

**Maintenance Manual**

**GPS SIMULCAST  
ALIGNMENT RECEIVER  
SHELF (Option SCMN7U)  
AND ALIGNMENT RADIO  
(Option D28LT2)**

**TABLE OF CONTENTS**

ORION Radio . . . . . LBI-38902

Microphone . . . . . LBI-31888

TABLE OF CONTENTS

	<u>Page</u>
DESCRIPTION . . . . .	1
OPERATION . . . . .	1
PARTS LIST . . . . .	2
ASSEMBLY DIAGRAM . . . . .	3
SCHEMATIC DIAGRAM . . . . .	4
CABLE HARNESS ASSEMBLY . . . . .	5

DESCRIPTION

Alignment Receiver/Radio 188D5639G1 is used in Ericsson’s EDACS® trunked GPS Simulcast system for service and alignment. This receiver/radio consists of a shelf mounted ORION radio. RF Attenuator A1 (0 to 101 dB) connects between the antenna input to the radio and the actual antenna connector (J8) of the shelf. The attenuator is switched in and out if the circuit by SERVICE and ALIGN switch S1 and relays K1 and K2. Levels of attenuation are selected a by a series of nine toggle switches, located on the front panel of the Alignment Receiver. These switches select (add or subtract) levels of attenuation (dB) in the order for 1, 2, 3, 5, 10, 20, 20, 20, and 20.

OPERATION

The Simulcast Alignment Receiver/Radio has two functional modes. The primary mode (alignment mode) uses only the receive function of the radio and is necessary to check the amplitude, phase and time adjustments of the Simulcast System. The secondary mode (service mode) allows the ORION radio to function as a normal user radio.

As an alignment receiver, the antenna RF input is routed through a variable attenuator by an antenna relay (K1). The relay is controlled by the front panel slide switch (S1).

The radio is programmed for a typical customer trunked radio system to be used in the service mode. The radio is also programmed with a conventional system using Simulcast frequencies (No Channel Guard) for the alignment mode. The jacks on the front panel (J1 Ground & J2 DISC AUDIO) provide a discriminator output. A microphone connects to the shelf through J4. Power (13.8 Vdc) connects to the shelf through terminal board TB1. The power in line is fused with a 10 amp fuse.

The detailed user instructions for the alignment Receiver/Radio are found in the GPS Simulcast alignment Manual LBI-39210.

NOTE

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.

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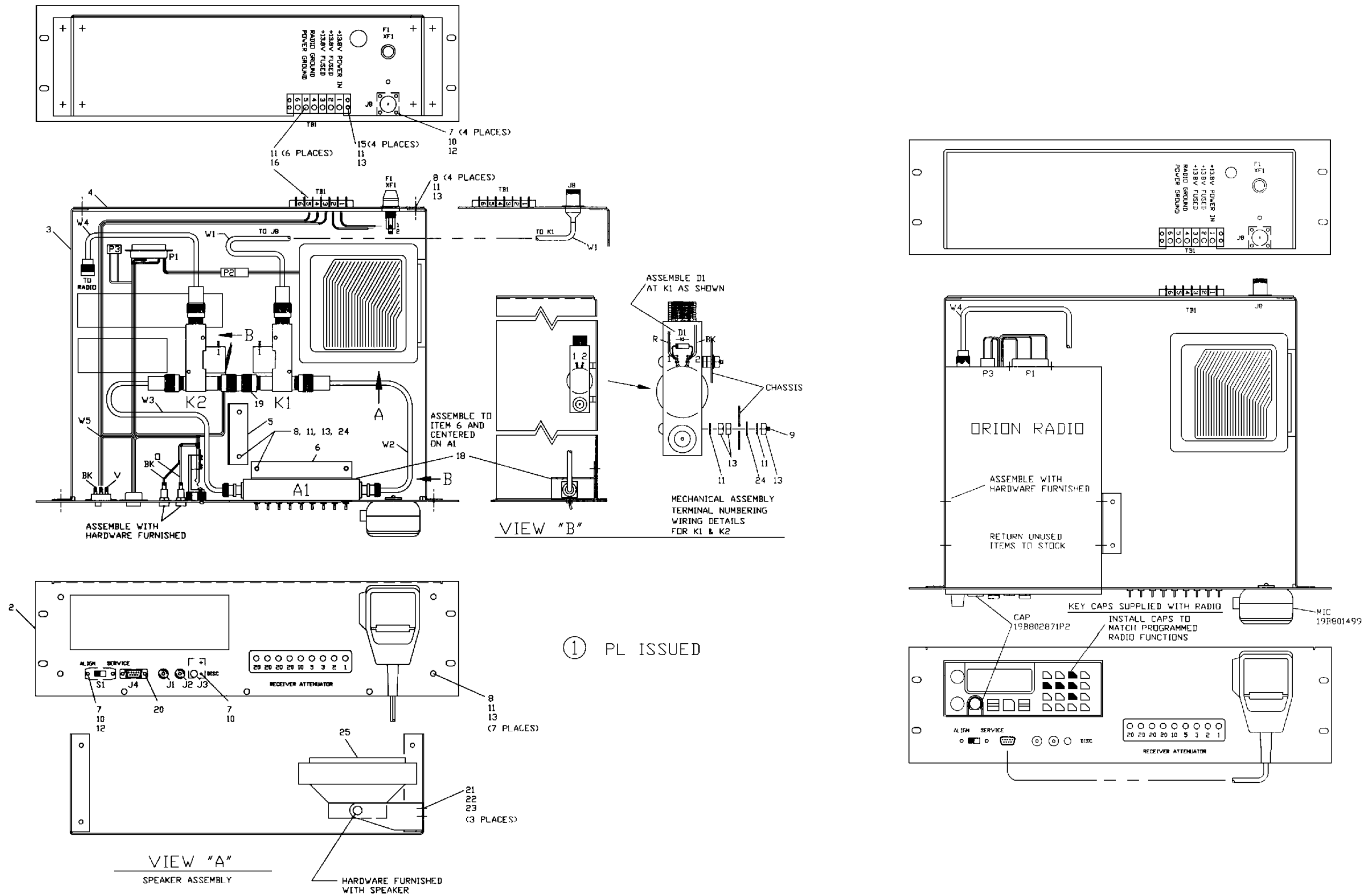
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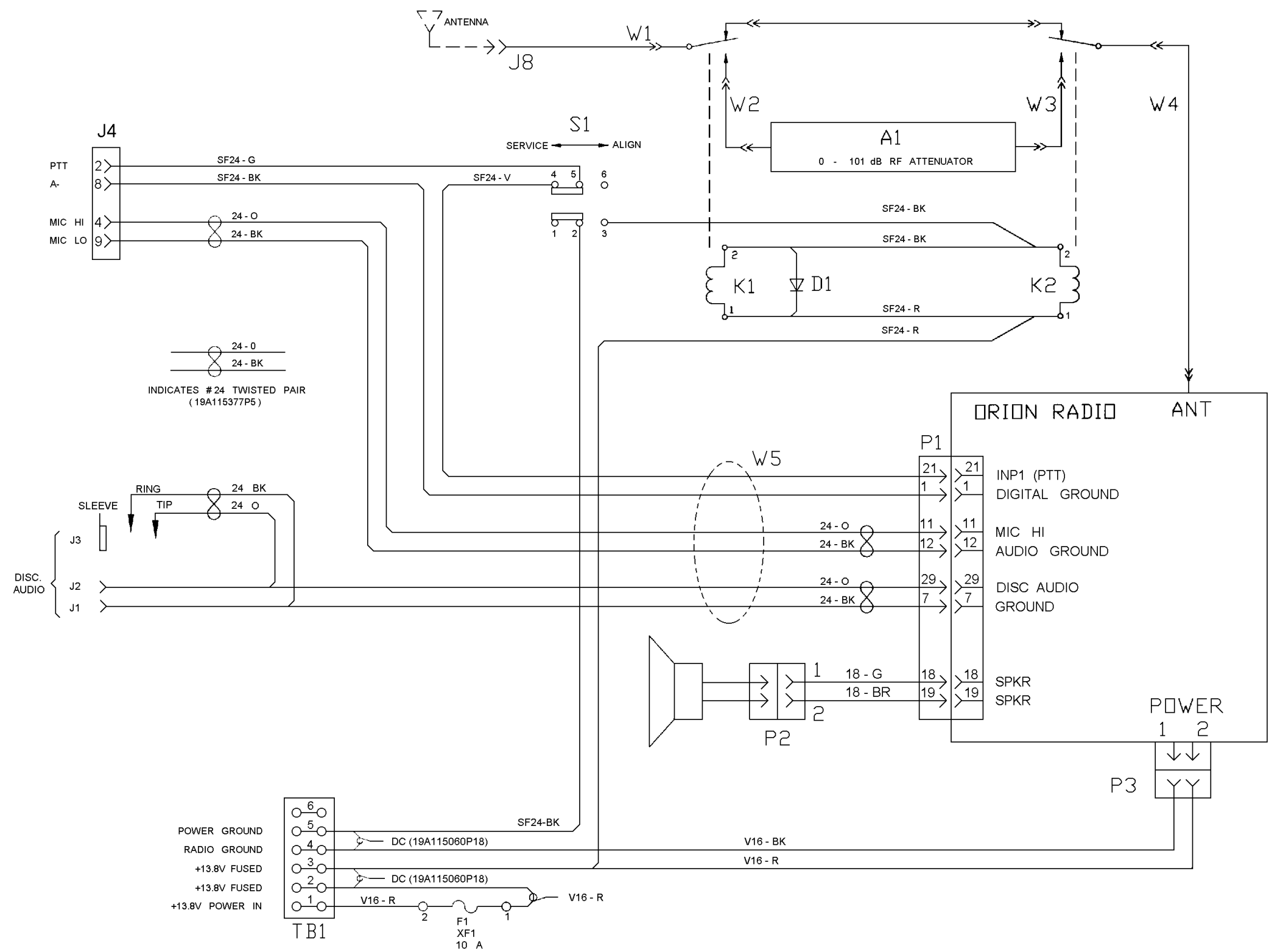
ALIGNMENT RECEIVER SHELF  
(OPTION SCMN7U)

SYMBOL	PART NO.	DESCRIPTION
---ASSEMBLIES---		
ALIGNMENT SHELF		
188D5639G1		
A1	19B235660P1	Attenuator, RF
---DIODES---		
D1	T324ADP1041	Silicon: Rectifier; sim to 1N4004.
---FUSES---		
F1	19B800912P39	FZ SB, 10K, 32V
---JACKS---		
J1	19B209152P3	Nylon: Black, sim to E. F. Johnson 108-903.
J2	19B209152P2	Nylon: Red, sim to E. F. Johnson 108-902.
J3		
and		
J4		
J8		
---RELAYS---		
K1		
and		
K2	7479680P8	COAX
---PLUGS---		
P1	19B209727P16	Connector, Radio, 37-Pin, Sim to AMP205210-1 (Part of cable harness W5).
P2		Connector: Speaker, 2-Pin: Sim to ALEX MINI-FIT 6420-02 M1(Part of cable harness W5).
P3		Connector: Power, 2-Pin: Sim to JRC# B19/H-6JWLD00004 (Part of cable harness W5).
---SWITCH---		
S1	19B209261P21	Slide, D.P.D.T: Sim to SWITCHCRAFT 11A-1413 (Part of cable harness W5).
---TERMINAL BOARD---		
TB1	19C301086P4	6 position: Sim to GE CR151D 75406AA (Part of cable harness W5).
---CABLES---		
W1	19D903468P1	RF
W2	19D903468P2	RF
and		
W3		
W4	19D903468P3	RF
W5	188D5665P1	CABLE
---FUSE HOLDER---		
XF1	19B209005P1	15 amps at 250 v; sim to Littelfuse 342012.

SYMBOL	PART NO.	DESCRIPTION
---MISCELLANEOUS---		
2	188D5621P1	PANEL, FRONT
3	188D5622P1	CHASSIS, RECEIVER
4	188D5623P1	PANEL, REAR
5	19C852551P1	SUPPORT
6	19C852551P2	SUPPORT
7	N80P9005B6	Machine screw, pan head, steel, No. 4-40 UNC x 5/16".
8	N80P13005B6	Machine screw, pan head: No. 6-32 x 5/16
9	N80P13024B6	Screw, Machine
10	N404P11B6	Lockwasher, internal tooth: No. 4.
11	N404P13B6	Lockwasher, internal tooth: No. 6.
12	7141225P2	Nut, Hex: 4-40.
13	7141225P3	Hex Nut: No. 6-32.
15	N80P13008B6	Machine screw, pan head: No. 6-32 x 1/2.
16	N80P13004B6	Screw, machine: Pan head; No. 6-32 x 1/4".
18	19B234763P2	PAD
19	7777145P12	Adapter: sim to Amphenol 82-100.
20	19B209727P10	Screwlock: No. 4-40; sim to AMP 205817-1
21	N80P15006B6	Machine screw, pan head: No. 8-32 x 3/8.
22	N403P16B6	Lockwasher, internal tooth: No. 8.
23	N210P15B6	Nut, hex: No. 8-32.
24	N402P37B6	Flatwasher: No. 6.
25	9A149590P11	Speaker, WATERPRO
---MISCELLANEOUS---		
	19D903880P901	Power Cables
	19D903880P902	Power Cables
	344A3804P1	Plug
TEST CABLE DRAWER		
19D438294G1		
	344A4528P53	Microphone
	188D6118P17	Bantam-Bantam 10'
	188D6118P32	Bantam-Bantam 8'
	188D6118P31	Bantam-Bantam 5'
	188D6118P13	Bantam-Bantam 4'
	ROA 117 2249	Extender Board
	19D904490P1	Support

\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES





(188D5716, Sh. 1, Rev. 1)

MATERIAL LIST				
ITEM	EGE PART NO.	VENDOR CAT. NO. (OR EQUIVALENT)	DESCRIPTION	QTY
J3 J4 P1 P2 P3	19B235679P1 19B209727P18 19B209727P16	ADC PJ838M AMP 205203 -1 AMP 205210 -1 ALEX MINI-FIT 6420 -02 M1 JAPAN RADIO CO. INC. PART JRC#B19/H-6JWLD00004 CONSISTING OF: (1) HOUSING (1) GASKET (1) COVER (2) PINS (2) SCREWS	JACK, BANTOM CONN, MIC (9 PIN) CONN, RADIO (37 PIN) CONN, SPKR (2 PIN) CONN, POWER (2 PIN)	1 1 1 1 1
S1 TB1	19B209261P21 19C301086P4	SWITCHCRAFT 11A - 1413 GE CR151D 75406AA	SLIDE SWITCH, D.P.D.T. 6 POS TERMINAL BD	1 1
1 2 3 4 5 6 7	19B209727P12 19B209727P11 N80P9004B6 19B801724P1 19B209727P9	AMP 1 - 66506 - 0 (FOR #24 AWG) AMP 5 - 66504 - 9 (FOR #24 AWG) EGE 19B801724P1 AMP 205980 - 1 ALEX 7006T1 FEMALE PINS TIN PLATED BRASS AMP 1 - 745229 - 1 (FOR #18 AWG)	CONT, CONN (PIN) CONT, CONN (SOC) #4 - 40 X .25 PAN HD. SPACER (J3 MTG) CAPTIVE SCREW KIT CONTACT (FOR P2)	6 4 2 1 1 2
	19A115871P30 19A115871P33 19A115871P34 19A115871P36 19A116850P2 19A116850P10 19A115377P5 19A116889P5 19A116889P1		CONT, CONN (PIN) #24 BK STRD #24 G STRD #24 R STRD #24 V STRD #16 R STRD #16 BK STRD #24 TWISTED PAIR #18 G STRD #18 BR STRD	

CONNECTION CHART		
FROM	TO	WIRE DESCRIPTION
J4 - 2	S1 - 5	#24 - G
J4 - 8	P1 - 1	#24 - BK
J4 - 4	P1 - 11	#24 - O
J4 - 9	P1 - 12	#24 - BK TWISTED PAIR
S1 - 4	P1 - 21	#24 - V
S1 - 3	K2 - 2	#24 - BK
K2 - 2	K1 - 2	#24 - BK
TB1 - 3	K2 - 1	#24 - R
K2 - 1	K1 - 1	#24 - R
TB1 - 3	TB1 - 2	#14 BUS WIRE (DC-19A115060P18)
TB1 - 2	XF1 - 1	V16 - R
TB1 - 1	XF1 - 2	V16 - R
TB1 - 4	TB1 - 5	#14 BUS WIRE (DC-19A115060P18)
TB1 - 5	S1 - 2	#24 - BK
J3 - RING J3 - TIP	(J1) (J2)	#24 - BK TWISTED PAIR #24 - O TWISTED PAIR
(J1) (J2)	P1 - 7 P1 - 29	#24 - BK TWISTED PAIR #24 - O TWISTED PAIR
P1 - 18	P2 - 1	#18 - G
P1 - 19	P2 - 2	#18 - BR
TB1 - 3	P3 - 2	#16 - R
TB1 - 4	P3 - 1	#16 - BK

