

# University Supertracer

Model AST

## VTVM Alignment Procedure

All adjustments made with machine turned on.

### Modification on chassis, adjust cathode bias of 6SQ7-GT

This adjustment removes meter deflection from zero when RF. volts range on 5 volts.

- (1) Adjust cathode bias trim pot on chassis with meter at center zero with function switched to RF. volts with no test voltage applied.

Switch function to RF., alternate range switch positions from 5 volts to higher ranges and adjust trim pot and zero pot (front of machine) alternately until meter zero's accurately on all voltage ranges.

When switched from RF. to DC. a slight error may exist. Adjust with front zero control.

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- (2) Switch function to AC., adjust chassis trim pot AC. "0" (zero) meter left scale position.  
Alternatively adjust AC. zero pot to AC function left side scale and front zero control on DC. function center scale position until accurate.
  - (3) Switch function to AC. and range to five volts.  
Apply five volts AC. to input via AC probe.  
Adjust chassis trim pot AC 5 volts to five volts F.S.D. whilst checking AC. zero and DC. function center scale position front zero control and adjust if necessary.
  - (4) Apply higher AC voltages to higher ranges. If incorrect readings, check circuit resistors.
  - (5) Switch function to DC. and range to five volts.  
Apply five volts DC. to input via DC probe.  
Adjust chassis trim pot DC. 5 volts to five volts F.S.D. whilst alternately checking and adjusting DC. center scale position to zero.
  - (6) Apply higher DC. voltages to higher ranges. If incorrect readings, check circuit resistors.

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\* The DC. ranges are not affected by adjusting the AC. pre-set trim pots.

\* If all voltages are low and can't be adjusted to read correct check 6Q7 / 6B6-G valve for gain, or sensitivity of meter low. Meter should be 500  $\mu$ a. FSD.

\* Meter sensitivity can be adjusted by moving the position of the magnet dampening bridge located across the poles of the bottom of the meter movement.

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## To center meter zero control pot

Decrease the resistance of the 7.5 k / 4.7 k resistor situated off the DC pre-set pot and increase the resistance of the 100 ohm / 430 ohm resistor situated off the 400 ohm meter zero pot on front panel. If this alters the zero position in the wrong direction reverse the above. The resistance's quoted above are values used in two separate machines to calibrate the VTVM center zero position at time of service.

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Note: The AC. zero pre-set adjustment is critical to obtain FSD on voltage ranges.

- \* The resistance value of the 30 K 2 watt resistor situated between the AC "0" pre-set pot on chassis to the 10 K resistor to the meter is critical to obtain correct voltage readings on ranges above five volts FSD. It must be correct at 30 K ohms.

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## Modification:

RF. meter zero on five volts range.

The 5 volt range sometimes reads voltage instead of zero.

- \* Replace the 470 ohm cathode bias resistor on the 2nd. 6SK7-GT valve with a 500 ohm WW. pre-set pot. Can be located between existing pre-set pots if of a small type.

This will allow adjustment of RF. volts, five volts range to zero VTVM. When adjusted correctly this will allow the meter to zero accurately on DC and all RF. voltage ranges, especially the five volts range.

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Total H.T. currant no signal / load = 75 ma.

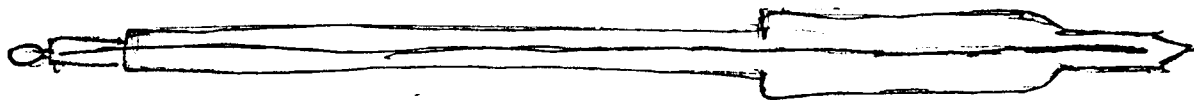
Total L.T. heater 6.3 V. currant = 1.65 A.

5Y3 rectifier filament 5 V currant = 2 A.

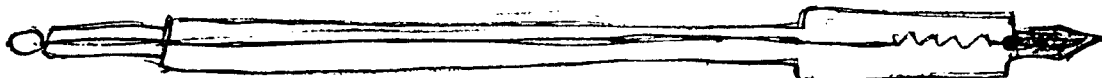
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FEED BACK INSTABILITY CAN BE CAUSED BY FAULTY  
H.T. FILTER ELECTROLYTIC CONDENSOR.

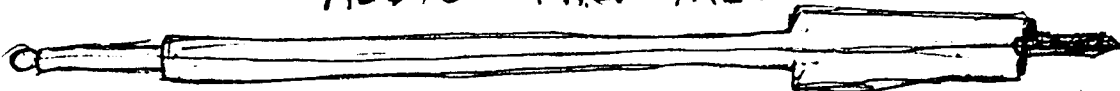
RF RED



DC LEAD BLACK 10M RES.



AUDIO & AC GREEN



ALL SHIELDED LEADS

SPKR = 3  $\Omega$

AUDIO & AC = ZERO L/H SIDE METER  
RF & DC = ZERO CENTRE SCALE.

47 K RES (SCREENED SUPPLY)

- \* ADD SOCKET TO SPKR V.C. CIRCUIT TO TEST SPKS.
- \* ADD ON/OFF POWER SW.

6SK 7.9T.

NEXT TO TUNER

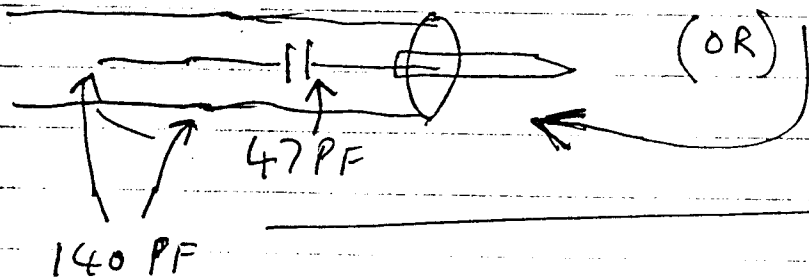
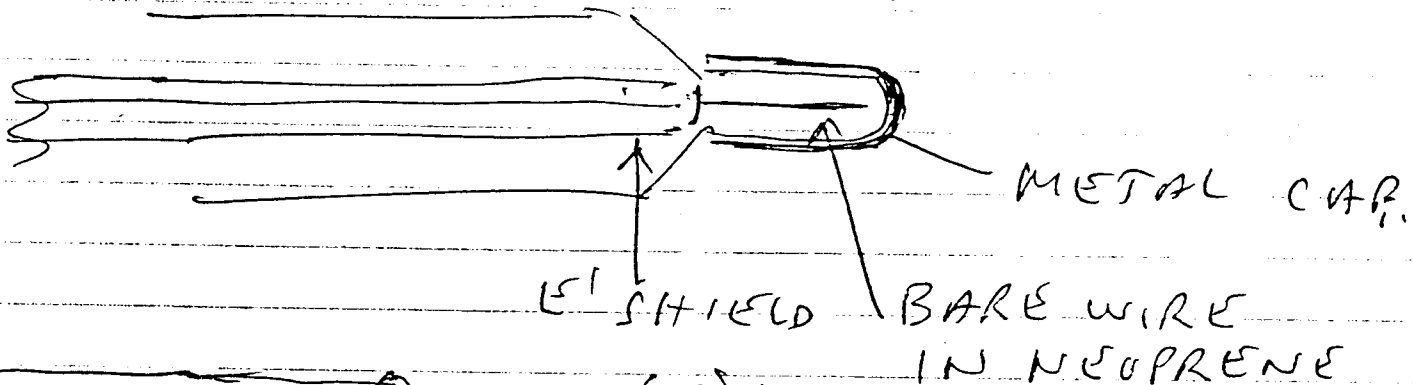
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ALL PROBE LEADS APPROX. 1.1 MET. LONG (OVERALL)

# RF PROBE

CAPACITY  
50/60 PF.

$\frac{1}{2}$ "

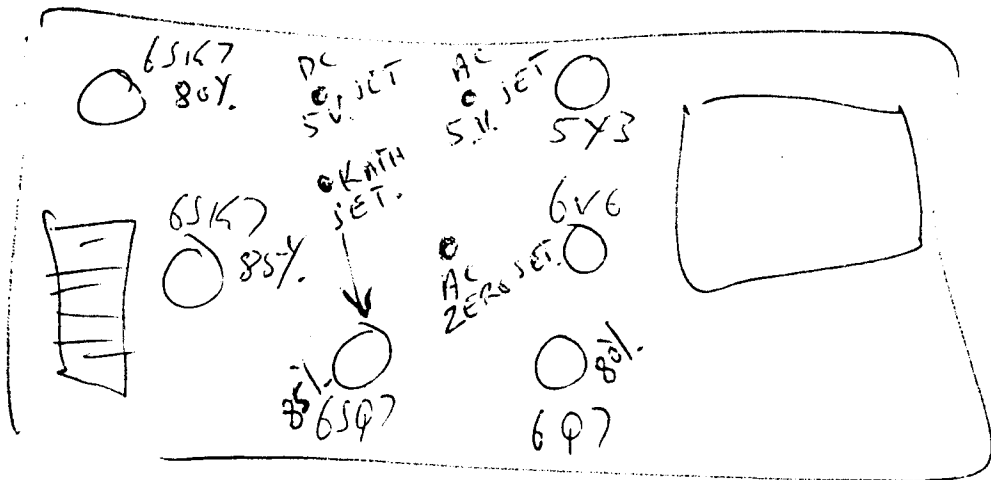


# DC PROBE

10 MEG RES.

AC AND ~~Other~~ - AUDIO

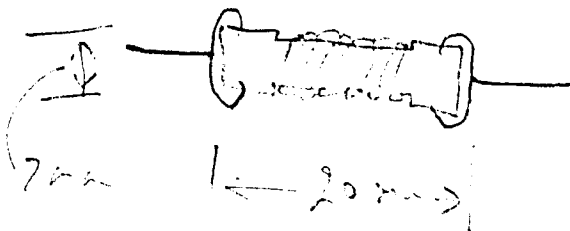
PROBE = DIRECT (NO RES)



CHOKE ON  
HEATER OF  
6B6-9

1.3  $\Omega$

0.018 MH.

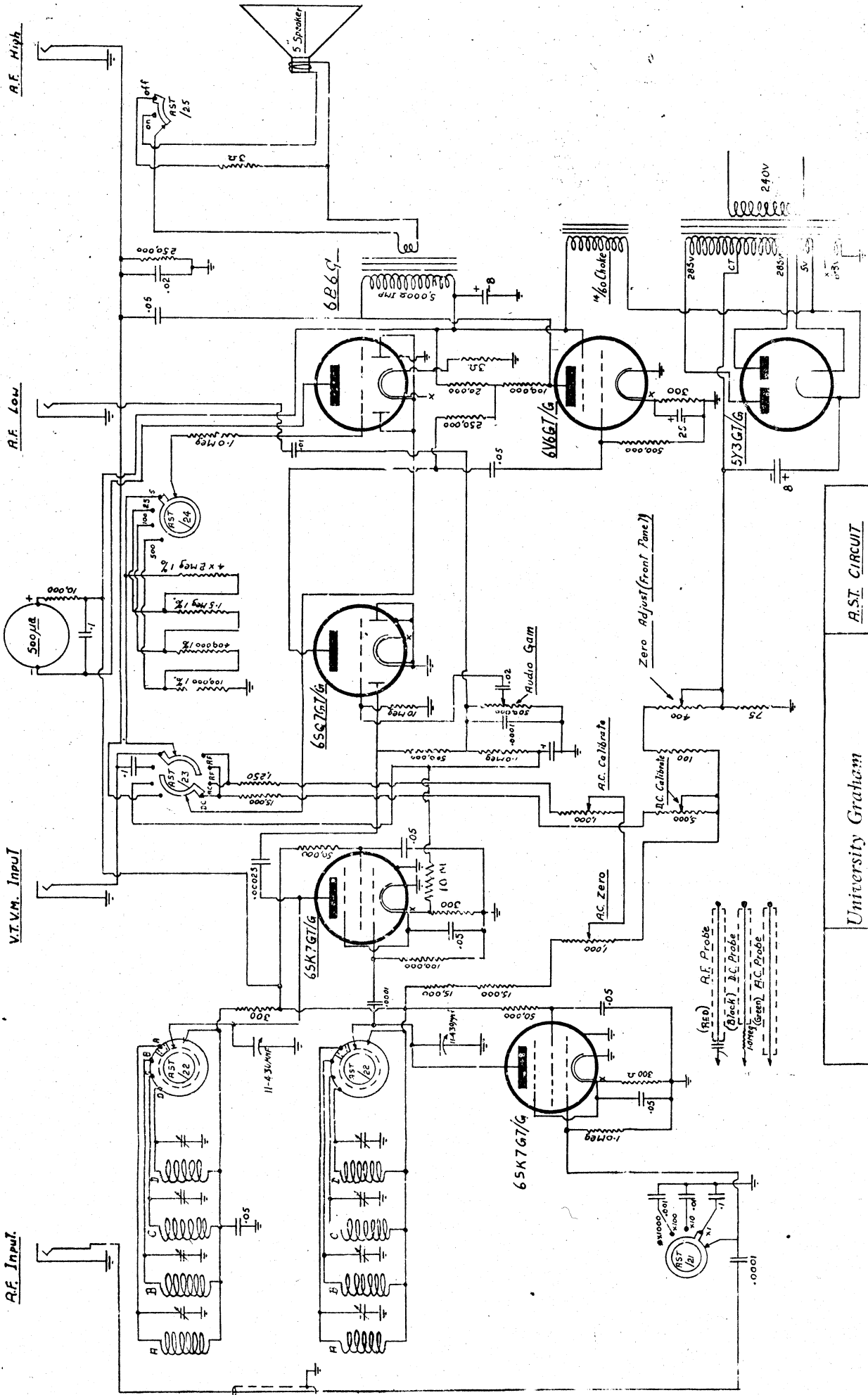


A.F. Input

V.T.V.M. Input

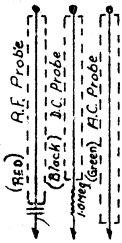
A.F. Low

A.F. High



A.S.T. CIRCUIT

University Graham



Zero Adjust (Front Panel)

Radio Gain

A.C. Calibrate

A.C. Zero