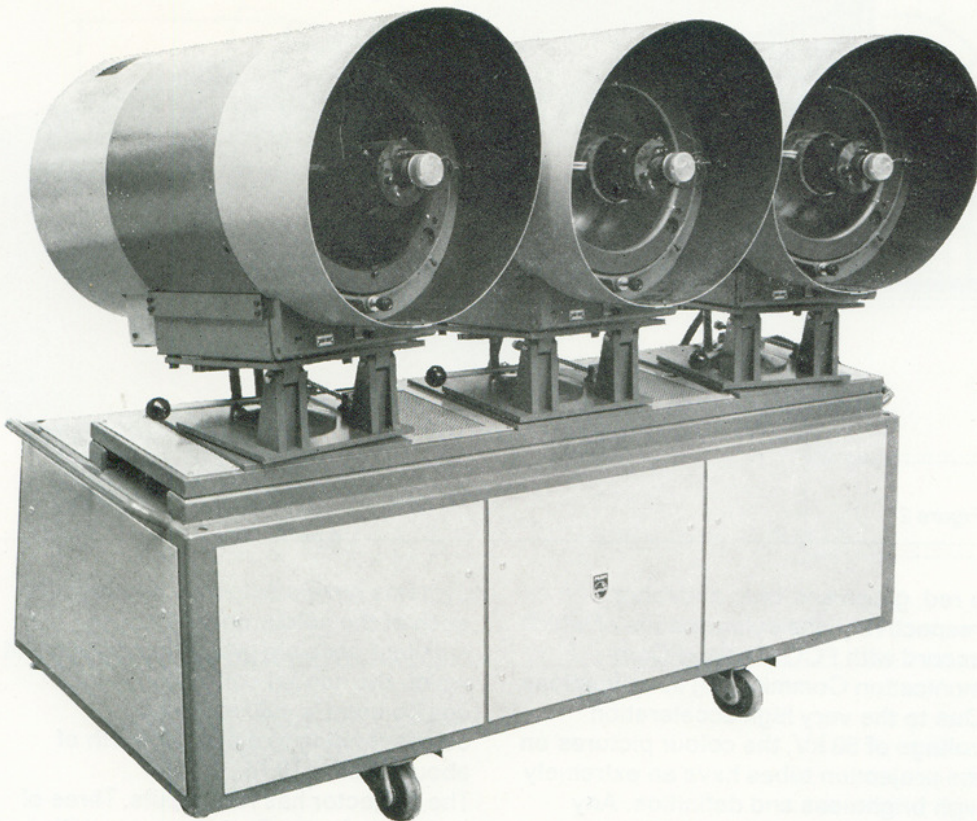




## Large Screen Colour Television Projector, type EL 5795



- Faithful colour reproduction
- High picture contrast
- Perfect picture geometry
- High definition
- Great stability of operation
- Rigid and compact construction
- Simple operation and maintenance
- Attractive external styling
- Compatibility

The Large Screen Colour Television Projector, Type EL 5795 has been successfully applied in the fields of education, medicine, science and industry ever since its introduction some years ago. Many of these applications demand that the projected picture contains exact and faithful colour information. Colour television projection has applications, for instance, in the lecture rooms of universities, hospitals and research institutes, as well as with scientific congresses and with broadcasts of sporting events and other important topics.

The Large Screen Colour Projector, Type EL 5795, represents an excellent means to accomplish these tasks. The sharpness and contrast of the projected picture on screens up to 3 x 4 m (10 x 13 ft) and the outstanding colour rendering make it capable of allowing some 200 to 300 spectators to see the events on the screen with full detail. The earlier types were designed to operate with the projection system mounted on top of the projector base. However, for special applications as, for instance, in flight simulation systems for pilot training, the projection system

proper has to be separated from the projector base and located in a remote position. To meet this requirement and, moreover, to increase the operational flexibility of the equipment, the basic design has been mechanically altered. The type EL 5795/50 Projector features considerable flexibility of arrangement to suit local requirements. This flexibility also holds for the remote control of the equipment, which can be carried out in several ways. The projector equipment can for example be assembled in three different ways, and these three versions will be



detailed later in this leaflet.

The new design is based on many years of experience with previous models of colour television projectors, and the latest equipment is mechanically improved in many details. All parts of the projector are easily accessible for inspection and maintenance. The projector base is a rigid frame construction with a separable common support, mounting the three projection systems (one for each primary colour: red, green and blue, respectively).

The electronic circuitry comprises easily removable units linked by plug and socket connectors in the base, in such a way that no interwiring remains in the base when all units are removed. The circuitry consists of:

- the operational control unit with video pre-amplifiers,
- the time base unit with registration panel,
- two power supply units,
- a voltage stabilizer unit and the high tension unit with associated oscillator unit.

The video output amplifier for each channel is located behind the spherical mirror inside the projection housing to minimize the connections between the video output stage and the projection tube, and consequently, to retain a good definition and avoid the pick-up of spurious signals. Each of the three projection units consists of a high-quality projection tube with a spherical face of 13 cm (5 in) diameter operating with an acceleration voltage of 50 kV and built into a Schmidt optical system consisting of a spherical mirror and a correction lens.

A projection tube can be quickly changed, because the whole projection tube assembly is arranged to hinge outwards. Each of the three projection tubes is cooled by a blower and has

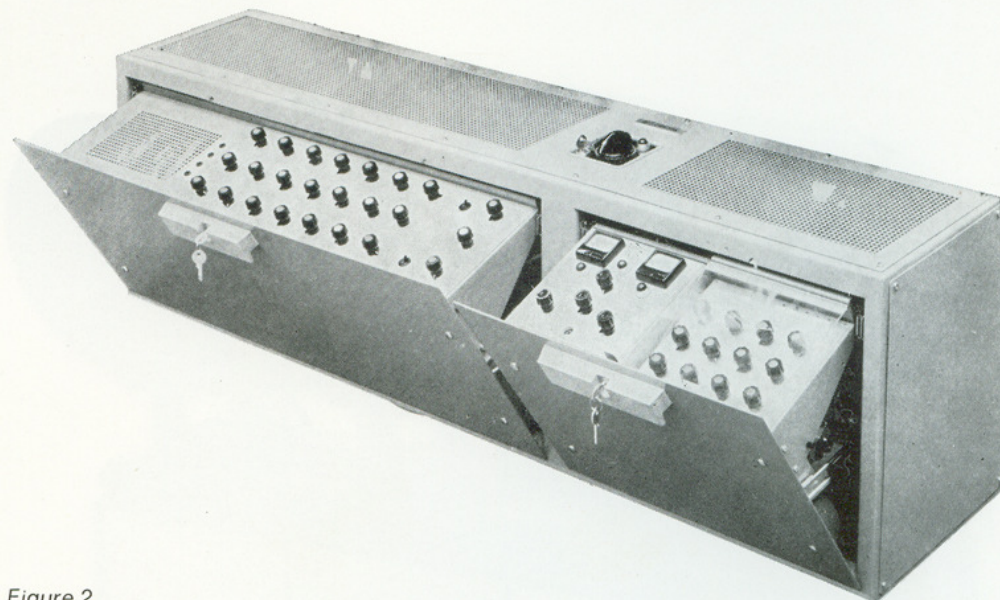


Figure 2

a red, green and blue phosphor, respectively, the colour points of which accord with FCC (Federal Communication Commission) specifications. Due to the very high acceleration voltage of 50 kV, the colour pictures on the projection tubes have an extremely high brightness and definition. Any X-rays produced by the highly accelerated electron beam within the cathode ray tube are effectively barred by lead screening within the projector housings.

A beam current meter is provided at the rear for each projection system. The screen should be mounted perpendicular to the projection axis of the central projection system. The two outer projection systems are mounted at a slight angle with respect to the central system, so that the three images are projected on the screen with accurate registration. Only trapezium distortion caused by the off-perpendicular projection from the two outer systems is corrected electronically in the scanning. The correction lenses of the optical

systems have a selective coating for each of the colour channels. The smallest possible projection distance at which the normal correction lenses can be used is 4.90 m (16 ft), corresponding to a picture width of about 2.50 m (8 ft).

The projector has four inputs. Three of these are for the Red, Green and Blue video signals; the fourth is for a test signal. Push-button selectors on the control panel allow any combination of these signals, including black-and-white, to be projected. For black-and-white projection, the incoming colour signals are matrixed, and the resultant Y-signal is applied to the three video channels simultaneously. Additional input sockets are provided for a composite sync signal (S) and for a composite colour signal, in case a decoder is included. All input sockets are terminated with 75 ohms. Apart from the horizontal and vertical deflection circuits, the time base unit contains the circuits for compensating parallelogram, linearity, and trapezium distortion, originating from the





Figure 3

off-perpendicular projection of the two outer projection systems. A protection circuit prevents spot-burn of the projection tubes in the event of a horizontal or vertical scan failure. All DC supplies are stabilized, and an efficient feed-back circuit renders the high tension unaffected by load variations due to brightness changes in the colour picture. The mains voltage and all incoming signals are applied to the connecting panel in the projector base. This also holds for the different projector versions described below. The time base and operational control units can be swung outwards to give access to the registration and operational controls. The remote control unit, (a plug-in part of the operational control unit), can be removed from the operational control unit and may be linked to it by means of a cable with a length of about 25 m (75 ft). Optional items to extend the facilities of the Large Screen Colour Television Projector include a Philips Crispener Corrector, and a Philips PAL Decoder.

As already mentioned in the introduction, three different versions are available. These are:

#### **EL 5795/50 (8990 257 95059)**

This standard version, shown on the front page, is similar to, but succeeds the earlier projector type, and the equipment is put into operation with the projection systems mounted on top of the projector base. The adjusting mechanisms for panning and tilting are of new design and provided with locking devices.

#### **EL 5795/60 (8990 257 95069)**

This version is intended for applications in which the projection systems have to be separated from the projector base and located in a remote position, as in the case, for instance, when the equipment is used in flight simulation for pilot training. The separable common support with mounted projection systems and associated adjusting mechanisms can



Figure 4



Figure 5

be placed on a suitable bearing surface. This has been illustrated in figure 3. Or it can be suspended from a ceiling by means of a framework (see figure 4), for instance, in theatres where the projection systems should be outside the line of view. The two separate parts, (projection assembly and projector base) are linked by means of



extension cables which may have a length of 15 m (48 ft) each. For this purpose, the projector base is equipped with bridging sockets taking both the plugs of the internal connection cables and the external extension cables. The high tension unit (code nr. 3922 436 00280) for this version is fitted with HT cables with a length of 15 m (48 ft).

### EL 5795/65 (8990 257 95065)

This version, illustrated in figure 5, is intended for applications in which the projection assembly has to be separated from the projector base and located in a remote position, and where the screen cannot be observed from the location of the projector base. The registration procedure of the three colour pictures in this case has to be carried out from the remote position, as, for instance, with certain systems of flight simulation for pilot training. It will be seen that those units in the projector base containing the registration and operational control panels have to be transferred to the remote position of the projection assembly. These units may, for instance, be accommodated in a housing such as shown in figure 2. This particular housing does not represent the type EL 5795/65, but is shown to give an idea of how these units can be suitably arranged in a cabinet, which forms at the same time a sturdy support for the projection assembly. If required, the dimensioned sketch of the housing shown in the photograph can be provided. The two parts of the equipment are linked by two extension cables with a length of 15 m (48 ft) each. The high tension unit is identical to that used with the projector type EL 5795/60.

## TECHNICAL DATA

### Scanning standard

CCIR 625-lines standard  
or  
EIA 525-lines standard

### Power supply

220 V  $\pm$  5%  
50 or 60 Hz

### Power consumption

2.0 kVA

### Input signals

3 x blanked picture signal (VB):  
+ 0.5 to 1.5 V<sub>pp</sub> across 75  $\Omega$   
Composite sync signal (S):  
— 1.5 to — 4 V<sub>pp</sub> across 75  $\Omega$   
With built-in decoder: composite  
PAL colour signal;  
+ 1 V<sub>pp</sub> across 75  $\Omega$   
Supplementary; test signal:  
+ 0.5 to + 1.5 V<sub>pp</sub> across 75  $\Omega$

### Projection tubes

type MY 13-38  
type MG 13-38  
type MU 13-38

### Picture dimensions

70 x 93 mm (2<sup>11</sup>/<sub>16</sub> x 3<sup>3</sup>/<sub>4</sub> in)

### High tension of projection tubes

50 kV

### Maximum beam current of each projection tube

500  $\mu$ A (for images with concentrated bright areas the anode current should be kept lower than the indicated value.)

### Optical system

3 projection systems with Schmidt optical arrangement, mirror diameter 40 cm (15<sup>3</sup>/<sub>4</sub> in)

### Projection throw

2 x screen width (approx.)

### Picture dimensions

min. 2.5 x 1.85 m (8 x 6 ft)  
max. 4 x 3 m (13 x 10 ft)

### Projection angle

mechanically adjustable from + 10° to + 22° or from — 10° to — 22°;  
if required this range can be changed.

### Mode of projection

Perpendicular to the screen

### Luminance

20 ft-Lambert (68 cd/m<sup>2</sup>, 215 asb) for peak white of an average picture on a screen with a gain of 2.5 and a size of 3.2 x 2.4 m (10.7 x 8 ft)

### Field uniformity

With 100% in the centre of the screen the illumination is:  
95% along a circle equal to the picture height;  
75% along a circle equal to the picture width;  
70% in the corners.

### Contrast ratio

40 : 1

### Registration error

no visible error within a circle equal to the picture height;  
outside this circle maximum 0.5% of the picture height.

### Frequency response

0 dB at 8 MHz;  
— 3 dB at 10 MHz.

### Geometrical distortion

less than 2%

### Dimensions

Remote control box

see dimensioned sketches  
height x width x depth:

210 x 200 x 80 mm (8.5 x 8 x 3.1 in)

### Weights

Projector EL 5795/50

total = 665 kg (1463 lb)

Projector base

= 375 kg (860 lb)

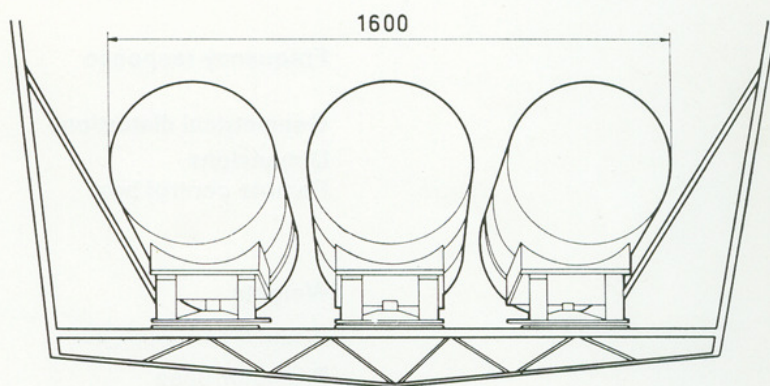
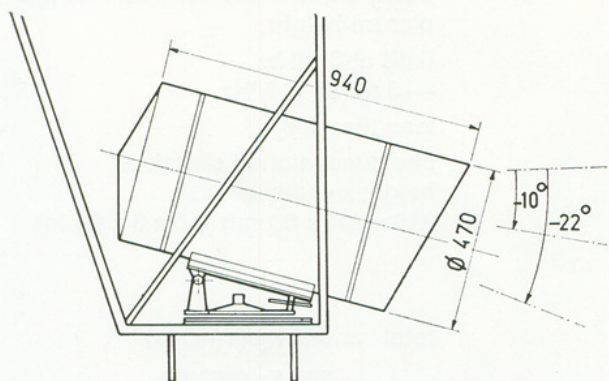
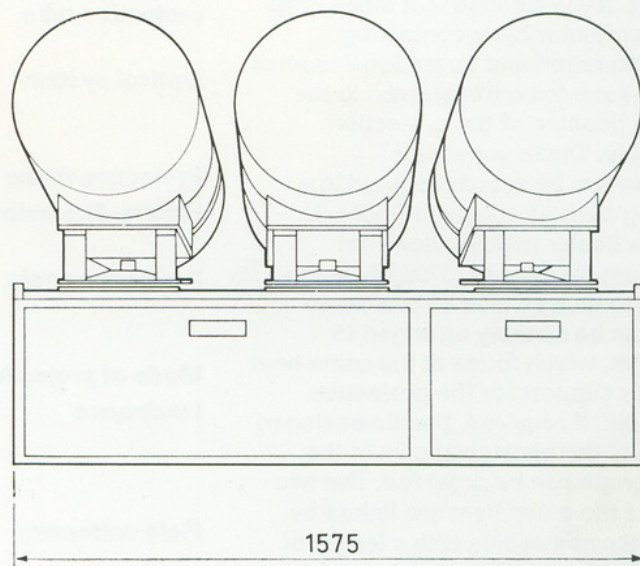
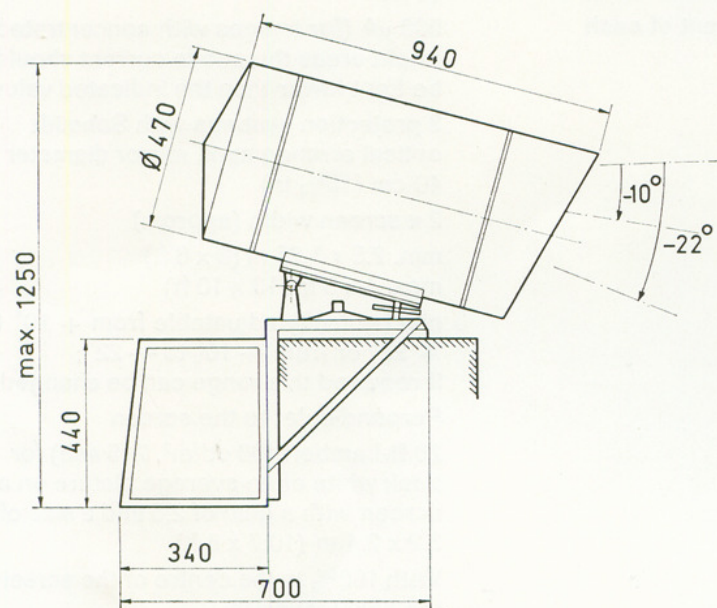
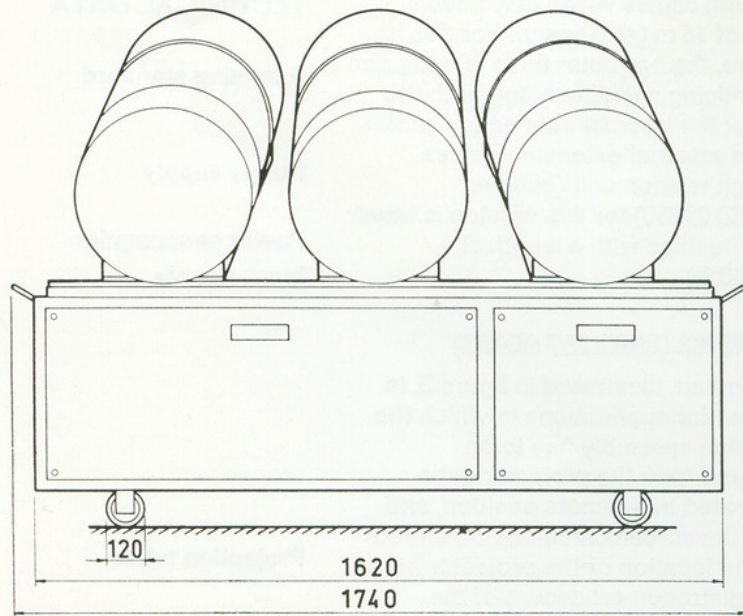
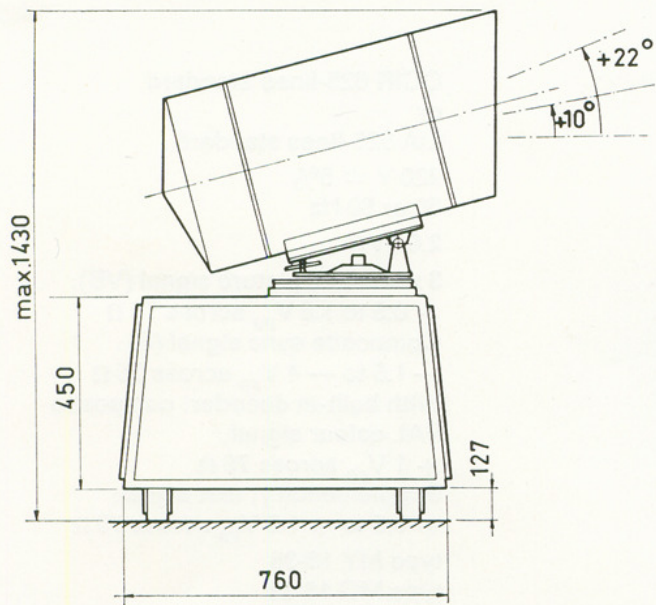
Projection assembly

= 290 kg (638 lb)

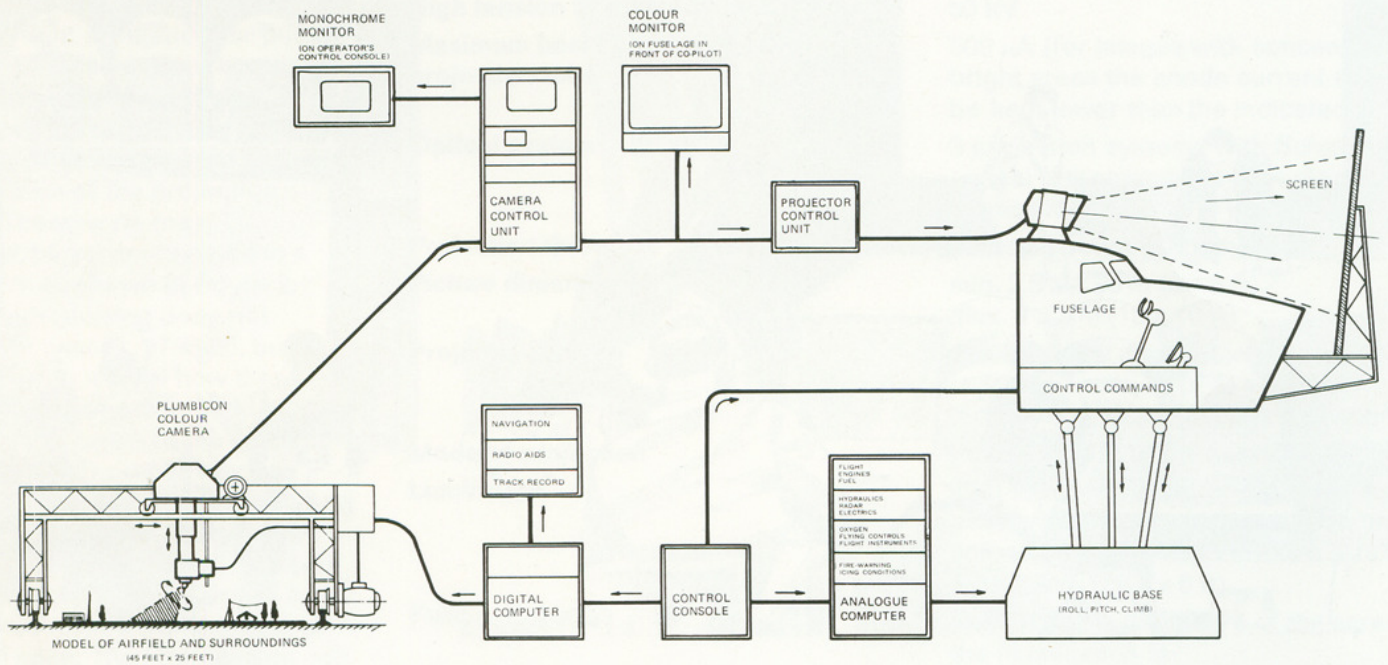
Projection version EL 5795/65

Projection assembly, comprising special housing (with two units) and mounted projection systems;  
= 400 kg (880 lb) approx.









EXAMPLE OF A COLOUR VISUAL SYSTEM FOR FLIGHT SIMULATION