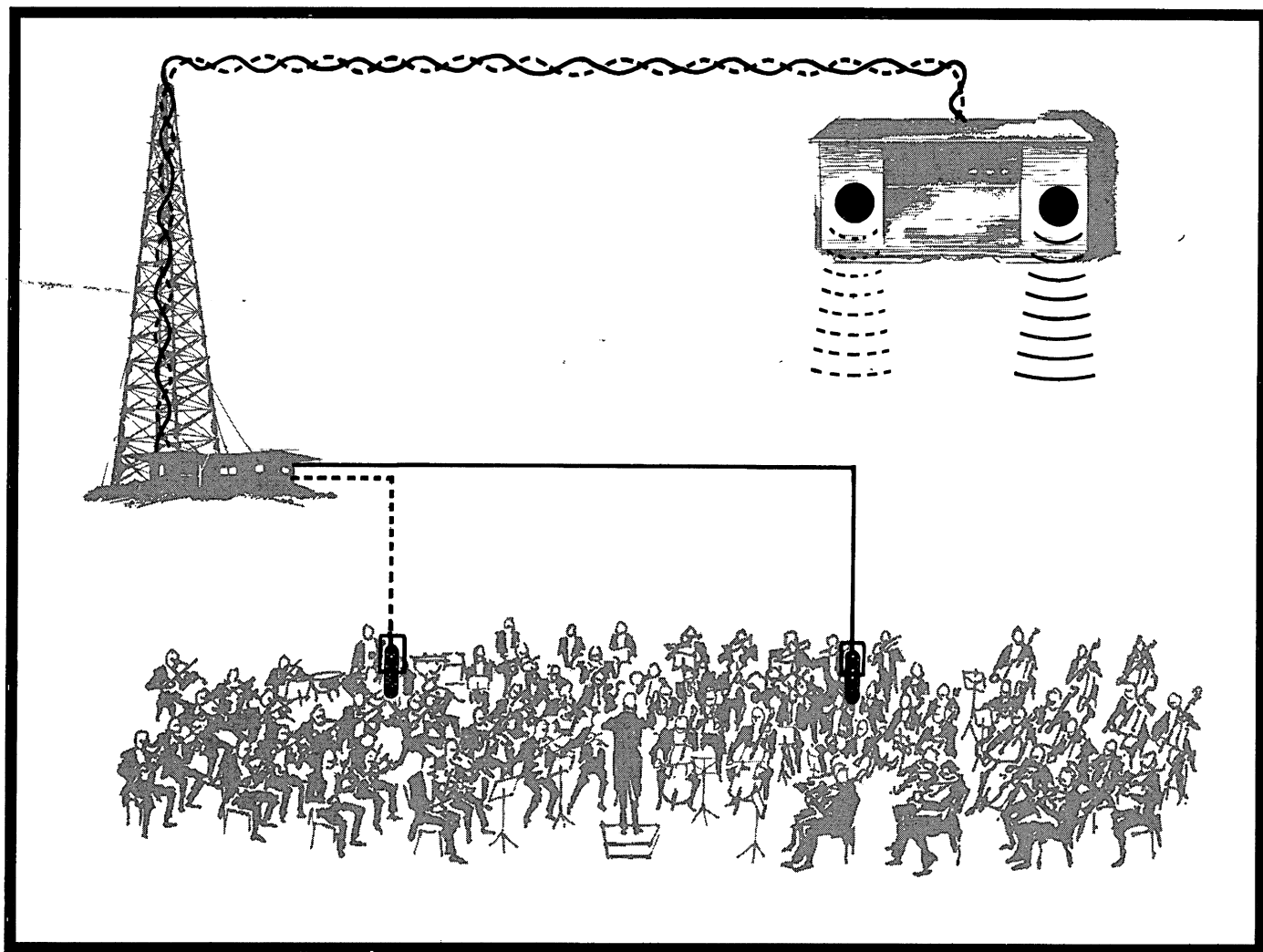


HF 21

HF 21

ZENITH

SERVICE MANUAL



HIGH FIDELITY AND STEREO FM MODELS

ZENITH RADIO CORPORATION

1900 N. AUSTIN AVENUE

CHICAGO, ILLINOIS 60639

PRICE \$1.50

HF 21

PART NO. 923-626



INDEX

CHASSIS OR MODEL	SCHEMATIC PAGE	CHASSIS LAYOUT PAGE	PARTS LIST PAGE
1Y20Z	Refer to HF18		
2ZT21	Refer to HF18		
2ZT22	Refer to HF18		
2YT23	Refer to HF18		
2ZT24	Refer to HF18		
2AT30	Refer to HF18, HF19		
3AT20	40, 41	39	16
3AT20	Refer to HF18-1, HF18-2, HF19,		
6ZT20	Refer to HF18		
6AT24	Refer to HF18, HF19		
8BT20	42, 43	44	16
8BT20	Refer to HF19		
8ZT20	Refer to HF18, HF19		
9AT27	Refer to HF18, HF19		
10AT26	Refer to HF18-2, HF20		
10YT26	Refer to HF18, HF18-2, HF20		
10ZT30	Refer to HF18, HF19, HF20		
10ZT31	Refer to HF18		
10ZT33	Refer to HF18		
10AT37	Refer to HF18, HF19, HF20		
10ZT38	Refer to HF18		
11ZT27	45	45	16, 17
11ZT27	Refer to HF18, HF19, HF20		
11AT30	Refer to HF18, HF19		
20AT21(Z)	46, 47	48	17, 18, 19
20AT21(Z)	Refer to HF18		
20AT30(Z)	Refer to HF18, HF18-2, HF19		
20AT31Z	Refer to HF18, HF19, HF20		
21BT30	Refer to HF18-2, HF19		
21BT34	50, 51	49	19, 20
21BT34	Refer to HF19, HF20		
25AT20	Refer to HF18, HF18-1, HF19		
25BT22	Refer to HF19		
27BT30	52, 53	54	20, 21, 22
27BT30	Refer to HF19		
29AT24	Refer to HF18, HF19		
B545W	30, 31	32	22, 23
A550W	Refer to HF18		
B553W	34, 35	33	23, 24
X560W1	Refer to HF17		
X560W2	36, 37	38	24, 25
S9017W	Refer to HF18		
S9017W1	Refer to HF18		
S-79987	29	—	25
S-79987	Refer to HF17		
S-82931	Refer to HF18-1, HF19		
S-83179	Refer to HF18, HF18-1, HF19		
SPEAKER	26, 27, 28		
WIRING			

HF17 is Zenith No. 923-521
 HF18 is Zenith No. 923-558
 HF18-1 is Zenith No. 923-576

HF18-2 is Zenith No. 923-592
 HF19 is Zenith No. 923-606
 HF20 is Zenith No. 923-610

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKERS		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPED. (In Ohms)	SIZE (In Inches)
A507F	Portable (With Handle, Lift Lid)	Green	3AT20	Phono Only	—	49-1184	32	1-2x6
A507L	Portable (With Handle, Lift Lid)	Beige	3AT20	Phono Only	—	49-1184	32	1-2x6
A507V	Portable (With Handle, Lift Lid)	Coral	3AT20	Phono Only	—	49-1184	32	1-2x6
B535J	Portable (With Handle, Lift Lid, Detachable Speaker Enclosures)	Brown & Walnut	8BT20	Phono Only	2W	49-1189	32	2-4
B535J-1	Portable (With Handle, Lift Lid, Detachable Speaker Enclosures)	Brown & Walnut	8BT20	Phono Only	2W	49-1189	32	2-4
B535Y	Portable (With Handle, Lift Lid, Detachable Speaker Enclosures)	Black & Rosewood	8BT20	Phono Only	2W	49-1189	32	2-4
B535Y-1	Portable (With Handle, Lift Lid, Detachable Speaker Enclosures)	Black & Rosewood	8BT20	Phono Only	2W	49-1189	32	2-4
B545W	Portable (With Handle, Detachable Speaker Enclosures)	Walnut	—	Phono Only	2W	964-24020	16	2-5½
B553W	Portable (With Handle, Detachable Speaker Enclosures)	Walnut	—	Phono Only	8W	964-25775	8	2-6x9

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER					OTHER FEATURES			
PART NUMBER	MOUNTING	CARTRIDGE	STYLUS NOTE 1	45 RPM ADAPTER	INDICATOR LIGHT	TAPE PROVISION	RECORD STORAGE	REMOTE SPEAKER PROVISION
169-374	Shelf	142-170	D-S 56-567	S-84995 OR S-85021	—	—	—	—
169-373	Shelf	142-170	D-S 56-567	S-84995 OR S-85021	—	—	—	—
169-375	Shelf	142-170	D-S 56-567	S-84995 OR S-85021	—	—	—	—
169-389	Shelf	142-171	S-S 56-598	S-72910	—	—	—	—
169-405	Shelf	142-171	S-S 56-598	S-72910	—	—	—	—
169-388	Shelf	142-171	S-S 56-598	S-72910	—	—	—	—
169-404	Shelf	142-171	S-S 56-598	S-72910	—	—	—	—
169-407	Hinged Panel	142-175	D-S 56-560	S-72648	—	—	—	—
169-408	Hinged Panel	142-175	D-S 56-560	S-72648	—	—	—	—

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKERS		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPED. (In Ohms)	SIZE (In Inches)
X560W-2	Portable (With Handle, Hinged Speaker Enclosures)	Walnut	—	Phono Only	16W	964-18016	8	2-8
						964-49189	6.4	2-4
						964-16237	34	
C906W	Console (Lift Lid)	Walnut	21BT34	FM/AM/Phono	20W	49-1094	45	2-3½
						49-1153	16	2-6x9
C907M	Console (Lift Lid)	Maple	21BT34	FM/AM/Phono	20W	49-1094	45	4-3½
						49-1153	16	2-6x9
C908DE	Console (Lift Lid)	Dark Oak	21BT34	FM/AM/Phono	20W	49-1094	45	4-3½
						49-1153	16	2-6x9
C908P	Console (Lift Lid)	Pecan	21BT34	FM/AM/Phono	20W	49-1094	45	4-3½
						49-1153	16	2-6x9
C910W	Console (Lift Lid)	Walnut	21BT34	FM/AM/Phono	20W	49-1094	45	4-3½
						49-1153	16	2-6x5
C911W	Console (Lift Lid)	Walnut	21BT34	FM/AM/Phono	20W	49-1094	45	4-3½
						49-1153	16	2-6x9

NOTES

1. Stylus, S = Manufactured Sapphire, D = Diamond.
2. Tape Input and Output - May be used with the following models:
A634 - Cassette Tape Player,
A635 - Cartridge Tape Player,
A636 - Cassette Tape Player/Recorder.
3. Tape Input and Output - May be used with the following models:
A632 - Cassette Tape Player/Recorder,
A634 - Cassette Tape Player,
A635 - Cartridge Tape Player,
A636 - Cassette Tape Player/Recorder.

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER					OTHER FEATURES			
PART NUMBER	MOUNTING	CARTRIDGE	STYLUS NOTE 1	45 RPM ADAPTER	INDICATOR LIGHT	TAPE PROVISION	RECORD STORAGE	REMOTE SPEAKER PROVISION
169-376	Hinged Panel	142-168	D-S S-68567	S-82964	—	—	—	—
169-361	Shelf	142-164	D-S 56-560	S-82965	—	Note 2	Yes	Yes
169-392	Shelf	142-167	D-S S-82621	S-82965	—	Note 2	Yes	Yes
169-392	Shelf	142-167	D-S S-82621	S-82965	—	Note 2	Yes	Yes
169-392	Shelf	142-167	D-S S-82621	S-82965	—	Note 2	Yes	Yes
169-392	Shelf	142-167	D-S S-82621	S-82965	—	Note 2	Yes	Yes
169-392	Shelf	142-167	D-S S-82621	S-82965	—	Note 2	Yes	Yes
169-392	Shelf	142-167	D-S S-82621	S-82965	—	Note 3	Yes	Yes

RECORD CHANGER FEATURES

PART NO.	MFG.	BASE PLATE	TURNTABLE
169-361	(VM)	Tree Bark Brown	Light Beige
169-373	(BSR)	Off White	Yellow
169-374	(BSR)	Off White	Yellow
169-375	(BSR)	Off White	Yellow
169-376	(VM)	Gold	Dark Brown
169-388	(BSR)	Light Gray	Black
169-389	(BSR)	Off White	Dark Brown
169-392	(VM)	Tree Bark Brown	Light Beige
169-404	(BSR)	Light Grey	Black
169-405	(BSR)	Off White	Dark Brown
169-407	(BSR)	Black	Black
169-408	(BSR)	Black	Black

GENERAL INFORMATION

THEORY

For theory and operation, of circuits covered in this manual, refer to Service Manuals HF 18 (Zenith Part No. 923-558), and HF 19 (Zenith Part No. 923-606).

MULTIPLEX ALIGNMENT

These receivers have been properly aligned at the factory and will not require further adjustment. As a result, it is not recommended that any attempt be made to alter the multiplex stages. However, should any major components in these circuits require replacement or should anyone tamper with the multiplex adjustments then, of course, realignment will be necessary.

MUTING CONTROL

A muting control, which supplies a reverse bias voltage to the base of the 19KHz amplifier, is factory adjusted, and should not require readjustment. However, if the receiver is operated in an extremely noisy area, there is a possibility that there may be noise bursts of sufficient magnitude to overcome this mute voltage . . . when this occurs, the Stereophonic FM Indicator will light up. To further cut off the 19KHz amplifier, carefully rotate the muting control in a clockwise direction. This should only be done when a stereo signal is on the air since the mute control must only be advanced to a point where the Stereo Indicator does not light up on noise, but it should not be advanced to a point where the desired stereo signal is cut off.

ANTENNAS FOR STEREO FM

Due to the characteristics of the stereo FM system, it will require more signal for proper performance than does monaural FM. As a result, it may be necessary to operate the stereo FM receiver with an external antenna. The necessity for an external antenna will be determined by the signal conditions at each individual installation.

EXTERNAL FM ANTENNA

If the receiver is operated in an area of either low signal strength, high noise, or where multipath (FM ghosts) signals are present, a good external FM antenna will be required. The necessity of an external antenna as a result of weak signal or noise, will be quite evident since the set will not limit, and/or noise will be quite evident. It is extremely difficult to determine if multipath (FM ghosts) signals are present, however, should the program material be distorted, the best manner to decide if multipath signals are the cause of the problem, is to connect an external FM antenna to the receiver. Usually a TV antenna may be available for trial, but even then the results can be misleading, since many TV antennas are of low gain on FM frequencies. Reduction of multipath distortion under high signal conditions may be accomplished by relocation of the receivers antenna system.

FM CABINET ANTENNA

Certain models except the C906, contain an FM antenna built into the cabinet. This antenna is a folded dipole cut to the desired frequency, and is attached to the internal periphery of the cabinet. The above listed model uses line cord antennas.

SIGNAL STRENGTH CHART

There are certain minimum voltages necessary for proper stereo FM reception. To help determine if there is sufficient signal available, the following developed AGC voltage versus microvolt input voltage charts have been compiled. Since the desired FM Station may not always be operating in the stereo mode when an installation is made, these AGC voltage measurements have been taken with a monaural FM signal. The point "*" of minimum AGC voltage necessary for good stereo FM reception has been indicated on these charts.

AGC voltages are to be measured with a V.T.V.M. connected to the following Test Points.

Chassis 20AT21 and 20AT21Z Test Point "B". 3rd Feed-Thru from right along lower rear edge of FM Tuner-Collector of transistor (121-704).

Chassis 21BT34 and 27BT30 Test Point "C". Located between Transistors Q101 (A.M. Converter) and Q201 (1ST. I.F.).

Chassis 20AT21 and 20AT21Z

Micro Volts Input	Forward AGC Voltage at Test Point "B"
0	8.00
25	7.40
100	5.60
200	5.20
500	4.65
1K	*4.35
5K	3.78
50K	3.32
100K	3.30

Chassis 21BT34 and 27BT30

Micro Volts Input	Reverse AGC Voltage at Test Point "C"
0	1.34
25	1.23
100	0.91
200	0.82
500	0.73
1K	*0.70
5K	0.58
50K	0.10
100K	0.06

AUTOMATIC FREQUENCY CONTROL-AFC

These receivers feature an automatic frequency control which automatically keeps your receiver on the exact station frequency when you are tuned to an FM station. To utilize this feature tune the receiver as instructed and then turn the band switch to AFC position.

When the desired FM station is a weak station, adjacent in frequency to a strong station, the AFC may pull the tuning into the stronger station. Under these conditions, place the bandswitch in FM position and tune the receiver as instructed.

Tuning the receivers on the frequency modulation band will require more care than on the broadcast band. A hissing sound may be noted when tuning between Frequency Modulation stations. This is normal, and will disappear as the station is tuned in. After a station is located, the pointer should be moved back and forth over it until the point of quietest reception and best tone quality is found. Correct tuning is indicated by the disappearance of background noise.

SPEAKER PHASING

It is most important that coded speaker leads be connected to coded terminals on speakers for proper polarity within each speaker group. It is also then most important that the speaker groups be in phase with each other. One excellent method is to play a monaural record with the volume of each speaker group equal.

Under these conditions the sound should appear to come from a point midway between the two speaker groups. If the sound comes from any other point than midpoint, then one speaker group is out of phase with the other and you should check polarity. One of the easiest methods of checking polarity within the speaker group is to momentarily place a 4½ volt battery across the speaker feed terminals. All the speaker cones should simultaneously move in the same direction.

POWER AMPLIFIERS

Power transistors and their circuits are unique in operation, therefore, repair procedure differs from those steps followed when repairing tube type-circuits.

1. Each channel of the 3AT20, 8BT20, 11ZT27, 20AT21, 20AT21Z, 21BT34, 27BT30, B545, B553, and X560-2 amplifiers use a pair of matched power transistors in the final output stage. Therefore, should one transistor fail, both transistors must be replaced simultaneously, since they will not perform properly unless matched. (In chassis using complementary symmetry circuits a matched pair consists of one NPN and one PNP transistor.)
2. When a power transistor is replaced the insulator (when used) between the transistor and the heat sink should also be replaced. On 11ZT27, 21BT34, 27BT30 and X560-1, be certain to apply Dow Corning No. 340 heat conductive grease between the transistor and the insulator. Also between the insulator and the chassis. The Dow Corning grease can be obtained in 1 c.c. quantities by ordering part No. 205-51.
3. On 8BT20, B545, B553 (early production) and X560-2 place the heat conductive grease in the clamp, or on the chassis, and all around the transistor.
4. Do not operate these amplifiers without their proper speaker load.
5. Do not short out the audio output of either channel when the amplifier is operating.
6. Should a power transistor fail (short) be certain to replace the emitter resistors for the specific channel. Also be certain to check the condition of the silicon diode rectifiers, and driver transistors.

7. Remove plug-in transistors from their sockets before doing any soldering to the socket lugs.

CIRCUIT BOARD COMPONENT IDENTIFICATION

As a special feature to aid the Service Technician, Zenith has identified the location of components which are mounted on certain circuit boards. This information is printed on the circuit boards and also appears on the schematic. Zenith has also prepared a two-color drawing of the foil side of the circuit board showing the relationship between the components and the foil. This will aid the Technician in quickly tracing circuits, as not only are the components shown, but also the voltages at various check points. Components are identified by a letter/number combination. A letter prefix to indicate the type of component: C=Capacitor, L=Coil, R=Resistor, CR=Diode, etc. The numbers are assigned in blocks to identify the circuit, in which it is used, as follows.

Block	Stage	Example
1 - 99	FM Tuner	R1, C1, L1.
101 - 199	AM Tuner	R101, C101, L101.
201 - 299	IF	R201, C201, L201.
301 - 399	Multiplex	R301, C301, L301.
401 - 449	Audio, Right Channel	R401, C401, L401.
451 - 499	Audio, Left Channel	R451, C451, L451.
501 - 599	Power Supply	R501, C501, L501.

CIRCUIT BOARD SERVICING

Servicing circuit board sets is, in general, much the same as servicing ordinary receivers. However, certain tools and techniques are helpful for this type of work.

1. Good pair of long-nose pliers.
2. Sharp wire cutters.
3. Small stiff glue brush (for solder removal).
4. Metal pick (soldering aid).
5. Pencil type soldering iron with a small tip (25 watts or less).
6. Tin leads on component before soldering.
7. Use only solder with an extremely low melting point, (60% Tin, 40% Lead).

WARNING: Excessive heat may damage the circuit board foil during component replacement if a soldering pencil, iron or gun of higher wattage rating is used.

COMPONENT REPLACEMENT

Resistors and capacitors should be replaced by clipping out the defective part and neatly soldering in the new part. If a unit, such as the oscillator coil or I.F. transformer is to be removed, heat the mounting lugs with a pencil type soldering iron and move them away from the soldered connection with a long-nose pliers or metal pick. Continue heating the lugs and brush away the molten solder with a small stiff glue brush. Remove the defective unit before lifting it off the chassis. Before inserting the new unit, be certain that the lug holes are open and free from solder. Forcing a lug against a solder filled lug hole may break the bond between the chassis base and the wiring foil. It is, therefore, necessary to exercise care when replacing units.

An open or damaged section of circuit board wiring foil can be repaired by soldering a short jumper wire across the points to be connected. When soldering the low voltage electrolytics, transistors and diodes, the wire should be held with a pair of long nose pliers. The long nose pliers will act as a heat sink.

TROUBLE SHOOTING AND SIGNAL TRACING

The old technique of "screwdriver testing" is definitely not recommended while trouble shooting any solid state product. In that method various circuit points were touched or shorted to ground to cause a hum or click in the speaker. This must be avoided because a solid state component can be destroyed if excessive voltage or if wrong voltage polarity is applied. Only standard point to point signal tracing with the proper RF, IF, and Audio Signal Sources should be used.

RESISTANCE MEASUREMENTS

When making resistance measurements in the circuit, it is most important to remove any transistors in the circuit under test for accuracy in readings. Incorrect or inaccurate resistance measurements are the result of a transistor acting as a diode and conducting. When making measurements across an electrolytic capacitor, be certain the ohm meter leads are correctly polarized. Also, be certain the battery voltage of the meter does not exceed the working voltage of the capacitor; the capacitor may otherwise be damaged.

FM ALIGNMENT

Alignment of these chassis will, in most cases, not be necessary unless an RF or IF transformer is replaced or if someone has tampered with the adjustment.

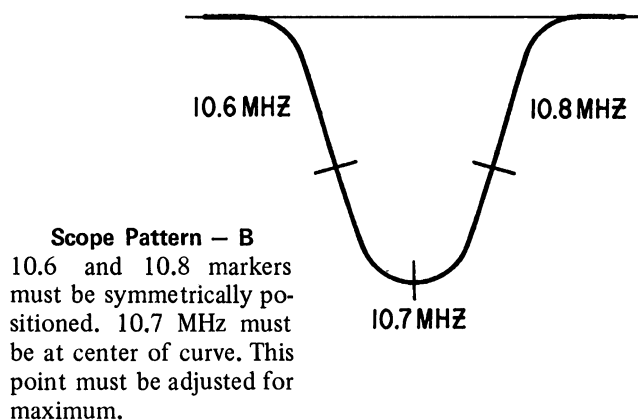
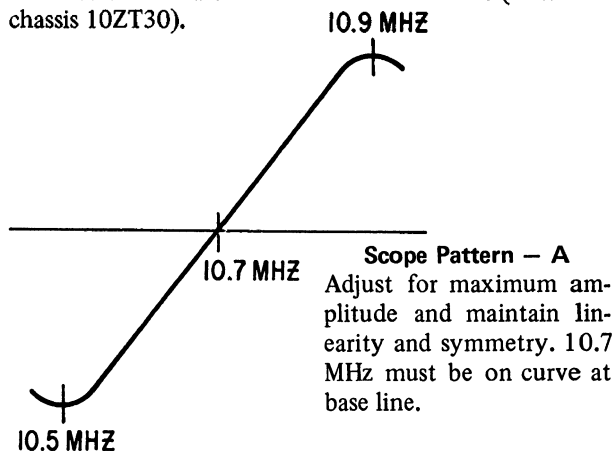
Because of the wide band pass required in the multiplex FM tuner, it is desirable to use an FM signal generator having a deviation of 400 KHz with a sweep rate of 60 Hertz as well as an oscilloscope when aligning both the IF and RF FM portions of this receiver. It is not only necessary to obtain maximum amplitude in the IF amplifier stages, but also necessary to maintain symmetry. To help achieve this symmetry, it is desirable to have 10.6, 10.7 and 10.8 megacycle markers in obtaining IF curve symmetry.

The condenser mentioned further on in the alignment procedure should be as small as possible and the ground lead of the generator must be connected to the chassis at the base of the socket, where the signal is being injected. Should the signal be injected at some point other than a socket, then the ground lead should be connected to ground as closely as possible to this point.

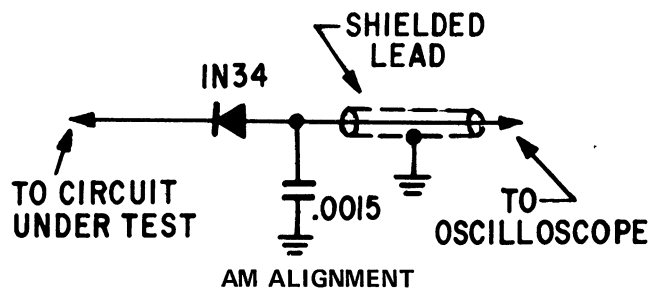
In all alignment procedures, the signal generator output should be kept just high enough to obtain an indication. This is most necessary, since on some chassis we have a zero time constant limiter which will clip the signals if their magnitude is too great, resulting in erroneous waveforms.

In the following alignment procedure charts there is a letter appearing in the operation column in addition to the number. This letter indicates the test point to which the hot lead of the scope is to be connected as follows:

- A. Connect to Ratio Detector Test Point "H".
- B. Connect to the last FM IF Test Point "G". ("G2" on chassis 10ZT30).



A detector probe is required. If your oscilloscope is not equipped with this probe, it can easily be constructed. For best results, this probe should be shielded.



- C. A V.T.V.M. on low AC scale connected across the speaker voice coil output terminals (either left or right channel), will be satisfactory for all AM, IF and RF adjustments.

Normally the Oscillator, RF and Mixer Coils and Transformers will not require adjustment unless they have been replaced or misaligned. If alignment becomes necessary the Oscillator Coil should be adjusted at 535 KHz with the tuning gang closed. Adjust the RF and Mixer Transformers at 600 KHz. These adjustments should be made after the corresponding trimmer adjustment shown in the alignment charts. Repeat the corresponding coil and trimmer adjustments for best results.

RF AND IF ALIGNMENT PROCEDURE FOR CHASSIS 20AT21 AND 20AT21Z

OPERATION *	CONNECT GENERATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	SET DIAL TO	ADJUST IRON CORES	PURPOSE
1 A	Term. #3 of T205 3rd IF Trans.	47 ohm in shunt with gen. output. Then from hot lead a 27 ohm in series with a .001 MFD capacitor.	10.7 MHz 400 KHz Deviation	88 MHz	Top of T207	Adjust Primary and secondary of ratio detector for maximum amplitude and symmetry as shown in Scope Pattern "A,"
2 A	Term. #3 of T205 3rd IF Trans.		10.7 MHz 400 KHz Deviation	88 MHz	Bottom of T207	
3 B	Term. #3 of T203 2nd IF Trans. Test Point "F"		10.7 MHz 400 KHz Deviation	88 MHz	Top & Bottom of T205	Align I.F. transformers for maximum output and symmetry. This pattern is not necessarily identical to the overall Scope Pattern "B,"
4 B	Connect to Test Point "D"		10.7 MHz 400 KHz Deviation	88 MHz	Top & Bottom of T203	
5 B	Connect to Test Point #D		10.7 MHz 400 KHz Deviation	88 MHz	L5 & L6	
6 B	Connect to Test Point #D		10.7 MHz 400 KHz Deviation	88 MHz	T201, T203 & T205	Align I.F. transformers for maximum output and symmetry as indicated in Scope Pattern "B"
7 B	FM Antenna Post (Remove Antenna) Test Point "A"	300 ohm	98 MHz 400 KHz Deviation	98 MHz	L4	Set oscillator to Dial Scale
8 B	FM Antenna Post (Remove Antenna) Test Point "A"	300 ohm	98 MHz 400 KHz Deviation	98 MHz	L2	Align FM Detector stage for maximum.
9 C	Test Point #L	.05 in series with hot lead of gen..	455 KHz 400 Hertz Modulated	600 KHz	L11, L10 & L7	Align AM IF for maximum.
10 C	Two turn loop loosely coupled to wave-magnet		1600 KHz 400 Hertz Modulated	1600 KHz	C101D	Set oscillator to dial scale.
11 C	Two turn loop loosely coupled to wave-magnet		1400 KHz 400 Hertz Modulated	1400 KHz	C101A	Align antenna stages.

*For A, B, C See Page 10.

Refer to Page 8 for AGC adjustment.

RF AND IF ALIGNMENT PROCEDURE FOR CHASSIS 21BT34 & 27BT 30

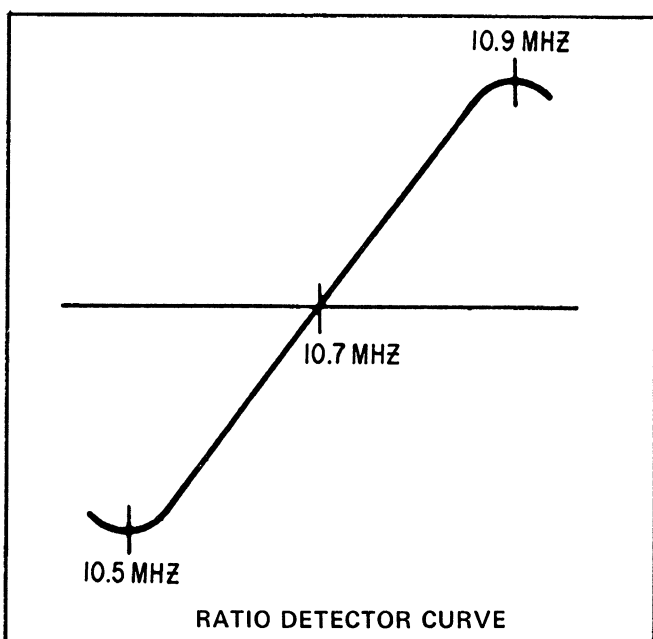
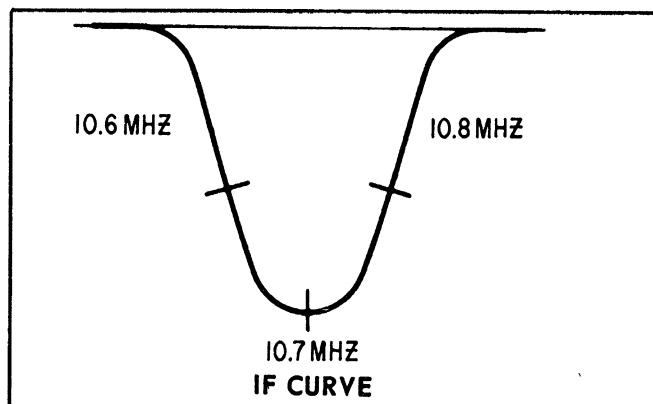
OPERATION *	CONNECT GENERATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	BAND	SET DIAL TO	ADJUST	PURPOSE		
NOTE: For AM Alignment Use A Signal With 400 Hertz Modulation									
1 C	One turn loosely coupled to wavemagnet		455 KHz	BC	600 KHz	L203, L204, L207, L210	Align IF channel for maximum output		
2 C			1600 KHz	BC	1600 KHz	C1G	Set oscillator to dial scale		
3 C			600 KHz	BC	600 KHz	L103			
4 C			Repeat Operations No. 2 & 3						
5 C					1500 KHz	BC	1400 KHz	C1D	Align antenna stage
NOTE: For FM Alignment Use A Signal With 400 KHz Deviation									
6 A	Term. No. 5 of T205 3rd IF Trans. Test Point "G"	47 ohm in shunt with gen. output. Then from hot lead a 27 ohm in series with a .001 MFD capaci- tor.	10.7 MHz	FM	Gang Closed	L212	Adjust Primary and Secondary of ratio detector for maximum amplitude and symmetry, as shown in Scope Pattern "A"		
7 A			10.7 MHz	FM	Gang Closed	L214			
8 B	10.7 MHz		FM	Gang Closed	L208 & L209	Align I.F. transformer for maximum output and symmetry. This pattern is not necessarily identical to the overall Scope Pattern "B"			
9 B	10.7 MHz		FM	Gang Closed	L205 & L206				
10 B	10.7 MHz		FM	Gang Closed	L201 & L202				
11 B	Connect to Test Point "D"		10.7 MHz	FM	Gang Closed	Readjust L201, L202, L205, L206, L208 & L209	Align I.F. transformer for maximum output and symmetry as indicated in Scope Pattern "B"		
NOTE: In Steps 10B and 11B Generator ground Must be Connected On Braid As Close To Gang As Possible									
12 B	FM Antenna Post (Remove Antenna) Test Point "A"		300 ohm	106 MHz	FM	106 MHz	C13	Set oscillator to dial scale	
13 B				90 MHz	FM	90 MHz	L4	Align FM Detector stage for maximum	
14 B				Repeat Operations 12 B and 13 B					
15 B				106 MHz	FM	106 MHz	C1A		
16 B		90 MHz		FM	90 MHz	L2 if necessary	Align FM Antenna stage for maximum		
17 B		106 MHz		FM	106 MHz	C1H			
18 B		90 MHz		FM	90 MHz	L1 if necessary			
19 B	Repeat Operations 15 B thru 18 B								

* For A, B, C See Page 10.

NOTES

MULTIPLEX ALIGNMENT PROCEDURE

Using the Zenith FM multiplex signal generator, the multiplex portion of Zenith or any FM multiplex receiver can be aligned, but first before any attempt is made to do this it is necessary that the technician be certain that the RF, IF, and ratio detector alignment is correct, and that the receiver operates normally on monaural signals.



Because of the wide band pass required in the multiplex FM receiver, it is desirable to use an FM signal generator having a deviation of at least 200 KHz with a sweep rate of 60 Hertz, as well as an oscilloscope. During the IF and ratio detector alignment it is not only necessary to obtain maximum gain, but also extremely important to maintain symmetry.

To help achieve this IF curve symmetry 10.6 and 10.8 megahertz markers must be symmetrically positioned and the 10.7 megahertz marker must be at the center of the curve. When aligning the ratio detector, 10.5 and 10.9 megahertz markers are desirable to achieve S curve symmetry. The pattern illustrating marker use to obtain S curve symmetry indicates it is most necessary to adjust for maximum gain and at the same time maintain linearity and symmetry. 10.7

megahertz must be on the curve at the reference line. 10.5 megahertz and 10.9 megahertz must be at the lower and upper turn of the S curve respectively. Only when the I.F. and ratio detector circuitry have been aligned in accordance with these specifications should the technician proceed to align the multiplex portion of the receiver.

Preliminary Procedures

Before using the Zenith FM multiplex signal generator, it is recommended that it be connected to the power source and turned on giving it a 10 to 20 minute warmup period. This will allow ample time for the RF, audio, and 19KHz oscillators to stabilize.

The following procedure is only necessary when the generator has been received from the factory, or has been subjected to a great deal of handling or transportation vibration. Although the 19KHz pilot generator oscillator is extremely stable, there is always the possibility that it could shift from its precisely assigned frequency. As a result, we have a very simple method to check the 19KHz pilot frequency using an FM multiplex receiver and FM multiplex station as a frequency standard. Proceed as follows:

1. Tune your FM multiplex receiver to an FM multiplex station and when the pilot indicator lights up, this indicates the 19KHz pilot amplifier is functioning. Since the 19KHz sine wave is from the transmitter it must be on frequency and can be used as a reference standard. With a cable connect the collector output of the 19KHz amplifier to the vertical input of a good oscilloscope.
2. On the multiplex generator set the pilot carrier amplitude control to 10%. Place L-R, L+R and 67KHz switches in OFF position and connect the composite output terminal directly to the horizontal input of the oscilloscope. On the oscilloscope you will see an oval Lissajous figure which should be motionless when the 19KHz output of the generator is synchronized with the 19KHz signal from the transmitter. Should the Lissajous figure rotate it will only be necessary to adjust the pilot carrier frequency trimmer on the multiplex generator with an IF alignment wrench until the Lissajous figure ceases to rotate. After the generator has been adjusted to zero beat, disconnect all cable.

This multiplex generator provides a composite multiplex signal as well as an RF signal, FM modulated by the composite multiplex signal. The composite signal is very useful since it is an excellent tool that can be used in signal tracing the multiplex portion of the receiver. We do not recommend that multiplex alignment be made using only the composite signal injected at the output terminal of the ratio detector tertiary winding, since there is always some phase shift occurring in the RF, IF or ratio detector circuits. As a result, multiplex alignment made by a signal injected at the ratio detector would not be correct. For proper multiplex alignment the composite signal must FM modulate the RF carrier and then be fed into the FM antenna terminals. With the signal injected

in this manner the multiplex alignment would then be the best that could possibly be obtained and separation would be the maximum for this receiver.

The RF carrier in this generator is variable from 88 to 108MHz. The RF signal should be injected at a point in the FM band where no other signal is present. If at all possible this should be at a frequency near the middle of the FM band. Tune the FM receiver to this point and adjust the RF frequency adjusting slug on the generator to this same frequency. The AGC voltage developed in the receiver should be maximum. AGC voltage substantially less than this will indicate the RF frequency adjusting slug is tuned to an image.

19KHz Sub Carrier Amplifier, Doubler and Mute Adjustments

1. Turn generator 19KHz pilot carrier amplitude control to 10% position.
2. Connect the V.T.V.M. (DC scale) and/or scope to the junction of the two frequency doubling diodes and chassis (test point "N").
3. Place the stereo-monaural switch in stereo position and short Test Point "T" to ground.
4. Adjust the 19KHz amplifier transformer and the doubler transformer for maximum output. Simultaneously adjust the mute control so the voltage at the junction of the two frequency doubling diodes never exceeds -.2 volt during this operation. This voltage must be kept at a minimum for proper alignment. The three controls in this paragraph have an effect on each other. Should the stereo indicator light up, readjust the mute control to extinguish the lamp and continue adjustment of the transformers for maximum.
5. Remove ground from Test Point "T".
6. Turn generator pilot carrier amplitude control to 5% position.
7. Slowly rotate the mute control to a point where the stereo indicator lights up.

Separation Adjustments

1. Place stereo monaural switch in Stereo position.
2. Turn generator pilot carrier amplitude control to 10% position.
3. Move L-R and L+R generator switches from OFF position to L-R and L+R positions.
4. Connect a V.T.V.M. (AC scale) and/or scope to the L audio output, after the 38KHz filter.
5. Adjust the 38KHz detector transformer for maximum voltage at L output. The magnitude of this signal should be much greater than that at the R output. The voltage at the L output should be approximately 10 times or greater than at the R output.

TROUBLE-SHOOTING

Should a problem arise in aligning the FM multiplex portion of the receiver and the technician does not know whether the difficulty lies in the RF, IF, limiter and ratio detector portions of the receiver, or whether the difficulty lies in the multiplex

portion, the multiplex generator can be used as an excellent signal tracing device to determine if the multiplex section of the receiver is functioning properly. The composite output of the multiplex generator can be injected at the output of the ratio detector.

To reduce possible extraneous signals coming through the ratio detector, short the ratio detector primary with a jumper lead. The wave forms and their magnitude may vary slightly from chassis to chassis, however, they are quite indicative of what will be seen when signal tracing the multiplex circuitry.

67KHz Signal Tracing

1. Turn generator pilot carrier amplitude control to zero.
2. Move L+R and L-R switches to OFF position.
3. Move 67 KHz generator switch from OFF position up to 67KHz. Sequentially connect an oscilloscope to the input and output of the 67KHz trap. The 67KHz signal at the output of the trap if it is properly nulled, will be much smaller than at the input. The voltage ratio should be approximately 20 to 1 input to output.

19KHz Signal Tracing

1. Move the 67KHz generator switch to OFF.
2. Rotate the generator 19KHz pilot carrier amplitude control to 10% position.
3. Sequentially connect your scope to the base of composite amplifier, base of 19KHz amplifier and collector of 19KHz amplifier. The amplitude of the 19KHz signal should greatly increase as you proceed along the 19KHz chain.

Doubler and Subcarrier Signal Tracing

To determine if the doubler is functioning, place your scope at the junction of the two diodes and you will see 38KHz DC pulses. Placing the scope at the collector of the subcarrier amplifier, you should see a 38KHz sine wave which will indicate that the subcarrier amplifier and associated ringing circuitry is functioning properly.

Multiplex Detector Signal Tracing

1. Leave the 19KHz amplitude control at 10%.
2. Move the L - R generator switch from OFF position to L - R position. You should see equal amplitude 1000 hertz sine waves at both L and R outputs.
3. Move the L+R switch from OFF up to L+R and look at the L audio output, and measure the magnitude of the 1000 Hertz sine wave. If the multiplex detector and preceding circuitry are aligned properly, the magnitude of the wave form at L should be greater than at R.

If all the waves are similar in form and magnitude to those indicated, then it can be assumed that the multiplex portion of the receiver is functioning properly and the problem lies ahead of this in the FM receiver. If any of the wave forms are missing at a latter point but are apparent at a previous point, then something is amiss in the circuitry between the two test points.

PARTS LIST

Note: Certain mechanical components in the following parts lists are manufactured to metric standards. Caution should be used in selecting replacement hardware.

PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
CHASSIS 3AT20					
12-5331	Chassis Support Bracket	.15	103-145	Diode (2 Req.)	.50
22-3034	.05 MF Disc Capacitor - 25V.	.45	121-434	Transistor - Pre-Amplifier (2 Req.)	1.25
22-3255	330 PF Disc Capacitor - 25V.	.25	-OR-		
22-3652	.1 MF Disc Capacitor - 10V.	.30	121-711	Transistor - Pre-Amplifier (2 Req.)	.80
22-4568	100 MF Electrolytic Capacitor - 15V.	.95	121-764	Transistor - Driver (2 Req.)	.80
22-4570	100 MF Electrolytic Capacitor - 35V.	1.05	-OR-		
22-5201	.0022 MF Disc Capacitor - 25V.	.20	121-433	Transistor - Driver (2 Req.)	1.30
22-6096	470 MFD. Electrolytic Capacitor - 35V.	3.50	212-71	Rectifier	1.25
63-1747	120 Ohm Resistor - ½W. 10%	.17	800-305	Output Transistor Assem. - Matched Pair (PNP) (NPN)	1.45
63-1785	1000 Ohm Resistor - ½W. 10% (2 Req.)		-OR-		
63-1820	6800 Ohm Resistor - ½W. 10%	.17	800-328	Output Transistor Assem. - Matched Pair (PNP) (NPN)	1.05
63-1901	560K Ohm Resistor - ½W. 10% (2 Req.)	.17	S-74674	Speaker Lead & Terminal Assem.	
63-1911	1 Megohm Resistor - ½W. 10%	.17	*S-77602	Speaker Lead & Terminal Assem.	
63-4529	4.7 Ohm Resistor - ½W. 10%	.15	CHASSIS 11ZT27 AMPLIFIER CHASSIS		
63-8321	Volume Control	1.20	11-150	A.C. Line Cord	
64-1033	Grip Eyelet (6 Req.)	.03	19-546	Capacitor Retaining Clip	.10
86-329	Connector Terminal (2 Req.)	.03	19-561	Capacitor Retaining Clip (4 Req.)	.10
103-145	Diode	.50	22-14	.0047 MF Disc Capacitor - 500V. (2 Req.)	.25
121-433	Transistor - Driver	1.30	22-3608	68 PF Disc Capacitor - 500V. (2 Req.)	.25
-OR-			22-3687	1 MF Electrolytic Capacitor - 50V. (2 Req.)	1.50
121-764	Transistor - Driver	.80	22-3892	.01 MF Disc Capacitor - 100V. (3 Req.)	.30
212-71	Rectifier	1.25	22-3973	100 MF Electrolytic Capacitor - 25V. (2 Req.)	1.30
800-328	Output Transistor Assem. - Matched Pair (PNP) (NPN)		22-4601	.01 MF Disc Capacitor - 1KV.	.20
-OR-			22-4617	.01 MF Disc Capacitor (2 Req.)	.10
800-305	Output Transistor Assem. - Matched Pair (PNP) (NPN)		22-5167	1000 MF Electrolytic Capacitor - 30V.	3.20
CHASSIS 8BT20			22-5316	500 MF Electrolytic Capacitor - 50V. (3 Req.)	2.55
*12-5411	Control & Board Mtg. Bracket		22-5362	1000 MF Electrolytic Capacitor - 50V.	4.05
22-2	220 PF Disc Capacitor - 500V. (2 Req.)	.25	43-519	Socket Contact Housing - Male (Used On 52-1339)	.20
22-3254	.1 MF Disc Capacitor - 25V. (2 Req.)	.75	43-874	9 Contact Housing - Female (Used On 86-484)	.30
22-3321	100 PF Disc Capacitor - 25V. (2 Req.)	.25	43-876	3 Contact Housing - Female (Used On 86-484)	.25
22-3393	.01 MF Disc Capacitor - 25V. (4 Req.)	.25	52-1339	3 Conductor Cable - Phono - Approx. 26"	
22-3615	1.0 MF Electrolytic Capacitor - 25V. (2 Req.)	1.55	(Used On 86-334)		.30
22-3652	.1 MF Disc Capacitor - 10V. (2 Req.)	.30	52-1529	3 Conductor Cable - Speaker - Approx. 20"	
22-3896	5 MF Electrolytic Capacitor - 25V.	1.00	(Used On 83-3404)		.40
22-4567	50 MF Electrolytic Capacitor - 15V. (2 Req.)	.80	57-6328	Heat Sink Plate (2 Req.)	.50
22-4570	100 MF Electrolytic Capacitor - 35V. (2 Req.)	1.05	63-1750	150 Ohm Resistor - ½W. 10% (2 Req.)	.17
22-5056	.02 MF Disc Capacitor - 25V. (2 Req.)	.20	63-1771	470 Ohm Resistor - ½W. 10% (2 Req.)	.17
22-5167	1000 MF Electrolytic Capacitor - 30V.	3.20	63-1800	2200 Ohm Resistor - ½W. 10% (2 Req.)	.17
22-5585	750 PF Disc Capacitor - 500V. (2 Req.)	.10	63-1827	10K Ohm Resistor - ½W. 10% (2 Req.)	
52-1647	Two Conductor Shielded Cable	.80	63-1862	68K Ohm Resistor - ½W. 10% (2 Req.)	
63-1747	120 Ohm Resistor - ½W. 10% (2 Req.)	.17	63-1869	100K Ohm Resistor - ½W. 10% (2 Req.)	.17
63-1785	1000 Ohm Resistor - ½W. 10% (4 Req.)		63-1876	150K Ohm Resistor - ½W. 10% (2 Req.)	.17
63-1820	6800 Ohm Resistor - ½W. 10% (2 Req.)	.17	63-1918	1.5 Megohm Resistor - ½W. 10% (2 Req.)	
63-1835	15K Ohm Resistor - ½W. 20%		63-1936	3.9 Megohm Resistor - ½W. 10%	
63-1841	22K Ohm Resistor - ½W. 10%		63-4533	5.6 Ohm Resistor - ½W. 10% (4 Req.)	.17
63-1845	27K Ohm Resistor - ½W. 10% (2 Req.)	.17	63-5305	.51 Ohm Resistor - 5W. 5% (4 Req.)	.75
63-1876	150K Ohm Resistor - ½W. 10% (2 Req.)	.17	63-5600	22 Ohm Resistor - 2W. 10%	.34
63-1880	180K Ohm Resistor - ½W. 10% (2 Req.)		63-5642	220 Ohm Resistor - 2W. 10%	.34
63-1883	220K Ohm Resistor - ½W. 10% (2 Req.)	.17	63-6027	100 Ohm Resistor - 1W. 20% (2 Req.)	
63-1887	270K Ohm Resistor - ½W. 10% (2 Req.)	.17	63-6031	120 Ohm Resistor - 1W. 10%	.25
63-1901	560K Ohm Resistor - ½W. 10% (4 Req.)	.17	63-6059	560 Ohm Resistor - 1W. 10%	.20
63-4526	3.9 Ohm Resistor - ½W. 10% (4 Req.)	.15	63-6063	680 Ohm Resistor - 1W. 10% (4 Req.)	.25
*63-8445	Volume Control (2 Req.)		78-1812	2 Contact Transistor Socket (5 Req.)	.30
*63-8446	Dual Tone Control		79-174-34	No. 18 Sleeving - Yellow - 4 ¼"	.10
64-1033	Grip Eyelet (9 Req.)	.03	83-3404	3 Lug Terminal Strip (Used On 52-1529)	.05
79-174-12	No. 18 Sleeving - Yellow - 1 ½"		83-5277	Transistor Insulating Strip (3 Part Of 800-196)	.03
86-329	Connector Terminal (2 Used On S-74674 & S-77602 (4 Req.)	.03	83-5385	7 Lug Terminal Strip	.15
94-1527	Snap Bushing (2 Req.)	.25			

*Denotes parts not previously used in Zenith receivers.

PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
CHASSIS 11ZT27					
AMPLIFIER CHASSIS (Continued)					
83-5391	20 Lug Terminal Strip (3 Req.)	.50	83-6881	Terminal Board	.55
83-6881	14 Lug Terminal Strip	.55	86-388	Terminal (2 Part of S-80716)	.05
86-334	Terminal (3 Used On 52-1339)	.10	86-483	Terminal - Male (9 Used On 43-1043)	
86-484	Terminal (11 Used On 43-874)	.03	86-496	Ground Terminal	.03
86-496	Ground Terminal	.03	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 Mt. 83-6769)	.03
95-2475	Driver Transformer (2 Req.)	4.50	121-430	Transistor - Pre-Driver (2 Req.)	1.10
95-2476	Power Transformer	11.00	S-80716	Dual Shielded Lead & Terminal Assem.	1.10
102-4322	Fuse Label		CHASSIS 20AT21 AND 20AT21Z		
114-271	6-20 x 1/2 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 Used On Ea. 800-196 & 2 Used On 121-726)	.03	11-106	Line Cord	1.00
114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 Used On Ea. 95-2475)	.03	12-4954	Transistor Mtg. Bracket (2 Req.)	.20
114-802	8-18 x 5/16 Hex Washer Hd. Self-Tap. Screw- Stat. Bronze (4 Mts. 95-2476)	.03	12-4956	Antenna Mtg. Bracket	.10
121-430	Transistor - Pre-Driver (2 Req.)	1.10	12-4959	Transistor Mtg. Bracket	.25
121-706	Transistor - Driver (2 Req.)	.85	12-4968	Switch Mtg. Bracket	.15
*121-726	Transistor (Power Supply Filter)	2.80	12-4976	Chassis Mtg. Bracket (Right Side)	.50
125-140	Strain Relief Grommet	.10	12-4977	Chassis Mtg. Bracket (Left Side)	.50
136-24	Fuse - 2A. 250V.	.25	12-4983	Bracket	.03
205-51	Dow Corning Heat Conductive Grease (Part Of 800-196)	.16	*15-256	Pointer Cap	
212-61	Silicon Rectifier (2 Req.)	1.75	17-135	Plastic Clamp	.25
800-196	Power Output Transistor Assem. - Matched Pair (2 Req.)	5.00	17-141	Plastic Clamp	.20
CONTROL PANEL PRE-AMP. COMPONENTS			17-236	Plastic Clamp	.25
12-4938	Chassis Bracket	1.35	19-448	Grounding Clip (2 Req.)	.10
19-448	Grounding Clip (Used On 86-388)	.10	19-480	Wire Retaining Clip (2 Req.)	.03
19-492	Retaining Clip	.05	19-485	Tinnerman Speed Clip	.10
22-13	.0033 MF Disc Capacitor - 500V. (2 Req.)	.25	19-492	Wire Retaining Clip (2 Req.)	.05
22-17	.001 MF Disc Capacitor - 1KV. (2 Req.)	.25	33-13	.0033 MF Disc Capacitor - 500V.	.25
22-2939	680 PF Disc Capacitor - 500V. (2 Req.)	.25	22-2376	47 PF Disc Capacitor - 500V. (2 Req.)	.15
22-3034	.05 MF Disc Capacitor - 25V. (2 Req.)	.45	22-2397	100 PF Disc Capacitor - 500V.	.30
22-3255	330 PF Disc Capacitor - 500V. (2 Req.)	.25	22-2428	1.8 PF Gimmick Capacitor - 500V.	.25
22-3595	.33 MF Capacitor - 50V. (2 Req.)	.75	22-2729	.001 MF Disc Capacitor - 25V.	.25
22-3630	.068 MF Capacitor - 50V. (2 Req.)	.30	22-2939	680 PF Disc Capacitor - 500V. (2 Req.)	.25
22-3687	1 MF Electrolytic Capacitor - 50V. (2 Req.)	1.50	22-3033	.02 MF Disc Capacitor - 25V.	.35
22-3710	.22 MF Capacitor - 50V. (2 Req.)	.50	22-3034	.05 MF Disc Capacitor - 25V. (10 Req.)	.45
22-4617	.01 MF Disc Capacitor - 500V.	.10	22-3177	390 PF Disc Capacitor - 500V. (2 Req.)	.25
22-5012	.15 MF Capacitor - 50V. (2 Req.)	.75	22-3255	330 PF Disc Capacitor - 500V. (2 Req.)	.25
22-5207	220 PF Capacitor - 100V. (2 Req.)	.30	22-3310	2.7 PF Gimmick Capacitor - 500V.	.25
22-5439	.056 MF Capacitor - 50V. (2 Req.)	.30	22-3393	.01 MF Disc Capacitor - 25V. (3 Req.)	.25
22-5652	.027 MF Capacitor - 50V. (2 Req.)	.30	22-3400	3.9 PF Gimmick Capacitor - 500V.	.45
43-877	3 Contact Housing - Male (Used On 52-1587)	.25	22-3424	270 PF Mica Capacitor - 100V.	.35
43-1043	9 Contact Housing - Male (Used On 86-483)	.25	-OR-		
52-1216	Dual Shielded Lead	.45	22-5780	270 PF Polystyrene Capacitor	.15
52-1527	Dual Shielded Lead (Used On 86-483)	.90	22-3687	1 MF Electrolytic Capacitor - 50V. (4 Req.)	1.50
54-139	3/8-32 Palnut (1 Used On Ea. 63-6498, 63-6496, 63-6497 & 63-6499)	.03	22-3891	42 PF Disc Capacitor - 500V.	.25
57-6901	Bottom Plate	.60	22-3896	5 MF Electrolytic Capacitor - 25V. (3 Req.)	1.00
63-1803	2700 Ohm Resistor - 1/2W. 10% (2 Req.)		22-3973	100 MF Electrolytic Capacitor - 25V.	1.30
63-1817	5600 Ohm Resistor - 1/2W. 10% (4 Req.)	.17	22-4617	.01 MF Disc Capacitor - 500V. (4 Req.)	.10
63-1834	15K Ohm Resistor - 1/2W. 10% (4 Req.)	.17	22-5037	.005 MF Disc Capacitor - 25V.	
63-1835	15K Ohm Resistor - 1/2W. 20%		22-5056	.02 MF Disc Capacitor - 25V. (2 Req.)	.20
63-1841	22K Ohm Resistor - 1/2W. 10% (2 Req.)		22-5167	1000 MF Electrolytic Capacitor - 30V.	3.20
63-1845	27K Ohm Resistor - 1/2W. 10% (2 Req.)	.17	22-5229	2200 PF Mica Capacitor - 500V. (3 Req.)	.15
63-1848	33K Ohm Resistor - 1/2W. 10% (2 Req.)	.17	22-5251	.15 MF Disc Capacitor - 12V.	.45
63-1876	150K Ohm Resistor - 1/2W. 10% (2 Req.)	.17	22-5315	300 MF Electrolytic Capacitor - 50V. (2 Req.)	1.80
63-1880	180K Ohm Resistor - 1/2W. 10% (2 Req.)		22-5471	.47 MF Capacitor - 200V. (3 Req.)	.60
63-1883	220K Ohm Resistor - 1/2W. 10% (2 Req.)	.17	22-5479	2.4 PF Gimmick Capacitor - 500V.	.15
63-6496	Dual Loudness Control	3.45	22-5480	390 PF Mica Capacitor - 100V.	.50
63-6497	Balance Control	1.25	22-5481	560 PF Disc Capacitor - 500V. (2 Req.)	.25
63-6499	Dual Treble Control	.90	22-5482	680 PF Disc Capacitor - 500V. (2 Req.)	.25
*63-7685	Dual Bass Tone Control & Switch	4.30	22-5483	1500 PF Disc Capacitor - 500V.	.25
79-174-12	No. 18 Sleeving - Yellow - 1 1/2"	.03	22-5486	10 MF Electrolytic Capacitor - 3V.	.95
83-5328	11 Lug Terminal Strip	.35	22-5633	.15 MF Capacitor - 200V. (4 Req.)	.40
83-5384	6 Lug Terminal Strip	.20	22-5634	.1 MF Capacitor - 200V. (2 Req.)	.35
83-5648	14 Lug Terminal Strip	.50	22-5635	.0068 MF Capacitor - 100V. (2 Req.)	.30
83-6769	Chassis Control Panel Strip	.40	22-5649	Variable Capacitor	3.75
			22-5650	2000 MF Electrolytic Capacitor - 50V. (2 Req.)	3.95
			22-5659	5 MF Electrolytic Capacitor - 12V.	.95
			22-5781	1000 PF Polystyrene Capacitor (3 Req.)	.15
			22-5782	2200 PF Polystyrene Capacitor (2 Req.)	.15
			24-1670	Tuner Cover	
			26-1749	Dial Scale	
			43-519	Housing	.20
			46-7263	Balance Control Knob	
			46-7264	Stereo - Monaural Knob	

*Denotes parts not previously used in Zenith receivers.

PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
CHASSIS 20AT21 AND 20AT21Z (Continued)					
46-7333	Control Knob - Loudness - Bass - Treble (3 Req.)		80-1140	Drive Cord Tension Spring	.10
46-7334	Tuning Knob		82-148	Ground Strip (I.F.)	.55
46-7335	Bandswitch Knob		83-6834	Retainer Strip	.70
52-1445	4 Conductor Cable (Approx. 5½")		83-6835	Slider Bearing (2 Req.)	.03
52-1497	Two Conductor Shielded Cable	1.05	83-6874	4 Lug Terminal Strip	.20
52-1498	Two Conductor Shielded Cable	.75	83-6885	Cable Retaining Strip (2 Req.)	.03
52-1500	Three Conductor Cable (Approx. 24")	.40	83-6899	Glass Channel Strip (2 Req.)	.10
52-1501	Three Conductor Cable (Approx. 20")	.60	83-6993	Rubber Strip (2 Req.)	.03
*52-1610	Two Conductor Shielded Cable		*83-7148	Trim Strip	
*52-1611	Two Conductor Shielded Cable		*83-7190	Trim Strip	
54-139	3/8-32 x 9/16 Palnut - Cadmium (1 Used On Ea. 63-7563, 63-7564, 63-7584 & 85-1029)	.03	85-1029	Bandswitch	10.00
54-634	Tinnerman Speed Nut (6 Used On 126-1363)	.03	85-1032	Mono - Stereo Switch	1.05
54-812	Tinnerman Speed Nut (10 Req.)	.03	86-199	Connector Terminal (2 Req.)	.03
54-813	Tinnerman Speed Nut (4 Used On 83-6899)	.03	86-334	Connector Terminal (3 Req.)	.10
57-6830	Background Plate		86-344	Connector Terminal (5 Req.)	.03
*57-7153	Die-Cast Escutcheon		86-388	Connector Terminal (4 Req.)	.05
58-315	Connector Plug (2 Req.)	.17	86-398	Connector Terminal (3 Req.)	.10
*59-1000	Dial Pointer		86-500	Terminal - Test Point (15 Req.)	.03
63-1743	100 Ohm Resistor - ½W. 10% (2 Req.)	.17	*93-1301	Felt Washer (2 Req.)	
63-1747	120 Ohm Resistor - ½W. 10% (2 Req.)	.17	*93-1831	Washer (3 Req.)	
63-1757	220 Ohm Resistor - ½W. 10%	.17	93-1832	Washer	
63-1761	270 Ohm Resistor - ½W. 10%	.17	94-1381	Insulating Bushing (4 Req.)	.20
63-1768	390 Ohm Resistor - ½W. 10%	.17	95-2541	1st. I.F. Transformer (AM)	1.75
63-1771	470 Ohm Resistor - ½W. 10% (5 Req.)	.17	95-2542	2nd. I.F. Transformer (AM)	1.75
63-1772	470 Ohm Resistor - ½W. 20% (2 Req.)	.17	95-2543	3rd. I.F. Transformer (AM)	1.95
63-1775	560 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2544	Oscillator Coil	1.45
63-1778	680 Ohm Resistor - ½W. 10% (3 Req.)	.17	95-2545	Ratio Detector Transformer	2.65
63-1782	820 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2547	2nd. I.F. Transformer (FM)	2.00
63-1785	1000 Ohm Resistor - ½W. 10% (3 Req.)	.17	95-2548	3rd. I.F. Transformer (FM)	2.10
63-1792	1500 Ohm Resistor - ½W. 10% (5 Req.)	.34	95-2637	Driver Transformer (2 Req.)	4.75
63-1796	1800 Ohm Resistor - ½W. 10%	.17	95-2655	Power Transformer	10.40
63-1799	2200 Ohm Resistor - ½W. 10% (7 Req.)	.17	100-249	Pilot Light Bulb (6 Req.)	.18
63-1806	3300 Ohm Resistor - ½W. 10% (2 Req.)	.17	100-384	Stereo Indicator Light Bulb	1.30
63-1813	4700 Ohm Resistor - ½W. 10% (3 Req.)	.17	103-23	Diode (7 Req.)	.75
63-1814	4700 Ohm Resistor - ½W. 20%	.17	103-74	Diode	.50
63-1817	5600 Ohm Resistor - ½W. 10%	.17	103-90	Diode (2 Req.)	2.00
63-1820	6800 Ohm Resistor - ½W. 10% (2 Req.)	.17	103-96	Zener Diode	1.90
63-1824	8200 Ohm Resistor - ½W. 10%	.17	105-78	R/C Network	1.00
63-1827	10K Ohm Resistor - ½W. 10% (2 Req.)		113-8	6-32 x 1/4 x 1/4 Hex Hd. Mach. Screw - N.P. - Internal Shakeproof Lockwasher (2 Used On 12-4956) (4 Req.)	.03
63-1831	12K Ohm Resistor - ½W. 10% (2 Req.)		113-10	6-32 x 3/16 x 1/4 Hex Hd. Mach. Screw - N.P. - Internal Shakeproof Lockwasher (3 Req.)	.03
63-1834	15K Ohm Resistor - ½W. 10% (5 Req.)	.17	114-26	8-18 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (3 Used On Ea. 12-4976 & 12-4977 & 4 Mt. S-82377)	.03
63-1841	22K Ohm Resistor - ½W. 10%		114-477	8-15 x 3/8 Hex Slotted Hd. Self-Tap. Screw- Stat. Bronze - Flat Washer Att. (2 Req.)	.05
63-1848	33K Ohm Resistor - ½W. 10% (3 Req.)	.17	114-605	4-24 x 5/16 x 3/16 Hex Hd. Self-Tap. Screw - Cadmium (4 Used On 63-7680)	
63-1852	39K Ohm Resistor - ½W. 10% (3 Req.)		114-654	6-20 x 3/8 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (8 Req.)	.03
63-1855	47K Ohm Resistor - ½W. 10% (4 Req.)		114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze	.03
63-1859	56K Ohm Resistor - ½W. 10%		114-803	6-20 x 1/4 x 1/4 Hex Washer Hd. Self-Tap. Screw- Stat. Bronze (2 Used On Ea. 121-418, 95-2637 & 1 Mts. Ea. 12-4983, 17-135 & 17-236 & 3 Used On Ea. 24-1670 & 85-1029 (15 Req.)	
63-1869	100K Ohm Resistor - ½W. 10% (2 Req.)	.17	114-809	8-18 x 3/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 Req.)	.03
63-1873	120K Ohm Resistor - ½W. 10% (2 Req.)	.17	114-900	8-18 x 7/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 Used On 57-7153)	.03
63-1880	180K Ohm Resistor - ½W. 10% (2 Req.)		121-257	Transistor - A.M. Conv.	1.55
63-1883	220K Ohm Resistor - ½W. 10% (4 Req.)	.17	121-418	Transistor - Output - Matched Pair (2 Req.)	3.55
63-1897	470K Ohm Resistor - ½W. 10%	.17	121-430	Transistor - Pre-Driver (2 Req.)	1.10
63-1911	1 Meg Ohm Resistor - ½W. 10% (2 Req.)	.17	121-433	Transistor - Pre-Amp. (2 Req.)	1.30
63-1912	1 Meg Ohm Resistor - ½W. 20%	.17	121-546	Transistor - F.M. & A.M. 2nd. I.F. & F.M. 3rd. I.F. (2 Req.)	.80
63-4185	1000 Ohm Resistor - ¼W. 10%	.17	121-614	Transistor - F.M. & A.M. 1st. I.F.	.80
63-4533	5.6 Ohm Resistor - ½W. 10% (5 Req.)	.17	121-639	Transistor - Comp. Amp., 19 KHz Amp., 38 KHz Amp. & Stereo Ind. Switch (4 Req.)	.70
63-5642	220 Ohm Resistor - 2W. 10%		121-706	Transistor - Driver (2 Req.)	.85
63-5666	820 Ohm Resistor - 2W. 10%	.34	125-62	Grommet (2 Used On 192-453)	.03
63-5944	1 Ohm Resistor - 1W. 10% (4 Req.)	.25	125-140	Strain Relief Grommet	.10
63-6045	270 Ohm Resistor - 1W. 10%	.20			
63-6063	680 Ohm Resistor - 1W. 10% (4 Req.)				
63-6424	1 Ohm Resistor - 5W. 10%	.75			
63-6495	Potentiometer (2 Req.)	1.00			
63-7563	Dual Loudness Control	2.60			
63-7564	Dual Bass Control	2.45			
63-7584	Dual Treble Control	2.45			
63-7680	Balance Control	1.95			
78-1815	Dial Light Socket & Wire (2 Req.)	.55			
78-1816	Dial Light Socket & Wire	.60			
78-1819	Dial Light Socket & Wire (3 Req.)	.60			
78-1820	Stereo Indicator Light Socket & Wire	.60			
80-209	Drive Cord Tension Spring	.10			

*Denotes parts not previously used in Zenith Receivers.

PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
CHASSIS 20AT21 AND 20AT21Z (Continued)			22-3721	200 MF Electrolytic Capacitor - 35V. (2 Req.)	2.25
126-1336	Shield (Multiplex Trap Coil)	.20	22-3770	5.5 PF Disc Capacitor $\pm$.25 PF - 500V.	.30
126-1361	Shield (Multiplex)	.15	22-3791	42 PF Disc Capacitor $\pm$ 5% - 500V.	.25
126-1362	Shield (Audio)	.15	22-3792	17 PF Disc Capacitor $\pm$ 5% - 500V.	.25
126-1363	Balance Control Shield	.20	22-3896	5 MF Electrolytic Capacitor - 25V.	1.00
126-1372	Stereo Pilot Light Shield	.05	22-4568	100 MF Electrolytic Capacitor - 15V. (2 Req.)	.95
126-1402	Light Shield		22-4572	500 MF Electrolytic Capacitor - 15V. (2 Req.)	1.60
126-1418	Pilot Light Shield	.05	22-4617	.01 MF Disc Capacitor - 500V. (2 Req.)	.10
149-311	Ferrite Sleeve	.05	22-4855	Trimmer Capacitor - 1.7 To 10 PF Ceramic	.45
159-183	Plug Button	.10	22-5362	1000 MF Electrolytic Capacitor - 50V.	4.05
188-441	Clamping Ring (1 Used On Ea. S-80104, 1 Used On S-80105 & 1 Part Of Ea. 46-7333, 46-7334, & 46-7335)	.03	22-5480	390 PF Mica Capacitor - 100V.	.50
192-451	Light-Up Bar	2.35	22-5481	560 PF Disc Capacitor - 500V. (2 Req.)	.25
192-453	Light-Up Bar (Tuning Control)	1.80	22-5482	680 PF Disc Capacitor - 500V. (6 Req.)	.25
*192-465	Dial Crystal		22-5483	1500 PF Disc Capacitor - 500V.	.25
205-51	Dow Corning Heat Conductive Grease	.16	22-5486	10 MF Electrolytic Capacitor - 6V.	.95
212-71	Silicon Rectifier (2 Req.)	1.25	22-5487	.47 MF Disc Capacitor - 3V. (2 Req.)	.45
S-77014	Wave Magnet Assem.	2.45	22-5780	270 PF Polystyrene Capacitor $\pm$ 5% - 500V.	.15
S-79435	Multiplex Trap Coil Assem.	1.00	-OR-		
S-79436	Multiplex Doubler Coil Assem.	2.50	22-3424	270 PF Mica Capacitor $\pm$ 5% - 100V.	.35
S-79437	Multiplex Detector Coil Assem.	2.50	22-5781	1000 PF Polystyrene Capacitor $\pm$ - 500V. (2 Req.)	.15
*S-79438	Multiplex Input Coil Assem.	2.30	-OR-		
*S-79987	FM Tuner Assem. (See FM Tuner Parts List For Components)	24.00	22-3613	1000 PF Mica Capacitor $\pm$ 5% - 100V. (2 Req.)	.50
*S-80044	Switch & Bracket Assem.	1.10	22-5782	2200 PF Polystyrene Capacitor $\pm$ 5% - 500V.	.15
*S-80098	Pointer Guide Rail Assem.	.95	-OR-		
*S-80100	Drive Cord & Eyelet Assem.	.35	22-3635	2200 PF Mica Capacitor $\pm$ 5% - 100V.	1.05
*S-80101	Drive Cord & Eyelet Assem.	.30	22-5814	.022 MF Mylar Capacitor $\pm$ 10% - 100V. (4 Req.)	.30
S-80104	Indicator Disc Assem. (3 Req.)	.50	22-5815	.056 MF Mylar Capacitor $\pm$ 10% - 100V. (2 Req.)	.30
S-80105	Indicator Disc Assem.	.60	22-5878	5.5 PF Disc Capacitor $\pm$.5 PF - 50V.	.10
*S-80295	Reflector Bracket & Terminal Strip	2.80	22-5879	3.3 PF Disc Capacitor $\pm$.25 PF - 50V.	.10
S-81484	Drive Cord & Eyelet Assem.		22-6048	.22 MF Disc Capacitor $\pm$ 10% - 50V. (2 Req.)	
*S-82377	Background Plate & Bracket Assem.		*22-6136	2200 PF Polystyrene Capacitor $\pm$ 5% - 100V.	
			*22-6137	5 Section Variable Capacitor - FM Detector Trimmer, FM Detector Tuning - FM Oscillator Tuning - AM Antenna Trimmer - AM Antenna Tuning - AM Oscillator Tuning - AM Oscillator Trimmer - FM Antenna Trimmer - FM Antenna Tuning	
CHASSIS 21BT34			*22-6246	3.3 MF Electrolytic Capacitor - 15V.	
12-5420	Background Bracket		*33-327	PC Board Support Frame	
*12-5425	Pulley Mtg. Bracket (Part of S-85563 & S-86475) (2 Req.)		43-571	9 Contact Housing (Used On 86-390)	.30
*12-5524	Control Mtg. Bracket		44-48	Connector Jack (4 Part Of S-79667)	.20
17-130	Cable Clamp	.25	52-1062	2 Conductor Cable (Used On 86-449 Or 86-357, 86-450 Or 86-344)	.10
17-156	Cable Clamp		52-1425	2 Conductor Shielded Cable (Used On 58-214)	1.15
19-480	Retaining Clip	.03	52-1443	4 Conductor Cable - Approx. 6" (Used On S-82104)	.15
19-485	Speed Clip	.10	52-1530	3 Conductor Cable - Approx. 28" (Used On 83-3404)	
19-614	Clip (Part Of S-85104)		52-1588	2 Conductor Shielded Lead (Part Of S-79667)	1.00
20-1256	Trap Coil - 10.7 MHz	.50	52-1589	2 Conductor Shielded Lead (Part Of S-82528)	.85
20-1648	FM R.F. Coil	.35	52-1590	2 Conductor Shielded Lead (Used On 85-1170)	.70
20-1649	FM Oscillator Coil	.50	*52-1884	2 Conductor Shielded Cable	
20-2033	Peaking Coil	.40	54-139	3/8-32 x 9/16 Palnut (1 Used On 63-7681, 63-7682, 63-7683, 63-7684 & 114-802) (5 Req.)	.03
20-3291	FM Antenna Coil		54-334	Tinnerman Speed Nut (1 Used On Ea. 114-591) (4 Req.)	.03
22-13	.0033 MF Disc Capacitor - 25V.	.25	54-828	1/2-20 Palnut (Used On 114-802)	.03
22-14	.0047 MF Disc Capacitor - 500V. (2 Req.)	.25	54-851	Tinnerman Speed Nut (17 Join PC Board & 33-327)	
22-18	.0022 MF Disc Capacitor - 500V. (2 Req.)	.25	57-7850	Side Plate	
22-2428	1.8 PF Gimmick Capacitor - 500V.	.25	57-8147	Side Plate (Gang)	
22-2481	8 PF Disc Capacitor $\pm$.25 PF - 500V. (3 Req.)	.25	58-214	Single Prong Plug (2 Used On 52-1425)	.10
22-2729	.001 MF Disc Capacitor - 25V. (3 Req.)	.25	59-1081	Pointer (Dial)	
22-2884	5 MF Electrolytic Capacitor - 12V. (4 Req.)	1.50	61-222	Idler Pulley (1 Used On S-85564, 2 Used On S-85565, S-86475 & 1 Used On Ea. S-85563) (6 Req.)	.20
22-2939	680 PF Disc Capacitor - 500V. (4 Req.)	.25	63-1701	10 Ohm Resistor - 1/2W. 10%	.17
22-3033	.02 MF Disc Capacitor - 25V.	.35	63-1708	15 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3034	.05 MF Disc Capacitor - 25V. (12 Req.)	.45	63-1740	82 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3080	.005 MF Disc Capacitor - 25V.	.25	63-1761	270 Ohm Resistor - 1/2W. 10%	.17
22-3177	390 PF Disc Capacitor - 500V. (2 Req.)	.25	63-1764	330 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3255	330 PF Disc Capacitor - 500V. (2 Req.)	.25	63-1768	390 Ohm Resistor - 1/2W. 10%	.17
22-3310	2.7 PF Gimmick Capacitor - 500V. (2 Req.)	.25			
22-3393	.01 MF Disc Capacitor - 25V. (5 Req.)	.25			
22-3415	.0068 MF Disc Capacitor - 25V.	.25			
22-3541	3.3 PF Gimmick Capacitor $\pm$ 5% - 500V.	.25			
22-3558	16 PF Disc Capacitor $\pm$ 5% - 500V.	.25			
22-3652	.1 MF Disc Capacitor - 10V. (3 Req.)	.30			
22-3661	.05 MF Disc Capacitor - 100V.	.25			
22-3675	10 PF Disc Capacitor $\pm$ - 500V.	.25			
22-3687	1 MF Electrolytic Capacitor - 50V. (2 Req.)	1.50			

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PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
CHASSIS 21BT34 (Continued)			94-1532	Nylon Shaft Bushing	.20
63-1769	430 Ohm Resistor - ½W. 5% (4 Req.)		94-1545	Nylon Insulating Bushing (Use Only When 800-312 Is Used) (4 Req.)	
63-1771	470 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2541	Transformer - AM 1st. I.F. 455 KHz	1.75
63-1772	470 Ohm Resistor - ½W. 20% (4 Req.)	.17	95-2542	Transformer - AM 2nd. I.F. 455 KHz	1.75
63-1775	560 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2543	Transformer - 3rd. I.F. 455 KHz	1.95
63-1778	680 Ohm Resistor - ½W. 10% (6 Req.)	.17	95-2544	Transformer - AM Oscillator	1.45
63-1782	820 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2545	Transformer - FM Ratio Detector 10.7 MHz	2.65
63-1785	1000 Ohm Resistor - ½W. 10% (4 Req.)		95-2546	Transformer - FM 1st. I.F. 10.7 MHz	1.95
63-1789	1200 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2547	Transformer - FM 2nd. I.F. 10.7 MHz	2.00
63-1796	1800 Ohm Resistor - ½W. 10%		95-2548	Transformer - FM 3rd. I.F. 10. & MHz	2.10
63-1799	2200 Ohm Resistor - ½W. 10% (6 Req.)	.17	95-2856	Doubler Coil 19 KHz	
63-1803	2700 Ohm Resistor - ½W. 10% (2 Req.)		95-2857	Detector Coil 38 KHz	
63-1806	3300 Ohm Resistor - ½W. 10% (2 Req.)	.17	95-2858	Input Coil 19 KHz	
63-1810	3900 Ohm Resistor - ½W. 10% (4 Req.)	.17	100-249	Indicator Lamp	.03
63-1813	4700 Ohm Resistor - ½W. 10% (3 Req.)	.17	103-23	Germanium Diode (4 Req.)	.75
63-1817	5600 Ohm Resistor - ½W. 10%	.17	103-47	Silicon Diode - AFC	3.75
63-1820	5800 Ohm Resistor - ½W. 10% (2 Req.)	.17	-OR-		
63-1824	8200 Ohm Resistor - ½W. 10% (3 Req.)	.17	103-189	Silicon Diode	3.75
63-1825	9100 Ohm Resistor - ½W. 5%	.34	103-74	Germanium Diode	.50
63-1826	10K Ohm Resistor - ½W. 5%		103-90	Germanium Diode - Matched	1.00
63-1827	10K Ohm Resistor - ½W. 10% (6 Req.)		103-96	Diode	1.90
63-1831	12K Ohm Resistor - ½W. 10% (3 Req.)		103-145	Diode (2 Req.)	.50
63-1835	15K Ohm Resistor - ½W. 20%		105-107	Integnet (2 Req.)	1.00
63-1841	22K Ohm Resistor - ½W. 10%		114-342	6-20 x 3/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (Used On 83-7803)	.03
63-1845	27K Ohm Resistor - ½W. 10% (2 Req.)	.17	114-591	4-24 x 3/8 x 3/16 Slotted Hex Hd. Self-Tap. Screw - Cadmium (2 Used On Ea. 800-312)	.03
63-1848	33K Ohm Resistor - ½W. 10% (2 Req.)	.17	114-689	8-18 x 1/2 Hex Hd. Special Washer - Spinlock - Self Tap. Screw-Stat. Bronze (2 Used On S-82104)	.03
63-1853	43K Ohm Resistor - ½W. 5% (2 Req.)	.34	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 Used On S-85564 & S-85569, 2 Used On 12-5420, 57-7850, 57-8147, S-85565 & 85-1170, 3 Used On 33-327 & 1 Used On S-85563) (16 Req.)	.03
63-1855	47K Ohm Resistor - ½W. 10%		114-802	8-18 x 5/16 x 1/4 Hex Washer Hd. Self-Tap. Screw- Stat. Bronze (1 Mts. 17-130 & 17-156) (2 Req.)	.03
63-1869	100K Ohm Resistor - ½W. 10%	.17	121-430	Transistor - Driver (2 Req.)	1.10
63-1876	150K Ohm Resistor - ½W. 10% (2 Req.)	.17	121-433	Transistor - Pre-Amp. (2 Req.)	1.30
63-1880	180K Ohm Resistor - ½W. 10% (2 Req.)		121-546	Transistor - 2nd. & 3rd. I.F. (2 Req.)	.80
63-1883	220K Ohm Resistor - ½W. 10% (2 Req.)	.17	121-612	Transistor - R.F. (FM)	.90
63-1898	470K Ohm Resistor - ½W. 20% (3 Req.)	.17	121-613	Transistor - Audodyne Converter (FM)	.80
63-1904	680K Ohm Resistor - ½W. 10%	.17	121-614	Transistor - 1st. I.F. Amplifier	.80
63-1918	1.5 Megohm Resistor - ½W. 10% (2 Req.)		121-639	Transistor - Complete Amplifier (3 Req.)	.70
63-4122	33 Ohm Resistor - ¼W. 10%	.17	121-706	Transistor - Audio Driver (2 Req.)	.85
63-4185	1000 Ohm Resistor - ¼W. 10%	.17	121-714	Transistor - AM - FM - I.F.	.80
63-4196	1800 Ohm Resistor - ¼W. 10%	.17	121-737	Transistor - Stereo Indicator Switch	.95
63-4213	4700 Ohm Resistor - ¼W. 10%	.17	121-762	Transistor - Detector	1.30
63-4501	1 Ohm Resistor - ½W. 10% (2 Req.)	.15	126-1336	Coil Shield	.20
63-5659	560 Ohm Resistor - 2W. 10%	.34	149-311	Ferrite Core	.05
63-6495	Mute Control	1.00	188-140	Retaining Ring	.03
63-7681	Dual Treble Control	2.60	188-155	Clamping Ring (Part of S-85569)	.05
63-7682	Dual Bass Control	2.50	212-71	Silicon Rectifier (2 Req.)	1.25
63-7683	Dual Loudness Control	2.95	800-312	Output Transistor - Matched Pair (2 Req.)	
63-7684	Balance Control & Switch	3.30	-OR-		
64-6	1/8 Dia. x 3/16 Lg. Tubular Rivet (2 Part Of S-79667)		800-289	Output Transistor - Matched Pair (2 Req.)	5.00
64-288	Shoulder Rivet (Part of S-85563, S-85564 & 2 Part Of S-85565) (4 Req.)	.03	S-79435	Trap Coil Assem. 67 KHz	1.00
76-1987	Tuning Shaft		S-79667	Antenna & Tape Input Bracket Assem.	2.10
79-174-12	No. 18 Sleeve - Yellow - 1½"	.03	S-82104	Wave Magnet Antenna Assem.	2.20
80-2143	Tension Spring	.05	S-82528	Antenna Cable & Terminal Assem.	.20
82-153	2nd. I.F. Grounding Strap		S-85104	I.F. Grounding Strap, Braid & Clip Assem.	
82-154	3rd. I.F. Grounding Strap	.40	S-85562	Drive Cord & Eyelet Assem.	
82-165	Grounding Strap (Part Of S-85104)		S-85563	Pulley Mtg. Bracket Assem.	
82-182	Oscillator Coil Ground Strap		S-85564	Pulley Mtg. Bracket Assem.	
83-1961	Antenna Terminal Strip (Part Of S-79667)	.35	S-85565	Pointer Guide Bracket Assem.	
83-3404	3 Lug Terminal Strip (Used On 52-1530)	.05	S-85569	Drive Pulley Assem.	
83-6173	Plastic Tie Strip (2 Req.)		S-86475	Pulley Mtg. Bracket Assem.	
83-7233	Antenna Mtg. Strip	.20	*S-86608	Socket & Terminal Assem.	
83-7417	Antenna Protective Strip	.20			
83-7803	3 Lug Terminal Strip				
85-1170	Bandswitch				
86-390	Connector Terminal (Used On 43-571)	.03			
86-449	Connector Terminal (Used On 52-1062)	.10			
-OR-					
86-357	Connector Terminal (Used On 52-1062)	.03			
86-450	Connector Terminal (Used On 52-1062)	.10			
-OR-					
86-344	Connector Terminal (Used On 52-1062)	.03			
93-1833	Transistor Insulating Washer (2 Req.)	.03			
93-1906	No. 4 Washer (1 Used On Ea. 114-591) (4 Req.)				
			CHASSIS 27BT30		
			12-5166	Dial Background Mtg. Bracket	.90
			*12-5169	Bandswitch & Tuning Bracket	2.20

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PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
CHASSIS 27BT30 (Continued)			52-1501	3 Conductor Cable - Approx. 20" (Used on 86-344)	.60
*12-5170	Control Mtg. Bracket	1.60	*52-1588	2 Conductor Shielded Lead (Used on 86-388)	1.00
*12-5358	Heat Sink Bracket		*52-1589	2 Conductor Shielded Lead (Used on 86-388)	.85
17-143	Nylon Clamp (2 Req.)		*52-1590	2 Conductor Shielded Lead (Used on 86-565)	.70
19-448	Ground Clip (1 Used on ea. 52-1588 & 52-1589)	.10	*52-1591	2 Conductor Shielded Lead (Used on 86-565)	.70
19-614	Clip (Used On 82-165)		52-1614	2 Conductor Shielded Lead (Used on 58-214)	1.00
*20-1256	Trap Coil (10.7 MHZ)	.50	52-1867	2 Conductor Shielded Cable	
*20-1648	FM R.F. Coil	.35	54-139	3/8- 32 X.9 /16 Palnut (5 Req.)	.03
*20-1649	FM Oscillator Coil	.50	54-334	Tinnerman Speed Nut (1 Used On Ea. 114-591)	
20-2033	Peaking Coil	.40		(4 Req.)	.03
*20-3291	FM Antenna Coil		54-828	1/2"-20 Palnut	.03
22-14	.0047 MF Disc Capacitor - 500V. (2 Req.)	.25	*54-839	Tinnerman Speed Nut	.05
22-2428	1.8 PF Gimmick Capacitor - 500V.	.25	*54-851	Palnut (21 Req.)	
22-2481	8 PF Disc Capacitor - 500V. (3 Req.)	.25	*57-7637	Transistor Mtg. Plate	
22-2513	7 PF Disc Capacitor - 500V.	.25	58-214	Single Prong Plug (2 Used On 52-1614)	.10
22-2703	220 PF Disc Capacitor - 500V. (2 Req.)	.25	*59-1084	Dial Pointer (2 Req.)	
22-2729	.001 MF Disc Capacitor - 25V. (3 Req.)	.25	63-1701	10 Ohm Resistor - 1/2W. 10%	.17
22-2884	5 MF Electrolytic Capacitor - 12V. (4 Req.)	1.50	63-1715	22 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3033	.02 MF Disc Capacitor - 25V.	.35	63-1736	68 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3034	.05 MF Disc Capacitor - 25V. (11 Req.)	.45	63-1757	220 Ohm Resistor - 1/2W. 10% (4 Req.)	.17
22-3080	.005 MF Disc Capacitor - 25V.	.25	63-1761	270 Ohm Resistor - 1/2W. 10%	.17
22-3177	390 PF Disc Capacitor - 500V. (2 Req.)	.25	63-1764	330 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3255	330 PF Disc Capacitor - 500V. (2 Req.)	.25	63-1766	360 Ohm Resistor - 1/2W. 5% (2 Req.)	
22-3310	2.7 PF Gimmick Capacitor - 500V. (2 Req.)	.25	63-1768	390 Ohm Resistor - 1/2W. 10%	.17
22-3362	560 PF Disc Capacitor - 500V. (2 Req.)	.25	63-1771	470 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3393	.01 MF Disc Capacitor - 25V. (6 Req.)	.25	63-1772	470 Ohm Resistor - 1/2W. 20% (4 Req.)	.17
22-3415	.0068 MF Disc Capacitor - 25V. (2 Req.)	.25	63-1775	560 Ohm Resistor - 1/2W. 10% (3 Req.)	.17
22-3541	3.3 PF Gimmick Capacitor - 500V.	.25	63-1776	620 Ohm Resistor - 1/2W. 5% (2 Req.)	
22-3558	16 PF Disc Capacitor - 500V.	.25	63-1778	680 Ohm Resistor - 1/2W. 10% (4 Req.)	.17
22-3652	.1 MF Disc Capacitor - 10V.	.30	63-1782	820 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-3675	10 PF Disc Capacitor - 500V.	.25	63-1785	1000 Ohm Resistor - 1/2W. 10% (4 Req.)	
22-3687	1 MF Electrolytic Capacitor - 50V. (2 Req.)	1.50	63-1795	1800 Ohm Resistor - 1/2W. 5% (2 Req.)	.34
*22-3770	5.5 PF Disc Capacitor - 500V.	.30	63-1796	1800 Ohm Resistor - 1/2W. 10%	
22-3791	42 PF Disc Capacitor - 500V.	.25	63-1799	2200 Ohm Resistor - 1/2W. 10% (8 Req.)	.17
22-3792	17 PF Disc Capacitor - 500V.	.25	63-1803	2700 Ohm Resistor - 1/2W. 10% (2 Req.)	
22-3896	5 MF Electrolytic Capacitor - 25V.	1.00	63-1806	3300 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-4573	1000 MF Electrolytic Capacitor - 15V.	2.10	63-1810	3900 Ohm Resistor - 1/2W. 10% (4 Req.)	.17
22-4855	Trimmer Capacitor	.45	63-1813	4700 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-5316	500 MF Electrolytic Capacitor - 50V. (2 Req.)	2.55	63-1817	5600 Ohm Resistor - 1/2W. 10%	.17
22-5481	560 PF Disc Capacitor - 500V. (2 Req.)	.25	63-1820	6800 Ohm Resistor - 1/2W. 5% (2 Req.)	.17
22-5482	680 PF Disc Capacitor - 500V. (6 Req.)	.25	63-1824	8200 Ohm Resistor - 1/2W. 10%	.17
22-5483	1500 PF Disc Capacitor - 500V.	.25	63-1825	9100 Ohm Resistor - 1/2W. 5%	.34
22-5486	10 MF Electrolytic Capacitor - 6V.	.95	63-1826	10K Ohm Resistor - 1/2W. 5%	
22-5487	47 MF Disc Capacitor - 3V. (2 Req.)	.45	63-1827	10K Ohm Resistor - 1/2W. 10%	
22-5612	180 PF Disc Capacitor - 500V.	.15	63-1831	12K Ohm Resistor - 1/2W. 10% (5 Req.)	
*22-5780	270 PF Polystyrene Capacitor - 500V.	.15	63-1834	15K Ohm Resistor - 1/2W. 10% (3 Req.)	.17
-OR-			63-1841	22K Ohm Resistor - 1/2W. 10%	
22-3424	270 PF Mica Capacitor - 100V.	.35	63-1842	22K Ohm Resistor - 1/2W. 20%	.17
*22-5781	1000 PF Polystyrene Capacitor - 500V. (2 Req.)	.15	63-1845	27K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
-OR-			63-1848	33K Ohm Resistor - 1/2W. 10% (4 Req.)	.17
22-3613	1000 PF Mica Capacitor (2 Req.)		63-1855	47K Ohm Resistor - 1/2W. 10% (2 Req.)	
22-5862	.1 MF Mylar Capacitor - 100V. (2 Req.)	.35	63-1857	51K Ohm Resistor - 1/2W. 5% (2 Req.)	.17
22-5866	.047 MF Mylar Capacitor - 100V. (6 Req.)	.30	63-1869	100K Ohm Resistor - 1/2W. 10%	.17
*22-5878	5.5 PF Disc Capacitor - 50V.	.10	63-1883	220K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
*22-5879	3.3 PF Disc Capacitor - 50V.	.10	63-1887	270K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
22-5883	.033 MF Mylar Capacitor - 100V. (2 Req.)	.35	63-1890	330K Ohm Resistor - 1/2W. 10% (2 Req.)	
22-5901	3300 PF Disc Capacitor - 50V. (2 Req.)	.15	63-1898	470K Ohm Resistor - 1/2W. 20% (3 Req.)	.17
*22-5972	390 PF Polystyrene Capacitor - 125V.		63-1904	680K Ohm Resistor - 1/2W. 10%	.17
*22-5986	50 MF Electrolytic Capacitor - 25V. (2 Req.)		63-1918	1.5 Megohm Resistor - 1/2W. 10% (2 Req.)	
*22-5988	1 MF Electrolytic Capacitor - 15V. (2 Req.)		63-1933	3.3 Megohm Resistor - 1/2W. 20%	
*22-6090	5 Section Variable Capacitor - FM Detector		63-1939	4.7 Megohm Resistor - 1/2W. 10%	
	Trimmer - FM Detector Tuning - FM Oscillator		63-4122	33 Ohm Resistor - 1/4W. 10%	.17
	Tuning - AM Antenna Trimmer - AM Antenna		63-4185	1000 Ohm Resistor - 1/4W. 10%	.17
	Tuning - AM Oscillator Tuning - AM Oscillator		63-4196	1800 Ohm Resistor - 1/4W. 10%	.17
	Trimmer - FM Antenna Trimmer - FM Antenna		63-4213	4700 Ohm Resistor - 1/4W. 10%	.17
	Tuning		63-5663	680 Ohm Resistor - 2W. 10%	.30
*22-6110	.033 Mylar Capacitor - 50V. (2 Req.)		63-6424	1 Ohm Resistor - 5W. 10% (2 Req.)	.75
*22-6111	.001 MF Mylar Cap acitor - 50V. (2 Req.)		63-6495	Mute Control	1.00
*22-6136	2200 PF Mica Capacitor - 100V.		*63-8323	Balance Control & Switch	
*22-6246	3.3 MF Electrolytic Capacitor - 15V.		63-8324	Dual Loudness Control	5.45
43-571	9 Contact Housing (Used On 86-390)	.30	63-8325	Dual Treble Control	3.75
52-1443	4 Conductor Cable - Approx. 6" (Used on 83-7233)	.15	63-8328	Potentiometer (2 REq.)	1.25
			*63-8569	Dual Bass Control	

*Denotes parts not previously used in Zenith receivers.

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PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
MODEL B545W (Continued)					
*902-703	Instruction Book		*964-16579	Lock Washer, Pivot Assem. (2 Req.)	
964-12916-A	Eyelet - Nickel Plate (Bottom Of Ea. Remote Speaker)		964-16580	Eyelet, Pivot Assem. (2 Req.)	.10
964-13621	Terminal - Amp.	.05	964-16699	4.7 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
964-14195	Bumper (Inside Changer Compartment)	.35	*964-18315	Tee Nut, Pivot Assem. (2 Req.)	
964-14220	Plug Housing, Amp.	.30	*964-19609	Capacitor - 10 MF - 15V.	
*964-14605-H	6 x 12 Truss Screw-Stat. Bronze (8 Mts. Speaker Baffle)		*964-19611	Capacitor - .01 MF (4 Req.)	.45
964-15821	Cable Retainer (Inside Changer Compartment)	.05	964-19614	Capacitor - .01 MF (2 Req.)	.85
964-16380	Machine Screw (2 Used On Pivot)	.10	964-19615	Capacitor - 5 MFD. 15V.	.70
*964-16579	Lock Washer (2 Used On Pivot)		964-19638	Capacitor - .05 MFD. 100V. (4 Req.)	.60
964-16580	Eyelet, Pivot (2 Req.)	.10	964-19641	Capacitor - 100 PF 500V. (2 Req.)	.15
964-17170	Amp. Terminal - .205 Flat	.03	964-19755	Capacitor - 100 PF 500V. (2 Req.)	.85
*964-17310	Bumpers (4 Req.)		964-19758	Capacitor - 1 MF 15V. (4 Req.)	
964-17602-F	Bushing, Pivot (2 Req.)	.30	*964-19839	Capacitor - 470 PF - 500V. (4 Req.)	1.25
964-18243-3	Power Cord	2.00	964-20061	Capacitor - 10 MFD. - 15V.	
*964-18315	Tee Nut, Pivot (2 Req.)		*964-20113	6-32 x 3/4 Wafer Hd. Screw (2 Mt. Transformer Inside Changer Compartment)	.15
964-18586-9	45 RPM Adapter Clamp (Spindle Clip)	.30	964-20622	Terminal - Male (7 Req.)	.15
*964-19996-9	Eyelet (Back Of Unit, Middle)		964-20623	Terminal - Female (7 Req.)	.80
*964-20113	6-32 x 3/4 Wafer Hd. Screw (4 Mts. Transformer & Chassis)	1.75	964-21866	Rectifier (2 Req.)	1.36
964-20641	Catch, Chrome (2 Req.)	.25	964-22009	Transistor - Driver (4 Req.)	.17
964-20746-3	Remote Cable Assem. (2 Req.)		964-22099	4.7 Megohm Resistor - 1/2W. 10% (6 Req.)	
*964-23137	'U' Channel - Chrome (Front Of Drop Seat)		*964-23629	Transformer	
964-23138	Strike, Chrome (2 Req.)	.35	*964-23652	Heat Sink (4 Req.)	
964-23139-C	Nail, Chrome (Used On Drop Seat, Left & Right Sides For 'U' Channel)	.05	*964-24387	Diode (4 Req.)	
*964-23140-H	Strike - Stat. Bronze (Mounted On Drop Seat, Right Side)		*964-24584	Transistor - Output (Matched Pair)	
*964-23141-3	Catch (Inside Cabinet - Right Side)		*964-24738	Tone Control - Bass	
*964-23279-A	Logo - Zenith		*964-24739	Control - Loudness 250K	
*964-24020	5-1/4" Speaker (2 Req.)		*964-25010	Control - Balance 300K	
*964-24458	Knob Assem. (3 Req.)		*964-25011	Tone Control - Treble 3M	
*964-24783-H	Hinge, Male - Stat. Bronze (Used On Top Left Remote Speaker)		*964-25274	Nut, Push In (2 Req.)	
*964-24784-H	Hinge, Female - Stat. Bronze (Used On Main Cabinet - Left Side) (2 Req.)		*964-25276	8 x 1 x 1/4 Hex Hd. Screw (2 Req.)	
*964-24785-H	Hinge, Male - Stat. Bronze (Used On Top Right Remote Speaker)		*964-25783	Capacitor - 200 MF 25V.	
*964-24786-H	Hinge, Female - Stat. Bronze (Used On Main Cabinet - Right Side)		*964-25784	Capacitor - 1000 MF 35V.	
*964-25134-H	Hinge, Male - Stat. Bronze (Used On Bottom Right Remote Speaker)		*964-25865	Capacitor - .022 MF - 500V. (2 Req.)	
*964-25136-H	Hinge, Male - Stat. Bronze (Used On Bottom Left Remote Speaker)		*964-25902	2.2 Ohm Resistor - 1/2W. 10% (2 Req.)	
*964-25273	6-32 x 1-3/4 Wafer Hd. Screw (8 Req.)		964-25903	Capacitor - 250 MFD. - 25V. (2 Req.)	
*964-25523-F	Control Plate		*964-25922	Capacitor - 33 MFD. - 16V. (2 Req.)	
*964-25584	Case Assem. W/Hardware		*964-25923	Hum Shield (Changer Compartment)	
*964-25585-F	Packing Carton		*964-26341	Heat Sink	
*964-25587	Transistor Layout & Patent Label		*964-26371	15 Ohm Resistor - 1/2W. 10% (2 Req.)	
*964-25746	Audio Cable		*964-26550	Transistor Holder (4 Req.)	
*964-25778	Handle		*964-27741	Capacitor - .0082 - 500V. (2 Req.)	
*964-26335	Changer Cups (4 Req.)		CABINET COMPONENTS		
S-72648	45 RPM Adapter	1.80	56-560	Needle (Part Of 142-175)	3.35
MODEL B553W			83-2790	Motorboard Protector (2 Req.)	.05
CHASSIS COMPONENTS			*142-175	Cartridge - .7 Mil. Dia. & 3 Mil. Mfg. Sapphire (Part Of 169-408)	
63-1719	27 Ohm Resistor - 1/2W. 10% (2 Req.)	.17	*169-408	4 Speed Record Changer (See Changer Parts List For Components)	
63-1771	470 Ohm Resistor - 1/2W. 10% (4 Req.)	.17	*902-702	Instruction Book	
63-1897	470K Ohm Resistor - 1/2W. 10% (4 Req.)	.17	964-9197	6-32 Hex Nut (12 Req.)	.03
63-2877	120K Ohm Resistor - 1/2W. 10% (4 Req.)	.17	964-12916-H	6 x 7/8 Truss Screw (4 Req.)	.03
63-7011	1000 Ohm Resistor - 1/2W. 10% (2 Req.)	.17	*964-12916-A	Eyelet (Bottom Of Remote Speaker) (2 Req.)	
800-294	Transistor Assem. - Matched Pair - Driver (2 Req.)	2.45	964-13364-9	6 x 3/8 Truss Screw (2 Req.)	.03
*964-9513	220K Ohm Resistor - 1/2W. 10% (2 Req.)		964-13621	Amp. Terminal (2 Req.)	.05
*964-9518	33K Ohm Resistor - 1/2W. 10% (2 Req.)		964-14195	Bumper (Changer Compartment)	.35
*964-11143	1500 Ohm Resistor - 1/2W. 10% (2 Req.)		964-14220	Plug Housing Amp.	.30
*964-11582	6800 Ohm Resistor - 1/2W. 10%		*964-14605-H	6 x 1/2 Truss Screw (8 Req.)	
*964-13591	8200 Ohm Resistor - 1/2W. 10%		*964-14902-9	Hole Button (Side Of Changer Door)	.05
*964-16327	Tinnerman Clip (4 Req.)		964-15821	Cable Retainer	.03
964-16380	Machine Screw, Pivot Assem. (2 Req.)	.10	964-17170	Amp. Terminal - .205 Flat (4 Req.)	
			*964-17310	Bumper, Case Bottom (4 Req.)	.10
			964-17445	Cable Clamp	.10
			964-17602-F	Bushing (2 Req.)	2.00
			964-18243-3	Power Cord	
			*964-18368-H	Hinge - Female W/Stop - Stat. Bronze - Left (2 Req.)	.55
			964-18369-H	Hinge - Female W/Stop - Stat. Bronze - Right (2 Req.)	.75
			964-18586-9	45 RPM Spindle Clip	.30
			*964-19998-9	Eyelet (Back Of Cabinet)	
			*964-20040-H	Eyelet - Stat. Bronze (Changer Compartment, Right Side)	

*Denotes parts not previously used in Zenith receivers.

PART NUMBER	DESCRIPTION	PRICE
CABINET COMPONENTS (Continued)		
964-20641	Catch - Chrome (2 Req.)	1.75
964-20746-3	Remote Cable Assem. (2 Req.)	.25
964-21389	6 x 3/8 Hex Hd. Screw (2 Req.)	.70
964-23138	Strike - Chrome (2 Req.)	.35
*964-23279-A	Logo - Zenith	
*964-23362	Amp. Terminal	
*964-24199	Audio Cable	
*964-25120	Case Assem.	
*964-25123-F	Packing Carton	
*964-25124	Control Plate	
*964-25126	Transistor Layout & Patent Label	
*964-25181	6-32 x 1" Speaker Mtg. Screw (8 Req.)	
*964-25234	Escutcheon	
*964-25395	Door Stay, Stat. Bronze	
*964-25397	Handle	
*964-25398-9	10-24 x 3/4 Handle Mtg. Screw (2 Req.)	
*964-25775	6 x 9 PM Speaker - 8 Ohm (2 Req.)	
*964-25777	Changer Insert	
*964-25781	Bracket (2 Req.)	
*964-25787	6 x 1/8 Hex Hd. Slot Screw (2 Req.)	
*964-25799-H	Hinge - Male - Long Pin - Stat. Bronze (Left)	
*964-25800-H	Hinge - Male - Short Pin - Stat. Bronze (Right)	
*964-25801-H	Hinge - Male - Long Pin - Stat. Bronze (Right)	
*964-25802-H	Hinge - Male - Short Pin - Stat. Bronze (Left)	
*964-25806	6-32 x 1-1/4 Screw (2 Mt. Amp. Inside Changer Compartment, Rear)	
*964-25832	4 x 3/8 Screw (3 Req.)	
*964-25876-5-14	Knob (4 Req.)	
*964-26343	Spacer (Inside Changer Compartment) (2 Req.)	
*964-26600	Catch (Top Right Side of Main Cabinet)	

"OPTIONAL AT EXTRA COST"

S-72648 45 RPM Adapter

MODEL X560W2

CHASSIS COMPONENTS

63-1736	68 Ohm Resistor - 1/2W. 10% (3 Req.)	.17
63-1757	220 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1761	270 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1768	390 Ohm Resistor - 1W. 10% (2 Req.)	.16
63-1782	820 Ohm Resistor - 1/2W. 10% (4 Req.)	.17
63-1792	1500 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1799	2200 Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1803	2700 Ohm Resistor - 1/2W. 10% (4 Req.)	.17
63-1813	4700 Ohm Resistor - 1/2W. 10% (4 Req.)	.17
63-1841	22K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1848	33K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1873	120K Ohm Resistor - 1/2W. 10% (4 Req.)	.17
63-1876	150K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1897	470K Ohm Resistor - 1/2W. 10% (2 Req.)	.17
63-1911	1 Megohm Resistor - 1/2W. 10% (2 Req.)	.17
63-4528	4.7 Ohm Resistor - 1/2W. 5% (4 Req.)	.34
63-5477	68 Ohm Resistor - 2W. 10%	.25
964-8895	Spacer - Transistor (8 Req.)	.03
964-9196	Lockwasher - Transistor (9 Req.)	.03
964-9197	6-32 x 5/16 Hex Nut - Transistor (8 Used On 964-10544)	.03
*964-10492-A	Screw (2 Req.)	.03
964-10544	6-32 x 3/8 Screw (2 Mts. Ea. 800-257)	.03
964-10545	3/8 Palnut (4 Re.)	.03
964-16584	1 Ohm Resistor - 2W. 10% (4 Req.)	.35
964-16684	Mica Washer - Transistor (4 Part of 800-257)	.05
964-16685	Solder Leg (5 Req.)	.03
964-16686	Audio Cable	1.50
964-17170	Amp. Terminal (16 Req.)	.03
964-17443	Rectifier (2 Req.)	1.20
964-18451	Driver Transformer	7.20
964-18628	Driver Transformer	7.20
964-19612	47 MFD. Capacitor - 3V. (2 Req.)	1.05
964-19613	.0033 MFD. Capacitor - 500V. (2 Req.)	.40
964-19614	.001 MFD. Capacitor - 500V. (2 Req.)	.45

PART NUMBER	DESCRIPTION	PRICE
964-19638	.05 MFD. Capacitor - 100V. (2 Req.)	.70
964-19639	.1 MFD. Capacitor - 10V. (8 Req.)	.65
964-19752	.0068 MFD. Capacitor - 500V. (2 Req.)	.40
964-19848	Socket Quick Disconnect - Female - Small (Used On 964-19858)	.05
964-19858	Post Quick Disconnect - Male - Small	.05
964-20060-B	100 MFD. Capacitor - 15V. (2 Req.)	1.40
964-20307	500 MFD. Capacitor - 25V.	2.65
964-20622	Terminal - Male - Large (9 Req.)	.15
964-20623	Terminal - Female - Large (Used on 906-20622)	.15
964-20737	22 MFD. Capacitor - 10V. (2 Req.)	1.25
964-20738	Pre-Amp. Transistor (4 Req.)	2.05
964-20739	Driver Transistor (2 Req.)	2.75
964-20743	Power Transistor	15.00
964-21108	Bass Control	4.50
964-21109	Loudness Control	5.15
964-21110	Balance Control	2.45
964-21111	Treble Control	4.10
964-21274	Chassis Bracket	1.75
*964-21300-B	5 MFD. Capacitor - 15V. (2 Req.)	.45
*964-21301-B	1 MFD. Capacitor - 15V. (2 Req.)	.45
*964-21302-B	200 MFD. Capacitor - 25V. (2 Req.)	1.45
*964-21442	Electrolytic Capacitor - 2000/500/35V.	7.00
205-51	Dow Corning Heat Conductive Grease (Part of 800-257)	.16
*800-257	Output Transistor Assem. - Matched Pair (2 Req.)	2.75

CABINET COMPONENTS

964-9197	6-32 x 5/16 Hex Nut (2 Req.)	.03
964-11755-9	Speaker Mtg. Screw (4 Part of 964-21113)	.03
964-11998-A	Zenith Emblem	.15
964-12128-H	Speaker Mtg. Screw (4 Part of 964-21113)	.03
964-12399	Palnut (23 Req.)	.03
964-12961	4 MF Capacitor (2 Used on Speakers)	1.70
964-13364-9	Screw (8 Req.)	.03
964-13621	Amp. Terminal (4 Req.)	.05
964-13857	4" PM Speaker (2 Req.)	7.30
964-14117	Recessed Nut (2 Req.)	.15
964-14195-3	Bumper - Changer Tilt Down Stop (2 Req.)	.35
964-14220	Amp. Plug	.30
964-14649-9C	Control Knob Assem. (4 Req.)	1.10
964-14902-A	Closed Eyelet	.25
964-15106	Motorboard Protector (2 Req.)	.15
964-15821	Cable Clamp (2 Req.)	.05
964-16237	3-1/2" PM Speaker (2 Req.)	3.80
964-16374-H	Hole Button - 1-1/4"	.40
964-16434-9	Line Cord Clip (2 Req.)	.20
964-16558	Bushing (2 Used on Changer Base)	.35
964-16947-H	Hinge - Right Hand - Male Short (Stat. Bronze)	.45
964-16948-H	Hinge - Right Hand - Female (Stat. Bronze)	.45
964-16950-H	Hinge - Left Hand - Male Short (Stat. Bronze)	.45
964-16951-H	Hinge - Left Hand - Female (Stat. Bronze)	.45
964-16981	Grommet	.05
964-17170	Amp. Terminal (8 Req.)	.03
964-17309-3	Bumper (4 Part of 964-21113)	.35
964-17445	Cable Clamp (2 Req.)	.10
964-17948-A	Catch (Part of 964-21113)	1.25
964-17949-A	Stops (2 Used With 964-17948-A)	.15
964-18016	8" PM Speaker (2 Req.)	12.95
964-18233	Amp. Back (Panel)	1.15
964-18240	Cabinet Handle	6.10
964-18241	Cabinet Handle Stud (2 Req.)	1.95
964-18242-A	Mach. Screw (4 Mt. 964-18240)	.05
964-18243-5	Line Cord & Plug	.90
964-18268	Nameplate - Zenith - Stereophonic - Solid State	3.30
964-18272	Tinnerman Nut (2 Req.)	.05
964-18340	Remote Speaker Cabinet W/Baffle - Left	31.18
964-18341	Remote Speaker Cabinet W/Baffle - Right	31.18
964-18342	Grille Cloth - Remote Front (2 Req.)	1.30
964-18343	Grille Cloth - Remote Rear (2 Req.)	1.80
964-18344	15 1/4" Strip - Nickel (2 Req.)	.90
964-18345	11" Trim Strip - Nickel (2 Req.)	.80
964-18366-4	Hinge - L.H. - Male - Long Pin W/Detent (Stat. Bronze)	.75

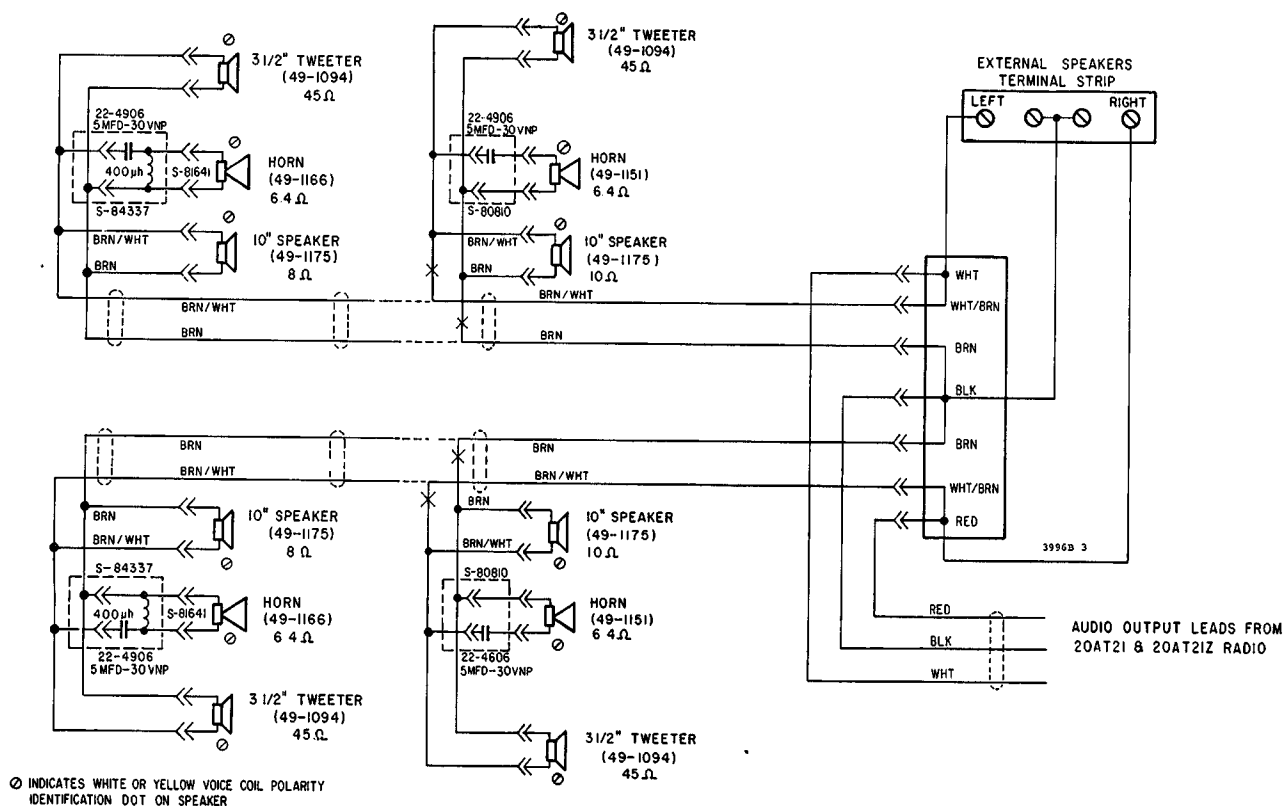
*Denotes parts not previously used in Zenith receivers.

PART NUMBER	DESCRIPTION	PRICE	PART NUMBER	DESCRIPTION	PRICE
MODEL X560W2					
CABINET COMPONENTS (Continued)					
964-18367-H Hinge - R.H. - Male - Long Pin W/Detent (Stat. Bronze)		.55	94-613	Iron Core Bushing (2 Req.)	.10
964-18368-H Hinge - L.H. - Female - W/Detent (Stat. Bronze)		.55	95-2546	1st. I.F. Transformer (FM)	1.95
964-18369-H Hinge - R.H. - Female - W/Detent (Stat. Bronze)		.75	103-47	Silicon Diode	3.75
964-18402 Handle Covering Strip		.45	113-26	6-32 x 1/4 x 1/4 Hex Hd. Mach. Screw - N.P. - External Lockwasher Attached (2 Used on 12-4958)	.03
964-18562 Cord Clamp (2 Req.)		.10	*115-45	2-56 x 7/16 Fillister Hd. Mach. Screw (Used on S-79986)	
964-18586-9 45 RPM Adapter Clamp		.30	121-613	Transistor (Converter)	.80
964-18857 Control Plate - Balance - Loudness - Treble - Bass - Stereophonic		5.35	*121-704	Transistor (RF)	
964-20623 Socket Quick Disconnect (4 Req.)		.15	125-26	Grommet (2 Req.)	.03
964-20746-5 Remote Cable Assem. (2 Req.)		2.75	*126-1360	Shield	
*964-21112 Cable Assem.		3.05	149-368	Iron Core & Spring	.30
964-21113 Cabinet Assem. W/Hardware & Motorboard		36.65	149-385	Iron Core & Spring	.30
*964-21693 8 Lug Terminal Strip		.50	188-232	Retaining Ring (2 Req.)	.03
16-3215 Packing Carton			*S-79978	Detector Coil Assembly - Wiring	
80-2160 Stylus Turret Spring (Part of 142-168)		.03	*S-79979	Oscillator Coil Assembly - Wiring	
101-1077 Transistor Layout & Patent Label		.15	*S-79980	Antenna Coil Assembly - Wiring	
142-168 Dual Pickup Cartridge - 2G. - .7 Mil. Diamond & 3 Mil. Mfg. Sapphire (Part of 169-376)		5.75	*S-79986	Tuning Shaft & Pin Assembly	
169-376 4 Speed Record Changer (See Changer Parts List for Components)					
202-3044 Instruction Book		.40			
S-68567 Stylus Assem. - .7 Mil. Diamond & 3 Mil. Mfg. Sapphire (Part of 142-168)		4.20			
S-82964 45 RPM Adapter Assem.		2.40			
"OPTIONAL AT EXTRA COST"					
S-75801 Stylus Assem. - .7 Mil. Dual Diamond					
S-79987 FM TUNER COMPONENTS					
*12-4957 Tuner Guide Bracket					
*12-4958 Coil Mounting Bracket					
19-322 Coil Mounting Clip (2 Used On 12-4958 & 3 Used on S-79980)		.05			
20-1256 Trap Coil		.50			
22-2374 6 PF Disc Capacitor - 500V.		.25			
22-2379 12 PF Disc Capacitor - 500V.		.20			
22-2481 8 PF Disc Capacitor - 500V.		.25			
22-3034 .05 MF Disc Capacitor - 25V.		.45			
22-3541 3.3 PF Gimmick Capacitor - 500V.		.25			
22-3622 19 PF Disc Capacitor - 500V.		.25			
22-3652 .1 MF Disc Capacitor - 10V.		.30			
22-3675 10 PF Disc Capacitor - 500V.		.25			
22-4515 1.8 PF Gimmick Capacitor - 500V.		.25			
22-4613 .001 MF Feed-Thru Capacitor - 500V.		.10			
22-4718 .001 MF Leadless Feed-Thru Capacitor - 500V. (3 Required)		.10			
22-4729 .002 MF Leadless Feed-Thru Capacitor - 500V.		.15			
22-4844 .002 MF Feed-thru Capacitor - 500V.		.25			
22-5321 36 PF Disc Capacitor - 500V.		.15			
*52-1495 Shielded Lead					
56-426 Roll Pin (3 Required)		.05			
56-512 Roll Pin (2 Required)		.03			
63-1772 470 Ohm Resistor - 1/2W. 20%		.17			
63-1796 1800 Ohm Resistor - 1/2W. 10%		.17			
63-1813 4700 Ohm Resistor - 1/2W. 10%					
63-1831 12K Ohm Resistor - 1/2W. 10%					
63-1911 1 Megohm Resistor - 1/2W. 10%		.17			
63-4122 33 Ohm Resistor - 1/4W. 10%		.17			
63-4143 100 Ohm Resistor - 1/4W. 10%		.17			
63-4164 330 Ohm Resistor - 1/4W. 10%		.17			
63-4196 1800 Ohm Resistor - 1/4W. 10% (2 Req.)					
63-4297 470K Ohm Resistor - 1/4W. 10%		.17			
*76-1819 Guide Shaft					
79-174-12 No. 18 Sleeving - Yellow - 1-1/2"		.03			
80-1497 Shaft Retaining Spring		.05			
*83-6877 Antenna Terminal Strip		.55			
*83-6878 One Lug Terminal Strip		.10			
86-441 Insulated Fee-Thru Terminal (4 Req.)		.05			

*Denotes parts not previously used in Zenith receivers.

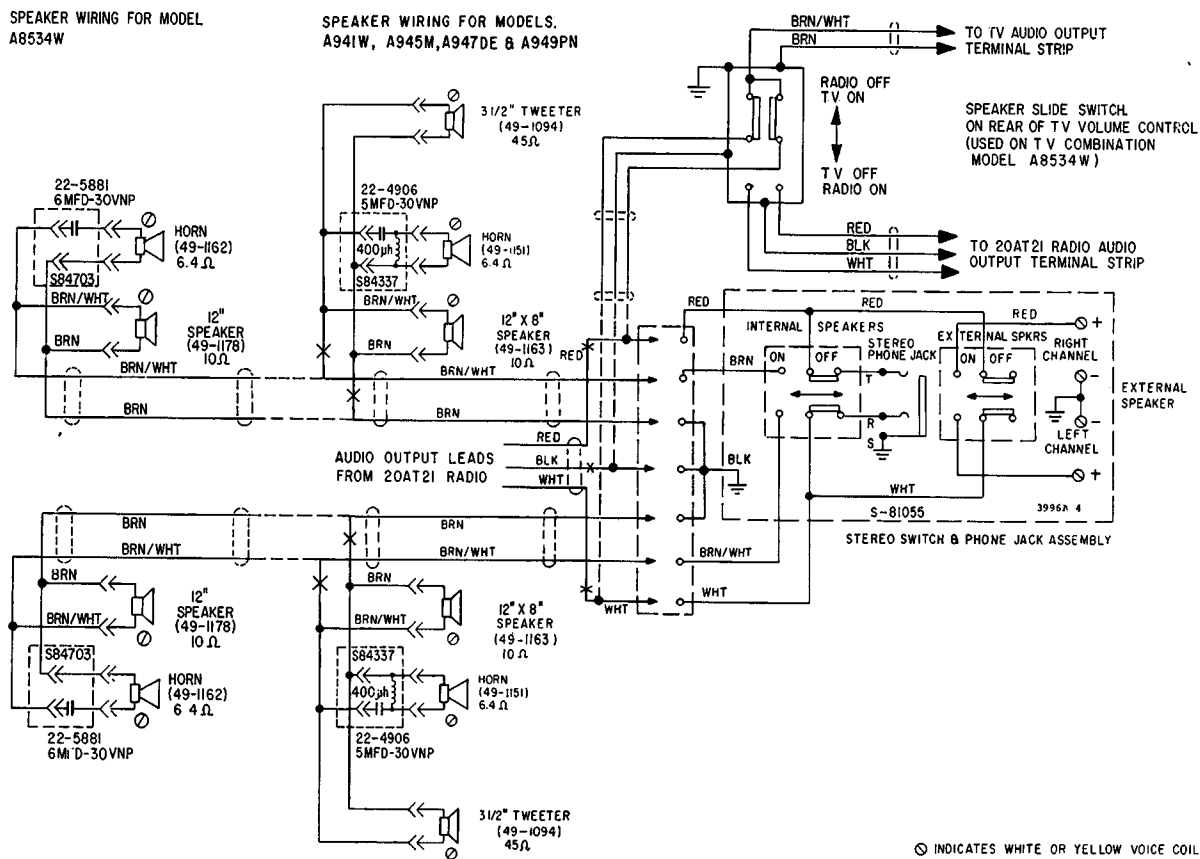
**SPEAKER WIRING FOR
MODEL B93I**

**SPEAKER WIRING FOR MODELS
A931WP, A933M, A935P, A937H,
B935P**



**SPEAKER WIRING FOR MODEL
A8534W**

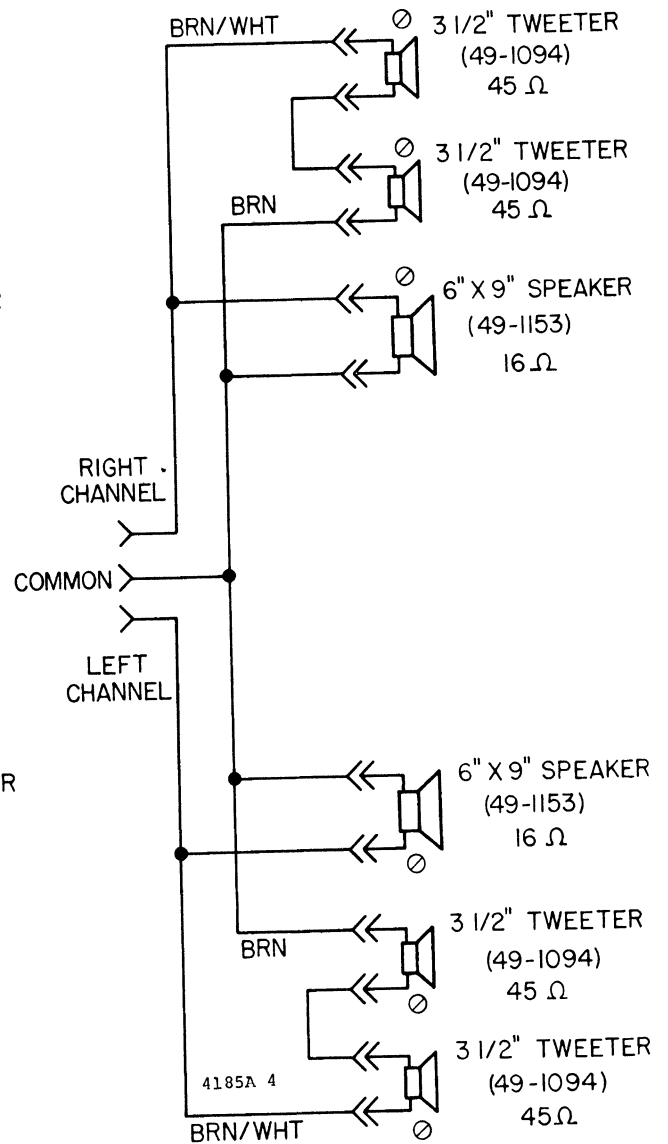
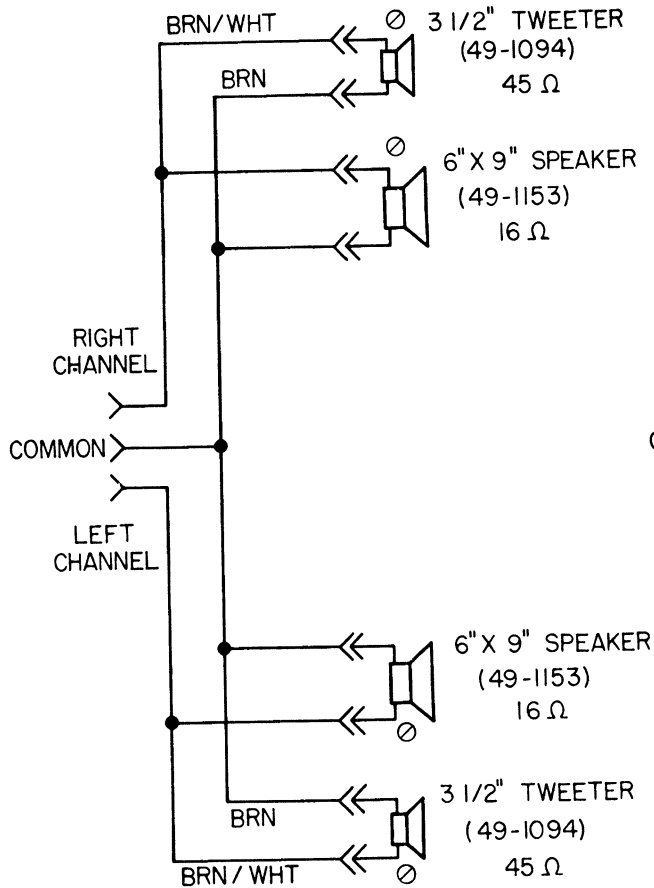
**SPEAKER WIRING FOR MODELS
A941W, A945M, A947DE & A949PN**



SPEAKER WIRING SCHEMATIC

C907M, C908DE, C908P,
C910W, C911W

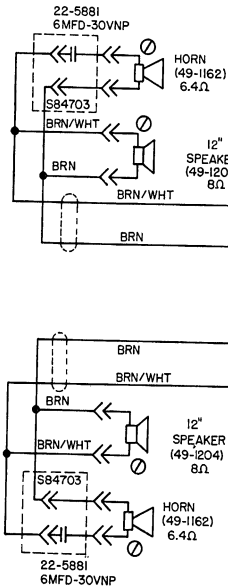
C906W



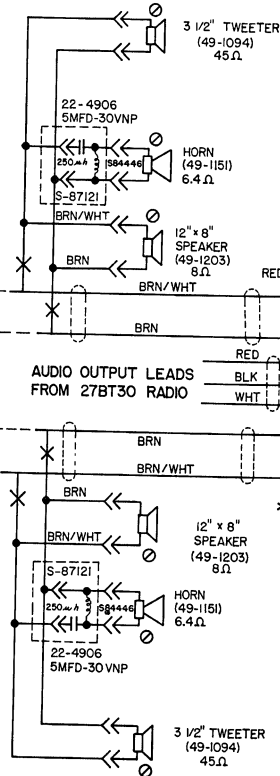
NOTE :
⊙ INDICATES WHITE OR YELLOW VOICE COIL
POLARITY IDENTIFICATION DOT ON SPEAKER

SPEAKER WIRING SCHEMATIC

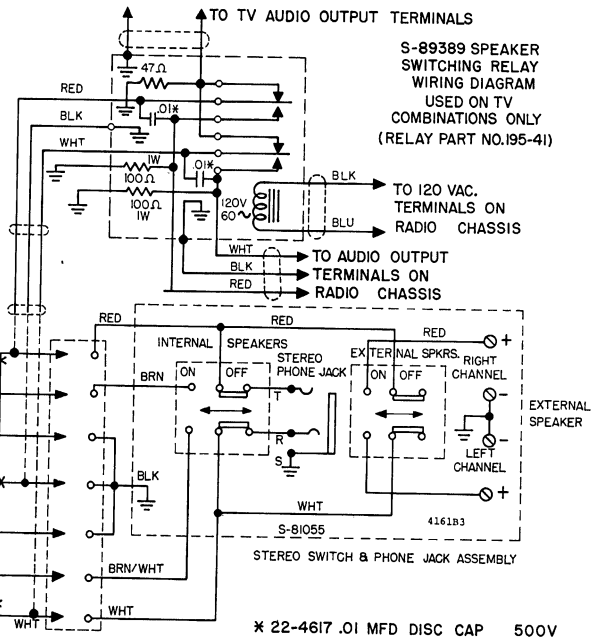
**SPEAKER WIRING FOR MODELS:
B8720W, B8732M, B8734**



**SPEAKER WIRING FOR MODELS:
B941W, B943H, B945H, B947DE
B948PN**

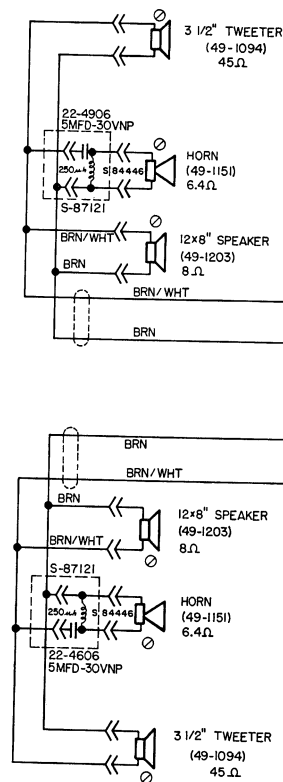


**S-89389 SPEAKER
SWITCHING RELAY
WIRING DIAGRAM
USED ON TV
COMBINATIONS ONLY
(RELAY PART NO.195-41)**

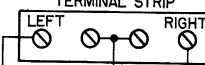


⊙ INDICATES WHITE OR YELLOW VOICE COIL
POLARITY IDENTIFICATION DOT ON SPEAKER.

**SPEAKER WIRING FOR MODELS
B937 & B939DE**



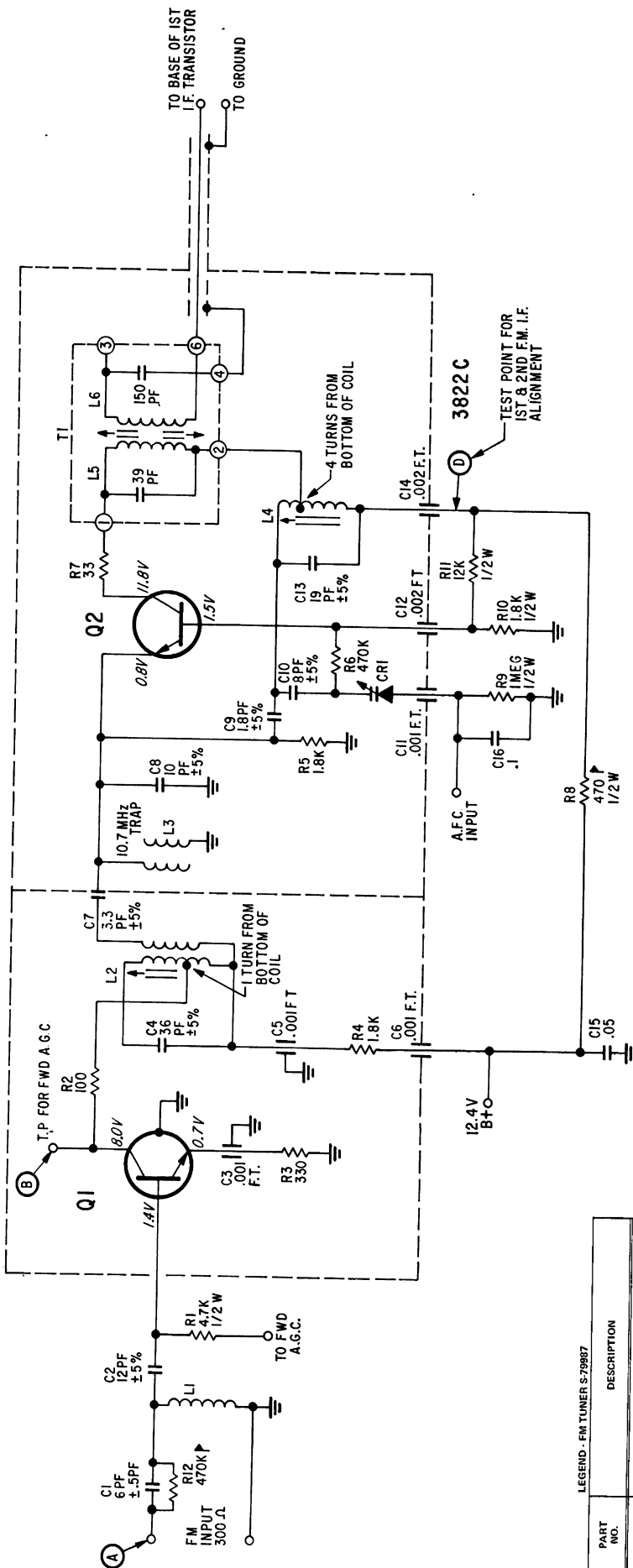
**EXTERNAL SPEAKERS
TERMINAL STRIP**



**AUDIO OUTPUT LEADS FROM
27BT30 & 27BT30Z RADIO**

⊙ INDICATES WHITE OR YELLOW VOICE COIL
IDENTIFICATION DOT ON SPEAKER

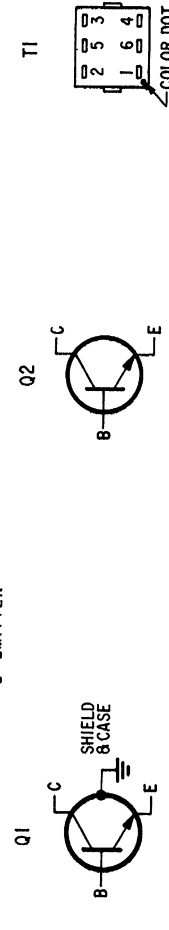
SPEAKER WIRING SCHEMATIC



LEGEND - FM TUNER S-79987

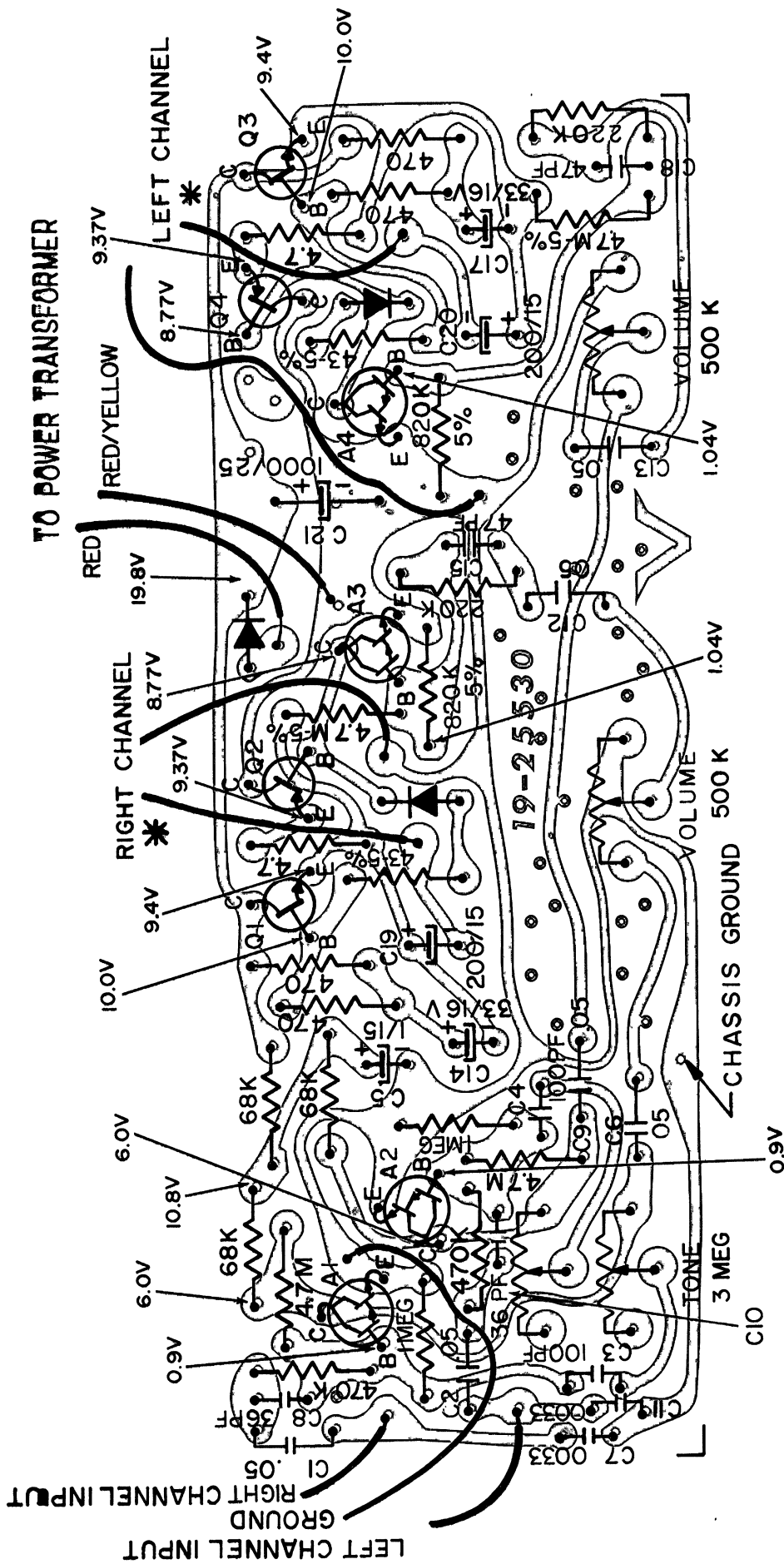
ITEM NO.	PART NO.	DESCRIPTION
C1	22-2374	6 PF DISC ±5% 500V
C2	22-2375	12 PF DISC ±5% 500V
C3	22-4718	.001 MFD FEED THRU CAP 500V
C4	22-5321	38 PF DISC ±5% 500V
C5	22-4613	.001 MFD FEED THRU CAP 500V
C6	22-4616	.001 MFD FEED THRU CAP 500V
C7	22-3544	33 PF DISC ±5% 500V
C8	22-3675	10 PF DISC ±5% 500V
C9	22-4515	1.8 PF GIMMICK ±5% 500V
C10	22-2481	8 PF DISC ±5% 500V
C11	22-4718	.001 MFD FEED THRU CAP 500V
C12	22-4616	.001 MFD FEED THRU CAP 500V
C13	22-3622	10 PF DISC ±5% 500V
C14	22-4844	.05 MFD FEED THRU CAP 900V
C15	22-3652	.1 MFD DISC 25V
C16	22-3652	.1 MFD DISC 10V
R1	63-1813	4.7K OHM RESISTOR
R2	63-1813	4.7K OHM RESISTOR
R3	63-4164	330 OHM RESISTOR
R4	63-4196	1.8K OHM RESISTOR
R5	63-4196	1.8K OHM RESISTOR
R6	63-4297	470K OHM RESISTOR
R7	63-1122	1.8K OHM RESISTOR
R8	63-1122	1.8K OHM RESISTOR
R9	63-1911	1.8K OHM RESISTOR
R10	63-1796	1.8K OHM RESISTOR
R11	63-1831	1.8K OHM RESISTOR
R12	63-1831	1.8K OHM RESISTOR
Q1	121-704	OSCILLATOR TRANSISTOR
Q2	121-613	FM ANTENNA COIL
L1	S-78089	FM DETECTOR COIL
L2	S-45043	10.7 MHz TRAP COIL
L3	S-45043	10.7 MHz TRAP COIL
L4	S-45043	10.7 MHz TRAP COIL
L5	IN T1	1st I.F. FM SEC.
L6	95-2686	1st I.F. TRANSFORMER
CH1	103-47	DIODE

KEY:
B = BASE
C = COLLECTOR
E = EMITTER



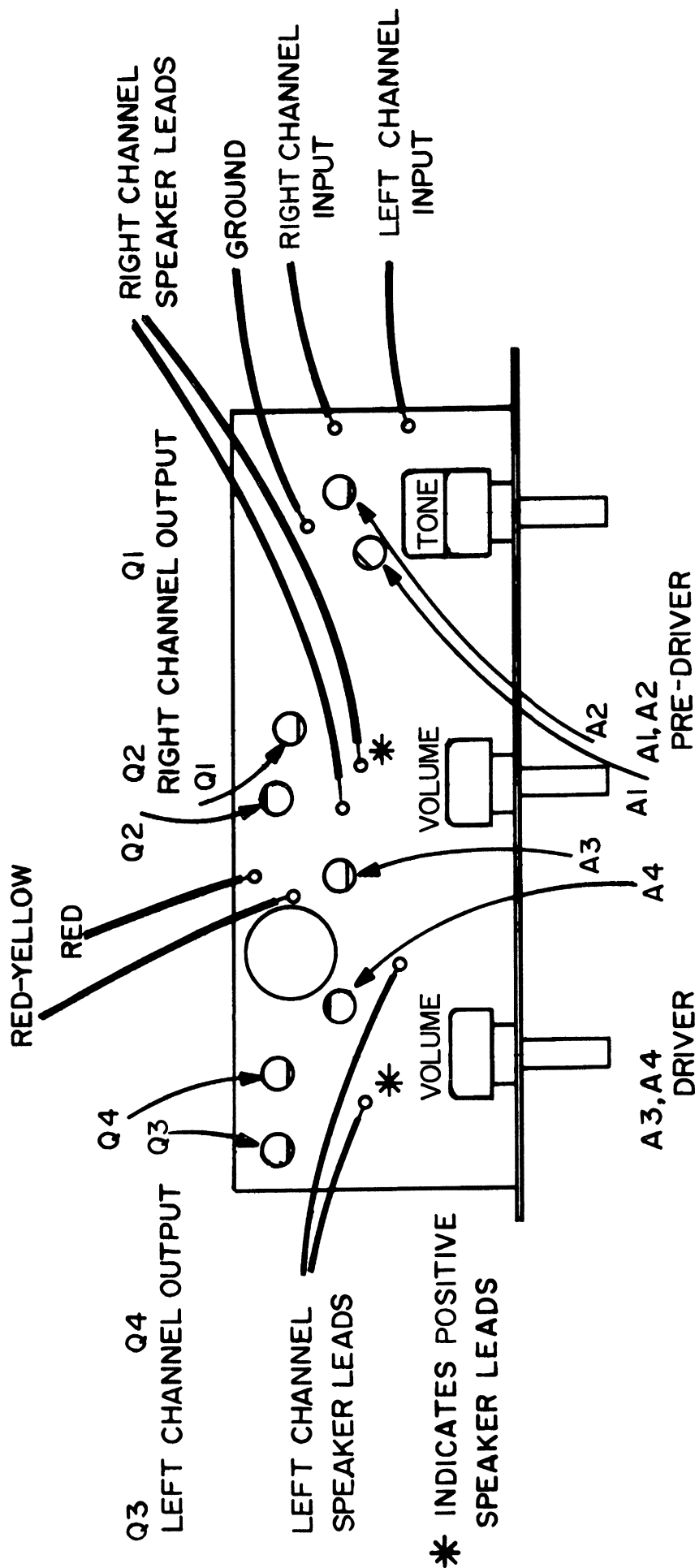
- NOTES:
1. ALL RESISTORS 10% TOLERANCE, 1/4 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
 2. RESISTANCE VALUES IN OHMS, CAPACITANCES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
 3. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
 4. D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER.
 5. ∇ DEMOTES CHASSIS GROUND.
 6. $\blacktriangle$ INDICATES 50% TOLERANCE.

S-79987 FM TUNER - SCHEMATIC





TO POWER TRANSFORMER



TO POWER TRANSFORMER

RED-YELLOW RED

RED

Q1

Q5

Q3

Q7

A3

Q2

Q6

Q4

A4

Q8

BOTTOM BOARD

* INDICATES POSITIVE
SPEAKER LEADS

RIGHT CHANNEL
SPEAKER LEADS

LEFT CHANNEL
INPUT

LEFT CHANNEL
SPEAKER LEADS

RIGHT
CHANNEL
INPUT

GROUND

A1

A2

TOP BOARD

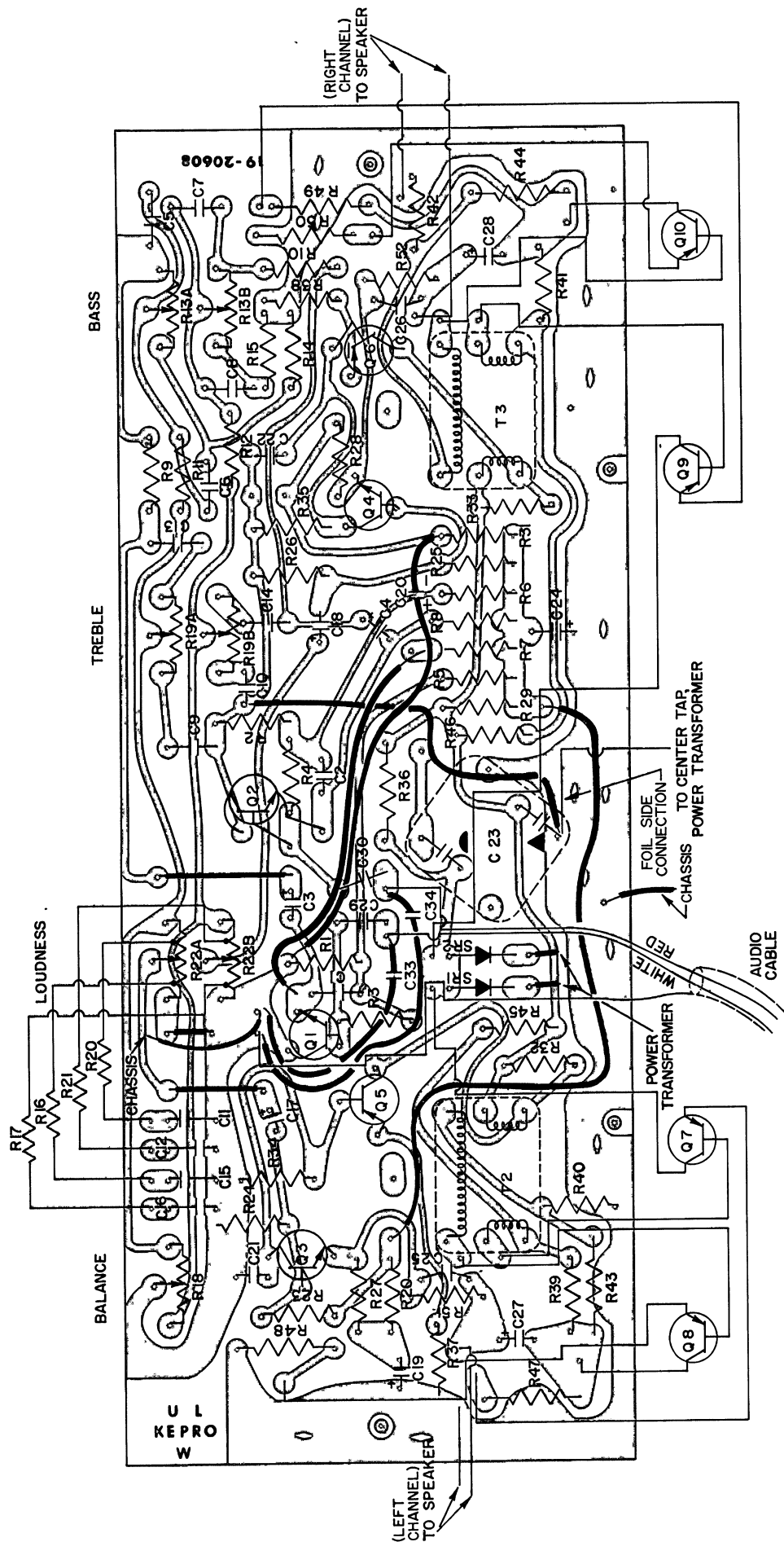
BALANCE

LOUDNESS

BASS

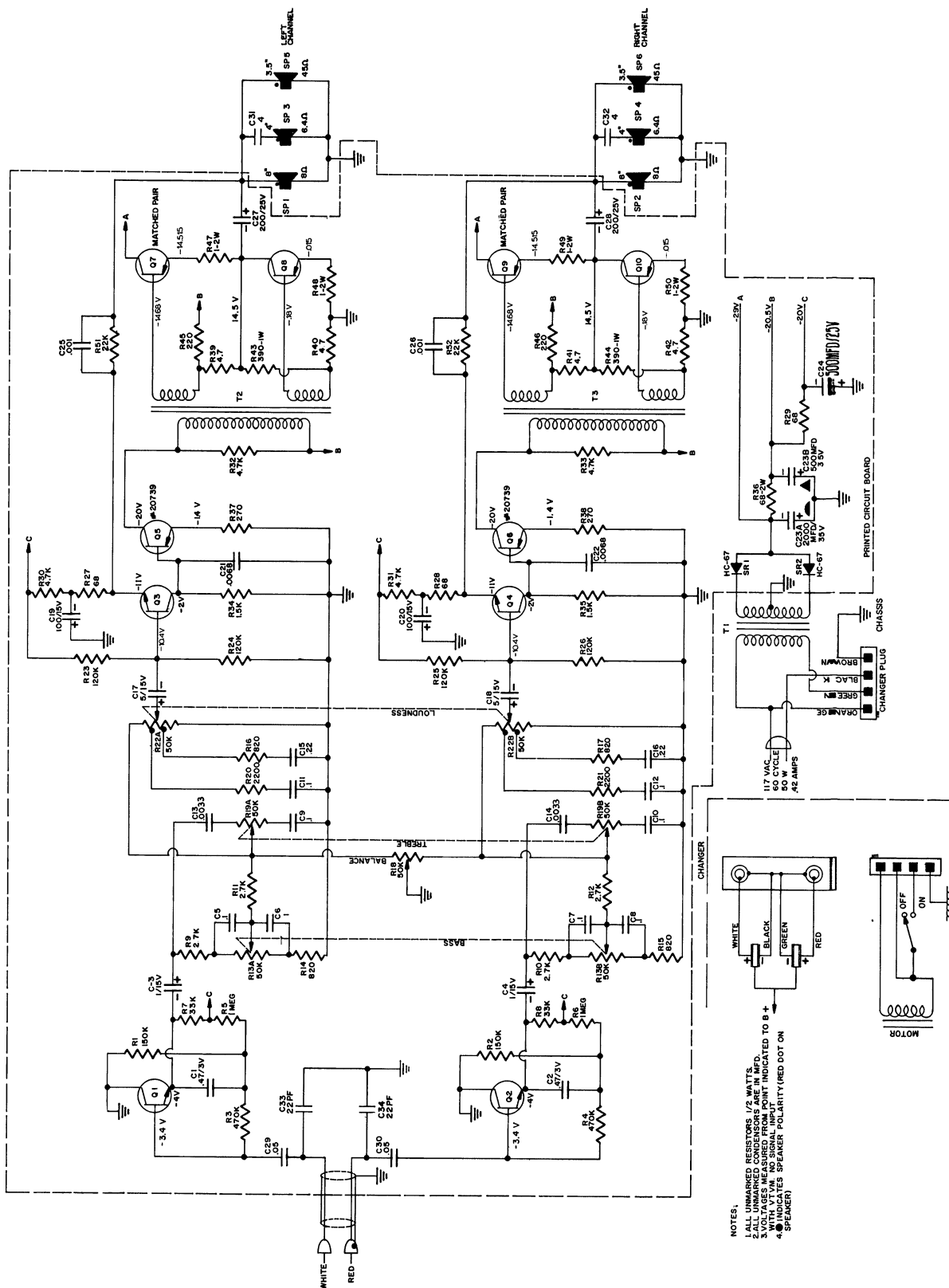
TREBLE

B553 - CHASSIS LAYOUT

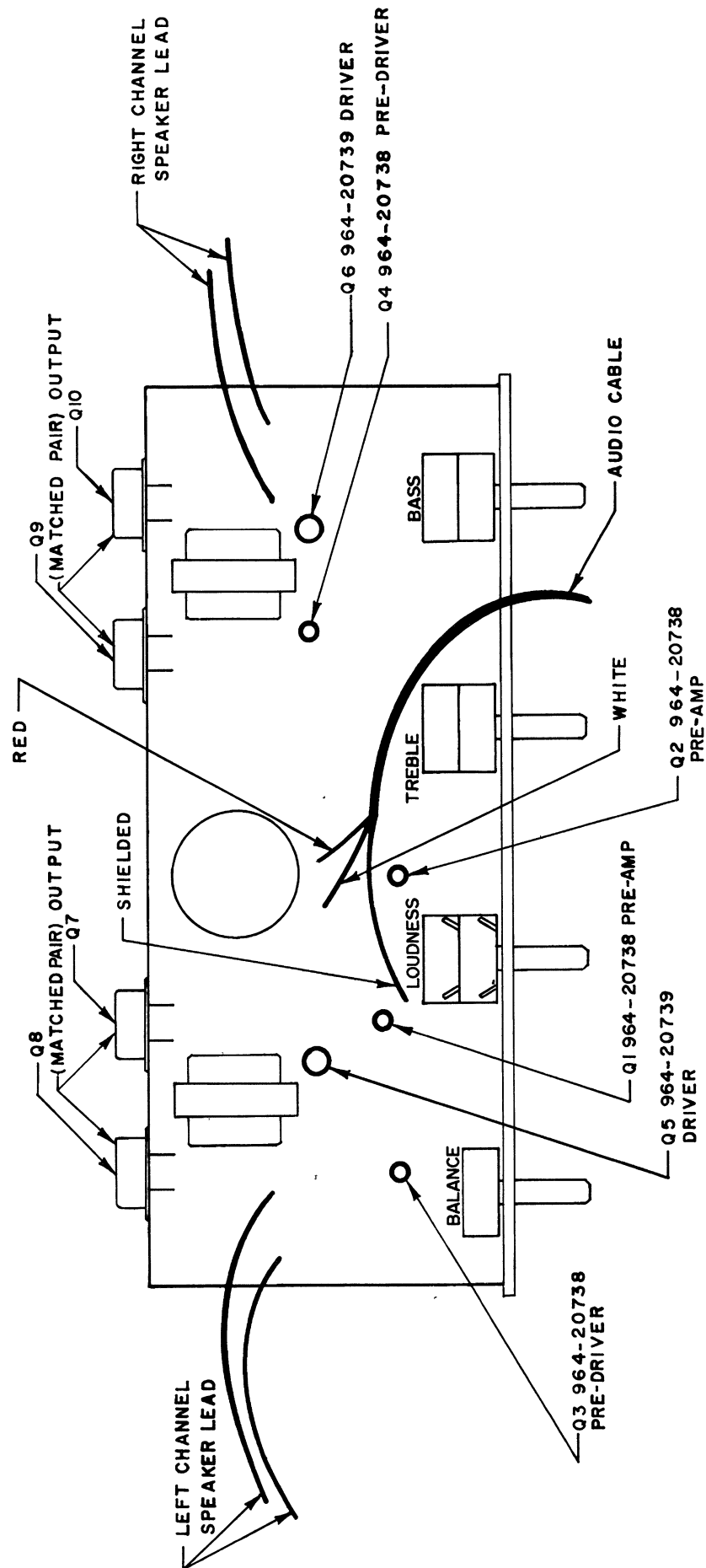


X560-2 - CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE

ITEM NO.	PART NO.	DESCRIPTION
C1	964-18612	47 MFD, 2V
C2	964-18612	1 MFD, 10V (2 REG.)
C3	964-18612	1 MFD, 10V
C4	964-18612	1 MFD, 10V
C5	964-18612	1 MFD, 10V
C6	964-18612	1 MFD, 10V
C7	964-18612	1 MFD, 10V
C8	964-18612	1 MFD, 10V
C9	964-18612	1 MFD, 10V
C10	964-18612	1 MFD, 10V
C11	964-18612	1 MFD, 10V
C12	964-18612	1 MFD, 10V
C13	964-18612	1 MFD, 10V
C14	964-18612	1 MFD, 10V
C15	964-18612	1 MFD, 10V
C16	964-18612	1 MFD, 10V
C17	964-18612	1 MFD, 10V
C18	964-18612	1 MFD, 10V
C19	964-18612	1 MFD, 10V
C20	964-18612	1 MFD, 10V
C21	964-18612	1 MFD, 10V
C22	964-18612	1 MFD, 10V
C23	964-18612	1 MFD, 10V
C24	964-18612	1 MFD, 10V
C25	964-18612	1 MFD, 10V
C26	964-18612	1 MFD, 10V
C27	964-18612	1 MFD, 10V
C28	964-18612	1 MFD, 10V
C29	964-18612	1 MFD, 10V
C30	964-18612	1 MFD, 10V
C31	964-18612	1 MFD, 10V
C32	964-18612	1 MFD, 10V
C33	964-18612	1 MFD, 10V
C34	964-18612	1 MFD, 10V
C35	964-18612	1 MFD, 10V
C36	964-18612	1 MFD, 10V
C37	964-18612	1 MFD, 10V
C38	964-18612	1 MFD, 10V
C39	964-18612	1 MFD, 10V
C40	964-18612	1 MFD, 10V
C41	964-18612	1 MFD, 10V
C42	964-18612	1 MFD, 10V
C43	964-18612	1 MFD, 10V
C44	964-18612	1 MFD, 10V
C45	964-18612	1 MFD, 10V
C46	964-18612	1 MFD, 10V
C47	964-18612	1 MFD, 10V
C48	964-18612	1 MFD, 10V
C49	964-18612	1 MFD, 10V
C50	964-18612	1 MFD, 10V
C51	964-18612	1 MFD, 10V
C52	964-18612	1 MFD, 10V
C53	964-18612	1 MFD, 10V
C54	964-18612	1 MFD, 10V
C55	964-18612	1 MFD, 10V
C56	964-18612	1 MFD, 10V
C57	964-18612	1 MFD, 10V
C58	964-18612	1 MFD, 10V
C59	964-18612	1 MFD, 10V
C60	964-18612	1 MFD, 10V
C61	964-18612	1 MFD, 10V
C62	964-18612	1 MFD, 10V
C63	964-18612	1 MFD, 10V
C64	964-18612	1 MFD, 10V
C65	964-18612	1 MFD, 10V
C66	964-18612	1 MFD, 10V
C67	964-18612	1 MFD, 10V
C68	964-18612	1 MFD, 10V
C69	964-18612	1 MFD, 10V
C70	964-18612	1 MFD, 10V
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C73	964-18612	1 MFD, 10V
C74	964-18612	1 MFD, 10V
C75	964-18612	1 MFD, 10V
C76	964-18612	1 MFD, 10V
C77	964-18612	1 MFD, 10V
C78	964-18612	1 MFD, 10V
C79	964-18612	1 MFD, 10V
C80	964-18612	1 MFD, 10V
C81	964-18612	1 MFD, 10V
C82	964-18612	1 MFD, 10V
C83	964-18612	1 MFD, 10V
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C90	964-18612	1 MFD, 10V
C91	964-18612	1 MFD, 10V
C92	964-18612	1 MFD, 10V
C93	964-18612	1 MFD, 10V
C94	964-18612	1 MFD, 10V
C95	964-18612	1 MFD, 10V
C96	964-18612	1 MFD, 10V
C97	964-18612	1 MFD, 10V
C98	964-18612	1 MFD, 10V
C99	964-18612	1 MFD, 10V
C100	964-18612	1 MFD, 10V

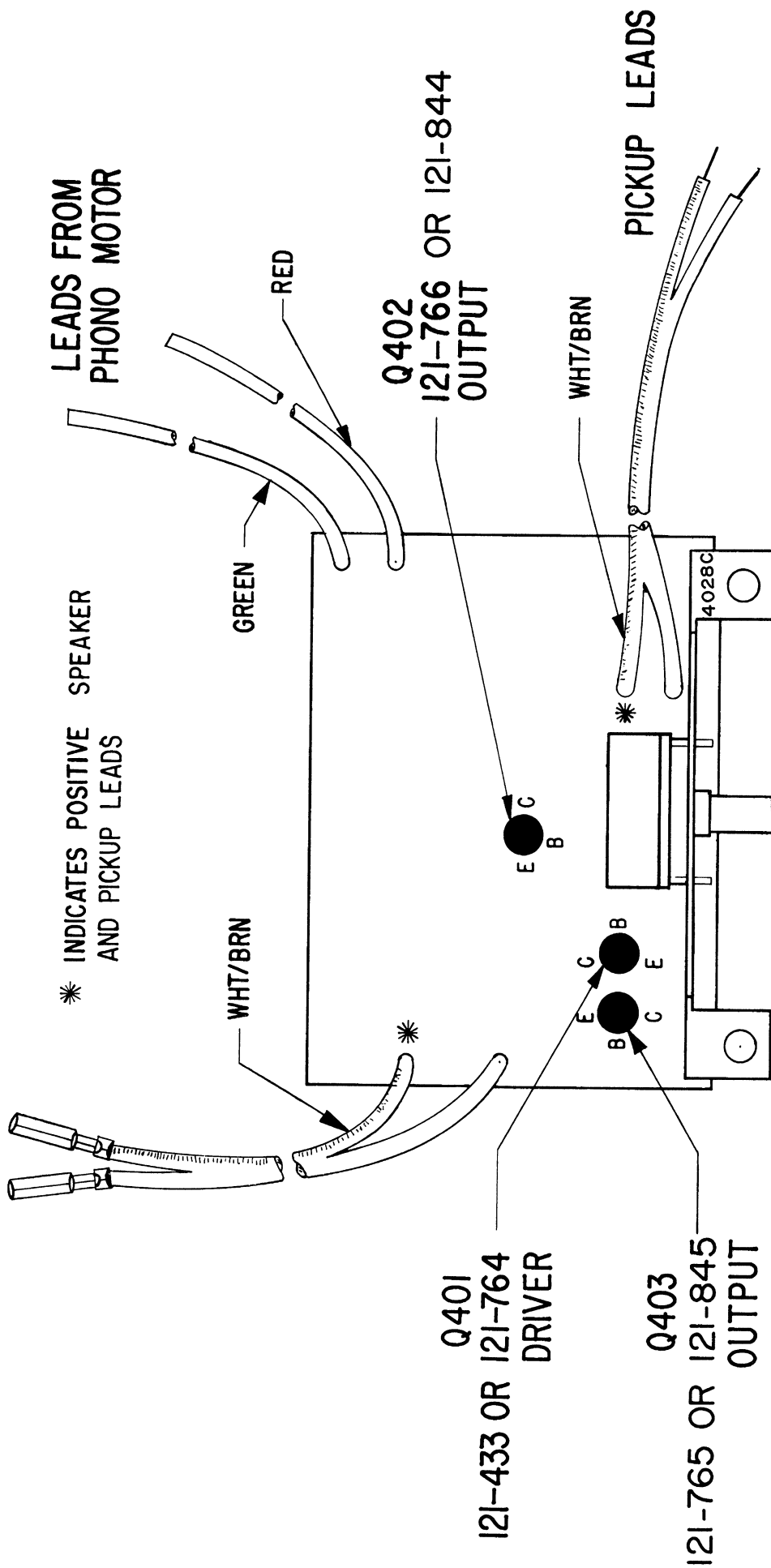


X560-2 - SCHEMATIC

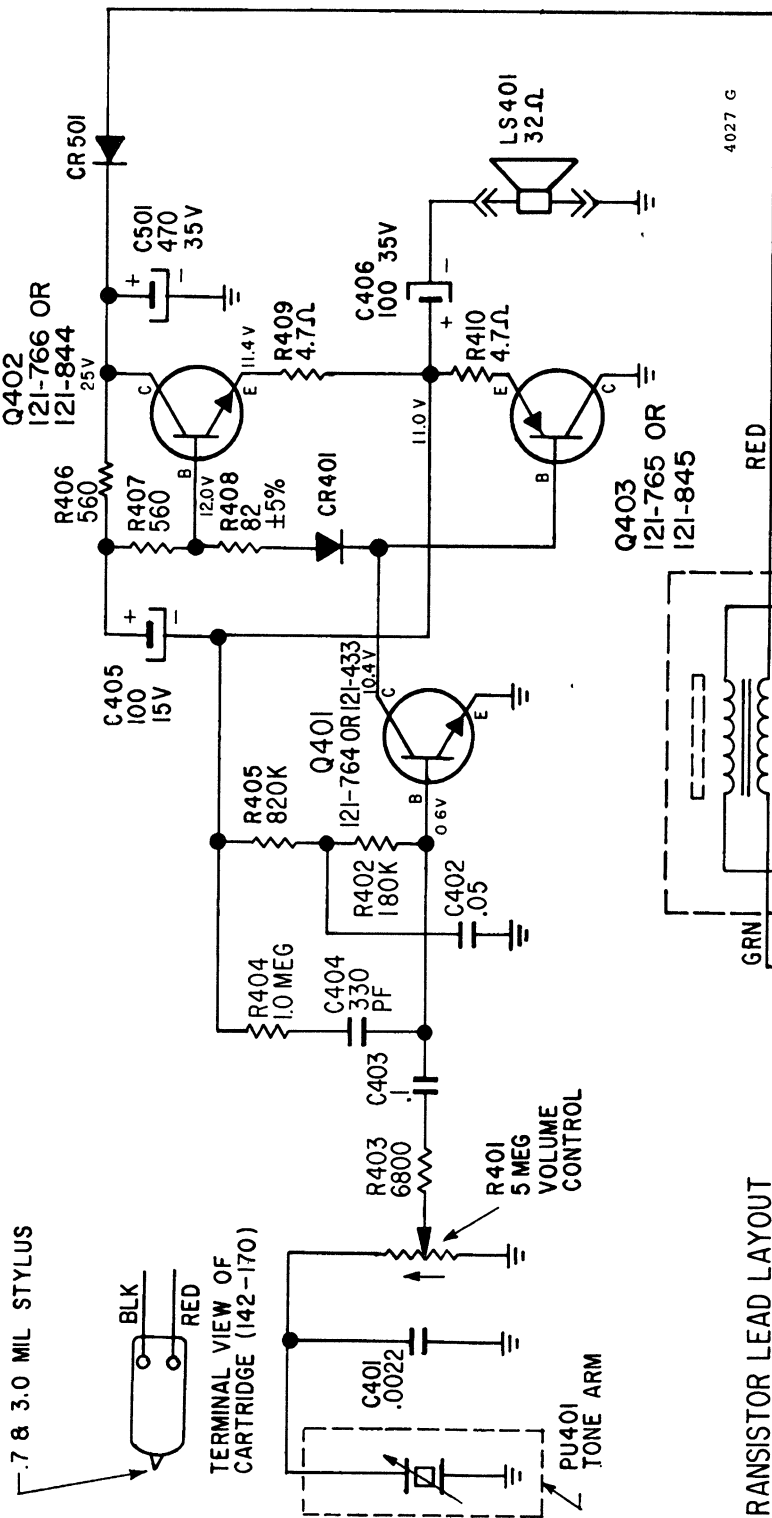


X560-2 - CHASSIS LAYOUT

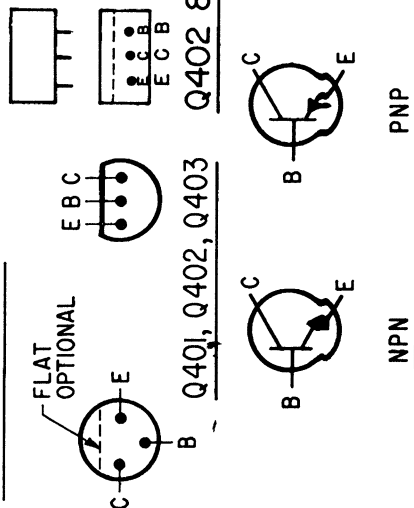
SPEAKER LEADS



7 & 3.0 MIL STYLUS



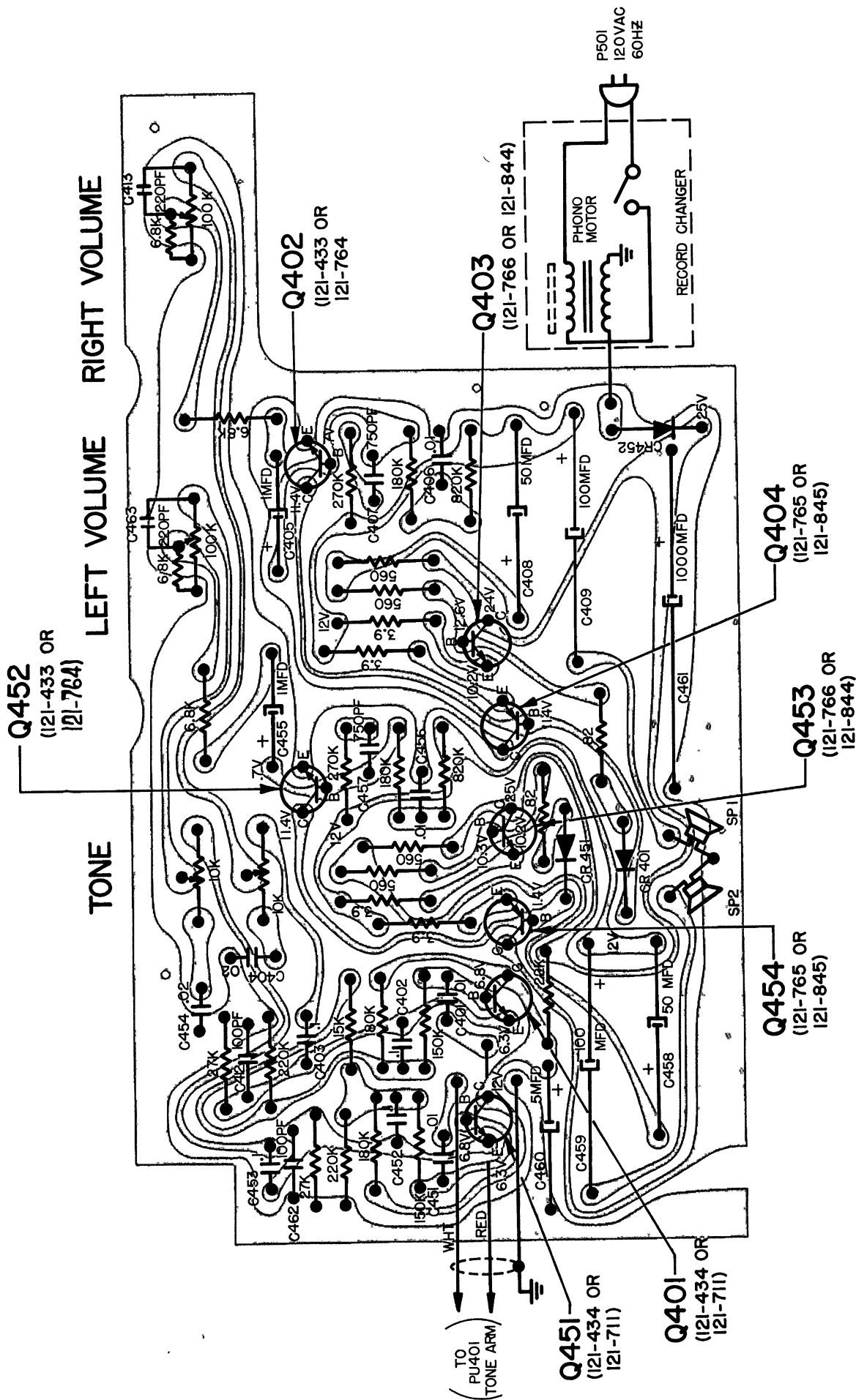
TRANSISTOR LEAD LAYOUT LEAD END VIEWS



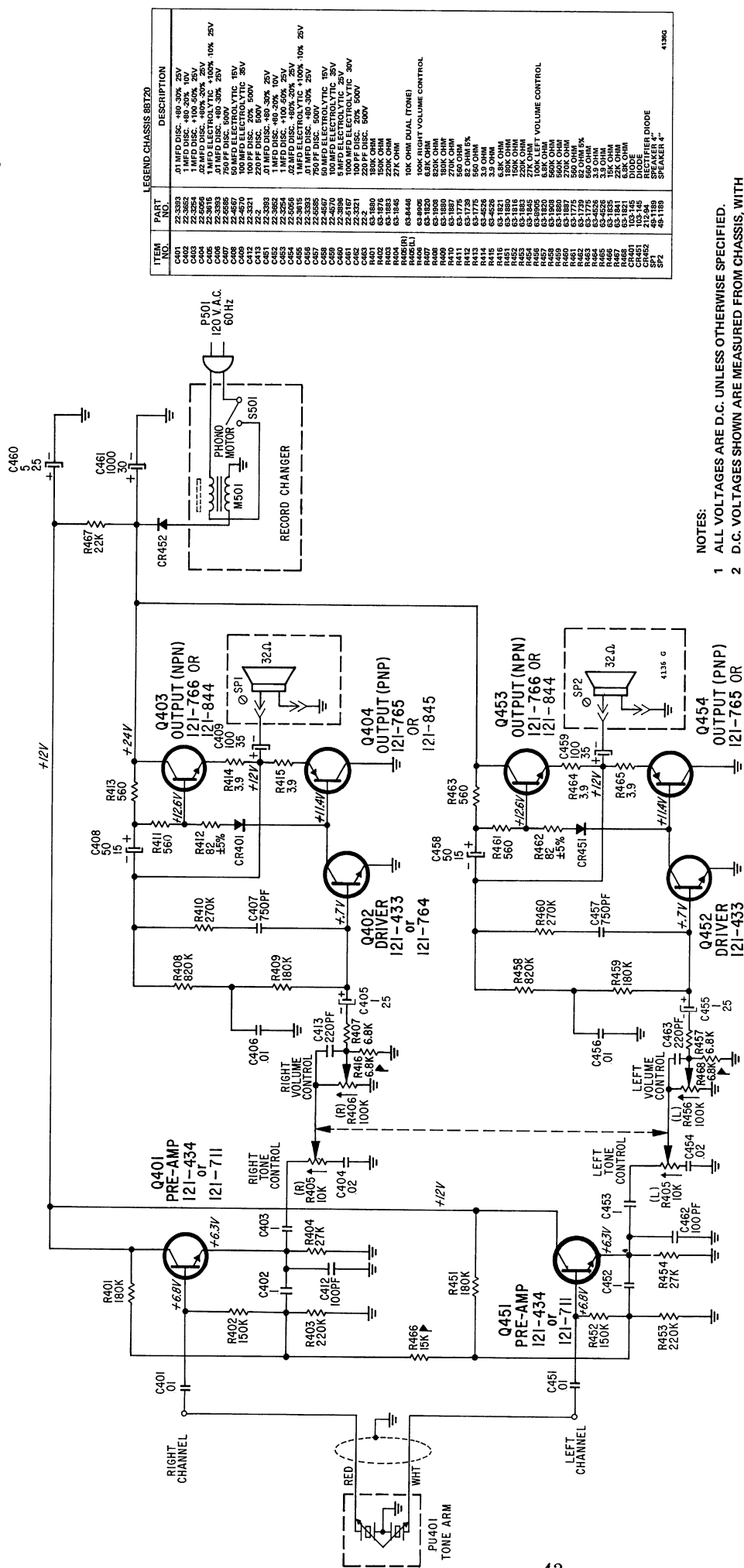
- NOTES:
1. INDICATES CHASSIS GROUND.
 2. ARROW ON CONTROL INDICATES CLOCKWISE POSITION.
 3. ALL RESISTANCES IN OHMS. 1/2 WATT CARBON $\pm 10\%$.
 4. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
 5. D.C. VOLTAGES SHOWN ARE MEASURED FROM CHASSIS WITH NO SIGNAL USING A V.T.V.M. OF 11 MEGOHM INPUT RESISTANCE. LINE VOLTAGE 120 V.A.C.
 6. ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
 7. OUTPUT TRANSISTORS SHALL BE A PAIR 12I-765 and 12I-766 or 12I-844 and 12I-845, FROM THE SAME MANUFACTURER.

ITEM NO.	PART NO.	DESCRIPTION
C401	22-5201	.0022 MFD DISC. 25V
C402	22-3034	.05 MFD DISC. 25V
C403	22-3255	.1 MFD DISC. 25V
C404	22-3255	.1 MFD DISC. 10V
C405	22-4050	100 MFD ELECTROLYTIC 15V
C406	22-4050	100 MFD ELECTROLYTIC 35V
C501	22-6098	470 MFD ELECTROLYTIC 35V
R401	63-4321	5 MEG OHMS VOLUME CONTROL
R402	63-1820	180K
R403	63-1911	6800
R404	63-1908	1.0 MEG
R405	63-1775	820K
R406	63-1775	560
R407	63-1775	560
R408	63-4529	82 5%
R409	63-4529	4.7
R410	103-145	BIASING DIODE
CR501	212-94	RECTIFIER DIODE
LS401	49-1184	SPEAKER

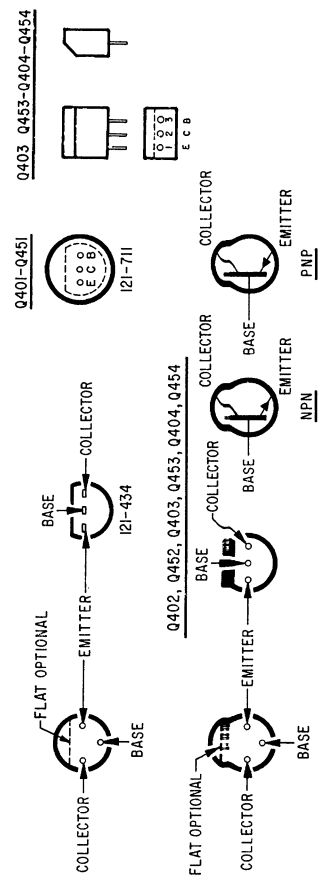
4027 G



8BT20 - CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



TRANSISTOR LEAD LAYOUT - LEAD END VIEWS

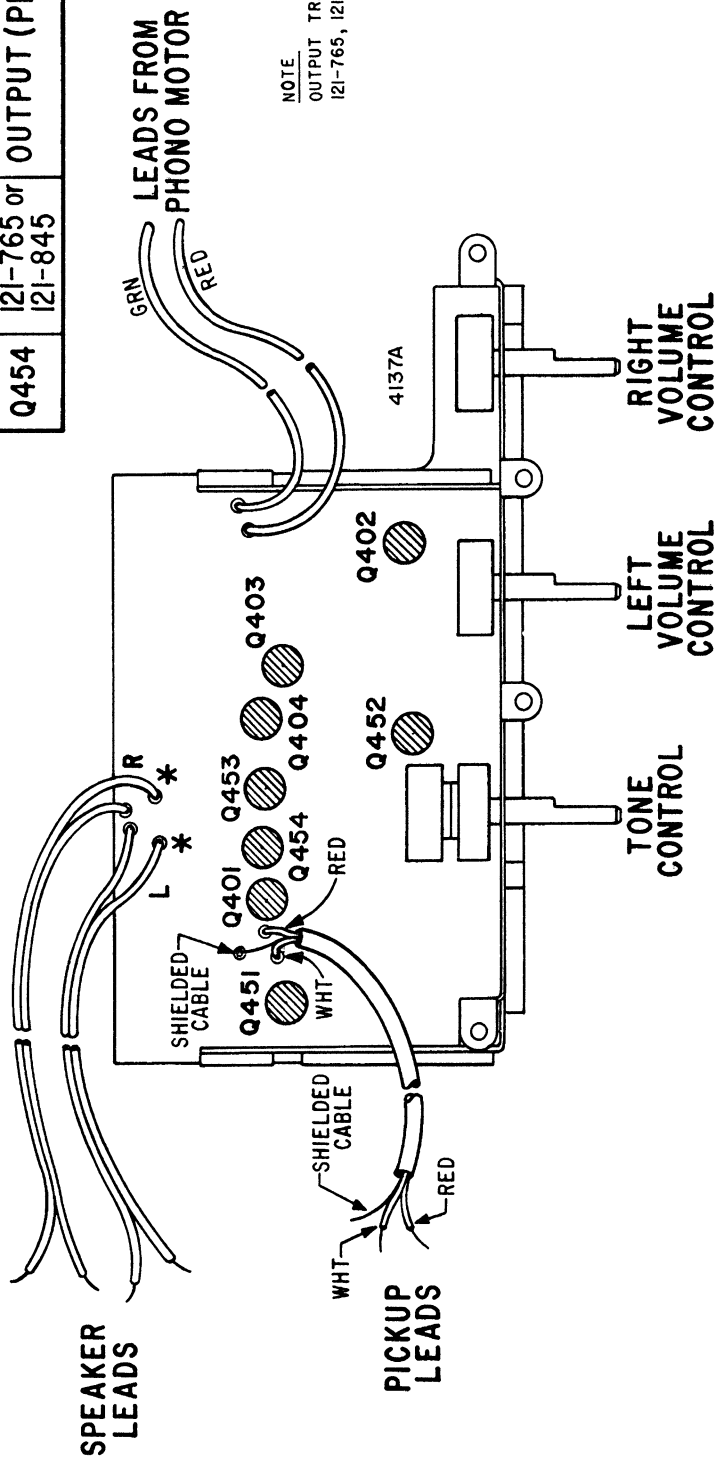


- NOTES:
- 1 ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
 - 2 D.C. VOLTAGES SHOWN ARE MEASURED FROM CHASSIS WITH NO SIGNAL INPUT. LOUDNESS CONTROL AT MINIMUM. LINE VOLTAGE 120 V.A.C. USING A HIGH IMPEDANCE V.T.V.M.
 - 3 ALL RESISTORS IN OHMS, 1/2 WATT CARBON, $\pm 10\%$ UNLESS OTHERWISE SPECIFIED.
 - 4 ALL CAPACITORS ARE IN MICROFARADS $\pm 10\%$ UNLESS OTHERWISE SPECIFIED.
 - 5 ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION.
 - 6 INDICATES CHASSIS GROUND.
 - 7 INDICATES $\pm 20\%$ TOLERANCE.
- OUTPUT TRANSISTORS IN EACH CHANNEL SHALL BE A PAIR 121-765, 121-766 or 121-844, 121-845 FROM THE SAME MANUFACTURER.

ITEM NO.	PART NO.	DESCRIPTION
C460	22-3582	22 MFD DISC. 50V 30% 25V
C459	22-3582	22 MFD DISC. 50V 30% 25V
C458	22-3582	22 MFD DISC. 50V 30% 25V
C457	22-3582	22 MFD DISC. 50V 30% 25V
C456	22-3582	22 MFD DISC. 50V 30% 25V
C455	22-3582	22 MFD DISC. 50V 30% 25V
C454	22-3582	22 MFD DISC. 50V 30% 25V
C453	22-3582	22 MFD DISC. 50V 30% 25V
C452	22-3582	22 MFD DISC. 50V 30% 25V
C451	22-3582	22 MFD DISC. 50V 30% 25V
C450	22-3582	22 MFD DISC. 50V 30% 25V
C449	22-3582	22 MFD DISC. 50V 30% 25V
C448	22-3582	22 MFD DISC. 50V 30% 25V
C447	22-3582	22 MFD DISC. 50V 30% 25V
C446	22-3582	22 MFD DISC. 50V 30% 25V
C445	22-3582	22 MFD DISC. 50V 30% 25V
C444	22-3582	22 MFD DISC. 50V 30% 25V
C443	22-3582	22 MFD DISC. 50V 30% 25V
C442	22-3582	22 MFD DISC. 50V 30% 25V
C441	22-3582	22 MFD DISC. 50V 30% 25V
C440	22-3582	22 MFD DISC. 50V 30% 25V
C439	22-3582	22 MFD DISC. 50V 30% 25V
C438	22-3582	22 MFD DISC. 50V 30% 25V
C437	22-3582	22 MFD DISC. 50V 30% 25V
C436	22-3582	22 MFD DISC. 50V 30% 25V
C435	22-3582	22 MFD DISC. 50V 30% 25V
C434	22-3582	22 MFD DISC. 50V 30% 25V
C433	22-3582	22 MFD DISC. 50V 30% 25V
C432	22-3582	22 MFD DISC. 50V 30% 25V
C431	22-3582	22 MFD DISC. 50V 30% 25V
C430	22-3582	22 MFD DISC. 50V 30% 25V
C429	22-3582	22 MFD DISC. 50V 30% 25V
C428	22-3582	22 MFD DISC. 50V 30% 25V
C427	22-3582	22 MFD DISC. 50V 30% 25V
C426	22-3582	22 MFD DISC. 50V 30% 25V
C425	22-3582	22 MFD DISC. 50V 30% 25V
C424	22-3582	22 MFD DISC. 50V 30% 25V
C423	22-3582	22 MFD DISC. 50V 30% 25V
C422	22-3582	22 MFD DISC. 50V 30% 25V
C421	22-3582	22 MFD DISC. 50V 30% 25V
C420	22-3582	22 MFD DISC. 50V 30% 25V
C419	22-3582	22 MFD DISC. 50V 30% 25V
C418	22-3582	22 MFD DISC. 50V 30% 25V
C417	22-3582	22 MFD DISC. 50V 30% 25V
C416	22-3582	22 MFD DISC. 50V 30% 25V
C415	22-3582	22 MFD DISC. 50V 30% 25V
C414	22-3582	22 MFD DISC. 50V 30% 25V
C413	22-3582	22 MFD DISC. 50V 30% 25V
C412	22-3582	22 MFD DISC. 50V 30% 25V
C411	22-3582	22 MFD DISC. 50V 30% 25V
C410	22-3582	22 MFD DISC. 50V 30% 25V
C409	22-3582	22 MFD DISC. 50V 30% 25V
C408	22-3582	22 MFD DISC. 50V 30% 25V
C407	22-3582	22 MFD DISC. 50V 30% 25V
C406	22-3582	22 MFD DISC. 50V 30% 25V
C405	22-3582	22 MFD DISC. 50V 30% 25V
C404	22-3582	22 MFD DISC. 50V 30% 25V
C403	22-3582	22 MFD DISC. 50V 30% 25V
C402	22-3582	22 MFD DISC. 50V 30% 25V
C401	22-3582	22 MFD DISC. 50V 30% 25V
R467	22-3582	22 MFD DISC. 50V 30% 25V
R466	22-3582	22 MFD DISC. 50V 30% 25V
R465	22-3582	22 MFD DISC. 50V 30% 25V
R464	22-3582	22 MFD DISC. 50V 30% 25V
R463	22-3582	22 MFD DISC. 50V 30% 25V
R462	22-3582	22 MFD DISC. 50V 30% 25V
R461	22-3582	22 MFD DISC. 50V 30% 25V
R460	22-3582	22 MFD DISC. 50V 30% 25V
R459	22-3582	22 MFD DISC. 50V 30% 25V
R458	22-3582	22 MFD DISC. 50V 30% 25V
R457	22-3582	22 MFD DISC. 50V 30% 25V
R456	22-3582	22 MFD DISC. 50V 30% 25V
R455	22-3582	22 MFD DISC. 50V 30% 25V
R454	22-3582	22 MFD DISC. 50V 30% 25V
R453	22-3582	22 MFD DISC. 50V 30% 25V
R452	22-3582	22 MFD DISC. 50V 30% 25V
R451	22-3582	22 MFD DISC. 50V 30% 25V
R450	22-3582	22 MFD DISC. 50V 30% 25V
R449	22-3582	22 MFD DISC. 50V 30% 25V
R448	22-3582	22 MFD DISC. 50V 30% 25V
R447	22-3582	22 MFD DISC. 50V 30% 25V
R446	22-3582	22 MFD DISC. 50V 30% 25V
R445	22-3582	22 MFD DISC. 50V 30% 25V
R444	22-3582	22 MFD DISC. 50V 30% 25V
R443	22-3582	22 MFD DISC. 50V 30% 25V
R442	22-3582	22 MFD DISC. 50V 30% 25V
R441	22-3582	22 MFD DISC. 50V 30% 25V
R440	22-3582	22 MFD DISC. 50V 30% 25V
R439	22-3582	22 MFD DISC. 50V 30% 25V
R438	22-3582	22 MFD DISC. 50V 30% 25V
R437	22-3582	22 MFD DISC. 50V 30% 25V
R436	22-3582	22 MFD DISC. 50V 30% 25V
R435	22-3582	22 MFD DISC. 50V 30% 25V
R434	22-3582	22 MFD DISC. 50V 30% 25V
R433	22-3582	22 MFD DISC. 50V 30% 25V
R432	22-3582	22 MFD DISC. 50V 30% 25V
R431	22-3582	22 MFD DISC. 50V 30% 25V
R430	22-3582	22 MFD DISC. 50V 30% 25V
R429	22-3582	22 MFD DISC. 50V 30% 25V
R428	22-3582	22 MFD DISC. 50V 30% 25V
R427	22-3582	22 MFD DISC. 50V 30% 25V
R426	22-3582	22 MFD DISC. 50V 30% 25V
R425	22-3582	22 MFD DISC. 50V 30% 25V
R424	22-3582	22 MFD DISC. 50V 30% 25V
R423	22-3582	22 MFD DISC. 50V 30% 25V
R422	22-3582	22 MFD DISC. 50V 30% 25V
R421	22-3582	22 MFD DISC. 50V 30% 25V
R420	22-3582	22 MFD DISC. 50V 30% 25V
R419	22-3582	22 MFD DISC. 50V 30% 25V
R418	22-3582	22 MFD DISC. 50V 30% 25V
R417	22-3582	22 MFD DISC. 50V 30% 25V
R416	22-3582	22 MFD DISC. 50V 30% 25V
R415	22-3582	22 MFD DISC. 50V 30% 25V
R414	22-3582	22 MFD DISC. 50V 30% 25V
R413	22-3582	22 MFD DISC. 50V 30% 25V
R412	22-3582	22 MFD DISC. 50V 30% 25V
R411	22-3582	22 MFD DISC. 50V 30% 25V
R410	22-3582	22 MFD DISC. 50V 30% 25V
R409	22-3582	22 MFD DISC. 50V 30% 25V
R408	22-3582	22 MFD DISC. 50V 30% 25V
R407	22-3582	22 MFD DISC. 50V 30% 25V
R406	22-3582	22 MFD DISC. 50V 30% 25V
R405	22-3582	22 MFD DISC. 50V 30% 25V
R404	22-3582	22 MFD DISC. 50V 30% 25V
R403	22-3582	22 MFD DISC. 50V 30% 25V
R402	22-3582	22 MFD DISC. 50V 30% 25V
R401	22-3582	22 MFD DISC. 50V 30% 25V

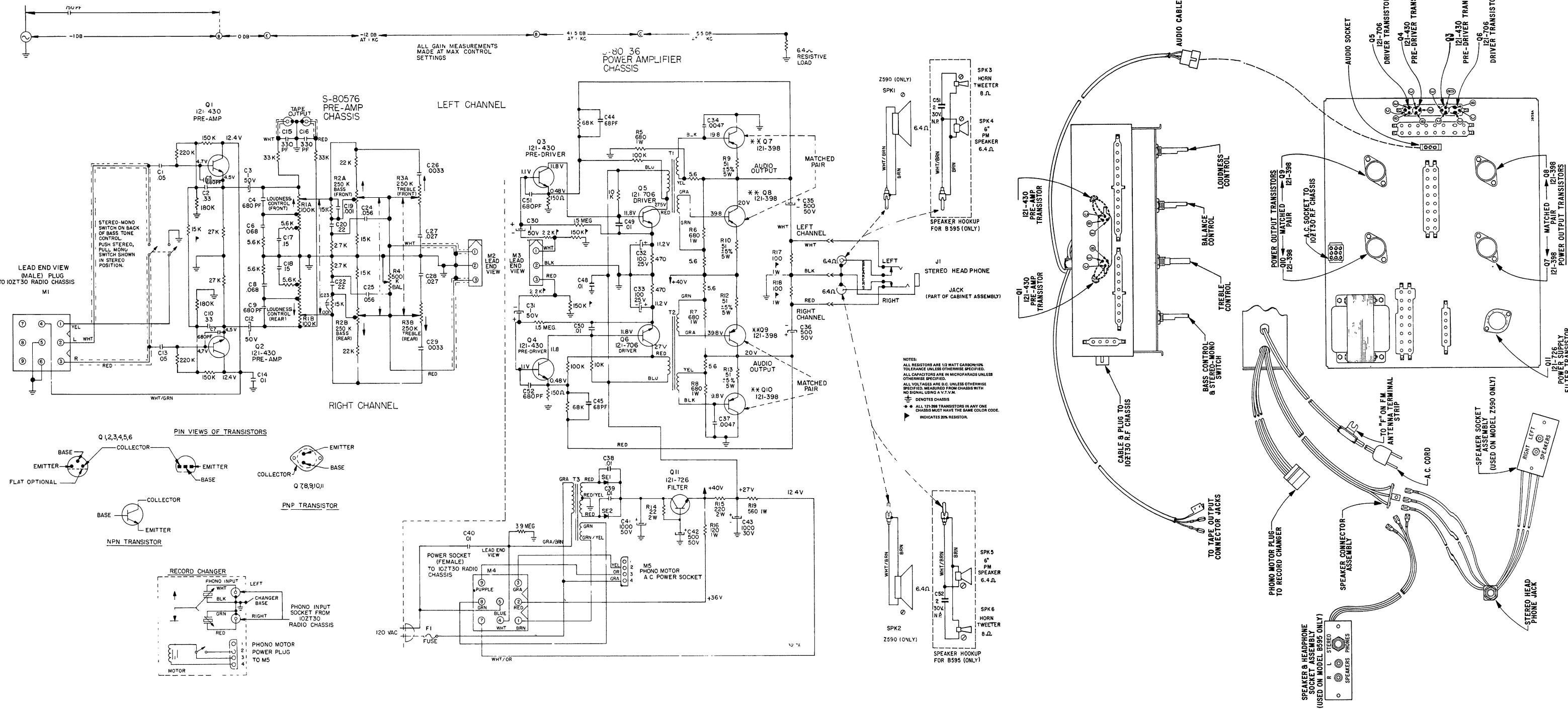
TRANSISTORS	
No.	PART No. DESCRIPTION
Q401	121-434 or 121-711 PRE-AMP (NPN)
Q402	121-433 or 121-764 DRIVER (NPN)
Q451	121-434 or 121-711 PRE-AMP (NPN)
Q452	121-433 or 121-764 DRIVER (NPN)
Q403	121-766 or 121-844 OUTPUT (NPN)
Q404	121-765 or 121-845 OUTPUT (PNP)
Q453	121-766 or 121-844 OUTPUT (NPN)
Q454	121-765 or 121-845 OUTPUT (PNP)

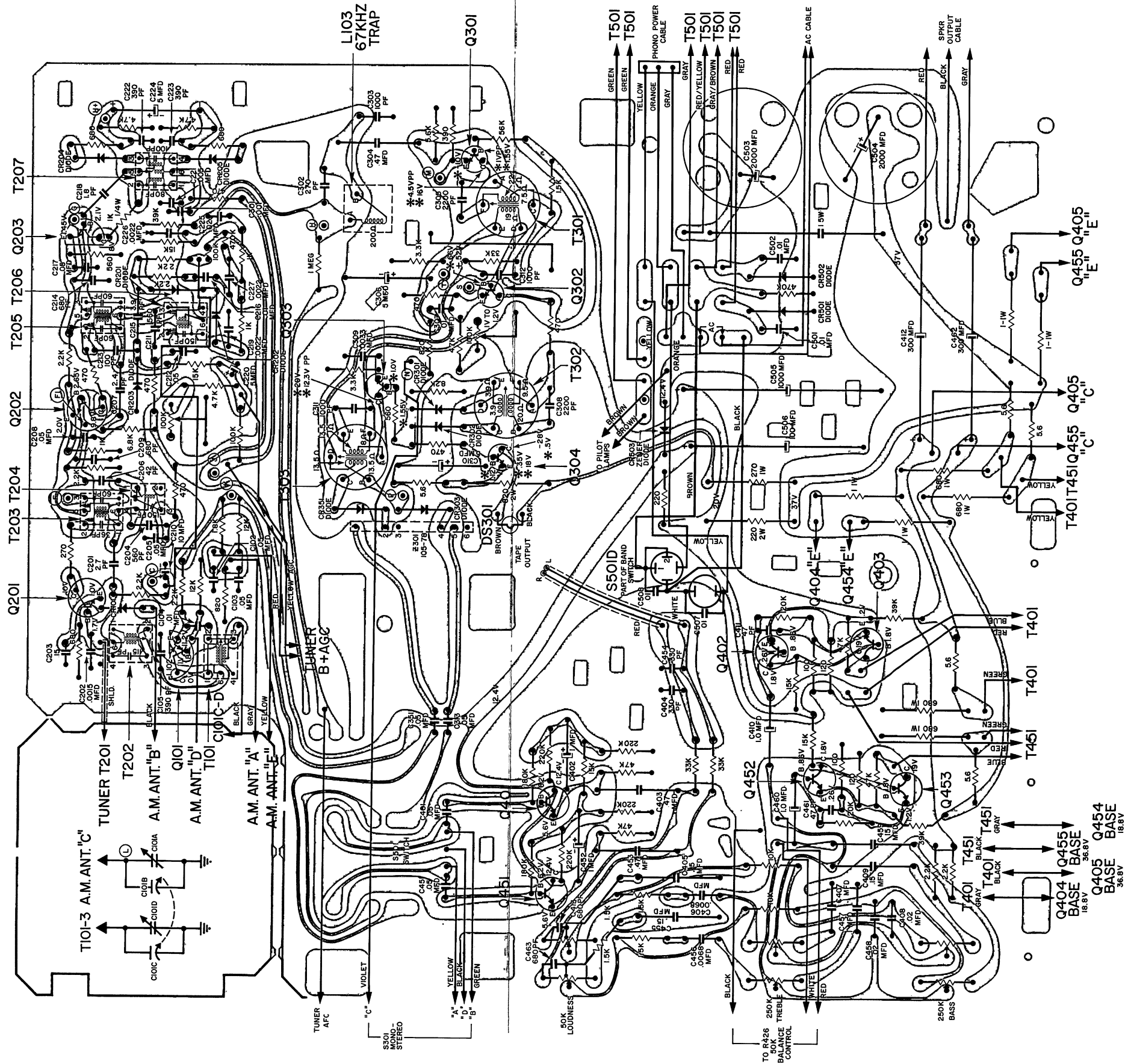
* INDICATES POSITIVE SPEAKER



NOTE
OUTPUT TRANSISTORS IN EACH CHANNEL SHALL BE A PAIR
121-765, 121-766 OR 121-844, 121-845.

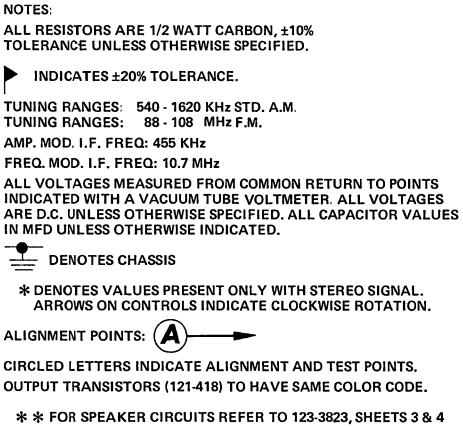
LEGEND CHASSIS 11ZT27		
ITEM NO.	PART NO.	DESCRIPTION
C1	22-3034	.05 MFD DISC. 25V
C2	22-3895	.33 MFD 50V
C3	22-3887	1 MFD ELECTROLYTIC 50V
C4	22-3888	680 PF DISC. 500V
C5	22-5482	680 PF DISC. 100V
C6	22-3630	.068 MFD 50V
C7	22-5482	680 PF DISC. 100V
C8	22-3630	.068 MFD 50V
C9	22-2838	680 PF DISC. 500V
C10	22-3895	.33 MFD 50V
C11		
C12	22-3887	1 MFD ELECTROLYTIC 50V
C13	22-3034	.05 MFD DISC. 25V
C14	22-4617	.01 MFD DISC. 500V
C15	22-3355	330 PF DISC. 500V
C16	22-3355	330 PF DISC. 500V
C17	22-5012	15 MFD 50V
C18	22-5012	15 MFD 50V
C19	22-17	.001 MFD DISC. 1000V
C20	22-3710	.22 MFD 50V
C21		
C22	22-3710	.22 MFD 50V
C23	22-17	.001 MFD DISC. 1000V
C24	22-5439	.056 MFD 50V
C25	22-5439	.056 MFD 50V
C26	22-13	.0033 MFD DISC. 500V
C27	22-5652	.027 MFD 50V
C28	22-5652	.027 MFD 50V
C29	22-13	.0033 MFD DISC. 500V
C30	22-3887	1 MFD ELECTROLYTIC 50V
C31	22-3887	1 MFD ELECTROLYTIC 50V
C32	22-3973	100 MFD ELECTROLYTIC 25V
C33	22-3973	100 MFD ELECTROLYTIC 25V
C34	22-14	.0047 MFD DISC. 500V
C35	22-5316	500 MFD ELECTROLYTIC 50V
C36	22-5316	500 MFD ELECTROLYTIC 50V
C37	22-14	.0047 MFD DISC. 500V
C38	22-4617	.01 MFD DISC. 500V
C39	22-4617	.01 MFD DISC. 500V
C40	22-2695	.01 MFD DISC. 1000V
C41	22-8362	1000 MFD ELECTROLYTIC 50V
C42	22-5316	500 MFD ELECTROLYTIC 30V
C43	22-5167	1000 MFD ELECTROLYTIC 30V
C44	22-3808	68 PF DISC. 500V
C45	22-3808	68 PF DISC. 500V
C46	22-4588	2 MFD N.P. 30V
C47	22-4588	2 MFD N.P. 30V
C48	22-3892	.01 MFD 100V
C49	22-3892	.01 MFD 100V
C50	22-3892	.01 MFD 100V
C51	22-5482	68 PF DISC. 100V
C52	22-5482	68 PF DISC. 100V
R1A	63-6498	DUAL LOUDNESS CONTROL
R1B		
R2A	63-7685	DUAL BASS CONTROL
R2B		
R3A	63-6499	DUAL TREBLE CONTROL
R3B		
R4	63-6497	BALANCE CONTROL
R5	63-6063	680 OHM RESISTOR 10% 1W
R6	63-6063	680 OHM RESISTOR 10% 1W
R7	63-6063	680 OHM RESISTOR 10% 1W
R8	63-6063	680 OHM RESISTOR 10% 1W
R9	63-5305	.51 OHM RESISTOR 10% 6W
R10	63-5305	.51 OHM RESISTOR 10% 6W
R11		
R12	63-5305	.51 OHM RESISTOR 10% 6W
R13	63-5305	.51 OHM RESISTOR 10% 6W
R14	63-5600	22 OHM RESISTOR 10% 2W
R15	63-5642	220 OHM RESISTOR 10% 2W
R16	63-6031	120 OHM RESISTOR 10% 1W
R17	63-6027	100 OHM RESISTOR 20% 1W
R18	63-6027	100 OHM RESISTOR 20% 1W
R19	63-6059	560 OHM RESISTOR 10% 1W
M1	S-80709	HOUSING WIRE & TERMINAL ASSEMBLY
M2	S-80713	HOUSING SHIELDED LEAD & TERMINAL ASSEM.
M3	S-80734	HOUSING WIRE & TERMINAL ASSEMBLY
M4	S-80730	HOUSING WIRE & TERMINAL ASSEMBLY
M5	S-75623	THREE CONDUCTOR CABLE & HOUSING ASSEM.
T1	95-2475	DRIVER TRANSFORMER
T2	95-2475	DRIVER TRANSFORMER
T3	95-2475	POWER TRANSFORMER
J1	44-75	HEAD PHONO JACK
F1	138-24	2 AMP FUSE
SE1	212-61	SILICON RECTIFIER
SE2	212-61	SILICON RECTIFIER
SPK1	49-1116	6" PM SPEAKER
SPK2	49-1116	6" PM SPEAKER
SPK3	49-1168	HORN TWEETER
SPK4	49-1214	6" PM SPEAKER
SPK5	49-1214	6" PM SPEAKER
SPK6	49-1168	HORN TWEETER

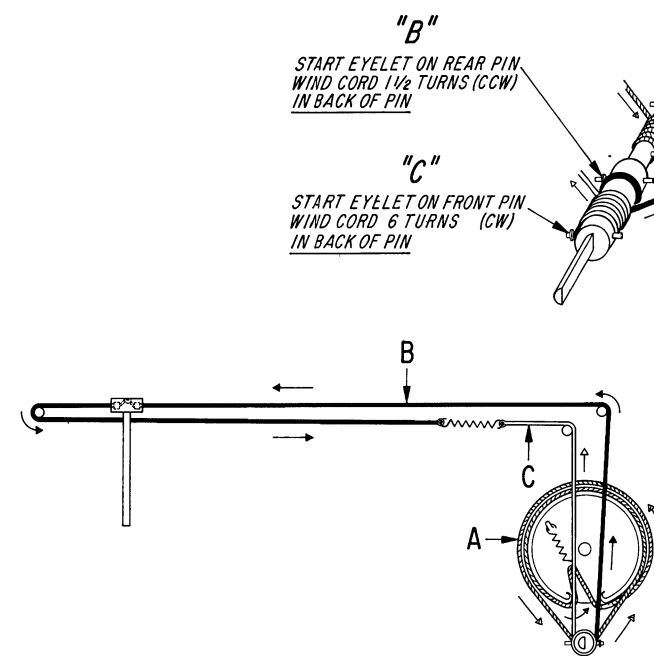




LEGEND CHASSIS 20AT21 & 20AT21Z

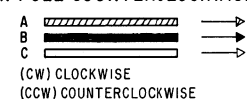
ITEM NO.	PART NUMBER	DESCRIPTION	ITEM NO.	PART NUMBER	DESCRIPTION	ITEM NO.	PART NUMBER	DESCRIPTION
C101A	22-5649	BC ANTENNA TRIMMER	R102	63-1796	1.5K OHM 10%	R454	63-1855	47K OHM 10%
C101B		BC ANTENNA TUNING	R103	63-1831	12K OHM 10%	R455	63-1845	33K OHM 10%
C101C		BC OSCILLATOR TRIMMER	R104	63-1782	820 OHM 10%	R456	63-1792	1.5K OHM 10%
C101D		BC OSCILLATOR TRIMMER	R105	63-1789	2.2K OHM 10%	R457	63-1792	1.5K OHM 10%
C102	22-3034	.05 MFD DISC 25V	R201	63-1772	680 OHM 10%	R460	63-1827	10K OHM 10%
C103	22-3034	.05 MFD DISC 25V	R202	63-1761	270 OHM 10%	R462	63-1799	2.2K OHM 10%
C104	22-3393	.01 MFD DISC 25V	R203	63-1772	470 OHM 20%	R463	63-1873	120K OHM 10%
C105	22-3480	390 PF MICA 5% 100V	R204	63-1785	1K OHM 10%	R464	63-1747	120 OHM 10%
C201	22-3310	2.7 PF GIMMICK 10% 500V	R205	63-1789	2.2K OHM 10%	R465	63-1834	15K OHM 10%
C202	22-5483	.0015 MFD DISC 500V	R206	63-1820	6.8K OHM 10%	R466	63-1743	100 OHM 10%
C203	22-5251	15 MFD DISC 12V	R207	63-1771	470 OHM 10%	R467	63-1855	47K OHM 10%
C204	22-5481	560 PF DISC 500V	R208	63-1771	470 OHM 10%	R468	63-1852	39K OHM 10%
C205	22-3034	.05 MFD DISC 25V	R209	63-1771	470 OHM 10%	R469	63-6063	680 OHM 10% 1W
C206	22-3034	.05 MFD DISC 25V	R210	63-1887	470K OHM 10%	R470	63-4533	5.6 OHM 10%
C207	22-3791	2.4 PF GIMMICK 10% 500V	R211	63-1798	2.2K OHM 10%	R471	63-4533	5.6 OHM 10%
C208	22-3034	.05 MFD DISC 25V	R212	63-1798	2.2K OHM 10%	R472	63-6063	680 OHM 10% 1W
C209	22-5482	680 PF DISC 500V	R213	63-1841	22K OHM 10%	R473	63-5944	1 OHM 10% 1W
C210	22-5485	10 MFD ELECTROLYTIC 3V	R214	63-4185	1K OHM 10% 1/4W	R474	63-5944	1 OHM 10% 1W
C211	22-5481	560 PF DISC 10% 500V	R215	63-1775	680 OHM 10%	R501	63-1910	1 MEG OHM 20%
C212	22-3034	.05 MFD DISC 25V	R216	63-1834	15K OHM 10%	R502	63-4242	1 OHM 10% 5W
C213	22-2397	100 PF DISC 500V	R217	63-1814	4.7K OHM 20%	R503	63-5642	220 OHM 10% 2W
C214	22-5482	680 PF DISC 500V	R218	63-6495	100K POTENTIOMETER	R504	63-1757	220 OHM 10%
C215	22-3400	3.9 PF GIMMICK 500V	R219	63-1889	100K OHM 10%	L1	In T101	OSC COIL SEC. 455 KHz
C216	22-3393	.01 MFD DISC 25V	R220	63-1772	470 OHM 20%	L2	In T101	OSC COIL SEC. 455 KHz
C217	22-3393	.01 MFD DISC 25V	R221	63-1778	680 OHM 10%	L3	In T202	1st I.F. PRI. 455 KHz
C218	22-3393	.01 MFD DISC 25V	R222	63-1778	680 OHM 10%	L4	In T202	1st I.F. SEC. 455 KHz
C219	22-2428	1.8 PF GIMMICK 500V	R223	63-1813	4.7K OHM 10%	L5	In T202	2nd I.F. PRI. 10.7 MHz
C220	22-5229	.0022 MFD DISC 500V	R224	63-1813	4.7K OHM 10%	L6	In T203	2nd I.F. SEC. 10.7 MHz
C221	22-5229	.0022 MFD DISC 500V	R225	63-1813	4.7K OHM 10%	L7	In T204	2nd I.F. SEC. 10.7 MHz
C222	22-5229	.0022 MFD DISC 500V	R226	63-1813	4.7K OHM 10%	L8	In T205	3rd I.F. PRI. 10.7 MHz
C223	22-5229	.0022 MFD DISC 500V	R227	63-1813	4.7K OHM 10%	L9	In T206	3rd I.F. SEC. 10.7 MHz
C224	22-5229	.0022 MFD DISC 500V	R228	63-1813	4.7K OHM 10%	L10	In T206	3rd I.F. PRI. 10.7 MHz
C225	22-5229	.0022 MFD DISC 500V	R229	63-1813	4.7K OHM 10%	L11	In T206	3rd I.F. SEC. 10.7 MHz
C226	22-5229	.0022 MFD DISC 500V	R230	63-1813	4.7K OHM 10%	L12	In T207	RATIO DET PRI. 10.7 MHz
C227	22-5229	.0022 MFD DISC 500V	R231	63-1813	4.7K OHM 10%	L13	In T207	RATIO DET SEC. 10.7 MHz
C228	22-5229	.0022 MFD DISC 500V	R232	63-1813	4.7K OHM 10%	L14	In T301	MX INPUT PRI.
C229	22-5229	.0022 MFD DISC 500V	R233	63-1813	4.7K OHM 10%	L15	In T301	MX INPUT SEC.
C230	22-5229	.0022 MFD DISC 500V	R234	63-1813	4.7K OHM 10%	L16	In T302	MX DOUBLER PRI.
C231	22-5229	.0022 MFD DISC 500V	R235	63-1813	4.7K OHM 10%	L17	In T302	MX DOUBLER SEC.
C232	22-5229	.0022 MFD DISC 500V	R236	63-1813	4.7K OHM 10%	L18	In T303	MX DET PRI.
C233	22-5229	.0022 MFD DISC 500V	R237	63-1813	4.7K OHM 10%	L19	In T303	MX DET SEC.
C234	22-5229	.0022 MFD DISC 500V	R238	63-1813	4.7K OHM 10%	L20	In T303	AM ANTENNA ASSEMBLY
C235	22-5229	.0022 MFD DISC 500V	R239	63-1813	4.7K OHM 10%	L21	In T303	FERRITE SLEEVE
C236	22-5229	.0022 MFD DISC 500V	R240	63-1813	4.7K OHM 10%	L22	In T303	MULTIPLY TRAP COIL ASSEMBLY
C237	22-5229	.0022 MFD DISC 500V	R241	63-1813	4.7K OHM 10%	L23	In T303	MONO-STEREO SWITCH
C238	22-5229	.0022 MFD DISC 500V	R242	63-1813	4.7K OHM 10%	L24	In T303	BANDSWITCH
C239	22-5229	.0022 MFD DISC 500V	R243	63-1813	4.7K OHM 10%	L25	In T303	A.C. SWITCH (PART OF BANDSWITCH)
C240	22-5229	.0022 MFD DISC 500V	R244	63-1813	4.7K OHM 10%	L26	In T303	OSCILLATOR COIL (AM)
C241	22-5229	.0022 MFD DISC 500V	R245	63-1813	4.7K OHM 10%	L27	In T303	1st I.F. TRANSFORMER COIL (AM)
C242	22-5229	.0022 MFD DISC 500V	R246	63-1813	4.7K OHM 10%	L28	In T303	2nd I.F. TRANSFORMER COIL (FM)
C243	22-5229	.0022 MFD DISC 500V	R247	63-1813	4.7K OHM 10%	L29	In T303	3rd I.F. TRANSFORMER COIL (FM)
C244	22-5229	.0022 MFD DISC 500V	R248	63-1813	4.7K OHM 10%	L30	In T303	3rd I.F. TRANSFORMER COIL (AM)
C245	22-5229	.0022 MFD DISC 500V	R249	63-1813	4.7K OHM 10%	L31	In T303	RATIO DETECTOR
C246	22-5229	.0022 MFD DISC 500V	R250	63-1813	4.7K OHM 10%	L32	In T303	MX INPUT COIL ASSEMBLY
C247	22-5229	.0022 MFD DISC 500V	R251	63-1813	4.7K OHM 10%	L33	In T303	MX DOUBLER COIL ASSEMBLY
C248	22-5229	.0022 MFD DISC 500V	R252	63-1813	4.7K OHM 10%	L34	In T303	MX DETECTOR COIL ASSEMBLY
C249	22-5229	.0022 MFD DISC 500V	R253	63-1813	4.7K OHM 10%	L35	In T303	DRIVER TRANSFORMER
C250	22-5229	.0022 MFD DISC 500V	R254	63-1813	4.7K OHM 10%	L36	In T303	POWER TRANSFORMER
C251	22-5229	.0022 MFD DISC 500V	R255	63-1813	4.7K OHM 10%	L37	In T303	GERMANIUM DIODE
C252	22-5229	.0022 MFD DISC 500V	R256	63-1813	4.7K OHM 10%	L38	In T303	GERMANIUM DIODE
C253	22-5229	.0022 MFD DISC 500V	R257	63-1813	4.7K OHM 10%	L39	In T303	GERMANIUM DIODE
C254	22-5229	.0022 MFD DISC 500V	R258	63-1813	4.7K OHM 10%	L40	In T303	GERMANIUM DIODE
C255	22-5229	.0022 MFD DISC 500V	R259	63-1813	4.7K OHM 10%	L41	In T303	GERMANIUM DIODE
C256	22-5229	.0022 MFD DISC 500V	R260	63-1813	4.7K OHM 10%	L42	In T303	GERMANIUM DIODE
C257	22-5229	.0022 MFD DISC 500V	R261	63-1813	4.7K OHM 10%	L43	In T303	GERMANIUM DIODE
C258	22-5229	.0022 MFD DISC 500V	R262	63-1813	4.7K OHM 10%	L44	In T303	GERMANIUM DIODE
C259	22-5229	.0022 MFD DISC 500V	R263	63-1813	4.7K OHM 10%	L45	In T303	GERMANIUM DIODE
C260	22-5229	.0022 MFD DISC 500V	R264	63-1813	4.7K OHM 10%	L46	In T303	GERMANIUM DIODE
C261	22-5229	.0022 MFD DISC 500V	R265	63-1813	4.7K OHM 10%	L47	In T303	GERMANIUM DIODE
C262	22-5229	.0022 MFD DISC 500V	R266	63-1813	4.7K OHM 10%	L48	In T303	GERMANIUM DIODE
C263	22-5229	.0022 MFD DISC 500V	R267	63-1813	4.7K OHM 10%	L49	In T303	GERMANIUM DIODE
C264	22-5229	.0022 MFD DISC 500V	R268	63-1813	4.7K OHM 10%	L50	In T303	GERMANIUM DIODE
C265	22-5229	.0022 MFD DISC 500V	R269	63-1813	4.7K OHM 10%	L51	In T303	GERMANIUM DIODE
C266	22-5229	.0022 MFD DISC 500V	R270	63-1813	4.7K OHM 10%	L52	In T303	GERMANIUM DIODE
C267	22-5229	.0022 MFD DISC 500V	R271	63-1813	4.7K OHM 10%	L53	In T303	GERMANIUM DIODE
C268	22-5229	.0022 MFD DISC 500V	R272	63-1813	4.7K OHM 10%	L54	In T303	GERMANIUM DIODE
C269	22-5229	.0022 MFD DISC 500V	R273	63-1813	4.7K OHM 10%	L55	In T303	GERMANIUM DIODE
C270	22-5229	.0022 MFD DISC 500V	R274	63-1813	4.7K OHM 10%	L56	In T303	GERMANIUM DIODE
C271	22-5229	.0022 MFD DISC 500V	R275	63-1813	4.7K OHM 10%	L57	In T303	GERMANIUM DIODE
C272	22-5229	.0022 MFD DISC 500V	R276	63-1813	4.7K OHM 10%	L58	In T303	GERMANIUM DIODE
C273	22-5229	.0022 MFD DISC 500V	R277	63-1813	4.7K OHM 10%	L59	In T303	GERMANIUM DIODE
C274	22-5229	.0022 MFD DISC 500V	R278	63-1813	4.7K OHM 10%	L60	In T303	GERMANIUM DIODE
C275	22-5229	.0022 MFD DISC 500V	R279	63-1813	4.7K OHM 10%	L61	In T303	GERMANIUM DIODE
C276	22-5229	.0022 MFD DISC 500V	R280	63-1813	4.7K OHM 10%	L62	In T303	GERMANIUM DIODE
C277	22-5229	.0022 MFD DISC 500V	R281	63-1813	4.7K OHM 10%	L63	In T303	GERMANIUM DIODE
C278	22-5229	.0022 MFD DISC 500V	R282	63-1813	4.7K OHM 10%	L64	In T303	GERMANIUM DIODE
C279	22-5229	.0022 MFD DISC 500V	R283	63-1813	4.7K OHM 10%	L65	In T303	GERMANIUM DIODE
C280	22-5229	.0022 MFD DISC 500V	R284	63-1813	4.7K OHM 10%	L66	In T303	GERMANIUM DIODE
C281	22-5229	.0022 MFD DISC 500V	R285	63-1813	4.7K OHM 10%	L67	In T303	GERMANIUM DIODE
C282	22-5229	.0022 MFD DISC 500V	R286	63-1813	4.7K OHM 10%	L68	In T303	GERMANIUM DIODE
C283	22-5229	.0022 MFD DISC 500V	R287	63-1813	4.7K OHM 10%	L69	In T303	GERMANIUM DIODE
C284	22-5229	.0022 MFD DISC 500V	R288	63-1813	4.7K OHM 10%	L70	In T303	GERMANIUM DIODE
C285	22-5229	.0022 MFD DISC 500V	R289	63-1813	4.7K OHM 10%	L71	In T303	GERMANIUM DIODE
C286	22-5229	.0022 MFD DISC 500V	R290	63-1813	4.7K OHM 10%	L72	In T303	GERMANIUM DIODE
C287	22-5229	.0022 MFD DISC 500V	R291	63-1813	4.7K OHM 10%	L73	In T303	GERMANIUM DIODE
C288	22-5229	.0022 MFD DISC 500V	R292	63-1813	4.7K OHM 10%	L74	In T303	GERMANIUM DIODE
C289	22-5229	.0022 MFD DISC 500V	R293	63-1813	4.7K OHM 10%	L75	In T303	GERMANIUM DIODE
C290	22-5229	.0022 MFD DISC 500V	R294	63-1813	4.7K OHM 10%	L76	In T303	GERMANIUM DIODE
C291	22-5229	.0022 MFD DISC 500V	R295	63-1813	4.7K OHM 10%	L77	In T303	GERMANIUM DIODE
C292	22-5229	.0022 MFD DISC 500V	R296	63-1813	4.7K OHM 10%	L78	In T303	GERMANIUM DIODE
C293	22-5229	.0022 MFD DISC 500V	R297	63-1813	4.7K OHM 10%	L79	In T303	GERMANIUM DIODE
C294	22-5229	.0022 MFD DISC 500V	R298	63-1813	4.7K OHM 10%	L80	In T303	GERMANIUM DIODE
C295	22-5229	.0022 MFD DISC 500V	R299	63-1813	4.7K OHM 10%	L81	In T303	GERMANIUM DIODE
C296	22-5229	.0022 MFD DISC 500V	R300	63-1813	4.7K OHM 10%	L82	In T303	GERMANIUM DIODE
C297	22-5229	.0022 MFD DISC 500V	R301	63-1813	4.7K OHM 10%	L83	In T303	GERMANIUM DIODE
C298	22-5229	.0022 MFD DISC 500V	R302	63-1813	4.7K OHM 10%	L84	In T303	GERMANIUM DIODE
C299	22-5229	.0022 MFD DISC 500V	R303	63-1813	4.7K OHM 10%	L85	In T303	GERMANIUM DIODE
C300	22-5229	.0022 MFD DISC 500V	R304	63-1813	4.7K OHM 10%	L86	In T303	GERMANIUM DIODE
C301	22-5229	.0022 MFD DISC 500V	R305	63-1813	4.7K OHM 10%	L87	In T303	GERMANIUM DIODE
C302	22-5229	.0022 MFD DISC 500V	R306	63-1813	4.7K OHM 10%	L88	In T303	GERMANIUM DIODE
C303	22-5229	.0022 MFD DISC 500V	R307	63-1813	4.7K OHM 10%	L89	In T303	GERMANIUM DIODE
C304	22-5229	.0022 MFD DISC 500V	R308	63-1813	4.7K OHM 10%	L90	In T303	GERMANIUM DIODE
C305	22-5229	.0022 MFD DISC 500V	R309	63-1813	4.7K OHM 10%	L91	In T303	GERMANIUM DIODE
C306	22-5229	.00						





DIAL CORD DRIVE

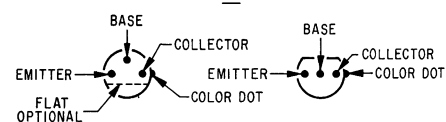
SHOWN IN FULL COUNTERCLOCKWISE POSITION



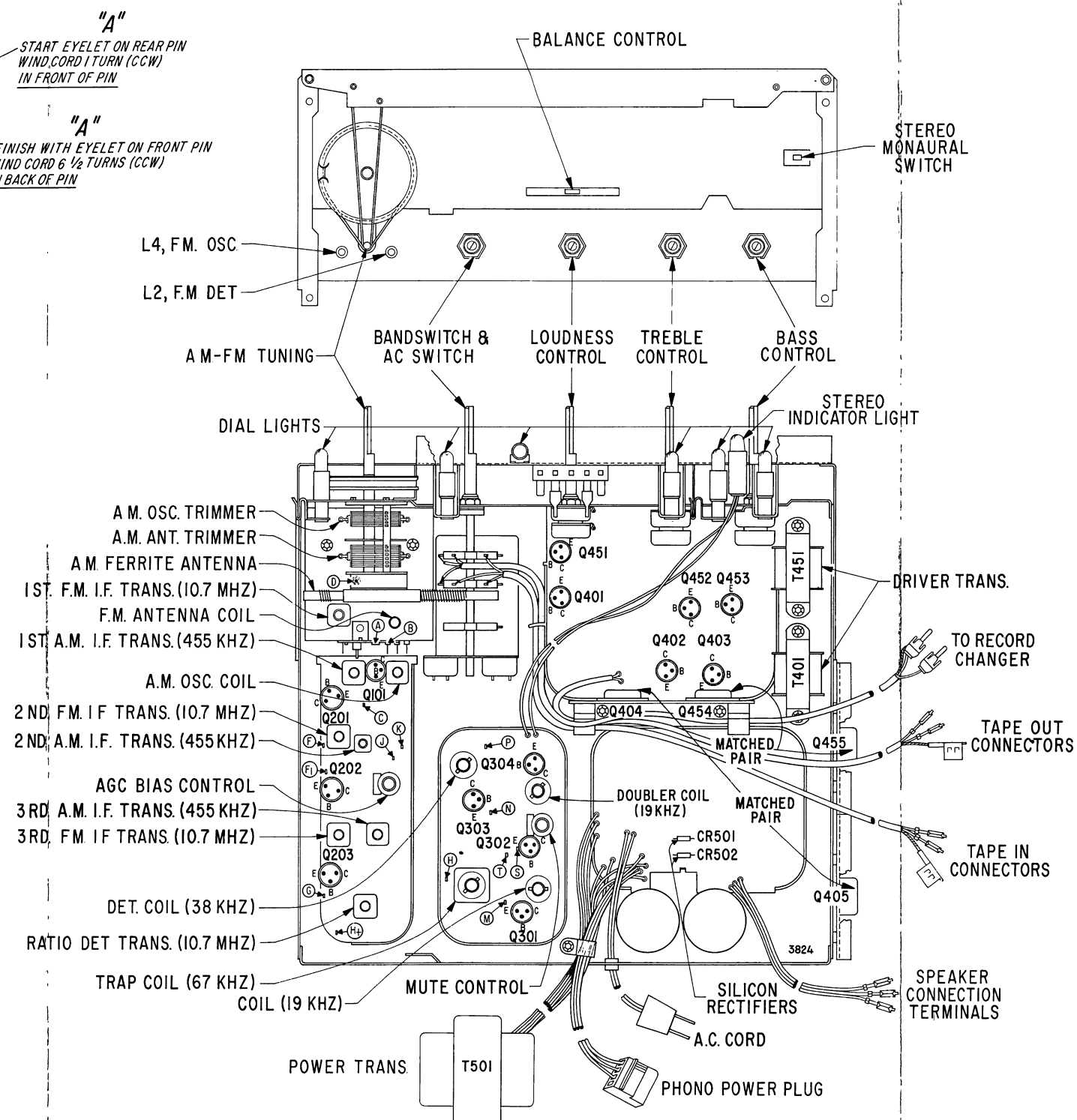
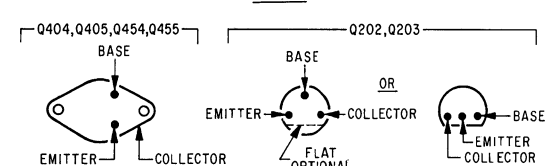
ALL TRANSISTORS

LEAD END VIEW

OR



EXCEPT



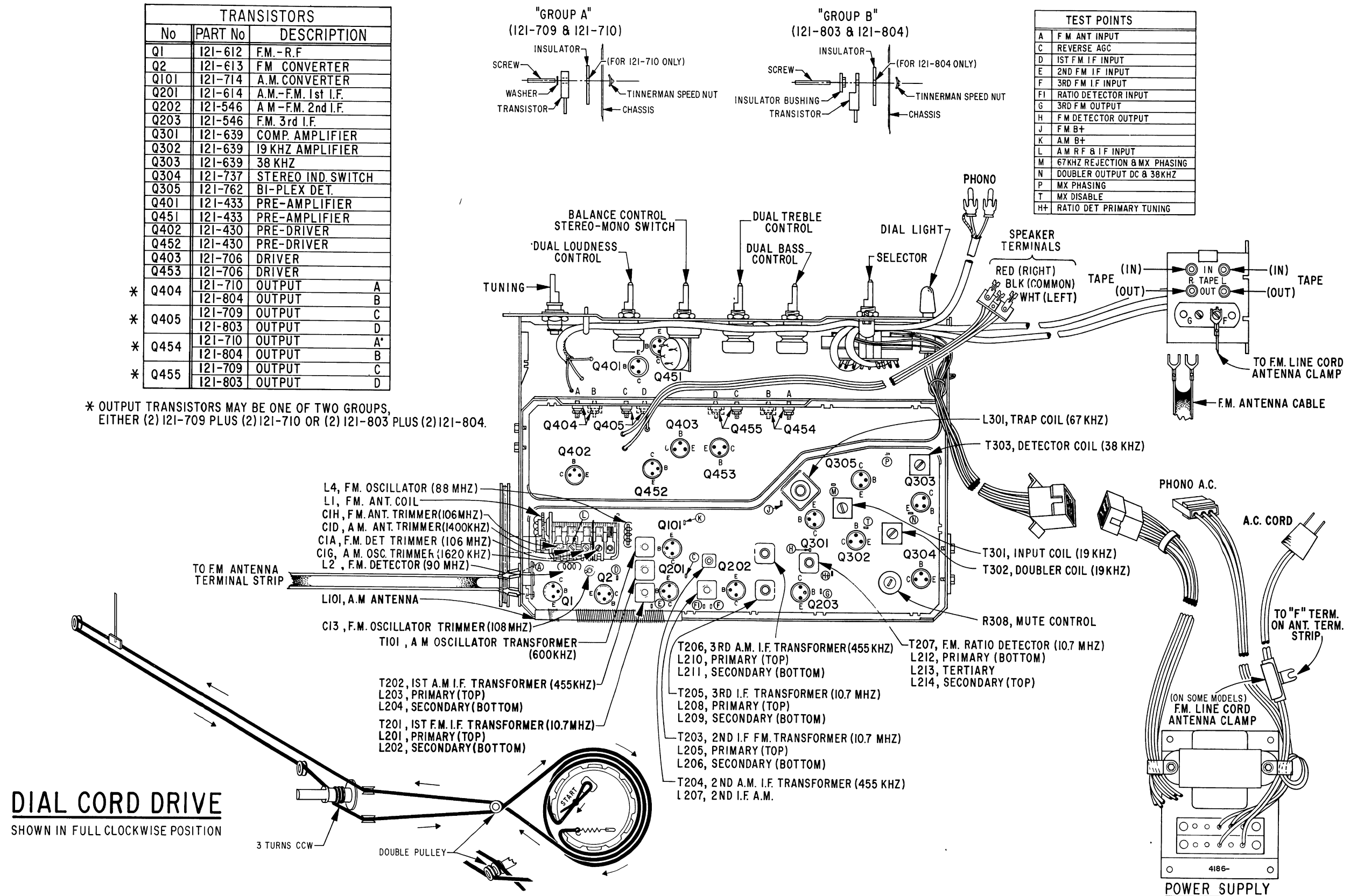
TRANSISTORS		
No.	PART No.	DESCRIPTION
Q101	121-257	A.M. CONVERTER
Q201	121-614	A.M.-FM. 1ST. IF
Q202	121-546	A.M.-FM. 2ND. IF
Q203	121-546	FM. 3RD. IF
Q301	121-639	COMP. AMP. (MX)
Q302	121-639	19 KHZ AMP. (MX)
Q303	121-639	38 KHZ AMP. (MX)
Q304	121-639	STEREO IND. SW. (MX)
Q401	121-433	PRE-AMP (AUDIO)
Q451	121-433	PRE-AMP (AUDIO)
Q402	121-430	PRE-DRIVER (AUDIO)
Q452	121-430	PRE-DRIVER (AUDIO)
Q403	121-706	DRIVER (AUDIO)
Q453	121-706	DRIVER (AUDIO)
Q404	121-418	POWER AMP. (AUDIO)
Q405	121-418	POWER AMP. (AUDIO)
Q454	121-418	POWER AMP. (AUDIO)
Q455	121-418	POWER AMP. (AUDIO)

TEST POINTS	
A	F.M. ANTENNA INPUT
B	FM FWD AGC
C	FM REV. AGC
D	F.M. 1ST & 2ND. IF INPUT
F	3RD. IF INPUT
F _i	RATIO DETECTOR INPUT
G	3RD. IF OUTPUT
H	F.M. DETECTOR OUTPUT
H ₊	RATIO DETECTOR PRIMARY TUNING
J	B+ F.M.
K	B+ A.M.
L	A.M. IF INPUT
M	67 KHZ REJECTION & MX PHASE
N	MX DOUBLER OUTPUT
P	MX PHASING
S	19 KHZ AMP. INPUT
T	MX DISABLING

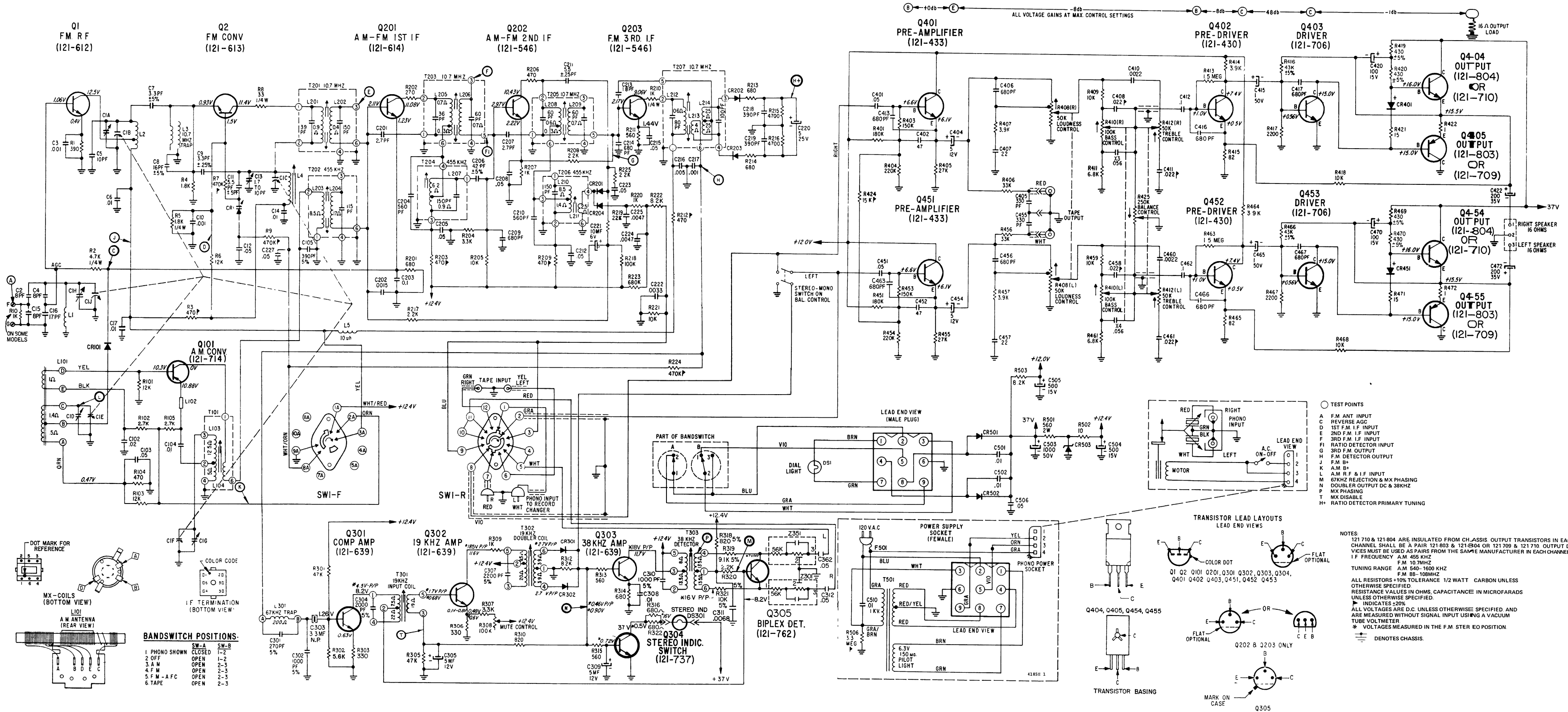
20AT21 AND 20AT21Z - CHASSIS LAYOUT

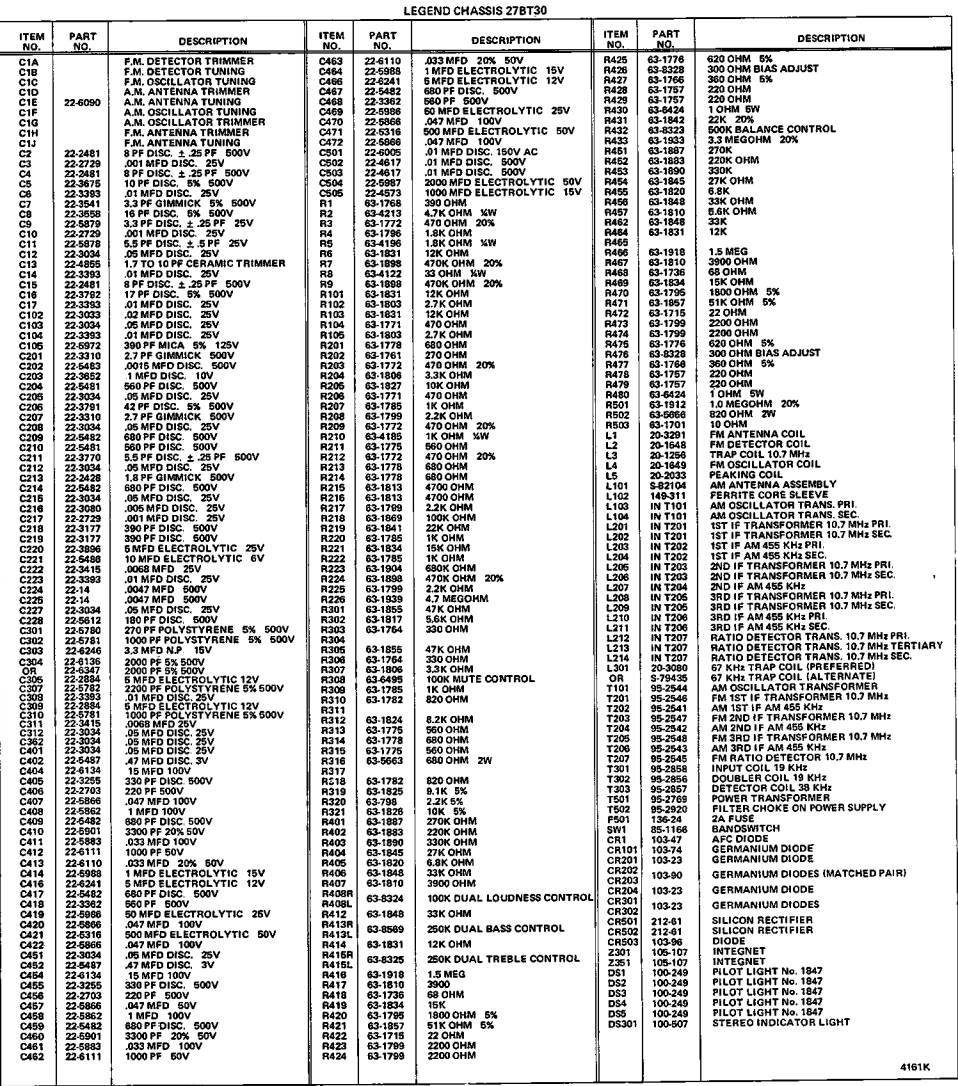
TRANSISTORS		
No	PART No	DESCRIPTION
Q1	I21-612	F.M.-R.F.
Q2	I21-613	F.M. CONVERTER
Q101	I21-714	A.M. CONVERTER
Q201	I21-614	A.M.-F.M. 1st I.F.
Q202	I21-546	A.M.-F.M. 2nd I.F.
Q203	I21-546	F.M. 3rd I.F.
Q301	I21-639	COMP. AMPLIFIER
Q302	I21-639	19 KHZ AMPLIFIER
Q303	I21-639	38 KHZ
Q304	I21-737	STEREO IND. SWITCH
Q305	I21-762	BI- PLEX DET.
Q401	I21-433	PRE-AMPLIFIER
Q451	I21-433	PRE-AMPLIFIER
Q402	I21-430	PRE-DRIVER
Q452	I21-430	PRE-DRIVER
Q403	I21-706	DRIVER
Q453	I21-706	DRIVER
* Q404	I21-710	OUTPUT A
	I21-804	OUTPUT B
* Q405	I21-709	OUTPUT C
	I21-803	OUTPUT D
* Q454	I21-710	OUTPUT A*
	I21-804	OUTPUT B
* Q455	I21-709	OUTPUT C
	I21-803	OUTPUT D

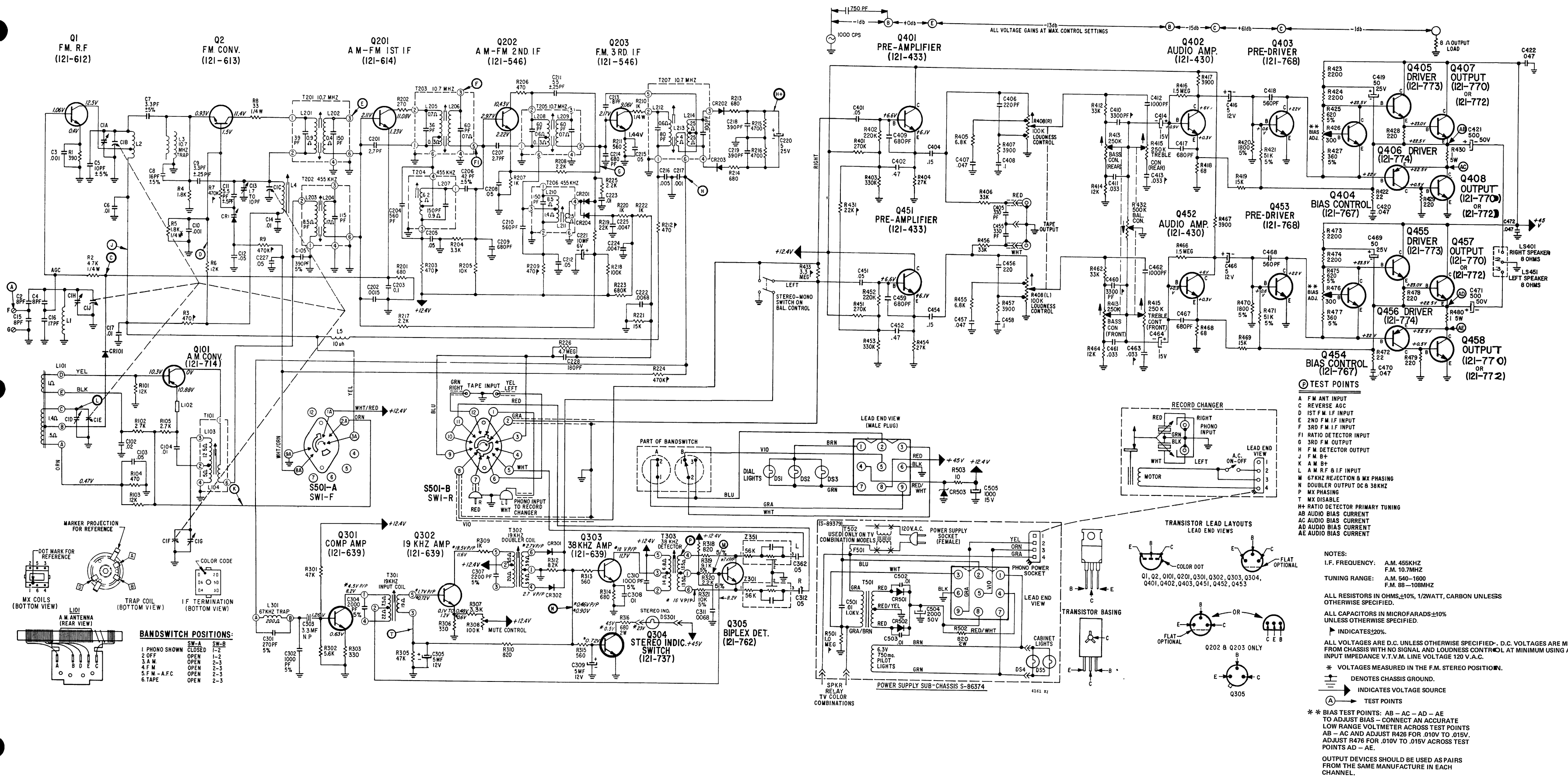
* OUTPUT TRANSISTORS MAY BE ONE OF TWO GROUPS, EITHER (2) I21-709 PLUS (2) I21-710 OR (2) I21-803 PLUS (2) I21-804.



4185J

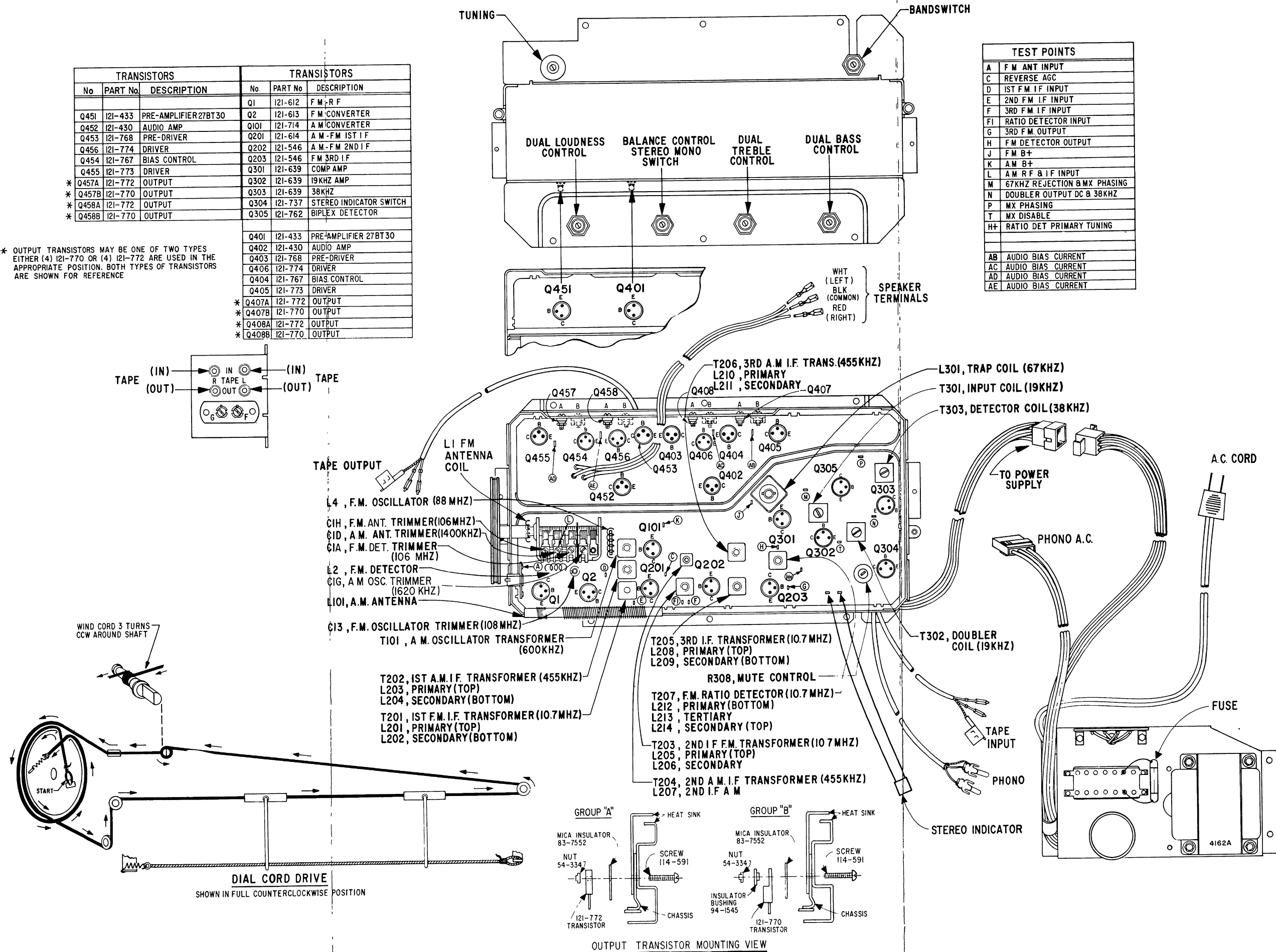






TRANSISTORS			TRANSISTORS		
No	PART No	DESCRIPTION	No	PART No	DESCRIPTION
Q451	I21-433	PRE-AMPLIFIER 27BT30	Q1	I21-612	F M R F
Q452	I21-430	AUDIO AMP	Q2	I21-613	F M CONVERTER
Q453	I21-768	PRE-DRIVER	Q101	I21-714	A M CONVERTER
Q456	I21-774	DRIVER	Q201	I21-614	A M-FM 1ST I F
Q454	I21-767	BIAS CONTROL	Q202	I21-546	A M-FM 2ND I F
Q455	I21-773	DRIVER	Q203	I21-546	F M 3RD I F
* Q457A	I21-772	OUTPUT	Q301	I21-639	COMP AMP
* Q457B	I21-770	OUTPUT	Q302	I21-639	19KHZ AMP
* Q458A	I21-772	OUTPUT	Q303	I21-639	38KHZ
* Q458B	I21-770	OUTPUT	Q304	I21-737	STEREO INDICATOR SWITCH
			Q305	I21-762	BIPLEX DETECTOR
			Q401	I21-433	PRE-AMPLIFIER 27BT30
			Q402	I21-430	AUDIO AMP
			Q403	I21-768	PRE-DRIVER
			Q406	I21-774	DRIVER
			Q404	I21-767	BIAS CONTROL
			Q405	I21-773	DRIVER
			* Q407A	I21-772	OUTPUT
			* Q407B	I21-770	OUTPUT
			* Q408A	I21-772	OUTPUT
			* Q408B	I21-770	OUTPUT

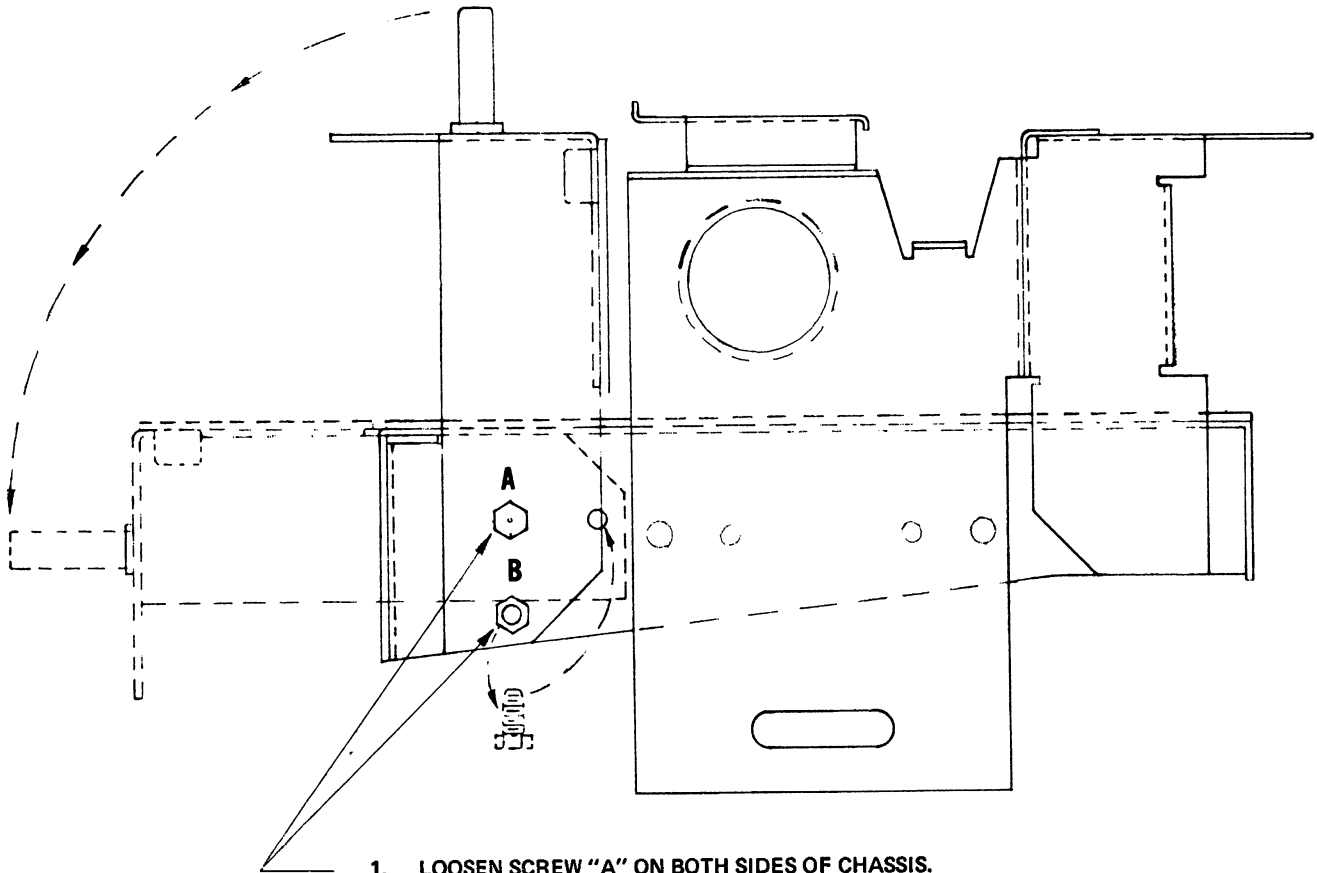
* OUTPUT TRANSISTORS MAY BE ONE OF TWO TYPES EITHER (4) I21-770 OR (4) I21-772 ARE USED IN THE APPROPRIATE POSITION. BOTH TYPES OF TRANSISTORS ARE SHOWN FOR REFERENCE



27BT30 - CHASSIS LAYOUT

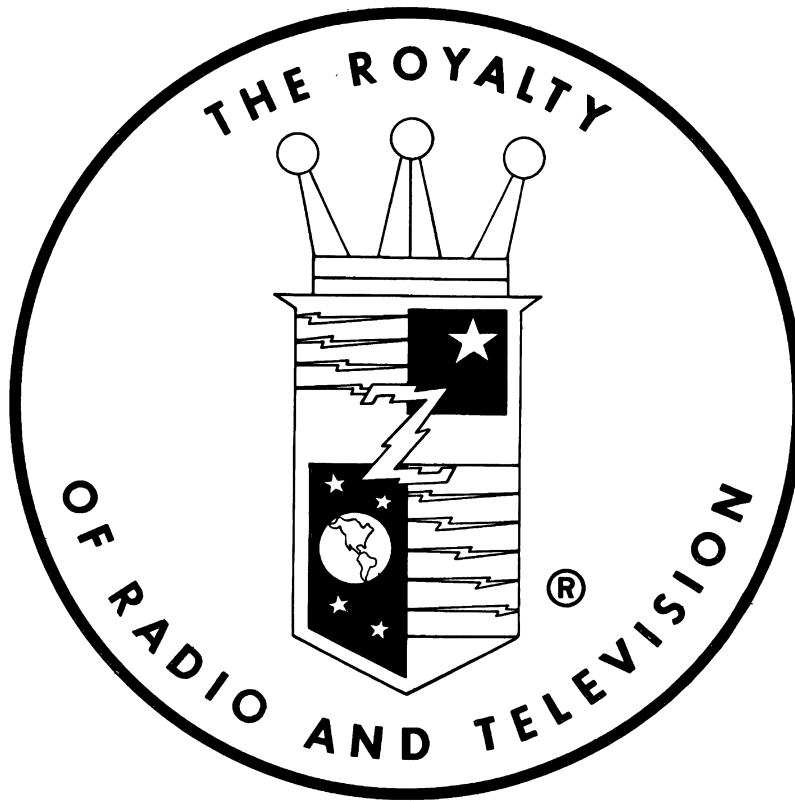
MECHANICAL ASSEMBLIES

Zenith engineers have devised chassis constructions which, while maintaining a compact package size, will provide maximum access to the chassis should service be required. Illustrated here is one chassis configuration with instructions for tilting sub chassis into working position.



1. LOOSEN SCREW "A" ON BOTH SIDES OF CHASSIS.
2. REMOVE SCREW "B" ON BOTH SIDES OF CHASSIS AS INDICATED.
3. ROTATE CHASSIS AS SHOWN BY ARROW TO POSITION INDICATED BY DOTTED POSITION.
4. INSERT SCREWS "B" IN ALTERNATE POSITION TO LOCK CHASSIS IN OPEN POSITION FOR SERVICE.

CHASSIS 27BT30(Z)



ZENITH RADIO CORPORATION

1900 N. AUSTIN AVENUE

CHICAGO, ILLINOIS 60639

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE