

FIELD USE

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605478

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1402-1 FIELD BILL OF MATERIAL

REPLACE HEAVY DUTY RELAY 8 CONTACT POINTS

<u>SECTION</u>	<u>NAME</u>	<u>PART NUMBER</u>	<u>EC NO.</u>
Instructions	Instructions	605479	804764-A

T C N
 O O O

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	Replace HD Relay 8 Contact Points	8-5-63	804764-A			X PRINT TO ENG. SPEC. NO.	
DESIGN	HEM 7-18-63 MODEL 1402-1					894924	
DETAIL	HEM 7-18-63						
CHECK	HCK 7-19-63 DRAW						
APPRO	HCK 7-29-63 CHECK						605478

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605479

INSTRUCTIONREPLACE HEAVY DUTY RELAY 8 CONTACT POINTSPRE-REQUISITES:

Machines wired to 609400 C through S.

SPECIAL TOOLS REQUIRED:

None

INSTALLATION TIME:

0.8 Hour

PURPOSE:

To eliminate the possibility of sticking contacts on HD 8.

DESCRIPTION:

A possible safety hazard may exist on the 1402 if Heavy Duty Relay 8 points stick or weld closed due to arcing. HD-8 relay is controlled by the Emergency Off switch in the 1401. However, if the points of relay HD-8 are stuck closed, voltage will still be applied to the primary side of the 115 volt AC transformer, so that the 115 volts will remain applied to the convenience outlets and other 115 volt AC circuits. The new contacts furnished with this B/M are a different type of contact material, which is much less susceptible to sticking, welding or pitting.

INSTALLATION:

- 1 Remove all power to the machine during installation.
- 2 Open front covers and fuse panel for access to HD relay panel.
- 3 Replace the two contact assemblies (P/N 76659) of HD 8 relay with the new asms (P/N 610744) furnished.
- 4 Replace the contact plate asm (P/N 73431) of HD 8 relay with the new plate asm (P/N 610746).
- 5 Adjust the contact assemblies so that they are in alignment with the points of the contact plate and that both contacts make simultaneously within .002.
- 6 Check for proper operation with power on. The 1401 fans must be operating with power on.
- 7 Scrap the parts removed.
- 8 Fill out necessary forms.

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	Replace HD 8 Contact Points	8-5-63	804764-A			X PRINT TO ENG. SPEC. NO.	
DESIGN	HEM 7-18-63	MODEL	1402-1			894924	
DETAIL	HEM 7-18-63						
CHECK	HCK 7-19-63	DRAW				Where Used	
APPRO	HCK 7-29-63	CHECK				605478	605479

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1402 FEATURE WIRING DIAGRAM

INSTALL A C LINE FILTER CIRCUIT

<u>SECTION</u>	<u>NAME</u>	<u>PART NUMBER</u>	<u>ENGINEERING CHANGE NO.</u>
INSTRUCTION	INSTRUCTION	805488	804773 E

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME: I-AC POWER LINE FILTER CIRCUIT		7-17-63	804773 E			X PRINT TO ENG. SPEC. NO. 894924	
DESIGN	HEM 6-18-63	MODEL	1402			WHERE USED	
DETAIL	HEM 6-18-63					605488	
CHECK	HCK 7-12-63	DRAW				605497	
APPRO	HCK 7-12-63	CHECK					805488

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FIELD USE

605486

INSTRUCTION

INSTALL A. C. LINE FILTER CIRCUIT

PREREQUISITES: NONESPECIAL TOOLS: NONEINSTALLATION TIME: 1.0 HRPURPOSE:

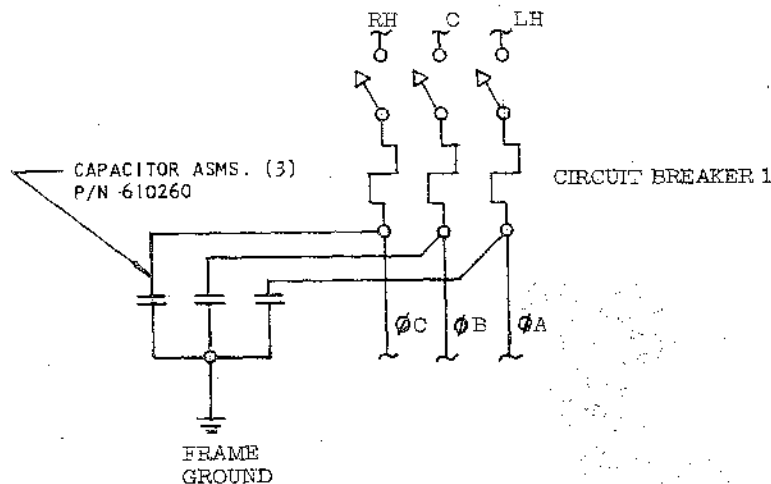
TO PROVIDE A FILTER CIRCUIT ON THE AC POWER LINE TO THE 1402 WHICH WILL EFFECTIVELY REDUCE THE LINE NOISE OF THE 1401 SYSTEM.

DESCRIPTION:

THIS B/M PROVIDES A FILTER ASSEMBLY ON EACH PHASE OF THE A. C. SOURCE SUPPLY TO THE 1402. THE COMPLETE ASSEMBLY IS MOUNTED DIRECTLY BELOW THE MAIN CIRCUIT BREAKER ON THE LEFT END OF THE MACHINE, IN THE SAME LOCATION AS THE LOWER C.B. MTG. BRKT.

INSTALLATION:

1. REMOVE ALL POWER TO THE MACHINE DURING INSTALLATION.
2. IT WILL BE NECESSARY TO REMOVE THE PLASTIC SHIELD OVER THE MAIN CIRCUIT BREAKER TO INSTALL THE CAPACITOR ASSEMBLY.
3. USE SCREWS PROVIDED TO REPLACE LOWER C.B. MTG. BRKT. SCREWS AND MOUNT THE CAPACITOR ASM. AGAINST THE C.B. MTG. BRKT. WITH SPACERS BETWEEN CAP MTG. PLATE AND C.B. MTG. BRKT.
4. CONNECT THE CAPACITOR ASSEMBLY COMMON LEAD TO THE GROUND BAR MOUNTED BELOW THE MAIN CIRCUIT BREAKER. USE ONE OF THE EXISTING CONNECTING SCREWS IN THE GROUND BAR.
5. CONNECT ONE CAPACITOR TO EACH OF THE THREE LOWER TERMINALS OF THE MAIN CIRCUIT BREAKER.
6. REINSTALL THE PLASTIC CIRCUIT BREAKER SHIELD.
7. CHECK MACHINE FOR PROPER STANDARD OPERATION.
8. MARK THE STANDARD WIRING DIAGRAM AS SHOWN BELOW.



INTERNATIONAL BUSINESS MACHINES CORP.	DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME INSTALL A. C. LINE	5-10-63	804773-B			NOTE X PRINT TO ENG. SPEC. NO. 894924 BASED ON INDEX 605496	
FILTER CIRCUIT	7-17-63	804773-E				
DESIGNER EEM 5-1-63 MODEL 1402						
DETAIL EEM 5-1-63						
CHECK HCK 5-3-63 DRAW						
APPROV. KRC 5-6-63 CHECK						005486

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FIELD USE
 INDEX
 1402 FIELD BILL OF MATERIAL
 UPDATE FUSE AND WIRE REQUIREMENTS

SECTION	NAME	PART NUMBER	E. C. LEVEL
INSTRUCTIONS	INSTRUCTIONS	605493	805462

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	UPDATE FUSE AND WIRE REQUIREMENTS	5-23-63	805462			K PRINT TO ENG. SPEC. NO. 894924	
DESIGN	KTK 5-22-3 MODEL 1402-1						
DETAIL	KTK 5-22-3						
CHECK	RPC 5-23-3 DRAW						
APPRO	RPC 5-22-3 CHECK						
							605492

605493

FIELD USE

UPDATE FUSE AND WIRE REQUIREMENTS

PRE-REQUISITES: B/M 605413 CURRENT BALANCE CORRECTION

SPECIAL TOOLS REQUIRED: CRIMPING TOOL
 IF PROPER CRIMPING TOOL IS NOT AVAILABLE, USE THE NON-INSULATED CLIPS AND SOLDER THE CLIPS.

ESTIMATED INSTALLATION TIME: 1.5 HOURS

PURPOSE:

TO PROVIDE PROPER FUSING AND WIRE SIZE FOR THE 115 VOLT ISOLATION TRANSFORMER FOR 1402'S USED WITH 1401 SYSTEMS THAT ARE EQUIPPED WITH HEAVIER CURRENT FANS.

DESCRIPTION:

A MORE RELIABLE FAN PRESENTLY USED IN THE 1401 REQUIRES MORE CURRENT. FUSE 7 IS INCREASED TO ALLOW HEAVIER CURRENT AND FUSE 8 IS DECREASED TO PREVENT POSSIBLE OVERLOAD OF THE TRANSFORMER.

INSTALLATION:

REFER TO SHEET 809802 OF STANDARD MACHINE WIRING DIAGRAM.

1. REMOVE PRIMARY 1402 POWER.
2. OPEN RELAY GATE AND REMOVE ACCESS PLATE TO ISOLATION TRANSFORMER.
3. PARALLEL WIRE FROM TRANSFORMER T-1 TO AC-12 WITH #16 WIRE P/N 100550. USE CLIP 360370 OR 187459.
4. PARALLEL WIRE FROM TRANSFORMER T-2 TO AC-13 WITH #16 WIRE. (WIRE 100550, CLIP 360370 OR 187459)
5. PARALLEL WIRE FROM AC-11 TO FUSE 7 WITH #16 WIRE. (WIRE 100550, CLIP 360370 OR 187459 AND CLIP 334910 OR 255994).
6. PARALLEL WIRE FROM FUSE 7 TO CONTACTOR L-4 WITH #16 WIRE. (WIRE 100550, CLIP 359695 OR 186960 AND CLIP 334910 OR 255994).
7. REPLACE WIRE FROM PWB-17 TO CONTACTOR T-4 WITH #14 WIRE P/N 127697. USE CLIP 359695 OR 186960.
8. REPLACE WIRE FROM PWB-16 TO AC-14 WITH #12 WIRE 204300. USE CLIP 186968 OR 186960.
9. REPLACE FUSE 7 WITH 12 AMP FUSE 121924.
10. REPLACE FUSE 8 WITH 8 AMP FUSE 107668.

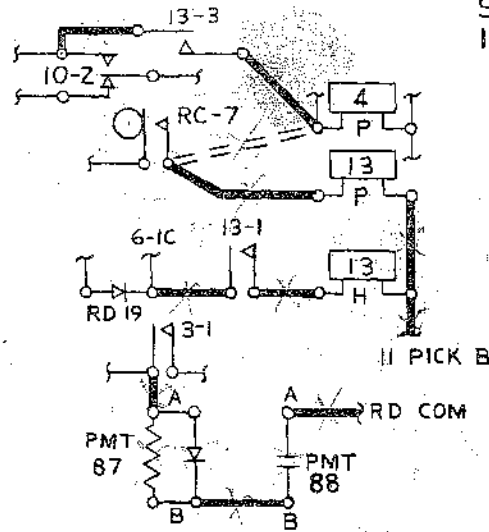
TESTING: NOT AFFECTED

AFTER INSTALLATION:

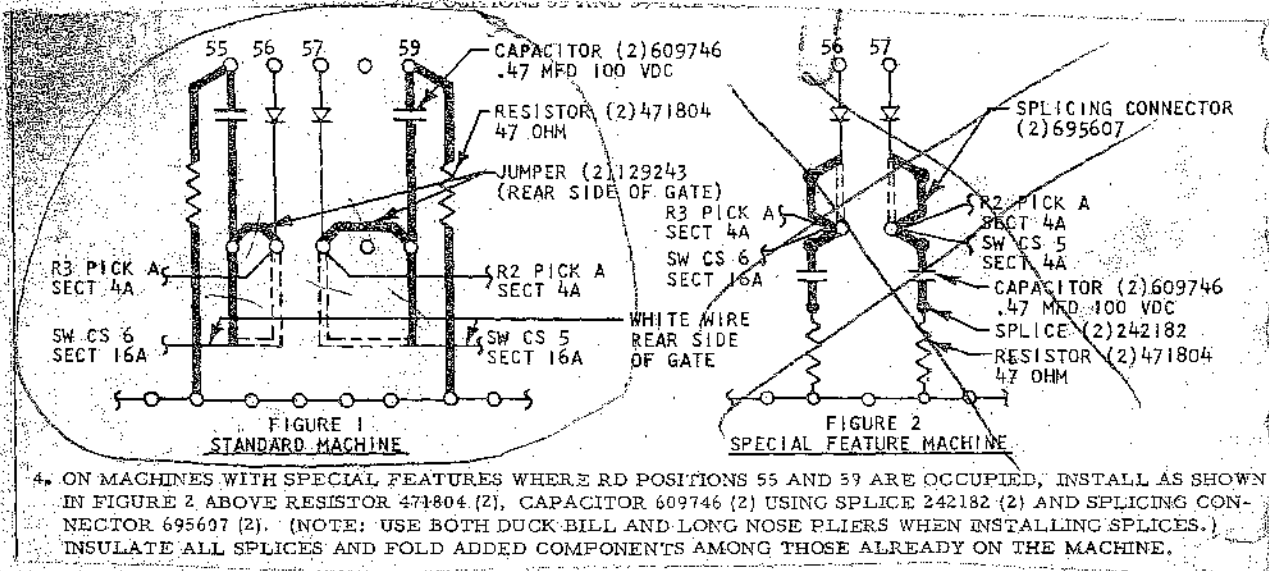
FILL OUT NECESSARY FORMS AND MARK WIRING DIAGRAM WITH NEW PART NUMBERS.

INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	UPDATE FUSE AND WIRE REQUIREMENTS				805462			X PRINT TO ENG. SPEC. NO. 894924	
DESIGN	KTK	5-22-63	MODEL	1402-1				WHERE USED 605492	
DETAIL	KTK	5-22-63							
CHECK	RPC	5-22-63	DRAW						
APPRO	RPC	5-22-63	CHECK						605493

SECT 4A
11.02.11.1



INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	DATE	CH.
NAME	RELAY 13 ADDITION				802669-C		
DESIGN	RPC	11-2-61	MODEL	1402-1		2-27-62	802669-G
DETAIL	RPC	11-2-61				5-17-62	802669-H
CHECK	<i>[Signature]</i>	11-29-61	DRAW				
APPRO			CHECK				



4. ON MACHINES WITH SPECIAL FEATURES WHERE RD POSITIONS 55 AND 59 ARE OCCUPIED, INSTALL AS SHOWN IN FIGURE 2 ABOVE RESISTOR 471804 (2), CAPACITOR 609746 (2) USING SPLICE 242182 (2) AND SPLICING CONNECTOR 695607 (2). (NOTE: USE BOTH DUCK-BILL AND LONG NOSE PLIERS WHEN INSTALLING SPLICES.) INSULATE ALL SPLICES AND FOLD ADDED COMPONENTS AMONG THOSE ALREADY ON THE MACHINE.

IBM

25

1401-25478

46255

12-1-1

FORM 920-7440

BRANCH OFFICE	CUSTOMER'S REFERENCE	CUSTOMER NUMBER	SCHEDULE DATE	CL.	ORDER NUMBER
4-258	LTR 4/6/1	37110-00	12-2-1	2	L06314E

SOLD TO

GENESCO INC
111 7TH AVE. NORTH
NASHVILLE 3, TENNESSEE

APR 04 1963
MAY 28 1963
JUN 10 1963
JUL 11 1963
AUG 28 1963

SHIP TO

CODE	COLS.	RENTAL	BASE NUMBER	TYPE	SERIAL NUMBER
			21756	1402	21756
					21756

LEASE _____ PURCHASE XXX PURCHASE OPTION _____
POINTS 550 DATE SHIPPED 12-13-61

SHIP VIA

MACH. TYPE	QTY.	FEATURE DESCRIPTION	SINGLE USE CHARGE	FEATURE NO.	WIRING DIAGRAM	DATE
1402	01	FINAL ASSEM MOD 001	-	609000	609400	
	01	COVER GROUP		609699		
	01	SHIPPING GROUP		609702		
	01	COMMON PRT FORMS		609710		
	01	208AC 60CY 3PH		920603		
	01	60 AMP LINE CORD		609544		
	01	MODIFICATION GROUP		609543		
*	01	GROUP MARK SW CKT		299724		
	01	BLUE COLOR ACCENT GR		609543		
	01	1 SWITCH PLATE		299713		

PURCHASE

1/A J. N. Eke 12-11-61

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IBM 1402
READER-PUNCH
WIRING DIAGRAM

PART NO	SECTION	DESCRIPTION	ENGINEERING CHANGE LEVEL					
			800972Q	801424G	801424R	801424S	801755	801765
609400		CONTENTS	800972Q	801424G	801424R	801424S	801755	801765
			801902C	801902F	801906C	802200	801983	801983A
609802	1-2	POWER SUPPLY	800972Q	801755	801765	801902C	801906C	802200
609803	3-4	START AND RUN	801983					
			800972Q	801424G	801424R	801755	801765	801983
609804	5-6	CLUTCH	800972Q	801424G	801755	801765	801906C	
609805	7-8	READ	800972Q	801755	801906C	801983		
609806	9-10	START AND RUN	800972Q	801424G	801424R	801424S	801755	801906C
			801983					
609807	11-12	CLUTCH	800972Q	801424S	801755	801765	801902F	801906C
			802200					
609808	13-14	READ AND PUNCH	800972Q	801424S	801755	801902C	801902F	801983
609809	15-16	C. E. AID	801983A					
			800972Q	801902C	801906C	801983		
609810	17-18	1402 INTERLOCKS	800972Q	801424G	801906C			
609811	19-20	SWITCH LOCATIONS	800972Q	801755	801906C			
609812	21-22	GENERAL	800972Q	801424G	801906C	801983		
			800972Q	801424R	801755	801765		
609813	23-24	TIMING	800972Q					
609814	25-26	CAM LOCATIONS	800972Q	801906C	801983A			
609815	27-28	TIMING	800972Q	801424R	801424S	801755	801765	801906C
			802200	801983	801983A			
609816	29-30	TIMING	800972Q	801755	801983	801983A		
			800972Q	801755	801765	801902C	801906C	802200
609817	31-32	CONNECTOR LOCATIONS	801983					
609818	33-34	RESISTORS, CAPACITORS, AND DIODES	800972Q	801424G	801424S	801755	801765	801902C
			801902F	801906C	802200	801983		
609819	35-36	RELAY GATE	800972Q	801424G	801755	801765	801902C	801983
609820	37-38	RELAY LOCATION	800972Q	801424G	801424S	801755	801765	801902C
			801983					
609823	39-40	MECHANICAL TIMINGS	800972Q	801906C				

PART NO 609400 COMPLETE SET 1402 WIRING DIAGRAMS

DATE	EC	DATE	EC	DATE	EC
4-25-60	800972Q	2-9-61	802200		
5-24-60	801424G	4-21-61	801983		
6-15-60	801424R	5-15-61	801983A		
6-21-60	801424S				
8-18-60	801755				
9-19-60	801765				
10-17-60	801902C				
12-20-60	801902F				
12-30-60	801906C				

EC 802538 B/M 605263
 802542 B/M 605298
 802536 B/M 605265
 802610 B/M 605294
 802777
 802669A 605300
 802669B 605307

INTERNATIONAL BUSINESS MACHINES CORP					
NAME WIRING DIAGRAM--					
READER, PUNCH					
DESIGN	JS	8-7-59	MODEL	1402	
DETAIL	DJS	8-7-59	SCALE	NONE	
CHECK	JS	8-7-59	DRAW	CES	1-9-60
APPRO	ADM	8-7-59	CHECK	LJF	1-11-60

609727G

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1402-1 WIRING DIAGRAM

45 AMP SERVICE

<u>SECTION</u>	<u>NAME</u>	<u>PART NUMBER</u>	<u>ENGINEERING CHANGE NO.</u>
1-2	POWER SUPPLY	609481	810446

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME 45 AMP SERVICE		6-27-62	803600A	10-13-64	807874D	X POINT TO ENG. SPEC. NO. 894924	
VERSION 1402-1	MODEL 1402-1	8-28-62	803600C	1-11-65	809253A		
DETAILS 1402-2		4-3-63	804703B	11-21-66	810446		
CHANGES 1402-3	DRAW	6-10-63	804773-B				
APPROVED 1402-3	CHECK	2-13-64	807385				609727-G

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610718

INSTRUCTIONS

INSTALL EARLY READ FEATURE

PRE REQUISITS: NONE

PURPOSE:

THIS FEATURE ALLOWS THE 140Z READ FEED CLUTCH TO BE ENGAGED AT ANY ONE OF THREE TIMES DURING A MACHINE CYCLE. DEPENDENT UPON PROCESSOR PROCESSING TIME. THIS DEVICE WILL INCREASE READ FEED EFFECTIVE SPEED.

DESCRIPTION:

A SIX TOOTH CLUTCH DRIVE RACKET ASSEMBLY IS INSTALLED TO REPLACE THE PRESENT TWO TOOTH DRIVE RACKET. THE CIRCUITRY IS CHANGED TO ALLOW FOR THREE ENGAGING TIMES OF THE READ CLUTCH. A COVER RESTORING READ SYNC SWITCH CIRCUIT IS INSTALLED TO ALLOW ONLY SYNCHRONIZED CLUTCHING FOR TROUBLE SHOOTING.

INSTALLATION:

1. INSTALL READ SYNC SWITCH MOUNTING BRACKET (609189) USING SCREWS (294331) AND WASHERS (45699) ON FRONT OF MAIN FRAME JUST TO THE LEFT OF THE C. E. AID PANEL. MOUNT SWITCH (121759) AND DECAL (609776) ON MOUNTING BRACKET.

2. REMOVE AND RETAIN FOR LATER INSTALLATION THE FOLLOWING:

	FROM	TO
JUMPER (602710)	RL-5 (CAM SIDE)	RL-6 (CAM SIDE)
JUMPER (129243)	RL-6 (CONT SIDE)	RL-7 (CAM SIDE)

3. INSTALL CONTACT ASM (602083) IN POSITION RL-8.

4. MAKE THE FOLLOWING WIRING CHANGES.

IN CABLE LEAD FROM	TO	REMOVE END AT	AND	REINSTALL AT
RL-5	SF-1	RL-5 (CAM SIDE)		RL-6 (CAM SIDE)
RL-5	RC-1	RL-5 (CAM SIDE)		RL-7 (CAM SIDE)
RC-5	C+A-1	RC-5 (CONT SIDE)		RC-5 (CAM SIDE)

5. REMOVE CAMS RL - 5, 6, AND 7.

6. INSTALL THE FOLLOWING CAMS AND TIME PER FEATURE W. D.

RL-5	P/N 609328 (USE CAM REMOVED FROM RL-5 ABOVE)
RL-6	P/N 602122
RL-7	P/N 602118
RL-8	P/N 602114

7. INSTALL THE FOLLOWING JUMPERS:

	FROM	TO
JUMPER (129243)	RL-5 (CAM SIDE)	RL-7 (CONT SIDE)
JUMPER (602710)	RL-6 (CAM SIDE)	RL-7 (CAM SIDE)
JUMPER (602710)	RL-7 (CAM SIDE)	RL-8 (CAM SIDE)

8. MAJOR UNIT RELACEMENTS:

- USE RELAY GATE ASM 609762 IN PLACE OF 609340.
- USE CAM UNIT ASM 609757 IN PLACE OF 609007.
- USE CLUTCH SUPPORT ASM 609766 IN PLACE OF 609001.
- USE CABLE ASM 609763 IN PLACE OF 609774.

9. INSTALL RELAY 719007 IN POSITION 12.

10. CHECK WIRING AND TIMINGS AGAINST FEATURE W. D.

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	ENG INSTRUCTION	3-28-63	30455-B			X PRINT TO ENG. SPEC. NO.	
DESIGN	ICK 8-20-63	5-10-63	304773-B			609774	
DETAIL	ICK 8-20-63					Index 609777	
CHECK	ICK 8-21-63						610718

609777 H

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1402 FEATURE WIRING DIAGRAM

EARLY READ FEATURE

<u>SECTION</u>	<u>NAME</u>	<u>PART NUMBER</u>	<u>ENGINEERING CHANGE</u>
3-4	START AND RUN	610303	807952
5-6	CLUTCH	613765	8078740
23-24	TIMING	610304	807385
25-26	CAM LOCATIONS	613766	8078740
29-30	TIMING	613767	8078740
33-34	RESISTORS, CAPACITORS AND DIODES	613768	8078740
35-36	RELAY GATE	609795	803330
37-38	RELAY LOCATIONS	609799	8047648
INST	ERF INSTRUCTIONS	610718	804773-B

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	WIRING DIAGRAM	11-13-62	804340	7-10-63	802457	894924	
NAME	EARLY READ FEATURE	3-28-63	804533B	2-13-64	807385		
DESIGN	303 7-73 62	4-3-63	8047648	4-24-64	807952		
DETAIL	502 7-10-62	4-17-63	804533-D	10-13-64	8078740		
CHECK	400 7-17 64	5-10-63	804773-B				609777 H
APPRO	100 30 64	CHECK					

605385

DISCONTINUED

STOP KEY NOISE ELIMINATION

PRE-REQUISITES: 1401 B/M 485829, E. C. 113834.

SPECIAL TOOLS REQUIRED: NONE

INSTALLATION TIME: .3 HOUR

PURPOSE: TO PREVENT STOP KEY LINE NOISE FROM ENTERING 1401.

DESCRIPTION: THE ADDITION OF 1401 B/M 485829 AND THE 1402 WIRING CHANGE ALLOWS THE STOP KEY LINE TO BE INTEGRATED TO PREVENT NOISE SPIKES.

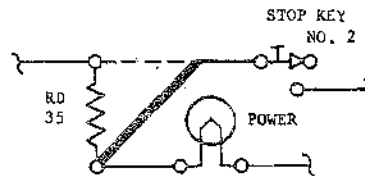
INSTALLATION:

1. REMOVE MACHINE POWER
2. REMOVE THE WIRE FROM THE STOP KEY #2 COMMON TO RD 35A AT RD 35 AND REPLUG WIRE TO RD 35B.

TESTING: NOT AFFECTED

AFTER INSTALLATION: FILL OUT NECESSARY FORMS AND MARK W/D

SECTION 5 B. 11.03.11.1



INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	STOP KEY NOISE ELIMINATION	2-14-62	802949-A			X PRINT TO ENG. SPEC. NO.	
DESIGN	RPC 1-19-62 MODEL 1402-1					894924	
DETAILS	PC 1-19-62					WHERE USED:	
CHECK	DEB 1-30-62 DRAW					605384	
APPRO	DEB 1-30-62 CHECK						605385

MS 1 KUL 1 1000

605414

DISCONTINUED

INSTRUCTIONS

CURRENT BALANCE CORRECTION: MACHINES W/D 609400-C TO W/D 609400-M.

PRE-REQUISITES: NONE

SPECIAL TOOLS REQUIRED: NONE

INSTALLATION TIME: .5 HOURS

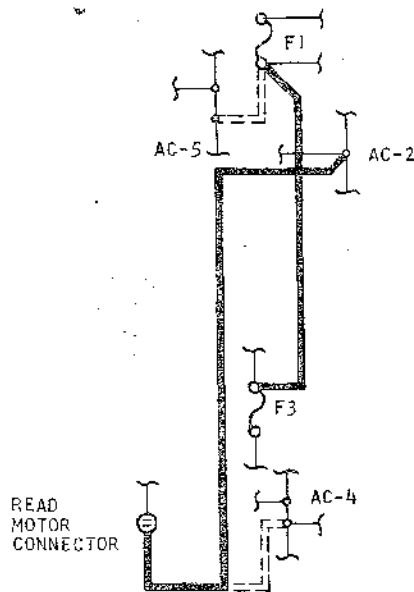
PURPOSE: TO CORRECT UNDESIRABLE CURRENT UNBALANCE ON THE A. C. INPUT SOURCE ON ALL MACHINES.

DESCRIPTION:

THE LOAD ON EACH OF THE THREE PHASES IS REDISTRIBUTED TO ACHIEVE A BALANCED LINE CURRENT BY RECONNECTING THE READER MOTOR AND FERRO RESONANT INPUT.

INSTALLATION:

1. REMOVE ALL POWER TO MACHINE DURING INSTALLATION.
2. DISCONNECT AND TAPE BOTH ENDS OF THE CABLE LEAD CONNECTING FUSE 1 (SCREW TYPE FUSE) CENTER POST TO TERMINAL AC 5 (LOCATED ON LOWER LEFT BEHIND FUSE PANEL), SEE DRAWING.
3. INSTALL JUMPER 5T2533 BETWEEN FUSE 1 CENTER POST AND FUSE 3 CENTER POST.
4. MOVE THE READ MOTOR LEAD AT TERMINAL AC 4 TO TERMINAL AC 2, SEE DRAWING.



WD 609400 SECTION 1A & B

TESTING: CHECK FOR PROPER OPERATION

AFTER INSTALLATION: MARK WIRING DIAGRAM AS IN DRAWING.

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	CURRENT BALANCE CORRECTION WD609400 C-M	9-21-62	803330-D			X PRINT TO ENG. SPEC. NO.	
DESIGN	RJT 6-15-62 1402-1						
DETAIL	RJT 6-15-62					WHERE USED	
CHECK	DEB 6-21-62 DRAW					605413	
APPRO	DEB 9-12-62 CHECK						605414

635619A

FIELD USE

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1402-1 FEATURE WIRING DIAGRAM
OVERCURRENT PROTECTION (-60 VOLTS @ 10 AMPERES)

<u>SECTION</u>	<u>NAME</u>	<u>PART NUMBER</u>	<u>E. C. NUMBER</u>
INSTRUCTIONS	INSTRUCTIONS	635620	809274B
INSTRUCTIONS	INSTRUCTIONS	635623	809274
1 - 2	POWER SUPPLY	220903B	704772

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	OVERCURRENT PROTECTION (-60V @ 10A)	6-25-65	809274			2. PRINT TO ENG. SPEC. NO. 894294	
DESIGN	WLZ 12-10-65 MODEL 1402-1	12-28-65	809274B				
DETAIL	WLZ 12-10-65						
CHECK	WC 7/ 4-7-65 DRAW						
APPRO							635619A

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G. L. Co., INC. 050310 2257

1402-1

OVERCURRENT PROTECTION (-60 VOLTS @ 10 AMPERES)

635620

INSTRUCTIONS:

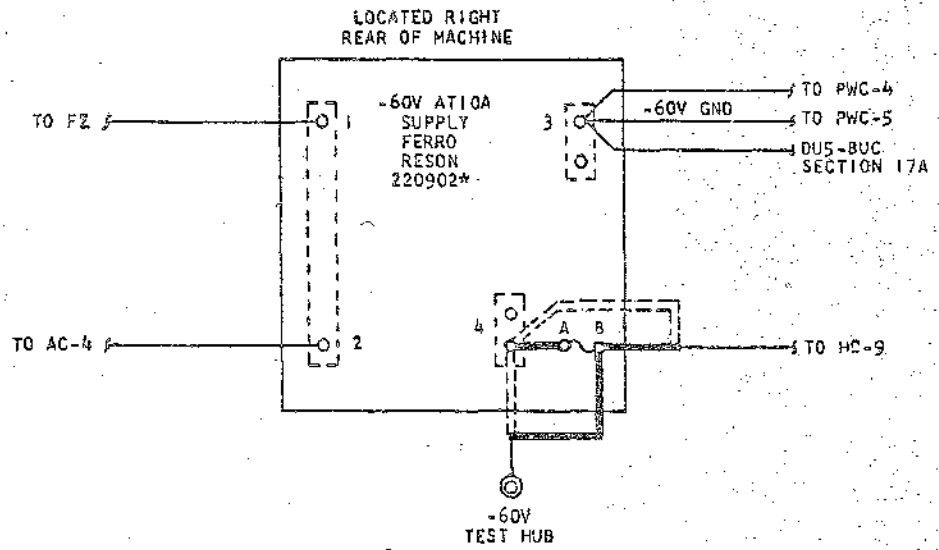
- 1.0 PRE-REQUISITES: THIS FEATURE IS TO BE INSTALLED ON ALL 1402-1 CARD READ PUNCH MACHINES THAT DO NOT HAVE A FUSE IN THE -60 VOLT OUTPUT LINE (POWER SUPPLY 220902 PRIOR TO E.C. 704772).
- 2.0 PURPOSE: TO INCORPORATE OVERCURRENT PROTECTION OF THE -60 VOLT @ 10 AMP POWER SUPPLY AS REQUIRED BY IBM PRODUCT SAFETY (CORPORATE STANDARD).
- 3.0 DESCRIPTION: ADDITION OF A 10 AMP FUSE IN THE OUTPUT OF THE -60 VOLT POWER SUPPLY FOR OVERCURRENT PROTECTION.
- 4.0 SPECIAL TOOLS REQUIRED: NONE.
- 5.0 PREPARATION: CHECK ALL THE RECEIVED COMPONENTS AGAINST THE ENCLOSED BILL OF MATERIAL TO ENSURE THAT ALL REQUIRED COMPONENTS WERE RECEIVED. IF REQUIRED, PROCURE ANY MISSING COMPONENTS BEFORE BEGINNING THIS INSTALLATION. READ INSTRUCTIONS COMPLETELY AND INSPECT REFERENCE DRAWING (P/N 637319) TO BECOME FAMILIAR WITH THE COMPONENTS USED AND THE PROCEDURES TO BE FOLLOWED.
- 6.0 INSTALLATION TIME: 2 HOURS.
- 7.0 INSTALLATION:
 - 7.1 A) DISCONNECT ALL ELECTRICAL POWER TO THE MACHINE.
 - B) REMOVE THE NECESSARY MACHINE COVERS, THE -60 VOLT POWER SUPPLY SAFETY SHIELD (P/N 614048), AND THE PLASTIC -60 VOLT @ 10 AMP POWER SUPPLY SHIELD (P/N 22026).
 - 7.2 USE REFERENCE DRAWING (P/N 637319) FOR INSTALLATION.
 - A) REMOVE THE TWO SCREWS (P/N 332620) AND LOCKWASHERS (P/N 56079) ON THE AUTO-XFMR T2 (P/N 360310) FROM THE EDGE NEAREST RESISTOR R2 (UPPER EDGE).
 - B) INSTALL THE BRACKET (P/N 5709139), WITH TWO SCREWS ((P/N 438601), TWO LOCKWASHERS (P/N 56079).
 - C) INSTALL THE FUSEHOLDER (P/N 123049) ON THE BRACKET (P/N 5709139) WITH TWO SCREWS (P/N 34512), AND TWO LOCKWASHERS (P/N 60646).
 - 7.3 A) REMOVE THE TWO BLACK WIRES, FROM THE NEGATIVE (-) OUTPUT - POSITION 4.
 - B) REMOVE TAPE AND LACING FROM CABLE (P/N 609733) APPROX. 5 INCHES TO FREE THE TWO WIRES.
 - C) RETAPE THE TWO REMAINING WIRES, GOING TO THE POSITIVE (+) OUTPUT - POSITION 3, AND THE WIRES FROM THE NEGATIVE OUTPUT AS SEPARATE BRANCHES.
 - 7.4 A) INSTALL THE TWO BLACK WIRES, THAT WERE LOCATED ON POSITION 4 OF THE OUTPUT, ON THE "B" SIDE OF THE FUSEHOLDER.
 - B) INSTALL THE JUMPER ASSEMBLY (P/N 637352) FROM THE NEGATIVE (-) OUTPUT - POSITION 4 TO THE "A" SIDE OF THE FUSEHOLDER.
 - 7.5 INSTALL THE 10 AMP FUSE (P/N 69791) IN THE FUSEHOLDER.
 - 7.6 INSTALL THE SHIELD (P/N 5709140) ON THE BRACKET (P/N 5709139) OVER THE FUSEHOLDER (P/N 123049) WITH SCREW (P/N 438548).
- 8.0 FINAL INSTALLATION:
 - 8.1 REINSTALL THE PLASTIC -60 VOLT @ 10 AMP POWER SUPPLY SHIELD (P/N 22026) AND THE -60 VOLT @ 10 AMP POWER SUPPLY SAFETY SHIELD (P/N 614048).
 - 8.2 RECONNECT ELECTRICAL POWER TO MACHINE.
 - 8.3 PERFORM MACHINE DIAGNOSTIC CHECK.
 - 8.4 REINSTALL ALL PREVIOUSLY REMOVED MACHINE COVERS.
- 9.0 AFTER INSTALLATION:
 - 9.1 COMPLETE ANY REQUIRED FORMS ACCOMPANYING THIS BILL OF MATERIAL.
 - 9.2 MARK THE POWER SUPPLY DETAIL W.D. AND THE MAIN MACHINE W.D. TO SHOW THE ADDED FUSE (USE W.D. 220903 AND INSTRUCTION SHEET P/N 635-23 AS REFERENCE).
 - 9.3 INSERT THE FEATURE WIRING DIAGRAMS AND INSTRUCTION PAGES INTO THE MACHINE MANUAL.
 - 9.4 REPORT INSTALLATION COMPLETED TO YOUR MANAGER FOR UPDATING OF MACHINE RECORDS.

INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	OVERCURRENT PROTECTION (-60V @ 10A)			6-29-65	809274			X PRINT TO ENR. SPEC. NO. 894924	
DESIGN	WLZ	2-0-65	MODEL	1402-1	12-28-65	8092748			
DETAIL	WLZ	2-0-66						WHERE USED	
CHECK	W&A	4-7-65	DRAW					635619	635620
APPRO			CHECK						

FIELD USE

635623

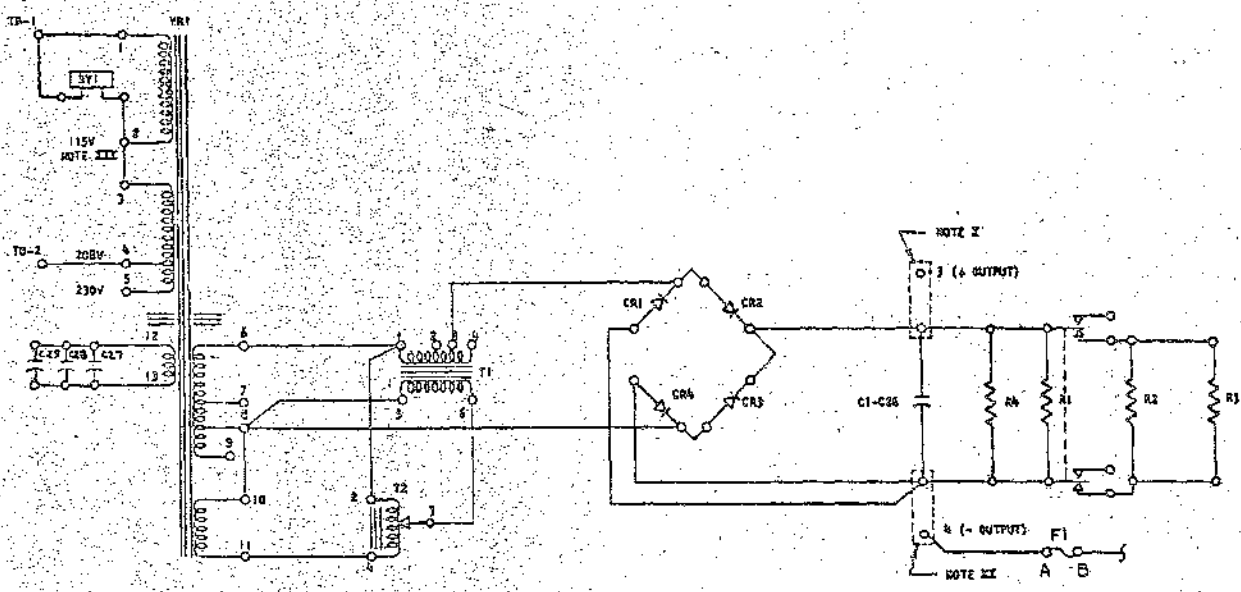
POWER SUPPLY
 PARTIAL VIEW OF WIRING DIAGRAM (P/N 609802)
 SECTION 1 & 2



* USE 10A FUSE (P/N 107669) AND 20A POWER SUPPLY (P/N 480765) WITH NUMERIC CHAIN PRINTER.
 USE INPUT TERMINAL 1 AND 4 FOR 208V, 1 AND 5 FOR 230V.

INTERNATIONAL BUSINESS MACHINES CORP.			DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME OVERCURRENT PROTECTOR			6-29-65	809274			* PRINT TO ENG. SPEC. NO. 894924	
-60V @ 10A AND 20A								
DESIGN	WLZ	2-10-65	MODEL	1402-1			WHERE USED 635619 635621	
DETAIL	WLZ	2-10-65						
CHECK	WCM	4-7-65	DRAW					
APPRO			CHECK					

DATE	CHANGE NO.
10-12-59	1055810
1-14-60	1055858
3-11-60	1055855
3-3-61	111210
2-4-65	704772



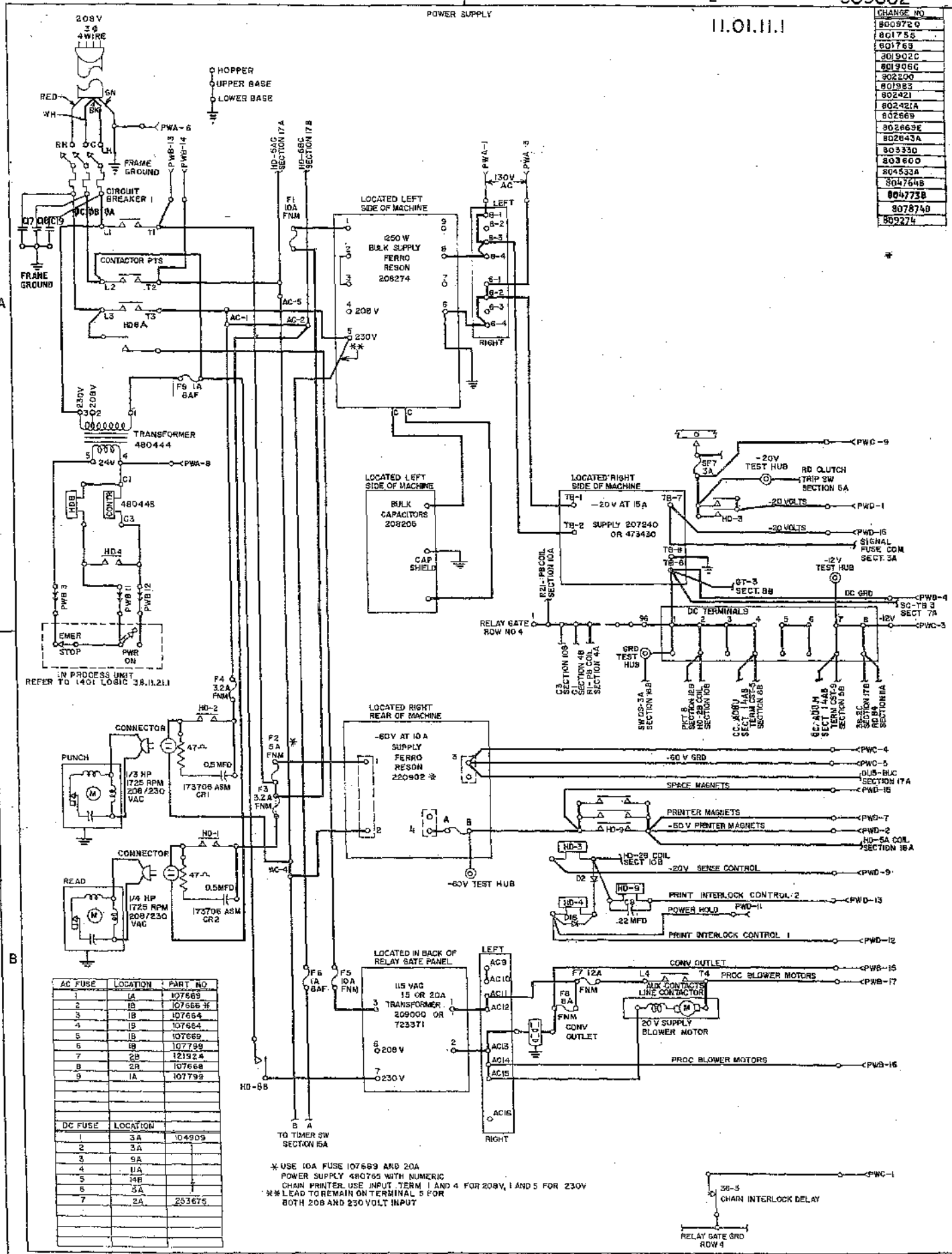
COMPONENT CHART		
CODE	PART NO.	DESCRIPTION
VR1	221342	VOLTAGE REGULATOR
T1	221256	TRANSFORMER, BUCC-80037
T2	360310	TRANSFORMER, AUTO
C1-C26	208732	CAPACITOR 3500 MFD 75V DC
C27-C29	107361	CAPACITOR 15 MFD 330V AC
CR1-CR4	127324	DIODE
R1, RA	509798	RESISTOR 150 OHM 50W
R2	322739	RESISTOR 500 OHM 50W
R3	208825	RESISTOR 250 OHM 50W
RY1	242618	RELAY
F1	69791	FUSE 10 AMP

NOTES
 I - CAPACITOR BUS PLATE PART NUMBER 221982
 II - CAPACITOR BUS PLATE PART NUMBER 222011
 III - 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	DESIGN	DATE	SCALE	REVISION
	WIRING DIAGRAM - POWER SUPPLY	1-17-59		NONE
		9-1-59		
		9-1-59		
		10-22-59		

11.01.11.1

CHANGE NO
800972 0
801755
801763
801902 C
801906 G
802200
801983
802421
802421 A
802669
802669 E
802643 A
803330
803600
804533 A
804764 B
804773 B
807874 B
809274



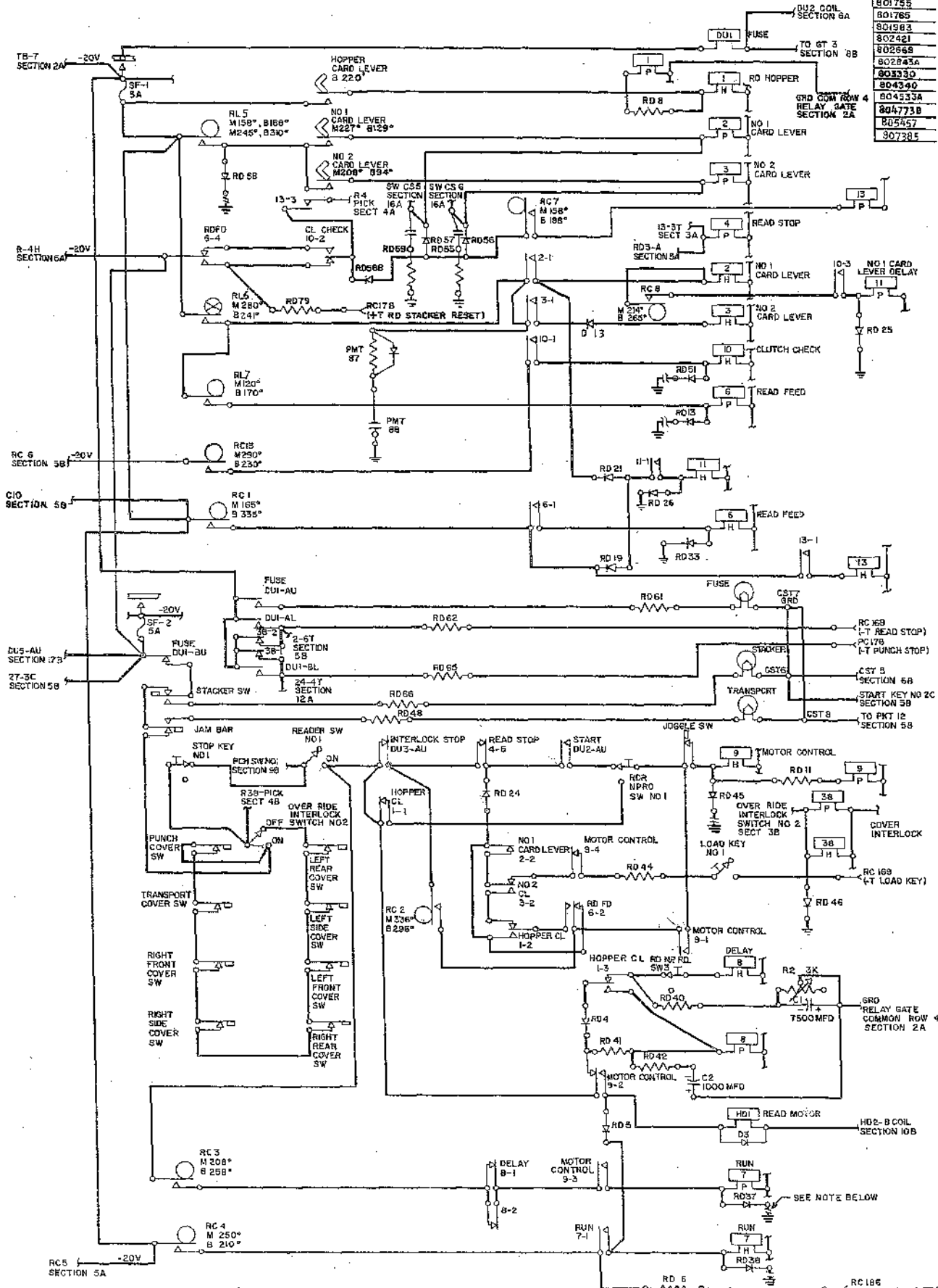
AC FUSE	LOCATION	PART NO
1	1A	107669
2	1B	107669
3	1B	107664
4	1B	107664
5	1B	107669
6	1B	107799
7	2B	121924
8	2B	107668
9	1A	107799

DC FUSE	LOCATION	PART NO
1	3A	104909
2	3A	
3	9A	
4	11A	
5	14B	
6	5A	
7	2A	253675

* USE 10A FUSE 107669 AND 20A POWER SUPPLY 480765 WITH NUMERIC CHAIN PRINTER USE INPUT TERM 1 AND 4 FOR 208V, 1 AND 5 FOR 230V
 ** LEAD TO REMAIN ON TERMINAL 5 FOR BOTH 208 AND 230 VOLT INPUT

11.02.11.1

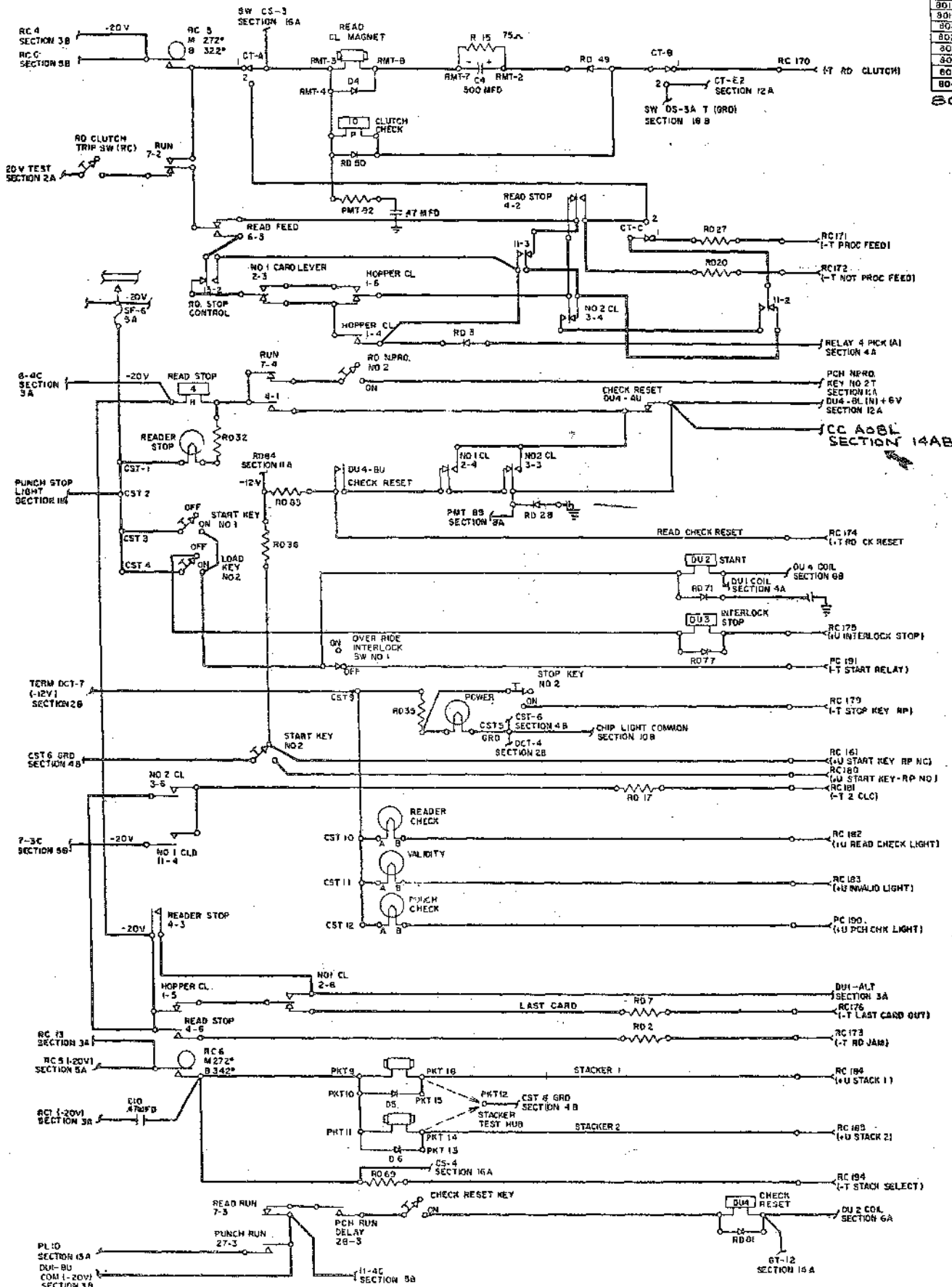
CHANGE NO
800972 0
801424 S
801424 R
801755
801765
801963
802421
802668
802843A
803330
804340
804533A
804773B
805457
807385



NOTE
WHERE DIODE GROUNDING IS INDICATED, ALL RD DIODES ARE
PLUGGED TO GROUND COMMON ON ROW 4 OF RELAY GATE, WHICH
IS RETURNED TO SYSTEM GROUND

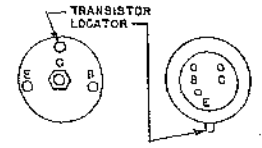
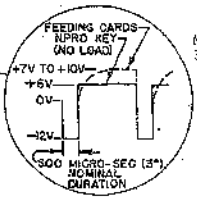
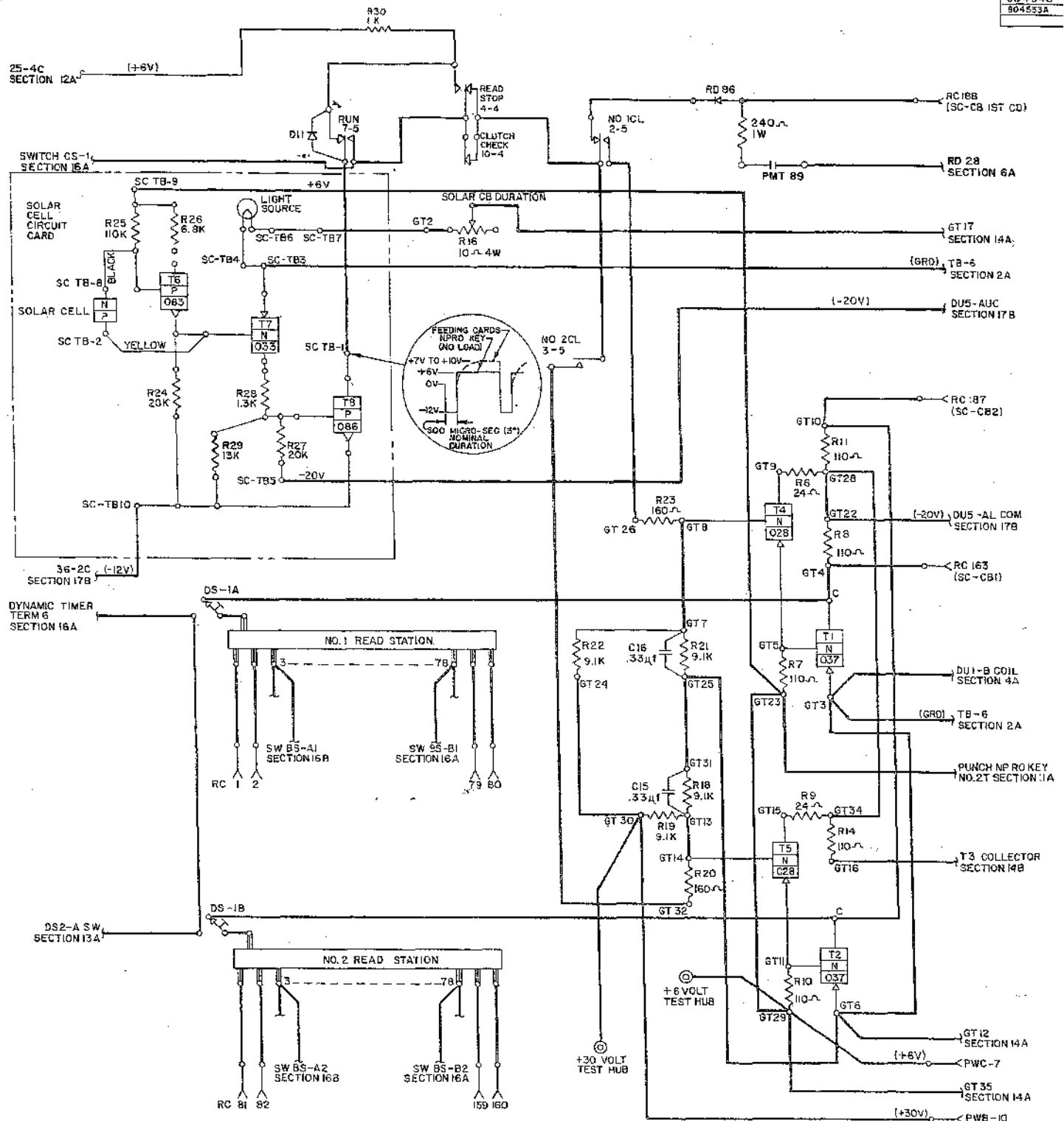
11.03.11.1

CHANGE NO	
8009220	
801424S	
801753	
801765	
801906C	
802421	
802669	
802843A	
803350	
804440	
804933A	
80787	

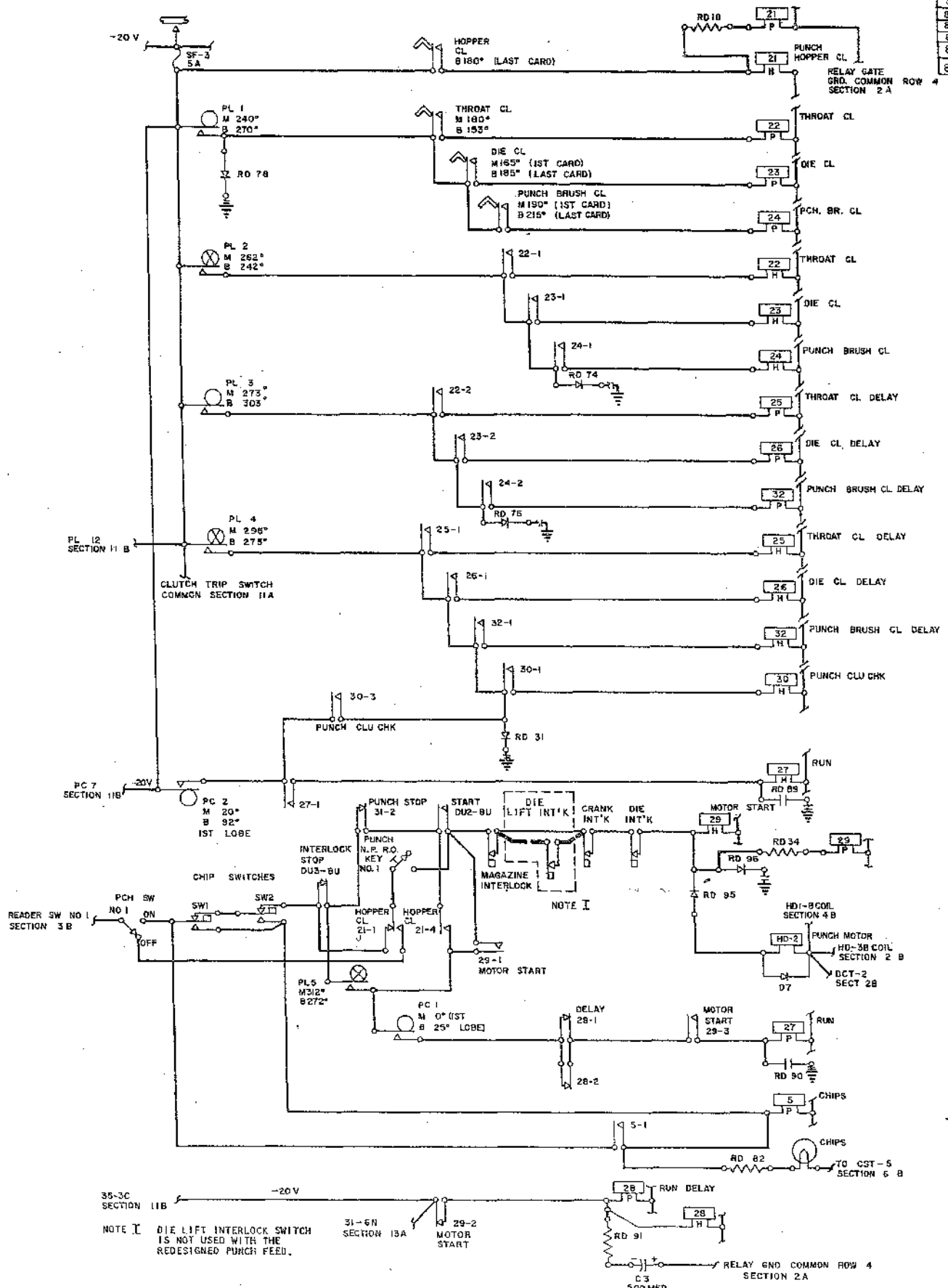


11.04.11.1

CHANGE NO
802843A
803330
803600
804340
80453A



CHANGE NO
800972 Q
801424 E
801424 R
801424 S
801765
801906 C
801983
802421
802842 A
807952
809254



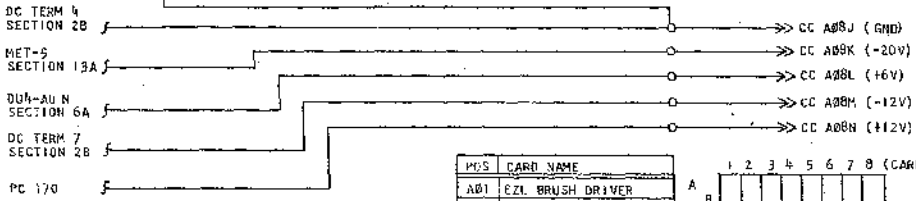
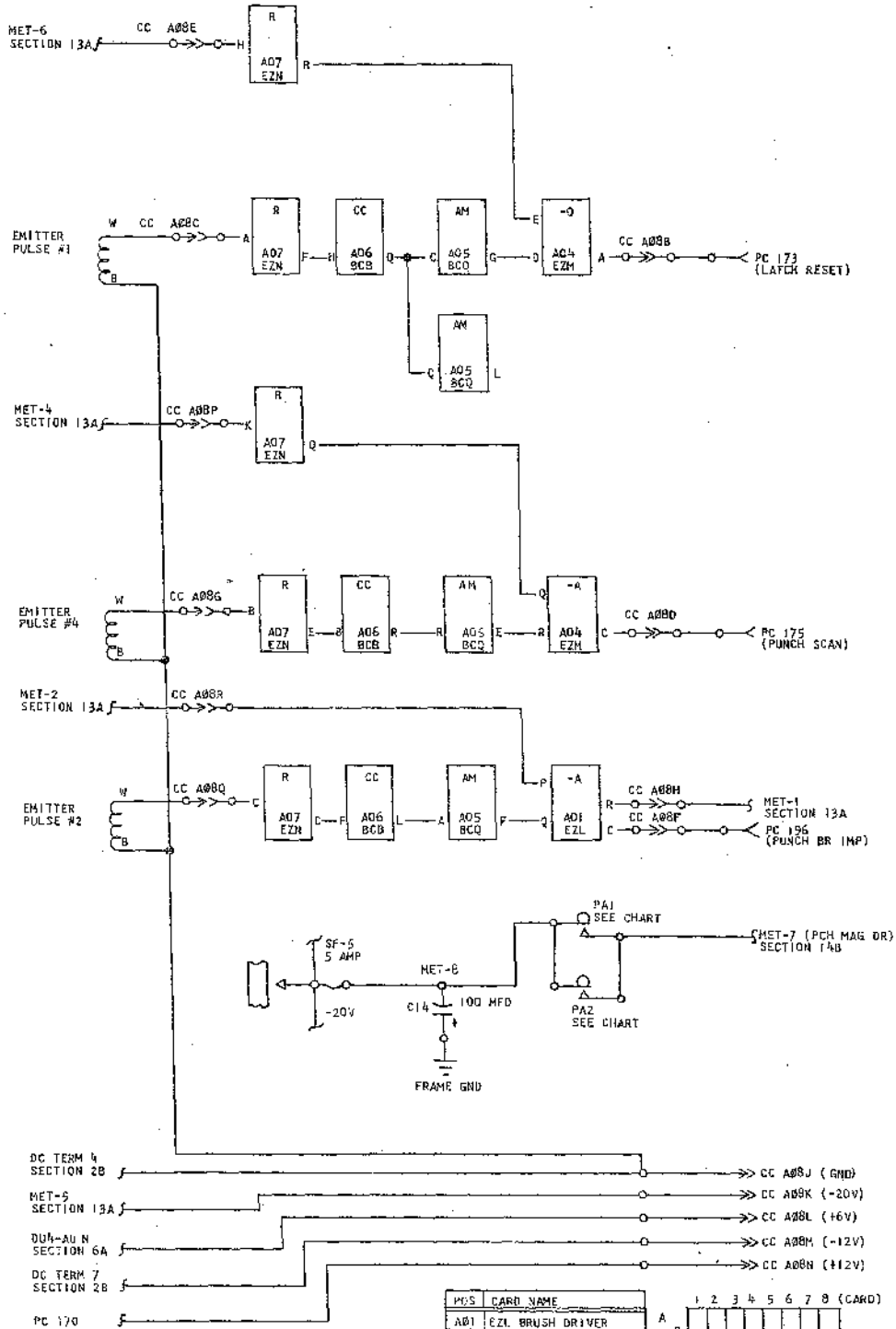
NOTE I DIE LIFT INTERLOCK SWITCH IS NOT USED WITH THE REDESIGNED PUNCH FEED.

C 3 500MFD

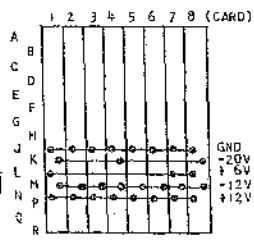
RELAY GND COMMON ROW 4 SECTION 2A

CHANGE NO.
A07B7-C
B09274

MAGNETIC EMITTER AND SKS CARD ASM

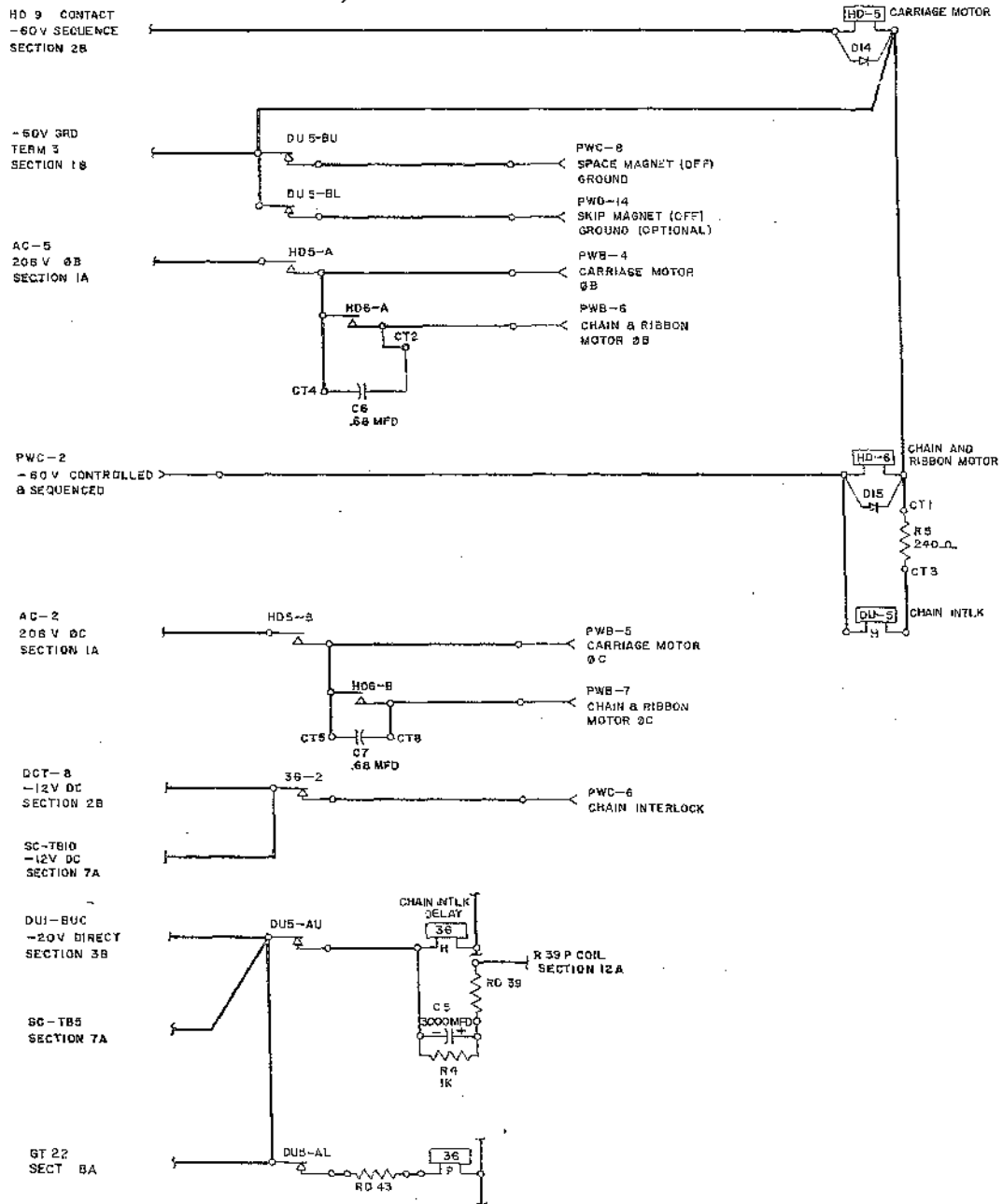


POS	CARD NAME
A01	EZL BRUSH DRIVER
A02	
A03	
A04	EZM INTEG. DRIVER
A05	BCQ AMPLIFIER
A06	BCB CAPACITOR
A07	EZN RESISTOR
A08	CC CABLE CONNECTOR



CHANGE NO.	800972Q
	801424G
	801906C
	802669
	802843A
	803330
	803902

21.00.11.1



SWITCH LOCATIONS

CHANGE NO
800972 Q
801758
801906 C
802843 A
803330
807385
807952
809254

COVER INTERLOCKS

PUNCH	3 B
TRANSPORT	
RIGHT FRONT	
RIGHT SIDE	
LEFT REAR	
LEFT SIDE	
LEFT FRONT	
RIGHT REAR	7

PUNCH INTERLOCKS

MAGAZINE	9B
* DIE LIFT	10B
CRANK	10B
DIE	10B

* NOT USED WITH REDESIGNED PUNCH FEED

MISCELLANEOUS SWITCHES

STACKER	3 B
JAM BAR	3 B
JOGGLE	4B
CHIPS 1 & 2	9B

CONTROL KEY AND LIGHT PANEL

LIGHTS	LDC	SWITCHES	LDC
PUNCH CHECK	5B	PUNCH ON OFF	8B
PUNCH STOP	11A	PUNCH N P R D	9B, 11A
FUSE	4A	START KEY	8A, 5B
CHIPS	10B	CHECK RESET KEY	5B
STACKER	4B	STOP KEY	3B, 5B
POWER	5B	LOAD KEY	4B, 5A
TRANSPORT	4B	READ N P R D	4B, 5A, 4B
VALIDITY	5B	READER ON OFF	3B
READER CHECK	5B		
READER STOP	5A		

VOLTAGE TEST-HUBS

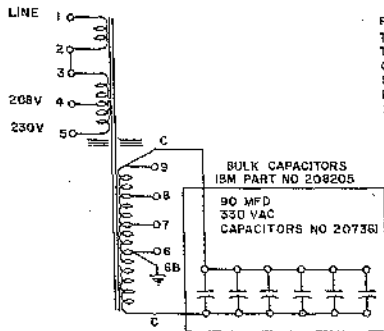
+6	8B
-12	2A
-20	2A
-60	1B
GND	2B
+30	8B

SERVICE SWITCHES

NAME	TYPE	CIRCUITS	LOCATION	USE
DS-1	* MC	2	7A	READ BRUSH DISPLAY
DS-2	MC	1	13A	PUNCH BRUSH DISPLAY
DS-3	MC	2	16B	READ CAM DISPLAY
DS-4	MC	2	16B	PUNCH CAM DISPLAY
PC	MC	1	11A	PUNCH CLUTCH TRIP
RC	MC	1	5A	READ CLUTCH TRIP
DS-5	TOGGLE	2	15A	DIAL SELECTION (READ OR PUNCH)
TIMER	TOGGLE	2	15A	POWER ON TIMER
CS	ROTARY	1-11 POS	16A	CAM SELECTION
BS	ROTARY	2-5 POS	16A, 16B	BRUSH SELECTION
CT	ROTARY	5-2 POS	5A, 6A, 6A, 11A, 12A, 12A	OFF LINE CARD FEED
SYNC	MC	1	11A	SYNCS PUNCH CLUTCH PULSES
RS	TOGGLE	2	5B, 3B	OVER RIDE INTERLOCK SWITCH

* MOMENTARY CONTACT

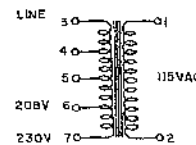
CIRCUIT DIAGRAM
1250W BULK SUPPLY
FERRO RESON
IBM PART NO 208274



TRANSFORMER CONNECTIONS

PRIMARY CONNECTIONS
TERMINALS 1-4 208 VAC - JUMPER 2 TO 3
TERMINALS 1-5 230 VAC
OUTPUT CONNECTIONS TERMINALS 6 & 8 130 NOM
SECONDARY TAPS 7 AND 9
PROVIDE APPROXIMATELY
±1.5% ADJUSTMENT

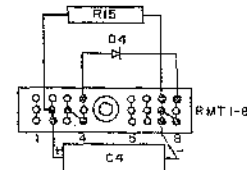
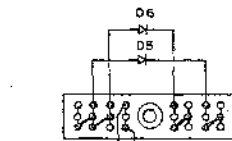
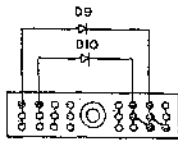
CIRCUIT DIAGRAM
115 VAC TRANSFORMER
IBM PART NO 723371



PRIMARY CONNECTIONS
TERMINALS 3-6 208 VAC
TERMINALS 3-7 230 VAC

CHANGE NO
800672 0
801424 G
801906 C
801983
802421
802421A
802669
802843A
804340
807385
807874D

PKT LOCATION	
1	12 B
2	12 B
3	-
4	-
5	-
6	12 B
7	12 B
8	12 B
9	5 B
10	-
11	-
12	-
13	-
14	-
15	-
16	5 B



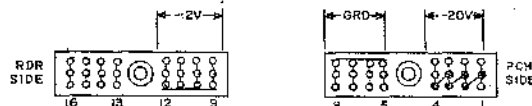
POCKET TERMINALS (PKT)
(LOCATED ON FRONT SIDE FRAME)

RMT LOCATION	
1	-
2	6 A
3	5 A
4	5 A
5	-
6	-
7	5 A
8	5 A

MET LOCATION	
1	13A
2	13A
3	---
4	13A
5	13A
6	13A
7	14B
8	13AB

MAGNETIC EMITTER
TERMINALS
(LOCATION ON PCCB
PUNCH UNIT)

CST LOCATION	
1	5A
2	5A
3	5A
4	5A
5	5B
6	4B
7	4A
8	4B
9	5B
10	5B
11	5B
12	5B
13	-
14	-
15	-
16	-

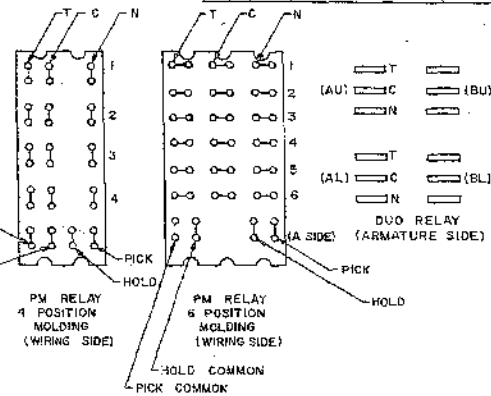


CONSOLE TERMINALS (CST 1-16)

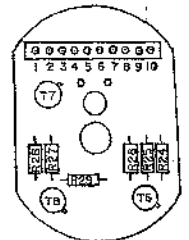
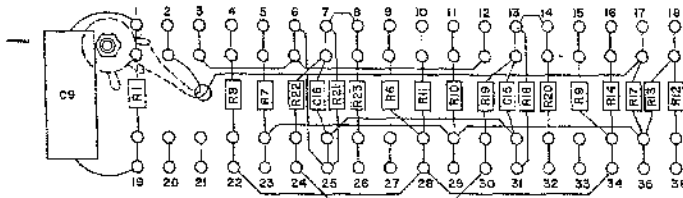
TYPE	SIZE	PART NO	DESCRIPTION	NO	COIL RESISTANCE	
					PICK	HOLD
1	FOUR	719003	HIGH SPEED	719003	70±7Ω	700±70Ω
2	SIX	719007	STANDARD	719007	35±5Ω	600±60Ω
3	FOUR	719005	STANDARD	719005	25±2Ω	700±70Ω
4	FOUR	344601	48V PM	344601	400	700

GT LOCATION											
1	11B	9	8A	17	14A	25	8B	33	-	-	-
2	7A	10	8A	18	14A	26	8A	34	8B	-	-
3	8B	11	8B	19	12B	27	-	35	14A	-	-
4	8A	12	14A	20	-	28	8A	36	14A	-	-
5	8A	13	8B	21	-	29	8B	-	-	-	-
6	8B	14	8B	22	8A	30	8B	-	-	-	-
7	8A	15	8B	23	8B	31	8B	-	-	-	-
8	8A	16	8B	24	8B	32	8B	-	-	-	-

GATE TERMINALS (GT)
(LOCATED ON RELAY GATE)



PM RELAY 4 POSITION MOLDING (WIRING SIDE)
PM RELAY 6 POSITION MOLDING (WIRING SIDE)

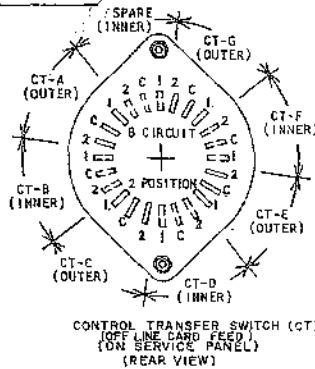


SOLAR CB COMPONENT CARD
PART NUMBER 610380

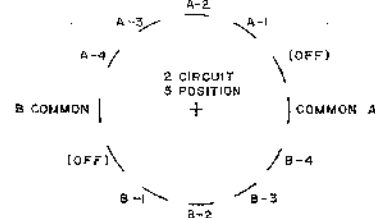
T8 TYPE 83 TRANSISTOR
PART NUMBER 319325

T7 TYPE 33 TRANSISTOR
PART NUMBER 318324

T8 TYPE 85 TRANSISTOR
PART NUMBER 369087

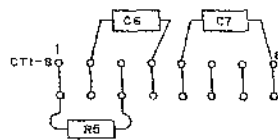


CONTROL TRANSFER SWITCH (CT)
(OFF LINE CARD FEED)
(ON SERVICE PANEL)
(REAR VIEW)



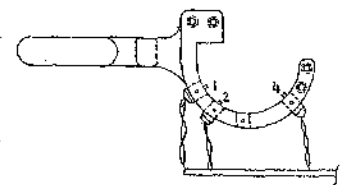
BRUSH SELECTION SWITCH (BS)
(ON SERVICE PANEL)
(REAR VIEW)

SEE SEC 19 & 20B FOR
CIRCUIT LOCATIONS



CONTACTOR PANEL
TERMINALS (CT 1-8)

CT LOCATION	
1	18A
2	17A
3	18B
4	17A
5	17B
6	-
7	-
8	17B



EMITTER COIL LOCATIONS
(ON PUNCH UNIT)

CAM LOCATIONS

803330	CHANGE IN
804833A	800972 Q
807874D	804966 C
	802200
	801983A
	802421
	802533A

READER CAMS
CONTINUOUS RUNNING (RC)-1 1/16" DIA 800 RPM

POS	LOC	PART NO	DESCRIPTION		RETURN VOLTS	CAM JUMPER	
			LOBES	DUR		CAM SIDE	CAM SIDE
RC 1	3A	602127	1	170°	-20		
RC 2	3B	602128	1	320°	-		
RC 3	3B	602113	1	50°	-		
RC 4	3B	602128	1	320°	-20		
RC 5	5A	602113	1	50°	-20		
RC 6	5B	602114	1	70°	-20		
RC 7	4A	602110	1	30°	-		
RC 8	4A	602113	1	50°	-		
RC 9							
RC 10							
RC 11							
RC 12							
RC 13	3A	602127	1	300°	-20		
RC 14							
RC 15							
RC 16							
RC 17							
RC 18							
RC 19							
RC 20							

PUNCH CAMS
CONTINUOUS RUNNING (PC)-2" DIA 250 RPM

POS	LOC	PART NO	DESCRIPTION		RETURN VOLTS	CAM JUMPER	
			LOBES	DUR		CAM SIDE	CAM SIDE
PC 1	9B	255425	4	25°	-		
PC 2	9B	255472	4	72°	-20		
PC 3	11A	255430	4	30°	-		
PC 4	11A	255030	1	30°	-		
PC 5	12A	255430	4	30°	-		
PC 6	11B	255440	4	40°	-20		
PC 7	11B	255430	4	30°	-20		
PC 8							
PC 9							

CONTINUOUS RUNNING (PA)-1" DIA 1333 1/3 RPM

POS	LOC	PART NO	DESCRIPTION		RETURN VOLTS	CAM JUMPER	
			LOBES	DUR		CAM SIDE	CAM SIDE
PA 1	14AB	609760	3	70°	-20		
PA 2	14AB	609760	3	70°	-20		

CLUTCHED CAMS (RL)-1 1/16" DIA 800 RPM

POS	LOC	PART NO	DESCRIPTION		RETURN VOLTS	CAM JUMPER	
			LOBES	DUR		CAM SIDE	CAM SIDE
RL 1							
RL 2							
RL 3							
RL 4							
RL 5	3A	609326	2	30/65°	-20		
RL 6	3A	602128	1	320°	-20		
RL 7	3A	602113	1	50°	-20		
RL 8							
RL 9							
RL 10							

CLUTCHED CAMS (PL)-1 1/16" DIA-250 RPM

POS	LOC	PART NO	DESCRIPTION		RETURN VOLTS	CAM JUMPER	
			LOBES	DUR		CAM SIDE	CAM SIDE
PL 1	9A	607114	1	30°	-20		
PL 2	9A	602129	1	340°	-20		
PL 3	9A	607114	1	30°	-20		
PL 4	9A	602129	1	340°	-20		
PL 5	9B	602128	1	320°	-		
PL 6	11A	607114	1	30°	-20		
PL 7	11A	607730	1	20°	-20		
PL 8	12A	607114	1	30°	-		
PL 9	13A	608607	1	270°	-		
PL 10	13A	608607	1	270°	-		
PL 11	13A	607730	1	20°	-		
PL 12	11B	607730	1	20°	-20		
PL 13	11B	607114	1	30°	-20		
PL 14	11B	602129	1	340°	-20		
PL 15	11B	602119	1	134°	-20		
PL 16	13A	607730	1	20°	-20		
PL 17							
PL 18							
PL 19							
PL 20							

MAGNETIC EMITTER-PUNCH COMPARISON CHART
250 DPM BASIS - 1.5°/MS (REFERENCE ONLY)

CHANGE N
800972 B
801765
801983
801983A
802421
802943
803330
803600
80434C
807874
807874

TIMING DEGREES													DESCRIPTION			
0	60	120	180	240	300	0	60	120	180	240	300	0				
10.7	33.2	55.7	78.2	100.7	123.2	145.7	168.2	190.7	213.2	235.7	258.2	280.7	303.2	325.7	348.2	LATCH RESET
12.6	35.1	57.6	80.1	102.6	125.1	147.6	170.1	192.6	215.1	237.6	260.1	282.6	305.1	327.6	350.1	
5.3	27.8	50.3	72.8	95.3	117.8	140.3	162.8	185.3	207.8	230.3	252.8	275.3	297.8	320.3	342.8	BRUSH IMPULSE
5.2	28.7	51.2	73.7	96.2	118.7	141.2	163.7	186.2	208.7	231.2	253.7	276.2	298.7	321.2	343.7	
0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5	PUNCH MAGNET
12.6	35.1	57.6	80.1	102.6	125.1	147.6	170.1	192.6	215.1	237.6	260.1	282.6	305.1	327.6	350.1	
13.3	36.0	58.5	81.0	103.5	126	148.5	171	193.5	216	238.5	261	283.5	306	328.5	351	PUNCH SCAN
15.4	37.9	60.4	82.9	105.4	127.9	150.4	172.9	195.4	217.9	240.4	262.9	285.4	307.9	330.4	352.9	

MAGNETIC EMITTER-CONTINUOUS RUNNING
1333 1/3 RPM SHAFT 120° /CP 8°/MS

TIMING DEGREES													TOLERANCE		DESCRIPTION	CARD PIN LOCATION	
0	30	60	90	120	150	180	210	240	270	300	330	0	M	B			
57	67					177	187					297	307	±1°	±4°	LATCH RESET	A04A
28	33					148	153					268	273	±1°	±3°	BRUSH IMPULSE	A01C A01R
67				118		187				238		307		±3°	±3°	PUNCH MAGNET	SEE NOTE XI
72	82					192	202					312	322	±1°	±7° ±4°	PUNCH SCAN	A04C

NOTE X: THE ABOVE PULSE TIMINGS SHOULD BE WITHIN TOLERANCES SPECIFIED WHEN THEIR RESPECTIVE EMITTERS HAVE A .013 ± .002 INCH GAP DISTANCE BETWEEN THE EMITTER POLE TIPS AND THE THREE DISC INSERTS.

XI: THE CORRECT PUNCH MAGNET TIMING IS OBTAINED BY ADJUSTING THE TWO PA CB'S.

CB SELECTOR SWITCHES (REFERENCE ONLY)													POS	LOCATION	
0	30	60	90	120	150	180	210	240	270	300	330	0			
1	12	30	48	66	84	102	120	138	156	174	192	210	1	7A	
2	15	33	51	69	87	105	123	141	159	177	195	213	2	11B	
3												225	3	5A	
4												272	342	4	5B
5										245		310	5	4A	
6										245		310	6	4A	
7*												296	320	7	11A
8*	36	75				125	130						8	11B	
9*								180	210				9	11B	
10*										215	235		10	12B	
11*												257	277	11	14A

SEE INDIVIDUAL CAM TIMING FOR CAM TOLERANCES
*USE SYNC SWITCH FOR CORRECT TIMING

CONNECTOR LOCATIONS

- CHANGE W
- 800972 G
- 801755
- 801758
- 801902C
- 801906C
- 802200
- 801983
- 802421
- 802421A
- 802668
- 802589E
- 802843A
- 804340
- 804535A
- 807385
- 807952
- 807874E

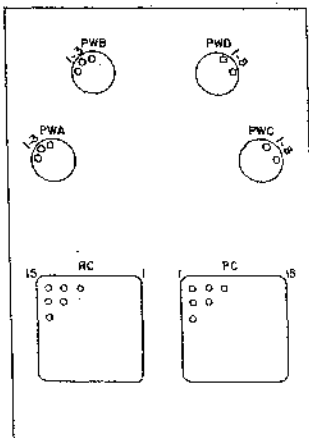
READER CONNECTOR WIRES (RC)

CONNECTOR POS (RC)	WIRE DIAGRAM LOC	LOGIC REF	DESCRIPTION
1 TO 80	7A-8B	42.40.51	COL 1 TO 80-NO 1 READ BRUSH
91 TO 160	7B-8B	42.40.51	COL 1 TO 80-NO 2 READ BRUSH
161	6B	36.19.11.2	START KEY (+U START KEY RD NO)
162			
163	8A	36.10.21.2	SOLAR CB 1 ST RD (SC CB-1)
164			
165			
166			
167			
168	4A	36.18.11.2	READ STOP (-T READ STOP)
169	4B	36.10.21.2	LOAD KEY (-T LOAD KEY)
170	6A	36.10.11.2	READ CLUTCH (-T RD CLUTCH)
171	8A	36.10.11.2	PROCESS FEED (-T PROC FEED)
172	6A	36.10.11.2	NOT PROC FEED (-T NOT PROCESS FEED)
173	6B	36.10.11.2	READ JAM (-T RD JAM)
174	6A	36.14.11.2	READ CHECK RESET (+T RD CK RESET)
175	6A	36.02.11.2	INTERLOCK STOP (+U INTERLOCK STOP)
176	6B	36.16.11.2	LAST CARD (-T LAST CARD OUT)
177	609850	36.16.11.2	51-80 COLUMN FEED FEATURE
178	3A	36.50.11.2	READ STACKER RESET (+T RD STACKER RESET)
179	6B	36.16.11.2	STOP KEY-ON (-T STOP KEY RP)
180	6B	36.19.11.2	START KEY (+U START KEY RP NO)
181	6B	36.01.31.2	NO 2 CL (-T 2 CL C)
182	6B	36.18.11.2	READ CHECK LIGHT (+U READ CHECK LIGHT)
183	6B	36.18.11.2	INVALID LIGHT (+U INVALID LIGHT)
184	6B	36.50.11.2	RD STACK MAG 1 (+U STACK 1)
185	6B	36.50.11.2	RD STACK MAG 2 (+U STACK 2)
186	4B	36.01.31.2	READ COMPLETE GATE (+T RD COMP GATE)
187	8A	36.10.21.2	SOLAR CB 2 ND RD (SC CB-2)
188	8A	36.10.21.2	SOLAR CB 1 ST CARD
189			
190			
191			
192	SPARE		
193	SPARE		
194	6B	36.50.11.1	STACK SELECT (-T STACK SELECT)
195			
196			
197			
198			
199	14A-B	36.15.11.2	+U TRANS READ BRUSHES
200			

PUNCH CONNECTOR WIRES (PC)

CONNECTOR POS (PC)	WIRE DIAGRAM LOC	LOGIC REF	DESCRIPTION
1 TO 80	14B	36.29.11.2	COL 1 TO 80 PUNCH MAGNETS (+U)
91 TO 160	13A-14A	42.40.51.1	COL 1 TO 80 PUNCH BRUSHES
161			
162			
163			
164			
165			
166			
167			
168			
169		38.11.11.1	(40) GROUNDED +12V SHIELD
170	13AB	38.11.11.1	(+12V B C)
171			
172			
173	14AA	36.21.11.2	(-U LATCH RESET)
174	14A	36.21.11.2	(-Y AFTER 9 CAM)
175	14AA	36.21.11.2	(-Y PCH SCAN CB)
176	4A	36.18.11.2	(-T PCH STOP)
177	12A	36.24.11.2	(-T PUNCH CLUTCH MAGNET)
178	12A	36.24.11.2	(-T PROCESS PUNCH)
179	12A	36.24.11.2	(-T NOT PROCESS PUNCH)
180	12A	36.24.11.2	(-T PUNCH JAM)
181	12A	36.14.11.2	(PU CHECK RESET PUNCH)
182	12B	36.24.11.2	DIE CL DELAY (-T PD CLD)
183	12B	36.50.11.2	(+T STACKER LATCH RESET)
184	12B	36.50.11.2	STACKER RELAY (+U STACK 4)
185	12B	36.50.11.2	STACKER RELAY (+U STACK 8)
186		36.19.11.3	+U PROCESS METIR
187			
188	14BB	36.01.21.2	(-T PD CLC
189	12B	36.50.11.2	STACK INHIBIT (+U STACK INH)
190	5B	36.18.11.2	(+U PUNCH CHECK LIGHT)
191	6B	36.19.11.2	(-T START RELAY)
192			
193			
194			
195			
196	14AB	36.21.11.2	(-T BRUSH IMPULSE)
197			
198			
199			
200			

CONNECTOR PANEL



PWA	LOC	FUNCTION
1	2A	BULK SUPPLY
2	--	SPARE
3	2A	BULK SUPPLY
4	1A	TAPE DRIVE
5	1A	TAPE DRIVE
6	1A	AC GROUND
7	1A	TAPE DRIVE
8	1A	F SYSTEM INTLK

PWC	LOC	FUNCTION
1	2B	CHAIN INTERLOCK
2	17A	CHAIN RELAY PICK
3	2A	-12VDC
4	2B	-60V GROUND
5	2B	-60V GROUND
6	18B	CHAIN INTERLOCK
7	6B	+6VDC
8	18A	SPACE MAGNETS OFF
9	2A	-20VDC DIRECT

POWER CONNECTORS

PWB	LOC	FUNCTION
1		
2		
3	1A	EMERGENCY STOP
4	18A	CARRIAGE MOTORS
5	18B	CARRIAGE MOTORS
6	18A	CHAIN 3 RIBBON MOTORS
7	18B	CHAIN 3 RIBBON MOTORS
8		
9		
10	8B	+30V DC
11	1A	POWER ON SWITCH
12	1A	POWER ON SWITCH
13	1A	SYSTEM POWER
14	1A	SYSTEM POWER
15	2B	CONV OUTLET
16	2B	BLOWERS
17	2B	BLOWERS

PWD	LOC	FUNCTION
1	2A	-20V DC SEQ.
2	2B	PRINTER MAGNETS
3		
4	2A	DC GROUND
5		
6		
7	2B	PRINTER MAGNETS
8		
9	2B	-20V SENSE CONTROL
10		
11	2B	POWER HOLD
12	2B	PRINTER INTERLOCK CONT 1
13	2B	PRINTER INTERLOCK CONT 2
14	18A	SKIP OFF RELAY INTERLOCK
15	2B	SPACE MAGNETS
16	2A	CONTROL
17		

RESISTORS					
NO	DWG LOC	OHMS	WATTS	PART NO	PHYSICAL LOCATION
1	12B	50	5	609522	RELAY GATE
2	4B	3K	10	252370	RELAY GATE
3					
4	17B	1K	1/2	213693	RELAY GATE CS
5	18B	240	2	609399	CONTACT PANEL
6	9A	24	5	610367	RELAY GATE
7	8B	110		610369	RELAY GATE
8	9A	110	2	609399	RELAY GATE
9	8B	24	5	610367	RELAY GATE
10	9B	110	1	610369	RELAY GATE
11	8A	110	2	609399	RELAY GATE
12	14A	3.3	1	613750	RELAY GATE
13	14A	110	1	610369	RELAY GATE
14	8B	110	2	609399	RELAY GATE
15	5A	75	5	337627	RD CL MAGNET
16	7A	10	4	610373	RELAY GATE
17	14A	10	5	603212	RELAY GATE
18	8B	9.1K	1/2	610372	RELAY GATE
19	8B	9.1K	1/2	610372	RELAY GATE
20	8B	160	1/2	317590	RELAY GATE
21	8A	9.1K	1/2	610372	RELAY GATE
22	8A	9.1K	1/2	610372	RELAY GATE
23	8A	160	1/2	317580	RELAY GATE
24	7A	20K	1/2	300723	READ FEED
25	7A	10K	1/2	317033	READ FEED
26	7A	6.8K	1/2	317025	READ FEED
27	7A	20K	1/2	300723	READ FEED
28	7A	1.3K	1/2	317449	READ FEED
29	7A	13K	1/2	334959	READ FEED
30	7A	1K	1/2	315970	RELAY GATE

DIODES			
NO	DWG LOC	PART NO	PHYSICAL LOCATION
1			
2	2B	599917	HD5 - CONTROL PANEL
3	4B	609397	HD1 COIL - CONT PANEL
4	5A	609414	RD CLU MAGNET COIL
5	5B	609414	RD STACK MAG COIL
6	5B	609414	RD STACK MAG COIL
7	10B	609397	HD2 COIL - CONT PANEL
8	11A	609397	PCH CLU MAGNET COIL
9	12B	609414	PCH STACK MAG COIL
10	12B	609414	PCH STACK MAG COIL
11	7A	603793	RELAY GATE
12			
13	4A	441318	RELAY GATE
14	18A	609397	HD5 COIL - CONT PANEL
15	18A	609397	HD6 COIL - CONT PANEL
16	2B	609397	HD4 COIL - CONT PANEL

ON RELAY GATE					
PUNCH MAGNET TERM (PMT 1-96)					
POS	LOC	OHMS	WATTS	PART NO	PHYSICAL LOCATION
1	14B	DIODE		441318	
10					
30					
81					
82					
83					
84	14B	47	1	471804	
85					
86	14B	47MFD CAPAC		609746	
87	3A	DIODE		441318	
88	3A	DIODE		315970	
89	3A	47MFD CAPAC		609746	
89	8A	47MFD CAPAC		610369	
90	14B	47MFD CAPAC		609746	
91					
92	5A	390	1	211246	
93					
94	14B	47MFD CAPAC		609746	
95					
96					

ON RELAY GATE					
RESISTOR DIODES (RD 1-18)					
POS	LOC	OHMS	WATTS	PART NO *	PHYSICAL LOCATION
2	5B	130	1	B	
3	5A			802175	
4	4B			802175	
5	4B			802175	
6	4B	130	1	B	
7	6B	130	1	B	
9	4A	1K	1	315970	
9	11A			A	
10	12A			805231	
11	4B	150	2	719343	
12	11A	47MFD CAPAC		609746	
13	4A			A	
14					
15	12B	130	1	B	
16					
17	6B	130	1	B	
19	10A	180	2	719343	
19	4A			802175	
20	5A	130	1	B	
21	4A			802175	
22	12A	130	1	B	
23	12A	130	1	B	
24	4B			802175	
25	4A			A	
28	4A			A	
27	6A	180	1	A	
28	6A			802175	
29					
30					
31	10B			A	
32	5A	590	1	2114246	
33	4A			A	
34	10B	150	2	719343	
35	5B	47	1	471804	
36	5A	680	1/2	2103073	
37	11B			A	
37	4B			A	
39	17B	.0	2	609417	
40	4B	22	2	471803	
41	4B	150	2	719343	
42	4B	10	1	609417	
43	17B	150	2	719343	
44	4B	130	1	B	
45	4B			A	
46	4B			A	
47					
48	3B	240	1	609415	
49	6A			805231	

* - PART NUMBER
 A - 441318 - DIODE ASM
 B - 609415 - RESISTOR ASM

ON RELAY GATE					
RESISTOR DIODES (RD 19-96)					
POS	LOC	OHMS	WATTS	PART NO *	PHYSICAL LOCATION
50	5A			A	
51	4A			A	
52	12B			A	
53					
54	12B			A	
55	4A	47	1	471804	
55	4A	47	1	471804	
57	1A			802175	
58	3A			802175	
58	3A			802175	
59	3A	47	1	471804	
60				609746	
61	4A	240	1	609416	
62	4A	130	1	B	
63					
64					
65	4B	130	1	B	
66	3B	240		609416	
67					
68	14A	130	1	B	
69	5B	130	1	B	
70					
71	5A			A	
72					
73	12B			A	
74	10A			A	
75					
76	10A			A	
77	5B			A	
78	9A			A	
79	3A	130		B	
80	12A	130	1	B	
81	6B			A	
82	10B	240	1	609416	
83	5A	690	1/2	2103073	
84	11A	680	1/2	2103073	
85	12B	130	1	B	
85	8A			802175	
87					
88					
89	10B	47MFD CAPAC		609746	
90	10B	47MFD CAPAC		609746	
91	10B	10	1	609417	
92	11B			A	
93	11B			A	
94	11A	390	1	2114246	
95	10B			802175	
96	10B			A	

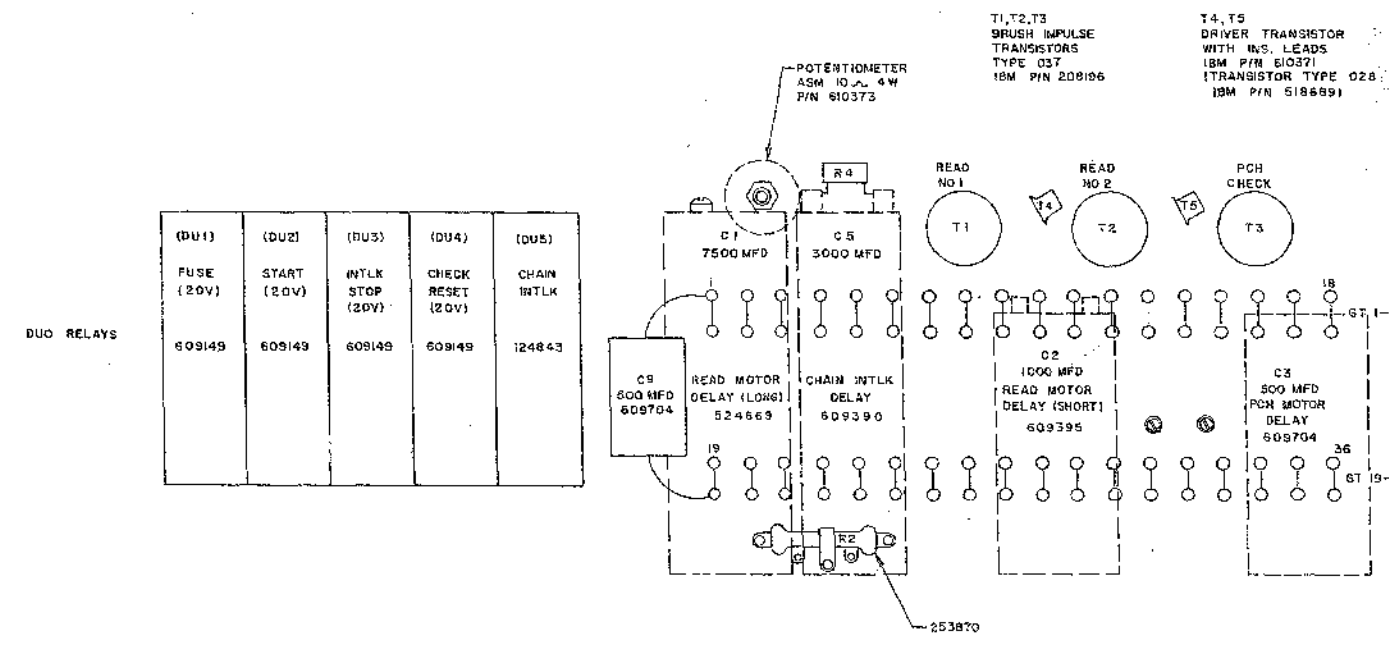
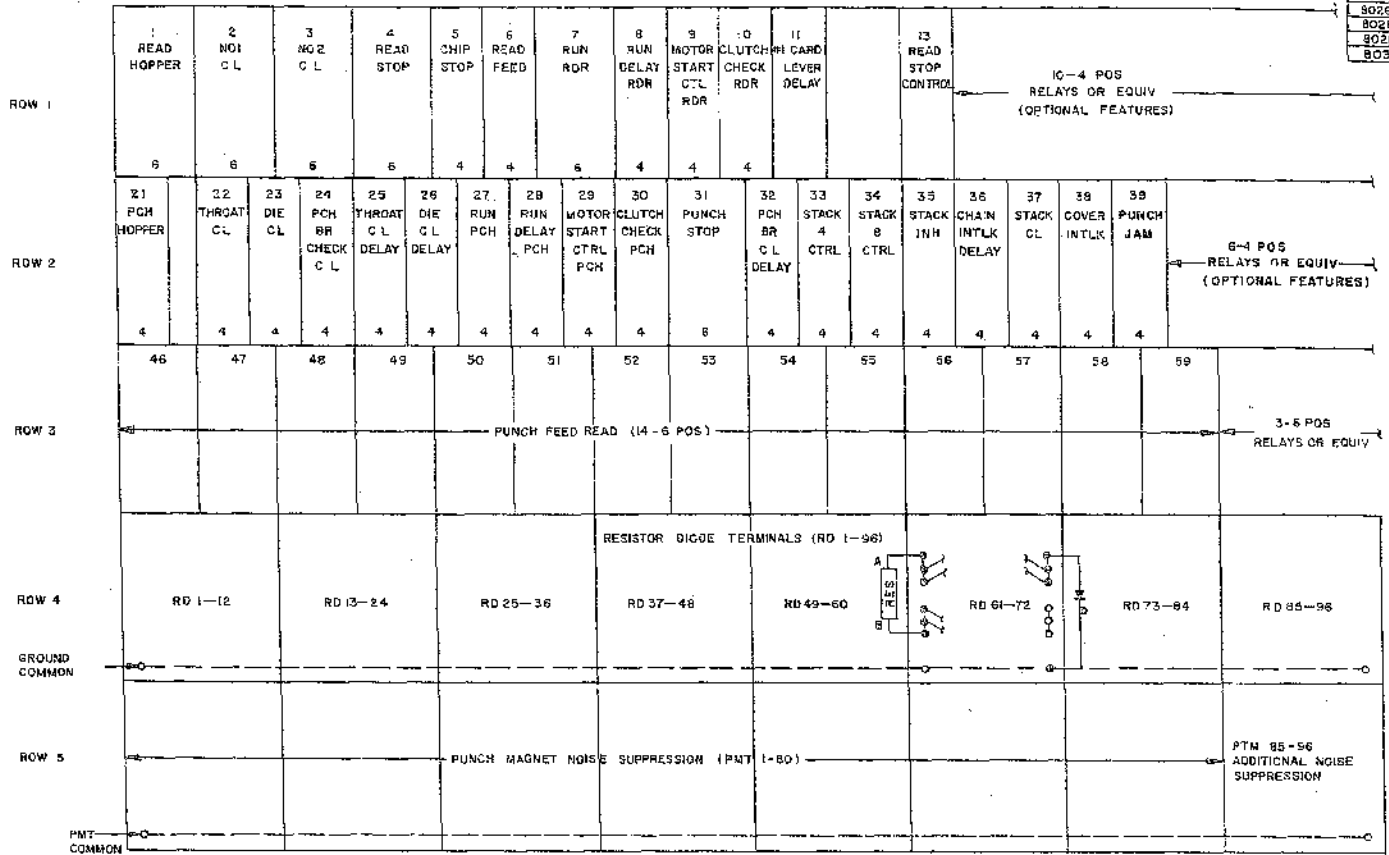
CHANGE NO
8009720
801424 G
801424 S
801755
801755
801902 C
801902 F
801905 C
802200
801963
802421
802421A
802569
802845A
803350
804110
804533A
804773B
805457
8078750
809254
809274

CAPACITORS					
NO	DWG LOC	MFD	VOLTS	PART NO	PHYSICAL LOCATION
1	4B	7500	25 DC	524669	RELAY GATE
2	4B	1000	25 DC	609395	RELAY GATE
3	10B	500	25 DC	609704	RELAY GATE
4	5A	500	25 DC	609490	RD CLU MAG
5	17B	3000	25 DC	609330	RELAY GATE
6	17A	.66	800 DC	609081	CONTACTOR PNL
7	17B	.66	600 DC	609081	CONTACTOR PNL
8	2B	.22	600 DC	609623	ND-9 COIL
9	12B	800	25 DC	609704	RELAY GATE
10	5B	.47	100 DC	610295	RC LAMS
11					
12					
13					
14	14B	100	25 DC	603760	MET-8
15	9B	.33	100 DC	610368	RELAY GATE
16	9A	.33	100 DC	610368	RELAY GATE
17	1A	.022	600 DC	610260	CB PANEL
18	1A	.022	600 DC	610260	CB PANEL
19	2A	.022	600 DC	610260	CB PANEL

RELAY GATE

CHANGE NO
8009720
8014246
801735
801765
8019020
801983
802421
802669
8028434
8028434
803330

RELAY GATE COMPONENTS (FRONT VIEW)



RELAY LOCATIONS

LOC	CHMS	TOLERANCE	PART NO	DESCRIPTION
5A	3.3	±0.2	609065	READ CLUTCH MAGNET COIL
11A	11.0	±0.5	609073	PUNCH CLUTCH MAGNET COIL

HEAVY DUTY RELAYS

RELAY	COIL	CONTACT	CONT B	PART NO	DESCRIPTION
HD1	4B	1B	-	609154	READ MOTOR
HD2	10B	1B	-	609154	PUNCH MOTOR
HD3	2B	2A	-	111351	-20 VOLT SEQUENCE
HD4	2B	1A	-	76725	POWER HOLD
HD5	18A	17A	17B	223642	CARRIAGE MOTOR
HD6	18A	17A	17B	223642	CHAIN AND RIBBON MOTOR
HD8	1A	1A	1B	610278	CONVENIENCE OUTLET
HD9	2B	2B	-	369245	PRINTER INTLK CONTROL

DOD RELAYS

RELAY	COILS		CONTACT POINTS				PART NO	DESCRIPTION
	P	H	AU	BU	AL	BL		
DU1	4A	-	3A	3B	3A	3B	609149	FUSE
DU2	6A	-	4B	9B			609149	START
DU3	6A	-	3B	9B			609149	INTLK STOP
DU4	6B	-	8A	5A	12A	12A	609149	CHECK RESET
DU5	16B	-	17B	17A	17B	17A	124843	CHAIN INTLK

PM RELAYS

RELAY	COILS			CONTACT POINTS						DESCRIPTION	SIZE	TYPE
	P	H	A	1	2	3	4	5	6			
1	4A	4A	3B	4B	4B	5A	5B	5A		READ HOPPER C L	6	2
2	4A	4A	4A	4B	5A	5A	5A	5B		NO 1 C L	6	2
3	4A	4A	4A	4B	5A	6A	9A	5B		NO 2 C L	6	2
4	4A	5A	5A	6A	5B	7A	4B	5B		READ STOP	6	2
5	10B		10B	11A						CHIP STOP	4	3
6	4A	4A	4A	4B	5A	3A				READ FEED	4	1
7	4B	4B	4B	5A	5B	5A	7A			RUN-READER	6	2
8	4B	4B	4B	4B						RUN-DELAY-READ	4	3
9	4B	4B	4B	4B	4B	4B				MOTOR CTRL-RDR	4	3
10	5A	4A	4A	3A	4A	7A				READ CLUTCH CHECK	4	1
11	4A	4A	4A	6A	5A	5B				*1 CARD LEVER DELAY	4	3
12												
13	4A	4A	4A	5A	3A					READ STOP CONTROL	4	3
14												
15												
16												
17												
18												
19												
20												
21	10A	10A	9B	11A	11A	9B				PUNCH HOPPER C L	4	1
22	10A	10A	10A	9A	11A					THROAT C L	4	1
23	10A	10A	10A	9A	11A					DIE C L	4	1
24	10A	10A	10A	9A	11A	11A				PUNCH BR C L	4	1
25	10A	10A	9A	11A	12A					THROAT C L DELAY	4	1
26	10A	10A	9A	12A	11B	11A				DIE C L DELAY	4	1
27	10B	10B	9B	11A	5B	12A				RUN-PUNCH	4	1
28	10B	10B	10B	10B	9B					RUN DELAY-PUNCH	4	4
29	10B	10B	9B	9B	10B					MOTOR START	4	3
30	11A	10B	10B	11A	9B	12A				PUNCH CLUTCH CHECK	4	1
31	12A	11A	11A	9B	12A	11A	14A	13A		PUNCH STOP	6	2
32	10A	10B	9B	12A	14A	11A				PUNCH BR C L DELAY	4	1
33	11B	12B	11B	12B						STACK 4 CTRL	4	1
34	11B	12B	11B	12B	12B					STACK 8 CTRL	4	1
35	12B	12B	12B	11B	11B	11A				STACKER INH	4	1
36	17B	17B		17B	2B					CHAIN INTLK DELAY	4	3
37	12B		11B	11A	11B					STACKER C L	4	1
38	4B	4B	3B	3B						COVER INTERLOCK	4	4
39	12A	11A	11A	12A		12A				PUNCH JAM	4	1
40												

XP										METER CONTROL PUNCH	4	1
XP										METER CONTROL READ	4	1

LOCATED IN METER POWER BOX NOTE I

NOTE I USED ONLY WITH 8/M 60E893 OR 8/M 610436 (INSTALL PROCESS METER)

CHANGE NO
609820
6014240
6014241
601755
601765
601802C
601983
602421
602669
602843A
603330
604340
604533A
6047648
607385
6078740
609274

613758

SEC 39-40 FOR 1402-1

SEC 11.40.27.0 FOR 1402-4,5

SMS CARD AND CAP CODE INDEX

CARD LOC	CARD CAP	NAME	CUST ENG REF DWG.
A01	EZL	BRUSH DRIVER	613760
A02			
A03			
A04	EZM	INTEGRATOR DRIVER	613761
A05	BCQ	SOLAR CELL SENSOR	626806
A06	BCB	CAPACITOR - COUPLING	626804
A07	EZN	RESISTOR CARD	374684

NOTE:

X PRINTS OF SMS CARDS LISTED ON THIS INDEX ARE AVAILABLE IN THE FACTORY BLUE PRINT ROOM AND WILL AUTOMATICALLY BE SUPPLIED WITH EACH 1402-1 OR 1402-4 WIRING DIAGRAM.

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	DATE	CHANGE NO.	NOTE	DEVELOPMENT NO.
NAME	SMS CARD - SERVICE	10-13-64	807874D			X PRINT TO ENG. SPEC. NO. 895291 (8 1/2X11) FOR W/D 609400.	
	INDEX					895291 (11 X 17) FOR W/D 614410.	
DESIGN	JWP 8-11-64	MODEL	1402-1,4,5				
DETAIL							
CHECK	RPC 9-17-64	DRAW					
APPRO		CHECK					613758

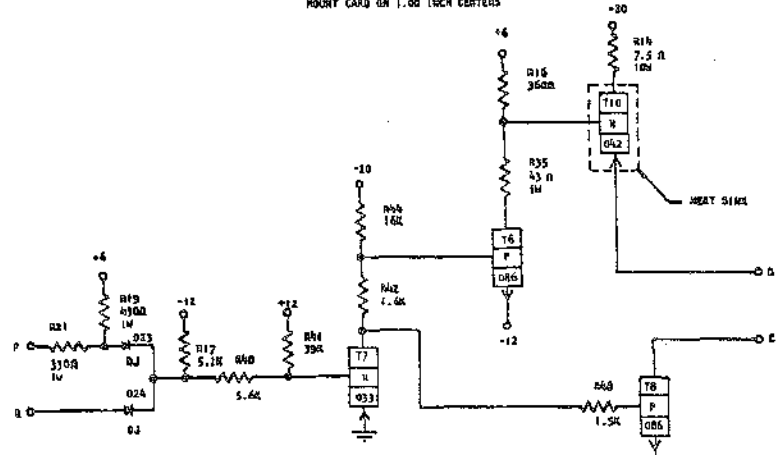
613758-1007

INDEX
G. S. CO., No. 172V 4805

E Z L -

DRIVER, BRUSH

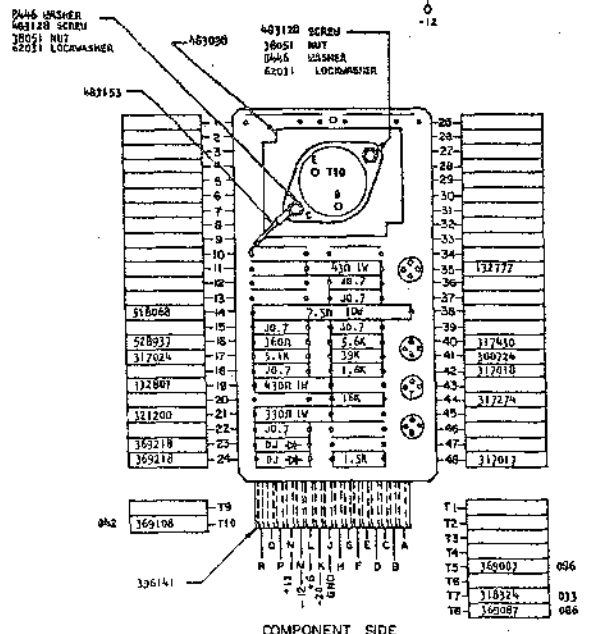
MOUNT CARD ON 1.00 INCH CENTERS



SEQUENCE OF OPERATION

1. IF INPUT PIN P IS DOWN AND INPUT PIN Q IS DOWN THEN THE OUTPUT AT PIN R IS DOWN AND THE OUTPUT AT PIN C IS DOWN.
2. IF INPUT PIN P IS UP AND THE INPUT PIN Q IS UP THEN THE OUTPUT AT PIN R IS UP AND THE OUTPUT AT PIN C IS UP.

PINS	SIGNAL NAME	WAVESHAPE	LEVELS	
			MIN	MAX
P	Y	INPUT	UP	-1.0
			DOWN	-5.84
Q	-	INPUT	UP	+6.24
			DOWN	-1.9
R	-	OUTPUT	UP	+6.24
			DOWN	-4.0
C	-	OUTPUT	UP	+6.24
			DOWN	-11.02



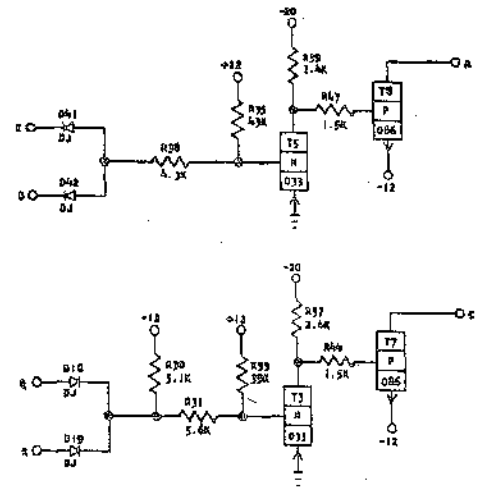
DIRECT AND PACKAGING STANDARD	
APPROVAL	DATE

INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME	DRIVER, BRUSH	10-13-64	8078740					
DESIGN								
DETAIL								
CHECK								
APPROV								

C

E Z M-

DRIVER, INTEGRATOR

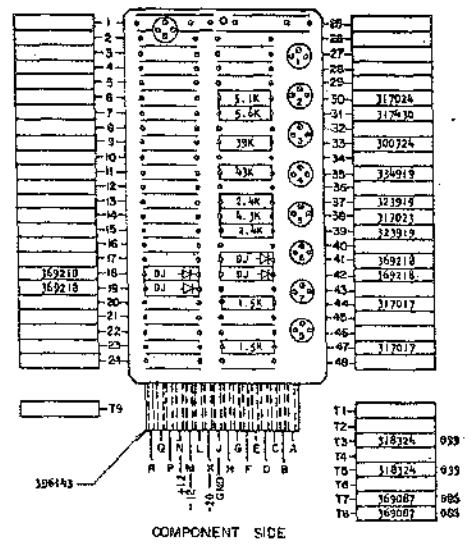


SEQUENCE OF OPERATION

IF EITHER INPUT PINE OR PIN D15 IN THE DOWN LEVEL THE OUTPUT AT PIN A IS IN THE DOWN LEVEL.

IF THE INPUT AT PIN Q IS DOWN AND THE INPUT AT PIN R IS DOWN THEN THE OUTPUT AT PIN C IS DOWN.

PINS	SIGNAL NAME	WAVE-SHAPE	LEVELS		
			MIN	MAX	
E	Y INPUT	[Waveform]	UP	-0.65	-1.10
D	Y INPUT	[Waveform]	DOWN	-5.81	-12.48
A	OUTPUT	[Waveform]	UP	+4.60	+6.24
			DOWN	-11.02	-12.48
Q	Y INPUT	[Waveform]	UP	-0.65	-1.10
			DOWN	-5.81	-12.48
R	Y INPUT	[Waveform]	UP	-0.65	-1.10
			DOWN	-5.81	-12.48
C	OUTPUT	[Waveform]	UP	+4.6	+6.24
			DOWN	-11.02	-12.48



CIRCUIT AND PACKAGING STANDARD	
APPROVAL	DATE

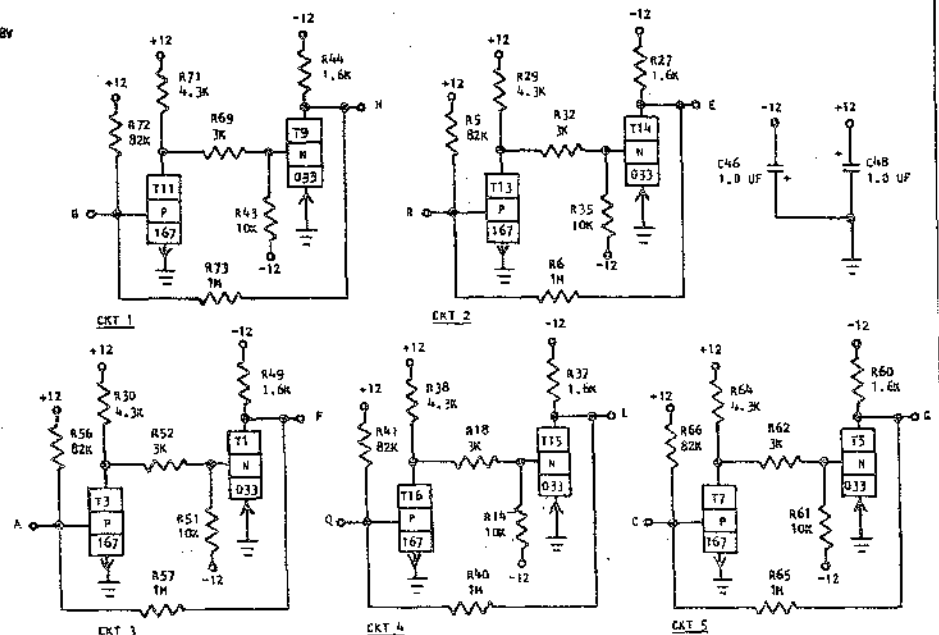
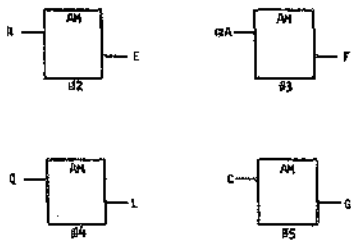
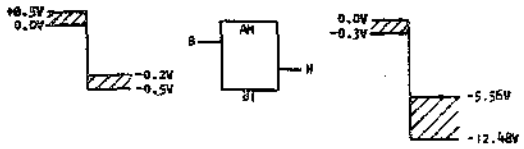
INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME DRIVER, INTEGRATOR		10-13-64	8078740					
DESIGN	J. J. -12-1-64	MODEL	SPS 1403					
DETAIL		SCALE	NONE					
CHECK		DRAWN	VE 7-28-64					
APPRO		CHECK	ENS 12-29-64					

C

REFERENCE DRAWING
 PRODUCTION DRAWING 372460

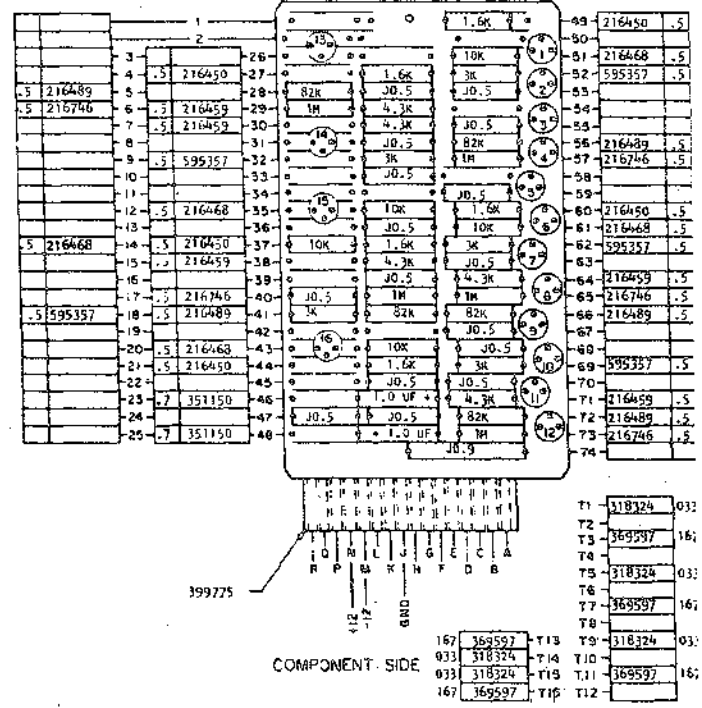
BCQ—
 P/N: 372460 EC: 0113648

SOLAR CELL SENSOR



SEQUENCE OF OPERATION

1. INPUT UP: T11 ON, T9 ON, OUTPUT UP.
2. INPUT DOWN: T11 OFF, T9 OFF, OUTPUT DOWN.



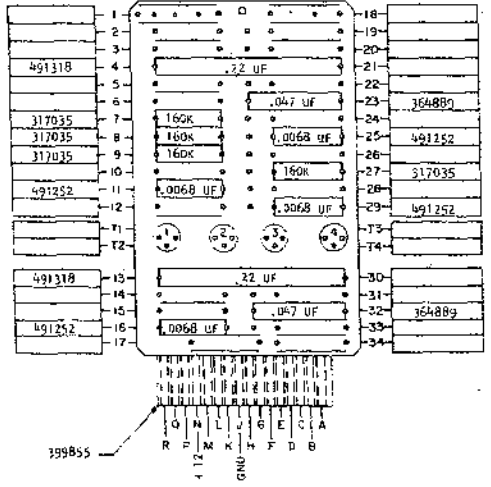
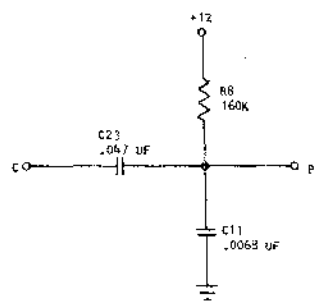
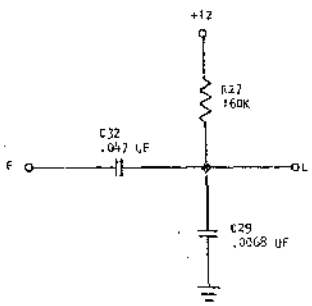
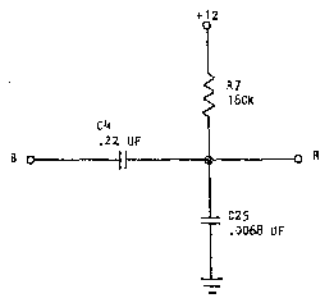
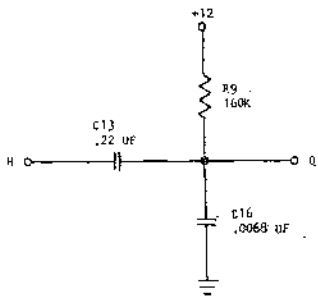
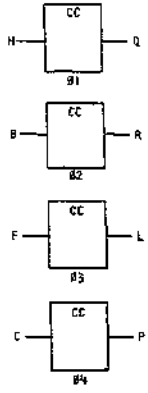
INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME SOLAR CELL SENSOR		5-25-65	805436					
DESIGNER		8-10-64	114001H					
DETAIL	WORKS SHS 1460							
CHECK	SCALE NONE							
APPROV	4-22-65	DRAM HBE	2-8-65					626806
	5-1-65	CHECK						

626804

BCB-
P/N: 372455 EC: 0113645

REFERENCE DRAWING
PRODUCTION DRAWING 372455

CAPACITOR - COUPLING



COMPONENT SIDE

INTERNATIONAL BUSINESS MACHINES CORP.				DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME: CAPACITOR - COUPLING				5-25-65	805436					
DESIGN				8-10-64	114001H					
DETAIL										
CHECK										
APPROV										
										626804

C

RESISTOR CARD

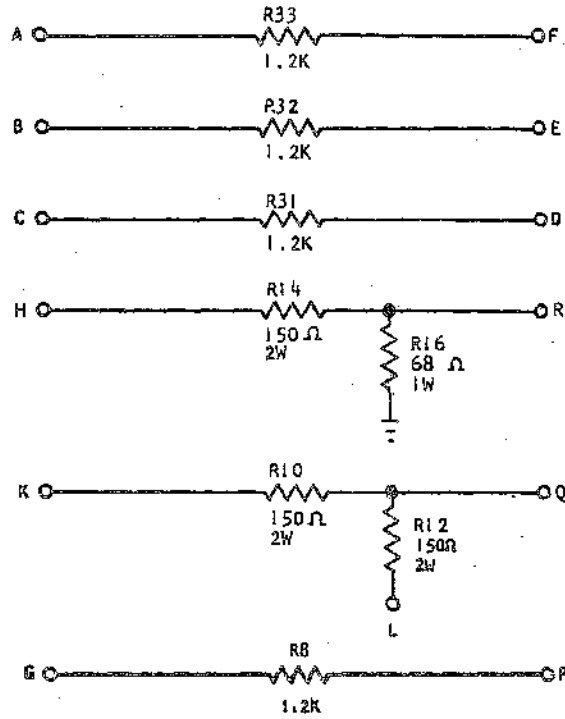
374684

374684

E Z N

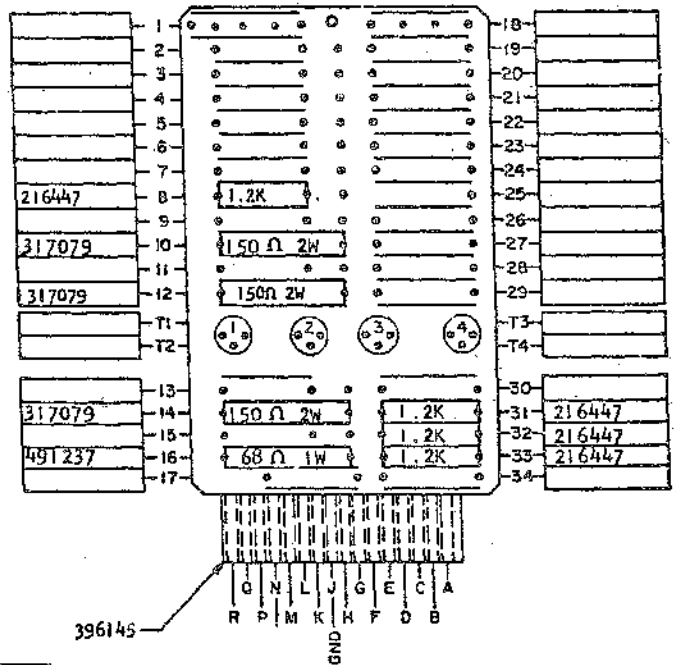
STANDARDS CODE

2-7045



NOTES

- X CIRCUIT MUST CONFORM TO ENGINEERING SPECIFICATION
- XI ASSEMBLE TO ENGINEERING SPECIFICATION 895396 AND 891999
- XII ALL RESISTORS ARE 1/4 WATT AND ±5% UNLESS OTHERWISE NOTED



B

CIRCUIT AND PACKAGING STANDARD		DATE		HOLE PATTERN				
APPROVAL		DATE		491329				
SIZ		6-26-64		491329				
COMPONENT SIDE								
INTERNATIONAL BUSINESS MACHINES CORP.		DATE	CHANGE NO.	APPROVAL	DATE	CHANGE NO.	APPROVAL	DEVELOPMENT NO.
NAME CARD ASIA TSTR - RESISTOR CARD		6-24-64	121626	SIZ				PE-0089
DESIGN	MODEL							
DETAIL	SCALE							
CHECK	DATE	DRAW						
APPRO	DATE	CHECK						