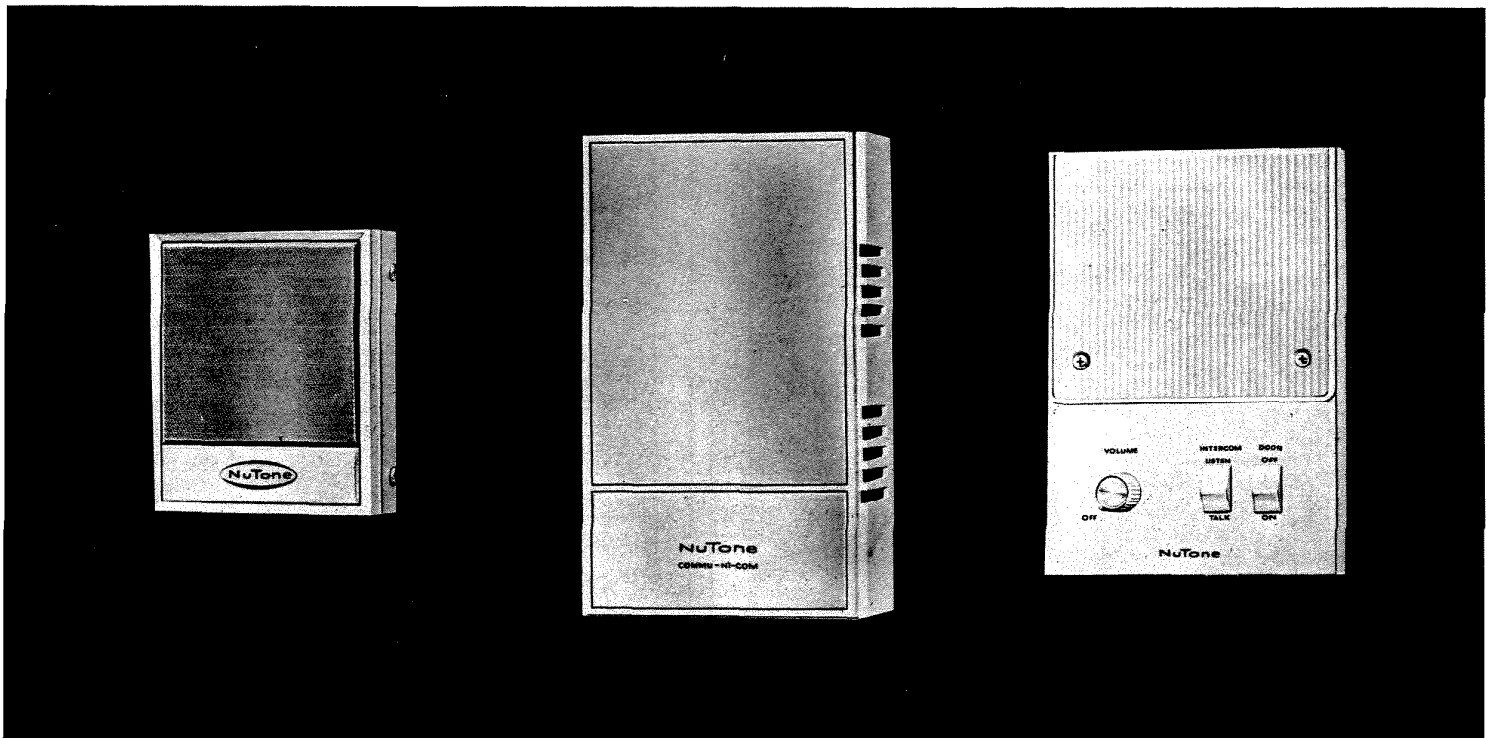


# NUTONE SERVICE MANUAL COMMU-NI-COM Model 470 TRANSISTOR INTERCOM



## GENERAL DESCRIPTION

The Commu-ni-com amplifier unit is fully transistorized and designed for convenient surface mounting. Each inside remote speaker is a control center for answering the door and for talking room-to-room. This system needs no "warm up" and is ready for use immediately. Also, the amount of current used is about equivalent to an electric clock, therefore it is recommended to be left on continuously. In this way, the system will always be ready for use. Due to reliability of solid state circuitry, continuous operation will not effect the life of the unit.

## OPERATING INSTRUCTIONS

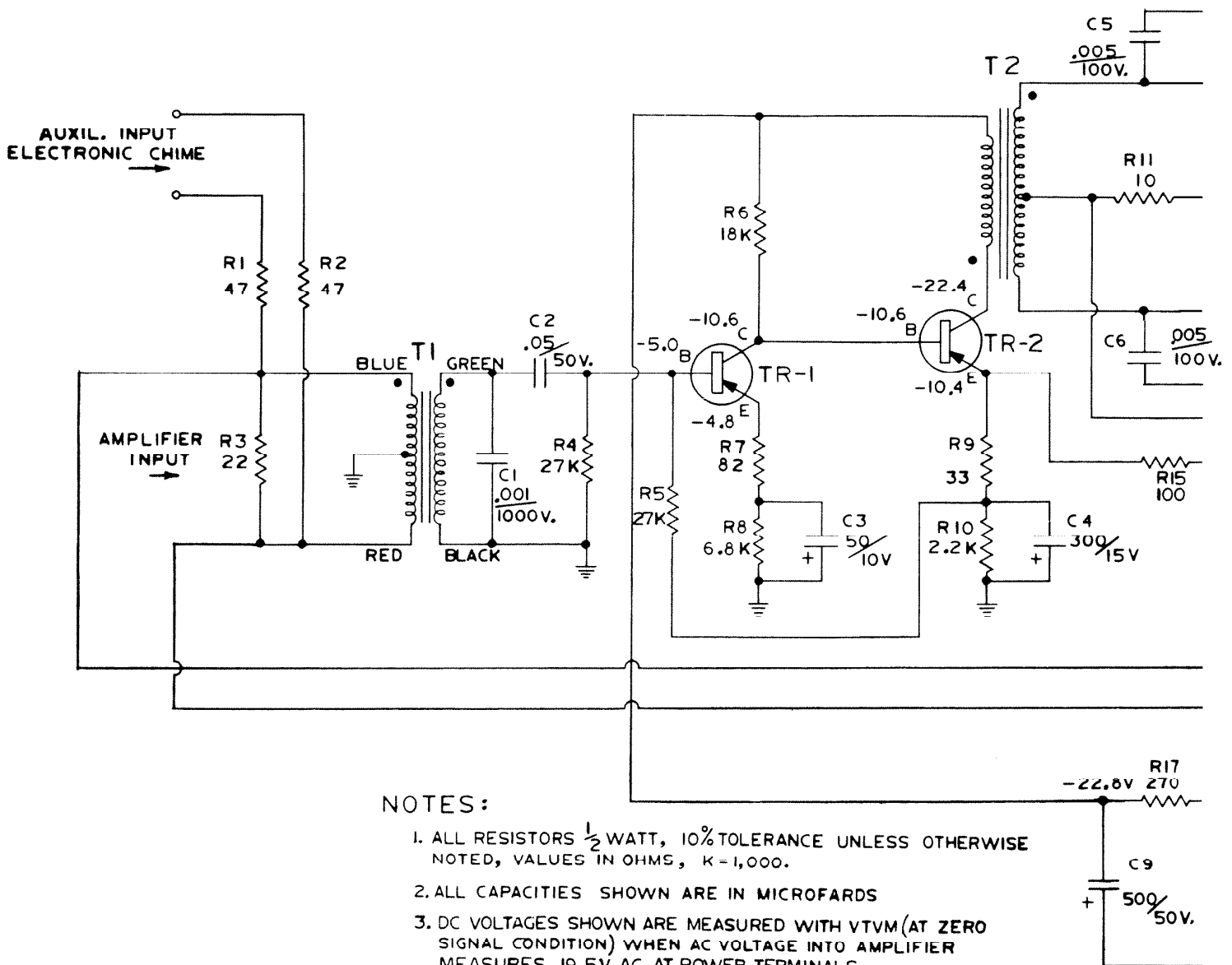
### MASTER AMPLIFIER

To turn unit on, lift cover off the base plate assembly. Slide power On-Off switch located at top of base plate to "on" position. Reinstall cover and system is ready for operation.

# MODEL 470 COMMU-NI-COM SYSTEM SCHEMATIC

**NuTone** Housing Products  
**Scovill**

MODEL 470  
AMPLIFIER



## NOTES:

1. ALL RESISTORS  $\frac{1}{2}$  WATT, 10% TOLERANCE UNLESS OTHERWISE NOTED, VALUES IN OHMS, K=1,000.
2. ALL CAPACITIES SHOWN ARE IN MICROFARDS
3. DC VOLTAGES SHOWN ARE MEASURED WITH VTVM (AT ZERO SIGNAL CONDITION) WHEN AC VOLTAGE INTO AMPLIFIER MEASURES 19.5V. AC. AT POWER TERMINALS.
4. DOOR REMOTE MAY BE CONNECTED AT AMPLIFIER OR AT ANY INSIDE REMOTE.



## HOW TO CARRY ON CONVERSATION BETWEEN INSIDE REMOTE SPEAKERS:

1. Turn volume control to maximum position.
2. To talk, push "talk-listen" switch down (TALK POSITION) and hold while speaking. Release "Talk-listen" switch to receive answer.
3. The person in another room can answer by using the "Talk-listen" switch as outlined in Step 2.
4. Adjust volume to normal listening level by turning volume control knob down. This does not reduce volume at the other remote speakers and each speaker volume control must be adjusted individually.
5. For privacy turn volume control completely counter clockwise.

*NOTE: The volume control affects only incoming volume to the speaker. It does not reduce outgoing volume to other speakers. Outgoing volume is always maximum, even if volume control is turned completely counter clockwise.*

## HOW TO MONITOR REMOTE SPEAKER

1. Push "Talk-listen" down (TALK POSITION) and hold. Slide locking lever (located directly below on bottom of panel) to the left, locking switch in (TALK POSITION). This makes this particular speaker a microphone, broadcasting whatever sounds are in the room over the entire system.

## TO ANSWER DOOR REMOTE

1. Push door switch (OFF-ON) down to ON and hold down while talking and answering.
2. To talk, push "Talk-listen" switch down (TALK POSITION) and hold while speaking. When through speaking, release only the "TALK-LISTEN" switch to receive answer. Continue to hold door switch down, until all door communications are complete.
3. To conclude a conversation, release door switch. This turns off the door speaker.

## MASTER AMPLIFIER DISASSEMBLY INSTRUCTIONS

1. Lift cover off base plate and slide power ON-OFF, switch to "OFF" position.

2. Disconnect remote station, electronic chime and low voltage power wiring.

*NOTE: Tape low voltage power wiring leads to avoid shorting since low voltage transformer may be connected direct to 110V AC source. Tag or identify all disconnected wiring*

3. Remove 2 baseplate mounting screws located below ON-OFF switch and above output transistor heat sink.
4. For access to foil side of Printed Circuit board remove 2 screws, securing board to baseplate.

## OPERATION AND TESTING

### — SHOP SERVICE

1. An auxiliary low voltage transformer is required to apply power to the amplifier for shop testing. Connect 16V AC output terminals of a NuTone Model 105N (15VA) transformer or equivalent to "power transformer" terminals of amplifier.

*ALTERNATE POWER SOURCE: Connect 10V AC terminals only of NuTone power transformer Part #40228 to "power transformer" terminals of amplifier. (Part #40228 transformer is recommended to test NuTone Models N2561-62 and 2071 Radio Intercom, however do not connect a ground "CT" terminal when used with Model 470 amplifier.)*

2. Connect an auxiliary 3.2 or 8 ohm speaker to amplifier output terminals (Red).
3. Connect another auxiliary speaker to amplifier input terminals (orange). Talk into speaker and observe intercom reception on output speaker.

*NOTE: If auxiliary speakers are in close proximity to one another, proper operation will be noted by feedback oscillation of speakers.*

4. To test electronic chime input repeat Step 3 with auxiliary speaker connected to electronic chime terminals of amplifier.
5. Door speaker operation cannot be tested in shop as outlined above since "door" terminals on amplifier are tie points only and not internally connected to amplifier circuit. The door speaker is connected to the input or output circuits of amplifier by operation of switches M2 and M3 of Model 472 Inside Remote Speaker (Refer to circuit schematic.)

## TROUBLESHOOTING

Use standard audio signal injection procedures to isolate circuit defects. As amplifier is transistorized, caution must be taken during servicing procedures to avoid accidental damage to transistors. Turn power to amplifier OFF before performing any soldering

Use low voltage soldering equipment and solder or unsolder components as fast as possible.

A VTVM, with a DC scale of 0 to 1.5 volts, will be required to measure most transistor base and emitter voltages. Components should be removed from the circuit when making resistance measurements to avoid incorrect polarity battery voltage of the ohmmeter being applied to a transistor. It is also important to avoid inadvertently shorting circuit components.

Top View 470  
Amplifier Printed  
Circuit-Component  
Identification

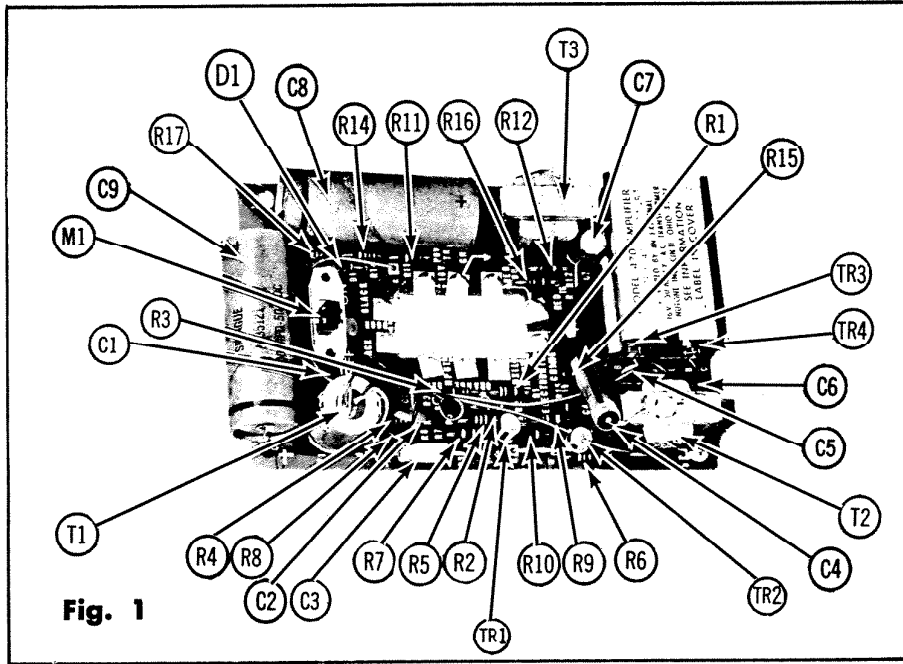


Fig. 1

Bottom View  
470 Amplifier  
Printed Circuit

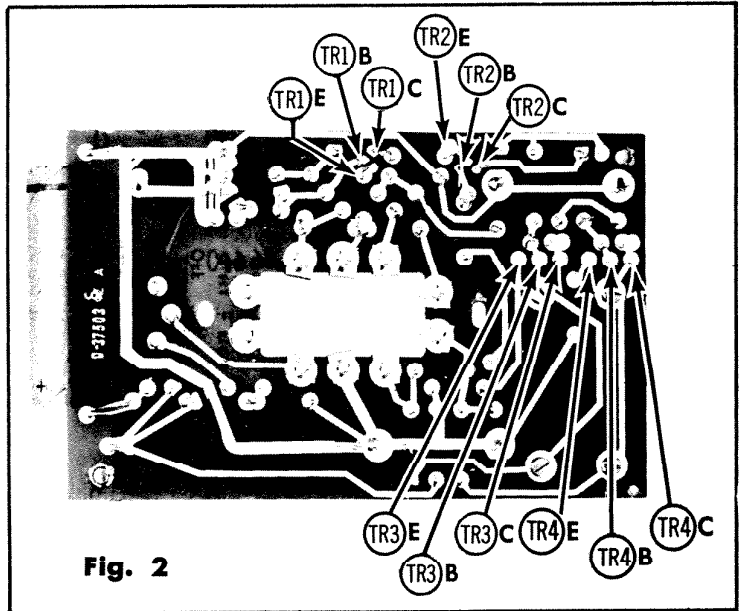


Fig. 2

Roar View  
472 Inside Speaker

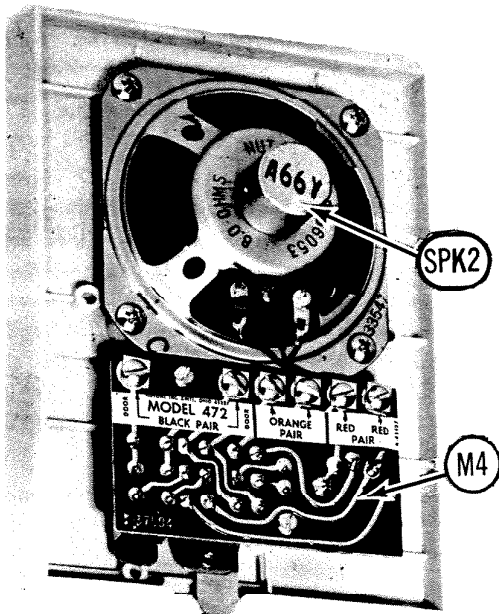


Fig. 3

Front View  
472 Inside Speaker  
Printed Circuit-  
Component  
Identification

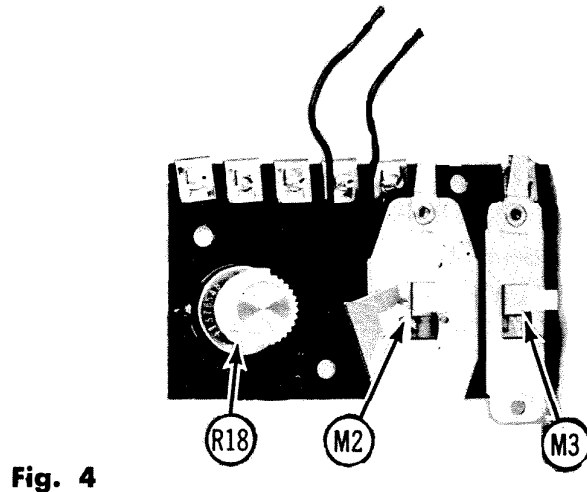


Fig. 4

