

REVISIONS		SIGNATURE AND DATE			
TR	ZONE	DESCRIPTION	DFT	CHK	EMGRG
-		PRODUCTION RELEASE	2/28/73		1/2/73

Ref. No. 70165
 Sheet No. G7306-1.3
 Model No. General
 Date of issue 6-1-73

NOTES:
 1 GATE ASSEMBLY OPTIONS WITH SHIELD CANS

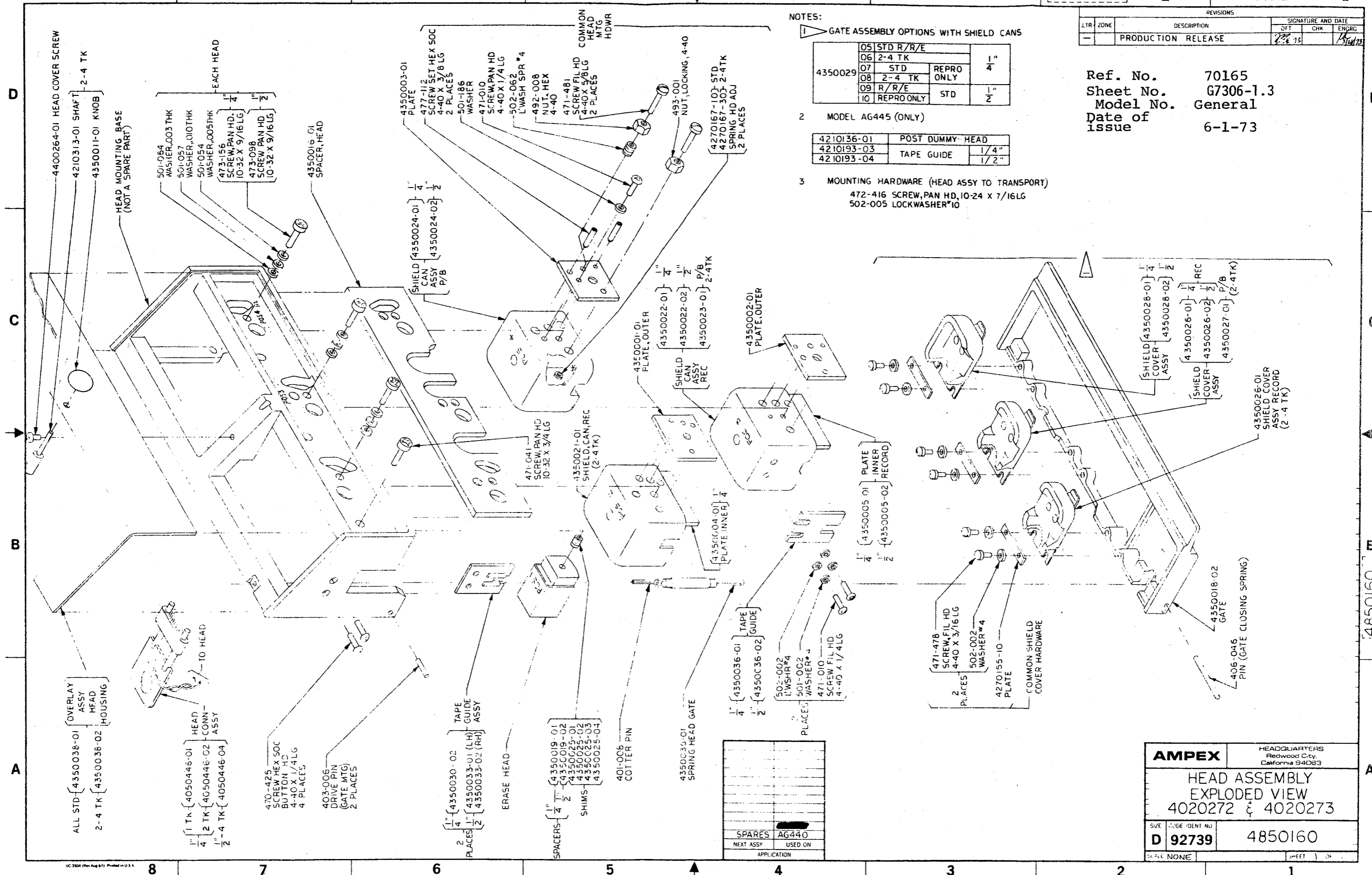
4350029	05	STD R/R/E	1"
	06	2-4 TK	
	07	STD	REPRO ONLY
	08	2-4 TK	REPRO ONLY
4350029	09	R/R/E	1"
	10	REPRO ONLY	2"

2 MODEL AG445 (ONLY)

4210136-01	POST DUMMY HEAD	1/4"
4210193-03	TAPE GUIDE	1/2"
4210193-04	TAPE GUIDE	1/2"

3 MOUNTING HARDWARE (HEAD ASSY TO TRANSPORT)

472-416 SCREW, PAN HD, 10-24 X 7/16LG
 502-005 LOCKWASHER*10



SPARES	AG440
NEXT ASSY	USED ON
APPLICATION	

AMPEX		HEADQUARTERS Redwood City, California 94063	
HEAD ASSEMBLY EXPLODED VIEW 4020272 & 4020273			
SIZE	CODE IDENT NO	4850160	
D	92739		
SCALE	NONE	SHEET 1 OF 1	

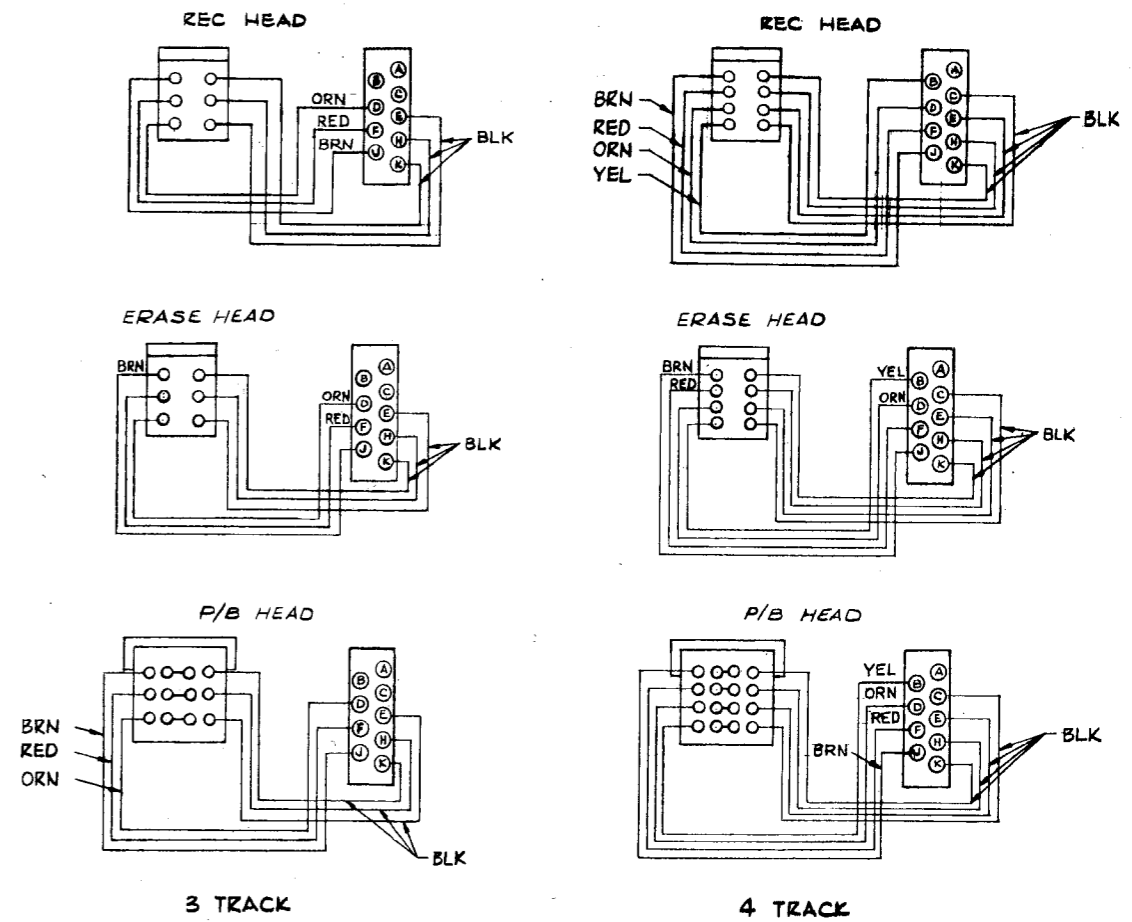
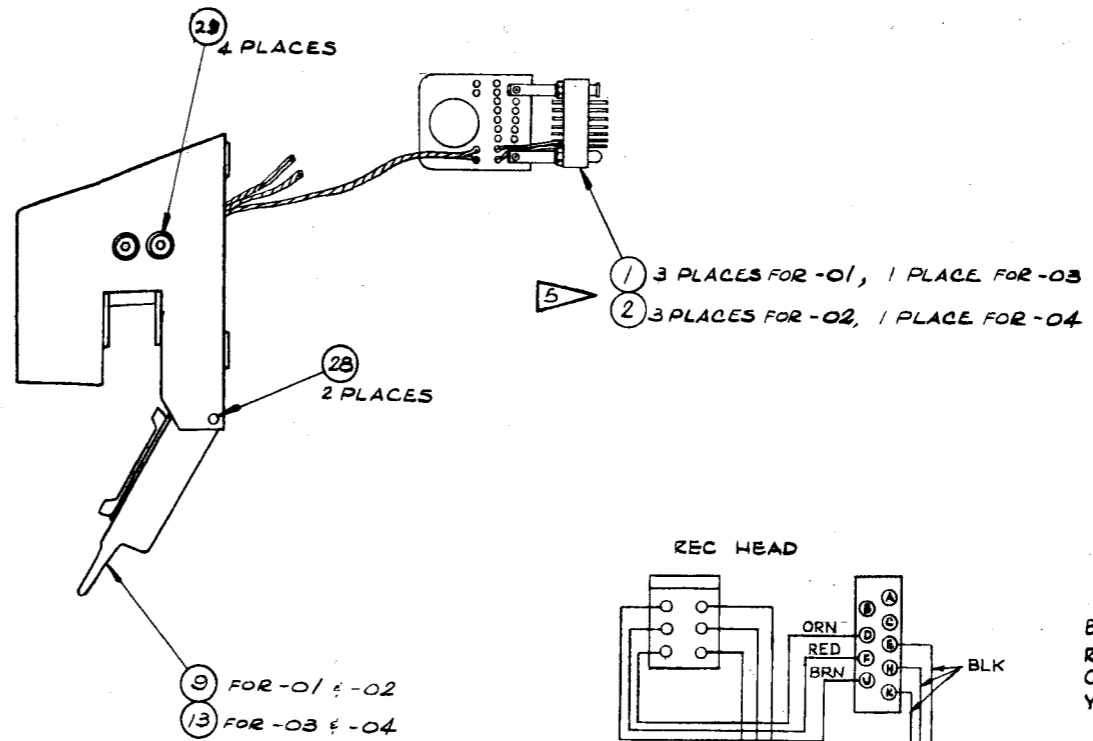
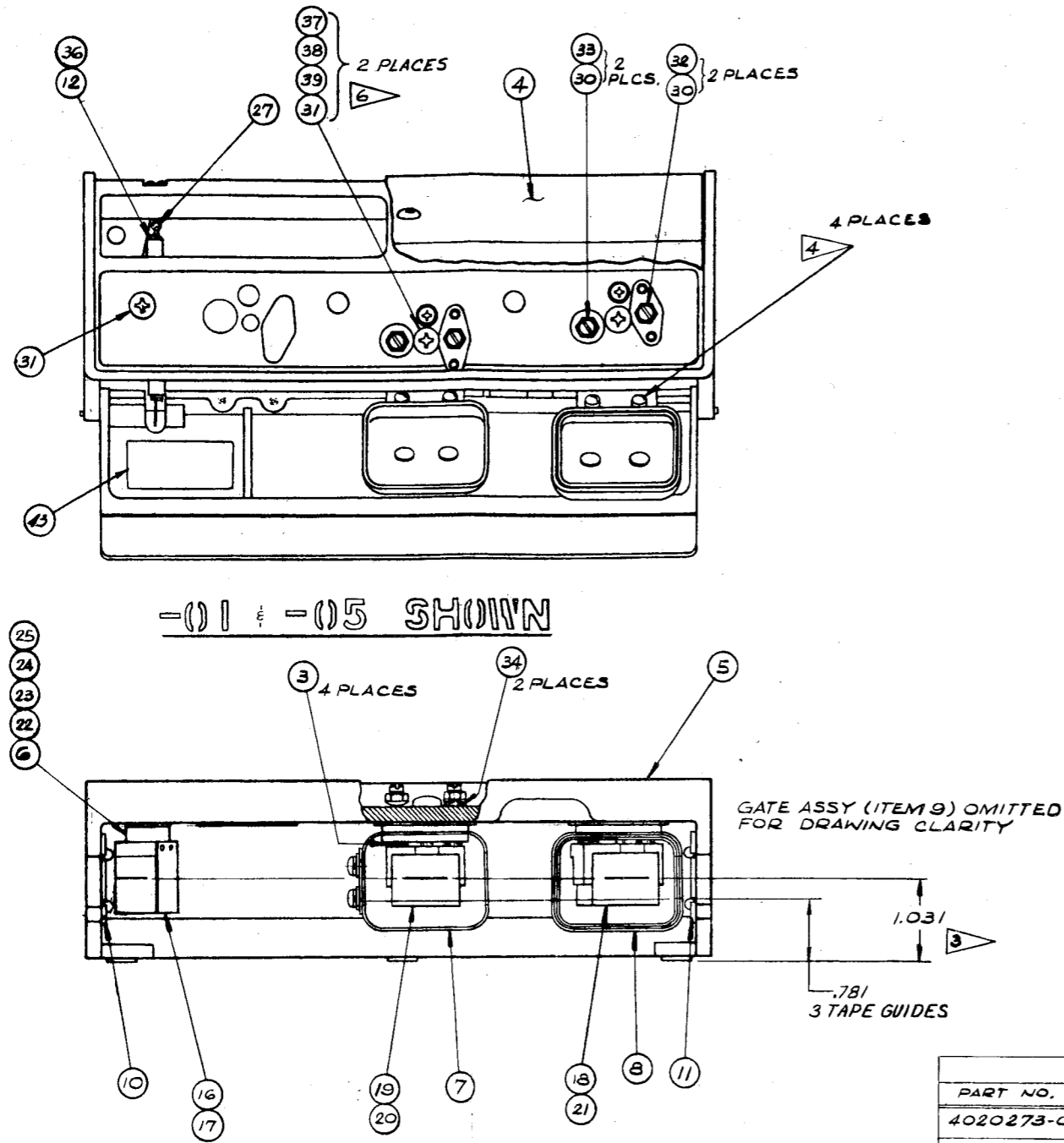


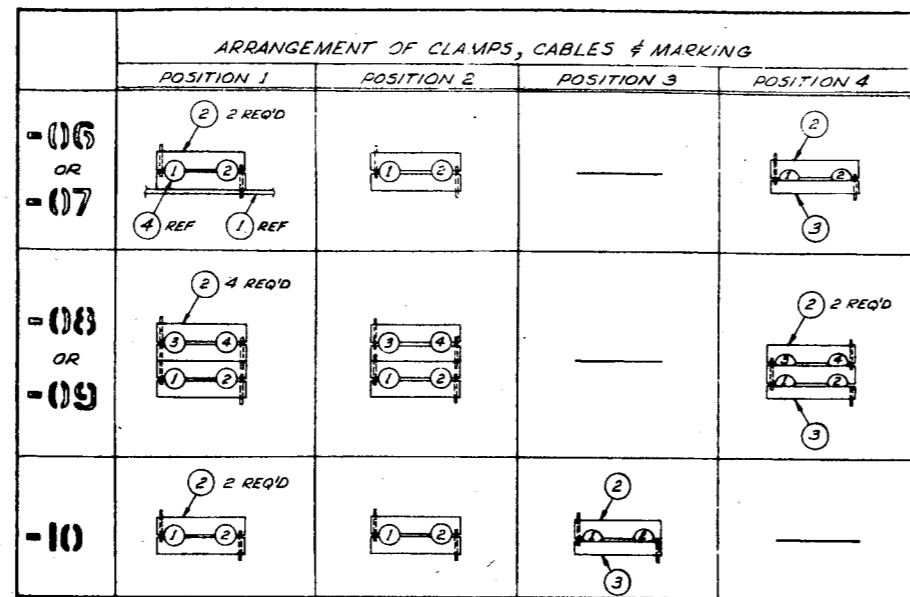
TABLE I		
PART NO.	DESCRIPTIONS	MODEL
4020273-01	3 TRACK HEAD	AG-440
4020273-02		
4020273-03	3 TRACK HEAD	AG-445
4020273-04	4 TRACK HEAD	AG-445
4020273-05	4 TRACK HEAD	AG-440

NOTES:

1. PART NO. TO BE ASSY 4020273-XX.
2. THE GAP BETWEEN THE TOP OF THE HEAD GATE AND THE FRONT OF THE HEAD HOUSING SHOULD NOT EXCEED .031.
3. CENTER LINE BETWEEN TRACKS SHALL BE ADJUSTED TO 1.031 FROM BOTTOM OF BASE HEAD MTG. PADS.
4. ADJUST SHIELD COVERS TO LINE UP FLUSH WITH SHIELD CANS.
5. ALL LEAD PAIRS FROM HEADS TO CONNECTORS TO BE TWISTED e.g. (J.K.) (F.H) etc.
6. SHIM ITEM 31 AS REQ'D. SO THAT SCREW IS FLUSH TO .010 MAX PROTRUSION INTO CAN.

WIRING DIAGRAM

Fig. 6-3. Head Assembly, Record/Reproduce, 1/2-Inch Tape



CONN A			
ITEM NO.	MARKER NO.	WIRE COLOR	PIN LETTER
(4) (ERASE)	1	WHT	J
		BLK	K
	2	WHT	F
		BLK	H
	3	WHT	D
		BLK	E
	4	WHT	B
		BLK	C

CONN D			
ITEM NO.	MARKER NO.	WIRE COLOR	PIN LETTER
(6) (REP)	1	RED	J
		BLK	K
	2	RED	F
		BLK	H
	3	RED	D
		BLK	E
	4	RED	B
		BLK	C

CONN B			
ITEM NO.	MARKER NO.	WIRE COLOR	PIN LETTER
(5) (REC)	1	WHT	J
		BLK	K
	2	WHT	F
		BLK	H
	3	WHT	D
		BLK	E
	4	WHT	B
		BLK	C

-10 ONLY
FOR HOOKUP TO
CONNECTORS C & D,
SEE SCHEMATIC

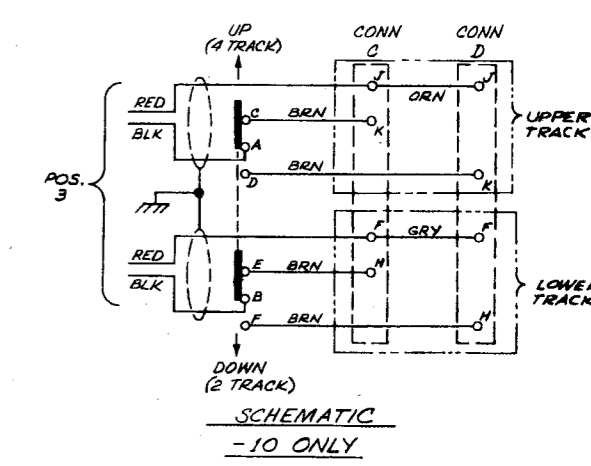
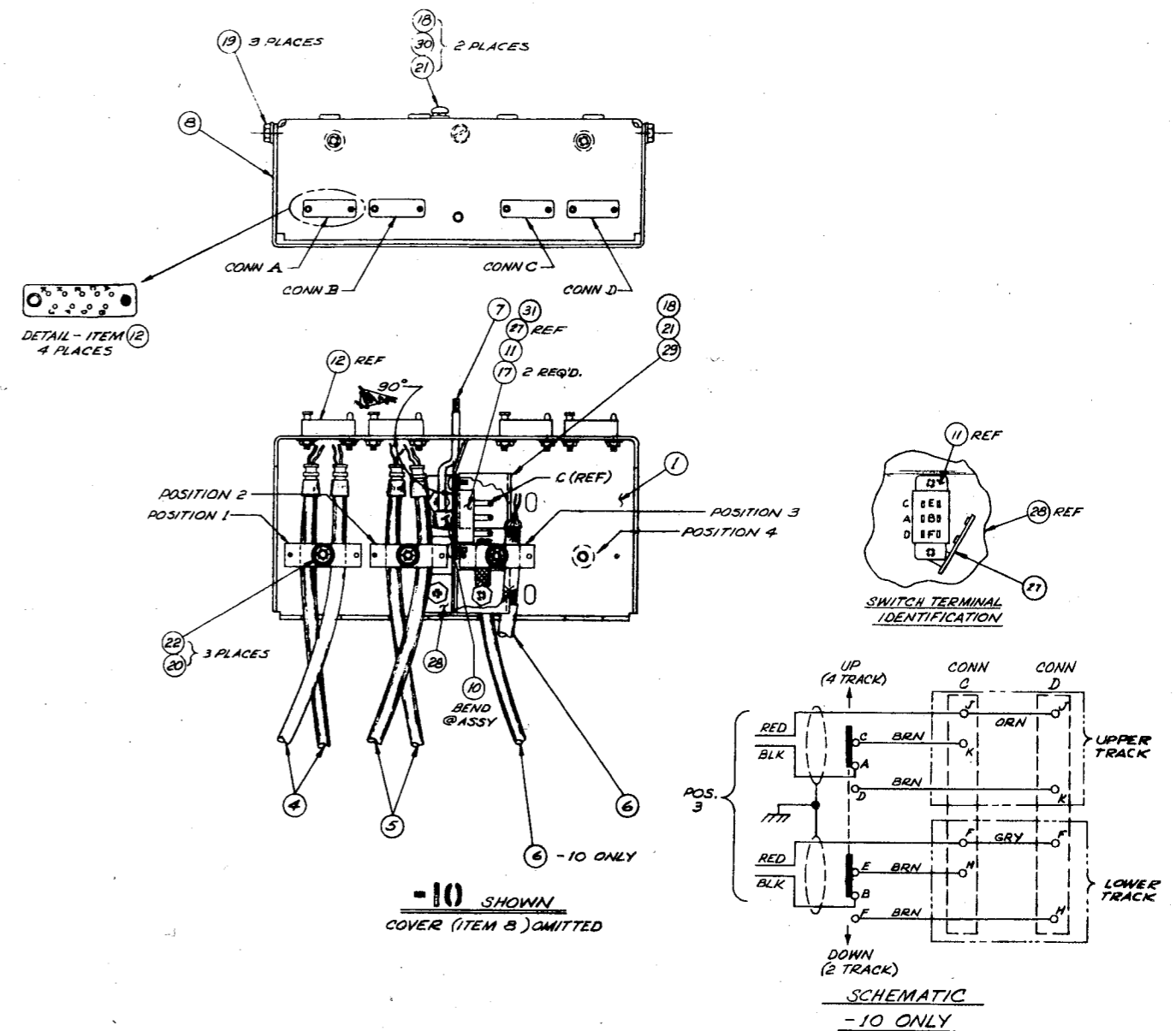


Fig. 6-6 . Head Cable Box Assembly
6-10

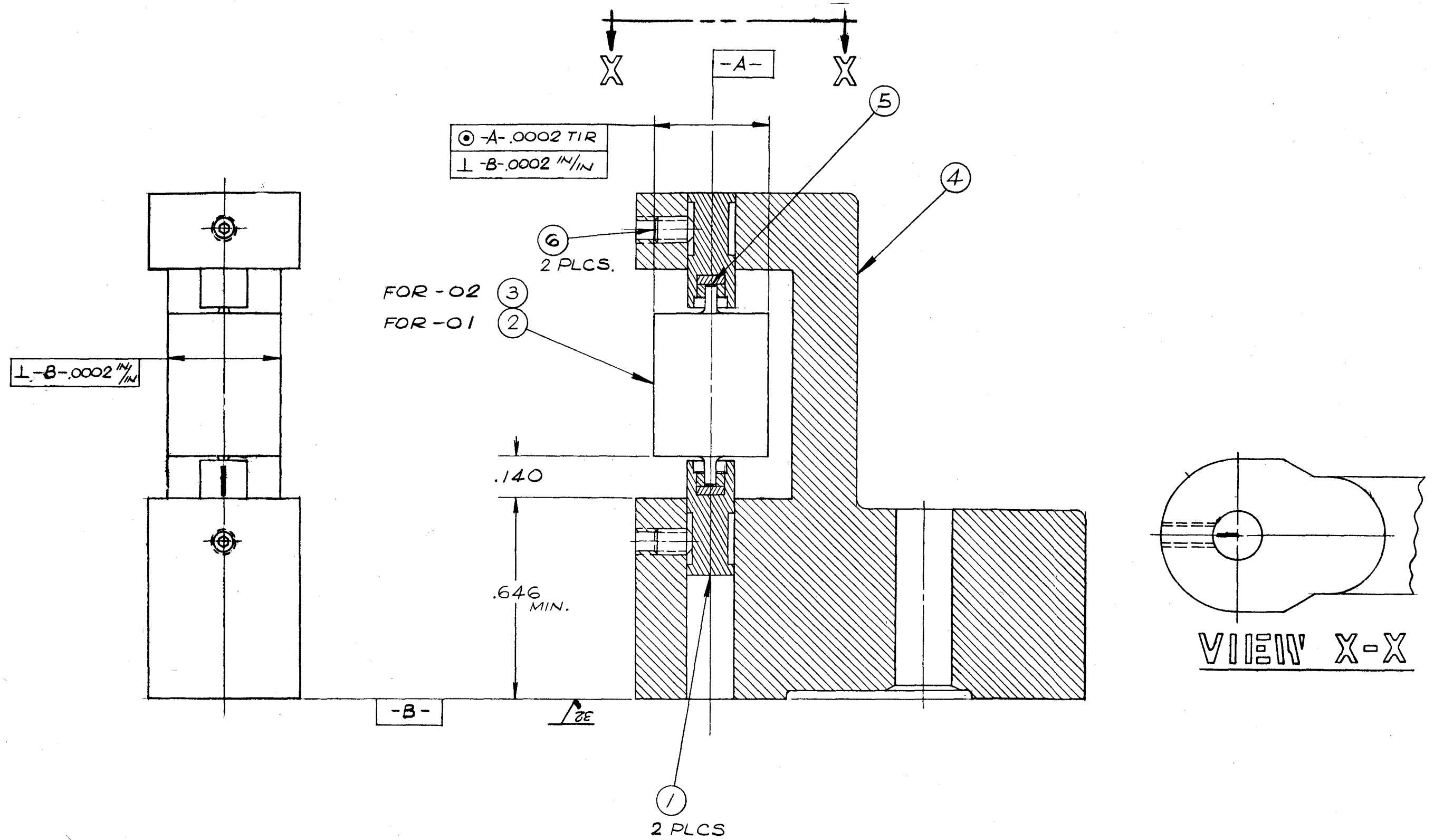
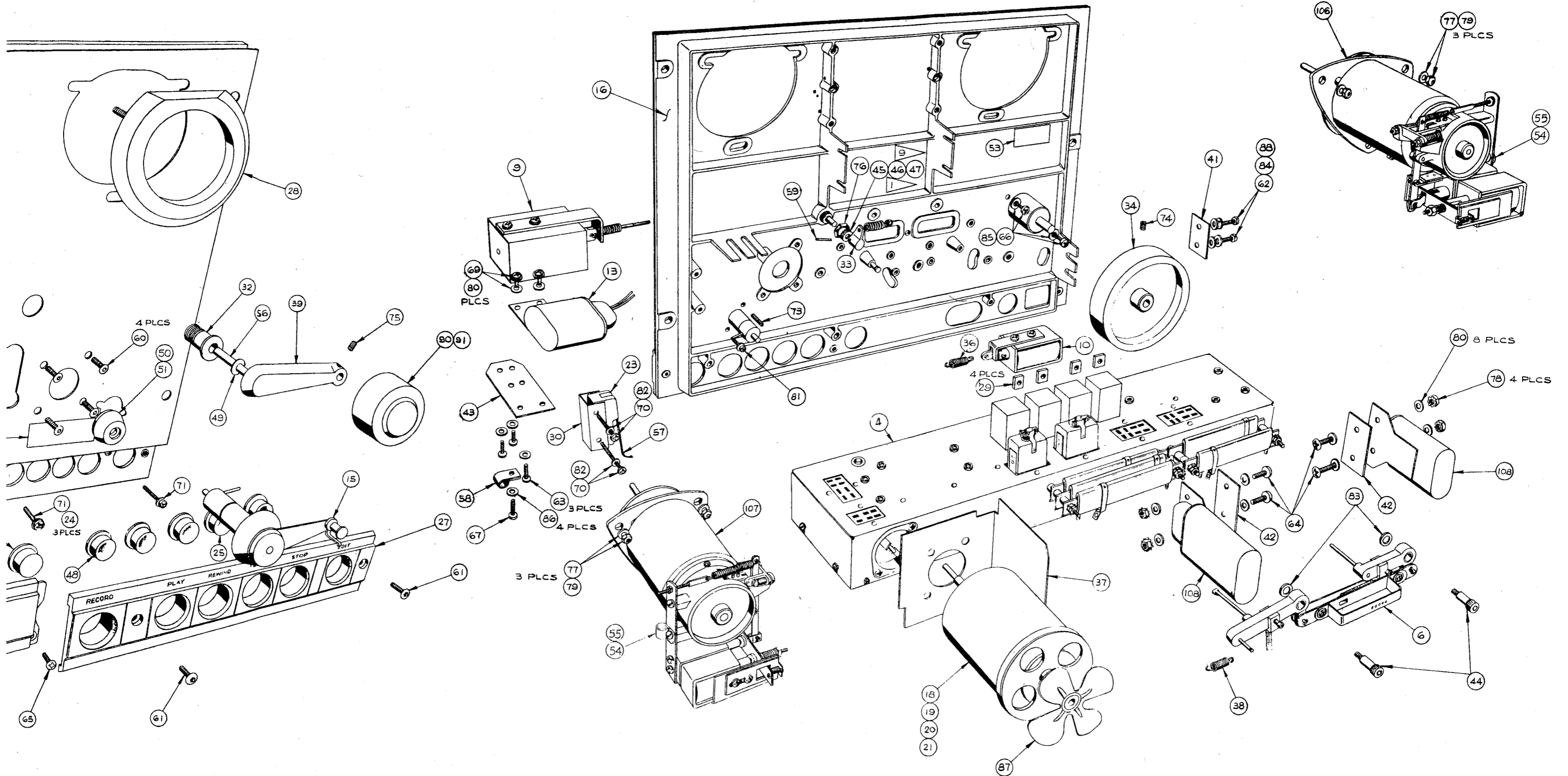


Fig. 6-7. Scrape Flutter Idler Assembly



Tape Transport Assembly, Front

Fig. 6-9. Tape Transport Assembly, Rear

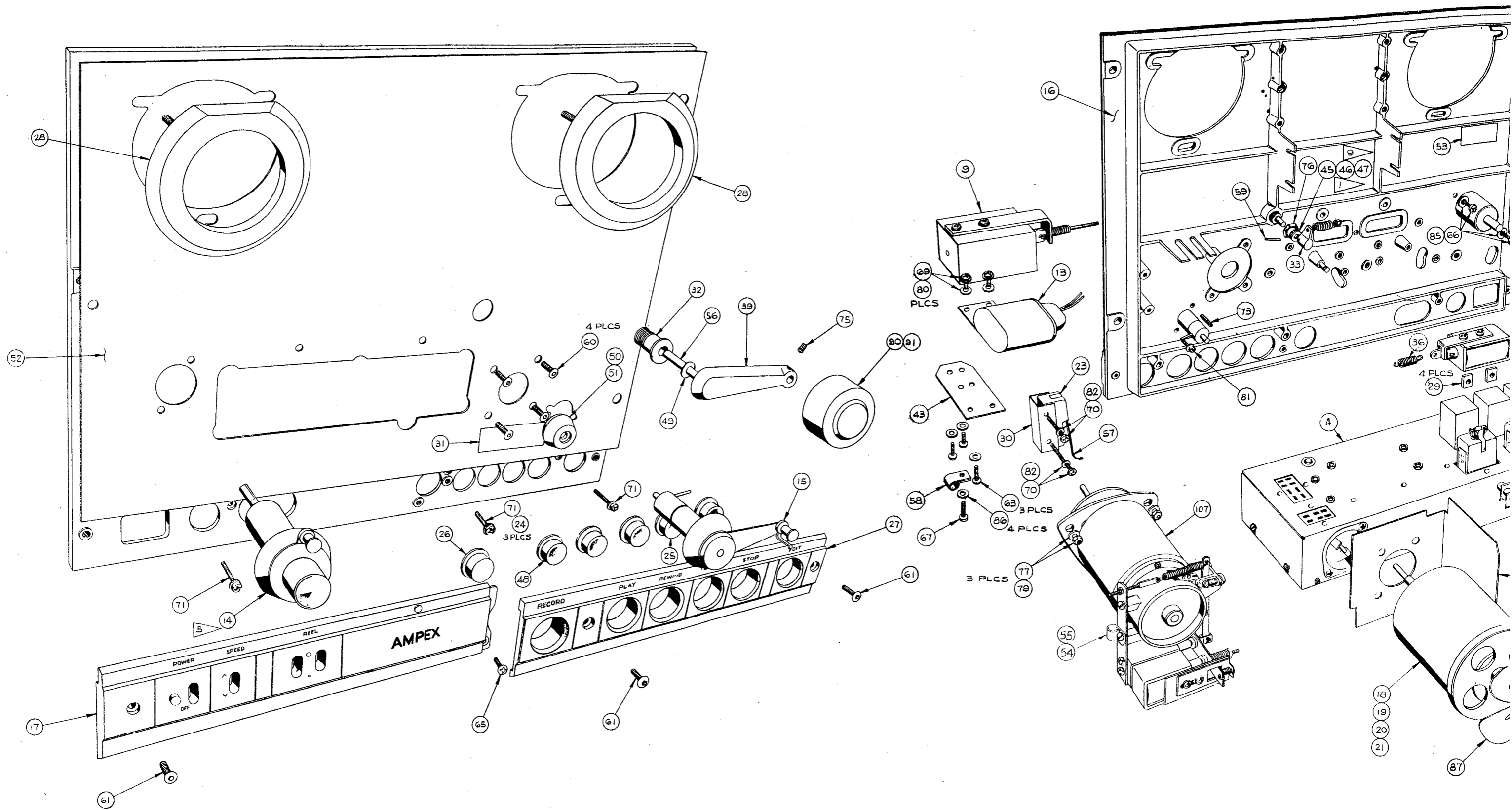
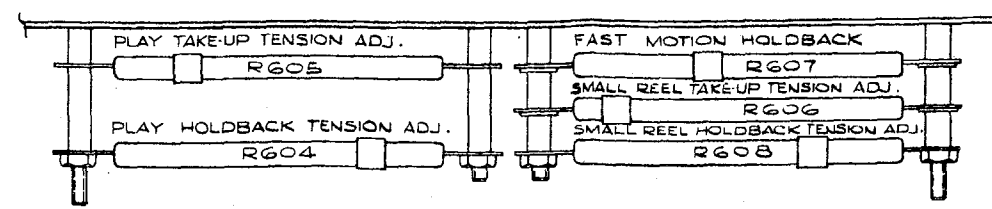


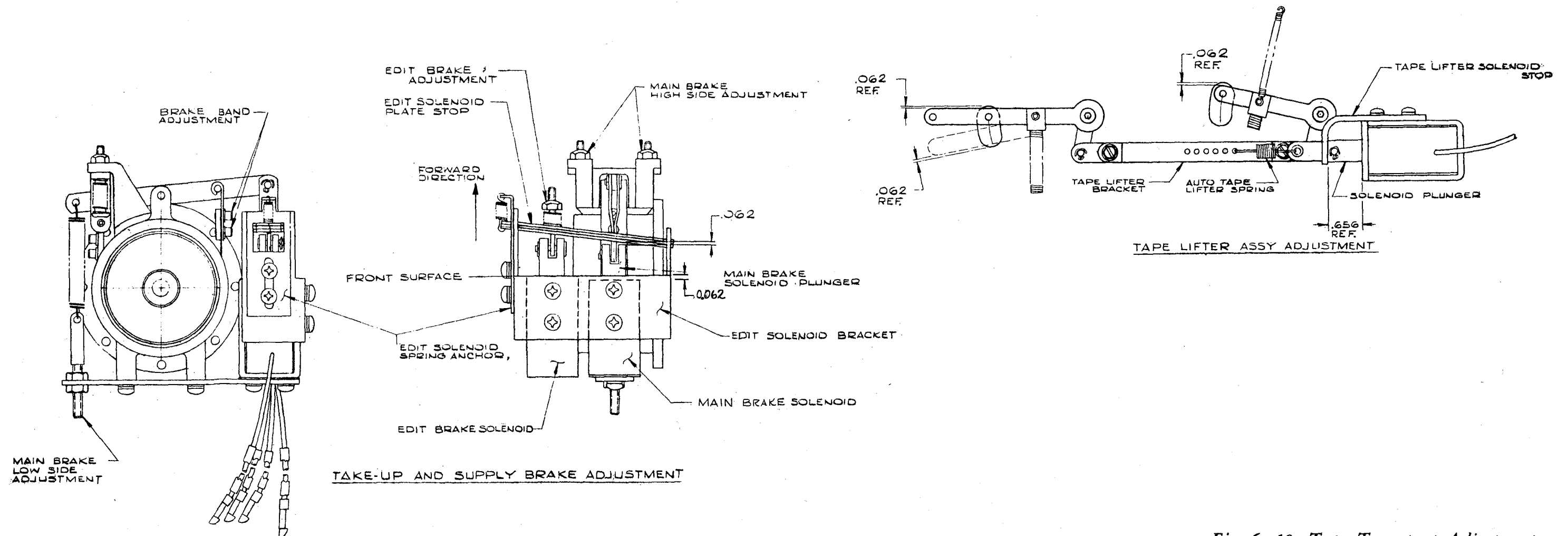
Fig. 6-8. Tape Transport Assembly, Front



TAKE-UP & SUPPLY TENSION ADJUSTMENTS

CONTROL BOX KNIFE DISCONNECT CONNECTION INFORMATION

HARNES WIRE COLOR	PART DESCRIPTION	TERM. COLOR
BRN	K609 SOLENOID, TAPE LIFTER	BLK
WHT/VIO	K609 SOLENOID, TAPE LIFTER	BLK
BLU	K610 SOLENOID, CAPSTAN	BLK
WHT/YEL	K610 SOLENOID, CAPSTAN	BLK
YEL	C601 CAPACITOR, CAPSTAN MOTOR	BRN
WHT/VIO	C601 CAPACITOR, CAPSTAN MOTOR	BRN
WHT/RED(2)	S603 SWITCH, SAFETY	WHT/RED
VIO	S603 SWITCH, SAFETY	VIO



TAKE-UP AND SUPPLY BRAKE ADJUSTMENT

Fig. 6-10. Tape Transport Adjustments

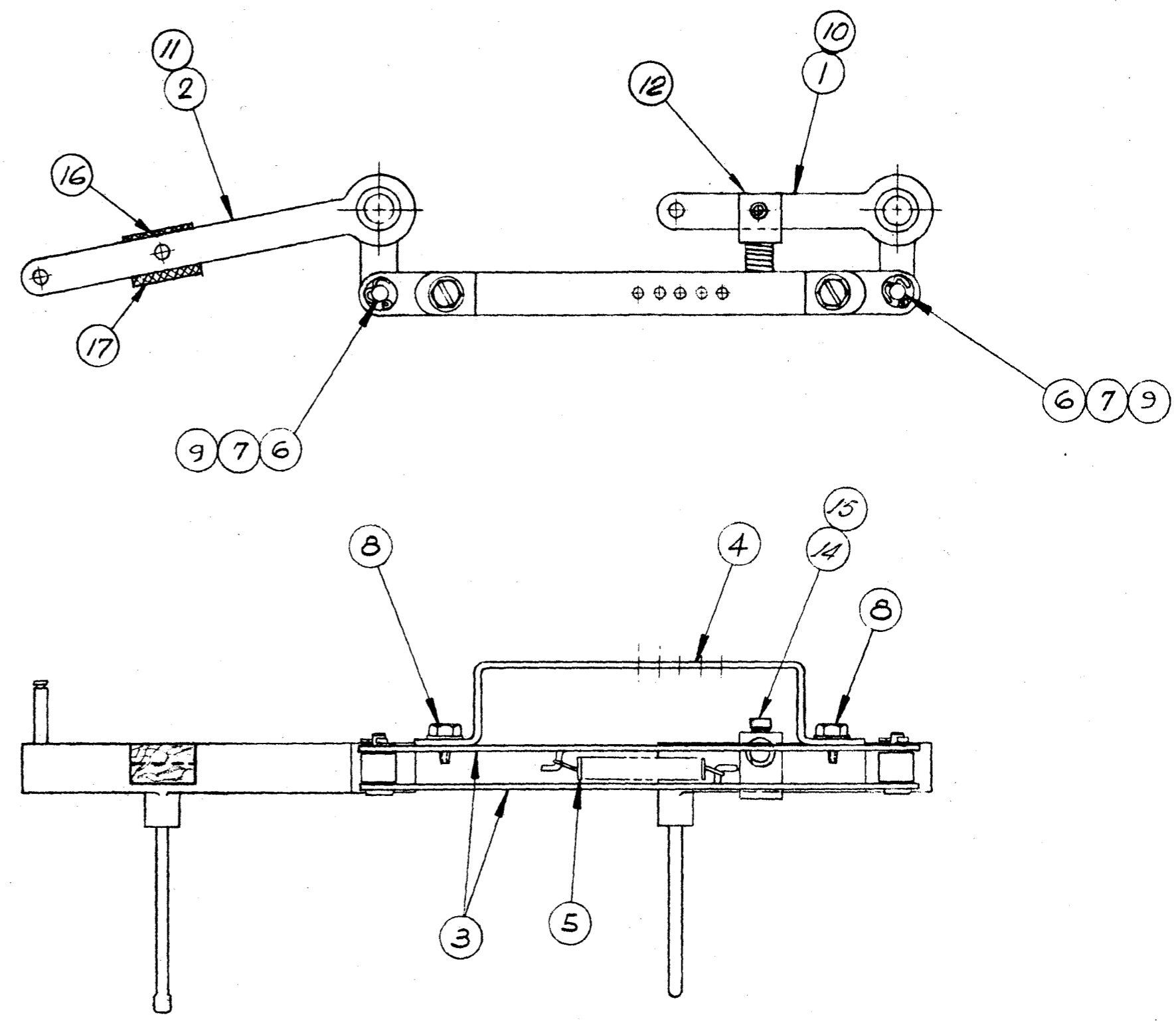


Fig. 6-11. Tape Lifter Assembly, Tape Transport

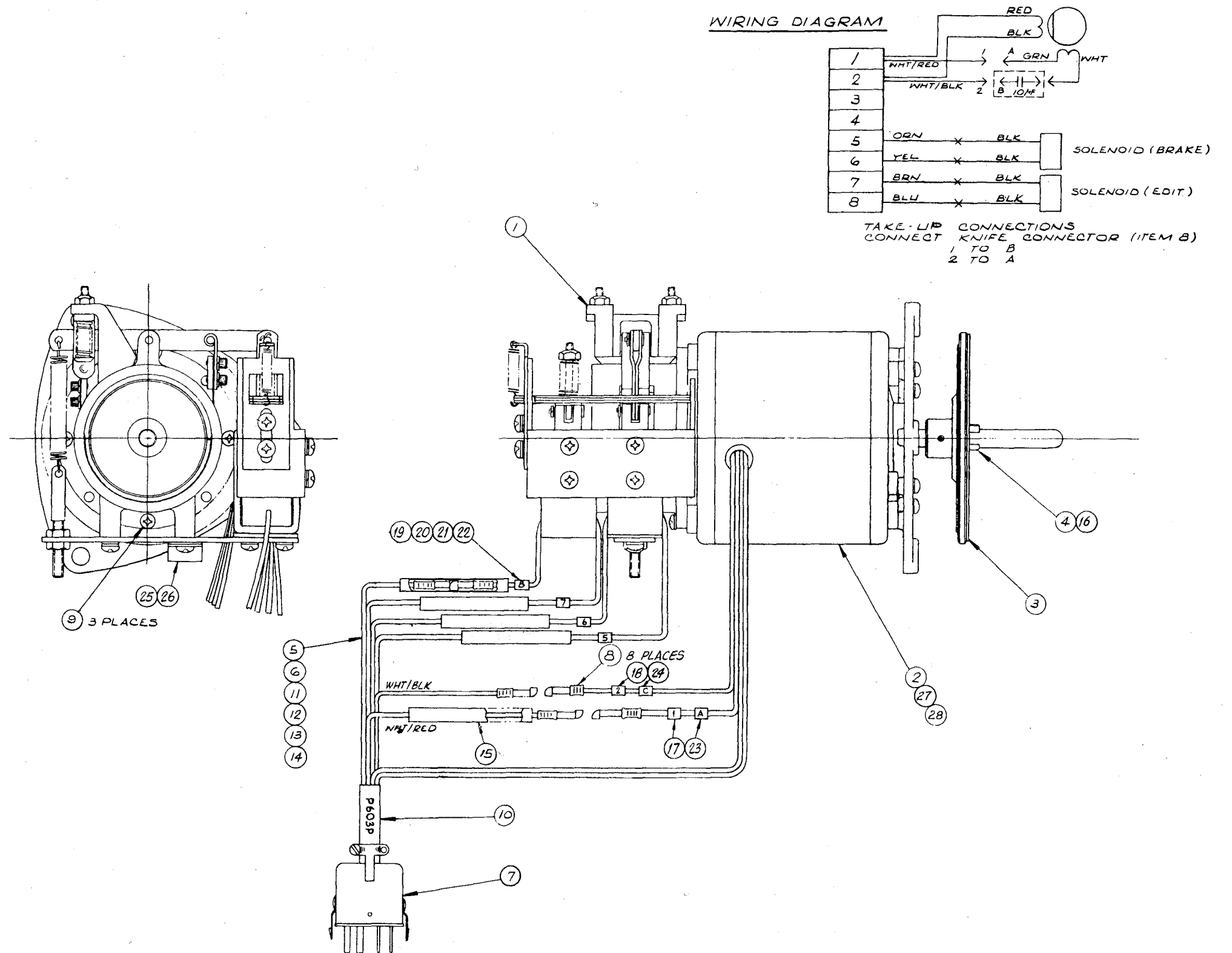


Fig. 6-12. Take-up Assembly

REWIND ASSEMBLY
4030298 C
(See Fig. 6-13)

Item	-01	-02	-03	DESCRIPTION	Ampex Part No.
	X			Rewind assembly	4030298-01
		X		Rewind assembly	4030298-02
			X	Rewind assembly	4030298-03
1	1	1	1	Brake assembly (see Fig. 6-14)	4030264-04
2	1			Motor assembly (G. E.)	4040768-01
29			1	Motor assembly (Takanawa)	4040768-07
3	1	1	1	Pad, turntable	4130163-02
4	1	1	1	Drive Plate	4320128-10
7	1	1	1	Connector, plug, 8 pins, male	145-013
8	12	12	12	Solderless connectors	171-008
28		1		Motor Assembly (Ashland)	4040768-03
Items of standard hardware, wire, etc., not listed					

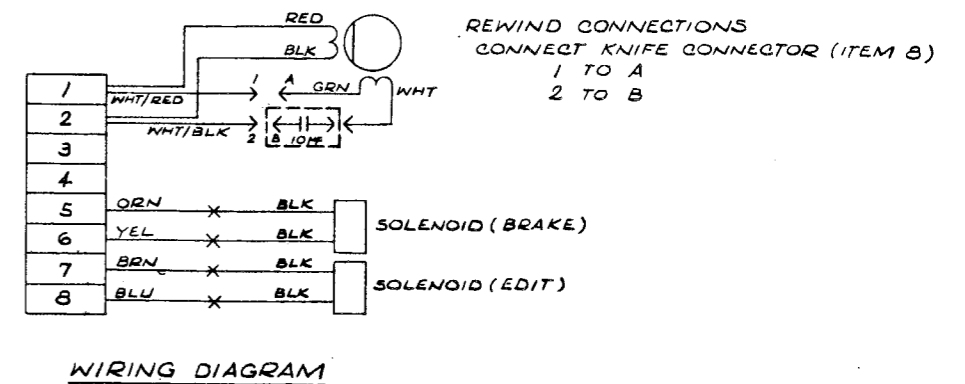
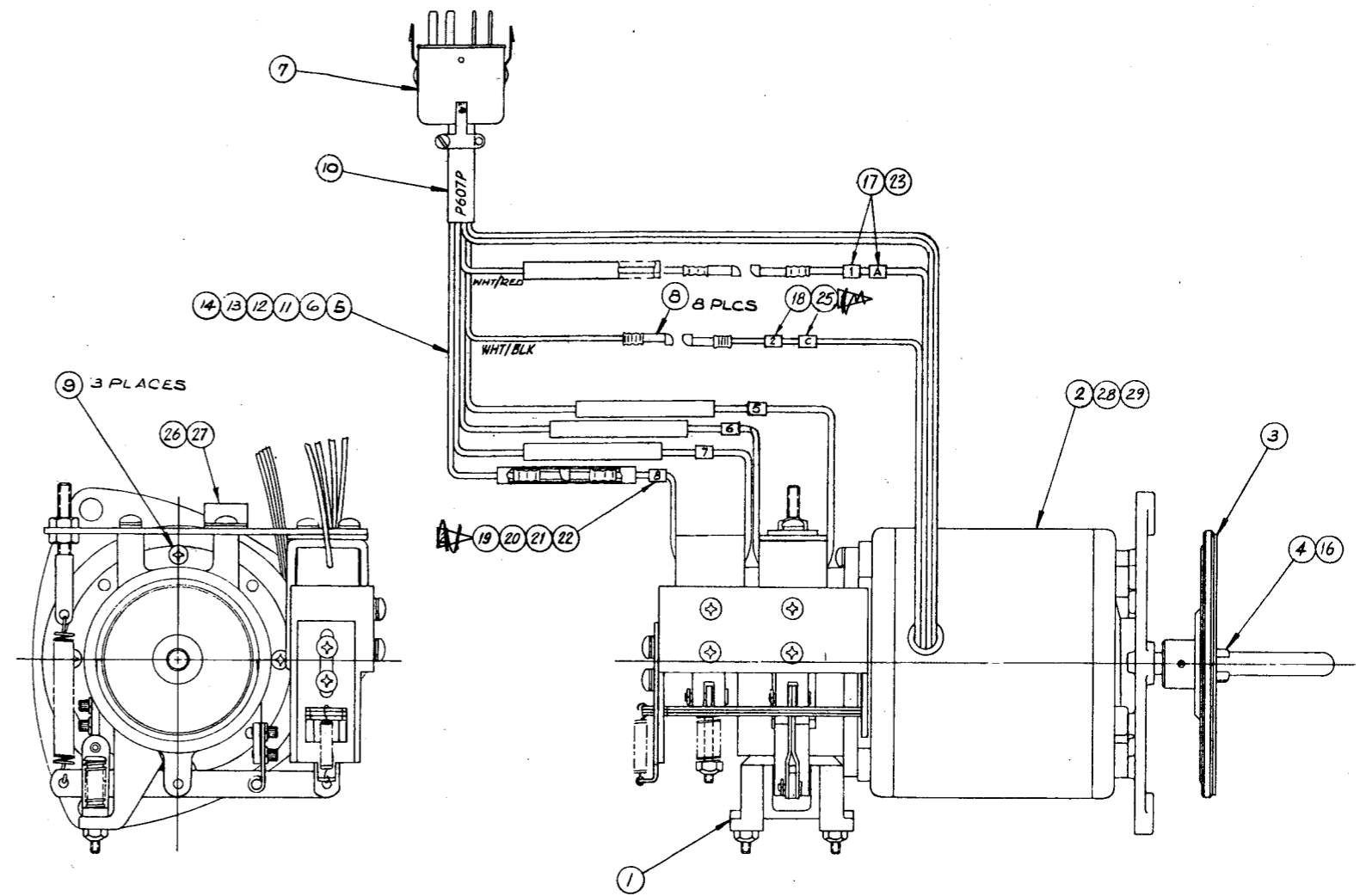


Fig. 6-13. Rewind Assembly

ITEM	-03	-04	DESCRIPTION *	Ampex Part No.
		X	Brake, assembly, takeup	4030264-03
		X	Brake, assembly, rewind	4030264-04
1	1	1	Band, assembly	4040414-10
2	2	2	Spacer	4220141-10
3	2	2	Link, brake band	4230161-10
4	1	1	Lever, brake	4230162-10
5	2	2	Link, solenoid	4230163-10
6	1	1	Bracket, solenoid	4260183-10
7	1	1	Bracket, edit solenoid	4260386-03
8	1	1	Bracket, edit solenoid	4260386-04
9	2	2	Spring, compression	4270163-10
10	1	1	Spring, leaf	4270164-10
11	1	1	Spring, brake	4270178-10
12	1	1	Spring, edit brake return	4270251-01
13	1	1	Spring, compression	352-085
14	1	1	Cross Head, brake	4330109-10
15	1	1	Anchor, brake	4330110-10
16	1	1	Housing, brake	4330112-10
17	2	2	Clamp, band link	4330113-10
19	1	1	Anchor, spring, edit solenoid	4330260-01
20	1	1	Bolt, spade	4400496-80
21	2	2	Solenoid, brake (K605 thru K607)	4041070-01
22	4	4	Connector, solderless	171-008

* Items of standard hardware not listed.

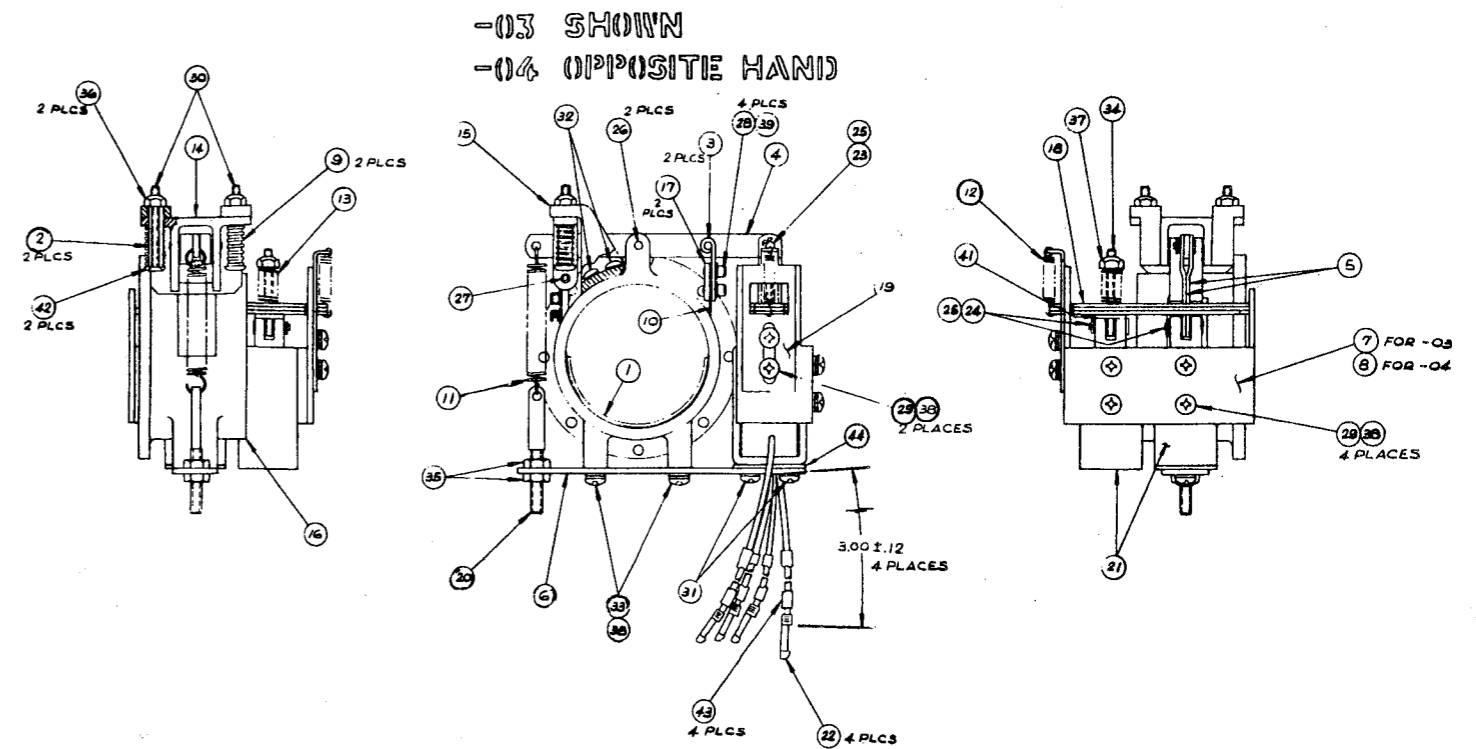
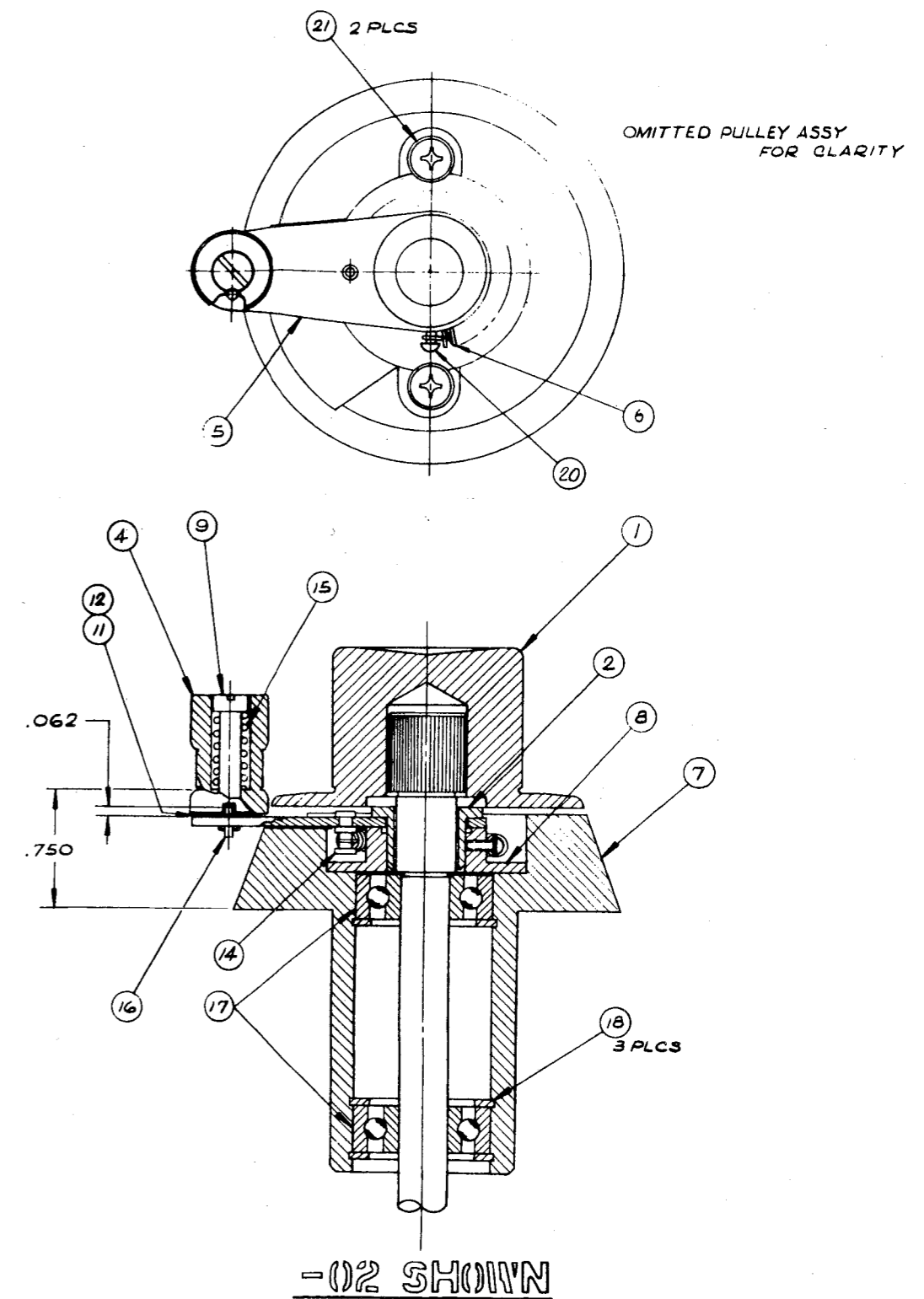


Fig. 6-14. Brake Assembly

ITEM	-02	DESCRIPTION	Ampex Part No.
	X	Reel Idler, assembly	4040970-02
1	1	Pulley, assembly	4040408-80
2	1	Bushing (see note below)	4200121-10
4	1	Tape Guide	4210311-01
5	1	Arm, reel idler (see note below)	4230245-01
6	1	Spring, tension, arm	4270160-20
7	1	Housing, reel idler	4290272-10
8	1	Mount, reel idler (see note below)	4290273-10
9	1	Screw, tape guide mounting	4400593-01
11	1	Washer, .003 thick	4440282-01
12	a/r	Washer, .025 thick	4440282-02
15	1	Spring, compression	352-084
17	2	Bearing, ball	421-116
18	3	Retaining ring, internal	430-027

NOTE
 Items 2, 5, and 8, not replaceable separately.
 Contact Ampex Technical Support, Professional Audio,
 for information if replacement is required.



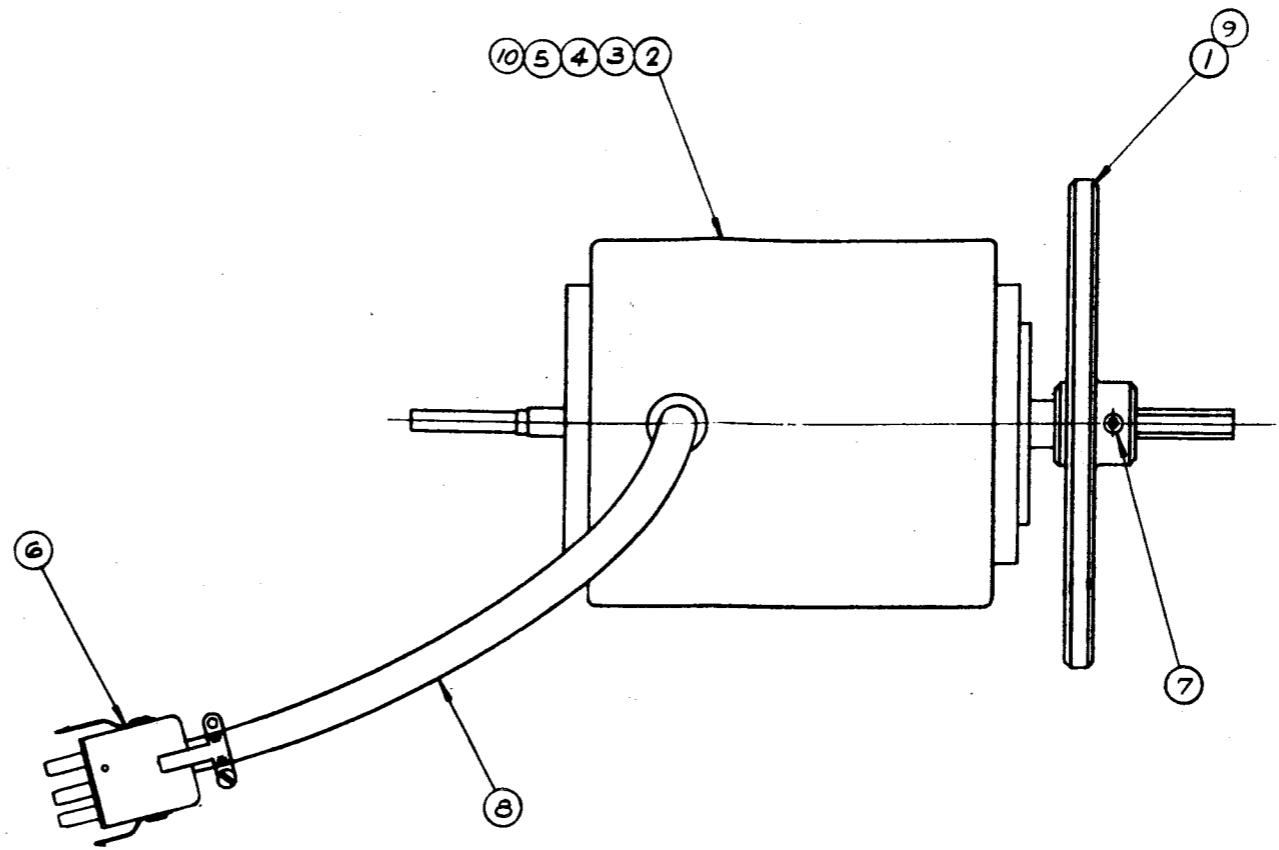
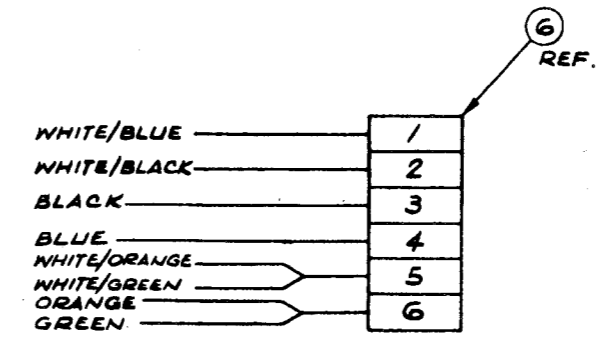


TABLE I

PART NO.	SPEED	CYCLE
4040993-01	7.5-15 IPS	60
4040993-02	3.75-7.5 IPS	60
4040993-03	7.5-15 IPS	50
4040993-04	3.75-7.5 IPS	50
4040993-05		
4040993-06	7.5-15 IPS	60



WIRING DIAGRAM

Fig. 6-16. Drive Motor Assembly

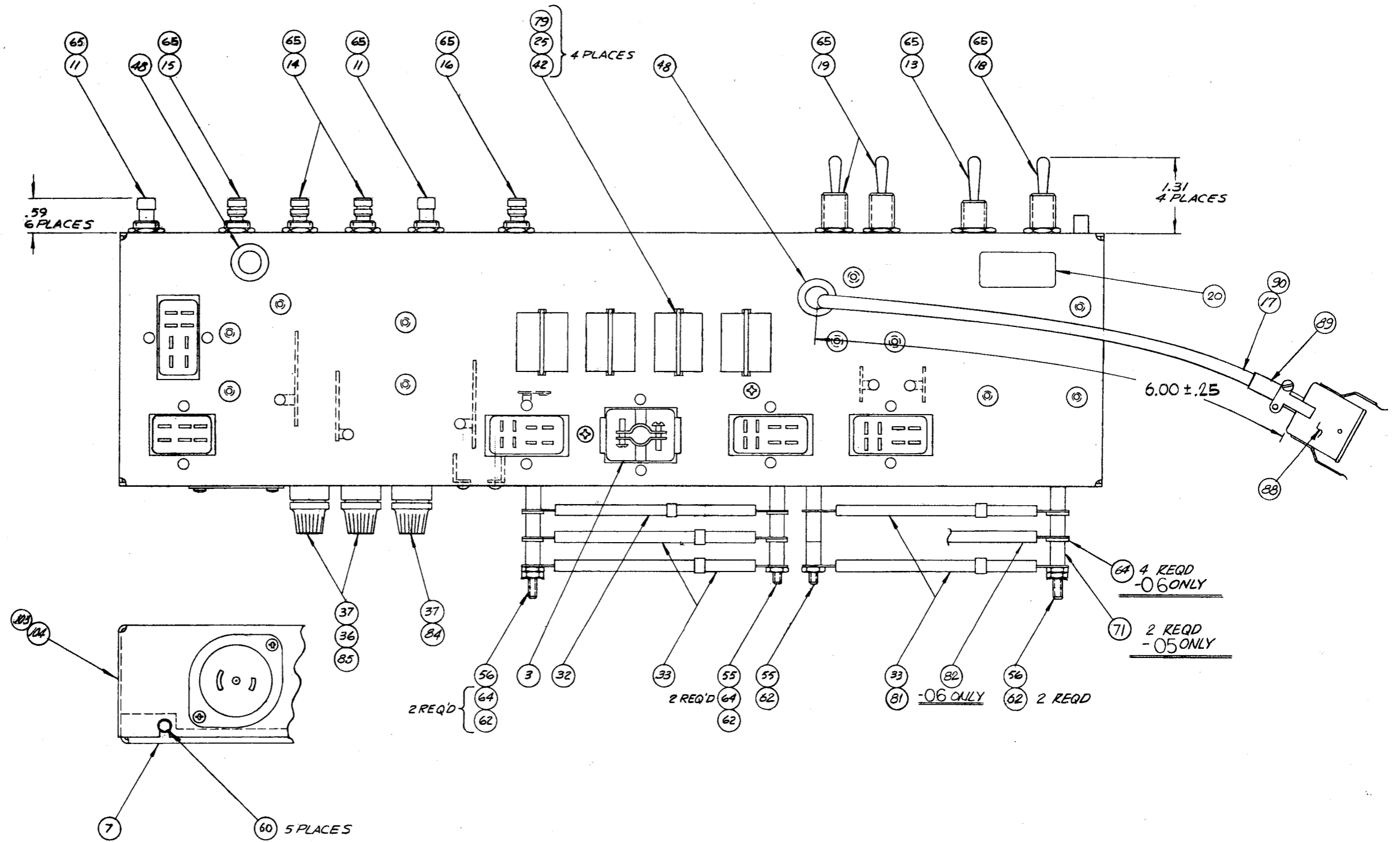


Fig. 6-17. Control Box, Top

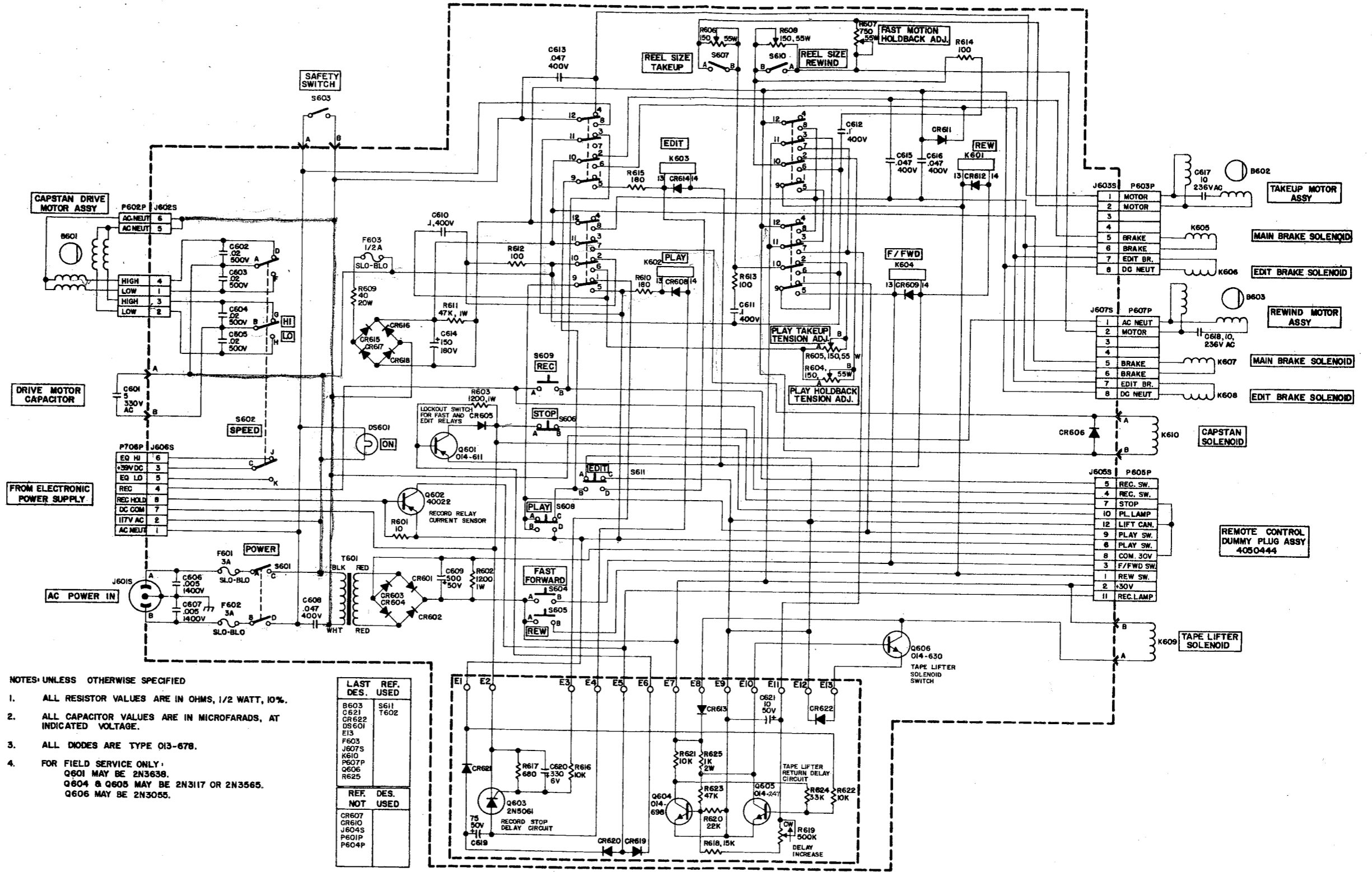
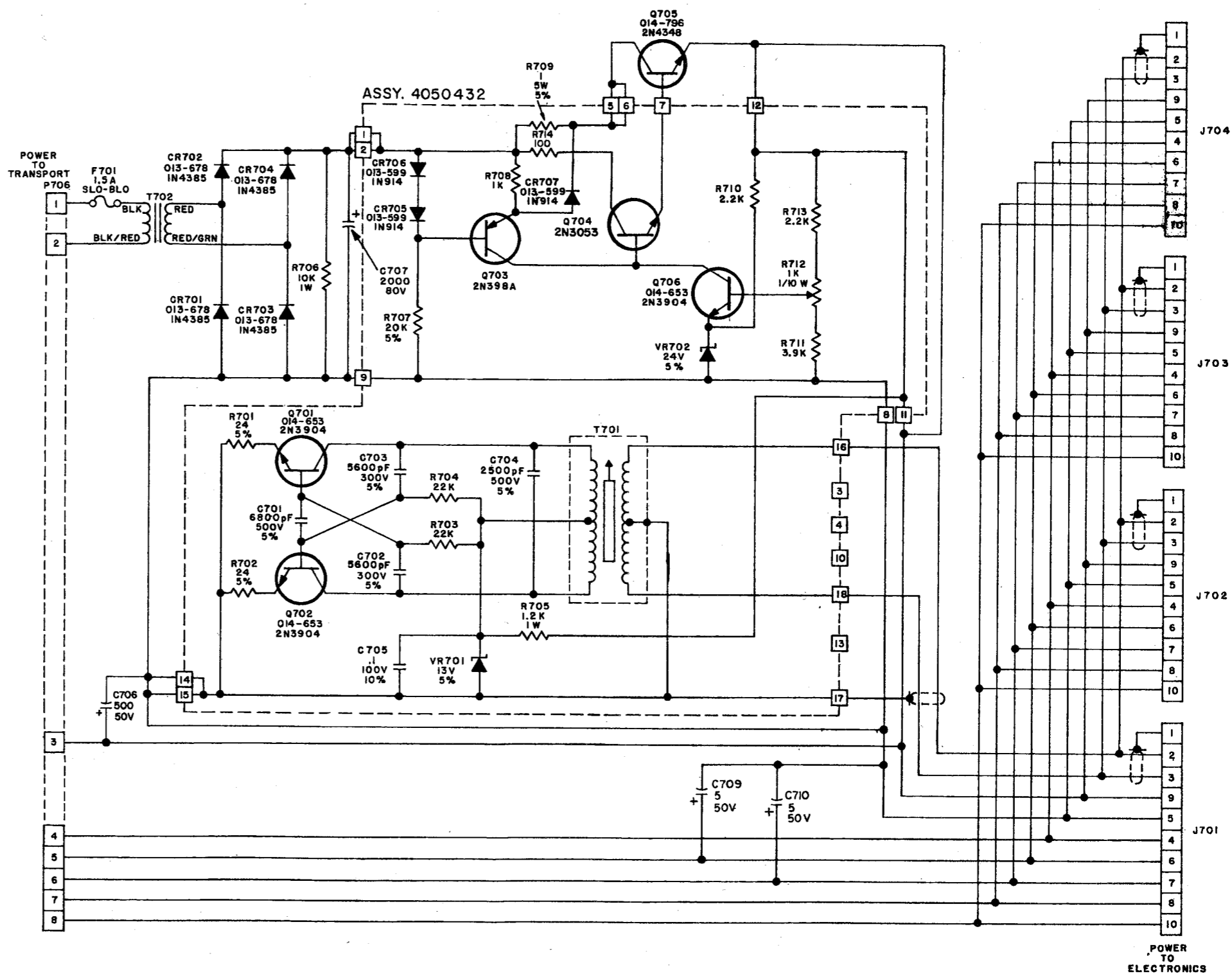
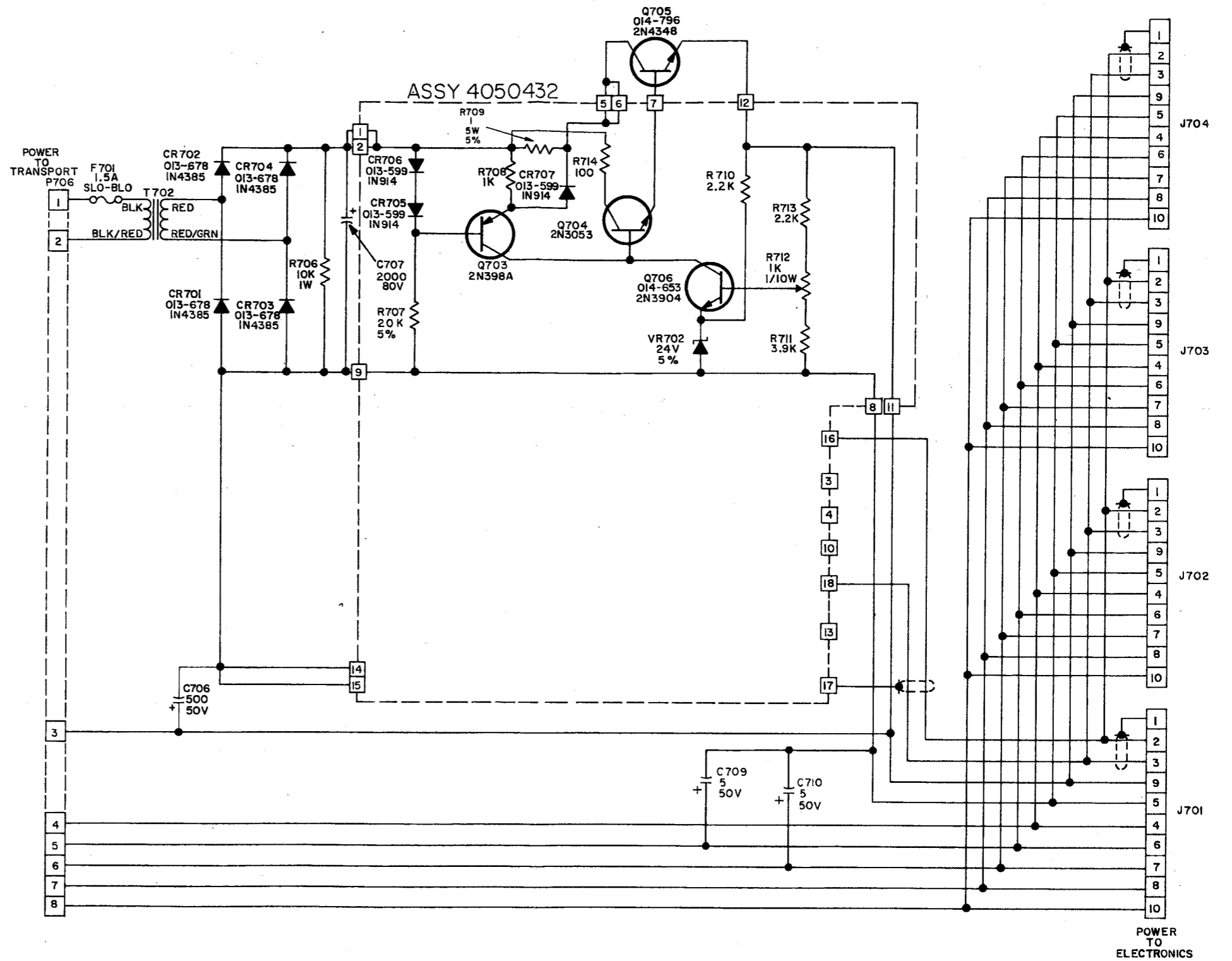


Fig. 6-20. Schematic Diagram, Transport



UNLESS OTHERWISE SPECIFIED
 ALL CAPACITOR VALUES ARE IN MICROFARADS, RATINGS AS INDICATED.
 ALL RESISTORS VALUES ARE IN OHMS, 1/2 WATT, 10%.

Fig. 6-22. Power Supply Schematic, Record/Reproduce



UNLESS OTHERWISE SPECIFIED
 ALL CAPACITOR VALUES ARE IN MICROFARADS, RATINGS AS INDICATED.
 ALL RESISTOR VALUES ARE IN OHMS, 1/2WATT, 10%

Fig. 6-23. Power Supply Schematic,
 Reproduce-only

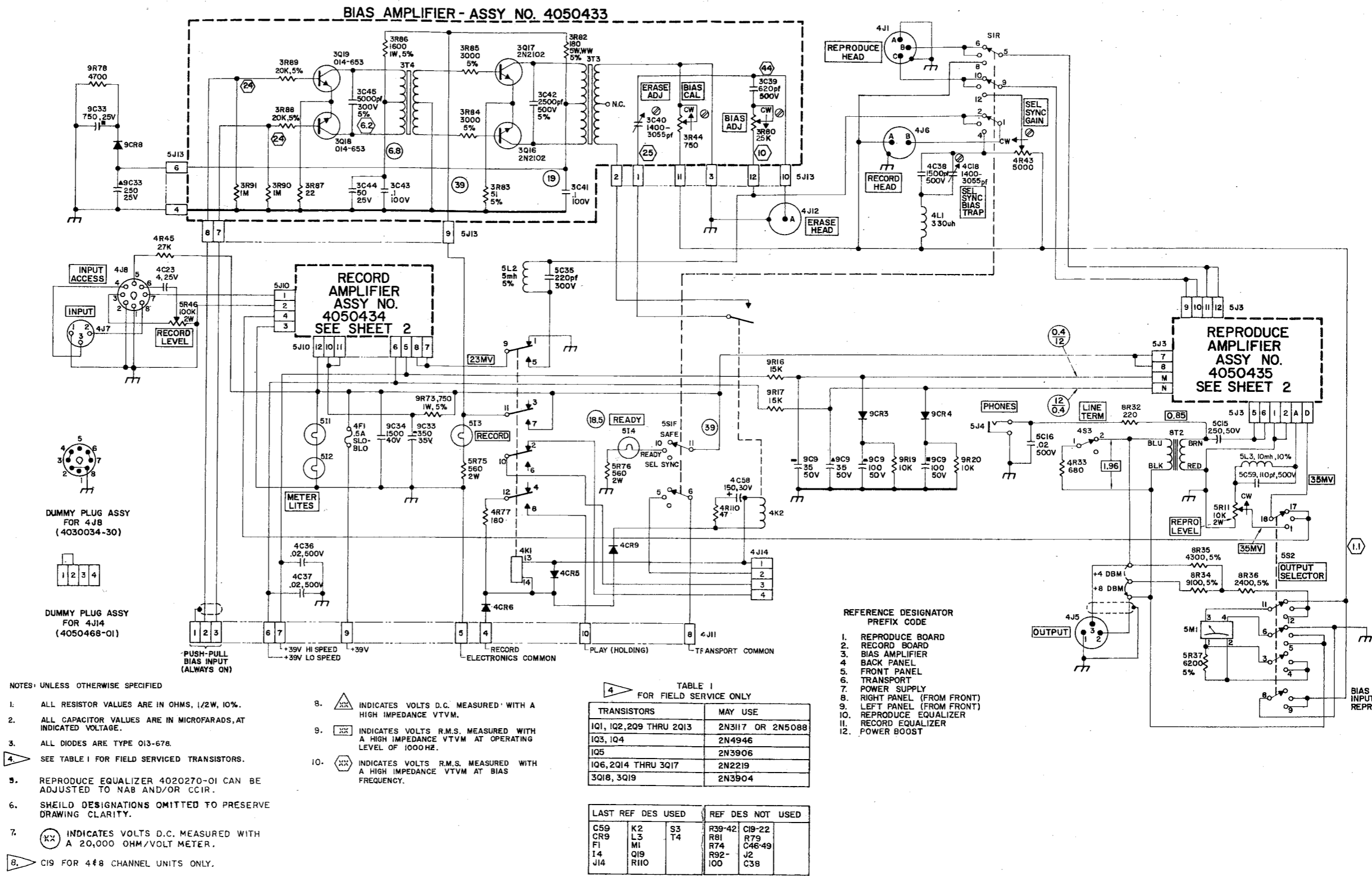
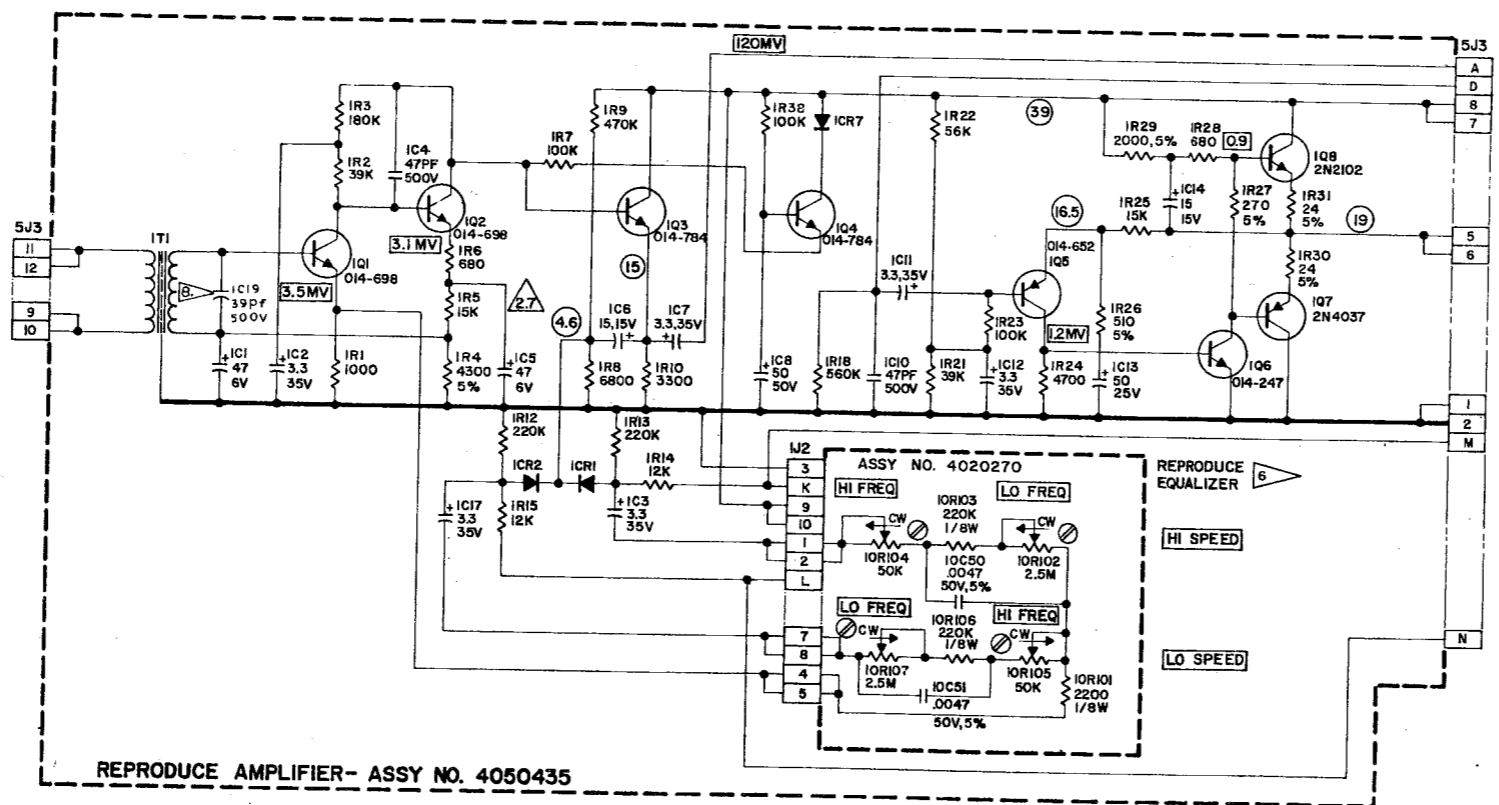
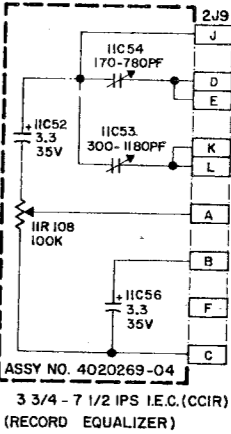
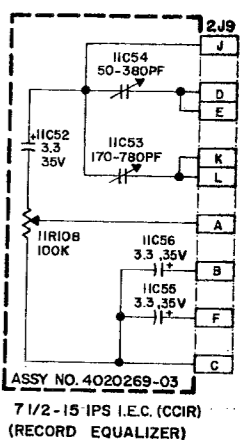
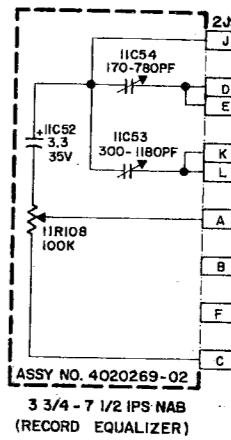
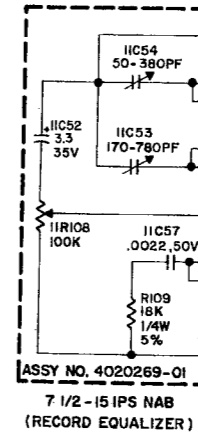
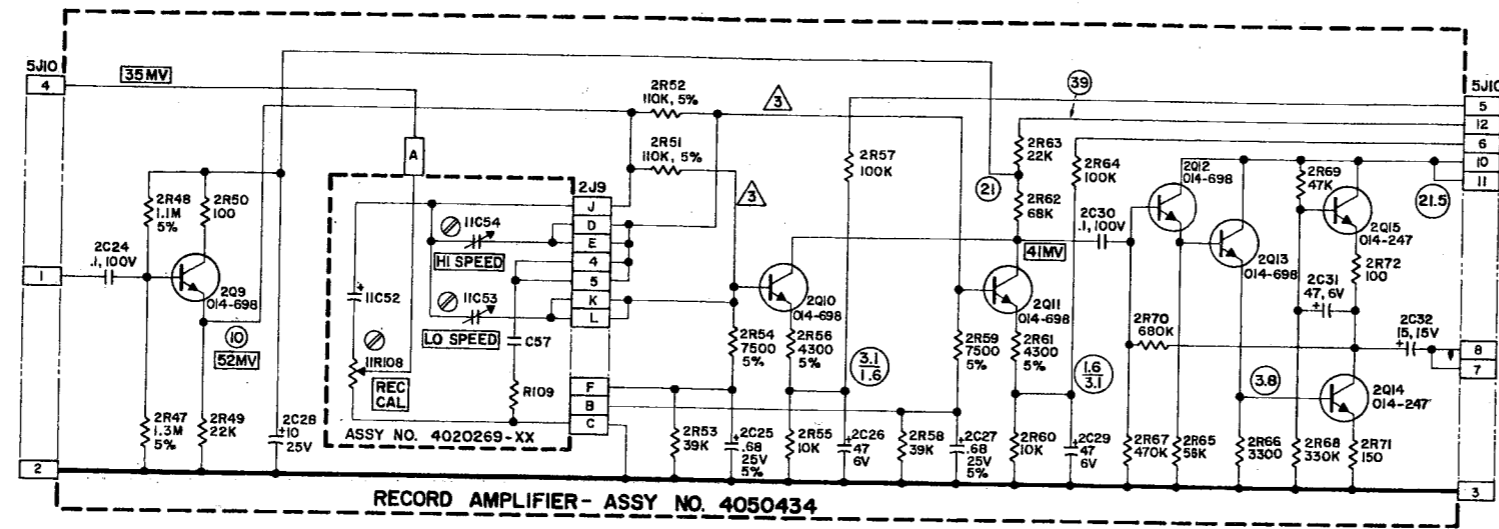
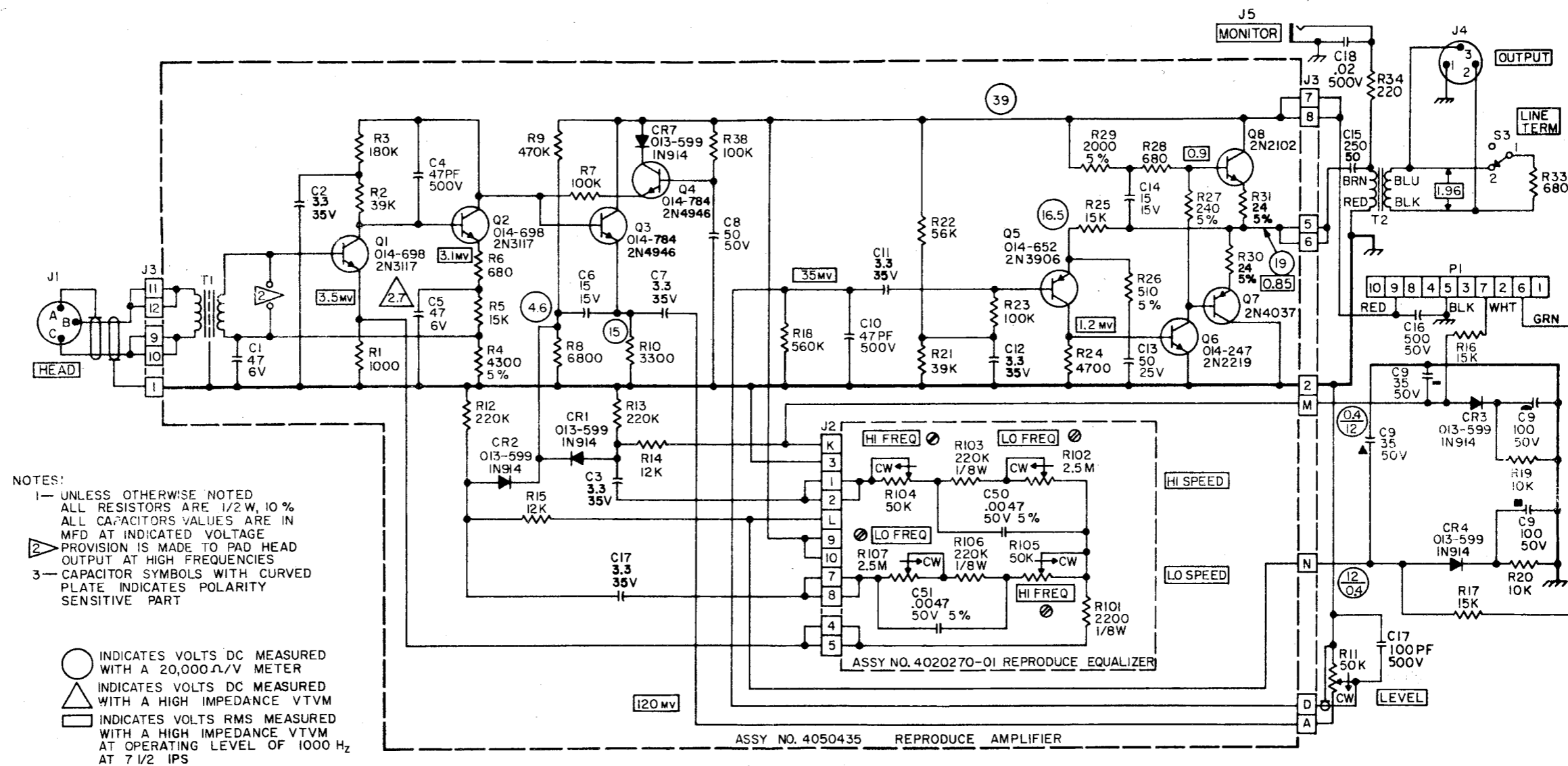


Fig. 6-24A. Schematic Diagram, Electronics



NOTES:
SEE SHEET I.

Fig. 6-24B. Schematic Diagram, Electronics



- NOTES:
- 1- UNLESS OTHERWISE NOTED ALL RESISTORS ARE 1/2 W, 10% ALL CAPACITORS VALUES ARE IN MFD AT INDICATED VOLTAGE
 - 2- PROVISION IS MADE TO PAD HEAD OUTPUT AT HIGH FREQUENCIES
 - 3- CAPACITOR SYMBOLS WITH CURVED PLATE INDICATES POLARITY SENSITIVE PART
- INDICATES VOLTS DC MEASURED WITH A 20,000Ω/V METER
 - △ INDICATES VOLTS DC MEASURED WITH A HIGH IMPEDANCE VTVM
 - INDICATES VOLTS RMS MEASURED WITH A HIGH IMPEDANCE VTVM AT OPERATING LEVEL OF 1000 Hz AT 7 1/2 IPS

LAST REF DES USED	REF DES NOT USED
R34	CR5,6
R107	
C18	
C51	
J5	
CR7	
T2	
Q8	
PI	

Fig. 6-25. Electronics Schematic, Reproduce-only
6-35

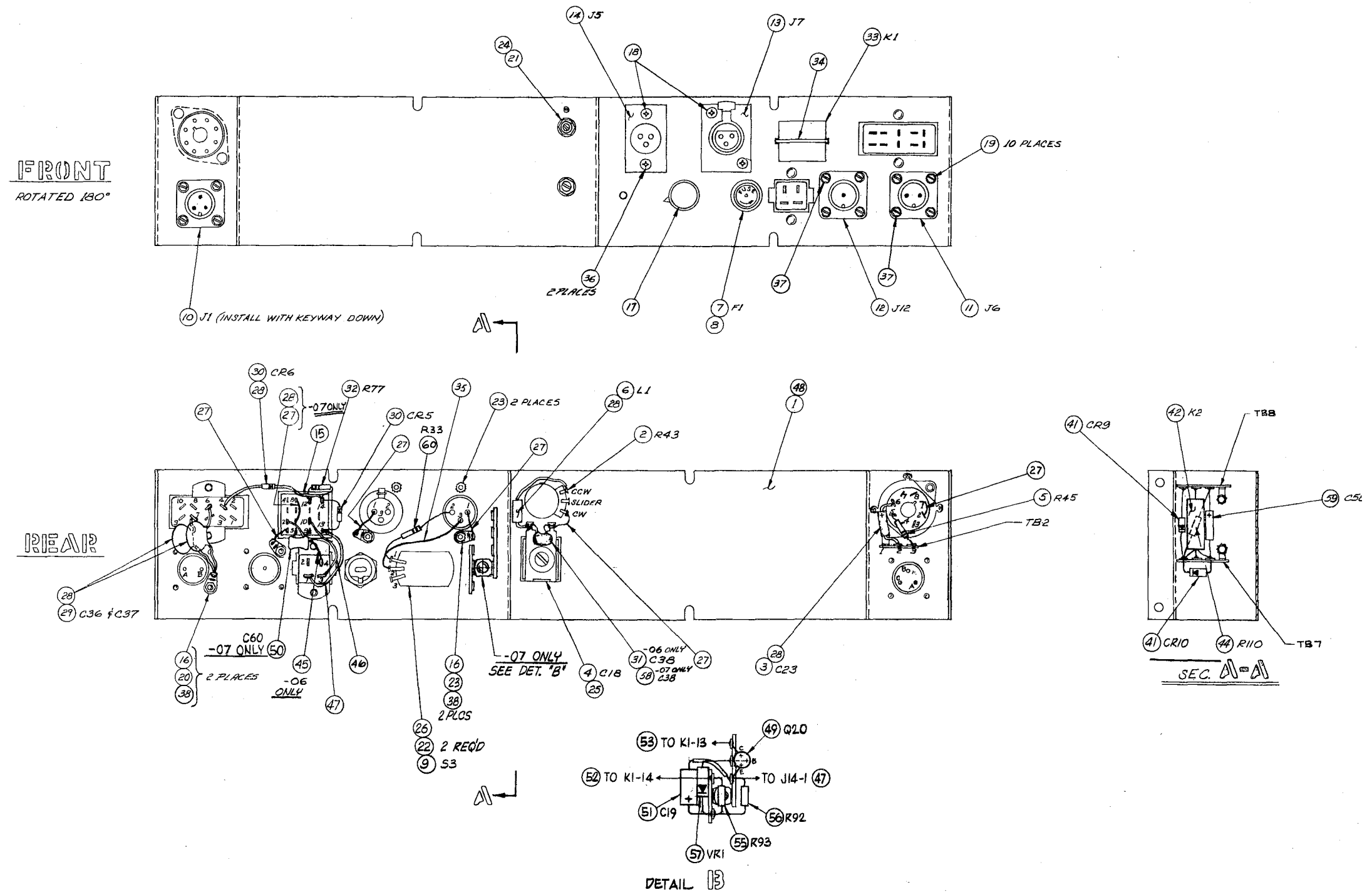


Fig. 6-26. Rear Panel Assembly

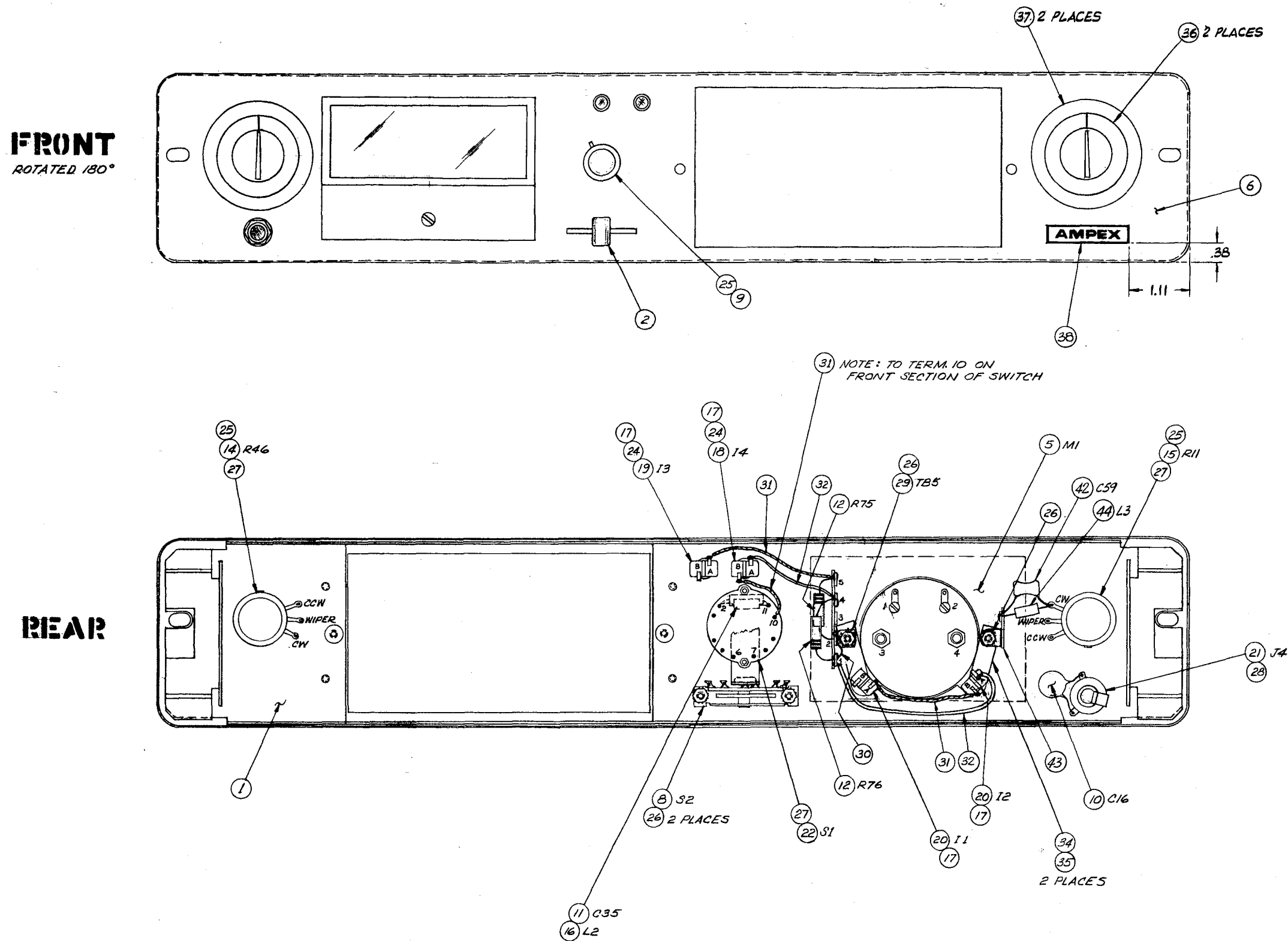


Fig. 6-27. Front Panel Assembly

RIGHT SIDE PANEL ASSEMBLY				CATALOG NO. 4050441	SHEET 1 OF 1		
				NHA 4020260			
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION		
					-03	-04	
1	4040958-01			PANEL, Right Side	1	1	
2	4580193-01		T2	TRANSFORMER, Output	1	1	
3	041-012		R35	RESISTOR, Composition, 4.3K ohm, 1/2W, 5%	1	1	
4	041-040		R32	RESISTOR, Fixed, 220 ohm, 1/2W, 10%	1	1	
6	041-316		R36	RESISTOR, Fixed, 2.4K ohm, 1/2W, 5%	1	1	
7	041-373		R34	RESISTOR, Composition, 9.1K ohm, 1/2W, 5%	1	1	
9	180-994		TB2,3	TIE POINT, A1,A1,G,A1,A1,A1	2	2	

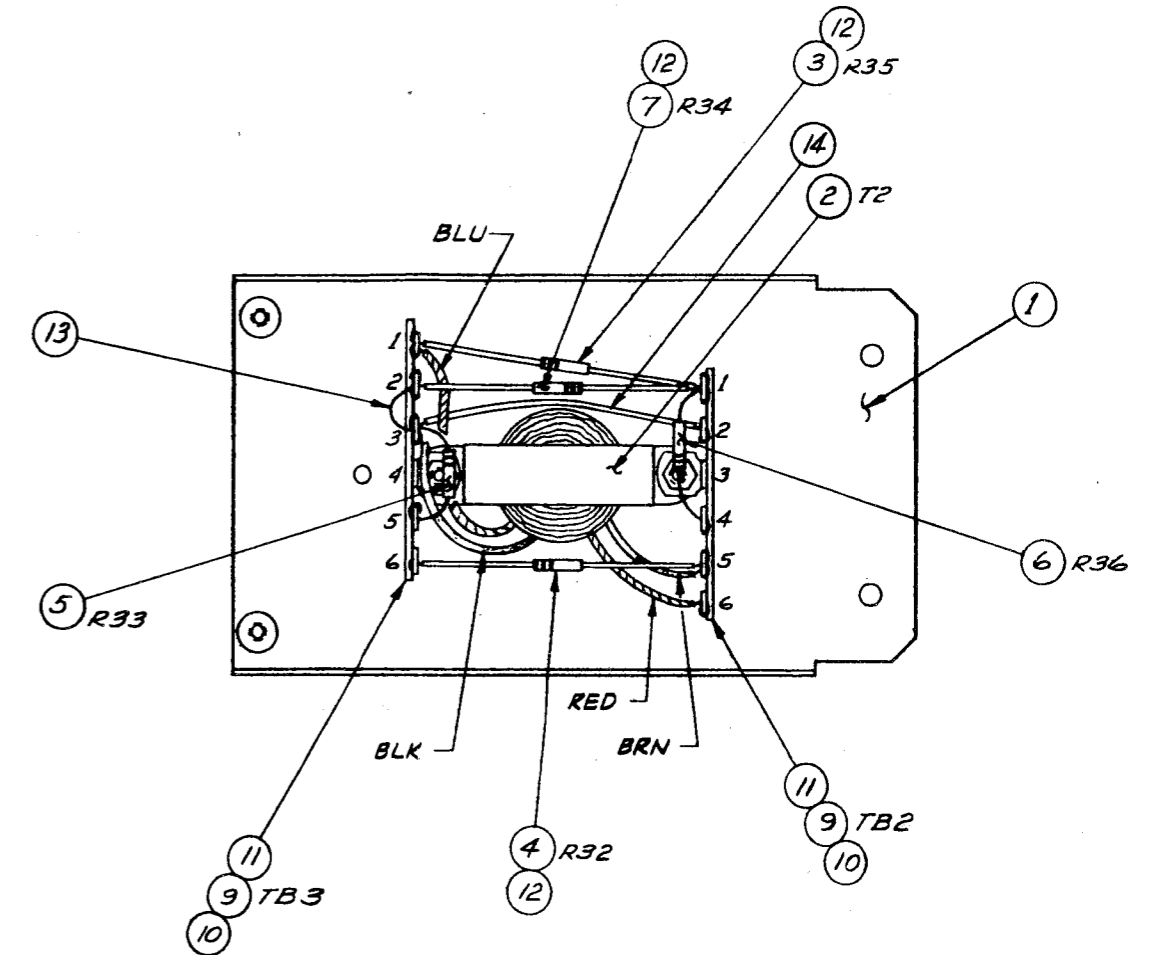


Fig. 6-28. Right Hand Panel, Electronics
6-38

CAPACITOR MOUNTING BRACKET ASSEMBLY				CATALOG NO. 4050440	SHEET 1 OF 1	
				NHA 4020260		
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION	
					-02	
1	4040964-01			BRACKET, Capacitor Mounting	1	
2	4550147-07		C33	CAPACITOR, 350, 750, 250MF/35, 25, 25V	1	
3	4550147-04		C34	CAPACITOR, 1500MF, 40V	1	
4	4550147-05		C9	CAPACITOR, 100, 100, 35, 35MF/50V	1	
6	041-060		R19, 20	RESISTOR, 10K ohm, 1/2W, 10%	2	
7	041-062		R16, 17	RESISTOR, 15K ohm, 1/2W, 10%	2	
8	041-833		R73	RESISTOR, 750 ohm, 1W, 5%	1	
10	041-056		R78	RESISTOR, 4700 ohm, 1/2W, 10%	1	
11	013-678		CR3, 4, 8	DIODE	3	

4050440C

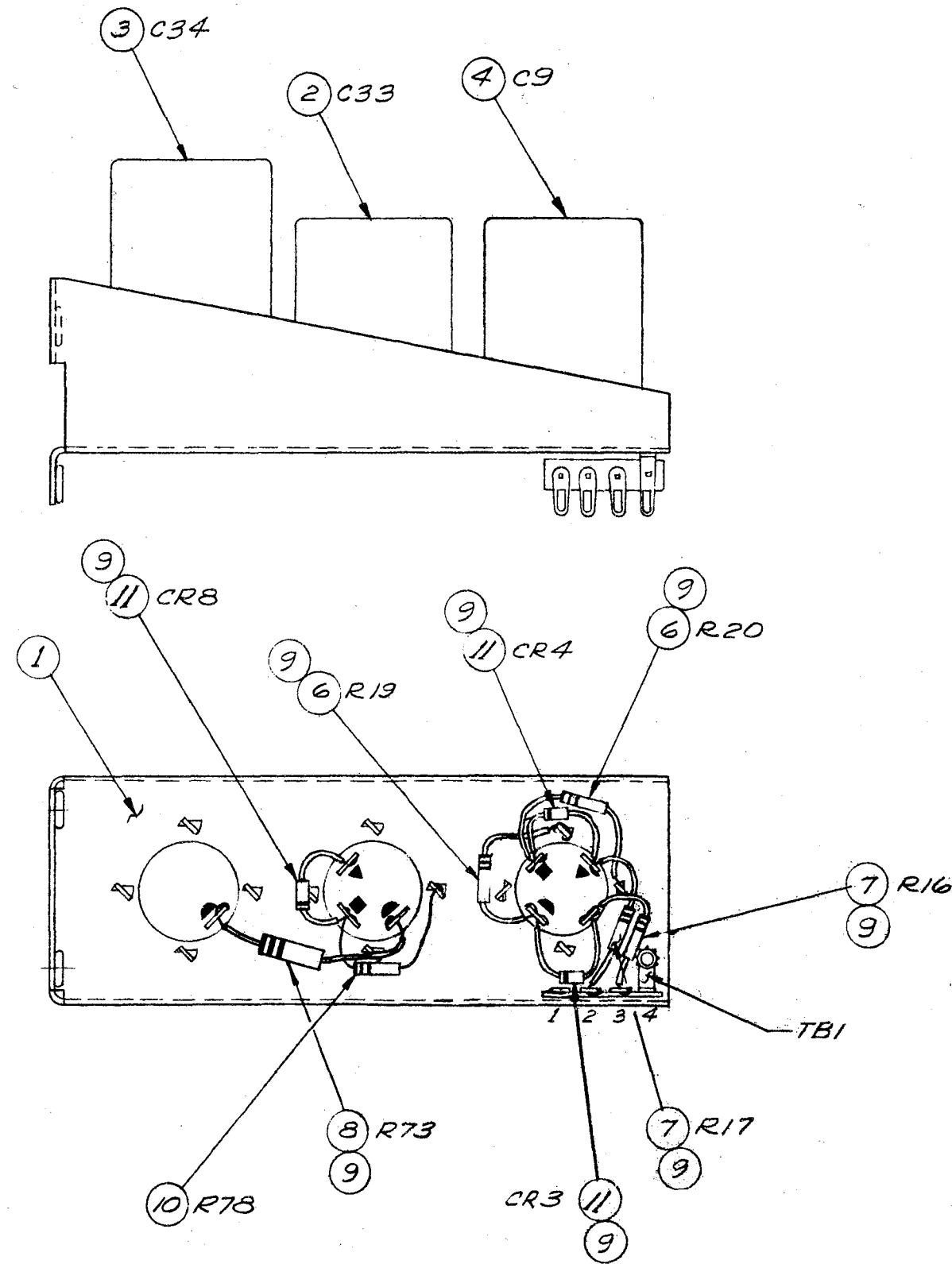
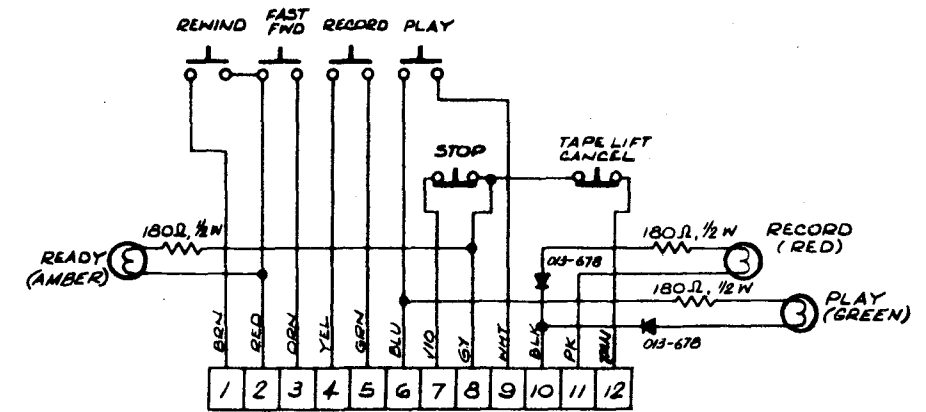
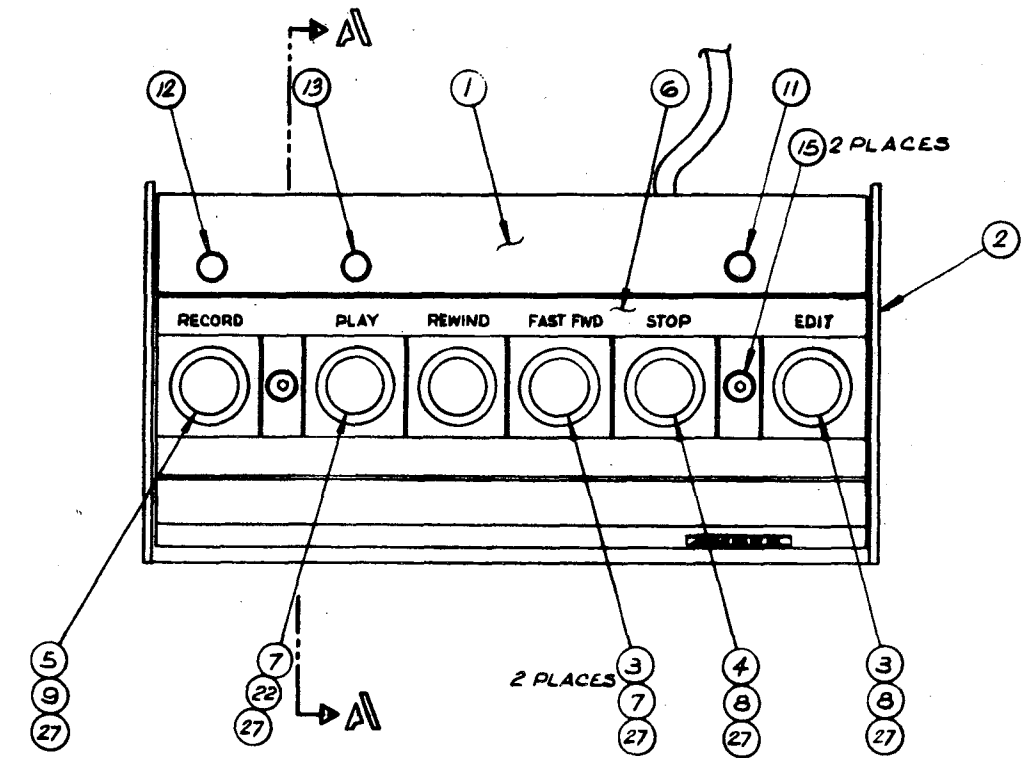
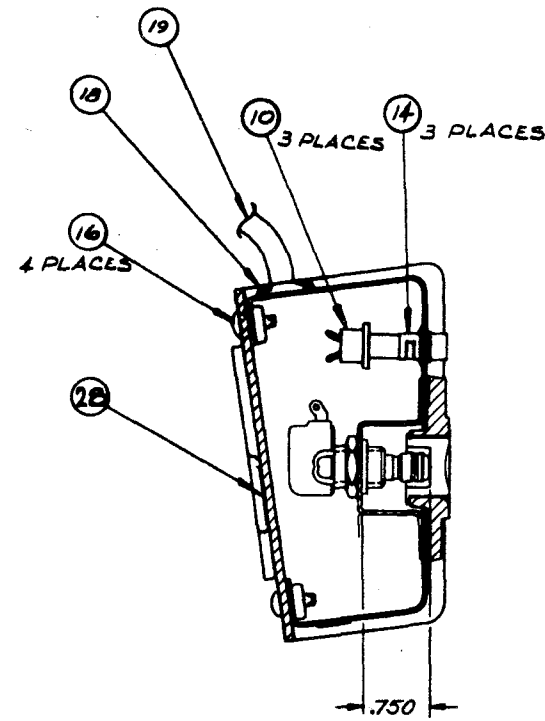


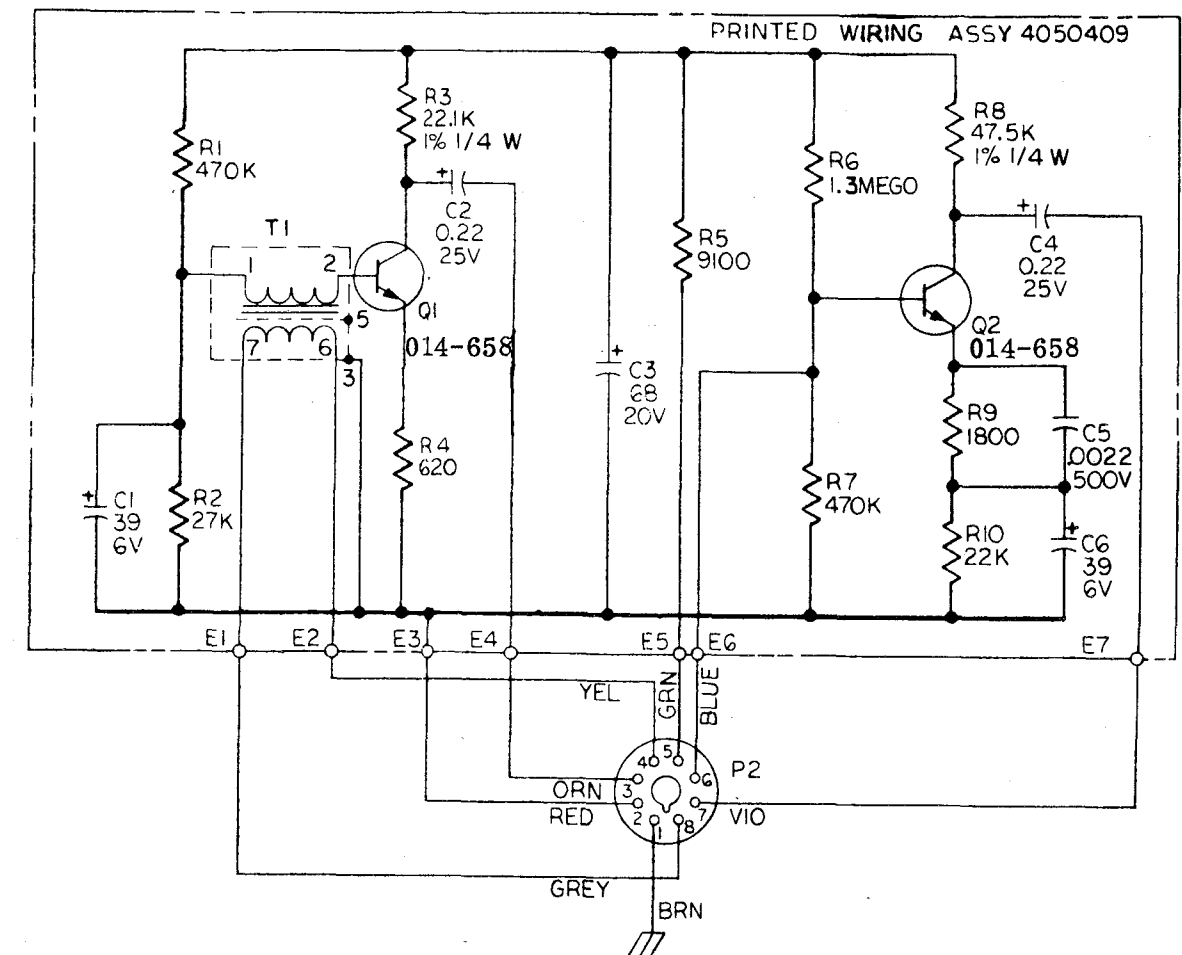
Fig. 6-29. Capacitor Mounting Bracket, Electronics 6-39

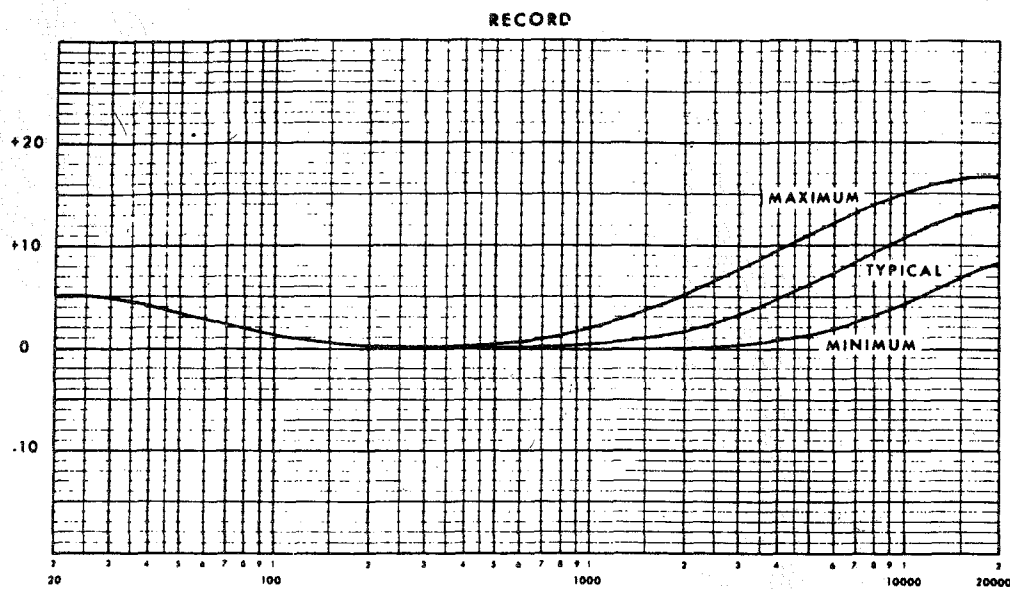


SCHEMATIC DIAGRAM

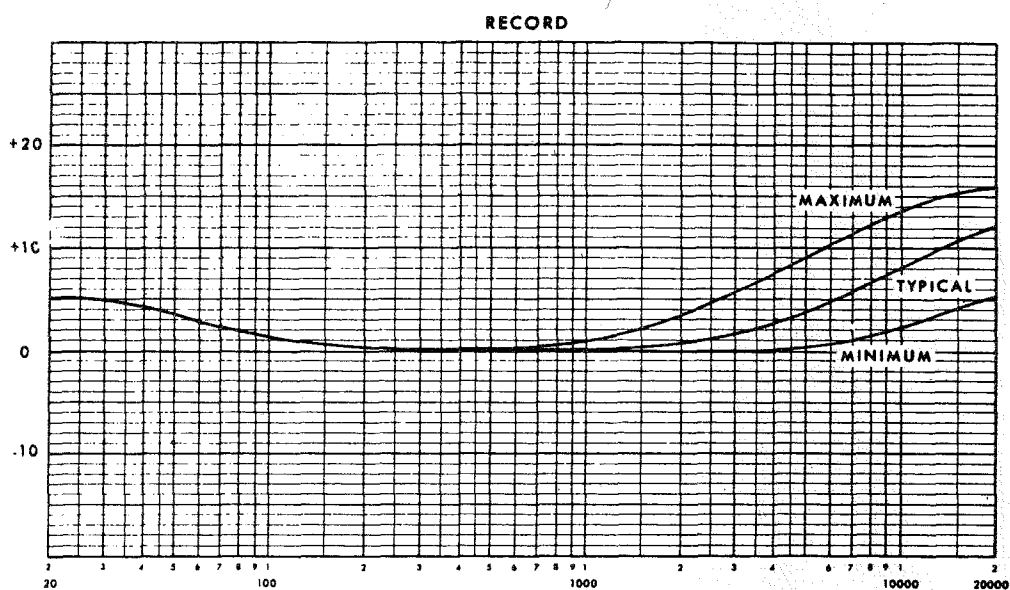
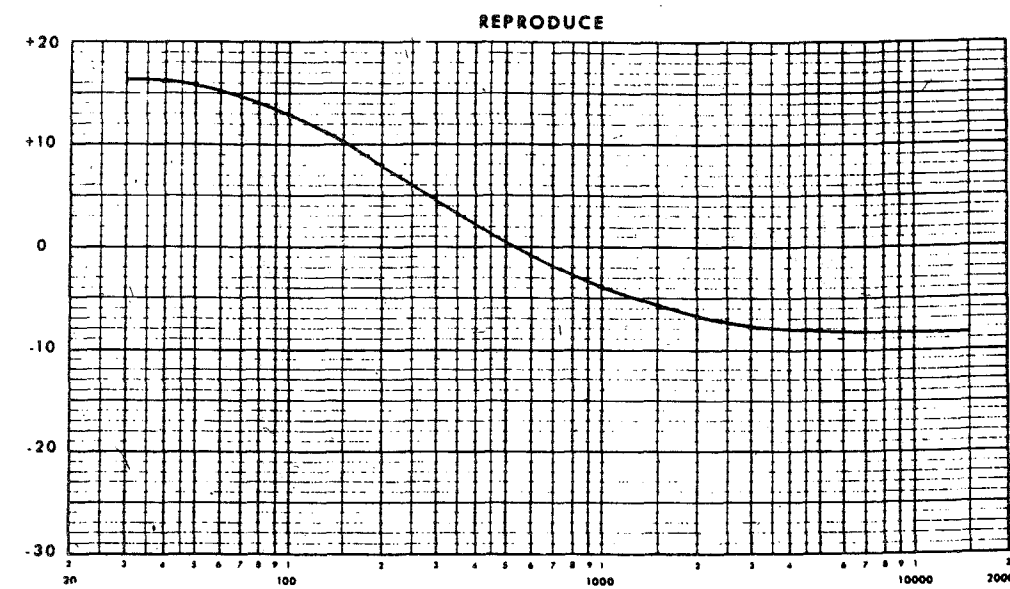
Fig. 6-30. Optional Remote Control

Ref.	Qty	DESCRIPTION	Ampex Part No.
	1	Printed Circuit Board, assembly	4050409-01
C1	2	Capacitor, tantalum; 39 mfd, ±20%, 6 vdcw	037-452
C2	2	Capacitor, tantalum; 0.22 mfd, ±20%, 25 vdcw	037-450
C3	1	Capacitor, tantalum; 68 mfd, ±20%, 20 vdcw	037-451
C4	-	Same as C2	
C5	1	Capacitor, ceramic disc; .0022 mfd, ±10%, 500 vdcw	030-102
C6	-	Same as C1	
Q1	2	Transistor, silicon; low noise, low level	014-698
Q2	-	Same as Q1	
R1	2	Resistor, fixed, comp; 470,000 ohms, ±5%, 1/2w; RC20GF474J	041-029
R2	1	Resistor, fixed, comp; 27,000 ohms, ±5%, 1/2w; RC20GF273J	041-015
R3	1	Resistor, metal film; 22,100 ohms, ±1%, 1/4w	057-208
R4	1	Resistor, fixed, comp; 620 ohms, ±5%, 1/2w; RC20GF621J	041-006
R5	1	Resistor, fixed, comp; 9,100 ohms, ±5%, 1/2w; RC20GF912J	041-373
R6	1	Resistor, fixed, comp; 1.3 meg ohms, ±5%, 1/2w; RC20GF135J	041-377
R7	-	Same as R1	
R8	1	Resistor, metal film; 47,500 ohms, ±1%, 1/4w	042-482
R9	1	Resistor, fixed, comp; 1,800 ohms, ±5%, 1/2w; RC20GF182J	041-009
R10	1	Resistor, fixed, comp; 22,000 ohms, ±5%, 1/2w; RC20GF223J	041-016
T1	1	Transformer, microphone	4580197-01
	2	Sockets, transistors	150-103
	1	Can, plug-in	4290201-10

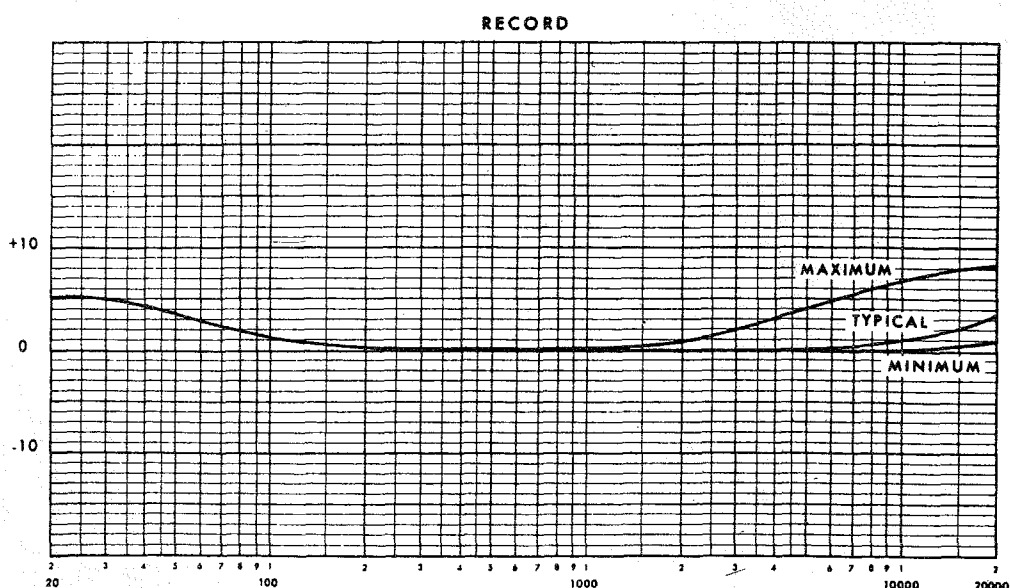
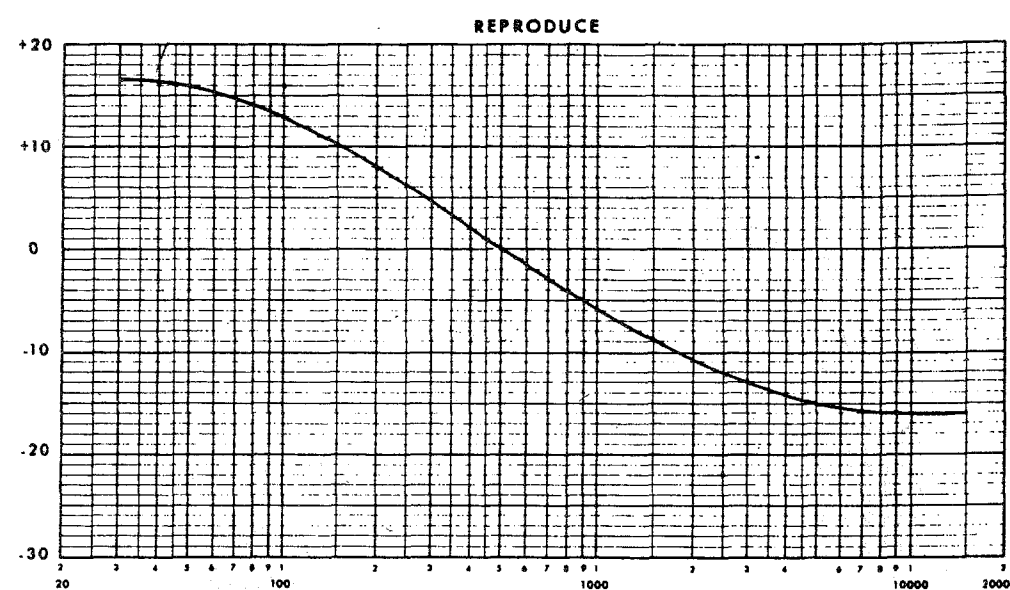




3 3/4 ips (120 usec)



7 1/2 ips NAB



15 ips NAB

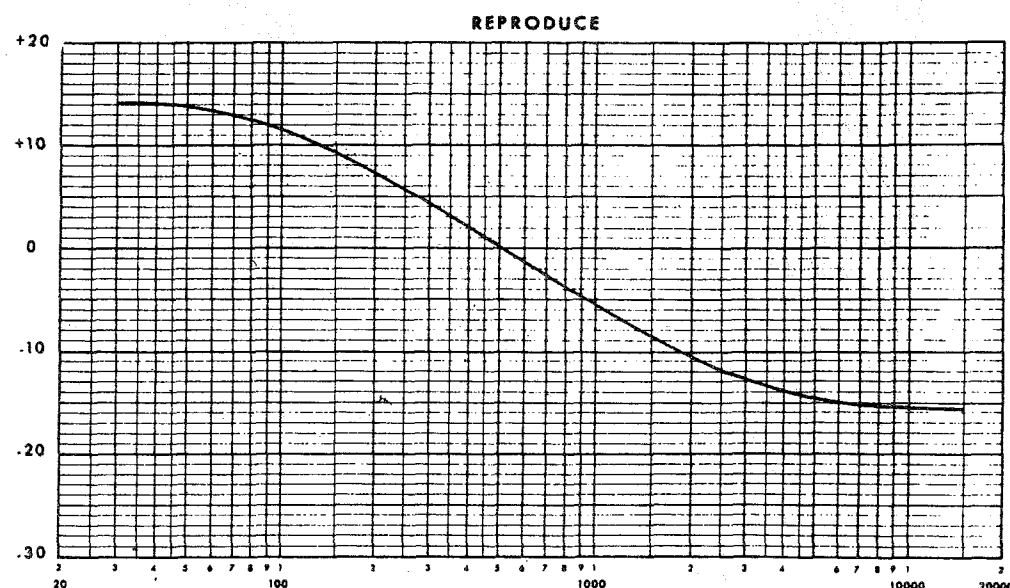
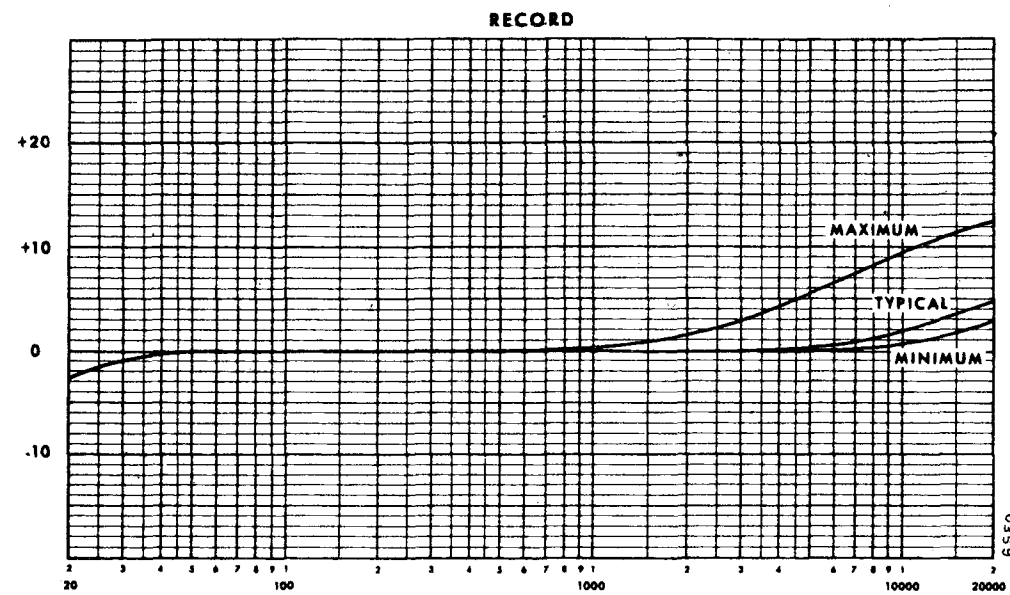
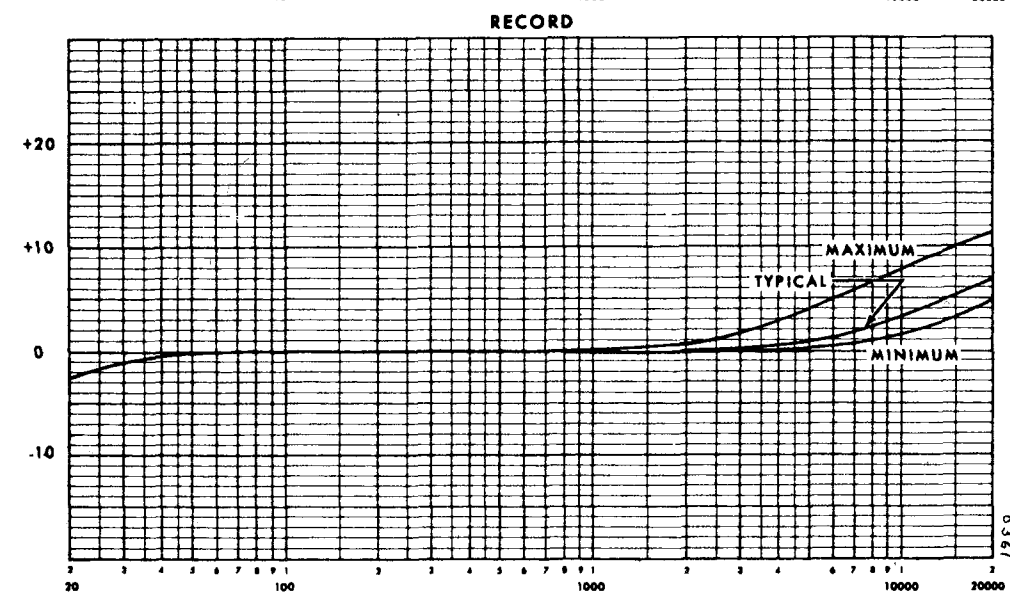
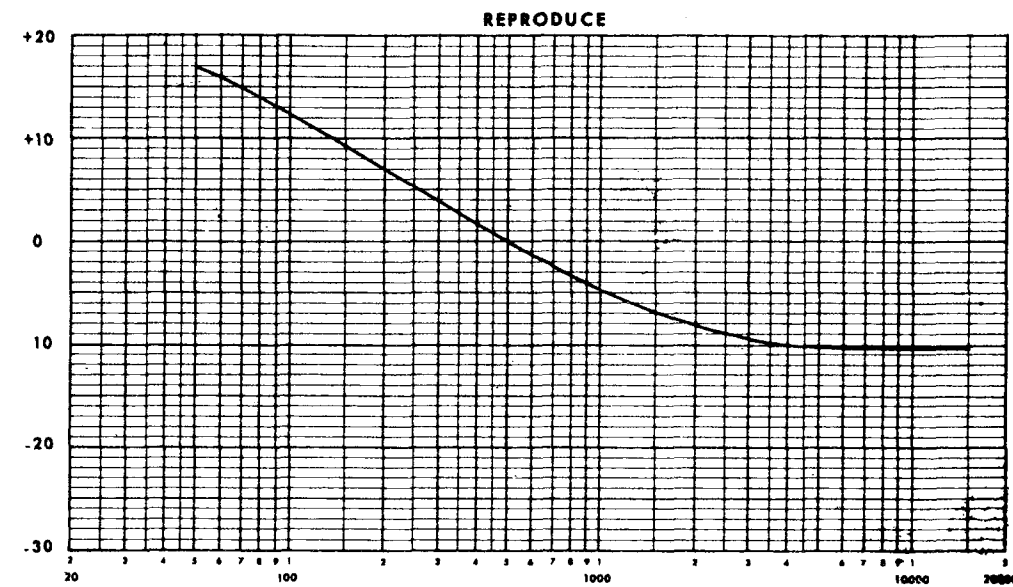


Fig. 6-32. Response Curves, Sheet 1
6-42



7 1/2 ips CCIR



15 ips CCIR

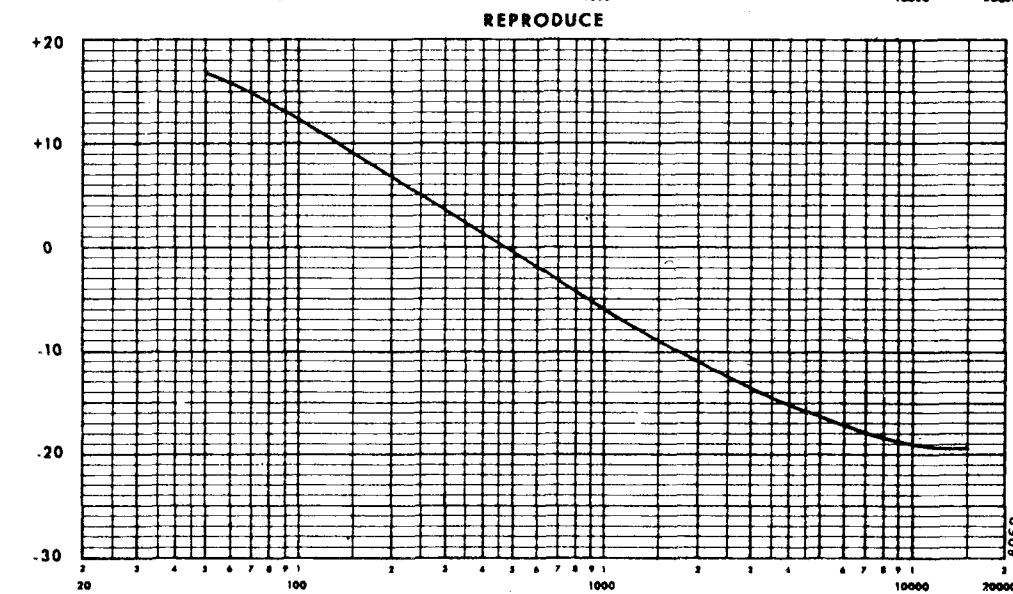


Fig. 6-33. Response Curves, Sheet 2
6-43

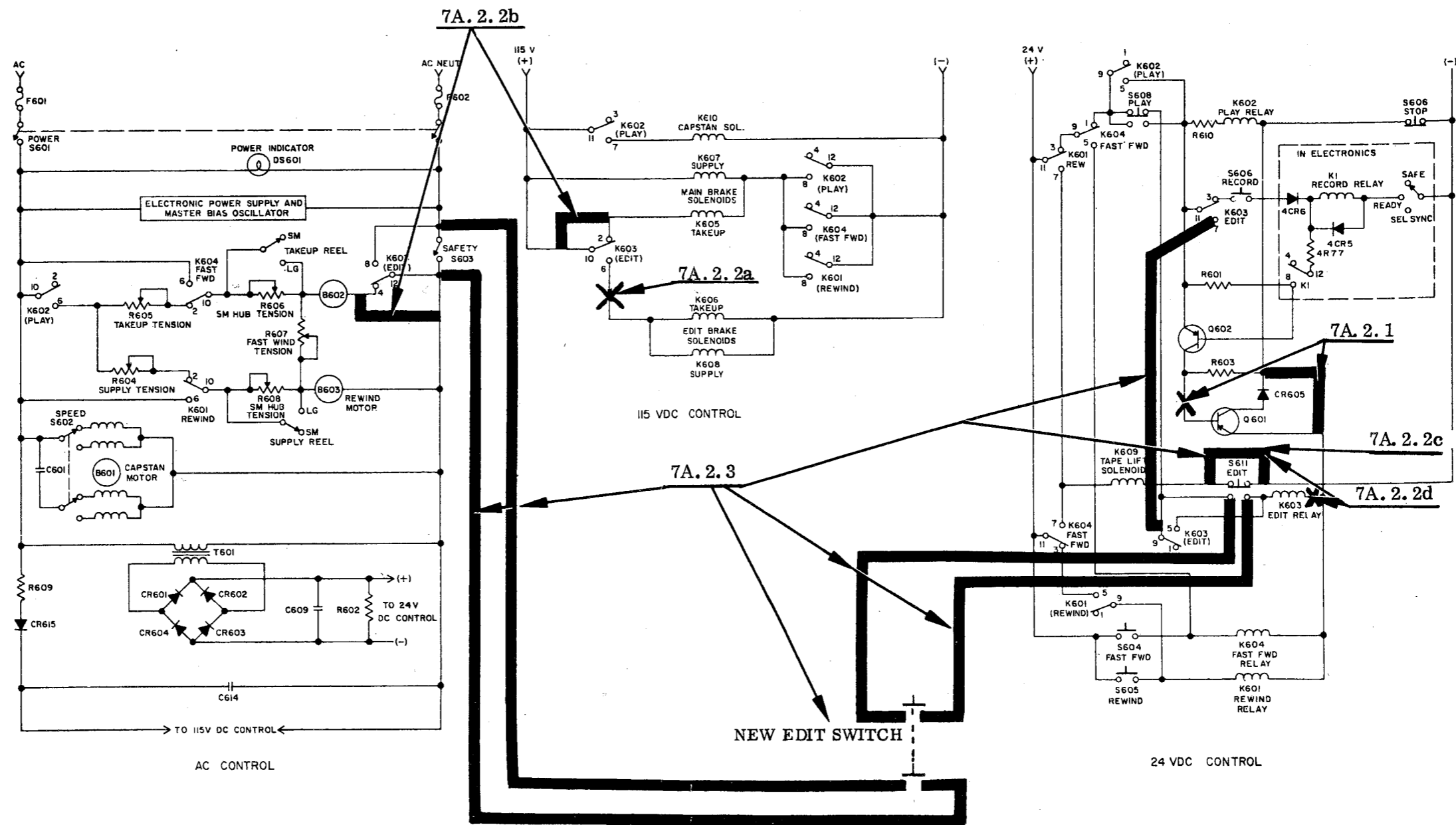


Fig. 7A-1. Tape Transport Mode Alterations

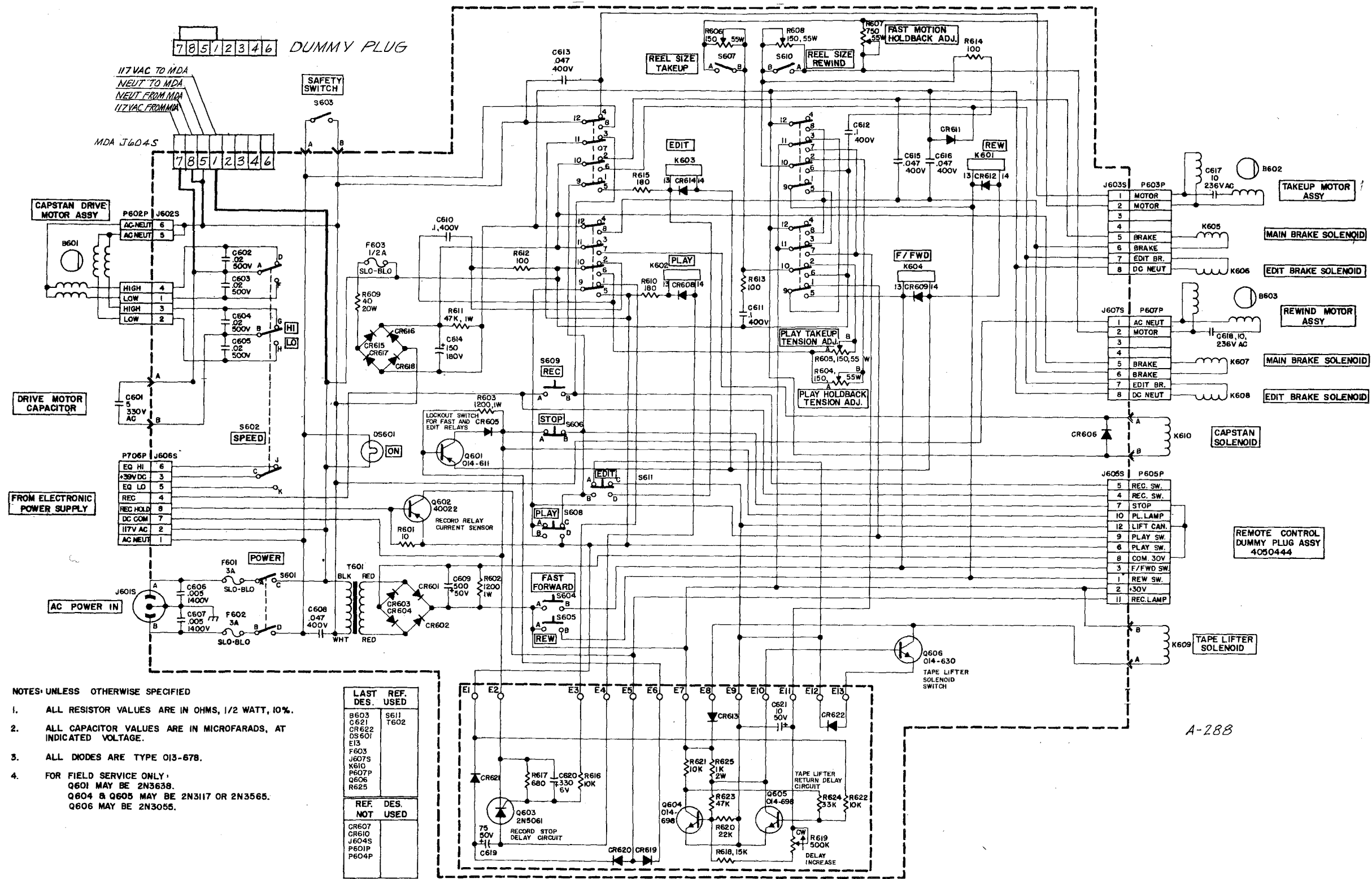


Figure 7B-2. Transport Control Box Modified for Use with External Motor Drive Amplifier, Schematic

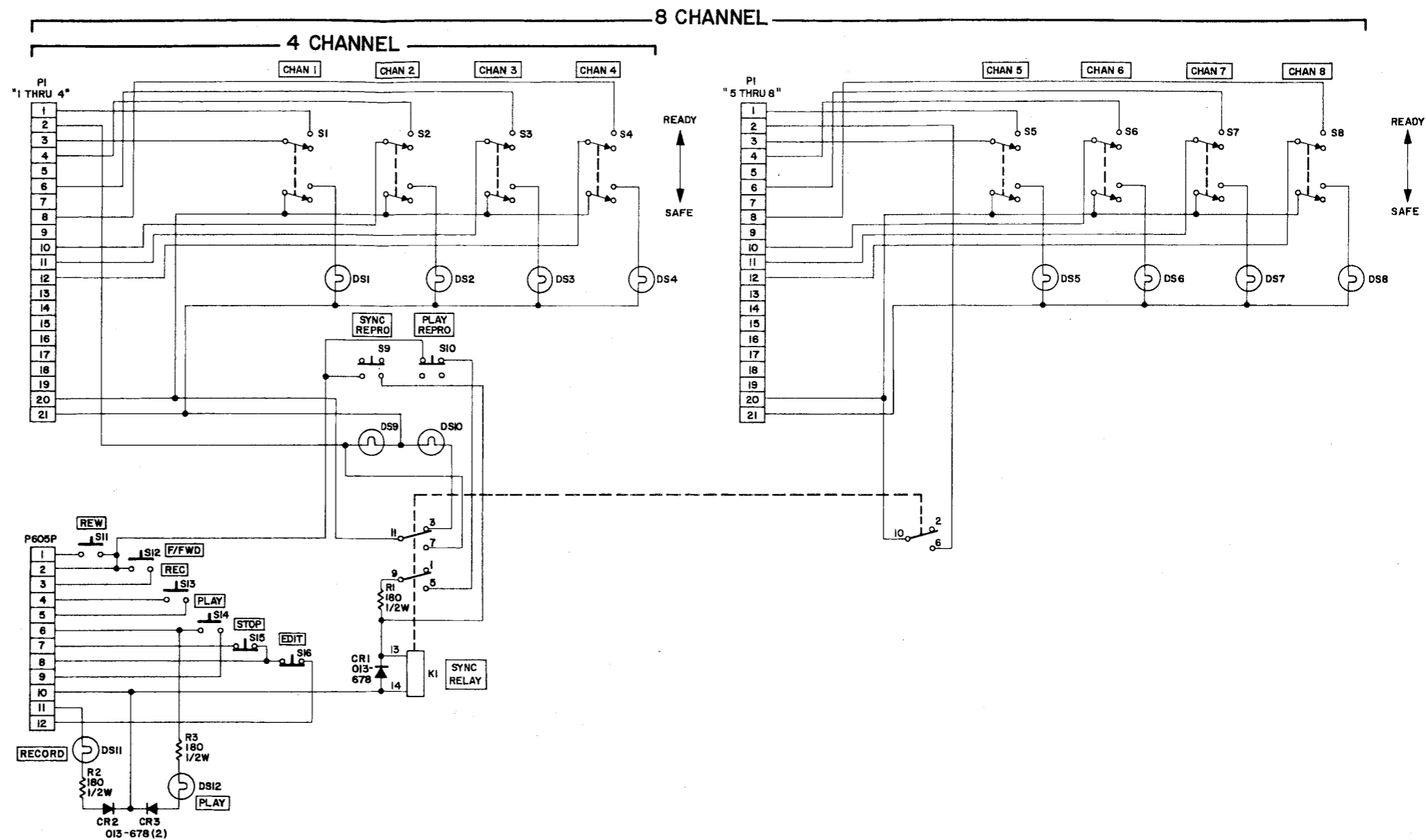


Fig. 7C-1. Control Unit Schematic

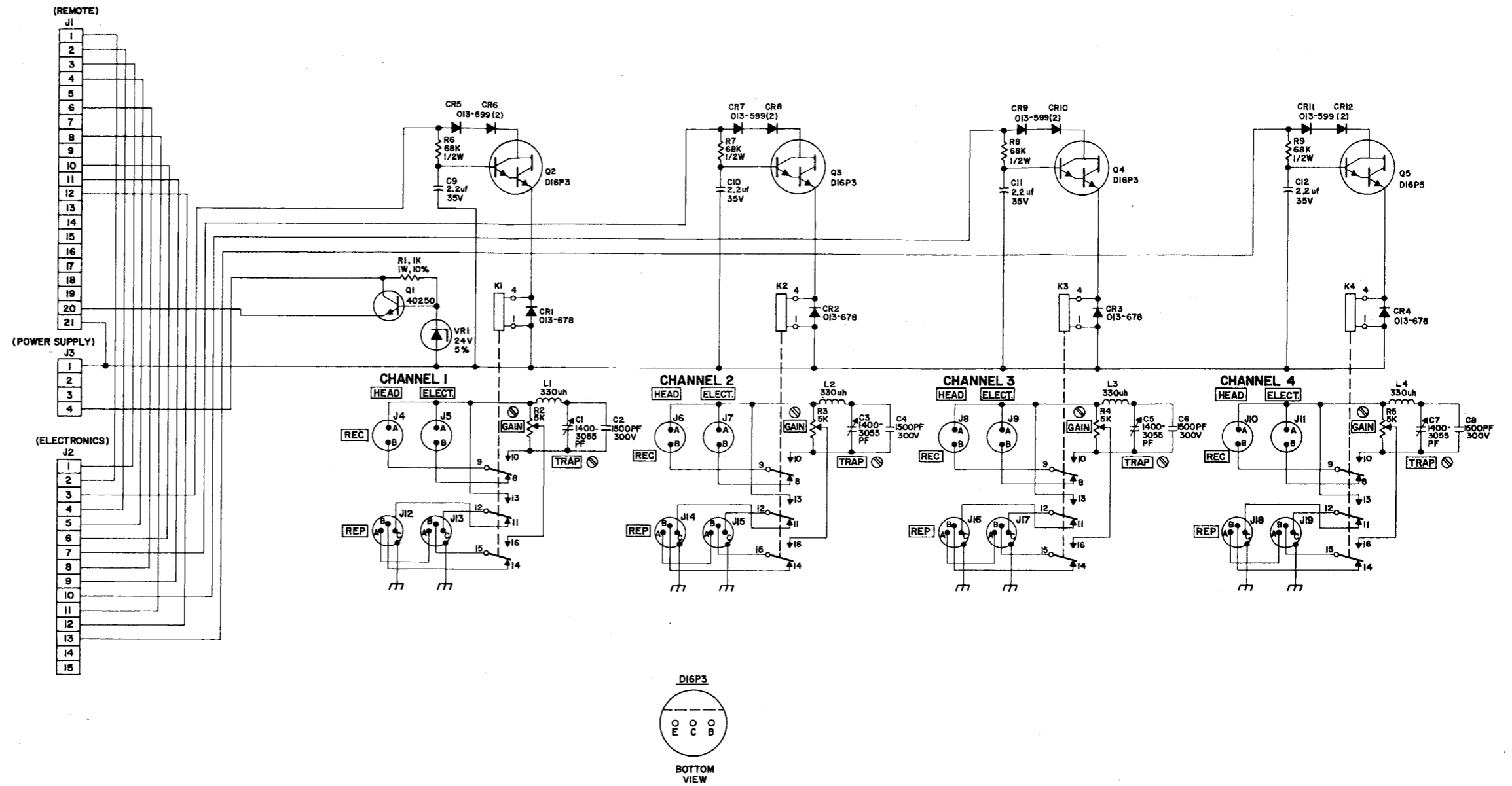


Fig. 7C-2. Switching Unit Schematic

