

REMOTE LIGHTING CONTROL

SYSTEM CD / TH / II.

LONDON

MANCHESTER

DUBLIN

MELBOURNE

CD/TV/4.

1. INTRODUCTION.

This Control System. for up to approx.160 separate Lighting Circuits, no more than 100 being fitted with dimmers, consists of a Control Desk connected by a flexible multicore cable to a Strand Electric System P.R. Dimmer Bank.

The Control Desk is constructed of wood and is arranged to be operated by a seated operator. In three rows along the top are the circuit selectors. Beneath these on a sloping panel are three rows of miniature Dimmer Levers divided left and right by a sloping panel on which are mounted the Master Action Controls and an Indicator Dial. Two Dimmer Levers share a common scale which is engraved 0 to 10 and also marked in half divisions. Many of the Action Controls are duplicated as toe pushes. Speed of a dimming change is normally controlled by a balanced Speed Pedal. No matter how great the lighting lead which any control circuit is operating, it will be represented at the Control Desk by the same component.

The Dimmer Bank is arranged for remote control and houses all contactor switching and dimmers. The dimmers are operated on the Strand P.R.System which employs pairs of magnetic clutches to each dimmer, and a motor drive. One side of each Dimmer Bank is devoted to the clutch drive and the whole of the wiring of this section is arranged for 50 volts D.C. or under. On an end section of this side are housed, behind a hinged door the necessary action relays. The other side of the bank is devoted to the high voltage wiring, connections etc. An end section on this side houses the phase busbars at the rear, and the Circuit Fuses on the front of an insulated panel. A neutral busbar, and Lighting Circuit terminals blocks are provided. It is to these that the Electrical Contractor connects his wiring. Suitable cable lugs are provided on the phase busbars and the neutral busbar for the incoming mains.

The dimmers may either by Type A Sunset Resistance Dimmers or Transformer Dimmers. Resistance Dimmers are available for fixed loads and also for variations of load one third above and below the normal load. Special Resistance Dimmers for 500-2000 watts can be supplied for Television use only. Transformer Dimmers are available either with a maximum lead of 2 kw. or 5 kw. All Dimmers can be wound for any voltage between 200-240 or 100-120 volts.

A separate Rectifier Unit is supplied to provide the low voltage supplies for the action circuits. This requires a separate three phase supply.

CD/JA/4*

2. BASIC PRINCIPLE

The circuit selectors, Dimmer Levers, and Master Action pushes can all be uncoupled and reset while the Lighting Circuits remain static. An instruction to effect a change need only be issued to the Lighting Circuits concerned in that change. There is no⁶ necessity, as with other systems, to set up the controls of a Lighting Circuit for a state of "no movement".

Apart from some essential Action Controls such as "ALL DIM", which overrides the circuit selection, the method of operation is to select the Lighting Circuits required to change, and subsequently apply an Action to that selection. The remaining Lighting Circuits will remain at the state to which they were last called.

To raise a group of Lighting Circuits to full, or to dim a group to zero it is not necessary to set the miniature Dimmer Levers, and therefore these need only be used when Lighting Circuits are required to travel to various precise intermediate positions.

There are 14 Memory Presets provided and these can be

memorised on that push for any previous selection of Circuit Stopkeys and actually causes the operating arms to change appropriately. A similar push "CANCEL" is permanently set to remember "all

the right. W. Stoll & Statute Characteristic of sectored Rightson edus

off" and is used to clear the Control Desk guickly for a new manual selection.

To set up a Memory Preset, the Circuit Stopkeys required are selected, and while the "PRESETTER" too push is pressed, the chosen Memory Preset Push is pressed. Subsequent operation of that Memory Push without the "PRESETTER" will cause the Circuit Stopkeys memorised to replace any existing selection. The selection memorised on any one Memory Push will remain until such time as it is instructed to memoriae a different combination.

Whether set up by hand or by Memory Preset the Circuit Stopkeys will have no effect on the Lighting Circuits until the associated master controls are used.

and Trape ?

3. CIRCUIT CONTROLS

Each Lighting Circuit is represented at the Control Desk by an organ type stopkey known as the Circuit Stopkey. In addition those Lighting Circuits fitted with dimmers are represented by two miniature Dimmer Levers, one on the right hand panel, and one on the left.

The operating arm or tab of the Circuit Stopkey is coloured and engraved with the Lighting Circuit name and/or number. It has a normal switching action known as first touch, and a further contact against a heavy spring known as second touch.

At first touch a Circuit Stopkey selects that Lighting Circuit for a subsequent choice of action. At second touch the actual position of that Lighting Circuit Dimmer only is shown on the Indicator Panel (see Para.12 below).

Adjacent Circuit Stopkeys are easily operated manually but where a widespread selection is required for operation and there is not time to select manually, an automatic memory can be used. This is electro-mechanically operated but mechanically latched and is not therefore affected when the Lighting Control is switched off.

There are 14 Memory Presets provided and these can be invoked in any order. The Memory Preset Pushes, which are single touch thumb pushes, are mounted below the Circuit Stopkeys on the right.

The operation of a Memory Preset Push substitutes the group memorised on that push for any previous selection of Circuit Stopkeys and actually causes the operating arms to change appropriately.

A similar push "CANCEL" is permanently set to remember "all off" and is used to clear the Control Desk quickly for a new manual selection.

To set up a Memory Preset, the Circuit Stopkeys required are selected, and while the "PRESETTER" toe push is pressed, the chosen Memory Preset Push is pressed. Subsequent operation of that Memory Push without the "PRESETTER" will cause the Circuit Stopkeys memorised to replace any existing selection. The selection memorised on any one Memory Push will remain until such time as it is instructed to memorise a different combination.

Whether set up by hand or by Memory Preset the Circuit Stopkeys will have no effect on the Lighting Circuits until the associated master controls are used.

ters 2 an

ach Lighting Circuit is represented at the Control Desk

ODLAALTA

3. CIRCUIT CONTROLS

- 5 -

ere C an

6. "BO/B.O. TRIP" and "ALL TRIP"

Each Lighting Circuit is normally switched "on" and the lighting changes carried out the dimmers. However facilities are provided for <u>Switching</u> groups of Lighting Circuits "on" or "off". It is also possible to switch one group "on" and another group "off" at the same time.

The "B.O." action control is a double touch thumb push, duplicated also as a toe push, and at first touch will switch off, that is blackout, any Lighting Circuits selected at the corresponding Circuit Stopkey. Once this has been done, the "B.O." push can be released, the Circuit Stopkeys cancelled "off", and a new combination selected. This will not affect the Stage Lighting as those Lighting Circuits will be "held off" independent of the Control Desk.

Subsequent operation of the "B.O." push will add the new combination to those already "blacked out". However if the "B.O." push is then pushed through to the second heavy touch "B.O. Trip" the Lighting Circuits previously "held off" will be tripped back on, leaving off only those which are at that moment selected. If one group is required to switch on at the same time as another group is required to switch off, this is easily achieved, (so long as the first group has been "blacked out" proviously) by pressing the "B.O." push straight through to second touch "B.O. TRIP".

The single touch thumb push "ALL TRIP" will trip all Lighting Circuits "blacked out" back to on when pressed. This control will also override the B.O. Group Mesters. The majority of switched lighting cues will entail the use of "B.O." for blackout, and "ALL TRIP" for on. "B.O. TRIP" is likely to be used for complicated switching cues only.

The combination of Circuit Stopkeys may be set up by hand, or by a Memory Preset. Because the switching is held independently of the Control Desk when the "B.O." push is released, the Circuit Stopkeys may be used to set the paths for a dimming action before invoking either the "ALL TRIP", "B.O. TRIP", or a further switching action.

During early rehearsals it may be necessary to switch circuits individually to locate individual lanterns. This is easily achieved by selecting all ^Circuit Stopkeys and all "B.O." Group Masters, subsequently when the "B.O." toe push is pressed through to second touch the lifting of a Circuit Stopkey tab will switch the Lighting ^Circuit on. It will be extinguished when the tab is put down again. The foot may be rested except when actually altering a Circuit Stôpkey. When reverting to normal working "ALL TRIP" must be pressed after the "B.O." toe push is released.

8. "MOVE/ALL MOVE".

"O", LEI En surg 19 MTT LEI Bu

There are two "MOVE" Action Masters, "MOVE LEFT" and "MOVE RIGHT" associated with the left and right panels of Dimmer levers.

To move a group of Lighting Circuits to precise intermediate positions the corresponding miniature Dimmer Levers on the right panel are preset to the levels required, the corresponding Circuit Stopkeys are put down ("on") and the "MOVE RIGHT" thumb or toe push pressed to first touch only. The Lighting Circuits selected thereby will then travel up or down, at the speed selected, to the positions preset on the right hand Dimmer Levers. The progress and rate of change will be indicated on the Indicator Dial, and a lamp will light above the "MOVE RIGHT" push to act as a visual reminder when it has in fact been released. Although other Dimmer Levers may be preset for an ensuing lighting cue, unselected Circuits will remain at the position to which they were last driven. As soon as the push is released the Dimmer Levers just used can be reset without affecting the Lighting Circuits.

Similarly the "MOVE LEFT" push is used in conjunction with the Dimmer Levers on the left panel.

The second heavy touch of the "MOVE" pushes, "ALL MOVE" overrides the Circuit Stopkey selection and affects ALL dimmers. Therefore ALL Lighting Circuits take up the positions set on either the left or right Dimmer Levers depending on which "MOVE" master is pressed through to second heavy touch.

There are therefore <u>always</u> two presets of dimmer position available <u>ahead</u> of the lighting in use, and by restricting the action to Lighting Circuits selected at the Circuit Stopkeys the presetting possibilities are considerably increased. The right hand Dimmer Levers can all be set to the first position to which the dimmers will be required to travel, and the action invoked in respect of groups of those circuits as required. Meanwhile the left levers can be set for a future wholesale change, or for a further series of selected changes and so on.

nounted adjacent to the Individual Dimmer Lever (see below) on the Master Action panel. This control (which can only be used in conjunction with the "MOVE/ALL MOVE" thunk or tes pushes) applies a proportional cut to those Lighting Circuits whose Circuit Stopkeys have been selected. For example, if Dinmer Levers were set to give positions of 100% and 50% and then those Lighting Circuit dinmers driven to that position, subsequent reduction of the Master Dinmer Lever to 50% in conjunction with "MOVE" would cause those dimmers that were 100% to travel to 50%, and those that were at 50% to travel to 25%.

-7-

CD/TV/4

- 2 m

"RAISE/FAST RAISE". 9.

8" HWOAE VIT MOAE"

aggoriated with

To raise a group of Lighting Circuits to full it is not necessary to use the Dimmer Levers and "MOVE" action. The Circuit Stopkeys for the Lighting Circuits required to raise are selected and the "RAISE" thumb push pressed to first touch only. The progress and rate of change will be indicated on the Indicator Dial. The speed of the change will be subject to the position of the Speed Pedal. The movement can be stopped at any time by releasing the push and therefore by watching the Indicator Dial and releasing the push when sufficient movement has been imparted it is possible to execute many of the simpler lighting cues with this control.

There are two "MOVE" Action Masters, "MOVE LEFT" and "MOVE

-8-

the left and right panels of Dimmer

The second heavy touch of the "RAISE" thumb or toe push, "FAST RAISE", overrides the speed selected at the Speed Pedal and "INDicuts in the fastest speed. This function will be of great assistance during the Lighting Rehearsals.

10. "DIM/ALL DIM" Similarly to dim a group of lights, the Circuit Stopkeys required are selected and the "DIM" thumb push pressed to first touch only. Speed is subject to the Speed Pedal and the progress and rate of change will be indicated on the Indicator Dial. However, in order to show the action correctly, in this case the Indicator needle will travel from 10 towards 0.

The second heavy touch of the "DIM" push "ALL DIM", overrides the Circuit Stopkey selection and affects ALL dimmers. Therefore when a scene finishes on a fade to blackout, the Circuit Stopkeys may be set for the opening lighting of the next scene before that fade.

11. MASTER DIMMER.

(Fitted as standard on Theatre type Controls and available as optional extra at the time of manufacture for Television Controls).

The Master Dimmer is controlled by a miniature Dimmer Lever mounted adjacent to the Individual Dimmer Lever (see below) on the Master Action panel. This control (which can only be used in conjunction with the "MOVE/ALL MOVE" thum's or toe pushes) applies a proportional cut to those Lighting Circuits whose Circuit Stopkeys have been selected. For example, if Dimmer Lovers were set to give positions of 100% and 50% and then those Lighting Circuit dimmers driven to that position, subsequent reduction of the Master Dimmer Lever to 50% in conjunction with "MOVE" would cause those dimmers that were 100% to travel to 50%, and those that were at 50% to travel to 25%.

To raiss a group of Lighting Circuits to full it is not

-9-

In order to safeguard against inadvertantly moving the Master Dimmer Lever, it will have no effect while the pushpull switch mounted immediately above is in the normal pulled-out position.

wiges .

12. DIMMER POSITION INDICATION

"RAISE FAST RAISE".

It will be appreciated that the Dimmer Levers rarely indicate the actual positions of the Lighting Circuit dimmers, as they will normally be preset for an ensuing cue. However, this information is shown by pressing any Circuit Stopkey through to second heavy touch when the actual position of that Lighting Circuit Dimmer only will be indicated on the Indicator Dial. Switched only Lighting Circuits will of course give no indication.

13. "INDIVIDUAL"

It is not always convenient to use "MOVE" action in order to alter only one dimmer and therefore facilities are provided to take individual Lighting Circuits out of preset for modification. If a Circuit Stopkey is pressed through to the second heavy touch whilst the foot is pressing the "INDIVIDUAL" toe push, that Lighting Circuit only will travel at the fastest speed to the position set on the Individual Dimmer Lever which is situated on the Master Action Panel.

14. REMOTE FILTER CHANGE

(Optional extra at the time of manufacture)

When lanterns are fitted with remotely operated colour Filter Change the entrols for these units can be fitted in or adjacent to the Control Desk. If the number of these controls is small, they can often be accommodated in the left hand panel of the Control Desk. Alternatively they be mounted in a separate cabinet designed to be used on or adjacent to the Control Desk.

Where control is required for a large number of Filter Change units the cabinet would become too large and not give the necessary control facilities. In this case it is possible to arrange for the Circuit Stopkeys to preselect the combinations required. This method requires the addition of five thumb pushes only, one for each of the four colour filters, and one for open white. The procedure is as follows: first the Circuit Stopkeys for the lantern Lighting Circuit required to change to one colour are selected, and then appropriate colour push pressed momentary to first touch only. No change takes place but the selection is merely stored for later use. Different filters for other lanterns are selected in the same manner. If the thumb pushes are pressed through to second touch they will override the Circuit Stopkey selection and affect All Filter Change units.

The Colour Filters preselected will not take effect until the "FILTER CHANGE" too push is pressed, and held for 5 seconds only. Circuits not preselected in conjunction with the thumb pushes will remain at the state to which they were last called.

When direct selection by switches in the left hand panel or in a separate cabinet is used, a "FILTER CHANGE" too push will be fitted if the cabinet is ordered at the time of manufacture of the Control Desk.