Maintenance Manual

EDACS® 900 MHz
75-WATT,
TRUNKED REPEATER
STATION COMBINATION

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Private Radio Systems
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Lynchburg, Virginia 24502
1-800-528-7711 (Outside USA, 804-528-7711)

Printed in U.S.A.

SYMBOL	PART NO.	DESCRIPTION
		GETC FIELD KIT
		19A130031G32
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-19AB-600.
	N403P13B6	Lockwasher: No. 6.
	N403P16B6	Lockwasher, internal tooth: No. 8.
	N403P21B6	Lockwasher, external tooth: No. 12.
	N210P13B6	Nut, steel: No. 6-32.
	N80P15008B6	Machine screw, panhead: No. 8-32 x 1/2.
	N80P13008B6	Machine screw, panhead: No. 6-32 x 1/2.
	N80P13005B6	Machine screw, panhead: No. 6-32 x 5/16.
	19A701863P19	Clamp, loop: sim to Weckesser 3/8-6.
	N402P37B6	Flatwasher: No. 6.
	19B234899P1	Brace, steel.
	19A702104P2	Connector: gold plated two position shorting jumper,.
	19B801468P1	Locking plate, left side.
	19B801468P2	Locking plate, right side.
	19B209727P46	Screwlock: No. 4-40; sim to AMP 205818-2.
	19A134011P	Screw, thread forming: No. 10-16 x .75".
		EXCITER/RECEIVER DOOR
		19A130031G33
	19A116773P108	Tap screw, Phillips POZIDRIV: No. 7-19 x 1/2.
	19B201074P306	Tap screw, Phillips POZIDRIV: No. 6-32 x 3/8.
	19B201074P310	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/8.
	7147306P2	Insulator, bushing: No. 6, black pressed fiber; sim to H.H. Smith Inc 2150
	19B201074P308	Tap screw, Phillips POZIDRIV: No. 6-32 x 1/2.
	19B201074P305	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/16.
	N80P13006B6	Machine screw: Pan head, Phillips; No. 8-32 x 3/8"
	N402P67B6	Flatwasher, wide: No. 6.
	19B201955P11	Spacer, threaded
	N80P13007B6	Machine screw, panhead: No. 6-32 x 7/16.
	19A701863P13	Cable clip.
	19A115729P7	Washer, flat: 1.0 inch OD, .54 inch ID.
		CONTROL PANEL
		19A130031G34
	19A115161P2	Sleeving.
	4035664P8	Nut, self locking.
	N404P13B6	Lockwasher, internal tooth: No. 6.
	N80P15016B6	Machine screw, panhead: No. 8-32 x 1.
	N80P13016B6	Machine screw, panhead: No. 6-32 x 1.
	7141225P3	Hex Nut: No. 6-32.
		69" CABINET DUAL RACK
		19A130031G35
	7160861P5	Nut, sheet spring: sim to Tinnerman C1505-1032-24D.
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-19AB-600
	19A134014P6	Bushing, strain relief: sim to Heyco UB-1093.
	19A134032P1	Bushing, protective.
	19B209103P506	Tap screw, hex head: No. 10-32 x 3/8.
	19A136621G1	Cable, ground: 10 inches long.
	N403P13B6	Lockwasher: No. 6.
	N403P16B6	Lockwasher, internal tooth: No. 8.
	N403P21B6	Lockwasher, external tooth: No. 12.
	19J706152P8	Retaining strap: sim to Dennison Bar-lok 08470
	N402P7B6	Flatwasher, narrow: No. 6.
	N402P8B6	Flatwasher, steel: No. 8.
	N80P16008B6	Machine screw, panhead: No. 10 - 32 x 1/2.
	N210P16B6	Nut, steel: No. 10-32.
	N84P16008B6	Machine screw, flat head: No. 10-32 x 1/2.
	19A115594P2	Grommet.
	19A134011P2	Screw, thread forming: No. 10-16 x .75".
		69" CABINET SINGLE RACK
		19A130031G35
	7160861P5	Nut, sheet spring: sim to Tinnerman C1505-1032-24D.
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-19AB-600.
	19A134014P6	Bushing, strain relief: sim to Heyco UB-1093.
	19A134032P1	Bushing, protective.
	19B209103P506	Tap screw, hex head: No. 10-32 x 3/8.

SYMBOL	PART NO.	DESCRIPTION
	19A136621G1	Cable, ground: 10 inches long.
	N403P13B6	Lockwasher: No. 6.
	N403P16B6	Lockwasher, internal tooth: No. 8.
	N403P21B6	Lockwasher, external tooth: No. 12.
	19J706152P8	Retaining strap: sim to Dennison Bar-lok 08470.
	N402P7B6	Flatwasher, narrow: No. 6.
	N402P8B6	Flatwasher, steel: No. 8.
	N80P16008B6	Machine screw, panhead: No. 10 - 32 x 1/2.
	N210P16B6	Nut, steel: No. 10-32.
	N84P16008B6	Machine screw, flat head: No. 10-32 x 1/2.
	19A115594P2	Grommet.
	19A134011P2	Screw, thread forming: No. 10-16 x .75".
		STATION PANEL
		19A149326G1
	19C336811P1	Slide.
	N80P13010B6	Machine screw: No.
	N210P13B6	3 Nut, steel: No. 6-32.
	N404P13B6	Lockwasher, internal tooth: No. 6.
	19A149327G1	Ground cable.
	19B201074P305	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/16.
	N80P13004B6	Screw, machine: Pan head; No. 6-32 x 1/4".
	19B235104P1	Support
	19J706152P2	Retainer strap.
		MASTER OSCILLATOR
		19A149537G1
	19A134011P1	Screw, thread forming: No. 10-16 x .75".
	N403P19B6	Lockwasher: No. 10.
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-19AB-600.
		MASTER OSCILLATOR CABLE
		19B801561G1
J954	19A115938P12	Connector, coaxial: (BNC Series); sim to Amphenol 31-342.
P953	19A115938P7	Connector, coaxial: (BNC Series); sim to Amphenol 31-335.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B209044P24	Cable, radio frequency: sim to Essex 21-316.
	344A4958P1	Support
		VCO INPUT CABLE
		19B801529G1
	19B800560P2	RF Cable, approximately 20 inches long..
	19A705512P3	Connector, RF SMB series: sim to AMP 228213-1.
		LOCAL OSCILLATOR CABLE
		19B801529G2
	19B800560P2	RF Cable, approximately 10 inches long.
	19A705512P3	Connector, RF SMB series: sim to AMP 228213-1.
		ANTENNA CABLE
		19B801529G3
	19B800560P2	RF Cable, approximately 13 inches long.
	19A705512P3	Connector, RF SMB series: sim to AMP 228213-1.
P953	19A115938P20	Connector, coaxial: (BNC Series); sim to Amphenol 31-318-01001.
		EXCITER OUTPUT CABLE
		19B801529G4
	19B800560P2	RF Cable, approximately 4.5 inches long.
	19A705512P3	Connector, RF SMB series: sim to AMP 228213-1.
P953	19A115938P20	Connector, coaxial: (BNC Series); sim to Amphenol 31-318-01001.
		SYNTHEXIZER OUTPUT CABLE
		19B801529G5
	19B800560P2	RF Cable, approximately 11 inches long.
	19A705512P3	Connector, RF SMB series: sim to AMP 228213-1.
P953	19A115938P20	Connector, coaxial: (BNC Series); sim to Amphenol 31-318-01001.
		CABLE
		(Audio Output)
		19B801454P1
		CABLE
		(Exciter to PA)
		19B80145

SYMBOL	PART NO.	DESCRIPTION
		CABLE ASSEMBLY
		(Receiver to Audio_
		19B801535G1
P3	19A700041P32	Shell: 6-Position; sim to Molex 22-01-2065.
P602	19A700041P32	Shell: 6-Position; sim to Molex 22-01-2065.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A704779P26	Contacts: 22-30 AWG; sim to Molex 08-55-0101, Qty of 10.
	19A700157P2	Stranded wire.
	19A700157P10	Stranded wire.
	19A700157P3	Stranded wire.

PARTS LIST

EXCITER/RECEIVER DOOR ASSEMBLY
19D417262G13

Issue 4

SYMBOL	PART NO.	DESCRIPTION
A901		COMPONENT BOARD 19D417213G2
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A116080P107	Polyester: 0.1 mF + or -10%, 50 VDCW.
C2	344A4195 P471250	
C3	19A116080P106	Polyester: 0.068 mF + or -10%, 50 VDCW.
		- - - - - - - - - - JACKS - - - - - - - - - -
J903 and J904		Connector, Includes:
	19A116659P1	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-52-3032.
	19A116659P4	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-52-3032.
	19A116659P1	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-52-3032.
	19A116659P4	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-52-3032.
J905	19B219374G2	Connector, 9 contacts, includes shell.
		- - - - - - - - -MISCELLANEOUS- - - - - - - - -
	19C317957P2	Connector, Includes: Shell.
	19A700237P1	Contact, electrical: sim to Malco 003-0132-001.
J936	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
J951		Connector. Includes:
	19A116659P13	Connector, printed wiring; 4 contacts rated at 5 amps; sim to Molex 09-64-1041.
J952		Connector. Includes:
	19A116659P11	Connector, printed wiring, 7 contacts rated at 5 amps; sim to Molex 09-64-1041.
	19A116659P12	Connector, printed wiring, 6 contacts rated at 5 amps; sim to Molex 09-64-1041.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P907	19A701785P1	Contact, electrical: sim to Molex 08-50-0404 (Qty 6).
P908	19A701785P1	Contact, electrical: sim to Molex 08-50-0404 (Qty 9).
P909	19A701785P1	Contact, electrical: sim to Molex 08-50-0404 (Qty 8).
P934	19A701785P1	Contact, electrical: sim to Molex 08-50-0404 (Qty 8).
P935	19A701785P1	Contact, electrical: sim to Molex 08-50-0404 (Qty 7).
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19A701250P444	Metal film: 280K ohms + or - 1%, 1/4 w.
R3	19B209358P106	Variable: 10K ohms + or -5;, 1/4 w; sim to CTSX-201
R4	19A700106P71	Composition: 2.2K ohms + or -5%, 1/4 w.
R5	19A700106P75	Composition: 3.3K ohms + or - 5%, 1/4 w.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
3	19A701785P1	Contact, electrical; sim to Molex 08-50-0404.
4	19A116659P1	Connector, printed wiring: 3 contacts rated at 5 amps; sim to Molex 09-52-3032.
5	19A116659P4	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-52-3032.
6	5491541P302	Spacer.
10	19B219761P3	Jumper
11	19A116659P11	Connector, printed wiring: 7 contacts rated at 5 amps; sim to Molex 09-64-1071.
12	19A116659P12	Connector, printed wiring: 6 contacts rated at 5 amps; sim to Molex 09-64-1071.
13	19A116659P13	Connector, printed wiring: 4 contacts rated at 5 amps; sim to Molex 09-64-1071.
15	19A700134P10	Wire: solid, hook-up.
16	19A700136P4	Sleeving Insulation.
17	19A701278P5	Insulative sleeving.
18	19A701278P7	Insulative sleeving.
19	N80P13006B6	Machine screw: Pan head, Phillips; No. 8-32 x 3/8".
P951 and P952	19A116659P25	Shell.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms + or -20%, sim to Mallory LC(25K).
W903		CABLE ASSEMBLY 19D417262G2
		- - - - - - - - - - JACKS - - - - - - - - - -
J931 thru J933	19C851861P1	20 pin feedthrough connector, capacitor assemby, 1000 PF +100%, -0%.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P902 P951 and P952	19A116659P125	Shell.
	19A116659P25	Shell.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R901	5496870P31	Variable, carbon film: 10K ohms + or -20%, sim to Mallory LC(25K).
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
26	19B209519P1	Polarity tab.
32	19A116781P3	Contacts: 16-20 AWG; sim to Molex 08-50-0105 (Qty of 10).
33	19A116781P4	Contacts: 22-26 AWG; sim to Molex 08-50-0107 (Qty of 10).
W911		EXCITER HARNESS 19D417262G14
		- - - - - - - - - - JACKS - - - - - - - - - -
J933	19C851861P1	20 pin feedthrough connector, capacitor assemby, 1000 PF +100%, -0%.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P902	19A116659P125	Includes the following: Shell.
	19A116781P4	Contact, electrical: wire range No. 22-26 AWG; sim to Molex D8 50-0107.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
3	19C320664P1	Frame Assembly
4	19B226035G1	Support (Secures door).
5	19B226105G2	Support (Secures door).
6	19B234589P1	Pawl (Part of door latch).
7	19C336435P1	Knob (Part of door latch).
8	N193P808B6	Screw, thread forming
9	5493361P8	Washer, spring tension (Part of door latch)
10	4035664P8	Nut, self locking Used to secure supports).
11	19A115161P2	Sleeving (Located between self locking nuts and supports).
13	19B226035G2	Support (Secures door).
14	N404P13B6	Lockwasher, internal tooth: No. 6.
15	N402P39B6	Flatwasher: No. 10 (Part of door hinge).
16	7141225P3	Hex Nut: No. 6-32.
21	19A115874P1	Catch, friction (Latches A901).
25	19B201074P305	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/16.
26	19B209519P1	Polarity tab.
27	19A121676P2	Guide Pin (Used with J931-J933).
31	19A116496P1	Cable clip (Secures Exciter to driver cable).
32	19A116781P3	Contacts: 16-20 AWG; sim to Molex 08-50-0105 (Qty. of 10).
33	19A116781P4	Contacts: 22-26 AWG; sim to Molex 08-50-0107, (Qty of 10).
34	7115130P9	Lockwasher, interal tooth: No. 3/8 (Used with R901 mounting).
35	7165075P2	Hex nut, brass: thd. size No. 3/8-32 (Used with R901 mounting).
39	344A4273P1	Extrusion, Plastic
45	19C320679G3	Door
48	19B801559P1	Label
50	N404P11B6	Lockwasher, internal tooth: No. 4.

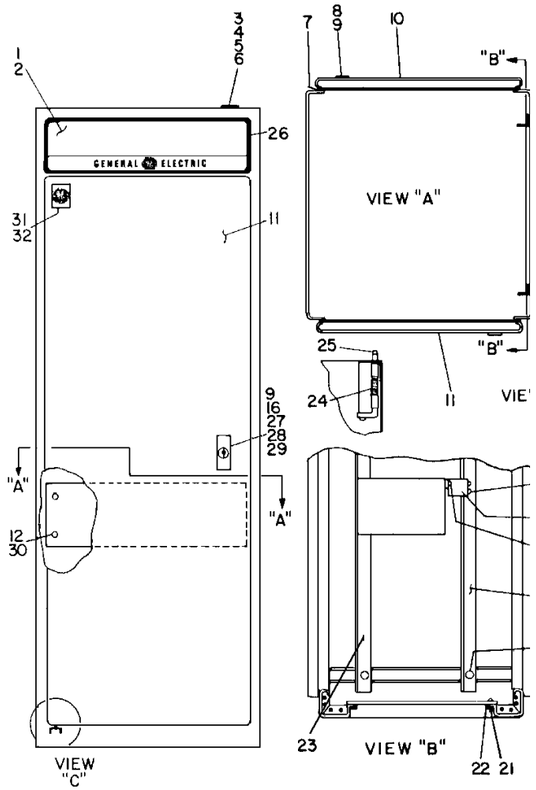
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PARTS LIST

STATION HARDWARE KITS
Issue 2

SYMBOL	PART NO.	DESCRIPTION
		GETC PANEL 19A130031G30
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-19AB-600.
	N403P13B6	Lockwasher: No. 6.
	N403P16B6	Lockwasher, internal tooth: No. 8.
	N403P21B6	Lockwasher, external tooth: No. 12.
	N210P13B6	Nut, steel: No. 6-32.
	N80P15008B6	Machine screw, panhead: No. 8-32 x 1/2.
	N80P13008B6	Machine screw, panhead: No. 6-32 x 1/2.
	N80P13005B6	Machine screw, panhead: No. 6-32 x 5/16.
	19A701863P19	Clamp, loop: sim to Weckesser 3/8-6.
	N402P37B6	Flatwasher: No. 6.
	19B234899P1	Brace, steel.
	19A702104P2	Connector: gold plated two position shorting jumper,
	19B801468P1	Locking plate, left side.
	19B801468P2	Locking plate, right side.
	19B209727P46	Screwlock: No. 4-40; sim to AMP 205818-2.
	19A134011P2	Screw, thread forming: No. 10-16 x .75".
	344A4109P1	Tape, foam: 1.0 x .375 inches.
	4035306P25	Washer, Fiber
	N404P11B6	Lockwasher, internal tooth: No. 4.
	7141225P2	Nut, Hex: 4-40.
		CONTROL PANEL 19A130031G31
	7160861P33	Nut, sheet spring: sim to Tinnerman C19640-19AB-600.
	N403P13B6	Lockwasher: No. 6.
	N403P16B6	Lockwasher, internal tooth: No. 8.
	N403P21B6	Lockwasher, external tooth: No. 12.
	N210P13B6	Nut, steel: No. 6-32.
	N404P13B6	Lockwasher, internal tooth: No. 6.
	N80P15008B6	Machine screw, panhead: No. 8-32 x 1/2.
	N80P13008B6	Machine screw, panhead: No. 6-32 x 1/2.
	19A701863P19	Clamp, loop: sim to Weckesser 3/8-6.
	N402P37B6	Flatwasher: No. 6.
	19B234899P1	Brace, steel.
	19B801468P1	Locking plate, left side.
	19B801468P2	Locking plate, right side.
	19A115594P2	Grommet.
	19A134011P2	Screw, thread forming: No. 10-16 x .75".
	344A4109P1	Tape, foam: 1.0 x .375 inches.
	19A115729P7	Washer, flat: 1.0 inch OD, .54 inch ID.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES



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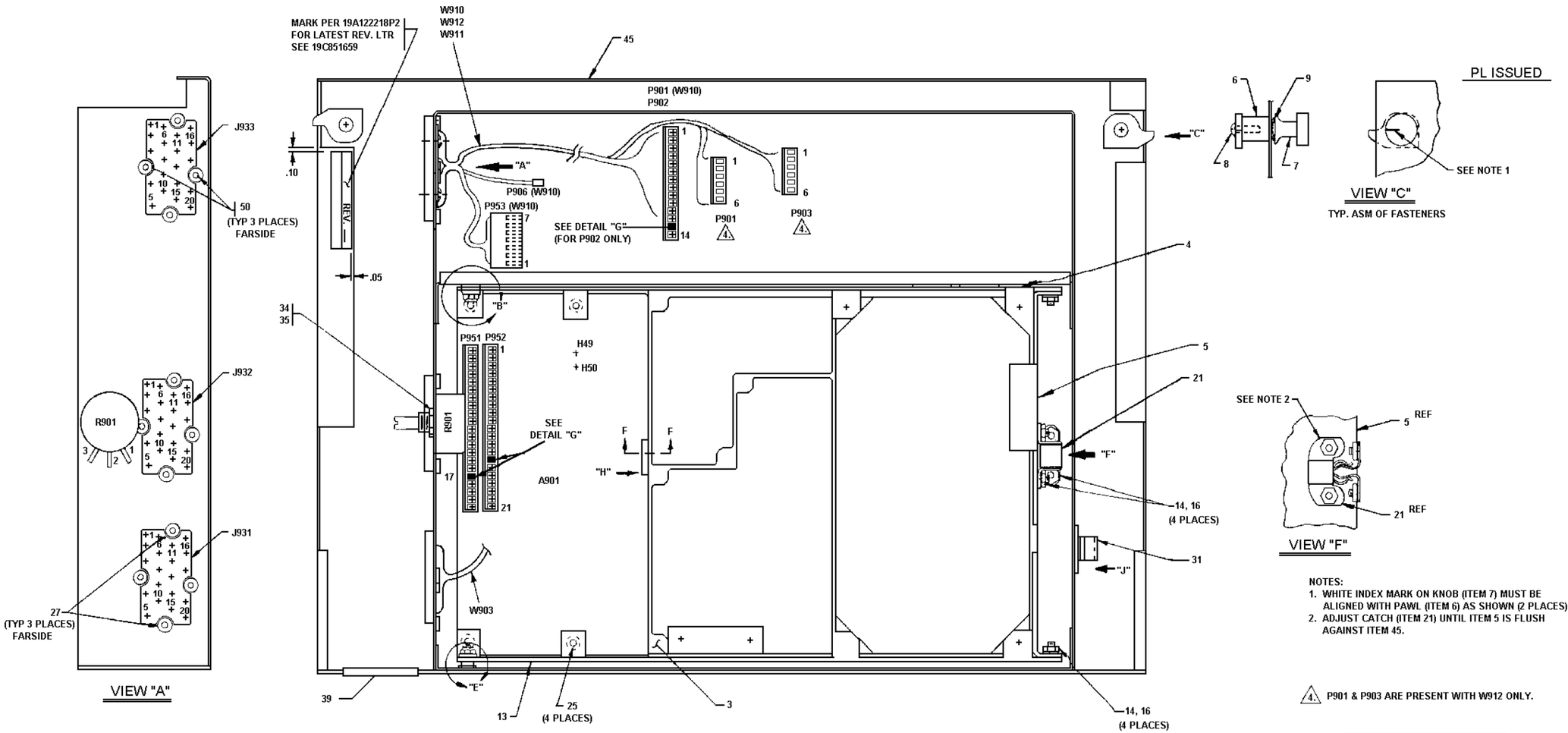
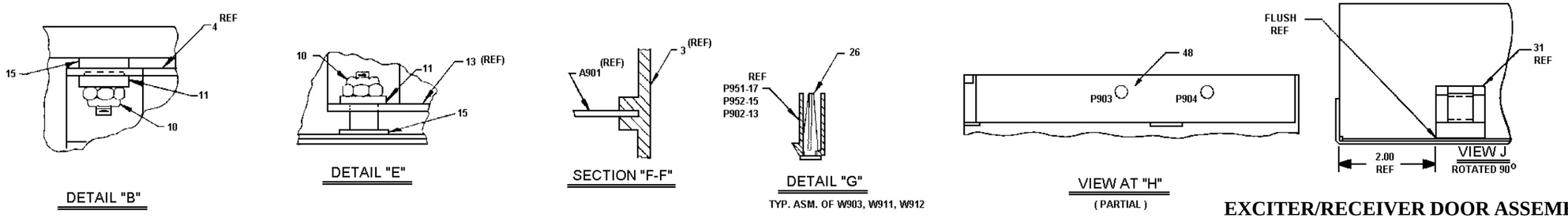


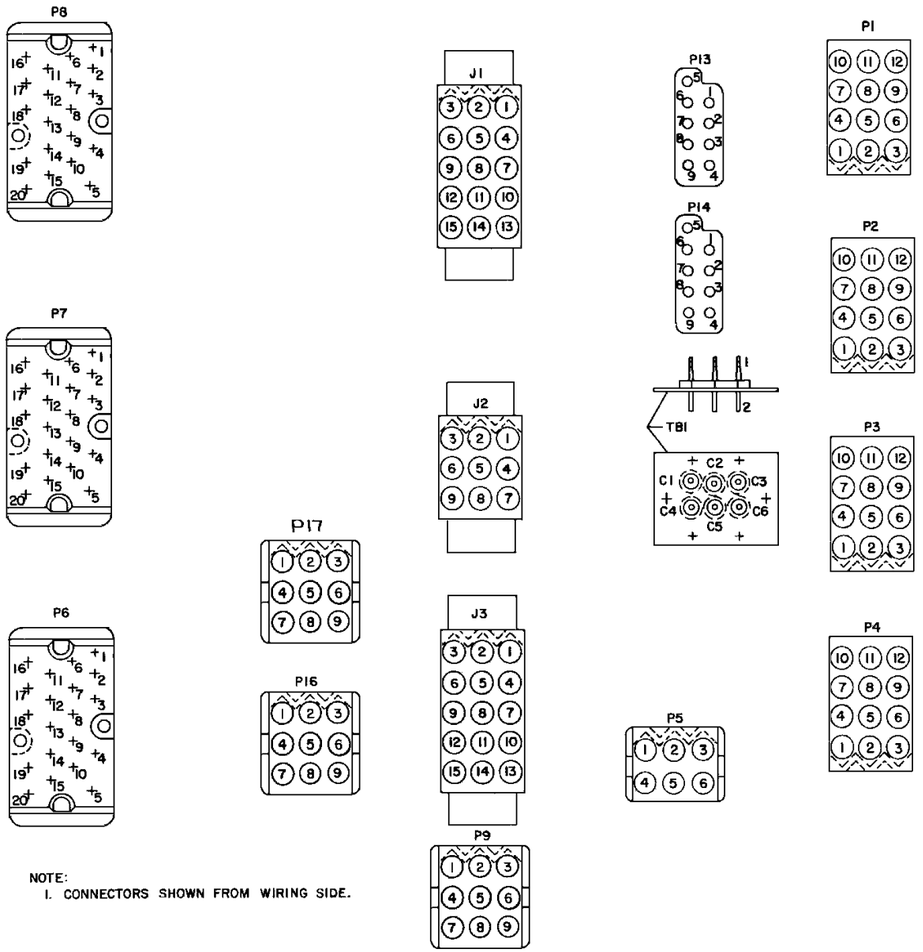
NOTES:
1. WHITE INDEX MARK ON KNOB (ITEM 7) MUST BE ALIGNED WITH PAWL (ITEM 6) AS SHOWN (2 PLACES).
2. ADJUST CATCH (ITEM 21) UNTIL ITEM 5 IS FLUSH AGAINST ITEM 45.

4. P901 & P903 ARE PRESENT WITH W912 ONLY.



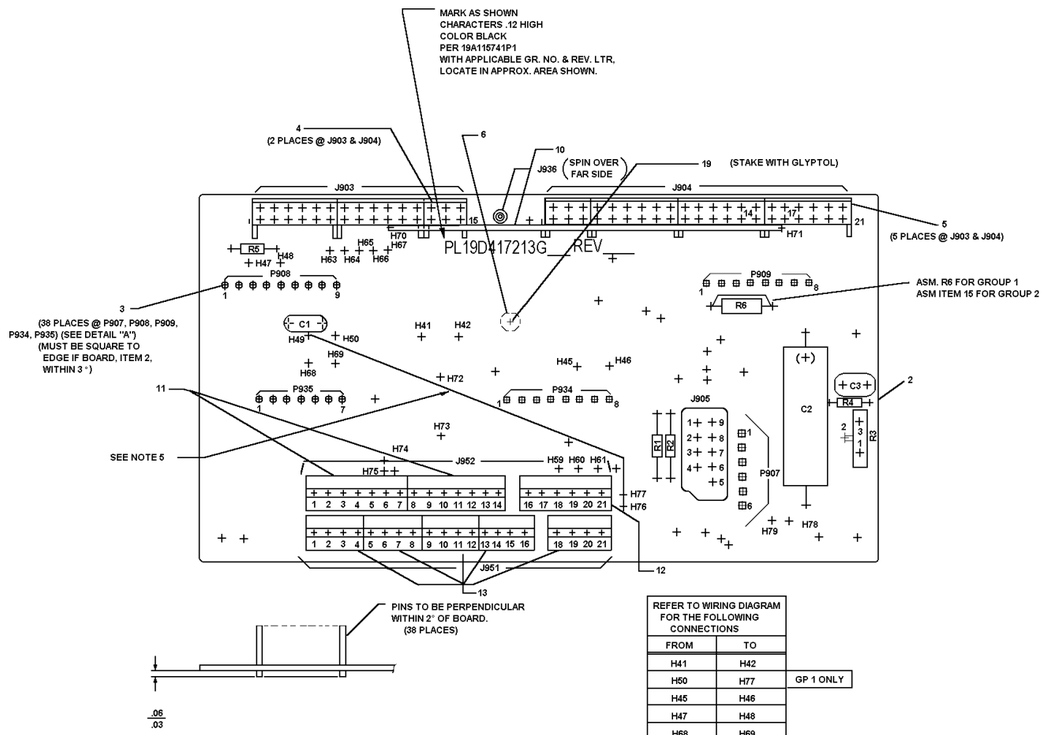
EXCITER/RECEIVER DOOR ASSEMBLY 19D417262

(19D417262, Sh. 4, Rev. 6)



STATION HARNESS CONNECTORS

(19C328112, Rev. 2)



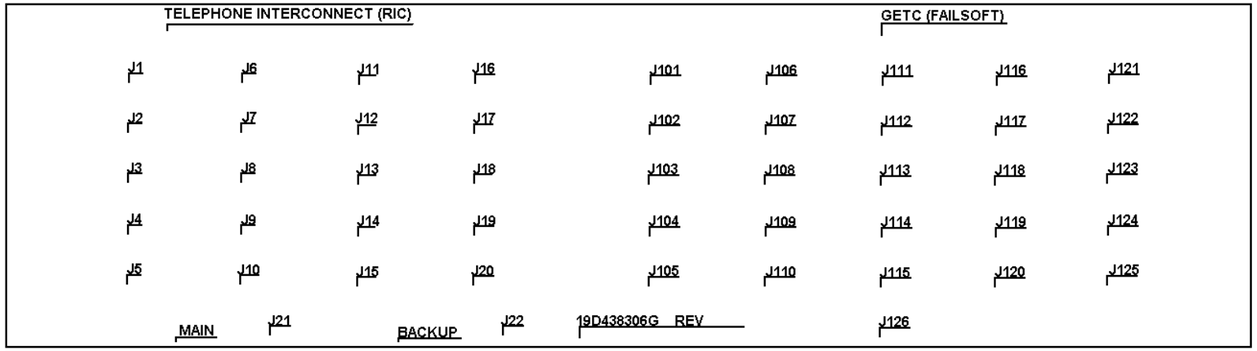
REFER TO WIRING DIAGRAM FOR THE FOLLOWING CONNECTIONS		
FROM	TO	
H41	H42	
H50	H77	GP 1 ONLY
H45	H46	
H47	H48	
H68	H69	
H49	H76	GP 1 ONLY
H74	H75	

EXCITER/RECEIVER DOOR ASSEMBLY 19D417213

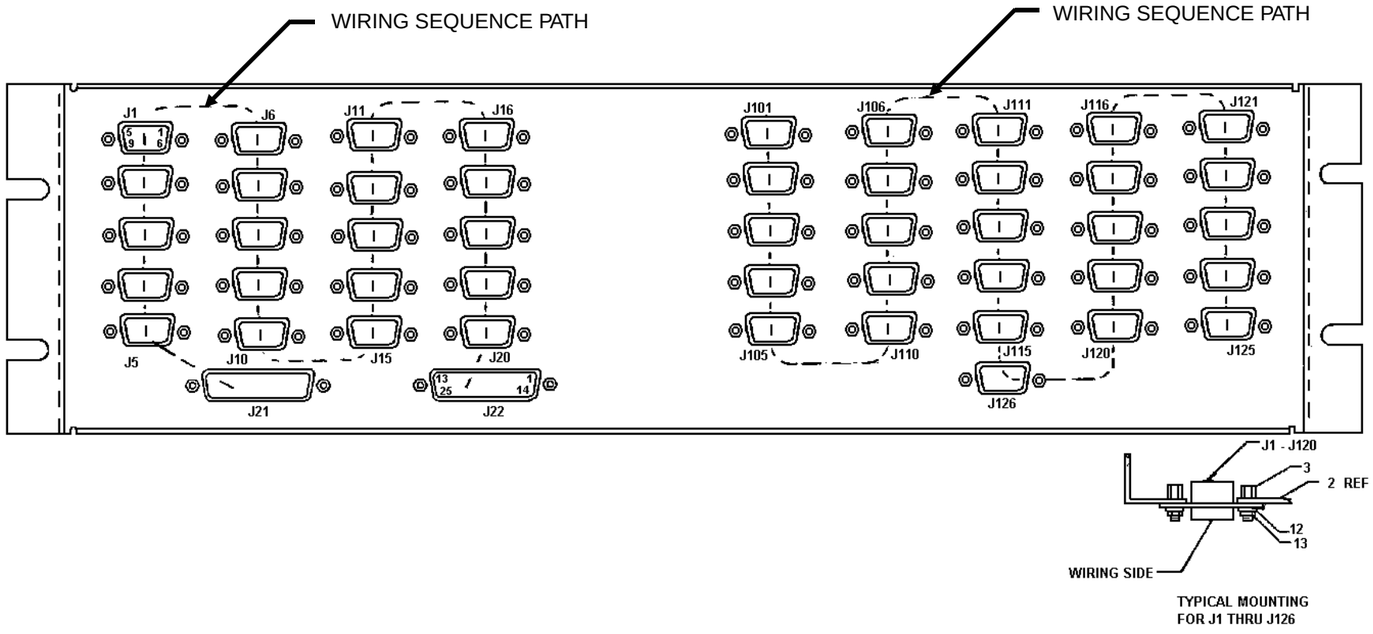
(19D417213, Rev. 9)

NOTES:

1. SOLDER ALL ELECTRICAL CONNECTIONS.
2. COMPONENT LEADS TO PROTRUDE .09 MAX. BELOW SOLDER SIDE OF BOARD.
3. LEAD FORM ALL COMPONENTS AS REQUIRED TO MEET QUALITY STANDARDS (SEE 19B-204900 FOR RECOMMENDED FORMS).
4. ALL PLASTIC CONNECTOR BODIES SHALL BE MAINTAINED TIGHT AGAINST ITEM - 2. .02 MAX GAP PERMISSIBLE AFTER SOLDERING.
5. INSTALL WIRE FROM H49, H50 TO H76, H77 ON COMPONENT SIDE OF BOARD. INSTALL AS SHORT AS POSSIBLE. (GP 1 ONLY)



(19D438316, Sh. 1, Rev. 0)



TYPICAL MOUNTING
FOR J1 THRU J126

PARTS LIST

DISTRIBUTION PANEL
19D438306G2
ISSUE 2

SYMBOL	PART NO.	DESCRIPTION
		---------- JACKS ----------
J1 thru J20	19B209727P18	Connector, plug, power: 9 contacts; sim to AMP 205203-1.
J21 and J22	19B209727P2	Connector, plug, power: 25 contacts; sim to AMP 205207-1.
J101 thru J126	19B209727P18	Connector, plug, power: 9 contacts; sim to AMP 205203-1.
		---------- MISCELLANEOUS ----------
2	19D438296P1	Panel.
3	19B209727P46	Screwlock: NO. 4 - 40; sim to AMP 205818-2.
4	19A115594P2	Grommet.
5	19B209727P11	Contact, electrical: sim to AMP 1 - 66504 - 0.
8	19C336846G3	Panel.
10	19A115075P1	Wire, Solid: Hook-up.
12	N404P11B6	Lockwasher, internal tooth: No. 4.
13	7141225P2	Nut, Hex: 4 - 40.

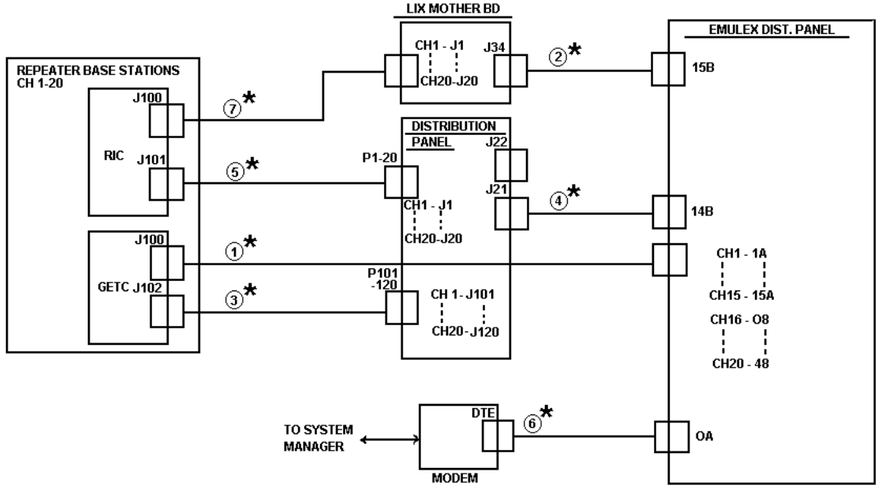
(1)

NOTES:

1. ALL WIRING IS ST24-W.
   USE AMP TOOL NO. 90302 TO CRIMP WIRE TO ITEM 5.
   USE AMP TOOL NO. 91067-2 TO REMOVE CONTACTS
   FROM HOUSING IF NECESSARY.
2. ALL WIRES TO BE 3 INCHES LONG EXCEPT WIRES TO J21
   WHICH ARE 4 INCHES LONG.
3. FOR J1 THRU J20:
   CONNECT ALL PIN 1'S TOGETHER AND CONNECT TO J21-1 AND J22-1.
   CONNECT ALL PIN 4'S TOGETHER AND CONNECT TO J21-7.
   CONNECT ALL PIN 5'S TOGETHER AND CONNECT TO J22-7.
   CONNECT ALL PIN 6'S TOGETHER AND CONNECT TO J22-3.
   CONNECT ALL PIN 7'S TOGETHER AND CONNECT TO J21-3.
   CONNECT ALL PIN 8'S TOGETHER AND CONNECT TO J22-2.
   CONNECT ALL PIN 9'S TOGETHER AND CONNECT TO J21-2.
4. FOR J101 THRU J126:
   CONNECT ALL PIN 1'S TOGETHER.
   CONNECT ALL PIN 2'S TOGETHER.
   CONNECT ALL PIN 3'S TOGETHER.
   CONNECT ALL PIN 7'S TOGETHER.

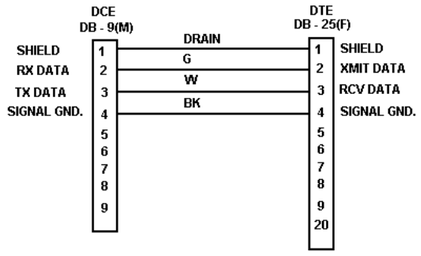
DISTRIBUTION PANEL

(19D438306, Rev. 1)

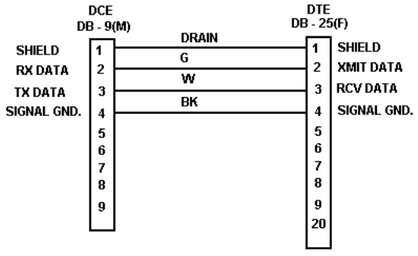


* NUMBER IN CIRCLE REFERS TO CABLE PART SHOWN

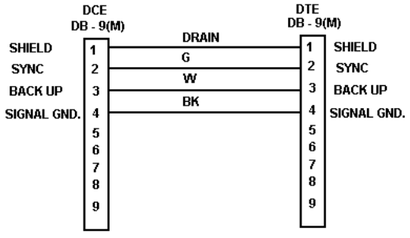
① STATION GETC TO SITE CONTROLLER



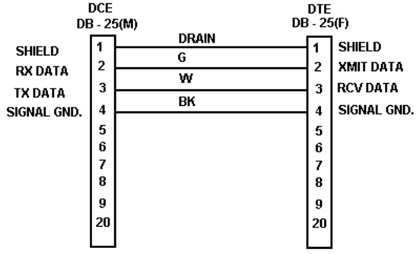
② LIX TO SITE CONTROLLER



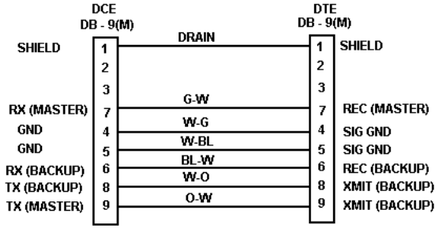
③ STATION GETC TO DISTRIBUTION PANEL (FAILSOFT GETC)



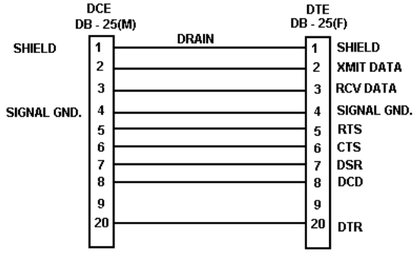
④ DISTRIBUTION PANEL (RIC) TO SITE CONTROLLER



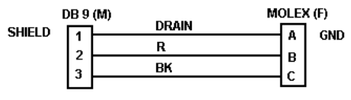
⑤



⑥ MODEM TO SITE CONTROLLER



⑦ RIC TO LIX



INTERCONNECTION CABLE FOR GE NET 900 REPEATER SITE

NOTES:

1. CONNECTOR ENDS ARE DEFINED AS DATA TERMINAL EQUIPMENT (DTE) AND DATA COMMUNICATION EQUIPMENT (DCE).

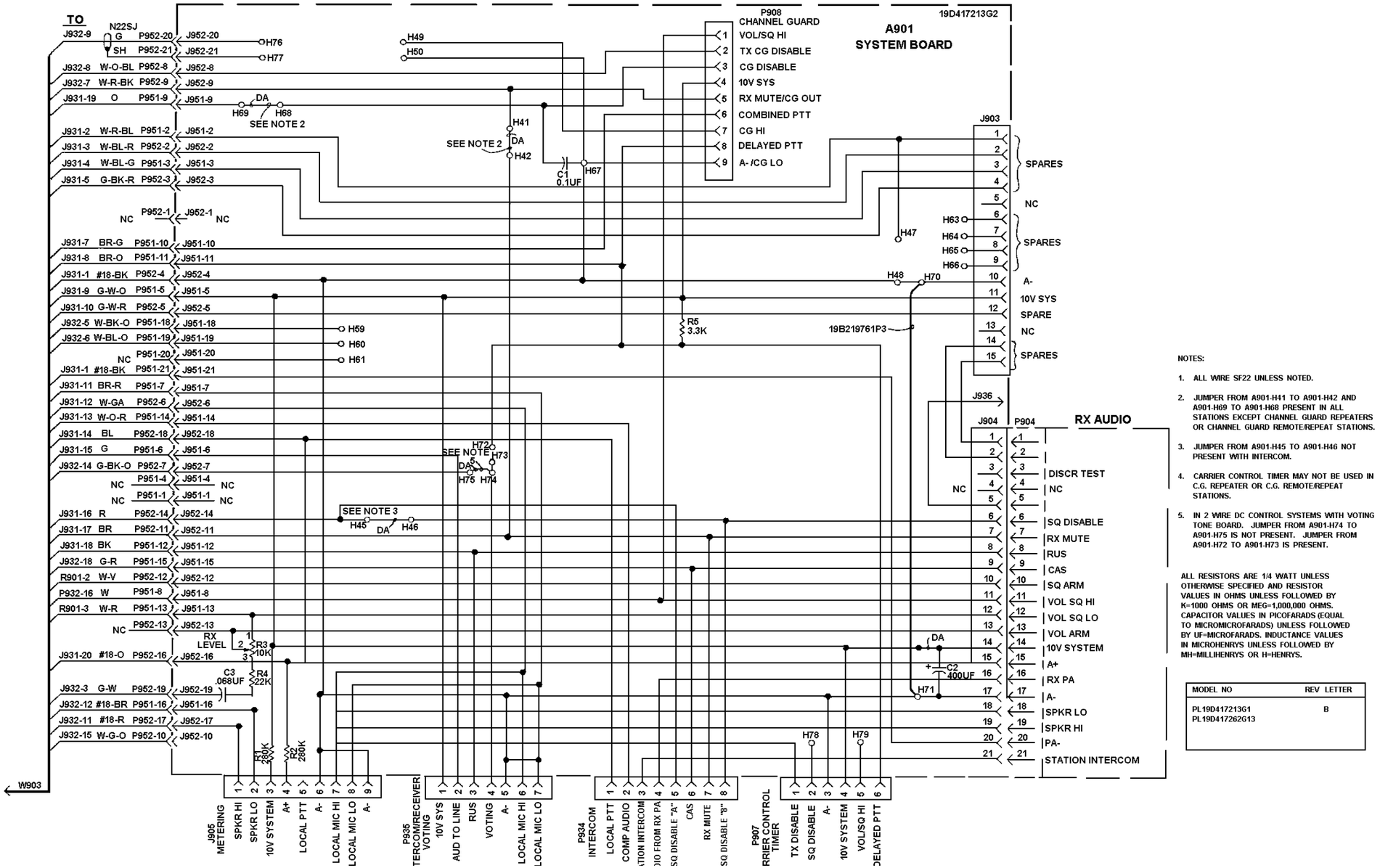
   DTE INCLUDES THE SITE CONTROLLER EMULEX PANEL AND THE FAILSOFT DISTRIBUTION PANEL INPUTS.

   DCE INCLUDES THE GETC, RIC, LIX, FAILSOFT DISTRIBUTION PANEL OUTPUT, POWER MONITOR, TEST UNIT, ACU AND MODEM.

   CABLE MODEL NUMBERS ARE:
   - BELDEN MODEL 9927 - 4 WIRE WITH SHIELD (PARTS 1, 2, 3, 4)
   - BELDEN MODEL 8133 - 6 WIRE WITH SHIELD (PART 5)
   - BELDEN MODEL - WIRE WITH SHIELD (PART 6)
   - GE PART 7147255P1 - 2 WIRE WITH SHILED (PART 7)

RC-7220

MADE FROM 19C336882



NOTES:

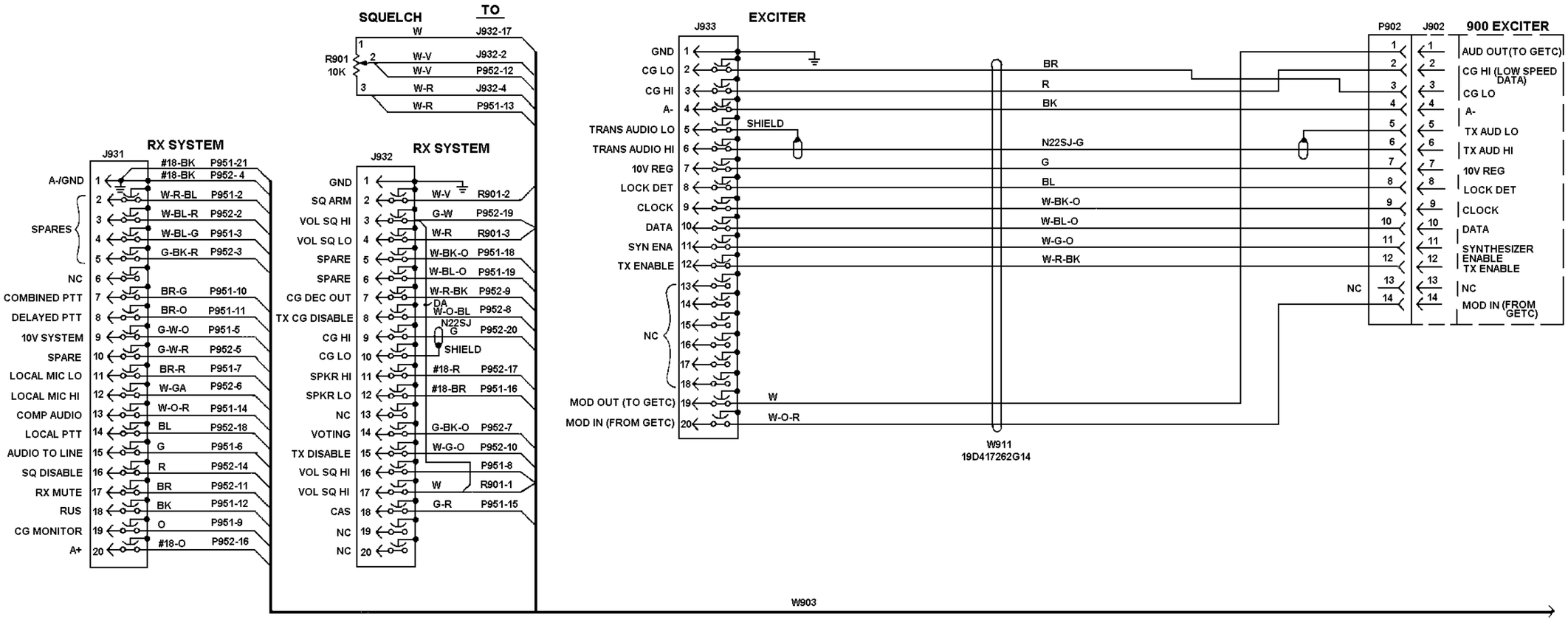
1. ALL WIRE SF22 UNLESS NOTED.
2. JUMPER FROM A901-H41 TO A901-H42 AND A901-H69 TO A901-H68 PRESENT IN ALL STATIONS EXCEPT CHANNEL GUARD REPEATERS OR CHANNEL GUARD REMOTE/REPEAT STATIONS.
3. JUMPER FROM A901-H45 TO A901-H46 NOT PRESENT WITH INTERCOM.
4. CARRIER CONTROL TIMER MAY NOT BE USED IN C.G. REPEATER OR C.G. REMOTE/REPEAT STATIONS.
5. IN 2 WIRE DC CONTROL SYSTEMS WITH VOTING TONE BOARD. JUMPER FROM A901-H74 TO A901-H75 IS NOT PRESENT. JUMPER FROM A901-H72 TO A901-H73 IS PRESENT.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

MODEL NO	REV LETTER
PL19D417213G1	B
PL19D417262G13	

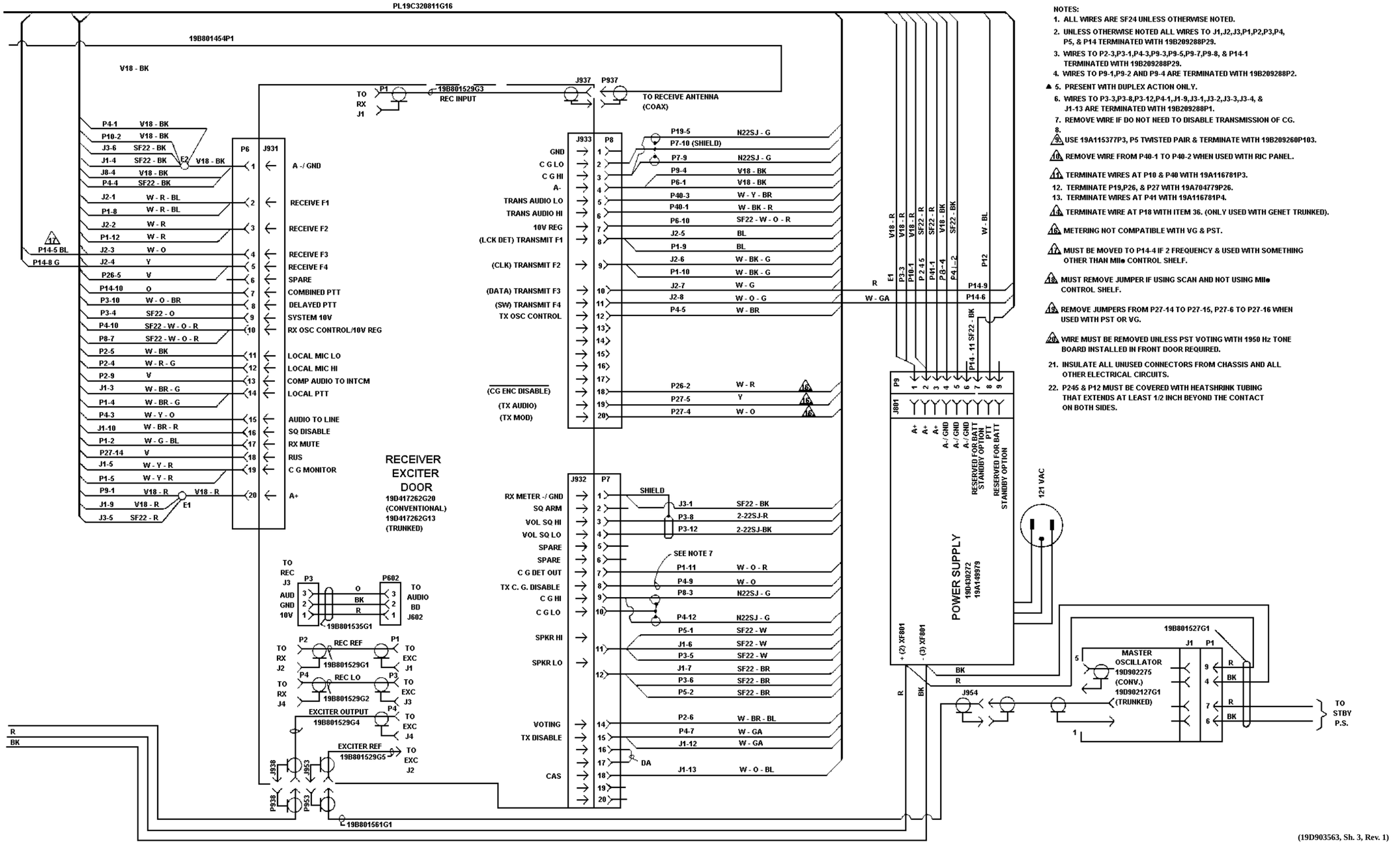
EXCITER-RECEIVER DOOR ASSEMBLY (INCLUDES SYSTEM BOARD)

(19D438424, Sh. 2, Rev. 5)



EXCITER-RECEIVER DOOR ASSEMBLY (INCLUDES SYSTEM BOARD)

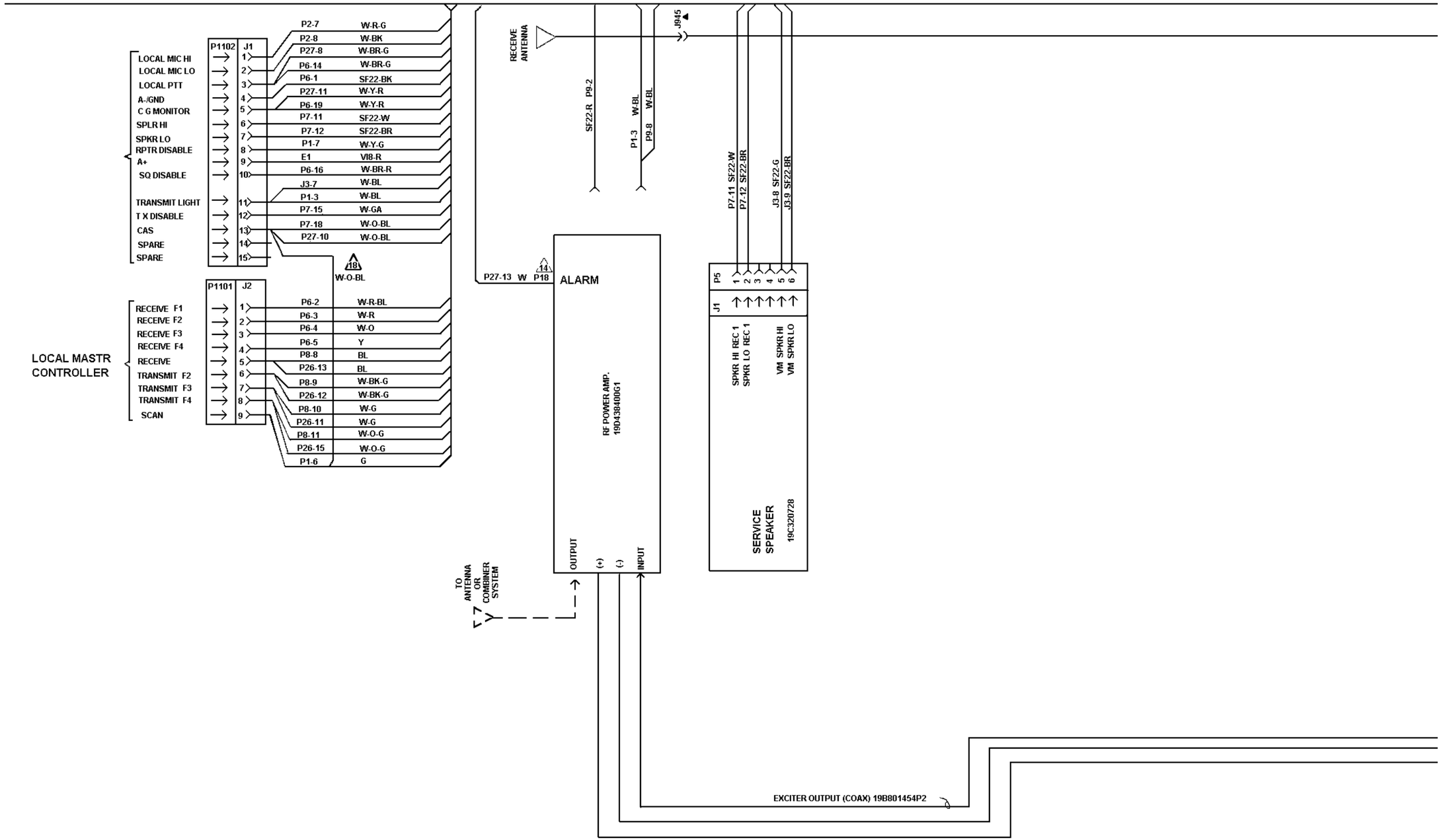
(19D438424, Sh. 1, Rev. 4)



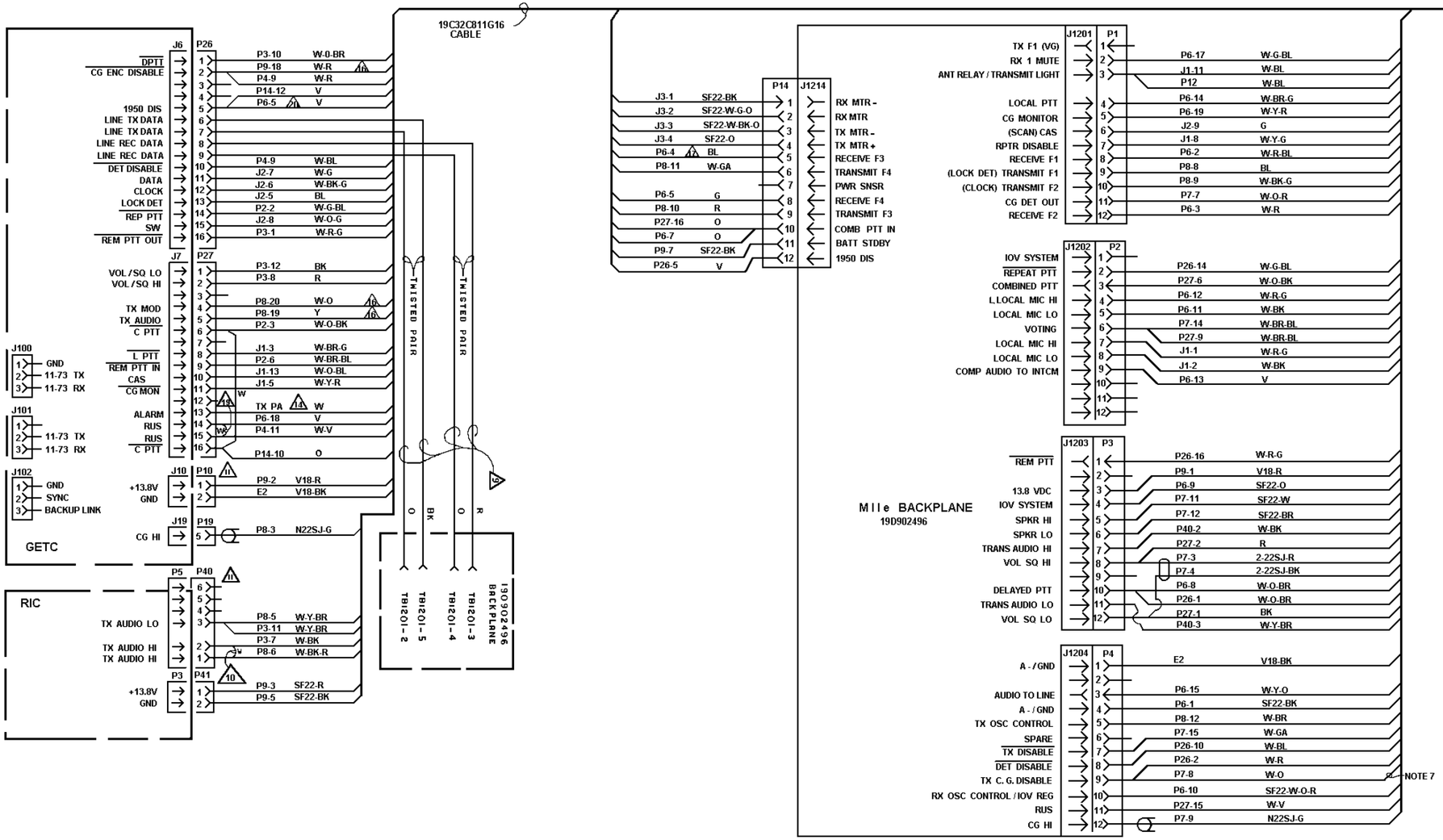
NOTES:

1. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED ALL WIRES TO J1,J2,J3,P1,P2,P3,P4, P5, & P14 TERMINATED WITH 19B209288P29.
3. WIRES TO P2-3,P3-1,P4-3,P9-3,P9-5,P9-7,P9-8, & P14-1 TERMINATED WITH 19B209288P29.
4. WIRES TO P9-1,P9-2 AND P9-4 ARE TERMINATED WITH 19B209288P2.
5. ▲ PRESENT WITH DUPLEX ACTION ONLY.
6. WIRES TO P3-3,P3-8,P3-12,P4-1,J1-9,J3-1,J3-2,J3-3,J3-4, & J1-13 ARE TERMINATED WITH 19B209288P1.
7. REMOVE WIRE IF DO NOT NEED TO DISABLE TRANSMISSION OF CG.
8.
9. USE 19A116377P3, P5 TWISTED PAIR & TERMINATE WITH 19B209260P103.
10. REMOVE WIRE FROM P40-1 TO P40-2 WHEN USED WITH RIC PANEL.
11. TERMINATE WIRES AT P10 & P40 WITH 19A116781P3.
12. TERMINATE P19,P26, & P27 WITH 19A704779P26.
13. TERMINATE WIRES AT P41 WITH 19A116781P4.
14. TERMINATE WIRE AT P18 WITH ITEM 36. (ONLY USED WITH GENET TRUNKED).
15. METERING NOT COMPATIBLE WITH VG & PST.
16. MUST BE MOVED TO P14-4 IF 2 FREQUENCY & USED WITH SOMETHING OTHER THAN Mlle CONTROL SHELF.
17. MUST REMOVE JUMPER IF USING SCAN AND NOT USING Mlle CONTROL SHELF.
18. REMOVE JUMPERS FROM P27-14 TO P27-15, P27-6 TO P27-16 WHEN USED WITH PST OR VG.
19. WIRE MUST BE REMOVED UNLESS PST VOTING WITH 1950 Hz TONE BOARD INSTALLED IN FRONT DOOR REQUIRED.
20. INSULATE ALL UNUSED CONNECTORS FROM CHASSIS AND ALL OTHER ELECTRICAL CIRCUITS.
21. P245 & P12 MUST BE COVERED WITH HEATSHRINK TUBING THAT EXTENDS AT LEAST 1/2 INCH BEYOND THE CONTACT ON BOTH SIDES.

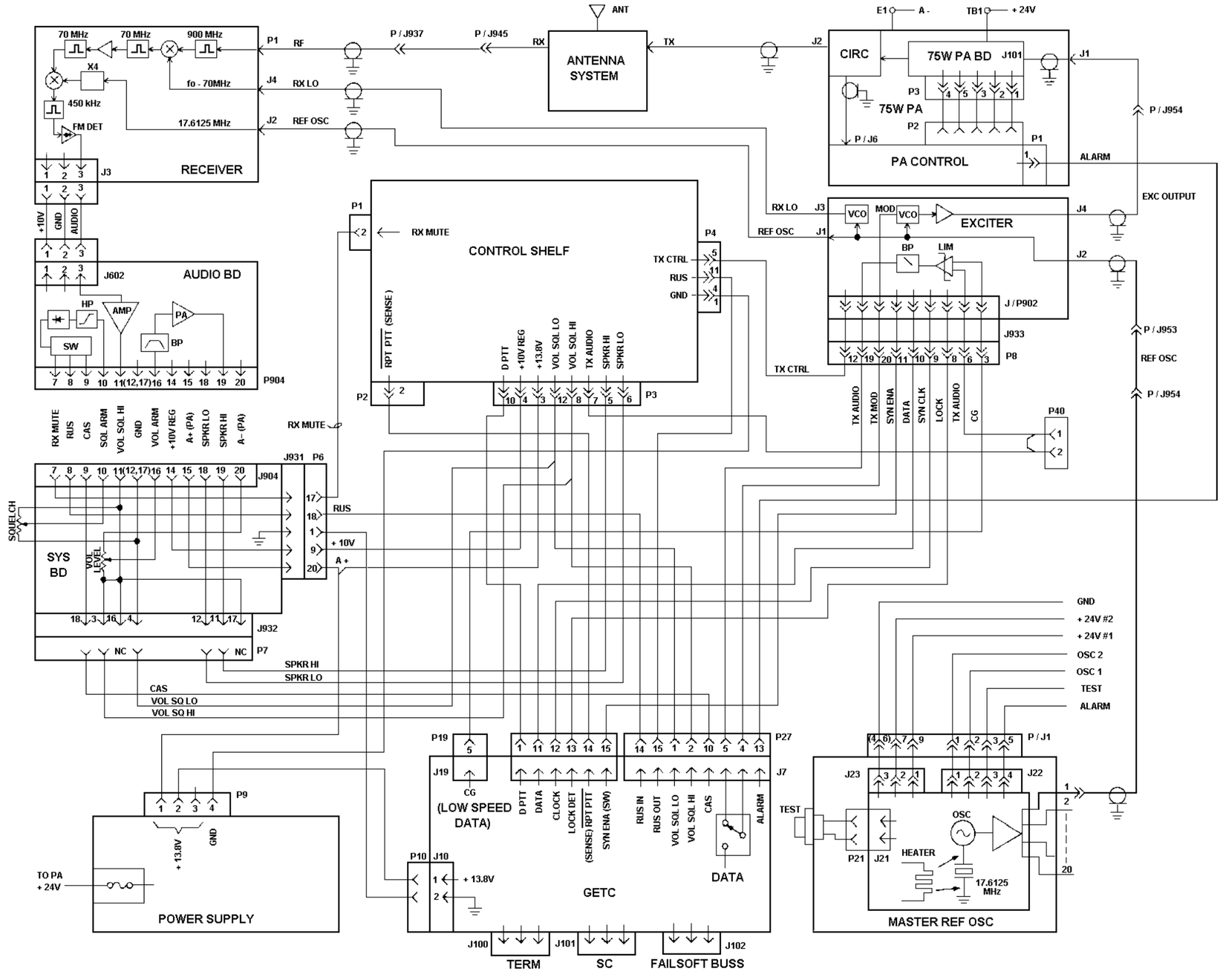
(19D903563, Sh. 3, Rev. 1)

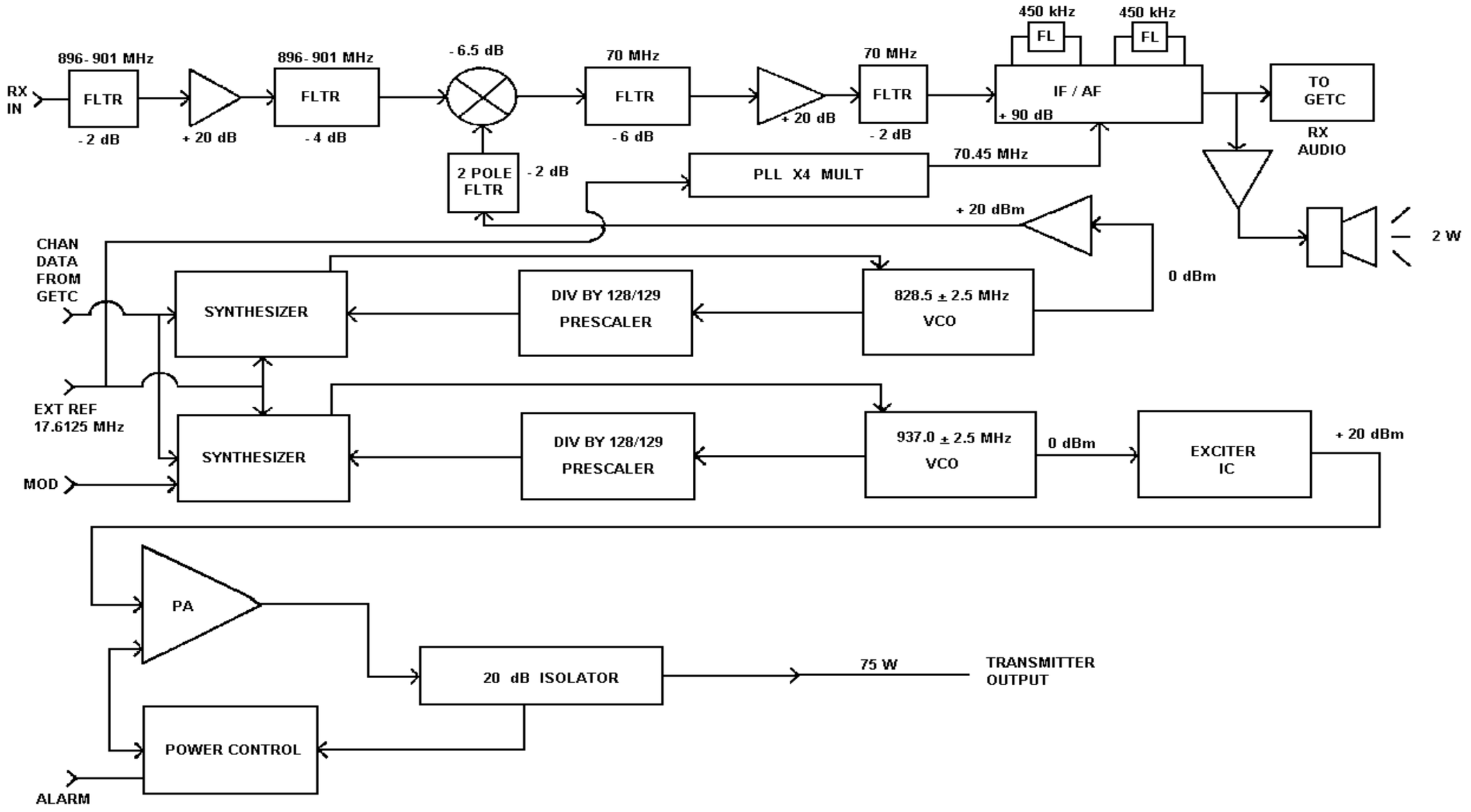


(19D903563, Sh. 2, Rev. 1)



(19D903563, Sh. 1, Rev. 1)


ANT
ANTENNA SYSTEM
TX
RX
P / J937
P / J945
J2
E1
A -
TB1
+ 24V
CIRC
75W PA BD J101
J1
P3
75W PA
P2
P / J6
P1
PA CONTROL
ALARM
P / J954
EXC OUTPUT
70 MHz
70 MHz
900 MHz
X4
450 kHz
FM DET
fo - 70MHz
17.6125 MHz
P1 RF
J4 RX LO
J2 REF OSC
RECEIVER
J3
+10V
GND
AUDIO
J602
AUDIO BD
HP
AMP
PA
SW
BP
P904
RX LO
REF OSC
J3
J1
VCO
MOD
VCO
EXCITER
J4
J2
BP
LIM
J / P902
J933
P8
P / J953
REF OSC
P / J954
P1
RX MUTE
CONTROL SHELF
P4
TX CTRL
RUS
GND
RPT PTT (SENSE)
D PTT
+10V REG
+13.8V
VOL SQL LO
VOL SQL HI
TX AUDIO
SPKR HI
SPKR LO
P2
P3
TX CTRL
TX AUDIO
TX MOD
SYN ENA
DATA
SYN CLK
LOCK
TX AUDIO
CG
P40
RX MUTE
RUS
CAS
SQL ARM
VOL SQL HI
GND
VOL ARM
+10V REG
A+ (PA)
SPKR LO
SPKR HI
A- (PA)
J931 P6
J904
SQUELCH
SYS BD
VOL LEVEL
17
18
1
9
20
RUS
+ 10V
A +
J932
P7
NC
NC
SPKR HI
SPKR LO
CAS
VOL SQ LO
VOL SQ HI
GND
+ 24V #2
+ 24V #1
OSC 2
OSC 1
TEST
ALARM
P9
+ 13.8V
GND
TO PA
+ 24V
POWER SUPPLY
P19
J19
CG
(LOW SPEED DATA)
P27
J7
D PTT
DATA
CLOCK
LOCK DET
(SENSE) RPT PTT
SYN ENA (SW)
RUS IN
RUS OUT
VOL SQL LO
VOL SQL HI
CAS
ALARM
DATA
P10 J10
+ 13.8V
GETC
J100
TERM
J101
SC
J102
FAILSOFT BUSS
P / J1
J23
J22
TEST
P21
J21
OSC
HEATER
17.6125 MHz
MASTER REF OSC



(19B801530, Sh. 1, Rev. 1)

MECHANICAL

Visually check cables, plugs, sockets, terminal boards and other components for good electrical connections. Check the tightness of nuts, bolts and screws to make sure that nothing is working loose from its mounting.

CLEANING

With the station power turned off, carefully use a vacuum cleaner to remove dust that has accumulated inside the cabinet, and on fans or air filters if present.

TEST AND TROUBLESHOOTING

NOTE

Stations with continuous duty fans should have the filters cleaned monthly.

The individual Maintenance Manuals contain test procedures and specific troubleshooting procedures to assist in servicing the transmitter and receiver. Also, a System Block Diagram and a Stage Level Diagram are included in this manual as additional service aids.

Refer to Installation Manual LBI-38160 for the station Mechanical Layout Diagrams.

See Figure 3 for installing and removing the SMB-type RF connectors used on the exciter, receiver, and master oscillator.

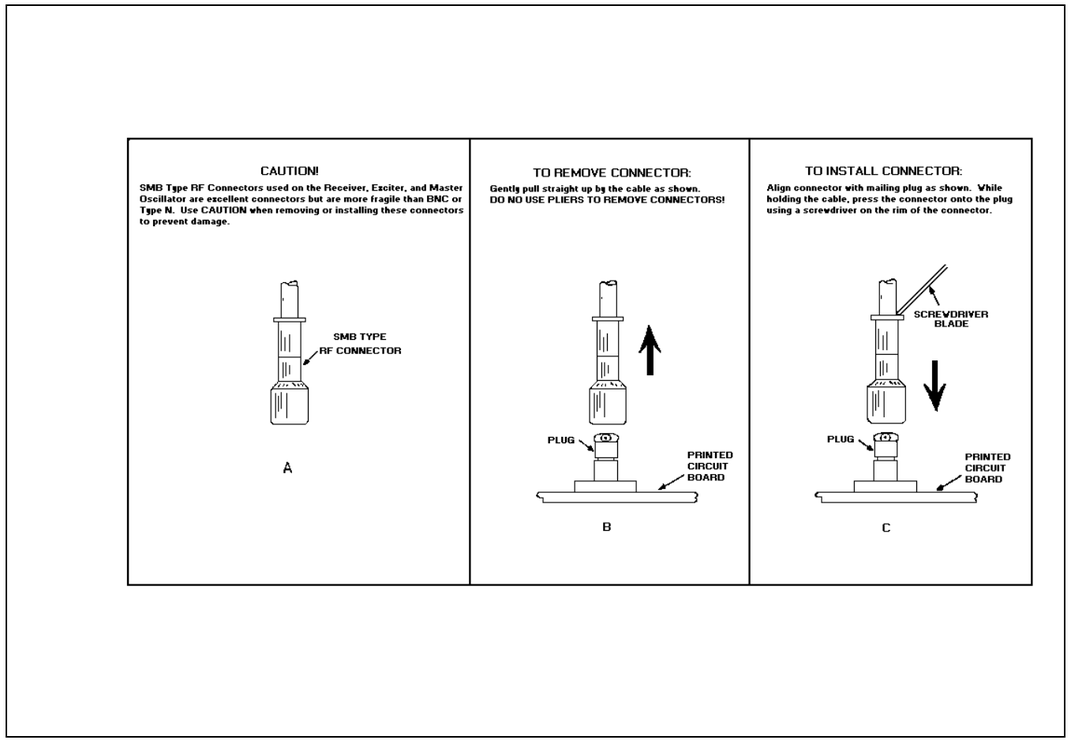


Figure 3 - Installing And Removing SMB Connectors

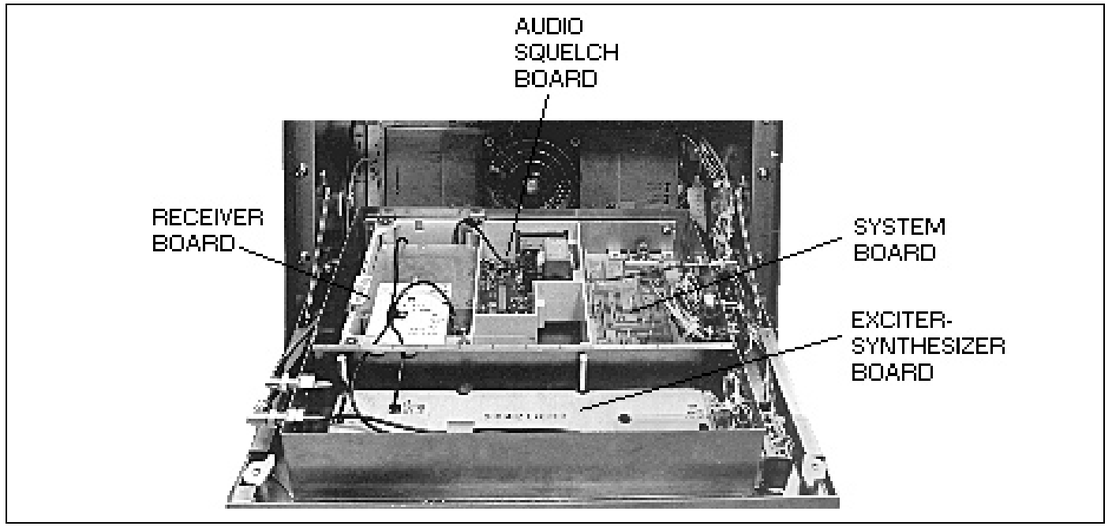


Figure 1 - Exciter-Receiver Door Assembly

GETC SHELF

The GE Trunking Card (GETC) assembly normally mounts above the radio door assembly. The GETC provides primary control of most of the repeater functions in the trunked system. The GETC generates and detects the 4800 baud data used in both the control and voice channel mode. Other functions provided by the GETC include repeater audio control, synthesizer loading and lock detect, RF power amplifier fault detection and test mode operation.

The GETC shelf is interfaced with the control shelf so that the GETC controls the repeater keying function, and can override the repeat audio function.

MASTER OSCILLATOR

The master oscillator panel is normally mounted above the GETC panel. The high stability oscillator supplies the 17.6125 MHz reference frequency to the transmitter and receiver frequency synthesizers. One master oscillator provides outputs for up to 20 trunked repeater stations.

The oscillator panel contains two identical oscillator circuits for high reliability. In case the primary oscillator fails, the standby oscillator is automatically activated to provide continuous operation.

Power for the master oscillator is provided by two separate 24-volt power feeds from different power supplies for additional reliability.

DISTRIBUTION PANEL

A distribution panel is used at each trunking site as a common tie point for all of the GETC panels. Connecting the GETC panels together allows every GETC to communicate on a common data bus in the failsoft mode of operation. The control channel GETC drives the failsoft bus in order to activate other channels for voice communication and to poll for their status.

Service Note: The distribution panel is not normally mounted in the same station as the master oscillator. The panels are mounted apart to prevent cable crowding problems.

The distribution panel interconnect cable is shown in Figure 2.

FAILSOFT TRUNKING

Failsoft trunking is the mode in which the system operates when no site controller is used. The site controller normally provides all control, user validations and telephone interconnect billing functions when used in the system. In the event

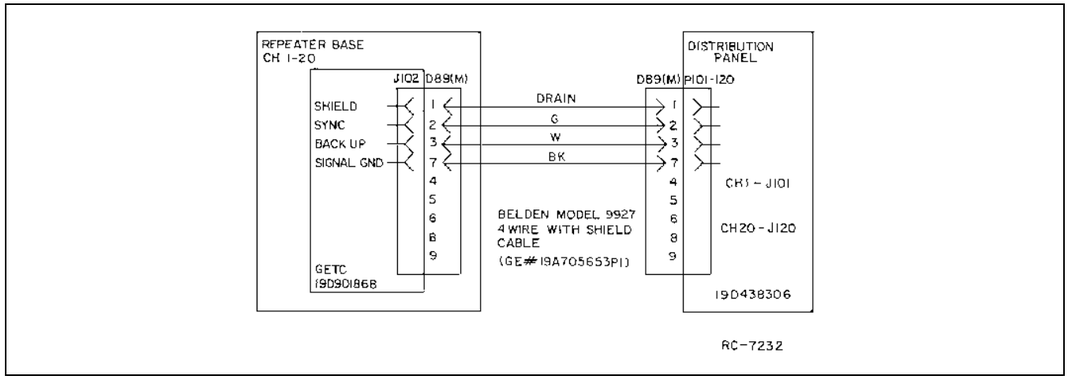


Figure 2 - Distribution Panel Cable Interconnect

that a site controller fails, or is not present, the system reverts to the failsoft mode of trunking. In addition, the failsoft mode may be the standard operating mode for a system if basic dispatch trunking is all that is required. Either configuration can be set by the DIP switches on the GETC shelf in each station.

The communication required or failsoft operation is provided by the backup serial connections between each repeater in the system. These connections are made through the distribution panel (one panel for every 20 repeaters). This serial link is a bi-directional data line and a synchronization line. The sync line is driven by the control channel, and is used to determine whether the operating mode is normal (with a site controller, or in the failsoft mode). Refer to the Maintenance Manual for the GETC shelf for complete operating details.

INITIAL SETUP

All of the repeater stations have been system tested at the factory, and should be fully operative when power is applied. Should any adjustment be required, refer to the applicable Maintenance Manual.

NOTE

No crystals are required to place the repeaters on frequency. The proper operating channel is selected by DIP switches in the GETC module. Make sure that the DIP switches are set to the correct operating frequency before powering up the station.

MAINTENANCE

To prevent mechanical and electrical failures from interrupting system operations, routine checks should be made of mechanical and electrical assemblies at regular intervals. This preventive maintenance should include the checks listed below.

TRANSMITTER

Check the power output, data and voice modulation, and audio levels. Check the transmitter frequency as required by the FCC. SERVICE NOTE: Normal frequency measuring equipment is not adequate to measure the repeater frequency due to the high stability master oscillator reference signal used in the station.

RECEIVER

Check the receiver sensitivity and squelch levels.

TRANSMISSION LINE

Check for a positive indication of pressure on the transmission line. Use a gauge if a pressurized line is used.

Check the forward and reflected power if an RF system monitor is used.

ANTENNA

Check the antenna and mast for mechanical stability. Make sure that all RF connections are tight.

SPECIFICATIONS*

GENERAL

FCC FILING NUMBER	AXA9MZTR- 161 -A2
TEMPERATURE RANGE (-22°F to + 140°F)	-30°C to + 60°C
AC INPUT VOLTAGE	124/240 VAC ±20%, 60 Hz (50 Hz Optional)
AC INPUT POWER	
Transmit	540 Watts
Rated Audio	145 Watts
Standby	139 Watts
FREQUENCY RANGE	
Transmit	935 to 940 MHz
Receive	896 to 901 MHz
FREQUENCY STABILITY	± 0.05 PPM - Over rated temperature range
CABINET DIMENSIONS (H X W X D)	
69-Inch Floor Mount ("V" Type)	69-1/16" x 23-3/16" x 21"
WEIGHT (Net)	
"V" Cabinet	288 pounds
AC POWER CORD (124/240 VAC)	10-foot, three prong (standard)

WARNING

No one should be permitted to handle any portion of the equipment that is supplied with high voltage, or to connect any external apparatus to the units when supplied with power. KEEP AWAY FROM LIVE CIRCUITS!

High level RF energy in the transmitter power amplifier assembly can cause RF burns. Keep away from these circuits when the transmitter is keyed!

*These specifications are intended primarily for use by service personnel. Refer to the appropriate Specification Sheet for complete specifications.

STATION OPTIONS

OPTION NUMBER	DESCRIPTION
RPIC	20 - channel Master Oscillator
CAID	69-inch single station cabinet.
MRIA	69-inch, dual rack cabinet, single station.
CC7X	One station cable kit; Dual Master oscillator and Distribution panel.
FNIA	69-inch Station Cabinet fan kit.

DESCRIPTION

The station combinations are 75-watt, trunked repeater stations for single frequency operation in the 896 to 940 MHz band. The stations transmit in the 935 to 940 MHz band, and receive in the 896 to 901 MHz band.

The standard trunked repeater station consists of the following assemblies:

- station power supply
- exciter-receiver assembly mounted in the radio front door panel
- 75-watt transmitter power amplifier
- control shelf
- GETC panel
- dual master oscillator panel (one for up to 20 repeaters)

One distribution panel for up to 20 repeaters is also required at the trunked site. The panel is normally located in one of the centrally located repeaters.

EXCITER-RECEIVER DOOR

The exciter-receiver door assembly contains the synthesized transmitter exciter and receiver boards, and the station system board. A layout of the door assembly is shown in Figure 1.

TRANSMITTER

The station transmitter consists of the exciter-synthesizer board, a 75-watt power amplifier, and a power control board. The exciter board is mounted in a shielded compartment on the radio front door.

Exciter

The exciter consists of an exciter synthesizer, a receiver synthesizer, as well as an amplifier section and audio processor. The exciter provides audio limiting, pre-emphasis, low frequency compensation and a summing amplifier for both voice and sub-audible data. The 100-milliwatt exciter output drives the RF power amplifier.

The receiver synthesizer provides one milliwatt of receiver **L**ocal **O**scillator (**LO**) signal for the receiver 1st IF and mixer.

Reference frequency for both synthesizers is provided by the master oscillator.

Power Amplifier

The transmitter **P**ower **A**mplifier (**PA**) assembly consists of a frame mounted to a heatsink with a cover that snaps over the frame to provide RF shielding. A 24-volt DC fan is mounted to the cover to provide cooling for the PA components.

The power amplifier consists of an RF amplifier board and a power control board. The PA board contains the amplifier stages required to provide the 75-watt transmitter output. The power control board provides the feedback control required to maintain a constant 75-watt output. In addition, the power control circuitry senses forward and reflected power at the PA output. The power control circuit sends an alarm to the **G**eneral **E**lectric **T**runking **C**ard (**GETC)** if the output drops below a preset level, or if the reflected power gets too high. It also sends an alarm if the DC supply to the PA is lost (blown fuse).

RECEIVER

The station receiver assembly is mounted in a shielded enclosure on the radio front door assembly. The receiver consists of a receiver board and an audio board. The receiver board contains the RF front end, IF stages, demodulator and audio amplifiers. The demodulated output is applied to the audio board which contains an audio amplifier, squelch and audio PA stages.

Receiver LO (2nd local oscillator) injection is provided by the receiver synthesizer on the receiver board.

SYSTEM BOARD

System board A901 is mounted in the door assembly with the receiver boards connected directly into the system board connectors.

CONTROL SHELF

The control shelf is mounted directly above the PA assembly.

POWER SUPPLY

The station power supply normally connects to a 124-volt AC power source.

A power switch, primary and secondary fuses, and two AC outlets are located on the front panel. A high current fuse is located on the back panel that provides + 26 volts for the transmitter PA, and master oscillator if present. A 13.8-volt supply is available at the power supply through a 9-pin Molex plug.

NOTICE!

This manual covers Ericsson and General Electric products manufactured and sold by Ericsson Inc.

NOTICE!

Repairs to this equipment should be made only by an authorized service technician or facility designated by the supplier. any repairs, alterations or substitution of recommended parts made by the user to this equipment not approved by the manufacturer could void the user's authority to operate the equipment in addition to the manufacturer's warranty.

TABLE OF CONTENTS