



Synchronising Generator Type BD 689

THIS VERSATILE synchronising generator, incorporating binary counters, can be adapted for use both in the studio and the mobile unit. It is suitable for monochrome or colour systems of the NTSC type.

All the inter-related pulses necessary for driving and synchronising a complete television system are produced and can be switched to conform to 405, 525, or 625-line standards. Pre-set controls have been eliminated, the timing and width of all line and twice line frequency pulses being fixed by delay lines. The number of twice-line-frequency pulses in the field sync. period and the duration of field drive and blanking pulses is fixed by the counter chain.

FACILITIES

Generation of:

- (1) Line and field driving pulses.
- (2) System blanking signal, containing both field and line pulses.
- (3) Composite synchronising signal.
- (4) Field elimination pulse for use with colour systems.

Precision adjustment of output amplitudes by means of a detachable unit.

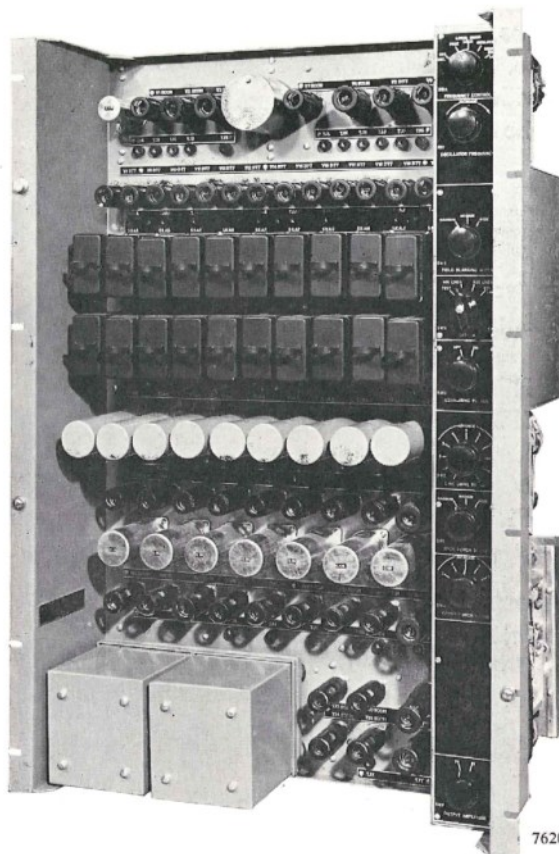
A "Test" facility removes all feed-back pulses and automatic control circuits.

CONSTRUCTION

The unit is assembled on a recessed chassis suitable for mounting in a standard 19-in. wide rack.

The operating controls are all accessibly arranged in a vertical line on the right hand side of the panel at the front.

The unit can be supplied mounted in a special case for mobile use.



OPERATION

Synchronising circuits. The master oscillator may be:

- (1) Free running
- (2) Crystal controlled
- (3) External at twice line frequency
- (4) Locked to an external 6.3 V source
- (5) Locked to the supply frequency
- (6) Locked to a remote synchronising generator by means of Type BD 658C locking unit.

When locked to the mains an automatic two mode locking circuit is used, giving a rapid pull-in time over a wide frequency range and a slow rate of follow once the lock has been established. For use with colour television the twice-line frequency may be derived from the sub-carrier frequency, a high frequency counter unit being used for the division from the sub-carrier frequency to twice-line frequency.

Timing circuits. Where the standard tolerances of a system permit appreciable variations in pulse widths, and such variations are of operational value, facilities for selecting various widths are provided.

The durations of field blanking and back-porch

may be switched to one of three values. Similarly the duration of the front porch may be switched to one of five values.

The line drive pulse may be timed to occur up to five microseconds in advance of the sync. pulse, variations being provided in steps of half a microsecond.

Counting circuits. The field pulse and dividing circuits consist of a number of plug-in binary counter units. By removing a complete unit and measuring its performance with a test set, Type 2793, any deterioration may be at once detected. This feature enables a characteristic cause of failure in synchronising generators to be avoided by routine maintenance.

DATA SUMMARY

Inputs:

Mains 105, 110, 117, 214, 230, or 246 V
50 c/s single phase.
HT 250 V, 450 mA regulated (for studio use).
HT 225 V, 400 mA regulated (for mobile use).
External oscillator input 2 V RMS $\pm 50\%$.
Master frequency control ± 5 V approx.
Field phasing pulse 10 V positive (from Sync.
Generator Locking Unit, Type BD 658C).

Outputs:

(a) Line drive pulses }
(b) Field drive pulses } Amplitude 2 V or
(c) System blanking. } 4V (+50% - 12½%)*
(d) Composite sync. }

Overshoot: Less than 2%.

Rise and fall times:

Less than 0.5 μ s on field drive and field blanking pulses. Less than 0.2 μ s on remainder.

Dimensions:

	Height	Width	Depth	Weight
<i>Chassis only</i>				
	28 in.	19 in.	13½ in.	80 lb
	(71 cm)	(48.3 cm)	(34.3 cm)	(36 kg)
<i>Mobile case</i>				
	30½ in.	20 in.	13½ in.	30 lb
	(77.5 cm)	(51 cm)	(34.3 cm)	(13.7 kg)

* Tolerances without the output amplitude control unit.

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