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Data Sheet No. 806/SP

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**WESTALITE  
SINGLE - PHASE  
CINEMA ARC RECTIFIER SET  
TYPE 775**



**NOTICE**

The instructions and diagrams herein contained are the exclusive property of Westinghouse Electric Corporation. We have no objection to the use of these instructions for the convenience of our Licensees in assembling and installing the set, provided that the set is widely protected by numerous patents in the United States and in other countries.

I have read the instructions and diagrams and I have approved the same for use in the assembly and installation of the set.



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## 1. GENERAL SPECIFICATION

This single-phase rectifier has been designed for use in the projection box and to fit underneath the lamp house. It is compact and is capable of operating either high or low intensity arcs and automatically gives the correct arc voltage for any type of arc. With high intensity arcs, the output is continuously variable from 35 to 65 amperes, while low intensity arcs can be operated satisfactorily at currents of from 20 to 38 amperes.

## 2. REMOTE CONTROL

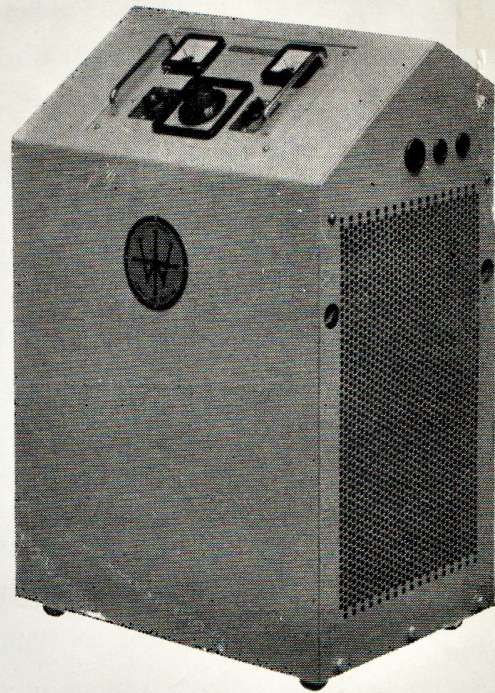
The control panel, which carries the control switch, pilot light, current control and meters, has been so designed that it is easily removable and if desired, can be mounted on the arc lamp pedestal with the rectifier situated in an adjacent room. In this case the wiring would consist of only five light leads in addition to the DC output leads to the arc itself.

## 3. POWER FACTOR

The Power Factor of this set is high and varies with the arc voltage. At 36 arc volts it is approximately 0.8 and at 55 arc volts approximately 0.95.

## 4. DETAILED SPECIFICATION

(a) **Rectifiers** WESTALITE double-voltage rectifiers are used to give three-phase full-wave rectification. The rectifiers are protected against corrosion by dipping in a special compound.



(b) **Transformer and chokes** These are vacuum-impregnated and manufactured in accordance with BSS 171.

(c) **Control gear** There are no contactors. Once the set has been switched on it is entirely controlled by means of the rheostat, which is mounted on the panel together with a moving-coil voltmeter, a moving-coil ammeter, control switch and indicator lamp.

(d) **Ballast** Ballast is not necessary and in fact, must not be used.

(e) **AC power supply** The set is suitable for use on any single-phase 50 cps power supply of 200/250 volts.

At maximum output of 65 amperes on high intensity arcs, the AC line current is 18 amperes at 230 volts.



(f) **Finish** The case is finished in light grey enamel to BSS 381C colour number 631.

(g) **Weight** Approximately 5 cwt. (254 kg).

(h) **Wiring** Two alternative sets of conduit entries (one at the side and one at the back) are provided for the incoming AC cables and for the DC leads to the arc.

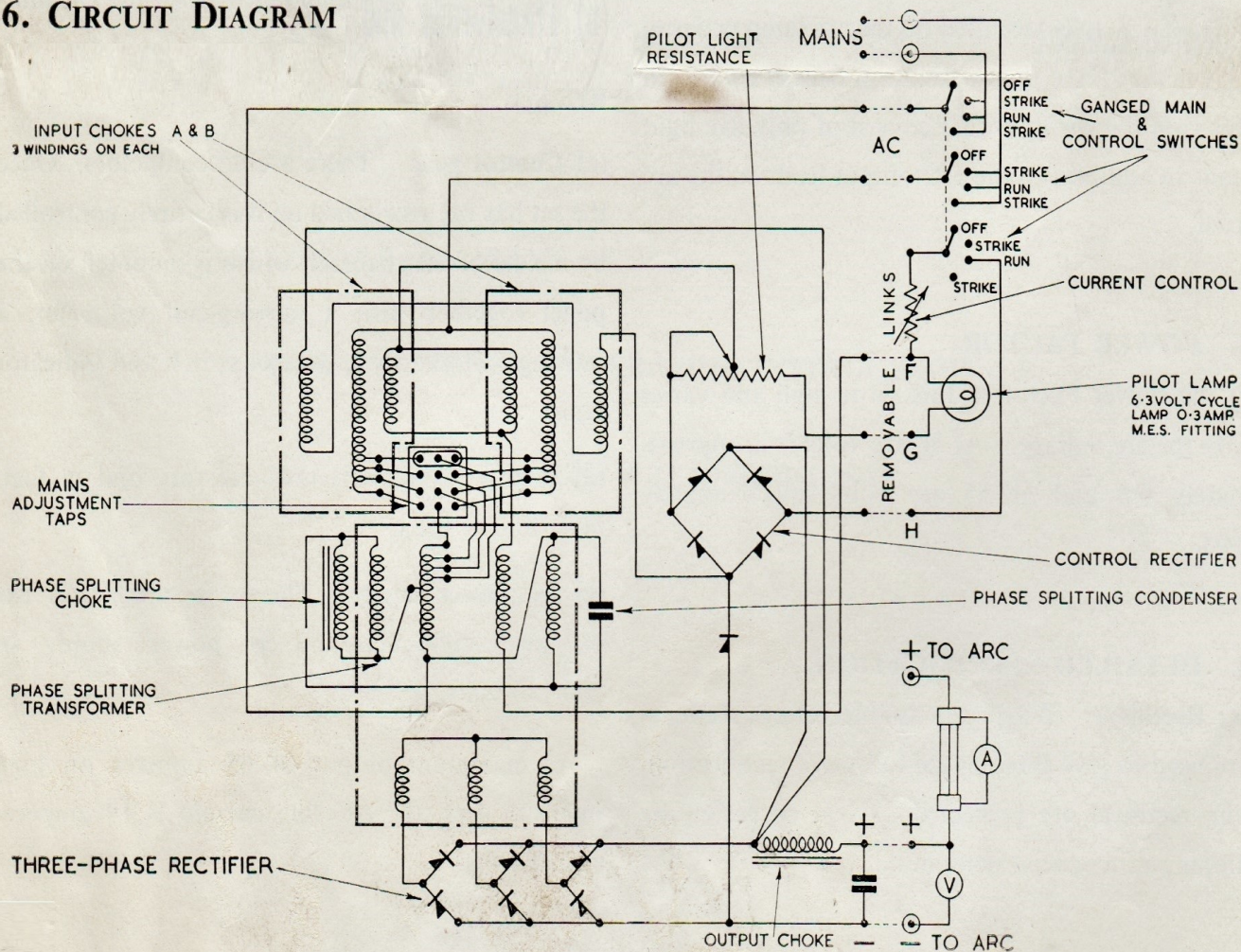
Access to terminals for all external wiring connections is obtained by removing part of the back panel.

## 5. CIRCUIT

The design incorporates one of the patented Westinghouse phase-splitting circuits by which means the single-phase supply is split into three phases and a standard three-phase rectifier is employed to provide the DC supply to the arc. By this means, the ripple component is reduced to the same magnitude as that of a normal three-phase equipment without the use of large banks of electrolytic condensers.

Control is effected by the use of a rheostat, which provides a continuously variable output. The losses in this rheostat are negligible.

## 6. CIRCUIT DIAGRAM





## 7. INSTALLATION AND OPERATING INSTRUCTIONS

This equipment is designed to fit under the rear of the arc lamp so that the projectionist is able to operate the control switch with his left hand while striking the arc with the right.

The alternative cable entries enable the rectifier to be placed at right-angles to the lamp if there is insufficient room in the projection box between the rear of the lamp and the back wall. If it is desired to use remote control the instrument panel can be removed readily and fitted in a convenient position at the lamp or front wall while the rectifier itself is installed in a separate rectifier room.

After the rectifier has been placed in position, the cover plate on the opposite side to the instrument panel should be removed to enable the AC supply wires and the DC leads to the lamp to be connected to their appropriate terminals, which are clearly marked. The adjustment for the mains supply voltage can now be made by moving the link to the required voltage tap. The set is now ready for operation.

### IMPORTANT

To strike the arc, first turn the current control to the minimum position and then bring the carbons together.

*When the carbons are touching together, turn the switch through STRIKE to RUN and then open out the carbons slowly to strike the arc.*

As soon as the crater is formed, the current control can be rotated to the running position giving the amperage required. It will be found that as the current control is rotated, a continuous control of current, to a fraction of an ampere, can be obtained throughout the whole range. Should it be desired to alter the current during the run there is no danger of the arc being extinguished, as can happen by switching from stud to stud on a stepped control.

Many projectionists, used to other makes of rectifier, will feel a little diffident about leaving the carbons jammed together with the rectifier switched on. However, with the WESTALITE equipment this is the best method of striking the arc, and it is possible to place a lead or screwdriver across the lamp terminals while the arc is running without doing any harm to the equipment. In this case the amperage taken on short-circuit is very little more than that taken for normal running. This feature has another practical advantage in that, should a carbon break while the arc is running, the carbons can be brought together immediately and the arc restruck without manipulating switches and controls.

The equipment automatically gives the correct arc voltage whether for low intensity carbons or the various types of high intensity carbons without any adjustment, but it is recommended that the projectionist should consult the carbon manufacturers as to the correct arc voltage required for his



particular trim and then operate the arc at this voltage, which will indicate that the correct arc gap is being maintained.

If the feed motor resistance is properly adjusted it is possible to run through the whole reel without touching either the lamp or rectifier controls.

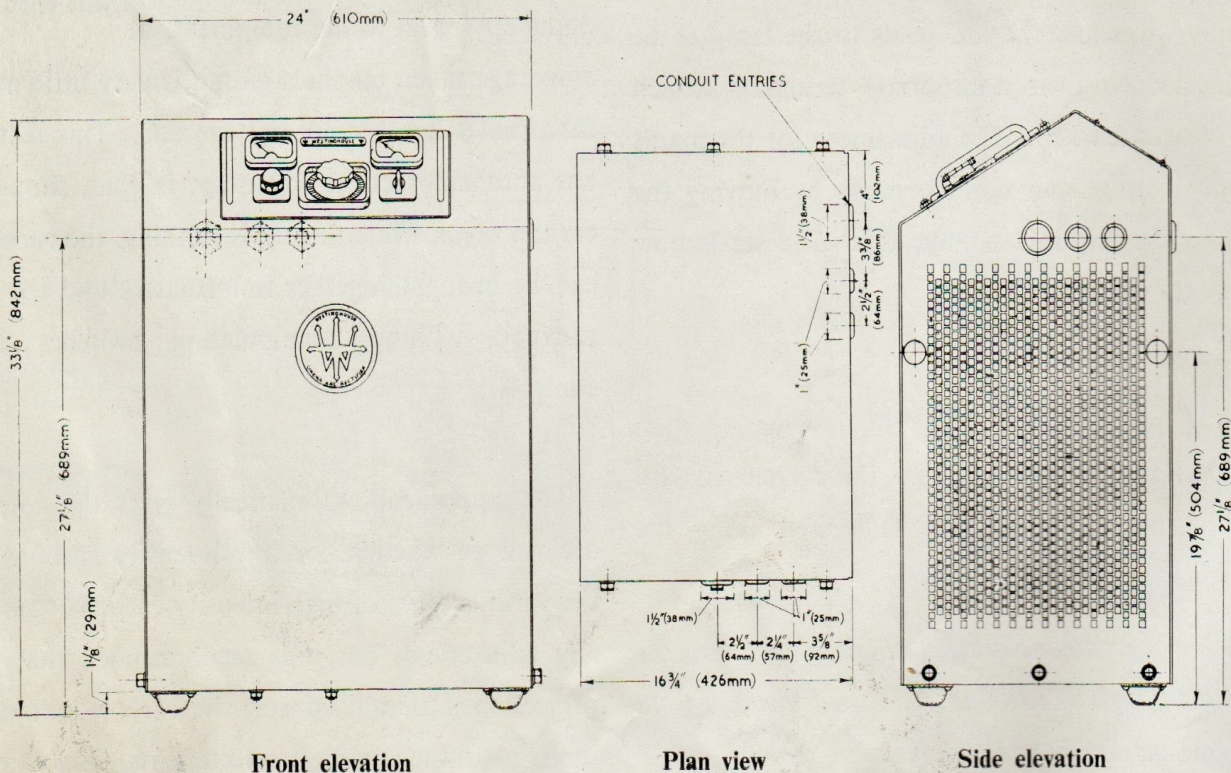
When switching off, the current control should be turned back to the minimum position ready for striking the arc again for the next reel. Many projectionists mark the escutcheon plate on the control so that the correct running position can be

found readily as the current is increased after the formation of the crater.

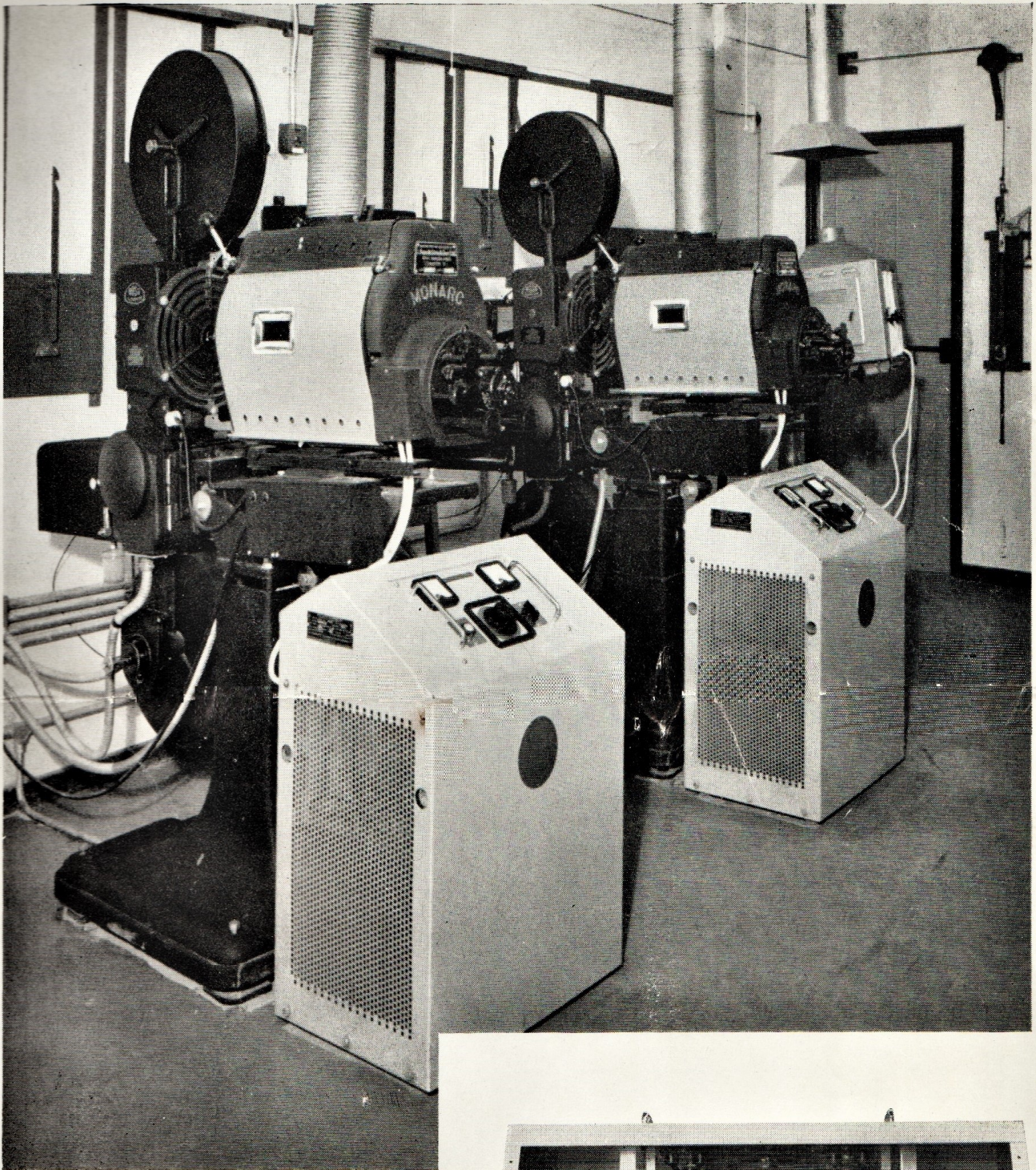
The red pilot indicator lamp indicates when the rectifier set is alive or has inadvertently been left alive. The lamp is fitted with a readily replaceable 6.3 volt 0.3 ampere MES cycle headlamp bulb. The correct current rating of replacement bulb must be used as the lamp is connected through a series resistance.

Two tubular passages are provided, one each side of the casing for inserting heavy conduit or gas barrel for lifting the rectifier set.

## 8. MECHANICAL DESIGN AND DIMENSIONS







Regal Cinema, Harlow, Essex, showing projection room with rectifiers housed under projector arcs. Inset—rear view of instrument panel showing voltage links and conduit entries.

