KW Electronics Ltd

KW-600

HF Linear Amplifier

Operating Instructions

& Circuit Diagram

Supplied by:
Derf Mockford
G8ZGK

OPERATING INSTRUCTIONS.

KW 600 LINEAR AMPLIFIER.

The KW 600 Linear Amplifier is designed primarily for single-sideband and C.W. operation. The unit employs a 5728 tube in grounded-grid configuration with RF drive applied from the exciter through resonant input circuits to the valve heater. The self-contained power supply using solid-state devices produces over 2 Kv.

IT IS IMPORTANT TO OBSERVE THAT THE VOLTAGES IN THIS EQUIPMENT ARE DANGEROUS AND EVERY CAUTION MUST BE TAKEN WHEN REMOVING TOP AND BOTTOM PLATES.

The amount of drive required from an exciter for an optimum output of the KW 600 is approximately 20 watts under two-tone conditions and slightly more on the high frequency bands. It is not necessary to use an external antenna change-over relay as this is incorporated in the unit.

INSTALLATION.

The unit has both mains transformers set for 240 volt operation at the factory. This is suitable for 230-250 volt supply. To change the transformers to 200-215 volt or 215-230 volt it is necessary to remove the chassis and carry out the adjustments on both tag strips. The wiring colour code is yellow for 210v, green for 225, and red for 240 volts, the heavy red wire being the adjusting link. Connect the mains lead to the A.C. supply - green wire to earth. By means of a short length of 52 or 75 ohm co-axial cable connect output of exciter to the small co-ax socket at the rear of the KW 600. Connect antenna by means of a PL259 plug to the SO239 type socket. The 2 pin socket at the rear of the chassis should be connected with a pair of wires to the VOX relay contacts in the Exciter. These contacts should close when on 'transmit' and are used to operate the relay in the KW 600 which takes its coil voltage from the incorporated power supply.

FRONT CONTROLS.

Rockette Switches - Bottom, Mains ON/OFF - Top Power HIGH/LOW.

By pushing the left edge of the mains switch it clicks into the OFF position. The ON position is reached by pressing the right edge and click to the centre and then again click to flush position.

CONTROLS.

Bottom right - Waveband Switch. Top left PA TUNE.

Top Right - Antenna Loading. Bottom left - Meter Switch with three positions - Plate current - Linearity - RF Volts.

BEFORE SWITCHING ON make sure that both Rockette Switches are in the OFF position.

SWITCHING ON AND TUNING.

Select waveband desired on switch and tune-up exciter in the normal way on the same band. Set PA TUNE and LOAD controls to appropriate dial calibration. (This is correct for 52 ohm feed impedance). Set function switch to ANODE I.

Switch ON by pressing bottom rockette to the right - Note that the indicator light shows MAINS and LOW (Low Power). Apply drive with carrier inserted from exciter and adjust exciter P.A. for a maximum KW 800 plate current of 240 m/a. Tune PA TUNE control for minimum dip on meter. Adjust PA LOAD and re-adjust PA TUNE for minimum dip until meter reads 180 m/a.

SWITCHING ON AND TUNING - Cont'd.

Operate top rockette switch for the HIGH power position. Switch exciter to SSB operation and adjust audio for speech peaks about 180 m/a with average 125 m/a. (KW 600 on HIGH power). Exceeding these conditions could produce poor linearity. Standing plate current on Low power is approximately 0-20 m/a and on high power 0-40 m/a. Slight variation is due to valve characteristics.

LINEARITY CONTROL.

The internal adjustment for this is set up at the factory under two-tone conditions and should not require further adjustment. With the function switch in the LINEARITY position and the KW 600 operating normally the meter should only just flicker around the 'O' mark on the meter scale. Considerable meter movement could be caused by too much drive or incorrect loading. The optimum PA loading is with PA TUNE in resonance and the PA LOAD adjusted for maximum RF output - this can best be measured on an SWR indicator such as the KW Match. It is desirable to make the optimum PA tuning adjustments in conjunction with the drive adjustment from the exciter. It should, however, be possible to switch off the KW 600 at the mains switch thus allowing the exciter to directly feed the antenna without returning the exciter P.A. Normally this can only be achieved when there is a very low SWR on the antenna system, and some slight adjustment to the PA tuning may be necessary.

R.F. VOLTS.

With the meter switch in this position, the meter measures a small amount of rectified R.F. at the antenna output. This is an accurate measurement of volts from which power output can be calculated - e.g. 80 volts into 50 ohm - E^2/R = 125 watts.

C.W. OPERATION.

The tuning procedure for C.W. operation is exactly the same as for SSB. Carrier insertion on the exciter should be adjusted to provide the amount of drive as for SSB operation. It should be noted that under carrier insertion conditions with a plate current of 150 m/a the H.T. voltage is just under 1 Kv, therefore the D.C. input is 1000 x .15 = 150 watts.

REMOVING THE CHASSIS.

This can be done by removing the screws from the underside of the cabinet including the two rear feet. Chassis can be withdrawn from the front by pushing chassis from rear.

Note:- When the top and bottom plates are removed from chassis an H.T. shorting device automatically grounds the high voltage rail.

ALWAYS LEAVE FREE ACCESS FOR AIR ABOVE AND BEHIND THE KW 600.

CHANGING THE 572B.

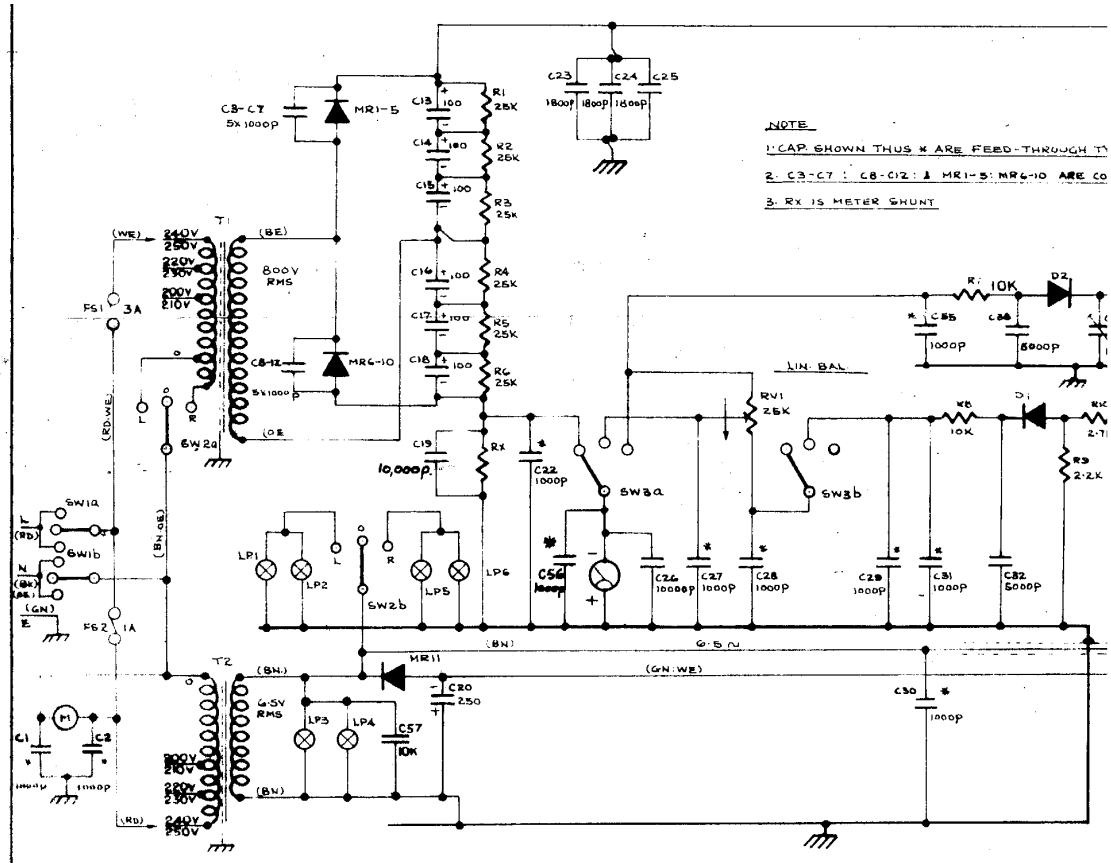
A special retainer holds the P.A. tube in position. The two clips at the base of the tube should be opened out slightly away from the tube base whilst gently extracting the tube.

USED ON KW600

DRAWING Nº

B 9005

THIRD ANGLE PROJECTION



ISSUE	DATE	
5	4-11-65	SEE AM.SHT 4062
4	21-10 65	SEE AM. SHT. 4056
3	6 10-65	SEE AM SHT 4050
2	17-9-65	L6b AND L7 ARE DELETED. RFC2 AND C54 ADDED. AMEND? SHEET 4041.
1	4. 2-65	

APP'D

CHECKED

DRAWN

MATERIAL

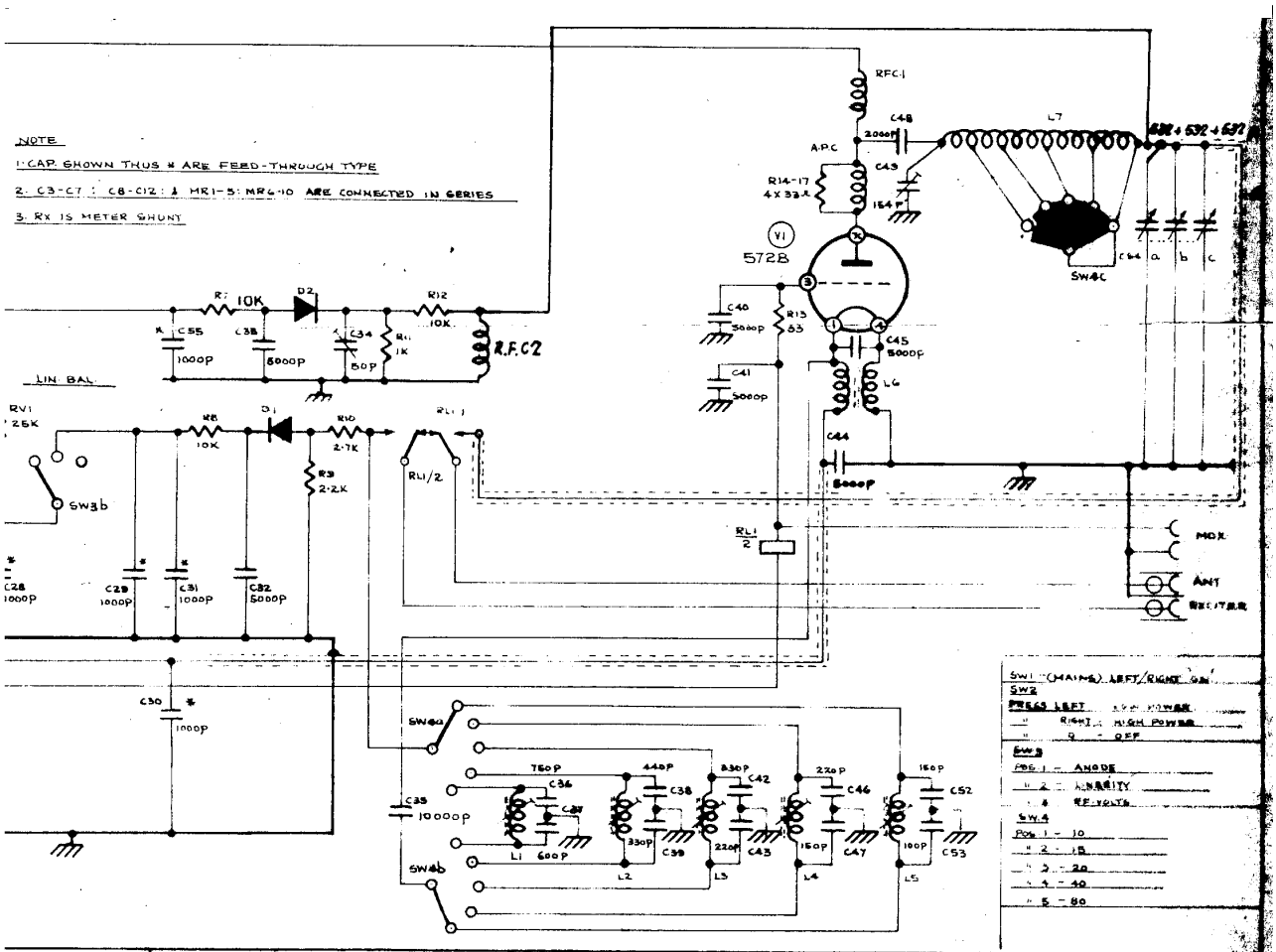
FINISH

TOLERANCES

SCALE

DIMENSIONS

IRD ANGLE PROJECTION



	TOLERANCES	K. W. ELECTRONICS DARTFORD KENT	
		TITLE	DRG. Nº
	DIMENSIONS IN INCHES	CIRCUIT DIAGRAM (KW 600.)	B9005