

PUBLIC SAFETY SPEAKER MICROPHONE

For SABER™ Handie-Talkie® Portable Radios
MODEL NMN6129B

1. DESCRIPTION

The Model NMN6129B Public Safety Speaker Microphone (PSSM) includes a speaker, a microphone, a push-to-talk (PTT) switch, a high/low volume switch, and associated circuitry. A cable, terminated with a special accessory connector, connects the speaker microphone to the universal connector on SABER™ portable radios. In order for the PSSM to operate properly, a removable antenna, designed for the desired frequency band, must be ordered separately and installed in the PSSM.

When the PSSM's accessory connector is connected to the radio's universal connector, the speaker and antenna in the radio are disabled, and the speaker and antenna in the PSSM are enabled. The radio's PTT switch and internal microphone still operate normally. If the PSSM's PTT switch is used to activate the radio's transmitter, the PSSM's microphone must also be used; if the radio's PTT switch is used, the radio's microphone must be used as well. In either case, the radio can be listened to only through the remote speaker.

A high/low volume switch, S2, allows the user to monitor the audio at a low volume level, then to immediately switch to the high volume level without resetting the volume control on the radio. This feature is especially useful when the radio is worn on the belt, and the speaker microphone is on the lapel or shoulder, as shown in Figure 1.

NOTE

Observe safety information in the radio operating instructions.

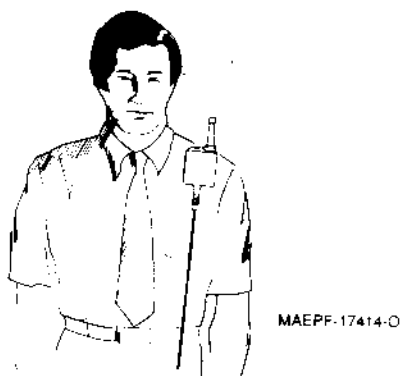


Figure 1.

2. INSTALLING THE MICROPHONE

- Remove the antenna from the radio; unscrew the antenna in the counterclockwise direction.
- Insert the tab on the microphone's accessory connector (part of item 1) into the slot in the radio's universal connector.
- Pivot the accessory connector toward the radio until its contacts mate with those on the universal connector, and its mounting screw lines up with the universal connector's threaded hole. Then, start the mounting screw in the hole.
- Slide the accessory bracket (part of item 1) down over the radio's antenna bushing nut.
- Insert the button-head screw (item 32) into the threaded hole in the antenna bushing nut, and tighten it firmly (recommended torque is 10 in. lb.).
- Firmly tighten the accessory connector's mounting screw (recommended torque is 4 in. lb.).

3. OPERATION

- Turn the radio on and operate it as explained in the operating instructions supplied with the radio. Listen to the radio through the speaker microphone's speaker.
- Set the "high/low" switch on the speaker microphone to the "low" position to monitor audio at a low volume; for a high volume level, set the switch to the "high" position.
- The microphone will perform best if it is worn with the antenna above the shoulder as shown in Figure 1.

4. HANDLING PRECAUTIONS

To avoid damage to circuits, observe the following handling, shipping, and servicing precautions.

CAUTION

Wearing a conductive wrist strap (Motorola No. RSX-4015A) will minimize static buildup during servicing.



WARNING

When wearing a conductive wrist strap, be careful near high voltage sources. The good ground provided by the wrist strap will also increase the danger of lethal shock from accidentally touching high-voltage sources.

- Prior to and while servicing a public safety speaker microphone, particularly after moving within the service area, momentarily place both hands on a bare metal, earth-grounded surface. This will discharge any static charge which your body may have accumulated.
- Whenever possible, avoid touching any electrically conductive part of the unit with your hands.
- Because they contribute to static buildup, avoid carpeted areas, dry environments, and certain types of clothing (silk, nylon, etc.) when servicing a unit.
- All electrically-powered test equipment should be grounded. Apply the ground lead from the test equipment to the unit before connecting the test probe. Similarly, disconnect the test probe prior to removing the ground lead.
- If the microphone cartridge is removed from the unit, place it on a conductive surface, such as a sheet of aluminum foil, which is connected to ground through 100k ohms of resistance.

WARNING

If the aluminum foil is connected directly to ground, be cautious of possible electrical shock from contacting the foil and other electrical circuits at the same time.

- When soldering, be sure the soldering iron is grounded.
- Prior to replacing circuit components or touching the microphone cartridge, be sure to discharge any static buildup. Since voltage differences can exist across the human body, it is recommended that only one hand be used if it is necessary to touch the microphone cartridge and associated wiring.
- Replacement microphone cartridges should be kept in conductive packaging until they are placed in the unit.
- If the microphone has been exposed to water, shake the unit to remove any residual water from the speaker grille area. Blow out any residual water from the microphone grille area before operating the radio; otherwise, the sound may be distorted until the water has evaporated from these areas.

5. MAINTENANCE

Refer to the schematic diagram, the exploded view, and the parts lists. Every part in the microphone is identified and illustrated for assistance in removal and replacement.

If disassembly of the public safety speaker microphone is required, do not reassemble it without doing the following (numbers in parentheses refer to item numbers in the exploded view).

- Remove the O-Ring (22) from the cover assembly (16).
- Inspect the seal areas around the housing (1) and the cover (16) for foreign material which might prevent the O-ring from sealing properly.
- Inspect O-ring (22) and both cover screw O-rings (18). If any of these are split, cracked, or damaged in any way, discard and replace them.
- If the main printed circuit board (14) is removed, remove the speaker spacer (27) and inspect the membrane of the seal pad (28) for tears or holes. If the membrane is damaged, remove it, being careful to remove all old adhesive, and replace it with a new seal pad.

NOTE

When replacing the seal pad (28), it is critical that the small seal pad opening be aligned with the microphone port in the housing.

- Tighten all hardware loosened or removed during disassembly per the values listed in the Torque Specifications table. Use the recommended torque driver (RSX-4043A Rotatorq Tool or equivalent).

TORQUE SPECIFICATIONS

APPLICATION	TORQUE (IN. LBS.)	TORQUE (N·m)	TORQUE BIT NO.
Cover Screws	6	.68	6680321B78
PC Board Screw	4	.45	6680321B78
Velcro Pad Screws	4	.45	6680321B78
Toggle Switch Boot	3	.34	6680370B99
RF Connector Nut	20	2.27	6680371B01
Button-Head Screw	10	1.13	6680371B02
Accessory Connector Mounting Screw	4	.45	6680321B78

If necessary, the external surfaces of the remote speaker microphone may be cleaned with a 0.5% solution of mild dishwashing detergent in water (one teaspoon of detergent in a gallon of water).

Electrical Parts List

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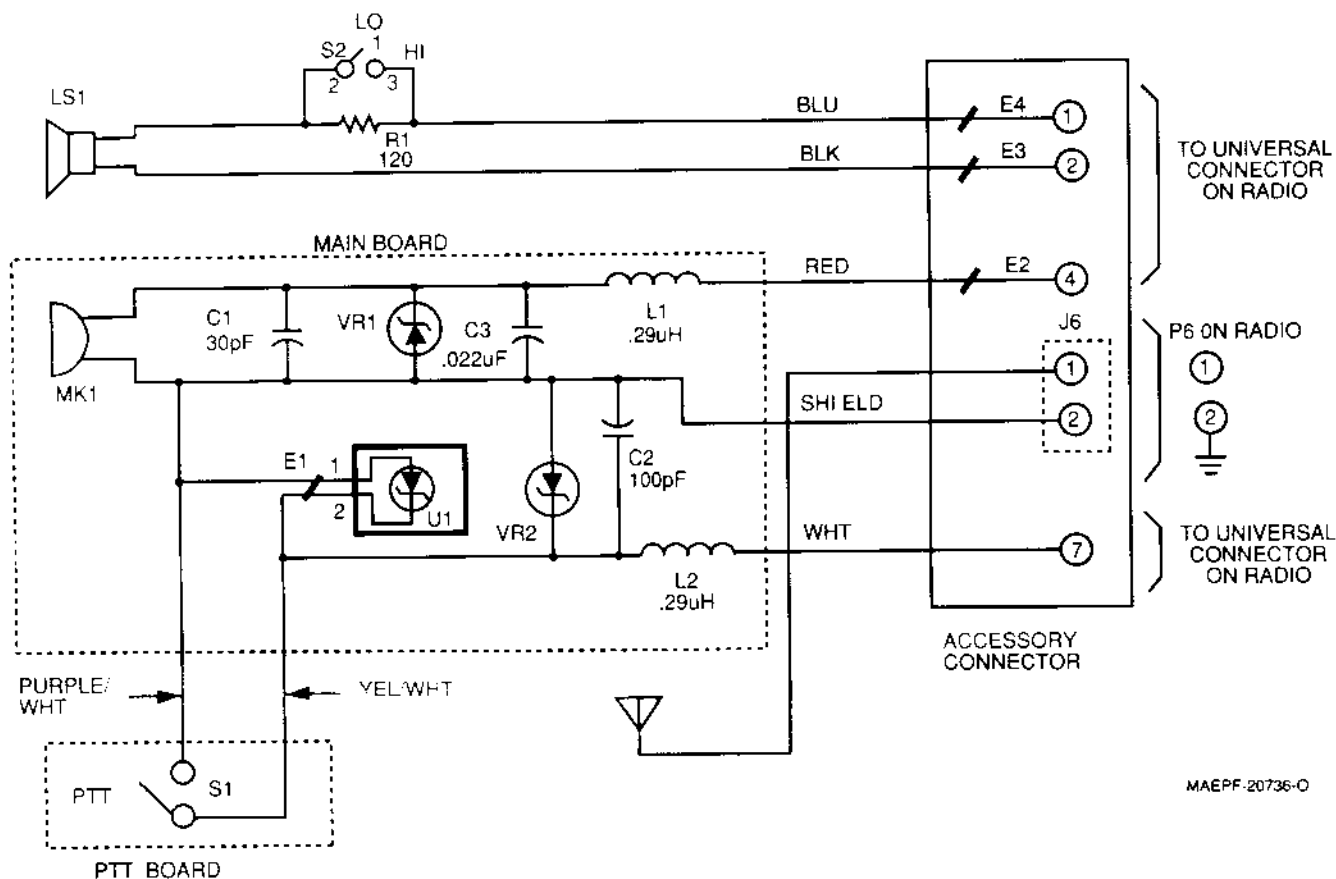
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1	2105454G47	CAPACITOR , Fixed: pF-5%; 63V unless stated 30, N150 100 .022μF
C2	2182877B55	
C3	2184008H19	
E1	7605530M01	CORE : Ferrite Bead Ferrite Bead
E2 (m, 4)	7683960B04	
L1,2	2482723H28	COIL , RF: unless stated Choke, .29μH
LS*	5005910P03	SPEAKER : "3.4"
MK1	5005227J02	MICROPHONE : Microphone
R1	0611009C27	RESISTOR , Fixed: Ω-5%; 1/4W unless stated 120
S1	3905834K05	SWITCH : Dome, PTT Toggle
S2	4005680K04	
U1	5105469E48	CIRCUIT MODULE : See Note I IC, Voltage Reference, 2.5V; Type LM285-Z2.5
VR1, 2	4883461E26	DIODE : See Note I Zener, 23.8V

NONREFERENCED ITEMS

NAE6131A	ANTENNA, Helical (400-440MHz) (See Note II)
or NAE6132A	ANTENNA, Helical (440-470MHz) (See Note II)
or NAE6133A	ANTENNA, Helical (470-512MHz) (See Note II)
or NAE6212A	ANTENNA, Helical (403-520MHz) (See Note II)
0905261B01	CONNECTOR, RF
8405213S01	PRINTED CIRCUIT, Flexible
8405296R02	PRINTED CIRCUIT BOARD, PTT
8405352S01	PRINTED CIRCUIT BOARD, Main

NOTE:

- For optimum performance, order replacement diodes, and circuit modules by Motorola part number only.
- The antenna is not part of the speaker microphone kit; it must be ordered separately.



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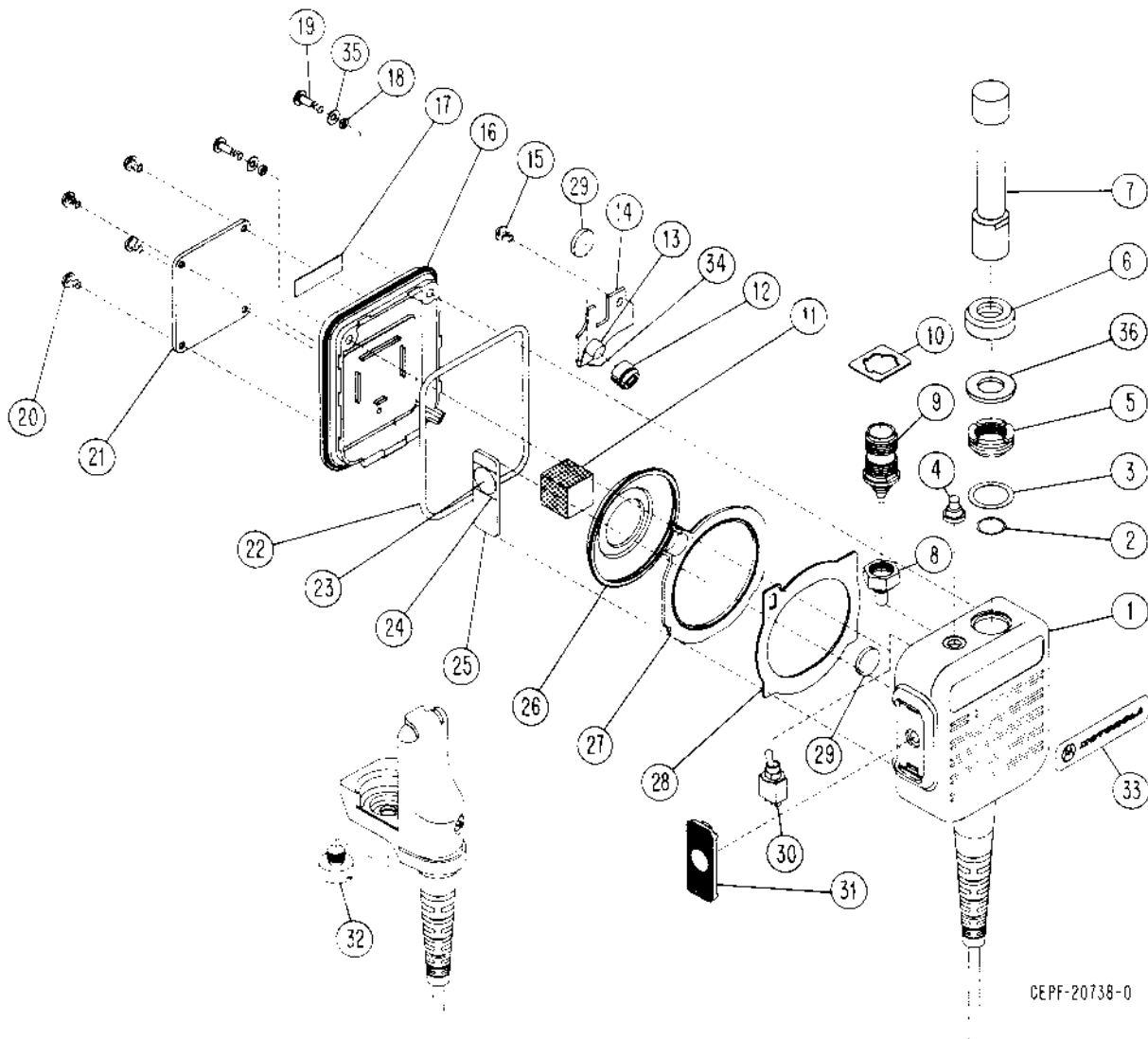
Exploded View Parts List

TPLF-3880-O

ITEM NO.	MOTOROLA PART NO.	DESCRIPTION
1	0105950R60	ASSEMBLY, Housing/Cord (not field repairable)
2	3205082E69	GASKET, O-Ring
3	0405465C02	WASHER, Plastic
4	0205791P01	NUT, Toggle Seal
5	0205326S01	NUT, Antenna
6	3205325S01	SEAL, Washer
7	See Note	ANTENNA, (must be ordered separately)
8	0205541C01	NUT, Special
9	See Note	CONNECTOR, RF
10	0405327S01	WASHER, Bearing
11	7582154D33	PAD, Speaker
12	1405490Q01	BOOT, Microphone
13	See Note	MICROPHONE (MK1)
14	See Note	PRINTED CIRCUIT BOARD, Main
15	0300139047	SCREW, Cutting
16	0105955P12	ASSEMBLY, Cover (not field repairable)
17	3305216K53	LABEL, Kit Number
18	3205082E03	GASKET, O-Ring (2 req'd)
19	0382210E19	SCREW, Cover-Captive; #4-40 (2 req'd)
20	0300139939	SCREW, Pad Retainer (4 req'd)
21	7505385P01	PAD, Hook

22	3205082E63	GASKET, O-Ring
23	See Note	DOME, PTT (S1)
24	3205264L06	SEAL, PTT
25	See Note	PRINTED CIRCUIT BOARD, PTT
26	See Note	SPEAKER (LS1)
27	4305407R01	SPACER, Speaker
28	3205190R01	PAD, Seal
29	7505136L03	PAD, Silicon Sponge (2 req'd)
30	See Note	SWITCH, Toggle (S2)
31	4505211R02	LEVER, PTT
32	0305329S01	SCREW, Button-Head
33	3305269R01	LABEL, Nameplate
34	See Note	PRINTED CIRCUIT, Flexible
35	0405465C01	WASHER, Plastic
36	0405910D01	WASHER, Insulator

NOTE: Refer to Electrical Parts List for part number and description.



CEPF-20738-0



MOTOROLA INC.

MANUAL REVISION

for
Manual No. 6881108C75-O
PUBLIC SAFETY SPEAKER MICROPHONE
for SABER™ Handie-Talkie® Portable Radios
Model: NMN6129B
Instruction Manual

This revision outlines changes that have occurred since the printing of your manual. Use this information to supplement your manual. Installation of these changes in earlier equipment is not necessary except as recommended in Motorola Service and Repair Notes (SRN's).

REVISION DETAILS

NO. CHANGE AFFECTS

- 1 EXPLODED VIEW PARTS LIST

CHANGES

NO.

- 1 On page 4, EXPLODED VIEW PARTS LIST change the following:

<u>REF. SYM.</u>	<u>MOTOROLA PART NO.</u>	<u>ACTION</u>	<u>MOTOROLA PART NO</u>	<u>DESCRIPTION</u>
31	4505211R02	change to	4505211R03	LEVER, PTT

May 14, 1991

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