

9 T 4 0

Vapour Cooled Triode

The NEC 9T40 is a high power vapour cooled triode designed for use as an amplifier, modulator and oscillator in medium and short wave frequency broadcast transmitter and in industrial heating services.

The tube features rugged coaxial construction and its ring-sealed terminals provide low lead inductances which assures stable operation at high frequencies.

The cathode consists of multistrand, thoriated-tungsten filaments, completely balanced and stress free throughout life.

Electrical characteristics of the NEC 9T40 are similar with those of the 9T38, except than the anode dissipation rating is increased to 150 kW.

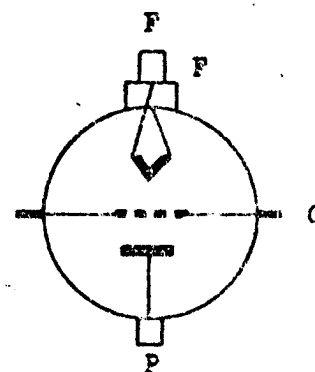
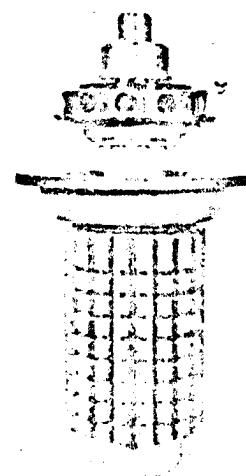
Maximum ratings of plate voltage and input apply at frequencies up to 2 MHz/s.

ELECTRICAL DATA

GENERAL DATA

Filament : Thoriated tungsten

Voltage	18 volts
Current	315 amps.



F: Filament
G: Grid
P: Plate

TERMINAL CONNECTIONS

Maximum Starting Current	1000	amps.
Transconductance (at $I_b=5$ amps.)	80	milli-mhos
Amplification Factor	40	

Direct Interelectrode Capacitances :

Grid to Plate	100	μF
Grid to Filament	180	μF
Plate to Filament	3	μF

MECHANICAL DATA

Dimension :

Maximum Diameter	360	mm
Maximum Overall Length	745	mm
Net Weight (approx.)	53	kg
Mounting Position : Vertical, anode down		

Cooling :

To plate : Vapour-cooling required

To stem and glass bulb : Forced-air-flow required (Note 1, 2)

Minimum air flow	5	$\text{m}^3/\text{min.}$
Maximum glass temperature	180	$^{\circ}\text{C}$
Maximum seal temperature	165	$^{\circ}\text{C}$

Accessories Required :

Filament connector	NEC VT-326
Filament connector	NEC VT-327

Note 1. The specified air flow should be directed vertically from a nozzle of approx. 70 mm diameter into the center of stem.

Note 2. Start forced-air-flow for each portion of the tube prior to the application of filament voltage. Continue air flow at least 3 minutes after removal of all voltages.

AF POWER AMPLIFIER AND MODULATOR-CLASS B

MAXIMUM RATINGS : Absolute Values

DC Plate Voltage	15000	volts
Max.-Signal DC Plate Current (Note 3)	18	amps.
Max.-Signal Plate Input (Note 3)	270	kW
Plate Dissipation (Note 3)	150	kW

TYPICAL OPERATION : Values are for two tubes

DC Plate Voltage	12000	14000	volts
DC Grid Voltage	-300	-340	volts
Peak AF Plate to Plate Voltage	19200	22400	volts
Zero-Signal DC Plate Current	2	2	amps.
Max.-Signal DC Plate Current	32	30	amps.
Max.-Signal DC Grid Current	1.72	1.24	amps.
Effective Load Resistance, Plate to Plate	784	896	ohms
Max.-Signal Driving Power (approx.)	572	390	watts
Max.-Signal Power Output (approx.)	234	273	kW

Note 3. Averaged over any audio-frequency cycle of sine-wave form.

PLATE-MODULATED RF POWER AMPLIFIER-CLASS C TELEPHONY

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

MAXIMUM RATINGS : Absolute Values

DC Plate Voltage	12000 volts
DC Grid Voltage	-1500 volts
DC Plate Current	16 amps.
DC Grid Current	4.5 amps.
Plate Input	190 kW
Plate Dissipation	100 kW
Grid Dissipation	2.5 kW

TYPICAL OPERATION :

DC Plate Voltage	10000	10000	12000	volts
DC Grid Voltage	-530	-530	-720	volts
Peak RF Grid Voltage	980	1010	1300	volts
DC Plate Current	10.4	13	14.5	amps.
DC Grid Current (approx.)	2.3	3	3.8	amps.
Power Output (approx.)	85.2	104	150	kW

RF POWER AMPLIFIER AND OSCILLATOR-CLASS C TELEGRAPHY

(Key-down conditions per tube without amplitude
modulation)

MAXIMUM RATINGS : Absolute Values

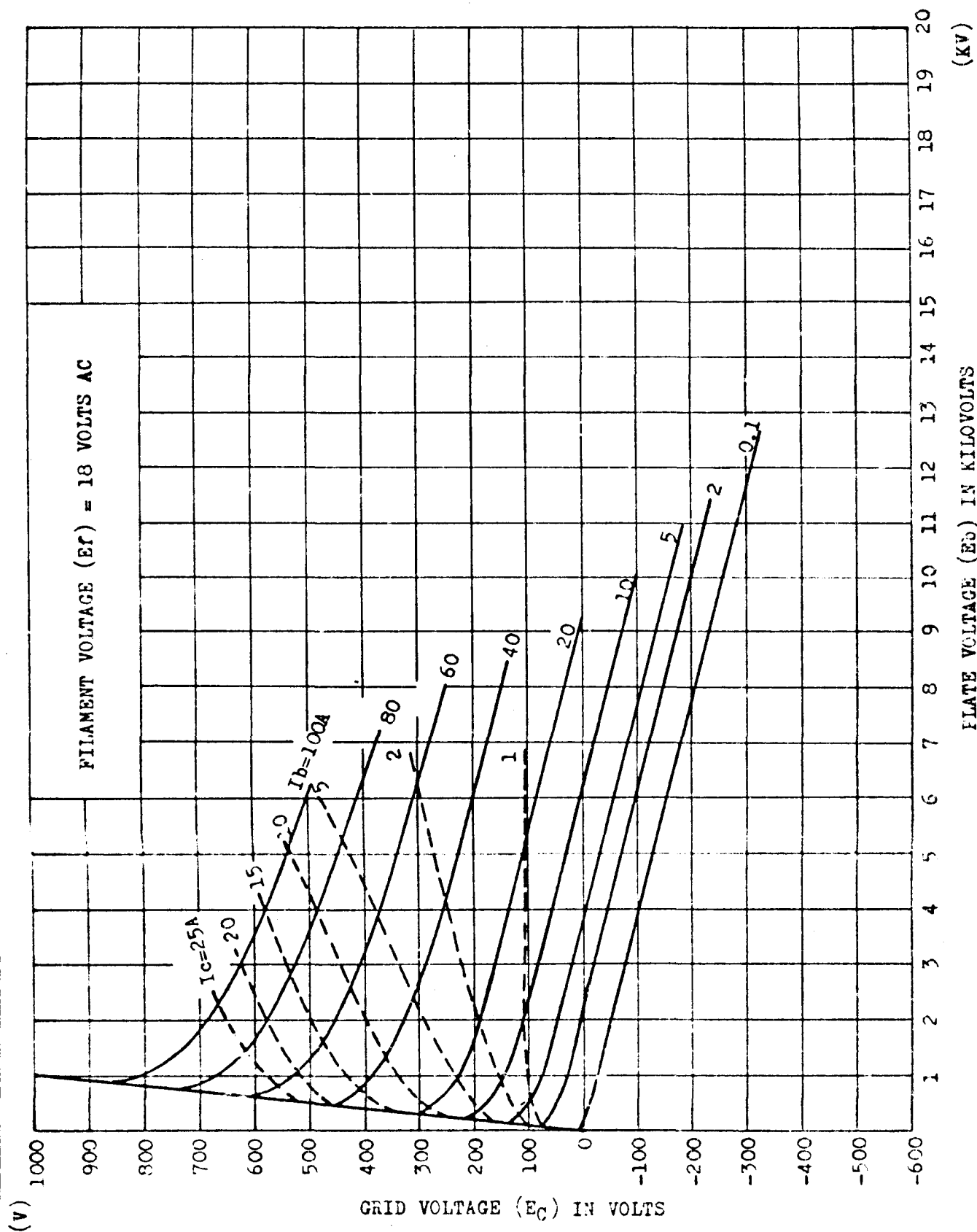
DC Plate Voltage	15000 volts
DC Grid Voltage	-1500 volts
DC Plate Current	20 amps.
DC Grid Current	4.5 amps.
Plate Input	300 kW
Plate Dissipation	120 kW

Grid Dissipation 2.5 kW

TYPICAL OPERATION :

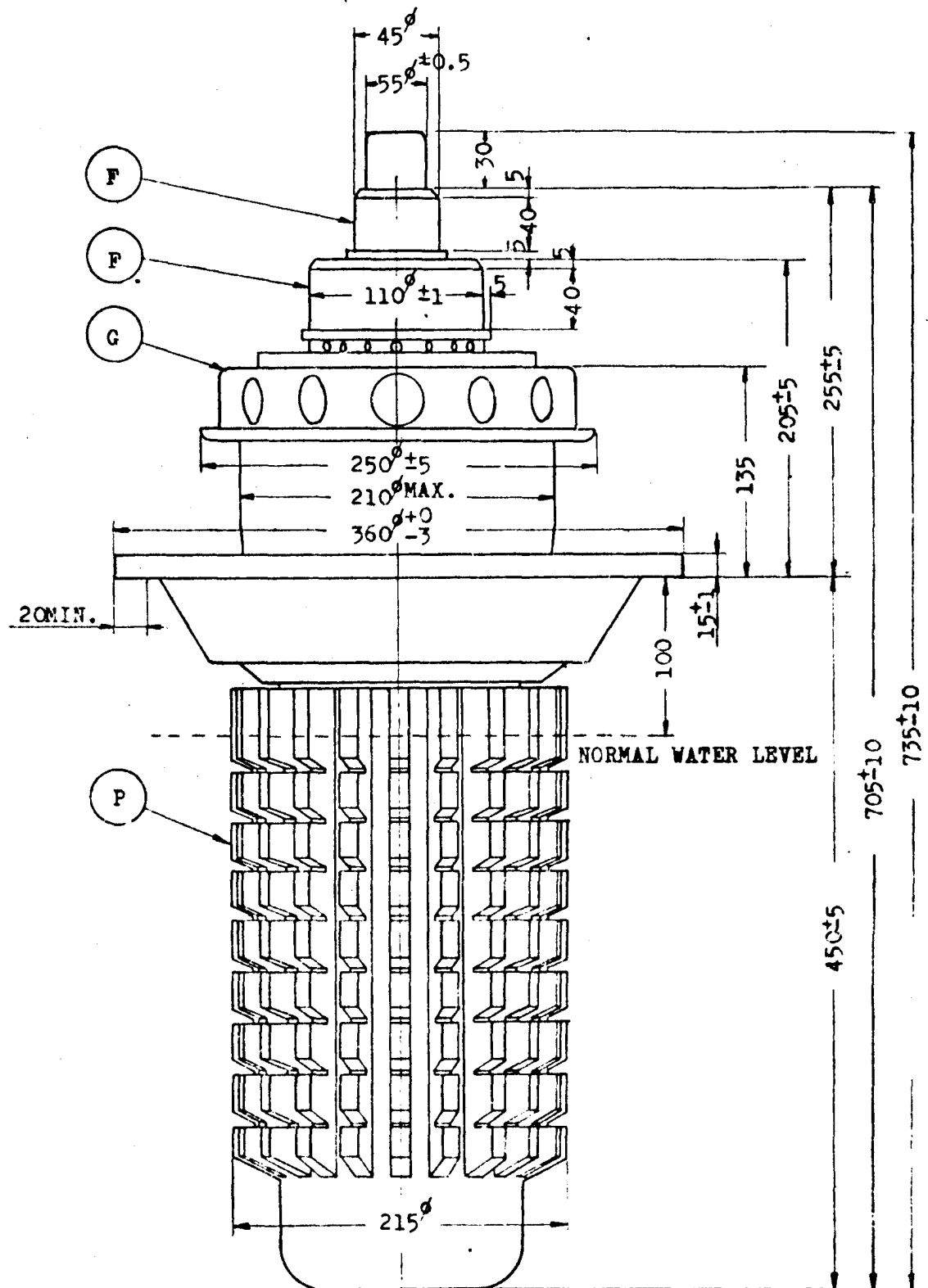
DC Plate Voltage	12000	15000	volts
DC Grid Voltage	-1200	-1200	volts
(From a grid resistor of)	400	400	ohms
Peak RF Grid Voltage	1830	1830	volts
DC Plate Current	18	20	amps.
DC Grid Current	3	3	amps.
Driving Power (approx.)	5	5.1	kW
Power Output (approx.)	177	233	kW

CONSTANT CURRENT CHARACTERISTICS



OUTLINE DRAWING

(Unit in mm)



LIFTING HANDLE

(Unit in mm)

