



RCA VICTOR



MODEL VRB-62

Six-Tube, Two-Band, Battery Superheterodyne Radio-Phonograph Combination

TECHNICAL INFORMATION AND SERVICE DATA

1948 No. 12

GENERAL SERVICE DIVISION

RCA VICTOR COMPANY LTD.

Specifications

FREQUENCY RANGES

Standard Broadcast—S.B. 540-1600 Kc.
Short Wave 31-25-19M 9.3-16.0 Mc.
Intermediate Frequency 455 Kc.

RADIOTRON COMPLEMENT

(1) Type 1T4 R.F. Amplifier
(2) Type 1R5 Converter
(3) Type 1T4 I.F. Amplifier
(4) Type 155 2nd Det., A.V.C. & 1st A.F.
(5) Type 1A5GT A.F. Amplifier
(6) Type 1G6GT/G Power Output

POWER OUTPUT

Undistorted 0.50 Watts
Maximum 0.58 Watts

LOUDSPEAKER

Type 4 x 6 elliptical P.M.
Voice coil impedance 3.4 ohms at 400 cycles

BATTERIES REQUIRED

Eveready battery pack number 758 or one 1.4 volt air cell or 1.5 volt dry cell and two 45 volt heavy duty "B" batteries.

CURRENT CONSUMPTION

"A" at 1.4 volts 300 MA
"B" at 90 volts (minimum) 14 MA
(maximum) 26 MA



CABINET DIMENSIONS

Height 11 $\frac{3}{4}$ inches
Width 17 $\frac{3}{8}$ inches
Depth 16 $\frac{1}{4}$ inches

PHONOGRAPH

Type Manual
Motor Spring Wound
Turntable Speed 78 R.P.M.

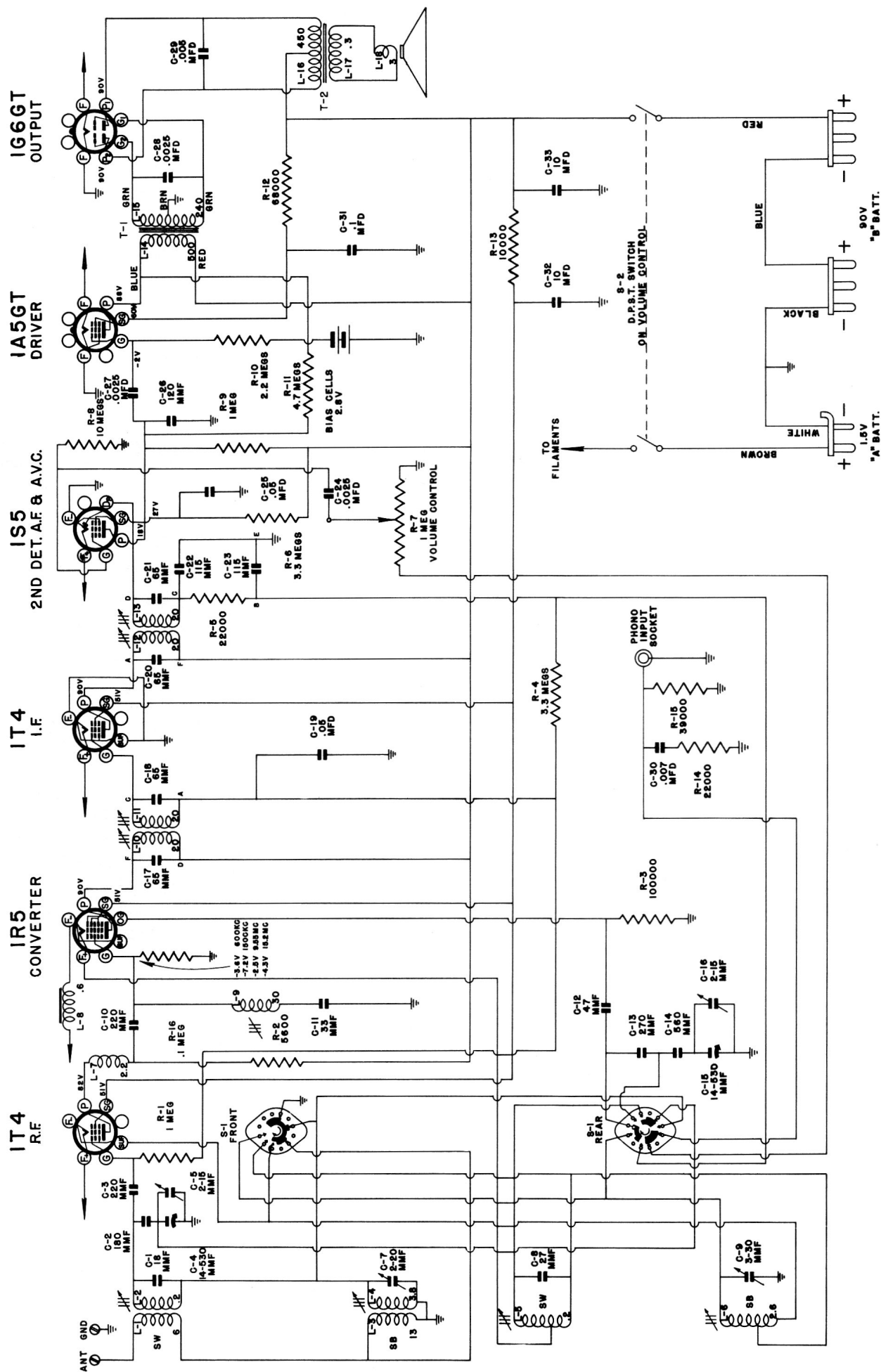
PICKUP

Type Crystal
Impedance 100,000 Ohms at 1000 Cycles
Average Output 1 Volt at 1000 Cycles
Across 1 Megohm Load

GENERAL DESCRIPTION

The VRB-62 is a six-tube, two band superheterodyne radio-phonograph combination receiver, housed in a table type cabinet of pleasing appearance. This receiver is designed to cover the standard broadcast band and the 31-25-19 meter short wave bands. Features of the design

include:— Low-drain, high efficiency miniature tubes; Iron-core RF coils, Oscillator coils and I.F. transformers; Automatic volume control; Straight line dial; Spring-wound phonograph motor; Crystal type phonograph pickup with semi-permanent stylus; Four by six inch dust-proof elliptical P.M. loudspeaker.

Fig. 1—Schematic Diagram—range switch shown in *phono* position

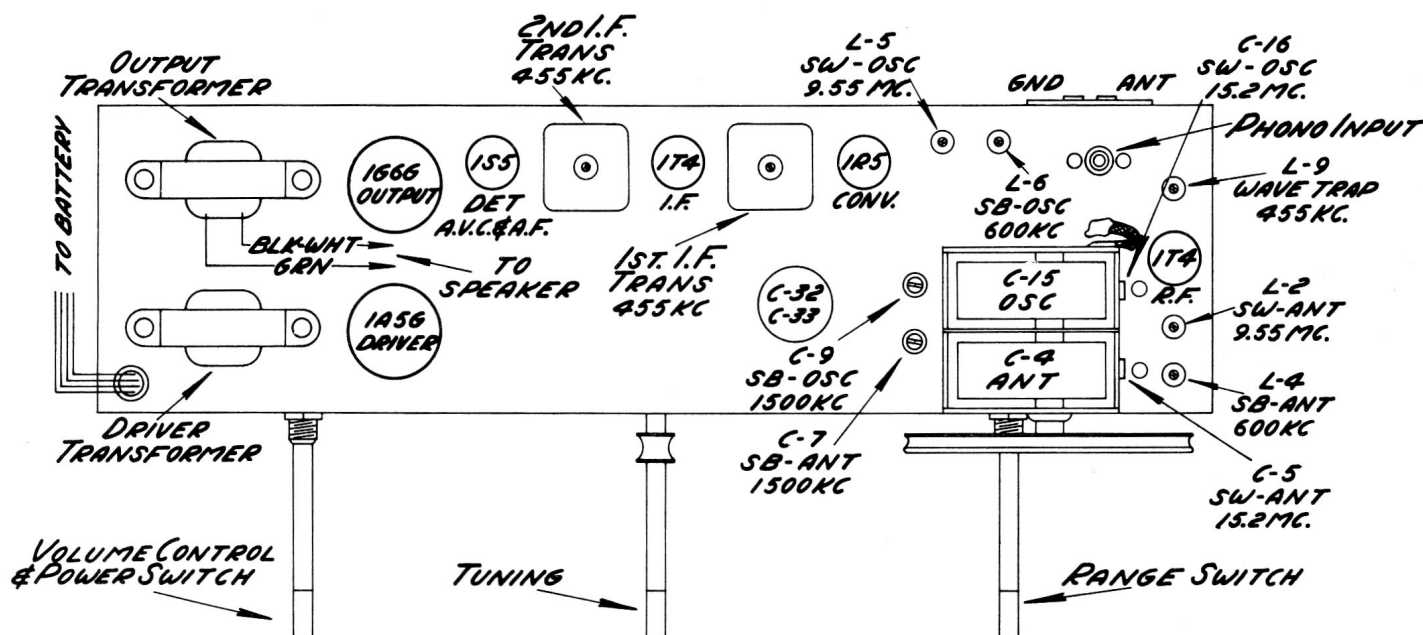


Fig. 2—Chassis Layout and Alignment Adjustments

ALIGNMENT PROCEDURE

Before aligning set, completely mesh the gang and set the dial pointer on the mechanical maximum calibration point at the extreme left hand end of the dial.

When making a complete alignment follow in proper sequence the tabulated form below.

If only a portion of the circuit is to be aligned select the portion required, followed by the remaining steps in the chart.

For "S.B." and 31-25-19M band alignment use output meter across voice coil keeping Test Oscillator output as low as possible to prevent AVC action.

Cathode-ray oscilloscope and sweep signal generator alignment of the 455 kc. A.M. I.F. transformers is the preferable method. Connect oscilloscope across the volume control. If the required equipment is not available use the method outlined below.

ALIGNMENT CHART

ORDER OF ALIGNMENT	TEST OSCILLATOR				RANGE SELECTOR	RECEIVER DIAL SETTING	CIRCUIT TO ADJUST	ADJUSTMENT SYMBOLS	NOTES
	CONNECT "HI" SIDE TO	CONNECT "LO" SIDE TO	DUMMY ANTENNA	FREQUENCY SETTING					
A.M. I.F. ALIGNMENT	1 1T4 1st I.F. Grid	Ground	.01 mfd.	455 KC 30% mod. 400 Cy.A.M.	S.B.	High Freq. end of Dial	2nd I.F. Trans.	L-12 and L-13	Adjust for max. Voltage across Voice Coil.
	2 1R5 Mixer Grid	Same	Same	Same	Same	Same	1st I.F. Trans.	L-10 and L-11	Same
	3 1T4 R.F. Grid	Same	Same	Same	Same	Same	Wave Trap	L-9	Adjust for min. Voltage across Voice Coil.
31-25-19M ALIGNMENT	4 "A" on Ant. Ter. Board	Ground	300 Ohms	9.55 MC 30% Mod. 400 Cy.A.M.	31-25-19M	9.55 MC Calibration point on dial.	Oscillator	L-5	
	5 Same	Same	Same	Same	Same	Same	Ant.	L-2	Same
	6 Same	Same	Same	15.2 MC 30% Mod. 400 Cy.A.M.	Same	15.2 MC Calibration point on dial.	Oscillator	C-16	Same
	7 Same	Same	Same	Same	Same	Same	Ant.	C-5	Same
	8 Repeat steps 4 to 7 for maximum output.								
S.B. ALIGNMENT	9 "A" on Ant. Ter. Board	Ground	200 mmf.	600 KC 30% Mod. 400 Cy.A.M.	S.B.	600 KC Calibration point on dial.	Oscillator	L-6	Same
	10 Same	Same	Same	Same	Same	Same	Ant.	L-4	Same
	11 Same	Same	Same	1500 KC 30% Mod. 400 Cycles	Same	1500 KC Calibration point on dial.	Oscillator	C-9	Same
	12 Same	Same	Same	Same	Same	Same	Ant.	C-7	Same
	13 Repeat steps 9 to 12 for max. output.								

Fig. 3—Wiring Diagram.

MOTOR SERVICE DATA

Motor.—The drive motor is of simple design and substantial construction. It should require little or no service if properly maintained. Attention to lubrication of the moving parts and occasional cleaning of the mechanism will go far to prevent faulty operation. Should it become necessary to repair the motor, the following procedure should be applied: **CAUTION.**—**Allow the motor mechanism to run down completely before attempting adjustment, repairs, or replacements.**

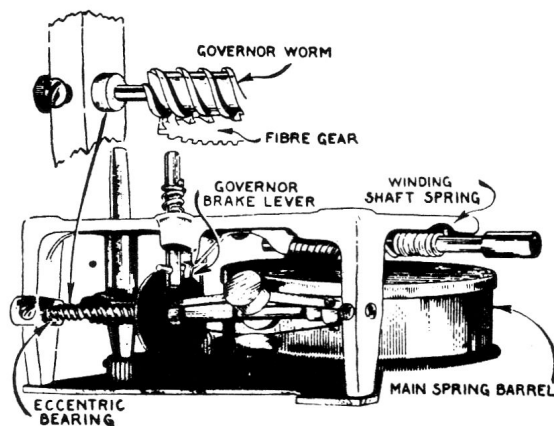
Removing Motor from Cabinet.—Remove the winding crank. Remove the four wood screws holding the base board in the cabinet. To dismount the motor, remove "C" washer from spindle shaft and remove turntable, slightly tapping the spindle while exerting an upward lift on the turntable. Loosen the screw holding the speed-regulating lever and remove the latter. The three screws holding motor to motor board should then be removed.

Replacing Main Spring Barrel.—In case of main spring failure, the entire spring barrel and gear should be replaced. Remove the spring-barrel spindle screw by **unscrewing to right**. Remove the C washer and two pillar screws holding bottom plate. Remove bottom plate, intermediate spindle shaft, and spring barrel. Reassemble parts in reverse sequence.

Winding Shaft Spring.—This spring functions as a friction ratchet. It may be removed as follows: remove pin holding winding worm on shaft; remove winding shaft; then remove screw holding spring. Replace in reverse sequence.

Speed Regulator Lever.—After assembly, adjust the speed regulator until the turntable rotates at 78 r.p.m.; loosen the speed regulator screw and set pointer to center of speed indicator scale; tighten screw and recheck turntable speed.

Lubrication.—All moving parts of the motor should be thoroughly cleaned and lubricated every six months to prevent excess wear and to assure proper operation. A small amount of grease should be applied to the worm gear of the governor, the gear of the winding shaft, and on the small pinion gear. All other points, including regulator friction pad, should be lubricated with light oil. All motor parts should be covered with a light film of oil to prevent rusting.



Motor Adjustments:

Speed variations or WOWS may be experienced with these instruments due to a variety of causes. Some of the troubles and corrections are listed below:

1. A regular WOW occurring on every revolution of the turntable, or every few revolutions.

- A frequent cause of this difficulty is faulty adjustment of the governor springs. If the governor weights seem to oscillate in and out when the motor is in operation, the spring tension of the three weights may not be evenly balanced. Loosen the spring clamping screws and position the springs so that all three weights are held with the same tension.

- Another possible cause of this trouble is faulty adjustment of the governor bearings. To adjust these bearings:

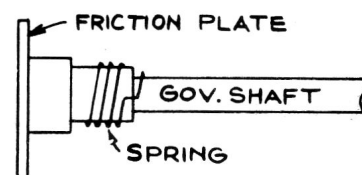
First: Set the speed regulator lever so that the face of the felt friction pad is accurately parallel to the governor friction plate.

Second: Loosen both governor bearing set screws and position the governor so that the motor revolves at rated speed (78.4 rpm).

Third: Adjust the mesh of the worm and the fiber drive gear by turning the eccentric bearings. These should be set so that the worm meshes properly with the fiber gear without binding.

Fourth: Adjust the distance between bearings so that the governor turns freely with a minimum of end-play.

- A take-up spring is mounted on the governor friction plate shaft to ensure against lost motion and erratic operation of this plate. It is essential that this spring be in place and adjusted to provide adequate tension. It should be positioned as indicated in the sketch below.
- Marred or broken teeth on either gear on the turntable shaft or on the intermediate gear shaft may cause this trouble. If inspection shows this to be the case, the defective gear should be replaced.



Correct Position of Take-up Spring

2. The turntable loses speed or WOWS on the louder parts of a record:

- This may be caused by failure of the governor to respond accurately to speed changes, due to excessive or irregular friction between the sliding friction plate and the governor shaft. When this occurs it may be corrected by removing the weights and working the plate back and forth until it frees up. If the governor shaft does not have a smooth surface it may be necessary to smooth it down slightly using "Crocus Cloth" or to replace the governor.
- This condition may also be caused by excessive friction in any part of the motor. Be sure that the governor bearings are properly adjusted as described in section 1 (b). Lubricate all bearings in the motor using a high grade light oil. The governor shaft, friction plate, and felt friction pad should also be lubricated with this oil. Lubricate the worm with a light grease such as RCA Stock No. 10975 Electric Motor Grease. Remove the main spring and pack it with a graphite lubricant.

3. The turntable speed changes erratically over long periods of time.

- This may be caused by binding of the main spring due to improper lubrication. To correct this condition pack the spring with graphite grease as described in section 2 (b).
- Make sure that the top of the main spring housing does not rub on the end of the winding shaft.
- Inspect the gear teeth on the main spring gear. If these are marred or broken, it may be necessary to replace the spring assembly.

REPLACEMENT PARTS FOR MODEL VRB-62

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RECEIVER ASSEMBLIES			
12930	Board-Antenna terminal board.....	S-4313	Cord-Drive cord.....
S-4245	Capacitor-Trimmer assembly (C7,C9)...	S-4248	Cable-Battery cable.....
39041	Capacitor-18 MMF Ceramic(C1)5%.....	S-4338	Dial-Dial scale.....
48162	Capacitor-27 " " (C8)5%.....	S-4404	Decal.....
39616	Capacitor-33 " Mica 10% (C11).....	S-4252	Hinge-Lid hinge.....
39620	Capacitor-47 " " 10% (C12).....	S-4213	Knob-(Range).....
12724	Capacitor-120 " " 20% (C26).....	S-4214	Knob-(tuning and volume).....
39634	Capacitor-180 " " 5% (C2).....	S-2398	Plug-Battery cable plug "A".....
39636	Capacitor-220 " " 10% (C3,C10)...	12827	Plug-Battery cable plug "B".....
39638	Capacitor-270 " " 5% (C13).....	S-3463	Rest-Pick-up arm rest (Pkg.2).....
39646	Capacitor-560 " " 5% (C14).....	S-4040	Support-Lid support (LH).....
S-3647	Capacitor-.007 Mfd.(C30).....	31418	Spring-Drive cord tension(Pkg.2)...
S-3646	Capacitor-.005 Mfd.(C29).....	30900	Spring-Knob retaining spring(Pkg.5)
S-3644	Capacitor-.0025 " (C24,C27,C28)....	MOTOR ASSEMBLIES	
70615	Capacitor-.05 " (C19,C25).....	S-3956	Governor spring screw (Pkg.3).....
S-3655	Capacitor-.1 " (C31).....	S-3957	Metal handle escutcheon.....
28114	Capacitor-Electrolytic 10-10 Mfd. (C32,C33).....	S-3960	Screw to attach Governor to shaft.
S-3731	Condenser,Variable with drum(C4,C15, C5,C16).....	S-3962	Felt for speed regulating lever (Pkg.3).....
S-4237	Coil-Antenna coil B.C. (L3,L4).....	S-3963	Spring barrel cover.....
S-4238	Coil-Antenna coil S.W. (L1,L2).....	S-3964	Governor bearing set screw(Pkg.3).
S-4240	Coil-Oscillator coil B.C. (L6).....	S-3965	Steel washer for mounting screw (Pkg. 3).....
S-4241	Coil-Oscillator coil S.W. (L5).....	S-3966	Screw for attaching bottom plate to motor frame (Pkg.3).....
S-3695	Choke-Filament choke (L8).....	S-3967	Washer used under speed regulator post (Pkg.3).....
S-3940	Indicator:Station selector pointer..	S-3968	Winding shaft gear.....
30734	Resistor-5600 ohms 1/2 watt (R2)....	S-3969	Motor bottom plate.....
3078	Resistor-10,000 ohms,1/2 watt (R13).	S-3970	Speed indicator pointer.....
30492	Resistor-22,000 ohms,1/2 watt(R5,R14)	S-3971	Speed regulating lever with felt..
30147	Resistor-39,000 ohms,1/2 watt (R15).	S-3973	Tension spring used on speed regulating post.....
14138	Resistor-68,000 ohms,1/2 watt (R12).	S-3974	Spring barrel cup and gear.....
3252	Resistor-100,000 ohms,1/2 watt(R3, R16).....	S-3975	Tubular rivet for attaching reg- ulating lever,to motor frame (Pkg.3).....
30652	Resistor-1 megohm,1/2 watt (R1,R9)...	S-3976	Spring barrel,complete.....
30649	Resistor-2.2 megohm,1/2 watt (R10)...	S-3977	Mainspring.....
31417	Resistor-3.3 megohm,1/2 watt (R6)...	S-3979	Governor spring and weight.....
30931	Resistor-4.7 megohm,1/2 watt (R11)...	S-3980	Spring barrel shaft winding gear..
30992	Resistor-10. megohm,1/2 watt (R8)...	S-3981	Governor tension spring.....
S-4337	Switch-Range switch (S1,S2).....	S-3982	Spring barrel shaft used with S-3980
71037	Socket-Tube socket (moulded).....	S-3984	Fibre handle escutcheon.....
31319	Socket-Tube socket (octal).....	S-3985	Winding shaft.....
36069	Socket-Tube socket (miniature with centre shield)....	S-4401	Winding handle 4-1/2".....
36500	Socket-Tube socket (less centre shield).....	S-3988	Clip to hold spring barrel shaft to bottom plate.....
S-4202	Socket-Phono socket.....	S-3989	Turntable brake.....
S-4336	Shaft-Drive Shaft.....	S-3990	Spring barrel shaft rivet.....
S-3526	Transformer-1st I.F. (L10,L11,C17, C18).....	S-3997	Rubber washer for mounting screw (Pkg.3).....
S-3527	Transformer-2nd I.F.(L12,L13,C20,C21)	S-4153	Turntable 9".....
S-4242	Transformer-Driver(L14,L15) (T1)....	S-3999	Governor shaft.....
S-4239	Trap-Wave trap (L7,L9).....	S-4000	Intermediate gear, complete.....
S-4335	Volume Control (R7,S2).....	S-4001	Governor bearing(smaller dia,centre)
SPEAKER ASSEMBLIES		S-4004	Governor bearing.....
S-3556	Dust Cap (Pkg.3).....	S-4156	Speed indicator dial.....
S-3867	Cone-Cone and Voice Coil Assembly (L18).....	S-4421	Turntable shaft.....
S-3502	Speaker.....	S-4422	Turntable holding clip (Pkg.3)....
S-4243	Transformer-Output (T2) (L16,L17)...	S-4003	Governor.....
MISCELLANEOUS ASSEMBLIES		PICK-UP ARM ASSEMBLIES	
S-4403	Clamp-Dial clamp (Pkg.2).....	S-3459	Arm-Pick-up arm shell.....
31581	Cell-Bias cell.....	S-4407	Crystal-Crystal cartridge.....
S-4402	Cloth-Grille cloth.....	S-3633	Base and pivot shaft.
		S-4408	Needle-Plug-in type.....
		31054	Grommet-Pick-up base.....
		S-3466	Spring-Cable retaining spring(Pkg.2)
		S-3462	Screw-Crystal retaining screw(Pkg.2)

All parts and prices subject to change or withdrawal without notice.