KRIESLER

MANUAL OF

TECHNICAL SERVICE INSTRUCTIONS

Serial No. 504

Introduction

These notes have been prepared for the guidance of technical personnel associated with the distribution of Kriesler receivers.

It should be noted that this new publication contains references to models produced from 1946 onwards, and is issued as an addendum to the previous Manual made available on earlier receivers.

There arises from time to time the necessity for slight modifications in circuit or mechanical features of the receiver to take advantage of new and improved methods and materials developed.

Details of such modifications, together with data on new receivers subsequently introduced, will be covered by separate technical sheets of the same size and dimension as those already herein contained and should be added to this Manual, thus providing the serviceman with specific details of the receiver which he may be called upon to attend to.

It will be noted that a simple reference procedure has been adopted for the identification of component parts, which will assist in giving proper service with respect to the supply of spare parts.

Where doubt arises as to any aspect of a technical nature, reference to the Company's Technical Department will receive prompt and co-operative attention.

KRIESLER AUSTRALASIA PTY. LTD.,
43 Alice Street, Newtown, N.S.W., Australia.

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SECTION "A"

TECHNICAL SERVICE INSTRUCTIONS

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INSTALLATION INSTRUCTIONS

AERIAL.—The sensitivity of Kriesler Receivers is such that for broadcast reception a well-insulated wire about 30 feet in length placed along the picture rail, should prove satisfactory.

The outdoor aerial, however, is the most efficient and is strongly recommended for long distance daylight reception on the broadcast band. An outdoor aerial should be used where good shortwave reception is required.

The length of this aerial should be from 40 to 80 feet of 7/20 bare or covered copper wire, insulated at both ends, and placed at a height of over 30 feet, and clear of all trees and buildings.

The lead-in from aerial to set should be of flexible, insulated wire, and securely soldered to the aerial.

The free end of the lead-in should be "bared" approximately ½in., and securely attached to the aerial terminal of the receiver.

The outdoor aerial installation should be periodically inspected, and repairs executed where necessary.

Note: Outdoor aerial installations should be equipped with suitable lightning arrestors.

EARTH.—In the interest of safety, and to improve reception of signals, every radio receiver should be equipped with an efficient earthing system.

The receiver should be connected to earth by means of an insulated wire attached to a water pipe (scraped clean with file) by an approved brass clamp. It is preferable to connect the earth lead to the last section of the pipe, where it enters the ground, thus avoiding the high resistance contacts at the joints.

Should a water system not be available, an efficient earth may be obtained by driving a metal pipe about 6ft. long (or by burying about four square feet of sheet metal) in moist earth.

The connection to the metal should preferably be soldered. The earth lead-in should be as short as possible, and of as large a cross sectional area as convenient (7/20 conductor). The "free" end of the lead-in should be "bared" approximately ½in. and securely attached to the earth terminal of the receiver.

RECEIVERS—BATTERY OPERATION (VIBRATOR TYPE)

SECTION "B"—Kriesler Standard "vibrator" receivers were designed to operate from a six volt D.C. source (Accumulator).

Polarity is important. Connect "+" (red) clip of battery cable to "+" 6-volt positive terminal of supply and "—" (black) clip to negative terminal of supply.

Disconnect battery clips from D.C. supply before attempting to remove base of cabinet.

Fuse rating = 5 amperes (Fuseholder in series with Battery cable).

This type of receiver was designed for use with a good "EARTH."

RECEIVERS A.C.

SECTION "C"—Disconnect connector plug from mains supply before removing chassis from cabinet. Do not make adjustments to either aerial or earth whilst instrument is connected to mains. At the factory, the receiver is adjusted for operation from 220-240 volt mains supply, 40-60 c.p.s. Where operation from 200-220 volt or 240-260 volt mains supply is required, the tap on the power transformer should be adjusted to suit local supply conditions.

SECTION "D"

ALIGNMENT PROCEDURE FOR KRIESLER RADIO RECEIVER

SUB-SECTION

1.0 To obtain the high standard of performance (selectivity, tonal quality, etc.) for which the modern Kriesler receiver was designed, the three main tuning circuits must be carefully adjusted as described in sub-sections 3.0, 4.0, and 5.0 respectively, and in that order.

2.0 To carry out the alignment operation, the following will be necessary:—

(a) A good Signal Generator (or oscillator) complete with dummy antennæ.

(b) Suitable high impedance Output Meter.

2.1 It is assumed that the Signal Generator is set to the same frequency as that specified for the Receiver pointer during the undermentioned operations. Satisfactory power connections are to be made and the set switched on where necessary.

2.2 The position of the trimmers mentioned in sub-sections 3.0, 4.0 and 5.0 is shown on the block diagrams of the models included in the Service Manual.

2.3 Connect the Output Meter between the plate and screen of the output tube. See that all grid clips, valves, shields, etc., are in position.

3.0 ALIGNMENT OF INTERMEDIATE FREQUENCY AMPLIFIERS

3.1 Set Signal Generator to 455KC, 30% modulation.

3.2 Remove grid clip and connect output lead of Signal Generator to the cap of the converter tube through an isolating condenser of approximately 0.05 u.f. capacity. Connect a resistance of approximately 50,000 ohms between the grid cap of the converter tube and the grid clip.

3.3 Set receiver Band Selector Switch to "Broadcast" position.

3.4 Commencing with the I.F.T. connected to the diode detector, peak the secondary, and then the primary winding of the I.F.T. for maximum deflection of the Output Meter. In a similar way, peak the trimmers of each preceding I.F.T. in turn, until the I.F.T. connected to the converter has been aligned in this way.

Repeat the procedure until every trimmer is set for maximum gain.

NOTE.—It is necessary that the "Attenuation Control" of the Signal Generator should be adjusted after each trimming operation until the Output Meter registers 15 volts approx. (50 volt range, 1,000 ohms per volt.) Primary cores are generally accessible from underneath the chassis, and secondary cores located in top of the I.F.T's. The alignment should be carried out with tuning condensers fully meshed. Care should be taken to see that each I.F.T. is aligned on the correct frequency. (Outermost peak where two peaks occur.) Under these conditions rotating the main tuning spindle should have very little effect on the I.F. amplifier sensitivity.

3.5 Remove Signal Generator "output lead," and the resistor from the grid cap, and replace grid clip.

4.0 ALIGNMENT OF BROADCAST SECTION

4.1 Connect suitable broadcast dummy antenna of Signal Generator to the Aerial and Earth terminals of the receiver.

4.2 Check pointer travel. Pointer should coincide with setting mark on top of glass, when tuning condensers are fully meshed.

4.3 Set both receiver and Signal Generator to 1,500 K.C. Adjust oscillator trimmer, T1, until signal from generator is received at maximum strength. Adjust aerial trimmer (T2) for maximum signal output.

4.4 Set receiver and Signal Generator to 550 K.C. Adjust iron core in oscillator coil (T3) until maximum signal from Generator is obtained.

4.5 Set receiver and Signal Generator to 600 K.C. and peak aerial trimmer core (T4) for maximum output.

4.6 Repeat 4.3, 4.4, 4.5, and 4.3 in that order.

4.7 Set Receiver and Signal Generator to 1,000 K.C. and check aerial trimmer setting (T2). The aerial trimmer should be at about maximum peak. If the aerial circuit is well out of alignment one of the following is probably the cause:

(1) The alignment operation has not been correctly carried out.
(2) Bent tuning condenser plates.
(3) Faulty padder condenser.
(4) Incorrect pointer setting.

4.8 Repeak aerial trimmer (T2) at 1,500 K.C. Check calibration.

4.9 This completes the alignment of the Broadcast Band.
Disconnect Broadcast dummy antenna.

5.0 ALIGNMENT OF SHORT WAVE CIRCUITS

5.1 Connect Signal Generator short wave dummy antenna to the Aerial and Earth terminals of the receiver. Set receiver Band Selector switch to "Short wave" position.

5.2 Set receiver and Signal Generator to 18 M.C. Adjust oscillator trimmer (T5) until the signal from the Generator is heard.

NOTE.—There will be two "spots" to which the Receiver may be tuned. The higher frequency spot as it appears on receiver dial, is the correct one. Adjust aerial trimmer (T6) for maximum output, taking care to "rock the dial" of the receiver during the process.

5.3 Set receiver and Signal Generator to 6 M.C.

AIR CORE COILS.—Adjust outer turn of oscillator coil until signal is received. (If the signal is received at a frequency greater than 6 M.C. on the dial of the receiver, push the outer turn away from the adjacent one, and vice versa if the signal is received at a lower frequency than 6 M.C. on the dial.) Adjust the outer turn on the aerial coil for maximum output.

N.B.—Adjustment to be made to coil at end opposite fine wire winding.
IRON CORE COILS.—Adjust the core (T7) of the oscillator coil until the signal is received. Adjust the core (T8) in the aerial coil for maximum output.

5.4 Repeat 5.2, 5.3, and 5.2.

5.5 Tune receiver and Signal Generator to 10 M.C. and check the tracking at this point.

Repeat 5.2.

5.6 Check calibration.

5.7 This completes the alignment of the receiver.

Disconnect dummy and output meter.

T1 — Trimmer condenser, Broadcast oscillator.
T2 — Trimmer condenser, Broadcast aerial.
T3 — Trimmer core, Broadcast oscillator.
T4 — Trimmer core, Broadcast aerial.
T5 — Trimmer condenser, Shortwave oscillator.
T6 — Trimmer condenser, Shortwave aerial.
T7 — Trimmer core, Shortwave oscillator.
T8 — Trimmer core, Shortwave aerial.

GENERAL INFORMATION

Station	Frequency (K.C.)	Station	Frequency (K.C.)
2CR	550	5KA	1,200
7ZL	600	2PK	1,400
2FC	610	5AU	1,400
4MB	1,000	3AK	1,500
7EX	1,000	2BS	1,500

SECTION "F"

TECHNICAL SERVICE INSTRUCTIONS

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GENERAL INFORMATION AND NOTES.

BATTERY MAINTENANCE

1. CLEANLINESS.
   Keep the outside of the battery clean and dry; a dirty battery causes loss of current, which means more frequent recharging.
   Terminals should be lightly smeared with petroleum jelly. Corrosion can be overcome by scraping the terminals clean, washing with a diluted solution of ammonia or soda, rinsing with water, drying and smearing the terminals with petroleum jelly.

2. TOPPING UP.
   Distilled water should be added regularly so that the electrolyte covers the plates by $\frac{3}{8}$". Distilled water only should be used; this makes up any loss of liquid by evaporation. Any loss by spilling should be made good at your nearest Radio Service or Garage.

3. LEAKING BATTERIES.
   A leaking Battery should never be used. Cracked containers or cell covers should be immediately replaced. A cracked container cannot be successfully repaired.

4. DOPES.
   Dopes of any description should not be added to a Battery.

5. NAKED LIGHTS.
   Naked lights should not be used to inspect a battery as the liberated gases are of an explosive nature.

6. RECHARGING.
   A battery should be recharged when the voltage (in circuit) drops to 1.8 volts per cell, or when the specific gravity drops to 1,120. Specific gravity is measured by a hydrometer, which should always be kept clean. The state of charge is indicated as follows:—

Full Charged	Half Charged	Fully Discharged
1,280	1,200	1,120

To Test Specific Gravity with a Hydrometer—

1. Remove vent plug from cell.
2. Compress rubber bulb, and place rubber tube below surface of liquid.
3. Release pressure on bulb completely.
4. When bulb is completely expanded, take gravity reading, refer to battery manufacturer's specification which gives equivalent readings showing battery fully charged, half charged, or dead.
5. Return liquid to cell from which it was taken.
6. Rinse hydrometer thoroughly in water after using.
7. Wash and clean hydrometer and inside of glass barrel regularly, otherwise low readings are obtained.

The normal charging rates of 6 volt Radio Batteries are:—

11 Plate — 6 Amperes
13 Plate — 7 „
15 Plate — 8 „

7. OVER-DISCHARGE.

A battery should not be discharged below 1.8 volts per cell. In an emergency, however, little harm will result if the battery is discharged to its full extent, provided it is immediately recharged.

8. TERMINALS.

With Batteries, where possible, all positive Terminals are marked in Red.
Care should be taken to connect the positive lead to the positive terminal and the negative lead to the negative terminal.
Sulphuric Acid will destroy clothing, etc. Any acid accidentally spilt can be neutralised by a solution of soda of ammonia.
A radio battery is specially made with thicker plates and is designed for slow discharge and will function for long periods without recharging.
Radio Batteries cannot be effectively substituted by Car Batteries.

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ELIMINATION OF "HASH" IN VIBRATOR RECEIVERS.

Perhaps one of the most baffling troubles with which the serviceman is confronted is that of eliminating "Hash" in vibrator receivers.

This particular form of trouble is inclined to be common to every receiver fitted with vibrator operated power supply.

However, the "Hash" problem, from a serviceman's view point, should be practically non-existant in Kriesler receivers, provided that the serviceman takes care when replacing or adjusting components, and does not upset wiring or layout.

The following points will help the serviceman to locate and overcome any "Hash" problems that he may encounter in servicing Kriesler receivers.

It is assumed that the receiver is aligned and operating in a normal manner, except for the "hash."

(1) Disconnect Aerial. Connect 400 ohms resistor between aerial and earth terminals of receiver. Connect output meter to receiver, and adjust volume control until "Hash" level is relatively low, and a reasonable indication is shown on meter. Proceed to eliminate "Hash."
(2) Faulty vibrator cartridge. Replace with cartridge known to be satisfactory.
(3) Short between case of power supply, and chassis within the case. The inner chassis should be insulated from the case and the main chassis until the lead from the inner chassis is connected to main chassis.
(4) Faulty by-pass condenser on A + (on Main Chassis, generally 0.5 uF).
(5) Faulty by-pass condenser on B + (on Main Chassis, generally 0.01 uF).
(6) Faulty by-pass condenser (on A +) in vibrator supply. (Generally 0.5 uF.)
(7) Faulty buffer condenser in vibrator power supply. (Generally 0.02 uF.) It is essential that buffer condensers be connected directly to pins of cartridge socket.
(8) Incorrect adjustment of inductances in filter circuit.
(See data on Model 31-1 receiver.)
(9) It is most important that "Shielded" side of each by-pass condenser should be connected to chassis.
(10) All by-pass condenser leads should be as short as practically possible.
(11) When replacing an R.F. choke, take precautions to see that the "Start" and the "Finish" of the winding are connected to the appropriate lugs.

(12) Receivers generally "Hash" if top is removed from vibrator box, or when box is removed from chassis. A receiver is judged for "Hash" when all parts are in position and set is in a normal operating condition.

DEFINITIONS.—When reference is made to a "faulty" condenser, it is understood that the condenser may be:—

(a) Open circuit.
(b) Capacity not within specified tolerance.
(c) Poor insulation.
(d) "Leaky."

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CONNECTION OF RECORD PLAY BACK UNIT (PICK-UP) TO KRIESLER RECEIVER.

A record play back unit or pick-up may be connected to receivers, which have been fitted with terminals for the purpose, viz.—Models 115, 116, 117, 119, etc.

Any of the well-known types of magnetic or crystal pick-ups may be used, provided that the output is at least 0.25 volts.

METHOD OF CONNECTION.—Remove "bridge" or "link" from the two insulated terminals.

Connect "braided" or "earth" lead of pick-up to outer terminal marked "E" (i.e., terminal attached to metal chassis).

Connect remaining lead of pick-up to centre terminal (i.e., insulated terminal marked "P.U.").

Turn the wave change switch to "shortwave" to prevent local station from breaking through.

The player may now be operated, and the volume control of the receiver adjusted to control the output from the speaker.

To use the receiver for the reception of broadcast signals, disconnect the pick-up and replace the bridge or link.

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PROCEDURE FOR REMOVING CHASSIS FROM CABINETS.

Models 11-4 and 31-1.

1. Remove knobs.
2. Invert receiver.
3. Remove base by breaking seal and unscrewing 4 x 3/16" screws in base of cabinet.
4. Remove 4 x 3/16" nuts, situated in the inside corners of the chassis.
5. Lay receiver on its back with spindles facing upwards.
6. Place one hand each side of the chassis. With the forefingers, exert a downward pressure on the front panel, at the same time withdrawing the chassis from the cabinet.

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CHASSIS NUMBERS.

Every receiver that leaves the Kriesler factory is given two chassis numbers.

The "Production" chassis number is stamped on a card. The card is rivetted to the main chassis in such a location that the number is able to be read without removing the chassis from the cabinet. The "Production" chassis number is the number that should be quoted, together with the model number, when making enquiries.

The second chassis number (Prefix "0") is stamped into the metal chassis to provide a permanent record.

Both the abovementioned chassis numbers are recorded at the factory.

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PUSH-FIT KNOBS.

A piece of strong cloth slipped under the edge of the knob (between knob and cabinet), forms a convenient grip for purpose of removing tight knobs.

RECEIVER MODEL No. 31-1.

Typical Voltage Analysis.

ECH35 (CONVERTER)

Plate	140v. D.C.
Screen	80v. D.C.
Osc. Plate	100v. D.C.
Cathode	−1.5v. D.C.
Heater Volts	6v. D.C.

IM5G (I.F. AMP.)

Plate	140v. D.C.
Screen	85v. D.C.
Filament Volts	+1.85v. D.C.
Filament Volts	−0

1K7G (DET. AUDIO AMP.)

Plate	42v. D.C.
Screen	26v. D.C.
Filament Volts	+1.85v. D.C.
Filament Volts	−0

1L5G (OUTPUT VALVE)

Plate	135v. D.C.
Screen	140v. D.C.
Filament Volts	−3.9v. D.C.
Filament Volts	+5.75v. D.C.

CARE OF RECORDS.

To ensure long life and the best possible reproduction of which the record is capable, the following points should be heeded:—

(1) To prevent warpage, store records horizontally on a flat, smooth surface, taking care to separate records with piece of cardboard or thick paper. Record covers prove to be quite satisfactory.

(2) Keep records in a dry cool place, away from excessive heat or humidity.

(3) Records should be completely covered to exclude dirt and dust, for quite small pieces of abrasive matter can quickly ruin records.

(4) Records should be cleaned each time before use. The top surface can be satisfactorily cleaned by rubbing lightly with a chamois leather duster. A piece of cotton wool or a fine mohair brush should be used to remove dust from grooves. Polishing fluids should not be used as they produce rapid ageing of the record surface.

NEEDLES.

Steel needles are often not of the correct shape and even when new are apt to have a rough surface and, in some cases, a chisel point. The record itself grinds the needle to the correct shape to suit the record, but at the expense of the first score of grooves. Steel needles should not be used for more than one side of the record for they rapidly destroy the smoothness of the groove walls, and so give rise to an increase of surface noise.

Fibre needles are softer than steel needles and do not do so much damage to the record, but they lose their shape after the first minute or so of use. Fibre needles give a poorer top response than steel needles, which accounts for the lower needle scratch level with this type of stylus. Fibre needles are likely to collect small particles of grit, either from the record surface or the abrasive strip on which they are usually sharpened. These small pieces of grit become embedded in the fibre and may do considerable damage to the record grooves. Always use a metallic sharpener.

Thorn needles are generally better than fibre needles and offer the best compromise between sapphire style and non-permanent needles.

Semi-permanent styli are generally of a better shape and finish than ordinary steel needles, but possess similar disadvantages. They are harder than ordinary steel needles, hence the "grinding in" process takes longer with resultant increased record wear.

Sapphire-tipped styli have many advantages, the most obvious of which is their long useful life. (Under best conditions, up to 10,000 playings.) A sapphire is very much harder than even semi-permanent needles. During manufacture, a good quality sapphire styli is ground to the correct shape, then highly polished, thus relieving the record of this onerous task. Their hardness ensures that they retain their shape and finish whilst in use.

Particular care should be exercised if your pick-up is equipped with a sapphire-tipped needle. Although the sapphire is very hard, and long wearing, it is brittle and may be fractured or chipped if dropped on to the record. Records will be quickly ruined if played with a chipped sapphire needle.

NEEDLE SCRATCH.

Ordinary commercial gramophone records are pressed from a material that has, as one of its constituents, a hard abrasive substance, the main purpose of which is to grind the needle point to the required shape for optimum results.

The contact of the needle and the abrasive matter in the record causes undesired noise to be generated over a wide range of frequencies. This noise is reproduced in the speaker as needle scratch. Due to the combined effects of speaker, pick-up, and the characteristics of the human ear, the noise appears most objectionable at frequencies between 3,000 and 7,000 cycles per second. For this reason it is not practicable to filter out all the undesired noise without attenuating the desired frequencies which make up the upper register of music.

One method of reducing needle scratch is to design the amplifier to have a "falling frequency characteristic" at frequencies above 4,000 C.P.S.

Correct design of the tone compensator or scratch filter circuit may result in a satisfactory compromise between low scratch level and good reproduction.

The design of a filter takes into account the characteristics of the pick-up, degree of scratch considered tolerable, circuit in which correction is to be applied, and type of control, i.e., fixed or adjustable.

AUTOMATIC RECORD CHANGER — (Part No. 29-2).

Operating and Maintenance Instructions.

INTRODUCTION.

The automatic record changer installed in this instrument provides manual or automatic playing of standard 10" or 12" records, with minimum of waiting time between records during automatic operation. When set for automatic operation, the changer will continue to repeat a single record placed on the turntable (or the last record of a stack) until the control knob is returned to the "STOP" position.

INSTALLATION.

When the receiver is in position, loosen the three mounting screws (these screws are accessible from the top of the main plate), until the changer unit rides freely on the cushion springs. Retighten the screws when transporting or moving receiver. Fit the sapphire needle to the crystal cartridge, using a small screwdriver, and taking care to see that the needle screw bears on the flat surface on the shank of the needle.

The motor is designed for operation from 220-260 volts, 40, 50 and 60 C.P.S. mains supply. Speed adjustment, to compensate for change of power frequency, is possible by replacing brass drive collar (located under turntable) with collar of appropriate diameter to suit particular supply frequency.

Insert spindle in centre of turntable, taking care to see that it is pushed into its seat.

OPERATION — AUTOMATIC.

(a) Turn the Record Selector Post to the 10" or 12" position, for ten or twelve inch records respectively.

(b) Turn the Record Ballast Weight backwards, place up to twelve 10" records, or ten 12" records on the spindle, so that the bottom record rests on the top of the spindle and on the shell of the Record Selector Post.

(c) Turn the Record Ballast Weight forward to rest on the top record.

(d) Move the control knob from the STOP position (nearest the Pick-up Arm Rest) to the START —RESET position (farthest from the Pick-up Arm Rest) and release. The control will then drop back into the automatic playing position and the mechanism will continue to operate automatically until the control is returned to the STOP position.

(e) To reject any record while playing in the automatic position, move the control knob momentarily to the START—REJECT position.

(f) The changer should be stopped only when the needle of the pick-up arm is on the record. It should not be stopped when the arm is lifting automatically to enable the record to drop. The recommended procedure should be followed:—

(1) Lift the pick-up arm from the record and place on the rest.

(2) Move the switch button directly to the STOP position. Be careful not to move the switch button to the REJECT position in this operation.

(g) After the last record has been played, the entire stack may be removed from the turntable at one time. The simplest procedure is as follows:—
(1) Place the pick-up arm on the rest.
(2) Turn the record ballast weight back out of position.
(3) Remove spindle.
(4) Lift the stack of records.

OPERATION — MANUAL.

(a) Turn the Record Selector Post to the 12" position (this is not essential but permits more clearance in loading and unloading records).
(b) Place a record on the turntable.
(c) Move the Control knob from the STOP position to the MANUAL position. (No harm will result if the knob is accidentally moved to the START—REJECT position while moving it from STOP to MANUAL. If a twelve inch record is on the turntable, the arm will automatically index to the edge of the record. If a ten inch record is on the turntable, the needle will be set down gently on to the rubber pad and the arm may then be moved manually to the edge of the record).
(d) Place the needle gently on the edge of the record.
(e) To stop the mechanism at any time, move the control knob to the STOP position.

MAINTENANCE.

(a) Particular care should be exercised if your pick-up has a sapphire needle point. Although the sapphire is very hard and long-wearing, it is brittle and may be fractured or chipped if dropped on the record. Records are quickly ruined if played with a chipped sapphire needle.
(b) After the first two years of service, bearings should be sparingly oiled once a year. Superfluous oil should be wiped off surfaces with a clean rag. Do not allow oil to come into contact with rubber on drive wheel. To gain access to bearings, lift turntable off centre post.
(c) When the spindle is not pushed "home," occasions may occur when the apparatus allows more than one record to fall on to the turntable.
(d) To adjust the setting down point for the needle, proceed as follows:—
(1) Place a standard 12" record on the spindle, and push Control Knob to START.
(2) As the needle reaches playing level, push Control Knob to STOP, observing point where needle touches record.
(3) Adjust "Indexing" screw in pick-up arm (accessible from top through hole in bakelite). Repeat (1) and (2), and readjust index screw until needle falls on record at required point. When adjustment has been made for 12" standard record, no further adjustment will be needed for 10" record.
A standard 10" record measures $9\frac{7}{8}$" outside diameter, and a standard 12" record measures $11\frac{7}{8}$".

NOTE.—An automatic record changer, although an intricate piece of machinery, can give years of trouble free service provided that it is operated with reasonable care, and in accordance with the manufacturer's instructions. Service adjustments should be carried out by a qualified machanic.

RECORD PLAYER UNIT — (Part No. 29-3).

Operating and Maintenance Instruction.

GENERAL.

The record player supplied with this instrument is intended to play standard commercial records up to twelve inches in diameter, at a constant speed of 78 revolutions per minute.

An automatic cut-off switch stops the motor when the record finishes playing.

The MOTOR is designed to operate from 220-250 volts A.C., 50 cycles per second power mains. For operation at other frequencies, consult your authorised Kriesler agent.

The PICK-UP is a crystal type, and should be treated with considerable care. Ordinary needles or sapphire needles may be used with the crystal pick-up. The needle should be firmly held in position by the needle screw. Do not over-tighten screw.

INSTALLATION.

After the instrument has been placed in position, loosen the three mounting screws (accessible from the top of the main plate) until the turntable unit rides freely on the cushion springs. The Receiver should be neither transported nor turned on its side unless the mounting screws have been previously tightened.

METHOD OF OPERATION.

(a) Turntable stationary, pick-up arm on rest, needle in position.
(b) Place record on turntable.
(c) Press start button (located near base of pick-up arm).
(d) Hold pick-up arm over edge of turntable, then gently bring down the needle on to the beginning of the record.
(e) When the needle has traversed the record, the pick-up arm should trip the automatic cut-off switch to allow the turntable to come to rest.

N.B.—Old type records that were not made with eccentric grooves, may not trip the automatic switch. On these occasions, at the conclusion of the playing, the pick-up should be lifted off the record and moved horizontally towards the centre of the record to operate the cut-off switch.

(f) Return the pick-up arm to its rest.
(g) For best results, instrument should be operated with lid closed.

CARE OF NEEDLES.

Particular care should be exercised if your pick-up is equipped with a sapphire tipped needle. Although the sapphire is very hard, and long wearing, it is brittle and may be fractured or chipped if dropped on to the record. Records are quickly ruined if played with a chipped sapphire needle.

When inserting flat shanked needles, take care to see that the screw bears on the flat side of needle. Needles should be used in accordance with the manufacturer's instructions:—Do not exceed recommended playing time, otherwise record life and quality of reproduction is impaired.

MOTOR MAINTENANCE.

After the first two years of service, bearings and moving parts should be sparingly oiled once a year with a light machine oil. Wipe off superfluous oil with a clean rag. Do not allow oil to come into contact with rubber on drive wheel. Bearings are readily accessible by lifting turntable off spindle.

KRIESLER AUSTRALASIA PTY. LIMITED

TECHNICAL SERVICE BULLETIN

RE 6M5 VALVE

Recently it has been brought to our notice that some batches of Type 6M5 valves have been giving trouble in the field.

The trouble is caused by a silver deposit appearing internally in the base of the valve causing a high resistance leakage between elements.

Invariably this trouble can be cured by disconnecting all components from No. 9 lug on the valve socket and connecting the components to a separate stand-off insulator, so that No. 9 lug on the socket becomes a blank.

The components which connect to No. 9 lug are the .01 uf coupling condenser, the grid leak and the 40,000 or 50,000 ohm suppressor resistor.

A. M. BENNETT,
CHIEF TECHNICAL ENGINEER,
KRIESLER AUSTRALASIA PTY. LIMITED.

29th January, 1954.

KRIESLER AUSTRALASIA PTY. LIMITED

TECHNICAL SERVICE BULLETIN

RE SM MICA CAPACITORS

We have been advised that some mica capacitors recently supplied to the Trade may have faulty crimping internally, caused by a defect in the manufacturer's tools, resulting in intermittent operation — particularly SM type mica condensers 435 P.F. and 465 P.F. as used in the oscillator padding circuits.

Although prompt action by our Inspection Department has prevented the use of any large quantity of suspected types, it is realised that it would be of assistance to Servicemen to recommend that the oscillator padder capacitor be suspected in any case of a troublesome receiver which intermittently fades and/or ceases to operate, as the fault may not be revealed by conventional methods of test.

A. M. BENNETT,
CHIEF TECHNICAL ENGINEER,
KRIESLER AUSTRALASIA PTY. LIMITED.

31st March, 1954.

KRIESLER AUSTRALASIA PTY. LIMITED

TECHNICAL SERVICE BULLETIN

RE SPEAKERS

It is evident that a batch of Speakers have been issued with the voice coil winding ineffectively glued to the voice coil former.

This fault did not become apparent at the time of our inspection process, which includes a full test of each individual Speaker in cold condition as received from the manufacturer and a retest in a heated condition after two hours at 65°C.

From close observations the standard of these Speakers has been back to normal for some time but with regard to those which may have been inadvertently used in production, the purpose of this memo. is to advise that the effect of the Speakers referred to, is to distort usually after 2/3 hours of operation, and should you experience these conditions we recommend that the Speaker be suspected and if faulty returned for replacement.

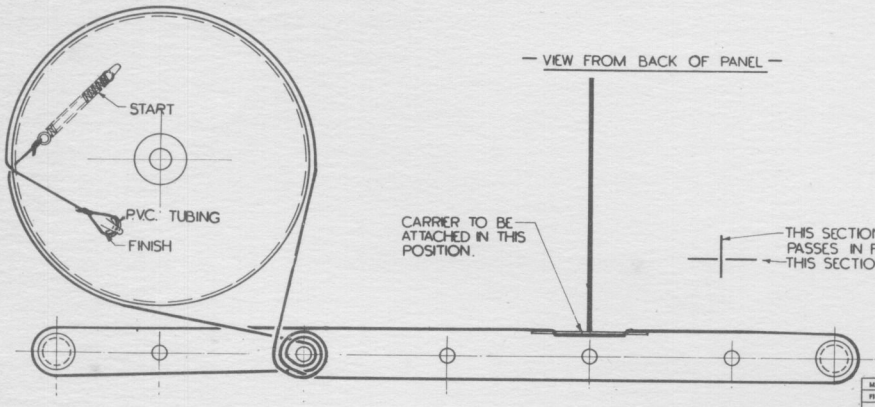
A. M. BENNETT,
CHIEF TECHNICAL ENGINEER,
KRIESLER AUSTRALASIA PTY. LIMITED.

TECHNICAL SERVICE INSTRUCTIONS

ISSUED BY

KRIESLER AUSTRALASIA LTD.

DIAL DRIVE MODIFICATIONS



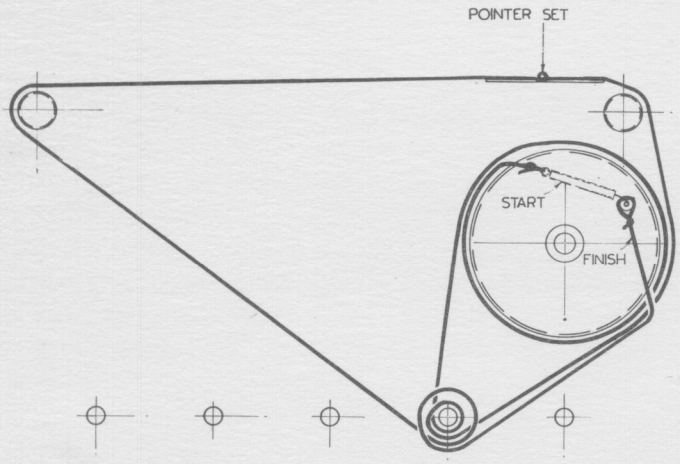
NOTE:- APPROXIMATE LENGTH OF CORD 54".

MATERIAL									
FINISH									
Before production is commenced 2 samples must be submitted to Drawing Office for approval.									
Work to Dimensions only. TOLERANCES: Unless otherwise specified Tolerances to be read as:— ± On Fractions. ± on Decimals.		DRAWN	A.Gillan	28-7-60	USED ON	QTY.	USED ON	QTY.
		CODING	M.E.T.	31-7-60				
		PLANNING	M. de Lacy	31-7-60				
SCALE	Prescription No.	CHECKED	I.D.F.	31/7/60				

— DIAL DRIVE LAYOUT (MODIFICATIONS) 41-3, 31-4, 11-7, 11-26.

DATE:-8-7-60

SHEET No.	This Drawing must be returned to KRIESLER (A'SIA) LTD. 43 ALICE ST., NEWTOWN, SYDNEY.	APPROVED	Card No.
No. of Sheets.			File No.



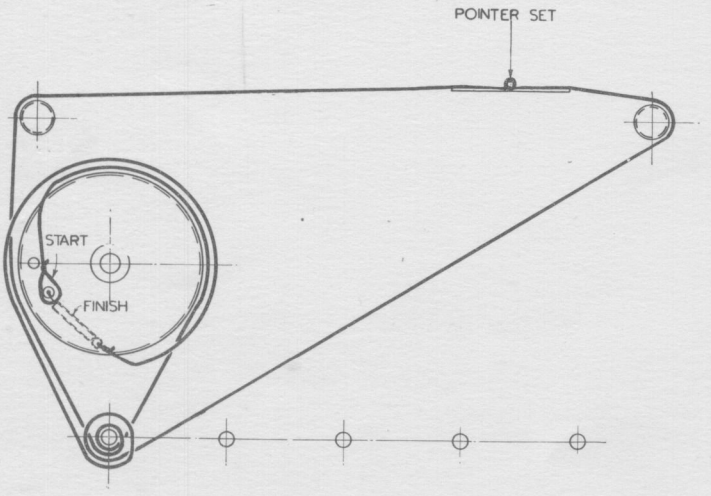
APPROX. LENGTH OF CORD = 50".

MATERIAL									
FINISH									
Before production is commenced 2 samples must be submitted to Drawing Office for approval.									
Work to Dimensions only. TOLERANCES: Unless otherwise specified Tolerances to be read as:— ± On Fractions. ± on Decimals.		DRAWN	A.Gillan	28-7-60	USED ON	QTY.	USED ON	QTY.
		CODING	M.E.T.	7-8-60	11-20	1		
		PLANNING	M.E.T.	7-8-60	31-5	1		
SCALE NTS.	Prescription No.	CHECKED	I.D.F.	7/8/60				

DIAL DRIVE LAYOUT MODIFICATION 11-20 31-5

ISSUE 1

SHEET No. —	This Drawing must be returned to KRIESLER (A'SIA) LTD. 43 ALICE ST., NEWTOWN, SYDNEY.	APPROVED	Card No.
No. of Sheets. —			File No.



APPROX. LENGTH OF CORD = 52"

MATERIAL									
FINISH									
Before production is commenced 2 samples must be submitted to Drawing Office for approval.									
Work to Dimensions only. TOLERANCES: Unless otherwise specified Tolerances to be read as:— ± On Fractions. ± on Decimals.		DRAWN	A.Gillan	28-7-60	USED ON	QTY.	USED ON	QTY.
		CODING	M.E.T.	7-8-60	-	-	-	-
		PLANNING	M.E.T.	7-8-60	-	-	-	-
SCALE NTS.	Prescription No. —	CHECKED	I.D.F.	7-8-60				

DIAL DRIVE LAYOUT MODIFICATION 11 - 25

ISSUE 1

SHEET No. —	This Drawing must be returned to KRIESLER (A'SIA) LTD. 43 ALICE ST., NEWTOWN, SYDNEY.	APPROVED	Card No.
No. of Sheets. —			File No.

TECHNICAL SERVICE INSTRUCTIONS

ISSUED BY

KRIESLER AUSTRALASIA PTY. LTD.

●

PROCEDURE FOR FITTING A.C. MAINS SUPPLY TO BATTERY DUPLEX MODEL

The A.C. mains supply unit is fitted into the Duplex base by means of the locating spiggots in the base itself and the screw provided on the bottom of the mains supply unit.

You will note from the A.C. "battery" slider switch situated on the mains supply unit that the filament and B plus leads from the A.C. supply unit are soldered to the rear lugs whilst the outside lug is the filament supply and the inside lug is the B plus supply — as indicated on the following sketch of the mechanical lay-out.

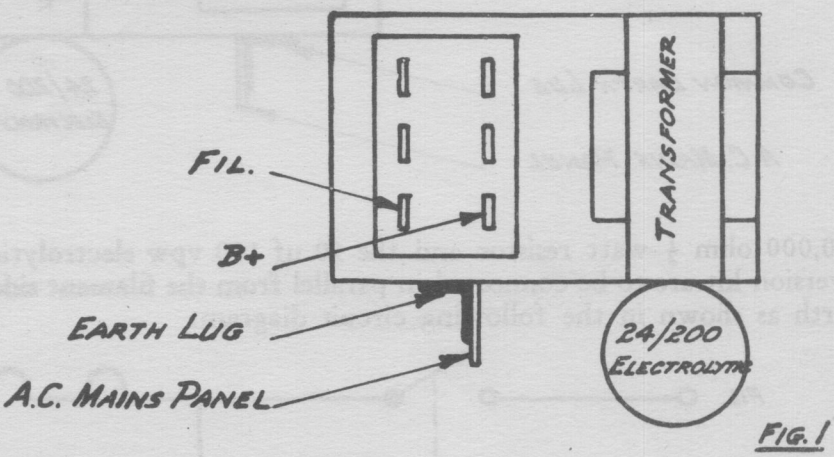


FIG. 1

A sketch of the circuit of the mains supply unit is as follows:

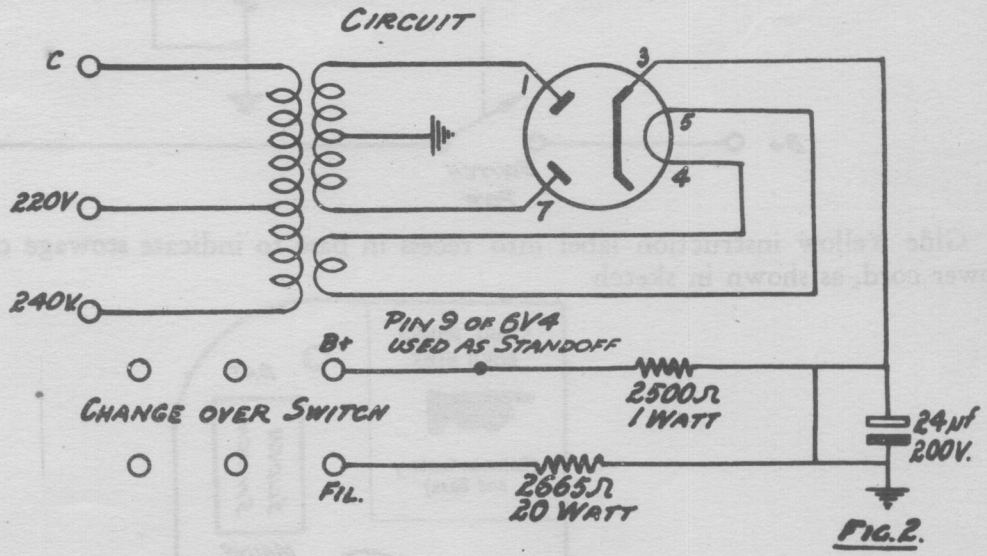


FIG. 2.

The connection of the leads from the receiver to the battery plug is shown on the following diagram being viewed from the bottom of the plug.

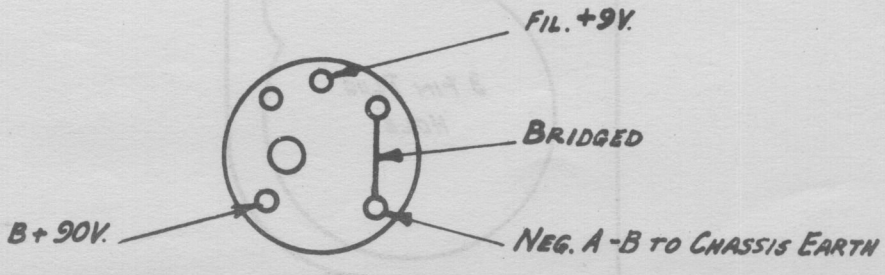


FIG. 3

The battery leads already attached to the receiver are to be cut approximately 9 inches from the battery plug. Solder the B plus lead from the receiver to the inside centre lug of the slider switch and the filament lead from the receiver to the outside centre lug of the slider switch. The common earth lead from the receiver is soldered to the earth lug of the mains supply unit.

The remaining two lugs of the slider switch are to be used for attaching the battery cable, the outside lug for the filament supply lead and the inside lug for the B plus lead. Use the same earth lug on the mains supply unit.

The following is a sketch showing the unit after the above wiring has been completed.

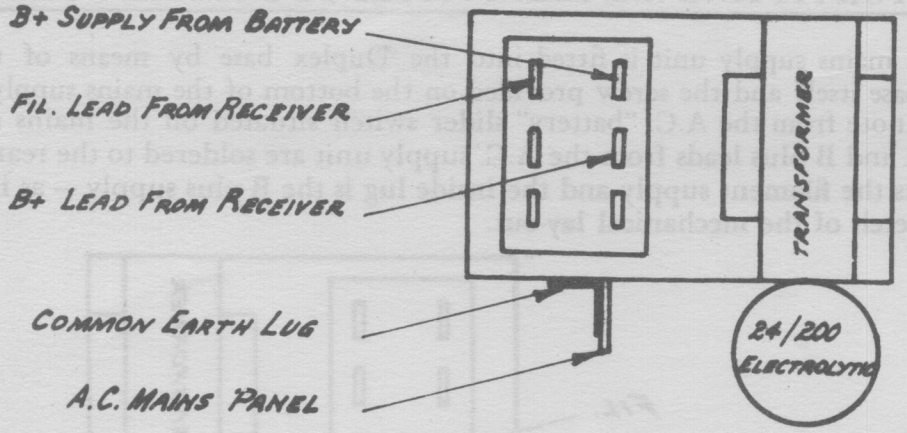


FIG. 4.

The 50,000 ohm ½ watt resistor and the 50 uf 150 vpw electrolytic condenser supplied with the conversion kit are to be connected in parallel from the filament side of the switchpot to the chassis earth as shown in the following circuit diagram:

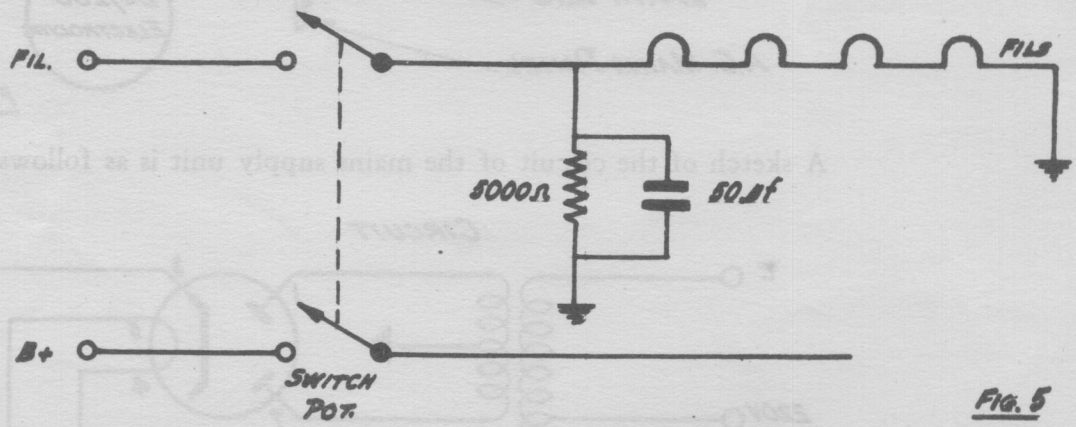


FIG. 5

Glue Yellow instruction label into recess in base to indicate stowage compartment for the power cord, as shown in sketch

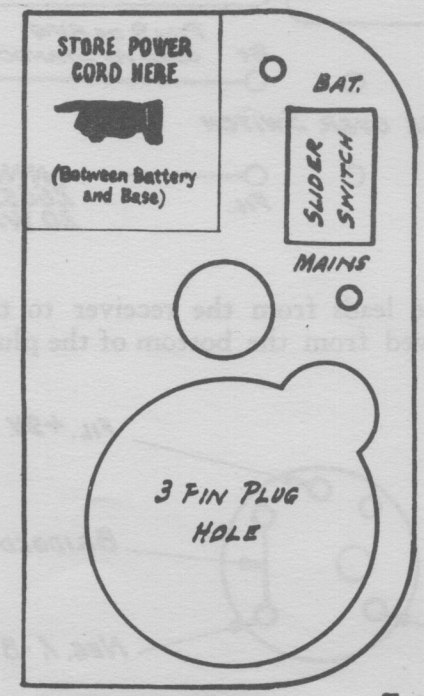


FIG. 6