



## Test Equipment

### Test Charts Type B 4190 series

Marconi television laboratories are equipped for the production of test charts for routine tuning adjustment and testing, and also those that may be required for special applications. They can be supplied in the form of 25.4 × 20.3cm (10 × 8in.) or 30.5 × 25.4cm (12in. × 10in.) glass plates, 35mm or 16mm film (with or without optical sound track), 5 × 5cm (2 × 2in.) slides and photographic prints.

#### Grey Scale Charts

For gamma adjustment of colour cameras special high-quality grey scale charts are produced. Marconi square-law and linear-law charts are available as reflectance or transparency types.

#### Standard Marconi Test Charts

Marconi Resolution Chart No. 1.

Marconi Grating Chart No. 4 (black on white or white on black).

Marconi Chart No. 7 (black rectangle on white background.)

Marconi Chart No. 10 (village scene—pictorial only).

Marconi Chart No. 13 as SMPTE RP27-1 general alignment, routine testing.

#### I.E.T.M.A Chart

Marconi Chart No. 17 (white on black grating, with centre and edge resolution blocks).

Marconi Chart No. 20 (grey scale reflectance chart—square law).

Marconi Chart No. 21 (grey scale reflectance chart—linear law).

Marconi Chart No. 22 (grey scale transparency chart—linear law).

Marconi Chart No. 23 (grey scale transparency chart—square law).

Full details are given in TD-3-B4190.



### Grating and Dot Generator Type B 4106

The Marconi Grating and Dot Generator can be used extensively in both monochrome and colour systems where a test signal of the highest accuracy and stability is required for checking the geometry of camera, preview and transmission



Marconi Test Chart No. 10

monitors. It will operate on 625, 525, or 405 line standards without modifications.

#### Features

- All solid-state.
- Switched selection of grating or dot outputs.
- Coarse and fine controls for numbers of horizontal and vertical bars.
- Small size and weight.
- All operational controls are located on front panel.
- Self-powered.

#### Circuit Details

The grating and dot pattern waveforms are generated from pulses derived from the mixed sync, and mixed blanking inputs to the equipment.

#### Data summary

##### Inputs

- Mains: 100–125V or 200–250V 50Hz, in 5% steps, fused at 500 or 250mA.
- Blanking: 2V amplitude into 75Ω bridging input, accepts 1.75–6V.
- Sync.: 2V amplitude into 75Ω bridging input, accepts 1.75–6V.

#### Outputs

Either one of the following:

Grating pattern: 1.4V composite into 75Ω with the duration of vertical bars approximately 0.25μs.

Dot pattern: 1.4V composite into 75Ω with white dots on black background.

Test signal: The output waveform also available at the front panel at high impedance.

#### Performance: (On 625 lines)

Horizontal bars 10 to 33.

Vertical bars 5 to 35.

If used on other line standards the ranges of number of bars would be slightly different from those above.

Temperature range: 0 to 45°C.

#### Dimensions:

- Height 8.26cm (3.25in.)
- Width 48.3cm (19in.)
- Depth\* 43.2cm (17in.)
- Weight 5.4kg (12lb)

\*Including sockets at rear.

Full details are given in TD-2-B4106.

### Performance Testing of Television Systems

The established techniques of measuring and checking television system performance are well known. Differential



gain and phase distortions can be conveniently measured by using sawtooth or stairstep waveforms.

Low frequency transient response can be checked by use of a field frequency square wave, and this should be of variable amplitude.

Overall frequency response can be quickly checked by examination of the distortion caused to a sine squared pulse and bar signal.

Special measurements for colour systems can be facilitated by using modified pulse and bar signals.

Marconi have designed and made equipments to produce all these types of test signal and can offer units from a wide range to meet any particular requirement.

We can also supply the ancillary items such as differential phase and gain test sets, double triggering and differential input oscilloscopes.

Colour coders are set up using colour bars of carefully controlled amplitude and timing. We can supply Colour Bar Generators for PAL or NTSC.

Please give us your precise requirements and we will quote you for the necessary units.

## Relay and Transistor Power Supply Unit Type B4203

This is an all-silicon power supply module, designed to fit a standard 17.8 cm (7in.) modular equipment rack-mounted frame Type B4306 (see page No. 153).

The power supplies are designed to provide a well regulated 24V d.c supply for feeding to mixers, relay panels and transistorized units.

### Features

- All silicon semiconductors.
- Electronic overload protection.
- Remote error sensing.
- No voltage overshoot.

### Data summary

- Output voltage range:** 12V or 24V  $\pm 0.5V$ .
- Output current:** 3A max.
- Stabilization ratio:** Better than 2400:1 for  $\pm 10\%$  mains changes.

### Output impedance:

- At 100kHz: Less than 0.1 $\Omega$ .
- At 500kHz: Less than 0.25 $\Omega$ .

### Output Resistance:

Not more than 0.01 $\Omega$ .

### Ripple and noise:

Less than 1mV at full load.

### Transient response:

Approximately 10 $\mu$ s for recovery to within 10mV of steady state voltage after application of full load.

### Ambient temperature:

-10°C to +45°C.

### Temperature co-efficient:

Less than 0.03% per deg C.

### Input voltage:

100 to 125V and 200 to 250V by transformer tap changes at 45 to 65Hz. Maximum permissible input supply deviation from nominal is  $\pm 10\%$ .

### Dimensions and Weight:

- Height 16.2cm (6.4in.)
- Width 9.3cm (3.6in.)
- Length 34.3cm (13.5in.)
- Weight 4.61kg (10.24lb)

## Housings for Television Equipment

Flexibility is the keyword in description of current modular engineering. The Type B4313 Control Console brings greater flexibility to equipment housing. The Console is built up of standard sections, each of which can house a wide variety of arrangements of control panels. Other types of equipment housing are continued.

### Control Console Type B4313

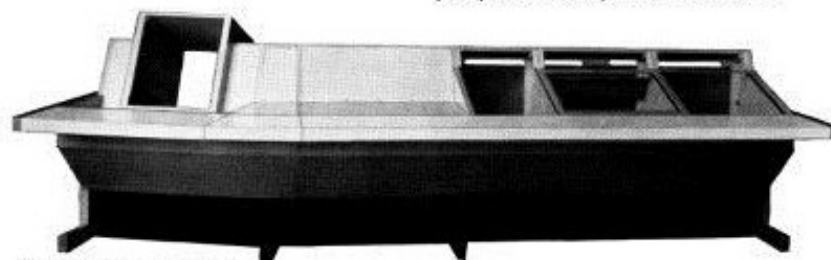
The illustration shows a Console fitted partly with blank panels. From left to

right are Picture and Waveform Monitor section, Producer's Section and Mixer Section. The Console has been designed with operating experience firmly in mind. The well in front of the Monitor housing takes Marconi camera channel remote controls.

The Producer's desk has an extra large flat script surface, talkback panels fit to the near vertical section. The width of this section can be increased, as shown, by addition of an angle section. A Producer's Assistant can then be accommodated.

The Mixer Section has space for large areas of control panels, sloping at the optimum angle for comfortable operation.

The Control Console is made of hardwood covered with Formica and reinforced with metal. Standard finish is off white for the desk, light wood grained for the rear, sides and underside with a black 'kicking panel'.



B4313 Control Console



**Essential Dimensions:**

- Height of desk surface 69cm (27in.).
- Depth of desk surface at Monitor position 33cm (13in.)
- Depth of desk surface at Producer's position 70cm (27.5in.).
- Width of Monitor section 76cm (30 in.).
- Width of Mixer section 144cm (56.5 in.) (in illustration) may be varied.

**Studio Console  
Type B4311**

This Console is continued since it fulfils adequately many needs for a compact, versatile housing. A Picture and Waveform Monitor, if fitted, is supported on the servicing tray and most of its weight taken by constant-tension ejector springs. The monitor may be easily withdrawn for servicing.

The desk section has a formica writing surface. Studio Consoles may be bolted together in groups, plinths fit side by side to give a uniform height and appearance.

**Rack-Cabinets  
Type B4302**

The 213cm (7ft) high cabinet for mounting 48cm (19in.) wide standard panel units has open sides, permitting easy access to units. Side covers are required for ends of groupings.

The cabinets are of very strong construction and are capable of carrying heavy loadings without distortion. The depth is 58cm (23in.) inside door frames to allow for mounting heavy units, which can be supported from both front and back cabinet members. Provision is made for attachment of air ducts, or alternatively vented top panels can be provided.

The standard cabinet has one door and is complete with cable straps, tapped securing angles and plain top panel. Provision is made for a front door which can be supplied on request.

**Modular Equipment Frame  
Type B4306**

Designed for 48.3cm (19in.) racks, the B4306 15.3cm (5.25in.) and 17.8cm (7in.) high Modular Equipment Frames offer an extremely flexible method of housing equipment modules. The frames are provided with nylon slide buttons which are set in position to suit the module's width. Blank panels are provided when an equipment does not occupy an entire frame. Each module is locked in position by a nylon catch.



*A typical rack cabinet assembly*

A back connector which bolts on the rear of the frame, provides input and output connections as well as module inter-connections. A coding system on the modules prevents them from being inserted into an incorrect position.

Extension boards are available which permit access to modules under operating conditions.

**Portable Carrying Case  
Type B4322**

This case has been designed to house the B4306 frame described above. Used where equipment is in mobile use, two versions are available: BB01-4322-50 for 13.3cm (5.25in.) module frames, and BB01-4322-51 for 17.8cm (7in.) module frames.

Both cases measure 50cm (19.75in.) wide by 43.8cm (17.22in.) deep. Recessed carrying handles are provided and the case construction allows good ventilation of the equipment.

**Monitor Cover**

Where type B3901 picture and waveform monitor is required to be bench or shelf mounted, it can be fitted with ventilated lift-off covers.

**Television Prompting Devices**

**'Autocue'**

The 'Autocue' prompting device assists and assures artists to be word perfect, accurate and precise. It reduces the costs of production. The Standard 'AUTO-CUE' Viewer can be mounted and counterbalanced on all Marconi television cameras, and can hold up to 45 minutes of script. Four viewers can operate in perfect synchronization from one master.

For complete 'eye-to-eye' contact the Direct Cueing (DVC) unit is by far the best method. The DVC has coated

optical glass at an angle of 45°, and reflects the script image actually in front of the taking lens: the artist is therefore reading the script and automatically looking into the lens. This gives eye-to-eye contact, without the artists being aware of the 'taking lens'. The DVC equipment allows free movement and in no way hinders maintenance of cameras, even during transmission.

Under normal studio conditions, Autocue can be read easily from distances of 25ft. Scripts are specially typed on yellow paper to eliminate eye-dazzle,