

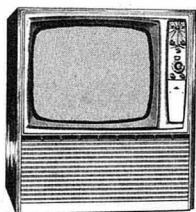
KRIESLER**TELEVISION
RADIO****ADVISORY SERVICE**

KRIESLER AUSTRALASIA PTY. LIMITED.

12 - 30 CAWARRA ROAD, CARINGBAH.

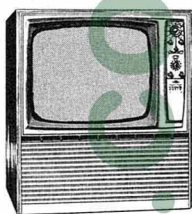
P.O. BOX 107 CARINGBAH.

TELEPHONE 5-2044

TELEVISION SERVICE MANUAL**incorporating: 79-10A Super Fringe Chassis
79-11A Super Efficiency Chassis****Date of Release - October, 1963****CONSOLE GRAND
MANUAL**

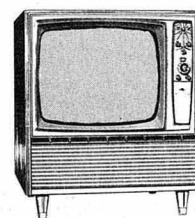
121-70 : 79-10A

121-74 : 79-11A

**CONSOLE GRAND
CLOCK-MATIC**

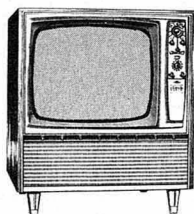
121-71 : 79-10A

121-75 : 79-11A

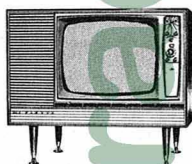
**SPECIAL CONSOLE
MANUAL**

121-82 : 79-10A

121-80 : 79-11A

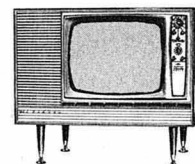
**SPECIAL CONSOLE
CLOCK-MATIC**

121-81 : 79-11A

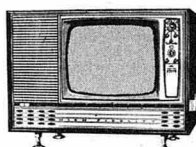
**HI-FI-ETTE
MANUAL**

121-72 : 79-10A

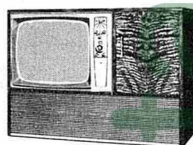
121-76 : 79-11A

**HI-FI-ETTE
CLOCK-MATIC**

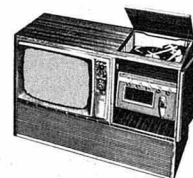
121-77 : 79-11A

**HI-FI CONSOLE
CLOCK-MATIC**

121-73 : 79-10A

**T.V. STEREO THEATRE
MANUAL**

121-78 : 79-11A

**T.V. STEREO THEATRE
CLOCK-MATIC**

121-79 : 79-10A

With the exception of Model 121-73, models incorporating the 79-10A chassis are identified by a "Super F" badge on the cabinet front.

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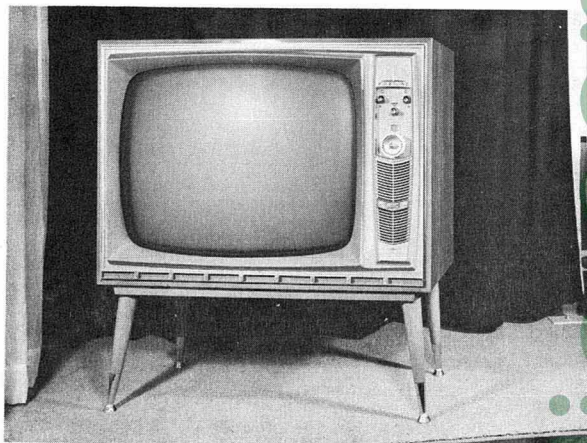
Cawarra Road, Caringbah. N.S.W.

Phone 524-2200 or 524-2371

TELEVISION SERVICE MANUAL

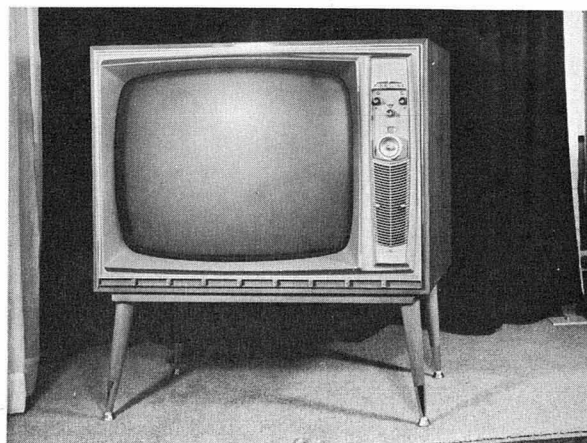
incorporating: **79-10 B Super Fringe Chassis**
79-11 B Super Efficiency Chassis

Date of Release - February, 1964



Super Fringe Model

T85 : 79-10B.



Super Efficiency Model

T86 : 79-11 B.

Model T85 may be identified by the "Super F" badge on the speaker grille.

In the 79-10B and 79-11B chassis, the Tone control and Vertical Hold Course preset control have been deleted. Otherwise they are similar to the 79-10A and 79-11A chassis respectively.

For chassis details, refer to the Television Service Manual incorporating the 79-10A and 79-11A chassis.

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KRIESLER AUSTRALASIA PTY. LIMITED,
Cawarra Road, Caringbah, N. S. W.
Phone 524 - 2200 or 524 - 2371.

Weight and Dimensions

CABINET TYPE	LENGTH	DEPTH	HEIGHT	GROSS WEIGHT
Special Console	28-3/4"	15-3/4" + 1" cap.	28 1/4" + 3 1/2" legs.	148 lbs.
Console Grand	28-3/4"	15-3/4" + 1" cap.	31 1/2"	150 lbs.
Hi-Fi-Ette	38 1/4"	15-3/4" + 1" cap.	24" + 8 1/4" legs.	170 lbs.
Hi-Fi-Console	40 1/2"	16" + 1" cap.	27 1/2" + 5 1/2" legs.	185 lbs.
T.V. Gram.	45"	17-3/4" + 1" cap.	31 1/2"	220 lbs.

4 lbs extra for power-tuned models.

Mains Supply

The mains tap is set at the factory for 225 to 245 volt operation at 50 cps. An alternative tap is provided for operation between 245 and 265 volts. The tapping panel is on the rear of the chassis. See Figure 8.

Fuses

F1	Mains Fuse	2.0 Amp U.I.C. or Astralite 3AG/2A.
F2	Secondary Fuse	2.0 Amp U.I.C. or Astralite 3AG/2A.
F3	Filament Fuse	Tinned copper wire.
F4	Power Tuner Motor Fuse	2.0 Amp U.I.C. or Astralite 3AG/2A.
F5	Remote Off Solenoid Fuse	1.0 Amp Australux or Astralite 3AG.

F4 and F5 are used on power-tuned models only

Installation

Locate the receiver where there is ample ventilation and so that direct light from windows or doors or bright artificial lighting does not fall on the screen.

Warnings

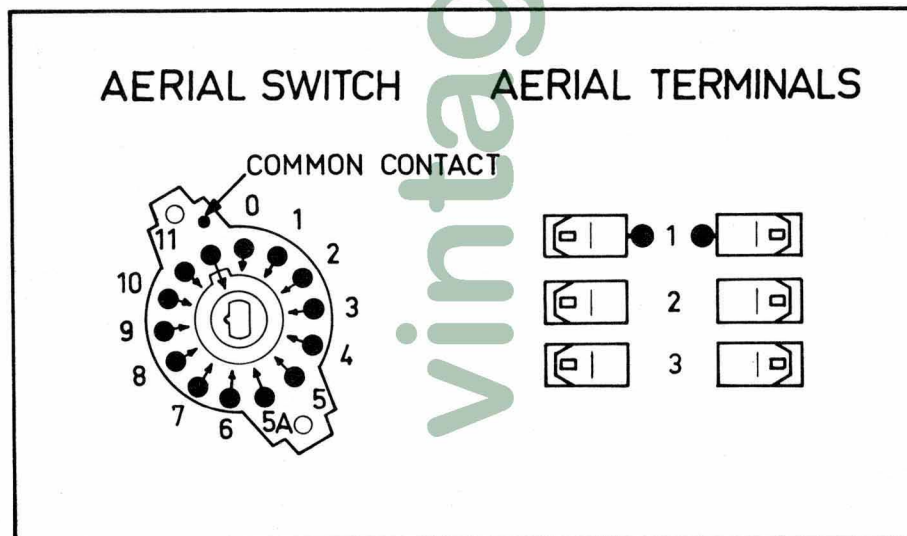
1. Inform the customer that if a fault occurs in either the sound or the picture switch off the set immediately at the power switch on the front panel and remove the power plug from the mains outlet.
2. Switch the receiver off at the control panel before (if desired) switching off at the power point. Failure to do this incapacitates the spot suppression circuit and may cause a spot to appear in the centre of the picture tube.
3. Do not attempt to operate the Remote OFF button and the front panel ON button simultaneously, since this will cause the solenoid protection fuse to blow.

Warnings to these effects are included in the Customer Instruction booklet.

Aerial Connections

Normal 300 ohm transmission line may be connected directly to the terminals on the panel at the rear of the set (top terminals on models fitted with Aerial Switch). Where 75 ohm co-axial feeder is used, it should be matched to the receiver input with a 75 to 300 ohm matching network, preferably with a good quality transformer at both the aerial end and the receiver input. Alternatively, resistive matching networks could be used in strong signal areas. The aerial, together with the feeder and any matching networks used should be of good quality and suitably weather-proofed.

Models 121-70, 71, 72, 73, 79 and 82 are fitted with the Automatic Geographic Aerial Selector Switch. Methods of utilising this switch are described in the Field Service Information booklet enclosed with each receiver, and is repeated below.



Automatic Geographic Aerial Selector Switch Connections

Cut the 300 ohm ribbon between the tuner and aerial terminals so that each section will reach the aerial switch. Connect the tuner section to the common contacts of each wafer, and connect the remaining section to the contacts representing the required channel. If more than one channel applies to this aerial, bridge the appropriate contacts together. The aerial connected to the "Aerial 1" (top) terminals will now be switched in whenever the tuner is set to these channels. Connect the "Aerial 2" and, if required, "Aerial 3" terminals to the contacts representing the channel or channels requiring a different aerial from Aerial 1

EXAMPLE. For an installation requiring three different aerials as follows:
Aerial 1 - All Band. (For local channels 2, 7 & 9).
Aerial 2 - Low Band. (For distant channel 3).
Aerial 3 - Low Band. (For distant channel 4 in different direction from channel 3)

Cut ribbon and connect tuner section to common contacts on front and rear wafers.

Bridge contacts 2, 7 and 9 on front wafer and contacts 2, 7 and 9 on rear wafer and connect, via remaining section of ribbon, to the Aerial 1 (top) set of terminals.

Connect Aerial 2 terminals to front and rear wafer contacts '3' via a length of 300 ohm ribbon.

Connect Aerial 3 terminals to front and rear wafer contacts '4' via a length of 300 ohm ribbon.

Chassis Removal

Most servicing can be performed without removing the chassis. For service access, remove the cabinet back and then the two screws on the right-hand edge of the chassis. The chassis may now be swung back for access to the wiring side. A medium size screwdriver is required. For complete chassis and front panel removal, refer to the label inside the cabinet back. A small Phillips head screwdriver will be required.

Picture Tube Removal

Remove the chassis, then the chassis pivot post (with care, the latter step may be neglected). A 1/2" AF tube spanner is required to remove the picture tube mounting bolts.

Filter Glass Removal

After removing the chassis and picture tube, pull off the tube locating rubbers. The glass may now be lifted from the escutcheon.

Picture Tube Taping

All replacement picture tubes must be taped around the edge with Johnson & Johnson P14 tape 2½" wide. Before applying the tape, clean the tube with methylated spirits and allow to thoroughly dry.

WARNING: ON NO ACCOUNT ATTEMPT TO MOVE THE PICTURE TUBE BY ITS NECK - BREAKAGE OF THE TUBE MAY RESULT IN PERSONAL INJURY. UNTRAINED PERSONS SHOULD NOT HANDLE PICTURE TUBES.

Dial Lamp Replacement

Manual Models

Pull off the channel selector knob. Remove four screws securing front decorative panel and detach panel.

Power-Tuned Models.

Remove the 'Programme Preset' knob. Unscrew the four screws securing the decorative front panel. Detach the Fine Tuning knob. Remove the self-tapping screw securing the Motor Interlock switch and move the switch aside. Pull off the interlock disc in the centre of the channel number disc, taking care not to lose the spring behind it. Pull off the channel number disc. The four dial lamps are now accessible. When re-assembling, reverse the above procedure, but before securing the front panel, switch on the receiver and check that the channel numbers are projected on the centre of the channel indicator screen. If not, re-adjust the position of the top dial lamp until correct. It may be more convenient to remove the control panel for access to the dial lamps.

Power Tuner Unit Servicing

The power tuner base plate forms the rear support of the tuner. If the power tuner is removed, channel changing can only be done by turning the tuner spindle at the rear of the tuner with a small spanner (3/16" AF) or a heavy pair of pliers, whilst preventing the tuner body from rotating.

In the majority of cases, the power tuning unit may be left in position, and the faulty component only need be removed. To remove the motor, unscrew the two screws at the top right and bottom left corners of the motor. Remove the top left screw to detach the switch contact bracket. This operation will also detach the motor reversing switch and muting switch from the power tuner body.

Clock Servicing

To remove the clock, disconnect the two power leads and then remove the three small self-tapping screws securing the clock mounting plate to the front of the control panel.

Initial Adjustment of the Clock, and Synchronization of Clock and Programme Time Disc

This procedure should be followed when the receiver is being installed, or after the power has been disconnected for 12 hours or more, or for an unknown period (this, of course, means that the electric clock has been stopped, and synchronization with the Programme Time Disc upset).

NOTE: The Programme Time Disc shows two sections of 1 to 12. The yellow section (A. M.) is for midnight to noon (with the yellow "12" as noon).

The blue section (P. M.) is for afternoon and evening hours (with the blue "12" as midnight).

1. Press in the front panel "OFF" button, then turn the "Programme Preset" knob until the Programme Time Disc is set to the hour or half hour calibration earlier than the present time. For example, if the time now is 10.15 a.m., turn the disc until "10" on the yellow (A. M.) scale is set with the calibration in the centre of the Time-Set Markers at the bottom of the clock face.
2. Pull out the "Programme Preset" knob — until it clicks.
3. Turn the clock hands around slowly (ALWAYS IN A CLOCKWISE DIRECTION) until the receiver switches ON. In some cases, they may have to be turned through nearly 24 hours before the receiver will switch on. This operation ensures that the "A. M." (yellow) and "P. M." (blue) scales are synchronized with the time shown by the clock.
4. Now set the clock hands to the correct time — turning clockwise.
5. Small corrections of clock hands (up to $\frac{1}{2}$ -hour) may be made in the anticlockwise direction.

How to Use the Automatic Time Switch

Calibrations are in half hours to suit the start of programmes.

The receiver should be switched "OFF" at the Control Panel. (Remember, leave it permanently ON at the power point, or the electric clock will not work, or activate the Time Switch.)

This is all you do:

1. Turn the Programme Pre-Set Knob so that the selected programme time appears between the Time Set Markers — see diagram. You can set any time from $\frac{1}{2}$ an hour to 23 hours ahead. (A little practice will enable you to do this accurately.)
2. Pull out this knob firmly until it "clicks." (Kriesler have made this a "firm" pull to discourage young children's interference.)

A little earlier than the set time, the receiver will automatically switch itself ON. This is to allow for "warm-up" and programme variations.

To Cancel a Pre-set Time

If you change your mind, and want to watch a programme immediately, press the ON button on the Control Panel.

The set is then switched ON for use in the normal way. Your "time-set" has been cancelled.

After this use you can return, if desired, to the original automatic pre-set time by simply pulling out the Programme Pre-Set Knob. Or, of course you can pre-select any other programme as described above.

To Adjust the Hands of the Clock

Turn the small knob in the centre of the clock face — ALWAYS IN A CLOCKWISE DIRECTION. (Small corrections may be made in the anti-clockwise direction.)

If the Set Has Been Switched off at the Power Point, or Disconnected from it

Being an electric clock it will stop. If the power has been off for up to 12 hours, you just re-set the clock hands as you would with any electric clock — always turning in a clockwise direction.

However, if the power has been off for more than 12 hours, the clock is no longer synchronized with the Programme Time disc and may cause your programme to come on up to 12 hours from the required time — e.g., at 7 a.m. instead of 7 p.m. You will need to synchronize again — see "Initial Adjustment of the Clock." If you are unsure how long the clock has been off and it may have exceeded 12 hours re-synchronize as a precaution.

Important Vacation Instructions

Before going away MAKE SURE TO PRESS THE "OFF" BUTTON ON THE CONTROL PANEL. This will eliminate the possibility that a pre-set programme will come on in your absence. The electric clock will continue to operate with complete safety and at practically no cost.

NOTE: Should you also have switched off the receiver at the power point or by switching off all house power at your meter board, you will need to re-synchronize the clock and Programme Time Disc as in the original instructions.

When ordering replacement and/or spare parts, quote the following information in correspondence and attach a label bearing this information to every component returned to the Company. Printed labels for this purpose will be supplied by the Service Division upon request.

1. Model No. of receiver - stamped on rear cover of cabinet.
2. Chassis No. of receiver - e. g. 79-10A Issue 1.
3. Serial No. of chassis - printed on card attached to chassis.
4. Detailed specification of component - include circuit code No.
5. Detailed description of the fault.

All the above information is necessary to ensure that the correct replacement part is despatched with minimum delay. The Kriesler Laboratory is interested in examining defective components so that the established quality of the product and reliability of components is under constant surveillance.

CONTROLS	PART No KNOB	PART No POT	SHAFT LENGTH
Tone	90-5298	32-3647	2 1/16"
Volume	"	32-3643	2 1/16"
Brightness	"	32-3644	2 1/16"
Contrast	"	32-3642	13/16"
Vert. Hold	"	32-3645	2 1/16"
Horiz. Hold (rear)	20-5044	32-5188	1 5/16"
Fine Tuning (Man.)	90-5323		
Fine Tuning (P/T.)	90-5317		
Channel Selector	90-5283		

MISCELLANEOUS	PART No. or TYPE	
Front Decorative Panel	36-5286 (Manual)	36-5280 (C'matic).
Escutcheon/Mask	36-5081	
Filter Glass	50-3524	
Gasket for Glass	40-3580	
Off-On Press Button Unit 79-10A	90-5339	
Off-On Press Button Unit 79-11A	90-5342	
Clock Unit	90-5380	
Remote Control Socket Assembly	90-5335 (79-10A).	90-5404 (C'matic).
Remote Control Unit	90-5392	
Power Tuning Unit	90-5318	
Aerial Switching Assembly (Manual)	90-5403	
Aerial Switching Assemble (Clockmatic)	90-5402	
E. H. T. Rectifier Socket Assembly	90-5397	
E. H. T. Plug	46-5110	
Fuse Covers	20-5156	
E H T. Can	16-5017	
Focus Plug	Carr-Fastener 691-5-4.	
FWD/REV Press Button	20-5255	
Programme Preset Knob	20-5304	
Speaker Selector Switch Assembly	90-5334 (Hi-Fi Model 121-73 only)	
Screws, Securing Front Dec. Panel (4)	No. 6-32 x 5/8" S.T. Ph. Hd. Gold Pl'd.	

CHASSIS DATA

Picture Adjustments

B.H.T.

Since the supply voltage for several parts of the circuit is derived from the Boost High Tension line, the boost voltage must be checked and, if necessary, corrected before making any other adjustments.

The correct B. H. T. voltage is between 600 and 620 volts D. C. relative to the main high tension line voltage, measured at minimum brightness and contrast. Since the B. H. T. level affects the picture width, some adjustment of picture width can be derived from this control; however, it must be kept within the above limits.

Width

Some width adjustment can be obtained from the B. H. T. control. See above paragraph.

The major width adjustment is obtained at C138 (79-10A) or C103 (79-11A.). This capacitor decreases horizontal scan when connected in parallel with the 0.15uF coupling capacitor to the horizontal deflection coils. See circuit diagrams for method of connecting or disconnecting this capacitor.

Horizontal Linearity

This adjustment is best carried out on a transmitted test pattern. With a pair of long-nosed, insulated pliers, loosen the plastic hexagonal nut on the Horizontal Linearity coil and move the pigtail in or out until satisfactory linearity is obtained. Tighten the nut sufficiently to hold the pigtail firmly in position. Ensure that the pigtail is straight and does not touch the chassis

Horizontal Oscillator Adjustment

The receiver should be allowed to warm up for at least 5 minutes before commencing this adjustment.

Tune the receiver to a television station signal and proceed as follows:-

79-10A Procedure.

1. Set Horizontal Hold control to its mid position.
2. Short Test Point 4 (TP 4) to chassis by placing a metal probe through the hole in the chassis where shown on the chassis layout diagram.
3. Slowly adjust the horizontal oscillator transformer core until the diagonal bars disappear and the picture becomes upright.
4. When the horizontal hold control is turned to both extreme settings, the slope of the diagonal bars should be symmetrical
5. Remove short circuit from TP 4 and check that the picture remains in sync over the full range of the control, even when changing channels.

With very weak signal input, the picture may break out of sync at both extreme settings of the hold control.

79-11A Procedure

1. Set Horizontal Hold control to extreme anti-clockwise position.
2. Adjust horizontal oscillator transformer core until several bars appear on the screen slanting from the top right-hand side to the lower left-hand side. This means that the oscillator is out of sync on the low side of horizontal frequency, and provides a starting point for the final adjustment.
3. Slowly adjust the oscillator core until the picture synchronises.
4. Check that the picture remains in sync when the hold control is turned fully clockwise.

When changing channels, the picture should remain in sync over the full range of the hold control, provided the input signal is reasonably strong.

A.G.C. Pre-set Adjustment

The A. G. C. Preset Adjustment determines the level of the composite video signal at the output of the video amplifier, relative to the high tension voltage. This relationship affects the video output amplitude. The adjustment of this control is not critical and, unless a fault has developed, the factory setting should not need alteration. The control should be adjusted so that the sync pulse tops are 35 to 40 volts below high tension level (79-10A) or 45 to 50 volts below high tension level (79-11A)

In the extreme case of the sync pulse tops being set too low, the video output amplitude is reduced, hence contrast is lower.

In the opposite case, where the level is set too high, the sync pulses will be suppressed, leading to sync and A. G. C. lock-out.

The required sync pulse level is best adjusted using a D. C. indicating C. R. O. with the probe connected to the video amplifier anode. The H. T. line may be used for C. R. O. calibration.

Where such an instrument is not available, a satisfactory adjustment may be carried out as follows:-

1. Provide the receiver with a T. V. transmission signal which is strong enough to operate the A. G. C. system.
2. Set contrast control to maximum, and brightness control to obtain a normal picture.
3. Turn the A. G. C. preset control in the direction which increases the contrast until normal operation of sync separation and A. G. C. is affected. This is indicated by loss of interlace, picture pulling and darkening.
4. Back off the control approximately 30 degrees (for 79-10A) or 80 degrees (for 79-11A). This is the approximate setting required for optimum operating conditions.

There is a further method of adjustment applicable to the 79-10A only.

Adjust the preset until the voltage at TP 3 is 160 volts, taking the measurement with a 20,000 ohms/volt (or better) voltmeter, with reasonably strong T. V. signal and brightness control at maximum.

Fine Tuning

Fine tuning is accomplished by a variable piston-type ceramic capacitor shunted across the tuning coil for the local oscillator. The capacitance is controlled by the movement of the piston which, in turn, is controlled by a lever system from the fine tuning pre-set screws on the front of the tuner. These screws are adjusted by the Fine Tuning control on

the front panel. In the lever system, mounted above the holder for the fine tuning screws, there is a screw which adjusts the overall tuning. This may require attention only if the required fine tuning is beyond the range of the fine tuning screw movement. The fine tuning screws for all operating channels must be reset if the overall adjusting screw has been moved. Re-seal the screw after adjustment.

With the exception of the Fine Tuning adjustment described above, no adjustments should be made to the tuner unit without adequate tuner alignment equipment.

ALIGNMENT PROCEDURES

79-10A Chassis

INTERCARRIER I. F. AMPLIFIERS AND RATIO DETECTOR ALIGNMENT

Sweep Method.

Equipment Required.

- Sweep Generator ± 250 Kc/s deviation at 50 c/s rate, centre frequency 5.5 Mc/s.
- Marker Generator which will accurately indicate 5.5 Mc/s.
- C. R. O. for use with the Sweep Generator.

Procedure

The Ratio Detector should be aligned first as follows:-

- Disconnect the 8uF stabilising capacitor across the R. D. diodes.
- Connect the C. R. O. across the 33K diode load resistor.
- Connect sweep to Pin 2 of the Limiter valve V2 (6BX6).
- Unscrew secondary (bottom) core of Ratio Detector transformer until flush with the end of the former.
- Peak primary core for the curve Fig. 2, using the marker generator to set the limits shown.
- Tune secondary core to obtain the bandpass shown in Fig. 3.
- Re-connect the 8uF stabilising capacitor.
- Connect C.R.O. to R.D. output at junction of 10K and .0033uF de-emphasis network components.
- The C. R. O. should then display a typical "S" curve centred on 5.5 Mc/s as shown in Fig. 4. A small readjustment of the secondary (bottom) core may be necessary to ensure that the curve is symmetrical about the 5.5 Mc/s marker.

The Inter-carrier I. F. stages should now be aligned as follows:-

- Connect sweep to Test Point 1 (TP 1).
- Connect C. R. O. to Test Point 2 (TP 2) between V1A and V2.
- Tune ICIF's 1 and 2 to 5.5 Mc/s as shown in Fig. 5.
- Remove sweep and C. R. O.

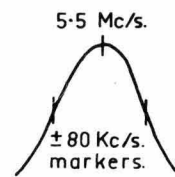


FIG. 2.

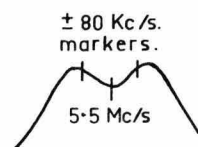


FIG. 3.

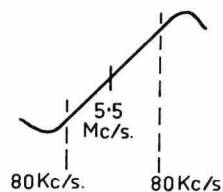


FIG. 4.

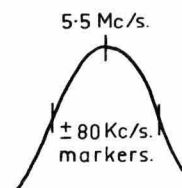


FIG. 5.

D. C. Method.

Where a 5.5 Mc/s sweep generator is not available, the transmitted signal, attenuated as required, provides an accurate and convenient method of alignment.

Equipment Required.

- A centre-zero V. T. V. M. or voltmeter, completely isolated from earth with zero reading adjusted to centre scale by the 'Set Zero' control. In lieu of the centre-zero V. T. V. M. or voltmeter, an ordinary voltmeter may be used as explained below. The voltmeter used must be at least 10,000 ohms per volt and preferably higher.
- Two resistors approximately 100K each, matched to within 1% and connected in series.

Procedure.

- Set Tone control to full treble position.
- Connect the two series 100K resistors across the 8uF electrolytic stabilising capacitor bridging the ratio detector diodes.

3. Connect the voltmeter, positive to the centre of the 100K resistors, negative to ground. Unscrew secondary (bottom) core of ratio detector transformer flush with the can. With an incoming transmitted signal, peak all ICIF's for maximum reading, attenuating the signal as required.
 4. Tune primary (top) core for maximum output.
 5. Re-connect the negative voltmeter lead to the audio output line of the ratio detector at the output end of the de-emphasis network.
 6. Tune secondary for maximum output. This means that the secondary, at this juncture, is tuned to one of the two maxima of the ratio detector voltage curve.
 7. Further adjustment of the secondary core, in the correct direction, will cause the ratio detector voltage curve to pass through zero to the other maximum: Therefore, readjust the secondary core, taking note of the maximum positive and maximum negative readings obtainable on the centre-zero voltmeter, until the meter reading is exactly the mean of these maximum positive and maximum negative values. Ideally, these maxima should be equal, depending on the matching of the diodes and 100K resistors. In the field, there may be cases where equality cannot be obtained, and in these cases, ignoring polarity, their numerical values should be within 10% of their average.
 8. If the inequality of the maxima readings is too great, check the diodes and/or the 1K resistors in series with them.
- Where no centre-zero voltmeter is available an ordinary voltmeter may be used and, by reversing the test leads as required, the maximum positive and negative readings taken as before, setting the core for the average reading.
- When no transmitted signal is available, or in deep fringe areas where the noise level is high and the signal strength fluctuates, an accurate 5.5 Mc/s signal derived from an F. M. signal or marker generator may be used.
- Feed the signal in at Test Point 1 (TP 1), taking care the input is at a low level but sufficient to produce 15 volts across the electrolytic stabilising capacitor when the ICIF's are correctly aligned. This ensures that the limiter is functioning correctly.
- NOTE: If it is desired to peak the two ICIF's only, the voltmeter should be connected to Test Point 2 (TP 2) and the coils tuned for maximum reading on the meter

79-11A Chassis

Inter-carrier I.F. Amplifier and Quadrature Detector Alignment

Equipment Required.

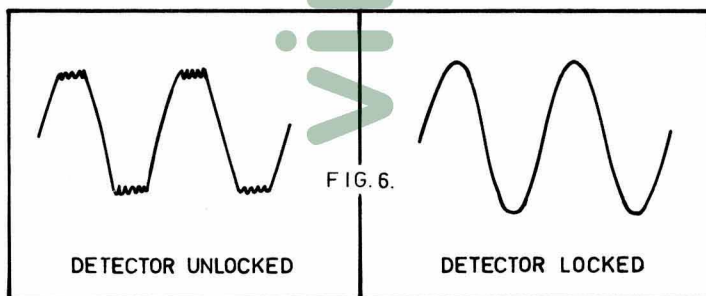
- a) AM/FM Generator. 50 Kc/s deviation, centre frequency $5.5 \text{ Mc/s} \pm 5 \text{ Kc/s}$.
- b) C. R. O. with high-impedance detector probe. (See Fig. 7).
- c) Dummy speaker load (15 ohm 2W resistor).

Procedure.

1. Connect dummy speaker load, short out quadrature coil and screw out cores of 5.5 Mc/s trap L2 and ICIF 1 flush with the ends of their formers.
2. Connect generator, modulated at 30% AM 400 or 600 c/s to Test Point 1 (TP 1) on grid of 6DX8. Set output to 50 millivolts or greater.
3. Connect the C. R. O., with high impedance detector probe, to Test Point 2 (TP 2) on ICIF 1.
4. Adjust ICIF 1 primary for maximum output. Adjust L2 for minimum output.
5. Re-connect the C.R.O. (without detector probe) to Test Point 3 (TP 3) at the detector output, and remove the short circuit from the quadrature coil.
6. Set generator to 5.5 Mc/s FM at 400 or 600 c/s modulation. 50 Kc/s deviation. Set output to approx. 50 millivolts.
7. Adjust quadrature coil for maximum output consistent with symmetrical sine-wave shape on the C. R. O. display. It may first be necessary to screw in the secondary core of ICIF 1 by 2 or 3 turns.
8. Reduce generator output until detector unlocks as indicated by serrations on the A. F. output waveform. Re-lock by adjusting ICIF 1 secondary. Continue this process until the detector can no longer be re-locked by adjustment of ICIF 1 secondary core.

N. B. Do not re-adjust primary core of ICIF 1.

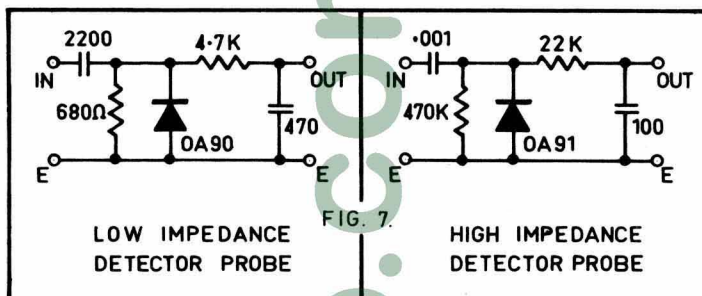
Alignment is correct when a reduction of the input signal below minimum locking level produces serrations on each half-cycle of the A. F. output waveform on the C. R. O. See Fig. 6 below.



Minimum locking level should be less than 5 millivolts.

To Check A. F. Amplifier.

1. Connect C. R. O. across dummy speaker load.
2. Adjust input signal from generator to just above minimum locking level.
3. Increase volume (at Volume control) until the peaks of the sine wave displayed just start to flatten.
4. The output voltage as measured across the 15 ohm dummy load should not be less than 5 volts RMS. (depending on %age deviation of generator) and should remain essentially constant over the range of input signal from minimum locking level to the full output of the generator.



Video I.F. Alignment 79-10A Chassis

Equipment.

- a) Sweep Generator covering the VHF range, FM 50 c/s rate, deviation of 12.5 Mc/s (approx) with unmodulated, accurately calibrated marker.
- b) C. R. O.
- c) By-pass capacitor 0.0047uF 600V.

Procedure

1. Set tuner to blank channel (between channels 0 and 11).
2. Connect C. R. O. to video output at junction of R81 (4.7K) and peaking coil L15, and by-pass this point to ground with the 0.0047uF capacitor.
3. Connect sweep generator to Grid (pin 2) of V8 (6EJ7).
4. Adjust 31.25 Mc/s trap L4 in video detector unit for minimum response at 31.25 Mc/s using the peak nearest the bottom of the can.
5. Adjust 31.25 Mc/s trap L22 in IFT 3 for minimum response at 31.25 Mc/s using the peak nearest the top of the can.
6. Adjust primary and secondary of sound detector IFT 4 for response as in Fig. 8.
7. Insert trap plug in position "0" and connect sweep to IF Test Point on tuner. Connect low impedance detector probe (see circuit diagram) and C. R. O. to pin 2 of V6 (6EH7). Adjust IFT 1A on tuner for the response as in Fig. 9.
8. Connect C. R. O. via low impedance detector probe to pin 7 of V6 (6EH7). Short circuit secondary of IFT 1B (pins E and H) and tune primary and 38.25 Mc/s trap L21 in IFT 2 (top core) to obtain the response as in Fig. 10.

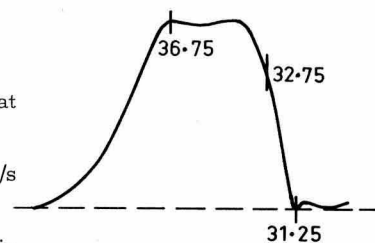


FIG. 8.

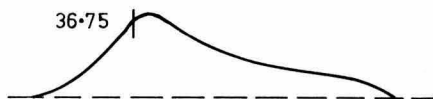


FIG. 9.

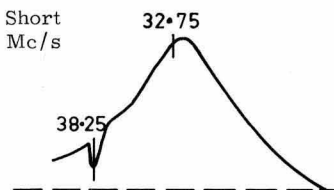


FIG. 10.

9. Remove short circuit from IFT 1B secondary and tune secondary
10. Remove detector probe and connect C. R. O. to video amplifier output at the junction of R81 (4.7K) and peaking coil L15. Adjust IFT 2 (bottom core) and IFT 3 for the overall bandpass curve as in Fig. 12. When tuning IFT 3, use the peak nearest the top of the can.

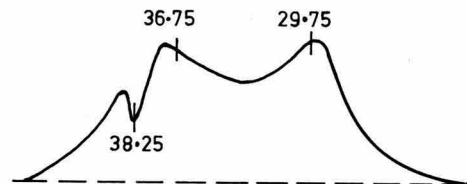


FIG. 11.

11. Adjust sweep output to produce 30 volts peak-to-peak output at the video amplifier. Connect C. R. O. to sound detector output between L11 and C10 and observe the waveform displayed. It should be similar to Fig. 13, with the re-entry peak between $\frac{1}{3}$ and $\frac{3}{4}$ of the pattern amplitude. A slight re-adjustment of IFT 3 may be necessary to achieve this response.

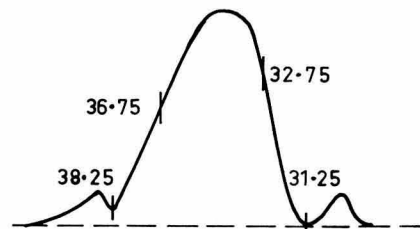


FIG. 12.

12. Re-connect C. R. O. to video amplifier output and re-check overall bandpass as shown in Fig. 12.

13. With sweep output adjusted to produce 30 volts peak-to-peak output from the video amplifier, connect C. R. O. to noise detector output at the junction of R73 and R74 in anode circuit of V10A (6BL8). Adjust noise take-off coil L5 in video detector assembly for response as in Fig. 13A, using the peak nearest the bottom of the can. The noise detector output should exceed 15 volts peak-to-peak under these conditions.

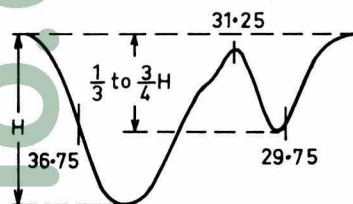


FIG. 13.

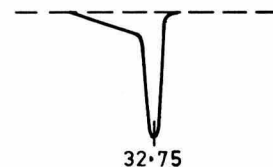


FIG. 13A.

I.F. Response and Null Trap Alignment

Equipment.

- a) Signal generator, modulated 30% AM at 400 to 1000 c/s.
- b) C. R. O.

Procedure

1. Connect signal generator to I. F. Test Point on tuner, and connect C. R. O. to video amplifier output.
2. Inject signal from generator so that 3 volts RMS ($8\frac{1}{2}$ V peak-to-peak) output is obtained from the video amplifier. Check for the following responses:-

36.75 Mc/s		-4 to -7 db
32.50 Mc/s		-4 to -8 db.
31.25 Mc/s		more than -33 db
3. To tune the null traps, insert the plug in position "2". Connect signal generator to tuner I. F. Test Point and connect C. R. O. to video amplifier output
4. Adjust 38.25 Mc/s trap L2 for minimum response at 38.25 Mc/s.
5. Adjust 29.75 Mc/s trap L3 for minimum response at 29.75 Mc/s.
6. Check that both minima are approximately equal and are more than 60 db down on the mid-band response (34.75 Mc/s.). If not, a slight re-adjustment of IFT 1B primary will give a more accurate null. If this requires re-adjustment, re-check the settings of the 38.25 and 29.75 Mc/s traps.

NOTE. Care must be taken to avoid errors due to overloading when aligning the null traps.

5.5 Mc/s Trap Adjustment

Equipment.

- a) Signal Generator to provide accurate 5.5 Mc/s signal, 30% AM at 400 to 1000 c/s.
- b) C. R. O.
- c) High impedance detector probe. See probe circuit.

Procedure.

1. Connect generator to video detector output at grid (pin 8) of the video amplifier V9A (6DX8). Set generator to maximum output.
2. Connect C. R. O. via high impedance detector to junction of peaking coils in video amplifier anode circuit.
3. Adjust 5.5 Mc/s trap L14 for minimum output on C. R. O. display.

79-11A Chassis

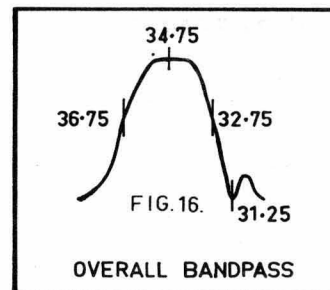
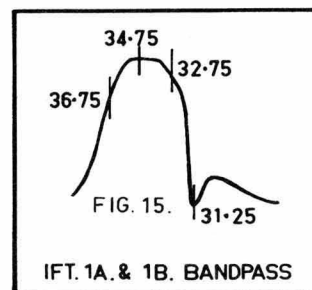
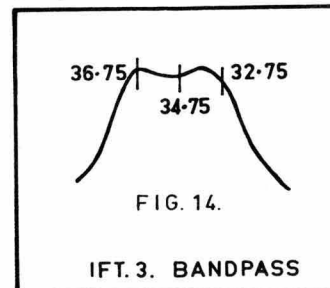
Video I.F. Alignment

Equipment.

- Sweep generator capable of providing a deviation of 12 Mc/s or more at 50 c/s sweep rate, centre frequency 34.75 Mc/s.
- An accurate marker generator for use with the sweep.
- C.R.O. with low impedance detector probe. See circuit of probe.

Procedure.

- Set the tuner to the blank channel between channels 0 and 11.
- Connect C.R.O. directly to Test Point 4. (TP 4).
- Connect sweep to Test Point 5 and set marker to 34.75 Mc/s.
- Tune primary and secondary of IFT 3 for the response as in Fig. 14.
- Connect sweep to tuner I.F. Test Point and set marker to 31.25 Mc/s.
- Connect C.R.O. to Test Point 6 via the low impedance detector probe.
- Increase sweep output and C.R.O. sensitivity to obtain a display.
- Tune Sound Step trap L4 for minimum response at 31.25 Mc/s.
- Adjust IFT 1A (on tuner) and IFT 1B for the bandpass as shown in Fig. 15.
- Remove detector probe from Test Point 6 and connect C.R.O. direct to Test Point 4.
- Reduce sweep output and C.R.O. sensitivity.
- Adjust IFT 2 at approximately 34.75 Mc/s to obtain the overall bandpass as shown in Fig. 16.



Circuit Descriptions

79-10A Chassis

The 79-10A chassis is designed for use as both a 'metropolitan' and a deep fringe area receiver.

The major additional features which contribute greatly to improved performance in weak or strong signal areas are:-

- Adjacent picture and sound null traps with ready provision for selecting any combination - depending on the requirements of the location.
- Noise-grain suppressor which reduces the intensity of the noise-grain or 'snow' on the picture under very weak signal conditions.
- Brightness control circuit which maintains optimum picture tonal gradation through changes in picture content and signal strength.

A more detailed description of these circuits is given below:-

Adjacent Channel Null Traps

The null traps are designed to provide at least 60 db attenuation of adjacent channel picture and sound carriers. The circuit has the unique feature of providing all combinations of trap selection by adjustment of a multi-position plug. Further, any combination can be selected without requiring any re-tuning adjustment.

The receiver leaves the factory with both traps disconnected (i.e. the plug is in position '0'). This provides optimum performance in both strong signal and general fringe areas where no adjacent channel interference is normally experienced.

However, in areas affected by two adjacent channels, the plug may be inserted in position '2', where both traps are connected. This will have a slight affect on fringe area sound reception.

If there is only adjacent sound carrier interference, the plug may be inserted in position '3' wherein the adjacent sound trap only will be connected.

Similarly, where adjacent picture carrier interference is experienced, the plug may be inserted in position '1', thereby connecting the adjacent picture trap only.

Noise-grain Suppressor

The noise-grain suppressor employs an OA91 diode D5 which is provided with fixed bias on the anode, and a variable cathode bias which is dependent upon the signal strength. The cathode bias is supplied from the screen of the 1st. video I. F. amplifier V6 which provides sufficient voltage to keep the diode cut-off during medium to strong signal conditions. Under weak signal conditions, the conduction of V6 increases, lowering the screen voltage. The diode is now forward-biased which causes it to conduct, thereby introducing the 150 pF capacitor C58 across the video detector circuit. This causes some high frequency attenuation of the video response which reduces the sharpness of the picture noise grain. In addition, the diode clips part of the noise pulses which are the cause of white noise grain on the picture, thus reducing their amplitude.

Brightness Control Circuit

The brightness control circuit employs the OA605 silicon diode D12 as a rectifier which is coupled to the anode circuit of the video amplifier so that it provides a D. C. brightness control voltage essentially proportional to the black level of the video signal. This provides the inherent picture fidelity of D. C. coupling to the picture tube and also combines the less critical brightness adjustment typical of A. C. coupled arrangements.

The regulator valve V1B (triode section of 6BL8) operates as a variable shunt resistance across the brightness voltage line to the grid of the picture tube. The resistance of the valve is controlled by both the Brightness control in the grid circuit and the Remote Picture control in the cathode circuit. This valve also provides brightness muting during the automatic channel-changing cycle on power tuned models, and allows improved spot suppression when the receiver is switched off.

79-11A Chassis

The 79-11A is basically similar to the 79-9A and 9B chassis in which most of the circuitry is conventional. The main differences lie in the audio circuit where negative feedback is provided and a Tone control added. The 79-11A is also provided with a Vertical Hold Coarse preset control.

High Tension Current

79-10A CHASSIS	360 mA $\pm$ 10%.
79-11A CHASSIS	340 mA $\pm$ 10%.

Resistances Between Various Points and Main H.T. Line

79-10A CHASSIS

V6 pin 7	2.7K	V10 pin 1	100K
V6 8	30K	V10 3	80K
V7 7	3.3K	V10 6	50K
V8 7	2.2K	V11 2	15K
V8 8	22K	V11 6	20K *
V1 6	22K	V11 7	470K
V2 7	27K	V11 8	33K
V3 3	3.4K	V13 6	450
V3 6	1.6K	V13 7	6.8K
V9 2	7.8K	V14 6	27K
V9 6	4K	V14 3	25K
V9 9	8.2K	V14 1	6.5K

* Varies with A. G. C. preset control.

B. H. T. Line to chassis 800 K

Tuner A. G. C. Terminal 2M

(both models)

79-11A CHASSIS

V5 pin 7	16K
V6 7	2.2K
V6 8	2.2K
V7 1	15K
V7 6	30K
V7 9	4.7K
V8 6	50K
V1 6	8K

THE FOLLOWING RESISTANCES
ARE MEASURED TO CHASSIS.

V1 pin 1	S/C
V1 7	168K
V6 2	S/C
V7 8	400
V8 8	1K
V8 9	3K
B. H. T. Line.	300K

Technical Data for Radiogram Unit

Models 121-78 and 121-79 89-20 Chassis

DESCRIPTION.

Six valve chassis designed for Broadcast Band reception and the reproduction of both Monaural and Stereophonic records. Input and output jacks for each channel are provided on the front control panel. A low impedance dynamic microphone is provided. The record changer is a four-speed automatic Garrard 'Autoslim' fitted with a turnover pick-up cartridge.

Cartridge Type

Ronnette 105 Crystal, or Garrard EV26A Ceramic.

Stylus Types

L. P. Goldring D44 Diamond.
78 Goldring S 44 Sapphire.

Garrard Diamond or
Goldring D74 Diamond.

200 to 260 volts, 50 c. p. s. (240V primary tapped at 220V).

Inbuilt ferrite-rod. Leads at rear of cabinet for extension aerial and earth.

525 to 1635 Kc/s.

455 Kc/s.

Conventional.

Refer label on rear of cabinet. A short, medium-width blade screwdriver and a small Phillips head screwdriver are required to remove the chassis.

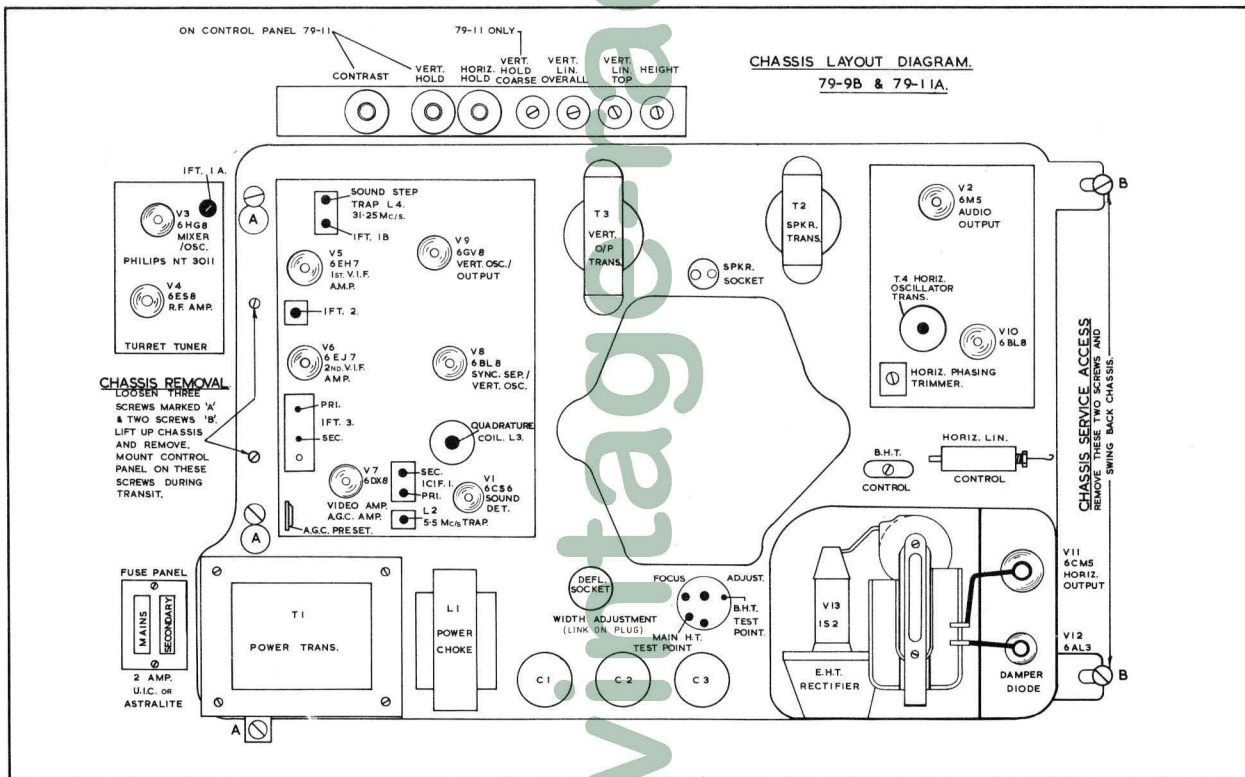
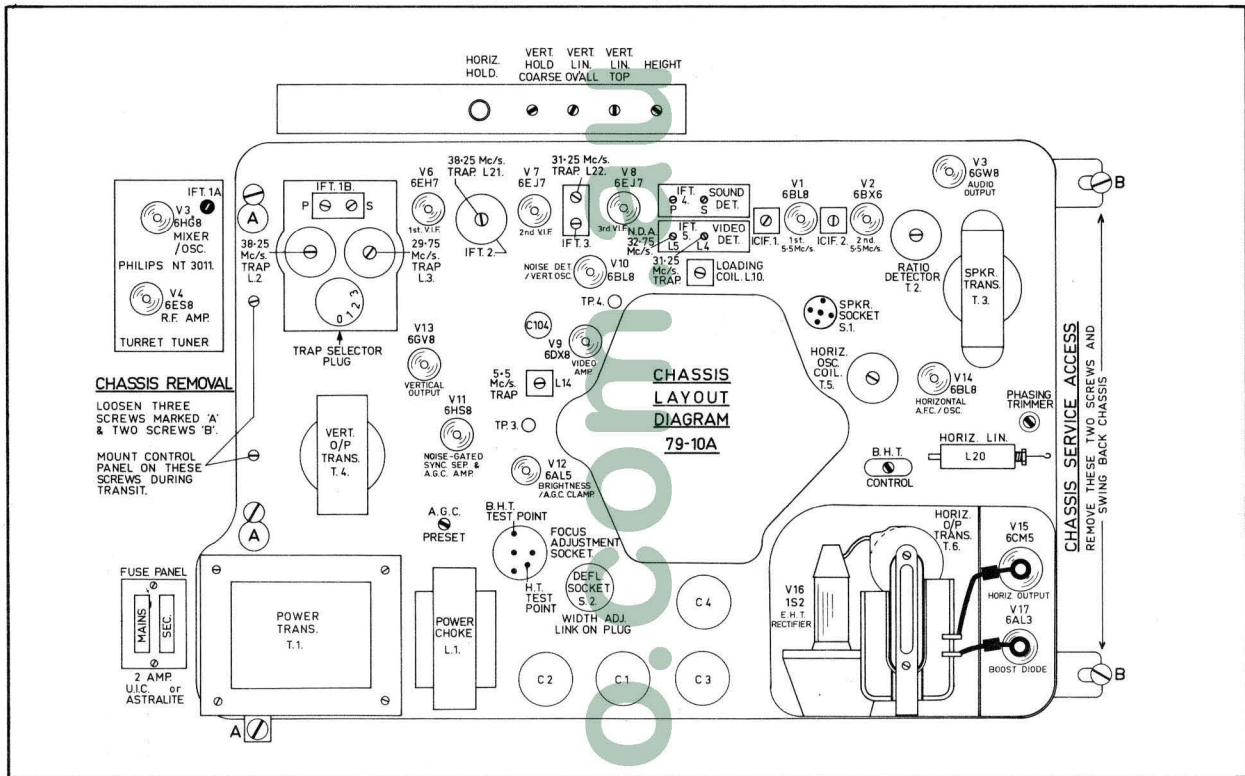
Special Note Care should be taken to ensure that the record changer deck is level when installed, and that the transit screws have been fully released.

Knobs	20-4711.
Decorative Front Panel	16-5240.

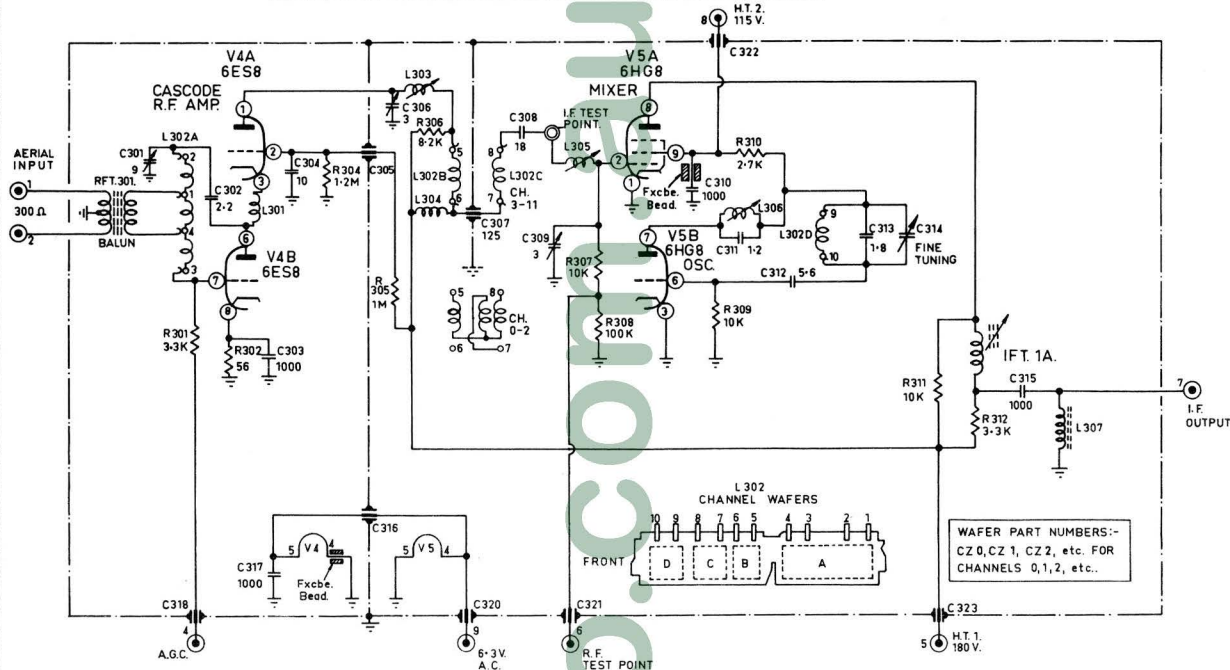
Dial Glass	69-5285.
Microphone	90-4732.

89-20 Chassis

No.	DESCRIPTION					No.	DESCRIPTION				
R1	47K	$\frac{1}{2}$ W	BTS	20%	I. R. C.	C1	5-50pF	Mica Trimmer	Type	CWO	Ducon
R2	39K	1W	BTS	"	"	C2	3-30pF	Wire Trimmer			Philips
R3	47OK	$\frac{1}{2}$ W	BTS	"	"	C3	Tuning Gang	63-3836			M. S. P.
R4	27K	1W	BTA	"	"	C4	50 pF	500V Mica MS	10%		Ducon
R5	2. 2M	$\frac{1}{2}$ W	BTS	"	"	C5	250pF	" " "	"		"
R6	47OK	"	"	"	"	C6	. 047 uF	400V Paper	20%		"
R7	47K	"	"	"	"	C7	. 047 uF	" "	"		"
R8	27OK	"	"	10%	"	C8	. 047 uF	125V Polyester	"		Philips
R9	27OK	"	"	"	"	C9	100 pF	500V Mica MS	10%		Ducon
R10	2. 2M	"	"	"	"	C10	. 0047 uF	400V Polyester	20%		"
R11	2. 2M	"	"	"	"	C11	. 001 uF	" "	"		"
R12	1M	VOLUME			32-4720	C12	. 001 uF	" "	"		"
R13	2. 7K	1W	BTA	10%	I. R. C.	C13	56 pF	500V Mica MS	10%		"
R14	22OK	"	"	20%	"	C14		" "	"		"
R15	22OK	"	"	"	"	C15					
R16	100K	$\frac{1}{2}$ W	BTS	"	"	C16	100 uF	4V Electro.			Philips
R17	100K	"	"	"	"	C17	150 pF	600V Styroseal	20%		Ducon
R18	. 5M	BALANCE			32-4223	C18	150 pF	" "	"		"
R19	1M	OFF/ON	TONE		32-4221	C19	. 033 uF	400V Polyester	"		Philips
R20	10K	$\frac{1}{2}$ W	BTS	20%	I. R. C.	C20	. 033 uF	" "	"		"
R21	10K	"	"	"	"	C21	. 022 uF	" "	"		"
R22	5. 6K	1W	BTA	"	"	C22	. 022 uF	" "	"		"
R23	5. 6K	"	"	"	"	C23	. 0047 uF	" Paper	"		Ducon
R24	10M	$\frac{1}{2}$ W	BTS	"	"	C24	. 0047 uF	" "	"		"
R25	100ohm	1W	BTA	10%	"	C25	. 0022 uF	1000V "	"		"
R26	27OK	$\frac{1}{2}$ W	BTS	20%	"	C26	. 0022 uF	" "	"		"
R27	1. 5K	2W	BTB	10%	"	C27	. 022 uF	125V Polyester	"		Philips
R28	10K	1W	BTA	"	"	C28	. 047 uF	" "	"		"
R29	1M	$\frac{1}{2}$ W	BTS	"	"	C29	50 uF	300V Electro.			Ducon
R30	220ohm	2W	BTB	"	"	C30	16 uF	300V "			"
						C31	8 uF	300V "			"
						C32	32 uF	300V "			"
L1	Compensating Coil				34-2206						
L2	Aerial Coil				14-4082						
L3	Oscillator Coil				14-3804	Speakers	8 TAX 15 ohm V. C.				MSP
IFT1	I. F. Transformer				24-18	Sw. 1.	Radio-Gram Switch				17-4220
IFT2	I. F. Transformer				24-18	Jacks	Goldring RM 2/C.				—
T1, 2	Spkr. Trans. K/60-13	7K/15 ohm.			Rola						
T3	Power Trans.				18-0109						



PHILIPS TURRET TUNER TYPE NT 3011

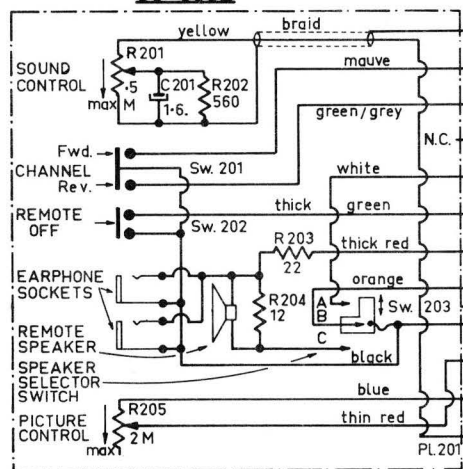


NOTE: THE 10K DAMPING RESISTOR (R311) ACROSS IFT.1A IS USED.
DO NOT CUT THE BRIDGING WIRE.

18-6-63

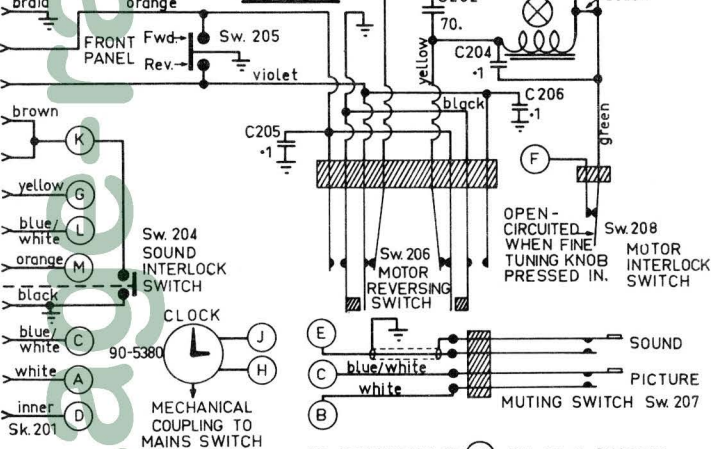
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REMOTE CONTROL UNIT 90-5392



A - RECEIVER SPEAKER.
B - MUTE.
C - REMOTE SPEAKER.

POWER TUNER CIRCUIT 90-5318



NO CONNECTION TO (M) ON 79-11 CHASSIS.

(A) (B) (C) etc. CONNECTION POINTS TO 79-10 AND 79-11 T.V. CHASSIS.

R201 0.5M Pot. 32-3182.
R202 560 ohm 1/2W BTS.
R203 22 ohm 1W BW1.
R204 12 ohm 1/2W BTS.
R205 2M Pot. 32-5390.
Pl. 201 McMurdo BL 12U.
Sk. 201 See Note 2.
Earphone Sockets. Car-Fastener 733-1-12.
Clock Assembly. Kriesler 90-5380.

C201 1.6uF 25V Electro.
C202 70uF 70V AC. Electro Ducon ET6C.
C203 .1uF 400V Polyester.
C204 .1uF " " "
C205 .1uF " " "
C206 .1uF " " "
Motor Philips CZ 180 409.
Spkr. Rola 2 OC. 15 ohm V.C.

Sw. 1. Mains Switch. Manual - Kriesler 17-2596.
P/T Kriesler 90-5359
Sw. 201 See Note 1.
Sw. 202 See Note 1.
Sw. 203 See Note 1.
Sw. 204 See Note 2.
Sw. 205 F & R Contacts 16-5234.
Common Contact 16-5235.
Sw. 206 Kriesler 90-5351.
Sw. 207 Kriesler 90-5352
Sw. 208 Kriesler 16-5236 & 16-5237.

NOTE 1. These parts itemised in Service Manual for Power Tuning and Remote Control Units.

NOTE 2. Part of Remote Control Socket Assembly 90-5335 (for 79-10A chassis) or 90-5404 (for 79-11A chassis)

Kriesler Branches and Distributors

New South Wales

Offices.	Sydney	-	12 - 30 Cawarra Road, Caringbah.
	Newcastle	-	63 Parry Street, Newcastle West.
Distributors.	Broken Hill	-	Electronics Limited, 346 Argent Lane.

Queensland

Offices.	Brisbane	-	Edmund Street, Windsor, N15.
	Townsville	-	361 Flinders Street.
	Rockhampton	-	133 Alma Street
Distributors.	Toowoomba	-	McKinneys Radio and Electrical Co., Ruthven Street.
	Cairns	-	Burns Philp and Co. Ltd., P.O. Box 121.
	Mackay	-	Boxalls Radio, P.O. Box 313.
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	Kalgoorlie	-	W. & G. Manners, Cnr. Brookman and Maritana Streets.

Tasmania

Distributors.	Hobart	-	Medhursts Wholesale Limited, 163 Colins Street.
	Launceston	-	" " " 136 Wellington Street.
	Burnie	-	" " " 106 Wilson Street.

Northern Territory

Distributors.	Darwin	-	Thomas Brown and Sons, Cavanagh Street.
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