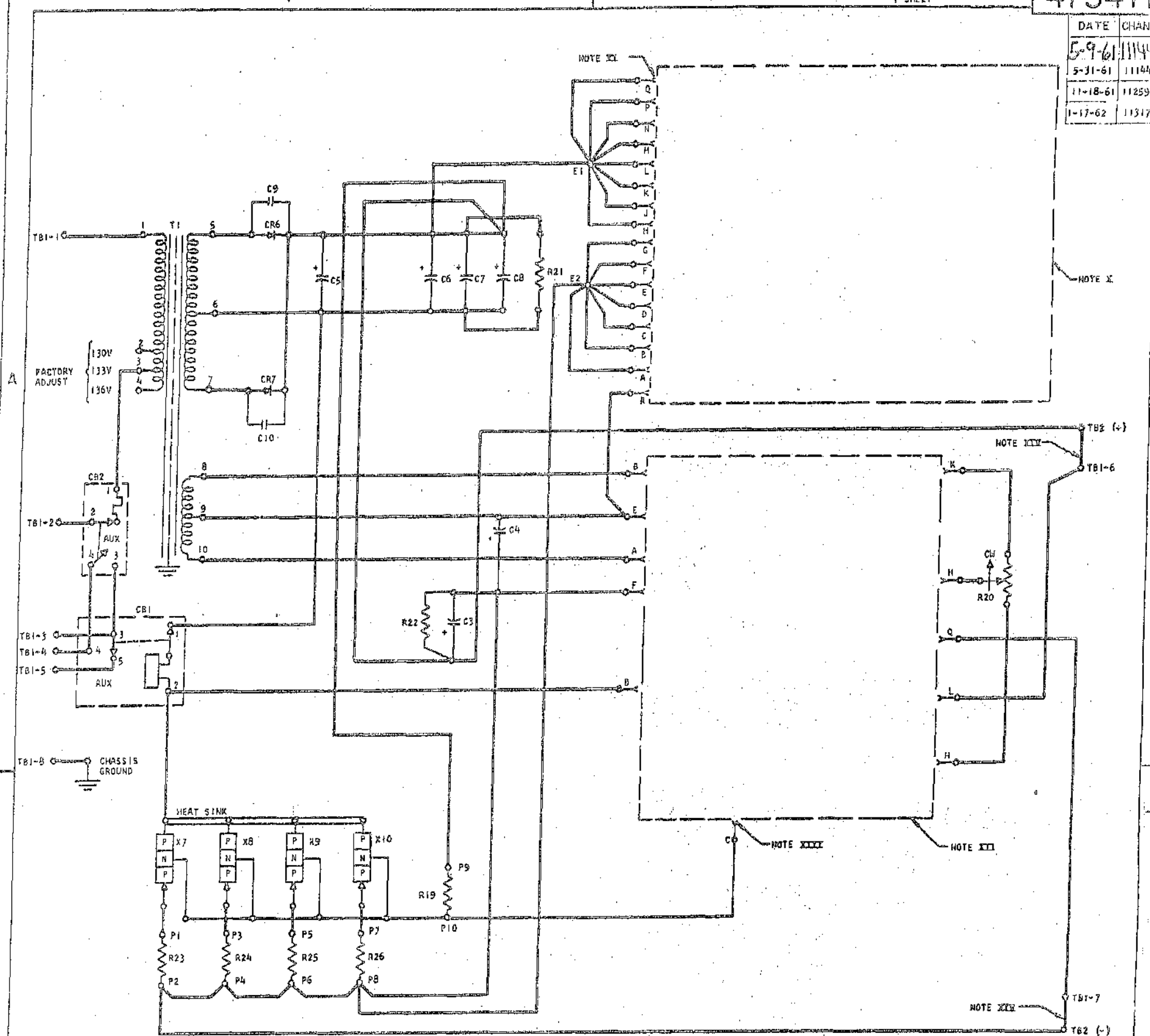
COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	208184	TRANSFORMER	R8, R21	317019	RESISTOR 2K 1/2W
CR1, CR2	127324	DIODE	R10	335138	RESISTOR 200 OHM 2W
CR3, CR4	207316	DIODE	R11-R18	208985	RESISTOR 0.1 OHM 5W
CR5*	209002	DIODE	R19	207358	POTENTIOMETER 150 OHM 2W
CR6*	491300	DIODE TYPE AU	R20	207319	RESISTOR 50 OHM 5W
C1-C4	208224	CAPACITOR 14,000 MFD 13V DC	CB2	220916	CIRCUIT BREAKER
C5	208230	CAPACITOR 7,000 MFD 13V DC	R9	317014	RESISTOR 690 OHM 1/2W
C6	208228	CAPACITOR 5,500 MFD 19V DC	CB*	492611	CAPACITOR 0.01 MFD 100V DC
CB1	207350	CIRCUIT BREAKER			
X1-X2*	535441	TRANSISTOR TYPE 026			
X3*	518689	TRANSISTOR TYPE 028			
X4*	207363	TRANSISTOR TYPE 036			
X5-X12	209001	TRANSISTOR TYPE			
R1*	207320	RESISTOR 1 OHM 5W			
R2*	207321	RESISTOR 2 OHM 1W			
R3	208987	RESISTOR 1.25K 5W			
R4	207371	RESISTOR 600 OHM 5W			
R5	317013	RESISTOR 620 OHM 1/2W			
R6	322888	RESISTOR 100 OHM 2W			
R7	300721	RESISTOR 10K 1/2W			

NOTES
 * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 XI COMPONENT CARD ASSEMBLY NO. 371656
 XII NOT USED ON 6 VOLT SUPPLIES
 XIII WHEN THE 6 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208947 IS USED, REFER TO O/V WIRING DIAGRAM NUMBER 208948

INTERNATIONAL BUSINESS MACHINES CORP				
NAME	WIRING DIAGRAM - POWER SUPPLY -			
	+6V DC AT 16A			
DESIGN	PCD	5-29-59	TYPE	AISC
DETAIL	HAV	8-27-59	SCALE	NONE
CHECK	DFG	8-28-59	DRAW	WAW
APPRO	DF		CHECKER	2011

DATE	CHANGE NO
5-9-61	111444-E
5-31-61	111445
11-18-61	112599E
1-17-62	113176

NOTE XII

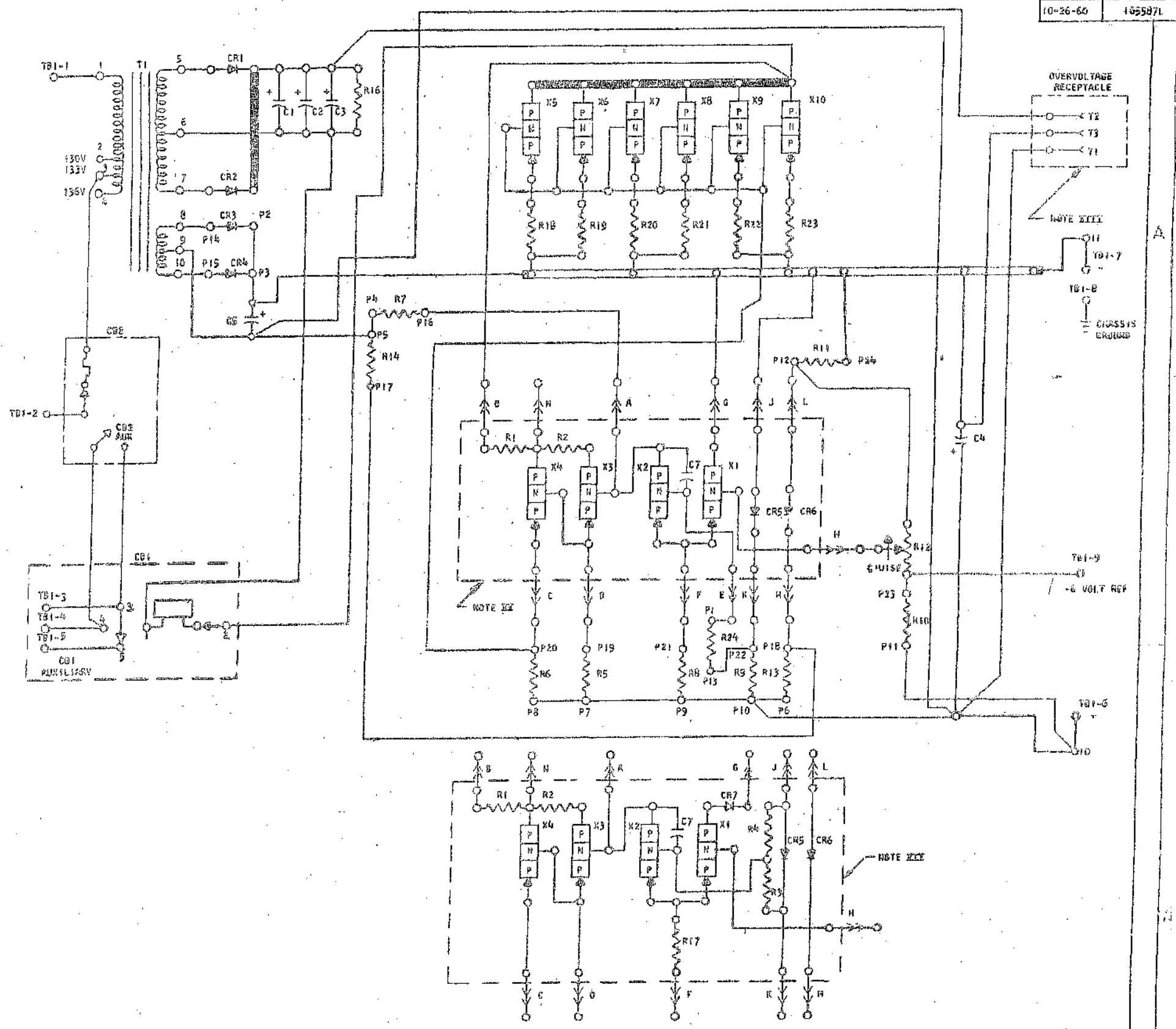


COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
			R20	207340	POTENTIOMETER 250 OHM 1/2W
C3	208230	CAPACITOR 7,000 MFD 13V DC	R21	505301	RESISTOR 50 OHM 5W
C4	208228	CAPACITOR 5,500 MFD 19V DC	R22	335138	RESISTOR 200 OHM 2W
C5-8	208224	CAPACITOR 14,000 MFD 13V DC	R23-26	207324	RESISTOR 0.1 OHM 5W
C9-10	492447	CAPACITOR			
CB1	207350	CIRCUIT BREAKER			
CB2	220916	CIRCUIT BREAKER			
CR6-7	216198	RECTIFIER CELL	T1	208184	TRANSFORMER
E1-2	2102430	CONNECTOR	TBI		TERMINAL BLOCK
A & B		RECEPTACLE	TB2		TERMINAL BLOCK
R19	322888	RESISTOR 100 OHM 2W	X7-10	369214	TRANSISTOR TYPE 10B

NOTES
 I OVERVOLTAGE CARD ASSEMBLY 370575
 II UNIT RECEPTACLE "B"
 III COMPONENT CARD ASSEMBLY 370612
 IV UNIT RECEPTACLE "A"
 V FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN TBI-6 AND TBI-7.

INTERNATIONAL BUSINESS MACHINES CORP.			
NAME	WIRING DIAGRAM - POWER		
	SUPPLY - 6V DC AT 16 AMP		
DESIGN		TYPE	MISC
DETAIL		SCALE	NONE
CHECK		DRAW	MDE 3-11-61
APPRO	<i>[Signature]</i>	CHECK	

6-23-59	105580H
10-16-59	105583P
12-18-59	105584H
1-28-60	105585U
4-5-60	105585U
10-26-60	105587L

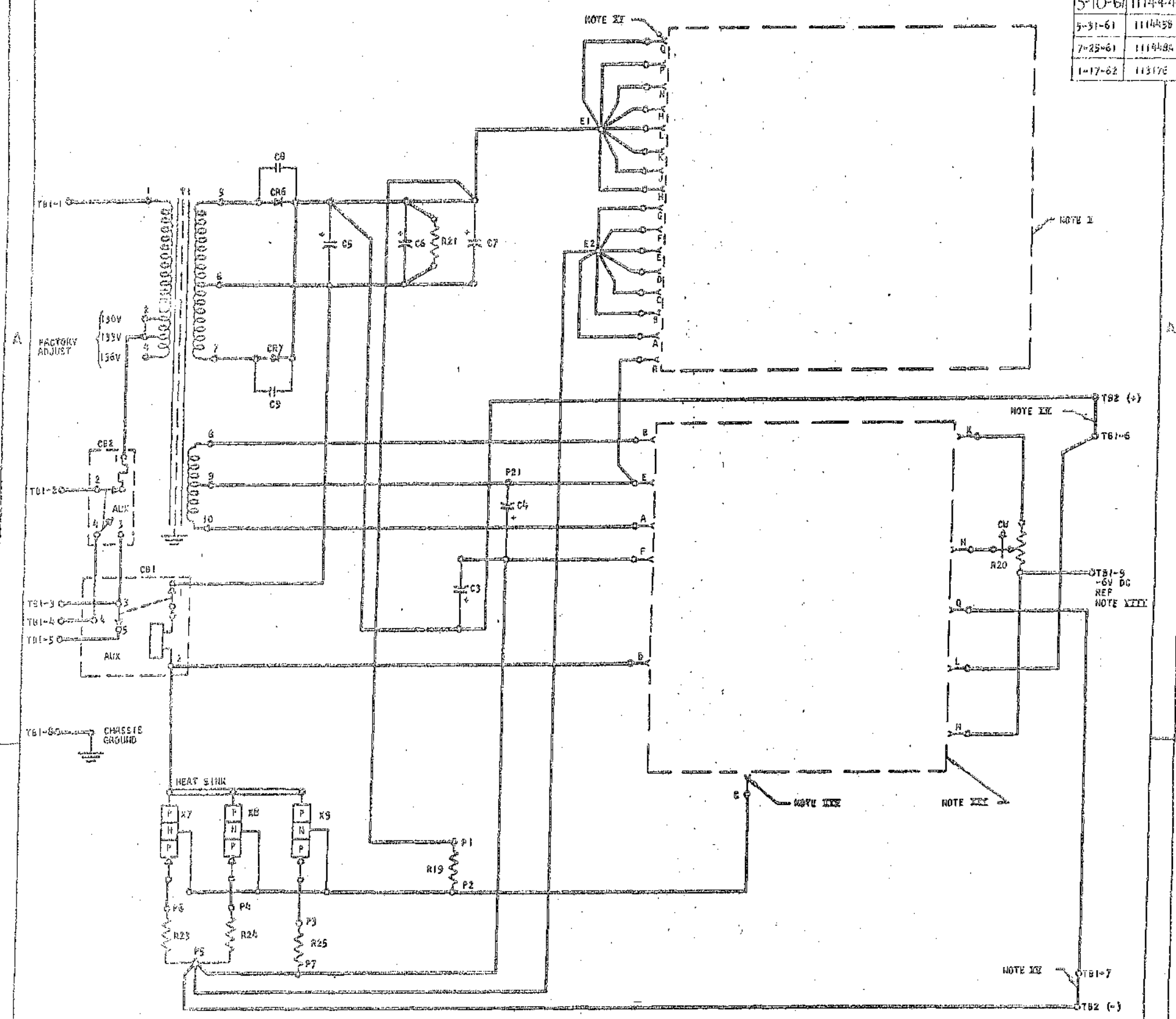


CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	208176	TRANSFORMER	R3 *	207326	RESISTOR 1.7K 5W
C1-C4	208221	CAPACITOR 11,000 MFD 15V DC	R4 *	207220	RESISTOR 2.3K 5W
C5	208229	CAPACITOR 700 MFD 15V DC	R5	317276	RESISTOR 1.2K 1/2W
X1, X2 *	535441	TRANSISTOR TYPE 026	R6	338138	RESISTOR 200 OHM 2W
X3 *	518689	TRANSISTOR TYPE 028	R7	317529	RESISTOR .8.2K 1/2W
X4 *	207363	TRANSISTOR TYPE 036	R8	213693	RESISTOR 1K 1/2W
X5-X10	209001	TRANSISTOR TYPE	R9	317005	RESISTOR 160 OHM 1/2W
CB1	208198	CIRCUIT BREAKER	R10	208986	RESISTOR 325 OHM 5W
CR1, 2	127324	DIODE	R11	207381	RESISTOR 2K 5W
CR3, 4	207316	DIODE	R12	207357	POTENTIOMETER 200 OHM 2W
CR5 *	208002	DIODE	R13	317012	RESISTOR 510 OHM 1/2W
CR6 *	491300	DIODE TYPE AU	R14	300721	RESISTOR 10K 1/2W
R1 *	207320	RESISTOR 1 OHM 5W	R16	472539	RESISTOR 100 OHM 10W
R2 *	207321	RESISTOR 2 OHM 1W	R17, R24	317019	RESISTOR 2K 1/2W
CB2	220916	CIRCUIT BREAKER	R18-23	208985	RESISTOR 0.1 OHM 5W
C	492411	CAPACITOR 0.01 MFD 100V DC	CR7 *	505591	DIODE TYPE F (S)

NOTES
 * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLIES.
 XI COMPONENT CARD ASSEMBLY NO. 371656 FOR REFERENCE TO GROUND
 XII COMPONENT CARD ASSEMBLY NO. 371655 FOR REFERENCE TO -6 VOLTS
 XIII WHEN THE 12 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208950 IS USED, REFER TO O/V WIRING DIAGRAM NUMBER 208951

INTERNATIONAL BUSINESS MACHINES CORP
 WIRING DIAGRAM - POWER SUPPLY
 112V DC AT 12 AMP
 DESIGN 5-29-59
 CHECKED 6-21-59
 DRAWN 6-22-59

DATE	CHANGE NO.
5-10-61	1114445
5-31-61	1114458
7-25-61	1114495
1-17-62	113176



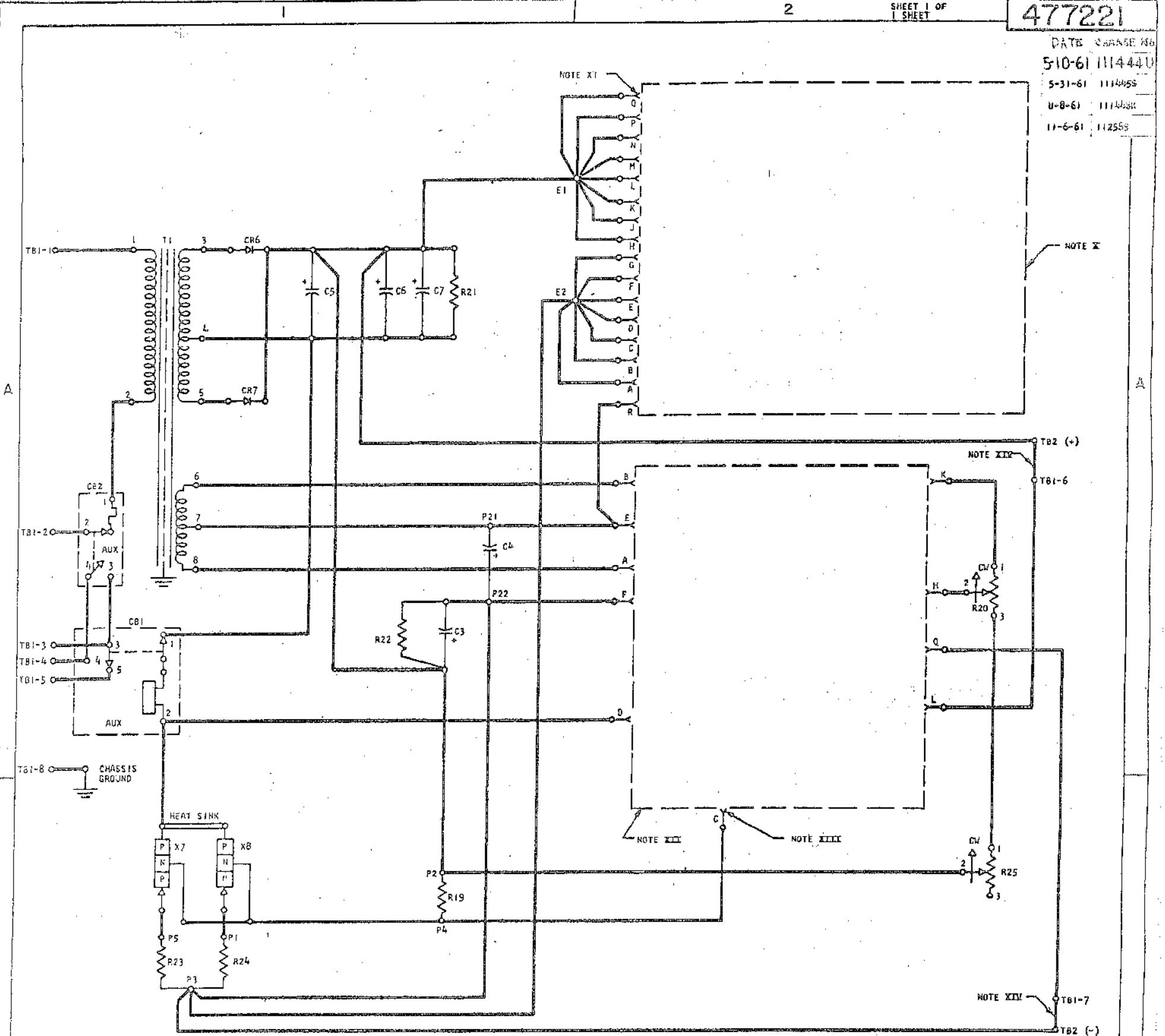
COMPONENT CHART

CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
C3	208221	CAPACITOR 11,000 MFD 15V DC	R20	207340	POTENTIOMETER 250 OHM 1/2W
C4	208225	CAPACITOR 700 MFD 15V DC	R21	472539	RESISTOR 100 OHM 10W
C5-7	208221	CAPACITOR 11,000 MFD 15V DC	R23-R5	207324	RESISTOR 0.1 OHM 5W
C8-9	432447	CAPACITOR			
CB1	208198	CIRCUIT BREAKER			
CB2	220916	CIRCUIT BREAKER			
CR6-7	216198	RECTIFIER CELL	T1	208176	TRANSFORMER
E1-2	2102430	CONNECTOR	TB1		TERMINAL BLOCK
A E B		RECEPTACLE	TB2		TERMINAL BLOCK
R19	335138	RESISTOR 200 OHM 2W	X7-9	469214	TRANSISTOR TYPE 10B

- NOTES
- XI OVERVOLTAGE CARD ASSEMBLY 370576
 - XX UNIT RECEPTACLE "B"
 - XXI FOR REFERENCE TO GROUND USE COMPONENT CARD ASSEMBLY 370610
 - XXII FOR REFERENCE TO -6V DC, USE COMPONENT CARD ASSEMBLY 370613
 - XXIII UNIT RECEPTACLE "M"
 - XXIV FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN TBI-6 AND TBI-7

INTERNATIONAL BUSINESS MACHINES CORP			
NAME		WIRING DIAGRAM-POWER	
SUPPLY - 12V DC AT 12 AMP			
DESIGN		TYPE	MISC
DETAIL		SCALE	NONE
CHECK		DRAW	HDE 5-11-61
APPRO.	<i>[Signature]</i>	CHECK	

DATE CHANGE NO
 5-10-61 111444U
 5-31-61 111445S
 8-8-61 111446R
 11-6-61 112559

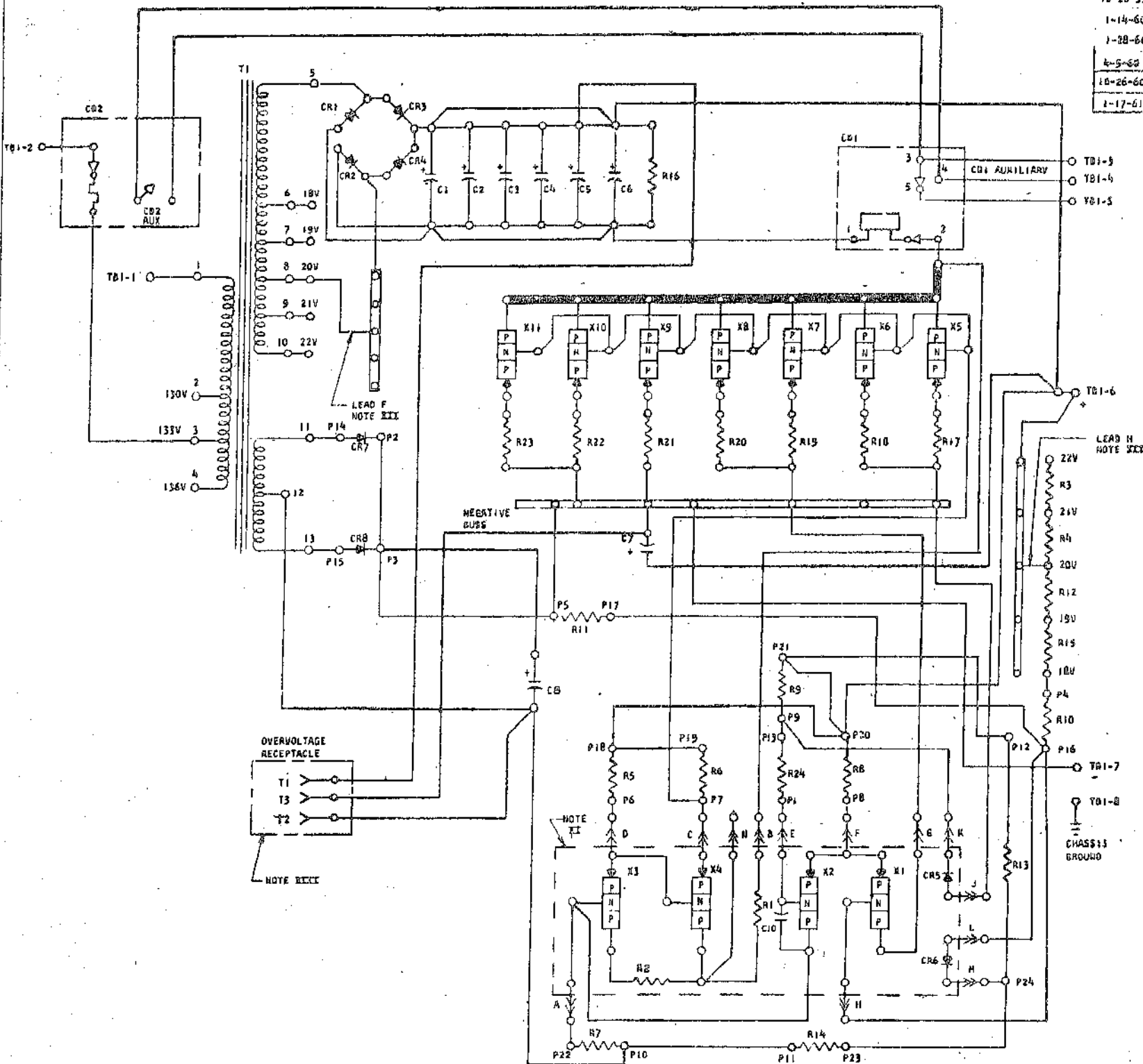


COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
			R20	207393	POTENTIOMETER 500 OHM 1/2W
C3	360244	CAPACITOR 5,000 MFD 25V DC	R21	507142	RESISTOR 100 OHM 25W
C4	207310	CAPACITOR 100 MFD 25V DC	R22	207354	RESISTOR 220 OHM 5W
C5-7	501544	CAPACITOR 10,000 MFD 25V DC	R23-4	207324	RESISTOR 0.1 OHM 5W
			R25	207392	POTENTIOMETER 2.5K 1/2W
CR1	207349	CIRCUIT BREAKER			
CR2	220915	CIRCUIT BREAKER			
			T1	207304	TRANSFORMER
CR6-7	1073479	RECTIFIER CELL			
E1-2	2102430	CONNECTOR	TB1		TERMINAL BLOCK
A & B		RECEPTACLE	TB2		TERMINAL BLOCK
R19	207336	RESISTOR 250 OHM 5W	X7-8	369214	TRANSISTOR

NOTES
 XI OVERVOLTAGE CARD ASSEMBLY 370579
 XII UNIT RECEPTACLE "B"
 XIII COMPONENT CARD ASSEMBLY 370607
 XIV UNIT RECEPTACLE "A"
 XV FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN TB1-6 AND TB1-7

INTERNATIONAL BUSINESS MACHINES CORP			
NAME		WIRING DIAGRAM-POWER	
SUPPLY-20V DC AT 6 AMP			
TYPE	MISC		
SCALE	NONE		
LRW	MDE	3-27-61	
DATE	5-10-61	CHECK	

16-24-59	105580K
10-20-59	1055831
1-14-60	105584W
1-28-60	105585D
4-5-60	105585V
10-26-60	105587L
1-17-61	110497



CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	208175	TRANSFORMER	R3, 4, 12, 15	207365	RESISTOR 200 OHM 5W
C1-C7	208238	CAPACITOR 10,000 MFD 53V DC	R5, R24	317019	RESISTOR 2K 1/2W
CB	208229	CAPACITOR 700 MFD 15V DC	R6	207336	RESISTOR 250 OHM 5W
CR1-CR4	208386	DIODE	R7	300721	RESISTOR 10K 1/2W
CR5	209002	DIODE	R8	317024	RESISTOR 5, 1K 1/2W
CR6	491300	DIODE TYPE AU	R10	208938	RESISTOR 1650 OHM 5W
CR7, CR8	207316	DIODE	R11	207381	RESISTOR 2K 5W
X1, X2	535441	TRANSISTOR TYPE O26	R13	213693	RESISTOR 1K 1/2W
X3	518689	TRANSISTOR TYPE O28	R14	300721	RESISTOR 10K 1/2W
X4	207363	TRANSISTOR TYPE O36	R16	208825	RESISTOR 25 OHM 50W
X5-X11	209001	TRANSISTOR TYPE	R17-23	208985	RESISTOR 0.1 OHM 5W
CB1	208198	CIRCUIT BREAKER	R9	213693	RESISTOR 1K 1/2W
R1	207320	RESISTOR 1 OHM 5W	C32	220918	CIRCUIT BREAKER
R2	207321	RESISTOR 2 OHM 1W	C10*	492411	CAPACITOR 0.01 MFD 100V DC

NOTES
 * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 XI COMPONENT CARD ASSEMBLY NO. 371656
 III LEADS F AND H MOVE TOGETHER
 IIII WHEN THE 20 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208972 IS USED, REFER TO O/V WIRING DIAGRAM NUMBER 208973

INTERNATIONAL BUSINESS MACHINES CORP

WIRING DIAGRAM - POWER SUPPLY -

± 20V DC AT 15A

PECO 5-28 59

JCS 5-28 59

J.M. 6/10/59

P-10-23

NISC

NONE

MDE 7-13 59

2227 7-14-59

DATE	CHANGE NO
5-26-61	111444-P
5-31-61	111445S
7-17-61	111448C
11-21-61	112599K
1-17-62	113175

NOTE XI

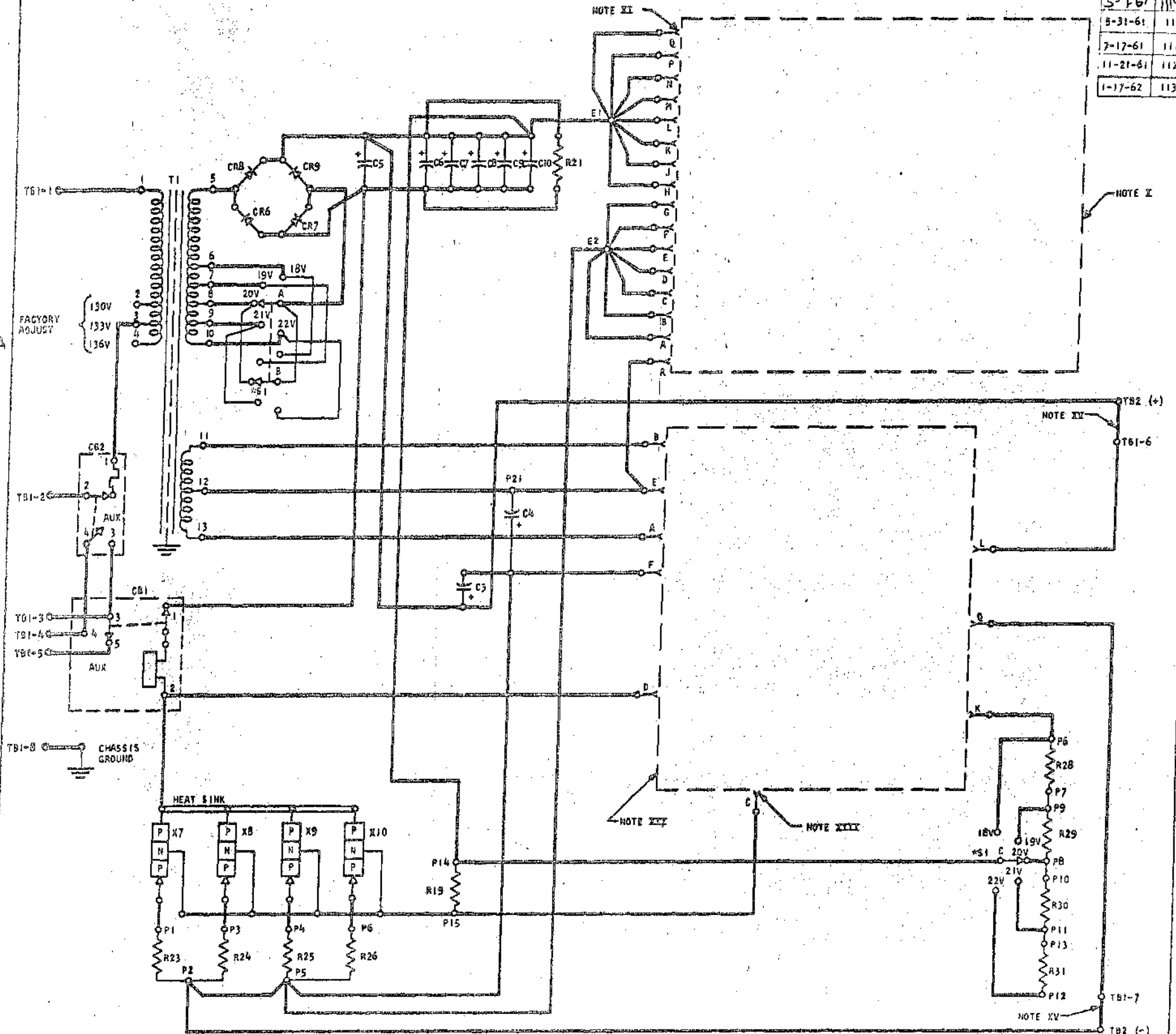
NOTE X

NOTE XII

NOTE XIII

NOTE XIV

NOTE XV



COMPONENT CHART

CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
C3	20B238	CAPACITOR 10,000 MFD 33V DC	R21	20B825	RESISTOR 25 OHM 50W
C4	20B229	CAPACITOR 700 MFD 15V DC	R23-26	207334	RESISTOR 0.1 OHM 5W
C5-10	203238	CAPACITOR 10,000 MFD 33V DC	R28-31	207365	RESISTOR 200 OHM 5W
CB1	207350	CIRCUIT BREAKER	S1	5CH297	SWITCH
CB2	220918	CIRCUIT BREAKER	T1	473416	TRANSFORMER
CR6-9	216198	RECTIFIER CELL			
E1-2	2102430	CONNECTOR	TB1		TERMINAL BLOCK
A & B		RECEPTACLE	TB2		TERMINAL BLOCK
R19	207336	RESISTOR 250 OHM 5W	X7-10	369214	TRANSISTOR

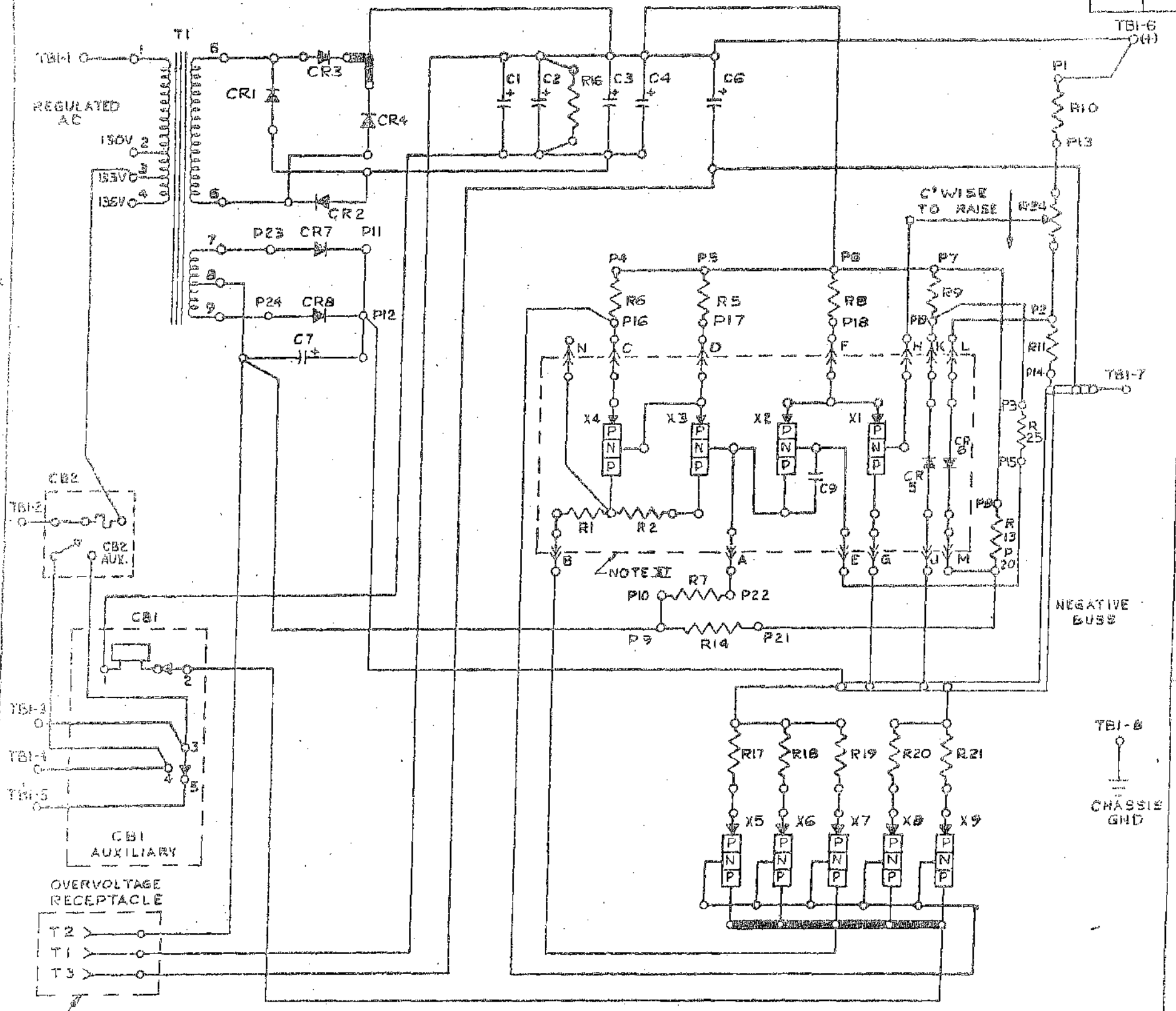
- NOTES
- X OVERVOLTAGE CARD ASSEMBLY 174579
 - XI UNIT RECEPTACLE "B"
 - XII COMPONENT CARD ASSEMBLY 370611
 - XIII UNIT RECEPTACLE "A"
 - XIV SWITCH (S1) MUST NOT BE TURNED WITHOUT UNLOADING SUPPLY BY OPENING CB1 FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN TB1-6 AND TB1-7
 - XV

INTERNATIONAL BUSINESS MACHINES CORP

NAME	WIRING DIAGRAM-POWER		
	SUPPLY- 20V DC AT 15 AMP		
DESIGN		TYPE	MISC
DETAIL		SCALE	NONE
CHECK		DRAW	MOE 3-4-61
APPROVED	<i>[Signature]</i>	CHK'D	

21009-6

2100895	
DATE	CHANGE NO
3-26-60	105527-R
2-13-61	111221
3-27-61	111432



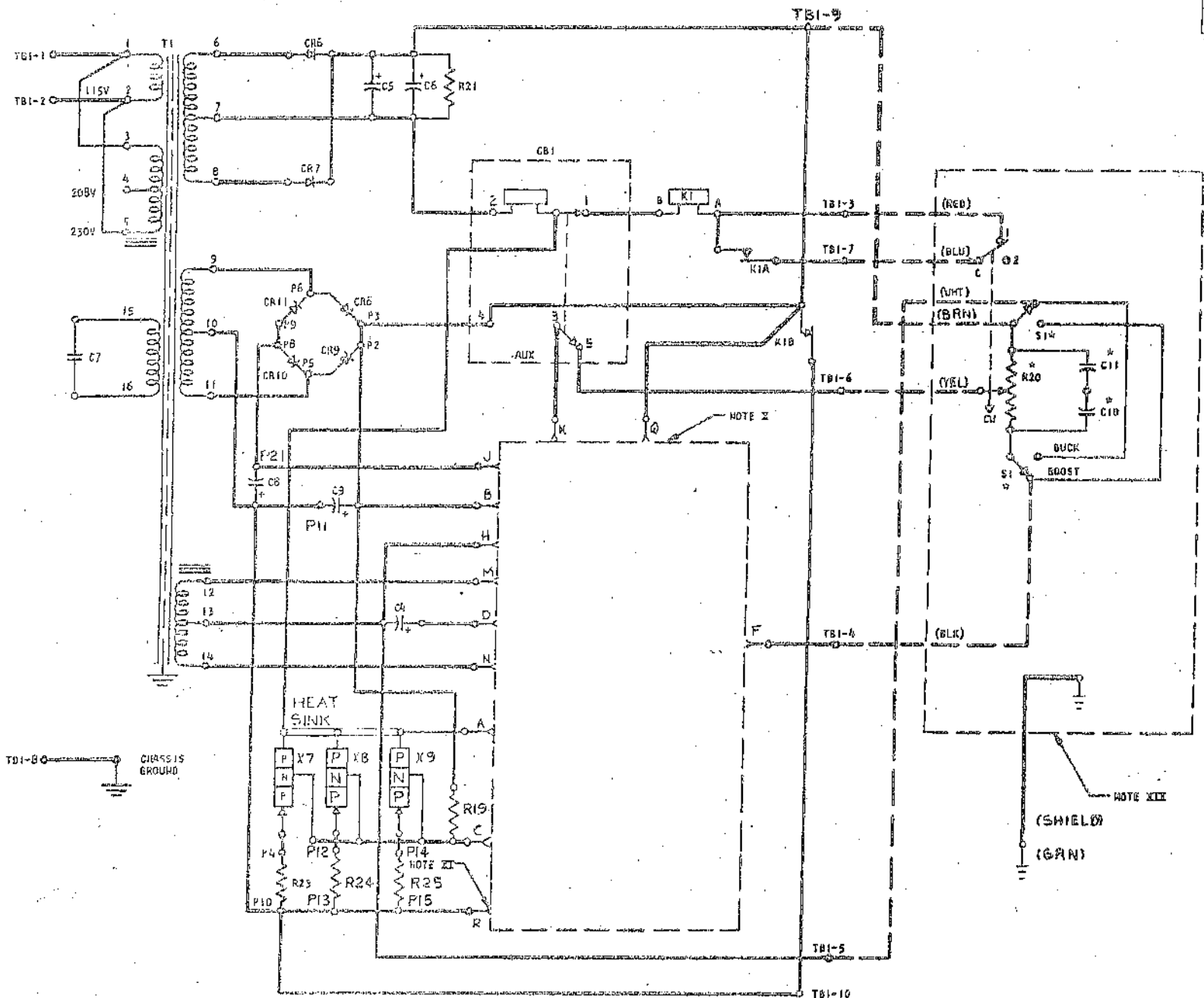
NOTE XI.

- NOTES:
- I * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY.
 - II COMPONENT CARD ASSEMBLY NUMBER 37165G.
 - III WHEN THE 30 VOLT OVERVOLTAGE ASSEMBLY 208967 IS USED REFER TO O/V WIRING DIAGRAM 208968

COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
R10	207378	RESISTOR 2050 Ω 5W	T1	210092	XFMR
R11	207379	RESISTOR 1K Ω 5W	CR1-4	598479	DIODE
R13	317024	RESISTOR 5,100 Ω 1/2W	CR7-8	207316	DIODE
R14	300721	RESISTOR 10K Ω 1/2W	CR5*	209002	DIODE
R16	507142	RESISTOR 100 Ω 25W	CR6*	491300	DIODE IBM AU
R17-R21	208995	RESISTOR 0.1 Ω 5W	X1,X2*	535441	TRANSISTOR TYPE 026
R24	208928	POT. 125 Ω 2W W.W.	X3*	518689	TRANSISTOR TYPE 028
C1-C3	208235	CAP. 5,500 MFD 45V	X4*	207363	TRANSISTOR TYPE 036
C4,C6	208245	CAP. 2,500 MFD 45V	X5-9	208196	TRANSISTOR TYPE 037
C7	208229	CAP. 700 MFD 15V	CB1	207349	CIRCUIT BREAKER (3 AMP)
R9	317353	RESISTOR 2K Ω 1W	R1*	207320	RESISTOR 1 Ω 5W
CB2	220917	CIRCUIT BREAKER	R2*	207321	RESISTOR 2 Ω 1W
C9*	492411	CAP. .01 MFD 100 VDC	R5	323920	RESISTOR 3K Ω 1/2W
R25	317019	RESISTOR 2K Ω 1/2W	R6	2102155	RESISTOR 500 Ω 5W
			R7,R8	300721	RESISTOR 10K Ω 1/2W

INTERNATIONAL BUSINESS MACHINES CORP			
NAME	WIRING DIAGRAM		
DESIGN	11	5711	TYPE
DETAIL	11	5711	SCALE
CHECK	11	5711	DRAW
APPRO	11	5711	CHECK

DATE	CHANGE NO.
5-11-61	111445E
6-2-61	111445S
7-20-61	111445N



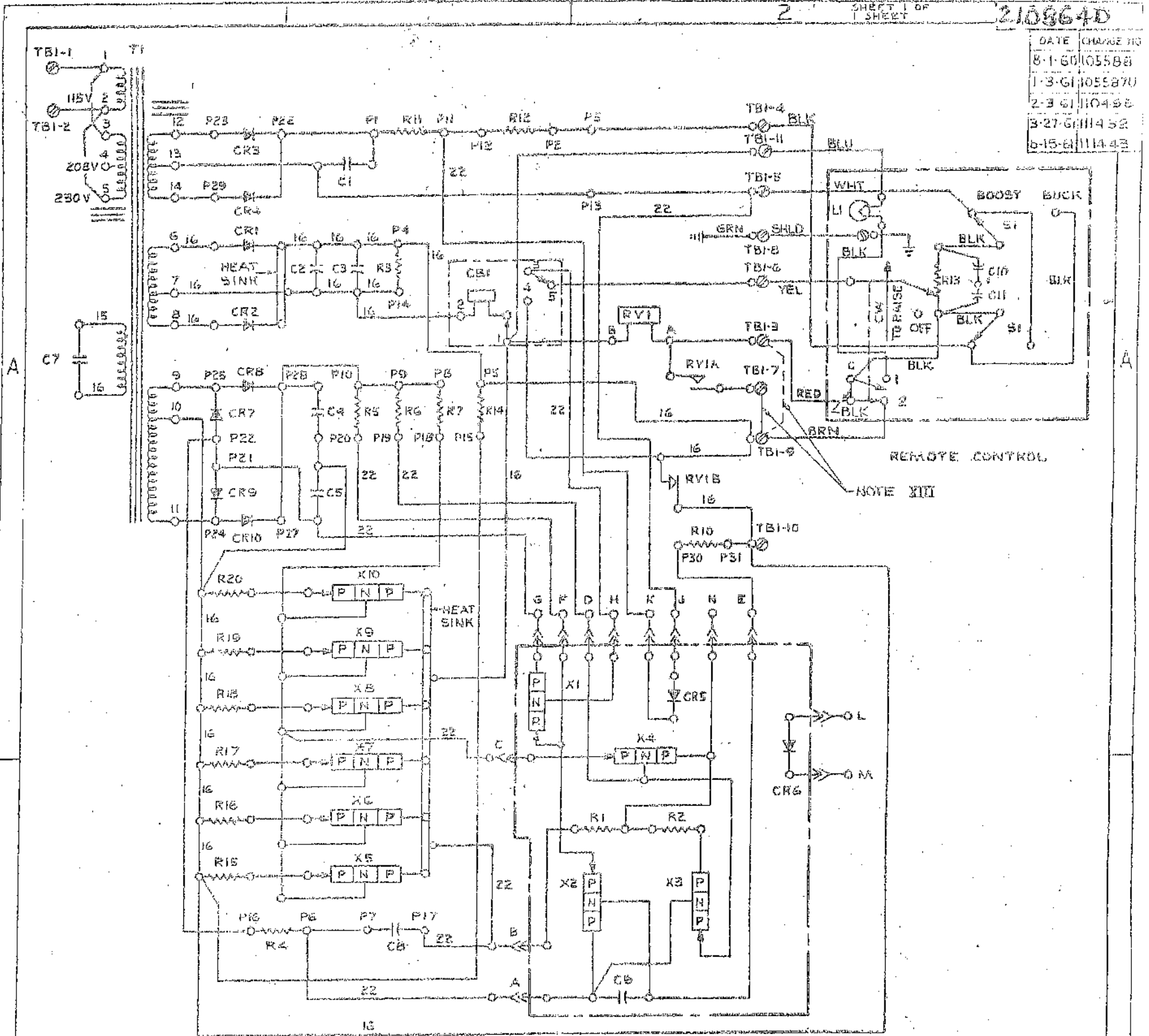
- NOTES
 I COMPONENT CARD ASSEMBLY 370616
 II UNIT RECEPTACLE
 III REMOTE CONTROL ASSEMBLY CONSISTING OF 210046 (PWT-SWITCH ASSY) AND 27690 (SWITCH). SUPPLIED WITH PORTABLE UNIT ONLY
 * COMPONENTS ON REMOTE ASSEMBLY

CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
C4	210645	CAPACITOR 1250 MFD 25V DC			
C5-6	479953	CAPACITOR 15,000 MFD 10V DC			
C7	210873	CAPACITOR 6 MFD 330V AC	R19	217012	RESISTOR 510 OHM 1/2W
C8-9	208229	CAPACITOR 700 MFD 15V DC	R20		
C10-11			R21	301881	RESISTOR 240 OHM 2W
CB1	207348	CIRCUIT BREAKER	R23-25	207324	RESISTOR .01 OHM 5W
CR6-7	558479	RECTIFIER CELL	S1		
CR8-11	207316	RECTIFIER CELL	T1	210874	W. S. LATOR
K1	210874	RELAY	TBI		TERMINAL BLOCK
			X7-9	369214	TRANSISTOR TYPE 10B

INTERNATIONAL BUSINESS MACHINES CORP				
NAME WIRING DIAGRAM-POWER SUPPLY				
3V DC AT 5A MARGIN CHECK				
DESIGN		TYPE	MISC	
DETAIL		SCALE	NONF	
CHECK		DRAW	MDE	5-10-61
APPRO		CHECK		

210864-D

DATE	CHANGE NO.
8-1-60	105588
1-3-61	105587U
2-3-61	110452
3-27-61	11452
6-15-61	11443



COMPONENT CHART

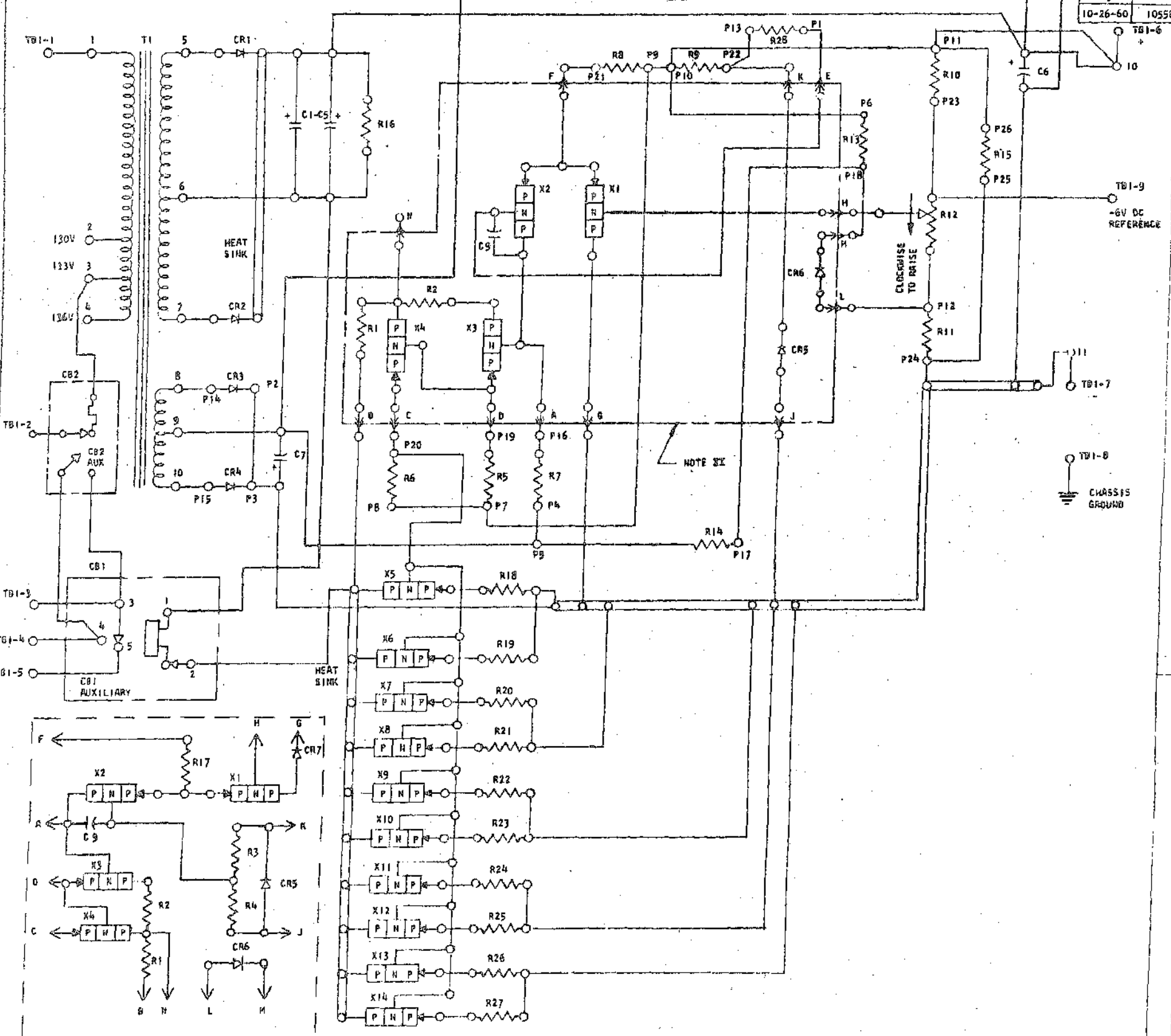
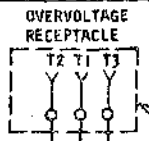
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	210844	REG. REACTOR	R4	500721	RES. 10K Ω 1/2 W
C1	210845	CAP. 1250 MFD 25 VDC	R5	317024	RES. 3100 Ω 1/2 W
C2, C3	479953	CAP. 15K MFD 10 VDC	R6	213693	RES. 1K Ω 1/2 W
C4, C5	208229	CAP. 700 MFD 15 VDC	R7	317012	RES. 510 Ω 1/2 W
C7	210873	CAP. 5 MFD 330 VAC	R8	317019	RES. 2K Ω 1/2 W
CB	492411	CAP. .01 MFD 100 VDC	R11	317014	RES. 280 Ω 1/2 W
RC9	492411	CAP. .01 MFD 100 VDC	R12	210256	RES. 1900 Ω 5W ±1%
G4, G11	521737	CAP. 50 MFD 12 VDC	R13	210846	RES. 1000 Ω 2 W
CB1	207948	CIRCUIT BREAKER	R14	323918	RES. 180 Ω 1/2 W
CR1&2	599479	RECTIFIER	R15-20	207524	RES. 1 Ω 5W
CR3&4	207316	RECTIFIER	R1	210874	RELAY
*CR5	209802	ZENER	S1	128455	SWITCH
*CR6	491300	RECTIFIER	*X1, X2	535441	TRANS.
CR7-10	207316	RECTIFIER	*X3	516639	TRANS.
*R1	207524	RES.	*X4	207349	TRANS.
*R2	207321	RES.	X5-10	203001	TRANS.
R3	501581	RES. 140 Ω 2 W	LI	219626	LAMP

NOTES:

- X ALL WIRE TO BE 20 GA. BLACK UNLESS OTHERWISE NOTED.
- XI * INDICATES COMPONENT LOCATED ON COMPONENT CARD ASSEMBLY.
- XII ORDER ONE EACH OF 210846 (POT. SWITCH ASM) AND 27630 (SWITCH) EXCEPT WHEN UNIT IS TO BE AS A PORTABLE.
- XIII REMOVE JUMPER FOR PORTABLE APPLICATION. APPLY JUMPER AS SHOWN IN DOTTED LINE FOR SPECIAL SYSTEM REQUIREMENT

INTERNATIONAL BUSINESS MACHINES CORP		
NAME	13 VDC @ 5 AMP	
MARGINAL CHECK		
DESIGN	PECOG 24 60	TYPE
DETAIL	PECOG 24 60	SCALE
CHECK	R1B 2-1-60	DRAWN
APPROV	2-1-60	22 CU CHECK

DATE	CHANGE NO
	105581V
1-18-60	105584Q
1-28-60	105585D
4-5-60	105585V
10-26-60	105587L



NOTE XII

NOTE XI

- NOTES
- X R INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 - XI COMPONENT CARD ASSEMBLY NO. 371656 FOR REFERENCE TO GROUND
 - XII COMPONENT CARD ASSEMBLY NO. 371655 FOR REFERENCE TO -6V DC
 - XIII WHEN THE 12 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208960 IS USED REFER TO O/V WIRING DIAGRAM NUMBER 208961

COMPONENT CHART

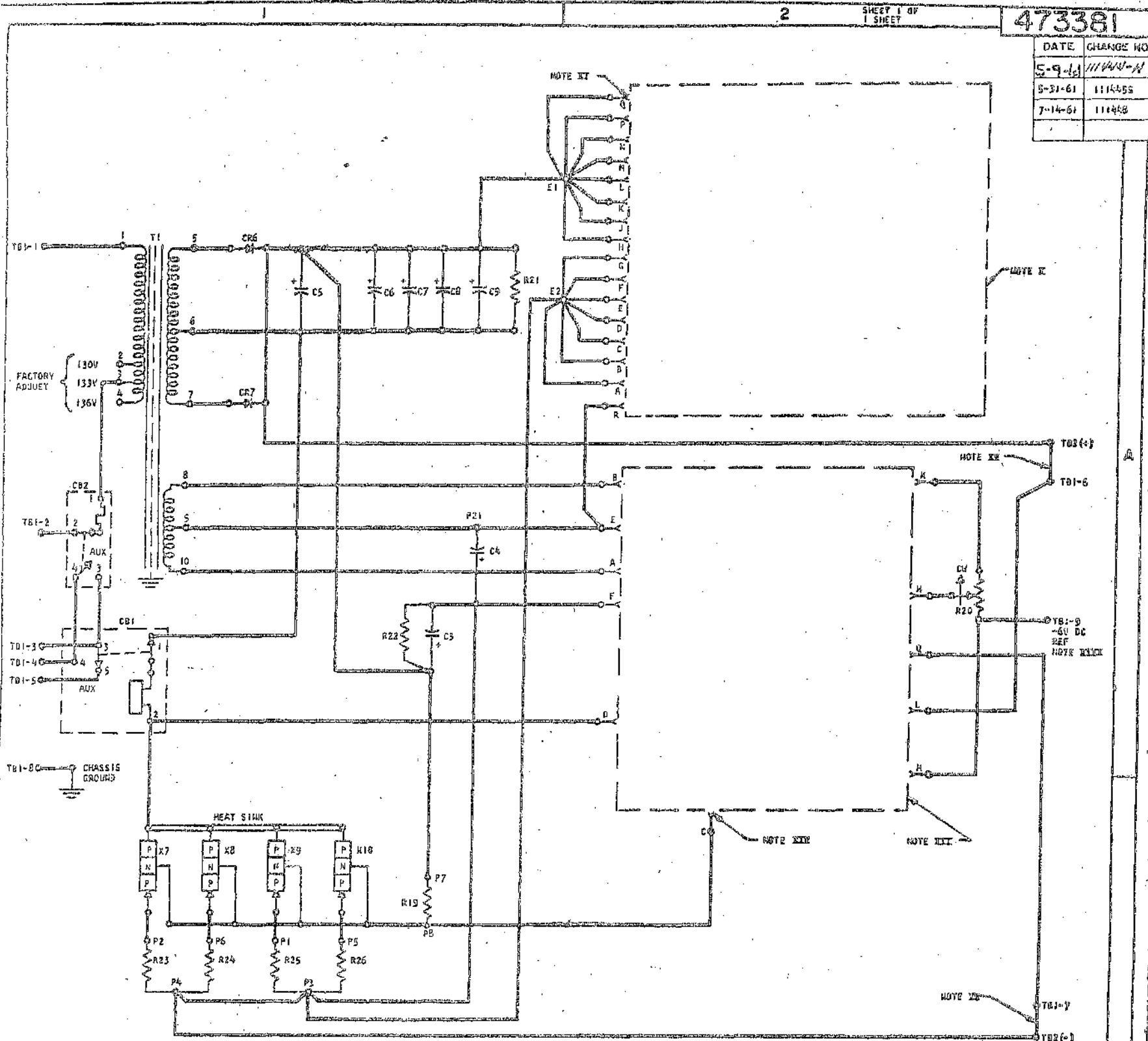
CODE	PART NO	DESCRIPTION	CODE	PART NO	DESCRIPTION
T1	219980	TRANSFORMER	R4 ^W	20722B	RESISTOR 2.3K 5W
C1-C5	208221	CAPACITOR 11,000 MFD 19V DC	R5	317276	RESISTOR 1.2K 1/2W
C6	208228	CAPACITOR 5,500 MFD 19V DC	R6	335138	RESISTOR 200 OHM 2W
C7	208229	CAPACITOR 700 MFD 15V DC	R7	317529	RESISTOR 8.2K 1/2W
CR1, CR2	127324	RECTIFIER CELL	R8	213693	RESISTOR 1K 1/2W
CR3, CR4	207316	RECTIFIER CELL	R9	317005	RESISTOR 160 OHM 1/2W
CR5 ^W	209002	DIODE	R10	208986	RESISTOR 325 OHM 5W
CR6 ^W	491300	DIODE TYPE AU	R11	207381	RESISTOR 2K 5W
X1, X2 ^W	535441	TRANSISTOR TYPE Q26	R12	207357	POTENTIOMETER 200 OHM 2W
X3 ^W	518689	TRANSISTOR TYPE Q28	R13	317012	RESISTOR 510 OHM 1/2W
X4 ^W	207363	TRANSISTOR TYPE Q36	R14	300721	RESISTOR 10K 1/2W
X5-X14	209001	TRANSISTOR TYPE	R15	317433	RESISTOR 560 OHM 1W
CB1	208223	CIRCUIT BREAKER	R16	221517	RESISTOR 75 OHM 10W
R1 ^W	207320	RESISTOR 1 OHM 5W	R17 ^W , R20	317019	RESISTOR 2K 1/2W
R2 ^W	207321	RESISTOR 2 OHM 1W	R18-R27	208985	RESISTOR 0.1 OHM 5W
R3 ^W	207326	RESISTOR 1.7K 5W	CB2	220918	CIRCUIT BREAKER
C9 ^W	492411	CAPACITOR 0.01 MFD 100V DC	CR7 ^W	503591	DIODE TYPE F(S)

INTERNATIONAL BUSINESS MACHINES CORP				
NAME	WIRING DIAGRAM - POWER SUPPLY -			
±12V DC AT 20 AMPS				
DESIGN	PECO	7-15-59	TYPE	WISC
DETAIL	HAV	9-18-59	SCALE	NINE
CHECK	RLB	9-18-59	DRAW	
APPRO			CHECK	

473381
EC 11440

473381

DATE	CHANGE NO.
5-9-61	111440-N
5-31-61	111445S
7-14-61	111448

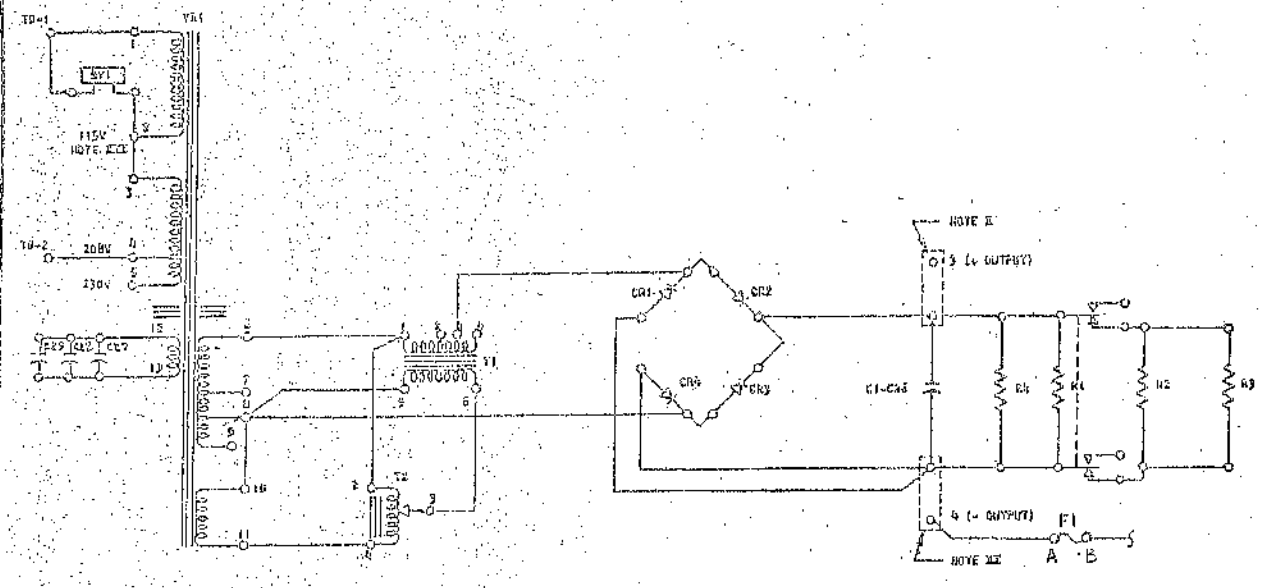


COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
C3	208228	CAPACITOR 5,500MFD 19V DC	R20	207340	POTENTIOMETER 250 OHM 1/2W
C4	208229	CAPACITOR 700 MFD 15V DC	R21	221517	RESISTOR 750 OHM 10W
C5-9	208221	CAPACITOR 11,000 MFD 15V DC	R22	317433	RESISTOR 560 OHM 1W
CB1	208223	CIRCUIT BREAKER	R23-26	207324	RESISTOR 0.1 OHM 5W
CB2	220910	CIRCUIT BREAKER			
CR6-7	127324	RECTIFIER CELL	T1	475445	TRANSFORMER
E1-2	2102430	CONNECTOR	TB1		TERMINAL BLOCK
A & B		RECEPTACLE	TB2		TERMINAL BLOCK
R19	335138	RESISTOR 200 OHM 2W	X7-10	369214	TRANSISTOR

NOTES
 I OVERVOLTAGE CARD ASSEMBLY 370576
 II UNIT RECEPTACLE "B"
 III FOR REFERENCE TO GROUND USE COMPONENT CARD ASSEMBLY 370610
 IV FOR REFERENCE TO -60V DC, USE COMPONENT CARD ASSEMBLY 370613
 V UNIT RECEPTACLE "R"
 VI FOR REMOTE SENSING REMOVE JUMPERS INDICATED AND SENSE BETWEEN TB1-6 AND TB1-7

INTERNATIONAL BUSINESS MACHINES CORP			
NAME WIRING DIAGRAM-POWER			
SUPPLY-12V DC AT 20 AMP			
DESIGN		TYPE	MISC
DETAIL		SCALE	NONE
CHECK		DRAW	MDE 2-20-61

DATE	CHANGE NO.
10-22-59	1055816
1-16-60	1055850
3-11-60	1055852
2-21	111810
2-4-65	704772



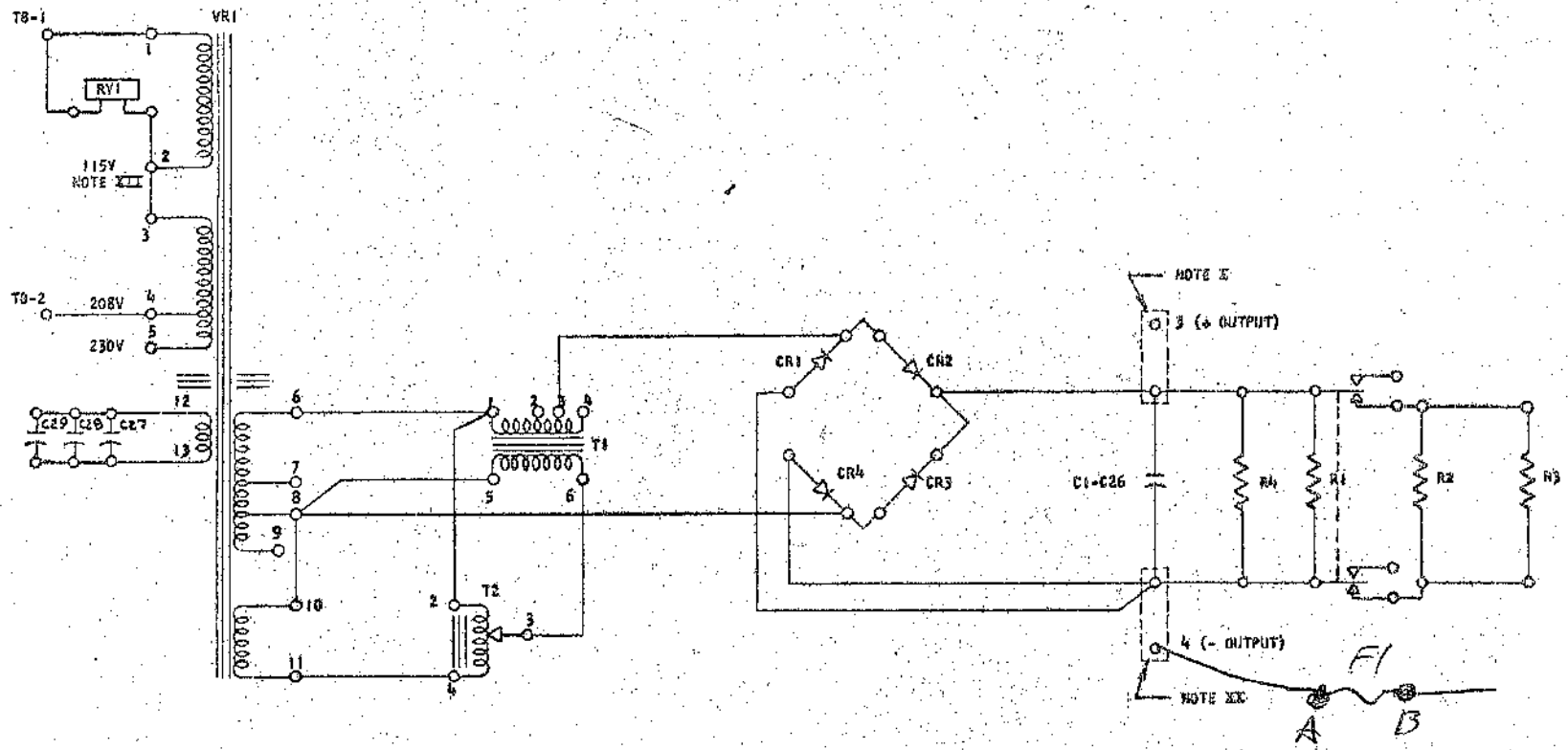
COMPONENT CHECK		
CODE	PART NO.	DESCRIPTION
VR1	224903	POTENTIOMETER
T1	231255	TRANSFORMER, 6W, 115V-0-115V
T2	360910	TRANSFORMER, 2W, 0-0-230V
C1-C2	208232	CAPACITOR 350V 150 75V DC
C27-C28	207361	CAPACITOR 150V 0.001 AC
CR1-CR4	273244	DIODE
R1, R2	505795	RESISTOR 150 OHM 50W
R3	322752	RESISTOR 500 OHM 50W
R4	208232	RESISTOR 150V 0.001 AC
RY1	242610	RELAY
F1	69771	FUSE 10 AMP

NOTES
 I - CAPACITOR BUS PLATE PART NUMBER 221982
 II - CAPACITOR BUS PLATE PART NUMBER 222011
 III - FOR 115V AC OPERATION CONNECT TAP 1 TO 3
 REM 2 TO 5 AND CONNECT INPUT TO TAP 2.
 REMOVE JUMPER 2 TO 3.

INTERNATIONAL BUSINESS MACHINES CORP.				
NAME	WORKS DIAGRAM - POWER SUPPLY	DATE	SCALE	NO.
DESIGN	PLC	2-1-59	SCALE	NO.
DRAWN	PLC	3-1-59	SCALE	NO.
CHECK	PLC	10-22-59	CHECK	

DATE	CHANGE NO.
10-22-59	1055810
1-14-60	1055858
3-11-60	1055858
2-8-61	111210

70472

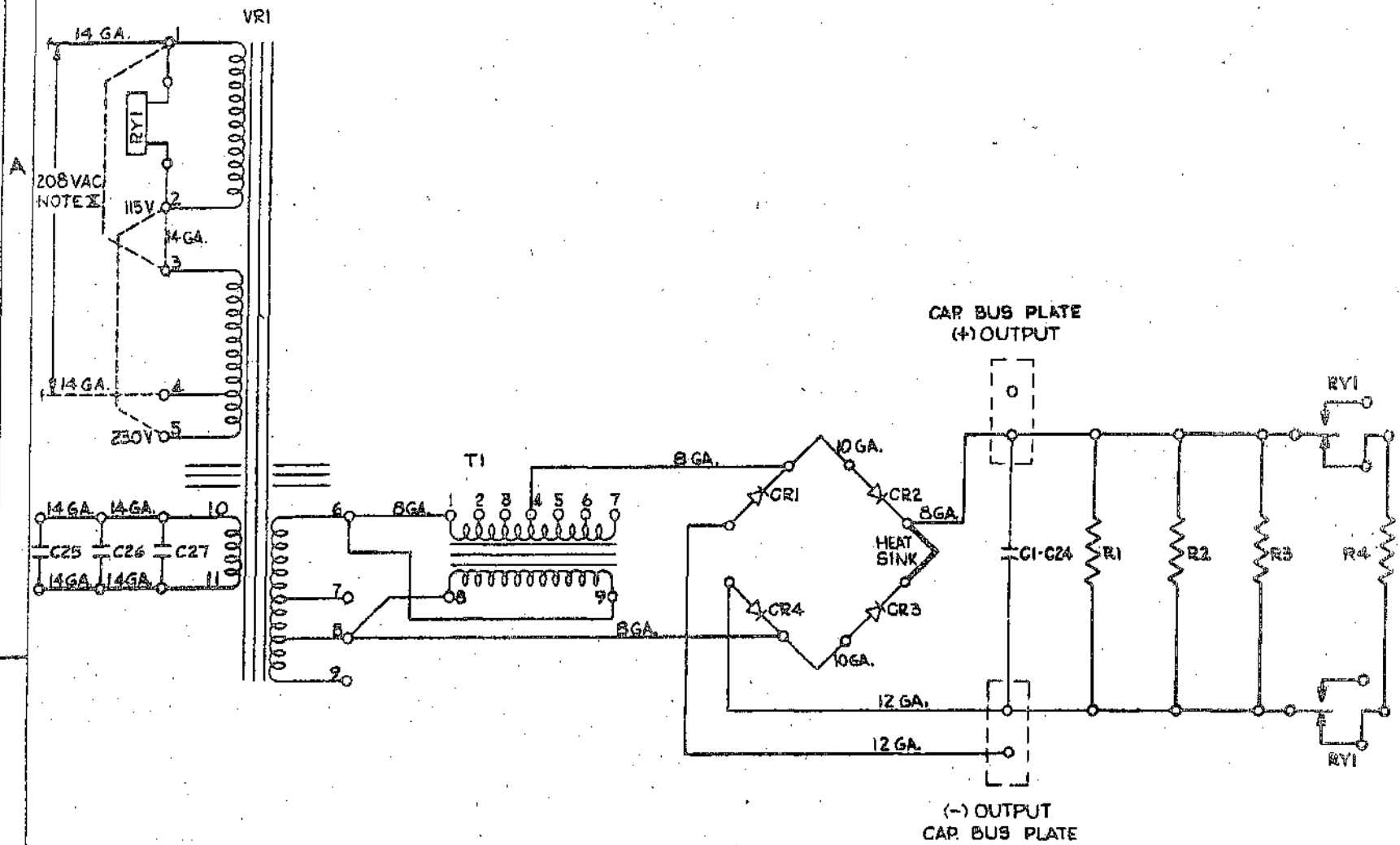


COMPONENT CHART		
CODE	PART NO.	DESCRIPTION
VR1	221342	VOLTAGE REGULATOR
T1	221266	TRANSFORMER, BUCK-BOOST
T2	960310	TRANSFORMER, AUTO
C1-C26	20B232	CAPACITOR 3500 MFD 75V DC
C27-C29	207361	CAPACITOR 15 MFD 330V AC
CR1-CR4	427324	DIODE
R1, R4	505798	RESISTOR 150 OHM 50W
R2	322739	RESISTOR 50 OHM 50W
R3	208825	RESISTOR 25 OHM 50W
RY1	242618	RELAY

NOTES:
 X - CAPACITOR BUS PLATE PART NUMBER 221982
 XX - CAPACITOR BUS PLATE PART NUMBER 222011
 XXX - FOR 115V AC OPERATION CONNECT TAPS 1 TO 3 AND 2 TO 5 AND CONNECT INPUT TO 1 AND 2. REMOVE JUMPER 2 TO 3.

INTERNATIONAL BUSINESS MACHINES CORP				
NAME	WIRING DIAGRAM - POWER SUPPLY -			
	60 V DC AT 10 AMPS			
DESIGN	PECD	3-17-59	TYPE	MISC
DETAIL	RLB	9-1-59	SCALE	NONE
CHECK	DPG	9-1-59	DRAW	
APPRO	ALB	10-22-59	CHECK	

DATE	CHANGE NO.
8-10-60	109296



COMPONENT CHART		
CODE	PART NO.	DESCRIPTION
C1-C24	480749	CAPACITOR 3150MFD 75VDC
C25-C27	20838B	" 25 MFD 330VAC
CR1-CR4	127324	DIODE
R1-R3	509798	RESISTOR 150Ω 50W
R4	208825	" 25Ω 50W
RY1	242618	RELAY
T1	480750	TRANS. BUCK-BOOST
VR1	480751	VOLTAGE REGULATOR

NOTES:

⊗ FACTORY WIRED FOR 208V INPUT. FOR 208V OPERATION CONNECT INPUT TO TAPS 1 AND 4. CONNECT TAPS 2 AND 3. FOR 230V INPUT MOVE LEAD FROM TAP 4 TO TAP 5. FOR 115V OPR CONNECT TAPS 1 TO 3 AND 2 TO 5, CONNECT INPUT TO 1 AND 2. REMOVE LEAD BETWEEN TAPS 2 AND 3.

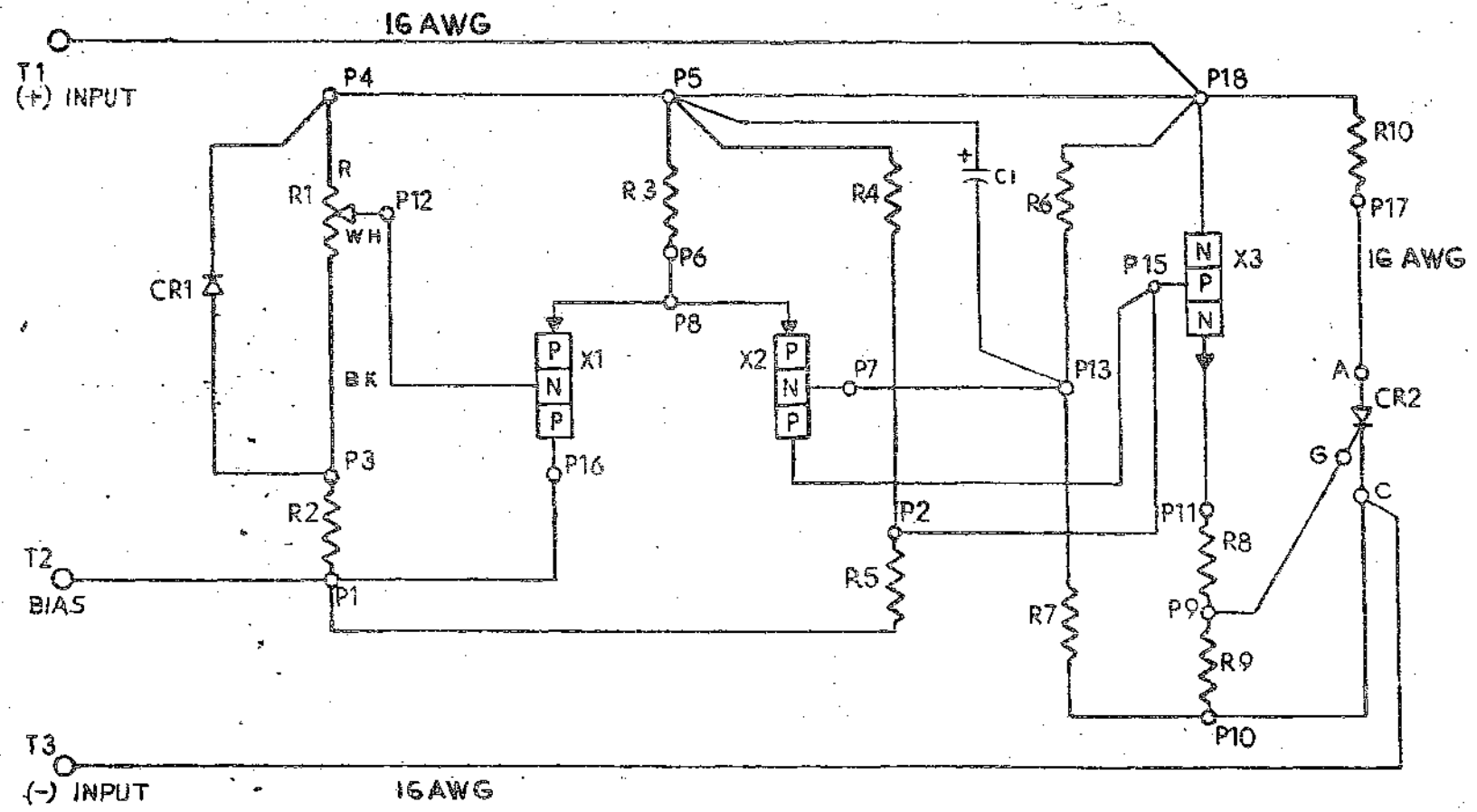
⊗ USE 53449-#18 BLACK STRANDED WIRE FOR ALL CONNECTIONS

INTERNATIONAL BUSINESS MACHINES CORP			
NAME		WIRING DIAGRAM-POWER	
SUPPLY-60 V DC AT 20 AMPS			
DESIGN		TYPE	1401
DETAIL	Peco 6/8/60	SCALE	NONE
CHECK	WJH/AV	DRAW	
APPRO	WJH/AV	CHECK	

STANDARDS CODE		TECH SERVICES APPRO	
NONE		ELEC	
RELEASED FOR ASM	QTY	MET	
208947	1	PLASTIC	
		FINISH	

208948B

SYM	DATE	CHANGE NO	TECH APPRO	SYM	DATE	CHANGE NO	TECH APPRO	DEVELOPMENT NO	Q/M
	10-29-59	105582		C1	9-13-60	105587X		101-478	
A1	11-18-59	105584L							
B2	12-30-59	105584X							
	3-2-60	105585H						208948B	



COMPONENT LOCATION CHART		
CODE	PART NO.	DESCRIPTION
CR1	208950	1N429 DIODE
CR2	208955	C35U RECT.
X1	535441	026 TSTR
X2	535441	026 TSTR
X3	369087	086 TSTR
R1	208952	RES (POT) 750 ~ 1W
R2	317015	RES 750 ~ 1/2 W
R3	322347	RES 560 ~ 1/2 W
B R4	317027	RES 11K ~ 1/2 W
R5	213549	RES 4.7K 1/2 W
R6	208951	RES 400 ~ 1W ± 1%
R7	208951	RES 400 ~ 1W ± 1%
R8	317002	RES 22 ~ 1/2 W
R9	317007	RES 220 ~ 1/2 W
C R10	208225	RES 0.05 Ω 5W
A C1	124575	CAP. 0.22 MFD 35 VDC

NOTES

- I** ADJUST R1 TO FIRE CR2 AT 6.78 ± .020 VOLTS BETWEEN PINS 1 & 3 WITH BIAS OF 14 ± 2% VOLTS BETWEEN PINS 2(-) & 3(+)
- B** **XI** ALL WIRE 22 GAUGE UNLESS OTHERWISE NOTED

IBM MATERIAL	NO	TOLERANCE UNLESS OTHERWISE NOTED	DECIMALS ±	ALIGNMENT WITHIN NOTE I	INTERNATIONAL BUSINESS MACHINES CO. PT					
CASE DEPTH			FRACTIONS ±		CONC TO DU WITHIN TIR NOTE II	NAME	PT TO PT DIAGRAM ±6 VOLT			
HARDNESS			ANGLES ±		FLAT WITHIN NOTE III	DESIGN	PECO	9-30-59	TYPE	MISC
SURFACE TREATMENT			CORNERS AND / OR EDGES BROKEN		OUTSIDE MAX	PARALLEL TO DU WITHIN NOTE IV	DETAIL	JDM	10-9-59	SCALE
		RADI UNLESS OTHERWISE NOTED	INSIDE MAX	STRAIGHT WITHIN NOTE V	CHECK	RAW	10-22-59	DRAW		
				SQUARE TO DU WITHIN NOTE VI	APPRO	[Signature]	10-22-59	CHECK		

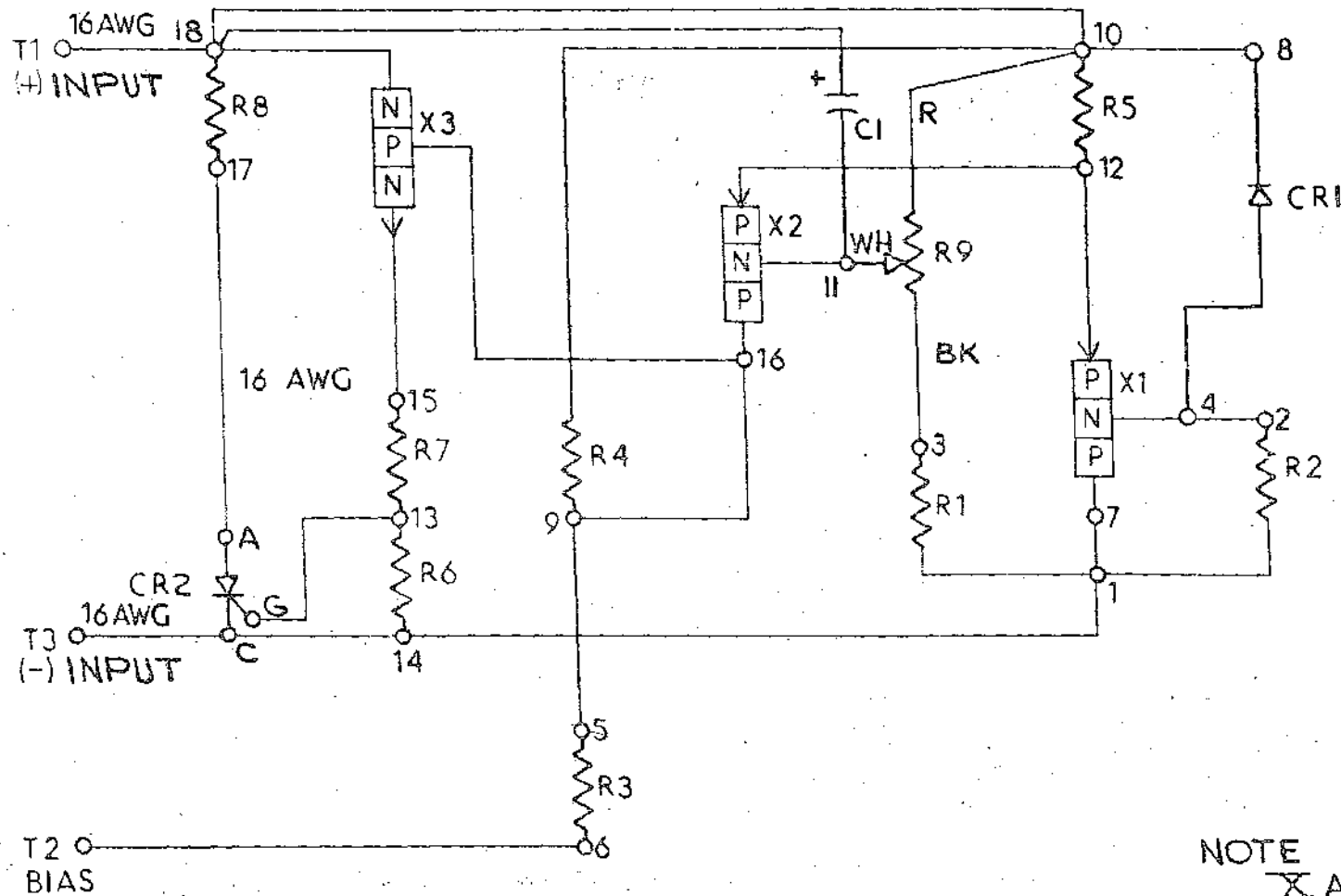
208948B

B

STANDARDS CODE		TECH SERVICES APPRO	
NONE		ELEC	
RELEASED FOR ASM	QTY	MET	
208960	1	PLASTIC	
		FINISH	

208961B

SYM	DATE	CHANGE NO	TECH APPRO	SYM	DATE	CHANGE NO	TECH APPRO	DEVELOPMENT NO	Q/M
	10-29-59	105582B		C1	9-13-60	105587-X		101-489	
A1	11-18-59	105584L							
B1	12-30-59	105584X							
	2-16-60	105585H						208961B	



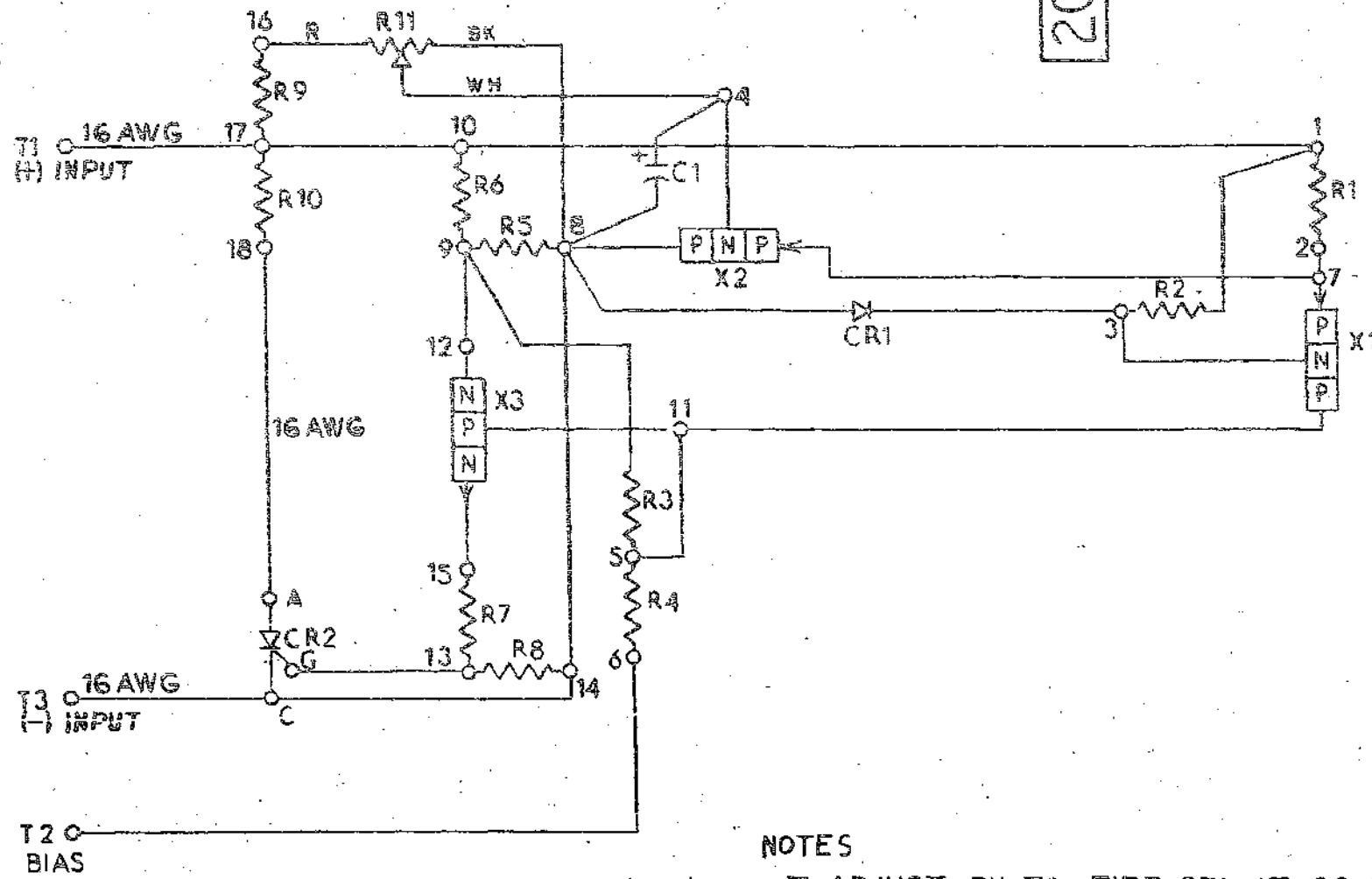
COMPONENT CHART		
CODE	PART NO	DESCRIPTION
R1	208951	RESISTOR, 400 Ω, 1W ±1%
R2	317014	.. 680 Ω 1/2 W
R3	323920	.. 3 K 1/2 W
R4	317025	.. 6.8 K 1/2 W
R5	213693	.. 1 K 1/2 W
R6	317007	.. 220 Ω 1/2 W
R7	355683	.. 51 Ω 1W
R8	207324	.. 0.1 Ω 5W
R9	208952	POTENTIOMETER, 750 Ω 1W
X1 X2	535441	TRANSISTOR, TYPE 026
X3	369087	.. 086
CR2	208955	CONTROLLED RECTIFIER, C35U
CR1	208950	DIODE, ZENER, IN 429
C1	124575	CAP. 0.22 MFD 35 VDC

NOTE
X ADJUST POTENTIOMETER TO FIRE C35U AT 12.96 ±.020 VOLTS INPUT PINS 1 & 3 WITH BIAS OF 12 ±2% VOLTS BETWEEN PINS 2(-) AND 3(+)
B XI ALL WIRE 22 GAUGE UNLESS OTHERWISE NOTED

IBM MATERIAL	NO	TOLERANCE UNLESS OTHERWISE NOTED	DECIMALS ±	MUST CONFORM TO ENG SPEC 890350		INTERNATIONAL BUSINESS MACHINES CORP				
CASE DEPTH			FRACTIONS ±	ALIGNMENT WITHIN	NOTE I	NAME	WIRING DIAGRAM OVERVOLTAGE			
HARDNESS			ANGLES ±	CONC TO DU WITHIN	TIR NOTE II	PROTECTION ±12 VDC POWER SUPPLY				
SURFACE TREATMENT			CORNERS AND / OR EDGES BROKEN	OUTSIDE	MAX	FLAT WITHIN	NOTE III	DESIGN	PECO 9 30 59	TYPE
		RADIUS UNLESS OTHERWISE NOTED	INSIDE	MAX	PARALLEL TO DU WITHIN	NOTE IV	DETAIL	FPB 10 16 59	SCALE	NONE
					STRAIGHT WITHIN	NOTE V	CHECK	JDM 10-20-59	DRAW	
					SQUARE TO DU WITHIN	NOTE VI	APPRO	10-29-59	CHECK	

STANDARDS CODE		TECH SERVICES APPRO		SYM	DATE	CHANGE NO	TECH APPRO	SYM	DATE	CHANGE NO	TECH APPRO	DEVELOPMENT NO	Q/M
NONE		ELEC			10-29-59	105582D			2-16-60	105585H		101-496	
RELEASED FOR ASN	QTY	MET		A1	11-18-59	105584L							
208967	1	PLASTIC			12-1-59	105584S							
		FINISH		B1	12-30-59	105584X						208968A	

208968A



COMPONENT CHART		
CODE	PART NO	DESCRIPTION
R1	213549	RESISTOR 4.7 K 1/2 W
R2	317054	" 2.7 K 1 W
R3	317025	" 6.8 K 1/2 W
R4	323920	" 3 K 1/2 W
R5	335138	" 200 Ω 2 W
R6	207328	" 400 Ω 5 W
R7	355683	" 51 Ω 1 W
R8	317007	" 220 Ω 1/2 W
R9	208969	" 2.6 K, 5W, ± 1%
R10	208970	" 0.5 Ω 5 W
R11	208952	POTENTIOMETER, 750 Ω 1 W
X1, X2	535441	TRANSISTOR, TYPE 026
X3	369087	" " 086
CR2	208975	RECTIFIER, CONTROLLED, C35F
CR1	208950	DIODE ZENER IN 429
C1	124575	CAP. 0.22 MFD 35 VDC

NOTES

- I** ADJUST R11 TO FIRE CR1 AT 32.40 ± 0.040 VOLTS BETWEEN PINS 1 & 3 WITH BIAS OF 12 ± 2% VOLTS BETWEEN PINS 2 (-) & 3 (+)
- B** XI ALL WIRE 22 GAUGE UNLESS OTHERWISE NOTED

IBN MATERIAL	NO	TOLERANCE UNLESS OTHERWISE NOTED	DECIMALS ±	MUST CONFORM TO ENG SPEC 890350	INTERNATIONAL BUSINESS MACHINES CORP					
CASE DEPTH		CORNERS AND / OR EDGES BROKEN	FRACTIONS ±	ALIGNMENT WITHIN	NOTE I	NAME WIRING DIAGRAM - OVERVOLTAGE				
HARDNESS			ANGLES ±	CONC TO DU WITHIN	TIR	NOTE II	PROTECTION ±30 VDC POWER SUPPLY			
SURFACE TREATMENT		RADI UNLESS OTHERWISE NOTED	OUTSIDE MAX	FLAT WITHIN	NOTE III	DESIGN	PECO	9-30-59	TYPE	MISC
			INSIDE MAX	PARALLEL TO DU WITHIN	NOTE IV	DETAIL	F.P.B	10-16-59	SCALE	NONE
				STRAIGHT WITHIN	NOTE V	CHECK	223	10-27-59	DRAW	
				SQUARE TO DU WITHIN	NOTE VI	APPRO	50	10-27-59	CHECK	

208968A

B

Geneva K

IBM

FE Supplement

System/Unit 1401 25000 Series

Re: Form No. 229-2038-1

This Supplement No. S29-0003-0

Date: 9/1/65

Previous Supplement Nos. S29-0002-0

Attached are revised Prerequisite Charts for the 1401 25,000 Series Bill of Material Index, form 229-2038-1, which is found in the front of ALD Book #1.

These charts are to be distributed to all 25,000 series 1401's to replace the current Prerequisite Charts on file.

Included with this package is F. E. Supplement form S29-0002-0 which updates pages in the Cross Reference, IFC, IFCX, CF, TAU and MECH sections of form 229-2038-1.

IBM Corporation, F.E. Technical Operations, Endicott, New York 13760

PRINTED IN U.S.A.

LOGIC #
99,99,99,0

MACH
1401

STAGE II

PART #
729163

EC #
109911J

POWER SUPPLY WIRING SCHEMATIC

PLUS/MINUS 6V AT 6 AMPS	207205	-----
PLUS/MINUS 6V AT 12 AMPS	207208	-----
PLUS/MINUS 6V AT 16 AMPS	207211	-----
PLUS/MINUS 12V AT 12 AMPS	207232	-----
PLUS/MINUS 20V AT 6 AMPS	207238	-----
PLUS/MINUS 36V AT 2 AMPS	207277	-----
PLUS/MINUS 30V AT 7 AMPS	210009	-----
PLUS/MINUS 3V RC AT 5 AMPS	210864	-----
PLUS/MINUS 12V AT 20 AMPS	208299	-----
PLUS/MINUS 60V AT 10 AMPS	220903	-----
PLUS/MINUS 60V AT 20 AMPS	480766	-----

SMS O/V PROTECTION SCHEMATIC

6V SUPPLIES	208968	-----
12V SUPPLIES	208961	-----
20V SUPPLIES	208973	-----
30V SUPPLIES	208968	-----
36V SUPPLIES	208979	-----

1401-25478

General

PART NO. NAME MACH E C NO. LOGIC NO. SHEET 1 OF

0723162 SNS CARD AND CAP CODE INDEX 1601 116740 99.99.99.9

CARD CAP	NAME	EXTENDER PIN		CUST ENG REF DWG	PRODUCTION CARD ASM	FIELD REPLACEMENT
		CIRCUIT 1	2			
	CTDL FAMILY DELAY INFO 3 SHEETS			729955		
	SOTDL FAMILY DELAY INFO 4 SHEETS			729954		
AA C-	ALLOY UNIVERSAL DELAY CIRCUIT		6	729880	371884	371884
AD B-	CARD ASM TEST ALY STOR ADDRESS REG			729801	373000	373000
AE A-	CTDL LOAD CARD			729802	371929	371929
AE C-	ALLOY HAMMER DRIVER LATCH			729803	371940	371940
AE D-	CTDL HIGH SPEED TRIGGER			729804	371946	371946
AE E-	POWER SUPPLY SEQUENCING			729953	370429	371945
AE M-	ALLOY HAMMER DP LATCH - HIGH SPEED			729805	371415	371415
AJ H-	POWER SUPPLY SEQUENCING			729953	370429	370429
AJ T-	ALLOY DIODES TYPE AAS			729992	370564	370564
AR B-	ALLOY MEMORY THERMAL SWITCHES			729806	370425	370425
AK C-	MEMORY EMITTER RESISTORS			729807	370426	370426
AM ---	ALLOY ONE WAY N BLOCK			729808	370904	371203
AO M-	ALLOY SWITCH DECODER NO 2			729809	370833	370833
AQ V-	ALLOY 2 DRIVER 12V			729810	370834	370834
AQ W-	ALLOY CURRENT SOURCE			729811	370835	370835
AQ X-	SENSE FINAL AMPLIFIER			729812	370836	370836
AS U-	SENSE AMPL RECTIFIER + CLIPPER			729956	372285	372285
CA C-	CTDL + AND GATE			729813	371922	371922
CE A-	DELAY LINE LUMPED 1 USEC			729814	371944	371944
CE D-	STANDARD CABLE TERMINATOR			729815	370145	370145
CE E-	CTDL PNP THREE WAY + GATE			729816	370160	370160
CE H-	CTDL INVERTER LATCH NPN			729817	370139	370139
CE K	CTDL PNP INVERTER LATCH			729818	370143	370143
CE M-	CTDL-CARD TEST T LINE LATCH			729819	370357	370357
CG ---	CTDL TWO WAY AND PNP NO LOADS			729820	370975	371263
CG VM	CTDL TWO WAY AND PNP TWO LOADS			729822	370975	371261
CG VV	CTDL TWO WAY AND PNP ONE LOAD			729821	370975	371262
CG WH	CTDL TWO WAY AND PNP ALL LOADS			729823	370975	371251
CH ---	CTDL TWO WAY AND NPN NO LOADS			729824	370976	371266
CH VV	CTDL TWO WAY AND NPN ONE LOAD			729825	370976	371265
CH VM	CTDL TWO WAY AND NPN TWO LOADS			729826	370976	371266
CH WH	CTDL TWO WAY AND NPN ALL LOADS			729827	370976	371252
CJ VU	CTDL 3 WAY AND PNP ONE LOAD		G	729828	370977	371267
CJ WF	CTDL 3 WAY AND PNP NO LOADS		G P	729829	370977	371268
CJ WV	CTDL 3 WAY AND PNP ALL LOADS		G	729830	370977	371253
CJ YC	CTDL 3 WAY AND PNP ALL LOADS		G P	729831	370977	371071
CK VU	CTDL 3 WAY AND NPN ONE LOAD		G	729832	370978	371071
CK WF	CTDL 3 WAY AND NPN NO LOADS		G P	729833	370978	371270
CK WV	CTDL 3 WAY AND NPN ALL LOADS		G	729834	370978	371254
CK YC	CTDL 3 WAY AND NPN ALL LOADS		G P	729835	370978	371072
CL VQ	CTDL EXTENDER CARD			729836	370979	371255
CL VR	CTDL EXTENDER CARD			729837	370979	371075
CL VS	CTDL N OR EXTENDER CARD			729838	370979	371074
CL VT	CTDL +P OR EXTENDER CARD			729839	370979	371073
CM ---	CTDL COUPLING NETWORK			729840	371256	371256
CN WF	CTDL EMITTER FOLLOWER NPN			729841	371260	371260
CN WU	CTDL TRANSLATE BLOCK NPN			729842	371258	371258
CP WF	CTDL EMITTER FOLLOWER PNP			729843	371259	371259
CP WU	CTDL TRANSLATE BLOCK PNP			729844	371257	371257

DATE	E C NO.	DATE	E C NO.	DATE	E C NO.	DATE	E C NO.
1A 01-30-61	109511J	1B 03-25-61	110429	1C 06-12-61	110429A	1D 10-03-61	110429B
1E 11-18-61	112270F	1F 12-06-61	112912	1G 06-14-62	115599	1H 11-07-62	116740

CARD CAP	NAME	EXTENDER PIN		CUST ENG REF DWG	PRODUCTION CARD ASM	FIELD REPLACEMENT
		1	2			
CQ --	CTOL ONE WAY PNP NO LOADS	N	B	729845	370981	371273
CQ ZT	CTOL ONE WAY PNP 2 LOADS	N	B	729847	371272	371272
CQ ZV	CTDL ONE WAY PNP ALL LOADS	N	B	729848	370981	371271
CR --	CTOL ONE WAY NPN NO LOADS	N	B	729849	370980	371276
CR YG	CTOL ONE WAY NPN ONE LOAD	N	B	729850	370980	371277
CR ZT	CTOL ONE WAY NPN 2 LOADS	N	B	729851	370980	371275
CO YG	CTDL ONE WAY PNP ONE LOAD	N	B	729846	370981	371278
CR ZV	CTDL ONE WAY NPN ALL LOADS	N	B	729852	370980	371274
CU --	CTDL TRIGGER			729853	371534	371534
CV --	CTDL POWER INVERTER			729854	371542	371542
DA B-	OTDL AND GATE			729855	371924	371924
DA Z-	DIFF BASE OSCILLATOR 240KC 5 L GATED			729903	370127	370127
DB Z-	CONV DIFF BASE 5 P LINE TO SDTRL			729904	370385	370385
DC K-	CONV DIFF BASE N L TO SDTRL OR SDTDL			729905	370468	370468
DE F-	SDTDL FOUR 2 WAY N AND LOG BCKS W LD			729906	370216	370216
DE G-	SDTDL 4 2 WAY N + LOGIC BLKS W/O LDS			729907	370217	370217
DE J-	SDTDL 3 WAY IN + LOGIC BLK W/O LOADS			729908	370219	370219
DF J-	TDL + YRL LOAD CARD			729909	370232	370232
DF Q-	SDTDL INVERTING POWER DRIVER			729910	370225	370225
DF R-	SDTDL NON INVERTING POWER DRIVER			729911	370226	370226
DG P-	CARD ASM TSTR CLK + WITH ENIT FOL DR			729856	370343	370343
DG Q	CARD ASM TSTR CLK + WITH ENIT DR			729857	370342	370342
DG S-	SDTDL INDICATOR DRIVER			729912	370347	370347
DG T-	SDTDL 2 WAY LOGIC BCK LOW SP W LDS			729913	370380	370380
DG U-	SDTDL 2 WAY LOGIC BLK LOW SP W/O LDS			729914	370379	370379
DG V-	SDTDL 2 WAY LOGIC BCK LOW SP W LDS			729915	370378	370378
DG W-	SDTDL 3 WAY LOGIC BCK LOW SP W/O LD			729916	370377	370377
DG X-	SDTDL 5 WAY LOGIC BCK LOW SP W LDS			729917	370376	370376
DG Y-	SDTDL 5 WAY LOGIC BCK LOW SP W/O LD			729918	370375	370375
DG Z-	SDTDL 10 WAY LOG BLK LOW SP W LOAD			729919	370373	370373
DH A-	SDTDL 10 WAY LOG BLK LOW SP W/O LOADS			729920	370374	370374
DH B-	SDTRL INVERTER LOW SPEED WITH LOAD			729921	370348	370348
DH C-	SDTDL INVERTER LOW SPEED W/O LOAD			729922	370372	370372
DH D-	SDTDL + SDTRL 3K RESISTOR CARD			729923	370371	370371
DH E-	SDTKL SINGLE SHOT			729924	370262	370262
DH F-	SDTDL TRIGGER AND DRIVER			729925	370350	370350
DH G-	SDTDL RAND W RFG BIT POS			729926	370351	370351
DH H-	SDTDL DBL LEVEL LB #2A LOW SP NO LDS			729927	370358	370358
DH J-	SDTDL MUP NUMBER 4			729928	370352	370352
DH K-	SDTDL LATCH WITH GATE OUT			729929	370349	370349
DK A-	ALLOY CURRENT SOURCE			729858	370443	370443
DZ A-	SENSE AMPL-RECTIFIER + CLIPPER			729957	372359	372359
EY --	DRIFT DRIVER RESISTOR			729930	371199	371199
FP --	ALLOY LOAD RESISTOR			729859	371453	371453
FT --	ALLOY OSC 360KC FREE RUN CRYSTAL			729860	371405	371405
FW --	ALLOY SWITCHES			729861	371490	371490
GJ --	GENERAL PURPOSE FILTER CARD			729862	371501	371501
GK --	CABLE DE COUPLE CARD			729931	371533	371533
HM --	ALLOY DRIVERS READ WRITE VM			729863	371463	371463
JB --	CTRL OSC 10KC FREE RUNNING CRYSTAL			729932	371245	371245
JF --	CTDL HI SPEED 1 WAY PNP NO LOADS			729864	370982	371579

CARD CAP	NAME	EXTENDER PIN		CUST ENG REF DWG	PRODUCTION CARD ASH	FIELD REPLACEMENT
		CIRCUIT 1	2			
JF VA	HIGH SPEED ONE WAY PNP ONE LOAD			729865	370982	371576
JF VH	CTDL HIGH SPEED ONE WAY PNP TWO LOAD			729866	370982	371577
JF VP	CTDL HIGH SPEED ONE WAY PNP ALL LOAD			729867	370982	371576
JG --	CTDL HI SPEED 2 WAY AND PNP NO LOADS			729868	370983	371583
JG VV	CTDL HI SPEED 2 WAY AND PNP ONE LOAD			729869	370983	371582
JG WV	CTDL HI SPEED 2 WAY AND PNP 2 LOADS			729870	370983	371581
JG VH	CTDL HI SPEED 2 WAY AND PNP ALL LOAD			729871	370983	371580
JH --	CTDL HIGH SPEED 3 WAY AND NO LOADS	G		729872	370984	371586
JH VU	CTDL HI SPEED 3 WAY AND PNP ONE LOAD	G		729873	370984	371585
JH VV	CTDL HI SPEED 3 WAY AND PNP ALL LOAD	G		729874	370984	371584
JJ --	CTDL HIGH SPEED ONE WAY NPN NO LOADS			729875	370985	371590
JJ VA	CTDL HIGH SPEED ONE WAY NPN ONE LOAD			729876	370985	371589
JJ VB	CTDL HI SPEED 1 WAY TWO LOADS			729877	370985	371588
JJ VP	CTDL HIGH SPEED ONE WAY NPN ALL LOAD			729878	370985	371587
JL VA	CTDL LOGIC INVERTER PNP ALL LOADS			729879	371077	371077
JL VB	CTDL LOGIC INVERTER NPN ALL LOADS			729880	371079	371079
JM --	CTDL TRIGGER GATE EXTENDER			729881	371081	371081
JN --	CTDL TRIGGER NO 2			729882	371082	371082
KA --	INDICATOR DRIVER 40 MA			729883	371546	371546
KB --	CTDL SINGLE SHOT T INPUT	B		729884	371591	371591
KC --	CTDL SINGLE SHOT U INPUT	N		729885	371592	371592
KE TF	CTDL INTEGRATOR -U AND -T			729886	371635	371635
KE RX	CTDL INTEGRATOR -U AND -T			729887	371996	371996
KT --	ALLOY DIFFERENCE AMPLIFIER			729888	371671	371671
KU --	CTDL POWER INVERTER TYPE			729889	371676	371676
KV --	270 MEG RESISTOR CARD			729890	371598	371598
KW --	CTDL EMITTER FOLLOWER PNP			729891	371365	371365
KX --	CTDL EMITTER FOLLOWER NPN			729892	371370	371370
KY --	ALLOY CLUTCH MAGNETIC DRIVER			729893	371633	371633
KZ --	ALLOY RELAY DRIVER			729894	371078	371078
LA --	ALLOY OSC 347.5KC FREE RUN CRYSTAL			729895	371788	371788
TA B-	SDTRL 93 COAX LINE DR DISPERSED LOS			729933	370066	370066
TB C-	SDTRL OSCILLATOR 320 KC S LINE GATED			729934	370296	370296
TC D-	SDTRL OSCILLATOR 115 KC S LINE GATED			729935	370295	370295
TD E-	SDTRL OSCILLATOR 360 KC S LINE GATED			729936	370297	370297
TE F-	SDTRL OSCILLATOR 667 KC S LINE GATED			729937	370298	370298
TF G-	SDTRL OSCILLATOR 1 MC S LINE GATED			729938	370299	370299
TH H-	SDTRL END OF LINE TERMINATORS			729939	370334	370334
TI I-	SDTRL DIST LINE TERM W OPT LD RESIST			729940	370399	370399
TJ J-	SDTRL SDTRL 6.67 KC OSCILLATOR			729941	370401	370401
TK K-	SDTRL SDTRL 115 KC OSCILLATOR			729942	370400	370400
TL L-	SDTRL SDTRL 240 KC OSCILLATOR			729943	370399	370399
TM M-	SDTRL SDTRL 320 KC OSCILLATOR			729944	370398	370398
TN N-	SDTRL SDTRL 360 KC OSCILLATOR			729945	370397	370397
TO O-	SDTRL SDTRL 667 KC OSCILLATOR			729946	370396	370396
TP P-	SDTRL SDTRL 1 MC OSCILLATOR			729947	370551	370551
TA --	ALLOY SENSE AMPLIFIER NO 2			729896	371898	371698
TA --	ALLOY AMPLIFIER PRE SENSE NO 1			729897	371899	371899
TA Y-	SENSE AMPL INPUT FILTER AND SEL GATE			729948	370417	370417
TA Z-	SENSE AMPL RECTIFIER + CLIPPER			729949	370418	370418

PART NO. NAME MACH E C NO. LOGIC NO.
 0723162 SMS CARD AND CAP CODE INDEX 1401 116740 99.99.99.9

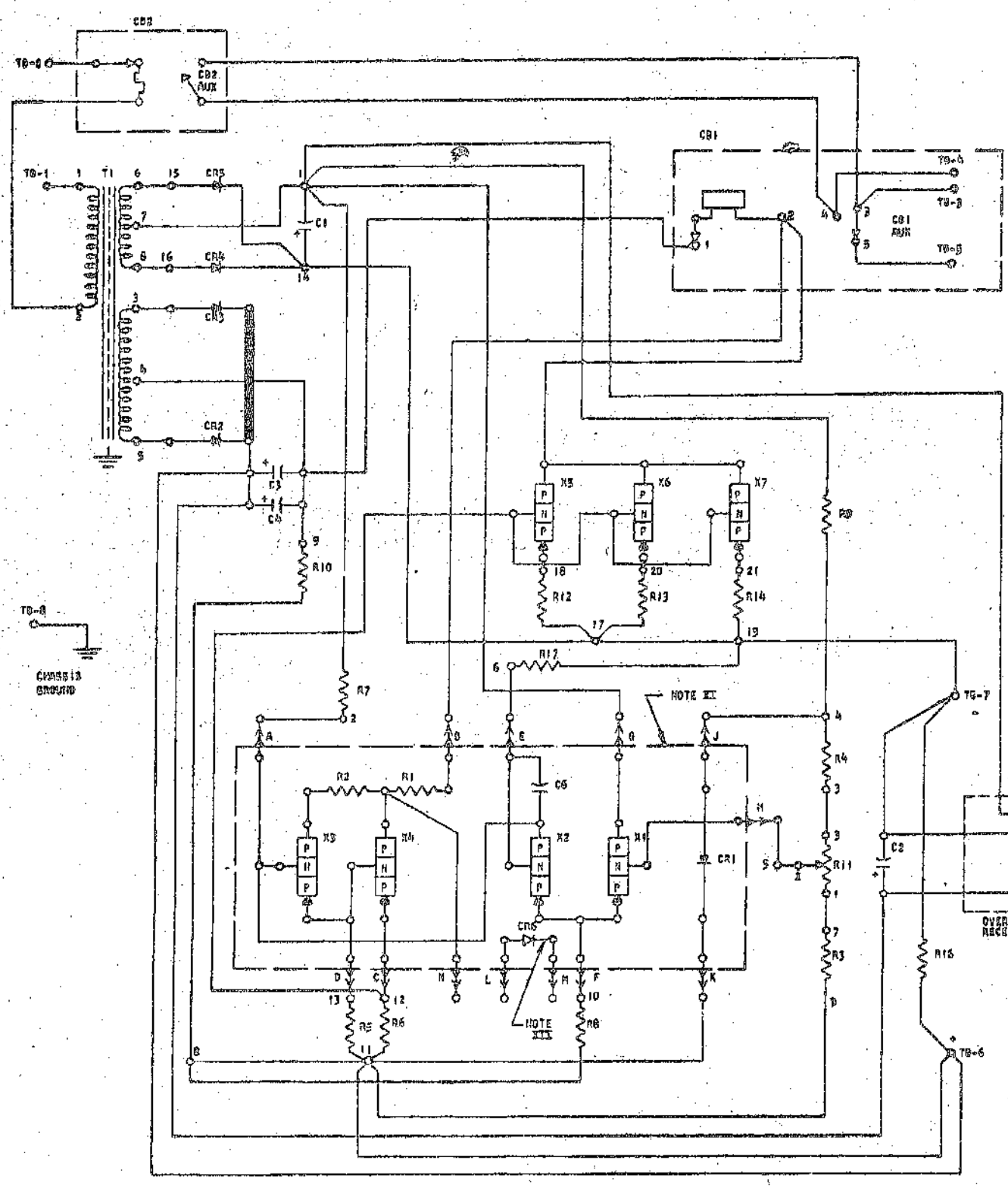
SHEET 4 OF 4

CARD CAP	NAME	EXTENDER PIN		CUST ENG REF DRC	PRODUCTION CARD ASM	FIELD REPLACEMENT
		CIRCUIT 1	2			
YC B-	SENSE AMPL SEL G READ G + BO P CTRL			729950	370420	370420
YC C-	PEAK DETECTOR INTEGRATOR + V M DRIVER			729951	370421	370421
YD M-	SENSE AMPLIFIER CLIPPING LEVEL CTR			729952	370501	370501
YG A-	POWER SUPPLY 6V OVERVOLTAGE			370575	370575	370575
YG B-	POWER SUPPLY 12V OVERVOLTAGE			370576	370576	370576
YG D-	POWER SUPPLY 30V OVERVOLTAGE			370578	370578	370578
YG E-	POWER SUPPLY 20V OVERVOLTAGE			370579	370579	370579
YG F-	POWER SUPPLY 20V AMPLIFIER			370607	370607	370607
YG G-	POWER SUPPLY 30V AMPLIFIER			370608	370608	370608
YG K-	POWER SUPPLY 20V 15A AMPLIFIER			370611	370611	370611
YG L-	POWER SUPPLY 6V AMPLIFIER			370612	370612	370612
YG M-	POWER SUPPLY 12V AMPLIFIER REF-6V			370613	370613	370613
YG Q-	POWER SUPPLY 5V AMPLIFIER			370616	370616	370616
2J NX	CTDL NPN TWO WAY GATE W/ COLL LOAD			729898	370144	370144
3J MX	PNO TWO-WAY WITHOUT COLLECTORS LD			729899	370141	370141
4J MX	CTDL PNP TWO WAY GATE WITH COLL LOAD			729900	370142	370142
6J XD	CTDL STANDARD CABLE DRIVER			729901	370089	370089
AM	ALLOY-FIELD REPLACEMENT, AM CARD			370904		370904
CG	CTDL 2 WAY AND PNP FIELD REPLACEMENT			370975		370975
CH	CTDL 2 WAY AND NPN FIELD REPLACEMENT			370976		370976
CJ	CTDL 3 WAY AND PNP FIELD REPLACEMENT			370977		370977
CK	CTDL 3 WAY AND NPN FIELD REPLACEMENT			370978		370978
CL	CTDL EXTENDER CARD FIELD REPLACEMENT			370979		370979
C9	CTDL 1 WAY PNP FIELD REPLACEMENT			370981		370981
CR	CTDL 1 WAY NPN FIELD REPLACEMENT			370980		370980
JF	CTDL HI SPEED 1 WAY PNP FLD REPLACE			370982		370982
JG	CTDL HI SPEED 2 WAY AND PNP FLD REP			370983		370983
JH	CTDL HI SPEED 3 WAY AND PNP FLD REP			370984	370984	370984
JJ	CTDL HI SPEED 3 WAY NPN FLD REPLACE			370985	370985	370985

DATE E C NO. DATE E C NO. DATE E C NO. DATE E C NO.
 1A 01-30-61 109511J 1B 03-25-61 110429 1C 06-12-61 110429A 1D 10-03-61 110429B
 1E 11-14-61 112270F 1F 12-06-61 112912 1G 06-14-62 115599

10/63 Ec 116740

DATE	REVISED TO
6-18-59	105580A
9-25-59	105583A
11-14-59	105584D
12-31-59	1055847
2-2-60	105585C
3-13-60	105585F
10-25-62	1055871
3-6-64	111315
5-27-61	111323

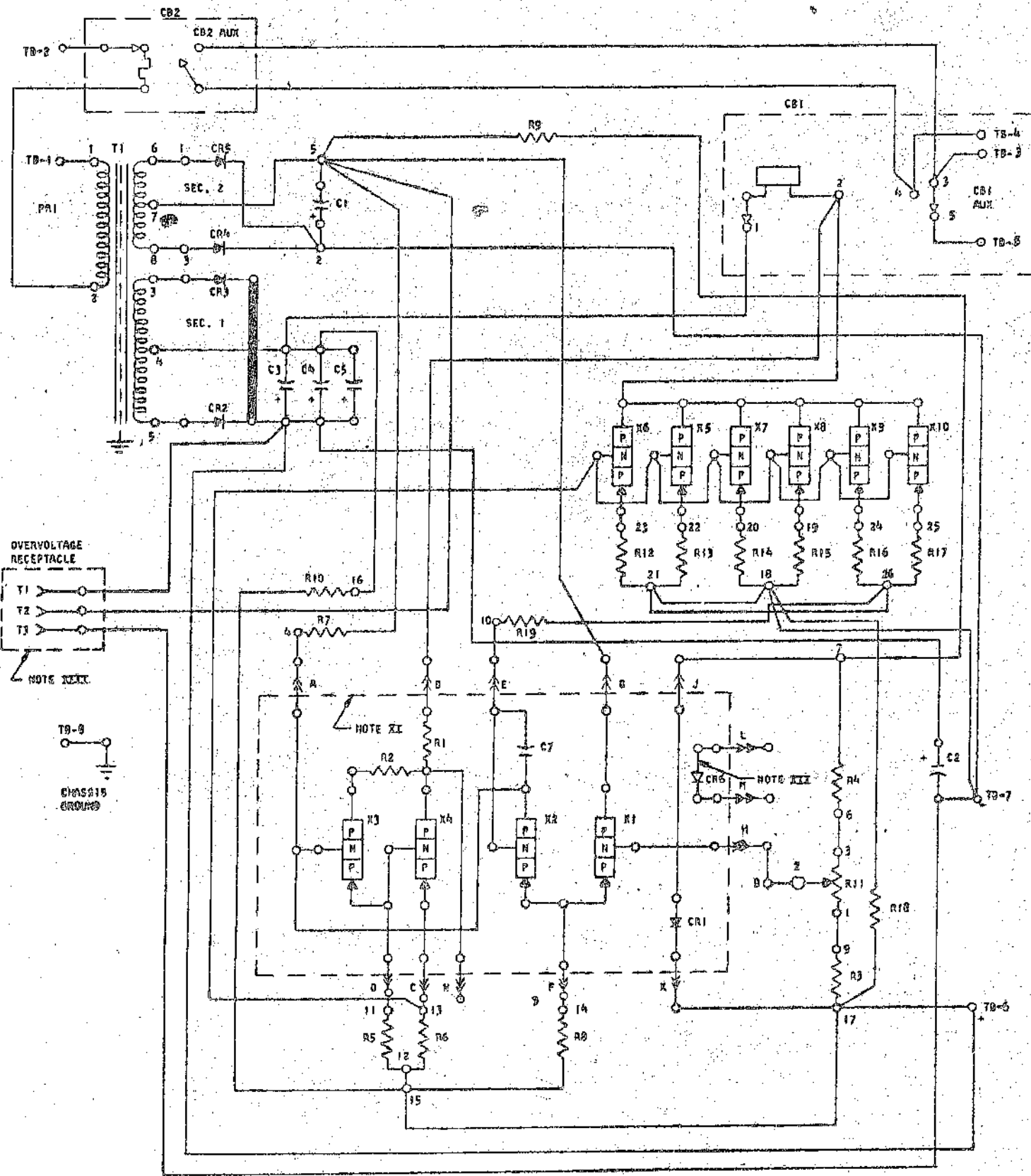


CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	207301	TRANSFORMER	R3	208256	RESISTOR 1900Ω 5W
C1	207353	CAPACITOR 610 MFD 25V DC	R4	207374	RESISTOR 1200Ω 5W
C2	207296	CAPACITOR 7750 MFD 10V DC	R5	317011	RESISTOR 470Ω 1/2W
C3, C4	208224	CAPACITOR 14,000 MFD 13V DC	R6	335329	RESISTOR 47Ω 2W
CR1	208002*	DIODE	R7	317099	RESISTOR 9.1K 2W
CR2, CR3	338479	DIODE	R8	2102532	RESISTOR 2K 5W
CR4, CR5	207316	DIODE	R9	207286	RESISTOR 770Ω 2W
CB1	308204	CIRCUIT BREAKER	R10	322888	RESISTOR 100Ω 2W
X1, X2	53544*	TRANSISTOR TYPE 026	R11	207340	RESISTOR 350Ω 1/2W POTENTIOMETER
X3	518409*	TRANSISTOR TYPE 028	R12-R14	207324	RESISTOR 0.1Ω 5W
X4	207353*	TRANSISTOR TYPE 030	R16	317009	RESISTOR 380Ω 1/2W
X5-X7	205201	TRANSISTOR TYPE	CR6	491300*	DIODE TYPE 8U
R1	207322*	RESISTOR 1.0Ω 2W	C6	492411*	CAPACITOR .01 MFD 180V DC
R2	207331*	RESISTOR 2.0Ω 2W	CR7	226913	CIRCUIT BREAKER
			R17	317919	RESISTOR 2K 1/2W

NOTES
 * - INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 XX COMPONENT CARD ASSEMBLY NO. 371636
 XXX NOT USED ON 6 VOLT SUPPLIES
 XXXI WHEN THE 6 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208947 IS USED, REFER TO O/V WIRING DIAGRAM NUMBER 208548

INTERNATIONAL BUSINESS MACHINES CORP			
NAME	WIRING DIAGRAM - POWER SUPPLY - PLUS-RINGS ON DE AT 0 VOLT		
DESIGN	ACME 5-12-59	MODEL	4188
DETAIL	ACME 5-12-59	SCALE	None
CHECK	PLG 7-1-59	DRAW	MDE 5-26-59
APPRO	PLG 7-2-59	CHECK	PLG 7-1-59

6-22-59	105580B
10-1-59	105583B
11-11-59	105584R
12-31-59	105584V
2-2-60	105585C
3-23-60	105585W
10-26-60	105587L
3-5-61	111315
3-27-61	111432

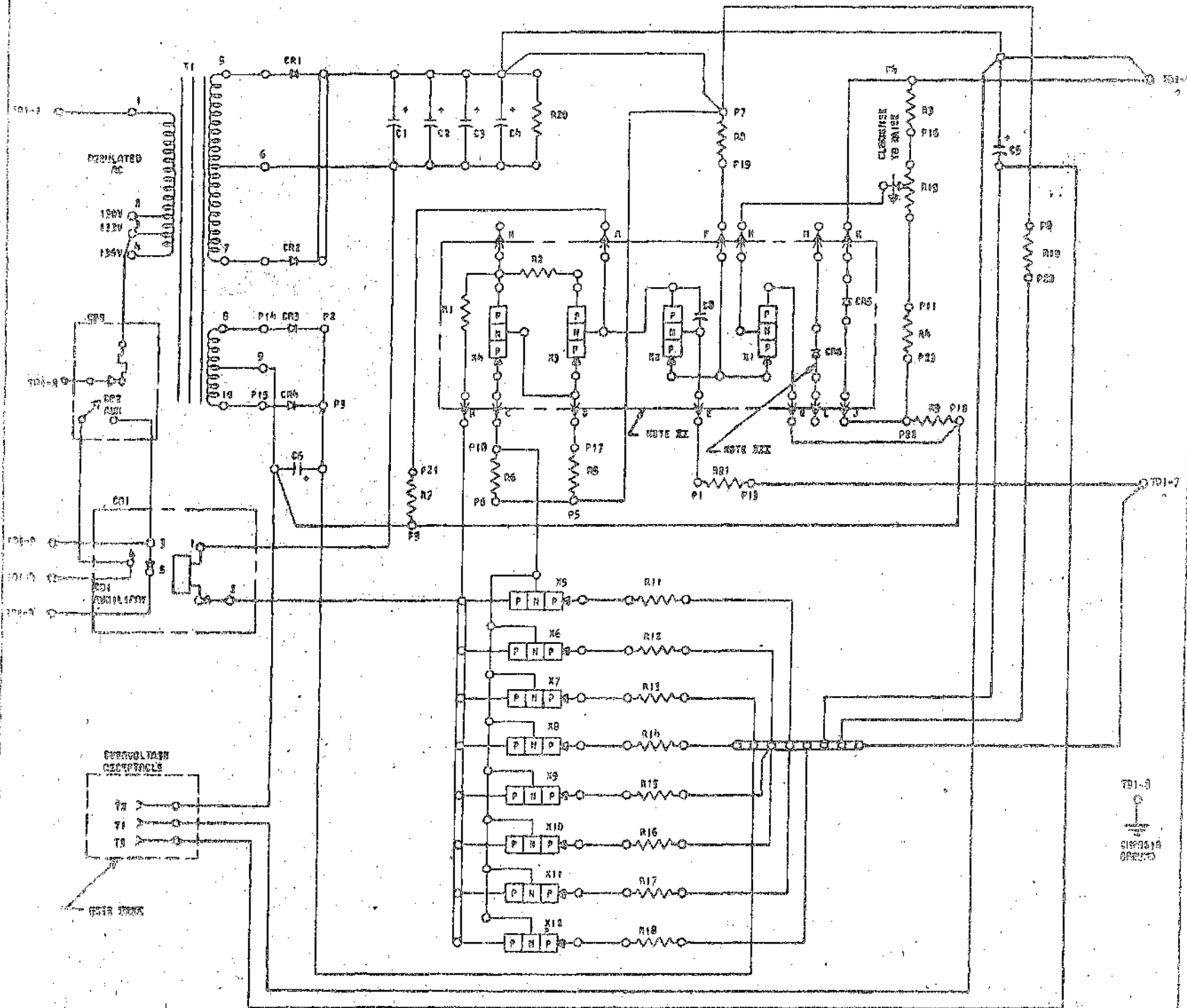


CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	207302	TRANSFORMER	R3	208256	RESISTOR 1.9K 5W
C1	207362	CAPACITOR 610 MFD 25V DC	R4	207374	RESISTOR 1.2K 5W
C2	207296	CAPACITOR 7750 MFD 10V DC	R5	317011	RESISTOR 470Ω 1/2W
C3-C5	208224	CAPACITOR 14,000 MFD 13V DC	R6	335329	RESISTOR 47Ω 2W
C7	492411*	CAPACITOR .01 MFD 100V DC	R7	317099	RESISTOR 9.1K 2W
CR1	209002 *	DIODE	R9	2102532	RESISTOR 2K 5W
CR2, CR3	508479	DIODE	R9	207290	RESISTOR 770 Ω 5W
CR4, CR5	207316	DIODE	R10	208190	RESISTOR 70Ω 5W
CB1	208198	CIRCUIT BREAKER	R11	207340	POTENTIOMETER 250Ω 1/2W
X1, X2	535441 *	TRANSISTOR TYPE 026	R12-R17	207324	RESISTOR 0.1Ω 5W
X3	518689 *	TRANSISTOR TYPE 028	R18	317009	RESISTOR 390Ω 1/2W
X4	207363 *	TRANSISTOR TYPE 036	CR6	491300*	DIODE TYPE AV
X5-X10	209001	TRANSISTOR TYPE	CB2	209915	CIRCUIT BREAKER
R1	207320 *	RESISTOR 15Ω 5W	R19	317019	RESISTOR 2K 1/2W
R2	207321 *	RESISTOR 2Ω 1W			

NOTES
 * - INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 XI COMPONENT CARD ASSEMBLY 371656
 XII NOT USED ON 6V SUPPLIES
 XIII WHEN THE 6 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208947 IS USED, REFER TO O/V WIRING DIAGRAM NUMBER 208946

INTERNATIONAL BUSINESS MACHINES CORP				
NAME	WIRING DIAGRAM - POWER SUPPLY -			
PLUS-MINUS 6V DC AT 12 AMP				
DESIGN	ACME 5-11-59	MODEL	MISC	
DETAILED	ACME 5-11-59	SCALE	NONE	
DRAWN	W/O	DATE	10-24-59	
REVISED	W/O	DATE	1-2-59	

DATE	CHANGE NO.
8-21-59	005000V
10-13-59	100000M
1-20-60	100000B
5-6-60	100000N
12-26-60	100000L

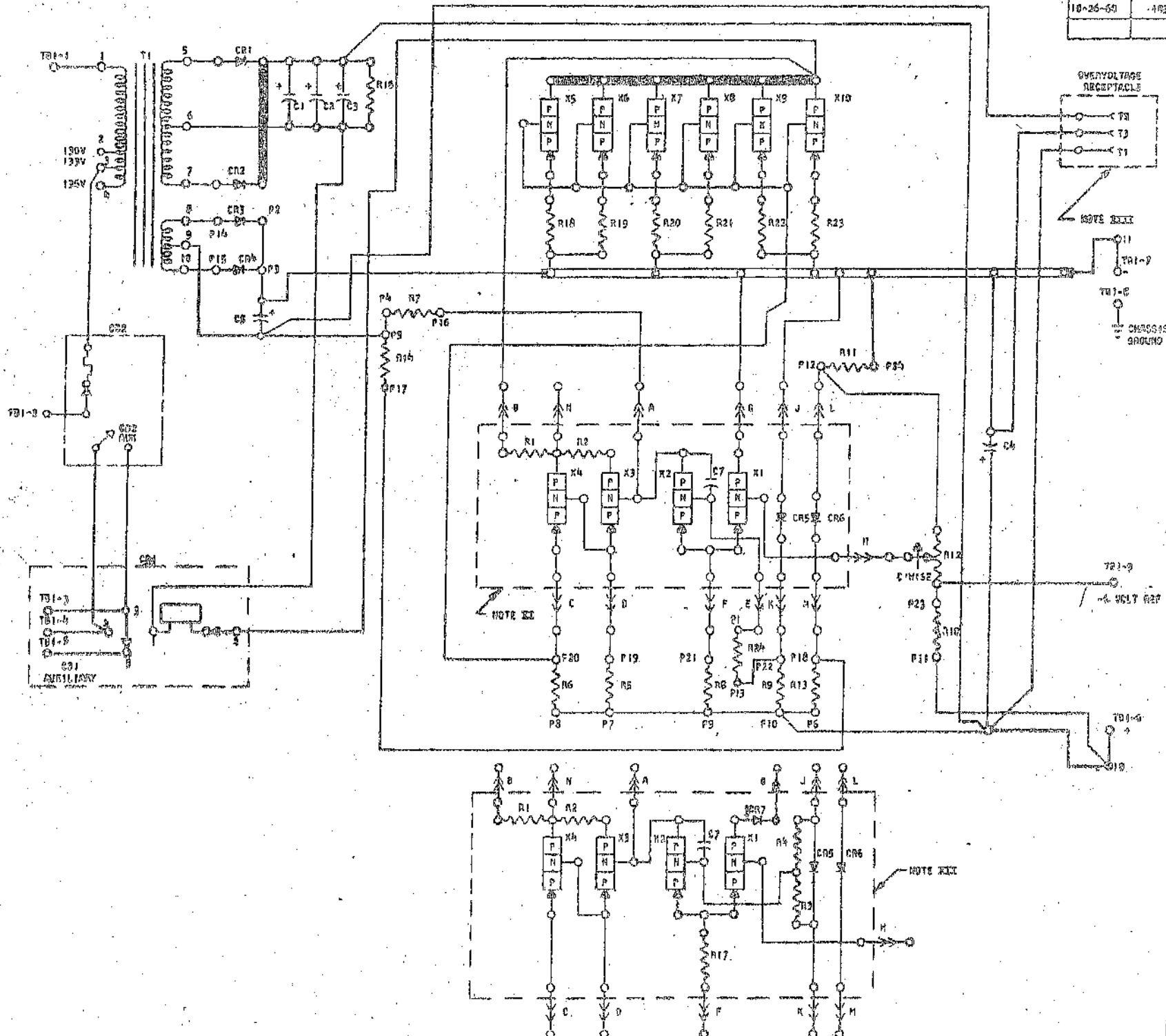


COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	200184	TRANSFORMER	R0, R21	317019	RESISTOR 2K 1/2W
CR1, CR2	127326	DIODE	R10	399130	RESISTOR 200 OHM 2W
CR3, CR4	207316	DIODE	R11-R18	200000	RESISTOR 0.1 OHM 5W
CR5	209002	DIODE	R19	207358	POTENTIOMETER 150 OHM 2W
CR6	201300	DIODE TYPE 6U	R20	207018	RESISTOR 50 OHM 2W
C1-C4	208224	CAPACITOR 15,000 MFD 15V DC	CB2	240046	CIRCUIT BREAKER
C5	208230	CAPACITOR 7,000 MFD 15V DC	CB	317016	RESISTOR 0.05 OHM 1/2W
C6	208220	CAPACITOR 5,500 MFD 15V DC	CS4	005011	CAPACITOR 0.01 MFD 150V DC
CB1	207350	CIRCUIT BREAKER			
R0-R21	635411	TRANSISTOR TYPE 026			
X5	510500	TRANSISTOR TYPE 020			
X6	207353	TRANSISTOR TYPE 036			
X7	202001	TRANSISTOR TYPE			
X8	207340	RESISTOR 1 OHM 5W			
X9	207321	RESISTOR 3 OHM 1W			
X10	202207	RESISTOR 1.2K 5W			
X11	207371	RESISTOR 500 OHM 3W			
X12	317017	RESISTOR 500 OHM 1/2W			
X13	208000	RESISTOR 100 OHM 5W			
X14	208071	RESISTOR 10K 1/2W			

NOTES
 R - INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 CB - COMPONENT CARD ASSEMBLY NO. 371556
 CS - NOT USED ON 5 VOLT SUPPLY
 CS2 - WHEN THE 5 VOLT OVERVOLTAGE ASSEMBLY W/ASER 500001 IS USED, REFER TO 5V WIRING DIAGRAM NUMBER 200000

INTERNATIONAL BUSINESS MACHINES CORP.				
NAME: WIRING DIAGRAM - POWER SUPPLY -				
40V DC AT 15A				
DESIGN	PCO	5-15-59	TYPE	WIRING
DETAIL	NAV	6-27-59	SCALE	AS SHOWN
CHECK	SPS	8-10-59	DRAWN	NAV 8-27-59
APPROV	NAV	10/1/59	DESIGN	NAV 9-11-59

6-23-59	105580M
10-15-59	105580P
12-10-59	105580M
1-20-60	105580D
6-5-60	105580Y
10-26-60	105580L



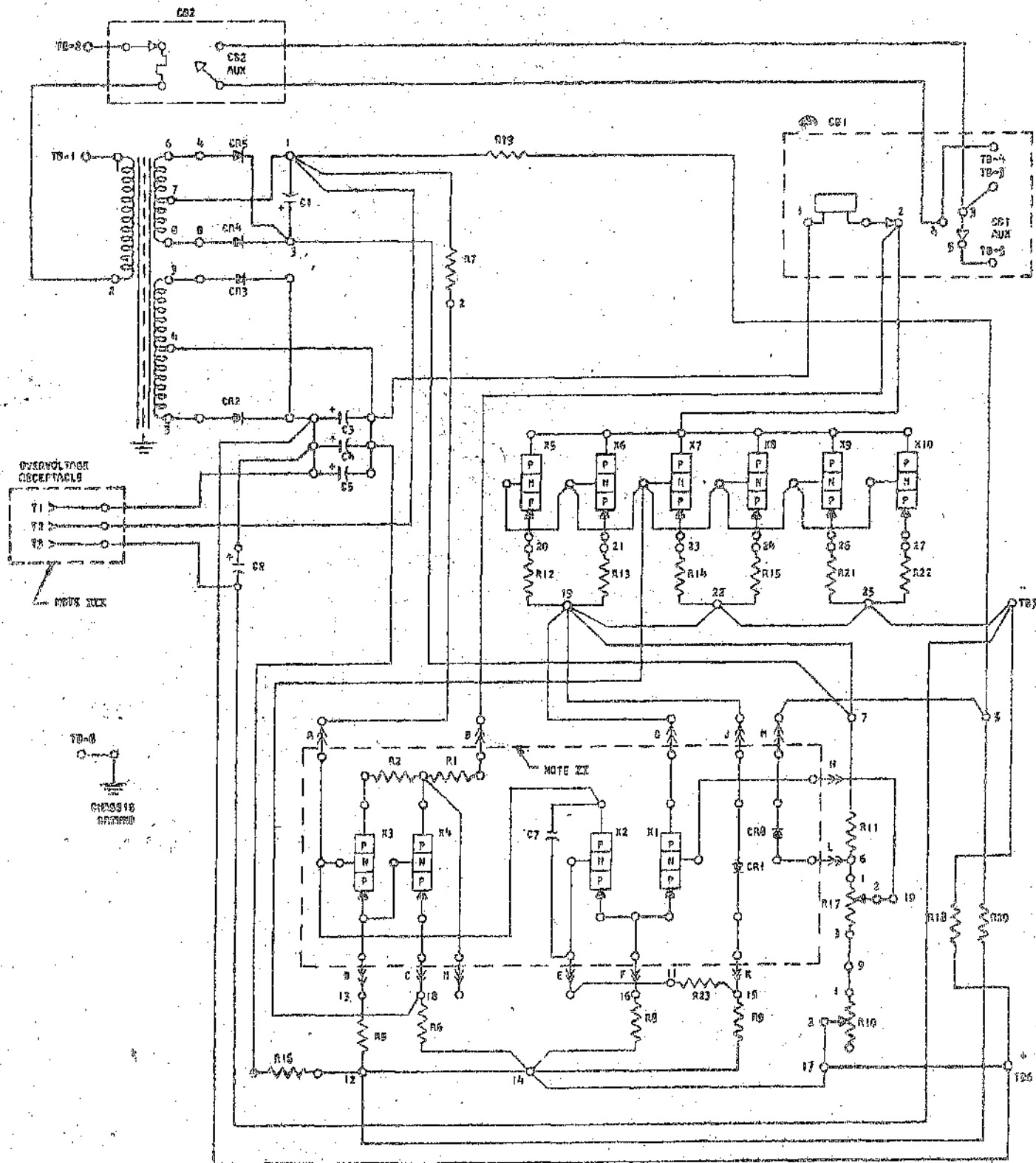
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	200175	TRANSFORMER	R3 *	207326	RESISTOR 1.7K 5W
C1-C4	200271	CAPACITOR 11,000 MFD 15V DC	R4 *	207220	RESISTOR 2.2K 5W
C5	200229	CAPACITOR 700 MFD 15V DC	R5	317276	RESISTOR 1.2K 1/2W
X1, X2 *	535441	TRANSISTOR TYPE 036	R6	338438	RESISTOR 200 OHM 2W
X3 *	510609	TRANSISTOR TYPE 038	R7	317529	RESISTOR 8.2K 1/2W
X4 *	207363	TRANSISTOR TYPE 036	R8	213623	RESISTOR 1K 1/2W
X5-X10	209001	TRANSISTOR TYPE	R9	317095	RESISTOR 160 OHM 1/2W
CR1	200190	CIRCUIT BREAKER	R10	200986	RESISTOR 725 OHM 5W
CR2, 3	127325	DIODE	R11	207381	RESISTOR 2K 5W
CR3, 4	207316	DIODE	R12	207357	POTENTIOMETER 200 OHM 2W
CR5 *	200902	DIODE	R13	317012	RESISTOR 510 OHM 1/2W
CR6 *	491300	DIODE TYPE 20	R14	300721	RESISTOR 10K 1/2W
R1 *	207320	RESISTOR 1 OHM 5W	R15	472539	RESISTOR 100 OHM 10W
R2 *	207321	RESISTOR 2 OHM 1W	R17, R24	317018	RESISTOR 2K 1/2W
R3 *	207322	RESISTOR 3 OHM 1W	R18-23	200980	RESISTOR 0.1 OHM 5W
CR7	200270	CIRCUIT BREAKER	CR7 *	300890	DIODE TYPE 2 (A)
C7	200271	CAPACITOR 0.01 MFD 105V DC			

NOTES
 * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLIES
 ** COMPONENT CARD ASSEMBLY NO. 371656 FOR REFERENCE TO GROUND
 *** COMPONENT CARD ASSEMBLY NO. 371655 FOR REFERENCE TO -3 VOLTS
 **** REFER TO 12 VOLT OVERVOLTAGE ASSEMBLY NUMBER 200556 IN ADDITION TO 0/2 WIRING DIAGRAM NUMBER 200551

INTERNATIONAL BUSINESS MACHINES CORP			
WIRING DIAGRAM - POWER SUPPLY			
112V DC AT 12 AMP			
DESIGN	15-29-59	MODIFIED	HWG
DETAIL	10-21-59	SCALE	FORM
CHECK	10-21-59	DRAW	
WTR	10-21-59	CHECK	

C

DATE	REVISION
6-24-59	105500J
10-4-59	105503K
11-16-59	105504B
1-4-60	105504Z
2-2-60	105505C
3-23-60	105505H
10-25-60	105507L
3-27-61	111032

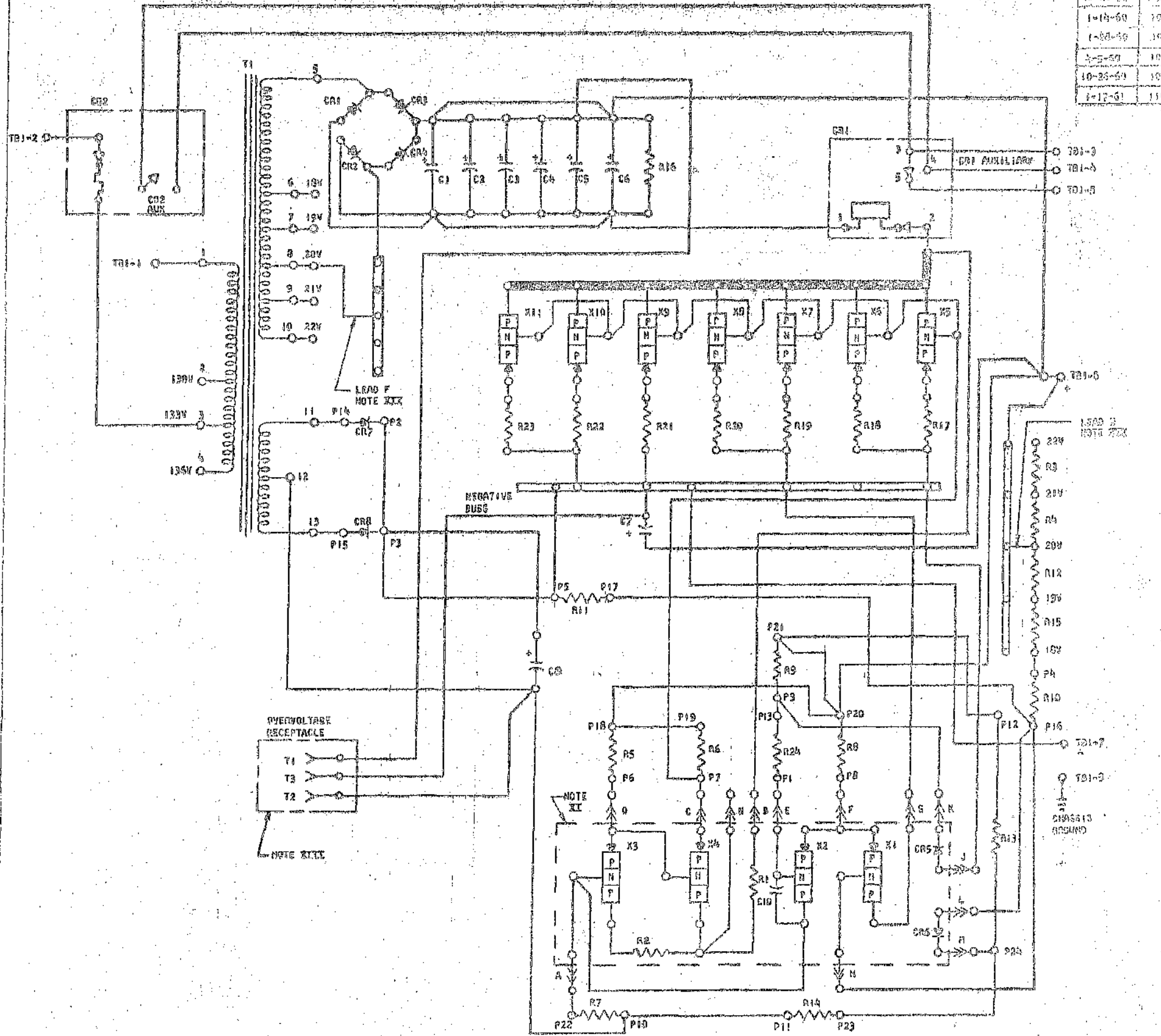


CODE	PART NO.	DESCRIPTION	CODE NO.	PART NO.	DESCRIPTION
T1	207305	TRANSFORMER	R2	207321	RESISTOR 2 Ω 1W
C1	207310	CAPACITOR 100 MFD 25V DC	R5	215692	RESISTOR 3.3K 1/2W
C3	207314	CAPACITOR 5000 MFD 25V DC	R6	207325	RESISTOR 330 Ω 5W
CR-C2	501546	CAPACITOR 10,000 MFD 25V DC	R7	217095	RESISTOR 9.1K 2W
CR1	207062	DIODE	R8	217099	RESISTOR 3.3K 2W
CR2-CR3	228479	DIODE	R9	2100672	RESISTOR 1K 5W
CR4	207316	DIODE	R10	207322	POTENTIOMETER 2500 Ω 1/2W
CR5	207315	DIODE	R11	207370	RESISTOR 1750 Ω 5W
CR6	207300	DIODE TYPE 020	R12-R15	207324	RESISTOR 0.1 Ω 5W
CR7	207347	CIRCUIT BREAKER	R16	207305	RESISTOR 100 Ω 25W
CR8	233441	TRANSISTOR TYPE 026	R17	207392	POTENTIOMETER 500 Ω 1/2W
CR9	210692	TRANSISTOR TYPE 020	R18	207354	RESISTOR 320 Ω 5W
CR10	267362	TRANSISTOR TYPE 026	R19	217092	RESISTOR 3.5K 1/2W
TB-TB10	205201	TRANSISTOR TYPE	R20	215693	RESISTOR 1K 1/2W
R1	207309	RESISTOR 1 Ω 5W	R21, R22	207323	RESISTOR 2.1 Ω 5W
R23	207311	RESISTOR .01 Ω 10W 107V DC	CR2	200915	CIRCUIT BREAKER
			CR3	217019	RESISTOR 2K 1/2W

NOTES
 * * * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 ** WHEN THE 20 VOLT OVERVOLTAGE ASSEMBLY IS USED, REFER TO 6/V WIRING DIAGRAM NUMBER 200975

INTERNATIONAL BUSINESS MACHINES COOP			
NAME	WIRING DIAGRAM - POWER SUPPLY - PLUS-MINUS 20V DC AT 5 AMP		
DESIGN	ACME 6-23-59	MODEL	MISC
DETAIL	ACME 6-23-59	SCALE	NONE
CHECK	QXB 6-23-59	DRAW	MDE 6-23-59
APPRO	QXB 6-23-59	CHECK	QXB 7-9-59

DATE	DESCRIPTION
5-24-59	1055300R
10-20-59	1055307
1-14-60	1055308
1-28-60	1055310
3-5-60	1055309
10-26-60	1055374
1-17-61	1055375



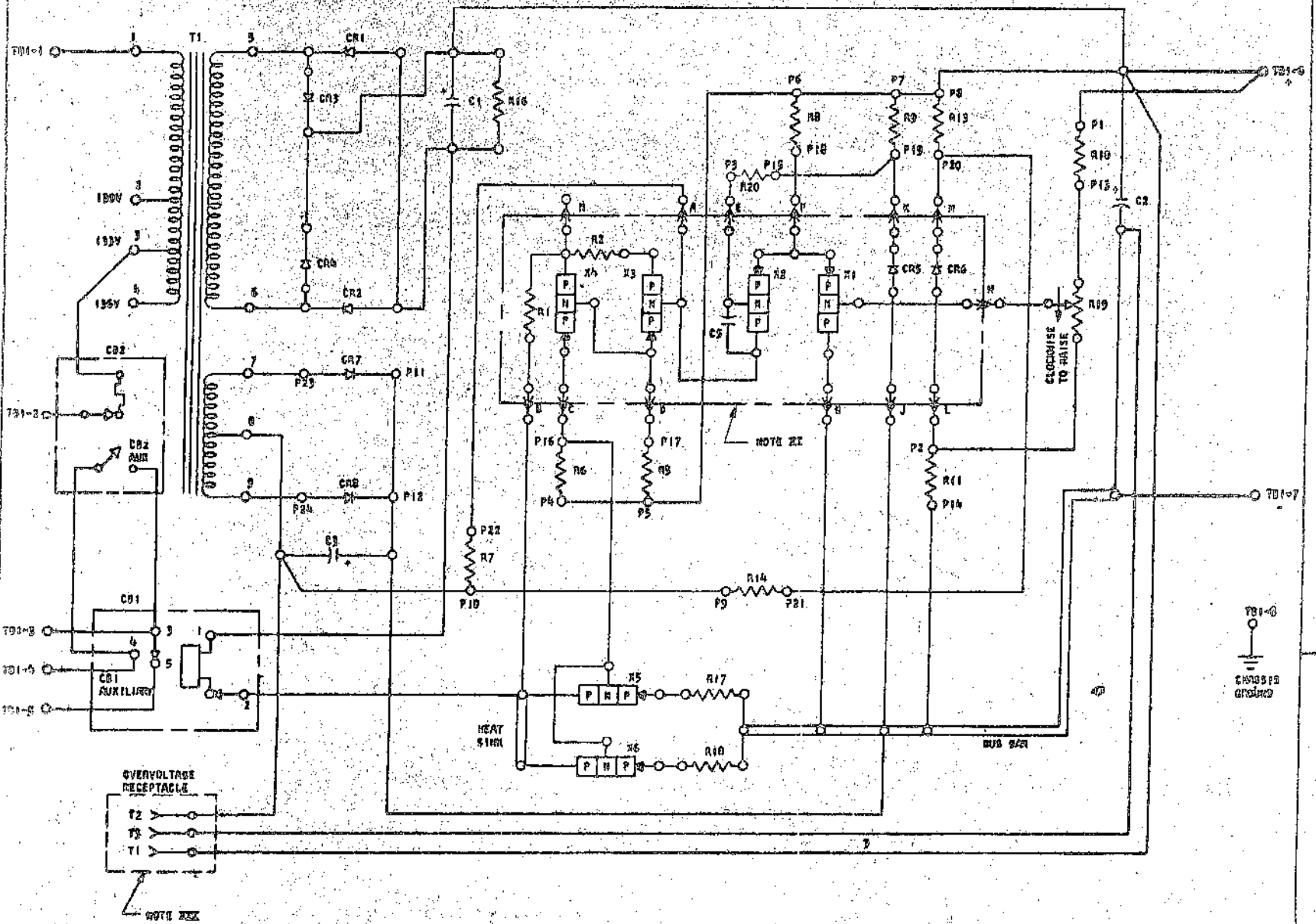
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	208175	TRANSFORMER	R3, 4, 12, 13	207356	RESISTOR 200 OHM 5W
C1-C7	208430	CAPACITOR 10,000 MFD 35V DC	R5, R24	217039	RESISTOR 2K 1/2W
CR	209229	CAPACITOR 700 MFD 15V DC	R6	207336	RESISTOR 250 OHM 5W
			R7	200721	RESISTOR 10K 1/2W
CR1-CR4	208306	DIODE	R8	217025	RESISTOR 5.1K 1/2W
CR5	209002	DIODE	R10	209829	RESISTOR 1650 OHM 5W
CR6	491200	DIODE TYPE AW	R11	207381	RESISTOR 2K 5W
CR7, CR8	207316	DIODE	R13	213693	RESISTOR 1K 1/2W
X1, X2	535751	TRANSISTOR TYPE Q26	R14	200721	RESISTOR 10K 1/2W
X3	516689	TRANSISTOR TYPE Q28	R16	208825	RESISTOR 25 OHM 50W
X4	207363	TRANSISTOR TYPE Q36	R17-23	209985	RESISTOR 0.1 OHM 5W
X5-X11	209001	TRANSISTOR TYPE	R9	213693	RESISTOR 1K 1/2W
CR1	208198	CIRCUIT BREAKER	CR2	220916	CIRCUIT BREAKER
R1	207320	RESISTOR 1 OHM 5W	E100	492611	CAPACITOR 0.01 MFD 100V DC
R2	207331	RESISTOR 2 OHM 1W			

NOTES
 * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 XX COMPONENT CARD ASSEMBLY NO. 371836
 XXX LEADS F AND N WIRE TOGETHER
 XXXX WHEN THE 20 VOLT OVERVOLTAGE ASSEMBLY NUMBER 209229 IS USED, REFER TO C/W WIRING DIAGRAM NUMBER 209275

INTERNATIONAL BUSINESS MACHINES CORP.				
NAME	WIRING DIAGRAM - POWER SUPPLY -			
20V DC AT 15A				
DESIGN	PECO	5-28-59	MODEL	4190
DETAIL	JCS	5-28-59	SCALE	NONE
CHECK	JMc	6/10/59	DRAW	MDE 7-13-59
APPRO	PECO	7-14-59	CHECK	JZZ 7-14-59

C

DATE	CHANGE NO
9-14-59	105531D
1-10-60	105584Q
1-23-60	105595P
6-5-60	105595V
10-26-60	105597L
3-25-61	105597L

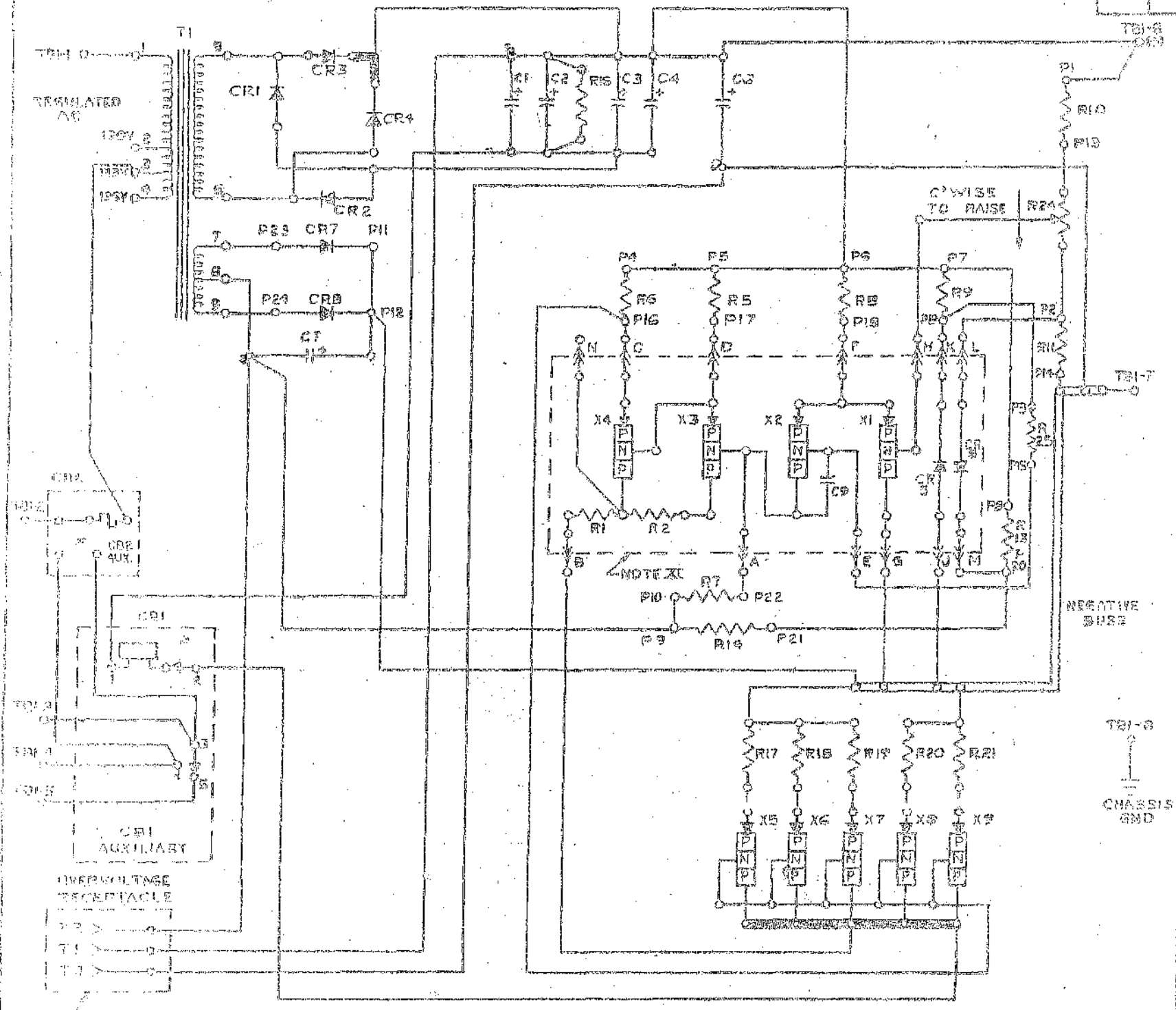


NOTES
 Z * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 XX COMPONENT CARD ASSEMBLY NUMBER 271656
 XXX WHEN THE 36 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208978 IS USED, REFER TO 6V OUTPUT DIAGRAM NUMBER 208979

CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
T1	208178	TRANSFORMER	R1*	207320	RESISTOR 1 OHM 5W
C1	208235	CAPACITOR 5,500 MFD 45V DC	R2*	207321	RESISTOR 2 OHM 1W
C2	208227	CAPACITOR 1,000 MFD 45V DC	R5	323920	RESISTOR 3K 1/2W
C3	208229	CAPACITOR 700 MFD 15V DC	R6	317084	RESISTOR 1.5K 1/2W
CR1-CR4	598479	DIODE	R7, R8	300721	RESISTOR 10K 1/2W
CR5*	209002	DIODE	R9	317087	RESISTOR 2.7K 2W
CR6*	481300	DIODE TYPE AU	R10	207380	RESISTOR 2.7K 2W
CR7, CR8	207316	DIODE	R11	207379	RESISTOR 1K 5W
X1, X2*	535441	TRANSISTOR TYPE 025	R13	317024	RESISTOR 5.1K 1/2W
X3*	518689	TRANSISTOR TYPE 028	R14	300721	RESISTOR 10K 1/2W
X4*	207363	TRANSISTOR TYPE 034	R16	472566	RESISTOR 500 OHM 10W
X5, X6	208197	TRANSISTOR TYPE 038	R17, R18	208988	RESISTOR 0.1 OHM 5W
CB1	208839	CIRCUIT BREAKER	R19	208988	POTENTIOMETER 120 OHM 2W
CS	622611	CAPACITOR 0.01 MFD 100V DC	R20	317010	RESISTOR 2K 1/2W

INTERNATIONAL BUSINESS MACHINES CORP				
NAME	WIRING DIAGRAM - POWER SUPPLY			
	135V DC AT 1 AMP			
DESIGN	PCD	6-5-59	TYPE	MISC
DETAIL	NW	9-3-59	SCALE	NONE
CHECK	RLD	9-4-59	DRAW	
APPRO	W	7-7-59	CHECK	

2100898	
DATE	CHANGE NO.
3/24/60	108527-6
2-19-61	11221
3-27-61	11432

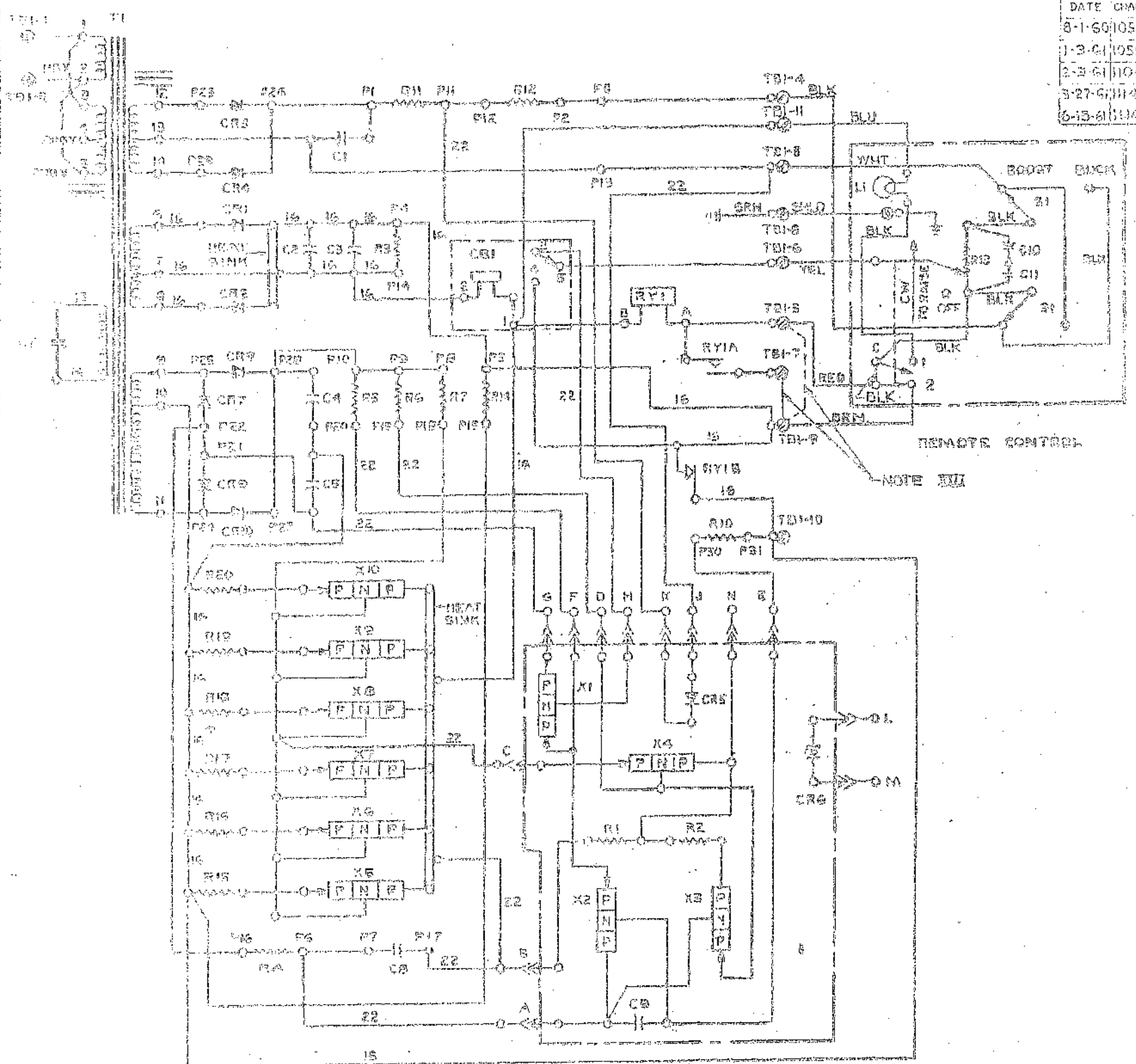


COMPONENT CHART					
CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
R10	207320	RESISTOR 2050 Ω 5W	T1	210092	XFMR
R11	207379	RESISTOR 1K Ω 5W	CR1-4	MS410	DIODE
R12	317024	RESISTOR 5,100 Ω 1/2W	CR7-8	207316	DIODE
R13	200721	RESISTOR 10K Ω 1/2 W	CR5	209002	DIODE
R14	507142	RESISTOR 100 Ω 25W	CR6	491900	DIODE 18M AU
R15	208905	RESISTOR 0.1 Ω 5W	X1-X2	535441	TRANSISTOR TYPE 026
R24	800988	POT. 125 Ω 2W MW	X3	518689	TRANSISTOR TYPE 028
C1	208235	CAP 5,500 MFD 45V	X4	207363	TRANSISTOR TYPE 036
C2	208245	CAP 2,500 MFD 45V	X5-9	208196	TRANSISTOR TYPE 037
C3	208223	CAP 700 MFD 15V	CB1	207349	CIRCUIT BREAKER 18 AMP
R7	217353	RESISTOR 2K Ω 1W	R1	207320	RESISTOR 1 Ω 5W
CB2	42087	CIRCUIT BREAKER	R2	207321	RESISTOR 2 Ω 1W
C4	422411	CAP 10 MFD 100 VDC	R5	323920	RESISTOR 3K 1/2W
R3	317025	RESISTOR 2K Ω 1/2 W	R6	2102155	RESISTOR 500 Ω 5W
			R7	200721	RESISTOR 10K 1/2W

- NOTES:
- X * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY.
 - CB COMPONENT CARD ASSEMBLY NUMBER 371556.
 - III WHEN THE 30VOLT OVERVOLTAGE ASSEMBLY 208967 IS USED REFER TO OV WIRING DIAGRAM 208968

INTERNATIONAL BUSINESS MACHINES CORP			
NAME	WIRING DIAGRAM		
	30 V AT 7 AMP		
DESIGN	P.15	8-20-56	TYPE
DETAIL	H.10	8-24-56	SCALE
CHECK	J.D.M.	8-24-56	DATE
APPRO	J.M.	8-24-56	CHECK

DATE	CHANGE NO.
8-1-60	105589
1-3-61	105590
2-3-61	10498
3-27-61	11432
6-15-61	11443



COMPONENT CHART

CODE	PART NO.	DESCRIPTION
R4	300721	RES. 10K Ω 1/2 W
R5	3172E4	RES. 5100 Ω 1/2 W
R6	213493	RES. 1K Ω 1/2 W
R7	317012	RES. 510 Ω 1/2 W
R10	317019	RES. 2K Ω 1/2 W
R11	317019	RES. 650 Ω 1/2 W
R12	210358	RES. 1000 Ω 3 W 21%
R13	210346	RES. 1000 Ω 2 W
R14	222916	RES. 100 Ω 1/2 W
R15-R16	207224	RES. 1 Ω 3 W
RY1	210274	RELAY
CR1	122453	SWITCH
K1, K2	525441	TRANS.
K3	510299	TRANS.
K4	207563	TRANS.
K5-10	209001	TRANS.
L1	215628	LAMP

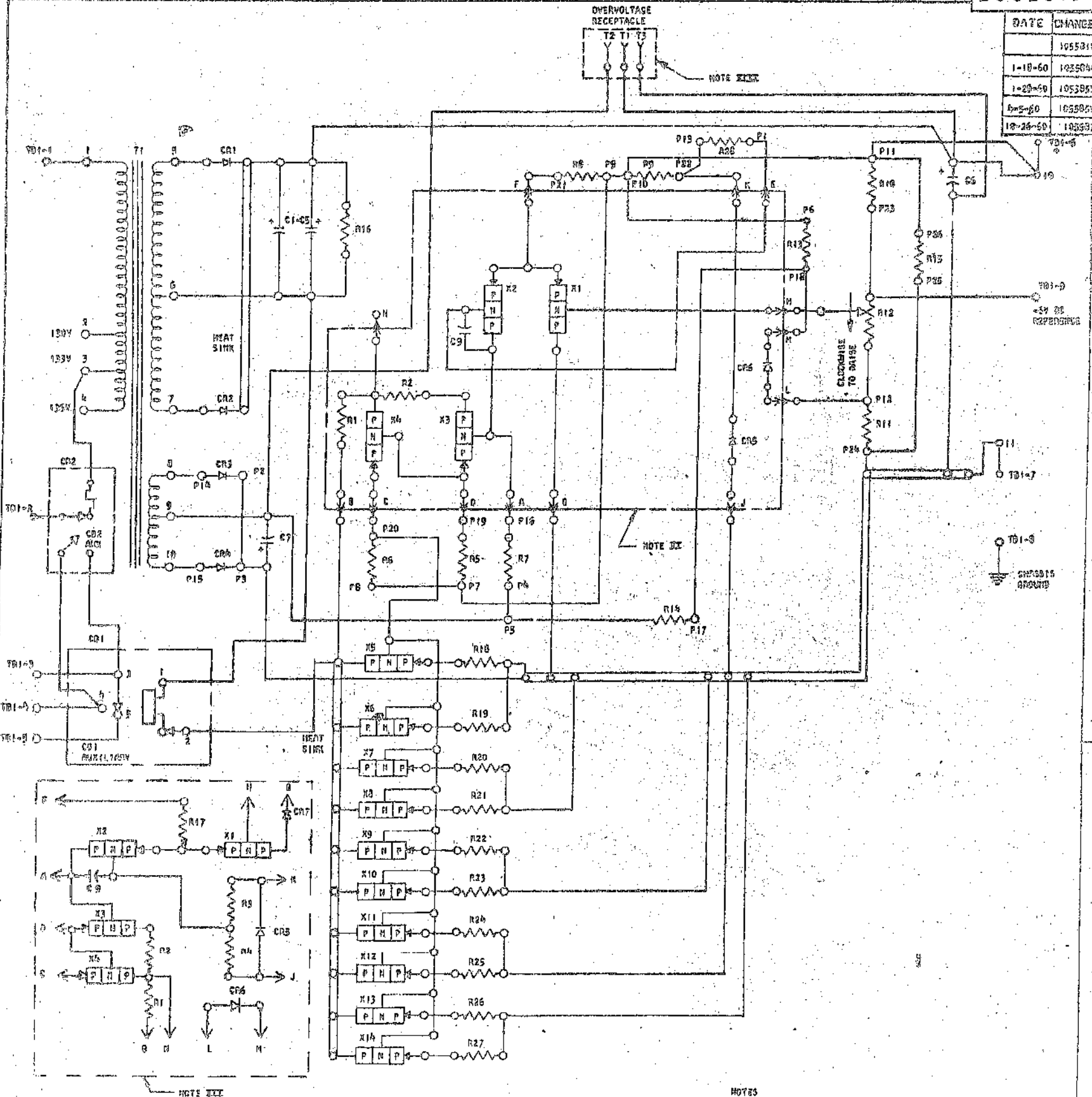
NOTES:

- I ALL WIRE TO BE 20 GA. BLACK UNLESS OTHERWISE NOTED.
- II # INDICATES COMPONENT LOCATED ON COMPONENT CARD ASSEMBLY.
- III ORDER ONE EACH OF 210246 (POT. SWITCH ASM) AND 27650 (SWITCH) EXCEPT WHEN UNIT IS TO BE AS A PORTABLE.
- IV REMOVE JUMPER FOR PORTABLE APPLICATION. APPLY JUMPER AS SHOWN IN DOTTED LINE FOR SPECIAL SYSTEM REQUIREMENT.

INTERNATIONAL BUSINESS MACHINES CORP.

NAME	±3 VDC @ 5 AMP		
MARGINAL CHECK			
DESIGN	PECOS-24-60	TYPE	
DETAIL	PECOS-24-60	SCALE	
CHECK	RLB 7-1-60	DRAWN	
APPRO	3/27/60	8-22-60	CHECK

DATE	CHANGE NO.
	1055311
1-10-60	1055040
1-20-60	1055383
5-2-60	1055067
10-26-60	1055371



COMPONENT CHART

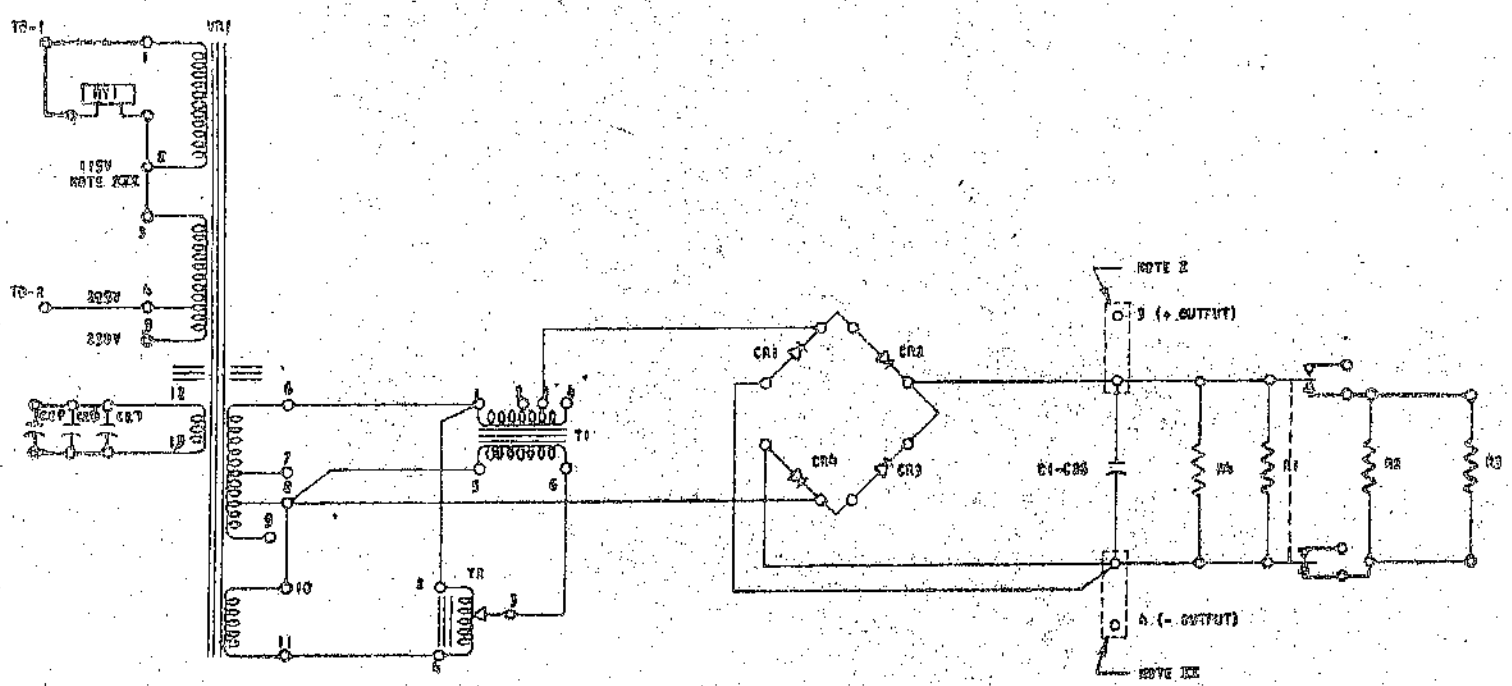
CODE	PART NO	DESCRIPTION	CODE	PART NO	DESCRIPTION
T1	213980	TRANSFORMER	R4*	207288	RESISTOR 2.2K 5W
C1-C5	208221	CAPACITOR 11,000 MFD 15V DC	R5	317276	RESISTOR 1.2K 1/2W
C6	208222	CAPACITOR 5,300 MFD 15V DC	R6	335138	RESISTOR 300 OHM 2W
C7	208223	CAPACITOR 700 MFD 15V DC	R7	317529	RESISTOR 8.2K 1/2W
CR1, CR2	127325	RECTIFIER CELL	R8	213593	RESISTOR 1K 1/2W
CR3, CR4	207316	RECTIFIER CELL	R9	317095	RESISTOR 160 OHM 1/2W
CR5*	208092	DIODE	R10	208286	RESISTOR 375 OHM 5W
CR6*	481300	DIODE TYPE 2N	R11	207381	RESISTOR 2K 5W
X1, X2*	875441	TRANSISTOR TYPE 028	R12	207357	POTENTIOMETER 200 OHM 2W
X3*	518509	TRANSISTOR TYPE 028	R13	317012	RESISTOR 510 OHM 1/2W
X4*	207363	TRANSISTOR TYPE 036	R14	300721	RESISTOR 10K 1/2W
X5-X16	208204	TRANSISTOR TYPE	R15	317433	RESISTOR 560 OHM 1W
CS1	208227	CIRCUIT BREAKER	R16	221517	RESISTOR 75 OHM 10W
R1*	207330	RESISTOR 1 OHM 5W	R17*, R27	317019	RESISTOR 2K 1/2W
R2*	207321	RESISTOR 0 OHM 1W	R18-R22	208285	RESISTOR 0.1 OHM 5W
R3*	207325	RESISTOR 1.0K 2W	CR7	220918	CIRCUIT BREAKER
R4*	208211	CAPACITOR 0.01 MFD 100V DC	CR8*	509591	DIODE TYPE F(6)

NOTES
 * INDICATES COMPONENTS LOCATED ON COMPONENT CARD ASSEMBLY
 IXX COMPONENT CARD ASSEMBLY NO. 371636 FOR REFERENCE TO GROUND
 IXXI COMPONENT CARD ASSEMBLY NO. 371635 FOR REFERENCE TO -6V DC
 IXXII WHEN THE 12 VOLT OVERVOLTAGE ASSEMBLY NUMBER 208281 IS USED, REFER TO O/Y WIRING DIAGRAM NUMBER 208251

INTERNATIONAL BUSINESS MACHINES CORP

NAME				WIRING DIAGRAM - POWER SUPPLY -			
±15V DC AT 20 AMP							
DESIGN	PECB	7-19-59	TYPE	1196			
DETAIL	HAV	9-18-59	SCALE	RDHS			
CHECK	RLB	9-10-59	DRAW				
APPRO		9/3/59	CHECK				

DATE	CHANGE NO
10-22-59	1055814
1-15-59	1055828
3-11-59	1055855
3-8-59	1055810

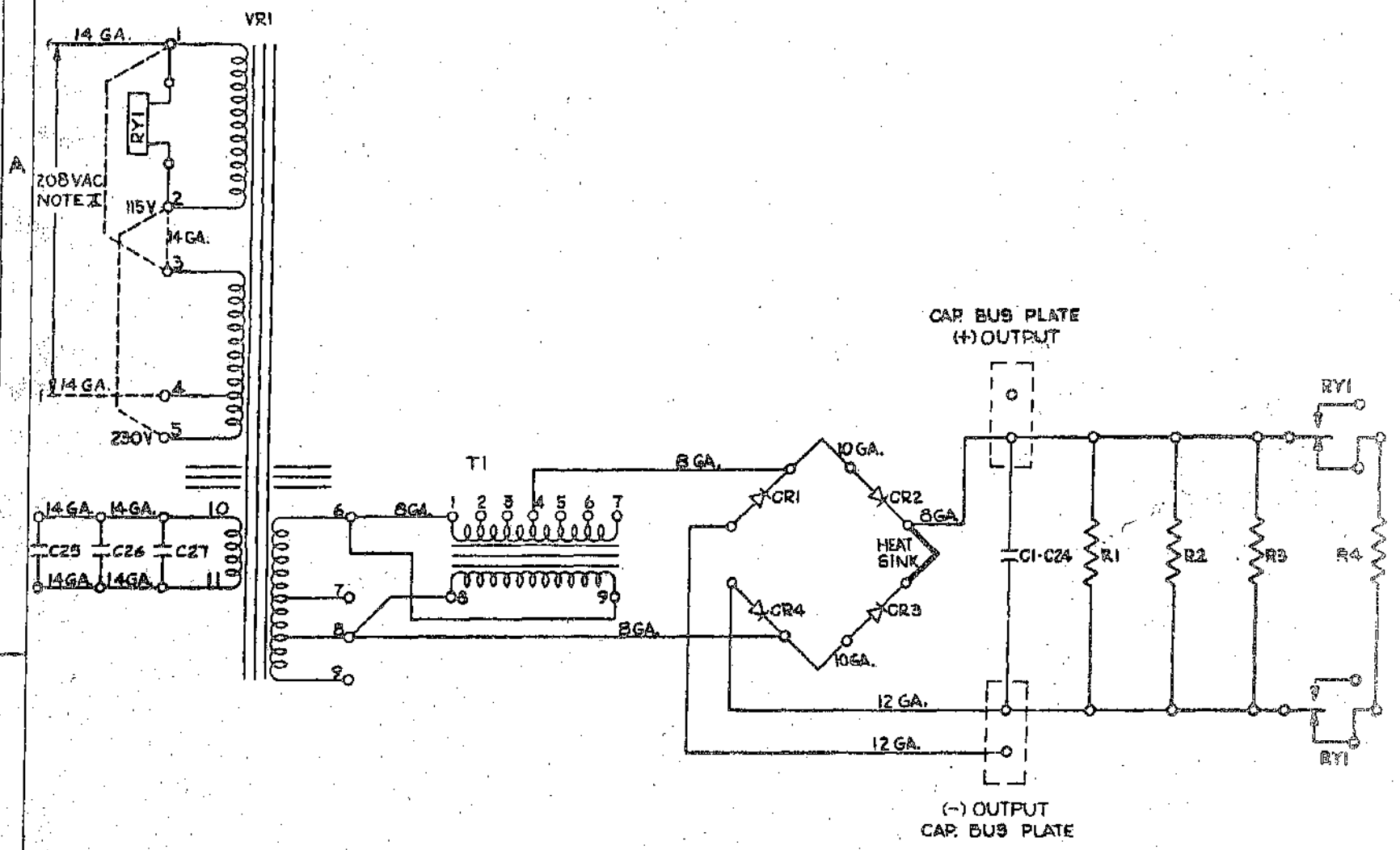


COMPONENT CHART		
CODE	PART NO.	DESCRIPTION
VR1	221393	VOLTAGE REGULATOR
T1	221265	TRANSFORMER, BUCK-BOOST
T2	250889	TRANSFORMER, AUTO
C1-C26	208332	CAPACITOR 3500 MFD 75V DC
C27-C29	207361	CAPACITOR 15 MFD 250V AC
CR1-CR4	127324	DIODE
R1, R4	509798	RESISTOR 150 OHM 50W
R2	228739	RESISTOR 500 OHM 50W
R3	250823	RESISTOR 25 OHM 50W
RY1	242510	RELAY

NOTES
 X + CAPACITOR BUS PLATE PART NUMBER 221902
 XZ CAPACITOR BUS PLATE PART NUMBER 222011
 XZZ FOR 115V AC OPERATION CONNECT TAP 1 TO 2 AND 2 TO 3 AND REMOVE JUMPER 2 TO 3.

INTERNATIONAL BUSINESS MACHINES CORP				
NAME WIRING DIAGRAM - POWER SUPPLY -				
60 V DC AT 10 AMP				
DESIGN	PECO	5-17-59	TYPE	MO2C
DETAIL	ALB	6-1-59	SCALE	NONE
CHECK	WAL	9-1-59	DRAW	
APPRO	ALB	10-27-59	CHECK	

DATE	CHANGE NO.
2/10/60	108276



COMPONENT CHART		
CODE	PART NO.	DESCRIPTION
C1-C24	480749	CAPACITOR 3150MFD 75VDC
C25-C27	2083B8	" 25 MFD 330VAC
CR1-CR4	127324	DIODE
R1-R3	509798	RESISTOR 150Ω 50W
R4	208825	" 25Ω 50W
RY1	242618	RELAY
T1	480750	TRANS. BUCK-BOOST
VR1	480751	VOLTAGE REGULATOR

NOTES:
 I FACTORY WIRING FOR 208V INPUT. FOR 208V OPERATION CONNECT INPUT TO TAPS 1 AND 4. CONNECT TAPS 2 AND 3. FOR 230V INPUT MOVE LEAD FROM TAP 4 TO TAP 5. FOR 115V OPR CONNECT TAPS 1 TO 3 AND 2 TO 5, CONNECT INPUT TO 1 AND 2. REMOVE LEAD BETWEEN TAPS 2 AND 3.
 II USE 53449-#18 BLACK STRANDED WIRE FOR ALL CONNECTIONS

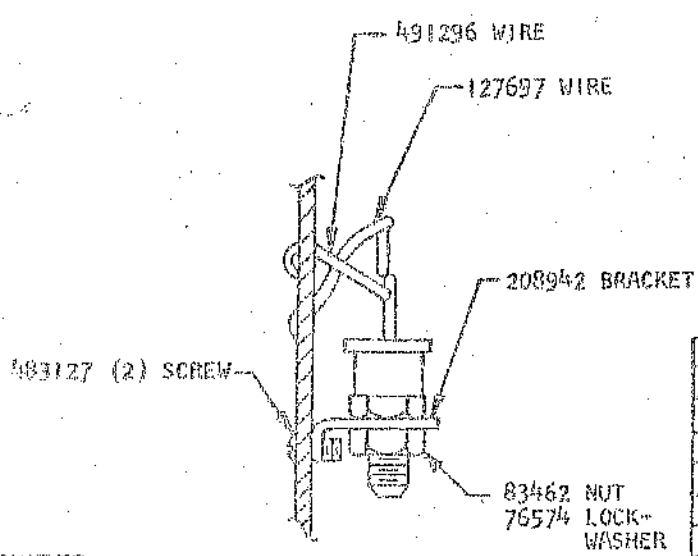
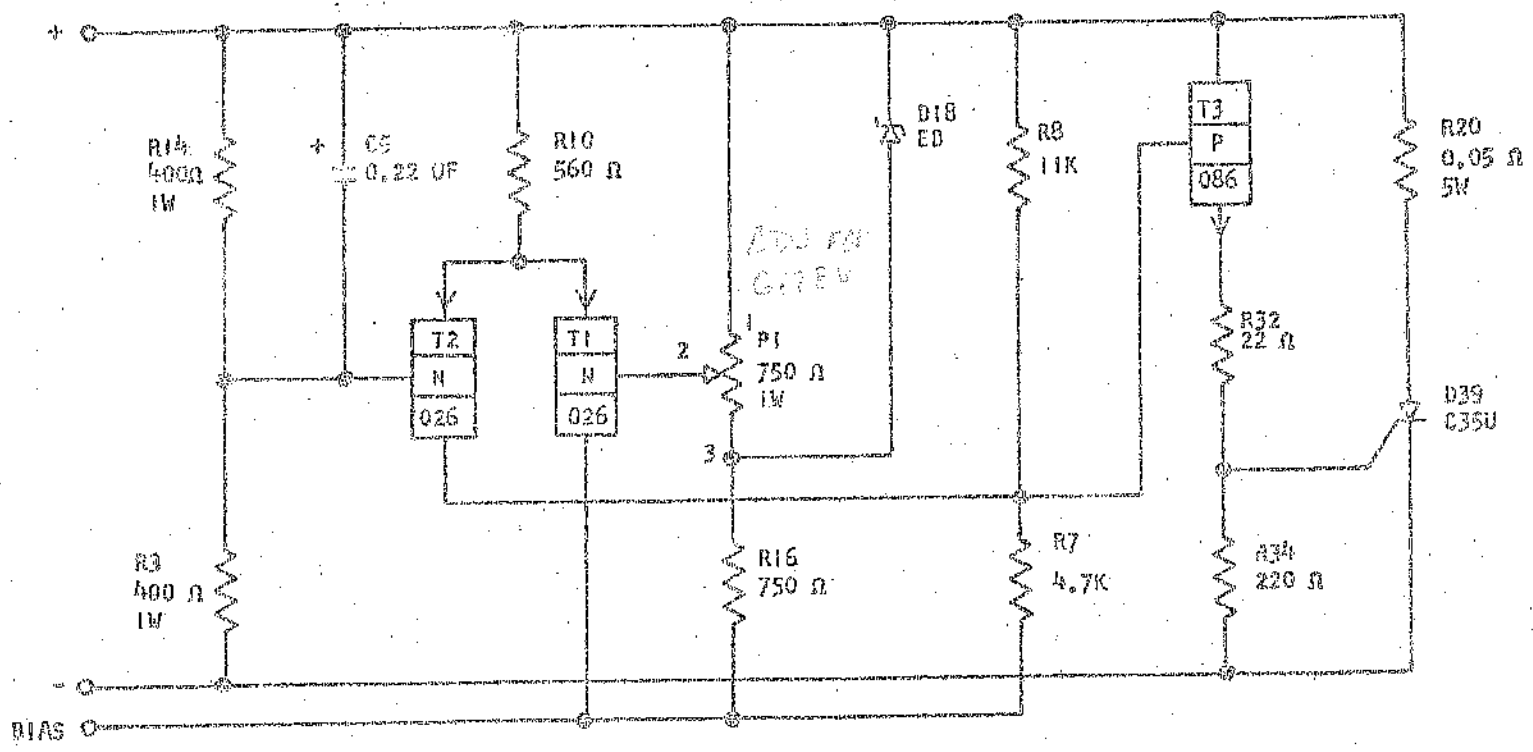
INTERNATIONAL BUSINESS MACHINES CORP			
NAME WIRING DIAGRAM-POWER			
SUPPLY-60 V DC AT 20 AMPS			
DESIGN		TYPE	1401
DETAIL	P200 6/8/60	SCALE	NONE
CHECK	JM R/10/60	DRAW	
APPROD	JM R/10/60	CHECK	

370575

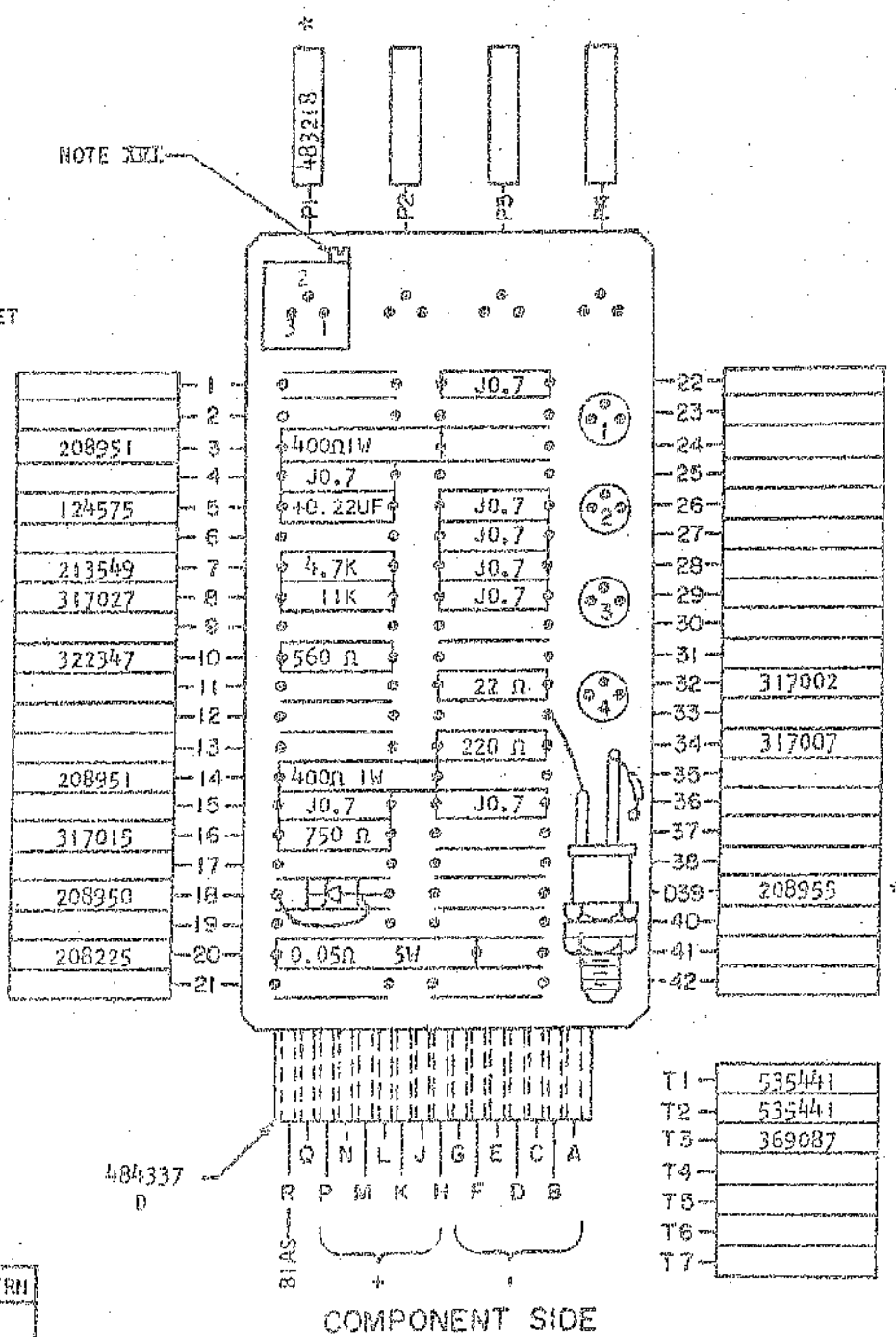
OVERVOLTAGE PROTECTION 6 VOLT

MOUNT CARDS ON ONE-INCH CENTERS NOTE XII

STANDARDS
C906
2-7045
Y G A



- NOTES
- XI CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892575
 - XII ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
 - XIII ALL RESISTORS ARE 1/2 WATT AND ±5% UNLESS OTHERWISE NOTED (AS NOTE XII)
 - XIV "J" IN BLOCK DENOTES BARE WIRE JUMPER, 491296
 - XV ALL 1 WATT RESISTORS ARE ±1%
 - XVI MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE THE SURFACE OF THE CARD WILL BE .850
 - XVII EPOXY CEMENT 483002 TO BE APPLIED TO RESISTANCE TRIMMING SCREW AFTER A VOLTAGE SETTING OF 6.70^{+0.100}/_{-0.000} VOLTS IS MADE



APPROVAL	DATE	HOLE PATTERN
JHT	1-24-62	493474

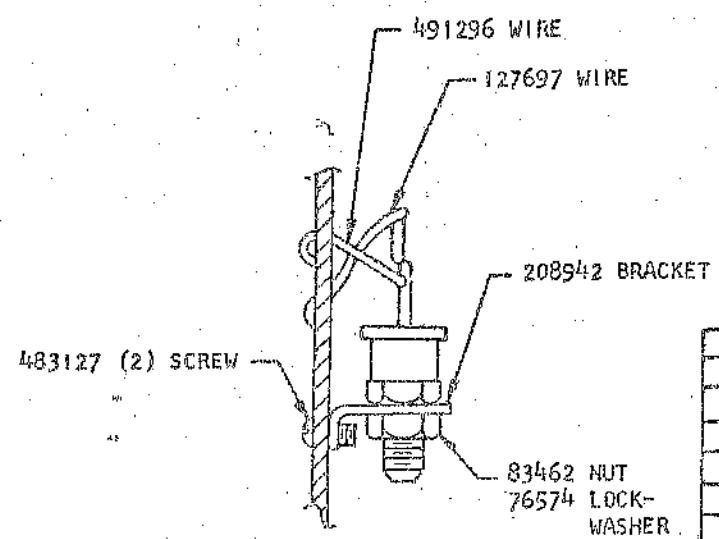
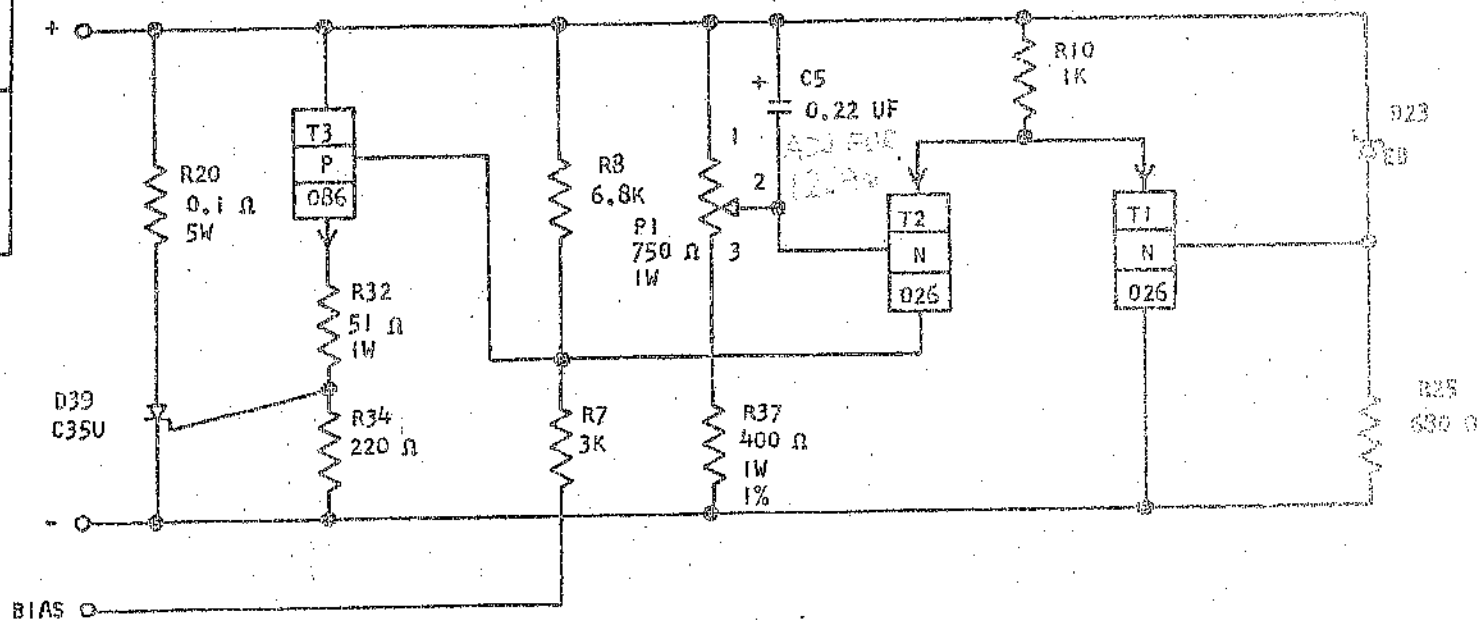
INTERNATIONAL BUSINESS MACHINES CORP.	DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASM TSTR - OVER-VOLTAGE PROTECTION 6 VOLT	5-26-61	111817	IWB	9-25-62	113606	MDL	88-2125
DESIGN EDF 12-20-61 MODEL SMS	11-28-61	112469	IWB				
DETAIL JH 12-29-61 SCALE NONE	12-22-61	113162	IWB				
CHECK EDF 1-5-62 DRAW VE 7-17-62	2-6-62	113685	MDL				
APPRO GWS 2-5-62 CHECK POF 7-23-62	5-23-62	113950	MDL				

370575

OVERVOLTAGE PROTECTION 12 VOLT

MOUNT CARD ON ONE-INCH CENTERS NOTE XIV

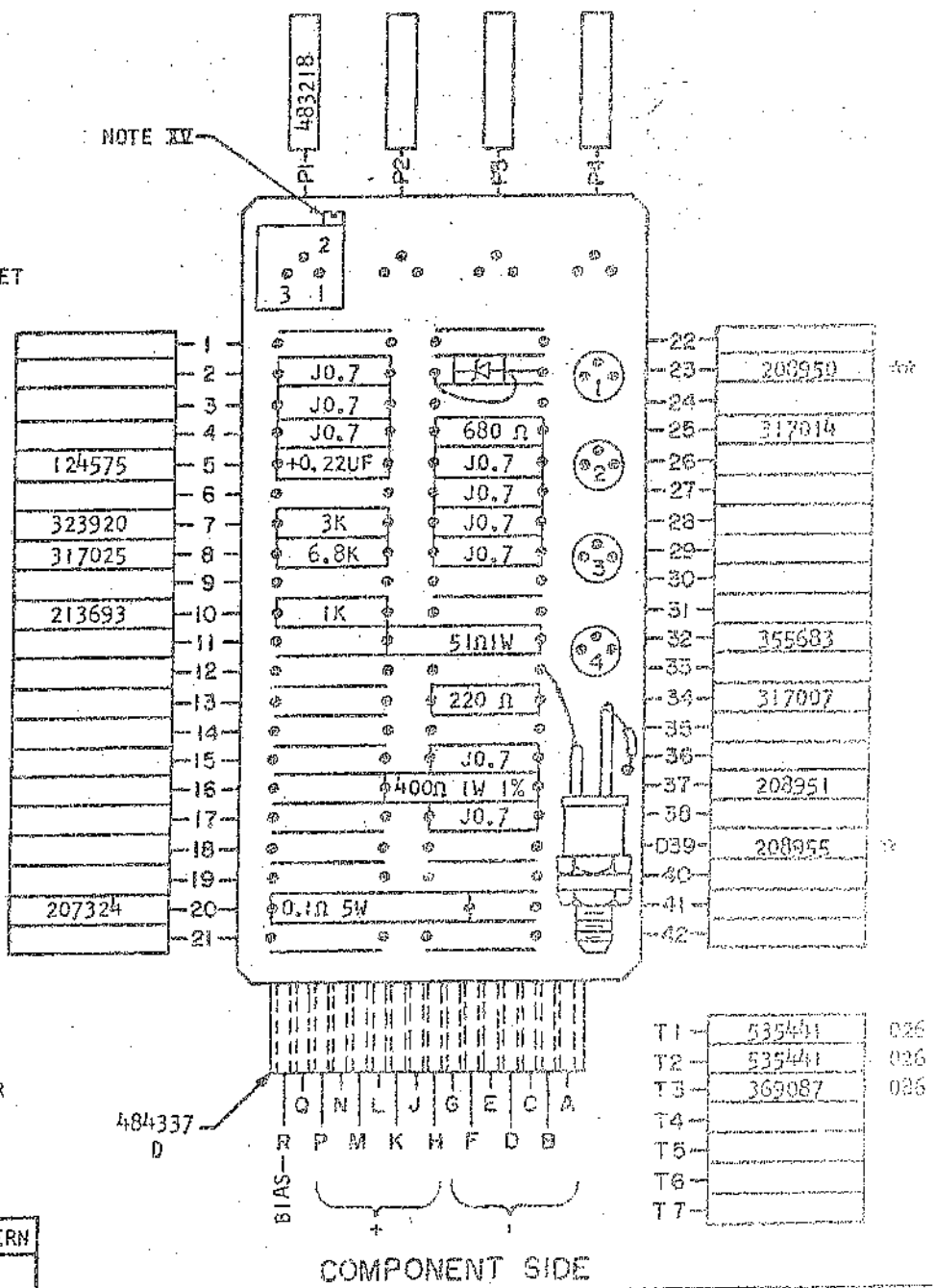
STANDARDS CODE
370576
YGB -
2-7045



NOTE XV

NOTES

- I CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892576
- II ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
- III ALL RESISTORS ARE 1/2 WATT AND ±5% UNLESS OTHERWISE NOTED
- IV "J" IN BLOCK DENOTES BARE WIRE JUMPER, 491296
- V MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE THE SURFACE OF THE CARD WILL BE .850.
- VI EPOXY CEMENT 483002 TO BE APPLIED TO RESISTANCE TRIMMING SCREW AFTER A VOLTAGE SETTING OF 12.96^{+100}_{-1000} VOLTS IS MADE.
- ** VII DIODE 208950 TO BE POSITIONED AS INDICATED
- ** VIII BEND DIODE LEAD NEAREST RED DOT BACK OVER DIODE BODY AS SHOWN
- IX POTENTIOMETER 483218 AND CONTROL RECTIFIER 208955 NOT TO BE SUBJECTED TO LIQUIDS.



DPD CIRCUIT & PACKAGING STANDARD		
APPROVAL	DATE	HOLE PATTERN
JHT	1-24-62	493474

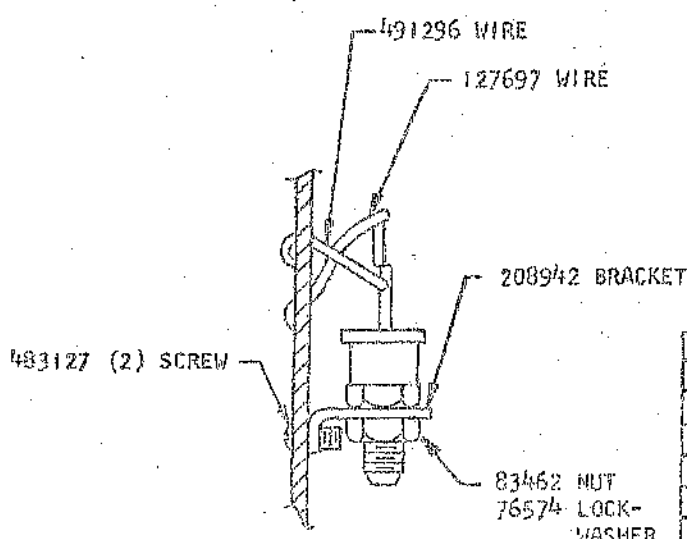
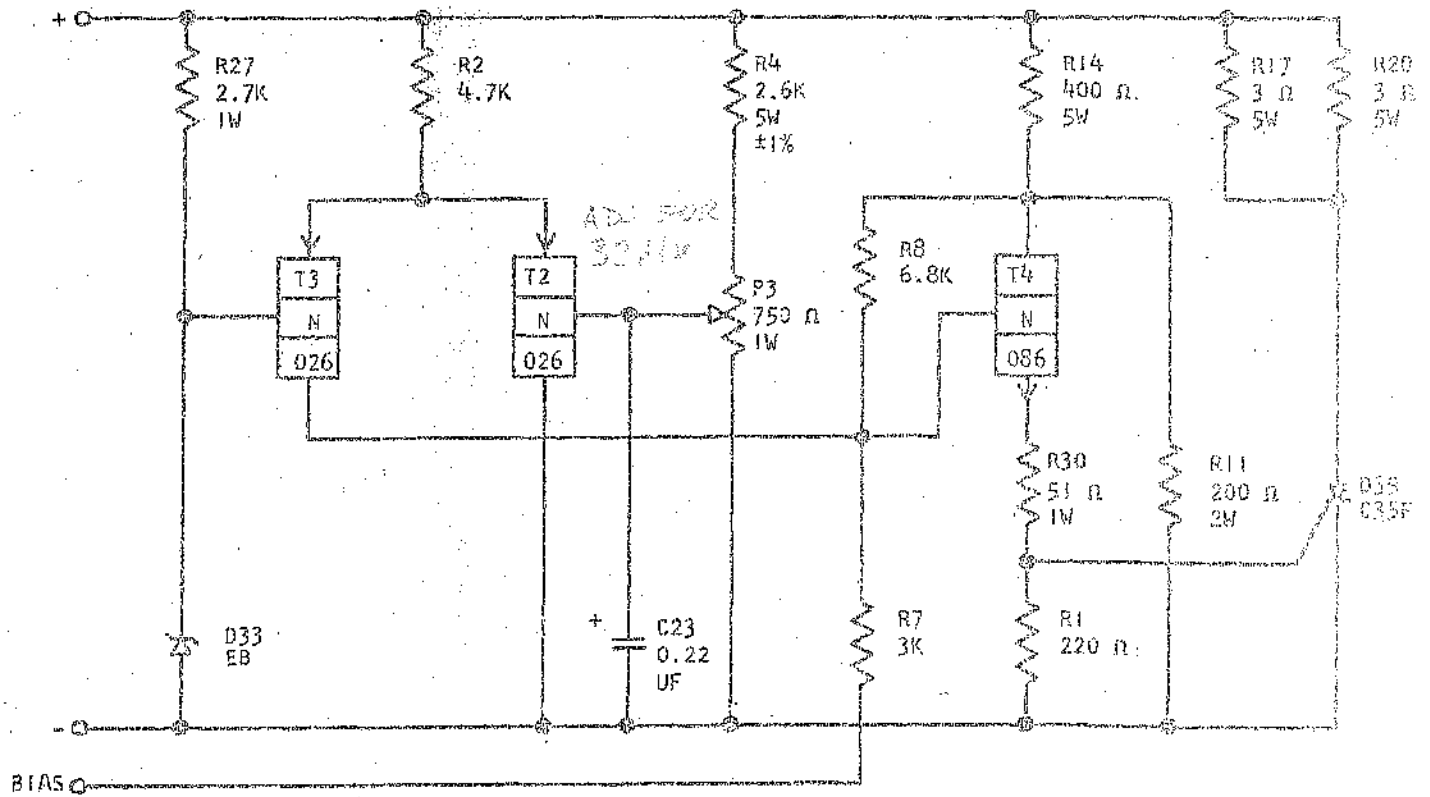
INTERNATIONAL BUSINESS MACHINES CORP.	DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASM TSTR - OVER-VOLTAGE PROTECTION 12 VOLT	5-26-61	111817	IWB	5-23-62	D113950	MDL	88-2126
DESIGN EDF 12-20-61 MODEL SMS	7-27-61	112417	NGJ	9-25-62	113606	MDL	
DETAIL JH 12-29-61 SCALE NONE	11-28-61	112469	IWB				
CHECK EDF 1-4-62 DRAW VE 7-17-62	12-22-61	113162	IWB				
APPRO GWS 2-5-62 CHECK SRF 7-23-62	2-6-62	113685	MDL				

370578

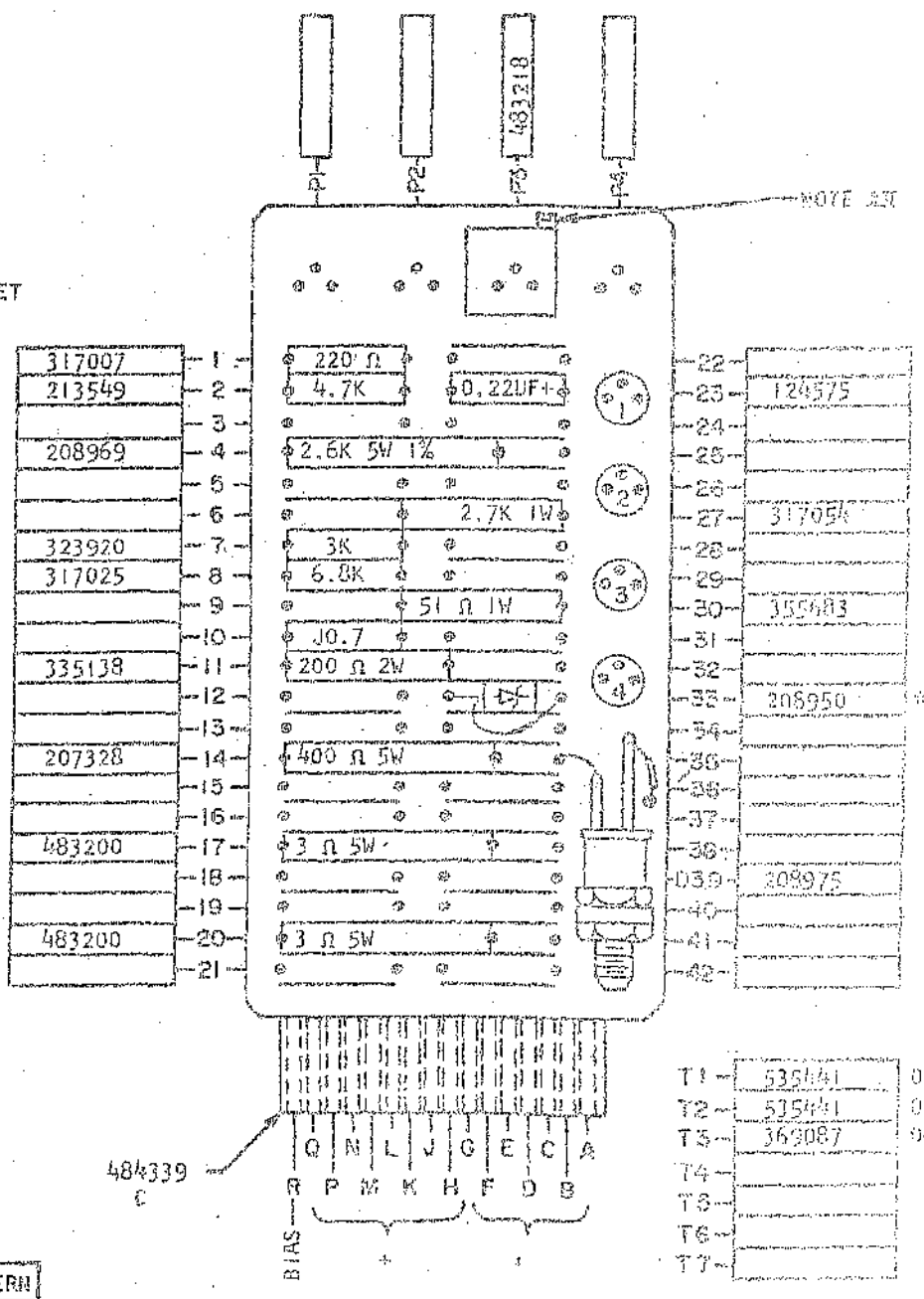
OVERVOLTAGE PROTECTION 30 VOLT

MOUNT CARD ON ONE INCH CENTERS NOTE XLV

STANDARDS CODE
370578
2-7045
Y G D -



- NOTES**
- I. CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892578
 - II. ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
 - III. ALL RESISTORS ARE 1/2 WATT AND ±5% UNLESS OTHERWISE NOTED
 - IV. "J" IN BLOCK DENOTES BARE WIRE JUMPER, 491216
 - V. MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE THE SURFACE OF THE CARD WILL BE .850
 - VI. EPOXY CEMENT 483002 TO BE APPLIED TO RESISTANCE TRIMMING SCREW AFTER A VOLTAGE SETTING OF 32.4 ± 100 VOLTS IS MADE
 - VII. DIODE 208950 TO BE POSITIONED AS INDICATED
 - VIII. BEND DIODE LEAD NEAREST RED DOT BACK OVER DIODE BODY AS SHOWN
 - IX. 483218 AND 208975 MUST NOT BE SUBJECTED TO ANY LIQUIDS



DPD CIRCUIT & PACKAGING STANDARD	
APPROVAL	DATE
JHT	1-24-62
HOLE PATTERN	
493474	

INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASM TSTR - OVER-VOLTAGE PROTECTION 30 VOLT				SEE INDEX CARD						
DESIGN	EDF	12-20-61	MODEL	SMS	8-30-62	113136				88-2128
DETAIL	JHT	12-29-61	SCALE	NONE	9-25-62	113606	JML			
CHECK	EDF	11-5-62	DRAW	VE	7-16-62					
APPROV	WCS	9-21-62	CHECK							

370579

OVERVOLTAGE PROTECTION 20 VOLT

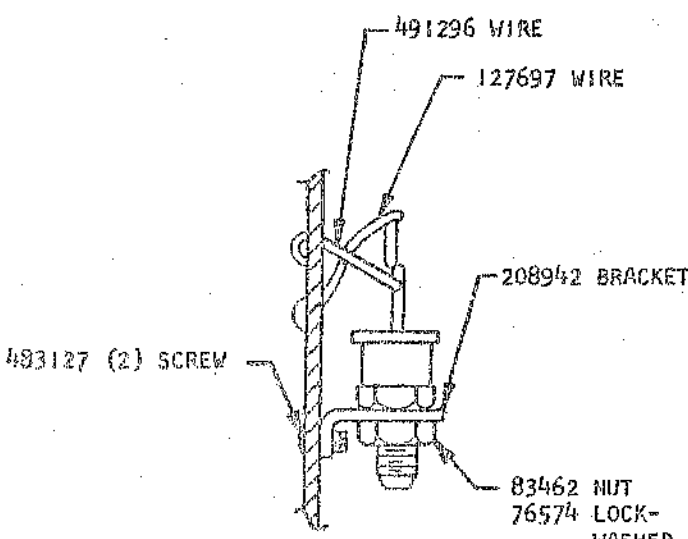
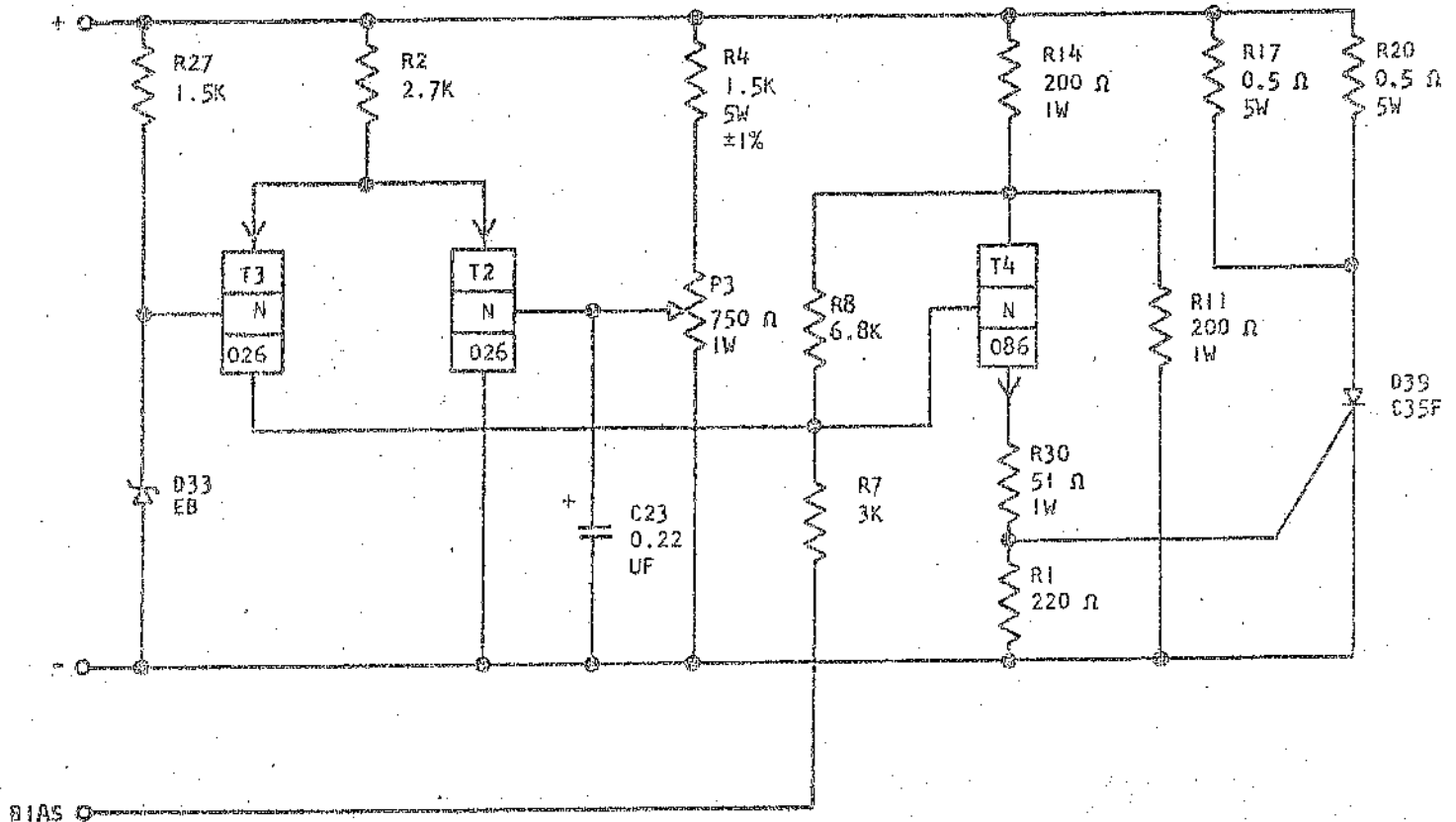
MOUNT CARD ON ONE INCH CENTERS NOTE XIV

370579

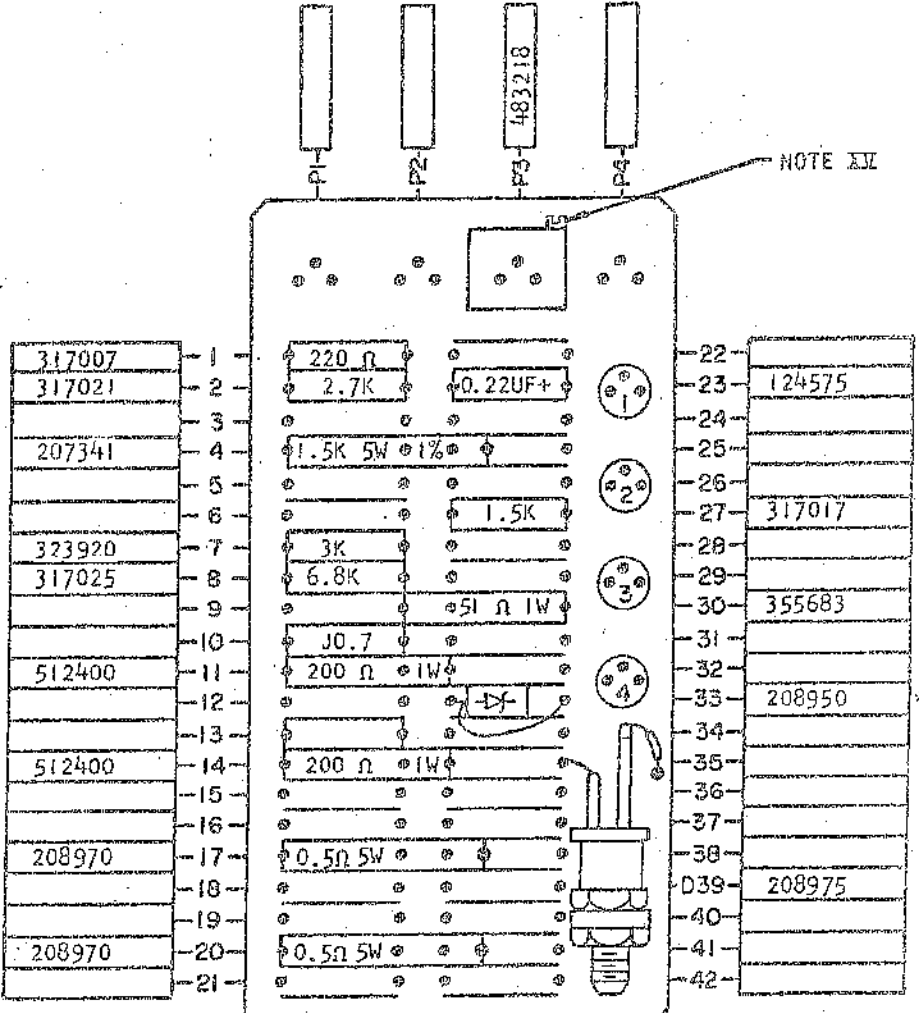
STANDARDS CODE

Y G E -

2-7045



- NOTES
- XI CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892579
 - XII ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
 - XIII ALL RESISTORS ARE 1/2 WATT AND ±5% UNLESS OTHERWISE NOTED
 - XIV "J" IN BLOCK DENOTES BARE WIRE JUMPER, 491296
 - XV MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE THE SURFACE OF THE CARD WILL BE .850
 - XVI EPOXY CEMENT 483002 TO BE APPLIED TO RESISTANCE TRIMMING SCREW AFTER A VOLTAGE SETTING OF 22.6^{+0.100}/_{-0.000} VOLTS IS MADE
 - ** XVII DIODE 208950 TO BE POSITIONED AS INDICATED
 - ** XVIII BEND DIODE LEAD NEAREST RED DOT BACK OVER DIODE BODY AS SHOWN
 - XIX 483218 AND 208975 MUST NOT BE SUBJECTED TO ANY LIQUIDS

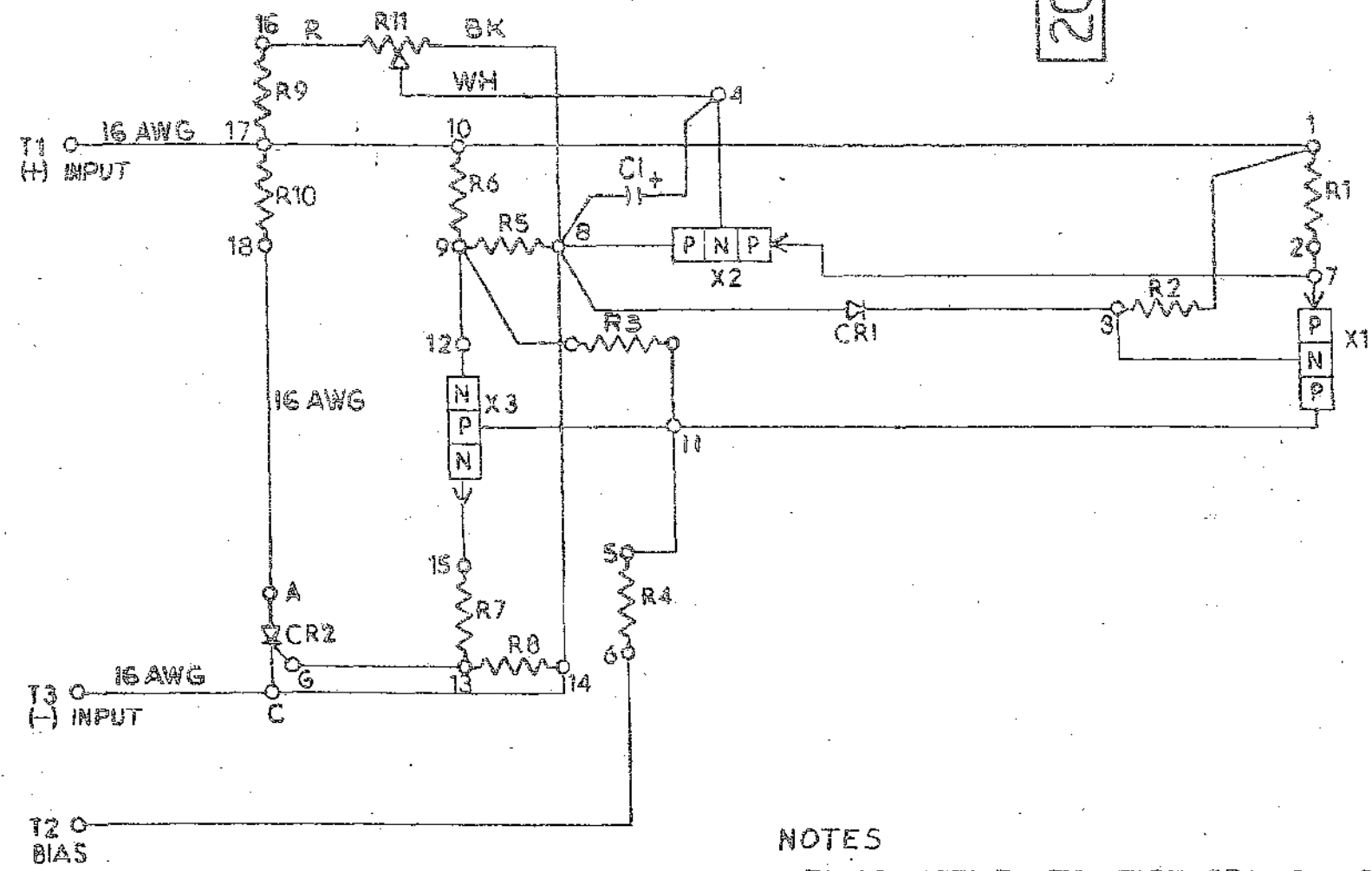


OPD CIRCUIT & PACKAGING STANDARD				HOLE PATTERN						
APPROVAL		DATE		493474						
JHT		1-24-62								
INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASM TSTR-OVER-				SEE INDEX CARD						88-2127
DESIGN EDF 12-20-61				MODEL	SMS	2-6-62		113685	MDL	
DETAIL JH 12-29-61				SCALE	NONE	3-6-62		114712	MDL	
CHECK EDF 1-4-62				DRAW	VE	7-16-62				
APPROV GW 5-8-62				CHECK						

370579

STANDARDS CODE	TECH SERVICES APPRO	SYM	DATE	CHANGE NO	TECH APPRO	SYM	DATE	CHANGE NO	TECH APPRO	DEVELOPMENT NO	Q/M
NONE	ELEC		10-30-59	105582F			2-16-60	105585H		101503	
RELEASED FOR ASM	QTY		11-18-59	105584L			1-10-61	110487			
208978	1		12-1-59	105584S						208979B	
			12-30-59	105584X							

208979B



COMPONENT CHART		
CODE	PART NO	DESCRIPTION
R1	317430	RESISTOR 5.6 K 1/2W
R2	317055	" 3.3 K 1W
R3	317025	" 6.8 K 1/2 W
R4	323920	" 3 K 1/2 W
R5	335138	" 200Ω 2W
R6	207328	" 400Ω 5W
R7	355683	" 51Ω 1W
R8	317007	" 220Ω 1/2 W
R9	208976	" 3.2 K 7W ±1%
R10	208970	" 0.5Ω 5W
R11	208952	POTENTIOMETER, 750Ω 1W
X1, X2	535441	TRANSISTOR, TYPE 026
X3	369087	" " 086
CR2	208975	RECTIFIER, CONTROLLED C35F
CR1	208950	DIODE, ZENER, IN429
C1	124575	CAP 0.22 MFD 35VDC

NOTES
 X ADJUST R11 TO FIRE CR1 AT 38.88 ± 0.040 VOLTS BETWEEN PINS 1 & 3 WITH BIAS OF 12 ± 2% VOLTS BETWEEN PINS 2 (-) & 3 (+)
 XI ALL WIRE 22 GAUGE UNLESS OTHERWISE NOTED

ISM MATERIAL	NO	TOLERANCE UNLESS OTHERWISE NOTED	DECIMALS ±	MUST CONFORM TO ENG SPEC 890350		INTERNATIONAL BUSINESS MACHINES CORP				
CASE DEPTH			FRACTIONS ±	ALIGNMENT WITHIN	NOTE I	NAME	WIRING DIAGRAM - OVERVOLTAGE			
HARDNESS			ANGLES ±	CONC TO DU WITHIN	TIR NOTE II	PROTECTION, ±36 VDC POWER SUPPLY				
SURFACE TREATMENT		CORNERS AND/OR EDGES BROKEN	OUTSIDE	FLAT WITHIN	NOTE III	DESIGN	PECO	9-30-59	TYPE	MISC
		RADI UNLESS OTHERWISE NOTED	INSIDE	PARALLEL TO DU WITHIN	NOTE IV	DETAIL	F.P.E	10-20-59	SCALE	NONE
				STRAIGHT WITHIN	NOTE V	CHECK	JDM	10-21-59	DRAW	
				SQUARE TO DU WITHIN	NOTE VI	APPRO	E.S.P	10-27-59	CHECK	

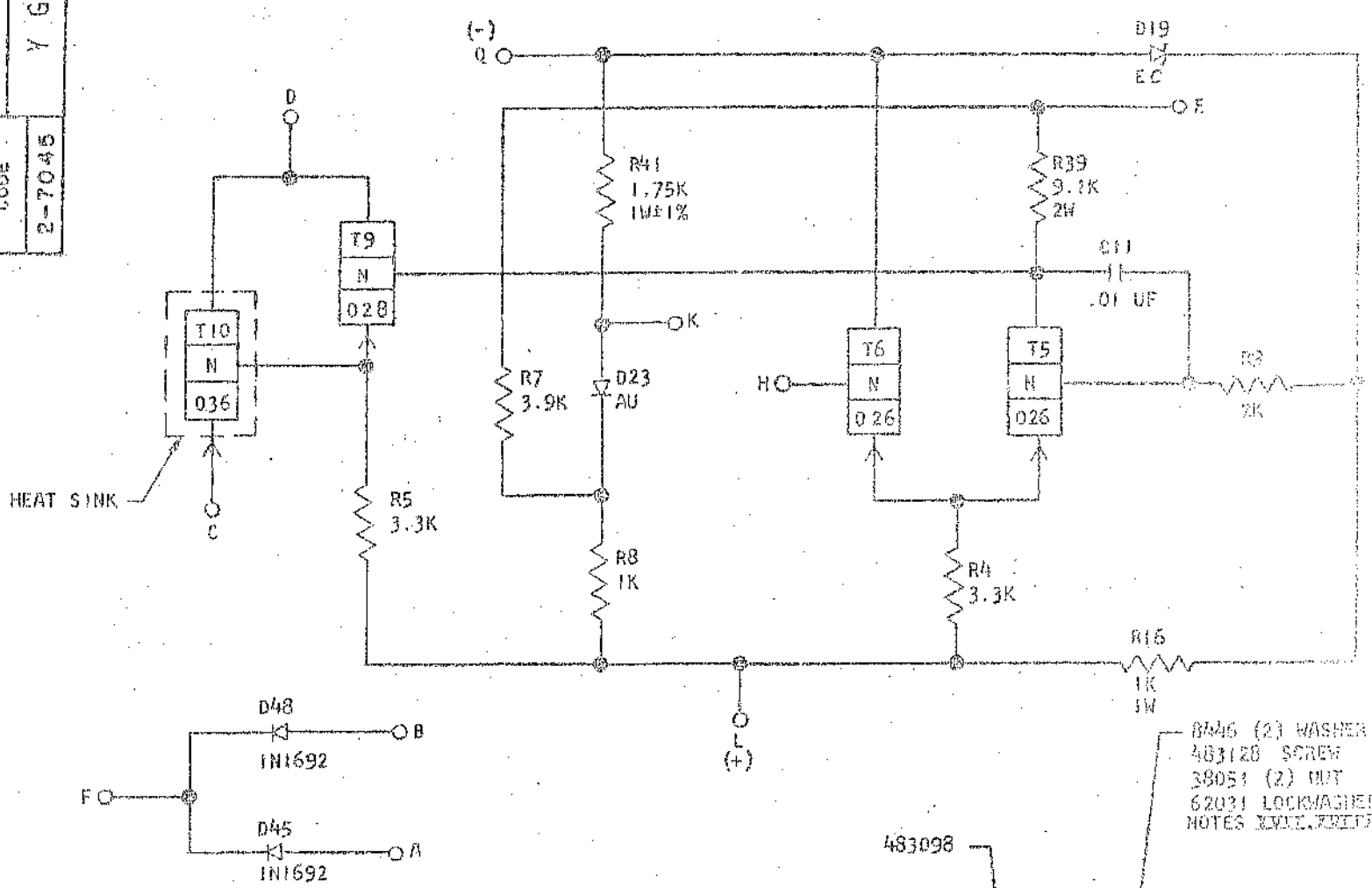
208979B

B

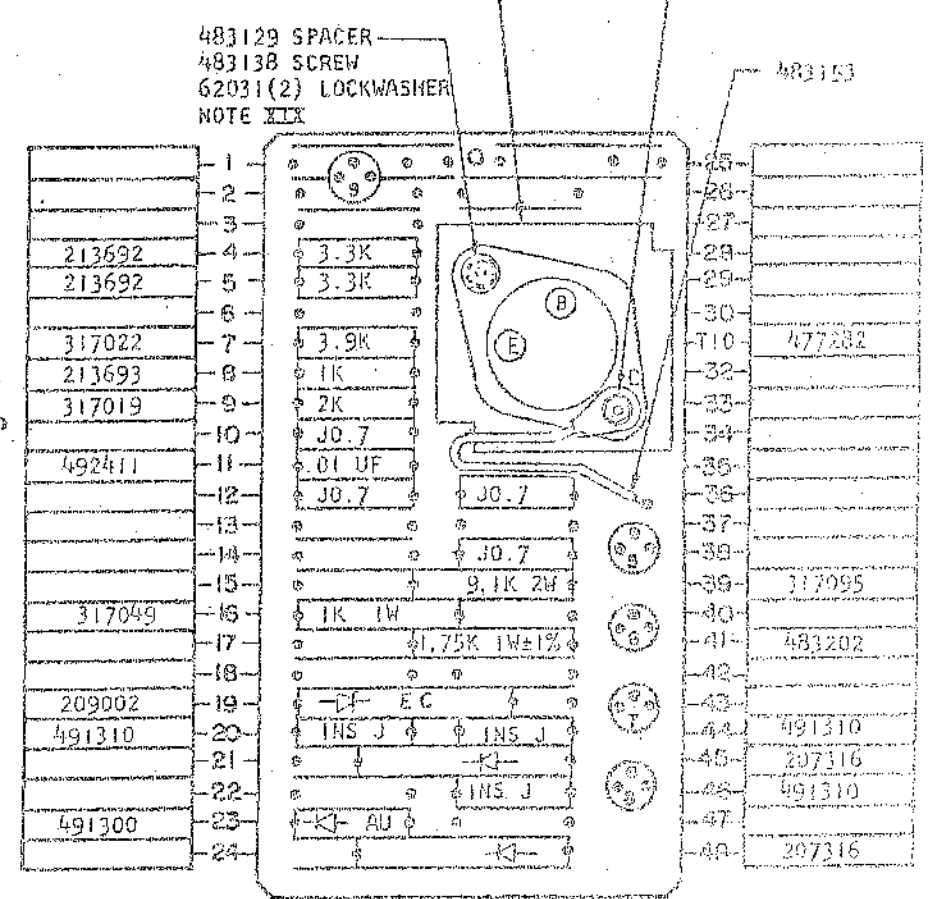
370607
STANDARDS CODE
2-7046
Y G F

20 VOLT DIFF. AMPLIFIER
MOUNT CARD ON ONE-INCH CENTERS - NOTE XIII

370607
RESTRICTED
NOTE XIX



- NOTES
- I CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892607
 - II ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
 - XII ALL RESISTORS ARE 1/2 WATT AND $\pm 5\%$ UNLESS OTHERWISE NOTED
 - XIII "J" IN BLOCK DENOTES BARE WIRE JUMPER 491296 UNLESS OTHERWISE NOTED
 - * XIV TECHNICAL LABORATORY EVALUATION INCOMPLETE. ADDITIONAL USAGE TO BE AVOIDED. THIS PART IS SUBJECT TO WITHDRAWAL.
 - XV DO NOT CRIMP TRANSISTOR LEADS.
 - XVI MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE SURFACE OF THE CARD WILL BE .610
 - XVII CASE IS ELECTRICALLY CONNECTED TO COLLECTOR, CONNECTION COMPLETED THROUGH JUMPER.
 - XVIII WASHER 8446 TO BE PLACED BETWEEN HEAT SINK AND CARD SURFACE.
 - XIX PLACE ONE LOCKWASHER 62031 ON EACH SIDE OF NUT



8446 (2) WASHER
483128 SCREW
38051 (2) NUT
62031 LOCKWASHER
NOTES XVII, XVIII

483129 SPACER
483138 SCREW
62031 (2) LOCKWASHER
NOTE XIX

483153

B

CIRCUIT AND PACKAGING STANDARD		APPROVAL		DATE		HOLE PATTERN		
		<i>J.H. Tolson</i>		<i>11/24/62</i>		493457		
INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASM TSTR - 20 VOLT DIFF. AMPLIFIER		6-8-61	111822	NOTE XIV	8-30-62	113136	NOTE XIV	88-2150
DESIGN	EDF 12-20-61	MODEL	SMS					
DETAIL	JH 12-29-61	SCALE	NONE					
CHECK	EDF 1-3-62	DRAW	HDE 1-8-62					
APPROV	L.W. 2-5-62	CHECK	BYAS 1-10-62					

370608

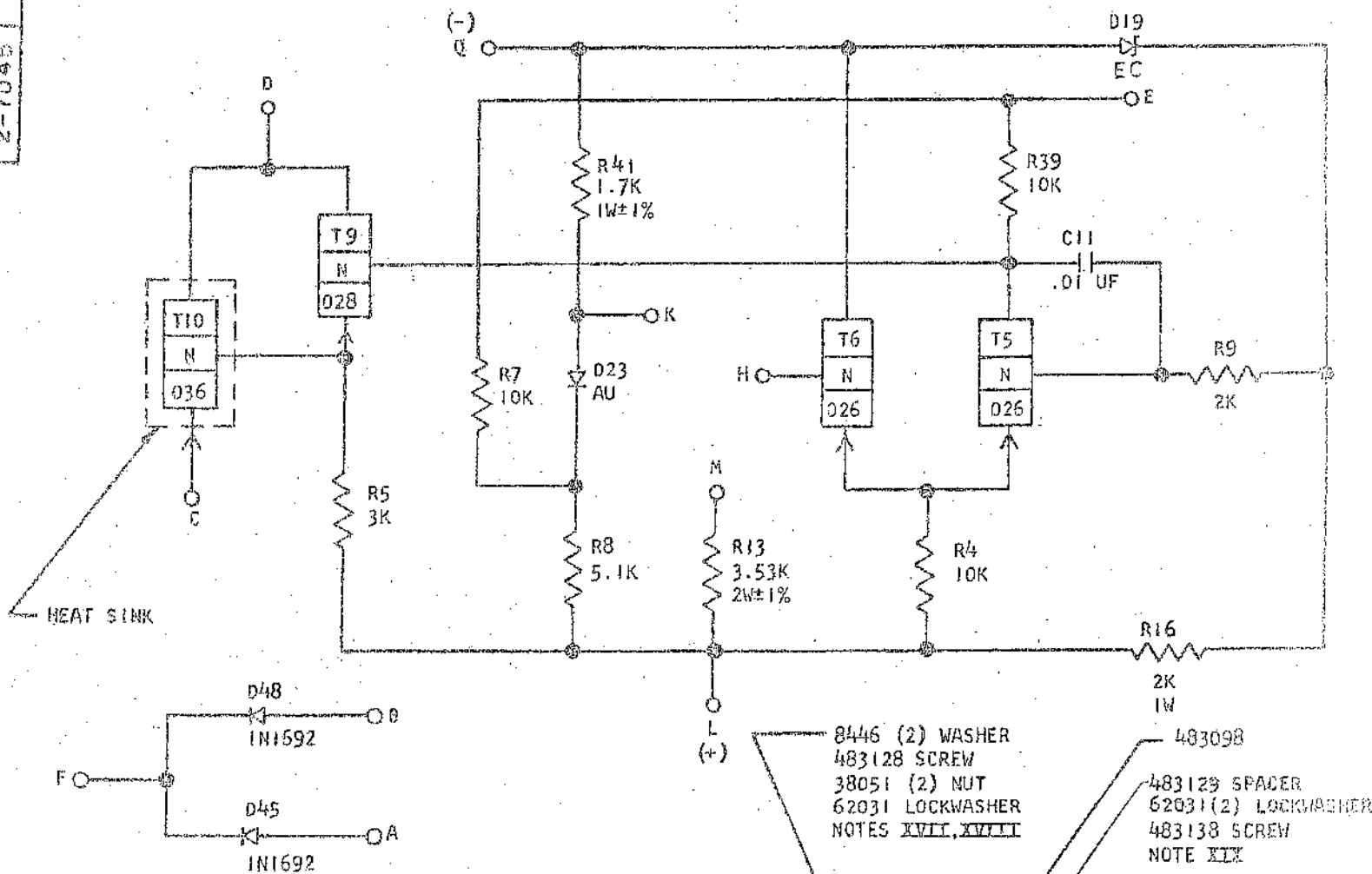
Y G G -

STANDARDS CODE

2-7045

30 VOLT DIFF. AMPLIFIER MOUNT CARD ON ONE-INCH CENTERS - NOTE XVI

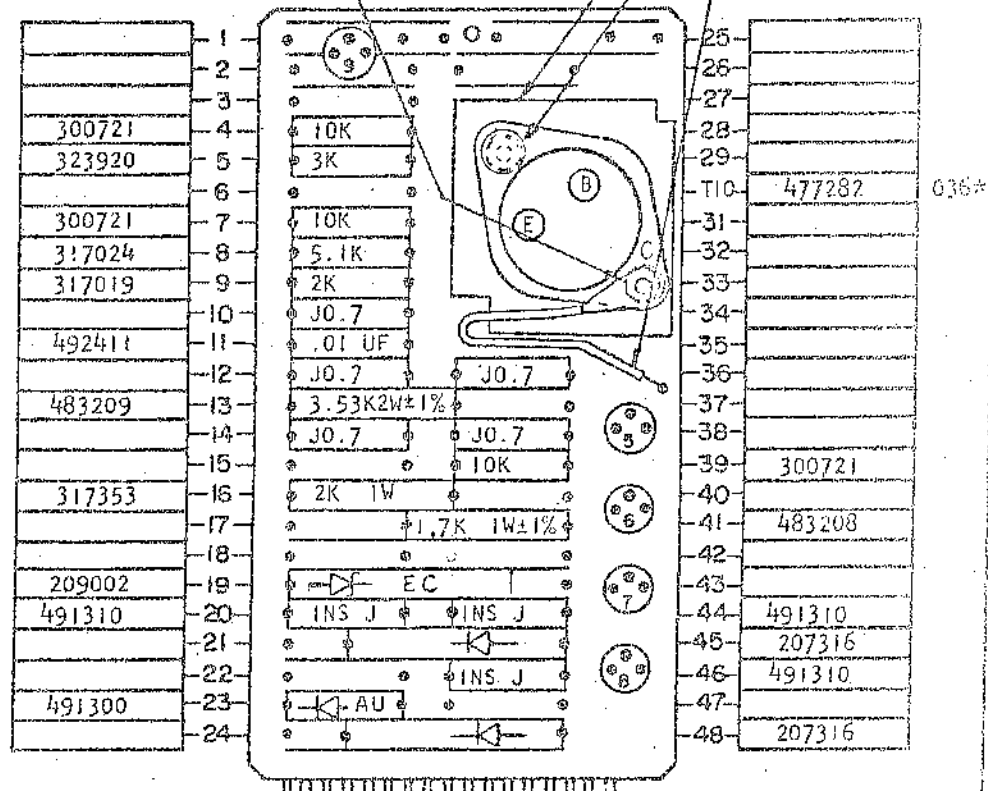
370608
RESTRICTED
NOTE XIV



- 8446 (2) WASHER
- 483128 SCREW
- 38051 (2) NUT
- 62031 LOCKWASHER
- NOTES XVII, XVIII
- 483098
- 483129 SPACER
- 62031(2) LOCKWASHER
- 483138 SCREW
- NOTE XIX
- 483153

NOTES

- I. CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892608
- II. ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
- III. ALL RESISTORS ARE 1/2 WATT AND $\pm 5\%$ UNLESS OTHERWISE NOTED
- IV. "J" IN BLOCK DENOTES BARE WIRE JUMPER 491296 UNLESS OTHERWISE NOTED
- * XV. TECHNICAL LABORATORY EVALUATION INCOMPLETE. ADDITIONAL USAGE TO BE AVOIDED. THIS PART IS SUBJECT TO WITHDRAWAL.
- XVI. DO NOT CRIMP TRANSISTOR LEADS
- XVII. MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE SURFACE OF THE CARD WILL BE .610.
- XVIII. CASE IS ELECTRICALLY CONNECTED TO COLLECTOR, CONNECTION COMPLETED THROUGH JUMPER.
- XIX. WASHER 8446 TO BE PLACED BETWEEN HEAT SINK AND CARD SURFACE.
- XX. PLACE ONE LOCKWASHER 62031 ON EACH SIDE OF NUT



B

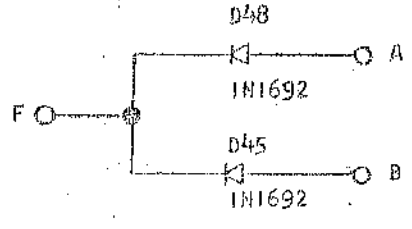
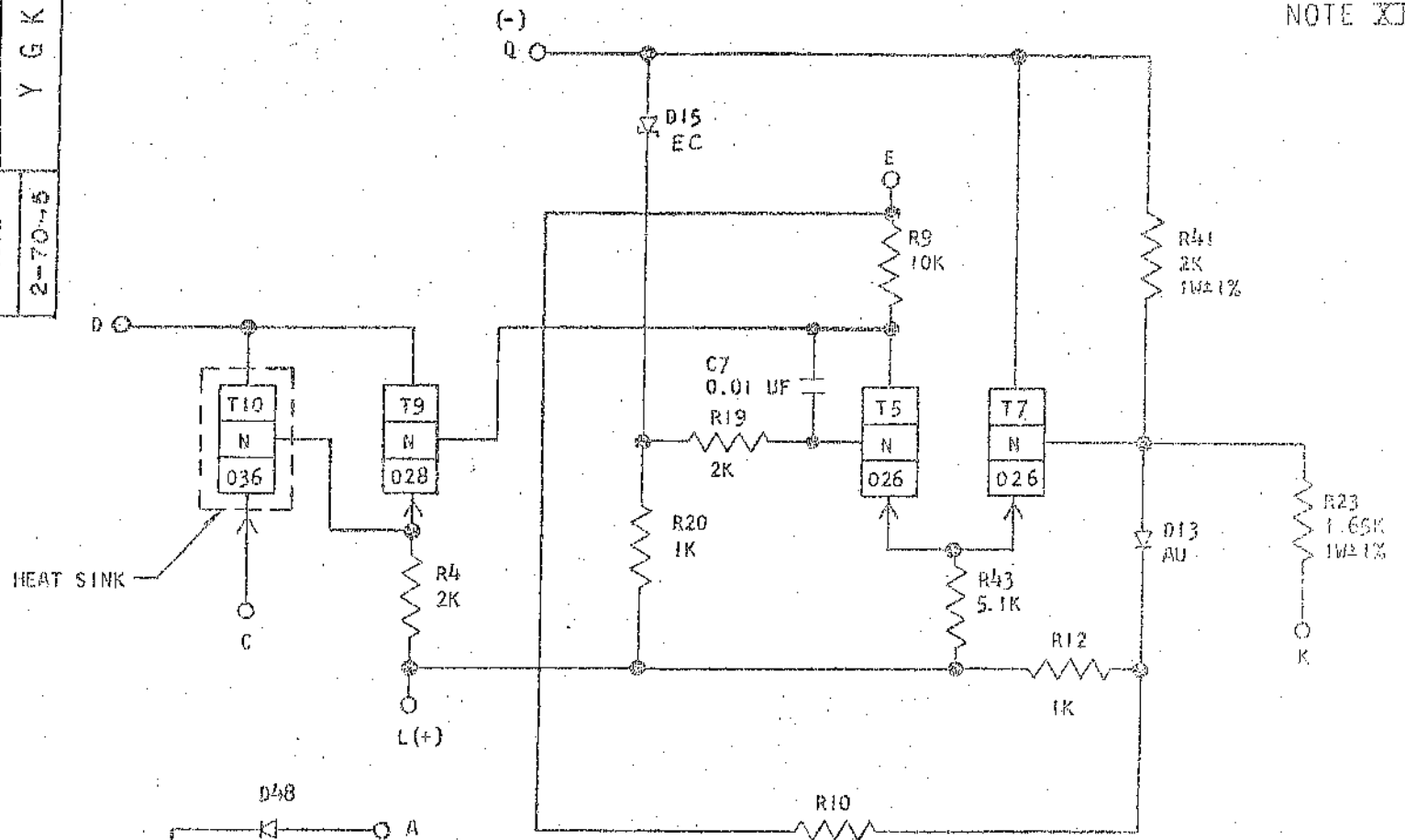
CIRCUIT AND PACKAGING STANDARD	
APPROVAL	DATE
JH Tol202	1/24/62
HOLE PATTERN	
493457	

INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME				6-8-61	111822	NOTE XIV	8-30-62	113136	NOTE XIV	88-2151
DESIGN				12-1-61	112448	NOTE XIV				
DETAIL				12-26-61	112448A	NOTE XIV				
CHECK				2-6-62	113685	NOTE XIV				
APPRO				3-28-62	113967	NOTE XIV				

62-3987-2 6-22-61

PRINTED CIRCUIT BOARD

370608

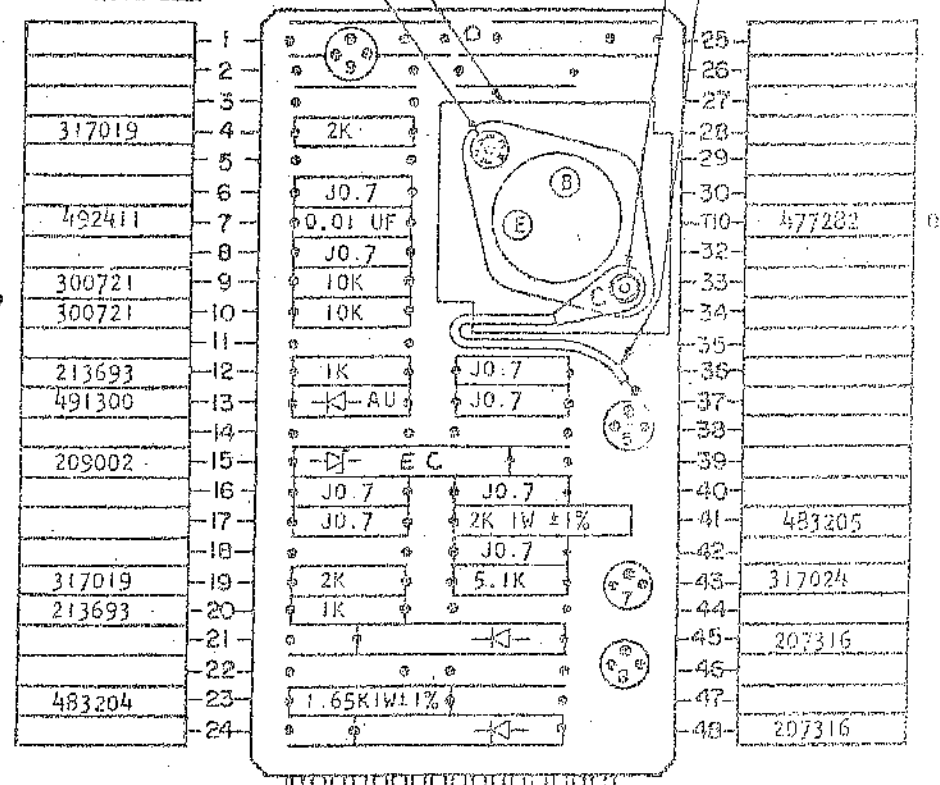


- 8446 (2) WASHER
- 483128 SCREW
- 38051 (2) NUT
- 62031 LOCKWASHER
- NOTES XVII, XVIII

- 483098
- 483129 SPACER
- 483138 SCREW
- 62031 (2) LOCKWASHER
- NOTE XIX

NOTES

- XI CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892611
- XII ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
- XIII ALL RESISTORS ARE 1/2 WATT AND $\pm 5\%$ UNLESS OTHERWISE NOTED
- XIV "J" IN BLOCK DENOTES BARE WIRE JUMPER 491296
- XV TECHNICAL LABORATORY EVALUATION INCOMPLETE. ADDITIONAL USAGE TO BE AVOIDED. THIS PART IS SUBJECT TO WITHDRAWAL.
- XVI DO NOT CRIMP TRANSISTOR LEADS.
- XVII MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE SURFACE OF THE CARD WILL BE .610.
- XVIII CASE IS ELECTRICALLY CONNECTED TO COLLECTOR. CONNECTION COMPLETED THROUGH JUMPER.
- XIX WASHER 8446 TO BE PLACED BETWEEN HEAT SINK AND CARD SURFACE.
- XX PLACE ONE LOCKWASHER 62031 ON EACH SIDE OF NUT



B

CIRCUIT AND PACKAGING STANDARD		HOLE PATTERN		COMPONENT SIDE			
APPROVAL	DATE	493457		T1			
<i>J.H. Tokson</i>	<i>1/24/62</i>			T2			
				T3			
				T4			
				T5	525441	026	
				T6			
				T7	535441	025	
				T8			
				T9			

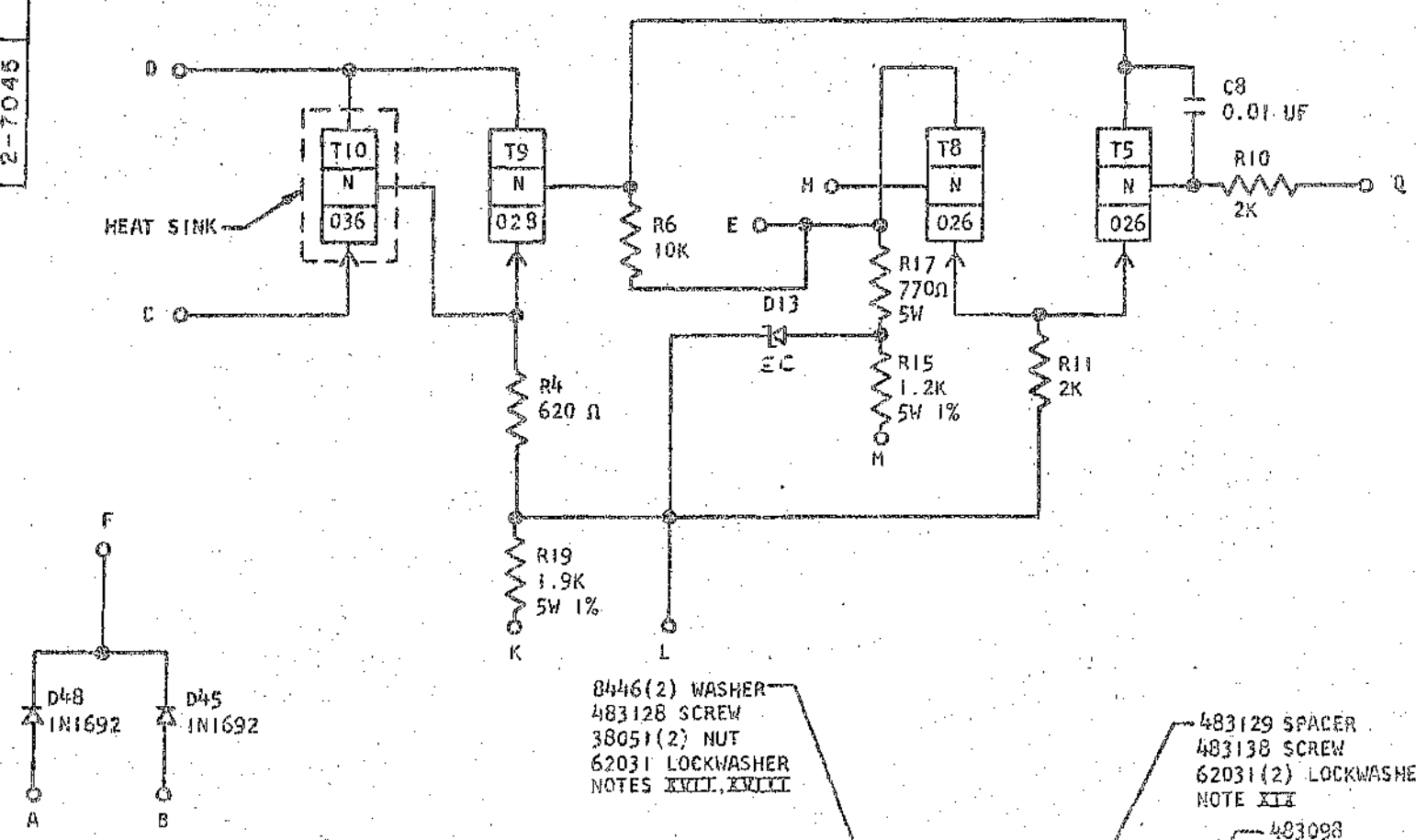
INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME	CARD ASM TSTR -20 VOLT	6-8-61	111822	NOTE XIV	8-30-62	113136	NOTE XIV	88-2160A
AT	15 AMP DIFF AMPLIFIER	12-1-61	112448	NOTE XIV				
DESIGN	EDF 12-20-61	MODEL	SMS					
DETAIL	JH 12-29-61	SCALE	NONE					
CHECK	EDF 1-4-62	DRAW	NDE 1-9-62					
APPROV	WV 2-5-62	CHECK	WV 1-10-62					

370612

6 VOLT DIFF AMPLIFIER
MOUNT CARD ON ONE INCH CENTERS - NOTE XVI

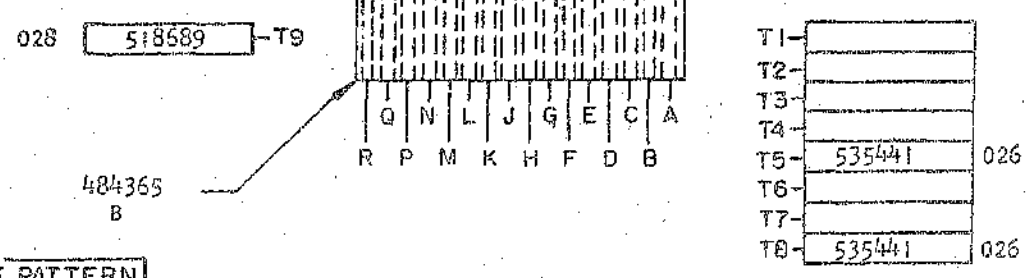
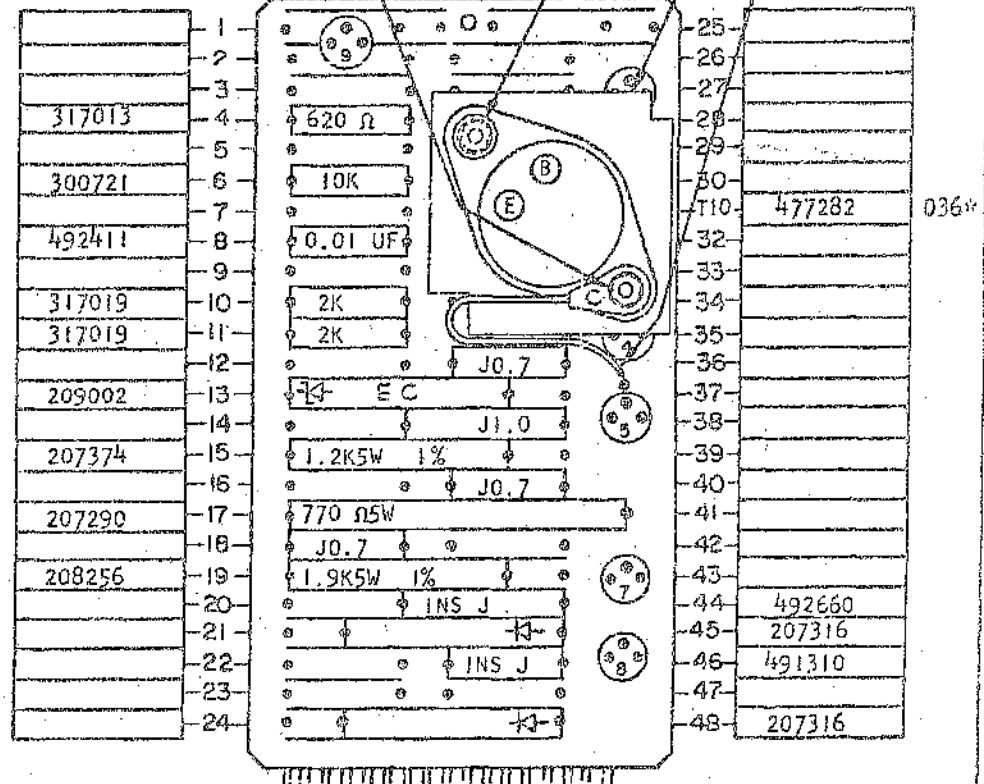
RESTRICTED NOTE XIV

STANDARDS CODE
370612
Y G L -
2-7045



- 8446(2) WASHER
- 483128 SCREW
- 38051(2) NUT
- 62031 LOCKWASHER
- NOTES XVIII, XXIX
- 483129 SPACER
- 483138 SCREW
- 62031(2) LOCKWASHER
- NOTE XII
- 483098
- 483153

- NOTES:
- XI. CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892612
 - XII. ASSEMBLE TO ENGINEERING SPECIFICATION 895396, 891999
 - XIII. ALL RESISTORS ARE 1/2 WATT AND $\pm 5\%$ UNLESS OTHERWISE NOTED
 - XIV. "J" IN BLOCK DENOTES BARE WIRE JUMPER 491296 UNLESS OTHERWISE NOTED
 - XV. TECHNICAL LABORATORY EVALUATION INCOMPLETE. ADDITIONAL USAGE TO BE AVOIDED. THIS PART SUBJECT TO WITHDRAWAL.
 - XVI. DO NOT CRIMP TRANSISTOR LEADS.
 - XVII. MAX HEIGHT THAT COMPONENTS MAY PROJECT ABOVE SURFACE OF CARD WILL BE .610
 - XVIII. CASE IS ELECTRICALLY CONNECTED TO COLLECTOR, CONNECTION COMPLETED THROUGH JUMPER
 - XIX. WASHER 8446 TO BE PLACED BETWEEN HEAT SINK AND CARD SURFACE
 - XX. PLACE ONE LOCKWASHER 62031 ON EACH SIDE OF NUT



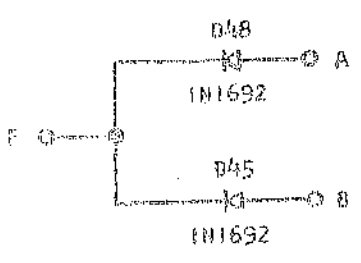
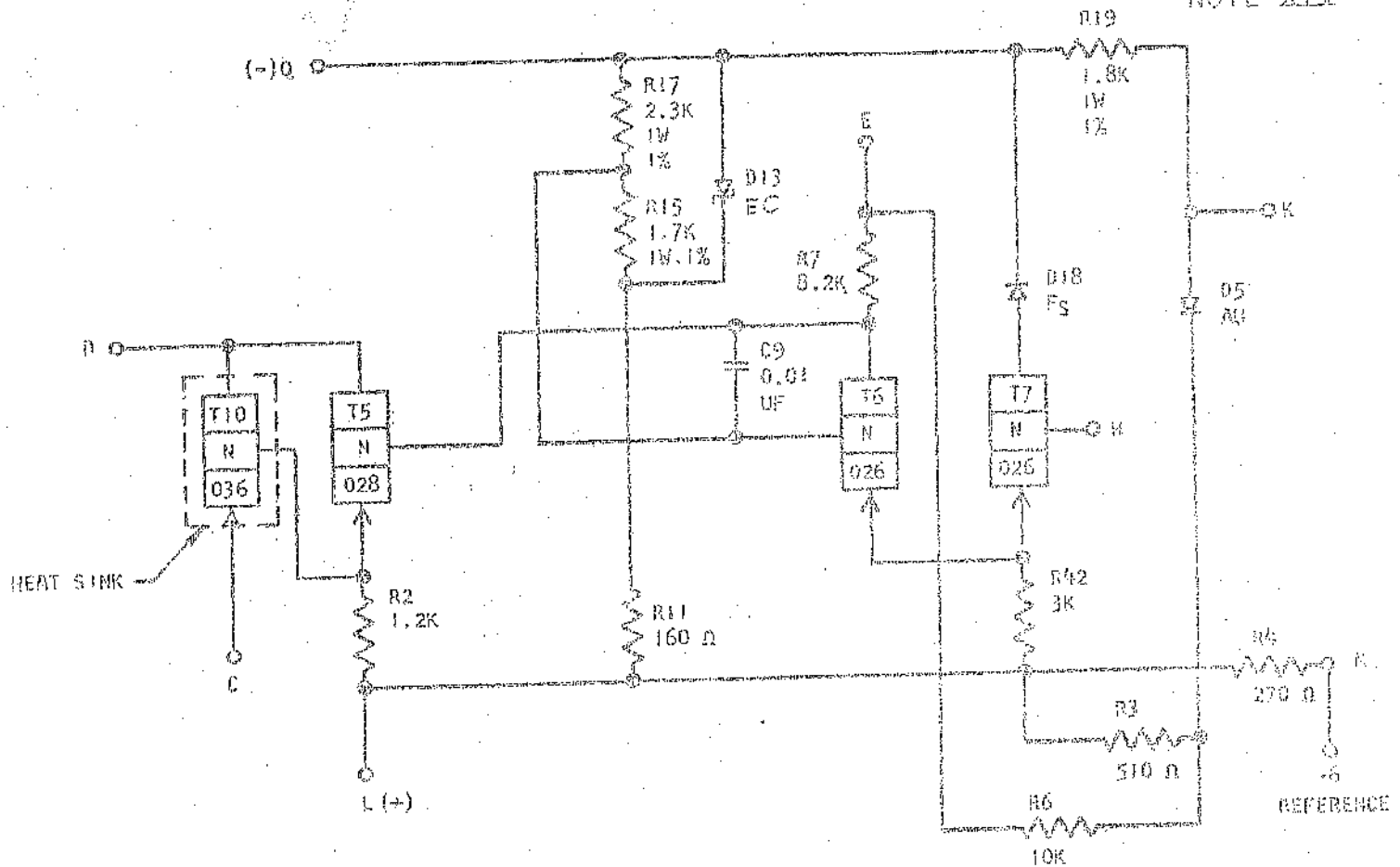
B

CIRCUIT AND PACKAGING STANDARD		HOLE PATTERN		COMPONENT SIDE							
APPROVAL	DATE	493457									
J H Tolson 1/24/62											
INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.	
NAME CARD ASM TSTR - 6 VOLT				6-8-61	111822	NOTE XIV				370612	
DIFF AMPLIFIER				12-1-61	112448	NOTE XIV					88-2149
DESIGN	EDF	12-20-61	MODEL SMS	12-26-61	112448A	NOTE XIV					
DETAIL	JH	12-29-61	SCALE NONE	2-6-62	113685	NOTE XIV					
CHECK	EDF	1-4-62	DRAW VE	1-9-62							
APPRO	GW	2-5-62	CHECK	1-10-62	3-28-62	113967	NOTE XIV				
82-3987-2				6-22-61							

370613
YGM -
STANDARDS CODE
2-7045

REFERENCE TO -6 VOLTS
MOUNT CARD ON ONE INCH CENTERS - NOTE XIII

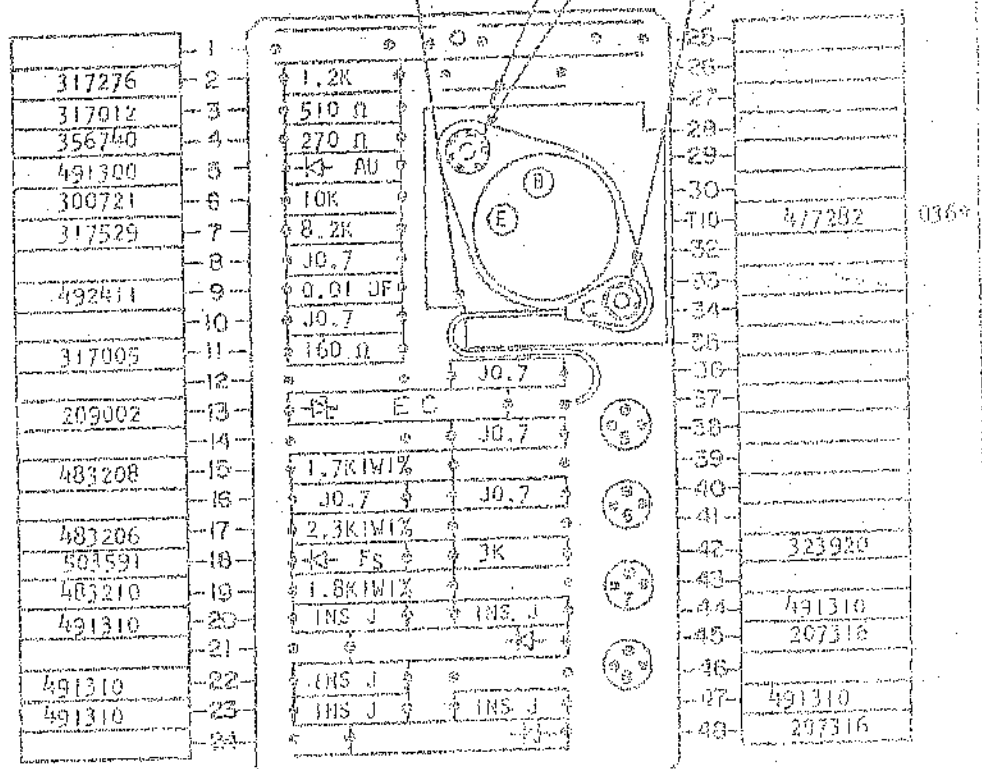
370613
RESTRICTED
NOTE XIV



- 483129 SPACER
- 483138 SCREW
- 62031(2) LOCKWASHER
- NOTE XIX
- 8446(2) WASHER
- 483128 SCREW
- 38051(2) NUT
- 62031 LOCKWASHER
- NOTES XVII, XVIII

NOTES

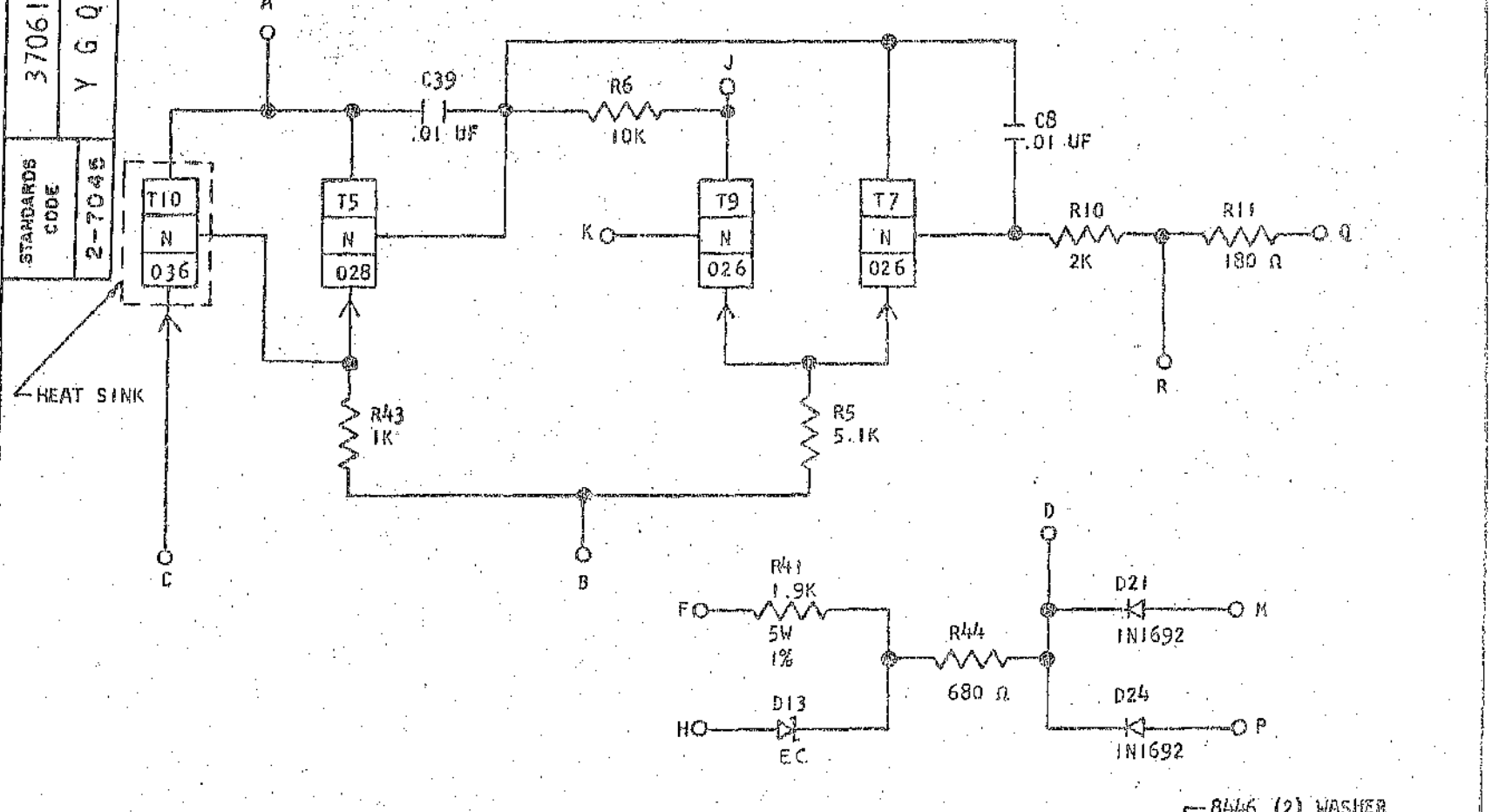
- I. CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892613
- II. ASSEMBLE TO ENGINEERING SPECIFICATION 895398 AND 891999
- III. ALL RESISTORS ARE 1/2 WATT AND $\pm 5\%$ UNLESS OTHERWISE NOTED
- IV. "1" IN BLOCK DENOTES BARE WIRE JUMPER 491296 UNLESS OTHERWISE NOTED
- * XV. TECHNICAL LABORATORY EVALUATION INCOMPLETE. ADDITIONAL USAGE TO BE AVOIDED. THIS PART IS SUBJECT TO WITHDRAWAL.
- VI. DO NOT CRIMP TRANSISTOR LEADS.
- VII. MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE SURFACE OF THE CARD WILL BE .610"
- VIII. CASE IS ELECTRICALLY CONNECTED TO COLLECTOR, CONNECTION COMPLETED THROUGH JUMPER.
- IX. WASHER 8446 TO BE PLACED BETWEEN HEAT SINK AND CARD SURFACE.
- X. PLACE ONE LOCKWASHER 62031 ON EACH SIDE OF NUT



1	
2	317276
3	317012
4	356740
5	491300
6	300721
7	317529
8	
9	492411
10	
11	317005
12	
13	209002
14	
15	483208
16	
17	483206
18	503591
19	403210
20	491310
21	
22	491310
23	491310
24	

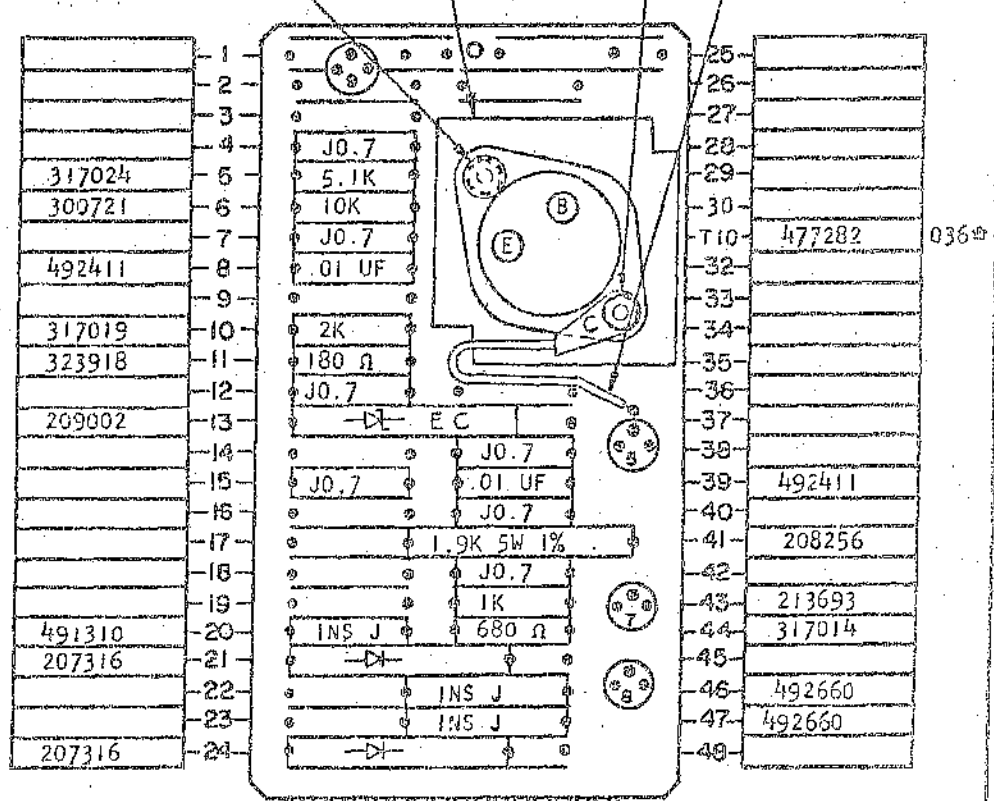
25	
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31	477282
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42	323920
43	
44	491310
45	207316
46	
47	491310
48	207316

CIRCUIT AND PACKAGING STANDARD		MOLE PATTERN		COMPONENT SIDE			
APPROVAL	DATE	493457					
JH Tolson 1/24/62							
INTERNATIONAL BUSINESS MACHINES CORP.	DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASM TSTR -	6-8-61	111822	NOTE XII	6-21-62	0113950	NOTE XIV	88-2159
REFERENCE TO -6 VOLTS	12-1-61	112448	NOTE XIII	8-30-62	113135	NOTE XIV	
DESIGN PDF	12-20-61	MODEL SMS	NOTE XIV				
REVIEW JH	12-29-61	SCALE NONE					
CHECK EDT	1-1-62	DRAW VE	NOTE XIV				
APPROVAL	12-29-61	CHECK	NOTE XIV				
82-3987-2 6-22-61							



- NOTES
- I CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION 892616
 - II ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
 - III ALL RESISTORS ARE 1/2 WATT AND $\pm 5\%$ UNLESS OTHERWISE NOTED
 - IV "J" IN BLOCK DENOTES BARE WIRE JUMPER 491296 UNLESS OTHERWISE NOTED
 - * V TECHNICAL LABORATORY EVALUATION INCOMPLETE. ADDITIONAL USAGE TO BE AVOIDED. THIS PART SUBJECT TO WITHDRAWAL.
 - VI DO NOT CRIMP TRANSISTOR LEADS.
 - VII MAXIMUM HEIGHT THAT COMPONENTS MAY PROJECT ABOVE SURFACE OF CARD WILL BE .610.
 - VIII CASE IS ELECTRICALLY CONNECTED TO COLLECTOR. CONNECTION COMPLETED THROUGH JUMPER.
 - IX WASHER 8446 TO BE PLACED BETWEEN HEAT SINK AND CARD SURFACE
 - X PLACE ONE LOCKWASHER 62031 ON EACH SIDE OF NUT

- 483129 SPACER
- 483138 SCREW
- 62031(2) LOCKWASHER
- NOTE XIX
- 8446 (2) WASHER
- 483128 SCREW
- 38051 (2) NUT
- 62031 LOCKWASHER
- NOTES XIII, XVIII
- 483098
- 483153



B

CIRCUIT AND PACKAGING STANDARD		HOLE PATTERN		DATE				DEVELOPMENT NO.	
APPROVAL	DATE	493457		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL
J.H. Tokos	1/24/62			6-8-61	111822	NOTE XIII			
				12-1-61	112448	NOTE XIV			88-2165
DESIGN	EDF 12-20-61	MODEL	SMS	12-26-61	112448 A	NOTE XIV			
DETAIL	JH 12-29-61	SCALE	NONE	2-6-62	113685	NOTE XIV			
CHECK	EDF 1-4-62	DRAW	MDE 1-8-62	3-28-62	113967	NOTE XIV			
APPRO	GW S 2-4-62	CHECK	GW S 1-9-62						

82-3987-2 6-22-61

370616

805369D

42.80.11.2

WIRING DIAGRAM (POWER SUPPLY INDEX)

FR CH	LOGIC #	LOGIC	NAME	PART #	E C #
06 88	42.81.11.2	1406	POWER DISTRIBUTION	805387D	114227B
06 88	42.82.11.2	1406	POWER SUPPLY GATE LAYOUT	805388A	109581C
06 88	42.83.11.2	WIRING DIAGRAMS-	1406-12 VLT PWR SUPP	805372	109546

DATE	CHANGE NO
11-17-60	109547
2-14-61	109555A
3-17-61	109564A
5-26-61	109574
10-18-61	109581C
3-7-62	114227B

A

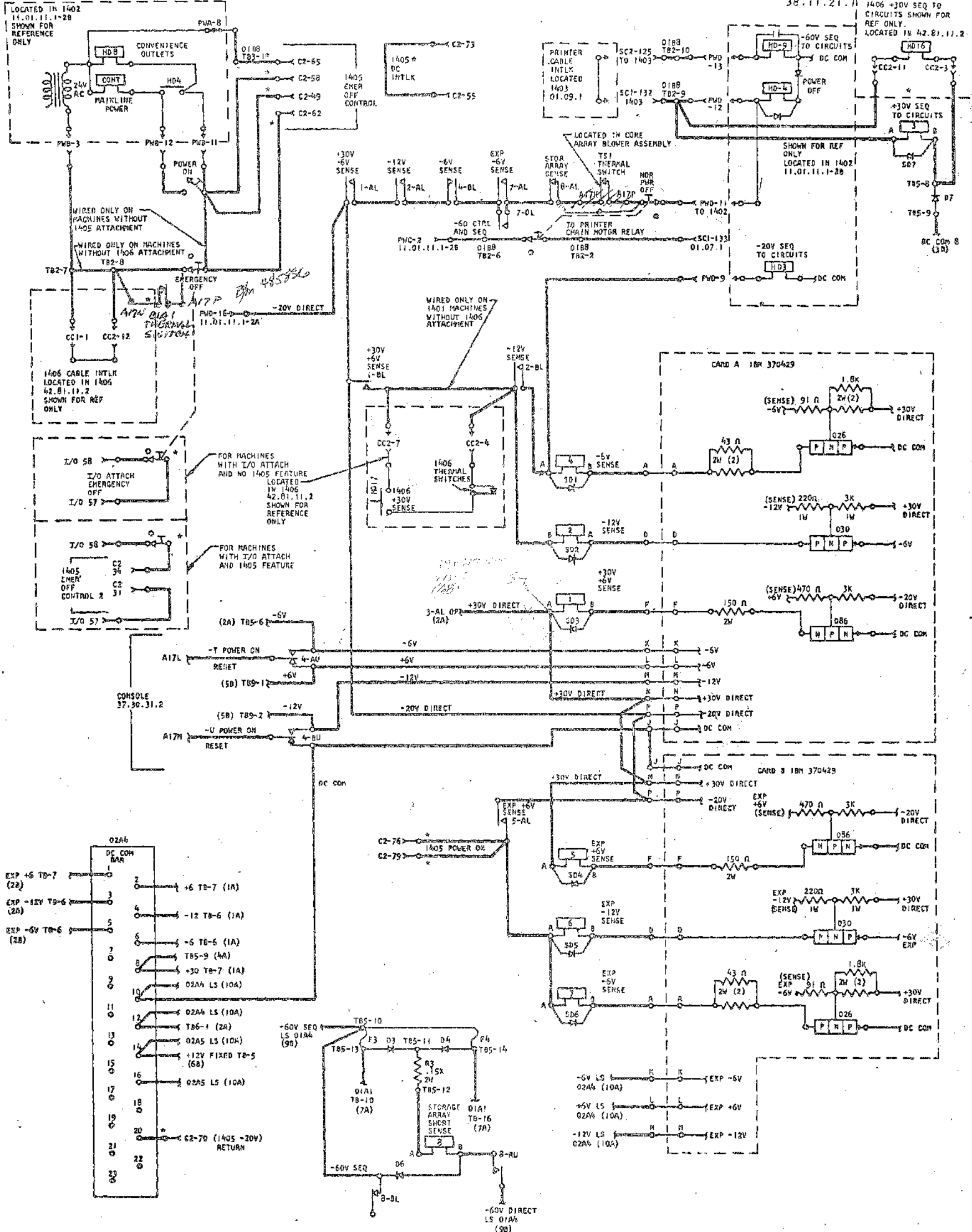
A

B

B

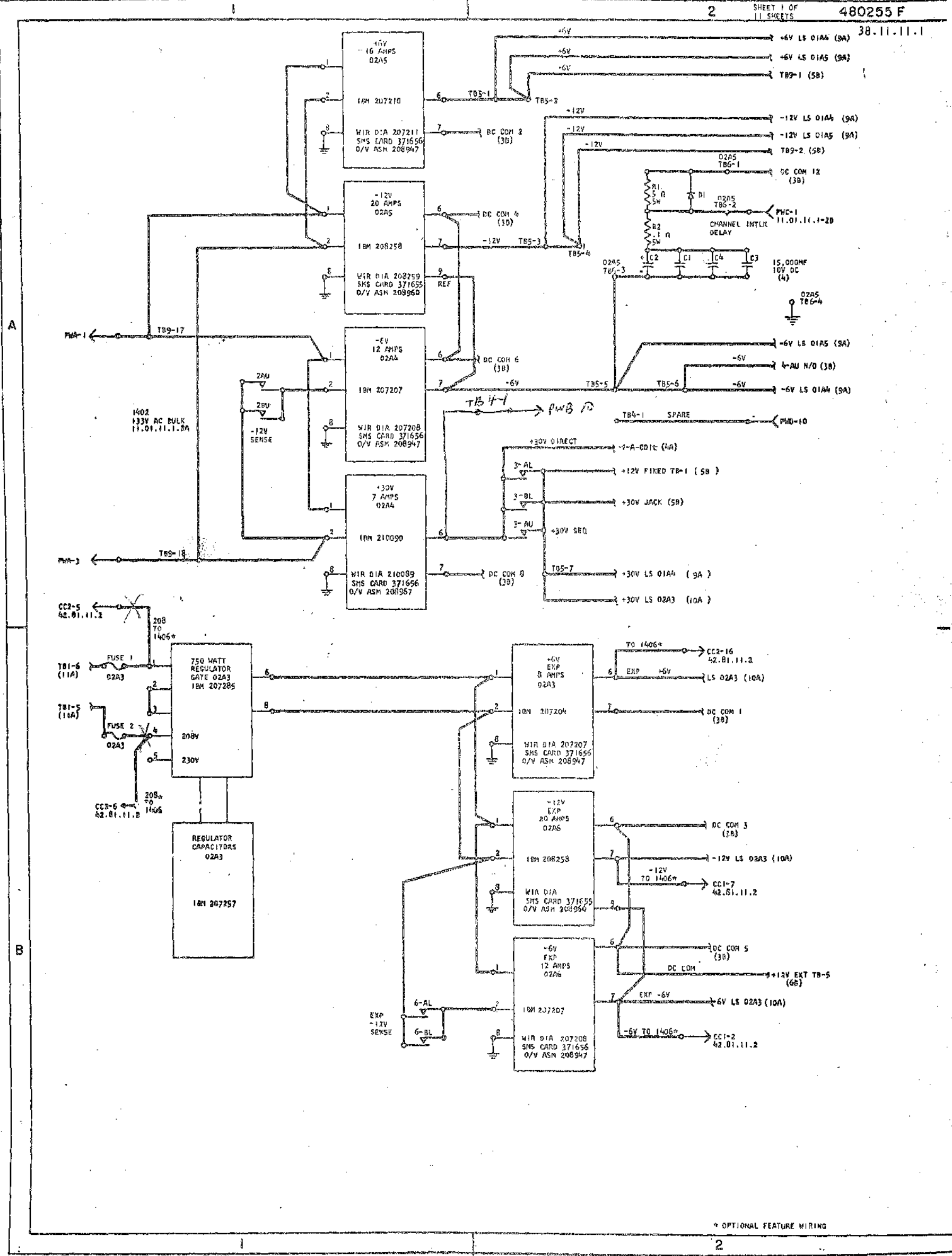
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C

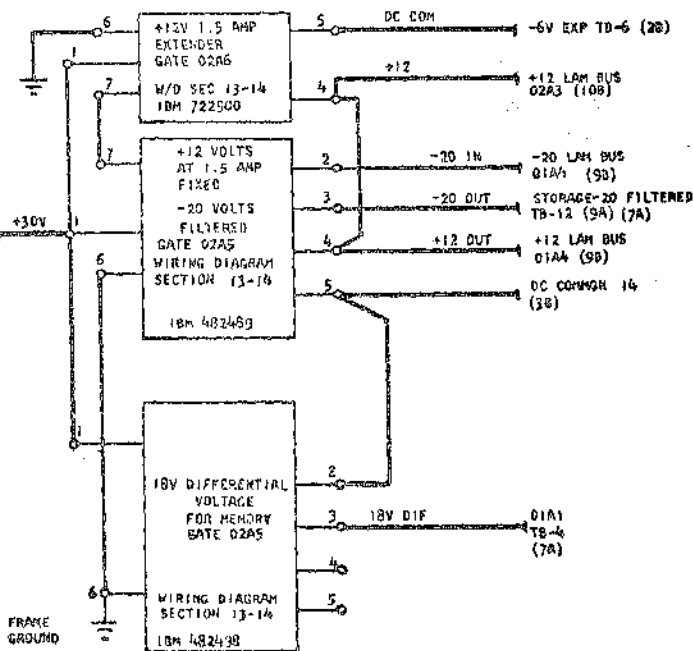
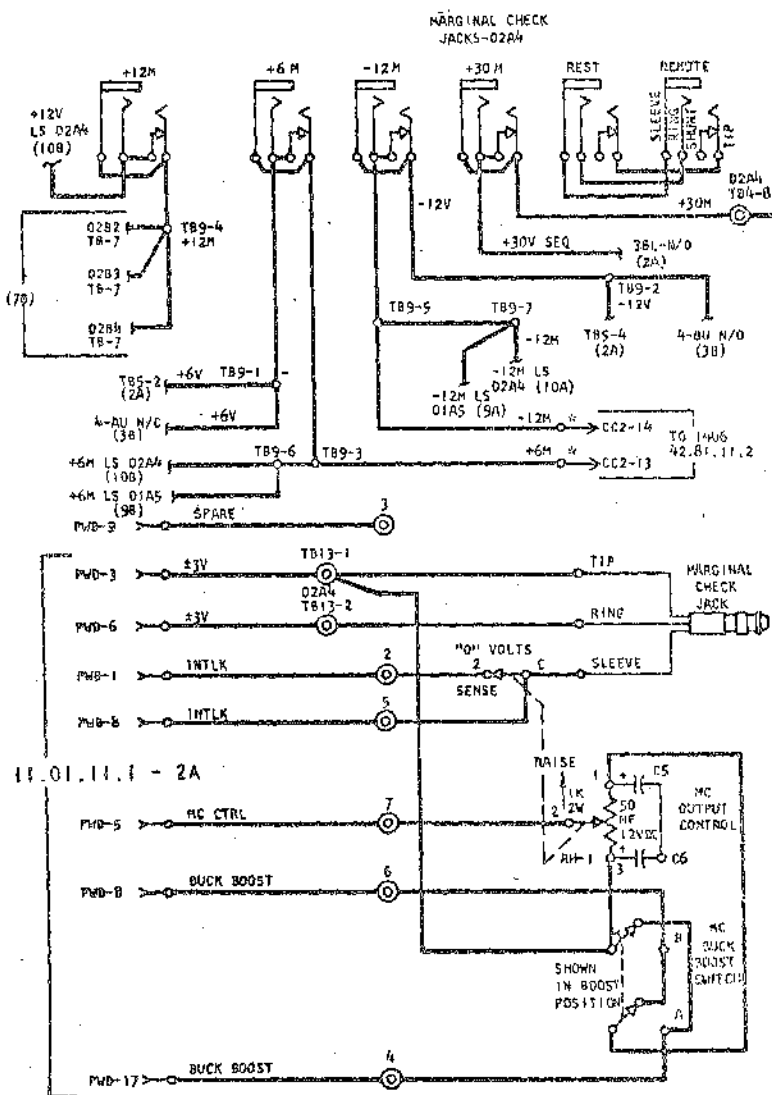


* OPTIONAL FEATURE WIRING

38-11-11.1

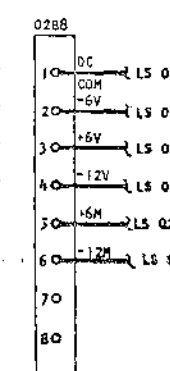
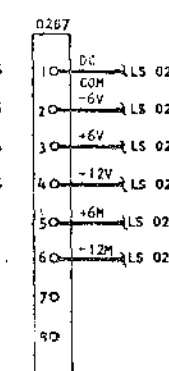
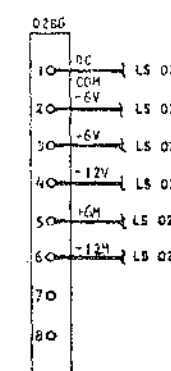
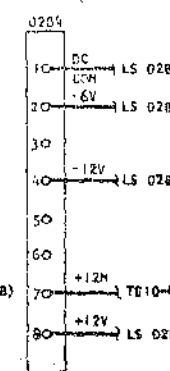
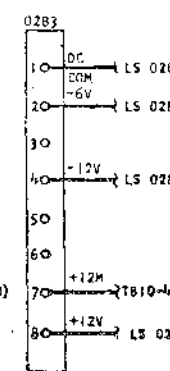
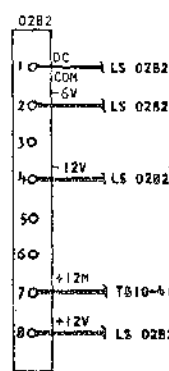
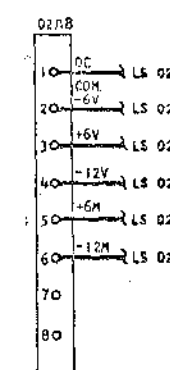
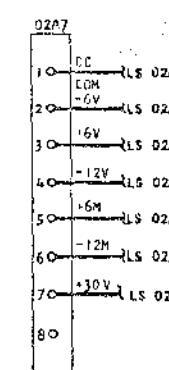
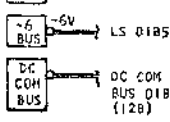
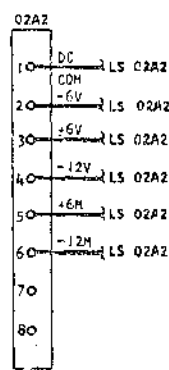
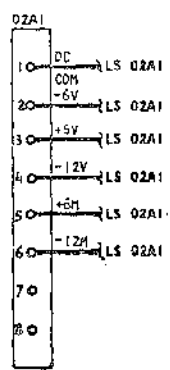
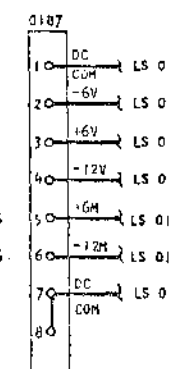
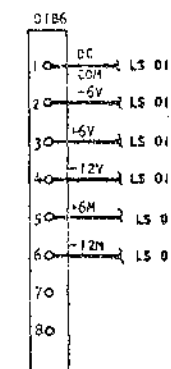
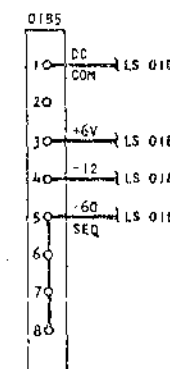
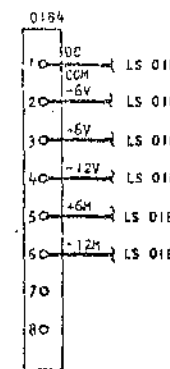
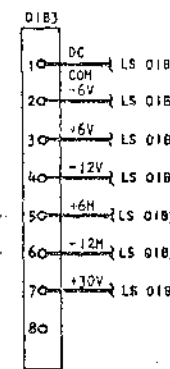
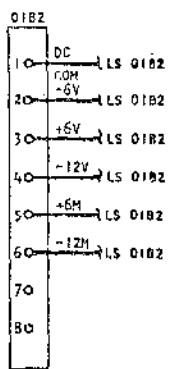
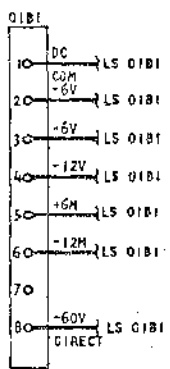
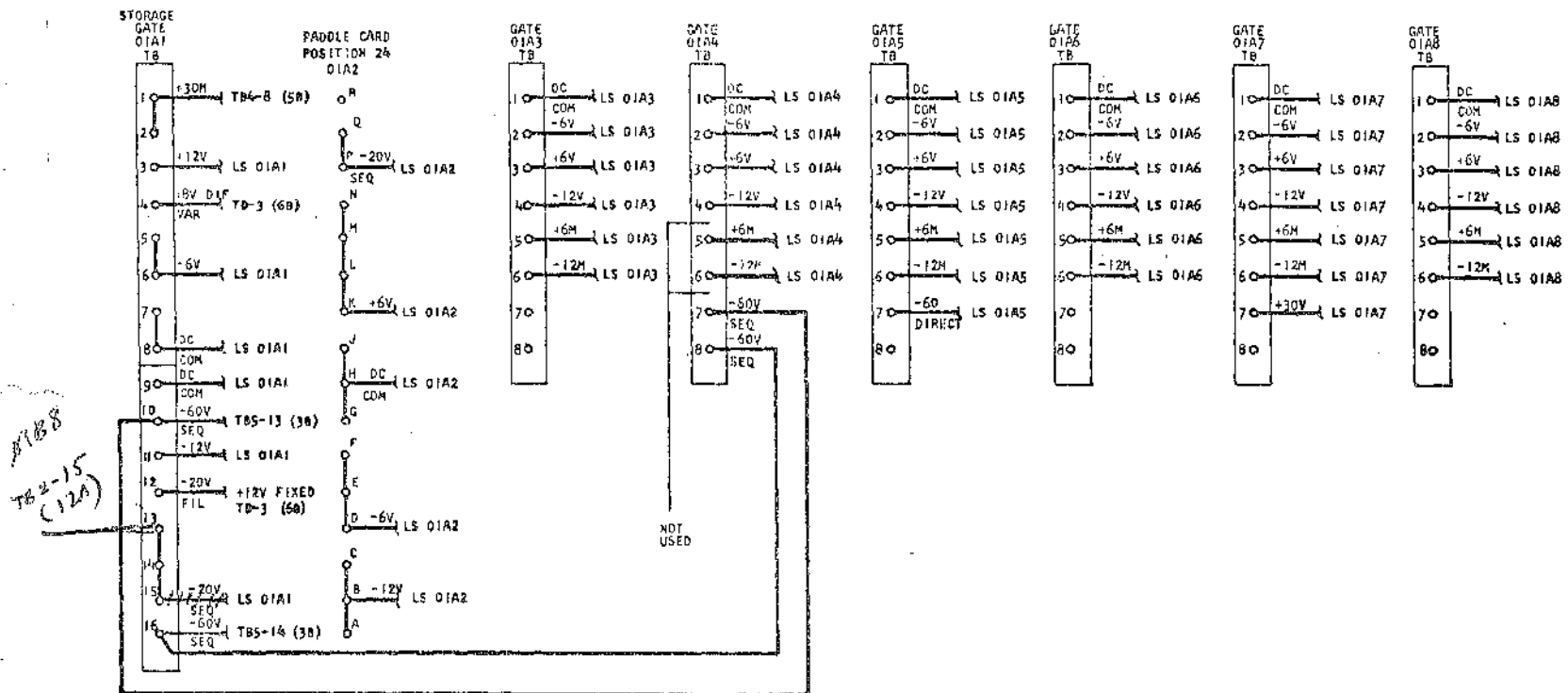


* OPTIONAL FEATURE WIRING

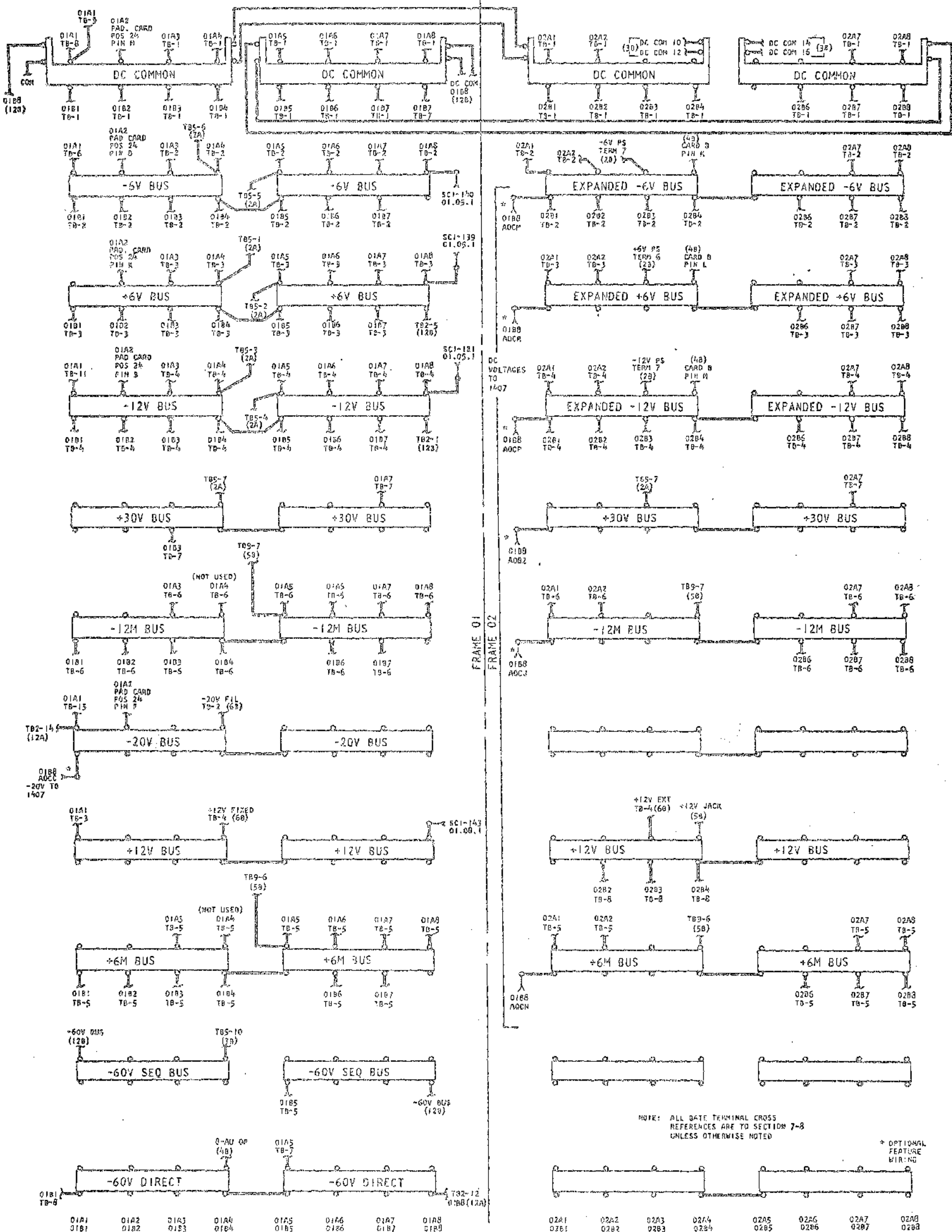


* OPTIONAL FEATURE WIRING

GATE TERMINAL BLOCKS-VOLTAGE DISTRIBUTION



NOTE: ALL LAMINAR STRIP (LS) CROSS REFERENCES ARE TO SECTION 9-10



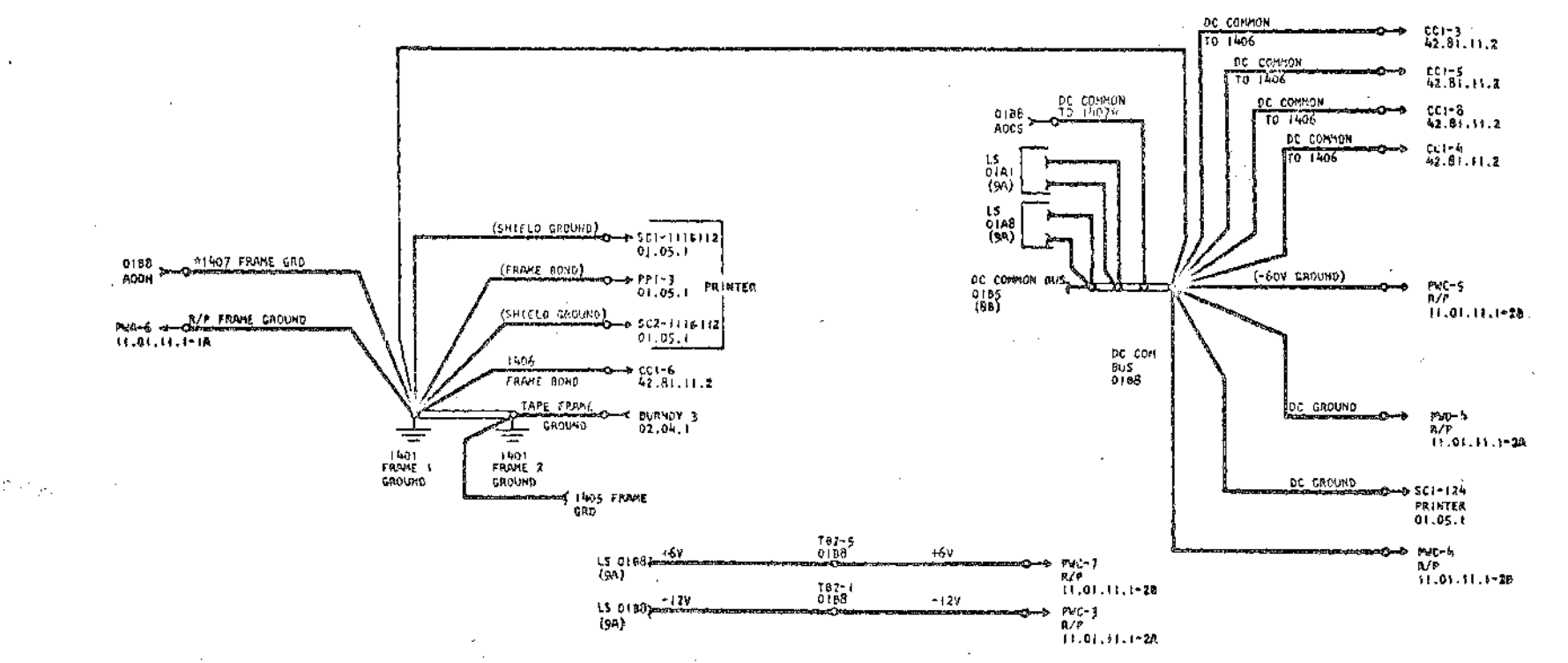
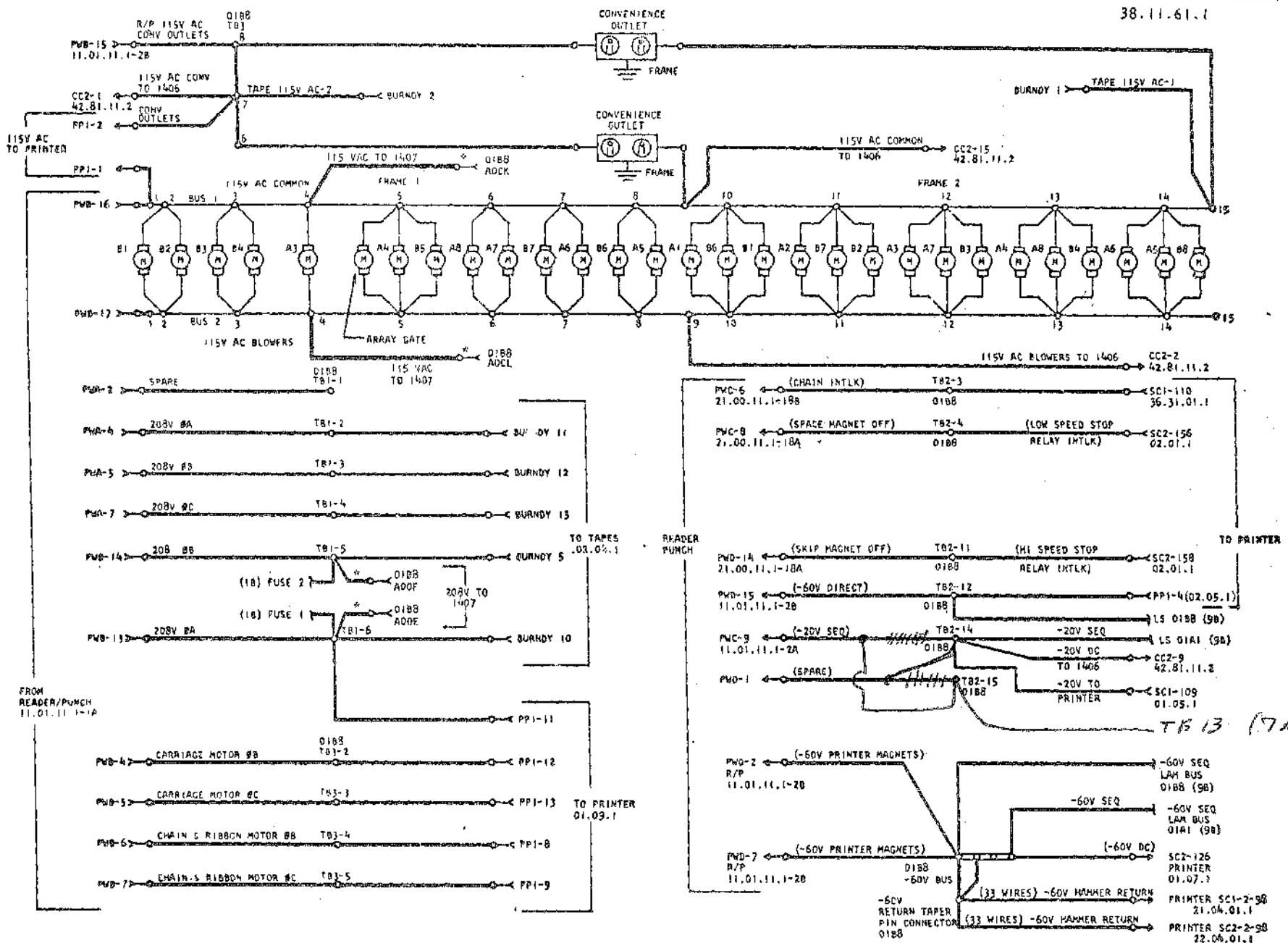
FRAME 01
FRAME 02

NOTE: ALL GATE TERMINAL CROSS REFERENCES ARE TO SECTION 7-8 UNLESS OTHERWISE NOTED

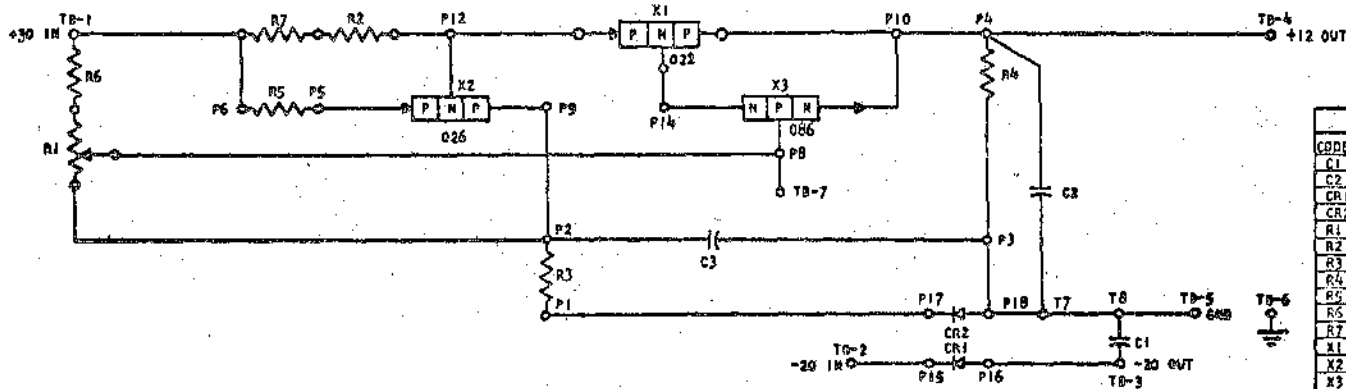
* OPTIONAL FEATURE WIRING

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01B1	01B2	01B3	01B4	01B5	01B6	01B7	01B8	02B1	02B2	02B3	02B4	02B5	02B6	02B7	02B8

38.11.61.1

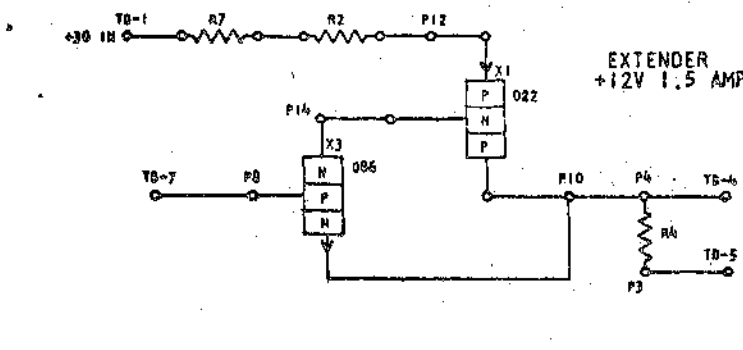


POWER SUPPLY
+12V AT 1.5 AMP
-20V FILTERED

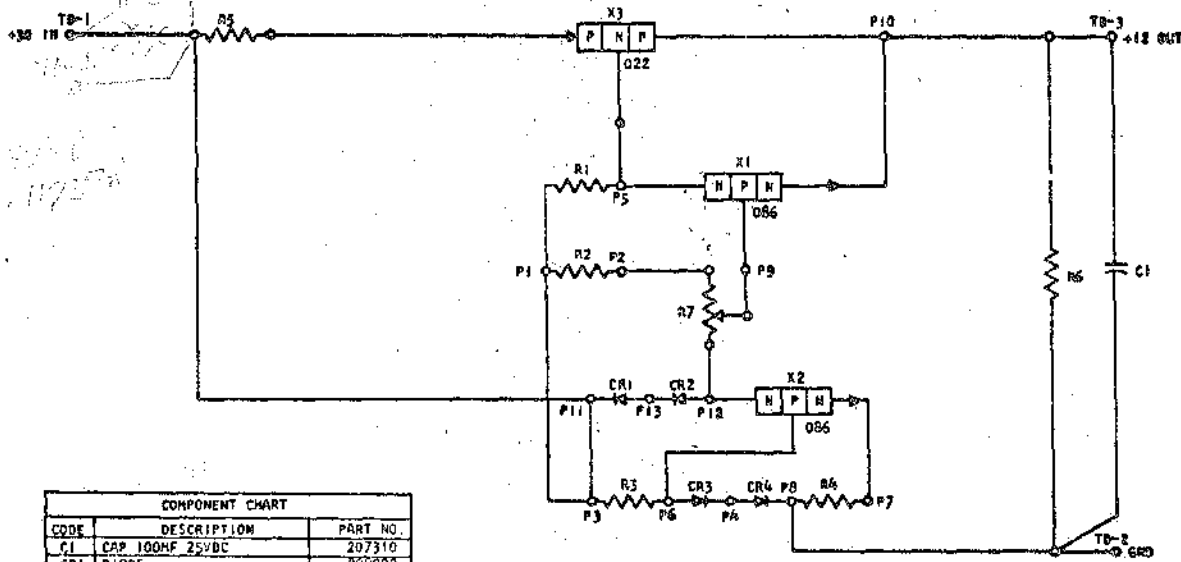


COMPONENT CHART		
CODE	DESCRIPTION	PART NO.
C1	CAP 100MF 25VDC	482490
C2	CAP 500MF 25VDC	207362
CR1	DIODE	257538
CR2	DIODE	209002
R1	POT 2.5K 5W	207340
R2	RESISTOR .005K 25W	501550
R3	RESISTOR .1K 5W	213835
R4	RESISTOR .12K 2W	317078
R5	RESISTOR 5.6K 5W	317490
R6	RESISTOR 1.6K 5W	317018
R7	RESISTOR .005K 25W	501550
X1	TRANSISTOR 022	526898
X2	TRANSISTOR 026	535441
X3	TRANSISTOR 086	369087
C3	CAP 1.0 MF 15V DC	492618

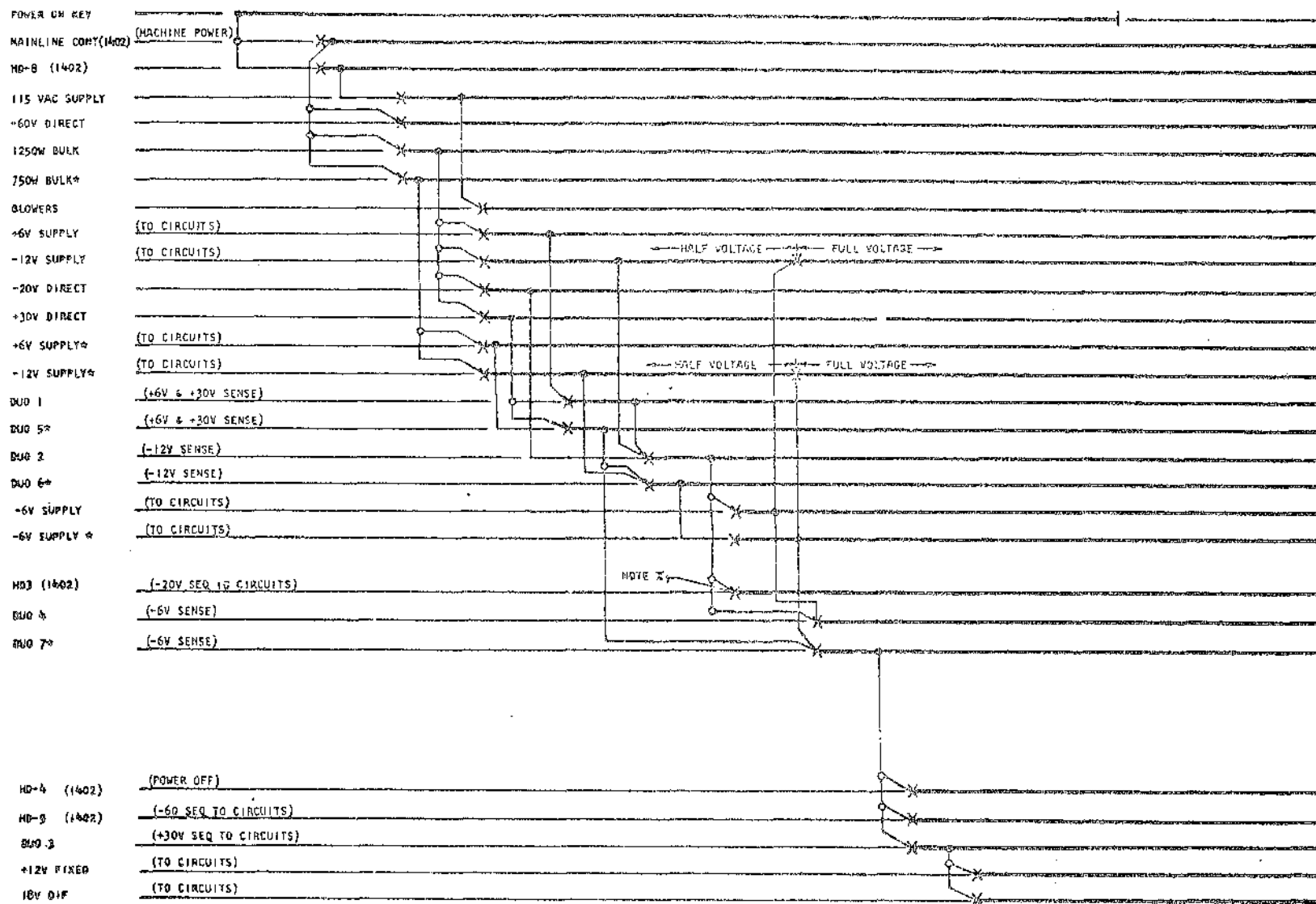
EXTENDER
+12V 1.5 AMP



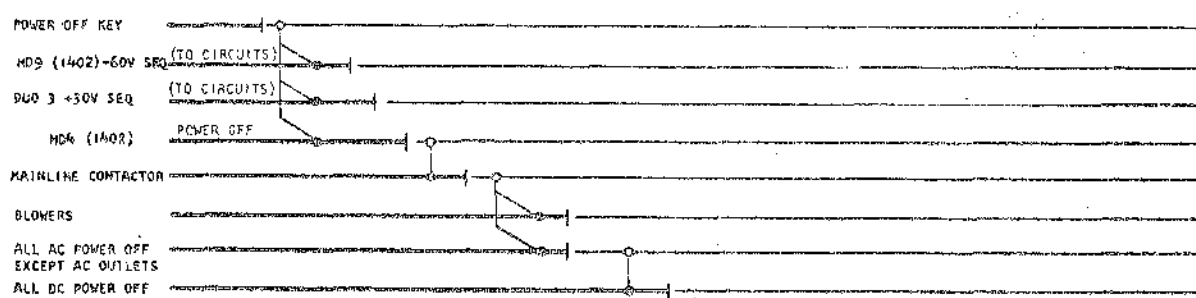
COMPONENT CHART		
CODE	DESCRIPTION	PART NO.
R2	RESISTOR .005K 25W	501550
R4	RESISTOR .12K 2W	317078
R7	RESISTOR .005K 25W	501550
X1	TRANSISTOR 022	526898
X3	TRANSISTOR 086	369087



1401-1402
POWER ON SEQUENCE



1401-1402
POWER OFF SEQUENCE

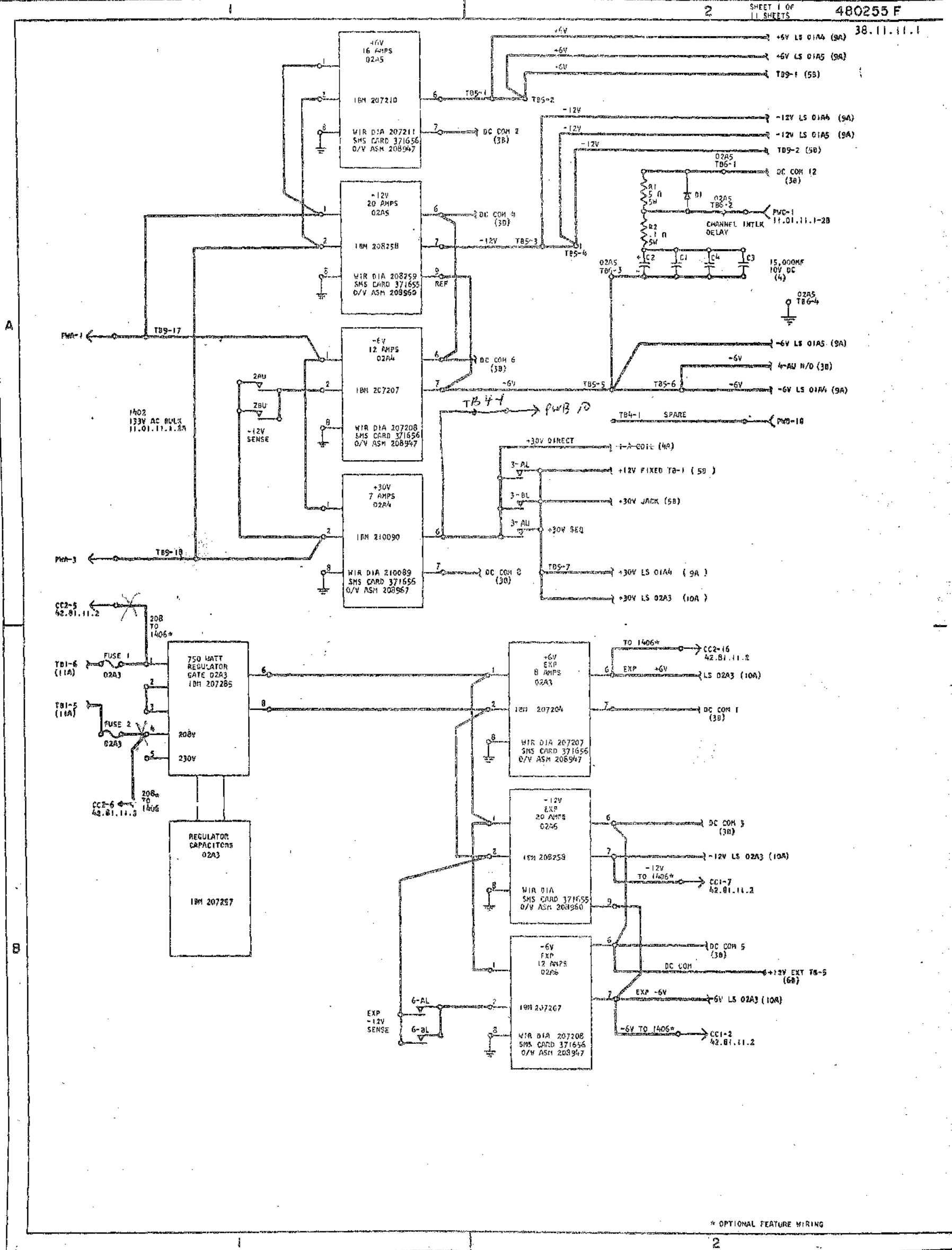


NOTE
X FOR SYSTEM MACHINES WITH INCREASED CORE STORAGE, THIS POINT ALSO SENSES THE 1406 +30V SENSE RELAY HD-17. FAILURE OF THE 1406 +30V SUPPLY WILL NOT ALLOW THE 1401-1402 TO SEQUENCE ANY FURTHER.

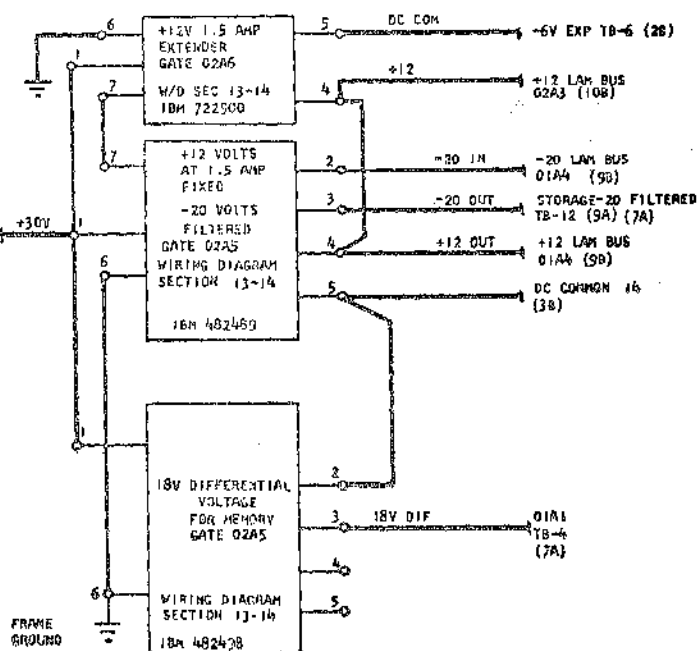
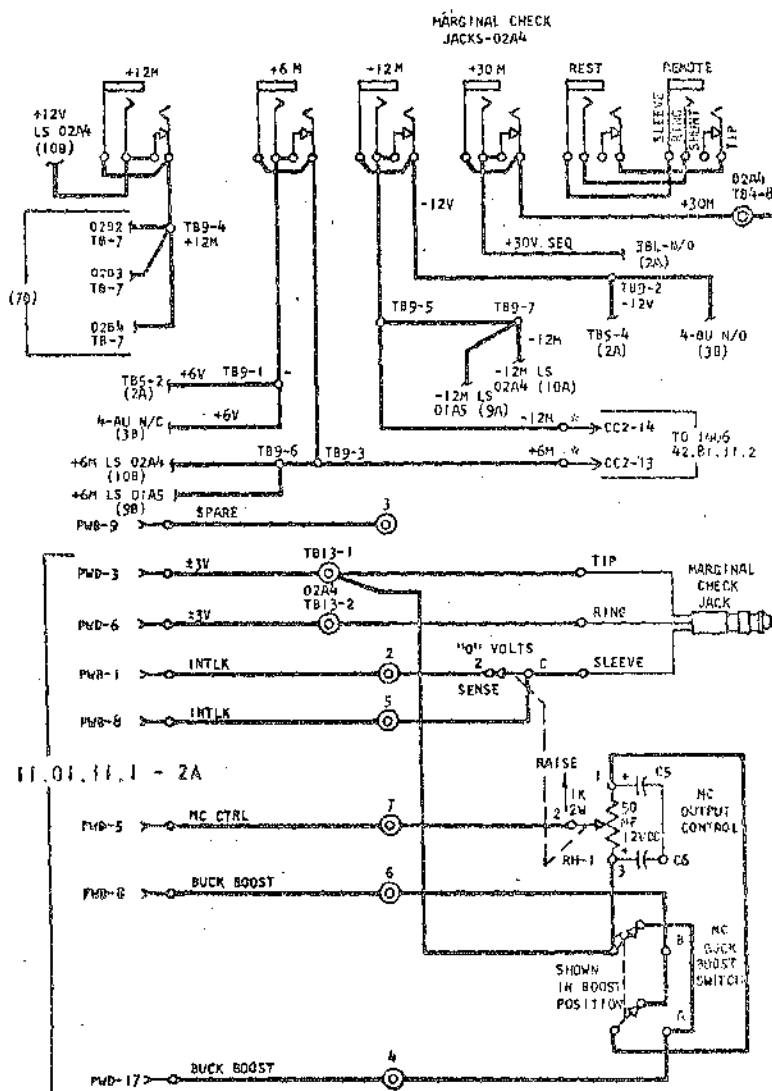
* EXPANDED (SUPPLIES IN GATES 02A3 AND 02A5)



38.11.11.1

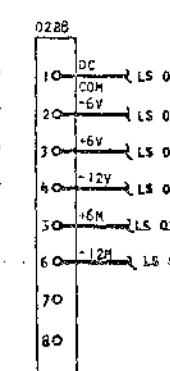
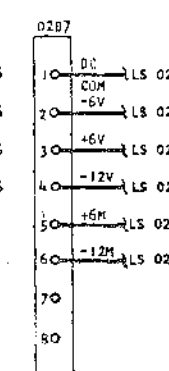
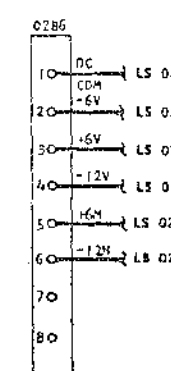
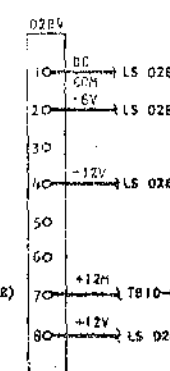
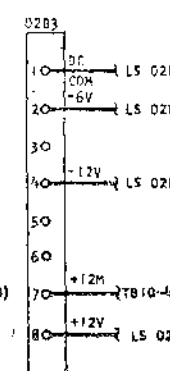
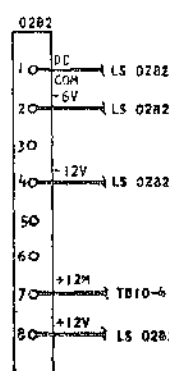
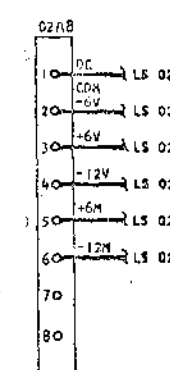
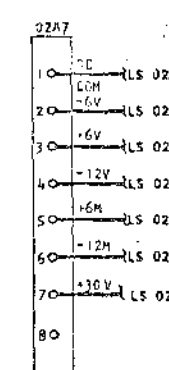
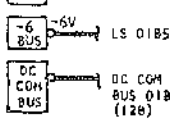
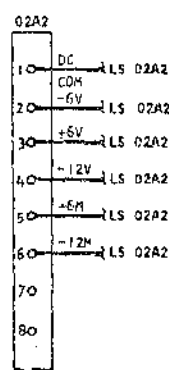
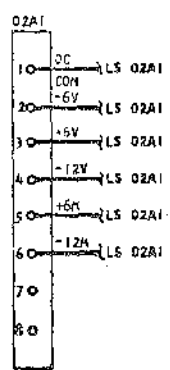
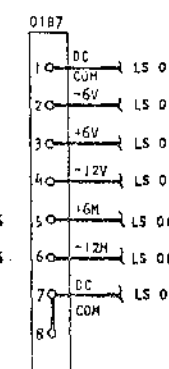
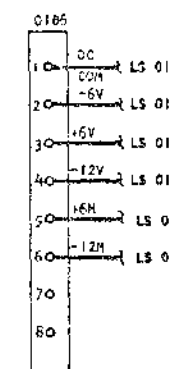
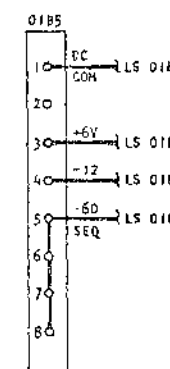
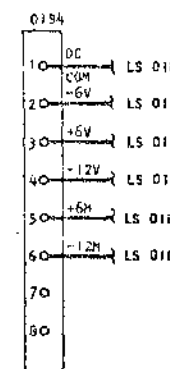
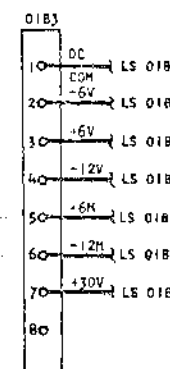
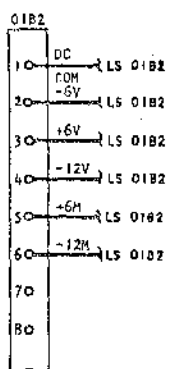
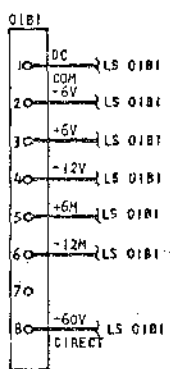
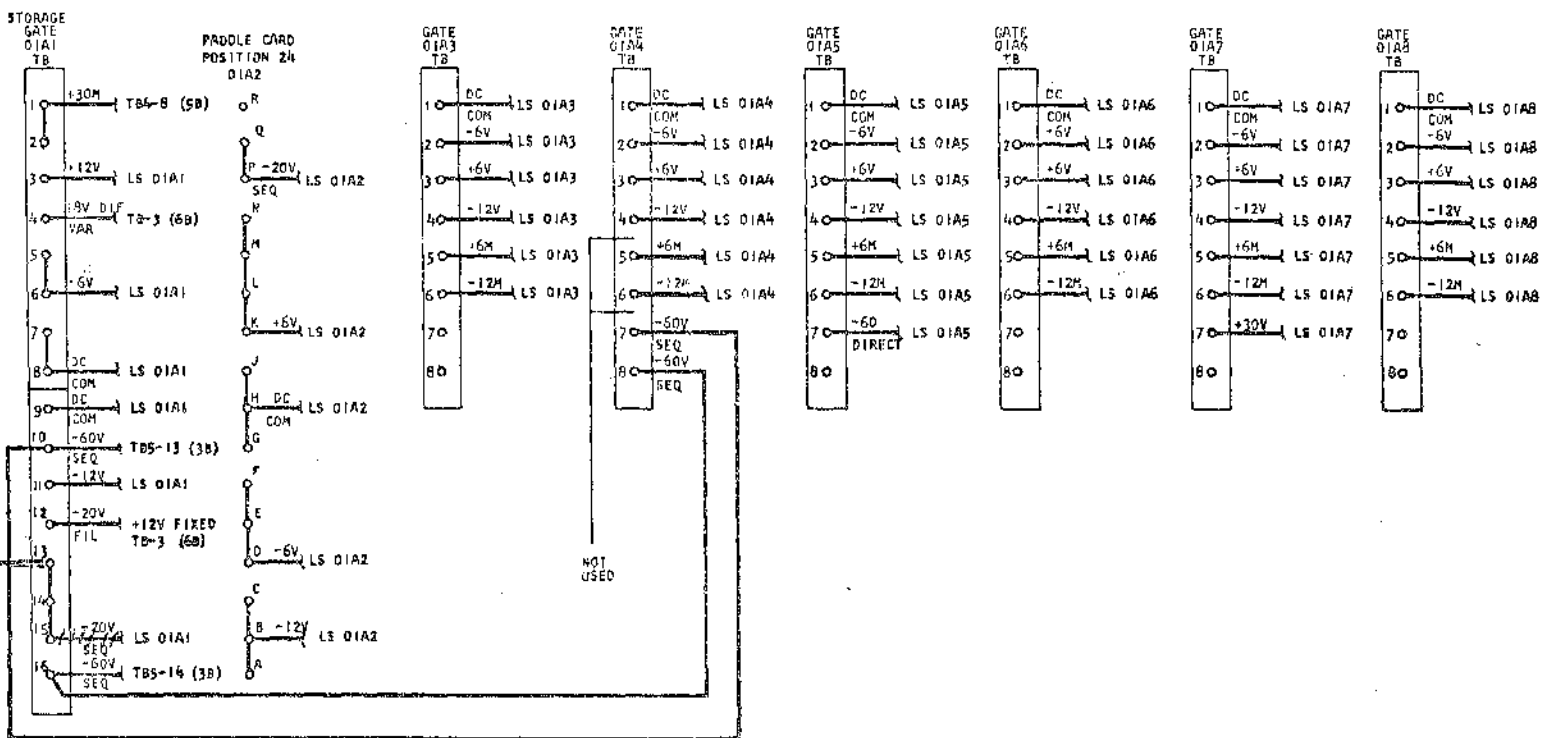


* OPTIONAL FEATURE WIRING

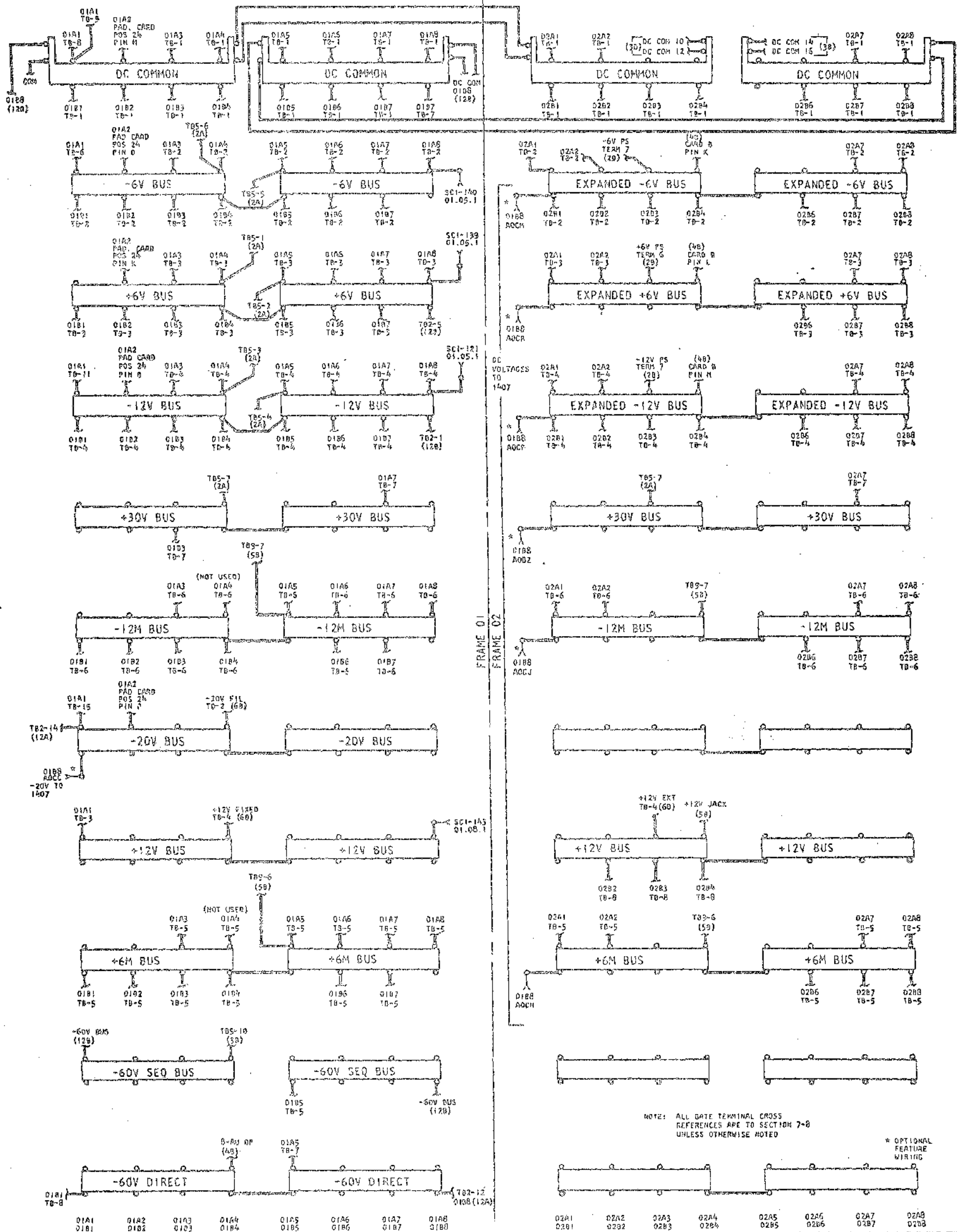


* OPTIONAL FEATURE WIRING

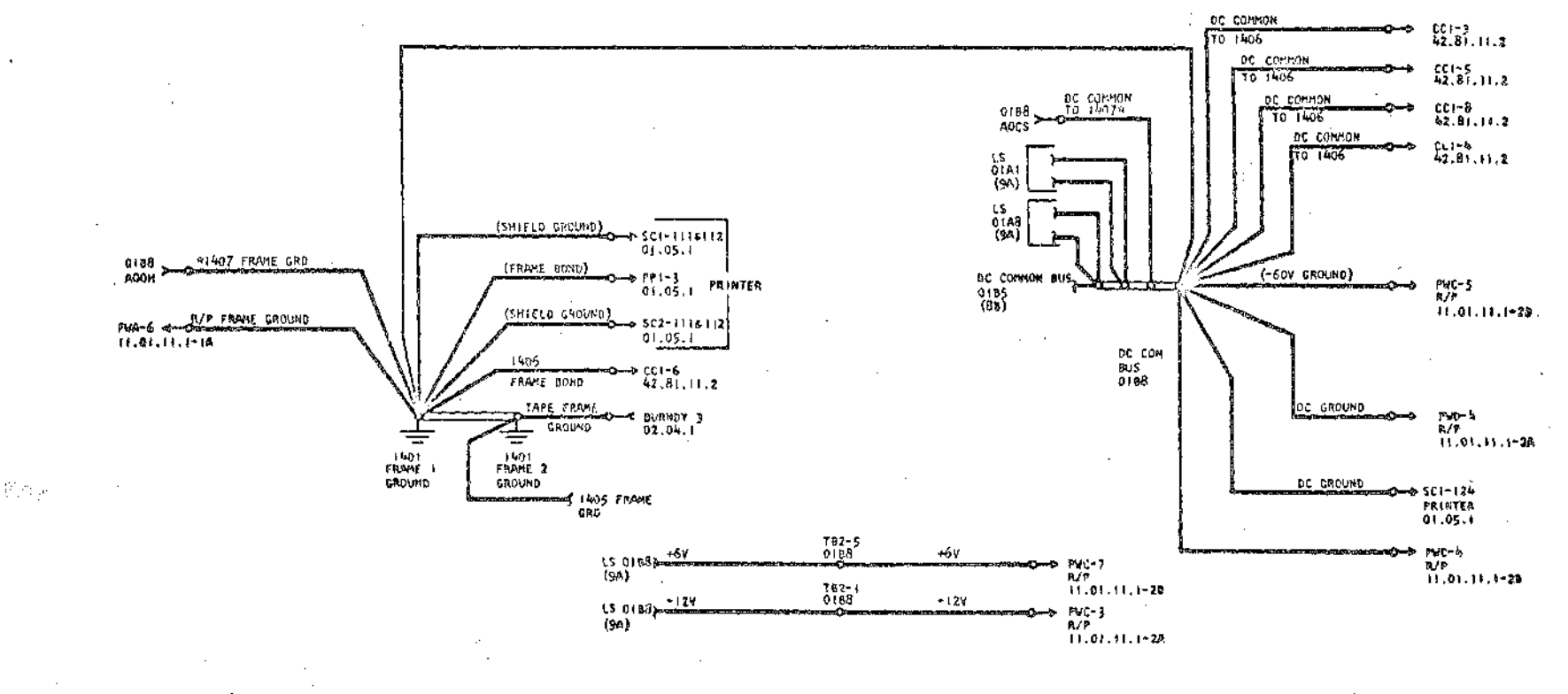
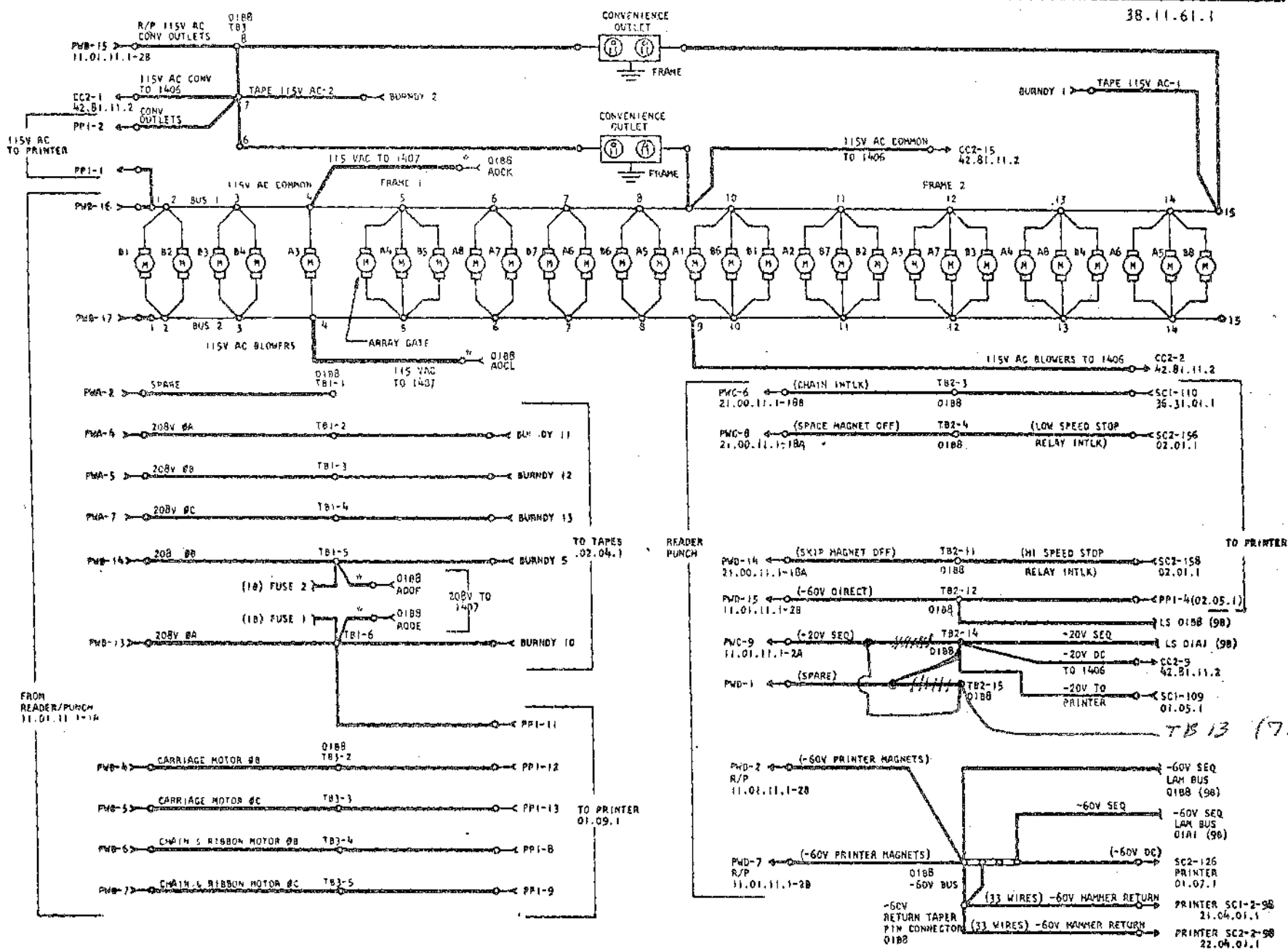
GATE TERMINAL BLOCKS-VOLTAGE DISTRIBUTION



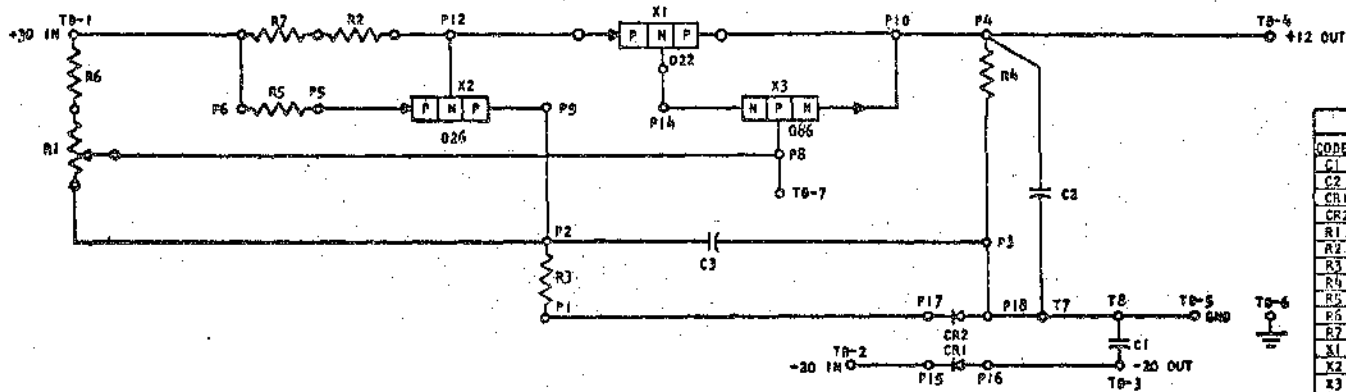
NOTE: ALL LAMINAR STRIP (LS) CROSS REFERENCES ARE TO SECTION 9-10



38.11-61.1

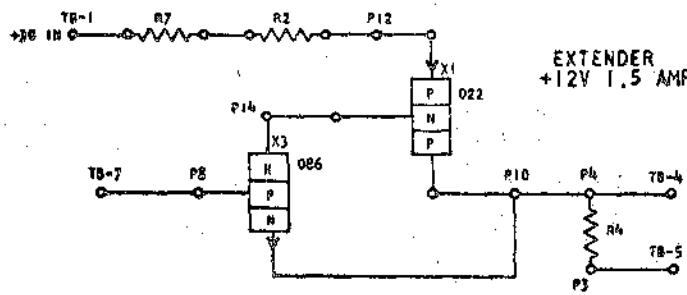


POWER SUPPLY
+12V AT 1.5 AMP
-20V FILTERED

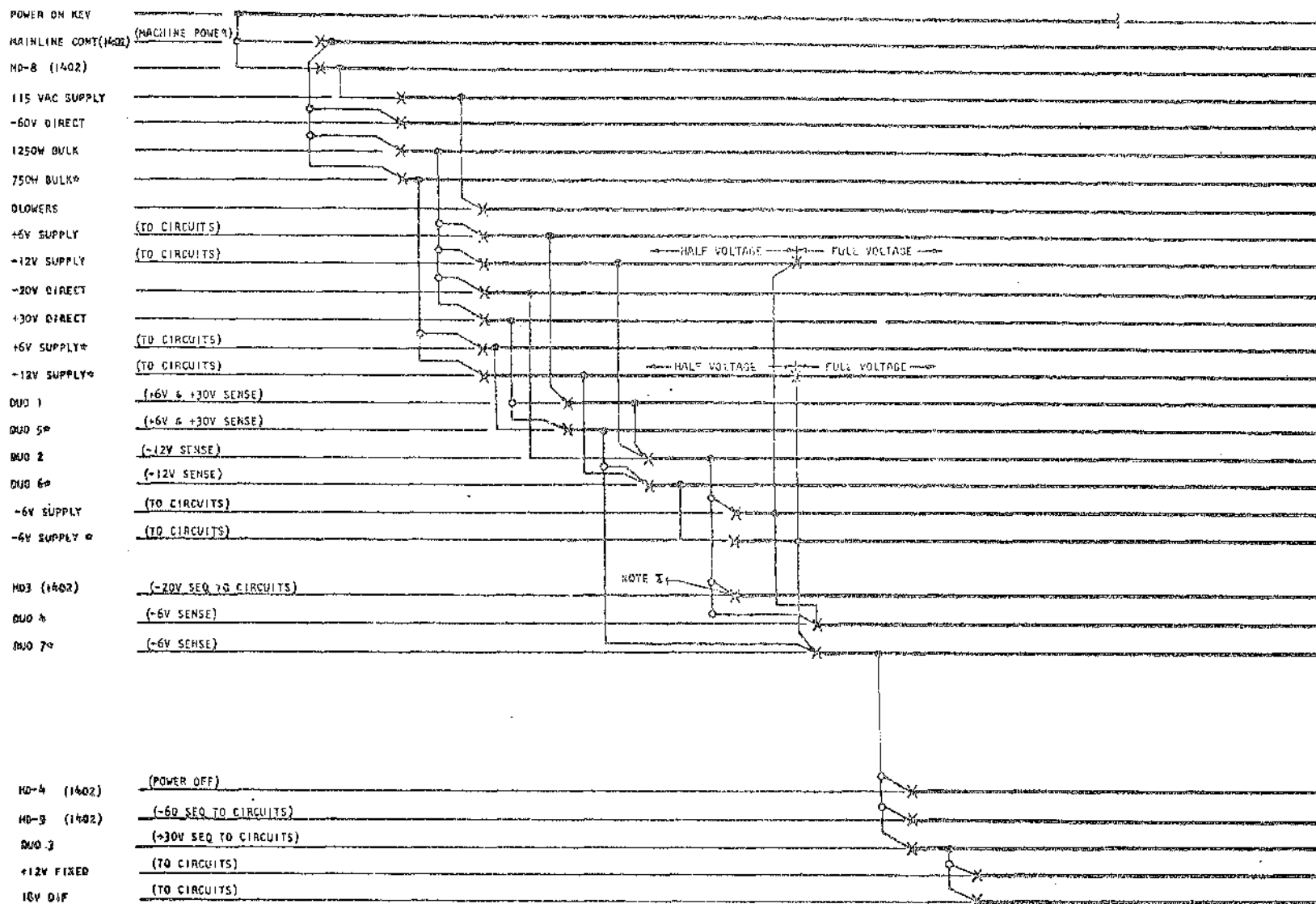


CODE	DESCRIPTION	PART NO.
C1	CAP 1000UF 25VDC	482499
C2	CAP 600UF 25VDC	207362
CR1	DIODE	257008
CR2	DIODE	209032
R1	POT 2.5K 5W	207393
R2	RESISTOR .005K 25W	501550
R3	RESISTOR 1K 5W	213839
R4	RESISTOR .12K 2W	317078
R5	RESISTOR 5.6K 5W	317019
R6	RESISTOR 1.6K 5W	317018
R7	RESISTOR .005K 25W	501550
X1	TRANSISTOR 022	526898
X2	TRANSISTOR 025	369087
X3	TRANSISTOR 086	369087
C3	CAP 1.0 MF 15V DC	492618

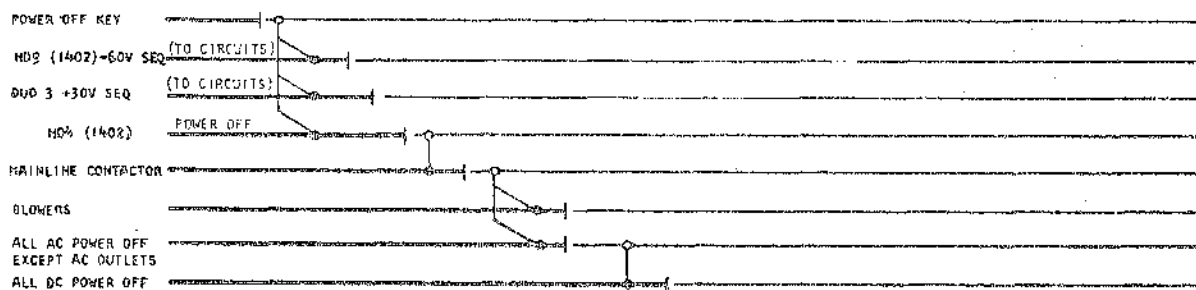
EXTENDER
+12V 1.5 AMP



1401-1402
POWER ON SEQUENCE



1401-1402
POWER OFF SEQUENCE



NOTE
 I FOR SYSTEM MACHINES WITH INCREASED CORE STORAGE, THIS POINT ALSO SENSES THE 1406 +30V SENSE RELAY MD-17. FAILURE OF THE 1406 +30V SUPPLY WILL NOT ALLOW THE 1401-1402 TO SEQUENCE ANY FURTHER.

* EXPANDED (SUPPLIES IN GATES 02A3 AND 02A5)

TERMINAL BLOCKS																		
TB	GATE	TERMINALS																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0188	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A
2	0188	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A	2A
3	0188	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A	3A
4	0244	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A	4A
5	0244	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A	5A
6	0244	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A
7	0244	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A	7A
8	0244	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A	8A
9	0244	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A	9A
10	0244	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	10A
11	0244	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A	11A
12	0244	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A	12A
13	0244	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A	13A
14	0244	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A	14A
15	0244	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A	15A
16	0244	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A	16A
17	0244	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A	17A
18	0244	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A	18A

COLOR CODING	
+30	- PINK (ON RED)
+12	- GREY
+6	- ORANGE
+6N	- TAN
DC COMMON GROUND	- BLACK
-6	- BLUE
-12	- VIOLET
-12N	- AQUA
-20	- WHITE WITH VIOLET TRACER
-60	- WHITE WITH GREEN TRACER
FRAME GROUND	- GREEN (OR LINE)
+30M	- RED WITH WHITE TRACER
18V DIF	- WHITE WITH GREY TRACER
+12M	- WHITE

EXTERNAL POWER CABLES - 1402 READER PUNCH TO 1401 PROCESS UNIT				
R/P DRAWING	R/P CONNECTOR	FUNCTION	1401 TERMINATION	1401 DRAWING
11.01.11.1-2A	2A	133 V.A.C. BULK SUPPLY	T89-17 0244	38.11.11.1-11A
11.01.11.1-2A	3	SPARE	T89-17 0188	38.11.61.1-11A
11.01.11.1-2A	4	133 V.A.C. BULK SUPPLY	T89-18 0244	38.11.11.1-11A
11.01.11.1-1A	5	208 V.A.C. BA TAPE DRIVE	T81-2 0188	38.11.61.1-11A
11.01.11.1-1A	6	208 V.A.C. SB TAPE DRIVE	T81-3 0188	38.11.61.1-11A
11.01.11.1-1A	7	R/P FRAME GROUND	FRAME 1 BOND	38.11.61.1-11B
11.01.11.1-1A	8	208 V.A.C. BC TAPE DRIVE	T81-4 0188	38.11.61.1-11A
11.01.11.1-2B	9	24V AC COMMON	T83-7 0188	38.11.21.1-3A
11.01.11.1-2A	10	INTERLOCK	T84-2 0244	38.11.31.1-5B
11.01.11.1-1A	11	SPARE	TAPED	
11.01.11.1-1A	12	EMERGENCY STOP	T82-7 0188	38.11.21.1-3A
21.00.11.1-18A	13	CARRIAGE MOTORS-208 VAC	T83-2 0188	38.11.61.1-11A
21.00.11.1-18A	14	CARRIAGE MOTORS-208 VAC	T83-3 0188	38.11.61.1-11A
21.00.11.1-18A	15	CHAIN & RIB MOTORS-208 VAC	T83-4 0188	38.11.61.1-11A
21.00.11.1-18A	16	CHAIN & RIB MOTORS-208 VAC	T83-5 0188	38.11.61.1-11B
11.01.11.1-2A	17	INTERLOCK	T84-5 0244	38.11.31.1-5B
11.01.11.1-2A	18	SPARE	T84-3 0244	38.11.31.1-5B
11.01.11.1-2A	19	SPARE	T84-1 0244	38.11.31.1-5B
11.01.11.1-1A	20	POWER ON SWITCH	P ON SW 01A2	38.11.21.1-3A
11.01.11.1-1A	21	POWER ON SWITCH	P ON SW 01A2	38.11.21.1-3A
11.01.11.1-1A	22	208 VAC	T81-6 0188	38.11.61.1-11A
11.01.11.1-1A	23	208 VAC	T81-5 0188	38.11.61.1-11A
11.01.11.1-2B	24	CONV. OUTLETS-115 V.A.C.	T83-8 0188	38.11.61.1-11A
11.01.11.1-2B	25	115 V.A.C. COMMON	115V BUS-1 0188	38.11.61.1-11A
11.01.11.1-2B	26	BLOWERS-115 VAC	115V BUS-2 0188	38.11.61.1-11A
11.01.11.1-2B	27	-6 V.D.C. FILTER DELAY	T86-2 0244	38.11.11.1-2A
21.00.11.1-12A	28	-60V CTRLD & SEQ-C.R.P.	T82-5 0188	38.11.21.1-3A
11.01.11.1-2A	29	-12 VOLTS DC	T82-1 0188	38.11.61.1-12B
11.01.11.1-2A	30	-60V DC COMMON GROUND	GND BUS 0188	38.11.61.1-12B
11.01.11.1-2A	31	-60V DC COMMON GROUND	GND BUS 0188	38.11.61.1-12B
21.00.11.1-18B	32	CHAIN INTLK	T82-3 0188	38.11.61.1-12A
11.01.11.1-2B	33	+6 VOLTS DC	T82-5 0188	38.11.61.1-12B
21.00.11.1-18B	34	SPACE MAGNET OFF	T82-4 0188	38.11.61.1-12A
11.01.11.1-2A	35	-20V SEQ-MEM RETURN	T82-14 0188	38.11.61.1-12A
11.01.11.1-2B	36	SPARE	T82-15 0188	38.11.61.1-12A
11.01.11.1-2B	37	-60V SEQ PRINTER MAGS	-60V BUS 0188	38.11.61.1-12A
11.01.11.1-2A	38	13V	T81-3-1 0244	38.11.31.1-5B
11.01.11.1-2A	39	DC COMMON GROUND	GND BUS 0188	38.11.61.1-12B
11.01.11.1-2A	40	NC CONTROL	T84-7 0244	38.11.31.1-5B
11.01.11.1-2A	41	13V	T81-3-2 0244	38.11.31.1-5B
11.01.11.1-2B	42	-60V SEQ PRINTER MAGS	-60V BUS 0188	38.11.61.1-12B
11.01.11.1-2A	43	BUCK-BOOST	T84-6 0244	38.11.31.1-5B
11.01.11.1-2B	44	-20V SENSE CONTROL	3R CD11 0244	38.11.21.1-3A
11.01.11.1-2B	45	POWER OFF SWITCH	P.O. SW 01A2	38.11.21.1-3A
11.01.11.1-2B	46	PRINTER INTLK CTRL-1	T82-9 0188	38.11.21.1-3A
11.01.11.1-2D	47	PRINTER INTLK CTRL-2	T82-10 0188	38.11.21.1-3A
21.00.11.1-18B	48	SKIP MAG OFF RELAY INTLK	T82-11 0188	38.11.61.1-12A
11.01.11.1-2B	49	SPACE MAGNETS	T82-12 0188	38.11.61.1-12A
11.01.11.1-2B	50	-20 VOLTS DC DIRECT	1A1-DP 0244	38.11.21.1-3A
11.01.11.1-2A	51	BUCK-BOOST	T84-4 0244	38.11.31.1-5B
11.01.11.1-2A	52	SPARE	TAPED	

EXTERNAL POWER CABLE-1401 PROCESS UNIT TO 1406 EXP CS				
1401 DRAWING	1401 TERMINATION	FUNCTION	1406 CONNECTOR	1406 DRAWING
38.11.21.1-3A	T82-7 0188	CABLE INTERLOCK	CC1-1	42.81.11.2
38.11.11.1-2A	-5V EXP TB-7	-6V DC	CC1-2	42.81.11.2
38.11.61.1-12B	DC COM 0188	DC COMMON	CC1-3	42.81.11.2
38.11.61.1-12B	DC COM 0188	DC COMMON	CC1-4	42.81.11.2
38.11.61.1-12B	DC COM 0188	DC COMMON	CC1-5	42.81.11.2
38.11.61.1-11B	1401 FRAME GND	FRAME BOND	CC1-6	42.81.11.2
38.11.11.1-2B	-12V EXP TB-7	-12V	CC1-7	42.81.11.2
38.11.61.1-12B	DC COM BUS 0188	DC COMMON	CC1-8	42.81.11.2
38.11.61.1-11A	T83-7 0188	115V AC CONV OUTLETS	CC2-1	42.81.11.2
38.11.61.1-12A	T9 AC BUS 2	115V AC BLOWERS	CC2-2	42.81.11.2
38.11.21.1-4A	T85-B 0244	+10V SEQ TO CIRCUITS	CC2-3	42.81.11.2
38.11.21.1-3A	2 BL-OP	THERMAL SWITCHES	CC2-4	42.81.11.2
38.11.11.1-1A	750W REG TB-4	208 VAC	CC2-5	42.81.11.2
38.11.11.1-1A	750W REG TB-1	208 VAC	CC2-6	42.81.11.2
38.11.21.1-3A	1RL-N/O	+30V SENSE	CC2-7	42.81.11.2
38.11.61.1-12A	T82-14 0188	-20V DC	CC2-8	42.81.11.2
38.11.21.1-4A	T82-9 0188	+30V SEQ TO CIRCUITS	CC2-9	42.81.11.2
38.11.21.1-3A	T82-8 0188	CABLE INTERLOCK	CC2-10	42.81.11.2
38.11.31.1-5B	T82-3 0188	+6M	CC2-11	42.81.11.2
38.11.31.1-5B	T82-5 0244	-12M	CC2-12	42.81.11.2
38.11.61.1-12A	T9 AC BUS 1	115V AC COMMON	CC2-13	42.81.11.2
38.11.11.1-2B	-6V EXP TB-6	+6V DC	CC2-14	42.81.11.2
		SPARE	CC2-15	42.81.11.2
			CC2-16	42.81.11.2
			CC2-17	42.81.11.2

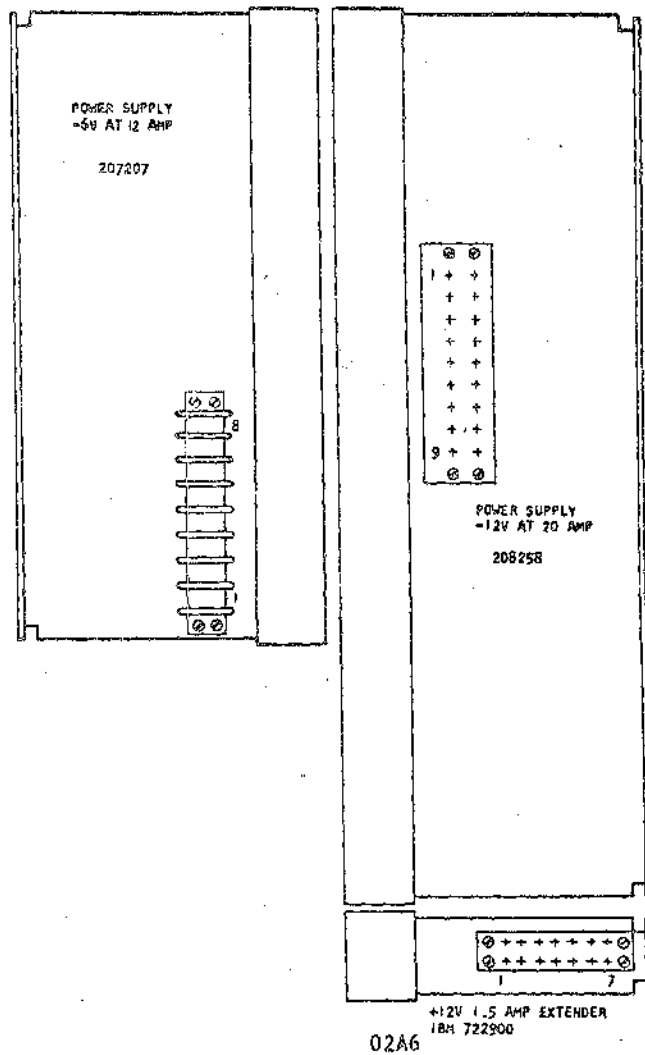
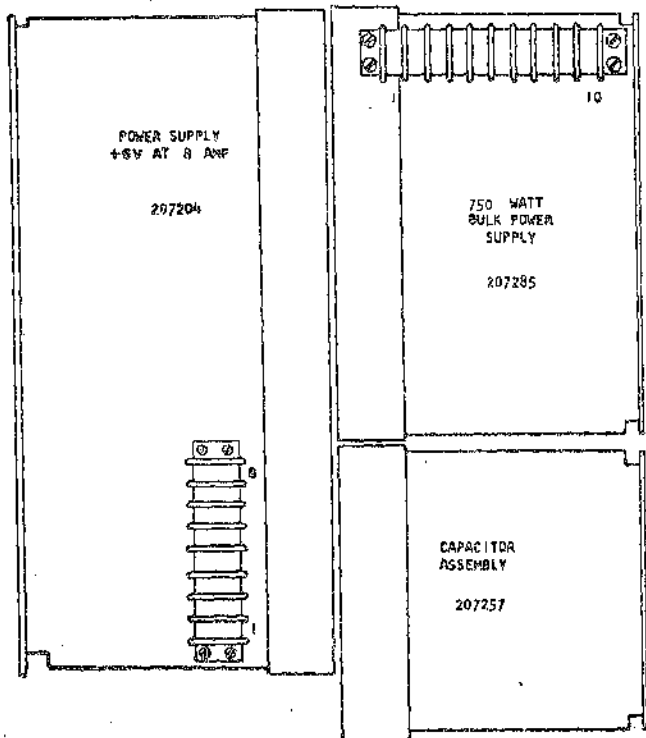
EXTERNAL POWER LINES-1401 PROCESS UNIT TO 1405 FILE			
1401 DRAWING	1401 TERMINATION	FUNCTION	1405 CONNECTOR
38.11.21.1-3A	POWER ON SW	1405 EMER OFF CONTROL	C2-49 0285
38.11.21.1-3A	POWER ON SW	1405 EMER OFF CONTROL	C2-58 0285
38.11.21.1-3A	1401-C2 CONN	DC INTERLOCK	C2-55 0285
38.11.21.1-3A	EMER OFF SW	1405 EMER OFF CONTROL	C2-62 0285
38.11.21.1-3A	T83-1 0188	1405 EMER OFF CONTROL	C2-65 0285
38.11.21.1-3B	DC COM BAR-T20	1405-20V RETURN	C2-70 0285
38.11.21.1-3A	1401-C2 CONN	DC INTERLOCK	C2-73 0285
38.11.21.1-3B	SAL-N/O	1405 POWER ON	C2-76 0285
38.11.21.1-3B	SAL-N/O	1405 POWER ON	C2-79 0285
38.11.21.1-3A	EMER OFF SW	1405 EMER OFF CONTROL 2	C2-31 0285
38.11.21.1-3A	L/O 57	1405 EMER OFF CONTROL 2	C2-34 0285

POWER SWITCH LOCATION CHART		
MACHINE	LOCATION	LOG
MACHINE POWER OFF	4A	
MACHINE POWER ON	3A	
EMERGENCY OFF	3A	
MARGINAL CHECK BUCK-BOOST	5B	

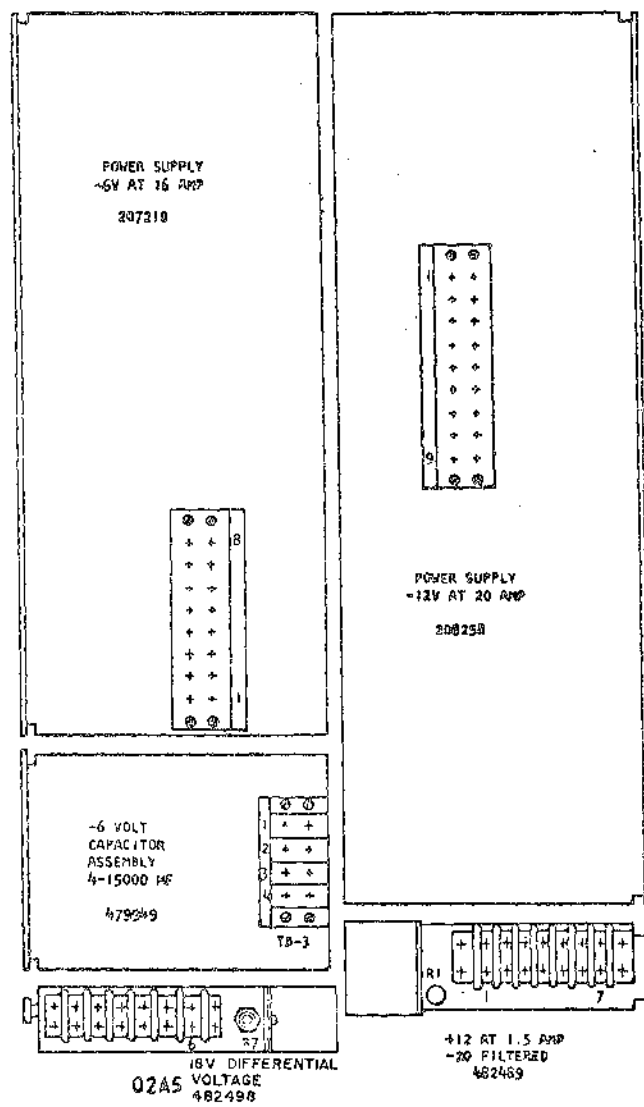
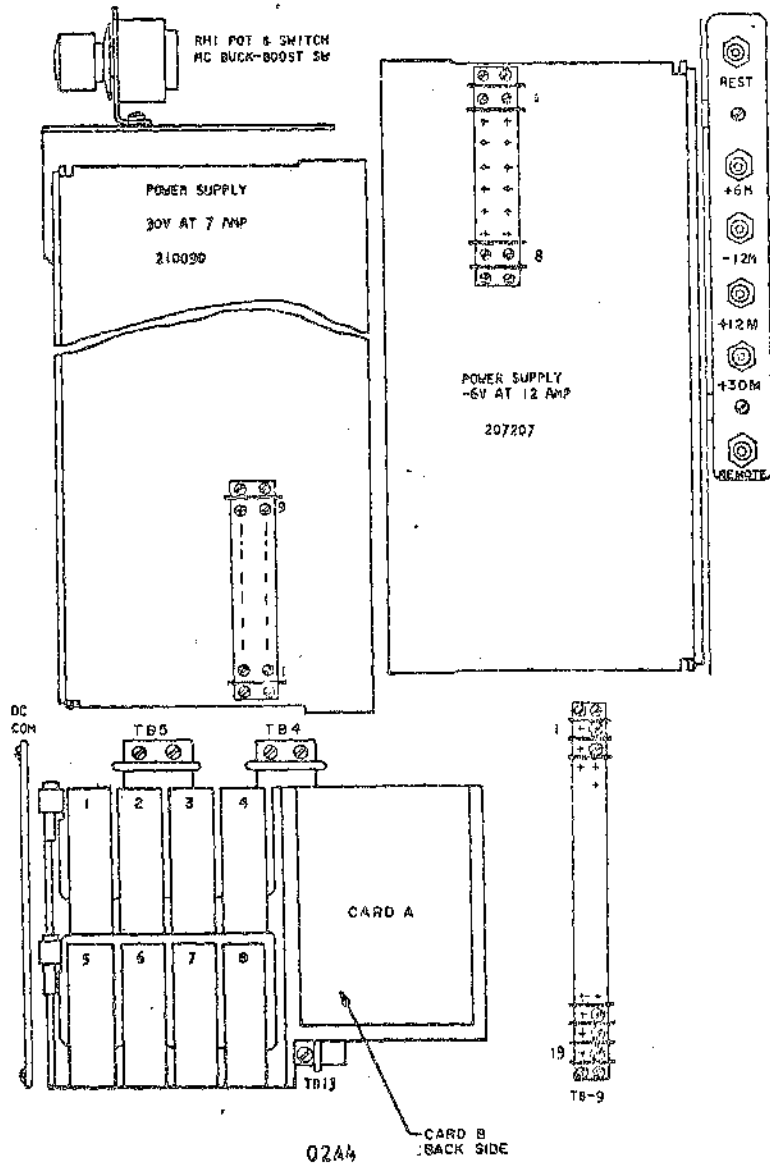
RELAYS							
NO	COIL	AU	AL	BU	BL	LOC	PART NO
1	4A		3A		2A	0244	122532
2	4A	1A	3A	1A	4A	0244	480558
3	4A	2A	2A		2A	0244	480558
4	4A	3B		3B	3A	0244	480558
5	4B			4B		0244	122532
6	4B			1B	1B	0244	480558
7	4B			4A	4A	0244	480558
8	3B	4B	4A		3B	0244	167436

COMPONENT CHART			
CODE	DESCRIPTION	LOC	PART NO
D1	DIODE	2A	522977
S01	SUPPRESSION DIODE	4A	480550
S02	SUPPRESSION DIODE	4A	480550
S03	SUPPRESSION DIODE	4B	480550
S04	SUPPRESSION DIODE	4B	480550
S05	SUPPRESSION DIODE	4B	480550
S06	SUPPRESSION DIODE	4B	480550
R1	RESISTOR .000K 5W	2A	479953
R2	RESISTOR .000K 5W	2A	207274
R3	RESISTOR .000K 5W	2A	722901
C1	CAP 15.000 MF 10V DC	2A	479953
C2	CAP 15.000 MF 10V DC	2A	479953
C3	CAP 15.000 MF 10V DC	2A	479953
C4	CAP 15.000 MF 10V DC	2A	479953

POWER SUPPLY GATE LAYOUTS

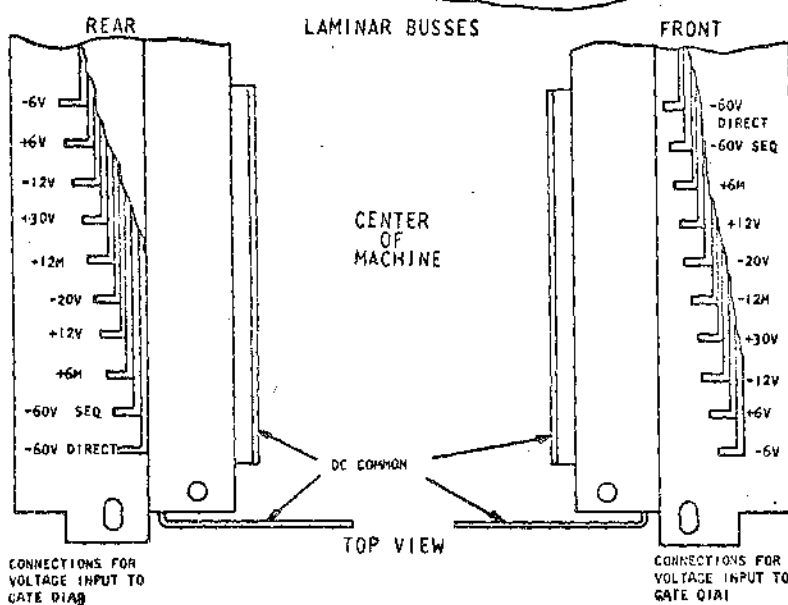
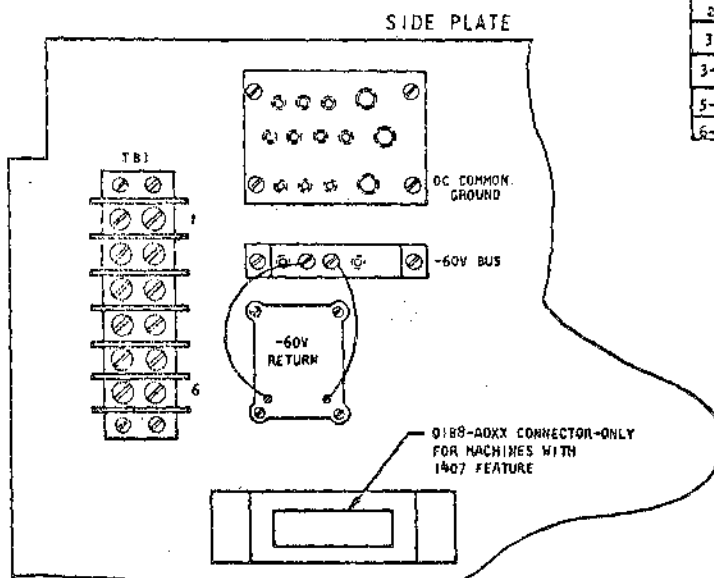
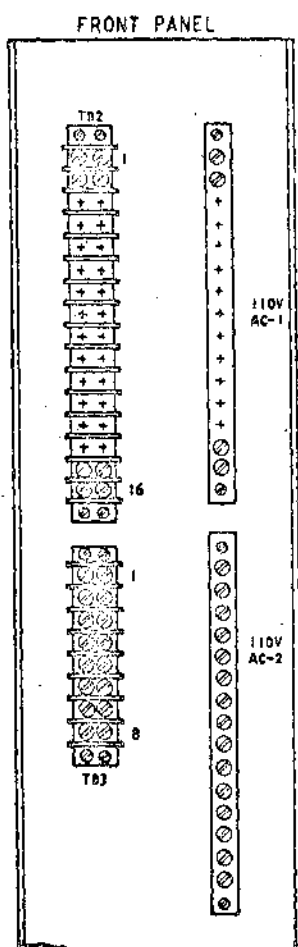


02A6



GATE LAYOUT 0188

DATE	CHANGE/END
8-5-60	100522D
11-3-60	110019A
2-16-61	110501B
3-16-61	110743A
3-28-61	110539C
5-18-61	110316A
6-29-61	110116D



INTERNATIONAL BUSINESS MACHINES CORP			
NAME	WIRING DIAGRAM-POWER SUPPLY		
MODEL	C, E OR MODEL F WITH TAPES		
DESIGN		TYPE	1401
DETAIL	WCB	9-10-60	SCALE NONE
CHECK	WCB	10-2-60	DRAW MDE 9-9-60
APPRO	MM	10-3-60	CHECK

1401 TIMING CHARTS

ARITHMETIC OPERATIONS

- 1 RESET ADD O (AAA)(BBB)
- 2 TRUE ADD
- 3 COMPLEMENT ADD-RECOMPLEMENT A (AAA)(BBB)
- 4 COMPLEMENT ADD-NO RECOMPLEMENT
- 5 COMPLEMENT ADD-ONE CHARACTER FIELD

MOVE, LOAD, COMPARE AND LOGIC OPERATIONS

- 6 MOVE M (AAA)(BBB)
- 7 MOVE DIGIT D (AAA)(BBB)
- 8 MOVE ZONE Y (AAA)(BBB)
- 9 MOVE ZERO SUPPRESS Z (AAA)(BBB)
- 10 LOAD L (AAA)(BBB)
- 11 CLEAR OP / (AAA)
- 12 WORD MARK CLEAR (AAA)(BBB)
- 13 WORD MARK SET (AAA)(BBB)
- 14 COMPARE C (AAA)(BBB)
- 15 HIGH-LOW-EQUAL COMPARE SEQUENCE C (AAA)(BBB)
- 16 BRANCH B (111), UNCONDITIONAL BRANCH
- 17 TEST AND BRANCH B (111) d (TEST ANY ONE OF TEN CHARACTER)
- 18 TEST CHARACTER AND BRANCH B (111)(BBB) d (ANY ONE OF NINE CHARACTERS)
- 19 TEST ZONE OR WORD MARK OR BOTH AND BRANCH V (111)(BBB) d
- 20 CLEAR AND BRANCH / (111)(BBB)
- 21 STOP AND BRANCH . (111)
- 22 STOP (.)
- 23 NO-OP (NO)
- 24 EDIT OPERATION - ZERO SUPPRESS

ADVANCE PROGRAMMING

- 25 INSTRUCTION CYCLE WITH INDEXING
- 26 STORE A STAR Q (AAA) STORE B STAR H (AAA)
- 27 BRANCH B (111) ADVANCED PROGRAMMING (I-B STAR TRANSFER)
- 28 MOVE RECORD P (AAA)(BBB)

INPUT OUTPUT

- 29 READ
- 30 PUNCH
- 32 COLUMN BINARY READ SEQUENCE
- 33 COLUMN BINARY PUNCH SEQUENCE
- 34 MOVE AND UNSCRAMBLE COLUMN BINARY SEQUENCE
- 35 MOVE AND SCRAMBLE COLUMN BINARY SEQUENCE
- 36 PUNCH FEED READ SEQUENCE
- 37 STACKER SELECT K AND STACKER SELECT BRANCH

MAGNETIC TAPE

- 38 MOVE (LOAD) TAPE READ OPERATION
- 39 MOVE (LOAD) WRITE OPERATION
- 40 LOAD TAPE AND READ A WORD SEPARATOR CHARACTER
- 41 LOAD TAPE AND WRITE A WORD SEPARATOR CHARACTER
- 42 BACKSPACE TAPE OPERATION
- 43 ERASE TAPE OPERATION
- 44 WRITE TAPE MARK
- 45 REWIND TAPE OPERATION
- 46 REWIND AND UNLOAD TAPE
- 47 TAPE END OF FILE INDICATOR TEST AND TAPE TRANSMISSION ERROR TEST
- 48 MOVE COMPRESSED TAPE READ OPERATION
- 49 MOVE WITH ZERO INSERTION \underline{x} (AAA)(BBB)

EXPANDED STORAGE

- 50 ADDRESS MODIFY TIMING # (AAA)(BBB)

Multiply
Divide

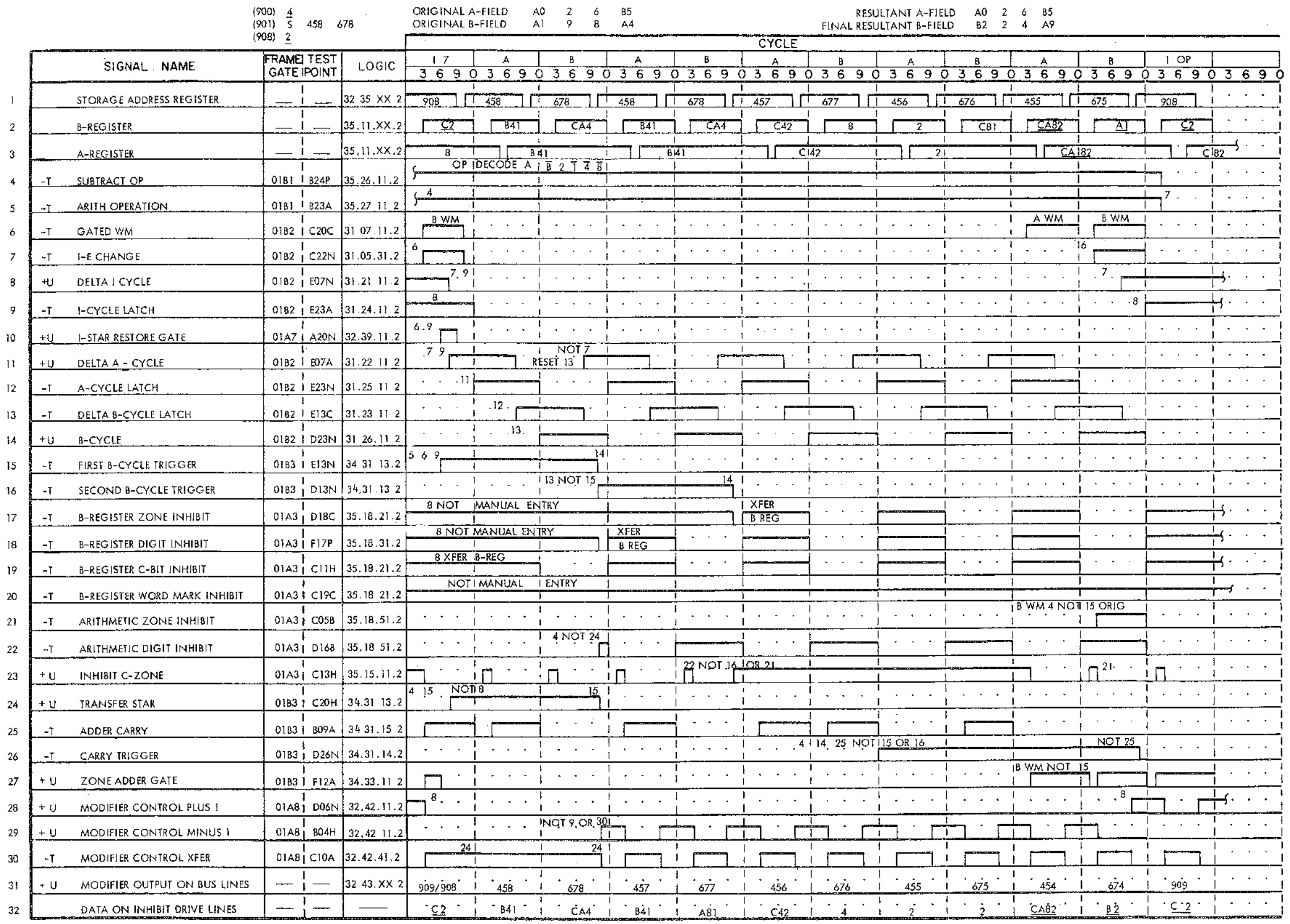


FIGURE 2. TRUE ADD

(900) 4
 (901) A 458 678
 (908) 2

ORIGINAL A-FIELD A2 6 B5
 ORIGINAL B-FIELD A0 3 1 A6

RESULTANT A-FIELD A2 6 B5
 FINAL RESULTANT B-FIELD D 0 5 AB1

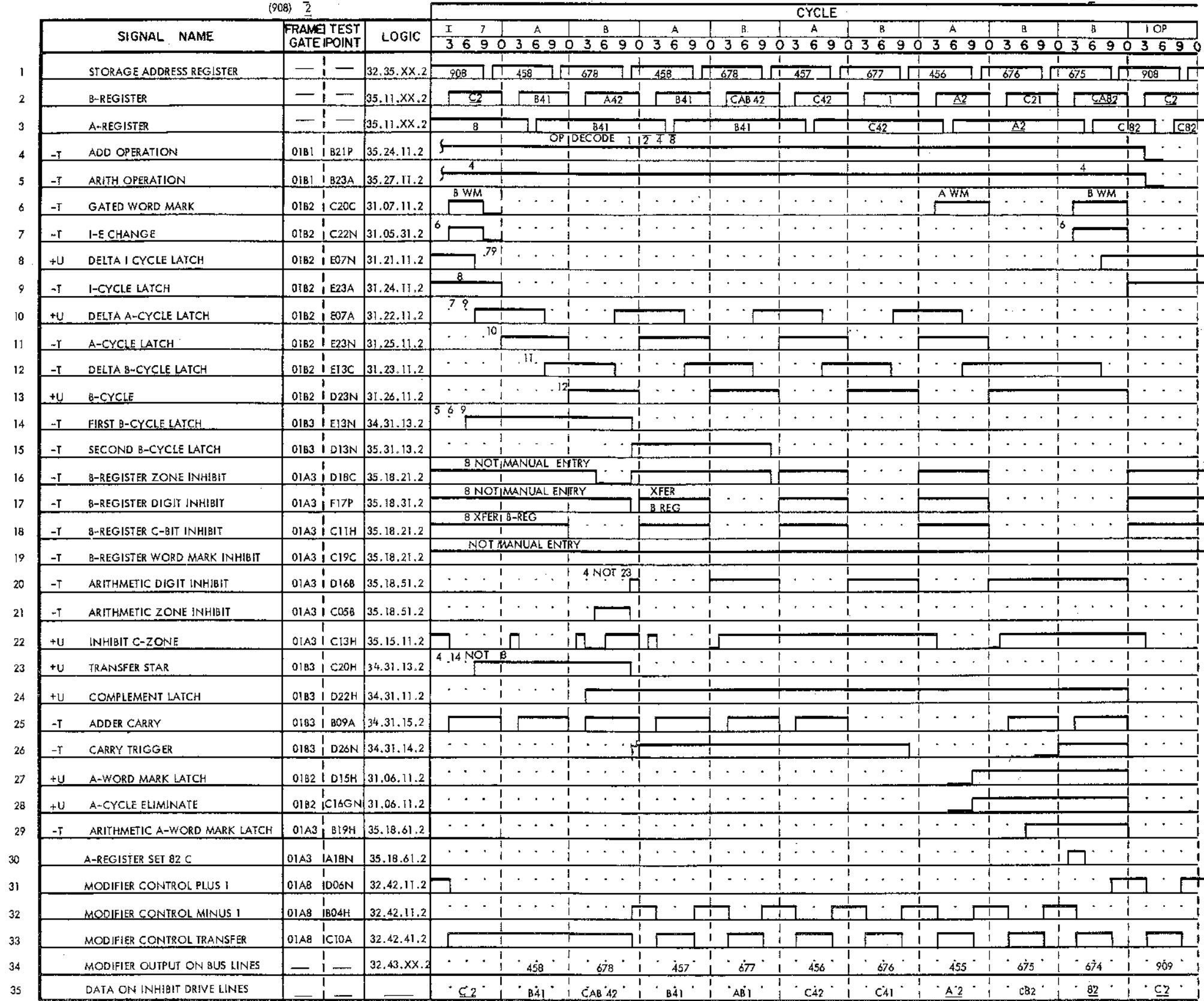


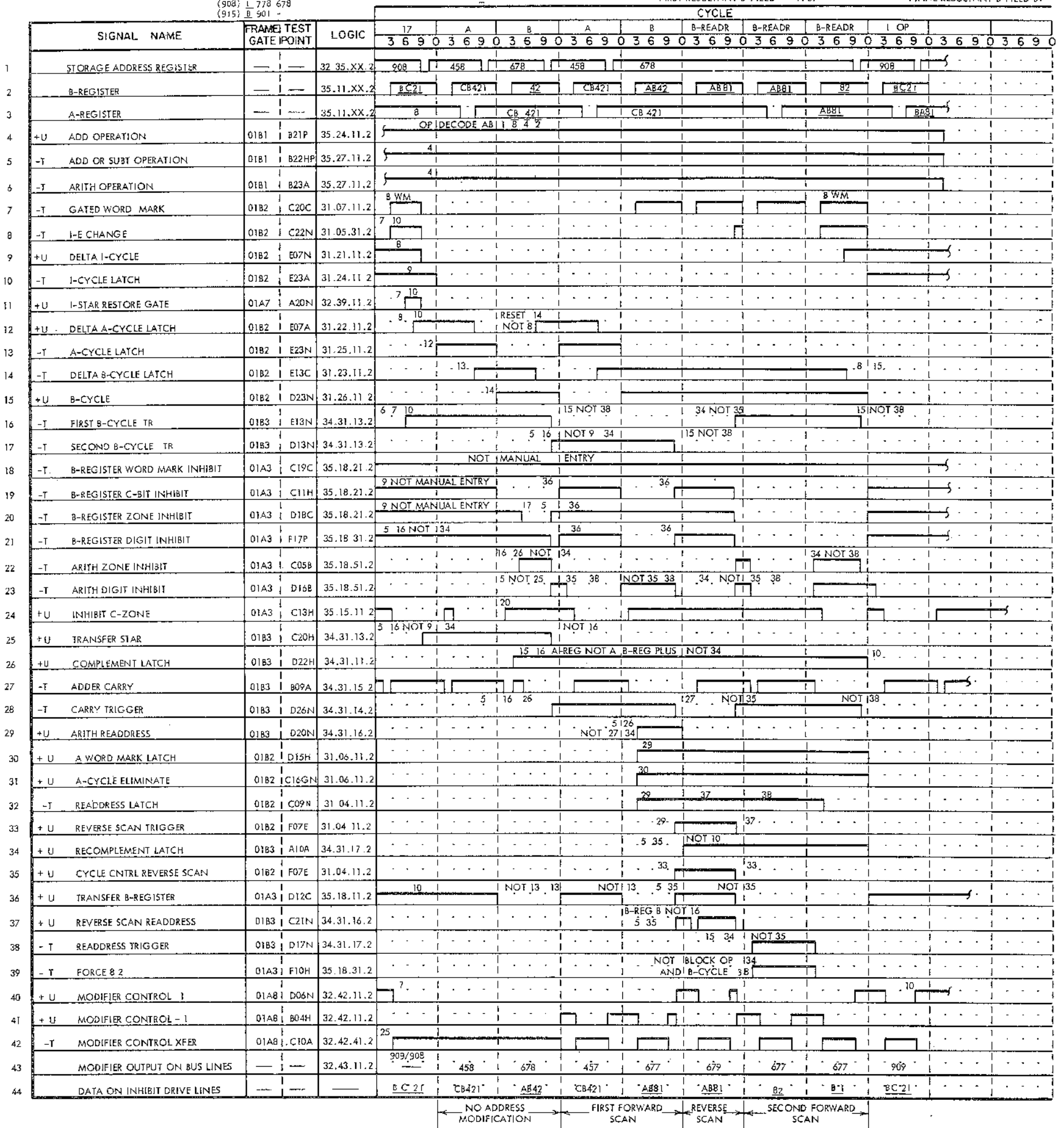
FIGURE 4. COMPLEMENT ADD-NO RECOMPLEMENT

(901) A 458 678
 (908) L 778 678
 (915) B 901

ORIGINAL A-FIELD B7
 ORIGINAL B-FIELD 6

RESULTANT A-FIELD B7
 FIRST RESULTANT B-FIELD A B9

FINAL RESULTANT B-FIELD B1



NO ADDRESS MODIFICATION FIRST FORWARD SCAN REVERSE SCAN SECOND FORWARD SCAN

FIGURE 5. COMPLEMENT ADD-ONE CHARACTER FIELD

599 A
600 Y (407) (507)
607 A

ORIG A-FIELD CHAR C-B-A-8-4
ORIG B-FIELD CHAR WM-B-2

RESULTANT B-FIELD CHAR WM-C-B-A-2

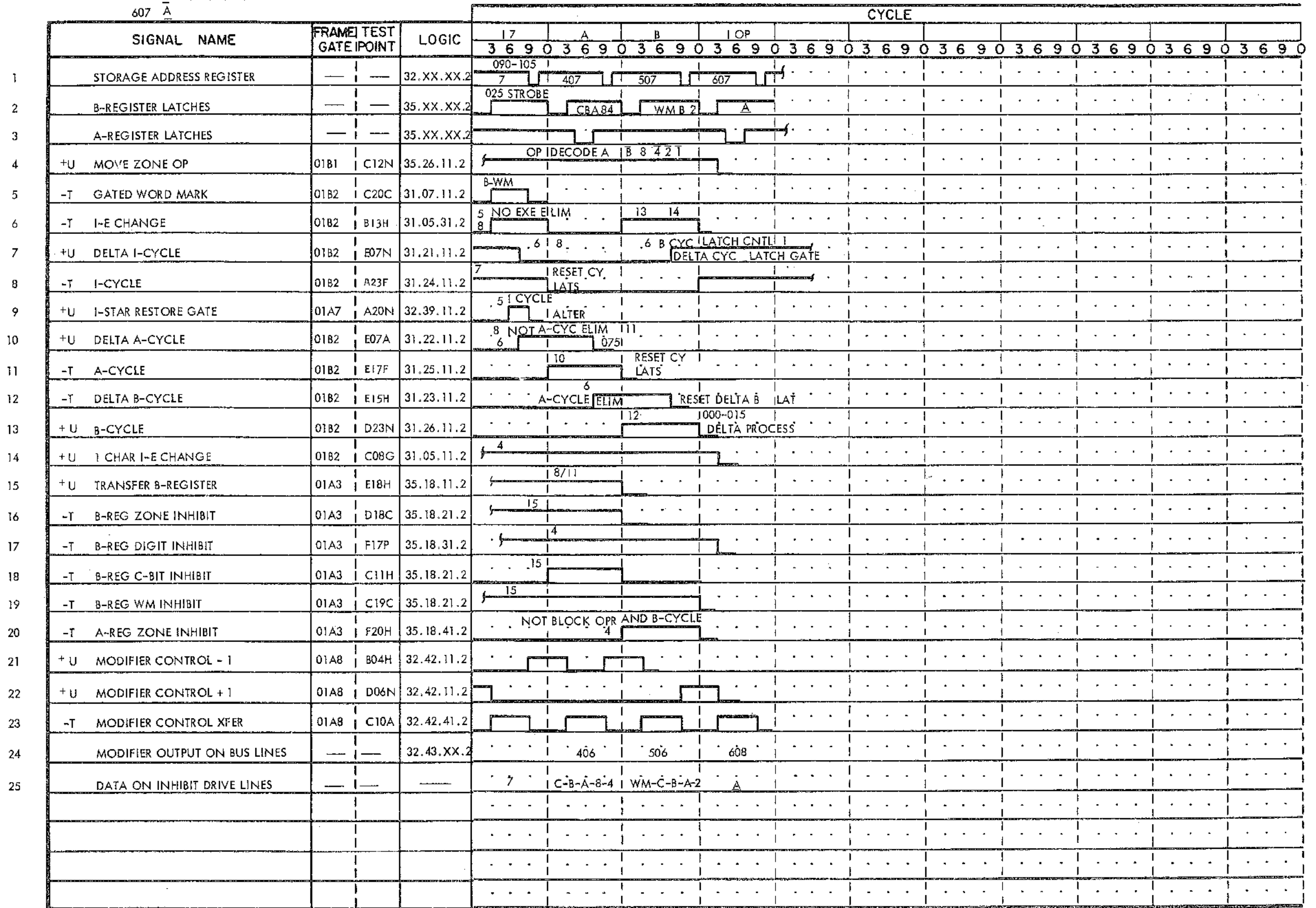


FIGURE 8. MOVE ZONE Y (AAA) (BBB)

700 Z 809 4+9
707 Δ 519 419
714 B 700 -

A-FIELD DATA 007601
B-FIELD DATA 666666

RESULTANT A-FIELD (BEFORE ZERO SUPP - AFTER MOVE) 007601
RESULTANT B-FIELD (BEFORE ZERO SUPP - AFTER MOVE) 007601

RESULTANT B-FIELD (AFTER ZERO SUPP) 667601

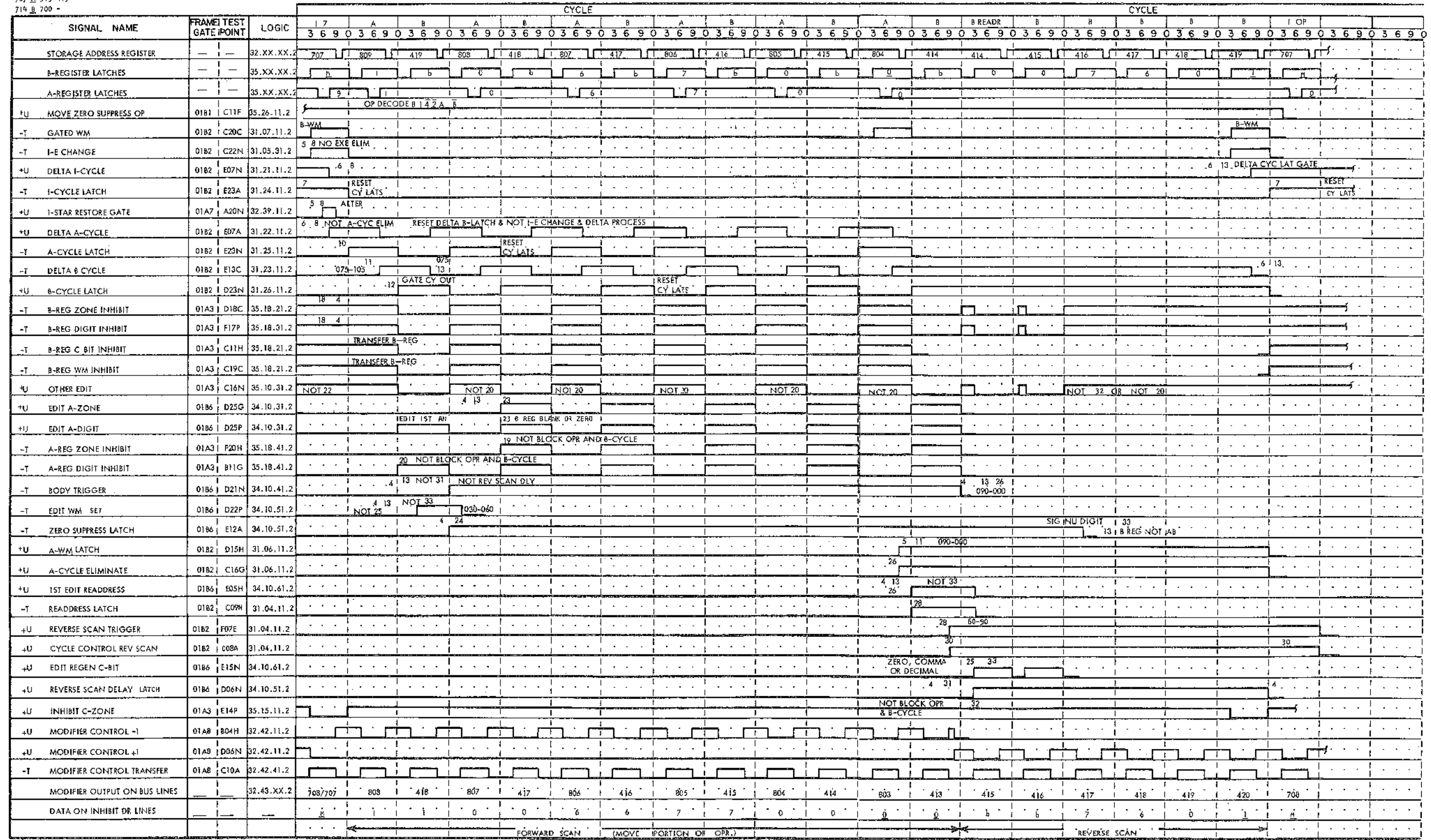


FIGURE 9. MOVE ZERO SUPPRESS Z (AAA) (BBB)

899 S
 900 (409) (509)
 907 A

ORIG A-FIELD DATA
 ORIG B-FIELD DATA

8 RESULTANT A-FIELD 8
 B RESULTANT B-FIELD B

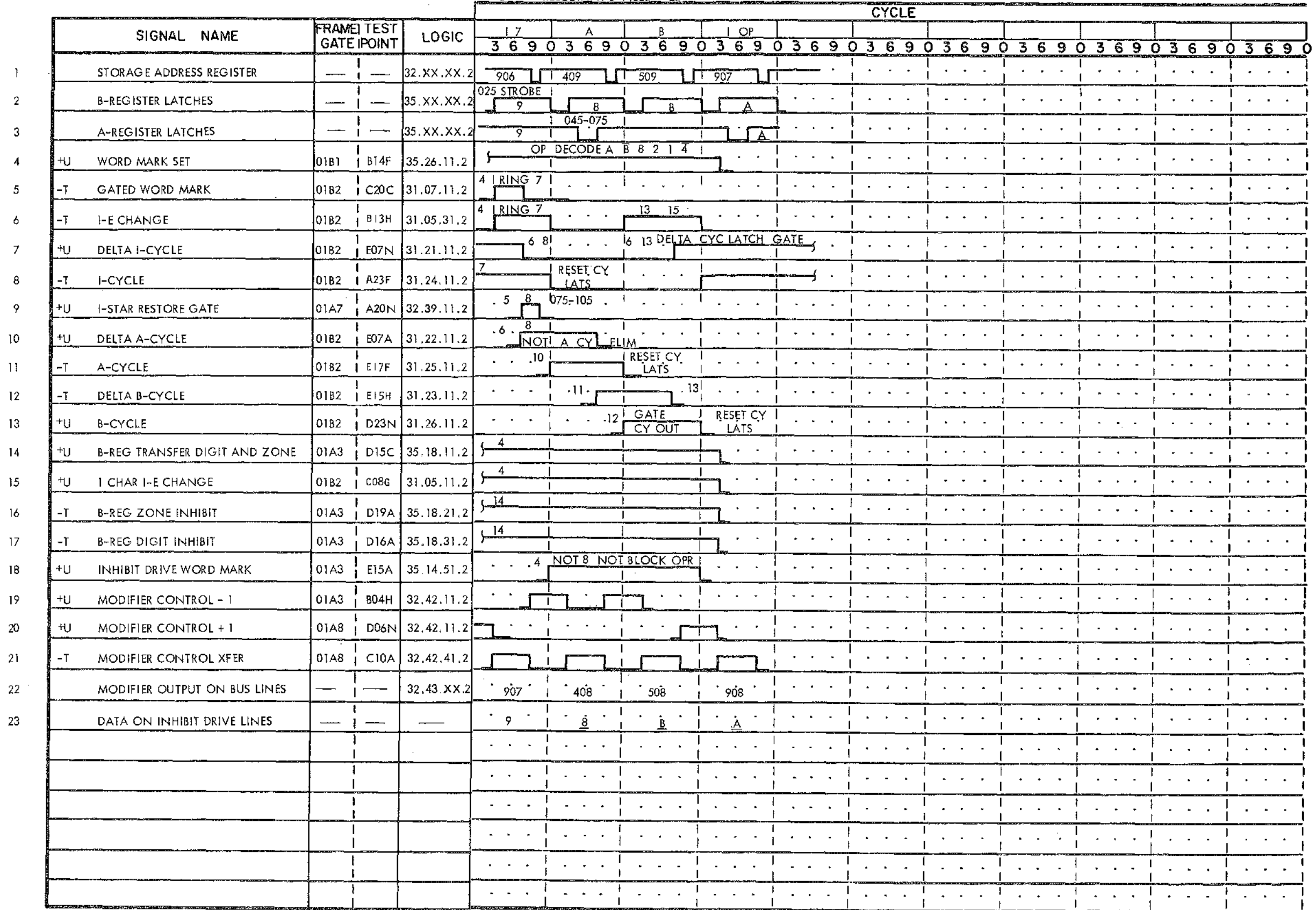


FIGURE 13. WORD MARK SET (AAA) (BBB)

899 A ORIG A-FIELD AB2 C6 3 RESULTANT B-FIELD (SAME AS ORIG)
 900 C (458) (378) ORIG B-FIELD B9 7 CAB3 3

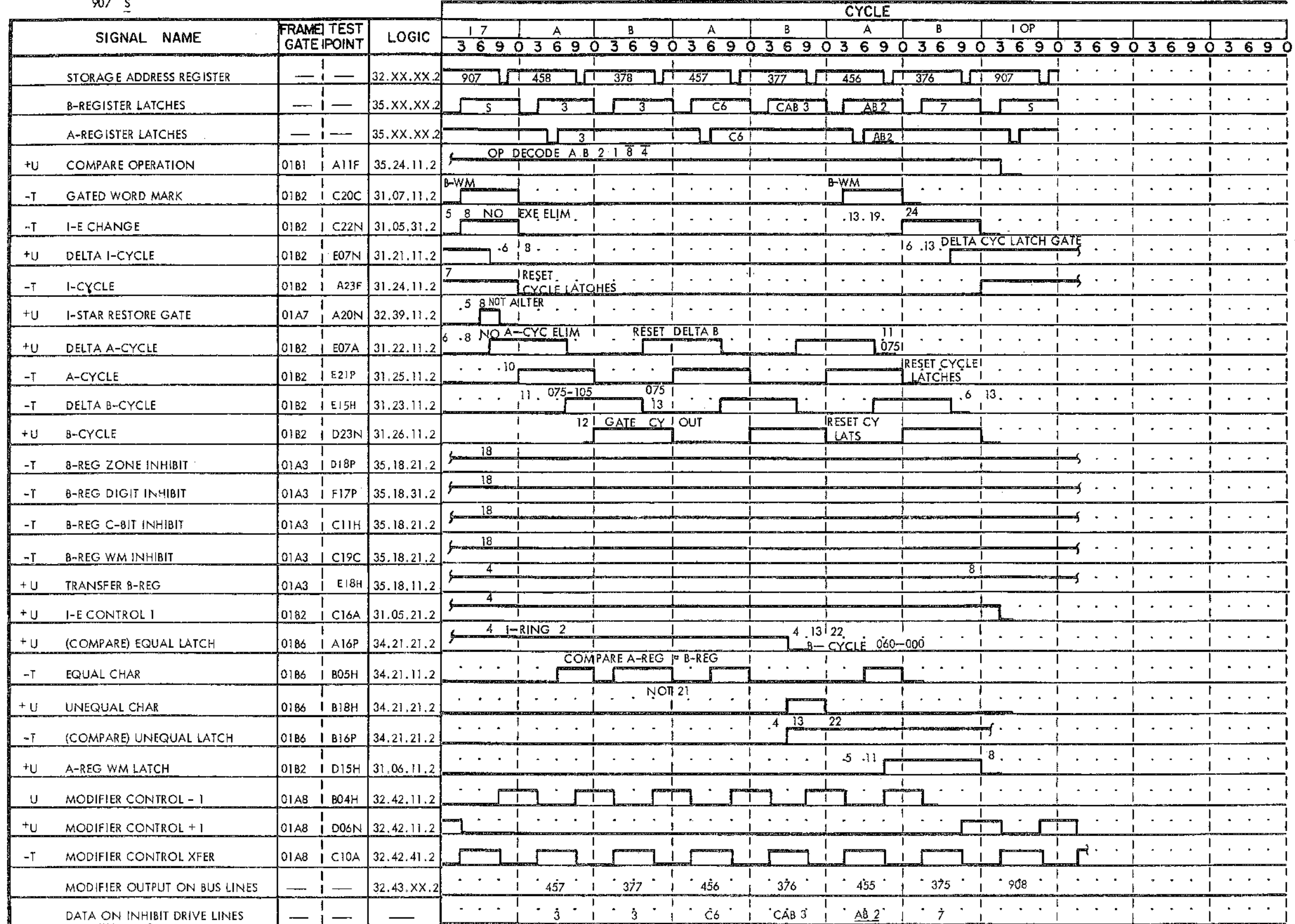


FIGURE 14. COMPARE C (AAA) (BBB)

653 A 701 A
 654 B (701)
 658 BLANK

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																																			
			I 4				I OP																															
			3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
1 STORAGE ADDRESS REGISTER	— —	32.XX.XX.2	658 701																																			
2 B-REGISTER LATCHES	— —	35.XX.XX.2	C-BIT A																																			
3 A-REGISTER LATCHES	— —	35.XX.XX.2																																				
4 -T BRANCH OPR	01B1 A09N	35.26.11.2	OP DEC A B 2 8 4 T																																			
5 -T GATED WORD MARK	01B2 C20C	31.07.11.2	B-WM OR 6																																			
6 +U UNCOND TRANSFER	01B2 D08N	31.08.11.2	B-REG BLANK 030-000 14 I-RING 14																																			
7																																						
8 +U DELTA I-CYCLE LATCH	01B2 E07N	31.21.11.2	B-CYC LAT CNTL 7 19 DELTA CYC LAT GT																																			
9 -T I-CYCLE LATCH	01B2 E23A	31.24.11.2	8 030-060																																			
10 +U I-STAR RESTORE GATE	01A7 A20N	32.39.11.2	.5 8 NOT ALTER 060-090																																			
11 +U EXECUTE ELIMINATE	01B2 C15C	31.05.11.2	4 I-RING 4																																			
12 +U TRANSFER PROGRAM SKIP	01B6 A11N	34.21.41.2	I-RING 4 4 5																																			
13 -T PROGRAM SKIP LATCH	01B2 C23A	31.08.11.2	4 OR 12 17 045-060																																			
14 +U I-A STAR GATE	01B2 D05C	31.08.11.2	13																																			
15 +U SET TO I-RING OP	01B2 D21B	31.30.11.2	13 17																																			
16 -T A-STAR GATE OUT	01A7 A07N	32.32.21.2	8 14 NOT SET-UP 090-000 NOT I-B ISTAR I																																			
17 -T I-RING OP TRG	01B2 E20N	31.31.31.2	015-030 8 DELTA PROC 15 1																																			
18																																						
19 +U MODIFIER CONTROL +1	01A8 D06N	32.42.11.2																																				
20 -T MODIFIER CONTROL XFER	01A8 C10A	32.42.41.2																																				
21 MODIFIER OUTPUT ON BUS LINES	— —	32.43.XX.2	702																																			
22 DATA ON INHIBIT DRIVE LINES	— —	—	C A																																			

FIGURE 16. BRANCH B (III), UNCONDITIONAL BRANCH

653 A
654 B (701) d
659 S

701 M

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																															
			1	5	1	OP	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
			3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
1 STORAGE ADDRESS REGISTER	— —	32.XX.XX.2																																
2 B-REGISTER LATCHES	— —	35.XX.XX.2																																
3 A-REGISTER LATCHES	— —	35.XX.XX.2																																
4 -T BRANCH OPR	01B1 A09N	35.26.11.2																																
5 -T GATED WORD MARK	01B2 C20C	31.07.11.2																																
6 -T I-E CHANGE	01B2 C22N	31.05.31.2																																
7 +U DELTA I-CYCLE	01B2 E07N	31.21.11.2																																
8 -T I-CYCLE	01B2 A23F	31.24.11.2																																
9 +U I-STAR RESTORE GATE	01A7 A20N	32.39.11.2																																
10 +U EXECUTE ELIMINATE	01B2 C15C	31.05.11.2																																
11 +U TEST BRANCH GATE	01B6 A08N	34.21.41.2																																
12 +U TRANSFER PROGRAM SKIP	01B6 A10H	34.21.41.2																																
13 -T PROGRAM SKIP LATCH	01B2 C23A	31.08.11.2																																
14 +U I-A STAR GATE	01B2 D05C	31.08.11.2																																
15 +U SET TO I-RING OP	01B2 D21B	31.30.11.2																																
16 -T A-STAR GATE OUT	01A7 A07N	32.32.21.2																																
17 -T I-RING OP TGR	01B2 E20N	31.31.31.2																																
18 +U MODIFIER CONTROL - 1	01A8 B04H	32.42.11.2																																
19 +U MODIFIER CONTROL +1	01A8 D06N	32.42.11.2																																
20 -T MODIFIER CONTROL XFER	01A8 C10A	32.42.41.2																																
21 MODIFIER OUTPUT ON BUS LINES	— —	32.43.XX.2																																
22 DATA ON INHIBIT DRIVE LINES	— —	—																																

FIGURE 17. TEST AND BRANCH B (I) d (TEST ANY ONE OF TEN CHARACTERS)

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																											
			1 8	3 6 9 0	B	3 6 9 0	I OP	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0		
1 STORAGE ADDRESS REGISTER	---	32.XX.XX.2	911		402		303																							
2 B-REGISTER LATCHES	---	35.XX.XX.2	M		WM T		S																							
3 A-REGISTER LATCHES	---	35.XX.XX.2	d CHAR																											
4 +U ZONE TEST OPR	01B1 C11N	35.26.11.2	OP DEC A, B 4 18 2																											
5 -T GATED WORD MARK	01B2 C20C	31.07.11.2	B-WM																											
6 -T I-E CHANGE	01B2 C22N	31.05.31.2	5		11 12																									
7 +U DELTA I-CYCLE	01B2 E07N	31.21.11.2	6 8 16 DELTA CYC LAT GATE																											
8 -T I-CYCLE	01B2 A23F	31.24.11.2	7 000-060																											
9 +U I-STAR RESTORE GATE	01A7 A20N	32.39.11.2	5 8																											
10 -T DELTA B-CYCLE	01B2 E15H	31.23.11.2	6 8 12		6 11																									
11 +U B-CYCLE	01B2 D23N	31.26.11.2	10																											
12 +U I CHAR I-E CHANGE	01B2 C08G	31.05.11.2	4																											
13 +U TRANSFER B-REGISTER	01A3 E18H	35.18.11.2	4		11																									
14 +U A-CYCLE ELIM	01B2 C16G	31.06.11.2	4																											
15 -T A ZONE BIT EQUAL	01B6 A09P	34.21.11.2	A-REG A B-REG A		A-REG NOT A B-REG NOT B																									
16 -T B ZONE BIT EQUAL	01B6 A09A	34.21.11.2	A-REG B B-REG B		A-REG NOT B B-REG NOT B																									
17 +U ZONE TRANSFER GATE	01B6 A07N	34.21.41.2	A REG 2		15 16																									
18 +U TRANSFER PROGRAM SKIP	01B6 A07H	34.21.41.2	A REG 1 B REG WM		4 11																									
19 -T PROGRAM SKIP LATCH	01B2 C23A	31.08.11.2	18		045-060		23																							
20 +U I-A STAR GATE	01B2 D05C	31.08.11.2	19																											
21 +U SET TO I-RING OP LATCH	01B2 D21B	31.30.11.2	19		20																									
22 -T A-STAR GATE OUT	01A7 A07N	32.32.21.2	7 20																											
23 -T I-RING OP TRG	01B2 E20N	31.31.31.2	7		21 015-030																									
24 +U MODIFIER CONTROL - 1	01A8 B04H	32.42.11.2																												
25 +U MODIFIER CONTROL +1	01A8 D06N	32.42.11.2																												
26 -T MODIFIER CONTROL XFER	01A8 C10A	32.42.41.2																												
27 MODIFIER OUTPUT ON BUS LINES	---	32.43.XX.2			403		304																							
28 DATA ON INH DR LINES	---		M		WM-T		S																							

FIGURE 19. TEST ZONE OR WORD MARK OR BOTH AND BRANCH V (11) (BB) P

673 9
 674 ±
 675 A

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																																			
			I OP			I I			9 0 3 6 9 0 3 6 9 0 3 6 9 0 3 6 9 0 3 6 9 0 3 6 9 0 3 6 9 0 3 6 9 0 3 6 9 0																													
1 STORAGE ADDRESS REGISTER	---	32.XX.XX.2	674	.																																		
2 B-REGISTER LATCHES	---	35.XX.XX.2	.																																			
3 A-REGISTER LATCHES	---	35.XX.XX.2	.																																			
4 +U STOP OPR	01B1 A13F	35.24.11.2	.																																			
5 -T GATED WORD MARK	01B2 C20C	31.07.11.2	.																																			
6 +U UNCOND TRANSFER	01B2 D08H	31.08.11.2	.																																			
7 +U DELTA I-CYCLE	01B2 E07N	31.23.11.2	.																																			
8 -T I-CYCLE LATCH	01B2 E23A	31.24.11.2	.																																			
9 +U I-STAR RESTORE GATE	01A7 A20N	32.39.11.2	.																																			
10 +U EXECUTE ELIM	01B2 C12N	31.05.11.2	.																																			
11 +U DELTA PROCESS LATCH	01B2 B11N	31.02.11.2	.																																			
12 +U DELTA PROCESS RESET	01B2 B19A	31.02.31.2	.																																			
13 +U MODIFIER CONTROL - 1	01A8 B04H	32.42.11.2	.																																			
14 +U MODIFIER CONTROL + 1	01A8 D06N	32.42.11.2	.																																			
15 -T MODIFIER CONTROL XFER	01A8 C10A	32.42.41.2	.																																			
16 MODIFIER OUTPUT ON BUS LINES	---	32.43.XX.2	675	.																																		
17 DATA ON INHIBIT DRIVE LINES	---	---	.	.																																		

FIGURE 22. STOP (.)

651 S
 652 N (496)
 656 A

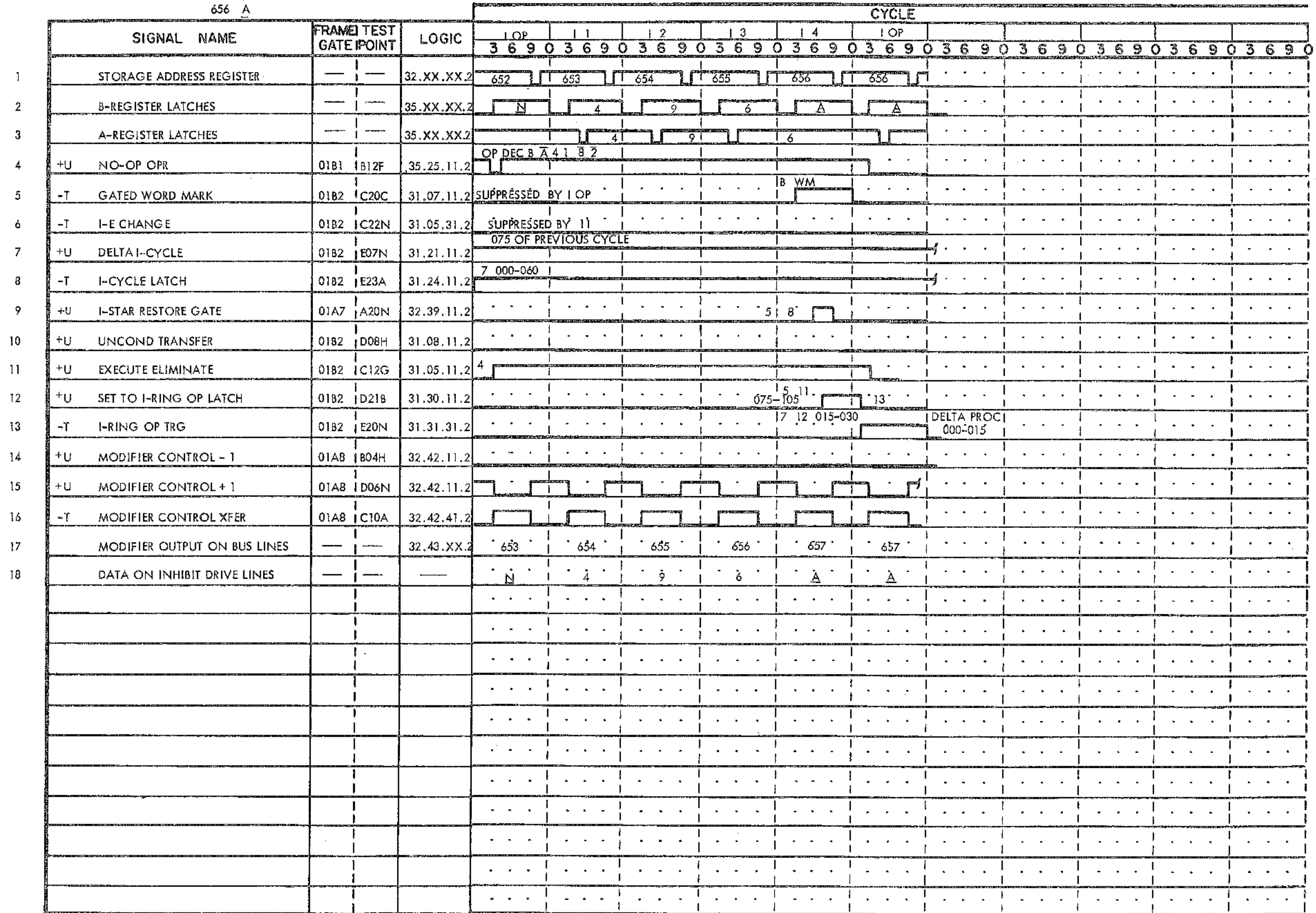


FIGURE 23. NO-OP (N)

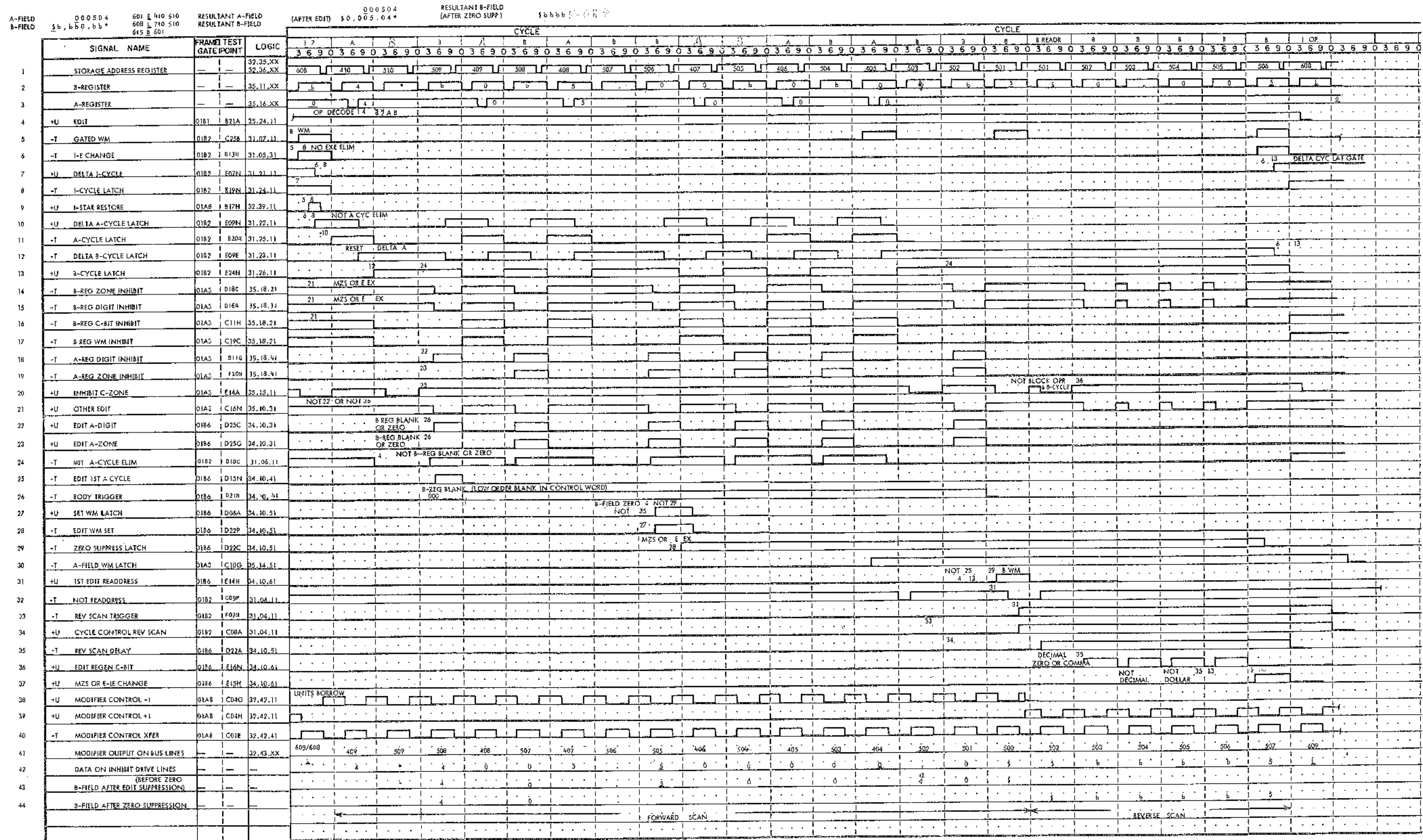


FIGURE 24. EDIT OPERATION - ZERO SUPPRESS

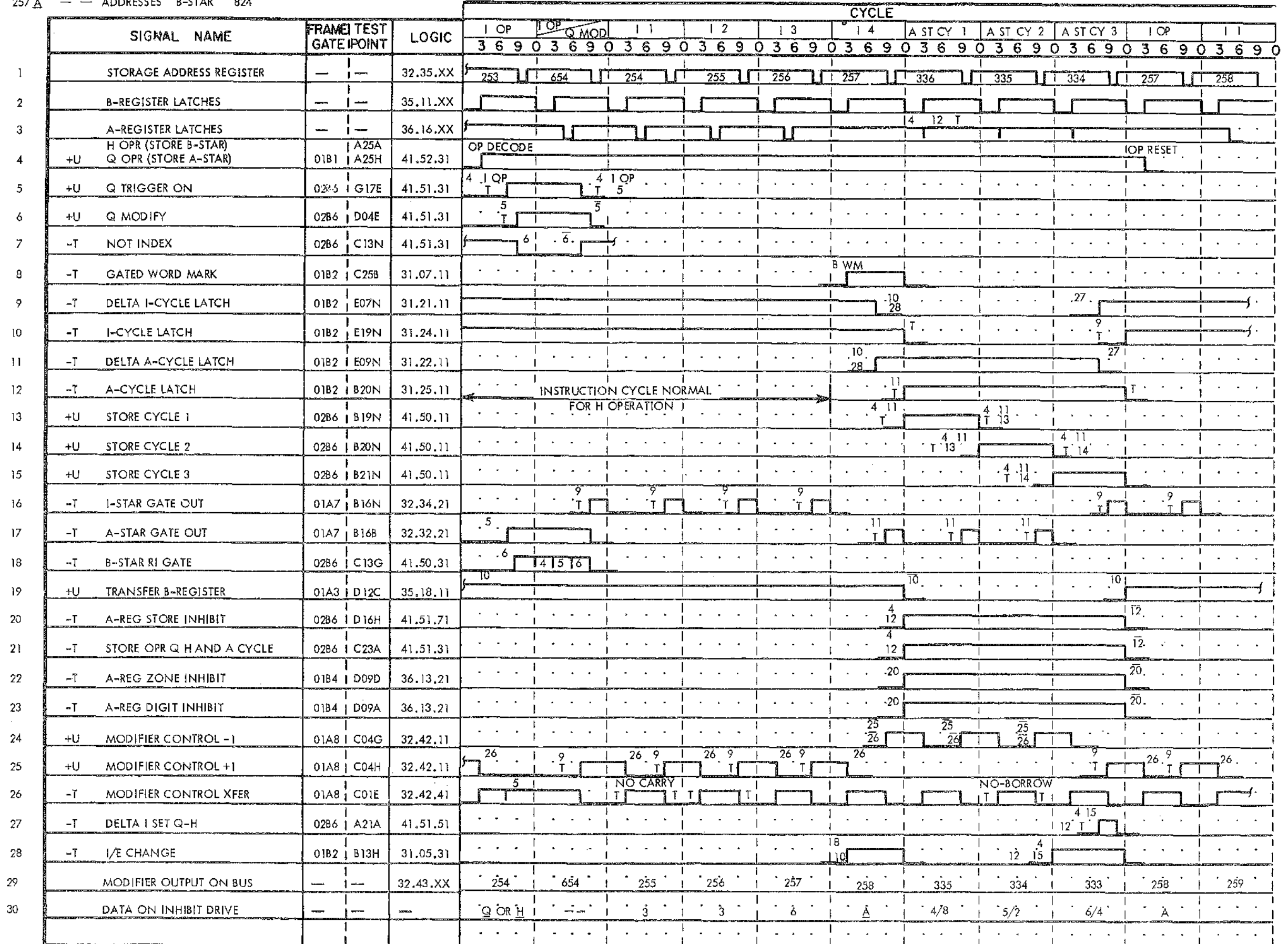


FIGURE 26. STORE A STAR Q (AAA) STORE B STAR H (AAA)

654 B (701) BEFORE XFER I-STAR A-STAR B-STAR
 658 A — — AFTER XFER 658 701 xxx
 701 H (336) 658 701 658

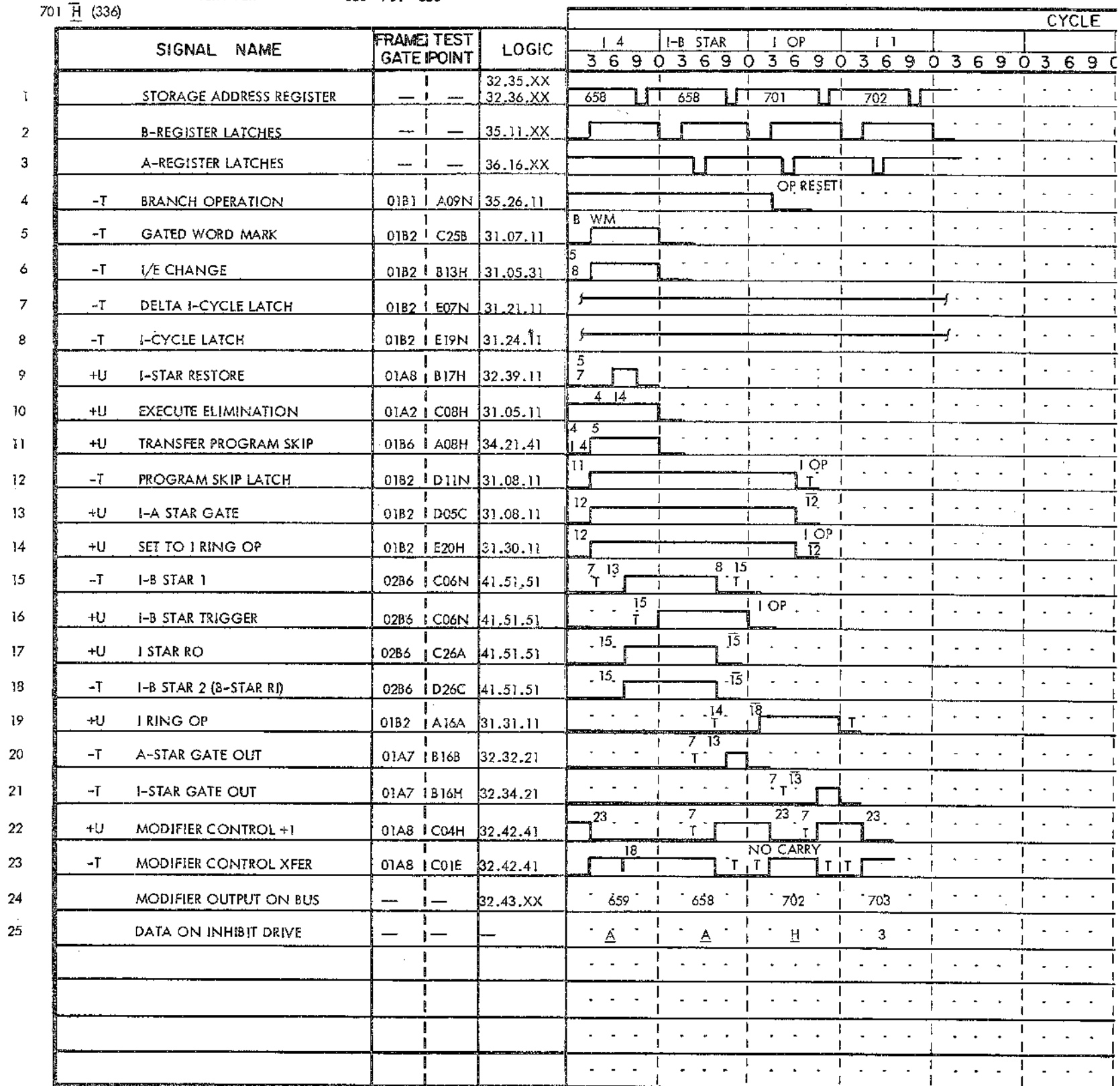


FIGURE 27. BRANCH B (III) ADVANCED PROGRAMMING (I-B STAR TRANSFER)

523 P (398) (437) A-FIELD ORIG 1 2 3 4 5 6 RM 7 RESULT 1 2 3 4 5 6 RM 7
 529 S - - B-FIELD ORIG A B C D E F G H RESULT 1 2 3 4 5 6 RM H

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE										CYCLE										IOP
			1 7	A	B	A	B	A	B	A	B	A	B	1 7	A	B	A	B	A	B	A	B	
1 STORAGE ADDRESS REGISTER	--	32.36.XX 32.35.XX	529	398	437	399	438	400	439	401	440	402	441	403	442	404	443	405	444	529			
2 B-REGISTER LATCHES	--	35.11.XX																					
3 A-REGISTER LATCHES	--	35.16.XX																					
4 +U P OPR (MOVE RECORD)	01B1 A25N	41.52.31	OP DECODE A B 8 4 2 1																				IOP RESET
5 -T GATED WORD MARK	01B2 C25B	31.07.11	B WM																				B WM
6 +U I/E CONTROL 2	01B2 C16B	31.05.21	4																				4
7 -T DELTA I-CYCLE LATCH	01B2 E07H	31.21.11	25 8 1																				12 25
8 -T I-CYCLE LATCH	01B2 E19N	31.24.11	7																				7
9 -T DELTA A-CYCLE	01B2 E09N	31.22.11	8 25 10 25 10 11 25 11 25 11 25 11 25 11 25 11 25 10																				
10 -T A-CYCLE LATCH	01B2 B20N	31.25.11	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9																				
11 -T DELTA B-CYCLE LATCH	01B2 E09E	31.23.11	9 12 9 12 9 12 9 12 9 12 9 12 9 12 9 12 9 12 9 12																				
12 -T B-CYCLE LATCH	01B2 E23H	31.26.11	11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11																				
13 -T I-STAR GATE OUT	01A7 B16H	32.32.81																					7 7
14 -T A-STAR GATE OUT	01A7 B16B	32.32.81	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9																				
15 -T B-STAR GATE OUT	01A7 B16A	32.32.81	11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11																				
16 +U TRANSFER B-REGISTER	01A3 D12C	35.18.11	10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10																				8
17 -T B-REG ZONE INHIBIT	01A3 C21A		16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16																				16
18 -T B-REG DIGIT INHIBIT	01A3 D09C		16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16																				16
19 -T B-REG WM INHIBIT	01A3 C19C	35.18.21	NOT PREVENTED																				
20 +U A-REG ST INH	02B6 D16H	41.51.71	4 12 4 12 4 12 4 12 4 12 4 12 4 12 4 12 4 12 4 12																				12
21 -T A-REG ZONE INHIBIT	01A3 D09P	36.13.21	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20																				20
22 -T A-REG DIGIT INHIBIT	01A3 D09A	36.13.21	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20																				20
23 +U MODIFIER CONTROL +1	01A8 C09H	32.42.21	24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24																				24 24 24 24 24 24 24 24
24 -T MODIFIER CONTROL XFER	01A8 C01E	32.42.41	NO CARRY T-CARRY U-CARRY																				U-CARRY
25 -T I/E CHANGE	01B2 B13H	31.05.31	5 8																				12 RECORD MARK
26 MODIFIER OUTPUT ON BUS	--	32.43.XX	529	399	438	400	439	401	440	402	441	403	442	404	443	405	444	530					
27 DATA ON INHIBIT DRIVE	--	--				2	2	3	3	4	4	5	5	6	8	RM	RM						

FIGURE 28. MOVE RECORD P (AAA) (BBB)

503 (2)
504 A

A-REG SET-UP FOR READ
SCAN 9

A-REG SET-UP FOR READ
SCAN 7-9
READ SCAN 1

A-REG SET-UP FOR READ SCAN
10-12

LAST ADDRESS OR
READ SCANS 1-12

ALL SCANS COMPLETE
AND I-E CHANGE

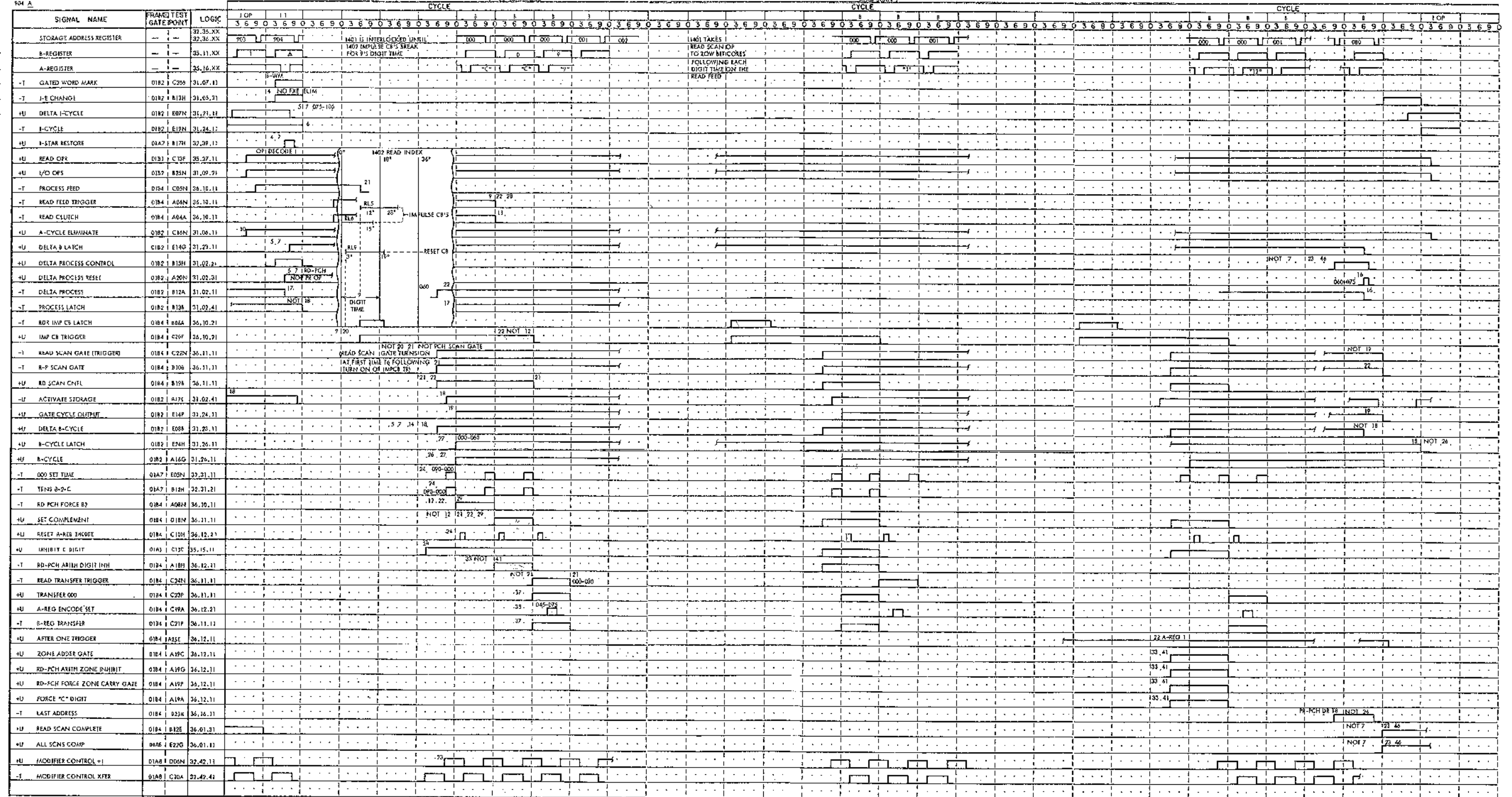


FIGURE 29, READ

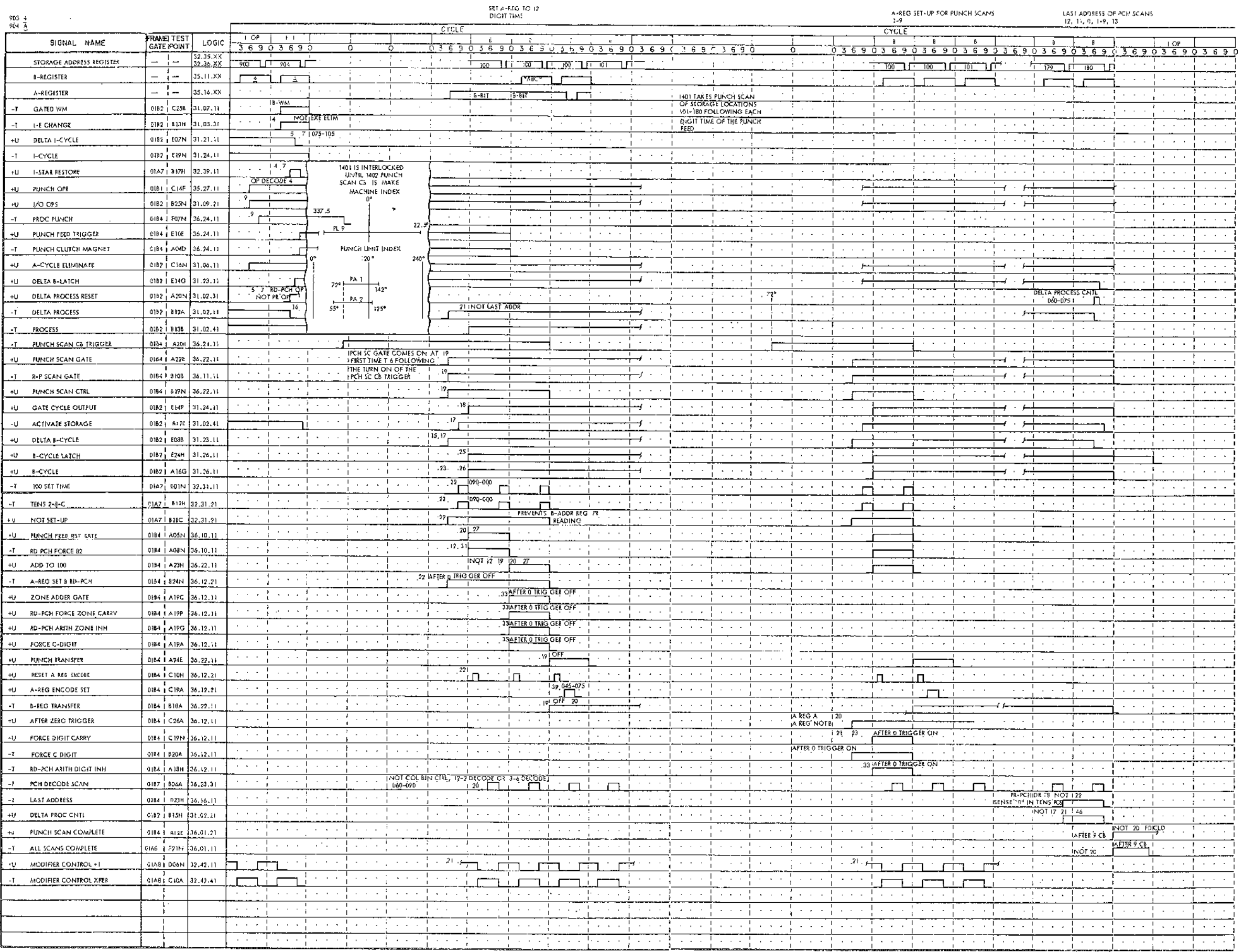


FIGURE 30. PUNCH

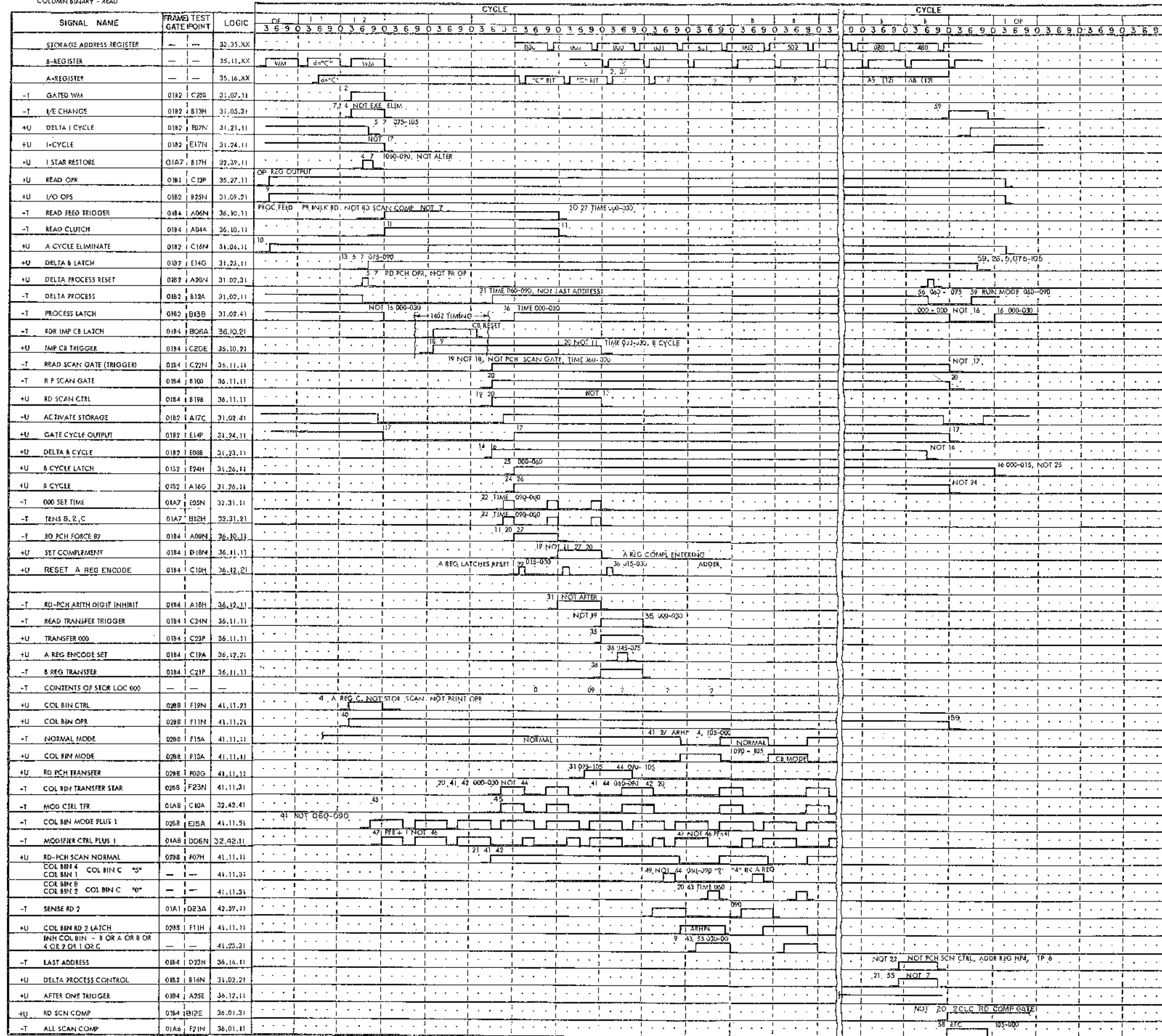


FIGURE 32. COLUMN BINARY READ SEQUENCE

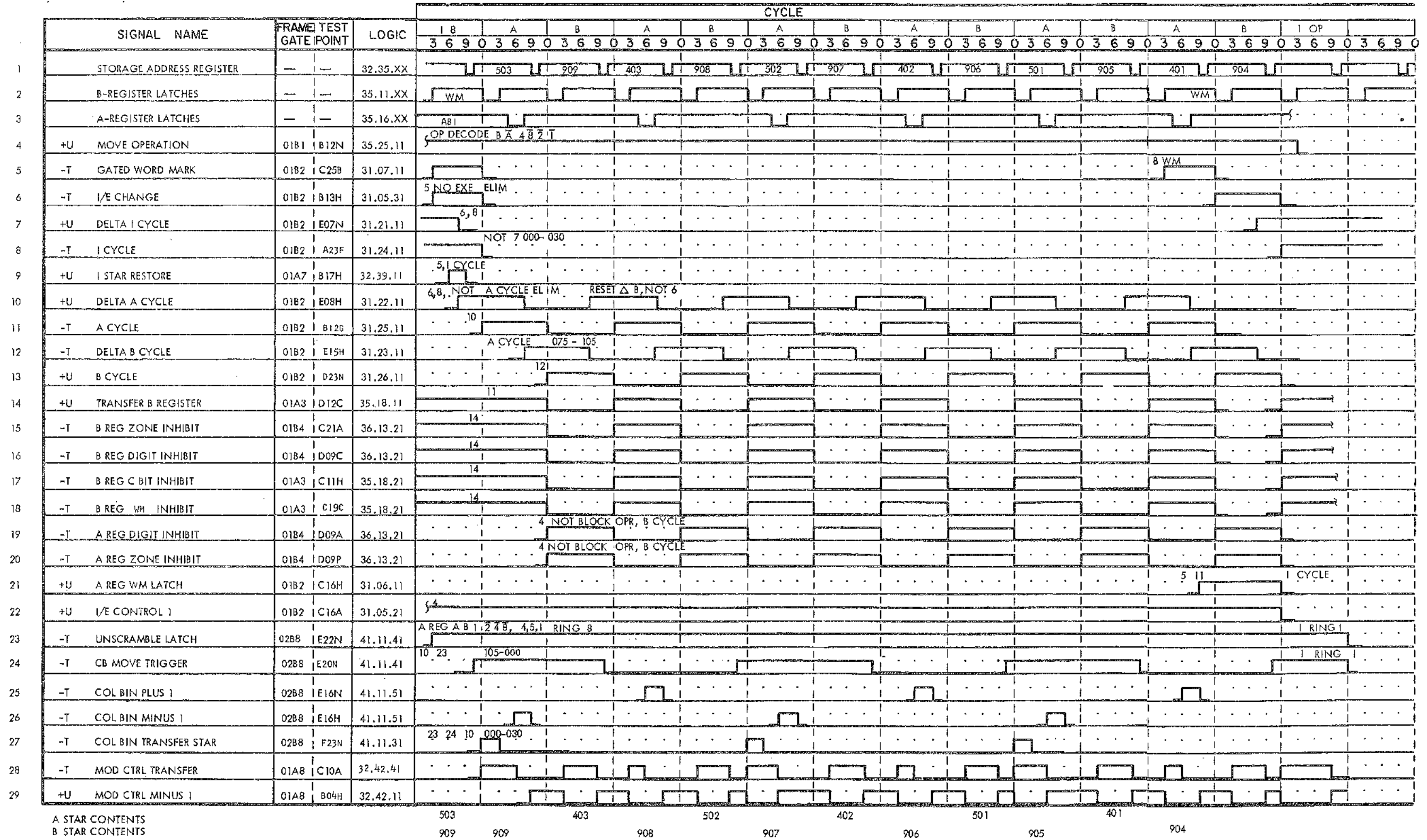


FIGURE 34. MOVE AND UNSCRAMBLE COLUMN BINARY SEQUENCE

903 K (d) 903 K (701) d 701 M
 905 S 908 S

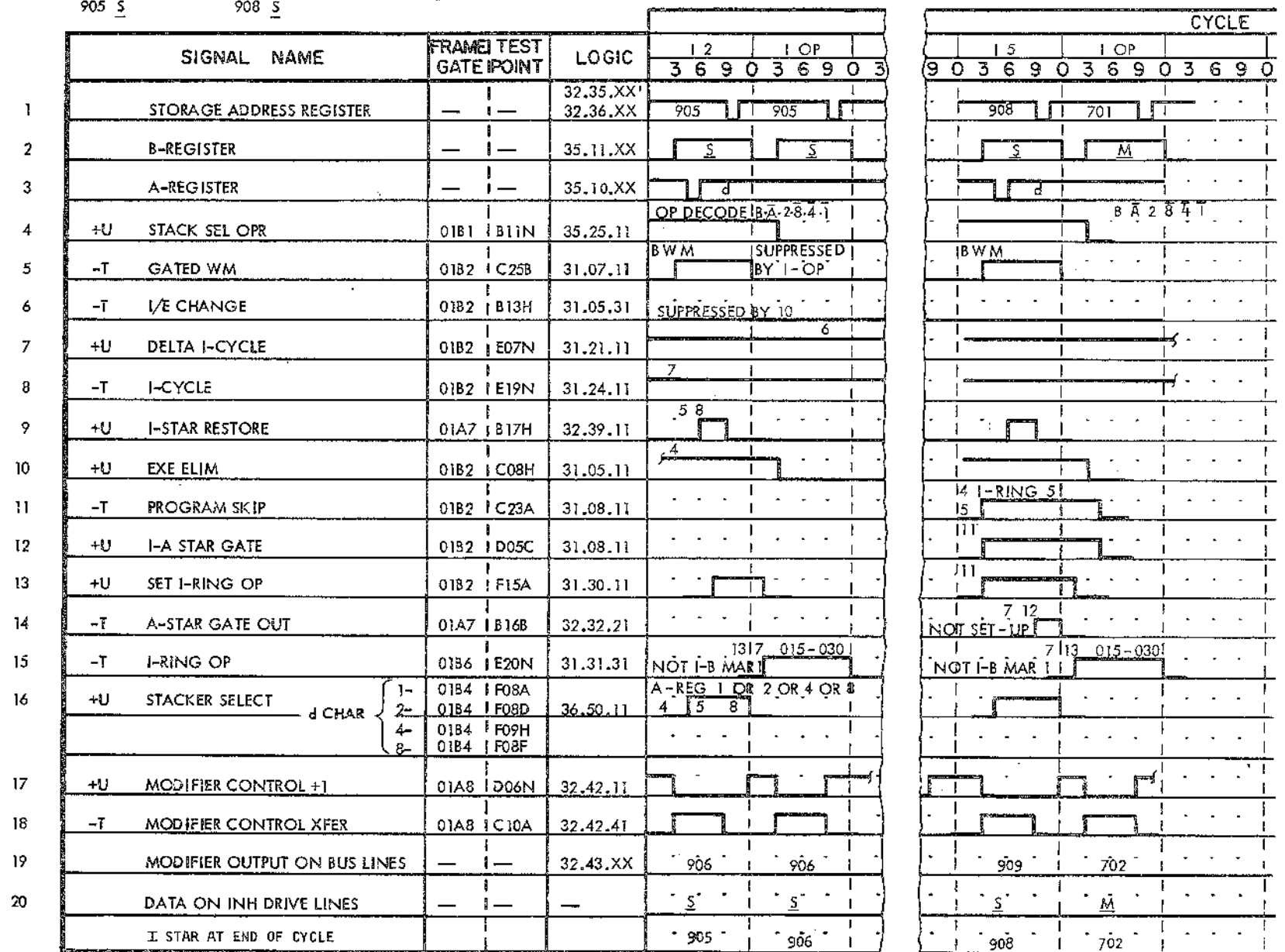
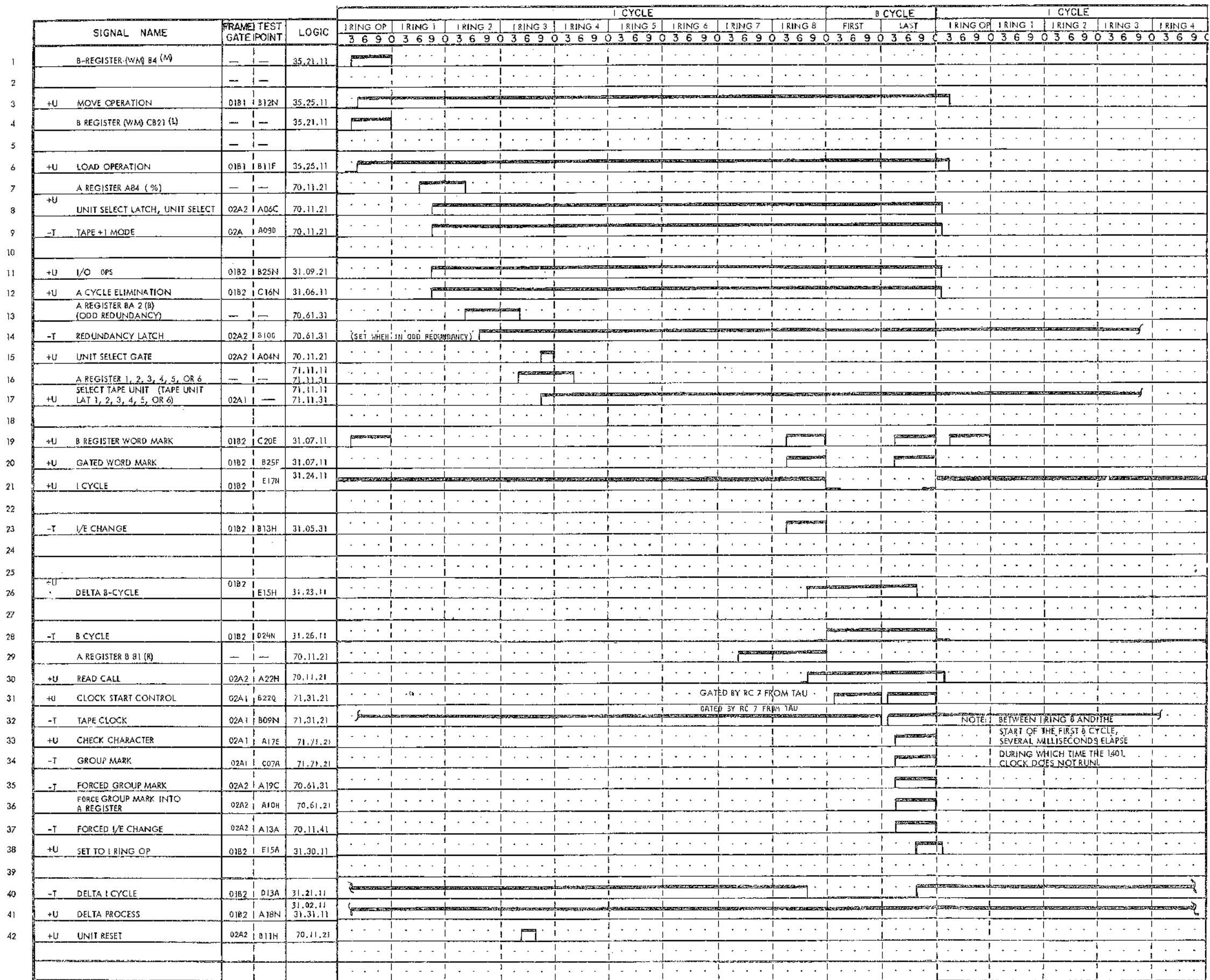


FIGURE 37. STACKER SELECT K AND STACKER SELECT BRANCH

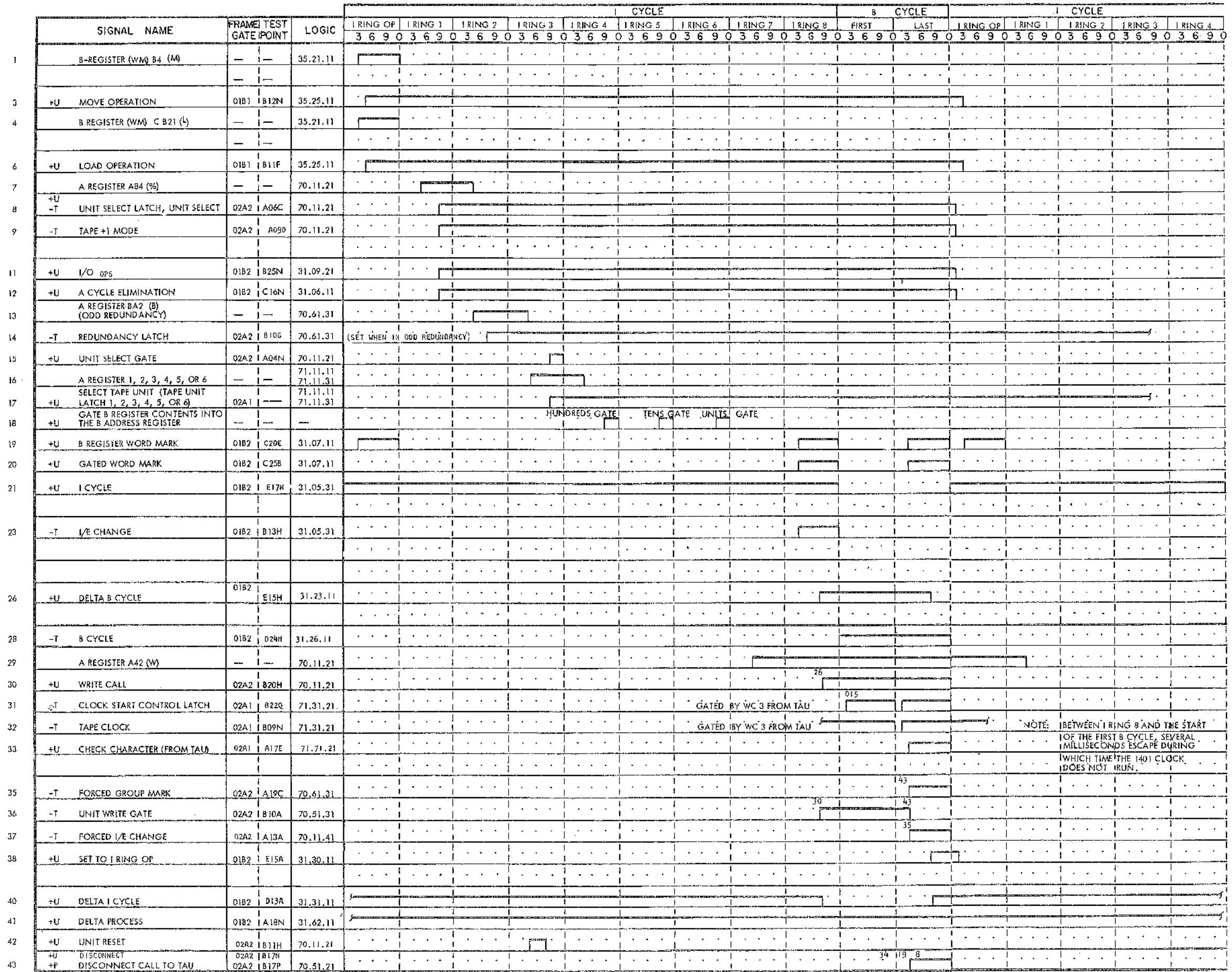
FIGURE 38. MOVE (LOAD) TAPE READ OPERATION



NOTE: BETWEEN I RING 8 AND THE START OF THE FIRST B CYCLE, SEVERAL MILLISECONDS ELAPSE DURING WHICH TIME THE I401 CLOCK DOES NOT RUN!

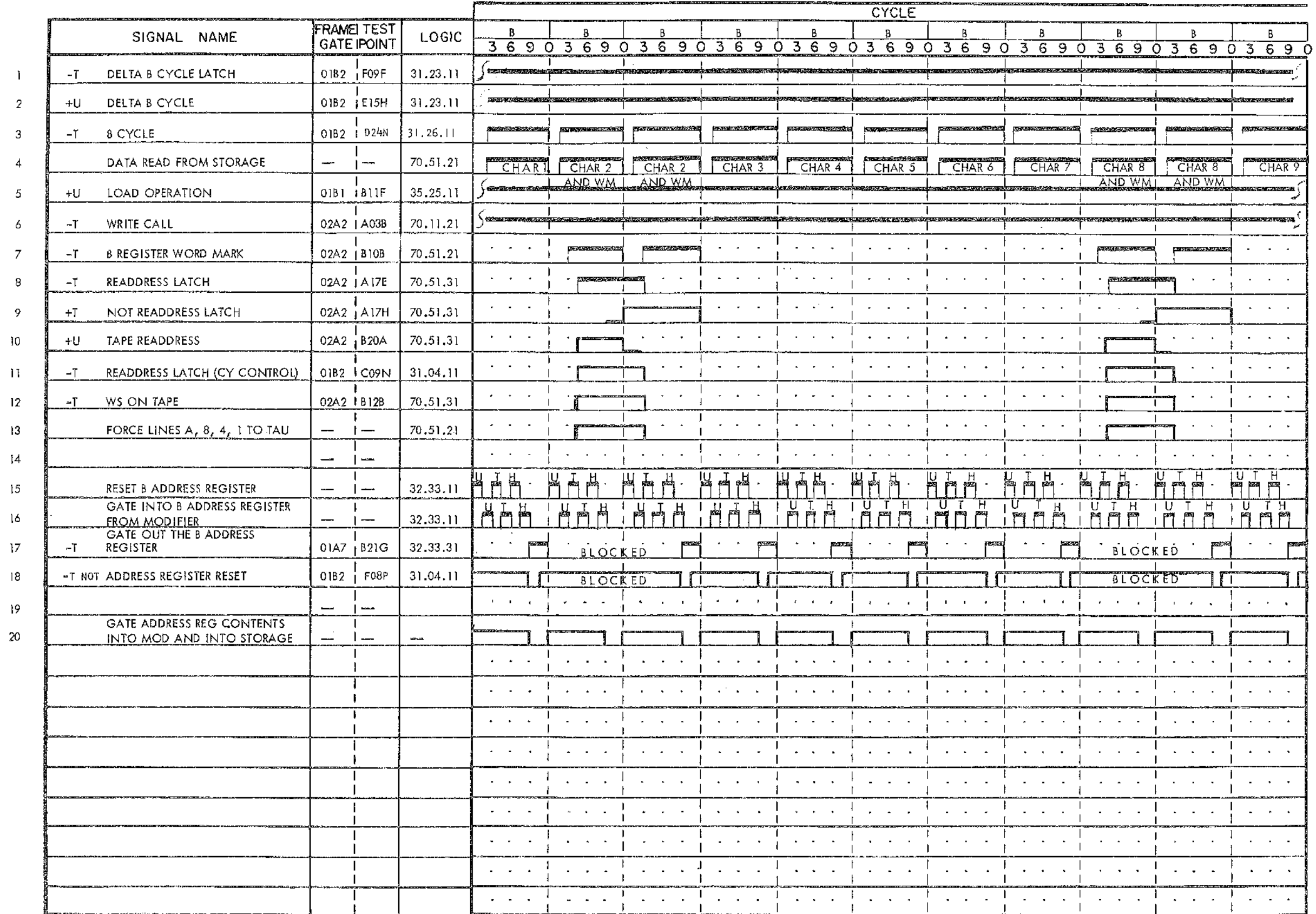


FIGURE 39. MOVE (LOAD) WRITE OPERATION



NOTE: BETWEEN I RING 8 AND THE START OF THE FIRST B CYCLE, SEVERAL MILLISECONDS ESCAPE DURING WHICH TIME THE 1401 CLOCK DOES NOT RUN.

FIGURE 41. LOAD TAPE AND WRITE A WORD SEPARATOR CHARACTER



U% U1 (d) B d = B

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																												
			RING OP		RING 1		RING 2		RING 3		RING 4		RING 5		RING OP		RING 1		RING 2		RING 3		RING 4								
			3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3
1 -T DELTA 1 CYCLE	01B2 B12H	31.21.11	[Pulse spanning all 20 cycles]																												
2 B-REGISTER (WM) A4 (U)	---	35.21.11	[Pulse in RING OP 1st cycle]																												
3 OP DECODE (WM) A4 (U)	---	35.26.11	[Pulse from RING OP 1st to RING 5 5th]																												
4 +U U OP CODE	01B2 C12F	35.26.11	[Pulse from RING OP 1st to RING 5 5th]																												
5 +U EXECUTE ELIMINATE	01B2 C08H	31.05.11	[Pulse from RING OP 1st to RING 5 5th]																												
6 A-REGISTER A 84 (%)	---	70.11.21	[Pulse in RING 1 3rd]																												
7 -T UNIT SELECT LATCH, UNIT SELECT	02A2 B05N	70.11.21	[Pulse from RING 1 3rd to RING 5 5th]																												
8 -T TAPE +1 MODE	02A2 A09D	70.11.21	[Pulse from RING 1 3rd to RING 5 5th]																												
9 +U I/O OPERATE	01B2 B25N	31.09.21	[Pulse from RING 1 3rd to RING 5 5th]																												
10 +U A CYCLE ELIMINATION	01B2 C16N	31.06.11	[Pulse from RING 1 3rd to RING 5 5th]																												
11																															
12																															
13 +U UNIT SELECT GATE	02A2 A04N	70.11.21	[Pulse in RING 3 6th]																												
14 A REGISTER 1	---	71.11.11	[Pulse in RING 3 6th]																												
15 +U SELECT TAPE UNIT (TAPE UNIT LATCH 1)	---	71.11.11	[Pulse from RING 3 6th to RING 5 5th]																												
16 +U B REGISTER WORD MARK	01B2 C20E	31.07.11	[Pulse in RING OP 1st, RING 5 5th, RING OP 2nd]																												
17 +U U OP CODE GATE	02A1 A04N	71.11.21	[Pulse in RING 5 5th]																												
18 A REGISTER BA 2 (B)	---	71.11.21	[Pulse from RING 4 4th to RING 5 5th]																												
19 +P BACKSPACE TO TAU	02A1 B23B	71.11.21	[Pulse in RING 5 5th]																												
20 +U GATED WORD MARK	01B2 B25F	31.07.11	[Pulse from RING 5 5th to RING OP 2nd]																												
21 +U SET I OP LATCH	01B2 D21B	31.30.11	[Pulse in RING OP 2nd]																												
22 -T TAPE CLOCK	02A1 B09N	71.31.21	[Pulse from RING OP 1st to RING OP 2nd, labeled (GATED BY TAU BUSY)]																												
23																															
24 +U UNIT RESET	02A2 B11H	70.11.21	[Pulse in RING 3 6th]																												

FIGURE 42. BACKSPACE TAPE OPERATION

U% UI (d) B d= E

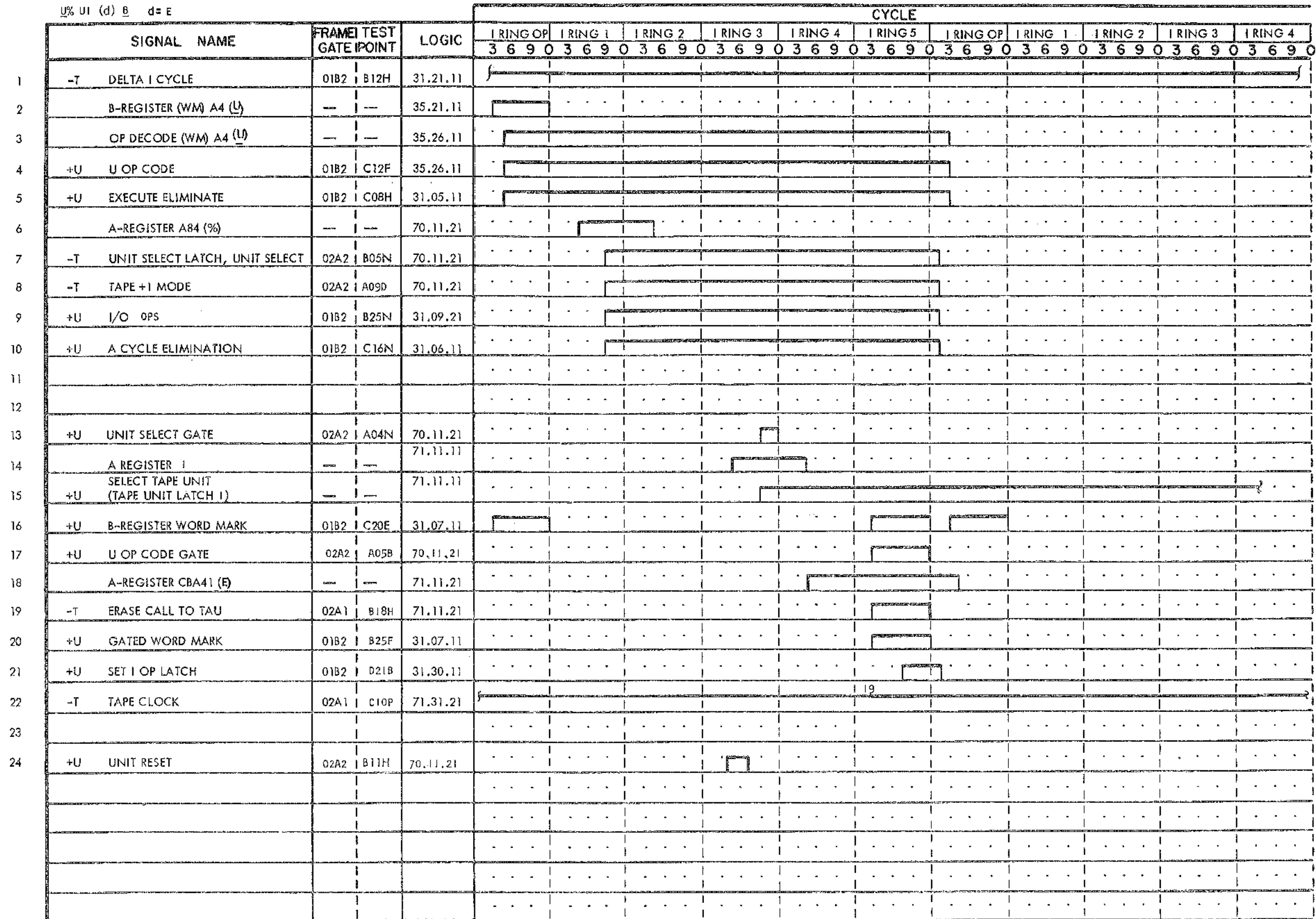


FIGURE 43. ERASE TAPE OPERATION

U%UIMB

	SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																			
				IRING OP				IRING 1				IRING 2				IRING 3				IRING 4			
				3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0	3	6	9	0
1	-T DELTA I-CYCLE	01B2 B12H	31.21.11	[High Pulse]																			
2	B-REGISTER (WM) A4 (U)	---	35.21.11	[Pulse]																			
3	OP DECODE (WM) A4 (U)	---	35.26.11	[Pulse]																			
4	+U U OP CODE	01B2 C12F	35.26.11	[Pulse]																			
5	+U EXECUTE ELIMINATE	01B2 C08H	31.05.11	[Pulse]																			
6	A REGISTER A84 (%)	---	70.11.21	[Pulse]																			
7	-T UNIT SELECT LATCH, UNIT SELECT	02A2 B05N	70.11.21	[Pulse]																			
8	-T TAPE +1 MODE	02A2 A09D	70.11.21	[Pulse]																			
9	+U I/O OPS	01B2 B25N	31.09.21	[Pulse]																			
10	+U A CYCLE ELIMINATION	01B2 C16N	31.06.11	[Pulse]																			
11																							
12																							
13	+U UNIT SELECT GATE	02A2 A04N	70.11.21	[Pulse]																			
14	A REGISTER 1	---	71.11.11	[Pulse]																			
15	-T SELECT TAPE UNIT (TAPE UNIT LATCH 1)	02A1 B01E	71.11.11	[Pulse]																			
16	+U B-REGISTER WORD MARK	01B2 C20E	31.07.11	[Pulse]																			
17	+U U OP CODE GATE	02A2 A05B	70.11.21	[Pulse]																			
18	A-REGISTER CA4 (M)	---	71.11.21	[Pulse]																			
19	-T WRITE TAPE MARK CALL	02A2 C05N	70.11.41	[Pulse]																			
20	+U GATED WORD MARK	01B2 B25F	31.07.11	[Pulse]																			
21	+U SET I OP LATCH	01B2 D21B	31.30.11	[Pulse]																			
22	-T TAPE CLOCK	02A1 B09N	71.31.21	[Pulse] (GATED BY TAU BUSY)																			
23																							
24	+U UNIT RESET	02A2 B11H	70.11.21	[Pulse]																			

FIGURE 44. WRITE TAPE MARK

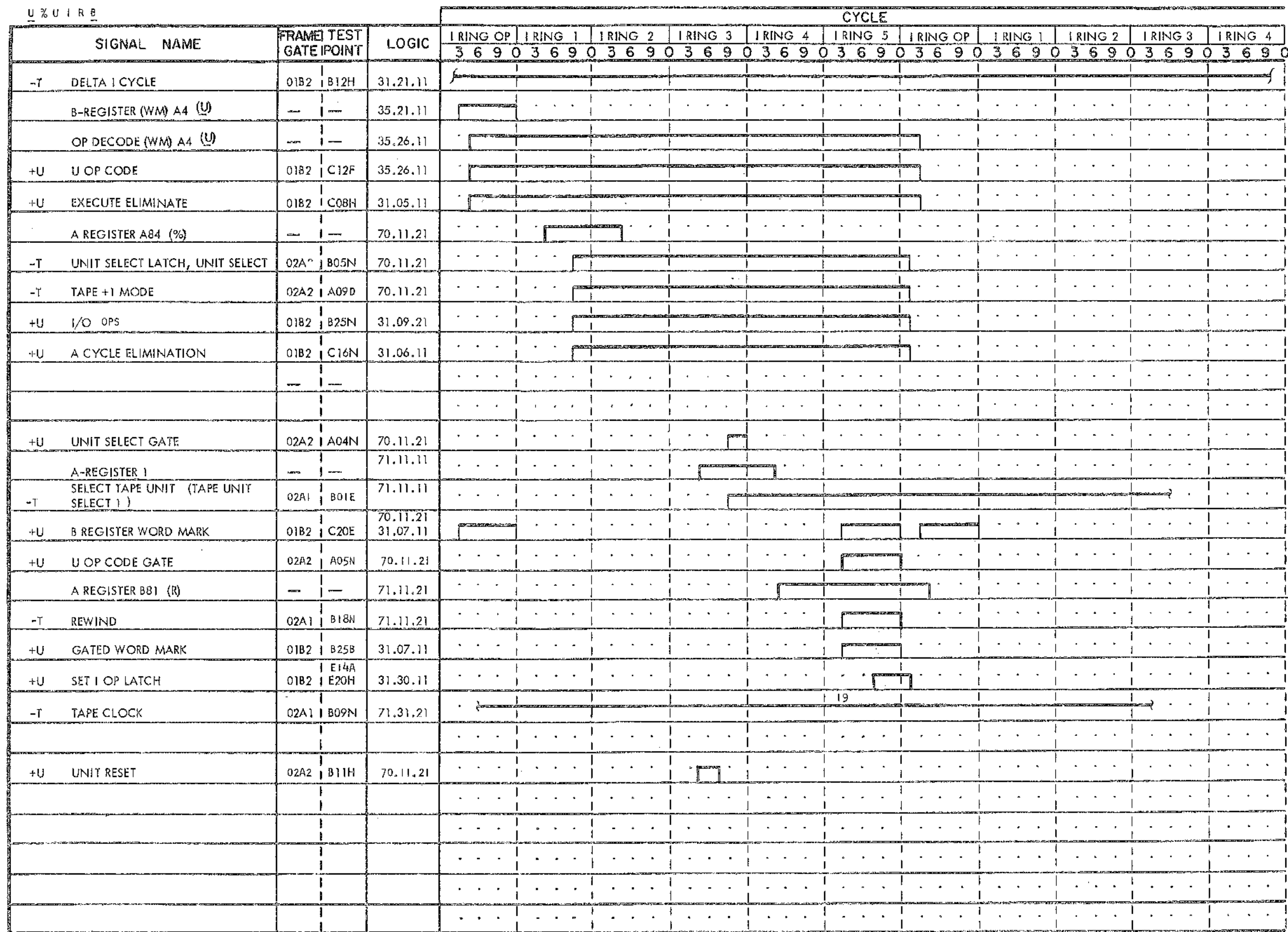


FIGURE 45. REWIND TAPE OPERATION

u % u | (d) B d = u

LINE	SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE														
				1 RING OP	1 RING 1	1 RING 2	1 RING 3	1 RING 4	1 RING 5	1 RING OP	1 RING 1	1 RING 2	1 RING 3	1 RING OP	1 RING 1	1 RING 2	1 RING 3	
				3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	
1	-T DELTA 1 CYCLE	01B2 B12H	31.21.11	[Signal active for the entire duration]														
2	+U B-REGISTER (WM) A4 (U)	---	35.21.11	[Signal active in Ring 1 of Cycle 1]														
3	+U OP DECODE (WM) A4 (U)	---	35.26.11	[Signal active in Ring 1 of Cycle 1]														
4	+U U OP CODE	01B2 C12F	35.26.11	[Signal active in Ring 1 of Cycle 1]														
5	+U EXECUTE ELIMINATE	01B2 C08H	31.05.11	[Signal active in Ring 1 of Cycle 1]														
6	+U A REGISTER A84 (%)	---	70.11.21	[Signal active in Ring 2 of Cycle 1]														
7	-T UNIT SELECT LATCH, UNIT SELECT	02A2 B05N	70.11.21	[Signal active in Ring 2 of Cycle 1]														
8	-T TAPE +1 MODE	02A2 A09D	70.11.21	[Signal active in Ring 2 of Cycle 1]														
9	+U I/O OPS	01B2 B25N	31.09.21	[Signal active in Ring 2 of Cycle 1]														
10	+U A CYCLE ELIMINATION	01B2 C16N	31.06.11	[Signal active in Ring 2 of Cycle 1]														
11																		
12																		
13	+U UNIT SELECT GATE	02A2 A04N	70.11.21 71.11.11	[Signal active in Ring 3 of Cycle 1]														
14	+U A REGISTER 1	---	71.11.11	[Signal active in Ring 3 of Cycle 1]														
15	+U SELECT TAPE UNIT (TAPE UNIT LATCH 1)	---	71.11.11	[Signal active in Ring 3 of Cycle 1]														
16	-T B REGISTER WORD MARK	01B2 C20E	70.11.21 31.07.11	[Signal active in Ring 4 of Cycle 1]														
17	+U U OP CODE GATE	02A2 A05B	70.11.21	[Signal active in Ring 4 of Cycle 1]														
18	+U A REGISTER CA4 (U)	---	71.11.21	[Signal active in Ring 4 of Cycle 1]														
19	+N REWIND UNLOAD TO TAU	02A1 B17P	71.11.21	[Signal active in Ring 5 of Cycle 1]														
20	+U GATED WORD MARK	01B2 B25F	31.07.11	[Signal active in Ring 5 of Cycle 1]														
21	+U SET 1 OP LATCH	01B2 D21B	31.30.11	[Signal active in Ring 5 of Cycle 1]														
22	-T TAPE CLOCK	02A1 B09N	71.31.21	[Signal active in Ring 5 of Cycle 1]														
23																		
24	+U UNIT RESET	02A2 B11H	70.11.21	[Signal active in Ring 1 of Cycle 2]														

FIGURE 46. REWIND AND UNLOAD TAPE

B (AAA)(d) B

d = K (END OF FILE) OR L (TAPE ERROR)

AAA - S

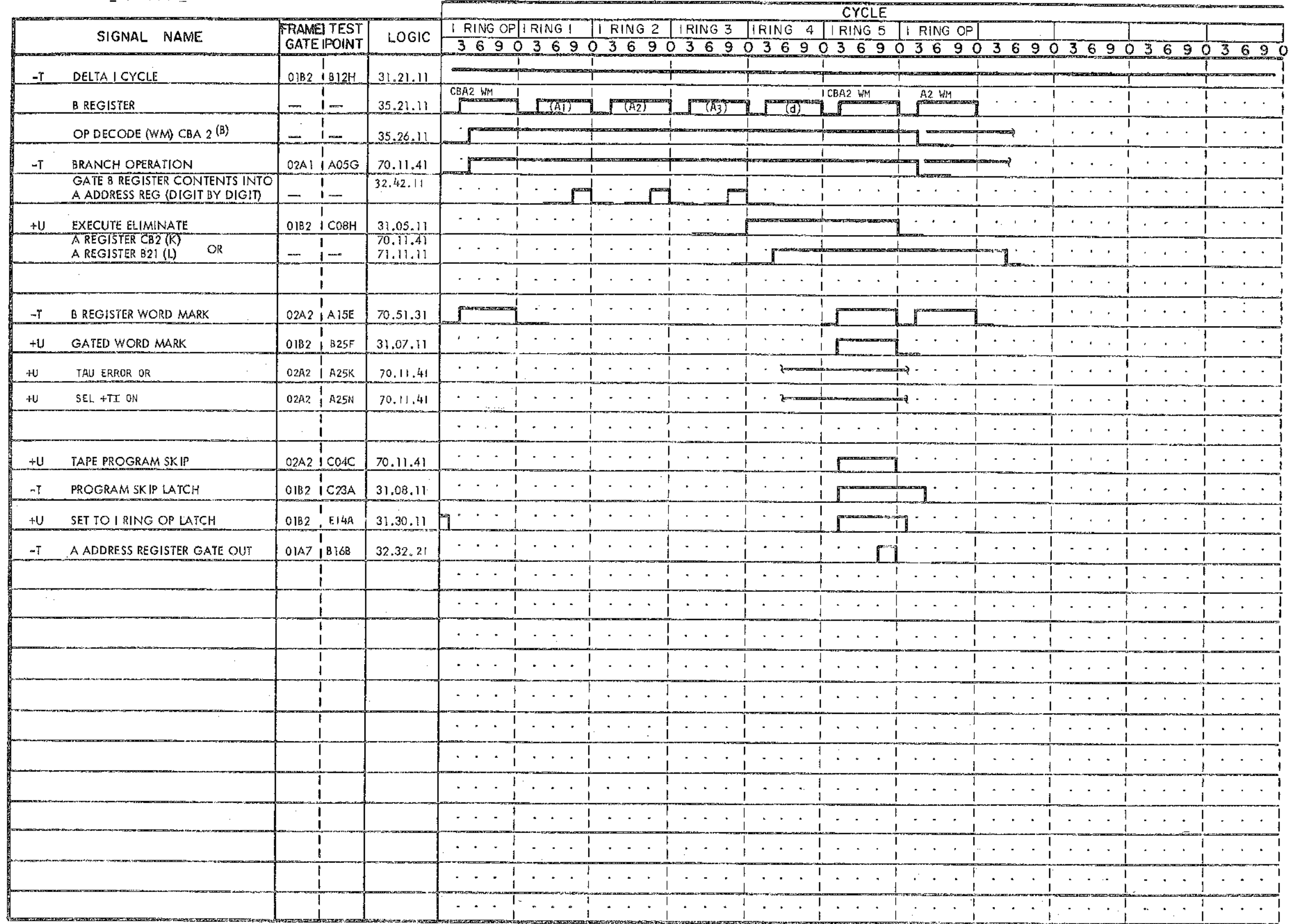


FIGURE 47. TAPE END OF FILE INDICATOR TEST AND TAPE TRANSMISSION ERROR TEST

(807) # (898) (257) ORIG A-FIELD
 (814) X (814) X ORIG B-FIELD
 N 2 X
 N 2 X = (6527)
 H T W = (7836 + A-TAG)
 RESULTANT B-FIELD LWC = (14363 + A-TAG)

SIGNAL NAME	FRAME TEST GATE POINT	LOGIC	CYCLE																							
			1 4 OR 7	A	B	A	B	A	B	B/I OP *	B	I OP	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0	3 6 9 0		
1 STORAGE ADDRESS REGISTER	---	32.3X.XX.2	8 1 4	8 9 8	2 5 7	8 9 7	2 5 6	8 9 6	2 5 5	2 5 4	2 5 7	8 1 4														
2 B-REGISTER	---	35.1X.XX.2	WMX	A421	A42	2	A21	B41	AB8	X	B21	WMX														
3 A-REGISTER	---	35.1X.XX.2	X	A 421	2			B41		A	A															
4 +U MODIFY (#) OP	01B1 B26H	44.62.02.2	OP REG 8 2 1																				OP RESET			
5 -T DELTA I CYCLE LATCH	01B2 C11N	31.21.11.2	6-I-E CHANGE																				10-24			
6 -T I CYCLE LATCH	01B2 E19N	31.24.11.2	5.-T.																				5-T			
7 -T DELTA A CYCLE LATCH	01B2 E09N	31.22.11.2	6-I-E CHG																				8-T			
8 -T A CYCLE LATCH	06B4 F02P	42.65.01.2	7-T																				7-T			
9 -T DELTA B CYCLE LATCH	06B4 F02N	42.65.01.2	8-T																				10-24			
10 -T B CYCLE LATCH	01B2 E23H	31.26.11.2	9-T																				9-T			
11 +U CYCLE TR 1	06B4 F05E	42.65.01.2	4-9																				4-9			
12 +U CYCLE TR 2	06B4 F06E	42.65.01.2	11																				11			
13 +U CYCLE TR 3	06B4 F07E	42.65.01.2	12																				12			
14 +U A CYCLE ELIMINATE	06B4 F22P	42.65.01.2	13																				13			
15 +U TRANSFER B-REGISTER	06B4 F22A	42.65.02.2	8																				11-12			
16 -T ARITH ZONE	06B4 F09H	42.65.02.2	11-12																				11-12			
17 -T ARITH DIGIT	06B4 E07P	42.65.02.2	11																				11			
18 -T MOD OP BLOCK NU CARRY	06B4 F09N	42.65.02.2	11-12																				13			
19 -T B-REG ZONE INHIBIT	06B4 F10H	42.65.02.2	15																				15			
20 +U RESET A-REGISTER	06B4 F15A	42.65.02.2	12																				13-T			
21 +U A-REG SET A (FOR CARRY)	06B4 F15H	42.65.02.2	12-13																				12-13			
22 -T ADDER CARRY	06B4 E01E	42.65.03.2	DIG BITS																				DIG BITS			
23 -T ZONE ADDER CARRY	06B4 F14A	42.65.03.2	ZONE BITS																				ZONE BITS			
24 +U ADDRESS MOD I-E CHANGE	06B4 F18N	42.65.02.2	23-11																				11-12			
25 +U MODIFIER CONTROL -1	01A8 B04H	32.42.11.2	27																				26 27			
26 -T MODIFIER CONTROL +3	06B4 F13H	42.65.02.2	11-12																				13-T			
27 -T MODIFIER CONTROL XFER	01A8 C10A	32.42.41.2	TIME & MODIFIER B-C																							
28 MODIFIER OUTPUT ON BUS	---	32.43.XX.2	8 9 7	2 5 6	8 9 6	2 5 5	8 9 5	2 5 4	2 5 7	2 5 8	8 1 5															
29 DATA ON INHIBIT DRIVE	---	35.1X.XX.2	WMX	A 4 2 1	B 2 1	2	A 4 2	B 4 1	B 2 1	X	A B 2 1	WMX														

N 2 X
 + H T W
 L W C
 6 5 2 7
 + 7 8 3 6
 14 3 6 3 + A Tag

FIGURE 50. ADDRESS MODIFY TIMING # (AAA) (BBB)

A-FIELD BEFORE OPERATION	2	7 ^B
A-FIELD AFTER OPERATION	2	7 ^B

INSTRUCTIONS: (900) 3 T83 678
 (907) % 458 676
 (SIN) 3 900

A-FIELD BEFORE OPERATION	0	0	3	4	0 ^B	
B-F. AFTER DIVIDE - COMPARE	0	1	0	3	4	0 ^B
B-F. AFTER DIVIDE - COMPARE	0	1	0	3	4	0 ^B
B-F. AFTER SUBT. A & DIV. COMP.	0	1	0	0	7	0 ^B
B-F. AFTER DIVIDE - COMPARE	0	1	2 ^{AB}	0	7	0 ^B
B-F. AFTER SUBT. 2A & DIV. COMP.	0	1	2 ^{AB}	0	1	6 ^B

SCOPE TRIGGER POINT	02 B7 B17N AUX STAR SET LATCH	I ₇	A	B	A	B	A	B	B	B	AUX B	AUX A	AUX B	A	B	B	B	AUX A	AUX B	A	B	B	B	AUX B	AUX A	AUX B	A	B	B	B	AUX A	AUX B	A	B	B	B	I _{op}		
M-STAR			914	458	676	458	676	457	675	674	673	676	458	677	457	676	675	674	458	677	457	676	675	674	677	458	678	457	677	676	675	458	678	457	677	676	675	914	
A-STAR			458	458		457		456				457		456				457		456				457		456				457		456							
B-STAR			676		676		675		674	673	672	677		676		675	674	673		676		675	674	673	678		677		676	675	674		677		676	675	674		
A-AUX-STAR				458																																			
B-AUX-STAR					676						677												678																
B-REGISTER			2	7 ^B	3	7 ^B	3	2	0	0	0	3	7 ^B	4	2	3	0	0	7 ^B	4	2	3	0	1	7	7 ^B	0 ^B	2	7	0	0	7 ^B	0 ^B	2	7	0	2 ^{AB}	2	
A-REGISTER			8	7 ^B	7 ^B	7 ^B	7 ^B	2	2	C	C	C	7 ^B	2		C	C	7 ^B	2		C	C	C	7 ^B	2		C	C	7 ^B	2		C	C	7 ^B	2		C	C	0
TO INHIBIT			2	7 ^B	3	7 ^B	3	2	0	0	0	3	7 ^B	4	2	3	0	1	7 ^B	7	2	0	0	1	7	7 ^B	0 ^B	2	7	0	2 ^{AB}	7 ^B	0 ^B	2	1	0	2 ^{AB}	2	
B-CYCLE	44.11.01 02 B7 B16C		[Timing diagram for B-CYCLE]																																				
B-AUX STAR RE. UNITS	44.16.01 02 A7 C09H		[Timing diagram for B-AUX STAR RE. UNITS]																																				
AUX STAR SET LATCH	44.11.01 02 B7 B17N		[Timing diagram for AUX STAR SET LATCH]																																				
B-AUX STAR GATE OUT	44.16.01 02 A7 C10B		[Timing diagram for B-AUX STAR GATE OUT]																																				
TRANSFER B-REG	35.40.11 01 A7 B01N		[Timing diagram for TRANSFER B-REG]																																				
SET A-REG C-BIT	44.11.11 02 B7 D03A		[Timing diagram for SET A-REG C-BIT]																																				
X POS. LATCH	44.11.21 02 B7 C17B		[Timing diagram for X POS. LATCH]																																				
A N ELIM. LATCH	44.11.11 02 B7 C17A		[Timing diagram for A N ELIM. LATCH]																																				
SIGN TRIGGER	44.11.31 02 B7 A05P		[Timing diagram for SIGN TRIGGER]																																				
SET SIGN GATE	44.13.01 02 B7 D09D		[Timing diagram for SET SIGN GATE]																																				
QUOT. TRIGGER	44.12.01 02 B7 A13N		[Timing diagram for QUOT. TRIGGER]																																				
COMPARE GATE	44.13.01 02 B7 A22N		[Timing diagram for COMPARE GATE]																																				
A LATCH	44.12.11 02 B7 C08P		[Timing diagram for A LATCH]																																				
2A LATCH	44.12.11 02 B7 C08A		[Timing diagram for 2A LATCH]																																				
B<A LATCH	44.19.31 02 A7 E12N		[Timing diagram for B<A LATCH]																																				
B<2A LATCH	44.19.31 02 A7 E15N		[Timing diagram for B<2A LATCH]																																				
COMPLEMENT GATE	44.18.11 02 B7 B07N		[Timing diagram for COMPLEMENT GATE]																																				
SUBT. A LATCH	44.18.21 02 A7 E12H		[Timing diagram for SUBT. A LATCH]																																				
SUBT. 2A LATCH	44.18.31 02 A7 E15H		[Timing diagram for SUBT. 2A LATCH]																																				
END DIVIDE LATCH	44.12.01 02 B7 B17F		[Timing diagram for END DIVIDE LATCH]																																				
FORCE B0	44.18.31 02 A7 D03H		[Timing diagram for FORCE B0]																																				
FORCE B1	44.18.31 02 A7 C24D		[Timing diagram for FORCE B1]																																				
FORCE Q0	44.18.31 02 B7 D09N		[Timing diagram for FORCE Q0]																																				
FORCE Q2	44.18.31 02 A7 D10P		[Timing diagram for FORCE Q2]																																				
MOD. CONTR. +1	32.44.11 01 A7 E20N		[Timing diagram for MOD. CONTR. +1]																																				
CARRY	34.38.11 01 E7 E16N		[Timing diagram for CARRY]																																				

4 RANK
5 RANK

1401 INTERMEDIATE LEVEL DIAGRAMS

1-4	CLOCKING AND STORAGE
10-22	DATA FLOW AND CONTROLS
25-34	ARITHMETIC OPERATIONS (ADD, SUBT, MULT, DIV)
35-40	MOVE AND LOAD (MOVE, LOAD, CLEAR, EDIT, COMPARE)
41-44	ADVANCE PROGRAMMING (Q OPR, STORE)
45-52	LOGIC OPERATIONS (BRANCH, NO OP, STOP)
53-58	1406 EXPANDED STORAGE
60-79	INPUT/OUTPUT (READ, PRINT, PUNCH AND OPTIONS)
80-89	MAGNETIC TAPE

CLOCKING AND STORAGE

- 1 CLOCK CONTROL AND CLOCK PULSES
- 2 STORAGE DECODE SWITCHES
- 3 CURRENT SWITCHES, INHIBIT DRIVERS
- 4 PRESENSE AND SENSE AMPLIFIERS

DATA FLOW AND CONTROLS

- 10 DATA FLOW *A, B Reg*
- 11 DATA FLOW CONTROLS
- 12 INHIBIT CHECK AND A AND B CHECK
- 13 CYCLE CONTROL
- 14 ADDRESS STOP, I RING, PROG SKIP
- 15 OP REGISTER, OP CODE DEVELOPMENT
- 16 OP CODE AND OP CHECK
- 17 A STAR AND B STAR
- 18 I STAR, AUTO SCAN, STAR MANUAL SET
- 19 STAR MODIFIER AND CONTROLS
- 20 MODIFIER
- 21 MODIFIER AND ADDRESS VALIDITY CHECK

ARITHMETIC OPERATIONS

- 25 ADD SUBT AND ADDER CONTROL
- 26 ADD SUBT AND ADDER CONTROLS
- 27 A AUX STAR AND GATE CONTROLS
- 28 B AUX STAR AND GATE CONTROLS
- 29 MULTIPLY AND DIVIDE CONTROLS
- 30 MULTIPLY AND DIVIDE CONTROLS
- 31 MULTIPLY AND DIVIDE CONTROLS
- 32 MULTIPLY AND DIVIDE CONTROLS

MOVE AND LOAD

- 35 MOVE, LOAD, CLEAR, AND COMPARE
- 36 COMPARE
- 37 HI LO EQUAL COMPARE
- 38 ZONE TEST AND WORD MARK SET
- 39 EDIT AND EXPANDED EDIT
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- 68 MOVE COLUMN BINARY CONTROLS
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- 70 PRINT COUNTERS
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- 72 PRINT CONTROLS
- 73 PRINT BUFFER STORAGE AND DATA FLOW
- 74 PRINT BUFFER RINGS AND CONTROLS
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- 88 I/O SELECT

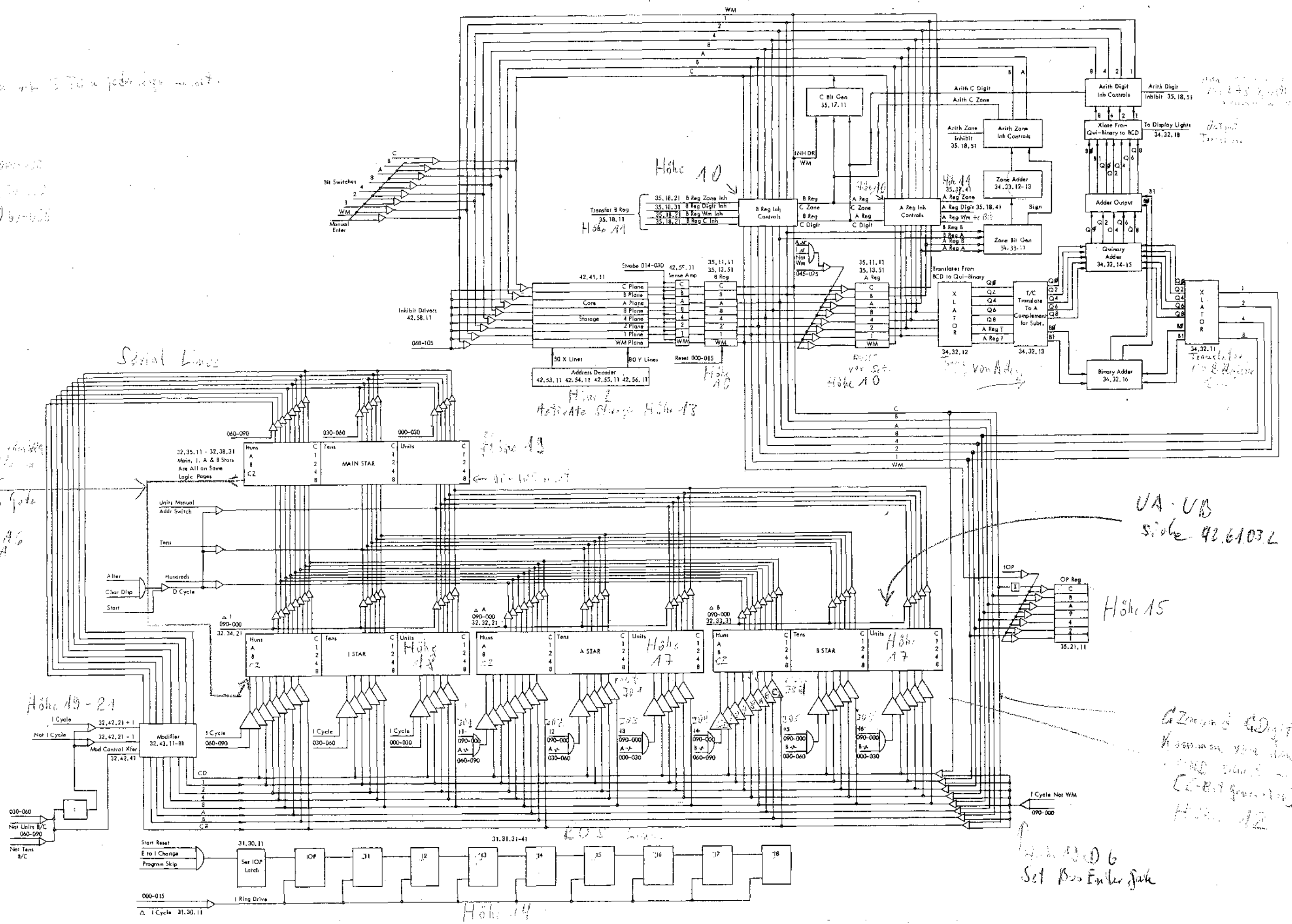
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Serial Lines

Be I Cycle
Main, J, A & B Stars
Are All on Same
Logic Pages
Höhe 17 A6
17 A

IBM 1401 SYSTEM DATA FLOW



UA-UB
siehe 42.6103.2

Höhe 15

Arith Digit
Höhe 12

Unit 1000000
Set Bus Enter gate

Höhe 14

105 Lines

1401 - SYSTEM
INSTALLATION PROCEDURE

1. CHECK ALL MATERIAL RECEIVED AGAINST SHIPPING CHECK OFF LIST CONTAINED IN SYSTEM INSTALLATION PARTS PACKAGE (THIS PACKAGE CONTAINS ALL DETACHABLE CABLES ETC.)
2. REMOVE ALL SHIPPING TAPE, BRACES AND OTHER MATERIAL AS PER PACKING AND UNPACKING INSTRUCTIONS INCLUDED WITH EACH UNIT.
AT THIS TIME MAKE A THOROUGH PHYSICAL CHECK FOR DAMAGED, BROKEN OR LOOSE PARTS RESULTING FROM SHIPMENT (INCLUDING EDGE CONNECTORS). CAUTION: TURN FEED OVER MANUALLY WHEN REINSERTING BRUSH ASSEMBLY TO PREVENT BRUSH DAMAGE.
3. INSTALL THE FILE FEED MAGAZINE ON THE 1402. (REFER TO 1402 CE REFERENCE MANUAL FOR INSTRUCTIONS.)
4. CHECK THE 1402 RELAY GATE FOR LOOSE RELAYS AND DISPLACED ARMATURES.
5. MANUALLY TRIP CLUTCHES AND FEED CARDS THROUGH THE READ AND PUNCH FEEDS. CHECK FOR BINDS.
6. CHECK ALL MANUAL KNOBS, LEVERS, AND COVERS ON THE 1403 FOR PROPER OPERATION.
7. INSTALL (2) ANTI-WALK FOOT COMPONENT PARTS (2SETS) TO THE 1403 FRAME NEAR THE CASTERS BY THE FOLLOWING PROCEDURE:
INSERT THE MOUNTING STUD IN THE MACHINE FRAME FOR ITS FULL THREADED LENGTH, ASSEMBLE THE FOOT COVER AND MOUNTING FOOT TO THE STUD. BACK THE MOUNTING STUD OFF FOR THE REQUIRED DISTANCE TO STABILIZE THE MACHINE.
8. 1403-CHECK FOR OIL IN THE HYDRAULIC RESERVOIR. APPROX LEVEL TO BOTTOM OF MAGNETS.
9. 1403-CHECK FOR OIL IN THE RESERVOIR AT THE RIGHT END OF THE "T" CASTING (IBM NO.6) - 1403.
10. ALL 1401 MACHINES FROM DECEMBER 1961 (USA NO.20890) AND UP WILL BE DESIGNED FOR CABLES TO EXIT UNDERNEATH THE MACHINE. THE MACHINE WILL BE SHIPPED WITH CABLES ABOVE FRAME AND SHOULD BE INSTALLED AS DESCRIBED BELOW:
 - A) AT 01B1-01B8 - REMOVE THROW AWAY COVER AND DISCARD.
 - B) AT 01B1- REMOVE COVER SUPPORT BRACKET (194370) AND RETAIN.
OPEN GATE 01B1.
 - C) AT 01B8 - RUN ALL CABLES DOWN THROUGH THE OPENING AT 01B1-01B8. STARTING WITH CABLE NEAREST REAR OF MACHINE, PLACE A LOOP THROUGH THE OPENING SUCH THAT THE CABLE CONNECTOR GOES THROUGH LAST.
 - D) AT 01B1-01B8
INSTALL HOUSING (723351).
INSTALL FIRE BARRIER THEN INSTALL FILTER.
INSTALL COVER SUPPORT BRACKET, (194370) REMOVED IN STEP B, AT THE CENTER OF THE FRAME.
INSTALL COVER (194372).
FOR RAISED FLOOR INSTALLATION INSTALL KICK PLATE (597329).
FOR ABOVE FLOOR INSTALLATION INSTALL KICK PLATE (723359).
CLOSE GATE 01B1.
 - E) AT 02B4-02B5 -
REMOVE COVER (194372).
OPEN GATE 02B4.
CONNECT CABLES - FIRST PASSING THEM UP FROM UNDERNEATH FRAME.
INSTALL HOUSING (723352).
FOR ABOVE FLOOR INSTALLATIONS INSTALL CLAMP (723353) TO HOLD CABLES AT 02B5 SIDE OF MACHINE. THIS INCLUDES THE THREE 1403 CABLES IF THEY PASS UNDERNEATH THE LENGTH OF THE 1401.
INSTALL FIRE BARRIER THEN INSTALL FILTER.
FOR ABOVE - FLOOR INSTALLATIONS INSTALL KICK PLATE (723360).
FOR RAISED FLOOR INSTALLATIONS INSTALL KICK PLATE (597329).
INSTALL COVER (194372).
CLOSE GATE 02B4.
11. CONNECT CABLES FROM THE 1401 TO THE 1402. - (SEE NOTE 1).
12. CONNECT CABLES FROM THE 1401 TO THE 1403. (SHOE WITH GOLD PLATED PINS CONNECTS TO FRONT RECEPTACLE. ON CURRENT MACHINES THESE WILL ONLY FIT ONE WAY).
 - A) IF SYSTEM HAS EXPANDED MEMORY, CONNECT POWER AND SIGNAL CABLES FROM 1401 TO THE 1406 (06B7) (WILL ONLY FIT ONE WAY AFTER 1401-20010 -SEE NOTE 1).

NOTE 1 - 1402 CANNON CONNECTORS-THREAD ON OUTSIDE OF RING-SMALL-NEAR PIN 3
-LARGE-NEAR PIN 3
1406 CANNON CONNECTORS-THREAD ON OUTSIDE OF RING-SMALL-NEAR PIN 6
-LARGE-NEAR PIN 15

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13. POWER CABLE CONNECTION:

- A) 60 CYCLE MACHINES;
CONNECT THE MAIN POWER CABLE TO THE UPPER TERMINALS ON THE INNER CIRCUIT BREAKER OF THE 1402 UNIT. THE GREEN-YELLOW (GROUND) WIRE SHOULD BE CONNECTED TO THE FRAME OF THE 1402. REFER TO 1402 WIRING DIAGRAM NO. 609400 PAGE 11.01.11.1.
- B) 50 CYCLE MACHINES;
CONNECT THE MAIN POWER CABLE TO THE UPPER TERMINALS ON THE CIRCUIT BREAKER OF THE 1402 UNIT. THE GREEN-YELLOW (GROUND) WIRE SHOULD BE CONNECTED WITH THE FRAME. THE NEUTRAL LINE SHOULD BE CONNECTED WITH THE NEUTRAL (O) POINT OF THE VOLTAGE MODE TERMINAL IN THE 1402.
ON MODEL D (WITHOUT 1402) THE MAIN POWER CABLE SHOULD BE CONNECTED TO THE UPPER TERMINALS OF THE CIRCUIT BREAKER (FOR 1401) IN 1401 (GATE 02B7, 02B8). THE NEUTRAL LINE SHOULD BE CONNECTED TO THE NEUTRAL POINT Y. THE GREEN-YELLOW LINE (GROUND) SHOULD BE CONNECTED WITH FRAME.
- C) CONNECT THE ADDITIONAL YELLOW-GREEN GROUND WIRES AS SHOWN ON THE REFERENCE DRAWINGS, 4062935A=4062938A (OR LATER SUFFIXES) ON SECT. 5/6 A TO PROVIDE CORRECT GROUND CONNECTIONS. CHECK THE GROUND WIRE CONNECTION OF THE 1402 MAIN POWER CABLE OR, IF THE MACHINE IS A MODEL D, CHECK THE SAME OF THE 1401 CONNECTION MAIN POWER CABLE AND MAKE CERTAIN THAT THIS CONNECTION IS PARTICULAR UNOBJECTIONABLE. FOR SYSTEM WITH 1405 ATTACHMENT SEE NOTE II

14. DO NOT CONNECT TAPE UNIT CABLES AT THIS TIME.

15. CHECK CUSTOMERS POWER RECEPTACLE FOR THE PROPER TYPE OF VOLTAGE SUPPLY AND GROUND. GROUND CONNECTION SHOULD BE GREEN/YELLOW WIRE NON-CURRENT CARRYING EARTH GROUND. IF IT IS NECESSARY TO CHANGE THE SYSTEM VOLTAGE SEE STEP 1.0 OF REFERENCE MATERIAL.

16. LIFT CARRIAGE BRUSHES AND OPEN "T" CASTING ON THE 1403 BEFORE APPLYING POWER.

17. APPLY POWER. CHECK ALL BLOWERS FOR OPERATION ON THE 1401 (AND 1406) ESPECIALLY THE ONE OVER THE CORE STORAGE UNITS. ALSO CHECK THE CARRIAGE BLOWER ON THE RIGHT SIDE OF THE 1403. PLACE A CARD OVER THE LOUVERS IN THIS COVER. IF THE CARD IS DRAWN AGAINST THE COVER, THE BLOWER IS OPERATING.

18. CHECK FOR PROPER PHASE ROTATION ON THE 1403. SLIP A PIECE OF PAPER OR TAB CARD THROUGH THE PAPER FEED ROLLERS ON THE BACK OF THE MACHINE. THE PAPER OR CARD SHOULD BE FED DOWN. IF THIS IS CORRECT CLOSE THE "T" CASTING AND CHECK TO SEE THAT THE CHAIN IS TURNING COUNTER CLOCKWISE. LOOKING DOWN AT IT. FINALLY CHECK TO SEE THAT AIR IS BLOWING INTO THE HAMMER UNIT. THIS CHECK CAN BE MADE BY PLACING A CARD OVER THE LOUVERS IN THE COVER ON THE LEFT SIDE OF THE 1403. IF THE CARD IS DRAWN AGAINST THE COVER, AIR IS BEING BLOWN INTO THE MACHINE. COMPLETE THE CHECK BY FEELING THAT AIR IS BEING BLOWN OUT OF THE HAMMER UNIT AT THE SIDES OF THE UNIT. IF ALL THREE OF THE ABOVE ARE INCORRECT REVERSE ANY TWO LEADS ON THE MAIN POWER CABLE. IF ONE OR TWO ARE INCORRECT FOLLOW PROCEDURE OUTLINED IN THE 1403 REFERENCE MANUAL PAGE 6, FORM NO. 225-6493. (IF THE SYSTEM DOES NOT HAVE A PRINTER BUT HAS 729 TAPE DRIVES USE STEP 27A FOR CHECKING PHASE RELATIONSHIP).

19. IF ALL PHASING IS CORRECT IT IS NOW SAFE TO LOWER CARRIAGE BRUSHES. A CARRIAGE TAPE SHOULD BE INSTALLED.

20. CHECK 1401, 1402 (AND 1406) POWER SUPPLY VOLTAGES. THEY SHOULD BE $\pm 2\%$ WHEN MEASURED AS DESCRIBED BELOW.

- A) MEASURE -6V, +6V, -12 VOLT OUTPUT AT GATE LOCATION 01B3. ADJUST FOR PROPER OUTPUT. ALWAYS ADJUST -6V BEFORE ADJUSTING -12V. SEE 1401 WIRING DIAGRAM FOR LOCATION OF SUPPLIES LOCATED ON 02A4 AND 02A5 (1401 ONLY).
- B) MEASURE -6V, +6V, AND -12V AT GATE LOCATION 02A1 ON MACHINES WITH TAPES. IF THIS FEATURE IS NOT PRESENT, MEASURE AT GATE LOCATION 02A7, 02A8 OR 02B6 DEPENDING ON WHICH MAY BE PRESENT. ADJUST FOR PROPER OUTPUT FROM THE SUPPLIES WHICH ARE LOCATED ON 02A3 AND 02A6. ALWAYS ADJUST -6V BEFORE ADJUSTING -12V. REFER TO 1401 WIRING DIAGRAM, (1401 ONLY).
- C) MEASURE -36 VOLTS ON 02B2 ON MAGNETIC TAPE SYSTEMS WITH TAU 2.

NOTE II CONVERTER 50/60 CPS TO BE GROUNDED TO CENTRAL GROUNDING TERMINAL IF LOCATED IN THE SAME ROOM. MAKE SURE THAT THERE IS NO GROUND CONNECTION BETWEEN CONVERTER AND 1405.

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D) MEASURE -60 VOLTS ON 01B8 AT THE -60 VOLT BUS BAR. ADJUST FOR THE PROPER OUTPUT FROM THE SUPPLY LOCATED IN THE 1402. IN MODEL D THIS SUPPLY IS LOCATED ON 01B4 (1401 ONLY).

E) MEASURE -20 VOLTS ON 01A1 AT F26R AND ADJUST FOR PROPER OUTPUT FROM THE SUPPLY LOCATED IN THE 1402. IN MODEL D, SUPPLY IS LOCATED ON GATE 02A8. (TURN OFF ALL POWER-INCLUDING LINE POWER INPUT TO 1402- AND MOVE TAPS ON SUPPLY IF ADJUSTMENT IS NECESSARY).

NOTE - -20 VOLT POWER SUPPLIES (PART NUMBER 473 430) ON 1402 "M" SUFFIX AND LATER, ARE NOT ADJUSTABLE. (PN 4118226 - 50 CYCLE)

F) MEASURE +30 VOLTS ON 01A1 (AND 1406 CORE ARRAY GATES) AT F26N. MEASURE +12V FIXED ON 01A1 (AND 1406 CORE ARRAY GATES) AT F26Q. MEASURE +12V VARIABLE (18V DIFF) ON 01A1 (AND 1406 CORE ARRAY GATES) AT F13Q. ALWAYS ADJUST +30V BEFORE ADJUSTING +12V. IF VOLTAGE VARIATION OF THE MEMORY IS DESIRED REFER TO SERVICE AID CEM 107.

G) THE MARGINAL VOLTAGES ARE NOT MEASURED. (IF THE ABOVE STEPS ARE FOLLOWED, THESE VOLTAGES SHOULD BE WITHIN TOLERANCES).

H) ON LATER MACHINES THE MARGINAL VOLTAGE SUPPLY WILL NOT BE PERMANENTLY INSTALLED IN THE SYSTEM. A PORTABLE SUPPLY CAN BE ORDERED BY THE BRANCH OFFICE. THIS WILL PROVIDE GREATER FLEXIBILITY FOR CHECKING THE SYSTEM INCLUDING ANY PERIPHERAL EQUIPMENT. A SPACE FOR STORAGE OF THE PORTABLE SUPPLY IS AVAILABLE IN THE LEFT END OF THE 1402 DIRECTLY UNDER THE PUNCH DRIVE MOTOR. THE PORTABLE SUPPLY CAN BE PLUGGED INTO ANY 220V RECEPTACLE AND IS USED THE SAME AS THE FIXED MARGINAL SUPPLY. CAUTION: PORTABLE SUPPLIES OF US ORIGIN ARE TO BE PLUGGED INTO 115V RECEPTACLE.

21. RUN READER AND PUNCH WITH NON-PROCESS RUNOUT KEY.

22. RUN READ WITH PROCESS UNIT. (PUT IN READ OP MANUALLY).

23. RUN PUNCH WITH PROCESS UNIT.

24. RUN PRINTER WITH PROCESS UNIT WITH NO INFORMATION IN THE PRINT AREA.

24A. CARRIAGE CONTROL SINGLE SHOT ADJUSTMENTS.

MAKE THESE ADJUSTMENTS ONLY IF THE 1403 IS BEING FIELD MERGED. OTHERWISE, PROCEED TO THE NEXT STEP.

A) 4.5 MILLISECOND SINGLE SHOT ADJUSTMENT. (LOGIC 36.43.21.2).

A TAG LOCATED ON THE 1403 TRANSLATOR HANDLE SHOWS THE TIMING FOR THE 4.5 MS SINGLE SHOT. ADJUST THE 4.5 MS SINGLE SHOT FOR THIS TIMING.

B) 16 MILLISECOND SINGLE SHOT ADJUSTMENT. (LOGIC 36.31.31.2).

SUBTRACT THE ACTUAL TIMING OF THE 4.5 MS SINGLE SHOT FROM 21.4. ADJUST THE 16 MS SINGLE SHOT FOR THIS TIMING.

C) 10 MS "CARRIAGE INTERLOCK" SINGLE SHOT ADJUSTMENT. (LOGIC 36.46.21.2).

SUBTRACT 1.7 MS FROM THE FINAL ADJUSTMENT OF THE 16 MS SINGLE SHOT. ADJUST THE 10 MS SINGLE SHOT FOR THIS TIMING.

24B. IF IT IS DESIRED TO TEST THE RESET CHECK CIRCUITS PROCEED TO THE REFERENCE MATERIAL STEP 2.0.

25. RUN COMBINATION OP CODES 3, 5, 6 AND 7.

26. REMOVE POWER AND INSTALL TAPE UNIT CABLES.

A) FOR C, D AND F SYSTEMS - WHEN 729 AND 7330 TAPE UNITS ARE INTERMIXED, CABLES CANNOT BE CROSS CONNECTED. I.E. EACH END OF ANY TAPE CABLE MUST CONNECT TO THE SAME TYPE TAPE UNIT ON EITHER END. THE FIRST TAPE UNIT IN THE SYSTEM MUST ALSO BE CONNECTED TO THE PROPER CONNECTOR IN THE PROCESSING UNIT. AFTER THE INITIAL CABLE HOOKUP HAS BEEN MADE AND CHECKED OUT, THE CONNECTORS ON EACH END OF THE CABLES MUST BE IDENTIFIED WITH "729" OR "7330" LABELS PROVIDED IN THE SYSTEM MAINTENANCE PACKAGE FOR THIS PURPOSE. (NOTE - 729 AND 7330 CABLES HAVE IDENTICAL CONSTRUCT.)

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- 27A. IF SYSTEM HAS TYPE 729 TAPE DRIVES APPLY POWER AND CHECK ROTATION OF MOTORS BY HITTING LOAD REWIND. IF THE HEAD DOES NOT COME DOWN, CHECK FOR VACUUM IN COLUMNS. IF AIR IS BLOWING OUT, THE PHASING IS REVERSED. IF AIR IS BEING SUCKED IN, PHASING IS CORRECT AND SOMETHING ELSE IS PREVENTING THE HEAD FROM COMING DOWN. IF ROTATION IS INCORRECT, TURN OFF ALL POWER TO SYSTEM (LINE POWER INCLUDED) AND REVERSE ANY TWO PHASES AT CIRCUIT BREAKER NO. 2 IN THE 1402 (REFER TO 1402 LOGICS FOR DIAGRAM-SEC 1A).
NOTE: ON MOD D SYSTEMS, CIRCUIT BREAKER IS LOCATED 02B8.
TURN POWER ON AND RECHECK ROTATION.
- 27B. IF SYSTEM HAS TYPE 7330 TAPE DRIVES.
- A) CLEAN TRANSPORT AND CHAMBER.
 - B) CHECK 7330 POWER CONTROL SWITCHES OFF.
 - C) INSTALL TERMINATOR SHOE.
CAUTION: DO NOT, AT ANY TIME, TURN POWER ON WITHOUT A TERMINATOR SHOE INSTALLED ON THE 7330. DO NOT PLACE THE TERMINATOR SHOE ON THE 1401.
 - D) TURN ON 1401 MAIN LINE POWER.
 - E) TURN ON 7330 POWER CONTROL SWITCHES.
 - F) CHECK: READ BUS SIGNAL LEVEL, WRITE CIRCUIT FEED THROUGH, SKEW AND TRACKING AS PER 7330 C. E. REFERENCE MANUAL.
28. CHECK TAPE OPERATION FROM THE C. E. CONSOLE (02A1)
- A) WRITE TAPE WITH TERMINAL AT A26 ON PIN A FOR CONTINUOUS WRITING, ON PINS B, C, AND D FOR WRITING WITH GAPS AND ON PIN J FOR 1 CHARACTER RECORDS.
 - B) WRITE TAPE MARK.
 - C) BACK SPACE AND READ 1 RECORD TO CHECK TAPE INDICATE.
 - D) REWIND AND READ.
29. CHECK TAPES WITH PROCESS UNIT.
- A) MANUAL TAPE OP WRITE.
 - B) MANUAL TAPE OP READ.
30. IF SYSTEM HAS EXPANDED MEMORY, RUN THE PROGRAMS SHOWN BELOW TO INSURE THAT THE 1406 SIGNAL CABLES CONTACTS ARE MAKING:
- A) FOR 8K SYSTEM, MANUALLY ENTER A "C" BIT IN LOCATION 7999 AND THEN ENTER L, 7999 7998, IN ANY MEMORY LOCATIONS. BY STARTING THE LOAD OP, THE ENTIRE MEMORY SHOULD BE LOADED WITH "C" BITS, STORAGE SCAN. MANUALLY ENTER C, A, B, 8, 4, 2, 1 INTO 7999. THEN PROCEED AS ABOVE BY LOADING C, A, B, 8, 4, 2, 1 INTO THE ENTIRE MEMORY. STORAGE SCAN.
 - B) FOR 12K SYSTEM, MANUALLY ENTER IN LOCATION 11,999 AND USING PROGRAM L 11,999 11,998, PROCEED AS IN STEP (A).
 - C) FOR 16K SYSTEM, MANUALLY ENTER IN LOCATION 15,999 AND USING PROGRAM L 15,999 15,998, PROCEED AS IN STEP (A).
31. RUN CE DIAGNOSTIC TEST AS OUTLINED IN THE DIAGNOSTIC TEST PROCEDURE BOOK.
32. IF SYSTEM HAS EXPANDED MEMORY, PERFORM A FULL STORAGE PRINT OUT.
33. IF SYSTEM HAS 1311 DISK STORAGE DRIVES - REFER TO 1311 CUSTOMER ENGINEERING REFERENCE MANUAL (NUMBER 227-5649-X) AND ITS SUPPLEMENT (NUMBER 227-5758-X) SECTION 1.2.X FOR COMPLETE INSTALLATION INSTRUCTIONS AND CHECKOUT PROCEDURES.

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34. 1401 METER CHECKOUT PROCEDURE

IMPORTANT NOTE:

NOT MORE THAN 50 HOURS ALLOWED TEST TIME ON ANY OF THE METERS.

A) MANUALLY ENTER THE FOLLOWING PROGRAM. STARTING IN LOCATION 444. 444-1 B 445

B) 1402 CHECKOUT:

RUN CARDS OUT OF READER AND PUNCH. DEPRESS CHECK RESET ON 1402. START PROGRAM AT LOCATION 444. CPU METER SHOULD RUN FOR 400 MILLISECONDS. PLACE BLANK CARDS IN THE READER. DEPRESS START KEY. BOTH METERS SHOULD RUN. DEPRESS STOP KEY. BOTH METERS SHOULD STOP. SWITCH TO C. E. MODE ON 1401 METER PANEL. DEPRESS START KEY. ONLY C. E. METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE. DEPRESS START KEY. BOTH METERS SHOULD RUN. DEPRESS STOP KEY. OPEN FRONT AND SIDE COVERS ON 1402. TURN ON OVERRIDE INTERLOCK SWITCH AND TURN THE "ON LINE-OFF LINE" SWITCH TO "OFF LINE". DEPRESS START KEY. ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY. TURN "ON LINE-OFF LINE" BACK TO "ON LINE". TURN OVERRIDE INTERLOCK SWITCH OFF. CLOSE COVERS. REMOVE CARDS FROM READ HOPPER AND PERFORM A NON-PROCESS RUN-OUT. DEPRESS CHECK RESET ON 1402, THEN PRESS START KEY. ONLY THE CPU METER SHOULD RUN. DEPRESS STOP KEY.

C) MANUALLY INSERT A PUNCH OP. (4) INTO LOCATION 444. REFER TO SECTION IB AND PERFORM THESE STEPS FOR THE PUNCH SIDE.

D) 1403 CHECK-OUT:

MANUALLY ENTER A PRINT OP (2) IN ADDRESS 444.

WITH NO FORMS IN THE 1403, START THE PROGRAM AT 444. DEPRESS START KEY. CPU METER SHOULD RUN FOR 400 MILLISECONDS. INSERT FORMS IN 1403 AND DEPRESS START. BOTH THE CPU METER AND THE 1403 METER SHOULD RUN. DEPRESS STOP KEY. BOTH METERS SHOULD STOP. DEPRESS START KEY. BOTH METERS SHOULD RUN. DEPRESS SPACE KEY ON 1403. 1403 METER SHOULD STOP WHILE CPU METER SHOULD CONTINUE TO RUN. RESTART PROGRAM AT 444 AND BOTH METERS SHOULD RUN. DEPRESS CARRIAGE RESTORE KEY ON 1403. 1403 METER SHOULD STOP WHILE CPU METER SHOULD CONTINUE TO RUN. DEPRESS STOP KEY. SWITCH TO C. E. MODE ON THE 1401 METER. DEPRESS START KEY. ONLY THE C. E. METER ON THE 1401 SHOULD RUN. DEPRESS STOP KEY. C. E. METER SHOULD STOP. SWITCH BACK TO CUSTOMER MODE. DEPRESS START KEY ONLY. CPU METER SHOULD RUN.

THIS PROCEDURE CHECKS TO SEE THAT THE METER RUN LINE WILL NOT DROP OUT ON OPERATIONS THAT INVOLVE LONG PROCESS TIME BEFORE AN I/O OPERATION. MANUALLY ENTER THE FOLLOWING PROGRAM STARTING IN LOCATIONS 444, 774 AND 885.

444 N N 1 A 777888 B 4668852

B 447L 777888 B 444

774 0001

885 0001

START PROGRAM AT ADDRESS 444 AND SCOPE THE OUTPUT OF THE 400 MILLI-SECONDS SINGLE SHOT. THE SINGLE SHOT SHOULD REMAIN ON.

ALTER THE TWO NUMBERS OP. AND READ OP. INST. AT LOCATION 444-446 TO F 1 2 AND REPEAT THE PROCEDURE. THE SAME RESULTS SHOULD OCCUR.

E) 1404 CHECK-OUT:

WITH T-CASTING IN PLACE ON THE FORMS SIDE, PERFORM THE STEPS LISTED IN SECTION 1D. WHEN THESE CHECKS HAVE BEEN COMPLETED, SHIFT T-CASTING TO CARD FEED SIDE. MANUALLY ENTER THE FOLLOWING PROGRAM STARTING AT LOCATION 444.

F 1 B 444 B 450

PLACE BLANK CARDS IN THE HOPPER. START THE PROGRAM AT LOCATION 444. WHEN CARDS BEGIN ARRIVING IN THE STACKER DEPRESS STOP KEY RESTART THE PROGRAM AT LOCATION 450. BOTH THE CPU METER AND THE 1404 METER SHOULD RUN.

34. (CONTINUED)

DEPRESS STOP KEY. BOTH METERS SHOULD STOP. SWITCH TO CE MODE ON THE CPU METER PANEL. DEPRESS START KEY. ONLY THE CE METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE. REMOVE CARDS FROM HOPPER AND PERFORM A NON-PROCESS RUN-OUT. DEPRESS CHECK RESET ON THE 1404. DEPRESS START KEY. ONLY THE CPU METER SHOULD RUN. DEPRESS STOP KEY. CPU METER SHOULD STOP.

F) TAPE DRIVE CHECK-OUT:

ENTER THE FOLLOWING PROGRAM STARTING IN LOCATION 444.

444

M % U 1 453 W B 452 _ (USE CE TAPE).

LOAD TAPE ON TAPE DRIVE 1 AND LEAVE DRIVE IN AN "NOT READY STATUS". START PROGRAM AT 444. ONLY CPU METER SHOULD RUN.

MAKE DRIVE 1 READY. BOTH METERS SHOULD RUN. DEPRESS RESET KEY ON TAPE DRIVE. BOTH METERS SHOULD CONTINUE TO RUN.

DEPRESS STOP KEY. BOTH METERS SHOULD STOP. SWITCH TO CE MODE ON 1401 METER. DEPRESS START KEY. ONLY CE METER SHOULD RUN. DEPRESS STOP KEY. CE METER SHOULD STOP. SWITCH BACK TO CUSTOMER MODE. REWIND TAPE DRIVE AND MAKE READY. DEPRESS START KEY. ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY. RESTART PROGRAM AT 444. DEPRESS STOP KEY. UNLOAD TAPE DRIVE. DEPRESS START KEY. ONLY CPU METER SHOULD RUN.

REPEAT THIS PROCEDURE FOR EACH DRIVE ON THE SYSTEM.

G) 1311 CHECK-OUT:

WITH ALL 1311 DRIVES ON THE SYSTEM UNLOADED AND ALL METER SWITCHES ON THE DRIVES OFF, START THE PROGRAM AT LOCATION 450 (450=B 450). ONLY THE CPU METER SHOULD RUN. DEPRESS STOP KEY. TURN ON METER SWITCH ON ALL FILES ON THE SYSTEM. LOAD A DISK PACK ON A DRIVE AND MAKE THE DRIVE READY. DEPRESS SYSTEM START KEY. BOTH CPU METER AND 1311 METERS SHOULD RUN. (MASTER AND SAT. WITH PACK ON ONLY). WITH CPU STILL RUNNING, TURN ALL METER SWITCHES OFF. METERS SHOULD CONTINUE TO RUN UNTIL STOP KEY IS DEPRESSED. WITH ALL METER SWITCHES OFF, DEPRESS START KEY. ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY. TURN ALL METER SWITCHES ON. SWITCH TO CE MODE ON CPU METER PANEL. DEPRESS START KEY. ONLY CE METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE. UNLOAD DRIVE THAT HAS PACK ON IT. DEPRESS START KEY. ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY.

H) 1405 CHECK-OUT:

TURN METER SWITCH ON THE 1405 TO THE OFF POSITION. START PROGRAM AT LOCATION 450 (B 450). ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY. TURN METER SWITCH ON 1405 TO THE ON POSITION. DEPRESS START KEY. BOTH METERS SHOULD RUN. DEPRESS STOP KEY. BOTH METERS SHOULD STOP. SWITCH TO CE MODE ON CPU METER PANEL. DEPRESS START KEY. ONLY CE METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE.

I) 1407 CHECK-OUT:

TURN THE METER ON-OFF SWITCH ON THE 1407 TO THE OFF POSITION. START THE BRANCH LOOP PROGRAM AT LOCATION 450. ONLY THE CPU METER SHOULD RUN. DEPRESS STOP KEY. TURN METER ON-OFF SWITCH TO THE ON POSITION. DEPRESS START KEY. BOTH METERS SHOULD RUN. DEPRESS STOP KEY. SWITCH TO CE MODE ON THE CPU METER PANEL. DEPRESS START KEY. ONLY THE CE METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE. DEPRESS START KEY. BOTH METERS SHOULD RUN. TURN THE METER ON-OFF SWITCH TO THE OFF POSITION. BOTH METERS SHOULD CONTINUE RUNNING. DEPRESS STOP KEY, THEN START KEY. ONLY THE CPU METER SHOULD RUN. DEPRESS STOP KEY, TURN METER ON-OFF SWITCH TO OFF POSITION. PLACE MODE SWITCH IN ALTER POSITION. TRY TO ENTER INFORMATION IN STORAGE USING TYPEWRITER KEYBOARD. SHOULD BE LOCKED UP.

J) ALL SERIAL I/O DEVICES:

MAKE I/O DEVICE READY. ENTER A PROGRAM TO CALL FOR THE I/O DEVICE FOLLOWED BY A BRANCH LOOP. EXAMPLE:

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444
  M % XXXXXWB452 _
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START THE PROGRAM RUNNING. BOTH CPU METER AND THE I/O METER SHOULD RUN. DEPRESS STOP KEY. BOTH METERS SHOULD STOP. SWITCH TO CE MODE ON THE CPU METER PANEL. DEPRESS START KEY ONLY. THE CE METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE. CLEAR THE I/O DEVICE. (EXAMPLE: 1012-- DEPRESS TAPE FEED KEY). DEPRESS START KEY. ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY.

REFERENCE MATERIAL
FOR 60 CYCLE SYSTEMS ONLY

1.0 TO CHANGE THE SYSTEM FROM 208V TO 230V COMPLETE THE FOLLOWING:

1401

- A) EXPANDED BULK REGULATOR (ALL MODELS EXCEPT A)
GATE 02A3 - MOVE WIRE OR WIRES ON BULK REGULATOR TB-4 TO TB-5.
- B) 1250 WATT REGULATOR. LOCATED IN THE LEFT SIDE OF THE 1402. ON MODEL D SYSTEMS LOCATED ON GATE 02A7. MOVE THE WIRE ON THE 1250 WATT REGULATOR TB-4 TO TB-5.
- C) 115V AC ISOLATION TRANSFORMER. LOCATED BEHIND THE RELAY PANEL ASSEMBLY IN THE 1402. ON MODEL D SYSTEMS LOCATED IN 02B7-8 GATE AREA. REMOVE THE WIRE ON THE TRANSFORMER SOLDER TERMINAL 6 AND SOLDER TO TERMINAL 7. ON LATER MODEL D MACHINES TERMINAL 7 IS WIRED TO TERMINAL POSITION 7 OF THE 8 POSITION BLOCK NEAR THIS TRANSFORMER. ON THESE MACHINES REMOVE THE WIRE ON TERMINAL POSITION 6 OF THIS BLOCK AND INSTALL ON TERMINAL 7.
- D) 24V AC STEP DOWN TRANSFORMER. LOCATED IN THE 1402 BEHIND THE FUSE PANEL. (DOES NOT EXIST ON SYSTEMS BELOW 20,000) ON MODEL D SYSTEMS LOCATED IN 02B7 GATE AREA. REMOVE THE WIRE ON STEP DOWN TRANSFORMER TB POSITION 2 AND INSTALL ON TB POSITION 3.
- E) -60V AT 10 AMP OR -60V AT 20 AMP SUPPLY. LOCATED IN THE BACK OF THE 1402. ON MODEL D MACHINES LOCATED IN GATE AREA 01B4. REMOVE WIRE FROM VR1-4 AND INSTALL ON VR1-5. (VR1 IS THE 12 POSITION TERMINAL BLOCK LOCATED TO THE BOTTOM OF THIS UNIT.)
- F) 3V MARGINAL CHECK SUPPLY. (EXCEPT PORTABLE SUPPLIES) LOCATED IN THE LEFT END OF THE 1402. LOCATED IN GATE 02A8 ON MODEL D. REMOVE WIRE ON MC POWER SUPPLY POSITION VR1-4 AND INSTALL ON POSITION VR1-5. (THIS WIRING CHANGE IS MADE INTERNALLY OF THE SUPPLY ASSEMBLY DIRECTLY ON THE TRANSFORMER.)

1406

- A) 415 WATT REGULATOR IN 1406 GATE 06B8. (NOT ON EARLIER SYSTEMS) REMOVE WIRE FROM TB POSITION 4 AND INSTALL ON TB POSITION 5.

1403

- A) ONLY THE CHAIN MOTOR IS AFFECTED. WIRE TB7 AS PER WIRING DIAGRAM PAGE 01.09.1.

1405

- A) CHANGE TRANSFORMER TAPS FOR 3 TRANSFORMERS AS SHOWN ON LOGIC PAGES 75.58.11 AND 75.58.21.

1407

- A) NO CHANGE REQUIRED.

DATE	EC NO
27.9.63	118 575H}
10.12.63	TA 604J}

722951H

7330

A) REFER TO 729 SERVICE AID CEM - NUMBER 246.

729

A) ADD F/B 352075. THIS BILL INCLUDES A 230V TO 208V STEPDOWN TRANSFORMER.

1311

MOD IV AND MOD II

REFER TO CUSTOMER ENGINEERING REFERENCE MANUAL SUPPLEMENT (NUMBER 227-5758-X)
FIGURE 1-3.METER DEVICESA) METER POWER SUPPLY (ALL CONFIGURATIONS ONLY THE INPUT AC POWER TO THE
TRANSFORMER IS CHANGED. MOVE WIRE FROM TB-AC-4 TO TB-AC-5.1.01 FOR 50 CYCLE SYSTEMS ONLY

1401

A) IF IT IS NECESSARY TO CHANGE THE 1402 OR ON MODEL D THE 1401 FROM 220V
TO 380V AND VICE VERSA REFER TO FBM 4064750.

1406

A) NO CHANGE REQUIRED.

1403

A) LOOK FOR FBM 4121780

1405

A) LOOK FOR DESCRIPTION NO. 4064211 EN AND FOR WIRING DIAGRAM NO. 4064220.

1407

A) NO CHANGE REQUIRED.

7330

A) LOOK FOR WIRING DIAGRAM 73.50.20.2 PART NO. 2092503.

729

A) IF IT IS NECESSARY TO CHANGE TO 220V LOOK FOR 8013923.
IF IT IS NECESSARY TO CHANGE TO 380V LOOK FOR 8013924.

1311

A) MACHINE HAS A SEPERATE POWER CORD AND 220V SINGLE PHASE INPUT.

METER DEVICESA) METER POWER SUPPLY ALL CONFIGURATIONS ONLY THE INPUT AC POWER
TO THE TRANSFORMER IS CHANGED. MOVE WIRE FROM TB -AC-4 TO TB-AC-5.
(ALWAYS 220V, NO CHANGE REQUIRED.)

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722951

J) ALL SERIAL I/O DEVICES:

MAKE I/O DEVICE READY. ENTER A PROGRAM TO CALL FOR THE I/O DEVICE FOLLOWED BY A BRANCH LOOP. EXAMPLE:

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444
  M % XXXXXWB452 _
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START THE PROGRAM RUNNING. BOTH CPU METER AND THE I/O METER SHOULD RUN. DEPRESS STOP KEY. BOTH METERS SHOULD STOP. SWITCH TO CE MODE ON THE CPU METER PANEL. DEPRESS START KEY ONLY. THE CE METER SHOULD RUN. DEPRESS STOP KEY. SWITCH BACK TO CUSTOMER MODE. CLEAR THE I/O DEVICE. (EXAMPLE: J012-- DEPRESS TAPE FEED KEY). DEPRESS START KEY. ONLY CPU METER SHOULD RUN. DEPRESS STOP KEY.

REFERENCE MATERIAL
FOR 60 CYCLE SYSTEMS ONLY

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(ALWAYS 220V, NO CHANGE REQUIRED.)

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