

Instructions for
RCA Victor RE-40
Radio-Phonograph Combination
Five-Tube Table Model

INSTALLATION

Location—The instrument should be placed on a level surface, such as a table, convenient to the antenna and ground connections and to an electrical outlet.

Phonograph—Remove the packing material from the phonograph compartment. With the speed shifter (lever projecting beneath turntable at front left-hand corner) set in the outward (78 R. P. M.) position, mount the turntable (packed in outfit package) on the motor spindle. Make sure that the drive pin engages the slot in the turntable hub. Insert the used-needle cup (also in outfit package) in the opening provided.

Antenna and Ground—An antenna 25 to 75 feet long, including the lead-in and ground connections, is recommended. The antenna should be well insulated from all objects, and should not be run close to or parallel with electric circuits inside or outside the building. Generally, an indoor antenna of short or medium length should be found satisfactory. An outdoor antenna of greater length may provide some increase in the receiving range, and is recommended for localities remote from broadcasting stations. When the receiver is installed in a building of metallic construction, an outdoor antenna is essential for satisfactory results.

A good ground connection is necessary for best performance of this receiver. The connection to ground should be as short and direct as possible. If the ground connection cannot be made to a cold water pipe, a metal stake driven from 4 to 6 feet into moist earth is recommended. An approved ground clamp should be used to insure a tight and permanent connection.

Two flexible leads are provided at the rear of the receiver for connecting to the antenna and ground. Connect the *black* lead to the antenna wire or lead-in and the *yellow* lead to the

ground wire. Both connections should be soldered and wrapped with insulating tape.

Power Supply—Connect the power cord to an electrical outlet supplying alternating current at the proper voltage and frequency (cycles), as specified on the rating label inside the cabinet.

Radiotrons—The instrument is equipped and tested at the factory with RCA Radiotrons and is shipped with the tubes in the sockets. The set is therefore ready to operate when it is removed from the carton and external connections are made as described in the foregoing. The corrugated paper cover, used to protect the tubes during shipment, should be removed before operating the set.

If, when first installed, the receiver does not operate or performs imperfectly, one or more of the tubes, shields or dome terminal leads may have been jarred loose in shipment. Refer to the tube location diagram on the rating label and **make certain:**

- (a) That all tubes are in the proper sockets and pressed down firmly. *Never apply power to the instrument unless all Radiotrons are in place.*
- (b) That all shields are rigidly in place over the Radiotrons shown by double circles on the diagram.
- (c) That the spring connectors at the ends of the short flexible leads are securely attached to the dome terminals of the proper Radiotrons as indicated on the diagram.

NOTE—In order to remove the Radiotrons for test or replacement it is necessary to take out the four motorboard screws at the corners of the turntable compartment and raise the motorboard to provide the necessary clearance above the tubes.

OPERATION

The instrument has four operating controls located on the right-hand side panel of the cabinet, as follows:

- (1) **Radio Volume Control (Combined with Power Switch)** (Left-hand Knob)—In the extreme counter-clockwise position the power switch is "off." Rotating the knob slightly clockwise turns on the power—further rotation increases the volume.
- (2) **Record Volume Control (Combined with Radio-Record Switch)** (Upper Middle Knob)—For radio operation, this control must be set in the extreme counter-clockwise position. A slight clockwise rotation trans-

fers the switch for phonograph operation—further rotation increases the volume on records.

- (3) **Tone Range Switch (Lower Middle Knob)**—This switch has two positions. The counter-clockwise position gives full range reproduction. In the clockwise position, high-frequency (treble) response is decreased; also in this position, static interference (when present) is reduced.
- (4) **Station Selector (Right-hand Knob)**—This control is equipped with an illuminated dial, graduated in kilocycles to facilitate location and identification of stations.

RADIO OPERATION

To operate the receiver, proceed as follows:

1. Set the radio-record transfer switch for "Radio" by turning the Record Volume Control to the extreme counter-clockwise position.
2. Turn on the power and set the Radio Volume Control fully clockwise for maximum volume.
3. Allow approximately one-half minute for the tubes to heat, then turn the Station Selector slowly over the range of the dial until a desirable station program is heard.
4. For best reproduction reduce the Radio Volume Control setting and adjust the Station Selector accurately for loudest volume. Always use the Radio Volume Control—never the Station Selector—for regulation of volume.
5. Set the Tone Range Switch for the preferred tone quality.
6. When through operating, turn the Radio Volume Control knob fully counter-clockwise until the "off" click of the power switch is heard.

PHONOGRAPH OPERATION

Electric phonograph facilities are provided in this instrument for playing either standard (78 R. P. M.) records or long playing ($33\frac{1}{2}$ R. P. M.) records. The pickup mechanism is designed to use *Chromium Needles for Long Playing Records* (identified by the orange shank) for the reproduction of either long playing or standard records. These needles with care should play 25 records. *Never re-insert a used Chromium needle after once removing from the pickup.*

Standard (78 R. P. M.) Records—Proceed as follows:

1. Turn the Record Volume Control clockwise from the "Radio" position. Set this control near the middle of its range.
2. Apply power by turning the Radio Volume Control knob slightly clockwise from the "off" position, until the "on" click of the power switch is heard and the dial is illuminated. Several seconds will be required for the Radiotrons to heat before reproduction is possible.
3. Place a standard (78 R. P. M.) record on the turntable. Loosen the needle screw on the electric pickup. Insert a

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Chromium needle (either orange or green shank), or a full volume (full tone) steel or Tungstone needle, as far as it will go and tighten the needle screw. (Do not play more than one record with each *steel* needle.)

4. Pull the starting lever (right-hand side of turntable) forward to start the turntable. Set the speed shifter (left-hand side of turntable) outward for 78 R. P. M. Then place the needle on the smooth outer surface of the record and slide it into the first groove.
5. Adjust the Record Volume Control to obtain the desired volume.
6. The Tone Range Switch should normally be set in the counter-clockwise position, in which position most faithful reproduction over the entire musical range is obtained. To reduce needle scratch noise, particularly on old type records, this switch may be changed to the clockwise position.
7. When the record has been played, lift the pickup and move it to the right so as to clear the turntable, thereby stopping the motor. (When through playing an eccentric groove record the motor will stop automatically.)

8. When through operating, switch off the power by turning the Radio Volume Control knob to the extreme counter-clockwise position. The pickup should never be left with the needle resting on the record (or turntable) when not operating the phonograph.

Long Playing ($33\frac{1}{2}$ R. P. M.) Records—Repeat the procedure outlined under "Standard (78 R. P. M.) Records," with the following exceptions:

- (1) Use only *Chromium Needles for Long Playing Records* (identified by the orange shank).
- (2) Set the speed shifter inward, for $33\frac{1}{2}$ R. P. M. This should be done while the turntable is rotating.

Lubrication—The motor should be lubricated with light oil once every six months. Two oil holes on top of the motor are accessible when the turntable is removed. The ball bearing mechanism under the turntable should be lubricated once a year by prying off the cover and packing with vaseline or light motor grease, being careful to prevent any dirt particles from entering with the grease. Make sure that the speed shifter is in the outward (78 R. P. M.) position before replacing the turntable on the spindle.

SERVICE DATA

Voltage Rating	105-125 Volts
Frequency Rating	25, 30, 40, 50 and 60 Cycles
Power Consumption	60 Cycles, 95 Watts
Number and Types of Radiotrons	1 UX-280, 1 RCA-2A5, 1 RCA-58, 1 RCA-57, 1 RCA-2A7—Total 5
Undistorted Output	1.75 Watts
Frequency Range	540 K. C. to 1500 K. C.

This combination radio-phonograph instrument uses a five-tube Super-Heterodyne receiver incorporating a dynamic loudspeaker, two-point tone control, single heater type Pentode Output tube and the inherent sensitivity, selectivity and tone quality of the Super-Heterodyne.

The standard RCA Victor two speed motor board equipment is used and the entire assembly enclosed in a table type cabinet.

The circuit consists of an R. F. stage, a combined oscillator and first detector in the RCA-2A7 tube, an intermediate stage consisting of a transformer only, using two tuned circuits, a second detector, an output tube and a rectifier.

Service work in conjunction with this receiver will be similar to that of other Super-Heterodyne receivers of the small compact type construction. The line-up adjustments are made in conjunction with an external oscillator and an output meter. The line-up capacitors on the gang capacitor are adjusted for maximum output when the oscillator is coupled to the antenna and the set and oscillator are both set at 1400 K. C. The I. F. frequency is 175 K. C. and the two circuits that comprise it are adjusted for maximum output at 175 K. C.

Service data for the magnetic pickup is included below.

RADIOTRON SOCKET VOLTAGES

115 Volt, A. C. Line

MAXIMUM VOLUME CONTROL SETTING—NO SIGNAL

Radiotron No.	Cathode to Control Grid, Volts	Cathode to Screen Grid, Volts	Cathode to Plate, Volts	Plate Current, M. A.	Heater Volts
1. RCA-58 R. F. Amplifier	3.0	95	250	5.0	2.33
2. RCA-2A7 First Detector Oscillator	3.0	95	250	3.0	2.33
3. RCA-57 Second Detector	6.0	89	170	0.3	2.33
4. RCA-2A5 Power Amplifier	18.0	235	220	32.0	2.33
5. RCA-80 Rectifier	275 Volts PLATE TO PLATE—60 M. A. TOTAL				4.82
TOTAL CATHODE CURRENT—11 M. A.					

SERVICE DATA ON MAGNETIC PICKUP

This magnetic pickup is of a new design that results in excellent reproduction. While in physical appearance, it is similar to that of the older type, details of construction are considerably different. It consists of essentially a chromium steel magnet, two thin pole pieces, a mechanism support and bracket, a coil, and an armature.

REPLACING MAGNET COIL, PIVOT RUBBERS, OR ARMATURE

In order to replace a defective magnet coil or hardened pivot rubbers, it is necessary to proceed as follows:

- (a) Remove the pickup cover by removing the center holding screw and needle screw.
- (b) Remove the pickup magnet and the magnet clamp by pulling them forward.
- (c) Unsolder the coil leads and remove the mechanism assembly from the back plate by releasing the two mounting screws.
- (d) Remove screws A and B, Figure A, and then remove the mechanism assembly from the pole pieces.
- (e) The coil or the front pivot rubber may now be removed and replaced. If it is desired to replace the rear pivot rubber, then the end of the armature soldered to the mechanism support must be unsoldered.
- (f) The mechanism should now be reassembled except for the magnet which must be magnetized. After being magnetized the mechanism—with the pole pieces upward, should be placed so that the magnet may be slid from the magnetizer onto the pole pieces without breaking physical contact. After placing the pole pieces on the magnet, the entire assembly should be remagnetized thoroughly, being careful not to change polarity.

- (g) After reassembling to the mechanism, the entire assembly should be fastened to the back plate by means of the two screws provided, making sure support is down against pads on back. At the same time, the metal dust cover must be placed in position.

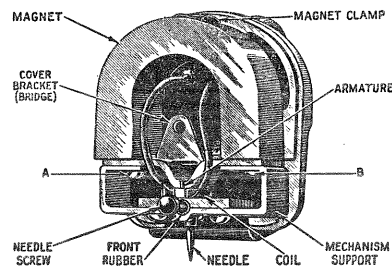


Figure A—View of Pickup showing parts

- (h) After remagnetizing, it is necessary to correctly center the armature. This may be done quite accurately by feeling its play after the needle is inserted. A little practice will quickly show which way an adjustment is necessary to have the armature centered properly. The adjustment is made by loosening screws A and B (Figure A), and sliding the mechanism slightly in relation to the pole pieces.
- (i) The cover may be now replaced over the entire assembly, and the pickup returned to the tone arm.

Only rosin core solder should be used for any soldering in conjunction with the pickup. However, if great care to wipe clean and use as small amount as possible is exercised, paste or liquid flux may be used for soldering the end of the spring.

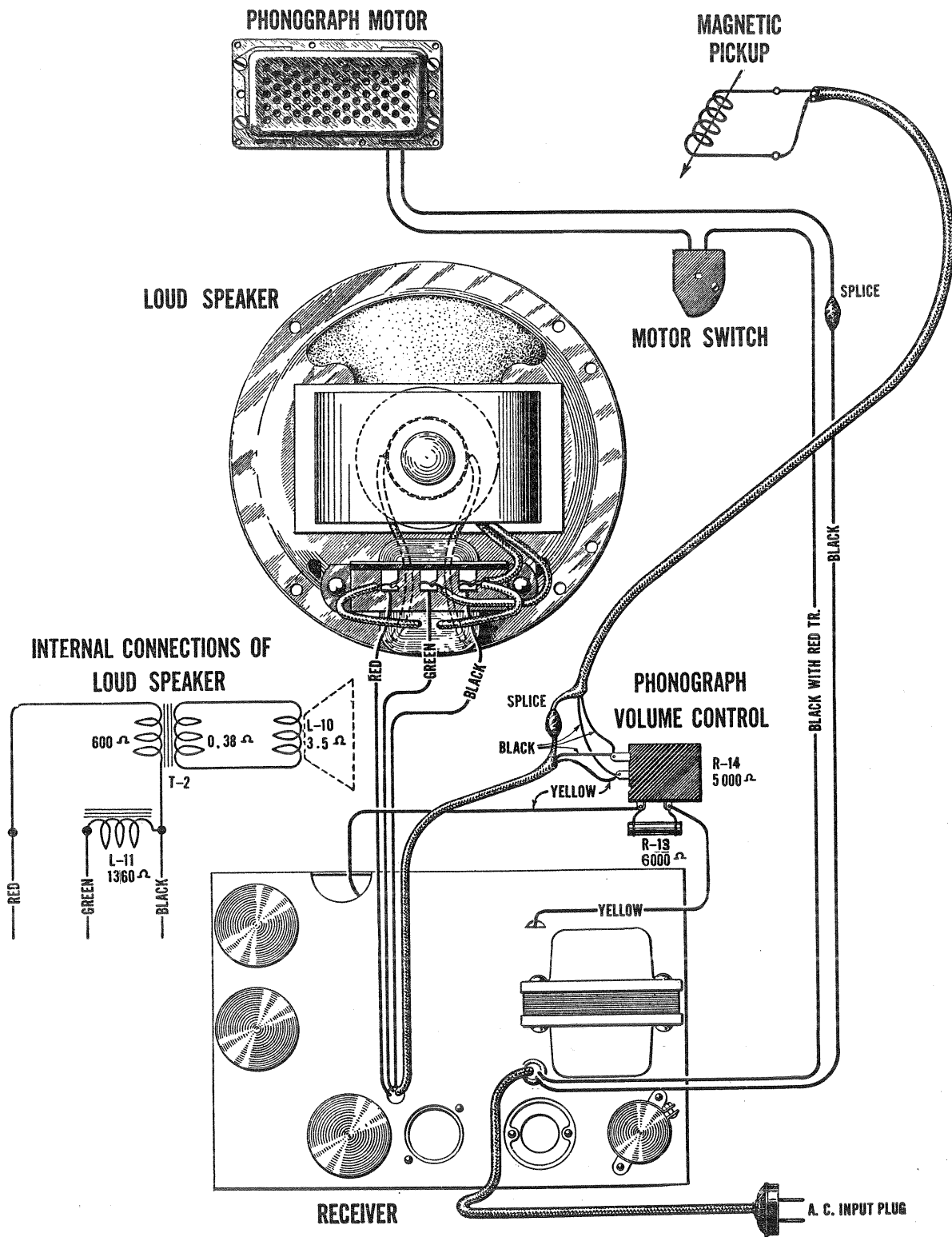


Figure B—Assembly Wiring

REPLACEMENT PARTS

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

Stock No.	DESCRIPTION	List Price	Stock No.	DESCRIPTION	List Price
RECEIVER ASSEMBLIES			MOTOR ASSEMBLIES		
2563	Resistor—6,000 ohms—Carbon type—1 watt—Package of 5.....	\$1.10	3731	Motor mounting assembly—Comprising three felt washers, three cushions, six metal washers and three studs.....	\$0.46
2747	Contact cap—Package of 5.....	.50	8989	Motor—Motor complete 105-125 volts—60 cycle.....	18.52
2749	Capacitor—2,400 mmfd.....	.35	8990	Motor—Motor complete 105-125 volts—50 cycle.....	18.52
2994	Coil—R. F. choke coil.....	.45	8991	Motor—105-125 volts—40 cycles.....	23.36
3050	Resistor—14,000 ohms—Carbon type—3 watts.....	.25	8992	Motor—Motor complete 105-125 volts—25 cycle.....	23.36
3076	Resistor—1 megohm—Carbon type— $\frac{1}{2}$ watt—Package of 5.....	1.00	8993	Rotor and shaft for 105-125 volts, 60 cycle motor.....	7.00
3456	Capacitor—0.05 mfd.....	.44	8994	Spindle—Turntable spindle with fibre gear for 60 cycle motor.....	4.75
3459	Capacitor—80 mmfd.....	.44	8995	Rotor and shaft for 105-125 volts 50 cycle motor.....	7.00
3472	Capacitor—0.0024 mfd.....	.32	8996	Spindle—Turntable spindle with fibre gear for 50 cycle motor.....	4.75
3514	Resistor—250,000 ohms—Carbon type— $\frac{1}{2}$ watt—Package of 5.....	1.00	8997	Rotor and shaft for 105-125 volts—40 cycle motor.....	8.00
3555	Capacitor—0.1 mfd.—Oscillator filter.....	.36	8998	Spindle—Turntable spindle with fibre gear for 40 cycle motor.....	5.50
3572	Socket—Radiotron 7 contact socket.....	.38	8999	Rotor and shaft for 105-125 volts, 25 cycle motor.....	8.00
3573	Socket—Radiotron 4 contact socket.....	.32	9001	Spindle—Turntable spindle with fibre gear for 25 cycle motor.....	5.50
3575	Socket—Dial lamp socket and bracket.....	.34	PICKUP, PICKUP ARM ASSEMBLIES		
3584	Ring—R. F. or oscillator coil retaining ring—Package of 5.....	.40	3386	Cover—Pickup cover.....	.56
3590	Escutcheon—Station selector escutcheon—Package of 5.....	1.40	3387	Screw assembly—Pickup mounting screw assembly comprising one screw, one nut and one washer—Package of 10 sets.....	.40
3591	Escutcheon—Name plate escutcheon—Package of 5.....	1.40	3388	Screw—Pickup needle holding screw—Package of 10.....	.60
3592	Knob—Station selector or volume control knob—Package of 5.....	.80	3389	Rod—Automatic brake trip rod with lock nut—Package of 5.....	.40
3593	Screw—Chassis mounting screw—Package of 10.....	.30	3390	Escutcheon—Pickup arm escutcheon complete with mounting rivets.....	.46
3594	Resistor—50,000 ohms—Carbon type— $\frac{1}{2}$ watt—Package of 5.....	1.00	3417	Armature—Pickup armature.....	.72
3596	Capacitor—60 mmfd.....	.36	3419	Screw—Pickup cover mounting screw—Package of 10.....	.40
3597	Capacitor—0.25 mfd.....	.40	3521	Cover—Pickup back cover.....	.18
3598	Capacitor—0.1 mfd.....	.36	3600	Coil—Pickup coil.....	.50
3601	Coil—Choke coil.....	.68	6346	Back—Pickup housing back.....	.45
3602	Resistor—60,000 ohms—Carbon type— $\frac{1}{4}$ watt—Package of 5.....	1.00	6474	Pickup—Pickup unit complete.....	4.00
3603	Resistor—500 ohms—Carbon type—1 watt—Package of 5.....	1.10	7593	Arm—Pickup arm complete less escutcheon, pickup, pickup mounting screw, nut and washer.....	6.00
3604	Capacitor—400 mmfd.....	.30	TURNTABLE ASSEMBLIES		
3605	Capacitor—770 mmfd.....	.30	3261	Bushing—Rubber bushing—Used on turntable spindle for long playing records—Package of 5.....	.40
3606	Capacitor—Comprising one 0.005 mfd. and one 0.25 mfd. capacitors.....	.40	3338	Ring—Clamp ring assembly—Comprising spring, latch lever and stud.....	.50
6228	Resistor—200,000 ohms—Carbon type— $\frac{1}{2}$ watt—Package of 5.....	1.00	3340	Washer—Thrust washer—Package of 2.....	.56
6303	Resistor—20,000 ohms—Carbon type— $\frac{1}{2}$ watt—Package of 5.....	1.00	3341	Pin—Groove-Pin—Package of 2.....	.56
6306	Resistor—14,000 ohms—Carbon type—1 watt—Package of 5.....	1.10	3342	Spring—Latch spring—Located on clamping ring—Package of 2.....	.56
6464	Transformer—I. F. transformer.....	1.88	3343	Sleeve—Sleeve complete with ball race.....	2.86
6465	Volume control—Complete with mounting nut.....	1.22	3344	Cover—Grease retainer cover—Package of 2.....	.70
6466	Switch—Tone control switch.....	.45	3346	Bushing—Speed shifter lever bushing—Package of 4.....	.66
6470	Coil—Antenna coil.....	1.08	3347	Spring—Speed shifter lever spring—Package of 2.....	.30
6471	Coil—Oscillator coil assembly.....	.74	3399	Lever—Speed shifter lever with mounting screws.....	.50
6472	Coil—R. F. coil assembly.....	.94	7084	Cover—Suede cover for turntable.....	.40
6473	Scale—Dial scale assembly.....	.50	8948	Turntable—Complete.....	5.50
7485	Socket—Radiotron 6 contact socket.....	.40	MISCELLANEOUS PARTS		
7487	Shield—Radiotron tube shield.....	.25	2947	Leather—Friction leather—Package of 20.....	.50
7588	Condenser—3 gang variable tuning condenser.....	2.85	3322	Switch—Automatic brake switch with mounting screws.....	.75
7589	Capacitor—Filter capacitor—Two 4.0 mfd., in container.....	1.64	3430	Box—Needle box with lid—Package of 2.....	.90
7590	Capacitor—10 mfd.....	1.40	3615	Knob—Tone control or operating switch knob—Package of 5.....	.60
8985	Transformer—Power transformer—105-125 volts—50-60 cycles.....	4.26	6475	Volume control—Phonograph volume control.....	1.25
9002	Transformer—Power transformer—105-125 volts—25-50 cycles.....	6.00	10174	Springs—Automatic brake springs—One set of 4 springs—Package of 2 sets.....	.50
9034	Transformer—Power transformer step-down—250-125 volts—50-60 cycles.....	4.00	10184	Plate—Automatic brake latch trip plate with mounting screws—Package of 5.....	.40
REPRODUCER ASSEMBLIES					
6467	Transformer—Output transformer.....	1.44			
8987	Cone—Reproducer cone—Package of 5.....	5.00			
9003	Coil assembly—Comprising field coil, magnet and cone support.....	2.35			

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