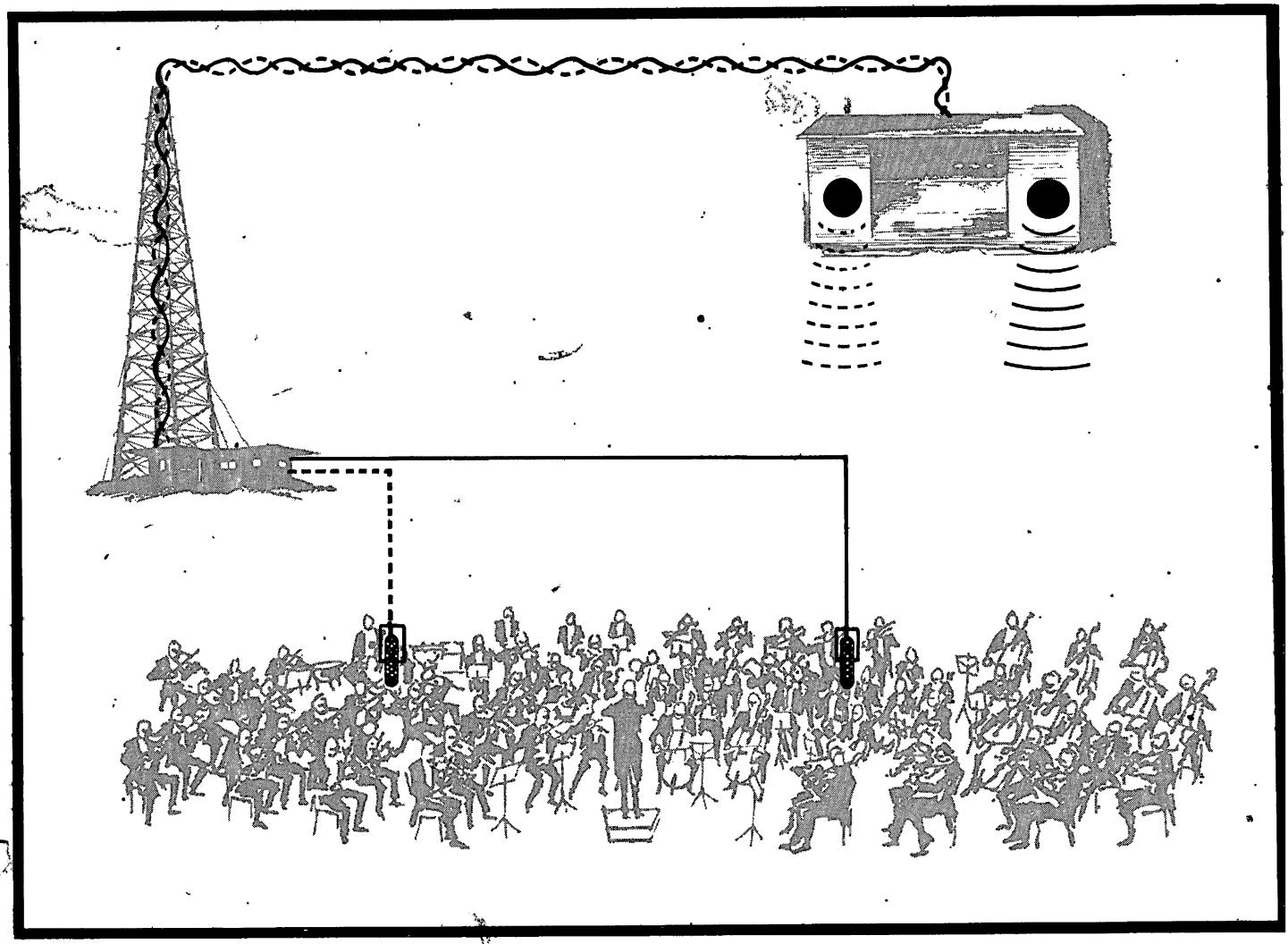
ZENITH®

SERVICE MANUAL



HIGH FIDELITY
AND STEREO FM MODELS

ZENITH RADIO CORPORATION
1900 N. AUSTIN AVENUE CHICAGO, ILLINOIS 60639

PRICE $2.50 HF 18 PART NO. 923-558

INDEX

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKER		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPEDANCE (IN OHMS)	SIZE INCHES
Y504B	Table (w/handle) (lift lid)	Blue & White	1Y20Z	1 Tube Phono Only	- - -	49-1096	3.2	1-4"
Y504D	Table (w/handle) (lift lid)	Red & White	1Y20Z	1 Tube Phono Only	- - -	49-1096	3.2	1-4"
Y504P	Table (w/handle) (lift lid)	Yellow & White	1Y20Z	1 Tube Phono Only	- - -	49-1096	3.2	1-4"
Y504V	Table (w/handle) (lift lid)	Red & White	1Y20Z	1 Tube Phono Only	- - -	49-1096	3.2	1-4"
Y506C	Table (w/handle) (lift lid)	Charcoal Brown & Off White	2YT23	2 Transistor Phono Only	- - -	49-1096	3.2	1-4"
Y506J	Table (w/handle) (lift lid)	Brown & Beige	2YT23	2 Transistor Phono Only	- - -	49-1096	3.2	1-4"
Y506L	Table (w/handle) (lift lid)	Beige & White	2YT23	2 Transistor Phono Only	- - -	49-1096	3.2	1-4"
Z508B	Table (w/handle)	Light Blue & White	2ZT24	2 Transistor Phono Only	- - -	49-1039	3.2	1-4"
Z508L	Table (w/handle)	Beige & White	2ZT24	2 Transistor Phono Only	- - -	49-1039	3.2	1-4"
Z508P	Table (w/handle)	Yellow & White	2ZT24	2 Transistor Phono Only	- - -	49-1039	3.2	1-4"
Z522J	Table (w/handle)	Brown & White	2ZT21 2ZT22	4 Transistor AM & Phono	- - -	49-1096	3.2	1-4"
Z522L	Table (w/handle)	Beige & White	2ZT21 2ZT22	4 Transistor AM & Phono	- - -	49-1096	3.2	1-4"
Z538C	Table (w/handle) (Detachable speaker enclosures)	Blue & Dark Blue	8ZT20	8 Transistor Phono Only	2W	49-1147	22	2-4"

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER				OTHER FEATURES			
NUMBER	MOUNTING	CARTRIDGE	STYLUS NOTE 1	INDICATOR LIGHT	TYPE	RECORD STORAGE	REMOTE SPEAKER PROVISION
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
Manual Player	Shelf	142-161	S 56-480	—	—	—	—
169-347	Hinged Panel	142-149 or 142-165	Note 2	—	—	—	—
169-347	Hinged Panel	142-149 or 142-165	Note 2	—	—	—	—
169-347	Hinged Panel	142-149 or 142-165	Note 2	—	—	—	—
169-346	Hinged Panel	142-149 or 142-165	Note 2	—	—	—	—
169-346	Hinged Panel	142-149 or 142-165	Note 2	—	—	—	—
169-360	Shelf	142-148	S-S 56-528	—	—	—	—

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKER		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPEDANCE (IN OHMS)	SIZE INCHES
Z538P	Table (w/handle) (Detachable speaker enclosures)	Brown & Beige	8ZT20	8 Transistor Phono Only	2W	49-1147	22	2-4"
Z541P	Table (w/handle) (Detachable speaker enclosures)	Brown & Beige	8ZT20	8 Transistor Phono Only	2W	49-1138	22	2-4x6"
Z541W	Table (w/handle) (Detachable speaker enclosures)	Off White & Charcoal Grey	8ZT20	8 Transistor Phono Only	2W	49-1138	22	2-4x6"
A550W	Table (w/handle)	Walnut	W/C	8 Transistor Phono Only	2W	964-23069	16	2-4"
Z552W	Table (w/handle)	Walnut	6ZT20	8 Transistor Phono Only	2W	49-1152	3.2	2-6x9"
A555J-1	Table (w/handle)	Brown & Light Beige	10ZT38	Phono Only	10W	49-1167 49-979	16 45	2-6x9" 2-3½"
Z558W-1	Table (w/handle)	Walnut	10ZT33	10 Transistor Phono Only	12W	49-1156	16	2-11x14" Verti-Plane
X560W-2	Table (w/handle) (Hinged speaker enclosures)	Walnut	W/C	10 Transistor Phono Only	16W	964-18016 964-49189 964-16237	8 6.4 34	2-8" 2-4" 2-3½"
A564W	Table (lift lid) (Circle of Sound Speakers)	Walnut	10AT37	10 Transistor Phono Only	16W	49-1159	16	2-4½"
Z565W	Table (lift lid) (Circle of Sound Speakers)	Walnut	10YT26	10 Transistor Phono Only	40W	49-1116	6.4	2-6"
Z588W-1	Table (w/handle) (Hinged speaker enclosures)	Walnut	10ZT30 10ZT31	20 Transistor FM/AM/ Phono	16W	49-1117 49-979	16 45	2-8" 2-3½"

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER				OTHER FEATURES			
NUMBER	MOUNTING	CARTRIDGE	STYLUS NOTE 1	INDICATOR LIGHT	TAPE	RECORD STORAGE	REMOTE SPEAKER PROVISION
169-358	Shelf	142-148	S-S 56-528	–	–	–	–
169-359	Shelf	142-148	S-S 56-528	–	–	–	–
169-360	Shelf	142-148	S-S 56-528	–	–	–	–
169-379	Hinged Panel	142-169	S-S 56-591	–	–	–	–
169-355	Hinged Panel	142-162	D-S 56-551	–	–	–	–
169-370	Hinged Panel	142-168	D-S S-68567	–	–	–	–
169-371	Hinged Panel	142-168	D-S S-68567	–	–	–	–
169-376	Hinged Panel	142-168	D-S S-68567	–	–	–	–
169-369	Shelf	142-168	D-S S-68567	–	Note 3	–	–
169-343	Shelf	142-163	D-S S-68567	–	Note 3	–	Note 8
169-371	Hinged Panel	142-168	D-S S-68567	–	Note 4	–	Note 8

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKER		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPEDANCE (IN OHMS)	SIZE INCHES
A589W	Table (Lift Lid) (Circle of Sound Speakers)	Walnut	20AT31Z	20 Transistor FM/AM/ Phono	16W	49-1159	16	2-4½"
Z590W-1	Table (Lift Lid) (Circle of Sound Speakers)	Walnut	10ZT30 11ZT27	21 Transistor FM/AM/ Phono	50W	49-1116	6.4	2-6"
A906W	Console (Lift Lid)	Walnut	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 2-3½"
A907M	Console (Lift Lid)	Maple	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 2-3½"
A908DE	Console (Lift Lid)	Dark Oak	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 2-3½"
A908P	Console (Lift Lid)	Pecan	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 2-3½"
A910W-1	Console (Lift Lid)	Walnut	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 4-3½"
A912H	Console (Lift Lid)	Cherry	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 2-3½"
A914M	Console (Lift Lid)	Maple	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 2-3½"
A916DE	Console (Lift Lid)	Dark Oak	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 4-3½"
A916P	Console (Lift Lid)	Pecan	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1153 49-1094	16 45	2-6x9" 4-3½"
A921W	Console (Lift Lid)	Walnut	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1064 49-1094 49-1166	16 45 8	2-10" 2-3½" 2-Horn
A923W	Console (Lift Lid)	Walnut	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1169 49-1094 49-1166	16 45 8	2-8x12" 2-3½" 2-Horn
A925M	Console (Lift Lid)	Maple	20AT30Z	20 Transistor FM/AM/ Phono	16W	49-1169 49-1094 49-1166	16 45 8	2-8x12" 2-3½" 2-Horn

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER				OTHER FEATURES			
NUMBER	MOUNTING	CARTRIDGE	STYLUS NOTE 1	INDICATOR LIGHT	TAPE	RECORD STORAGE	REMOTE SPEAKER PROVISION
169-369	Shelf	142-168	D-S S-68567	—	Note 4	—	Note 8
169-372	Shelf	142-168	D-S S-68567	Yes	Note 4	—	Note 8
169-361	Shelf	142-164	D-S 56-560	—	Note 4	Yes	Note 6
169-361	Shelf	142-164	D-S 56-560	—	Note 4	Yes	Note 6
169-361	Shelf	142-164	D-S 56-560	—	Note 4	Yes	Note 6
169-361	Shelf	142-164	D-S 56-560	—	Note 4	Yes	Note 6
169-362	Shelf	142-166	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6
169-362	Shelf	142-168	D-S S-68567	—	Note 4	Yes	Note 6

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKER		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPEDANCE (IN OHMS)	SIZE INCHES
A931P	Console (Lift Lid)	Pecan	20AT21Z	20 Transistor FM/AM/ Phono	30W	49-1175 49-1094 49-1166	10 45 8	2-10 2-3½ 2-Horn
A933M	Console (Lift Lid)	Maple	20AT21Z	20 Transistor FM/AM/ Phono	30W	49-1175 49-1094 49-1151	10 45 6.4	2-10 2-3½ 2-Horn
A935P	Console (Lift Lid)	Pecan	20AT21Z	20 Transistor FM/AM/ Phono	30W	49-1175 49-1094 49-1151	10 45 6.4	2-10 2-3½ 2-Horn
A937H	Console (Lift Lid)	Cherry	20AT21Z	22 Transistor FM/AM/ Phono	30W	49-1175 49-1094 49-1151	10 45 6.4	2-10 2-3½ 2-Horn
A940W	Console (Lift Lid)	Walnut	2AT30 9AT27 11AT30	20 Transistor FM/AM/ Phono	50W	49-1181 49-1151	6.4 6.4	2-10 2-Horn
A941W	Console (Lift Lid)	Walnut	20AT21	20 Transistor FM/AM/ Phono	30W	49-1163 49-1094 49-1151	10 45 6.4	2-12x8 2-3½ 2-Horn
A945M	Console (Lift Lid)	Maple	20AT21	20 Transistor FM/AM/ Phono	30W	49-1163 49-1094 49-1151	10 45 6.4	2-12x8 2-3½ 2-Horn
A947DE	Console (Lift Lid)	Dark Oak	20AT21	20 Transistor FM/AM/ Phono	30W	49-1163 49-1094 49-1151	10 45 6.4	2-12x8 2-3½ 2-Horn
A948PN	Console (Lift Lid)	Pine	20AT21	20 Transistor FM/AM/ Phono	30W	49-1163 49-1094 49-1151	10 45 6.4	2-12x8 2-3½ 2-Horn
A950W	Console (Lift Lid)	Walnut	25AT20	25 Transistor FM/AM/ Phono	70W	49-1171 49-1094 49-1162	6.4 45 6.4	2-12 2-3½ 2-Horn
A952P	Console (Lift Lid)	Pecan	25AT20	25 Transistor FM/AM/ Phono	70W	49-1171 49-1094 49-1162	6.4 45 6.4	2-12 2-3½ 2-Horn
A953M	Console (Lift Lid)	Maple	25AT20	25 Transistor FM/AM/ Phono	70W	49-1171 49-1094 49-1162	6.4 45 6.4	2-12 2-3½ 2-Horn
A955H	Console (Lift Lid)	Cherry	25AT20	25 Transistor FM/AM/ Phono	70W	49-1171 49-1094 49-1162	6.4 45 6.4	2-12 4-3½ 2-Horn
A957DE	Console (Lift Lid)	Dark Oak	25AT20	25 Transistor FM/AM/ Phono	70W	49-1171 49-1094 49-1162	6.4 45 6.4	2-12 4-3½ 2-Horn

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER				OTHER FEATURES			
MODEL	MOUNTING	CARTRIDGE	STYLUS NOTE 1	INDICATOR LIGHT	TAPE	RECORD STORAGE	REMOTE SPEAKER PROVISION
169-363	Shelf	142-168	D-S S-68567	–	Note 4	Yes	Yes
169-363	Shelf	142-168	D-S S-68567	–	Note 4	Yes	Yes
169-363	Shelf	142-168	D-S S-68567	–	Note 4	Yes	Yes
169-363	Shelf	142-168	D-S S-68567	–	Note 4	Yes	Yes
169-363	Shelf	142-168	D-S S-68567	Yes	Note 4	–	Yes Note 8
169-363	Shelf	142-168	D-S S-68567	Yes	Note 4	Yes	Yes Note 7
169-363	Shelf	142-168	D-S S-68567	Yes	Note 4	Yes	Yes Note 7
169-363	Shelf	142-168	D-S S-68567	Yes	Note 4	Yes	Yes Note 7
169-363	Shelf	142-168	D-S S-68567	Yes	Note 4	Yes	Yes Note 7
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

CABINET			CHASSIS			SPEAKER		
MODEL	STYLE	COLOR	MODEL	TYPE	EIA POWER OUTPUT	PART NUMBER	VOICE COIL IMPEDANCE (IN OHMS)	SIZE INCHES
A957P	Console (Lift Lid)	Pecan	25AT20	25 Transistor FM/AM/ Phono	70W	49-1171 49-1094 49-1162	6.4 45 6.4	2-12 4-3½ 2-Horn
A960P	Console (Lift Lid)	Pecan	29AT24 6AT24	35 Transistor FM/AM/ Phono	160W	49-1073 49-1094 49-1162	6.4 45 6.4	2-15 4-3½ 2-Horn
A960W	Console (Lift Lid)	Walnut	29AT24 6AT24	35 Transistor FM/AM/ Phono	160W	49-1073 49-1094 49-1162	6.4 45 6.4	2-15 4-3½ 2-Horn
A966DE	Console (Lift Lid)	Dark Oak	29AT24 6AT24	35 Transistor FM/AM/ Phono	160W	49-1073 49-1094 49-1162	6.4 45 6.4	2-15 4-3½ 2-Horn
A966P	Console (Lift Lid)	Pecan	29AT24 6AT24	35 Transistor FM/AM/ Phono	160W	49-1073 49-1094 49-1162	6.4 45 6.4	2-15 4-3½ 2-Horn
A8515W	Console (Lift Lid)	Walnut	20AT30	20 Transistor FM/AM/ Phono	16W	49-1182 49-1094	16 45	2-12 2-3½
A8532M	Console (Lift Lid)	Maple	20AT21	20 Transistor FM/AM/ Phono	30W	49-1178 49-1162	10 6.4	2-12 2-Horn
A8534DE	Console (Lift Lid)	Dark Oak	20AT21	20 Transistor FM/AM/ Phono	30W	49-1178 49-1162	10 6.4	2-12 2-Horn
A8534P	Console (Lift Lid)	Pecan	20AT21	20 Transistor FM/AM/ Phono	30W	49-1178 49-1162	10 6.4	2-12 2-Horn
A8570P-1	Console (Lift Lid)	Pecan	25AT20	20 Transistor FM/AM/ Phono	70W	49-1177 49-1162 49-1094	6.4 6.4 45	2-9x15 2-Horn 2-3½
S-9017	Table Extension Speaker	Walnut	–		–	49-1102 49-1162	6.4 6.4	1-12 1-Horn

NOTES

1. Stylus, S = Sapphire, D = Diamond.
2. Stylus 56-558 (S-S) used with cartridge 142-149, and stylus 56-566 (S-S) used with cartridge 142-165.
3. Tape Input - May be used with the following models:
   A634 - Cassette Tape Player,
   A635 - Cartridge Tape Player,
4. Tape Input and Output - May be used with the following models:
   A634 - Cassette Tape Player,
   A635 - Cartridge Tape Player,
   A636 - Cassette Tape Player/Recorder.
5. 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.
6. Remote Speaker Adapter Kit No. S-74539 available.
7. Built-in Sound Control Center with headphone jack.
8. Headphone Jack.

FEATURES OF HIGH FIDELITY & STEREO FM MODELS

RECORD CHANGER				OTHER FEATURES			
NUMBER	MOUNTING	CARTRIDGE	STYLUS NOTE 1	INDICATOR LIGHT	TAPE	RECORD STORAGE	REMOTE SPEAKER PROVISION
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-364	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-364	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-364	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-364	Shelf	142-167	D-S S-82621	Yes	Note 4	Yes	Yes Note 7
169-362	Shelf	142-168	D-S S-68567	Yes	Note 4	–	Yes Note 7
169-362	Shelf	142-168	D-S S-68567	Yes	Note 4	–	Yes Note 7
169-362	Shelf	142-168	D-S S-68567	Yes	Note 4	–	Yes Note 7
169-362	Shelf	142-168	D-S S-68567	Yes	Note 4	–	Yes Note 7
169-366	Shelf	142-167	D-S S-82621	Yes	Note 4	–	Yes Note 7
–	–	–	–	–	–	–	–

RECORD CHANGER FEATURES

Part No.	MFG	Base Plate	Turntable	Part No.	MFG	Base Plate	Turntable
169-346	(BSR)	Beige	Dark Brown	169-364	(G)	Bronze Gold	Dark Brown
169-347	(BSR)	White	Charcoal	169-366	(VM)	Tree Bark Brown	Light Beige
169-355	(VM)	Ivory	Brown	169-369	(VM)	Black	Light Grey
169-358	(VM)	Tan	White	169-370	(VM)	Gold	Black
169-359	(VM)	Beige	White	169-371	(VM)	Brilliant Aluminum	Black
169-360	(VM)	Off White	Black	169-372	(VM)	White	Gray
169-361	(VM)	Tree Bark Brown	Light Beige	169-376	(VM)	Gold	Dark Brown
169-362	(VM)	Tree Bark Brown	Light Beige	169-379	(VM)	Black	Beige
169-363	(VM)	Tree Bark Brown	Light Beige				

SECTION 1

SEMI-CONDUCTOR THEORY

In order to understand the operation of semi-conductor (solid-state) devices it is necessary to define three terms: conductor, insulator, and semi-conductor.

An electrical conductor is a solid substance made up of atoms whose atomic structure contains many excess or "free" electrons in the outer orbit. These electrons are free to move from the orbit of one atom to another. If these "free" electrons are controlled or guided, an intensified electron drift occurs, resulting in an electron flow. There is, at the same time, a vacancy or "hole" created which results in an apparent movement in the direction opposite to electron flow. This opposite movement is called current flow. Conductors are those substances which offer low resistance to current flow.

Insulators are those materials which contain atoms having no or relatively few "free" electrons and as a result, have a high effective resistance to current flow.

Between conductors and insulators are those materials known as semi-conductors. Semi-conductors have a structure offering a low resistance to current flow in one direction and a high resistance in the reverse direction. Silicon and germanium are two of the most important materials used in the manufacture of semi-conductor devices at the present time.

Pure silicon or germanium are not useable as semi-conductors, but must have certain impurities added during manufacture. These impurities are added in controlled amounts to provide desired characteristics. The addition of arsenic and antimony, for example, will result in a material with many excess electrons so it results in an "N" type material. If, on the other hand, gallium and indium are used, a material will result having a lack of electrons, or will create a positive or "P" type material.

DIODES

When diodes are manufactured, a section of "P" type semi-conductor material and a section of "N" type material are joined together (See Fig. 1-1). A high resistance area is formed at the junction where contact is made between the "P" and "N" types of material. This resistance or barrier region is due to a combining of some positive charges of the "P" material with some negative charges of the "N" material. Combining of charges will continue until a sufficient barrier region is developed which eventually prevents any further combination. Fortunately, this same barrier region then prevents both semi-conductor materials from neutralizing each other.

At this point we should recall that we have mentioned electrons, electron flow, holes, and current flow. The relationship of these terms should be remembered. Electron flow is the movement of electrons. Current flow is the apparent movement of "holes", that is, a movement of positive charges in a direction opposite to electron flow. Future discussion will be based on current flow.

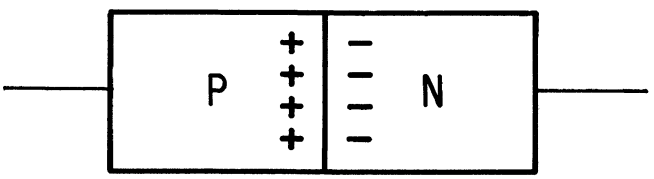


FIG. 1-1

It is possible to apply a voltage across the "P-N" sections (See Fig. 1-2) which will overcome the barrier. Notice that the positive battery terminal is connected to the "P" section while the negative terminal is connected to the "N" section. The value of voltage required will depend on the type of semi-conductor material used (silicon or germanium). When the applied voltage overcomes the barrier there will be additional combining, but the action is such that charges from each section will break through the barrier (junction). It is the continuation of this break through that results in current flow in the external circuit. The amount of flow will vary with the voltage that is applied (See Fig. 1-3).

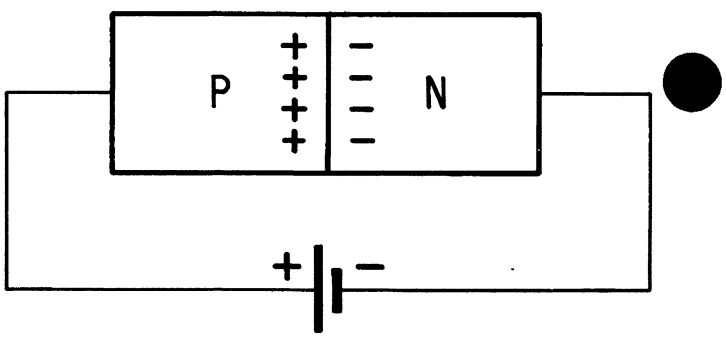


FIG. 1-2

As voltage is increased, the current flow will increase until a maximum or critical value is reached. Beyond this battery voltage the current will increase to a value which will cause the semi-conductor diode to overheat and be destroyed.

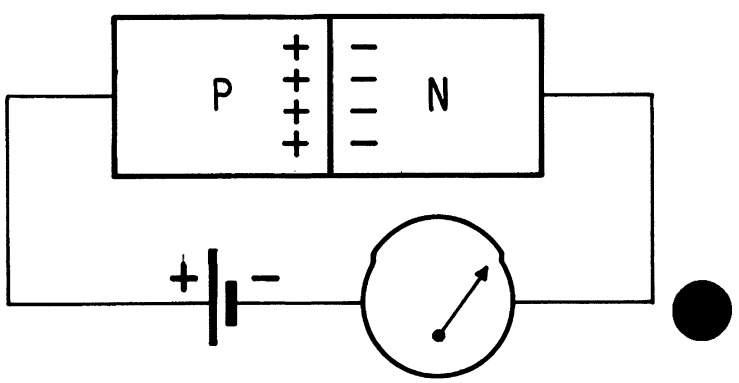


FIG. 1-3

When a voltage is connected to a diode as shown in Fig. 1-3, we have applied Forward Bias. A voltage has been connected in such a way that the junction resistance has been reduced and Forward Current flows in the circuit. FORWARD BIAS CAUSES HIGH FORWARD CURRENT FLOW.

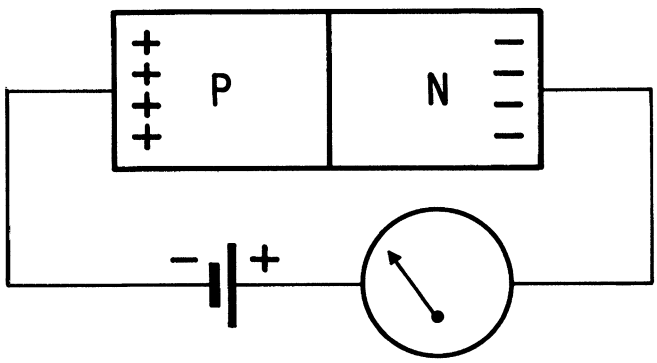


FIG. 1-4

If a battery is connected as in Fig. 1-4, the diode is reverse biased. The negative terminal of the battery is connected to the "P" section while the positive terminal goes to the "N" section. As you see the "+" and "-" charges move away from the junction, which means there would be no break through of the junction. It appears that there would be no current flow in the external circuit. Semi-conductors have a small leakage current which will flow in the external circuit. This leakage current is due to the fact that there will be some combining of charges at the barrier. REVERSE BIAS CAUSES MINIMUM OR NO CURRENT FLOW.

Here is a summary of basic semi-conductor diode characteristics:

Forward Bias causes High Forward Current due to the low junction resistance with current being measured in milliamperes.

Reverse Bias causes Zero (or Low) Reverse Current due to the high junction resistance with the current being measured in microamperes.

In Fig. 1-5 we show the diode symbol. The "P" section is called the Anode while the "N" section is called a Cathode.

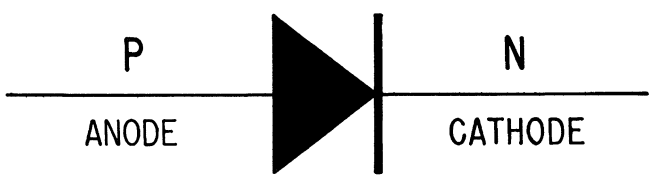


FIG. 1-5

Fig. 1-6 shows the schematic symbol along with an arrow showing direction of current flow. Note that this arrow is in the same direction as the arrow shaped part of the diode symbol.

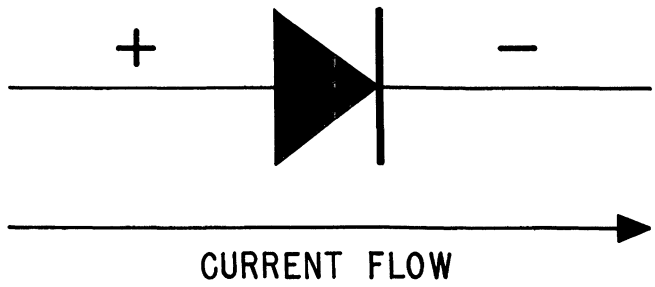


FIG. 1-6

Up to this point we have explained what happens when a DC voltage is applied to a diode. Now lets see what an AC voltage will do. Since an AC voltage will vary positive and negative about a zero reference we have the sine wave form indicated in Fig. 1-7A. When the voltage applied to the anode is positive going (forward bias), the diode (Fig. 1-7B) will conduct, passing the waveform shown in Fig. 1-7C. As the voltage goes negative (reverse bias) the current will drop to approximately zero. Any current flow during this negative half cycle will be due to leakage current as explained previously. This is the basic principle of diodes which are used as detectors and rectifiers.

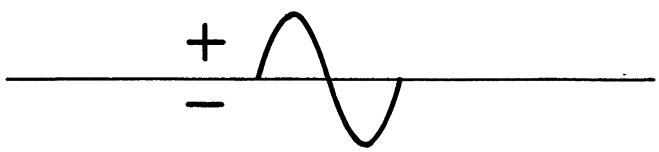


FIG. 1-7A

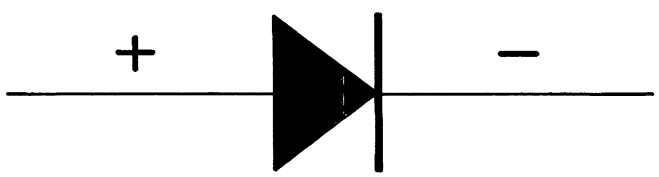


FIG. 1-7B

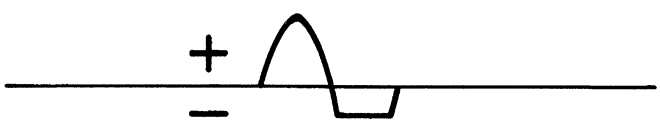


FIG. 1-7C

So far we have seen that forward bias is used to obtain the desired forward current and that reverse bias, if of a sufficiently high value, can result in the destruction of a diode.

ZENER DIODE

There are, however, certain diodes which rely on the reverse bias and breakdown for application as voltage regulators. Fig. 1-8 is the symbol for a zener diode as it would appear between the DC power supply and load. Fig. 1-9 is the voltage/current waveform of a zener diode.

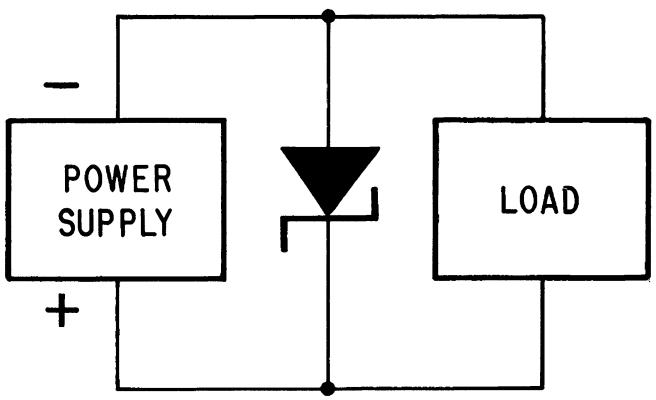


FIG. 1-8

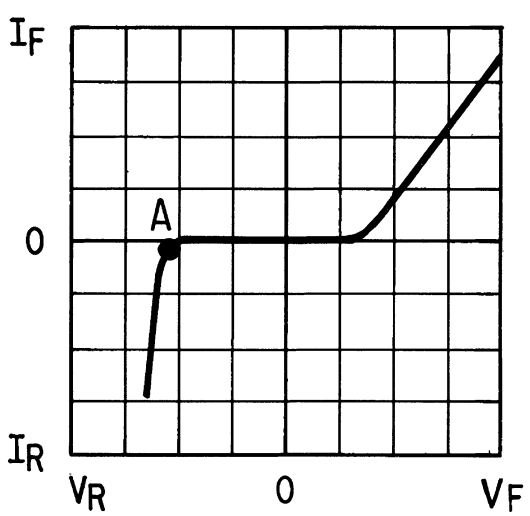


FIG. 1-9

In semi-conductor circuits it is extremely important that the voltage not vary more that 5% of the nominal supply voltage. To hold these limits a zener diode is used as a voltage regulator.

When a zener diode is biased in the forward direction, the current flow through the unit will rise quite sharply at fairly low biasing voltages. If the diode is reverse biased it will be found that the current is minute, on the order of micro-amperes, until a certain voltage called the breakdown or zener voltage is reached. At this point, the electrons or "holes" which form the leakage current are given sufficient energy to create other electron-hole pairs which add to the initial reverse current. This process builds up rapidly and leads to large increases in current for small further increases in voltage. The diode is now in the saturation region, and any attempt of the reverse voltage to rise is met by an increased current flow which tends to counteract the voltage increase and thus maintains a steady voltage drop across the diode. This is indicated at point A in Fig. 1-9, where the curve drops almost straight down. At this point any further attempt to increase the reverse bias voltage within design range, is met by an increase in current, but practically no change in voltage drop across the diode. In this state the zener diode has now established a fixed voltage. Even though this device relies on the breakdown for normal operation there is of course the necessity to observe the voltage and current ratings of the device due to the possibility of damage if the ratings are exceeded.

SILICON CONTROLLED RECTIFIERS

Another member of the diode family is the Silicon Controlled Rectifier (SCR), a semi-conductor device capable of carrying high current and which can be "switched" by low signal level. The SCR is made of four (4) semi-conductor layers consisting

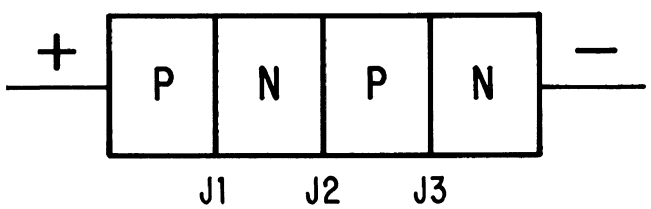


FIG. 1-10

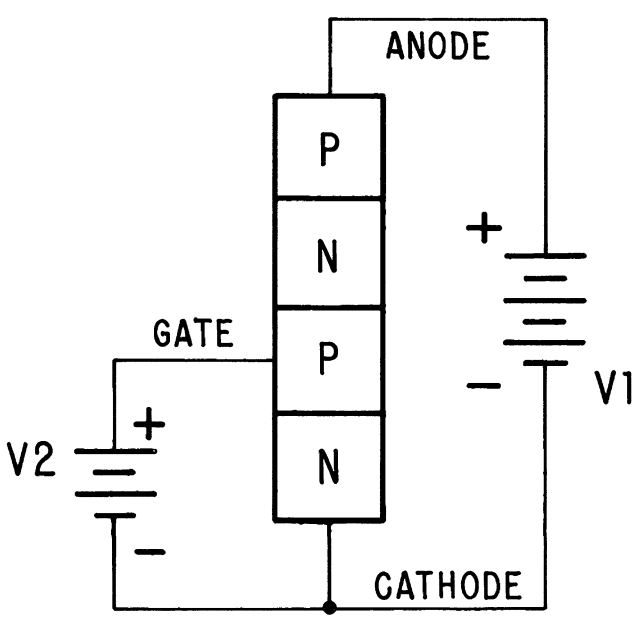


FIG. 1-11

of alternate "P" and "N" materials in the sequence PNPN as shown in Fig. 1-10. When a positive voltage is applied to the outer "P" material and a negative voltage on the outer "N" layer a forward bias has been established. Each of the three PN junctions has a resistance which, being in series, acts as a voltage divider so there will be a voltage drop across each junction. With voltage V1 applied across the anode and cathode (Fig. 1-11) junctions J1 and J3 are forward biased while J2 is reverse biased and any current flow will be limited to that of the reverse biased junction.

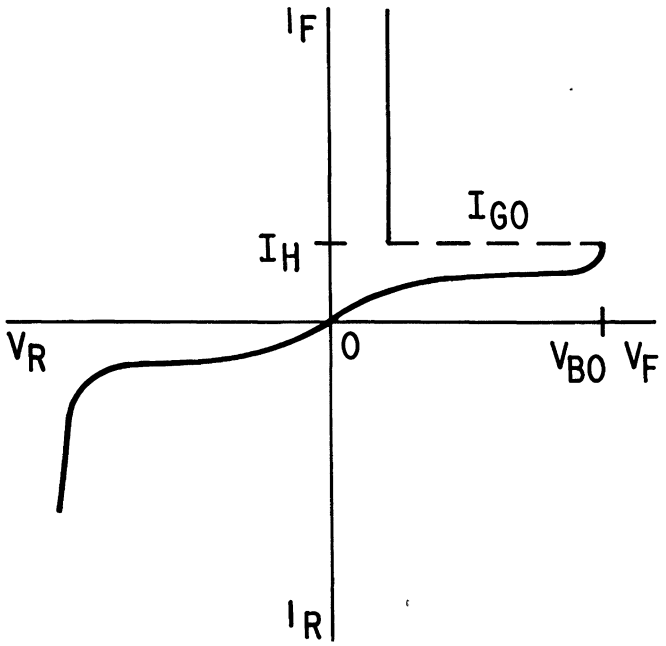


FIG. 1-12

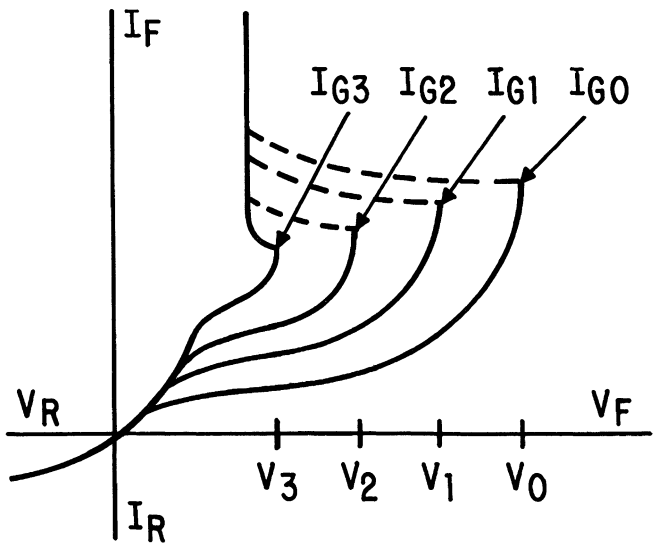


FIG. 1-13

Fig. 1-12 shows that as forward bias voltage (VF) is increased there will be an increase of forward current (IF); a slow increase at first, but as forward bias reaches the point of Breakover Voltage (VBO), current flow overcomes the resistance of junction J2. With low junction resistance it is now possible for a very small forward voltage to maintain a very high current flow as indicated by the almost vertical movement of the curve above IH. As long as circuit conditions maintain a current flow which is greater than the Holding Current (IH) the SCR will remain "on".

In Fig. 1-12 the only way described to switch into high conduction was by increasing forward bias to reach breakover voltage. If we add a third terminal, which is connected to the internal "P" material (the gate of Fig. 1-11), it is possible to accomplish the "turn on" at lower forward voltages as shown in Fig. 1-13. As gate current (IG) is increased the breakover will occur at lower forward voltages. Fig. 1-14 is the schematic symbol for an SCR.

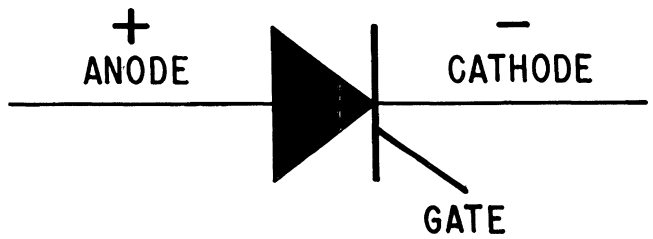


FIG. 1-14

"Turn off" of an SCR can be performed by reverse biasing the anode and cathode, see Fig. 1-15. While the SCR is "on", capacitor (C) will be charged by current path of the resistor, capacitor, SCR and battery. To turn the SCR off, the switch is closed, connecting the positive end of the capacitor to the SCR's cathode. Since the negative end of capacitor C is connected to the anode the SCR is reverse biased and will be turned "off".

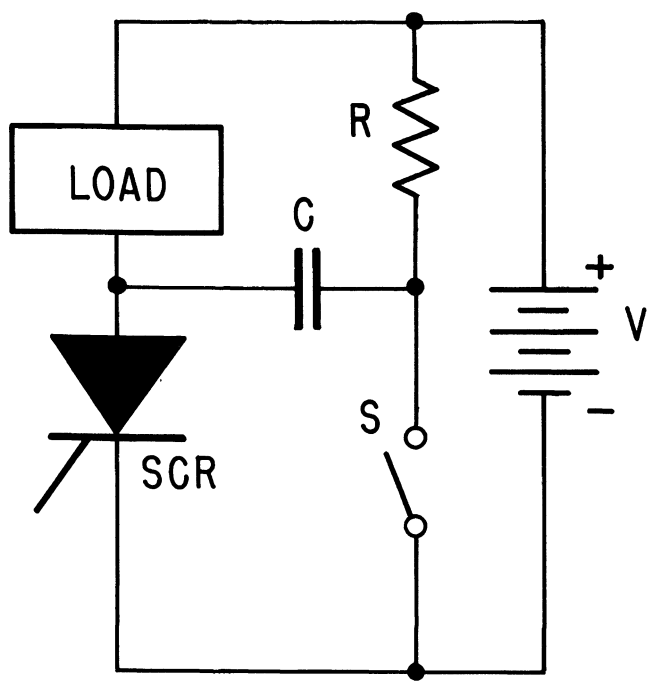


FIG. 1-15

TRANSISTORS

Basically a transistor can be considered to be three semiconductor layers consisting of two "PN" junctions, which are joined so that the two outer layers are of the same type material, (either "P" or "N"). The middle layer is of the remaining material and is normally much thinner (Fig. 1-16).

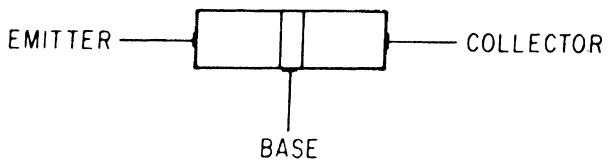


FIG. 1-16

Two basic types of transistors are made depending on the sequence in which the layers are formed, that is, PNP or NPN. Each of these layers or electrodes has a name which is also shown in Fig. 1-16. The center section is called the base and to one side is the emitter which is considered to be the source of current while to the other side is the collector which is considered to collect current flow.

Each of the transistor types (PNP or NPN) has a schematic symbol which permits ready identification (See Fig. 1-17). The emitter electrode is designated by an arrow which also shows the direction of major current flow. In an PNP transistor major current flow is from the emitter to the collector (arrow points inward) while in the NPN transistor major current flow is from the collector to the emitter (arrow points outward). A transistor's base can be thought of as a gate that is opened or closed by a small current flow in the base which allows more or less current to flow in the collector-emitter circuit. While transistors are considered to be current amplifiers, explanations are often given with reference to voltage values and polarities. Within normal or specified ranges of a transistor's electrode voltages, the base bias voltage is most critical because the base is the control electrode.

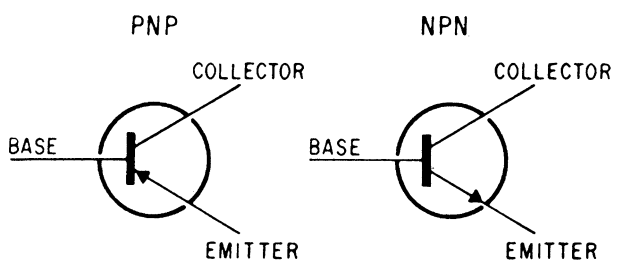


FIG. 1-17

In order to explain the action of a transistor, we will consider it as two separate diode junctions. For amplification purposes the base-emitter junction must be forward biased; while at the same time the base collector junction must be reverse biased with a voltage that is greater than that used for the base-emitter junction. A simplified amplifier circuit is shown in Fig. 1-18 using a NPN transistor.

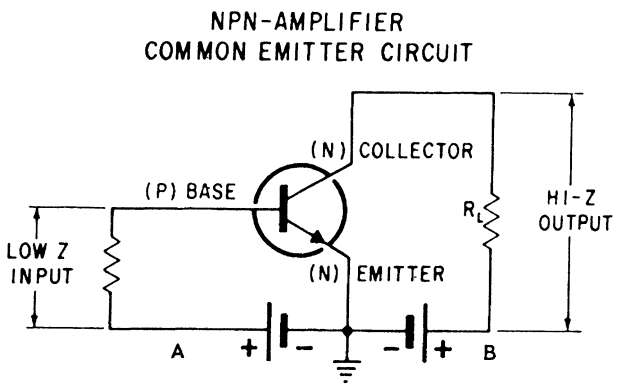


FIG. 1-18

Most transistor amplifier circuits operate in a grounded (common) emitter circuit. The terms "grounded" or "common" simply indicate which electrode is common to both the input and output circuits and bears no relationship to which electrode is actually at electrical ground. In the circuit of Fig. 1-18 a small forward bias voltage is applied across the base-emitter junction which results in current flow in the external base-emitter circuit, through the battery and input resistor. Resistance of the base-emitter junction and also the input impedance will be low.

As electrons are injected into the base from the emitter section they drift around looking for "holes" with which to combine. Only a few electrons will be able to combine with "holes" because the base is made very thin and consequently contains only a few "holes". The excess electrons quickly are forced through the base collector junction and on through the collector section because of the high positive voltage of the reverse bias applied there. Due to the reverse bias voltage, the base collector diode will have a high resistance and the output circuit impedance will be high. From the collector, the electrons continue on through the external load (RL) and back through the battery to the emitter. The direction of current flow in the circuit however, is shown in the opposite direction to the drift of electrons. In the common emitter type circuit, the collector-emitter (output) current will be much larger than the base-emitter (input) current because the base-emitter bias voltage is set at a low value that allows only enough "holes" to move into the base electrode from battery "A" to keep the resistance of the emitter junction low. The much larger voltage of battery "B", even though applied in reverse polarity, can cause much more current to flow in the circuit from collector to emitter than is flowing in the circuit from base to emitter. The ratio of high output current to low input current thus represents the current gain of the transistor. Electron theory was used in this paragraph to provide a simple means of explaining what causes current to flow in a circuit.

Note that up to this point we have applied only operating or DC bias voltages to the transistor for a static condition referred to as DC idling currents. The signal (an AC voltage) has not yet been applied to the circuit.

The AC signal voltage to be amplified is applied across RB, combined with the DC bias voltage will result in a varying bias across the base emitter junction. See Figure 1-19. During the positive half cycle of the signal voltage, the base-emitter junction is made more positive and the increased forward bias results in a decrease in junction resistance, an increase in collector-emitter current and a corresponding decrease of output voltage.

NPN - AMPLIFIER
COMMON EMITTER CIRCUIT

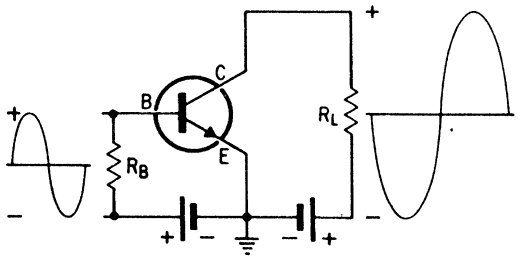


FIG. 1-19

Base emitter bias is made less positive, during the negative half cycle, which results in higher junction resistance and a decrease in collector-emitter current. As the collector-emitter current decreases the output voltage will increase proportionately approaching the voltage of the battery as a maximum value.

Output voltage will be an amplified version of the input voltage, but reversed in phase 180 degrees; also, the output current and power will be an amplified version of the input current and power. If a PNP transistor is to be employed in the circuit the results would be the same, but the DC bias voltages would have to be reversed in polarity.

In order to have linear or undistorted amplification in a transistor amplifier stage, the fixed bias voltage and the resulting idling currents must be stabilized by the particular design of the stage. Transistors used in so-called small signal amplifiers such as found in most RF and IF stages in radio or television receivers, are normally biased at idling currents between .5 Ma and 10 Ma. Bias voltages required may range from .2 volt to as much as 20 volts or more.

Negative feedback provides the best method of stabilizing the bias voltages of a transistor, and is used to fix the gain, reduce certain distortions and stabilize the input and output impedances. If output voltage is fed back, the output impedance is decreased, while if output current is fed back, the output impedance is increased. Gain is reduced at the mid-band frequencies as the amount of feedback is increased but this fact can be used to advantage in some circuits. A well designed bias circuit will assure proper operation that is relatively independent of the characteristics of the transistor, temperature changes and other important design considerations.

Most of the grounded-emitter transistor amplifier circuits, use an emitter to ground resistor to provide some feedback to stabilize the operation of the transistor. To prevent any appreciable degeneration of the signal the emitter resistor may be either fully or partly bypassed by a capacitor. See Figure 1-20. Other forms of feedback may consist of an R/C network, or a single resistor or capacitor connected from one electrode to another in the same stage or to any preceding stage. (Voltage dividing resistances also may be found.) In every case, the greater the feedback, the lower the gain but the amplifier is less sensitive to changes in gain; temperature, etc. If bias voltages and resultant (idling) currents are too low, serious distortions occur. Bias voltages and currents that are too high result in problems of overheating and excessive noise.

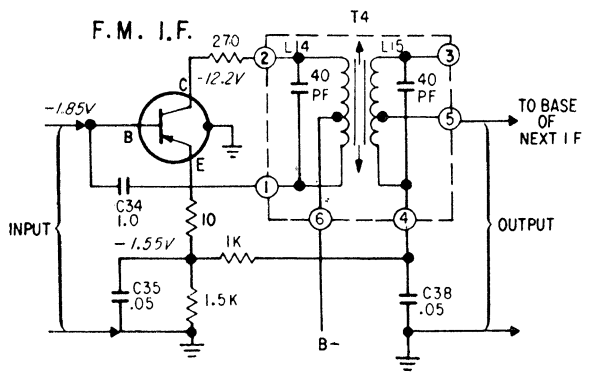


FIG. 1-20

The RF oscillators, see Figure 1-21, are most frequently in a common base arrangement as shown. The base is brought to AC ground potential by the .01 capacitor. At the same time, to insure oscillation, a small 1.5 pf capacitor is shunted between emitter and collector. Internal capacitance between emitter and collector plus the 1.5 pf capacitor will supply sufficient feed back to cause the transistor to oscillate. In the common base arrangement the AC voltages at emitter and collector are out of phase. The 22 pf capacitor and the

RF - OSCILLATOR
COMMON-BASE

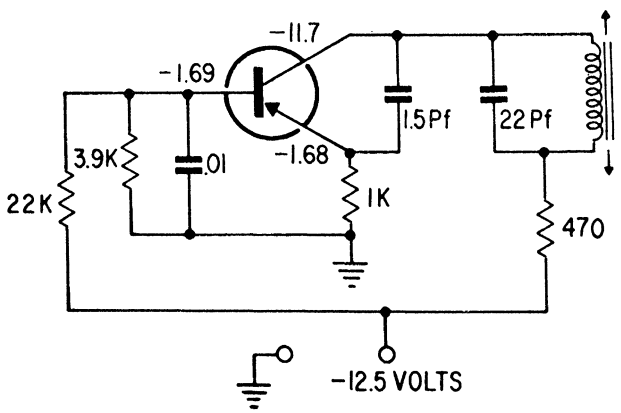


FIG. 1-21

particular setting of the variable inductance of the oscillator coil establish the operating frequency of the oscillator. Base circuit resistors of 3.9K and 22K act as a voltage divider to establish the proper base bias voltage for the transistor. The 1K emitter resistor provides the emitter bias. DC path for the collector is completed through the inductance.

Advancements in semi-conductor devices has led not only to the greatly improved reliability of diodes and transistors but also in the area of size reduction of the devices. Along this line one can find transistors which appear no smaller physically, however they contain two or more separate semi-conductor devices. An example of this is a Darlington configuration transistor. Fig. 1-22 shows the schematic symbol. An examination reveals that two transistors exist within the package, both of which are NPN types. This is not a new circuit, but rather one of many new constructions that have evolved through research.

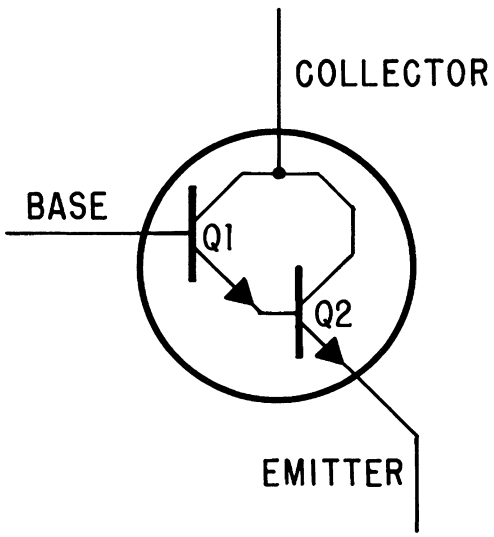


FIG. 1-22

Operation of this device is the same as two transistors in separate packages but has such added advantages as reduced size, fewer circuit components required and extremely high input impedance. Briefly the operation is as follows. Assume separate NPN transistors which we refer to as Q1 and Q2 (Fig. 1-22). Since there are three external terminals with the conventional terms (emitter, base, and collector) voltages are applied as normal for a NPN transistor (in this example), that is, the emitter is negative with the base and collector having successively higher voltages in the positive direction. With DC bias voltages established the AC signal voltage is applied to the base of Q1. A positive going signal will increase the forward bias causing an increase in current flow in the collector-emitter circuit. This increased current flow also goes through the base-emitter junction of Q2 in series with Q1's base-emitter junction. Current in the Q2 collector-emitter circuit will also increase. A negative signal to the base of Q1 will on the other hand cause current reduction in the output of Q2. For a common emitter amplifier circuit there will also be a phase reversal between input (base of Q1) and output (collector of Q2) terminals.

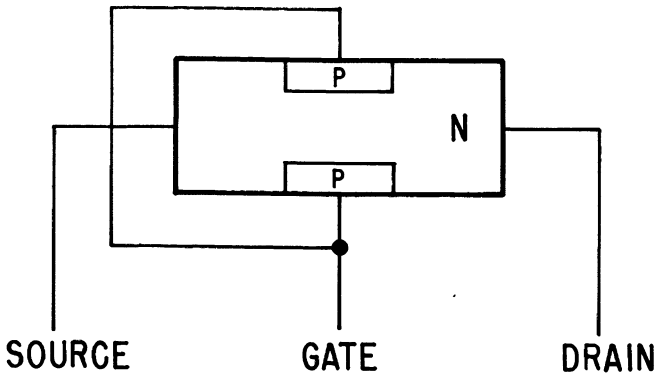


FIG. 1-23

Another recent addition to the semi-conductor family is the Field Effect Transistor (F.E.T.), in which current flow is controlled by an electric field. Construction of a F.E.T. is illustrated in Fig. 1-23 as a bar of semi-conductor material (either "P" or "N"). For this example assume that a "N" bar of silicon is used. Terminals are connected to each end of the bar and are identified as Drain and Source. There is no junction existing, only the ohmic contact. A "P" type material is diffused into both sides of the "N" bar or channel which forms "PN" junctions. The diffused "P" sections are connected together and called the Gate. External voltage is connected as shown in Fig. 1-24, with the positive end of the drain-source battery (VDS) connected to the drain while the negative end is connected to the source terminal. Drain current (ID) flows in the channel, through the load (RL) and battery (VDS). At zero gate voltage, drain current will be limited by only the load resistance and "N" channel resistance. Gate voltage supply (VGS) is connected with the positive end to the source terminal and the negative end to the gate terminal, reverse biasing the gate.

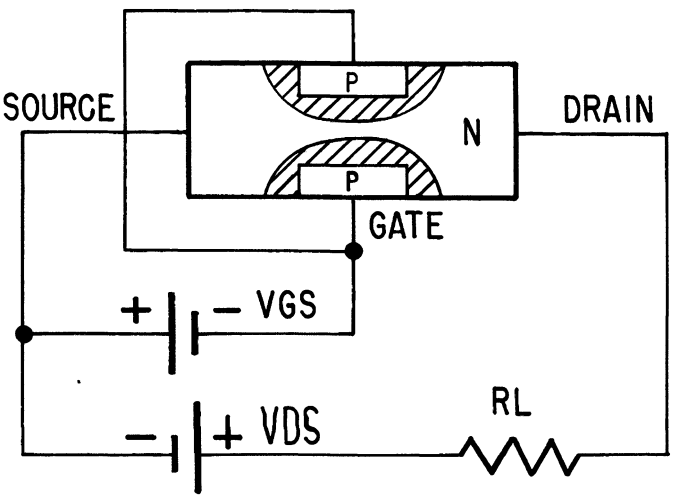


FIG. 1-24

As gate reverse bias voltage is increased (in the negative direction for "N" channel F.E.T.'s), areas will develop adjacent to the "P" gate electrodes which are called depletion regions. A depletion region develops due to the loss of current carriers and results in a reduction of the channel width. This region is shown shaded in Fig. 1-24. Increasing reverse bias voltage increases the depletion regions which in turn results in reduced channel width. A reduction in channel width limits current flow in the channel.

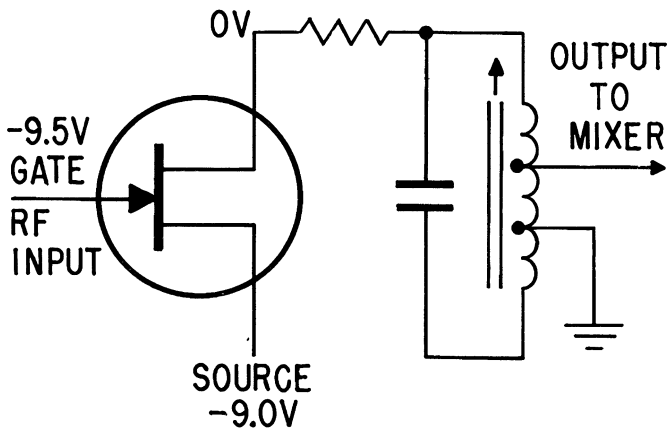


FIG. 1-25

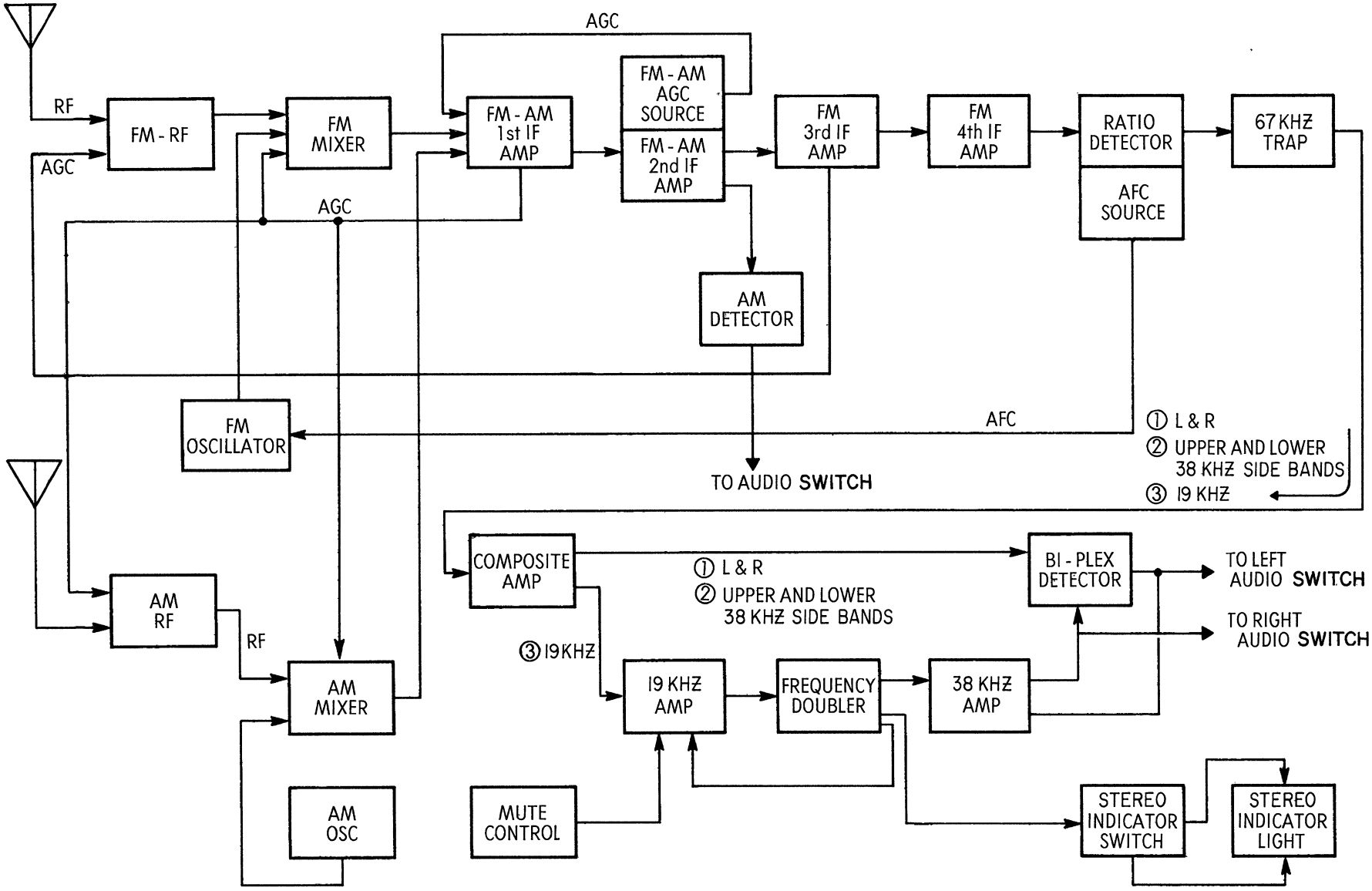
Fig. 1-25 shows the schematic symbol for a junction type depletion mode "N" channel F.E.T. being used in a RF Amplifier application. The electrode voltages established are; source: -9.0 volts; drain: 0 volts; with the gate voltage at -9.5 volts. Under this condition the FET is biased for optimum circuit performance and also low noise. As signal level increases reverse AGC voltage will increase. This voltage will add to the gate bias causing a reduction in drain current (ID) and a reduction in the RF amplifier gain thereby reducing possibility of overload distortion.

The transistor, sometimes referred to as a solid-state device, is often compared to a vacuum tube. This comparison can be tricky because the transistor is basically a current operated device, while the vacuum tube is a voltage operated device.

When servicing transistor equipment, it must always be kept in mind that transistors operate on low voltages and small currents. This means in general, that many former servicing techniques are not to be employed. In transistor circuits, the voltage ratings of many components such as coupling and filter capacitors are extremely low. It is very important also that the indicated electrode voltages be within 10% of stated values. The collector to emitter operating voltage and resultant collector current also must be held within certain specified limits, if the transistor is to function properly and have a long life. Applying too high a voltage or one of opposite polarity can ruin a transistor very quickly.

All semi-conductor diodes and transistors have a good mechanical ruggedness but are extremely sensitive to high temperatures. The greatest dangers to a transistor then can be summed up as excess heat, higher than normal electrode voltages or incorrect polarity of DC bias.

In order to prevent damage due to overheating when soldering, all terminal lead soldering time should be kept as short as possible. Always use a pair of long nosed pliers pinched around the lead between the soldering iron and the semi-conductor to act as a heat sink. The pliers will draw away the heat from entering the semi-conductor at the terminal lead entrance.


AGC
RF
FM - RF
FM MIXER
FM - AM 1st IF AMP
FM - AM AGC SOURCE
FM - AM 2nd IF AMP
FM 3rd IF AMP
FM 4th IF AMP
RATIO DETECTOR
AFC SOURCE
67 KHZ TRAP
AGC
AM DETECTOR
FM OSCILLATOR
AFC
① L & R
② UPPER AND LOWER 38 KHZ SIDE BANDS
③ 19 KHZ
TO AUDIO SWITCH
AM RF
RF
AM MIXER
AM OSC
COMPOSITE AMP
① L & R
② UPPER AND LOWER 38 KHZ SIDE BANDS
③ 19KHZ
19 KHZ AMP
FREQUENCY DOUBLER
38 KHZ AMP
BI - PLEX DETECTOR
TO LEFT AUDIO SWITCH
TO RIGHT AUDIO SWITCH
MUTE CONTROL
STEREO INDICATOR SWITCH
STEREO INDICATOR LIGHT

SECTION 2

MULTIPLEX RECEIVER THEORY

A careful study of the block diagram for chassis 29AT24 (Fig. 2-1) would be most helpful before going into an explanation of the operation of current receiver circuit applications. This chassis will be used to describe circuitry of transistorized Zenith FM/AM multiplex receivers since it includes the features that are basically common to other Zenith chassis.

FM and AM tuners in this chassis are separate units, and each is integral and complete. Since stereo tuners require more sensitivity and selectivity than do monaural FM tuners and since the equipment must function within the Federal Communication Commissions Radiation limits, it was felt that these goals could be best achieved by having the FM-RF tuner separate from the AM-RF tuner. In this manner, all long leads, band switching and other associated circuitry that contribute to radiation problems, and reduce each tuner's performance, will be eliminated.

AM-RF TUNER

The AM tuner uses a three section tuning capacitor with separate RF, Mixer, and Oscillator transistors (Fig. 2-2). A low impedance antenna is used with provisions for connection of a long wire external AM antenna. Gain of the RF and Mixer stages is controlled by reverse AGC voltage.

FM-RF TUNER

Since the FM tuner must meet the F.C.C. RF radiation limits it is completely shielded. AGC, AFC, and bias voltages are all supplied to the tuner through feed-thru type capacitors. The oscillator transistor is of the shielded four pin construction with the shield being grounded. At the shaft end of the tuner, the four iron core tuning slugs for the Antenna, RF Input Detector and Oscillator are all accessible (Fig. 2-3). The three transistors are accessible at the back end of the tuner, and since they are of the plug-in type, they are easily replaceable (Fig. 2-4). An FM antenna input jack is located at the top of the tuner assembly with an extension cable that connects to the FM antenna terminals on the rear of the receiver cabinet. To insure that this tuner's performance is outstanding, the design incorporates very high -"Q" tuned circuits.

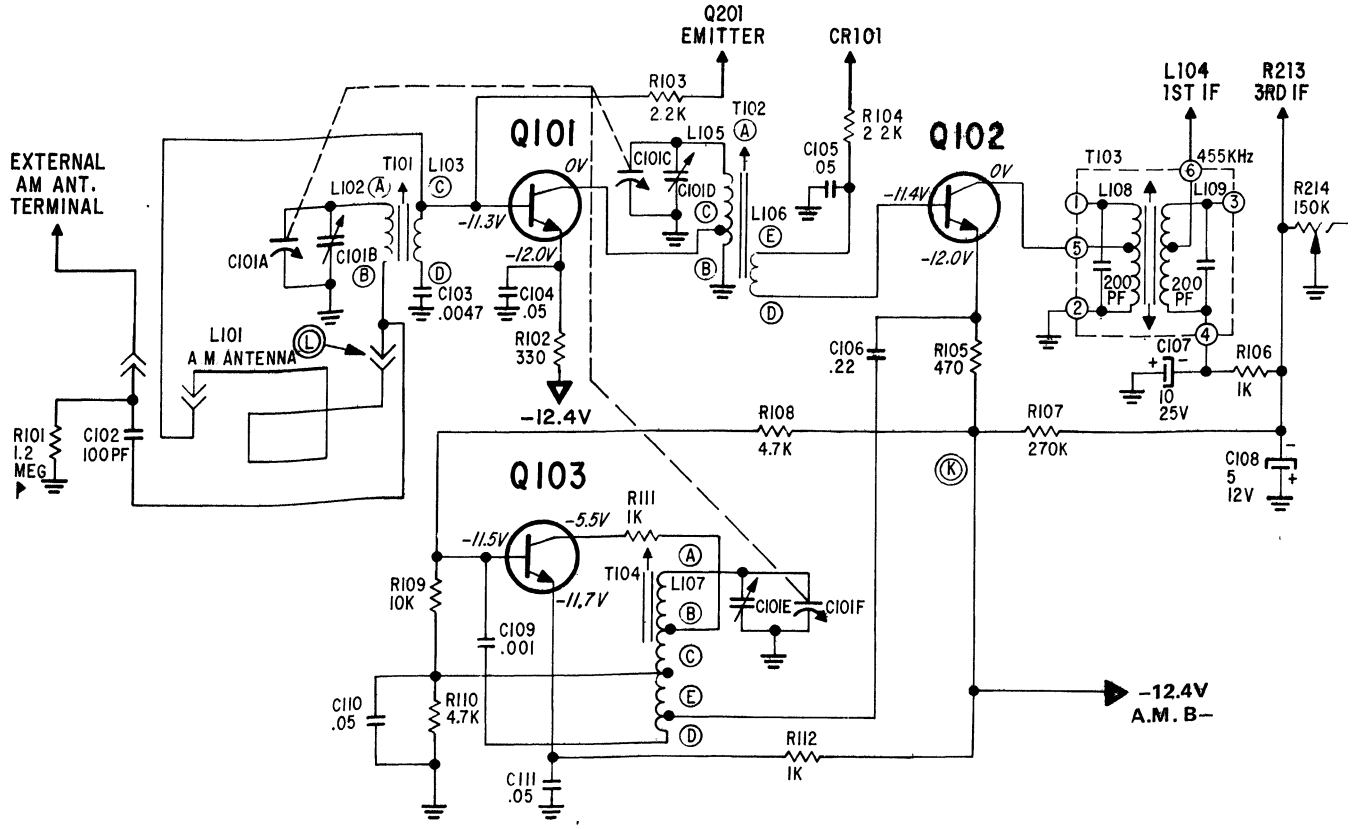


FIG. 2-2 AM TUNER

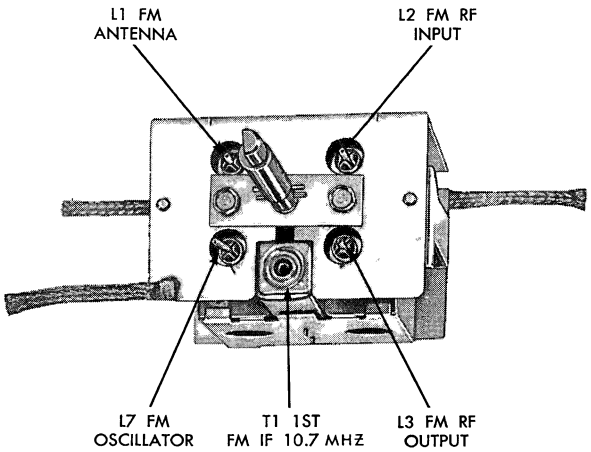


FIG. 2-3

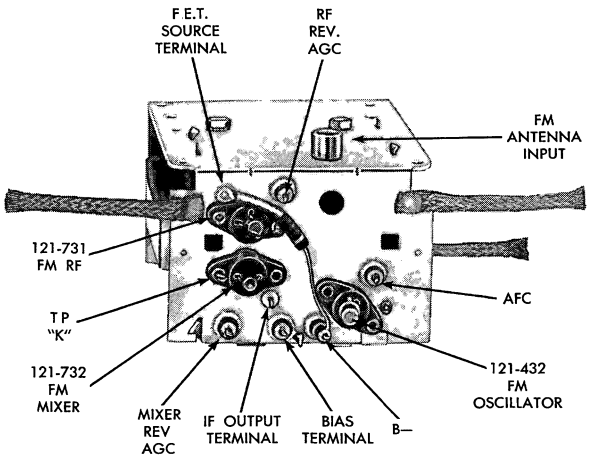


FIG. 2-4

The FM antenna coil (L1), and both the RF input (L2), and Detector (L3), coils are tuned as well as the Oscillator coil (L7) (Fig. 2-5). These precisely tuned circuits also insure that the tuner will reject any unwanted and undesirable combination of RF signals present in many areas, resulting from our complex communications systems. Coil L4 is a 10.7 megahertz trap in the base of the mixer. Reverse AGC voltage is applied to the base at the Mixer transistor and also the gate of the RF transistor which is a Field Effect Transistor (F.E.T.). An advantage of the F.E.T. is that it provides added capabilities in reduction of interference and other undesired signals. AGC voltage is used to reduce the amplification of these stages on strong RF signals.

At this point a word is in order about the F.E.T. RF circuit. In the past a conventional transistor has been used, however in this circuit the F.E.T. is incorporated in the RF stage design. Nominal operating voltages on the terminals are: Source -9.0

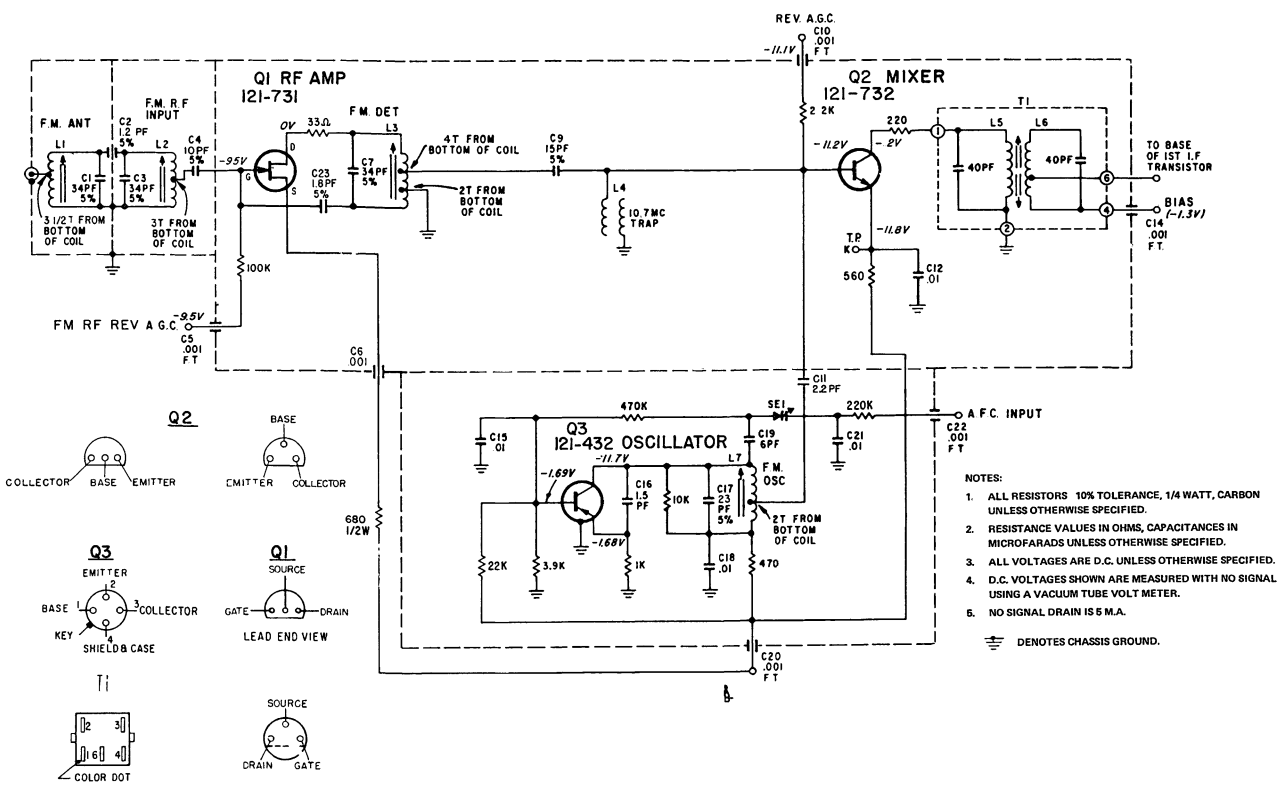


FIG. 2-5 FM TUNER

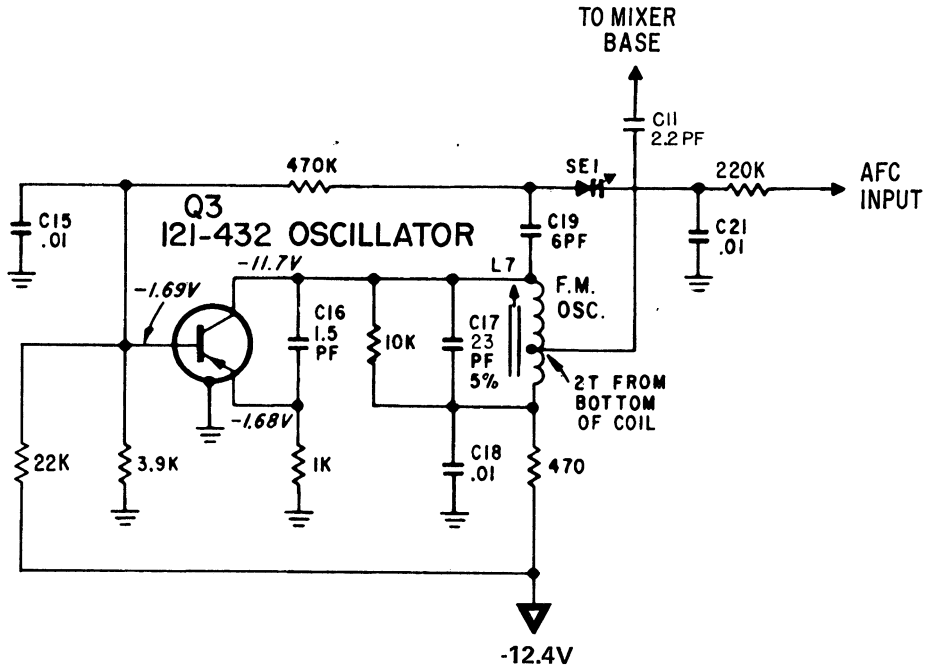


FIG. 2-6 FM-AFC

volt, Gate -9.5 volt and Drain at zero volts. Voltage spread between Gate and Source terminals is -0.5 volts. The drain terminal is returned to ground via a tap on the FM Detector coil L3. As gain of the IF stages increases, reverse AGC voltage will be developed and applied via a feed-thru and 100K resistor to the gate terminal of the F.E.T. This increasing AGC voltage, when added to the gate bias voltage, will cause the gate voltage to be more negative, driving the F.E.T. toward cut-off. When this occurs, the current flow is reduced, thereby reducing the F.E.T.'s gain. This stage is designed for optimum circuit performance and minimum noise. In this application, the drain current is at approximately one-half of the saturation current.

FM-AFC

As with all high frequency oscillators, stability is important and as a feature it is desirable to provide Automatic Frequency Control which is guided by voltage directly related to oscillator frequency shift. This is accomplished by taking a DC voltage from the ratio detector and feeding it back to a varicap "SE1" which is a voltage controlled variable capacitor (Fig. 2-8). This varicap is connected across the oscillator tuned circuit and acts as a frequency controlling device. If the oscillator should shift frequency it causes ratio detector unbalance and a DC voltage is fed back to the varicap changing its capacity which will automatically adjust the frequency of the oscillator circuit to compensate for the original oscillator shift. In this manner we have achieved automatic oscillator frequency control which eliminates drift and simplifies FM tuning. There is a possibility that some component may fail in the oscillator circuit, that will shift the frequency beyond the ±.8 megahertz control range of the varicap. This would then require analysis and replacement of the component. Should you desire to receive a weak FM station within the AFC pull in range of a strong FM station ±.8 MHz an AFC disabling switch has been provided in the receiver circuitry. The AFC source voltage is removed from the oscillator circuit when switching from FM-AFC to FM, and the oscillator circuit functions without automatic frequency control relying on its inherent stability to stay at the desired tuned frequency.

FM IF AMPLIFIERS

There are four common emitter IF amplifier stages between the output of the RF tuner and the Ratio Detector. The IF base voltages are obtained from the following voltage divider networks. Bias voltage for the 1st IF is developed at the junction of resistors R213 (15K), R107 (270K) and the bias adjust potentiometer R214 (150K) (Figs. 2-2 and 2-7). Base bias voltage for the 2nd IF is from the junction of resistors R205 (12K) and R206 (2.7K) between "B-" and ground, resulting in approximately -10.0 volt on the base, which is fed thru the secondaries of transformers T201 (FM IF) and T202 (AM IF) (Fig. 2-7). The third IF receives its base bias voltage from a divider consisting of R211 (18K) and R210 (3.9K). This -10.0 volts is supplied to the base, via the secondary of transformer T203. Bias voltage of -9.7 volts is applied to the base of the fourth IF from a junction of R225 (12K) and R224 (3.3K). This divider is connected across a -12.4 volt supply which is switched by the touch switching circuits which will be explained separately.

FM AGC

When an FM signal is received, a 10.7 MHz IF signal is available in the 2nd IF transformer (T201). A portion of this signal is removed from the 2nd IF transistor collector through C207, the 10 pf capacitor. This FM modulated signal is

detected by diode CR202, increasing the negative voltage at the junction of the 15K and 2.2K resistors (R213 and R212) and in turn at the 1st IF base. With a power supply voltage of -12.4 volts and no signal at the FM Tuner, a -10.1 volts could be expected at the base of the 1st IF transistor. With 50 micro-volts of RF at the input of the FM Tuner, this would be increased to approximately -10.4 volts and with 100 thousand micro-volts at the input of the RF Tuner, the voltage would be approximately -11.1 volts. Even with extremely strong signals the voltage on the 1st IF amplifier base will always be negative, and can be considered as a negative going negative voltage. The IF transistor can be considered to be controlled by a Reverse AGC voltage. In other words, the Forward bias of this transistor is being reduced. As the forward bias is reduced on the base of the NPN transistor it's gain is also reduced, as is the magnitude of the IF signal available at the collector. IF amplifier overload with resulting distortion will be eliminated. To prevent other sources of overload, with resulting distortion, AGC voltage must also be applied to both the RF and Mixer transistors. Since the FM Mixer transistor obtains its base voltage from the emitter of the 1st IF (via CR201), as the gain of the stage is reduced, voltage available at the emitter of the 1st IF (Fig. 2-5) will become more negative. As a result the voltage at the mixer base will also become more negative, again there will be a negative going negative voltage being controlled by developed AGC voltage.

Diode CR201 will be forward biased when in the FM function and reverse biased in the AM function as a result of the "B-" supply to the tuner being switched "on". This diode, when forward biased, will pass FM AGC to the mixer stage in the FM function.

Bias to the F.E.T. is supplied to the divider consisting of R226 (33K) and R230 (100K) forming the initial bias. FM Signal picked off via C221 (6pf) is fed to the junction of CR204 and CR205, a voltage doubler circuit. Increasing signal strength develops an increasingly negative voltage which is applied through isolating resistors to the gate of the F.E.T. The AGC voltage is delayed to insure that the F.E.T. will not be driven into pinch-off (cut-off) on strong signals.

AM AGC

With an amplitude modulated signal received at the antenna terminals of the receiver, we would obtain a 455 KHz amplitude modulated wave at the secondary of T204 (see Fig. 2-9), the third AM IF transformer. Diode CR202 detects the amplitude modulated signal, increasing the negative voltage at the junction of the 15K and 2.2K and finally to the base of

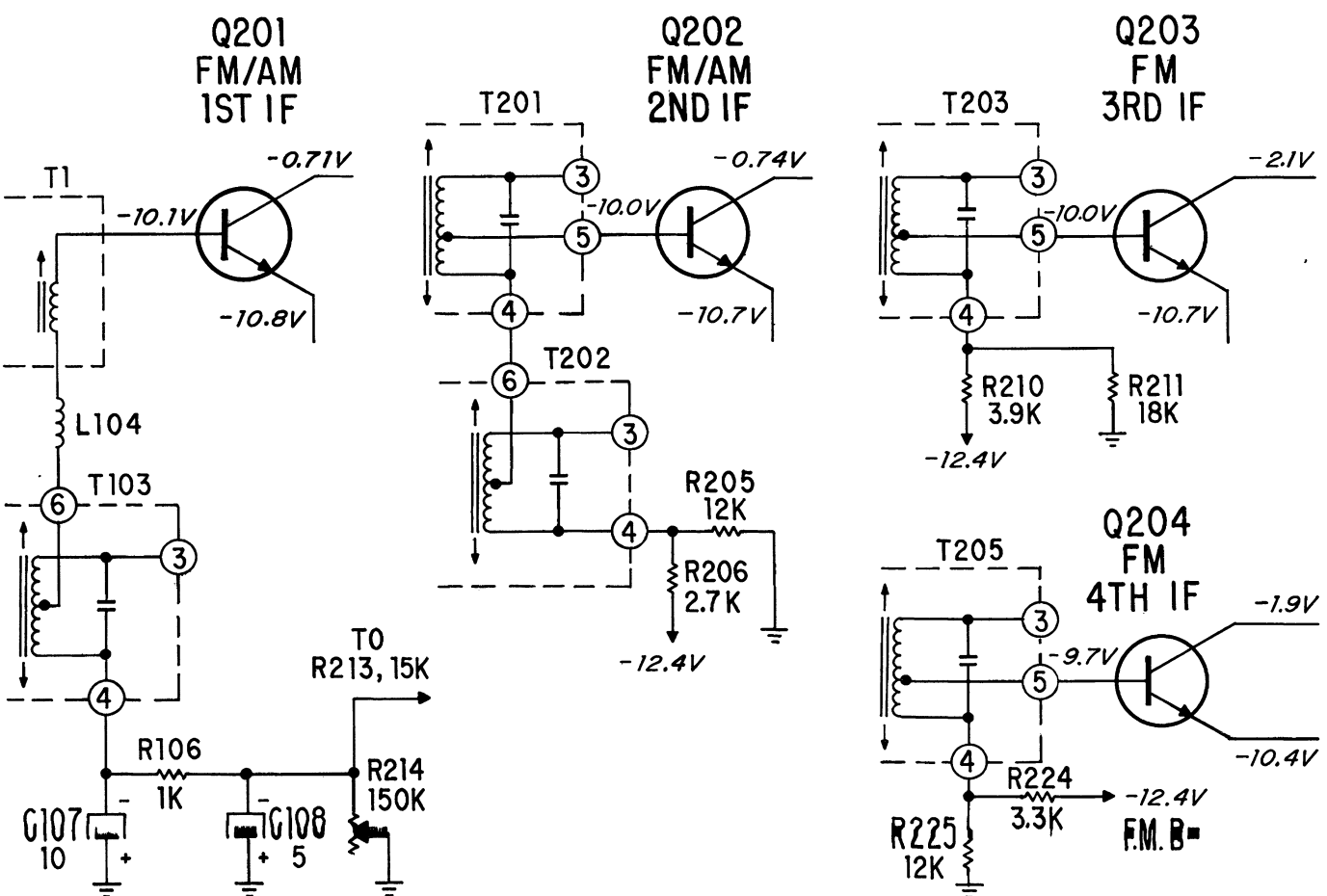


FIG. 2-7 FM-IF AMPLIFIER BIAS SOURCE

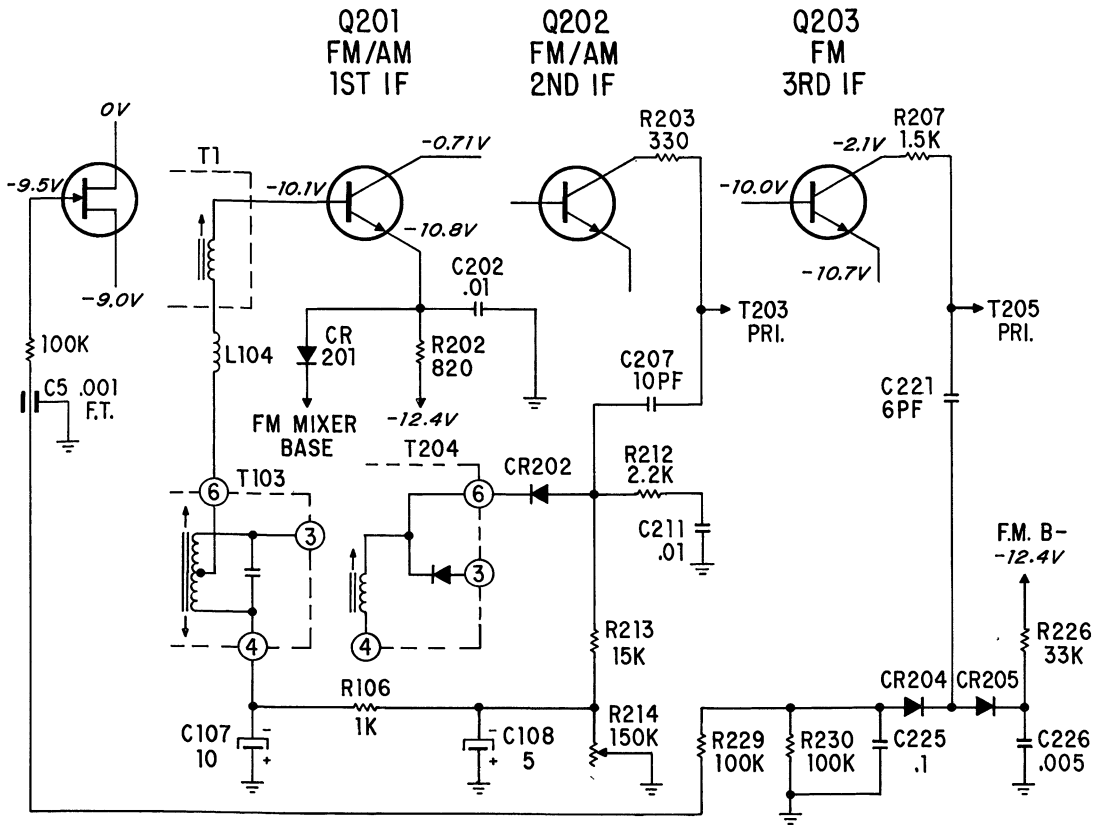


FIG. 2-8 FM-AGC

the 1st IF. In this manner we are applying reverse AGC voltage to the 1st IF transistor to reduce its gain and eliminate the possibility of distortion and overload as a result of excessively strong RF signals. As base voltage becomes more negative so does the emitter voltage which is then applied to the anode of CR101. When the receiver is in the AM function B- voltage has been applied to the AM Mixer transistor Q102. Voltage will now be applied across diode CR101 of such value and polarity that CR101 is forward biased. Changes in emitter voltage of the 1st IF transistor Q201 will be passed to the base of the AM mixer transistor via CR101, thus presenting an effective control of mixer stage gain.

TUNING METER

FM signals at the collector of Q203 (third IF transistor) will be sampled via C218 (a 6 pf capacitor), to diode CR203 which rectifies it and supplies a DC voltage to the tuning meter (Fig. 2-10). AM signals are sampled from the primary of T204 (AM transformer) via C220 (22 pf) and the 10.7 MHz trap consisting of L201.

AM DETECTOR

Separate diodes are used to produce the AM AGC voltage and the AM audio voltage (see Fig. 2-10). The 455 KHz AM modulated wave at the secondary of T204, the third AM IF transformer, is detected with the resulting wave form having the same characteristics as the original amplitude modulation broadcast by the station to which we are tuned. This demodulated voltage is then fed to the audio amplifier portion of the receiver system.

RATIO DETECTOR

Output of the 10.7 MHz 4th IF is fed to T206, ratio detector transformer (see Fig. 2-11). This ratio detector circuit, which is standard, utilizes two solid state diodes for FM demodulation. Assuming the FM station to which we are tuned is transmitting in the stereo mode with a SCA sub-carrier, the composite output from the ratio detector will consist of the following.

1. L+R audio voltage
2. Upper and lower 38 KHz side bands (L-R)
3. 19 KHz pilot signal
4. 67 KHz SCA signal

67 KHz TRAP

This composite information is fed to the input of the 67 KHz trap T301 (Figure 2-12). Assuming that this FM multiplex

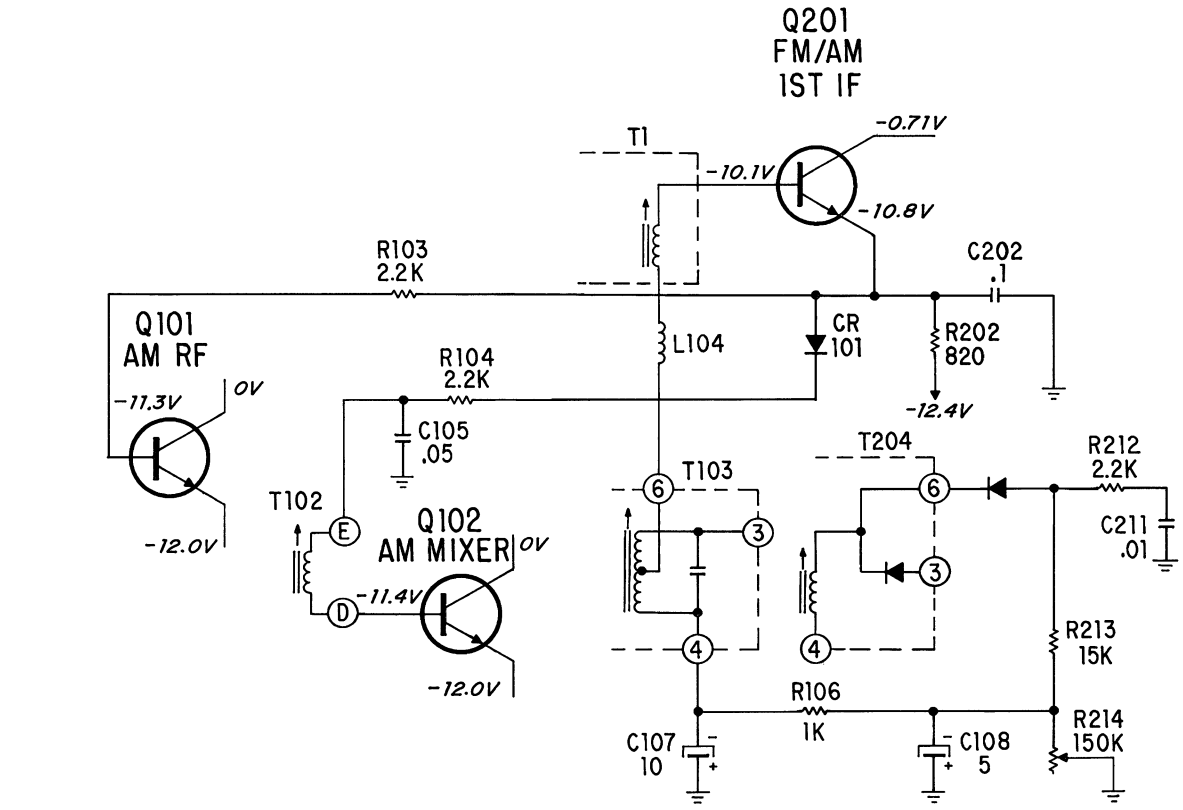


FIG. 2-9 AM-AGC

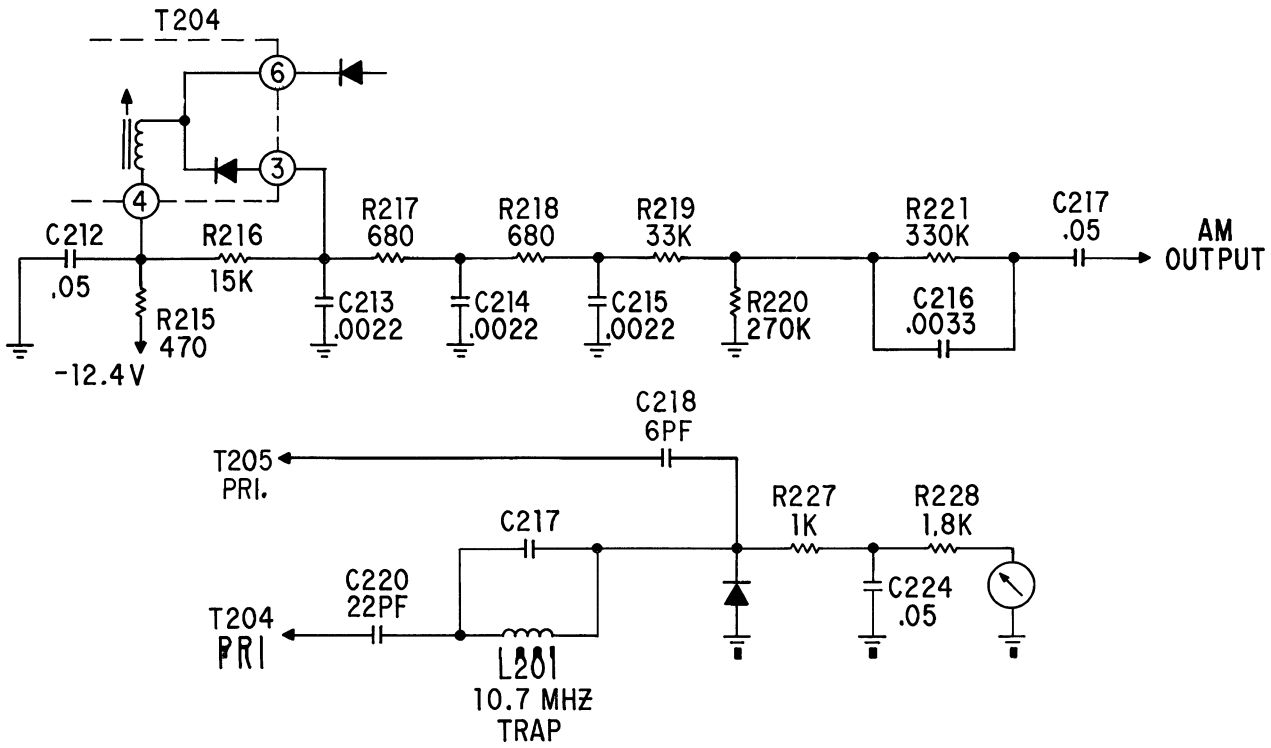


FIG. 2-10 AM-DETECTOR AND TUNING METER

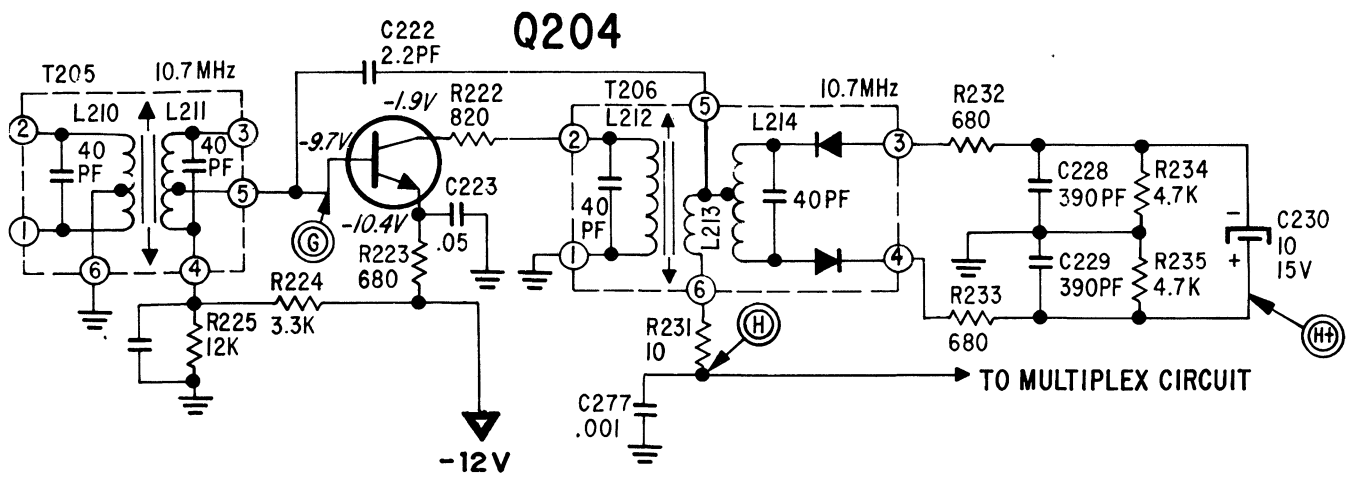


FIG. 2-11 FM-RATIO DETECTOR

station to which we are tuned is also broadcasting 67 KHz store cast material that cannot be allowed to enter the multiplex detector or distortion will result, then a very high "Q" trap with approximately 30 db of attenuation must be placed in the path of composite signal. By tuning this 67 KHz trap for minimum output we eliminate all of the 67 KHz SCA information from being passed on through the multiplex detector where it would cause cross talk and distortion.

COMPOSITE AMPLIFIER

Now that the 67 KHz SCA material has been eliminated it is necessary to amplify the remaining three elements of the composite signal. These are fed into the composite amplifier (Figure 2-12), which has a gain of approximately 6. In the collector circuit, the output of this composite amplifier is fed to two channels. The L + R audio voltage and the 38 KHz L - R upper and lower sidebands are fed directly to the base of the biplex detector, and await recombination with the developed 38KHz sub-carrier as well as simultaneous detection, into L and R audio voltages. The 19 KHz signal is taken off the secondary of T302 and fed to the base of the 19 KHz pilot amplifier.

19KHz PILOT AMPLIFIER AND DOUBLER

The 19KHz pilot signal from the collector of the composite amplifier is fed into a 19KHz amplifier with both input and output circuits sharply tuned to 19KHz. This is done to eliminate any undesired signals from triggering the 19KHz pilot amplifier (Figure 2-13). To insure that the 19KHz pilot amplifier will only operate on signals of sufficient amplitude for practical noise free stereophonic reception, a mute voltage is impressed on the emitter of this transistor. Under static conditions, the transistor is biased at cutoff and is not conducting. The amount of reverse bias or mute voltage on the base of the 19KHz amplifier is controlled by the 50K ohm mute control. When the incoming 19KHz pilot signal peak to peak voltage is sufficient to overcome the back bias or cutoff condition of the 19KHz amplifier, then this transistor will conduct. It requires a 19KHz pilot signal of approximately 1.8 volts peak to peak to do this. When the incoming 19KHz signal is sufficient to cause the 19 KHz amplifier to conduct, it amplifies and passes signal on to the secondary of T303, which is center tapped. Two solid state diodes CR301 and CR302

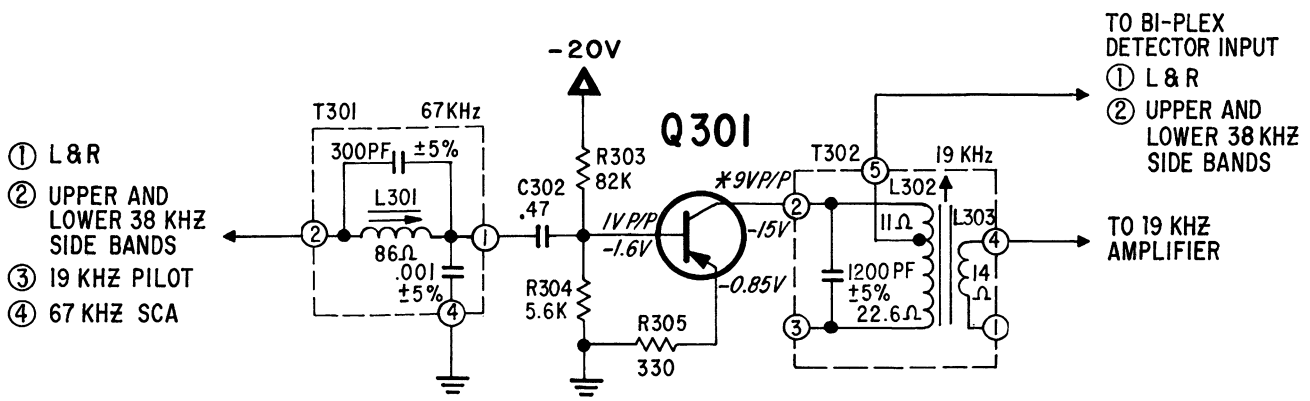


FIG. 2-12 67 KHz TRAP AND COMPOSITE AMPLIFIER

operate as a full wave unfiltered rectifier, across this secondary and act as a frequency doubler. The output of this full wave rectifier is a series of 38KHz DC pulses. These 38KHz DC pulses perform two functions. These DC pulses are fed through a 820 ohm resistor and are filtered by the 5 mfd capacitor connected to ground. A DC voltage will be developed which will be fed back to the base of the 19KHz amplifier. As this DC voltage increases the conduction of 19KHz amplifier will greatly increase effectively locking the 19KHz amplifier in a state of heavy conduction. This amplifier will remain in conduction until the 19KHz pilot signal is lost.

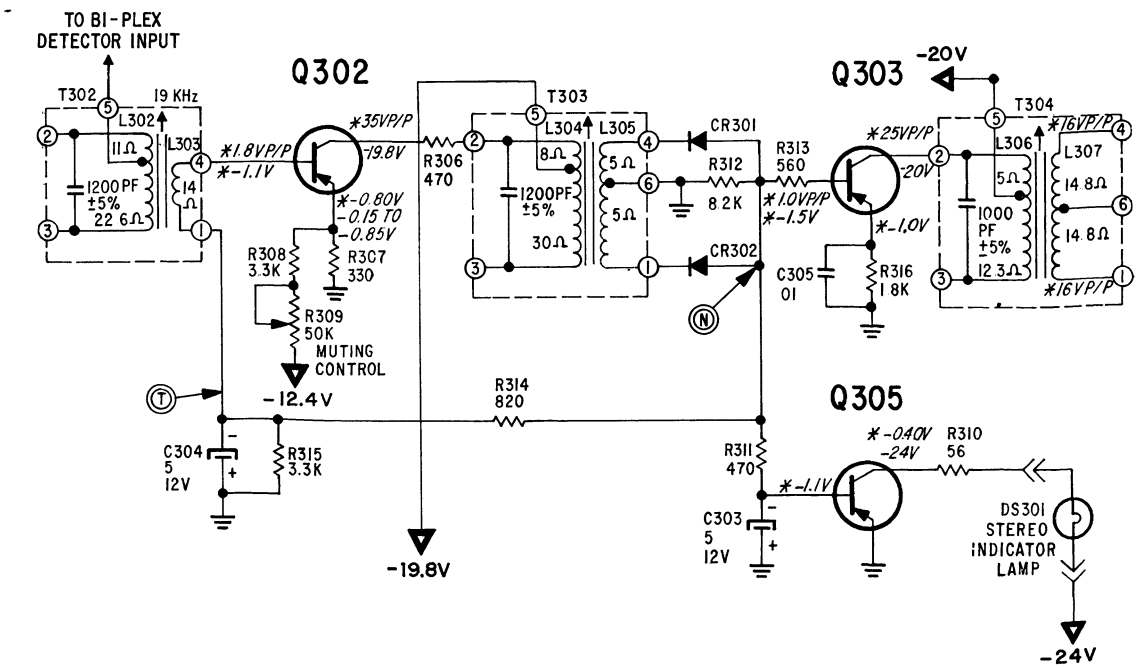


FIG. 2-13 19 KHz AMPLIFIER, DOUBLER AND STEREO INDICATOR SWITCH

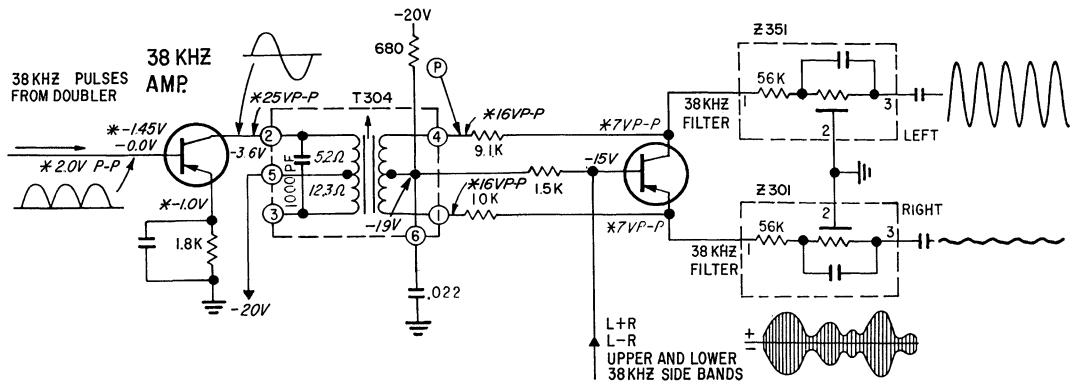


FIG. 2-14 BIPLEX DETECTOR

STEREO INDICATOR SWITCH

The stereo indicator switch transistor and the stereo indicator lamp are in series with a voltage (Figure 2-13). They could be compared to a series resistance group with the stereo indicator switch being a variable resistor and the stereo indicator lamp as being a large fixed resistor. In the monaural mode there is zero volts on the base and a -24 volts on the collector with the emitter grounded. In the monaural mode this transistor is reverse biased and is not conducting. When a 19KHz signal is sufficiently strong to trigger the 19KHz amplifier, the switch transistor will begin to conduct. As this occurs, the collector voltage drops toward zero volts and the indicator lamp begins to draw current, illuminating the lamp, indicating that the receiver is operating in the stereo mode.

38KHz SUBCARRIER AMPLIFIER

Another portion of the 38KHz DC pulses from the doubler is used to create the 38KHz carrier for insertion with the two L - R 38KHz sidebands. These pulses are fed to the base of the 38KHz amplifier transistor (Figure 2-14). The collector circuit of the 38KHz amplifier is tuned to 38KHz and when pulses are injected into a resonant circuit so that the pulses and the tuned circuit are of the same frequency, ringing occurs in the tuned circuit. . .in this manner a sine wave is created. Looking at the collector of the 38KHz amplifier, you would see a 38KHz sine wave. This 38KHz sine wave (subcarrier) is now ready for reinsertion with the two L - R 38KHz side bands that were obtained from the output of the composite amplifier.

THE BIPLEX DETECTOR

The 121-734 PNP transistor used in the Biplex detector circuit of the 29AT24 although not a bilateral transistor exhibits bilateral characteristics. As a result its function can be best explained by the operation of a normal bilateral transistor.

A bilateral transistor is a special type transistor that due to its uniform design, the collector will serve as the emitter and the emitter will serve as the collector under certain conditions. When switched by a properly applied AC voltage, in push-pull, sufficient in value to overcome the cut-off bias normally applied, the bilateral transistor will pass current in both directions in accordance with the alternations of the switching voltage. The switching voltage in this case is the regenerated 38 KHz subcarrier signal.

The transistor is not biased in the conventional manner. For the following refer to Figure 2-14. The base is biased at -15 volts, while the collector and emitter are both biased at -19 volts (as shown at the center-tap, terminal No. 6 of transformer T304.) The -19 and -15 are obtained from the voltage divider consisting of the 1.5K & 680 resistors. Note that the collector and emitter are connected to the opposite ends of the 38KHz output transformer secondary winding (part of T304). Under no-switching voltage conditions, the transistor is biased to cut off due to the 4 volts difference between the -15 volts at the base and the -19 volts at the emitter. To forward bias the transistor, to cause current to flow, the voltage at the emitter must be positive or less negative than the voltage at the base. This required forward bias is supplied by regenerated 38 KHz subcarrier (a CW signal) when the value of the 38KHz voltage exceeds the reverse bias.

Referring to Figure 2-15 showing the input and output waveforms of the 38KHz switching signal only, note that the upper 38KHz input wave supplies the positive bias from the emitter to the base on the first half-cycle, while at the same time, the lower wave supplies the negative bias from the collector to the base. During the second half-cycle just the reverse is true, but the action of the transistor is the same, due to the bilateral effect.

An important point here is that because the transistor has bilateral characteristics, the emitter is as shown in the schematic for the first half-cycle but the emitter and collector change places when the switching signal changes polarity in the second half-cycle. As a result, current flows between the collector and emitter in both half-cycles, reversing directions in accordance with the alternations of the 38KHz switching signal. The path of current flow in the external circuit is

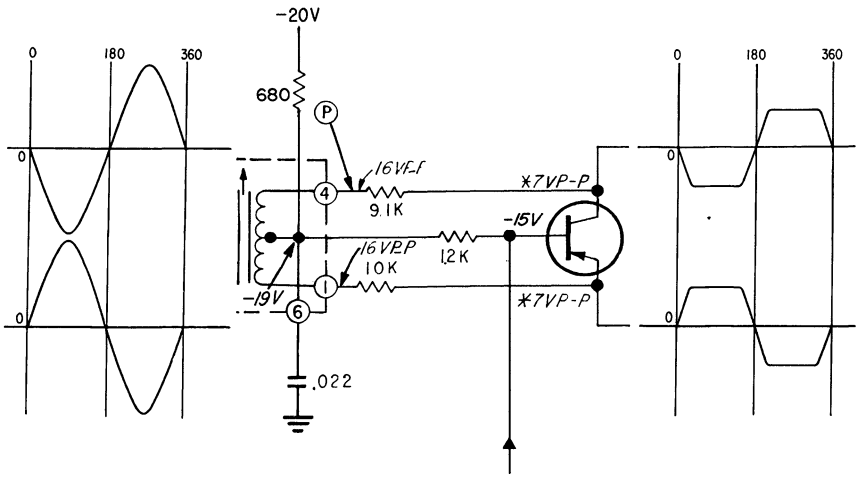


FIG. 2-15 BIPLEX DETECTOR WITH THEORETICAL 38 KHz INPUT AND OUTPUT WAVEFORMS

through the two load resistors (9.1K and 10K) and the secondary winding of T304. The output is taken from across the emitter and collector of the transistor.

Referring to Figure 2-16 showing input and output waveforms for operation of the circuit with 38KHz & (L-R) 38KHz side band inputs. Note that the composite stereo signal, taken off in the receiver from (T302) the collector load for the composite amplifier and is applied to the base of the transistor while it is being switched at the 38KHz rate. The composite signal consists of two interleaved components, the (L + R) or regular audio signal and (L - R) 38KHz sidebands. The (L + R) signal can appear at the L and R output terminals only by the way of the T302 transformer secondary, because any (L + R) signal passing through via the base of the transistor is modulated upward and out of the audio range by the 38KHz switching signal. The demodulated (L - R) signal can appear at the L and R output terminals only by way of the base circuit of the transistor, because the two (L - R) 38KHz side bands are greatly attenuated at pin 6 of the transformer (T304) by the network consisting of the 1.5K & 680 ohm resistor to B-, shunted by the .022 MF capacitor to ground.

In operation, the (L + R) audio signal appears at the "L" and "R" output circuits in equal magnitudes of the same polarity. The relatively few turns of wire in the 38KHz transformer secondary winding represents a low impedance path for the (L + R) signal. The (L - R) 38KHz side bands are demodulated by

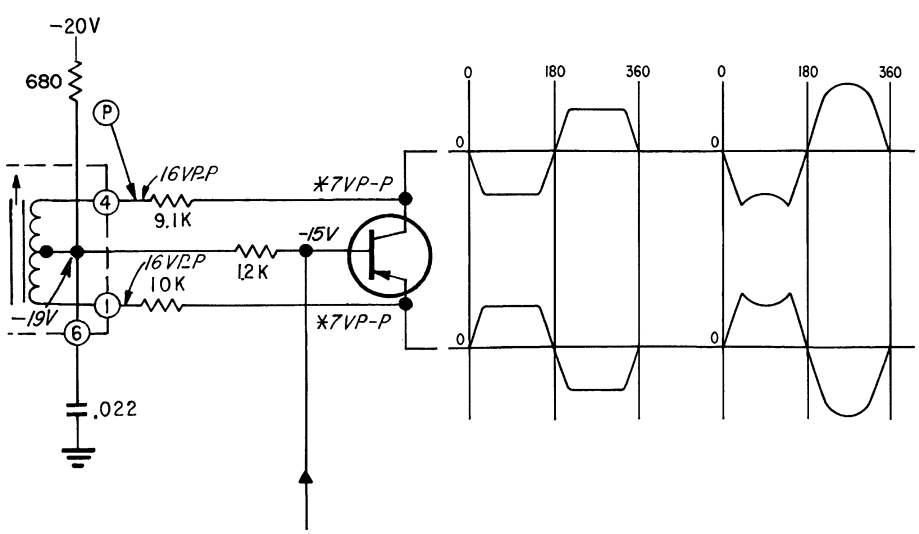


FIG. 2-16 BIPLEX DETECTOR WITH THEORETICAL 38 KHz SIDE BAND OUTPUT WAVEFORMS

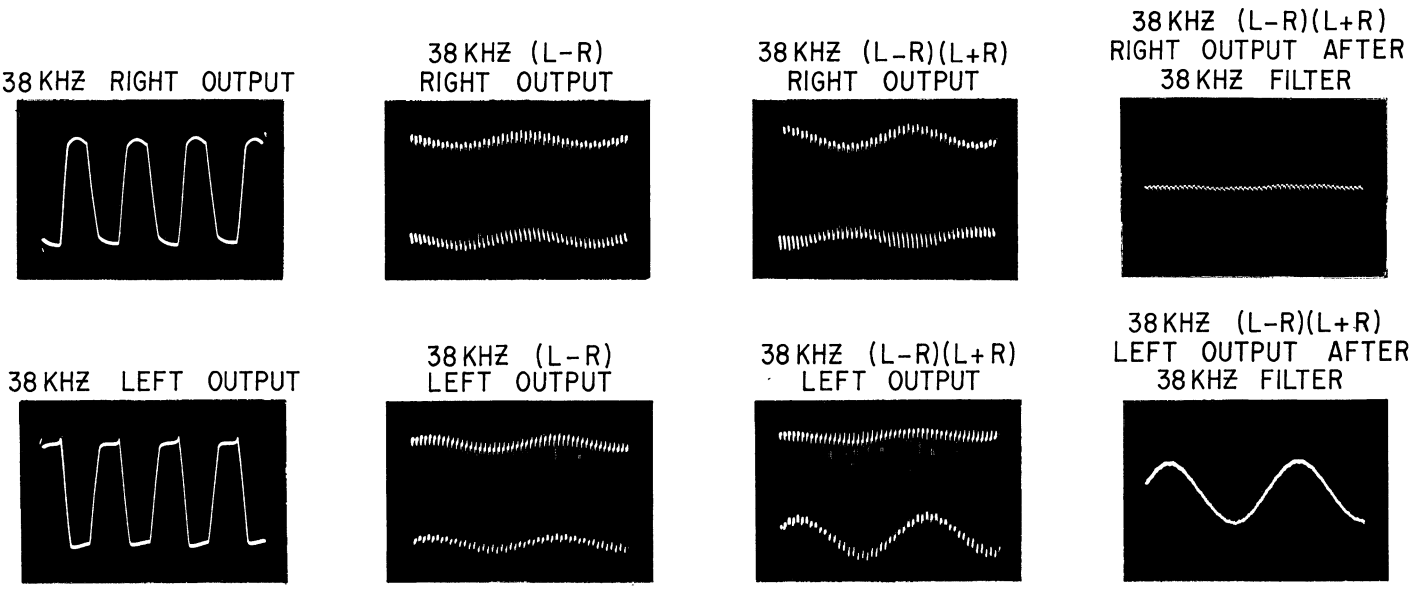


FIG. 2-17 BIPLEX DETECTOR SIGNAL TRACING WAVEFORMS

the action of the transistor into two equal amplitude but opposite polarity (L - R) regular audio signals in the same L and R outputs circuits. The biplex transistor circuit thus acts to reinsert the 38KHz CW (the subcarrier) into the (L - R) 38KHz side bands and at the same time demodulates this signal into the (L - R) audio signal and also provides the matrixing of the two sets of audio signal (L + R) and (L - R) according to the formulae:

$$(L - R) + (L + R) = 2L$$
$$-(L - R) + (L + R) = 2R$$

The demodulation efficiency of the Multiplex "average type" detectors used previously was around 30%. The demodulation efficiency of the Biplex Detector circuit is around 60%. Furthermore, the L and R channel separation is improved about 6DB at the higher audio frequencies between 8KHz and 15 KHz. The present circuit is designed to provide about 25 db of separation of the L and R signals at 1000 cycles.

One of the most desirable features of the Biplex detector is that when tuning across the dial, both stereo and non-stereo (monophonic) stations are received at approximately the same volume level.

During monophonic (non-stereo) FM transmissions, the 19KHz pilot signal is not transmitted. If the 38KHz switching signal is not applied to the transistor, it will remain at cut-off. In this case the (L + R) audio signal will be divided equally in the two channels via the two half-sections of the transformer (the secondary winding of T304).

SIMPLIFIED CHECK OF THE BIPLEX TRANSISTOR

A simple quality check on the biplex transistor can be made as follows:

Connect a large (5-10MF) capacitor from pin 6 of the transformer T304 to chassis ground, to kill the signal at this point so that only the (L-R) signal is obtained in the output via the base of the transistor.

The transistor is good, if after tuning across the dial only stereo stations are received. The transistor is defective, if both stereo and non-stereo stations are heard at or near the same volume level. (The stereo stations will light up the stereo indicator lamp.)

TOUCH SWITCHING CIRCUITS

Zenith Engineers have incorporated in the design of this chassis new developments resulting from advances in solid-state components. Selection of FM, AM, PHONO, TAPE, STEREO/MONO, and EXTENDED BASS is accomplished by the use of various solid-state devices including: Diodes, Silicon Controlled Rectifiers (SCR), and Field Effect Transistors (F.E.T.). Fig. 2-18 shows the component side of the circuit board, while Fig. 2-19 is the schematic for the circuit board and related circuits.

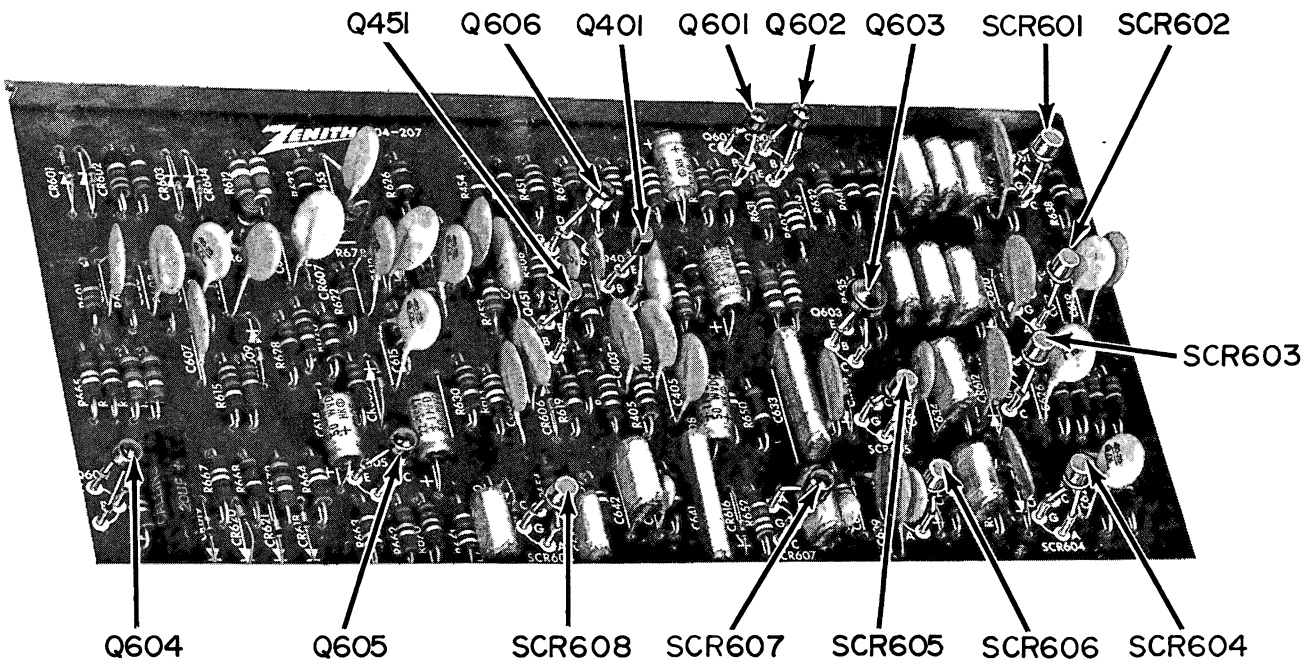


FIG. 2-18 FUNCTION SWITCH CIRCUIT BOARD

Before going into circuit operation, refer to the block diagram of Fig. 2-20. Audio sources are developed in the conventional manner, but each of the six functions has its own control circuits which are activated by touch contacts located on the control panel. When either the AM, FM, PHONO, or TAPE function is selected the three remaining functions are deactivated. If the amplifier is operating in the STEREO mode and the AM function is activated, additional circuits will automatically switch into monaural reproduction. In addition to switching audio, "B-" voltage to the 38 KHz amplifier is also switched "on" and "off" by the STEREO/MONO circuits. "B-" voltages to the FM and AM tuners are also switched by solid-state devices. Operation of the EXTENDED BASS circuits are also controlled from the panel. Active functions are identified by their associated illuminated indicators.

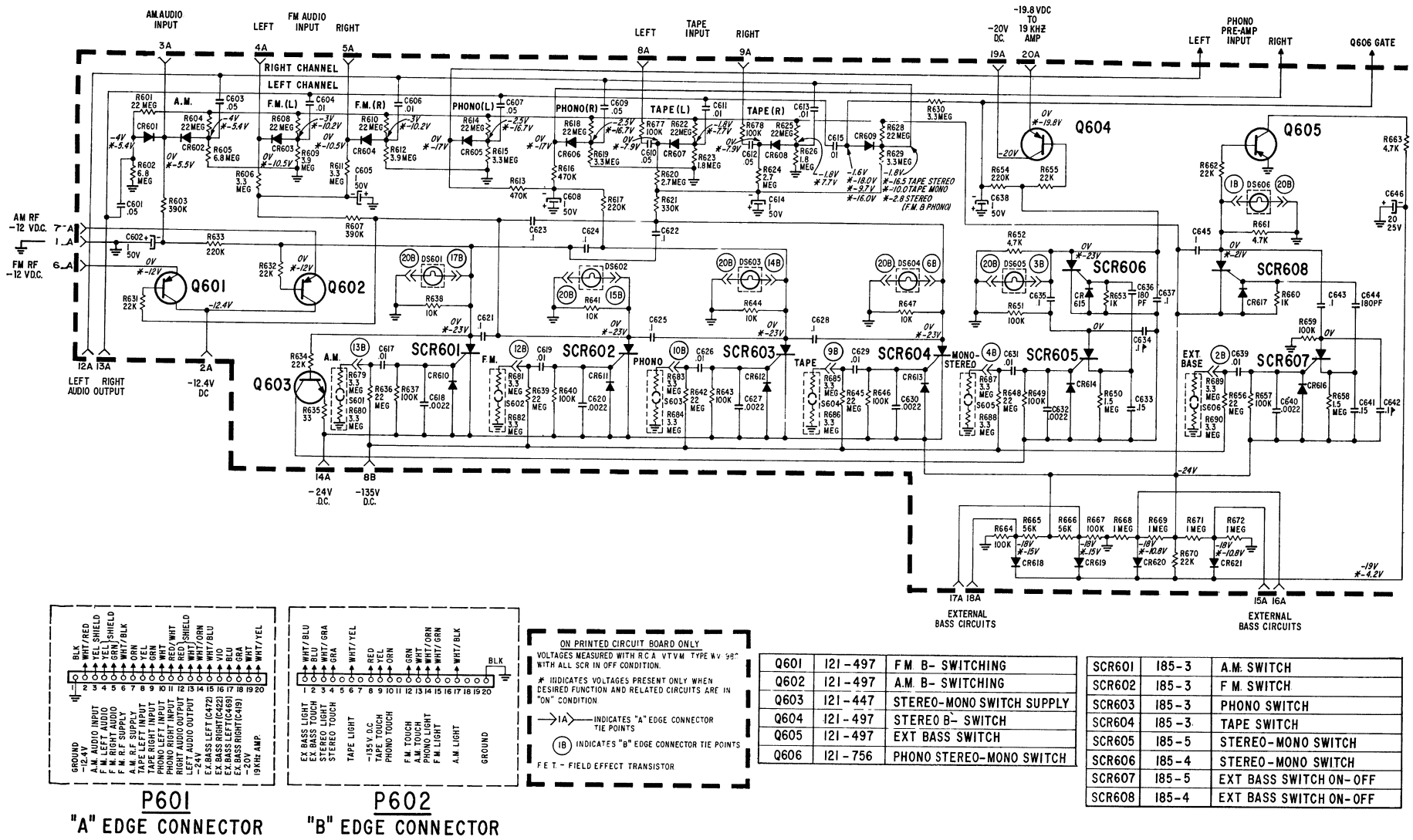
Fig. 2-21 shows the FM and AM control circuits. Touch contacts for each function are made of a pair of semi-circular contacts insulated from each other. When the FM contacts are bridged, a voltage divider circuit consisting of R639, R681, and R682 will be completed to ground resulting in a voltage change at the junction of R639 and R681. This change will appear as a positive going pulse, via C619, to the gate of SCR602.

A voltage in the forward bias direction, but of a value below that required to cause conduction, is applied between SCR602's cathode and anode. When a positive pulse, of the proper value, is applied to the SCR gate, the SCR is "gated" into conduction and will carry high forward current. Current will flow from the "-24" volt line (regulated by a zener diode), through the SCR and the parallel combination of indicator lamp DS602 and resistor R641, causing the lamp to illuminate indicating FM operation. Should the lamp open, due to a failure, the circuit can still operate since the resistor is in series with the SCR.

As current flows through SCR602 anode voltage will go negative, and will be used for related control applications. One of these is to apply a negative voltage to the base of Q601. Since Q601 is a PNP transistor the negative voltage will forward bias it, resulting in high conduction through its emitter-collector circuit, "switching on" the FM RF tuner "B-" supply.

Negative going voltage is also applied to the cathodes of diodes CR603 and CR604. Voltage dividers consisting of R608, R609, and R610, R612 have established a fixed voltage at the anode ends of these diodes. With a negative voltage on the cathode and a positive voltage on the anode these diodes are forward biased. Audio from the FM Bi-plex outputs will see these diodes as conductors with the audio being fed to the left and right channel outputs via C604 and C606.

Similar actions occur when the AM circuits are activated. SCR601 will conduct, developing a negative anode voltage which is coupled via R632 to the base of transistor Q602, turning on Q602 which is the AM RF tuner "B-" supply switch. This negative voltage is also applied to the common cathode junction of diodes CR601 and CR602. These diodes are now forward biased and the AM audio will be fed to the left and right channels via the diodes and C601 and C603.



Q601	121-497	F.M. B- SWITCHING
Q602	121-497	A.M. B- SWITCHING
Q603	121-447	STEREO-MONO SWITCH SUPPLY
Q604	121-497	STEREO B- SWITCH
Q605	121-497	EXT BASS SWITCH
Q606	121-756	PHONO STEREO-MONO SWITCH

SCR601	185-3	A.M. SWITCH
SCR602	185-3	F.M. SWITCH
SCR603	185-3	PHONO SWITCH
SCR604	185-3	TAPE SWITCH
SCR605	185-5	STEREO-MONO SWITCH
SCR606	185-4	STEREO-MONO SWITCH
SCR607	185-5	EXT BASS SWITCH ON-OFF
SCR608	185-4	EXT BASS SWITCH ON-OFF

FIG. 2-19 FUNCTION SWITCH CIRCUIT SCHEMATIC

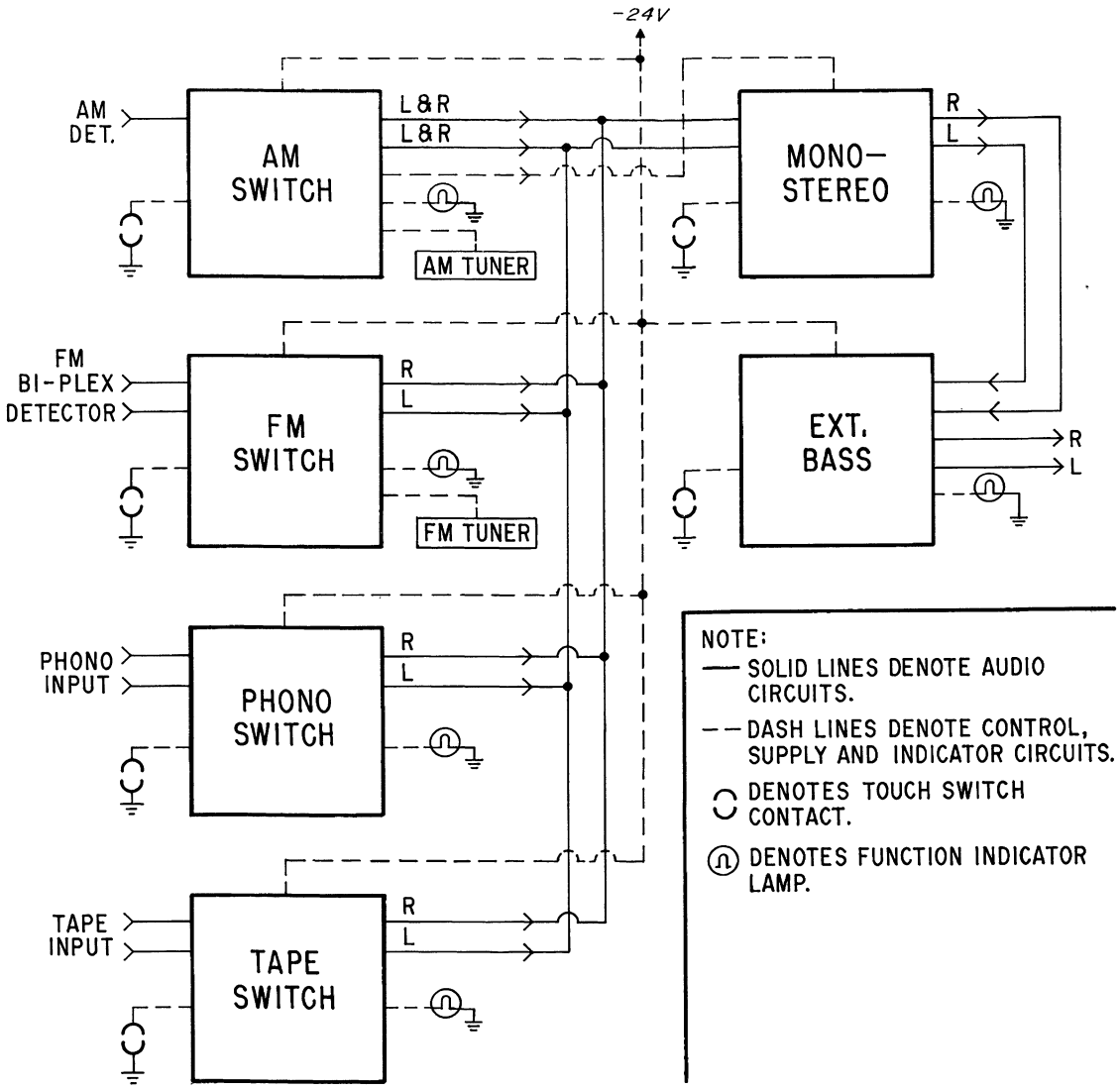


FIG. 2-20 FUNCTION SWITCH BLOCK DIAGRAM

One additional application occurs when in AM. Negative voltage from SCR601's anode is coupled to the base of NPN transistor Q603, which will hold Q603 at cut-off. When SCR601 is "off", Q603's base will be at approximately zero volts, forward bias will exist, and Q603 will act as a switch supplying approximately -23 volts to the STEREO/MONO SCR circuit (SCR 605, 606). Notice that -24 volts from the zener controlled source has been supplied to all SCR cathodes except SCR605 and SCR606. This was done to provide automatic switching into the monaural mode for AM and will be explained as part of the STEREO/MONO circuit.

Assume that the AM function was turned "on". Current would flow not only through SCR601 and resistor R638, but there would also be current flow via R641 which would have charged C621 to the polarity shown in Fig. 2-22. When the FM circuit is "gated on", C621 will discharge via the low resistance path offered by SCR601. This discharge current would flow through SCR601, but as a reverse current, causing a reduction of effective current flow in SCR601. The value of current flowing would fall below the holding current required, causing SCR601 to "switch off".

Diode CR610 is connected between the cathode and gate of SCR601 so it is reverse biased when SCR601 conducts and forward biased when SCR601 is "switched off" to speed up the "switch-off" time. Capacitor C618 prevents "switching on" of SCR601 on transients, noise or other false pulses on the gate.

If the FM, PHONO or TAPE functions are "on", activating the

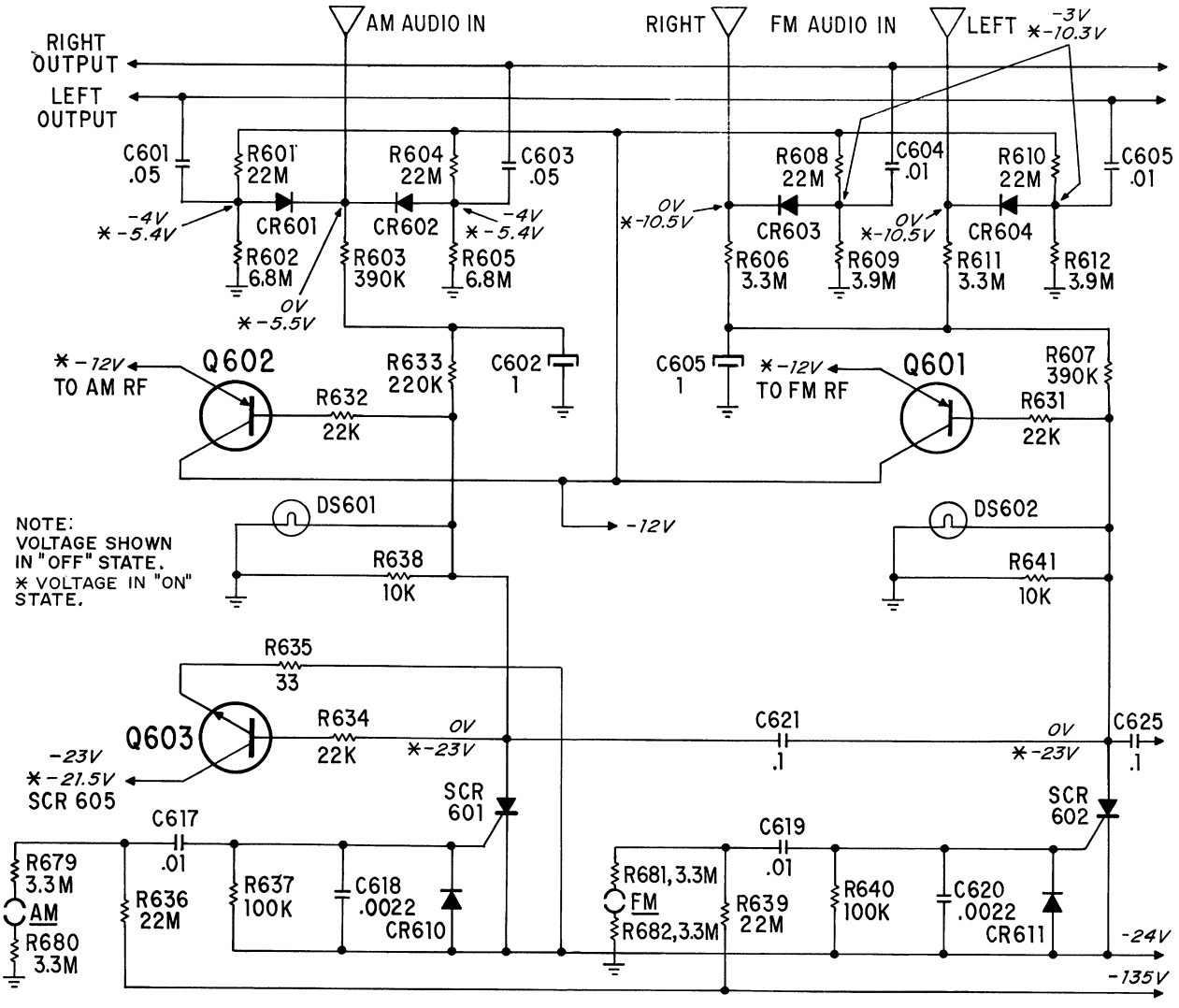


FIG. 2-21 FM/AM SWITCH CIRCUITS

STEREO/MONO contact will cause either of two actions to occur. If SCR606 is not conducting (MONO), SCR605 will be triggered "on" with a positive gate pulse (Fig. 2-23). Current will flow through resistor R650 and charge C633, developing a positive pulse across it which will be applied via C636 to the gate of SCR606, turning SCR606 "on". "B-" current will flow in the collector circuit of Q603, through SCR606 and indicator DS605 (STEREO). SCR605 cannot maintain conduction, except when C633 is charging during the initial pulse, because resistor R650 (1.5 Meg) is a high value and the holding current of SCR605 is below the value required to sustain conduction. SCR606 will latch because of the low resistance of its cathode/anode circuit. Capacitor C633 will discharge thru R650 when SCR605 is "off". If SCR606 is conducting (STEREO), any pulse appearing on SCR605's gate will cause a momentary negative going pulse on its anode, and via capacitor C635 to the SCR605 anode. This will result in reduced forward current in SCR606 causing current to drop below the holding valve. SCR606 will stop conducting and operation returns to the MONO mode.

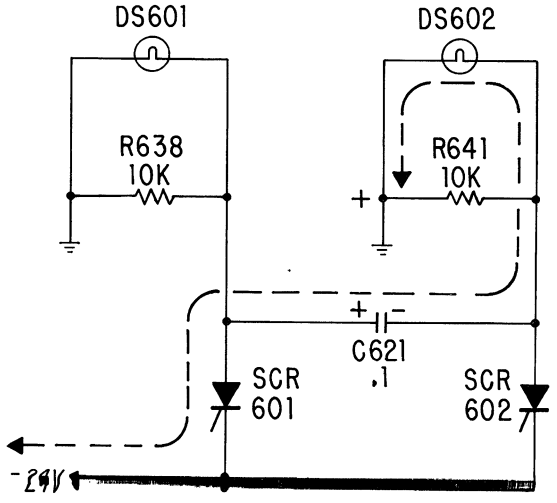


FIG. 2-22 SCR "SWITCH OFF" OPERATION

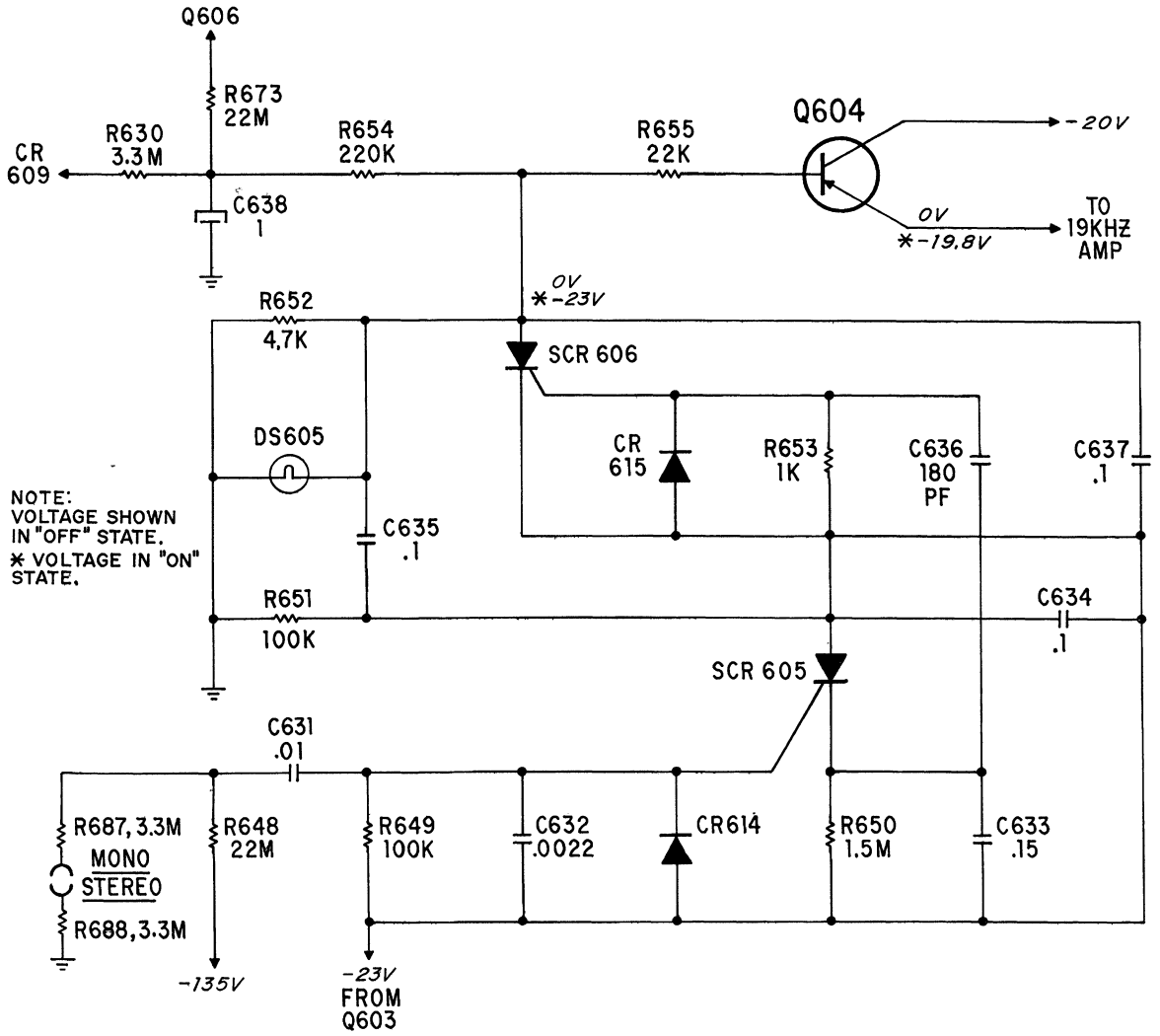


FIG. 2-23 STEREO/MONO SWITCH CIRCUITS

Transistor Q604's base voltage will go negative when SCR606 is "on" (STEREO). This will cause Q604 to be forward biased and turn "on" "B-" voltage to the 19 KHz multiplex amplifier circuit for control of FM STEREO/MONO operation. Tape and Phono are controlled by other methods as will be explained under Tape and Phono operation, but notice that there are circuits, from SCR606's anode, to both the FET (Q606) and CR609 for Stereo/Mono control in the Phono or Tape functions.

Activation of the TAPE circuit will cause operation similar to the FM and AM functions (Fig. 2-24). When SCR604's anode is negative, diodes CR607 and CR608 will "switch" the TAPE Input audio to the audio output.

STEREO/MONO switching of the TAPE function is accomplished by the choice of voltages on diode CR609. This diode and capacitor C615 are series connected between the left and right output channels so that when CR609 is forward biased (MONO-TAPE) monaural operation will occur and stereo operation when CR609 is reverse biased. When in the Tape function, negative voltage from the anode of SCR604 is applied to CR609's cathode. The voltage on CR609's anode will depend on the state of SCR606. When SCR606 is "on" diode CR609 will be reverse biased, presenting a high resistance between channels, however when SCR606 is "off" the diode will be forward biased and audio will see it as a conductor between channels resulting in monaural operation.

Phono circuits are shown in Fig. 2-25. When the phono function is activated negative voltage on SCR603's anode is used to forward bias diodes CR605 and CR606 which switch the phono audio (which will be explained shortly) to the output.

Anode voltage of SCR606 (Fig. 2-23) is also applied via resistor R654 to the gate of Q606 a Field Effect Transistor (F.E.T.). Fig. 2-26 is the audio input from the phono cartridge and also the STEREO/MONO switching for the phono input. Should SCR606 be "off" there will be no voltage on its anode and voltages on the F.E.T. (Q606) will be: Drain and Source -3 volts, Gate -2.5 volts. Under this condition the FET is conducting, presenting a short circuit audio wise. The left and

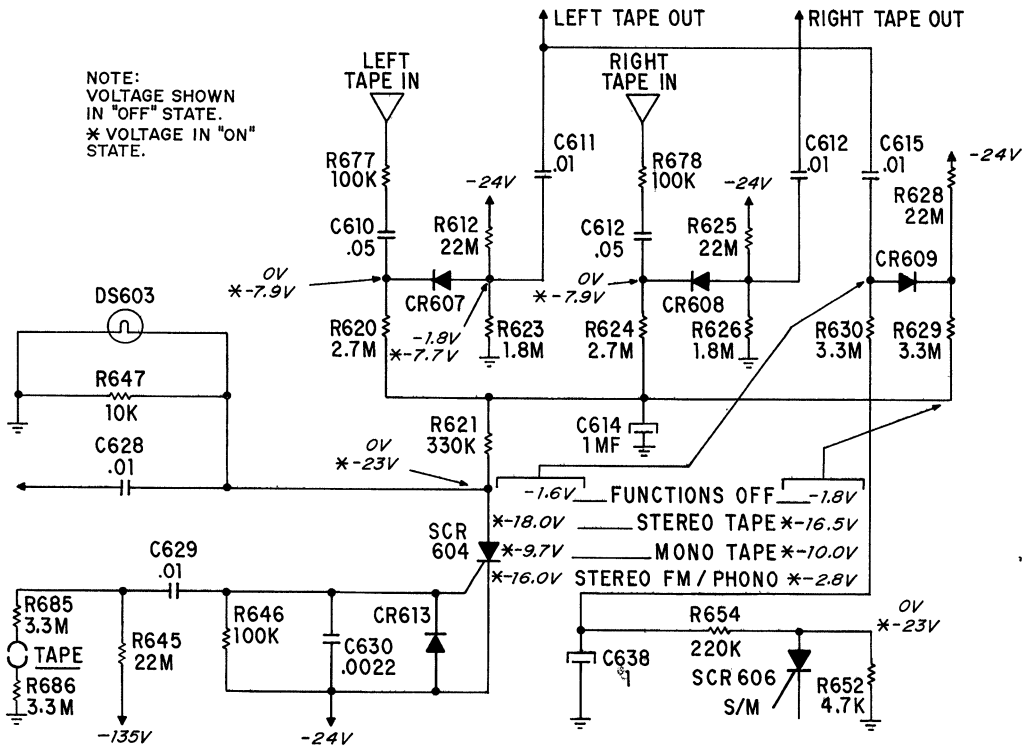


FIG. 2-24 TAPE SWITCH CIRCUITS

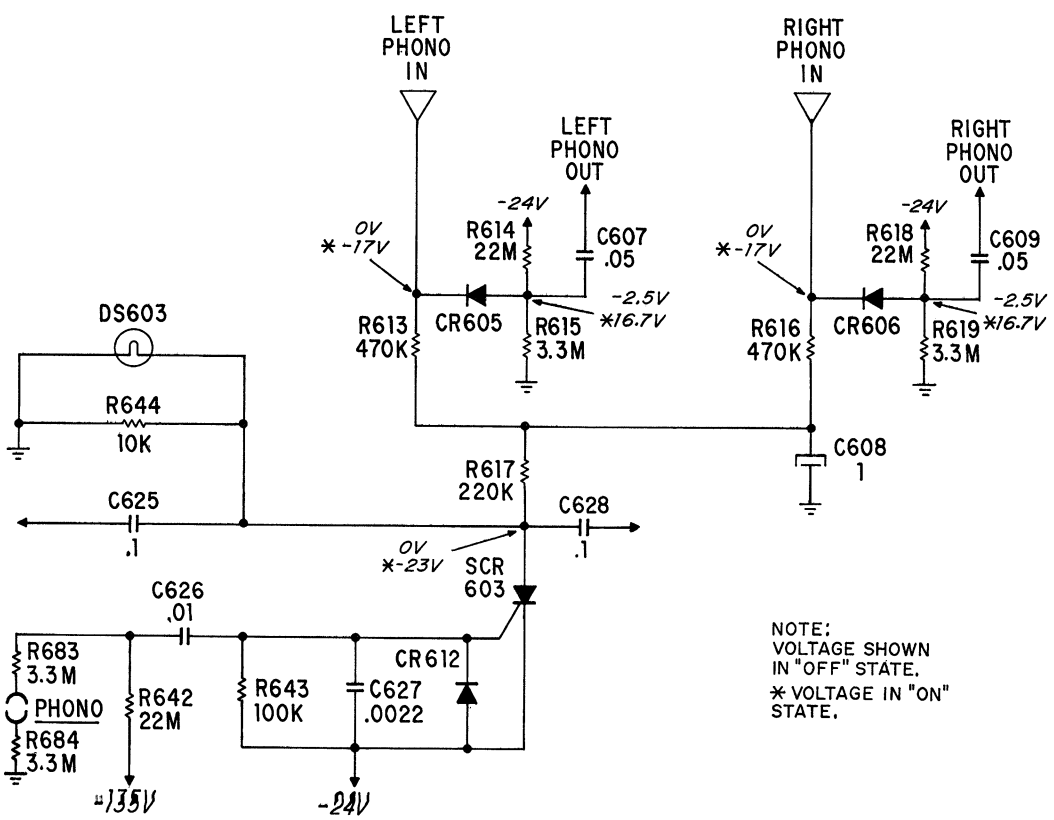


FIG. 2-25 PHONO SWITCH CIRCUITS

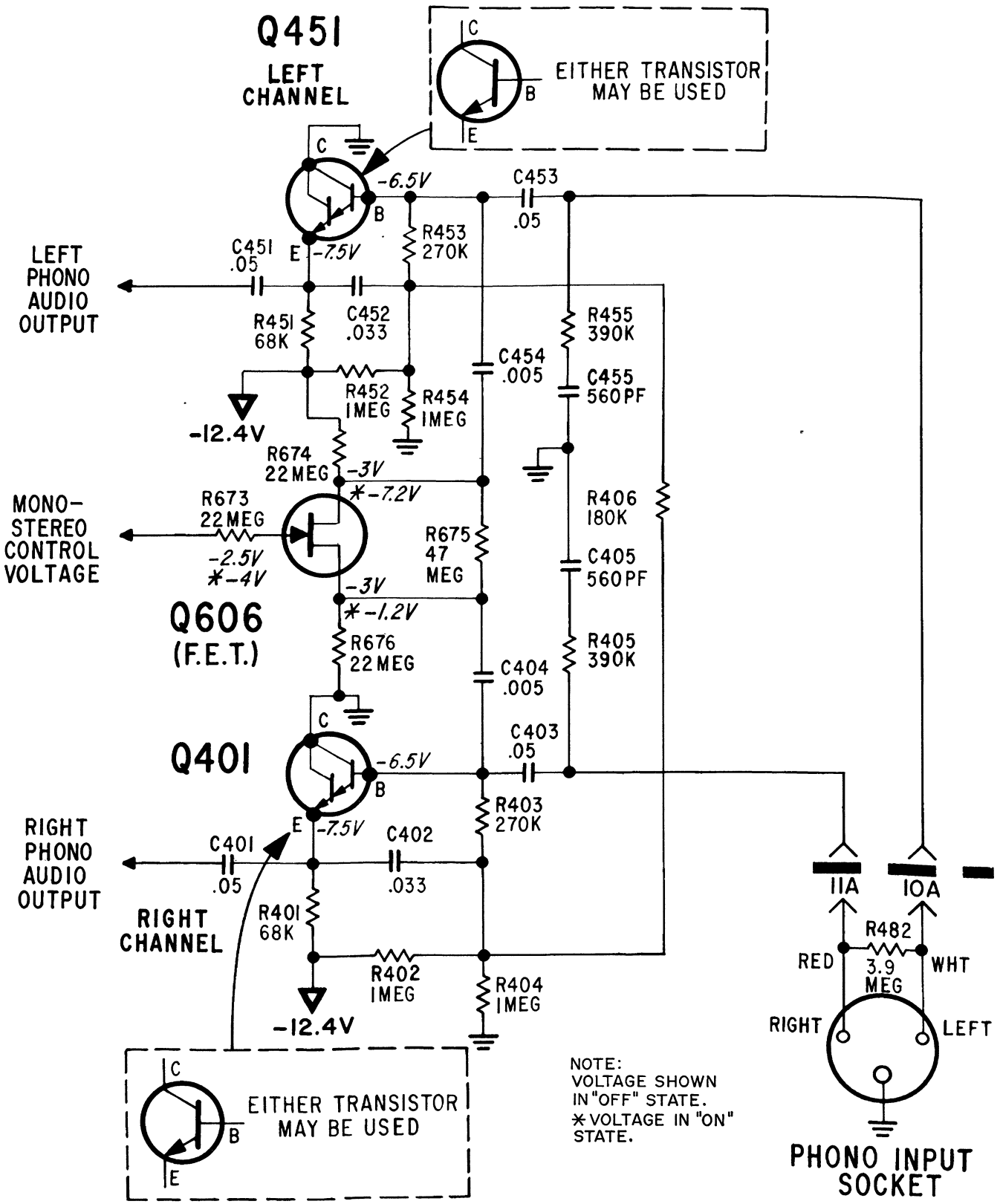


FIG. 2-26 PHONO STEREO/MONO SWITCH AND AUDIO PREAMPLIFIER CIRCUITS

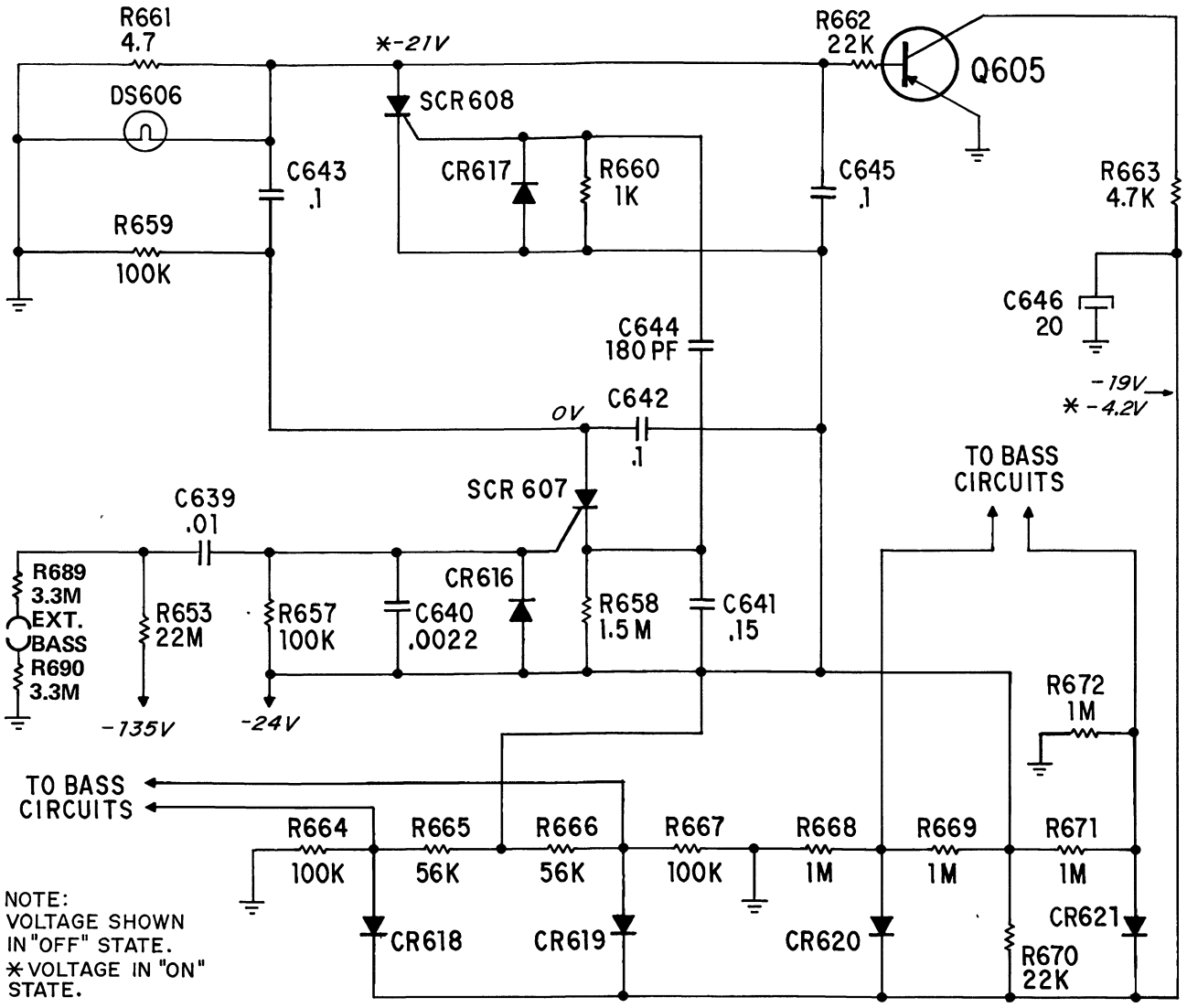


FIG. 2-27 EXTENDED BASS SWITCH CIRCUITS

right phono audio is connected together via C404 and C454, placing the two stereo signals from the cartridge in parallel, resulting in monaural reproduction.

During the time that SCR606 is on (STEREO) a negative going voltage is also applied to the F.E.T. gate. This results in a reduction of current flow through the Drain/Source channel and the channel will appear as a high resistance in series with C404 and C454 between channels maintaining the circuit in the stereo mode.

Phono input is fed to a pair of transistors (Q401 and Q451) which are operated in the emitter follower configuration.

Extended Bass Operation is similar to the Stereo/Mono function. Activating the EXT. BASS circuit causes a positive pulse on the gate of SCR607 (which is a momentary action device due to C461 (.15MF) and the 1.5 meg. resistor) see Fig. 2-27. A positive pulse will be developed across R658 and C641 and coupled to the gate of SCR608, turning SCR608 "on" and illuminating DS606, the EXT. BASS indicator. The negative SCR anode voltage is used to turn "on" Q605 to supply a reverse bias voltage for diodes CR618, CR619, CR620, and CR621. These diodes are used to "switch" the tone compensating circuits resulting in an increased bass audio response.

If SCR608 is "on" a pulse on the SCR607 gate turns it on momentarily developing a negative pulse which is applied via C643 to the SCR608 anode reducing SCR current to a point below the holding current value thereby "switching" the SCR608 "off".

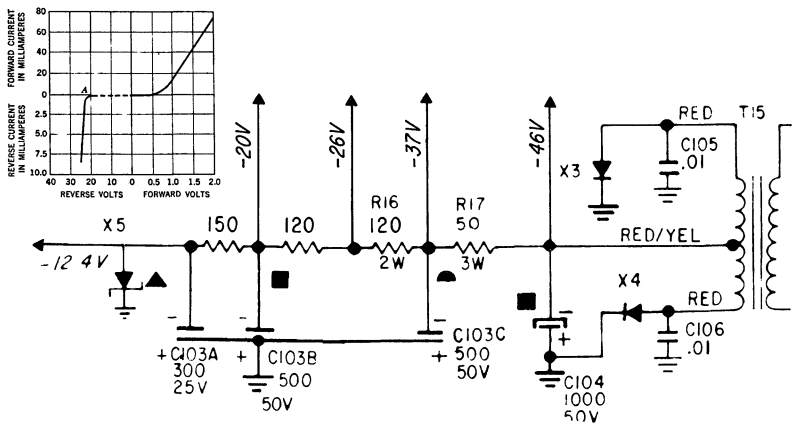


FIG. 2-28 ZENER DIODE VOLTAGE REGULATOR

ZENER DIODE VOLTAGE REGULATOR

In transistorized circuits it is extremely important that the voltage not vary more than ± 10% of the normal -12.4 volts. To hold these limits a zener diode is used as a voltage regulator. The characteristic curve of the zener diode is included with the power supply circuitry (Figure 2-28).

When a zener diode is biased in the forward direction, the current flow through the unit will rise quite sharply at fairly low biasing voltages. When it is reverse-biased; however, it will be found that the current is minute, on the order of microamperes, until a certain voltage, called the saturation voltage, is reached. At this point, the electrons or holes which form the leakage current and given sufficient energy to create other electron-hole pairs which add to the initial reverse current. This process builds up rapidly and leads to large increases in current for small further increases in voltage. The diode is now in the saturation region, and any attempt of the reverse voltage to rise is met by an increased current flow which tends to counteract the voltage increase and thus maintains a steady voltage drop across the diode. This is indicated on the curve where the characteristic curve at point A drops almost straight down. At this point any attempt to increase the reverse bias voltage is met by an increase in current, but practically no increase in voltage drop. In this state the Zener diode establishes a fixed voltage.

COMPLEMENTARY SYMMETRY

Output stages of most transistor amplifiers contain two transistors which are connected in a class "B" amplifier circuit. Both are normally a matched pair consisting of either two NPN or two PNP types. The class "B" circuit will provide greater efficiency in the use of current supplied to the output stage than would be true in the case of class "A" amplifiers.

Normal class "B" circuits have some limitations of frequency response due to driver and output transformers. A further limitation is cross-over distortion caused by one output transistor going into cut-off before the other output transistor has started to conduct. Cross-over distortion and the point of conduction are determined by the bias on the output stage.

Many bias circuits only consist of a resistance divider network and when supply voltage varies, bias voltage changes. This supply voltage change can become critical in battery operated amplifiers but must still be considered when operating on the AC power line. Another factor that adds to the problem of controlling bias is temperature change, which will cause reduced base-emitter junction resistance, resulting in increased base-emitter current flow. As the current flow in the base-emitter circuit increases both an increase in collector current and a change in base bias voltage will occur. This bias voltage variation results in a change of operating voltages accompanied by a change in distortion.

Cross-over distortion is heard due to high order harmonics and may be recognized as a discordant sound. When viewed on a scope the waveform may appear as a sinewave with straight sides or with a step between positive and negative half cycles. (The latter is most common.) (Fig. 2-29).

This distortion can be greatly reduced or eliminated by applying forward bias to the output stage. Forward bias will cause a small current to flow in the base circuit of each transistor and the bias voltage causes a shift in the zero base current points (of each transistor) which results in a smooth crossover between conduction of each output transistor. (Fig. 2-30)

With the development of complementary symmetry circuits we can eliminate the driver and output transformers and improve the frequency response of the amplifier. These transformers have provided the phase relation required to permit the class "B" push-pull output circuit to operate correctly. Proper signal phase will now be developed by the combination of the driver transistor type (NPN or PNP) and a matched pair of output transistors consisting of a NPN and a PNP.

A brief look at the complementary symmetry circuit (Fig. 2-31) will reveal that we have direct coupling between the

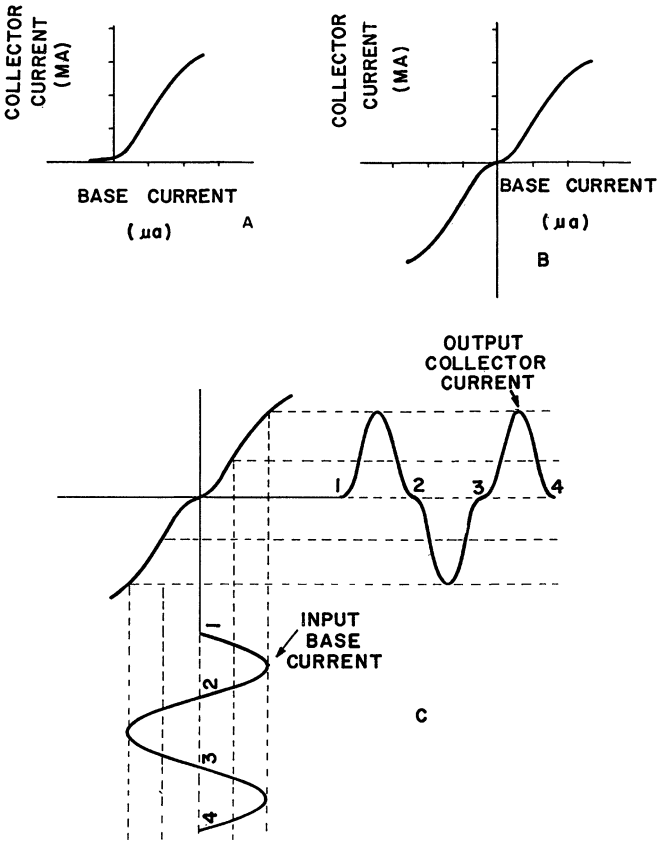


FIG. 2-29 CROSSOVER DISTORTION

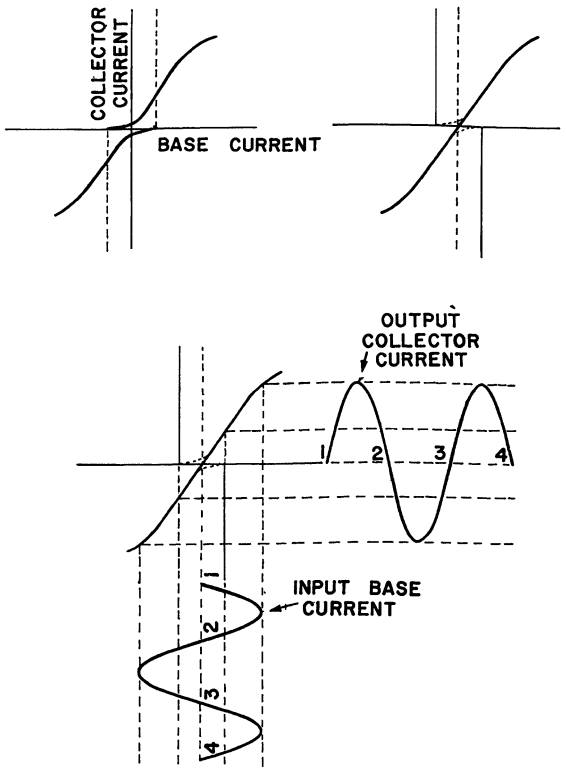


FIG. 2-30 DISTORTION REMOVED BY CLASS AB OPERATION

collector of the driver transistor, and the base of the output transistor nearest ground. The output circuit design is such that there is a center point between the emitters. This point has a DC voltage, which, under no-signal conditions, is equal to approximately one-half of the voltage on the collector of the transistor nearest the high side of the supply voltage. Connected to this center point are a feedback loop to the pre-driver emitter, a feedback loop through the 43K ohm resistor to the base of the driver transistor, and an output coupling capacitor to the speaker.

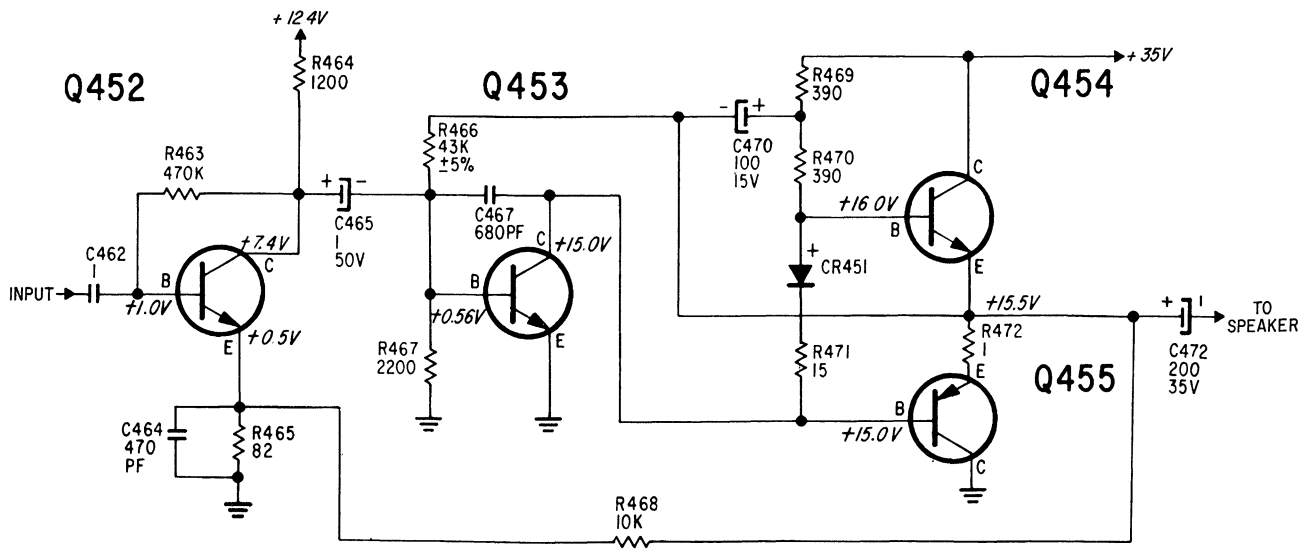


FIG. 2-31 COMPLIMENTARY SYMMETRY OUTPUT CIRCUIT

Between the base of each output transistor there is a series connected resistor-diode circuit. Bias voltage is developed across this resistor-diode combination and controls idling current in the output stage. Under no signal conditions voltage drops across the diode is equal to base-emitter voltages of the output transistors, plus voltage drop across the emitter resistor. Due to the very low value of the emitter resistor, and therefore voltage drop across it, voltage on the emitter can be considered to be same as the center point voltage. While many refer to this as a class "B" circuit, it should be called class "AB" due to the idling current.

A bias diode has non-linear voltage/current relationships which results in the following characteristics. Voltage across the diode falls more slowly than current flowing through it. Current would be approximately proportional to supply voltage. Voltage across the diode will decrease with rising temperature.

This non-linear diode voltage/current curve is similar to that of the output transistors allowing a near linear relationship to exist between diode and transistors. Under no-signal conditions both the diode and transistors will show similar effects due to any temperature change. If there is an increase in temperature both the diode and transistors will show increased current flow. The added current flow in the diode will offset increased flow in the transistor and stabilize bias voltage.

Since this diode has a low AC resistance any changes in current of driver stage results in less effect on the output stage than would be true with biasing resistors.

Operating conditions for the driver transistor are determined by base-emitter voltage and driver transistor beta. Also effecting the operating point are values of driver base resistor, feedback resistor to driver base, and two resistors in the driver's collector circuit. All these factors will effect voltage at previously mentioned center point.

When a negative going signal is applied to the driver base current gain of the driver is reduced. At the same time however, the charge on the high value electrolytic will maintain a near constant current through the resistor connected between base and emitter of the upper output transistor. This will cause voltage across the resistor to maintain almost a constant value, which in turn determines base-emitter bias of the upper transistor. Notice that current flow from this bias resistor goes not only through the diode and collector circuit of the driver transistor but also to base of the upper transistor. Current in this base circuit will determine the amount of transistor gain. As the upper transistor is conducting, the lower one is cut-off as a result of reverse bias which has been applied to it.

When a positive going signal is applied to the driver base, collector current of the driver will increase. The electrolytic will still maintain a near constant voltage across the bias resistor of the upper transistor. Under these conditions the upper transistor is now reverse biased to cut-off, and the lower transistor is conducting.

Since each output transistor conducts on alternating halves of each cycle, voltage change at the center point will result in an output signal that will duplicate input. Use of this complementary symmetry circuit will also result in a much reduced distortion and better frequency response.

ELECTRONIC FILTER

Chassis 11ZT27 contains a full wave rectifier circuit. This is followed by a silicon transistor Q11 (No. 121-726, connected as an emitter-follower) which functions as a capacity multiplier in the filter circuit.

Output of the rectifier diodes (SE1 and SE2) is approximately 41 volts DC with a ripple of less than 2 volts AC peak to peak. These voltages are applied to the collector of the transistor. Resistor R14 (22 ohms), between the collector and base,

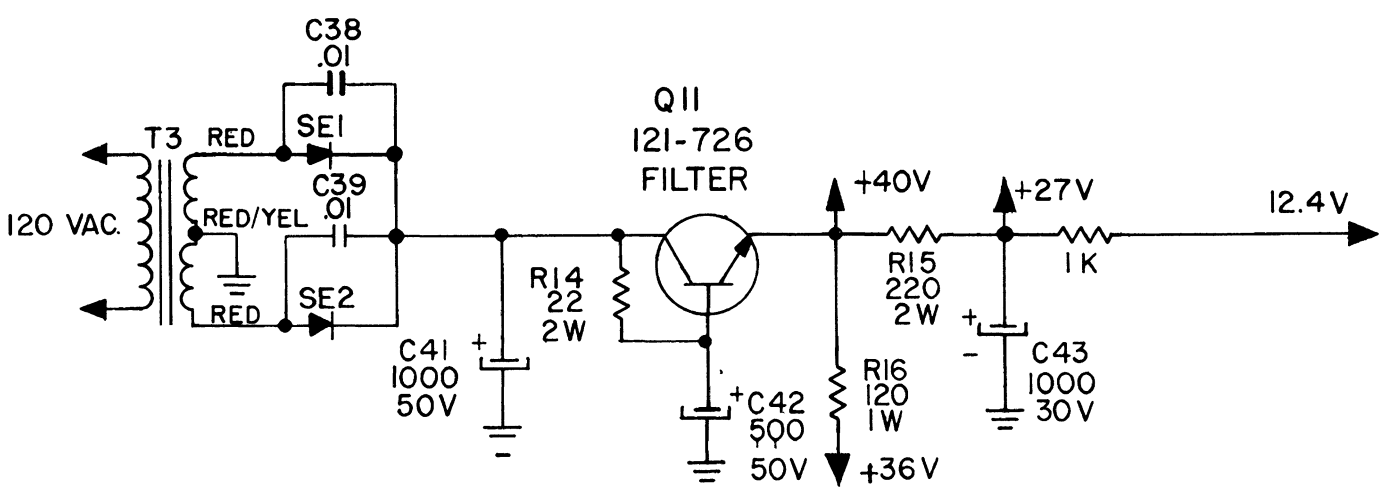


FIG. 2-32 ELECTRONIC FILTER

provides a path for these voltages to be applied to the base and to charge C42 (500 mfd) to almost the supply voltage. There will be a small drop in DC voltage between the collector and base which will establish the forward bias required for the transistor. Base voltage will be approximately 40.6 volts, measured between base and ground.

R14 and C42 serve to attenuate, or filter, the ripple of the supply voltage which is applied to the base, however, a small ripple will still appear on the base. This ripple on the base will result in a small change of base current. A base current change will result in a large change in collector-emitter current. However at the same time the base capacitor, acting as a battery source, will supply current to the base-emitter circuit. This current will then tend to maintain the collector-emitter current at an average value, offsetting the action of the ripple on the base.

The capacity effect of the transistor in this circuit can be determined by:

Effective Capacity=Beta X Capacity (in mfd).

In this circuit, the transistor has a minimum beta of 40 so that, the effective capacity is:

Beta X Cap.=40 x 500=20,000 mfd.

SECTION 3

FM/AM ALIGNMENT PROCEDURE

MUTING CONTROL

The 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.

More precise adjustment of the mute control can be made by using the SPTE-1 multiplex generator. This procedure is described in the multiplex alignment procedure included in this manual.

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.

Zenith has designed and manufactured an SPTE-1 Multiplex Generator that can be used to properly align the multiplex portion of these receivers. The multiplex alignment procedure is included in later pages of this manual. The SPTE-1 Multiplex Generator is available through your Zenith Distributor.

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

All models except the Z588, A589 and Z590 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 Z588, A589, and Z590 use built-in 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 10ZT30 and 11AT30 - Test Point "C". Junction of 3.9K resistor and diode on top of FM Tuner.

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 20AT30, 20AT30Z and 20AT31Z Test Point "C". Located between Transistors Q101 (A.M. Converter) and Q201 (1ST. I.F.).

Chassis 25AT20 and 29AT24 - Test Point "C" RF amplifier AGC Feed Thru on FM Tuner.

Chassis 10ZT30 and 11AT30

Micro Volts Input	Reverse AGC Voltage at Test Point "C"
0	1.35
25	1.21
100	.96
200	.85
500	.77
1K	* .73
5K	.66
50K	.61
100K	.58

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 20AT30, 20AT30Z and 20AT31

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

Chassis 25AT20

Micro Volts Input	AGC Voltage At 1st I.F. (See Note)
0	1.20
25	1.12
100	.88
200	.76
500	.64
1K	* .58
5K	.49
50K	.37
100K	.25

Chassis 29AT24

Micro Volts Input	AGC Voltage At 1st I.F. (See Note)
0	1.50
25	1.40
100	1.10
200	.95
500	.80
1K	* .75
5K	.65
50K	.52
100K	.40

Note - AGC voltage for chassis 25AT20 and 29AT24 is read across the 820 ohm resistor connected from the 1st I.F. emitter to "B-" (-12.4V). Refer to AGC Adjustments.

AGC ADJUSTMENTS

Chassis 20AT21 and 20AT21Z – Adjust AGC control so that under no signal conditions Test Point "B" (collector of RF Transistor Q1) will read 8 volts.

Chassis 25AT20 – Adjust AGC control so that under no signal conditions a voltage of 1.2 volts is measured across the 820 ohm resistor connected from 1st IF emitter to "B-"(-12.4V) when in AM.

Chassis 29AT24 – Adjust AGC control so that under no signal conditions a voltage of 1.1 volts is measured across the 820 ohm resistor connected from 1st IF emitter to "B-" (-12.4V) when in AM.

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 6AT24, 8ZT20, 9AT27, 10YT26, 10ZT31, 10ZT33, 10AT37, 10ZT38, 11ZT27, 20AT21, 20AT21Z, 20AT30, 20AT30Z, 20AT31, and 25AT20 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 chassis 2ZT21, 2YT23, 2ZT24, 6AT24, 9AT27, 10YT26, 11ZT27, 20AT21, 20AT21Z, and 25AT20 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 chassis 8ZT20 place the heat conductive grease in the clamp or 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.

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.
601 - 699	Switching Circuits	R601, C601, L601.

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.

SIGNAL TRACING

A technique used in radio commonly known as "Screw driver testing" in which the B plus at the plate of the tube or collector of a transistor is shorted to ground to check for "clicks" in the speaker, is definitely not recommended. This practice would be comparable to shorting the collector of a transistor to ground which could damage the transistor. Standard point to point signal checking with the proper RF, IF and audio signals, should only 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, RF, AND IF 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 cycles 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.

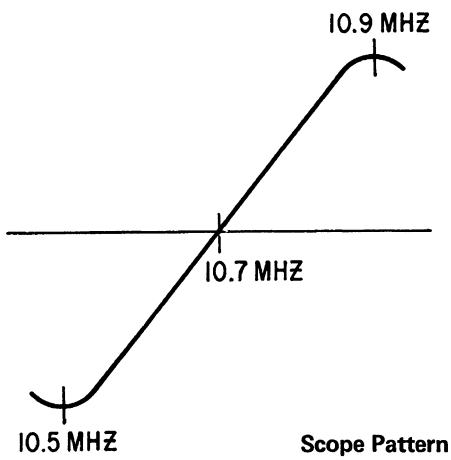
The condenser mentioned further on in the alignment procedure should be as small as possible and the ground lead of the generator must be connected to the chassis at the base of the socket, where the signal is being injected. Should the signal be injected at some point other than a socket, then the ground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

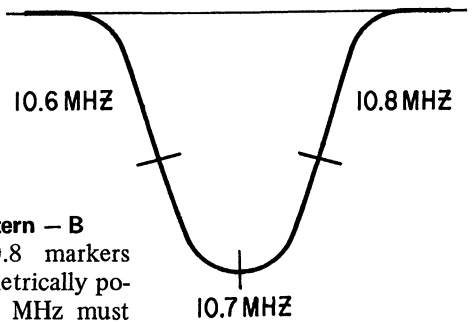
A. Connect to Ratio Detector Test Point "H"

B. Connect to the last FM IF Test Point "G" ("G2" on chassis 10ZT30)



Scope Pattern — A

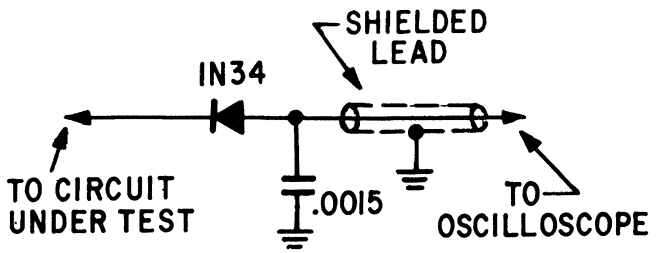
Adjust for maximum amplitude and maintain linearity and symmetry. 10.7 MHz must be on curve at base line.



Scope Pattern — B

10.6 and 10.8 markers must be symmetrically positioned. 10.7 MHz must be at center of curve. This point must be adjusted for maximum.

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.



Simplified Circuit Diagram of Detector Probe.

AM ALIGNMENT

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 AN IF ALIGNMENT PROCEDURE FOR CHASSIS 10ZT30 AND 11AT30

OPERATION *	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	BAND	SET DIAL TO	ADJUST	PURPOSE
1 C	One turn loosely coupled to all wavemagnet		455 KHz 400 Hertz Modulated	BC	600 KHz	L203,L204, L207,L210	Align IF channel for maximum output
2 C			1600 KHz 400 Hertz Modulated	BC	1600 KHz	C101D	Set oscillator to dial scale
3 C			600 KHz	BC	600 KHz	L103	
4 C		Repeat Procedures #2 & 3					
5 C			1500 KHz 400 Hertz Modulated	BC	1400 KHz	C101A	Align antenna stage
6 A	Term. #3 of T205 3rd IF Trans. Test Point "G1"	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	FM	88 MHz	L212	Adjust Primary and Secondary of ratio detector for maximum amplitude and symmetry, as shown in Scope Pattern "A"
7 A			10.7 MHz 400 KHz Deviation	FM	88 MHz	L214	
8 B	Term. #3 of T203 2nd IF Trans. Test Point "F"		10.7 MHz 400 KHz Deviation	FM	88 MHz	L208 & L209	Align I.F. transformers for maximum output and symmetry. This pattern is not necessary identical to the overall Scope Pattern "B"
9 B	Term. #3 of T201 1st UF Trans. Test Point "E"		10.7 MHz 400 KHz Deviation	FM	88 MHz	L205 & L206	
10 B	Connect to Test Point #D. Junction of R6 1.8K, R7 12K & C9 Feed Thru Condenser on FM Tuner.		10.7 MHz 400 KHz Deviation	FM	88 MHz	L201 & L202	
11 B			10.7 MHz 400 KHz Deviation	FM	88 MHz	Readjust L201,L202, L205,L206, L208 & L209	Align I.F. transformers for maximum output and symmetry as indicated in Scope Pattern "B"
12 B	FM Antenna Post (Remove Antenna) Test Point "A"	300 ohm	98 MHz 400 KHz Deviation	FM	98 MHz	L4	Set oscillator to Dial Scale.
13 B	FM Antenna Post (Remove Antenna) Test Point "A"	300 ohm	98 MHz 400 KHz Deviation	FM	98 MHz	L2	Align FM Detector stage for maximum.

*For A, B, C See Page 47.

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 47.

Refer to Page 45 for AGC adjustment.

RF AND IF ALIGNMENT PROCEDURE FOR CHASSIS 20AT30, 20AT30Z AND 20AT31

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 capacitor.	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	Term. No. 3 of T203 2nd IF Trans. Test Point "F"		10.7 MHz	FM	Gang Closed	L208 & L209	Align I.F. transformers for maximum output and symmetry. This pattern is not necessarily identical to the overall Scope Pattern "B"
9B	Term. No. 3 of T201 1st IF Trans. Test Point "E"		10.7 MHz	FM	Gang Closed	L205 & L206	
10B	Connect to Test Point "D"		10.7 MHz	FM	Gang Closed	L201 & L202	
11B			10.7 MHz	FM	Gang Closed	Readjust L201, L202, L205, L206, L208 & L209	Align I.F. transformers 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	
14 B			Repeat Operations 12 B and 13 B				
15 B			106 MHz	FM	106 MHz	C1A	Align FM Detector stage for maximum
16 B			90 MHz	FM	90 MHz	L2 if necessary	
17 B			Repeat Operations 15 B and 16 B				

*For A, B, C, See Page 47.

RF AND IF ALIGNMENT PROCEDURE FOR CHASSIS 25AT20

OPERATION *	CONNECT GENERATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	SET DIAL TO	ADJUST IRON CORES	PURPOSE
1 A	Term. #4 of T205 4th 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	L213	Adjust Primary and Secondary of ratio detector for maximum amplitude and symmetry as shown in Scope Pattern "A"
2 A	Term. #4 of T205 4th IF Trans.		10.7 MHz 400 KHz Deviation	88 MHz	L214	
3 B	Term. #4 of T203 4th IF Trans. Test Point "F"		10.7 MHz 400 KHz Deviation	88 MHz	L211, L212	Align I.F. transformers for maximum output and symmetry. This pattern is not necessarily identical to the overall Scope Pattern "B"
4 B	Term. #4 of T201 2nd IF Trans. Test Point "E"		10.7 MHz 400 KHz Deviation	88 MHz	L207, L208	
5 B	Connect to emitter of Q2 Mixer Test Point #K		10.7 MHz 400 KHz Deviation	88 MHz	L9,L10	
6 B	Connect to emitter of Q2 Mixer Test Point #K		10.7 MHz 400 KHz Deviation	88 MHz	L5,L6	Align I.F. transformers for maximum output and symmetry as indicated in Scope Pattern "B"
7 B	Connect to emitter of Q2 Mixer Test Point #K		10.7 MHz 400 KHz Deviation	88 MHz	Readjust L5, L6, L203, L204, L207, L208, L211, L212	
8 B	FM Antenna Post (Remove Antenna)	300 ohm	98 MHz 400 KHz Deviation	98 MHz	L7	Set oscillator to Dial Scale.
9 B	FM Antenna Post (Remove Antenna)	300 ohm	98 MHz 400 KHz Deviation	98 MHz	L3,L2,L1	Align RF output, RF input and FM Antenna stages for maximum.
10 C	Base of Q101	.05 in series with hot lead of gen.	455 KHz 400 Hertz Modulated	600 KHz	L102, L103, L205, L206, L209, L210	Align AM IF for maximum.
11 C	Two turn loop loosely coupled to wavemagnet		1600 KHz 400 Hertz Modulated	1600 KHz	C101E	Set oscillator to dial scale.
12 C	Two turn loop loosely coupled to wavemagnet		1400 400 Hertz Modulated	1400 KHz	C101D, C101A	Align detector and antenna stages.

*For A, B, C See Page 47.

Refer to Page 45 for A.G.C. adjustment.

RF AND IF ALIGNMENT PROCEDURE FOR CHASSIS 29AT24

OPERATION *	CONNECT GENERATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	SET DIAL TO	ADJUST IRON CORES	PURPOSE
1 A	Term. #3 of T205 4th 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	L212	Adjust Primary and Secondary of ratio detector for maximum amplitude and symmetry as shown in Scope Pattern "A"
2 A	Term. #3 of T205 4th IF Trans.		10.7 MHz 400 KHz Deviation	88 MHz	L214	
3 B	Term. #3 of T203 3rd IF Trans. Test Point "F"		10.7 MHz 400 KHz Deviation	88 MHz	L 210, L211	Align I.F. transformers for maximum output and symmetry. This pattern is not necessarily identical to the overall Scope Pattern "B"
4 B	Term. #3 of T201nd 2nd IF. Trans. Test Point "E"		10.7 MHz 400 KHz Deviation	88 MHz	L206, L207	
5 B	Connect to emitter of Q2 Mixer Test Point #K		10.7 MHz 400 KHz Deviation	88 MHz	L202, L203	
6 B	Connect to emitter of Q2 Mixer Test Point #K		10.7 MHz 400 KHz Deviation	88 MHz	L5,L6	Align I.F. transformers for maximum output and symmetry as indicated in Scope Pattern "B"
7 B	Connect to emitter of Q 2 Mixer Test Point #K		10.7 MHz 400 KHz Deviation	88 MHz	Readjust L5, L6, L202, L203, L206, L207, L210, L211	
8 B	FM Antenna Post (Remove Antenna)	300 ohm	98 MHz 400 KHz Deviation	98 MHz	L7	Set oscillator to Dial Scale.
9 B	FM Antenna Post (Remove Antenna)	300 ohm	98 MHz 400 KHz Deviation	98 MHz	L3,L2,L1	Align RF output, RF input and FM Antenna stages for maximum.
10 C	Base of Q101	.05 in series with hot lead of gen.	455 KHz 400 Hertz Modulated	600 KHz	L108, L109, L204, L205, L208, L209	Align AM IF for maximum.
11 C	Two turn loop loosely coupled to wave-magnet		1600 KHz 400 Hertz Modulated	1600 KHz	C101E	Set oscillator to dial scale.
12 C	Two turn loop loosely coupled to wave-magnet		1400 KHz 400 Hertz Modulated	1400 KHz	C101B, C101D	Align detector and antenna stages.

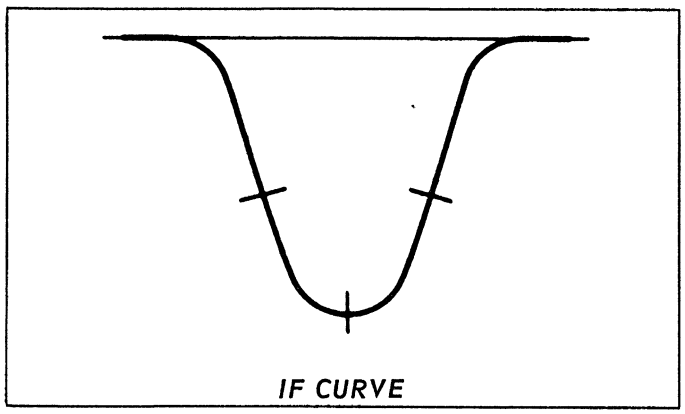
*For A, B, C See Page 47.

Refer to Page 45 for A.G.C. adjustment.

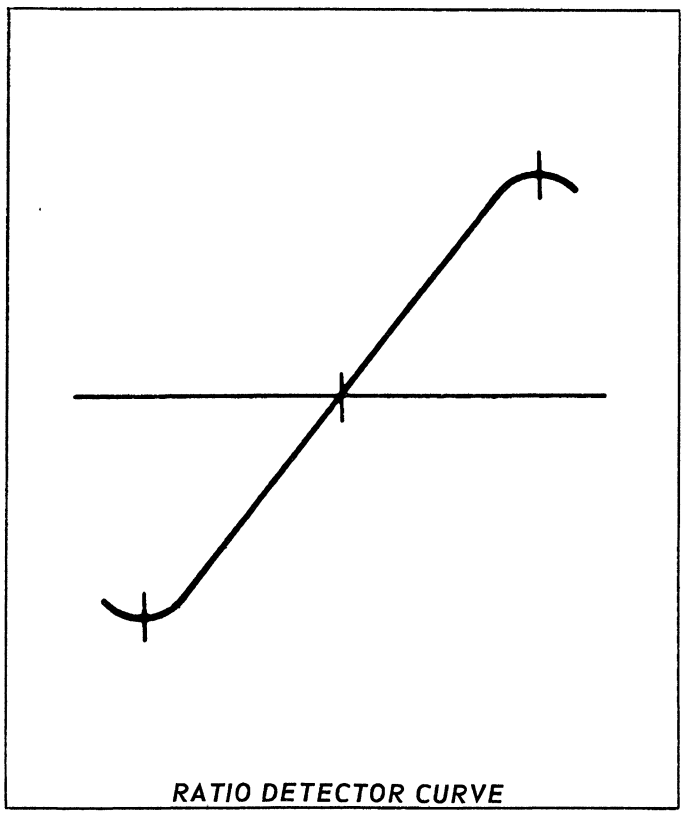
SECTION 4

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.



IF CURVE



RATIO DETECTOR CURVE

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 an 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 cables.

The 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.

67KHz Trap Adjustment (Chassis 29AT24)

1. Connect the stereo generator RF leads to the G and F FM antenna terminals and set the pilot carrier control to zero.
2. Move L + R and L - R switches to OFF position.
3. Move 67KHz generator switch from OFF position up to 67KHz.
4. Connect the V.T.V.M. (AC scale) and/or scope to the Composite Amplifier Transistor, Test Point "M" and chassis ground.
5. Adjust 67KHz trap for minimum output.
6. Move 67KHz generator switch to OFF position.

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 indictive 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

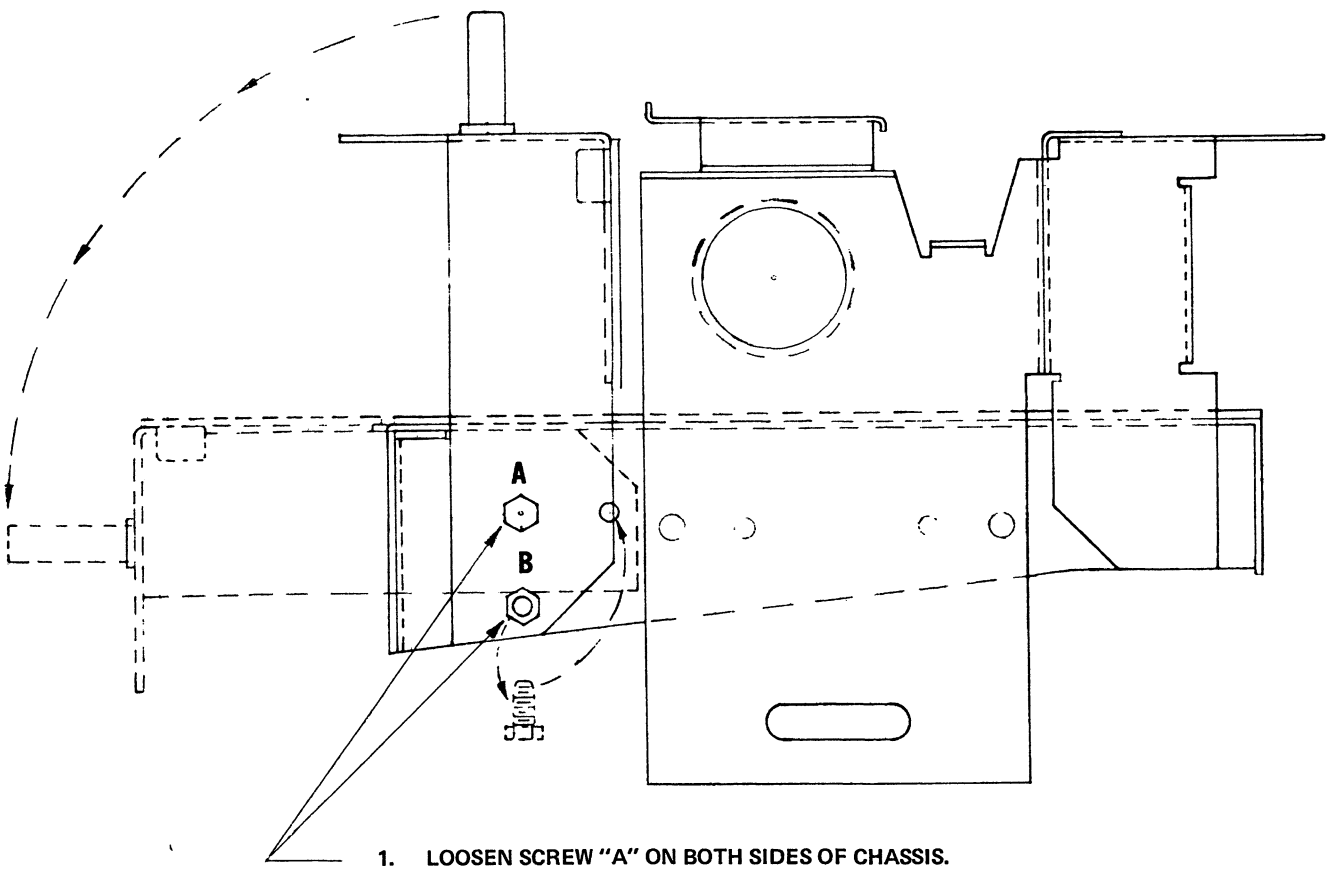
1. Leave the 19KHz amplitude control at 10%.
2. Move the L - R generator switch from OFF position to L - R position. You should see equal amplitude 1000 hertz sine waves at both L and R outputs.
3. Move the L+R switch from OFF up to L+R and look at the L audio output, and measure the magnitude of the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

SECTION 5

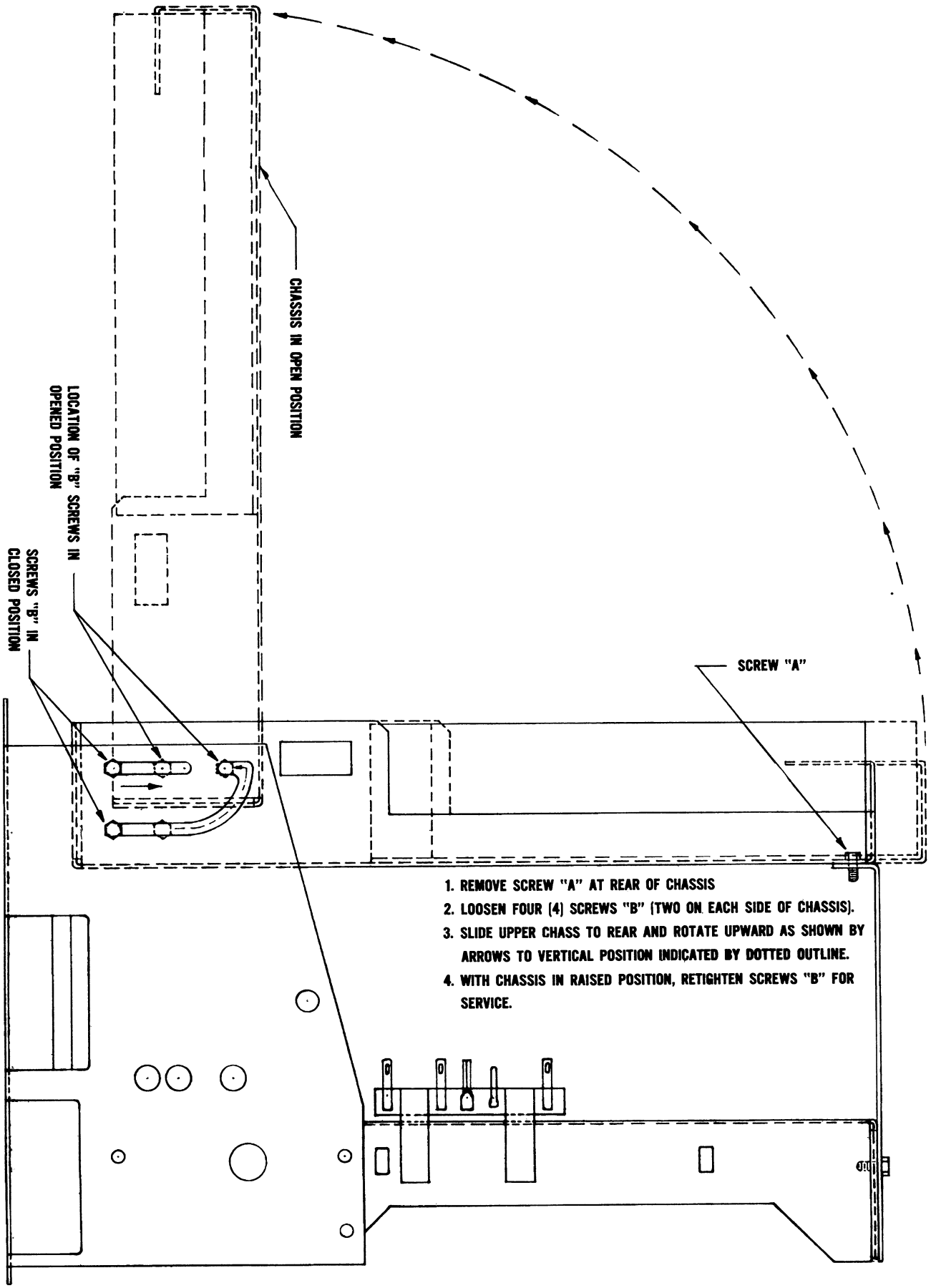
MECHANICAL ASSEMBLIES

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 are two chassis configurations 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 20AT30 AND 20AT31



CHASSIS 25AT20

PARTS LIST

NOTE: Certain circuit boards included in this parts list have component locations identified by item number on the circuit board. These item numbers are also shown on the schematic and in the following parts list—See section 3 for further information.

ITEM NO.	PART NO.	DESCRIPTION
		CHASSIS 1Y20Z
C1	22-17	.001 MFD Disc 10% 1000V
C3A	22-5400	40 MFD Electrolytic 150V
C3B		20 MFD Electrolytic 150V
C4	22-4859	.1 MFD Tubular 20% 600V
R1	63-6997	1 Megohm Volume Control & Switch
R2	63-6998	150 Ohm Fuse Resistor 2W 10%
	95-2628	
T1	OR	
	95-2502	Audio Output Transformer
SP1	49-1096	4" Speaker
SE1	212-71	Rectifier
V1	25C5	Power Pentode
	54-139	3/8-32 x 9/16 Palnut - Cadmium (Mts. 63-6997)
	63-1747	120 Ohm Resistor - ½ W. 10%
	63-1828	10K Ohm Resistor - ½ W. 20%
	63-1856	47K Ohm Resistor - ½ W. 20%
	63-1870	100K Ohm Resistor - ½ W. 20%
	78-1542	Wafer Tube Socket
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	83-5548	Four Lug Terminal Strip
		CHASSIS 2ZT21
C11	22-5267	.022 Mfd. Tubular 10% 100V
C12	22-3588	.47 Mfd. Disc. + 100% –0% 10V
C13	22-4145	.1 Mfd. 20% 200V
C14	22-4617	.01 Mfd. Disc. + 40% –10% 500V
C15	22-3659	.047 Mfd. 20% 400V
C16	22-3513	.01 Mfd. Disc. 30% 500V
C17A	22-4853	40 Mfd. Electrolytic 25V
C17B		60 Mfd. Electrolytic 150V
C18	22-4859	.1 Mfd. Tubular 20% 600V
R1	63-6858	Loudness Control
R2	63-6319	Tone Control
R3	63-5440	Voltage Dependent Resistor
R4	63-6112	10K Ohms 10% 1W
R5	63-5302	350 Ohms 5% Fusing 3W
S1	85-915	3 Position Switch
T4	95-2341	Output Transformer
SE1	212-71	Silicon Rectifier
SP1	49-1096	P.M. Speaker
	11-87	A.C. Line Cord
	12-4318	Switch Mounting Bracket
	54-384	4-40 Palnut - Cadmium (1 used on ea. 114-940)
	63-1708	15 Ohm Resistor - ½W. 10%
	63-1733	56 Ohm Resistor - ½W. 10%
	63-1824	8200 Ohm Resistor - ½W. 10%
	63-1835	15K Ohm Resistor - ½W. 20%
	63-1890	330K Ohm Resistor - ½W. 10%
	63-1908	820K Ohm Resistor - ½W. 10%
	83-5147	10 Lug Terminal Strip
	83-5148	Insulating Strip (used on 83-5147)
	83-5170	Three Lug Terminal Strip
	83-5171	Insulating Strip (used on 83-5170)
	83-5381	Six Lug Terminal Strip
	83-5382	Insulating Strip (used on 83-5181)
	83-5688	Transistor Insulating Strip (Part of 800-158)
	86-199	Terminal (2 required)
	86-329	Connector Terminal (2 required)
	86-344	Connector Terminal (1 used on ea. Black Wire-26½", Brown Wire - 26" & Red Wire - 30")
	86-357	Connector Terminal (1 used on ea. Green Wire-22", Red Wire - 23" & Gray Wire - 23")
	94-1424	Shoulder Bushing (2 part of 800-158)
	114-940	4-40 x 5/16 x 3/16 Hex Hd. Mach. Screw-Cadmium (2 used on 800-158)
	121-433	Transistor - Driver
	205-51	Dow Corning Heat Conductive Grease (Part Of 800-158)
	800-158	Transistor Kit - Output (121-436)

ITEM NO.	PART NO.	DESCRIPTION
		CHASSIS 2ZT22
C1A	22-4657	Antenna Trimmer
C1B		Antenna Tuning
C1C		Oscillator Tuning
C1D		Oscillator Trimmer
C2	22-3034	.05 Mfd. Disc. + 100% - 50% 25V
C3	22-4617	.01 Mfd. Disc. + 40% - 10% 500V
C4	22-2884	5 Mfd. Electrolytic 12V
C5	22-2998	.1 Mfd. Tubular 20% 50V
C6	22-3034	.05 Mfd. Disc. + 100% - 50% 25V
C7	22-2998	.1 Mfd. Tubular 20% 50V
C8	*22-5611	1.1 Pf Gimmick 500V
C9	22-3393	.01 Mfd. Disc. + 80% - 30% 25V
C10	22-3393	.01 Mfd. Disc. + 80% - 30% 25V
L1	S-72896	Wave Magnet Assembly
L2	149-311	Iron Core Sleeve
T1	95-2403	Oscillator Transformer
T2	95-2461	1st I.F. Transformer
T3	95-2394	2nd I.F. Transformer
X1	103-51	Crystal Diode
X2	103-44	Crystal Diode
	63-1761	270 Ohm Resistor - ½W. 10%
	63-1764	330 Ohm Resistor - ½W. 10%
	63-1771	470 Ohm Resistor - ½W. 10%
	63-1785	1000 Ohm Resistor - ½W. 10% (3 required)
	63-1796	1800 Ohm Resistor - ½W. 10%
	63-1813	4700 Ohm Resistor - ½W. 10%
	63-1817	5600 Ohm Resistor - ½W. 10%
	63-1834	15K Ohm Resistor - ½W. 10%
	63-1846	30K Ohm Resistor - ½W. 5%
	63-1887	270K Ohm Resistor - ½W. 10%
	83-3042	Rubber Strip
	86-412	Antenna Terminal (4 part of S-72896)
	113-10	6-32 x 3/16 x 1/4 Hex Hd. Mach. Screw-N.P. - Internal Shakeproof Lockwasher (3 mt. 22-4657)
	121-637	Transistor (I.F.)
	121-638	Transistor (Converted)
	126-1206	Shield
		CHASSIS 2YT23
C1	22-3	.01 Mfd Disc 500V
C2	22-3298	470 PF Disc 20% 500V
C3	22-4617	.01 Mfd Disc 500V
C4	22-3412	820 PF Disc 10% 500V
C5	22-4859	.1 Mfd Tubular 600V
C6	22-5121	40 Mfd Electrolytic 150V
C7	22-3896	5 Mfd Electrolytic 25V
R1	*63-7093	3 Megohm Loudness Control
R2	*63-7094	500K Ohm Tone Control
R3	63-5302	350 Ohm Fusing Type 3W
T1	95-2373	Output Transformer
SE1	212-88	Silicon Rectifier
SP1	49-1096	Speaker
	63-1733	56 Ohm Resistor - ½W. 10%
	63-1810	3900 Ohm Resistor - ½W. 10%
	63-1824	8200 Ohm Resistor - ½W. 10%
	63-1852	39K Ohm Resistor - ½W. 10%
	63-1859	56K Ohm Resistor - ½W. 10%
	63-1884	220K Ohm Resistor - ½W. 20% (2 required)
	63-1911	1 Megohm Resistor - ½W. 10%
	63-1925	2.2 Megohm Resistor - ½W. 10%
	63-6406	Fusing Resistor
	*64-974	Plastic Pop Rivet (2 Join 83-5436 & 83-5437)
	79-174-12	No. 18 Sleeving - Yellow - 1½" (2 required)
	*83-5436	Ten Lug Terminal Strip
	*83-5437	Insulating Strip (Part Of 800-204)
	86-199	Terminal
	86-329	Terminal (2 required)
	114-615	6-20 x 5/16 Hex Hd. Self-Tap. Screw-Steel-Cadmium (2 Used On 121-436)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	121-433	Transistor (Pre-Amp)
	205-51	Dow Corning Heat Conductive Grease (Part Of 800-204)
	*800-204	Transistor - Output Assembly (121-436)
	S-73673	Wire & Terminal Assembly - Brown (Part Of 800-204)

CHASSIS 2ZT24

C1	22-4617	.01 Mfd. Disc. + 80% - 20% 500V
C2	22-4617	.01 Mfd. Disc. + 80 - 20% 500V
C3	22-3513	.01 Mfd. Disc. 30% 500V
C4	22-4145	.1 Mfd. 20% 200V
C5	22-4859	.1 Mfd. Tubular 20% 600V
C6	22-5121	40 Mfd. Electrolytic 150V
C7	22-3896	5 Mfd. Electrolytic 25V
R1	*63-7543	2 Megohm Volume Control
R2	63-6319	50K Ohm Tone Control
R3	63-5302	350 Ohm Fusing Type 3W
T1	95-2341	Output Transformer
SE1	212-71	Silicon Rectifier
SP1	49-1039	Speaker
	11-87	Line Cord
	54-384	4-40 Palnut - Cadmium (2 required)
	63-1736	68 Ohm Resistor - ½W. 10%
	63-1806	3300 Ohm Resistor - ½W. 10%
	63-1824	8200 Ohm Resistor - ½W. 10%
	63-1852	39K Ohm Resistor - ½W. 10%
	63-1866	82K Ohm Resistor - ½W. 10%
	63-1880	180K Ohm Resistor - ½W. 10%
	63-1898	470 K Ohm Resistor - ½W. 20%
	63-1925	2.2 Megohm Resistor - ½W. 10%
	83-5284	5 Lug Terminal Strip
	83-5291	Insulating Strip (used on 83-5284)
	83-5436	10 Lug Terminal Strip
	83-5437	Insulating Strip (used on 83-5436)
	83-5936	Transistor Insulating Strip (Part of 800-158)
	86-199	Terminal (used on 800-158)
	86-329	Connector Terminal (2 required)
	86-344	Connector Terminal (3 required)
	86-357	Connector Terminal (3 required)
	94-1424	Shoulder Bushing (2 part of 800-158)
	114-940	4-40 x 5/16 x 3/16 Hex. Hd. Mach. Screw-Cadmium (2 used on 800-158)
	121-433	Transistor - Driver
	205-51	Dow Corning Heat Conductive Grease (Part of 800-158)
	800-158	Transistor - Output Assembly
	*S-78962	Speaker Lead Assembly

CHASSIS 2AT30

C1	22-3034	.05 MFD Disc 20% 25V
C2	*22-5947	.39 MFD Capacitor 50V
C3	22-3687	1 MFD Electrolytic 50V
C4	22-2939	680 PF Disc 500V
C5	22-5207	220 PF Capacitor 100V
C6	22-5115	.082 MFD Capacitor 50V
C7	22-5207	220 PF Capacitor 50V
C8	22-5115	.082 MFD Capacitor 50V
C9	22-2939	680 PF Disc 500V
C10	*22-5947	.39 MFD Capacitor 50V
C12	22-3687	1 MFD Electrolytic 50V
C13	22-3034	.05 MFD Disc 20% 25V
C14	22-4617	.01 MFD Disc 500V
C15	22-3255	330 PF Disc 500V
C16	22-3255	330 PF Disc 500V
C17	22-5115	.082 MFD Capacitor 50V
C18	22-5115	.082 MFD Capacitor 50V
C19	22-2939	680 PF Disc 500V
C20	22-5012	.15 MFD Capacitor 50V
C21	22-2939	680 PF Disc 500V
C22	22-5012	.15 MFD Capacitor 50V
C24	22-3045	.047 MFD Capacitor 50V
C25	22-3045	.047 MFD Capacitor 50V
C26	22-2939	680 PF Disc 500V
C27	22-3766	.033 MFD Capacitor 50V
C28	22-3766	.033 MFD Capacitor 50V
C29	22-2939	680 PF Disc 500V
R1A, R1B	63-6495	Dual Loudness Control
R2A, R2B	63-7685	Dual Bass Control
R3A, R3B	63-6499	Dual Treble Control
R4	63-6497	Balance Control
M1	S-80709	9 Contact Housing & Terminal Assy.
M2	S-80713	3 Contact Housing & Terminal Assy.
	12-4938	Chassis Bracket
	19-448	Connector Clip
	19-492	Retaining Clip
	43-877	3 Contact Housing
	43-1043	9 Contact Housing (Male)
	52-1526	Dual Shielded Lead
	54-139	3/8-32 Palnut No. RE3832 (1 used on ea. 63-7685, 63-6496, 63-6497 & 63-6499) (4 required)
	57-6901	Bottom Plate
	63-1799	2200 Ohm Resistor - ½W. 10% (2 required)
	63-1810	3900 Ohm Resistor - ½W. 10% (2 required)
	63-1817	5600 Ohm Resistor - ½W. 10% (4 required)
	63-1834	15K Ohm Resistor - ½W. 10% (2 required)
	63-1835	15K Ohm Resistor - ½W 20%
	63-1845	27K Ohm Resistor - ½W. 10% (2 required)
	63-1848	33K Ohm Resistor - ½W. 10% (2 required)
	63-1855	47K Ohm Resistor - ½W. 10% (2 required)
	63-1880	180K Ohm Resistor - ½W. 10% (2 required)
	63-1883	220K Ohm Resistor - ½W. 10% (4 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	83-5328	11 Lug Terminal Strip
	83-5384	6 Lug Terminal Strip
	83-5648	14 Lug Terminal Strip
	83-6769	Chassis Control Panel Strip
	83-6881	Terminal Board
	86-388	Terminal (2 part of S-80716)
	86-483	Terminal - Male (9 required)
	86-496	Ground Terminal
	114-801	8-18 x 5/16 x 1/4 Hex. Hd. Self-Tap. Screw-Stat. Bronze (2 Mt. 83-6769)
	S-80716	Dual Shielded Lead & Terminal Assem.

CHASSIS 6ZT20

C1	22-3615	1 Mfd Electrolytic 25V
C2	22-3615	1 Mfd Electrolytic 25V
C3	22-3415	.0068 Mfd Disc 10% 25V
C4	22-3415	.0068 Mfd Disc 10% 25V
C5	22-3527	.22 Mfd Disc 12V
C6	22-3527	.22 Mfd Disc 12V
C7	22-5251	.15 Mfd Disc 20% 12V
C8	22-5251	.15 Mfd Disc 20% 12V
C9	22-3298	470 Pf Disc 10% 500V
C10	22-3298	470 Pf Disc 10% 500V
C11	22-3615	1 Mfd Electrolytic 25V
C12	22-3615	1 Mfd Electrolytic 25V
C13	22-24	2 x .0047 Mfd Disc 500V
C14A, C14B	*22-5680	100 Mfd Electrolytic 150V / 60 Mfd Electrolytic 50V
C15	22-4859	.1 Mfd Tubular 20% 600V
C16	22-3513	.01 Mfd Disc 30% 500V
C17	22-2793	.047 Mfd Tubular 20% 400V
C18	22-2799	.033 Mfd Tubular 20% 400V
C19	22-14	.0047 Mfd Disc 20% 500V
R1	*63-7139	Balance Control
R2A, R2B	*63-7140	Dual Tone Control
R3A, R3B	*63-7138	Dual Loudness Control
R4	63-6461	200 Ohm Fusing 10% 8W
T1	95-2670	Output Transformer
T2	95-2669	Output Transformer
SE1	212-71	Silicon Rectifier
SP1	49-1152	Speaker (6" x 9")

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
SP2	49-1152	Speaker (6" x 9")
	11-183	A C Line Cord
	43-519	Socket Contact Housing (Phono A C Plug)
	*52-1446	Four Conductor Cable (Approx. 21")
	58-214	Single Prong Plug (2 Part Of S-80609)
	63-1729	47 Ohm Resistor - ½W. 10% (2 required)
	63-1736	68 Ohm Resistor - ½W. 10% (2 required)
	63-1782	820 Ohm Resistor - ½W. 10% (2 required)
	63-1817	5600 Ohm Resistor - ½W. 10% (2 required)
	63-1820	6800 Ohm Resistor - ½W. 10% (2 required)
	63-1827	10K Ohm Resistor - ½W. 10% (2 required)
	63-1828	10K Ohm Resistor - ½W. 20% (2 required)
	63-1834	15K Ohm Resistor - ½W. 10%
	63-1870	100K Ohm Resistor - ½W. 20% (2 required)
	63-1890	330K Ohm Resistor - ½W. 10% (2 required)
	63-1932	3.3 Megohm Resistor - ½W. 10% (2 required)
	78-1768	Transistor Socket (2 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½" (2 required)
	83-5048	Four Lug Terminal Strip
	83-5049	Six Lug Terminal Strip
	83-5050	Eight Lug Terminal Strip
	83-5688	Transistor Insulating Strip (2 part of 800-172)
	83-5908	Five Lug Terminal Strip
	83-5935	Eighteen Lug Terminal Strip
	*83-6956	Six Lug Terminal Strip
	86-334	Socket Terminal (4 used on 43-519)
	86-475	Terminal (Pin Contact) (12 required)
	*90-823	Spacer Sleeve (1 used on ea. 94-1171)
	94-1171	Insulating Bushing (2 required)
	114-813	6-20 x 3/8 x 1/4 Hex Hd. Self-Tap. Screw-Cadmium (2 Mt. Ea. 800-172)
	121-430	Transistor - Driver (2 required)
	121-433	Transistor - Pre-Driver (2 required)
	125-96	Strain Relief Grommet (Used on 11-183)
	205-51	Dow Corning Heat Conductive Grease (Part of 800-172)
	800-172	Transistor - Output Assembly - Matched Pair (2 required)
	*S-80609	Phono Input Cable Assembly

CHASSIS 6AT24

C501	22-5262	100 MFD Electro 50V
C502	22-4673	500 MFD Electro 50V
C503	22-2939	680 PF 500V
C551	22-5262	100 MFD Electro 50V
C552	22-4673	500 MFD Electro 50V
C553	22-2939	680 PF 500V
C554	22-5455	50 MFD Electro 50V
C555	*22-5903	.0015 MFD Disc 1400V
C556	22-3239	.1 MFD 400V
C557	22-3239	.1 MFD 400V
C558	22-3239	.1 MFD 400V
C559	22-3239	.1 MFD 400V
C560	22-4145	.1 MFD 200V
C561	22-4145	.1 MFD 200V
C562	22-3878	2000 MFD Electro 75V
C563	22-3881	1500 MFD Electro 50V
C564A		500 MFD Electro 50V
C564B	22-5162	500 MFD Electro 50V
C564C		300 MFD Electro 25V
C565	22-4415	.47 MFD 200V
R502	63-5645	270 Ohms 10% 2W
R503	63-5638	180 Ohms 10% 2W
R504	63-5961	2.7 Ohms 10% 1W
R505	63-6442	560 Ohms 10% 3W
R506	63-5961	2.7 Ohms 10% 1W
R507	63-5282	0.39 Ohms 5% 5W
R508	63-5641	220 Ohms 20% 2W
R509	63-1820	6.8K 10% ½W
R510	63-5367	0.43 Ohms 5% 5W
R552	63-5645	270 Ohms 10% 2W
R553	63-5638	180 Ohms 10% 2W
R554	63-5961	2.7 Ohms 10% 1W
R555	63-6442	560 Ohms 10% 3W

ITEM NO.	PART NO.	DESCRIPTION
R556	63-5961	2.7 Ohms 10% 1W
R557	63-5282	0.39 Ohms 5% 5W
R558	63-5641	220 Ohms 20% 2W
R559	63-1820	6.8K 10% ½W
R560	63-5367	0.43 Ohms 5% 5W
R561	63-5369	220 Ohms 10% 5W
R562	63-4851	125 Ohms 10% 5W
R567	63-5217	2 Ohms 10% 10W
T501	*95-2736	Driver Transformer
T551	*95-2737	Driver Transformer
T552	95-2425	Power Transformer
F501	136-61	3 Amp Fuse (Type C)
J501	S83789	9 Contact Housing Assembly (Small)
J502	S83790	9 Contact Housing Assembly (Large)
J503	S83788	3 Contact Housing Assembly
DS501	100-249	Phono Lamp No. 1847, 6.3V, 150 MA
DS502	100-249	Cab't. Lamp No. 1847, 6.3V, 150MA
CR501	212-62	Silicon Rectifier
CR502	212-62	Silicon Rectifier
CR503	212-71	Silicon Rectifier
	12-475	Chassis Mtg. Bracket (4 required)
	19-546	Capacitor retaining clip (2 required)
	43-333	3 Contact Housing
	43-574	9 Contact Housing
	43-874	9 Contact Housing
	54-579	10-32 x 3/8 x 3/16 Thick - Hex Nut - Cadmium (1 used on ea. 212-62)
	62-30	Fuse Holder
	63-1747	120 Ohm Resistor - ½W. 10%
	63-1757	220 Ohm Resistor - ½W. 10%
	63-1761	270 Ohm Resistor - ½W. 10%
	63-1827	10K Ohm Resistor - ½W. 10% (2 required)
	63-1926	2.2 Megohm Resistor - ½W. 20%
	63-1954	10 Megohm Resistor - ½W. 20%
	64-4	1/8 Dia.¼ Lg.Tubular Rivet - N.P. No. 30248 (2 used on ea. 78-1812)
	64-5	1/8 Dia. x 7/32 Lg. Tubular Rivet - Cadmium (2 join ea. 83-5052 & 83-5054, 3 join 83-4987 & 83-5038, 2 used on 78-402, & 2 join ea. 83-5284 & 83-5291) (13 required)
	64-6	1/8 Dia. x 3/16 Lg. Tubular Rivet - Cadmium (2 used on ea. 12-475, 78-1347 & 1 used on ea. 86-328) (16 required)
	64-7	1/8 Dia. x 5/32 Lg. Tubular Rivet - Cadmium (1 used on 83-7330, 2 used on 95-2736 & 95-2737) (5 required)
	78-402	4 Contact Housing
	78-1347	Electrolytic Socket (3 required)
	78-1812	2 Contact Transistor Socket (2 part of ea. S-73152) (6 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	83-4633	Felt Strip
	83-4987	12 Lug Terminal Strip
	83-5038	Insulating Strip
	83-5052	6 Lug Terminal Strip (2 required)
	83-5054	Insulating Strip (2 required)
	83-5277	Transistor Insulating Strip (6 required)
	83-5284	5 Lug Terminal Strip (2 required)
	83-5291	Insulating Strip (2 required)
	*83-7330	8 Lug Terminal Strip
	86-303	Terminal - Male (3 required)
	86-328	Wire Retaining Terminal (2 required)
	86-389	Terminal - Female (9 required)
	86-484	Connector Terminal (7 required)
	86-496	Connector Terminal
	93-2	Rivet Washer (2 used on 95-2737)
	93-369	Internal Lockwasher Shakeproof No. 1210 (1 used on ea. 212-62)
	*101-2947	Label (Indicator Light & Speaker)
	102-9536	Fuse Label (3 amp.)
	114-601	10-16 x 1/2 x 5/16 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (4 Mt. 95-2425)
	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat Bronze (4 used on ea. S-73152) (8 required)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	114-1001	6-32 x 1/2 Hex Washer Hd. Self-Tap. Screw-Special (2 used on ea. 121-398 & 121-382) (12 required)
	121-382	Transistor - Power - Matched Pair (2 required)
	121-398	Transistor - Driver (2 required)
	S-73152	Heat Sink Assem. (2 required)
		CHASSIS 8ZT20
C401	22-5507	22 Pf 500V 20% Disc
C402	22-3414	.0047 Mf 25V 20% Disc
C403	22-3448	10 Mf 15V Electrolytic
C404	22-5511	100 Mf 20V Electrolytic
C405	22-3598	.022 Mf 50V 20%
C406	22-5509	.22 Mf 3V 20%
C407	22-5512	250 Mf 15V Electrolytic
C451	22-5507	22 Pf 500V 20% Disc
C452	22-3414	.0047 Mf 25V 20% Disc
C453	22-3448	10 Mf 15V Electrolytic
C454	22-5511	100 Mf 20V Electrolytic
C455	22-3598	.022 Mf 50V 20%
C456	22-5509	.22 Mf 3V 20% Disc
C457	22-5512	250 Mf 15V Electrolytic
C501	22-5511	100 Mf 20V Electrolytic
C502	22-5511	100 Mf 20V Electrolytic
C503	22-5475	500 Mf 25V Electrolytic
R402A, R402B	*63-7638	Dual Tone Control
R407, R457	*63-7637	Volume Control
T501	95-2573	Power Transformer
CR-501	212-71	Silicon Rectifier
SP1	49-1138	Speaker (Z541)
SP2	49-1138	Speaker (Z541)
SP1	49-1147	Speaker (Z538)
SP2	49-1147	Speaker (Z538)
Q401	121-633	Transistor, Pre-Driver
Q402	121-632	Transistor, Driver
Q403, Q404	800-219	Transistors, Output - Matched Pair (Consists of one 121-640 and one 121-641)
Q451	121-633	Transistor, Pre-Driver
Q452	121-632	Transistor, Driver
Q403, Q404	800-219	Transistors, Output - Matched Pair (Consists of one 121-640 and one 121-641)
	11-183	A.C. Line Cord
	12-4901	Control Bracket (3 required)
	17-135	Line Cord Clamp
	19-552	Clip - Heat Sink (2 Used on S-78037 & 4 used on S-81069)
	23-23	Wire Connector
	43-519	Socket Contact Housing
	58-214	Connector Plug (2 part of S-79177)
	63-1722	33 Ohm Resistor - ½W. 10% (2 required)
	63-1750	150 Ohm Resistor - ½W. 10% (3 required)
	63-1758	220 Ohm Resistor - ½W. 20% (2 required)
	63-1768	390 Ohm Resistor - ½ W. 10% (2 required)
	63-1778	680 Ohm Resistor - ½W. 10% (2 required)
	63-1785	1000 Ohm Resistor - ½W. 10%
	63-1792	1500 Ohm Resistor - ½W. 10% (2 required)
	63-1813	4700 Ohm Resistor - ½W. 10% (2 required)
	63-1880	180K Ohm Resistor - ½W. 10% (2 required)
	63-1908	820K Ohm Resistor - ½W. 10% (2 required)
	63-1911	1 Meg Ohm Resistor - ½W. 10%
	63-1915	1.2 Meg Ohm Resistor - ½W. 10% (2 required)
	63-4529	4.7 Ohm Resistor - ½W. 10% (4 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	86-334	Connector Terminal (3 required)
	94-1527	Snap Bushing (Used on 11-183)
	114-802	8-18 x 5/16 x 1/4 Hex Washer Hd. Self-Tap Screw-Stat. Bronze (2 used on S-81070)
	205-51	Dow Corning Heat Conductive Grease (Part of 800-219)
	S-78037	Chassis Control Panel Assem.
	S-79177	Phono Cable & Plug Assem.

ITEM NO.	PART NO.	DESCRIPTION
	*S-81069	Chassis Bracket Assem.
	*S-81070	Bracket & Jack Assem.
		CHASSIS 9AT27
C30	22-3687	1 MFD Electrolytic 50V
C31	22-3687	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	22-2655	.01 MFD Disc 1000V
C41	22-5362	1000 MFD Electrolytic 50V
C42	22-5316	500 MFD Electrolytic 50V
C43	22-5167	1000 MFD Electrolytic 30V
C44	22-3608	68PF Disc 500V
C45	22-3608	68PF Disc 500V
C46	22-2376	47PF Disc 500V
C47	22-2376	47PF Disc 500V
C48	22-3892	.01 MFD 100V
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 5% 5W
R10	63-5305	.51 Oh m Resistor 5% 5W
R11		
R12	63-5305	.51 Ohm Resistor 5% 5W
R13	63-5305	.51 Ohm Resistor 5% 5W
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
M3	S80734	Housing Wire & Terminal Assembly
M4	S80730	Housing Wire & Terminal Assembly
M5	S75023	Three Conductor Cable & Housing Assem.
T1	95-2475	Driver Transformer
T2	95-2475	Driver Transformer
T3	95-2476	Power Transformer
J1	44-78	Head Phono Jack
F1	136-24	2 Amp Fuse
SE1	212-61	Silicon Rectifier
SE2	212-61	Silicon Rectifier
SPK2	49-1181	10" Speaker
SPK4	49-1181	10" Speaker
SPK1	49-1151	Horn Speaker
SPK3	49-1151	Horn Speaker
	11-87	A.C. Line Cord
	19-546	Capacitor Retaining Clip
	19-561	Capacitor Retaining Clip (4 required)
	43-519	Socket Contact Housing (Male)
	43-574	9 Contact Housing (Female)
	43-876	3 Contact Housing (Female)
	52-1339	3 Conductor Cable (Approx. 26")
	57-6328	Heat Sink Plate (2 required)
	63-1750	150 Ohm Resistor - ½W. 10% (2 required)
	63-1771	470 Ohm Resistor - ½W. 10% (2 required)
	63-1827	10K Ohm Resistor - ½W. 10% (2 required)
	63-1862	68K Ohm Resistor - ½W. 10% (2 required)
	63-1869	100K Ohm Resistor - ½W. 10% (2 required)
	63-1876	150K Ohm Resistor - ½W. 10% (2 required)
	63-1918	1.5 MEG Ohm Resistor - ½W. 10% (2 required)
	63-1936	3.9 MEG OHM Resistor - ½W. 10%
	63-4533	5.6 OHM Resistor - ½W. 10% (4 required)
	78-1812	2 Contact Transistor Socket (5 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	83-5277	Transistor Insulating Strip (Part of 800-196)
	83-5385	7 Lug Terminal Strip
	83-5391	20 Lug Terminal Strip (3 required)
	83-6881	14 Lug Terminal Strip

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	86-334	Connector Terminal (3 used on 52-1339)
	86-344	Connector Terminal
	86-389	Connector Terminal (8 required)
	86-484	Connector Terminal (Female) (3 required)
	86-496	Ground Terminal
	102-5383	Fuse Label
	114-271	6-20 x ½ x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (4 used on ea. 121-398 & 2 used on 121-726) (10 required)
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea. 95-2475)
	114-802	8-18 x 5/16 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (4 Mt. 95-2476)
	121-430	Transistor - Pre-Driver (2 required)
	121-706	Transistor - Driver (2 required)
	121-726	Transistor - Filter
	125-140	Strain Relief Grommet
	205-51	Dow Corning Heat Conductive Grease (Part of 800-196)
	800-196	Power Output Transistor - Matched Pair (2 required)
	*S-84665	Speaker Cable & Terminal Assem.

CHASSIS 10YT26
CONTROL PANEL ASSEMBLY

C1	22-3034	.05 MFD Disc 25V
C2	22-5018	.47 MFD 50V
C3	22-5018	.47 MFD 50V
C4	22-13	.0033 MFD Disc 500V
C5	22-3710	.22 MFD 50V
C6	22-3595	.33 MFD 50V
C7	22-5361	1.5 MFD Electrolytic 10V
C8	22-3595	.33 MFD 50V
C9	22-3678	.047 MFD 100V
C10	22-2884	5 MFD Electrolytic 12V
C12	22-3595	.33 MFD 50V
C13	22-2703	220 PF Disc 500V
C14	22-4110	.033 MFD 200V
C15	22-3034	.05 MFD Disc 25V
C16	22-5018	.47 MFD 50V
C17	22-5018	.47 MFD 50V
C18	22-3710	.22 MFD 50V
C19	22-13	.0033 MFD Disc 500V
C20	22-3595	.33 MFD 50V
C22	22-5361	1.5 MFD Electrolytic 10V
C23	22-3595	.33 MFD 50V
C24	22-3678	.047 MFD 100V
C25	22-3595	.33 MFD 50V
C26	22-2884	5 MFD Electrolytic 12V
C27	22-2703	220 PF Disc 500V
C28	22-3599	.015 MFD 500V
R1A, R1B	63-6939	Dual Loudness Control
R2A, R2B	63-7123	Dual Bass Control
R3A, R3B	63-6938	Dual Treble Control
S1	85-1022	Phono-Tape & A.C. Switch
	12-4903	Control Panel Bracket
	19-480	Clip (2 required)
	43-570	6 Contact Housing - Male
	43-571	Socket Contact Housing
	44-77	Tape Jack
	52-1444	Four Conductor Cable (Approx. 23 ½")
	52-1473	Two Conductor Shielded Lead (Phono)
	52-1474	Two Conductor Shielded Lead (Tape)
	54-139	3/8-32 Palnut (4 required)
	58-214	Single Prong Plug (2 required)
	63-1743	100 Ohm Resistor - ½W. 10% (2 required)
	63-1764	330 Ohm Resistor - ½W. 10% (2 required)
	63-1785	1000 Ohm Resistor - ½W. 10% (2 required)
	63-1799	2200 Ohm Resistor - ½W. 10% (2 required)
	63-1806	3300 Ohm Resistor - ½W. 10% (2 required)
	63-1810	3900 Ohm Resistor - ½W. 10% (2 required)
	63-1813	4700 Ohm Resistor - ½W. 10% (4 required)
	63-1834	15K Ohm Resistor - ½W. 10%

ITEM NO.	PART NO.	DESCRIPTION
	63-1859	56K Ohm Resistor - ½W. 10% (2 required)
	63-1862	68K Ohm Resistor - ½W. 10% (2 required)
	63-1876	150K Ohm Resistor - ½W. 10% (2 required)
	63-1883	220K Ohm Resistor - ½W. 10% (2 required)
	63-1897	470K Ohm Resistor - ½W. 10% (4 required)
	63-1901	560K Ohm Resistor - ½W. 10% (2 required)
	63-1911	1 MEG Ohm Resistor - ½W. 10% (2 required)
	63-1943	5.6 MEG Ohm Resistor - ½W. 10% (2 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½" (4 required)
	83-1475	Armite Strip
	83-5288	13 Lug Terminal Strip (2 required)
	83-5975	Transistor Terminal Strip (2 required)
	86-390	Terminal (10 required)
	121-433	Transistor - Pre-Amp. (2 required)
	121-543	Transistor - Pre-Driver (2 required)
	126-1346	Shield
	198-12	Dial Scale Reflector

CHASSIS 10YT26
AMPLIFIER CHASSIS

C29	22-14	.0047 MFD 500V
C30	22-3973	100 MFD Electrolytic 25V
C32	22-14	.0047 MFD Disc 500V
C33	22-5316	500 MFD Electrolytic 50V
C34	22-3973	100 MFD Electrolytic 25V
C35	22-14	.0047 MFD Disc 500V
C36	22-5316	500 MFD Electrolytic 500V
C37	22-14	.0047 MFD Disc 500V
C38	22-5362	1000 MFD Electrolytic 50V
C39	22-5316	500 MFD Electrolytic 50V
C40	22-5167	1000 MFD Electrolytic 30V
C41	22-4577	50 MFD Electrolytic 25V
C42	22-4666	.001 MFD Disc 1400V
C43	22-4601	.01 MFD 1000V
C44	22-4601	.01 MFD 1000V
R4	63-6042	220 Ohms Resistor 10% 1W
R5	63-5305	.51 Ohms Resistor 5% 5W
R6	63-6049	330 Ohms Resistor 10% 1W
R7	63-5305	.51 Ohms Resistor 5% 5W
R8	63-6049	330 Ohms Resistor 10% 1W
R9	63-5305	.51 Ohms Resistor 5% 5W
R10	63-6042	220 Ohms Resistor 10% 1W
R11	63-5305	.51 Ohms Resistor 5% 5W
R12	63-6031	120 Ohms Resistor 10% 1W
R13	63-6003	27 Ohms Resistor 10% 1W
R14	63-4519	2.7 Ohm Resistor 10% ½W
R15	63-4519	2.7 Ohm Resistor 10% ½W
R16	63-4519	2.7 Ohm Resistor 10% ½W
R17	63-4519	2.7 Ohm Resistor 10% ½W
R18	63-6027	100 Ohm Resistor 20% 1W
R19	63-6027	100 Ohm Resistor 20% 1W
T1	95-2475	Driver Transformer
T2	95-2475	Driver Transformer
T3	95-2476	Power Transformer
M1	S-75015	Housing, Wire & Terminal Assembly
M2	S-75020	Housing, Wire & Terminal Assembly
M3	S-75023	Housing, Wire & Terminal Assembly
M4	S-79077	Housing, Wire & Terminal Assembly
M5	S-79111	Housing, Wire & Terminal Assembly
SE1	212-61	Silicon Rectifier
SE2	212-61	Silicon Rectifier
PL1	100-249	Pilot Light Bulb
PL2	100-249	Pilot Light Bulb
F1	136-24	2A Fuse
SPK1	49-1116	6" PM Speaker
SPK2	49-1116	6" PM Speaker
	11-87	A.C. Line Cord
	19-535	Retaining Clip (1 used on ea. 126-1106)
	19-546	Retaining Clip (Used on 22-5362)
	19-561	Retaining Clip (1 used on ea. 22-5167 & 22-5316)
	43-519	Socket Contact Housing - Male
	43-573	6 Contact Housing - Female
	43-574	9 Contact Housing - Female

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	44-72	Dual Speaker Jack
	52-1339	Three Conductor Cable - Phono (Approx. 26")
	52-1442	Four Conductor Cable - Speaker (Approx. 8")
	57-6328	Heat Sink Plate (2 required)
	63-1768	390 Ohm Resistor - ½W. 10% (2 required)
	63-1827	10K Ohm Resistor - ½W. 10% (2 required)
	63-1848	33K Ohm Resistor - ½W. 10%
	78-1765	Dial Light Socket & Wire
	78-1812	2 Contact Transistor Socket (4 required)
	83-5277	Insulating Strip (4 part of 800-196)
	83-5328	11 Lug Terminal Strip
	83-5975	Transistor Terminal Strip
	83-6015	17 Lug Terminal Strip
	83-6208	Single Lug Terminal Strip
	86-334	Terminal (3 used on 43-519)
	86-389	Terminal - Female (10 required)
	102-5383	Fuse Label (2 Amp. 250V.)
	112-1608	8-18 x 5/16 x 1/4 Phillips Pan Hd. Self-Tap. Screw - Black Oxide (4 Mt. 95-2476)
	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea. 95-2475)
	114-1001	6-32 x 1/2 Hex Washer Hd. Self-Tap. Screw-Special (4 used on ea. 800-196)
	121-544	Transistor - Driver (2 required)
	125-140	Strain Relief Grommet
	126-1106	Heat Dissipator (1 used on ea. 121-544)
	136-24	2 Amp. Fuse
	205-51	Dow Corning Heat Conductive Grease (Part of 800-196)
	212-61	Silicon Rectifier (2 required)
	800-196	Power Output Transistor - Matched Pair (2 required)
		CHASSIS 10ZT30
C1	22-3792	17 Pf 5% Disc 500V
C2	22-2729	.001 Mf Disc 25V
C3	22-5321	36 Pf Disc 5% 500V
C4	22-4617	.01 Disc 500V
C5	22-4613	.001 Feedthru 500V
C6	22-3541	3.3 Pf Gimmick 5% 500V
C7	22-5485	1 Pf Gimmick 5% 500V
C8	22-2481	8 Pf Disc 5% 500V
C9	22-4844	.002 Feedthru 500V
C10	22-3034	.05 Disc 25V
C11	22-4613	.001 Feedthru 500V
C12	22-3622	19 Pf Disc Cap 5% 500V
C13	22-4844	.002 Feedthru 500V
C14	22-2513	7 Pf Disc 500V
C15	22-3675	10 Pf Disc 500V
C101A	22-4843	BC Ant. Trimmer
C101B		BC Ant. Trimmer
C101C		BC Osc. Tuning
C101D		BC Osc. Trimmer
C102	22-3033	.02 Disc 25V
C103	22-3034	.05 Disc 25V
C104	22-3393	.01 Disc 25V
C105	22-5480	390 Pf Mica 5% 100V
R1	63-1810	39K Ohm 10%
R2	63-1761	270 Ohm 10%
R3	63-4196	1.8K Ohm 10% ¼W
R4	63-1772	470 Ohm 20%
R5	63-1898	470K Ohm 20%
R6	63-1796	1.8K Ohm 10%
R7	63-1831	12K Ohm 10%
R8	63-4122	33 Ohm 10% ¼W
R9	63-1898	470K Ohm 20%
R101	63-1831	12K Ohm 10%
R102	63-1796	1.8K Ohm 10%
R103	63-1824	8.2K Ohm 10%
R104	63-1778	680 Ohm 10%
R105	63-1799	2.2K Ohm 10%
L1	S-78099	FM Antenna Coil Assembly
L2	S-65043	FM Detector Coil Assembly
L3	20-1256	10.7 MHz Trap Coil
L4	S-62887	FM Oscillator Coil Assembly

ITEM NO.	PART NO.	DESCRIPTION
L101	S-77014	AM Antenna Assembly
L102	149-311	Iron Core Sleeve
L103	In T101	AM Oscillator Trans. Pri.
L104	In T101	AM Oscillator Trans. Sec.
T101	95-2544	AM Oscillator Transformer
SW1	*85-1027	Bandswitch
PL1	100-451	Stereo Ind. Light
PL2	100-249	Pilot Light No. 1847
PL3	100-249	Pilot Light No. 1847
PL4	100-249	Pilot Light No. 1847
CR1	103-47	AFC Diode
CR101	103-74	Germanium Diode
Q1	121-612	FM R.F. Transistor
Q2	121-613	FM Conv. Transistor
Q101	121-257	AM Conv. Transistor
	12-4009	Tuner Bracket
	12-4758	Coil Mtg. Bracket
	*12-4889	Dial Background Mtg. Bracket
	*12-4998	Bracket
	17-130	Clamp
	17-135	Clamp
	19-322	Coil Mtg. Clip (1 used on ea. S-62887, S-65043 & S-78099)
	19-448	Ground Clip
	24-1621	Tuner Cover
	43-874	Terminal Housing (9 Contact)
	43-875	Terminal Housing (9 Contact)
	*52-1489	Two Conductor Shielded Lead
	*52-1490	Two Conductor Shielded Lead
	54-139	3/8 - 32 Palnut (Used on 85-1027)
	56-426	Roll Pin (6 required)
	58-315	Connector Plug (2 required)
	61-222	Idler Pulley (6 required)
	76-1141	Guide Shaft
	*76-1772	Tuning Shaft
	*78-1784	Dial Light-Socket & Wire (3 required)
	80-209	Drive Cord Tension Spring (Gang)
	80-1140	Drive Cord Tension Spring (Pointer)
	80-1467	Retaining Spring
	80-1468	Grounding Spring
	80-1951	Retaining Spring (2 required)
	83-4125	Two Lug Terminal Strip
	83-5773	Three Lug Terminal Strip
	83-6500	Two Lug Terminal Strip
	83-6557	Antenna Mtg. Strip
	*83-6807	Fourteen Lug Terminal Strip
	*83-6900	Antenna Protection Strip
	86-344	Connector Terminal (2 required)
	86-388	Connector Terminal - Female (2 required)
	86-398	Connector Terminal - Female (8 required)
	86-441	Insulated Feed-Thru Terminal (2 required)
	86-483	Connector Terminal - Male (9 required)
	86-484	Connector Terminal - Female (7 required)
	94-613	Iron Core Bushing (2 required)
	94-1380	Insulating Bushing (2 required)
	113-10	6 - 32 x 3/16 x ¼ Hex Hd. Mach. Screw - N.P. -Internal Lockwasher Att. (2 Mt. 22-4843)
	114-26	8-18 x ¼ x ¼ Hex Hd. Self Tap. Screw-Stat. Bronze (used on 12-4889)
	114-564	8 - 18 x 5/16 Hex Hd. Self-Tap. Screw-Stat. Bronze - Flat Washer Att. (1 Joins 17-135 & S-79739 & 1 Used On 17-130)
	114-651	8-15 x 5/16 x ¼ Hex Washer Hd. Self-Tap. Screw-Stat Bronze (used on S-79739)
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on ea. S-79739 & S-79740) (4 Required)
	114-802	8-18 x 5/16 x ¼ Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (2 used on 94-1380)
	114-803	6-20 x ¼ x ¼ Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (4 join bracket & pulley assem. & multiplex assem.)
	125-26	Rubber Grommet
	126-1297	Tuner Shield
	*126-1341	Dial Light Shield

*Denotes parts not previously used in Zenith receivers

ITEM NO.	PART NO.	DESCRIPTION
	149-368	Iron Core & Spring
	149-385	Iron Core & Spring
	S-62887	FM Oscillator Coil Assem.
	S-65043	FM Detector Coil Assem.
	S-77014	Wave Magnet Assem.
	S-78099	FM Antenna Coil Assem.
	S-79739	Bracket & Pulley Assem. (L.H.)
	S-79740	Bracket & Pulley Assem. (R.H.)
	S-79746	Bracket, Drive Shaft & Iron Core Assem.
	S-79776	Drive Cord & Eyelet Assem. (Gang)
	S-79777	Drive Cord & Eyelet Assem. (Pointer)
	S-79778	Drive Cord & Eyelet Assem. (Pointer)
	S-81430	Dial Light Shield & Terminal Strip Assem.
	*S-81979	Shielded Lead & Plug Assem.

10ZT30 I.F. CHASSIS COMPONENTS

C201	22-3310	2.7 Gimmick 10% 500V
C202	22-5483	.0015 Disc 10% 1KV
C203	22-3652	.1 Dial 12V
C204	22-5481	560 Pf Disc 10% 500V
C205	22-3010	.01 Disc 25V
C206	22-3791	42 Pf Disc 5% 500V
C207	22-5479	2.4 Pf Gimmick 10% 500V
C208	22-3034	.05 Disc 25V
C209	22-5482	680 Pf Disc 10% 500V
C210	22-5481	560 Pf Disc 10% 500V
C211	22-3770	5.5 Pf Disc 25 Pf 500V
C212	22-3393	.01 Disc 25V
C213	22-2428	1.8 Pf Gimmick 10% 500V
C214	22-5482	680 Pf 10% 500V
C215	22-3034	.05 Disc 25V
C216	22-3080	.005 Disc 25V
C217	22-2729	.001 Disc 25V
C218	22-3177	390 Pf Disc 10% 500V
C219	22-3177	390 Pf Disc 10% 500V
C220	22-3896	5 Mfd. Electrolytic 25V
C221	22-4754	10 Mfd Electrolytic 6V
C222	22-3033	.02 Disc Cap 25V
R201	63-1778	680 Ohm 10%
R202	63-1761	270 Ohm 10%
R203	63-1772	470 Ohm 20%
R204	63-1806	3.3K Ohm 10%
R205	63-1827	10K Ohm 10%
R206	63-1768	390 Ohm 10%
R207	63-1785	1K Ohm 10%
R208	63-1799	2.2K Ohm 10%
R209	63-1772	470 Ohm 20%
R210	63-4185	1K Ohm 10% ¼W
R211	63-1771	470 Ohm 10%
R212	63-1772	470 Ohm 20%
R213	63-1778	680 Ohm 10%
R214	63-1778	680 Ohm 10%
R215	63-1813	4700 Ohm 10%
R216	63-1813	4700 Ohm 10%
R217	63-1799	2.2K Ohm 10%
R218	63-1869	100K Ohm 10%
R219	63-1845	27K Ohm 10%
R220	63-1778	680 Ohm 10%
R221	63-1810	3.9K Ohm 10%
R222	63-1803	2.7K Ohm 10%
L201	In T201	1st IF Transformer 10.7 MHz Pri
L202	In T201	1st IF Transformer 10.7 MHz Sec
L203	In T202	1st IF AM 455 KHz Pri
L204	In T202	1st IF AM 455 KHz Sec
L205	In T203	2nd IF Transformer 10.7 MHz Pri
L206	In T203	2nd IF Transformer 10.7 MHz Sec
L207	In T204	2nd IF AM 455 KHz
L208	In T205	3rd IF Transformer 10.7 MHz Pri
L209	In T205	3rd IF Transformer 10.7 MHz Sec
L210	In T206	3rd IF AM 455 KHz Pri
L211	In T206	3rd IF AM 455 KHz Sec
L212	In T207	Ratio Detector Trans. 10.7 MHz Pri
L213	In T207	Ratio Detector Trans. 10.7 MHz Tertiary
L214	In T207	Ratio Detector Trans. 10.7 MHz Sec
T201	95-2546	FM 1st IF Transformer 10.7 MHz
T202	95-2541	AM 1st IF AM 455 KHz
T203	95-2547	FM 2nd IF Transformer 10.7 MHz
T204	95-2542	AM 2nd IF AM 455 KHz
T205	95-2548	FM 3rd IF Transformer 10.7 MHz
T206	95-2543	AM 3rd IF AM 455 KHz
T207	95-2545	FM Ratio Detector 10.7 MHz
CR201	103-22	Germanium Diode
CR202	103-90	Germanium Diodes (Matched Pair)
CR203	103-90	
Q201	121-614	AM/FM 1st IF Transistor
Q202	121-546	AM/FM 2nd IF Transistor
Q203	121-546	FM 3rd IF Transistor
	22-5486	10 Mf Electrolytic Capacitor - 3V
	52-1443	Four Conductor Cable (Approx. 6")
	64-1002	Brass Eyelet - Amer. Brass No. SE 55 (6 required)
	86-398	Connector Terminal (Female)
	149-311	Ferrite Core (Used On 121-257)

10ZT30 MULTIPLEX CHASSIS COMPONENTS

C301	22-5780	270 Pf 5% 500V
C302	22-5781	1000 Pf 5% 500V
C303	22-5471	.47 10% 200V
C304	22-5782	2200 Pf 5% 500V
C305	22-2884	5 Mfd Electrolytic 12V
C306	22-3010	.01 Disc 25V
C307	22-5782	2200 Pf 5% 500V
C308	22-5781	1000 Pf 5% 500V
C309	22-3393	.01 Disc 25V
C310	22-5781	1000 Pf 5% 500V
C311	22-2884	5 Mfd Electrolytic 12V
C312	22-3034	.05 Disc 20% 25V
C313	22-3034	.05 Disc 20% 25V
C314	22-4572	500 MF Electrolytic 15V
C401	22-2729	.001 Mfd Disc 25V
R301	63-1855	47K Ohm 10%
R302	63-1817	5.6K Ohm 10%
R303	63-1768	390 Ohm 10%
R304	63-1803	2.7K Ohm 10%
R305	63-1813	4.7K Ohm 10%
R306	63-1771	470 Ohm 10%
R307	63-1813	4.7K Ohm 10%
R308	63-6495	100K Ohm 10% POT.
R309	63-1785	1K Ohm 10%
R310	63-1782	820 Ohm 10%
R311	63-1848	33K Ohm 10%
R312	63-1824	8.2K Ohm 10%
R313	63-1775	560 Ohm 10%
R314	63-1813	4.7K Ohm 10%
R315	63-1771	470 Ohm 10%
R317	63-6066	820 Ohm 10% 1W
R318	63-6045	270 Ohm 10% 1W
R401	63-1898	470K Ohm 20%
Q301	121-639	Comp. Amp. Transistor
Q302	121-639	19 KHz Amp. Transistor
Q303	121-639	38 KHz Amp. Transistor
Q304	121-639	Stereo Ind. SW. Transistor
L301	*S-79435	67 KHz Trap Coil
T301	*S-79438	Input Coil 19 KHz
T302	*S-79436	Doubler Coil 19 KHz
T303	*S-79437	Detector Coil 38 KHz
CR301	103-23	Germanium Diodes (Matched Pair)
CR302	103-23	
CR303	103-23	Germanium Diodes (Matched Pair)
CR304	103-23	
CR305	103-96	Zener Diode
A301	105-78	Integnet
	64-1031	Grip Eyelet (4 required)
	64-1033	Grip Eyelet (17 required)
	86-500	Connector Pin (16 required)
	121-1336	Coil Shield
	126-1347	Heat Shield
	S-79435	Multiplex Trap Coil Assem.
	S-79436	Multiplex Trap Coil Assem.
	S-79437	Multiplex Detector Coil Assem.

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	S-79438	Multiplex Input Coil Assem.
		CHASSIS 10ZT31
C401	22-3034	.05 MFD Disc 25V
C402	22-5487	.47 MFD Disc Cap 3V
C403	22-5	100 PF Disc 20% 500V
C404	22-2884	5 MFD Electrolytic 12V
C405	22-3255	330 PF Disc 500V
C406	22-5630	1200 PF Molded Cap 50V
C407	22-5472	.33 MFD Dilmatic Cap 200V
C408	*22-5632	.022 MFD Molded Cap 200V
C409	*22-5473	.056 MFD Filmatic Cap 200V
C410	*22-5631	.0056 MFD Filmatic Cap 200V
C411	*22-5632	.022 MFD Filmatic Cap 20% 200V
C412	22-5257	.1 MFD Disc Cap 12V
C414	22-16	470 PF Disc 500V
C415	22-3687	1 MFD Electrolytic 50V
C417	22-2939	680 PF Disc Cap 500V
C420	22-4568	100 MFD Electrolytic 15V
C422	22-3721	200 MFD Electrolytic 35V
C451	22-3034	.05 MFD Disc 25V
C452	22-5487	.47 MFD Disc Cap 3V
C453	22-5	100 PF Disc 20% 500V
C454	22-2884	5 MFD Electrolytic 12V
C455	22-3255	330 PF Disc 500V
C456	*22-5630	1200 PF Molded Cap 50V
C457	22-5472	.33 MFD Filmatic Cap 200V
C458	*22-5632	.022 MFD Molded Cap 200V
C459	*22-5473	.056 MFD Filmatic Cap 200V
C460	*22-5631	.0056 MFD Filmatic Cap 200V
C461	*22-5632	.022 MFD Filmatic Cap 20% 200V
C462	22-5257	.1 MFD Disc Cap 12V
C464	22-16	470 PF Disc 500V
C465	22-3687	1 MFD Electrolytic 50V
C467	22-2939	680 PF Disc Cap 500V
C470	22-4568	100 MFD Electrolytic 15V
C471	22-3661	.05 MFD Disc 100V
C472	22-3721	200 MFD Electrolytic 35V
C501	22-4617	.01 MFD Disc 500V
C502	22-4617	.01 MFD Disc 500V
C503	22-5361	1000 MFD Electrolytic 50V
C504	22-2655	.01 MFD Disc 1400V
R401	63-1880	180K Ohm 10% ½W
R403	63-1876	150K Ohm 10% ½W
R404	63-1883	220K Ohm 10% ½W
R405	63-1845	27K Ohm 10% ½W
R406	63-1848	33K Ohm 10% ½W
R407	63-1799	2200 Ohm 10% ½W
R408R R408L	*63-7570	50K Dual Loudness Control
R409	63-1827	10K Ohm 10% ½W
R410R R410L	*63-7574	100K Dual Bass Control & Switch
R411	63-1820	6.8K Ohm 10% ½W
R412R R412L	*63-7573	50K Dual Treble Control
R413	63-1897	470K Ohm 10% ½W
R414	63-1789	1200 Ohm 10% ½W
R415	63-1740	82 Ohm 10% ½W
R416	63-1853	43K Ohm 5% ½W
R417	63-1799	2200 Ohm 10% ½W
R418	63-1827	10K Ohm 10% ½W
R419	63-1768	390 Ohm 10% ½W
R420	63-1768	390 Ohm 10% ½W
R421	63-1708	15 Ohm 10% ½W
R422	63-4501	1 Ohm 10% ½W
R424	63-1828	10K Ohm 20% ½W
R425	*63-7571	250K Balance Control
R451	63-1880	180K Ohm 10% ½W
R453	63-1876	150K Ohm 10% ½W
R454	63-1883	220K Ohm 10% ½W
R455	63-1845	27K Ohm 10% ½W
R456	63-1848	33K Ohm 10% ½W
R457	63-1799	2200 Ohm 10% ½W
R459	63-1827	10K Ohm 10% ½W
R461	63-1820	6.8K Ohm 10% ½W
R463	63-1897	470K Ohm 10% ½W
R464	63-1789	1200 Ohm 10% ½W
R465	63-1740	82 Ohm 10% ½W
R466	63-1853	43K Ohm 5% ½W
R467	63-1799	2200 Ohm 10% ½W
R468	63-1827	10K Ohm 10% ½W
R469	63-1768	390 Ohm 10% ½W
R470	63-1768	390 Ohm 10% ½W
R471	63-1708	15 Ohm 10% ½W
R472	63-4501	1 Ohm 10% ½W
R501	63-5656	470 Ohm 10% ½W 2W
R502	63-1933	3.3 Megohm 20% ½W
CR401	*103-145	Diode
CR451	*103-145	Diode
CR501	212-71	Rectifier Diode
CR502	212-71	Rectifier Diode
T501	95-2648	Power Transformer
P501	*43-1043	9 Contact Housing (Male)
P502	43-874	9 Contact Housing (Female)
	*12-4938	Chassis Bracket
	19-448	Connector Clip (Used on 86-388)
	19-480	Retaining Clip (2 required)
	22-2623	.0022 MF Disc Capacitor
	22-5264	100 PF Disc Capacitor - 1KV. (2 required)
	22-5290	680 PF Disc Capacitor - 1KV. (2 required)
	*52-1483	Three Conductor Cable (Approx. 12")
	*52-1488	Two Conductor Shielded Lead (Approx. 15")
	*54-808	Tinnerman Speed Nut (1 used on ea. 114-1080)
	*54-818	Tinnerman Speed Nut (8 required)
	*57-6769	Heat Sink Plate (2 required)
	63-1835	15K Ohm Resistor - 20% ½W
	83-3404	Three Lug Terminal Strip
	*83-6769	Chassis Control Panel Strip
	86-388	Connector Terminal (2 required)
	86-483	Terminal - Male (7 required)
	93-542	Insulating Washer (1 used on ea. 57-6769)
	114-801	8 - 18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea 83-6769)
	*114-1080	4 - 24 x 7/16 x 3/16 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea. 121-709, & 121-710)
	121-430	Transistor - Pre-Driver (2 required)
	121-433	Transistor - Pre-Amplifier (2 required)
	*121-706	Transistor - Driver (2 required)
	*121-709	Transistor - Output (Matched Pair)
	*121-710	Transistor - Output (Matched Pair)
		CHASSIS 10ZT33
C401	22-3034	.05 Mfd Disc 25V
C403	22-5	100 Pf Disc 20% 500V
C404	22-3687	1 Mfd Electrolytic 50V
C406	22-12	1500 Pf Disc 500V
C407	22-5636	.27 Mfd Filmatic 200V
C408	22-5632	.022 Mfd Molded 200V
C409	22-5473	.056 Mfd Filmatic 200V
C410	22-5637	.0047 Mfd Filmatic 200V
C411	22-5632	.022 Mfd Filmatic 200V
C412	22-3652	.1 Mfd Disc 10V
C414	22-16	470 Pf Disc 500V
C415	22-3687	1 Mfd Electrolytic 50V
C417	22-2939	680 Pf Disc 500V
C420	22-4568	100 Mfd Electrolytic 15V
C422	22-3721	200 Mfd Electrolytic 35V
C451	22-3034	.05 Mfd Disc 25V
C453	22-5	100 Pf Disc 20% 500V
C454	22-3687	1 Mfd Electrolytic 50V
C456	22-12	1500 Pf Disc 500V
C457	22-5636	.27 Mfd Filmatic 200V
C458	22-5632	.022 Mfd Molded 200V
C459	22-5473	.056 Mfd Filmatic 200V
C460	22-5637	.0047 Mfd Filmatic 200V
C461	22-5632	.022 Mfd Filmatic 200V
C462	22-3652	1 Mfd Disc 10V
C464	22-16	470 Pf Disc 500V

*Denotes parts not previously used in Zenith receivers

ITEM NO.	PART NO.	DESCRIPTION
C465	22-3687	1 Mfd Electrolytic 50V
C467	22-2939	680 Pf Disc 500V
C470	22-4568	100 Mfd Electrolytic 15V
C472	22-3721	200 Mfd Electrolytic 35V
C503	22-5362	1000 Mfd Electrolytic 50V
C504	22-5475	500 Mfd Electrolytic 25V
R402	63-1950	8.2 Megohm 10% ½W
R405	63-1845	27K Ohm 10% ½W
R407	63-1789	1200 Ohm 10% ½W
R408(R) R408(L)	*63-7589	50K Dual Loudness Control
R409	63-1827	10K Ohm 10% ½W
R410(R) R410(L)	*63-7588	100K Dual Bass Control
R411	63-1820	6.8K Ohm 10% ½W
R412(R) R412(L)	*63-7587	50K Dual Treble Control
R413	63-1897	470K Ohm 10% ½W
R414	63-1789	1200 Ohm 10% ½W
R415	63-1740	82 Ohm 10% ½W
R416	63-1848	33K Ohm 10% ½W
R417	63-1799	2200 Ohm 10% ½W
R418	63-1827	10K Ohm 10% ½W
R419	63-1761	270 Ohm 10% ½W
R420	63-1768	390 Ohm 10% ½W
R421	63-1708	15 Ohm 10% ½W
R422	63-4501	1 Ohm 10% ½W
R423	63-1925	2.2 Megohm 10% ½W
R425	*63-7586	250K Balance Control
R452	63-1950	8.2 Megohm 10% ½W
R455	63-1845	27K Ohm 10% ½W
R457	63-1789	1200 Ohm 10% ½W
R459	63-1827	10K Ohm 10% ½W
R461	63-1820	6.8K Ohm 10% ½W
R463	63-1897	470K Ohm 10% ½W
R464	63-1789	1200 Ohm 10% ½W
R465	63-1740	82 Ohm 10% ½W
R466	63-1848	33K Ohm 10% ½W
R467	63-1799	2200 Ohm 10% ½W
R468	63-1827	10K Ohm 10% ½W
R469	63-1761	270 Ohm 10% ½W
R470	63-1768	390 Ohm 10% ½W
R471	63-1708	15 Ohm 10% ½W
R472	63-4501	1 Ohm 10% ½W
R501	63-1796	1.8K Ohm 10% ½W
R502	63-1912	1 Megohm 20% ½W
CR401	103-145	Diode
CR451	103-145	Diode
CR501	212-71	Rectifier Diode
CR502	212-71	Rectifier Diode
A501	S-79577	A.C. Power Sub-Assembly
SP1	49-1156	Poly-Planar Speaker
SP2	49-1156	Poly-Planar Speaker
	12-4938	Chassis Bracket
	19-480	Cable Retaining Clip
	43-877	Three Contact Housing (Male)
	*52-1481	Three Conductor Cable (Approx. 10")
	52-1483	Three Conductor Cable (Approx. 12")
	*52-1508	Two Conductor Shielded Lead
	54-808	Tinnerman Speed Nut (1 Used On Ea. 114-1080)
	54-818	Tinnerman Speed Nut (8 required)
	58-315	Connector Plug (2 required)
	83-6769	Chassis Control Panel Strip
	*83-6805	Four Lug Terminal Strip
	86-483	Terminal - Male (3 required)
	*93-1833	Transistor Insulating Washer (2 required)
	*101-1288	Speaker Connection Label
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on 83-6769 & 1 used on 83-6805)
	114-1080	4-24 x 7/16 x 3/16 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea. 121-709 & 121-710) (4 required)
	121-430	Transistor - Pre-Driver (2 required)
	121-433	Transistor - Pre-Amplifier (2 required)
	121-706	Transistor - Driver (2 required)
	800-270	Transistor - Output (Matched Pair-Consists of One 121-707 and One 121-708) (2 required)
	*S-79559	Power Cable & Terminal Assembly

CHASSIS 10AT37

C401	22-3034	.05 Mfd Disc 25V
C402	22-5487	.47 Mfd Disc 3V
C404	22-2884	5 Mfd Electrolytic 12V
C407	22-5639	.22 Mfd Filmatic 100V
C408	22-5814	.022 Mfd Filmatic 20% 100V
C409	22-5883	.033 Mfd Filmatic 100V
C410	22-5640	.0056 Mfd Filmatic 100V
C411	22-5814	.022 Mfd Filmatic 20% 100V
C412	22-3652	.1 Mfd Disc 10V
C414	22-16	470 Pf Disc 500V
C415	22-5091	2 Mfd Electrolytic 15V
C417	22-2939	680 Pf Disc 500V
C420	22-4568	100 Mfd Electrolytic 15V
C422	22-3721	200 Mfd Electrolytic 35V
C423	22-5884	.082 Mf Filmatic Cap. 10% 100V
C424	22-5640	.0056 Mfd Filmatic 100V
C451	22-3034	.05 Mfd Disc 25V
C452	22-5487	.47 Mfd Disc 3V
C454	22-2884	5 Mfd Electrolytic 12V
C457	22-5639	.22 Mfd Filmatic 100V
C458	22-5814	.022 Mfd Filmatic 20% 100V
C459	22-5883	.033 Mfd Filmatic 100V
C460	22-5640	.0056 Mfd Filmatic 100V
C461	22-5814	.022 Mfd Filmatic 20% 100V
C462	22-3652	.1 Mfd Disc 10V
C464	22-16	470 Pf Disc 500V
C465	22-5091	2 Mfd Electrolytic 15V
C467	22-2939	680 Pf Disc 500V
C470	22-4568	100 Mfd Electrolytic 15V
C471	22-3661	.05 Mfd Disc 100V
C472	22-3721	200 Mfd Electrolytic 35V
C473	22-5884	.082 Mf Filmatic Cap. 10% 100V
C474	22-5640	.0056 Mfd Filmatic 100V
C501	22-4601	.01 Mfd Disc 1000V
C502	22-4601	.01 Mfd Disc 1000V
C503	22-5362	1000 Mfd Electrolytic 50V
C505	22-4572	500 Mf Electrolytic 15V
R401	63-1880	180K Ohm 10%
R403	63-1876	150K Ohm 10%
R404	63-1883	220K Ohm 10%
R405	63-1845	27K Ohm 10%
R406	63-1758	220 Ohm 20%
R407	63-1789	1200 Ohm 10%
R408R R408L	63-8310	50K Dual Loudness Control
R409	63-1827	10K Ohm 10%
R410R R410L	*63-8234	100K Dual Bass Control
R411	63-1831	12K Ohm 10%
R412R R412L	63-7573	50K Dual Treble Control
R413	63-1908	320K Ohm 10%
R414	63-1789	1200 Ohm 10%
R415	63-1733	56 Ohm 10%
R416	63-1853	43K Ohm 5%
R417	63-1799	2200 Ohm 10%
R418	63-1838	18K Ohm 10%
R419	63-1768	390 Ohm 10%
R420	63-1768	390 Ohm 10%
R421	63-1708	15 Ohm 10%
R422	63-4501	1 Ohm 10%
R424	63-1835	15K Ohm 20%
R425	63-7571	250K Balance Control
R426	63-1810	3900 Ohm 10%
R427	63-1813	4700 Ohm 10%
R428	63-1827	10K Ohm 10%
R451	63-1880	180K Ohm 10%

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
R453	63-1876	150K Ohm 10%
R454	63-1883	220K Ohm 10%
R455	63-1845	27K Ohm 10%
R456	63-1758	220 Ohm 20%
R457	63-1789	1200 Ohm 10%
R459	63-1827	10K Ohm 10%
R461	63-1831	12K Ohm 10%
R463	63-1908	820K Ohm 10%
R464	63-1789	1200 Ohm 10%
R465	63-1733	56 Ohm 10%
R466	63-1853	43K Ohm 5%
R467	63-1799	2200 Ohm 10%
R468	63-1838	18K Ohm 10%
R469	63-1768	390 Ohm 10%
R470	63-1768	390 Ohm 10%
R471	63-1708	15 Ohm 10%
R472	63-4501	1 Ohm 10%
R476	63-1810	3900 Ohm 10%
R477	63-1813	4700 Ohm 10%
R478	63-1827	10K Ohm 10%
R501	63-1799	2200 Ohm 10%
R502	63-1933	3.3 Megohm 20%
CR401	103-145	Diode
CR451	103-145	Diode
CR501	212-71	Rectifier Diode
CR502	212-71	Rectifier Diode
T501	95-2649	Power Transformer
P501	43-571	9 Contact Housing (Male)
P502	43-574	9 Contact Housing (Female)
S1	*85-1073	Function Switch
SP1	49-1159	Speaker (Right)
SP2	49-1159	Speaker (Left)
J1	44-78	Stereo Headphone Jack
	12-4938	Chassis Bracket
	*12-5213	Switch Mounting Bracket
	19-480	Retaining Clip
	44-72	Speaker Jack
	44-77	Tape Jack
	*52-1614	Auxiliary Input Cable
	*52-1615	Amplifier Input Cable
	*52-1616	Phono Input Cable
	54-139	3/8-32 x 9/16 Palnut (1 used on ea. 63-7570, 63-7571, 63-7573 & 63-8234 (4 required)
	54-334	Tinnerman Speed Nut (1 used on ea. 114-1080) (4 required)
	54-818	Tinnerman Speed Nut (8 required)
	*78-1889	Light Socket & Wire
	83-6769	Chassis Control Panel Strip
	86-390	Connector Terminal (9 required)
	93-1833	Transistor Insulating Washer (2 required)
	93-1834	Aluminum Heat Zinc Washer (2 required)
	100-249	Pilot Light (2 required)
	114-94	6-32 x ¼ Hex Hd. Machine Screw-Stat. Bronze (2 Join 85-1073 & 12-5213)
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on 83-6769 & 1 used on 12-5213) (3 required)
	114-1080	4-24 x 7/16 x 3/16 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on ea. 800-289) (4 required)
	121-433	Transistor - Pre-Amplifier (4 required)
	121-706	Transistor - Driver (2 required)
	*126-1414	Dial Light Shield
	800-289	Output Transistor Assem. - Matched Pair (2 required)

CHASSIS 10ZT38

C401	22-3034	.05 Mfd Disc 25V
C403	22-5	100 Pf Disc 500V
C404	22-3687	1 Mfd Electrolytic 50V
C407	22-5634	.1 Mfd Filmatic 200V
C409	22-5473	.056 Mfd Filmatic 200V
C410	22-5637	.0047 Mfd Filmatic 200V
C411	22-5632	.022 Mfd Filmatic 200V
C412	22-3652	.1 Mfd Disc 10V
C414	22-16	470 Pf Disc 500V
C415	22-3687	1 Mfd Electrolytic 50V
C417	22-2939	680 Pf Disc 500V
C420	22-4568	100 Mfd Electrolytic 15V
C422	22-3721	200 Mfd Electrolytic 35V
C451	22-3034	.05 Mfd Disc 25V
C453	22-5	100 Pf Disc 500V
C454	22-3687	1 Mfd Electrolytic 50V
C457	22-5634	.1 Mfd Filmatic 200V
C459	22-5473	.056 Mfd Filmatic 200V
C460	22-5637	.0047 Mfd Filmatic 200V
C461	22-5632	.022 Mfd Filmatic 200V
C462	22-3652	.1 Mfd Disc 10V
C464	22-16	470 Pf Disc 500V
C465	22-3687	1 Mfd Electrolytic 50V
C467	22-2939	680 Pf Disc 500V
C470	22-4568	100 Mfd Electrolytic 15V
C472	22-3721	200 Mfd Electrolytic 35V
C503	22-5362	1000 Mfd Electrolytic 50V
C504	22-5475	500 Mfd Electrolytic 25V
R402	63-1950	8.2 Megohm ½W. 10%
R405	63-1845	27K Ohm ½W. 10%
R407	63-1810	3900 Ohm ½W. 10%
R408(R) R408(L)	*63-8168	50K Dual Loudness Control
R409	63-1827	10K Ohm ½W. 10%
R411	63-1813	4700 Ohm ½W. 10%
R412(R) R412(L)	*63-7587	50K Dual Tone Control
R413	63-1897	470K Ohm ½W. 10%
R414	63-1789	1200 Ohm ½W. 10%
R415	63-1740	82 Ohm ½W. 10%
R416	63-1848	33K Ohm ½W. 10%
R417	63-1799	2200 Ohm ½W. 10%
R418	63-1827	10K Ohm ½W. 10%
R419	63-1761	270 Ohm ½W. 10%
R420	63-1768	390 Ohm ½W. 10%
R421	63-1708	15 Ohm ½W. 10%
R422	63-4505	1.2 Ohm ½W. 10%
R423	63-1932	3.3 Megohm ½W. 10%
R425	*63-7586	250K Balance Control
R452	63-1950	8.2 Megohm ½W. 10%
R455	63-1845	27K Ohm ½W. 10%
R457	63-1810	3900 Ohm ½W. 10%
R459	53-1827	10K Ohm ½W. 10%
R461	63-1813	4700 Ohm ½W. 10%
R463	63-1897	470K Ohm ½W. 10%
R464	63-1789	1200 Ohm ½W. 10%
R465	63-1740	82 Ohm ½W. 10%
R466	63-1848	33K Ohm ½W. 10%
R467	63-1799	2200 Ohm ½W. 10%
R468	63-1827	10K Ohm ½W. 10%
R469	63-1761	270 Ohm ½W. 10%
R470	63-1768	390 Ohm ½W. 10%
R471	63-1708	15 Ohm ½W. 10%
R472	63-4505	1.2 Ohm ½W. 10%
R501	63-1796	1.8K Ohm ½W. 10%
CR401	103-145	Diode
CR451	103-145	Diode
CR501	212-71	Rectifier Diode
CR502	212-71	Rectifier Diode
A501	S-79577	A.C. Power Sub-Assy.
SP1	49-1167	Speaker 6 x 9
SP2	49-1167	Speaker 6 x 9
SP3	49-979	Speaker 3½
SP4	49-979	Speaker 3½
Q401	121-433	Transistor, Pre-Amplifier
Q402	121-430	Transistor, Pre-Driver
Q403	121-706	Transistor, Driver
Q404 Q405	800-270	Transistors, Output-Matched Pair (Consists of one 121-707and one 121-708)
Q451	121-433	Transistor, Pre-Amplifier
Q452	121-430	Transistor, Pre-Driver
Q453	121-706	Transistor, Driver

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
Q454 Q455	800-270	Transistors, Output-Matched Pair , (Consists of one 121-707 and one 121-708)
	12-4938	Chassis Bracket
	19-480	Cable Retaining Clip
	43-877	Three Contact Housing (Male)
	52-1481	Three Conductor Cable (Approx. 10")
	52-1483	Three Conductor Cable (Approx. 12")
	*52-1508	Two Conductor Shielded Lead (Part of S-80215)
	54-334	Tinnerman Speed Nut (1 used on ea. 114-1080)
	58-315	Connector Plug (2 part of S-80215)
	83-6769	Chassis Control Panel Strip
	*83-6805	4 Lug Terminal Strip
	86-483	Terminal - Male (3 required)
	*93-1833	Transistor Insulating Washer (2 required)
	93-1834	Aluminum Washer (2 required)
	*101-1288	Speaker Connection Label
	103-45	Diode (2 required)
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on 83-6769 & 1 used on 83-6805)
	114-1080	4-24 x 7/16 x 3/16 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea. 800-270) (4 required)
	212-71	Silicon Rectifier (2 required)
	S-79559	Power Cable & Terminal Assem.
	*S-80215	Shielded Lead & Plug Assem.

CHASSIS 11ZT27 CONTROL PANEL ASSEMBLY

C1	22-3034	.05 Mfd Disc 25V
C2	22-3595	.33 Mfd 50V
C3	22-3687	1 Mfd Electrolytic 50V
C4	22-2939	680 Pf Disc 500V
C5	22-5207	220 Pf Mica 100V
C6	22-3630	.068 Mfd 50V
C7	22-5207	220 Pf Mica 100V
C8	22-3630	.068 Mfd 50V
C9	22-2939	680 Pf Disc 500V
C10	22-3595	.33 Mfd 50V
C12	22-3687	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
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
R1A R1B	*63-6496	Dual Loudness Control
R2A R2B	*63-7685	Dual Bass Control
R3A R3B	*63-6499	Dual Treble Control
R4	*63-6497	Balance Control
	12-4938	Chassis Bracket
	19-448	Grounding Clip
	19-480	Retaining Clip
	43-877	Three Contact Housing - Male
	43-1043	Nine Contact Housing - Male
	*52-1526	Dual Shielded Lead
	54-139	3/8 - 32 Palnut (1 used on ea. 63-6498, 63-6496, 63-6497 & 63-6499)
	*57-6901	Bottom Plate

ITEM NO.	PART NO.	DESCRIPTION
	63-1803	2700 Ohm Resistor - ½W. 10% (2 required)
	63-1817	5600 Ohm Resistor - ½W. 10% (4 required)
	63-1834	15K Ohm Resistor - ½W. 10 % (4 required)
	63-1835	15K Ohm Resistor - ½W. 20%
	63-1841	22K Ohm Resistor - ½W. 10% (2 required)
	63-1845	27K Ohm Resistor - ½W. 10% (2 required)
	63-1848	33K Ohm Resistor - ½W. 10% (2 required)
	63-1876	150K Ohm Resistor - ½W. 10% (2 required)
	63-1883	220K Ohm Resistor - ½W. 10% (2 required)
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	83-5328	Eleven Lug Terminal Strip
	83-5384	Six Lug Terminal Strip
	83-5648	Fourteen Lug Terminal Strip
	83-6769	Chassis Control Panel Strip
	*83-6881	Terminal Board
	86-388	Terminal (2 required)
	86-483	Terminal - Male (8 required)
	86-496	Ground Terminal
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 Mt. 83-6769)
	121-430	Transistor - Pre-Driver (2 required)
	*S-80716	Dual Shielded Lead & Terminal Assembly

CHASSIS 11ZT27 AMPLIFIER CHASSIS

C30	22-3687	1 Mfd Electrolytic 50V
C31	22-3687	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	22-2655	.01 Mfd Disc 1000V
C41	22-5362	1000 Mfd Electrolytic 50V
C42	22-5316	500 Mfd Electrolytic 50V
C43	22-5167	1000 Mfd Electrolytic 30V
C44	22-3608	68 Pf Disc 500V
C45	22-3608	68 Pf Disc 500V
C46	22-2376	47 Pf Disc 500V
C47	22-2376	47 Pf Disc 500V
C48	22-3892	.01 Mfd 100V
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% 5W
R10	63-5305	.51 Ohm Resistor 10% 5W
R12	63-5305	.51 Ohm Resistor 10% 5W
R13	63-5305	.51 Ohm Resistor 10% 5W
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	S80709	Housing Wire & Terminal Assembly
M2	S80713	Housing Shielded Lead & Terminal Assem.
M3	S80734	Housing Wire & Terminal Assembly
M4	S80730	Housing Wire & Terminal Assembly
M5	S75023	Three Conductor Cable & Housing Assem.
T1	95-2475	Driver Transformer
T2	95-2475	Driver Transformer
T3	95-2476	Driver Transformer
J1	44-78	Head Phono Jack
F1	136-24	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
	11-87	A.C. Line Cord
	19-546	Capacitor Retaining Clip
	19-561	Capacitor Retaining Clip (4 required)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	43-519	Socket Contact Housing (Male)
	43-874	Nine Contact Housing (Female)
	43-876	Three Contact Housing (Female)
	52-1339	Three Conductor Cable - Phono (Approx. 26")
	*52-1529	Three Conductor Cable - Speaker (Approx. 20")
	57-6328	Heat Sink Plate (2 required)
	63-1757	220 Ohm Resistor - ½W. 10% (2 required)
	63-1771	470 Ohm Resistor - ½W. 10% (2 required)
	63-1785	1000 Ohm Resistor - ½W. 10%
	63-1827	10K Ohm Resistor - ½W. 10% (2 required)
	63-1862	68K Ohm Resistor - ½W. 10% (2 required)
	63-1869	100K Ohm Resistor - ½W. 10% (2 required)
	63-1876	150K Ohm Resistor - ½W. 10% (2 required)
	63-1918	1.5 Megohm Resistor - ½W. 10% (2 required)
	63-1936	3.9 Megohm Resistor - ½W. 10%
	63-4533	5.6 Ohm Resistor - ½W. 10% (4 required)
	78-1812	Two Contact Transistor Socket (5 required)
	79-174-34	No. 18 Sleeving - Yellow - 4¼"
	*83-3404	Three Lug Terminal Strip
	83-5277	Transistor Insulating Strip (3 part of 800-196)
	83-5385	Seven Lug Terminal Strip
	83-5391	Twenty Lug Terminal Strip (3 required)
	*83-6881	Fourteen Lug Terminal Strip
	86-334	Terminal (3 required)
	86-484	Terminal (11 required)
	86-496	Ground Terminal
	112-1608	8-18 x 5/16 Phillips Pan Hd. Self-Tap. Screw-Black Oxide (4 Mt. 95-2476)
	114-271	6-20 x ½ x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on ea. 800-196 & 2 used on 121-726)
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on ea. 95-2475)
	121-430	Transistor - Pre-Driver (2 required)
	121-706	Transistor - Driver (2 required)
	*121-726	Transistor (Power Supply Filter)
	125-140	Strain Relief Grommet
	205-51	Dow Corning Heat Conductive Grease (Part of 800-196)
	800-196	Power Output Transistor Assembly - Matched Pair (2 required)

CHASSIS 11AT30

C1	22-3792	17 PF 5% Disc 500V
C2	22-2729	.001 MF Disc 25V
C3	22-5321	36 PF Disc 5% 500V
C4	22-4617	.01 Disc 500V
C5	22-4613	.001 Feedthru 500V
C6	22-3541	3.3 PF Gimmick 5% 500V
C7	22-5485	1 PF Gimmick 5% 500V
C8	22-2481	8 PF Disc 5% 500V
C9	22-4844	.002 Feedthru 500V
C10	22-3034	.05 Disc 25V
C11	22-4613	.001 Feedthru 500V
C12	22-3622	19 PF Disc Cap 5% 500V
C13	22-4844	.002 Feedthru 500V
C14	22-2513	7 PF Disc 500V
C15	22-3675	10 PF Disc 500V
C101A	22-4843	BC Ant. Trimmer
C101B		BC Ant. Tuning
C101C		BC Osc. Tuning
C101D		BC Osc. Trimmer
C102	22-3033	.02 Disc 25V
C103	22-3034	.05 Disc 25V
C104	22-3393	.01 Disc 25V
C105	22-5480	390 PF Mica 5% 100V
C201	22-3310	2.7 Gimmick 10% 500V
C202	22-5483	.0015 Disc 10% 1KV
C203	22-3652	.1 Disc 12V
C204	22-5481	560 PF Disc 10% 500V
C205	22-3010	.01 Disc 25V
C206	22-3791	42 PF Disc 5% 500V
C207	22-5479	2.4 PF Gimmick 10% 500V
C208	22-3034	.05 Disc 25V
C209	22-5482	680 PF Disc 10% 500V
C210	22-5481	560 PF Disc 10% 500V
C211	22-3770	5.5 PF Disc ±.25PF 500V
C212	22-3393	.01 Disc 25V
C213	22-2428	1.8 PF Gimmick 10% 500V
C214	22-5482	680 PF 10% 500V
C215	22-3034	.05 Disc 25V
C216	22-3080	.005 Disc 25V
C217	22-2729	.001 Disc 25V
C218	22-3177	390 PF Disc 10% 500V
C219	22-3177	390 PF Disc 10% 500V
C220	22-3896	5 MFD Electrolytic 25V
C221	22-4754	10 MFD Electrolytic 6V
C222	22-3033	.02 Disc Cap 25V
C301	22-5780	270 PF 5% 500V
C302	22-5781	1000 PF 5% 500V
C303	22-5471	.47 10% 200V
C304	22-5782	2200 PF 5% 500V
C305	22-2884	5 MFD Electrolytic 12V
C306	22-3010	.01 Disc 25V
C307	22-5782	2200 PF 5% 500V
C308	22-3393	.01 Disc 25V
C309	22-5781	1000 PF 5% 500V
C310	22-2884	5 MFD Electrolytic 12V
C311	22-3415	.0068 MF Disc 10% 25V
C312	22-3034	.05 Disc 20% 25V
C314	22-4572	500 MF Electrolytic 15V
C362	22-3034	.05 Disc 20% 25V
C401	22-2729	.001 MF Disc 25V
R1	63-1810	3.9K Ohm 10% ½W
R2	63-1761	270 Ohm 10% 1W
R3	63-4196	1.8K Ohm 10% ¼W
R4	63-1772	470 Ohm 20% ½W
R5	63-1898	470K Ohm 20% ½W
R6	63-1796	1.8K Ohm 10% ½W
R7	63-1831	12K Ohm 10% ½W
R8	63-4122	33 Ohm 10% ¼W
R9	63-1898	470K Ohm 20% ½W
R101	63-1831	12K Ohm 10% ½W
R102	63-1796	1.8K Ohm 10% ½W
R103	63-1824	8.2K Ohm 10% ½W
R104	63-1778	680 Ohm 10% ½W
R105	63-1799	2.2K Ohm 10% ½W
R201	63-1778	680 Ohm 10% ½W
R202	63-1761	270 Ohm 10% ½W
R203	63-1772	470 Ohm 20% ½W
R204	63-1806	3.3K Ohm 10% ½W
R205	63-1827	10K Ohm 10% ½W
R206	63-1768	390 Ohm 10% ½W
R207	63-1785	1K Ohm 10% ½W
R208	63-1799	2.2K Ohm 10% ½W
R209	63-1772	470 Ohm 20% ½W
R210	63-4185	1K Ohm 10% ¼W
R211	63-1771	470 Ohm 10% ½W
R212	63-1772	470 Ohm 20% ½W
R213	63-1778	680 Ohm 10% ½W
R214	63-1778	680 Ohm 10% ½W
R215	63-1813	4700 Ohm 10% ½W
R216	63-1813	4700 Ohm 10% ½W
C217	63-1799	2.2K Ohm 10% ½W
R218	63-1869	100K Ohm 10% ½W
R219	63-1845	27K Ohm 10% ½W
R220	63-1778	680 Ohm 10% ½W
R221	63-1810	3.9K Ohm 10% ½W
R222	63-1803	2.7K Ohm 10% ½W
R301	63-1855	47K Ohm 10% ½W
R302	63-1813	4.7K Ohm 10% ½W
R303	63-1764	330 Ohm 10% ½W
R305	63-1813	4.7K Ohm 10% ½W
R306	63-1771	470 Ohm 10% ½W
R307	63-1806	3.3K Ohm 10% ½W
R308	63-6495	100K Ohm 10% Pot. ½W
R309	63-1785	1K Ohm 10% ½W
R310	63-1782	820 Ohm 10% ½W
R311	63-1824	8.2K Ohm 10% ½W
R312	63-1775	560 Ohm 10% ½W

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
R313	63-1764	330 Ohm 10% ½W
R314	63-1771	470 Ohm 10% ½W
R315	63-6066	820 Ohm 10% 1W
R316	63-5652	390 Ohm 10% 2W
R317	63-1782	820 Ohm 10% ½W
R318	63-1799	2.2K Ohm 10% ½W
R319	63-1825	9.1K Ohm 5% ½W
R320	63-1826	10K Ohm 5% ½W
R401	63-1898	470K Ohm 20% ½W
L1	S-78099	FM Antenna Coil Assembly
L2	S-65043	FM Detector Coil Assembly
L3	20-1256	10.7 MHZ Trap Coil
L4	S-62887	FM Oscillator Coil Assembly
L101	S-77014	AM Antenna Assembly
L102	149-311	Iron Core Sleeve
L103	In T101	AM Oscillator Trans. Pri.
L104	In T101	AM Oscillator Trans. Sec.
L201	In T201	1st IF Transformer 10.7 MHZ Pri.
L202	In T201	1st IF Transformer 10.7 MHZ Sec.
L203	In T202	1st IF AM 455KHZ Pri.
L204	In T202	1st IF AM 455KHZ Sec.
L205	In T203	2nd IF Transformer 10.7 MHZ Pri.
L206	In T203	2nd IF Transformer 10.7 MHZ Sec.
L207	In T204	2nd IF AM 455 KHZ
L208	In T205	3rd IF Transformer 10.7 MHZ Pri.
L209	In T205	3rd IF Transformer 10.7 MHZ Sec.
L210	In T206	3rd IF AM 455 KHZ Pri.
L211	In T206	3rd IF AM 455 KHZ Sec.
L212	In T207	Ratio Detector Trans. 10.7 MHZ Pri.
L213	In T207	Ratio Detector Trans. 10.7 MHZ Tertiary
L214	In T207	Ratio Detector Trans. 10.7 MHZ Sec
L301	S-79435	67 KHZ Trap Coil
SW1	85-1027	Bandswitch
T101	95-2544	AM Oscillator Transformer
T201	95-2546	FM 1st IF Transformer 10.7 MHZ
T202	95-2541	AM 1st IF AM 455 KHZ
T203	95-2547	FM 2nd IF Transformer 10.7 MHZ
T204	95-2542	AM 2nd IF AM 455 KHZ
T205	95-2548	FM 3rd IF Transformer 10.7 MHZ
T206	95-2543	AM 3rd IF AM 455 KHZ
T207	95-2545	FM Ratio Detector 10.7 MHZ
T301	S-79438	Input Coil 19 KHZ
T302	S-79436	Doubler Coil 19 KHZ
T303	S-79437	Detector Coil 38 KHZ
CR1	103-47	AFC Diode
CR101	103-74	Germanium Diode
CR201	103-22	Germanium Diode
CR202	103-90	Germanium Diodes (Matched Pair)
CR203	103-90	
CR301	103-23	Germanium Diodes (Matched Pair)
CR302	103-23	
CR305	103-96	Zener Diode
Z301	105-107	38 KHZ Filter
Z351	105-107	38 KHZ Filter
PL1	100-451	Stereo Ind. Light
PL2	100-249	Pilot Light No. 1847
PL3	100-249	Pilot Light No. 1847
PL4	100-249	Pilot Light No. 1847
	12-4009	Tuner Bracket
	12-4758	Coil Mtg. Bracket
	12-4889	Dial Background Mtg. Bracket
	12-4998	Bracket
	17-130	Clamp
	17-135	Clamp
	19-322	Coil Mtg. Clip (1 used on ea. S-62887, S-65043 & S-78099)
	19-448	Ground Clip
	19-480	Retaining Clip
	22-4572	500 MF Electrolytic Capacitor - 15V.
	24-1621	Tuner Cover
	43-571	Terminal Housing (9 Contact)
	43-874	Terminal Housing (9 Contact)
	52-1489	Two Conductor Shielded Lead
	52-1490	Two Conductor Shielded Lead
	52-1571	Two Conductor Shielded Cable
	54-139	3/8-32 Palnut (Used on 85-1027)

ITEM NO.	PART NO.	DESCRIPTION
	56-426	Roll Pin (Part of S-79746)
	58-315	Connector Plug (2 required)
	61-222	Idler Pulley (6 required)
	76-1141	Guide Shaft
	76-1772	Tuning Shaft (Part of S-79746)
	78-1784	Dial Light Socket & Wire (3 required)
	80-209	Drive Cord Tension Spring (Gang)
	80-1140	Drive Cord Tension Spring (Pointer)
	80-1467	Retaining Spring
	80-1468	Grounding Spring
	80-1951	Retaining Spring (Part of S-79746)
	83-4125	Two Lug Terminal Strip
	83-4590	Felt Strip
	83-5773	3 Lug Terminal Strip
	83-6500	2 Lug Terminal Strip
	83-6557	Antenna Mtg. Strip
	83-6807	14 Lug Terminal Strip
	83-6900	Antenna Protection Strip
	86-344	Connector Terminal (2 required)
	86-388	Connector Terminal - Female (2 required)
	86-390	Connector Terminal - Male (9 required)
	86-398	Connector Terminal - Female (8 required)
	86-441	Insulated Feed-Thru Terminal (2 required)
	86-484	Connector Terminal - Female (7 required)
	94-613	Iron Core Bushing (2 required)
	94-1380	Insulating Bushing (2 required)
	113-10	6-32 x 3/16 x 1/4 Hex Hd. Mach. Screw- N.P. - Internal Lockwasher Att. (4 Mt. 22-4843)
	114-26	8-18 x 1/4 x 1/4 Hex Hd, Self-Tap. Screw-Stat. Bronze (2 join 12-4998 & S-79739 & 2 Mt. S-79739)
	114-564	8-18 x 5/16 Hex Hd. Self-Tap. Screw-Stat. Bronze (Used on 17-130)
	114-651	8-15 x 5/16 x1/4 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (Joins 17-135 & S-79739)
	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on S-79740 & 12-4889) (4 required)
	114-802	8-18 x 5/16 x 1/4 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (2 used on 94-1380)
	114-803	6-20 x 1/4 x 1/4 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (4 join S-79739 & Multiplex Assem.)
	121-612	Transistor - R.F. (FM)
	121-613	Transistor - Autodyne Converter (FM)
	125-26	Rubber Grommet
	126-1297	Tuner Shield
	149-368	Iron Core & Spring
	149-385	Iron Core & Spring
	S-79739	Bracket & Pulley Assem. (L. H.)
	S-79740	Bracket & Pulley Assem. (R. H.)
	S-79746	Bracket, Drive Shaft & Iron Core Assem.
	S-79776	Drive Cord & Eyelet Assem. (Gang)
	S-79777	Drive Cord & Eyelet Assem. (Pointer)
	S-79778	Drive Cord & Eyelet Assem. (Pointer)
	S-81430	Dial Light Shield & Terminal Strip Assem.
	S-81979	Shield Lead & Plug Assem.

CHASSIS 11AT30
I.F. ASSEMBLY COMPONENTS

	52-1443	4 Conductor Cable
	64-1002	Brass Eyelet - American Brass No. SE55 (6 required)
	86-398	Connector Terminal (Female)
	121-257	Transistor - Converter (AM)
	121-546	Transistor - 2nd & 3rd I.F. (2 required)
	121-614	Transistor - 1st I.F.

CHASSIS 11AT30
MULTIPLEX ASSEMBLY COMPONENTS

	22-5018	.47 MF Capacitor - 50V.
	63-1799	2200 Ohm Resistor - ½W. 10%
	64-1033	Grip Eyelet (21 required)
	86-500	Connector Pin (14 required)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	121-639	Transistor - Comp. AM., 19 KHZ Amp., 38 KHZ Amp. & Stereo Indicator Switch (4 required)
	*121-762	Transistor
	126-1336	Coil Shield
	126-1347	Heat Shield
	*S-84181	Multiplex Detector Coil Assem.

CHASSIS 20AT21 & 20AT21Z

C101A	22-5649	BC Antenna Trimmer
C101B		BC Antenna Tuning
C101C		BC Oscillator Tuning
C101D		BC Oscillator Trimmer
C102	22-3034	.05 Mfd Disc 25V
C103	22-3034	.05 Mfd Disc 25V
C104	22-3393	.01 Mfd Disc 25V
C105	22-5480	390 Pf Mica 5% 100V
C201	22-3310	2.7 Pf Gimmick 10% 500V
C202	22-5483	.0015 Mfd Disc 500V
C203	22-5251	.15 Mfd Disc 12V
C204	22-5481	560 Pf Disc 500V
C205	22-3034	.05 Mfd Disc 25V
C206	22-3791	42 Pf Disc 5% 500V
C207	22-5479	2.4 Pf Gimmick 10% 500V
C208	22-3034	.05 Mfd Disc 25V
C209	22-5482	680 Pf Disc 500V
C210	22-5486	10 Mfd Electrolytic 3V
C211	22-5481	560 Pf Disc 10% 500V
C212	22-3034	.05 Mfd Disc 25V
C213	22-2397	100 Pf Disc 500V
C214	22-5482	680 Pf Disc 500V
C215	22-3400	3.9 Pf Gimmick 500V
C216	22-3393	.01 Mfd Disc 25V
C217	22-3034	.05 Mfd Disc 25V
C218	22-2428	1.8 Pf Gimmick 500V
C219	22-5229	.0022 Mfd Disc 500V
C220	22-5659	5 Mfd Electrolytic 12V
C221	22-5037	.005 Mfd Disc 25V
C222	22-3177	390 Pf Disc 500V
C223	22-3177	390 Pf Disc 500V
C224	22-3896	5 Mfd Electrolytic 25V
C225	22-3033	.02 Mfd Disc 25V
C226	22-5229	.0022 Disc 500V
C227	22-5229	.0022 Disc 500V
C301	22-2729	.001 Mfd Disc 25V
C302	22-3424	270 Pf Mica 100V
C303	22-3366	1000 Pf Mica 100V
C304	22-5471	.47 Mfd 200V
C305	22-3635	2200 Pf Mica 300V
C306	22-3896	5 Mfd Electrolytic 25V
C307	22-3393	.01 Mfd Disc 25V
C308	22-3635	2200 Pf Mica 300V
C309	22-13	.0033 Mfd Disc 500V
C310	22-3896	5 Mfd Electrolytic 25V
C311	22-3613	1000 Pf Mica 100V
C312	22-3366	1000 Pf Mica 10% 100V
C313	22-3034	.05 Mfd Disc 25V
C351	22-3034	.05 Mfd Disc 25V
C401	22-3034	.05 Mfd Disc 25V
C402	22-3687	1.0 Mfd Electrolytic 50V
C403	22-5471	.47 Mfd 200V
C404	22-3255	330 Pf Disc 500V
C405	22-5633	.15 Mfd 200V
C406	22-5635	.0068 Mfd 100V
C407	22-5634	.1 Mfd 200V
C408	22-5056	.02 Mfd 25V
C409	22-5633	.15 Mfd 200V
C410	22-3687	1.0 Mfd Electrolytic 50V
C411	22-2376	47 Pf Disc 500V
C412	22-5315	300 Mfd Electrolytic 35V
C451	22-3034	.05 Mfd Disc 25V
C452	22-3687	1.0 Mfd Electrolytic 50V
C453	22-5471	.47 Mfd 200V
C454	22-3255	330 Pf Disc 500V
C455	22-5633	.15 Mfd 200V
C456	22-5635	.0068 Mfd 100V
C457	22-5634	.1 Mfd 200V
C458	22-5056	.02 Mfd 25V
C459	22-5633	.15 Mfd 200V
C460	22-3687	1.0 Mfd Electrolytic 50V
C461	22-2376	47 Pf Disc 500V
C462	22-5315	300 Mfd Electrolytic 35V
C501	22-4617	.01 Mfd Disc 500V
C502	22-4617	.01 Mfd Disc 500V
C503	22-5650	2000 Mfd Electrolytic 50V
C504	22-5650	2000 Mfd Electrolytic 50V
C505	22-5167	1000 Mfd Electrolytic 30V
C506	22-3973	100 Mfd Electrolytic 25V
C507	22-4617	.01 Mfd Disc 500V
C508	22-4617	.01 Mfd Disc 500V
C413	22-2939	680 Pf 500V
C463	22-2939	680 Pf 500V
R101	63-1831	12K Ohm 10% ½W
R102	63-1796	1.8K Ohm 10% ½W
R103	63-1831	12K Ohm 10% ½W
R104	63-1782	820 Ohm 10% ½W
R105	63-1799	2.2K Ohm 10% ½W
R201	63-1778	680 Ohm 10% ½W
R202	63-1761	270 Ohm 10% ½W
R203	63-1772	470 Ohm 20% ½W
R204	63-1785	1K Ohm 10% ½W
R205	63-1799	2.2K Ohm 10% ½W
R206	63-1820	6.8K Ohm 10% ½W
R207	63-1799	2.2K Ohm 10% ½W
R208	63-1771	470 Ohm 10% ½W
R209	63-1771	470 Ohm 10% ½W
R210	63-1897	470K Ohm 10% ½W
R211	63-1799	2.2K Ohm 10% ½W
R212	63-1799	2.2K Ohm 10% ½W
R213	63-1841	22K Ohm 10% ½W
R214	63-4185	1K Ohm 10% ¼W
R215	63-1775	560 Ohm 10% ½W
R216	63-1834	15K Ohm 10% ½W
R217	63-1814	4.7K Ohm 20% ½W
R218	63-6495	100K Potentiometer
R219	63-1869	100K Ohm 10% ½W
R220	63-1772	470 Ohm 20% ½W
R221	63-1778	680 Ohm 10% ½W
R222	63-1778	680 Ohm 10% ½W
R223	63-1813	4.7K Ohm 10% ½W
R224	63-1813	4.7K Ohm 10% ½W
R225	63-1852	39K Ohm 10% ½W
R226	63-1834	15K Ohm 10% ½W
R227	63-1785	1K Ohm 10% ½W
R228	63-1785	1K Ohm 10% ½W
R229	63-1869	100K Ohm 10% ½W
R301	63-1911	1 Megohm 10% ½W
R302	63-1817	5.6K Ohm 10% ½W
R303	63-1768	390 Ohm 10% ½W
R304	63-1859	56K Ohm 10% ½W
R305	63-1806	3.3K Ohm 10% ½W
R306	63-1792	1.5K Ohm 10% ½W
R307	63-1771	470 Ohm 10% ½W
R308	63-1813	4.7K Ohm 10% ½W
R309	63-1771	470 Ohm 10% ½W
R310	63-6495	100K Potentiometer
R311	63-1782	820 Ohm 10% ½W
R312	63-1824	8.2K Ohm 10% ½W
R313	63-1775	560 Ohm 10% ½W
R314	63-1806	3.3K Ohm 10% ½W
R315	63-1771	470 Ohm 10% ½W
R316	63-4533	5.6 Ohm 10% ½W
R317	63-5666	820 Ohm 10% 2W
R318	63-6045	270 Ohm 10% 1W
R319	63-1848	33K Ohm 10% ½W
R401	63-1883	220K Ohm 10% ½W
R402	63-1880	180K Ohm 10% ½W
R403	63-1883	220K Ohm 10% ½W
R404	63-1855	47K Ohm 10% ½W
R405	63-1848	33K Ohm 10% ½W
R406	63-1792	1.5K Ohm 10% ½W

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
R407R, R407L	63-7563	50K Dual Loudness Control
R408	63-1792	1.5K Ohm 10% ½W
R409R, R409L	63-7584	250K Dual Treble Control
R410	63-1827	10K Ohm 10% ½W
R411R, R411L	63-7564	250K Dual Bass Control
R412	63-1799	2.2K Ohm 10% ½W
R413	63-1873	120K Ohm 10% ½W
R414	63-1747	120 Ohm 10% ½W
R415	63-1834	15K Ohm 10% ½W
R416	63-1743	100 Ohm 10% ½W
R417	63-1855	47K Ohm 10% ½W
R418	63-1852	39K Ohm 10% ½W
R419	63-6063	680 Ohm 10% 1W
R420	63-4533	5.6 Ohm 10% ½W
R421	63-4533	5.6 Ohm 10% ½W
R422	63-6063	680 Ohm 10% 1W
R423	63-5944	1 Ohm 10% 1W
R424	63-5944	1 Ohm 10% 1W
R425	63-1834	15K Ohm 10% ½W
R426	63-7680	150K Balance Control
R427	63-1911	1 Megohm 10% ½W
R451	63-1883	220K Ohm 10% ½W
R452	63-1880	180K Ohm 10% ½W
R453	63-1883	220K Ohm 10% ½W
R454	63-1855	47K Ohm 10% ½W
R455	63-1848	33K Ohm 10% ½W
R456	63-1792	1.5K Ohm 10% ½W
R458	63-1792	1.5K Ohm 10% ½W
R460	63-1827	10K Ohm 10% ½W
R462	63-1799	2.2K Ohm 10% ½W
R463	63-1873	120K Ohm 10% ½W
R464	63-1747	120 Ohm 10% ½W
R465	63-1834	15K Ohm 10% ½W
R466	63-1743	100 Ohm 10% ½W
R467	63-1855	47K Ohm 10% ½W
R468	63-1852	39K Ohm 10% ½W
R469	63-6063	680 Ohm 10% 1W
R470	63-4533	5.6 Ohm 10% ½W
R471	63-4533	5.6 Ohm 10% 1W
R472	63-6063	680 Ohm 10% 1W
R473	63-5944	1 Ohm 10% 1W
R474	63-5944	1 Ohm 10% 1W
R501	63-1910	1 Meg Ohm 20% ½W
R502	63-6424	1 Ohm 10% 5W
R503	63-5642	220 Ohm 10% 2W
R504	63-1757	220 Ohm 10% ½W
L1	In T101	Osc. Coil Pri. 455 KHz
L2	In T101	Osc. Coil Sec. 455 KHz
L3	In T202	1st I.F. Pri. 455 KHz
L4	In T202	1st I.F. Sec. 455 KHz
L5	In T203	2nd I.F. Pri. 10.7 MHz
L6	In T203	2nd I.F. Sec. 10.7 MHz
L7	In T204	2nd I.F. 455 KHz
L8	In T205	3rd I.F. Pri. 10.7 MHz
L9	In T205	3rd I.F. Sec. 10.7 MHz
L10	In T206	3rd I.F. Pri. 455 KHz
L11	In T206	3rd I.F. Sec. 455 KHz
L12	In T207	Ratio Det. Pri. 10.7 MHz
L13	In T207	Ratio Det. Sec. 10.7 MHz
L14	In T301	Mx Input Pri.
L15	In T301	Mx Input Sec.
L16	In T302	Mx Doubler Pri.
L17	In T302	Mx Doubler Sec.
L18	In T303	Mx Det. Pri.
L19	In T303	Mx Det. Sec.
L101	S-77014	Am Antenna Assembly
L102	149-311	Ferrite Sleeve
L301	S-79435	Multiplex Trap Coil Assembly
S301	85-1032	Mono- Stereo Switch
S501	85-1029	Bandswitch
S501D		A.C. Switch (Part Of Bandswitch)
T101	95-2544	Oscillator Coil (AM)

ITEM NO.	PART NO.	DESCRIPTION
T202	95-2541	1st I.F. Transformer Coil (AM)
T203	95-2547	2nd I.F. Transformer Coil (FM)
T204	95-2542	2nd I.F. Transformer Coil (AM)
T205	95-2548	3rd I.F. Transformer Coil (FM)
T206	95-2543	3rd I.F. Transformer Coil (AM)
T207	95-2545	Ratio Detector
T301	*S-79438	Mx Input Coil Assembly
T302	S-79436	Mx Doubler Coil Assembly
T303	S-79437	Mx Detector Coil Assembly
T401	95-2637	Driver Transformer
T451	95-2637	Driver Transformer
T501	95-2655	Power Transformer
CR101	103-74	Germanium Diode
CR201	103-23	Germanium Diode
CR202	103-23	Germanium Diode
CR203	103-23	Germanium Diode
CR204	103-90	Matched Pair Diode
CR205	103-90	Matched Pair Diode
CR301	103-23	Germanium Diode
CR302	103-23	Germanium Diode
CR303	103-23	Germanium Diode
CR351	103-23	Germanium Diode
CR501	212-71	Silicon Rectifier
CR502	212-71	Silicon Rectifier
CR503	103-96	Zener Diode
DS301	100-384	Stereo Pilot Indicator
TB501	S-80050	Cable & Housing Assembly (Phono A.C.)
DS501	100-249	Pilot Light
DS502	100-249	Pilot Light
DS503	100-249	Pilot Light
DS504	100-249	Pilot Light
DS505	100-249	Pilot Light
DS506	100-249	Pilot Light
Z301	105-78	R/C Network
	11-106	Line Cord
	12-4954	Transistor Mtg. Bracket (2 required)
	12-4956	Antenna Mtg. Bracket
	12-4959	Transistor Mtg. Bracket
	12-4968	Switch Mtg. Bracket
	12-4976	Chassis Mtg. Bracket (Right Side)
	12-4977	Chassis Mtg. Bracket (Left Side)
	12-4983	Bracket
	*15-256	Pointer Cap
	17-135	Plastic Clamp
	17-141	Plastic Clamp
	17-236	Plastic Clamp
	19-448	Grounding Clip (2 required)
	19-480	Wire Retaining Clip (2 required)
	19-485	Tinnerman Speed Clip
	19-492	Wire Retaining Clip (2 required)
	24-1670	Tuner Cover
	26-1748	Dial Scale (20AT21Z)
	26-1749	Dial Scale (20AT21)
	43-519	Housing
	46-7263	Balance Control Knob
	46-7264	Stereo-Monaural Knob
	46-7333	Control Knob - Loudness - Bass - Treble (20AT21)
	46-7334	Tuning Knob
	46-7335	Bandswitch Knob (20AT21)
	*46-7336	Control Knob-Loudness-Bass-Treble (20AT21Z)
	46-7337	Bandswitch Knob (20AT21Z)
	52-1445	4 Conductor Cable (Approx. 5 ½")
	52-1497	Two Conductor Shielded Cable
	52-1498	Two Conductor Shielded Cable
	52-1500	Three Conductor Cable (Approx. 24")
	52-1501	Three Conductor Cable (Approx. 20")
	*52-1610	Two Conductor Shielded Cable
	*52-1611	Two Conductor Shielded Cable
	54-139	3/8-32 x 9/16 Palnut - Cadmium (1 used on ea. 63-7563, 63-7564, 63-7584 & 85-1029)
	54-634	Tinnerman Speed Nut (6 used on 126-1363)
	54-812	Tinnerman Speed Nut (10 required)
	54-813	Tinnerman Speed Nut (4 used on 83-6899)
	57-6830	Background Plate
	*57-7152	Die-Cast Escutcheon (20AT21Z)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	*57-7153	Die-Cast Escutcheon (20AT21)
	58-315	Connector Plug (2 required)
	*59-1000	Dial Pointer
	78-1815	Dial Light Socket & Wire (2 required)
	78-1816	Dial Light Socket & Wire
	78-1819	Dial Light Socket & Wire (3 required)
	78-1820	Stereo Indicator Light Socket & Wire
	80-209	Drive Cord Tension Spring
	80-1140	Drive Cord Tension Spring
	82-148	Ground Strip (I.F.)
	83-6834	Retainer Strip
	83-6835	Slider Bearing (2 required)
	83-6874	4 Lug Terminal Strip
	83-6885	Cable Retaining Strip (2 required)
	83-6899	Glass Channel Strip (2 required)
	83-6993	Rubber Strip (2 required)
	*83-7148	Trim Strip (20AT21)
	*83-7150	Trim Strip (20AT21Z)
	*83-7190	Trim Strip (20AT21)
	86-199	Connector Terminal (2 required)
	86-334	Connector Terminal (3 required)
	86-344	Connector Terminal (5 required)
	86-388	Connector Terminal (4 required)
	86-398	Connector Terminal (3 required)
	86-500	Terminal - Test Point (15 required)
	*93-1301	Felt Washer (2 required)
	*93-1831	Washer (3 required)
	93-1832	Washer
	94-1381	Insulating Bushing (4 required)
	113-8	6-32 x ¼ x ¼ Hex Hd. Mach. Screw-N.P. - Internal Shakeproof Lockwasher (2 used on 12-4956) (4 required)
	113-10	6-32 x 3/16 x ¼ Hex Hd. Mach. Screw-N.P.- Internal Shakeproof Lockwasher (3 required)
	114-26	8-18 x ¼ x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (3 used on ea. 12-4976 & 12-4977 & 4 Mt. S-82377)
	114-477	8-15 x 3/8 Hex Slotted Hd. Self-Tap. Screw-Stat. Bronze - Flat Washer Att. (2 required)
	114-605	4-24 x 5/16 x 3/16 Hex Hd. Self-Tap. Screw-Cadmium (4 used on 63-7680)
	114-654	6-20 x 3/8 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (8 required)
	114-801	8-18 x 5/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze
	114-803	6-20 x ¼ x ¼ 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 required)
	114-809	8-18 x 3/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (2 required)
	114-900	8-18 x 7/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (4 used on 57-7153)
	121-257	Transistor - A.M. Conv.
	121-418	Transistor - Output - Matched Pair (2 required)
	121-430	Transistor - Pre-Driver (2 required)
	121-433	Transistor - Pre-Amp. (2 required)
	121-546	Transistor - F.M. & A.M. 2nd I.F. & FM 3rd. I.F. (2 required)
	121-614	Transistor - FM & AM 1st I.F.
	121-639	Transistor - Comp. Amp., 19 KHz Amp. 38 KHz Amp. & Stereo Ind. Switch (4 required)
	121-706	Transistor - Driver (2 required)
	125-62	Grommet (2 used on 192-453)
	125-140	Strain Relief Grommet
	126-1336	Shield (Multiplex Trap Coil)
	126-1361	Shield (Multiplex)
	126-1362	Shield (Audio)
	126-1363	Balance Control Shield
	126-1372	Stereo Pilot Light Shield
	126-1402	Light Shield
	126-1418	Pilot Light Shield
	159-183	Plug Button
	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)
	192-450	Light-Up Bar (20AT21Z)
	192-451	Light-Up Bar (20AT21)
	192-453	Light-Up Bar (Tuning Control)
	*192-465	Dial Crystal (20AT21)
	*192-466	Dial Crystal (20AT21Z)
	205-51	Dow Corning Heat Conductive Grease
	*S-79987	FM Tuner Assem. (See FM Tuner Parts List For Components)
	*S-80044	Switch & Bracket Assem.
	*S-80098	Pointer Guide Rail Assem.
	*S-80100	Drive Cord & Eyelet Assem.
	*S-80101	Drive Cord & Eyelet Assem.
	S-80104	Indicator Disc Assem. (3 required) (20AT21)
	S-80105	Indicator Disc Assem. (20AT21)
	S-80127	Indicator Disc Assem. (3 required) (20AT21Z)
	S-80128	Indicator Disc Assem. (20AT21Z)
	*S-80295	Reflector Bracket & Terminal Strip
	S-81484	Drive Cord & Eyelet Assem.
	*S-82377	Background Plate & Bracket Assem.

CHASSIS 20AT30 & 20AT30Z

CIA		F.M. Detector Trimmer
CIB		F.M. Detector Tuning
CIC		F.M. Oscillator Tuning
CID	22-5812	A.M. Antenna Trimmer
CIE		A.M. Antenna Tuning
CIF		A.M. Oscillator Tuning
CIG		A.M. Oscillator Trimmer
C2	22-2513	7PF Disc 500V
C3	22-2729	.001 Mfd Disc 25V
C4	22-3792	17Pf Disc 5% 500V
C5	22-3675	10Pf Disc 5% 500V
C6	22-3393	.01 Mfd Disc 25V
C7	22-3541	3.3Pf Gimmick 5% 500V
C8	22-3558	16Pf Disc 5% 500V
C9	*22-5879	3.3Pf Disc + .25Pf 50V
C10	22-2729	.001 Mfd Disc 25V
C11	*22-5878	5.5Pf Disc + .5Pf 25V
C12	22-3034	.05 Mfd Disc 25V
C13	22-4855	1.7 to 10Pf Ceramic Trimmer
C14	22-3393	.01 Mfd Disc 25V
C102	22-3033	.02 Mfd Disc 25V
C103	22-3034	.05 Mfd Disc 25V
C104	22-3393	.01 Mfd Disc 25V
C105	22-5480	390Pf Mica 5% 100V
C201	22-3310	2.7Pf Gimmick 500V
C202	22-5483	.0015 Mfd Disc 500V
C203	22-3652	.1 Mfd Disc 10V
C204	22-5481	560 Pf Disc 500V
C205	22-3034	.05 Mfd Disc 25V
C206	22-3791	42Pf Disc 5% 500V
C207	22-3310	2.7 Pf Gimmick 500V
C208	22-3034	.05 Mfd Disc 25V
C209	22-5482	680 Pf Disc 500V
C210	22-5481	560 Pf Disc 500V
C211	*22-3770	5.5 Pf Disc 500V
C212	22-3034	.05 Mfd Disc 25V
C213	22-2428	1.8 Pf Gimmick 500V
C214	22-5482	680 Pf Disc 500V
C215	22-3034	.05 Mfd Disc 25V
C216	22-3080	.005 Mfd Disc 25V
C217	22-2729	.001 Mfd Disc 25V
C218	22-3177	390 Pf Disc 500V
C219	22-3177	390 Pf Disc 500V
C220	22-3896	5 Mfd Electrolytic 25V
C221	22-5486	10 Mfd Electrolytic 6V
C222	22-3415	.0068 Mfd 25V
C223	22-3034	.05 Mfd Disc 25V
C224	22-14	.0047 Mfd 500V
C225	22-14	.0047 Mfd 500V
C227	22-3034	.05 Mfd Disc 25V
C301	*22-5780	270 Pf Polystyrene 5% 500V
C302	*22-5781	1000 Pf Polystyrene 5% 500V
C303	*22-5638	.47 Mfd 100V
C304	22-5782	2200 Pf Polystyrene 5% 500V
C305	22-2884	5 Mfd Electrolytic 12V

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
C306	22-3393	.01 Mfd Disc 25V
C307	22-5782	2200 Pf Polystyrene 5% 500V
C308	*22-5781	1000 Pf Polystyrene 5% 500V
C309	22-3393	.01 Mfd Disc 25V
C310	*22-5781	1000 Pf Polystyrene 5% 500V
C311	22-2884	5 Mfd Electrolytic 12V
C312	22-3034	.05 Mfd Disc 25V
C351	22-3034	.05 Mfd Disc 25V
C401	22-3034	.05 Mfd Disc 25V
C402	22-5487	.47 Mfd Disc 3V
C403	22-5	100 Pf Disc 500V
C404	22-2884	5 Mfd Electrolytic 12V
C405	22-3255	330 Pf Disc 500V
C406	22-2939	680 Pf Disc 500V
C407	22-5639	.22 Mfd 10% 100V
C408	*22-5814	.022 Mfd 20% 100V
C409	*22-5815	.056 Mfd 10% 100V
C410	22-18	.0022 Mfd Disc 500V
C411	*22-5814	.022 Mfd 20% 100V
C412	22-3652	.1 Mfd Disc 10V
C414	22-16	470 Pf Disc 500V
C415	22-3687	1 Mfd Electrolytic 50V
C417	22-2939	680 Pf 500V
C420	22-4568	100 Mfd Electrolytic 15V
C422	22-3721	200 Mfd Electrolytic 35V
C451	22-3034	.05 Mfd Disc 25V
C452	22-5487	.47 Mfd Disc 3V
C453	22-5	100 Pf Disc 20% 500V
C454	22-2884	5 Mfd Electrolytic 12V
C455	22-3255	330 Pf Disc 500V
C456	22-2939	680 Pf Disc 500V
C457	22-5639	.22 Mfd 10% 100V
C458	*22-5814	.022 Mfd 20% 100V
C459	*22-5815	.056 Mfd 10% 100V
C460	22-18	.0022 Mfd Disc 500V
C461	*22-5814	.022 Mfd 20% 100V
C462	22-3652	.1 Mfd Disc 10V
C464	22-16	470 Pf Disc 500V
C465	22-3687	1 Mfd Electrolytic 50V
C467	22-2939	680 Pf Disc 500V
C470	22-4568	100 Mfd Electrolytic 15V
C472	22-3721	200 Mfd Electrolytic 35V
C501	22-4617	.01 Mfd Disc 500V
C502	22-4617	.01 Mfd Disc 500V
C503	22-5362	1000 Mfd Electrolytic 50V
C504	22-4572	500 Mfd Electrolytic 15V
C505	22-4572	500 Mfd Electrolytic 15V
C506	22-3661	.05 Mfd 100V
C510	22-2655	.01 Mfd Disc Cap 1.4 K.V.
R1	63-1768	390 Ohm 10% ½W
R2	63-4213	4.7K Ohm 10% ¼W
R3	63-1772	470 Ohm 20% ½W
R4	63-1796	1.8K Ohm 10% ½W
R5	63-4196	1.8K Ohm 10% ¼W
R6	63-1831	12K Ohm 10% ½W
R7	63-1898	470K Ohm 20% ½W
R8	63-4122	33 Ohm 10% ¼W.
R9	63-1898	470K Ohm 20% ½W
R10	63-1898	470K Ohm 20% ½W
R101	63-1831	12K Ohm 10% ½W.
R102	63-1803	2.7K Ohm 10% ½W
R103	63-1831	12K Ohm 10% ½W
R104	63-1771	470 Ohm 10% ½W
R105	63-1799	2.2K Ohm 10% ½W
R201	63-1778	680 Ohm 10% ½W
R202	63-1761	270 Ohm 10% ½W
R203	63-1772	470 Ohm 20% ½W
R204	63-1806	3.3K Ohm 10% ½W
R205	63-1827	10K Ohm 10% ½W
R206	63-1771	470 Ohm 10% ½W
R207	63-1785	1K Ohm 10% ½W
R208	63-1799	2.2K Ohm 10% ½W
R209	63-1772	470 Ohm 20% ½W
R210	63-4185	1K Ohm 10% ¼W
R211	63-1775	560 Ohm 10% ½W
R212	63-1772	470 Ohm 20% ½W

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
E213	63-1778	680 Ohm 10% ½W
R214	63-1778	680 Ohm 10% ½W
R215	63-1813	4700 Ohm 10% ½W
R216	63-1813	4700 Ohm 10% ½W
R217	63-1799	2.2K Ohm 10% ½W
R218	63-1869	100K Ohm 10% ½W
R219	63-1841	22K Ohm 10% ½W
E220	63-1785	1K Ohm 10% ½W
R221	63-1834	15K Ohm 10% ½W
R222	63-1785	1K Ohm 10% ½W
R223	63-1904	680K Ohm 10% ½W
R224	63-1898	470K Ohm 20% ½W
R225	63-1799	2.2K Ohm 10% ½W
R301	63-1855	47K Ohm 10% ½W
R302	63-1817	5.6K Ohm 10% ½W
R303	63-1768	390 Ohm 10% ½W
R304	63-1803	2.7K Ohm 10% ½W
R305	63-1813	4.7K Ohm 10% ½W
R306	63-1771	470 Ohm 10% ½W
R307	63-1813	4.7K Ohm 10% ½W
R308	63-6495	100K Mute Control
R309	63-1785	1K Ohm 10% ½W
R310	63-1782	820 Ohm 10% ½W
R311	63-1848	33K Ohm 10% ½W
R312	63-1824	8.2K Ohm 10% ½W
R313	63-1775	560 Ohm 10% ½W
R314	63-1813	4.7K Ohm 10% ½W
R315	63-1771	470 Ohm 10% ½W
R317	63-6066	820 Ohm 10% 1W
R318	63-6045	270 Ohm 10% 1W
R401	63-1880	180K Ohm 10% ½W
R403	63-1876	150K Ohm 10% ½W
R404	63-1883	220K Ohm 10% ½W
R405	63-1845	27K Ohm 10% ½W
R406	63-1848	33K Ohm 10% ½W
R407	63-1810	3.9K Ohm 10% ½W
R408(R) R408(L)	63-7683	50K Dual Loudness Control
R409	63-1827	10K Ohm 10% ½W
R410(R) R410(L)	*63-7683	100K Dual Bass Control
R411	63-1820	6.8K Ohm 10% ½W
R412(R) R412(L)	*63-7681	Dual Treble Control
R413	63-1897	470K Ohm 10% ½W
R414	63-1789	1200 Ohm 10% ½W
R415	63-1740	82 Ohm 10% ½W
R416	63-1853	43K Ohm 5% ½W
R417	63-1799	2200 Ohm 10% ½W
R418	63-1827	10K Ohm 10% ½W
R419	63-1768	390 Ohm 10% ½W
R420	63-1768	390 Ohm 10% ½W
R421	63-1708	15 Ohm 10% ½W
R422	63-4501	1 Ohm 10% ½W
R424	63-1835	15K Ohm 20% ½W
R425	*63-7684	250K Balance Control & Switch
R451	63-1880	180K Ohm 10% ½W
R453	63-1876	150K Ohm 10% ½W
R454	63-1883	220K Ohm 10% ½W
R455	63-1845	27K Ohm 10% ½W
R456	63-1848	33K Ohm 10% ½W
R457	63-1810	3.9K Ohm 10% ½W
R459	63-1827	10K Ohm 10% ½W
R461	63-1820	6.8K Ohm 10% ½W
R463	63-1897	470K Ohm 10% ½W
R464	63-1789	1200 Ohm 10% ½W
R465	63-1740	82 Ohm 10% ½W
R466	63-1853	43K Ohm 5% ½W
R467	63-1799	2200 Ohm 10% ½W
R468	63-1827	10K Ohm 10% ½W
R469	63-1768	390 Ohm 10% ½W
R470	63-1768	390 Ohm 10% ½W
R471	63-1708	15 Ohm 10% ½W
R472	63-4501	1 Ohm 10% ½W
R501	63-5659	560 Ohm 10% 2W
R502	63-1701	10 Ohm 10% ½W
R503	63-1799	2.2K Ohm 10% ½W

ITEM NO.	PART NO.	DESCRIPTION
R506	63-1933	3.3 Megohm 20% ½W
L1	*20-1744	FM Antenna Coil
L2	*20-1648	FM RF Coil
L3	20-1256	Trap Coil 10.7 MHZ
L4	*20-1649	FM Oscillator Coil
L5	20-2033	Peaking Coil
L101	*S-82104	AM Antenna Assembly
L102	149-311	Ferrite Core Sleeve
L103	IN T101	AM Oscillator Trans. Pri.
L104	IN T101	AM Oscillator Trans. Sec.
L201	IN T201	1st IF Transformer 10.7 MHZ Pri.
L202	IN T201	1st IF Transformer 10.7 MHZ Sec.
L203	IN T202	1st IF AM 455 KHZ Pri.
L204	IN T202	1st FM AM 455 KHZ Sec.
L205	IN T203	2nd ID Transformer 10.7 MHZ Pri.
L206	IN T203	2nd IF Transformer 10.7 MHZ Sec.
L207	IN T204	2nd IF AM 455 KHZ
L208	IN T205	3rd IF Transformer 10.7 MHZ Pri.
L209	IN T205	3rd IF Transformer 10.7 MHZ Sec.
L210	IN T206	3rd IF AM 455 KHZ Pri.
L211	IN T206	3rd IF AM 455 KHZ Sec.
L212	IN T207	Ratio Detector Trans. 10.7 MHZ Pri.
L213	IN T207	Ratio Detector Trans. 10.7 MHZ Tertiary
L214	IN T207	Ratio Detector Trans. 10.7 MHZ Sec.
L301	S-79435	67 KHZ Trap Coil
T101	95-2544	AM Oscillator Transformer
T201	95-2546	FM 1st IF Transformer 10.7 MHZ
T202	95-2541	AM 1st IF AM 455 KHZ
T203	95-2547	FM 2nd IF Transformer 10.7 MHZ
T204	95-2542	AM 2nd IF AM 455 KHZ
T205	95-2548	FM 3rd IF Transformer 10.7 MHZ
T206	95-2543	AM 3rd IF AM 455 KHZ
T207	95-2545	FM Ratio Detector 10.7 MHZ
T301	S-79438	Input Coil 19 KHZ
T302	S-79436	Doubler Coil 19 KHZ
T303	S-79437	Detector Coil 38 KHZ
T501	95-2698	Power Transformer
SW1	*85-1058	Band Switch
CR1	103-47	AFC Diode
CR101	103-74	Germanium Diode
CR201	103-23	Germanium Diode
CR202	103-90	Germanium Diodes (Matched Pair)
CR203	103-90	
CR204	103-23	Germanium Diode
CR301	103-23	Germanium Diodes
CR302	103-23	
CR303	103-23	Germanium Diodes
CR351	103-23	
CR401	103-145	Diode
CR451	103-145	Diode
CR501	212-71	Silicon Rectifier
CR502	212-71	Silicon Rectifier
CR503	103-96	Diode
Z301	*105-106	Integnet
PL1	100-249	Pilot Light No. 1847
PL2	100-249	Pilot Light No. 1847
PL3	*100-474	Stereo Indicator Light
Q1	121-612	Transistor, FM R.F.
Q2	121-613	Transistor, FM Conv.
Q101	121-714	Transistor, AM Conv.
Q201	121-614	Transistor, FM-AM 1st I.F.
Q202	121-546	Transistor, FM-AM 2nd I.F.
Q203	121-546	Transistor, FM 3rd I.F.
Q301	121-639	Transistor, Comp. Amp.
Q302	121-639	Transistor, 19KHZ Amp.
Q303	121-639	Transistor, 38 KHZ Amp.
Q304	121-639	Transistor, Stereo Indicator Switch
Q401	121-433	Transistor, Pre-Amplifier
Q402	121-430	Transistor, Pre-Driver
Q403	121-706	Transistor, Driver
Q404	800-289	Transistor, Output - NPN (121-710)
Q405		Transistor, Output - PNP (121-709)
Q451	121-433	Transistor, Pre-Amplifier
Q452	121-430	Transistor, Pre-Driver
Q453	121-706	Transistor, Driver
Q454	800-289	Transistor, Output - NPN (121-710)
Q455		Transistor, Output - PNP (121-709)
	*12-5166	Dial Background Mtg. Bracket
	*12-5169	Bandswitch & Tuning Bracket
	*12-5170	Control Mtg. Bracket
	17-143	Nylon Clamp (2 required)
	19-448	Ground Clip (2 required)
	*26-1575	Dial Scale
	43-571	Nine Contact Housing
	52-1425	Two Conductor Shielded Cable
	52-1443	Four Conductor Cable (Approx. 6")
	52-1529	Three Conductor Cable (Approx. 28")
	*52-1588	Two Conductor Shielded Lead
	*52-1589	Two Conductor Shielded Lead
	*52-1590	Two Conductor Shielded Lead
	*52-1591	Two Conductor Shielded Lead
	54-139	3/8-32 x 9/16 Palnut (5 required)
	54-334	Tinnerman Speed Nut (1 used on ea. 114-591 (4 required)
	54-804	Zip Twist Palnut (6 used on S-82432)
	54-828	1/2" - 20 Palnut
	54-835	Tinnerman Nut (21 required)
	*54-838	Tinnerman Nut (17 required)
	*54-839	Tinnerman Nut
	58-214	Single Prong Plug (2 required)
	*59-1016	Dial Pointer - FM
	*59-1017	Dial Pointer - AM
	64-288	Shoulder Rivet (1 part of ea. S-82399, & S-82401, 2 part of S-82400) (4 required)
	*76-1902	Tuning Shaft
	*78-1866	Dial Light Socket & Wire
	*78-1867	Dial Light Socket & Wire
	*78-1868	Dial Light Socket & Wire
	80-1964	Tension Spring
	80-2066	Tension Spring
	*82-152	Oscillator Coil Grounding Strap
	*82-153	2nd I.F. Grounding Strap
	*82-154	3rd I.F. Grounding Strap
	83-3404	Three Lug Terminal Strip
	*83-7196	Two Lug Terminal Strip
	*83-7197	Two Lug Terminal Strip
	*83-7233	Antenna Mtg. Strip
	*83-7417	Antenna Protective Strip
	86-312	Terminal
	86-357	Connector Terminal (2 required)
	86-388	Connector Terminal (3 required)
	86-390	Connector Terminal (9 required)
	86-398	Connector Terminal (19 required)
	86-500	Terminal (20 required)
	93-1833	Transistor Insulating Washer (2 required)
	94-1532	Nylon Shaft Bushing
	114-390	8-18 x 7/16 x ¼ Hex Hd. Self-Tap. Screw-Stat. Bronze (6 used on S-82432)
	114-591	4-24 x 3/8 x 3/16 Slotted Hex. Hd. Self-Tap. Screw-Cadmium (1 used on ea. 121-709 & 121-710) (4 required)
	114-801	8-18 x 5/16 Hex. Hd. Self-Tap. Screw-Stat. Bronze (1 Mts. Ea. S-82399, 17-143 & 2 Mt. ea. S-82104, S-82400, & 12-5166, & 4 Mts. S-82401 & 2 joins ea. S-82401 & S-82399 & S-82401 & S-82400) (21 required)
	114-803	6-20 x 1/4 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (1 Mts. 83-7196)
	126-1336	Coil Shield
	*171-66	Stereo Indicator Lens
	188-140	Retaining Ring
	188-155	Clamping Ring (Part of S-82433)
	199-265	Shielded Paper Sleeve
	199-436	Shielded Paper Sleeve
	*S-82104	Wave magnet Assm.
	S-82399	Bracket & Pulley Assem. (Left)
	*S-82400	Bracket & Pulley Assem. (Right)
	S-82401	Bandswitch Bracket Assem.
	*S-82402	Dial Light Shield Assem.
	*S-82433	Drive Pulley Assem.

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ITEM NO.	PART NO.	DESCRIPTION
	*S-82434	Drive Cord & Eyelet Assem.
	*S-82435	Drive Cord & Eyelet Assem. (Pointer)
		CHASSIS 20AT31Z
C1A	*22-5812	F.M. Detector Trimmer
C1B		F.M. Detector Tuning
C1C		F.M. Oscillator Tuning
C1D		A.M. Antenna Trimmer
C1E		A.M. Antenna Tuning
C1F		A.M. Oscillator Tuning
C1G		A.M. Oscillator Trimmer
C2	22-2513	7 PF Disc 5% 500V
C3	22-2729	.001 MFD Disc 25V
C4	22-3792	17 PF Disc 5% 500V
C5	22-3675	10 PF Disc 5% 500V
C6	22-3393	.01 MFD Disc 25V
C7	22-3541	3.3 PF Gimmick 5% 500V
C8	22-3558	16 PF Disc 5% 500V
C9	*22-5879	3.3 PF Disc ± .25 PF 25V
C10	22-2729	.001 MFD Disc 25V
C11	*22-5878	5.5 PF Disc ± .5 PF 25V
C12	22-3034	.05 MFD Disc 25V
C13	22-4855	1.7 to 10 PF Ceramic Trimmer
C14	22-3393	.01 MFD Disc 25V
C102	22-3033	.02 MFD Disc 25V
C103	22-3034	.05 MFD Disc 25V
C104	22-3393	.01 MFD Disc 25V
C105	22-5480	390 PF Mica 5% 100V
C201	22-3310	2.7 PF Gimmick 500V
C202	22-5483	.0015 MFD Disc 500V
C203	22-3652	.1 MFD Disc 10V
C204	22-5481	560 PF Disc 500V
C205	22-3034	.05 MFD Disc 25V
C206	22-3791	42 PF Disc 5% 500V
C207	22-3310	2.7 PF Gimmick 500V
C208	22-3034	.05 MFD Disc 25V
C209	22-5482	680 PF Disc 500V
C210	22-5481	560 PF Disc 500V
C211	22-3770	5.5 PF Disc ± .25 PF 500V
C212	22-3034	.05 MFD Disc 25V
C213	22-2428	1.8 PF Gimmick 500V
C214	22-5482	680 PF Disc 500V
C215	22-3034	.05 MFD Disc 25V
C216	22-3080	.005 MFD Disc 25V
C217	22-2729	.001 MFD Disc 25V
C218	22-3177	390 PF Disc 500V
C219	22-3177	390 PF Disc 500V
C220	22-3896	5 MFD Electrolytic 25V
C221	22-5486	10 MFD Electrolytic 6V
C222	22-3415	.0068 MFD 25V
C223	22-3034	.05 MFD Disc 25V
C224	22-14	.0047 MFD 500V
C225	22-14	.0047 MFD 500V
C227	22-3034	.05 MFD Disc 25V
C301	*22-5780	270 PF Polystyrene 5% 500V
C302	*22-5781	1000 PF Polystyrene 5% 500V
C303	22-5638	.47 MFD 100V
C304	*22-5782	2200 PF Polystyrene 5% 500V
C305	22-2884	5 MFD Electrolytic 12V
C306	22-3393	.01 MFD Disc 25V
C307	22-5782	2200 PF Polystyrene 5% 500V
C308	22-5781	1000 PF Polystyrene 5% 500V
C309	22-3393	.01 MFD Disc 25V
C310	22-5781	1000 PF Polystyrene 5% 500V
C311	22-2884	5 MFD Electrolytic 12V
C312	22-3034	.05 MFD Disc 25V
C351	22-3034	.05 MFD Disc 25V
C401	22-3034	.05 MFD Disc 25V
C402	22-5487	.47 MFD Disc 3V
C403	22-5	100 PF Disc 500V
C404	22-2884	5 MFD Electrolytic 12V
C405	22-3255	330 PF Disc 500V
C406	22-5640	.0056 Paktron 10% 100V
C407	22-5639	.22 MFD 10% 100V
C408	*22-5814	.022 MFD 20% 100V
C409	*22-5883	.033 MFD Paktron 10% 100V
C410	22-5640	.0056 MFD Mylar 100V
C411	*22-5814	.022 MFD 20% 100V
C412	22-3652	.1 MFD Disc 10V
C414	22-16	470 PF Disc 500V
C415	22-5091	2 MFD Electrolytic 15V
C417	22-2939	680 PF 500V
C420	22-4568	100 MFD Electrolytic 15V
C422	22-3721	200 MFD Electrolytic 35V
C423	*22-5884	.082 MFD Paktron 10% 100V
C451	22-3034	.05 MFD Disc 25V
C452	22-5487	.47 MFD Disc 3V
C453	22-5	100 PF Disc 20% 500V
C454	22-2884	5 MFD Electrolytic 12V
C455	22-3255	330 PF Disc 500V
C456	22-5640	.0056 MFD Paktron 10% 100V
C457	22-5639	.22 MFD 10% 100V
C458	*22-5814	.022 MFD 20% 100V
C459	*22-5883	.033 MFD Paktron 10% 100V
C460	22-5640	.0056 MFD Mylar 100V
C461	*22-5814	.022 MFD 20% 100V
C462	22-3652	.1 MFD Disc 10V
C464	22-16	470 PF Disc 500V
C465	22-5091	2 MFD Electrolytic 15V
C467	22-2939	680 Pf Disc 500V
C470	22-4568	100 MFD Electrolytic 15V
C472	22-3721	200 MFD Electrolytic 35V
C473	*22-5884	.082 MFD Paktron 10% 100V
C501	22-4617	.01 MFD Disc 500V
C502	22-4617	.01 MFD Disc 500V
C503	22-5362	1000 MFD Electrolytic 50V
C504	22-4572	500 MFD Electrolytic 15V
C505	22-4572	500 MFD Electrolytic 15V
C506	22-3661	.05 MFD 100V
C510	22-2655	.01 MFD Disc Cap 1.4 K.V.
R1	63-1768	390 Ohm 10% ½W
R2	63-4213	4.7K Ohm 10% ¼W
R3	63-1772	470 Ohm 20% ½W
R4	63-1796	1.8K Ohm 10% ½W
R5	63-4196	1.8K Ohm 10% ¼W
R6	63-1831	12K Ohm 10% ½W
R7	63-1898	470K Ohm 20% ½W
R8	63-4122	33 Ohm 10% ¼W
R9	63-1898	470K Ohm 20% ½W
R10	63-1898	470K Ohm 20% ½W
R101	63-1831	12K Ohm 10% ½W
R102	63-1803	2.7K Ohm 10% ½W
R103	63-1831	12K Ohm 10% ½W
R104	63-1771	470 Ohm 10% ½W
R105	63-1799	2.2K Ohm 10% ½W
R201	63-1778	680 Ohm 10% ½W
R202	63-1761	270 Ohm 10% ½W
R203	63-1772	470 Ohm 20% ½W
R204	63-1806	3.3K Ohm 10% ½W
R205	63-1827	10K Ohm 10% ½W
R206	63-1771	470 Ohm 10% ½W
R207	63-1785	1K Ohm 10% ½W
R208	63-1799	2.2K Ohm 10% ½W
R209	63-1772	470 Ohm 20% ½W
R210	63-4185	1K Ohm 10% ¼W
R211	63-1775	560 Ohm 10% ½W
R212	63-1772	470 Ohm 20% ½W
R213	63-1778	680 Ohm 10% ½W
R214	63-1778	680 Ohm 10% ½W
R215	63-1813	4700 Ohm 10% ½W
R216	63-1813	4700 Ohm 10% ½W
R217	63-1799	2.2K Ohm 10% ½W
R218	63-1869	100K Ohm 10% ½W
R219	63-1841	22K Ohm 10% ½W
R220	63-1785	1K Ohm 10% ½W
R221	63-1834	15K Ohm 10% ½W
R222	63-1785	1K Ohm 10% ½W
R223	63-1904	680K Ohm 10% ½W
R224	63-1898	470K Ohm 20% ½W
R225	63-1799	2.2K Ohm 10% ½W
R301	63-1855	47K Ohm 10% ½W

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
R302	63-1817	5.6K Ohm 10% ½W
R303	63-1768	390 Ohm 10% ½W
R304	63-1803	2.7K Ohm 10% ½W
R305	63-1813	4.7K Ohm 10% ½W
R306	63-1771	470 Ohm 10% ½W
R307	63-1813	4.7K Ohm 10% ½W
R308	63-6495	100K Mute Control
R309	63-1785	1K Ohm 10% ½W
R310	63-1782	820 Ohm 10% ½W
R311	63-1848	33K Ohm 10% ½W
R312	63-1824	8.2K Ohm 10% ½W
R313	1775	560 Ohm 10% ½W
R314	63-1813	4.7K Ohm 10% ½W
R315	63-1771	470 Ohm 10% ½W
R317	63-6066	820 Ohm 10% 1W
R318	63-6045	270 Ohm 10% 1W
R401	63-1880	180K Ohm 10% ½W
R403	63-1876	150K Ohm 10% ½W
R404	63-1883	220K Ohm 10% ½W
R405	63-1845	27K Ohm 10% ½W
R406	63-1848	33K Ohm 10% ½W
R407	63-1789	1.2K Ohm 10% ½W
R408R, R408L	*63-7683	50K Dual Loudness Control
R409	63-1827	10K Ohm 10% ½W
R410R, R410L	*63-7682	100K Dual Bass Control
R411	63-1831	12K Ohm 10% ½W
R412R, R412L	*63-7681	Dual Treble Control 50K
R413	63-1908	820K Ohm 10% ½W
R414	63-1789	1200 Ohm 10% ½W
R415	63-1733	56 Ohm 10% ½W
R416	63-1853	43K Ohm 5% ½W
R417	63-1799	2200 Ohm 10% ½W
R418	63-1831	12K Ohm 10% ½W
R419	63-1768	390 Ohm 10% ½W
R420	63-1768	390 Ohm 10% ½W
R421	63-1708	15 Ohm 10% ½W
R422	63-4501	1 Ohm 10% ½W
R424	63-1835	15K Ohm 20% ½W
R425	*63-7684	250K Balance Control & Switch
R451	63-1880	180K Ohm 10% ½W
R453	63-1876	150K Ohm 10% ½W
R454	63-1883	220K Ohm 10% ½W
R455	63-1845	27K Ohm 10% ½W
R456	63-1848	33K Ohm 10% ½W
R457	63-1789	1.2K Ohm 10% ½W
R459	63-1827	10K Ohm 10% ½W
R461	63-1831	12K Ohm 10% ½W
R463	63-1908	820K Ohm 10% ½W
R464	63-1789	1200 Ohm 10% ½W
R465	63-1733	56 Ohm 10% ½W
R466	63-1853	43K Ohm 5% ½W
R467	63-1799	2200 Ohm 10% ½W
R468	63-1831	12K Ohm 10% ½W
R469	63-1768	390 Ohm 10% ½W
R470	63-1768	390 Ohm 10% ½W
R471	63-1708	15 Ohm 10% ½W
R472	63-4501	1 Ohm 10% ½W
R501	63-5659	560 Ohm 10% 2W
R502	63-1701	10 Ohm 10% ½W
R503	63-1799	2.2K Ohm 10% ½W
R506	63-1933	3.3 Meg Ohm 20% ½W
R426	63-1810	3.9K Ohm 10% ½W
R427	63-1813	4.7K Ohm 10% ½W
R428	63-1827	10K Ohm 10% ½W
R476	63-1810	3.9K Ohm 10% ½W
R477	63-1813	4.7K Ohm 10% ½W
R478	63-1827	10K Ohm 10% ½W
L1	*20-1744	FM Antenna Coil
L2	20-1648	FM RF Coil
L3	*20-1256	Trap Coil 10.7 MHZ
L4	*20-1649	FM Oscillator Coil
L5	20-2033	Peaking Coil

ITEM NO.	PART NO.	DESCRIPTION
L101	*S-82104	AM Antenna Assembly
L102	149-311	Ferrite Core Sleeve
L103	In T101	AM Oscillator Trans. Pri.
L104	In T101	AM Oscillator Trans. Sec.
L201	In T201	1st IF Transformer 10.7 MHZ Pri.
L202	In T201	1st IF Transformer 10.7 MHZ Sec.
L203	In T202	1st IF AM 455 KHZ Pri.
L204	In T202	1st IF AM 455 KHZ Sec.
L205	In T203	2nd IF Transformer 10.7 MHZ Pri.
L206	In T203	2nd IF Transformer 10.7 MHZ Sec.
L207	In T204	2nd IF AM 455 KHZ
L208	In T205	3rd IF Transformer 10.7 MHZ Pri.
L209	In T205	3rd IF Transformer 10.7 MHZ Sec.
L210	In T206	3rd IF AM 455 KHZ Pri.
L211	In T206	3rd IF AM 455 KHZ Sec.
L212	In T207	Ratio Detector Trans. 10.7 MHZ Pri.
L213	In T207	Ratio Detector Trans. 10.7 MHZ Tertiary
L214	In T207	Ratio Detector Trans. 10.7 MHZ Sec.
L301	S-79435	67 KHZ Trap Coil
T101	95-2544	AM Oscillator Transformer
T201	95-2546	FM 1st IF Transformer 10.7 MHZ
T202	95-2541	AM 1st IF AM 455 KHZ
T203	95-2547	FM 2nd IF Transformer 10.7 MHZ
T204	95-2542	AM 2nd IF AM 455 KHZ
T205	95-2548	FM 3rd IF Transformer 10.7 MHZ
T206	95-2543	AM 3rd IF AM 455 KHZ
T207	95-2545	FM Ratio Detector 10.7 MHZ
T301	S-79438	Input Coil 19 KHZ
T302	S-79436	Doubler Coil 19 KHZ
T303	S-79437	Detector Coil 38 KHZ
T501	95-2698	Power Transformer
SW1	*85-1058	Band Switch
CR1	103-47	AFC Diode
CR101	103-74	Germanium Diode
CR201	103-23	Germanium Diode
CR202	103-90	Germanium Diodes (Matched Pair)
CR203	103-90	
CR204	103-23	Germanium Diode
CR301	103-23	Germanium Diodes
CR302	103-23	
CR303	103-23	Germanium Diodes
CR351	103-23	
CR401	103-145	Diode
CR451	103-145	Diode
CR501	212-71	Silicon Rectifier
CR502	212-71	Silicon Rectifier
CR503	103-96	Diode
Z301	*105-106	Integnet
PL1	100-249	Pilot Light No. 1847
PL2	100-249	Pilot Light No. 1847
PL3	100-474	Stereo Indicator Light
	*12-5166	Dial Background Mtg. Bracket
	*12-5169	Bandswitch & Tuning Bracket (Part of S-8240
	*12-5170	Control Mtg. Bracket
	17-143	Nylon Clamp (2 required)
	19-448	Ground Clip (1 used on 52-1588 & 52-1589) (2 required)
	22-3362	560 Pf Disc Capacitor
	22-3541	3.3 Pf Gimmick Capacitor 500V
	*26-1578	Dial Scale
	43-571	9 Contact Housing
	52-1287	Three Conductor Cable (Approx. 10")
	52-1443	Three Conductor Cable (Approx. 6")
	*52-1588	Two Conductor Shielded Lead
	*52-1589	Two Conductor Shielded Lead
	*52-1590	Two Conductor Shielded Lead
	*52-1591	Two Conductor Shielded Lead
	*52-1650	Two Conductor Shielded Cable (Part of S-83909)
	54-139	3/8-32 x 9/16 Palnut (5 required)
	54-808	Tinnerman Speed Nut (1 used on ea. 114-591)
	*54-828	1/2"-20 Palnut
	*54-838	Tinnerman Nut (17 required)
	*54-839	Tinnerman Nut
	58-214	Single Prong Plug (2 part of S-83909)
	*59-1016	Dial Pointer (FM)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	*59-1017	Dial Pointer (AM)
	*64-288	Shoulder Rivet (4 required)
	*76-1902	Tuning Shaft
	*78-1866	Dial Light Socket & Wire
	*78-1867	Dial Light Socket & Wire
	80-1964	Tension Spring
	80-2069	Tension Spring
	*82-152	Oscillator Coil Grounding Strap
	*82-153	2nd IF Grounding Strap
	*82-154	3rd. IF Grounding Strap
	*83-7196	Two Lug Terminal Strip
	*83-7197	Two Lug Terminal Strip (Part of S-82402)
	*83-7233	Antenna Mtg. Strip (Part of S-82104)
	*83-7417	Antenna Protective Strip
	86-312	Terminal
	86-344	Connector Terminal (3 used on 52-1287)
	86-357	Connector Terminal (2 required)
	86-388	Connector Terminal (1 used on 52-1588 & 2 used on 52-1589)
	86-390	Connector Terminal (9 required)
	86-398	Connector Terminal (19 required)
	86-500	Terminal (20 required)
	93-1833	Transistor Insulating Washer (2 required)
	*94-1532	Nylon Shaft Bushing
	114-591	4-24 x 3/8 x 3/16 Slotted Hex Hd. Self-Tap. Screw-Cadmium - Matched Pair (2 used on ea. 800-289 (4 required)
	114-689	8-18 x 1/2 Hex Hd. Special Washer (Spinlock) Self-Tap. Screw-Stat. Bronze (2 Mt. 83-7417)
	114-801	8-18 x 5/16 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on S-82399 & 17-143 & 2 used on 12-5166, S-82104, S-82400, 2 join S-82401, S-82399, S-82401, S-82400, 4 used on 12-5170, S-82401)
	114-803	6-20 x 1/4 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (Used on 83-7196)
	121-433	Transistor - Pre-Amplifier & Driver (4 required)
	121-546	Transistor - 2nd & 3rd I.F. (2 required)
	121-612	Transistor - R.F. (FM)
	121-613	Transistor - Autodyne Converter (FM)
	121-614	Transistor - 1st I.F. Amplifier
	121-639	Transistor - Composite Amplifier (4 required)
	121-706	Transistor - Audio Driver (2 required)
	121-714	Transistor - AM - FM - I.F.
	126-1336	Coil Shield
	*126-1406	Dial Light Shield (Part of S-82402)
	188-140	Retaining Ring
	188-155	Clamping Ring (Part of S-82433)
	199-265	Shielded Paper Sleeve
	199-436	Shielded Paper Sleeve
	800-289	Output Transistor Assem. - Matched Pair (2 required)
	*S-82399	Bracket & Pulley Assem. - Left
	*S-82400	Bracket & Pulley Assem. - Right
	*S-82401	Bandswitch Bracket Assem.
	*S-82402	Dial Light Shield Assem.
	*S-82433	Drive Pulley Assem.
	*S-82434	Drive Cord & Eyelet Assem.
	*S-82435	Drive Cord & Eyelet Assem. (Pointer)
	*S-83909	Shielded Lead & Plug Assem.
		CHASSIS 25AT20
C101A		A.M. Antenna Trimmer
C101B		A.M. Antenna Tuner
C101C		A.M. Detector Tuner
C101D	22-4808	A.M. Detector Trimmer
C101E		A.M. Oscillator Trimmer
C101F		A.M. Oscillator Tuner
C102	22-5	100 PF Disc 500V
C103	22-14	.0047 MFD Disc 500V
C104	22-3034	.05 MFD Disc 25V
C105	22-3034	.05 MFD Disc 25V
C106	22-5639	.22 MFD Capacitor 100V
C107	22-2729	.001 MFD Disc 25V
C108	22-3034	.05 MFD Disc 25V
C109	22-3254	.1 MFD Disc 25V
C110	22-4564	10 MFD Electrolytic 25V
C201	22-2720	1.0 PF Gimmick 500V
C202	22-3254	.1 MFD Disc 25V
C203	22-2715	1.2 PF Gimmick 500V
C204	22-3034	.05 MFD Disc 25V
C205	22-3034	.05 MFD Disc 25V
C206	22-3254	.1 MFD Disc 25V
C207	22-3675	10 pf Disc 500V
C208	22-3034	.05 MFD Disc 25V
C209	22-3034	.05 MFD Disc 25V
C210	22-2884	5 MFD Electrolytic 12V
C211	22-3034	.05 MFD Disc 25V
C212	22-2903	22 PF Disc 500V
C213	22-3034	.05 MFD Disc 25V
C214	22-2424	1.5 MFD Gimmick 500V
C215	22-3034	.05 MFD Disc 25V
C216	22-18	.0022 MFD Disc 500V
C217	22-18	.0022 MFD Disc 500V
C218	22-18	.0022 MFD Disc 500V
C219	22-5459	.0015 MFD Disc 500V
C220	22-3034	.05 MFD Disc 25V
C221	22-3034	.05 MFD Disc 25V
C222	22-3034	.05 MFD Disc 25V
C223	22-2333	2.2 PF Gimmick 500V
C224	22-2729	.001 MFD Disc 25V
C225	22-3177	390 PF Disc 500V
C226	22-3177	390 PF Disc 500V
C227	22-3448	10 MFD Electrolytic 15V
C228	22-2374	6 PF Disc 500V
C229	22-3254	.1 MFD Disc 25V
C230	22-3080	.005 MFD Disc 25V
C231	22-2481	8 PF Disc 500V
C232	22-3034	.05 MFD Disc 25V
C301	22-3034	.05 MFD Disc 25V
C302	22-5780	270 PF Capacitor 5% 500V
C303	22-5781	.001 MFD Capacitor 5% 500V
C304	22-5018	.47 MFD Capacitor 50V
C305	22-5782	2200 PF Capacitor 5% 500V
C306	22-2884	5 MFD Electrolytic 12V
C307	22-5782	2200 PF Capacitor 5% 500V
C308	22-3393	.01 MFD Disc 25V
C309	22-5781	.001 MFD Capacitor 5% 500V
C310	22-3415	.0068 MFD Disc 25V
C311	22-2884	5 MFD Electrolytic 12V
C312	22-5761	470 PF Disc 500V
C362	22-5761	470 PF Disc 500V
C401	22-3034	.05 MFD Disc 25V
C402	*22-5944	.82 MFD Disc 3V
C403	22-2884	5 MFD Electrolytic 12V
C404	*22-5911	.27 MFD Capacitor 100V
C405	*22-5900	.56 MFD Capacitor 100V
C406	22-3595	.33 MFD Capacitor 50V
C407	22-5542	.0022 MFD Capacitor 500V
C408	22-3892	.01 MFD Capacitor 100V
C409	22-5159	.047 MFD Capacitor 50V
C410	*22-5867	.12 MFD Capacitor 100V
C411	22-4905	.01 MFD Capacitor Disc 500V
C412	22-3255	330 PF Disc 500V
C413	22-5188	.1 MFD Capacitor 50V
C414	22-5459	1500 PF Disc 500V
C417	22-4576	25 MFD Electrolytic 15V
C419	22-3608	68 PF Disc 500V
C421	22-5362	1000 MFD Electrolytic 50V
C423	22-3362	560 PF Disc 500V
C451	22-3034	.05 MFD Disc 25V
C452	*22-5944	.82 MFD Disc 3V
C453	22-2884	5 MFD Electrolytic 12V
C454	*22-5911	.27 MFD Capacitor 100V
C455	*22-5900	.56 MFD Capacitor 100V
C456	22-3595	.33 MFD Capacitor 50V
C457	22-5542	.0022 MFD Capacitor 500V
C458	22-3892	.01 MFD Capacitor 100V
C459	22-5159	.047 MFD Capacitor 50V
C460	*22-5867	.12 MFD Capacitor 100V
C461	22-4905	.01 MFD Capacitor Disc 500V
C462	22-3255	330 PF Disc 500V

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
C463	22-5188	.1 MFD Capacitor 50V
C464	22-5459	1500 PF Disc 500V
C467	22-4576	25 MFD Electrolytic 15V
C469	22-3608	68 PF Disc 500V
C471	22-5362	1000 MFD Electrolytic 50V
C473	22-3362	560 PF Disc 500V
C501	22-4121	.047 MFD Capacitor 200V
C502	22-4121	.047 MFD Capacitor 200V
C504	22-5362	1000 MFD Electrolytic 50V
C505	22-5316	500 MFD Electrolytic 50V
C506	22-5474	2000 MFD Electrolytic 30V
C508	22-5167	1000 MFD Electrolytic 30V
C509	22-5192	300 MFD Electrolytic 15V
C510	22-5903	.0015 MFD Disc 1.4KV
C511	22-4147	.1 MFD Capacitor 400V
C512	22-4147	.1 MFD Capacitor 400V
C513	22-4147	.1 MFD Capacitor 400V
R101	63-1792	1.5K Ohm Resistor 10% ½W
R102	63-1764	330 Ohm Resistor 10% ½W
R103	63-1768	390 Ohm Resistor 10% ½W
R104	63-1764	330 Ohm Resistor 10% ½W
R105	63-1817	5.6K Ohm Resistor 10% ½W
R106	63-1834	15K Ohm Resistor 10% ½W
R107	63-1813	4.7K Ohm Resistor 10% ½W
R108	63-1785	1K Ohm Resistor 10% ½W
R109	63-1785	1K Ohm Resistor 10% ½W
R110	63-1915	1.2 Meg Ohm Resistor 10% ½W
R201	63-1768	390 Ohm Resistor 10% ½W
R202	63-1782	820 Ohm Resistor 10% ½W
R203	63-1764	330 Ohm Resistor 10% ½W
R204	63-1778	680 Ohm Resistor 10% ½W
R205	63-1803	2.7K Ohm Resistor 10% ½W
R206	63-1831	12K Ohm Resistor 10% ½W
R207	63-1771	470 Ohm Resistor 10% ½W
R208	63-1838	18K Ohm Resistor 10% ½W
R209	63-1810	3.9K Ohm Resistor 10% ½W
R210	63-1834	15K Ohm Resistor 10% ½W
R211	63-1799	2.2K Ohm Resistor 10% ½W
R212	63-1834	15K Ohm Resistor 10% ½W
R213	*63-8258	150K Potentiometer
R214	63-1785	1K Ohm Resistor 10% ½W
R216	63-1792	1.5K Ohm Resistor 10% ½W
R217	63-1743	100 Ohm Resistor 10% ½W
R218	63-1785	1K Ohm Resistor 10% ½W
R219	63-1778	680 Ohm Resistor 10% ½W
R220	63-1778	680 Ohm Resistor 10% ½W
R221	63-1848	33K Ohm Resistor 10% ½W
R222	63-1890	330K Ohm Resistor 10% ½W
R223	63-1897	470K Ohm Resistor 10% ½W
R224	63-1883	220K Ohm Resistor 10% ½W
R225	63-1831	12K Ohm Resistor 10% ½W
R226	63-1806	3.3K Ohm Resistor 10% ½W
R227	63-1778	680 Ohm Resistor 10% ½W
R228	63-1785	1K Ohm Resistor 10% ½W
R229	63-1701	10 Ohm Resistor 10% ½W
R230	63-1778	680 Ohm Resistor 10% ½W
R231	63-1778	680 Ohm Resistor 10% ½W
R232	63-1817	5.6K Ohm Resistor 10% ½W
R233	63-1813	4.7K Ohm Resistor 10% ½W
R234	63-1869	100K Ohm Resistor 10% ½W
R235	63-1869	100K Ohm Resistor 10% ½W
R236	63-1848	33K Ohm Resistor 10% ½W
R237	63-1785	1K Ohm Resistor 10% ½W
R238	63-1796	1.8K Ohm Resistor 10% ½W
R301	63-1911	1 Meg Ohm Resistor 10% ½W
R302	63-1855	47K Ohm Resistor 10% ½W
R303	63-1817	5.6K Ohm Resistor 10% ½W
R304	63-1764	330 Ohm Resistor 10% ½W
R305	63-1813	4.7K Ohm Resistor 10% ½W
R306	63-1764	330 Ohm Resistor 10% ½W
R307	63-1806	3.3K Ohm Resistor 10% ½W
R308	63-6495	100K Ohm Potentiometer
R309	63-1782	820 Ohm Resistor 10% ½W
R310	63-1771	470 Ohm Resistor 10% ½W
R311	63-1824	8.2K Ohm Resistor 10% ½W
R312	63-1775	560 Ohm Resistor 10% ½W
R313	63-1771	470 Ohm Resistor 10% ½W
R314	63-1771	470 Ohm Resistor 10% ½W
R315	63-1825	9.1K Ohm Resistor 5% ½W
R316	63-1826	10K Ohm Resistor 5% ½W
R317	63-1789	1.2K Ohm Resistor 10% ½W
R318	63-1771	470 Ohm Resistor 10% ½W
R401	63-1859	56K Ohm Resistor 10% ½W
R402	63-1876	150K Ohm Resistor 10% ½W
R403	63-1890	330K Ohm Resistor 10% ½W
R404	63-1848	23K Ohm Resistor 10% ½W
R405	63-1827	10K Ohm Resistor 10% ½W
R406	63-1782	820 Ohm Resistor 10% ½W
R407	63-1775	560 Ohm Resistor 10% ½W
R408	*63-8237	30K Volume Control
R409	63-1838	18K Ohm Resistor 10% ½W
R410	*63-8239	250K Bass Control
R411	63-1820	6.8K Ohm Resistor 10% ½W
R412	*63-8238	10K Treble Control
R413	63-1848	33K Ohm Resistor 10% ½W
R414	63-1932	3.3K Meg Ohm Resistor 10% ½W
R415	63-1873	120K Ohm Resistor 10% ½W
R416	63-1740	82 Ohm Resistor 10% ½W
R417	63-1841	22K Ohm Resistor 10% ½W
R418	63-1764	330 Ohm Resistor 10% ½W
R419	63-1876	150K Ohm Resistor 10% ½W
R420	63-6045	270 Ohm Resistor 10% 1W
R421	63-4519	2.7 Ohm Resistor 10% ½W
R422	63-5656	470 Ohm Resistor 10% 2W
R423	63-4519	2.7 Ohm Resistor 10% ½W
R424	63-1855	47K Ohm Resistor 10% ½W
R425	63-5305	.51 Ohm Resistor 5% 5W
R426	63-5305	.51 Ohm Resistor 5% 5W
R427	63-1845	27K Ohm Resistor 10% ½W
R426	*63-8240	150K Ohm Balance Control
R429	63-1925	2.2 Meg Ohm Resistor 10% ½W
R430	63-1894	390K Ohm Resistor 10% ½W
R431	63-6027	100 Ohm Resistor 10% 1W
R432	63-1750	150 Ohm Resistor 10% ½W
R451	63-1859	56K Ohm Resistor 10% ½W
R452	63-1876	150K Ohm Resistor 10% ½W
R453	63-1890	330K Ohm Resistor 10% ½W
R454	63-1848	33K Ohm Resistor 10% ½W
R455	63-1827	10K Ohm Resistor 10% ½W
R456	63-1782	820 Ohm Resistor 10% ½W
R457	63-1775	560 Ohm Resistor 10% ½W
R458	63-8237	30K Volume Control
R459	63-1838	18K Ohm Resistor 10% ½W
R460	63-8239	250K Ohm Bass Control
R461	63-1820	6.8K Ohm Resistor 10% ½W
R462	63-8238	10K Ohm Treble Control
R463	63-1848	33K Ohm Resistor 10% ½W
R464	63-1932	3.3 Meg Ohm Resistor 10% ½W
R465	63-1873	120K Ohm Resistor 10% ½W
R466	63-1740	82 Ohm Resistor 10% ½W
R467	63-1821	22K Ohm Resistor 10% ½W
R468	63-1764	330 Ohm Resistor 10% ½W
R469	63-1876	150K Ohm Resistor 10% ½W
R470	63-6045	270 Ohm Resistor 10% 1W
R471	63-4519	2.7 Ohm Resistor 10% ½W
R472	63-5656	470 Ohm Resistor 10% 2W
R473	63-4519	2.7 Ohm Resistor 10% ½W
R474	63-1855	47K Ohm Resistor 10% ½W
R475	63-6305	.51 Ohm Resistor 5% 5W
R476	63-6305	.51 Ohm Resistor 5% 5W
R480	63-1894	390K Ohm Resistor
R481	63-6027	100 Ohm Resistor 1W
R482	63-1750	150 Ohm Resistor
R501	63-1926	2.2 Meg Ohm Resistor 20%
R502	63-5652	390 Ohm Resistor 2W
R503	63-5663	680 Ohm Resistor 2W
R504	63-1757	220 Ohm Resistor
R505	63-5623	100 Ohm Resistor 2W
R506	63-7576	50 Ohm Resistor 4W
L101	S-64803	AM Loop Antenna

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
L102	In T104	1st IF Transformer (AM) Primary
L103	In T104	1st IF Transformer (AM) Secondary
L201	20-2033	Peaking Coil
L202	20-1422	Peaking Coil
L203	In T201	2nd IF Teansformer (FM) Primary
L204	In T201	2nd IF Transformer (FM) Secondary
L205	In T202	2nd IF Transformer (AM) Primary
L206	In T202	2nd IF Transformer (AM) Secondary
L207	In T203	3rd IF Transformer (FM) Primary
L208	In T203	3rd IF Transformer (FM) Secondary
L209	In T204	3rd IF Transformer (AM) Primary
L210	In T204	3rd IF Transformer (AM) Secondary
L211	In T205	4th IF Transformer (FM) Primary
L212	In T205	4th IF Transformer (FM) Secondary
L213	In T206	Ratio Detector Transformer Primary
L214	In T206	Ratio Detector Transformer Secondary
L215	In T206	Ratio Detector Transformer Tertiary
L301	S-79435	MX Trap Coil
T101	S-74470	AM Antenna Coil
T102	*95-2716	AM Detector Coil
T103	*95-2717	AM Oscillator Coil
T104	*95-2718	1st AM IF
T201	*95-2728	1st FM IF
T202	*95-2719	2nd AM IF
T203	*95-2726	3rd FM IF
T204	*95-2720	3rd AM IF
T205	*95-2726	4th FM IF
T206	*95-2727	Ratio Detector
T301	S-79438	MX Input Coil
T302	S-79436	MX Doubler Coil
T304	*S-84181	MX Bi-Plex Detector Coil
CR101	103-23	Diode
CR201	103-23	Diode
CR203	103-23	Diode
CR204	103-23	Diode
CR205	103-23	Diode
CR301	103-23	Diode
CR302	103-23	Diode
CR502	212-61	Diode
CR503	212-61	Diode
CR504	103-96	Diode (Zener)
Z201	20-2008	10.7 MHZ Choke
Z301	*105-107	38 KHZ Filter (Right)
Z351	*105-107	38 KHZ Filter (Left)
P501	On 11-106	AC Line Cord Plug
P502	43-519	AC Phono Motor Input
P503	43-574	9 Contact Housing (Female)
P504	43-840	3 Contact Housing (Female)
P505	43-571	9 Contact Housing (Male)
P506	43-877	3 Contact Housing (Male)
P507	43-877	3 Contact Housing (Male)
P508	43-840	3 Contact Housing (Female)
PL1	100-482	Stereo Indicator
PL2	100-249	Pilot Light No. 1847 (Cabinet)
PL3	100-249	Pilot Light No. 1847 (Cabinet)
PL4	100-249	Pilot Light No. 1847
PL5	100-249	Pilot Light No. 1847
PL6	100-249	Pilot Light No. 1847
PL7	100-249	Pilot Light No. 1847
PL8	100-249	Pilot Light No. 1847
PL9	100-249	Pilot Light No. 1847
PL10	100-249	Pilot Light No. 1847
PL11	100-249	Pilot Light No. 1847
PL12	100-422	Function Light No. 1030 (Stereo)
PL13	100-422	Function Light No. 1030 (Phono)
PL14	100-422	Function Light No. 1030 (Tape)
PL15	100-422	Function Light No. 1030 (AM)
PL16	100-422	Function Light No. 1030 (AFC)
PL17	100-422	Function Light No. 1030 (FM)
SW1	*85-1070	Bandswitch
SW2	*85-1072	Stereo - Mono Switch
SW3	*85-1071	On - Off Switch
M201	*122-41	Tuning Meter
	*12-5214	Rear Chassis Support Bracket
	*12-5216	Light Shield Strip
	*26-1811	Dial Scale

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	*43-1103	Function Plate Housing
	*43-1109	6 Contact Housing (4 required)
	*46-7249	Control Knob - Loudness, - Treble, - Balance & Bass (4 required)
	46-7334	Tuning & Function Knob (2 required)
	*46-7355	Stereo - Monaural & On-Off Knob (2 req.)
	54-541	Thread - Forming Palnut (3 used on 12-5216 & 2 used on ea. 57-7421 & 57-7422) (11 req.)
	*54-506	Tinnerman Speed Nut (2 used on ea. 83-7206 & 126-1410) (20 required)
	*54-833	Tinnerman Speed Nut (6 used on 192-467) (6 required)
	*54-834	Thread - Forming Palnut (1 joins 43-1103 & Escutcheon)
	*57-7257	Die-Cast Escutcheon
	*57-7421	Slide Switch Mounting Plate
	*57-7422	Slide Switch Mounting Plate
	*57-7499	Retainer Plate (4 required)
	*83-7206	Slider Guide
	*83-7208	Trim Strip (Bottom)
	*83-7209	Trim Strip (Top)
	*83-7210	Indicator Strip (Volume)
	*83-7211	Indicator Strip (Treble)
	*83-7212	Indicator Strip (Balance)
	*83-7213	Indicator Strip (Bass)
	*86-538	Connector Terminal (21 required)
	*112-625	4-24 x 1/4 Phillips Pan Hd. Self-Tap. Screw-Stat. Bronze (2 used on ea. 63-8237, 63-8238, 63-8239 & 63-8240) (8 required)
	114-344	6-20 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 used on 43-1103)
	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 join escutcheon & RF Chassis)
	114-806	8-18 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 joins audio chassis & RF chassis & 2 used on 12-5214) (6 required)
	*126-1410	Light Shield (2 required)
	*126-1416	Slider Guide Shield (8 required)
	188-441	Knob Clamping Ring (Part of 46-7334)
	*192-467	Dial Crystal

25AT20 R.F. CHASSIS COMPONENTS

	12-4211	Variable Capacitor Mounting Bracket
	*12-5192	Meter Mounting Bracket
	*12-5193	Chassis Mounting Bracket
	*12-5232	Switch Bracket
	19-448	Grounding Clip (2 required)
	19-464	Coil Mounting Clip
	19-480	Wire Retaining Clip
	19-485	Cable Clamp
	19-492	Wire Retaining Clip (5 required)
	43-571	Nine Contact Housing
	43-877	Three Contact Housing
	52-1496	Two Conductor Shielded Cable
	*52-1622	Two Conductor Cable
	*52-1624	Two Conductor Shielded Cable
	*52-1625	Two Conductor Shielded Cable
	*52-1626	Two Conductor Shielded Cable
	54-139	3/8 - 32 x 9/16 Palnut - Cadmium (Used on 85-1070)
	54-812	Tinnerman Speed Nut (13 used on chassis & 3 used on 126-1429)
	*54-832	Tinnerman Speed Nut (2 used on 12-5192)
	*57-7256	Back Ground Plate
	57-7452	Function Plate & Socket
	58-315	Connector Plug (2 part of S-83447 & 1 part of S-83450)
	*59-1036	Dial Pointer
	61-222	Pulley (2 part of S-83474 & 2 part of S-83475)
	64-862	Steel Eyelet (4 used on FM Tuner)
	69-217	4-40 x 3/16 Rd. Hd. Machine Screw-N.P. (2 used on ea. 85-1071 & 85-1072) (4 required)
	*78-1891	Socket & Wire (3 required)
	*78-1892	Socket & Wire (2 required)

ITEM NO.	PART NO.	DESCRIPTION
	*78-1901	Socket & Wire (3 required)
	80-209	Tension Spring
	80-1140	Tension Spring
	*83-7308	Terminal Strip
	*83-7309	Antenna Terminal Strip
	86-388	Connector Terminal (2 required)
	86-390	Connector Terminal (8 required)
	86-398	Connector Terminal (6 required)
	86-483	Connector Terminal (3 required)
	86-500	Terminal (Test Point) (24 required)
	113-10	6-32 x 3/16 x 1/4 Hex Hd. Mach. Screw-N.P. - Internal Shakeproof Lockwasher (2 join 12-4211 & 22-4808)
	114-344	6-20 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (3 used on 57-7256, 2 join 126-1420 & 57-7256, 2 used on S-83475 & 1 used on 85-1070 & 2 Mt. 126-1420)
	114-494	10-16 x 1/2 Hex Hd. Self-Tap. Screw-Stat. Bronze - Flat Washer Att. (4 used on FM tuner)
	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on 12-4211)
	114-806	8-18 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 used on ea. 83-7309 & 85-1071 & 3 used on ea. S-83474 & 12-5193) (10 required)
	121-496	Transistor - Comp. Amp. - 19KHZ Amp. - 38KHZ Amp. - Stereo Ind. Sw. (4 required)
	121-546	Transistor - 2nd. & 3rd. I.F. (3 required)
	121-614	Transistor - 1st I.F.
	121-638	Transistor - Converter
	*121-734	Transistor
	*121-753	Transistor (2 required)
	125-117	Rubber Grommet (4 used on FM tuner)
	126-1331	Coil Shield
	126-1420	Dial Scale Light Shield
	*126-1429	Bandswitch Shield
	149-370	Iron Core
	199-246	Insulating Sleeve (2 part of S-83449)
	S-82931	FM tuner assembly
	*S-83447	Phono Cable & Connector Plug Assem.
	*S-83449	Shielded Cable & Terminal Assem. (tape in)
	*S-83450	FM Cable & Plug Assem.
	*S-83454	Stereo Indicator, Wire & Terminal Assem.
	*S-83474	Chassis Mounting Bracket & Pulley Assem.
	*S-83475	Pointer Guide Rail & Pulley Assem.
	*S-83476	Drive Cord & Eyelet Assem.
	*S-83477	Drive Cord & Eyelet Assem.
	*S-83478	Drive Cord & Eyelet Assem.
	25AT20 AUDIO CHASSIS COMPONENTS	
	17-141	Cable Clamp
	19-448	Ground Clamp
	19-480	Wire Clip (2 required)
	19-546	Capacitor Retaining Clip (4 required)
	19-561	Capacitor Retaining Clip
	43-841	Three Contact Housing
	43-876	Three Contact Housing
	54-812	Tinnerman Speed Nut (4 used on ea. 64-1033 & 86-500)
	64-1033	Grip Eyelet (4 required)
	78-1812	Two Contact Transistor Socket (2 part of ea. S-73214)
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	83-5277	Transistor Insulating Strip (2 part of ea. 800-196)
	83-5288	13 Lug Terminal Strip
	83-5794	18 Lug Terminal Strip
	86-344	Connector Terminal (3 part of S-83439)
	86-388	Connector Terminal (2 part of S-83440)
	86-390	Connector Terminal (2 required)
	86-484	Connector Terminal (3 required)
	86-500	Connector Pin (4 required)
	*95-2699	Driver Transformer (2 required)
	114-26	8-18 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on 17-141)
	114-271	6-20 x 1/2 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 used on ea. 800-196)
	114-344	6-20 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 used on ea. S-73214 & 2 used on ea. 95-2699)
	121-706	Transistor - Driver (2 required)
	121-751	Transistor - Driver (2 required)
	*121-752	Transistor - Pre-Amp. (2 required)
	199-246	Insulating Sleeve (2 part of S-83440)
	199-319	Insulating Sleeve (2 part of S-83439)
	205-51	Dow Corning Heat Conductive Grease (Part of 800-196)
	800-196	Output Transistor Assem. - Matched Pr. (2 required)
	S-73214	Heat Sink & Socket Assem. (2 required)
	*S-83439	Speaker Cable, Terminal & Sleeve Assembly
	*S-83440	Two Conductor Shielded Cable, Terminal & Sleeve Assem.
	CHASSIS 29AT24	
C101A	22-4817	A.M. Antenna Tuning
C101B		A.M. Antenna Trimmer
C101C		A.M. Detector Tuning
C101D		A.M. Detector Trimmer
C101E		A.M. Oscillator Tuning
C101F		A.M. Oscillator Trimmer
C102	22-9	100 PF Disc 500V
C103	22-3944	.0047 MFD 10% 25V
C104	22-3034	.05 MFD Disc 25V
C105	22-3034	.05 MFD Disc 25V
C106	22-3527	.22 MFD Disc 12V
C107	22-4564	10 MFD Electrolytic 25V
C108	22-2884	5 MFD Electrolytic 12V
C109	22-2729	.001 MFD Disc 25V
C110	22-3034	.05 MFD Disc 25V
C111	22-3034	.05 MFD Disc 25V
C201	22-2720	1 PF Gimmick 500V
C202	22-3254	.1 MFD Disc 25V
C203	22-3034	.05 MFD Disc 25V
C204	22-2715	1.2 PF Gimmick 500V
C205	22-3034	.05 MFD Disc 25V
C206	22-3034	.05 MFD Disc 25V
C207	22-3675	10 PF Disc 5% 500V
C208	22-2424	1.5 PF Gimmick 500V
C209	22-3034	.05 MFD Disc 25V
C210	22-3034	.05 MFD Disc 25V
C211	22-3010	.01 MFD Disc 25V
C212	22-3034	.05 MFD Disc 25V
C213	22-18	.0022 MFD Disc 500V
C214	22-18	.0022 MFD Disc 500V
C215	22-18	.0022 MFD Disc 500V
C216	22-13	.0033 MFD Disc 500V
C217	22-3034	.05 MFD Disc 25V
C218	22-2374	6 PF Disc 500V
C219	22-3034	.05 MFD Disc 25V
C220	22-2903	22 PF Disc 500V
C221	22-2374	6 PF Disc 500V
C222	22-2333	2.2 PF Gimmick 500V
C223	22-3034	.05 MFD Disc 25V
C224	22-3034	.05 MFD Disc 25V
C225	22-3254	.1 MFD Disc 25V
C226	22-3080	.005 MFD Disc 25V
C227	22-2729	.001 MFD Disc 25V
C228	22-3177	390 PF Disc 500V
C229	22-3177	390 PF Disc 500V
C230	22-3448	10 MFD Electrolytic 15V
C301	22-3034	.05 MFD Disc 25V
C302	22-5018	.47 MFD Mylar 50V
C303	22-2884	5 MFD Electrolytic 12V
C304	22-2884	5 MFD Electrolytic 12V
C305	22-3010	.01 MFD Disc 25V
C306	22-3826	.022 MFD Mylar 100V
C307	22-5626	.0082 MFD Disc 500V
C357	22-5626	.0082 MFD Disc 500V
C401	22-3034	.05 MFD Disc 25V
C402	22-5883	.033 MFD 100V
C403	22-3034	.05 MFD Disc 25V

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ITEM NO.	PART NO.	DESCRIPTION
C404	22-3080	.005 MFD Disc 25V
C405	22-3362	560 PF Disc 500V
C406	22-3034	.05 MFD Disc 25V
C407	22-3687	1 MFD Electrolytic 50V
C408	22-3596	.1 MFD Mylar 20% 50V
C410	22-14	.0047 MFD Disc 500V
C411	22-3599	.015 MFD 50V
C412	22-5237	.01 MFD 100V
C413	22-3826	.022 MFD Mylar 100V
C414	22-3444	.018 MFD 50V
C415	22-3687	1 MFD Electrolytic 50V
C416	22-3826	.022 MFD Mylar 100V
C417	22-3687	1 MFD Electrolytic 50V
C418	22-3891	.0068 MFD 100V
C419	22-3687	1 MFD Electrolytic 50V
C420	22-5188	.1 MFD 50V
C421	22-5012	.15 MFD 50V
C422	22-5012	.15 MFD 50V
C423	22-3896	5 MFD Electrolytic 25V
C451	22-3034	.05 MFD Disc 25V
C452	22-5883	.033 MFD 100V
C453	22-3034	.05 MFD Disc 25V
C454	22-3080	.005 MFD Disc 25V
C455	22-3362	560 PF Disc 500V
C456	22-3034	.05 MFD Disc 25V
C457	22-3687	1 MFD Electrolytic 50V
C458	22-3599	.1 MFD Mylar 20% 50V
C460	22-14	.0047 MFD Disc 500V
C461	22-3566	.015 MFD 50V
C462	22-5237	.01 MFD 100V
C463	22-3826	.022 MFD Mylar 100V
C464	22-3444	.018 MFD 50V
C465	22-3687	1 MFD Electrolytic 50V
C466	22-3826	.022 MFD 100V
C467	22-3687	1 MFD Electrolytic 50V
C468	22-3891	.0068 MFD 100V
C469	22-3687	1 MFD Electrolytic 50V
C470	22-5188	.1 MFD 50V
C471	22-5012	.15 MFD 50V
C472	22-5012	.15 MFD 50V
C473	22-3896	5 MFD Electrolytic 25V
C565	22-5168	300 MFD Electrolytic 25V
C566	22-5167	1000 MFD Electrolytic 30V
C601	22-3034	.05 MFD Disc 25V
C602	22-3687	1 MFD Electrolytic 50V
C603	22-3034	.05 MFD Disc 25V
C604	22-4905	.01 MFD Disc 500V
C605	22-3687	1 MFD Electrolytic 50V
C606	22-4905	.01 MFD Disc 500V
C607	22-3034	.05 MFD Disc 25V
C608	22-3687	1 MFD Electrolytic 50V
C609	22-3034	.05 MFD Disc 25V
C610	22-3034	.05 MFD Disc 25V
C611	22-4905	.01 MFD Disc 500V
C612	22-3034	.05 MFD Disc 25V
C613	22-4905	.01 MFD Disc 500V
C614	22-3687	1 MFD Electrolytic 50V
C615	22-4905	.01 MFD Disc 500V
C616	*22-5907	.1 MFD 50V
C617	22-4905	.01 MFD Disc 500V
C618	22-18	.0022 MFD Disc 500V
C619	22-4905	.01 MFD Disc 500V
C620	22-18	.0022 MFD Disc 500V
C621	22-5883	.033 MFD 100V
C622	22-5883	.033 MFD 100V
C623	22-5883	.033 MFD 100V
C624	22-5883	.033 MFD 100V
C625	22-5883	.033 MFD 100V
C626	22-4905	.01 MFD Disc 500V
C627	22-18	.0022 MFD Disc 500V
C628	22-5883	.033 MFD 100V
C629	22-4905	.01 MFD Disc 500V
C630	22-18	.0022 MFD Disc 500V
C631	22-4905	.01 MFD Disc 500V
C632	22-18	.0022 MFD Disc 500V

ITEM NO.	PART NO.	DESCRIPTION
C633	*22-5904	.15 MFD 100V
C634	*22-5907	.1 MFD 50V
C635	*22-5815	.056 MFD 100V
C636	22-5612	180 PF Disc 500V
C637	*22-5907	.1 MFD 100V
C638	22-3687	1 MFD Electrolytic 50V
C639	22-4905	.01 MFD Disc 500V
C640	22-18	.0022 MFD Disc 500V
C641	*22-5904	.15 MFD 100V
C642	*22-5907	.1 MFD 50V
C643	*22-5815	.056 MFD 100V
C644	22-5612	180 PF Disc 500V
C645	*22-5907	.1 MFD 50V
C646	22-4509	20 MFD Electrolytic 25V
R101	63-1915	1.2 Meg Ohm 10% ½W
R102	63-1764	330 Ohm 10% ½W
R103	63-1799	2.2K Ohm 10% ½W
R104	63-1799	2.2K Ohm 10% ½W
R105	63-1771	470 Ohm 10% ½W
R106	63-1785	1K Ohm 10% ½W
R107	63-1887	270K Ohm 10% ½W
R108	63-1813	4.7K Ohm 10% ½W
R109	63-1827	10K Ohm 10% ½W
R110	63-1813	4.7K Ohm 10% ½W
R111	63-1785	1K Ohm 10% ½W
R112	63-1785	1K Ohm 10% ½W
R201	63-1768	390 Ohm 10% ½W
R202	63-1782	820 Ohm 10% ½W
R203	63-1764	330 Ohm 10% ½W
R204	63-1778	680 Ohm 10% ½W
R205	63-1831	12K Ohm 10% ½W
R206	63-1803	2.7K Ohm 10% ½W
R207	63-1792	1.5K Ohm 10% ½W
R208	63-1747	120 Ohm 10% ½W
R209	63-1785	1K Ohm 10% ½W
R210	63-1810	3.9K Ohm 10% ½W
R211	63-1838	18K Ohm 10% ½W
R212	63-1799	2.2K Ohm 10% ½W
R213	63-1834	15K Ohm 10% ½W
R214	*63-8258	150K Ohm Potentiometer
R215	63-1771	470 Ohm 10% ½W
R216	63-1834	15K Ohm 10% ½W
R217	63-1778	680 Ohm 10% ½W
R218	63-1778	680 Ohm 10% ½W
R219	63-1848	33K Ohm 10% ½W
R220	63-1887	270K Ohm 10% ½W
R221	63-1890	330K Ohm 10% ½W
R222	63-1782	820 Ohm 10% ½W
R223	63-1778	680 Ohm 10% ½W
R224	63-1806	3.3K Ohm 10% ½W
R225	63-1831	12K Ohm 10% ½W
R226	63-1848	33K Ohm 10% ½W
R227	63-1785	1K Ohm 10% ½W
R228	63-1796	1.8K Ohm 10% ½W
R229	63-1869	100K Ohm 10% ½W
R230	63-1869	100K Ohm 10% ½W
R231	63-1701	10 Ohm 10% ½W
R232	63-1778	680 Ohm 10% ½W
R233	63-1778	680 Ohm 10% ½W
R234	63-1813	4.7K Ohm 10% ½W
R235	63-1813	4.7K Ohm 10% ½W
R301	63-1869	100K Ohm 10% ½W
R302	63-1911	1 Meg Ohm 10% ½W
R303	63-1866	82K Ohm 10% ½W
R304	63-1817	5.6K Ohm 10% ½W
R305	63-1764	330 Ohm 10% ½W
R306	63-1771	470 Ohm 10% ½W
R307	63-1764	330 Ohm 10% ½W
R308	63-1806	3.3K Ohm 10% ½W
R309	63-3238	50K Potentiometer (Mute Control)
R310	63-1733	56 Ohm 10% ¼W
R311	63-1771	470 Ohm 10% ½W
R312	63-1824	8.2K Ohm 10% ½W
R313	63-1775	560 Ohm 10% ½W
R314	63-1782	820 Ohm 10% ½W
R315	63-1806	3.3K Ohm 10% ½W

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
R316	63-1796	1.8K Ohm 10% ½W
R317	63-1825	9.1K Ohm 5% ½W
R318	63-1792	1.5K Ohm 10% ½W
R319	63-1778	680 Ohm 10% ½W
R320	63-1826	10K Ohm 5% ½W
R401	63-1862	68K Ohm 10% ½W
R402	63-1911	1 Meg 10% ½W
R403	63-1887	270K Ohm 10% ½W
R404	63-1911	1 Meg 10% ½W
R405	63-1894	390K Ohm 10% ½W
R406	63-1880	180K 10% ½W
R407	63-1939	4.7 Meg Ohm 10% ½W
R408	63-1838	18K Ohm 10% ½W
R409	63-1841	22K Ohm 10% ½W
R410	63-1870	100K Ohm 20% ½W
R411	63-1848	33K Ohm 10% ½W
R412	63-1953	10 Meg Ohm 10% ½W
R413	63-1813	4.7K Ohm 10% ½W
R414	63-1838	18K Ohm 10% ½W
R415	63-1841	22K Ohm 10% ½W
R416(R) R416(L)	*63-8260	250K Treble Slide Control
R417(R) R417(L)	*63-8259	250K Bass Slide Control
R418	63-1925	2.2 Meg Ohm 10% ½W
R419	63-1866	82K Ohm 10% ½W
R420	63-1813	4.7K Ohm 10% ½W
R421	63-1813	4.7K Ohm 10% ½W
R422	63-1827	10K Ohm 10% ½W
R423	63-1869	100K Ohm 10% ½W
R424	63-1852	39K Ohm 10% ½W
R425	63-1810	3.9K Ohm 10% ½W
R427(R) R427(L)	*63-8244	250K Dual Loudness Control
R428	63-1810	3.9K Ohm 10% ½W
R429	63-1922	1.8 Meg Ohm 10% ½W
R430	63-1743	100 Ohm 10% ½W
R451	63-1862	68K Ohm 10% ½W
R452	63-1911	1 Meg 10% ½W
R453	63-1887	270K Ohm 10% ½W
R454	63-1911	1 Meg 10% ½W
R455	63-1894	390K Ohm 10% ½W
R457	63-1939	4.7 Meg Ohm 10% ½W
R458	63-1838	18K Ohm 10% ½W
R459	63-1841	22K Ohm 10% ½W
R460	63-1870	100K Ohm 20% ½W
R461	63-1848	33K Ohm 10% ½W
R462	63-1953	10 Meg Ohm 10% ½W
R463	63-1813	4.7K Ohm 10% ½W
R464	63-1838	18K Ohm 10% ½W
R465	63-1841	22K Ohm 10% ½W
R468	63-1925	2.2 Meg Ohm 10% ½W
R469	63-1866	82K Ohm 10% ½W
R470	63-1813	4.7K Ohm 10% ½W
R471	63-1813	4.7K Ohm 10% ½W
R472	63-1827	10K Ohm 10% ½W
R473	63-1869	100K Ohm 10% ½W
R474	63-1852	39K Ohm 10% ½W
R475	63-1810	3.9K Ohm 10% ½W
R478	63-1810	3.9K Ohm 10% ½W
R479	63-1922	1.8 Meg Ohm 10% ½W
R480	63-1743	100 Ohm 10% ½W
R481	*63-8282	250K Balance Slide Control
R482	63-1936	3.9 Meg Ohm 10% ½W
R567	63-1814	4.7K Ohm 20% ½W
R568	*63-8298	200 Ohm 10% 15W
R601	63-4548	22 Meg Ohm 10% ½W
R602	63-1946	6.8 Meg Ohm 10% ½W
R603	63-1894	390K Ohm 10% ½W
R604	63-4548	22 Meg Ohm 10% ½W
R605	63-1946	6.8 Meg Ohm 10% ½W
R606	63-1932	3.3 Meg Ohm 10% ½W
R607	63-1894	390K Ohm 10% ½W
R608	63-4548	22 Meg Ohm 10% ½W
R609	63-1936	3.9 Meg Ohm 10% ½W
R610	63-4548	22 Meg Ohm 10% ½W
R611	63-1932	3.3 Meg Ohm 10% ½W
R612	63-1936	3.9 Meg Ohm 10% ½W
R613	63-1897	470K Ohm 10% ½W
R614	63-4548	22 Meg Ohm 10% ½W
R615	63-1932	3.3 Meg Ohm 10% ½W
R616	63-1897	470K Ohm 10% ½W
R617	63-1883	220K Ohm 10% ½W
R618	63-4548	22 Meg Ohm 10% ½W
R619	63-1932	3.3 Meg Ohm 10% ½W
R620	63-1929	2.7 Meg Ohm 10% ½W
R621	63-1890	330K Ohm 10% ½W
R622	63-4548	22 Meg Ohm 10% ½W
R623	63-1922	1.8 Meg Ohm 10% ½W
R624	63-1929	2.7 Meg Ohm 10% ½W
R625	63-4548	22 Meg Ohm 10% ½W
R626	63-1922	1.8 Meg Ohm 10% ½W
R628	63-4548	22 Meg Ohm 10% ½W
R629	63-1932	3.3 Meg Ohm 10% ½W
R630	63-1932	3.3 Meg Ohm 10% ½W
R631	63-1841	22K Ohm 10% ½W
R632	63-1841	22K Ohm 10% ½W
R633	63-1883	220K Ohm 10% ½W
R634	63-1841	22K Ohm 10% ½W
R635	63-1722	33 Ohm 10% ½W
R636	63-4548	22 Meg Ohm 10% ½W
R637	63-1869	100K Ohm 10% ½W
R638	63-1827	10K Ohm 10% ½W
R639	63-4548	22 Meg Ohm 10% ½W
R640	63-1869	100K Ohm 10% ½W
R641	63-1827	10K Ohm 10% ½W
R642	63-4548	22 Meg Ohm 10% ½W
R643	63-1869	100K Ohm 10% ½W
R644	63-1827	10K Ohm 10% ½W
R645	63-4548	22 Meg Ohm 10% ½W
R646	63-1869	100K Ohm 10% ½W
R647	63-1827	10K Ohm 10% ½W
R648	63-4548	22 Meg Ohm 10% ½W
R649	63-1869	100K Ohm 10% ½W
R650	63-1918	1,5 Meg Ohm 10% ½W
R651	63-1869	100K Ohm 10% ½W
R652	63-1813	4.7K Ohm 10% ½W
R653	63-1785	1K Ohm 10% ½W
R654	63-1883	220K Ohm 10% ½W
R655	63-1841	22K Ohm 10% ½W
R656	63-4548	22 Meg Ohm 10% ½W
R657	63-1869	100K Ohm 10% ½W
R658	63-1918	1.5 Meg Ohm 10% ½W
R659	63-1869	100K Ohm 10% ½W
R660	63-1785	1K Ohm 10% ½W
R661	63-1813	4.7K Ohm 10% ½W
R662	63-1841	22K Ohm 10% ½W
R663	63-1813	4.7K Ohm 10% ½W
R664	63-1869	100K Ohm 10% ½W
R665	63-1859	56K Ohm 10% ½W
R666	63-1859	56K Ohm 10% ½W
R667	63-1869	100K Ohm 10% ½W
R668	63-1911	1 Meg Ohm 10% ½W
R669	63-1911	1 Meg Ohm 10% ½W
R670	63-1841	22K Ohm 10% ½W
R671	63-1911	1 Meg Ohm 10% ½W
R672	63-1911	1 Meg Ohm 10% ½W
R673	63-4548	22 Meg Ohm 10% ½W
R674	63-4548	22 Meg Ohm 10% ½W
R675	*63-4561	47 Meg Ohm 10% ½W
R676	63-4548	22 Meg Ohm 10% ½W
R677	63-1869	100K Ohm 10% ½W
R678	63-1869	100K Ohm 10% ½W
R679	63-1932	3.3 Meg Ohm 10% ½W
R680	63-1932	3.3 Meg Ohm 10% ½W
R681	63-1932	3.3 Meg Ohm 10% ½W
R682	63-1932	3.3 Meg Ohm 10% ½W
R683	63-1932	3.3 Meg Ohm 10% ½W
R684	63-1932	3.3 Meg Ohm 10% ½W
R685	63-1932	3.3 Meg Ohm 10% ½W
R686	63-1932	3.3 Meg Ohm 10% ½W

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
R687	63-1932	3.3 Meg Ohm 10% ½W
R688	63-1932	3.3 Meg Ohm 10% ½W
R689	63-1932	3.3 Meg Ohm 10% ½W
R690	63-1932	3.3 Meg Ohm 10% ½W
L101	S-64803	A.M. Antenna (Cabinet)
L102	In T101	A.M. Antenna Coil (Pri.)
L103	In T101	A.M. Antenna Coil (Sec.)
L104	20-2033	Peaking Coil
L105	In T102	A.M. Detector Coil (Pri.)
L106	In T102	A.M. Detector Coil (Sec.)
L107	In T104	A.M. Oscillator Coil
L108	In T103	A.M. Mixer Coil (Pri.)
L109	In T103	A.M. Mixer Coil (Sec.)
L202	In T201	2nd F.M. I.F. Transformer 10.7 MHz (Pri.)
L203	In T201	2nd F.M. I.F. Transformer 10.7 MHz (Sec.)
L204	In T202	2nd A.M. I.F. Transformer 455 KHz (Pri.)
L205	In T202	2nd A.M. I.F. Transformer 455 KHz (Sec.)
L206	In T203	3rd F.M. I.F. Transformer 10.7 MHz (Pri.)
L207	In T203	3rd F.M. I.F. Transformer 10.7 MHz (Sec.)
L208	In T204	3rd A.M. I.F. Transformer 455 KHz (Pri.)
L209	In T204	3rd A.M. I.F. Transformer 455 KHz (Sec.)
L210	In T205	4th F.M. I.F. Transformer 10.7 MHz (Pri.)
L211	In T205	4th F.M. I.F. Transformer 10.7 MHz (Sec.)
L212	In T206	Ratio Detector Trans. (Pri.)
L213	In T206	Ratio Detector Trans. (Tertiary)
L214	In T206	Ratio Detector Trans. (Sec.)
L301	In T301	Trap Coil 67 KHz
L302	In T302	Input Coil 19 KHz (Pri.)
L303	In T302	Input Coil 19 KHz (Sec.)
L304	In T303	Doubler Coil 19 KHz (Pri.)
L305	In T303	Doubler Coil 19 KHz (Sec.)
L306	In T304	Biplex Det. Coil 38 KHz (Pri.)
L307	In T304	Biplex Det. Coil 38 KHz (Sec.)
L401	149-311	Ferrite Sleeve
L451	149-311	Ferrite Sleeve
L501	20-2008	Peaking Coil
L601	20-2033	10 UH Trap
T101	S-74470	A.M. Antenna Coil
T102	S-83974	A.M. Detector
T103	*95-2721	A.M. Mixer
T104	S-83975	A.M. Oscillator
T201	95-2328	2nd F.M. I.F. Transformer
T202	*95-2722	2nd A.M. I.F. Transformer
T203	95-2387	3rd F.M. I.F. Transformer
T204	*95-2723	3rd A.M. I.F. Transformer
T205	95-2387	4th F.M. I.F. Transformer
T206	95-2324	Ratio Detector Transformer
T301	95-2316	Trap Coil
T302	95-2315	Input Transformer
T303	95-2313	Doubler Transformer
T304	95-2314	Detector Transformer
CR101	103-23	Diode
CR201	103-23	Diode
CR202	103-23	Diode
CR203	103-23	Diode
CR204	103-23	Diode
CR205	103-23	Diode
CR301	103-23	Diode
CR302	103-23	Diode
CR503	103-158	Zener Diode
CR504	103-96	Zener Diode
CR601	103-142	Diode
CR602	103-142	Diode
CR603	103-142	Diode
CR604	103-142	Diode
CR605	103-142	Diode
CR606	103-142	Diode
CR607	103-142	Diode
CR608	103-142	Diode
CR609	103-142	Diode
CR610	103-142	Diode
CR611	103-142	Diode
CR612	103-142	Diode
CR613	103-142	Diode
CR614	103-142	Diode
CR615	103-142	Diode
CR616	103-142	Diode
CR617	103-142	Diode
CR618	103-142	Diode
CR619	103-142	Diode
CR620	103-142	Diode
CR621	103-142	Diode
S301	85-1077	AFC Switch
S401	*85-1075	Contour Switch
S501	*85-1074	A.C. Switch (Early Models)
S501	*85-1110	A.C. Switch (Late Models)
S601	*85-1078	A.M. Switch
S602	*85-1078	F.M. Switch
S603	*85-1078	Phono Switch
S604	*85-1078	Tape Switch
S605	*85-1078	Mono-Stereo Switch
S606	*85-1078	Ext. Bass Switch
Z201	20-1422	10.7 MHz Trap
Z301	105-93	Integnet (R)
Z351	105-93	Integnet (L)
DS301	100-384	Stereo Indicator Light (1819X)
DS503	100-249	Pilot Light (1847)
DS504	100-249	Pilot Light (1847)
DS505	100-249	Pilot Light (1847)
DS506	100-249	Pilot Light (1847)
DS507	100-249	Pilot Light (1847)
DS508	100-249	Pilot Light (1847)
DS509	100-249	Pilot Light (1847)
DS510	100-249	Pilot Light (1847)
DS511	100-249	Pilot Light (1847)
DS601	100-384	A.M. Indicator Light (1819X)
DS602	100-384	F.M. Indicator Light (1819X)
DS603	100-384	Phono Indicator Light (1819X)
DS604	100-384	Tape Indicator Light (1819X)
DS605	100-384	Mono-Stereo Indicator Light (1819X)
DS606	100-384	Ext. Bass Indicator Light (1891X)
J401	S-83998	Housing, Wire & Terminal Assem. (Female)
J402	S-83999	Housing, Wire & Terminal Assem. (Female)
P401	S-84151	Housing, Wire & Terminal Assem. (Male)
P402	S-84137	Housing, Wire & Terminal Assem. (Male)
P501	S84014	Housing, Wire & Terminal Assem. (Male)
P502	S84023	Housing, Wire & Terminal Assem. (Male)
P601	S84038	Twenty Contact Housing & Wire Assem.
P602	S83998	Twenty Contact Housing & Wire Assem.
M201	*122-42	Tuning Meter
	OR	
	*122-43	
	12-4120	Variable Capacitor Mtg. Bracket
	12-4652	Tuning Meter Mtg. Bracket
	12-4729	Stereo Reflector Bracket
	12-4945	I.F. Shield Bracket
	*12-5272	Switch Mtg. Bracket
	*12-5295	Mtg. Bracket
	17-149	Cable Clamp
	19-238	Coil Mtg. Clip (1 part of ea. S-82954 & S-82955)
	19-448	Ground Clip (2 required)
	19-464	Coil Mtg. Clip (Part of S-76801)
	19-480	Wire Retaining Clip (3 required)
	19-492	Cable Retaining Clamp (3 required)
	19-561	Capacitor Clamp
	22-3652	.1 Mf Disc Capacitor 12V
	22-3944	.0047 Mf Disc Capacitor 25V (Part of S-76801)
	22-4509	20 Mf Electrolytic Capacitor 25V

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	22-4555	1 Mf Electrolytic Capacitor 10V (2 req.)
	22-5639	.22 Mf Capacitor 100V (2 required)
	*26-1859	Dial Scale
	*226-1860	Log Scale
	43-571	9 Contact Housing
	43-875	9 Contact Housing
	43-878	12 Contact Housing (2 required)
	43-879	12 Contact Housing - Treble & Bass (2 req.)
	43-880	6 Contact Housing (Phono Socket)
	*43-1110	20 Contact Housing (2 required)
	*46-6548	Tuning Control Knob
	*46-7249	Bass, Treble, Balance & Contour Control Knob (4 required)
	46-7334	Loudness Control Knob
	*46-7355	AFC & On-Off Control Knob (2 required)
	52-1214	Two Conductor Shielded Cable (Used on 43-875)
	52-1606	Single Conductor Shielded Cable (Used on 22-4817)
	*52-1644	Two Conductor Cable (Used on 83-7397)
	*52-1645	Two Conductor Shielded Cable (Used on 43-1110)
	*52-1646	Two Conductor Shielded Cable (Used on 43-1110)
	*52-1648	Single Conductor Shielded Lead (Used on 43-1110)
	54-450	Thread - Forming Palnut (6 Mt. 83-7383)
	*54-506	Tinnerman Speed Nut (2 Mt. ea. 126-1430 & 83-7206)
	54-515	Thread - Forming Palnut (12 required)
	54-541	Thread - Forming Palnut (2 Mt. ea. 57-7551 & 57-7552)
	54-579	10-32 x 3/8 Hex Nut - Steel - Cadmium (Mts. 103-158)
	54-590	Tinnerman Speed Nut (2 Mt. 12-4729)
	54-652	Thread - Forming Palnut (7 required)
	54-818	Tinnerman Speed Nut (6 required)
	*54-834	Thread - Forming Palnut (4 Mt. 57-7553)
	*57-7504	Retainer Plate
	*57-7532	Die-Cast Escutcheon
	*57-7551	Slide Switch Mtg. Plate
	*57-7552	Slide Switch Mtg. Plate
	*57-7553	Function Plate & Socket
	58-315	Connector Plug
	59-859	Dial Pointer
	61-222	Pulley (1 part of S-84096, 3 part of S-84098 & 4 part of S-84097)
	63-1845	27K Ohm Resistor - ½W. 10% (4 req.)
	63-1876	150K Ohm Resistor ½W. 10%
	63-4405	560 Ohm Resistor - 5W. 10%
	63-4526	3.9 Ohm Resistor - ½W. 10%
	63-4749	470 Ohm Resistor - 5W. 10%
	63-6442	560 Ohm Resistor - 3W. 10%
	64-862	Steel Eyelet (4 Mt. Tuner)
	69-160	4-40 x 1/4 Rd. Hd. Mach. Screw-Cadmium (2 Mt. ea. 85-1074 & 85-1077)
	78-1099	3 Contact Socket
	78-1761	Stereo Indicator Socket & Wire
	78-1838	Transistor Socket (18 required)
	*78-1920	Dial Light Socket & Wire
	80-1091	Tension Spring (Gang)
	80-1140	Tension Spring (Pointer)
	80-2035	Spring (Used on 46-6548)
	83-1475	Cable Retaining Strip
	83-5164	4 Lug Terminal Strip
	83-5165	Insulating Strip
	83-5170	3 Lug Terminal Strip
	83-5171	Insulating Strip
	83-5288	13 Lug Terminal Strip
	83-5290	19 Lug Terminal Strip
	83-5391	20 Lug Terminal Strip (3 required)
	83-5392	32 Lug Terminal Strip
	83-5736	3 Lug Terminal Strip
	83-5737	Insulating Strip
	83-6430	3 Lug Terminal Strip
	83-6875	2 Lug Terminal Strip
	83-7206	Slider Guide (8 required)
	*83-7324	Trim Strip (Bottom)
	*83-7325	Trim Strip (Top)
	*83-7383	Escutcheon Strip
	*83-7384	Indicator Strip
	*83-7385	Indicator Strip
	*83-7386	Indicator Strip
	*83-7387	Indicator Strip
	*83-7397	2 Lug Terminal Strip (Used with 58-315)
	*83-7407	Escutcheon Strip (Top)
	*83-7410	Terminal Board - Function Switch (2 req.)
	*83-7411	30 Lug Terminal Strip
	*83-7412	16 Lug Terminal Strip
	*83-7415	Channel Strip - Side (2 required)
	*83-7416	Channel Strip - Top & Bottom (2 req.)
	*85-1077	AFC Switch
	86-344	Connector Terminal (Used on 78-1920)
	86-388	Connector Terminal (1 used on 43-1110 & 2 used on 78-1761)
	86-390	Connector Terminal (1 used on 43-1110 & 8 used on 43-571)
	86-483	Connector Terminal (9 used on 43-875 & 22 used on 43-879)
	86-484	Connector Terminal (22 used on 43-878 & 6 used on 43-880)
	86-496	Ground Terminal (7 required)
	*86-538	Connector Terminal (30 used on 43-1110)
	93-369	No. 10 Internal Shakeproof Lockwasher - Cadmium (used on 103-158)
	93-502	No. 6 External Shakeproof Lockwasher - Cadmium Plated (3 used on ea. 83-7407)
	94-1379	Insulating Bushing (2 required)
	*100-485	Pilot Light Bulb (6 req.)
	112-625	4-24 x 1/4 Phillips Pan Hd. Self-Tap. Screw-Stat. Bronze (4 Mt. 57-7553 & 4 Mt. Treble & Bass Control Assem.)
	114-26	8-18 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (1 used on S-84096 & 2 Mt. 22-4817)
	114-344	6-20 x 1/4 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 Mt. ea. 12-4652, 126-1204 & 126-1281, 2 joins 29AT24 & Escutcheon Assem.)
	114-801	8-18 x 5/16 x 1/4 Hex Hd. Self-Tap. Screw-Stat. Bronze (2 Mt. 12-4945 & 4 Mt. ea. S-84097 & S-84098)
	114-803	6-20 x 1/4 Hex Washer Hd. Self-Tap. Screw-Stat. Bronze (6 join 29AT24 & Escutcheon Assem.)
	114-804	8-18 x 1/4 Hex Hd. Self-Tap. Screw- Stat. Bronze Flat Washer Att. (4 Mt. Tuner)
	114-920	8-15 x 3/8 Hex Hd. Self-Tap. Screw-Stat. Bronze (4 Mt. Printed Circuit Board & Bracket Assem.)
	121-430	Transistor (2 required)
	121-496	Transistor (4 required)
	121-497	Transistor (4 required)
	121-544	Driver (2 required)
	121-546	Transistor (3 required)
	121-602	Transistor (2 required)
	121-603	Transistor (2 required)
	121-638	Transistor
	*121-732	Transistor
	121-433	Transistor (Preferred)
	-OR-	
	121-752	Transistor
	*121-756	Transistor
	*121-775	Transistor
	-OR-	
	121-614	Transistor
	125-117	Rubber Grommet (4 used on tuner)
	126-1204	Shield
	126-1281	Dial Scale Light Shield
	126-1416	Slider Guide Shield (8 required)
	*126-1419	Stereo Light Shield
	126-1430	Light Shield (2 required)
	149-211	Iron Core (1 part of ea. S-82954 & S-82955)

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ITEM NO.	PART NO.	DESCRIPTION
	149-370	Iron Core (Part of S-76801)
	*185-3	Silicon Control Rectifier (4 required)
	*185-4	Silicon Control Rectifier (2 required)
	*185-5	Silicon Control Rectifier (2 required)
	188-137	Retaining Ring (Used on 46-6548)
	*192-469	Dial Crystal
	S-76801	Antenna Coil, Capacitor & Wire Assem.
	S-79037	Drive Cord & Eyelet Assem.
	*S-82954	Broadcast Oscillator Coil Assem.
	*S-82955	Broadcast Detector Coil Assem.
	*S-83179	FM Tuner Assembly
	*S-84055	Phono Socket & Bracket Assem.
	*S-84096	Bracket & Pulley Assem.
	*S-84097	Escutcheon Mtg. Bracket Assem. (R.H.)
	*S-84098	Escutcheon Mtg. Bracket Assem. (L.H.)
	*S-84103	Drive Cord & Eyelet Assem. (Pointer)
	*S-84104	Drive Cord & Eyelet Assem. (Pointer)

MODEL A550W CHASSIS COMPONENTS

C1	*964-23109	.0018 Mf Capacitor
C2	*964-23109	.0018 Mf Capacitor
C3	*964-19755	100 Pf Capacitor - 500V
C4	*964-19755	100 Pf Capacitor - 500V
C5	964-19758	1 Mf Capacitor - 15V
C6	964-19638	.05 Mf Capacitor - 100V
C7	*964-19754	30 Pf Capacitor
C8	964-19753	.0047 Capacitor
C9	964-19638	.05 Mf Capacitor - 100V
C10	*964-19754	30 Pf Capacitor
C11	964-19753	.0047 Capacitor
C12	964-19638	.05 Mf Capacitor - 100V
C13	964-19638	.05 Mf Capacitor - 100V
C14	*964-19641	25 Mf Capacitor - 15V
C15	*964-19755	100 Pf Capacitor - 500V
C16	964-19615	5 Mf Capacitor - 15V
C17	*964-19641	25 Mf Capacitor - 15V
C18	*964-19755	100 Pf Capacitor - 500V
C19	*964-19610	200 Mf Capacitor - 15V
C20	*964-19610	200 Mf Capacitor - 15V
C21	*964-23096	1000 Mf Capacitor - 25V
R1	*964-23066	Tone Control
R3	63-3992	68K Ohm Resistor - ½W. 10%
R4	*964-22099	4.7 Megohm Resistor - ½W 10%
R5	63-1897	470K Ohm Resistor - ½W 10%
R6	63-1908	820K Ohm Resistor - ½W 10%
R7	*964-22099	4.7 Megohm Resistor - ½W 10%
R8	63-1897	470K Ohm Resistor - ½W 10%
R9	63-1908	820K Ohm Resistor - ½W 10%
R10	63-3992	68K Ohm Resistor - ½W 10%
R11	63-4019	39K Ohm Resistor - ½W 10%
R12	63-4019	39K Ohm Resistor - ½W 10%
R13	*964-22987	1.8 Megohm Resistor - ½W 10%
R14	63-3992	68K Ohm Resistor - ½W 10%
R15	*964-22987	1.8 Megohm Resistor - ½W 10%
R16	*964-23064	Loudness Control
R18	*964-22099	4.7 Megohm Resistor - ½W 10%
R19	63-1894	390K Ohm Resistor - ½W 10%
R20	63-1904	680K Ohm Resistor - ½W 10%
R21	*964-23065	Balance Control
R22	*964-22099	4.7 Megohm Resistor - ½W 10%
R23	63-1894	390K Ohm Resistor - ½W 10%
R24	63-1904	680K Ohm Resistor - ½W 10%
R25	63-1771	470 Ohm Resistor - ½W 10%
R26	63-1771	470 Ohm Resistor - ½W 10%
R27	63-1729	47 Ohm Resistor - ½W 10%
R28	63-1771	470 Ohm Resistor - ½W 10%
R29	63-1729	47 Ohm Resistor - ½W 10%
R30	63-4528	4.7 Ohm Resistor - ½W 5%
R31	63-1771	470 Ohm Resistor - ½W 10%
R32	63-4528	4.7 Ohm Resistor - ½W 5%
D1	*964-19645	Diode
D2	*964-19645	Diode
D3	*964-21866	Rectifier
D4	*964-21866	Rectifier

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
A1	*964-22009	Transistor
A2	*964-22009	Transistor
A3	*964-22009	Transistor
A4	*964-22009	Transistor
Q1, Q2	*800-294	Output Transistor Assembly - Matched Pair
Q3, Q4	*800-294	Output Transistor Assembly - Matched Pair
SP1	*964-23069	4" Speaker
SP2	*964-23069	4" Speaker
P1	964-14220	Amp. Plug
T1	*964-23074	Power Transformer
	*964-04048-3	Remote Cable
	*964-15078	Audio Cable
	964-20622	Terminal - Male
	964-20623	Terminal - Female
	*964-22144	Heat Sink (4 required)
	*964-23085	Hum Shield

MODEL A550W CABINET COMPONENTS

964-9197	6-32 Hex Nut
964-12399	8-32 Palnut
964-13364-A	6x Truss Screw
964-13621	Terminal - Amp.
964-15090-X	Name Plate
964-15106	Motorboard Protector
*964-15551-3	Knob
*964-15551-3CU	Knob Assembly
964-15821-F	Cable Clamp
*964-16020-C	Knob Insert
*964-16271	Knob Clip
964-16374-H	Hole Button - 1¼"
964-16981	Grommet
964-17170	Amp. Terminal
964-17445	Cable Clamp
*964-17602-F	Bushing
964-18243-3	Power Cord
964-18562	Cord Clamp
964-18586-9	45RPM Adapter Clamp
*964-20746-3	Remote Cable Assembly
*964-22788	Terminal Strip
*964-23070	Case Assembly
*964-23071-F	Packing Carton
*56-590	Needle - .7 Mil. & 3 Mil. Mfd. Sapphire (Part of 142-169)
*142-169	Dual Pickup Cartridge - .7 Mil. & 3 Mil. Mfd. Sapphire (Part of 169-379)
*169-379	4 Speed Record Changer
202-3243	Instruction Book
*836-148	Handle W/N.P. Hardware & Insert
*840-149	Hinge (4 required)
*857-153	Control Panel - Zenith - Solid State - Balance - Loudness - Tone
*883-79	Control Panel Insert - Acoustic Suspension Speakers
*956-23	Strike & Catch (2 required)
*966-18	Bumper (4 required)
*S-82964	45 RPM Adaptor Assembly
*56-591	Needle - .7 Mil. Diamond & 3 Mil. Mfd. Sapphire (Optional At Extra Cost)

S-79987 FM TUNER ASSEMBLY

C1	22-2374	6 PF Disc 5 PF 500V
C2	22-2379	12 PF Disc 5% 500V
C3	22-4718	.001 Mfd Feed Thru Cap. 500V
C4	22-5321	36 PF Disc 5% 500 V
C5	22-4613	.001 Mfd Feed Thru Cap. 500V
C6	22-4718	.001 Mfd Feed Thru Cap. 500V
C7	22-3541	3.3 PF Gimmick 5% 500V
C8	22-3675	10 PF Disc 5% 500V
C9	22-4515	1.8 PF Gimmick 5% 500V

ITEM NO.	PART NO.	DESCRIPTION
C10	22-2481	8 PF Disc 5% 500V
C11	22-4718	.001 Mfd Feed Thru Cap. 500V
C12	22-4729	.002 Mfd Feed Thru Cap. 500V
C13	22-3622	19 PF Disc 5% 500V
C14	22-4844	.002 Feed Thru Cap. 500V
C15	22-3034	.05 Mfd Disc 25V
C16	22-3652	.1 Mfd Disc 10V
R1	63-1813	4.7K Ohm Resistor - ½W. 10%
R2	63-4143	100 Ohm Resistor - ¼W. 10%
R3	63-4164	330 Ohm Resistor - ¼W. 10%
R4	63-4196	1.8K Ohm Resistor - ¼W. 10%
R5	63-4196	1.8K Ohm Resistor - ¼W. 10%
R6	63-4297	470K Ohm Resistor - ¼W. 10%
R7	63-4122	33 Ohm Resistor - ¼W. 10%
R8	63-1772	470 Ohm Resistor - ½W. 20%
R9	63-1911	1 Meg Resistor - ½W. 10%
R10	63-1796	1.8K Ohm Resistor - ½W. 10%
R11	63-1831	12K Ohm Resistor - ½W. 10%
R12	63-1898	470K Ohm Resistor - ¼W. 20%
Q1	121-704	R.F. Transistor
Q2	121-613	Oscillator Transistor
L1	S-78099	FM Antenna Coil
L2	S-65043	FM Detector Coil
L3	20-1256	10.7 MHz Trap Coil
L4	S-62887	FM Oscillator Coil
T1	95-2686	1st I.F. Transformer (FM)
CR1	103-47	Diode
	*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)
	*52-1495	Shielded Lead
	56-426	Roll Pin (3 Required)
	56-512	Roll Pin (2 Required)
	*76-1819	Guide Shaft
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	80-1467	Shaft Retaining Spring
	*83-6877	Antenna Terminal Strip
	*83-6878	One Lug Terminal Strip
	86-441	Insulated Feed-Thru Terminal (4 Required)
	94-613	Iron Core Bushing (2 Required)
	113-26	6 - 32 x ¼ x ¼ Hex Hd. Mach. Screw - N.P. - External Lockwasher Att. (2 Used On 12-4958)
	*115-45	2 - 56 x 7/16 Fillister Hd. Mach. Screw (Used On S-79986)
	125-26	Grommet (2 Required)
	*126-1360	Shield
	149-368	Iron Core & Spring
	149-385	Iron Core & Spring
	188-232	Retaining Ring (2 Required)
	*S-79978	Detector Coil Assembly - Wiring
	*S-79979	Oscillator Coil Assembly - Wiring
	*S-79980	Antenna Coil Assembly - Wiring
	*S-79986	Tuning Shaft & Pin Assembly

S-82931 & S-83179 FM TUNER ASSEMBLIES

C1	22-5318	34 PF Disc 5% 500V
C2	22-5164	1.2 PF Gimmick 5% 500V
C3	22-5318	34 PF Disc 5% 500V
C4	22-3675	10 PF Disc 5% 500V
C5	22-4613	.001 MFD Feed Thru 500V
C6	22-4718	.001 MFD Feed Thru 500V
C7	22-5318	34 PF Disc 5% 500V
C9	22-2614	15 PF Disc 5% 500V
C10	22-4613	.001 MFD Feed Thru 500V
C11	22-3479	2.2 PF Disc ±.5% 500V
C12	22-3393	.01 MFD Disc 25V
C14	22-4613	.001 MFD Feed Thru 500V
C15	22-3393	.01 MFD Disc 25V
C16	22-2424	1.5 PF Gimmick 500V
C17	22-5281	23 PF Disc 5% 500V
C18	22-3393	.01 MFD Disc 25V
C19	22-2374	6 PF Disc ±.5% 500V
C20	22-4613	.001 MFD Feed Thru 500V
C21	22-3393	.01 MFD Disc 25V
C22	22-4613	.001 MFD Feed Thru 500V
C23	22-4515	1.8 PF Gimmick 500V
L1	S-62887	FM Antenna Coil Assembly
L2	S-62887	FM RF Input Coil Assembly
L3	S-62887	FM Det. Coil Assembly
L4	20-1256	Trap Coil 10.7 MHZ
L5	In T1	
L6	In T1	
L7	S-62887	FM Oscillator Coil Assembly
SE1	103-47	Diode
T1	95-2322	1st FM - I.F. Transformer 10.7 MHZ
Q1	121-731	FM-RF Transistor
Q2	121-732	FM-Mixer Transistor
Q3	121-432	FM-Oscillator Transistor
	12-4192	Tuner Guide Bracket
	12-4193	Coil Mtg. Bracket
	19-322	Coil Mtg. Clip (4 required)
	24-1372	Tuner Cover
	44-48	Antenna Jack
	56-426	Roll Pin (6 required)
	57-5333	Bearing Plate
	63-1778	680 Ohm Resistor - ½W. 10%
	63-4122	33 Ohm Resistor - 1/4W. 10%
	63-4157	220 Ohm Resistor - 1/4W. 10%
	63-4171	470 Ohm Resistor - 1/4W. 10%
	63-4175	560 Ohm Resistor - 1/4W. 10%
	63-4185	1000 Ohm Resistor - 1/4W. 10%
	63-4199	2200 Ohm Resistor - 1/4W. 10%
	63-4210	3900 Ohm Resistor - 1/4W. 10%
	63-4227	10K Ohm Resistor - 1/4W. 10%
	63-4241	22K Ohm Resistor - 1/4W. 10%
	63-4269	100K Ohm Resistor - 1/4W. 10%
	63-4283	220K Ohm Resistor - 1/4W. 10%
	63-4297	470K Ohm Resistor - 1/4W. 10%
	64-88	.088 Dia. x 1/8 Lg. Tubular Rivet - N.P.
	64-318	Brass Eyelet - USNC No. SE37 (6 required - used on S-83179 Only)
	76-1541	Guide Shaft (2 required)
	76-1820	Drive Shaft (Used on 12-4192, S-83179 only)
	76-1927	Drive Shaft (Used on 12-4192, S-82931 only)
	78-1227	Transistor Socket (2 required)
	78-1378	Transistor Socket
	79-174-12	No. 18 Sleeving - Yellow - 1½"
	80-1467	Shaft Retaining Spring
	80-1853	Transformer Retaining Spring
	83-3829	2 Lug Terminal Strip
	86-441	Insulated Feed-Thru Terminal (2 required)
	94-613	Iron Core Bushing (4 required)
	94-1472	Tuning Shaft Bushing (Used on S-83179 only)
	94-1534	Tuning Shaft Bushing (Used on S-82931 only)
	113-26	6-32 x 1/4 x 1/4 Hex Hd. Mach. Screw-N.P. - Ext. Lockwasher Att. (2 used on ea. 12-4193 & 57-5333) (4 required)
	126-1141	Coil Shield - Side (2 required)
	126-1142	Coil Shield - Center
	149-368	Iron Core & Spring (3 required)
	149-385	Iron Coil & Spring
	188-232	Retaining Ring (4 required)
	S-69085	Shield & Terminal Strip Assem.
	S-83409	Detector Coil Assem.
	S-83410	Oscillator Coil Assem.
	S-83411	Antenna Coil Assem.
	S-83412	R.F. Input Coil Assem.
	S-83414	Bracket, Shaft & Pin Assem.

MODEL S9017W

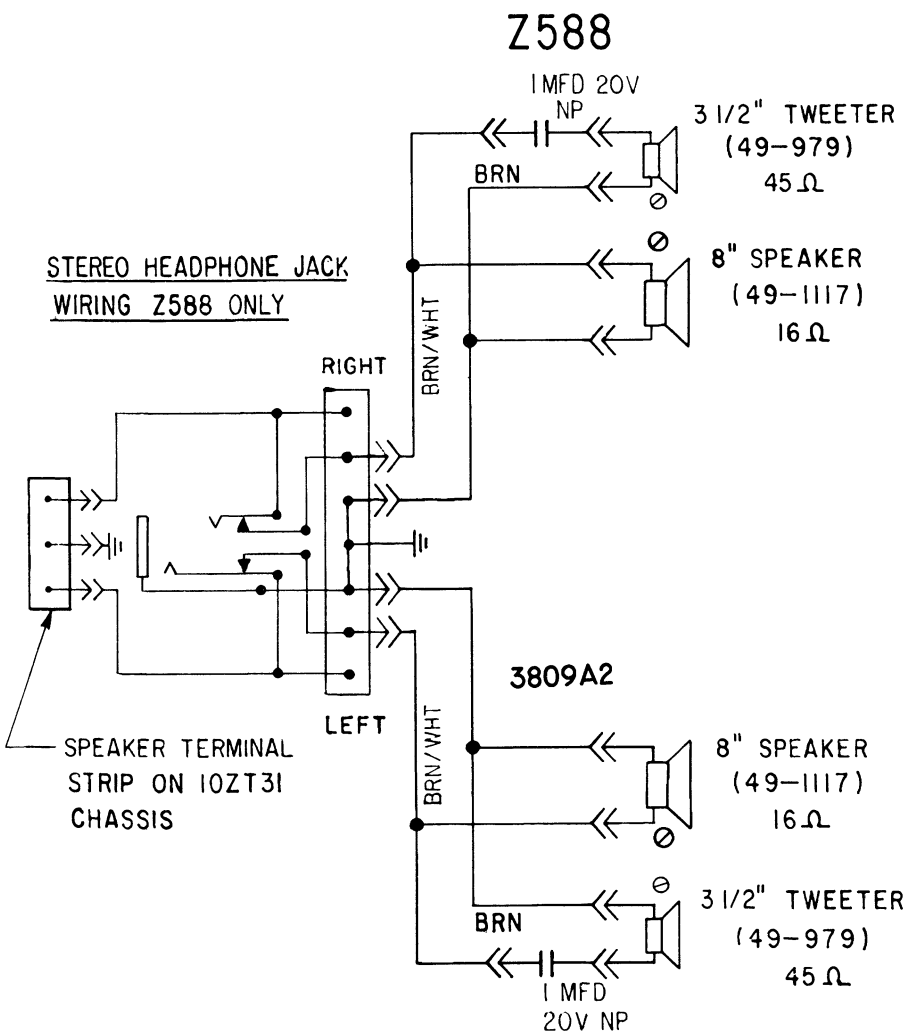
14-7661	Cabinet
16-3174	Packing Carton
22-4588	2 MF Electrolytic Capacitor - 30V.
49-1004	Horn Tweeter
49-1102	12" PM Speaker
54-423	6 - 32 Palnut (4 Mt. 49-1004)
54-424	8 - 32 Palnut (4 Mt. 49-1102)
57-5204	Name Plate (Part of 14-7661)

*Denotes parts not previously used in Zenith receivers.

ITEM NO.	PART NO.	DESCRIPTION
	72-127	8 x 1-¼ Phillips Flat Hd. Wood Screw-Stat. Bronze (10 Part of 14-7661)
	83-4235	Cushioning Strip (Part of 14-7661)
	83-5872	Terminal Strip
	86-255	Terminal (2 required)
	86-329	Connector Terminal (4 required)
	112-1266	6 - 32 x 1-½ Speaker Mtg. Screw (4 Part of 14-7661)
	112-1270	8 - 32 x 1-3/4" Speaker Mtg. Screw (4 Part of 14-7661)
	157-22	Fastener (2 required)
	854-15	Speed Nut (2 part of 14-7661)
	910-654	Grille Cloth (Part of 14-7661)
	965-21	3/4 Dia. Plastic Floor Glide (4 part of 14-7661)
	S-73930	Two Conductor Wire & Terminal Assembly

MODEL S9017W-1

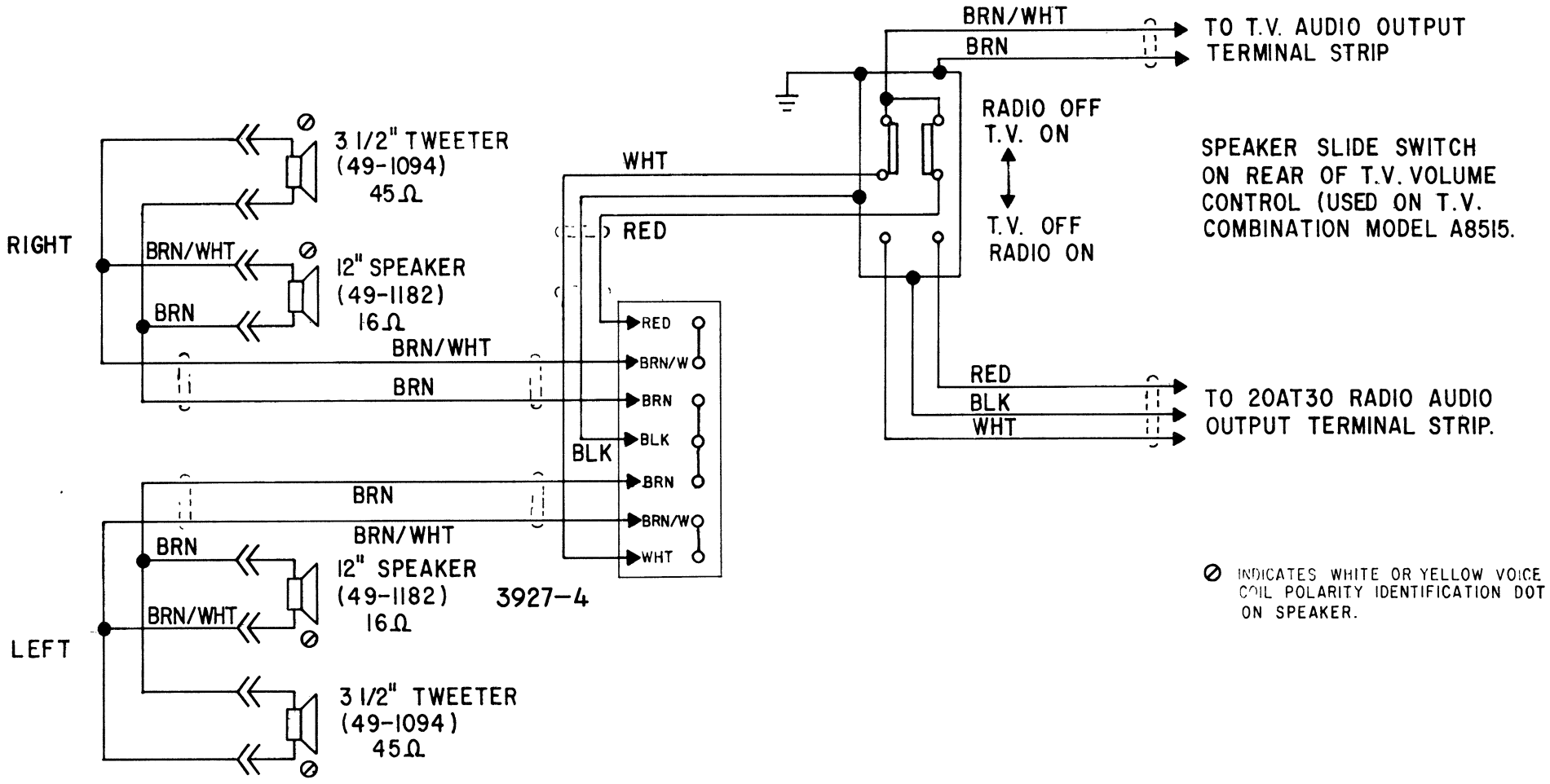
	14-7661	Cabinet
	16-3174	Packing Carton
	22-4906	5 MF Electrolytic Capacitor - 30V.
	49-1102	12" PM Speaker
	49-1162	Horn Tweeter
	54-423	6-32 Palnut (4 Mt. 49-1162)
	54-424	8-32 Palnut (4 Mt. 49-1102)
	57-5204	Nameplate (Part of 14-7661)
	72-127	8 x 1 1/4 Phillips Fl. Hd. Wood Screw-Stat. Bronze (10 Part of 14-7661)
	83-4235	Cushioning Strip (Part of 14-7661)
	83-7320	Terminal Strip
	86-255	Terminal (2 required)
	86-329	Connector Terminal (2 required)
	86-452	Connector Terminal
	-OR-	
	86-329	Connector Terminal
	112-1266	6-32 x 1 ½" Speaker Mtg. Screw (4 part of 14-7661)
	112-1270	8-32 x 1 3/4" Speaker Mtg. Screw (4 part of 14-7661)
	157-22	Fastener (2 required)
	854-15	Speed Nut (2 part of 14-7661)
	*872-5	6 x 1 1/4 Fl. HD. Wood Screw (2 part of 14-7661)
	910-654	Grille Cloth (Part of 14-7661)
	965-21	3/4 Dia. Plastic Floor Glide (4 part of 14-7661)
	S-50860	Speaker Lead Assem.
	S-73930	Two Conductor Wire & Terminal Assem.
	*S-83400	Filter Coil Assem.



NOTE.

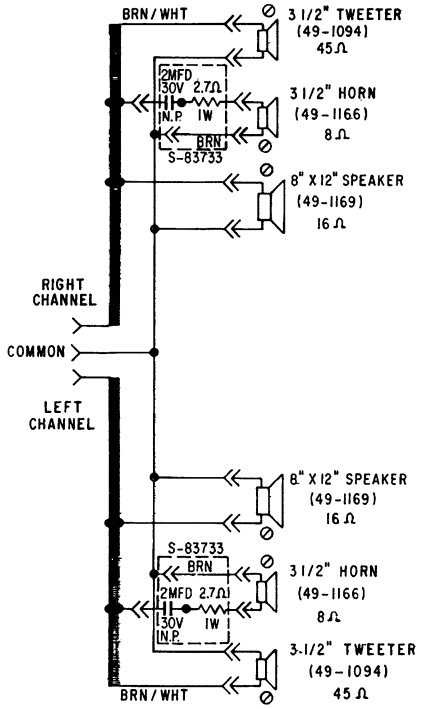
⊘ INDICATES WHITE OR YELLOW VOICE COIL POLARITY IDENTIFICATION DOT ON SPEAKER

SPEAKER WIRING SCHEMATIC

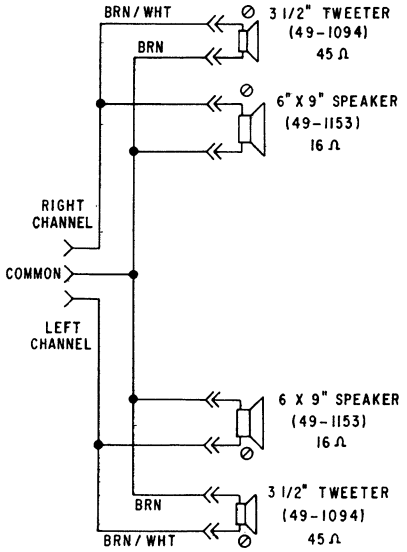


SPEAKER WIRING SCHEMATIC

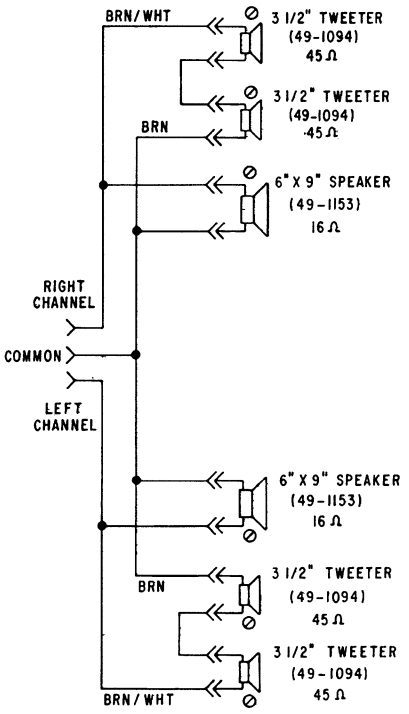
A923, A925, A929



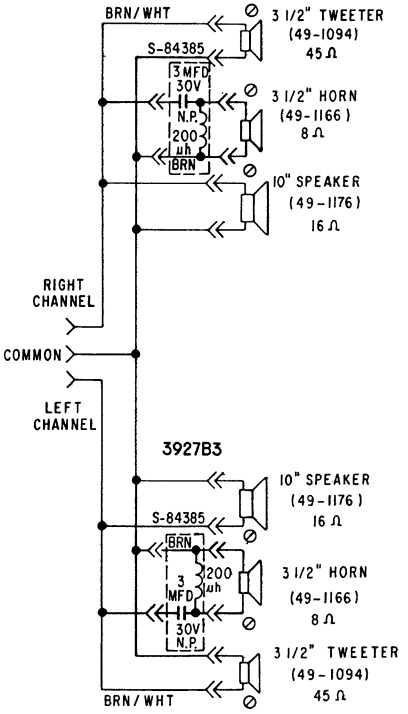
A906, A907, A908



A910, A912, A914, A916



A921

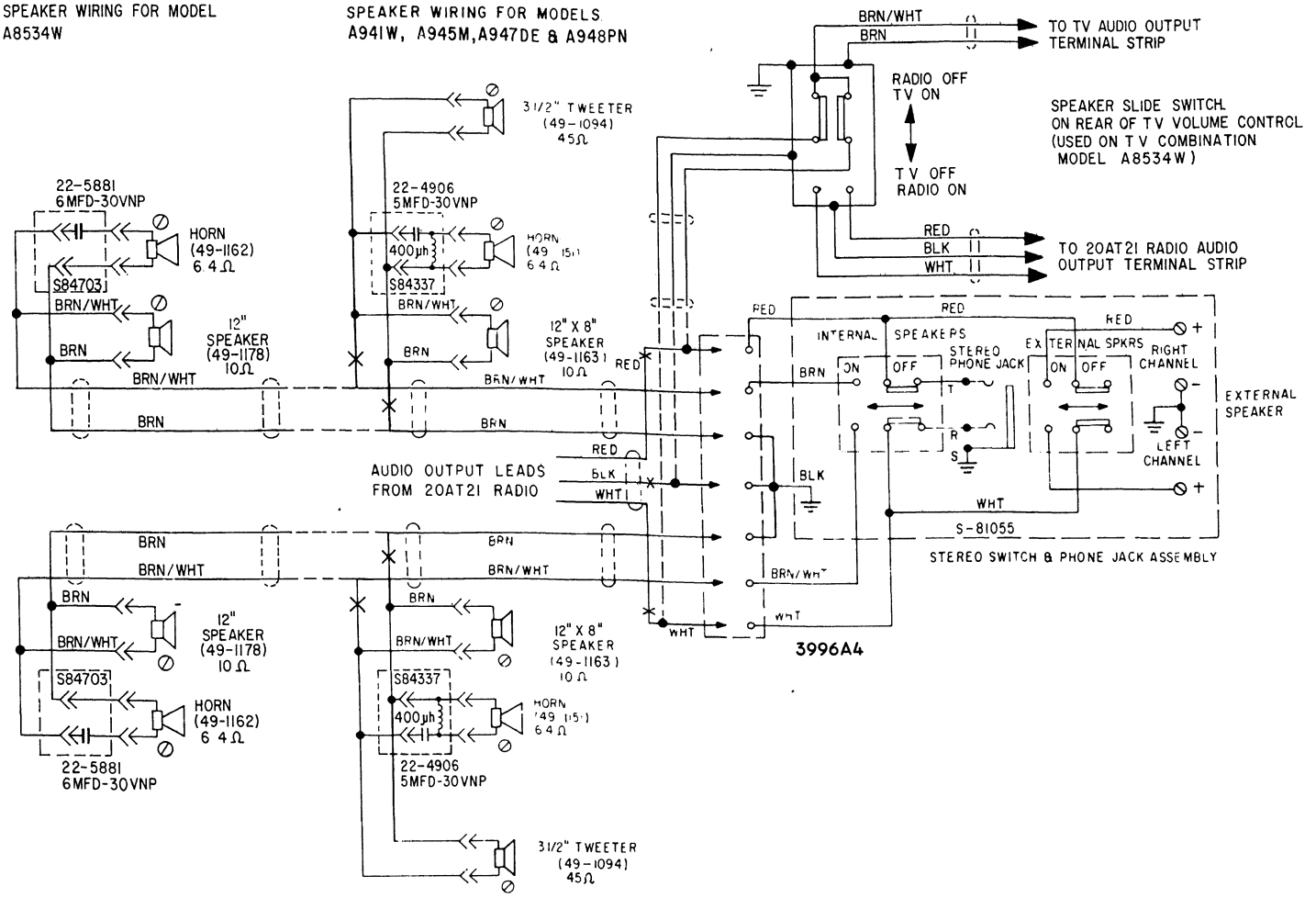


NOTE:
Ø INDICATES WHITE OR YELLOW VOICE COIL POLARITY IDENTIFICATION DOT ON SPEAKER

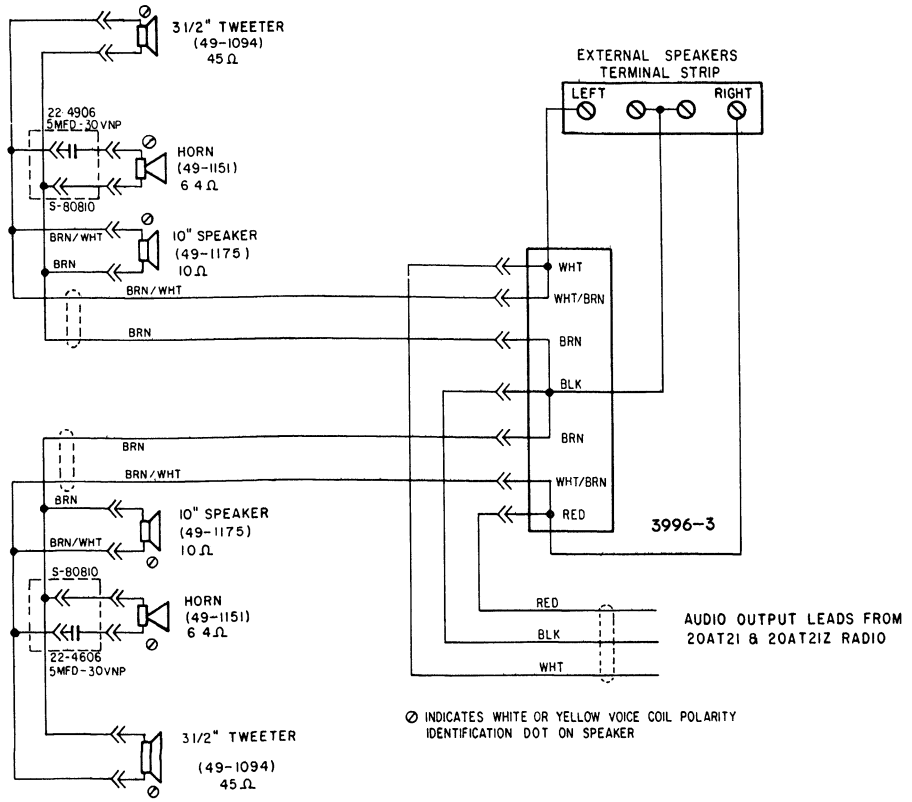
SPEAKER WIRING SCHEMATICS

SPEAKER WIRING FOR MODEL A8534W

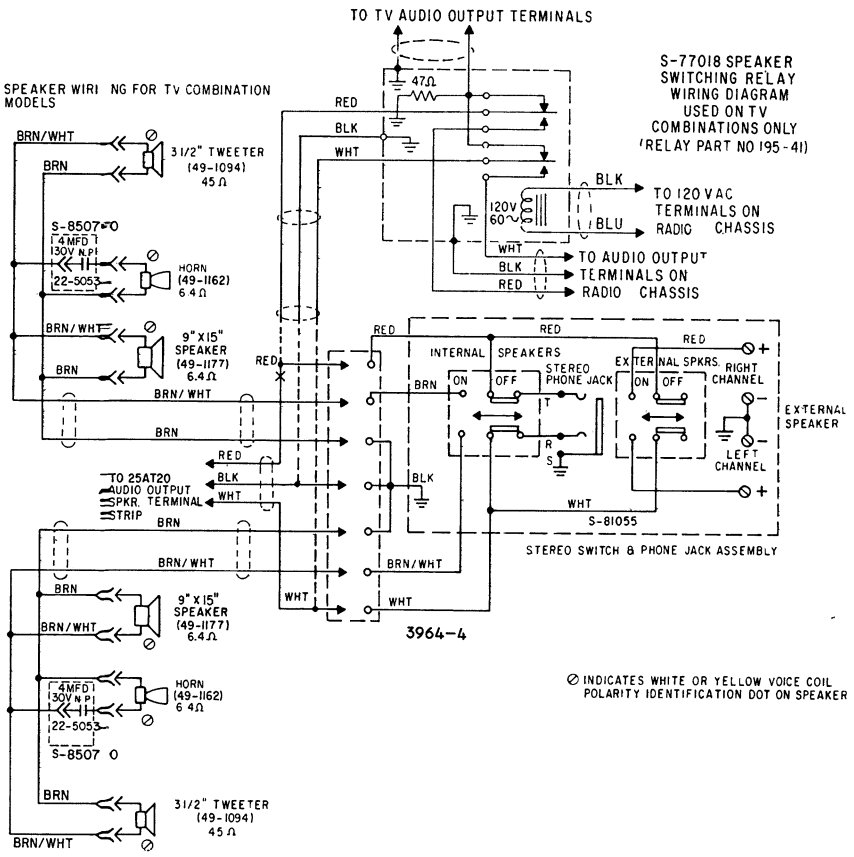
SPEAKER WIRING FOR MODELS A941W, A945M, A947DE & A948PN

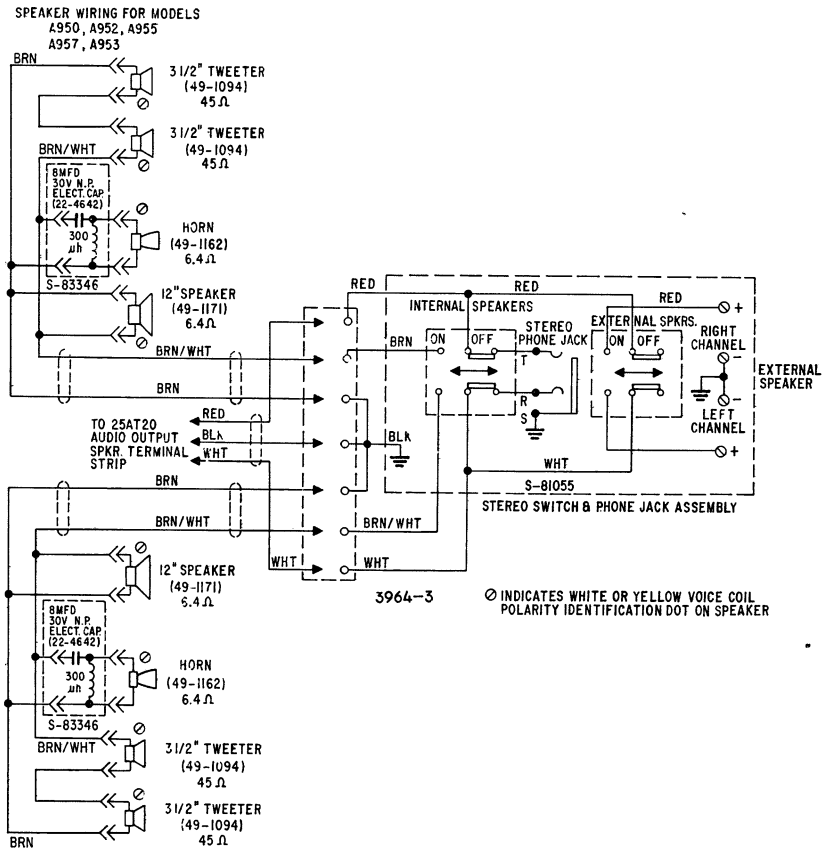


SPEAKER WIRING FOR MODELS A931WP, A933M, A935P, A937H



SPEAKER WIRING SCHEMATIC

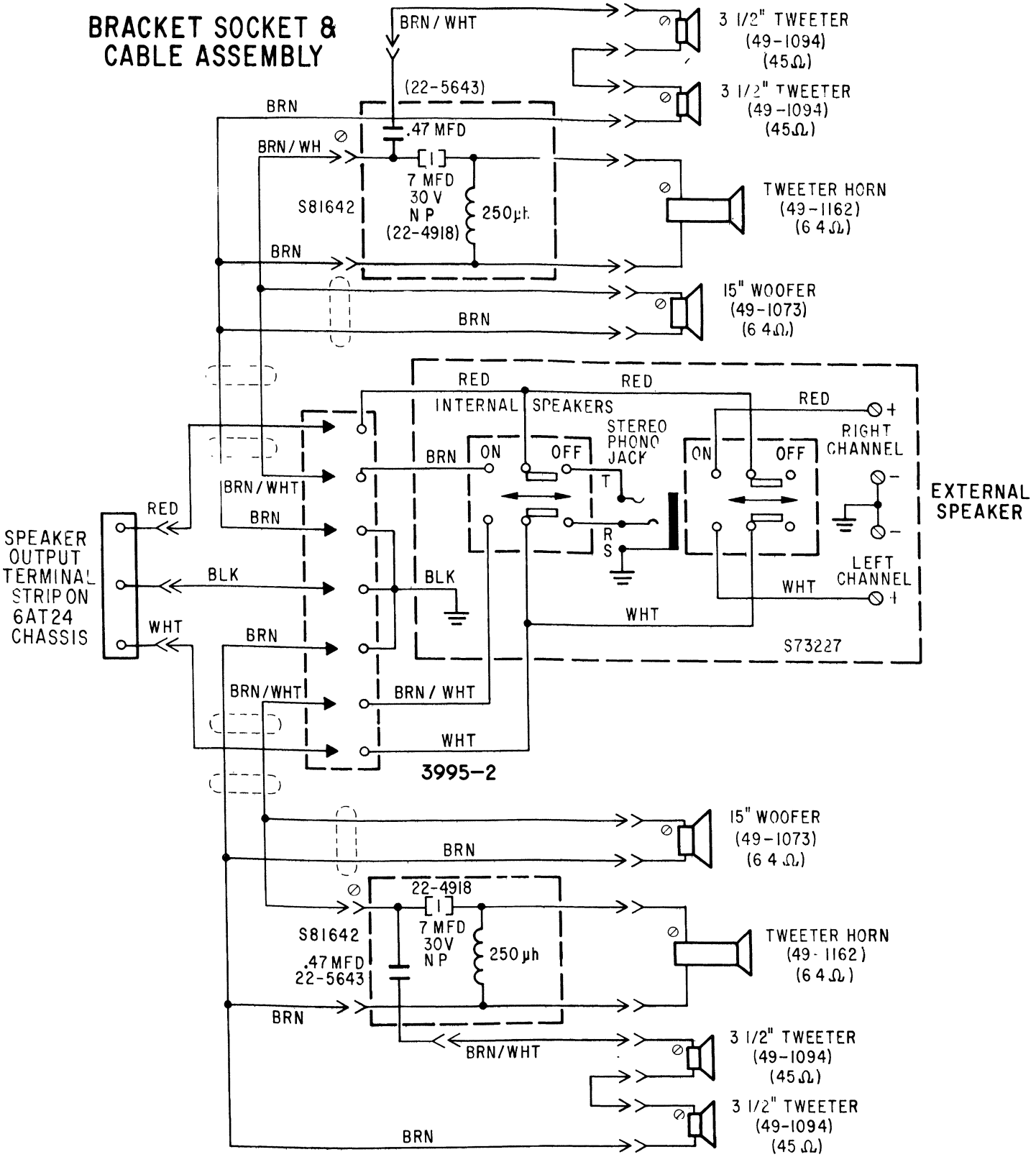




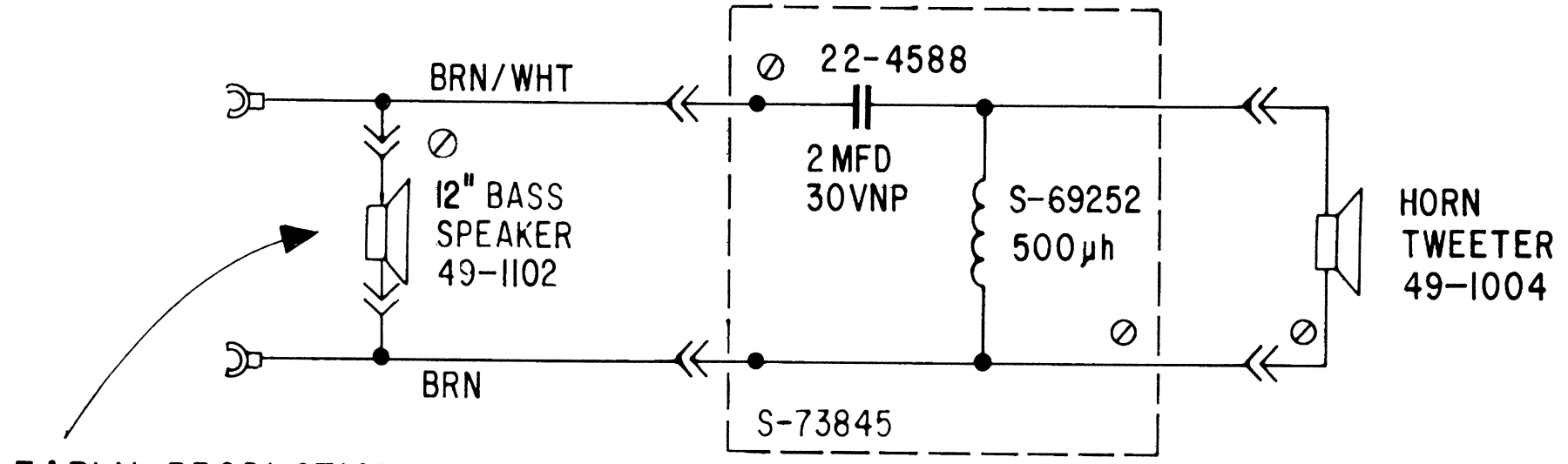
SPEAKER WIRING SCHEMATICS

SPEAKER HOOKUP
FOR MODELS:

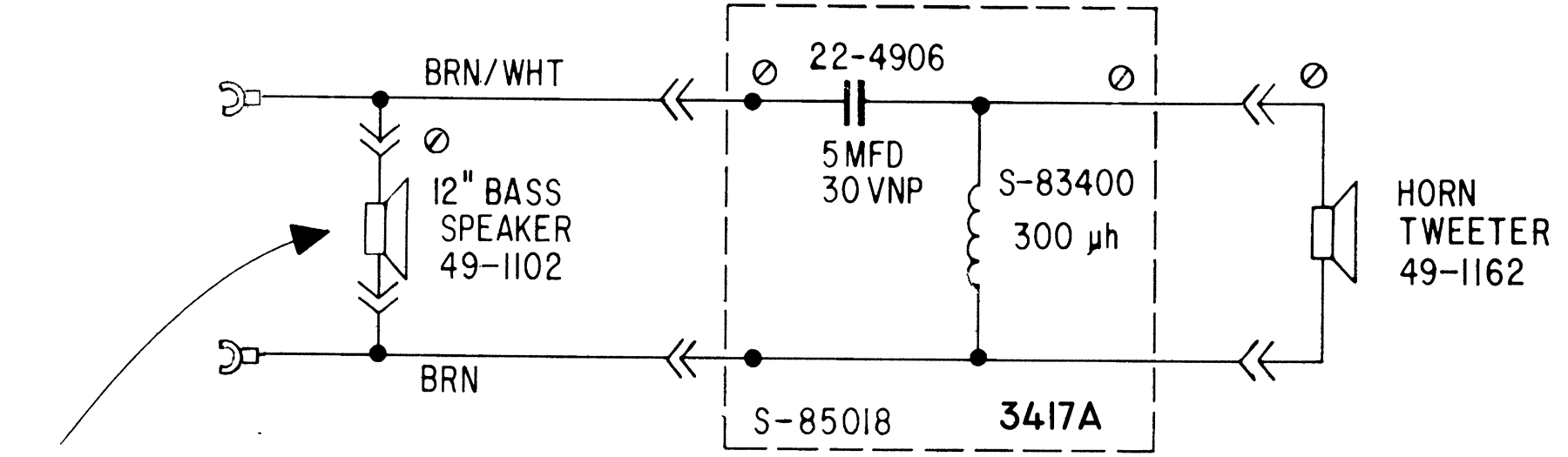
A960, A966



SPEAKER WIRING SCHEMATICS



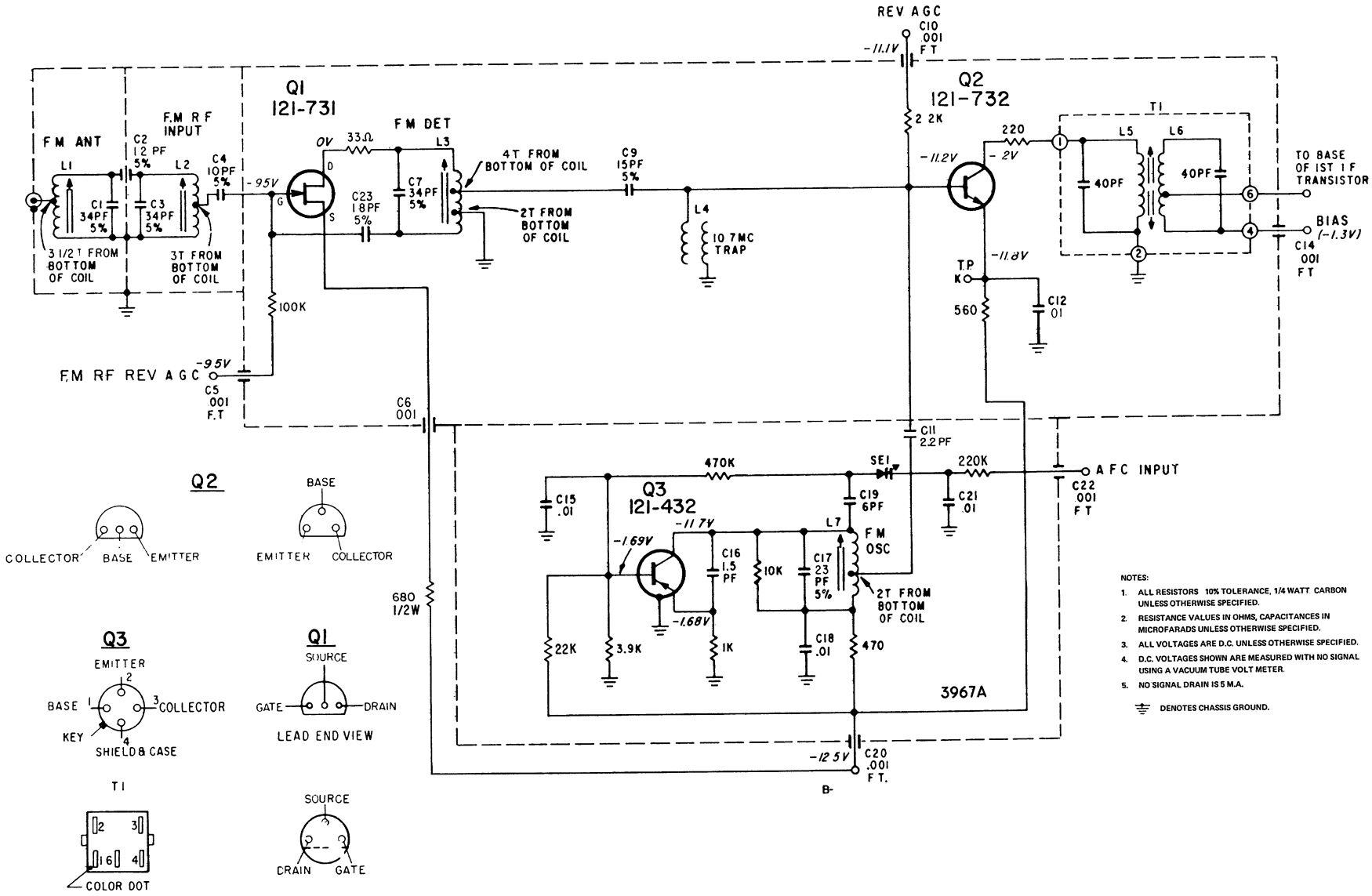
EARLY PRODUCTION S9017



LATE PRODUCTION S9017-1

⌀ INDICATES SPEAKER POLARIZATION

S-9017W AND S-9017W-1 EXTENSION SPEAKERS

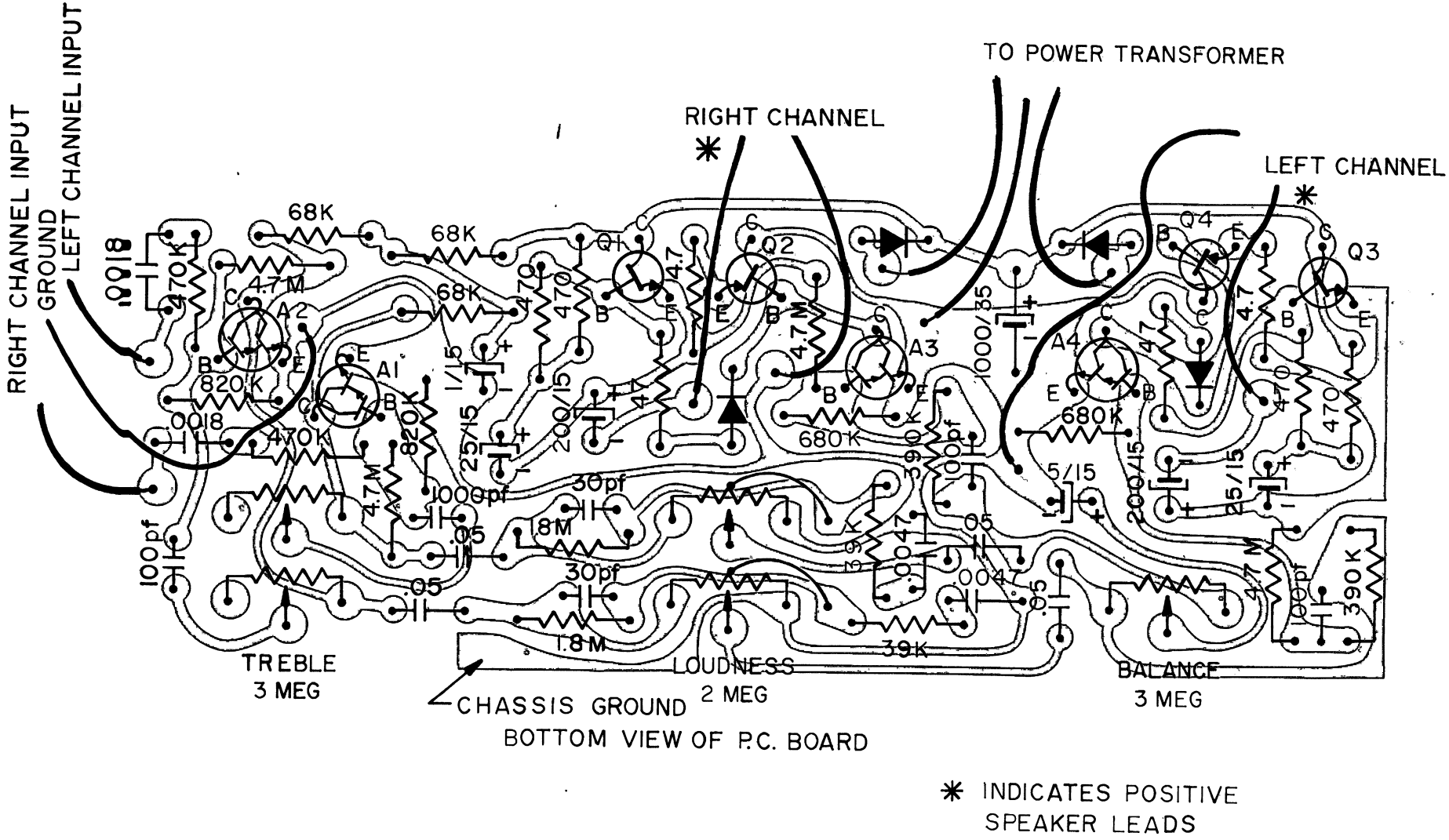


NOTES:

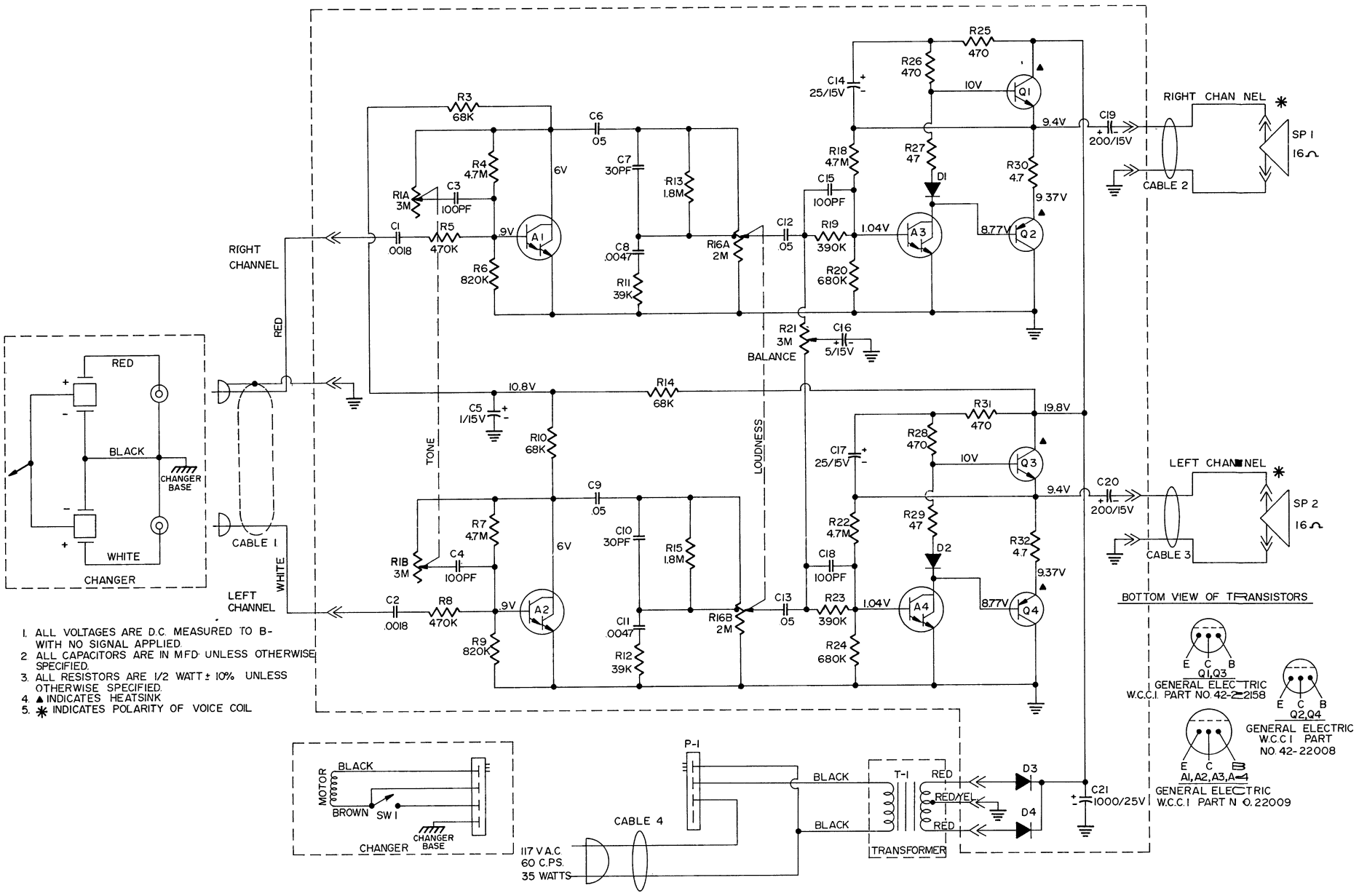
1. ALL RESISTORS 10% TOLERANCE, 1/4 WATT CARBON UNLESS OTHERWISE SPECIFIED.
2. RESISTANCE VALUES IN OHMS, CAPACITANCES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
3. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
4. D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A VACUUM TUBE VOLT METER.
5. NO SIGNAL DRAIN IS 5 M.A.

⏚ DENOTES CHASSIS GROUND.

S-82931 AND S-83179 FM TUNER ASSEMBLY SCHEMATIC

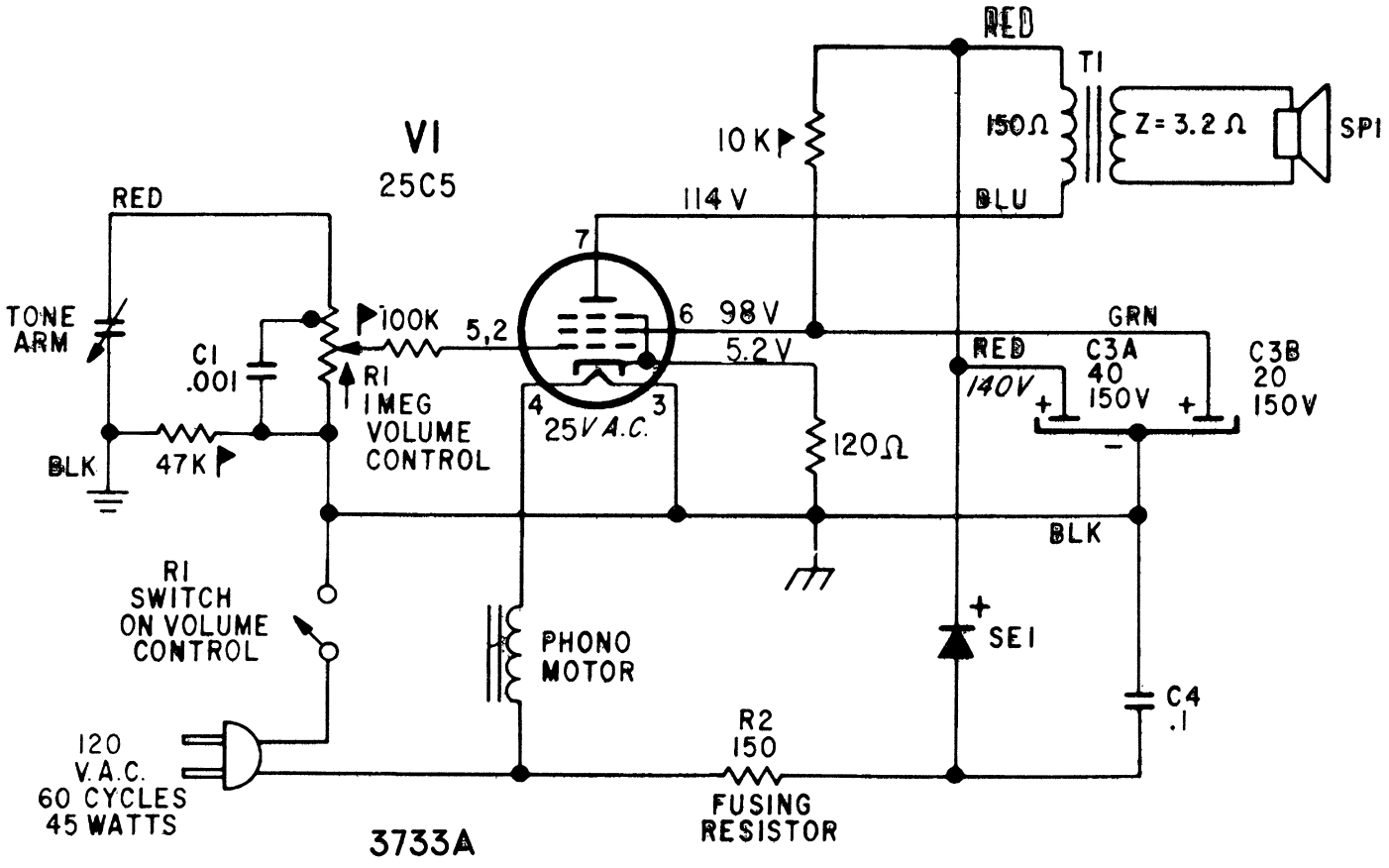


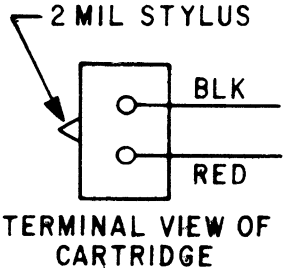
A550 – CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



1. ALL VOLTAGES ARE D.C. MEASURED TO B- WITH NO SIGNAL APPLIED.
2. ALL CAPACITORS ARE IN MFD. UNLESS OTHERWISE SPECIFIED.
3. ALL RESISTORS ARE 1/2 WATT ± 10% UNLESS OTHERWISE SPECIFIED.
4. ▲ INDICATES HEATSINK.
5. ✱ INDICATES POLARITY OF VOICE COIL.

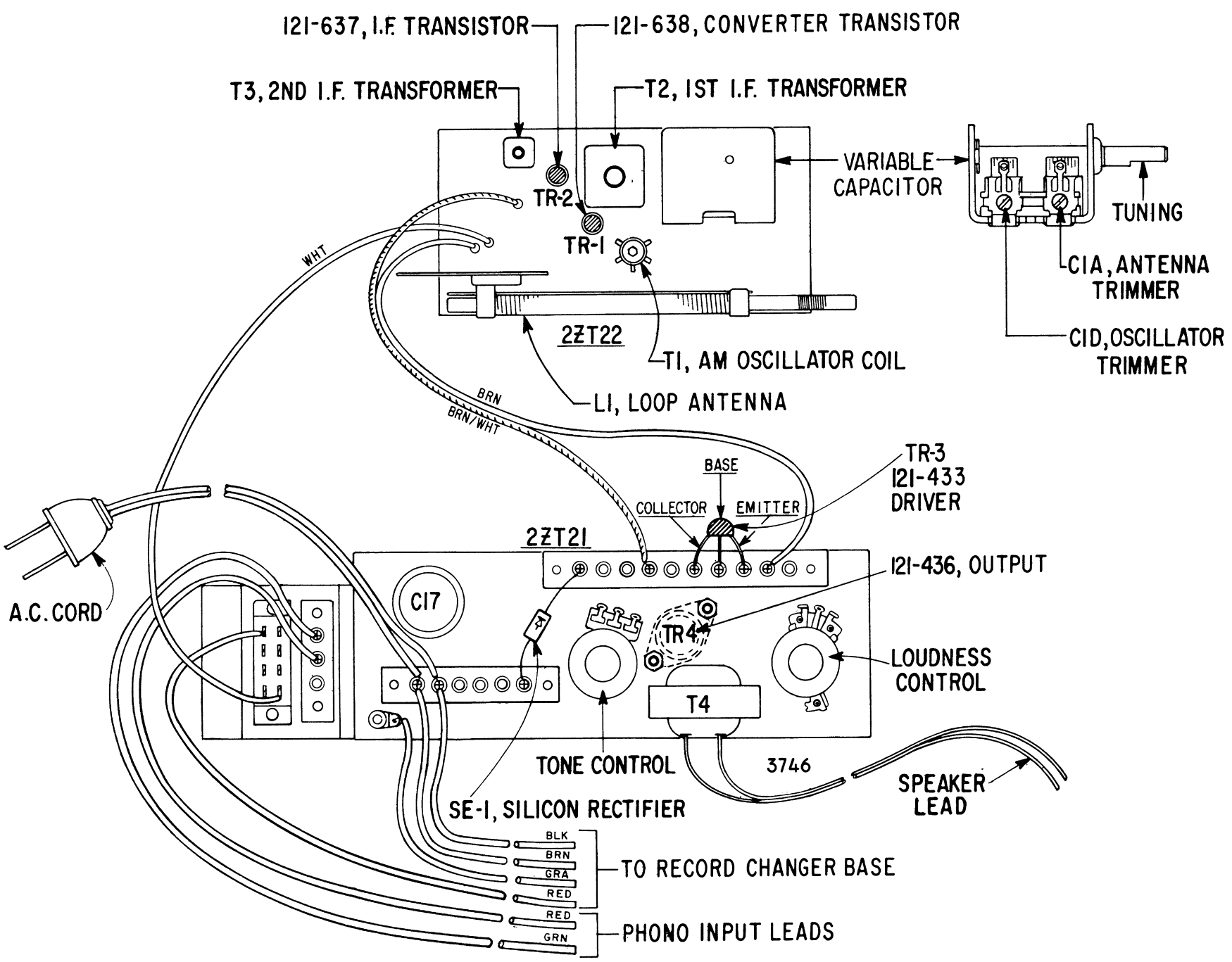
A550 SCHEMATIC



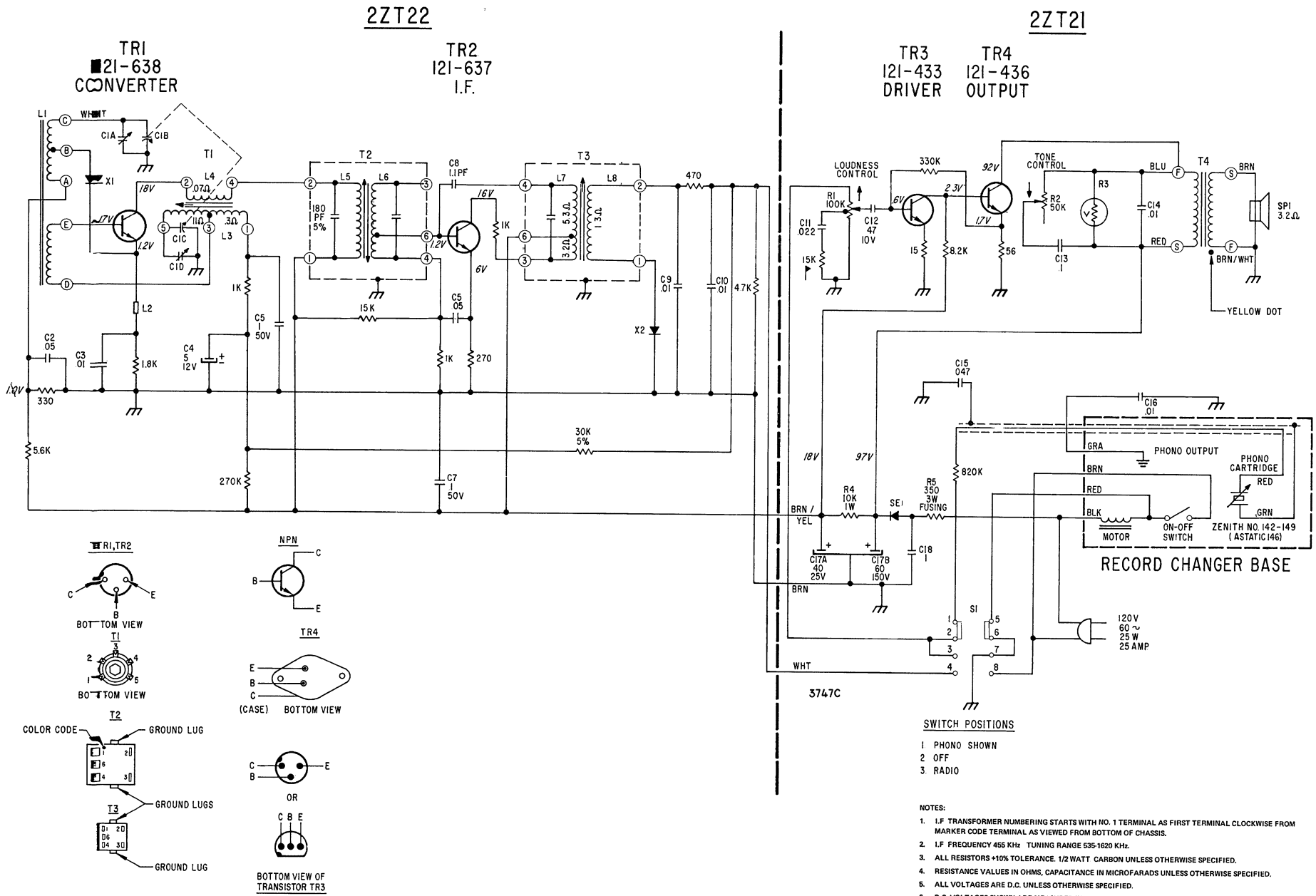


VARCO CARTRIDGE SN-55
142-161

1Y20Z SCHEMATIC



2ZT21 AND 2ZT22 – CHASSIS LAYOUT



NOTES:

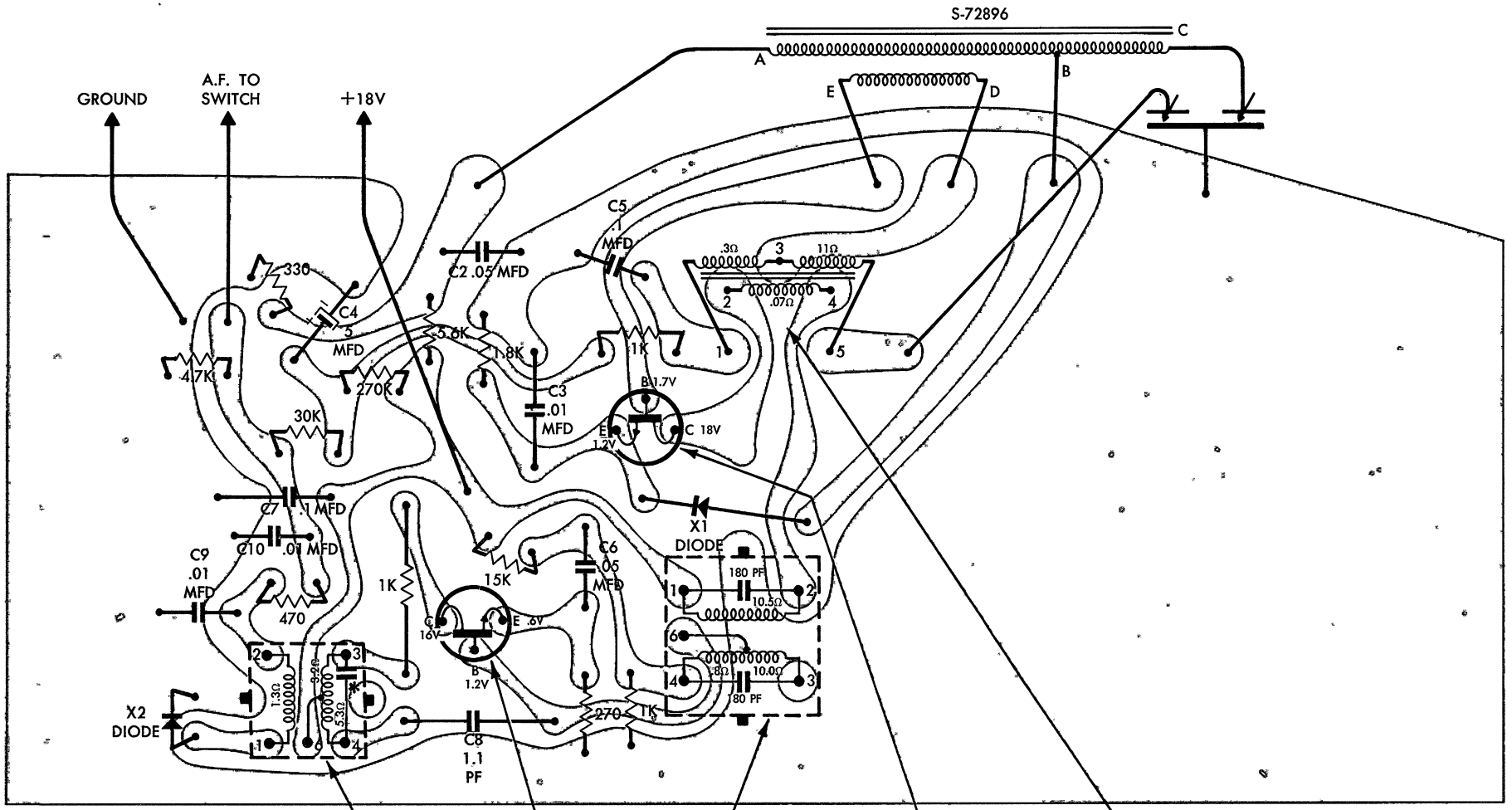
1. I.F TRANSFORMER NUMBERING STARTS WITH NO. 1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TERMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
2. I.F FREQUENCY 455 KHz TUNING RANGE 535-1620 KHz.
3. ALL RESISTORS +10% TOLERANCE. 1/2 WATT CARBON UNLESS OTHERWISE SPECIFIED.
4. RESISTANCE VALUES IN OHMS, CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
5. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
6. D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER.
7. VIEWED FROM THE FRONT ARROW ON VOLUME CONTROL INDICATES CLOCKWISE ROTATION.
8. DENOTES B- AND CHASSIS.

▶ INDICATES +20% TOLERANCE.

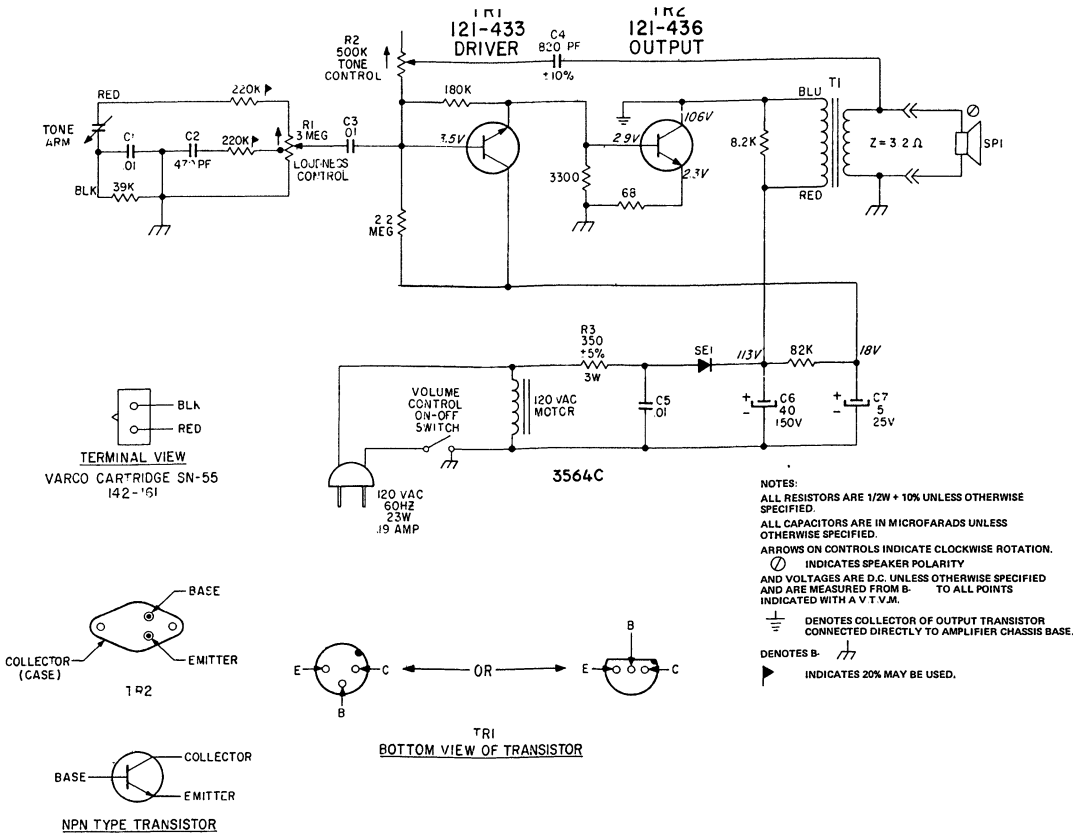
DENOTES RECORD CHANGER BASE

◗ INDICATES COLLECTOR OF TRANSISTOR

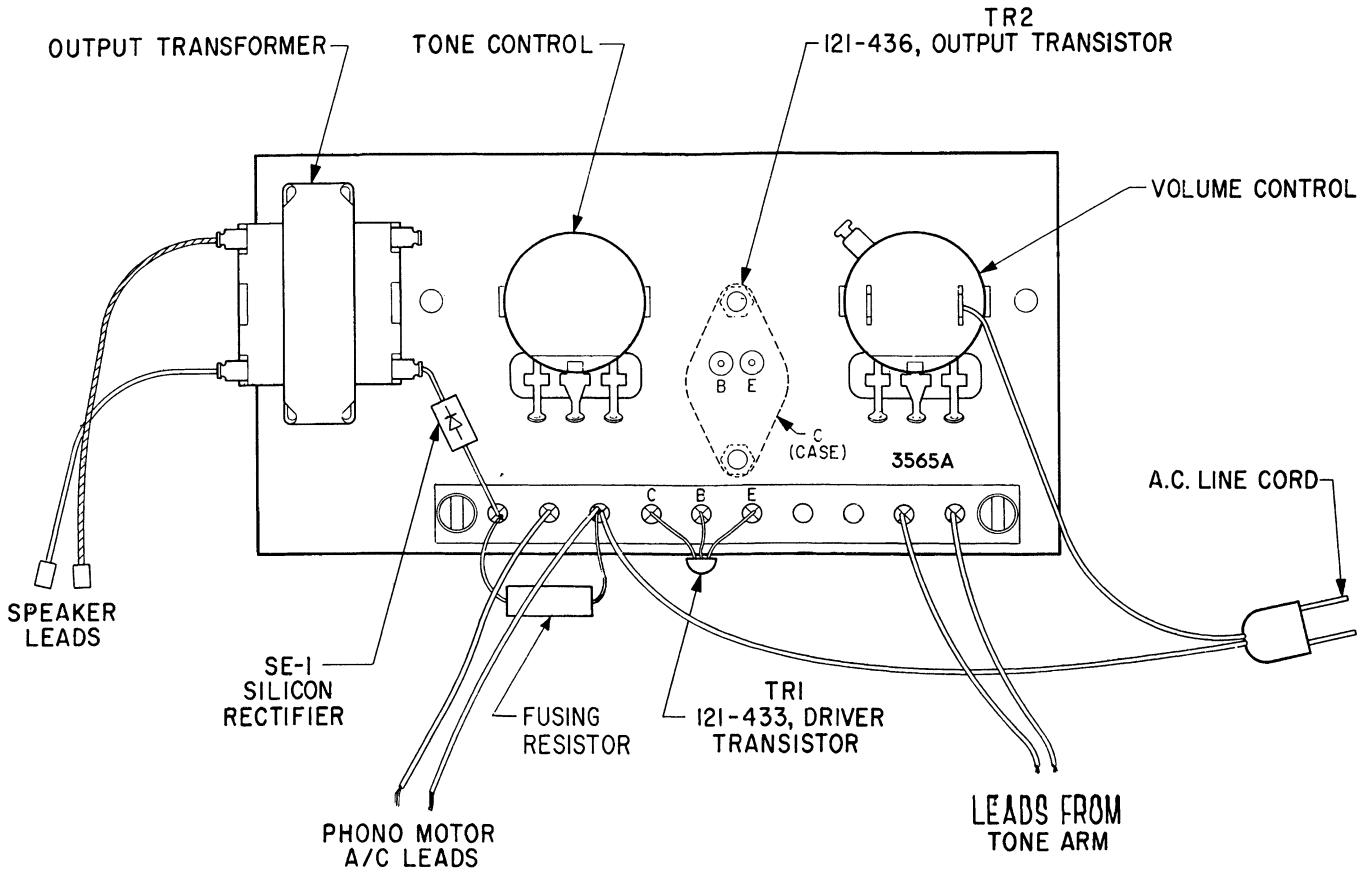
2ZT21 AND 2ZT22 – SCHEMATIC



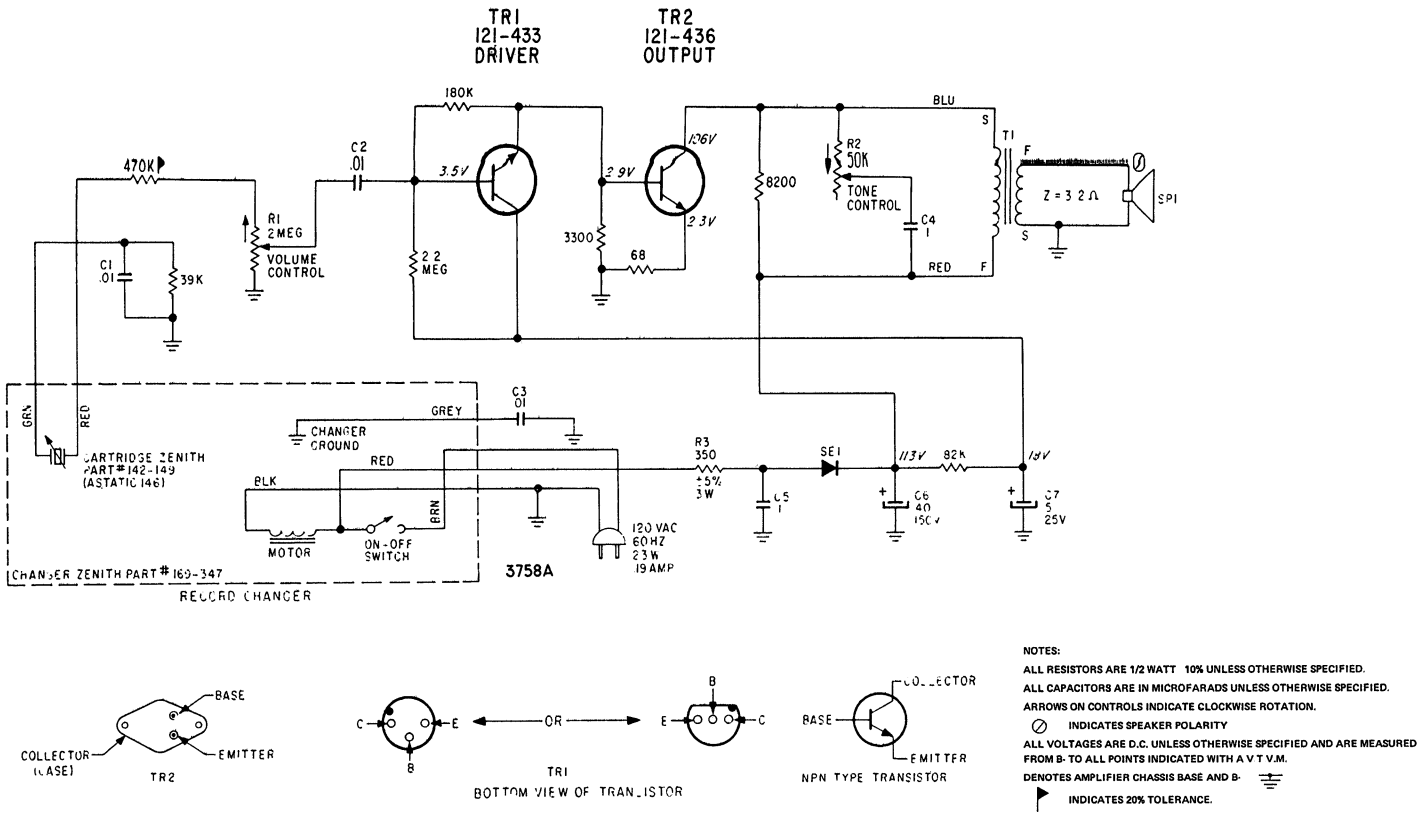
2ZT22 CHASSIS AND WIRING COMPONENTS AS VIEWED FROM FOIL SIDE



2YT23 SCHEMATIC



2YT23 CHASSIS LAYOUT



NOTES:

ALL RESISTORS ARE 1/2 WATT 10% UNLESS OTHERWISE SPECIFIED.

ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION.

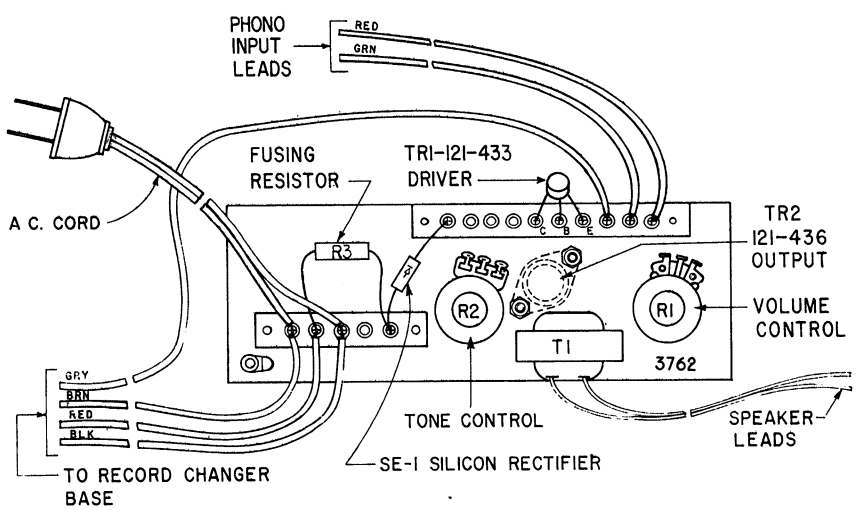
⊘ INDICATES SPEAKER POLARITY

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED AND ARE MEASURED FROM B- TO ALL POINTS INDICATED WITH A V T V.M.

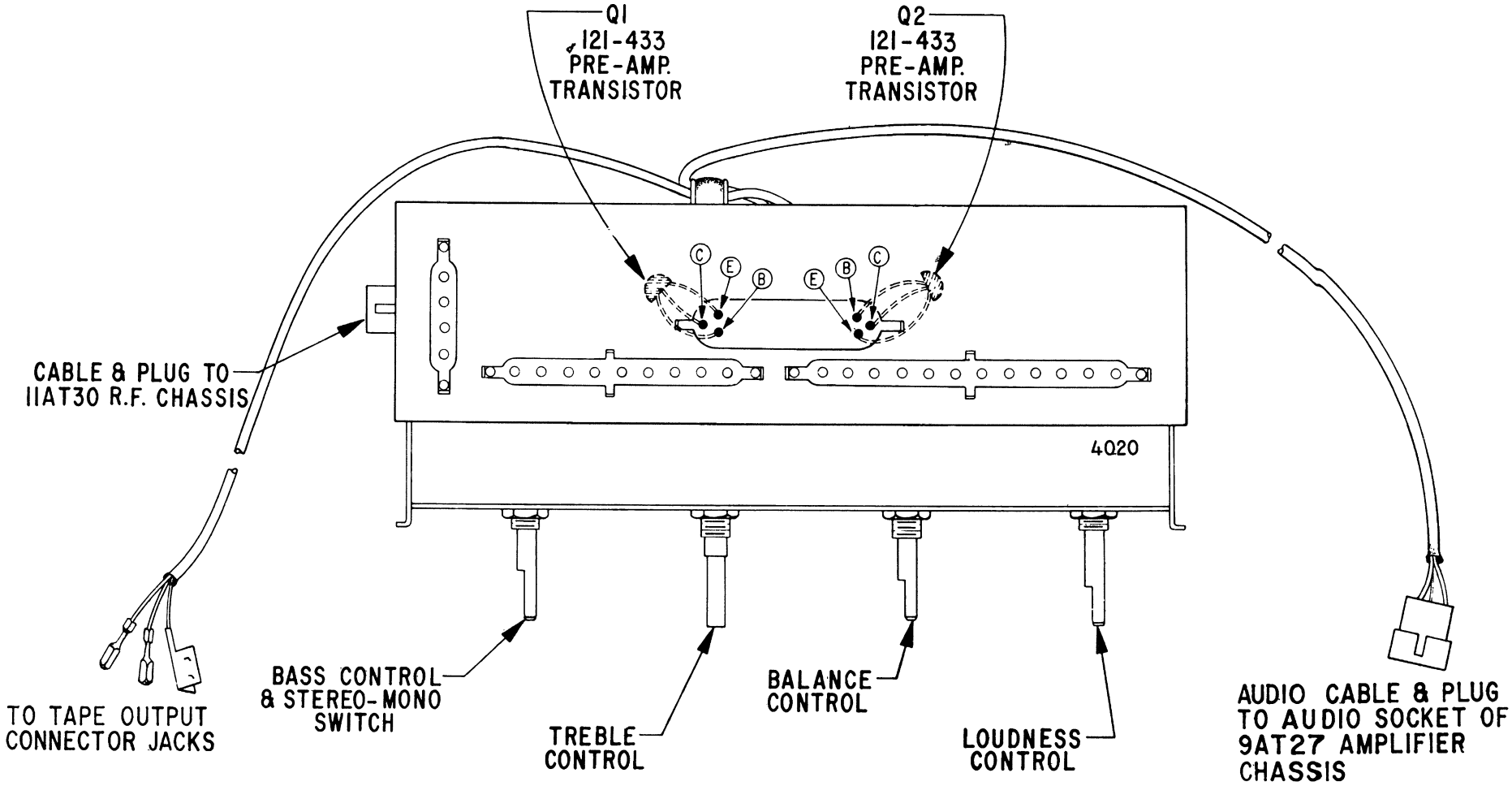
DENOTES AMPLIFIER CHASSIS BASE AND B-

INDICATES 20% TOLERANCE.

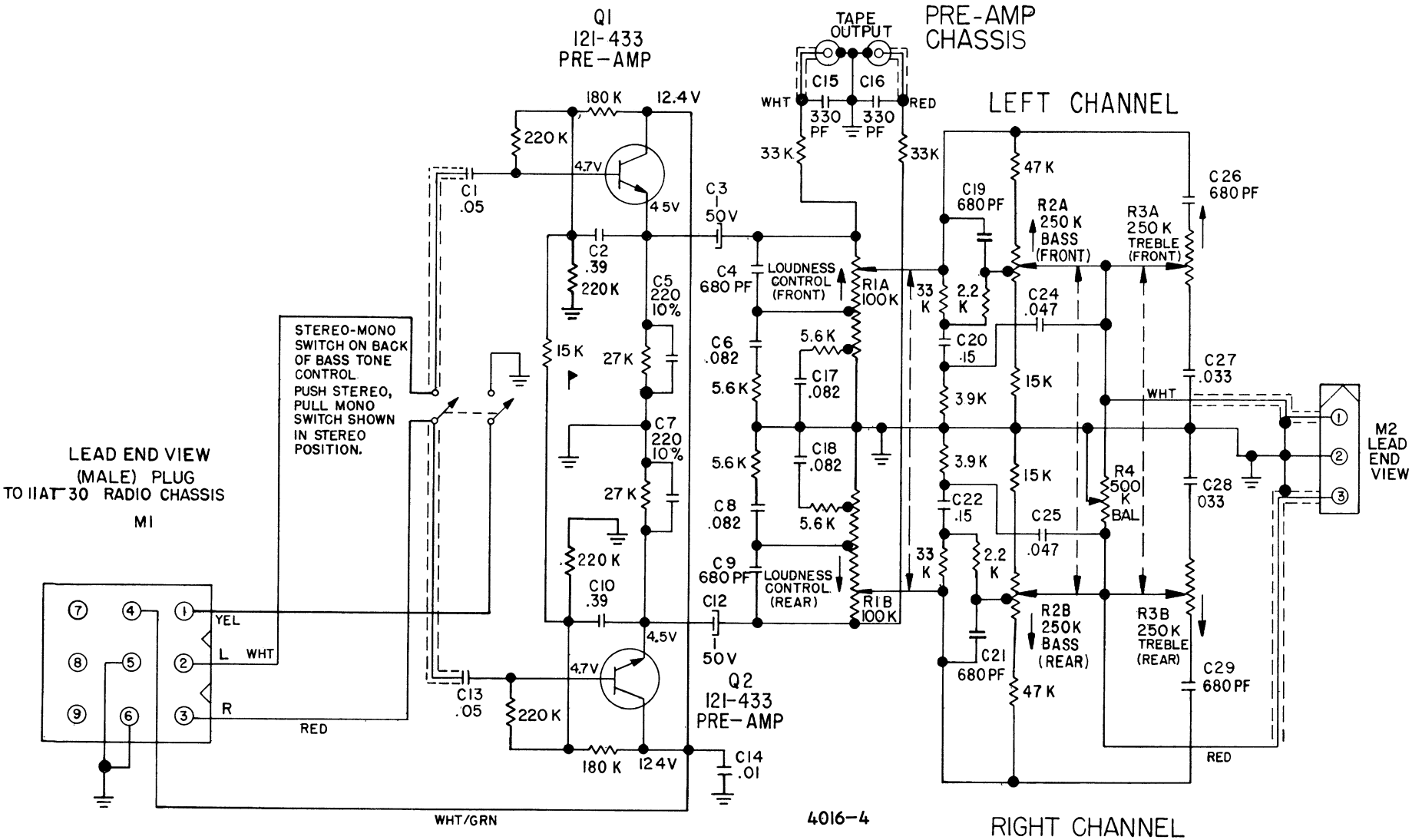
2ZT24 SCHEMATIC



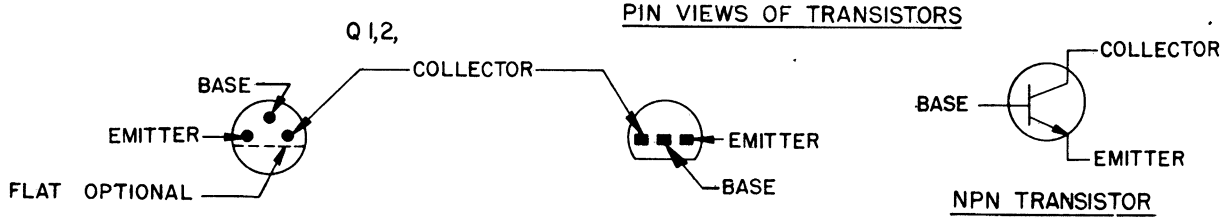
2ZT24 CHASSIS LAYOUT



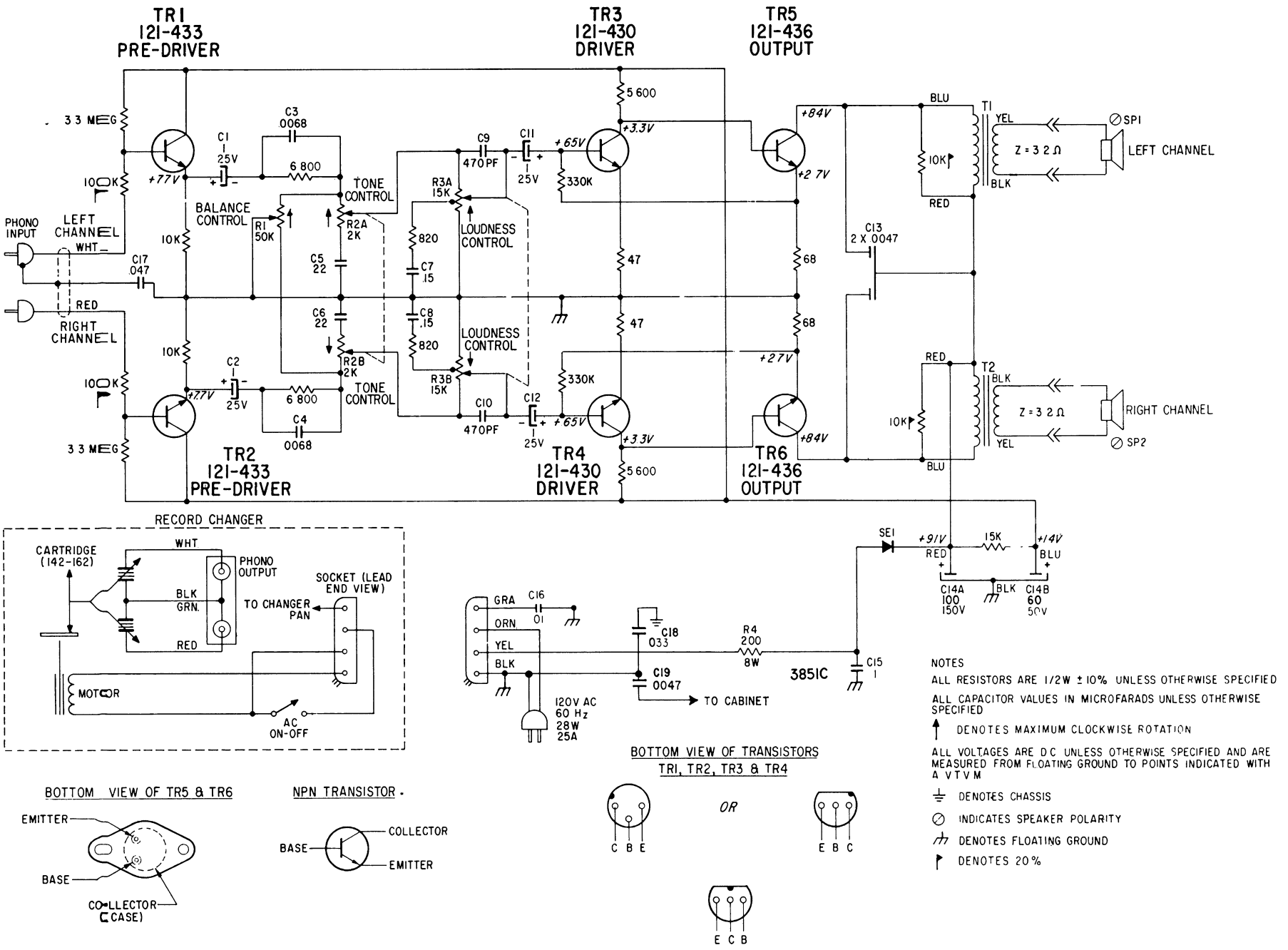
2AT30 CHASSIS LAYOUT



PIN VIEWS OF TRANSISTORS



2AT30 SCHEMATIC



NOTES

ALL RESISTORS ARE 1/2W ± 10% UNLESS OTHERWISE SPECIFIED

ALL CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED

↑ DENOTES MAXIMUM CLOCKWISE ROTATION

ALL VOLTAGES ARE D.C UNLESS OTHERWISE SPECIFIED AND ARE MEASURED FROM FLOATING GROUND TO POINTS INDICATED WITH A VTVM

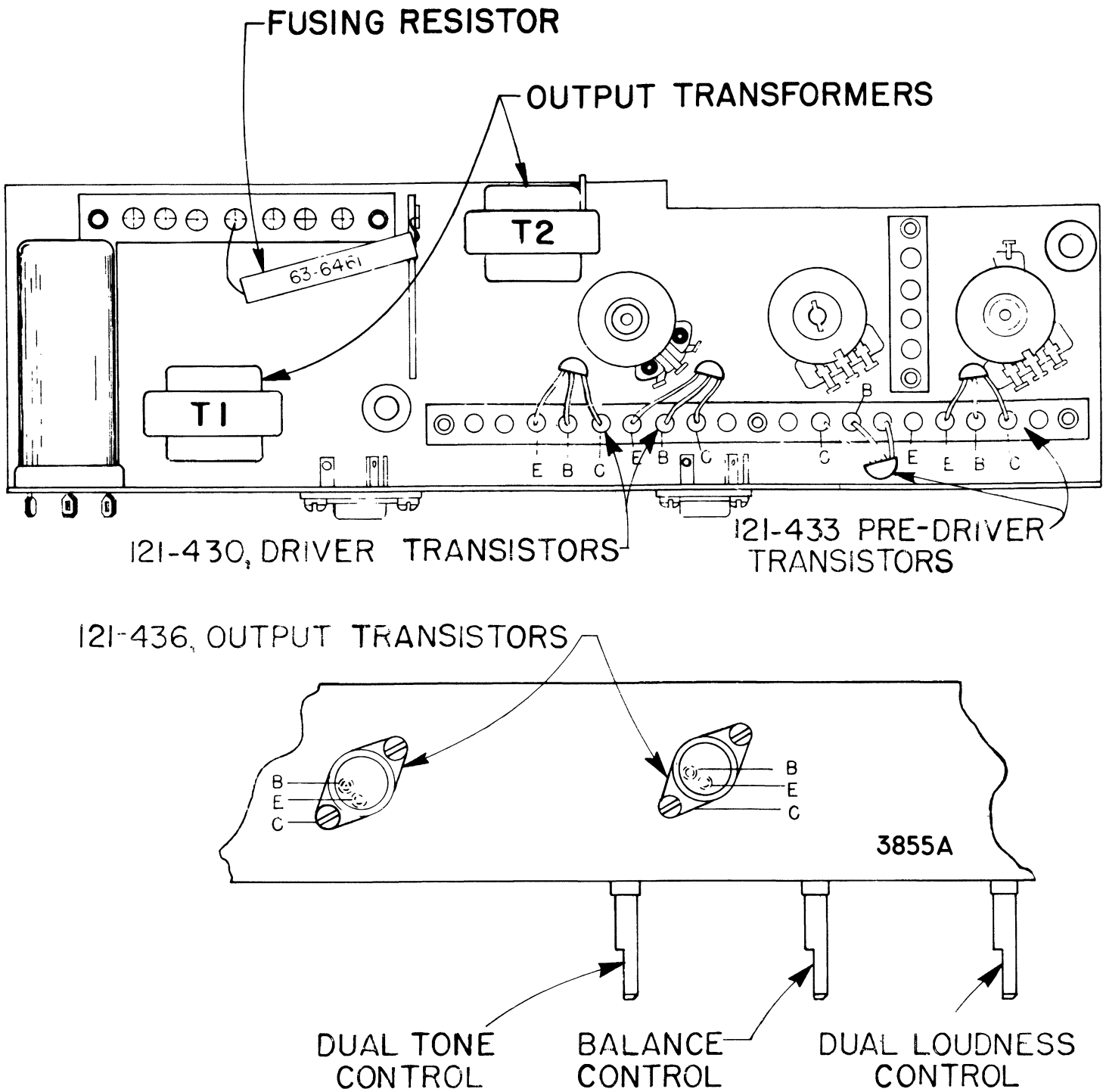
⏚ DENOTES CHASSIS

⊘ INDICATES SPEAKER POLARITY

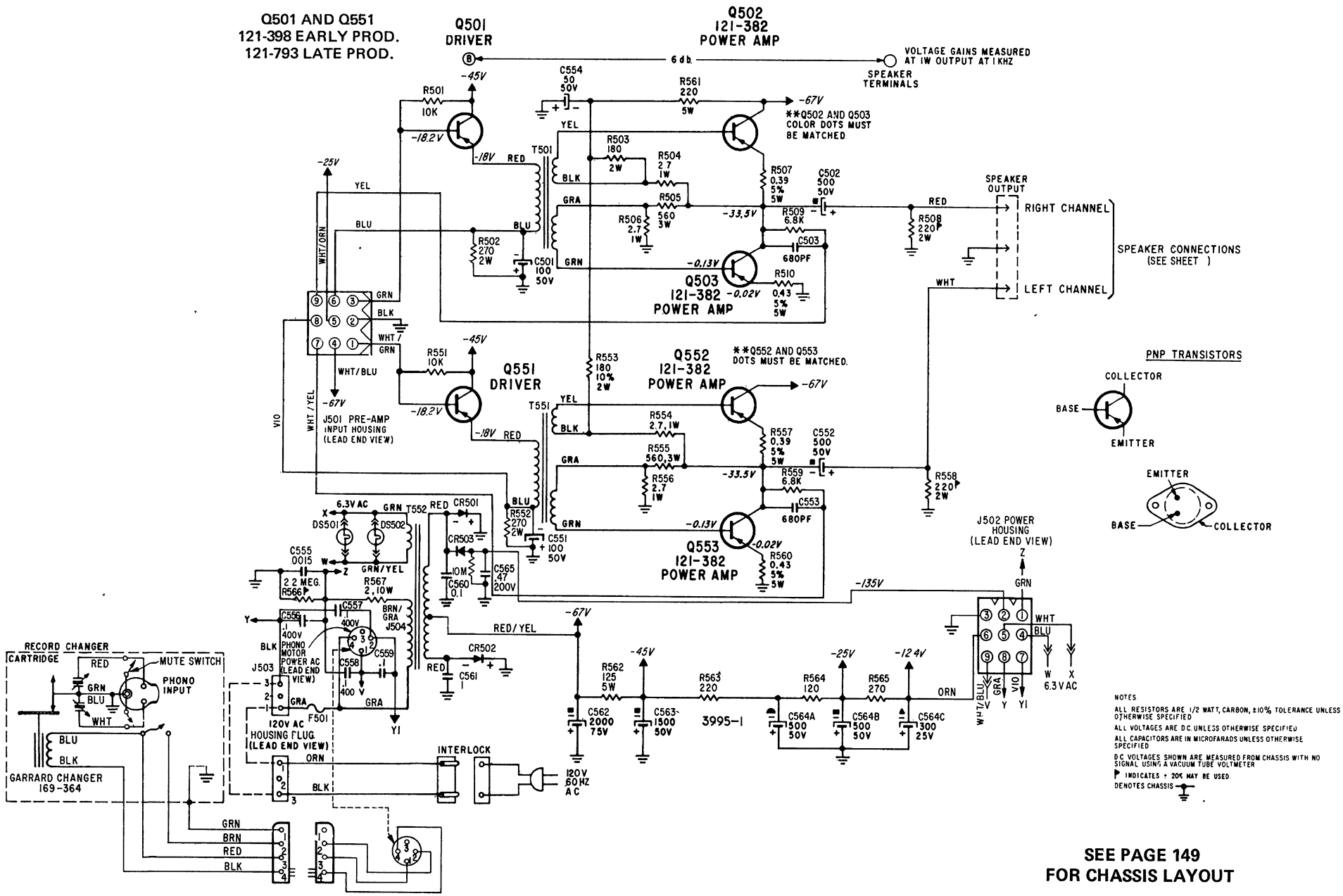
⏚ DENOTES FLOATING GROUND

⚑ DENOTES 20%

6ZT20 SCHEMATIC

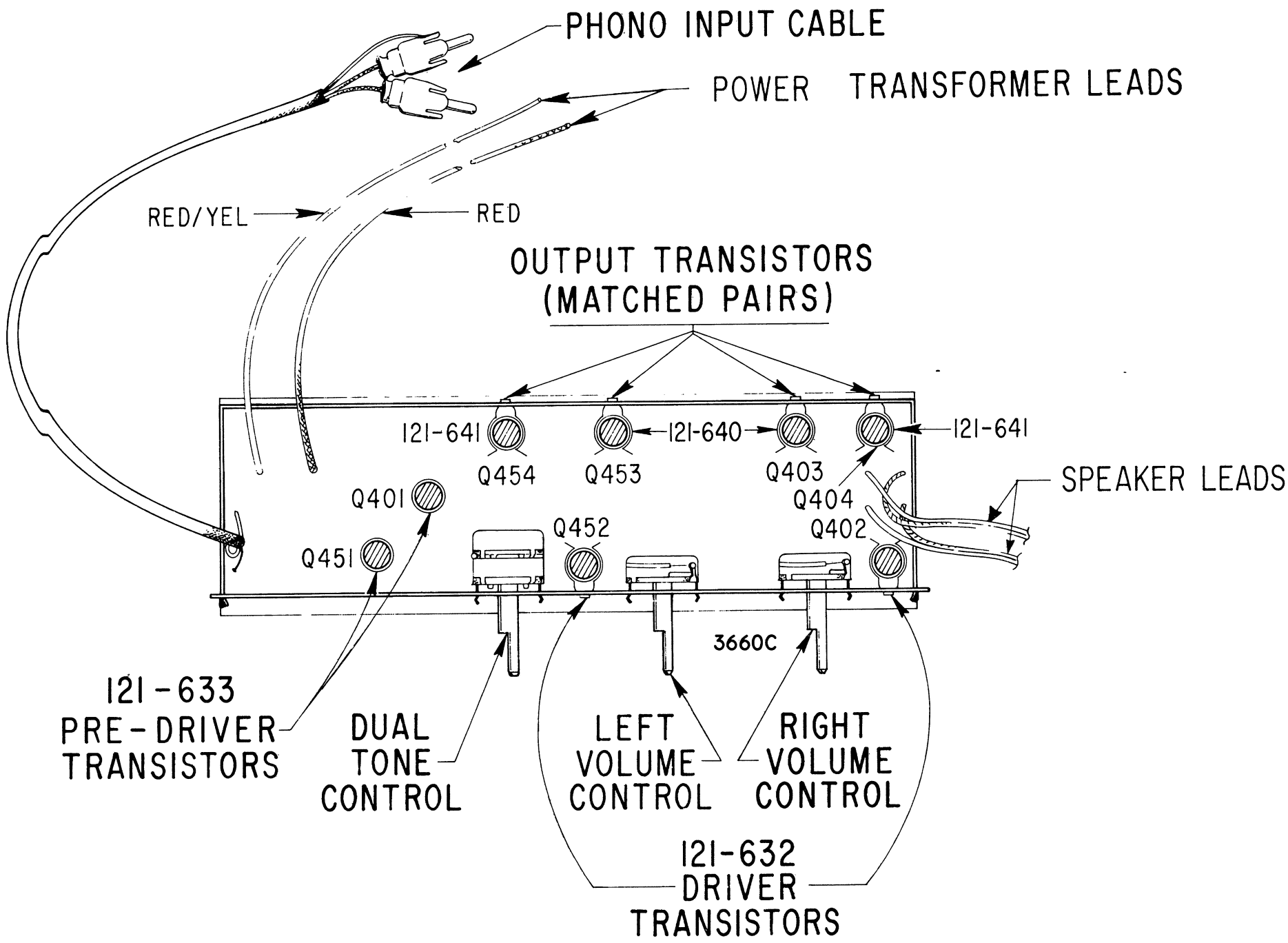


6ZT20 CHASSIS LAYOUT

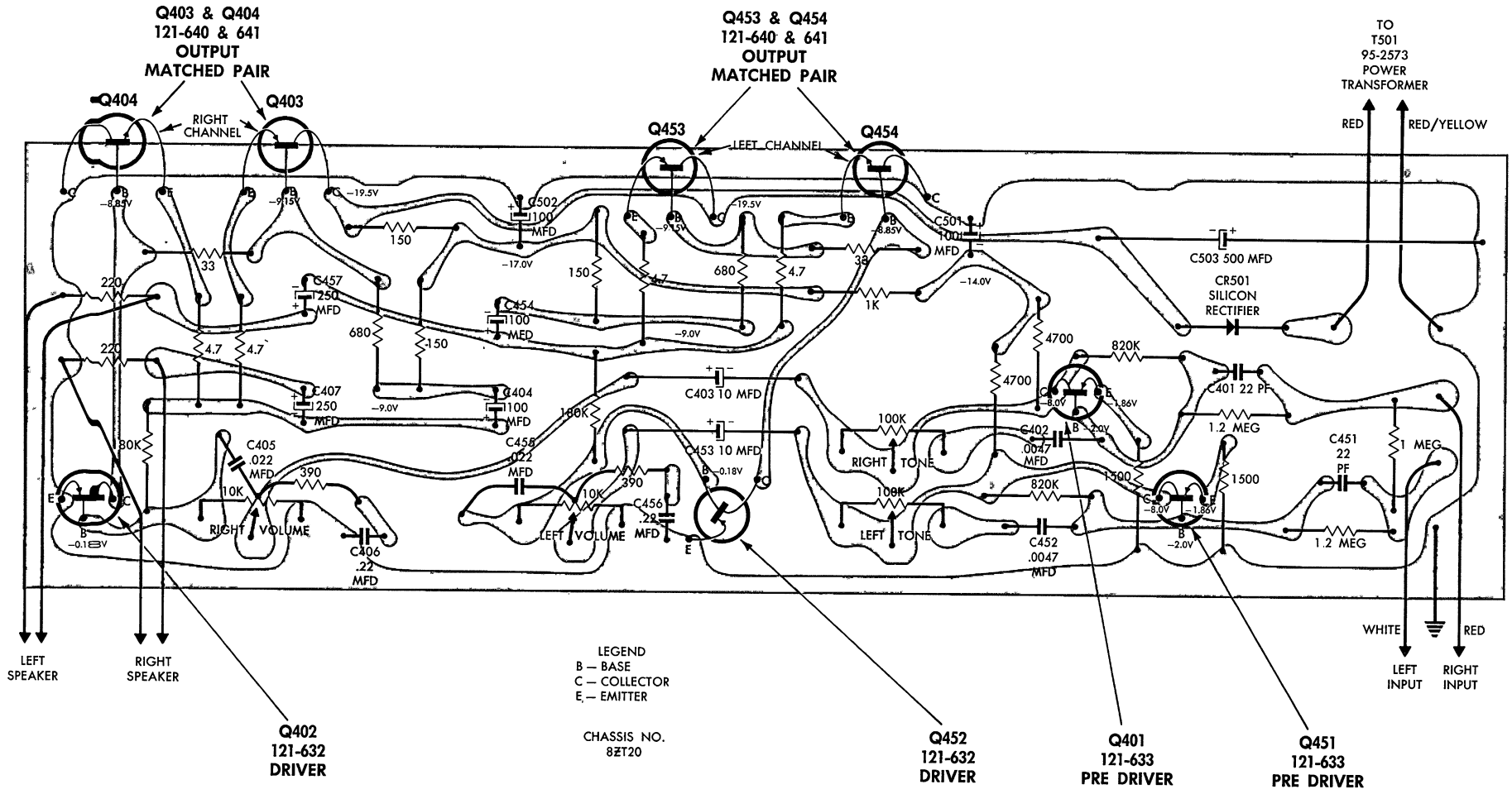


SEE PAGE 149
FOR CHASSIS LAYOUT

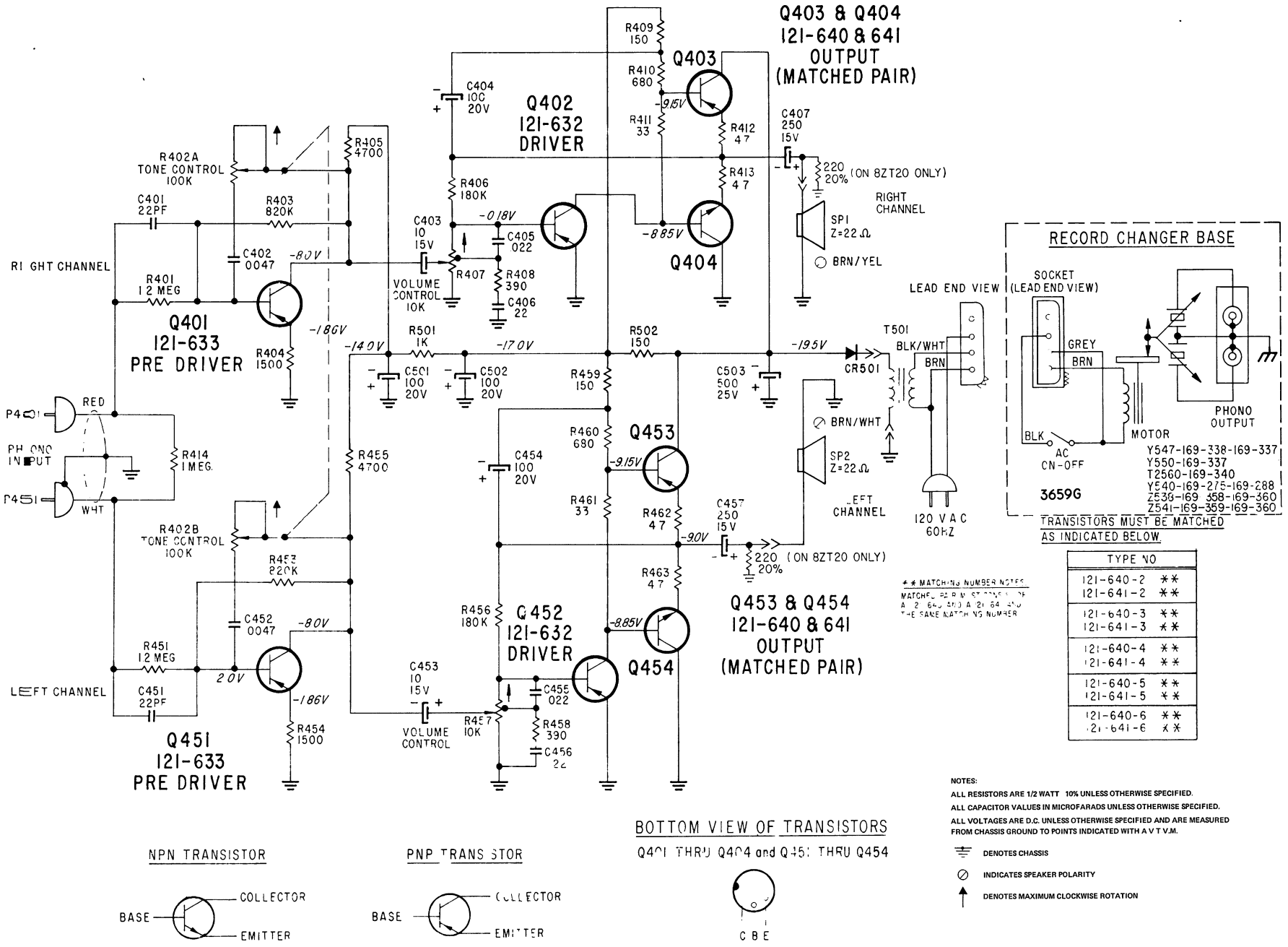
6AT24 SCHEMATIC



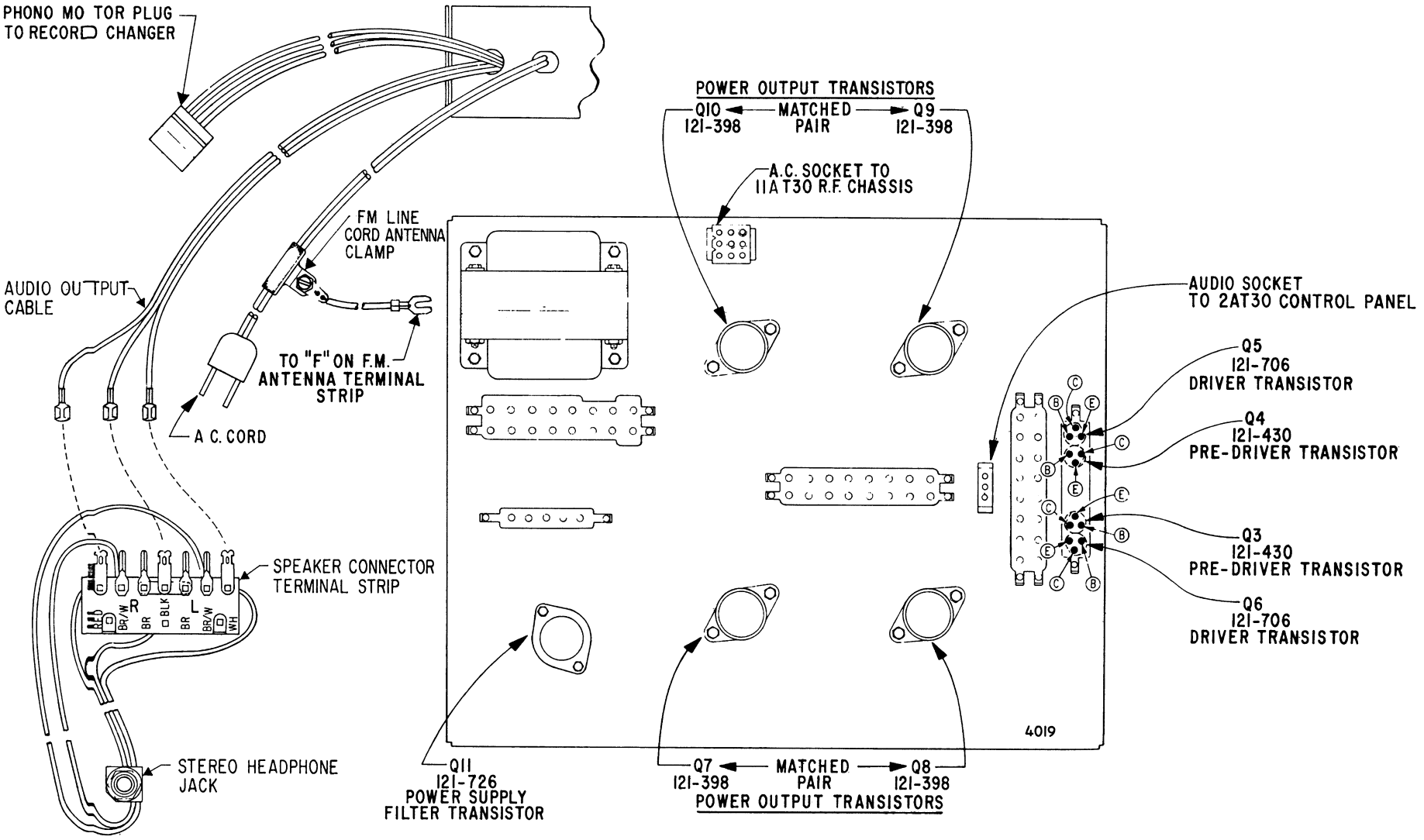
8ZT20 CHASSIS LAYOUT



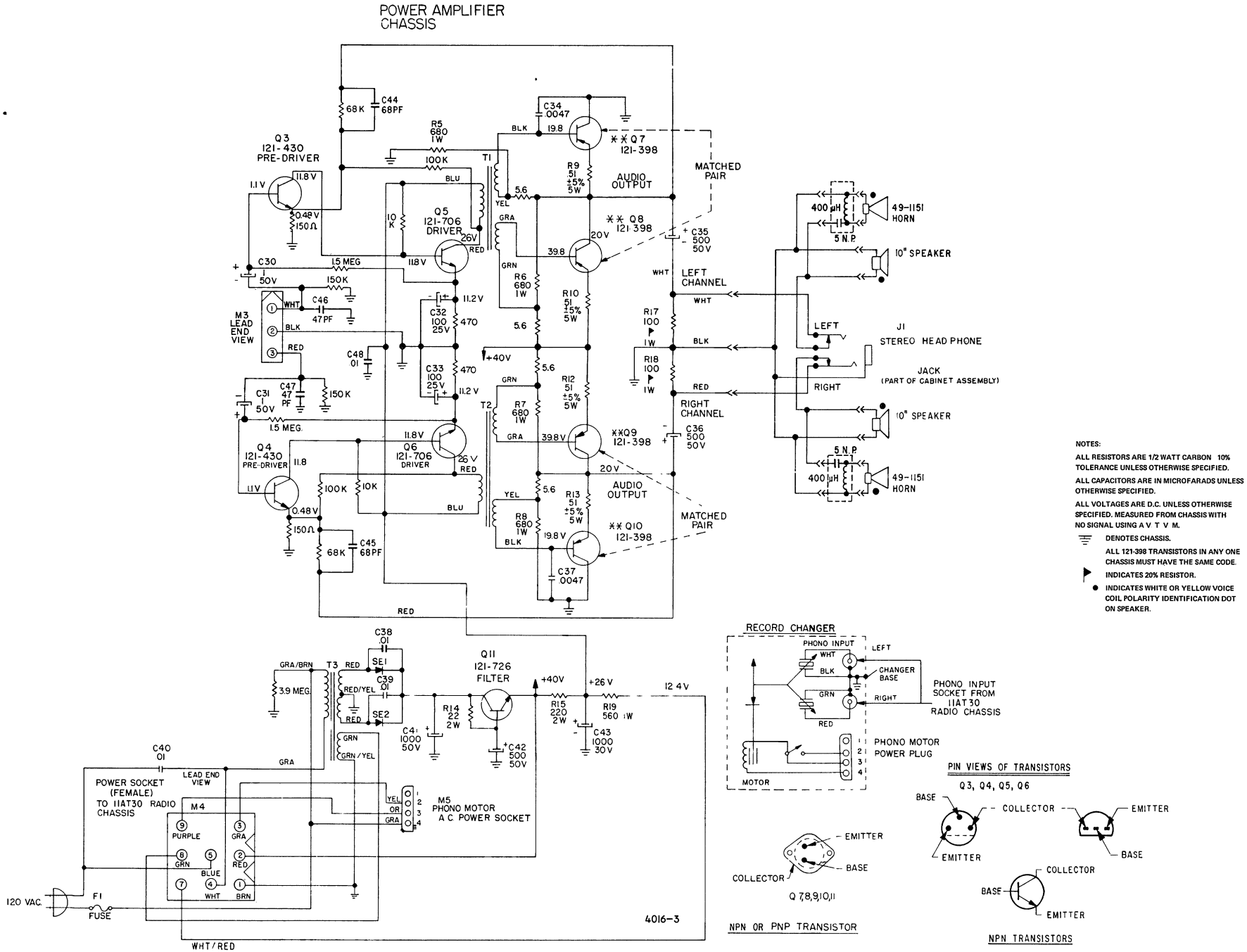
8ZT20 CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



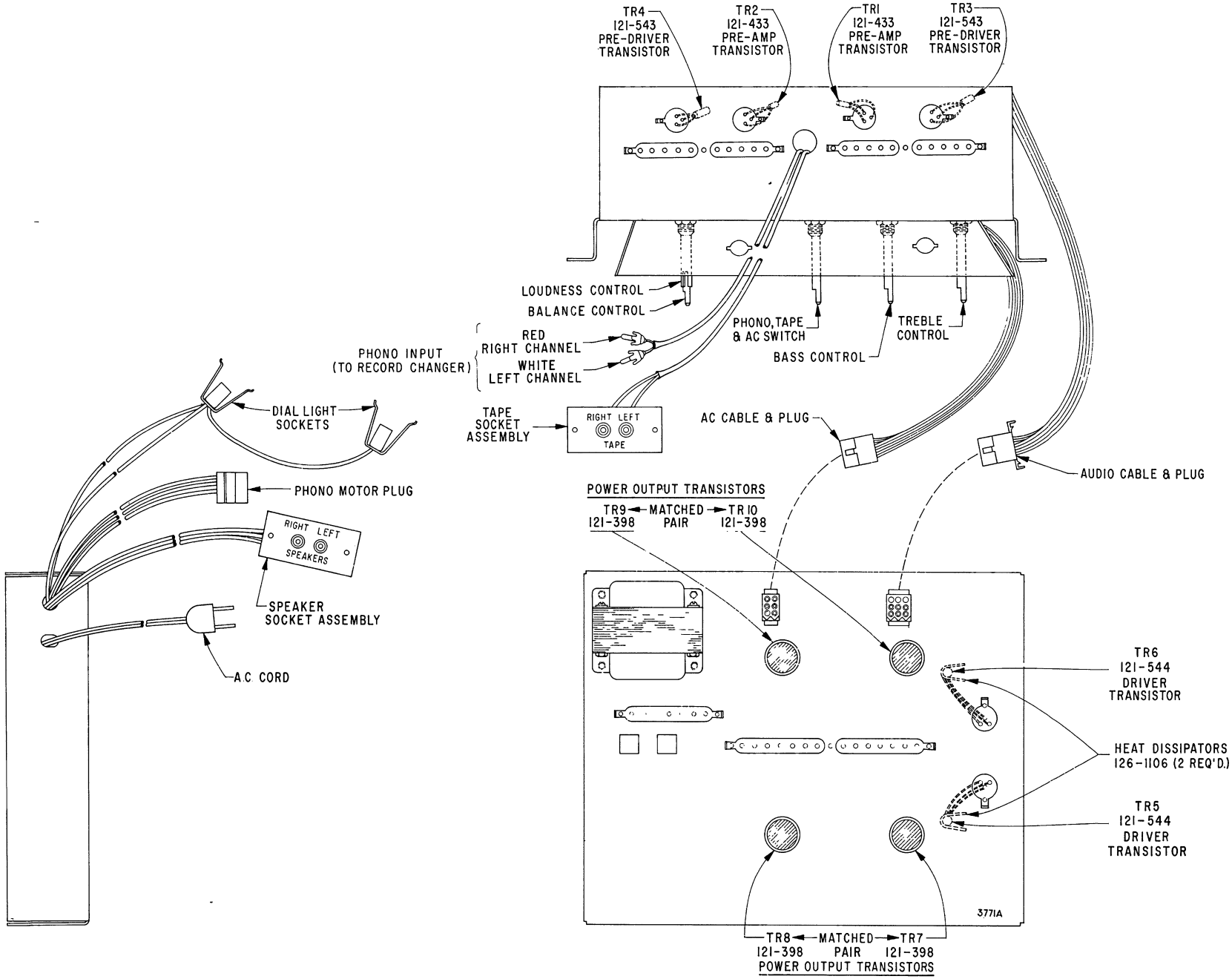
8ZT20 SCHEMATIC



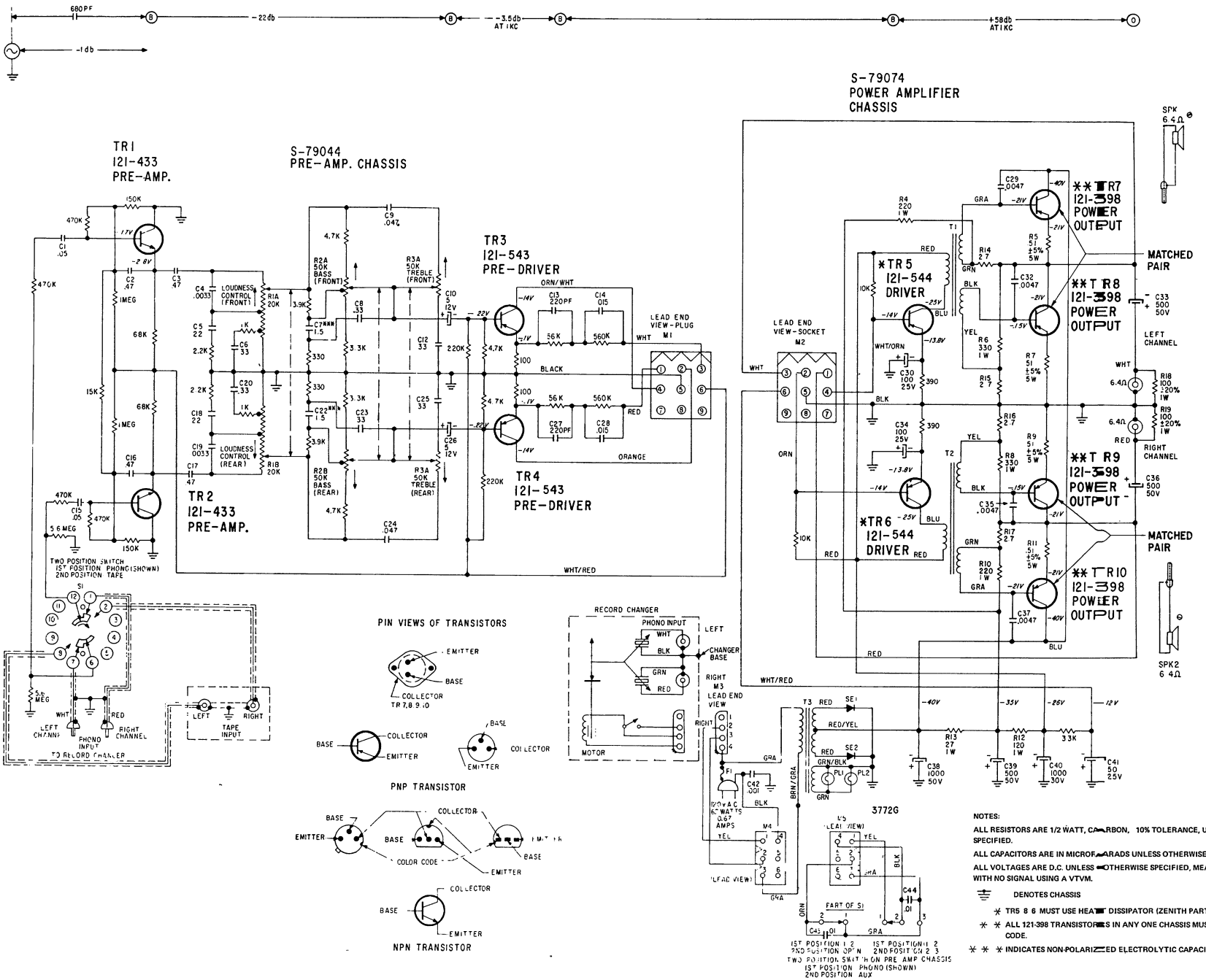
9AT27 CHASSIS LAYOUT



9AT27 SCHEMATIC



10YT26 CHASSIS LAYOUT



NOTES:

ALL RESISTORS ARE 1/2 WATT, CARBON, 10% TOLERANCE, UNLESS OTHERWISE SPECIFIED.

ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED, MEASURED FROM CHASSIS WITH NO SIGNAL USING A VTVM.

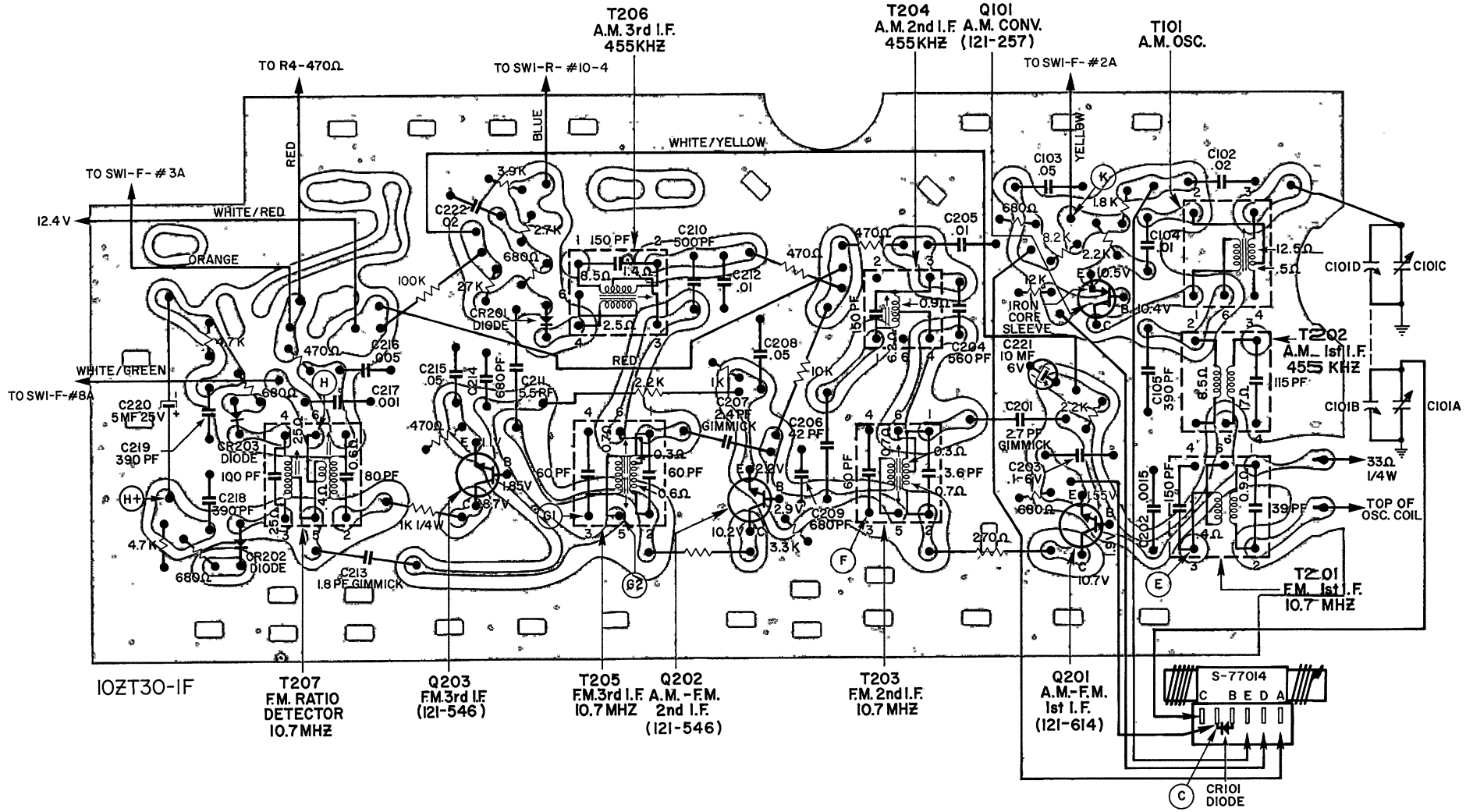
⏚ DENOTES CHASSIS

* TR5 & 6 MUST USE HEAT DISSIPATOR (ZENITH PART NO. 126-1106).

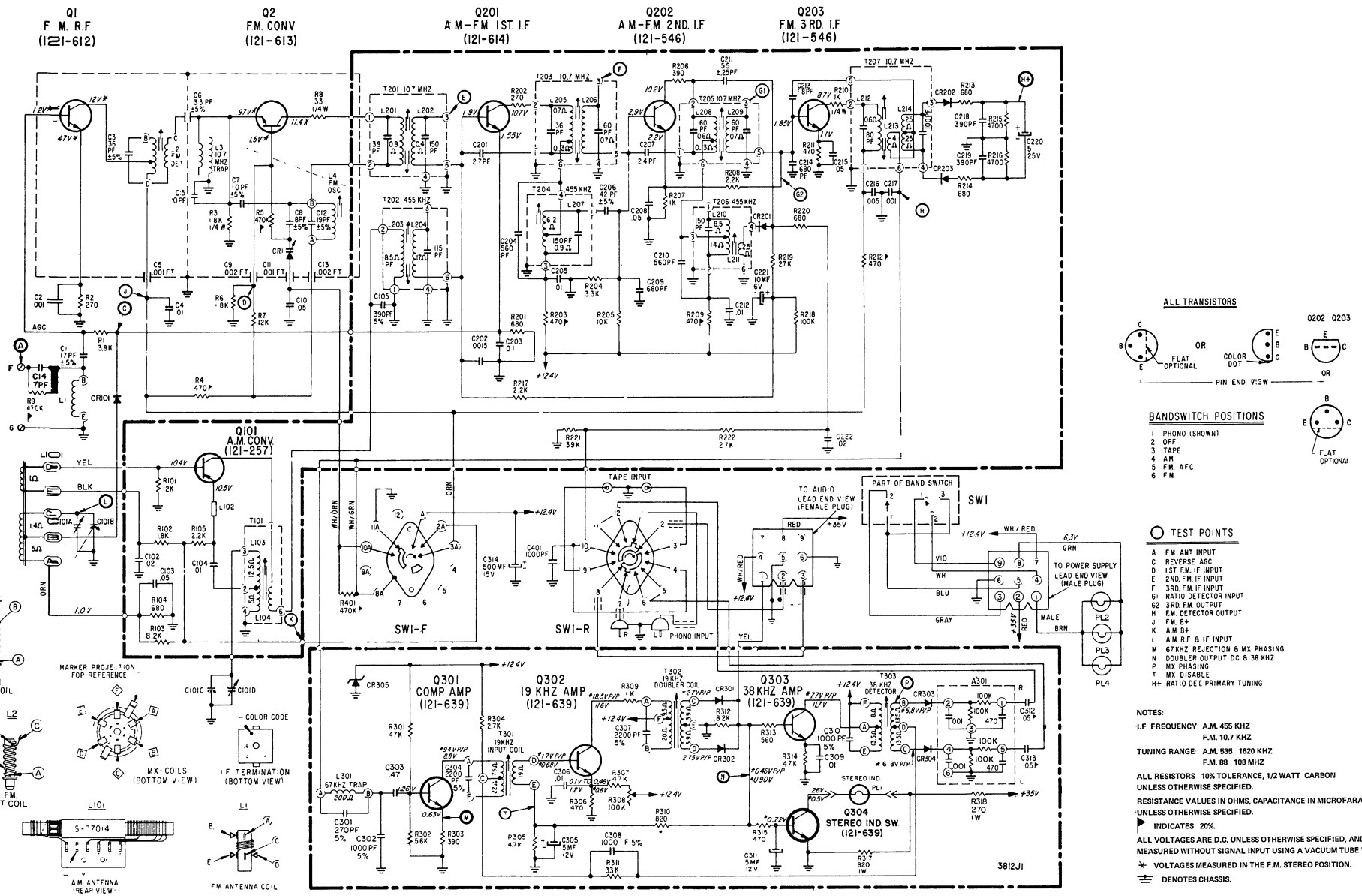
* * ALL 121-398 TRANSISTORS IN ANY ONE CHASSIS MUST HAVE THE SAME COLOR CODE.

* * * INDICATES NON-POLARIZED ELECTROLYTIC CAPACITOR.

10YT26 SCHEMATIC



10ZT30 IF – CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



ALL TRANSISTORS

BANDSWITCH POSITIONS

1 PHONO (SHOWN)
2 OFF
3 TAPE
4 AM
5 F.M. AFC
6 F.M

TEST POINTS

A F.M. ANT INPUT
C REVERSE AGC
D 1ST F.M. I.F INPUT
E 2ND. F.M. I.F INPUT
F 3RD. F.M. I.F INPUT
G1 RATIO DETECTOR INPUT
G2 3RD. F.M. OUTPUT
H F.M. DETECTOR OUTPUT
J F.M. B+
K A.M. B+
L A.M. R.F. & I.F INPUT
M 67 KHZ REJECTION & MX PHASING
N DOUBLER OUTPUT DC & 38 KHZ
P MX PHASING
T MX DISABLE
H+ RATIO DET. PRIMARY TUNING

NOTES:

I.F FREQUENCY: A.M. 455 KHZ
F.M. 10.7 KHZ

TUNING RANGE: A.M. 535 1620 KHZ
F.M. 88 108 MHZ

ALL RESISTORS 10% TOLERANCE, 1/2 WATT CARBON UNLESS OTHERWISE SPECIFIED.

RESISTANCE VALUES IN OHMS, CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

▶ INDICATES 20%.

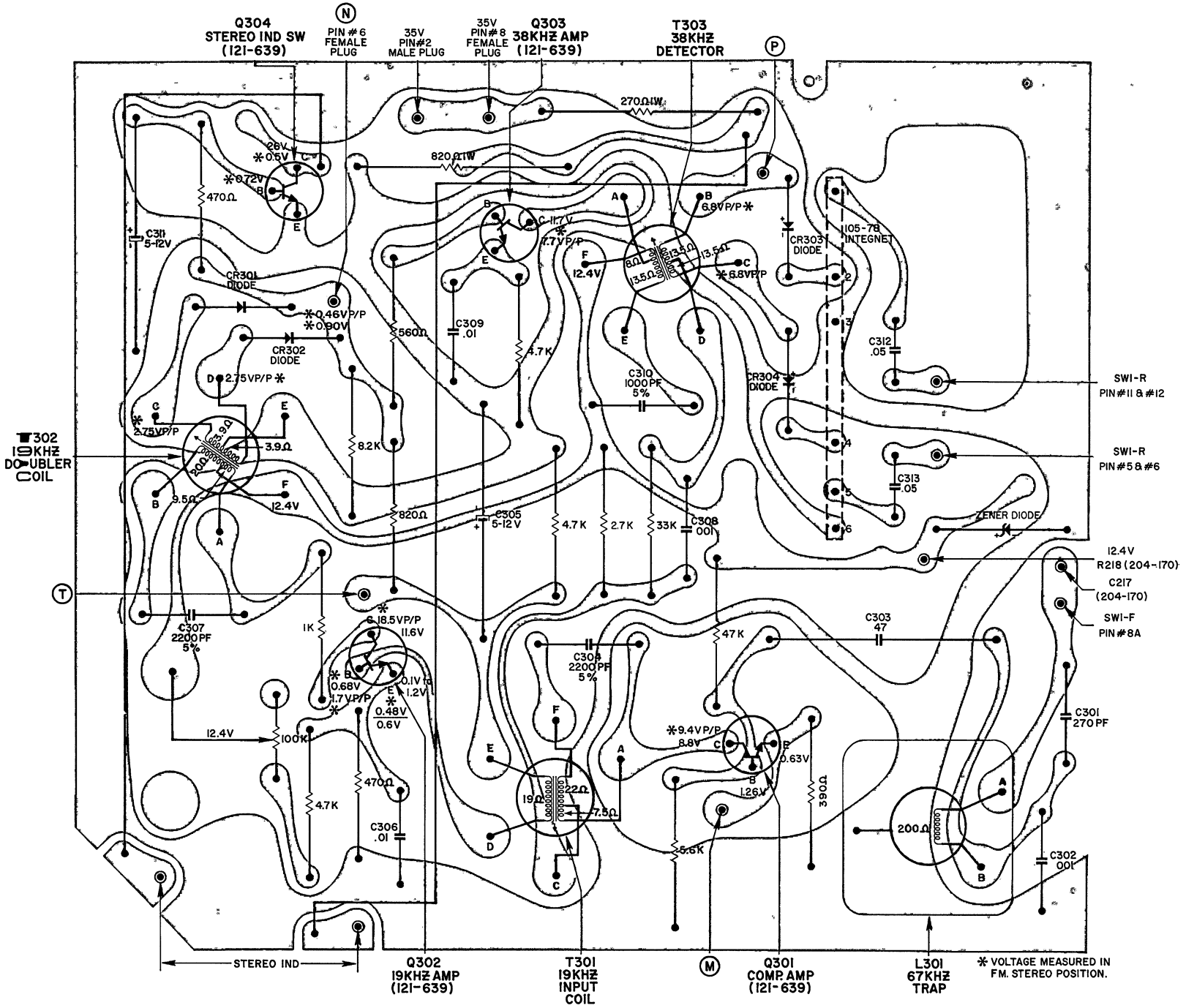
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED, AND ARE MEASURED WITHOUT SIGNAL INPUT USING A VACUUM TUBE VOLTMETER.

✳ VOLTAGES MEASURED IN THE F.M. STEREO POSITION.

⏚ DENOTES CHASSIS.

DENOTES PRINTED CIRCUIT BOARD.

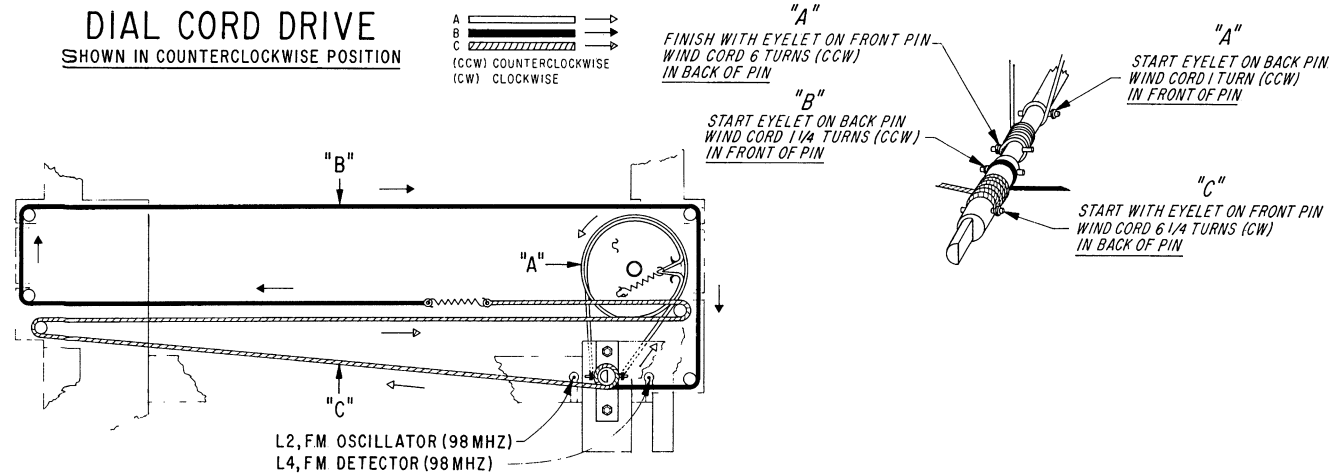
10ZT30 SCHEMATIC



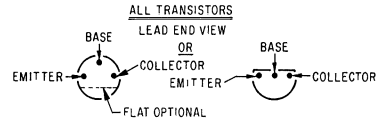
10ZT30 MULTIPLEX – CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE

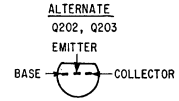
DIAL CORD DRIVE

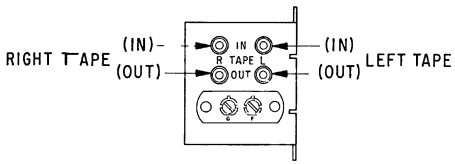
SHOWN IN COUNTERCLOCKWISE POSITION

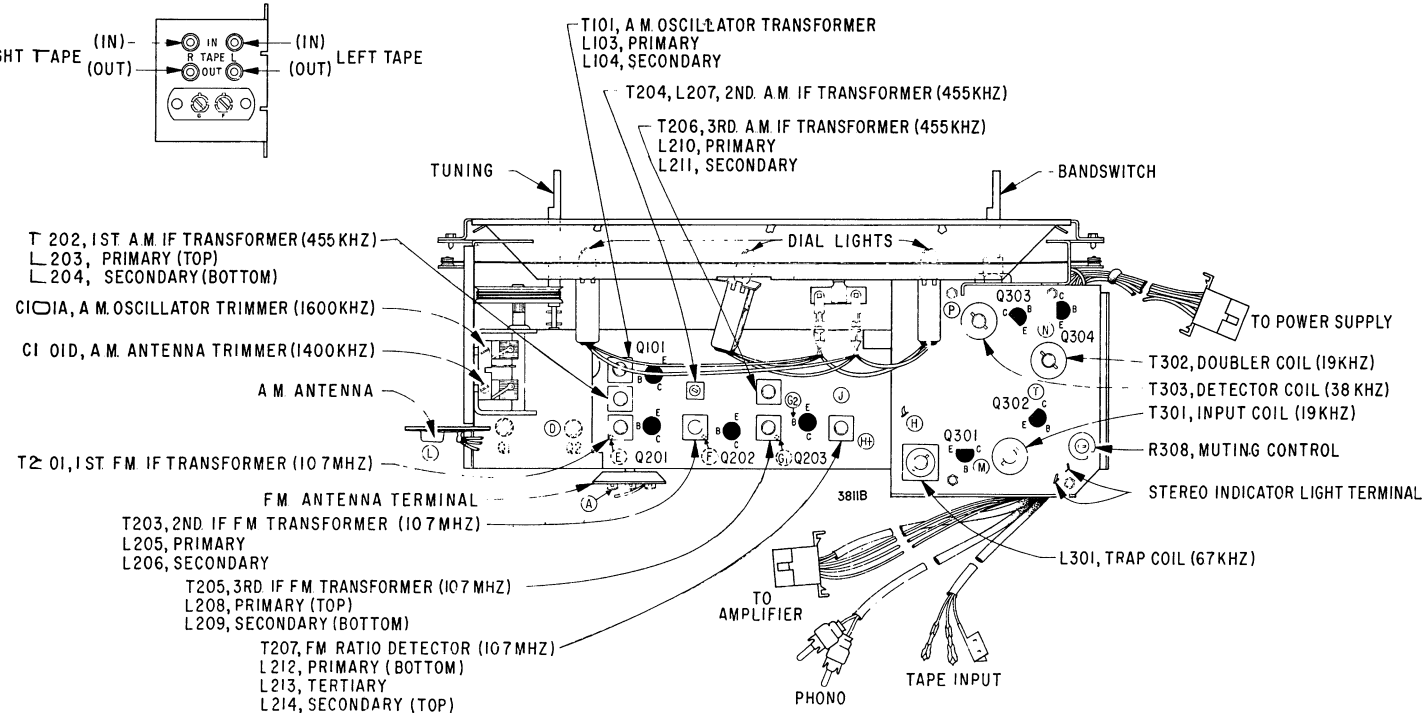


TRANSISTORS			
No.	PART No.	DESCRIPTION	REQ'D
Q1	121-612	F.M. RF	
Q2	121-613	F.M. CONV.	
Q101	121-257	A.M. CONV.	
Q201	121-614	A.M. / F.M. IST IF	
Q202	121-546	A.M. / F.M. 2ND IF	
Q203	121-546	F.M. 3RD. IF	
Q301	121-639	COMP. AMP.	
Q302	121-639	19KHZ AMP	
Q303	121-639	38KHZ AMP	
Q304	121-639	STEREO IND. SW	





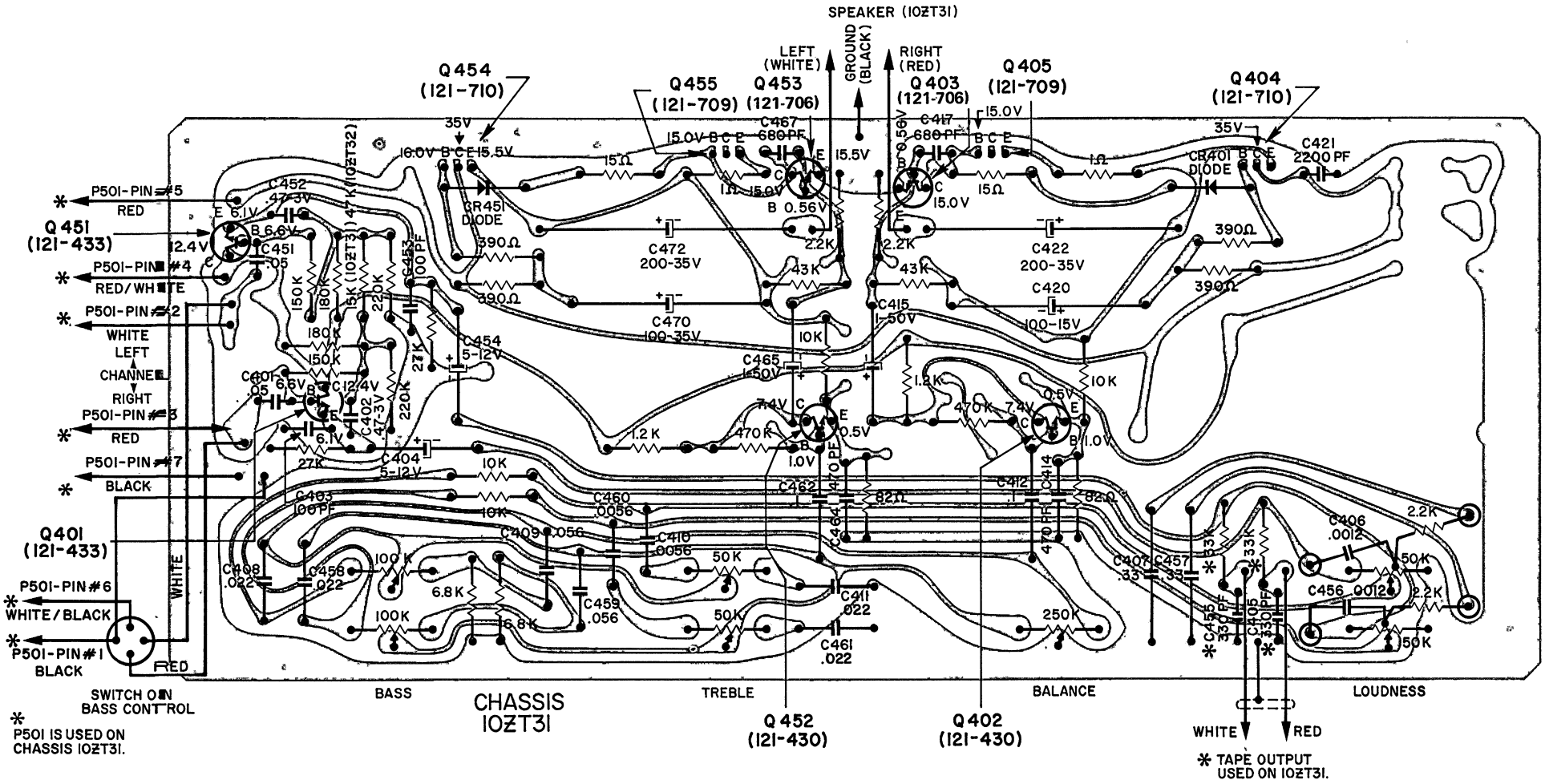




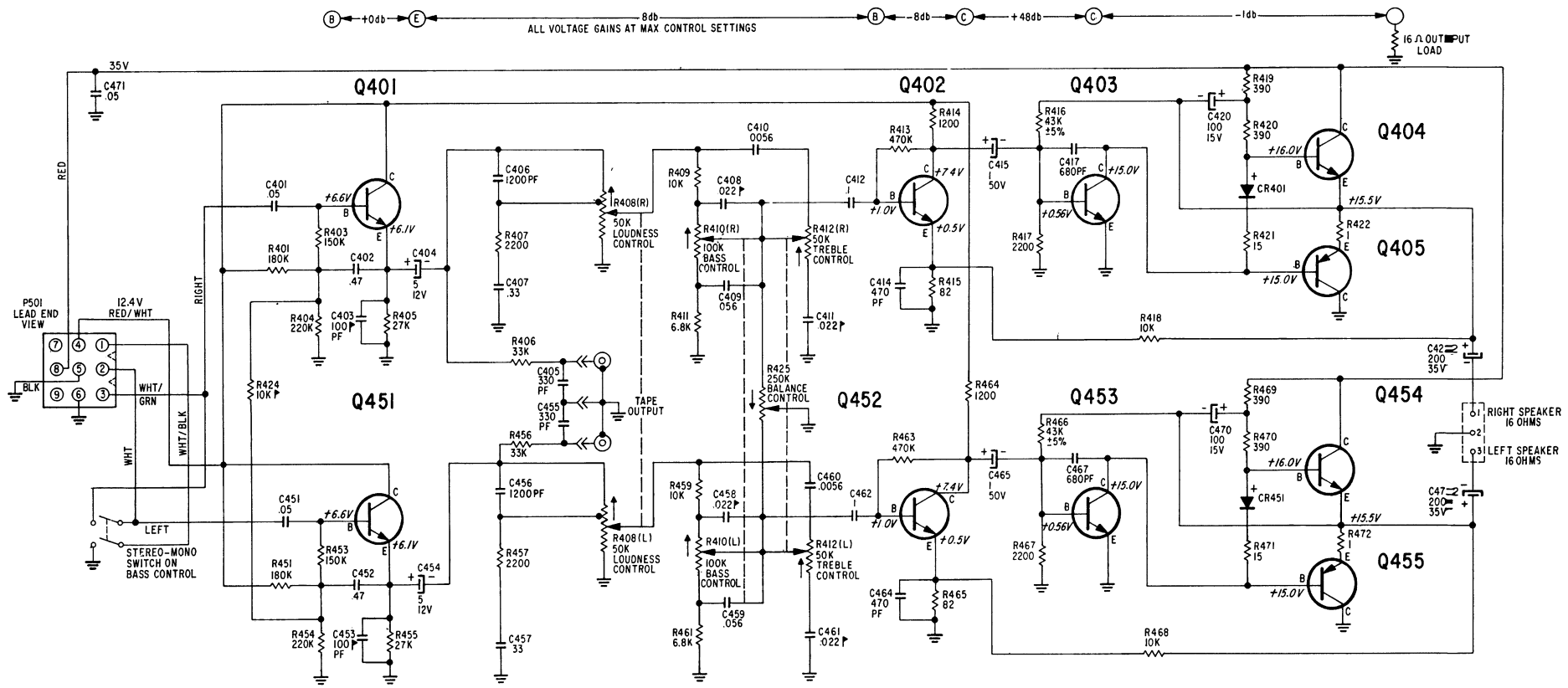
TEST POINTS	
A	F.M.-ANT. INPUT
C	REVERSE AGC
D	IST F.M. IF INPUT
E	2ND. F.M. IF INPUT
F	3RD. F.M. IF INPUT
G_1	RATIO DETECTOR INPUT
G_2	3RD. F.M. OUTPUT
H	F.M. DETECTOR OUTPUT
H+	F.M. RATIO DET. PRIMARY TUNING
J	F.M. B+
K	A.M. B+
L	A.M. RF & IF INPUT
M	67KHZ REJECTION & MX PHASE
N	MX DOUBLER OUTPUT
P	MX PHASING
T	MX DISABLING

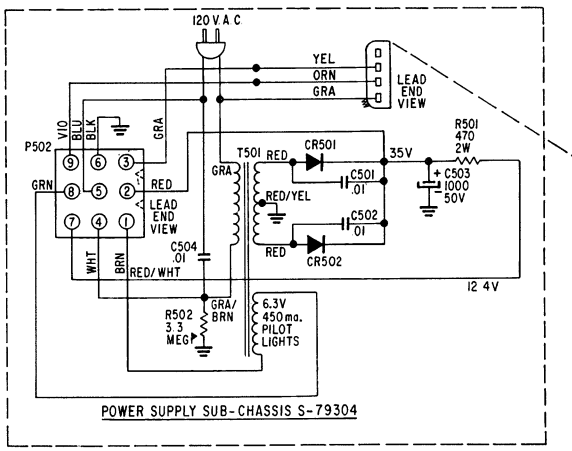
◌ ALL TEST POINTS SHOWN DOTTED ON IF AND MX TRANSFORMERS ARE ACCESSIBLE FROM BOTTOM OF CHASSIS

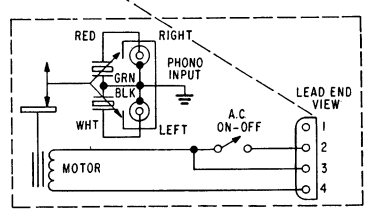
10ZT30 CHASSIS LAYOUT



10ZT31 – CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE

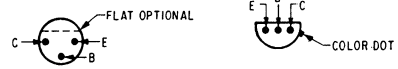






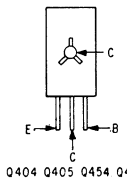
TRANSISTOR LEAD LAYOUTS

LEAD END VIEWS



Q401 Q402 Q403 Q451 Q452 Q453

TRANSISTOR BASING



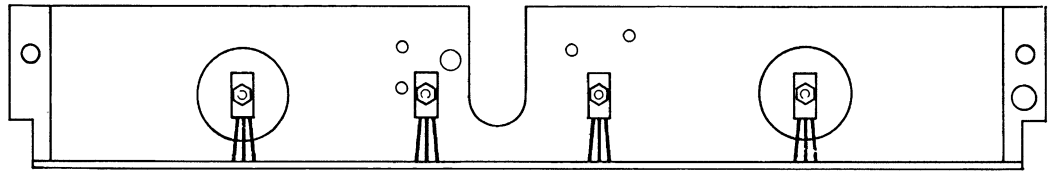
Q404 Q405 Q454 Q455

TRANSISTORS		
No.	PART No.	DESCRIPTION
Q401	121-433	PRE-AMPLIFIER
Q402	121-430	PRE-DRIVER
Q403	121-706	DRIVER
Q404	121-710	OUTPUT
Q405	121-709	OUTPUT
Q451	121-433	PRE-AMPLIFIER
Q452	121-430	PRE-DRIVER
Q453	121-706	DRIVER
Q454	121-710	OUTPUT
Q455	121-709	OUTPUT

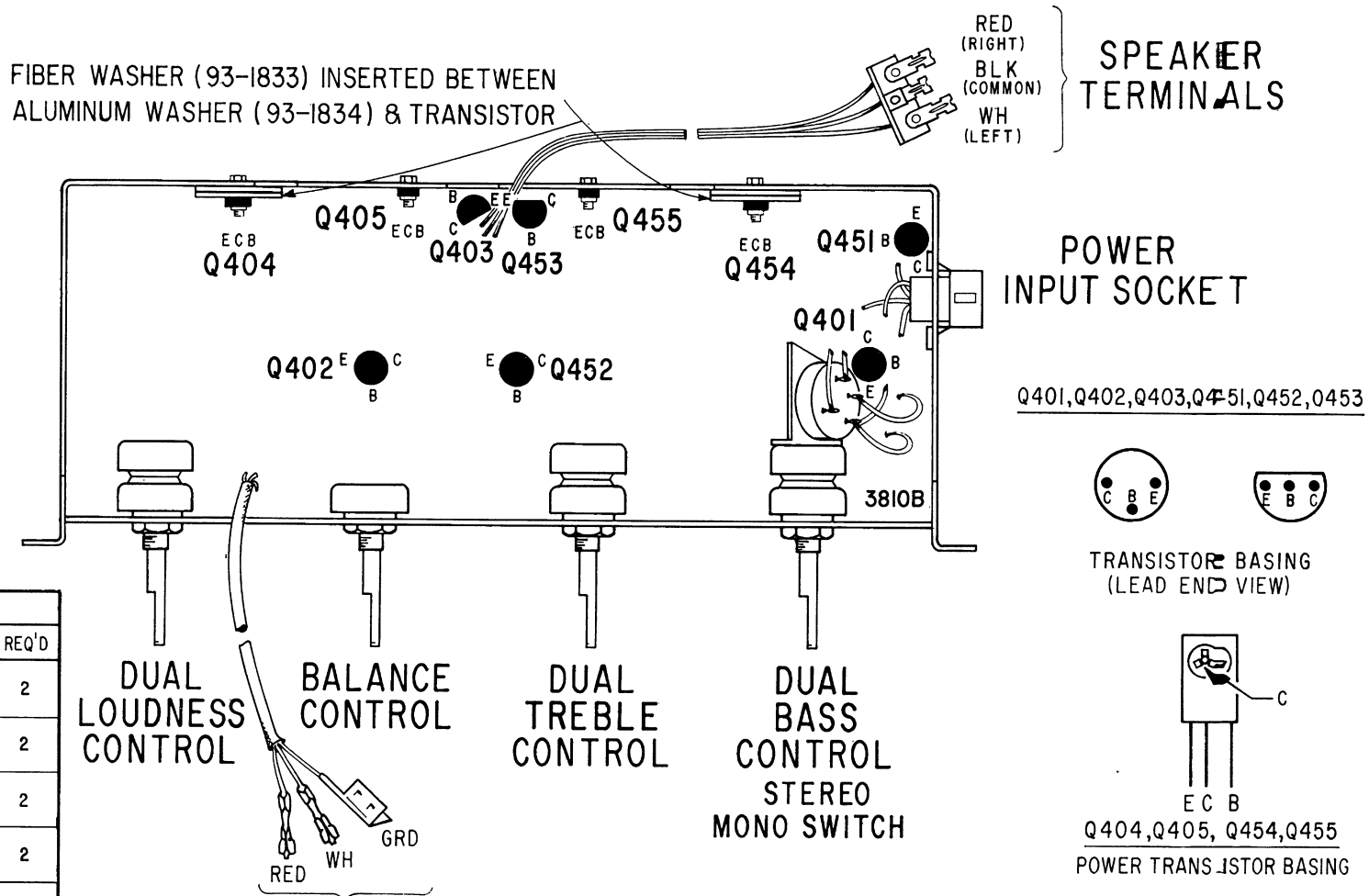
NOTES:

1. ⏚ INDICATES CHASSIS GROUND.
2. ARROWS ON CONTROLS INDICATE CLOCKWISE POSITION.
3. ALL RESISTANCES IN OHMS, 1/2 WATT CARBON, 10% UNLESS OTHERWISE SPECIFIED.
4. ALL VOLTAGES IN 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. ALL CAPACITY TOLERANCE 10% UNLESS OTHERWISE SPECIFIED.
8. ▶ INDICATES 20% TOLERANCE.

10ZT31 SCHEMATIC

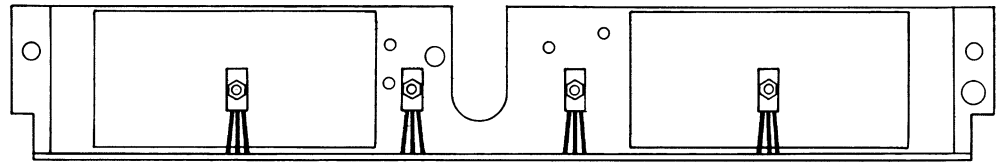


FRONT VIEW, FRONT PANEL REMOVED
(SHOWING POWER TRANSISTORS AND HEAT SINKS ONLY)



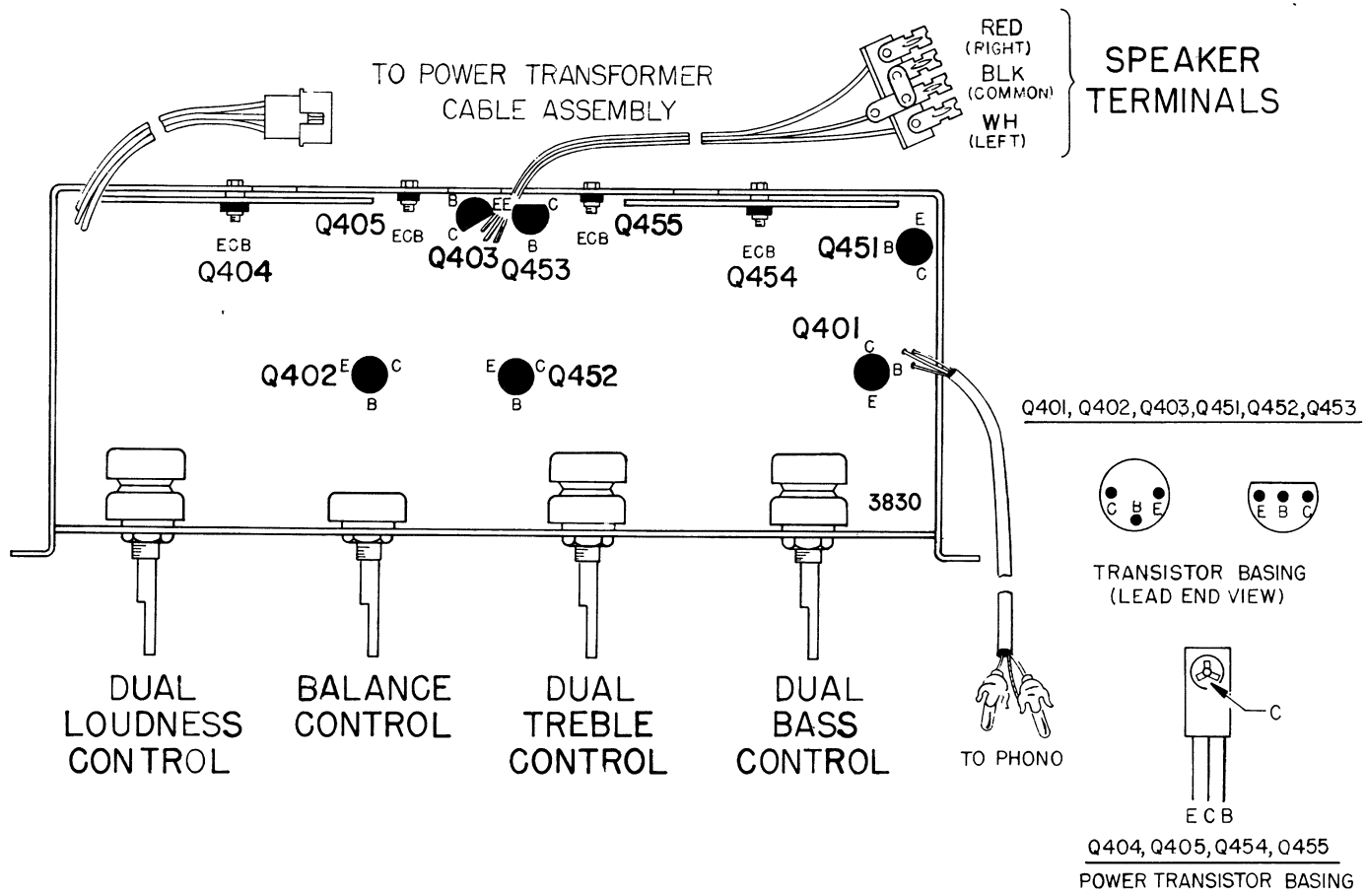
TRANSISTOR			
No.	PART No	DESCRIPTION	REQ'D
Q401 / Q451	121-433	PRE-AMPLIFIER	2
Q402 / Q452	121-430	PRE-DRIVER	2
Q403 / Q453	121-706	DRIVER	2
Q404 / Q454	121-710	OUTPUT	2
Q405 / Q455	121-709	OUTPUT	2

10ZT31 CHASSIS LAYOUT

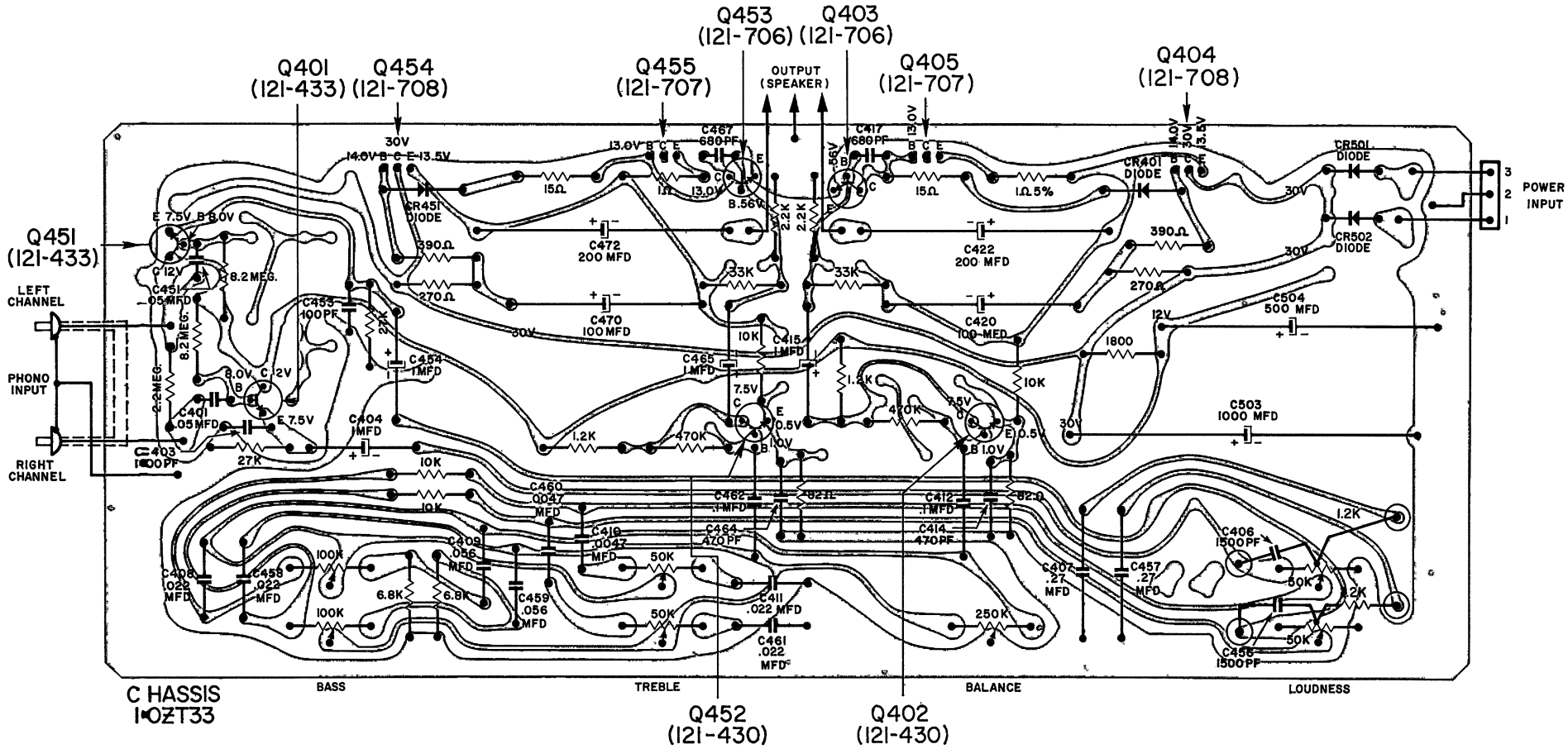


FRONT VIEW, FRONT PANEL REMOVED
(SHOWING POWER TRANSISTORS AND HEAT SINKS ONLY)

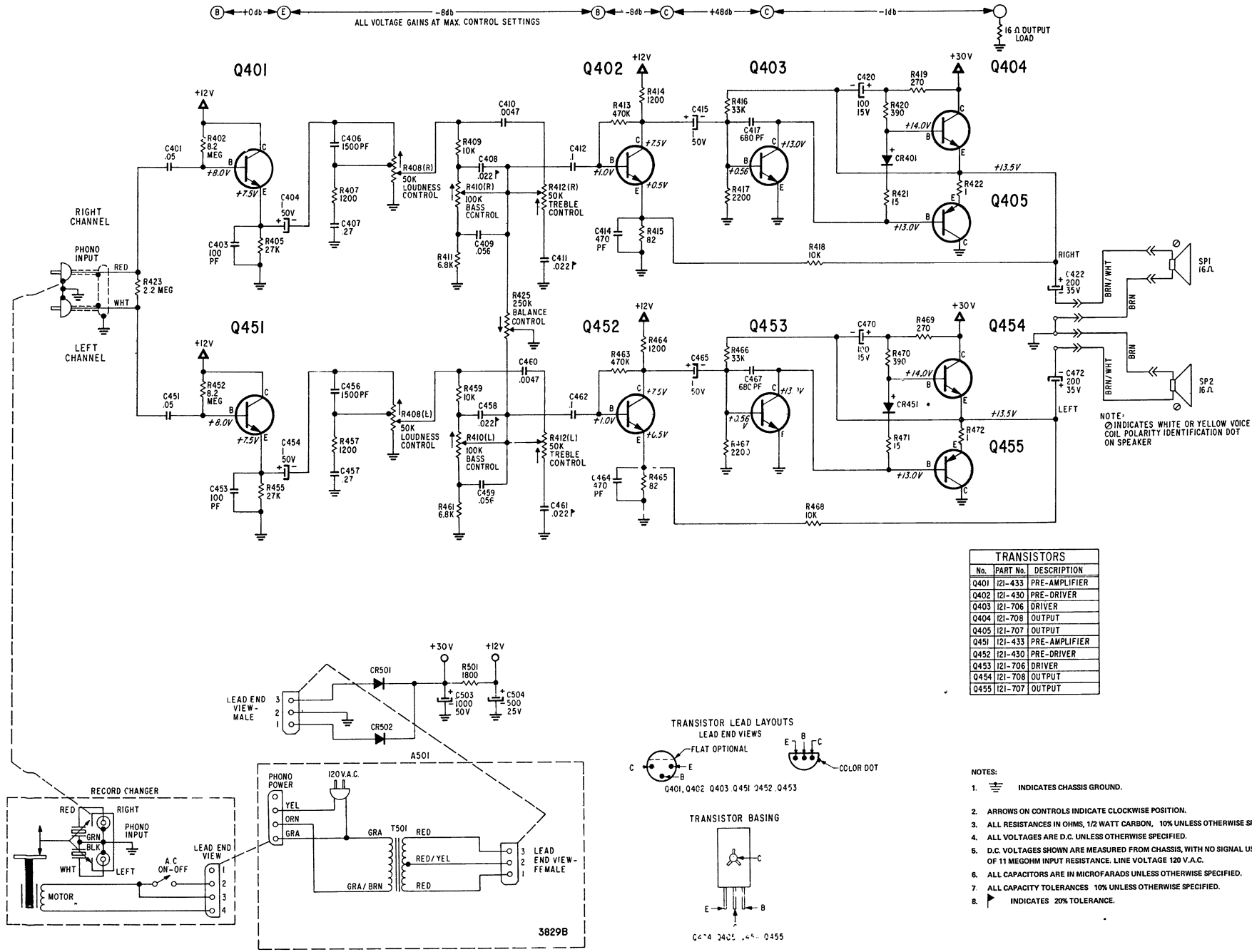
TRANSISTORS			
NO	PART NO	DESCRIPTION	REQ
Q401 Q451	121-433	PRE-AMPLIFIER	2
Q402 Q452	121-430	PRE-DRIVER	2
Q403 Q453	121-706	DRIVER	2
Q404 Q454	121-708	OUTPUT	2
Q405 Q455	121-707	OUTPUT	2



10ZT33 CHASSIS LAYOUT



10ZT33 CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE

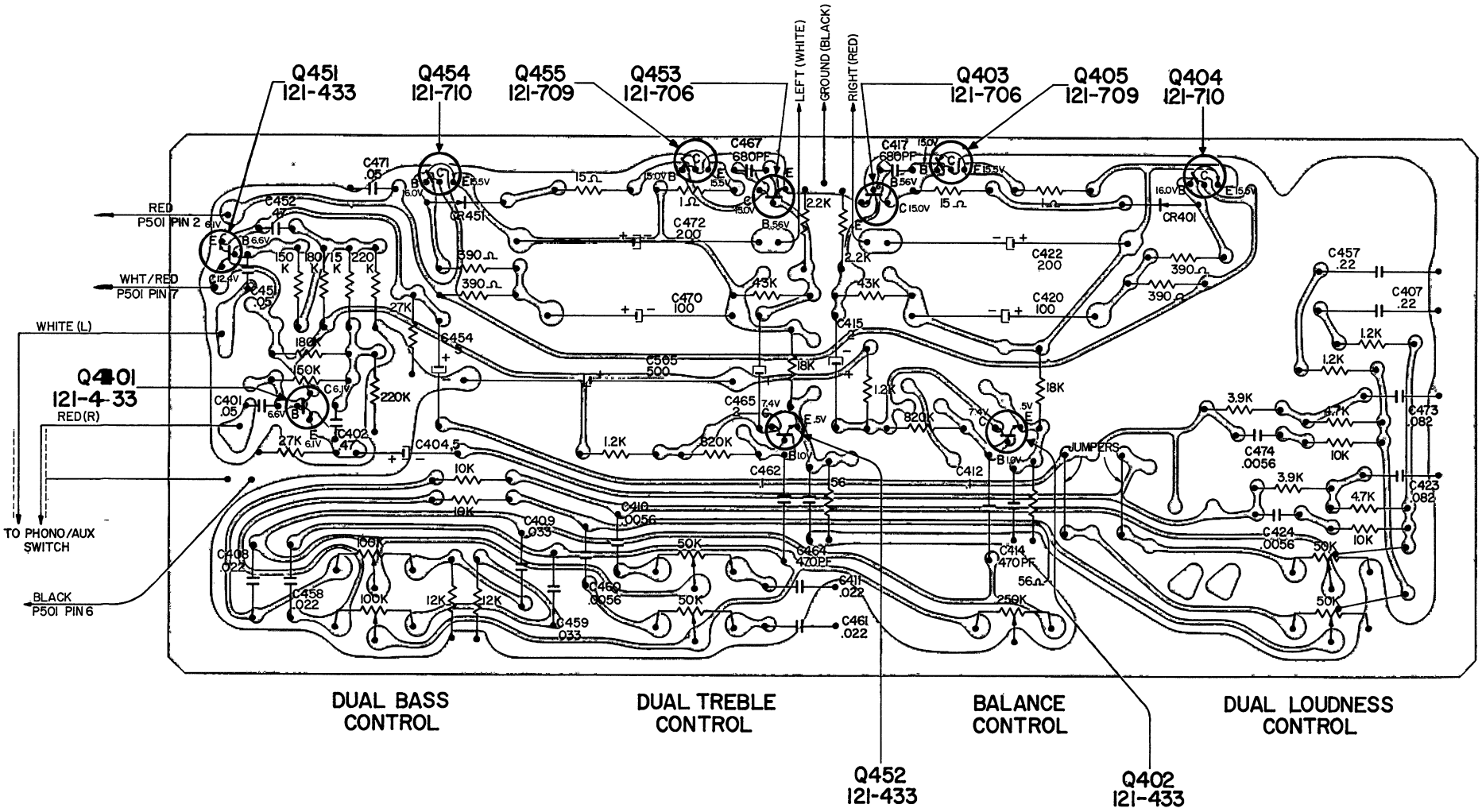


TRANSISTORS		
No.	PART No.	DESCRIPTION
Q401	121-433	PRE-AMPLIFIER
Q402	121-430	PRE-DRIVER
Q403	121-706	DRIVER
Q404	121-708	OUTPUT
Q405	121-707	OUTPUT
Q451	121-433	PRE-AMPLIFIER
Q452	121-430	PRE-DRIVER
Q453	121-706	DRIVER
Q454	121-708	OUTPUT
Q455	121-707	OUTPUT

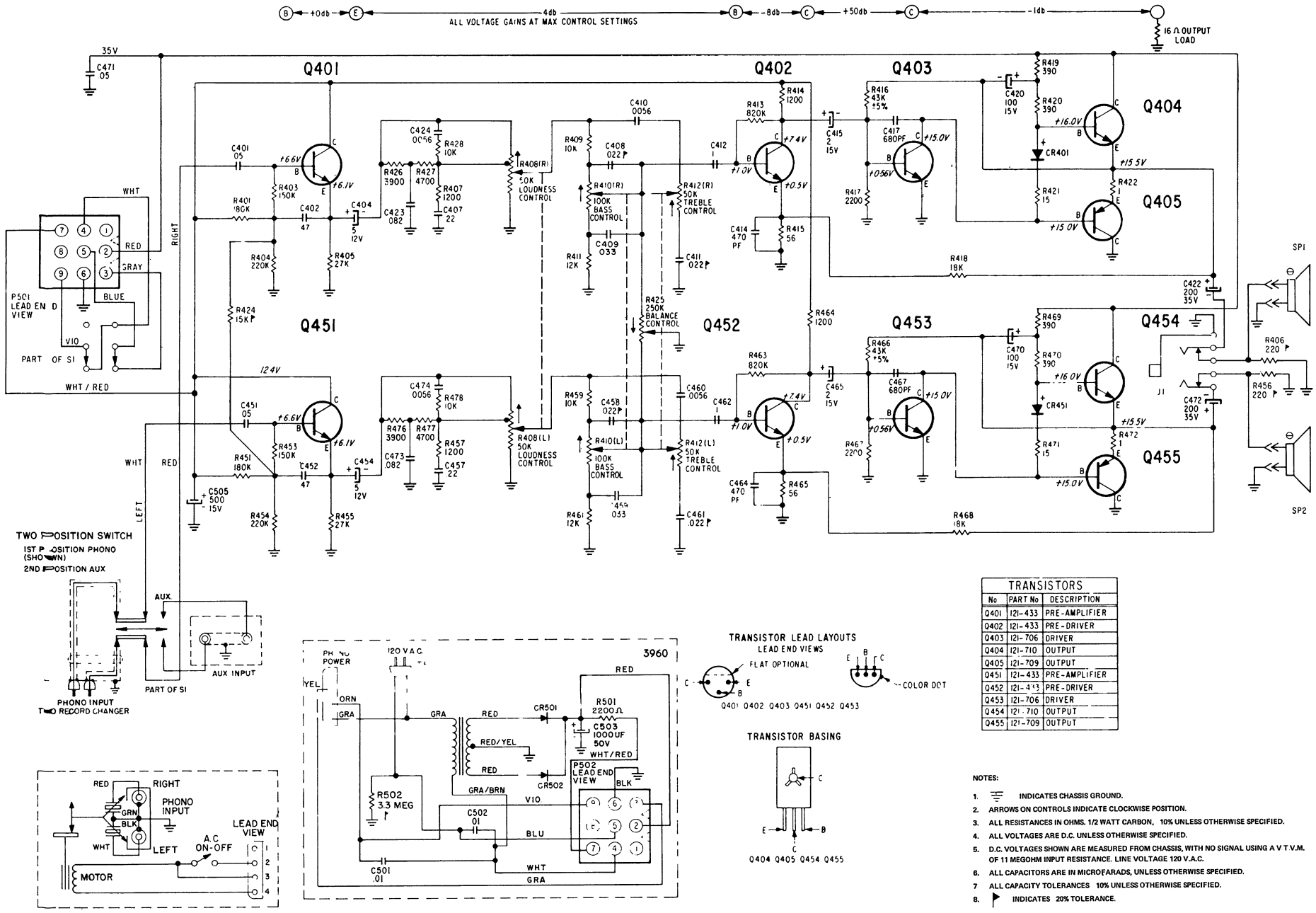
NOTES:

1. ⏚ INDICATES CHASSIS GROUND.
2. ARROWS ON CONTROLS INDICATE CLOCKWISE POSITION.
3. ALL RESISTANCES IN OHMS, 1/2 WATT CARBON, 10% UNLESS OTHERWISE SPECIFIED.
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. ALL CAPACITY TOLERANCES 10% UNLESS OTHERWISE SPECIFIED.
8. ▶ INDICATES 20% TOLERANCE.

10ZT33 SCHEMATIC



10AT37 CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



TRANSISTOR LEAD LAYOUTS
LEAD END VIEWS
FLAT OPTIONAL
COLOR DOT
Q401 Q402 Q403 Q451 Q452 Q453

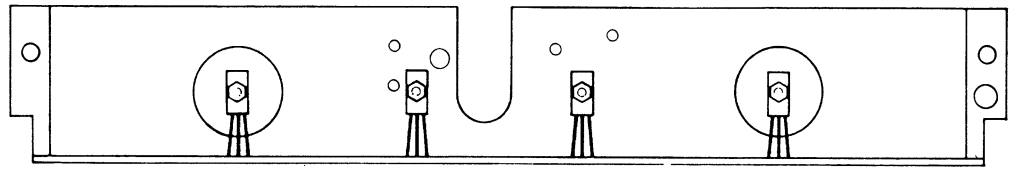
TRANSISTOR BASING
Q404 Q405 Q454 Q455

TRANSISTORS		
No	PART No	DESCRIPTION
Q401	121-433	PRE-AMPLIFIER
Q402	121-433	PRE-DRIVER
Q403	121-706	DRIVER
Q404	121-710	OUTPUT
Q405	121-709	OUTPUT
Q451	121-433	PRE-AMPLIFIER
Q452	121-433	PRE-DRIVER
Q453	121-706	DRIVER
Q454	121-710	OUTPUT
Q455	121-709	OUTPUT

NOTES:

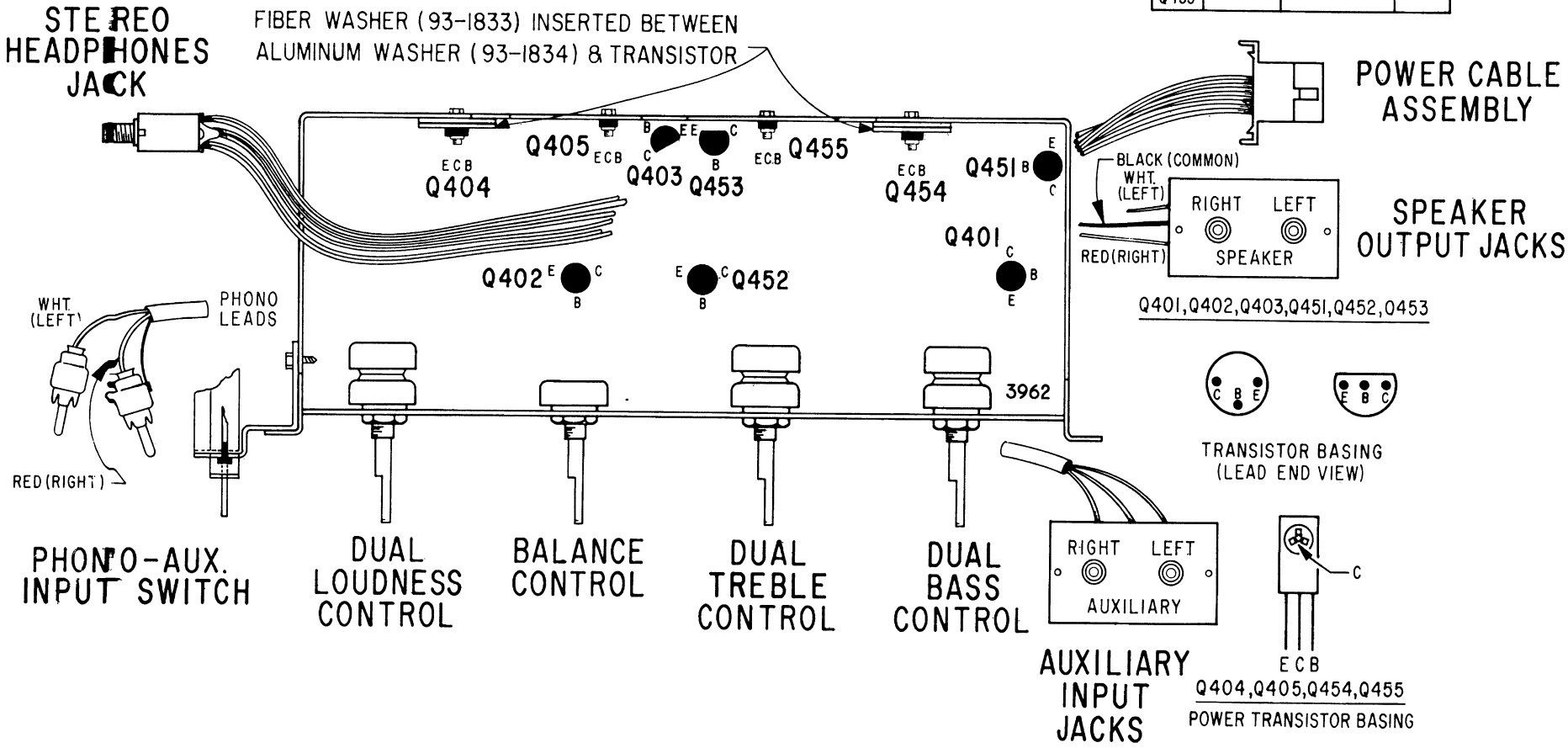
1. ⏚ INDICATES CHASSIS GROUND.
2. ARROWS ON CONTROLS INDICATE CLOCKWISE POSITION.
3. ALL RESISTANCES IN OHMS. 1/2 WATT CARBON, 10% UNLESS OTHERWISE SPECIFIED.
4. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
5. D.C. VOLTAGES SHOWN ARE MEASURED FROM CHASSIS, WITH NO SIGNAL USING A V T V.M. OF 11 MEGOHM INPUT RESISTANCE. LINE VOLTAGE 120 V.A.C.
6. ALL CAPACITORS ARE IN MICROFARADS, UNLESS OTHERWISE SPECIFIED.
7. ALL CAPACITY TOLERANCES 10% UNLESS OTHERWISE SPECIFIED.
8. ⚑ INDICATES 20% TOLERANCE.

10AT37 SCHEMATIC



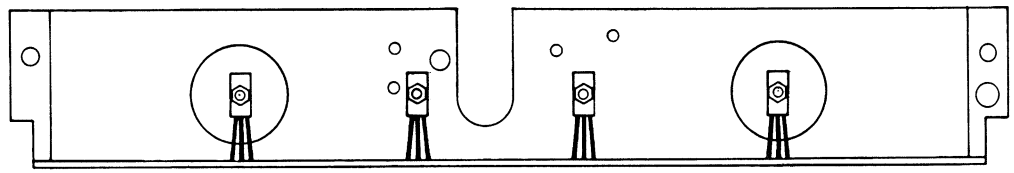
FRONT VIEW, FRONT PANEL REMOVED
(SHOWING POWER TRANSISTORS AND HEAT SINKS ONLY)

TRANSISTOR			
No	PART No	DESCRIPTION	REQ'D
Q401	121-433	PRE-AMPLIFIER	2
Q451			
Q402	121-433	PRE-DRIVER	2
Q452			
Q403	121-706	DRIVER	2
Q453			
Q404	121-710	OUTPUT	2
Q454			
Q405	121-709	OUTPUT	2
Q455			

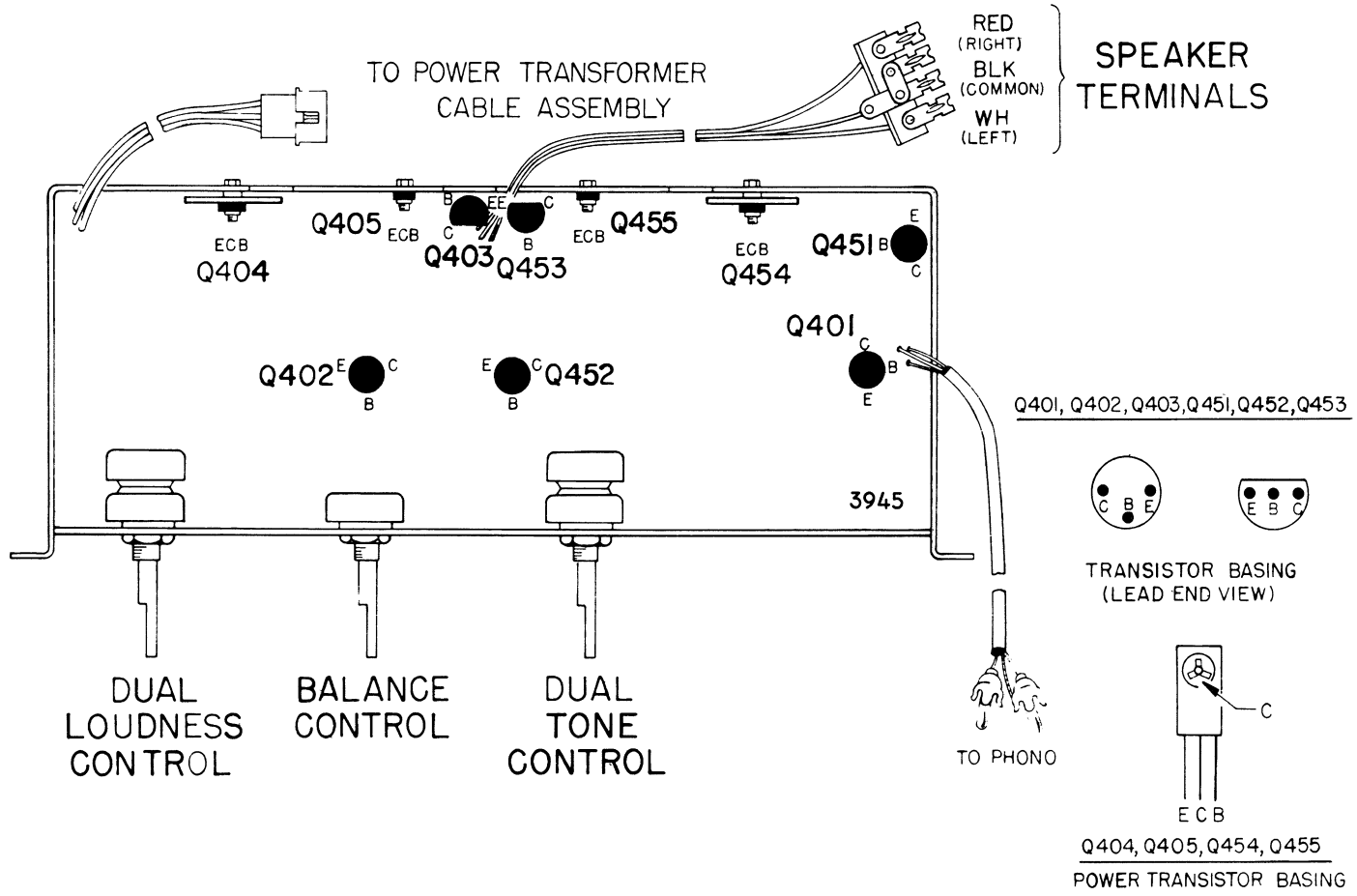


10AT37 CHASSIS LAYOUT

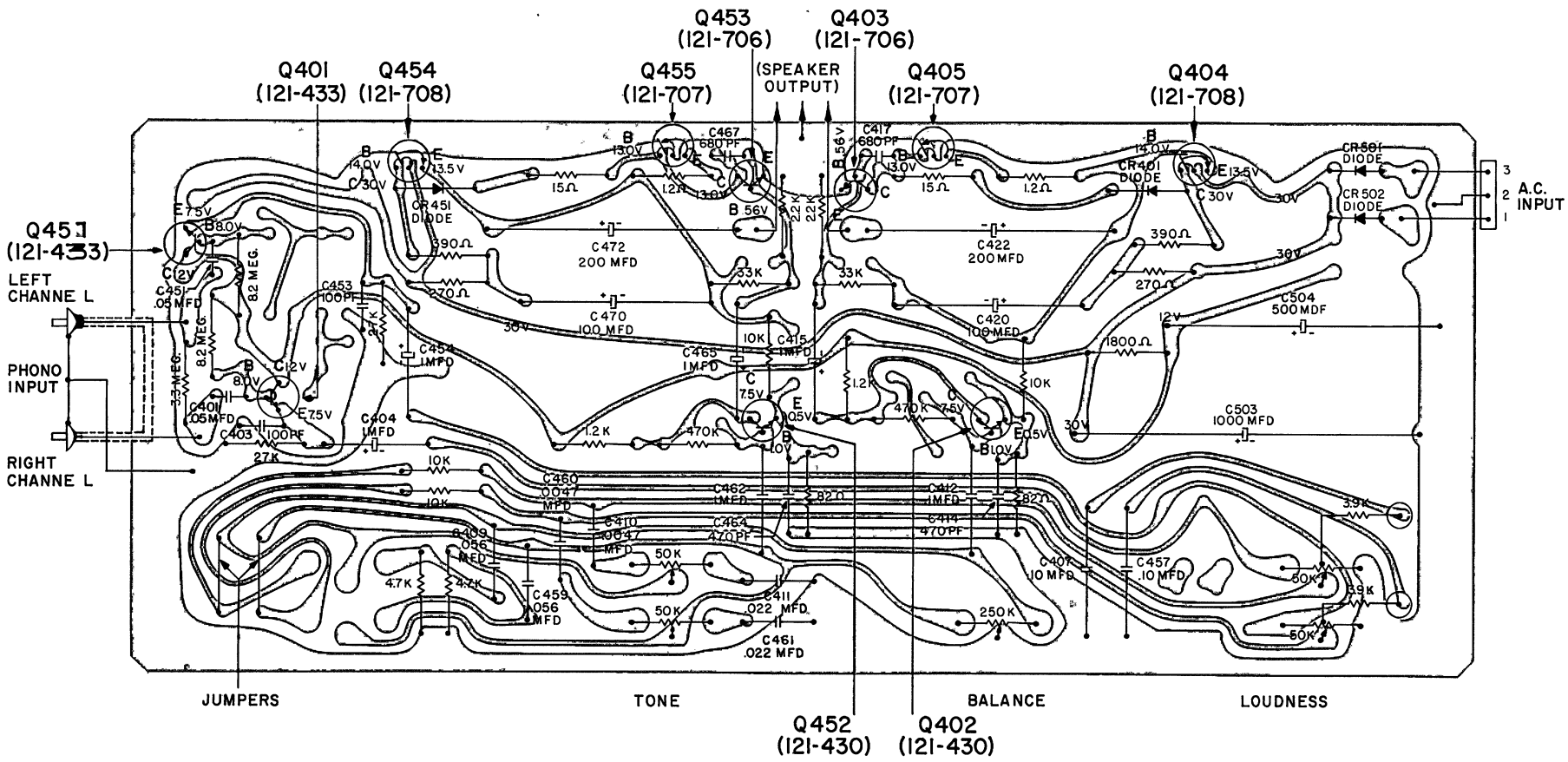
TRANSISTORS			
NO	PART NO	DESCRIPTION	REQ
Q401 Q451	121-433	PRE-AMPLIFIER	2
Q402 Q452	121-430	PRE-DRIVER	2
Q403 Q453	121-706	DRIVER	2
Q404 Q454	121-708	OUTPUT	2
Q405 Q455	121-707	OUTPUT	2



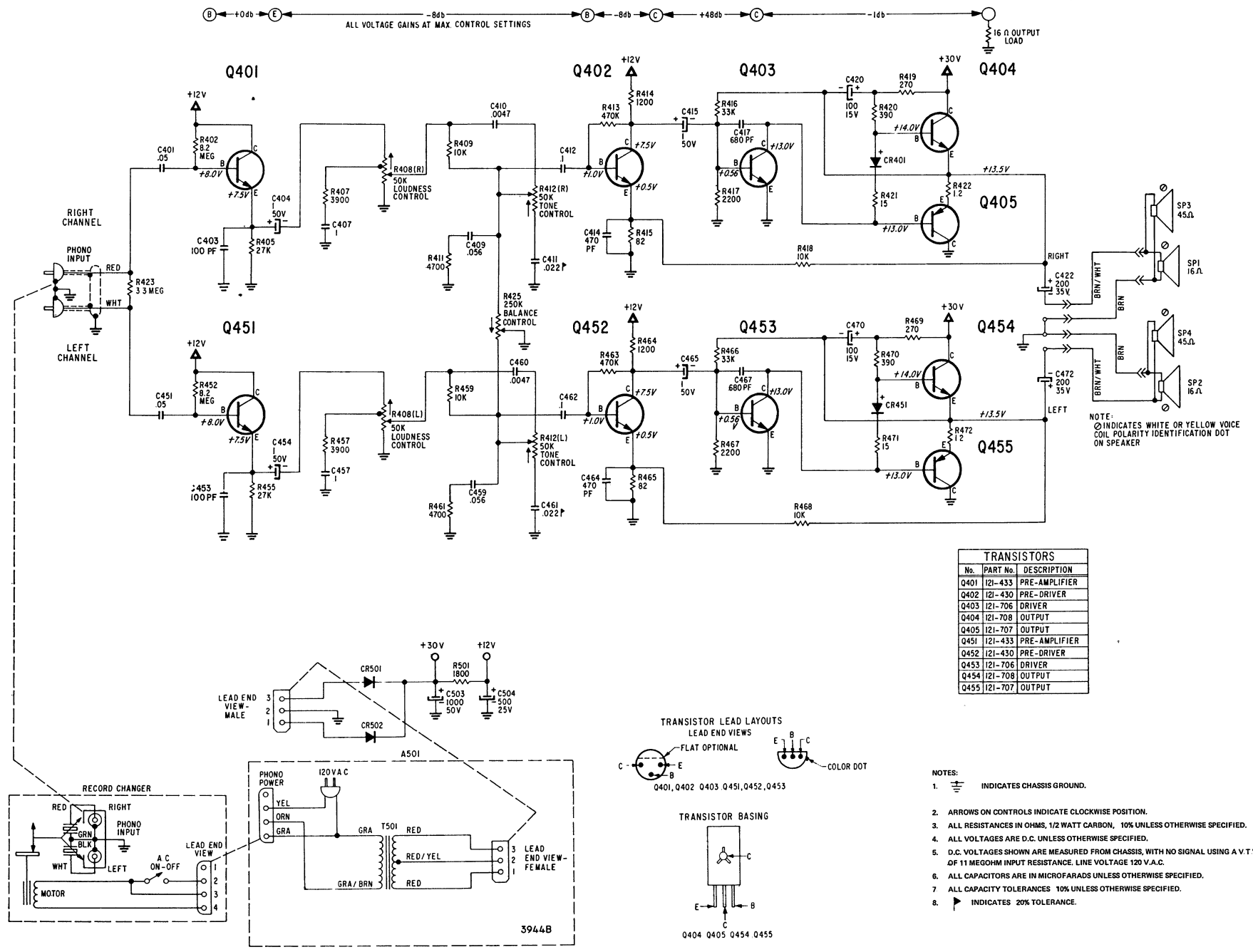
FRONT VIEW, FRONT PANEL REMOVED
(SHOWING POWER TRANSISTORS AND HEAT SINKS ONLY)



10ZT38 CHASSIS LAYOUT



10ZT38 CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE

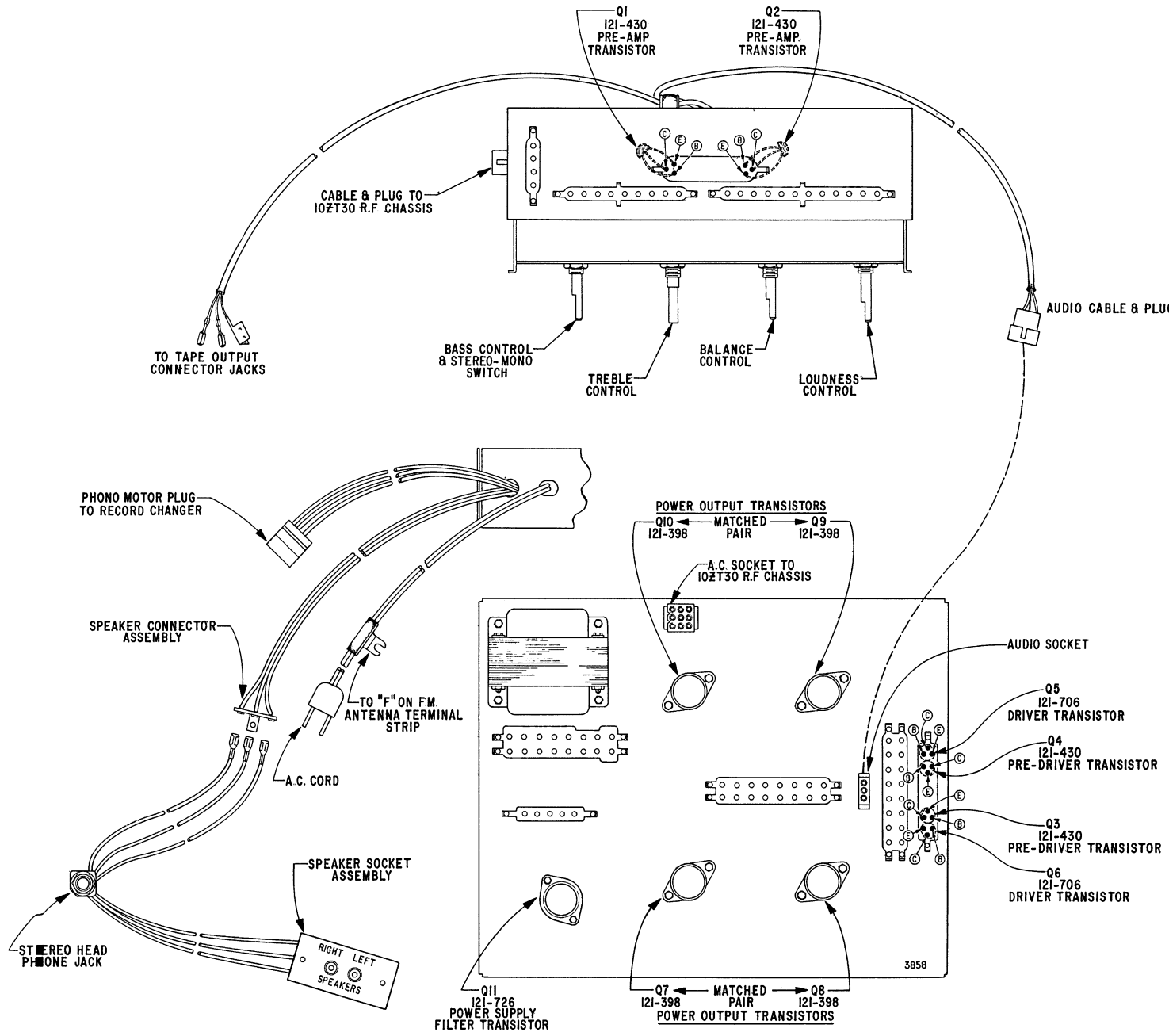


TRANSISTORS		
No.	PART No.	DESCRIPTION
Q401	121-433	PRE-AMPLIFIER
Q402	121-430	PRE-DRIVER
Q403	121-706	DRIVER
Q404	121-708	OUTPUT
Q405	121-707	OUTPUT
Q451	121-433	PRE-AMPLIFIER
Q452	121-430	PRE-DRIVER
Q453	121-706	DRIVER
Q454	121-708	OUTPUT
Q455	121-707	OUTPUT

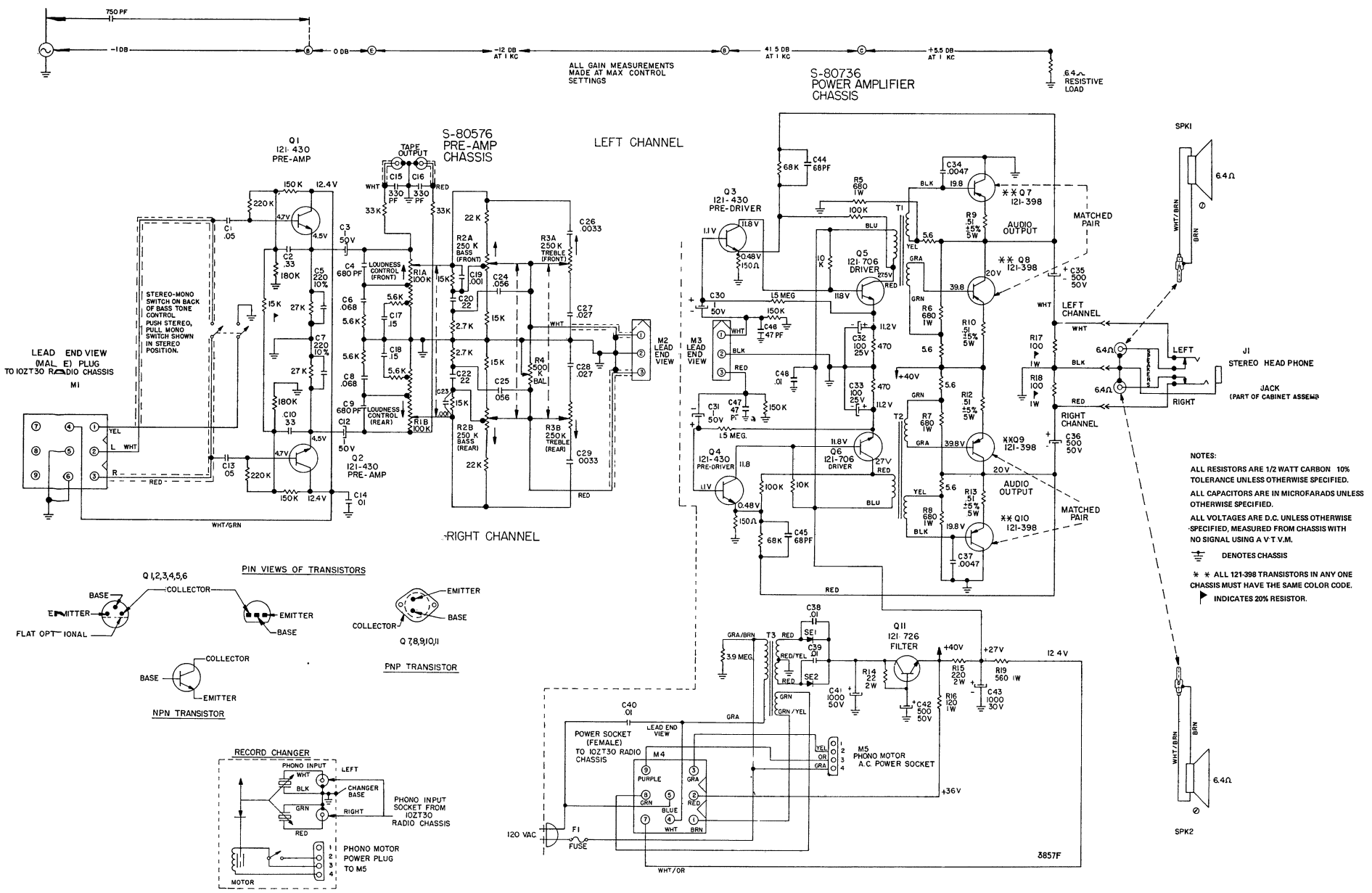
NOTES:

1. ⏚ INDICATES CHASSIS GROUND.
2. ARROWS ON CONTROLS INDICATE CLOCKWISE POSITION.
3. ALL RESISTANCES IN OHMS, 1/2 WATT CARBON, 10% UNLESS OTHERWISE SPECIFIED.
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. ALL CAPACITY TOLERANCES 10% UNLESS OTHERWISE SPECIFIED.
8. ▶ INDICATES 20% TOLERANCE.

10ZT38 SCHEMATIC



11ZT27 CHASSIS LAYOUT



NOTES:

ALL RESISTORS ARE 1/2 WATT CARBON 10% TOLERANCE UNLESS OTHERWISE SPECIFIED.

ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

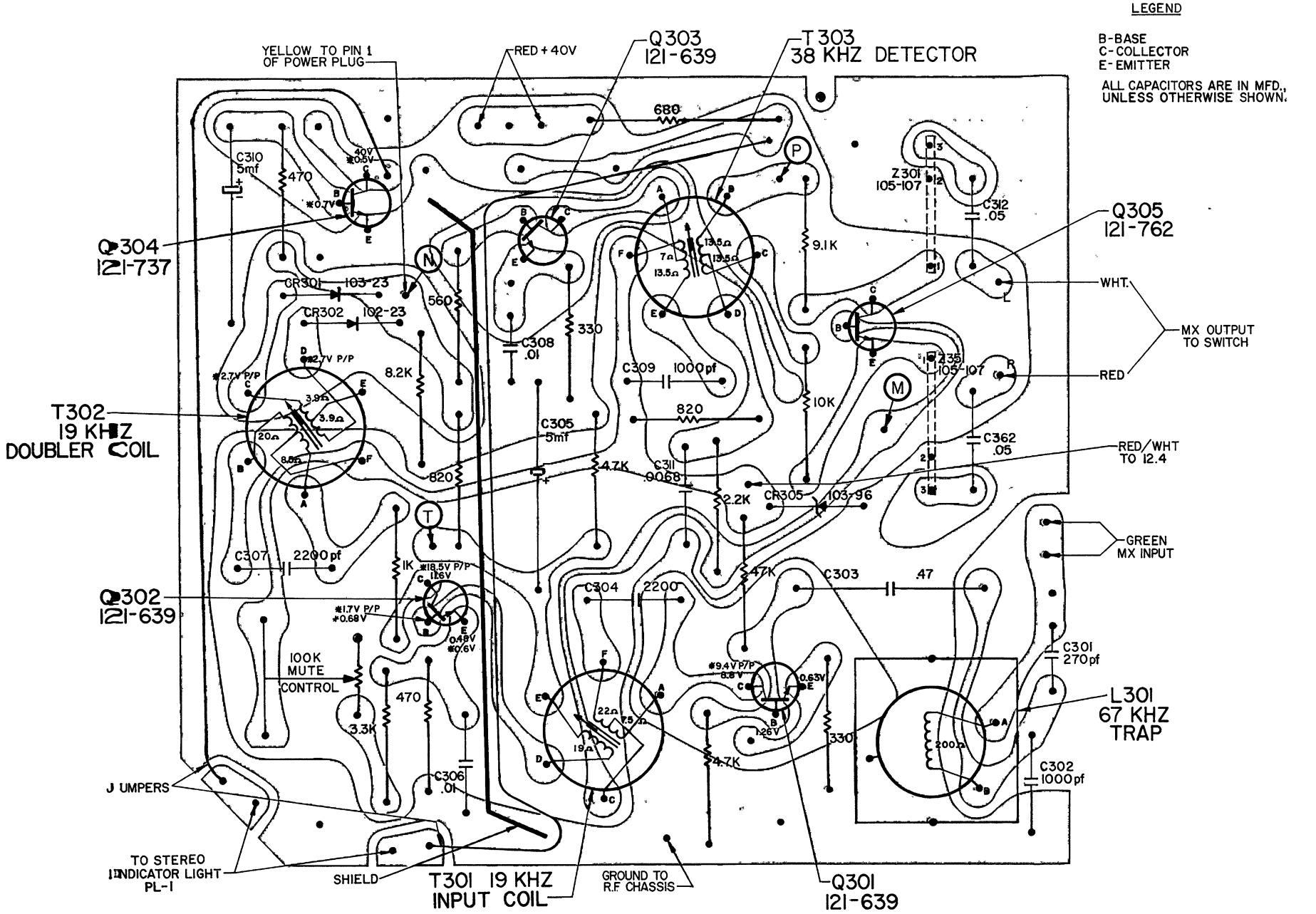
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED, MEASURED FROM CHASSIS WITH NO SIGNAL USING A V·T V.M.

⏚ DENOTES CHASSIS

* * ALL 121-398 TRANSISTORS IN ANY ONE CHASSIS MUST HAVE THE SAME COLOR CODE.

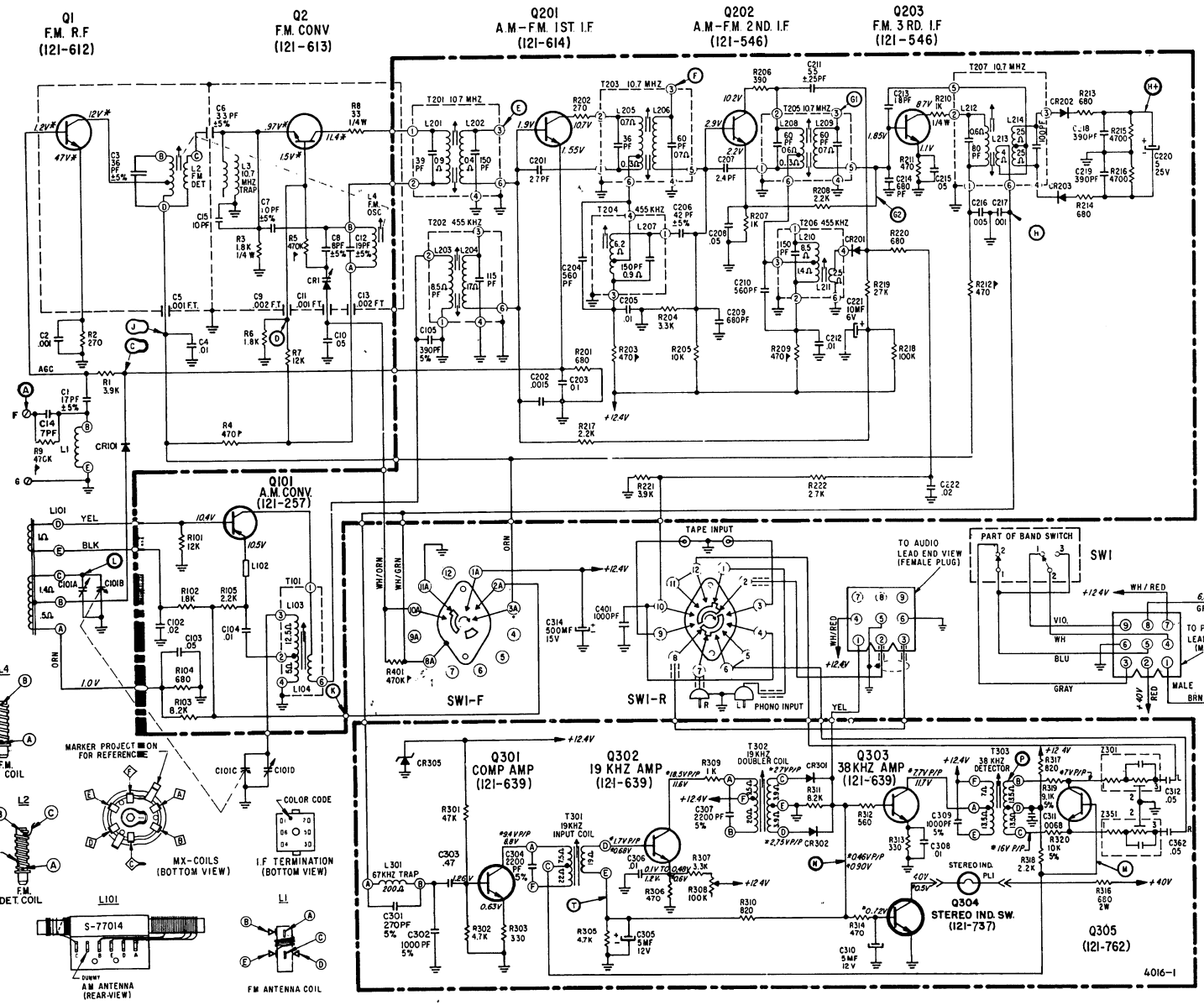
▶ INDICATES 20% RESISTOR.

11ZT27 SCHEMATIC

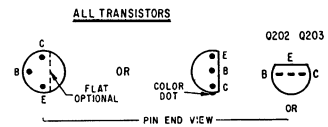


11AT30 MULTIPLEX – CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE

NOTE:
11AT30 - I.F. - Circuit Board is same as 10ZT30 I.F.



ALL TRANSISTORS



BANDSWITCH POSITIONS

1 PHONO (SHOWN)
2 OFF
3 TAPE
4 AM
5 F.M. AFC
6 F.M.

TEST POINTS

A F.M. ANT INPUT
C REVERSE AGC
D 1ST. F.M. IF INPUT
E 2ND. F.M. IF INPUT
F 3RD. F.M. IF INPUT
G1 RATIO DETECTOR INPUT
G2 3RD. F.M. OUTPUT
H F.M. DETECTOR OUTPUT
J F.M. B+
K A.M. B+
L A.M. R.F. & I.F. INPUT
M 67 KHZ. REJECTION & MX PHASING
N DOUBLER OUTPUT DC & 38 KHZ
P MX PHASING
T MX DISABLE
H+ RATIO DET. PRIMARY TUNING

NOTES:

I.F FREQUENCY: A.M. 455 KHZ
F.M. 10.7 KHZ

TUNING RANGE: A.M. 535-1620 KHZ
F.M. 88-108 KHZ

ALL RESISTORS 10% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.

RESISTANCE VALUES IN OHMS, CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

▶ INDICATES 20%;

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED AND ARE MEASURED WITHOUT SIGNAL INPUT USING A VACUUM TUBE VOLTMETER.

✳ VOLTAGES MEASURED IN THE F.M. STEREO POSITION

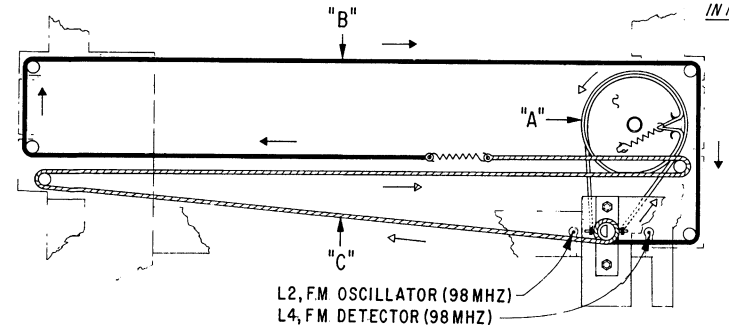
⏚ DENOTES CHASSIS.

DENOTES PRINTED CIRCUIT BOARD.

11AT30 SCHEMATIC

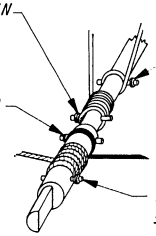
DIAL CORD DRIVE

SHOWN IN COUNTERCLOCKWISE POSITION



"A"
FINISH WITH EYELET ON FRONT PIN
WIND CORD 6 TURNS (CCW)
IN BACK OF PIN

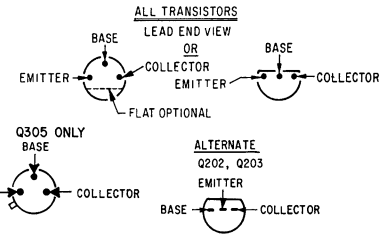
"B"
START EYELET ON BACK PIN
WIND CORD 1 1/4 TURNS (CCW)
IN FRONT OF PIN.

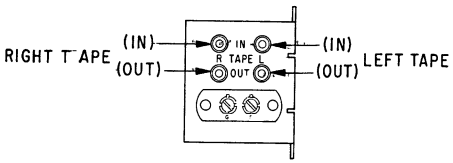


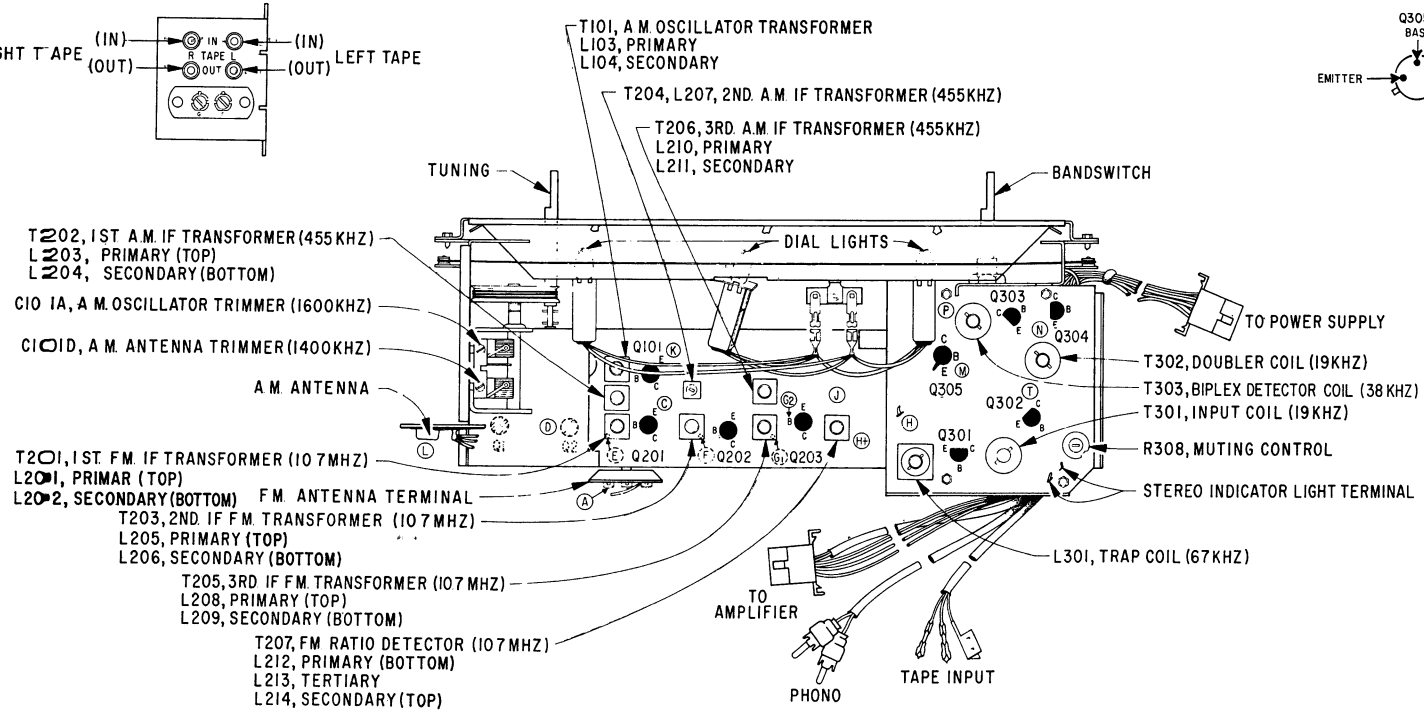
"A"
START EYELET ON BACK PIN
WIND CORD 1 TURN (CCW)
IN FRONT OF PIN

"C"
START WITH EYELET ON FRONT PIN
WIND CORD 6 1/4 TURNS (CW)
IN BACK OF PIN

TRANSISTORS			
No.	PART No.	DESCRIPTION	REQ'D.
Q1	121-612	F.M. RF	
Q2	121-613	F.M. CONV	
Q101	121-257	A.M. CONV	
Q201	121-614	A.M./F.M. IST IF	
Q202	121-546	A.M./F.M. 2ND IF	
Q203	121-546	F.M. 3RD. IF	
Q301	121-639	COMP. AMP.	
Q302	121-639	19KHZ AMP	
Q303	121-639	38KHZ AMP	
Q304	121-639	STEREO IND. SW.	
Q305	121-762	BIPLEX DETECTOR	





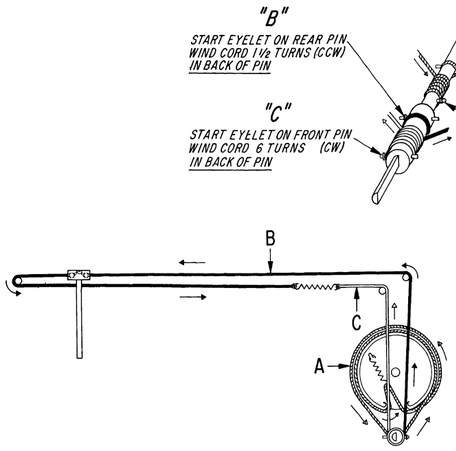


TEST POINTS	
A	F.M.-ANT INPUT
C	REVERSE AGC
D	IST F.M. IF INPUT
E	2ND F.M. IF INPUT
F	3RD F.M. IF INPUT
G1	RATIO DETECTOR INPUT
G2	3RD. F.M. OUTPUT
H	F.M. DETECTOR OUTPUT
H+	F.M. RATIO DET PRIMARY TUNING
J	F.M. B+
K	A.M. B+
L	A.M. RF & IF INPUT
M	67KHZ REJECTION & MX PHASE
N	MX DOUBLER OUTPUT
P	MX PHASING
T	MX DISABLING

◯ ALL TEST POINTS SHOWN DOTTED ON IF TRANSFORMERS ARE ACCESSIBLE FROM BOTTOM OF CHASSIS.

4015

11AT30 CHASSIS LAYOUT



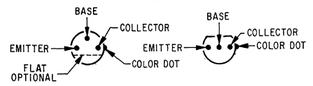
DIAL CORD DRIVE

SHOWN IN FULL COUNTERCLOCKWISE POSITION

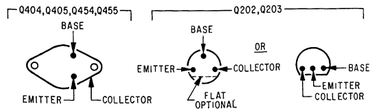
A
B
C

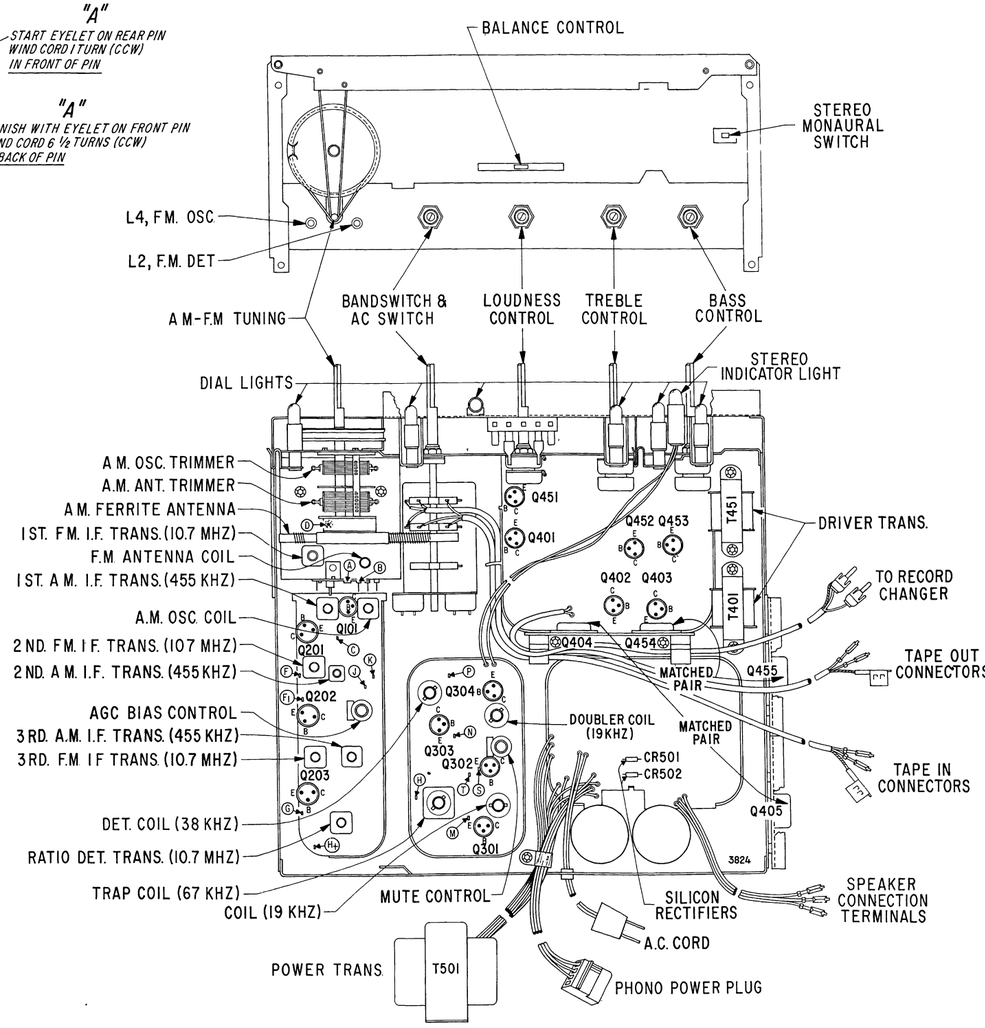
(CW) CLOCKWISE
(CCW) COUNTERCLOCKWISE

ALL TRANSISTORS
LEAD END VIEW
OR



EXCEPT



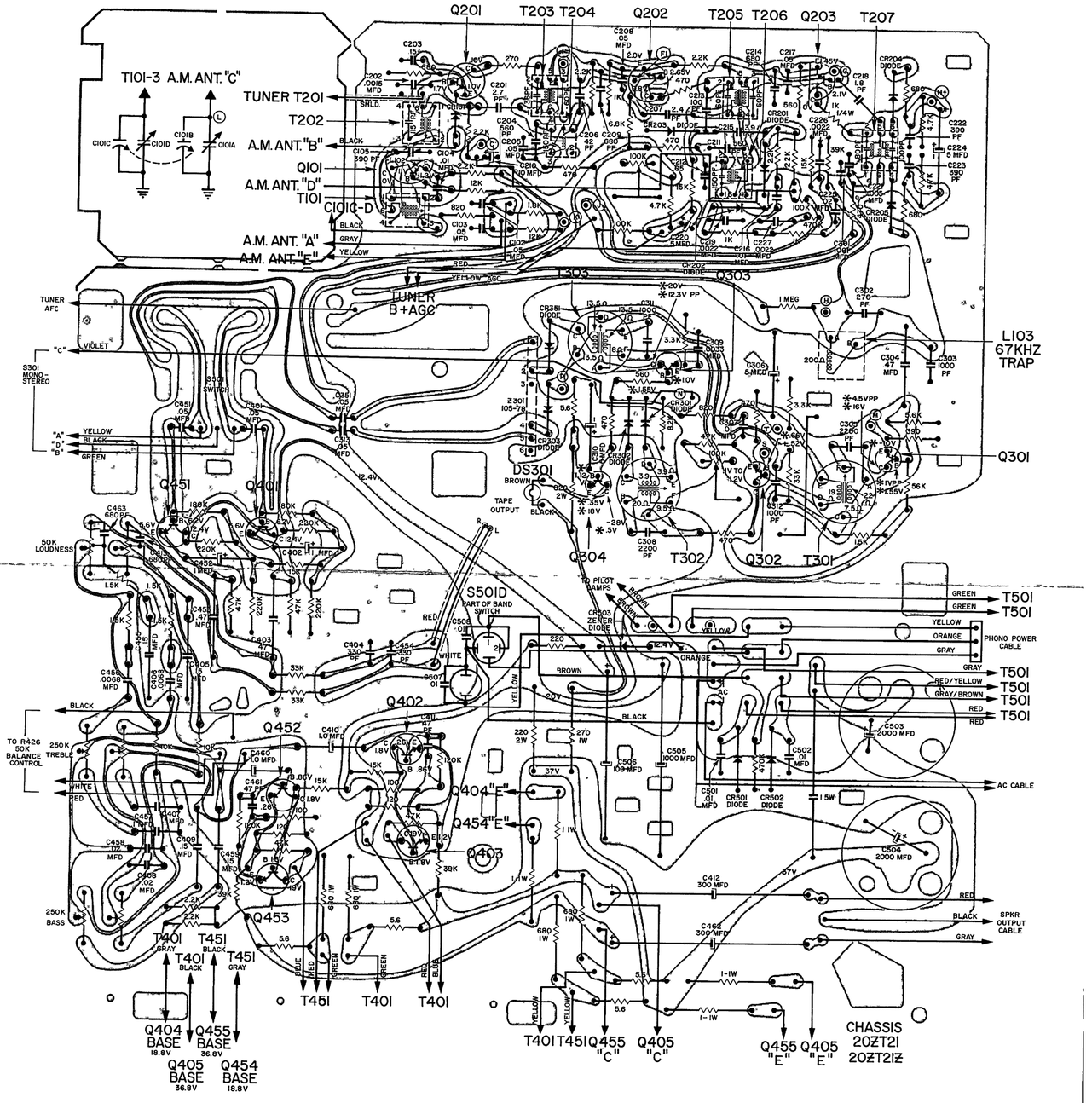


20AT21 AND 20AT21Z CHASSIS LAYOUT

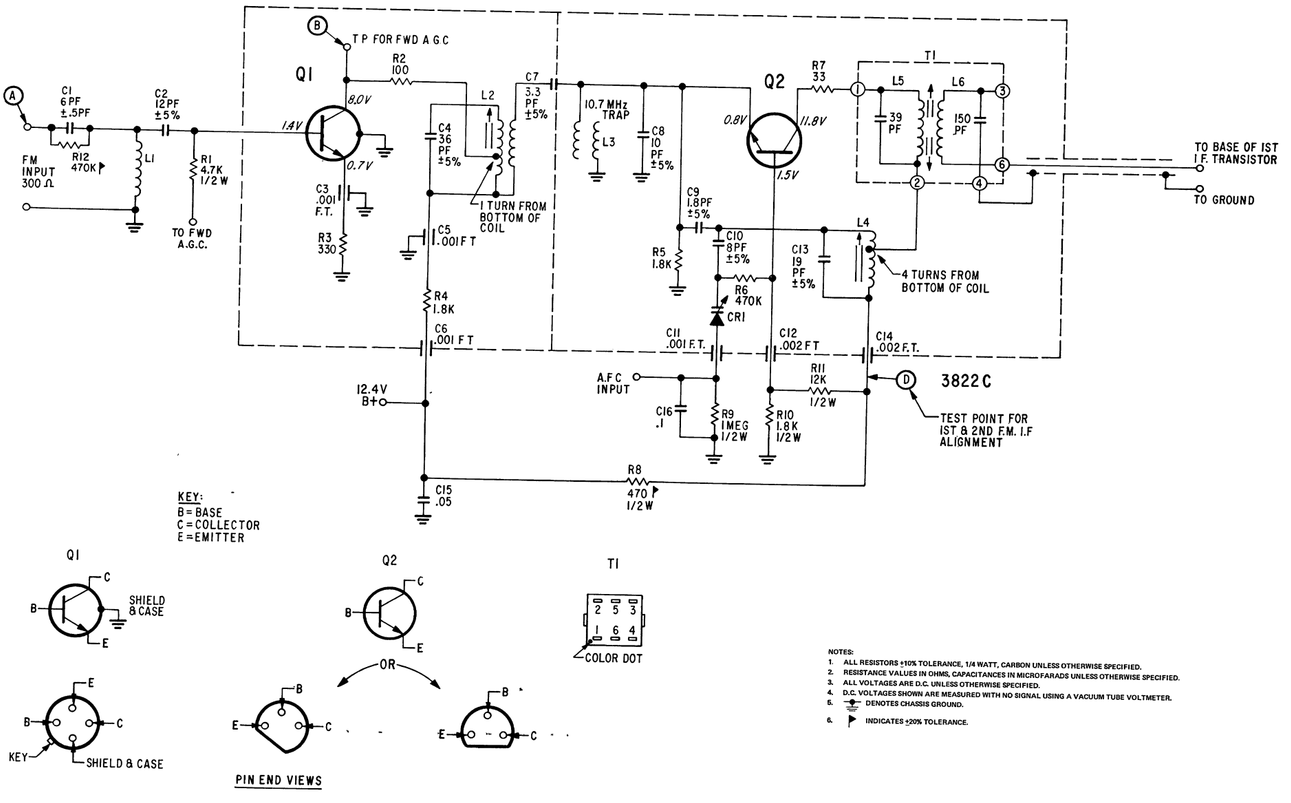
TRANSISTORS		
No.	PART No.	DESCRIPTION
Q101	121-257	A M CONVERTER
Q201	121-614	A.M.-F.M. IST. IF
Q202	121-546	A.M.-F.M. 2ND. IF
Q203	121-546	F.M. 3RD IF
Q301	121-639	COMP. AMP. (MX)
Q302	121-639	19 KHZ AMP. (MX)
Q303	121-639	38 KHZ AMP. (MX)
Q304	121-639	STEREO IND. SW. (MX)
Q401, Q451	121-433	PRE-AMP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

	TEST POINTS
A	F.M. ANTENNA INPUT
B	F.M FWD AGC
C	F.M REV. AGC
D	F.M. IST & 2ND IF INPUT
F	3 RD. IF INPUT
F_1	RATIO DETECTOR INPUT
G	3 RD. 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

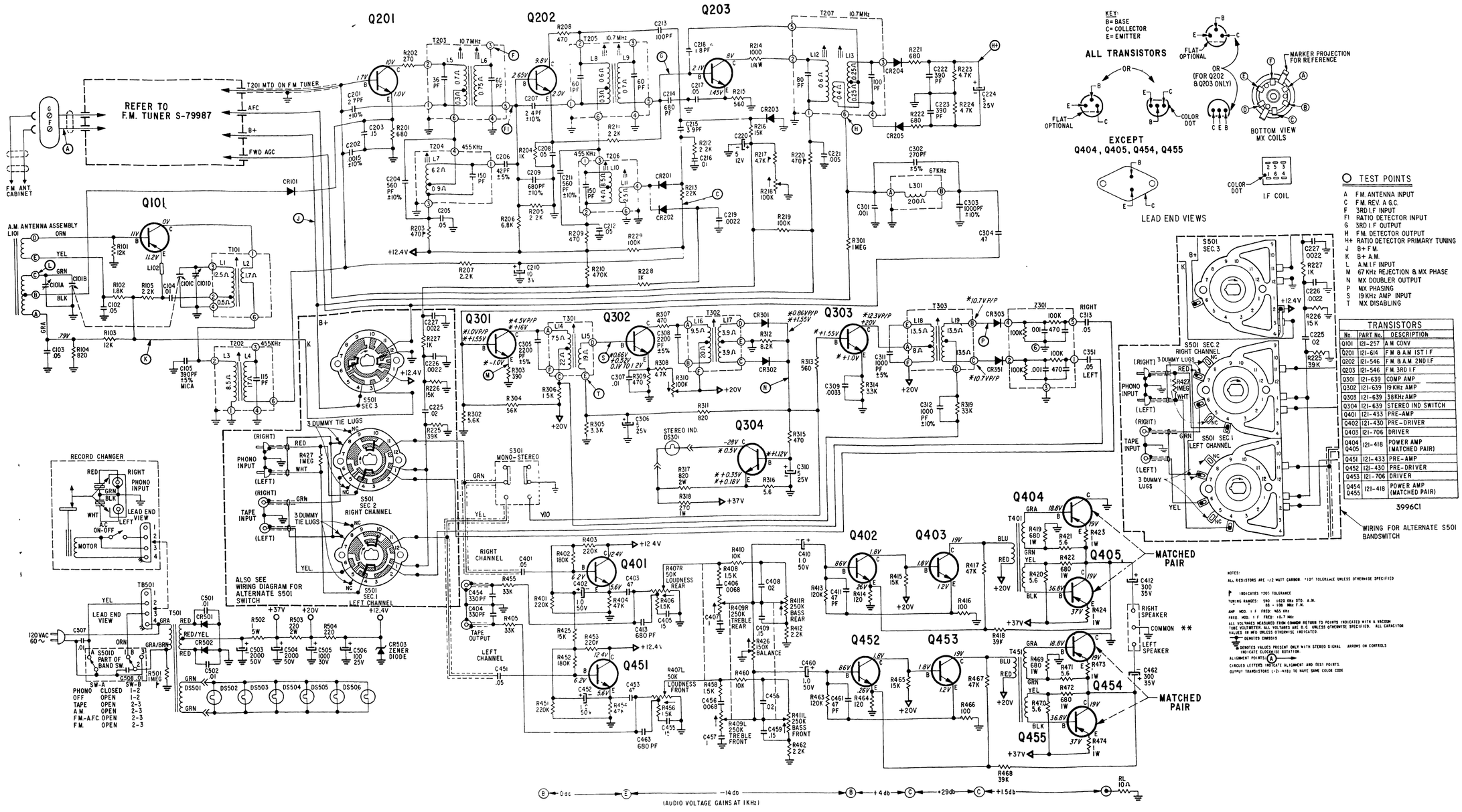
20AT21 AND 20AT21Z CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



S-79987 FM TUNER ASSEMBLY SCHEMATIC



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. ⏚ DENOTES CHASSIS GROUND.
6. ▶ INDICATES ±20% TOLERANCE.



TEST POINTS

A	F.M. ANTENNA INPUT
C	F.M. REV. A.G.C.
F	3RD I.F. INPUT
FI	RATIO DETECTOR INPUT
G	3RD I.F. OUTPUT
H	F.M. DETECTOR OUTPUT
H+	RATIO DETECTOR PRIMARY TUNING
J	B+ F.M.
K	B+ A.M.
L	A.M. I.F. INPUT
M	67 KHz REJECTION & MX PHASE
N	MX DOUBLER OUTPUT
P	MX PHASING
S	19 KHz AMP INPUT
T	MX DISABLING

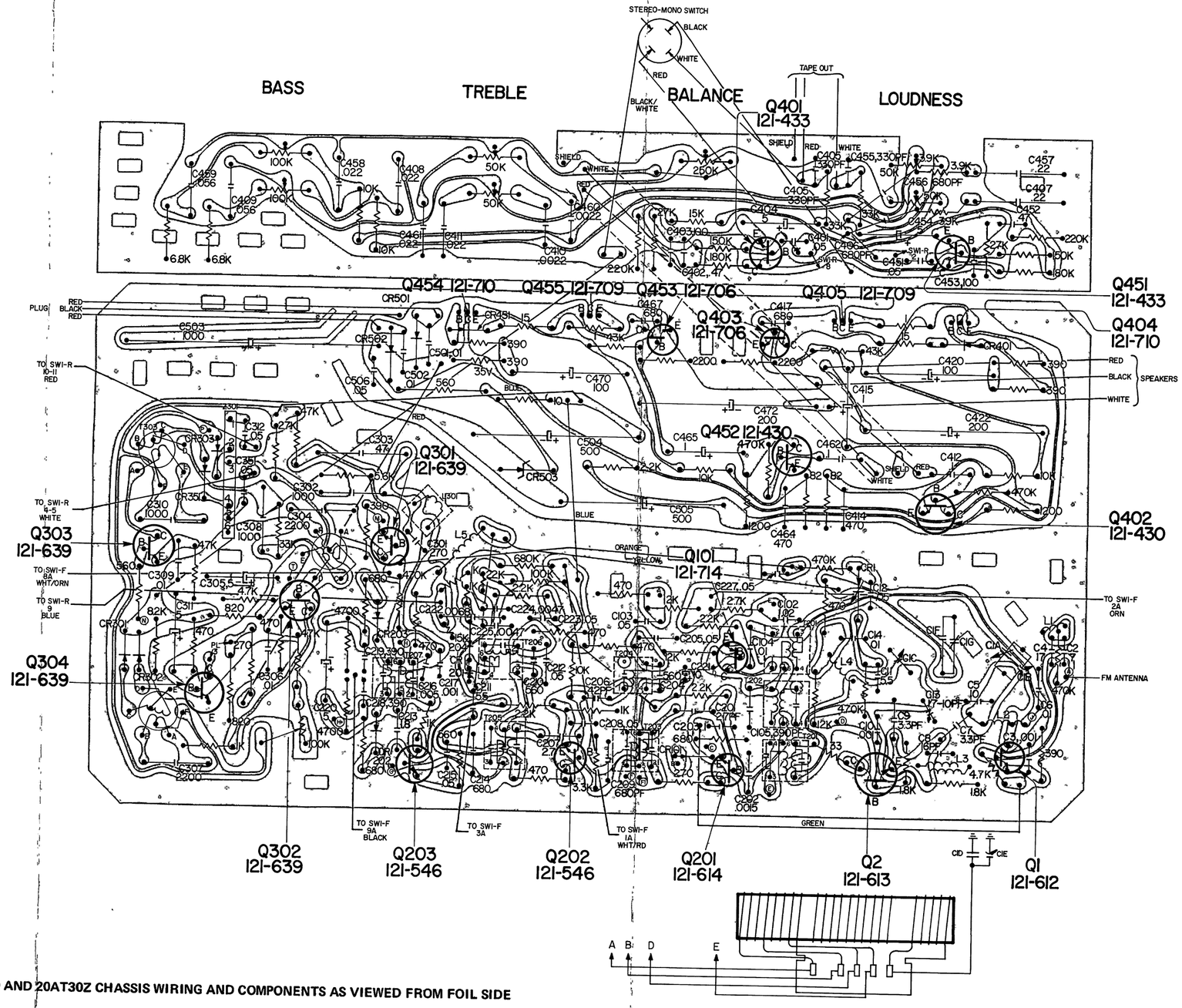
TRANSISTORS

No.	Part No.	DESCRIPTION
Q101	121-257	A.M. CONV
Q201	121-614	F.M. & A.M. 1ST I.F.
Q202	121-546	F.M. & A.M. 2ND I.F.
Q203	121-546	F.M. 3RD I.F.
Q301	121-639	COMP AMP
Q302	121-639	19 KHz AMP
Q303	121-639	38KHz AMP
Q304	121-639	STEREO IND SWITCH
Q401	121-433	PRE-AMP
Q402	121-430	PRE-DRIVER
Q403	121-706	DRIVER
Q404 Q405	121-418	POWER AMP (MATCHED PAIR)
Q451	121-433	PRE-AMP
Q452	121-430	PRE-DRIVER
Q453	121-706	DRIVER
Q454 Q455	121-418	POWER AMP (MATCHED PAIR)

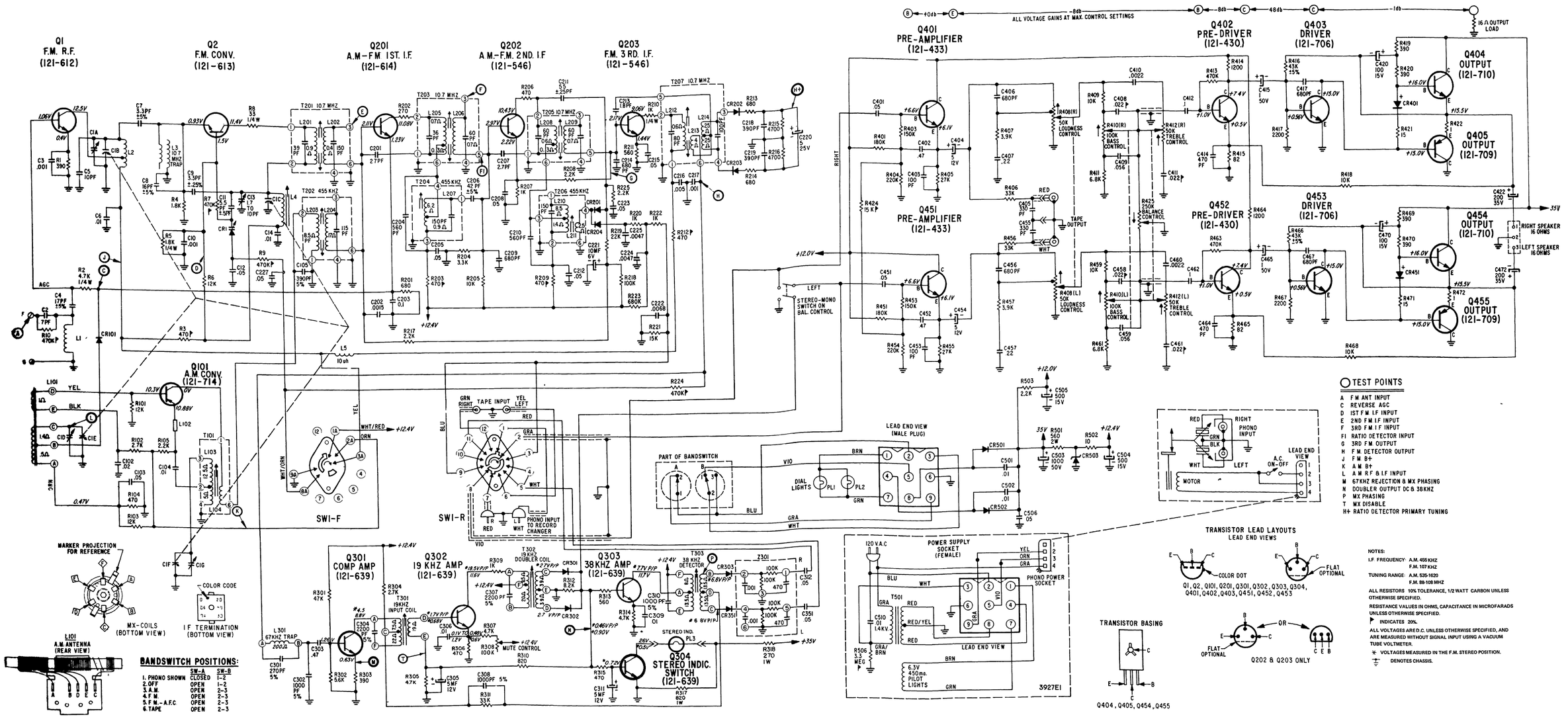
3996CI

NOTES:
ALL RESISTORS ARE ½ WATT CARBON. ±10% TOLERANCE UNLESS OTHERWISE SPECIFIED
▶ INDICATES ±20% TOLERANCE
TUNING RANGES: 590 - 1620 KHz STD. A.M.
88 - 108 MHz F.M.
AMP. MOD. I F FREQ: 455 KHz
FREQ. MOD. I F FREQ: 10.7 MHz
ALL VOLTAGES MEASURED FROM COMMON RETURN TO POINTS INDICATED WITH A VACUUM TUBE VOLTMETER. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED. ALL CAPACITOR VALUES IN MFD UNLESS OTHERWISE INDICATED.
⏚ DENOTES CHASSIS
DENOTES VALUES PRESENT ONLY WITH STEREO SIGNAL. ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
ALIGNMENT POINTS: (A)
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
OUTPUT TRANSISTORS (121-418) TO HAVE SAME COLOR CODE

20AT21 AND 20AT21Z SCHEMATIC



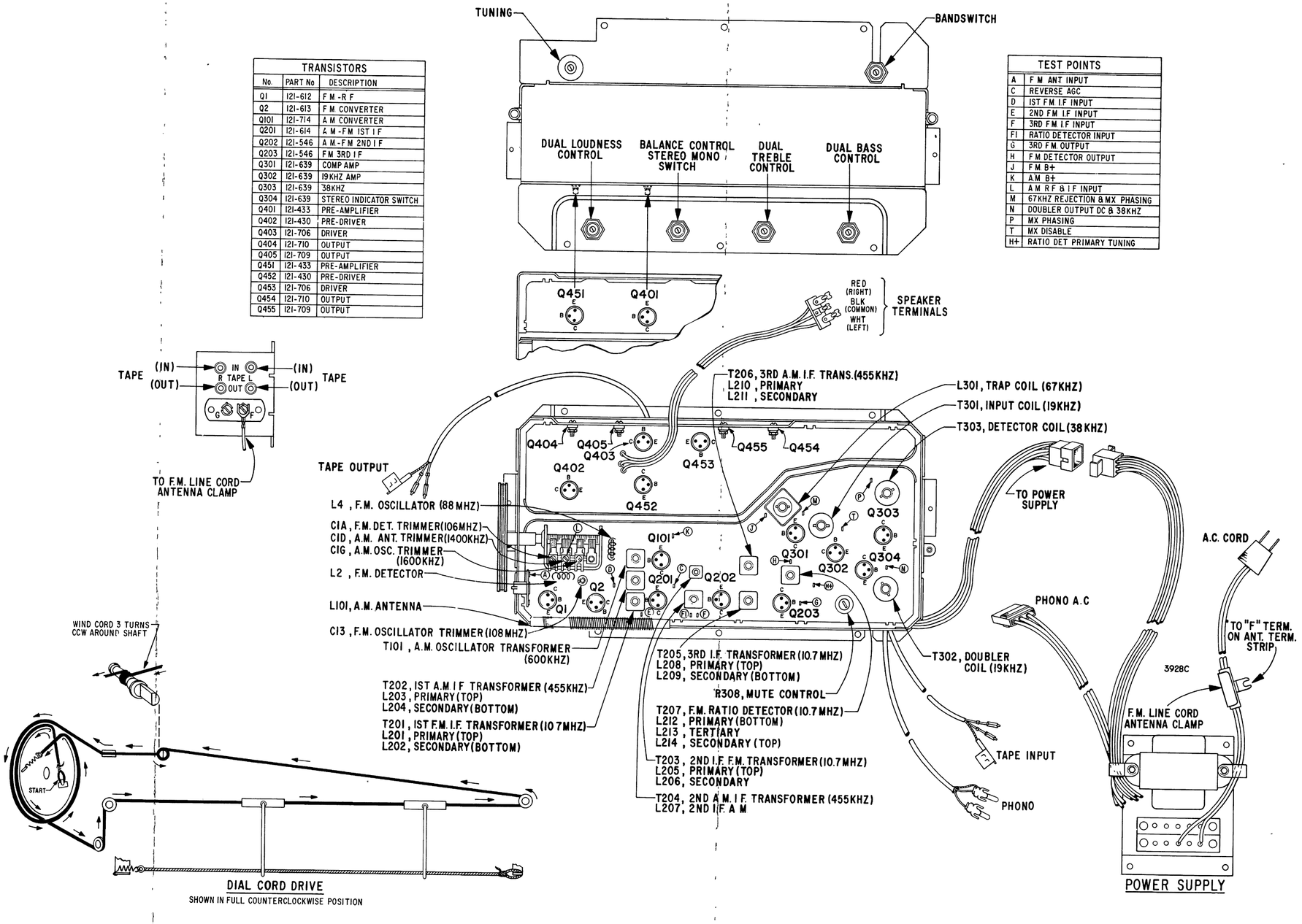
20AT30 AND 20AT30Z CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



20AT30 AND 20AT30Z SCHEMATIC

TRANSISTORS		
No.	PART No	DESCRIPTION
Q1	121-612	F M - R F
Q2	121-613	F M CONVERTER
Q101	121-714	A M CONVERTER
Q201	121-614	A M - F M IST I F
Q202	121-546	A M - F M 2ND I F
Q203	121-546	F M 3RD I F
Q301	121-639	COMP AMP
Q302	121-639	19KHZ AMP
Q303	121-639	38KHZ
Q304	121-639	STEREO INDICATOR SWITCH
Q401	121-433	PRE-AMPLIFIER
Q402	121-430	PRE-DRIVER
Q403	121-706	DRIVER
Q404	121-710	OUTPUT
Q405	121-709	OUTPUT
Q451	121-433	PRE-AMPLIFIER
Q452	121-430	PRE-DRIVER
Q453	121-706	DRIVER
Q454	121-710	OUTPUT
Q455	121-709	OUTPUT

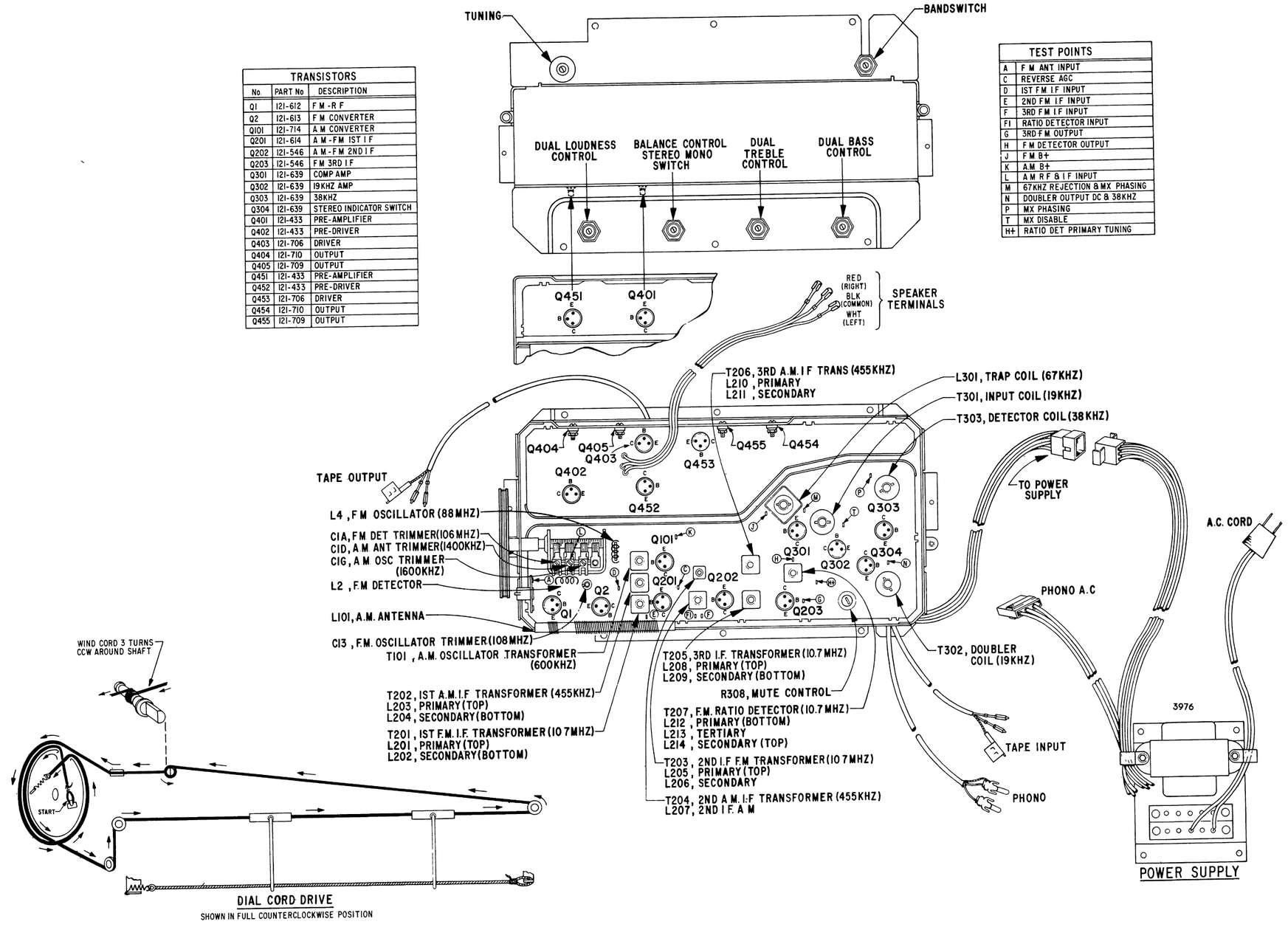
TEST POINTS	
A	F M ANT INPUT
C	REVERSE AGC
D	IST F M I F INPUT
E	2ND F M I F INPUT
F	3RD F M I F INPUT
FI	RATIO DETECTOR INPUT
G	3RD F M OUTPUT
H	F M DETECTOR OUTPUT
J	F M B+
K	A M B+
L	A M R F & I F INPUT
M	67KHZ REJECTION & MX PHASING
N	DOUBLER OUTPUT DC & 38KHZ
P	MX PHASING
T	MX DISABLE
H+	RATIO DET PRIMARY TUNING



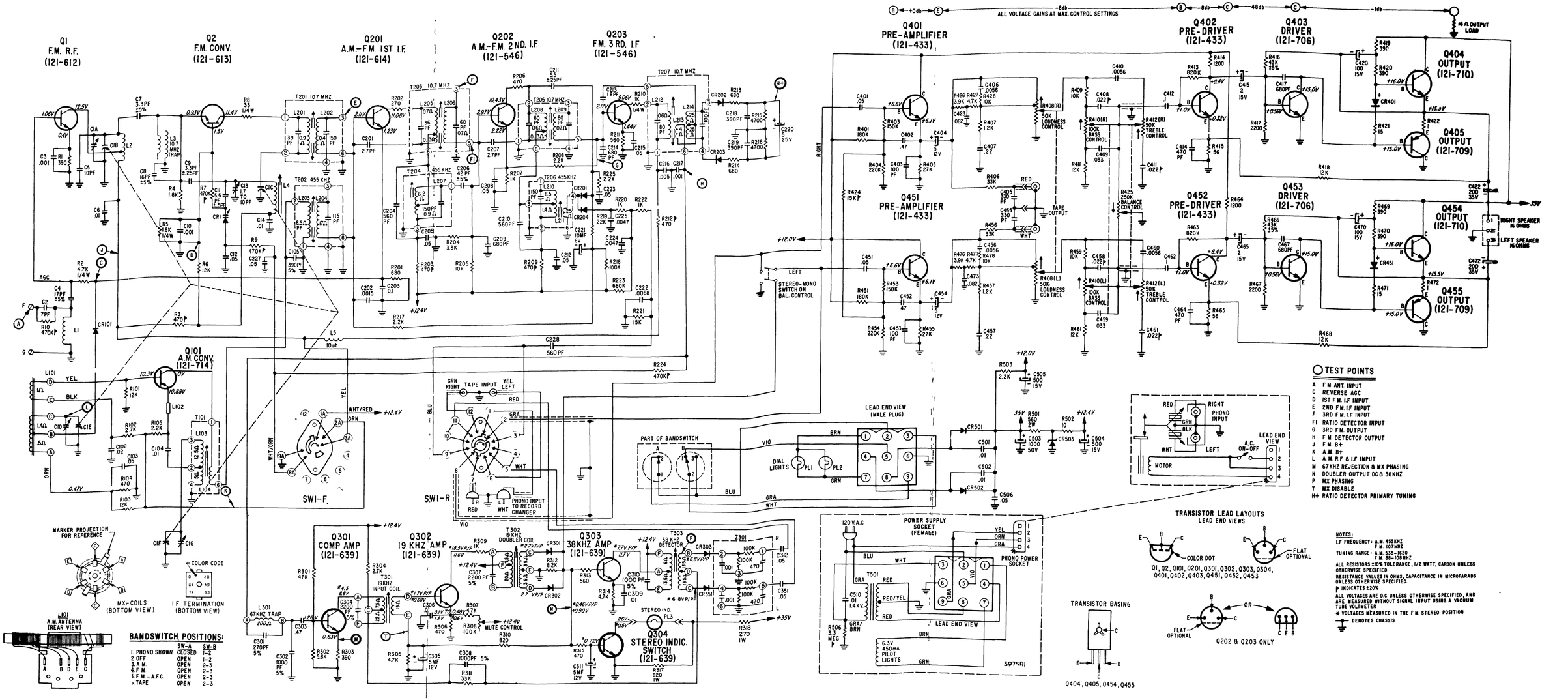
20AT30 AND 20AT30Z CHASSIS LAYOUT

TRANSISTORS		
No.	PART No	DESCRIPTION
Q1	121-612	F M -R F
Q2	121-613	F M CONVERTER
Q101	121-714	A M CONVERTER
Q201	121-614	A M - F M 1ST I F
Q202	121-546	A M - F M 2ND I F
Q203	121-546	F M 3RD I F
Q301	121-639	COMP AMP
Q302	121-639	19KHZ AMP
Q303	121-639	38KHZ
Q304	121-639	STEREO INDICATOR SWITCH
Q401	121-433	PRE-AMPLIFIER
Q402	121-433	PRE-DRIVER
Q403	121-706	DRIVER
Q404	121-710	OUTPUT
Q405	121-709	OUTPUT
Q451	121-433	PRE-AMPLIFIER
Q452	121-433	PRE-DRIVER
Q453	121-706	DRIVER
Q454	121-710	OUTPUT
Q455	121-709	OUTPUT

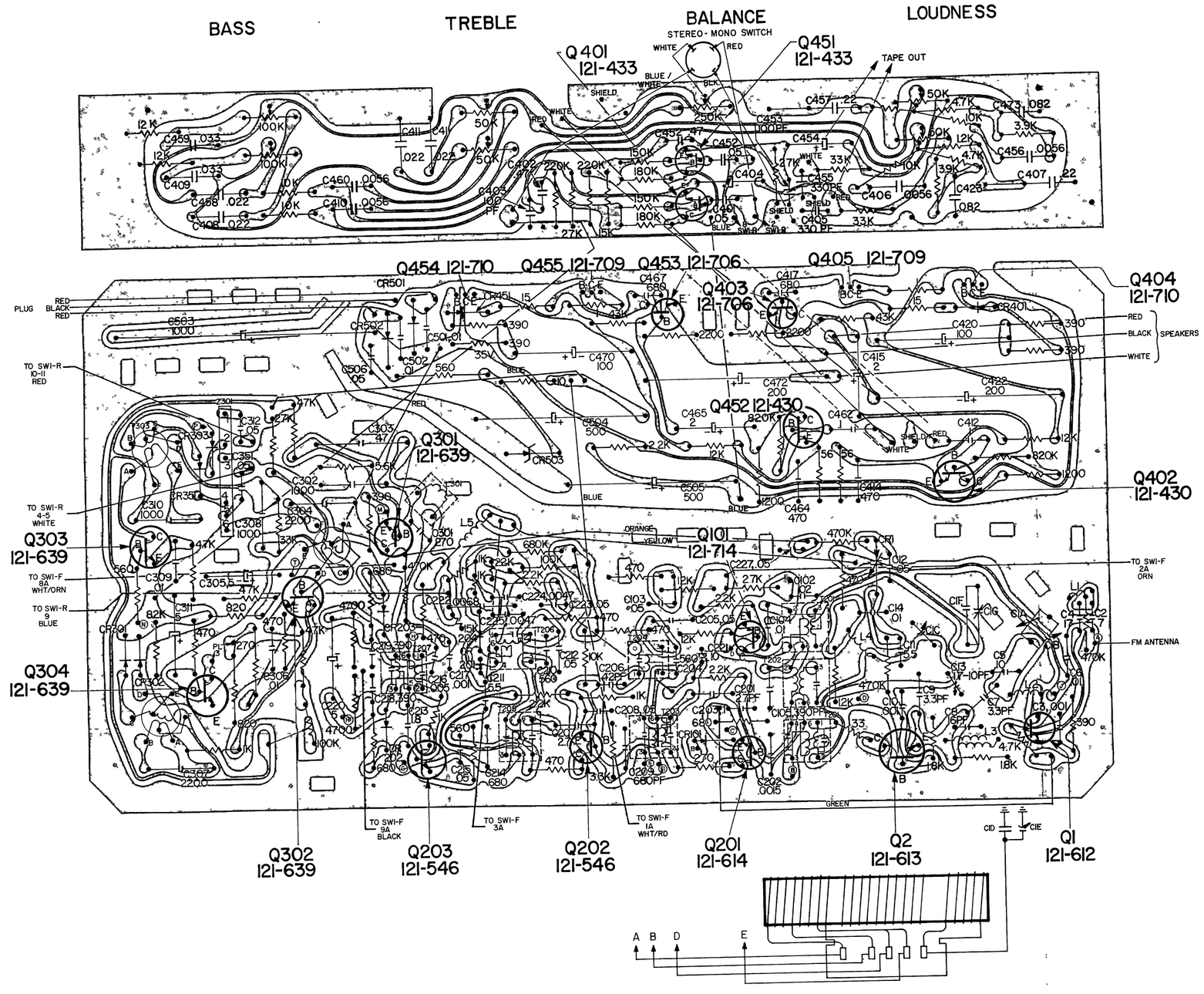
TEST POINTS	
A	F M ANT INPUT
C	REVERSE AGC
D	IST F M I F INPUT
E	2ND F M I F INPUT
F	3RD F M I F INPUT
FI	RATIO DETECTOR INPUT
G	3RD F M OUTPUT
H	F M DETECTOR OUTPUT
J	F M B+
K	A M B+
L	A M R F & I F INPUT
M	67KHZ REJECTION & MX PHASING
N	DOUBLER OUTPUT DC & 38KHZ
P	MX PHASING
T	MX DISABLE
H+	RATIO DET PRIMARY TUNING



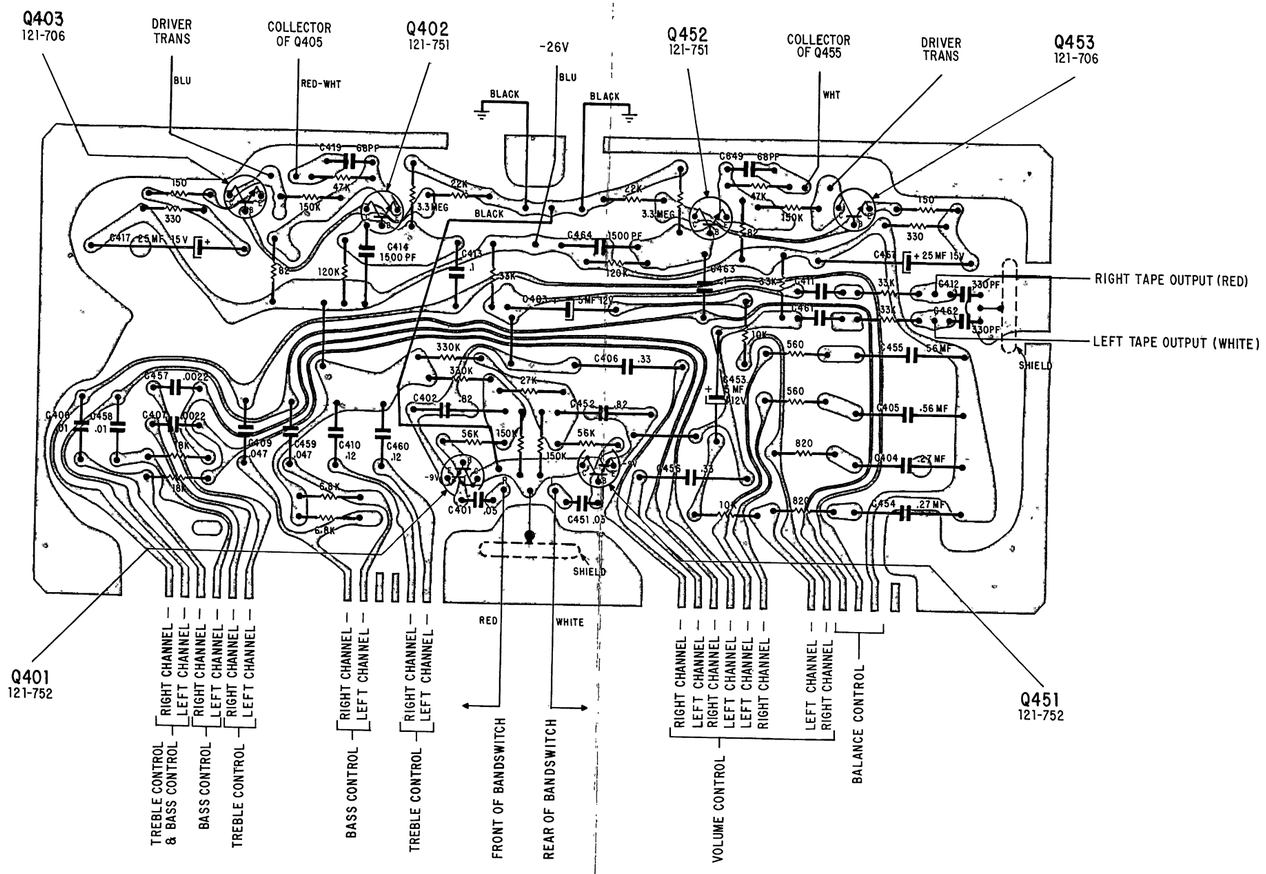
20AT31Z CHASSIS LAYOUT



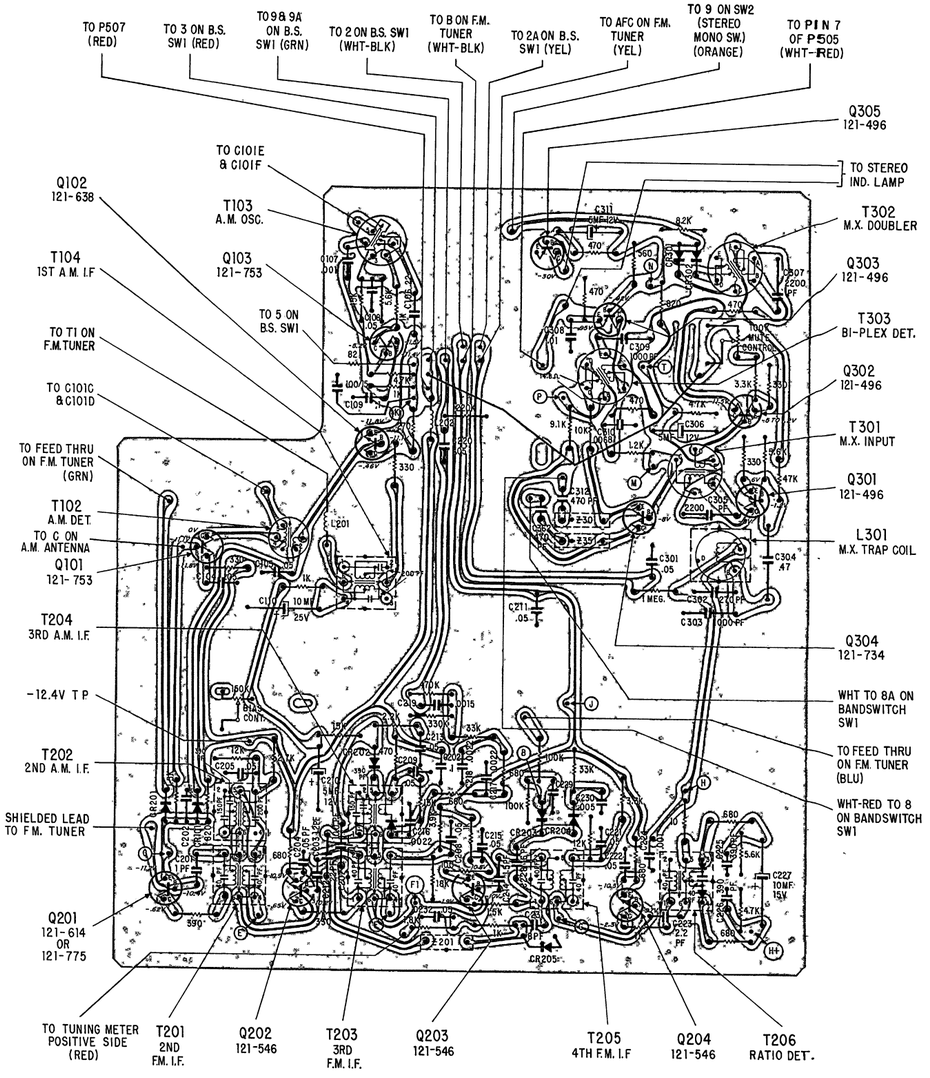
20AT31Z SCHEMATIC



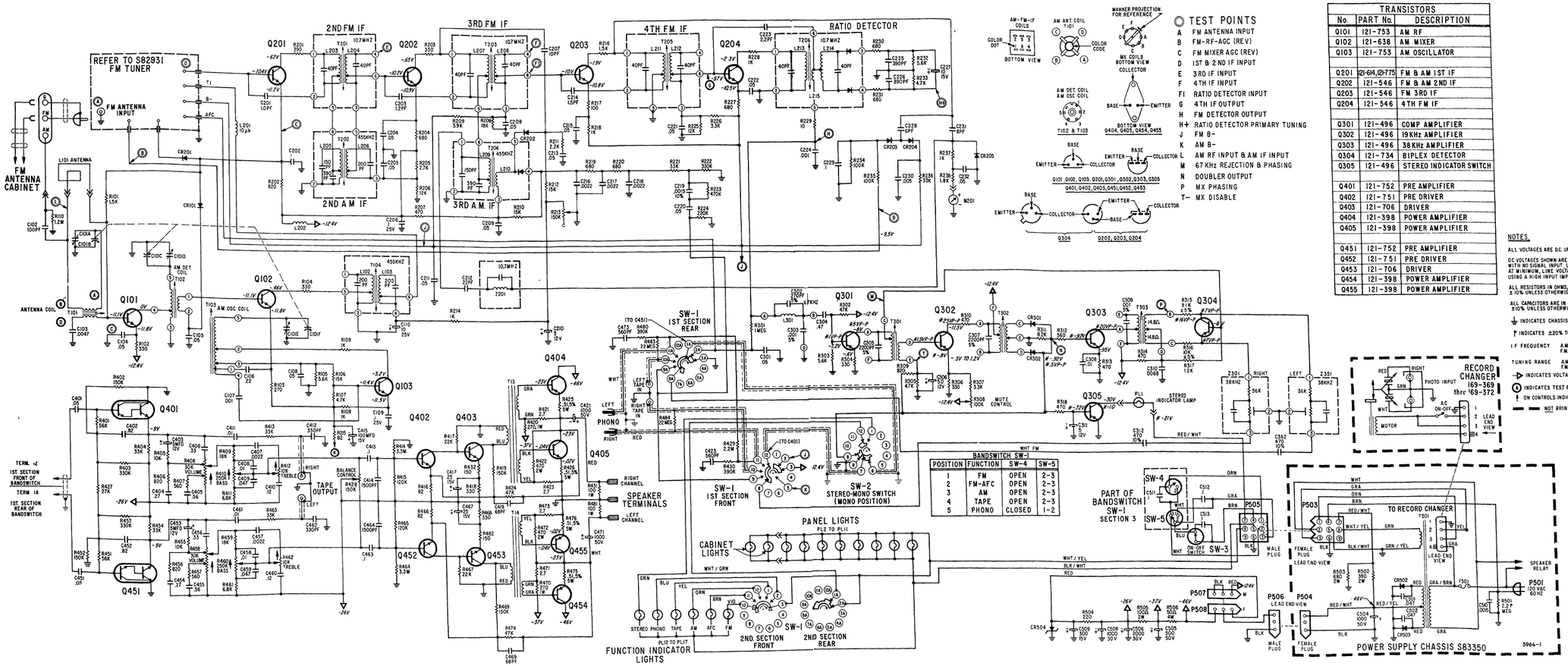
20AT31Z CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



25AT20 - AUDIO - CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



25AT20 - RF-CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



TEST POINTS

A	FM ANTENNA INPUT
B	FM-RF-AGC (REV.)
C	FM MIXER AGC (REV.)
D	1ST & 2 ND IF INPUT
E	3RD IF INPUT
F	4TH IF INPUT
FI	RATIO DETECTOR INPUT
G	4TH IF OUTPUT
H	FM DETECTOR OUTPUT
H+	RATIO DETECTOR PRIMARY TUNING
J	FM B-
K	AM B-
L	AM RF INPUT & AM IF INPUT
M	67 KHz REJECTION & PHASING
N	DOUBLER OUTPUT
P	MX PHASING
T-	MX DISABLE

TRANSISTORS

No.	PART No.	DESCRIPTION
Q101	121-753	AM RF
Q102	121-638	AM MIXER
Q103	121-753	AM OSCILLATOR
Q201	121-614,121-775	FM & AM 1ST IF
Q202	121-546	FM & AM 2ND IF
Q203	121-546	FM 3RD IF
Q204	121-546	4TH FM IF
Q301	121-496	COMP. AMPLIFIER
Q302	121-496	19KHz AMPLIFIER
Q303	121-496	38KHz AMPLIFIER
Q304	121-734	BIPLEX DETECTOR
Q305	121-496	STEREO INDICATOR SWITCH
Q401	121-752	PRE AMPLIFIER
Q402	121-751	PRE DRIVER
Q403	121-706	DRIVER
Q404	121-398	POWER AMPLIFIER
Q405	121-398	POWER AMPLIFIER
Q451	121-752	PRE AMPLIFIER
Q452	121-751	PRE DRIVER
Q453	121-706	DRIVER
Q454	121-398	POWER AMPLIFIER
Q455	121-398	POWER AMPLIFIER

BANDSWITCH SW-1

POSITION	FUNCTION	SW-4	SW-5
1	FM	OPEN	2-3
2	FM-AFC	OPEN	2-3
3	AM	OPEN	2-3
4	TAPE	OPEN	2-3
5	PHONO	CLOSED	1-2

NOTES.

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

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 INPUT IMPEDANCE V.T.V.M.

ALL RESISTORS IN OHMS, 1/2 WATT CARBON, ± 10% UNLESS OTHERWISE SPECIFIED.

ALL CAPACITORS ARE IN MICROFARADS ±10% UNLESS OTHERWISE SPECIFIED.

⏚ INDICATES CHASSIS GROUND.

↑ INDICATES ±20% TOLERANCE

I.F FREQUENCY AM. 455 KHz FM. 107 MHz

TUNING RANGE AM. 540-1600KHz FM. 88-108 MHz

→ INDICATES VOLTAGE SOURCE

Ⓚ INDICATES TEST POINTS.

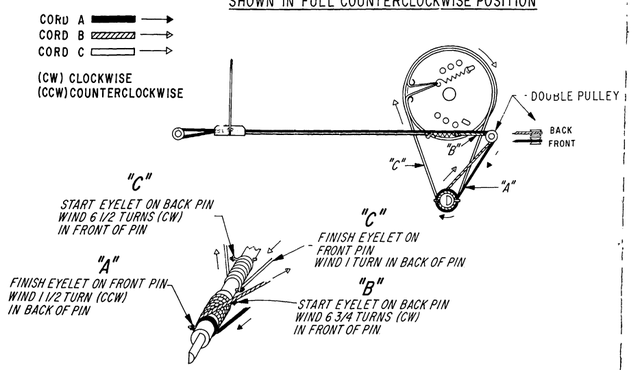
INDICATES MAXIMUM POSITION.

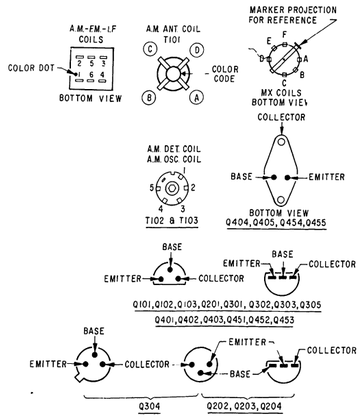
NOT PRINTED CIRCUIT BOARD.

25AT20 SCHEMATIC

DIAL CORD DRIVE

SHOWN IN FULL COUNTERCLOCKWISE POSITION

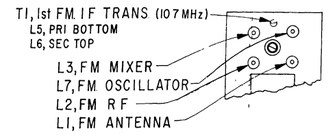




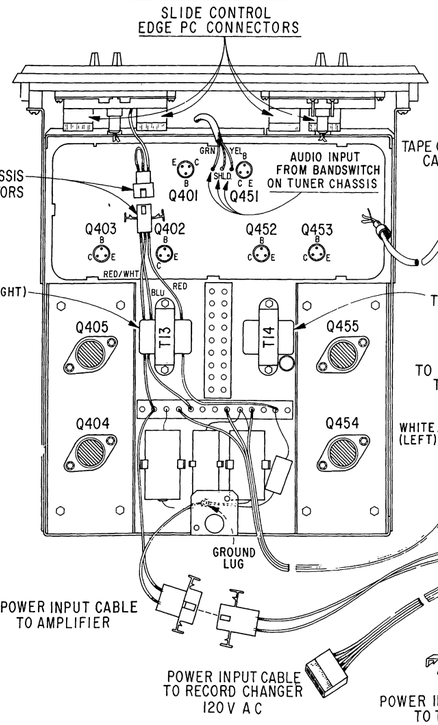
TEST POINTS

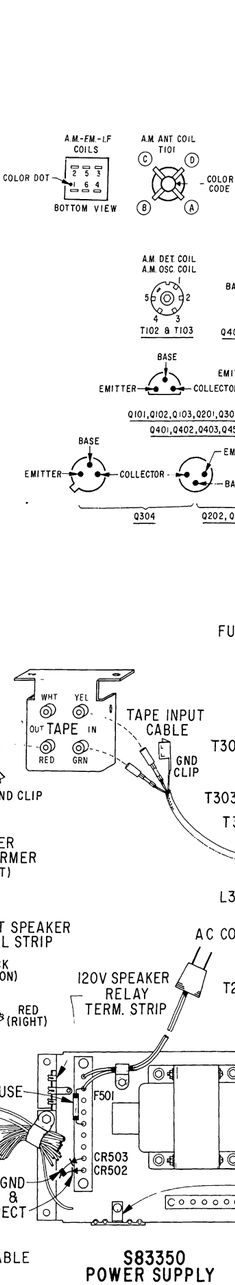
A	FM ANTENNA INPUT
B	FM-R F-A G C (REV)
C	FM MIXER A G C (REV)
D	1st & 2nd I F INPUT
E	3rd I F INPUT
F	4th I F INPUT
FI	RATIO DETECTOR INPUT
G	4th I F OUTPUT
H	FM DETECTOR OUTPUT
H+	RATIO DETECTOR PRIMARY TUNING
J	FM B-
K	AM B-
L	AM RF INPUT & AM I F INPUT
M	67 KHz REJECTION & PHASING
N	DOUBLER OUTPUT
P	MX PHASING
T	MX DISABLE

TRANSISTORS		
No.	PART No.	DESCRIPTION
Q1	121-731	F.M. R.F
Q2	121-732	FM MIXER
Q3	121-432	FM OSCILLATOR
Q101	121-753	A.M. R.F.
Q102	121-638	A.M. MIXER
Q103	121-753	A.M. OSCILLATOR
Q201	121-614	FM. & A.M. 1st I.F.
Q202		FM. & A.M. 2nd I.F.
Q203	121-546	FM. 3rd I.F.
Q204		4th FM. I.F.
Q301		COMP AMPLIFIER
Q302	121-496	19KHz AMPLIFIER
Q303		38KHz AMPLIFIER
Q304	121-734	BIPLEX DETECTOR
Q305	121-496	STEREO INDICATOR SWITCH
Q401	121-752	PRE AMPLIFIER
Q402	121-751	PRE DRIVER
Q403	121-706	DRIVER
Q404 Q405	121-398	POWER AMPLIFIER
Q451	121-752	PRE AMPLIFIER
Q452	121-751	PRE DRIVER
Q453	121-706	DRIVER
Q454 Q455	121-398	POWER AMPLIFIER



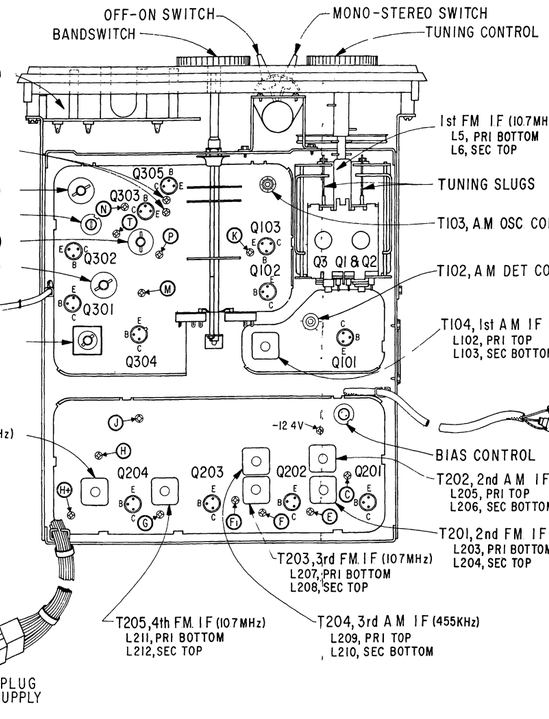
AMPLIFIER, TOP VIEW



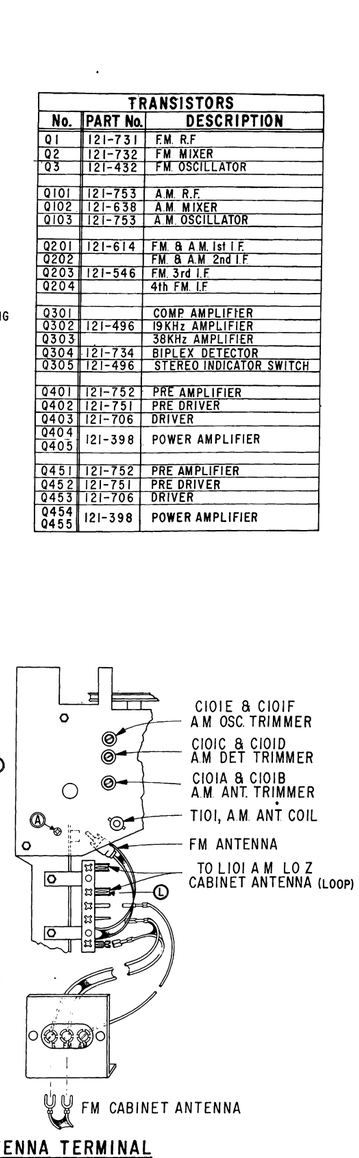


S83350
POWER SUPPLY

TUNER, BOTTOM VIEW

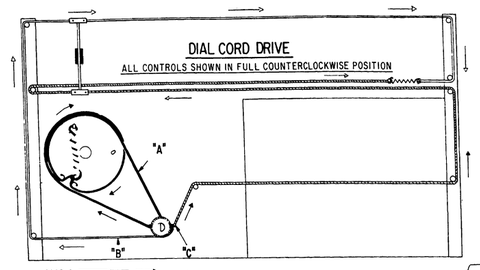


PHONO CABLE
TO RECORD CHANGER

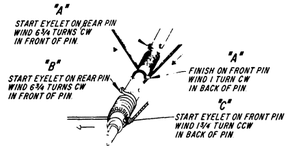


ANTENNA TERMINAL

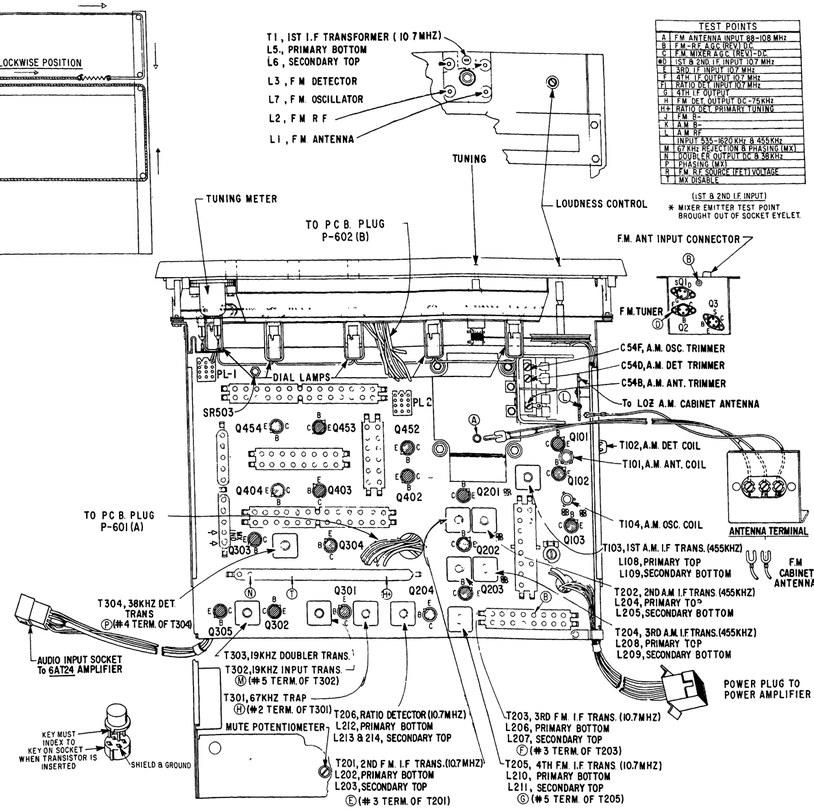
25AT20 - CHASSIS LAYOUT



CORD A — (CW) CLOCKWISE
CORD B — (CCW) COUNTERCLOCKWISE
CORD C

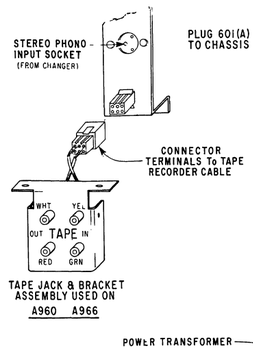


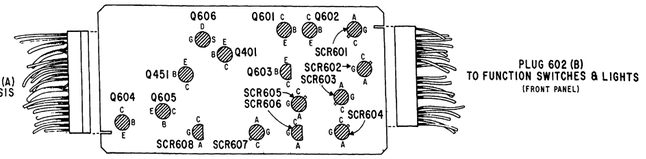
TRANSISTORS		
No.	PART No.	DESCRIPTION
Q1	121-743	F.M. R.F.
Q2	121-732	F.M. MIXER
Q3	121-432	F.M. OSC.
Q101	121-733	A.M. R.F.
Q102	121-598	A.M. MIXER
Q103	121-733	A.M. OSC.
Q201	121-646or775	F.M. A.M. 1st I.F.
Q202	121-546	F.M. A.M. 2nd I.F.
Q203	121-546	F.M. 3rd I.F.
Q204	121-546	F.M.
Q301	121-496	COMPOSITE AMP.
Q302	121-498	19 KHz AMP.
Q303	121-496	38 KHz AMP.
Q304	121-534	1st FLEX DET.
Q305	121-496	STEREO IND. SWITCH
Q401	121-752or433	PHONO PRE AMP. (R)
Q402	121-430	PRE AMP. (R)
Q403	121-603	PRE AMP. (R)
Q404	121-602	1st AUDIO (R)
Q451	121-752or433	PHONO PRE AMP. (L)
Q452	121-430	PRE AMP. (L)
Q453	121-603	PRE AMP. (L)
Q454	121-602	1st AUDIO (L)
Q601	121-497	F.M. B- SWITCHING
Q602	121-497	A.M. B- SWITCHING
Q603	121-447	STEREO-MONO SWITCH
Q604	121-497	STEREO 19 KHz AMP.
Q605	121-497	EXT. BASS B- SWITCHING
Q606	121-756	PHONO STER.-MONO SW.
SCR601	185-3	A.M. SWITCH
SCR602	185-3	F.M. SWITCH
SCR603	185-3	PHONO SWITCH
SCR604	185-3	TAPE SWITCH
SCR605	185-5	STEREO SWITCH 1
SCR606	185-4	STEREO SWITCH 2
SCR607	185-5	EXT. BASS SWITCH 1
SCR608	185-4	EXT. BASS SWITCH 2



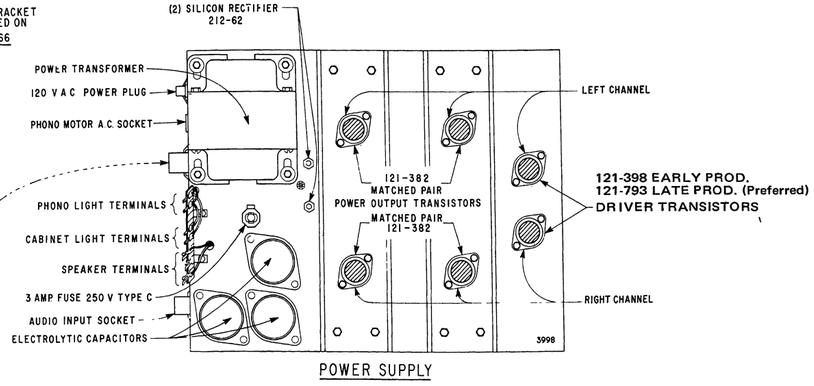
TEST POINTS
A	F.M. ANTENNA INPUT 88-108 MHz
B	F.M.-R.F. AGC (REV.) DC
C	F.M. MIXER AGC (REV.) DC
D	1ST & 2ND I.F. INPUT 10.7 MHz
E	3RD I.F. INPUT 10.7 MHz
F	4TH I.F. OUTPUT 10.7 MHz
G	RATIO DET. INPUT 10.7 MHz
H	4TH I.F. OUTPUT
I	F.M. DET. OUTPUT DC-75 KHz
J*	RATIO DET. PRIMARY TUNING
K	A.M. B-
L	A.M. R.F.
M	INPUT 535-1620 KHz & 455 KHz
N	67 KHz REJECTION & PHASING (MX)
P	DOUBLER OUTPUT DC & 38 KHz
R	PHASING (MX)
S	F.M. R.F. SOURCE (FET) VOLTAGE
T	MX DISABLE

(1ST & 2ND I.F. INPUT)
* MIXER EMITTER TEST POINT BROUGHT OUT OF SOCKET EYELET.



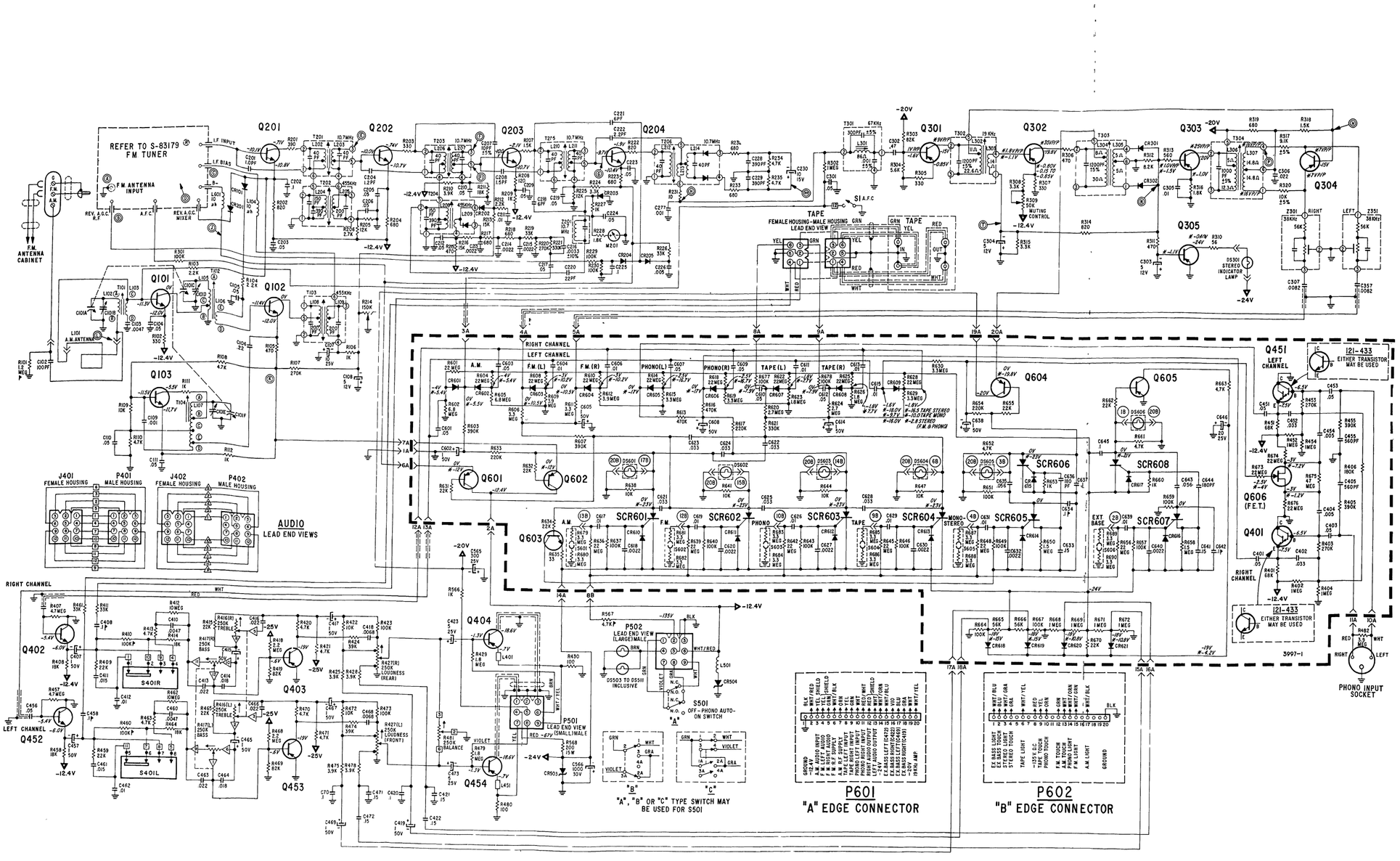


CIRCUIT BOARD



POWER SUPPLY

6AT24 AND 29AT24 CHASSIS LAYOUT



TEST POINTS

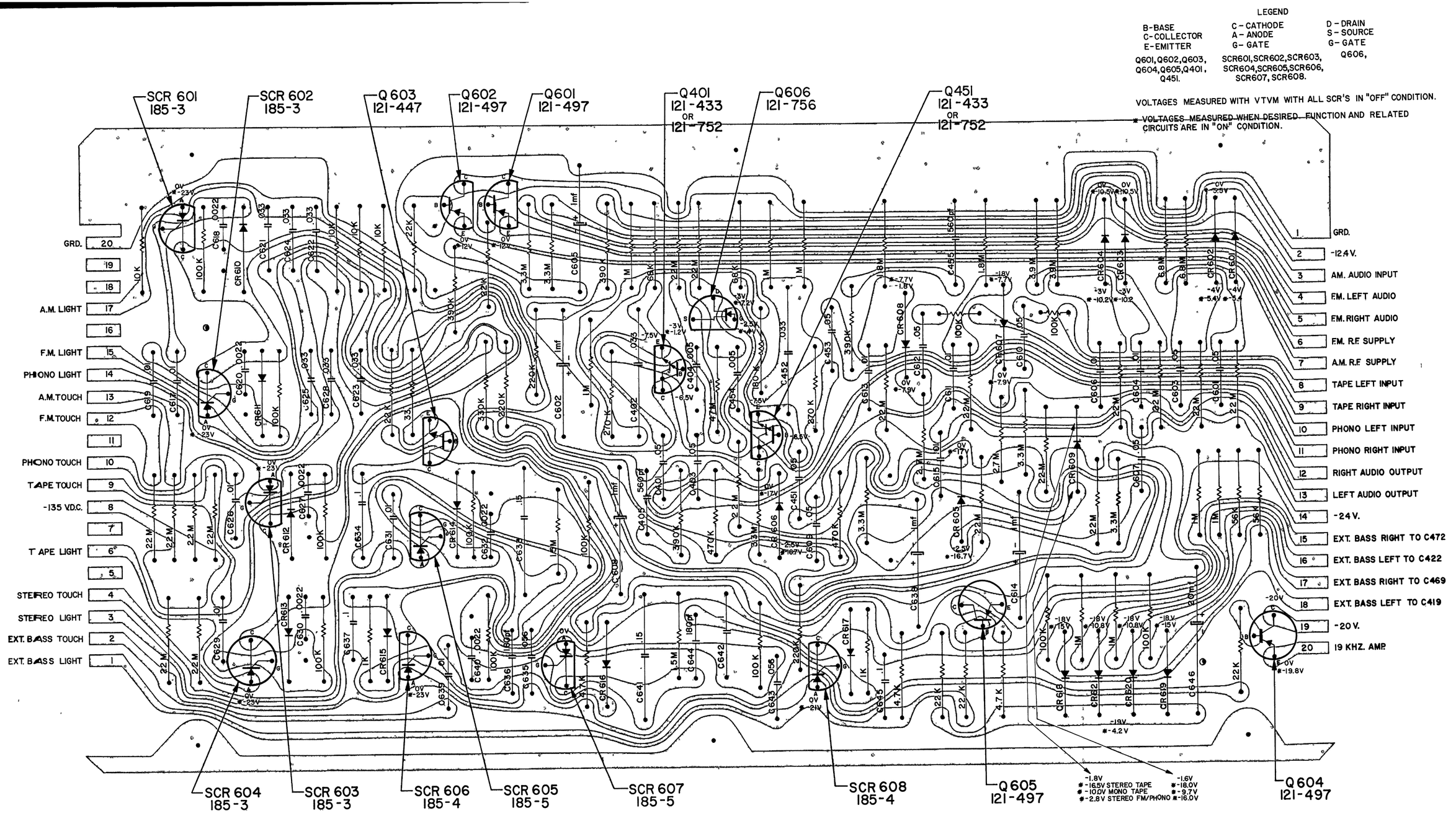
A	FM ANTENNA INPUT
B	FM.-R.F.-A.G.C.(REV.)
C	FM. MIXER A.G.C.(REV.)
D	IST & 2ND I.F INPUT
E	3RD I.F INPUT
F	4TH I.F INPUT
FI	RATIO DETECTOR INPUT
G	4TH I.F OUTPUT
H	F.M. DETECTOR OUTPUT
H+	RATIO DETECTOR PRIMARY TUNING
J	FM. B-
K	A.M. B-
L	A.M. R.F INPUT & A.M. I.F INPUT
M	67 KHz REJECTION & MX PHASING
N	MX DOUBLER OUTPUT
P	MX PHASING
R	FM. R.F SOURCE(F.E.T.) VOLTAGE
T	MX DISABLING

NOTES:
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
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.
ALL RESISTORS IN OHMS, 1/2 WATT CARBON, ±10% UNLESS OTHERWISE SPECIFIED.
ALL CAPACITORS ARE IN MICROFARADS ± 20% UNLESS OTHERWISE SPECIFIED.
I.F. FREQUENCY A.M. 455KHz, F.M. 10.7 MHz
TUNING RANGE A.M. 540-1600KH, F.M. 88-108 MHz
INDICATES CHASSIS GROUND.
INDICATES ±20% TOLERANCE.
INDICATES VOLTAGE.
INDICATES TEST POINTS.
INDICATES VALUES PRESENT ONLY WITH STEREO SIGNAL
AND INDICATE INTERCONNECTING HOUSING FOR TONE CONTROL
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION.
FOR AUDIO AND POWER SUPPLY SCHEMATIC REFER TO 123-3995.
ON PRINTED CIRCUIT BOARD ONLY:
VOLTAGES MEASURED WITH R.C.A. V.T.V.M. TYPE WV-98C WITH ALL SCR IN OFF CONDITION.
INDICATES VOLTAGES PRESENT ONLY WHEN DESIRED FUNCTION AND RELATED CIRCUITS ARE IN "ON" CONDITION.
INDICATES "A" EDGE CONNECTOR TIE POINTS.
INDICATES "B" EDGE CONNECTOR TIE POINTS.
F.E.T. FIELD EFFECT TRANSISTOR

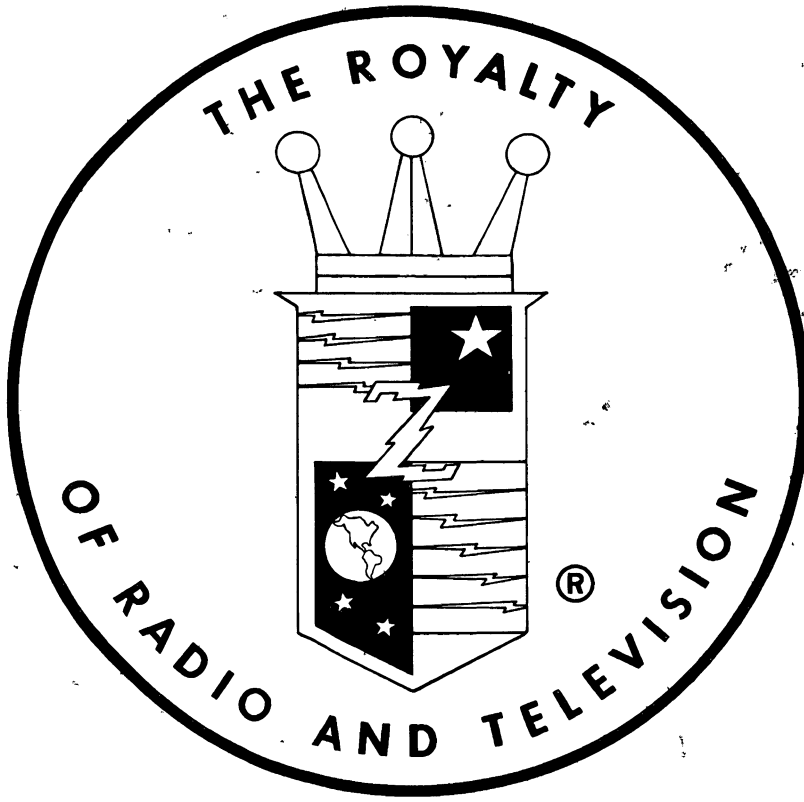
TRANSISTOR LEAD END VIEWS
TERMINAL END VIEWS
Q1, Q201, Q301, Q302, Q303, Q305
Q5, Q404, Q451, Q452, Q453
Q602, Q603, Q604, Q605
Q202, Q203, Q204
Q304
Q606 SYMMETRICAL "FET" (DRAIN & SOURCE INTERCHANGEABLE)
SCR601 SCR602, SCR603, SCR604, SCR605, SCR606 SCR607, SCR608
A.M. DET. T102
A.M. ANT. COIL T101
A.M. OSC. COIL T104
I.F. AND MX COILS

TRANSISTORS		
No.	PART No.	DESCRIPTION
Q101	121-753	A.M. R.F
Q102	121-638	A.M. MIXER
Q103	121-753	A.M. OSCILLATOR
Q201	121-614 OR 121-775	F.M. & A.M. IST I.F
Q202	121-546	F.M. & A.M. 2ND I.F
Q203	121-546	F.M. 3RD I.F
Q204	121-546	F.M. 4TH I.F
Q301	121-496	COMP. AMPLIFIER
Q302	121-496	19KHz AMPLIFIER
Q303	121-496	38KHz AMPLIFIER
Q304	121-734	BIPLEX DETECTOR
Q305	121-496	STEREO INDICATOR SWITCH
Q401	121-752 OR 121-433	PRE-AMPLIFIER
Q402	121-430	PRE-AMPLIFIER
Q403	121-603	PRE-AMPLIFIER
Q404	121-602	PRE-DRIVER
Q451	121-752 OR 121-433	PRE-AMPLIFIER
Q452	121-430	PRE-AMPLIFIER
Q453	121-603	PRE-AMPLIFIER
Q454	121-602	PRE-DRIVER
Q601	121-497	F.M. B- SWITCHING
Q602	121-497	A.M. B- SWITCHING
Q603	121-447	STEREO-MONO SWITCH SUPPLY
Q604	121-497	STEREO B- SWITCH
Q605	121-497	EXT BASS SWITCH
Q606	121-756	PHONO STEREO-MONO SWITCH
SCR601	185-3	A.M. SWITCH
SCR602	185-3	F.M. SWITCH
SCR603	185-3	PHONO SWITCH
SCR604	185-3	TAPE SWITCH
SCR605	185-5	STEREO-MONO SWITCH
SCR606	185-4	STEREO-MONO SWITCH
SCR607	185-5	EXT. BASS SWITCH ON-OFF
SCR608	185-4	EXT BASS SWITCH ON-OFF

29AT24 SCHEMATIC



29AT24 - CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



ZENITH RADIO CORPORATION

1900 N. AUSTIN AVENUE CHICAGO, ILLINOIS 60639

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

923-558 HF18 RR 6/69 30M PRINTED IN U.S.A.