Technical Data Sheets

GAUMONT-KALEE

MODEL 18

Operating & Installation Instructions

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G.K. 18 PROJECTOR

The projector body is a substantial box casting and bolts on to a detachable base which in turn is secured direct on to the top of the soundhead by screws accessibly situated at the front and rear, thus avoiding difficulties when fixing from the inside of either the projector or soundhead.

The projector is fitted with a grouped oiling system with an oiling block at the top of the main casting and all spindles and bearings are lubricated through feed pipes terminating at this communal block.

The projector gear train comprises throughout cast iron pinions and fibre gears in pairs and all spindles are hardened and ground, running in cast iron bushes. The drive to the shutter shaft which is at right angles to the main drive is by 45° spiral gears. Racking or framing is effected by the rotation of the intermittent unit about the sprocket axis with shutter timing compensation being automatically obtained by a quadrant and linkage sliding the spiral driven gear on the shutter shaft in synchronisation.

The intermittent unit has a large size cross and cam and all working parts are of heat treated steel and precision ground. The roller is rigidly supported on a fixed pin carried between cheeks. The flywheel is mounted directly upon the cam shaft and consequently there are no gears inside the unit. The mechanism operates inside an oil-tight box casting with the required oil level easily noted through a sight window. Conveniently situated filler and drain plugs, are also supplied in the box casting. The unit is rigidly supported in the projector in a long fixed quill in which it rotates for masking.

The gate is rigidly constructed and fitted with an adjustable tension device operated by a knob on the front edge of the gate block, the rotation of which increases or decreases the spring tension on the film skates. The gate itself opens like a book, the hinge being held in position by a spring loaded catch fitted on the front face of the projector. When this is released the gate block, complete with guide rollers and adjustable shoe for the intermittent sprocket can easily be removed.

The mask plate is of hardened steel and retained in slots in the gate bracket from which it is readily detachable when the gate is opened. Twin apertures are provided, the lower one is the projection aperture and the upper for verification that the film is in frame when threading up.

The lens holder accepts standard 2.781" diameter lenses. This diameter being clear to within 1" of the film and an adaptor is supplied for use with smaller lenses i.e. 2.062" diameter.

A fire shutter is fitted between the twin bladed rear shutter and the gate and is operated from a centrifugal governor mechanism mounted on the top intermediate gear.

A 16 T hardened and ground intermittent sprocket is fitted along with 24 T sprockets on the top and bottom shafts.

The Pyrene fire extinguisher equipment comprises a sealed cylinder of compressed carbon dioxide gas and a spring loaded piercer which penetrates the seal thus releasing the gas. This is held in check by a celluloid loop and a quick burning gun cotton fuse instantly transmits a fire to the loop which ignites and releases the piercer. Pipes conduct the gas to various points along the film path, effectively quenching any fire. The gas is also led into both top and bottom spool boxes and to "knock-off" switches, thus cutting the power supply to both driving motor and lamp and completely shutting down the equipment.

PROJECTOR MECHANISM

Oiling Instructions

1. Oil daily all points on the communal block situated at the top of the projector main frame.
2. Check oil level in the inter unit daily maintaining the level as and when necessary. Important Use Kalee "Superoil" only.
3. Oil all rollers etc., and carefully wipe off any excess.

Operating Instructions

The Gate

1. Raise lens complete with holder.
2. Release the catch on the front face of the gate and open like a book.
3. The adjustable tension plate complete with guide rollers, pressure skates etc., may be removed complete by opening the gate as above and then opening the spring loaded catch on the front face of the projector and thus releasing the hinge pin of the gate.

The tension on the skates is adjustable by means of the knob on the front., the minimum being when set at No.1 and increasing to the maximum at No.5. It will generally be found that the most satisfactory results are given at settings 1, 2, or 3, and No.5. need only be used under extreme conditions.

4. The mask plate lifts directly out of the slots in the bracket when the gate is open.

Top and Bottom Sprockets

For threading, the roller bracket is rotated on its pivot away from the sprocket. A set screw provides adjustment in the closed position and this is set before leaving the factory, giving two thicknesses of film between the rollers and the sprocket.

Timing of the Shutter

The shutter is mounted on a boss and is secured from the rear by a clamp ring. For removing bottom ghost on picture rotate the shutter clockwise on its boss. N.B. Care must be taken that the clamp screws are re-tightened before running the projector.

Masking

This is controlled by the knob on the operating side of the projector. A clutch is incorporated in this knob, giving automatic lock against slip in either direction.

Instructions for Removal of Units

1. Adaptor Gear

Remove Gear Covers.
Release set screws in thrust collar and remove locking screw from end of shaft.
The complete compound gear may then be withdrawn.

2. Inter Sprocket

Raise lens along with holder.
Remove gate plate by opening the gate and releasing the pivot bar by the catch on the face of the projector.
Remove stripper which is secured at the bottom of the gate bracket.
Remove screw and key washer etc., at the end of the sprocket spindle and the sprocket may then be withdrawn.

N.B. This sprocket is reversible on the spindle. Care should be taken not to damage the teeth.

3. Intermittent Unit

Remove sprocket as above.
Remove rear cover of projector, secured by single fixing screw in top centre.
Release special 3/8" clamp nut and the complete unit may then be withdrawn from rear of machine.

4. Gate

Remove inter sprocket as (2).
Release 2 screws securing the gate to the front face of the projector and the gate can be withdrawn for the locating dowels.

5. Top Sprocket

Remove sprocket stripper.
Release set screw and sprocket may be withdrawn off shaft.
N.B. When replacing, note the position of the flat for the set screw on the shaft.

6. Top Sprocket Unit

After removing rear cover, remove top sprocket driving gear from rear of machine.
Note this is located by Woodruff key. Remove oil feed pipe from location hole in bearing.
Release screws securing bearing housing on front face of the projector and complete unit may be withdrawn from the front.

7. Bottom Sprocket

Remove in same manner as top sprocket. See (5)

8. Bottom Sprocket Unit

After removing rear cover, remove bottom inter gear.
Remove driving gear from bottom sprocket shaft. Note that this is located by Woodruff Key.
Remove oil feed pipe from locating hole in bearing housing.
Release screws securing housing to front face of projector, when the unit may be withdrawn complete from the front of the projector.

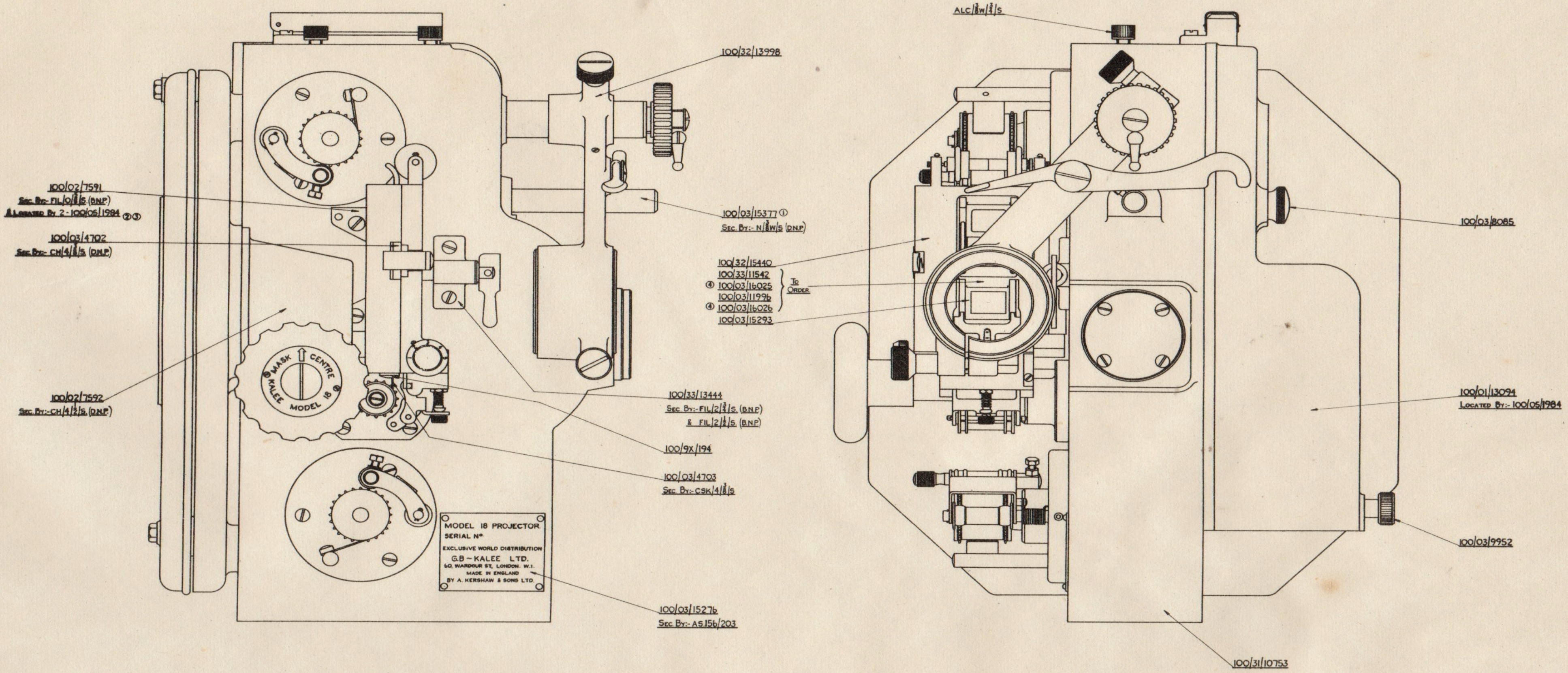
9. Masking Knob and Unit

Release large domed head screw in front of knob and set screws when the complete knob can be withdrawn. N.B. Take care not to lose the rollers from the clutch mechanism.

10. Shutter Shaft.

Remove the rear half of the shutter case.
Remove hand knob on front end of shutter shaft. Note this is located by Woodruff Key and this should also be removed.
After removing rear cover, remove bottom inter gear, shutter shaft driving gear and top inter gear. Note the gear behind the top sprocket gear need not be disturbed.
Release 2 set screws in the thrust collar on the inside of the shutter shaft rear bearing.
Release the clamp screw in the rear fork of the shutter shaft yoke.

Spring the rear fork of the shutter shaft yoke to ensure easy removal of the bush and withdraw the shaft complete with shutter. Note that the Woodruff Key driving the shutter gear will displace the bush from the yoke and then care should be taken so that the shutter gear, Woodruff Key, Bush from the shutter Shaft Yoke and Thrust Collar do not drop into the well of the projector, thus damaging gears etc.



Timing Procedure

Note! 1. Set Masking Movement Central.
2. Set Shutter Spindle so that Line on Shutter Boss is Vertical.
3. Check that Line on Flywheel is in Line with Cam Roller.
4. Set Line on Flywheel Vertical, & Mesh Gears
5. Adjust Shutter to Correct Position & Paint White Spot Opposite Line on Shutter Boss.

Note:- All B.N.P. Screws to be Buffed before Plating

This Assy. is Similar to 100/31/6750

	Code	No. Off	Description	Code	No. Off	Description
	100/31/10753	1	Arr. of Rear & Gearing	100/03/15377	1	Stop Pin for Lens Arm ①
	100/32/15440	1	Comp. Adjustable Press. Gate	100/03/9952	1	Cover Clamp
	100/32/13998	1	" Lens Holder	100/05/1984	4	Dowel Pin ②③
	100/35/13444	1	" Quick Release Brkt.	AS.156/203	4	Rivet sec. Nameplate
	100/01/13494	1	Rear Cover	100/9X/194	1	Stop Screw for Mask Plate
	100/02/7591	1	Gate Bracket			
	100/02/7592	1	" Cone	ALC/3/8W/3/4/S	2	Screw sec. Spool Arm
To Order	100/33/11542	1	Mask Plate with Velvet Carrier	FIL/0/5/8/S	2	" " Gate Brkt.
To Order	100/03/16025	1	" " (Sq. Corner) ④	FIL/2/3/4/S	2	" " Release Brkt.
To Order	100/03/11996	1	" " (Keystone Blank)	FIL/2/1/2/S	1	" " " "
To Order	100/03/16026	1	" " (Rd. Corner) ④	CH/4/1/2/S	3	" " Gate Cone
	100/03/8085	1	Knurled Screw	CH/4/3/8/S	2	" " Catch Plate
	100/03/4702	1	Gate Catch Plate	CSK/4/3/8/S	1	" " Stripper
	100/03/4703	1	Inter Sprocket Stripper	N/3/8W/S	1	Nut sec. Stop Pin
	100/03/15276	1	Projector Nameplate			
	100/03/15293	1	Reflector Plate			

Scale:- Full Size

Issue No.	1	2	3	4
Ch. Nt. No.	6285	6352	6398	6438
Date & Sig.	14.7.49. A.D.S.	20.8.49 A.D.S.	29.9.49 A.D.S.	12.10.49 A.D.S.

Comp. Projector Mech. - G.K. Outfit

Req'd. On	Drawn	B.H.
100/31/15290	Traced	J.J.
	Checked	

100/31/14044

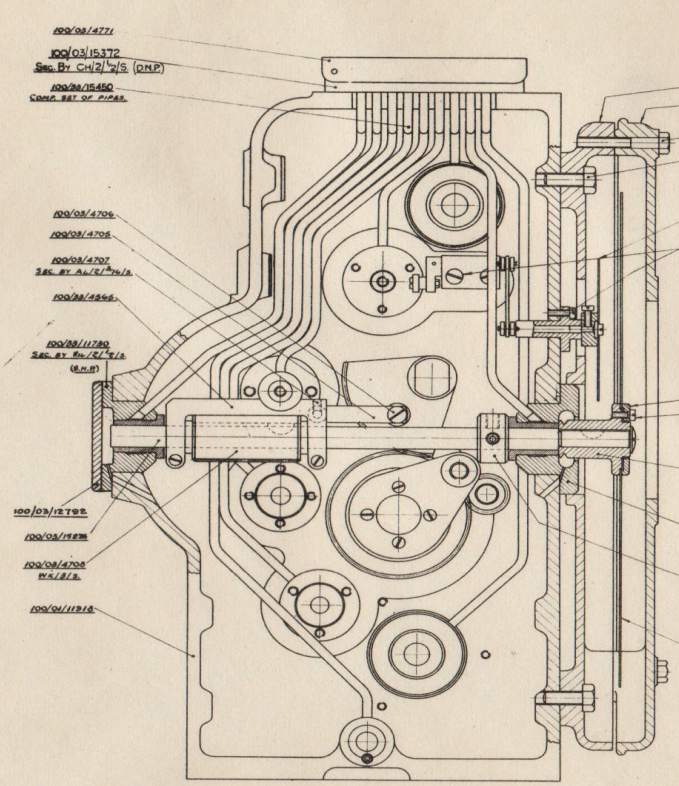
11.1.50

COMPLETE PROJECTOR MECHANISM

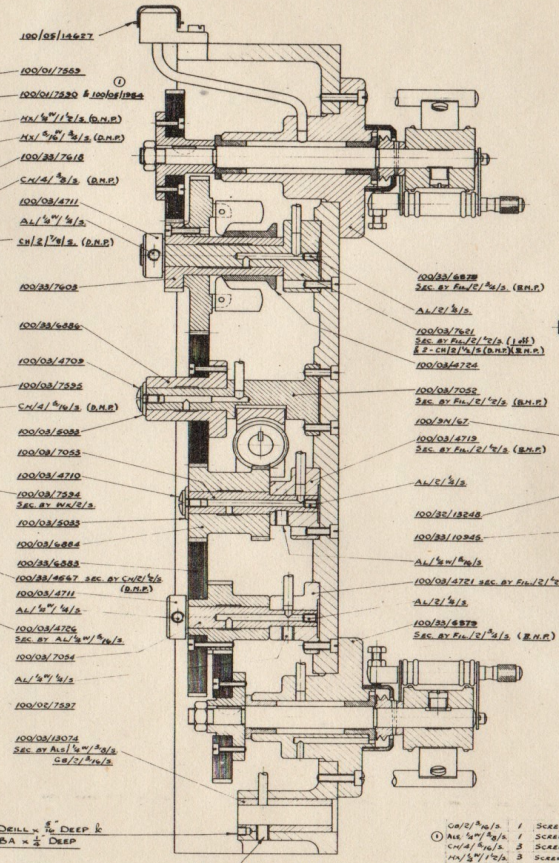
Drawing No. 100/31/14044

Part No.	Description
100/31/10753	Arrangement of Rear and Gearing
100/32/15440	Complete Adjustable Press Gate
100/32/13998	Complete Lens Holder
100/35/13444	Complete Quick Release Bracket
100/01/13494	Rear Cover
100/02/7591	Gate Bracket
100/02/7592	Gate Cone
* 100/33/11542	Mask Plate with Velvet Carrier
* 100/03/16025	Mask Plate (Sq. Corner)
* 100/03/11996	Mask Plate (Keystone Blank)
* 100/03/16026	Mask Plate (Rd. Corner)
100/03/8085	Knurled Screw
100/03/4702	Gate Catch Plate
100/03/4703	Inter Sprocket Stripper
100/03/15276	Projector Nameplate
100/03/15293	Reflector Plate
100/03/15377	Stop Pin for Lens Arm
100/03/9952	Cover Clamp
100/05/1984	Dowel Pin
AS.156/203	Rivet Securing Nameplate
100/9X/194	Stop Screw for Mask Plate
ALC/$\frac{3}{8}$W/$\frac{3}{4}$/S	Screw Securing Spool Arm
FIL/0/$\frac{3}{8}$/S	Screw Securing Gate Bracket
FIL/2/$\frac{1}{4}$/S	Screw Securing Release Bracket
FIL/2/$\frac{1}{2}$/S	Screw Securing Release Bracket
CH/4/$\frac{1}{2}$/S	Screw Securing Gate Cone
CH/4/$\frac{3}{8}$/S	Screw Securing Catch Plate
CSK/4/$\frac{3}{8}$/S	Screw Securing Stripper
N/$\frac{3}{8}$W/S	Nut Securing Stop Pin

* To Order

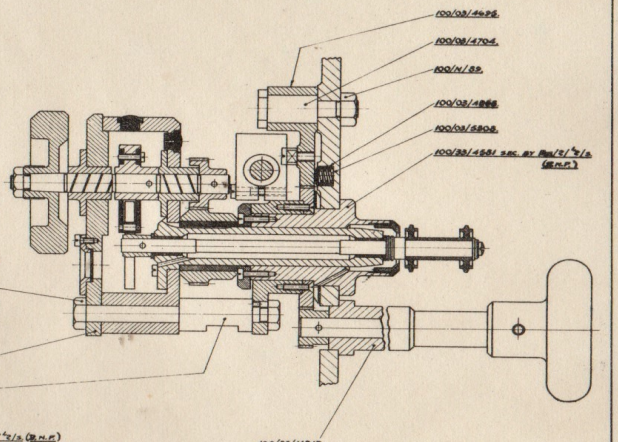


REAR VIEW - PART SECTIONED



DEVELOPED SECTION THROUGH GEAR TRAIN

ALL B.N.P. SCREWS BUFFED BEFORE PLATING.



	M/4/2/S.	6	KEY FOR SHUTTER GEAR SHAFT.	100/08/4726	1	SHUTTER SHAFT COLLAR.
	M/4/3/S.	1	KEY FOR SHUTTER GEAR.	100/08/4721	1	BOTTOM COMP^D GEAR, FLANGE
	100/N/83	1	NUT FOR PIVOT	100/08/4713	1	SHUTTER DRIVING FLANGE.
	100/3N/67	2	LOCKNUT FOR POST.	100/08/4711	2	RETAINING COLLAR.
	100/08/14627	1	PIN SEC. LUBRICATOR COVER.	100/08/4710	1	2 B.A. RETAINING SCREW L.H.
①	100/05/1984	2	DOWEL PIN FOR REAR COVER.	100/08/4709	2	2 B.A. RETAINING SCREW R.H.
				100/08/4708	1	SHUTTER GEAR.
				100/08/4707	1	LINK PIN.
				100/08/4706	1	LINK SCREW.
				100/08/4705	1	MASKING LINK.
				100/08/4704	1	QUADRANT PIVOT.
				100/02/7597	1	SHUTTER.
				100/08/4698	1	MASKING QUADRANT.
				100/01/11918	1	PROTECTOR FRAME.
	100/03/12792	1	BEARING CAP.	100/01/7589	1	SHUTTER CASE.
	100/03/13074	1	ADAPTOR SLEEVE.	100/01/7590	1	SHUTTER COVER.
	100/08/7621	1	GEAR FLANGE POST.	100/38/10945	1	COMP. INTER. POST.
	100/08/4724	1	SHUTTER SLEEVE.	100/38/7618	1	COMP. SAFETY SHUTTER.
	100/08/7535	1	SHUTTER RING.	100/38/15450	1	COMP. SET OF OIL PIPES.
	100/08/7534	1	SHUTTER BOSS.	100/38/7608	1	COMP. COMP^D GEAR.
	100/08/15214	1	SHUTTER SHAFT.	100/38/11917	1	MASKING SPINDLE.
	100/08/7054	1	BTM. COMP^D GEAR POST.	100/38/6886	1	COMP. IDLER GEAR.
	100/08/7053	1	SHUTTER DRIVING GEAR POST.	100/38/6883	1	COMP. BTM. COMP^D GEAR.
	100/08/7052	1	IDLER GEAR FLANGE.	100/38/6888	1	COMP. BTM. SPROCKET.
	100/08/6884	1	SHUTTER DRIVING GEAR.	100/38/6878	1	COMP. TOP SPROCKET.
	100/08/6808	1	SPRING FOR PLUNGER.	100/38/4581	1	COMP. INTER BRKT.
	100/08/7033	2	RETAINING WASHER.	100/38/4667	1	COMP. SHUTTER SHAFT BRG.
	100/08/4868	1	MASKING QUADRANT PLUNGER.	100/38/4866	1	SHUTTER GEAR BKT. COMP.
	100/08/4770	1	LUBRICATOR BLOCK.	100/38/11780	1	COMP. SHUTTER BRG. (FRONT)
	100/08/4771	1	LUBRICATOR COVER.	100/32/13248	1	COMP. INTER UNIT.

	CO/2/3/16/S.	1	SCREW SEC. SLEEVE.				
①	AL6 1/4"/8/8/S.	1	SCREW SEC. SLEEVE.				
	CH/4/5/16/S.	3	SCREW SEC. SHUTTER.				
	M/4/3/4"/12/S.	3	SCREW SEC. SHUTTER COVER.				
	AL/3/8"/3/S.	2	SCREW SEC. RETAINING COLLAR.				
	AL/3/8"/8/S.	4	SCREW SEC. GEAR POST ETC.				
	AL/2/3/S.	3	SCREW SEC. SHUT^R GEAR POST.				
	CH/4/3/8/S.	3	SCREW SEC. SAFETY SHUT^R BRG.				
	AL/2/3/16/S.	1	SCREW SEC. LINK PIN				
	CH/2/3/S.	2	SCREW SEC. SAFETY SHUTTER.				
	CH/2/1/S.	2	SCREW SEC. LUBRICATOR BODY.				
	FIL/2/1/2/S.	27	SCREW SEC. FLANGES ETC.				
	FIL/2/3/S.	6	SCREW SEC. FLANGES ETC.				
	M/4 3/4"/8/S.	2	SCREW SEC. SHUTTER CASE.				
	CH/2/1/8	6	- - FLANGE & BACK ETC.				
	CODE	N°	DESCRIPTION	CODE	N°	DESCRIPTION	

SCALE :- FULL SIZE			
ISSUE N°	1		
CH. NT. N°	6398		
DATE & SIG.	27.2.48		

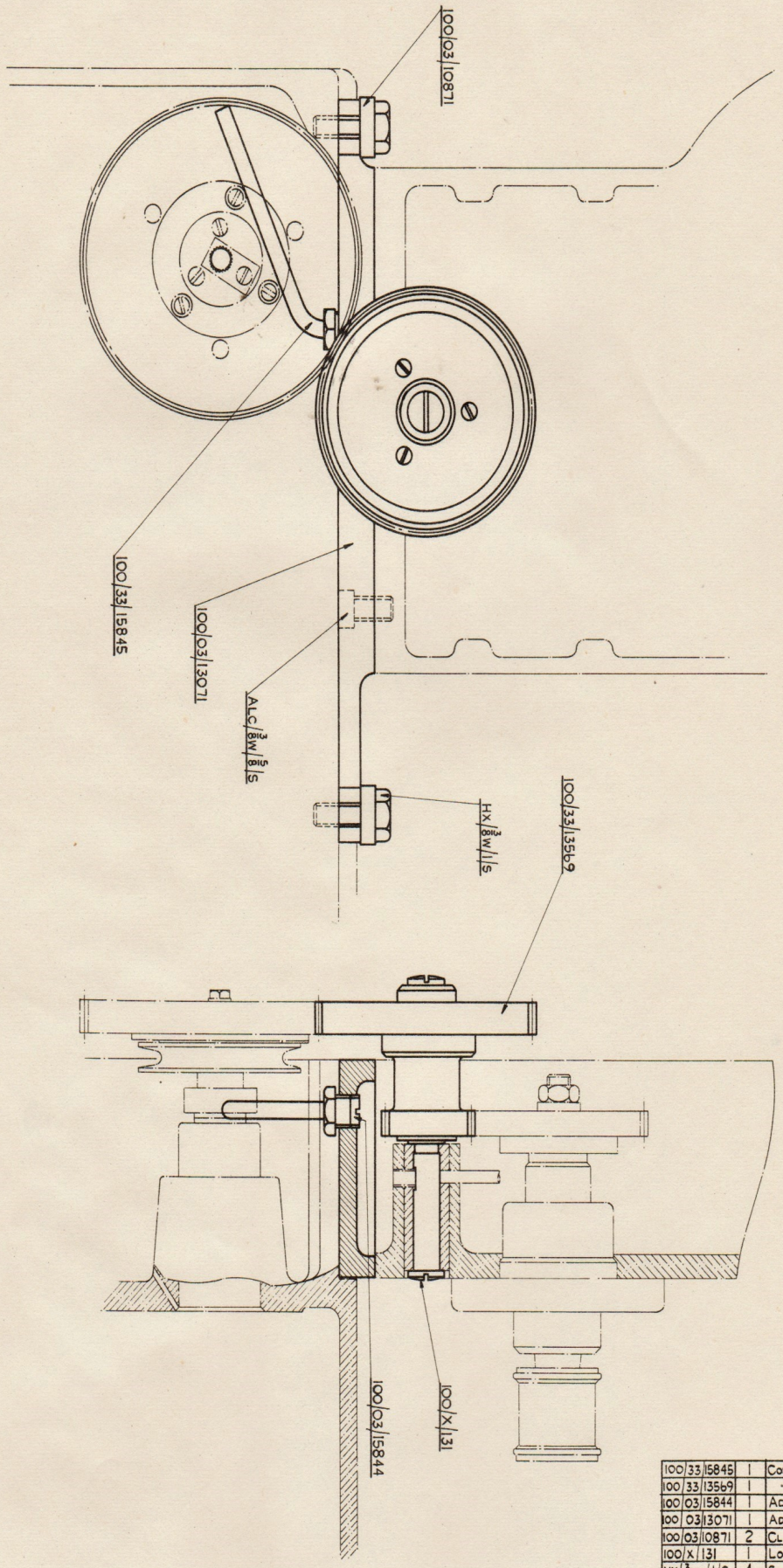
PROJECTOR REAR & GEARING ASSY CK 1B MECH.

REQ. ON	100/31/10944		
DRAWN	EC.	20 3 48	
TRACED	DS.		100/31/10753
CHECKED	BJ.		

PROJECTOR REAR & GEARING ASSEMBLY

Drawing No. 100/31/10753

Part No.	Description
CB/2/3/16/S	Screw Securing Sleeve
ALS/$\frac{1}{4}$W/3/8/S	Screw Securing Sleeve
CH/4/5/16/S	Screw Securing Shutter
HX/$\frac{1}{4}$W/1$\frac{1}{2}$/S	Screw Securing Shutter Cover
AL/$\frac{1}{4}$W/$\frac{1}{2}$/S	Screw Securing Retaining Collar
AL/$\frac{1}{4}$W/5/16/S	Screw Securing Gear Post etc.
AL/2/$\frac{1}{4}$S	Screw Securing Shutter Gear Post
CH/4/3/8/S	Screw Securing Safety Shutter Bearing
AL/2/3/16/S	Screw Securing Link Pin
CH/2/7/8/S	Screw Securing Safety Shutter
CH/2/1/S	Screw Securing Lubricator Body
FIL/2/$\frac{3}{8}$/S	Screw Securing Flanges etc.
FIL/2/$\frac{1}{2}$/S	Screw Securing Flanges etc.
HX/5/16W/$\frac{3}{4}$/S	Screw Securing Shutter Case
CH/2/$\frac{1}{2}$/S	Screw Securing Flange and Bearing etc.
100/03/12792	Bearing Cap
100/03/13074	Adapter Sleeve
100/03/7621	Gear Flange Post
100/03/4724	Shutter Sleeve
100/03/7595	Shutter Ring
100/03/7594	Shutter Boss
100/03/15274	Shutter Shaft
100/03/7054	Bottom Compound Gear Post
100/03/7053	Shutter Driving Gear Post
100/03/7052	Idler Gear Flange
100/03/6884	Shutter Driving Gear
100/03/5308	Spring for Plunger
100/03/5033	Retaining Washer
100/03/4968	Masking Quadrant Plunger
100/03/4770	Lubricator Block
100/03/4771	Lubricator Cover
100/03/4726	Shutter Shaft Collar
100/03/4721	Bottom Compound Gear Flange
100/03/4719	Shutter Driving Flange
100/03/4711	Retaining Collar
100/03/4710	2 BA Retaining Screw L.H.
100/03/4709	2 BA Retaining Screw R.H.
100/03/4708	Shutter Gear
100/03/4707	Link Pin
100/03/4706	Link Screw
100/03/4705	Masking Link
100/03/4704	Quadrant Pivot
100/02/7597	Shutter
100/03/4695	Masking Quadrant
100/01/11918	Projector Frame
100/01/7589	Shutter Case
100/01/7590	Shutter Cover
100/33/10945	Complete Inter Post
100/33/7618	Complete Safety Shutter
100/33/15450	Complete Set of Oil Pipes
100/33/7603	Complete Compound Gear
100/33/11917	Masking Spindle
100/33/6886	Complete Idler Gear
100/33/6883	Complete Bottom Compound Gear
100/33/6879	Complete Bottom Sprocket
100/33/6878	Complete Top Sprocket
100/33/4581	Complete Inter Bracket
100/33/4567	Complete Shutter Shaft Bearing
100/33/4565	Shutter Gear Bracket Complete
100/33/11730	Complete Shutter Bearing (Front)
100/32/13248	Complete Inter unit.
WK/2/S	Key for Shutter Gear Shaft
WK/3/S	Key for Shutter Gear
100/N/89	Nut for Pivot
100/9N/67	Locknut for Post
100/05/14627	Pin Securing Lubricator Cover
100/05/1984	Dowel Pin for Rear Cover



100/33/15845	1	Comp. Oil Drain Pipe
100/33/13569	1	" Adaptor Gear
100/03/15844	1	Adjusting Ring
100/03/13071	1	Adaptor Plate
100/03/10871	2	Clamp
100/X/131	1	Lock Screw
HX/3/8W/1/S	4	Screw sec. Mech.
ALC/3/8W/5/8/S	2	" " Plate
Code	No Off	Description

Modifications

Comp. Adaptation

G.K. 18 to BA.543

Material	Patt. No.	Finish	Redd On

Drawn B.H.
Traced J.J.
Checked

100/32/13085

3.11.49

COMPLETE ADAPTATION
G.K. 18 to B.A. 543

Drawing No. 100/32/13085

Part No.	Description
100/33/15845	Complete Oil Drain Pipe
100/33/13569	Complete Adapter Gear
100/03/15844	Adjusting Ring
100/03/13071	Adapter Plate
100/03/10871	Clamp
100/X/131	Lock Screw
HX/3/8W/1/S	Screw Securing Mech.
ALC/3/8W/5/8/S	Screw Securing Plate

GAUMONT-KALEE

UNIVERSAL ARC LAMP

Carbon Drives

Each carbon is directly and continuously driven from its own feed screws, these being geared together and driven from a variable speed D.C. Motor. The motor speed is independently controlled by means of a rheostat mounted on the rear panel and the motor circuit includes a fuse and switch controlling the motor. The speed variation covers the full range of carbon manufacturer's recommended burning combinations. By interchanging the gears coupling the feed screws, the lamp is quickly converted from H.I. to either L.I. or A.C. burning.

It should be noted that lamps will be supplied suitable for H.I. burning unless otherwise specified.

Each positively driven constantly rotating feed screw meshes with a worm wheel keyed to a shaft carried in its corresponding carbon carriage and extended to a hand-knob outside the lamp. Each shaft is held against rotation by a dual friction clutch. While so held, the worm wheel is engaged as a nut by the rotating feed screw, which thus traverses the carbon. Turning the knob by hand overcomes the grip of the clutch and rotates the worm wheel, which working into the lead screw like a rack, provides a simple and sensitive hand feed and also rapid traverse for resetting. The lamp is also available for hand feed, in which case the motor and gear train are replaced by 1:1 ratio gears incorporating a control knob acting as a common feed. In addition, the carbon adjusting knobs situated at the side of the lamp are of course provided, as in all other models.

Mirror Adjustment

The mirror is carried in a precision three-point mounting in which it is retained by a single spring loaded catch. Sensitive backlash-free micrometer levelling adjustments are provided and operated by knobs on the rear panel. Mirror focus adjustment is obtained by means of sliding the complete mirror mounting along the guide bars. Note that when this adjustment has been made the clamp screw should be made secure.

Mirror Screen and Dowser

These are linked together and can be operated from either side of the lamp. The mechanism is simple and robust without springs or complicated linkages, and provides a mirror screen which almost completely encircles the negative carbon, thus protecting the mirror during striking.

Carbon Grips and Guides

The carbon grips are of heat-resistant material of simple yet effective screw-clamp type to accept any carbon size. Their insulated clamping knobs are placed out of the glare of the lamp and remain cool to handle. The positive carbon grip is fixed and is carefully set in position at the factory.
The negative carbon grip is self-aligning to a carbon guide, which controls the carbon near the tip. The guide is adjustable both vertically and horizontally for accurate carbon alignment by micrometer control knobs on the rear panel. An inspection window is also incorporated in the rear panel for visual checking of the alignment.

Arc Image

A periscope throws an enlarged image of the arc onto a screen on the operating side of the lamp at the base of the chimney. The correct crater position is with the end of the positive carbon set at 4¼" from the back of the centre of the mirror and the periscope is set corresponding to this when the mirror is in the mean focussing position.

Further adjustment should not be necessary, but the position of the image on the screen can be controlled by turning and, if necessary, tilting the reflector which is carried by the periscope.

ELECTRICAL

All wiring is brought to a terminal panel in the rear of the lamp, accessible by removing the readily detachable cover plate. A detachable entry panel caters for variations in conduit fittings.

The rear panel which carries the motor control rheostat, motor fuse and switch along with associated wiring is readily detachable as a unit to give easy access to the wiring and also to the lamp mechanism. The fuses are of standard "Cartridge" type.

OPERATING AND MAINTENANCE

Installation

Remove the detachable cover beneath the rear panel thus exposing the terminal panel

Connect the arc leads to the specified terminals.
N.B. All internal wiring runs from this panel and the motor leads are connected across the main arc feed points.

Set the motor potentiometer to correspond to the carbon feed. i.e. to maintain the position of the image of the positive carbon tip on the screen and adjust the negative crutch to maintain correct positive crater formation.

Level the mirror by means of the adjusting knobs on the rear panel to obtain an even screen and finally focus the mirror, by means of sliding the complete mirror assembly along the guide bars, to obtain optimum screen illumination.
N.B. After focussing securely lock the mounting in position.

Lubrication

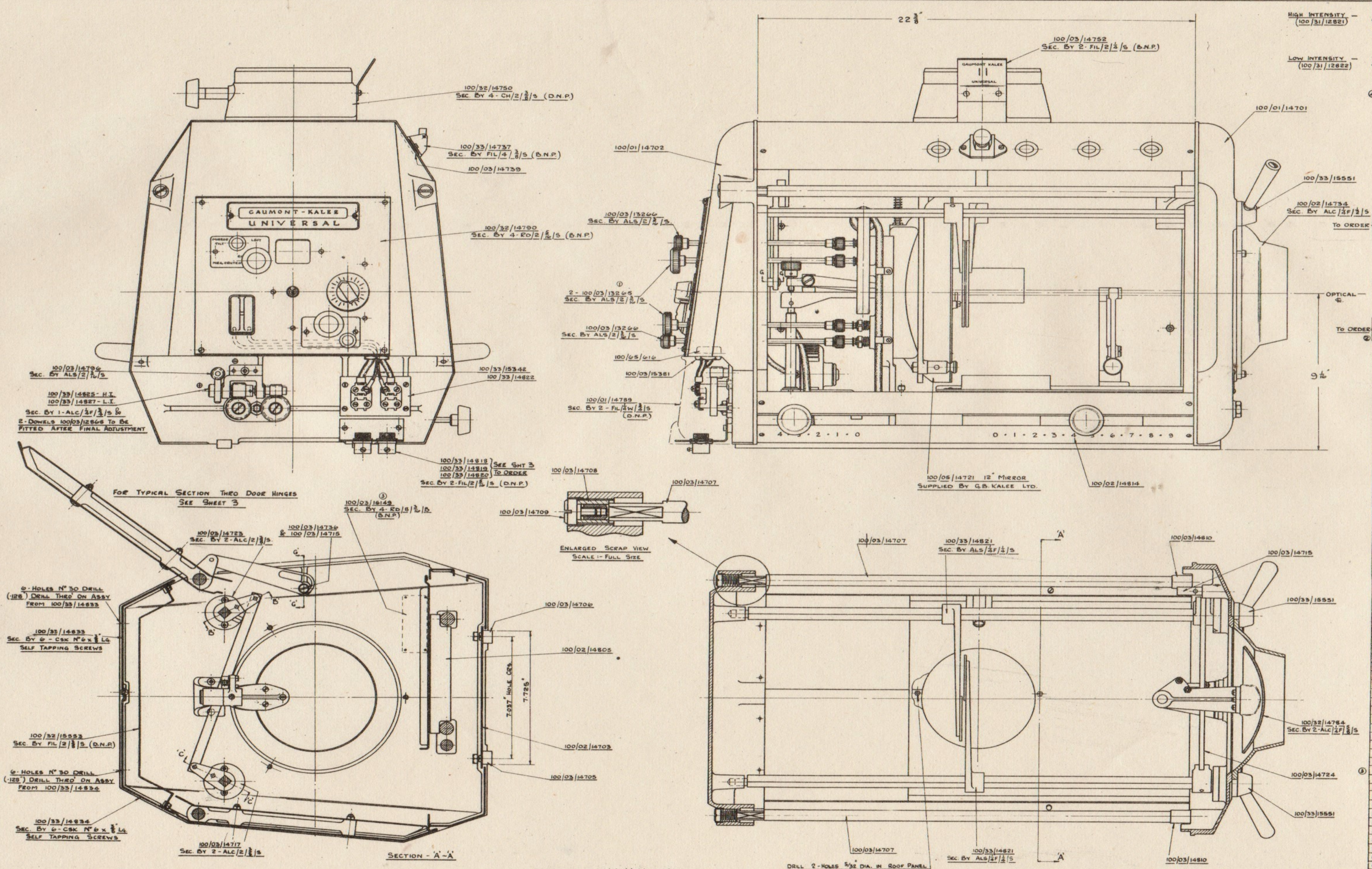
Oil sparingly and daily all bearings and guides.
The carbon carriage clutches should be kept free from oil and periodical cleaning of the friction discs along with the metal plate is recommended.

Carbon Carriage Drive Clutches

Undue tightening of the drive clutches merely makes the hand feed movement unnecessarily heavy. The clutches should be sufficiently tight to ensure the carbons carriages being driven at whatever rake the lamp is operating and once these are set they should require very little further attention as the clutch only "slips" whilst the carriages are fed by hand.

Removing the Mirror

With the mirror dowser fully open release the spring loaded catch at the top of the mirro support casting, lift the mirror from the bottom support posts and withdraw, taking care not to foul the negative carbon crutch or the periscope barrel.
To facilitate removal the negative crutch should be at the top of its vertical movement as controlled by the knob on the rear panel.



FOR SECTIONS 'B'-'B'; 'C'-'C' & 'G'-'G' SEE SHEET 3

NOTE :~ ALL B.N.P. SCREWS TO BE BUFFED BEFORE PLATING.

DRILL 2-HOLES 5/32" DIA. IN ROOF PANEL (NON-OP. SIDE) SPOTTED THRO' FROM OP. SIDE PANEL & FIT 2-RD/4/1/4/S D.N.P. & 2-N/4/S (D.N.P.) BEFORE ASSY. WITH CHIMNEY. ⑤

	CODE	Nº OFF	DESCRIPTION
HIGH INTENSITY (100/31/12821)	100/32/14780	1	COMP. POS. CARBON HOLDER H.I.
	100/33/14825	1	" LAYSHAFT H.I.
	100/03/14799	1	POS. WORMWHEEL H.I
	100/32/14835	1	COMP. MAGNET H.I.
LOW INTENSITY (100/31/12822)	100/32/14781	1	COMP POS. CARBON HOLDER L.I.
	100/33/14827	1	" LAYSHAFT (1-1 RATIO)
	100/03/14809	1	POS. WORMWHEEL (1-1 ")
	100/32/14782	1	COMP. MAGNET L.I.
④	~~100/31/14740~~	~~2~~	~~COMP. LAMPHOUSE DOOR~~
	100/31/14691	1	" MIRROR HOLDER
	100/32/14750	1	" CHIMNEY
	100/32/14760	1	" NEG. CARBON HOLDER
	100/32/14784	1	" DOWSER
	100/32/14790	1	" REAR CONTROL PANEL
	100/33/15910	1	" TOOL KIT (TO ORDER)
	100/32/15553	1	ASSY OF ROOF BAFFLE & BUSHES
	100/33/12931	2	1 3/4" DIA. MOULDED KNOB
	100/33/13287	1	COMP. NEG. CRUTCH CONTROL ROD (V)
	100/33/13288	1	" " " " " (H)
	100/33/13289	1	" MIRROR TILT " " (H)
	100/33/13290	1	" " " " " (V)
	100/33/14803	2	ASSY OF LEADSCREW BRG & BUSH
TO ORDER	100/33/14818	1	" " CABLE ADAPTOR PLATE I
	100/33/14819	1	" " " " " II
	100/33/14820	1	" " " " " III
	100/33/14821	2	COMP. MIRROR SHIELD
	100/33/14822	1	" TERMINAL PANEL D.C.
	100/33/14829	1	ASSY OF MIRROR SUPPORT BRIDGE & BUSH
	100/33/14830	1	COMP. FEED MOTOR
	100/33/14833	1	ASSY OF ROOF PANEL & EYELETS OP-SIDE
	100/33/14834	1	" " " " " " NON-OP. "
	100/33/14737	1	COMP. PERISCOPE
	100/33/14788	1	ASSY OF POS. LEAD
	100/33/15342	1	MOTOR INLET LEADS (D.C.)
TO ORDER	100/33/15575	1	ASSY OF LEADS ADPT TO GK 19 & 20 STAND
	100/33/15576	1	" " " " " " "
②	100/33/15899	1	" " " " " GK 18 STAND
	100/33/15551	2	" " DOWSER HANDLE & BAR
	100/01/14789	1	DETACHABLE COVER
	100/01/14701	1	FRONT CASTING
	100/01/14702	1	REAR "
	100/02/14703	1	SHEAR PLATE
	100/03/14704	2	GUIDE BAR
	100/03/14705	1	L.H. RAIL
	100/03/14706	1	R.H. RAIL
	100/03/14707	2	HINGE ROD
	100/03/14708	2	ADJUSTER FOR HINGE ROD
	100/03/14709	2	SCREW " " "
	100/03/14712	1	FOLDED SECTION
	100/03/14713	1	" "
	100/03/14714	1	" "
	100/03/14715	2	POST FOR DOOR SUPPORT
	100/03/14716	1	DOWSER STOP PIN
	100/03/14717	1	" " DISC
	100/03/14721	1	LINK ARM OP. SIDE.
	100/03/14722	1	" " NON-OP. SIDE
	100/03/14723	1	LOCATING DISC
	100/03/14724	1	LINK
	100/03/14728	2	" PIN
	100/03/14730	1	ACTUATING PIN
	100/02/14734	1	LIGHT CONE
	100/03/14736	2	STUD FOR DOOR SUPPORT
	100/03/14739	1	TAPPED BACKPLATE
	100/03/14752	1	IMAGE SCREEN
	100/02/14761	1	NEG. CARBON CARRIAGE
	100/03/14765	1	" FEED SHAFT
	100/03/14766	1	" " " COLLAR
	100/03/14767	2	LOCKNUT
	100/03/14768	2	FRICTION NUT
	100/03/14769	2	FEED SHAFT GEAR
	100/03/14771	1	" " WASHER
	100/03/14773	2	INSULATING "
	100/01/14774	1	POS. CARBON CARRIAGE
	100/03/14776	1	" CARRIAGE INSULATION
	100/03/14778	1	" FEED SHAFT
	100/03/14779	1	" " " COLLAR
	100/03/14785	4	SPACER
	100/03/14791	1	NEGATIVE LEADSCREW
	100/02/14792	1	POSITIVE "
	100/03/14796	1	MOTOR WORM
	100/03/14802	1	NEGATIVE WORMWHEEL
	100/02/14805	1	COVER TRAY
	100/03/14810	2	DISTANCE PIECE
	100/02/14811	1	CAST TRAY
	100/03/14812	1	STOP PIECE
	100/02/14814	1	TRANSFER FOR CARBON SCALE
⑤	100/03/16149	1	SERIAL Nº PLATE
	100/03/15381	1	CABLE ENTRY BUSH
	100/03/4709	2	SCREW SEC. WORMWHEELS
	100/03/12605	2	FRICTION DISC.
	100/03/12606	2	" COLLAR
	100/03/12609	2	" SPRING
	100/03/12611	4	" PAD
	100/03/12612	2	" PLATE
	100/03/12595	2	INSULATING BUSH NEG. CARRIAGE
	100/03/12645	2	INSULATION CLAMP SCREW
	100/03/12653	2	FRICTION PLATE KEY
	100/03/13152	1	LOCATING PIN
	100/03/13153	1	" " SPRING
	100/03/13259	2	INSULATING BUSH
	100/03/13266	2	CONTROL KNOB (MIRROR TILT)

SCALE :~ HALF FULL SIZE

ISSUE Nº	1	2	3	4	5
CH. NT. Nº	6207	6373	6538	6540	6615
DATE & SIGN	14.6.49	8.9.49	15.12.49	30.12.49	16.2.50

COMP 12" 'UNIVERSAL' ARCLAMP D.C.

MATERIAL	FINISH	REQ° ON

TRACED	J.G.	SHEET 1 OF 3 SHTS.
DRAWN	A.J.B.	100/31/12821 ~ H.I.
CHECKED	O.K.	100/31/12822 ~ L.I.

6.7.49.

COMPLETE 12" UNIVERSAL ARC LAMP D.C.

Drawing No. 100/31/12821 - H.I.
Drawing No. 100/31/12822 - L.I.

Sheet 1 of 3

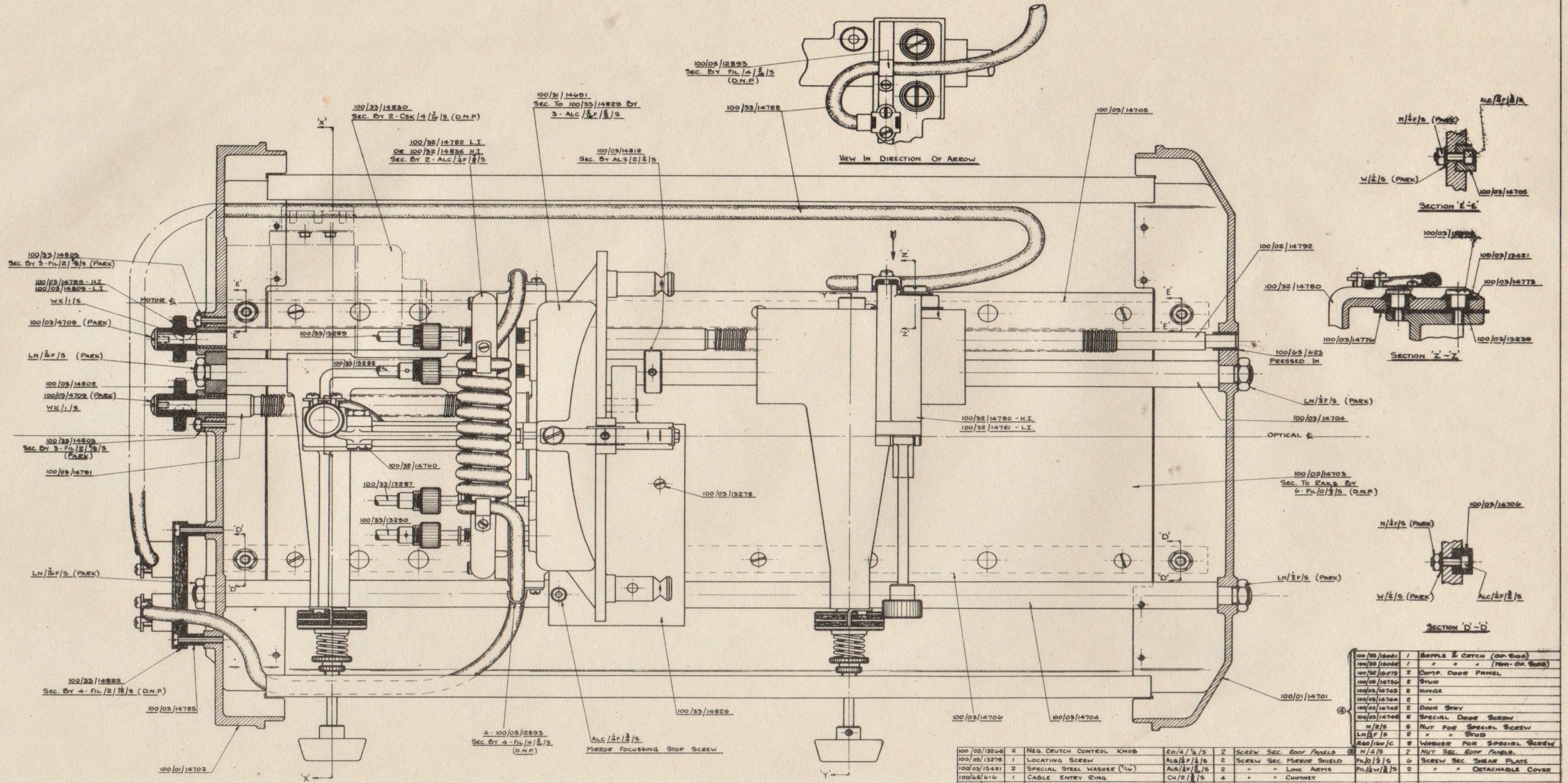
Part No.	Description	
100/32/14780	Complete Positive Carbon Holder H.I.	
100/33/14825	Complete Layshaft H.I.	
100/03/14799	Positive Wormwheel H.I.	
100/32/14835	Complete Magnet H.I.	
100/32/14781	Complete Positive Carbon Holder L.I.	
100/33/14827	Complete Layshaft (1-1 Ratio)	
100/03/14809	Positive Wormwheel (1-1 Ratio)	
100/32/14782	Complete Magnet L.I.	
100/31/14691	Complete Mirror Holder	
100/32/14750	Complete Chimney	
100/32/14760	Complete Negative Carbon Holder	
100/32/14784	Complete Dowser	
100/32/14790	Complete Rear Control Panel	
100/33/15910	Complete Tool Kit (to order)	
100/32/15553	Assembly of Roof Baffle & Bushes	
100/33/12931	1¾" Dia. Moulded Knob	
100/33/13287	Complete Negative Crutch Control Rod (V)	
100/33/13288	Complete Negative Crutch Control Rod (H)	
100/33/13289	Complete Mirror Tilt Control Rod (H)	
100/33/13290	Complete Mirror Tilt Control Rod (V)	
100/33/14803	Assembly of Leadscrew Bearing and Bush	
100/33/14818	Assembly of Cable Adapter Plate I)	
100/33/14819	Assembly of Cable Adapter Plate II)	To Order
100/33/14820	Assembly of Cable Adapter Plate III)	
100/33/14821	Complete Mirror Shield	
100/33/14822	Complete Terminal Panel D.C.	
100/33/14829	Assembly of Mirror Support Bridge & Bush	
100/33/14830	Complete Feed Motor	
100/33/14833	Assembly of Roof Panel & Eyelets Op. Side	
100/33/14834	Assembly of Roof Panel & Eyelets Non. Op. Side	
100/33/14737	Complete Periscope	
100/33/14788	Assembly of Positive Lead	
100/33/15342	Motor Inlet Leads (D.C)	
100/33/15575	Assembly of Leads Adapting to G.K. 19 and 20 Stand)	
100/33/15576	Assembly of Leads Adapting to G.K. 19 and 20 Stand)	To Order
100/33/15899	Assembly of Leads adapting to G.K. 18 Stand)	
100/33/15551	Assembly of Dowser Handle & Bar	
100/01/14789	Detachable Cover	
100/01/14701	Front Casting	
100/01/14702	Rear Casting	
100/02/14703	Shear Plate	
100/03/14704	Guide Bar	
100/03/14705	L.H. Rail	
100/03/14706	R.H. Rail	
100/03/14707	Hinge Rod	
100/03/14708	Adjuster for Hinge Rod	
100/03/14709	Screw for Hinge Rod	
100/03/14712	Folded Section	
100/03/14713	Folded Section	
100/03/14714	Folded Section	
100/03/14715	Post for Door Support	
100/03/14716	Dowser Stop Pin	
100/03/14717	Dowser Stop Disc	
100/03/14721	Link Arm Op. Side	
100/03/14722	Link Arm Non. Op. Side	
100/03/14723	Locating Disc	
100/03/14724	Link	
100/03/14728	Link Pin	
100/03/14730	Actuating Pin	
100/02/14734	Light Cone	
100/03/14736	Stud for Door Support	
100/03/14739	Tapped Backplate	
100/03/14752	Image Screen	
100/02/14761	Negative Carbon Carriage	
100/03/14765	Negative Feed Shaft	
100/03/14766	Negative Feed Shaft Collar	
100/03/14767	Locknut	
100/03/14768	Friction Nut	
100/03/14769	Feed Shaft Gear	
100/03/14771	Feed Shaft Washer	
100/03/14773	Insulating Washer	
100/01/14774	Positive Carbon Carriage	

COMPLETE 12" UNIVERSAL ARC LAMP D.C.

Drawing No. 100/31/12821 - H.I.
Drawing No. 100/31/12822 - L.I.

Sheet 1 of 3 - CONTINUED

Part No.	Description
100/03/14776	Positive Carriage Insulation
100/03/14778	Positive Feed Shaft
100/03/14779	Positive Feed Shaft Collar
100/03/14785	Spacer
100/03/14791	Negative Leadscrew
100/02/14792	Positive Leadscrew
100/03/14796	Motor Worm
100/03/14802	Negative Wormwheel
100/02/14805	Cover Tray
100/03/14810	Distance Piece
100/03/14811	Cast Tray
100/03/14812	Stop Piece
100/02/14814	Transfer for Carbon Scale
100/03/16149	Serial No. Plate
100/03/15381	Cable Entry Bush
100/03/4709	Screw Securing Wormwheels
100/03/12605	Friction Disc
100/03/12606	Friction Collar
100/03/12609	Friction Spring
100/03/12611	Friction Pad
100/03/12612	Friction Plate
100/03/12595	Insulating Bush Negative Carriage
100/03/12645	Insulation Clamp Screw
100/03/12653	Friction Plate Key
100/03/13152	Locating Pin
100/03/13153	Locating Pin Spring
100/03/13239	Insulating Bush
100/03/13266	Control Knob (Mirror Tilt)



For Sections: 'X'-'X' 'Y'-'Y' See Sheet 3

Code	Nº Off	Description	Code	Nº Off	Description	Code	Nº Off	Description
						④ 100/38/16061	1	Baffle & Catch (Op. Side)
						100/38/16062	1	" " " (Non-Op. Side)
						100/32/16073	2	Comp. Door Panel
						100/03/14736	2	Stud
						100/03/14743	2	Hinge
						100/03/14744	2	"
						100/03/14745	2	Door Stay
						100/03/14746	8	Special Door Screw
						N/2/S	8	Nut for Special Screw
						LN/¼F/S	2	" " Stud
						AGS/160/C	8	Washer for Special Screw
100/03/13265	2	Neg. Crutch Control Knob	RD/4/¼/S	2	Screw Sec. Roof Panels ⑤	N/4/S	2	Nut Sec. Roof Panels.
100/03/13278	1	Locating Screw	ALS/¼F/¼/S	2	Screw Sec. Mirror Shield	FIL/0/½/S	6	Screw Sec. Shear Plate
100/03/13421	2	Special Steel Washer ($\frac{7}{16}$")	ALS/¼F/$\frac{5}{16}$/S	2	" " Link Arms	FIL/½W/⅜/S	2	" " Detachable Cover
100/65/616	1	Cable Entry Ring	CH/2/⅛/S	4	" " Chimney			
100/65/623	1	Front Casting Bush	CSK/4/$\frac{5}{16}$/S	2	" " Motor	N/2/S	1	Nut Sec. Actuating Pin
100/05/12893	5	Cable Clip	RD/6/$\frac{3}{16}$/B	4	" " Serial Nº Plate	N/¼F/S	4	" " Rails Etc.
100/05/14721	1	12" Dia. Mirror (Suppᵈ By G.B. Kalee)	RD/2/$\frac{3}{16}$/S	4	" " Control Panel	N/$\frac{5}{16}$F/S	1	" " Neg. Carbon Holder
100/03/12866	2	Dowel Pin for Layshaft	FIL/4/⅜/S	2	" " Periscope	LN/$\frac{5}{16}$F/S	2	" " Guide Bar (Rear)
ALC/2/⅜/S	4	Screw Sec. Stop & Locating Disc.	FIL/4/$\frac{5}{16}$/S	2	" " Friction Pltᵉ Key (Pad)	LN/½F/S	2	" " " " (For'd)
ALC/¼F/½/S	3	" " Light Cone	FIL/4/$\frac{5}{16}$/S	5	" " Cable Clip (D.N.P.)	W/¼/S	4	Washer for Rails Etc.
ALC/¼F/⅜/S	2	" " Dowser	FIL/2/$\frac{3}{16}$/S	1	" Locating Cast Tray	W/$\frac{5}{16}$/S	2	" " Neg. Carb. Holder
ALC/¼F/¼/S	6	" " Rails & Layshaft	FIL/2/$\frac{5}{16}$/S	2	" Sec. Cable Adaptor Plate	[illegible] SHKPRF.	1	" " Actuating Pin
ALC/¼F/⅛/S	2	" " Magnet	FIL/2/¼/S	2	" " Image Screen	WK/1/S	6	Key for Gear Etc.
ALC/$\frac{5}{16}$F/⅜/S	3	" " Mirror Holder	FIL/2/⅜/S	2	" " Roof Baffle	CSK/Nº6/⅜	28	Screw Sec. Roof Panels Etc.
ALS/2/$\frac{3}{16}$/S	10	" " Knobs Etc.	FIL/2/½/S	6	" " Leadscrew Brg. Bush	Self Tapping		
ALS/2/½/S	4	" " Gears Etc.	FIL/2/1⅛/S	4	" " Terminal Plate			

Material	Patt Nº	Finish	Reqᵈ On				
						Traced	J.D.
						Drawn	A.J.B.
						Checked	

Scale: Full Size

Issue Nº					
Ch. Nt. Nº					
Date & Sigᵉ					

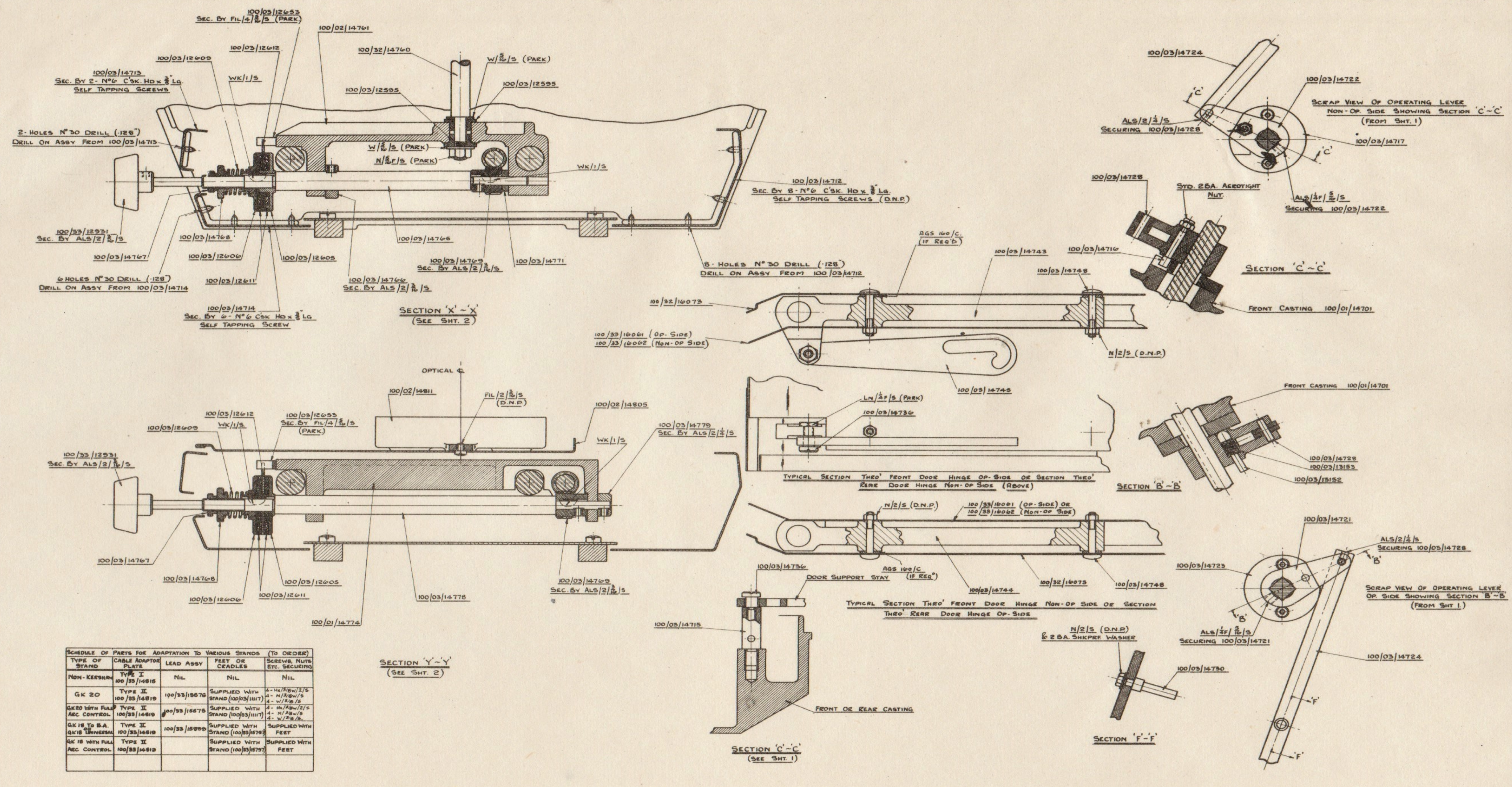
Comp. 12" 'Universal' Arclamp D.C.

Sht 2 of 3 Sheets
100/31/12821-H.I.
100/31/12822-L.I.

COMPLETE 12" UNIVERSAL
ARCLAMP D.C.

Drawing No. 100/31/12821 - H.I.
100/31/12822 - L.I.
SHEET 2 of 3.

Part No.	Description
100/03/13265	Negative Crutch Control Knob
100/03/13278	Locating Screw
100/03/13421	Special Steel Washer (7/16")
100/65/616	Cable Entry Ring
100/65/623	Front Casting Bush
100/05/12893	Cable Clip
100/05/14721	12" Dia. Mirror (Supplied By G.B.Kalee)
100/03/12865	Dowel Pin for Layshaft
ALC/2/$\frac{3}{8}$/S	Screw Securing Stop & Locating Disc
ALC/$\frac{1}{4}$F/$\frac{1}{2}$/S	Screw Securing Light Cone
ALC/$\frac{1}{4}$F/5/8/S	Screw Securing Dowser
ALC/$\frac{1}{4}$F/$\frac{3}{4}$/S	Screw Securing Rails & Layshaft
ALC/$\frac{1}{4}$F/$\frac{7}{8}$/S	Screw Securing Magnet
ALC/5/16F/$\frac{5}{8}$/S	Screw Securing Mirror Holder
ALS/2/3/16/S	Screw Securing Knobs etc.
ALS/2/$\frac{1}{4}$/S	Screw Securing Gears etc.
RD/4/$\frac{1}{4}$/S	Screw Securing Roof Panels
ALS/$\frac{1}{4}$F/$\frac{1}{4}$/S	Screw Securing Mirror Shield
ALS/$\frac{1}{4}$F/5/16/S	Screw Securing Link Arms
CH/2/$\frac{3}{8}$/S	Screw Securing Chimney
CSK/4/7/16/S	Screw Securing Motor
RD/8/3/16/B	Screw Securing Serial No. Plate
RD/2/2/5/16/S	Screw Securing Control Panel
FIL/4/3/8/S	Screw Securing Periscope
FIL/4/5/16/S	Screw Securing Friction Plate Key
FIL/4/5/16/S	Screw Securing Cable Clip
FIL/2/3/16/S	Screw Locating Cast Tray
FIL/2/5/16/S	Screw Securing Cable Adapter Plate
FIL/2/$\frac{1}{4}$/S	Screw Securing Image Screen
FIL/2/$\frac{5}{8}$/S	Screw Securing Roof Baffle
FIL/2/$\frac{5}{8}$/S	Screw Securing Leadscrew Bearing & Bush
FIL/2/1$\frac{1}{4}$/S	Screw Securing Terminal Plate
100/33/16061	Baffle & Catch (Op. Side)
100/33/16062	Baffle & Catch (Non.Op. Side)
100/32/16073	Complete Door Panel
100/03/14736	Stud
100/03/14743	Hinge
100/03/14744	Hinge
100/03/14745	Door Stay
100/03/14748	Special Door Screw
N/2/S	Nut for Special Screw
LN/$\frac{1}{4}$F/S	Nut for Stud
RGS/160/C	Washer for Special Screw
N/4/S	Nut Securing Roof Panels
FIL/0/$\frac{1}{2}$/S	Screw Securing Shear Plate
FIL/$\frac{1}{4}$W/$\frac{3}{4}$/S	Screw Securing Detachable Cover
N/2/S	Nut Securing Actuating Pin
N/$\frac{1}{4}$F/S	Nut Securing Rails etc.
N/5/16F/S	Nut Securing Negative Carbon Holder
LN/7/16F/S	Nut Securing Guide Bar (Rear)
LN/$\frac{1}{2}$F/S	Nut Securing Guide Bar (For'd).
W/$\frac{1}{4}$/S	Washer for Rails etc.
W/5/16/S	Washer for Negative Carbon Holder
2BA SHKPRF.	Washer for Actuating Pin
WK/1/S	Key for Gear etc.
CSK/No.6/$\frac{3}{8}$	Screw Securing Roof Panels etc.



Schedule Of Parts For Adaptation To Various Stands (To Order)				
Type Of Stand	Cable Adaptor Plate	Lead Assy	Feet Or Cradles	Screws, Nuts Etc. Securing
Non-Kershaw	Type I 100/33/14815	Nil	Nil	Nil
GK 20	Type II 100/33/14819	100/33/15676	Supplied With Stand (100/03/11117)	4 - Hx/3/8w/2/S 4 - N/3/8w/S 4 - W/3/8/S
GK20 With Full Arc Control	Type II 100/33/14819	100/33/15675	Supplied With Stand (100/03/11117)	4 - Hx/3/8w/2/S 4 - N/3/8w/S 4 - W/3/8/S.
GK 18 To B.A. or GK18 Universal	Type II 100/33/14819	100/33/15899	Supplied With Stand (100/33/15797)	Supplied With Feet
GK 18 With Full Arc Control	Type II 100/33/14819		Supplied With Stand (100/33/15797)	Supplied With Feet

H.I.:- High Intensity
L.I.:- Low "

Scale:- Full Size

Issue Nº | Ch. Nt. Nº | Date & Sig.

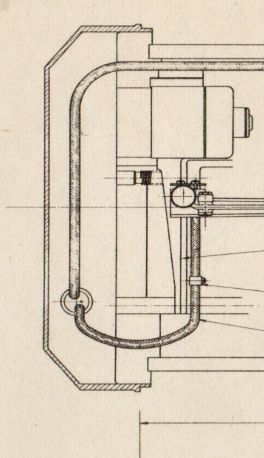
COMP. 12" 'UNIVERSAL' ARCLAMP D.C.

Sheet 3 Of 3 Sheets

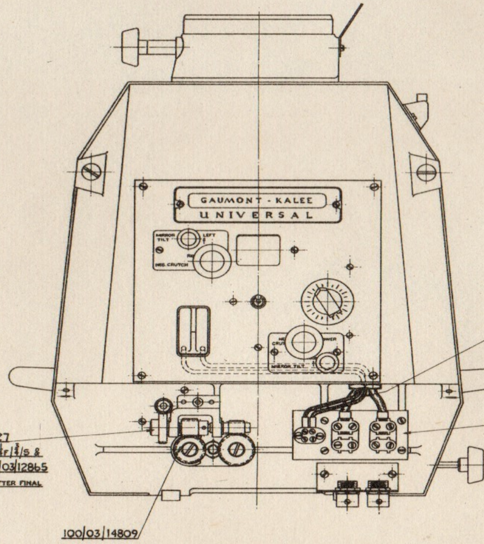
Reg'd On. | Traced | Drawn | Checked

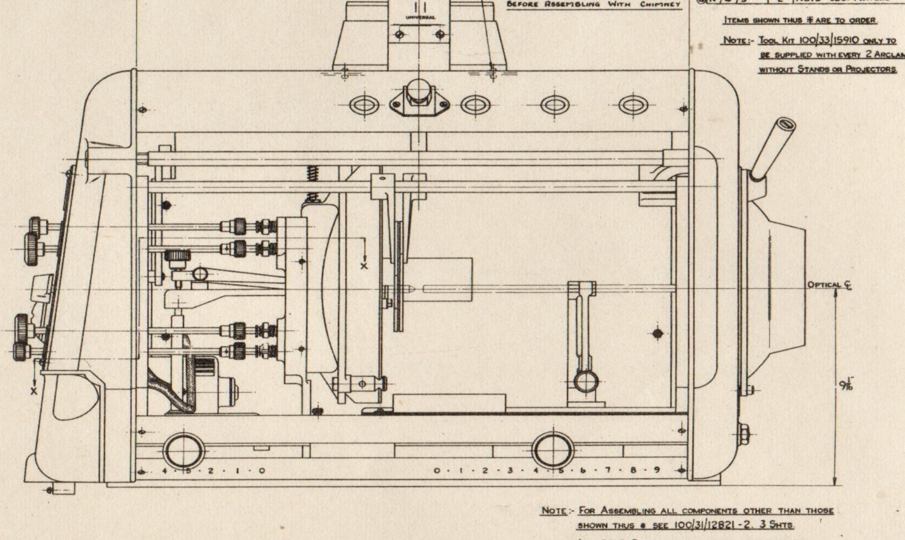
100/31/12821-H.I.
100/31/12822-L.I.

SCHEDULE OF PARTS FOR ADAPTATION TO VARIOUS STANDS (TO ORDER).				
TYPE OF STAND	CABLE ADAPTOR PLATE	LEAD ASSY.	FEET OR CRADLES	BOLTS AND NUTS SEC.
NON-KERSHAW	TYPE I 100/33/14818	NIL	NIL	NIL.
G.K.20	TYPE II 100/33/14819	100/33/15576	SUPPLIED WITH STAND 100/03/11117	4-HX/$\frac{3}{8}$W/2/S 4-N/$\frac{3}{8}$W/S 4-W/$\frac{3}{8}$W/S
G.K.20 WITH FULL ARC CONTROL	TYPE II 100/33/14819	100/33/15575	SUPPLIED WITH STAND 100/03/11117	4-HX/$\frac{3}{8}$W/2/S 4-N/$\frac{3}{8}$W/S 4-W/$\frac{3}{8}$/S.
G.K.18 TO B.A. OR G.K.18 UNIVERSAL	TYPE II 100/33/14819	100/33/15899	SUPPLIED WITH STAND 100/33/15797	SUPPLIED WITH FEET
G.K.18 WITH FULL ARC CONTROL	TYPE II 100/33/14819		SUPPLIED WITH STAND 100/33/15797	SUPPLIED WITH FEET



SCRAP SECTION X-X





④ DRILL 2 HOLES $\frac{5}{32}$" DIA. IN ROOF PANEL (NON-OP SIDE) SPOTTED THRO' FROM OP-SIDE ROOF PANEL & FIT
2 - RD/4/$\frac{1}{4}$/S (D.N.P.)
2 - N/4/S (D.N.P.)
BEFORE ASSEMBLING WITH CHIMNEY

③	100/33/16061	1	BAFFLE & CATCH (OP SIDE)
③	100/33/16062	1	- & - (NON-OP SIDE)
③	100/32/16073	2	COMP. DOOR PANEL
③	100/03/14736	2	STUD
③	100/03/14743	2	HINGE
③	100/03/14744	2	-
③	100/03/14745	2	DOOR STAY
③	100/03/14748	8	SPECIAL DOOR SCREW
③	N/2/S	8	NUT FOR SPECIAL SCREW
③	LN/$\frac{1}{4}$F/S	2	- - STUD
③	AGS/160/C	8	WASHER FOR SPECIAL SCREW

	100/05/12893	1	CABLE CLIP	
	100/65/616	1	- ENTRY RING	
	100/65/623	1	FRONT CASTING BUSH	
	100/33/14800	1	ARC LEAD (A.C.)	*
	100/33/14827	1	COMP. LAYSHAFT	*
	100/33/14823	1	- TERMINAL PANEL	*
	100/33/15343	1	MOTOR INLET LEADS (A.C.)	*
	100/03/14809	1	POS. WORMWHEEL (1:1 RATIO)	*
	100/03/14777	1	CARBON CARRIAGE (A.C.)	* ①
	100/03/12650	1	CABLE CLIP	*
	ALC/2/$\frac{3}{8}$/S	4	SCREW SEC. STOP & LOCATING PIN	
	ALC/$\frac{1}{4}$F/$\frac{1}{2}$/S	3	- - LIGHT CONE.	
	ALC/$\frac{1}{4}$F/$\frac{5}{8}$/S	2	- - DOWSER	
	ALC/$\frac{1}{4}$F/$\frac{3}{4}$/S	6	- - RAILS ETC.	
	ALC/$\frac{5}{16}$F/$\frac{5}{8}$/S	3	- - MIRROR HOLDER.	
	ALS/2/$\frac{3}{16}$/S	10	- - KNOBS ETC.	
	ALS/2/$\frac{1}{4}$/S.	4	- - GEARS ETC.	
	ALS/$\frac{1}{4}$F/$\frac{1}{4}$/S	2	- - MIRROR SHIELD	
	ALS/$\frac{1}{4}$F/$\frac{5}{16}$/S	2	- - LINK ARMS	
	CH/2/$\frac{3}{8}$/S	4	- - CHIMNEY	
	RD/8/$\frac{3}{16}$/B	4	- - SERIAL No. PLATE.	
	RD/2/$\frac{5}{16}$/S	4	- - REAR CONTROL PANEL	
	FIL/4/$\frac{3}{8}$/S	2	- - PERISCOPE	
PARK.	FIL/4/$\frac{5}{16}$/S	2	- - FRICTION PLATE KEY	
D.N.P.	FIL/4/$\frac{5}{16}$/S	1	- - CABLE CLIP.	
	FIL/2/$\frac{3}{16}$/S	1	- LOCATING CAST TRAY.	
	FIL/2/$\frac{5}{16}$/S	3	- SEC. CABLE ADAPTOR PLATE.	
	FIL/2/$\frac{1}{4}$/S.	2	- - IMAGE SCREEN	
	FIL/2/$\frac{3}{8}$/S	2	- - ROOF BAFFLE	
	FIL/2/$\frac{5}{8}$/S	6	- - LEADSCREW BRG.	
	FIL/2/1$\frac{1}{8}$/S	4	- - TERMINAL PANEL.	
	FIL/0/$\frac{1}{2}$/S	6	- - SHEAR PLATE	
	FIL/$\frac{1}{4}$W/$\frac{3}{4}$/S.	2	- - DETACHABLE COVER.	
	CSK./4/$\frac{7}{16}$/S	2	- - MOTOR.	
	N/2/S.	1	NUT SEC. ACTUATING PIN	
	N/$\frac{1}{4}$F/S	4	- - RAILS.	
	N/$\frac{5}{16}$F/S	1	- - NEG. CARBON HOLDER.	
	LN/$\frac{7}{16}$F/S	2	- - GUIDE BAR (REAR).	
	LN/$\frac{1}{2}$F/S	2	- - - - (FRONT.)	
	W/$\frac{1}{4}$/S	4	WASHER FOR RAILS.	
	W/$\frac{5}{16}$/S	2	- - NEG. CARB. HOLDER	
	2BA SHKPROOF.	1	- - ACTUATING PIN	
	WK/1/S	6	KEY FOR GEARS ETC.	
	PKST/No.6/$\frac{3}{8}$/CK	28	SCREW SEC. ROOF PANELS ETC.	
④	RD/4/$\frac{1}{4}$/S	2	- - PANELS	
*	100/33/15910	1	TOOL KIT.	
④	N/4/S	2	NUTS SEC. PANELS	

ITEMS SHOWN THUS * ARE TO ORDER.

NOTE:- TOOL KIT 100/33/15910 ONLY TO BE SUPPLIED WITH EVERY 2 ARCLAMPS WITHOUT STANDS OR PROJECTORS.

NOTE:- FOR ASSEMBLING ALL COMPONENTS OTHER THAN THOSE SHOWN THUS * SEE 100/31/12821-2, 3 SHTS.

ALL B.N.P. SCREWS TO BE BUFFED BEFORE PLATING.

CODE	No. OFF	DESCRIPTION
100/31/14691	1	COMP. MIRROR HOLDER.
~~100/31/14740~~	~~2~~	~~- [illegible] DOOR~~ ③
100/32/14750	1	- CHIMNEY
100/32/14760	1	- NEG. CARBON HOLDER.
100/32/14780	1	- POS. - -
100/32/14784	1	- DOWSER.
100/32/14790	1	- REAR CONTROL PANEL
100/32/15553	1	ASSY. OF ROOF BAFFLE & BUSHES
100/33/12931	2	1$\frac{3}{4}$" DIA. MOULDED KNOB.
100/33/13287	1	COMP. NEG. CRUTCH CONTROL KNOB (V)
100/33/13288	1	- - - - - (H)
100/33/13289	1	- MIRROR TILT - - (H)
100/33/13290	1	- - - - - (V)
100/33/14803	2	ASSY. OF LEADSCREW BRG. & BUSH
100/33/14818	1	- - CABLE ADAPTER PLATE I *
100/33/14819	1	- - - - - II *
100/33/14820	1	- - - - - III *
100/33/14821	2	COMP. MIRROR SHIELD
100/33/14829	1	MIRROR SUPPORT BRIDGE & BUSH.
100/33/14830	1	COMP. FEED MOTOR
100/33/14833	1	ROOF PANEL & EYELETS - OP. SIDE
100/33/14834	1	- - - - - NON-OP SIDE
100/33/14737	1	COMP. PERISCOPE.
100/33/14788	1	ASSY. OF POSITIVE LEAD
100/33/15575	1	LEADS ADAPTING TO G.K.19 & 20 STDS. *
100/33/15576	1	- - - - - & - - *
100/33/15899	1	- - - - 18 STD. *
100/33/15551	1	DOWSER HANDLE & BAR.
100/01/14701	1	FRONT CASTING
100/01/14702	1	REAR -
100/02/14703	1	SHEAR PLATE
100/03/14704	2	GUIDE BAR.
100/03/14705	1	L.H. RAIL
100/03/14706	1	R.H. -
100/03/14707	2	HINGE ROD
100/03/14708	2	ADJUSTER FOR HINGE ROD
100/03/14709	2	SCREW - - -
100/03/14712	1	FOLDED SECTION
100/03/14713	1	- -
100/03/14714	1	- -
100/03/14715	2	POST FOR DOOR SUPPORT
100/03/14716	1	DOWSER STOP PIN
100/03/14717	1	- - DISC
100/03/14721	1	LINK ARM (OP. SIDE).
100/03/14722	1	- - (NON. OP. SIDE).
100/03/14723	1	LOCATING DISC.
100/03/14724	1	LINK.
100/03/14728	2	- PIN
100/03/14730	1	ACTUATING PIN
100/03/14734	1	LIGHT CONE
100/03/14736	2	STUD FOR DOOR SUPPORT
100/03/14739	1	TAPPED BACKPLATE
100/03/14752	1	IMAGE SCREEN
100/03/14765	1	NEG. FEED SHAFT
100/03/14766	1	- - COLLAR.
100/03/14767	2	LOCKNUT
100/03/14768	2	FRICTION NUT
100/03/14769	2	FEED SHAFT GEAR.
100/03/14771	1	- - WASHER.
100/03/14773	2	INSULATING -
100/01/14774	1	POSITIVE CARBON CARRIAGE.
100/03/14776	1	- CARRIAGE INSULATION
100/03/14778	1	- FEED SHAFT
100/03/14779	1	- - - COLLAR.
100/03/14785	4	SPACER.
100/01/14789	1	DETACHABLE COVER.
100/03/14791	1	NEGATIVE LEADSCREW
100/02/14792	1	POSITIVE -
100/03/14796	1	MOTOR WORM
100/03/14802	1	NEGATIVE WORMWHEEL
100/02/14806	1	COVER TRAY.
100/03/14810	2	DISTANCE PIECE
100/02/14811	1	CAST TRAY
100/03/14812	1	STOP PIECE
100/02/14814	1	TRANSFER FOR CARBON SCALE.
100/03/16149	1	SERIAL No. PLATE
100/03/15381	1	CABLE ENTRY BUSH
100/03/4709	2	SCREW SEC. WORMWHEELS
100/03/12605	2	FRICTION DISC
100/03/12606	2	- COLLAR
100/03/12609	2	- SPRING
100/03/12611	4	- PAD
100/03/12612	2	- PLATE
100/03/12595	2	INSULATING BUSH NEG. CARRIAGE.
100/03/12645	2	INSULATION CLAMP SCREW
100/03/12653	2	FRICTION PLATE KEY
100/03/13152	1	LOCATING PIN
100/03/13153	1	- - SPRING
100/03/13239	2	INSULATING BUSH
100/03/13266	2	MIRROR TILT CONTROL KNOB.
100/03/13265	2	NEG. CRUTCH - -
100/03/13278	1	LOCATING SCREW
100/03/13421	2	SPECIAL STEEL WASHER ($\frac{1}{16}$")
100/05/14721	1	12" MIRROR. (SUPPLIED BY G.B.-KALEE)

SCALE: $\frac{1}{2}$ FULL SIZE

ISSUE No.	1	2	3	4
CH. NT. No	6381	6538	6540	6615
DATE & SIG.	4.10.49. R.M.	15.12.49	2.1.50. R.M.	16.2.50

COMP. "UNIVERSAL" 12" ARCLAMP A.C.

MATERIAL.	PATT. No.	FINISH	REQD. ON

DRAWN	R.M.	100/31/12820
TRACED	J.J.	
CHECKED		6.10.49

COMPLETE UNIVERSAL 12" ARCLAMP A.C

Drawing No. 100/31/12820

	Part No.	Description
	100/33/16061	Baffle & Catch (Op. Side)
	100/33/16062	Baffle & Catch (Non. Op. Side
	100/32/16073	Complete Door Panel
	100/03/14736	Stud
	100/03/14743	Hinge
	100/03/14744	Hinge
	100/03/14745	Door Stay
	100/03/14748	Special Door Screw
	N/2/S	Nut for Special Screw
	LN/¼F/S	Nut for Stud
	AGS/160/C	Washer for Special Screw
	100/05/12893	Cable Clip
	100/65/616	Cable Entry Ring
	100/65/623	Front Casting Bush
*	100/33/14800	Arc Lead (A.C)
*	100/33/14827	Complete Lay shaft
*	100/33/14823	Complete Terminal Panel
*	100/33/15343	Motor Inlet Leads (A.C)
*	100/03/14809	Positive Wormwheel (1:1 Ratio)
*	100/03/14777	Carbon Carriage (A.C)
*	100/03/12650	Cable Clip
	ALC/2/3/8/S	Screw Securing Stop & Locating Pin
	ALC/¼F/½/S	Screw Securing Light Cone
	ALC/¼F/5/8/S	Screw Securing Dowser
	ALC/¼F/3/4/S	Screw Securing Rails Etc.
	ALC/5/16/F/5/8/S	Screw Securing Mirror Holder
	ALS/2/3/16/S	Screw Securing Knobs Etc.
	ALS/2/¼/S	Screw Securing Gears Etc.
	ALS/¼F/¼S	Screw Securing Mirror Shield
	ALS/¼F/5/16/S	Screw Securing Link Arms
	CH/2/3/8/S	Screw Securing Chimney
	RD/8/3/16/B	Screw Securing Serial No. Plate
	RD/2/5/16/S	Screw Securing Rear Control Panel
	FIL/4/3/8/S	Screw Securing Periscope
	FIL/4/5/16/S	Screw Securing Friction Plate Key
	FIL/4/5/16/S	Screw Securing Cable Clip
	FIL/2/3/16/S	Screw Locating Cast Tray
	FIL/2/5/16/S	Screw Securing Cable Adapter Plate
	FIL/2/¼/S	Screw Securing Image Screen
	FIL/2/3/8/S	Screw Securing Roof Baffle
	FIL/2/5/8/S	Screw Securing Leadscrew Bearing
	FIL/2/1⅛/S	Screw Securing Terminal Panel
	FIL/0/½/S	Screw Securing Shear Plate
	FIL/¼W/3/4/S	Screw Securing Detachable Cover
	CSK/4/7/16/S	Screw Securing Motor
	N/2/S	Nut Securing Actuating Pin
	N/¼F/S	Nut Securing Rails
	N/5/16F/S	Nut Securing Negative Carbon Holder
	LN/7/16/F/S	Nut Securing Guide Bar (Rear)
	LN/½F/S	Nut Securing Guide Bar (Front)
	W/¼/S	Washer for Rails
	W/5/16/S	Washer for Negative Carbon Holder
	2BA Shakeproof	Washer for Actuating Pin
	WK/1/S	Key for Gears Etc.
	PKST/No.6/3/8/CK	Screw Securing Roof Panels etc.
	PD/4/¼/S	Screw Securing Panels
	100/33/15910	Tool Kit
	N/4/S	Nuts Securing Panels
	100/31/14691	Complete Mirror Holder
	100/32/14750	Complete Chimney
	100/32/14760	Complete Negative Carbon Holder
	100/32/14780	Complete Positive Carbon Holder
	100/32/14784	Complete Dowser
	100/03/12609	Friction Spring
	100/03/12611	Friction Pad
	100/03/12612	Friction Plate
	100/03/12595	Insulating Bush Negative Carriage
	100/03/12653	Friction Plate Key
	100/03/13152	Locating Pin
	100/03/13153	Locating pin Spring
	100/03/13239	Insulating Bush
	100/03/13266	Mirror Tilt Control Knob
	100/03/13265	Negative Crutch Control Knob
	100/03/13278	Locating Screw
	100/03/13421	Special Steel Washer (7/16")
	100/05/14721	12" Mirror

* TO ORDER

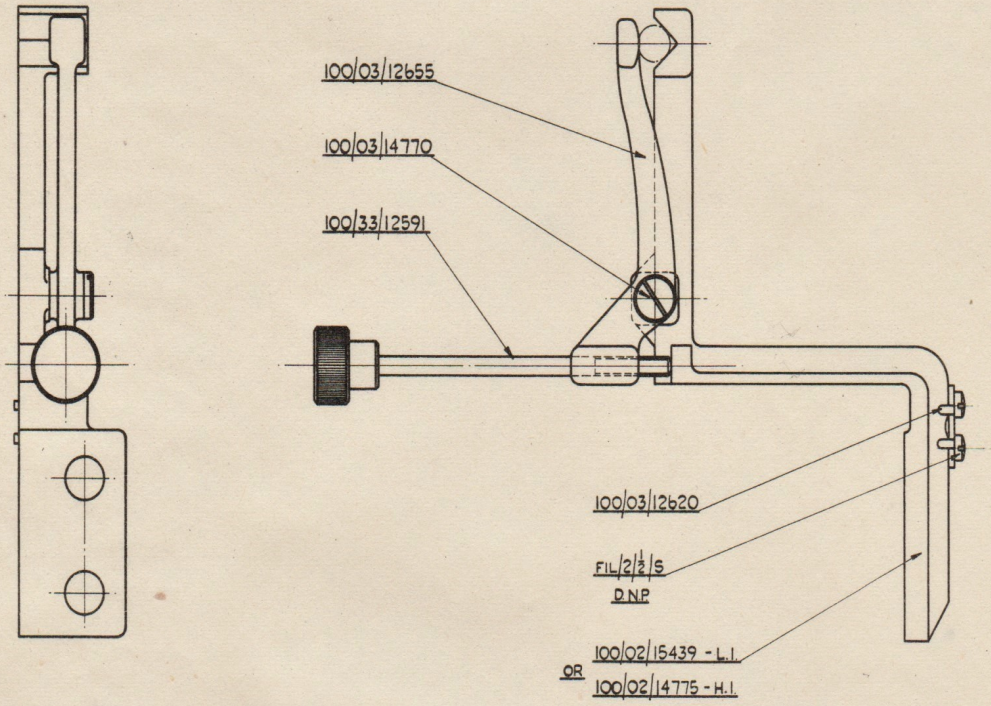
COMPLETE UNIVERSAL 12"
ARCLAMP A.C.

Drawing No.100/31/12820
CONTINUED

Part No.	Description	
100/32/14790	Complete Rear Control Panel	
100/32/15553	Assembly of Roof Baffle & Bushes	
100/33/12931	1¾" Dia. Moulded Knob	
100/33/13287	Complete Negative Crutch Control Knob (V)	
100/33/13288	Complete Negative Crutch Control Knob (H)	
100/33/13289	Complete Mirror Tilt Control Knob (H)	
100/33/13290	Complete Mirror Tilt Control Knob (V)	
100/33/14803	Assembly of Leadscrew Bearing and Bush	
100/33/14818	Assembly of Cable Adapter Plate I	)
100/33/14819	Assembly of Cable Adapter Plate II	) *
100/33/14820	Assembly of Cable Adapter Plate III	)
100/33/14821	Complete Mirror Shield	
100/33/14829	Mirror Support Bridge & Bush	
100/33/14830	Complete Feed Motor	
100/33/14833	Roof Panel & eyelets. Op. Side	
100/33/14834	Roof Panel & eyelets. Non.Op. Side.	
100/33/14737	Complete Periscope	
100/33/14788	Assembly of Positive Lead	
100/33/15575	Leads adapting to G.K. 19 & 20	)
100/33/15576	Leads adapting to G.K. 19 & 20	) *
100/33/15899	Leads adapting to G.K. 18 Stand	)
100/33/15551	Dowser Handle and Bar	
100/01/14701	Front Casting	
100/01/14702	Rear Casting	
100/02/14703	Shear Plate	
100/03/14704	Guide Bar	
100/03/14705	L.H. Rail	
100/03/14706	R.H. Rail	
100/03/14707	Hinge Rod	
100/03/14708	Adjuster for Hinge Rod	
100/03/14709	Screw for Hinge Rod	
100/03/14712	Folded Section	
100/03/14713	Folded Section	
100/03/14714	Folded Section	
100/03/14715	Post for Door Support	
100/03/14716	Dowser Stop Pin	
100/03/14717	Dowser Stop Disc	
100/03/14721	Link Arm (Op. Side)	
100/03/14722	Link Arm (Non.Op.Side)	
100/03/14723	Locating Disc	
100/03/14724	Link	
100/03/14728	Link Pin	
100/03/14730	Actuating Pin	
100/03/14734	Light Cone	
100/03/14736	Stud for Door Support	
100/03/14739	Tapped Backplate	
100/03/14752	Image Screen	
100/03/14765	Negative Feed Shaft	
100/03/14766	Negative Feed Collar	
100/03/14767	Locknut	
100/03/14768	Friction Nut	
100/03/14769	Feed Shaft Gear	
100/03/14771	Feed Shaft Washer	
100/03/14773	Insulating Washer	
100/01/14774	Positive Carbon Carriage	
100/03/14776	Positive Carriage Insulation	
100/03/14778	Positive Feed Shaft	
100/03/14779	Positive Feed Shaft Collar	
100/03/14785	Spacer	
100/01/14789	Detachable Cover	
100/03/14791	Negative Leadscrew	
100/02/14792	Positive Leadscrew	
100/03/14796	Motor Worm	
100/03/14802	Negative Wormwheel	
100/02/14805	Cover Tray	
100/03/14810	Distance Piece	
100/02/14811	Cast Tray	
100/03/14812	Stop Piece	
100/02/14814	Transfer for Carbon Scale	
100/03/16149	Serial No. Plate	
100/03/15381	Cable Entry Bush	
100/03/4709	Screw Securing Wormwheels	
100/03/12605	Friction Disc	
100/03/12606	Friction Collar	

* TO ORDER

100/32/14780 - H.I.
100/32/14781 - L.I.



High Intensity	Low Intensity	Code	No Off	Description
100/02/14775			1	Positive Carbon Holder
	100/02/15439		1	" " "
		100/33/12591	1	Clamping Screw
		100/03/12620	1	Terminal Clamp
		100/03/12655	1	Positive Carbon Clamp
		100/03/14770	1	Fulcrum Screw
		FIL/2/½/S	2	Screw Sec. Terminal Cl.

4				Modifications	Scale:- Full Size	Material	Patt. No.	Finish	Reo'd On	Drawn R.M.
3									100/31/12620-1-2	Traced J.J.
2									100/31/14870	Checked
1										

Complete Positive Carbon Holder
'Universal' Arclamp

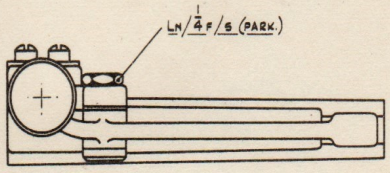
100/32/14780 - H.I.
100/32/14781 - L.I.

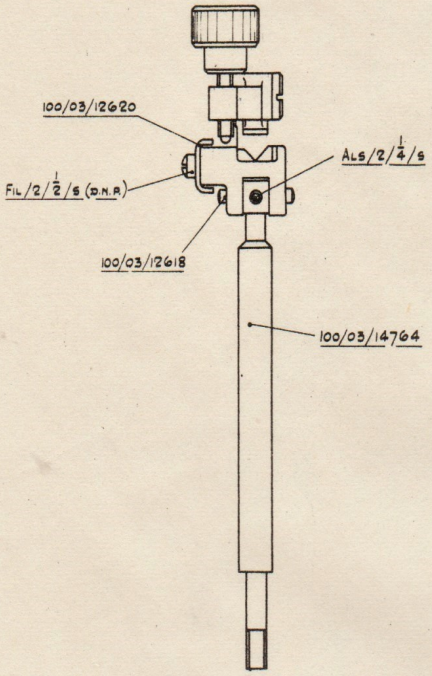
8949

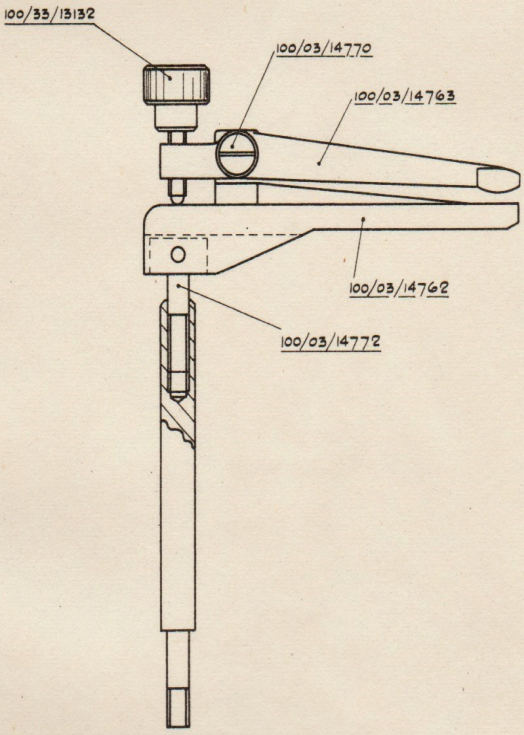
SUBJECT TO D. 350 FOR LIMITS.

A. KERSHAW & SONS LTD. LEEDS.

B







100/33/13132	1	COMR NEG. CLAMPING SCREW
100/03/14772	1	NEG. ADJUSTING SCREW
100/03/14770	1	FULCRUM SCREW
100/03/14764	1	NEG. POST
100/03/14763	1	" CARBON CLAMP
100/03/14762	1	" " HOLDER
100/03/12620	1	TERMINAL CLAMP
100/03/12618	1	FULCRUM PIN
LN/¼F/S	1	NUT FOR FULCRUM SCREW
FIL/2/½/S	2	SCREW SEC. TERMINAL CLAMP
ALS/2/¼/S	1	" " ADJUSTG SCREW

CODE	NO OFF	DESCRIPTION

MODIFICATIONS

SCALE 1/1

COMP. NEGATIVE CARBON HOLDER
UNIVERSAL ARCLAMP

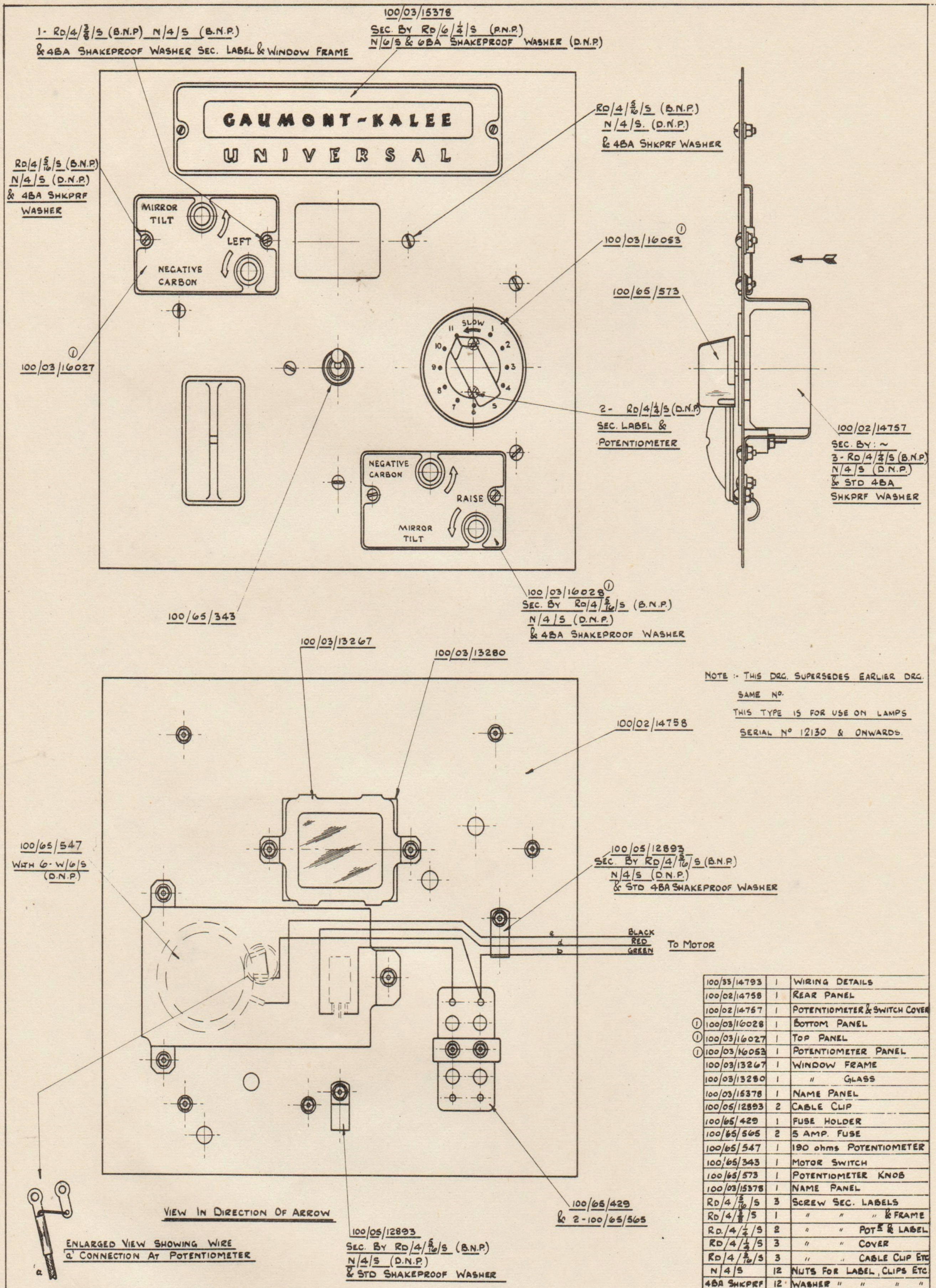
MATERIAL	PER 100	FINISH	REQD ON				
			100/31/12620-1-2				
			100/31/14770				

TRACED	P.B.	100/32/14760
CHECKED		
DRAWN	B.H.	7-11-49

COMPLETE NEGATIVE CARBON HOLDER UNIVERSAL ARCLAMP

Drawing No. 100/32/14760

Part No.	Description
100/33/13132	Complete Negative Clamping Screw
100/03/14772	Negative Adjusting Screw
100/03/14770	Fulcrum Screw
100/03/14764	Negative Post
100/03/14763	Negative Carbon Clamp
100/03/14762	Negative Carbon Holder
100/03/12620	Terminal Clamp
100/03/12618	Fulcrum Pin
LN/¼F/S	Nut for Fulcrum Screw
FIL/2/½/S	Screw Securing Terminal Clamp
ALS/2/¼/S	Screw Securing Adjusting Screw



NOTE :- THIS DRG. SUPERSEDES EARLIER DRG. SAME Nº.
THIS TYPE IS FOR USE ON LAMPS SERIAL Nº 12130 & ONWARDS

	CODE	Nº OFF	DESCRIPTION
	100/33/14793	1	WIRING DETAILS
	100/02/14758	1	REAR PANEL
	100/02/14757	1	POTENTIOMETER & SWITCH COVER
①	100/03/16028	1	BOTTOM PANEL
①	100/03/16027	1	TOP PANEL
①	100/03/16053	1	POTENTIOMETER PANEL
	100/03/13267	1	WINDOW FRAME
	100/03/13280	1	" GLASS
	100/03/15378	1	NAME PANEL
	100/05/12893	2	CABLE CLIP
	100/65/429	1	FUSE HOLDER
	100/65/565	2	5 AMP. FUSE
	100/65/547	1	190 ohms POTENTIOMETER
	100/65/343	1	MOTOR SWITCH
	100/65/573	1	POTENTIOMETER KNOB
	100/03/15378	1	NAME PANEL
	RD/4/$\frac{5}{16}$/S	3	SCREW SEC. LABELS
	RD/4/$\frac{3}{8}$/S	1	" " " & FRAME
	RD./4/$\frac{1}{4}$/S	2	" " POT^{R} & LABEL
	RD/4/$\frac{1}{4}$/S	3	" " COVER
	RD/4/$\frac{3}{16}$/S	3	" " CABLE CLIP ETC
	N/4/S	12	NUTS FOR LABEL, CLIPS ETC
	4BA SHKPRF	12	WASHER " " " "
	RD/6/$\frac{1}{4}$/S	2	SCREW SEC. NAMEPLATE
	N/6/S	2	NUTS FOR "
	6 BA SHKPRF	2	WASHER " "
	W/6/S	6	" " POTENTIOMETER

FOR DETAILS OF WIRING SEE 100/33/14793

NOTE:~ ALL B.N.P. SCREWS TO BE BUFFED BEFORE PLATING

1	6454	18.10.49	

MODIFICATIONS

MATERIAL	PATT Nº	FINISH	REQ'ON
			100/31/12881-2

TRACED | DRAWN | CHECKED — 1·9·49

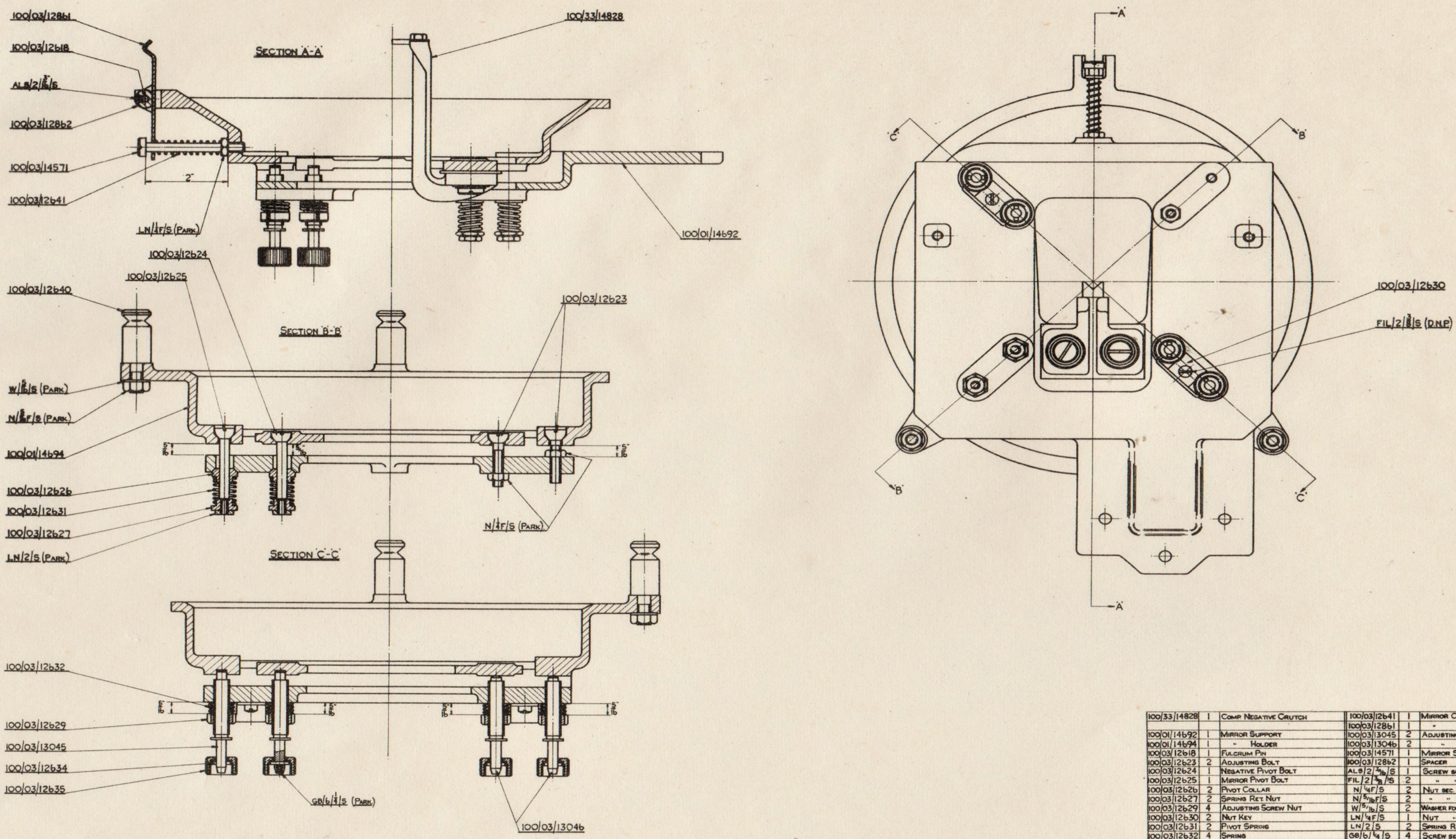
COMP. REAR CONTROL PANEL ~ UNIVERSAL ARCLAMP

100/32/14790

COMPLETE REAR CONTROL PANEL
UNIVERSAL ARC
LAMP

Drawing No. 100/32/14790

Part No.	Description
W/6/S	Washer for Potentiometer
6 BA SHKPRF.	Washer for Nameplate
N/6/S	Nut for Nameplate
RD/6/¼/S	Screw Securing for Nameplate
4 BA SHKPRF.	Washer for Label,Clips etc.
N/4/S	Nuts for Label,Clips etc.
RD/4/5/16/S	Screw Securing for Cable clip etc.
RD/4/1/4/S	Screw Securing Cover
RD/4/1/4/S	Screw Securing Potentiometer and Label
RD/4/3/8/S	Screw Securing Labels & Frame
RD/4/5/16/S	Screw Securing Labels
100/03/15378	Name Panel
100/65/573	Potentiometer Knob
100/65/343	Motor Switch
100/65/547	190 ohms Potentiometer
100/65/565	5 Amp. Fuse
100/65/429	Fuse Holder
100/05/12893	Cable Clip
100/03/15378	Name Panel
100/03/13280	Window Glass
100/03/13267	Window Frame
100/03/16053	Potentiometer Panel
100/03/16027	Top Panel
100/03/16028	Bottom Panel
100/02/14757	Potentiometer & Switch Cover
100/02/14758	Rear Panel
100/33/14793	Wiring Details.



Code	No. Off	Description	Code	No. Off	Description
100/33/14828	1	Comp Negative Crutch	100/03/12641	1	Mirror Catch Spring
			100/03/12861	1	" "
100/01/14692	1	Mirror Support	100/03/13045	2	Adjusting Screw (Long)
100/01/14694	1	" Holder	100/03/13046	2	" " (Short)
100/03/12618	1	Fulcrum Pin	100/03/14571	1	Mirror Spring Pillar
100/03/12623	2	Adjusting Bolt	100/03/12862	1	Spacer
100/03/12624	1	Negative Pivot Bolt	ALS/2/3/16/S	1	Screw sec. Fulcrum Pin
100/03/12625	1	Mirror Pivot Bolt	FIL/2/3/8/S	2	" " Nut Key
100/03/12626	2	Pivot Collar	N/1/4F/S	2	Nut sec. Adjusting Screw
100/03/12627	2	Spring Ret. Nut	N/5/16F/S	2	" " Mirror Post
100/03/12629	4	Adjusting Screw Nut	W/5/16/S	2	Washer for " "
100/03/12630	2	Nut Key	LN/1/4F/S	1	Nut " " "
100/03/12631	2	Pivot Spring	LN/2/S	2	Spring Retaining Locknut
100/03/12632	4	Spring	GB/6/1/4/S	4	Screw sec. Joint Pin
100/03/12634	4	Universal Joint Pin			
100/03/12635	4	" " Nut			
100/03/12640	2	Mirror Post			

Scale - Full Size

Issue No.							
Ch. Nt. No.							
Date & Sig.							

Comp Mirror Holder - 'Universal' Arclamp

Material	Patt. No.	Finish	Req'd On	Traced	J.J.
			100/31/12820-1-2	Drawn	R.M.
			100/31/14830	Checked	[signature]

100/31/14691

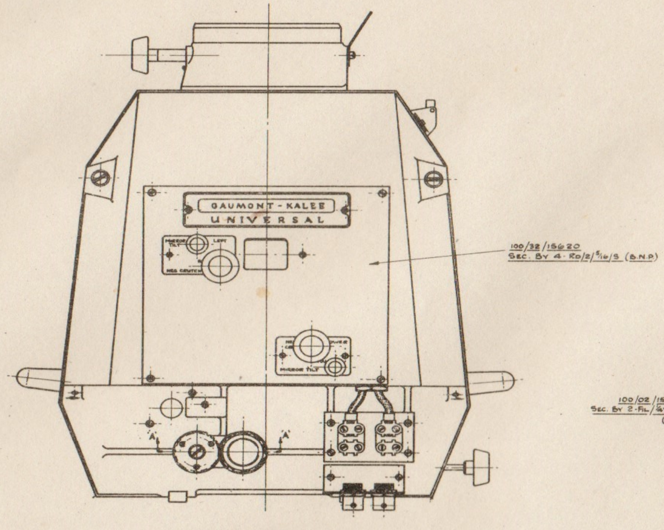
19.9.49.

COMPLETE MIRROR HOLDER

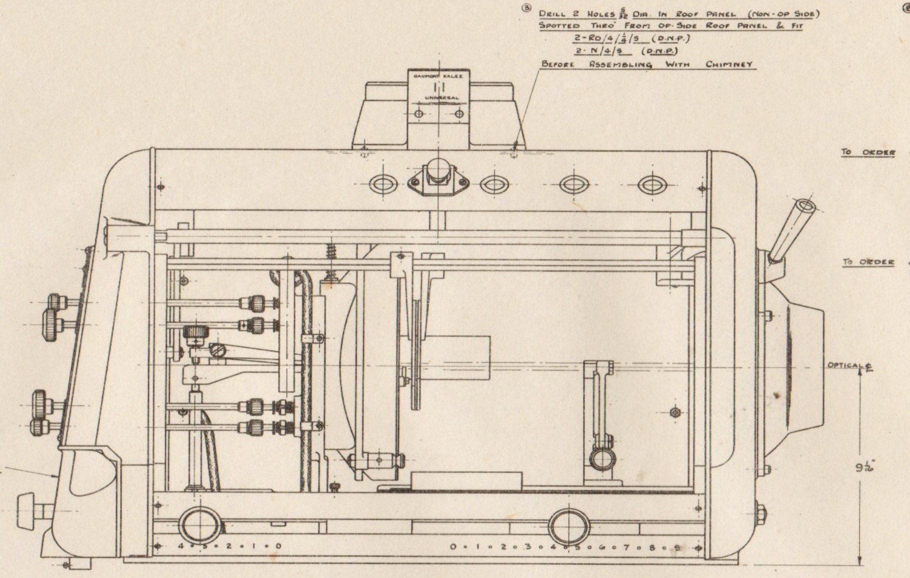
UNIVERSAL ARCLAMP

Drawing No. 100/31/14691

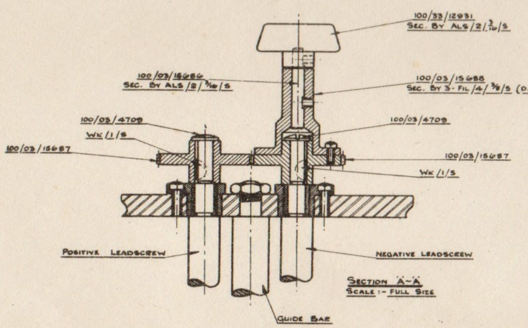
Part No.	Description
100/33/14828	Complete Negative Crutch
100/01/14692	Mirror Support
100/01/14694	Mirror Holder
100/03/12618	Fulcrum Pin
100/03/12623	Adjusting Bolt
100/03/12624	Negative Pivot Bolt
100/03/12625	Mirror Pivot Bolt
100/03/12626	Pivot Collar
100/03/12627	Spring Retaining Nut
100/03/12629	Adjusting Screw Nut
100/03/12630	Nut Key
100/03/12631	Pivot Spring
100/03/12632	Springs
100/03/12634	Universal Joint Pin
100/03/12635	Universal Joint Nut
100/03/12640	Mirror Post
100/03/12641	Mirror Catch Spring
100/03/12861	Mirror Catch
100/03/13045	Adjusting Screw (Long)
100/03/13046	Adjusting Screw (Short)
100/03/14571	Mirror Spring Pillar
100/03/12862	Spacer
ALS/2/3/16/S	Screw Securing Fulcrum Pin
FIL/2/⅜/S	Screw Securing Nut Key
N/¼F/S	Nut securing Adjusting Screw
N/5/16/FS	Nut securing Mirror Post
W/5/16/S	Washer for Mirror Post
LN/¼F/S	Nut for Mirror Post
LN/2/S	Spring Retaining Locknut
GB/6/¼/S	Screw securing Joint Pin



REAR VIEW WITH COVER REMOVED



VIEW WITH OPERATING SIDE DOOR REMOVED



SECTION 'A-A'
SCALE:- FULL SIZE

SCHEDULE OF PARTS FOR ADAPTATION TO VARIOUS STANDS (TO ORDER)				
TYPE OF STAND	CABLE ADAPTOR PLATE	LEAD ASSY	FEET OR CRADLES	BOLTS, NUTS ETC. SECURING
NON-KERSHAW	TYPE I 100/33/14818	NIL	NIL	NIL
GK 20 (MK I)	TYPE II 100/33/14819	100/33/15576	SUPPLIED WITH STAND (100/03/11117)	4-HX/3/8W/2/S 4-N/3/8W/S 4-W/3/8/S
GK 20 WITH FULL ARC CONTROL	TYPE II 100/33/14819	100/33/15575	SUPPLIED WITH STAND (100/03/11117)	4-HX/3/8W/2/S 4-N/3/8W/S 4-W/3/8/S
GK 18 TO B.A. OR GK 18 UNIVERSAL	TYPE II 100/33/14819	100/33/15899	SUPPLIED WITH STAND (100/33/15797)	SUPPLIED WITH FEET
GK 18 WITH FULL ARC CONTROL	TYPE II 100/33/14819		SUPPLIED WITH STAND (100/33/15797)	SUPPLIED WITH FEET

ALL B.N.P. SCREWS TO BE BUFFED BEFORE PLATING

NOTE:- FOR ASSEMBLING ALL COMPONENTS OTHER THAN THOSE SHOWN THUS * SEE 100/31/12821-2. 3 SHTS

CODE	Nº OFF	DESCRIPTION
② 100/33/16061	1	BAFFLE & CATCH (OP-SIDE)
100/33/16062	1	" " " (NON-OP-SIDE)
100/32/16073	2	COMP. DOOR PANEL
100/03/14736	2	STUD
100/03/14743	2	HINGE
100/03/14744	2	"
100/03/14746	2	DOOR STAY
100/03/14748	8	SPECIAL DOOR SCREW
N/2/S	8	NUT FOR SPECIAL SCREW
LN/1/4F/S	2	" " STUD
RGS 160/C	8	WASHER FOR SPECIAL SCREW

CODE	Nº OFF	DESCRIPTION
* 100/32/15620	1	COMP. REAR CONTROL PANEL
* 100/02/15846	1	DETACHABLE COVER
* 100/03/15686	1	SPINDLE
* 100/03/15687	2	HAND FEED GEAR
* 100/03/15688	1	GEAR HUB
③ RO/4/1/2/S	2	SCREW SEC. PANELS
ALC/2/3/8/S	4	SCREW SEC. STOP & LOCATING DISC
ALC/1/4F/1/2/S	3	" " LIGHT CONE
ALC/1/4F/5/8/S	2	" " DOWSER
ALC/1/4F/3/4/S	5	" " RAILS ETC.
ALC/1/4F/7/8/S	2	" " MAGNET
ALC/5/16F/5/8/S	3	" " MIRROR HOLDER
ALS/2/3/16/S	11	" " KNOBS ETC.
ALS/2/1/4/S	4	" " GEARS ETC
ALS/1/4F/1/4/S	2	" " MIRROR SHIELD
ALS/1/4F/5/16/S	2	" " LINK ARMS
CH/2/3/8/S	4	" " CHIMNEY
RO/8/3/16/S	4	" " SERIAL Nº PLATE
RO/2/5/16/S	4	" " REAR CONTROL PANEL
FIL/4/3/8/S	5	" " PERISCOPE & GEAR HUB
FIL/4/5/16/S	2	" " FRICTION PLATE KEY (PARK)
FIL/4/5/16/S	5	" " CABLE CLIP (D.N.P.)
FIL/2/3/16/S	1	" LOCATING CAST TRAY
FIL/2/5/16/S	2	" SEC. CABLE ADAPTOR PLATE
FIL/2/1/4/S	2	" " IMAGE SCREEN
FIL/2/3/8/S	2	" " ROOF BAFFLE
FIL/2/5/8/S	6	" " LEADSCREW BRG.
FIL/2/1 1/8/S	4	" " TERMINAL PANEL
FIL/0/1/2/S	6	" " SHEAR PLATE
FIL/1/4W/3/4/S	2	" " DETACHABLE COVER
N/4/S ③	2	NUT SEC. PANELS
N/2/S	1	NUT SEC. ACTUATING PIN
N/1/4F/S	4	" " RAILS
N/5/16F/S	1	" " NEG. CARBON HOLDER
LN/7/16F/S	2	" " GUIDE BAR (REAR)
LN/1/2F/S	2	" " " " (FRONT)
W/1/4/S	4	WASHER FOR RAILS
W/5/16/S	2	" " NEG. CARBON HOLDER
4BA SHKPRF.	1	" " ACTUATING PIN
WK/1/S	6	KEY FOR GEARS ETC.
PKST/Nº6/3/8/CSK	28	SCREW SEC. ROOF PANELS ETC.

CODE	Nº OFF	DESCRIPTION
100/33/15910	1	TOOL KIT (TO ORDER)
100/32/14781	1	COMP. POS. CARBON HOLDER L.I.
100/32/14782	1	" MAGNET L.I.
② ~~[illegible]~~	~~2~~ (?)	~~[illegible]~~
100/31/14691	1	" MIRROR HOLDER
100/32/14750	1	" CHIMNEY
100/32/14760	1	" NEG. CARBON HOLDER
100/32/14764	1	" DOWSER
100/32/15853	1	ASSY OF ROOF BAFFLE & BUSHES
100/33/12931	3	1 3/4" DIA. MOULDED KNOB
100/33/13287	1	COMP. NEG. CRUTCH CONTROL ROD (V)
100/33/13288	1	" " " " " (H)
100/33/13289	1	" MIRROR TILT " " (H)
100/33/13290	1	" " " " " (V)
100/33/14803	2	ASSY OF LEADSCREW BRG & BUSH
100/33/14818	1	" " CABLE ADAPTOR PLATE I
100/33/14819	1	" " " " " II
100/33/14820	1	" " " " " III
100/33/14821	2	COMP MIRROR SHIELD
100/33/14822	1	" TERMINAL PANEL DC
100/33/14829	1	ASSY OF MIRROR SUPP I BRIDGE & BUSH
100/33/14836	1	" " ROOF PANEL & EYELETS OP-SIDE
100/33/14834	1	" " " " " " NON-OP
100/33/14737	1	COMP PERISCOPE
100/33/14788	1	ASSY OF POSITIVE LEAD
100/33/15575	1	" " LEADS ADAPTª TO GK 18 & 20
100/33/15576	1	" " " " " " " " WITH ARC CONTROL
100/33/15899	1	" " " " TO GK 18 STAND
100/33/15551	2	DOWSER HANDLE & BAR
100/01/14701	1	FRONT CASTING
100/01/14702	1	REAR "
100/02/14703	1	SHEAR PLATE
100/03/14704	2	GUIDE BAR
100/03/14705	1	L.H. RAIL
100/03/14706	1	R.H. "
100/03/14707	2	HINGE ROD
100/03/14708	2	ADJUSTER FOR HINGE ROD
100/03/14709	2	SCREW " " "
100/03/14712	1	FOLDED SECTION
100/03/14713	1	" "
100/03/14714	1	" "
100/03/14715	2	POST FOR DOOR SUPPORT
100/03/14716	1	DOWSER STOP PIN
100/03/14717	1	" " DISC
100/03/14721	1	LINK ARM OP-SIDE
100/03/14722	1	" " NON-OP SIDE
100/03/14723	1	LOCATING DISC
100/03/14724	1	LINK
100/03/14728	2	" PIN
100/03/14730	1	ACTUATING PIN
100/02/14734	1	LIGHT CONE
100/03/14736	2	STUD FOR DOOR SUPPORT
100/03/14739	1	TAPPED BACKPLATE
100/03/14762	1	IMAGE SCREEN
100/02/14761	1	NEG. CARBON CARRIAGE
100/03/14765	1	" FEED SHAFT
100/03/14766	1	" " " COLLAR
100/03/14767	2	LOCKNUT
100/03/14768	2	FRICTION NUT
100/03/14769	2	FEED SHAFT GEAR
100/03/14771	1	" " WASHER
100/03/14773	2	INSULATING "
100/03/14774	1	POS. CARBON CARRIAGE
100/03/14776	1	" CARRIAGE INSULATION
100/03/14778	1	" FEED SHAFT
100/03/14779	1	" " " COLLAR
100/03/14785	4	SPACER
100/03/14791	1	NEG. LEADSCREW
100/02/14792	1	POS. "
100/02/14805	1	COVER TRAY
100/02/14810	2	DISTANCE PIECE
100/02/14811	1	CAST TRAY
100/03/14812	1	STOP PIECE
100/02/14814	1	TRANSFER FOR CARBON SCALE
100/03/16149	1	SERIAL Nº PLATE ①
100/03/15381	1	CABLE ENTRY BUSH
100/03/14709	2	SCREW SEC. WORMWHEEL
100/03/12605	2	FRICTION DISC
100/03/12606	2	" COLLAR
100/03/12609	2	" SPRING
100/03/12611	4	" PAD
100/03/12612	2	" PLATE
100/03/12595	2	INSULATING BUSH. NEG. CARRIAGE
100/03/12645	2	INSULATION CLAMP SCREW
100/03/12653	2	FRICTION PLATE KEY
100/03/13152	1	LOCATING PIN
100/03/13153	1	" " SPRING
100/03/13239	2	INSULATING BUSH
100/03/13266	2	CONTROL KNOB (MIRROR TILT)
100/03/13265	2	" " (NEG CRUTCH)
100/03/13278	1	LOCATING SCREW
100/03/13421	2	SPECIAL STEEL WASHER (5/16")
100/05/12693	5	CABLE CLIP
100/05/14721	1	12" MIRROR (SUPPLIED BY G.B. KALEE)
100/66/616	1	CABLE ENTRY RING
100/66/623	1	FRONT CASTING BUSH

SCALE: 1/2 FULL SIZE & FULL SIZE

ISSUE Nº	1	2	3
CH. NT. Nº	6538	6540	6616
DATE & SIGN	[illegible]	[illegible]	[illegible]

COMP. 12" UNIVERSAL ARCLAMP HAND FEED L.I.

REQª ON

TRACED Jb. 21-9-49.
CHECKED
DRAWN QB.

100/31/14870

COMPLETE 12" UNIVERSAL ARCLAMP

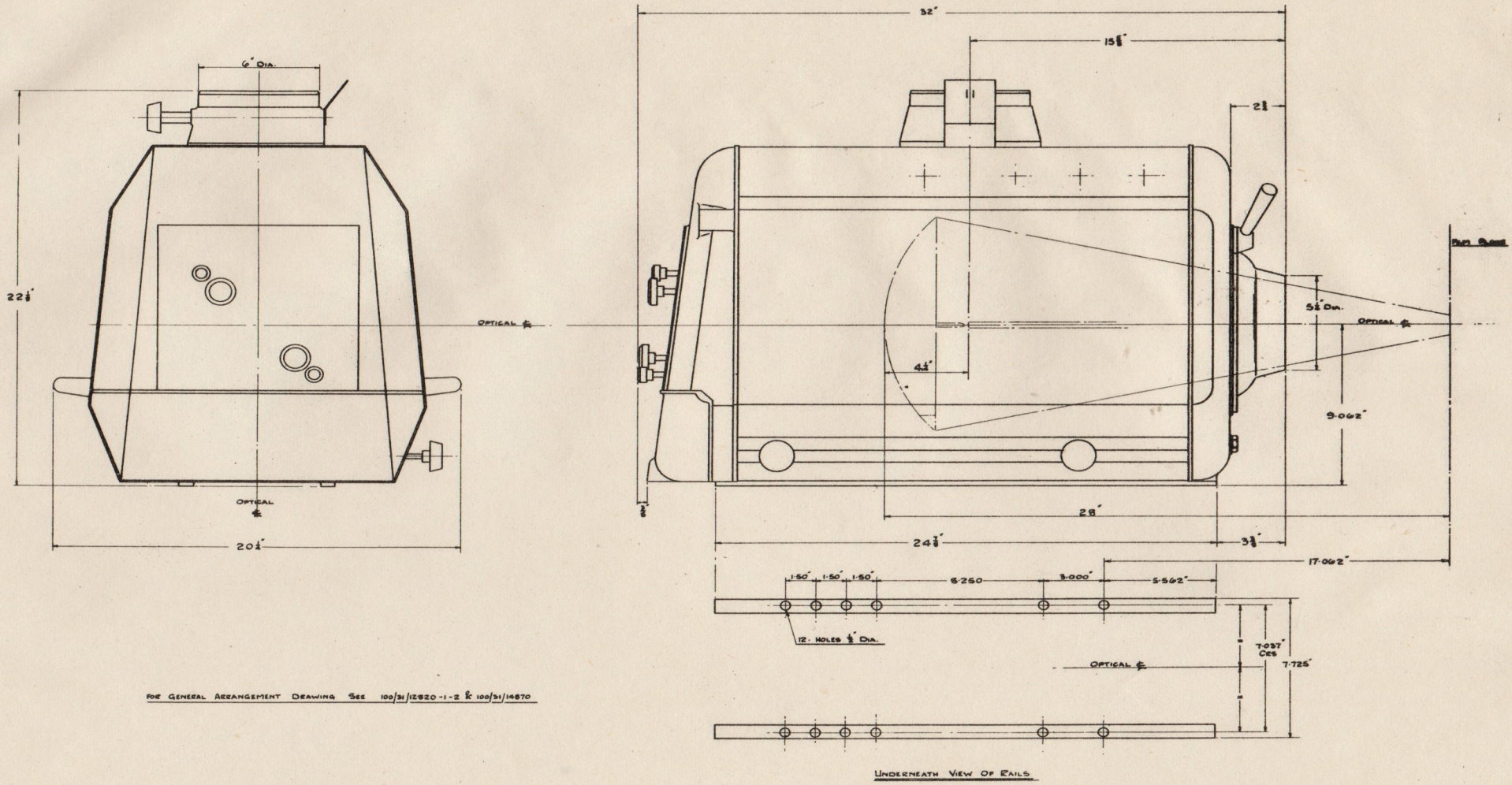
HAND FEED L.I.
Drawing No. 100/31/14870

	Part No.	Description
*	100/32/15620	Complete Rear Control Panel
*	100/02/15846	Detachable Cover
*	100/03/15686	Spindle
*	100/03/15687	Hand Feed Gear
*	100/03/15688	Gear Hub
	RD/4/¼/S	Screw Securing Panels
	ALC/2/⅜/S	Screw Securing Stop & Locating Disc
	ALC/¼F/¼/S	Screw Securing Light Cone
	ALC/¼F/⅜/S	Screw Securing Dowser
	ALC/¼F/½/S	Screw Securing Rails etc.
	ALC/¼F/⅛/S	Screw Securing Magnet
	ALC/5/16F/⅜/S	Screw Securing Mirror Holder
	ALS/2/3/16/S	Screw Securing Knobs Etc.
	ALS/2/¼/S	Screw Securing Gears Etc.
	ALS/¼F/¼/S	Screw Securing Mirror Shield
	ALS/¼F/5/16/S	Screw Securing Link Arms
	CH/2/⅜/S	Screw Securing Chimney
	RD/8/3/16/S	Screw Securing Serial No. Plate
	RD/2/5/16/S	Screw Securing Rear Control Panel
	FIL/4/⅜/S	Screw Securing Periscope and Gear Hub
	FIL/4/5/16/S	Screw Securing Friction Plate Key (Park)
	FIL/4/5/16/S	Screw Securing Cable Clip (D.N.P)
	FIL/2/3/16/S	Screw Locating Cast Tray
	FIL/2/5/16/S	Screw Securing Cable Adaptor Plate
	FIL/2/¼/S	Screw Securing Image Screen
	FIL/2/⅜/S	Screw Securing Roof Baffle
	FIL/2/5/8/S	Screw Securing Leadscrew Bearing
	FIL/2/1⅛/S	Screw Securing Terminal Panel
	FIL/0/½/S	Screw Securing Shear Plate
	FIL/¼W/¾/S	Screw Securing Detachable Cover
	N/4/s	Nut Securing Panels
	N/2/S	Nut Securing Actuating Pin
	N/¼F/S	Nut Securing Rails
	N/5/16F/S	Nut Securing Negative Carbon Holder
	LN/7/16F/S	Nut Securing Guide Bar (Rear)
	LN/⅜F/S	Nut Securing Guide Bar (Front)
	W/¼/S	Washer for Rails
	W/5/16/S	Washer for Negative Carbon Holder
	ABA Shkprf.	Washer for Actuating Pin
	WK/1/S	Key for Gears Etc.
	PKST No.6/⅜/CSK	Screw Securing Roof Panels etc.
	100/33/16061	Baffle and Catch (Op. Side)
	100/33/16062	Baffle and Catch (Non. Op. Side)
	100/32/16073	Complete Door Panel
	100/03/14736	Stud
	100/03/14743	Hinge
	100/03/14744	Hinge
	100/03/14745	Door Stay
	100/03/14748	Special Door Screw
	N/2/S	Nut for Special Screw
	LN/¼F/S	Nut for Stud
	RGS.160/C	Washer for special screw
	100/33/15910	Tool Kit (to order)
	100/32/14781	Complete Positive Carbon Holder L.I.
	100/32/14782	Complete Magnet L.I.
	100/31/14691	Complete Mirror Holder
	100/32/14750	Complete Chimney
	100/32/14760	Complete Negative Carbon Holder
	100/32/14784	Complete Dowser
	100/32/15553	Assembly of Roof Baffle & Bushes
	100/33/12931	1¾" Dia. Moulded Knob
	100/33/13287	Complete Negative Crutch Control Rod (V)
	100/33/13288	Complete Negative Crutch Control Rod (H)
	100/33/13289	Complete Mirror Tilt Control Rod (H)
	100/33/13290	Complete Mirror Tilt Control Rod (V)
	100/33/14903	Assembly of Leadscrew Bearing and Bush
*	100/33/14818	Assembly of Cable Adapter Plate I
*	100/33/14819	Assembly of Cable Adapter Plate II
*	100/33/14820	Assembly of Cable Adapter Plate III
	100/33/14821	Complete Mirror Shield
	100/33/14822	Complete Terminal Panel D.C.
	100/33/14829	Assembly of Mirror Support Bridge & Bush

DRAWING No. 100/31/14870
CONTINUED

	Part No.	Description
	100/33/14835	Assembly of Roof Panel & Eyelets Op. Side
	100/33/14834	Assembly of Roof Panel & Eyelets Non.Op.
	100/33/14737	Complete Periscope
	100/33/14788	Assembly of Positive Lead
*	100/33/15575	Assembly of Leads Adapting to G.K. 19 & 20
*	100/33/15576	Assembly of Leads Adapting to G.K. 19 & 20 with Arc Control
*	100/33/15899	Assembly of Leads Adapting to G.K. 18 Stand
	100/33/15551	Dowser Handle & Bar
	100/01/14701	Front Casting
	100/01/14702	Rear Casting
	100/02/14703	Shear Plate
	100/03/14704	Guide Bar
	100/03/14705	L.H. Rail
	100/03/14706	R.H. Rail
	100/03/14707	Hinge Rod
	100/03/14708	Adjuster for Hinge Rod
	100/03/14709	Screw for Hinge Rod
	100/03/14712	Folded Section
	100/03/14713	Folded Section
	100/03/14714	Folded Section
	100/03/14715	Post for Door Support
	100/03/14716	Dowser Stop Pin
	100/03/14717	Dowser Stop Disc
	100/03/14721	Link Arm Op. Side
	100/03/14722	Link Arm Non.Op. Side
	100/03/14723	Locating Disc
	100/03/14724	Link
	100/03/14728	Link Pin
	100/03/14730	Actuating Pin
	100/02/14734	Light Cone
	100/03/14736	Stud for Door Support
	100/03/14739	Tapped Backplate
	100/03/14752	Image Screen
	100/02/14761	Negative Carbon Carriage
	100/03/14765	Negative Feed Shaft
	100/03/14766	Negative Feed Shaft Collar
	100/03/14767	Locknut
	100/03/14768	Friction Nut
	100/03/14769	Feed Shaft Gear
	100/03/14771	Feed Shaft Washer
	100/03/14773	Insulating Washer
	100/03/14774	Positive Carbon Carriage
	100/03/14776	Positive Carriage Insulation
	100/03/14778	Positive Feed Shaft
	100/03/14779	Positive Feed Shaft Collar
	100/03/14785	Spacer
	100/03/14791	Negative Leadscrew
	100/02/14792	Positive Leadscrew
	100/02/14805	Cover Tray
	100/02/14810	Distance Piece
	100/02/14811	Cast Tray
	100/03/14812	Stop Piece
	100/02/14814	Transfer for Carbon Scale
	100/03/16149	Serial No. Plate
	100/03/15381	Cable Entry Bush
	100/03/14709	Screw Securing Wormwheel
	100/03/12605	Friction Disc
	100/03/12606	Friction Collar
	100/03/12609	Friction Spring
	100/03/12611	Friction Pad
	100/03/12612	Friction Plate
	100/03/12595	Insulating Bush Negative Carriage
	100/03/12645	Insulation Clamp Screw
	100/03/12653	Friction Plate Key
	100/03/13152	Locating Pin
	100/03/13153	Locating Pin Spring
	100/03/13239	Insulating Bush
	100/03/13266	Control Knob (Mirror Tilt)
	100/03/13265	Control Knob (Negative Crutch)
	100/03/13278	Locating Screw
	100/03/13421	Special Steel Washer (7/16")
	100/05/12893	Cable Clip
	100/05/14721	12" Mirror (Supplied by G.B.Kalee)
	100/65/616	Cable Entry Ring
	100/65/623	Front Casting Bush

* To Order



For General Arrangement Drawing See 100/31/12820-1-2 & 100/31/14870

Underneath View Of Rails

Scale: ½ Full Size

Overall Dimensions Of Universal Arclamp

100/07/526

G.K. 18 STAND

The Stand incorporates a heavy cast iron pedestal base fitted with levelling screws. Packing pieces are available for inserting below a cap which is fitted with a pivot bar at the front and carrying the soundhead support casting and lamp rails and at the rear end, a pivotted trunnion block through which the elevating screw passes.

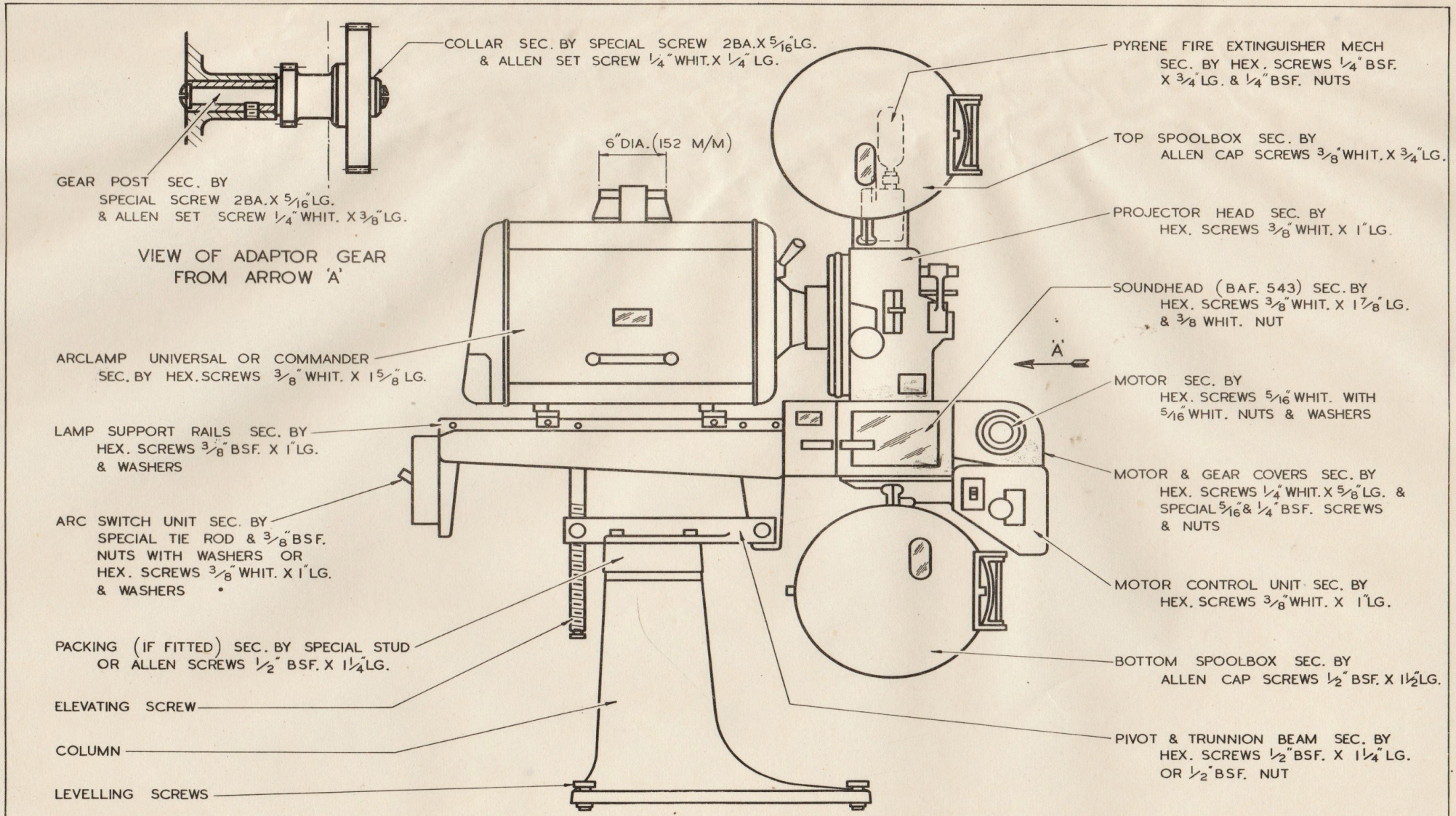
The motor control box complete with bottom spool box mounting is secured underneath the soundhead. The motor driving belts and projector drive gearing are enclosed by quickly detachable guards.

Dependent upon which packing piece is inserted, the level optical centre height may be 46½", 49½", 52½" or 55½" and the required porthole height when the equipment is operating at a given rake and in a fixed position relative to the front wall of the operating box is given by reference to drawings 1/1802/49 and 1/1803/49.

The stand is completely wired in the factory for soundhead driving motor and merely requires A.C. leads running on installation to the control box and terminating at a block mounted on a detachable plate on the front face of this box. A flexible cable adaptor is fitted on the top face of the box for use if A.C. is required at any other point on the equipment, e.g. Inspection Lamp in the Arc etc.

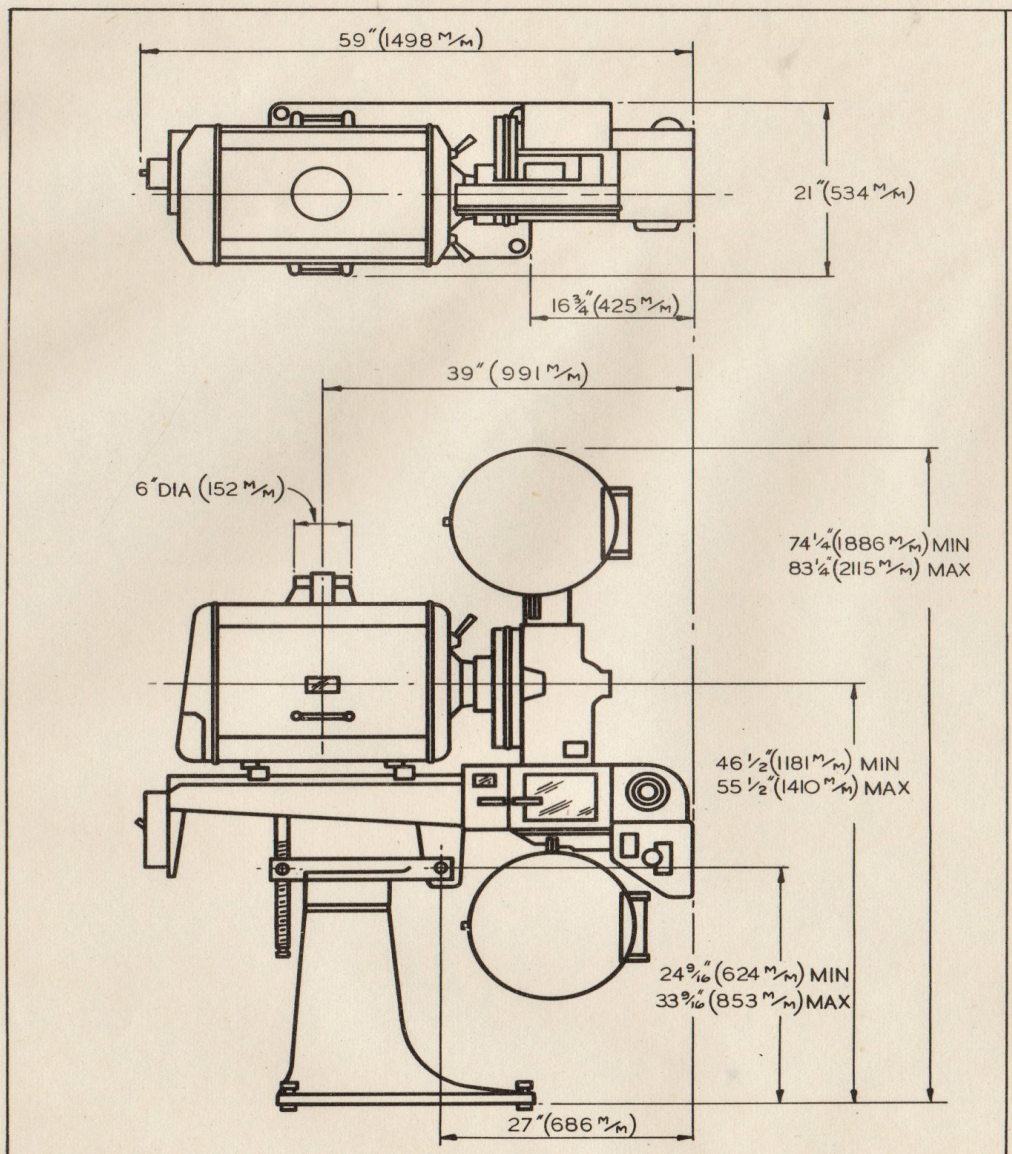
An Arc Switch is mounted on a bracket at the end of the lamp rails and if required, may be replaced by a ballast control unit including voltmeter and ammeter. Pyrene 'Knock off' Switches are, of course, also mounted with either control unit if a fire extinguisher equipment is supplied. It should be noted that the ballast unit is only supplied when specifically ordered.

The bottom spool box is of sheet steel construction and is mounted on a substantial cast arm. A belt driven "take-up" complete with jockey pulley is provided for the spool spindle.

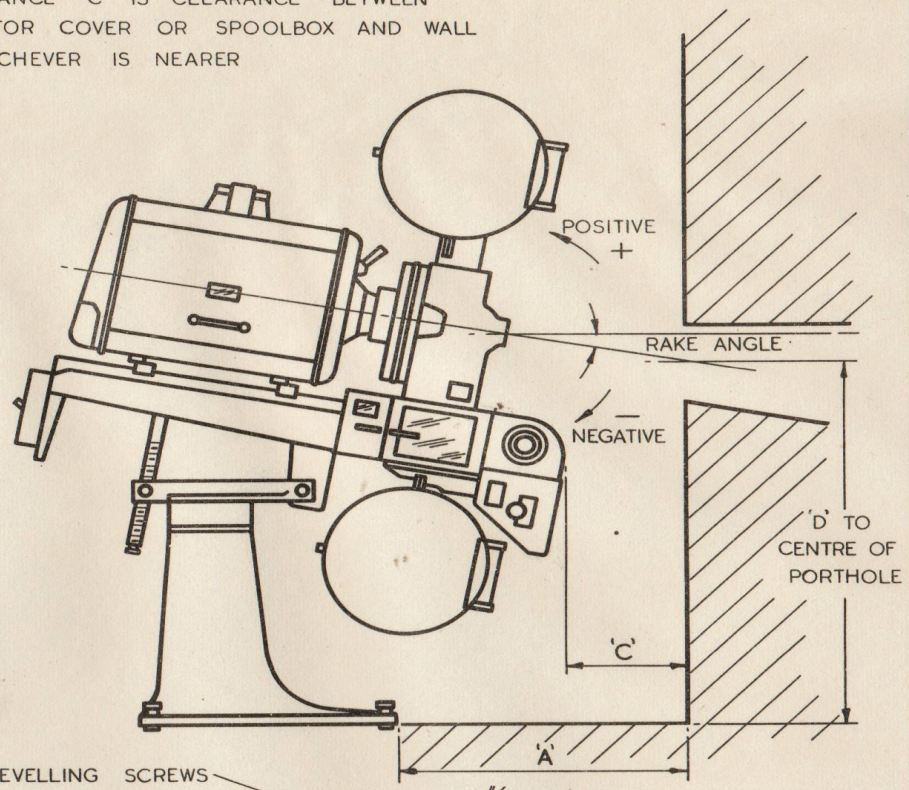


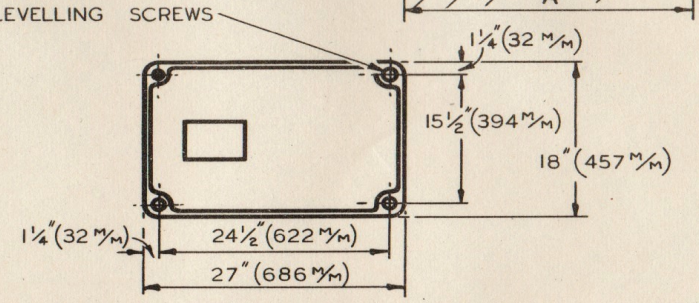
INSTALLATION DIAGRAM FOR GK. 18 OUTFIT

1-1801-49



DISTANCE 'C' IS CLEARANCE BETWEEN MOTOR COVER OR SPOOLBOX AND WALL WHICHEVER IS NEARER





OVERALL DIMENSIONS OF BASE

I-1802-49

DIMENSIONAL & INSTALLATION DIAGRAM FOR GK 18 OUTFIT

PORTHOLE HEIGHTS OF STAND FOR 52 1/2" (1333 M/M) LEVEL OPTICAL CENTRE

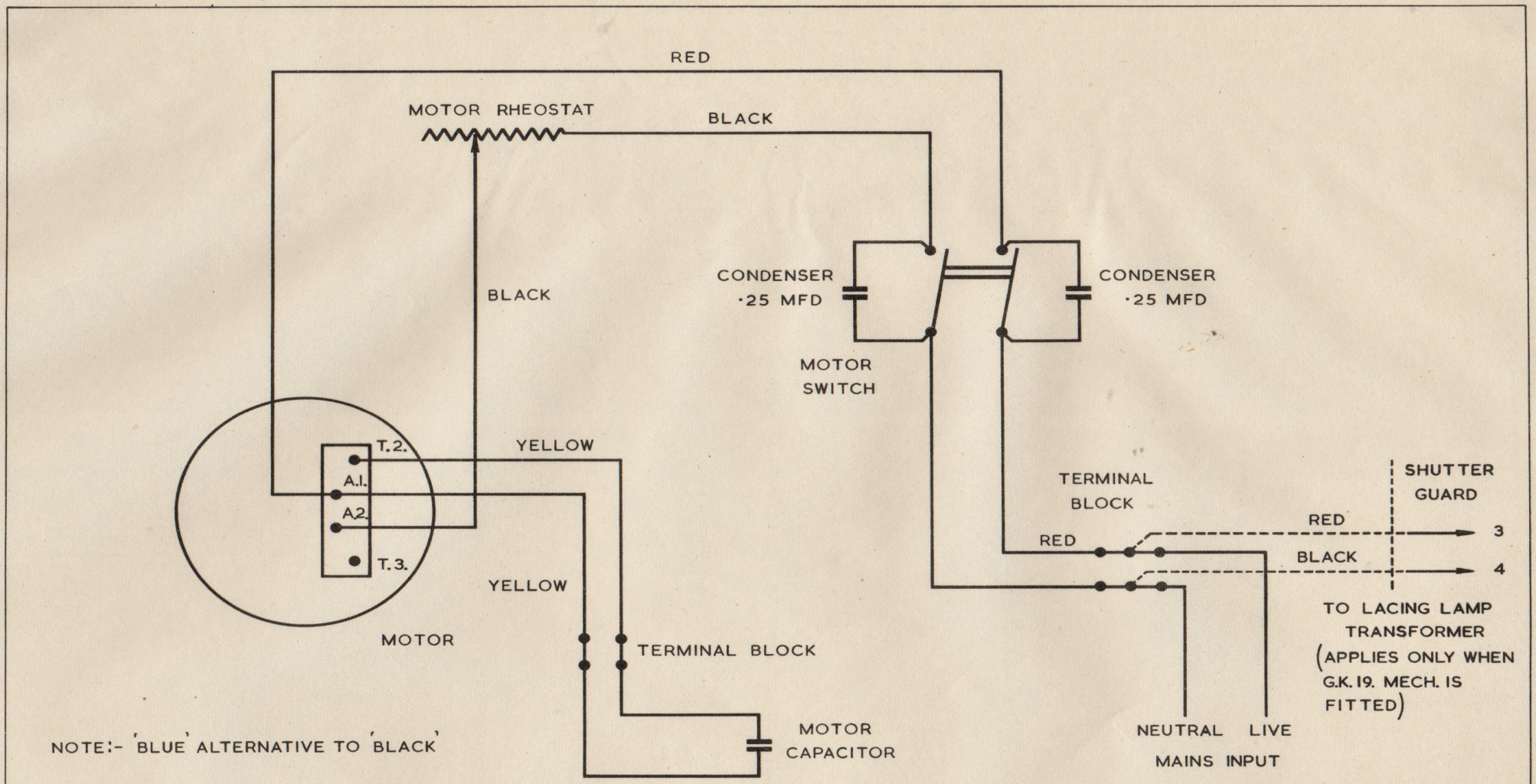
	WHEN A=26"(660 M/M)				WHEN A=32"(819 M/M)				WHEN A=38"(965 M/M)					WHEN A=26"(660 M/M)				WHEN A=32"(819 M/M)				WHEN A=38"(965 M/M)			
	D		C		D		C		D		C			D		C		D		C		D		C	
RAKE	INS	M/M	INS	M/M	INS	M/M	INS	M/M	INS	M/M	INS	M/M	RAKE	INS	M/M	INS	M/M	INS	M/M	INS	M/M	INS	M/M	INS	M/M
+5°	55 1/4	1403	9 7/8	251	55 3/4	1416	15 7/8	403	56 1/4	1428	21 7/8	556	−13°					43 7/8	1114	12 5/8	321	42 1/2	1079	18 5/8	474
+4°	54 3/4	1390	9 3/4	248	55	1397	15 3/4	400	55 1/2	1409	21 3/4	553	−14°					43 1/8	1095	12	305	41 5/8	1057	18	458
+3°	54 1/8	1374	9 5/8	244	54 3/8	1381	15 5/8	396	54 3/8	1387	21 5/8	549	−15°					42 1/2	1079	11 1/4	286	40 7/8	1038	17 1/4	439
+2°	53 1/2	1358	9 1/2	241	53 3/4	1365	15 1/2	393	53 7/8	1368	21 1/2	546	−16°					41 3/4	1060	10 5/8	270	40	1016	16 5/8	423
+1°	53	1346	9 3/8	238	53	1346	15 3/8	390	53 1/8	1349	21 3/8	543	−17°					41	1041	10	254	39 1/4	997	16	407
−0°	52 1/2	1333	9 1/4	235	52 1/2	1333	15 1/4	387	52 1/2	1333	21 1/4	540	−18°					40 1/4	1022	9 3/8	238	38 3/8	974	15 3/8	391
−1°	52	1320	9 1/8	232	52	1320	15 1/8	384	51 7/8	1317	21 1/8	537	−19°					39 3/8	1006	8 3/4	222	37 5/8	955	14 3/4	375
−2°	51 1/2	1308	9	229	51 1/4	1301	15	381	51 1/8	1298	21	534	−20°					38 7/8	987	8 1/8	206	36 3/4	933	14 1/8	359
−3°	50 7/8	1292	8 7/8	225	50 5/8	1285	14 7/8	378	50 3/8	1279	20 7/8	530	−21°					38 1/2	968	7 1/2	190	35 5/8	904	13 1/2	343
−4°	50 1/4	1276	8 7/8	225	50	1270	14 7/8	378	49 1/2	1257	20 7/8	530	−22°									35	889	12 7/8	327
−5°	49 3/4	1263	8 5/8	219	49 1/4	1251	14 5/8	371	48 3/4	1238	20 5/8	524	−23°									34 1/8	866	12 1/4	311
−6°	49 1/8	1247	8 1/2	216	48 3/8	1235	14 1/2	368	48	1219	20 1/2	521	−24°									33 3/8	847	11 3/4	298
−7°	48 5/8	1235	8 3/8	213	47 7/8	1216	14 3/8	365	47 1/8	1197	20 3/8	518	−25°									32 3/8	822	11 1/8	283
−8°	48 1/8	1222	8 3/8	213	47 1/4	1200	14 3/8	365	46 1/2	1181	20 3/8	518	−26°									31 1/2	800	10 5/8	270
−9°	47 1/2	1206	8 1/4	210	46 5/8	1184	14 1/4	362	45 5/8	1158	20 1/4	515	−27°									30 5/8	777	10 1/8	257
−10°	46 7/8	1190	8 1/8	206	45 7/8	1165	14 1/8	358	44 3/4	1136	20 1/8	511	−28°									29 3/4	755	9 1/2	241
−11°	46 1/4	1174	8	203	45 1/4	1149	14	355	44 1/8	1120	20	508	−29°									28 7/8	733	9	229
−12°	45 3/4	1162	7 1/4	184	44 1/2	1130	13 1/4	336	43 1/4	1098	19 1/4	489	−30°									28 1/8	714	8 1/2	216

NOTE:—
TO ALLOW SPOOLBOX DOOR TO OPEN CLEARANCE 'C' SHOULD NOT BE LESS THAN 7"(178 M/M)

ALTERNATIVE HEIGHTS

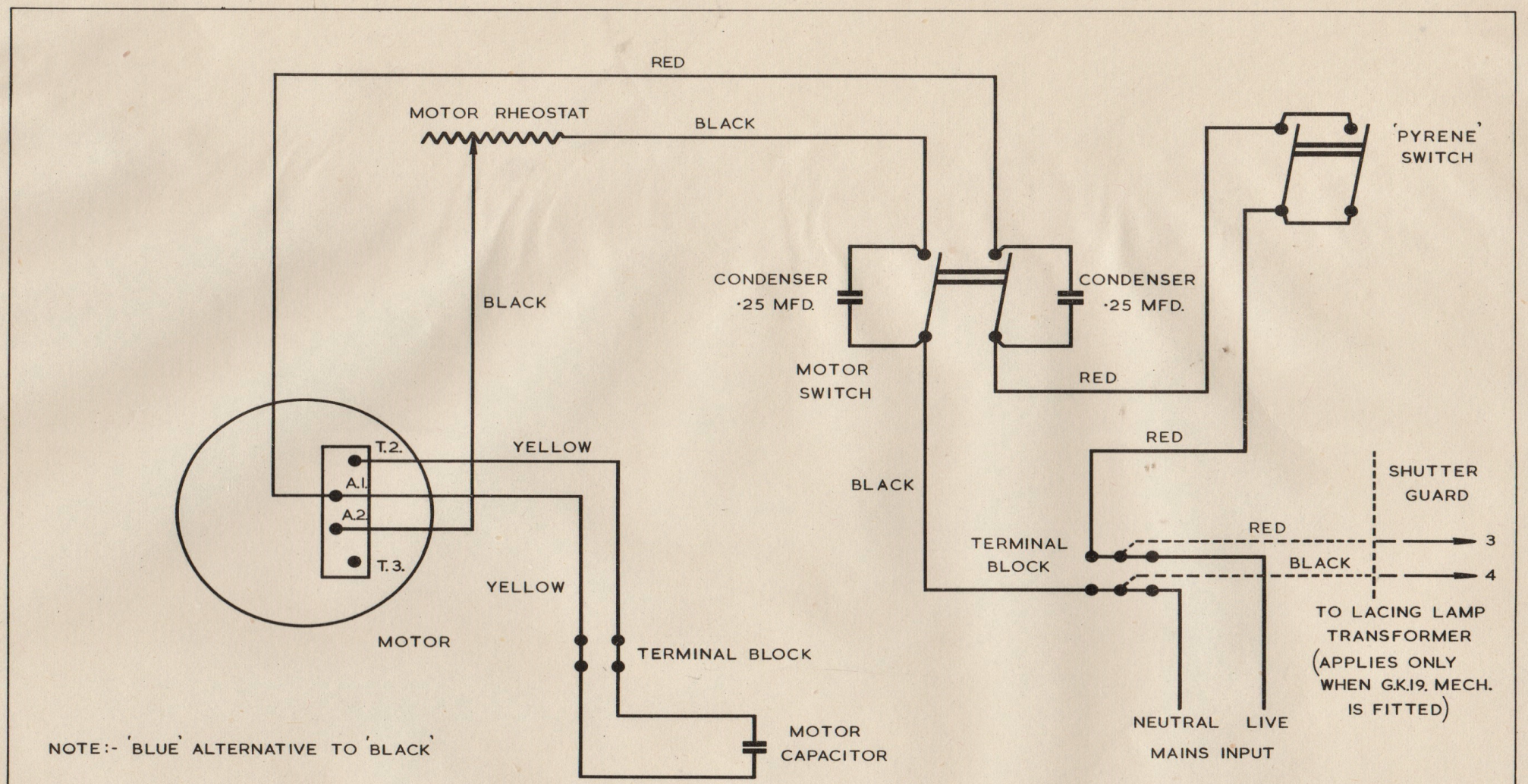
3"(76 M/M) HIGHER—ADD 3"(76 M/M) TO 'D' ABOVE
3"(76 M/M) LOWER—SUBTRACT 3"(76M/M) FROM 'D' ABOVE
6"(152 M/M) " " 6"(152 M/M) " " "

1-1803-49



WIRING DIAGRAM FOR G.K.18. STAND (WITHOUT 'PYRENE')

I-1805-50



WIRING DIAGRAM FOR G.K.18. STAND (WITH 'PYRENE')

1-1806-50

G.K. 18 SOUND EQUIPMENT

The performance of G.K. 21 and G.K. 20 sound equipments, which were designed for large and medium sized cinematograph theatres respectively, has created an insistent demand for equipment capable of the same standard of reproduction in small theatres.

G.K. 18 sound equipment is the result of this demand and offers for small theatres the same superlative grade of reproduced sound the same close approach to infallible dependability, and the same complete accessibility as is given by the larger equipments.

In the design of the new equipment the fullest advantage has been taken of lessons learned from the earlier, larger equipments, and in all functional matters the standard of comparison for the G.K. 18 has been the one set up by the G.K. 21 and 20.

The G.K. 18 is the first practical embodiment of a heavy duty, de luxe design which, whilst of small compass, has every quality attribute of the largest and most expensive equipments.

Briefly, the new design comprises soundheads type 543, amplifier type 522 (or 573), and, according to theatre size, either a No. 0 of a No.1 Duosonic speaker.

The type 543 soundhead requires very little description, because in fact it is the same as the type 378 supplied with G.K. 20 equipment, with the sole difference that the drive to the lower spool box is by belt instead of by chain. The sound head is therefore one of known and proved type, equipped with a fluid flywheel.

The amplifier is entirely new, and there is only one design. Type 522 designates the unit with a mains transformer tapped to accept voltages from 190 to 260. Type 573 designates the unit with a mains transformer for 95 to 130 volts. Both transformers are suitable for A.C. supplies of from 40 to 100 cycles. Except for the mains transformers, there are no differences between the 522 and the 573, which in one self contained unit comprise the complete amplifier chain, from photocell input to power output for speakers, and incorporate the Westinghouse metal rectifier circuit for exciter lamp supply, the main volume control, the sound changeover switch, the film, disc, microphone switch, and the monitor speaker. Externally the amplifier unit is of very attractive appearance, finished in mid-stone colour. It is intended to be mounted on the wall between the two projectors, and the small overall dimensions make this an easy matter even in small operating enclosures. The height is 2 foot 3½ inches, (69 cms) width is 1 foot 1½ inches, (34 cms) and depth back to front 11½ inches (29 cms).

Installation and subsequent maintenance are both greatly facilitated by the design of the steel chassis with its tray and cover. The only part which is permanently fixed to the wall is a rigid steel tray the full height and width of the amplifier, but only 3 inches (7.6 cms) deep. All the conduits for inputs and outputs are terminated in the sides of the tray, and on the flat inside face of the tray are terminals for all external wiring. During installation the amplifier chassis and front cover are completely removed from the tray, thereby rendering the work of running conduit and external wiring as simple as possible. The tray is in effect a large conduit box, and is used as such.

The amplifier chassis, which is the same height and width as the tray, is held to the tray by a quick release hinge at the bottom, and by two screws at the top. The normal operating position is, of course, with the chassis held closed vertically against the tray, but by removing the two securing screws at the top, the chassis hinges forward to a horizontal position, where it is held by a stay. In this horizontal position, all the back of chassis components and the wiring are accessible for inspection, or attention with a soldering iron. The function of the amplifier unit is not disturbed by hinging the chassis forward, so that the detection of an intermittent fault can be undertaken with the amplifier working in the open position.

Two cable forms are used as the means of inter-connection between the connectors on the tray, at which all external wires are terminated, and a row of connectors at the bottom of the amplifier chassis.

The amplifier circuit is a straightforward one with an output stage comprising two 6L6G tubes in push pull, giving 18 speech watts output with not more than 1½% total harmonic distortion. Of this 18 watts, a maximum of 3 watts may be absorbed by the monitor speaker, leaving a minimum of 15 watts for the auditorium speaker.

With the film, disc, microphone switch in the Film position, the whole amplifier chain, comprising four 6J7G or EF37 tubes and two 6L6G, or KT66 tubes is in use. The first three tubes are amplifying stages; the fourth is a phase inverter to feed the output stage. In the anode circuit of the first tube is a network which compensates for the loss caused at the higher frequencies by the photo-cell leads. Negative feedback operates over the last three stages, and includes the output transformer of the push pull stage. The overall gain of the amplifier can be adjusted, by means of a pre-set attenuator, to give two degrees of amplification, one 6 dB less than the other.

With the switch in either the disc of microphone position, the input is taken to the grid of the second 6J7G. The disc and microphone input terminals should be short circuited to ground if no input is connected to them.

The rectifier is a 5U4G, or U52, and the high tension smoothing circuit is of the choke input type. The smoothing condensers, as in G.K. 20 practice, are protected by fuses.

The built in monitor speaker has a stud contact volume control, and there is provision for switching off the auditorium speaker. When the auditorium speaker is off the switch introduces a dummy load across the output stage.

The 6 inch (15 cms) monitor speaker is of the same size, and has the same fixing centres, as the monitor used in G.K. 21 and 20 equipments. It is, however, of a later and improved pattern, of shallower overall depth because the Ticonal or Alcomax centre pole magnet is recessed into the cone. The gap is totally enclosed and dustproof. When existing stocks of monitor speakers for G.K. 21 and 20 are exhausted, the new pattern now adopted for the G.K. 18 will be used. As a replacement, from now on, for G.K. 21, 20, and 18, it is only necessary to carry one of the new type speaker units.

The Westinghouse selenium type metal rectifier with attendant smoothing circuit, is mounted on the amplifier chassis, and gives a full 8 volts 4 amperes output.

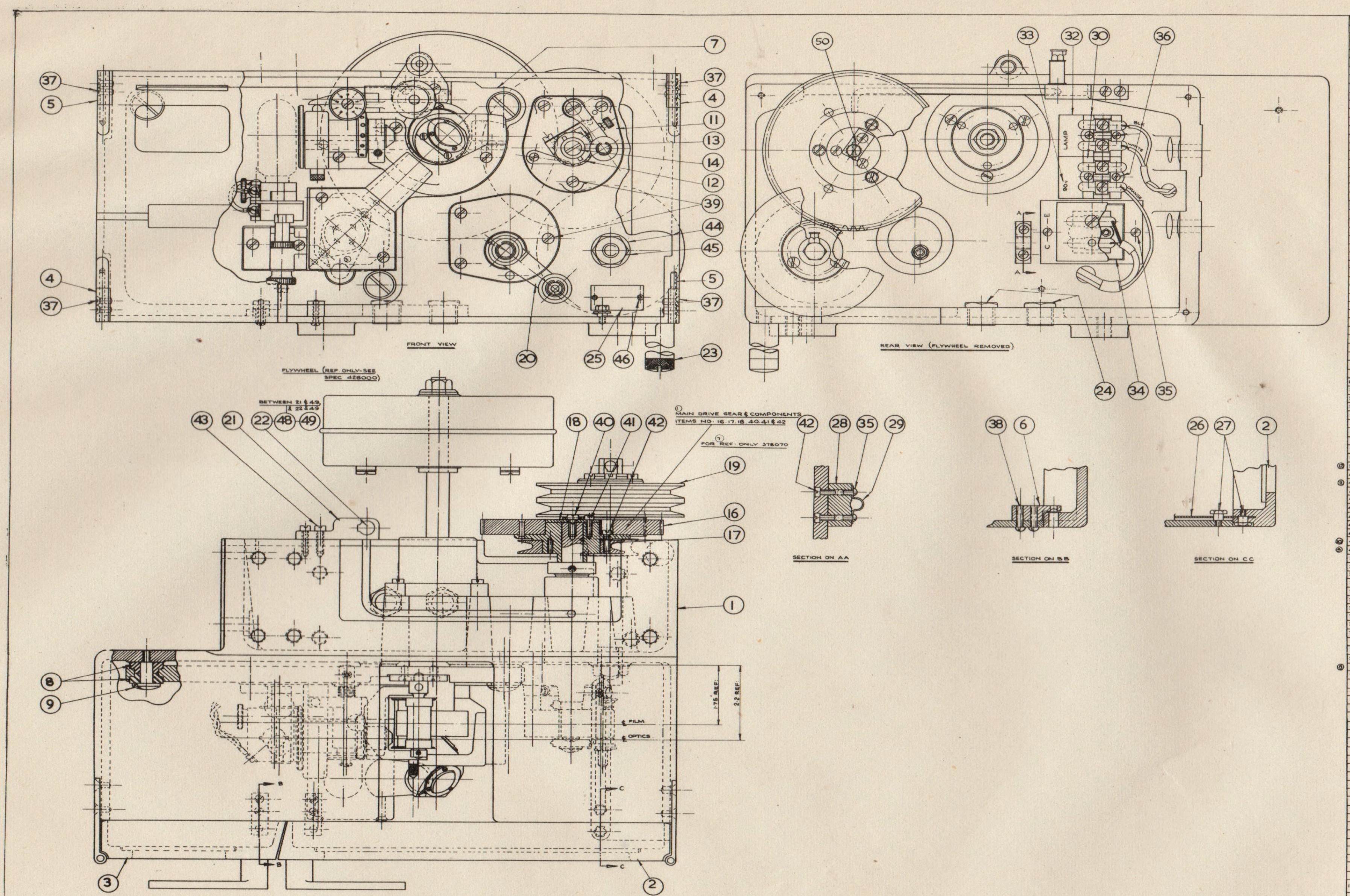
Sound changeover from one machine to the other is effected by switching the exciter lamps. The actuating lever of the changeover switch is on the top right hand face of the amplifier, above the main volume control. The physical position of the lever indicates to which exciter lamp the current is switched. With the lever to the left, the left hand exciter lamp will light. With the lever to the right, the right hand lamp will light. Remote control of changeover from the operating side of the right hand machine is effected by another lever, housed in a small wall mounting steel case, which is mechanically coupled to the actuating lever of the amplifier by a flexible push pull cable. The remote control lever also works from left to right, and operationof either the control mounted on the amplifier or of the remote control moves both.

The changeover and volume controls on the right hand side of the amplifier are matched by the film, disc, microphone switch on the left hand side. In the centre, between the controls, is the grill of the monitor speaker. The volume control is of the stud contact type, with 20 steps, and click action.

Throughout the amplifier, great attention has been paid to durability and reliability. All the components are rated for constant service under tropical conditions. The mains transformer, the high tension choke, the exciter lamp circuit choke, and the Westinghouse metal rectifier are identical with and interchangeable with those used in G.K. 20 equipment.

The output transformer is a new type, identical in performance and dimensions with that originally used in the G.K. 20 amplifier, but with a centre tapped secondary. This new transformer will in future be used in the G.K. 20 amplifier, and for spares purposes for both G.K. 20, irrespective of date of manufacture, and G.K. 18, only one of this new type of transformer need be carried in stock. All the steel work of the amplifier chassis, tray and cover is made rustproof by Bonderising prior to painting.

G.K. 18 sound equipment will be offered with two sizes of Duosonic Speaker. For halls up to 900 seats the No. 0 will be used. For halls from 900 to 1200 the No.1 will be used. The speaker units, both treble and bass, in both sizes of speaker assembly, are of the permanent magnet type.



ITEM	PART Nº	DESCRIPTION	FINISH	MATERIAL	NºOFF
60					
59					
58					
57					
56					
55					
54					
53					
52					
51					
⑫ 50	83050	KEEPER			1
49	83053	OILER MTG.			1
⑪ 48	83052	LEATHER WASHER			2
47					
46	53/980000	P.K. DRIVE SCR 00 x 1/2" LG. TYPE U.	CHROME PLATE	M.S.	2
45	NUT 3/145	7/16 B.S.F. HEX: NUT	CHROME PLATE	M.S.	1
44	WAS 3/426	7/16 B.S.F. PLAIN WASHER	CHROME PLATE	M.S.	1
43	SCR 3/1086	2 B.A. CH. HD. SCR x 5/8" LG	CHROME PLATE	M.S.	2
42	SCR 3/1073	4 B.A. CH. HD. SCR x 1/2" LG	CHROME PLATE	M.S.	5
⑩ 41	SCR 3/59	4 B.A. CH. HD. SCR 3/8" LG	CHROME PLATE	M.S.	3
⑨ 40	SCR 3/1072	2 B.A. HEX. HD. SCR. x 1/2" LG.	CHROME PLATE	M.S.	1
39	SCR 3/1098	2 B.A. CH. HD. SCR. x 3/4" LG.	CHROME PLATE	M.S.	6
38	SCR 3/2087	4 BA RD. HD. SCR x 5/8" LG	CHROME PLATE	M.S.	2
37	SCR 3/58	2 BA CSK. HD. SCR x 3/8" LG	CHROME PLATE	M.S.	8
36	SCR 3/2087	4 B.A. RD. HD. SCR x 5/8" LG	CHROME PLATE	M.S.	4
35	SCR 3/2046	4 BA. RD. HD. SCR x 1/4" LG	CHROME PLATE	M.S.	4
34	83041	SCREENED TERM. BLOCK			1
33	83048	DESIGNATION PLATE			1
32	60006	DESIGNATION PLATE			1
31					
30	51004	TERMINAL BLOCK ASSY.			2
29	CRA 725	CABLE CLIP.	NICKEL PLATE	ROSS COURTNEY RC. 725.	1
28	68244	DISTANCE PIECE			1
27	83080	SHOULDER SCREW			2
⑧ 26	381,009	DOOR STAY			1
25	543005	NAMEPLATE			1
24	CBM 3/4	3/4 SMITH BORE CON: BUSH(HD)		DIECASTING	2
23	83054	OIL COLLECTOR ASSY.			1
22		OILER		ROTHERHAM TYPE AL. 1	1
21	378040	OIL PIPE ASSY			1
20	378024	JOCKEY ROLLER ASSY			1
19	543002	LAY SHAFT ASSY			1
18	83032	KEY WASHER LARGE			1
17	543001	BELT PULLEY			1
16	83027	MAIN DRIVE GEAR			1
15					
14	83097	END SCREW			1
13	83007	KEY WASHER			1
12	83.006	HOLD BACK SPROCKET			1
11	83.003	SPROCKET SHAFT ASSY			1
10					
9	83022	MOUNTING SCREWS			3
8	83023	MOUNTING CUSHIONS			6
7	543020	SCANNING UNIT ASSY.			1
6	83077	CATCH PLATE			2
5	83075	HINGE ASSY			2
4	83072	HINGE ASSY			2
3	543011	DOOR ASSY. SMALL			1
2	543010	DOOR ASSY. LARGE			1
1	543006	MAIN CASTING			1

BRITISH ACOUSTIC FILMS LTD

SOUNDHEAD

MODEL 543

GENERAL ASSY

PART Nº 543000

SCALE FULL SIZE | USED ON

TOLERANCES UNLESS STATED DEC. DIMS ± OTHER DIMS ±

DRN. BY | DATE 26.11.46

CHKD BY AFW | APPD. BY.

MATERIAL:- AS SCHEDULE

FINISH:- NATURAL.

MODIFICATIONS

① NOTE ADDED 5·2·48 DD.

② ITEM 12 WAS FEED SPROCKET PT Nº 83.005 3·6·48 DD

③ SCANNING UNIT CASTINGS TO BE AS PER MOD Nº 3 (378,005) ON SERIAL Nº 111 & SUBSEQUENT 11·6·48 S.H.S.

④ FINISH ADDED TO ITEM 29 13·10·48 J.R.

⑤ FLYWHEEL PT. Nº WAS SHOWN AS 423,000 20·10·48 D.D.

⑥ INCORRECT PART OF NOTE UNDER MOD ① DELETED 8·2·49 D.P.

⑦ NOTE ADDED 15·2·49 A.F.W.

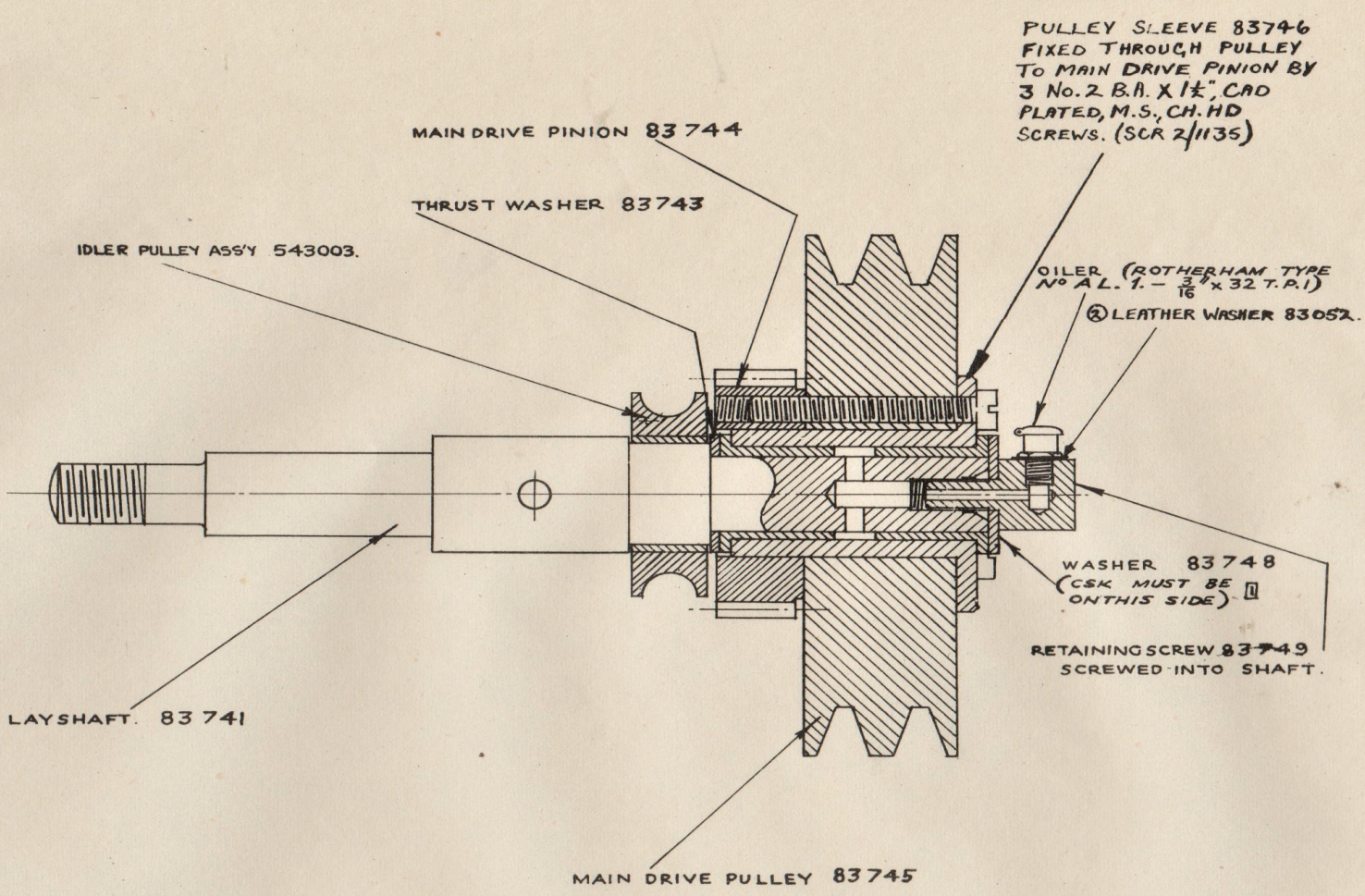
⑧ ITEM 26 - PART Nº WAS 83015
⑨ ITEM 40 - WAS CH. HD.
⑩ ITEM 41 - WAS CSK. HD.
⑪ ITEM 48 - WAS 1 OFF
⑫ ITEM 50 ADDED 27·4·49

SOUNDHEAD TYPE 543 - GENERAL ASSEMBLY

Drawing No. 543000

PARTS LIST

Part No.	Description
543006	Main Casting
543010	Door Assembly, large
543011	Door Assembly, small
83072	Hinge Assembly
83075	Hinge Assembly
83077	Catch Plate
543020	Scanning Unit Assembly
83033	Mounting Cushions
83022	Mounting Screws
83003	Sprocket Shaft Assembly
83006	Hold Back Sprocket
83007	Key Washer
83097	End Screw
83027	Main Drive Gear
543001	Belt Pulley
83032	Key Washer, large
543002	Layshaft Assembly
378024	Jockey Roller Assembly
378040	Oil Pipe Assembly
	Oiler - Rotherham Type AL.1
83054	Oil Collector Assembly
CBM 3/4"	3/4" Smooth Bore conduit Bush (Hex) Diecasting
543005	Nameplate
381009	Door Stay
83080	Shoulder Screw
69244	Distance Piece
CRA. 725	Cable Clip - Nickel Plate - Ross Courtney RC. 725
51004	Terminal Block Assembly
60008	Designation Plate
83048	Designation Plate
83041	Screened terminal block
SCR 3/2045	4 BA Rd. Hd. Scr. x 1/4" Lg. Chr. Pl. M.S.
SCR 3/2087	4 BA Rd. Hd. Scr. x 5/8" Lg. Chr. Pl. M.S.
SCR 3/58	2 BA CSK. Hd. Scr x 3/8" Lg. Chr. Pl. M.S.
SCR 3/2087	4 BA Rd. Hd. Scr. x 5/8" Lg. Chr. Pl. M.S.
SCR 3/1093	2 BA Ch. Hd. Scr. x 3/4" Lg. Chr. Pl. M.S.
SCR 3/1072	2 BA Hex.Hd. Scr. x 1/2" Lg. Chr. Pl. M.S.
SCR 3/59	4 BA Ch. Hd. Scr. x 3/8" Lg. Chr. Pl. M.S.
SCR 3/1073	4 BA Ch. Hd. Scr. x 1/2" Lg. Chr. Pl. M.S.
SCR 3/1086	2 BA Ch. Hd. Scr. x 5/8" Lg. Chr. Pl. M.S.
WAS 3/426	7/16" B.S.F. Plain Washer Chr. Pl. M.S.
NUT 3/145	7/16" B.S.F. Hex. Nut Chr. Pl. M.S.
S3/990001	Pk. Drive Scr. 00 x 1/4" Lg. Type U. Chr. Pl. M.S.
83052	Leather Washer
83053	Oiler Mounting
83050	Keeper



PROCESS

BRITISH ACOUSTIC FILMS LTD.

MODIFICATIONS		
①	NOTE ADDED. 15.1.47. J.P.	
2	WASHER ADDED. 12.4.49 R.F.W.	

SCALE FULL SIZE

$\overline{V}$ = NORMAL MACHINED FINISH

$\overline{VV}$ = GROUND OR FINE MACHINED FINISH

$\overline{VVV}$ = FINE GROUND FINISH WITHOUT WHEELMARKS

USED ON ASSY. No. 83 000.

TOLERANCES, UNLESS STATED, ON DECIMAL DIMS. ± / ON OTHER DIMS. ±

DRN. BY J.P. DATE 25.7.46.

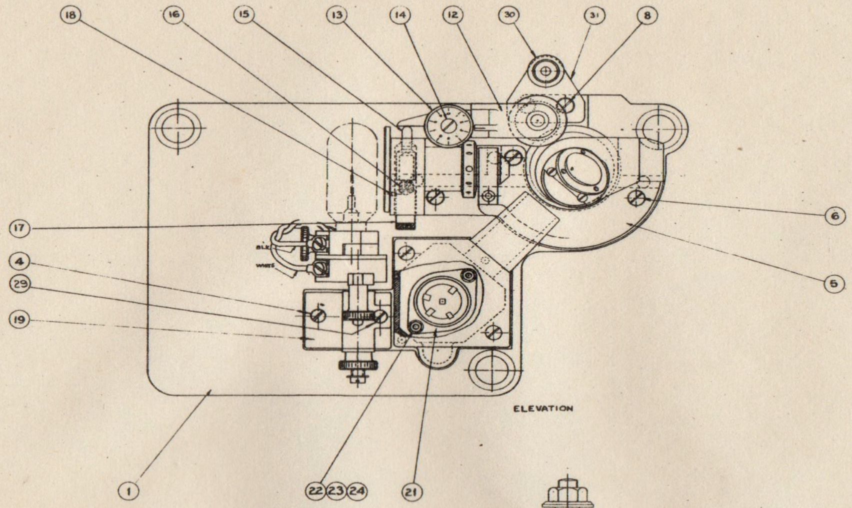
CKD. BY APPD. BY

MATERIAL

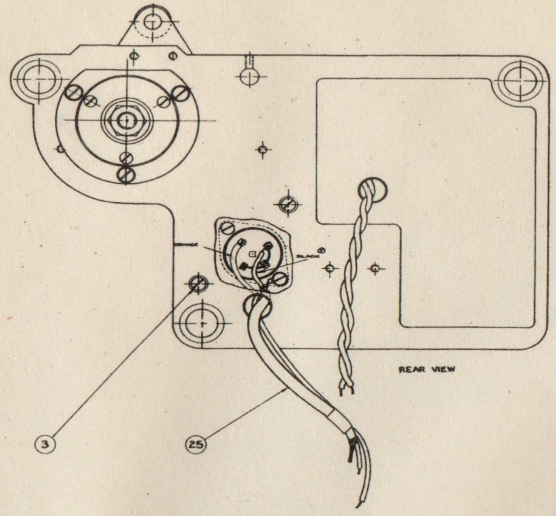
FINISH

LAYSHAFT ASSEMBLY

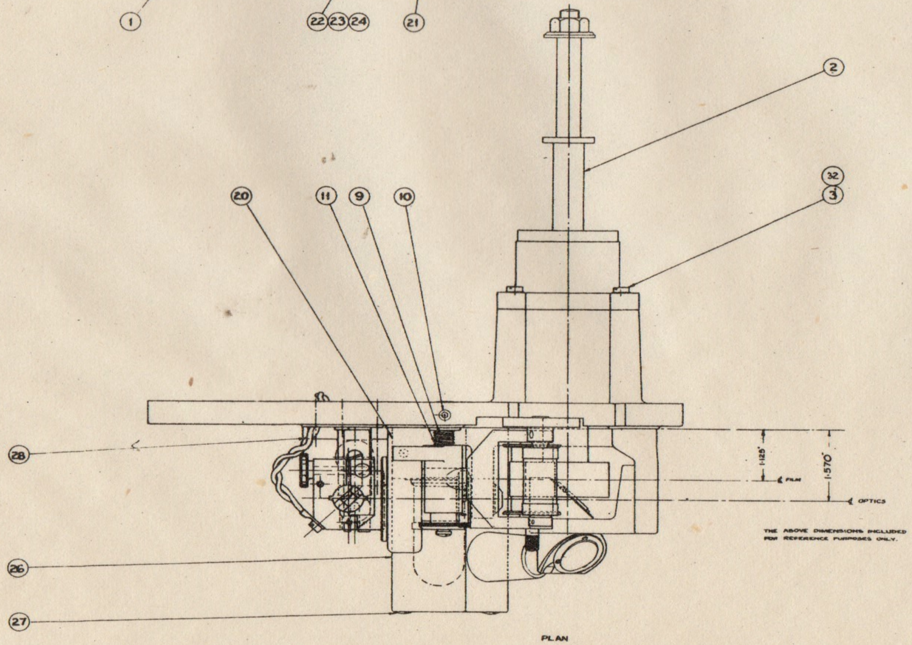
PART NUMBER 543,002



ELEVATION



REAR VIEW



PLAN

ITEM	PART No.	DESCRIPTION	FINISH	MATERIAL	No. OFF
40					
39					
38					
37					
36					
35					
34					
33					
32		2 B.A. SHKPF WASHER	D.N.P.	STEEL	5
31	83,970	PLATE			1
30	83,975	GUIDE ROLLER & SPINDLE ASSY.			1
29		2 B.A. CH. HD. SCR. x $1\frac{1}{2}$" LG.	CH.PL.	M.S.	1
28	83,190	EXCITER LAMP CABLE FORM			1
27	378,008	PHOTO CELL COVER FIXING SCREWS			2
26	378,007	PHOTO CELL COVER			1
25	83,189	CELL CABLE FORM			1
24	NUT 8/8	4 B.A. STD. HEX. NUT	D.N.P.	M.S.	2
23	WAS 506	4 B.A. SH'K'P'F WASHER		STEEL	2
22	SCR 8/1086	4 B.A. x $\frac{3}{16}$ LONG CH. HD SCREW	D.N.P.	M.S.	2
21	WH. SP4E	4 PIN VALVEHOLDER TYPE SP4 E			1
20	378,043	PHOTO CELL HOLDER ASS'Y			1
19	378,045	EXCITER LAMP HOLDER ASS'Y			1
18	GRU 8/401	4 B.A. x $\frac{1}{8}$ LONG GRUB SCREW	BLUED	STEEL	1
17	378,039	SPRING PLUG			1
16	83,566	PLUNGER SPRING			1
15	378,037	PLUNGER			1
14	83,166	LOCKING SCREW			1
13	83,165	ADJUSTING KNOB			1
12	378,036	LAYON ROLLER ASS'Y			1
11	83,164	SPRING			1
10	GRU 8/64	2 B.A. x $\frac{5}{16}$ SOCKET HD GRUB SCR.	BLUED	STEEL	1
9	83,163	PIVOT SPINDLE			1
8	SCR 3/1058	2 B.A. x $\frac{3}{16}$ LONG CH. HD. SCREW	CH.PL.	M.S.	2
7	~~83,648~~	~~GUIDE ROLLER ASS'Y~~			~~1~~
6	SCR 3/1096	2 B.A. x $\frac{5}{8}$ LONG CH. HD SCREW	CH.PL.	M.S.	3
5	378,050	TAYLOR HOBSON OPTICAL UNIT			1
4		2 B.A. x $\frac{5}{8}$" LONG CH. HD. SCREW	CH.PL.	M.S.	1
3	SCR 9/1093	2 B.A. x $\frac{3}{16}$ LONG CH. HD SCREW	D.N.P.	M.S.	5
2	83,156	FLYWHEEL SHAFT & HOUSING ASSY			1
1	378,068	SCNG UNIT CSTG & DOWEL ASS'Y			1

BRITISH ACOUSTIC FILMS LTD.

SCALE: FULL SIZE
USED ON ASSY. No. 378,000
DRN. BY: J.W. DATE: 26.11.47
CKD. BY: A.F.V.
MATERIAL: AS SCHEDULE
FINISH: NATURAL.

SCANNING UNIT ASSEMBLY

PART NUMBER 378,001

AMENDMENTS
1. ITEM 7 DELETED. ITEMS 30 & 31 ADDED 9.3.48
2–4. ITEM 8 SCREWS ... ADDED ... 5.6.48 ... 17-6-48
5–6. ITEM ... SCREW WAS ... LG. ... 27.7.48
7. BLACK LEAD WAS CANCELLED TO UPDATE ... D.P. 6.8.48

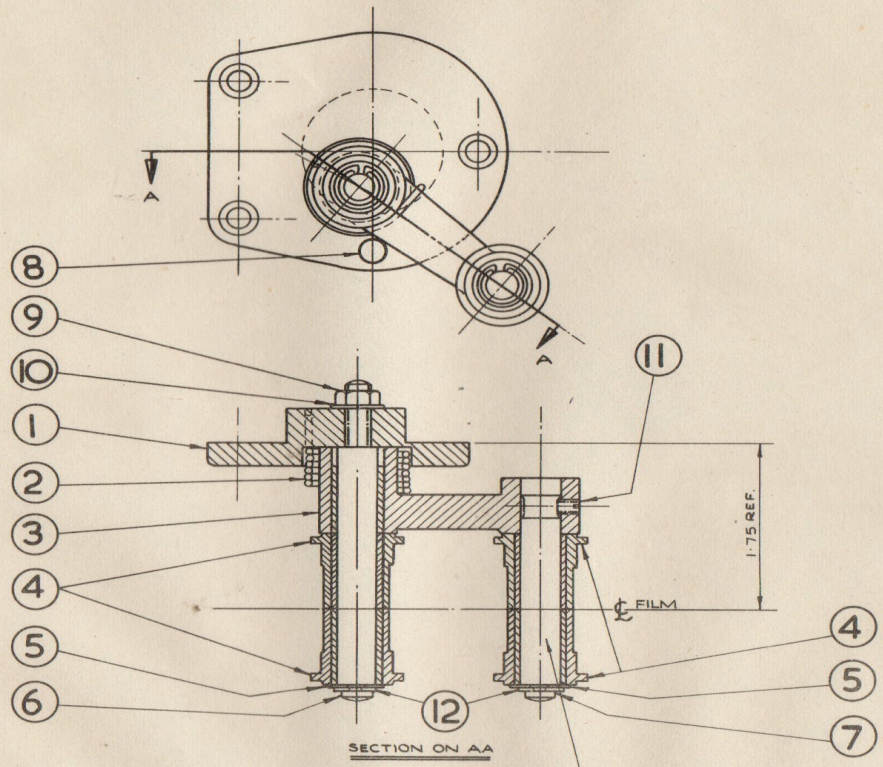
SCANNING UNIT ASSEMBLY

Drawing No. 378001

Details	Part No.
Scanning Unit Casting and Dowel Assembly	378068
Flywheel Shaft and Housing Assembly	83156
2 BA x 3/4" Lg. CH. HD. Screw DNP. M.S.	SCR 9/1093
2 BA x 5/8" Lg. CH. HD. Screw Ch.Pl. M.S.	
Taylor Hobson Optical Unit	378050
2 BA x 5/8" Lg. CH. HD. Screw Ch.Pl. M.S.	SCR 3/1086
2 BA x 3/8" Lg. CH. HD. Screw Ch.Pl. M.S.	SCR 3/1058
Pivot Spindle	83163
2 BA x 5/16" Skt.Hd. Grubscrew Blued Steel	GRU 8/64
Spring	83164
Layon Roller Assembly	378036
Adjusting Knob	83165
Locking Screw	83166
Plunger	378037
Plunger Spring	83566
Spring Plug	378039
4 BA x 1/8" Lg. Grubscrew Blued Steel	GRU 8/401
Exciter Lamp Holder Assembly	378045
Photo Cell Holder Assembly	378043
4 Pin Valveholder Type SP4E	VH SP4E
4 BA x 7/16" Lg. CH.HD.Scr. DNP M.S.	SCR 9/1066
4 BA Shakeproof Washer Steel	WAS 506
4 BA Std. Hex. Nut DNP M.S.	NUT 9/5
Cell Cable Form	83,189
Photo Cell Cover	378007
Photo Cell Cover Fixing Screws	378008
Exciter Lamp Cable Form	83190
2 BA CH.HD.SCR x 1½" Lg. CH.Pl. M.S.	
Guide Roller and Spindle Assembly	83975
Plate	83970
2 BA Shakeproof Washer DNP Steel	

DRAWING No. 543020

SCANNING UNIT ASSEMBLY TO 378001 LESS CASTING AND DOWEL ASSEMBLY 378068 - PLUS CASTING AND DOWEL ASSEMBLY 543021.



SECTION ON AA

② GAP BETWEEN ROLLERS TO BE 0·005" (+ .003 −.000") ON THIS ROLLER ONLY.

ITEM	PART Nº	DESCRIPTION	FINISH	MATERIAL	Nº OFF
20					
19					
18					
17					
16					
15					
14					
13					
12	83404	CIRCLIP			2
11	GRC8/62	2BA SOCKET HD SET SCR X 3/16 LG CUP END	BLUED	M.S.	1
10	WAS9/401	O.B.A. PLAIN WASHER	D.N.P	M.S.	1
9	NUT 9/1	O.B.A. HEX. NUT.	D.N.P	M.S.	1
8	378031	STOP PIN			1
7	378030	SHAFT			1
6	378029	SHAFT			1
5	378067	1/4" WASHER			2
4	378028	ROLLER ASSEMBLY			4
3	378027	ARM ASSY.			1
③ 2	378072	SPRING			1
1	378025	MOUNTING			1

MODIFICATIONS

① ITEM 2 WAS PT. Nº 378026 16·6·48 D.D.

② NOTE ADDED 17·8·48 D.D.

③ ITEM 2 WAS PT Nº 378070 15·2·49 A.F.W.

BRITISH ACOUSTIC FILMS LTD.

JOCKEY ROLLER ASSEMBLY FOR TYPE 378 SD HD

SCALE FULL SIZE

USED ON ASSY. Nº 378000

TOLERANCES UNLESS STATED ON DECIMAL DIMS ± ON OTHER DIMS ±

DRN. BY | DATE

CKD BY | APPD BY.

▽ = NORMAL MACHINED FINISH

▽▽ = GROUND OR FINE MACHINED FINISH

▽▽▽ = FINE GROUND FINISH WITHOUT WHEELMARKS

MATERIAL AS SCHEDULE

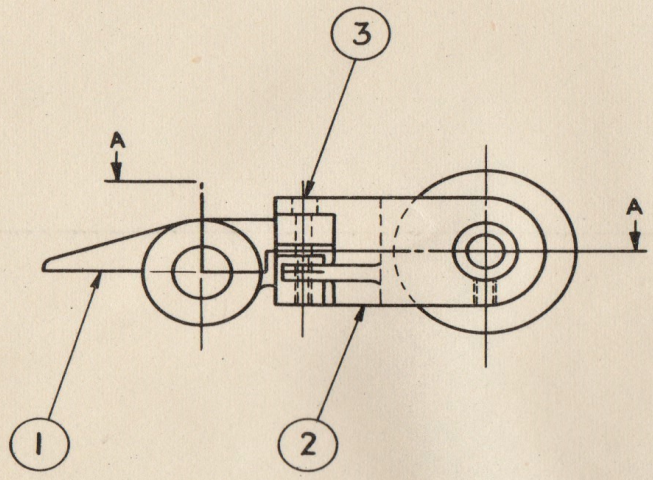
FINISH NATURAL

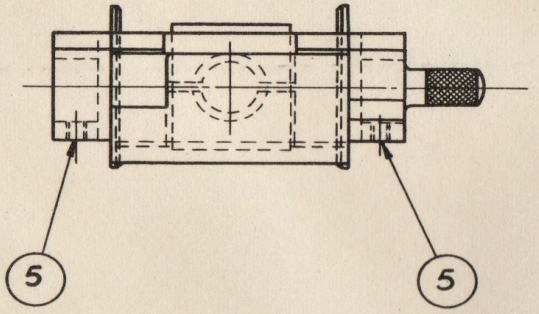
PART Nº 378024

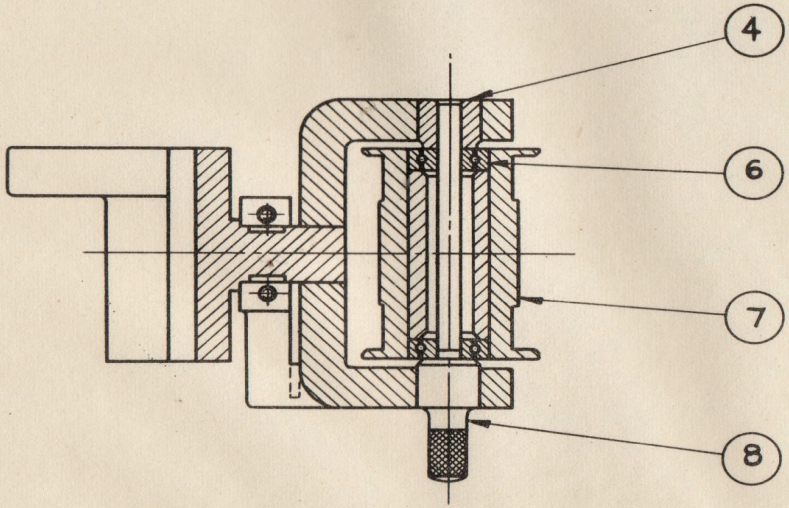
JOCKEY ROLLER ASSEMBLY

Drawing No. 378024

Details	Part No.
Mounting	378025
Spring	378072
Arm Assembly	378027
Roller Assembly	378028
1/4" Washer	378067
Shaft	378029
Shaft	378030
Stop Pin	378031
O.B.A. Hex. Nut D.N.P. MS.	NUT 9/1
O.B.A. Plain Washer D.N.P. MS.	WAS 9/401
2 BA Socket HD.SET SCR. x 3/16" LG. CUP END BLUED M.S.	GRC 8/62
Circlip	83404







SECTION A-A

ITEM	PART No.	DESCRIPTION	FINISH	MATERIAL	No. OFF
10					
9					
8	83,524	SPINDLE			1
7	83,536	LAY ON ROLLER			1
6		BALL RACE		R&M LS 3/16" OR HOFFMAN TYPE 4666	2
5	GRU 8/2	6 B.A. x $\frac{3}{16}$" LG. SOCKET HD. GR. SCR	BLUED	STEEL	2
4	83,530	LOCATING COLLAR			1
3		6 B.A. x $\frac{5}{8}$" LG. S'K'T HD. CAP SCR.	BLUED	STEEL	2
2	83,521	LAY ON ROLLER ARM			1
1	378,010	BEARING ARM			1

BRITISH ACOUSTIC FILMS LTD.

LAY ON ROLLER ASSEMBLY

MODIFICATIONS

SCALE FULL SIZE

$\overline{V}$ = NORMAL MACHINED FINISH

$\overline{VV}$ = GROUND OR FINE MACHINED FINISH

$\overline{VVV}$ = FINE GROUND FINISH WITHOUT WHEELMARKS

USED ON ASSY. Nº 378,001

TOLERANCES. UNLESS STATED. ON DECIMAL DIMS. ± ON OTHER DIMS. ±

DRN. BY J.A.H. DATE 1.12.47

CKD. BY A.F.W. APPD. BY

MATERIAL AS SCHEDULE

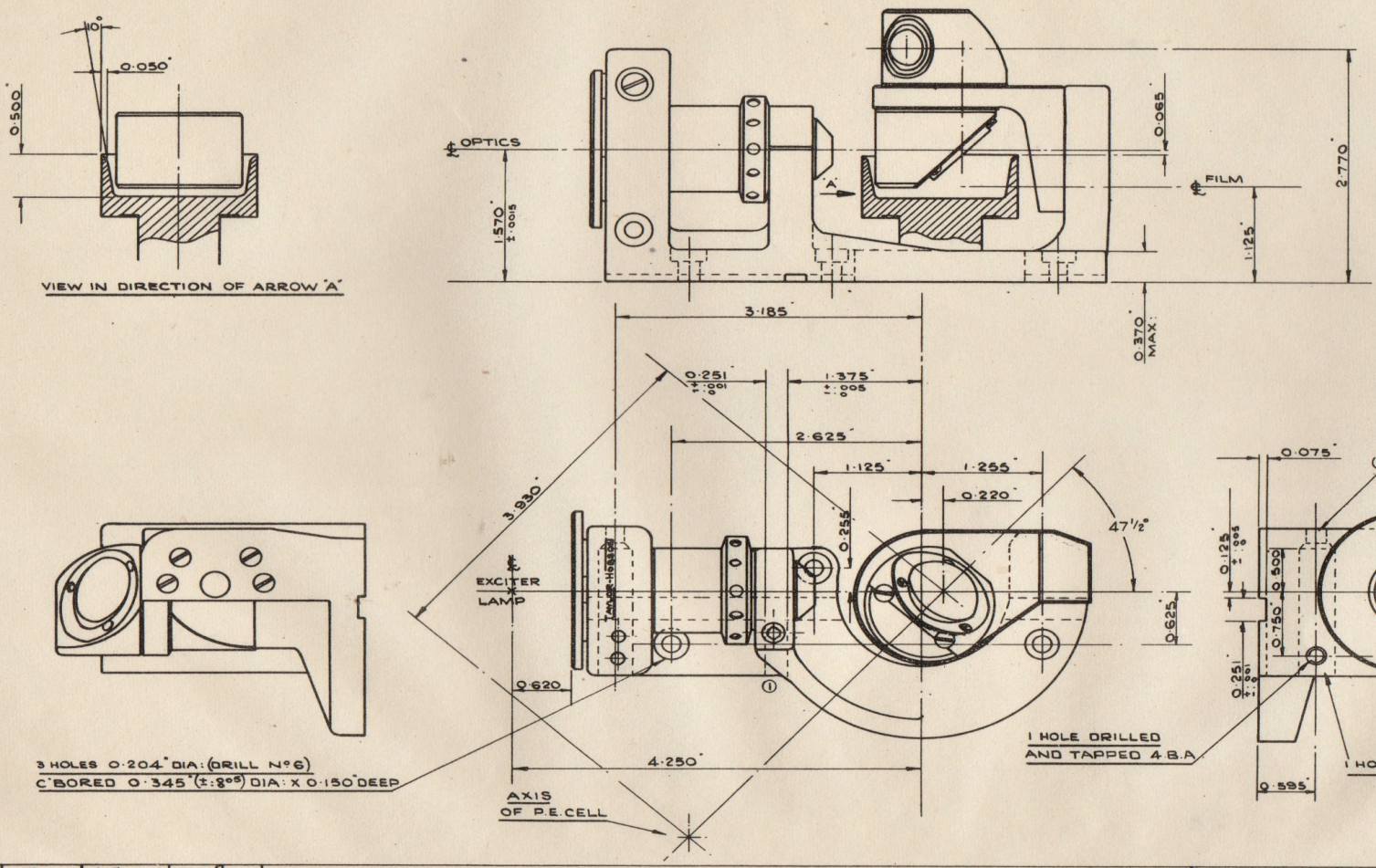
FINISH NATURAL

PART NUMBER 378036

LAY ON ROLLER ASSEMBLY

Drawing No. 378036

Details	Part No.
Bearing Arm	378010
Layon On Roller Arm	83521
6 BA x 5/8" LG. S'K'T. HD. CAP SCR. BLUED STEEL	
Locating Collar	83530
6 BA x 3/16" LG. SOCKET HD. GR.SCR. BLUED STEEL	GRU 8/2
Ball Race. R.&.M. LS.3/16" or Hoffman type 4666	
Lay On Roller	83536
Spindle	83524



PROCESS.

MODIFICATIONS	
COPIED FROM TAYLOR-HOBSON DWG: Nº A. 4703	
① VERTICAL KEY-WAY WAS SHOWN ABOVE ℄ 2·2·48 FAH.	
② FINISH WAS WHITE ENAMEL LENSES BLOOMED 5·3·48. FAH.	

SCALE FULL SIZE

▽ NORMAL MACHINE FINISH

▽▽ GROUND OR FINE MACHINED FINISH

▽▽▽ FINE GROUND FINISH WITHOUT WHEELMARKS

USED ON ASSY Nº 378·001

TOLERANCES, UNLESS STATED
ON DECIMAL DIM: ± ·005
ON OTHER DIM: ±

DRN BY. F.A.H. DATE 2·12·47

CKD BY. A.F.W. APPD BY.

MATERIAL PURCHASED COMPLETE

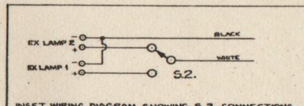
FINISH WHITE ENAMEL & CHROMIUM ②

BRITISH ACOUSTIC FILMS LTD

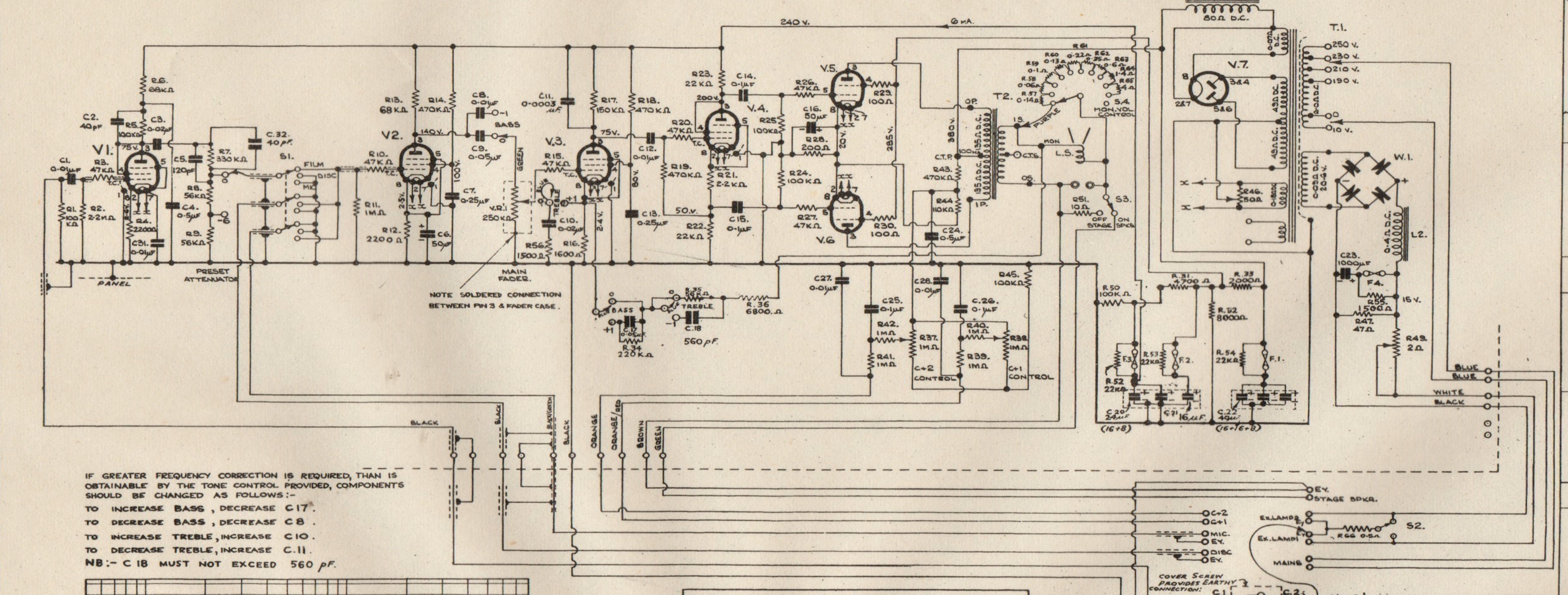
TAYLOR HOBSON OPTICAL UNIT

PART Nº 378050.

NOTE! IF SHORT CELL LEADS GIVE TOO MUCH TREBLE REMOVE C.32 (40pF)



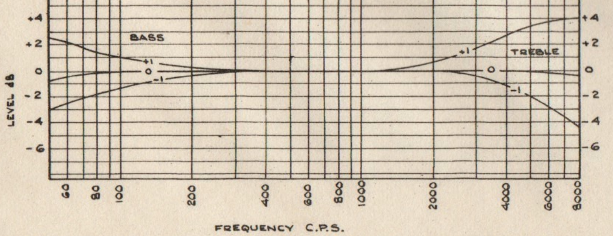
INSET WIRING DIAGRAM SHOWING S.2. CONNECTIONS ON EQUIPMENTS PRIOR TO SERIAL Nº 113



IF GREATER FREQUENCY CORRECTION IS REQUIRED, THAN IS OBTAINABLE BY THE TONE CONTROL PROVIDED, COMPONENTS SHOULD BE CHANGED AS FOLLOWS:-

TO INCREASE BASS, DECREASE C17.
TO DECREASE BASS, DECREASE C8.
TO INCREASE TREBLE, INCREASE C10.
TO DECREASE TREBLE, INCREASE C.11.

NB:- C 18 MUST NOT EXCEED 560 pF.



VOLTAGES MEASURED WITH TEST INSTRUMENTS (FIGURES STATED ON CIRCUIT ARE TRUE VOLTAGES)		AVO MODEL 7 500 Ω/VOLT		AVO MODEL 40 166 Ω/VOLT		TAYLOR METER 1000 Ω/VOLT	
		1000V. RANGE	100V. RANGE	1200V. RANGE	120V. RANGE	1000V. RANGE	100V. RANGE
V1.	Va	60		55		65	
V2.	Va	115		95		125	
	Vg2	70		52		85	
V3.	Va	47		40		35	
	Vg2	60		50		70	
V4.	Va	185		175		190	
	Vk		42		36		50
CELL VOLTS (JUNCTION) (R43 & R44)		62		55		70	

NOTE 1:- ON INSTALLATION OR AFTER A FEW MONTHS STANDBY REMOVE FUSES F1, F2 & F3, & SWITCH AMPLIFIER ON FOR 30 MINS TO REFORM ELECTROLYTIC CONDENSER.

2:- IF MONITOR SENSITIVITY IS INSUFFICIENT, REMOVE PURPLE LEAD FROM "1S" ON OUTPUT TRANS. & CONNECT TO "C.T.S." THE MON. VOLUME WILL THEN WORK IN REVERSE, I.E. MAX. MON. VOLUME IN FULL ANTI-CLOCKWISE POSN.

3:- IF AMPLIFIER IS USED IN CONJUNCTION WITH SOUNDHEADS HAVING ONE SIDE OF THE EXCITER LAMP CONNECTED TO FRAME, THE LINK BETWEEN EX LAMP1 'EY' & EARTH BUSBAR MUST BE REMOVED.

4:- IF EITHER MICROPHONE OR DISC INPUTS IS NOT IN USE, IT SHOULD BE SHORT CIRCUITED TO APPROPRIATE "EY" TERMINAL.

MODIFICATIONS

- TOP CONNECTION OF SCREENED TERMINAL BLOCK WAS INCORRECTLY SHOWN AS. C+1 & C+2. 21. 6. 49. JP.
- TONE CORRECTION CIRCUIT RE-ARRANGED – S.2. POSITION IN WIRING REVISED 6. 7. 49. JP.
- R8 & R9 WERE 68 K.Ω. C.11. WAS 40pF. C.19. DELETED. R.13 WAS 100 KΩ. C.5 WAS 180pF. C.32 ADDED. NOTE RE C.32 ADDED. NOTE RE C18 ADDED. STOCK REFS ADDED. 8. 8. 49. JP.
- R1. WAS GIVEN AS ERIE Nº 8. 9. 8. 49. JP.
- LEAD BETWEEN OS ON OUTPUT XFORMER & EARTH DELETED. – C.20 WAS 8μF. C.21 WAS 32μF. CONNECTIONS TO F.3. REVISED. BROWN LEAD FROM 'STAGE SPKR' Ey CONNECTION TO BUSBAR ADDED. 15. 8. 49. JP.
- ALTERNATIVE Nº ADDED FOR MAINS TRANSFORMER. 23. 8. 49. JP.
- SPEAKER REF. WAS OMITTED FROM DETAIL COLUMN. CONNECTIONS TO TERMINAL BLOCKS OF BLACK/GREEN LEAD & ITS SCREEN TRANSPOSED. REF. 'S4' ADDED TO MON VOL CONTROL. 13-9-49.
- R66 ADDED & S2. WIRING REVISED. TO TAKE EFFECT ON SERIAL Nº 113 & SUBSEQUENT. WIRING WAS AS IN INSET DIAGRAM. 13-10-49. NOTE RE 'VR1' ADDED.
- INPUT CIRCUIT MODIFIED. 27/2/50.

BRITISH ACOUSTIC FILMS LTD.		
SPECIFICATION Nº 522		THEORETICAL CIRCUIT OF. TYPE 522 AMPLIFIER.
USED ON	DATE	
DRWN BY. D.P.	18·3·49	
TRCD BY.		ISSUE Nº 11.
CHKD BY.		C-522000
APPD BY.	8·8·49	

TYPE 522 AMPLIFIER

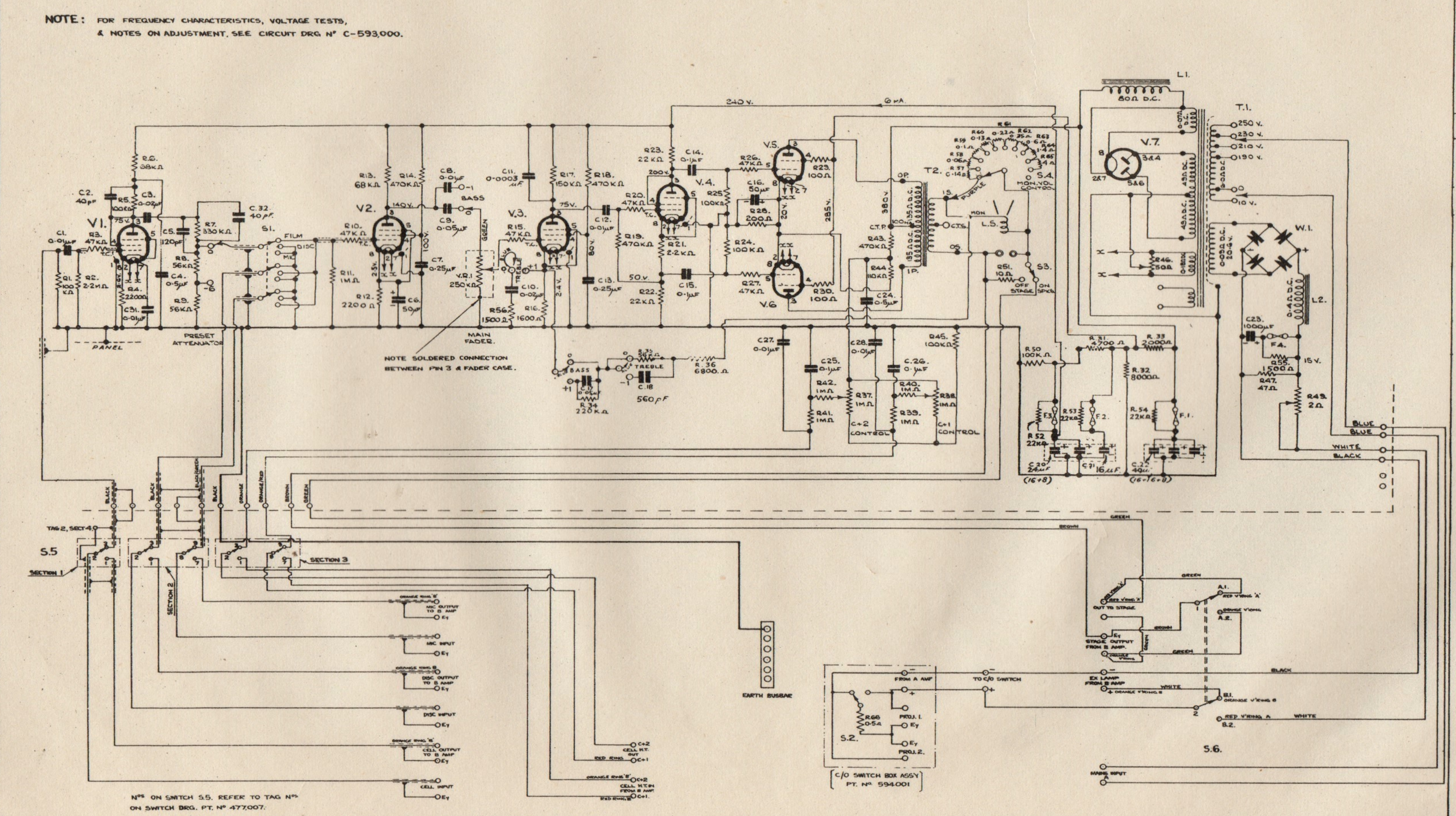
C.522000

Item No.	Description	Part No.
R1.	100,000 Ohms Erie No. 100 plus/minus 5%	REY.100104
R2	2.2 Megohms Erie No. 8 plus/minus 20%	REW 8225
R3.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R4.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R5.	100,000 Ohms Erie No. 100 plus/minus 10%	REX 100104
R6.	68,000 Ohms Erie No. 8 plus/minus 10%	REX 8683
R7.	330,000 Ohms Erie No. 8 plus/minus 5%	REY 8334
R8.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R9.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R10.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R11.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R12.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R13.	68,000 Ohms Erie No. 8 plus/minus 10%	REX 8683
R14.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R15.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R16.	1,600 Ohms Erie No. 8 plus/minus 5%	REY 8162
R17.	150,000 Ohms Erie No. 8 plus/minus 10%	REX 8154
R18.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R19.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R20.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R21.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R22.	22,000 Ohms Erie No. 8 plus/minus 10%	REX 8223
R23.	22,000 Ohms Erie No. 8 plus/minus 10%	REX 8223
R24.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R25.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R26.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R27.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R28.	200 Ohms plus/minus 5% WELWYN AW3115 or BERCO LW6.	REJ.3201
R29.	100 Ohms Erie No. 8 plus/minus 10%	REX 8101
R30	100 Ohms Erie No. 8 plus/minus 10%	REX 8101
R31	4,700 Ohms Erie No. 8 plus/minus 5%	REY 8472
R32	8,000 Ohms plus/minus 5% WELWYN AP41	REG 3802
R33	2,000 Ohms plus/minus 5% WELWYN AW 3112 or BERCO LW12	RED 3202
R34	220,000 Ohms Erie No. 8 plus/minus 10%	REX 8224
R35	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R36.	6,800 Ohms Erie No. 8 plus/minus 10%	REX 8682
R37.	1 Megohm Potentiometer. DUBILIER CPA.	POT 7003
R38.	1 Megohm Potentiometer. DUBILIER CPA.	POT 7003
R39.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R40.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R41.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R42.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R43.	470,000 Ohms Erie No. 8 plus/minus 5%	REY 8474
R44.	110,000 Ohms Erie No. 8 plus/minus 5%	REY 8114
R45.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R46.	50 Ohms Potentiometer BERCO FA.	POT 7001
R47.	47 Ohms plus/minus 5% WELWYN AW 3111 or BERCO LW6.	REH 3470
R49.	2 Ohms plus/minus 10% BERCO K2/RAYS	REF 62
R50.	100,000 Ohms Erie No. 8 plus/minus 5%	REY 8104
R51.	10 Ohms plus/minus 10% WELWYN AW 3112 or BERCO LW 12	RED 3100
R52.	22,000 Ohms Erie No.2. plus/minus 20%	REW 2223
R53.	22,000 Ohms Erie No.2. plus/minus 20%	REW 2223
R54.	22,000 Ohms Erie No.2. plus/minus 20%	REW 2223
R55.	1,500 Ohms Erie No.8. plus/minus 20%	REW 8152
R56.	1,500 Ohms Erie No.8. plus/minus 20%	REW 8152
R57) to R65)	For Ref only (See 54)	
R66.	0.5 Ohms Resistance Ltd. Type J.R.1.	
VR1.	Fader	522022
C1.	0.01 Micro farad T.C.C. M3N plus/minus 20%	CS.2517
C2.	40 pica Farad T.C.C. CC40Y plus/minus 20%	CX 9404
C3.	0.02 Micro farad CP33N plus/minus 20%. T.C.C.	CS 2855
C4.	0.5 micro Farad T.C.C. CP47N plus/minus 20%	CS 1850
C5.	120 Pica Farad T.C.C. SMWN plus/minus 5%	CZ.4053
C6.	50 Micro Farad T.C.C. CE61D	CS 2497
C7.	0.25 Micro Farad T.C.C. CP48N plus/minus 20%	CS 1825
C8.	0.01 Micro Farad T.C.C. CP32N plus/minus 10%	CX.3854
C9.	0.05 Micro Farad T.C.C. CP35N plus/minus 20%	CS 3051
C10.	0.02 Micro Farad T.C.C. CP33N plus/minus 10%	CY 2855
C11.	0.0003 Micro Farad CM20N plus/minus 20%	CX 2203
C12.	0.01 Micro Farad T.C.C. CP32N plus/minus 20%	CS 3854
C13.	0.25 Micro Farad T.C.C. CP48N plus/minus 20%	CS 1825

C.522000 - CONTINUED

Item No.	Description	Part No.
C14.	0.1 Micro Farad T.C.C. CP46S plus/minus 20%	CX 1822
C15.	0.1 Micro Farad T.C.C. CP46S plus/minus 20%	CX 1822
C16.	50 Micro Farad T.C.C. CE61D	CS 2497
C17.	0.05 Micro Farad T.C.C. CP34H plus/minus 10%	CY 3084
C18	560 Pica Farad T.C.C. SMWN plus/minus 5%	CZ 4056
C20.	24 Micro Farad (16 plus 8))	202073
C21.	16 Micro Farad)	
C22.	40 Micro Farad (16 plus 16 plus 8)	202073
C23.	1000 Micro Farad T.C.C CE23C.	CSS 2350
C24.	0.5 Micro Farad T.C.C. CP47N plus/minus 20%	CS 1850
C25.	0.1 Micro Farad T.C.C. CP37N plus/minus 20%	CS 3121
C26.	0.1 Micro Farad T.C.C. CP37N plus/minus 20%	CS 3121
C27.	0.01 Micro Farad T.C.C. M3N plus/minus 20%	CS 2517
C28.	0.01 Micro Farad T.C.C. M3N plus/minus 20%	CS 2517
C31.	0.01 Micro Farad T.C.C. CP32N plus/minus 20%	CS 3854
C32.	40 Pica Farad T.C.C. CC40Y plus/minus 20%	CX 9404
T1.	Mains Transformer	369001 or 369050
T2.	O.P. Transformer	4498000
L1	Choke	68000
L2.	Choke	395000
W1.	Rectifier 12A20 Westinghouse	RWZ 12A20
LS.	Speaker	252008
V1,V2) V3,V4)	EF 37, 6J7	
V5) V6)	KT66, 6L6G	
V7	U52, 5U4G	
S1	Film/Disc/Mic/Switch	522020
S2	Switch " Painton	501068
S3.	Stage Speaker Switch	522030
S4.	Monitor Volume Control	222006
F1.) F2.)	Cartridge Fuse 250 mA (Std. Fuse Co).	FCA 0025
F3.	Cartridge Fuse 100 mA (Std. Fuse Co.)	FCA 0010
F4.	Cartridge Fuse 1A (Std. Fuse Co.)	FCA 0100

NOTE: FOR FREQUENCY CHARACTERISTICS, VOLTAGE TESTS, & NOTES ON ADJUSTMENT, SEE CIRCUIT DRG Nº C-593,000.



Nºs ON SWITCH S.5. REFER TO TAG Nºs ON SWITCH DRG. PT. Nº 477,007.

ITEM	DETAIL	PART NO.
R1.	100KΩ ERIE Nº10 ±5%	REY.10010A
R2.	2·2MΩ " Nº8 ±20%	REW.8225
R3.	47KΩ " Nº9 ±20%	REW.9473
R4.	2200Ω " Nº8 ±10%	REX.8222
R5.	100KΩ " Nº10 ±10%	REX.10010A
R6.	68KΩ " Nº8 ±10%	REX.8683
R7.	330KΩ " ±5%	REY.8334
R8.	56KΩ " ±5%	REY.8563
R9.	56KΩ " ±5%	REY.8563
R10.	47KΩ " Nº9 ±20%	REW.9473
R11.	1MΩ " Nº8 ±20%	REW.8105
R12.	2200Ω " ±10%	REX.8222
R13.	68KΩ " ±10%	REX.8683
R14.	470KΩ " ±10%	REX.8474
R15.	47KΩ " Nº9 ±20%	REW.9473
R16.	1600Ω " Nº8 ±5%	REY.8162
R17.	150KΩ " ±10%	REX.8154
R18.	470KΩ " ±10%	REX.8474
R19.	470KΩ " ±10%	REX.8474
R20.	47KΩ " Nº9 ±20%	REW.9473
R21.	2200Ω " Nº8 ±10%	REX.8222
R22.	22KΩ " ±10%	REX.8223
R23.	22KΩ " ±10%	REX.8223
R24.	100KΩ " ±10%	REX.8104
R25.	100KΩ " ±10%	REX.8104
R26.	47KΩ " Nº9 ±20%	REW.9473
R27.	47KΩ " ±20%	REW.9473
R28.	200Ω ±5% WELWYN AW3115 OR BERCO LW6	REL.3201
R29.	100Ω ERIE Nº8 ±10%	REX.8101
R30.	100Ω " ±10%	REX.8101
R31.	4700Ω " ±5%	REY.8472
R32.	8000Ω ±5% WELWYN APA1	RED.3802
R33.	2000Ω ±5% WELWYN AW3112 OR BERCO LW12	RED.3202
R34.	220KΩ ERIE Nº8 ±10%	REX.8224
R35.	56KΩ " ±5%	REY.8563
R36.	6800Ω " ±10%	REX.8682
R37.	1MΩ POT. DUBILIER LPA.	POT.7003
R38.	1MΩ POT. DUBILIER LPA.	POT.7003
R39.	1MΩ ERIE Nº8 ±20%	REW.8105
R40.	1MΩ " ±20%	REW.8105
R41.	1MΩ " ±20%	REW.8105
R42.	1MΩ " ±20%	REW.8105
R43.	470KΩ " ±5%	REY.8474
R44.	110KΩ " ±5%	REY.8114
R45.	100KΩ " ±10%	REX.8104
R46.	50Ω POT. BERCO FA.	POT.7001
R47.	47Ω ±5% WELWYN AW3111 OR BERCO LW6	REB 3470
R49.	2Ω ±10% BERCO K2/AWS	REF 62
R50.	100KΩ ERIE Nº8 ±5%	REY 8104
R51.	10Ω ±10% WELWYN AW3112 OR BERCO LW12	RED 3100
R52.	22KΩ ERIE Nº2 ±20%	REW 2223
R53.	22KΩ ERIE Nº2 ±20%	REW 2223
R54.	22KΩ ERIE Nº2 ±20%	REW 2223
R55.	1500Ω ERIE Nº8 ±20%	REW 8152
R56.	1500Ω ERIE Nº8 ±20%	REW 8152
R57 TO R65	FOR REF ONLY (SEE S4)	
R66	0·5Ω RESISTANCE LTD TYPE	
VR1.	FADER	522022
C1.	0·01µF TCC M3N ±20%	CS.2517
C2.	40pF " CCA0Y ±20%	CX.9404
C3.	0·02µF " CP33N ±20%	CS.2855
C4.	0·5µF " CP47N ±20%	CS.1850
C5.	120pF " SMWN ±5%	CZ.4053
C6.	50µF " CE61D	CS.2497
C7.	0·25µF " CP48N ±20%	CS.1825
C8.	0·01µF " CP32N ±10%	CY.3854
C9.	0·05µF " CP35N ±20%	CS.3051
C10.	0·02µF " CP33N ±10%	CY.2855
C11.	0·0003µF CM20N ±20%	CX.2203
C12.	0·01µF " CP32N ±20%	CS.3854
C13.	0·25µF " CP48N ±20%	CS.1825
C14.	0·1µF " CP46S ±20%	CX.1822
C15.	0·1µF " CP46S ±20%	CX.1822
C16.	50µF " CE61D	CS.2497
C17.	0·05µF " CP34N ±10%	CY.3084
C18.	560pF " SMWN ±5%	CZ.4056
C20.	24µF (16+8)	202073
C21.	16µF	202073
C22.	40µF (16+16+8)	202073
C23.	1000µF TCC CE23C	CSS.2350
C24.	0·5µF " CP47N ±20%	CS.1850
C25.	0·1µF " CP37N ±20%	CS.3121
C26.	0·1µF " CP37N ±20%	CS.3121
C27.	0·01µF " M3N ±20%	CS.2517
C28.	0·01µF " M3N ±20%	CS.2517
C31.	0·01µF " CP32N ±20%	CS.3854
C32.	40pF " CC40Y ±20%	CX.9404
T1.	MAINS XFORMER	369001 OR 369050
T2.	O.P. XFORMER	A98000
L1.	CHOKE	68000
L2.	CHOKE	395000
W1.	RECT. 12 A20 WESTINGHOUSE	RWZ.12A20
V1, V2, V3, V4	EF37, 6J7.	
V5, V6	KT66, 6L6G.	
V7.	U52, 5U4G.	
S.1.	FILM/DISC/MIC. SWITCH	522020
S.2.	C/O SWITCH (SANTON TYPE 5050S)	
S.3.	STAGE SPEAKER SWITCH	522030
S.4.	MONITOR VOLUME CONTROL	222006
S.5	SELECTOR SWITCH	592034
S.6	SWITCH, SANTON, SR125A	
L.S.	SPEAKER	252,008
F1 F2	CARTRIDGE FUSE, 250mA (STD. FUSE C?)	FCA.0025
F3	CARTRIDGE FUSE 100mA (STD FUSE C?)	FCA.0010
F4	CARTRIDGE FUSE 1A (STD FUSE C?)	FCA.0100

BRITISH ACOUSTIC FILMS LTD.		
SPECIFICATION Nº 592,000		THEORETICAL CIRCUIT OF
USED ON	DATE	TYPE 592 AMPLIFIER. (18 WATT DUAL EQUIPMENT) 'A' AMPLIFIER
DRWN BY. [signature]	13·9·49	
TRCD BY.		ISSUE Nº 3.
CHKD BY. J.W.A.		C–592000
APPD BY.		

	MODIFICATIONS
1.	CONNECTIONS TO S2 & S6 REVISED. WIRING & COLOUR CODING ADDED. R66 ADDED. S5. LEAD FROM TAG 2 SECT 4 WAS CONNECTED TO TAG 2 SECT 1. S.5 LEADS FROM TAGS 2 & 8, SECTS. 3 TRANSPOSED. S.6. LEADS FROM TAGS 1 & 7, SECT 3, TRANSPOSED. TITLE CHANGED. 5-10-49 [initials] J.W.A. NOTE RE 'VR1' ADDED. [initials] J.W.A.
2	INPUT CIRCUIT MODIFIED [initials] 27/2/50

TYPE 592 AMPLIFIER

DRAWING No. C.592000

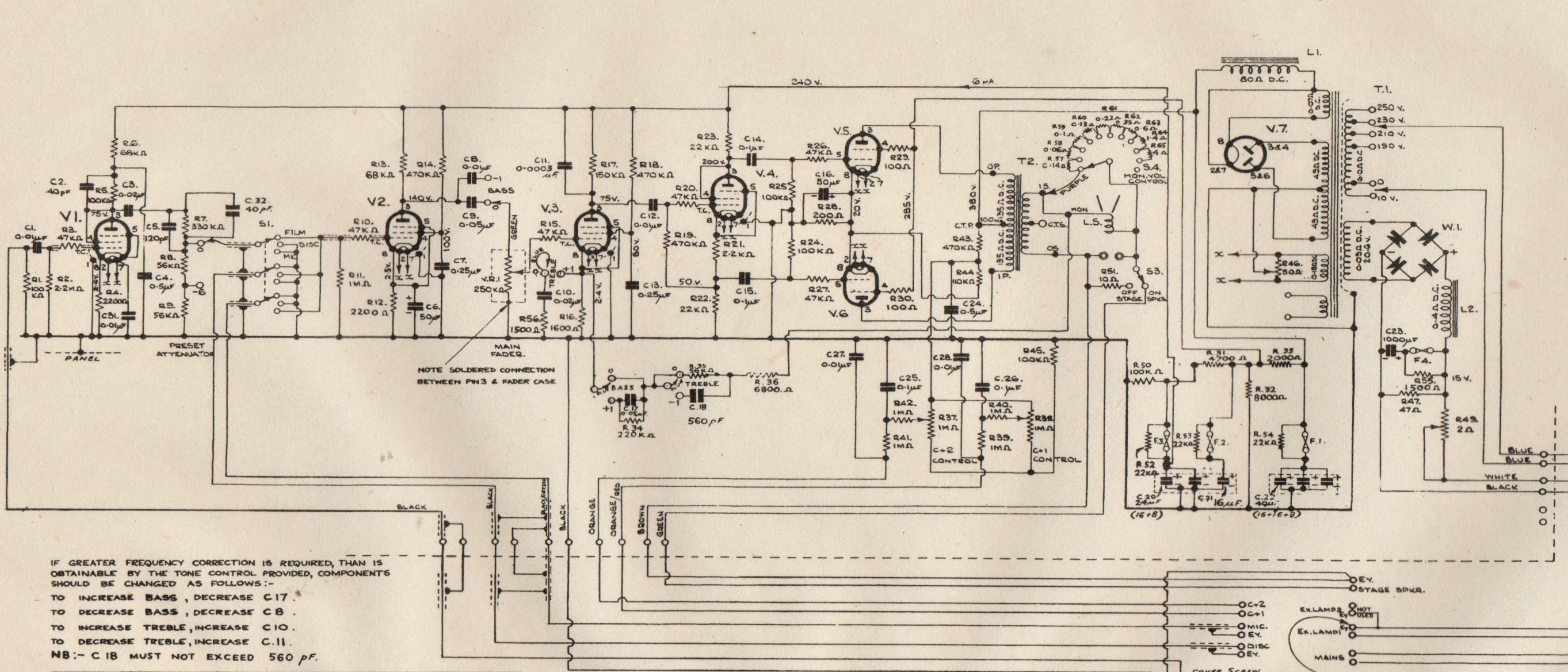
Item	Description	Part No.
R1.	100,000 Ohms Erie No.100 plus/minus 5%	REY 100104
R2.	2.2 Megohms Erie No. 8 plus/minus 20%	REW 8225
R3.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R4.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R5.	100,000 Ohms Erie No.100 plus/minus 10%	REX 100104
R6.	68,000 Ohms Erie No. 8 plus/minus 10%	REX 8683
R7.	330,000 Ohms Erie No. 8 plus/minus 5%	REY 8334
R8.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R9.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R10.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R11.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R12.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R13.	68,000 Ohms Erie No. 8 plus/minus 10%	REX 8683
R14.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R15.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R16.	1,600 Ohms Erie No. 8 plus/minus 5%	REY 8162
R17.	150,000 Ohms Erie No. 8 plus/minus 10%	REX 8154
R18.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R19.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R20.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R21.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R22.	22,000 Ohms Erie No. 8 plus/minus 10%	REX 8223
R23.	22,000 Ohms Erie No. 8 plus/minus 10%	REX 8223
R24.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R25.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R26.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R27.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R28.	200 Ohms plus/minus 5% WELWYN AW3115 or BERCO LW6	REJ 3201
R29.	100 Ohms Erie No. 8 plus/minus 10%	REX 8101
R30.	100 Ohms Erie No. 8 plus/minus 10%	REX 8101
R31.	4,700 Ohms Erie No. 8 plus/minus 5%	REY 8472
R32.	8,000 Ohms plus/minus 5% WELWYN AP41	REG 3802
R33.	2,000 Ohms plus/minus 5% WELWYN AW3112 or BERCO LW12	RED 3202
R34.	220,000 Ohms Erie No. 8 plus/minus 10%	REX 8224
R35.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R36.	6,800 Ohms Erie No. 8 plus/minus 10%	REX 8682
R37.	1 Megohm Potentiometer DUBILIER CPA	POT 7003
R38.	1 Megohm Potentiometer DUBILIER CPA	POT 7003
R39.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R40.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R41.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R42.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R43.	470,000 Ohms Erie No. 8 plus/minus 5%	REY 8474
R44.	110,000 Ohms Erie No. 8 plus/minus 5%	REY 8114
R45.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R46.	50 Ohms Potentiometer BERCO FA	POT 7001
R47.	47 Ohm Plus/minus 5% WELWYN AW 3111 or BERCO LW6	REB 3470
R49.	2 Ohms plus/minus 10% BERCO K2/RAYS	REF 62
R50	100,000 Ohms Erie No. 8 plus/minus 5%	REY 8104
R51	10 Ohms plus/minus 10% WEYWYN AW3112 or BERCO LW12	RED 3100
R52	22,000 Ohms Erie No. 2 plus/minus 20%	REW 2223
R53.	22,000 Ohms Erie No. 2 plus/minus 20%	REW 2223
R54.	22,000 Ohms Erie No. 2 plus/minus 20%	REW 2223
R55.	1500 Ohms Erie No. 8 plus/minus 20%	REW 8152
R56.	1500 Ohms Erie No. 8 plus/minus 20%	REW 8152
R57) to) R65)	For Reference Only (See S4)	
R66.	0.5 Ohms Resistance Ltd. Type JR.1	
VR1.	Fader	522022
C1	0.01 Micro farad T.C.C. M3N plus/minus 20%	CS 2517
C2	40 pica farad T.C.C. CC40Y plus/minus 20%	CK.9404
C3	0.02 Microfarad T.C.C. CP33N plus/minus 20%	CS 2855
C4	0.5 Micro farad T.C.C. CP47N plus/minus 20%	CS 1850
C5.	120 picafarad T.C.C. SMWN plus/minus 5%	CZ 4053
C6	50 Microfarad T.C.C. CE61D	CS 2497
C7	0.25 Microfarad T.C.C. CP48N plus/minus 20%	CS 1825
C8	0.01 Microfarad T.C.C. CP32N plus/minus 10%	CY 3854
C9	0.05 Microfarad T.C.C. CP35N plus/minus 20%	CS 3051
C10.	0.02 Microfarad T.C.C. CP33N plus/minus 10%	CY 2855
C11.	0.0003 Microfarad CM20N plus/minus 20%	CX 2203
C12.	0.01 Microfarad T.C.C. CP32N plus/minus 20%	CS 3854

DRAWING No. C.592000
CONTINUED

Item	Description	Part No.
C13.	0.25 Microfarad T.C.C. CP48N plus/minus 20%	CS 1825
C14.	0.1 Microfarad T.C.C. CP46S plus/minus 20%	CX 1822
C15.	0.1 Microfarad T.C.C. CP46S plus/minus 20%	CX 1822
C16.	50 Microfarad T.C.C. CE61D	CS 2497
C17.	0.05 Microfarad T.C.C. CP34H plus/minus 10%	CY 3084
C18.	560 picafarad T.C.C. SMWN plus/minus 5%	CZ 4056
C20.	24 Microfarad (16 plus8))	202073
C21.	16 Microfarad)	
C22.	40 Microfarad (16 plus 16 plus 8)	202073
C23.	1000 Microfarad T.C.C. CE23C	CSS 2350
C24.	0.5 Microfarad T.C.C. CP47N plus/minus 20%	CS 1850
C25.	0.1 Microfarad T.C.C. CP37N plus/minus 20%	CS 3121
C26.	0.1 Microfarad T.C.C. CP37N plus/minus 20%	CS 3121
C27.	0.01 Microfarad " M3N plus/minus 20%	CS 2517
C28.	0.01 Microfarad " M3N plus/minus 20%	CS 2517
C31.	0.01 Microfarad " CP32N plus/minus 20%	CS 3854
C32.	40 Picafarad " CC40Y plus/minus 20%	CX 9404
T1.	Mains Transformer	369001 or 369050
T2.	O.P. Transformer	498000
L1.	Choke	68000
L2.	Choke	395000
W1.	Rectifier 12A20 WESTINGHOUSE	RWZ 12A20
V1,V2) V3,V4)	EF 37, 6J7	
V5,V6	KT66, 6L6G	
V7.	U52, 5U4G	
S1.	FILM/DISC/MIC. Switch	522020
S2.	C/O Switch (Painton type 501068)	
S3.	Stage Speaker Switch	522030
S4.	Monitor Volume Control	222006
S5.	Selector Switch	592034
S6.	Switch, Santon, SR125A	
L.S.	Speaker	252,008
F1,F2.	Cartridge Fuse 250mA (Std. Fuse Co).	FCA 0025
F3	Cartridge Fuse 100mA (Std. Fuse Co.)	FCA 0010
F4	Cartridge Fuse 1A (Std. Fuse Co.)	FCA 0100

1	Ex LAMP 1 'EY' REPLACED / EX LAMP 2 'EY' [illegible] / TITLE CHANGED 13-10-49. 4H. JUB / NOTE RE 'VR1' ADDED.
2	INPUT CIRCUIT MODIFIED 4ws6 27/2/50

NOTE! IF SHORT CELL LEADS GIVE TO MUCH TREBLE REMOVE C.32 (40pF)



IF GREATER FREQUENCY CORRECTION IS REQUIRED, THAN IS OBTAINABLE BY THE TONE CONTROL PROVIDED, COMPONENTS SHOULD BE CHANGED AS FOLLOWS:-

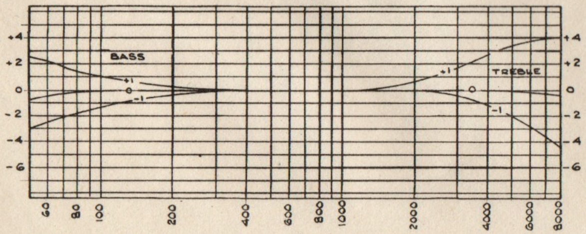
TO INCREASE BASS, DECREASE C17.

TO DECREASE BASS, DECREASE C8.

TO INCREASE TREBLE, INCREASE C10.

TO DECREASE TREBLE, INCREASE C.11.

NB:- C18 MUST NOT EXCEED 560 pF.



VOLTAGES MEASURED WITH TEST INSTRUMENTS (FIGURES STATED ON CIRCUIT ARE TRUE VOLTAGES)		AVO MODEL 7 500 Ω/VOLT		AVO MODEL 40 166 Ω/VOLT		TAYLOR METER 1000 Ω/VOLT	
		1000V. RANGE	100V. RANGE	1200V. RANGE	120V. RANGE	1000V. RANGE	100V. RANGE
V1.	Va	60		55		65	
V2.	Va	115		95		125	
	Vg2	70		52		85	
V3.	Va	47		40		55	
	Vg2	60		50		70	
V4.	Va	185		175		190	
	Vk		42		36		50
CELL VOLTS (JUNCTION) (R43 & R44)		62		55		70	

IMPORTANT.

ON COMPLETION OF INSTALLATION THE CHIEF PROJECTIONIST SHOULD BE INSTRUCTED TO USE EACH CHANNEL ON ALTERNATE WEEKS TO PRESERVE THE FORMATION OF ELECTROLYTIC CONDENSERS.

NOTE 1:- ON INSTALLATION OR AFTER A FEW MONTHS STANDBY REMOVE FUSES F1, F2 & F3, & SWITCH AMPLIFIER ON FOR 30 MINS TO REFORM ELECTROLYTIC CONDENSER.

2:- IF MONITOR SENSITIVITY IS INSUFFICIENT, REMOVE PURPLE LEAD FROM "1S." ON OUTPUT TRANS. & CONNECT TO "C.T.S." THE MON. VOLUME WILL THEN WORK IN REVERSE, I.E. MAX. MON. VOLUME IN FULL ANTI-CLOCKWISE POSN.

3:- IF AMPLIFIER IS USED IN CONJUNCTION WITH SOUNDHEADS HAVING ONE SIDE OF THE EXCITER LAMP CONNECTED TO FRAME, THE LINK BETWEEN EX LAMP 1 'EY' & EARTH BUSBAR MUST BE REMOVED.

4:- IF EITHER MICROPHONE OR DISC INPUTS IS NOT IN USE, IT SHOULD BE SHORT CIRCUITED TO APPROPRIATE "EY" TERMINAL.

ITEM.	DETAIL	PART No.
R1.	100KΩ ERIE Nº100 ±5%	REY.100104
R2.	2·2MΩ " Nº8 ±20%	REW.8225
R3.	47KΩ " Nº9 ±20%	REW.9473
R4.	2200Ω " Nº8 ±10%	REX.8222
R5.	100KΩ " Nº100 ±10%	REX.100104
R6.	68KΩ " Nº8 ±10%	REX.8683
R7.	330KΩ " " ±5%	REY.8334
R8.	56KΩ " " ±5%	REY.8563
R9.	56KΩ " " ±5%	REY.8563
R10.	47KΩ " Nº9 ±20%	REW.9473
R11.	1MΩ " Nº8 ±20%	REW.8105
R12.	2200Ω " " ±10%	REX.8222
R13.	68KΩ " " ±10%	REX.8683
R14.	470KΩ " " ±10%	REX.8474
R15.	47KΩ " Nº9 ±20%	REW.9473
R16.	1600Ω " Nº8 ±5%	REY.8162
R17.	150KΩ " " ±10%	REX.8154
R18.	470KΩ " " ±10%	REX.8474
R19.	470KΩ " " ±10%	REX.8474
R20.	47KΩ " Nº9 ±20%	REW.9473
R21.	2200Ω " Nº8 ±10%	REX.8222
R22.	22KΩ " " ±10%	REX.8223
R23.	22KΩ " " ±10%	REX.8223
R24.	100KΩ " " ±10%	REX.8104
R25.	100KΩ " " ±10%	REX.8104
R26.	47KΩ " Nº9 ±20%	REW.9473
R27.	47KΩ " " ±20%	REW.9473
R28.	200Ω ±5% WELWYN AW3115 OR BERCO LW6	REJ.3201
R29.	100Ω ERIE Nº8 ±10%	REX.8101
R30.	100Ω " " ±10%	REX.8101
R31.	4700Ω " " ±5%	REY.8472
R32.	8000Ω ±5% WELWYN AP41	REG.3802
R33.	2000Ω ±5% WELWYN AW3112 OR BERCO LW12	REO.3202
R34.	220KΩ ERIE Nº8 ±10%	REX.8224
R35.	56KΩ " " ±5%	REY.8563
R36.	6800Ω " " ±10%	REX.8682
R37.	1MΩ POT. DUBILIER CPA.	POT.7003
R38.	1MΩ POT. DUBILIER CPA.	POT.7003
R39.	1MΩ ERIE Nº8 ±20%	REW.8105
R40.	1MΩ " " ±20%	REW.8105
R41.	1MΩ " " ±20%	REW.8105
R42.	1MΩ " " ±20%	REW.8105
R43.	470KΩ " " ±5%	REY.8474
R44.	110KΩ " " ±5%	REY.8114
R45.	100KΩ " " ±10%	REX.8104
R46.	50Ω POT. BERCO F.A.	POT.7001
R47.	47Ω ±5% WELWYN AW3111 OR BERCO LW6	REB.3470
R49.	2Ω ±10% BERCO K2/RAVS	REF.62
R50.	100KΩ ERIE Nº8 ±5%	REY.8104
R51.	10Ω ±10% WELWYN AW3112 OR BERCO LW12	RED.3100
R52.	22KΩ ERIE Nº2 ±20%	REW.2223
R53.	22KΩ " " ±20%	REW.2223
R54.	22KΩ " " ±20%	REW.2223
R55.	1500Ω " Nº8 ±20%	REW.8152
R56.	1500Ω " " ±20%	REW.8152
R57 to R65	FOR REF. ONLY (SEE S.4)	
VR1.	FADER	522022
C1.	0·01µF TCC M3N ±20%	CS.2517
C2.	40pF " CC40Y ±20%	CX.9404
C3.	0·02µF " CP33N ±20%	CS.2855
C4.	0·5µF " CP47N ±20%	CS.1850
C5.	120pF " SMWN ±5%	CZ.4053
C6.	50µF " CE61D	CS.2497
C7.	0·25µF " CP48N ±20%	CS.1825
C8.	0·01µF " CP32N ±10%	CY.3854
C9.	0·05µF " CP35N ±20%	CS.3051
C10.	0·02µF " CP33N ±10%	CY.2855
C11.	0·0003µF " CM20N ±20%	CX.2203
C12.	0·01µF " CP32N ±20%	CS.3854
C13.	0·25µF " CP48N ±20%	CS.1825
C14.	0·1µF " CP46S ±20%	CX.1822
C15.	0·1µF " CP46S ±20%	CX.1822
C16.	50µF " CE61D	CS.2497
C17.	0·05µF " CP34H ±10%	CY.3084
C18.	560pF " SMWN ±5%	CZ.4056
C20.	24µF (16+8)	202073.
C21.	16µF	
C22.	40µF (16+16+8)	202073
C23.	1000µF TCC CE23C	CSS.2350
C24.	0·5µF " CP47N ±20%	CS.1850
C25.	0·1µF " CP37N ±20%	CS.3121
C26.	0·1µF " CP37N ±20%	CS.3121
C27.	0·01µF " M3N ±20%	CS.2517
C28.	0·01µF " M3N ±20%	CS.2517
C31.	0·01µF " CP32N ±20%	CS.3854
C32.	40pF " CC40Y ±20%	CX.9404
T1.	MAINS XFORMER	369001 OR 369050
T2.	O.P. XFORMER	498000
L1.	CHOKE	68000
L2.	CHOKE	395000
W1.	RECT. 12 A20. WESTINGHOUSE.	RWZ.12420
L.S.	SPEAKER	252,008
V1, V2, V3, V4	EF37, 6J7.	
V5, V6.	KT66, 6L6G	
V7.	U52, 5U4G	
S1.	FILM/DISC/MIC/SWITCH	522020
S3.	STAGE SPEAKER SWITCH	522030
S4.	MONITOR VOL. CONTROL	222006
F1. F2.	CARTRIDGE FUSE 250mA (STD. FUSE C*)	FCA.0025
F3.	CARTRIDGE FUSE 100mA (STD. FUSE C*)	FCA.0010
F4.	CARTRIDGE FUSE 1A (STD. FUSE C*)	FCA.0100

BRITISH ACOUSTIC FILMS LTD.		
SPECIFICATION Nº 593,000		THEORETICAL CIRCUIT OF.
USED ON	DATE	TYPE 593 AMPLIFIER. (18 WATT DUAL EQUIPMENT)
DRWN BY. JAH.	13-9-49	
TRCD BY.		ISSUE Nº 3
CHKD BY. J.W.G.		C-593,000
APPD BY.		

TYPE 593 AMPLIFIER

Drawing No. C.593000

Item	Description	Part No.
R1.	100,000 Ohms Erie No.100 plus/minus 5%	RET 100104
R2.	2.2 Megohms Erie No. 8 plus/minus 20%	REW 8225
R3.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R4.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R5.	100,000 Ohms Erie No.100 plus/minus 10%	REX 100104
R6.	68,000 Ohms Erie No. 8 plus/minus 10%	REX 8683
R7.	330,000 Ohms Erie No. 8 plus/minus 5%	REY 8334
R8.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R9.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R10.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R11.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R12.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R13.	68,000 Ohms Erie No. 8 plus/minus 10%	REX 8683
R14.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R15.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R16.	1,600 Ohms Erie No. 8 plus/minus 5%	REY 8162
R17.	150,000 Ohms Erie No. 8 plus/minus 10%	REX 8154
R18.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R19.	470,000 Ohms Erie No. 8 plus/minus 10%	REX 8474
R20.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R21.	2,200 Ohms Erie No. 8 plus/minus 10%	REX 8222
R22.	22,000 Ohms Erie No. 8 plus/minus 10%	REX 8223
R23.	22,000 Ohms Erie No. 8 plus/minus 10%	REX 8223
R24.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R25.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R26.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R27.	47,000 Ohms Erie No. 9 plus/minus 20%	REW 9473
R28.	200 Ohms plus/minus 5% WELWYN AW3115 or BERCO LW6	REJ 3201
R29.	100 Ohms Erie No. 8 plus/minus 10%	REX 8101
R30.	100 Ohms Erie No. 8 plus/minus 10%	REX 8101
R31.	4,700 " Erie No. 8 plus/minus 5%	REY 8472
R32.	8,000 Ohms plus/minus 5% WELWYN AP 41	REG 3802
R33.	2,000 Ohms plus/minus 5% WELWYN AW3112 or BERCO LW 12	RED 3202
R34.	220,000 Ohms Erie No. 8 plus/minus 10%	REX 8224
R35.	56,000 Ohms Erie No. 8 plus/minus 5%	REY 8563
R36.	6,800 Ohms Erie No. 8 plus/minus 10%	REX 8682
R37.	1 Megohm Potentiometer DUBILIER CPA	POT.7003
R38.	1 Megohm Potentiometer DUBILIER CPA	POT 7003
R39.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R40.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R41.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R42.	1 Megohm Erie No. 8 plus/minus 20%	REW 8105
R43.	470,000 Ohms Erie No. 8 plus/minus 5%	REY 8474
R44.	110,000 Ohms Erie No. 8 plus/minus 5%	REY 8114
R45.	100,000 Ohms Erie No. 8 plus/minus 10%	REX 8104
R46.	50 Ohms Potentiometer BERCO FA.	POT 7001
R47.	47 Ohms plus/minus 5% WELWYN AW 3111 or BERCO LW6	REB 3470
R49.	2 Ohms plus/minus 10% BERCO K2/RAYS	RED 62
R50.	100,000 Ohms Erie No. 8 plus/minus 5%	REY 8104
R51.	10 Ohms plus/minus 10% WELWYN AW3112 or BERCO LW 12.	RED 3100
R52.	22,000 Ohms Erie No. 2 plus/minus 20%	REW 2223
R53.	22,000 Ohms Erie No. 2 plus/minus 20%	REW 2223
R54.	22,000 Ohms Erie No. 2 plus/minus 20%	REW 2223
R55.	1,500 Ohms Erie No. 8 plus/minus 20%	REW 8152
R56.	1,500 Ohms Erie No. 8 plus/minus 20%	REW 8152
R57.) to R65.)	(For Ref. only see S.4)	
VR1.	Fader	522022
C1.	0.01 Microfarad T.C.C. M3N plus/minus 20%	CS 2517
C2.	40 Picafarad T.C.C. CC40Y plus/minus 20%	CX 9404
C3.	0.02 Microfarad T.C.C. CP33N plus/minus 20%	CS 2855
C4.	0.5 Microfarad T.C.C. CP47N plus/minus 20%	CS 1850
C5.	120 picafarad T.C.C. SMWN plus/minus 5%	CZ 4053
C6.	50 Microfarad T.C.C. CE61D	CS 2497
C7.	0.25 Microfarad T.C.C. CP48N plus/minus 20%	CS 1825
C8.	0.01 Microfarad T.C.C. CP32N plus/minus 10%	CY 3854
C9.	0.05 Microfarad T.C.C. CP35N plus/minus 20%	CS 3051
C10.	0.02 Microfarad T.C.C. CP33N plus/minus 10%	CY 2855
C11.	0.0003 Microfarad T.C.C. CM20N plus/minus 20%	CX 2203
C12.	0.01 Microfarad T.C.C. CP32N plus/minus 20%	CS 3854
C13.	0.25 Microfarad T.C.C. CP48N plus/minus 20%	CS 1825
C14.	0.1 Microfarad T.C.C. CP46S plus/minus 20%	CX 1822
C15.	0.1 Microfarad T.C.C. CP46S plus/minus 20%	CX 1822

Drawing No. C. 593000
CONTINUED

Item	Description	Part No.
C16.	50 Microfarad T.C.C. CE61D	CS 2497
C17.	0.05 " T.C.C. CP34H plus/minus 10%	CY 3084
C18.	560 picafarad T.C.C. SMWN plus/minus 5%	CZ 4056
C20.	24 Microfarad (16 plus 8))	202073
C21.	16 Microfarad)	
C22.	40 Microfarad (16 plus 16 plus 8)	202073
C23.	1000 Microfarad T.C.C. CE23C	CSS 2350
C24.	0.5 Microfarad T.C.C. CP47N plus/minus 20%	CS 1850
C25.	0.1 Microfarad T.C.C. CP37N plus/minus 20%	CS 3121
C26.	0.1 Microfarad T.C.C. CP37N plus/minus 20%	CS 3121
C27.	0.01 Microfarad T.C.C. M3N plus/minus 20%	CS 2517
C28.	0.01 Microfarad T.C.C. M3N plus/minus 20%	CS 2517
C31.	0.01 Microfarad T.C.C. CP32N plus/minus 20%	CS 3854
C32.	40 Picafarad T.C.C. CC40Y plus/minus 20%	CX 9404
T1.	Mains Transformer	369001 or 369050
T2.	O.P. Transformer	498000
L1.	Choke	68,000
W1.	Rectifier 12A20 Westinghouse	RWZ.12A20
LS	Speaker	252,008
V1,V2) V3,V4)	EF 37, 6J7	
V5,V6	KT66, 6L6G	
V7.	U52, 5U4G	
S1.	FILM/DISC/MIC/SWITCH	522020
S3.	Stage Speaker Switch	522030
S4.	Monitor Vol. Control	222006
F1) F2)	Cartridge Fuse 250mA (Std. Fuse Co.).	FCA 0025
F3.	Cartridge Fuse 100mA (Std. Fuse Co.).	FCA 0010
F4.	Cartridge Fuse 1A (Std. Fuse Co.).	FCA 0100
L2.	Choke	395,000

SPEAKER TYPE 406

1 Type 350 Vee Fronted Reflex Cabinet
2 12" P.M. Units Type G.

This speaker is not of Duosonic type, and is intended for small theatres with a seating capacity not exceeding 500.

There is no sound emanation from the rear of the speaker. Access to the speaker units can be obtained via detachable side panels, and in addition, via a detachable rear panel.

DIMENSIONS

Height	3 feet (0,914 m)
Width	3 feet 10 inches (1,168 m)
Depth	1 foot 9 inches (0,533 m)

SPEAKER TYPE 407

1 Type 350 Vee Fronted Reflex Cabinet
2 12" P.M. Bass Units Type C.
2 Type 382 Treble Units. 8" Cones in small box baffles, with provision for angular adjustment.
1 Type 403 Dividing network, with speaker balancing control.

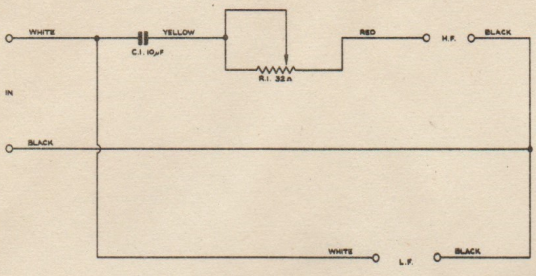
This speaker is not of Duosonic type, and is for use in theatres with a seating capacity not exceeding 1000 where a cheaper alternative to a Duosonic speaker is required.

There is no sound emanation from the rear of the speaker. Access to the speaker units can be obtained via detachable side panels, and in addition, via a detachable rear panel.

DIMENSIONS

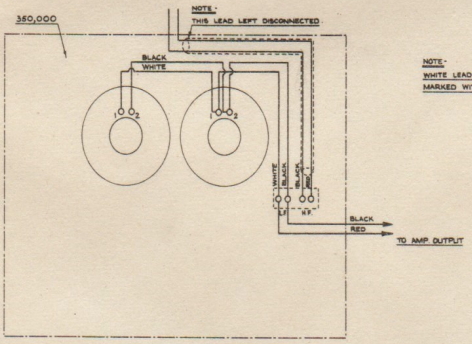
Height	4 feet 4 inches (1,320 m)
Width	3 feet 10 inches (1,168 m)
Depth	1 foot 9 inches (0,533 m)

DETAIL	PART Nº
C1. CONDENSER $10_{\mu}F$ T.C.C. TYPE 62. 1 OFF.	
R1. RESISTOR 32 Ω BERCO TYPE RA2. SIZE K2. FITTED WITH NEW TYPE ADJUSTABLE TAPPING BAND. 1 OFF.	



TITLE. CIRCUIT DIAGRAM OF DMIDING NETWORK.	
DRAWN. S.S.	DATE. 5.3.48.
TRACED. RB.	DATE. 14.2.50.
CHECKED	DATE
DWG. Nº	C·403,000

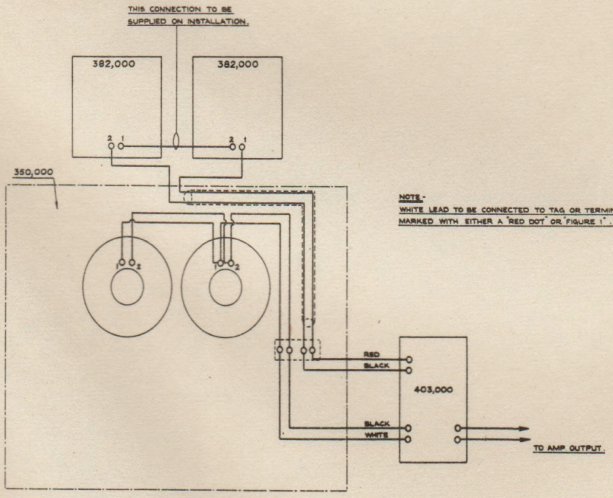
DETAIL	PART Nº
1. TWO WAY BOX BAFFLE.	350,000
2. 12" GOODMAN SPEAKER. 2 OFF.	406,005



NOTE:-
WHITE LEAD TO BE CONNECTED TO TAG OR TERMINAL MARKED WITH EITHER A 'RED SPOT' OR 'FIGURE 1'.

TITLE COMPLETE LOUDSPEAKER CIRCUIT TYPE 406.	
DRAWN. S.S.	DATE. 20-1-48.
TRACED. RB.	DATE. 14.2.50
CHECKED.	DATE.
DWG. Nº	C·406,000

DETAIL	PART Nº
1. TWO WAY BOX BAFFLE. 1 OFF.	350,000
2. H.F. SPEAKER. 2 OFF.	382,000
3. DIVIDING NETWORK. 1 OFF.	403,000
4. GOODMAN SPEAKER 12" 2 OFF.	406,005



NOTE:-
WHITE LEAD TO BE CONNECTED TO TAG OR TERMINAL MARKED WITH EITHER A 'RED DOT' OR 'FIGURE 1'.

TITLE COMPLETE LOUDSPEAKER CIRCUIT TYPE 407.	
DRAWN. S.S.	DATE. 20-1-48.
TRACED. RB.	DATE. 14.2.50.
CHECKED.	DATE.
DWG Nº	C·407,000

DUOSONIC SPEAKERS

The range of full Duosonic Speakers comprises five sizes, numbers 0, 1, 2, 3 and 4. The difference between the five sizes is not one of quality, but only of power handling capacity.

The frequency range of all the models is considerably wider than that which it is possible commercially to record on film. For high quality frequency modulated broadcast transmissions the proposed standard is from 50 to 15,000 cycles. Duosonic speakers cover this range.

The smallest model, the No.0, is the most recent addition to the range, and in a number of ways is different in design from the larger models. The cross over frequency of the dividing network is 1000 cycles, and the two bass reproducers are not mounted in a re-entrant or direct flare type horn, but in a Vee fronted reflex cabinet. There is no sound emanation from the back. The all metal multicellular horn, because of the comparatively high cross over frequency, is of short overall length, 15 inches including driving unit. It can only be supplied in a single throated version for use with one treble unit. Only one type of this short multicellular horn, with six cells, has so far been issued, but an eight cell type is being designed. The permanent magnet treble unit is smaller than the type used on the larger speaker assemblies. The diameter of its threaded throat is only $1\frac{1}{4}$", against $2\frac{1}{2}$" for the large model. The small treble unit, although less sensitive than the large unit, is in other respects of equal performance. The 12" bass units are of the same permanent magnet type as employed in the No.1. Speaker.

The No.0 size speaker has been specifically designed for use in small theatres, and the back to front dimension is the smallest that can be encompassed without sacrifice in performance. Access to the bass units can be obtained from the back and from the sides.

The remaining members of the range, numbers 1 to 4, share a number of features in common. All are of the type with no sound emanation from the back, and all use permanent magnet bass reproducer units in a direct flare type horn. The multicellular horns are of all metal construction, and the treble units have metal diaphragms.

All speakers size 1 to 4 so far issued have had energised treble units, to Specification 513. These units have an 8 volt field winding and a consumption of 3 amperes. A suitable field supply unit, which utilises a Westinghouse selenium rectifier, is provided. This A.C. operated field unit is mounted back stage, with its A.C. supply controlled by a switch in the operating enclosure.

A permanent magnet type of treble unit, of almost identical external appearance and dimensions to the energised model, has been designed and will shortly become available. It will be known as the type 379. Performance and sensitivity of the permanent magnet model will be the same as for the energised model, and physically and electrically the two models will be inter-changeable.

From the inception of the Duosonic speaker in 1936, a dividing network with a cross-over frequency of 375 cycles has been used. The type is still being issued, but already a number of equipments has left the factory with networks having a cross over frequency of 500 cycles. This higher frequency will become the standard. Laboratory and theatre tests have shown that there is no distinguishable difference in quality of reproduction or effectiveness of distribution by reason of raising the cross over frequency to 500 cycles, and the treble units will benefit by not having to handle the material diaphragm excursions corresponding to the reproduction of frequencies below 500 cycles. Both types of network have an attenuation of 12 dB. per octave above and below their respective cross-over frequencies.

Except that speakers size 3 and 4 use treble horns with Y throats to accommodate two treble units, and speakers size 1 and 2 use single throated horns, there is no difference in the type of multicellular horn which accompanies any speaker from number 1 to number 4. The number of cells in the multicellular horn is not determined by speaker or theatre size, but by the horizontal and vertical angles of sound distribution with which the speaker has to cope. In practice it may be found in a small theatre where sight angles much in excess of recommended ones have been tolerated, that a 15 cell horn is required. In a much larger, architect designed theatre, where patrons' comfort has been studied by not exceeding a moderate degree of obliquity in the relationship of any seat and the plane of the screen, an 8 cell horn may be found adequate.

Each cell covers a horizontal and vertical angle of 20 degrees. An eight cell horn therefore covers 80 degrees horizontally and 40 degrees vertically. Horns can be supplied of the single layer type with from three to six cells. Two layer types can have a total of six to twelve cells, and three layer types can have from nine to eighteen. Horns with less than eight cells can be supplied only with single throats. Horns with eight or more cells can have single or Y throats.

The overall length of the treble horn varies slightly with the number of cells. As examples, an eight cell horn measures 3 feet from back of driving unit to front of flare, and a fifteen cell horn measures 3 feet 4 inches.

The direct flare type bass horns, irrespective of size are intended normally for vertical mounting, and are flanked by side wings and surmounted by the multicellular treble horn. In common with the No.0 speaker their design is such that access to the bass speakers can be obtained both via a detachable back panel and via detachable side panels. This feature permits the speaker assembly to go hard up against the wall where clearance between screen and rear wall is tight.

Where structural limitations behind the screen make it necessary, there is no objection to mounting the horn horizontally, and with either vertical or horizontal mounting it is permissible, at the cost of a slight loss in bass response to dispense with the side wings.

Very few cinema theatres today employ rear projection, the total number so equipped is actually smaller than in 1929, but in Great Britain several successful Duosonic installations have been carried out in rear projection theatres. Two identical speaker assemblies, each comprising bass and treble horns, are mounted one on each side of the screen, as close thereto as possible, and there is surprisingly little difference in results with this arrangement as compared with the normal front projection position for the speaker.

The number 1 size speaker employs two 12" permanent magnet moving coil cone speakers, connected in PARALLEL, in a direct flare horn, and one treble driving unit for the multicellular horn. Normally the single treble unit is shunted by a 20 ohm resistance, incorporated in dividing networks type 79, 145, 359 and 443.

The number 2 size speaker has two 15" permanent magnet moving coil cone speakers, connected in SERIES, in a direct flare horn of larger dimensions than the number 1 size. One driving unit, normally shunted by a 20 ohm resistance, is used on the multicellular treble horn.

The number 3 size speaker uses two 15" bass speakers, in series, in a horn of the same dimensions as used in the number 2 speaker. Two driving units are used on a Y throated multicellular treble horn.

The number 4 size speaker employs four 15" speakers, in a bass horn assembly that is virtually two of the direct flare horns used in the number 2 or 3 speaker. The four driving units are connected in SERIES-PARALLEL, and an impedance matching transformer ensures an accurate match with the power amplifier. The multicellular horn has a Y throat and two treble units.

Data on the physical dimensions and electrical characteristics of the various size speakers is given in the following appendices.

APPENDIX A. WEIGHTS AND DIMENSIONS						
Type of Speaker.	Height.		Depth Back to Front	Width.		Approx. weight complete.
	Bass Horn Only	Including Treble Horn		Without side wings	With side wings.	
No.0.	5'0"	6'0"	1'9"	4'0"	None used	5 cwt.
No.1.	7'0"	9'6"	3'5"	2'6"	6'6"	7 cwt.
No.2.	7'0"	9'6"	3'7"	2'9"	6'9"	8 cwt.
No.3.	7'0"	9'6"	3'7"	2'9"	6'9"	8¼ cwt.
No.4.	7'0"	9'6"	3'7"	5'6"	9'6"	11 cwt.

NOTE: No.0 size speaker can be supplied less bottom skirt panel, when height of bass speaker alone is reduced to 3 feet, and of complete assembly with treble horn, to 4 ft.

Nos. 1,2,3 and 4 speakers. Overall height with treble horn is that with three layer multicellular horn. Height with two layer horn is 7" less.

No.1 size speaker can be supplied without legs, when height of bass speaker alone is reduced to 5'10", and of complete assembly to 8'4".

Nos. 2,3 and 4 speakers. The 7' height dimension is of bass horn proper. Legs are not fitted.

APPENDIX B. POWER HANDLING CAPACITY

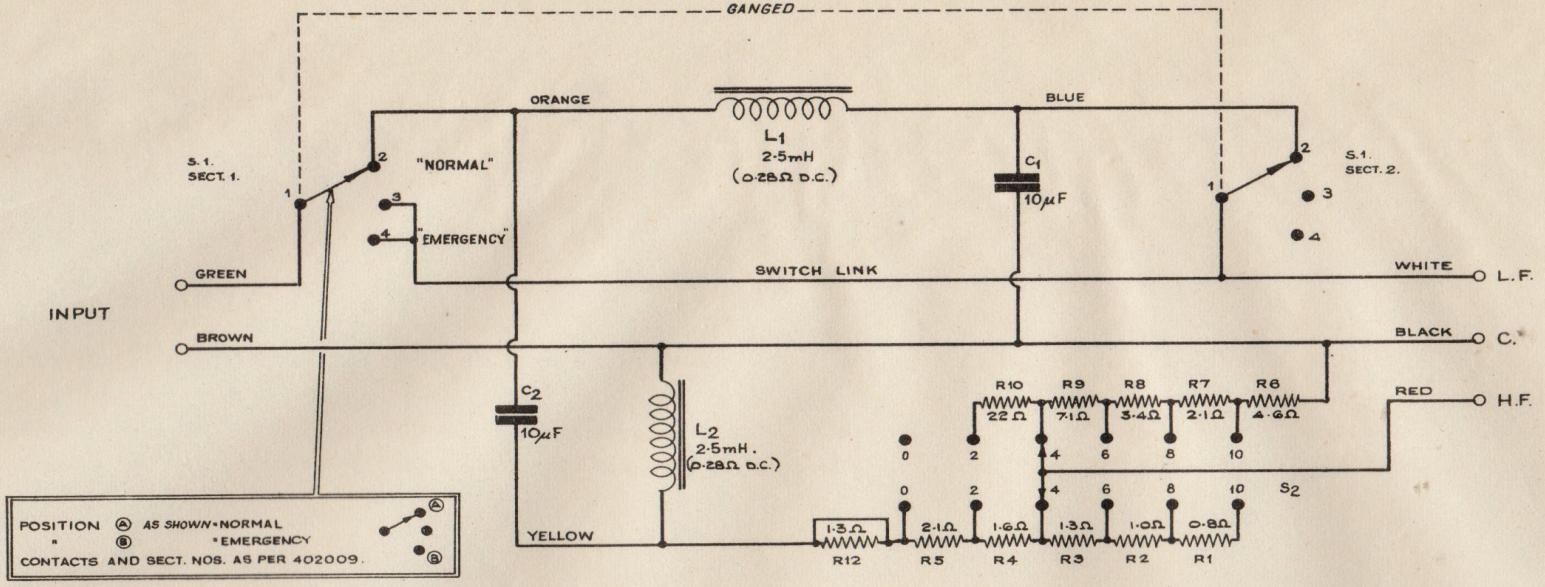
Type of Speaker	Power handled Watts.	Seating Capacity	No. of Bass Units	Base Horn	No. of Treble Units
No.0.	20	1000	Two 12" in parallel	Reflex cabinet	One
No.1.	30	1200	Two 12" in parallel	Direct Flare	One
No.2.	40	1500	Two 15" in series	Direct Flare	One
No.3.	60	2750	Two 15" in series	Direct Flare	Two in parallel
No.4.	80	4000	Four 15" in series parallel	Direct Flare	Two in parallel

APPENDIX C. SPEAKER UNITS

Pattern	Energised or P.M.	Speech Coil D.C.Resistance	Speech Coil Impedance
Reslo	P.M.	12 Ohms	15 Ohms
Specification 513	Energised	14	22
Type 379	P.M.	14	22
12" Bass	P.M.	13.5	15
15" Bass	P.M.	2.75	4

APPENDIX D. DIMENSIONS OF TREBLE HORNS

Type of Horn	Height	Width	Length including driving unit.
Miniature 6 cell	10 inches 25.4 cms	1 ft. 3¼ inches. 38 cms.	1 ft. 6 inches 45.7 cms.
Normal 8 cell	1 ft. 4 ins. 40.6 cms	2 ft. 6 inches 76.2 cms	3 foot 91.4 cms
Normal 10 cell	1 ft. 4 ins. 40.6. cms	3 foot. 91.4 cms	3 ft. 2 inches 96.5 cms
Normal 12 cell (6x2)	1 ft. 4 ins. 40.6. cms.	3 ft. 6 inches 106.6 cms.	3 ft. 3 inches 99 cms.
Normal 12 cell (4x3)	2 foot 61 cms.	2 ft. 6 inches 76.2 cms	3 ft. 3 inches 99 cms.
Normal 15 cell	2 foot 61 cms.	3 foot 91.4 cms.	3 ft. 4 inches 101.4 cms.
Normal 18 cell	2 foot 61 cms.	3 ft. 6 inches 106.6. cms	3 ft. 6 inches 106.6. cms.



NOTE: THE NOS. 0-10 ON S_2 REFER TO dB ATTENUATION ENGRAVING.

R.12 IS NORMALLY SHORTED OUT AS SHOWN.
TO PROVIDE 1 dB ATTENUATION, CUT THE SHORTING LINK.
THE TOTAL ATTENUATION WILL THEN BE SCALE READING + 1.

MODIFICATIONS

DETAIL	PART Nº	
C1. 10μF Type 621M	CX1.1411	
C2 10μF Type 621M	CX1.1411	
L1 CHOKE 2·5mH	402017	
L2 CHOKE 2·5mH	402,017	
S1 SWITCH ASSY.	402,009	
S2 SWITCH ASSY.	355,004	
R1 0·8Ω ±5% ASW 14V		FOR REFERANCE ONLY
R2 1·0Ω " "		
R3 1·3Ω " "		
R4 1·6Ω " "		
R5 2·1Ω " "		
R6 4·6Ω " "		
R7 2·1Ω " "		
R8 3·4Ω " "		
R9 7·1Ω " "		
R10 22Ω " "		
R12 1·3Ω ASW 14 V ±5%	RWX.21P3	

BRITISH ACOUSTIC FILMS LTD

SPECIFICATION Nº 402,000.

CIRCUIT DIAGRAM OF TYPE 402 DIVIDING NETWORK (1000/11)

USED ON	DATE
DRWN BY L.M.	1·2·48
TRCD. BY	
CHKD. BY JB.	
APPD. BY	

ISSUE Nº 2.

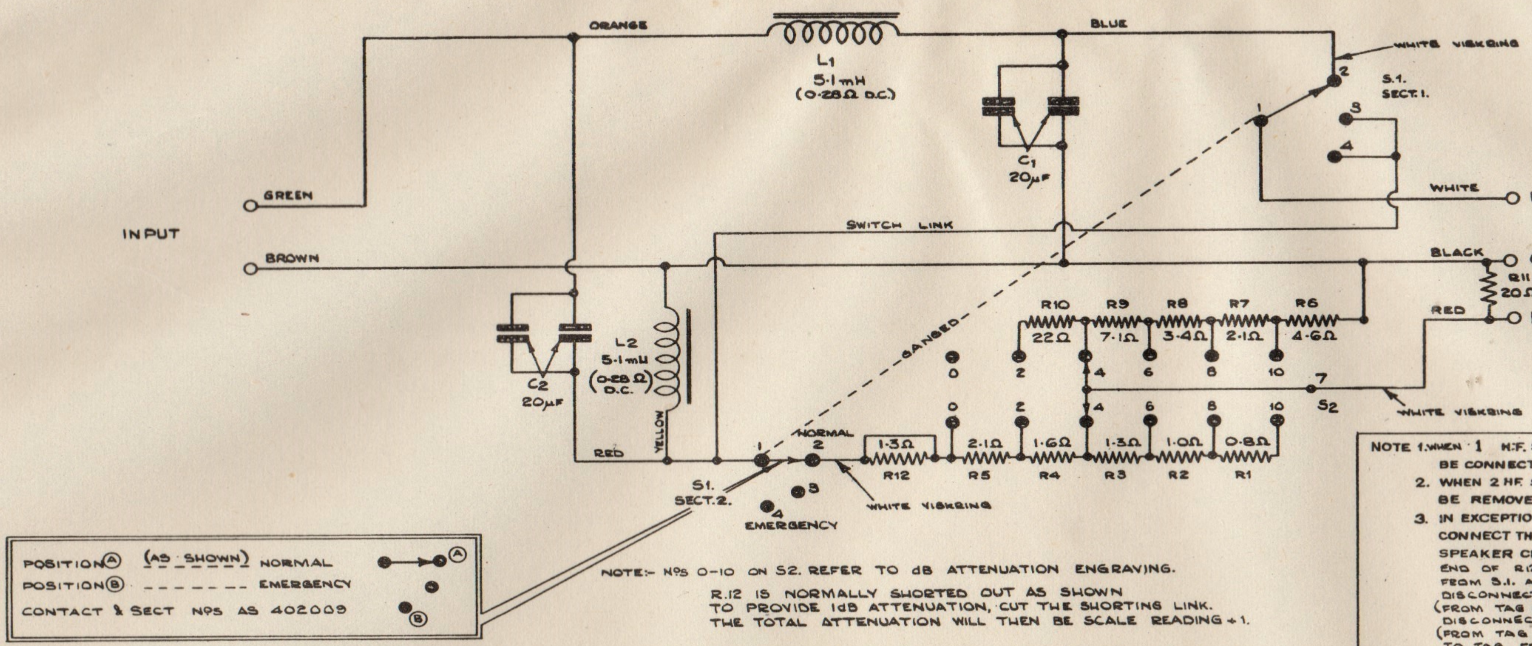
C-402,000.

TYPE 402 DIVIDING NETWORK

Drawing No. C.402.000

Details		Part No.
C1.	10 Micro Farad Type 62 IM	CXI.1411
C2.	10 Micro Farad Type 62 IM	CXI.1411
L1.	Choke 2.5 mH	402,017
L2.	Choke 2.5 mH	402,017
S1.	Switch Assembly	402,009
S2.	Switch Assembly	355,004
R1.	0.8 Ohms plus/minus 5% ASW 14V	For Reference Only
R2.	1.0 Ohms plus/minus 5% "	
R3.	1.3 Ohms plus/minus 5% "	
R4.	1.6 Ohms plus/minus 5% "	
R5.	2.1 Ohms plus/minus 5% "	
R6.	4.6 Ohms plus/minus 5% "	
R7.	2.1 Ohms plus/minus 5% "	
R8.	3.4 Ohms plus/minus 5% "	
R9.	7.1 Ohms plus/minus 5% "	
R10.	22 Ohms plus/minus 5% "	
R12.	1.3 Ohms ASW 14V plus/minus 5%	RWX.21P3.

MODIFICATIONS
1. R.11. ADDED
2. NOTES 1.2 & 3 ADDED. 25/5/48 LM.
③ NOTE 3 ALTERED
④ Nº 7 ON S.2. ADDED.
⑤ R11 REPOSITIONED
⑤ WHITE VISKRINGS ADDED. 28-7-48 O.R



NOTE:- Nos 0-10 ON S2. REFER TO dB ATTENUATION ENGRAVING.

R.12 IS NORMALLY SHORTED OUT AS SHOWN
TO PROVIDE 1dB ATTENUATION, CUT THE SHORTING LINK.
THE TOTAL ATTENUATION WILL THEN BE SCALE READING +1.

NOTE 1. WHEN 1 H.F. SPEAKER UNIT IS USED, R11 MUST BE CONNECTED AS SHOWN.

2. WHEN 2 H.F. SPEAKER UNITS ARE USED, R11 MUST BE REMOVED.

3. IN EXCEPTIONAL CASES IT MAY BE NECESSARY TO CONNECT THE ATTENUATOR UNIT IN THE L.F. SPEAKER CIRCUIT; IN WHICH CASE DISCONNECT END OF R12. WITH WHITE VISKRING (AND ITS LINK) FROM S.1. AND RECONNECT TO L1.(BLUE). DISCONNECT BLUE LEAD WITH WHITE VISKRING (FROM TAG Nº2, SECT.1., S.1.,) AND TAPE END. DISCONNECT RED LEAD WITH WHITE VISKRING (FROM TAG Nº7, SECT.1., S.2.) AND CONNECT IT TO TAG FROM WHICH R12. WAS REMOVED (TAG Nº 2, SECT.2., S.1.). JOIN TAG FROM WHICH BLUE LEAD WAS REMOVED (TAG Nº2, SECT.1., S.1.) TO TAG FROM WHICH RED LEAD WAS REMOVED (TAG Nº7, SECT.1., S.2.).

(NOTES 1 & 2 STILL APPLY)

	DETAIL	PART No.
C1	10µF TYPE 62 IM / 10µF TYPE 62 IM	CXI 1411 / CXI 1411
C2	10µF TYPE 62 IM / 10µF TYPE 62 IM	CXI 1411 / CXI 1411
L1	CHOKE 5·1mH	79003
L2	CHOKE 5·1mH	79003
S1	SWITCH ASSY	402008
S2	SWITCH ASSY	335004
R1	0·8Ω ±5% ASW 14V	REF. ONLY
R2	1·0Ω " "	REF. ONLY
R3	1·3Ω " "	REF. ONLY
R4	1·6Ω " "	REF. ONLY
R5	2·1Ω " "	REF. ONLY
R6	4·6Ω " "	REF. ONLY
R7	2·1Ω " "	REF. ONLY
R8	3·4Ω " "	REF. ONLY
R9	7·1Ω " "	REF. ONLY
R10	22Ω " "	REF. ONLY
R11	20Ω AW 3112.	
R12	1·3Ω ±5% ASW 14V	RWX 21P3

BRITISH ACOUSTIC FILMS LTD		
SPECIFICATION No. 443000		CIRCUIT DIAGRAM OF TYPE 443 DIVIDING NETWORK (500/11)
USED ON	DATE	
DRWN BY D.P.	17·3·48	
TRCD BY		ISSUE No. 2
CHKD BY		C-443000
APPD BY		

DIVIDING NETWORK

TYPE 443

Drawing No. C.443.000

Details		Part No.
C1.	10 Micro Farad type 62 I.M.	CX1.1411
	10 Micro Farad type 62 I.M.	CX1.1411
C2.	10 Micro Farad type 62 I.M.	CX1.1411
	10 Micro Farad type 62 I.M.	CX1.1411
L1.	Choke 5.1 mH	79,003
L2.	Choke 5.1 mH	79,003
S1.	Switch Assembly	402,009
S2.	Switch Assembly	355,004
R1.	0.8 Ohms plus/minus 5% ASW 14v.	REFERENCE ONLY
R2.	1.0 Ohms plus/minus 5% " "	
R3.	1.3 Ohms plus/minus 5% " "	
R4.	1.6 Ohms plus/minus 5% " "	
R5.	2.1 Ohms plus/minus 5% " "	
R6.	4.6 Ohms plus/minus 5% " "	
R7.	2.1 Ohms plus/minus 5% " "	
R8.	3.4 Ohms plus/minus 5% " "	
R9.	7.1 Ohms plus/minus 5% " "	
R10.	22 Ohms plus/minus 5% " "	
R11.	20 Ohms AW 3112	
R.12.1.3	Ohms plus/minus 5% AWS 14v.	RWX 21P3

TUNING OF EQUIPMENTS

When an installation has been completed and a check has been made to see that all mechanical and electrical components are correctly discharging their intended function, tuning of the equipment resolves itself into a matter of setting the overall electrical frequency response in accordance with the standards to be discussed, and adjusting the units of the two way loudspeaker to match the auditorium requirements.

So far as overall electrical response is concerned, the standard adopted is one due to the Academy of Motion Picture Arts and Sciences, and approved by the Society of Motion Picture Engineers.

The characteristics of this Standard Curve are that it is flat from 50 to 2000 cycles, and that it droops with increasing severity from 2000 to 8000 cycles. (It is permissible for the curve to droop below 100 cycles to a maximum of -2½ dB at 50 cycles). The whole curve is as follows, with an over-riding tolerance of plus/minus 1 dB.

CYCLES	LEVEL IN dB
50	0 to minus 2½
100	0
200	0
375	0
600	0
1000	0
2000	0
3000	minus 1½
4000	minus 3
5000	minus 4½
6000	minus 7
7000	minus 10½
8000	minus 18

In practice, it has been found that very slightly better results are obtained if the level at 8000 cycles is only 14 or 15 dB down, but the difference is barely perceptible and the point is of small importance.

The curve, of course, is only suitable for use with modern two way speakers, such as the Duosonic types supplied with Gaumont-Kalee 20 and 21 equipments. With such speakers, departures from the curve will give less than optimum results. A boost below 100 cycles will result in unnatural reproduction of music, and introduce a false boom in the reproduced male voice. The Duosonic speaker maintains its efficiency down to 50 cycles and does not require aid from a "cooked" amplifier curve.

Probably the most important section of the curve is the portion between 3000 and 7000 cycles. Intelligibility and intimacy are preserved by the fairly high level of response at 3000 and 4000 cycles. Any depression of the curve at these frequencies will show up as a deterioration in intelligibility and intimacy. Above 4000 cycles the curve falls with increasing swiftness, until at 8000 cycles it is approaching a sheer vertical descent. The attenuation above 5000 cycles gives reproduction shorn of harshness, over emphasized sibilants, or comb and paper effects. With present standards of film processing and printing, the soundtrack on release prints is not perfect, and the departure from perfection becomes increasingly noticeable above 6000 cycles.

Intelligibility does not depend upon maintaining a high level at the top end of the spectrum, 5000 to 8000 cycles. The important thing is to keep the curve flat up to 2000 cycles, and to depart as little as possible from the standard at 3000, 4000 and 5000 cycles. Above 5000 cycles the curve must show increasingly severe attenuation with increase of frequency, or reproduction will be harsh and unnatural.

With both Gaumont-Kalee 20 and 21 equipments the chosen method of arriving at the Standard Curve is to design amplifiers which with bass and treble controls in the mid or neutral positions will have flat frequency responses, and to use in the soundhead a scanning slit designed to give an output from the photocell in accordance with the requirements of the standard curve. The amplifier chain in addition to its main function of handling the sound on film programme, has also to accept the output of a pick up, and often that of a microphone. If the response curve of the amplifier were shaped to suit a substantially straight line output from the photo-cells, it would require modification to cope with an input from either a pick up or a microphone. It is simpler, and more satisfactory, to maintain a level amplifier response and adjust the response characteristics of the separate types of inputs. So far as film reproduction is concerned, the required results are obtained with a comparatively wide slit which passes increased light to the photocell, with a consequently increased signal voltage available at the input terminals of the amplifier.

Almost irrespective of acoustic properties of individual auditoria, optimum results will be obtained by adherence to the standard curve for electrical frequency response. In many cases, however, it will be necessary to balance the acoustic response of the speakers themselves, and particularly in cinemas where trouble is encountered with sound reflection and uneven distribution, it may be necessary to experiment with different angles of flare on the treble horn, or even to exchange the treble horn for one with

a different number of cells, and in consequence, a different angle of cover.

All type 20 and 21 equipments are provided with a speaker balancing unit which is mounted in a position adjacent to the loud speaker assembly. In some cases, to secure optimum acoustic balance, it will be found necessary to attenuate the response of the treble speakers by some value between 1 and 6 dB. In other cases, the normal speaker response will be found to match the auditorium within very close limits. In exceptional cases, it will be necessary to attenuate the response of the bass speakers before the best acoustic balance is obtained.

With the smallest Duosonic Speaker, No.0 size, the speaker balancing unit is incorporated in the Dividing Network type 402, which has a cross over frequency of 1000 cycles. Irrespective of whether the No.0. Speaker accompanies 20 or 21 equipment, the combined dividing network and balancing unit is mounted backstage.

With the larger Duosonic Speakers, Nos. 1,2,3 or 4, the dividing network, which has a cross over frequency of 375 or 500 cycles, is mounted in the case of 21 equipment on the type 56 rack in the operating enclosure. In the case of 20 equipment, the dividing network is installed back stage. When the dividing network is in the operating enclosure the speaker balancing unit is incorporated in the type 62 Speaker Distribution Box which is the backstage termination for the conduit run. When the dividing network itself is mounted backstage, it incorporates the speaker balancing unit.

As sent out from the Works, the Speaker Balancing Unit is connected in circuit with the treble speaker or speakers, and by adjusting the control knob the whole treble response can be attenuated from 0 to 10 dB. It is unlikely that all the available attenuation will ever be found necessary. In the few instances where an acceptable balance can only be obtained by attenuating the response of the bass speakers, it will be necessary to insert the balancing unit in circuit with the low frequency units.

Before any attempt is made to check the overall frequency response, and to make the final adjustment to acoustic balance of the speakers, it is necessary to ensure that the optical systems of the soundheads are in correct focus. A modern soundhead with a reproducing drum cannot accurately be focussed and adjusted for azimuth by employing a few inches of focussing film. A short length of film does not lie on the drum in the same way as does a longer length which is running through the soundhead. At the very least, if focussing is being carried out by inspection of either the enlarged image or the "iris" effect, it is necessary to use several feet of film and lace it right through projector and soundhead, and then by turning the inching handle ensure that the film adopts the same position in relation to the drum as it would during normal running.

A much better method is to employ several hundred feet of film, or an endless loop, and with a meter coupled to the output terminals of the meter, adjust azimuth and focus until the meter gives a maximum reading.

The scanning slit in the type 83 soundhead gives an equivalent slit width at film of 0.0018 inch, and with the 378 soundhead, which utilises a projected slit type of optical system, the slit width at film is also 0.0018 inch. Strictly the attenuation due to the slit width of 0.0018 inch is 12 dB at 8000 cycles, but this figure is a theoretical one based on the use of a perfect optical system. The actual attenuation at 8000 cycles will in practice be 1 or 1½ dB more, making a total of, say 13½ dB. To this must be added something of the order of 1 dB for cell lead loss, and perhaps 1 dB for amplifier loss at 8000 cycles.

With correctly adjusted sound optics, and treble and bass controls in the mid position, the measured frequency response curve should be from 14 to 15 dB down at 8000 cycles as compared with the reference level at 1000 cycles, and the rest of the curve should nowhere show a greater departure from the standard than 1 dB. Any substantial deviation from the expected response should be investigated and corrected. The trouble may be optical systems not meticulously focussed, or faulty photo cells, or even a test film with a non linear response. Once a close approximation to the standard curve has been obtained, final tuning is only a matter of adjusting the acoustic balance of the two way speaker until by critical listening tests reproduction of average programme material is optimum.

The non synchronous attachment provided with 20 and 21 equipment is intended to be used with an amplifier having a flat, or substantially flat, frequency response, and has inbuilt controls for separate adjustment of treble and bass response. When the tuning of the sound on film channel has been completed, the frequency controls of the non-synchronous attachment should be adjusted to give optimum results on reproduction of gramophone records.

DUAL CHANNEL G.K. 18 EQUIPMENT

G.K. 18 Sound Equipment is available in dual channel forms. Drawing DV.5189 shows the general arrangement of the equipment and the conduit runs within the projection booth. Drawing C.592000 is a schematic of the "A" amplifier channel, and drawing C.593000 is a schematic of the "B" amplifier channel.

The "A" and "B" amplifier chassis are identical and interchangeable with one another and also identical and interchangeable with the amplifier in a single channel equipment. The steel cabinets which house the "A" and "B" cabinets are of the same size and shape as one another, but not identical by reason of the terminal blocks and control switches which are mounted on them.

Drawing DV.5189 shows that "A" channel is placed to the right of No.1. projector and "B" channel is placed to the right of No.2. projector.

As with single channel G.K. 18 equipment, the steel cabinet for each channel comprises a large, shallow tray and a cover. The tray is made to be permanently fixed to the wall, and during installation the amplifier chassis and front cover are completely removed. The tray, then becomes in effect a large open conduit box, into which the external conduit runs are easily and conveniently screwed. On the flat inside face of the tray are mounted connector blocks to accept the ends of the cables. All signal inputs, that is to say, the coaxial cell leads from the two soundheads, the pair of wires from the pick up of the non sync., and the pair from the microphone, if used, are brought to connector blocks in the tray of "A" channel. Similarly, the power output to the stage speaker, and the D.C. supplies to the exciter lamps of the two soundheads, are run from connector blocks in the "A" tray.

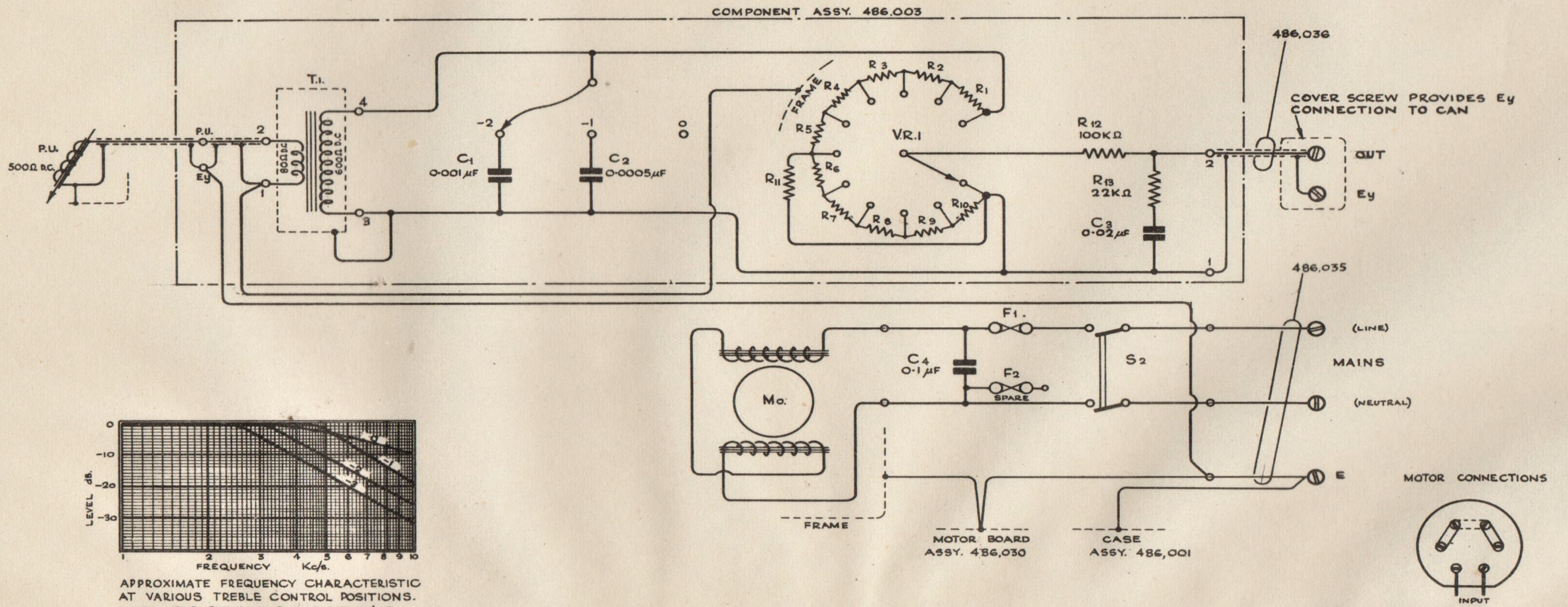
Two switches, mounted on the top lip of the "A" tray, transfer inputs and outputs at will from channel "A" to channel "B". Interconnecting cables, including a coaxial cable for photo cell signal current, link the two trays together. The interconnecting cables are shown in drawing DV.5189, and the switches, S5 and S6, are shown in drawing C. 592000. Whichever of the two channels is not in use is completely idle, and the amplifier chassis of the idle channel may be withdrawn from its case for service or repair purposes whilst the programme is maintained on the other channel.

Of the two switches in the tray of "A" amplifier, switch S5 handles all the inputs, and diverts them to either the adjacent channel "A" or via the interconnecting cables to channel B". Switch S6 handles the exciter lamp supplies and the speech outputs of the two channels, selecting exciter lamp supply and speech output from either "A" or "B" channel.

The two switches, S5 and S6, must both be in the same position, "A" or "B". If the input switch is on say, "A", and the output switch is on "B", the stage speaker will be mute, although there will be no indication of this in the projection booth because the inbuilt monitor speaker in "A" amplifier will continue to function. No harm will be done to the power output stage, although its normal load is not connected. Reference to drawing C. 592000 will show that with the output switch in position "A", the output stage of amplifier "B" is not left open circuited, but is loaded by the speech coil of monitor "B". With the switch in position "B", the output stage of amplifier "A" is loaded by monitor "A".

Unlike single channel G.K. 18 equipment, where the changeover switch is built into the case of the amplifier, on dual channel equipment the changeover switch is a separate unit. The most convenient place to mount it is over the "A" amplifier, as shown in drawing DV. 5189.

MODIFICATIONS
1. Assy. Nos. added. Jwa. [initials] 16:XII:48
2. Pt. No. for Pickup was incorrectly given as 486020. [initials] 27/5/49



APPROXIMATE FREQUENCY CHARACTERISTIC AT VARIOUS TREBLE CONTROL POSITIONS.
NOTE – FOR POSITION -3, CONNECT -1 & -2 TOGETHER AND USE EITHER TAG.

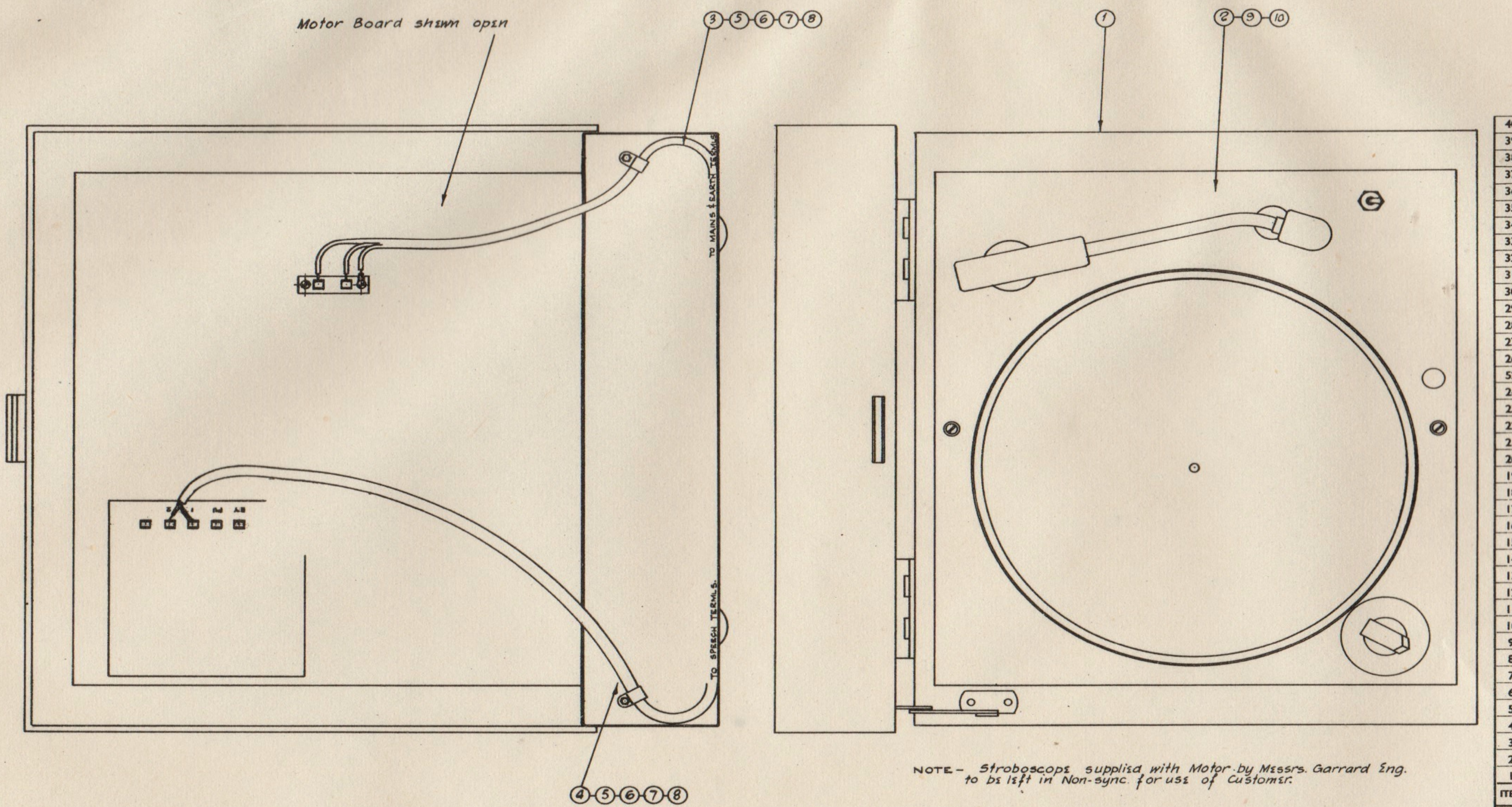
	DETAIL	PART No.
R1	22KΩ ERIE #8 ±20%	FOR REF. ONLY
R2	. . .	
R3	. . .	
R4	. . .	
R5	. . .	
R6	. . .	
R7	. . .	
R8	. . .	
R9	10KΩ . . .	
R10	. . .	
R11	100KΩ . . .	
VR.1	COMPLETE FADER	486 004
R12	100KΩ ERIE #8 ±10%	
R13	22KΩ " "	
C1	0·001μF M2. ±10%	
C2	0·0005μF MWN ±25%	
C3	0·02μF CP33N ±20%	
C4	0·1μF 645 ±20%	
T1.	P.U. TRANS.	486 021
S2.	SWITCH D.P.S.T.	M50066
F1 & 2	1AMP. L1055/A.	
P.U.	REPRODUCER	486 050
Mo.	GARRARD – AC7A or AC6C.	

BRITISH ACOUSTIC FILMS L^TD		
SPECIFICATION No.		THEORETICAL CIRCUIT NON SYNCHRONOUS – ATTACHMENT TYPE 486 (100-250v. A.C. 50-60~).
USED ON	DATE	
DRWN BY [initials]	14:X:48	
TRCD BY		ISSUE No. 3
CHKD BY Jwa.	14/10/48	C- 486,000
APPD BY [initials]	14.10.48	

THEORETICAL CIRCUIT NON-SYNCHRONOUS
ATTACHMENT - TYPE 486

Drawing No. C.486000

			Part No.
R1	22,000 Ohms Erie No.8 plus/minus 20%	)	
R2.	" " " " "	)	
R3.	" " " " "	)	
R4.	" " " " "	)	
R5.	" " " " "	)	
R6.	" " " " "	) For Ref.	
R7.	" " " " "	) only.	
R8.	" " " " "	)	
R9.	10,000 " " " "	)	
R10.	" " " " "	)	
R11.	100,000 " " " "	)	
VR1.	Complete Fader		486004
R12.	100,000 Ohms Erie No.8 plus/minus 10%		
R13.	22,000 Ohms Erie No.8 plus/minus 10%		
C1.	0.001 Micro Farad M2 plus/minus 10%		
C2.	0.0005 Micro Farad MWN plus/minus 25%		
C3.	0.02 Micro Farad CP33N plus/minus 20%		
C4.	0.1 Micro Farad 645 plus/minus 20%		
T1.	P.U. Transformer		486021
S2	Switch DPST		M50066
F1.2	1 Amp L.1055/A		
P.U.	Reproducer		486050
Mo.	Garrard - AC7A or AC6C		



NOTE – Stroboscope supplied with Motor by Messrs. Garrard Eng. to be left in Non-sync. for use of Customer.

ITEM	PART No.	DESCRIPTION	FINISH	MATERIAL	No. OFF
40					
39					
38					
37					
36					
35					
34					
33					
32					
31					
30					
29					
28					
27					
26					
52					
24					
23					
22					
21					
20					
19					
18					
17					
16					
15					
14					
13					
12					
11					
10	486 008	Washer			2
9	486 007	Screw			2
8		Shakeproof Washer 4 B.A.	D.N.P.		2
7		Nut 4 B.A. Std. Hex.	Cad. Pl.		2
6		Screw 4BA x Rnd. Hd. x 5/16"	Natural	Stainless Stl.	2
5	55 066	Cable Clip			2
4	486 036	Cableform (Speech)			1
3	486 035	Cableform (Mains)			1
2	486 030	Motor Board Assy.			1
1	486 001	Case Assy.			1

BRITISH ACOUSTIC FILMS LTD.

COMPLETE ASSEMBLY OF NON-SYNCHRONOUS ATTACHMENT TYPE 486

SCALE: FULL SIZE
USED ON ASSY. No.
TOLERANCES, UNLESS STATED, ON DECIMAL DIMS. ± ON OTHER DIMS. ± /
DRN. BY [illegible] DATE 6:X:48
CKD. BY R.F.W. APPD. BY
MATERIAL As stated
FINISH NATURAL.

∇ – NORMAL MACHINED FINISH
∇∇ – GROUND OR FINE MACHINED FINISH
∇∇∇ – FINE GROUND FINISH WITHOUT WHEELMARKS

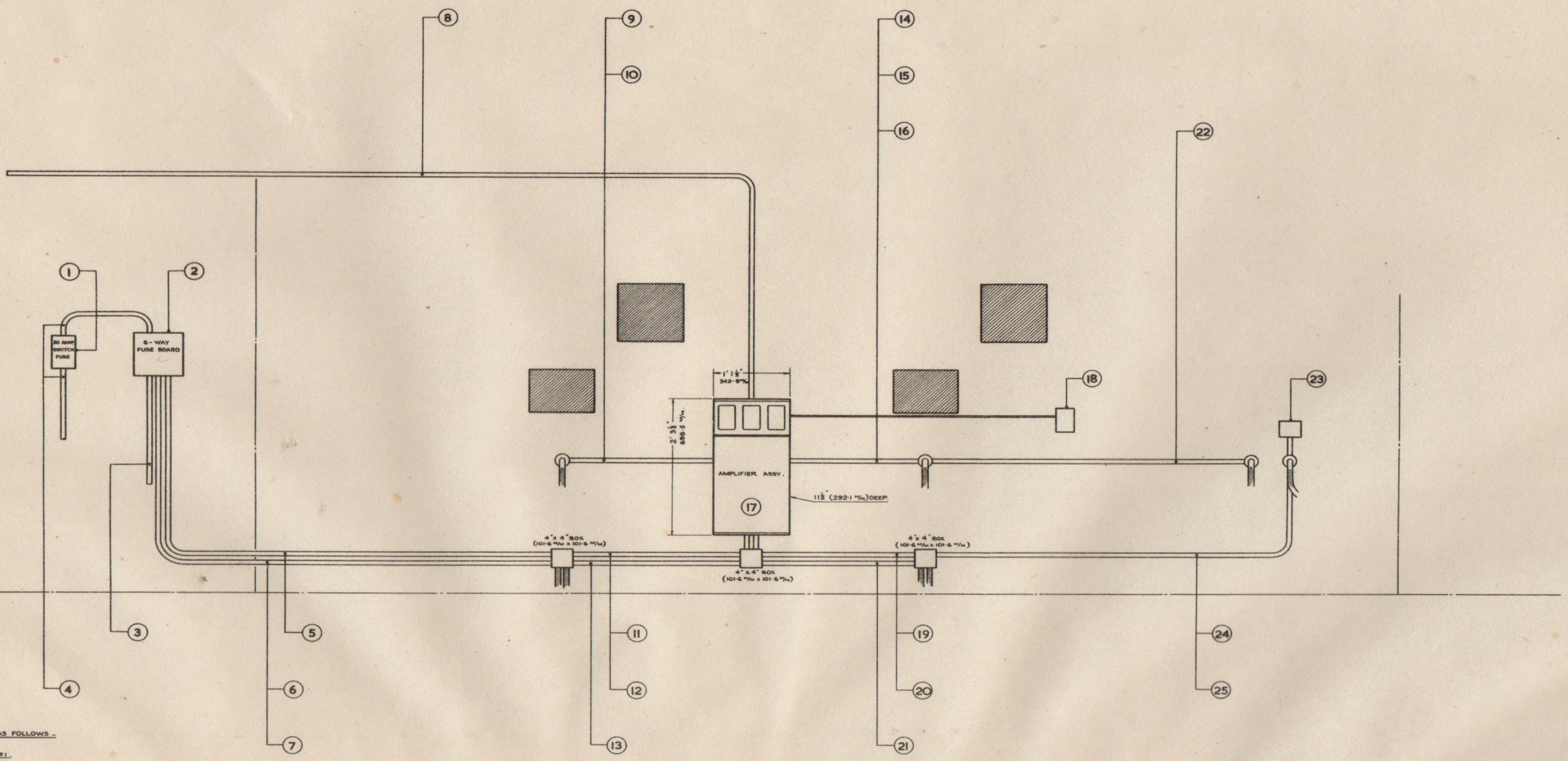
PART NUMBER 486,000

MODIFICATIONS
1 Items 9/10 added [illegible] 8:XII:48

COMPLETE ASSEMBLY OF NON-SYNCHRONOUS
ATTACHMENT - TYPE 486

Drawing No. 486.000

Part No.	Description
486001	Case Assembly
486030	Motor Board Assembly
486035	Cable form (Mains)
486036	Cable form (Speech)
55066	Cable Clip
	Screw 4 BA x Rnd. Hd. x 5/16" Natural Stainless St.
	Nut 4 BA Std. Hex. Cad. Pl.
	Shakeproof Washer 4 BA D.N.P.
486007	Screw
486008	Washer



WIRE FUSE BOARD AS FOLLOWS.

1. AMPLIFIER.
2. PROJECTOR Nº1.
3. PROJECTOR Nº2.
4. NON-SYNC.
5. SPARE.
6. SPARE.

ALL FUSES WIRED 15 AMPS.

AMPLIFIER ASSEMBLY 95-130 v 40-100 c/s TYPE 573
AMPLIFIER ASSEMBLY 190-260 v 40-100 c/s TYPE 522

SEE ACCOMPANYING NOTES.

MODIFICATIONS		
1	NOTE Nº 4 ADDED.	6.7.49. E.C.S.
2	DIMS. ADDED.	7.11.49. F.A.H.

SCALE FULL SIZE	USED ON ASSY. Nº	TOLERANCES UNLESS STATED ON DECIMAL DIMS. ± ON OTHER DIMS. ±	BRITISH ACOUSTIC FILMS LTD.
		DRN. BY E.C.B. DATE 21.6.49	TYPICAL LAYOUT OF PROJECTION ENCLOSURE 18 w. SINGLE CHANNEL G.K.18.
▽ NORMAL MACHINED FINISH		CKD. BY APPD. BY	
▽▽ GROUND OR FINE MACHINED FINISH		MATERIAL	
▽▽▽ FINE GROUND FINISH WITHOUT WHEELMARKS		FINISH	PART NUMBER DV·5182

DW. 5182

TYPICAL LAYOUT OF PROJECTION ENCLOSURE
18W SINGLE CHANNEL G.K. 18

WS 1. 30 Amp. Switch Fuse.

WS 2. 6-Way Fuse Board

WS 3. 1 Wire 7/.036 (Black)
Main Earth Cable to rising water main or Buried Earth.

WS 4. 2 Wires 7/.036 (1 Red 1 Black)
A.C. Supply from intake.

WS 5. 6 Wires 3/.029 (3 Red 3 Black)
A.C. From Fuse Unit.
1 Pair A.C. M/C1 Motor
1 Pair A.C. M/C2 Motor
1 Pair A.C. Non-Sync.

WS 6. 2 Wires 3/.029 (1 Red 1 Black)
A.C. From Fuse Unit.
1 Red and 1 Black A.C. to Amplifier

WS 7. 1 Wire 7/.036 (Black)
Earth from Fuse Unit to M/C1 Pedestal Earth.
Loop from M/C1 to Amplifier Earth Bus-Bar to M/C 2 to Non.Sync.

WS 8. 2 Wires 3/.029 (1 Red 1 Black).
1 Red from "Stage Speakers" terminal in Amplifier to Stage Speakers.
1 Black from "Stage Speakers Ey" terminal in Amplifier to Stage Speakers.

WS 9. 1 Co-Axial type 129 From P.E.C. Cathode M/C1 to "C.1" terminal in Amplifier (connect screen to "E" terminal in Amplifier. Connect screen to "E" terminal in Soundhead except as in Note 2).

WS 10. 1 Wire 16/.012 P.V.C. (Red)
From P.E.C. Anode M/C1 to "C plus 1" Terminal in amplifier.

WS 11. 2 Wires 16/012 P.V.C. (1 White, 1 Yellow)
White from "Exc. Lamp Pos." terminal M/C1 to "Exc. Lamp Pos.1" terminal in Amplifier.
Yellow from "Exc. Lamp Neg" terminal M/C1 to "Exc. Lamp Neg. 1" terminal in Amplifier (See Note 1.)

WS 12. 1 Wire 7/.036 (Black)
Earth M/C1 Pedestal to Amplifier Earth Bus-Bar.

WS 13. 6 Wires 3/029 (3 Red 3 Black)
A.C. From Fuse Unit
1 Pair A.C. M/C2 Motor
1 Pair A.C. Amplifier
1 Pair A.C. Non-Sync.

WS 14. 1 Co-Axial type 129
From P.E.C. Cathode M/C2 to "C.2" terminal in Amplifier
(Connect Screen to "E" terminal in Amplifier. Connect Screen to "E" terminal in Soundhead except as in Note 2.)

WS 15. 1 Wire 16/.012 P.V.C. (Red)
From P.E.C. Anode M/C2 to "C plus 2" terminal in Amplifier.

WS 16. 1 Wire 14/0076 P.V.C. Insulated, screened, P.V.C. sheathed.
From Non-Sync. to "Disc" terminal in Amplifier. Connect Screen to "Ey" terminal in Non-Sync. and to "Disc Ey" terminal in Amplifier.

WS 17. Amplifier Assembly

WS 18. Remote control changeover Unit Assembly Part No. 522150

DV. 5182 - CONTINUED

WS 19. 2 Wires 16/.012 P.V.C. (1 White 1 Yellow)
White from "Exc. Lamp Pos." terminal M/C2 to "Exc. Lamp Pos.2" terminal in Amplifier.
Yellow from "Exc. Lamp Neg." terminal M/C2 to "Exc. Lamp Neg.2" terminal in Amplifier (See Note 1).

WS 20. 1 Wire 7/.036 (Black)
Earth M/C2 Pedestal to Amplifier Earth Busbar.

WS 21. 4 Wires 3/.029 (2 Red 2 Black)
A.C. From Fuse Unit.
1 Pair A.C. M/C2 Motor
1 Pair A.C. Non-Sync.

WS 22. 1 Wire 14/.0076 P.V.C. Insulated, Screened, P.V.C. Sheathed.
From Non-Sync. to "Disc." terminal in Amplifier. Connect Screen to "Ey" terminal in Non-Sync. and to "Disc Ey" terminal in Amplifier.

WS 23. Double Pole Tumbler in conduit Box. (Non-sync. Isolating Switch) Adjacent to Non-Sync.

WS 24. 2 Wires 3/.029 (1 Red 1 Black).
A.C. From Fuse Unit to Non-Sync.
"Mains" terminals via. Isolating Switch.

WS 25. 1 Wire 7/.036 (Black)
Earth, Non-Sync. Case to M/C2 Pedestal.

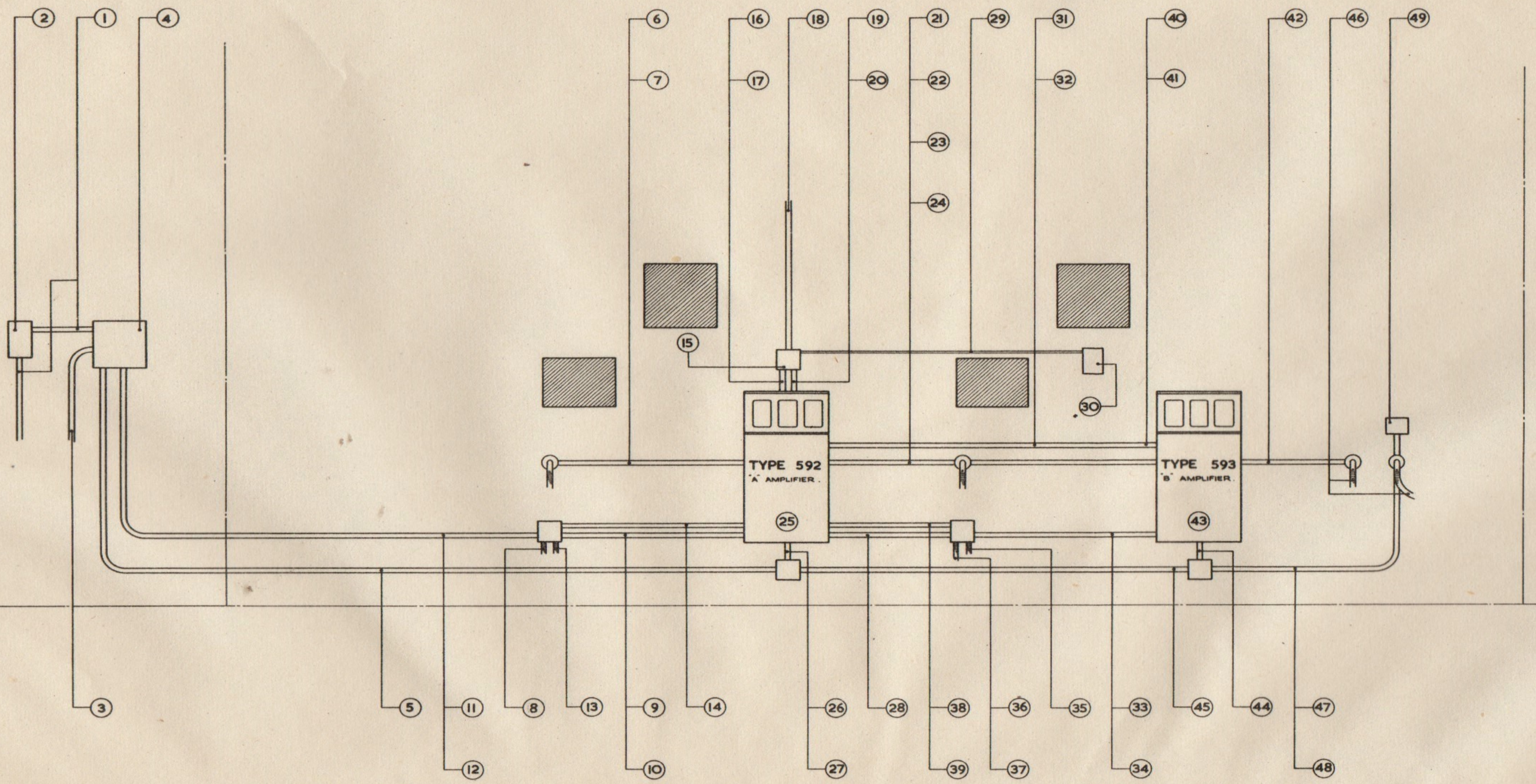
DV. 5182 - NOTES

1. If the exciter lamp is earthed in the Soundhead, remove the link between "EXC. LAMP NEG .1" terminal and earth Bus-bar in the Amplifier Cabinet.

2. Connect screen of cell co-axial lead to Earth terminal in Soundhead, only if there is no connection between this earth terminal and main Projector earth, as for example, in B.A.F. Soundheads type 83 and 378. Otherwise only earth the screen at the Amplifier end.

3. If either Microphone or Disc is not required, the appropriate input terminals, should be short circuited.

4. Remote control cable should be adjusted so that switch dollys each point to like positions (either L or R) and operate freely. Care must be taken to ensure that inner cable is greased, and that Remote control cable is free from any sets or bends.



SEE ACCOMPANYING NOTES.

MODIFICATIONS

SCALE FULL SIZE	USED ON ASSY. Nº	TOLERANCES UNLESS STATED. ON DECIMAL DIMS. ± ON OTHER DIMS. ±	BRITISH ACOUSTIC FILMS LTD
∇ - NORMAL MACHINED FINISH		DRN BY. C.E. DATE 15.9.49	TYPICAL LAYOUT OF PROJECTION ENCLOSURE 18 W DUAL CHANNEL G.K. 18
∇∇ - GROUND OR FINE MACHINED FINISH		CHKD BY. APPD BY.	
∇∇∇ - FINE GROUND FINISH WITH WHEELMARKS.		MATERIAL.	PART NUMBER DV·5189
		FINISH.	

DV. 5189

TYPICAL LAYOUT OF PROJECTION ENCLOSURE
18W. DUAL CHANNEL G.K.18

WS 1. 2 Wires 7/.036 (1 Red 1 Black)
From A.C.Supply

WS 2. 30 Amp. Switch Fuse

WS 3. 1 Wire 7/.036 to Water Main or Buried Earth Plate

WS 4. 6-Way Fuse Board

WS 5. 6 Wires 3/.029 (3 Red 3 Black)
1 Red 1 Black to "Mains in A Amp."
1 Red 1 Black to "Mains in B Amp."
1 Red 1 Black to Non-Sync.

WS 6. 1 Co-Axial Type 129 from P.E.C. Cathode MC/1 to "Cell Input" Terminals in A Amp.
Connect Screen to E Terminal in Soundhead except as in Note 2.

WS 7. 1 Wire 16/.012 P.V.C. Red from P.E.C. Anode MC/1 to C plus 1 Terminal in A Amp.

WS 8. 2 Wires 3/.029 A.C. to Projector Motor
1 Wire 7/.036 Looped Earth

WS 9. 1 A.C. Pair 3/.029 to MC/2 Motor

WS 10. 1 Wire 7/.036 Black Earth to A Amp. etc.

WS 11. 4 Wires 3/.029 (2 Red 2 Black)
1 A.C. Pair to MC/1 Motor
1 A.C. Pair to MC/2 Motor

WS 12. 1 Wire 7/.036 Black Earth to MC/1 Pedestal - Loop to A Amp. Earth Bus Bar - to MC/2 Pedestal - to B. Amp. earth Bus Bar - to Non-Sync Case.

WS 13. 2 Wires 16/.012 P.V.C. (1 White 1 Yellow) to Exciter Lamp.

WS 14. 2 Wires 16/.012 P.V.C. (1 White 1 Yellow) Pair from "Projector 1" Terminals in c/o Box to Exciter Lamp in Soundhead MC/1 (Yellow Earthy).

WS 15. Type 594 Sound Changeover Box.

WS 16. 2 Wires 16/.012 P.V.C. (1 White 1 Yellow) Exciter Lamp Supply from c/o Box to Soundhead MC/1.

WS 17. 2 Wires 3/.029 (1 Red I Black) Red from Terminal "From A Amp. plus" in c/o Box to terminal "to c/o switch plus" in A.Amp. Black from terminal "from A Amp minus" in c/o Box to Terminal "To c/o Switch minus" in A Amp.

STAGE RUN

WS 18. 2 Wires 3/.029 (1 Red 1 Black) Pair from "Out to Stage" Terminal in A Amp. to dividing network at stage.

WS 19. 2 Wires 3/.029 (1 Red 1 Black) Pair from "Out to Stage" terminal in A Amp. to Dividing network at Stage.

WS 20. 2 Wires 16/.012 (1 White 1 Yellow) Exciter Lamp Supply from c/o Box to Soundhead MC/2.

WS 21. 1 Co-Axial Type 129 from P.E.C. Cathode MC/2 to "Cell Input" terminal in A.Amp. Connect screen to E Terminal in Soundhead except as in Note 2.

WS 22. 1 Wire 16/.012 P.V.C. Red from P.E.C. Anode MC/2 to "C plus 2" terminal in A Amp.

WS 23. 1 Wire 16/.012 P.V.C. Red from "C plus 1" Terminal in B Amp. to "Plus 1 from B" terminal in A Amp.

WS 24. 1 Wire 16/.012 P.V.C. Red from "C plus 2" Terminal in B.Amp to "Plus 2 from B" Terminal in A Amp.

WS 25. Type 592 "A" Amplifier

WS 26. 1 Red 3/.029 to Mains in A Amp.

WS 27. 1 Black 3/.029 to Mains in A Amp.

WS 28. 5 Wires
4 Wires 3/.029 (2 Red 2 Black)
1 Wire 7/.036 Black
A.C. Pair to MC/2 Motor
1 Pair from "Stage Speakers" in B.Amp to "Output from B. Amp" in A Amp. (Black Earthy).
1 Wire 7/.036 Black. Earth to MC/2 etc.

WS 29. Control Wire and Outer Casing

WS 30. Pt. No. 522150 Remote Changeover.

WS 31. 1 Wire 16/.012 P.V.C. Red from "C plus 1" terminal in B. Amp. to "Plus 1 from B" terminal in A Amp.

WS 32. 1 Wire 16/.012 P.V.C. Red from "C plus 2" terminal in B. Amp.to "Plus 2 from B" terminal in A Amp.

WS 33. 4 Wires 3/.029 (2 Red 2 Black)
1 Pair from "Stage Speakers" in "B" Amp. to "Output from B Amp" in A Amp.
1 Pair from "Ex Lamp 1" in B. Amp to "Exciter lamp supply from B. Amp" in A Amp. (Black Earthy).

WS 34. 1 Wire 7/.036 Earth to B. Amp etc.

WS 35. 2 Wires 16/.012 P.V.C. (1 White 1 Yellow) to Exciter Lamp

WS 36. 2 Wires 3/.029 A.C. to Projector Motor.

WS 37. 1 Wire 7/.036 Looped Earth.

WS 38. 2 Wires 16/.012 P.V.C. (1 White 1 Yellow) Pair from "Proj. 2" terminals in c/o Box to Exciter Lamp in Soundhead MC/2 (Yellow Earthy)

WS 39. 2 Wires 3/.029 (1 Red 1 Black) Pair from "Ex. Lamp 1" in B. Amp to "Exciter Lamp from B. Amp" in A Amp. (Black Earthy or Negative).

WS 40. 2 Wires 14/.0076 P.V.C. Insulated, Screened, P.V.C. Sheathed
1 From N/S Output to Disc Terminals in A Amp.
1 From Disc Terminal in B. Amp to "Disc to B. Amp" Terminal in A Amp.

WS 41. 1 Wire Co-Axial Type 129 from "Cell Out to B" terminal in A Amp. to Cell Terminal in B. Amp. Connect all screens to Ey. terminals at each end.

WS 42. 1 Wire 14/.0076 P.V.C. Insulated,screened, P.V.C. Sheathed, from Non-Sync Output to Disc Terminal in A Amp.

WS 43. Type 593 Amplifier "B"

WS 44. 2 Wires 3/.029 (1 Red 1 Black) A.C. Mains to B. Amp
1 Wire 7/.036 Earth to Frame of Non-Sync.

WS 45. 4 Wires 3/.029 (2 Red 2 Black)
1 A.C. Pair to B. Amp
1 A.C. Pair to Non-Sync Motor.

WS 46. To Non-Sync.

WS 47. 2 Wires 3/.029 (1 Red 1 Black)
A.C. Pair to Non-Sync Motor

WS 48. 1 Wire 7/.036 to Frame of Non-Sync.

WS 49. Double Pole Tumbler Switch in Conduit Box (Non-Sync Isolating Switch) Adjacent to Non-Sync.

DV. 5189

NOTES

1. If the Exciter Lamp is Earthed in the Soundhead, remove the Link between "EXC. LAMP 1 EY." terminal and earth Bus-bar in B Amplifier Cabinet.

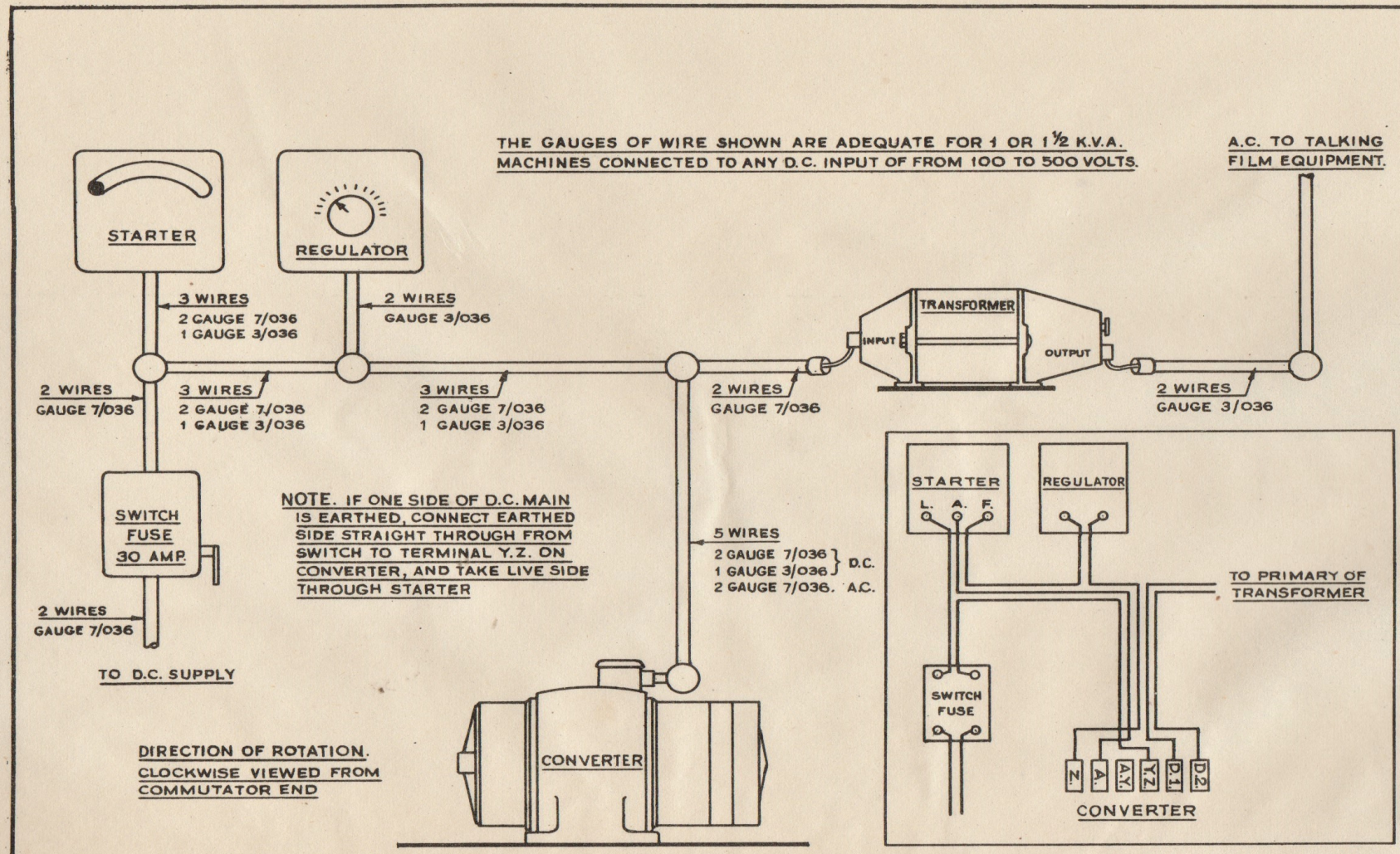
2. Connect Screen of Cell Co-axial lead to Earth terminal in Soundhead only if there is no connection between this Earth Terminal and Main Projector earth, as for example in B.A.F. Soundheads type 83 and 378. Otherwise earth the screen at the amplifier end only.

3. If either Microphone or Disc is not required, the appropriate input terminals should be short circuited.

4. When an Arc Lamp is mounted on a projector Stand, the latter must be earthed, independently of the Amplifier wiring by a Phospher bronze or copper conductor having a cross section not less than 0.0045 Sq. Ins. or 50% of the Area of the Arc feed leads whichever is the greater.

5. All conduit 3/4" dia.

6. On completion of Installation the Chief Projectionist should be instructed to use each channel on alternate weeks to preserve the formation of electrolytic condensers.



CRYPTO SINGLE WOUND CONVERTER
CONDUIT CONNECTIONS.
DRG. NO. D.Y. 4926.

PROCESS

BRITISH ACOUSTIC FILMS LTD.

MODIFICATIONS

∇ = NORMAL MACHINED FINISH

∇∇ = GROUND OR FINE MACHINED FINISH

∇∇∇ = FINE GROUND FINISH WITHOUT WHEELMARKS

USED ON ASSY. No.

TOLERANCES, UNLESS STATED,
ON DECIMAL DIMS. ±
ON OTHER DIMS. ±

DRN. BY L. AUDIGIER | DATE 2.2.45

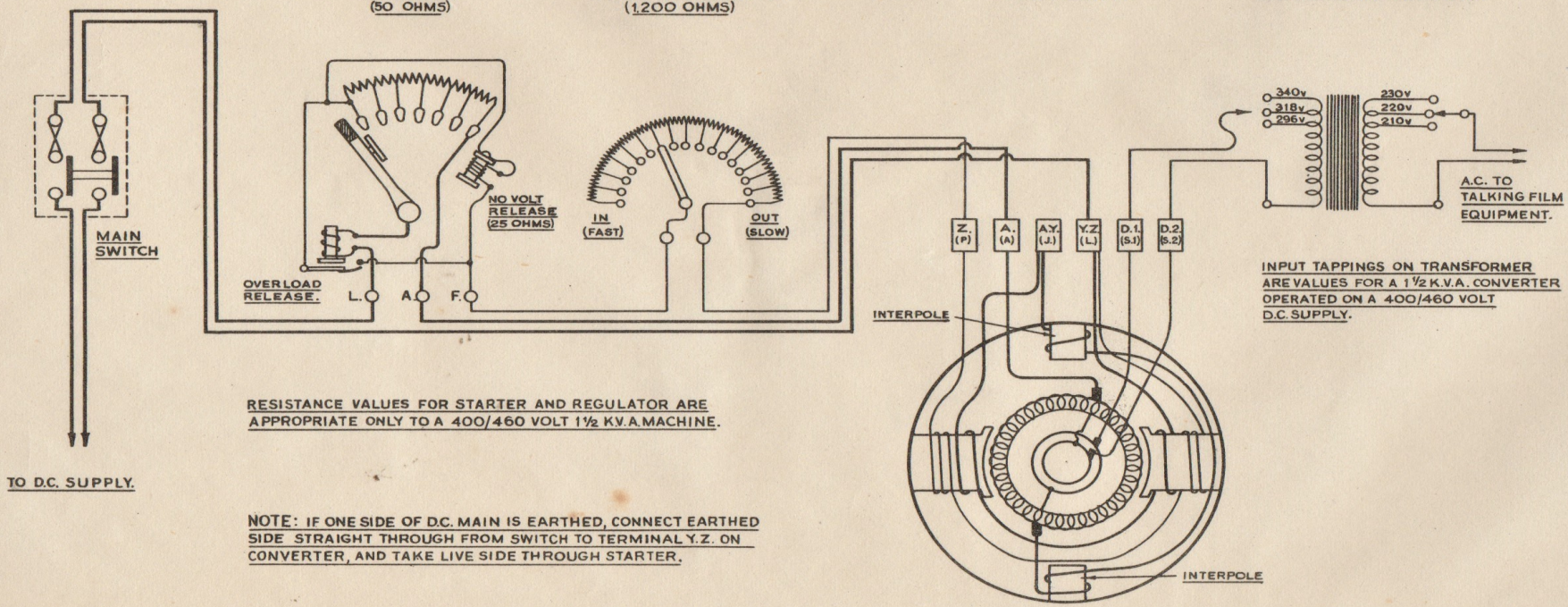
CKD. BY | APPD. BY

MATERIAL

FINISH

CRYPTO SINGLE WOUND CONVERTER CONDUIT CONNECTIONS

PART NUMBER D.Y. 4926



RESISTANCE VALUES FOR STARTER AND REGULATOR ARE APPROPRIATE ONLY TO A 400/460 VOLT 1½ K.V.A. MACHINE.

NOTE: IF ONE SIDE OF D.C. MAIN IS EARTHED, CONNECT EARTHED SIDE STRAIGHT THROUGH FROM SWITCH TO TERMINAL Y.Z. ON CONVERTER, AND TAKE LIVE SIDE THROUGH STARTER.

SCHEMATIC DIAGRAM OF CRYPTO SINGLE WOUND CONVERTER AND ATTENDANT EQUIPMENT.

PROCESS

DIAGRAM OF CRYPTO SINGLE WOUND CONVERTER AND ATTENDANT EQUIPMENT.
DRG. NO. DX. 4927.

BRITISH ACOUSTIC FILMS LTD.

MODIFICATIONS

▽ = NORMAL MACHINED FINISH
▽▽ = GROUND OR FINE MACHINED FINISH
▽▽▽ = FINE GROUND FINISH WITHOUT WHEELMARKS

USED ON ASSY. No.

TOLERANCES, UNLESS STATED, ON DECIMAL DIMS. ±
ON OTHER DIMS. ±
DRN. BY AUDIGIER DATE 6·2·45
CKD. BY [illegible] APPD. BY [illegible]
MATERIAL
FINISH

DIAGRAM OF CRYPTO SINGLE WOUND CONVERTER & ATTENDANT EQUIPMENT

PART NUMBER DX.4927.