



# Noise Reduction Module

## Model A121

# Installation Instructions

### Description

The 3M Noise Reduction Module (3M part number 78-9236-6403-7) improves the inbound intelligibility of an intercom system by reducing environmental background noise from vehicles, airplanes, noisy intersections, etc.

### Additional Material Required

- 18 - 22 AWG twisted - shielded pair audio wire
- 2 mounting screws and appropriate wall anchors

**Important:** *The 3M Noise Reduction Module should be mounted no more than 3 feet from the intercom or base station.*

### System Requirements

The 3M Noise Reduction Module requires a system with a separate outside microphone and speaker. *The A121 will not function with an intercom system configured to use a single speaker as both the microphone and speaker.* The A121 will work in conjunction with most dynamic microphones and speaker/microphone assemblies.

### System Configuration

The 3M Noise Reduction Module configuration is controlled by two jumper switch (JMP1 and JMP2) settings.

JMP1 is used to set the appropriate gain for the MENU MICROPHONE.

JMP2 is used to match the A121 output level to the input of the intercom system.

Jumper Position	Position A	Position B
JMP1	* Separate microphone & speaker at menu sign/post	Do not use this position
JMP2	* 3M Intercom	HME Intercom

**Note:** \* Indicates factory default settings

**Table 1. 3M Noise Reduction Module Jumper Settings**

## Mode Configuration

The 3M Noise Reduction Board can be configured in several different modes by setting DIP switch, SW2. Following is a brief description of each mode and a DIP switch setting table.

**Noise Reduction:** With SW2 number 1 ON, the inbound microphone voice signal is digitized. The noise is digitally removed from the voice and converted back to an analog voice signal. The analog voice signal is then sent to the microphone input of the intercom.

**Echo Reduction:** With SW2 number 2 ON, echo is reduced for full-duplex intercom systems. Set SW2 number 2 OFF for half-duplex systems.

**Restaurant/Truck Stop Noise Reduction Level:** With SW2 number 3 OFF, the A121 is set for restaurant noise reduction level. With SW2 number 3 ON, the A121 is used for truck stop noise reduction level, which provides more noise reduction with slightly more voice degradation.

**Hi Frequency Equalization:** With SW2 number 4 ON, the higher-end frequencies are increased by 3 dB. This should be set to the customer's preference.

SW2 Number	ON Position	OFF Position
1	*Noise Reduction ON (Normal Mode)	Test Mode (Factory use only; do not change.)
2	* <sup>1</sup> Echo Reduction ON	Echo Reduction OFF
3	<sup>2</sup> Truck Stop Noise Reduction Level	* <sup>2</sup> Restaurant Noise Reduction Level
4	<sup>2</sup> Hi Frequency Equalization ON	* <sup>2</sup> Hi Frequency Equalization OFF
5	Not Used	Not Used

**Notes:** \* Indicates factory settings.

<sup>1</sup> Must be ON for 3M, HME, and Panasonic Full Duplex Systems

<sup>2</sup> Set to customer preference.

**Table 2. 3M Noise Reduction Module SW2 Settings**

## Status Indication Table

The condition of the red LED on the 3m Noise Reduction Module indicates the current status of the unit. The LED can be off, blink at defined intervals, or be constantly lit Table 3 illustrates the status indicated by the LED.

Status	LED
Power OFF	LED off.
Normal Mode	LED blinks once per second.
Test Mode	LED blinks three times per second.
Fault Condition	LED is solid red (constantly illuminated).

**Table 3. 3M Noise Reduction Module Status Indication**

## Final Checkout Procedure

1. Turn the ON/OFF switch of the A121 ON. The red LED should blink slowly. Listen for a reduction in the background noise.

2. If the A121 is in a half-duplex system, set SW2 number 2 OFF and proceed to step 3.  
If the A121 is in a full-duplex system set SW2 number 2 OFF. Speak into the headset mic or intercom mic. The echo should increase. Turn SW2 number 2 back ON. The echo should decrease.
3. Set SW2 number 3 for appropriate level of noise reduction. Set SW2 number 3 OFF for restaurant mode . Set SW2 number 3 ON for truck stop mode.
4. Set SW2 number 4 (Hi Frequency Equalization) to customer’s preference.

## Troubleshooting

Problem	Possible Cause	Correction
1. Status fault indicated.	Inbound audio exceeded maximum level.	Switch A121 off for one second.
2. No inbound audio.	Mode setting is incorrect. Wiring is incorrect.	Check mode configuration. Check wiring.
3. No outbound audio.	Wiring is incorrect.	Check wiring.
4. Loud audio in 3M headset when headset user talks.	Inbound audio on 3M base station too low.	Increase MENU MIC SENS potentiometer. Headset user should then reduce the headset audio volume.
5. Excessive echo	Excessive feedback from menu speaker to menu mic.	Add extra acoustic insulation to menu mic chamber.

Table 4. A121 Noise Reduction Module Troubleshooting

## Wiring Diagrams

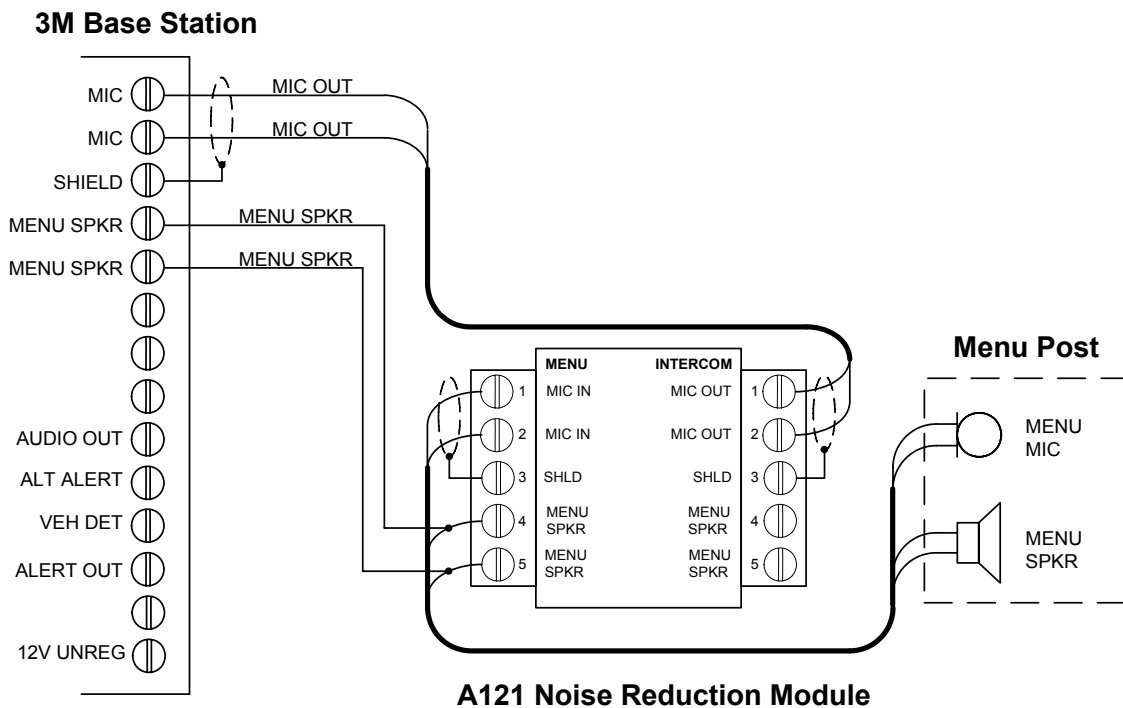
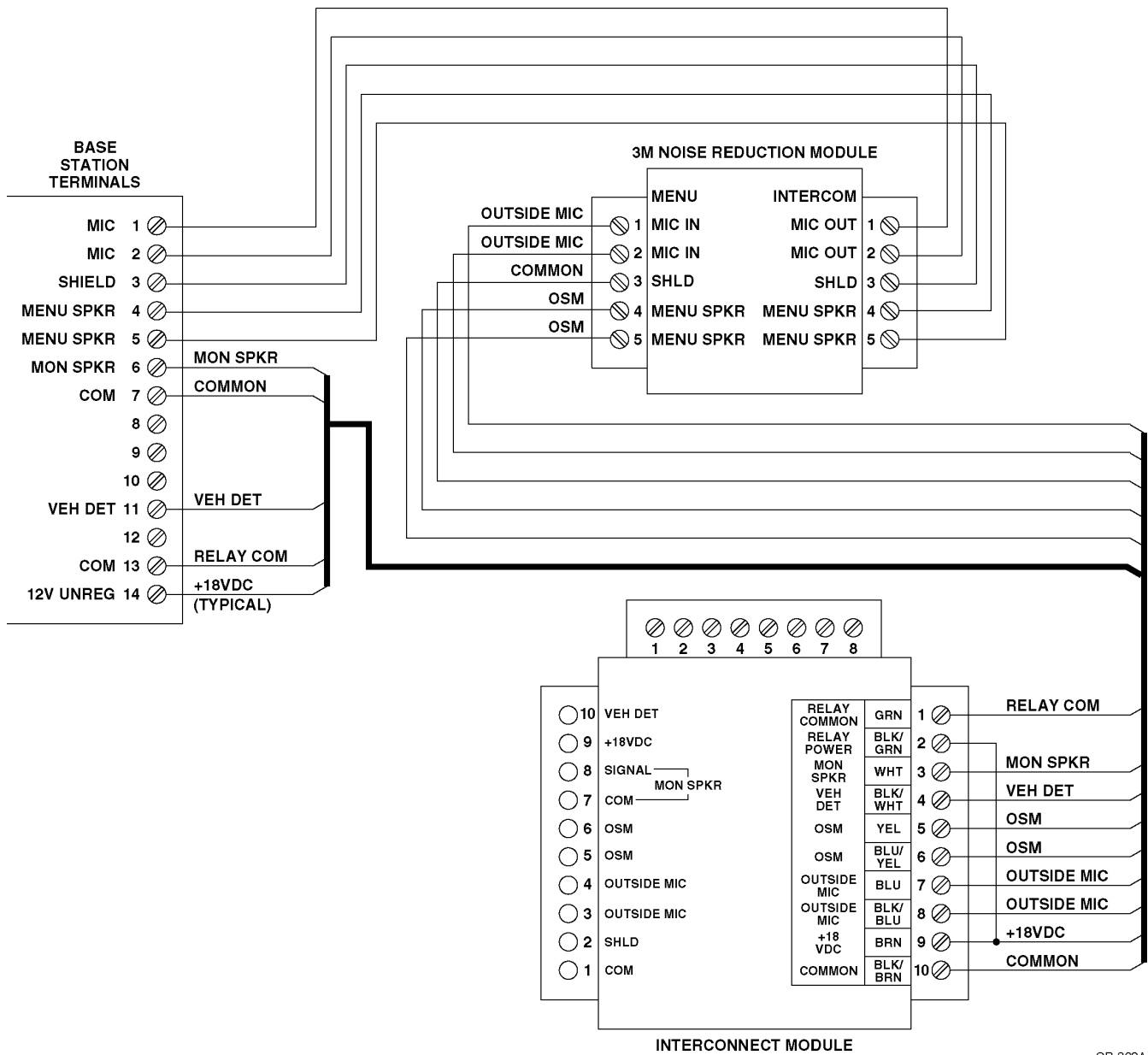


Figure 1. Wiring for 3M C760/960/1060 Base Station



SP-362A

Figure 2. Wiring for 3M C760/960/1060 Base Station with Interconnect Module

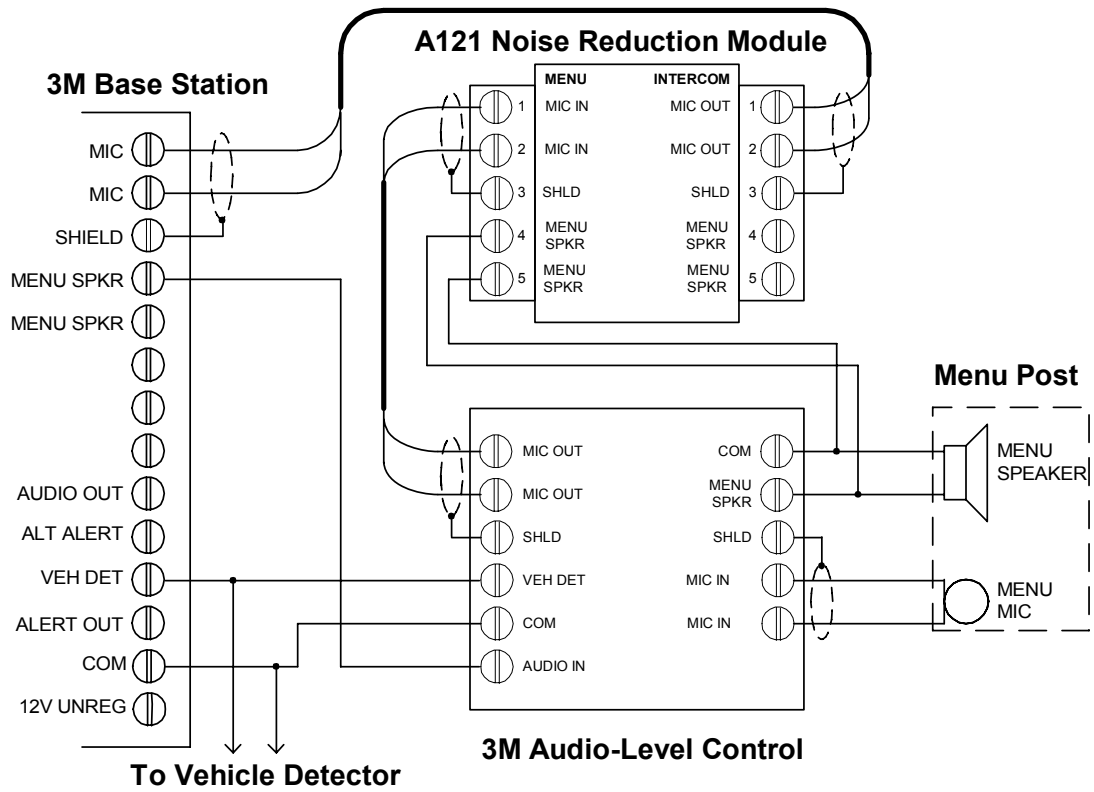


Figure 3. Wiring for 3M C760/960/1060 Base Station with 3M Audio-Level Control Module

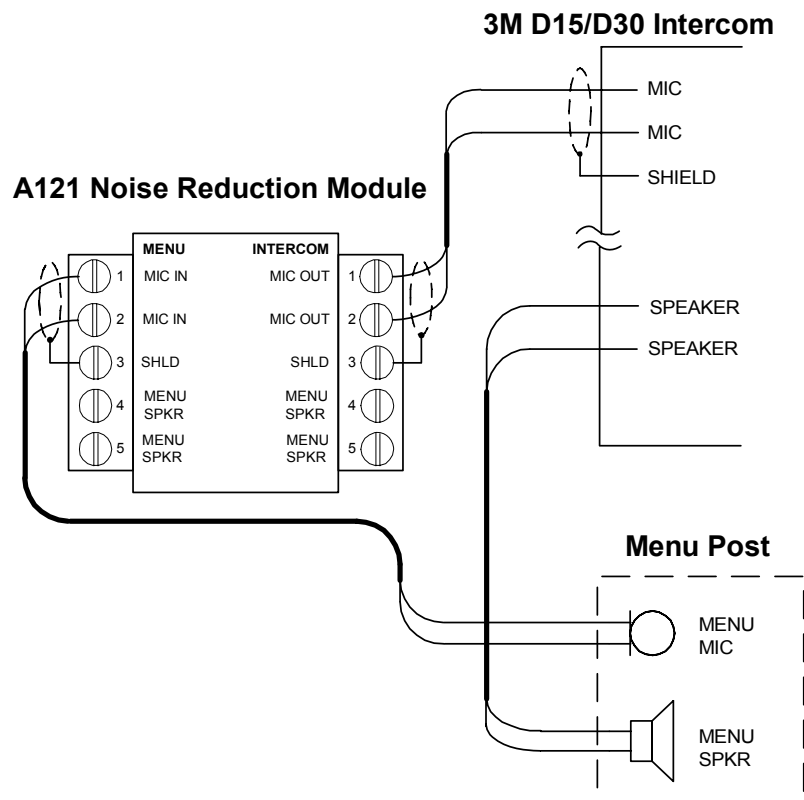
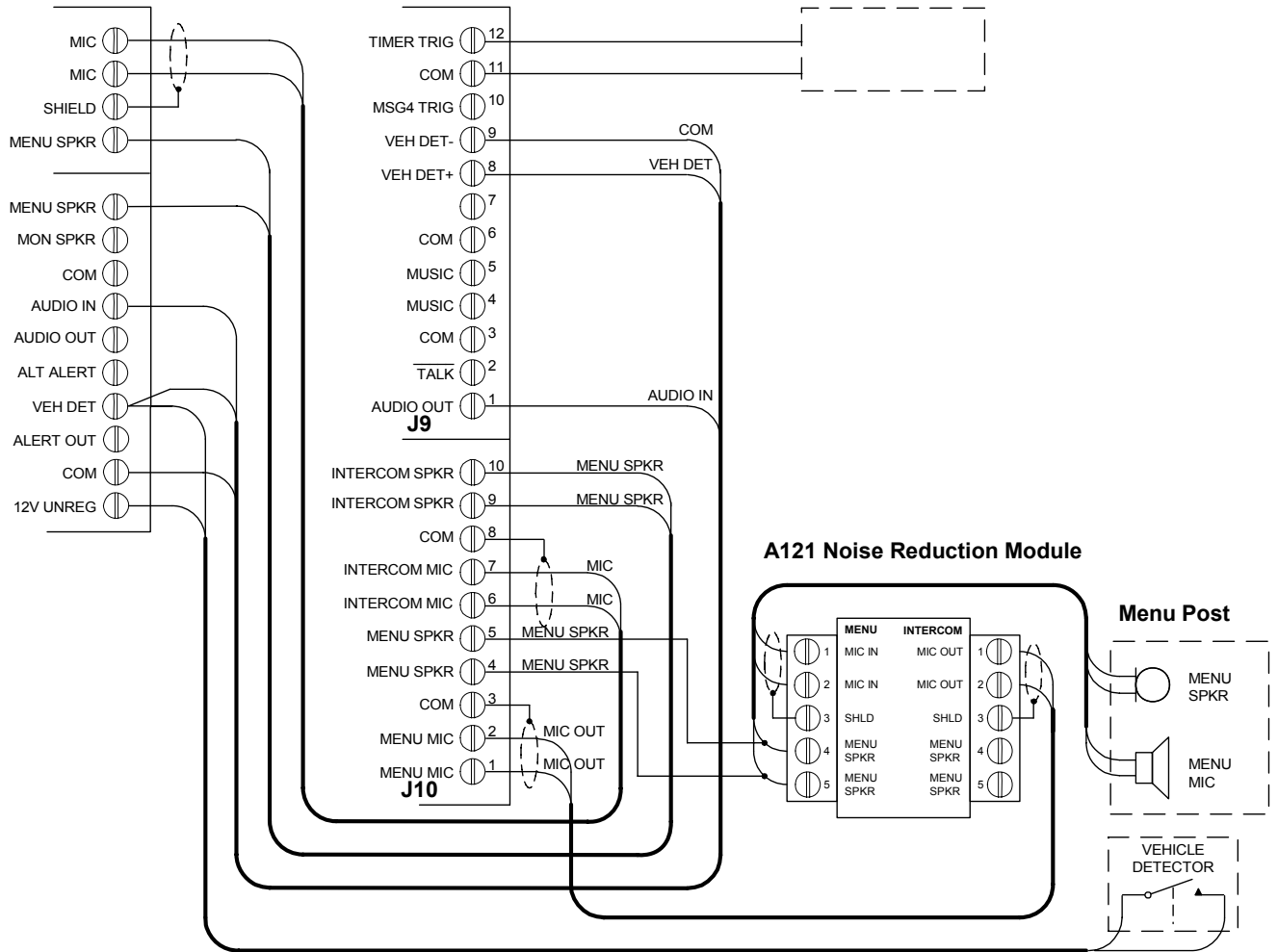


Figure 4. Wiring for 3M D15/D30 Intercom

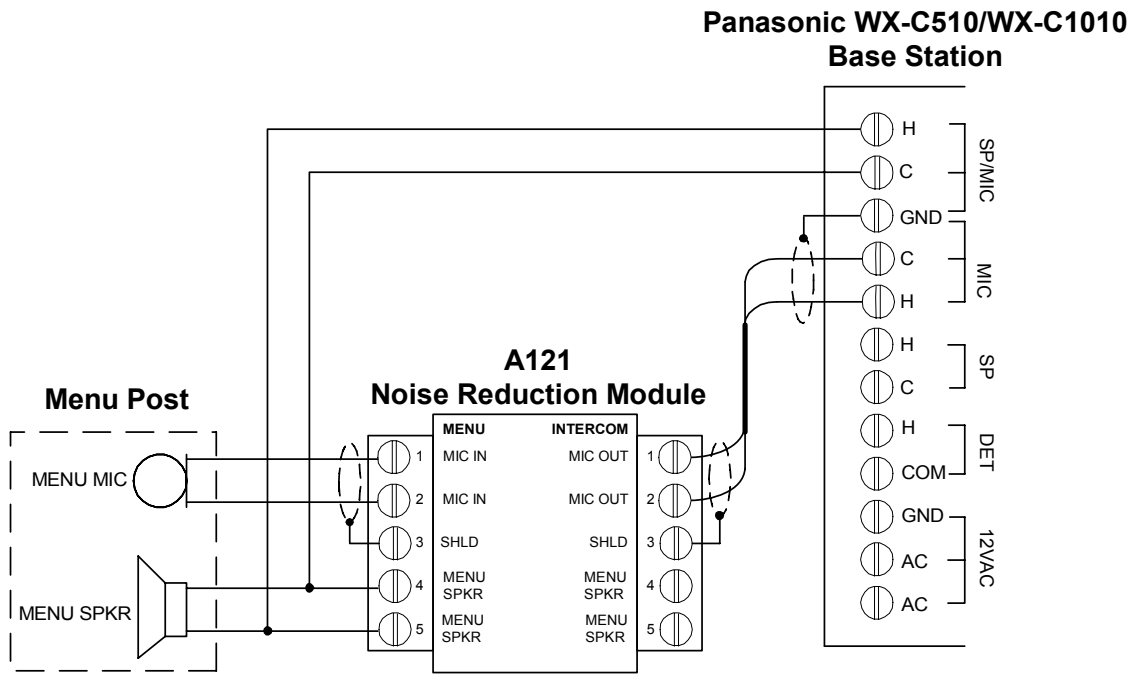
**C921AA Base Station**

**A300 Audio Greeter**

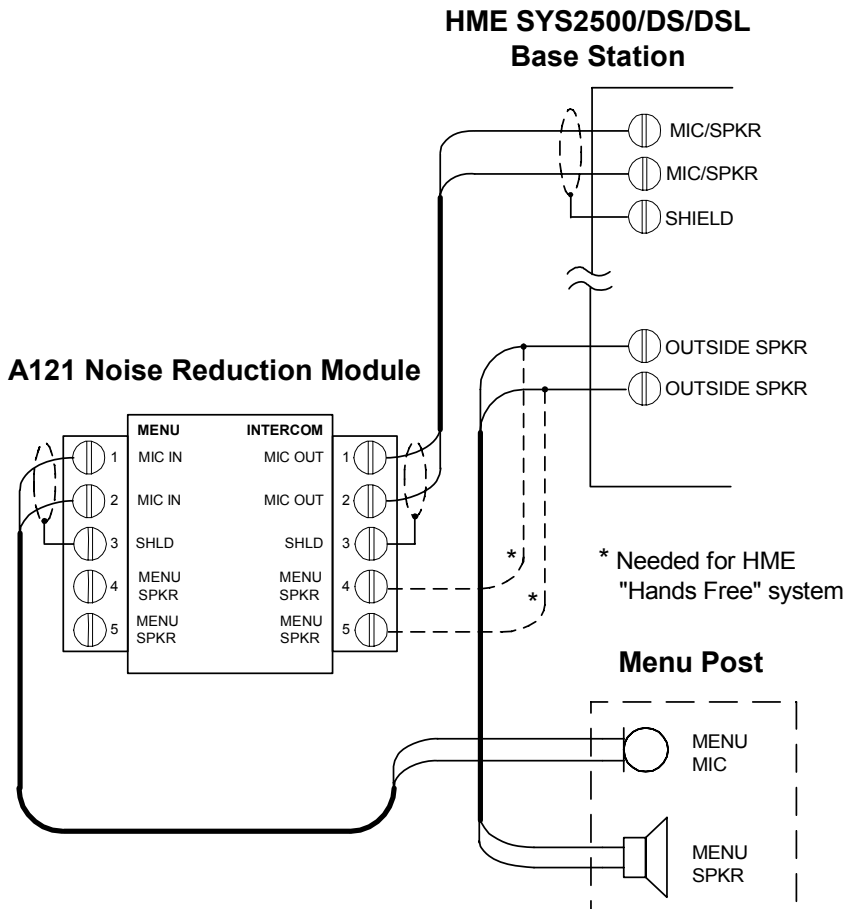
**Optional Service Timer**



**Figure 5. Wiring for 3M C760/960/1060 Base Station with A300 Audio Greeter**

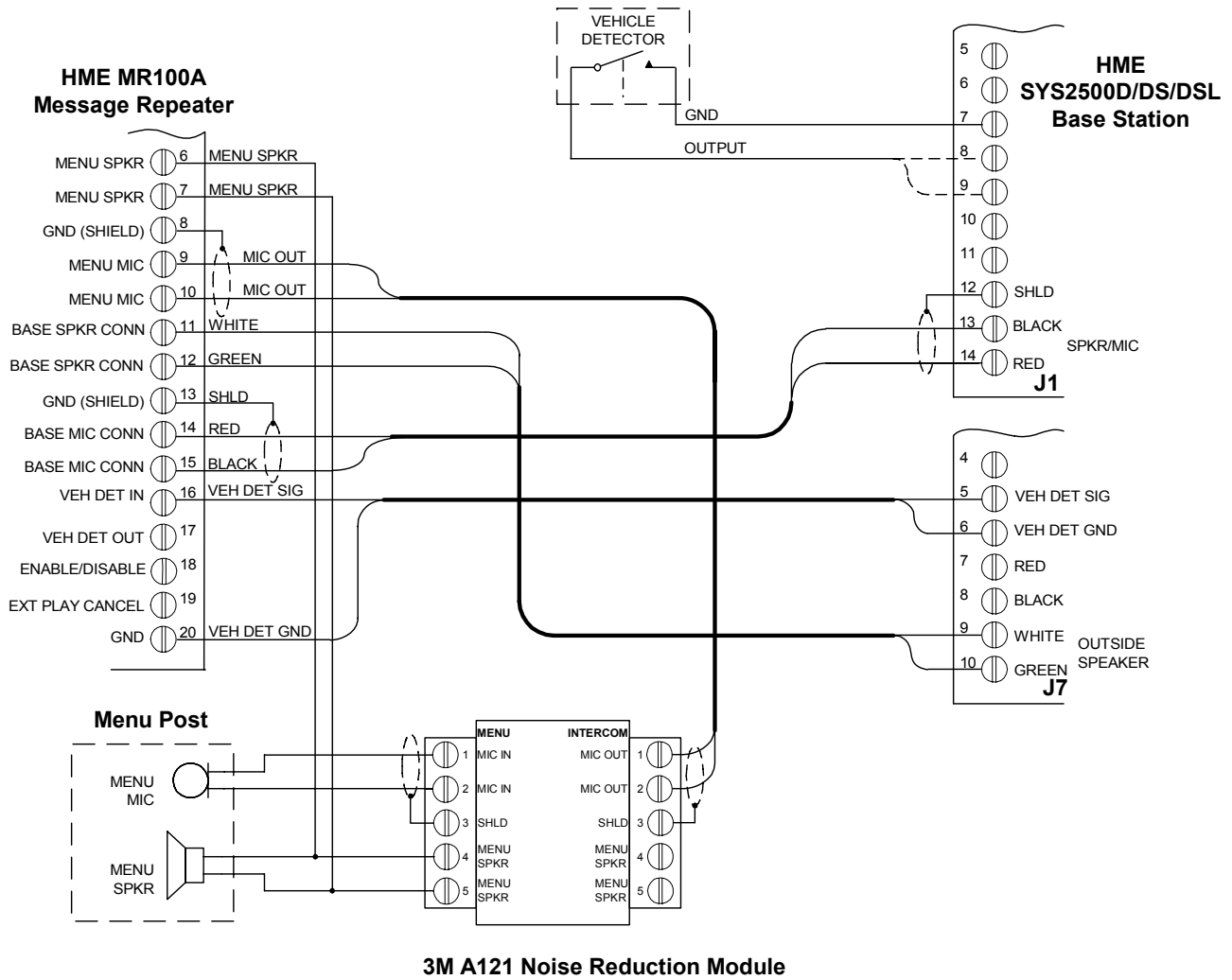


**Figure 6. Wiring for Panasonic WX-C510/WX-C1010 Base Station**



**Figure 7. Wiring for HME SYS2500/DS/DSL Base Station**





**Figure 9. Wiring for HME SYS2500D/DS/DSL Base Station with HME MR100A Message Repeater**