

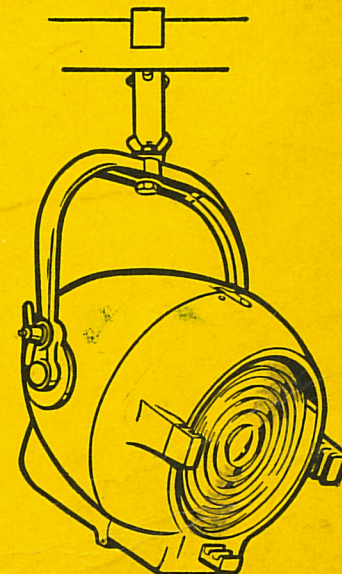
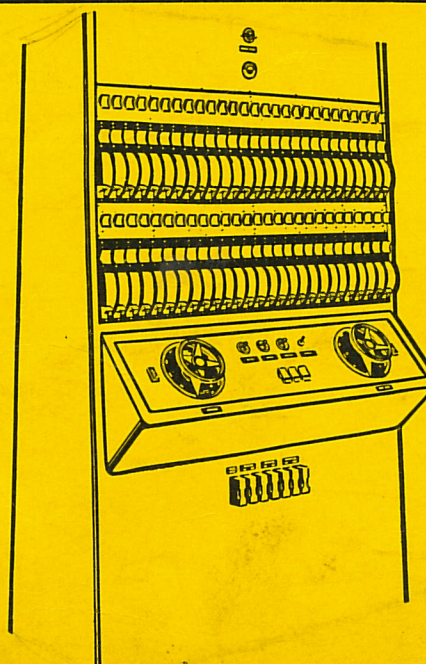
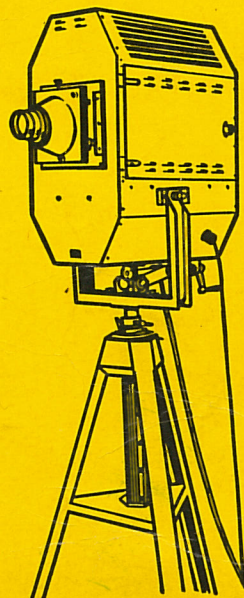
# LIGHTING FOR ENTERTAINMENT

1963/64

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# LIGHTING FOR ENTERTAINMENT

Founded 50 years ago by specialists in stage lighting for the professional theatre, Strand Electric today provides lighting for every form of entertainment. Strand lighting is to be found in virtually all British theatres and halls including such famous examples as Drury Lane, the Covent Garden Opera House, the Royal Shakespeare Theatre, Stratford-on-Avon and the Royal Festival Hall, as well as schools, church halls and community centres throughout the length and breadth of the country.

Other Strand activities include lighting for television studios, cinemas, exhibition halls, hotels and cabarets, outdoor productions, signs and the more dramatic forms of architectural lighting such as the lighting of the tapestry at Coventry Cathedral. Strand Electric have unique experience in the electrical control of lighting using all forms of dimming and automatic switching. Strand control equipment is to be found in places as diverse as St. Paul's Cathedral, the National Physical Laboratory, the B.B.C. Television Centre, R.M.S. Queen Elizabeth, and the Tower Ballroom, Blackpool.

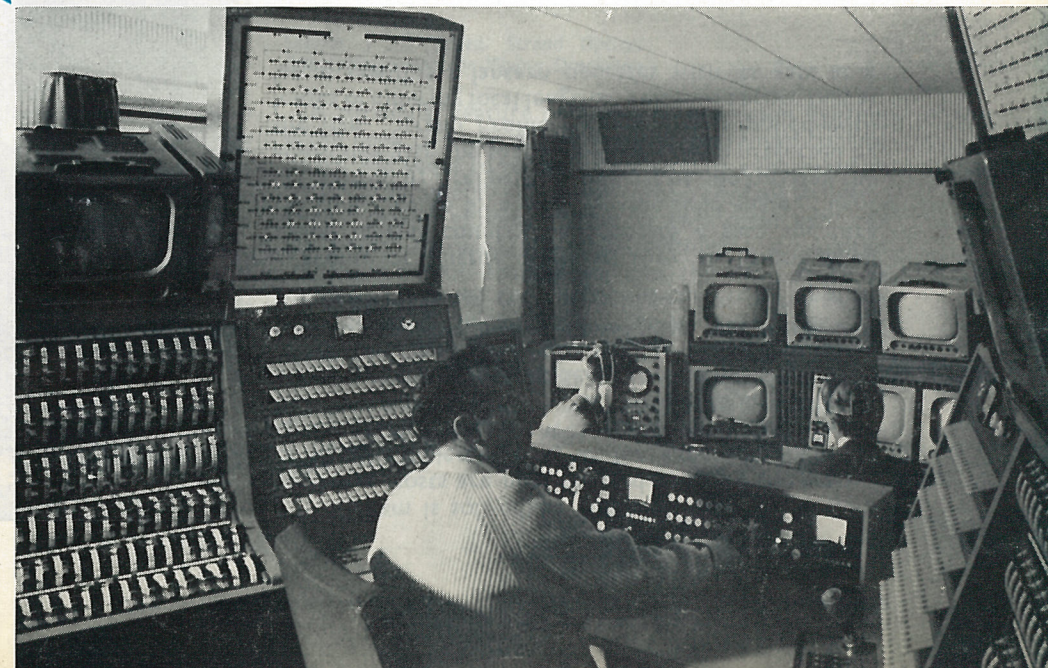
Strand Electric are the actual manufacturers of the equipment they market and a large export organisation includes branches in Australia, Canada and Eire and agents throughout the world.

**THE STRAND ELECTRIC & ENGINEERING CO. LTD.**  
**29 King Street, Covent Garden, London, W.C.2**

*Prices apply in U.K. only and are subject to the Company's terms of business and conditions of sale, obtainable on request.*

◀ Strand equipment in a London West-End theatre

▶ Strand control equipment in a German Television Studio





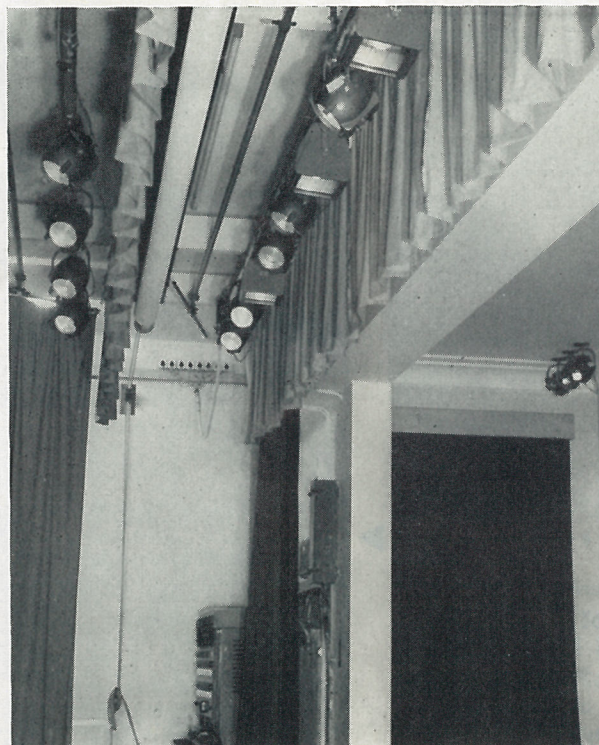
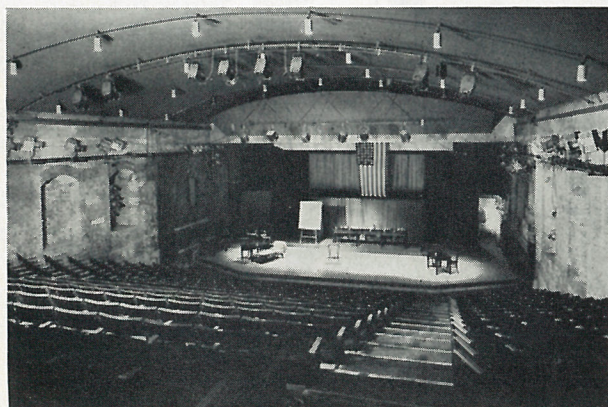
# LIGHTING

Lighting equipment for the stage mainly hangs overhead and takes three forms:— (a) Floodlights (b) Soft-Edge Spotlights (c) Hard-Edge Profile Spotlights.

Today floodlights are required only to give an even wide angle beam free of striation and hot spot. For the smaller stage this light is better provided by a number of individual floodlights grouped several to a circuit. These floods would be 100-200 watt. or the 300-500 watt size depending on the scale of the stage. Sometimes for backcloth or cyclorama flooding and always where general flooding is required on the larger stages, magazine battens whose compartments are in effect a number of floods joined together, are used. These battens are wired to alternate in 2, 3 or 4 circuits. Similar compartment equipment is used as groundrow at the bottom of the cyclorama or as footlight at the front edge of the stage.

The footlight is an auxiliary piece of equipment and to avoid much expenditure on this item when working

*Mermaid Theatre, London. Strand Spotlights for the open stage.*



*Hollies School, Manchester, lighting from Strand Baby Spots and Floods.*

to a very restricted budget a single circuit Junior type can be installed to ensure that some correction to overhead lighting is available.

The most important lighting on the stage requires to be localised to emphasize certain areas, avoid spill on cyclorama or backings and provide dominant (motivating) lighting as sunlight, moonlight etc.

The best unit for this purpose is the Fresnel Soft Edge beam spotlight since it gives a wide adjustable beam ranging from 15° to 55°. These lanterns will hang on bars behind the proscenium and elsewhere. They are also used on vertical barrels (boomerangs) or hang as "ladders" in the wings to provide high-lighting from the side. The Fresnel spot with its adjustable beam has replaced all lens spots except the Profile Spots (see below) and also replaces the narrow beam single purpose sharp cut-off floods such as the Pageant and Acting Area Lanterns used hitherto.

The beam is soft-edged and ill-defined and in consequence frosts are not required. Where the scatter of light is objectionable, as for example when the lantern is close to a night sky cyclorama, then a barn-door shutter may be fitted to intercept the light. There are four independent doors and the whole barn-door unit is made to rotate so that in fact some beam shaping can be carried out if desired but the correct lantern for the purpose is the Profile Spot.

Profile or Mirror Spots as they are more often called in this country, incorporate a gate aperture which is focused by a lens. A large solid angle of light is collected by a reflector and this is passed through the adjustable gate the shape of which is then projected by the lens. Strand Profile Spots can be supplied with lenses of differing focal lengths. This is to ensure that as far as possible a lantern operates with its gate at a



*Royal Festival Hall, London. Strand Concert and Stage lighting.*

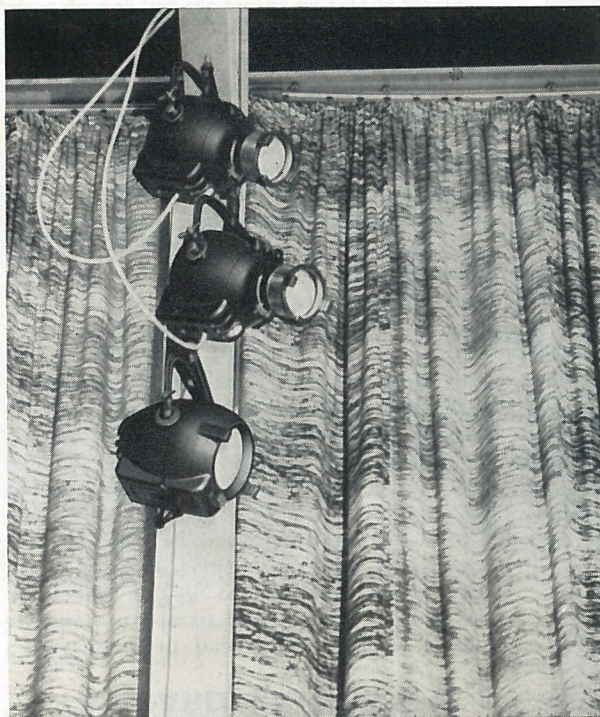
wide aperture. This provision together with an intensifying knob ensures that as little light as possible is wasted by being obstructed by the gate.

An example would be a Patt. 23 which with its gate half closed would cover 6 ft. at 30 ft. throw. Obviously it may be better to use a narrow beam Patt. 23N with its gate wide open and get twice the light from the same lamp.



The gate of a Profile Spot can carry a mask of any shape and for the 500 watt Patt. 23 there is even a mica cloud slide which can be inserted. For most stage purposes four built-in independently adjustable shutters will be found most convenient because this is the lantern particularly suitable for Front-of-House work and straight-sided shutters allow the light to be cut off accurately at the proscenium, or where there is not one, then at the boundary between stage and audience. For picking out an artist and following, an iris giving a circular beam has become traditional. For this purpose the narrow angle lens systems give the best results and a 2kw. incandescent lamp completely outclasses open arcs of over 60 amps. or so. For high intensity long throw work the Sunspot which is an arc with a mirror optical system is recommended.

*Strand Baby Spots Patt. 123 and 23 are neatly styled so that concealment is often unnecessary.*



*Royal Albert Hall, London. Strand Sunspot arcs at 200 feet throw.*

Strand spotlights, whether Soft Edge or Profile, may be grouped into three wattage ranges; 250-500 watt Baby range, the new compact 750/1000 watt range and the larger 1000/2000 watt size.

The Baby Spots are very neat, well styled and compact. This taken with high light efficiency (they give over double that of the older plano-convex spots) has made them very popular. They have been found eminently suited to School Stage and Little Theatre work. Where extra wattage is required it is customary to double up two 500 watt Baby spots on one circuit. Where greater intensity is required the new 750/1000 watt spots are appropriate and are neater and more unobtrusive, particularly out in the auditorium, than previous types. When a dominant and decisive beam is required, or for large theatres and opera houses, the 1000-2000 watt size is recommended.

Rather similar to the Profile spots are the Optical projectors although a condenser lens system is used in preference to a mirror as the principal collector of the light. A condenser lens system gives the more accurate field required for slide and optical effects projection. Strand manufacture two projectors—the Patt. 52, 1 kw. and the Patt. 152 2/4kw. The first is for

general projection particularly of moving effects cloud etc. The second when used in conjunction with the high definition Dallmeyer lenses may be used as a scene or background projector or alternatively as a high power source for optical effects. Listed in this catalogue are the standard Strand moving effects devices, waves, cloud etc. well known in the theatre but of recent years extensively used in television. In addition special optical and other effects are made to cover particular requirements.



*Sadlers Wells Opera. Strand Optical Effects Projection for 'Flying Dutchman.'*

A particular feature of stage and television lighting is the need to bring all circuits to a centralised control board and there to render these circuits expressive by means of dimmers and variable group control facilities. Such lighting controls fall into two main types:— (a) Direct Operated, where the dimmers are mounted on the Control Board itself and the main merit is inexpensive initial cost (b) Remote Control where the dimmers and load carrying equipment are separated from the control panel and in consequence do not dictate its size or position. The two types of Lighting Control are introduced as "Direct Operated Dimmer Boards" on page 12 and as "Remote Control" on page 16.



# BATTENS · FOOTLIGHTS · GROUNDROW · FLOODLIGHTS

## STANDARD LAMP TYPE

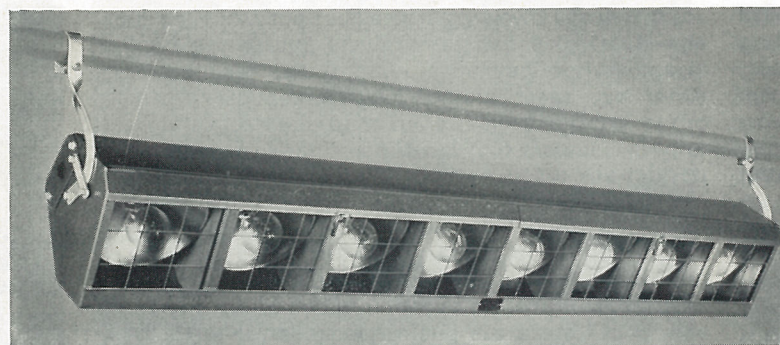
Constructed in heavy gauge sheet steel. Supplied in 6-ft. or 3-ft. lengths with compartments at 9-in. centres wired in 3/·036 P.V.C. for 3 or 4 colour circuits. Terminals are provided at both ends of the wiring trough and short tails are supplied to enable lengths to be joined end to end to make up the total length required. For 2 colour circuits use 4 colour and bunch circuits in pairs. Every batten length includes two hangers to fix to 1½-in. gas barrel.

For Footlight use (suffix -/F) hangers are omitted. Pairs of Ref 620 floor brackets can be added to any 6-ft. or 3-ft. length to make it into an adjustable tilt groundrow.

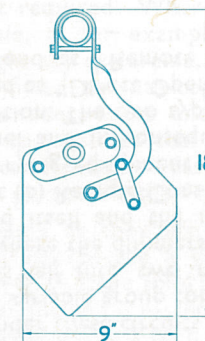
Each compartment is provided with a metal colour frame, an E.S. porcelain lampholder and an anodised aluminium reflector giving a wide angle beam free of filament striation, which permits the use of 100 or 150 watt *single coil* G.L.S. lamps.

Finish: Hard hammer grey.

Prices do not include lamps or colour filters.

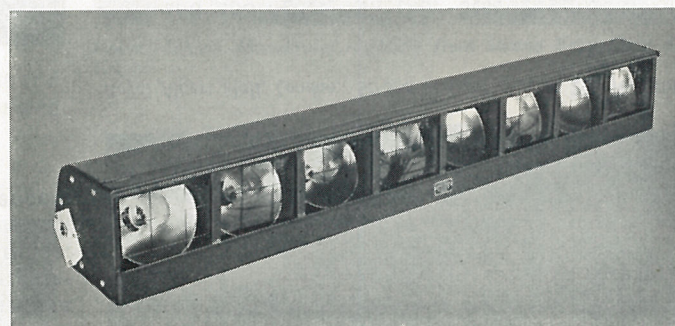


'S' Batten



Section 'S' Batten with hanger for barrel

Catalogue Ref.	Description	Watts	Lamp		Colour Frame Ref.	Weight lbs.	£ s d		
			Class	Cap					
S/63	6-ft. length 8 compartments on 3 circuits ...	100 or 150	G.L.S.	ES	240	46	14	10	0
S/33	3-ft. length 4 compartments on 3 circuits ...					26	9	12	6
S/64	6-ft. length 8 compartments on 4 circuits ...					46	14	10	0
S/34	3-ft. length 4 compartments on 4 circuits ...					26	9	12	6



Footlight

## PAR REFLECTOR-LAMP TYPE

As above but reflectors omitted to allow use of the high intensity PAR 38 Reflector Lamps of either the moulded lens spot type or the moulded coverplate flood type.

Prices do not include lamps or colour filters.

Catalogue Ref.	Description	Watts	Lamp		Colour Frame Ref.	Weight lbs.	£ s d		
			Class	Cap					
SP/63	6-ft. length 8 compartments on 3 circuits ...	150	PAR 38	ES	240	45	12	2	6
SP/33	3-ft. length 4 compartments on 3 circuits ...					25	8	10	0
SP/64	6-ft. length 8 compartments on 4 circuits ...					45	12	2	6
SP/34	3-ft. length 4 compartments on 4 circuits ...					25	8	10	0

		£	s	d
519	Gland for 9 or 15-core cable ...	7	0	
620	Pair of floor brackets for groundrow ...	2	0	0
621	Set of 4 castors for 620 above ...	1	8	0
-/F	Pair of Batten hangers omitted, use suffix -/F ... ..	deduct	8	6



## JUNIOR FOOTLIGHT GROUNDROW OR LENGTH

With porcelain lampholders at 9-in. centres in white reflecting surface. Wired on 1 circuit with short inter-connecting tails at one end of the wiring trough. Supplied with reversible fixing bracket, floor plate and clips for colour filter.

Finish: Hard hammer grey.

Prices do not include lamps or colour filters.

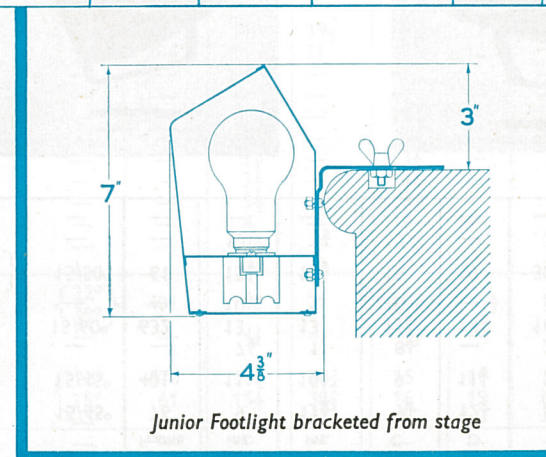
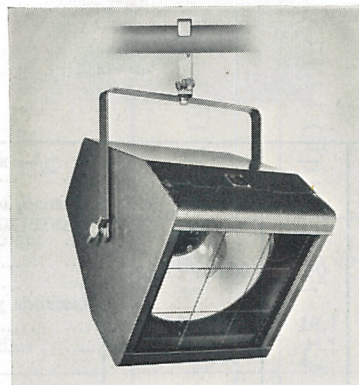
## FLOODLIGHTS

Floodlights are reflector units and give a fixed wide angle beam. Reflectors are anodised aluminium and floods are supplied with one metal colour frame, porcelain lampholder, 2-ft. 6-in. tails and tilting fork.

Finish: Hard hammer grey.

Prices do not include lamps or colour filters.

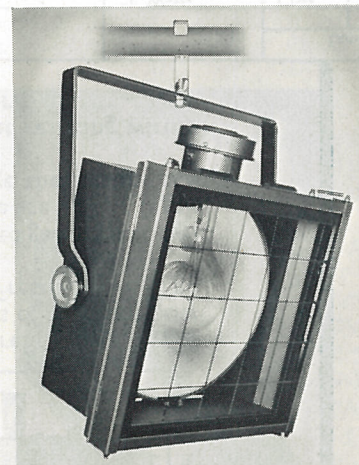
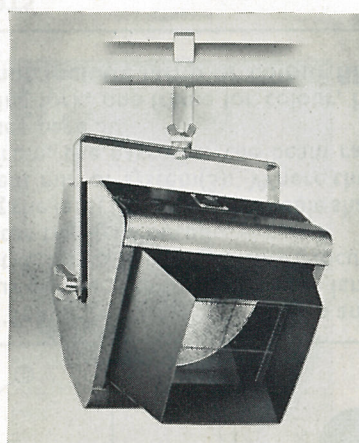
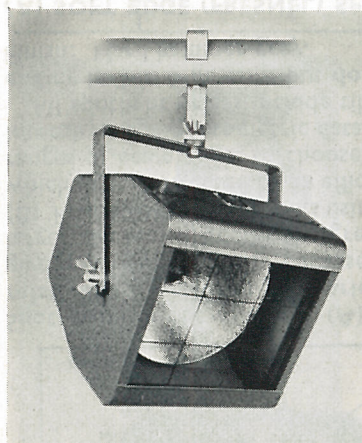
Catalogue Ref.	Description	Watts	Lamp		Colour Frame Ref.	Weight lbs.	£ s d		
			Class	Cap					
JF/3	3-ft. length 4 BC lampholders on 1 circuit ...	40 or 60	Silica coated	BC ES	{ 250 250	7	4	5	0
JF/3E	3-ft. length 4 ES lampholders on 1 circuit ...					7	4	8	6
250	Colour filter clips per dozen (spare) ...					—		3	3
254	Floor mounting plate with wing screw for use when footlight must be portable...					—		1	6



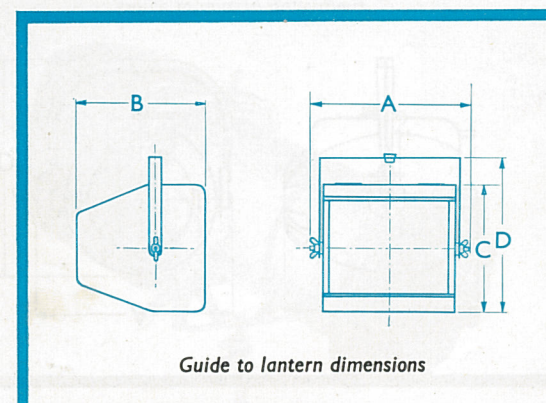
Patt 60 Flood, 300/500 watts. ►

Patt. 137 Flood, 100/200 watts.

Patt. 137 Flood with Ref. 245 hood.

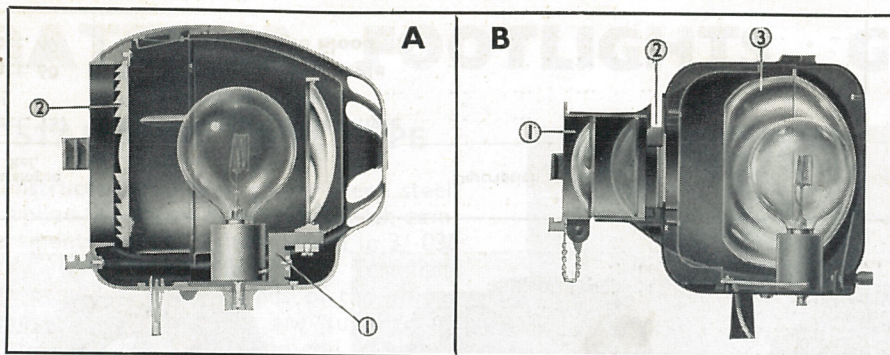


◀ Patt. 49 Flood, 1000 watts.



Catalogue Ref.	Description								Watts	Lamp		Beam	Colour Frame Ref.	Width A ins.	Depth B ins.	Height		Weight lbs.	£ s d		
										Class	Cap					C ins.	D ins.				
Patt. 137	Junior Flood – Wide Angle								100/200	G.L.S.	ES	100°	240	12	9 1/2	9 3/4	12	8	2	19	6
245	Masking Hood for above								—	—	—		—	9 1/4	4	8	—	1		8	6
Patt. 60	Stage Flood – Wide angle								300/500	G.L.S.	GES	100°	61	14 1/2	14 3/4	12 1/2	15	14	6	15	0
Patt. 49	Large Wide Angle Flood								1000	G.L.S.	GES	100°	67	18	13	21 1/2	26 1/2	27	13	17	6



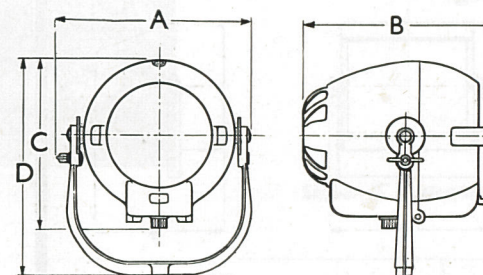


Spotlights are of two types: (A) "Soft Edge" in which the lamp and reflector (1) move relative to a lens (2) to give various circular beams. All Strand lamps of this type now give improved intensity because the lenses are of the short focus Fresnel type. The larger the lens diameter the greater the light output.

(B) 'Profile' or 'Mirror' spots using the lens (1) to focus a variable shaped gate (2) through which light is directed by an efficient mirror system (3). Where there are two or three ranges of beam angle to choose from, the narrower the beam range the greater the intensity. For photometric data see page 30.

All spotlight prices include tilting fork, one frame for colour, heat resisting wiring ending in 2-ft. 6-in. tails, but **do not include lamp or colour filter**.  
Finish: Hard hammer-grey.

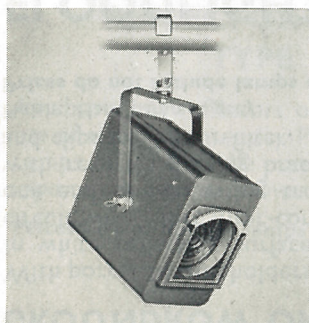
## SPOTLIGHTS



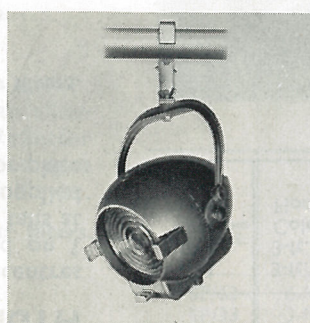
Guide to lantern dimensions

### (A) SOFT EDGE (FRESNEL) SPOTS

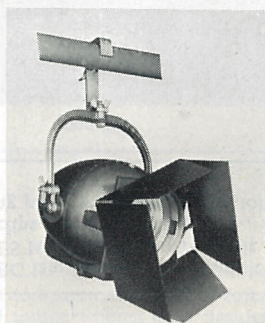
(A) SOFT EDGE (FRESNEL) SPOTS		Watts	Lamp		Beam	Colour Frame	Dimensions				Weight lbs.	£ s d								
Catalogue Ref.	Description		Class	Cap			Width A ins.	Depth B ins.	Height C	ins. D										
Patt. 45	4½-in. diam. Junior Spot no reflector, slide focus, rear access ...	250 or 500	T	P.28	15/45°	76	9	11½	9¼	12¼	8¼	}	4	15	0					
Patt. 123	6-in. diam. Baby Fresnel Spot slide focus, front access ...	250 or 500	T	P.28	15/45°	401	11	10½	9	11½	5¾		9	17	6					
Patt. 123LS	6-in. diam. Baby Fresnel Spot lead screw focus, front access ...		T	P.28	15/45°	401	11	10½	9	11½	5¾		11	2	6					
132	Four-door rotatable barndoor attachment for Patt. 123 ...	—	—	—	—	—	7½	1	8½	—	2¼	}	1	13	0					
Patt. 223	8-in. diam. Fresnel Spot lead screw focus, front access ...	750 or 1000	T.20	P.28	15/60°	632	13	13	11¼	14½	16		15	15	0					
633	Four-door rotatable barndoor attachment for Patt. 223 ...		—	—	—	—	—	10	1	10	—		3	4	5	0				
Patt. 243	10-in. diam. 1kW Fresnel Spot with prefocus holder, lead screw focus ...	1000	T	P.40	15/50°	61	15½	15½	15	19	30	}	21	5	0					
Patt. 243BP	10-in. diam. 2kW Fresnel Spot with Bi-post holder, lead screw focus...	2000	S	Bi38									12	1½	12	—	3½	4	19	0
133	Four-door rotatable barndoor attachment for Patt. 243 ...	—	—	—									—	—	—	—	—	—	—	add
—/C	Colourvred (black risers) lens to Patt. 123, 223 or 243. Add suffix —/C	—	—	—	—	—	—	—	—	—	—									



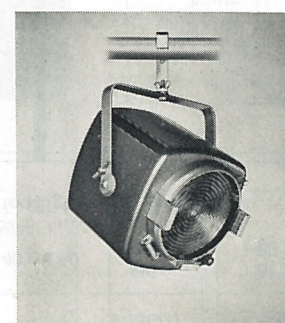
4½-in. diam. lens Patt. 45



6-in. diam. lens Patt. 123



Patt 123 with 132 Barndoor



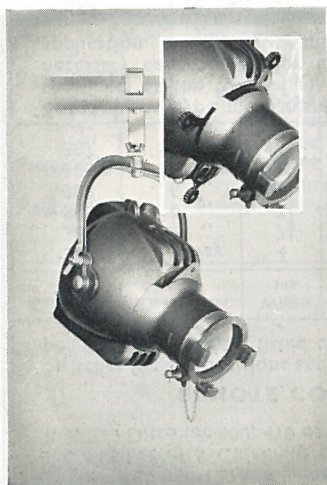
8-in. diam. lens Patt. 223



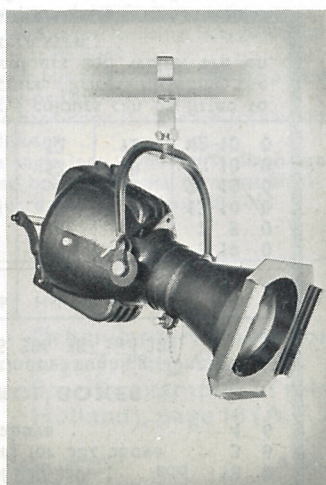
10-in. diam. lens Patt. 243



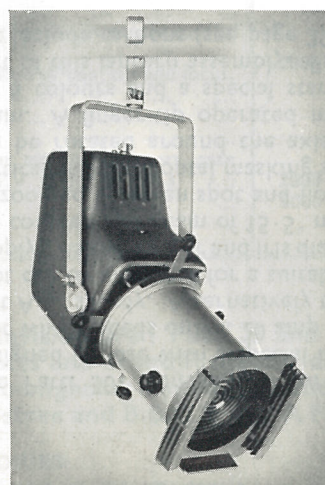
(B) PROFILE (MIRROR) SPOTS		Watts	Lamp		Max. Beam	Colour Frame	Dimensions				Weight lbs.	£ s d		
Catalogue Ref.	Description		Class	Cap			Width A ins.	Depth B ins.	Height C	(ins.) D				
Patt. 12	Miniature Profile Spot four built-in masking shutters, fixing plate ...	100	—	SBC	25°	—	6	6¼	5½	7	2¾	10	15	0
Patt. 23	Baby Profile Spot with gate runners and four fixed aperture masks	250 or 500	T	P.28	22°	359	11	13	9	12	6¼	9	17	6
Patt. 23F	Baby Profile Spot with Fresnel lens				30°						6¼	9	17	6
Patt. 23W	Baby Profile Spot wide angle				37°						7	10	17	6
Patt. 23N	Baby Profile Spot narrow angle				11°						8½	13	15	0
Patt. 23N/RH	Baby Follow Spot narrow angle, rebalanced with rear handle				11°						9½	15	10	0
—/H	Rear handle model to 23, 23F or 23W above. Add suffix —/H	—	—	—	—	—	—	—	—	—	—	add 10	6	
—/S	Built in adjustable shutters (except 23N/RH). Add suffix —/S	—	—	—	—	—	—	—	—	—	—	add 10	0	
376	Hand operated colour wheel for Patt. 23, 23F or 23W	—	—	—	—	—	11	—	11	—	1½	5	2	6
362 or 366	Spare set of four fixed aperture marks (366 for —/S models)	—	—	—	—	—	3½	—	3½	—	—	—	4	6
363	Iris diaphragm (12 leaves) for all Patt. 23 except —/S models	—	—	—	—	—	3½	—	3½	—	—	1	0	0
364	Adjustable straight-edge mask	—	—	—	—	—	3½	—	3½	—	—	—	7	0
512	Mica cloud slide (not —/S models)	—	—	—	—	—	3½	—	3½	—	—	1	10	0
374	Glass diffuser in frame for Patts. 23 and 23W	—	—	—	—	—	4	—	4	—	—	—	6	9
375	Glass diffuser in frame for Patt. 23N	—	—	—	—	—	7¾	—	7¾	—	1	—	9	6
Patt. 263	Profile Spot four built-in shutters, gate runners, pre-tilted holder	750 or 1000	T.12 cap up	P.28	22°	401	9¾	21	10½	15½	14	22	10	0
Patt. 263W	Profile Spot wide angle otherwise as above	—	—	—	39°	—	—	—	—	—	—	25	0	0
625	Iris diaphragm (12 leaves) for Patt. 263 or 263W	—	—	—	—	—	4¼	—	4¼	—	½	2	0	0
Patt. 253	Profile Spot built-in iris diaphragm (18 leaves), four masking shutters gate runners, pre-tilted holder, internal terminal block...	1000 or 2000	A.1	P.40	22°	370	15½	30¼	15	19	50	49	10	0
Patt. 293	Follow Spot version of Patt. 253 with blackout shutter and handles	—	H.1	P.40	15°	61	15½	38½	15	19	60	59	10	0
Patt. 253/F	As Patt. 253 above but with Fresnel lens	—	—	—	—	—	—	—	—	—	—	on application		
Patt. 293/F	As Patt. 293 above but with Fresnel lens	—	—	—	—	—	—	—	—	—	—	on application		



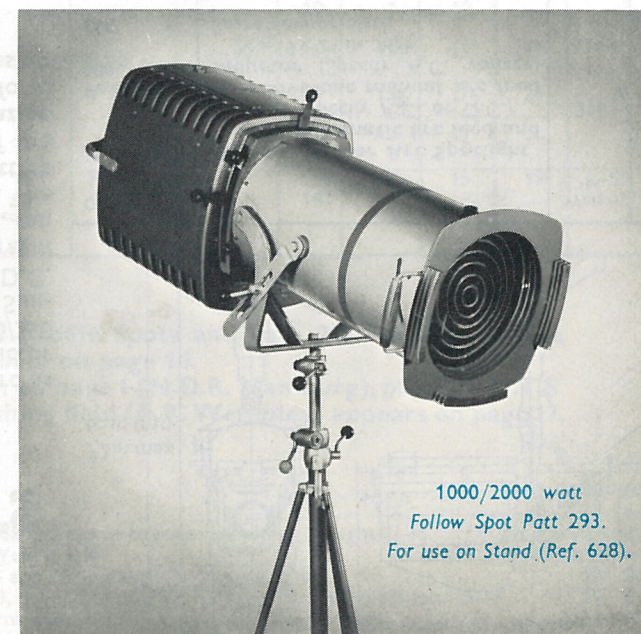
250/500 watt Profile Spot Patt. 23.  
(inset) Patt. 23/S with built-in shutter.



250/500 watt Follow Spot Patt. 23N/RH.



750/1000 watt Profile Spot Patt. 263.



1000/2000 watt  
Follow Spot Patt. 293.  
For use on Stand (Ref. 628).







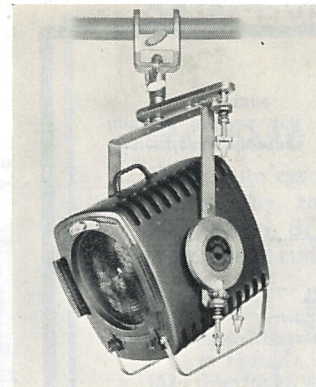
# TELEVISION LIGHTING

Strand Electric have great experience of modern Television production lighting and their lighting control systems are installed in all television studios in Britain. Such equipment has also been extensively exported.

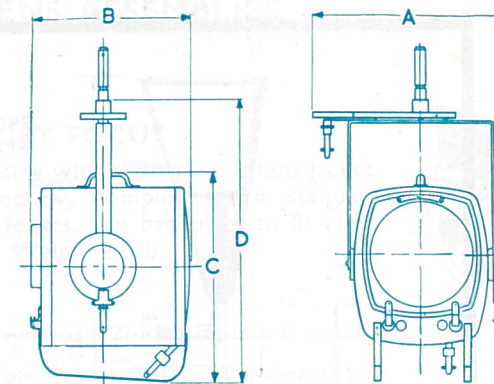
Where complete television lighting schemes are required Strand Electric will advise and/or supply the complete equipment.

Listed below are items, other than control equipment (see pages 16-23) which are television variants of apparatus manufactured by Strand Electric in the large quantities required for stage lighting at home and abroad; in consequence the prices represent exceptional value. For photometric data see page 30.

All spots have a simple colour or diffuser frame. Book type frames ref. 585 or 587 are extra.

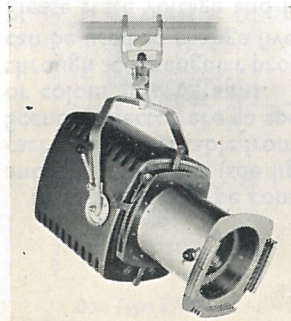


Patt. 243TV 2kW Polestar



Guide to lantern dimensions

Catalogue Ref.	Description	Watts	Lamp		Beam	Width A ins.	Depth B ins.	Height		Weight lbs.	£	s	d
			Class	Cap				C ins.	D ins.				
†Patt. 123TV	<b>Fresnel Spot</b> with wide angle lens, lead-screw focusing, lens guard, 2-ft. 6-in. heat resisting tails and T.V. spigot BS 2063 ...	500	T	P.40	24/55°	11	10 $\frac{3}{4}$	10 $\frac{1}{2}$	12	8	11	19	6
†Patt. 123TV Polestar 131	<b>Fresnel Spot</b> as above but arranged for remote pole operation of pan, tilt and focus. State hook and eye or bayonet coupling ...					13 $\frac{1}{2}$	10 $\frac{3}{4}$	10 $\frac{1}{2}$	17 $\frac{1}{2}$	13	on application		
585	Four-door rotatable barn-door shutter for pole operation ...					11 $\frac{1}{2}$	1	8 $\frac{1}{2}$	—	2	3	15	0
†Patt. 223TV	Hinged frame for diffuser ...					6 $\frac{1}{2}$	—	6 $\frac{1}{2}$	—	$\frac{1}{4}$	18	6	6
633	<b>Fresnel Spot</b> with standard wide angle lens, lead-screw focusing, lens guard, 2-ft. 6-in. heat resisting tails and T.V. spigot BS 2063 ...	1000	T.20	P.28	20/65°	13	13	11 $\frac{1}{4}$	14 $\frac{1}{2}$	18	16	17	0
†Patt. 243TV	Four-door rotatable barn-door shutter ...	—	—	—	—	10	1	10	—	3	4	5	0
†Patt. 243TV Polestar 133	<b>Fresnel Spot</b> with lead-screw focusing, lens guard, carrying handle, internal terminal block and T.V. spigot BS 2063 ...	2000	S	Bi38	15/55°	15 $\frac{1}{2}$	15 $\frac{1}{2}$	15	19 $\frac{3}{4}$	32	24	3	0
587	<b>Fresnel Spot</b> as above but arranged for remote pole operation of pan, tilt and focus. State hook and eye or bayonet coupling ...					19	15 $\frac{1}{2}$	17 $\frac{1}{2}$	25 $\frac{1}{2}$	38	on application		
†Patt. 253TV	Four-door rotatable barn-door shutter for pole operation ...					16 $\frac{1}{2}$	—	16 $\frac{1}{2}$	—	3	4	19	0
†Patt. 149TV	Hinged frame for diffuser ...					12	—	12	—	$\frac{1}{2}$	1	3	0
†Patt. 253TV	<b>Profile Spot</b> wide angle lens, built-in iris diaphragm, four masking shutters, gate runners, pre-tilted holder, internal terminal block and T.V. spigot BS 2063 ...	2000	H.1	P.40	37°	15 $\frac{1}{2}$	27	15	19	50	on application		
†Patt. 149TV	<b>Scoop</b> with wire guard and T.V. spigot BS 2063 ...	1000	Silica coated	GES	Wide	18 $\frac{1}{2}$	16	18 $\frac{1}{2}$	—	8	9	10	0



Patt 253TV  
2kW Profile Spot  
and  
TV Clamp Ref 594

Other lanterns used for television are : Patt. 23 and 263 Profile Spots and Patt. 293 Follow Spot see page 7, Patt. 152 4kW. Effects and Scene Projector detailed on page 10.  
Specific examples of television lighting controls are shown on page 1 (N.D.R. Hamburg), page 16 (N.T.S. Holland), page 18 (A.T.V. Elstree and B.B.C. T.V.). A Patching field (A.R. Wembley) appears on page 17.

## ACCESSORIES

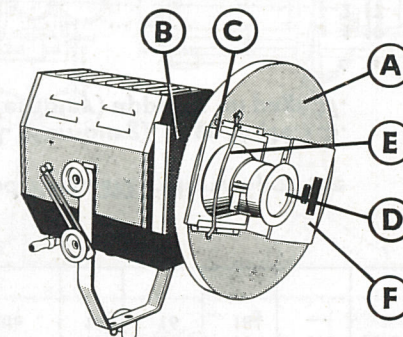
	£	s	d
†Extra for 25-ft. flexible 40/0076 fitted ...	1	10	6
†Extra for 25-ft. flexible 110/0076 fitted ...	2	17	6
590 8-ft. pole for Polestar lanterns. State hook and eye or bayonet coupling. Weight 2 $\frac{1}{4}$ -lb. ...	on application		
591 4-ft. interlocking extension for above. Weight 1 lb. ...	on application		
592 1 $\frac{1}{8}$ -in. dia. hollow T.V. spigot for Patt. 23 and 263 on page 7. Weight 2 lb. ...	10	0	0
593 1 $\frac{1}{8}$ -in. dia hollow T.V. spigot for Patt. 253, page 7. Also Patt. 52 page 10. Weight 2-lb. ...	10	0	0
594 Clamp for 2-in. ext. dia. barrel for lanterns fitted with T.V. spigot. Weight 2 $\frac{1}{2}$ -lb. ...	2	8	0



# OPTICAL PROJECTORS AND EFFECTS

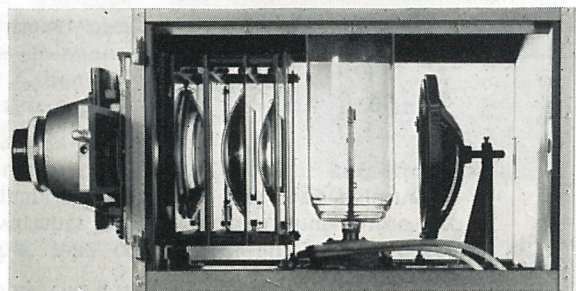
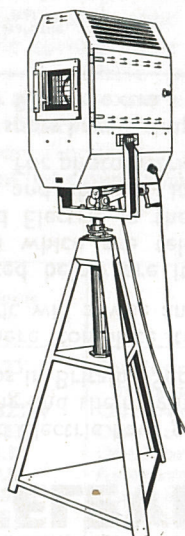
Effects of this type consist of lantern (see Patt. 52 and 152), effect attachment, and objective lens (see figure on right). Stationary slides require a normal slide carrier and turntable front instead of an effect attachment. Slides for the Patt. 152 Scene Projector are to special order only and can be provided as black and white or colour photographs. These slides can be made in such a way that distortion through acute angular projection can be corrected. A special slide carrier (ref. 516) can be used to change five slides remotely from ref. 383 control box, page 8. Please state voltage and frequency of supply if other than 200/250 volt 50 cycles when ordering equipment fitted with motors.

Patt. 52 with effects disc and objective lens in position. The effect has been rotated by means of turntable to give downward diagonal direction to the projected effect. (A) Disc housing. (B) Turntable casting. (C) Colour (or mask) and objective runners. (D) Objective lens. (E) Objective lens retainer spring. (F) Motor housing.



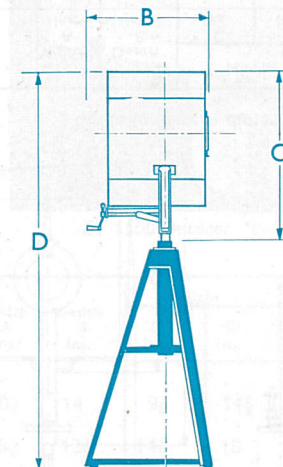
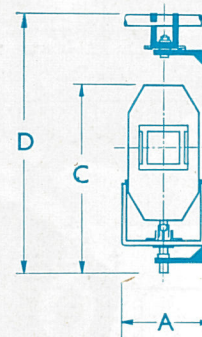
## OPTICAL EFFECTS PROJECTORS

Catalogue Ref.	Description	Watts	Lamp		Width A ins.	Depth B ins.	Height		Weight lbs.	£ s d		
			Class	Cap			C ins.	D ins.				
Patt. 52	Optical Effects Projector (stands and suspensions, see page 24) ... ..	1000	A.1	P.40	12	15 $\frac{3}{4}$	13 $\frac{1}{2}$	20	26	26	0	0
Patt. 152	High Intensity Effects and Scene Projector with ref. 262 special stand, prefocus lampholder, silent motor blower and anti-surge limiter ... ..	2000	H.1	P.40	27	23 $\frac{1}{2}$	31 $\frac{3}{4}$	74-89	128	209	0	0
Patt. 152/H	As above but with ref. 511 special hanging bracket ... ..	4000	see page 27	Bi 38	16 $\frac{3}{4}$	23	31 $\frac{3}{4}$	48	105	209	0	0
Patt. 152BP	As Patt. 152 above but with Bipost holder for 110v. 4kW. lamp ... ..				27	23 $\frac{1}{2}$	31 $\frac{3}{4}$	74-89	128	209	0	0
Patt. 152BP/H	As Patt. 152BP above but with ref. 511 hanging bracket ... ..				16 $\frac{3}{4}$	23	31 $\frac{3}{4}$	48	105	209	0	0
522 ...	220/250v. input, 4 kVA output at 110v. class H insulation transformer ... ..	—	—	—	9	12	—	9	62	63	0	0
262 ...	Special stand (in addition to hanging bracket) ... ..	—	—	—	27	23 $\frac{1}{2}$	—	42-57	44	31	5	0
511 ...	Special hanging bracket (in addition to stand) ... ..	—	—	—	16 $\frac{3}{4}$	6	—	48	21	31	5	0



Patt. 152 opened to show condenser system and two heat absorbing glasses. Slide carrier and lamp are cooled by silent blower in lantern base.

Patt. 152 on stand



Dimensions, showing Ref. 511 hanging bracket and Ref. 262 stand.



## OPTICAL EFFECTS PROJECTORS ACCESSORIES

	£	s	d
154—Turntable front only to take either slide carrier 155 or 156 below ...	6	5	0
155—Standard (metal) slide carrier (slide size 3½-in. square) ...	3	5	0
156—Universal (metal) slide carrier (slide sizes 3¼-in. square to 4-in. x 3¼-in.) ...	5	5	0
516—Slide carrier for remote change of 5 slides ...	on application		
343—Adjustable metal mask for limiting beam shape to proscenium, etc. ...	1	5	0
346—Beam diverter mirror for objective assemblies 151, 152, 153 ...	1	7	6

## MOVING EFFECTS ATTACHMENTS excl. lantern or lens

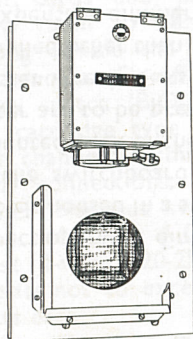
**DISC TYPE** Glass with effect photographed or otherwise reproduced, 18¾-in. diam. aluminium housing, with A.C. electric variable speed drive. Turntable to set angle of travel of effect and runners for colours or mask, and for objective lens assembly. Weight 11½ lb. Discs, with break-up glass where necessary, are available without cases.

	COMPLETE			DISC ONLY		
	£	s	d	£	s	d
134—Fleecy Clouds (A) ...	32	0	0	9	10	0
135—Storm Clouds (A) ...	32	0	0	9	10	0
136—Rain (C) ...	34	10	0	12	0	0
137—Snow (B) ...	32	0	0	9	10	0
138—Running Water (B) ...	40	0	0	17	10	0
140—Smoke (B) ...	37	10	0	14	10	0
141—Flames (C) ...	37	10	0	15	0	0
147—Dissolving Colours (B) ...	37	10	0	14	5	0
148—Forked Lighting—Hand operated with 1 slide ...	on application					
640—Flame Flicker for Patt. 123—no objective lens required ...	on application					

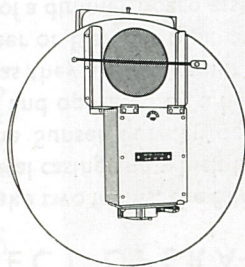
Discs are only interchangeable with effects of the same letter reference.

**BOX TYPE** Reciprocating action in wooden case 10½-in. wide × 17½-in. high. Weight 9½ lb. Otherwise as above.

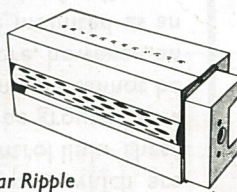
	£	s	d
143—Sea Wave ...	33	0	0
144—Water Ripple ...	33	10	0
145—Under Sea ...	33	0	0
342—Tubular Ripple Effect (Self contained) ...	32	10	0



Box Type Effect



Disc Type Effect



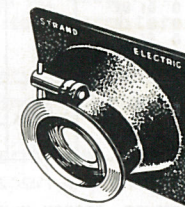
Tubular Ripple  
Ref. 342

Self-contained in sheet-metal case with A.C. electric motor drive and requiring no projection lantern or lens. For close range work behind groundrows only. Weight 28 lb. To use 1000W Class FL/2 Tubular lamp.

## OBJECTIVE LENS ASSEMBLIES

### STANDARD SHORT FOCUS

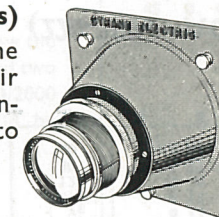
Aluminium cast housing with sliding brass lens jacket, secured by thumbscrew, complete with standard 3½-in. diam. British lenses, and backplate to fit effect attachment runner. Weight 3¼ lb.



	£	s	d
151—2½-in. focus, extra wide angle, 21-ft. sq. (3¼-in. x 3¼-in. slide) at 15-ft. ...	9	0	0
152—3-in. focus, wide angle, 15-ft. sq. (3¼-in. x 3¼-in. slide at 15 ft.)	9	0	0
153—4-in. focus, narrow angle, 9-ft. 9-in. sq. (3¼-in. x 3¼-in. slide) at 15-ft. ...	9	0	0

### HIGH DEFINITION FOR PATT. 152 (all models)

These high quality lenses **must** be used for scene projection and many effects are also improved by their use as the black areas are not spoilt and strong contrast results. A backplate is required to fit the lens to effect or turntable front.



	£	s	d
391—4-in. Dallmeyer Super Six Anastigmat Objective lens with micrometer focusing, 9-ft. 9-in. sq. at 15-ft. ...	56	0	0
392—Lens backplate for above ...	3	8	6
393—6-in. Dallmeyer Super Six Anastigmat Objective lens with micrometer focusing, 6-ft. 6-in. sq. at 15-ft. ...	93	10	0
394—Lens backplate for above ...	3	8	6

## ULTRA VIOLET LANTERNS FOR FLUORESCENT EFFECTS

### Patt. 230C U.V. Display Flood

The following are required for the above:

125W Black Lamp	3	7	6
Ref. 405 Choke	2	18	6

Ref. 379 Self-contained fitting complete with switch start control gear and choke for 4-ft. U.V. tube lamp ...

4-ft. 40-watt U.V. tube lamp for 379 above ... (excl. P. Tax) from 4 0 0

for full details including fluorescent paint and other material see booklet BLACK LIGHT.



# DIMMER BOARDS

## DIRECT OPERATED

Direct operated dimmers take two forms, the Slider type in which the resistance is housed in a sheet metal casing and which is used mounted on the front of the switchboard and the Sunset Former or Element types, which are mounted back of the board and operated by a handle and control link. These latter are to be preferred, as they allow dimmer handles to be grouped to a master wheel. Sunset Former or Element type resistance dimmers cannot be supplied other than as part of a dimmer board assembly. Where, however, an inexpensive dimmer is required which does not have to be mounted as an integral part of the dimmer board or even be mounted as part of a dimmer board at all, the slider dimmer can be used.

To ensure that every stage, however restricted the funds available, should have a switchboard capable of carrying out basic lighting cues, Strand Electric introduced in 1950 the Junior HA switchboard which has sold in thousands and which is still listed. However, Strand now offer an entirely new solution, the Junior 8. This is an extraordinary compact, lightweight control which can without alteration be used fixed or as a portable. Both the HA and the Junior 8 ensure that dimmers are not wasted for channels that are full-on or off. Thus 8 channels can be controlled from 4 dimmers which, as the dimmer is the expensive component, effects a real economy. In the case of the Junior 8 the circuitry allows all eight channels to be switched to the dimmers for simultaneous fade-out or fade-in. Furthermore, all board channels terminate in socket outlets which allow lighting circuits to be 'patched' in any order and permit circuit substitution at the control.



Dimmers direct operated

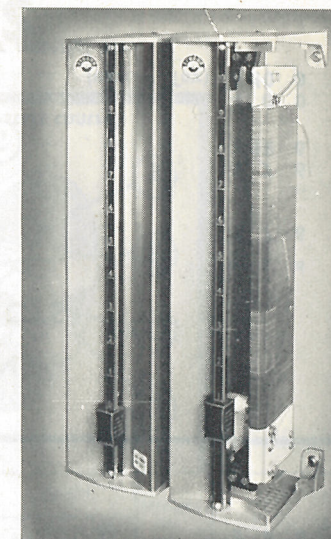
Both forms of Junior slider controls are made up of standard units and permit a number of standard variants. Special requirements should be avoided.

For those who prefer a back of board dimmer with mechanical interlocking, the Junior 8 circuit is available as the Junior Interlock. In this case, the dimmers are grouped on two shafts each with their master wheel and they can be locked down by a simple twist of their handles. Boards can be used with 5-amp. plug boxes to allow "patching" of circuits on the dimmers. Where a complete set of dimmers is preferred, a range of standard sizes is listed in two forms—Junior Sunset or heavy duty Senior Sunset.

## NEW TYPE SLIDER DIMMERS (A.C. ONLY)

Lightweight composition formers with off and full-on contacts. Graded resistance windings to dim-out any load between and including the wattages stated. The operating knob to the copper-carbon brush is carried on an external square rod which forms the plotting scale and masks the operating slot. Internal terminals and conduit entry at base.

Finish: Hard hammer blue and grey



Watts.	200-250v. Ref.	100-120v. Ref.	Approx. Dimensions inches			Weight lbs.	200/250v.		
			Height	Depth	Width		£	s	d
250/500 ...	545	575	20	5½	5	9½	6	12	6
500/1000 ...	546	576				9½	6	12	6
600/1200 ...	547	577				9½	6	12	6
1000/2000 ...	548	—	28	5½	5	12	12	0	0
*1200/2400 ...	537	—	23	5	10	30	12	15	0
*2600/3000 ...	538	—	23	5	10	30	12	15	0

Add suffix —/B for sheet metal back to Ref. 545, 548, 575, 576 ... .. add 5 0

\*Ref. 537 and 538 have slate formers and external block at top

## WALL MOUNTING "SUNSET" DIMMERS (220-250v AC)

These are intended for use as single control units for auditorium, lecture theatre, dance hall and other such tungsten lighting installations. Where control from more than one position, i.e. stage, projection room, etc., is required, the Automatic Dimmers, page 15 are recommended. State type ref., circuit wattage and voltage when ordering.

**CONSTANT RATING** — For special applications when the normal theatre rating may be unsuitable, i.e. for indefinitely prolonged use at intermediate positions, the type shown in the column headed 'Constant' should be used.

Type	Maximum watts per phase			Phases	Approx. inches			Weight lbs.	£ s d		
	Theatre	Type	Constant		Height	Depth	Width		£	s	d
O	2500	OC	2000	1	13	7	20	20	23	0	0
*P	3500	PC	3000	1	13	7	20	24	25	15	0
G	5000	GC	4000	1	25	9	24	43	37	0	0
O2	2500	O2C	2000	2	13	12	20	40	38	10	0
*Y	7000	YC	6000	1	13	12	20	48	43	15	0
Y2	3500	Y2C	3000	2	13	12	20	48	44	15	0
J	10000	JC	8000	1	25	12	24	67	57	15	0
J2	5000	J2C	4000	2	25	12	24	67	70	15	0
K	15000	KC	12000	1	25	15½	24	89	90	15	0
K3	5000	K3C	4000	3	25	15½	24	89	95	15	0



## JUNIOR 8 LIGHTING CONTROL

The Junior 8 has eight channels each of 1 kW maximum and four cordless dimmers as an integral part.

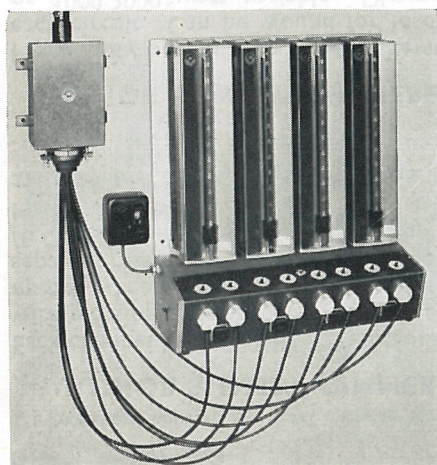
The 500/1000 watt variable load dimmers are of the new design shown on the page above. The single switch to each control channel (silent AC flush type) connects each channel to be "full on," "on dimmer" or "off" so that dimmers need not be wasted, yet all eight channels can be faded in or out simultaneously from the four dimmers.

All eight channels terminate in 5-amp 3-pin B.S. socket outlets complete with plug tops (white for labelling) which allow light circuits to be "patched" in any order and permit circuit substitution at the control, i.e. more than eight circuits

can be used from a single Junior 8. Channels can be grouped via, or independent of, the silent master blackout switch which has ample capacity to control three Junior 8 units.

Slave units can be added at any time to make up sixteen or twenty-four channels. Each slave unit is complete with alternative number labels, linking terminals and connector bushes.

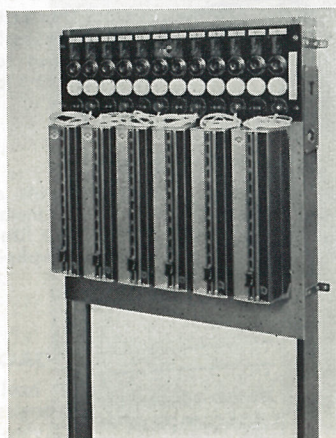
Junior 8 controls can be used without modification either as permanent fixtures or as portable boards. They are light in weight and readily transportable without taking apart.



**Dimensions :**  
Height: 28 in.  
Width: 24 in.  
Depth: 9 in.  
Weight: 55 lb. approx.  
**Finish :**  
Blue and silver  
Epoxy resin paint.

		Incl. dimmers
		£ s d
Ref. 616	Standard Junior 8 unit model (Domestic type cartridge fuses to BS.1362) ... ..	45 0 0
Ref. 617	Slave Unit to make up 16 or 24 channels ... ..	45 0 0
Ref. 614	Master 8: this unit is similar to the Junior 8 except that it is 8 inches taller to allow the provision of larger wattage slider dimmers. The unit provides blackout switch and two master dimmers intended to feed two Ref. 617 Junior 8's and in addition two 1000/2000 watt dimmers with four normal Junior 5-amp channels. All three units would be mounted in line with the Ref. 614 on the left. ... ..	75 0 0
Ref. 615	Senior 8: eight 5-amp channels and four 1000/2000 watt dimmers ... ..	75 0 0
Ref. 618	Spare 5-amp 3-pin white plugs for further circuits ... .. each	2 9
Note: Unless otherwise specified 500/1000 watt dimmers are always supplied. Each individual Junior 8 single phase 200/250 volt A.C. only. Supplied boxed with printed instruction book.		

500/1000 watt new type slider dimmers are fitted with cords and plugs to allow them to be shared among double the number of channels. On-off switch, 2-way switch (B.O./Indep.), and cartridge type fuse to each channel. Terminals for load connections. Silent master blackout switch at right hand end. A.C. single phase 2-wire 220-250 volt, circuits not to exceed 1000 watts each.



Junior HA12 Slider Board

## JUNIOR HA SLIDER DIMMERBOARDS

Type	Description			Width ins.	Depth ins.	Height ins.	Weight lbs.	Incl. dimmers £ s d
HA. 8	8 channels and 4 dimmers fitted	Frame JA ...	25	9½	64	{	94	56 10 0
HA.12	12 channels and 6 dimmers fitted	Frame JB	36				140	75 10 0
HA.16	16 channels and 8 dimmers fitted	Frame JA+JA	50				190	115 0 0
HA.20	20 channels and 10 dimmers fitted	Frame JA+JB	61				235	134 0 0
HA.24	24 channels and 12 dimmers fitted	Frame JB+JB	72				282	153 5 0
Omission of a Ref. 556 500/1000 watt or Ref. 555 250/500 watt dimmer.	...			...	...		deduct	6 7 6
Channel name engraved instead of channel number as standard.	...			...	...		add per label	3 0 0
Sheet metal back to switch panel. Specify JA or JB frame.	...			...	...		add	3 2 6



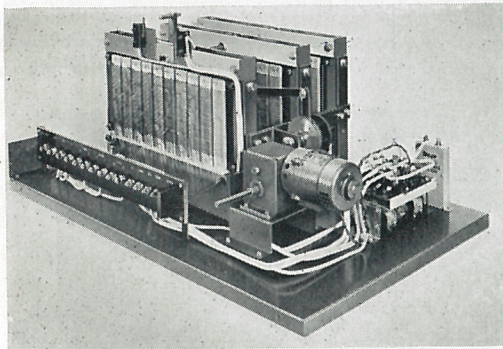




# AUTOMATIC DIMMERS

Motorised dimmers for A.C. tungsten lighting loads are designed to be connected in series with the phase supply to a distribution board, and therefore the only fuse fitted is to protect the control circuit. Supplied internally wired and with metal covers. **State type ref., circuit wattage and voltage when ordering.**

Three phase models can be used for three separate sub-circuits single phase.



Automatic dimmer with cover removed, see table 1

## UP-DOWN-STOP FIXED LOAD (TABLE 1)

To raise, lower, or stop at intermediate positions the house lighting of theatres, cinemas, lecture halls, etc. from one or more remote sets of push buttons. Dimmers open circuit at lower limit of travel.

## COLOUR CYCLE (TABLE 2)

Automatic dimmer controlling the three or four colours of multi-colour lighting equipment so as to give a cycle of change and then repeat until switched off. Suitable principally for shop window, ballroom, exhibition display and fountain work.

## UP-DOWN-STOP VARIABLE LOAD (TABLE 3)

Up down stop control of variable load transformer dimmers which have been specially designed to control A.C. tungsten lighting. 220/250 volt only. Dimmers open circuit at lower limit of travel.

TABLE 1

Theatre Rating				Constant Rating				Dimensions			Weight	£ s d		
Type	Phases	KW per phase*		Type	Phases	KW per phase*		Length ft. ins.	Depth ft. ins.	Height ft. ins.				
		220-250v	110-120v			220-250v	110-120v							
Auto 5 ...	1	3.5	2.5	Auto 5C	1	3	2	1 9	1 1	1 6	70 lbs.	97	0	0
Auto 6 ...	1	5	—	Auto 6C	1	4	2.5	2 9	1 2	1 9	$\frac{3}{4}$ cwt.	110	0	0
Auto 6A ...	1	7	5	Auto 6AC	1	6	4	1 9	1 5 $\frac{1}{2}$	1 6	$\frac{3}{4}$ cwt.	115	0	0
Auto 71 ...	1	10	—	Auto 71C	1	8	5	2 9	1 6	1 9	1 cwt.	154	0	0
Auto 72 ...	2	5	—	Auto 72C	2	4	2.5	2 9	1 6	1 9	1 cwt.	154	0	0
Auto 81 ...	1	15	—	Auto 81C	1	12	7.5	2 9	2 0	1 9	1 $\frac{1}{4}$ cwt.	204	0	0
Auto 83 ...	3	5	—	Auto 83C	3	4	2.5	2 9	2 0	1 9	1 $\frac{1}{4}$ cwt.	204	0	0

\*These are maxima, specify type, circuit wattage and voltage.

**CONSTANT RATING**—For special applications when the normal theatre rating may be unsuitable, i.e. for indefinitely prolonged use at intermediate positions, the wattages shown in the column headed "constant" should not be exceeded.

Variable load plus or minus  $\frac{1}{2}$  windings can be supplied provided top wattage does not exceed 80 per cent of those shown in schedule above.

Larger loads subject to special enquiry.

Standard equipment includes one set of push-switches. Extra sets of push-switches can be supplied. £ 7 6 each

TABLE 2

Type	Phases	Colour	KW per colour per phase*		Max. Demand KW		Length ft. ins.	Depth ft. ins.	Height ft. ins.	Weight (approx.)	£ s d		
			220-250v	110-120v	220-250v	110-120v							
Auto 12 ...	1	3	2.5	2	5	4	2 1	2 3	1 7	1 $\frac{1}{4}$ cwt.	159	0	0
Auto 12A ...	1	3	3.5	2.5	7	5	2 1	2 3	1 7		162	0	0
Auto 13 ...	1	4	2.5	2	5	4	2 3	2 3	1 7		165	0	0
Auto 13A ...	1	4	3.5	2.5	7	5	2 3	2 3	1 7	1 $\frac{3}{4}$ cwt.	169	0	0
Auto 14 ...	1	3	5	—	10	—	2 9	2 6	1 7		201	0	0
Auto 15 ...	1	4	5	—	10	—	3 0	2 6	1 7		212	0	0
Auto 22 ...	3	3	2.5	2	15	12	3 11	2 6	1 7	2 cwt.	355	0	0
Auto 22A ...	3	3	3.5	2.5	21	15	3 11	2 6	1 7		362	0	0
Auto 23 ...	3	4	2.5	2	15	12	4 4	2 6	1 7		370	0	0
Auto 23A ...	3	4	3.5	2.5	21	15	4 4	2 6	1 7	3 cwt.	377	0	0
Auto 24 ...	3	3	5	—	30	—	6 3	2 6	1 7		on application		
Auto 25 ...	3	4	5	—	30	—	7 0	2 6	1 7		on application		

\*These are maxima, specify type, circuit wattage and voltage.

TABLE 3

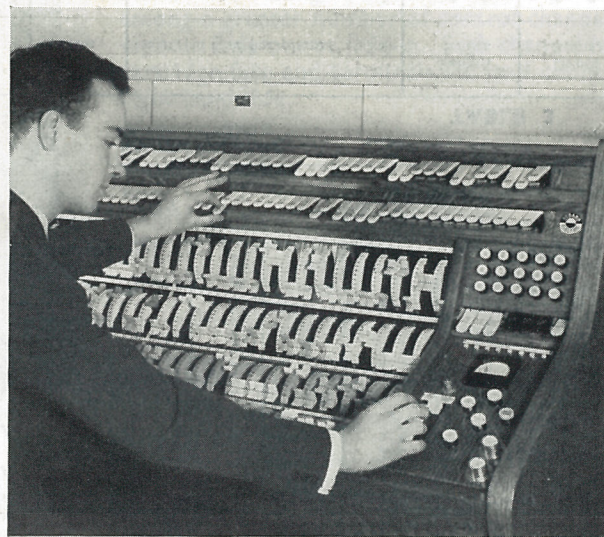
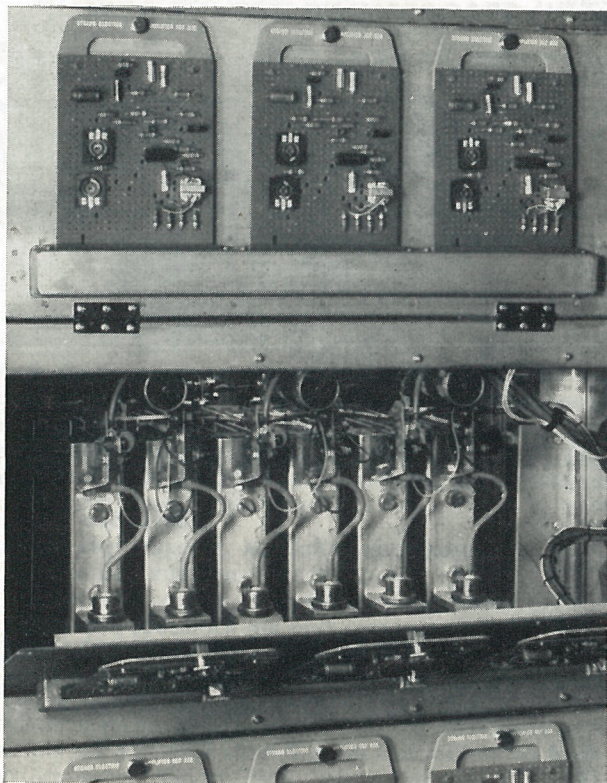
Type	Phases	KW per phase	Length ft. ins.	Depth ft. ins.	Height ft. ins.	Weight (approx.)	£ s d
Auto TR1	1	Variable to 5 kw max.	2 9	2 0	1 9	1 $\frac{1}{2}$ cwt.	on application
Auto TR2	2	Variable to 5 kw max.	2 9	3 6	1 9	2 $\frac{1}{2}$ cwt.	
Auto TR3	3	Variable to 5 kw max.	2 9	4 9	1 9	3 $\frac{1}{2}$ cwt.	



# STRAND REMOTE CONTROL

The key to lighting control lies in the dimmer. Strand Electric not only supplies but manufactures all important forms. Resistances, autotransformers, saturable reactors and other specialist components are all made in Strand's own works. At the control end, the finger tip potentiometer controls, tablet switches, jack plugs, etc. are specially designed and made by Strand for this work and are assembled to make available a unique variety of controls, equipment consisting of a few dimmers or several hundred—all to hand. Control facilities can range from the simple and rudimentary to the most comprehensive yet devised anywhere. Strand Electric, who make them all, advise from knowledge.

*Close up of Strand system CRD rack with covers removed and 3 channels opened up for access to the silicon controlled rectifiers. As installed by Strand for NTS Holland, WDR Cologne.*



*Lyric Theatre London. Strand 120 channel system CD preset control. This type is to be found in the majority of London's West End theatres.*

**Dimmers.** Strand Electric can supply the latest forms of all-electric dimmer and as an alternative servo-operated transformer and resistance dimmers. The Strand all-electric dimmers use the saturable reactor (SR) as the basic unit modified as necessary and financial outlay permits by transistorised auxiliary circuits (LC) to give better performance in respect of variable load, presetting, etc. Other all-electric dimmers are thyatron type (of which over 2,500 have been supplied) but which on account of its inefficiency in respect of heat loss must be regarded as of the past, and the controlled rectifier, the SCR, which functions in the same way as thyatrons by chopping the waveform. The silicon controlled rectifier is beyond question the best all-electric dimmer today. The Strand Electric system CRD using these in pairs back to back gives variable load immediate response dimmers of 5 kW capacity (paralleled for larger loads) which are remarkably compact and light in weight. At the same time filters giving a high standard of clean-up to the chopped waveforms and complete anti-surge protection circuits are incorporated.

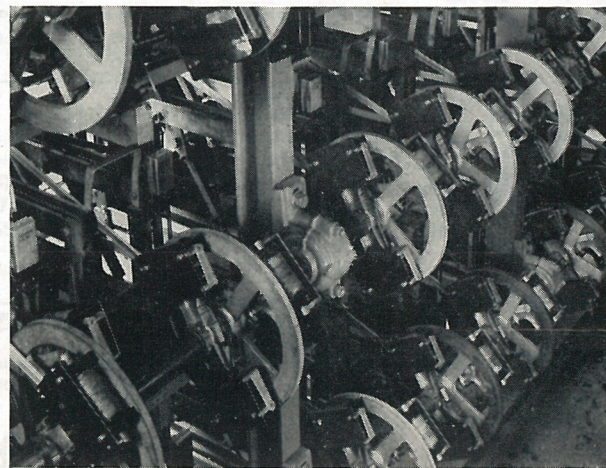
Instead of all-electric methods servo-operated resistance or autotransformer dimmers can be used.

The Strand systems use a variable speed non-reversing motor of ample power to drive the shafting of the dimmer bank. Dimmers are connected to the shafts via a pair of electro-magnetic clutches to move the dimmer up or down. The dimmer clutches are energised directly from a high grade polarised relay, whose operating coil is in the centre line of a bridge circuit one end of which is the remote control potentiometer—the dimmer lever—and the other, a slave moved by the dimmer itself. The dimmer moves to the point where the bridge balances and the relay centres. This simple servo-system has been perfected by Strand over the years to give incomparable position control and many thousands of this form of dimmer channel have been supplied.

**Patching.** Owing to the relatively low price of all Strand dimmers a Strand control can use a large number of smaller wattage dimmers instead of the small number of large wattage dimmers with the inevitable 'Patching' to extend their use which high dimmer prices compel and which has become the practice in the United States. Obviously a separate dimmer to each important circuit is the best principle, as this gives flexibility in the use of lighting.

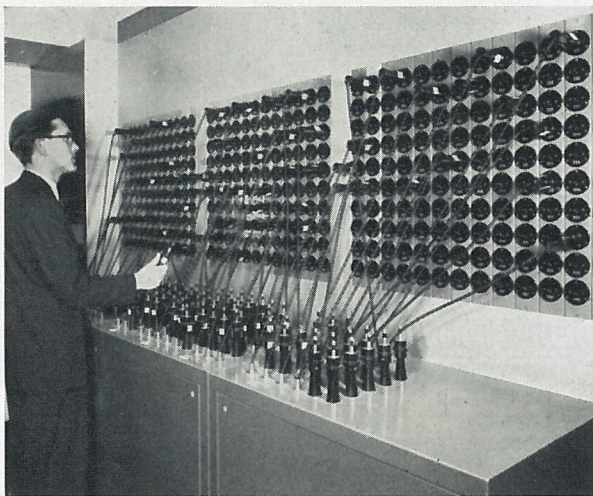
There are cases, for example a theatre running a repertory of several plays, where patching is useful to provide alternative circuits to avoid a lot of lantern re-setting. In television studios where motorised hanging bars are used for suspension, as in the B.B.C. T.V. Centre, patching is essential as a method of discarding unwanted circuits.

*Part of a Strand electro-mechanical dimmer bank showing clutches and transformers.*





Strand Electric manufacture two main types of patching field. Type J.K. in which the circuits are represented by male jacks and cords on the table and the dimmers by one or more female sockets to each on the vertical panel. The other type, J.L., employs female jacks (Jills?) and cords on the table for the dimmers and male sockets on the vertical panel. The second type is preferred in Britain where the main object in a television studio is to re-arrange channels in an order appropriate to the particular scenic layout. The United States usage of a large number of circuits which have to be accommodated on relatively few dimmers requires the first type (JK). Strand Electric also make remote patching control systems. One type as supplied to the Old Vic and Shaftesbury theatres, London, makes four circuits available on each of certain dimmers. Ten such combinations can be preset. Another remote type as installed in BBC Riverside 1 studio makes 14 circuits available on any of each group of 8 dimmers.



Associated-Rediffusion Studio, Wembley. One of the 400-circuit Strand Patching Fields.

**Control Systems.** Strand can supply complete all-electric control systems as follows:—

SR, LC, CRD and C/AE

Electro-mechanical remote control systems offered are:—

PR, CD, CD/W and C

For small installations of 36 dimmers, the Strand

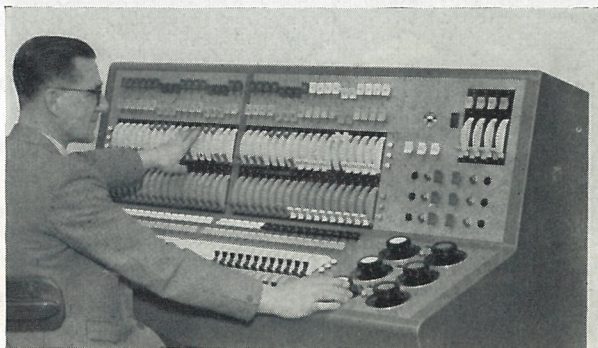


Drury Lane Theatre. Earlier form of remote control—Strand Light Console, 216 dimmers. (Photo by courtesy, "Radio Times")

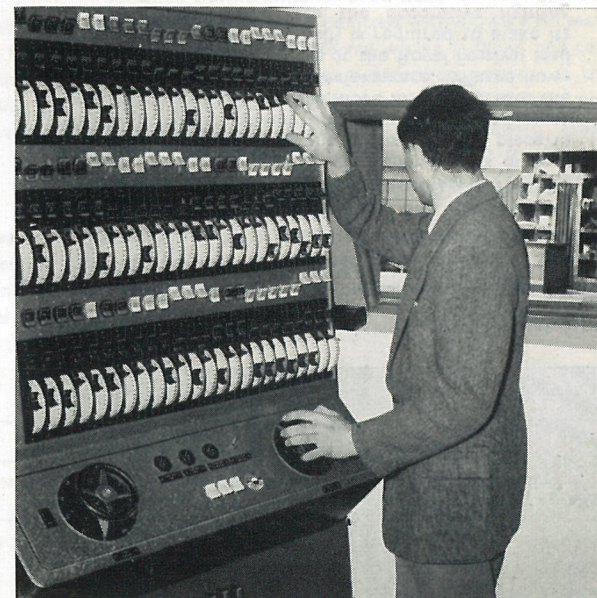
saturable reactor, System SR, provides reliable inexpensive remote control with switching to form three groups on master dimmers. Over this size, dimmer pre-setting is essential. That is the operator must be able to set the next levels of light in advance without interfering with those already in use. System LC, which is based on a transistorised saturable reactor system, is a relatively inexpensive way of giving this extra facility. For those who prefer it there is the servo-operated electro-mechanical system PR for roughly the same outlay.

Larger installations are appropriately and economically controlled from electro-mechanical system CD or C consoles in which use is made of the inertia

Strand System LC Preset control in Chichester Festival Theatre.



principle to provide 14 or 20 groups by means of an instantly adjustable memory preset action. The inertia in the electro-mechanical system derives from the fact that once the dimmer has been driven to its position through clutch and motor from a remote lever through a servo-system, the servo can be disconnected to leave the dimmer and the light stationary at the level it was last called. With an all-electric system the



Adelaide University, Australia. Strand all-electric Saturable Reactor remote control.

dimmer, whatever its form, has to be constantly activated from the control to hold its level. This ability in the inertia systems to be concerned only with the dimmers which have to change, has led Strand to a radically different approach to the large theatre or television installation. These Strand systems unlike those of other makers do not breed multitudes of preset dimmer levers.

For those who prefer an all-electric method for the large installation System CRD, using silicon controlled rectifiers, with straight 2, 3 or 4 dimmer preset desks is available. Also the type of control described above for CD and C electro-mechanical controls is now available as system C/AE with all-electric silicon controlled rectifier dimmers. This facility has been achieved by



Strand without the use of mechanical devices and represents a real breakthrough since, for the first time the unique memory action to select for change only of the best Strand systems is available without the requirement of an electro-mechanical dimmer bank.

Strand Electric are confident that their controls not only offer facilities in advance of those of others but that their systems are infinitely more compact and require much less space.

There remains the question of complete memory or automatic plotting. In April, 1959, Strand Electric demonstrated publicly the first fully automatic lighting control in the World—Strand System KTV. In this instance, punched card is used to record all



240 channel memory and preset control desk Strand System C. Four of these are in ATV Elstree Studios.

changes. On play-back not only is the lighting repeated exactly as when recorded but the switchboard controls automatically and instantly repeat their exact set-up at the time of punching the card. Thus immediate modification to lighting is always possible, a facility which is invaluable during rehearsal and run throughs.

Experiments with our full sized system K.T.V. console have nevertheless shown us that punched card is fundamentally unsuited to rehearsal and this even when, as in our case, the card sets up the control panel as well as the lighting. It is the rehearsal facilities which are important, not those for subsequent reproduction. In the theatre once the first night is over the operator is over the principal hurdle. In television

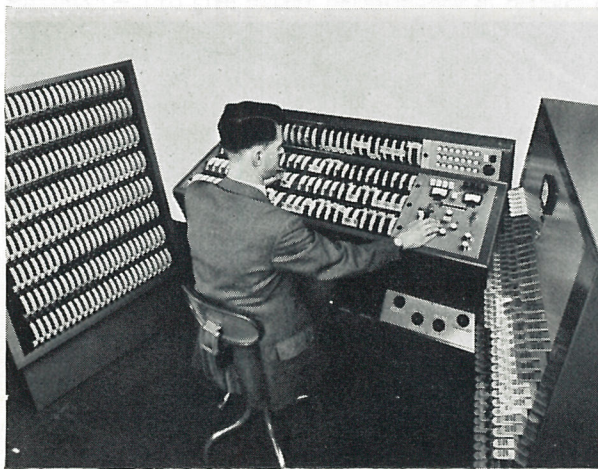


Strand system KTV, (patented). The first dimmer system with fully automatic plotting of lighting and switch-board controls in the world (April, 1959).

every night is a first night in any case and no subsequent reproduction is required. Meantime experiment goes on and when the perfect switchboard memory appears Strand Electric will let you know.

Strand Electric have unique facilities for development of lighting controls due to their close contact with actual production in the theatre and in television. It is a strict rule that their engineer designers must approach these controls from the operators end. Too often with others, a purely engineering approach

200 channel Strand system CD/W Civic Theatre Gothenburg.



the electric form and cost of the latest gimmick is allowed to distort the ultimate purpose of all lighting controls which is to allow the operator immediate expression—painting with light.

This achievement and facility of Strand Control is well summarised by the photograph below which shows a B.B.C. lighting supervisor modifying his lighting during the brief instant the particular shot is on his monitor.



BBC Riverside Television Studios. Lighting Supervisor using Strand system C control. (Photo by courtesy BBC). This system is also used in the studios at BBC Television Centre.

#### FLUORESCENT LIGHTING AND DIMMING

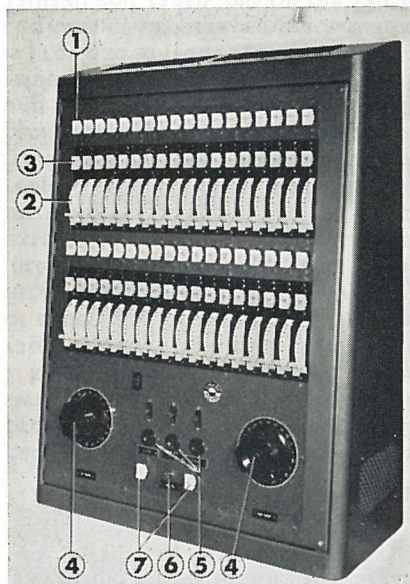
Except in the case of the light blue circuits of very large cycloramas fluorescent lamps have no place in stage lighting. In the auditorium the sparkle and lower levels of tungsten lamps are more likely to create the atmosphere for theatrical performance. Where however fluorescent lighting (as at the Royal Festival Hall or the Portsmouth Guildhall) is required to make its particular contribution to the decorative lighting scheme Strand Electric can control dimmers made by others as part of their fluorescent circuit or manufacture dimmers in co-operation with the supplier of the fluorescent lighting. It cannot be too strongly stated that every installation, whether hot or cold cathode, is quite individual and must be planned as a whole. The whole process bears no resemblance whatever to the simple methods required for normal incandescent lighting where all that is necessary is to insert a dimmer in series with the feed.



## SYSTEM SR ALL-ELECTRIC REMOTE CONTROL

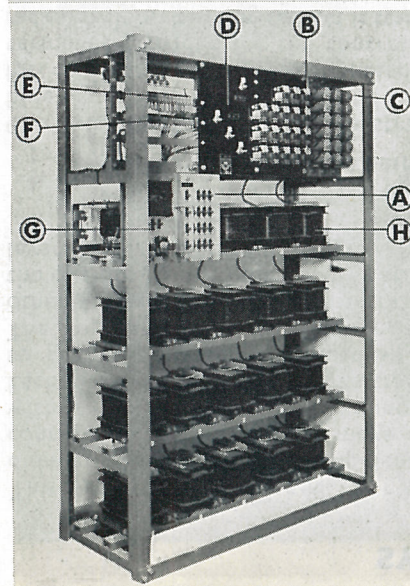
Each equipment consists of a remote control cabinet and one or more dimmer racks complete with 2 kW saturable reactor dimmers fitted as standard. Each dimmer size is provided with tapping points to allow for load adjustment. Equipment except for CCR/8 and CCR/18 is provided with two three-position tablet switches to each channel to permit separate grouping-up for master switching and master dimming.

This system is available for 8, 18, 24, 36 or 54 individually controlled dimmer channels. Where there are only 8 channels no master controls are provided as the eight dimmer levers can be operated by the fingers. Cabinets are supplied with the full complement of dimmer levers although some reactor dimmers can be omitted for initial economy where necessary.



**CCR/36/S  
Control Cabinet**

1. Three position switch for grouping to Blackout A, or off, or Blackout B.
2. Moulded individual dimmer unit with stud contact potentiometer and scale marked 0-10 with half divisions.
3. Three-position switch for grouping dimmer lever to Master Dimmer X, or independent live, or Master Dimmer Y.
4. Master Dimmer X and Master Dimmer Y.
5. Quick-fade switches for rapid dimming.
6. All Fade switch for total quick-fade.
7. Blackout A and Blackout B switches.



**CCR/18  
Dimmer Rack**

- A. Thermal circuit breaker for protection of each channel.
- B. Contactor to each channel for load switching.
- C. Full-wave rectifier to each dimmer channel for the D.C. control of the reactor.
- D. Terminals for the incoming A.C. supply.
- E. Load and neutral terminals for connection of the tungsten lamp loads.
- F. Terminals for the control wiring from the control cabinet.
- G. Power pack unit (master rack only) for the control circuitry and the connection point for power supplies to the control cabinet.
- H. Saturable reactor dimmer.

### CONTROL CABINETS

Cabinets are of sheet metal construction finished hammer blue and grey. The controls are inclined from the vertical for ease of operation. All internal wiring is fitted and terminals provided for the control wiring to the dimmer rack(s). A floor standing cabinet is provided for 54 channels, others are wall mounting.

### DIMMER RACKS

Each channel is provided with a thermal circuit breaker, a contactor for load switching, a full-wave rectifier for D.C. control and a 2 kW. max. reactor dimmer. Standard dimmer racks are rated at 2 kW. max. each channel but,

if specified at the time of order, any of the last four channels of each rack can be fitted with SR/3 3 kW. max. reactor dimmers. All internal wiring is fitted and terminals are provided for the external connections to the tungsten lamp loads, for the incoming A.C. supply, and for the control wiring from the remote cabinet. These terminals are all accessible from the front so that the rack(s) can be mounted against a wall. One rack is provided with a power pack unit for the control circuitry. All components are contained within the steel framework and a wire-mesh cover is provided in front of the terminal area. A.C. 220/240 volt 50 cycles or 110/120 volt 60 cycles, **state exact voltage and frequency.**

CATALOGUE TYPE	Number of dimmer channels	CONTROL CABINET				DIMMER RACK(S)					INCLUDING 2 kW. DIMMERS	
		Width ins.	Depth ins.	Height ins.	Weight lb.	No. of Racks	Width ins.	Depth ins.	Height ins.	Weight each Rack cwt.	220/240v.	110/120v.
CCR/8	8	14½	9	12½	20	1	24	19	66½	5½	£410	£440
CCR/18	18	29	12	28	125	1	45	19	66½	12½	£925	£1,000
CCR/18/S	18										£950	£1,025
CCR/24/S	24										£1,265	£1,350
CCR/36/S	36	29	13	39	160	2	45	19	66½	12½	£1,725	£1,845
CCR/54	54	36	16	72	366	3	45	19	66½	12½	£2,660	£2,830

### Variations at Time of Order

	£	s	d
Substitution of a floor-standing cabinet for 24 or 36 way cabinet ...	add	120	0 0
Substitution of SR/05 0.5 kW max. dimmer ...	deduct	8	0 0
Substitution of a SR/1 1 kW max. dimmer ...	deduct	4	12 6
Substitution of a SR/3 3 kW max. dimmer (last four channels of each standard rack only) ...	add	4	5 0
Substitution of an 18 channel dimmer rack to take 3 kW max. dimmers anywhere ...	add	57	0 0
Addition of metal top and wire-mesh side covers to a rack (included on 110/120 volt racks) ...	add	24	0 0
Addition of four independent switched-only accessory circuits ...	add	36	10 0
Addition of four-leg base to wall mounting cabinet ...	add	16	0 0
Omission of a SR/2 2 kW dimmer ...	deduct	19	15 0



## SYSTEM LC ALL-ELECTRIC REMOTE CONTROL WITH ONE PRESET

This system is available for 48, 72 or 96 individually controlled dimmer channels. Each equipment consists of a remote control cabinet and two or more dimmer racks complete with 2 kW saturable reactor dimmers fitted as standard. Each dimmer is provided with a transistor control amplifier to permit presetting and load variations down to 50%. The duplicate dimmer levers are mounted one above the other so that lighting levels can be easily matched and yet the operator is not impeded by having to pick out alternate levers when "playing" a change.

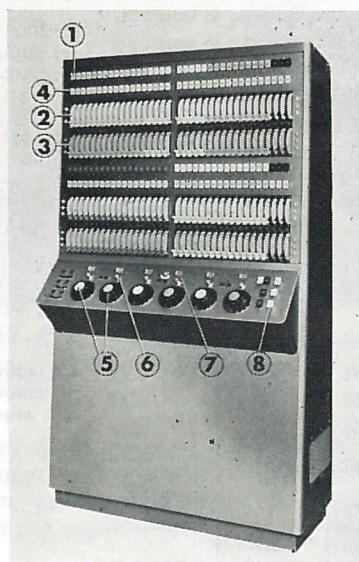
### CONTROL CABINETS

Cabinets are of sheet metal construction finished hammer blue and grey. The controls are inclined from the vertical for ease of operation. All internal wiring is fitted and terminals provided for the control wiring to the dimmer racks. A floor standing cabinet is standard but a desk version is available for an additional charge.

### DIMMER RACKS

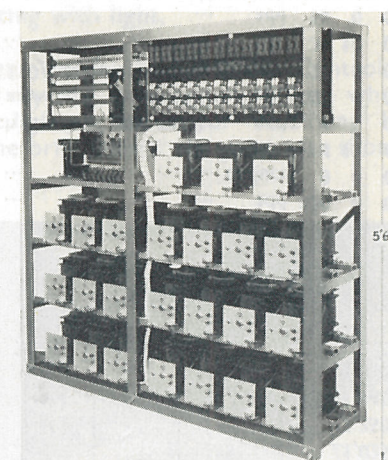
Each dimmer rack has 24 channels and every channel is provided with a thermal circuit breaker, a contactor for load switching, a plug-in transistorised control amplifier and a 2 kW. max. reactor dimmer. Standard dimmer racks are rated at 2 kW. max. each channel but, if specified at the time of order, any of the last four channels of each rack can be fitted with SR/803 3 kW. max. reactor dimmers. All internal wiring is fitted and terminals provided for the external connections to the tungsten lamp loads, for the incoming A.C. supply, and for the control wiring from the remote cabinet. These terminals are all accessible from the front so that the racks can be mounted against a wall. Each rack is provided with a transformer and a power pack unit for the control circuitry. All components are contained within the steel framework and a wire-mesh cover is provided in front of the terminal area. A sheet metal top and wire-mesh side covers are fitted as standard on the 110/120 volt range, but on the 220/240 volt range the top is fitted but the covers are an optional extra.

Dimensions of each rack, 64 in. wide × 19 in. deep × 66½ high. Weight 17 cwt. A.C. 220/240 volts, 50 cycles, or 110/120 volt 60 cycles, **state exact voltage and frequency.**



### Type LCCR/72 CONTROL CABINET

1. Three position switch for grouping to Blackout A, or off, or Blackout B.
2. Moulded dimmer unit with white scale.
3. Moulded dimmer unit with green scale.
4. Three-position switch for grouping the white and green dimmer levers to the X, Y or Z pairs of white and green master dimmers.
5. Master Dimmers—one white and one green for each of the X, Y and Z dimming groups.
6. Quick-fade switches for rapid dimming.
7. Transfer switches to allow two or three dimming groups to be operated by one pair of master dimmers.
8. All Fade, Blackout A and Blackout B switches.



LC Dimmer Rack  
with reactor dimmers and  
transistor amplifiers

CATALOGUE TYPE	Number of dimmer channels	CONTROL CABINET				INCLUDING 2 kW. DIMMERS	
		Width ins.	Depth ins.	Height ins.	Weight lb.	220/240v.	110/120v.
LCCR/48	48	36 (44)	16 (30)	72 (50½)	270	£3,400	£3,550
LCCR/72	72	42 (56)	16 (30)	72 (50½)	336	£4,930	£5,150
LCCR/96	96	54 (68)	16 (30)	72 (50½)	400	£6,500	£6,780

### Variations at Time of Order

	£	s	d
Substitution of cabinet in desk form, dimensions in brackets above ... ..	add	155	0 0
Substitution of a SR/801 1 kW max. dimmer ... ..	deduct	4	12 6
Substitution of a SR/803 3 kW max. dimmer ... ..	add	4	5 0
Substitution of a dimmer rack which can take 3 kW max. dimmers on any or all channels ... ..	add	88	0 0
Substitution of a SR/805 5 kW max. dimmer including the necessary free-standing unit complete with contactor ... ..	on application		
Addition of wire-mesh side covers to a rack (included on 110/120 volt racks) ... ..	add	24	0 0
Addition of four independent switched-only accessory circuits ... ..	add	36	10 0
Omission of a SR/802 2 kW dimmer and its control amplifier ... ..	deduct	27	15 0
Omission of a complete dimmer rack including dimmers and amplifiers ... ..	on application		
Ref. 833 Spare transistor control amplifier ... ..	add	8	0 0
Ref. 825 Spare power pack unit ... ..	add	117	0 0



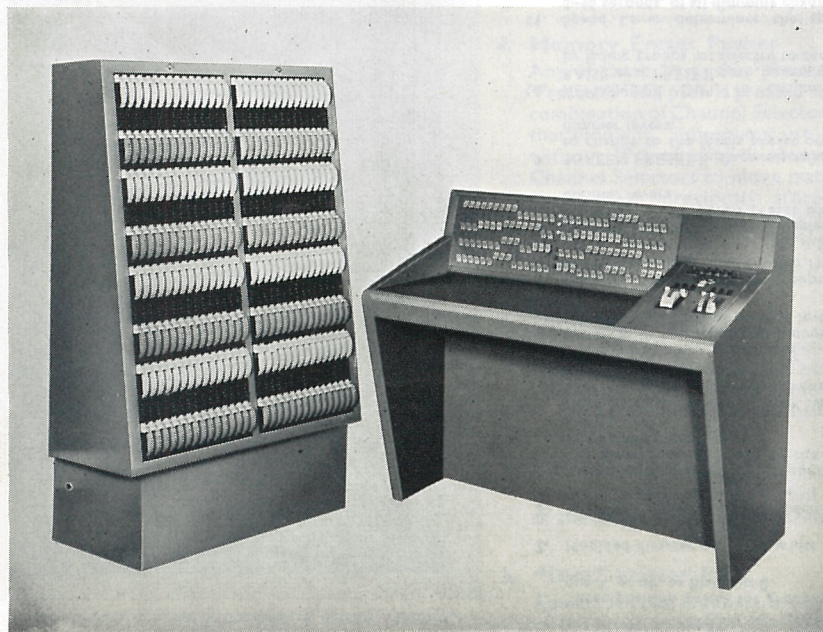
## SYSTEMS CRD CRD/L & C/AE ALL-ELECTRIC PRESET REMOTE CONTROL

Strand System CRD is based on a 30 channel Trinistor (Silicon Controlled Rectifier) unit. The channels have a capacity of 2.5 or 5 kW. For 10 kW, two channels are connected in parallel. Dimmers are load independent and provided with overload and surge protection. A high degree of clean-up is provided to neutralise any undesirable effects of the chopped waveform.

Three control desk systems are available to use with multiples of the standard CRD/R 30-channel racks:

- Standard CRD: two or four preset desks as schedule below with tablet switches to allow formation of 3 groups within the presets (illustrated bottom left).
- Luminous CRD/L: as above but with new type internally illuminated dimmer levers giving colour display to identify groups selected. Particularly suitable for large theatre or opera installations of 200 or more channels.
- Memory Group C/AE: this system combines the luminous levers of CRD/L above with an automatic memory relay in such a way as to realise in an all-electric form the full range of control so long available in Strand electro-mechanical systems CD and C. Particularly suitable for control of television production lighting. (*Patent applied for*)

120 channel 2 preset type CRD/120 control.



30 channel type CRD/R rack opened up for access. ►

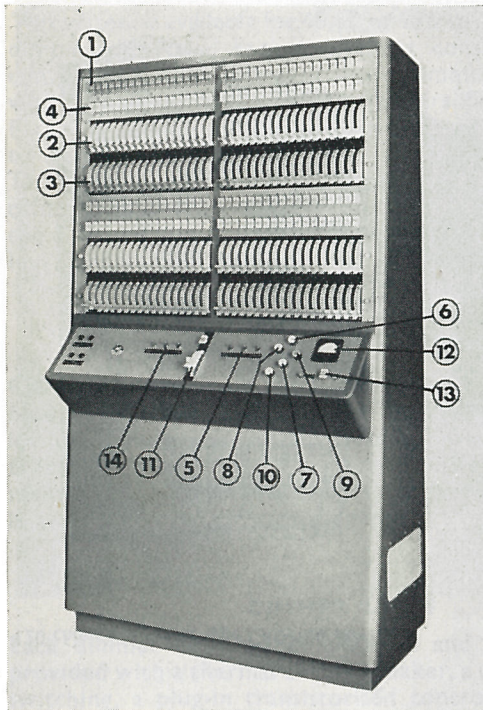


### SCHEDULE OF STANDARD MODELS

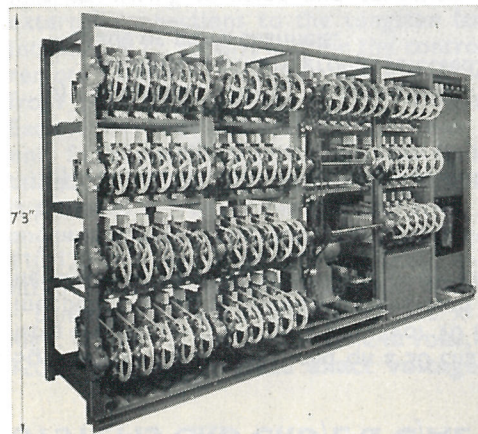
Equipment is available for 220/240- or 110/120-volt, 50- or 60-cycle, single- or multi-phase supplies. It is essential to state the voltage, wattage and frequency in all communications.

Type CRD/60	60 channel 2 preset type K desk (self-contained desk, no wings)	...
Type CRD/90	90 channel 2 preset type CRD desk (centre desk and one standard wing)	...
Type CRD/90/4	90 channel 4 preset type CRD desk (centre desk and a double wing)	...
Type CRD/120	120 channel 2 preset type CRD desk (centre desk and one standard wing)	...
Type CRD/120/4	120 channel 4 preset type CRD desk (centre desk and a double wing)	...
Type CRD/L 120	120 channel 4 preset	Type C/AE 120 120 channel 2 preset 20-memory
Type CRD/L 180	180 channel 4 preset	Type C/AE/180 180 channel 2 preset 20-memory
Type CRD/L 210	210 channel 4 preset	Type C/AE 210 210 channel 2 preset 20-memory
Type CRD/L 240	240 channel 4 preset	Type C/AE 240 240 channel 2 preset 20-memory





Control cabinet type PR/72



Dimmer Bank type PR/60

1. Three-position switch for grouping to Black-out A, or off, or Blackout B.
2. Moulded dimmer unit with white scale.
3. Moulded dimmer unit with green scale.
4. Three-position switch for grouping the white and green dimmer levers to the X, Y or Z Move group switches.
5. Move group switches which when down select the X, Y and Z groups to change when a master push is pressed.
6. RAISE push causes selected groups to raise to full independent of all dimmer levers.
7. \*DIM push causes selected groups to fade to zero independent of all dimmer levers.
8. \*WHITE PRESET push causes selected groups to change to the levels preset on the white dimmer levers.
9. \*GREEN PRESET push causes selected groups to change to the levels preset on the green dimmer levers.
10. REMAINDER DIM, in conjunction with RAISE or a PRESET push, causes a cross-fade by fading groups not selected to zero.
11. Speed Lever determines the speed, from 3-45 seconds, of all dimming changes.
12. Indicator Dial shows the rate and progress of all dimming changes.
13. Rehearsal Switch allows the WHITE or GREEN PRESET facilities to be held.
14. Blackout A, Blackout B and Dead Blackout switches.

\*These pushes have a second function against a heavy spring which extends their effect to all dimmers.

## SYSTEM PR ELECTRO-MECHANICAL REMOTE CONTROL WITH TWO PRESETS

This system is available for 60, 72 or 96 individually controlled dimmer channels. Each equipment consists of a remote control cabinet, a preformed control cable and a dimmer bank with servo-operated variable load resistance dimmers driven by individual electro-mechanical clutches from a common variable speed motor. Neither of the two dimmer levers to each channel have to maintain a constant control signal to the dimmer servo and therefore they are available for presetting precise intensity levels two changes in advance of the lighting in use.

### CONTROL CABINET

Cabinets are of sheet metal construction finished hammer blue and grey. All internal wiring is fitted terminating in a testboard which is also the connection point for the preformed control cable. A floor-standing cabinet is standard but a desk version is available for an additional charge.

### DIMMER BANK

The dimmer bank is fitted with a power pack for the low voltage control circuits and is complete with all internal wiring and terminals for external connections to the lighting loads. A nominal 100 ft. preformed control cable in metallic hose is supplied to link the dimmer bank and control cabinet. Each of the channels is provided with an English Electric H.R.C. cartridge fuse, a contactor for switching and a 500/1000 watt or 1000/2000 watt resistance dimmer. Each dimmer is operated by a pair of magnetic clutches from a common uni-directional shaft powered by a variable speed motor. A dimmer bank cannot be totally enclosed and requires access on each side.

					220/250v. A.C.
Type PR/60	Control Cabinet and Dimmer Bank for 60 dimmer channels	...	...	...	£5,165
	Cabinet: 36 (50)-in. wide, 16 (30)-in. deep, 72 (50½)-in. high, 240 lb. weight				
	Bank: 13-ft. wide, 3-ft. 8-in. deep, 7-ft. 3-in. high, 22 cwt. weight				
Type PR/72	Control Cabinet and Dimmer Bank for 72 dimmer channels	...	...	...	£5,980
	Cabinet: 42 (56)-in. wide, 16 (30)-in. deep, 72 (50½)-in. high, 270 lb. weight				
	Bank: 15-ft. wide, 3-ft. 8-in. deep, 7-ft. 3-in. high, 30 cwt. weight				
Type PR/96	Control Cabinet and Dimmer Bank for 96 dimmer channels	...	...	...	£7,680
	Cabinet: 54 (68)-in. wide, 16 (30)-in. deep, 72 (50½)-in. high, 336 lb. weight				
	Bank: 19-ft. wide, 3-ft. 8-in. deep, 7-ft. 3-in. high, 45 cwt. weight				

### Variations at Time of Order

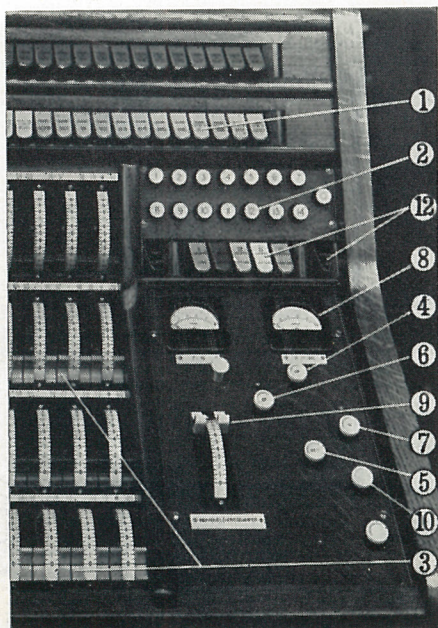
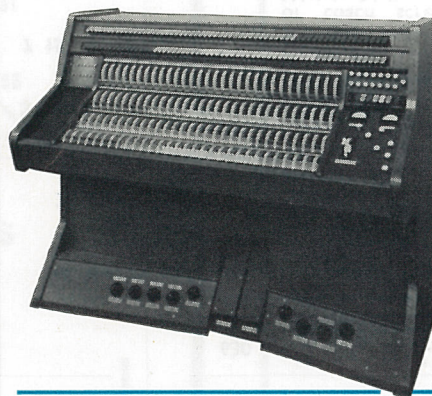
Substitution of cabinet in desk form, dimensions in brackets above.	...	...	...	add	£155
Substitution of 1·5/3 kW or 3 kW. resistance dimmer	...	...	...	add	£3
Substitution of 3/5 kW or 5 kW resistance dimmer	...	...	...	add	£42
Substitution of 2 kW max. transformer dimmer (available in pairs only)	...	...	...	add	£26
Substitution of 5 kW max. transformer dimmer	...	...	...	add	£89
Dimmer Bank dimensions above cater for a maximum of four 5 kW dimmers.					



## SYSTEM CD ELECTRO-MECHANICAL REMOTE CONTROL

System CD employs resistance or transformer dimmers electro-mechanically driven through a clutch servo as described for System PR on the previous page. The control console is provided with a memory device which stores and instantly recalls groups required for collective operation. This memory device and other exclusive facilities combine to provide the operator with an instrument capable of executing complex lighting changes in rapid succession in addition to precise pre-setting of dimmer levels.

The system CD models shown on this page are installed in all up-to-date Theatres and Television Studios in Britain and are also exported. For larger installations Systems CD/W and C are appropriate and are subject to special specification and quotation.



Certain controls have a temporary second function against a heavy spring known as 'second touch.'

### 1. Channel Selectors

One to each channel. When put down the channel is *selected to change* but will not do so without one of the Master Controls.

### 2. Memory Preset Pushes

Any of these 14 pushes pressed while the 'Presetter' toe push is pressed will store the combination of Channel Selectors *selected* at that moment. Subsequent use of that push without 'Presetter' will always cause the Channel Selectors to move instantly to the combination previously stored. A permanent 'Cancel' push, which causes all Channel Selectors to spring off, aids selection by hand.

### 3. Dimmer Levers

Two for each channel arranged in separate white and green rows. These Dimmer Levers can be preset for dimming changes involving intermediate intensity levels.

### 4. "Raise" Master Push

Raises *selected* dimmers to full irrespective of the levels preset on the Dimmer Levers.

### 5. "Dim" Master Push

Lowers *selected* dimmers to out irrespective of the levels preset on the Dimmer Levers. At 'second touch' *all* dimmers fade to zero selected or not.

Constructed in hardwood mahogany or oak finish with 14 store memory device and supplied with nominal 100-ft. preformed control cable in metallic hose.

## CONTROL CONSOLE

### DIMMER BANK

Generally as described for System PR above, but including eight 2 kW. max. transformer dimmers. The same Dimmer Variations apply.

		BUDGET PRICE
Type CD/96	Console and Dimmer Bank for 96 dimmer channels ... ..	£10,000
	Console: 60-in. width, 32½-in. deep, 50½-in. high, weight 5½ cwt.	
	Bank: 19-ft. wide, 3-ft. 8-in. deep, 7-ft. 10-in. high, weight 45 cwt.	
Type CD/120	Console and Dimmer Bank for 120 dimmer channels ... ..	£11,750
	Console: 66-in. wide, 32½-in. deep, 50½-in. high, weight 6 cwt.	
	Bank: 20-ft. 6-in. wide, 3-ft. 8-in. deep, 7-ft. 10-in. high, weight 55 cwt.	

### 6. "White Preset" Master Push

Moves *selected* dimmers to the levels preset on the white Dimmer Levers. At 'second touch' *all* dimmers move to the preset levels.

### 7. "Green Preset" Master Push

Moves *selected* dimmers to the levels preset on the green Dimmer Levers. At 'second touch' *all* dimmers move to the preset levels.

### 8. "Remainder Dim" (cross-fade)

This toe push is interlocked with the 'Raise' and 'Preset' masters and causes *selected* dimmers to change as described above but at the same time the *remainder* will fade out although their Dimmer Levers may be preset for future changes.

### 9. "Speed Pedal"

The Speed Pedal, which is balanced to stay at any position when the foot is removed, determines the speed of all dimming changes. Speed range 2 seconds to 45 seconds shown on indicator lamps. Slower speeds down to 30 minutes by means of Impulse Unit.

### 10. Indicator Dial

When a dimming change is initiated the progress and rate of change is shown on the Indicator Dial. If any Channel Selector is pressed to 'second touch' the Indicator Dial shows the actual level of that dimmer.

### 11. "Individual" Toe Push

If a Channel Selector is pressed to 'second touch' at the same time as the 'Individual' toe push then that dimmer only will come under immediate control.

### 12. Master Dimmer

When added to a 'Preset' master this applies a proportional reduction to the levels of *selected* dimmers.

### 13. "Blackout" Master Push

All channels are automatically held 'switched on' as the changes normally concern the dimmers. This push will blackout any *selected* channels. To restore to 'on' the adjacent 'All Trip' push is used.

### 14. "Go" Master Push

For Television requirements the channels are normally held 'switched off' and *selected* channels are 'switched on' in the same manner.

### 15. "Dead Blackout"

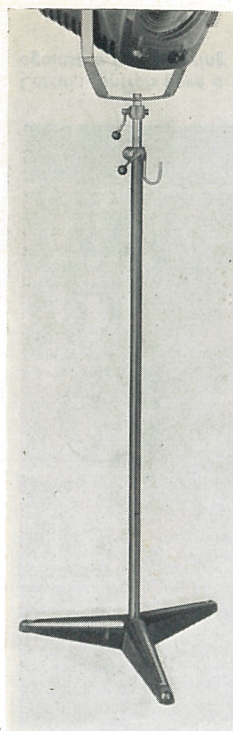
*All* channels, *selected* or not, are switched off when the switch is down.

### 16. Group Couplers

Normally these are kept down but they can be put up to limit a change to a particular group (such as F.O.H. spots).

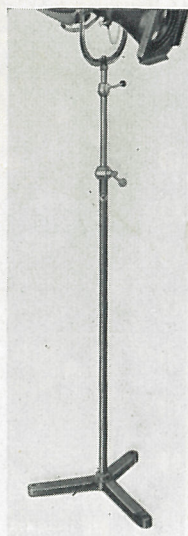


# SUSPENSIONS AND STANDS

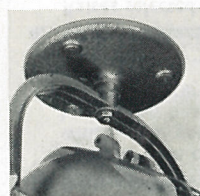


626

627



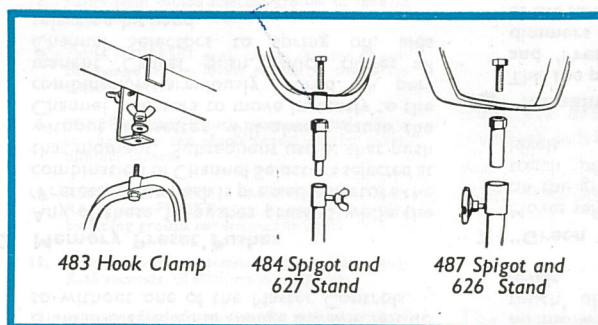
367



Ref. 626 Standard Telescopic Stand and Ref. 487 Spigot.

Ref. 627 Junior Telescopic Stand and Ref. 484 Spigot

Ref. 367 Ceiling or base plate



483 Hook Clamp

484 Spigot and 627 Stand

487 Spigot and 626 Stand

The smaller lanterns (Patt. 23, 45, 123, 223, 263, 60 and 137) are fitted with a  $\frac{3}{8}$ -in. Whitworth bolt and wing nut. When a telescopic stand has to be used with these lanterns a ref. 484 spigot adaptor is required to screw over the bolt.

The larger lanterns (Patt. 243, 253, 293, 52 and 49) are fitted with a  $\frac{1}{2}$ -in. Whitworth bolt and wing nut. These all require a ref. 487 spigot adaptor to screw over the bolt when used on a telescopic stand. Only items marked\* below are suitable for these larger and heavier lanterns.

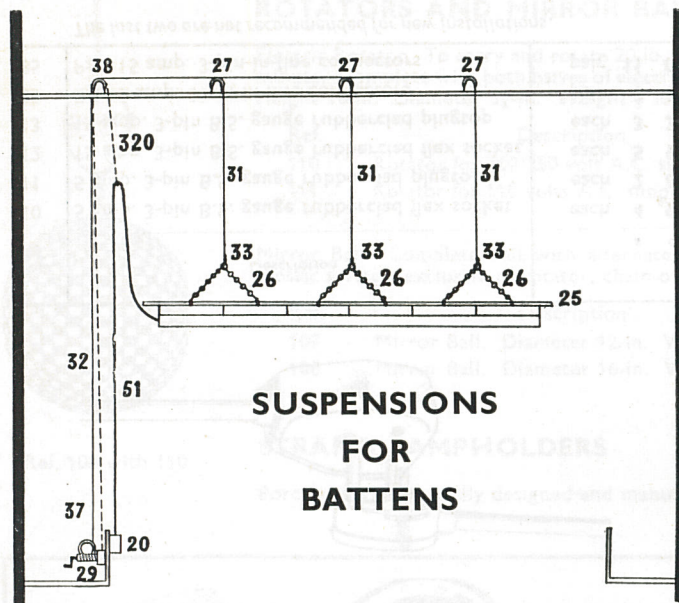
Internally wired barrels ( $1\frac{1}{2}$ -in. Gas,  $1\frac{7}{8}$ -in. ext. dia.) and fly rail plug boxes permit maximum flexibility in the location of lanterns in respect of the electrical connections to the lighting control. In a theatre with full grid facilities the barrels should be suspended from the grid by means of winch-operated steel-wire lines for ease of lamp maintenance. Where however the proscenium height and the height above the proscenium is limited 'dead-line' suspension is recommended as (with the exception of Strand "Polestar" lanterns) it is always necessary to set the lanterns for each production from a pair of steps and maintenance can be executed in the same manner. The 'dead-line' suspension avoids expenditure on flexible multi-core tails etc.

Ref.	Description	£	s	d
<b>CLAMP AND SAFETY CHAIN</b>				
*483	Hook clamp (as illustrated) for $1\frac{1}{2}$ -in. gas barrel ( $1\frac{7}{8}$ -in. ext. dia.). Weight $\frac{3}{4}$ lb. ...	4	0	
*64	Safety chain, 22-in. long (for lanterns when suspended), with clip hook. Weight $\frac{1}{4}$ lb. ...	2	9	
<b>STANDS</b>				
*626	Standard telescopic stand with cable hook. Adjustable height: $52\frac{1}{2}$ -in. to $89\frac{1}{2}$ -in.; radius of feet $12\frac{3}{4}$ -in. Weight 22 lb. Will accept 484 or 487 spigot adaptors ...	7	15	0
627	Junior telescopic stand. Adjustable height 44-in. to 77-in.; radius of feet $8\frac{3}{4}$ -in. Weight 15 lb. Will accept 484 spigot adaptor ...	5	5	0
*628	Braced telescopic stand for Patt. 293 following spot, etc. with cable hook and swivelling collar. Adjustable height: $47\frac{1}{2}$ -in. to $79\frac{1}{2}$ -in.; radius of feet $12\frac{3}{4}$ -in. Weight 25 lb. ...	12	15	0

Ref.	Description	£	s	d
630	Set of 3 castors for 626-628 above. Weight $1\frac{1}{2}$ lb. Add $2\frac{3}{4}$ -in. height. ...	1	1	0
484	Spigot adaptor for $\frac{3}{8}$ -in. bolt. Weight $\frac{1}{2}$ lb. For Patt. 23, 45, 123, 223, 263, 60 and 137 ...	2	9	
*487	Spigot adaptor for $\frac{1}{2}$ -in. bolt. Weight $\frac{1}{2}$ lb. For Patt. 243, 253, 293, 52 and 49	2	9	
<b>BRACKETS</b>				
631	Barrel suspension bracket for rigid fixing of 2-in. ext. dia. barrel to wall or ceiling. Reach 11-in. Weight 3 lb.	1	3	6
247	Swivel arm wall bracket, reach 10-in. Backplate drilled for two $\frac{3}{8}$ -in. bolts or coach screws (not included). Weight $2\frac{1}{2}$ lb. ...	2	0	0
195	Spare adaptor for $\frac{3}{8}$ -in. bolt. ...	2	6	
485	Adaptor for 247 and 251 brackets to take two small lanterns (one up, one down. Weight $\frac{1}{2}$ lb. ...	2	9	
486	As above but longer to take lanterns side by side. Weight 2 lb. ...	3	3	

Ref.	Description	£	s	d
248	As 247 but with double arm, reach 19-in. for small lanterns only. Weight 3 lb. ...	3	4	0
251	Swivel arm boomerang bracket, reach 10-in. with clamp for 2-in. ext. dia. barrel. Weight 3 lb. ...	3	10	0
252	As 251 but with double arm, reach 19-in. for small lanterns only. Weight $3\frac{1}{2}$ lb. ...	4	14	0
*255	Fixed boomerang bracket for 2-in. ext. dia. barrel, 11-in. reach. Weight $2\frac{3}{4}$ lb. ...	15	0	
238	"I" shaped bracket non-swivelling for two small lanterns. Weight 2 lb.	7	6	
<b>BASES AND CEILING FIXINGS</b>				
367	Cast aluminium ceiling plate or base, 6-in. diam. for small lanterns fitted with $\frac{3}{8}$ -in. Whit bolt. Weight 1 lb. ...	9	0	
*259	Ceiling fixing saddle. Drilled for two $\frac{3}{8}$ -in. diameter bolts, or coach screws (not supplied), for suspending lanterns Weight $\frac{3}{4}$ lb. ...	6	6	





## SUSPENSIONS FOR BATTENS

Cat. Ref.	PARTS	£	s	d
25	1½-in. Gas barrel (17⁄8-in. ext. dia.) ... per foot	4	4	
26	Bridles ... each	1	10	0
27	One-way (6-in. dia.) Grid pulley ... "	1	7	6
28	Three-way (6-in. dia.) Grid pulley ... "	3	0	0
38	Four-way (6-in. dia.) Grid pulley ... "	3	17	6
29	5-cwt. single-drum winch ... "	17	5	0
30	5-cwt. three-drum winch ... "	17	15	0
39	10-cwt. single-drum winch ... "	On application		
40	10-cwt. four-drum winch ... "	On application		
31	¾-in. circ. ¼-in. dia. flexible steel cable per 100 feet	2	8	0
32	1-in. circ. 5⁄16-in. dia. flexible steel cable per 100 feet	3	6	0
33	¼-in. bulldog grips ... each	1	0	
34	5⁄16-in. bulldog grips ... "	1	3	
35	¼-in. thimbles ... "		7	
36	5⁄16-in. thimbles ... "		9	
37	Swivel shackles ... "	1	5	6
56	One-way (4-in. dia.) Grid pulley ... "	1	2	0
57	Three-way (4-in. dia.) Grid pulley ... "	2	5	0
58	Four-way (4-in. dia.) Grid pulley ... "	2	17	0
59	Sashline (2-in. dia.) pulley ... "		7	6
244	10-cwt. three-drum winch ... "	On application		
320	Sash line for hoisting away cables ... per 100 feet	17	6	
321	Cleat for above ... each	9	0	

- 41 Counterweight clips to suspend internally wired barrels from counterweight bars (one per 6 ft. length on barrel × 1) each **27/6**
- 629 Clamping plate for joining 17⁄8-in. ext. dia. barrel end to end ... each **13/6**
- 20 Wall or Fly Rail Connector Box, up to 12 D.P. ways and earth, with cable gland for Batten Multicore cable ... each **75/0**

## INTERNALLY WIRED BARRELS

These consist of 1½-in. Gas Barrel (17⁄8-in. outside diameter) painted grey with P.V.C. insulated internal wiring brought to short tails at each equidistant lantern position and terminated in a pair of 5 amp. or 15 amp. connectors. The other end of the wiring terminates in a numbered terminal box where circuits can be readily looped by the Electrical Contractor. Constructed in two or more lengths joined by a clamping plate to facilitate transport. For ref. 483 Hook clamps see above.

### JUNIOR TYPE (5 amp.)

Fitted with ref. 610/611 5 amp 3-pin B.S. gauge connectors. Terminal box has removable plate for direct conduit entry.

Cat. Ref.	Description	Length	Weight lbs.	£	s	d	Longer barrel per ft. s d
430	6-way 6 circuits ...	18 ft.	56	20	15	0	7 0
431	8-way 8 circuits ...	18 ft.	57	24	10	0	8 0
432	10-way 10 circuits ...	20 ft.	63	28	0	0	9 0
433	12-way 12 circuits ...	24 ft.	73	30	15	0	10 0
434	14-way 14 circuits ...	24 ft.	74	35	10	0	12 0
436	16-way 16 circuits ...	24 ft.	75	39	0	0	14 0

Longer barrel or shorter lengths ... Add or subtract per ft. as right hand column above

Note: Length of barrel must allow outlets at 15-in. centres minimum.

### SENIOR TYPE (15 amp.)

Fitted with ref. 612 and 613 15 amp. 3-pin B.S. Gauge connectors. Terminal box has cable gland for Batten Multicore Cable.

Cat. Ref.	Description	Length	Weight lbs.	£	s	d	Longer barrel per ft. s d
440	6-way 6 circuits ...	24 ft.	91	29	0	0	9 0
441	8-way 8 circuits ...	24 ft.	93	33	0	0	10 6
442	10-way 10 circuits ...	24 ft.	96	37	10	0	12 0
443	12-way 12 circuits ...	28 ft.	109	44	0	0	13 6
444	14-way 14 circuits ...	30 ft.	120	50	0	0	15 0
446	16-way 16 circuits ...	30 ft.	122	56	10	0	16 6

Longer barrel or shorter lengths ... Add or subtract per ft. as right hand column above

Note: Length of barrel must allow outlets as 18-in. centres minimum.

### FLY RAIL PLUG AND SOCKET BOXES

Constructed in sheet steel with recessed socket panel carrying flush B.S. 546 15 amp. 3-pin plugs and numbered sockets. Fitted with hinged door.

Cat. Ref.	Description	Width ins.	Depth ins.	Height ins.	Weight lbs.	£	s	d
422	6-way 15 amp. ...	6 5⁄8	7 ¼	15	14	14	15	0
423	8-way 15 amp. ...	6 5⁄8		18	17	18	0	0
424	12-way 15 amp. ...	9 ¼		18	22 ½	23	0	0
425	14-way 15 amp. ...	11 7⁄8		18	28	25	10	0
426	16-way 15 amp. ...	11 7⁄8		18	30	28	10	0
427	20-way 15 amp. ...	14 ¾		18	35	38	0	0
428	30-way 15 amp. ...	23		18	50	50	0	0

Extra for fitting 5-amp. 3-pin way for effects motors ... add **17 6**  
Extra for signwritten labelling on lid ... add 5% to prices above



# CABLES AND CONNECTORS

**Batten Multicore Cable**—Tinned copper wire 70/·0076 with double jacket of vulcanised rubber insulation, taped with numbered tapes, cores twisted together, taped, asbestos braided and asbestos painted overall.

Catalogue Ref.	No. of Cores	Amp.	1-25 yds. per yd.	25-49 yds. per yd.	50 yds. and over
51	9	8	13/6d.	12/0d.	11/0d.
53	15	6	19/0d.	17/6d.	16/0d.
55	25	5	31/0d.	28/0d.	26/0d.

**Control Cable**—Tinned copper wire 14/·0076 P.V.C. insulated, colour-coded, and P.V.C. sheathed (for colour change mechanisms, saturable reactor and similar remote controls).

Catalogue Ref.	No. of Cores	Amp.	1-25 yds. per yd.	25-49 yds. per yd.	50 yds. and over
608	3	1	1/2d.	1/0d.	11d.
600	7	1	1/9d.	1/9d.	1/9d.
601	12	1	2/6d.	2/6d.	2/6d.

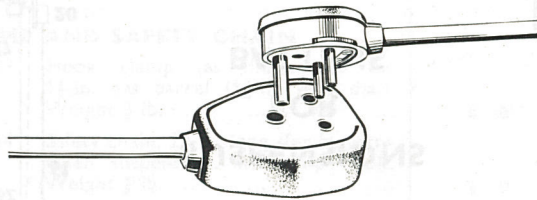
**P.V.C. Flexible Cord**—Tinned copper wire P.V.C. insulated, 3 core colour-coded red, black and green, made circular with wormings and P.V.C. sheathed.

Catalogue Ref.	No. and size of wires	Amp.	1-25 yds. per yd.	25-49 yds. per yd.	50 yds. and over
602	23/·0076	5	1/3d.	1/1d.	1/0d.
603	40/·0076	10	1/6d.	1/4d.	1/2d.
604	70/·0076	15	2/5d.	2/1d.	1/11d.

**T.R.S. Flexible Cord**—Tinned copper wire vulcanised rubber insulated 3 core colour-coded red, black and green, made circular with wormings and tough rubber sheathed.

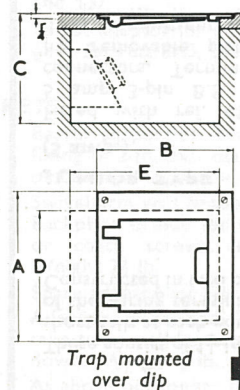
Catalogue Ref.	No. and size of wires	Amp.	1-25 yds. per yd.	25-49 yds. per yd.	50 yds. and over
605	23/·0076	5	1/3d.	1/1d.	1/0d.
606	40/·0076	10	1/8d.	1/6d.	1/4d.
607	70/·0076	15	2/5d.	2/1d.	1/11d.

## PLUG CONNECTORS



Cat. Ref.	Description	s	d
610	5 amp. 3-pin B.S. gauge rubberclad flex socket	each	4 9
611	5 amp. 3-pin B.S. gauge rubberclad plugtop	each	2 6
612	15 amp. 3-pin B.S. gauge rubberclad flex socket	each	5 9
613	15 amp. 3-pin B.S. gauge rubberclad plugtop	each	3 3
183	Pair 5 amp. 3-pin-in-line connectors ...	pair	3 6
185	Pair 15 amp. 3-pin-in-line connectors ...	pair	11 0

The last two are not recommended for new installations.



## PLUG AND SOCKET BOXES

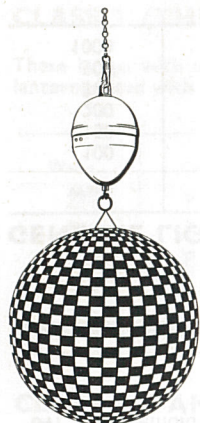
These are for use under Stage Dip Traps etc., and consist of an angled sheet steel box painted grey with removable lid carrying flush B.S. 546 3-pin plugs and sockets as below:

Catalogue Ref.	Description	Trap Ref.	Width ins.	Depth ins.	Height ins.	Weight lbs.	£	s	d
175	1-way 5 amp.	190	3½	3	3	1	1	9	0
176	2-way 5 amp.	190	6¼	3	3	1½	2	4	0
177	3-way 5 amp.	192	9	3	3	2¼	2	18	0
178	4-way 5 amp.	192	11¾	3	3	2¾	3	16	0
179	1-way 15 amp.	190	4	3½	4	2	1	12	0
180	2-way 15 amp.	190	7	3½	4	2¾	2	9	0
181	3-way 15 amp.	192	10	3½	4	3¾	3	6	0
182	4-way 15 amp.	192	13	3½	4	5¼	4	5	0

## STAGE DIP TRAPS consisting of casting with hinged lid and cable inlet.

Ref.	Description	A	B	C	D	E	£	s	d
190	1/2-way Stage Dip trap only	10¾"	9½"	7" min	7¾"	10½"	2	18	0
192	3/4-way Stage Dip trap only	15¼"	10"	7" min	13½"	10½"	4	7	0





Ref. 108 with 110

## ROTATORS AND MIRROR BALLS

Electric Rotator. To carry and rotate 20 lb. maximum. Speed  $2\frac{1}{2}$  revs. per minute. Complete with both halves of electric connector for driving motor. Height 10-in. Diameter  $5\frac{3}{4}$ -in. Weight 3 lb.

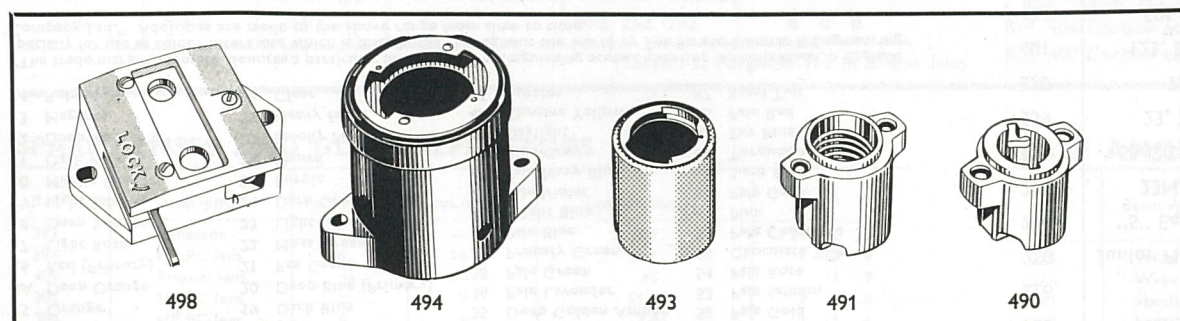
Ref.	Description	£	s	d
110	Rotator for 200/250 volt A.C. supply ... ..	11	12	6
111	Rotator for 110 volts A.C. supply ... ..	12	7	6

Mirror Ball. Complete ball with alternate pink and white mirror glass mosaic surface, exclusive of rotator, chain or other suspension.

Ref.	Description	£	s	d
107	Mirror Ball. Diameter 12-in. Weight 9 lb. ... ..	12	7	6
108	Mirror Ball. Diameter 16-in. Weight 13 lb. ... ..	17	17	6

## STRAND LAMPHOLDERS

Porcelain type, specially designed and manufactured for lanterns.

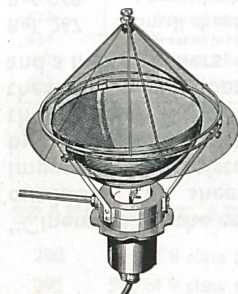


Ref.	Description	£	s	d	Ref.	Description	£	s	d
490	Bayonet Cap (B.22) Recessed type ... ..	3	2		494	Large Prefocus (P.40) ... ..	17	0	
491	Edison Screw (E.27) Recessed type ... ..	4	0		498	Bi-post (Bi 38) with lever locking ... ..	13	6	
492	Goliath Edison Screw (E.40) standard shell ... ..	10	3		513	G.E.S. as 492 but American Shell ... ..	10	6	
493	Medium Prefocus (P.28) ... ..	7	2		523	E.S. as 491 but American Shell ... ..	4	2	

## UNDERWATER LAMPHOLDER

G.E.S. watertight holder designed to allow use of completely submerged lamps (such as Philips Altrilux) for floodlighting fountains, etc. Consists of a brass supporting ring with  $6\frac{1}{2}$ -in. long  $\frac{5}{8}$ -in. diam. spigot and rubber casing housing G.E.S. porcelain lampholder. The device forms a watertight seal with both lamp and cable. Holder can carry Ref. 476 frame to secure Ref. 474 'Cinemoid' colour filter.

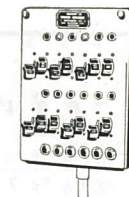
Ref.	Description	£	s	d
479	Holder as above ... ..	3	0	0
476	Frame for colour ... ..	17	6	
474	'Cinemoid' colour filter for above ... ..	4	0	



Ref. 479 with 476 and 474

## SIGNAL AND CUE BOARDS

Sheet metal box with two engraved tablet switches "Warning" and "Go" with pilots over and a buzzer push to each way. For six ways and over, master switches are fitted to the "Warning" and "Go." Supplied with a suitable enclosed transformer for separate mounting.



Ref.	Description	Width ins.	Depth ins.	Height ins.	Weight lbs.	£	s	d
451	3-way Cue Board ... ..	6	5	12	$5\frac{1}{2}$	On application		
452	6-way Cue Board ... ..	9	5	12	8			
453	9-way Cue Board ... ..	12	5	12	11			
456	12-way Cue Board ... ..	16	5	12	14			
457	Two-light outstation ... ..	$2\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$\frac{3}{4}$			
458	Outstation with reply switch	$3\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{3}{4}$	$1\frac{1}{4}$			

LAMPS. (For use as pairs in series.) M.E.S. 12 volt. See page 29.

## ORCHESTRA LIGHTS

The conductor's stand, designed for a full score, is adjustable in height and tilt with two B.C. lampholders for illumination. The orchestra stand is adjustable in height and has a lighting fitting with a B.C. lampholder and an adjustable shade which allows the light to be restricted to the music. Finished hard hammer-grey and supplied unwired and without lamp.



Ref. 116

Ref. 116	Conductor's Stand ... ..	On application
Ref. 117	Orchestra Stand ... ..	£7 10 0
Ref. 118	Lighting fitting only ... ..	£2 9 0

## EXIT BOXES

Standard EXIT box with 5-in. high characters (to B.S. 2560). Complete with one B.C. and one E.S. porcelain lampholder for primary and secondary lighting services, and provision for 'Cinemoid' colour filter. Dimensions: 17-in. wide  $\times$   $7\frac{1}{4}$ -in. high  $\times$  6-in. deep.



Ref.	Description	£	s	d
Ref. 500	Surface mounting ... ..	3	17	6
Ref. 514	As above with glazed base ... ..	4	10	0
Ref. 515	Flush mounting ... ..	4	12	6



# "CINEMOID" COLOUR FILTERS

"Cinemoid" is the colour filter for all "theatrical" lighting purposes—indoor or outdoor. The sheets are exceptionally durable being mechanically strong, impervious to moisture, and self extinguishing even when deliberately set alight by prolonged contact with a naked flame. The material has been approved by all the principal authorities and is regularly supplied by us to virtually all the great theatres of the Continent such as the Vienna State Opera and the Paris Opera and a host of others, large and small in this country and all over the world.

Ref. 267 Small sheet  $24\frac{1}{2} \times 21$ -in. **5/- per sheet** } Postage and packing add **2/6d.** for  
 Ref. 268 Large sheet  $49 \times 21$ -in. **10/- per sheet** } less than 6 large or 12 small sheets

## LIST OF COLOURS

1 Yellow	15 Peacock Blue	31 Light Frost	48 Bright Rose
2 Light Amber	16 Blue-green	32 Medium Blue	49 Canary
3 Straw	17 Steel Blue	33 Deep Amber	50 Pale Yellow
4 Medium Amber	18 Light Blue	34 Golden Amber	51 Gold Tint
5 Orange	19 Dark Blue	35 Deep Golden Amber	52 Pale Gold
5A Deep Orange	20 Deep Blue (Primary)	36 Pale Lavender	53 Pale Salmon
6 Red (Primary)	21 Pea Green	38 Pale Green	54 Pale Rose
7 Light Rose	22 Moss Green	39 Primary Green	55 Chocolate Tint
8 Deep Salmon	23 Light Green	40 Pale Blue	56 Pale Chocolate
9 Light Salmon	24 Dark Green	41 Bright Blue	57 Pink
10 Middle Rose	25 Purple	42 Pale Violet	60 Pale Grey
11 Dark Pink	26 Mauve	43 Pale Navy Blue	61 Slate Blue
12 Deep Rose	27 Smoky Pink	44 Blue-Grey	62 Turquoise
13 Magenta	29 Heavy Frost	45 Daylight	63 Sky Blue
14 Ruby	30 Clear	46 Chrome Yellow	66 Pale Red
		47 Apricot	67 Steel Tint

"The trade mark 'Cinemoid' denotes a particular brand of self-extinguishing acetate sheeting which is made in England specially for use as colour filters and which is distributed throughout the world by The Strand Electric & Engineering Company Ltd." Additions are made to the above range from time to time.

388	Set of five cut filters for Patt. 23 Motor colour wheel (382)	per set <b>3/6d.</b>
390	Ditto for Patt. 23N, 123 and 263 Motor colour wheels (400, 410, 622)	per set <b>4/6d.</b>
377	Ditto for Patt. 23 Hand operated colour wheel (376)	per set <b>3/6d.</b>
474	Cinemoid for 479 and 476	each <b>4/0d.</b>
641	Cinemoid $4\frac{3}{4} \times 4\frac{3}{4}$ in. for Patt. 523, 523W	dozen <b>5/0d.</b>

## COLOUR FRAMES AND CINEMOID CUT TO SIZE

Add suffix **—/C** to frame ref. for 'Cinemoid' cut to size, or **—/CF** for 'Cinemoid' in frame

Frame Ref.	Lantern Pattern Nos.	Frame Size in inches	Frames only per doz.	Cinemoid only —/C per doz.	Cinemoid and Frames —/CF per doz.
61	60, 58, 93N, 243, 293	$11\frac{3}{4} \times 11\frac{3}{4}$	<b>2 13 0</b>	<b>1 13 0</b>	<b>4 6 0</b>
67	49	$16\frac{1}{4} \times 16\frac{1}{4}$	<b>3 18 0</b>	<b>2 6 0</b>	<b>6 4 0</b>
70	35	16 diam.	<b>8 14 0</b>	<b>2 6 0</b>	<b>11 0 0</b>
73*	27	$4\frac{1}{4} \times 4\frac{1}{4}$	<b>10 0</b>	<b>4 0</b>	<b>14 0</b>
76*	45	$5\frac{5}{8} \times 5\frac{1}{4}$	<b>12 0</b>	<b>5 0</b>	<b>17 0</b>
85*	43, 501	$10\frac{3}{4} \times 7\frac{1}{2}$	<b>1 4 0</b>	<b>12 0</b>	<b>1 16 0</b>
226	76	$11\frac{1}{2}$ diam.	<b>8 14 0</b>	<b>1 16 0</b>	<b>10 10 0</b>
250	Junior Float (clips only)		<b>3 3</b>	<b>1 4 0</b>	
240	"S" Equip. and 137	$9\frac{1}{4} \times 8$	<b>1 16 0</b>	<b>12 0</b>	<b>2 8 0</b>
284	23N, 53, 53W	$7\frac{3}{4} \times 7\frac{3}{4}$	<b>1 16 0</b>	<b>11 0</b>	<b>2 7 0</b>
325	53 CC/U, 53 CC/E	$9\frac{1}{4}$ diam.	<b>10 4 0</b>	<b>14 0</b>	<b>10 18 0</b>
359	23, 23F, 23W	$4 \times 4$	<b>1 12 6</b>	<b>4 0</b>	<b>1 16 6</b>
370	253, 93	$9\frac{7}{8} \times 9\frac{7}{8}$	<b>2 2 0</b>	<b>18 0</b>	<b>3 0 0</b>
401	123, 263, 263W	$6\frac{1}{2} \times 6\frac{1}{2}$	<b>3 8 0</b>	<b>7 0</b>	<b>3 15 0</b>
495	501 Magazine	$9\frac{1}{4}$ diam.	<b>10 4 0</b>	<b>14 0</b>	<b>10 18 0</b>
632	223	$8\frac{3}{4} \times 8\frac{3}{4}$ in.	<b>1 17 0</b>	<b>14 0</b>	<b>2 11 0</b>
639	543	$11\frac{7}{8}$ diam.	<b>7 10 0</b>	<b>1 16 0</b>	<b>9 6 0</b>

All the above colour frames are metal except those marked\* which are in linen bound millboard.

## LAMPS

### GENERAL LIGHTING SERVICE (GLS) TYPE (Single Coil)

Watts	Cap	Type	Voltages	£ s d
100	ES	Clear	$\left. \begin{array}{l} 110, 120 \\ 200, 210, 220 \\ 230, 240, 250 \end{array} \right\}$	<b>1 6½†</b>
150	ES	Clear		<b>2 0†</b>
200	ES	Clear		<b>2 9†</b>
300	GES	Clear		<b>7 3</b>
500	GES	Clear		<b>10 0</b>
1000	GES	Clear		<b>17 0</b>

### INTERNALLY SILICA COATED TYPE

Watts	Cap	Type	Voltages	£ s d
40	BC	Opal	$\left. \begin{array}{l} 200, 210, 220 \\ 230, 240, 250 \\ 115, 230, 240, 250 \end{array} \right\}$	<b>1 11†</b>
60	BC	Opal		<b>1 11†</b>
1000	GES	Opal		<b>1 0 0</b>

†Subject to Purchase Tax in British Isles



## CLASS T (THEATRE SPOTLIGHT TYPE)

These lamps with an objective life of 200 hours are the recommended lamps for all Strand lanterns fitted with prefocus lampholders except Patt. 52, 152, 253 and 293.

Watts	Cap	Lamp Ref.	International Philips Ref.	Lantern Patt. No.	£ s d
250	P.28	T/3	558C	23's, 45, 123	1 5 0†
500	P.28	T/1	559C	23's, 45, 123	1 15 0
1000	P.40	T/2	457C	243	2 5 0
1000	P.28 cap up	T/12	—	263's	3 8 6
1000	P.28	T/20	—	223's	on application

## CLASS A.1 AND H.1 PROJECTOR

Watts	Cap	Lamp Ref.	International Philips Ref.	Lantern Patt. No.	£ s d
1000	P.40	A1/11	*293C	52, 253, 293	2 15 0
2000	P.40	H/1	—	152, 253, 293	8 0 0

\*Lamp 297C can be used but packing piece under lampholder must be removed.

†Subject to Purchase Tax in British Isles

## SPECIAL PURPOSE TYPES

40-watt 4-ft. U.V. TUBE LAMP for ref. 379, Bi-pin caps.	£ s d
100-watt PROJECTOR LAMP for Patt. 12, SBC cap.	nett 1 2 0
125-watt BLACK BULB U.V. LAMP for Patt. 230C, 3-pin BC cap.	3 7 6
150-watt PAR 38 ES LAMP (specify spot or flood).	1 0 6†
250-watt CLASS B1/7 PROJECTOR LAMP for Patt. 523, P28 cap.	1 6 3†
500-watt ALTRILUX LAMP for ref. 479 Watertight Holder, GES cap.	3 0 0
750-watt TUNGSTEN-IODINE LAMP, $\frac{3}{8} \times 7$ -in. for ET.750.	5 4 0
1000-watt CLASS FL/2 TUBULAR LAMP for ref. 342 Wave Effect, GES cap.	3 10 0
1000-watt CLASS B1/4 PROJECTOR LAMP for Patt. 543, GES cap.	2 12 6
1500-watt TUNGSTEN-IODINE LAMP, $\frac{3}{8} \times 10$ -in. for ET.1500.	6 5 0
2000-watt CLASS S/4 PROJECTOR LAMP for Patt. 243BP and 243 TV, Bi 38 cap.	7 10 0
4000-watt, 110 volt only PROJECTOR LAMP for Patt. 152BP, Bi 38 cap.	nett 17 10 0
12-volt SIGNAL AND CUE BOARD LAMP, MES cap.	1 1†

## CARBONS

9 mm $\times$ 12-in. H.I. Alternelux carbons for 100 amp A.C. Sunspot.	per 100, nett	10 12 0
10 mm $\times$ 12-in. H.I. c/c positive carbons for 60 amp. D.C. Sunspot.	per 100, nett	9 13 0
7 mm $\times$ 12-in. H.I. c/c negative carbons for 60 amp. D.C. Sunspot.	per 100, nett	5 17 0
Ref. 406 Carbon economisers for A.C. Sunspot.		1 0 0
Ref. 407 Carbon economisers for D.C. Sunspot.		3 0 0

## SPARE LENSES AND GLASS REFLECTORS

Ref.	Description	Dia. in ins.	Focus in ins.	Lantern Patt. No.	£ s d
293	Reflector	12	—	501	11 2 6
294	HR.PC lens	6	16	501	2 10 0
409	Fresnel lens	4½	—	45	13 9
302	HR.PC lens	5	9	51, 52	2 1 6
304	HR.PC lens	6	9	23N	2 11 6
310	HR.PC lens	3½	5	23, 23W, 52, 523, 523W	19 3
317	Fresnel lens	10	—	243, 543, 143	3 10 6
369	HR.PC lens	8	13	93, 253	6 9 0
404	Fresnel lens	6	—	123	1 2 0
411	Fresnel lens	3½	—	23F	19 3
461	Fresnel lens	10	—	243TV	3 10 6
482	PC lens	10	20	293, 93N	14 9 0
503	Fresnel lens	6	—	123TV	1 5 9
623	Fresnel lens	6	8	263, 53	1 9 6
634	Fresnel lens	8	—	223	1 19 6
642	Fresnel lens	10	—	293/F	on application
643	Fresnel lens	8	—	253/F	on application

—/C Coloured version of ref. 317, 404 or 634 add Suffix —/C

## SPARE HEAT-ABSORBING GLASS

		£ s d
288	Set of 8 slats to form square for Patt. 152	10 10 0
291	Set of 9 slats to form square for Patt. 501	11 15 0
292	Single slats only as 288 and 291 above	1 10 0

## SPARE ANODISED ALUMINIUM REFLECTORS

Ref.	Beam Angle	Finish	Diameter in inches	Lantern Patt. No.	£ s d
275	Wide	Matt	10½	35, 60, 560	2 1 0
277	Wide	Matt	15½	49	2 19 6
283	Spotlight	Polished	8	All 53's	2 5 0
299	Spotlight	Polished	7	All 152's	9 15 0
319	Spotlight	Polished	6	143, 543	1 4 0
357	Spotlight	Polished	7½	All 23's (rear)	1 6 0
358	Spotlight	Polished	7½	All 23's (front)	1 4 0
368	Spotlight	Polished	7½	All 243's	1 4 0
435	Spotlight	Polished	4½	All 123's	18 0
475	Wide	Matt	8½	137, 537 "S" equip.	12 6
496	Spotlight	Polished	10	All 93's (front)	2 17 6
497	Spotlight	Polished	10	All 93's (rear)	2 17 6
624	Spotlight	Polished	6½	All 263's	17 0
635	Spotlight	Polished	6	All 223's	12 0
637	Spotlight	Polished	8½	All 253 and 293 (front)	1 7 6
638	Spotlight	Polished	8½	All 253 and 293 (rear)	1 7 6

## Patt. 23 MIRROR SPOT CONVERSIONS

Patt. 23 to Patt. 23N. Discard front tube and use:	£ s d
Ref. 355. Lens tube with lens and colour frame ...	5 18 6
Patt. 23 to Patt. 23W. Insert additional:	
Ref. 310. Lens 3½-in. diam. by 5-in. focus H.R. ...	1 0 0
Patt. 23N to Patt. 23. Discard front tube and use:	
Ref. 356. Standard tube with lens and colour frame ...	2 1 0



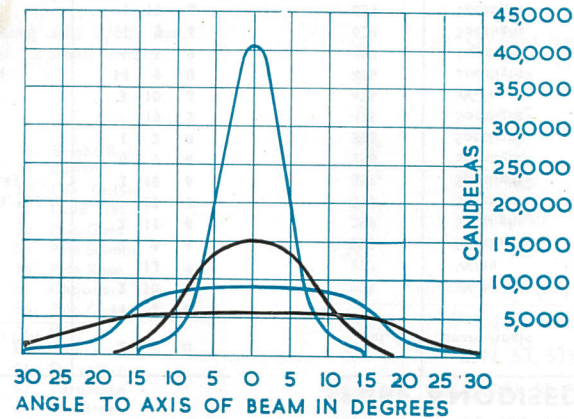
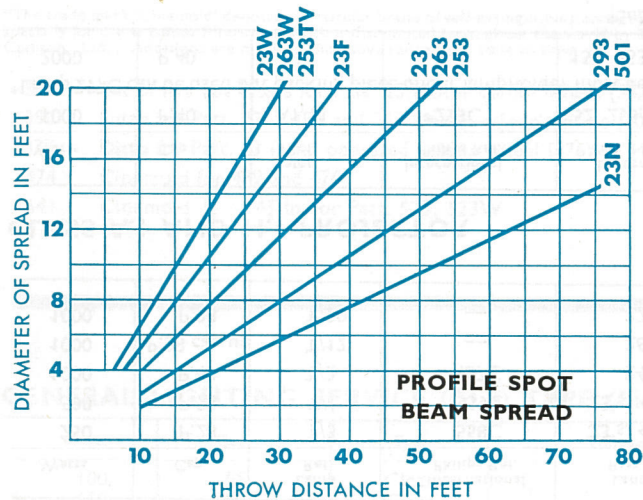
# PHOTOMETRIC DATA

To determine the illumination at a point on a surface, measure its distance from the lantern to be used and the angle to the axis of the beam. Divide the figure obtained from the curve for the luminous intensity at this angle, by the square of the distance. The answer will be in Lumens per sq. ft. or foot candles to taste, if the distance is measured in feet; or in lumens per sq. metre or lux respectively, if the distance is in metres.

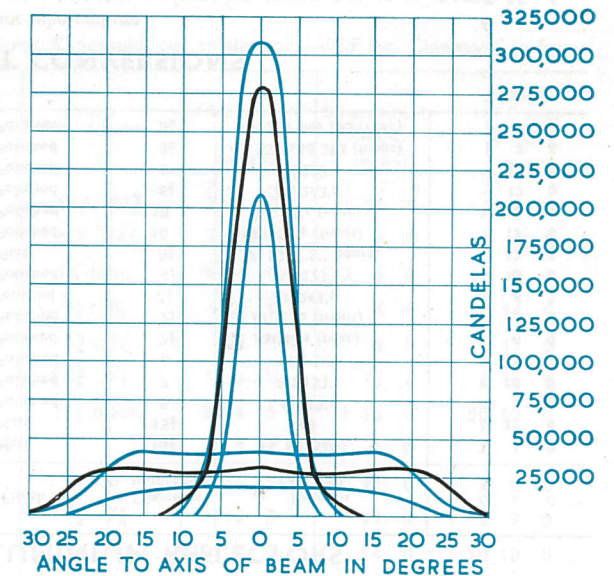
Figures are for 230v. lamps. For 115v. lamps add approx. 10%.

**Luminous Intensity of Profile (Hard Edge) Spots**

Lamp	Lantern	Beam Angle	Candelas approx
500w. T/1	Patt. 23	22°	16,650
500w. T/1	Patt. 23F	30°	8,900
500w. T/1	Patt. 23W	37°	6,530
500w. T/1	Patt. 23N	11°	34,000
1000w. T/12	Patt. 263	22°	55,800
1000w. T/12	Patt. 263W	39°	22,500
2000w. H/1	Patt. 253	22°	260,000
2000w. H/1	Patt. 253TV	37°	52,500
2000w. H/1	Patt. 293	15°	445,000

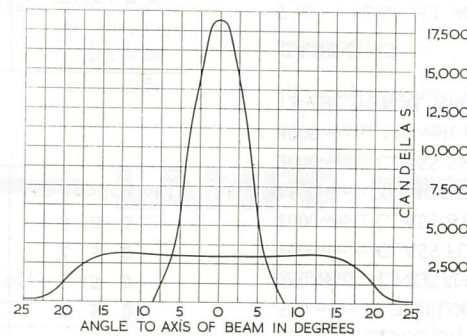


Shown in blue, max. and min. curves for Patt. 123 500W T/1  
Shown in black, max. and min. curves for Patt. 123TV 500W T/1

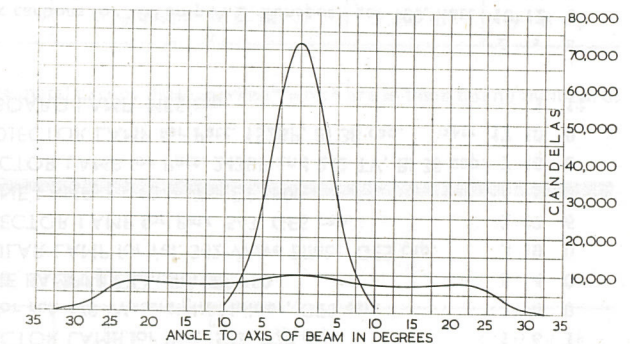


Shown in blue, max. and min. curves for { Patt. 243 1000w. T/2  
Patt. 243BP 2000w. S/1

Shown in black, max. and min. curves for Patt. 243TV 2000w. S/1



Max. and min. curves for Patt. 45 500w. T/1



Max. and min. curves for Patt. 223 1000w. T/20



## EXPORT INFORMATION AND METRIC EQUIVALENTS

All direct operated dimmerboards are now fitted as standard with English Electric or B.S. 1362 HRC cartridge fuses. All-electric remote controls have circuit breakers and electro-mechanical types English Electric HRC fuses. Siemens Zed type fuses can be fitted to most equipment if specified at the time of tender. Equipment is supplied to comply with special regulations (such as C.S.A. in Canada, or Finland, etc.) providing these are specified at the time of tender.

Dimensions and weights in catalogue are of standard equipment and are quoted as a guide. Where they may be critical they should be confirmed in case local regulations may have altered them.

**Full details of supply voltage, frequency, and distribution network are required for all equipment having a Type reference.**

As both packing and shipping costs vary considerably with the size of the complete consignment, F.O.B. or C.I.F. costs are only given against specific enquiries.

There is a difference of 3mm between certain English and Continental projection lamps. Lanterns with P.40 prefocus lampholders have a removable packing piece to compensate for this difference. For optimum results check that the projector lamp filament is centred with the optical system. Remove packing piece where necessary.

**WEIGHT CONVERSION TABLE**

Ounces or lbs.	Kg.	Lbs.	Kg.	Lbs.	Kg.	Lbs.	Kg.	
1	—	·028	1	0·45	17	7·71	33	15·0
2	—	·057	2	0·91	18	8·16	34	15·4
3	—	·085	3	1·36	19	8·62	35	15·9
4	$\frac{1}{4}$	·113	4	1·81	20	9·07	36	16·3
5	—	·142	5	2·27	21	9·52	37	16·8
6	—	·170	6	2·72	22	9·98	38	17·2
7	—	·198	7	3·17	23	10·4	39	17·7
8	$\frac{1}{2}$	·227	8	3·63	24	10·9	40	18·1
9	—	·255	9	4·08	25	11·3	41	18·6
10	—	·283	10	4·53	26	11·8	42	19·0
11	—	·312	11	4·99	27	12·2	43	19·5
12	$\frac{3}{4}$	·340	12	5·44	28	12·7	44	19·9
13	—	·369	13	5·90	29	13·1	45	20·4
14	—	·397	14	6·35	30	13·6	46	20·9
15	—	·426	15	6·80	31	14·1	47	21·3
16	1	·454	16	7·26	32	14·5	48	21·8

**LENGTH CONVERSION TABLE**

(Approximate)

To use this table — take horizontal line of figures opposite inches or feet and inches and the vertical column of figures under fractions (at the top) and the millimetre equivalent will be found at the intersection of the vertical and horizontal columns.

Ft. Ins. or Ins.	0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	Ft. Ins. or Ins.	0
—	0	—	6	13	19	3 5 41 1041
0 1	1	25	32	38	44	3 6 42 1067
0 2	2	51	57	64	70	3 7 43 1092
0 3	3	76	83	89	95	3 8 44 1117
0 4	4	102	108	114	121	3 9 45 1143
0 5	5	127	133	140	146	3 10 46 1168
0 6	6	152	159	165	171	3 11 47 1194
0 7	7	178	184	191	197	4 0 48 1219
0 8	8	203	210	216	222	4 1 49 1244
0 9	9	229	235	241	248	4 2 50 1270
0 10	10	254	260	267	273	4 3 51 1295
0 11	11	279	286	292	298	4 4 52 1321
1 0	12	305	311	318	324	4 5 53 1346
1 1	13	330	337	343	349	4 6 54 1371
1 2	14	357	362	368	375	4 7 55 1397
1 3	15	381	387	394	400	4 8 56 1422
1 4	16	406	413	419	425	4 9 57 1448
1 5	17	432	438	444	451	4 10 58 1473
1 6	18	457	464	470	476	4 11 59 1498
1 7	19	483	489	495	502	5 0 60 1524
1 8	20	508	514	521	527	5 1 61 1549
1 9	21	533	540	546	552	5 2 62 1575
1 10	22	559	565	571	578	5 3 63 1600
1 11	23	584	591	597	603	5 4 64 1625
2 0	24	610	616	622	629	5 5 65 1651
2 1	25	635	641	648	654	5 6 66 1676
2 2	26	660	667	673	679	5 7 67 1702
2 3	27	686	692	698	705	5 8 68 1727
2 4	28	711	717	724	730	5 9 69 1752
2 5	29	737	743	749	756	5 10 70 1778
2 6	30	762	768	775	781	5 11 71 1803
2 7	31	787	794	800	806	6 0 72 1829
2 8	32	813	819	825	832	6 1 73 1854
2 9	33	838	844	851	857	6 2 74 1879
2 10	34	864	870	876	883	6 3 75 1905
2 11	35	889	895	902	908	6 4 76 1930
3 0	36	914	921	927	933	6 5 77 1956
3 1	37	940	946	952	959	6 6 78 1981
3 2	38	965	971	978	984	6 7 79 2007
3 3	39	991	997	1003	1009	6 8 80 2032
3 4	40	1016	1022	1029	1035	6 9 81 2057
						6 10 82 2083
						6 11 83 2108
						7 0 84 2134

1 Yard = 3 Feet = 914 mm  
1 Cwt. = 112 lbs. = 50.8 kg



# A WORLD WIDE LIGHTING SERVICE

## AUSTRALIA

**Strand Electric (Australia) Pty. Ltd., 212  
Graham Street, Port Melbourne, Victoria.  
Tel. 64-1267.**

## AFRICA (East Africa)

Electronic Aids (East Africa) Ltd., Wilson Airport, P.O.  
Box 6540 Nairobi, Kenya. Tel. 22273.

## AFRICA (South Africa)

The British General Electric Co. (Pty.) Ltd.  
Johannesburg, Magnet House, Corner of Loveday and  
Anderson Streets (P.O. Box No. 2406). Tel. 33-3001/8.  
Bloemfontein, 149 St. Andrews Street. Tel. 3301/2.  
Cape Town, 362 Victoria Road, Salt River (P.O. Box. No.  
1327). Tel. 55-8901.  
Port Elizabeth, 124 Princess Street (P.O. Box No. 42).  
Tel. 2-1951.  
Durban, Natal, 200 Gale Street (P.O. Box No. 922).  
Tel. 22-756.

## AFRICA (N. & S. Rhodesia)

The British General Electric Co. of Central Africa (Pvt) Ltd.,  
Salisbury, Cam Road, Graniteside (P.O. Box. No 845).  
Tel. 26198.  
Bulawayo, Magnet House, Main Street (P.O. Box No. 1070).  
Tel. 3048/9).  
Ndola, Magnet House, Third Street. Tel. 2751.

## ARABIA

Gharabally Ltd. (Elect. Division), P.O. Box 136, Kuwait.  
Tel. 242/3.

## AUSTRIA

Ludwig Pani, Kandlgasse 23, Wein VII/62. Tel. 93-2463.

## BRITISH WEST INDIES (Trinidad & Tabago)

Wilson & Johnstone, 3 Broadway, Port-of-Spain. Tel. 5645/6.

## CANADA

**Strand Electric Limited, 261 Davenport Rd.,  
Toronto, Ontario. Tel. 925 5108.**

## CEYLON

United Electricals Ltd., P.O. Box 681, Yahala Building, Staples  
Street, Colombo. Tel. 5496.

## CYPRUS

Efclides C. Papadopoulos, 10 Apollon Street, Nicosia.  
Tel. 5031.

## DENMARK

Firma Axel L. Beck, Norrebrogade 26, Copenhagen N.  
Tel. Luna 4444.

## FINLAND

Oy Beck Trading A.B. N.Esplanadgatan 27C 25B, Helsinki.  
Tel. 66 98 61.  
Carlos Casagrande, Kalevankatu 4, Helsinki. Tel. 64 06 41.



**HEAD OFFICE AND THEATRE**  
**The Strand Electric & Engineering Co. Ltd.**  
**29 King Street, Covent Garden, London W.C.2**  
**Tel: Temple Bar 4444**  
**Grams: Spotlight Rand, W.C.2**  
**Cables: Spotlite London W.C.2**

**Counter Sales**  
250 Kennington Lane, London, S.E.11  
Tel. Reliance 7811

**Hire Department**  
271 Kennington Lane, London S.E.11  
Tel: Reliance 7811

**Northern Branch**  
313/317 Oldham Road, Manchester 10  
Tel. Collyhurst 2736

**North East Representative**  
E. C. Birch, 3 Kemble Green North, Newton  
Aycliffe, near Darlington. Tel. Newton Aycliffe 593

**S. Wales and West Representative**  
B. R. Webb, 56 Fouracre Crescent, Downend,  
Bristol. Tel. Bristol 651460

**Scottish Agent**  
Stage Furnishings Ltd.  
Sauchiehall Street, Glasgow, C.2  
Tel. Glasgow Douglas 6431

## FRANCE

Compagnie Clemancon, 23 Rue Lamartine, Paris (IXe).  
Tel. Trudaine 86-40.

## GERMANY

Diedr. Buschmann, Scharrnstrasse 4, Braunschweig.  
Tel. 21151.

## HOLLAND

Ingenieursbureau Eurotechniek N.V., Conradstraat 38,  
Rotterdam 4. Tel. 135 180.

## HONG KONG

The British General Electric Co. Ltd., Union House (P.O. Box  
No. 15). Tel. 31131-2-3.

## ICELAND

Hallgr. Bachmann, P.O. Box 723, Reykjavik. Tel. 2116.

## INDIAN REPUBLIC

The Crompton Engineering Co. (Madras) Private Ltd.,  
Post Box 205, Second Line Beach, Madras-1. Tel. 29131.

## IRELAND

**The Strand Electric & Engineering Co. Ltd., 30 Upper  
Abbey Street, Dublin. Tel. Dublin 47078.**

## ITALY

Mottola Prodotti Industriali, Piazza Umberto Giordano 2,  
Milan. Tel. 780 231.

## LEBANON

Projects Consulting Engineers, Jean Hatem Building, Bechara-  
El-Khoury Street, Beirut. Tel. 41200.

## FEDERATION OF MALAY & SINGAPORE

H. A. O. Connor & Co. Ltd., Laidlaw Building, Battery Road,  
Singapore. Tel. 80-100.

## MALTA

Transcontinental Trading Co., 187 Old Bakery Street, Valletta.  
Tel. Sliema 1661.

## NEW ZEALAND

John & Russell Reid Limited, P.O. Box 2516, 6 Boulcott  
Street, Wellington C.I. Tel. 47-793.  
British General Electric Co. Ltd.  
Wellington, Magneti House 31/37 Taranaki Street, (P.O.  
Box No. 2292). Tel. 54-885.

## NORWAY

A/S Elpag, Sehestedsgt, 2 Oslo. Tel. 33 15 45.

## PAKISTAN (East)

The General Electric Co. of Pakistan Ltd., Finlay House,  
Agrabad Chittagong. Tel. 661/92.

## PAKISTAN (West)

The General Electric Co. of Pakistan Ltd.,  
Karachi, Magnet House, McLeod Road (P.O. Box 4801).  
Tel. 30881-2-3.  
Lahore, 2 Shah Din Buildings (P.O. Box 21), Charing Cross.  
Tel. 2056.

## PERU

Senor H. R. Stern, P.O. Box 1963, Lima. Tel. 39416.

## PORTUGAL

Marquinas Precisão Lda, 45 Rua da Boa Vista 49, Apartado  
2609, Lisbon. Tel. 66 60 86

## SINGAPORE (see Malay)

## SWEDEN

A-B Becks Import. S: a Forstadsgatan 83b, Malmo. Tel. 33908.  
Torsten Hammarlund AB, Riddargatan 40, Stockholm O.  
Tel. 63 52 55.

## SWITZERLAND

Firma W. Eichenberger, Ceresstrasse 27, Zurich 8.  
Tel. 247590.

## THAILAND (Siam)

Louis T. Leonowens Ltd., Hong Kong Bank Lane, Bangkok.  
Tel. 32917.



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