



MOTOROLA

**PA/Speaker
Model HSN1006A**

Note: This amplified speaker replaces the HSN1000A/B unit as used on the MTR2000.



Instruction Manual

68P81110C10-O

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1. Description

- 1.1 The speaker/amplifier consists of a 6-watt integrated circuit amplifier and a 2.0 ohm speaker, enclosed in a rugged, weather -resistant housing. The housing is designed to be mounted either inside or outside (Please see the Window Mounting Bracket Detail, Figure 1) of a schoolbus, truck, emergency van, or other similar vehicle.
- 1.2 The speaker/amplifier is used in options for Motorola XTVA, Vehicular Adapters, and other similar products.
- 1.3 The speaker/amplifier includes a trunnion bracket, hanger bracket, and wall mount bracket. These brackets enable the speaker to be mounted in a variety of different ways. Refer to Figure 1.

The trunnion bracket provides a large variety of permanent mountings (dashboard and accessible firewall areas) for the speaker, while permitting it to be tilted or angled for best results.

The hanger bracket (already attached to the speaker) by itself permits temporary mounting on projections, such as automobile windows. In this case, the speaker must be removed from its trunnion bracket by loosening the two wing screws.

The wall mount bracket can be used for permanent mountings if the trunnion bracket is too large to fit in inaccessible areas. In this case, remove the trunnion bracket and attach the speaker to the wall mount bracket using the hanger bracket. Security screws are included for optional use in place of wing screws.

2. Installation

- 2.1 These tools are required for installation:

- Center punch
- Hammer
- Drill, 1/4" Chuck
- #22 Twist Drill (0.157") for self-tapping screws
- #38 Twist Drill (0.101") for self-tapping screws

- Nut Driver, 1/4"

- Nut Driver, 5/16"

- 2.2 Trunnion Bracket Installation Procedure (Refer to Figure 1.)

- Step 1. Remove the trunnion bracket by loosening the two wing screws.
- Step 2. Remove the three paper retainers and screws from the trunnion bracket.
- Step 3. Remove the wall mount bracket from its taped position on the hanger bracket, and retain for future use.
- Step 4. Using the trunnion bracket as a template, mark the location of the three desired mounting holes.
- Step 5. Centerpunch and drill a 0.157" diameter hole at each location.
- Step 6. Mount the trunnion bracket using the supplied screws.
- Step 7. Remount the speaker into the trunnion bracket and retighten the two wing screws.

- 2.3 Wall Mount Bracket Installation Procedure (Refer to Figure 1.)

- Step 1. Remove the wall mount bracket from its taped position on the hanger bracket.
- Step 2. Remove the trunnion bracket and trunnion wing screws, and retain for future use.
- Step 3. Remove the two paper retainers and screws from the wall mount bracket.
- Step 4. Determine the location for the installation.
- Step 5. Using the bracket as a template, mark the location for the screws.
- Step 6. Centerpunch and drill a 0.101" diameter hole at both locations.
- Step 7. Mount the wall mount bracket to the surface with the supplied screws.

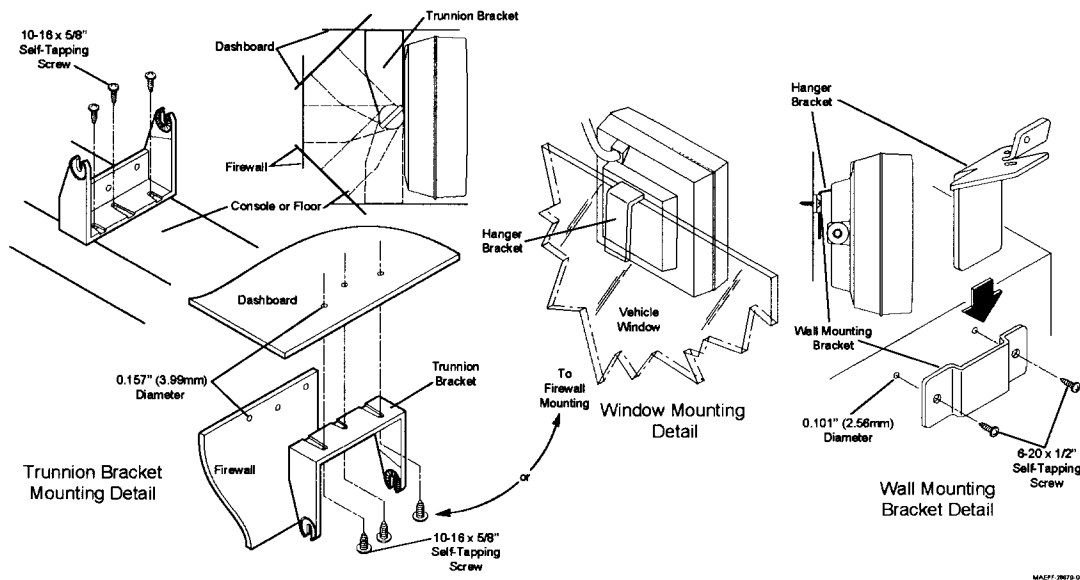


Figure 1. Physical Installation Details

Step 8. Firmly seat the hanger bracket (attached to the speaker) in the wall mount bracket.

2.4 Dual Trunnion and Wall Mount Installation

In some installations, such as in schoolbuses, where the speaker may be subject to excessive strain or abuse, it may be desirable to use both the trunnion mounting bracket and the wall mounting bracket. In this case, follow the procedures in both 2.2 and 2.3, but use the dimensions in Figure 2 to locate the hole centers.

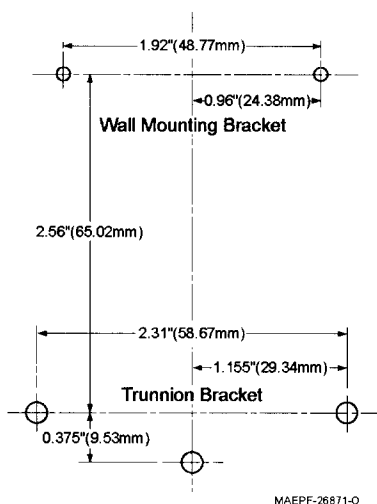


Figure 2. Dual Trunnion and Wall Mount Dimensions

NOTE: Do not use Figure 2 as a template.

2.5 Electrical Connections

Install the Vehicular Adapter, or mobile radio, following the preinstallation and installation procedures described in the basic Vehicular Adapter, or mobile radio manual. Use the Interconnect Cable to install the PA /Speaker to the Vehicular Adapter or mobile radio.

3. Adjustment

General Procedure

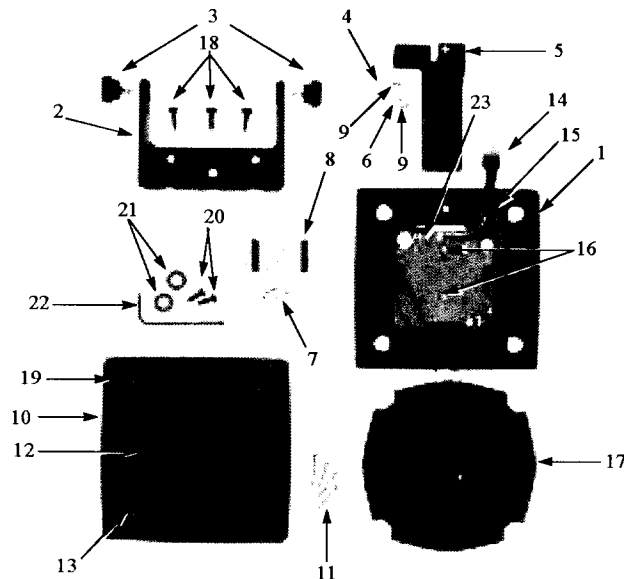
See the Vehicle Adapter, or mobile radio installation manual for product-specific procedure.

Step 1. Adjust the radio as described in the radio instruction manual.

Step 2. Setup the conditions required to provide a signal to the speaker, such as an incoming received message and set the vehicular adapter volume level to maximum.

Step 3. Adjust the speaker/amplifier volume control (on the speaker circuit board) for a convenient listening level heard clearly throughout the vehicle. The adjustment can also be used to lower minimum loudness if the installation requires it.

4. HSN1006A Speaker, Housing Kit, and Parts List



Parts List

Item No.	Motorola Part Number	Description
1	1584981B08	HOUSING ASSMBLY, rear; includes: ref items
2	0780200E06	BRACKET, trunnion
3	0384244C01	SCREW, wing; 10-32 x 3/8"; 2 used
4	0200131435	NUT, hex; 4-40 x 1/4 x 3/32"
5	0784707L02	BRACKET, hanger
6	0300001943	SCREW, machine; 4-40 x 5/16"
7	0300003360	SCREW, tapping; 6-20 x 1/2"; 2 used
8	0784708L01	BRACKET, wall mount
9	0300002941	SCREW, machine, 6-32 x 1/4"; 2 used
10	1382671M04	BEZEL, speaker front
11	0300140001	SCREW, machine; 6-32 x 13/16"; 4 used
12	3584709L01	GRILLE, cloth
13	0480299R01	RING, retainer; 4 used
14	1584954L01	HOUSING, plug; 6-contact
15	4200850861	RETAINER, cable
16	0300139803	SCREW, tapping; 4-20 x 1/4"; 2 used
17	5084561B03	SPEAKER, dynamic; 5"
18	0300136756	SCREW, tapping; 10-16 x 5/8"; 3 used
19	3280000S01	GASKET, speaker
20	0384349K02	SCREW, trunnion security; 2 used
21	0400139941	WASHER, flat; 2 used
22	6684352K01	TOOL, installation
23	1484602K01	INSULATOR

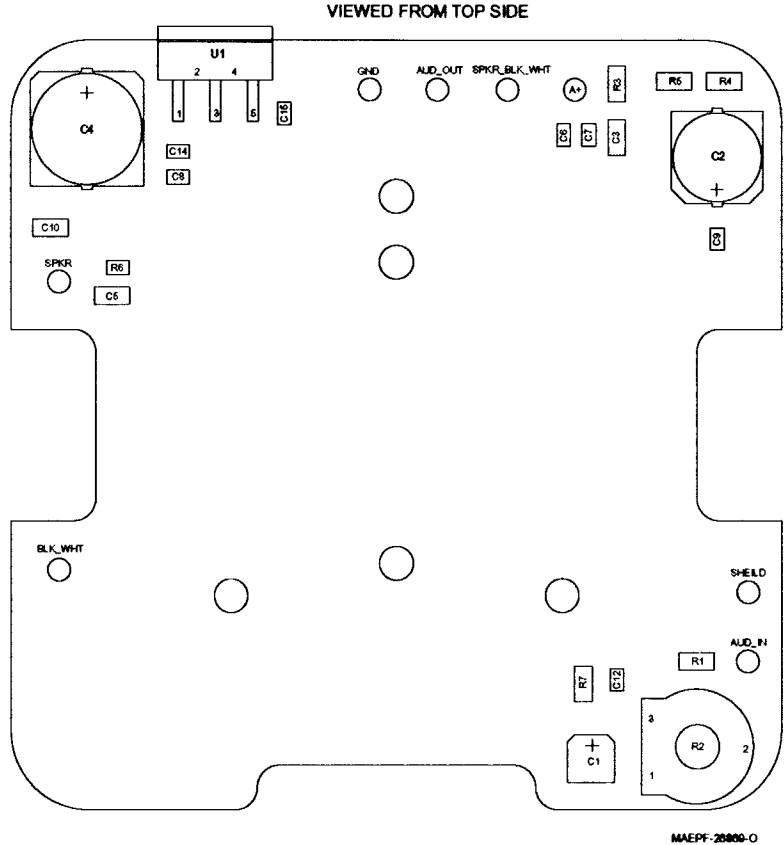
Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

5. NTN9277A Speaker Amplifier Board and Parts List

Parts List

Reference Symbol	Motorola Part Number	Description
		capacitor, fixed: $\pm 5\%$; 50V; unless otherwise stated
C1	2380090M06	10uF; 16V
C2	2380090M25	100uF; 25V
C3	2113741B61	.047uF
C4	2380090M32	220uF; 35V
C5	2113741B69	0.1uF
C6	2160521G37	0.1uF
C7	2113743A23	0.22uF
C8	2113741A45	.01uF
C9	2113740A63	220pF
C10	2113740B73	1000pF
C12	2113741A45	.01uF
C14, C15	2113740A63	220pF
		resistor, fixed: $\Omega \pm 5\%$; 1/8 w; unless otherwise stated
R1	0611077A82	2.2k
R2	1884944C04	500
R3	0611077A42	47
R4	0611077A58	220
R5	0611077A10	2.2
R6	0662057C03	1
R7	0611077A68	560
		module:
U1	5180065C03	
		plug:
P1 (not on board)		6-pin connector; includes:
	1584954L01	HOUSING, connector
	2984706E05	TERMINAL, pin; 5 used
	2984706E01	TERMINAL, pin; 1 used
	3000824273	CONDUCTOR, shielded
	3700135566	TUBING, heat-shrink

NTN9277A Speaker Board Detail



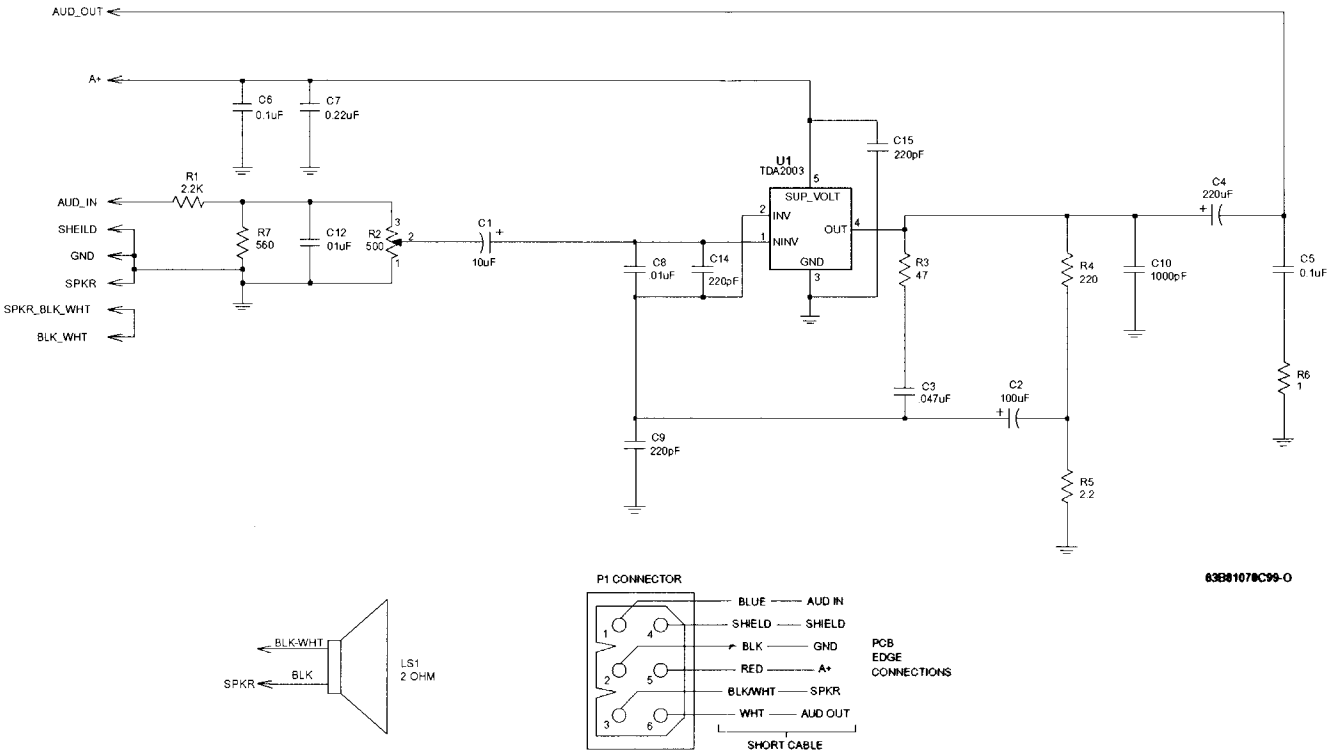
Speaker/Amplifier Specifications

Rated Voltage:	+13.8 Vdc; negative ground
Audio Input:	2400 ohms with adjustable input level
Input sensitivity:	0.5 volt input for full output
Audio output to speaker:	6 watts; less than 10% distortion @ rated voltage
Frequency response:	+1, -3 dB; 300-3000 Hz
Speaker:	5" permanent magnet; 2 ohms
Battery drain:	Standby: less than 0.1 amp; Full output: 0.75 amp

Speaker/Amplifier Model Complement

NTN9277A	Speaker/amplifier board
HSN1006A	Speaker and cable
HKN6455A	Interconnect cable

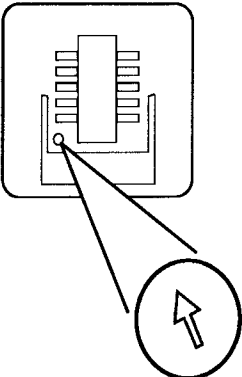
NTN9277A Speaker Board Schematic



Function

The speaker/amplifier consists of a 6-watt integrated circuit amplifier and a 2.0 ohm speaker mounted in a rugged weather resistant housing.

ADJUST SPEAKER



When the speaker is installed to XTVA (NLD7654), it is recommended that the loudness adjustment be set as depicted above for best receive audio clarity.

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Model HSN1006A PA/Speaker
NTN9277A Speaker Board Detail, Schematic Diagram
and Specifications