



MOTOROLA INC.

REMOTE SPEAKER MICROPHONE

For SABER™ Handie-Talkie® Portable Radios
MODEL NMN6128B, COILED CORD

1. DESCRIPTION

The Model NMN6128B Remote Speaker Microphone includes a speaker, a microphone, a push-to-talk (PTT) switch and associated circuitry. A cable, terminated with a special plug, is provided for attaching to the universal connector on SABER portable radios.

When the remote speaker microphone is attached to the radio, the speaker in the radio is disabled, and receiver audio is connected to the accessory speaker. Similarly, the accessory microphone is connected to the transmitter, and the accessory PTT switch can now control the PTT function in the radio. The radio microphone and PTT switch are still operational, but you can listen to the radio only through the accessory speaker.

NOTE

Observe safety information in the radio operating instructions.

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 (item 25) 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 (item 26) down over the radio's antenna bushing nut.
- Insert the antenna adapter (item 4) 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.).

- Replace the antenna by screwing it into the adapter.

3. OPERATION

- While listening to the accessory speaker, turn the radio on and operate it as explained in the operating instructions supplied with the radio.
- The microphone will perform best if it is worn as shown in Figure 1.



MAEPF-17335-O

Figure 1.

4. HANDLING PRECAUTIONS

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

- Prior to and while servicing a remote 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 may have accumulated on the person doing the service.

NOTE

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.

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b. Whenever possible, avoid touching any electrically conductive part of the unit with your hands.

c. When servicing a unit, avoid carpeted areas, dry environments, and certain types of clothing (silk, nylon, etc.) because they contribute to static buildup.

d. 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.

e. 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 at the same time as other electrical circuits.

f. When soldering, be sure the soldering iron is grounded.

g. 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.

h. Replacement microphone cartridges should be kept in conductive packaging until they are placed in the unit.

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 remote 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 (14) from the cover assembly (8).
- Inspect the seal areas around the housing (1) and the cover (8) for foreign material which might prevent the O-ring from sealing property.
- Inspect O-ring (14) and both cover screw O-rings (10). If any of these are split, cracked, or damaged in any way, discard and replace them.
- If the main printed circuit board (3) is removed, remove the speaker spacer (19) and inspect the membrane of the seal pad (20) 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 placing the seal pad (20), 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 BIT NO.
Back Cover Screws	6	6680321B78
PC Board Screws	4	6680321B78
Pocket Clip Screw	4	6680321B78
Antenna Adapter	10	6680370B90
Accessory Connector Mounting Screw	4	6680321B78

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

Electrical Parts List

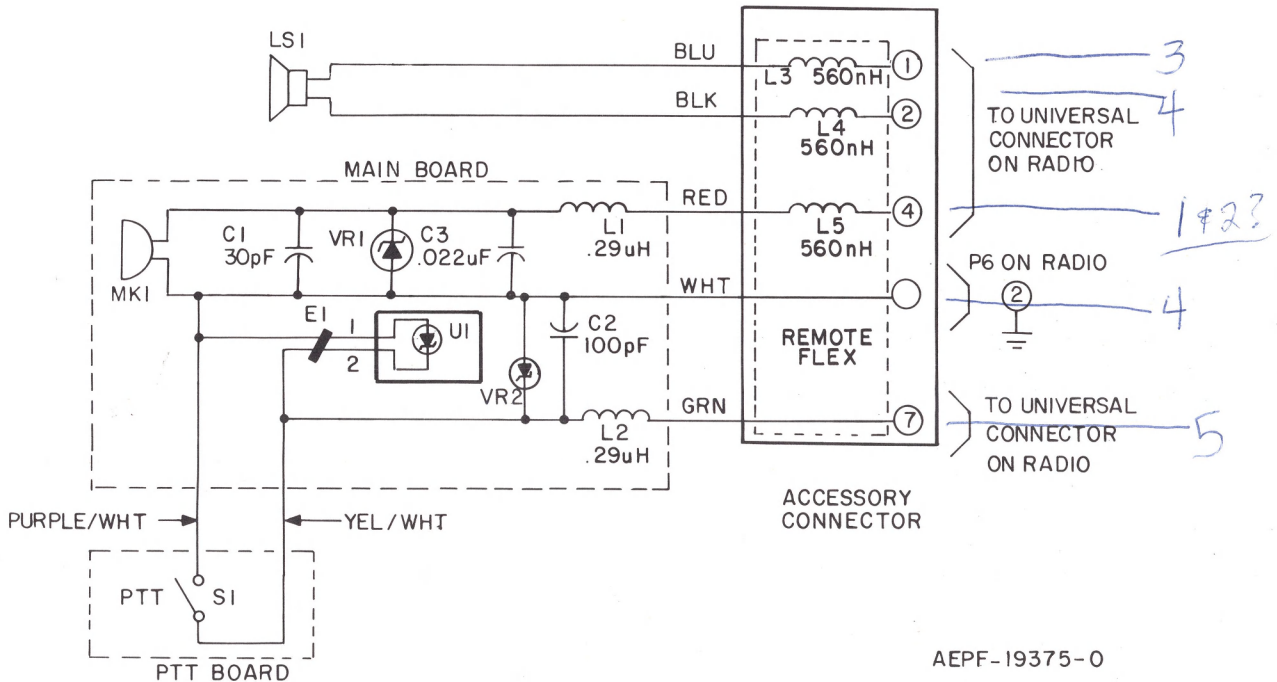
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REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1	2105454G47	CAPACITOR, Fixed: pF±5%; 63V unless stated 30; N150
C2	2182877B55	
C3	2184008H19	
E1	7605530M01	CORE: Ferrite Bead
L1,2 L3 thru 5	2482723H28 -----	COIL, RF: unless stated Choke, .29uH Inductor, Chip, 560nH (Not Field Repairable)
LS1	5005910P03	SPEAKER: 1 3/4"
MK1	5005227J02	MICROPHONE: Microphone
S1	3905834K05	SWITCH: Dome, PTT
U1	5105469E47	CIRCUIT MODULE: See Note I IC, Voltage Reference Diode, 1.235V; Type LM285-Z1.2
VR1, 2	4883461E26	DIODE: See Note I Zener, 23.8V
NONREFERENCED ITEMS		
	8405213S01 8405296R01 8405297R01 -----	PCB, Flexible PRINTED CIRCUIT BOARD, PTT PRINTED CIRCUIT BOARD, Main PCB, Flexible, Remote (Not Field Repairable)

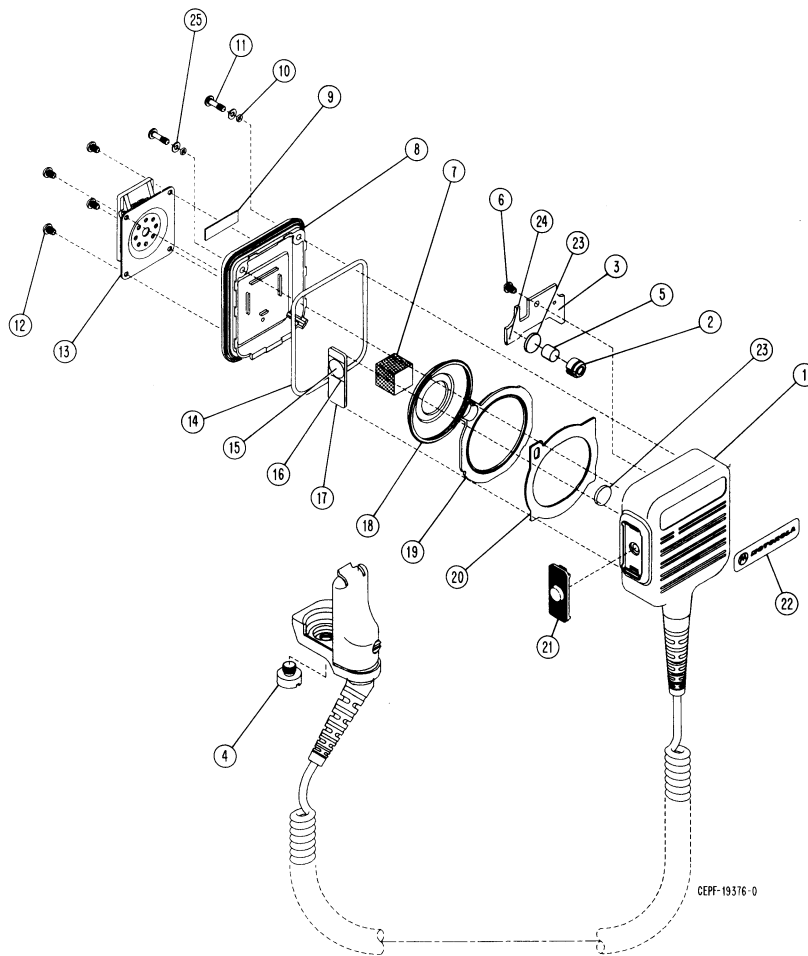
FCM OLD NEW
 GND WHT BLK
 SPKR BLU RED
 PTT GRN WHT
 MIC RED BLU or BLU+GRN
 JUMPER OTHER SPKR CONN
 TO GND

NOTE:

I. For optimum performance, order replacement diodes, and circuit modules by Motorola part number only.



AEPF-19375-0



Exploded View Parts List

TPLF-3756-0

ITEM NO.	MOTOROLA PART NO.	DESCRIPTION
1	0105954S34	ASSEMBLY, Housing/Cord (not field repairable)
2	1405490Q01	BOOT, Microphone
3	See Note	PRINTED CIRCUIT BOARD, Main
4	4305270S01	ADAPTER, Antenna
5	5005227J02	MICROPHONE (MK1)
6	0300139047	SCREW, Cutting
7	7582154D33	PAD, Speaker
8	1505954P78	ASSEMBLY, Cover (not field repairable)
9	3305216K39	LABEL, Kit Number
10	3205082E03	GASKET, O-Ring (2 req'd)
11	0382210E19	SCREW, Cover-Captive; #4-40 (2 req'd)
12	0300139982	SCREW, Machine, Phil Bin; #2-56 x .188" (4 req'd)
13	0105959N54	ASSEMBLY, Belt Clip
14	3205082E63	GASKET, O-Ring
15	3905834K05	DOME, PTT (S1)
16	3205264L06	SEAL, PTT
17	See Note	PRINTED CIRCUIT BOARD, PTT
18	5005910P03	SPEAKER (LS1)
19	4305407R01	SPACER, Speaker
20	3205190R01	PAD, Seal
21	4505211R02	LEVER, PTT
22	3305269R01	LABEL, Nameplate
23	7505136L03	PAD, Latch (2 req'd)
24	See Note	PRINTED CIRCUIT BOARD, Flexible
25	0405465C01	WASHER, Plastic (2 req'd)

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

Manual Scan

I hope this service manual is of use to you. Motorola does not make this available as a PDF and all other available copies are of poor quality.

Each page is captured at 600 DPI, and as 24-bit color, 8-bit grayscale or black and white and at the proper page size, up to 11x34 inches in many cases. OCR has been performed on the document, even on the large pages. The document is condensed into one single PDF with text overlay. You should be able to print the larger sheets on 11x17 or tile them onto 8.5x11 if needed.

Please do not charge for access to this, or put it on a pay-wall site. Please don't pay for access to any such sites, they are against the ethos of hacking, and it only encourages them to profit off the hard work of others which has been shared openly. Please don't change this/recompress it; this defeats the point of capturing this at high resolution.

If something is incorrect here, or unreadable please reach out; I likely have the original lossless compressed images. In the final PDF that's color or grayscale will be JPEG 2000 format with highest quality selected. B&W images will be compressed using CCITT Group 4. This is quite close to the source material, but there may be some artifacts due to lossy compression. If there's a choice between file size and image quality, image quality will win. It's 2021 and storage and bandwidth is cheap.

This was captured on a Canon DR-G2140 scanner which is ~ 7500 USD unit circa 2021. You may note some artifacts and lines in on the scans, these are due to scratches on the sensor glass, and are minor. The replacement glass is about 250 USD if you're feeling generous :-)

If you have a hard to find/out of print manual and would like to make it available please reach out, I may be able to scan and return it to you.

Thank you,

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