

# AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS  
ENGINEERING . MANUFACTURING

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## INSTRUCTIONS

MODEL AV-105

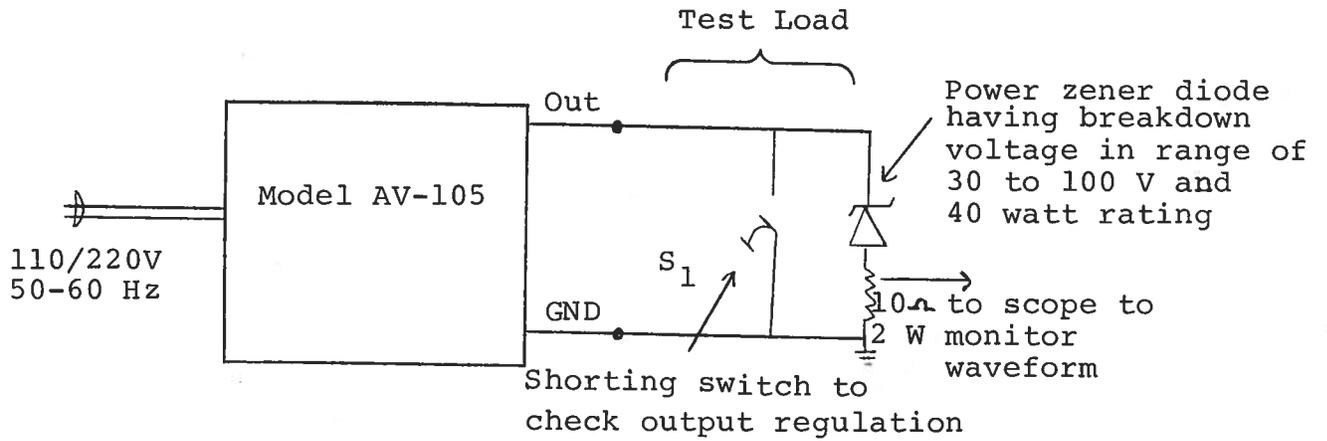
S.N. :

### WARRANTY

Avtech Electrosystems Ltd. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If, within one year after delivery to the original owner, and after prepaid return by the original owner, this Avtech product is found to be defective, Avtech shall at its option repair or replace said defective item. This warranty does not apply to units which have been disassembled, modified or subjected to conditions exceeding the applicable specifications or ratings. This warranty is the extent of the obligation or liability assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

A.

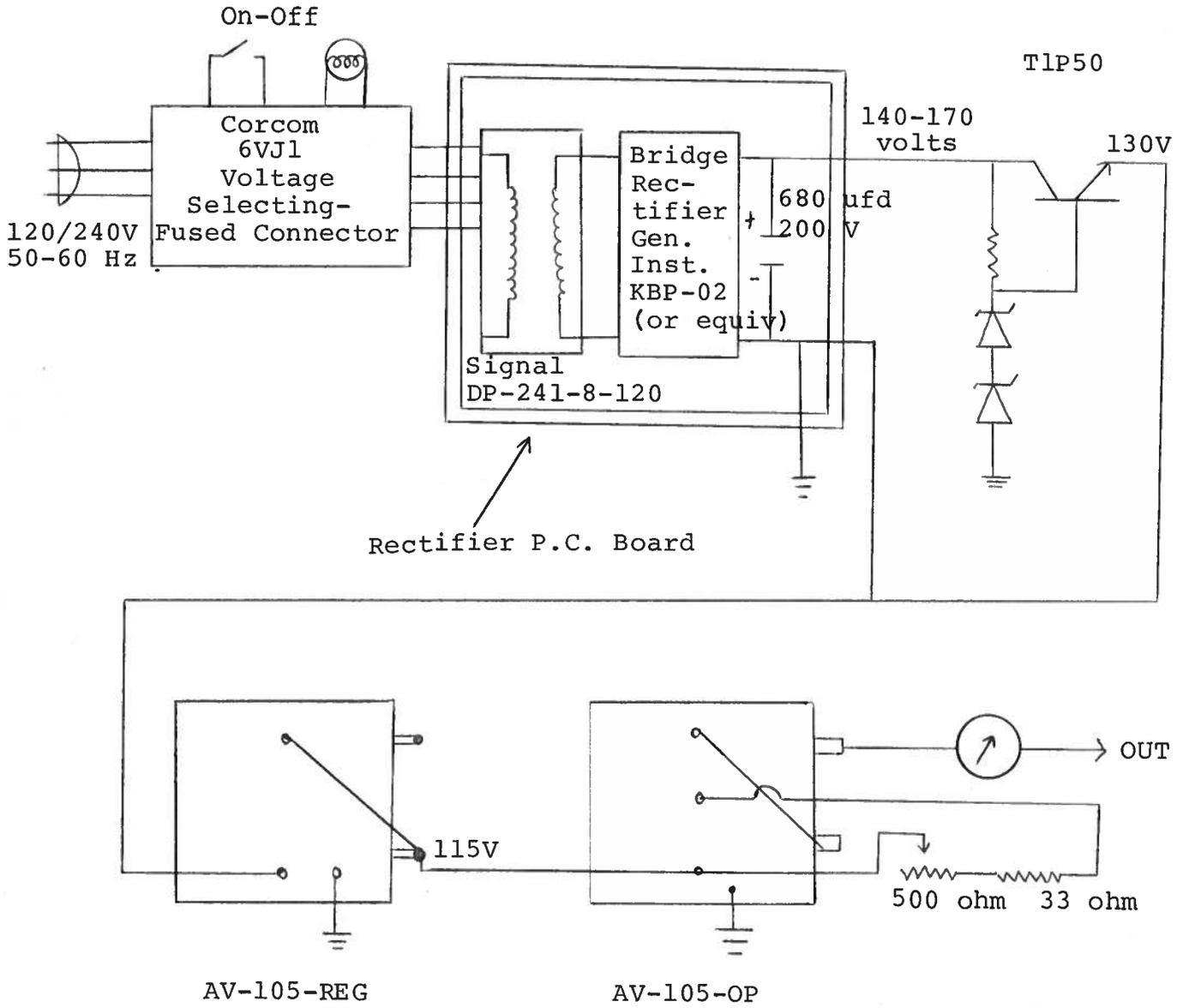
TEST ARRANGEMENT AND OPERATING INSTRUCTIONS



- 1) Set the ON-OFF switch in the OFF position and rotate the front panel pot control to maximum counter clockwise. Connect the test load and shorting switch S, as shown and connect to 50-60 Hz outlet.
- 2) Switch ON-OFF switch to ON position. The meter should read about 5 mA. Clockwise rotation of the pot will increase the output current to a maximum of at least 250 mA (for load voltages in the range of 0 to 100 volts).
- 3) With the output current set at any value in the range of 50 to 250 mA, the change in meter reading should be barely detectable when the shorting switch S, is alternately opened and closed.
- 4) If the load is opened circuited or if the load voltage exceeds approximately 100 volts, the ammeter will read 0 mA.
- 5) If the output current can be readily varied over the range of 50 to 250 mA via the pot control and if the output regulation is within specifications, the AV-105 unit can be safely used to bias an IMPATT device.
- 6) Note that while the AV-105 unit is designed to operate into a short circuit load, it should not be operated in this mode for extended periods of time as overheating of the unit may result.

B.

CIRCUIT DIAGRAM



C.

REPAIR PROCEDURE

In the event that the AV-105 unit does not provide an output or is not operating properly as a constant current source, the cause and defective components may be identified as follows:

- 1) Disconnect instrument from 60 Hz source.
- 2) Confirm that fuse is not blown.
- 3) Connect a load similar to that shown under operating instructions. Remove the four Phillips screws on the back panel and slide off the top lid thereby exposing the instrument interior. CAUTION: Points having potentials as high as 160 V are exposed in the interior.
- 4) Connect to a 60 Hz source and set ON-OFF switch to ON position and set front panel pot control to mid-range position. Attach scope probe or voltmeter probe to the T1P51 emitter. This voltage should be in the range of +130 to +140 volts. If the voltage is below this range, unsolder the connection to the AV-105-REG module and measure the output voltage again. If it is still below 130 volts then the rectifier board or transformer or T1P50 is at fault and should be repaired or replaced (see Parts List). If the output voltage is within the 130 to 160 volt range then reconnect the AV-105-REG module and check the voltage at PIN 2. This voltage should be about +115 volts. If this voltage is not +115 volts, remove all leads connected to PIN 2 of AV-105-REG and connect a 250 ohm 40 watt load. A voltage of +115 V should then be read. If 115 V is not obtained then the AV-105-REG module must be replaced. If the +115 V was obtained then the AV-105-OP module is probably at fault and should be replaced. The operation of the AV-105-OP voltage to current converter module can be checked by applying a lab power supply providing +115 V (250 mA max.) to PIN 2 of the AV-105-OP module. The module should draw a current approximately 20 mA higher than that registered on the output meter. If the current drawn is outside this range then the AV-105-OP unit is defective and should be replaced.

D.

PARTS LIST

<u>Part</u>	<u>Manufacturer and Model No.</u>
Power transformer:	Signal Transformer Type 241-8-120
Bridge rectifier:	General Instrument KBPO2 or equivalent
Filter capacitor:	Phillips 680 ufd, 250 V
Printed circuit board:	Avtech Part No. AV-105PCB
Regulator module:	Avtech Part No. AV-105-REG
Voltage to current converter module:	Avtech Part No. AV-105-OP
Ammeter:	Wilbac (Bach-Simpson) Cat. No. 108040
Pot:	250 ohm 2 watt

Schroff 09.20.85

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as of Oct 8/97

File: C:\INSTRUCT\AV-1105.DOC

Note: File is unadjusted.