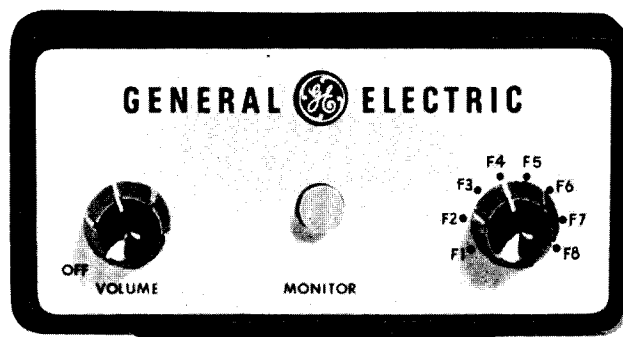


# **MASTR<sup>®</sup> Executive II** **MAINTENANCE MANUAL**

**MOBILE CONTROL UNIT 19C303901G7 AND ACCESSORIES**



## **SPECIFICATIONS \***

**NUMBER OF FREQUENCIES**

One through Eight

**USED WITH**

MASTR<sup>®</sup> Executive II "R" Series  
Mobile Combinations

**CONTROLS**

OFF-VOLUME Control

MONITOR Pushbutton

Frequency Selector Switch

**INDICATORS**

Red Transmit Light

\*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

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## WARNING

Although the highest DC voltage in MASTR® Executive II Mobile Equipment is supplied by the vehicle battery, high currents may be drawn under short circuit conditions. These currents can possibly heat metal objects such as tools, rings, watchbands, etc., enough to cause burns. Be careful when working near energized circuits.

High-level RF energy in the transmitter Power Amplifier assembly can cause RF burns upon contact. Keep away from these circuits when the transmitter is energized!

## DESCRIPTION

MASTR® Executive II Control Units are compact, highly functional units that are contained in a durable Lexan® housing. A back plate on the control unit contains jacks for the power/control cable connections and the speaker. The microphone screws into a jack on the bottom of the unit.

A mounting bracket is provided for mounting the Control Unit within convenient reach of the operator.

## CIRCUIT ANALYSIS

The control units are equipped with an OFF-VOLUME control, a Monitor pushbutton, a red transmit light and a frequency selector switch.

### OFF-VOLUME CONTROL (S701)

When the OFF-VOLUME control is in the OFF position, power is removed from the radio except for the transmitter PA. The PA supply is connected directly to the vehicle battery.

Turning S701 to the ON position applies power to the radio, and enables the push-to-talk (PTT) circuit.

Pressing the PTT switch on the microphone energizes the antenna relay, keys the transmitter, mutes the receiver and turns on the transmit indicator light. Releasing the PTT switch turns off the transmitter and transmit indicator, de-energizes the antenna relay and un-mutes the receiver.

### MONITOR PUSHBUTTON (S702)

Pressing in the MONITOR button disables the noise squelch circuit in the receiver. In radios equipped with Channel Guard, pressing the MONITOR button also disables the receiver Channel Guard.

### MULTI-FREQUENCY SWITCH (S709)

The frequency selector switch is used to select the desired frequency for both transmitting and receiving. The switch connects A- to the selected transmitter and receiver oscillator modules so that the radio operates on the proper frequency.

### HOOKSWITCHES (Optional)

In Channel Guard applications, an optional microphone or handset hookswitch may

be supplied with the radio. Removing the microphone or handset from the hookswitch disables the Channel Guard so that the channel can be monitored before sending a message.

## IGNITION SWITCH CONNECTIONS

The control unit may be connected for two different modes of operation, depending on the way the ignition switch cable is connected in the vehicle system. The black cable provides the system ground connection. The yellow fused lead provides the receiver hot connections and the transmitter Push-To-Talk hot connection. The two types of operation are:

1. Ignition Switch Control - For ignition switch control, the yellow fused lead connects to the ACCESSORY or ON terminal of the ignition switch. The transmitter and receiver will operate only when the ignition switch is in the ACCESSORY or ON position. Turning the ignition switch OFF removes all power to the radio.

### NOTE

In certain vehicles, the alternator noise level is excessive at the ignition switch terminal. In these cases the yellow lead should be connected directly to the battery.

2. Ignition Switch Bypass - For ignition switch bypass, the yellow fused leads connect to the "hot" side of the battery. Both the transmitter and receiver operate independently of the ignition switch and are turned on and off only by the OFF-VOLUME control on the control unit.

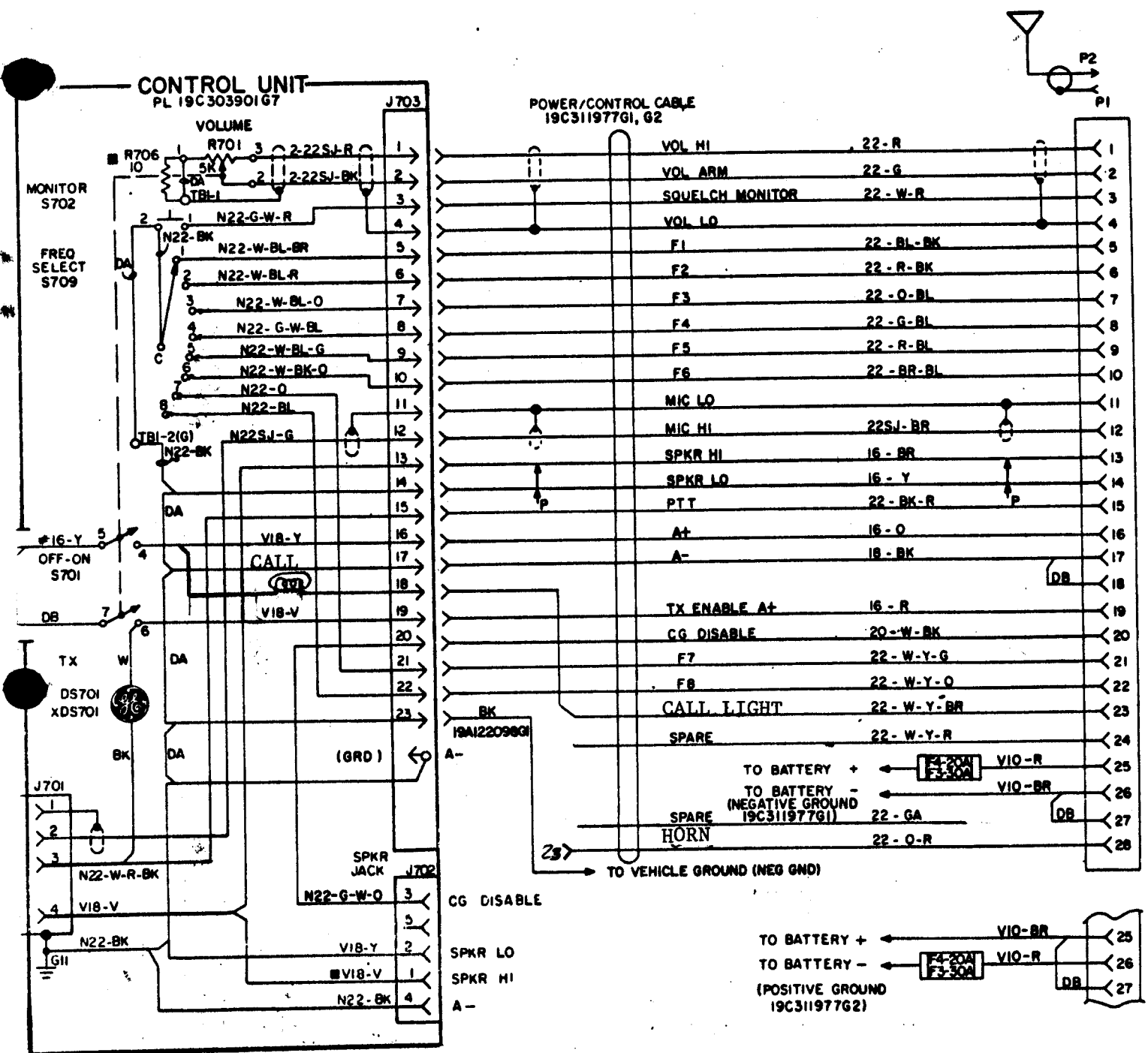
## MAINTENANCE

### DISASSEMBLY

To gain access to the inside of the control unit, remove the two Phillips-head screws in the back plate and pull the plate away from the housing.

### RE-INSTALLATION

If the mobile combination is ever moved to a different vehicle, always check the battery polarity of the new system. If necessary, install the optional polarity converter in positive ground vehicles to maintain current polarity.



TYPE 1 RCC CABLE (8 CHANNEL)

EXEC, EXEC II, AND ROYAL EXEC

## OUTLINE & SCHEMATIC DIAGRAM

(This is a bonus sheet, no extra charge!)

## PARTS LIST

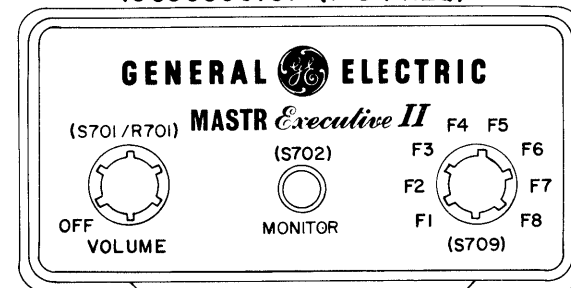
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MASTR EXECUTIVE II 8 FREQUENCY CONTROL UNIT  
AND  
ASSOCIATED ASSEMBLIES

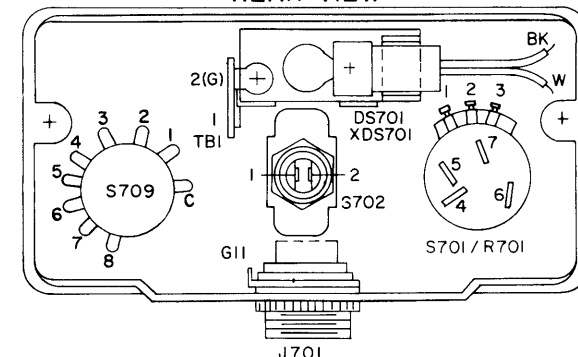
SYMBOL	GE PART NO.	DESCRIPTION
		CONTROL UNIT 19C303901G7
DS701	19C307037P14	----- INDICATING DEVICES ----- Lamp, incandescent: 18 v; sim to GE 1445.
F703	1R16P6	----- FUSES ----- Quick blowing: 3 amps at 250 v; sim to Littelfuse 312003 or Bussmann AGC-3.
J701		----- JACKS AND RECEPTACLES ----- Connector. Includes: Receptacle: 4 female contacts; sim to Amphenol Type 91-PWAF-1000. Lockwasher, internal tooth. Nut, knurled. Solderless terminal.
J702	5493018P1	Connector: 5 contact, molded black phenolic, steel mounting saddle; sim to Cinch Mfg Co 203-41-05-081.
J703	19A122095G1	Board: 27 contacts.
R701		----- RESISTORS ----- (Part of S701).
S701	5496870P13	----- SWITCHES ----- Resistor/switch: includes Resistor (R701), variable, carbon film, 5000 ohms $\pm 20\%$ , 0.5 w; Switch, rotary, DPST, 6 amps at 125 VAC; sim to Mallory LC(5K)OAC-2.
S702	19B209165P4	Pushbutton, white: SPST, momentary contact, normally open, 1 amp at 115 VAC; sim to Grayhill 30-17B.
S709	19B200394P9	Rotary: 1 pole, 8 positions, non-shorting, 36° indexing contacts, 1 amp at 115 VAC or 28 VDC; sim to Grayhill Series 24.
TB1	7775500P4	----- TERMINAL BOARDS ----- Phen: 2 terminals.
XDS701	4032220P1	----- SOCKETS ----- Lampholder, miniature: sim to Drake NS17.
XF703		FUSE LEAD 19A122111G2
	19A115776P2	----- MISCELLANEOUS ----- Fuseholder, phenolic: sim to Bussmann Type HHJ.
		HARNESSE ASSEMBLY 19C303901G8 (Includes J701-J703, R701, S701, S709, XDS701)
J704	19B216279G1	TONE JACK KIT 19A127270G5 ----- JACKS AND RECEPTACLES ----- Jack: 9 female contacts rated at 5 amps at 900 VRMS; sim to Winchester M9S-LRN.
R706	3R77P100K	----- RESISTORS ----- Composition: 10 ohms $\pm 10\%$ , 1/2 w.
	19B200394P5	----- MISCELLANEOUS ----- Washer. (Used with S708).
	5490407P4	Grommet, rubber. (Located in mounting plate).

\*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

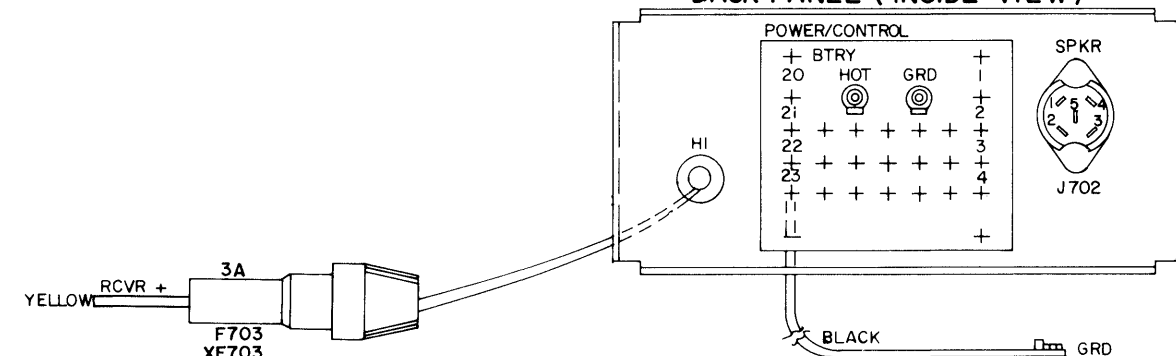
## 19C303901G7 (1-8 FREQ)



## REAR VIEW



## BACK PANEL (INSIDE VIEW)



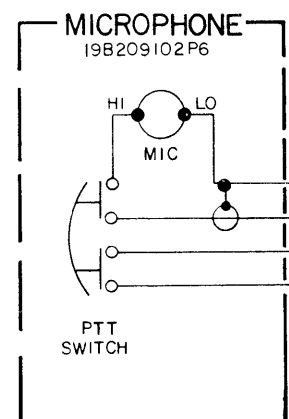
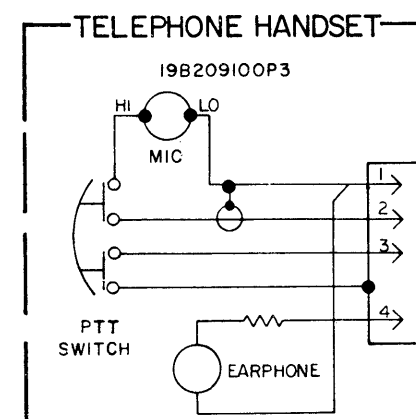
(19C327687, Rev. 0)

## NOTES:

1. REMOVE DA JUMPERS FOR MULTI FREQUENCY OPERATION. ALSO UNUSED FREQUENCY LEADS ARE REMOVED FROM THE FREQUENCY SWITCH.  
EXAMPLE: FOR 5 FREQUENCY, REMOVE DA JUMPERS ON S709, 2 TO 3, 3 TO 4, AND 4 TO 5.  
REMOVE FROM S709 THE BL, O AND W-O-BK WIRES.

2. ● WIRES PRESENT IN INSTALLATION OF TONE JACK 19A127270G5.

3. ■ WITH TONE JACK 19A127270G5 ADD R706 AND REMOVE DA JUMPER BETWEEN TB1-1 AND R701-1. REMOVE V18-V WIRE FROM J702-1 TO J701-4 FOR DECODER APPLICATIONS ONLY.

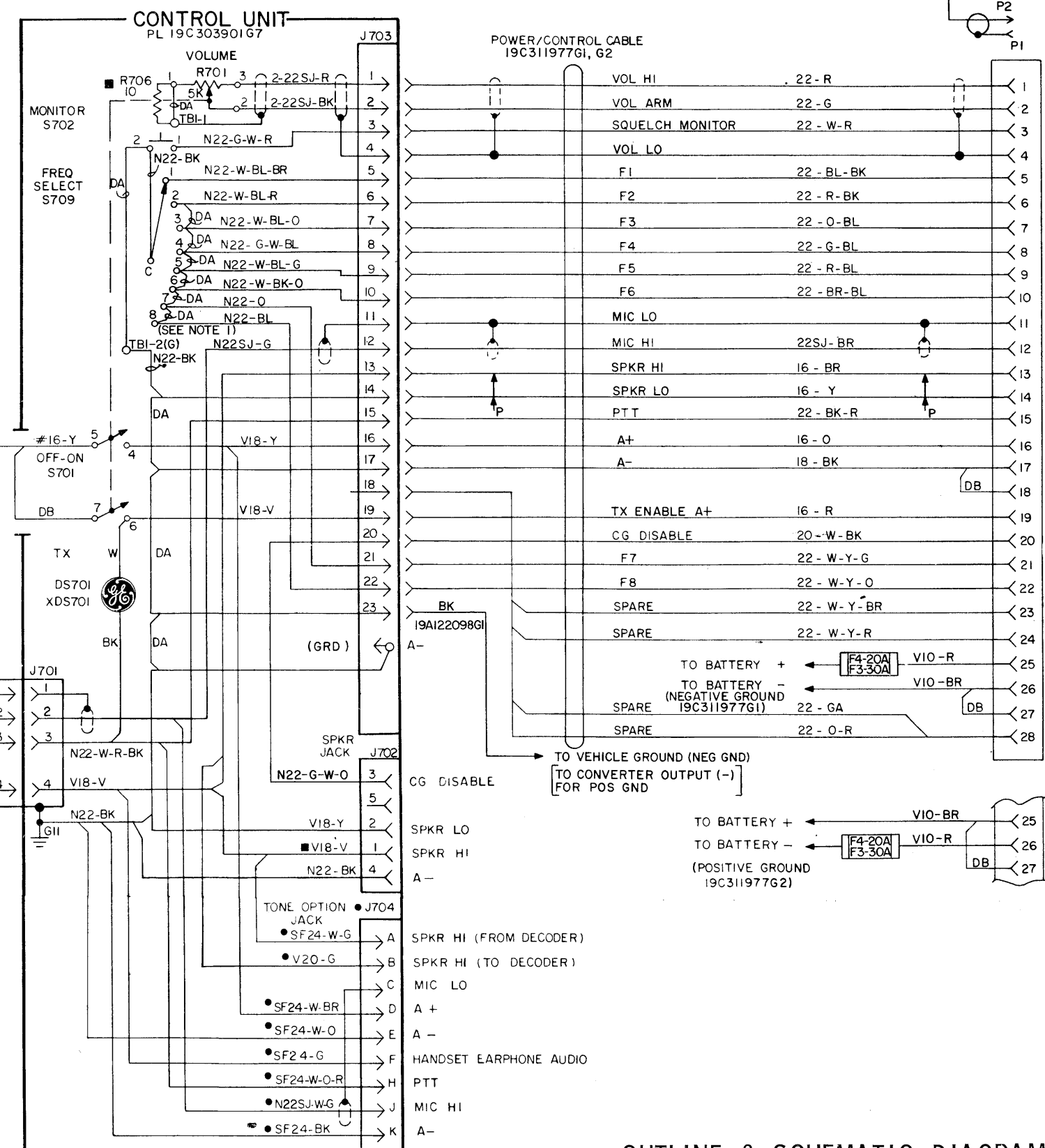


SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER

THIS ELEM DIAG APPLIES TO  
MODEL NO REV LETTER  
PL19C303901G7

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

ALL RESISTORS ARE 1/2 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



(19D424672, Rev. 1)

## OUTLINE &amp; SCHEMATIC DIAGRAM

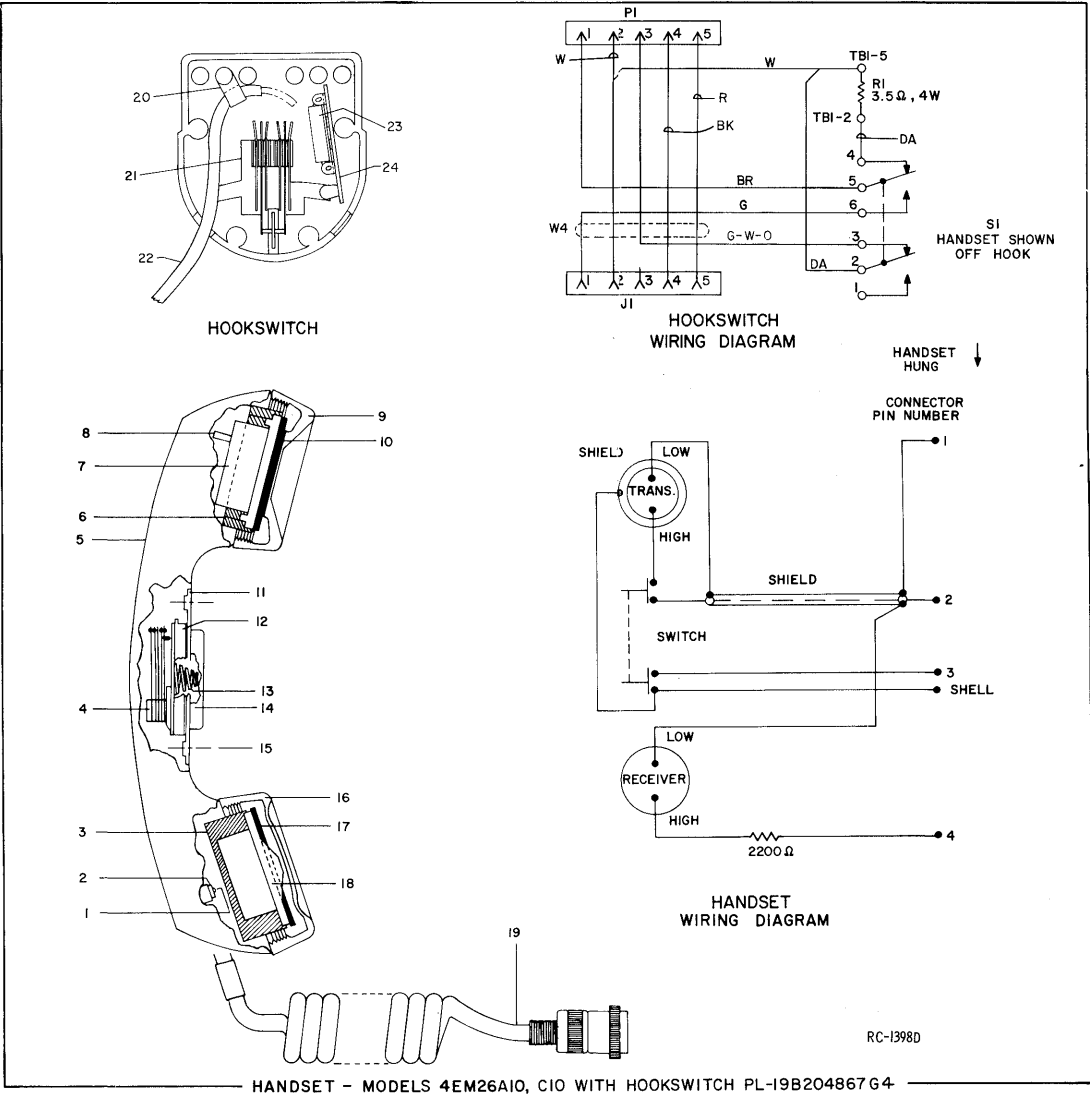
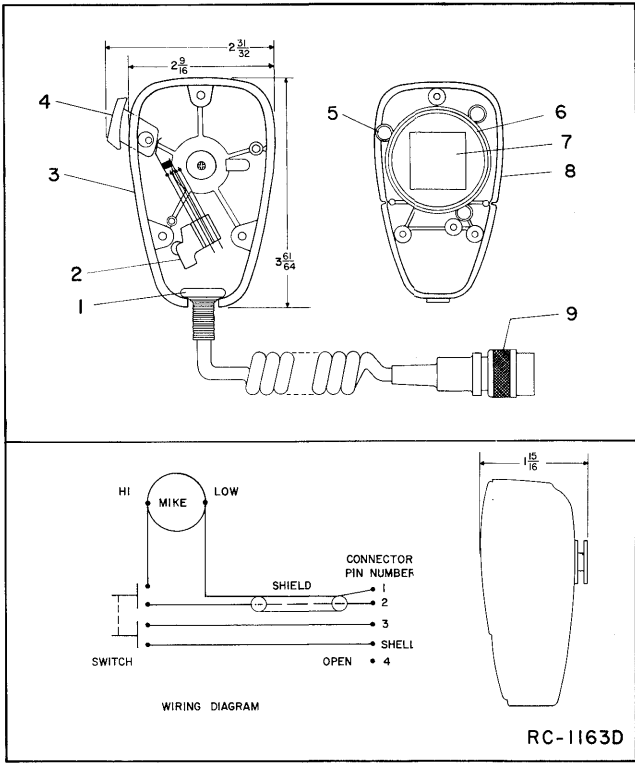
MASTR EXECUTIVE II CONTROL UNIT

SYMBOL	GE PART NO.	DESCRIPTION
	19B205216P1	Jewel: red. (Used with DS701).
	19A115495P1	Screw, hexhead: No. 1/4-20 x 5/8. (Secures housing to mounting bracket).
	7115195P2	Hex nut: No. 15/32-32. (Used with S702).
	7115130P11	Lockwasher, internal tooth: No. 15/32; sim to Shakeproof 1222-1. (Used with S702).
	7165075P2	Hex nut, brass: No. 3/8-32. (Used with S701 and S708).
	7115130P9	Lockwasher, internal tooth: No. 3/8; sim to Shakeproof 1220-2. (Used with S701 and S708).
	19A129617G1	Support. (Used with DS701).
	N143P1306C13	Tap screw: No. 6-20 x 3/8. (Secures TB1).
	N190P1305C13	Screw, phillips flat head: No. 6-20 x 5/16. (Secures ADS701).
	19B209209P208	Tap screw, Phillips Pozidriv: No. 4-40 x 1/2. (Secures S702).
	19A116773P106	Tap screw, Phillips POZIDRIV®: No. 7-19 x 3/8. (Secures backplate).
	4039182G4	Knob. (Used with S701 and S708).
	19D413010P3	Housing.
	19A121521G2	Mounting support.
	19B205247P2	Mounting plate.
	NP280342	Nameplate.
		ASSOCIATED ASSEMBLIES
		MICROPHONE 19B209102P6 (SEE RC1163)
1	RP26	Cable clamp. Shure Brothers 53A532.
2	RP100	Switch.
3	RP100	Case (back) and mounting button: plastic.
4	RP16	Switch button: beige plastic. Shure Brothers 65A152E.
5	RP23	Spring and internal hardware.
6	RP13	Shield. (Quantity 5).
7	RP100	Magnetic controlled cartridge, grille cloth, screen and resonator.
8	RP14	Case (front): plastic.
9	RP14	Cable and plug: approx 6 feet long.
		HANDSET 19B209100P3 (SEE RC1398)
1		Self tap screw, blind head: No. 4 x 5/16. Shure Brothers 30C540C.
2		Cable clamp. Shure Brothers 53A532.
3	RP19	Shield.
4	RP61	Switch.
5		Case. Shure Brothers 21RP899F.
6		Adapter. Shure Brothers 65A230.
7	RP41	Magnetic controlled cartridge.
8		Resistor, composition: 2.2K ohms ±10%, 1/2 w.
9		Receiver cap. (Part of item 5).
10		Washer. Shure Brothers 34A321.
11		Escutcheon. Shure Brothers 53A536A.
12		Actuator. Shure Brothers 53A556.
13		Spring. Shure Brothers 44A140.
14	RP82	Plunger bar.
15		Flat head screw, socket cap: No. 4-40 x 1/4. Shure Brothers 30C557B.
16		Transmitter cap. (Part of item 5).
17		Washer. Shure Brothers 34A309.

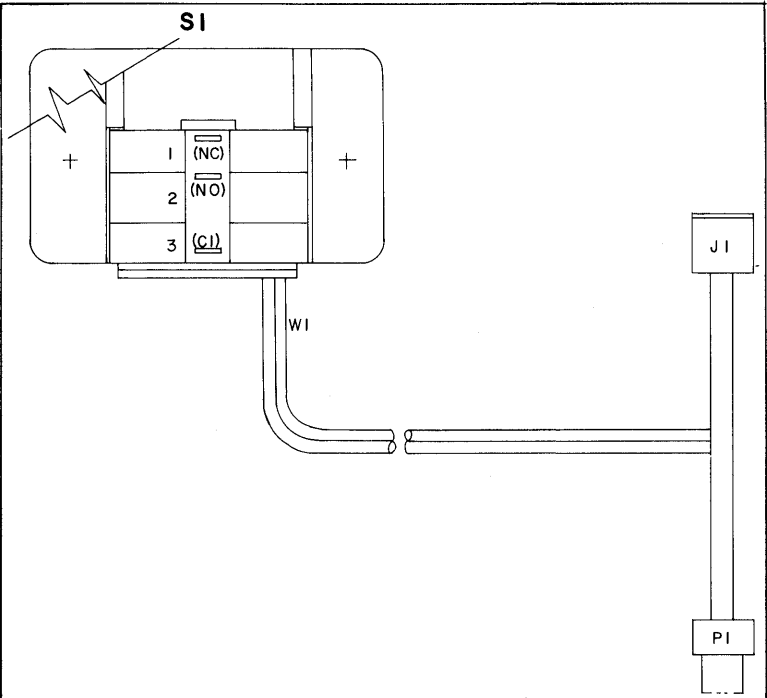
SYMBOL	GE PART NO.	DESCRIPTION
18	RP13	Magnetic controlled cartridge, Transmitter.
19		Cable and plug. Shure Brothers 21RP738F.
		HOOKSWITCH 19B204867G4 (SEE RC1398)
20	4029851P5	Cable clamp; sim to weckesser 2/16-4.
21	19A121612P1	Holder and switch: thermoplastic case, contact rating 1 amp at 125 v.
22	19B205661G1	Cable: approx 2 feet long. (Includes (J1) 5493018P3, (P1) 5493018P2).
23	5493035P10	Resistor, wirewound, ceramic: 3.5 ohms ±5%, 5 w; sim to Hamilton Hall Type HR.
24	7775500P55	Terminal board, phen: 5 terminals.
		MICROPHONE HOOKSWITCH 19C303571G3
S1	19B209099P1	----- SWITCHES ----- Sensitive: SPDT, 10.1 amps at 125 VAC, 1/4 hp; sim to Cherry Electrical Products Corp. E62-10A.
W1		----- CABLES ----- CABLE ASSEMBLY 19B205695G1
J1	5493018P5	----- JACKS AND RECEPTACLES ----- Connector: 5 contact, molded black phenolic; sim to Cinch Mfg. Co. 203-31-05-031.
P1	5493018P2	----- PLUGS ----- Connector, plug: sim to Cinch 204-31-05-010.
LS2	19A116910P1	----- LOUDSPEAKERS ----- Permanent magnet: 5 inch, 3.2 ohms ±15% imp, 5 w max operating; sim to Pioneer 002009.
W2		----- CABLES ----- CABLE 19A122167G1
P702	5493018P2	----- PLUGS ----- Connector, phenolic: 5 contacts; sim to Cinch 204-31-05-010.
		----- MISCELLANEOUS -----
	19A116986P108	Screw, thread forming, assembled washer: Phillips Pozidriv®, HI-LO® thread, No. 7-19 x 1/2. (Mount speaker).
	19A116986P112	Screw, thread forming, assembled washer: Phillips Pozidriv®, HI-LO® thread, No. 7-19 x 3/4. (Housing to grille).
	N130P1710C13	Tap screw: No. 10-12 x 5/8. (Secures housing to wall).
	19A116985P1	Screw, hex head-slotted: double lead thread, with internal tooth washer, No. 13-16 x 3/4. (Mounts bracket to housing).
	19C320016P1	Mounting bracket.
	19D416396P1	Housing.
	19B219692G1	Grille.
		POWER/CONTROL CABLE 19C311977G1 8 FREQ NEG GRD 19C311977G2 8 FREQ POS GRD
	19C311409P1	Receptacle.
	19B226473G1	Cover.
	N36P9020C13	Machine screw. (Quantity 3).

SYMBOL	GE PART NO.	DESCRIPTION
	N210P9C13	Nut, hex: No. 4-40. (Quantity 3).
	19C311411G1	Screw, knurled.
	7142878G1	Clip loop.
	4029840P1	Contact, electrical: sim to AMP 41854. (Used with No. 20 and 22 wires).
	4029840P2	Contact, electrical: sim to AMP 42827-2. (Used with shield wire).
	4029840P3	Contact, electrical: sim to AMP P-53007. (Used with No. 16 wire).
	7139880P11	Cable: 23 conductors, approx 20 feet long.
	19A115959P1	Cable, wire stranded: No. 10 AWG; approx 5 feet long.
	19A115959P2	Cable, wire stranded: No. 10 AWG; approx 26 feet long.
		25 - 50 MHz ANTENNA
	7491074P1	Antenna: 30-50 MHz, includes stainless steel rod approx 96-1/2 inches long; ball tip; lockwasher; No. 10-32 hex socket set screw; sim to Antenna Specialists ASPA3BGE.
	7491074P2	Antenna: 25-30 MHz, includes stainless steel rod approx 102 inches long; ball tip; sim to Antenna Specialists ASPA3BGE.
	7102930P3	Adapter, antenna: approx 2-5/16 inches long. (Used with GE Dwg 7491074P1).
	4KY9A1	Loading coil: 25-33 MHz; sim to Antenna Specialists ASPA87.
	19A121577G1	Antenna hook kit.
	7134724P1	Antenna hook.
	19C3097172P1	Antenna Package: Includes base and ball assembly, adapter spring assembly, cable assembly, horseshoe plate, and rubber gasket.
		Base and ball assembly. Newtronics 5495.
		Adapter spring assembly. Newtronics 3327.
		Cable assembly. Newtronics 183-RAO.
		Horseshoe plate. Newtronics 3323-3.
		Rubber gasket. Newtronics 3320.
		66-88 MHz ANTENNA 19B520111P3
	19C320111G1	Antenna base: 15 ft cable with M2R22P1 connector with 7105381P1 adapter; sim to Decibel Products DB719.
	19C320111G2	Antenna whip and spring base; sim to Decibel Products DB670A.
		132-512 MHz ANTENNA 19B209568P1
		Whip assembly. 068110-001.
		Whip nut assembly. 068047-001.
		Base nut assembly. 068048-001.
		"O" Ring (LARGE). 007059-122.
		Stud assembly. 068046-001.
		RG58/U Cable, 15 feet. 068115-001.
		800-870 MHz ANTENNA 19B209568P4
		Whip assembly. 068110-001.
		Whip nut assembly. 068047-001.
		Base nut assembly. 068048-001.
		"O" Ring (LARGE). 007059-122.
		Stud assembly. 068046-001.
	19B209018P5	Plug, Type N. sim to UG536B/U.
		Cable. (Included as part of complete antenna assembly only).

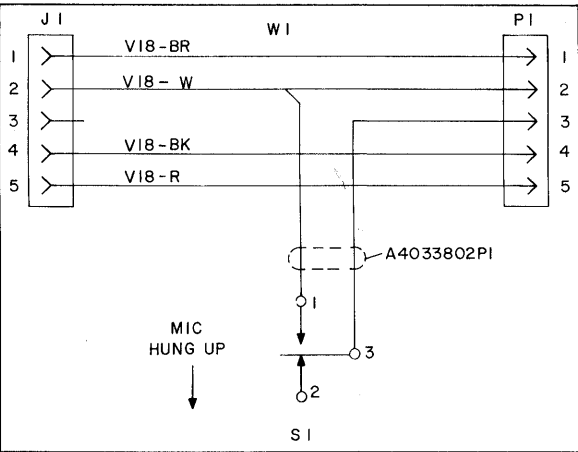
SYMBOL	GE PART NO.	DESCRIPTION
F3	1R11P7	FUSE ASSEMBLY 19B216021G4 (Fuses must be ordered separately)
F4	1R11P5	Quick blowing: .30 amps, 250 v; sim to Bussmann NON30. (Used with 66-128 w EXECUTIVE II Mobiles).
		Quick blowing: 20 amps, 250 v; sim to Bussmann NON20. (Used with 35-66 w EXECUTIVE II Mobiles).



MICROPHONE HOOKSWITCH



(19B219748, Rev. 0)



(19A122640, Rev. 2)