

# **NuTone**

# **SERVICE MANUAL**



**AM-FM TRANSISTOR RADIO**

**and**

**CASSETTE INTERCOM**

**Model 2542-B**

## CHECK-OUT PROCEDURE FOR INTERCOM-RADIO

1. Set all Remote Station Selector Switches to OFF (Center) position.
  2. Rotate Master Speaker Volume Control fully clockwise.
  3. Turn unit on with ON-OFF Volume Knob and set control two-thirds clockwise. AM and FM Tuning Dial will be illuminated.
  4. Set Function Switch to AM position. Tune in AM radio station and check reception.
  5. Set Function Switch to FM position. Tune in FM radio station and check reception.
  6. Rotate Tone Control full range noting increase and decrease in treble and base emphasis.
  7. With Radio playing, push all Remote Station Selector Switches on Master to Radio-Intercom (Down) position. Check all Remote Speaker Stations for radio reception. Check operation of all Remote Speaker Volume Controls.
  8. Talk from Master to the Remote Speaker Stations by pushing Master Inside Talk-Listen Switch to Talk (Right) position. Check for Intercom operation at all Remote Speakers. Radio should be silenced.
  9. Push Master Inside Talk-Listen Switch to Listen (Left) position to hear reply from Remote Stations. Operation of Talk-Button on Remote Speaker is not required.
  10. Return Master Inside Talk-Listen Switch to Center position. Talk from each Remote Speaker Station to Master and other Remotes by depressing Talk-Button on Remote Speaker.
  11. With Radio playing push all Remote Station Selector Switches on Master to Listen (Up) position. Talk from each Remote Speaker Station to Master without operating Talk Button of Remote.
- NOTE: If Intercom volume level does not override radio, remove Master Unit from wall and adjust R-59 Level Set Control on P.C. board for normal radio listening level with system volume control between one-third to one-half clockwise rotation.
12. To check Door operation — Push Master Door Talk-Listen Switch to Talk position. Check for Intercom operation at Door Speaker.  
From Remote Speaker — Push both Talk-Listen Switch and Door Speaker Switch down and check for proper operation of Intercom at Door Speaker. Release Talk-Listen Switch and hold Door Speaker Switch in the "ON" position and check for incoming Intercom calls.
  13. Push Door Talk Listen Switch to Listen (Left) position. Check Intercom operation at Master from Door Speaker.
  14. Connect signal from Record Changer into Phono Jack of Master Set Selector Switch in Phono position and check for phono reception. Intercom will override recorded music.

## CHECK OUT PROCEDURE FOR THE CASSETTE PLAYER/RECORDER

### To Record/Playback AM-FM Radio or Aux. Phono

1. Insert blank tape and set Record/Message switch to the extreme left position. Pilot lamp should light.
2. Set Master function switch to either AM or FM position.
3. Depress Record button on Cassette and adjust Record volume control until the VU meter needle reaches red portion of scale on music peaks.
4. Push Cassette Function lever up in the Play/Record position while holding the Record button in.
5. Upon completion of recording — Push cassette function lever to Off position.
6. To rewind tape — move and hold Function lever to the left.
7. Push Function lever to the Play/Record position — recording should be heard.
8. To record phono — place Function Switch to TAPE position — inject signal in Phono Input and follow procedure outlined above to record AM-FM.

### Message Record/Playback

1. Place Master Function switch to center or Tape position.
2. Master volume control should be rotated to the extreme clockwise position.
3. Master system volume control should be turned approximately  $\frac{1}{2}$  turn clockwise.
4. Depress Record button and adjust Record volume control on Cassette for proper deflection of meter while speaking into Master Speaker.
5. Push Cassette Function lever to Play/Record position while holding the Record button in.
6. Follow procedures outlined under 6 and 7 under Recording AM-FM & Phono to playback.

## CHECK OUT PROCEDURE FOR CLOCK-TIMER

1. With the clock function switch in the "ON" position the radio should operate.
2. Rotate the function switch to "OFF" position (Clockwise). The radio should be muted.
3. With the function switch in the "OFF" position, rotate the Timer Switch counterclockwise (CCW) direction, radio must operate.
4. Set Timer Switch to the "OFF" position, full CW, the radio must mute.
5. Push in on the function switch knob and rotate in a CW direction. The Alarm hand should rotate. Set the alarm 1 hour ( $\pm \frac{1}{2}$  hour) later than the time shown on the clock.

6. Set the function switch to the "Auto - Radio Alarm" position.
7. Push in on the function switch knob and rotate in a CCW direction.
8. The minute and hour hands should advance the time shown on the clock. At the time shown by the alarm hand,  $\pm 10$  minutes, the radio should operate. Continuing to advance the time should cause the alarm to sound approximately 10 minutes after the radio came on.
9. Setting the clock function knob to Auto - Radio position will cause the radio to operate under the conditions outlined above in 8, however, the alarm will not sound.

## MASTER STATION DISASSEMBLY INSTRUCTIONS

### Partial Disassembly

1. Turn ON-OFF Volume Control to OFF position.
2. Remove 4 front panel mounting screws.
3. Lift Master unit forward and disconnect antenna connections from terminals in upper right-hand corner of housing. Depress white tabs to remove blue signal plug from switch housing.

### Complete Disassembly

1. Perform Steps 1, 2, and 3 as outlined under "Partial Disassembly."
2. Remove all knobs (AM tuning, FM tuning, speaker volume, Tone, Master volume, etc.) by pulling knobs straight back.

3. Remove leads from Master Speaker.
  4. Remove 6 chassis retaining screws and remove chassis from front panel.
  5. To gain access to FM Tuner components, unsolder and remove top cover of tuner.
  6. To gain access to Cassette Tape Player/Recorder, remove input (Black) and Output (Red) leads and three (3) Phillips head screws from rear cover.
  7. Remove cover from Cassette and disconnect power plug.
  8. Remove Play-Record knob and small hold down screw in tape well and remove recorder/player from main panel.
- For further disassembly, see Page 12 Cassette section.

## OPERATION AND TESTING — BENCH SERVICE

1. Apply 120 Volts AC by use of TV "Cheater" cord to AC plug of Master Unit.
2. Connect 45-ohm impedance speaker to terminals 1 and 2 of 12 terminal signal jack.
3. Connect 45-ohm impedance speaker to terminals 7 and 8 of 12 terminal signal jack for intercom input.
4. Connect 45 ohm impedance (or use original) speaker to leads previously disconnected from Master Speaker.

## TROUBLESHOOTING

The following trouble chart is useful in isolating the more common troubles. Remembering that common circuitry is connected to perform several different operations of the Radio-Intercom System, one source of trouble may appear in several functions of operation.

As the Master unit is completely transistorized, extreme caution must be taken during servicing procedures to avoid damage to the transistors. Turn power to Master OFF whenever performing any soldering. Use low wattage

soldering equipment and solder or unsolder components as fast as possible.

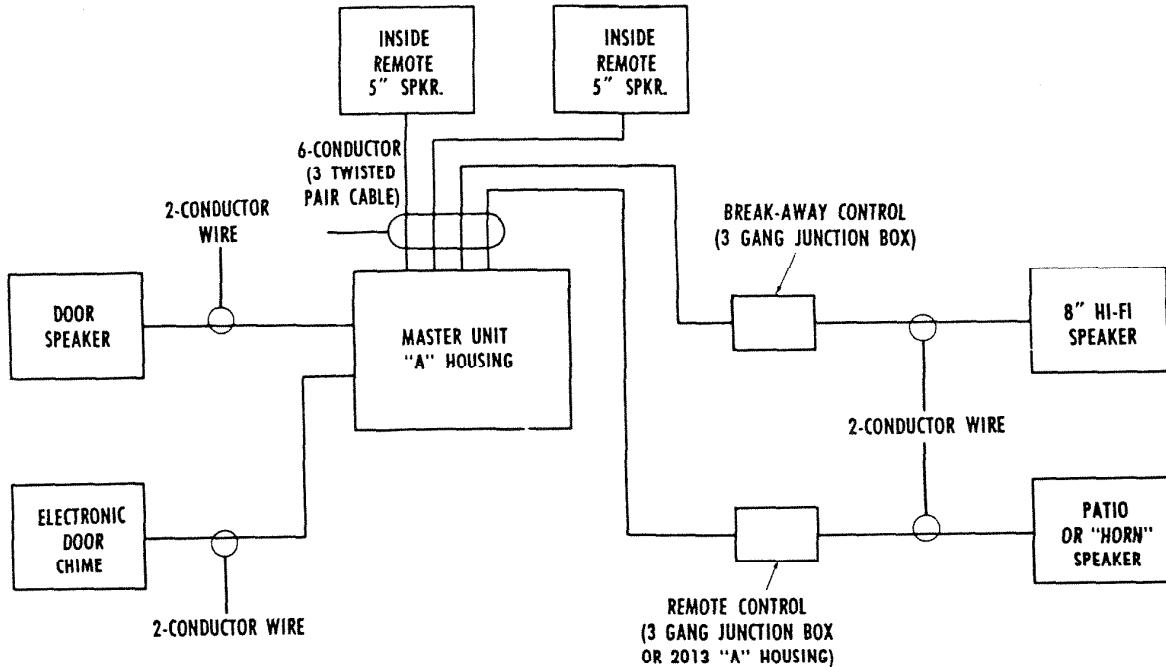
A VTVM, with a DC scale of 0 to 1.5 volts, will be required to measure most transistor base and emitter voltages. Components should be removed from the circuit when making resistance measurements to avoid incorrect polarity battery voltage of the ohm-meter being applied to a transistor. It is also important that circuit components are not inadvertently shorted during service function.

## RADIO/INTERCOM TROUBLE CHART

SYMPTOM	SUGGESTED CHECK POINTS
System "dead."	Check that AC power is applied to the primary of power transformer. Check for 30 VAC at secondary terminals of power transformer. Check OFF-ON (M3) switch on rear of volume control. Check diodes D8 through D11, capacitor C50, and resistor R58.
No AM radio. All other functions normal.	Check operations of transistors TR4, TR5, and TR6. Check L6 and L7, transformers T5, T6, and T7. Check for proper "make" of Function Selector Switch contacts.

## RADIO/INTERCOM TROUBLE CHART (Con't)

SYMPTOM	SUGGESTED CHECK POINTS
No FM radio. All other functions normal.	Check operations of transistors TR1 through TR6, transformers T1 through T4, and other associated circuit components. Check for proper "make" of Function Selector Switch contacts.
No AM or FM radio. All other functions normal.	Check Clock Function Switch is in "ON" position — Refer to appropriate section AM-FM check points above.
No Intercom operations. All other functions normal.	Check input transformer T8. Check connections of input transformer at signal plug.
One or more Remote Stations inoperative.	Check inoperative Remote Stations for defective or erroneous wiring connections at Remote Station. Check switch, volume control, and speaker in Remote Station.



NOTE: 1. AS AN ALTERNATE, DOOR SPEAKER WIRING MAY BE TERMINATED AT ANY REMOTE LOCATION.  
2. USE (3) TWISTED PAIR CABLE (6-CONDUCTOR WIRE) ONLY.

**Fig. 1. Radio-Intercom System Block Diagram.**

## ALIGNMENT INSTRUCTIONS

Prealignment Instructions: Volume control should be at a minimum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use standard hex and slotted type alignment tools.

AM RF and IF Alignment — Set selector switch on AM position.

DUMMY ANTENNA	SIG. GEN. COUPLING	SIG. GEN. FREQ.	RADIO DIAL SETTING	CONNECT V T V M	ADJUST	REMARKS
1) .01 mfd.	High side to base of TR-4. Low side to chassis.	455 KC (400 cycle Mod.)	Tuning gang mid-scale.	DC probe to Pin 3 of P5. Com. to chassis.	T6, T7, T5	Adjust for maximum deflection. Keep generator output at minimum to obtain output reading.
2) .01 mfd.	High side to base of TR-4. Low side to chassis.	1620 KC (400 cycle Mod.)	Tuning gang fully open.	DC probe to Pin 3 of P5. Com. to chassis.	C23D	Adjust for maximum deflection.
3) .01 mfd.	High side to base of TR-4. Low side to chassis.	537 KC (400 cycle Mod.)	Tuning gang fully closed.	DC probe to Pin 3 of P5. Com. to chassis.	L7	Adjust for maximum deflection. Repeat steps 2 and 3.
4) 50 mmf.	High side to shield of FM Antenna lead. Low side to chassis.	1400 KC (400 cycle Mod.)	1400 KC	DC probe to Pin 3 of P5. Com. to chassis.	C23A	Adjust for maximum deflection.
5) 50 mmf.	High side to shield of FM Antenna lead. Low side to chassis.	600 KC (400 cycle Mod.)	600 KC	DC probe to Pin 3 of P5. Com. to chassis.	L6	Adjust for maximum deflection. Repeat steps 4 and 5.

FM RF and IF Alignment — Set selector switch on FM position.

Use frequency modulated signal with 450 KC sweep. Use 60 cycle sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SIG. GEN. COUPLING	SIG. GEN. FREQ.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6) .01 mfd.	High side to base of TR-6. Low side to chassis.	10.7 MC (200-300 KC Sweep)	Point of Non-Interference.	Vert. Amp. to Pin 3 of P4. Low side to chassis.	T4 (Top & Bottom)	Adjust for symmetrical "S" curve (Fig. B).
7) .01 mfd.	High side to base of TR-4. Low side to chassis.	10.7 MC (200-300 KC Sweep)	Point of Non-Interference.	Vert. to emitter of TR-6 Low side to ground.	T2, T3 (Top & Bottom)	Adjust for curve of maximum amplitude and symmetry (Fig. A).
8)	High side to FM ant. Low side to shield of FM ant.	106 MC	106 MC	Vert. Amp. to Pin 3 of P4. Low side to chassis.	C1B, C1D, T1 (Top & Bottom)	Adjust for symmetrical "S" curve (Fig. B). Reduce sweep width if necessary.

Only make following adjustment if unit will not track properly.

9)	High side to FM ant. Low side to shield of FM ant.	108.5	108.5	Vert. Amp. to Pin 3 of P4. Low side to chassis.	C15	Adjust for symmetrical "S" curve (Fig. B). Reduce sweep width if necessary.
10)	High side to FM ant. Low side to shield of FM ant.	87.5	87.5	Vert. Amp. to Pin 3 of P4. Low side to chassis.	L-4	Expand or compress coil for symmetrical "S" curve (Fig. B). Reduce sweep width if necessary. Repeat steps 9 and 10 until no further improvement is noted. Repeat steps 7 and 8.

## 2542B RADIO-INTERCOM CHASSIS WITH CALL-OUTS

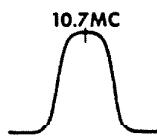


Fig. A.



Fig. B.

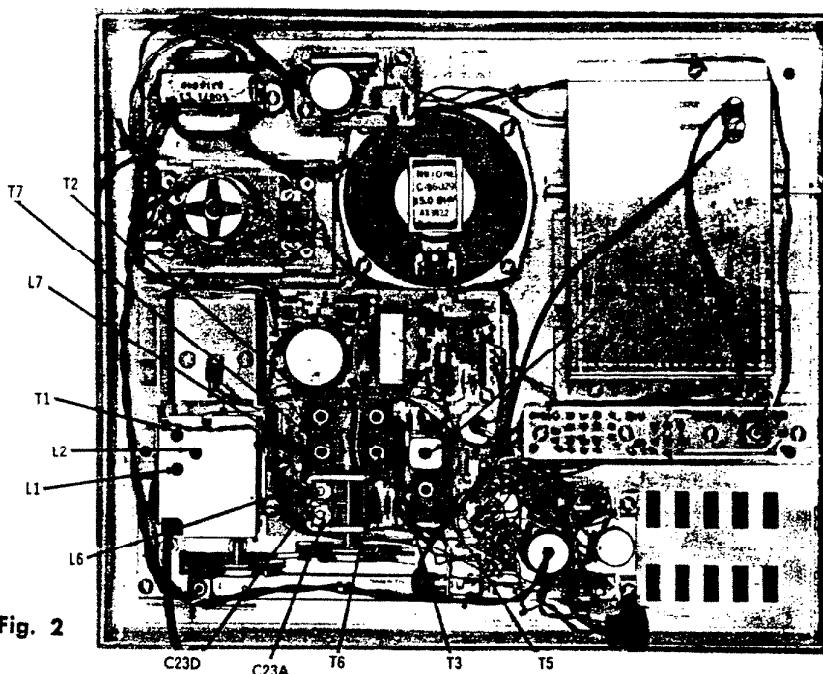
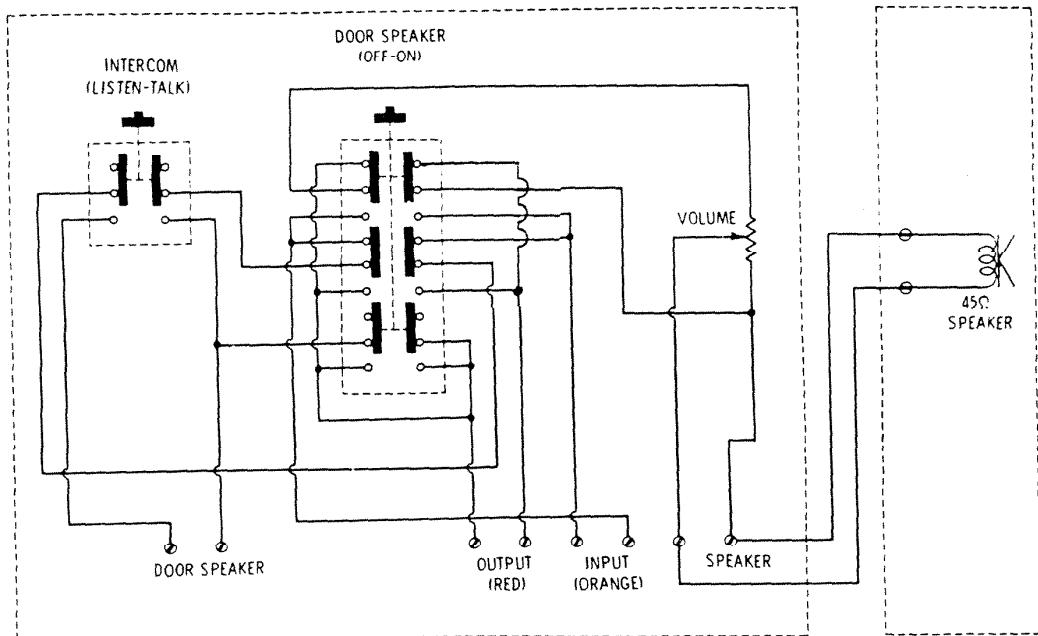
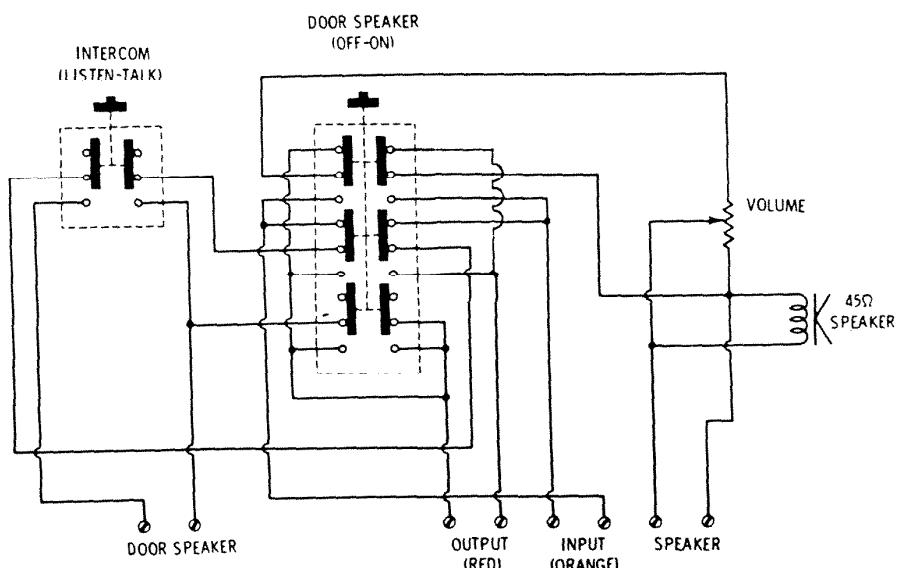


Fig. 2



Schematic – Models 2553-B, 2556-B Remote Speaker Station



Schematic – Model 2550-B Remote Speaker Station

### MESSAGE P/C BOARD

#### Top View

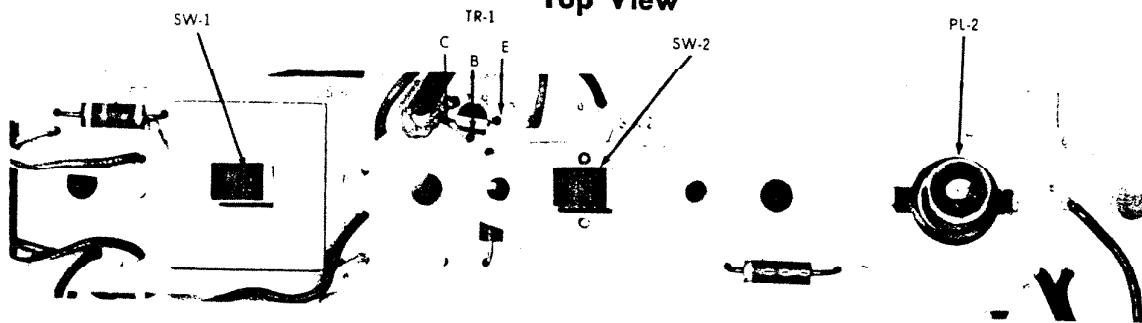


Fig. 4

#### Bottom View

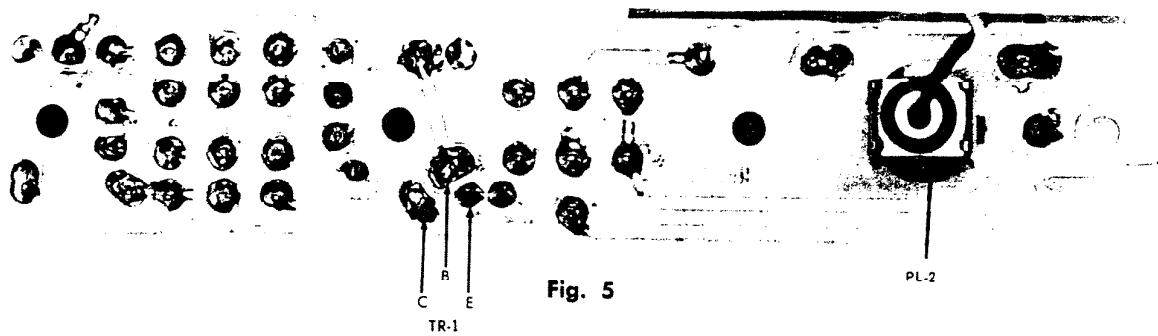


Fig. 5

### CASSETTE POWER SUPPLY

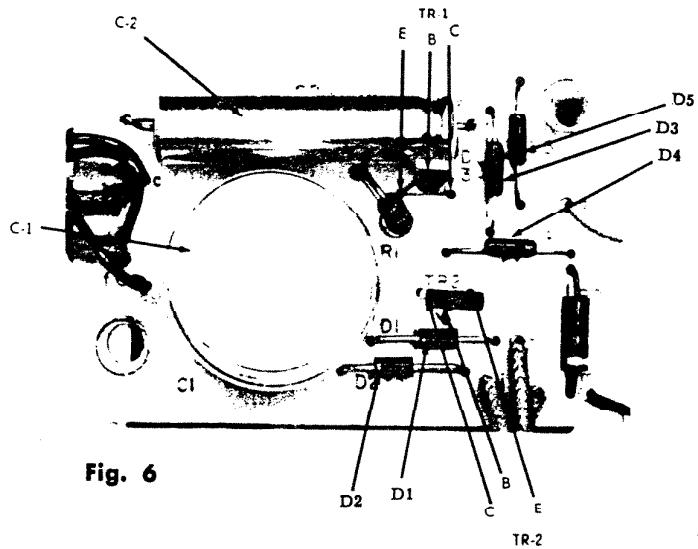


Fig. 6

### CASSETTE POWER SUPPLY

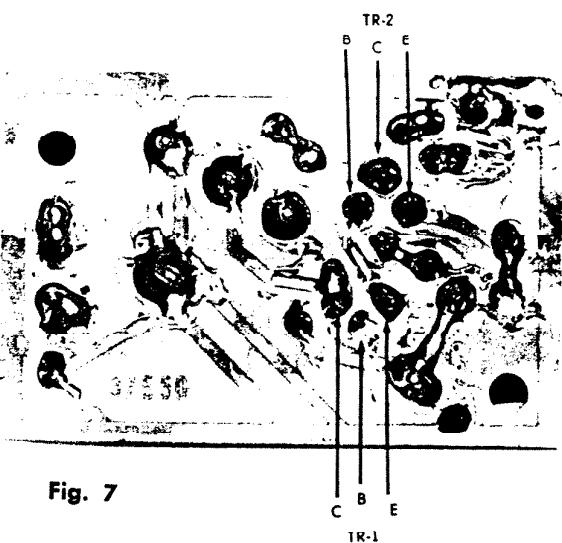


Fig. 7

## CASSETTE TAPE PLAYER/RECORDER

### SPECIFICATIONS

TAPE SPEED ..... 1<sup>7/8</sup> in/s Regulated

#### TIME

Fast Forward & Rewind ..... 75 seconds for  
30 minutes recording time.

WOW & FLUTTER ..... (.4% RMS maximum)

SIGNAL TO NOISE ..... (40 dB)

ERASE ..... 50 dB

BIAS FREQUENCY ..... 40 kHz

FREQUENCY RESPONSE ..... 80-10,000 Hz

### PREVENTATIVE MAINTENANCE

Proper maintenance is important in obtaining the optimum functions which the tape recorders are capable of.

The items that require cleaning are:

1. Record and Erase Heads.
2. Capstan (58).

The heads and capstan should be cleaned periodically with methyl alcohol. Use a cotton-tipped stick moistened with alcohol. Clean the front of the heads and capstan. CAUTION: Use only methyl or isopropyl alcohol for cleaning. Some types of commercial cleaners may react unfavorably with the encapsulating compounds used to manufacture the record and erase heads.

### LUBRICATION

The tape transports should be lubricated at intervals of approximately 500 hours of operation.

1. Apply lubricant to the roller (28) and ball bearing (24) portions of the HEAD BAR SLIDE ASSEMBLY (70).
2. Apply a high grade machine oil to:
  - a) Reel Disc shaft (50).
  - b) Roller shaft (28).
  - c) Flywheel shaft (58).
  - d) Idlerheel shaft (56).
  - e) Rewind pulley shaft (35).

### HEAD DEMAGNETIZING

1. When the recorder is placed in the record position, the head becomes an electro magnet. After the head has been energized several times it starts to retain some of the magnetism. This residual magnetism builds up and reduces the high frequency response of the head.
2. This residual magnetism can be removed by the process known as demagnetization. An electromagnet is placed very near but not touching the pole pieces of the heads, energized, and slowly moved away from the head, removing the residual magnetism with it.
3. Demagnetizers are available through most dealers and proper operating instructions are included with each demagnetizer.
4. Heads should be demagnetized every 10 to 20 hours of recording time under normal conditions.

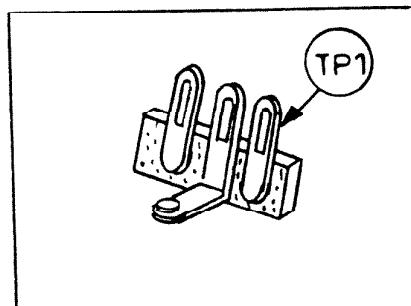


FIGURE 8 (SEE FIG. 12)

## SPECIAL ADJUSTMENTS

### ELECTRICAL ADJUSTMENTS

Test and Adjustments are made under the following conditions.

1. Test frequency: 1000 Hz.
2. Output terminated into Switch M1C type load or equivalent.
3. Play level, tone and record level controls maximum CW position.
4. Test tape V-M #80622

### AZIMUTH:

1. Place azimuth test tape V-M #80622 in unit (6.3 kHz).
2. Connect VTVM to Aux. Output.
3. Place unit in playback and adjust azimuth adjust screw (Ref. #10) for maximum output from the Record/Play head.

### RECORD CURRENT: Place Unit in Record Function.

1. Supply a 1 kHz signal to the Input Jack (J1). Adjust level of generator to place record meter indicator to center division line on VU meter.
2. Short erase head to disable oscillator.
3. Connect an AC VTVM to test point #1 (Figure 8). Page 8.
4. Voltage at test point #1 should be 4mv for 180 micro amps of record current.

NOTE: Place Erase Head back in operation.

### RECORD BIAS:

1. Connect an AC VTVM to test point #1 (Figure 8).
2. Place unit in record function. Voltage at test point #1 is to be 22mV  $\pm$  10%.
3. Adjust bias control R-23 (Fig. 15) if necessary.

### AMPLIFIER SENSITIVITY & DISTORTION:

1. Place an empty cassette cartridge in unit.
2. Perform "Step 1" of "Record Current."
3. Record portion of signal on tape.
4. Playback of this signal is to provide:
  - (a) 350mv or greater output at output jack J2.

### NOISE LEVEL:

1. Place unit in playback operation without cassette.
2. Place volume control in CCW position.
3. Noise Voltage at output jack J-2 to be less than 5.0 Mv.

### SIGNAL TO NOISE:

1. Perform "Amplifier Sensitivity."
2. Erase a portion of the recording.
3. The signal to noise on the erased section is to be greater than 40 dB.

## MECHANICAL ADJUSTMENTS

### PRESSURE ROLLER PRESSURE: (Figure 2)

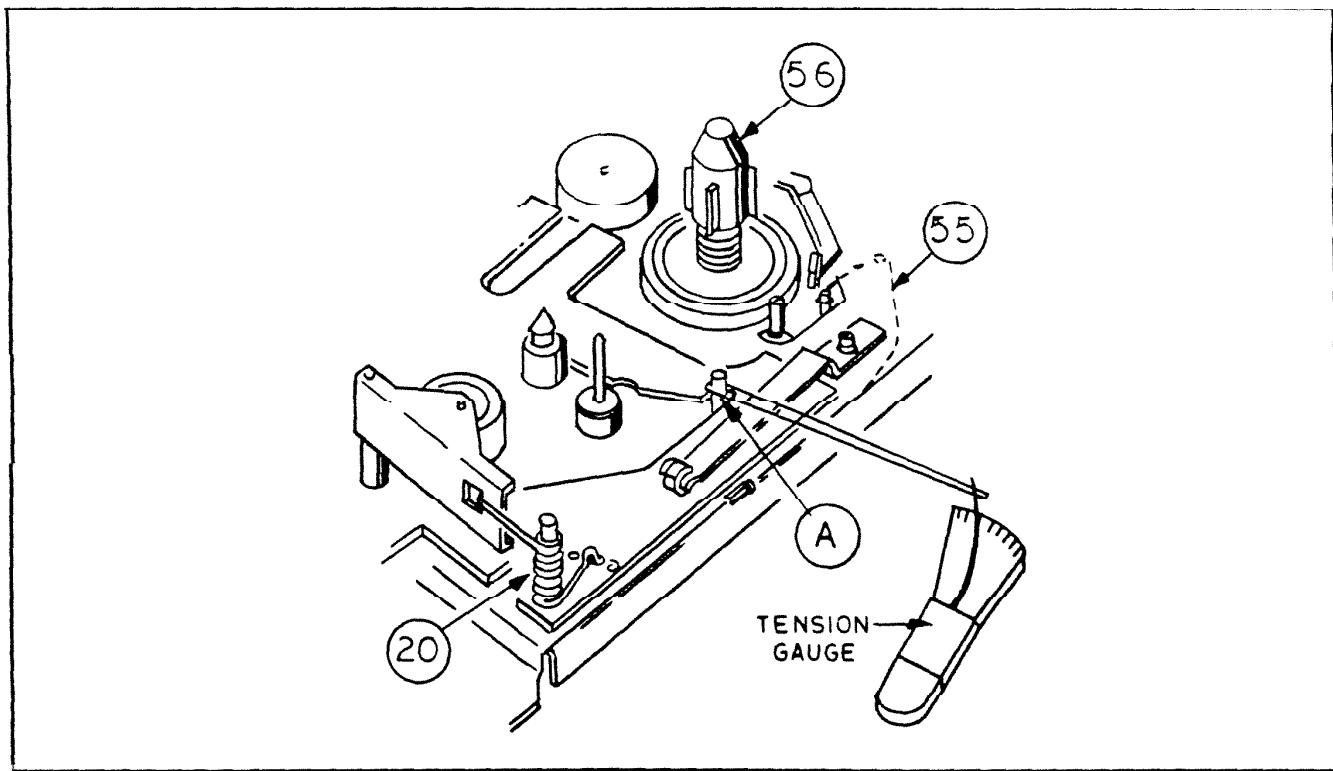
1. Place unit in play position **without cassette installed**.
2. Measure tension exerted against the pressure roller.
3. Adjust position of pressure roller tension spring (Ref. #20) for a force of 4.5-6 ounces (150-250 grams).

### TAKE UP TORQUE: (Figure 2)

1. Place unit in play position **without cassette installed**.
2. Measure pressure applied to take-up disc from idler wheel assembly (Ref. #56). Measure from the idler wheel assembly arm (Point "A") for a force of 2-3.5 ounces (40-60 grams).
3. Proper pressure can be obtained by bending the take-up idler tension spring (55).

### FLYWHEEL ALIGNMENT:

The belt groove on the CAPSTAN and FLYWHEEL ASSY. (58) and that of the IDLER WHEEL ASSY. (56) are to be aligned. The height of the flywheel can be adjusted through the triangular opening in the RETAINER BRACKET ASSY. (59) using a screwdriver.



**Fig. 10**

## TROUBLE CHART

1. **Symptom** — Unit does not operate in Record, Fast Forward, or Rewind.

**Cause**

1. a) Inoperative motor control, reversing switch (62).
- b) Defective motor control circuit (M13).
- c) Defective power supply.
- d) Broken or rosin solder connection.
2. Defective motor (67).
3. Broken Drive Belt (64).

2. **Symptom** — Take-up reel does not revolve or revolves intermittently.

**Cause**

1. Too much take-up spring tension (55).
2. Not enough take-up tension (55).
3. Idler wheel shaft binds (56).

**NOTE:** Idler wheel assembly is one piece and must be replaced as such.

4. Reel disc shaft binds (50).
5. Dirty or worn reel disc drive ring (49).

3. **Symptom** — Take-up reel revolves rapidly.

**Cause**

1. Insufficient pressure on pressure roller (71).
2. Pressure roller not holding recording tape to capstan.

**Remedy**

Pressure roller arm held back by release tab on head bar and slide assembly.

4. **Symptom** — Unit fails to operate in rewind.

**Cause**

1. Broken Rewind/Fast Forward belt (36).
2. Rewind disc assembly (50) slipping against drive roller (33).
3. Rewind pulley assembly (35) slipping against flywheel.

**Remedy**

- Clean or replace drive ring (38).  
 Clean flywheel.  
 4. Rewind pulley (35) binding shaft.  
 5. Motor reverse switch (62) inoperative.

5. **Symptom** — Units Fails to operate in Fast Forward.

**Cause**

1. Broken Rewind/Fast Forward belt (36).
2. Take-up disc (50) binding on shaft.
3. Take-up Disc (50) slipping against drive roller (33).
4. Fast Forward pulley assembly (35), slipping against flywheel.

**Remedy**

Clean or replace drive ring (38).  
 Clean flywheel.

6. **Symptom** — Weak or distorted sound on recorded tape.

**Cause**

1. Dirty heads.

**Remedy**

Clean heads per instructions under maintenance.

2. Heads out of alignment.

**Remedy**

Adjust head alignment per instructions given under ELECTRICAL ADJUSTMENTS.  
 3. Worn, open or shorted record head.  
 4. Distortion in record amplifier.

7. **Symptom** — Broken recording tape.

Should a tape become broken, proceed as follows:

1. Remove the (5) five screws which hold the cartridge case together.
2. Lay cartridge on flat surface, remove one side of case. Caution should be used not to spill tape.
3. If the brake is at the end of the tape, remove Clip "A" (Figure 3). Place free end of tape in cut-out in pulley.
4. Replace Clip "A", pinching tape between pulley and clip.
5. Rethread tape as shown in Figure 11. If tape is broken other than at the ends, it is necessary to splice tape using any good splicing tape.
6. Replace cartridge case.

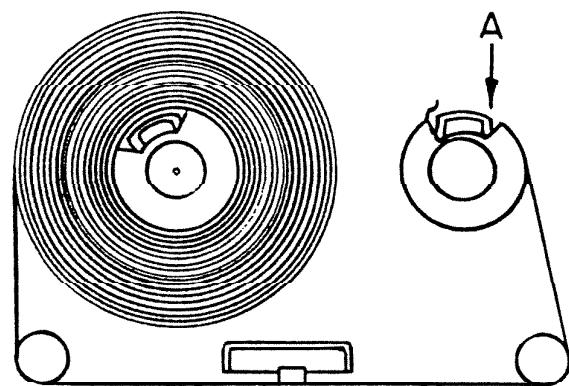


Fig. 11

## CASSETTE DISASSEMBLY INSTRUCTIONS

### TO REMOVE REEL DISC ASSEMBLY:

Use a small screwdriver and pry up on retainer cap (44). Remove disc assembly.

### TO REMOVE CAPSTAN AND FLYWHEEL ASSEMBLY/IDLER WHEEL ASSEMBLY:

NOTE: Due to location, the Capstan and Idler Wheel must be removed together.

1. Remove (3) three screws (Ref. #4) holding the Capstan Retainer Bracket Assembly (Ref. #59).
2. Remove the Motor Control Amplifier (M13) by removing mounting screw (Ref. #77) securing P.C. Board Mounting Bracket (Ref. #76).
3. Remove Drive Belt (Ref. #64).
4. Remove Idler Wheel Assembly Retainer (Ref. #57).
5. Remove the Capstan and Idler Wheel Assemblies by working both together.

NOTE: When replacing Capstan and Idler Wheel assemblies make sure Take-Up Spring (Ref. #55) and Ring Washer (Ref. #61) are in proper position.

### TO REMOVE MOTOR REVERSING SWITCH: (Ref. #62)

1. Perform "To Remove Capstan and Flywheel Assembly/Idler Wheel Assembly."
2. Make note of lead connections and color coding. Unsolder leads from switch.
3. Using a screwdriver remove Switch Mounting Screw (Ref. #63).
4. Carefully remove switch.

### TO REMOVE REWIND/FAST FORWARD PULLEY ASSEMBLY (Ref. #35):

1. Remove mounting screws (Ref. #87 & #91) securing Pre-Amp Assembly. Move Pre-Amp Assembly to one side.

2. Remove mounting screws (Ref. #51) securing Pressure Spring (53) and Guide Bracket (54). Carefully remove spring and guide.
3. Remove retaining ring (39) securing assembly.
4. Carefully work roller and lever assembly out of transport.

### TO REMOVE FUNCTION LEVER ASSEMBLY (Ref. #29):

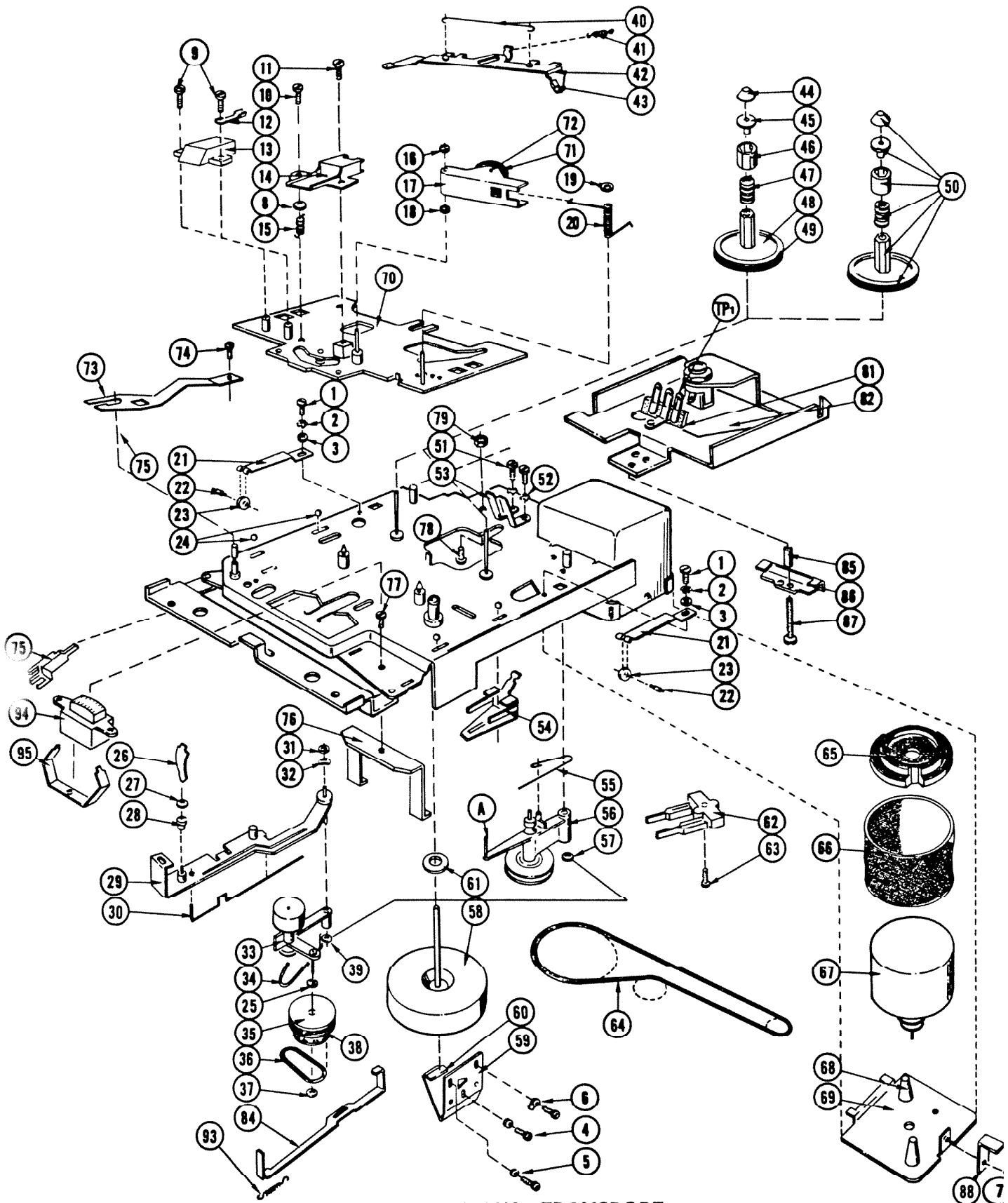
1. Perform "To Remove Roller and Lever Assembly".
2. Perform "To Remove Reel Disc Assembly" and remove right reel disc.
3. Remove Brake Plate Assembly (42).
4. Use a small screwdriver and remove "C" Washer (31) spring washer securing rear portion of function lever.
5. Remove "C" Washer (27) securing front portion of function lever.
6. Remove LEVER ASSY. ROLLER (28) from function lever stud.
7. With a small screwdriver work the guide spring (not removable) over the function lever stud. Work function lever out of unit.

### TO REMOVE DRIVE BELT (Ref. #64):

1. Remove (3) three screws (Ref. #4) securing Capstan Retaining Bracket (59). Remove Bracket.
2. Remove screw (7) securing Motor Cover (69). Remove motor Cover.
3. Remove Drive Belt (64).

### TO REMOVE MOTOR (Ref. #67):

1. Remove screw (7) securing motor cover.
2. Remove Drive Belt.
3. Work Motor with Choke Coils out of motor housing.



**EXPLODED VIEW — TRANSPORT**

Fig. 12

### CASSETTE P/C BOARD

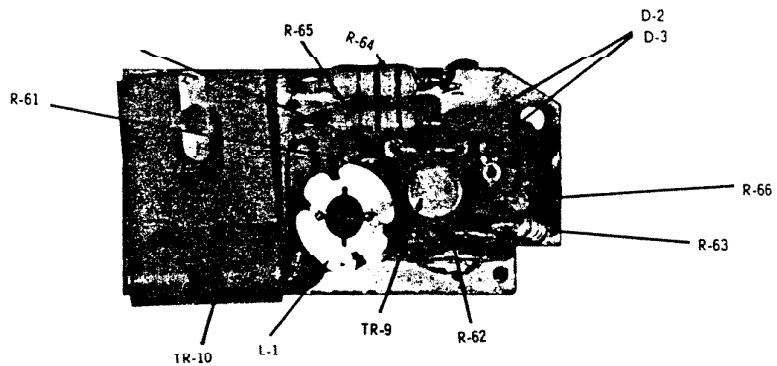


Fig. 13

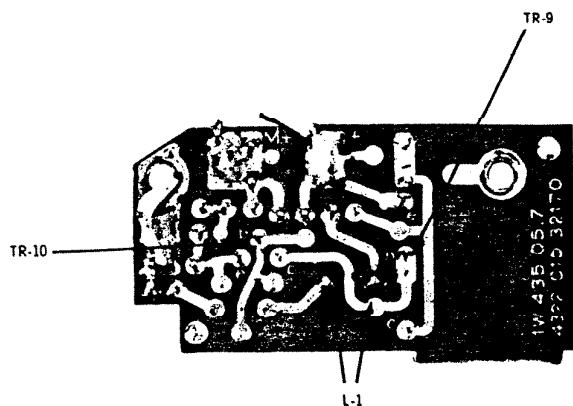


Fig. 14

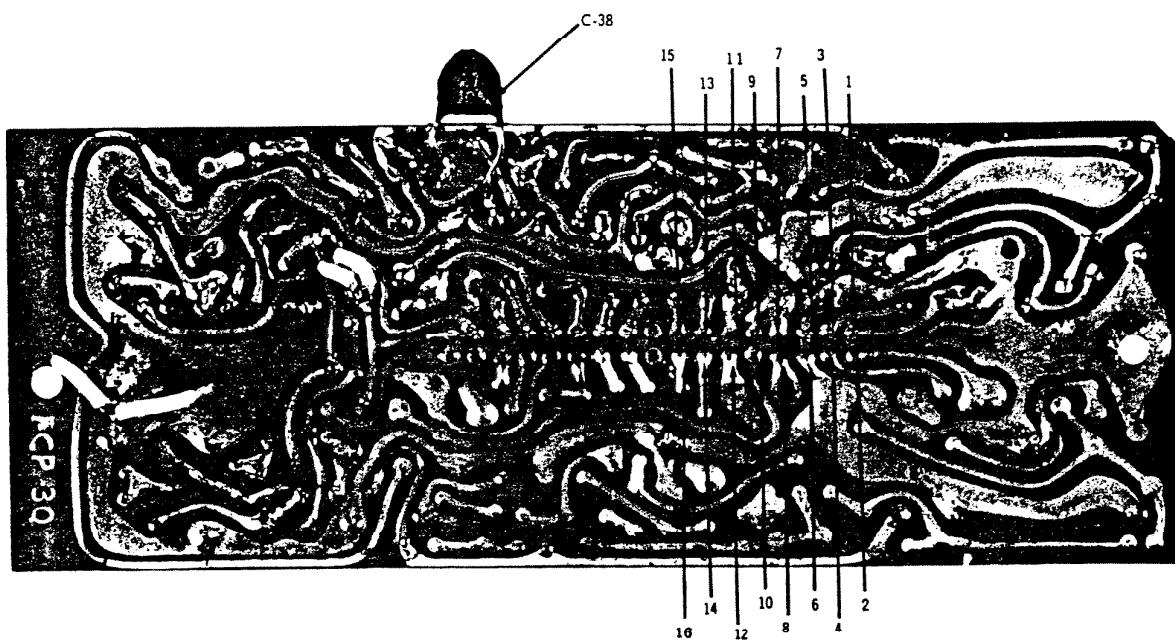


Fig. 15

### CASSETTE P/C BOARD (Con't)

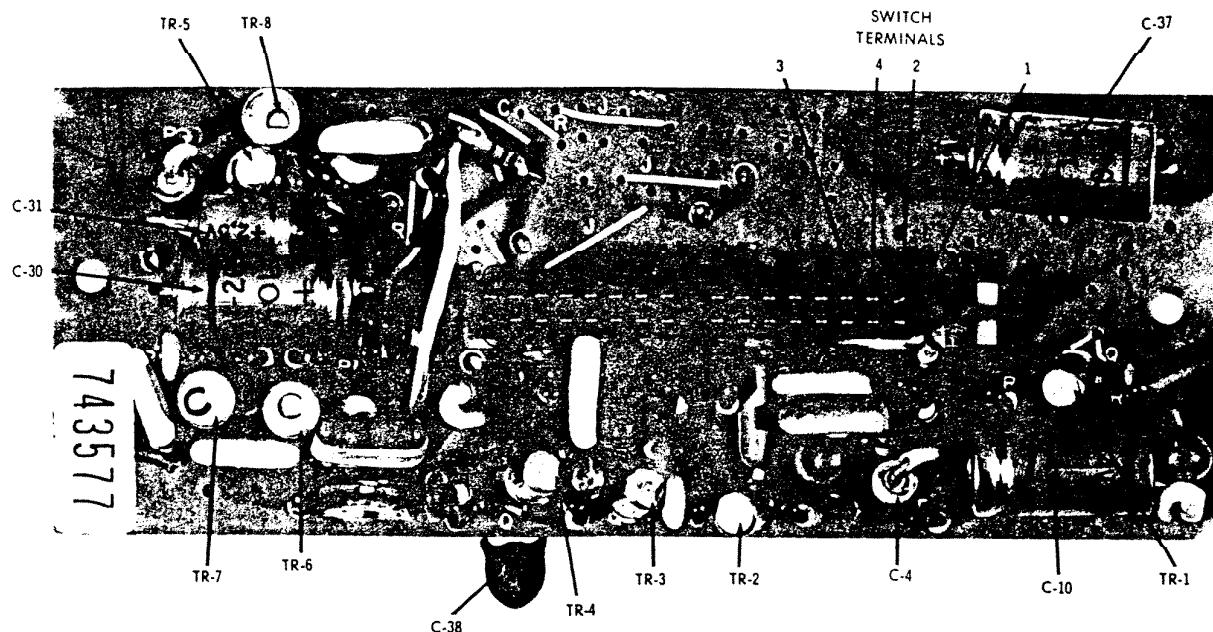
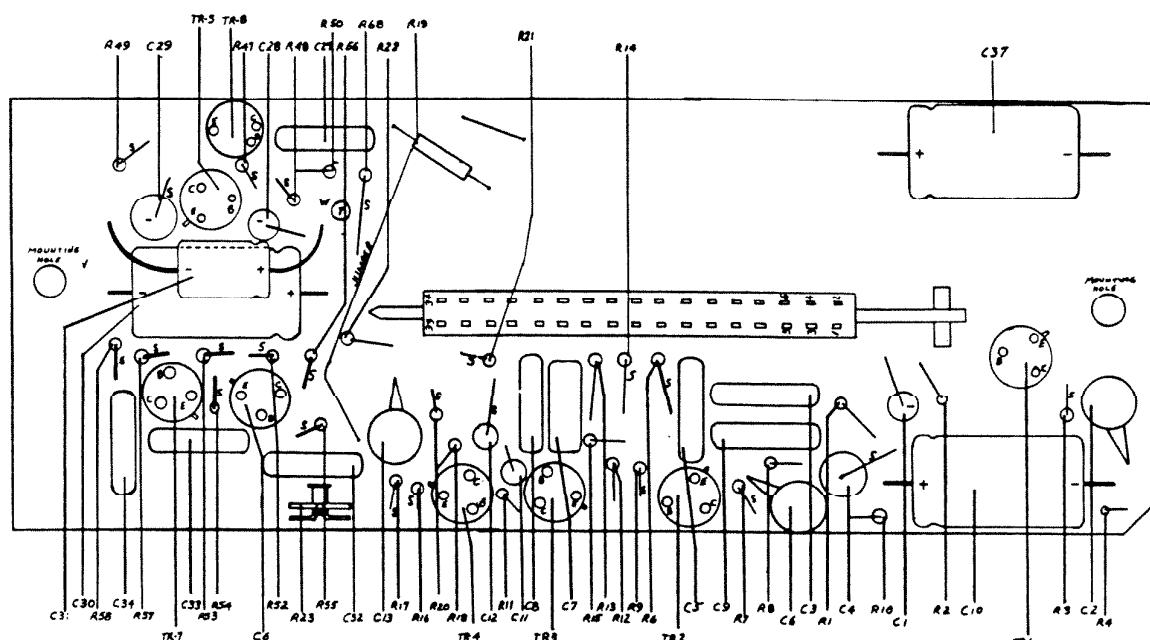


Fig. 16



Top View  
Component Layout

NOTE:  
"S" DENOTES SLEEVED LEAD  
C-38 IS ON BOTTOM OF BOARD - CONNECTED  
BETWEEN BASE & COLLECTOR OF TR-4

Fig. 17

## CASSETTE TAPE RECORDER/PLAYER

### PARTS LIST - MECHANICAL

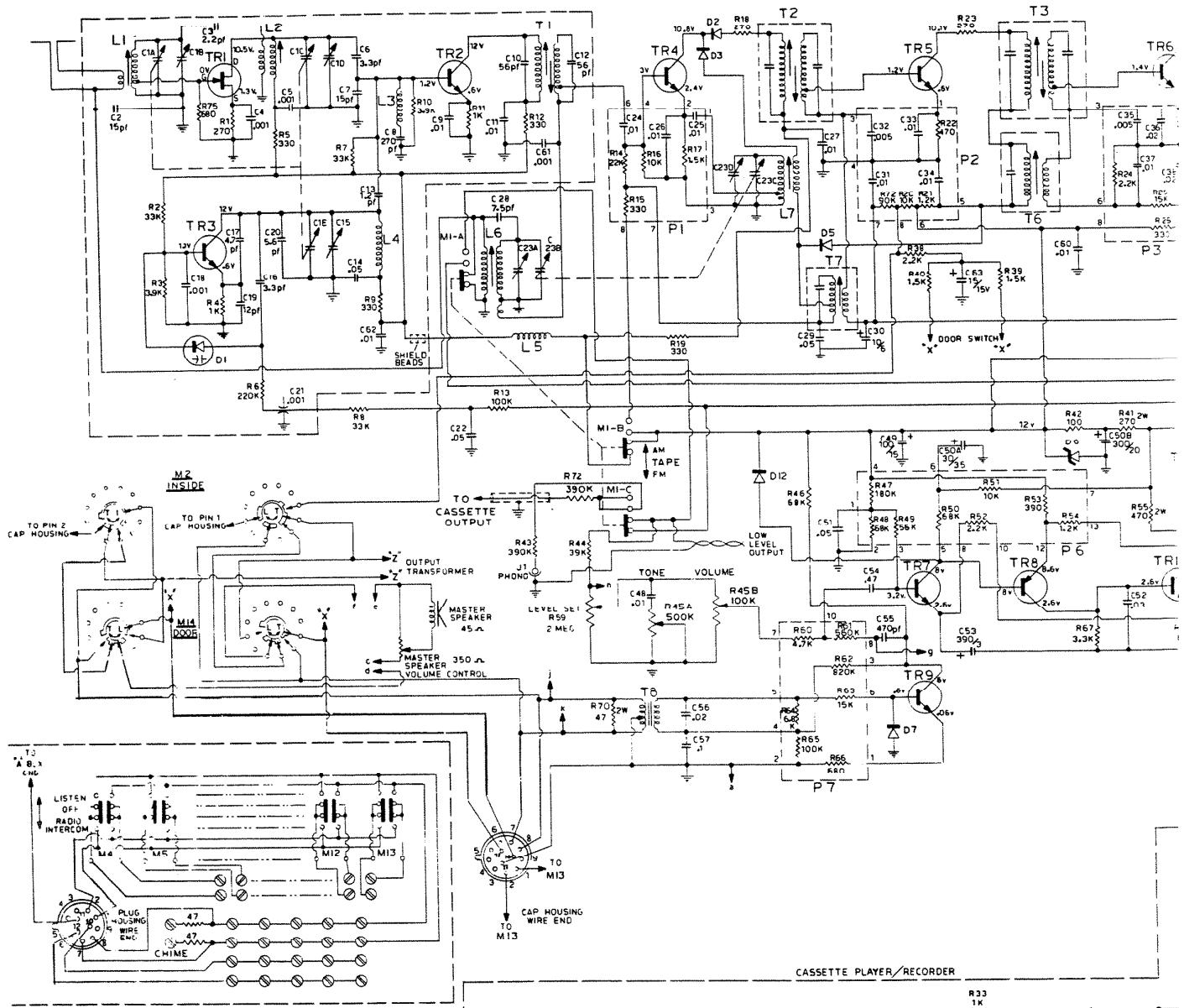
REF. No.	NUTONE PART NO.	V.M. PART NO.	DESCRIPTION	REF. No.	NUTONE PART NO.	V.M. PART NO.	DESCRIPTION
1	60543	80029	Screw—Detent Spring Mounting	63	60583	80043	Screw—Switch Mounting
2	60544	80055	Lockwasher	64	60368	80478	Belt—Capstan Drive
3	60427	80049	Flat Washer	65	60584	80451	Rubber Disc—Motor
4	60308	80034	Screw—Flywheel Bracket	66	60585	80450	Rubber Bushing—Motor
5	60545	80050	Flat Washer	67	60586	80530	Motor
6	60546	80084	Solder Lug	68	60587	80452	Rubber Stud—Cover
7	60547	37389-1	Screw—Rear Bracket	69	60588	80398	Motor Cover Ass'y
8	60427	80049	Flat Washer—Hear Mounting	70	60589	40783	Slide Ass'y
9	60300	80030	Screw—Head Mounting	71	60590	80475	Pressure Roller
10	60548	80031	Screw—R/P Head Azimuth	72	60591	80494	Spindle—Pressure Roller
11	60549	80028	Screw—R/P Head Mounting	73	60592	80356	Leaf Spring
12	60550	80408	Bracket—Head Cable	74	60593	80028	Screw—Leaf Spring
13	60386	80474	Head—Erase	75	60594	80453	Lever—Play/Record
14	60551	80480	Head—Record/Play	76	60595	80531	Bracket—PC Board Mtg.
15	60552	80355	Spring—Head Adjust	77	60308	80034	Screw—Bracket Mounting
16	60326	80433	Retainer—Roller Ass'y (4 x .5MM)	78	60596	8475	Screw—Rear Bracket Mounting
17	60533	80400	Bracket—Pressure	79	60597	26797	Palnut—Rear Bracket Mounting
18	60327	80434	Flat Washer—Pressure Roller	80	60598	6295-1	Screw—Rear Bracket Mounting
19	60310	80059	Retainer—Tension Spring	81	60599	33041	Terminal Strip
20	60554	80357	Spring—Pressure Roller	82	60600	40784	Rear Bracket Ass'y
21	60555	80358	Detent Spring—Slide Stop	83	60601	18339	Phono Socket
22	60556	80395	Pin—Detent Roller	84	60602	80406	Bracket—Interlock
23	60557	80444	Roller—Detent	85	60603	80666	Spacer—PC Board Mtg.
24	60558	80076	Ball Bearing—Slide	86	60604	81041	Bracket—PC Board Mtg.
25	60323	80435	Washer—Ring (5 x .2MM)	87	60605	80088	Screw—PC Board Mtg.
26	60559	80371	Leaf Spring	88	60606	81026	Bracket—Support
27	60382	80061	"C" Washer	89	60607	26805-1½	Sleeving—Motor Contact Leads
28	60560	80409	Roller—Lever Ass'y	90	60608	80028	Screw—PC Board Mtg.
29	60561	40028	Lever Ass'y—Function	91	60609	80399	Pin—Play/Record Lever
30	60562	80365	Spring—Lever Ass'y	92	60610	80363	Spring—Interlock Bracket
31	60312	80062	"C" Washer—Lever Ass'y	93	60611	80692	Meter—Indicator
32	60563	80051	Spring Washer—Lever Ass'y	94	60612	80362	Spring—Indicator
33	60564	80481	Roller & Lever Ass'y	95			
34	60565	80379	Spring—Roller Ass'y	60614	2829		
35	60566	80471	Pulley Ass'y	60615	80055	Sleeving—Motor Control Leads	
36	60567	80460	Belt—Rewind Fast	60616	40032-A	Fiber Washer—PC Board Mtg.	
37	60325	80436	Retaining Ring	60617	80598-A	Lockwasher—PC Board Mtg.	
38	60568	80440	Drive Ring—Pulley Ass'y	60618	80601-A	Record Knob Ass'y	
39	60398	80437	Washer (4.5 x 5MM)	60619	80466	Function Knob Ass'y	
40	60569	80360	Spring—Brake Bracket	60620	81107-6	Insert—Function Knob	
41	60570	80361	Spring—Brake Return	60621	26640	Insert—Record Knob	
42	60571	40359	Brake—Plate Ass'y	60622	80661	Housing — Wire Ass'y (Red/Black)	
43	60572	80465	Brake Block	60623	80529	Receptacle—Pin	
44	60381	80449	Cap—Reel Disc	60624	80911	Housing—Receptacle	
45	60351	10897-5	Retainer—Reel Disc	60625	19804-½	Motor Control	
46	60352	80448	Drive Sleeve			PC Board Ass'y (Comp)	
47	60353	80359	Spring—Drive Sleeve			Record PC Board Ass'y (Comp)	
48	60354	80445	Reel Disc			Sleeving—Head Lead Shield	
49	60355	80446	Drive Ring Reel Disc				
50	60573	80476	Reel Disc Ass'y				
51	60308	80034	Screw—Pressure Spring				
52	00574	80056	Lock Washer—Pressure Spring				
53	60575	80377	Spring—Pressure	TR-1	60626	80813	TRANSISTORS
54	60576	80404	Bracket—Guide	TR-2	60627	80814	Transistor Amperex A159B
55	60577	80353	Spring—Take Up	TR-3	60626	80813	Transistor Amperex A158C
56	60578	80473	Idler Wheel Take Up	TR-4	60628	80816	Transistor Amperex A159B
57	60398	80437	Retainer Idler Wheel (4.5 x .5MM)	TR-5	60628	80816	Transistor Amperex A-158B
58	60579	80472	Capstan & Flywheel Ass'y	TR-6	60629	30299	Transistor Amperex A-158B
59	60580	40360	Bracket Ass'y—Capstan				
60	60581	80441	Pivot Plate (Nylon)				
61	60327	80434	Ring Washer Flywheel				
62	60582	80483	Switch—Motor				

## PARTS LIST MECHANICAL (Con't)

REF. No.	NUTONE PART NO.	V.M. PART NO.	DESCRIPTION	REF. No.	NUTONE PART NO.	V.M. PART NO.	DESCRIPTION
			Matched Pr.	C-25	60655	29849	Elect. .64 MF/64V
TR-7	60629	30299	Transistor Amperex 2N2707	C-26	60656	80801	Ceramic 680 PF
TR-8	60630	30296	Transistor Amperex 2N2428	C-27	60662	35023-20	Foil .047 MF
TR-9	60631	40037	Transistor Amperex 2N2430 (Motor Control)	C-28	60655	29849	Elect. .64 MF/64V
TR-10	60632	40038	Transistor Amperex 2N2431 (Motor Control)	C-29	60664	29850	Elect. 10 MF/16V
			DIODES	C-30	60665	29853	Elect. 200 MF/10V
D-2	60670	40024	Diode Amperex BA114	C-31	60666	29852	Elect. 80 MF/2.5V
D-3	60670	40024	Diode Amperex BA114	C-32	60667	44325-10	Foil .068 MF
			COIL	C-33	60662	35023-20	Foil .047 MF
L-1	60669	40027		C-34	60662	35023-20	Foil .047 MF
			RESISTORS	C-35	60664	29850	Elect. 10 MF/16V
R-24	60633	10337-5	22 OHM 1/4W 5%	C-36	60668	26524-10	Disc 270 PF/500V
R-25	60634	10817-5	2.2K OHM 1/4W 5%	C-37	60665	29853	Elect. 200 MF/10V
R-26	60635	11377-5	470K OHM 1/4W 5%				
R-27	60636	11177-5	68K OHM 1/4W 5%				
R-29	60637	11977-5	10K OHM 1/4W 5%				
R-30	60635	11377-5	470K OHM 1/4W 5%				
R-31	60450	11057-5	22K OHM 1/4W 5%				
R-32	60638	10737-5	1K OHM 1/4W 5%				
R-33	60638	10737-5	1K OHM 1/4W 5%				
R-34	60639	10897-5	4.7K OHM 1/4W 5%				
R-35	60640	10697-5	680 OHM 1/4W 5%				
R-36	60641	10717-5	820 OHM 1/4W 5%				
R-37	60642	10817-5	2.2K OHM 1/4W 5%				
R-38	60642	10817-5	2.2K OHM 1/4W 5%				
R-39	60447	11297-5	220K OHM 1/4W 5%				
R-40	60643	10777-5	1.5K OHM 1/4W 5%				
R-41	60644	10457-5	68K OHM 1/4W 5%				
R-42	60645	10577-5	220K OHM 1/4W 5%				
R-43	60455	10977-5	10K OHM 1/4W 5%				
R-44	60446	11037-5	18K OHM 1/4W 5%				
R-45	60639	11117-5	4.7K OHM 1/4W 5%				
R-46	60647	80811	22K OHM Bias				
R-47	60447	11297-5	220K OHM 1/4W 5%				
R-48	60648	10797-5	1.8K OHM 1/4W 5%				
R-49	60641	10717-5	820 OHM 1/4W 5%				
R-50	60641	10717-5	820 OHM 1/4W 5%				
R-52	60648	10797-5	1.8K OHM 1/4W 5%				
R-53	60649	10117-5	2.7K OHM 1/4W 5%				
R-54	60649	10117-5	2.7K OHM 1/4W 5%				
R-55	60646	11117-5	3.9K OHM 1/4W 5%				
R-56	60638	10737-5	1K OHM 1/4W 5%				
R-57	60638	10737-5	1K OHM 1/4W 5%				
R-58	60646	11117-5	3.9K OHM 1/4W 5%				
R-59	60654	40064	270K OHM 1/4W 5%				
R-60	60647	80811	22K OHM Bias				
R-61	60654	40064	270K OHM 1/4W 5%				
R-62	60651	40004	100 OHM Motor Control				
R-63	60652	40070	620 OHM 1/4W 5%				
R-64	60653	10253-5	13 OHM 1/2W 5%				
R-65	60653	10253-5	13 OHM 1/2W 5%				
R-66	60650	40069	560 OHM 1/4W 5%				
R-67	60641	10717-5	820 OHM 1/4W 5%				
			CAPACITORS				
C-14	60655	29849	Elect. .64MF @ 64V				
C-15	60656	80801	Ceramic 680PF				
C-16	60657	35022-20	Foil .033MF				
C-17	60658	29851	Elect. 25 MF/6.4V				
C-18	60659	35021-20	Foil .22 MF				
C-19	60660	80802	Ceramic 68 PF				
C-20	60661	35024-20	Foil .1 MF				
C-21	60662	35023-20	Foil .47 MF				
C-22	60657	35022-20	Foil .033 MF				
C-23	60663	29854	Elect. 320 MF/6.4V				
C-24	60655	29849	Elect. .64 MF/64V				

## PARTS LIST - RADIO-INTERCOM CHASSIS

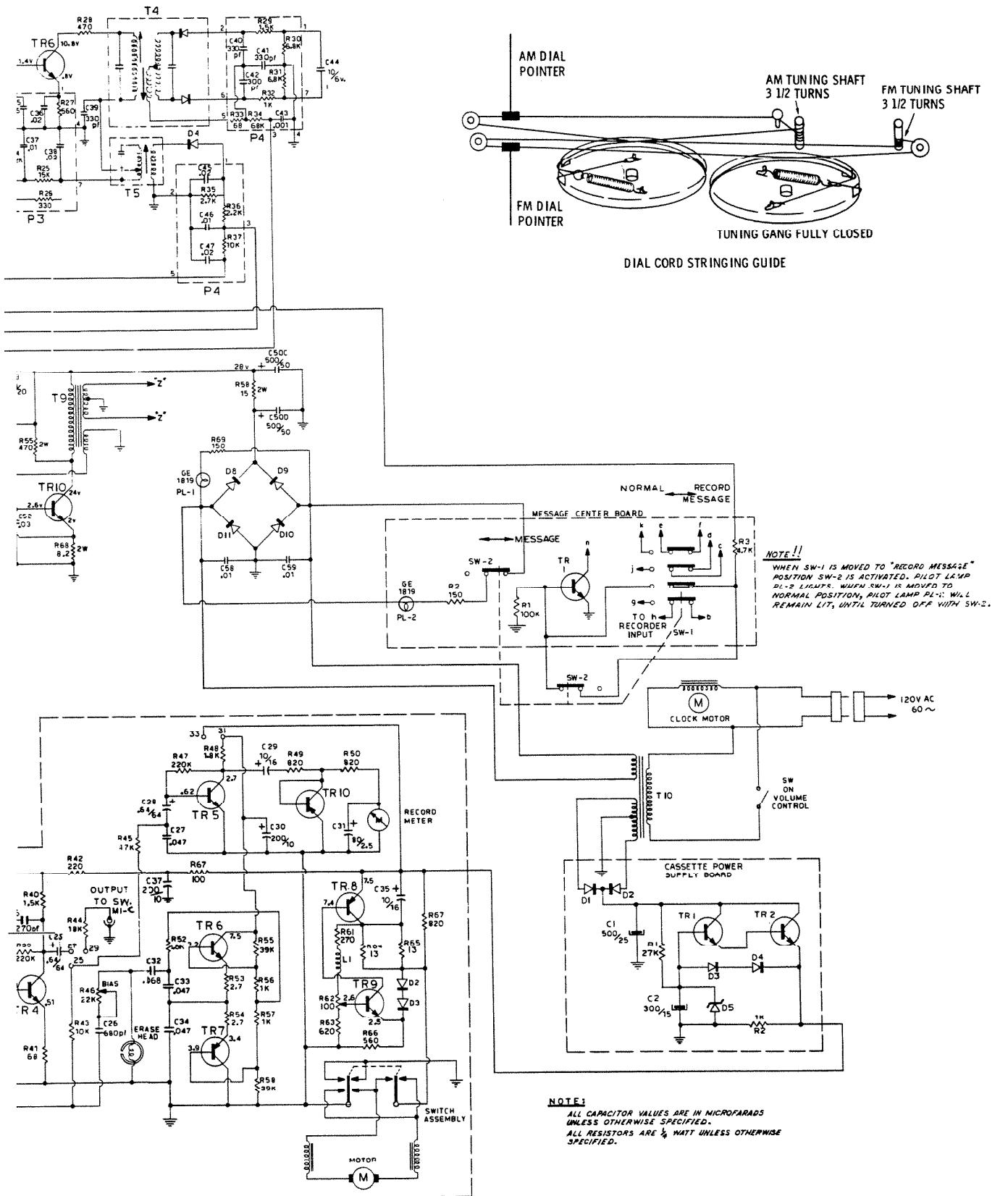
REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION			
<b>TRANSISTORS</b>								
TR1	36582	FM RF Amp. FET.	R1	33101-271	270 , 1/2 Watt, 10%			
TR2	36578	FM Mixer, NPN	R2	33101-333	33K, 1/2 Watt, 10%			
TR3	36581	FM Osc., NPN	R3	33101-392	3900 , 1/2 Watt, 10%			
TR4	36578	1st FM IF Amp., AM Converter, NPN	R4	33101-102	1000 , 1/2 Watt, 10%			
TR5	36578	2nd FM IF, 1st AM IF Amp., NPN	R5	33101-331	330 , 1/2 Watt, 10%			
TR6	36578	3rd FM IF, 2nd AM IF Amp., NPN	R6	33101-224	220K, 1/2 Watt, 10%			
TR7	36580	AF Amp., NPN	R7	33101-333	33K, 1/2 Watt, 10%			
TR8	36577	Driver, PNP	R8	33101-333	33K, 1/2 Watt, 10%			
TR9	36580	Intercom Pre-Amp., NPN	R9	33101-334	330K, 1/2 Watt, 10%			
TR10	36579	Output, NPN	R10	33101-392	390 , 1/2 Watt, 10%			
<b>DIODES</b>								
D1	35019	FM AFC	R11	33101-102	1000 , 1/2 Watt, 10%			
D2	36508	FM Overload	R12	33101-331	330 , 1/2 Watt, 10%			
D3	36508	AM Overload	R13	33101-104	100K, 1/2 Watt, 10%			
D4	36508	AM Detector	R18	33101-271	270 , 1/2 Watt, 10%			
D5	36508	AM AGC	R19	33101-331	330 , 1/2 Watt, 10%			
D6	36539	Zener, Voltage Regulator (1W, 12V)	R23	33101-971	270 , 1/2 Watt, 10%			
D7	36553	Bias Regulator	R38	33101-332	2200 , 1/2 Watt, 10%			
D8	36584	Low Voltage Rectifier	R39	33101-152	1500 , 1/2 Watt, 10%			
D9	36564	Low Voltage Rectifier	R40	33101-152	1500 , 1/2 Watt, 10%			
D10	36564	Low Voltage Rectifier	R41	33101-271	270 , 2 Watt, 10%			
D11	36564	Low Voltage Rectifier	R42	33101-101	100 , 1/2 Watt, 10%			
<b>CAPACITORS</b>								
C1	35081	FM Tuning, 3 Gang	R43	33101-394	390K, 1/2 Watt, 10%			
C2	35101-130	15 pf, Ceramic Disc	R44	33101-393	39K, 1/2 Watt, 10%			
C3	35101-127	2.2pf	R45A		500K, Tone Control			
C4	35100-120	.001, Ceramic Disc	R45B		100K, Volume Control			
C5	35100-120	.001, Ceramic Disc	R46	33101-683	68K, 1/2 Watt, 10%, Film			
C6	35101-134	3.3pf, Ceramic Disc	R55	33028-471	470 , 2 Watt, 10%, Wire Wound			
C7	35101-130	15pf, Ceramic Disc	R56	33028-680	68 , 2 Watt, 10%, Wire Wound			
C8	35100-124	270pf, Ceramic Disc	R58	33028-150	15 , 2 Watt, 10%, Wire Wound			
C9	35100-139	.01, Ceramic Disc	R59	34023	2 Meg, Level Set Control			
C10	35100-144	56pf, Ceramic Disc	K67	33101-332	3300 , 1/2 Watt, 10%			
C11	35100-139	.01, Ceramic Disc	R68	33028-082	8.2 , 2 Watt, 10%, Wire Wound			
C12	35100-144	56pf, Ceramic Disc	R69	33101-151	150 , 1/2 Watt, 10%			
C13	35101-126	1.2pf, Ceramic Disc	R70	33028-470	47 , 2 Watt, 10%, Wire Wound			
C-14	35100-141	.05, Ceramic Disc	R71		350 , Master Speaker Volume Control			
C15	35078	Variable Trimmer	R-72	33101-394	390K, 1/2 Watt, 10%			
C16	35101-134	3.3pf, Ceramic Disc	R73	33101-470	47 , 1/2 Watt, 10%			
C17	35101-129	4.7pf, Ceramic Disc	R74	33101-470	47 , 1/2 Watt, 10%			
C18	35100-120	.001, Ceramic Disc	R75	33101-681	680 , 1/2 Watt, 10%			
C19	35101-132	12pf, Ceramic Disc	<b>TRANSFORMERS</b>					
C20	35101-137	5.6pf, Ceramic Disc	T1	30524	1st FM IF			
C21	35061	.001, Feed-thru, Ceramic	T2	30567	2nd FM IF			
C22	35100-141	.05, Ceramic Disc	T3	30567	3rd FM IF			
C23	35079	AM Tuning, 2 Gang	T4	30574	Ratio Detector			
C27	35100-139	.01, Ceramic Disc	T5	30541	3rd AM IF			
C28	35101-135	7.5pf, Ceramic Disc	T6	30540	2nd AM IF			
<b>RESISTORS (continued)</b>			T7	30542	1st AM IF			
C29	35100-141	.05, Ceramic Disc	T8	30577	Intercom Input			
C30	35068-108	10mfd @ 6V, Electrolytic	T9	30576	Audio Output			
C39	35100-142	330pf, Ceramic Disc	T10	30534	Power			
C44	35068-108	10mfd @ 6V, Electrolytic	<b>COILS</b>					
C48	35100-139	.01, Ceramic Disc	L1	30069	FM Antenna			
C49	35068-103	100mfd @ 15V, Electrolytic	L2	30071	FM Mixer			
C50A		30mfd @ 35V, Electrolytic	L3	30062	Trap			
C50B		300mfd @ 20V, Electrolytic	L4	30063	FM Oscillator			
C50C	35080	500mfd @ 50V, Electrolytic	L5	30072	RF Choke			
C50D		500mfd @ 50V, Electrolytic	L6	30573	AM Antenna			
C51	35100-141	.05, Ceramic Disc	L7	30067	AM Oscillator			
C52	35100-153	.03, Ceramic Disc	<b>COMPONENT COMBINATIONS</b>					
C53	35068-111	390mfd @ 3V, Electrolytic	P1	37541	Converter Couplate - (3) .01mfd, 22K, 330 , 10K, 1500			
C54	35024	.47, Polyester Film	P2	37538	1st IF Couplate - (3) .01mfd, .005mfd, 470 , 90K, 10K, 1200			
C55	35100-134	470pf, Ceramic Disc	P3	37539	2nd IF Couplate - .01mfd, (2) .02mfd, .005mfd, 560 , 2200 , 15K, 330			
C56	35100-140	.02, Ceramic Disc	P4	37511	Ratio Detector Couplate - (2) 330pf, 300pf, .001mfd, 1500 , (2) 6800 1000 , 68 , 68K			
C57	35100-127	.1, Ceramic Disc	P5	37540	AF Detector Couplate - .01mfd, (2) .02 mfd, 2700 , 2200 , 10K			
C58	35100-139	.01, Ceramic Disc	P6	33031	Audio Couplate - 180K, (2) 68K, 56K, 10K, 2200 , 390 , 1200			
C59	35100-139	.01, Ceramic Disc	P7	33032	Intercom Couplate - 4700 , 560K, 820K, 15K, 6800 , 100K, 680			
C60	35100-139	.01, Ceramic Disc						
C61	35100-120	.001, Ceramic Disc						
C62	35100-139	.01, Ceramic Disc						
C63	35068-109	15mfd @ 15V, Electrolytic						



B  
C  
E  
**P. C. BOARD  
TRANSISTOR TERMINALS**

Interconnected Contacts	
RECORD	1-3 7-9 13-15 19-23 25-27 31-33
PLAY	13-7 11-13 21-23 27-29

VOLTAGES SHOWN FOR TRANSISTORS ARE  
 $\pm 20\%$ , TAKEN WITH A VACUUM TUBE VOLTMETER.  
 VOLTAGES IN RECORD ONLY.



## PARTS LIST - RADIO-INTERCOM CHASSIS (Con't)

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
<b>SPEAKERS</b>					<b>MISCELLANEOUS (Cont'd.)</b>
SPK1	36029	Speaker (5" x 4") Model 2550, Remote Station Model 2553, Remote Station Model 2556, Patio Model 2571, Outside Door	Plug 1 Jack 1 J2	31913	Plug, 12 Contacts Jack, 12 Receptacles Phono Jack Pilot Lamp (GE 1819)
<b>MISCELLANEOUS</b>					<b>CABINET PARTS</b>
M1		Function Selector, 3 Position Slide Type	39023		Function
M2		Inside, Talk-Listen, Rotary Type, Spring Return	39024		Record
M3		Power Off-On Switch (Part of R45)	39017		Knob Volume - Cassett
M4	34580	Remote Station Selector, 3 Position, Slide Type	39018		Knob, Tuning
M5	34580	Remote Station Selector, 3 Position, Slide Type	39009		Knob, Master Speaker Volume
M6	34580	Remote Station Selector, 3 Position, Slide Type	39019		Knob, Volume, off/on
M7	34580	Remote Station Selector, 3 Position, Slide Type	31604		Knob, Tone
M8	34580	Remote Station Selector, 3 Position, Slide Type	31651		Knob, Lever Switch
M9	34580	Remote Station Selector, 3 Position, Slide Type	40929		Front Panel Assembly (Complete) (Model 2542-B)
M10	34580	Remote Station Selector, 3 Position, Slide Type	40919		Front Panel (Part of Front Panel Assem- bly)
M11	34580	Remote Station Selector, 3 Position, Slide Type	38072		Control Panel (Part of Front Panel As- sembly)
M12	34580	Remote Station Selector, 3 Position, Slide Type	32363		Dial Lens (Part of Front Panel Assembly)
M13	34580	Remote Station Selector, 3 Position, Slide Type	40753		Switch Box (Complete)
M14		Door, Listen-Talk, Rotary Type, Spring Return	40764		Switch Box Assembly
M15		Master Speaker (5" x 7") 45 ohm	32443		Printed Circuit Board Assembly (10 Switches)
			40762		
			31882		Dial Pointer
			31883		Spring, Dial Pointer
			3122B		Dial Background
			40751		Dial Pulley
			30534		FM Tuner (Complete)
					Power Transformer

## PARTS LIST - MESSAGE-RECORD BOARD

<b>TRANSISTORS</b>			<b>SWITCHES</b>		
TR-1	36580	Muting	SW-1	34584	4PDT Slide Switch
<b>RESISTORS</b>			SW-2	34583	DPDT Slide Switch
R-1	33101-104	100K			
R-2	33101-151	150			
R-3	33101-472	4.7K	PL-2	31913	<b>PILOT LAMP</b> GE 1819 Dial Lamp

## CASSETTE POWER SUPPLY BOARD

<b>TRANSISTORS</b>			<b>CAPACITORS</b>		
TR-1	36580	Amplifier	C-1	35070	500mfd @ 25V
TR-2	36584	Regulator	C-2	35068-102	300mfd @ 15V
<b>DIODES</b>					<b>RESISTORS</b>
D-1	36549	IN4002	Rectifier Silicon	R-1	33101-272
D-2	36549	IN4002	Rectifier Silicon	R-2	33101-102
D-3	36553	Muting			27K
D-4	36553	Muting			1K
D-5	36504	Zener			

## CLOCK-TIMER

39011	Hand, Hour	39015	Knob, Right or Left
39012	Hand, Minute	38070	Lens
39013	Hand, Second	36061	Clock Ass'y.
39014	Hand, Alarm		

# Supplemental Information

NO. 2

FOR MAINTENANCE AND TAPE PLAYER/RECORDER ADJUSTMENTS  
SEE NUTONE SERVICE MANUAL PART NO. 45656

## REVISED CIRCUIT AND PARTS LIST

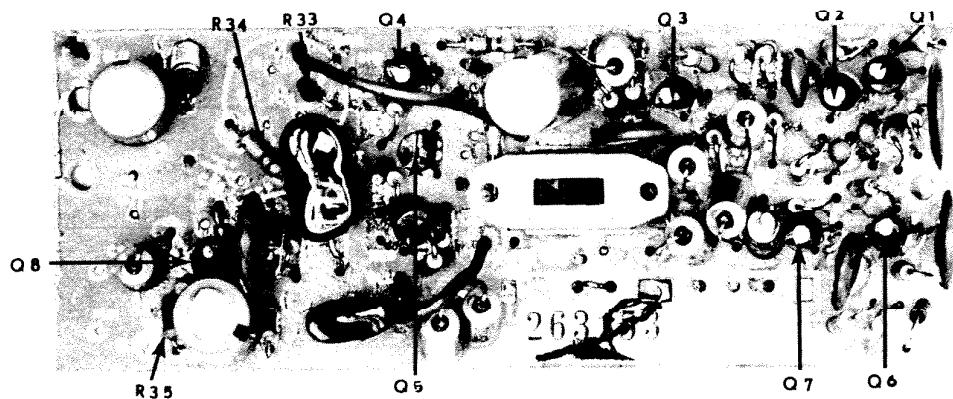


## Model 2542 Cassette Tape Player/Recorder

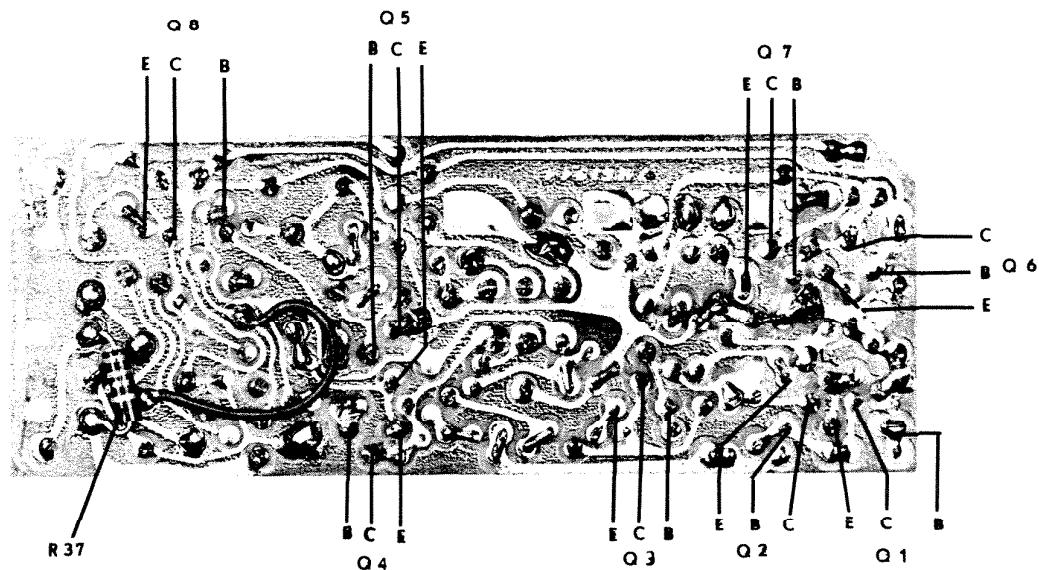
NuTone

### P/C BOARD

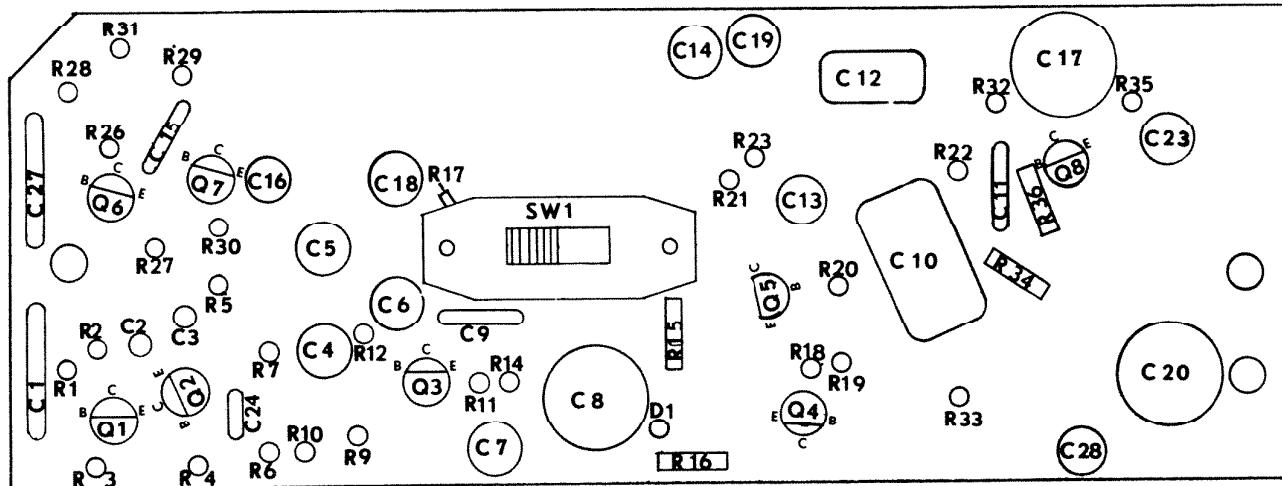
#### Top View



#### Bottom View

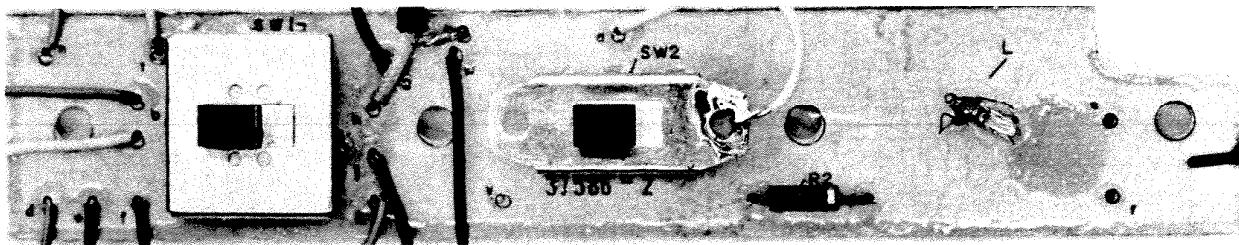


### P/C BOARD DRAWING



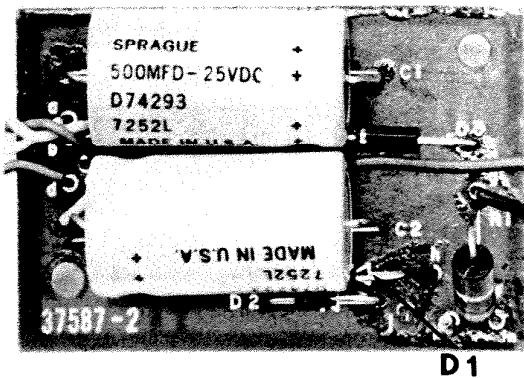
**MESSAGE P/C BOARD**

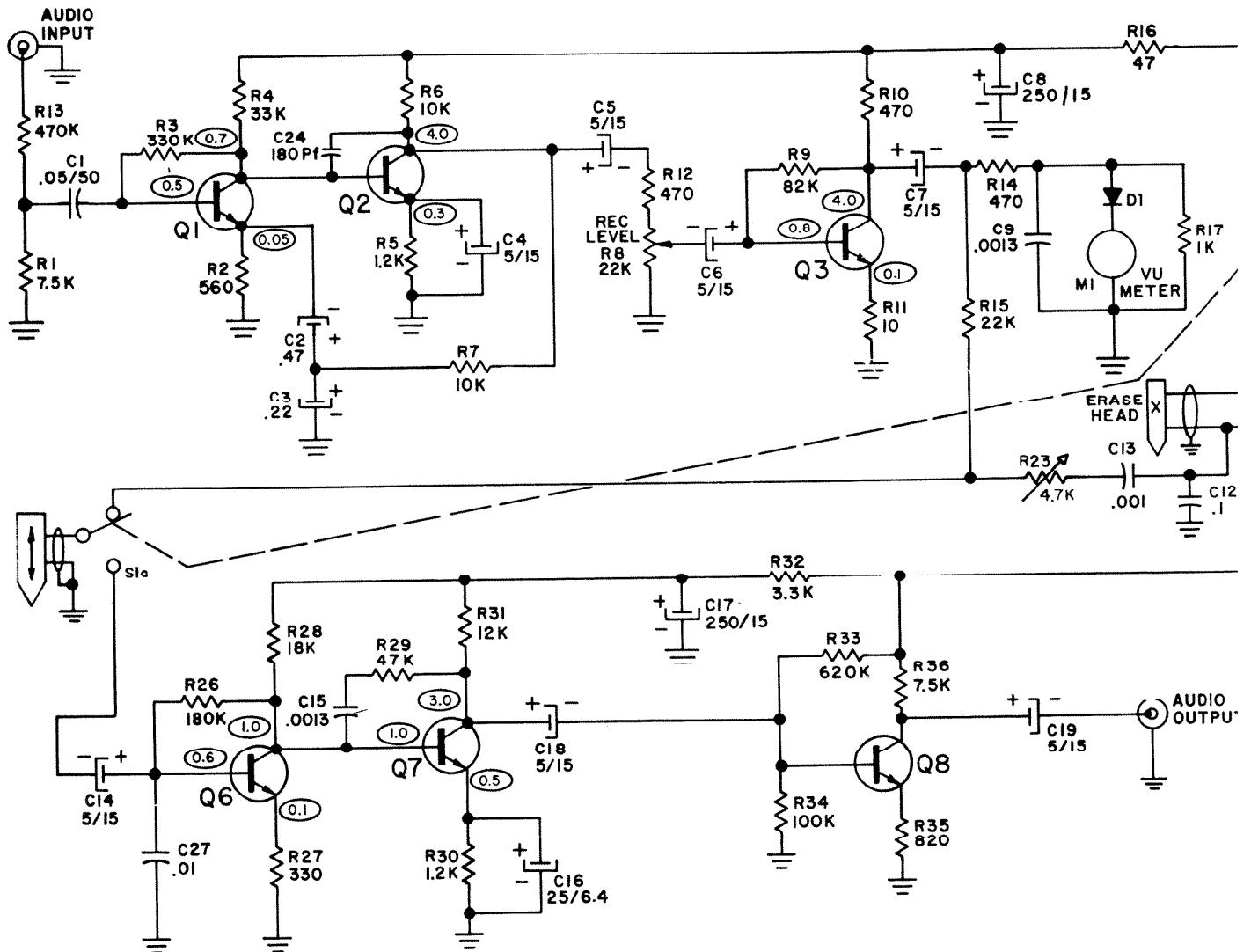
**Top View**



**CASSETTE POWER SUPPLY**

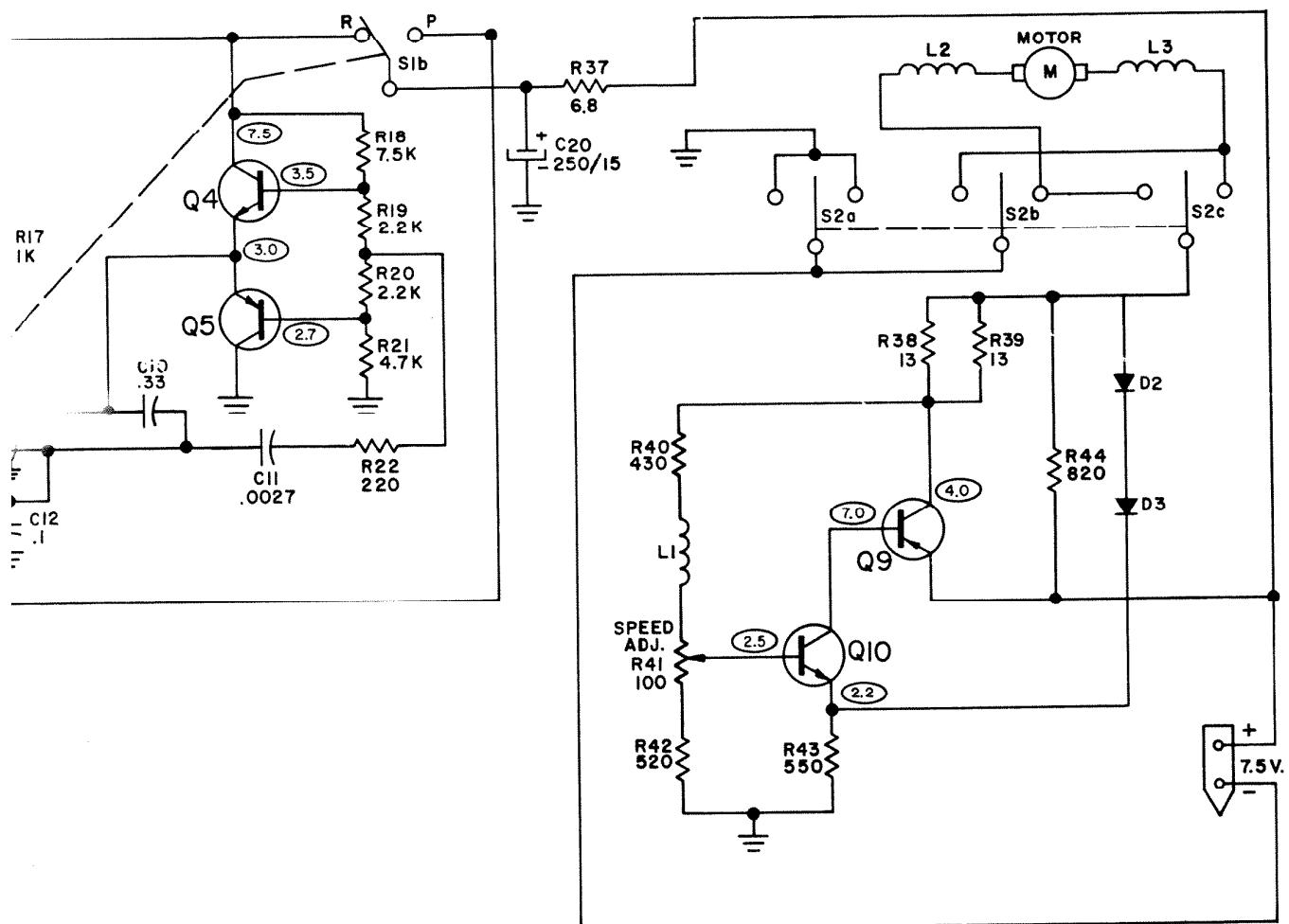
**Top View**

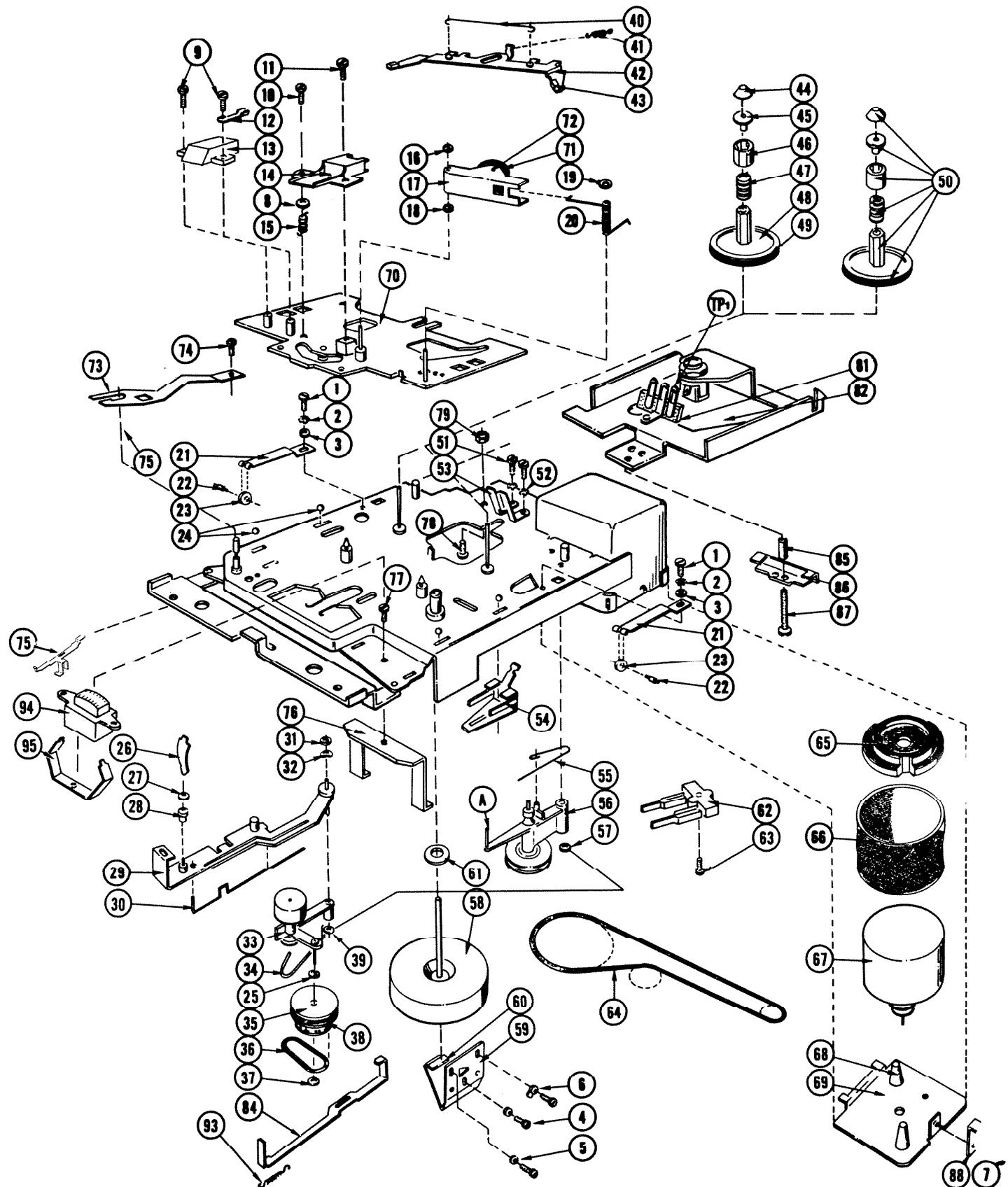




**NOTES:**

1. ALL RESISTORS 1/4 WATTS, 10% UNLESS OTHERWISE SPECIFIED.
2. CERAMIC CAPACITOR VALUES SMALLER THAN 1 ARE IN MICROFARADS.
3. CERAMIC CAPACITOR VALUES GREATER THAN 1 ARE IN MICRO-MICROFARADS (PICOFARADS).
4. ALL ELECTROLYTIC CAPACITOR VALUES ARE IN MICROFARADS.
5. ALL VOLTAGES DC REFERRED TO GROUND, MEASURED WITH HIGH IMPEDANCE METER AND VARY  $\pm 15\%$ .
6. REPRESENTS DC VOLTAGE, MEASURED WITH NO SIGNAL APPLIED.
7. REPRESENTS ELECTRICAL CONNECTION, NO CONNECTION.
8. REPRESENTS COMMON CONNECTION.





**EXPLODED VIEW – TRANSPORT**

# MECHANICAL PARTS LIST

REF. NO.	NUTONE PART NO.	V.M. PART NO.	DESCRIPTION
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## CAPACITORS

C-1	61240	26535-20	.05 MF / 50v
C-2	61241	37810-10	.47 MF / 25v
C-3	61242	37806-10	.22 MF / 25v
C-4	61243	29818	5 MF / 15v
C-5	61243	29818	5 MF / 15v
C-6	61243	29818	5 MF / 15v
C-7	61243	29818	5 MF / 15v
C-8	61244	29884	250 MF / 15v
C-9	61245	33415-20	.0013
C-10	61246	60464-10	.33 MF
C-11	61247	33432-20	.0027
C-12	61248	35013-10	.1 MF
C-13	61249	31416-10	.001 UF
C-14	61243	29818	5 MF / 15v
C-15	61245	33415-20	.0013
C-16	60658	29851	25 MF / 6.4v
C-17	61244	29884	250 MF / 15v
C-18	61243	29818	5 MF / 15v
C-19	61243	29818	5 MF / 15v
C-20	61244	29884	250 MF / 15v
C-24	61250	26504-20	180 PF
C-27	61251	26538-20	.01 UF

## TRANSISTORS

Q-1	61252	30235	NPN small signal (2N3391-A)
Q-2	61252	30235	NPN small signal (2N3391-A)

REF. NO.	NUTONE PART NO.	V.M. PART NO.	DESCRIPTION
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Q-3	61252	30235	NPN small signal (2N3391-A)
Q-4	61252	30235	NPN small signal (2N3391-A)
Q-5	61253	30290	PNP large signal (T1593M)
Q-6	61252	30235	NPN small signal (2N3391-A)
Q-7	61252	30235	NPN small signal (2N3391-A)
Q-8	61252	30235	NPN small signal (2N3391-A)
Q-9	60632	40038	(2N2431)
Q-10	60631	40037	(2N2430)

## DIODES

D-1	61254	12850	
D-2			On Part No. 60623 Motor Control (Ampere BA 114)
D-3			On Part No. 60623 Motor Control (Ampere BA 114)

## MISCELLANEOUS

61205	61966	Switch DPDT
61255	61944	Board Printed circuit
61256	62637-5	Cable—single shielded (output)
61257	62636-6½	Cable—dual shielded (red)
61258	62637-7	Cable—single shielded
61259	62356-6	Cable & sleeve assy. (erase hd.)
61260	62357-6	Cable & sleeve assy. (R/P hd.)

## PARTS LIST MESSAGE-RECORD BOARD

REF. NO.	NUTONE PART NO.	DESCRIPTION
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### RESISTORS

R-2	33101-151	150 Ohms
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### SWITCHES

SW-1	34584	4PDT
SW-2	34583	DPDT

### PILOT LAMP

PL-1	39215	
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## PARTS LIST CASSETTE POWER SUPPLY BOARD

REF. NO.	NUTONE PART NO.	DESCRIPTION
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### RESISTORS

R-1	33028-330	33 Ohms
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### CAPACITORS

C-1	35085-101	500 Mfd. @ 25V DC
C-2	35085-101	500 Mfd. @ 25V DC

### DIODES

D-1	36549	Rectifier (Motorola 1N4002)
D-2	36549	Rectifier (Motorola 1N4002)
D-3	36610	7.5 Volt 5 Watt Zener

**NuTone**

