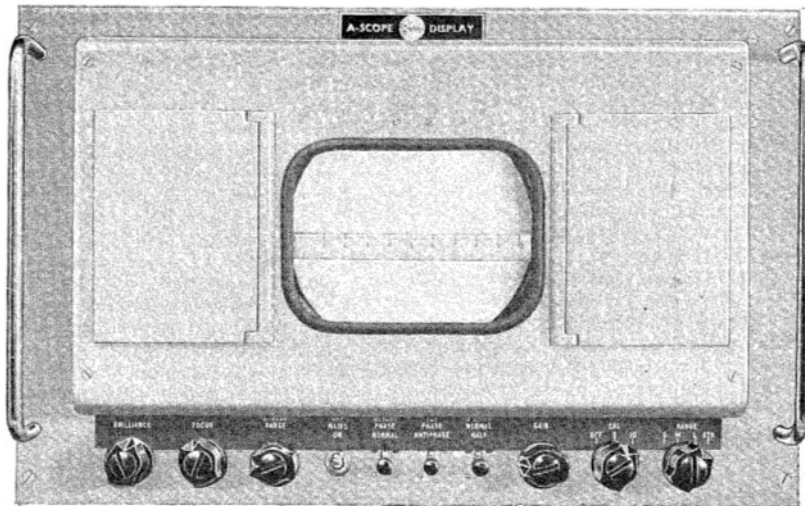




Radar Display Unit Type SD600



THE DISPLAY UNIT TYPE SD 600 is an 'A' - scope of compact construction, using a 6-in. diameter display tube with a ground and polished flat face.

FACILITIES

It provides a means of examining in detail any part of a general PPI display by stopping the aerial on the desired bearing and adjusting the starting point of an expanded 12-miles scan to cover the range to be investigated. This facility is valuable for the assessment of shipping tonnage on coast watching stations.

It may be used for height-finding in conjunction with a 'split beam' radar by means of alternate trace displacement.

It is useful for viewing targets through heavy jamming where use is made of the effect of the tube afterglow.

It can also be used as a monitor.

CONSTRUCTION

Contained in an attractive steel case, the console is suitable for mounting on a shelf, bench or on top of another console. Alternatively it may be mounted on a tubular steel stand to form an independent console assembly. With the case removed it is suitable for rack or cabinet mounting.

The tube has three stages of post-deflection acceleration and is available with medium or long persistence characteristics (5-10 or 30-40 seconds respectively). The screen is blue with yellow afterglow. An edge-lit scale, fitted across the tube face, is engraved with calibration markings for the 12 nautical mile strobe range. Other calibrations can be added. A viewing hood is available if required.

The unit can be supplied either with or without an IF amplifier. This amplifier is a self-contained unit, easily removable for maintenance purposes. Signal input plugs are duplicated so that the

inputs may be extended to a further display unit, or correctly terminated for impedance matching purposes.

All controls are mounted on the front panel and labels are illuminated from the rear, appearing equally clear under all degrees of room lighting.

CIRCUITS

Time-base. A sanatron circuit produces a saw-tooth waveform when triggered by an external sync. pulse. A variable delay strobe pulse, derived from this externally generated sync. pulse triggers the time-base circuit when it is operating on the 12-mile strobe range. The strobe time-base may therefore be adjusted to start at various points along the main time-base and its position is indicated by a brightened section. Normally the starting points will be locked to the 5-mile calibration markers so that the range may be read accurately by reading the range off the main time-base to the start of the strobe and then adding the range along the strobe. In the absence of calibration markers the strobe starting position is continuously variable. The starting position is adjustable either from the unit or from the

associated PPI display. A strobe pulse, corresponding in range to the start of the strobe time-base, is fed out from the unit *via* a cathode follower stage to brighten a section of the trace of the associated PPI display. The 'bright-up' pulse, which is applied to the electron beam during scan periods, is increased in amplitude when a remote azimuth strobe key is depressed. This brightens the trace and enables the PPI operator to indicate the azimuth of a particular signal when the aerial head is rotating and height-finding is in progress. Facilities are also provided for accepting 'split' square-waves from a split-beam height-finding radar.

Video amplification. A push-pull video amplifier, employing composite negative feedback, is incorporated and a short time-constant circuit may be switched into use to counteract jamming or weather effects. Range calibration marks are mixed with the video at this stage.

IF amplification. The removable IF amplifier, previously referred to, operates at 45 Mc/s. Five amplification stages are followed by a diode detector.

Power supplies. All power supply circuits are incorporated in the console.

DATA SUMMARY

Radar signals:

IF: 45 Mc/s
Video: Positive-going
1 V peak 70 Ω source

Noise level not exceeding 1 mV

Sync. pulses: Positive-going, 5 V min. level, 70 Ω source. Min. pulse length 1 μ s. PRF 200–1000 c/s.

Time-base ranges: 3 adjustable (pre-set) ranges—

- (1) 120–250 n.m.
- (2) 40–130 n.m.
- (3) 10–80 n.m.

Range marks: Positive-going, 5 V min. level, 70 Ω source.

Range strobe pulse output: Negative-going, 5 V level. Suitable for 500 Ω impedance.

Split square-wave input: 10 V min. level, 100 k Ω source.

IF amplifier:

Max. input noise level: 1 mV.

Max. overall gain: 75 dB.

Frequency response: Flat to within 1 dB from 44–46 Mc/s.

Bandwidth at 6 dB down: 4 Mc/s.

Relay supplies: 50 V DC.

Power supplies: 200–250 V ($\pm 6\%$) 45–65 c/s single-phase AC.

Power consumption: 250 W.

Dimensions (approx.):

Height	Width	Depth	Weight
14 in.	21 in.	21 in.	50 lb
(35.3 cm)	(53.3 cm)	(53.3 cm)	(23.7 kg)

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