MOBILE RADIO

MAINTENANCE MANUAL

10-WATT SPEAKER-AMPLIFIER MODEL 4EZ18A14 (OPTION 8427)

SPECIFICATIONS *

Used With:	12-volt, negative ground Custom Executive mobile radios
Audio Power Output:	10 Watts
Audio Input:	750 Milliwatts
Power Drain: (at Rated Voltage)	Standby: approx. .08 ampere Full power: 13.8 v. 1.5 amperes
Speaker Impedance:	3.2 ohms
Frequency Response:	From 300 to 3000 cycles ±3 dB with less than 10% distortion (1000 HZ reference)
Transistor Complement:	2
Ambient Temperature Range:	-30°C to +60°C (-22°F to +140°F)
Dimensions: (H x W x D)	5-1/8" x 5-1/2" x 3-1/2"

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

GENERAL ELECTRIC

TABLE OF CONTENTS

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 while the units are supplied with power. KEEP AWAY FROM LIVE CIRCUITS.

DESCRIPTION

General Electric Speaker Amplifier Model 4EZ18A14 uses two transistors to provide an audio output of 10 watts. The speaker amplifier is housed in a rugged Lexan® case, and is equipped with a universal mounting bracket.

INSTALLATION

Mount the speaker where it will direct sound to the operator but not interfere with his vision. In exposed locations or areas of high humidity, mount the speaker so that moisture will not accumulate in the speaker cone.

The speaker may be mounted on the lower edge of the instrument panel, on the firewall, above the windshield in trucks, or behind the built-in speaker grille of some vehicles. Use the swivel bracket from the speaker as a template for locating the mounting holes, and mount the speaker as shown in Figure 1.

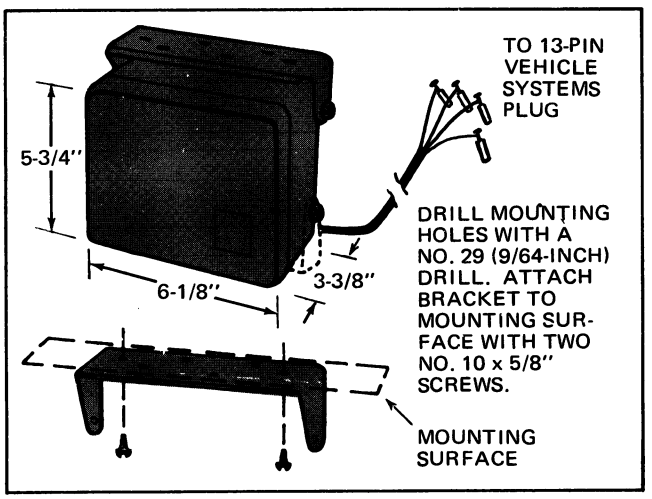


Figure 1-Mounting The Speaker

After the speaker is mounted, make jumper connections and insert the four pins in the 13-Pin Vehicle Systems Plug as shown in the following chart:

WIRE COLOR	SYSTEMS PLUG CONNECTIONS
Remove jumper between Hole 2 and Hole 3 Add jumper between Hole 2 and Hole 5	
Red (+12V)	Hole 7
Brown (Audio Hi)	Hole 9
White (Audio Lo)	Hole 8
Black (Gnd)	Hole 12

CIRCUIT ANALYSIS

The audio signal from the receiver is coupled through transformer T1 to the base of the Class B, push-pull amplifier transistors Q1 and Q2. Base bias is provided by resistors R4, R5, R8, R9 and RT1. Thermistor RT1 and resistor R4 form a parallel compensating network which stabilizes the emitter current of Q1 and Q2 under varying temperature conditions. The output taken from the emitter of Q1 and Q2 is coupled through impedance matching auto-transformer T2 to speaker LS2.

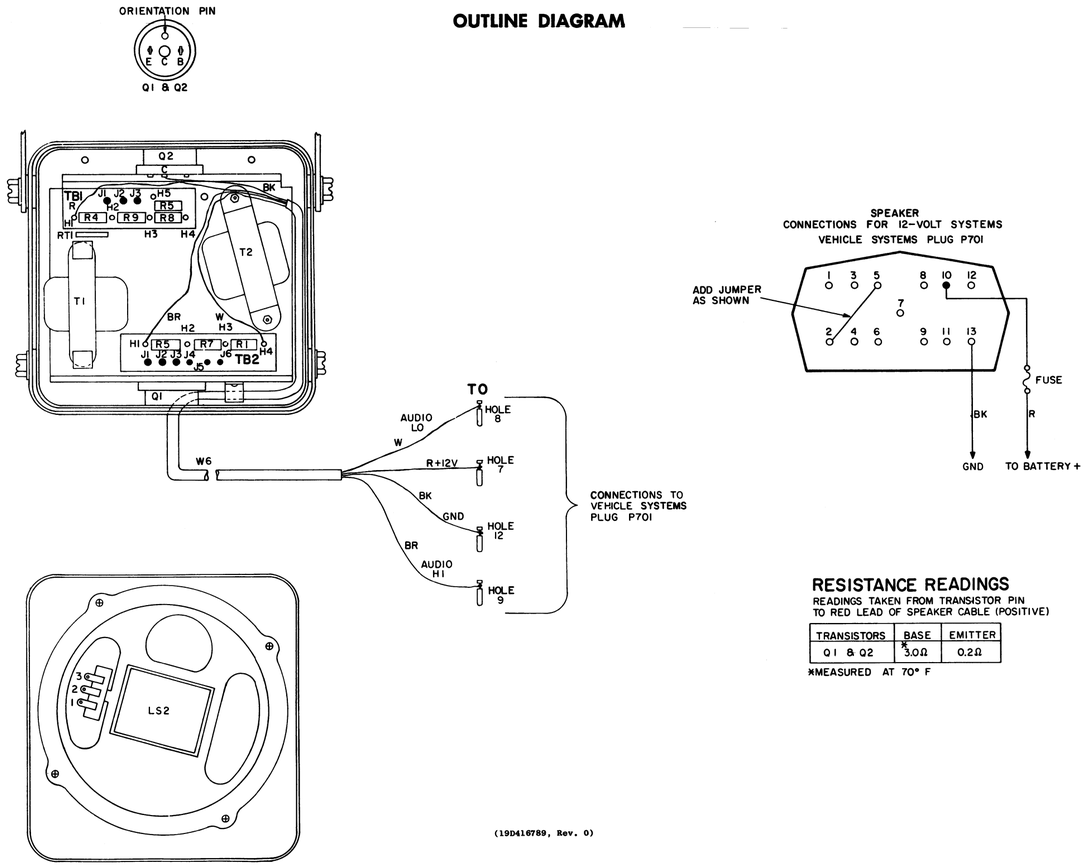
When the receiver is squelched, the speaker draws only .080 ampere for maximum battery life.

MAINTENANCE

DISASSEMBLY

1. Remove the two screws on each side of the speaker case.
2. Lift off the front section of the speaker housing.

OUTLINE DIAGRAM



SPEAKER
CONNECTIONS FOR 12-VOLT SYSTEMS
VEHICLE SYSTEMS PLUG P701

RESISTANCE READINGS

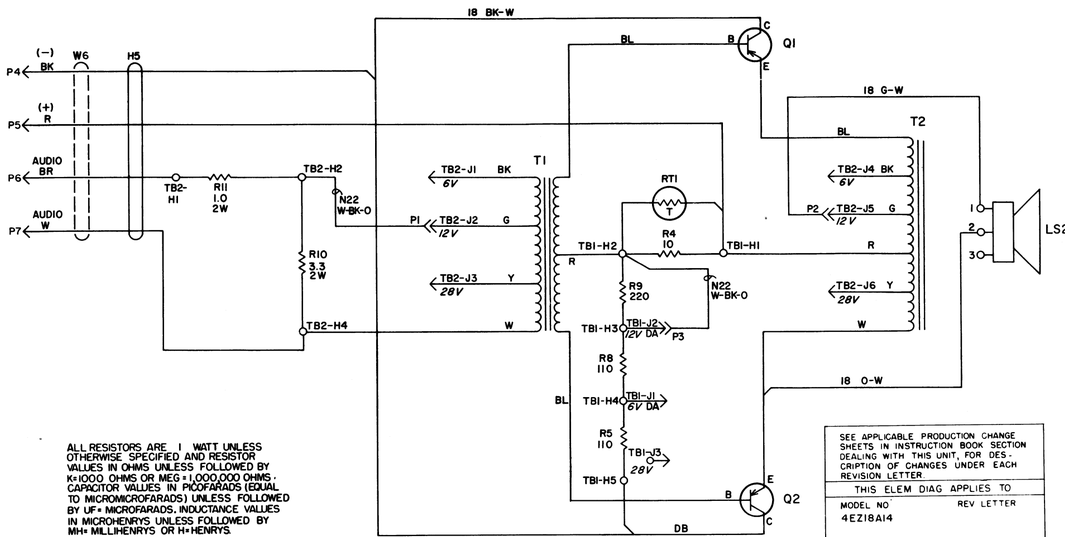
READINGS TAKEN FROM TRANSISTOR PIN TO RED LEAD OF SPEAKER CABLE (POSITIVE)

TRANSISTORS	BASE	EMITTER
Q1 & Q2	3.0Ω	0.2Ω

*MEASURED AT 70° F

(19D416789, Rev. 0)

SCHEMATIC DIAGRAM



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

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.

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
4EZ18A14	

(19C320196, Rev. 0)

OUTLINE & SCHEMATIC DIAGRAM

10-WATT SPEAKER-AMPLIFIER
MODEL 4EZ18A14 (OPTION 8427)

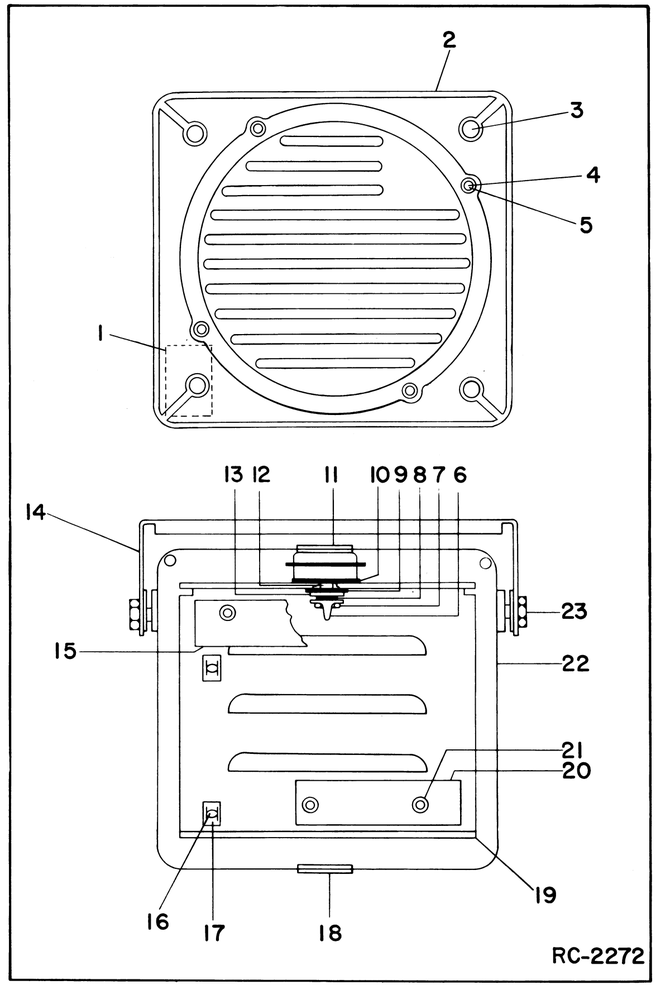
PARTS LIST

LBI-4361

SPEAKER-AMPIFIER
MODEL 4EZ18A14 (19D402449G18)

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - LOUDSPEAKERS - - - - - - - - -
LS2	5491260P7	Permanent magnet, 5-inch: 3.2 ohms ±10% voice coil imp, 15 w max operating, 385 Hz ±15% resonance, paper dust cap; sim to Jensen Model PS-VAS12761.
		- - - - - - - - - - - PLUGS - - - - - - - - - -
P1	4036731P1	Contact, friction: sim to Bead Chain M152-30.
P2	4029840P1	Contact, electrical: sim to AMP 41854.
P3	4029840P2	Contact, electrical: sim to AMP 42827-2.
P4 thru P7		(Part of W6).
		- - - - - - - - - TRANSISTORS - - - - - - - - -
Q1 and Q2	5490810P1	Germanium, PNP.
		- - - - - - - - - - RESISTORS - - - - - - - - -
R4	3R78P100J	Composition: 10 ohms ±5%, 1 w.
R5	3R78P111J	Composition: 110 ohms ±5%, 1 w.
R8	3R78P111J	Composition: 110 ohms ±5%, 1 w.
R9	3R78P221J	Composition: 220 ohms ±5%, 1 w.
R10	19B209022P127	Wirewound: 3.3 ohms ±10%, 2 w; sim to IRC Type BWH.
R11	19B209022P115	Wirewound: 1.0 ohms ±10%, 2 w; sim to IRC Type BWH.
		- - - - - - - - - THERMISTORS - - - - - - - - -
RT1	19C300048P3	Disc: 1 ohm ±10%.
		- - - - - - - - - TRANSFORMERS - - - - - - - - -
T1	19B209220P1	Audio freq: 0.3-3 KHz freq range nominal, Pri: 0.17 ohm DC res max, Sec: 5.2 ohms DC res max.
T2	19B209218P1	Audio freq: 0.3-3 KHz freq range nominal, 0.3 ohm DC res max.
		- - - - - - - TERMINAL BOARDS - - - - - - - - -
TB1		BOARD 19A121707G1
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1 thru J3	4033513P12	Contact, electrical: sim to Bead Chain R125-17.
TB2		BOARD 19A121291G1
		- - - - - - - JACKS AND RECEPTACLES - - - - - - -
J1 thru J3	4033513P12	Contact, electrical: sim to Bead Chain R125-17.
J4 thru J6	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
		- - - - - - - - - - CABLES - - - - - - - - - -
W6		CABLE ASSEMBLY 19B205410G2
		- - - - - - - - - - PLUGS - - - - - - - - - -
P4 thru P7	19A121429P1	Pin.

SYMBOL	GE PART NO.	DESCRIPTION
		MECHANICAL PARTS (SEE RC-2272)
1	NP2435I3	Nameplate. (GE MASTR).
2	19B216269G1	Housing.
3	19B201806P5	Insert.
4	19B201806P2	Insert.
5	N403P13C	Lockwasher: No. 6.
6	4036835P1	Terminal: solder; sim to Shakeproof 2118-10-01-2520N.
7	4032596P1	Nut: No. 10-32.
8	N405P9C13	Lockwasher: No. 10.
9	19A115221P3	Insulator, washer: mica.
10	4031291P1	Insulator: approx 1-1/8 inch dia.
11	5490407P6	Grommet, rubber. (Upper)
12	4034215P2	Bushing: approx 3/8 inch dia.
13	4034225P1	Flatwasher: approx 1/2 inch dia.
14	19A121521G1	Mounting support.
15	19A121711P1	Insulator: approx 2-1/2 x 3/4 inches.
16	N80P13007P	Screw: No. 6.
17	4038072P2	Speed nut: sim to Tinnerman C8092-632-1.
18	19A115470P1	Grommet, rubber: (Lower) sim to Atlantic India Rubber 2279 (without hole).
19	19B204603G2	Chassis.
20	19A121645P1	Insulator.
21	7150186P105	Spacer.
22	19A121550G3	Rear Cover.
23	19A115495P1	Screw: No. 1/4-20 x 5/8.



*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

ORDERING SERVICE PARTS

Each component appearing on the schematic diagram is identified by a symbol number, to simplify locating it in the parts list. Each component is listed by symbol number, followed by its description and GE Part Number.

Service parts may be obtained from Authorized GE Communication Equipment Service Stations or through any GE Radio Communication Equipment Sales Office. When ordering a part, be sure to give:

1. GE Part Number for component
2. Description of part
3. Model number of equipment
4. Revision letter stamped on unit

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired, or should particular problems arise which are not covered sufficiently for the purchaser's purposes, contact the nearest Radio Communication Equipment Sales Office of the General Electric Company.

MAINTENANCE MANUAL

LBI-4357

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

PRINTED IN U.S.A.

DF-8389