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W5BOB 6 Meter Transmitting Converter

Operating Instructions

Cabling:

Before attaching cables to the TS-120 transceiver, transmitting converter, and power supply be sure all equipment is turned off.

Connect the power supply to the transmitting converter using the 2 shielded cables marked 9 and 10. Attach the power supply to the TS-120 transceiver between connector 6 of the power supply and the remote jack of the TS-120. Connector 7 of the power supply connects to 120 VAC.

Attach the RF connector of the TS-120 to the '20 M Radio' connection on the transmitting converter. Attach a 6 meter antenna through a SWR meter to the '6 M Antenna' connector of the transmitting converter.

The two remaining connectors on the transmitting converter are connected to the 6 meter receiving converter. Attach the '6 M Input' of the transmitting converter to the '6 M Antenna' connector of the receiving converter. Attach the '20 M Output' of the transmitting converter to the '20 M Transceiver' of the receiving converter.

Initial Control Settings:

Power Supply

Set Power toggle switch to off.
Set 6M/HF toggle switch to 6M.
Set Operate/Standby switch to operate.
Variac - CCW
Meter switch - Grid (Up)
Bias/Current switch - Bias
Bias control - 3:00 o'clock

Transmitting Converter

Set Crystal Select to top position (CW).
Mixer Plate - 11:00 o'clock
Amplifier Grid - 11:00 o'clock
Amplifier Plate - 12:30 o'clock
Power Amp. Grid - 11:00 o'clock
Power Amp. Plate - 1:00 o'clock
Load Control - 3:00 o'clock

Transceiver

Power - Off
Band - 14
Mic - CCW
Car. - CCW
Send/Rec switch - Rec
Mode switch - USB

Initial Tune-up:

Apply power to TS-120. Be sure transceiver is in receive mode.
Set frequency to 14.150.
Apply power to power supply.
Meter should read about 140 volts.
Allow 2 minute warm up.
Switch meter to Voltage (Down).
Turn variac slowly CW until meter reads about 800 volts (80).
Switch meter to Plate Current (Left).
Key up TS-120 ~~with~~ in USB mode with Mic gain full CCW.
Using Bias control, set meter to read 40.
Unkey Transceiver.
Set TS-120 mode switch to CW.
Key up TS-120 with CAR control full CCW.
Advance CAR control and observe plate current and SWR/Power meter. Do not allow plate current to exceed 75 on meter. Adjust mixer plate, amplifier grid, amplifier plate, power amp grid, and power amp plate for peak output on power meter. Reduce carrier level if plate current approaches 80 on meter. Best to keep current around 60 to 70 on meter. Unkey TS-120 between adjustments.

Final Tune-up:

Monitor the high voltage on the meter (down) and advance variac slowly to 1300 volts (130 on meter). Using the above procedure, peak the controls shown below at the noted frequency.
Mixer plate - 14.120
Amplifier grid - 14.150
Amplifier plate - 14.200
Power Amp. grid - 14.150
Power Amp. plate - 14.150
Turn CAR control on TS-120 full CCW

Modulation Adjustment:

Switch mode to USB. Adjust Mic gain to slightly less than 2. Key the mic and speak while observing plate current. Voice peaks should kick plate current up to around 100. Do not let plate current ever exceed 150 at any time.

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Another method of setting the modulation level is to observe grid current on the meter. Voice peaks should be adjusted to give a barely discernable meter movement .

Note:

It is always best to perform tune up with a SWR/Power meter in the 6 meter antenna line. During tune up always peak the power meter for maximum output.

If a SWR/Power meter is not available, then peak all the tuning controls EXCEPT the Power Amp. Plate using the plate current meter as an indicator. ALWAYS tune the Power Amp. Plate control for a DIP in plate current.

Normal Operation:

After the above tune up has been completed it will not be necessary to perform tune up again unless the controls have been changed. Follow the steps below for day to day operation.

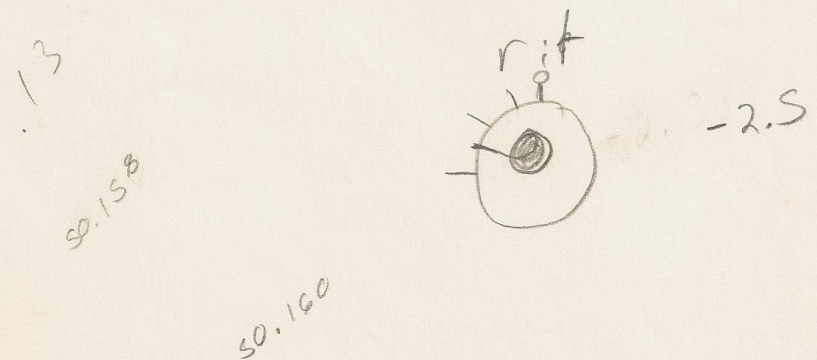
Before applying power to the TS-120 be sure the Send/Rec switch is in Rec position, the CAR control is full CCW, the Mode is set to USB, and the Mic gain is properly set.

Before applying power to the transmitting converter power supply be sure the variac is full CCW, the Operate/Standby switch is in operate position, and the 6 Meter/HF switch is in the 6 Meter position.

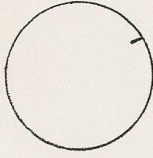
After power is applied to both units advance the high voltage slowly to 1300 volts. Allow 2 minutes for tube warm up. Key up and be sure the plate current reads about 40 on the meter with no modulation.

The unit should now be ready for operation.

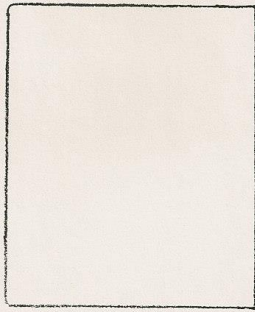
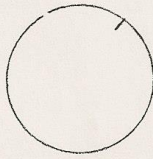
Before removing power from the transmitting converter turn the variac fully CCW.



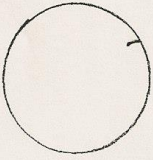
PWR AMP
PLATE



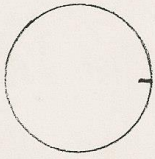
LOAD



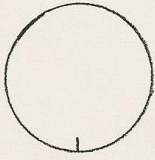
PWR AMP
GRID



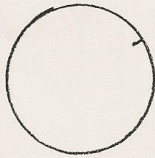
AMPLIFIER
PLATE



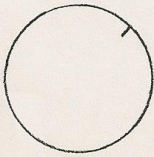
AMPLIFIER
GRID

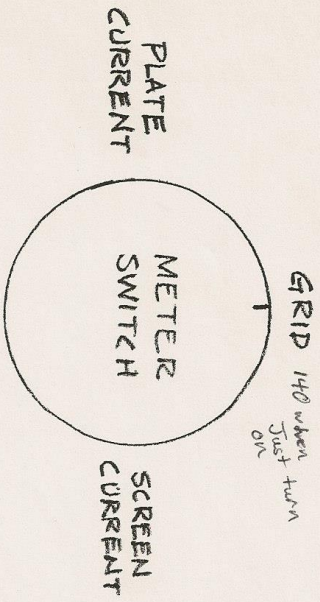
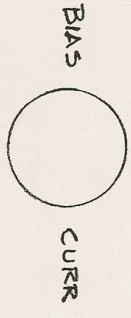
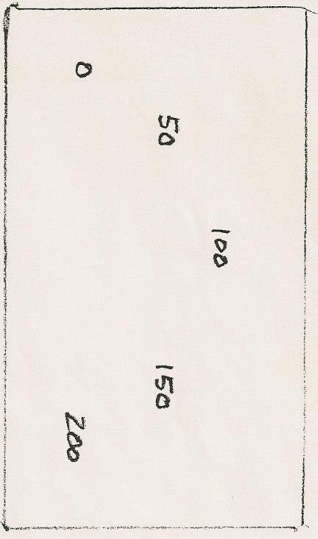


MIXER
PLATE

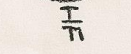
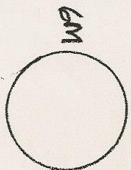
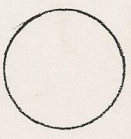
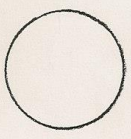
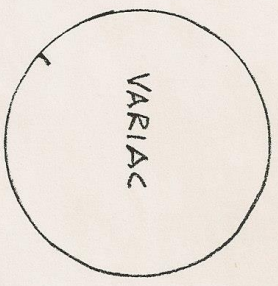


CRYSTAL
SELECTOR

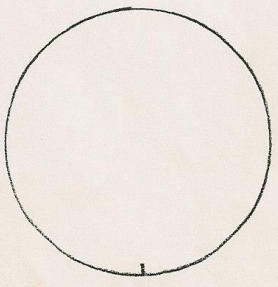


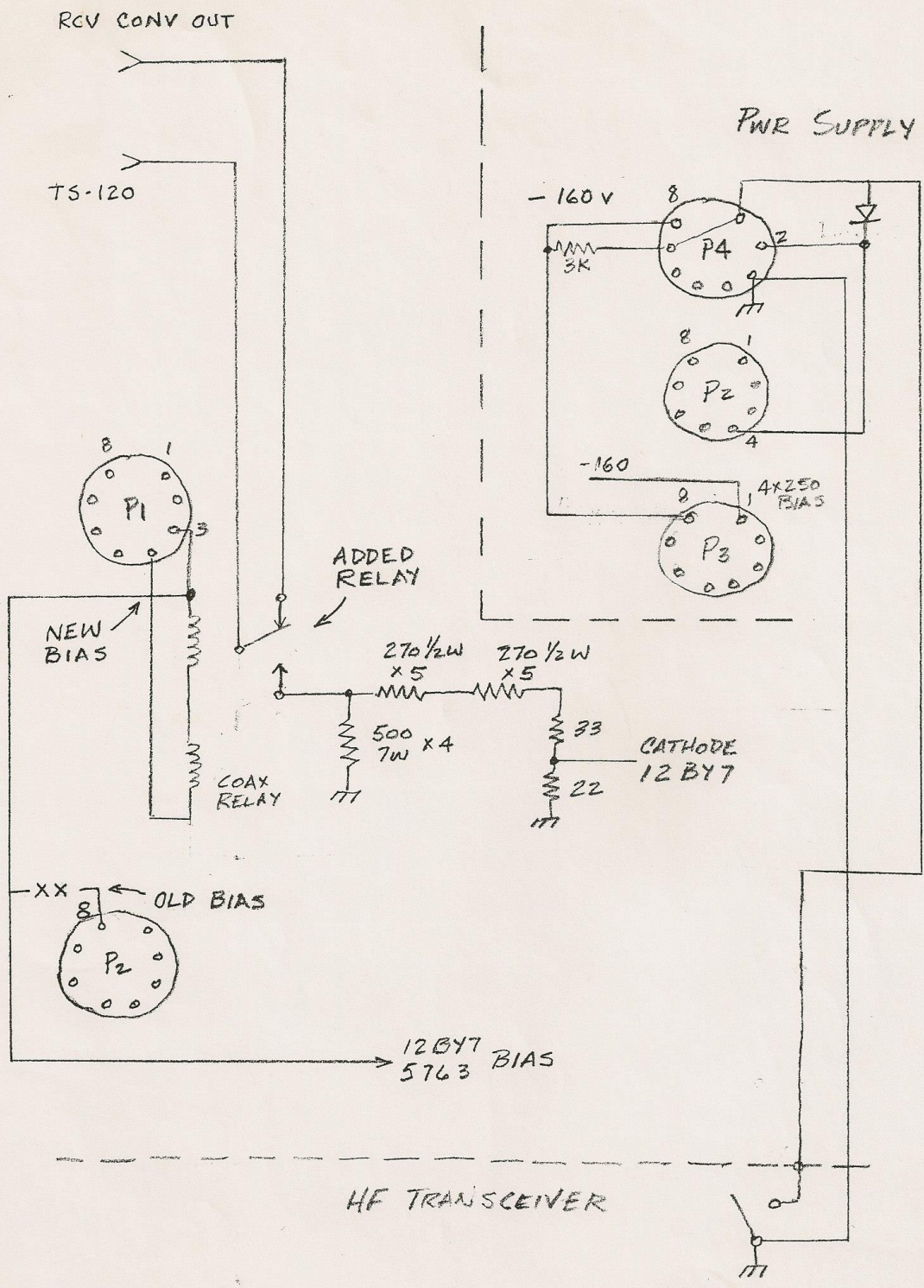


VOLTAGE

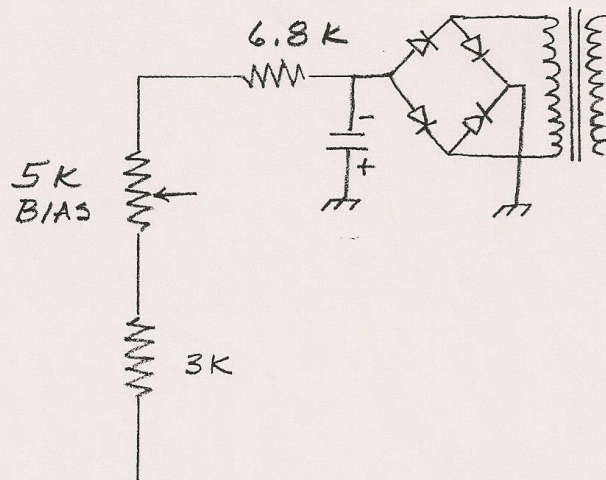


STANDBY





BIAS CKT MODIFICATION



6 METER
TRANSMIT
CONVERTER

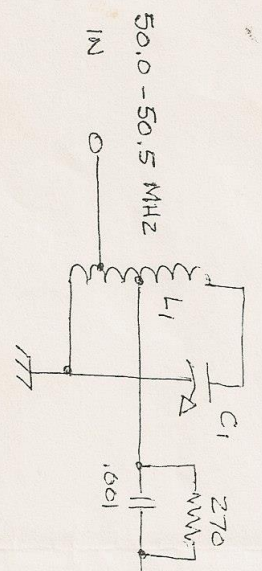
P₂
PIN
1 4CX250 BIAS
2 COMMON
3 }
4 } CONV FIL
5 }
6 } 4CX250 FIL
7 CONV B+
8 1ZBY7 BIAS

P₃ POWER
SUPPLY

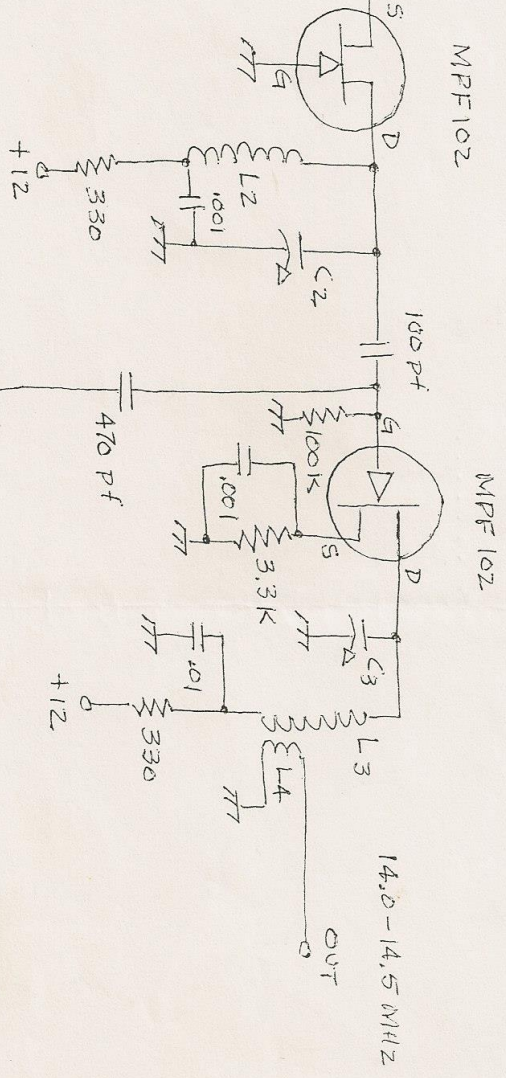
P₁ P₂
PIN
1 BLOWER
2 COMMON
3 ANT RELAY -
4 ANT RELAY SWITCH
5 150 V
6 BLOWER
7 1300 V
8 4CX250 SCN GRID

6 METER RECEIVING CONVERTER

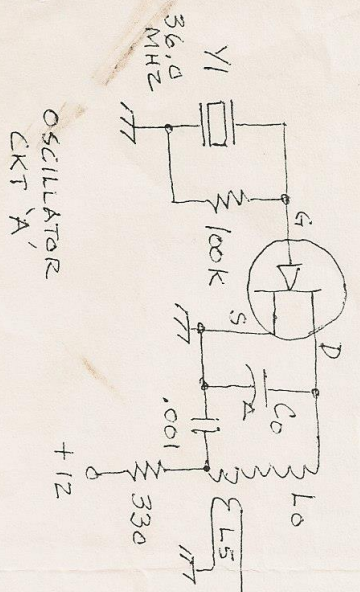
RF AMPLIFIER



MIXER



MPF102



OSCILLATOR CKT B

