

Table 5-4. Index of Low-Level Schematic and Wiring Diagrams for Troubleshooting

Figure	Diagram No.	Title	Page
5-7	2900 WD	Wiring Diagram; Model 28 CPP Motor Units LMU37 and LMU51	5-25
5-8	8728 WD	Wiring Diagram; Model 28 CPP KSP (Less Cover and Printer)	5-39
5-9	8729 WD	Schematic Diagram; Model 28 CPP KSP	5-41
5-10	8176 WD	Schematic Diagram; Model 28 CPP RO	5-43
5-11	8177 WD	Wiring Diagram; Model 28 CPP RO Cover LPC 402	5-45
5-12	8764 WD	Wiring Diagram; Model 28 CPP KSP Cover IPC 403	5-47
5-13	8137 WD (Sheet 1 of 3)	Wiring Diagram; Model 28 CPP RO ESA 321231 (Sheet 1 of 3)	5-49
	8137 WD (Sheet 2 of 3)	Wiring Diagram; Model 28 CPP RO ESA 321231 (Sheet 2 of 3)	5-51
	8137 WD (Sheet 3 of 3)	Wiring Diagram; Model 28 CPP RO ESA 321231 (Sheet 3 of 3)	5-53
5-14	8178 WD	Schematic Diagram; Model 28 CPP RO ESA 321231	5-55
5-15	321290	Assembly Drawing; Model 28 CPP KSR and RO ESA Power Supply Circuit Board Assembly with Heat Sink	5-57
5-16	321130 (Sheet 1 of 2)	Circuit Board Assembly; Model 28 CPP KSR and RO ESA Power Supply (47 - 53 VDC, 0.5 Amp Max) (Sheet 1 of 2)	5-59
	321130 (Sheet 2 of 2)	Circuit Board Assembly; Model 28 CPP KSR and RO ESA Power Supply (47 - 53 VDC, 0.5 Amp Max) (Sheet 2 of 2)	5-61

Table 5-4. Index of Low-Level Schematic and Wiring Diagrams for Troubleshooting - Continued

Figure	Diagram No.	Title	Page
5-17	323810	Circuit Board Assembly; Model 28 CPP KSR and RO ESA SMD with Signal Combiner	5-63
5-18	8143 WD	Schematic Diagram; Model 28 CPP KSR and RO ESA SMD with Signal Combiner, 323810	5-65
5-19	8724 WD (Sheet 1 of 4)	Wiring Diagram; Model 28 CPP KSR ESA 323120 (CMD) (Sheet 1 of 4)	5-67
	8724 WD (Sheet 2 of 4)	Wiring Diagram; Model 28 CPP KSR ESA 323120 (CMD) (Sheet 2 of 4)	5-69
	8724 WD (Sheet 3 of 4)	Wiring Diagram; Model 28 CPP KSR ESA 323120 (CMD) (Sheet 3 of 4)	5-71
	8724 WD (Sheet 4 of 4)	Wiring Diagram; Model 28 CPP KSR ESA 323120 (CMD) (Sheet 4 of 4)	5-73
5-20	8725 WD	Schematic Diagram; Model 28 CPP KSR ESA 323120 (CMD)	5-75
5-21	333069	Assembly Drawing; Model 28 CPP KSR ESA CMD Circuit Board Assembly with Heat Sink	5-77
5-22	333142	Schematic Diagram; Model 28 CPP KSR ESA CMD Circuit Board Assembly	5-79
5-23	8726 WD (Sheet 1 of 3)	Wiring Diagram; Model 28 CPP KSR FSA 323121 (SMD and LLK) (Sheet 1 of 3)	5-81
	8726 WD (Sheet 2 of 3)	Wiring Diagram; Model 28 CPP KSR ESA 323121 (SMD and LLK) (Sheet 2 of 3)	5-83
	8726 WD (Sheet 3 of 3)	Wiring Diagram; Model 28 CPP KSR ESA 323121 (SMD and LLK) (Sheet 3 of 3)	5-85
5-24	8727 WD	Schematic Diagram; Model 28 CPP KSR ESA 323121 (SMD and LLK)	5-87

Table 5-4. Index of Low-Level Schematic and Wiring Diagrams for Troubleshooting - Continued

Figure	Diagram No.	Title	Page
5-25	323130	Schematic Diagram; Model 28 CPP KSR ESA LLK Circuit Board Assembly	5-89
5-26	8179 WD	Wiring Diagram; Model 28 CPP RO Base LLB 5	5-91
5-27	8242 WD	Wiring Diagram; Model 28 CPP RO Typing Unit LP 139	5-93
5-28	8299 WD	Wiring Diagram; Model 28 CPP RO Typing Unit Selector Assembly 319204	5-95
5-29	8763 WD	Wiring Diagram; Model 28 CPP KSR Typing Unit LP 156	5-97

SYNCHRONOUS MOTOR UNITS

NO.	NOTES	
1.	SYNCHRONOUS MOTOR OPERATES ON REGULATED FREQUENCY ($\pm 0.75\%$) MAXIMUM AC ONLY.	
2.	CONNECT EITHER WIRE TO DESIGNATED TERMINALS OF UNIT TERMINAL BLOCK, PER WIRING DIAGRAM OF ASSOCIATED UNIT	
3.	MOTOR LEADS OF SAME COLOR ARE INTERCHANGEABLE.	
5.	EXTERNAL NOISE SUPPRESSION NETWORK CONSISTING OF 100 OHM, 1/2 WATT RESISTOR IN SERIES WITH 0.25 MFD 1K V CAPACITOR CONNECTED ACROSS YELLOW AND BROWN WIRES. (FOR LMU45,46)	
6.	MOTOR GROUND LEAD (GREEN) TERMINAL MUST BE FASTENED TO MOUNTING CRADLE OF MOTOR UNDER A SEPARATE GROUND SCREW ONLY. A SCREW USED FOR ANOTHER PURPOSE CANNOT BE USED FOR GROUNDING (UNDERWRITERS LABORATORIES REQUIREMENT).	
7.	WIRE COLOR CODE: BK - BLACK R - RED BL - BLUE O - ORANGE BR - BROWN Y - YELLOW P - PURPLE S - SLATE W - WHITE G - GREEN	
8.	LMU	STARTING CAPACITOR VALUE
	3,15,21,30,33,36,37,38,42,46,49,51,52	43-48 MFD
	11,12	170-226 MFD
	35	64-77 MFD
	55	15-18 MFD
	19,20,24,26,31,45,56	88-108 MFD
	50,	161-193 MFD

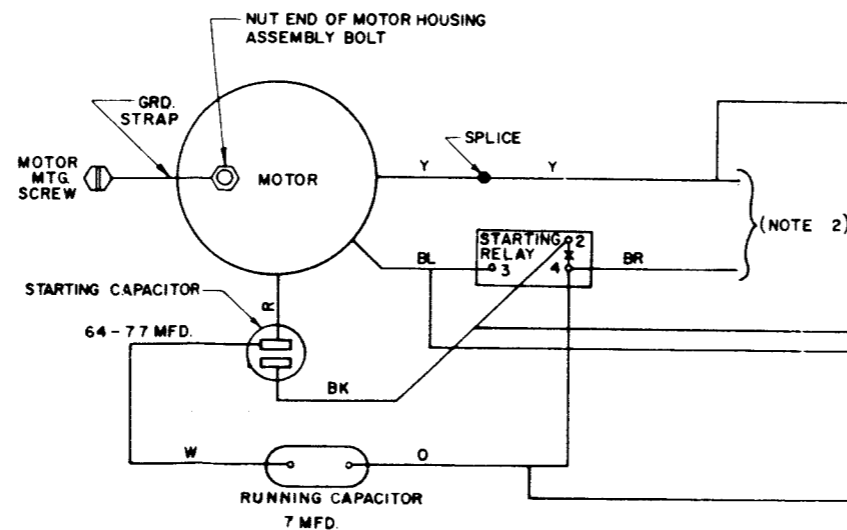
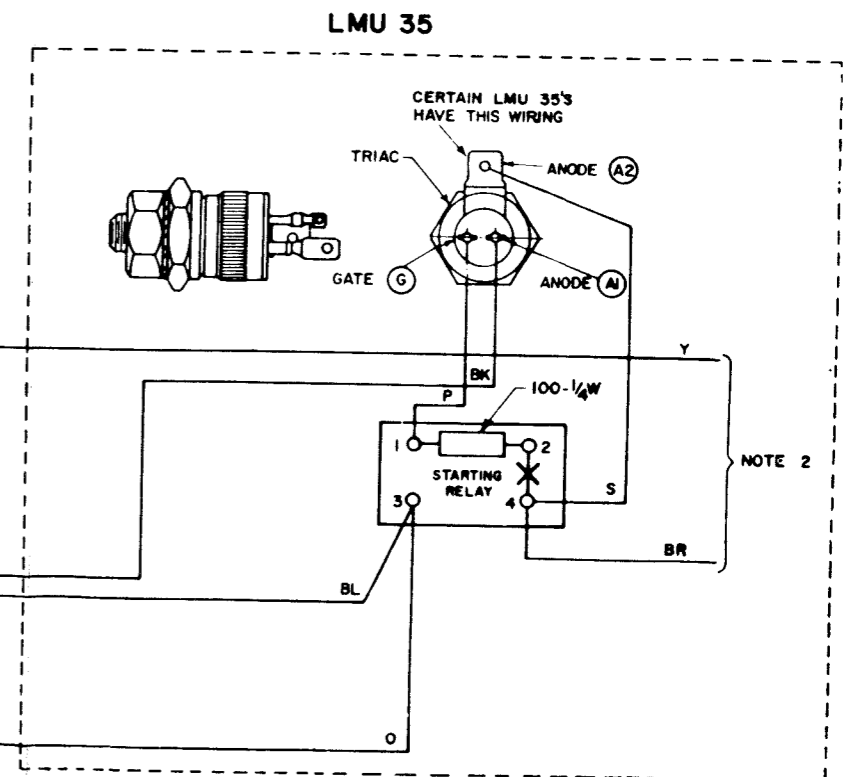
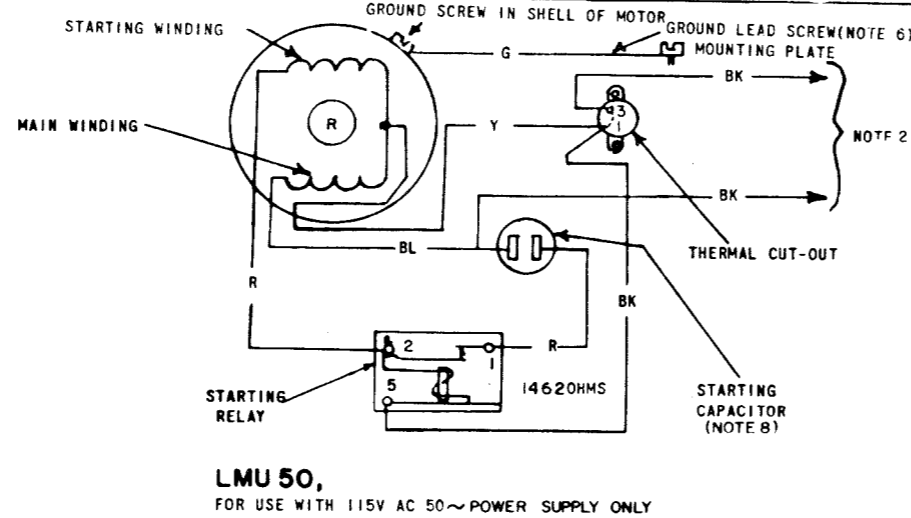
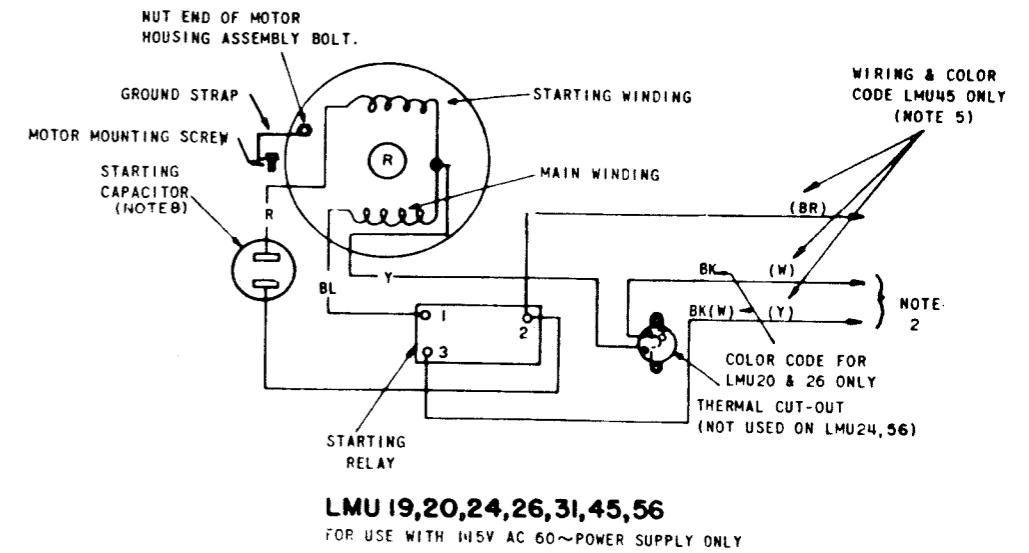
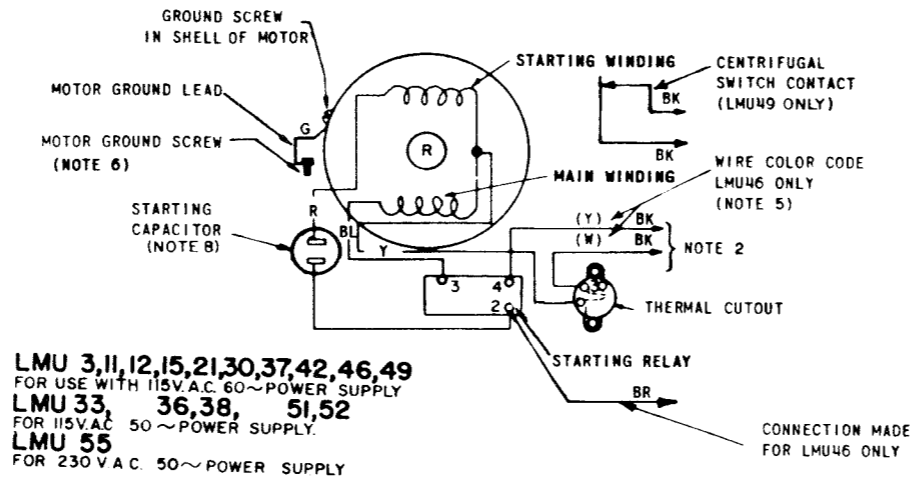
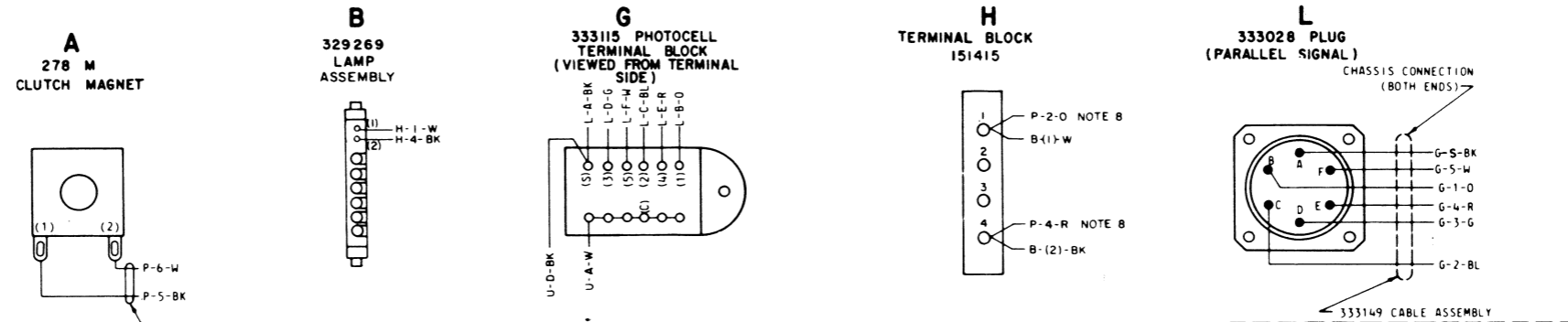


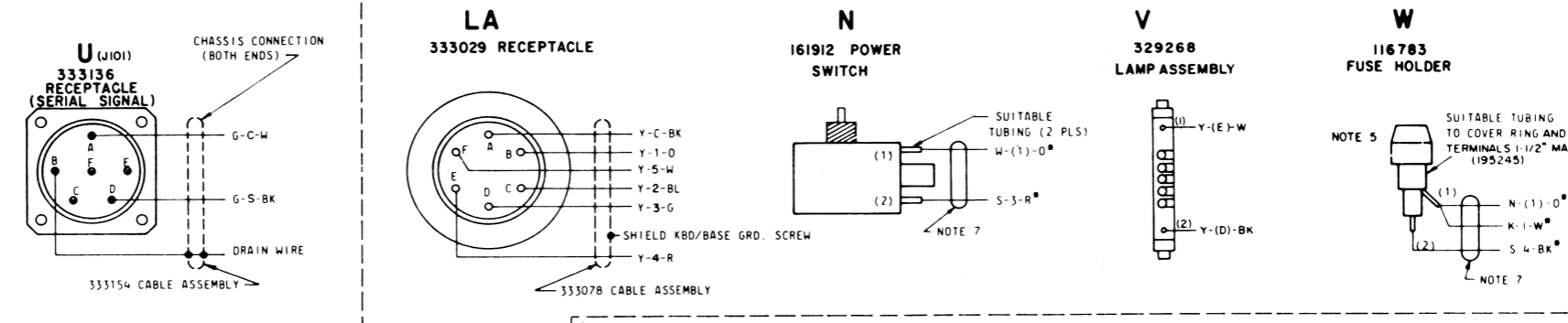
Figure 5-7. Wiring Diagram; Model 28 CPP Motor Units LMU37 and LMU51

NO.	NOTES										
1.	<p>WIRING LEGEND:</p> <p>— DISTANT TERMINATING AREA — DISTANT TERMINATING DESIGNATION A-1-W WIRE COLOR CODE</p>										
2.	<p>COLOR CODE:</p> <table border="0"> <tr> <td>BK - BLACK</td> <td>G - GREEN</td> </tr> <tr> <td>BR - BROWN</td> <td>BL - BLUE</td> </tr> <tr> <td>R - RED</td> <td>P - PURPLE</td> </tr> <tr> <td>O - ORANGE</td> <td>S - SLATE</td> </tr> <tr> <td>Y - YELLOW</td> <td>W - WHITE</td> </tr> </table>	BK - BLACK	G - GREEN	BR - BROWN	BL - BLUE	R - RED	P - PURPLE	O - ORANGE	S - SLATE	Y - YELLOW	W - WHITE
BK - BLACK	G - GREEN										
BR - BROWN	BL - BLUE										
R - RED	P - PURPLE										
O - ORANGE	S - SLATE										
Y - YELLOW	W - WHITE										
3.	CONNECTORS VIEWED FROM SOLDER TERMINAL SIDE.										
4.	* INDICATES 18 GA. WIRE.										
5.	USE 4 AMP. SL-BL FUSE.										
6.	NUMBERS IN PARENTHESES ARE NOT IDENTIFIED ON COMPONENTS.										
7.	333079 CABLE ASSEMBLY.										
8.	333151 CABLE ASSEMBLY.										
9.	<p>ASSOCIATED WD'S</p> <p>2900WD ACTUAL OF LMU37 8764WD ACTUAL OF LPC 403 8143WD SCHEMATIC OF 323810 SMD CARD 8763WD ACTUAL OF LP156 8299WD ACTUAL AND SCHEMATIC OF 319204 SELECTOR 8724WD ACTUAL OF 323120 ESA 8725WD SCHEMATIC OF 323120 ESA 8726WD ACTUAL OF 323121 ESA 8727WD SCHEMATIC OF 323121 ESA 8729WD SCHEMATIC OF 28RFB0001A, 28RFB0001A, AND VSL500 INCORPORATING 32316 MODIFICATION KIT</p>										
10.	S-NUMBER 61,600 S										
11.	--- INDICATES SHIELDED WIRE.										
12.	333147 GROUND STRAP IS USED IN CONJUNCTION WITH OLD STYLE TWO PIECE BONDED KEYBOARD END FRAMES AND IS NOT USED ON LATER STYLE UNITS USING SOLID ONE PIECE END FRAMES.										

DISTRIBUTOR WIRING



KEYBOARD WIRING



BASE WIRING

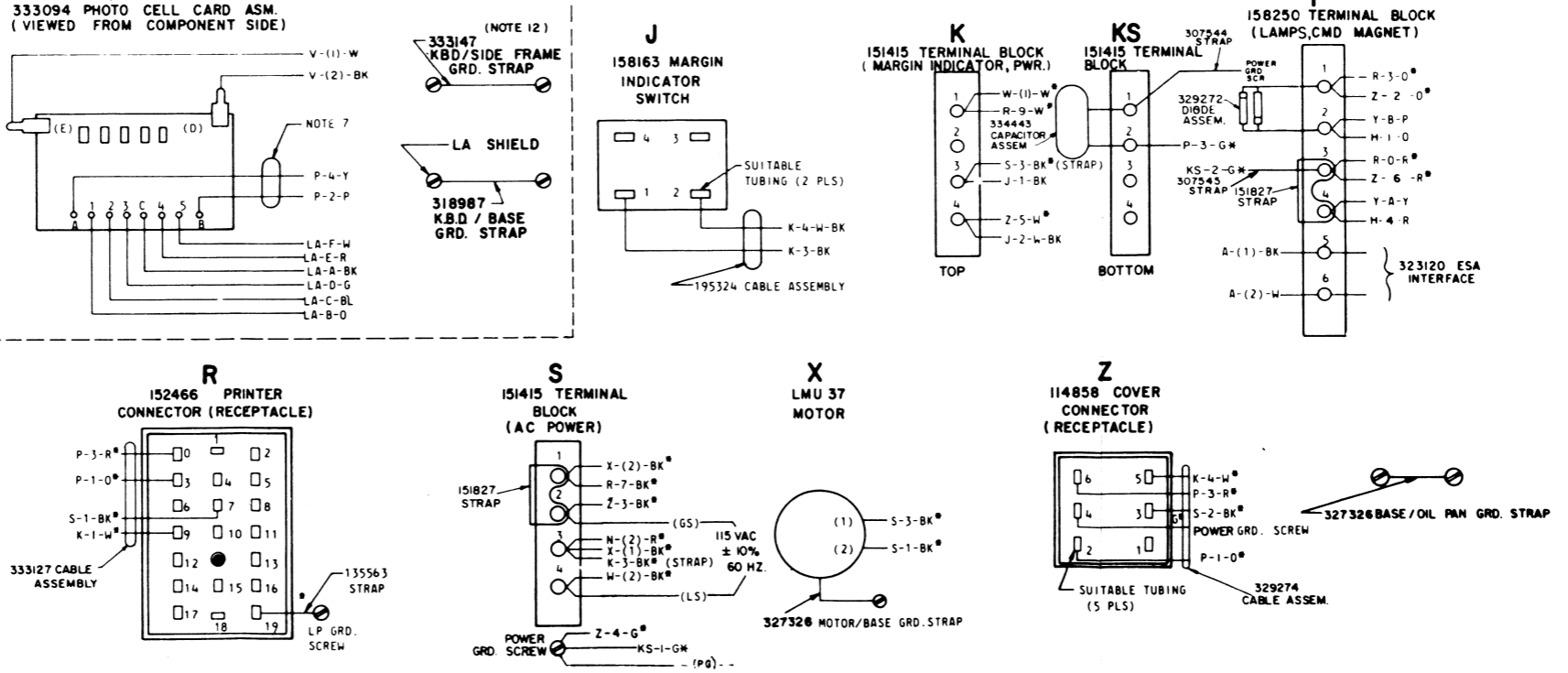






Figure 5-8. Wiring Diagram; Model 28 CPP KSR (Less Cover and Printer)

NO.	NOTES
1.	 INDICATES FEMALE TERMINAL  INDICATES MALE TERMINAL
2.	 INDICATES SINGLE SHIELDING  INDICATES DOUBLE SHIELDING
3.	SL-BL INDICATES SLOW BLOWING
4.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE ONLY AND ARE NOT MARKED ON COMPONENT.
5.	S NUMBER 61,600 S
6.	ASSOCIATED WIRING DIAGRAMS 2900WD ACTUAL OF LMU37 8764WD ACTUAL OF LFC403 8763WD ACTUAL OF LP156 8724WD ACTUAL OF 323120 ESA 8721WD ACTUAL OF 323121 ESA 8299WD ACTUAL AND SCHEMATIC OF 319204 SELECTOR 8143WD SCHEMATIC OF 323810 SMD CARD 8725WD SCHEMATIC OF 323120 ESA 8727WD SCHEMATIC OF 323121 ESA 8728WD ACTUAL OF 28RFC8001A, 28-RFH8001A, AND VSL500 INCORPORATING 323116 MODIFICATION KIT
7.	RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED
8.	28-RFC8001A OMIT 323120 ESA 323121 ESA 28-RFH8001A INCLUDE 323120 ESA 323121 ESA VSL500 INCORPORATING 323116 MOD. KIT INCLUDE 323120 ESA 323121 ESA

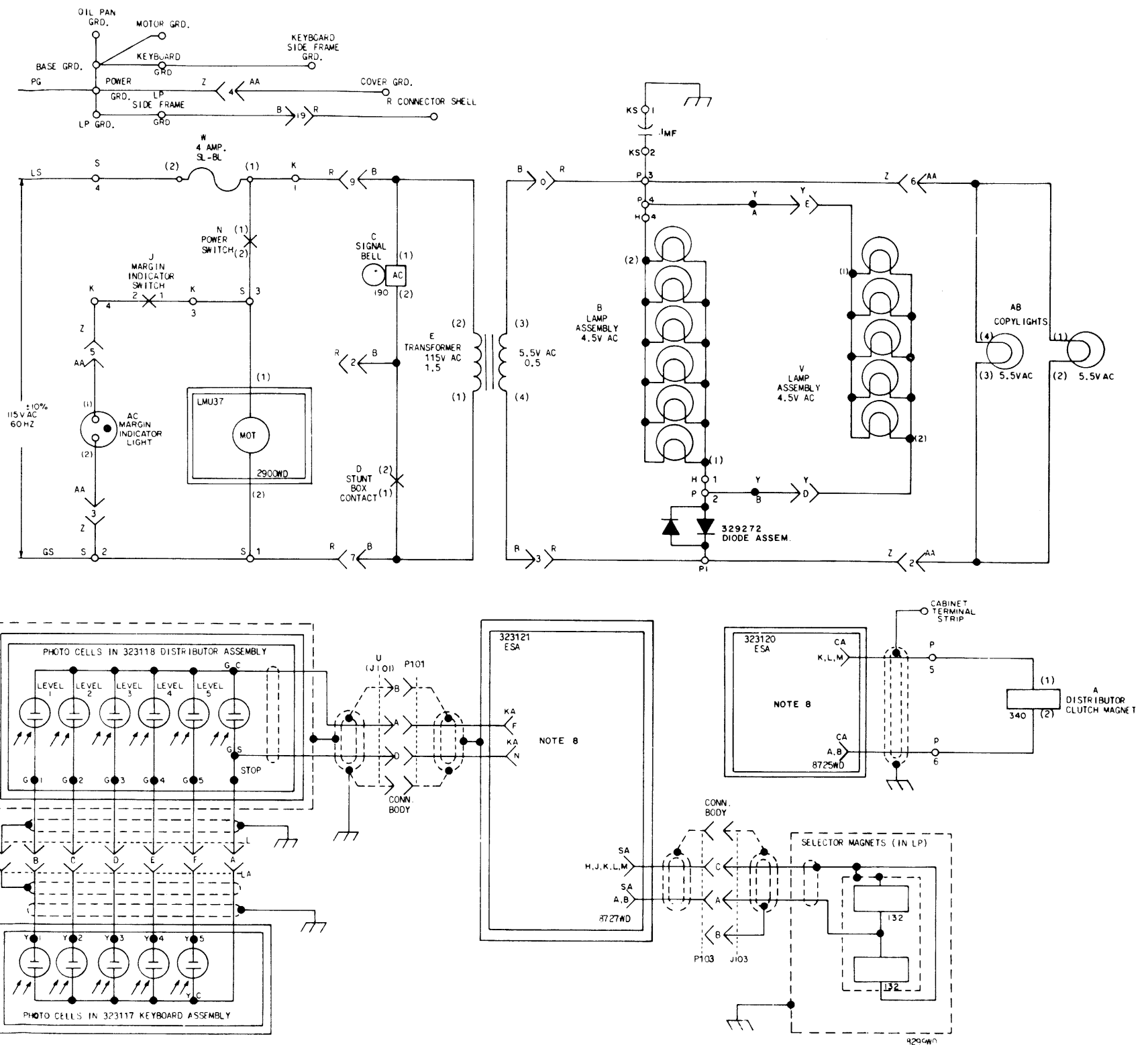


Figure 5-9. Schematic Diagram; Model 28 CPP KSR

NO.	NOTES
1	<ul style="list-style-type: none"> ↗ INDICATES FEMALE TERMINAL ↖ INDICATES MALE TERMINAL
2	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT
3	⊖ INDICATES SHIELDED WIRE
4	193781 CUT-OUT SWITCH USED FOR 50HZ OPERATION. 122249 CUT-OUT SWITCH USED FOR 60HZ OPERATION.
5	ASSOCIATED WIRING DIAGRAMS: 2900WD - MOTOR UNITS 8177WD - COVER, PRINTER SET 8242WD - PAGE PRINTER UNIT 8179WD - REFERENCE SETS 8137WD - 32(23) E S A
6	SL-BL INDICATES SLOW-BLOWING
7	GROUND SCREW LOCATED ON TERMINAL BLOCK MOUNTING BRACKET FOR CUSTOMERS TERMINAL GROUND CONNECTION.
8	ALL VOLTAGES D.C. UNLESS OTHERWISE SPECIFIED
9	REFERENCE SPEC FOR TELETYPE CORPORATION EMPLOYEES ONLY 61351 S
10	⊖⊖ INDICATES DOUBLE SHIELDED WIRE

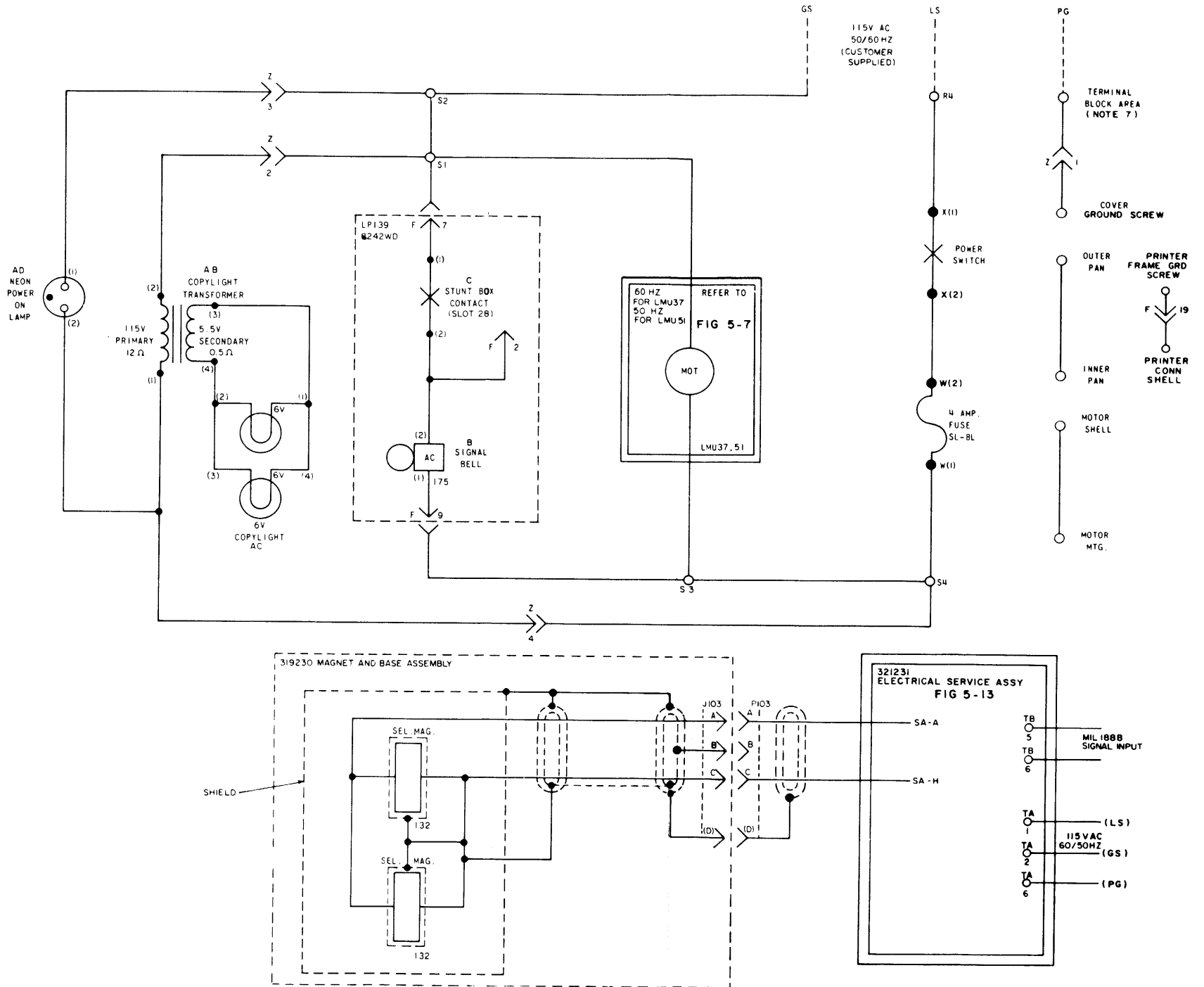


Figure 5-10. Schematic Diagram; Model 28 CPP RO

NO.	NOTES										
1.	<p>WIRING LEGEND:</p> <p>— DISTANT TERMINATING AREA — DISTANT TERMINATING DESIG.</p> <p>AB-4-BR WIRE COLOR CODE</p>										
2.	<p>COLOR CODE:</p> <table border="0"> <tr> <td>BK - BLACK</td> <td>R - RED</td> </tr> <tr> <td>BL - BLUE</td> <td>Y - YELLOW</td> </tr> <tr> <td>BR - BROWN</td> <td>W - WHITE</td> </tr> <tr> <td>O - ORANGE</td> <td>P - PURPLE</td> </tr> <tr> <td>S - SLATE</td> <td>G - GREEN</td> </tr> </table>	BK - BLACK	R - RED	BL - BLUE	Y - YELLOW	BR - BROWN	W - WHITE	O - ORANGE	P - PURPLE	S - SLATE	G - GREEN
BK - BLACK	R - RED										
BL - BLUE	Y - YELLOW										
BR - BROWN	W - WHITE										
O - ORANGE	P - PURPLE										
S - SLATE	G - GREEN										
3.	<p>✕ INDICATES SPLICE, SOLDER AND TAPE.</p>										
4.	<p>CONNECTOR VIEWED FROM SOLDER END</p>										
5.	<p>NUMERALS IN PARENTHESES ARE FOR REFERENCE ONLY AND DO NOT APPEAR ON COMPONENT.</p>										
6.	<p>USE 60373RM HEAT SHRINK TUBING ON THE CONNECTOR TERMINALS AFTER SOLDERING.</p>										
7.	<p>ON THE LPC402 THE 164856 NEON INDICATOR LIGHT IS USED AS A POWER "ON" INDICATOR.</p>										
8.	<p>COPYLIGHT SOCKETS PART OF 198562 CABLE ASSEMBLY.</p>										
9.	<p>SPLICE LEADS AB-3, AC-1, & AC-4 TAPE & TUCK & TIE NEAR "Z" CONN.</p>										
10.	<p>SPLICE LEADS AB-4, AC-2 & AC-3 TAPE & TUCK & TIE NEAR "Z" CONN.</p>										
11.	<p>ASSOCIATED WIRING DIAGRAMS:</p> <p>8137WD: 321231 ESA WIRING 8176WD: RFH8000B SCHEMATIC 8178WD: 321231 ESA SCHEMATIC 8179WD: RFH8000B 8242WD: LPI59</p>										
12.	<p>REFERENCE SPEC FOR TELETYPE CORPORATION EMPLOYEES ONLY 61351 S</p>										
13.	<p>* DENOTES 18GA - ALL OTHER WIRES 24 GA.</p>										

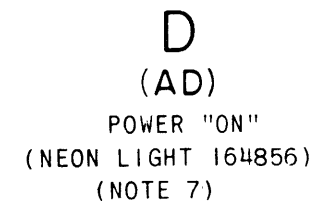
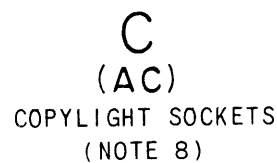
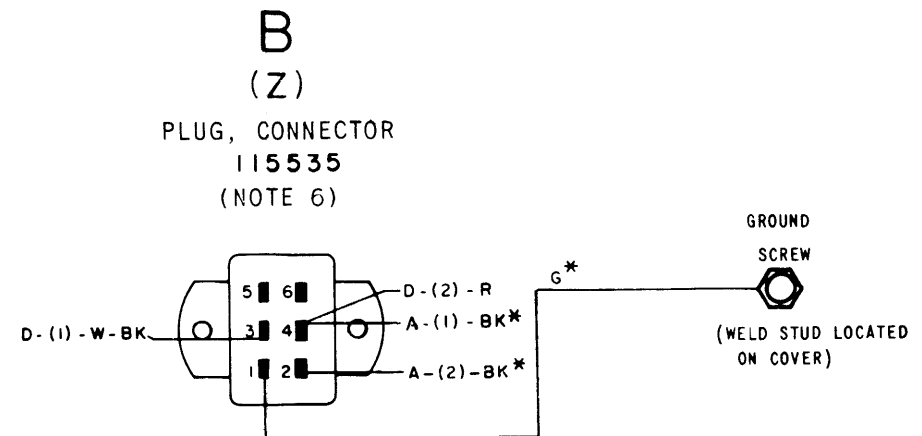
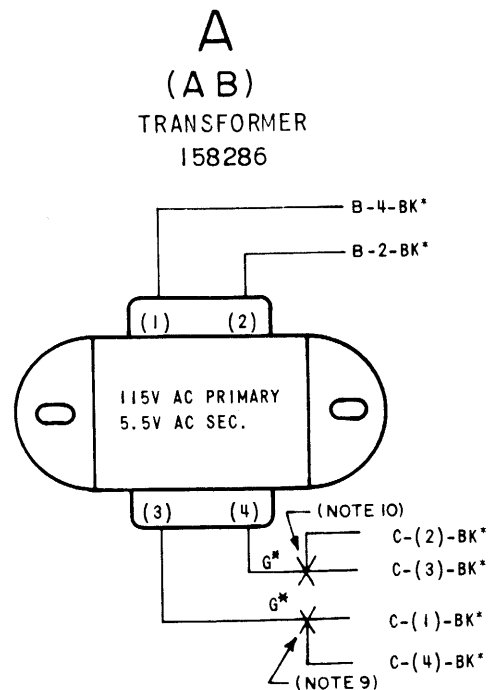
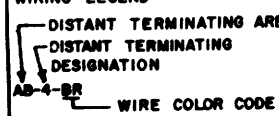



Figure 5-11. Wiring Diagram; Model 28 CPP RO
Cover LPC 402

NO.	NOTES
1.	WIRING LEGEND: 
2.	COLOR CODE: BK - BLACK R - RED BL - BLUE Y - YELLOW BR - BROWN G - GREEN O - ORANGE W - WHITE S - SLATE P - PURPLE
3.	ASSOCIATED WIRING DIAGRAMS 8724 WD 323120 ESA ACTUAL 8725 WD 323120 ESA SCHEMATIC 8726 WD 323121 ESA ACTUAL 8727 WD 323121 ESA SCHEMATIC 8728 WD 323116 MOD KIT ACTUAL 8729 WD 323116 MOD KIT SCHEMATIC 8763 WD LP 156 ACTUAL
4.	 INDICATES SPLICE SOLDER AND TAPE
5.	CONNECTOR VIEWED FROM SOLDER END.
6.	USE 155755 INSULATING SLEEVE ON THE CONNECTOR TERMINALS AFTER SOLDERING.
7.	S NUMBER 61600S
8.	* DENOTES 18 GA. ALL OTHER WIRES 24 GA.
9.	151982 INCANDESCENT LAMP
10.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE ONLY AND ARE NOT MARKED ON COMPONENTS.

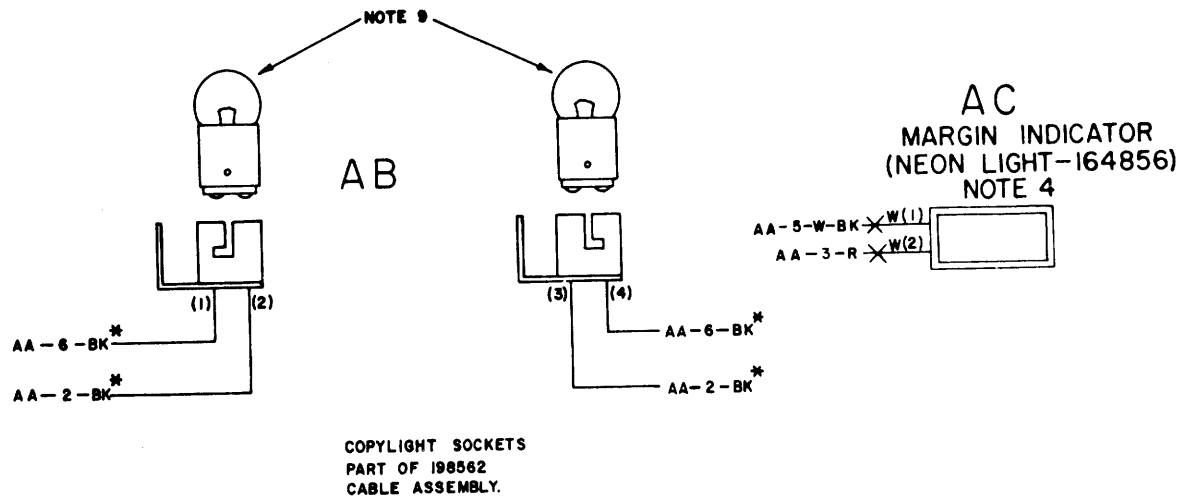
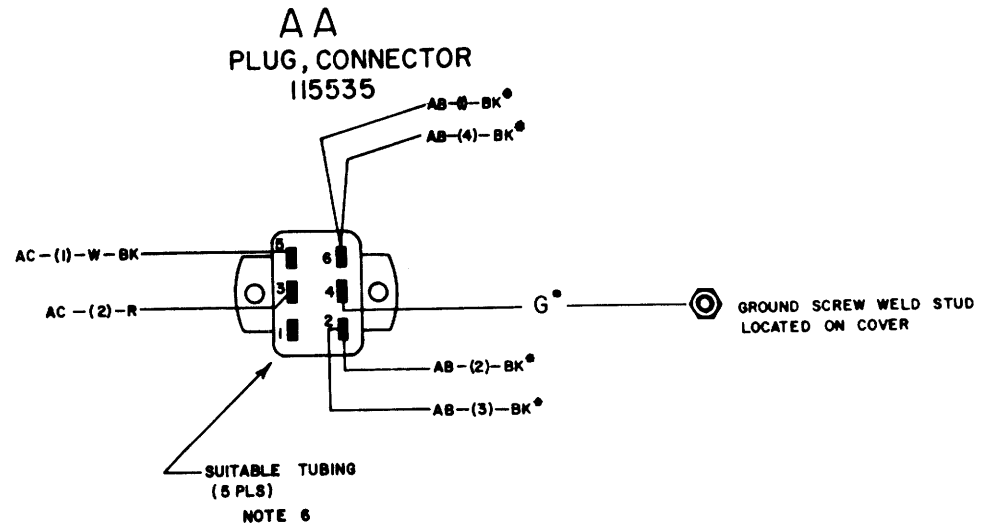




Figure 5-12. Wiring Diagram; Model 28 CPP KSR
Cover LPC403

NO	NOTES
1	ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
2	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESIS ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
3	ALL SURFACE WIRE 24 AWG GREEN, 31784 RM, UNLESS OTHERWISE SPECIFIED. ALL STRAPPING WIRE 24 AWG BARE, 39603RM. USE SLEEVING WHERE REQUIRED. ① INDICATES 18 AWG STRANDED WIRE. ② INDICATES 24 AWG STRANDED WIRE. ③ INDICATES 24 AWG 2 LEAD SINGLE SHIELDED CABLE. ④ INDICATES 24 AWG SINGLE SHIELDED WIRE.
4	* INDICATES TO TAPE END TERMINATING POINT.
5	 INDICATES SINGLE SHIELDING  INDICATES DOUBLE SHIELDING
6	FUSE NUMBER. 162360 8/10 AMP SLOW BLOWING.
7	ASSOCIATED CABLE ASSEMBLIES, 321246, 321248, 324154, 324136, 324137.
8	TERMINALS 7 & 9 ARE GROUNDED THRU THE MOUNTING SCREW OF THE TERMINAL STRAPS.
9	
10	INNER SHIELD GROUND NUT ON CONNECTOR MOUNTING.
11	COLOR CODE: BK-BLACK R-RED BL-BLUE O-ORANGE BR-BROWN W-WHITE S-SLATE G-GREEN Y-YELLOW P-PURPLE
12	ASSOCIATED WD 8727 WD SCHEMATIC DIAGRAM.
	NOTES CONTINUED ON SHEET 2

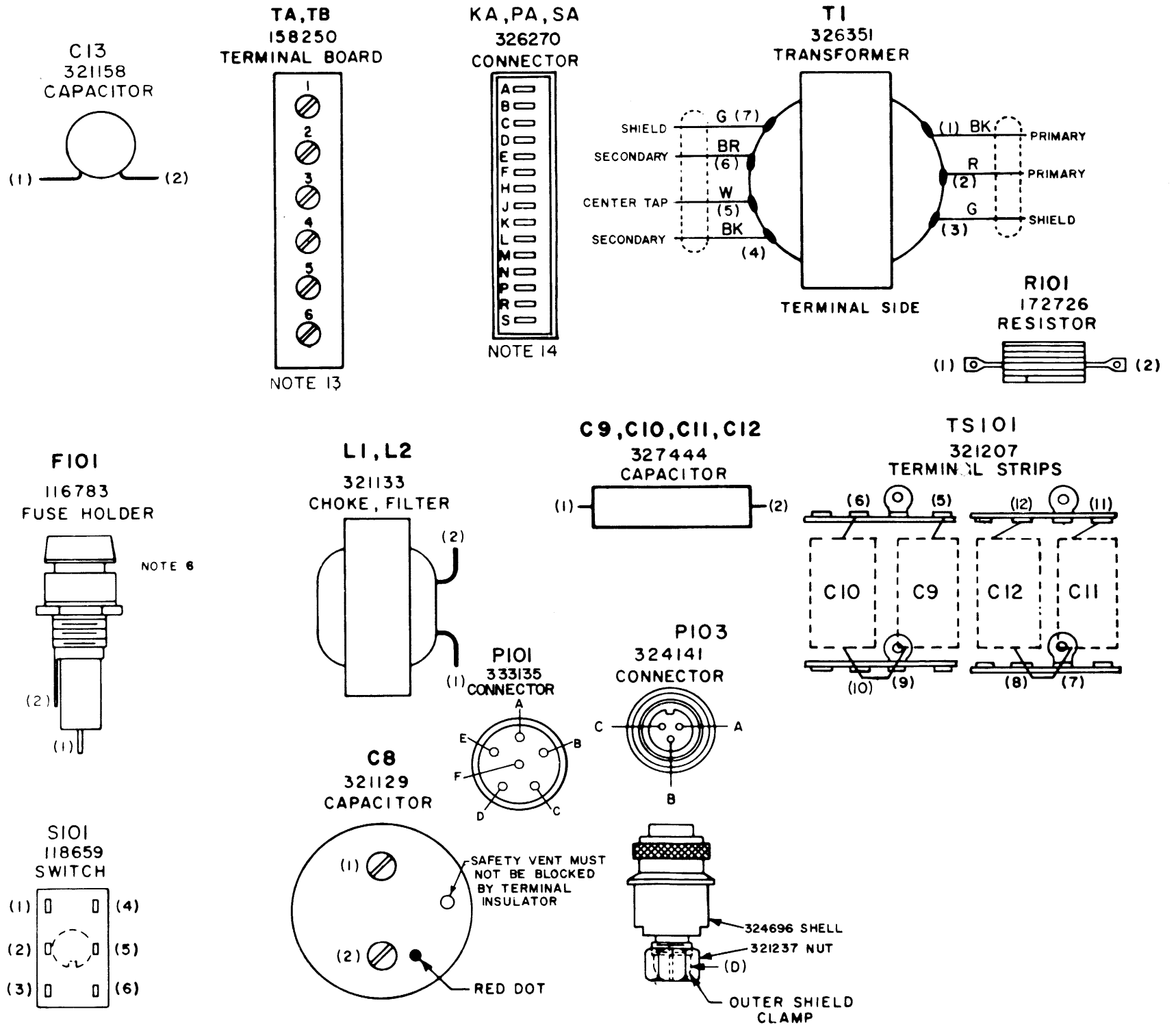


Figure 5-13. Wiring Diagram; Model 28 CPP RO
 ESA 321231 (Sheet 1 of 3)

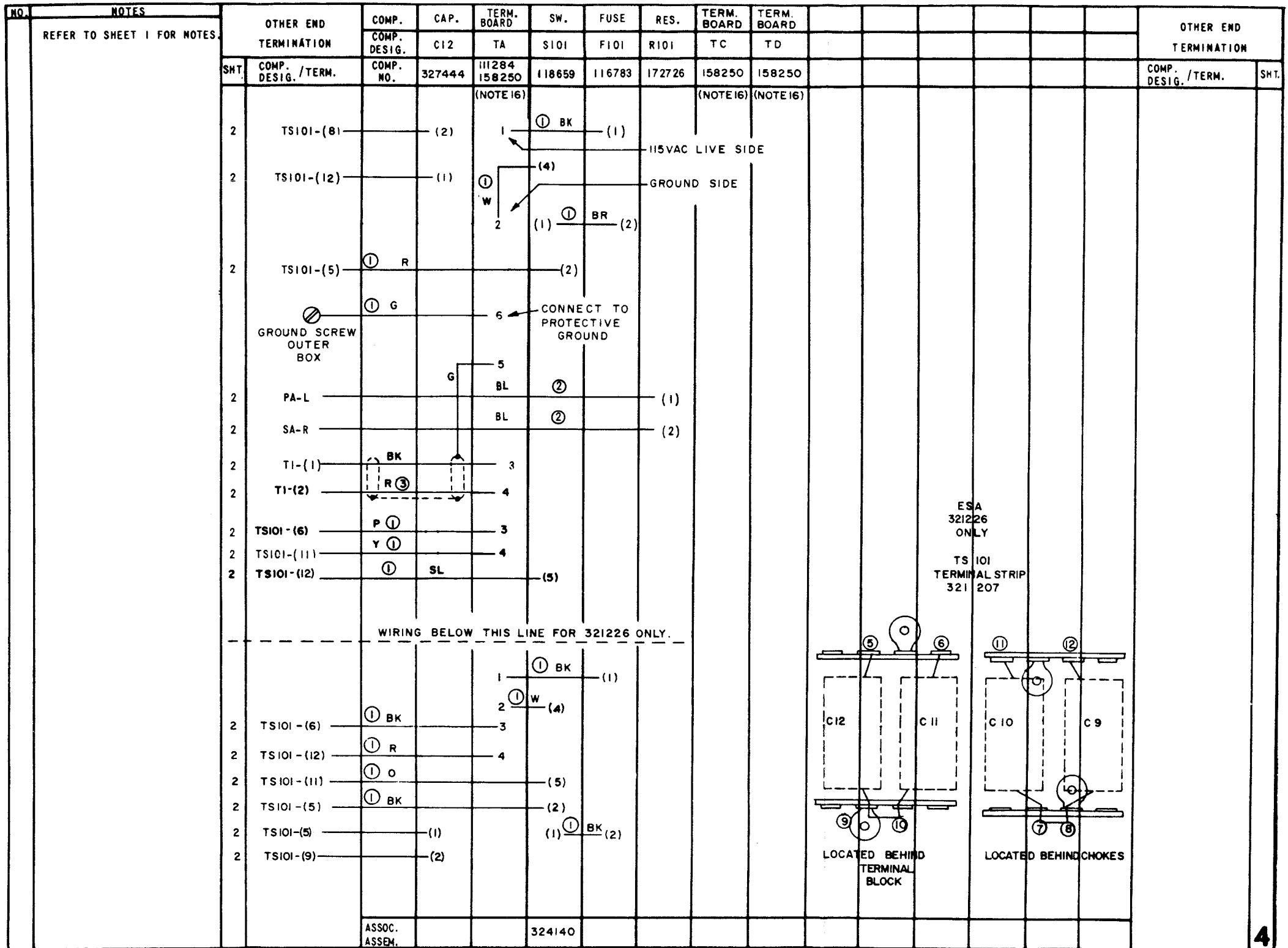


Figure 5-13. Wiring Diagram; Model 28 CPP RO
ESA 321231 (Sheet 3 of 3)

NO	NOTES
1.	--- INDICATES OUTER SHIELD AND - - - - - INDICATES INNER SHIELD
2.	CAPACITANCE VALUES IN MICROFARADS, UNLESS OTHERWISE SPECIFIED.
3.	⊃ INDICATES FEMALE AND → INDICATES MALE TERMINALS ON CONNECTORS
4.	SL-BL INDICATES SLOW-BLOWING.
5.	⊙ INDICATES SHIELDED WIRE.
6.	ALL VOLTAGES DC, UNLESS OTHERWISE SPECIFIED.
7.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
8.	WIRING DIAGRAM 9137AD
9.	RESISTANCE VALUES IN OHMS, UNLESS OTHERWISE SPECIFIED.
10.	⊕ DENOTES COMMON RETURN TO CIRCUIT GROUND.
11.	REFERENCE SPEC FOR TELETYPE CORPORATION EMPLOYEES ONLY 61352 S
12.	⊕ INDICATES DOUBLE SHIELDED WIRE

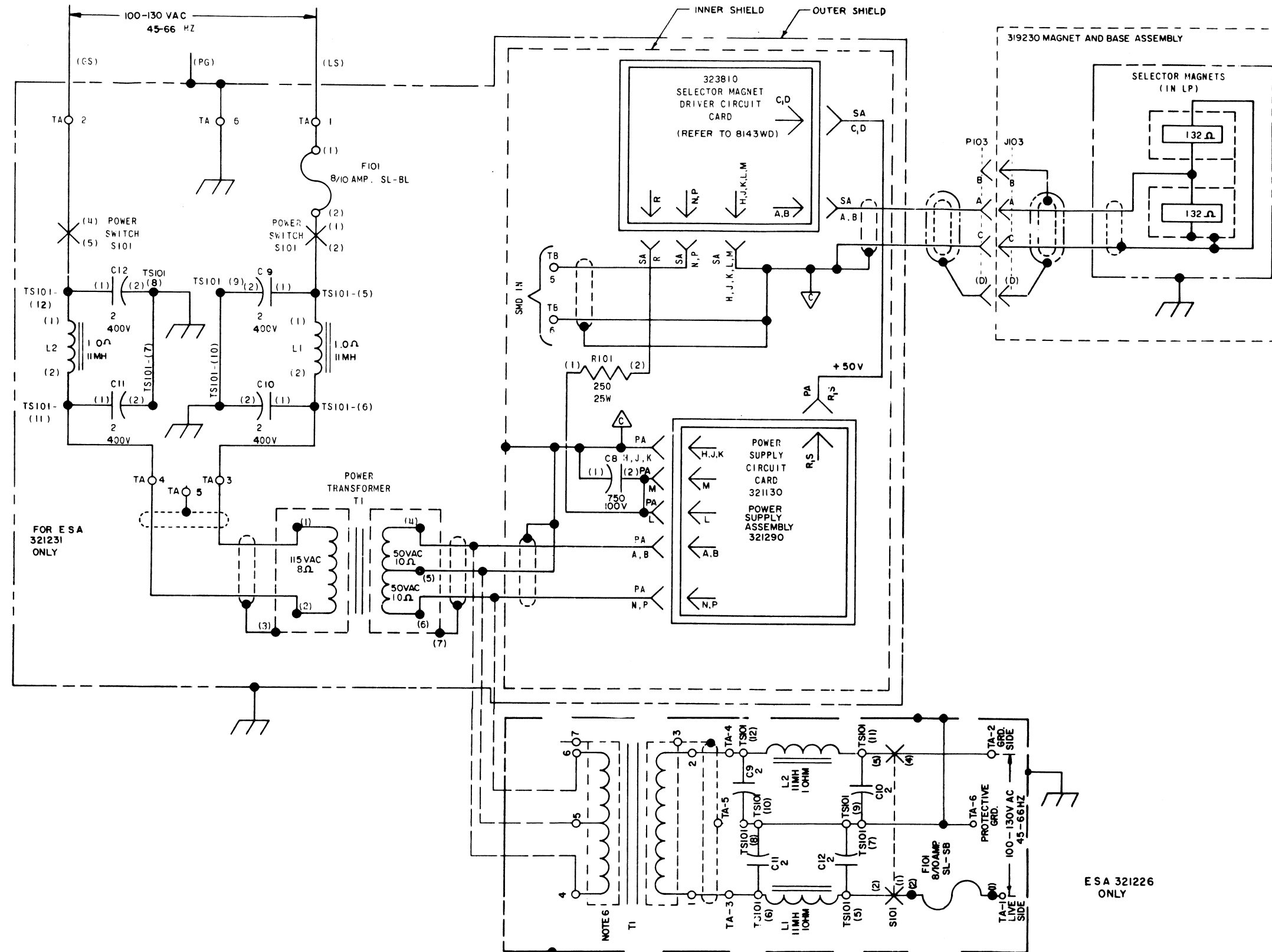
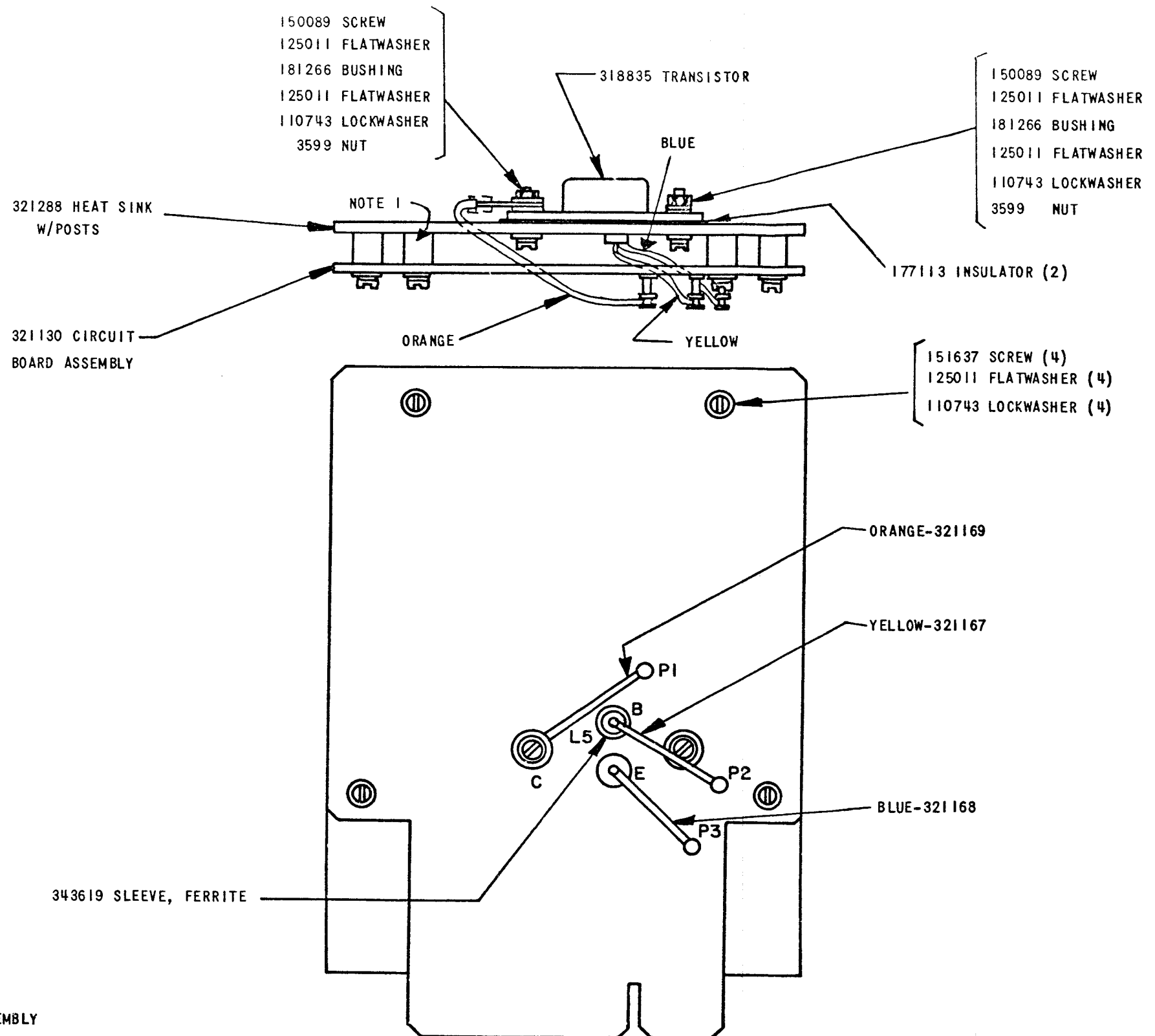


Figure 5-14. Schematic Diagram; Model 28 CPP RO
ESA 321231



NOTE 1

PART NUMBER 321290 TO
BE SCREENED ON HEAT SINK
WITH .250 HIGH CHARACTERS

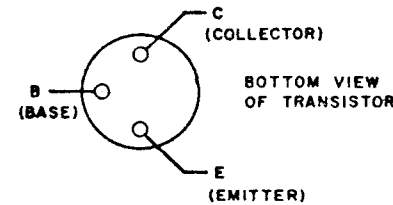
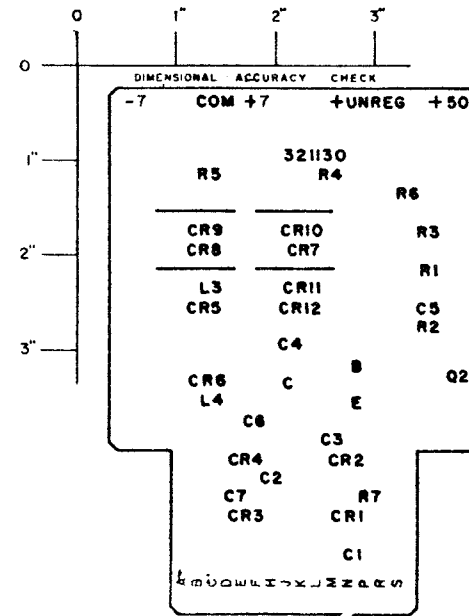
NOTE 2

THIS ASSEMBLY MUST BE MADE USING THE
HIGHEST CUSTOMER IDENTIFICATION ISSUE
NUMBER OF THE 321130 CIRCUIT CARD ASSEMBLY
EXISTING AT TIME OF ASSEMBLY.

CURRENT CUSTOMER I.D. ISSUE NUMBER IS 13.

Figure 5-15. Assembly Drawing; Model 28 CPP KSR and RO
ESA Power Supply Circuit Board Assembly
with Heat Sink

MAINTAIN A MINIMUM SPACING OF 1/4 INCH BETWEEN R4, R5 AND ADJACENT COMPONENTS, ON EITHER SIDE OF R4, R5

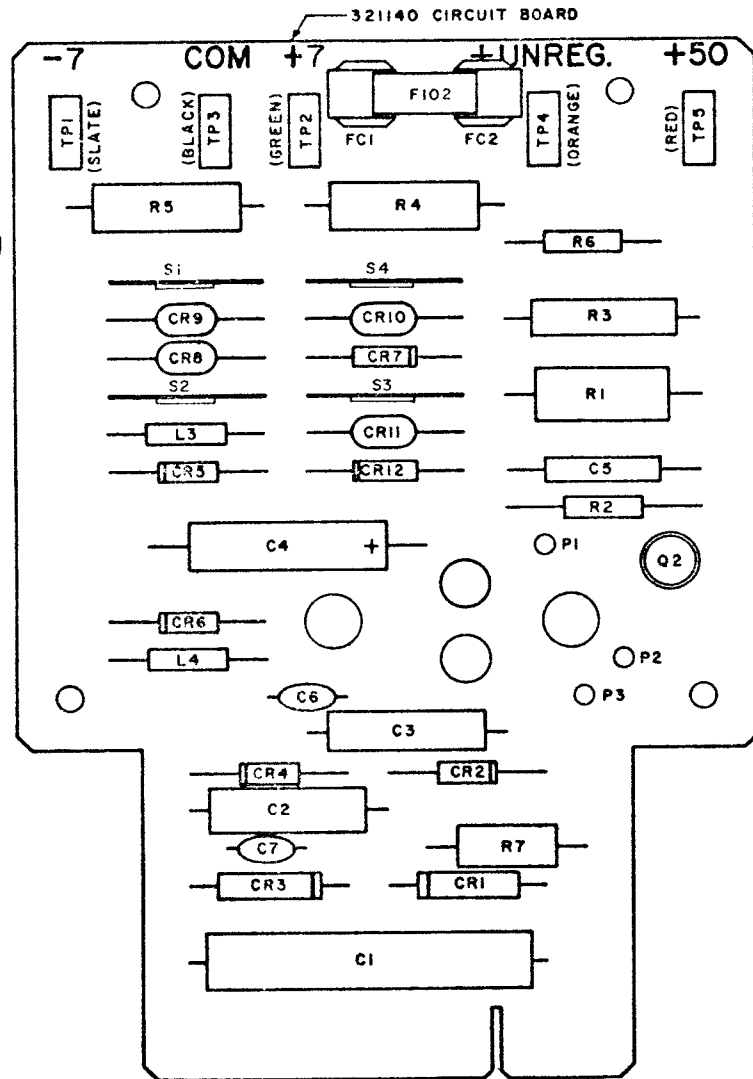


CIRCUIT DESCRIPTION (SEE SHEET 2)

DIODES CR1 AND CR3 FORM A RECTIFIER WITH ASSOCIATED TRANSFORMER (321123) T1 AND CAPACITOR C8 (321129) TO OBTAIN A MINIMUM +53V DC UNREGULATED. Q1 IS AN EMITTER FOLLOWER VOLTAGE REGULATING ELEMENT WHICH ABSORBS THE VOLTAGE DIFFERENCE BETWEEN THE UNREGULATED DC AND THE CONSTANT +50V DC REFERENCE ESTABLISHED BY DIODES CR7-CR12. Q2 PROVIDES GAIN FOR Q1. DIODES CR3, CR4, TRANSFORMER T1 AND CAPACITOR C4 FORM A FULL WAVE RECTIFIER TO OBTAIN NEGATIVE UNREGULATED DC. R4 AND CR6, R5 AND CR5 FORM BASIC SHUNT REGULATORS TO OBTAIN +7 AND -7V DC.

CIRCUIT BOARD ASSEMBLY, POWER SUPPLY (47-53V.D.C. .5AMP. MAX.)

REF. DESIGN.	PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	FUNCTION
C1	312284	1	CAPACITOR, 15MFD 400V	RF FILTER
C2,3	171535	2	CAPACITOR, .22MFD 200V	RF FILTER
C4	171831	1	CAPACITOR, 10MFD 150V	RECTIFIER FILTER
C5	178860	1	CAPACITOR, .022MFD 100V	RF FILTER
C6,7	32385	2	CAPACITOR, .1MFD 10V	RF FILTER
R1	198937	1	RESISTOR, 2.7K 2W	
R2	192180	2	RESISTOR, 200 OHM 1/2W	
R3	171533	1	RESISTOR 4 OHM 5W	
R4,5	311664	2	RESISTOR, 2.5K 8W	DROPPING
R6			SAME AS R2	RF FILTER
R7	305298	1	RESISTOR, 3.3K 3W	BLEEDER
CR1-4	171541	4	DIODE (NOTE 7)	RECTIFIER
CR5,6	327794	2	DIODE, ZENER (7.2V)	REFERENCE
CR7	321285	2	DIODE, ZENER (1M4749A)	REFERENCE
CR8-11	178844	4	VARIATOR (W.E. 10CA)	REFERENCE
CR12			SAME AS CR7	REFERENCE
L3,4	321159	2	INDUCTOR 39 uH	RF FILTER
Q2	321145	1	TRANSISTOR (2N2270)	GAIN
FC1,2	311068	2	FUSE CLIP	
F102	131807	1	FUSE .5 AMP.	
TP1	320042	1	JACK, TEST (SLATE)	
TP2	320041	1	JACK, TEST (GREEN)	
TP3	320039	1	JACK, TEST (BLACK)	
TP4	320040	1	JACK, TEST (ORANGE)	
TP5	320038	1	JACK, TEST (RED)	
P1-3	137471	3	TERMINAL POST	CONNECTOR
	321140	1	CIRCUIT CARD	
S1-S4	336470	4		
1	151637	2	SCREW 4-40	
2	151880	2	NUT 4-40	
3	110743	2	LOCK WASHER	
4	125011	2	FLAT WASHER	



MOUNT C1 CAPACITOR ON END SO THAT THERE IS A MINIMUM OF .400 CLEARANCE TO BOTTOM OF BOARD.

- 1) TELETYPE REFERENCE ONLY: SPECIFICATION 61,267S
- 2) SEE SHEET 2 FOR SCHEMATIC WIRING
- 3) ALL CHARACTERS TO BE .125 HIGH AND PRINTED WITH WHITE ENAMEL.
- 4) ALL PRINTED CHARACTERS TO BE LOCATED ±.031 FROM NOMINAL POSITION.
- 5) L5 ADDED TO SCHEMATIC AT DRAWING ISSUE 14
- 6) ANY REVISION OF CUSTOMER IDENTIFICATION NUMBER MUST BE REFLECTED IN NOTE 2 ON DRAWING OF 321290 CIRCUIT CARD ASSEMBLY WITH HEAT SINK.
- 7) CR1-4 - 192520 (1N4383) WAS REPLACED FOR STANDARDIZATION

Figure 5-16. Circuit Board Assembly; Model 28 CPP KSR and RO ESA Power Supply (47 - 53 VDC, 0.5 Amp Max) (Sheet 1 of 2)

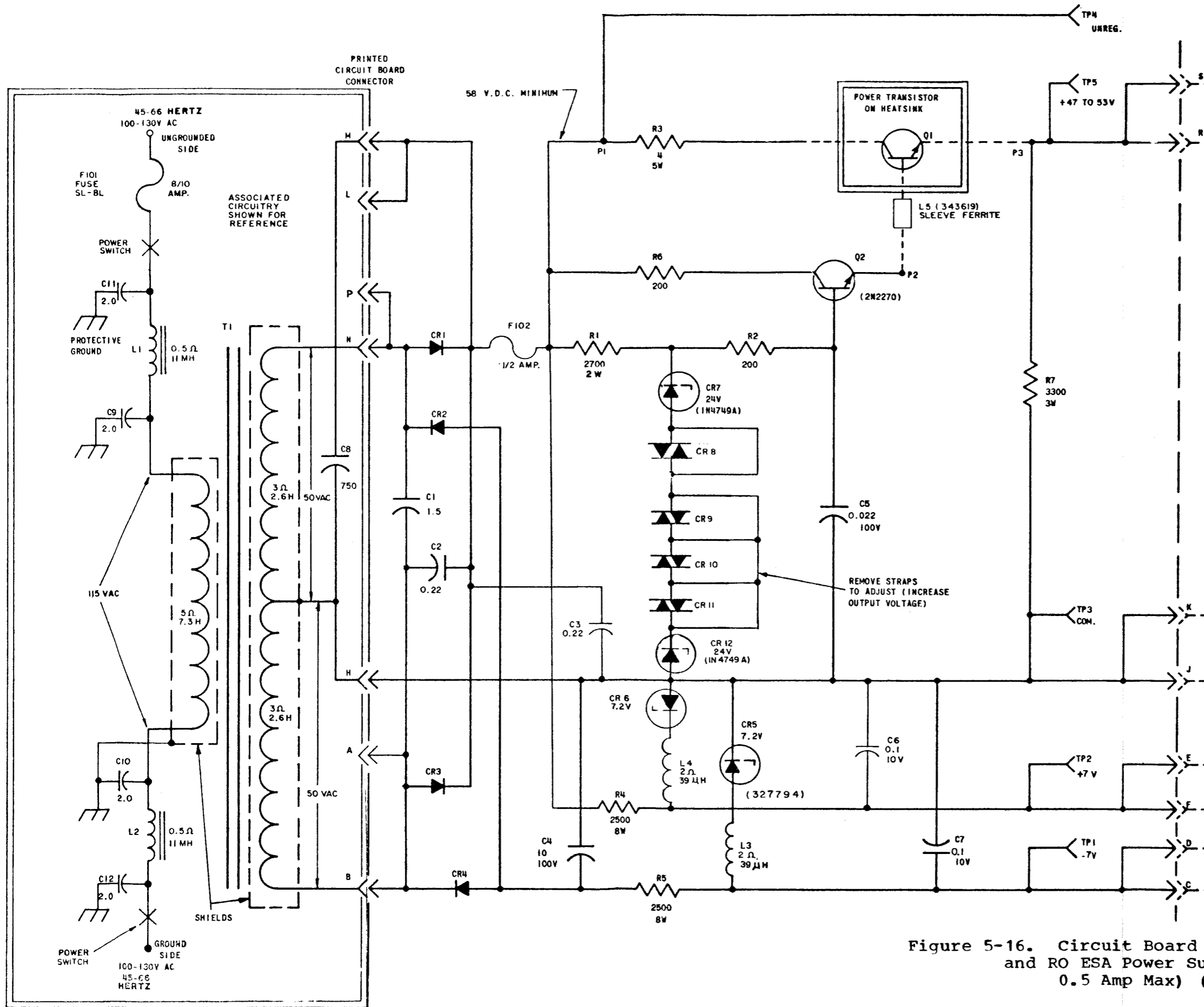
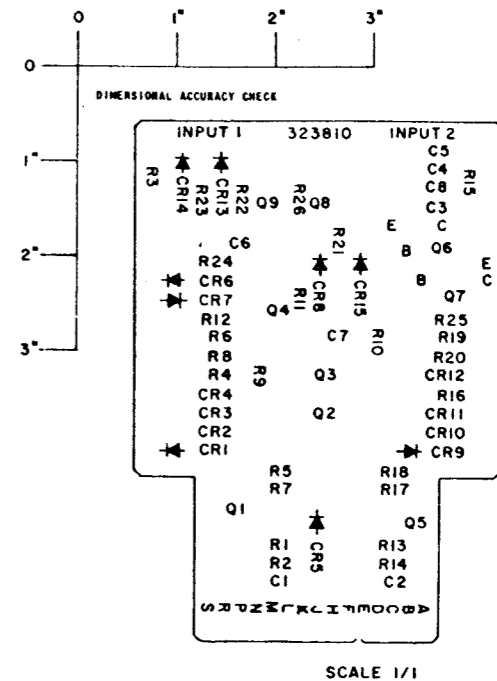
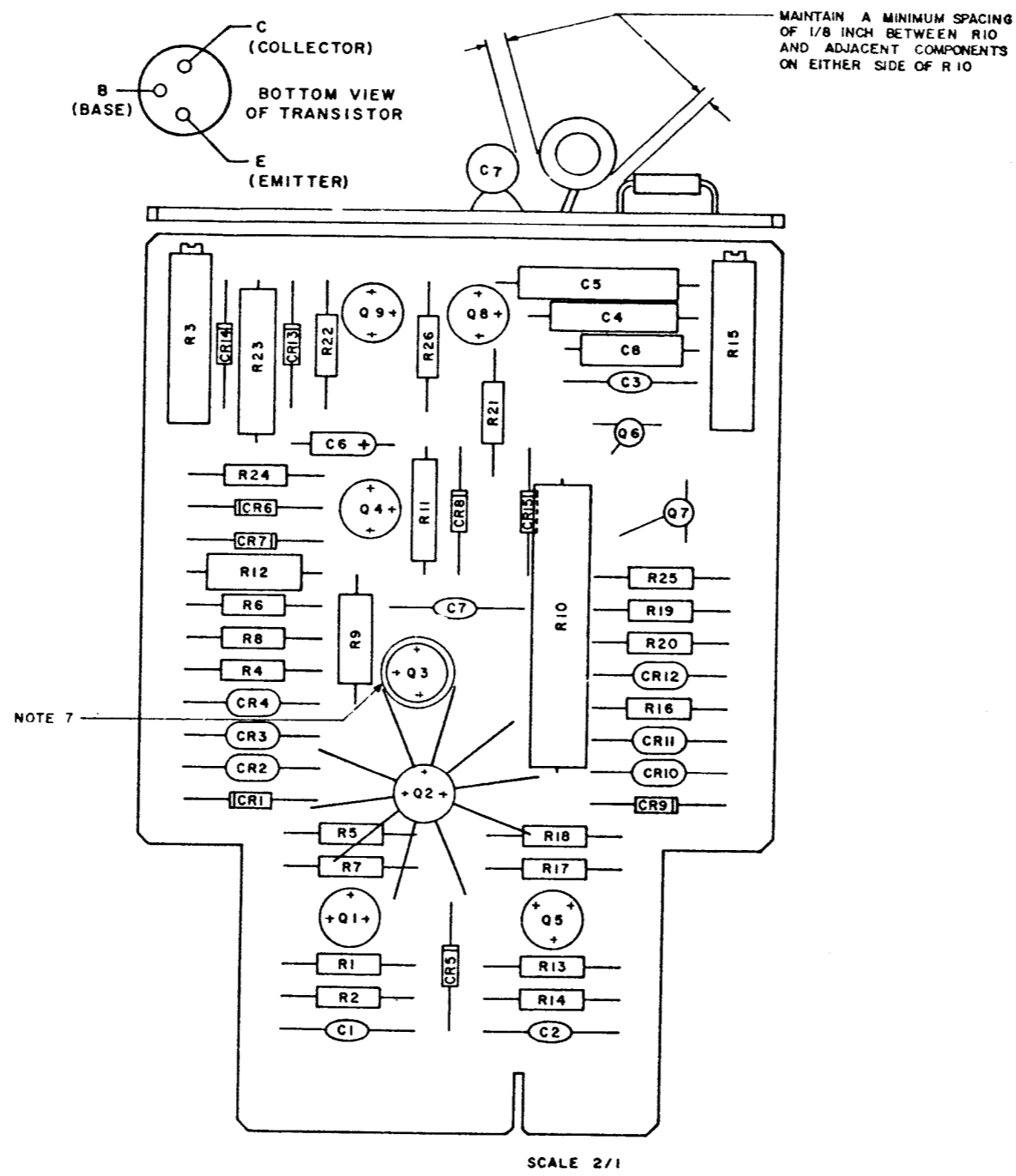


Figure 5-16. Circuit Board Assembly; Model 28 CPP KSR and RO ESA Power Supply (47 - 53 VDC, 0.5 Amp Max) (Sheet 2 of 2)

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	321157	1	CAPACITOR, 500 pF	R.F. BY-PASS CAP.
C2	321157	1	CAPACITOR, 500 pF	R.F. BY-PASS CAP.
C3	321157	1	CAPACITOR, 500 pF	R.F. BY-PASS CAP.
C4	171829	1	CAPACITOR, .15 MFD	Q8 FEEDBACK CAP.
C5	326776	1	CAPACITOR, .47 MFD	Q9 FEEDBACK CAP.
C6	321260	1	CAPACITOR, 1 MFD 50V	TRANSIENT SUPP.
C7	321157	1	CAPACITOR, 500 pF	R.F. BY-PASS CAP.
C8	178860	1	CAPACITOR, .022 MFD	R.F. BY-PASS CAP.
R1	118720	1	RESISTOR, 100K, 1/2W	Q1 OPEN LINE BIAS
R2	118720	1	RESISTOR, 100K, 1/2W	INPUT 1 RES
R3	323944	1	POTENTIOMETER 500K	Q1 BIAS
R4	129854	1	RESISTOR, 10K, 1/2W	Q1 BIAS
R5	118177	1	RESISTOR, 22K, 1/2W	Q1 LOAD RES.
R6	137604	1	RESISTOR, 620, 1/2W	VOLTAGE DIVIDER
R7	118146	1	RESISTOR, 4.7K, 1/2W	Q1 EMITTER RES.
R8	129850	1	RESISTOR, 680, 1/2W	VOLTAGE DIVIDER
R9	309866	1	RESISTOR, 1.3K, 3W	CR5 CURRENT LIMITER
R10	323841	1	RESISTOR, 300, 1/2W	Q2 LOAD RES.
R11	323842	1	RESISTOR, 21, 1/2W, 1%	REG. CURRENT SET
R12	178864	1	RESISTOR, 3.9K, 1W	CR8 CURRENT LIMITER
R13	118720	1	RESISTOR, 100K, 1/2W	Q5 OPENLINE BIAS
R14	118720	1	RESISTOR, 100K, 1/2W	INPUT 2 RES.
R15	323944	1	POTENTIOMETER 500K	Q5 BIAS
R16	129854	1	RESISTOR, 10K, 1/2W	Q5 BIAS
R17	118177	1	RESISTOR, 22K, 1/2W	Q5 LOAD RES.
R18	118146	1	RESISTOR, 4.7K, 1/2W	Q5 EMITTER RES.
R19	137604	1	RESISTOR, 620, 1/2W	VOLTAGE DIVIDER
R20	129850	1	RESISTOR, 680, 1/2W	VOLTAGE DIVIDER
R21	321975	1	RESISTOR, 33, 1/2W	Q8 EMITTER RES.
R22	118177	1	RESISTOR, 22K, 1/2W	CR13 BIAS RES.
R23	323843	1	RESISTOR, 590, 5W, 1%	COIL CURRENT LIMITER
R24	137442	1	RESISTOR, 1.5K, 1/2W	C6 BLEEDER RES.
R25	118154	1	RESISTOR 47K, 1/2W	Q6, Q7 LOAD RES.
R26	120424	1	RESISTOR 4.3K, 1W	Q8 LOAD RES.
CR1	197464	7	DIODE, NOTE 9	Q1 BASE PROT.
CR2	178844	1	VARIATOR, 100-A	TEMP. COMP.
CR3	178844	1	VARIATOR, 100-A	TEMP. COMP.
CR4	178844	1	VARIATOR, 100-A	TEMP. COMP.
CR5	181667	1	DIODE, 1N750A	TEMP. COMP. REF.
CR6			SAME AS CR1	Q4 COLLECTOR CLAMP
CR7			" " "	Q4 COLLECTOR CLAMP
CR8	321181	1	DIODE, 1N748A	REG. VOLT REF.
CR9			SAME AS CR1	Q5 BASE PROT.
CR10	178844	1	VARIATOR, 100-A	TEMP. COMP.
CR11	178844	1	VARIATOR, 100-A	TEMP. COMP.
CR12	178844	1	VARIATOR, 100-A	TEMP. COMP.
CR13			SAME AS CR1	Q3 EMITTER DIODE
CR14			" " "	TRANSIENT SUPP.
CR15			" " "	Q8 EMITTER DIODE
Q1	321166	1	TRANSISTOR, 2N1893	DC AMP.
Q2	323844	1	TRANSISTOR, 2N3053	SHUNT REG.
Q3	321261	1	TRANSISTOR, 2N4036	SHUNT REG. AMP.
Q4	323845	1	TRANSISTOR, 40319	SERIES REG.
Q5	321166	1	TRANSISTOR, 2N1893	DC AMP.
Q6	324144	2	TRANSISTOR, 2N4121	DC AMP.
Q7			SAME AS Q6	
Q8	321185	1	TRANSISTOR, 2N3638A	DC AMP.
Q9	321281	1	TRANSISTOR, 2N4036	DC AMP.
	324147	2	PAD, TRANSISTOR	
	144495	6	PAD, TRANSISTOR	
	323846	1	PAD, TRANSISTOR	
	323847	1	HEAT SINK	
	323835	1	CIRCUIT BOARD, ETCHED	
	300116	1	COVER, INSULATING	

USED ON 323808.



- NOTES:
1. TRANSISTOR Q2 HAS 323847 HEAT SINK PRESSED ON.
 2. USE 323846 TRANSISTOR PAD UNDER TRANSISTOR Q3.
 3. REFERENCE SPECIFICATION FOR TELETYPE CORP. EMPLOYEES ONLY: 61,2645
 4. REFER TO 8143WD FOR SCHEMATIC WIRING DIAGRAM.
 5. ALL CHARACTERS TO BE .125 HIGH AND PRINTED WITH WHITE ENAMEL.
 6. ALL PRINTED CHARACTERS TO BE LOCATED +.031 FROM NOMINAL.
 7. Q3 HAS 300116 INSULATING COVER. POSITION Q3 (WITH COVER) SO THAT 323847 HEAT SINK MAY BE FULLY SEATED ON Q2.
 8. 144495 TRANSISTOR PAD REQUIRED ON Q1, Q4, Q5, Q8 AND Q9, AND Q2.
 9. PARTS CHANGED FOR STANDARDIZATION WERE FORMERLY AS FOLLOWS: CR1, CR9, CR14 — 321154 (1N457A) AND CR6, CR7, CR13, CR15 — 321156 (1N482A).

Figure 5-17. Circuit Board Assembly; Model 28 CPP KSR and RO ESA SMD with Signal Combiner

NO.	NOTES
1.	R3 AND R15 ARE ADJUSTED FOR SYMMETRICAL SWITCHING ABOUT ZERO VOLTS FOR INPUT 1 AND 2 RESPECTIVELY
2.	PINS A, B - 60MA TO COILS PINS C, D - 47 TO 53V DC POWER INPUT PINS G, H - MS 188B SIGNAL INPUT 1 PINS I, J - MS 188B SIGNAL INPUT 2 PINS K, L, M - CIRCUIT COMMON (ALL INPUTS AND OUTPUTS REFERRED TO CIRCUIT COMMON).
3.	REFERENCE SPEC. FOR TELETYPE CORP. EMPLOYEES ONLY: 61,264S.
4.	ALL RESISTORS ARE 5%, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
5.	ALL CAPACITANCE VALUES IN PICO FARADS UNLESS OTHERWISE SPECIFIED.
6.	∇ DENOTES CIRCUIT COMMON.

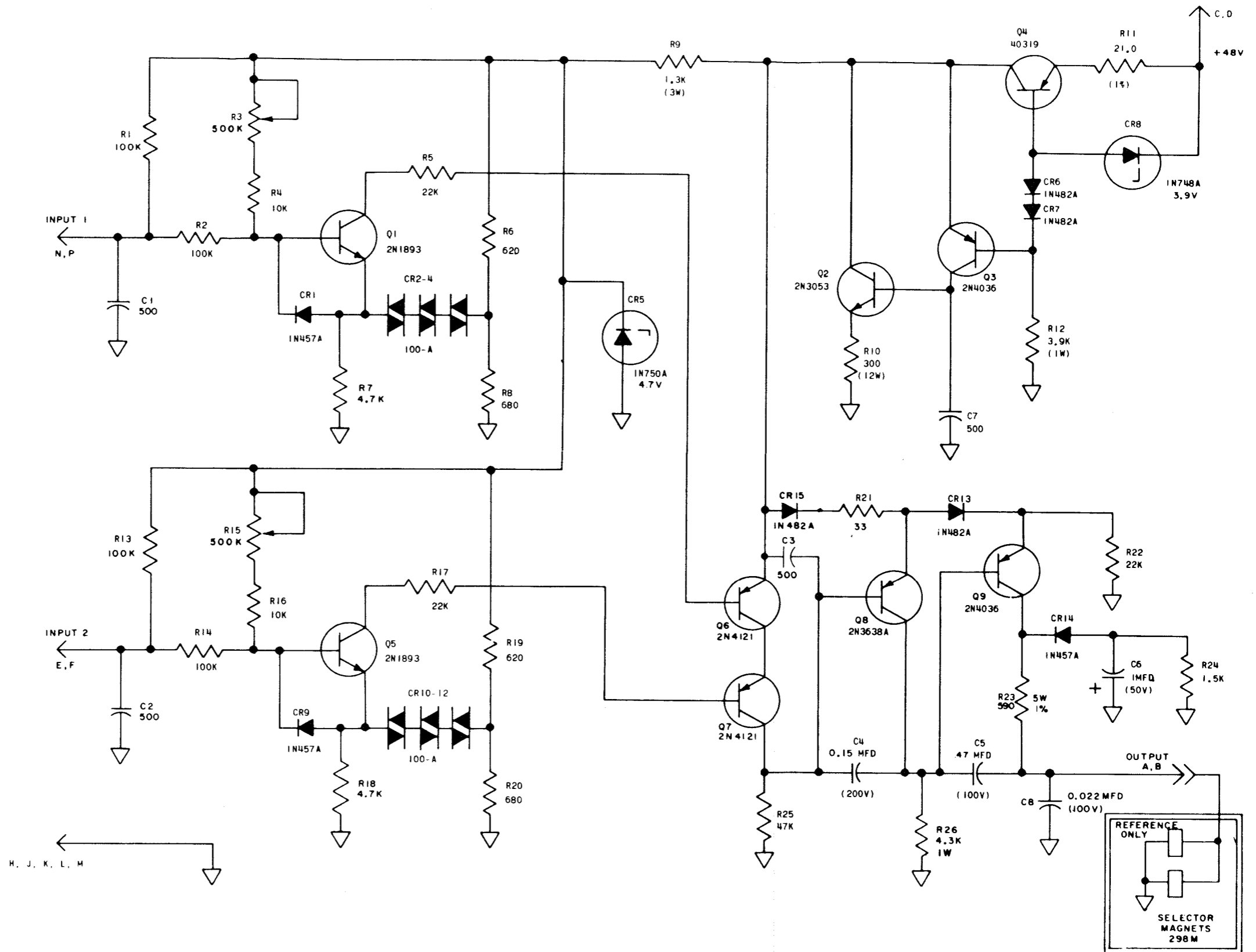




Figure 5-18. Schematic Diagram; Model 28 CPP KSR and RO ESA SMD with Signal Combiner, 323810

NO.	NOTES
1.	ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
2.	TERMINAL DESIGNATION ENCLOSED IN PARENTHESIS ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
3.	FUSE NUMBER-162360 8/10 AMP SLOW BLOWING
4.	TERMINALS 7 AND 9 ARE CONNECTED TO THE OUTER SHIELD THRU THE MOUNTING SCREWS
5.	* INDICATES TO TAPE END TERMINATING POINT.
6.	 INDICATES SINGLE SHIELDING
7.	 INDICATES DOUBLE SHIELDING
8.	ALL STRAPPING WIRE 24 AWG. BARE, 39603RM USE SLEEVING WHERE REQUIRED. ① INDICATES 18 AWG STRANDED WIRE. ② INDICATES 24 AWG STRANDED WIRE. ③ INDICATES 24 AWG 2 LEAD SINGLE SHIELDED CABLE. ALL SURFACE WIRE 24 AWG GREEN, 31784 RM, UNLESS OTHERWISE SPECIFIED.
9.	REFER TO 8725WD FOR SCHEMATIC WIRING DIAGRAM
10.	COLOR CODE BK- BLACK G- GREEN BR- BROWN O- ORANGE BL- BLUE P- PURPLE R - RED Y- YELLOW S - SLATE W- WHITE
11.	OUTER SHIELD CONNECTED TO BOX AT CONNECTOR.

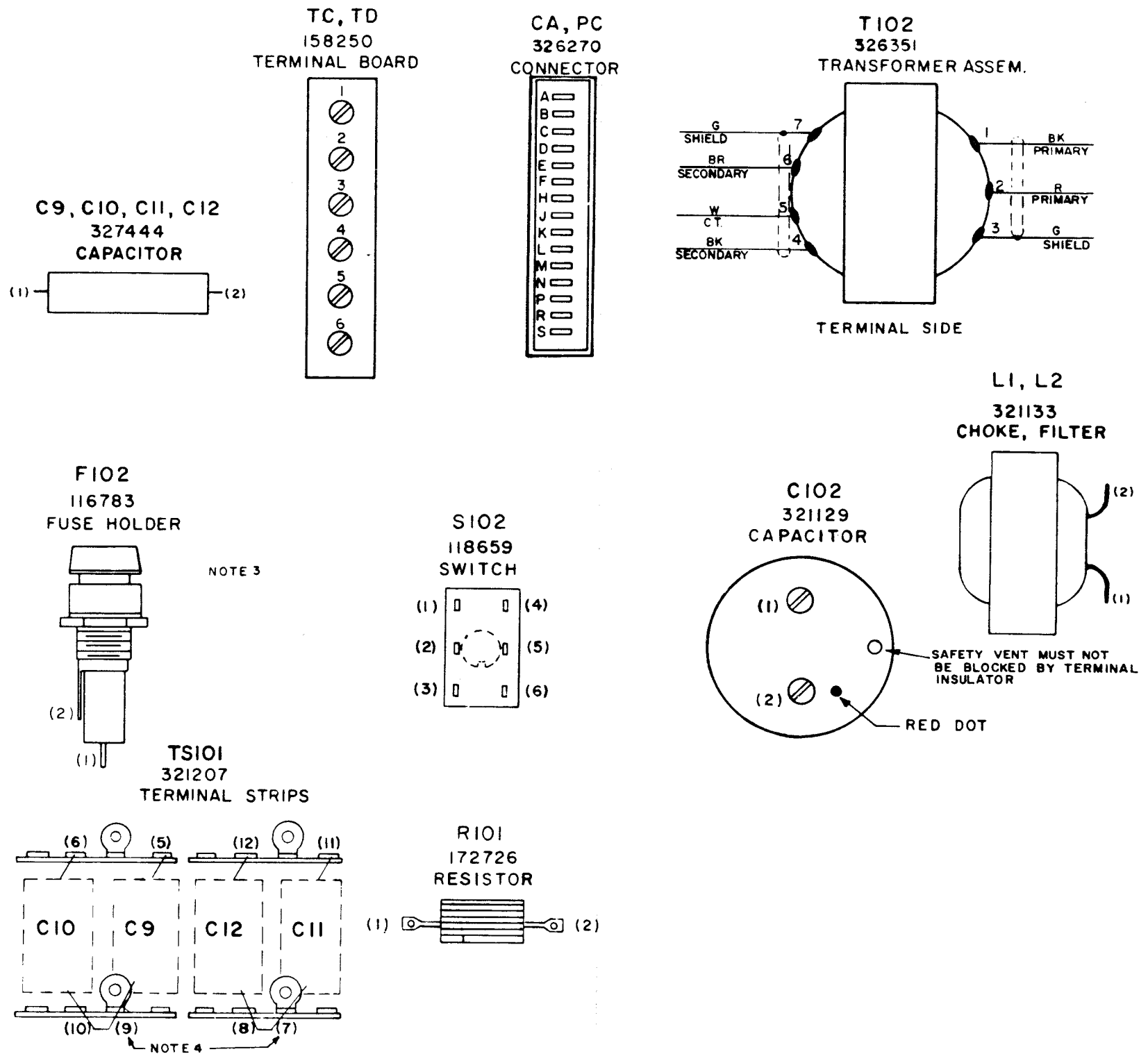


Figure 5-19. Wiring Diagram; Model 28 CPP KSR ESA 323120 (CMD) (Sheet 1 of 4)

NO.	NOTES
I.	SEE SHEET I FOR NOTES.

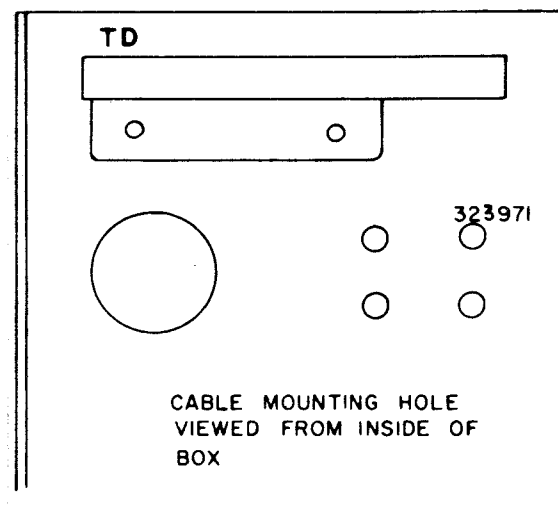
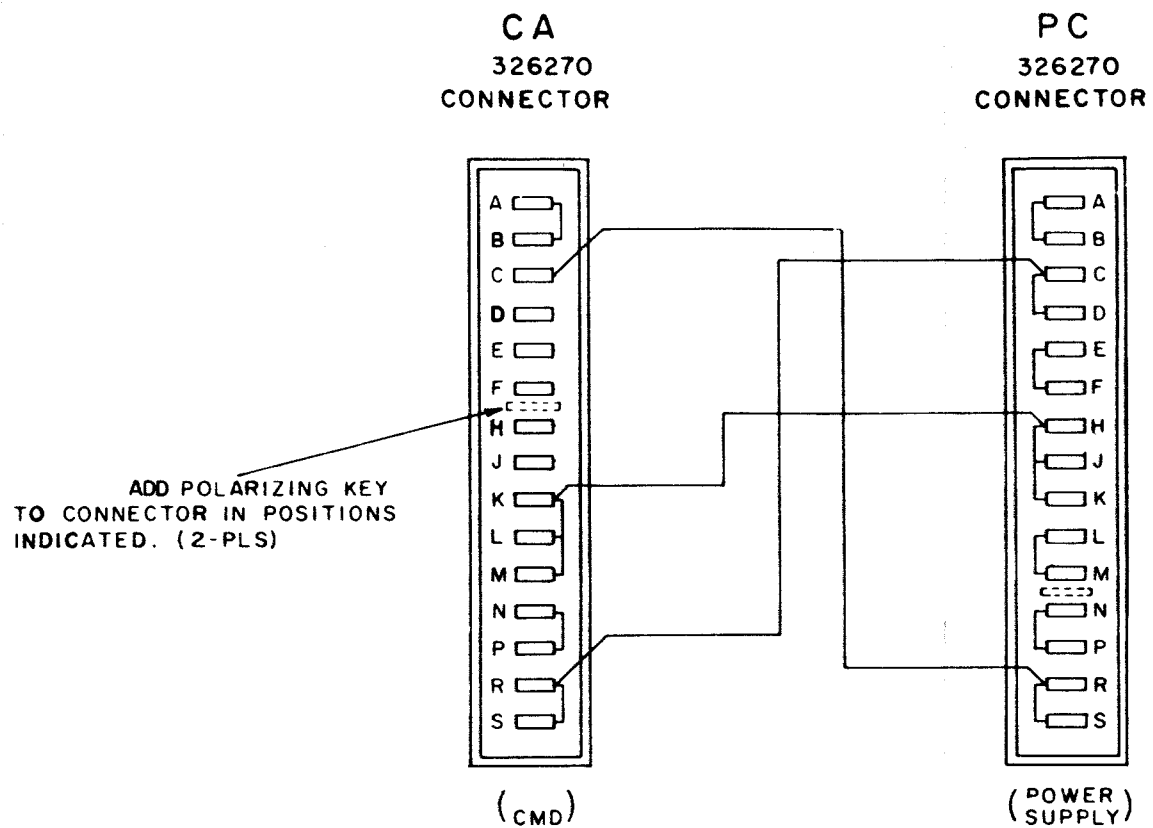







Figure 5-19. Wiring Diagram; Model 28 CPP KSR ESA 323120 (CMD) (Sheet 2 of 4)

NO.	NOTES
1.	ALL RESISTORS 1/2 WATT, RESISTANCE VALUES IN OHMS, CAPACITANCE VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
2.	 INDICATES FEMALE TERMINAL  INDICATES MALE TERMINAL
3.	 INDICATES SINGLE SHIELDING  INDICATES DOUBLE SHIELDING
4.	REFER TO 8724WD FOR ACTUAL WIRING DIAGRAM.
5.	SL-BL INDICATES SLOW-BLOWING.
6.	 INDICATES CIRCUIT COMMON
7.	S-NUMBER 61,598
8.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESIS ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
9.	REFER TO RELATED SET SCHEMATIC 8729WD FOR EXTERNAL CIRCUITS.
10.	8 OHMS (MAX.) PRIMARY RESISTANCE 10 OHMS (MAX.) SECONDARY RESISTANCE TO CENTER TAP.

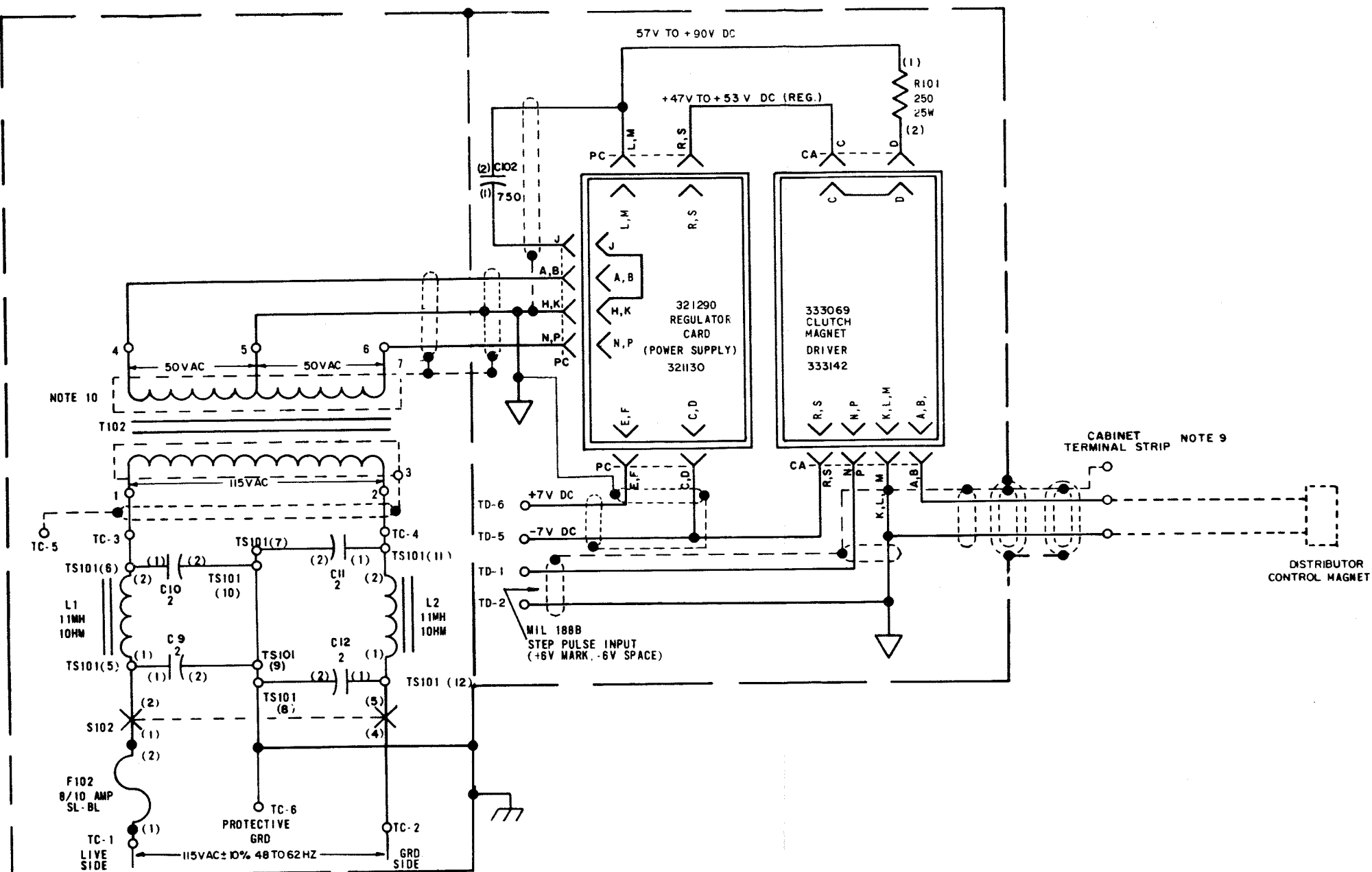


Figure 5-20. Schematic Diagram; Model 28 CPP KSR ESA 323120 (CMD)

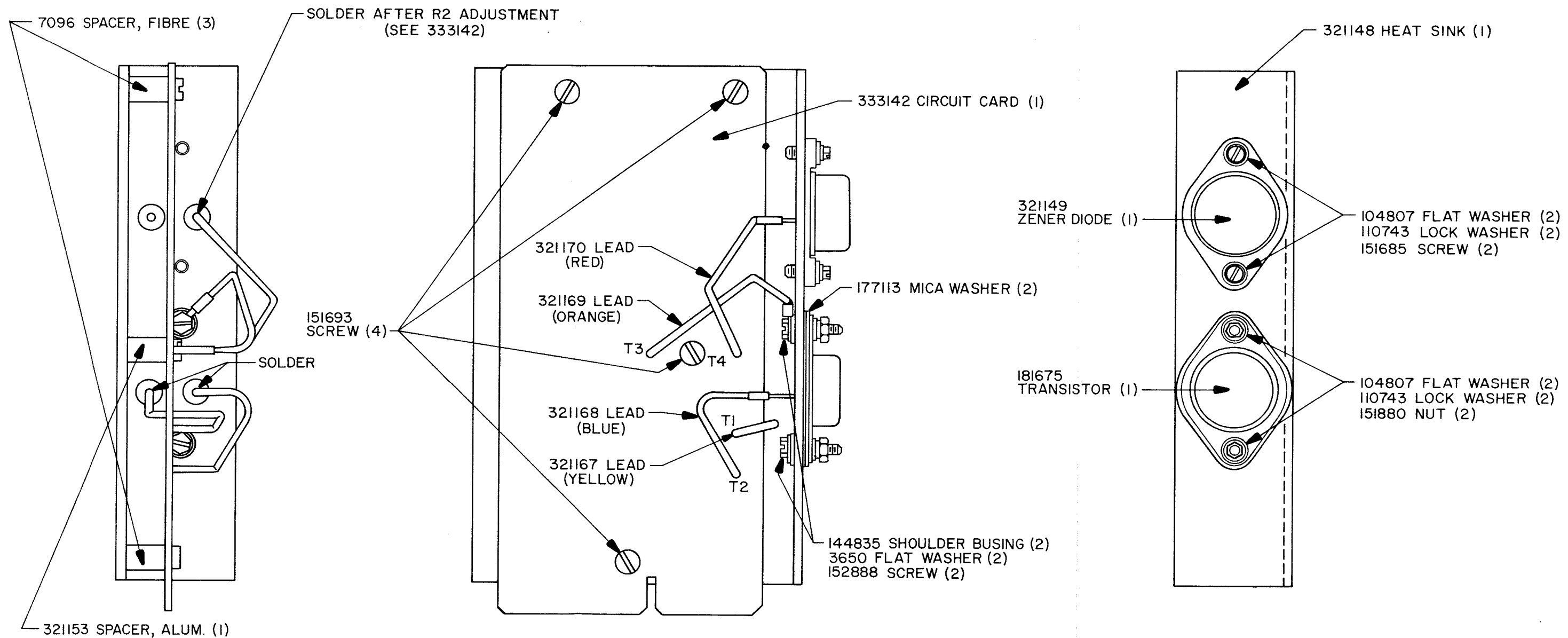


Figure 5-21. Assembly Drawing; Model 28 CPP KSR ESA
CMD Circuit Board Assembly with Heat Sink

NOTES	
1.	INDICATES OUTER SHIELD AND INDICATES INNER SHIELD
2.	CAPACITANCE VALUES IN MICROFARADS, UNLESS OTHERWISE SPECIFIED.
3.	INDICATES FEMALE AND INDICATES MALE TERMINALS ON CONNECTORS
4.	SL-BL INDICATES SLOW-BLOWING.
5.	S-NUMBER 61,599
6.	ALL VOLTAGES DC, UNLESS OTHERWISE SPECIFIED.
7.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
8.	WIRING DIAGRAM - 8728 WD
9.	RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.
10.	FOR LOCAL COPY FROM KEYS, STRAP TB4 TO TB1.
11.	WHEN IT IS DESIRED TO PROVIDE AN EXTERNAL +7V AND -7V, REMOVE THE +7V AND -7V LEADS FROM TB2 AND TB3. CONNECT COMMON OF EXTERNAL SUPPLY TO TB6
12.	REFER TO RELATED SET SCHEMATIC 8728 WD FOR EXTERNAL CIRCUITS.
13.	INDICATES SINGLE SHIELDING INDICATES DOUBLE SHIELDING
14.	INDICATES CIRCUIT COMMON

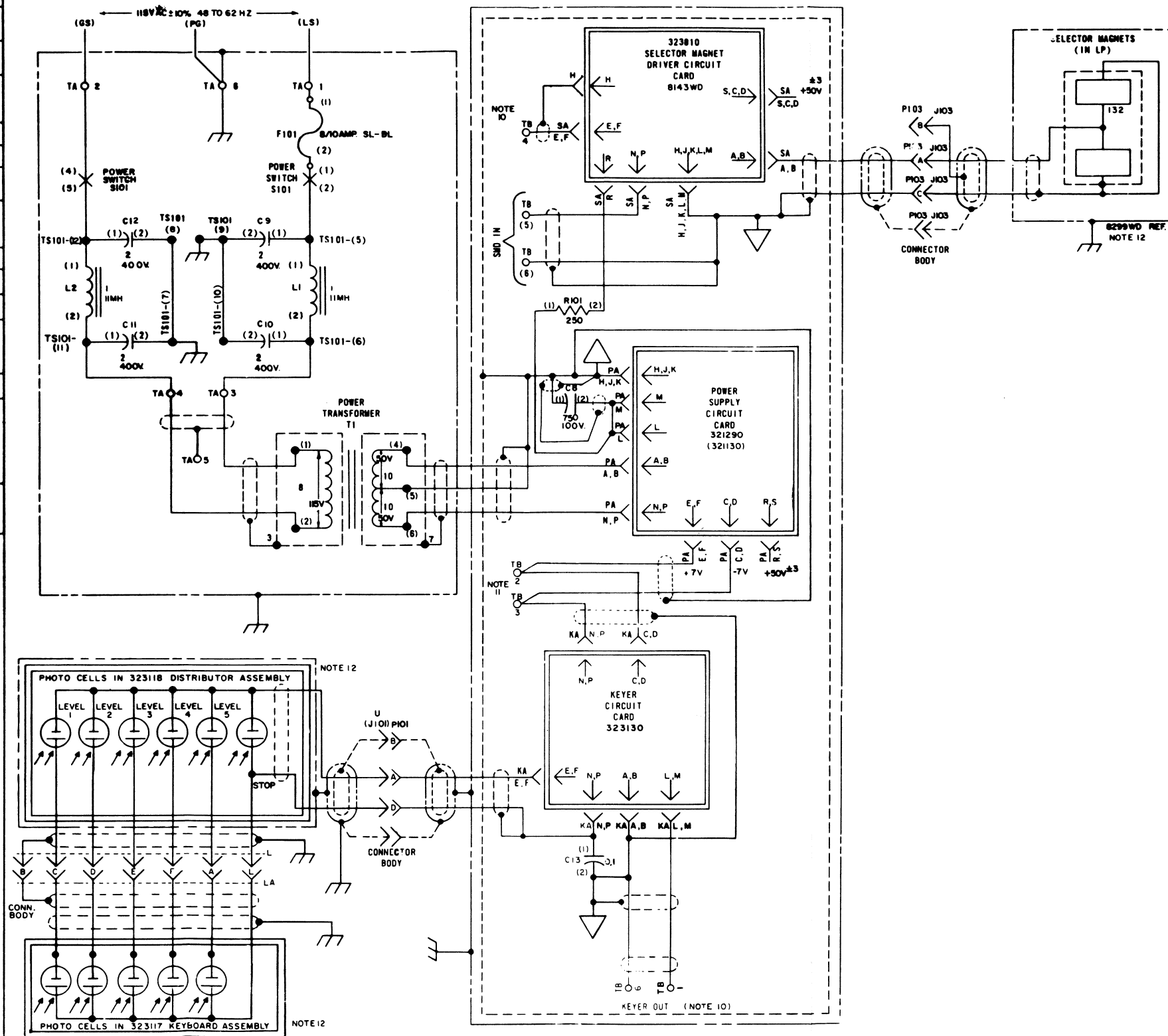
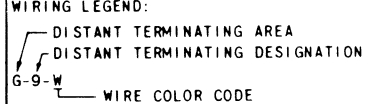


Figure 5-24. Schematic Diagram; Model 28 CPP KSR
ESA 323121 (SMD and LLK)

NO.	NOTES
1.	WIRING LEGEND: 
2.	COLOR CODE: BK - BLACK G - GREEN BL - BLUE R - RED BR - BROWN O - ORANGE Y - YELLOW S - SLATE P - PURPLE W - WHITE
3.	CONNECTORS VIEWED FROM SOLDER END.
4.	SPARE TERMINAL BLOCK PROVIDED FOR CUSTOMER CONVENIENCE.
5.	ALL WIRES TO BE 24 GA. EXCEPT AS NOTED: *18 GA WIRE
6.	327326 GROUND STRAP CONNECTED BETWEEN INNER AND OUTER PAN NEAR MOTOR.
7.	NUMERALS IN PARENTHESIS ARE NOT MARKED ON THE COMPONENTS BUT ARE SHOWN FOR PROPER ORIENTATION.
8.	ASSOCIATED WIRING DIAGRAMS: 8137WD - 321231 ESA 8176WD - RFH8000B SCHEMATIC 8177WD - RFH8001B 8178WD - LPC402 COVER 8178WD - 321231 ESA SCHEMATIC 8242WD - LP139
9.	GROUND SCREW LOCATED ON TERMINAL BLOCK MOUNTING BRACKET FOR CUSTOMER'S TERMINAL GROUND CONNECTION.
10.	ASSOCIATED CABLES: 324497 CABLE ASSEMBLY 324523 CABLE ASSEMBLY
11.	----- INDICATES CUSTOMER FURNISHED WIRING
12.	REFERENCE SPEC. FOR TELETYPE CORPORATION EMPLOYEES ONLY 613515

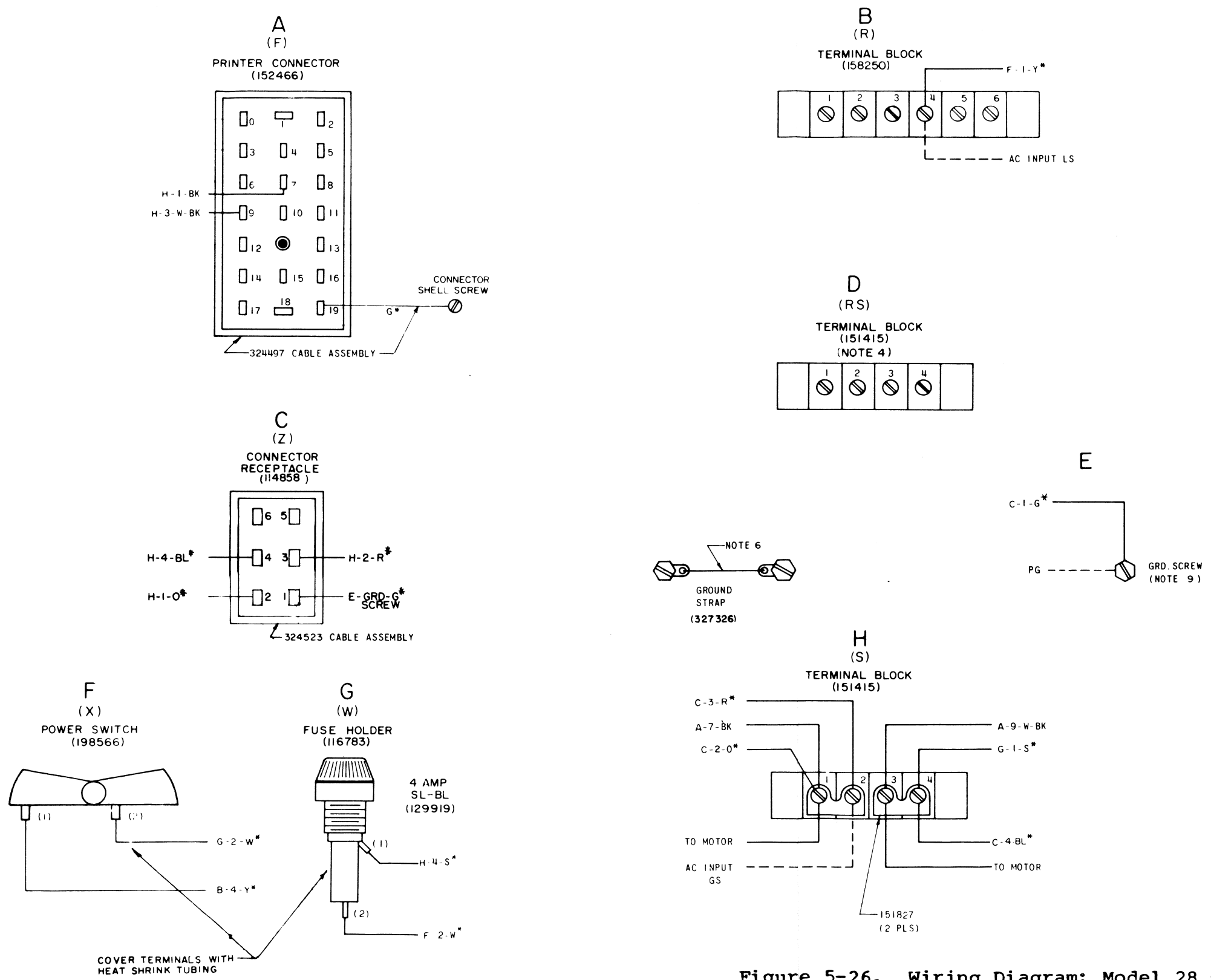
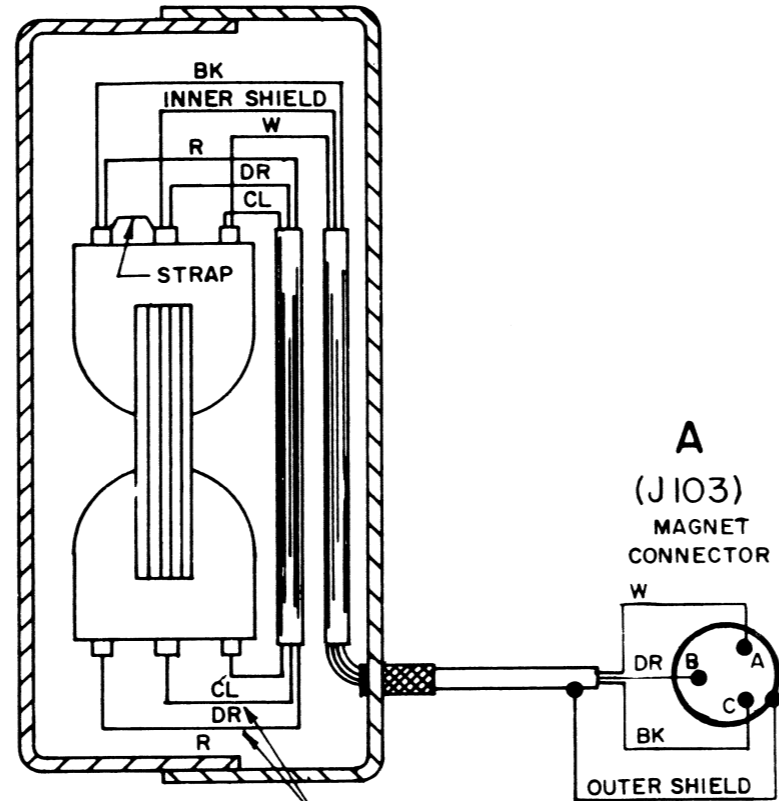


Figure 5-26. Wiring Diagram; Model 28 CPP RO Base LLB 5

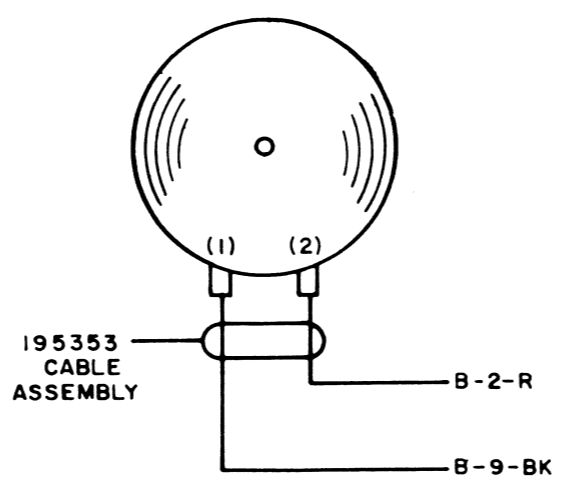
NO.	NOTES										
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2.	<p>COLOR CODE:</p> <table border="0"> <tr> <td>BK - BLACK</td> <td>BL - BLUE</td> </tr> <tr> <td>W - WHITE</td> <td>R - RED</td> </tr> <tr> <td>Y - YELLOW</td> <td>BR - BROWN</td> </tr> <tr> <td>P - PURPLE</td> <td>O - ORANGE</td> </tr> <tr> <td>S - SLATE</td> <td>G - GREEN</td> </tr> </table>	BK - BLACK	BL - BLUE	W - WHITE	R - RED	Y - YELLOW	BR - BROWN	P - PURPLE	O - ORANGE	S - SLATE	G - GREEN
BK - BLACK	BL - BLUE										
W - WHITE	R - RED										
Y - YELLOW	BR - BROWN										
P - PURPLE	O - ORANGE										
S - SLATE	G - GREEN										
3.	CONNECTOR VIEWED FROM SOLDERED TERMINAL ENDS.										
4.	*DENOTES 18 GA. - ALL OTHER WIRES 24 GA..										
5.	<p>NORMALLY OPEN CONTACT NORMALLY CLOSED CONTACT</p>										
6.	<p>ASSOCIATED WIRING DIAGRAMS</p> <p>8137WD-321231 ESA WIRING 8176WD-VSL 536 AND 537 SCHEMATIC 8177WD-LPC 402 WIRING 8178WD-321231 ESA SCHEMATIC 8179WD-VSL 536 AND 537 WIRING 8331WD-326471 ESA SCHEMATIC</p>										
7.	<p>ASSOCIATED CABLES:</p> <p>155066 - CABLE ASSEMBLY 195353 - CABLE ASSEMBLY</p>										
8.	<p>LEGEND:</p> <p>CL - CLEAR INSULATION. DR - DRAIN LEAD.</p>										
9.	<p>REFERENCE SPEC. FOR TELETYPE CORPORATION EMPLOYEES ONLY 61351 S</p>										
10.	TAPE ENDS AND TIE BACK 152468 CABLE IF NOT USED.										

MAGNET AND BASE ASSEMBLY (319230)

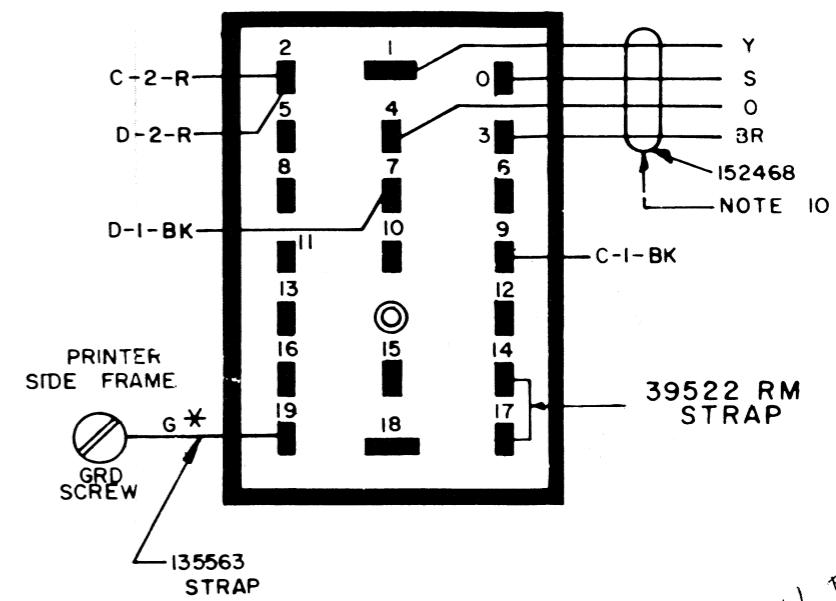


NOTE 8

(B)
C
SIGNAL BELL (159611)



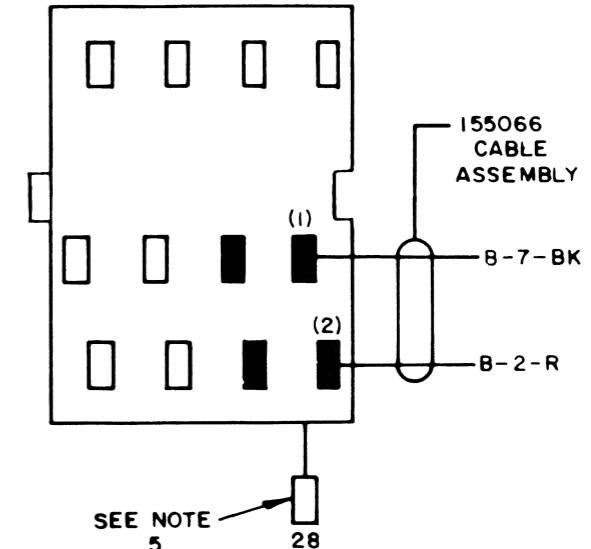
B
(F)
PRINTER CONNECTOR (152467)



39522 RM STRAP

*Bell #2 to (Red) Printer Recip #2
Bell #1 to Printer Recip #1 (BL)*

D
(C)
STUNT BOX CONTACT ARRANGEMENT AJF, AJG, ACX, AKH (172502)



SEE NOTE 5

Figure 5-27. Wiring Diagram; Model 28 CPP RO Typing Unit LP 139 5-93/5-94 blank

ck/aly

NO.	NOTES
1	CONNECTOR VIEWED FROM SOLDER TERMINAL END.
2	SELECTOR MAGNETS ARE WIRED FOR .060 AMPERE OPERATION OR USE WITH 323810 SELECTOR MAGNET DRIVER.
3	COLOR CODE R- RED W- WHITE BK- BLACK
4	REFERENCE SPEC. FOR TELETYPE CORPORATION EMPLOYEES ONLY 61213S
5	LEGEND: DR-DRAIN CL-CLEAR INSULATION
6	REFER TO APPROPRIATE SET SCHEMATIC WIRING DIAGRAM FOR J CONNECTOR NUMBER.

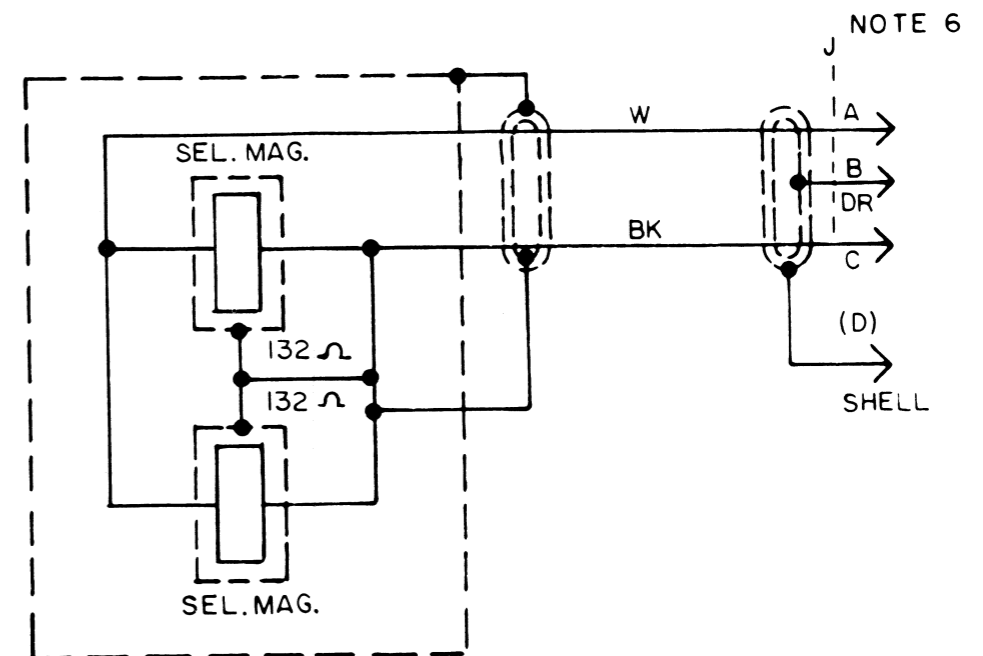
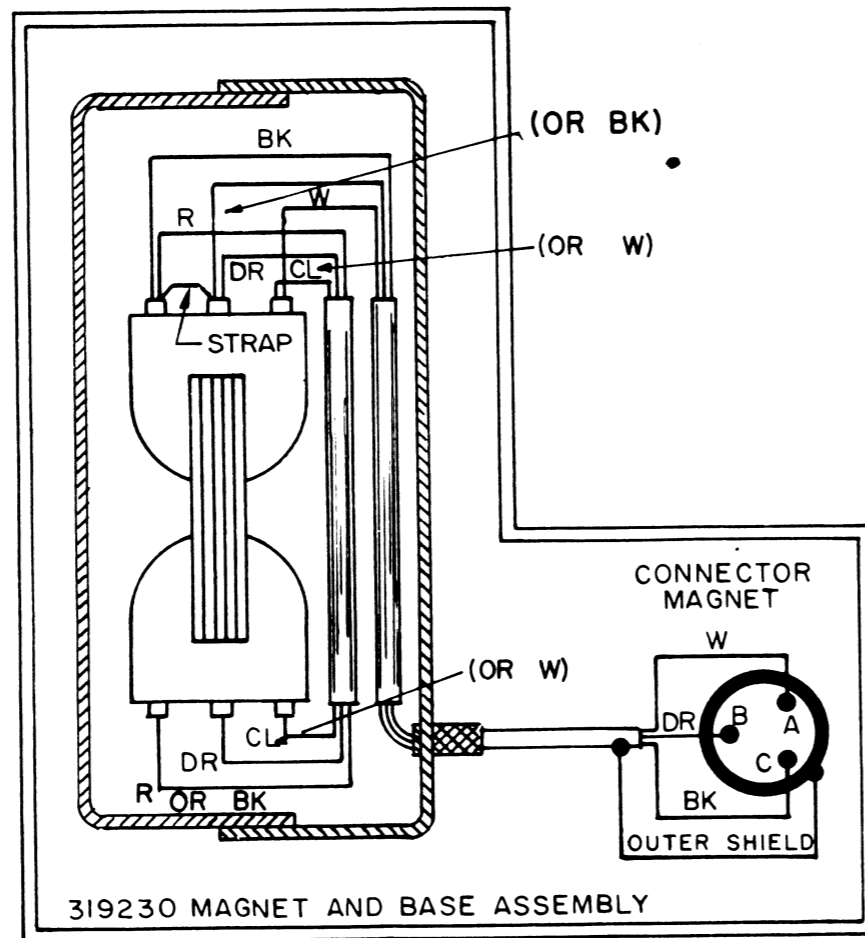


Figure 5-28. Wiring Diagram; Model 28 CPP RO Typing Unit Selector Assembly 319204

NO.	NOTES
1.	
2.	COLOR CODE: BK - BLACK BL - BLUE W - WHITE R - RED Y - YELLOW BR - BROWN P - PURPLE O - ORANGE S - SLATE G - GREEN
3.	CONNECTOR VIEWED FROM SOLDERED TERMINAL ENDS.
4.	* DENOTES 18 GA., ALL OTHER WIRES 24 GA.
5.	
6.	ASSOCIATED WIRING DIAGRAMS: 8724WD 323120 ESA ACTUAL 8725WD 323120 ESA SCHEMATIC 8726WD 323121 ESA ACTUAL 8727WD 323121 ESA SCHEMATIC 8728WD 323116 MOD. KIT ACTUAL 8729WD 323116 MOD. KIT SCHEMATIC 8764WD 1PC403 ACTUAL
7.	ASSOCIATED CABLES: 155066 - CABLE ASSEMBLY 195353 - CABLE ASSEMBLY 333118 - CABLE ASSEMBLY
8.	LEGEND: CL - CLEAR INSULATION DR - DRAIN LEAD
9.	S NUMBERS 61,351S 61,600S
10.	X INDICATES SPLICE
11.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESIS ARE FOR REFERENCE ONLY AND ARE NOT MARKED ON COMPONENTS
12.	USE SUITABLE TUBING OVER TERMINALS.
13.	CABLE 152468 (PART OF STUNT BOX) MAY BE CLIPPED AND DISCARDED.

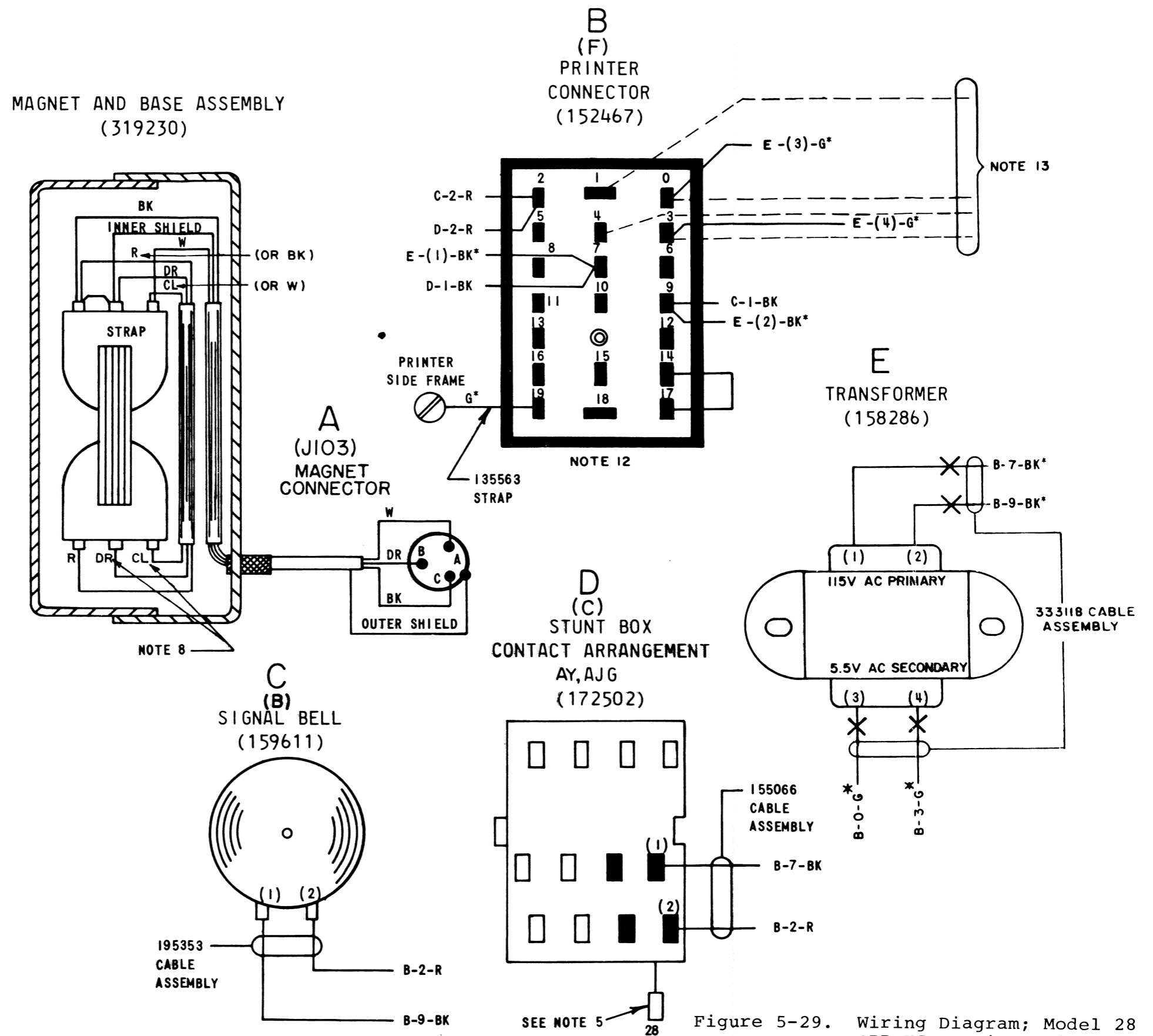


Figure 5-29. Wiring Diagram; Model 28 CPP KSR Typing Unit LP 156