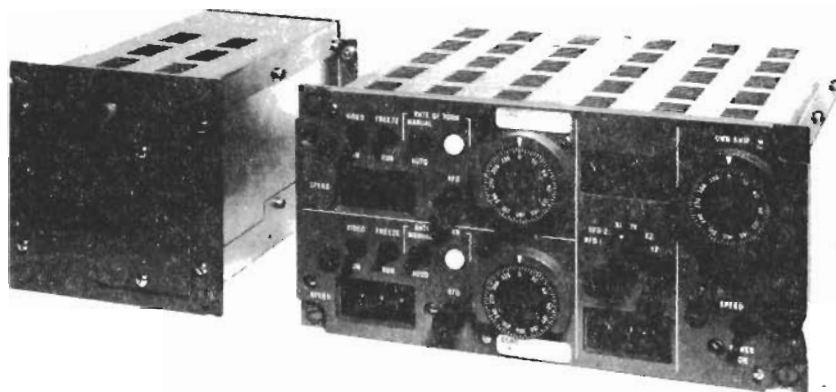


## RADAR TEACHER OUTFIT HRT

HRT

## SUMMARY OF DATA



## PURPOSE

To generate two radar echoes, simulating ships, fixed-wing aircraft or helicopters, in order to provide continuation training at sea. The outfit operates in conjunction with the Type 978 or 1006 radar equipment from which it obtains its synchronisation and aerial rotation signals.

## BRIEF DESCRIPTION

The particular outfit, HRT(1) or HRT(2), installed in a ship is determined by the type of aerial rotation signals available. Where these are at 4096 pulses/rev the outfit consists solely of a radar echo generator and is designated HRT(1). When the aerial rotation information is provided by a synchro at 400 Hz, an additional unit, a data retransmission unit, is required to convert the synchro signals to 4096 pulses/rev. In this case the outfit nomenclature is HRT(2).

The two simulated echoes produced by the echo generator are individually controllable in speed and direction, their position being continuously computed relative to the own ship which is permanently stationed at the centre of the 80 data miles square playing area. Provided they are within radar range the synthetic echoes have a fixed intensity equal to the peak amplitude of the live echoes picked up by the Type 978 or 1006 radar equipment. To add realism to the simulation the range of detection of the synthetic echoes can be set to any value up to a maximum of 40 data miles. A changeover relay ensures that the live video output from the radar equipment is passed to the radar display when the radar teacher outfit is not operating. When the radar teacher outfit is not fitted, a shorting socket maintains the links between the radar equipment and its associated display system.

## MAJOR UNITS

		Height	Width	Depth	Weight
6940-99-523-7171	Generator Radar Echo	6 in	12 in	9 in	20 lb
6940-99-525-3386	Data Retransmission Unit	6 in	6 in	9 in	15 lb
5935-99-525-7475	Dummy Electrical Socket				

The two main units are designed to fit into the following VCS boxes:

- VCS 331 - Generator radar echo
- VCS 336 - Data retransmission unit

## PERFORMANCE CHARACTERISTICS

Inputs

- (1) Sync - 5 V to 30 V positive.
- (2) Video - 0 V to 10 V positive into 68 ohms.
- (3) Aerial rotation - three wire synchro or mag slip, 400 Hz 90 V line/line into the data retransmission unit or 4096 pulses and North marker pulse into the radar echo generator.

## RESTRICTED

### (4) Power Supplies

HRT(1) - 115 V  $\pm$  5%, 400 Hz, 24 VA and 22 V  $\pm$  4 V d.c. 14 VA.  
HRT(2) - 115 V  $\pm$  5%, 400 Hz, 36 VA and 22 V  $\pm$  4 V d.c. 15 VA.

In Outfit HRT(2) the data retransmission unit obtains its supplies from the echo generator.

### Output

Live radar video combined with video generated within the teacher. This composite video has similar characteristics to the input video.

### Echo Characteristics

- (1) Number of echoes - two
- (2) Echo size - 1.0<sup>0</sup> wide nominal over the range 0.5 to 40 miles
- (3) Pulse length - approximately 50 yards (300 ns)
- (4) Computed position - updated in approximately 15 yard increments
- (5) Minimum usable range - less than 500 yards
- (6) Maximum usable range - 40 data miles (one data mile = 2000 yards)
- (7) Speed - 0 to 999 knots
- (8) Course - 0 to 360<sup>0</sup>
- (9) Automatic rate of turn - 3<sup>0</sup>/sec (nominal)
- (10) Range of first detection (RFD) - 0-40 miles
- (11) Fade characteristic -  $\pm$  0.5 mile of RFD set in.

### Own Ship Characteristics

- (1) Speed - 0 to 99 knots
- (2) Course - 0 to 360<sup>0</sup>
- (3) Position in playing area - permanently stationed in centre.

## HANDBOOK

Radar Teacher Outfit HRT. BR 4238.

## INSTALLATION SPECIFICATION

Radar Teacher Outfit HRT. B 1252.

## ESTABLISHMENT LIST

Radar Teacher Outfit HRT. S 1690.