

GAUMONT-KALEE

OPERATORS' HANDBOOK

AND

SPARES LIST

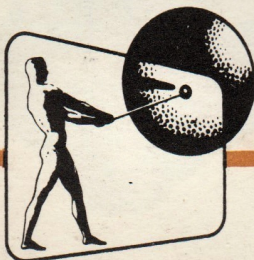
GK 21, 20 & 19

GK21

GAUMONT-KALEE

**PROJECTOR MECHANISMS
TYPES GK21 - GK20 - GK19**

**MANUAL
and
SPARES LIST**



G. B - KALEE

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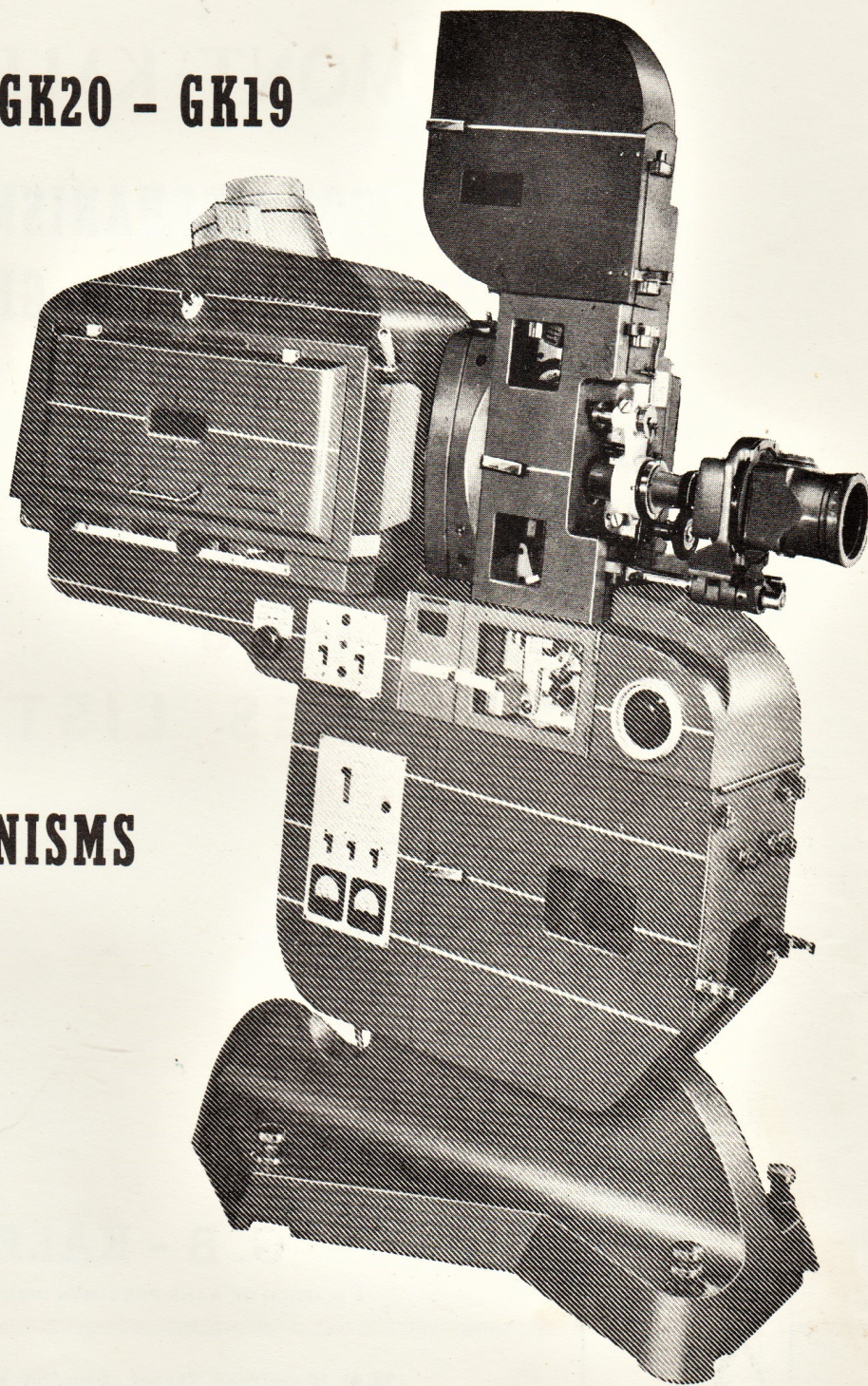
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GAUMONT-KALEE

TYPES GK21 - GK20 - GK19

PROJECTOR
MECHANISMS



ENGINEERS' MANUAL

(Including Manual for Operators)

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INTRODUCTION

The GK19, 20 and 21 Projector Mechanisms were designed to be suitable for operation under varying conditions of an international market. For this reason, they conform to certain specified requirements, and will satisfy the recommendations of all INTERNATIONALLY ACCEPTED authorities. Straightforward design, and the use of quality components, give maximum reliability.

Instead of being bolted direct to the soundhead the Projector Mechanism is bolted to a detachable base which can be supplied to suit different types of soundhead. This avoids the necessity for bolting up through the soundhead where this is inconvenient. A range of adaptations is available and details are given on Sheet GK21P/41a of the

spares list.

The GK21 has a single bladed, double-speed shutter, the GK19 and 20 having conventional double-bladed single-speed shutters. Both GK20 and GK21 are fitted with electrically operated Change-over devices, but the GK19 is not. All models have oil bath lubrication, and a door enclosing the operating side.

In addition to the single or double-speed shutter, the shutter casing houses the transformer for the Threading lamps (with their switch and fuse holder, accessible externally), and, in the case of the GK20 and GK21, the change-over Solenoid and its fuse. THIS SOLENOID IS NOT FITTED TO THE GK19.

Lens Holder

The lens holder is fitted outside the enclosed part of the mechanism to permit the use of large diameter, big aperture lenses. The bore of the holder is standard 2.787in. (70.5mm) diameter and it is furnished with a removable liner to take 2.064in. (52.5mm) diameter lenses. The gripping length is kept short and close to the film plane, and permits the use of large diameter lenses with

still larger stepped front cells.

Alternative Lensholders obtainable are 3¼in. (82.5mm) size and the 4in. (102mm) internal diameter size for 'Cinemascope' backing lenses. Liners are available for the 3¼in. lensholder, with internal diameters of 2.064in. (52.5mm) and 2.787in. (70.5mm) with internal and external diameters CONCENTRIC or ECCENTRIC as desired.

Mask Plates

The mask plate is of hardened steel, easily removable from its channels in the gate bracket. To accommodate the wide range of aperture ratios in current use each mask plate carries an insert aper-

ture plate which may be obtained cut to size for different picture ratios as required, or slightly undersize to allow filing when new ratios are to be used, or new equipment is installed. (See Plate 17).

Threading Lamps

The framing apertures and the working side of the projector are illuminated by a pair of 8 volt M.E.S. lamps. The lamps are fed from a transformer tapped to suit both 100/115 volt supplies, and

200/240 volt supplies, for 250 volt mains supplies a 2 ohm resistor is connected in series with the lamps. (*This resistor is supplied only when 250 volt supplies are stipulated*).

Safety Shutter and Electrical Picture Change-over

The safety shutter is housed in the rear of the gate unit, and is actuated by a centrifugal governor on the shutter shaft of the projector. In the GK19 projector this governor is the only mechanism actuating the safety shutter.

The GK20 and 21 Projectors have an electrically operated picture change-over device, which operates on the safety shutter in such a way that no derangement of the change-over system can prevent the shutter closing should the force exerted by the centrifugal governor fail, due to the slowing down or stopping of the machine.

The safety shutter is raised by a floating lever acted upon independently by both the governor and the changeover magnet. Neither acting alone can open the shutter, which can only open and remain

open so long as both exert a pull. The changeover operating mechanism proper is very simple, consisting merely of a tractive magnet to pull down an armature connected to the floating lever operating the shutter. Magnet core and armature are laminated and fitted with slug rings, and wound for operation on A.C. supplies at 'Mains Voltage'.

The magnetic solenoid is in circuit the whole time that the picture is on the screen, change-over is effected by a switch which breaks the magnetic solenoid circuit of the outgoing machine, allowing its shutter to fall and simultaneously energises the solenoid of the incoming machine, the shutter of which opens because its actuating lever is being pulled both by centrifugal and magnetic force.

General

Water and/or air cooled Gates are available, and may be necessary where modern high - output Arc Lamps are employed. The Lower Right Hand Frame Extension on models now in production will accommodate water/air cooling attachments and permit the fitting of an Anamorphic Bracket where wide-screen systems are required.

The construction of the Top and Bottom Sprocket assemblies is such that they may be

removed as units. The Intermittent Unit and the Oil Pump are similarly self-contained, the Shutter Shaft, carried in bearings on the frame, can also be withdrawn as a complete assembly. The remainder of the Gear Train, including the Intermittent Unit housing, is removable in two complete sub-assemblies, the Top Gear-yoke and the Intermittent Gear-Yoke.

DISMANTLING THE PROJECTOR FOR INSPECTION OR REPLACEMENT PURPOSES

In the following instructions each section is numbered to correspond to the Plate number of the appropriate illustration in the spare parts list.

4. Shutter Case GK20 and 21.

Remove the shutter covers, secured by six hexagon head screws (*Part No. 21761-2 off and 21762-4 off*). Remove the shutter as detailed in Section 10 (GK21), or 10b (GK20) Disconnect and remove the combined change-over and safety shutter linkage as detailed in Section 9. Remove the light cone from the shutter case (*secured by*

four 2 BA screws Part No. 0961A). The two socket screws (*Part No. 0010A*) securing the shutter case to the Projector frame should be unscrewed with the Allen key supplied. The shutter case can now be removed from the Projector frame.

4a. Shutter Case GK19.

Remove the shutter as detailed in section 10b. Disconnect and remove the safety shutter linkage as detailed in Section 9a. Detach the light-cone from the shutter case (*secured by four 2 BA screws*

Part No. 0961A). The shutter case can now be removed as detailed in the last paragraph of Section 4.

7. Gate Bracket Assembly.

Remove the lens from its holder, then open the gate, and remove gate assembly (*Part No. 21688*) see Plate 6, by sliding it upwards until clear of its locating pins. N.B. When sliding this up, take care not to catch the intermittent sprocket with the bottom gate shoe, as any damage to sprocket or shoe may damage the film during projection. Remove the intermittent sprocket (*See Sheet*

GK21P/10a). Release safety shutter arm (*Part No. 01012A*) from shutter crank (*Part No. 21114*). see Plate 9. Remove the two screws 01023A which secure the complete gate bracket to the front of the Projector frame, and withdraw the bracket from the locating dowels, taking care that the shutter arm is clear of the safety shutter.

8. Top Sprocket Unit and Gearing.

Remove the rear cover, see Sheet GK21P/10a. With the Allen key supplied, release set screw (Part No. 0044A) holding the top sprocket gear (Part No. 21085), to the top sprocket spindle, and withdraw this gear. Release the four screws (Part No. 0914A) securing the unit to the front

face of the projector frame, and withdraw the unit.
NOTE:- Take care not to damage the oil-seal between the Projector and the unit when removing the unit. If this seal is damaged, a new one must be fitted on reassembly.

8a. Top Gear Yoke.

Remove the rear cover, see Sheet GK21P/10a. Remove intermittent unit as detailed on Sheet GK21P/10a. Remove shutter shaft etc. as in Section 10 and 10a for GK21, or Section 10b for GK19 and GK20. Remove top sprocket gear as in Section 8. Remove oil pipe clip, slacken hexagon screw which retains oil pipe collar below the oil

filter (TOP), and swing the oil pipe clear. Remove the gate bracket assembly as in Section 7, to expose the top locating plug 21344. Remove the three screws 01030A securing the top locating plug. Remove screw 0914A clamping yoke assembly 21751 to the projector frame.

9 and 9a. Light Cone.

Remove shutter covers by unscrewing the six hexagon head screws. Remove gate bracket assembly as in Section 7. Remove the intermittent sprocket stripper 21107 which is secured to the underside of the light cone by a hexagon headed screw, and located on dowel 21108, set into the light cone casting. Remove the nut from the

governor spindle crank 21116, which holds this crank to the shaft passing through the Projector frame casting. Remove the screw 01012A securing the shutter arm crank 21114. Remove the four screws 0961A, situated in the shutter case around the aperture to the light cone. The light cone may now be withdrawn.

9. Change-over Linkage. GK20 and GK21.

Withdraw the four screws 0008A which hold the Sheet steel cover 21029 to the shutter casing, remove the cover. Release screw 0008A holding fulcrum pin 21109 to the rocker arm lug on the top of the solenoid housing. Release screw 0008A holding cross pin 21028 to the top of solenoid plunger, where this plunger passes through the rocker arm. Unscrew the adjusting screw 21105 from the shutter casing, and from

locknut 21106, and remove the adjusting screw, locknut and spring 21118. Remove rocker arm cover (GK21 Part No. 21787, GK20 Part No. 21685). Release locknut 0056A, on push rod 21097, and unscrew push rod end fitting 21098. Remove screw 01012A securing the shutter crank 21114, and withdraw the shutter arm 21113 and crank.

9a. Safety Shutter Linkage. GK19.

Remove split pin 0014A and fulcrum pin 19137 from cover 21029 on the inside of the shutter case. Release the four screws 0008A and the

spring washers 0887A, remove cover 21029. Remove screw 01012A, securing shutter crank 21114, and withdraw the assembly.

10. Shutter Shaft and Bearing GK21.

Remove the rear cover as described on Sheet GK21P/10a. Remove the shutter covers by unscrewing the six hexagon head screws. Remove the intermittent unit, see Sheet GK21P/10a. Remove the shutter and boss assembly (*Part No. 21365*), removing the two locknuts (*Part No. 0177A*), the special washer (*Part No. 21755*) and the oil seals (*Part No. 21756 and 21757*), from

the double-speed shaft (*Part No. 21367*). Remove the shutter gear and double-speed spindle (*Part No. 21367*) from the projector frame casting, taking great care not to foul the governor shaft gear. Release the four screws (*Part No. 0072A*) and withdraw the shutter spindle bearing (*Part No. 21362*).

10a. Governor Shaft. GK21.

Remove rear cover, see Sheet GK21P/10a. Remove shutter and spindle as in Section 10. Unscrew six screws (*Part No. 01032A*), which hold the cover plates (*Part No. 21361 and 21759*) to the shutter shaft rear bearing (*Part No. 21360*). These cover plates are sealed together, with an oil seal between them, and they should not be separated in case the oil seal is damaged. Remove the end screw (*Part No. 21310, LEFT HAND THREAD*), from the rear end of the shutter shaft. Remove gate bracket assembly as in Section 7. Remove the small nut (*Part No. 0056A*) see Plate 9 and ease the crank (*Part No. 21116*) from the spindle passing through the frame casting, so that the governor spindle roller (*Part No. 21687*), clears the governor sleeve (*Part No. 21300*). Bend out the oil pipe from the oil thrower (*Part No. 21343*), on the

centre gear of the top yoke (*Plate 8a*). Remove the end screw (*Part No. 21346*) from the centre of this gear and oil thrower assembly (*LEFT HAND THREAD*), and remove the gear and oil thrower assembly (*Part No. 21343*). Remove the two screws (*Part No. 0961A*) securing strap and key assembly. After withdrawing the strap and key assembly, withdraw gear (*Part No. 21782*). (*This is the gear which drives the worm on the governor shaft*) See Plate 12a. Withdraw the four screws (*Part No. 01017A*) securing the cover plate (*Part No. 21298*) to the governor shaft front bearing, and then withdraw the four screws (*Part No. 0961A*) securing this bearing (*Part No. 21297*), and remove the bearing, taking care that the oil seal (*Part No. 21303*) is not damaged. Withdraw the governor shaft, by sliding it clear of the rear bearing.

10b. Shutter Shaft GK19 and GK20.

Remove rear cover, see Sheet GK21P/10a. Remove intermittent unit, see Sheet GK21P/10a. Remove shutter covers (Part No. 21001 and 21003), by unscrewing the six hexagon head screws. Remove screw (Part No. 21780) and sealing washer (Part No. 21329) which secure the shutter (Part No. 20001), and the shutter hub (Part No. 20002) to the end of the shutter shaft, and withdraw shutter and hub as a unit. Remove gear from the top gear yoke as in Section 8a. Remove the two screws (Part No. 0961A) securing the strap and key assembly (Part No. 21745), remove the two washers (Part No. 21399), and withdraw the strap and key assembly. After withdrawing the strap

and key assembly, withdraw gear (Part No. 21782). (*This is the gear which drives the worm on the shutter shaft*). Remove the four screws (Part No. 01017A) securing the cover plate (Part No. 21298) to the shutter shaft front bearing, and then withdraw the four screws (Part No. 0961A) securing this bearing (Part No. 21297) and remove the bearing, taking care that the oil seal (Part No. 21304) is not damaged. Remove the governor shaft rear bearing (Part No. 20004), and sealing plate (Part No. 20006), taking special care not to damage the thin paper oil seal (Part No. 20005). Withdraw the shutter shaft.

12a. Intermittent Gear Yoke.

Remove rear cover, see Sheet GK21P/10a. Drain Projector oil sump as in 'Changing Oil' Sheet GK21P/9a. Remove shutter etc. as in Section 10 and 10a for GK21, or Section 10b for GK19 or 20. Remove light cone and shutter linkage as in Section 9 (GK20 and 21), or Section 9a (GK19). Remove top gear yoke as in Section 8a. Remove bottom sprocket unit as in Section 13. Remove the plug (Part No. 21344) locating the intermittent gear yoke. Remove the four screws (Part No.

01022A), and remove the oil deflector (Part No. 21398), exposing the two screws (Part No. 0023A) retaining the complete assembly to the Projector frame. Remove these two screws (Part No. 0023A), and the third retaining screw (Part No. 0914A). Rotate the gear yoke in a clockwise direction until the bottom compound gear post (Part No. 21778) clears the flange of the Projector frame. Withdraw the intermittent gear yoke assembly.

11. Masking Knob Assembly.

Remove the large end screw (Part No. 21214) holding the masking knob (Part No. 21210) to the masking sleeve assembly. With the Allen key supplied, release the two set screws (Part No. 0044A). Holding the clutch shell (Part No. 21216) to the masking sleeve (Part No. 21220). Withdraw knob and clutch sleeve from spindle, taking care not to lose rollers and springs from within clutch sleeve. Withdraw the four screws (Part No.

0914A) securing the complete assembly, taking care not to damage the oil seal (Part No. 21211). NOTE:- The masking sleeve (Part No. 21220) is eccentric to permit fine adjustment to the meshing of the worm. The flange of the sleeve is drilled with additional staggered holes to permit setting the worm within close limits, and this should be set to give the closest meshing which allows free movement.

13. Bottom Sprocket Unit and Gearing.

Drain the Projector sump as in 'Changing Oil' Sheet GK21P/9a. Release the hexagon head screw and locking washer and remove adaptor gear. Release the hexagon head screw and locking washer retaining the main drive gear on the sprocket shaft.

Remove the main drive gear and Woodruff key. Remove the screws securing the bottom sprocket unit to the front face of the Projector frame. *(These screws include the two retaining the handle bracket)* Withdraw the complete unit from the Projector.

NOTE I:- Take care not to damage the oil-seal between the Projector and the unit during removal. If this seal is damaged, a new one must be fitted on reassembly.

NOTE II:- When replacing the unit, take care not to damage the gears when meshing into the gear-train.

15. Oil Feed Pipe Assembly.

Remove top oil filter, see Sheet GK21P/9a. Remove rear cover, see Sheet GK21P/10a. Remove top sprocket gear (Part No. 21085) by unscrewing set-screw as Section 8a. Release coupling nut (Part No. 21320) for main oil-feed pipe, and spring away from union. Unscrew hexagonal shoulder above the coupling nut, and

withdraw oil sight pipe (Part No. 21325). Remove the rear bearing oil feed pipe (Part No. 21326 for GK21, 20500 for GK20 and 19). Remove the two screws (Part No. 01029A) securing the reservoir (Part No. 21322) to the Projector main frame.

16. Lens Holder Assembly.

Release nut (Part No. 21050) clamping the lens holder to top frame extension (Part No. 21966), and then withdraw the complete lens holder.

NOTE:- When replacing the lens holder, take care to locate the dowel pin in its mating hole in the top frame extension.

REASSEMBLY

Reassembly of the Projector is carried out as a reverse process to dismantling, and when reassembling, reference should be made to the appropriate instructions.

MAINTENANCE

To maintain the high standard of Picture reproduction for which the GK19, 20. and 21 Equipment is designed it is essential that care and attention

is given to cleaning and lubrication. The following notes are intended as a guide to the projectionist to establish a routine in this respect.

Cleaning

CLEAN THE PROJECTOR DAILY. Sprockets should be cleaned with a small brush, great care being taken not to damage the teeth. The intermittent sprocket must be cleaned with the gate removed. Remove the gate by lifting the gate opening lever, then slide the gate upwards out of the retaining slots.

Clean the pressure skates and the face of the

gate frame to ensure that no grease, dust, or dirt from the film is present which can either scratch or mark the film to be run. Make sure that no emulsion deposit is present.

Clean the face of the gate bracket. Remove the mask plate as under "Changing mask plates" (Sheet GK21/9b) clean, and replace.

LUBRICATION

Daily Routine

Check the oil level in the projector sump to see that the oil reaches the correct sight line on the oil sight window. This window has several lines engraved on it, indicating the correct oil level at varying angles. The line to be used is that nearest to the horizontal. (See Plate 13) If the oil level is too low remove the filler plug in the top of the Projector frame and add "GAUMONT-KALEE SUPEROIL" until the level reaches the correct line. The oil should be added slowly through the fine mesh filter below the plug.

Clean and oil all roller spindles as follows:-

TOP ROLLER BRACKET:- Turn the bracket away from the sprocket, and unscrew the small knurled knob from the end of the roller spindle. Remove the roller, clean and oil the spindle, reassemble and wipe off any excess oil.

BOTTOM ROLLER BRACKET:- Turn the bracket away from the sprocket, and unscrew the three knurled knobs (LEFT HAND THREADS) from the ends of the roller spindles. Remove rollers, clean and oil the spindles, reassemble and wipe off any excess oil. Oil the bottom sprocket spindle through the oiling hole in the Handle Bracket.

Always remember that over oiling can cause trouble. A little oil daily will ensure that the Equipment is maintained in first class order for a long time. Surplus oil, due to over oiling will collect dust and cause excessive wear on bearing surfaces.

NOTES ON OPERATION

Having carried out the daily cleaning and lubrication routine, the film should be threaded through the projector as follows:-

To ensure that the film is correctly positioned in the projection aperture, set the masking knob with the arrow vertical and in the centre of its travel, then check that the intermittent sprocket is in the locked position.

Open the gate by moving the white enamelled lever anti-clockwise, the gate will remain open until closed again by the lever. Open all sprocket roller brackets.

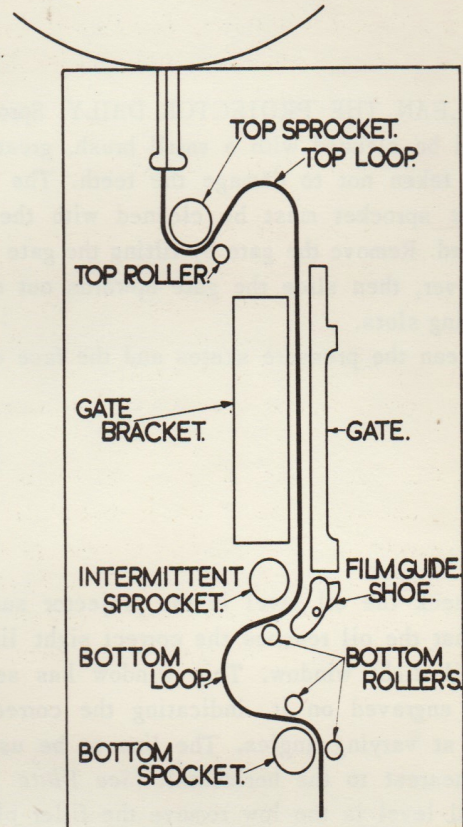
Pull down 30in. (76cm) of the film from the top spool-box, and thread through the top fire-trap. Lead the film round the left hand side of the top sprocket and up over the sprocket roller, close the sprocket roller bracket. Thread the film through the gate, leaving a 5 frame loop between the gate and the top sprocket. Pass the film round the right-hand side of the intermittent sprocket, ensuring that the sprocket teeth engage in the sprocket holes in the film, and close the gate. Thread the film over the top of the bottom sprocket and under the rollers, leaving a 5 frame loop between the intermittent and bottom sprockets, then close the bottom sprocket roller bracket.

Switch on the threading lamps and check that the film is framed centrally in the upper aperture in the mask plate.

Do not attempt to adjust the framing by means of the masking knob. This should be used only when the projector is running. Do not "inch" the film down by switching the motor on and off. If it is necessary to move the film down one or two frames, use the inching knob on the Projector motor.

NOTE:- The Projector door cannot be closed while the gate is open.

THREADING DIAGRAM FOR PROJECTOR.



PERIODIC MAINTENANCE

Changing oil

It is important that all oil should be regularly drained out and the projector refilled with clean "GAUMONT-KALEE" SUPEROIL. It is recommended that the oil should be changed every 36 hours of running for the first 300 hours running and thereafter every 100 hours. To drain the projector take a container which will hold $\frac{1}{2}$ pint (0.3 litre

approx.) and hold it under the oil drain extension tube at the bottom of the projector frame. Unscrew the knurled cap on the oil drain extension tube and allow all oil to drain into the container. Replace the cap ensuring that the oil sealing washer is replace.

IMPORTANT: CLEAN THE OIL FILTERS BEFORE REFILLING THE PROJECTOR.

Three oil filters are provided, gauze filters in both filler cap and oil pump, and a magnetic filter in the filler cap. The purpose of the magnetic filter is to collect any small particles of metal which may inadvertently be carried into the lubrication system. These filters should be cleaned as follows:-

TOP FILTER:- Situated below the flange of the plug in the top of the Projector frame (*See Plate 15*). Remove the flange and filter from the Projector frame (3 screws Part No. 01018A). Detach the the two magnets which are retained by two screws (Part No. 0010B) in the base of the filter. Clean

the gauze filter in paraffin or some other grease solvent and remove all particles of metal adhering to the two magnets. Re-assemble and replace in the top of the Projector frame taking care not to damage the oil-seal (Part No. 21324).

PUMP FILTER:- Situated in the oil pump at the bottom of the Projector frame, close to the main drive gear, the filter is attached to the large slotted head screw in the pump, (*See Plate 14*). Undo this screw with a coin or screwdriver, withdraw the filter and clean carefully, replace in the oil pump taking care not to damage the oil seal (Part No. 21774).

NOTE:- USE ONLY "GAUMONT-KALEE" SUPEROIL IN THIS PROJECTOR.

FILLING THE PROJECTOR:- For the first time, or when changing the oil. Before filling, ensure that the projector is set at the correct projection angle, this is necessary since the choice of sight line on the oil window depends on the angle of the projector. Before filling, adjust the masking knob so as to position the mesh-covered inlet of the intermittent unit immediately under the oil thrower on the top intermediate gear (*This fills the intermittent unit*). This may be ascertained by viewing

through the window in the rear cover. To fill, remove the knurled filler cap from the top of the Projector frame and pour in "GAUMONT-KALEE" SUPEROIL until the level of the oil in the sump reaches the "HORIZONTAL" white line on the oil sight window situated on the bottom sprocket bracket. The projector must be filled slowly, as the oil has to pass through the top oil filter immediately beneath filler cap.

WARNING:- On no account must the oil level be allowed to rise above the horizontal line. When the sump is filled (it will take just a little less than $\frac{1}{2}$ pint or 0.3 litre, replace the filler cap.

Adjusting roller brackets

Each roller bracket pivots about a spindle, towards or away from the sprocket, and is positively locked in either position by a spring. An adjustable screw in the roller bracket seats against a stop in the closed position, and controls the clearance between the roller and sprocket. This clearance is set before the projector is dispatched

from the works but wear or replacement of parts may make it necessary to re-set the clearance. To re-set, rotate the adjusting screw until the space between the roller and the sprocket (*with the roller bracket in the closed position*) is equal to two thicknesses of the film. Tighten the locknut to secure the adjusting screw in this position.

Adjusting the film guide shoe

The film guide shoe is pivoted at the bottom of the gate assembly, so that it fits close to the intermittent sprocket when the gate is closed. Its position can be adjusted by a small knurled head adjusting screw which is situated at the base of

the gate frame assembly.

Like the sprocket rollers, the clearance between the shoe and the intermittent sprocket should be two thicknesses of the film when the gate is closed.

Adjustment of pressure skates

The tension on the Pressure skates in the gate can be adjusted by turning the Knob engraved 1 to 5, on the side of the Gate Assembly. The normal adjustment for this knob No. 3.

Changing Mask Plates

The Mask Plates of these Projectors can be changed for a different Picture ratio. To remove a Mask Plate, first unscrew the spindle of the Roller mounted on the top of the Gate Bracket Assembly, by turning the knurled end of the spindle. The Mask Plate can then be lifted out of the grooves in which it is located. When replacing Mask Plates they should be inserted with the insert aperture plate at the bottom and facing the arc lamp. (See Fig. 1.)

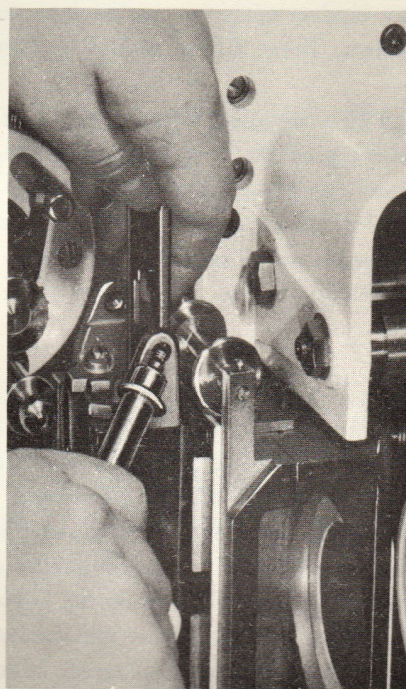


FIGURE 1.

Replacing top sprocket

Open the sprocket roller bracket, and remove the stripper blade (Part No. 21909) secured by a 2BA Filister head screw (Part No. 0109A). With a $\frac{1}{4}$ in. Allen key slacken off the screw securing the

sprocket to the shaft, then withdraw the sprocket.

When replacing, push the sprocket hard up to the shoulder on the shaft before tightening the screw. Replace the stripper.

Replacing bottom sprocket

Open the sprocket roller bracket. Drive out the taper driving pin (*Part No. 21240*), first supporting the end of the shaft. Remove the stripper blade (*Part No. 21249*) secured to the handle bracket by a hexagon head screw (*Part No. 01025A*). Remove the handle bracket (*Part No. 21248*), secured by two 2 BA Filister head screws (*Part No. 01026A*).

With the Allen key supplied, slacken the screw securing the sprocket to the shaft, then withdraw the sprocket.

When replacing, push the sprocket up to the shoulder on the shaft before tightening the set screw. Replace the handle bracket, stripper and driving pin.

Replacing intermittent sprocket

Open the gate, by lifting the gate operating lever upwards. Remove the gate frame by sliding it upwards in its locating grooves until free.

WARNING:- When removing the gate frame, take great care that the bottom of the gate or the shoe does not catch the intermittent sprocket.

Remove the screw securing the intermittent sprocket stripper (*fitted to the underside of the*

light cone) and remove the stripper. Remove the end screw and washer, and the key washer securing the intermittent sprocket to the spindle. (*See Plate 12*). Remove the sprocket.

IMPORTANT:- When releasing the end screw, take great care to avoid straining the spindle.

Reassembly

The spindle and shoulder, and the sprocket, should be carefully cleaned before reassembly. The sprocket should be pushed hard up to the shoulder, with the slots in the sprocket in line with those on the end of the spindle.

Replace the key washer, making sure that the

key locates in the slots in the sprocket and spindle. Replace the washer and the end screw. Tighten the end screw, taking special care not to strain the spindle. Take great care not to damage sprocket teeth. Replace the stripper in its original position. Replace and close gate.

Replacing intermittent unit

Remove the intermittent sprocket. Remove the ten fixing screws securing the rear cover, place them in a safe place. To break the oil seal, remove the plug screw (*Part No. 01018A*) from the top centre hole in the cover, then screw one of the fixing

screws into the blank hole and force the cover away from the projector frame casting. Unscrew the special nut securing the intermittent unit to the racking quadrant, and very carefully withdraw the intermittent unit from the projector frame.

WARNING:- The complete intermittent unit is precision engineered, to limits of 0.0002in. (0.005mm), and requires special tools and skill in servicing. On no account should any further dismantling be carried out by the projectionist.

Reassembling and timing the Intermittent Unit.

Timing lines are marked on:-

- (a) Masking knob (*Arrow*)
- (b) Shutter casing (*Engraved line*)
- (c) Shutter blade (*Engraved line GK21*)
(*White dot GK19 and 20*)
- (d) Intermittent unit flywheel.

Removal of the intermittent unit necessitates re-timing and this should be carried out as follows:-

1. Set the masking knob in the central position of the masking movement.
2. Rotate the projector mechanism to bring the mark on the shutter blade in line with, and adjacent to the line engraved on the shutter case. This alignment may be checked by opening the dowser and looking into the shutter case from the non-operating side of the arc lamp.
3. Set the line on the intermittent unit flywheel at an angle slightly to the left of the position shown in Fig. 2 then holding the unit by the housing only, carefully insert the unit into the projector. This will enable the gear on the flywheel shaft to rotate into mesh and should bring the line on the flywheel to the correct timing position illustrated. When all the foregoing timing marks line up the nut securing the intermittent unit to the racking quadrant must be re-fitted and tightened.
4. Replace the intermittent sprocket.

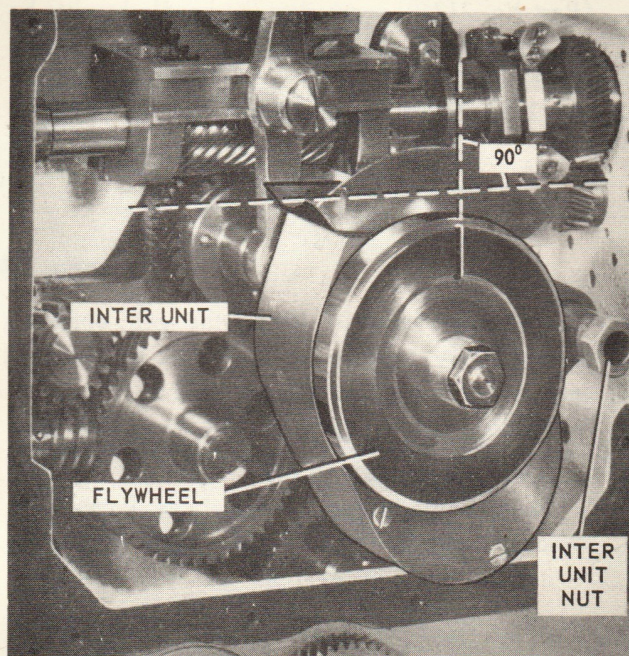


FIGURE 2.

5. Carefully refit the rear cover, using a new oil seal if the old one is torn, and attaching the oil seal to the rear cover and to the frame casting by the use of sealing compound, available from GAUMONT-KALEE in 4oz. tins (*Part No. 21870*) Only a thin covering should be used.

Timing the shutter

1. Set the masking knob in the central position of the masking movement.
2. Rotate the projector mechanism until the line in the intermittent unit is in the position shown in Fig. 2.
3. Release the screws clamping the shutter boss (*See Plates 10 and 10b*) then rotate the SHUTTER BLADE until the shutter timing marks coincide. Tighten the clamp screws.

Eliminating ghost

Only in cases where lining up the shutter and intermittent unit is inadequate, and where some "ghost" is evident, should the following process be carried out.

To eliminate "ghost" on the screen. Release the screws clamping the shutter boss, and rotate the shutter as follows:-

GK21 with high-speed shutter.

TOP 'GHOST' ON SCREEN:- ANTI-CLOCKWISE
BOTTOM 'GHOST' ON SCREEN:- CLOCKWISE

GK19 and 20 single-speed shutter

TOP 'GHOST' ON SCREEN:- CLOCKWISE
BOTTOM 'GHOST' ON SCREEN:- ANTI-CLOCKWISE

Take care to tighten the screws clamping the shutter before running the projector.

NOTE: The shutter on any projector mechanism is correctly timed before that mechanism leaves the works.

Removing the oil pump

Remove the motor and flywheel cover.

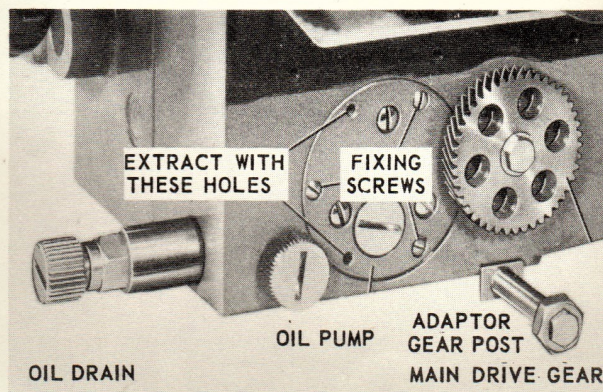
Place a suitable container (*clean if the oil is to be used again*) under the oil drain extension tube projecting from the projector frame on the non-operating side. Remove the knurled cap from the extension and allow the oil to drain into the container. Remove the rear cover, as described.

Remove the adaptor gear by releasing the the hexagon head screw and locking washer retaining the main drive gear on the sprocket shaft. Remove the main drive gear and Woodruff key.

Remove the three outer screws from the face of the oil-pump flange.

Insert three of the screws which normally secure the rear cover in the three blank holes in the flange of the pump, (See Fig. 3) Screw these half a turn at a time for each against the projector casting, to extract the pump from its seating. NOTE:- The oil feed pipe is a push fit into the rear of the pump and requires easing out by finger pressure as the pump is being extracted. Leave the oil pipe in position in the projector.

FIGURE 3



Refitting the pump

Remove the rear cover screws which were used to extract the pump. Remove the old oil sealing washer. Carefully clean the pump and its seating. Coat a new seal with Hermetite sealing compound, provided by Gaumont-Kalee in 4oz. tins (Part No. 21872) Replace the oil feed pipe. Carefully replace the pump in its seating, and secure it with the

three fixing screws.

Replace the main drive gear.

Replace the rear cover of the projector.

Replace the motor and flywheel covers.

Refill the projector with Gaumont-Kalee 'Super-oil'.

SPARE PARTS LIST

When ordering Spare Parts from this List, always give as much information as possible. In addition to the number of the part to be replaced, quote its name, with the type and serial numbers of the unit in which it is fitted.

IMPORTANT: The Part Number must always be quoted.

Bei der Bestellung von Ersatzteilen sollte eine eingehende Beschreibung beigelegt werden. Ausser der Nummer des Teils, das ersetzt werden soll, sollte seine Benennung sowie die Typen- und Seriennummern des Gerätes angegeben werden, in den das Teil eingebaut werden soll.

WICHTIG: Die Listenbezeichnung des Teils muss auf jeden fall angegeben werden.

Quand vous commandez des pièces a l'aide de cette liste veuillez donner le plus d'information possible. En plus du numéro de la pièce, veuillez indiquer son nom ainsi que le type et numéro de la machine à laquelle elle est destinée.

IMPORTANT: Le numéro de la pièce doit toujours être donné.

Cuando se hace un pedido de piezas de recambio se debe hacer lo mas detallado posible. Aparte del número de la parte que se reemplaza, indicar su nombre, con los números de tipo y serie de la sección donde van ajustados.

IMPORTANTE: El número de la parte siempre debe indicarse.

Bij bestelling van onderdelen van deze lijst verzoeken wij U altijd zoveel mogelijk bijzonderheden te verstrekken. Afgezien van het nummer van het te vervangen onderdeel verzoeken wij U de naam ervan op te geven alsmede het type en de serie nummers van de machines, waarin e.e.a. gemonteerd moet worden.

BELANGRIJK: Het nummer van het onderdeel moet altijd opgegeven worden.

Per ordinare pezzi di ricambio da questo elenco, date sempre i più dettagli possibile. Oltre il numero del pezzo che deve essere cambiato, date anche il nome, il modello ed il numero di serie del unita nella quale e montato.

AVVISO IMPORTANTE: Il numero del pezzo di ricambio deve essere sempre quotato.

Quando se fizer uma encomenda de peças sobressalentes desta lista, dar sempre todos os detalhes possíveis. Além do número da peça a substituir, indicar o seu nom, bem como tipo e número da máquina onde a mesma deve ser ajustada.

IMPORTANTE: O número da peça sempre deve indicar-se.

KEYPLATE

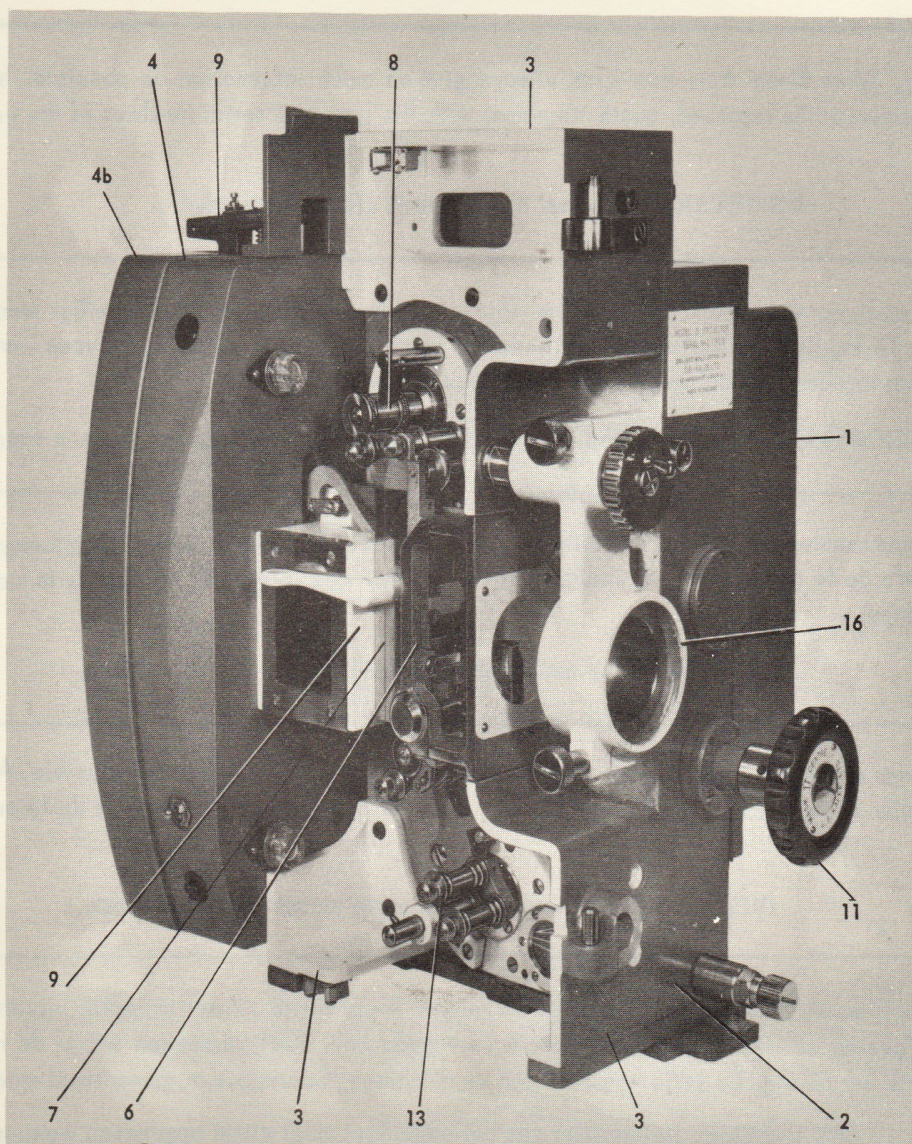
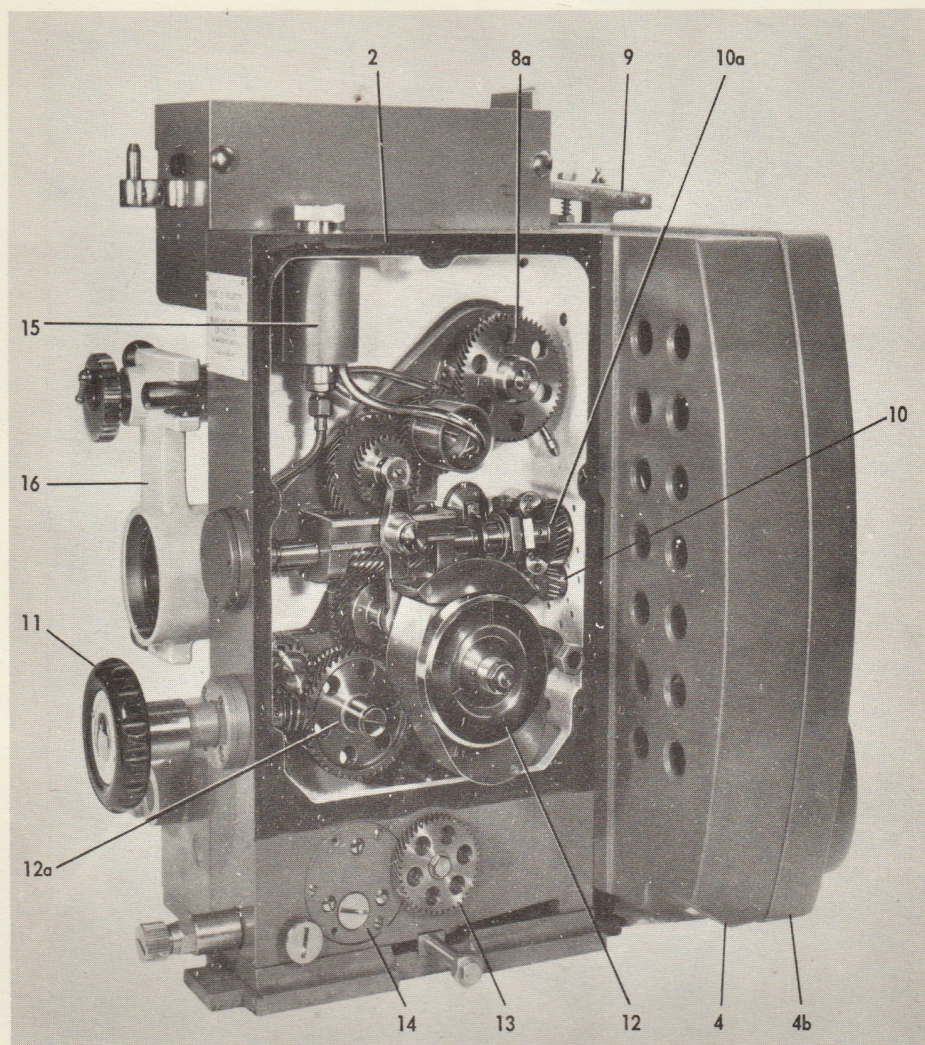


Plate	Description	Sheet No.
1	Rear cover assembly	GK21P/15a
2	Projector main frame	GK21P/15b
3	Frame extensions	GK21P/15b
4	Shutter case assembly	GK21P/16b
4b	Cone and shutter covers	GK21P/18b
5	Projector door assembly	GK21P/19a
6	Adjustable tension gate assembly	GK21P/19b
7	Gate bracket assembly	GK21P/20b and 21a
7a	Gate bracket assembly Water/Air cooled	GK21P/20b and 21b
8	Top sprocket unit assembly	GK21P/22b
8a	Top gear yoke assembly	GK21P/23b
9	Light cone and safety shutter linkage GK21	GK21P/24b

GK21 PROJECTOR



Plate

10
10a
11
12
12a
13
14
15
16
16a
17

Description

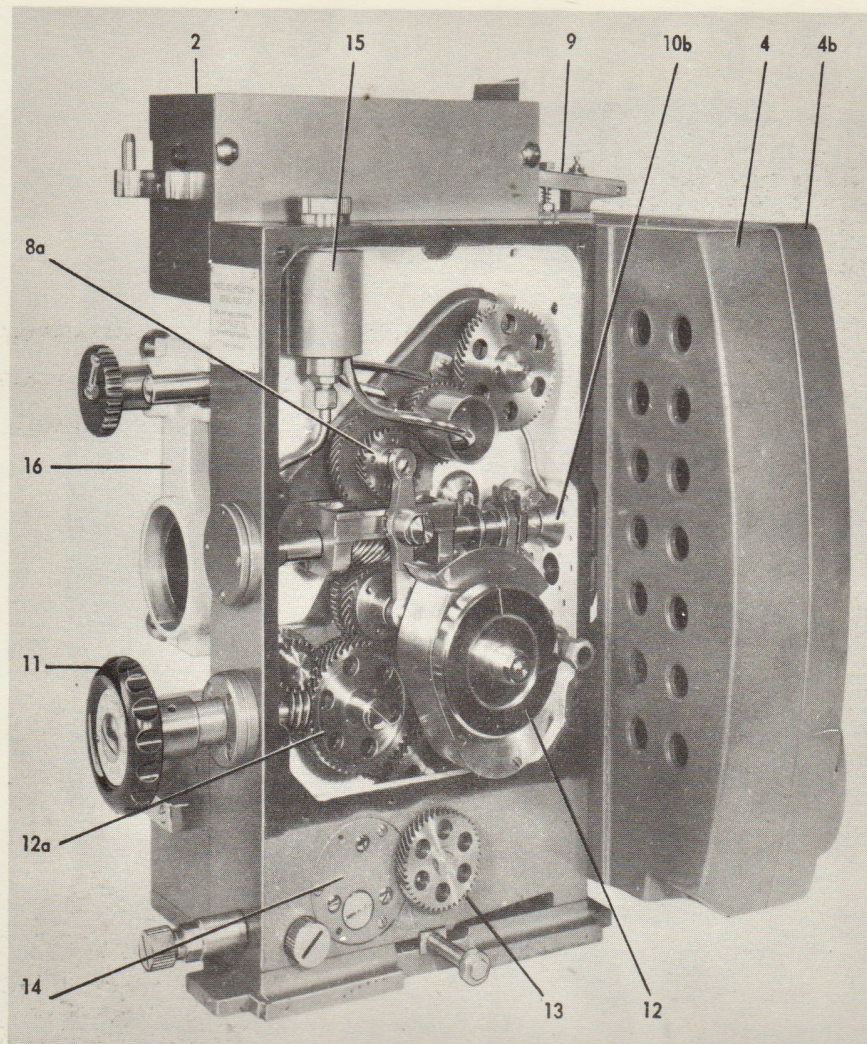
High speed shutter shaft; Governor rear bearing GK21
Governor shaft; Strap and key; front bearing GK21
Masking sleeve assembly
Intermittent unit assembly
Intermittent gear yoke
Bottom sprocket unit assembly (showing main drive gear)
Oil pump assembly
Oil filter and feed pipes
Lens holder assembly
Alternative Lens-holders
Mask plates, and Aperture insert plates

Sheet No.

GK21P/26b
GK21P/27b
GK21P/29b
GK21P/30a
GK21P/30b
GK21P/31b
GK21P/32b
GK21P/33a
GK21P/33b
GK21P/34a
GK21P/34b

See Sheet GK21P/14b for index to Spoolboxes; Anamorphic adaptations etc.

KEYPLATE



Plate

Description

Sheet No.

1	Rear cover assembly	GK21P/15a
2	Projector main frame	GK21P/15b
3	Frame extensions	GK21P/15b
4	Shutter case assembly GK20	GK21P/16b
4a	Shutter case assembly GK19	GK21P/17b
4b	Cone and shutter covers	GK21P/18b
5	Projector door assembly	GK21P/19a
6	Adjustable tension gate assembly	GK21P/19b
7	Gate bracket assembly	GK21P/20b and 20a
7a	Gate bracket assembly Water/Air cooled	GK21P/20b and 21b
8	Top sprocket unit assembly	GK21P/22b
8a	Top gear yoke assembly	GK21P/23b

GK19 and GK20 PROJECTORS

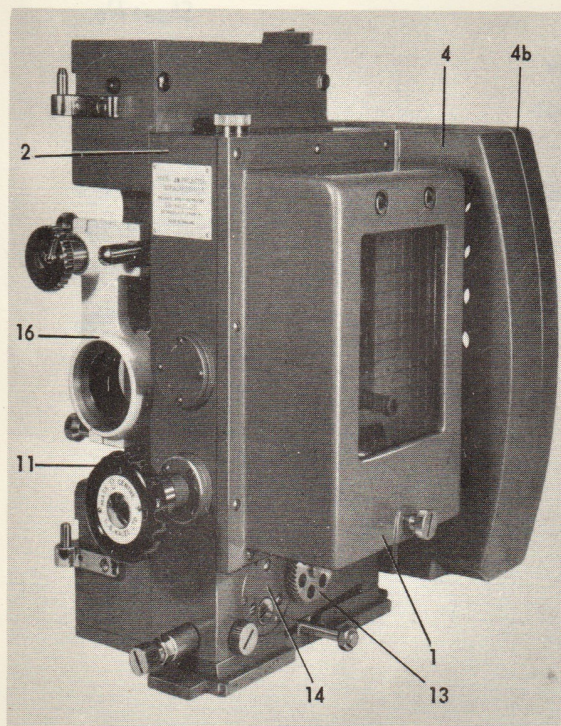
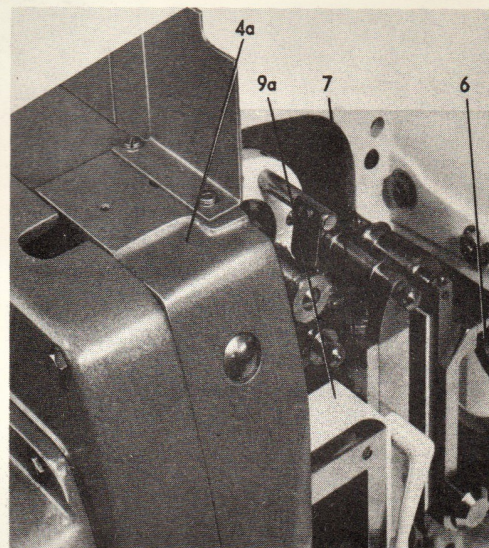


Plate	Description	Sheet No.
9	Light cone and safety shutter linkage GK20	GK21P/24b
9a	Light cone and safety shutter linkage GK19	GK21P/25b
10b	GK19 and GK20 Governor shaft Strap and key; Front and rear bearing	GK21P/28b
11	Masking sleeve assembly	GK21P/29b
12	Intermittent unit assembly	GK21P/30a

Plate	Description	Sheet No.
12a	Intermittent gear yoke assembly	GK21P/30b
13	Bottom sprocket unit assembly (showing main drive gear)	GK21P/31b
14	Oil pump assembly	GK21P/32b
15	Oil filter and feed pipes	GK21P/33a
16	Lens holder assembly	GK21P/33b
16a	Alternative lens holder	GK21P/34a
17	Mask plates and Aperture insert plates	GK21P/34b

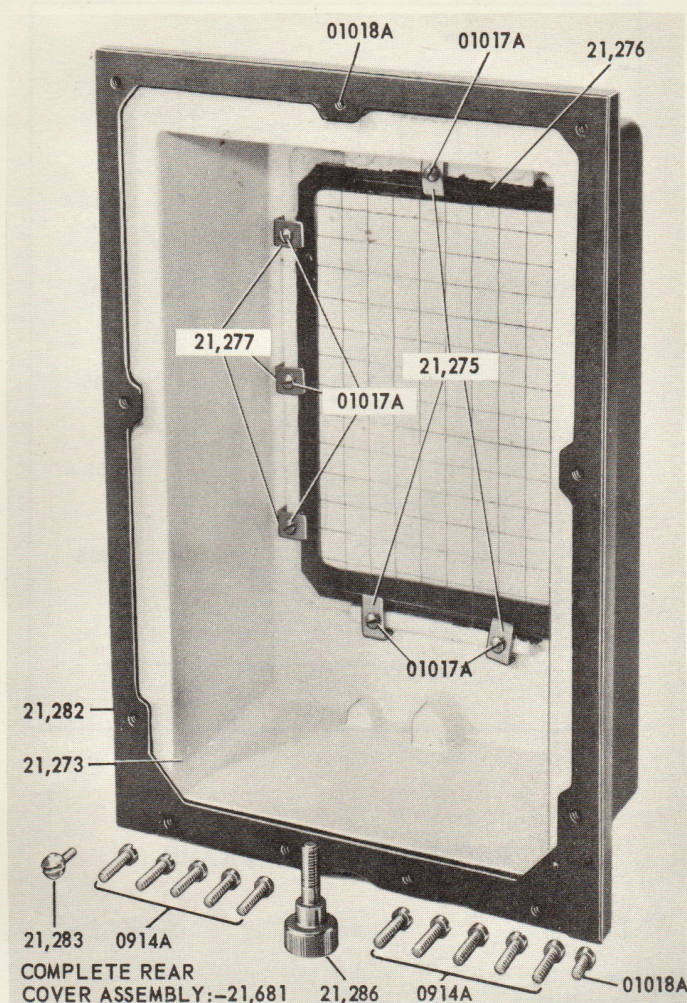


See Sheet GK21P/14b for index to:- Spoolboxes; Anamorphic adaptations; etc.

ANCILLARY EQUIPMENT AND OPTIONAL EXTRAS

<i>Plate No.</i>	<i>Description</i>	<i>Sheet No.</i>
18	Rectangular top spool-box assemblies	GK21P/35b
19	17½ in (445 mm) and (483 mm) top spool-box assemblies.	GK21P/36b
20	Top spool-box spindle and bearing assemblies	GK21P/37b
21	Cinemascope conversion kits	GK21P/38a
22	Anamorphic lens adaptation	GK21P/38b
23	Water-cooled gate conversion	GK21P/39b
24	Reel-end alarms	GK21P/40b
25	Soundhead adaptations	GK21P/41a

PLATE 1



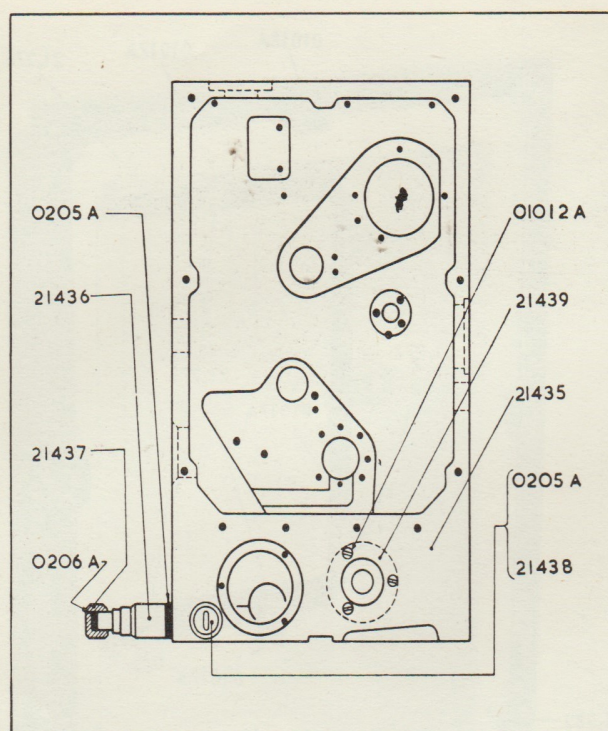
REAR COVER ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*21681	32/12181	REAR COVER ASSEMBLY	1	2BA.3/4in Filister head screw	†0914A	10
21273	01/12857	Rear cover only	1			
21274	03/12185	Oil seal for window	1			
21275	03/12184	Window clip (Long)	3	4BA.5/16in Filister head screw	01017A	3
21276	03/12183	Window glass	1			
21277	03/12182	Window clip (Short)	6	4BA.5/16in Filister head screw	01017A	6
†21282	02/9561	Oil seal for rear cover	1			
21283	03/9718	Plug screw	2			
†21286	03/9952	Clamp screw	1	for adaptor gear cover		
01018A		Filister head screw	1	2BA.3/8in Plug screw		

* Cat. No.21681 Rear cover assembly replaces the early Rear cover assembly (Perspex Window), and is interchangeable only as a complete assembly.

† These items are not supplied as part of the main assembly (Cat. No.21681) but should be ordered separately if required.

PLATE 2



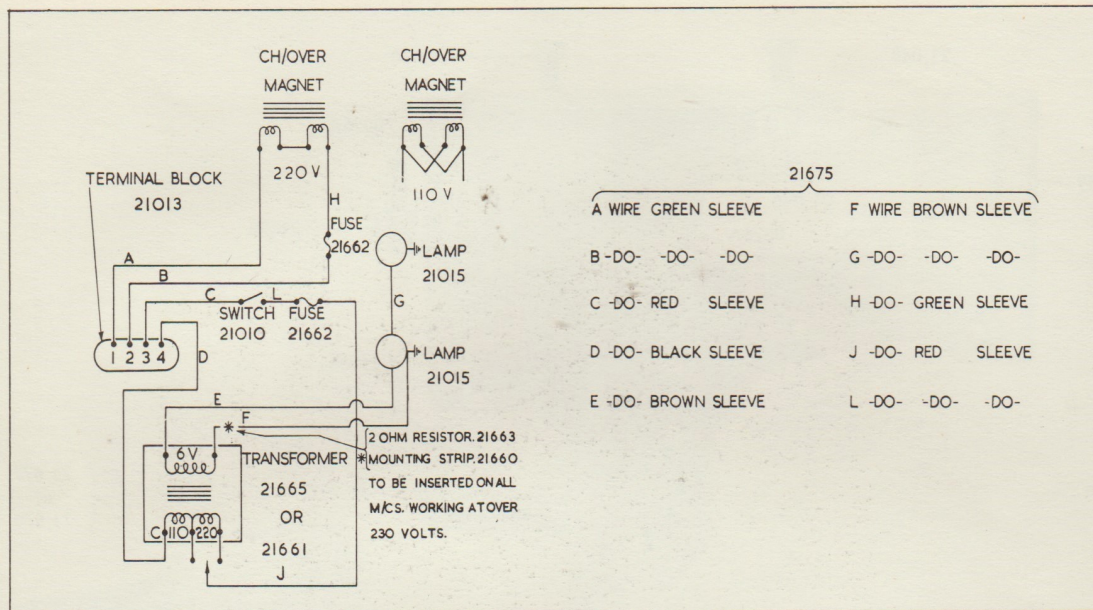
PROJECTOR MAIN FRAME

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21435	01/9367	Main frame	1			
21436	05/10234	Oil drain extension	1			
21437	05/10235	Plug cap for 21436	1			
21438	05/13185	Plug for oil drain	1			
21439	03/9391	Bottom sprocket shaft rear bearing	1	4BA. 5/8 in Filister head screw	01012A	3
21968	03/22314	Plug screw	2			
0205A	W.190	Fibre washer	2	(For 21436 and 21438)		
0206A	W.194	Fibre disc	1	(Sealing 21437)		

PLATE 3. FRAME EXTENSIONS

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21040	33/9236	Complete door catch	2	4BA. 1/4 in Cheesehead screw	0026A	4
*21966	01/15699	Top frame extension	1	1/4 in BSF. 1/2 in Allen cap screw	0024A	4
21924	03/17624	Top frame extension	1	(REAR PROJECTION ONLY)		
21046	02/9449	Bottom left hand extension	1	1/4 in BSF. 1/2 in Allen cap screw	0024A	2
21047	03/9489	Guide rod for lens arm	1	Secured by 21050		
21048	03/9692	Cover plate	1	Secured by 21049		
21049	03/10017	Screw for cover plate	2			
21050	03/10190	Domed nut for guide rod	1			
21054	03/10245	Screw securing top hinge	1	(6BA. 1/4 in Cheesehead screw)	0008A	1
21056	05/14111	Rubber buffer	1	(6BA Washer)	0031A	1
21490	03/10242	Bottom hinge pin	1			
21676	03/14562	Screw for top spool box	2			

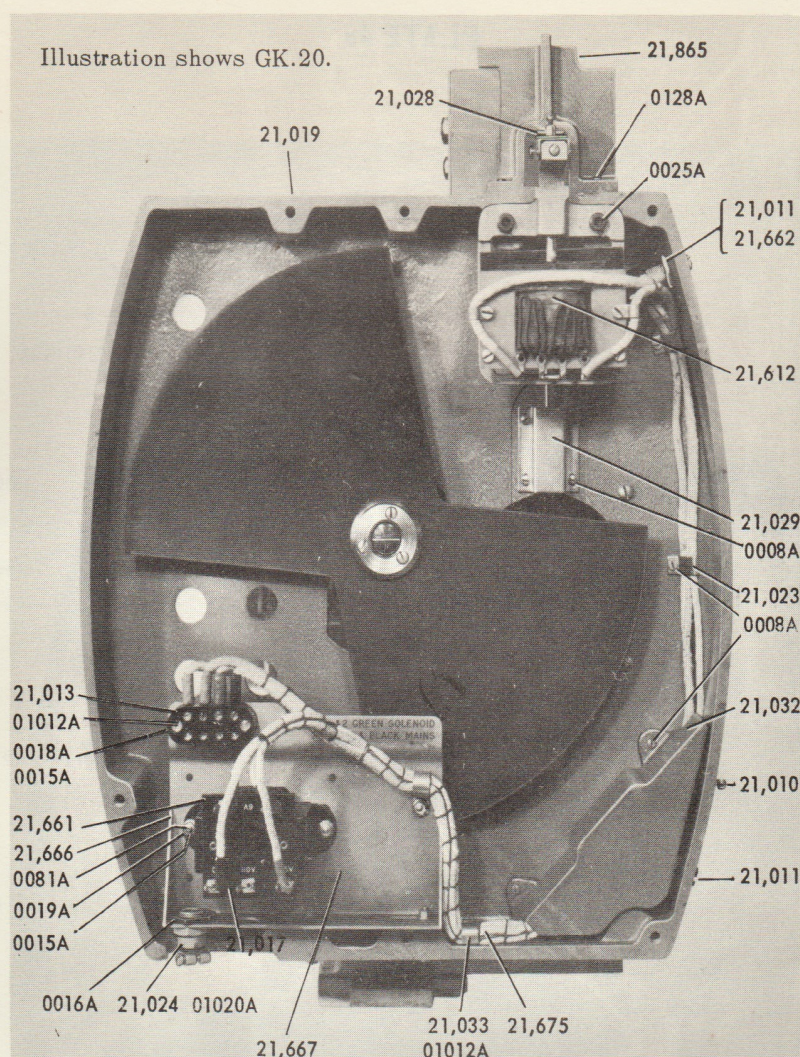
PLATE 4



SHUTTER CASE ASSEMBLY GK 20 & GK 21

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part. No.	Quantity
21010	65/343	Switch for lacing lamp	1			
21011	65/384	Fuseholder (Panel mounting)	2			
21015	65/625	Threading lamp (8 volt M.E.S.)	2			
21016	65/502	Lamp holder for threading lamp	2	6BA. 1/2in Roundhead screw	0012A	2
*21019	01/9635	Shutter case only	1	5/16in. B.S.F. 3/4in Allen cap screw	0010A	2
21023	03/10363	Wiring clip for shutter case	2	6BA. 1/4in Cheesehead screw	0008A	2
21028	03/11464	Cross pin for solenoid	1	6BA. 1/4in Cheesehead screw	0008A	1
				1/4in Washer	0020A	1
21029	03/11468	Cover for linkage push rod	1	6BA. 1/4in Cheesehead screw	0008A	4
21032	03/11973	Wiring cover	1	6BA. Shakeproof washer	0887A	4
21033	05/12893	Cable clip	1	6BA. 1/4in Cheesehead screw	0008A	2
21660	65/397	Mounting strip for resistor (21663)	1	4BA. 1/4in Filister head screw	01020A	1
21662	65/565	Cartridge fuse 5 ampere	2	6BA. 1/4in Cheesehead screw	0008A	1
21663	65/656	2 Ohm resistor	1	6BA Nut	0056A	1
				(Threading lamp series resistor for mains supplies over 230 volt)		
21673	03/15787	Moulded bezel for lamp-holder	2			
21674	03/16478	Metalshield for threading lamp	2			
21675	32/10905	Complete wiring assembly	1			
21865	03/16193	Rocker arm cover for 17 1/2in (445 mm) & 19in (483 mm) diam spoolboxes	1	2BA. 1/2in Countersunk screw	0128A	2
†21612	32/12870	CHANGEOVER SOLENOID COMPLETE	1	1/4in. B.S.F. 3/4in. Allen cap screw	0025A	2
21664	33/10933	25 c.p.s. TRANSFORMER & BRACKET ASSEMBLY COMPLETE	1	4BA. 1in. Filister head screw 4BA. Spring washer 4BA. Nut	01013A	2
21667	33/11784	50 c.p.s. TRANSFORMER & BRACKET ASSEMBLY COMPLETE			0019A	2
					0015A	2
21013	65/401	Terminal block	1	4BA. 3/8in Filister head screw 4BA. Washer 4BA. Nut	01012A 0018A 0015A	2 2 2
21024	03/10616	Gland for flexible conduit	1	4BA. 3/8in Filister head screw 3/8in. 18 T.P.I. Locknut	01012A 0016A	1 1

PLATE 4 (Cont'd)



Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21033	05/12893	Cable clip	1	4BA. 1/4in Countersunk screw	0011A	1
				4BA. Washer	0018A	1
				4BA. Nut	0015A *	1
21030	33/12504	25 c.p.s. TRANSFORMER & BRACKET ONLY	1			
21017	33/12505	or 50 c.p.s. TRANSFORMER & BRACKET ONLY	1			
21665	32/11502	25 c.p.s. Transformer only	1	{ 4BA. 3/8 in Countersunk screw 4BA. Spring washer 4BA Nut	0081A	2
21661	65/503	or 50 c.p.s. Transformer only	1		0019A	2
21666	03/11770	Transformer bracket	1		0015A	2

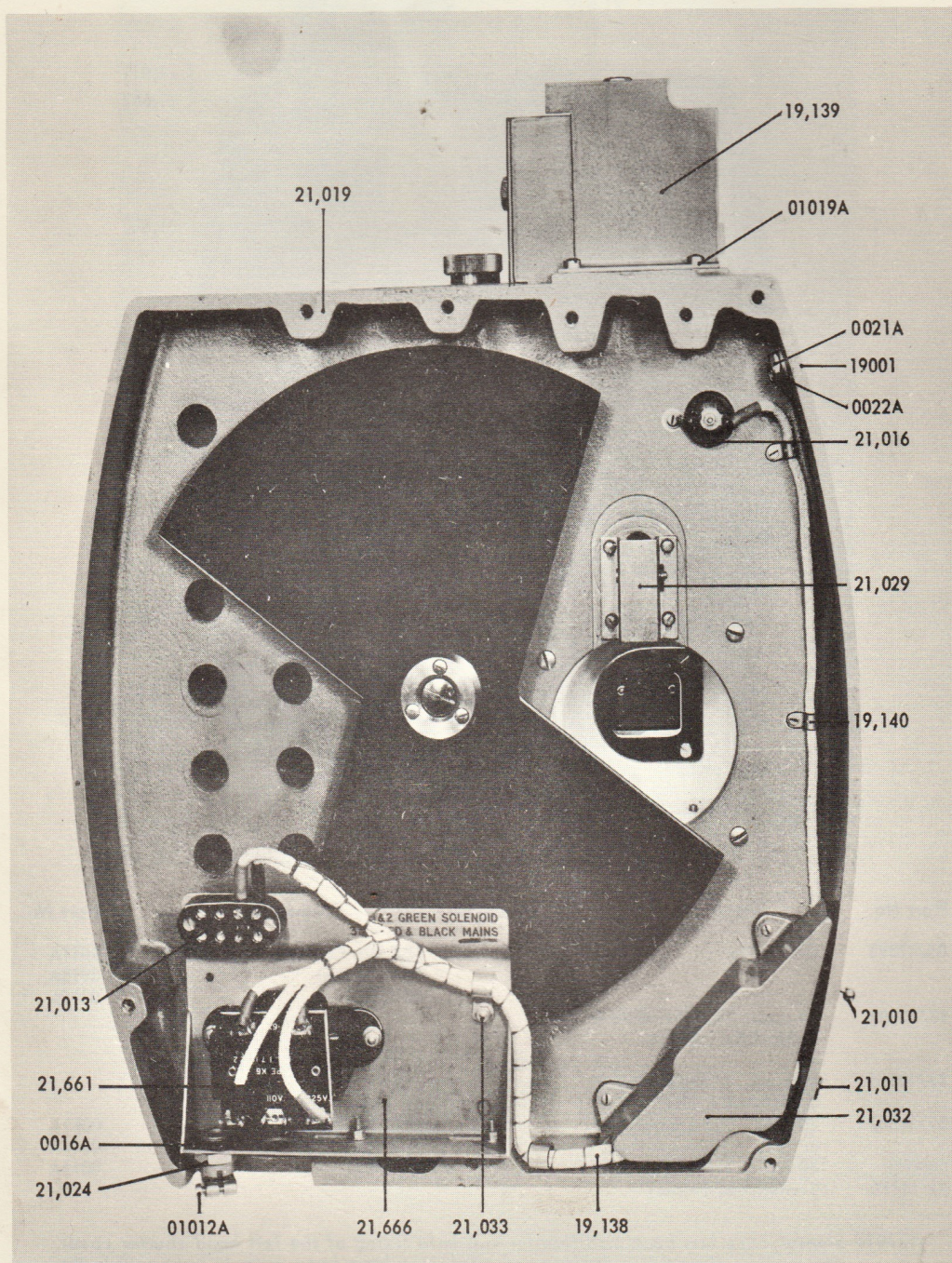
*21019 Shutter case has been modified for two hole fixing of the left hand shutter cover, and various changes in drilling and machining have been made to accommodate the present type of safety shutter linkage. This shutter case is not interchangeable on projectors fitted with the "external" (i.e. in the projector) type of push rod.

†21612 Changeover solenoid assembly has been modified and is fitted to projectors having the following serial numbers:-

GK 21 { 21511
 21530 to 21533
 21535 to 21537
 21541 onwards
 GK 20 20111 upwards

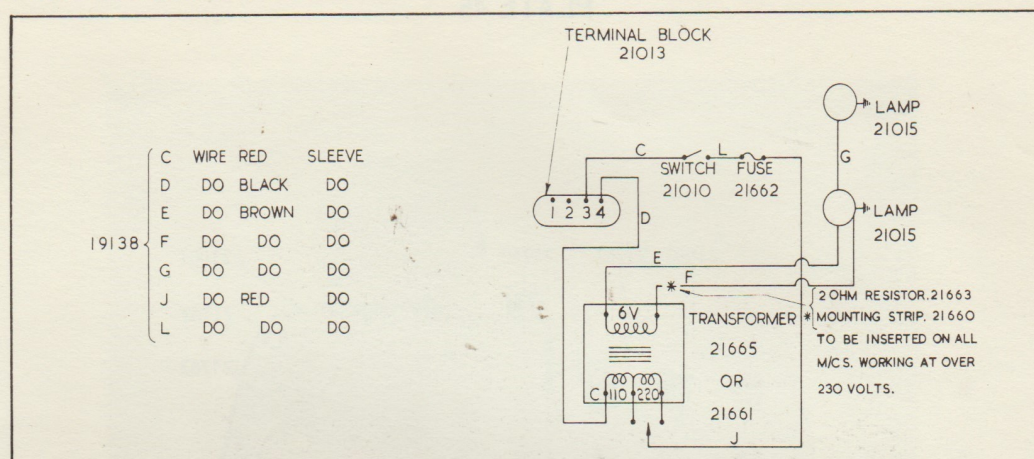
It is interchangeable with the solenoid fitted to projectors not listed above.

PLATE 4a



SHUTTER CASE ASSEMBLY GK 19

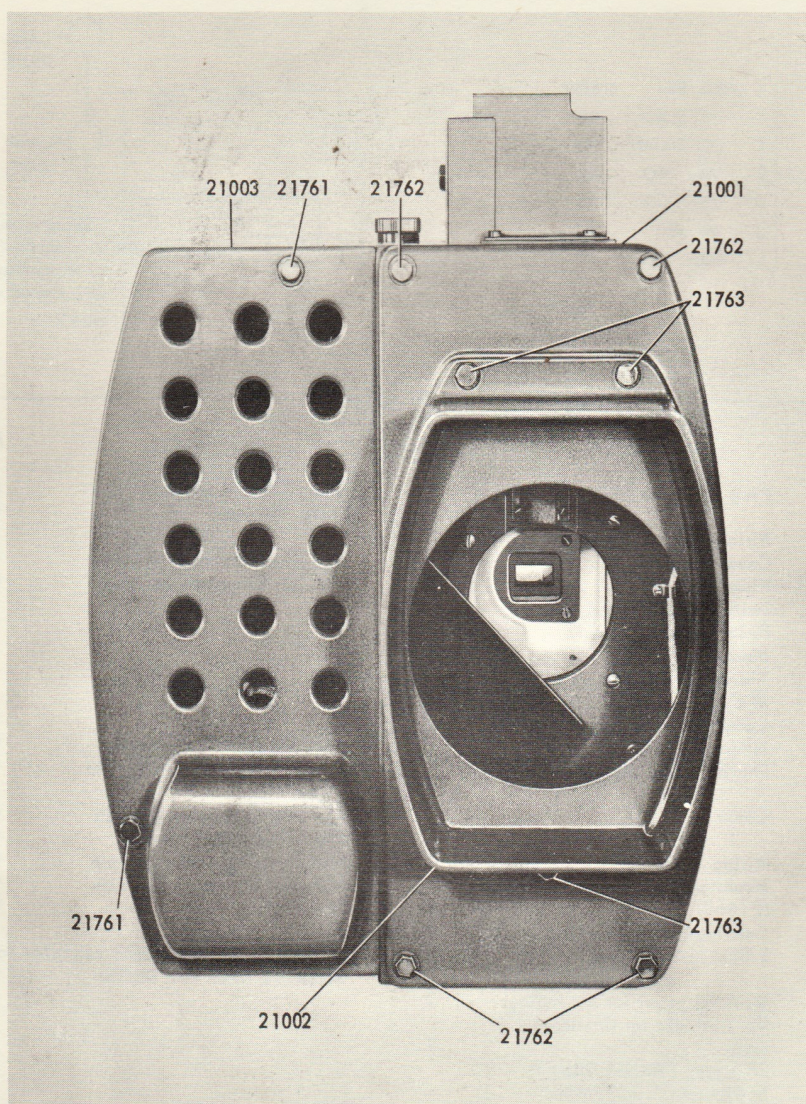
PLATE 4a. SHUTTER CASE ASSEMBLY



Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
19001	03/12801	Plug screw for shutter case	1	3/8in. B.S.F. Locknut	0021A	1
19138	32/13973	Wiring assembly complete	1	3/8in. Washer	0022A	1
19139	03/16194	Cover plate	1	2BA. 1/4in. Filister head screw	01019A	2
19140	AGS.1617/3	Wiring clip	2	6BA. 1/4in. Cheesehead screw	0008A	2
21010	65/343	Switch for threading lamp	1			
21011	65/384	Fuseholder (Panel mounting)	1			
21015	65/625	Threading lamp (8 volt M.E.S.)	2			
21016	65/502	Lampholder for threading lamp	2	6BA. 1/2in. Roundhead screw	0012A	4
*21019	01/9635	Shutter case*only	1	5/16in. B.S.F. 1/4in. Allen cap screw	0010A	2
21029	03/11468	Cover	1	6BA. 1/4in. Cheesehead screw	0008A	4
21032	03/11973	Wiring cover	1	6BA. Shakeproof washer	0887A	4
21660	65/397	Mounting strip for resistor (21663)	1	6BA. 1/4in. Cheesehead screw	0008A	2
21662	65/565	Cartridge fuse 5 ampere	1	6BA. 1/4in. Cheesehead screw	0008A	1
21663	65/656	2 Ohm resistor	1	6BA. Nut	0056A	1
				(Threading lamp series resistor for mains supplies over 230 volts)		
21673	03/15787	Moulded bezel for lampholder	2			
21674	03/16478	Metal shield for threading lamp	2			
21664	33/10933	25 c.p.s. TRANSFORMER & BRACKET ASSEMBLY COMPLETE	1	4BA. 1in. Filister head screw	01013A	2
		or		4BA. Spring washer	0019A	2
21667	33/11784	50 c.p.s. TRANSFORMER & BRACKET ASSEMBLY COMPLETE	1	4BA. Nut	0015A	2
21013	65/401	Terminal Block	1	4BA. 5/8in. Filister head screw	01012A	2
				4BA. Washer	0018A	2
				4BA. Nut	0015A	2
21024	03/10616	Gland for flexible conduit	1	4BA. 5/8in. Filister head screw	01012A	1
				5/8in. 18 T.P.I. Locknut	0016A	1
21033	05/12893	Cable clip	1	4BA. 1/4in. Countersunk screw	0011A	1
				4BA. Washer	0018A	1
				4BA. Nut	0015A	1
21030	33/12504	25 c.p.s. TRANSFORMER & BRACKET ONLY	1			
		or				
21017	33/12505	50 c.p.s. TRANSFORMER & BRACKET ONLY	1			
21665	32/11502	25 c.p.s. Transformer only	1	4BA. 3/8in. Countersunk screw	0081A	2
		or		4BA. Spring washer	0019A	2
21661	65/503	50 c.p.s. Transformer only	1	4BA. Nut	0015A	2
21666	03/11770	Transformer bracket	1			

*21019 Shutter case has been modified for two hole fixing of the left hand shutter cover, and various changes in drilling and machining have been made. This shutter case is not interchangeable on projectors having three hole fixing of the left hand shutter cover.

PLATE 4b

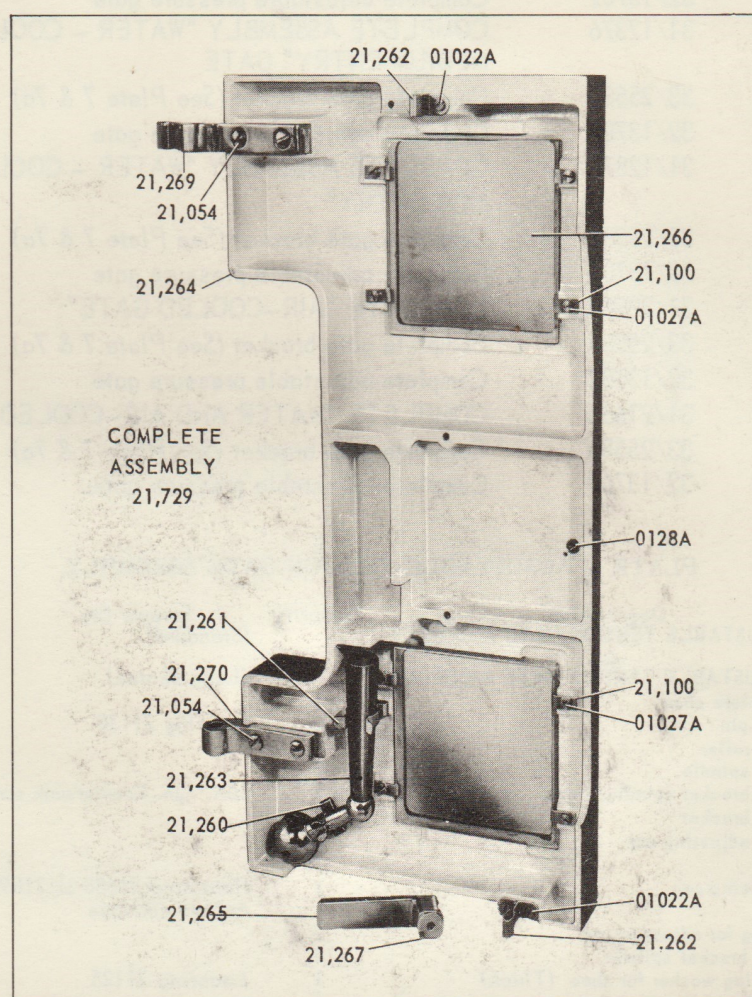


CONE AND SHUTTER COVERS

Cat. No.	Part No.	Description	Quantity	Screws Etc.
21001	02/9637	Shutter cover, right hand	1	(Secured by 21762)
21002	02/9647	Cone for shutter cover	1	(Used with Lightmaster arc-lamp only. Secured by 21763)
*21003	02/10904	Shutter cover, left hand	1	(Secured by 21761)
21761	03/14559	Screw securing 21003	2	
21762	03/14560	Screw securing 21001	4	
21763	03/14561	Screw securing 21002	3	

*Shutter cover, left hand (21003) has been modified for two hole fixing and is not interchangeable with the earlier three hole fixing pattern.

PLATE 5



PROJECTOR DOOR ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21729	32/9684	PROJECTOR DOOR ASSEMBLY	1			
21054	03/10245	Special screw	4	Securing 21269 and 21270		
21100	03/9881	Window clips	8	4BA.3/16in Filister head screw	01027A	8
21260	65/485	Terry clip (Small)	1	6BA.3/16in Cheesehead screw	0045A	1
21261	65/486	Terry clip (Large)	1	6BA.3/16in Cheesehead screw	0045A	1
21262	03/9240	Door catch	1	4BA.3/8in. Filister head screw	01022A	2
*21264	01/9733	Projector door only	1			
21265	03/12159	Door handle only	1	2BA.1/2in. Countersunk screw	0128A	1
21266	03/9824	Window	2	Secured by 21100		
21267	03/9829	Dowel for door handle	1			
21269	03/10200	Upper hinge	1	Secured by 21054		
21270	03/10201	Lower hinge	1	Secured by 21054		
21263	33/9685	BOTTOM SPROCKET HANDLE COMPLETE	1			

*21264 Projector door only, replaces the earlier pattern of the same number which is rebated on the top edge, and is interchangeable except when a 16in (409 mm) top spool box is in use.

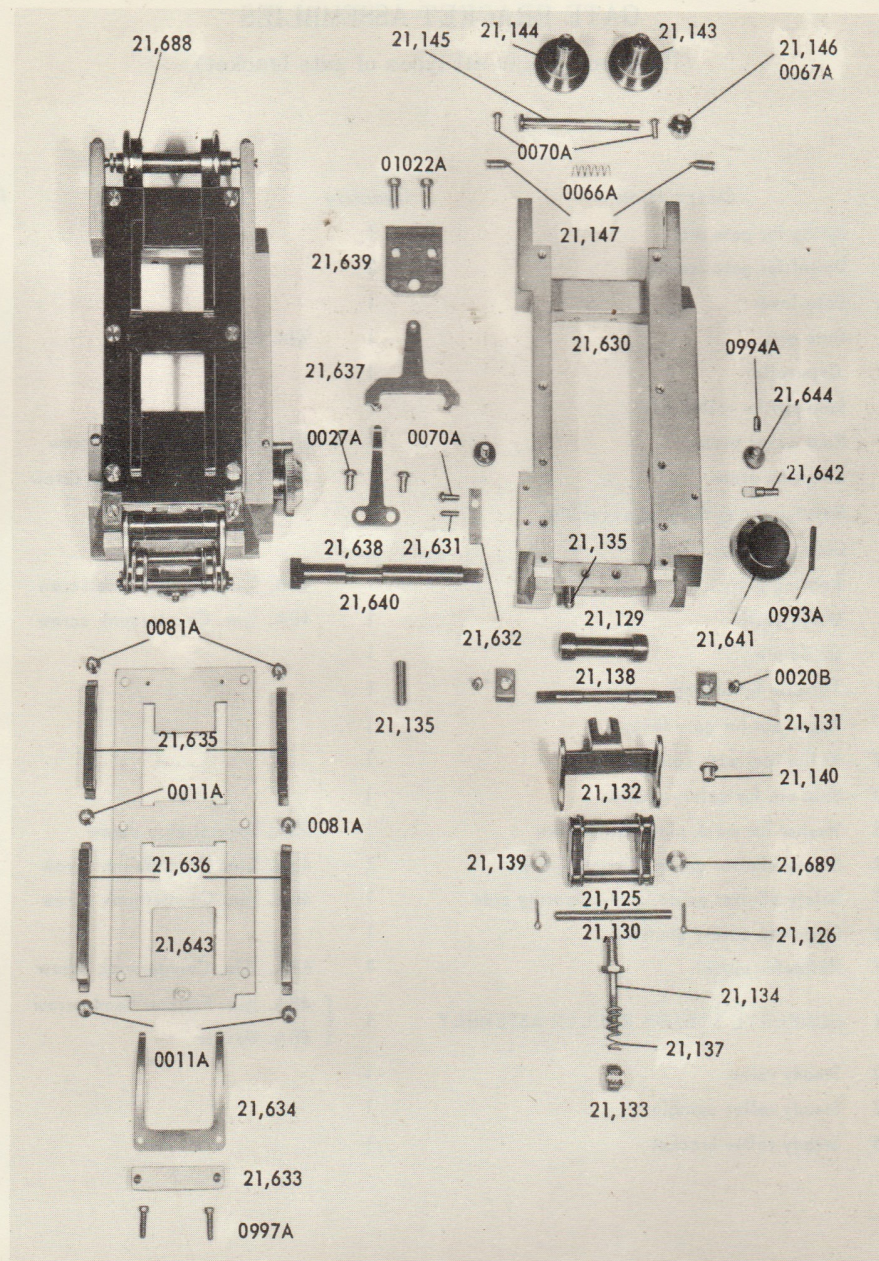
This door also replaces the GK 19 and GK 20 Projector door (20264) which is now obsolete.

21952	32/16271	COMPLETE ASSEMBLY "STANDARD" GATE
21690	31/13063	Complete gate bracket (See <i>Plate 7 & 7a</i>)
21688	32/13702	Complete adjustable pressure gate
21953	31/12376	COMPLETE ASSEMBLY "WATER - COOLED - MEDIUM ENTRY" GATE
21947	33/25582	Complete gate bracket (See <i>Plate 7 & 7a</i>)
21688	32/13702	Complete adjustable pressure gate
21954	31/12378	COMPLETE ASSEMBLY "WATER - COOLED - LOW ENTRY"
21948	33/25583	Complete gate bracket (See <i>Plate 7 & 7a</i>)
21688	32/13702	Complete adjustable pressure gate
21955	31/20950	COMPLETE "AIR-COOLED GATE"
21949	33/25584	Complete gate bracket (See <i>Plate 7 & 7a</i>)
21688	32/13702	Complete adjustable pressure gate
21956	31/21656	COMPLETE "WATER AND AIR-COOLED GATE"
21950	33/25585	Complete gate bracket (See <i>Plate 7 & 7a</i>)
21688	32/13702	Complete adjustable pressure gate.

PLATE 6: ADJUSTABLE TENSION GATE ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc. (Standard)	Part No.	Quantity
†21688	32/13702	ADJUSTABLE TENSION GATE ASSEMBLY				
21926	32/24826	ADJUSTABLE TENSION GATE ASSEMBLY		(Long skates)		
21125	33/12284	Complete shoe	1			
21126	05/1116	Split pin	2	Securing 21130		
21129	03/9705	Gate roller	1			
21130	03/9706	Shoe spindle	1			
21131	03/9707	Shoe bracket spindle clamp	2	6BA. $\frac{5}{16}$ in. Countersunk screw	0020B	2
21132	03/9708	Shoe bracket	1			
21133	03/9709	Shoe adjusting nut	1			
21134	03/9710	Stud	1			
21135	03/9711	Retaining peg	1	Retaining 21688 or 21890 in gate carriage		
21137	03/9713	Spring for adjusting nut	1			
21138	03/9714	Shoe bracket spindle	1			
*21139	03/9721	Packing washer for shoe (Thick)	1	Locating 21125		
21140	05/11607	Tension roller	1			
21143	05/13285	Guide roller	1			
21144	05/13286	Pressure roller	1	Compression spring	0066A	1
21145	05/13287	Spindle for guide roller	1			
21146	05/13288	Collar for guide roller spindle	1	8BA. $\frac{1}{8}$ in. Grub screw	0067A	1
21147	05/13289	Pivot for guide roller and spindle	2	6BA. $\frac{1}{4}$ in. Round head screw	0070A	2
21630	02/14678	Gate frame	1			
21631	03/14679	Click stop	1			
21632	03/14682	Click stop for spring	1	6BA. $\frac{1}{4}$ in. Round head screw	0070A	1
21633	03/14683	Tension spring spacer	1			
21634	03/14684	Upper tension spring for skate	1	8BA. $\frac{3}{8}$ in. Cheesehead screw	0997A	1
21635	03/14685	Top skate	2			
21636	03/14686	Lower skate	2	Standard gate only		
21637	03/14687	Pressure plate (Standard gate)	1			
21898	03/15453	Skate pressure plate (Long skate)	1			
21638	03/14689	Lower tension spring for skate	1	4BA. $\frac{1}{4}$ in. Round head screw	0027A	2
21639	03/14699	Location plate	1	4BA. $\frac{3}{8}$ in. Filister head screw	01022A	2
21640	03/14871	Eccentric roller	1	For adjusting skate tension		
21641	03/14873	Knob	1	$\frac{1}{16}$ in. $\frac{1}{2}$ in. Taper pin	0993A	1
21642	03/14874	Indicator pin	1	6BA. $\frac{1}{8}$ in. Grub screw	0994A	1
21643	33/14875	Gate plate with pivot (Standard gate)	1	4BA. $\frac{1}{4}$ in. Countersunk screw	0011A	3
21896	33/24827	Complete gate plate with pivot (Long skate)		4BA. $\frac{3}{8}$ in. Countersunk screw	0081A	3
21644	03/16043	Stop screw	2	Retaining 21637 or 21898		
*21689	03/12721	Packing washer for shoe (thin)	1	Locating 21125		
21897	03/24825	Skate (Long skate)	2			

PLATE 6



*21139
21689 When either of these are ordered, two of each will be supplied

†21688 ADJUSTABLE TENSION GATE ASSEMBLY

This assembly replaces the fixed tension gate and is interchangeable as a COMPLETE ASSEMBLY ONLY.

The following parts are not interchangeable with the fixed tension type gate:-

- | | |
|-------|--|
| 21630 | Gate frame; replaces 21127 Gate frame. |
| 21634 | Top tension spring; replaces 21142 tension spring. |
| 21635 | Top skate; replaces 21141 skate. |
| 21636 | Lower skate; replaces 21141 skate. |
| 21639 | Location plate; replaces 21136 location plate. |
| 21643 | Gate plate; replaces 21128 gate plate. |

GATE BRACKET ASSEMBLIES

(Parts common to all types of gate bracket)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21153	03/9654	Spring for gate arm	1			
21154	03/9693	Dowel for gate bracket	2			
21157	03/9738	Gate lever	1			
21159	03/9740	Gate arm	1	$\frac{3}{8}$ in. B.S.F. Nut	0082A	1
21160	03/9741	Gate roller	1			
21161	03/9743	Stop pin for roller arm	1			
21162	03/9744	Rear cover plate	1	6BA. $\frac{1}{4}$ in. Round head screw	0070A	4
21163	03/9747	Locating plate	1	4BA. $\frac{3}{8}$ in. Filister head screw	01022A	2
21164	03/9748	Retaining peg for gate assembly	1			
21165	03/9749	Gate roller pin	1			
21166	03/9750	Bearing plate	1	4BA. $\frac{3}{8}$ in. Countersunk screw	0081A	2
21167	03/9752	Guide plate	1	4BA. $\frac{3}{8}$ in. Countersunk screw	0081A	2
21168	03/9753	Guide pin	1			
21169	03/9754	Thimble for spring	1			
21170	03/9866	Taper pin for gate lever	1			
21176	33/10149	Roller arm with spindle	1			
21178	03/11173	Stop pin for safety shutter	1			
21179	03/11203	Washer for mask plate stop screw	1	2BA. Special stop screw	0040A	1
†21692	03/16452	Safety shutter guide, Operating side	1	4BA. $\frac{1}{2}$ in. Countersunk screw	0072A	2
†21693	03/16453	Safety shutter guide, Non-operating side	1	4BA. $\frac{1}{2}$ in. Countersunk screw	0072A	2
*21694	33/16466	Complete safety shutter	1			
‡21700	03/20837	Reflector plate	1	6BA. $\frac{1}{8}$ in. Countersunk screw	01024A	4
§21697	33/17574	COMPLETE STEADY ROLLER ASSEMBLY	1	4BA. $\frac{1}{2}$ in. Filister head screw	0012B	2
				4BA. Washer	0018A	2
21695	03/17572	Steady roller	1			
21696	03/17573	Steady roller spindle	1			
21698	03/17675	Steady roller bracket	1			

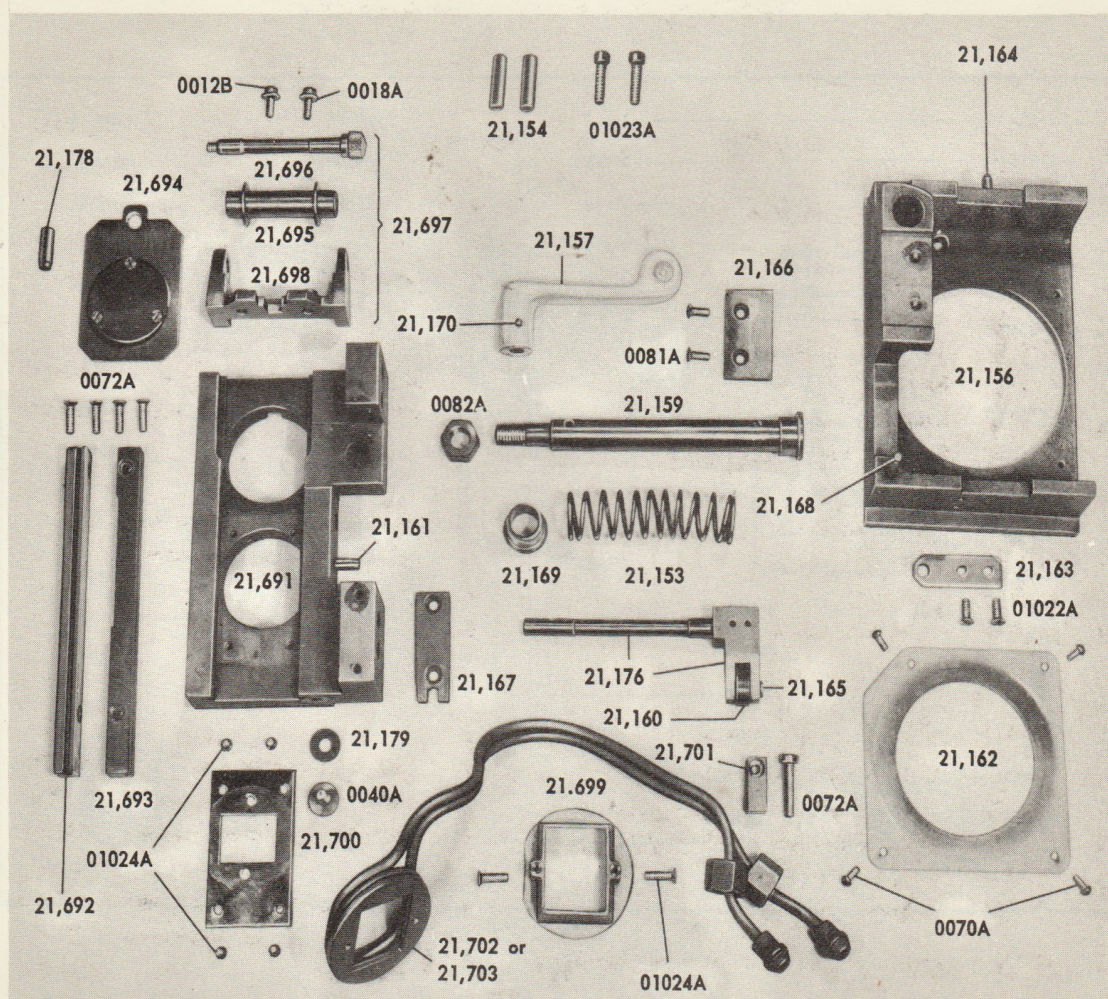
*21694 Safety shutter replaces 21181 (GK21, 20) and 19181 (GK19) safety shutters and is not interchangeable.

†21692 Operating side and 21693 Non-operating side safety shutter guides have been fitted to the latest type, and the intermediate type, gate brackets, but will not fit the initial type with 21158 cover plate (See page 20 old catalogue).

‡21700 Reflector plate which is not interchangeable replaces 21177 normal, and cinema-scope type, Part number 03/20211 (no catalogue number), reflector plates which are interchangeable with each other.

§21697 Steady roller assembly replaces 21180 safety shutter stop plate and is interchangeable. When 21697 is ordered, 2 screws 4BA. $\frac{1}{2}$ in. Filister head No.0012B and 2 washers 4BA. No.0018A will also be required.

PLATE 7



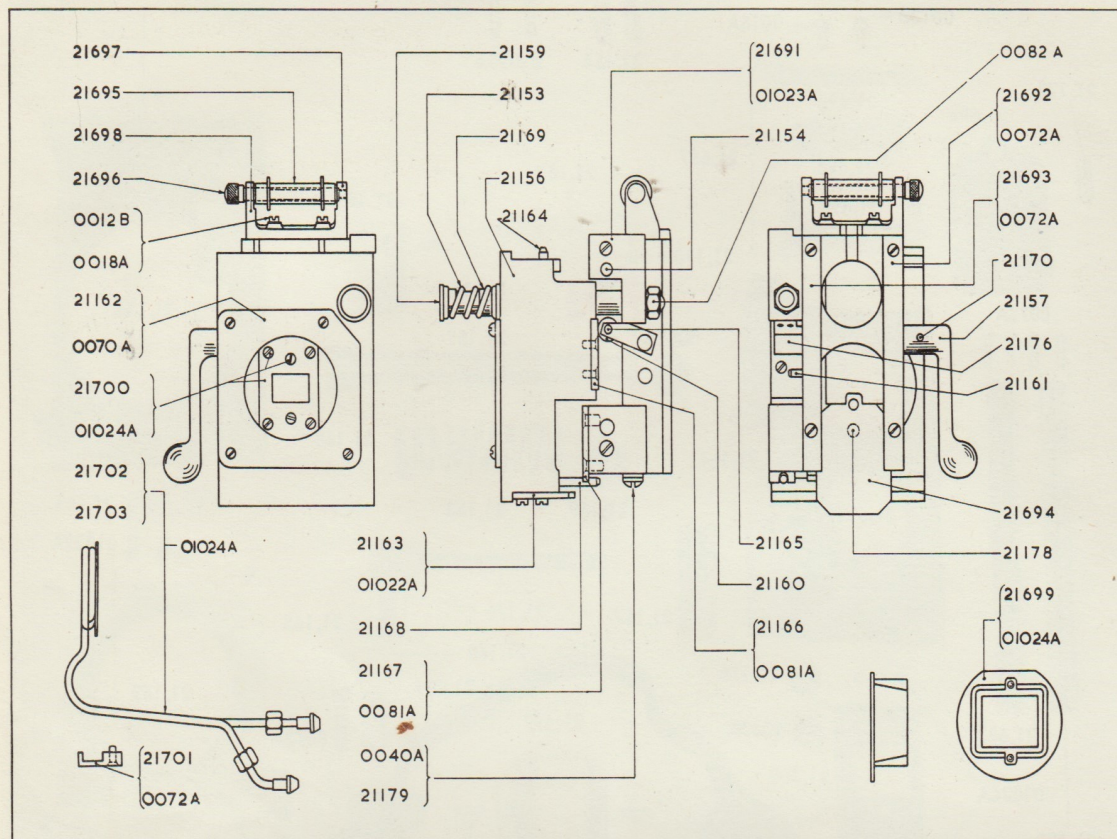
STANDARD GATE BRACKET ASSEMBLY, Cat No. 21690
Part No. 31/13063

Parts required in addition to those quoted on Sheet GK21P/20b

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21156	02/9737	Gate carriage	1			
▲21691	01/12361	Gate bracket	1	0BA x ¾in. Filister head screw	01023A	2
21699	03/20836	Heat shield	1	6BA. ½in. Countersunk screw	01024A	2

▲21691 Gate bracket only, has been modified and replaces 21155 gate bracket (initial type) with which it is not interchangeable (see page 20 old catalogue). It is interchangeable with the intermediate type:- i.e. when fitted with latest type safety shutter.

PLATE 7a



WATER AND AIR COOLED GATE BRACKET ASSEMBLIES

Note:- The parts listed under the main assemblies are the parts required in addition to the "common" parts list Sheet GK21P/20b

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*21949	33/25584	AIR COOLED GATE BRACKET ASSEMBLY				
21699	03/20836	Heat shield	1	6BA. 1/8in Countersunk screw	01024A	2
21932	03/20948	Gate bracket	1			
21933	03/20949	Gate carriage	1			
21934	33/21649	Complete air feed pipe	1	6BA. 5/8in Cheesehead screw	01103A	4
21935	03/20956	Gasket for air feed pipe	1			
21936	33/21637	3 way adaptor assembly	1			
21937	03/21646	Flexible tube	1			
21938	33/21635	Nozzle unit assembly	1	6BA. 1/2in Cheesehead screw	01062A	2
21951	03/25593	Cover for extension	1	4BA. 5/8in Cheesehead screw	0006A	2
21959	65/1020	Locknut 1/4in B.S.P. Brass	1			

Plate 7a (Cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21947	33/25582	WATER COOLED GATE BRACKET ASSEMBLY, Medium entry (All types of stand except GK21)				
21948	33/25583	WATER COOLED GATE BRACKET ASSEMBLY, Low entry (GK21 Stand)				
21156	02/9737	Gate carriage	1			
21691	01/12361	Gate bracket	1			
21701	03/15719	Clip for cooling pipe	1	4BA.½in Countersunk screw	0072A	1
21702	33/20757	Complete cooling pipe - low entry	1	6BA.½in Countersunk screw	01024A	2
		or				
21703	33/20758	Complete cooling pipe - medium entry				
* 21950	33/25585	WATER AND AIR COOLED GATE BRACKET ASSEMBLY				
21701	03/15719	Clip for water pipe	1	4BA.½in Countersunk screw	0072A	1
21702	33/20757	Complete water pipe - low entry	1	6BA.½in Countersunk screw	01024A	2
21932	03/20948	Gate bracket	1			
21933	03/20949	Gate carriage	1			
21934	33/21649	Complete air feed pipe	1	6BA.½in Cheesehead screw	01103A	4
21935	03/20956	Gasket for air feed pipe	1			
21936	33/21637	3 Way adaptor assembly	1			
21937	03/21646	Flexible tube	1			
21938	33/21635	Nozzle unit assembly	1	6BA.½in Cheesehead screw	01062A	2
21959	65/1020	Locknut ¼in B.S.P. Brass	1			

ADDITIONAL PARTS REQUIRED FOR WATER SUPPLY - LOW ENTRY

21939	03/15914	Special coil block for low entry	1	4BA.½in Cheesehead screw	0006A	2
21940	03/21929	Union adaptor	2			
21941	03/16192	Special nut for adaptor	2			
21942	03/21928	Olive for adaptor	2			
21943	65/651	Water cooling inlet and outlet pipes	2			

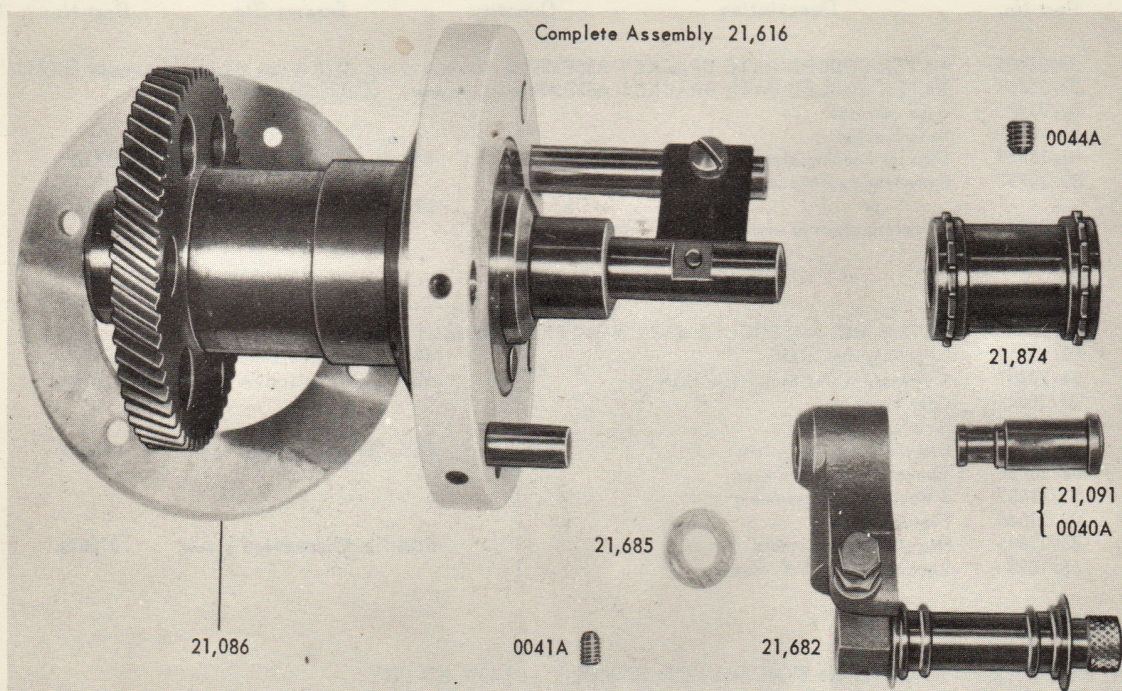
ADDITIONAL PARTS REQUIRED FOR WATER SUPPLY - MEDIUM ENTRY

21943	65/651	Water cooling inlet and outlet pipes	2			
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*When these assemblies are fitted, the standard stripper for the intermittent sprocket is replaced by Cat. No. 21,944 (03/20951), Special stripper.

NOTE:- (a) Refer to Plate 2 for the appropriate type of Bottom right hand frame extension.
(b) Refer to Sheet GK21P/39b for information on conversions to projectors having standard gates.

PLATE 8



TOP SPROCKET UNIT ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21616	32/9256	TOP SPROCKET UNIT ASSEMBLY	1	*2BA. $\frac{3}{4}$ in. Filister head screw	0914A	4
21079	03/9213	Oil deflector	1	4BA. $\frac{5}{16}$ in. Filister head screw	01017A	4
21080	03/9214	Stripper post	1	2BA. $\frac{1}{4}$ in. Allen set screw	0042A	1
21081	32/9216	Roller bracket stop pin	1	2BA. $\frac{3}{16}$ in Allen set screw	0043A	1
21082	32/9254	Top sprocket housing with bearing	1			
21083	32/9258	Top sprocket spindle with oil-thrower	1	No. 3 Woodruff Key	0050A	1
21085	03/9261	Top sprocket gear (57 teeth)	1	$\frac{1}{4}$ in.BSF. $\frac{1}{4}$ in. Allen set screw	0044A	1
*21086	03/9553	Oil seal	1	Sealing 21616 to Projector Frame		
21088	03/9651	Oil seal for oil deflector	1			
21090	05/10238	Stripper blade	1	2BA. $\frac{1}{4}$ in. Filister head screw	01019A	1
21091	03/11184	Roller bracket pivot pin	1	2BA. $\frac{1}{4}$ in. Allen set screw	0042A	1
21685	03/13325	Spacer washer	1	Under 21682		

*These items are not supplied as part of the main assembly, but must be ordered separately if required.

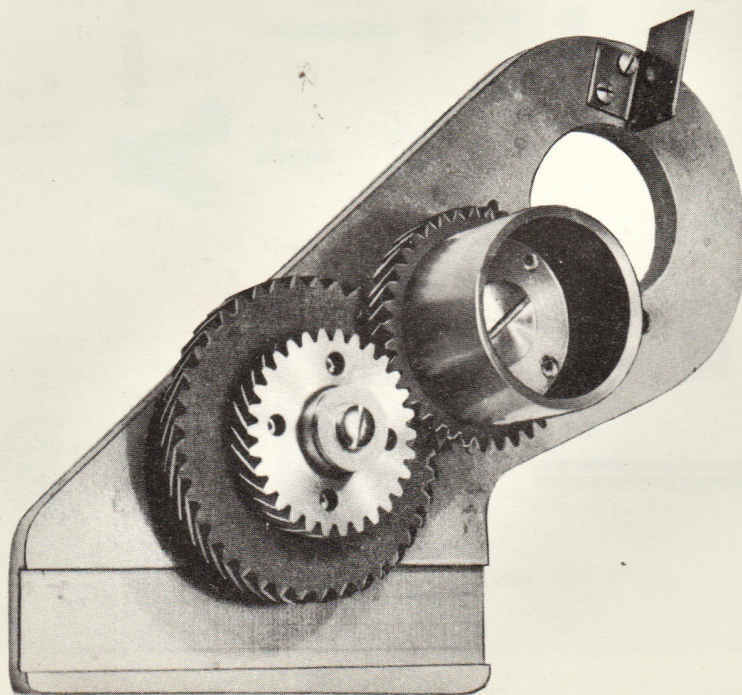


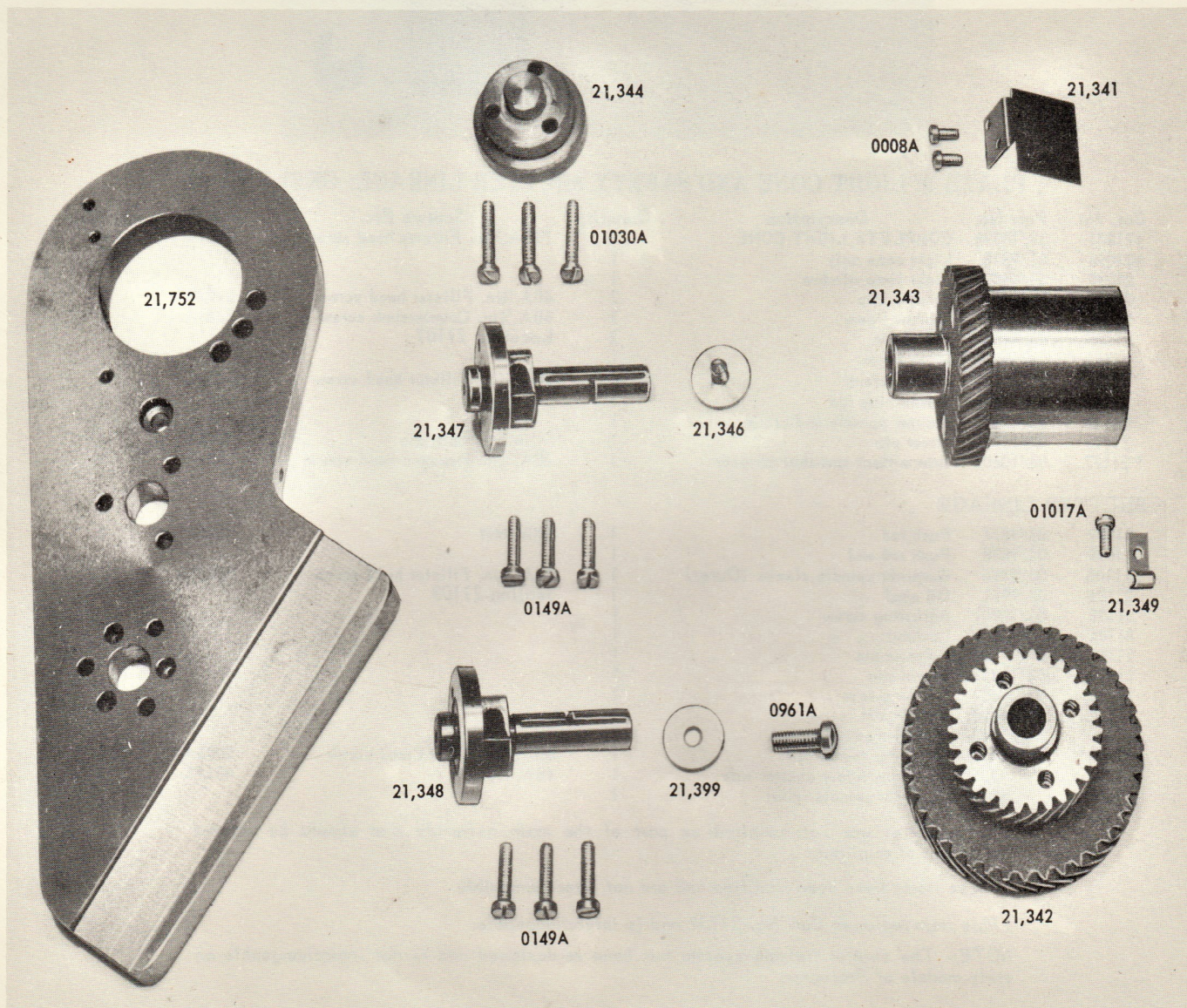
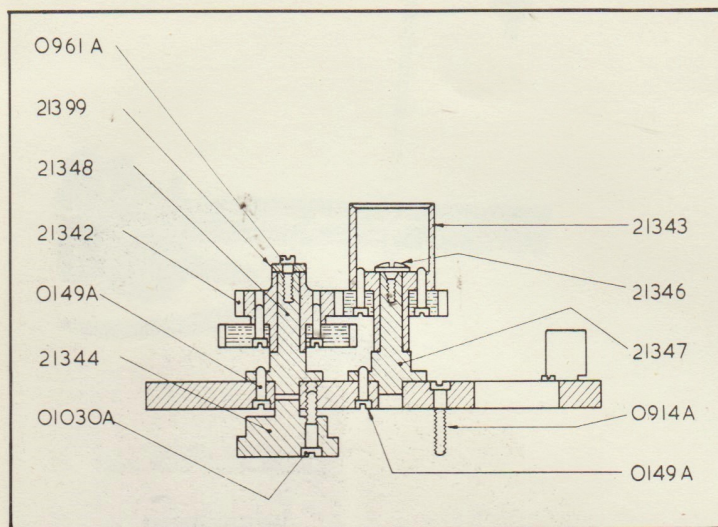
PLATE 8a: TOP GEAR YOKE ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21751	33/9263	TOP GEAR YOKE ASSEMBLY	1	*2BA. 3/4in. Filister head screw	0914A	1
21341	03/9627	Oil chute	1	6BA. 1/4in. Cheesehead screw	0008A	2
21342	33/9270	Top compound gear	1	2BA. 1/2in. Filister head screw	0961A	1
21343	33/9271	Top intermediate gear with oil-thrower	1			
21346	03/9394	Retaining screw (Left-hand thread)	1	Retaining 21343		
21347	03/10846	Gear post, left hand (For 21,343)	1	4BA. 1/2in. Cheesehead screw	0149A	3
21348	03/10847	Gear post, right hand (For 21,342)	1	4BA. 1/2in. Cheesehead screw	0149A	3
21399	03/9392	Hardened washer	1	Retaining 21342		
†21752	02/17055	Gear yoke bracket only	1			
*21344	03/9389	Locating plug	1	4BA. 3/4in. Filister head screw	01030A	3
*21349	03/11776	Clip for oil pipe	1	4BA. 5/16in. Filister head screw	01017A	1

*These items are not supplied as part of the main assembly but should be ordered separately if required.

†21752 GEAR YOKE BRACKET which has been modified to accomodate 21739 (Plates 10a and 10b) shutter gear yoke, replaces 21340 gear yoke bracket and is not interchangeable.

PLATE 8a



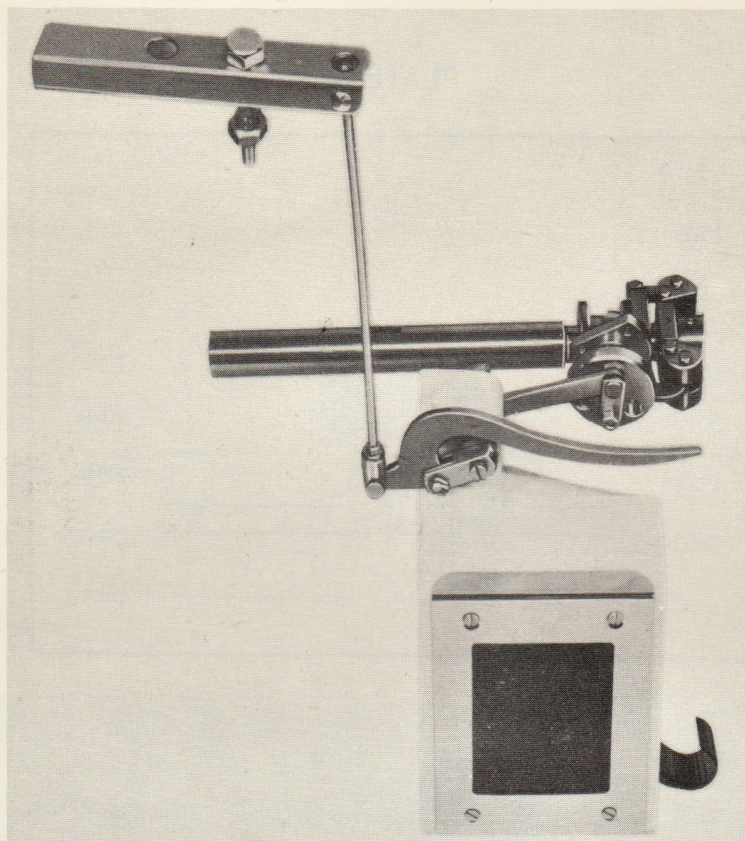


PLATE 9: LIGHT CONE AND SAFETY SHUTTER LINKAGE: GK21 AND 20

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
†21871	32/10798	COMPLETE LIGHT CONE	1	*2BA. ½ in. Filister head screw	0961A	4
†21096	01/9818	Light cone only	1			
21099	03/9880	Light cone window	1			
21100	03/9881	Window clip	2	4BA. ¼ in. Filister head screw	01020A	2
21101	03/9883	Window frame	1	6BA. ⅜ in. Countersunk screw	0061A	4
21108	03/10807	Dowel pin	2	Locating 21107		
21113	03/11458	Shutter arm	1			
21114	03/11459	Shutter crank	1	4BA. ⅝ in. Filister head screw	01012A	1
21115	03/11461	Connecting rod	1			
21117	33/12225	Shutter spindle and crank	1			
21119	03/11467	Pivot pin	1	1/16 in. ½ in. Split pin	0014A	4
*21107	03/10806	Intermittent sprocket stripper	1	2BA. ⅝ in. Hexagon head screw	0062A	1

SHUTTER LINKAGE

21097	03/9877	Push rod	1	6BA. Nut	0056A	2
21098	03/9878	Push rod end	1			
21103	03/9886	Governor spindle sleeve (Outer)	1	4BA. ⅞ in. Filister head screw	01021A	3
21104	03/9921	Oil seal	1	Sealing 21103		
21105	03/10801	Adjusting screw	1			
21106	03/10802	Locknut	1			
21109	03/11454	Fulcrum pin	1			
21110	03/11455	Swivel pin	1			
21111	03/11456	Swivel sleeve	1			
21112	03/11457	Rocker arm	1			
21116	03/11462	Governor spindle crank	1			
21118	03/11465	Spring for rocker arm	1	4BA. ⅝ in. Cheesehead screw	0006A	1
21120	33/11775	Complete safety shutter link	1	4BA. Nut	0015A	1
†21687	33/16258	Governor spindle roller	1			

*These items are not supplied as part of the main assembly and should be ordered separately if required.

†These items have been modified and are not interchangeable.

‡This item replaces Cat. No. 21102 and is interchangeable.

NOTE:- The shutter linkage system has been re-designed and is not interchangeable on early models of Projector.

PLATE 9

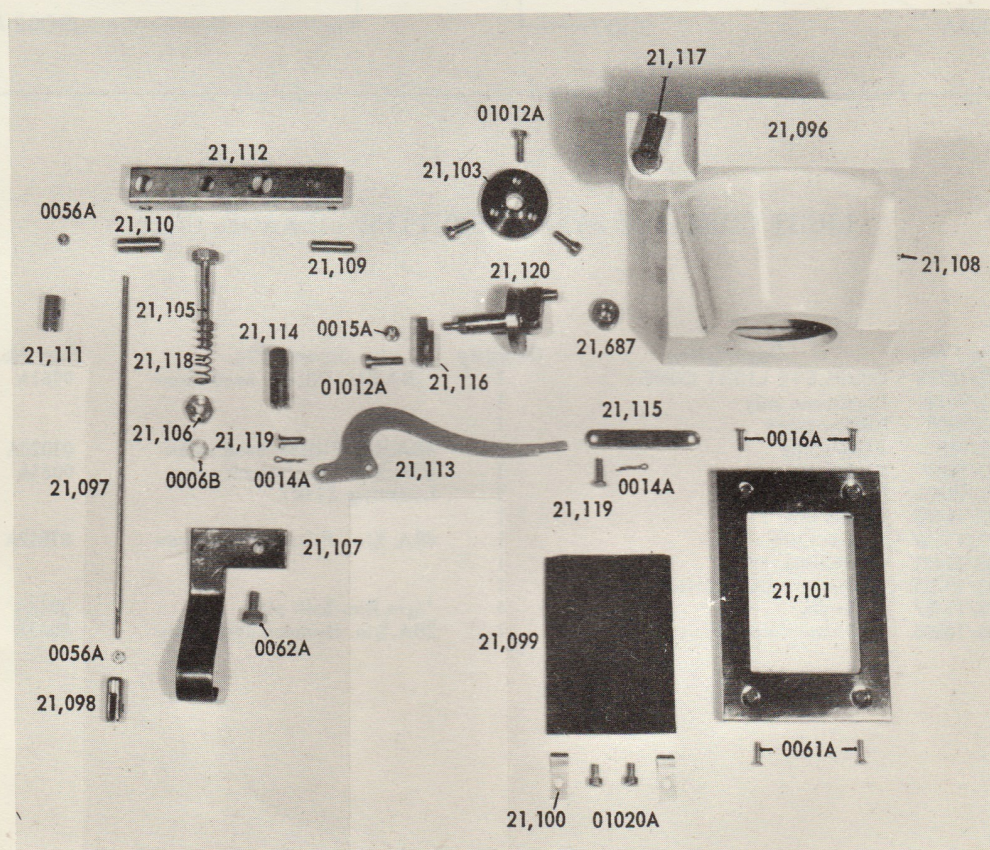
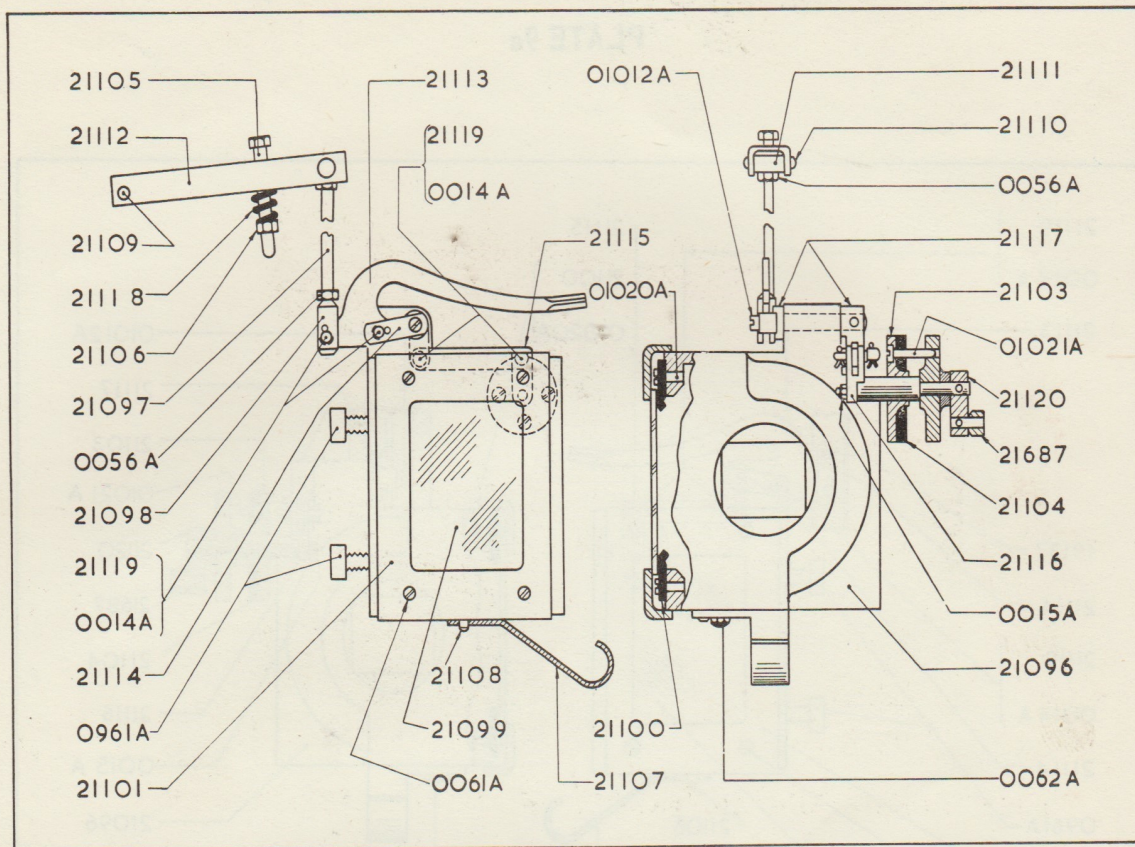
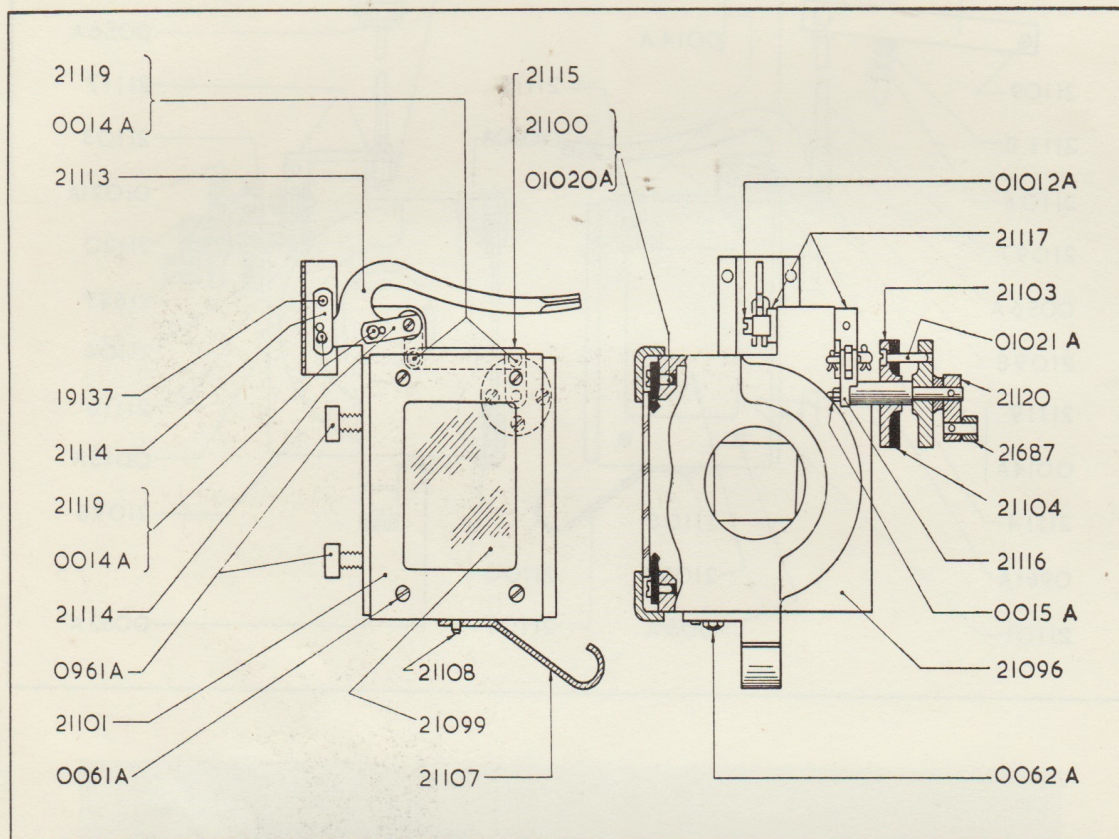
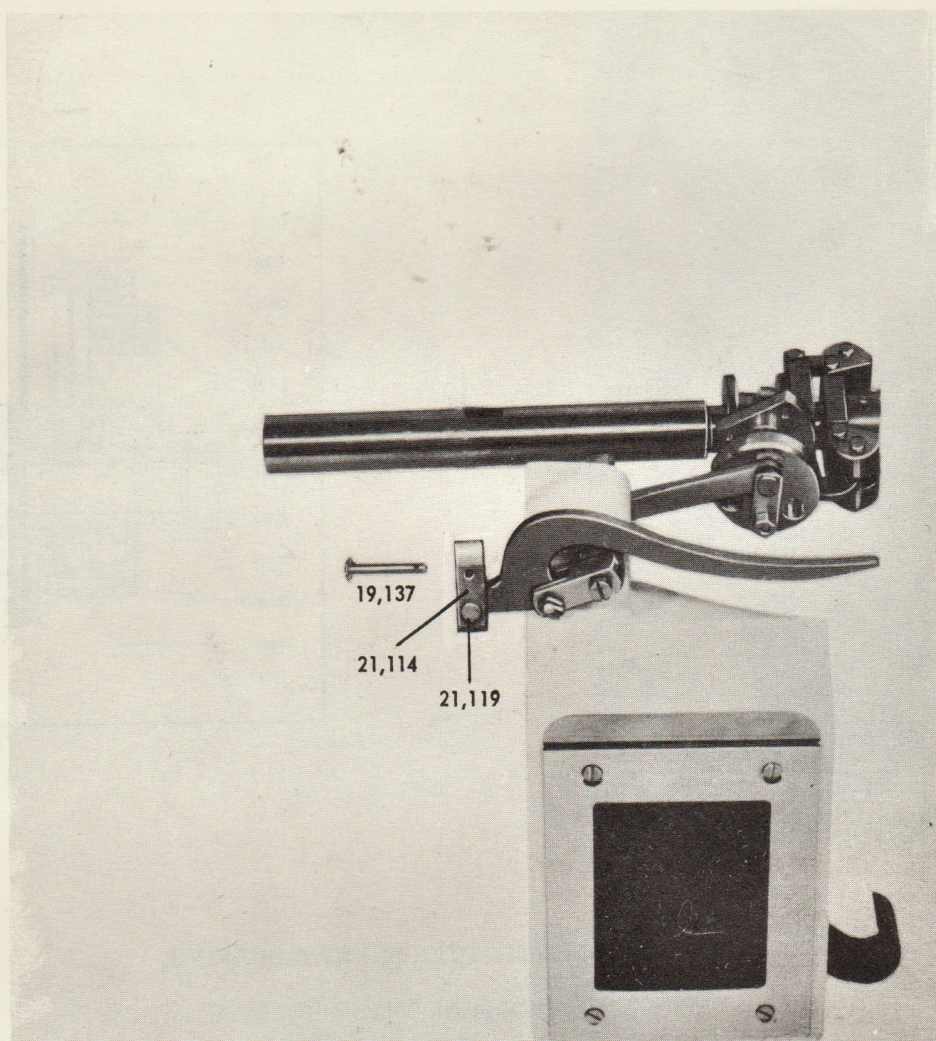


PLATE 9a



LIGHT CONE AND SAFETY SHUTTER LINKAGE. GK19

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
†21871	32/10798	COMPLETE LIGHT CONE	1	*2BA. ½in. Filister head screw	0961A	4
‡21096	01/9818	Light-cone only	1			
21099	03/9880	Window glass	1			
21100	03/9881	Window clip	2	4BA. ¼in. Filister head screw	01020A	2
21101	03/9883	Window frame	1	6BA. ⅜in. Countersunk screw	0061A	4
21108	03/10807	Dowel pin	1	Locating 21107		
†21113	03/11458	Shutter arm	1			
§21114	03/11459	Shutter crank	1	4BA. ⅝in. Filister head screw	01012A	1
†21115	03/11461	Connecting rod	1			
†21117	33/12225	Shutter spindle and crank	1			
21119	03/11467	Pivot pin	4	⅛in. ½in. Split pin	0014A	4
*21107	03/10806	Intermittent sprocket stripper	1	2BA. ⅜in. Hexagon head screw	0062A	1



SHUTTER LINKAGE

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
19137	03/16451	Fulcrum pin	1	$\frac{1}{16}$ in. $\frac{1}{2}$ in. Split pin	0014A	1
21103	03/9886	Governor spindle sleeve (Outer)	1	4BA. $\frac{7}{8}$ in. Filister head screw	01021A	3
21104	03/9921	Oil seal	1	Sealing 21103		
†21116	03/11462	Governor spindle crank	1			
†21120	33/11775	Complete safety shutter link	1	4BA. Nut	0015A	1
‡21687	33/16258	Governor spindle roller	1			

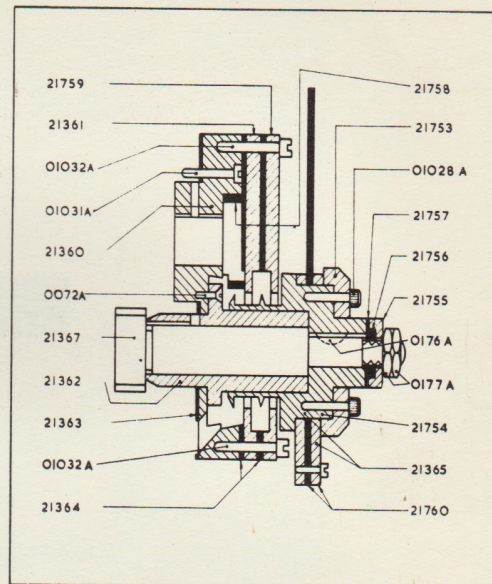
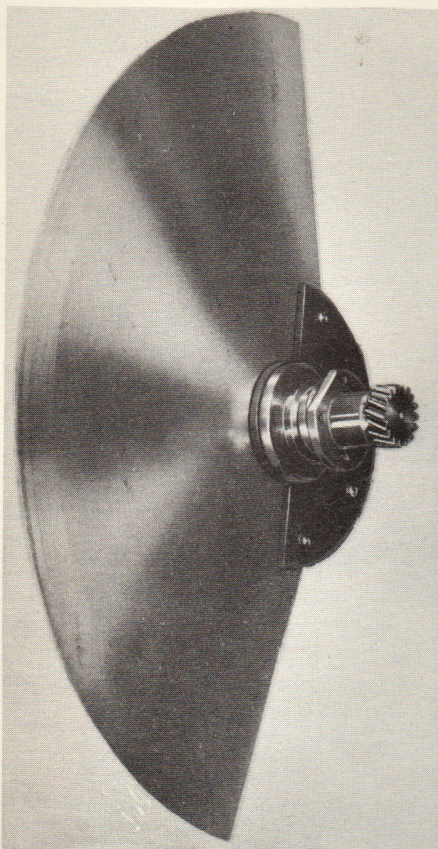
*These items are not supplied as part of the main assembly, and should be ordered separately if required.

†These items have been modified and are not interchangeable.

‡These items have been modified but are interchangeable.

§This item is not fitted on early models.

PLATE 10



GK21 HIGH SPEED SHUTTER SHAFT & BEARING,
WITH GOVERNOR SHAFT REAR BEARING

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*21360	03/10865	Governor shaft rear bearing	1	2BA. $\frac{5}{16}$ in. Filister head screw	01031A	8
†21361	03/10866	Inner cover plate	1	For 21360		
21362	03/10867	High speed shutter spindle bearing	1	4BA. $\frac{1}{2}$ in. Countersunk screw	0072A	4
21363	03/10868	Oil seal	1	Sealing 21360		
21364	03/10869	Oil seal	2	Sealing 21361 and 21759		
21367	03/11749	High speed shutter spindle and gear	1	No. 1. Woodruff key	0176A	1
21755	03/18197	Special washer	1	Securing 21365		
21756	03/18198	Sealing washer	1	Sealing 21365		
21757	03/18199	Sealing gasket	1	Sealing 21365		
21758	03/18386	Oil shield	1	Located in 21360		
‡21759	03/18387	Outer cover plate	1	4BA. $\frac{7}{16}$ in. Filister head screw	01032A	6
†21365	32/10900	COMPLETE DOUBLE SPEED SHUTTER AND BOSS	1	$\frac{1}{4}$ in. BSF. Locknut	0177A	2
†21753	03/11742	Clamp ring	1	4BA. $\frac{1}{2}$ in. Allen cap screw	01028A	4
†21754	03/11750	Shutter boss	1			
21760	33/22170	Complete shutter and counter balance	1			

*This item has been modified but is interchangeable.

†These items have been modified and are not interchangeable.

‡Not fitted on early models.

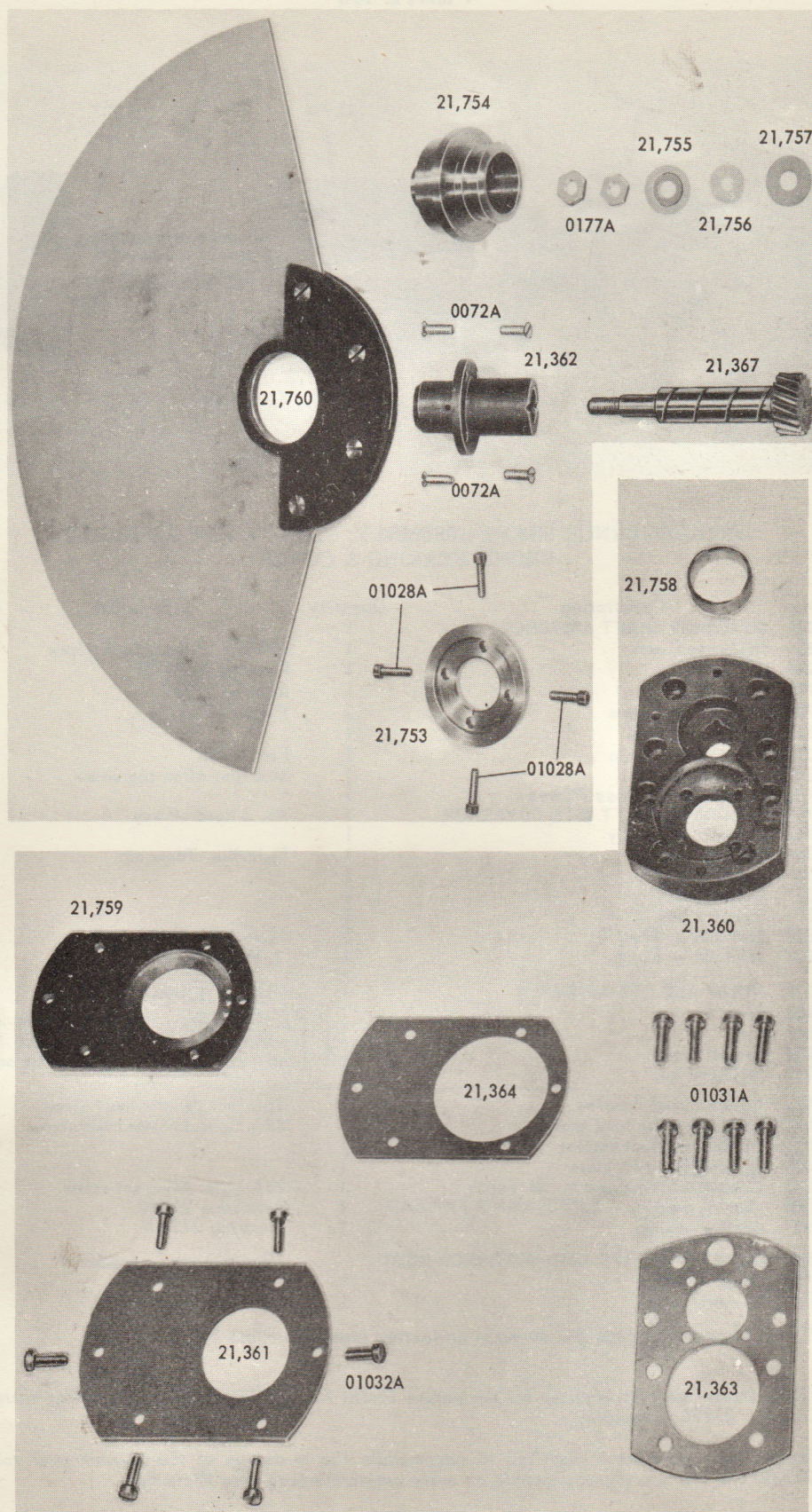
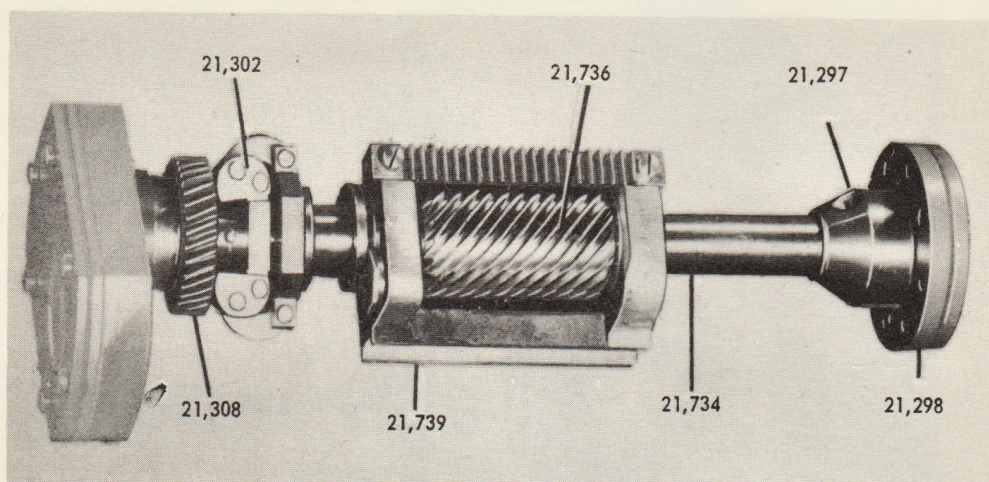


PLATE 10a

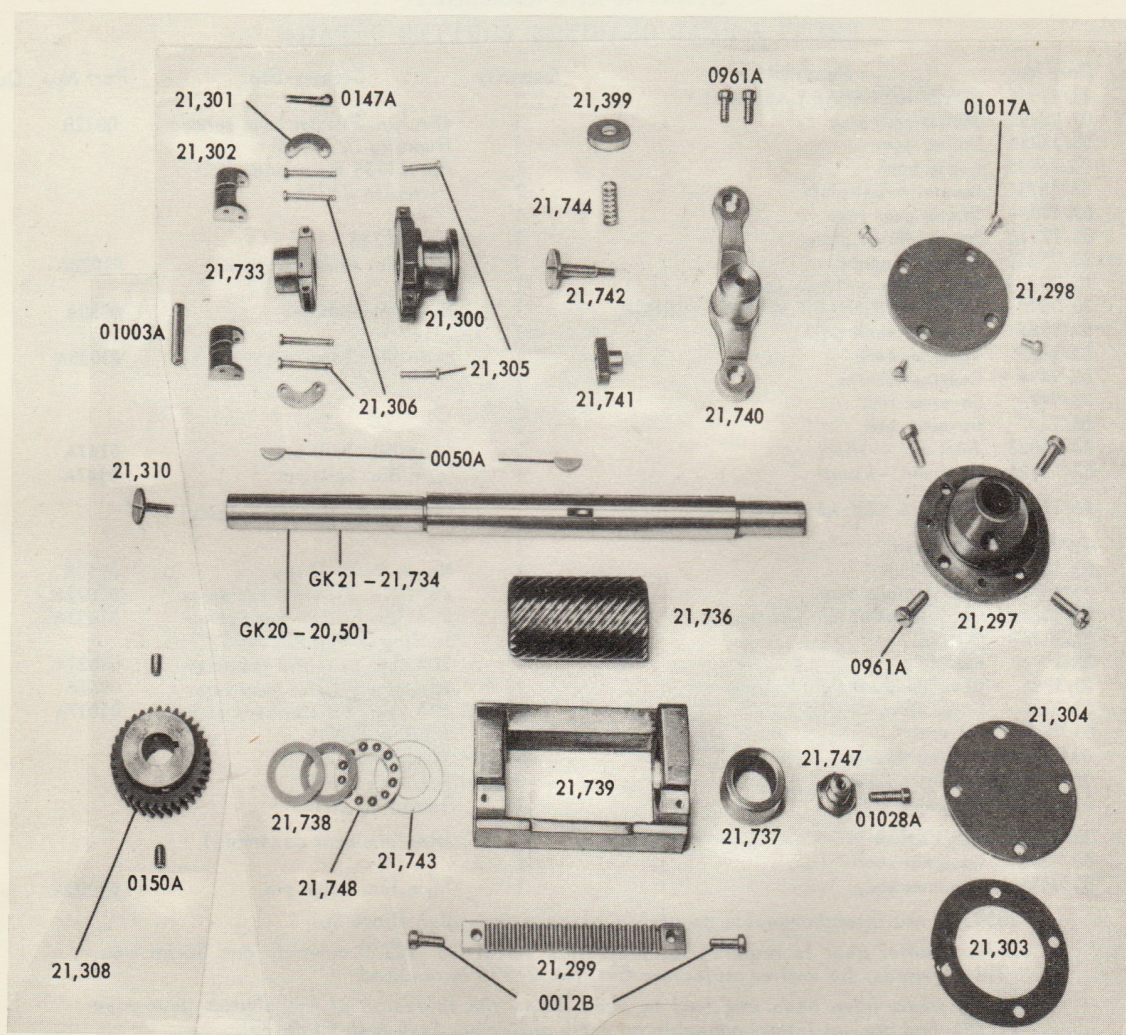
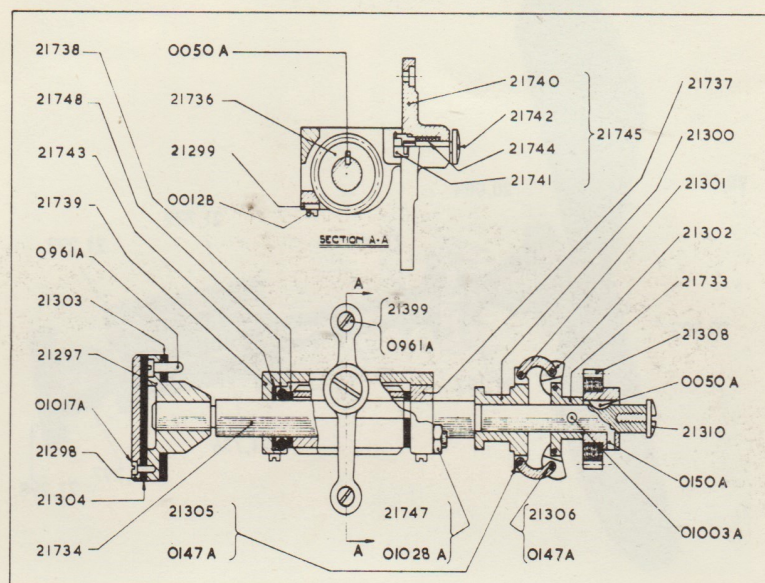
GK21 GOVERNOR SHAFT ASSEMBLY; STRAP & KEY ASSEMBLY;
FRONT BEARING & COVER

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*21746	33/17219	GOVERNOR SHAFT ASSEMBLY	1			
21299	03/9388	Shutter gear rack	1	4BA.½in. Filister head screw	0012B	2
†21736	03/13715	Shutter gear	1	Running in 21739		
†21737	03/16731	Loose bush	1	Rear of 21739		
†21738	03/16736	Special thrust plate	2	Fitted to 21736		
†21739	03/17051	Shutter gear yoke	1			
†21743	03/17216	Special thrust plate	1	For 21748		
†21747	03/17252	Adjusting screw	1	4BA.½in. Allen cap screw	01028A	1
†21748	03/17414	Thrust race - Less Plates	1			
21735	33/11760	GOVERNOR SHAFT WITH GOVERNOR	1	No. 3 Woodruff key	0050A	2
21734	03/11744	Governor shaft only	1			
21733	03/9435	Governor body	1	¾in.¾in. Taper pin	01003A	1
21300	03/9434	Governor shaft	1			
21301	03/9436	Governor link	2			
21302	03/9437	Governor bob	2			
21305	03/11023	Joint pin - Short	2	¾in.½in. Split pin	0147A	2
21306	03/11024	Joint pin - Long	4	¾in.½in. Split pin	0147A	4
†21745	33/17218	STRAP AND KEY ASSEMBLY	1	2BA.½in. Filister head screw	0961A	2
†21740	03/17052	Strap	1			
†21741	03/17053	Key	1	21742 Screw is rivetted on assembly, and when ordering a replacement Key (21741) a new screw (21742) should be ordered.		
†21742	03/17054	Special screw	1			
†21744	03/17217	Spring for key	1			
21297	03/9385	Governor shaft bearing	1	2BA.½in. Filister head screw	0961A	4
21298	03/9387	Cover plate for front bearing	1	4BA.¾in. Filister head screw	01017A	4
21303	03/9557	Oil seal for front bearing	1			
21304	03/9558	Oil seal for cover plate	1			
21308	33/11743	Complete driving gear - 34 Teeth	1	2BA.¾in. Allen set screw	0150A	2
21310	03/11751	Retaining screw - LEFT HAND THREAD	1	Retaining 21746		
21399	03/9392	Special washer	1	Securing 21740		
21309	33/12228	GOVERNOR SHAFT WITH GOVERNOR BODY		(Replacement assembly)		
21734	03/11744	Governor shaft	1			
21733	03/9435	Governor body	1	¾in.¾in. Taper pin	01003A	1

*21746 is not interchangeable on early projectors (see also Plate 8a)

†21736 Shutter gear is required for projectors Serial No. 21848 onwards, for earlier models Cat. No. 21296 is required.

†These items have been modified to accommodate the re-design of the shutter gear yoke (21739) and are not interchangeable on early projectors (see also Plate 8a)



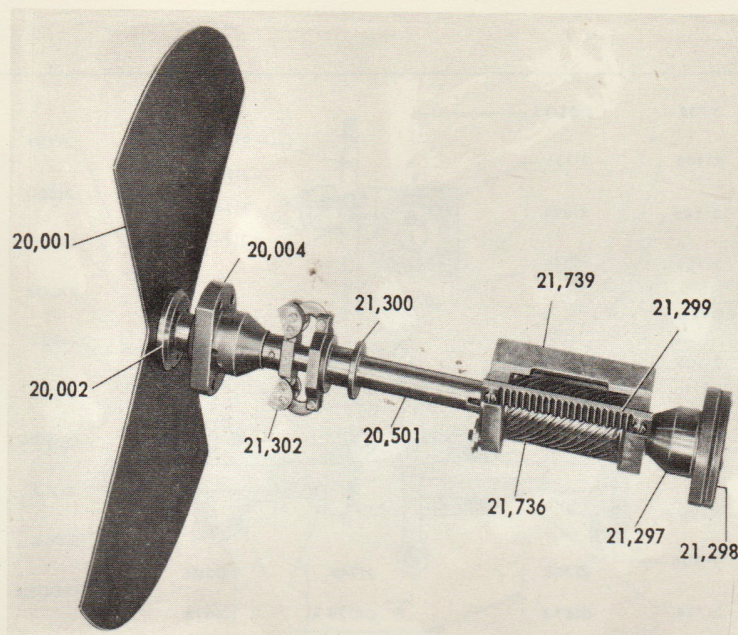


PLATE 10b

GK19 & GK20 GOVERNOR SHAFT ASSEMBLY:
STRAP & KEY ASSEMBLY:
FRONT & REAR BEARINGS: SHUTTER DETAILS.

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*20503	33/17056	GOVERNOR SHAFT ASSEMBLY	1			
21299	03/9388	Shutter gear rack	1	4BA. 1/2 in. Filister head screw	0012B	2
†21736	03/13715	Shutter gear	1	Running in 21739		
‡21737	03/16731	Loose bush	1	For 21739 Rear end		
‡21738	03/16736	Special thrust plate	2	Fitted to 21736		
‡21739	03/17051	Shutter gear yoke	1			
‡21743	03/17216	Special thrust plate	1	For 21748		
‡21747	03/17252	Adjusting screw	1	4BA. 1/2 in. Allen cap screw	01028A	1
‡21748	03/17414	Thrust race - Less plates	1			
20502	33/9396	GOVERNOR SHAFT WITH GOVERNOR	1	No. 3 Woodruff key	0050A	1
20501	03/9395	Governor shaft only	1			
21733	03/9435	Governor body	1	3/32 in. 3/4 in. Taper pin	01003A	1
21300	03/9434	Governor sleeve	1			
21301	03/9436	Governor link	2			
21302	03/9437	Governor bob	2			
21305	03/11023	Joint pin - Short	2	3/64 in. 1/2 in. Split pin	0147A	2
21306	03/11024	Joint pin - Long	4	3/64 in. 1/2 in. Split pin	0147A	4
‡21745	33/17218	STRAP & KEY ASSEMBLY		(See Plate 10a for details)		
‡20001	02/9687	Shutter only	1			
20002	03/10792	Shutter hub	1	No. 2. Woodruff key	0210A	1
20003	03/10793	Shutter clamp ring	1	4BA. 3/8 in. Filister head screw	01022A	3
20004	03/11766	Governor shaft rear bearing	1	2BA. 5/8 in. Filister head screw	01031A	4
20005	03/11767	Oil seal	1	Sealing 20004 & 20006		
20006	03/11768	Sealing plate	1	2BA. 5/8 in. Filister head screw	01031A	4
21297	03/9385	Governor shaft front bearing	1	2BA. 1/2 in. Filister head screw	0961A	4
21298	03/9387	Cover plate for 21297	1	4BA. 5/16 in. Filister head screw	01017A	4
21304	03/9558	Oil seal	1	Sealing 21298		
21329	03/15277	Sealing washer	1	Secured by 21780		
21399	03/9392	Special washer	2	Securing 21740		
‡21780	03/18476	Retaining screw	1	Retaining 20503		
20007	33/13110	GOVERNOR SHAFT WITH GOVERNOR BODY		(Replacement assembly)		
20501	03/9395	Governor shaft	1			
21733	03/9435	Governor body	1	3/32 in. 3/4 in. Taper pin	01003A	1

*20503 is not interchangeable on early projectors (see also Plate 8a)

†21736 Shutter gear is required for projectors Serial No. 20330 onwards and Serial Nos. 19116 onwards; for earlier projectors Cat. No. 21296 is required.

‡These items have been modified to accommodate the re-design of the shutter gear yoke (21739), and are not interchangeable on early projectors (see also Plate 8a)

♦Alternative shutters:-

03/15265 Special Shutter for use with A.C. arclamps
02/20371 Special Shutter for 16 f.p.s. (Three blade)

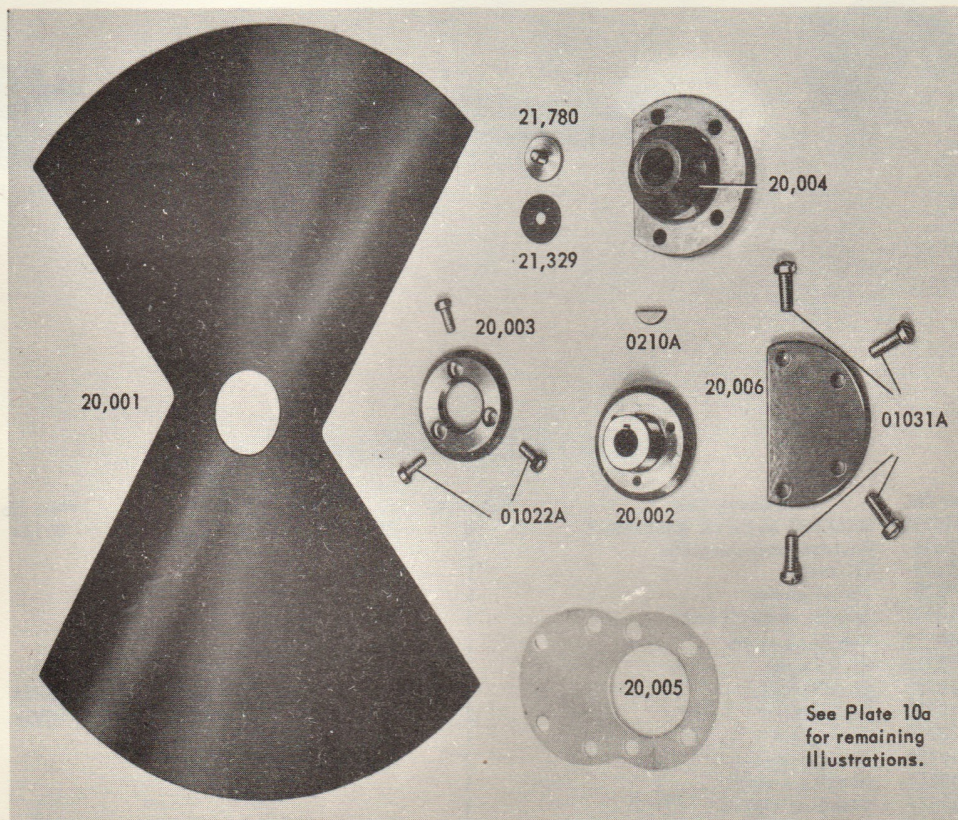
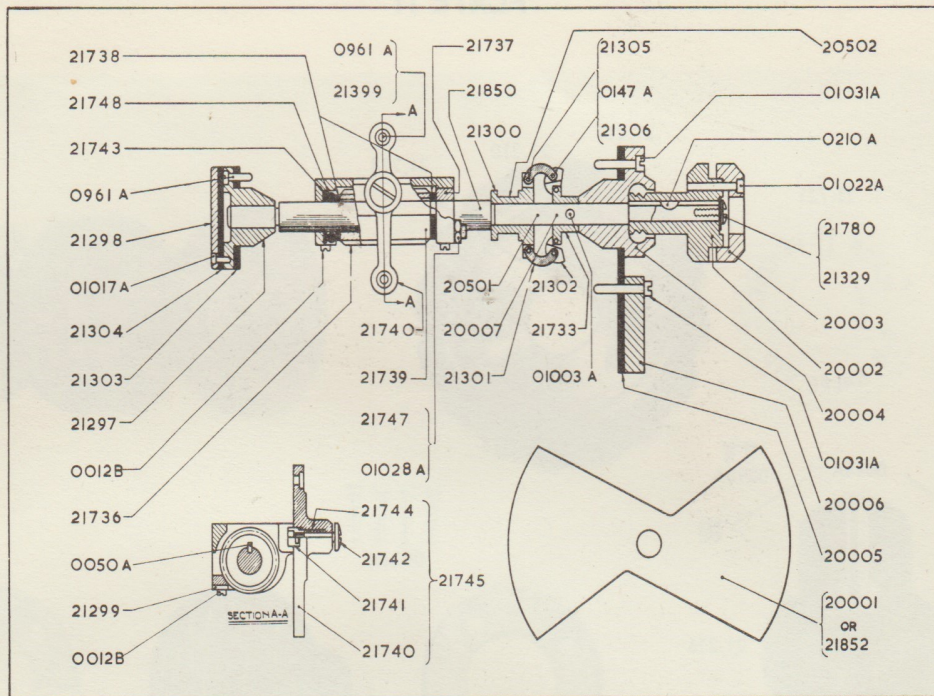
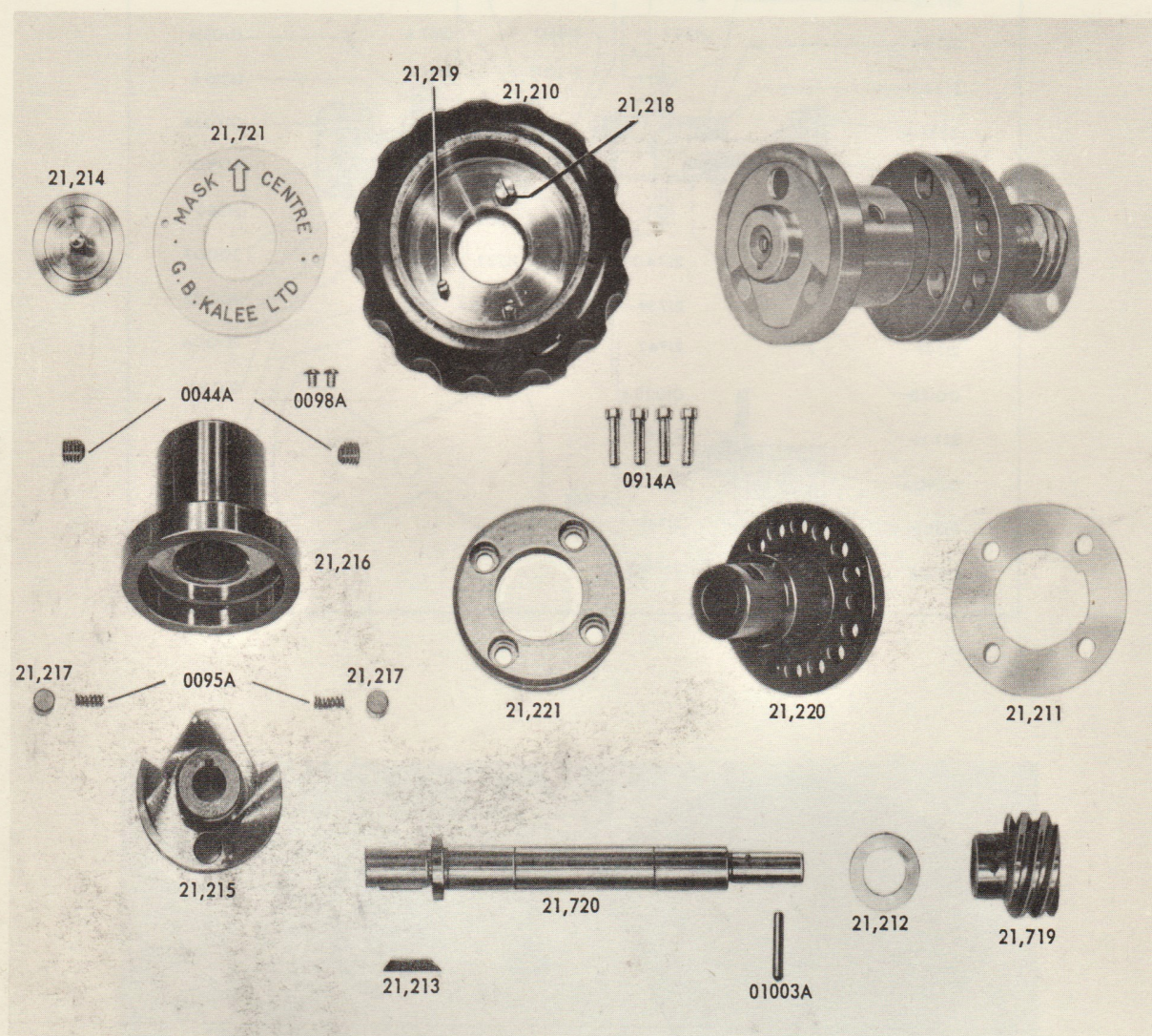


PLATE 11



MASKING SLEEVE ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*21718	33/10859	MASKING SLEEVE ASSEMBLY	1	†2BA. 3/16in. Filister head screw	0914A	4
21210	33/9548	Moulded knob complete	1			
†21211	03/9559	Oil seal	1	Sealing 21718		
21212	03/9628	Thrust washer	1	Behind 21719		
21213	05/10127	Special woodruff key	1	Driving 21215		
21214	03/10155	Retaining screw	1	Retaining 21210		
21215	05/10727	Clutch hub	1			
21216	05/10728	Clutch shell	1	1/4in.BSF. 1/4in. Allen set screw	0044A	2
21217	05/10730	Clutch roller	2	Compression spring S.300	0095A	2
21218	05/10737	Driving pin	1	Driving 21215		
21219	05/10739	Release screw	2	Release 21217		
21220	03/10843	Masking sleeve	1			
21221	03/10844	Clamping sleeve	1			
†21721	03/18062	Masking label	1	8BA. 3/16in. Roundhead screw	0098A	2

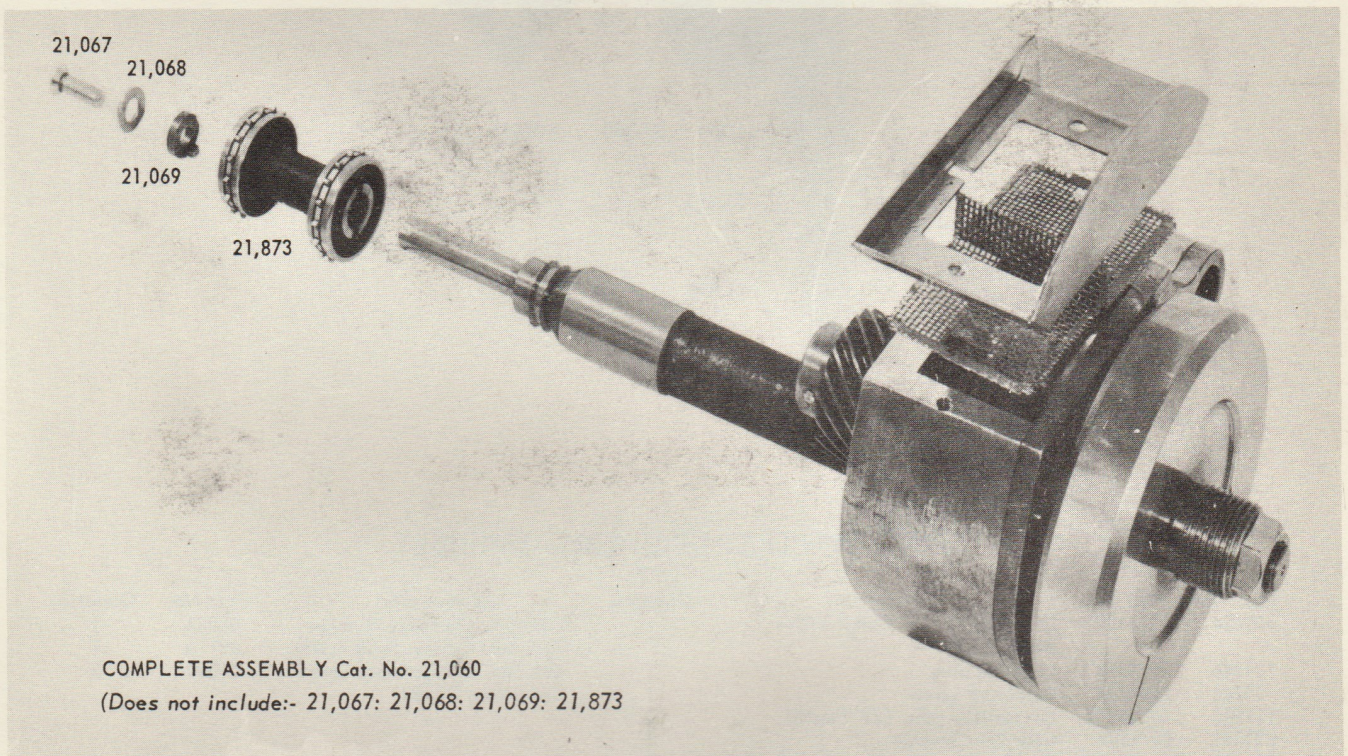
PLATE 11: (Cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
*21222	33/12227	MASKING SPINDLE WITH GEAR	1			
*21719	03/10804	Masking gear	1	$\frac{3}{32}$ in. $\frac{3}{4}$ in. Taper pin	01003A	1
21720	03/10861	Masking spindle	1			

*These items are not directly interchangeable on early projectors, due to the re-design of Cat. No. 21719; When ordering replacements for early projectors, Cat. No. 21384 (See Plate 12a) is required in addition.

†These items are not included as part of the assembly and should be ordered separately if required.

PLATE 12



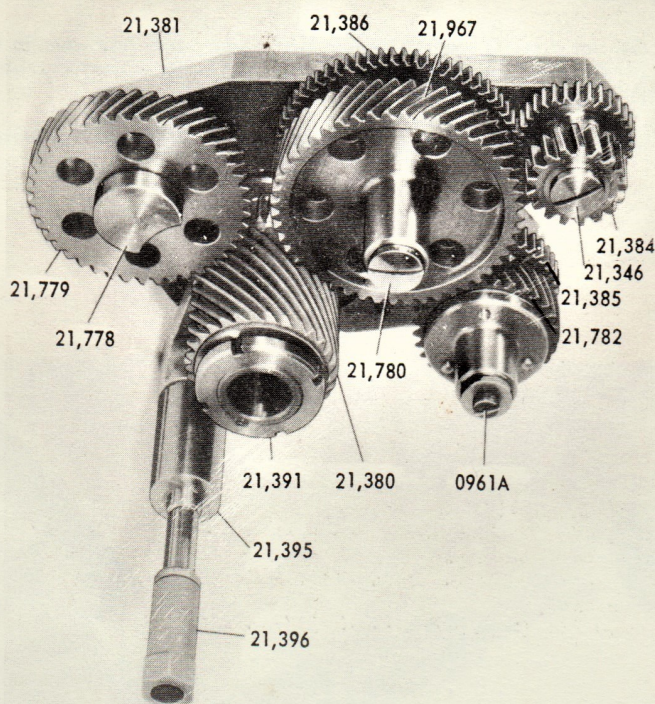
INTERMITTENT UNIT ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21060	32/9281	INTERMITTENT UNIT ASSEMBLY		(Secured by 21396 See Plate 12a)		

NOTE:- This assembly is manufactured to special tolerances and cannot be dismantled or re-assembled without special tools and skill. For this reason the parts are not listed; in servicing, the complete unit should be removed and replaced with a new one. The old unit should then be returned to the manufacturers or their agents for servicing.

21067	03/9655	Screw securing sprocket	1	} Not part of the above assembly
21068	03/9656	Washer securing sprocket	1	
21069	35/10877	Key washer locating sprocket	1	
21873	02/20205	Intermittent sprocket	1	

PLATE 12a



INTERMITTENT GEAR YOKE ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
±21624	32/9120	INTERMITTENT GEAR YOKE ASSEMBLY	1	*{ 2BA. ½in. Cheesehead screw 2BA. ½in. Filister head screw 4BA. ¾in. Filister head screw Retaining 21384	0023A 0914A 01030A	2 1 3
*21344	03/9389	Locating plug	1			
21346	03/9394	Retaining screw	1			
±21380	03/25944	Intermittent gear (29 Teeth)	1			
±21381	02/9109	Gear yoke bracket	1			
±21384	03/12556	Racking compound gear (31 & 17 Teeth)	1			
21385	03/9115	Shutter yoke racking gear	1			
21386	03/9116	Racking intermediate gear	1			
21387	03/9122	Pin for quadrant	1			
21388	03/9123	Flanged washer	1			
21389	03/9124	Half ring	2			
21390	03/9125	Retaining ring	1	Retaining 21389		
21391	03/9126	Locking ring	1	4BA. ½in. Grub screw	0192A	1
21394	03/9133	Dowel for quadrant post	1			
21395	03/9134	Quadrant post	1	0BA. ¾in. Allen cap screw	01033A	1
21396	03/9135	Nut for quadrant post	1	Securing intermittent unit		
*21398	03/9390	Oil deflector	1	4BA. ¾in. Filister head screw	01022A	4
21399	03/9392	Hardened washer	1	Securing 21782		
*21401	03/9556	Oil seal	1	Sealing 21398		
21402	03/10377	Racking compound gear post	1	2BA. ½in. Allen set screw	0042A	1
21404	03/10848	Lower gear post (Left hand)	1	4BA. ½in. Cheesehead screw	0149A	3
21405	03/10849	Lower gear post (Right hand)	1	4BA. ½in. Cheesehead screw	0149A	3
21406	05/10792	Corrugated spring washer	1			
±21775	03/12670	Quadrant	1			

PLATE 12a (Cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21776	03/12902	Hardened washer	1	(On 21778 under 21779)		
‡ 21777	03/12903	Locknut	1	(Securing 21778)		
‡ 21778	33/12913	Bottom compound gear post (Complete)	1	(Secured by 21777)		
‡ 21779	03/12928	Bottom compound gear (42 & 21 Teeth)	1			
21780	03/18476	Retaining screw	1	(Retaining 21967)		
21781	03/18691	Special steel washer	1	(On 21395 under 21396)		
† 21782	33/22542	Shutter driving gear (29 Teeth)	1	{ Hardened washer 21,399 2BA.½in. Filister head screw	0961A	1
† 21967	03/23153	Lower intermediate gear (48 Teeth)	1			

*These items are not supplied as part of the assembly, and should be ordered separately if required.

†These items have been re-designed but are interchangeable.

‡These items have been re-designed and are interchangeable on early projectors only as follows:-

21624 { When ordering a replacement for either of these items:- Cat. No. 21719
21384 { masking gear (See Plate 11) will also be required as this has been re-designed to mesh with 21384.

On projectors having Serial Nos. up to and including:- 21542: 20111: 19005:

21381 Order 21778 and 21777 in addition.

21779 (Replaces 21383) Requires a new hardened washer between the gear and the yoke whenever a gear is replaced. For early pattern gear post (21403) order washer 21725 (Part No. 03/13205). For current type gear post (21778) order washer 21776.

21778 (Replaces 21403) Order 21381 and 21777 in addition.

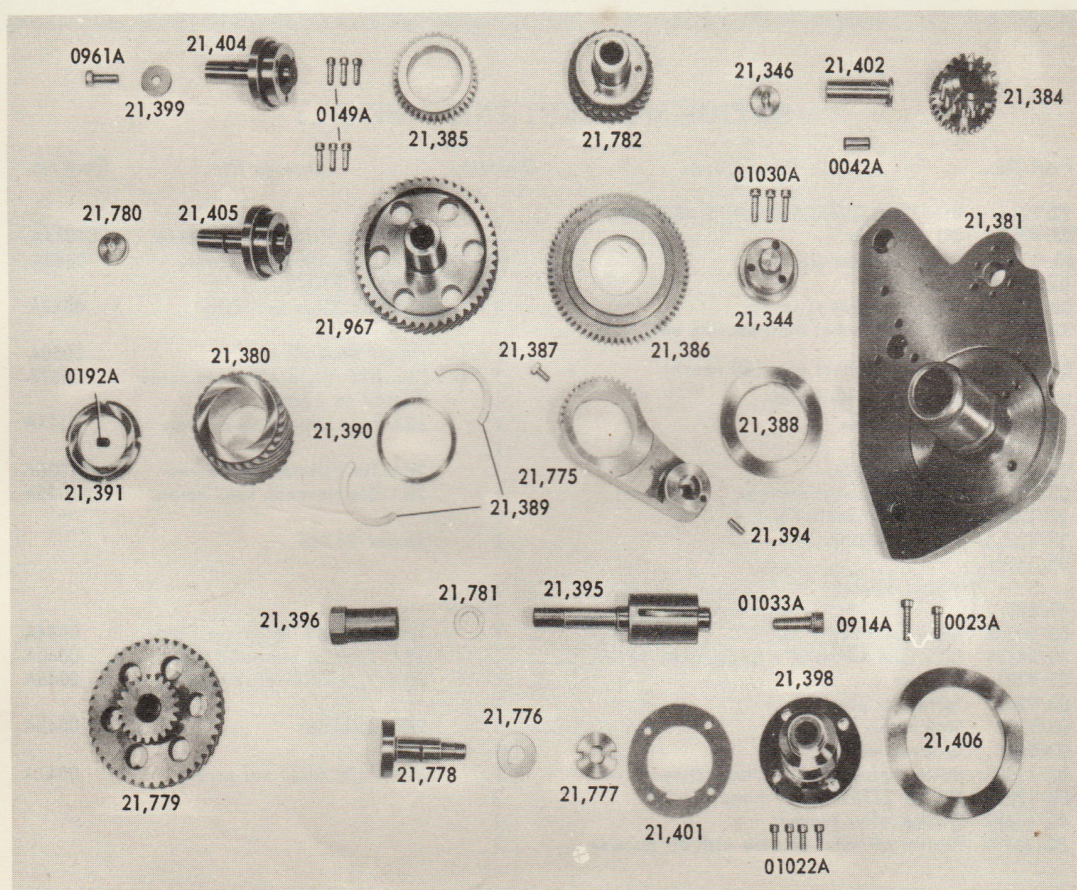
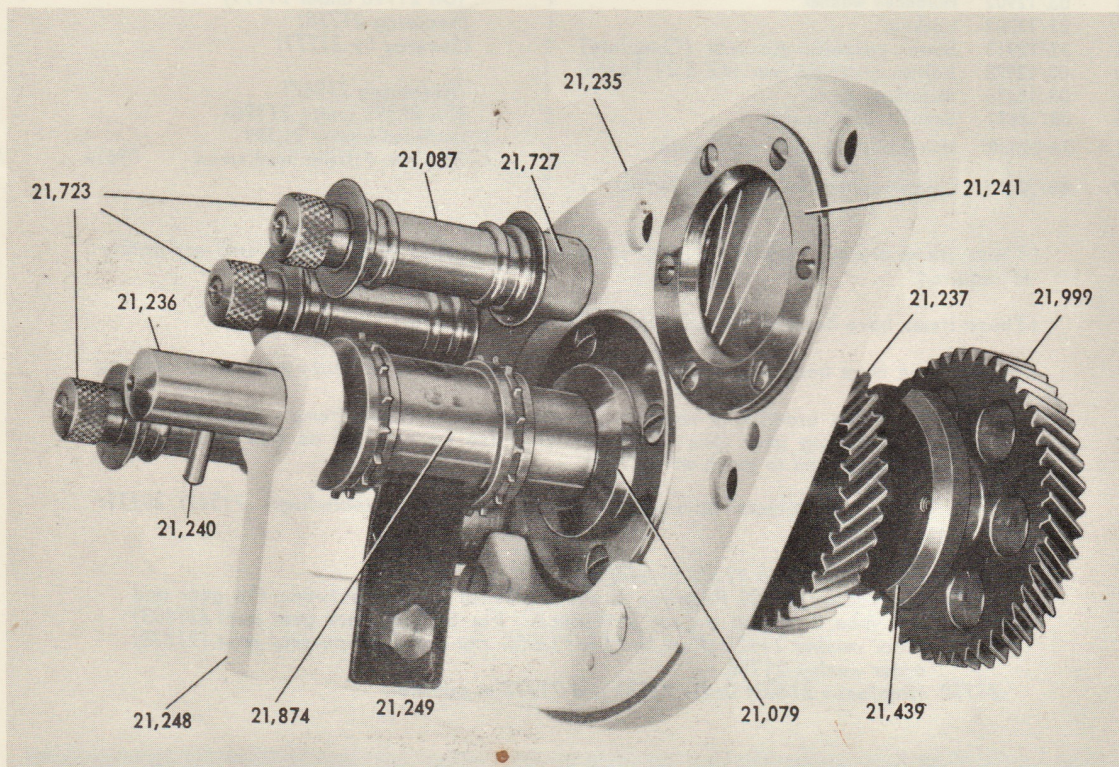


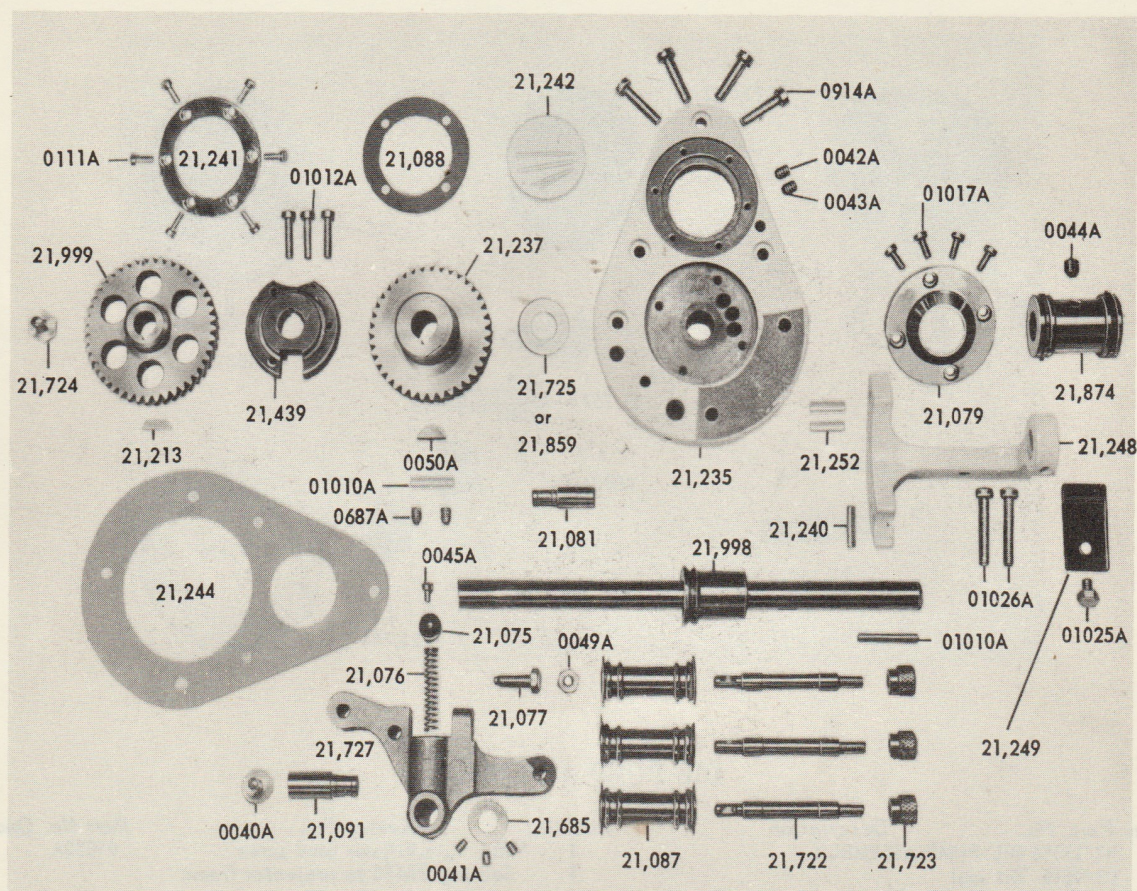
PLATE 13



BOTTOM SPROCKET UNIT ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21621	32/9210	BOTTOM SPROCKET UNIT ASSEMBLY				
21079	03/9213	Oil deflector	1	4BA. $\frac{5}{16}$ in Filister head screw	01017A	4
21081	03/9216	Roller bracket stop pin	1	2BA. $\frac{3}{16}$ in Allen set screw	0043A	1
21088	03/9651	Oil seal	1	Sealing 21079		
21091	03/11184	Roller bracket pivot pin	1	2BA. $\frac{1}{4}$ in Allen set screw	0042A	1
21235	32/9205	Bottom sprocket front bearing only	1			
† 21237	03/13298	Bottom sprocket gear (38 teeth)	1	{ (No. 3 Woodruff key	0050A	1
21240	03/9217	Driving pin for handle	1	{ $\frac{1}{4}$ in BSF. $\frac{5}{16}$ in Allen set screw	0687A	2
21241	03/9220	Window frame	1	Fitted to 21236		
21242	03/15321	Window	1	6BA. $\frac{5}{16}$ in Cheesehead screw	0111A	6
21248	03/10568	Handle bracket	1			
21249	03/10569	Bottom sprocket stripper	1	2BA. 1in Filister head screw	01026A	2
21252	03/12204	Dowel for handle bracket	2	2BA. $\frac{1}{4}$ in Hexagon head screw	01025A	1
21685	03/13325	Spacing washer	1	Under 21726		
21725	03/13205	Thrust washer	1			
or						
21859	65/568					
21874	03/20206	Feed sprocket	1	$\frac{1}{4}$ in. BSF. $\frac{1}{4}$ in. Allen set screw	0044A	1
21726	33/18698	BOTTOM ROLLER BRACKET ASSEMBLY	1	2BA. Special screw SX 194	0040A	1
21075	03/9201	Plunger	1	6BA. $\frac{3}{16}$ in Cheesehead screw	0045A	1
21076	03/9202	Spring for plunger	1			
21077	03/9203	Stop screw	1	2BA. Locknut	0049A	1
21087	03/9645	Grooved roller	3			
‡ 21722	03/12566	Roller spindle - Left hand thread	3	4BA. $\frac{3}{16}$ in Allen set screw	0041A	3
‡ 21723	03/12568	Nut for 21722 - Left hand thread	3			
21727	03/18699	Bottom roller bracket	1			
* 21998	32/26359	Bottom sprocket spindle with oil thrower	1			

PLATE 13 (Cont'd)



The following items illustrated on this plate are not supplied as part of the Bottom Sprocket Unit, and should be ordered separately if required:-

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
		Screws securing complete unit to Frame		2BA. $\frac{3}{16}$ in. Filister head screw	0914A	4
21,244	03/9555	Oil seal	1	Sealing 21,621		
21,439	03/9391	Bottom sprocket rear bearing	1	4BA. $\frac{5}{16}$ in. Filister head screw	01012A	3
21,213	05/10127	Key for main drive gear	1			
*21,999	33/26357	Main drive gear (44 teeth)	1			
21,724	03/12930	Screw securing main drive gear	1			
*	WFD.575	Shake-proof washer for main drive gear	1	Under 21,724		

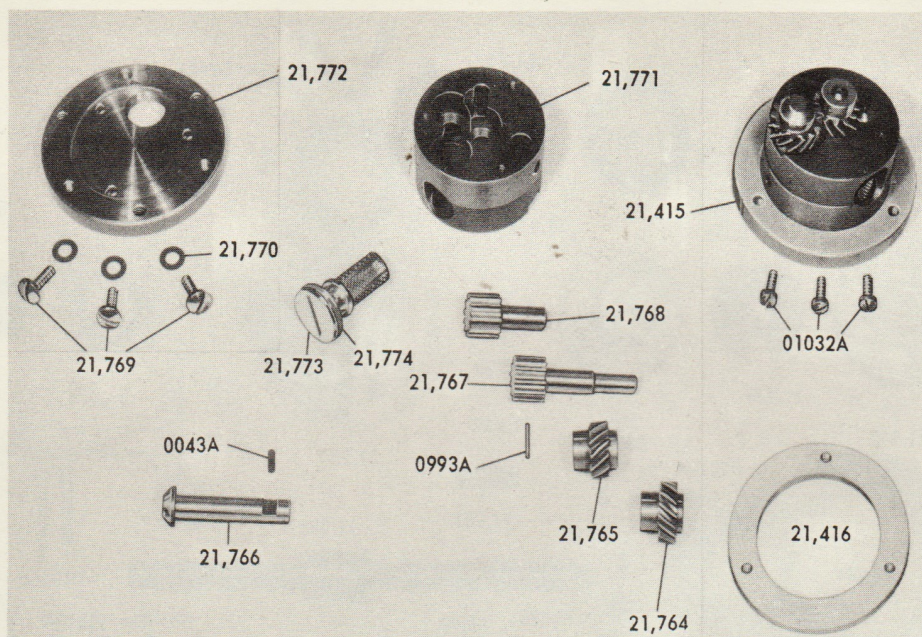
* 21,998 & 21,999 have been re-designed and are interchangeable on Projectors having Serial Nos:- 212468 onwards; 201276 onwards; and 19762 onwards. For Projectors having Serial Nos. below those stated, it is necessary to order all three items i.e. 21,998; 21,999 and WFD575.

† 21,237 Gear is secured by a taper pin in manufacture, replacements are supplied with the set screws shewn in this parts list. On Projectors having Serial Nos. up to and including:- 21,639; 20,159; and 19036, a thrust washer (21,725 or 21,859) will be required in addition to the gear.

‡ 21,722. Roller spindle, and 21,723 Nut, replace 21,234 spindle with solid head. When a replacement is required, both spindle and nut should be ordered, the nut being the detachable head of the spindle.

§ 21,727 has an extra roller and spindle to roller bracket 21,230. When a replacement for 21,230 is required, 21,727 is interchangeable but requires 21,087, 21,722 and 21,723 in addition.

PLATE 14



OIL PUMP ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
†21415	33/13516	OIL PUMP ASSEMBLY	1	* 4BA. 7/16 in. Filister head screw	01032A	3
*21416	03/9615	Oil seal	1	Sealing 21415 to projector frame		
21764	03/9608	Pump idler gear	1			
21765	03/9609	Pump gear	1	1/16 in. 1/2 in. Taper pin	0993A	1
21766	03/9610	Pump idler gear spindle	1	2BA. 3/16 in. Allen set screw	0043A	1
21767	03/9612	Pumping gear	1			
21768	03/9613	Pumping idler gear	1			
21769	03/9614	Special screw	3	Securing 21772 to 21771		
21770	03/11233	Fibre washer	3	Under 21769		
‡21771	03/13517	Pump body	1			
‡21772	03/13518	Pump flange	1			
21773	33/13519	Complete filter	1			
21774	03/13523	Oil seal	1	Oil seal for 21773		

*These items are not supplied as part of the assembly, and should be ordered separately if required.

†21415 has been re-designed, but is interchangeable as a complete assembly.

‡These items have been modified to incorporate an oil filter, and are not interchangeable on early assemblies.

PLATE 15: OIL FILTER & FEED PIPES

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
20500	33/14949	GK20 & GK19 Oil feed pipe for shutter shaft rear bearing	1			
21320	03/8403	Union nut	1	Securing 21327		
21321	03/9438	Filler plug	1			
21322	32/9462	Oil reservoir with two fixed pipes	1	2BA. 7/8 in. Filister head screw	01029A	2
21323	03/9467	Filler plug adaptor	1	2BA. 7/8 in. Filister head screw	01018A	3
21324	03/9560	Oil seal	1	Under 21323		
*21325	33/10794	Oil sight pipe, complete	1			
21326	33/10795	GK21 Oil pipe for shutter shaft rear bearing	1			

PLATE 15

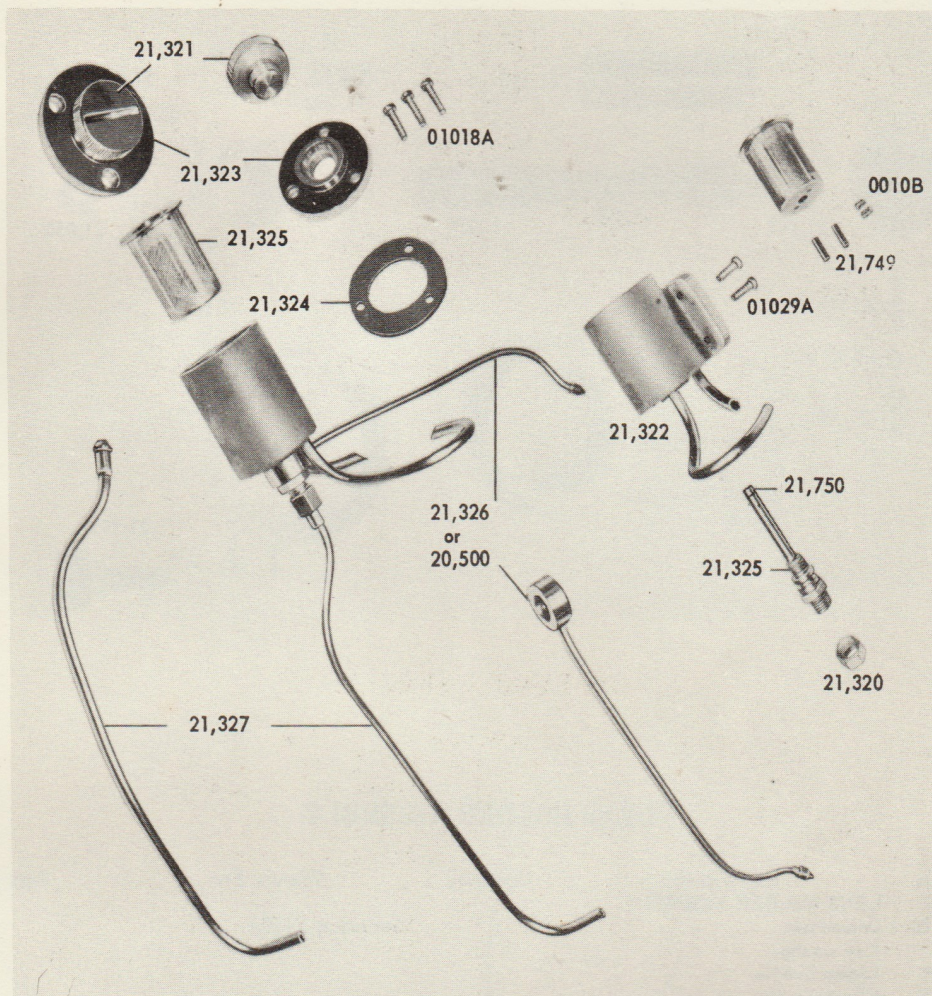


PLATE 15: OIL FILTER & FEED PIPES (Cont'd.)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21327	33/11822	Main feed pipe complete	1			
21328	33/17084	Filter complete with magnets	1			
†21749	03/17088	Magnet for oil filter	2	6BA. $\frac{3}{16}$ in. Grub screw	0010B	2
‡21750	03/17847	Blanking screw	1	Blanking end of 21325		

The above parts are interchangeable on all GK21 Projectors, and Serial Nos. 20185 upwards (GK20), and 19038 upwards (GK19).

*If this item is required as a replacement on projectors having Serial Nos. up to, and including 20184 and 19037, the following additional items will be required:-

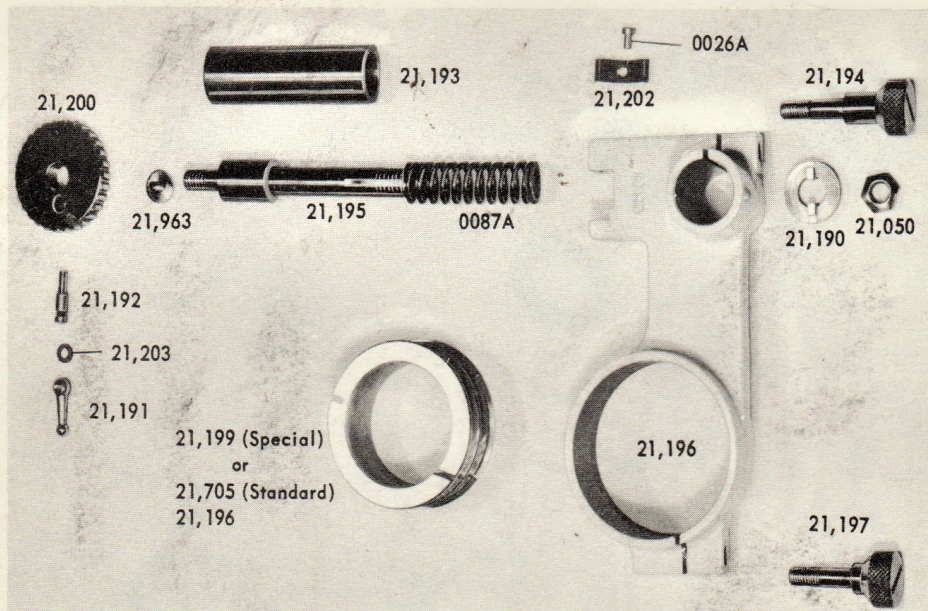
- 1 Oil feed pipe (21327)
- 1 Oil feed pipe (20500)
- 1 Clip (Cat. No. 21349) and screw (01017A)

(This last item is to secure Cat. No. 20500, and is listed on Plate 8a)

†Included with assembly Cat. No. 21328

‡Included with assembly Cat. No. 21325

PLATE 16



LENS HOLDER ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21704	32/9627	LENS HOLDER ASSEMBLY				
21050	03/10190	Domed nut	1	Securing 21704		
21190	05/483	Key washer	1			
21191	05/5368	Clamp handle	1			
21192	05/5369	Clamp stud	1			
21193	05/6108	Sleeve	1			
21194	03/9487	Lens arm clamp screw Short	1			
21195	33/9491	Stud with dowel	1			
21196	02/18357	Lens arm (70.5mm Bore)	1			
21197	03/9912	Lens clamp screw Long	1			
* 21199	03/11998	Lens adaptor (Special)	1			
21200	05/10133	Focussing nut	1			
21202	03/10707	Friction spring for lens arm	1	4BA. 1/4in. Cheesehead screw	0026A	1
† 21203	05/14892	Packing washer	1			
0087A	S.148	Compression spring	1	Inside 21193		
21963	03/4709	Special 2BA. screw	1	Retaining 21200		

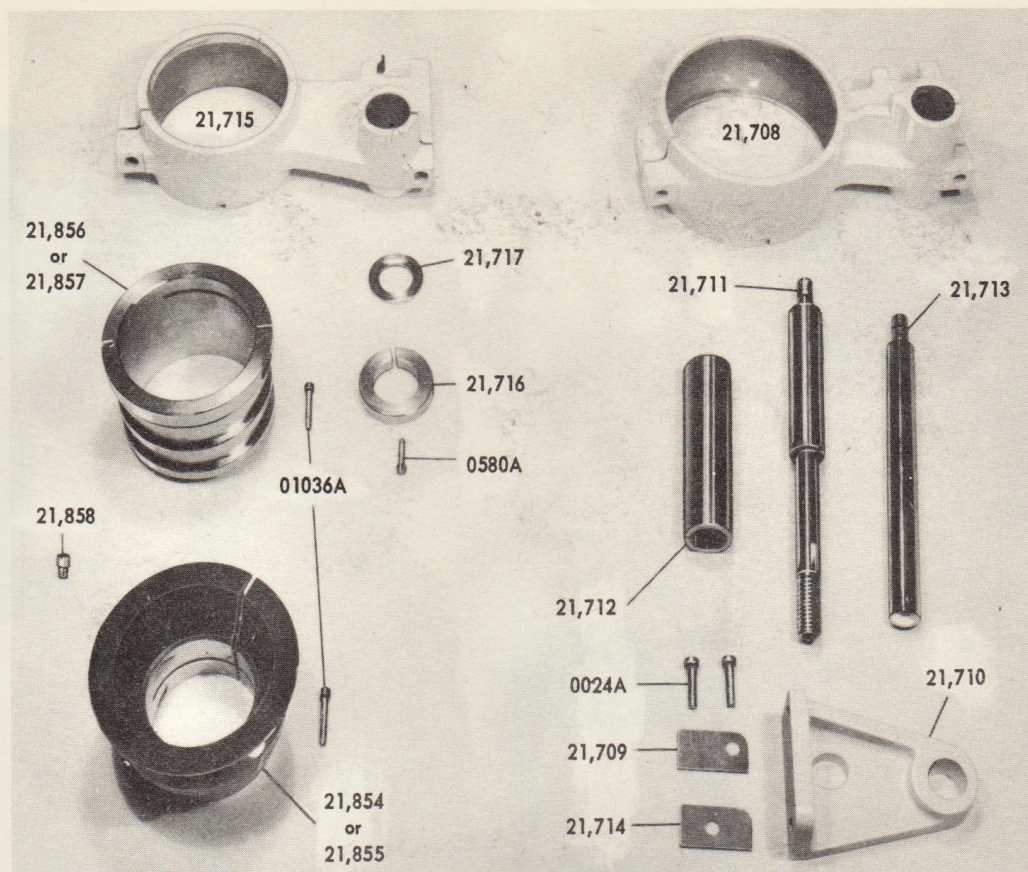
*This item is not supplied as part of this assembly and should be ordered in place of 21705 if required. 21199 Lens adaptor is for use with Series 'H' 4/4 1/4in. Focal length projection lenses only.

†21705 Lens adaptor is for use with 52.5mm lenses.

PLATE 16a ALTERNATIVE LENS HOLDER ASSEMBLIES

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
†82.5mm (3 1/4in.) LENS HOLDER ASSEMBLY						
21715	02/20375	82.5mm Lens arm only	1			
21716	03/20380	Stop ring	1	4BA. 5/16in. Allen cap screw.	0580A	1
21717	03/20381	Stop washer	1			

PLATE 16a

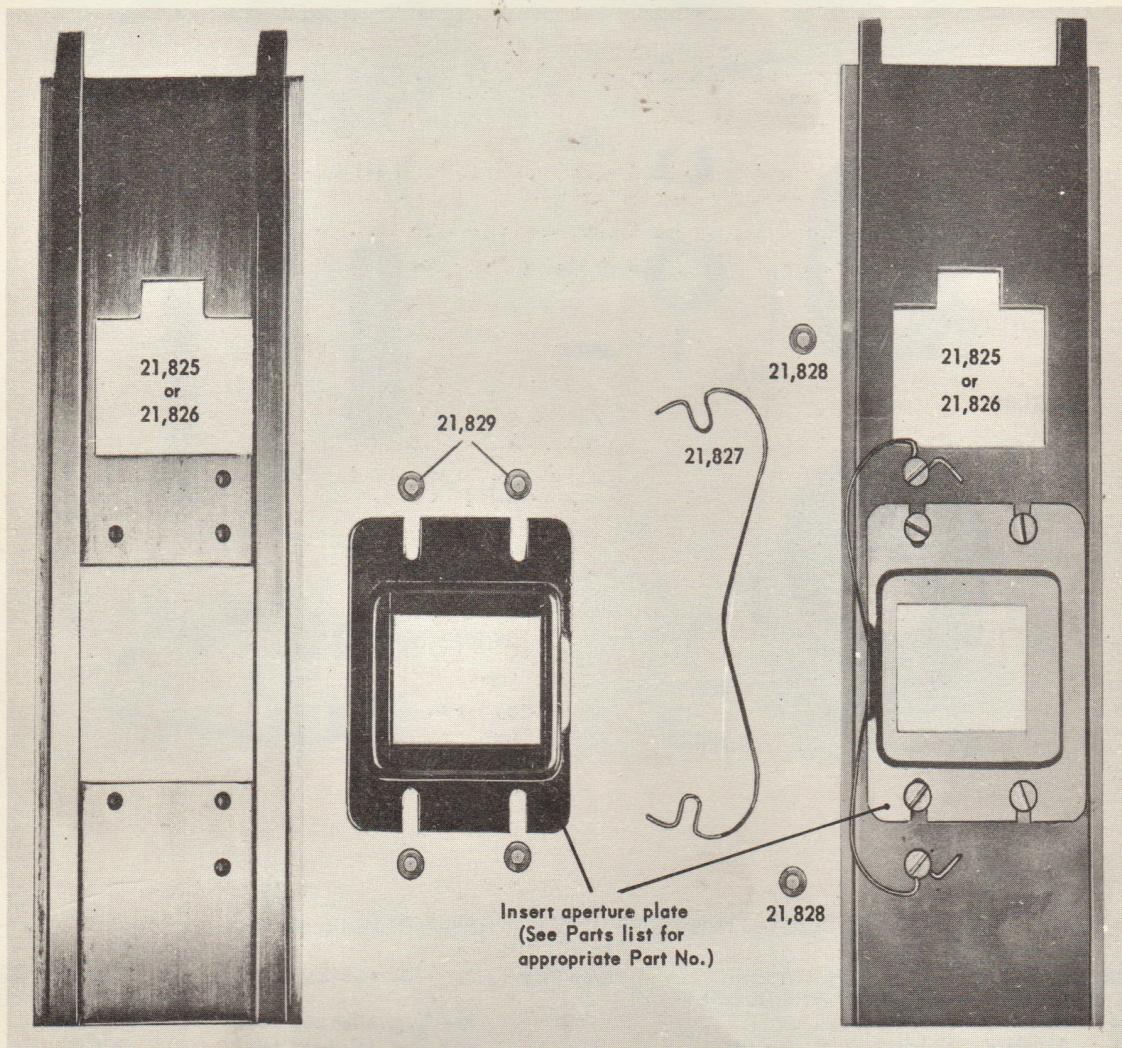


ALTERNATIVE LENS HOLDER ASSEMBLIES (cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
LENS ADAPTORS FOR 82.5mm LENS HOLDER						
21854	03/20383	52.5mm bore	1	4BA. $\frac{7}{8}$ in. Allen cap screw	01036A	1
21855	03/20478	52.5mm bore <i>Eccentric</i>	1	4BA. $\frac{7}{8}$ in. Allen cap screw	01036A	1
21856	03/20477	70.5mm bore	1	4BA. $\frac{7}{8}$ in. Allen cap screw	01036A	1
21857	03/20384	70.5mm bore <i>Eccentric</i>	1	4BA. $\frac{7}{8}$ in. Allen cap screw	01036A	1
21858	03/20393	Locating pin for eccentric adaptors	1			
*SPECIAL 4in. (102mm) BORE LENS HOLDER ASSEMBLY						
21706	31/18233	4in. BORE LENS HOLDER ASSEMBLY, COMPLETE	1			
21708	02/18234	4in. Bore lens arm only	1			
21709	03/18236	Liner 'Upper'	1	Locating 21710		
21710	03/18237	Support bracket	1	$\frac{1}{2}$ in. BSF. $\frac{1}{2}$ in. Allen cap screw	0024A	2
21711	33/18239	Special stud with dowel	1			
21712	03/18240	Special sleeve	1			
21713	03/18241	Special guide rod	1			
21714	03/18255	Liner 'Lower'	1	Locating 21710		
*SHORT FOCUS 52.5mm (2.064in.) LENS HOLDER ASSEMBLY						
21960	32/15911	SHORT FOCUS (52.5mm) LENS HOLDER ASSEMBLY, COMPLETE	1			
21961	02/15908	52.5mm Lens arm only	1			
21962	03/15909	Lens adaptor 42.5mm Bore	1			

* All other parts not quoted, identical to Standard Lens Holder (Plate 16)

PLATE 17



MASK PLATES AND INSERT APERTURE PLATES

PLATE 17: MASK PLATES AND INSERT APERTURE PLATES

MASK PLATES

Cat. No.	Part No.	Description	Quantity
21825	33/24032	STANDARD MASK PLATE (with screws and locating spring)	
21826	33/25313	MASK PLATE FOR VELVET CARRIER (with screws and locating spring)	
21827	03/20482	Locating spring	1
21828	03/20481	Screw securing 21827	2
21829	03/20273	Screw securing Insert Aperture Plate	4
21175	03/11060	Velvet carrier	1
21830		2 yds Black ribbon velvet	1

} not supplied as part of 21826

Note: When ordering a replacement mask plate assembly for a specific aspect ratio, it is necessary to quote two part numbers as follows:-

1. The number denoting the mask plate complete with screws and locating spring.
2. The number denoting the required insert aperture plate.

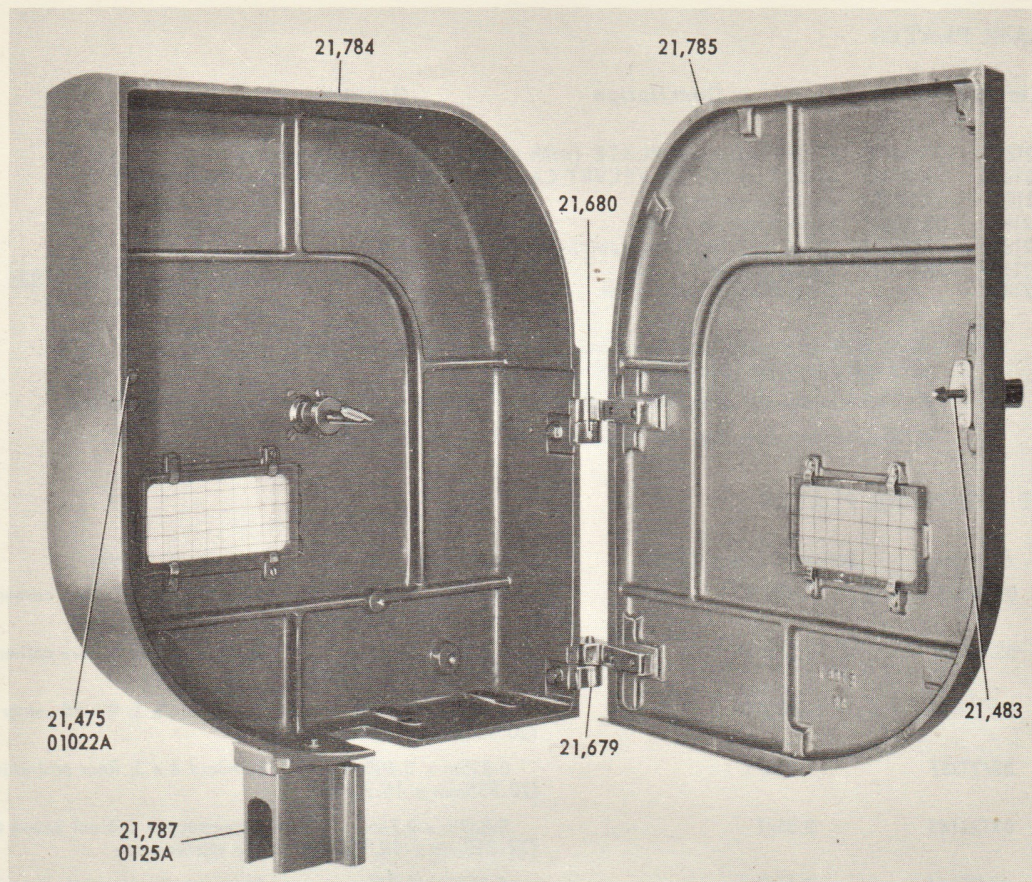
INSERT APERTURE PLATES

Cat. No.	Part No.	Screen Aspect Ratio	Full Aperture Size	Description
21835	03/21045	1.375/1	0.825in x 0.600in (20.955mm x 15.24mm)	Standard 4 x 3; Square corners
* 21836	03/21089	1.375/1	0.825in x 0.600in (20.955mm x 15.24mm)	Standard 4 x 3; Square corners
21834	03/21044	1.375/1	0.825in x 0.600in (20.955mm x 15.24mm)	Standard 4 x 3; Round corners
21837	03/21887	1.375/1	0.825in x 0.600in (20.955mm x 15.24mm)	Standard 4 x 3; Rear projection
* 21833	03/21143	2.35/1	0.839in x 0.715in (21.310mm x 18.16mm)	Cinemascope Optical sound track, and Warnerscope
21831	03/20274	2.55/1	0.912in x 0.715in (23.165mm x 18.16mm)	Cinemascope Magnetic sound track
* 21832	03/20374	2.55/1	0.912in x 0.715in (23.165mm x 18.16mm)	Cinemascope Magnetic sound track
* 21842	03/20725	1.6/1	0.825in x 0.516in (20.955mm x 13.08mm)	Wide screen
* 21843	03/20676	1.66/1	0.825in x 0.479 (20.955mm x 12.624mm)	Wide screen
* 21844	03/20959	1.75/1	0.825in x 0.471in (20.955mm x 11.963mm)	Wide screen
* 21845	03/21029	1.8/1	0.825in x 0.458in (20.955mm x 11.633mm)	Wide screen
* 21846	03/20830	1.85/1	0.825in x 0.445in (20.955mm x 11.303mm)	Wide screen
* 21847	03/21313	2/1	0.825in x 0.412in (20.955mm x 10.465mm)	Wide screen
* 21840	03/21654	2/1	0.715in x 0.715in (18.16mm x 18.16mm)	Superscope
* 21841	03/21499	2/1	0.825in x 0.613in (20.955mm x 15.57mm)	Vistavision
21848	03/20272	Aperture Plate insert blanks (unpierced)		
21849	03/20483	Aperture plate insert blanks (pierced)		
			0.625in x 0.312in (15.875mm x 7.925mm)	

*Note: These aperture plates are cut .030in (0.762mm) undersize to allow for fitting, and are marked to show correct aperture size.

SPECIAL SIZES AND KEYSTONE:- SUPPLIED TO ORDER

PLATE 18

GK21 RECTANGULAR TOP SPOOLBOX ASSEMBLY;
FIRE TRAP ASSEMBLY

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
* 21964	33/9567	RECTANGULAR TOP SPOOLBOX ASSEMBLY		(State spindle size when ordering)		
		comprising:-				
21783	31/10873	Top spoolbox assembly only	1			
† 21799	33/9666	5/16in spindle and bearing assembly	}	As ordered		
† 21800	33/10235	3/8in spindle and bearing assembly		2BA. 5/16in Cheesehead screw	0212A	4
† 21801	33/11086	9mm spindle and bearing assembly		See Plate 20 for details		
† 21802	33/12864	1/2in spindle and bearing assembly				
21676	03/14562	Screws securing spoolbox to projector	2	(Not supplied as part of this assembly)		
21783	31/10873	TOP SPOOLBOX ASSEMBLY ONLY				
21054	03/10245	Special screw	6	Securing hinges 21487 and 21492		
21056	05/14111	Rubber buffer	1	6BA. 1/4in Cheesehead screw	0008A	1
21475	33/9303	Door catch assembly	1	6BA. Washer	0031A	1
21480	03/9602	Window	2	4BA. 3/8in Filister head screw	01022A	2
21482	03/9727	Escutcheon Plate	1	4BA. 3/8in Countersunk screw	0081A	2
21484	03/9828	Spring for handle - Right hand	1			
21485	03/12535	Stop pin for latch	1			
21487	03/10198	Top hinge (For spoolbox door)	1	Secured by 21054		
21492	03/10652	Bottom hinge (For spoolbox door)	1	Secured by 21054		
21784	01/9569	Top spoolbox only	1			
21785	01/9571	Top spoolbox door only	1			
21786	03/9598	Window clip	8	4BA. 1/4in Filister head screw	01020A	8
21787	02/9650	Rocker arm cover	1	1/4in BSF. 1/4in Cheesehead screw	0125A	2
21789	03/11009	Sealing strip for door	1	4BA. 1/4in Countersunk screw	0011A	4
21790	03/11471	Plug screw	1			
21791	03/11472	Plug screw	1			

* This assembly does not include a fire trap.

† If reel-end alarms are fitted, see Plate 24 for details of spool spindles and bearings.

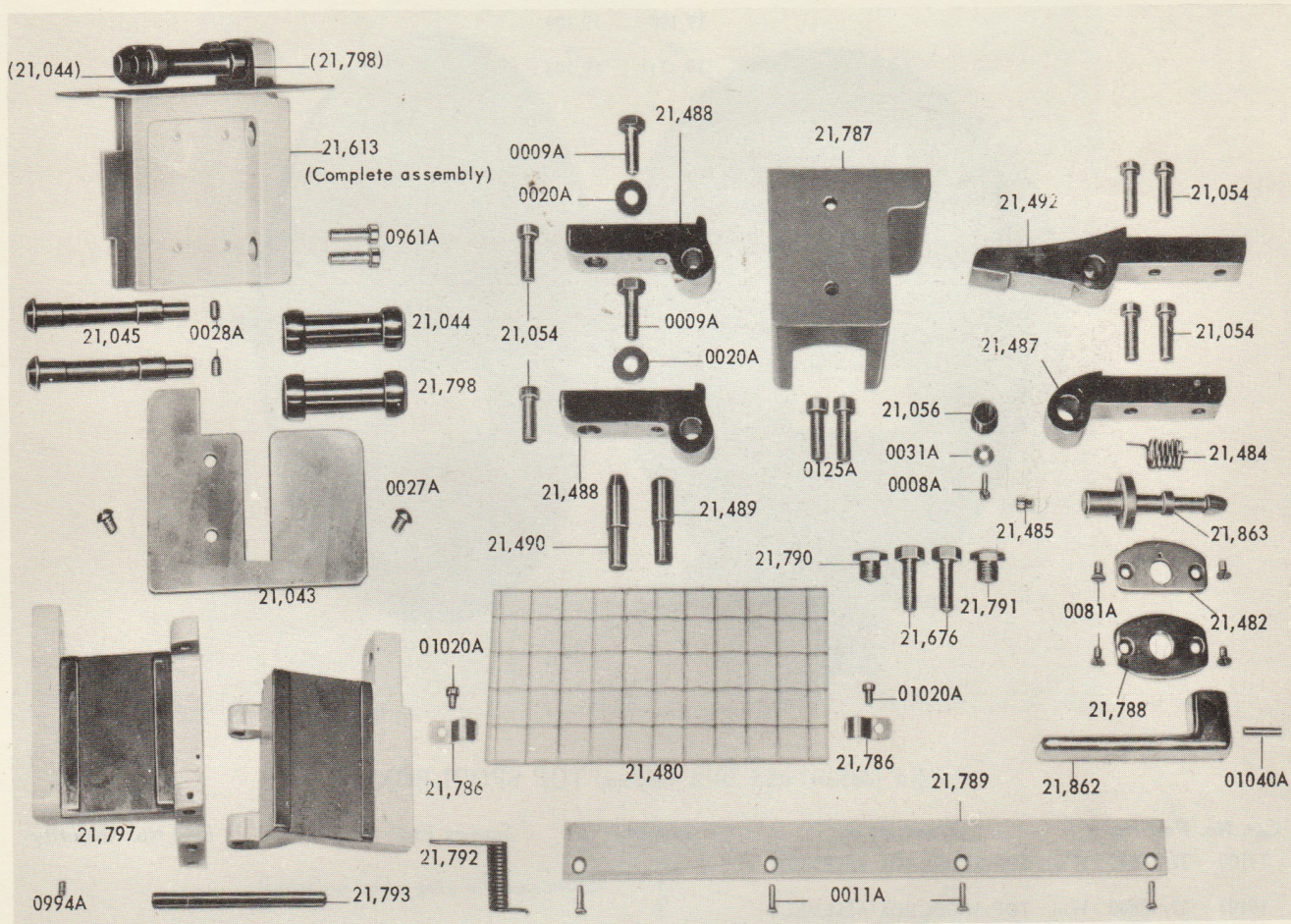
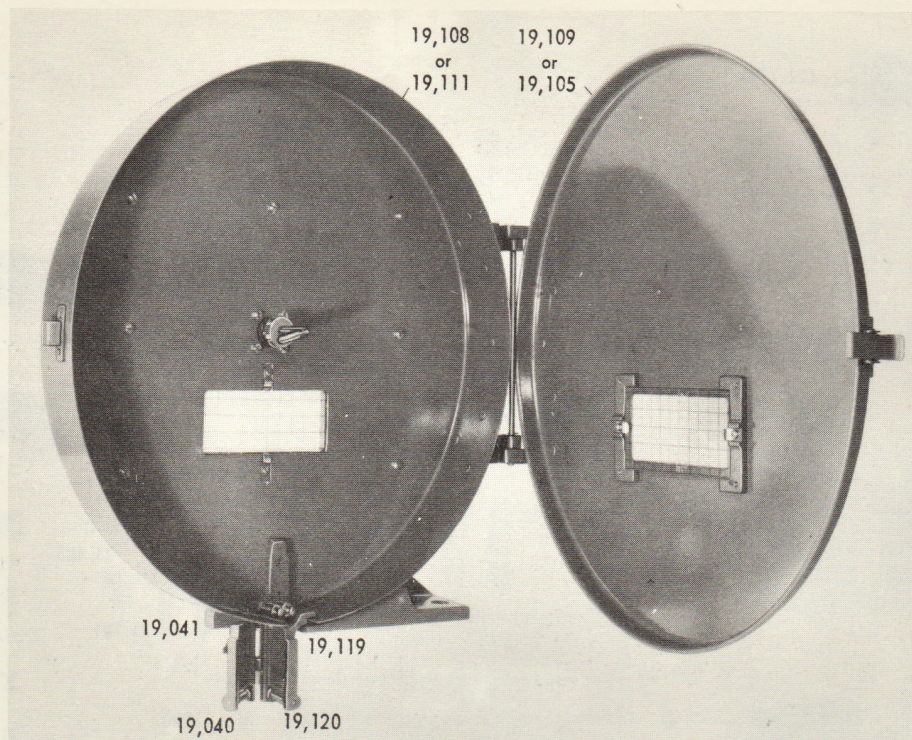


PLATE 18 (Cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21483	33/9728	HANDLE AND LATCH ASSEMBLY	1			
21788	03/9719	Escutcheon plate	1	4BA. $\frac{3}{8}$ in Countersunk screw	0081A	2
21862	03/9599	Door handle	1	$\frac{3}{16}$ in $\frac{3}{4}$ in Grooved pin	01040A	1
21863	03/9717	Latch	1			
21679	33/22128	BOTTOM HINGE ASSEMBLY (For spoolbox)	1	$\frac{1}{4}$ in BSF. $\frac{3}{4}$ in Hexagon head screw	0009A	1
				$\frac{1}{4}$ in Washer	0020A	1
21488	03/17043	Hinge only	1			
21490	03/10242	Bottom hinge pin	1			
21680	33/22129	TOP HINGE ASSEMBLY (For Spoolbox)	1	$\frac{1}{4}$ in BSF. $\frac{3}{4}$ in Hexagon head screw	0009A	1
				$\frac{1}{4}$ in Washer	0020A	1
21488	03/17043	Hinge only	1			
21489	03/10202	Top hinge pin	1			
† 21613	33/10863	TOP FIRE TRAP ASSEMBLY	1	2BA. $\frac{1}{2}$ in Filister head screw	0961A	2
21043	03/9444	Masking plate	1	4BA. $\frac{1}{4}$ in Roundhead screw	0027A	2
21044	03/9445	Roller - Small	1			
21045	03/9446	Roller spindle	2	4BA. $\frac{1}{8}$ in Allen set screw	0028A	2
21798	03/21315	Roller - Large	1			
21055	33/12224	BODY AND LID ASSEMBLY	1			
21792	S.30	Spring	1			
21793	03/9447	Hinge pin	1	6BA. $\frac{1}{8}$ in Grub screw	0994A	1
21794	33/10851	Lid with plate	1			
21797	33/11818	Body with plate	1			

† 21613 is the standard fire trap for use with a rectangular spoolbox; if Type 912 Magnetic soundheads are fitted to the projector, Cat. No. 942007 firetrap assembly is used, the only difference being additional machining on the body.

PLATE 19



17½in (445mm) and 19in (483mm) TOP SPOOLBOXES

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
19100	32/15690	17½in TOP SPOOLBOX ASSEMBLY	}	(State spindle size when ordering)		
19101	32/15800	19in TOP SPOOLBOX ASSEMBLY				
21676	03/14562	Screw securing spoolbox to projector	2	Not supplied as part of the above assemblies		

NOTE:- Both the above assemblies are complete with Spindle, Arm, and Firetrap.

† 21799	33/9666	5/16in Spindle and bearing assembly	1	} As ordered 2BA. 1¼in Filister head screw 2BA. Washer See Plate 20 for details	01035A	4
† 21800	33/10235	3/8in Spindle and bearing assembly	1		0006B	4
† 21801	33/11086	9mm Spindle and bearing assembly	1			
† 21802	33/12864	½in Spindle and bearing assembly	1			
19107	02/15692	17½in Top spool arm only	1			
19106	02/12471	19in Top spool arm only	1			
* 21480	03/9602	Glass window	1			
* 21786	03/9598	Window clip	2	4BA. ¼in Filister head screw	01020A	2
19039	35/802	FIRETRAP ASSEMBLY	1	2BA. 7/8in Filister head screw	01029A	2
19040	05/651	Outside roller for lid (Small)	1			
19041	05/649	Inside roller for body (Small)	1			
19042	05/14706	Spindle for inside roller	2	6BA. 3/16in Grub screw	0010B	2
19043	05/652	Spindle for outside roller	2	6BA. 3/16in Grub screw	0010B	2
19044	33/14018	Firetrap body and lid assembly	1			
19119	03/21316	Inside roller for body - Large	1			
19120	03/21317	Outside roller for body - Large	1			
19102	32/15693	17½in TOP SPOOLBOX AND LID ASSEMBLY	}	{ 2BA. 5/16in Filister head screw 2BA. Washer	0910A	7
19103	32/15799	19in TOP SPOOLBOX AND LID ASSEMBLY			0006B	7
19053	05/8203	Latch for spoolbox	1	1/8in ¼in Flat head rivet	01038A	2
* 19054	35/7725	Catch for lid	1	1/8in ¼in Flat head rivet	01038A	2
19104	03/11412	Locating plate for lid window	2	4BA. 5/16in Roundhead screw	0704A	4
19108	02/15694	17½in Top box only	1			
19109	02/15695	17½in Lid only	1			
19105	02/12205	19in Lid only	1			
19111	02/15798	19in Box only	1			

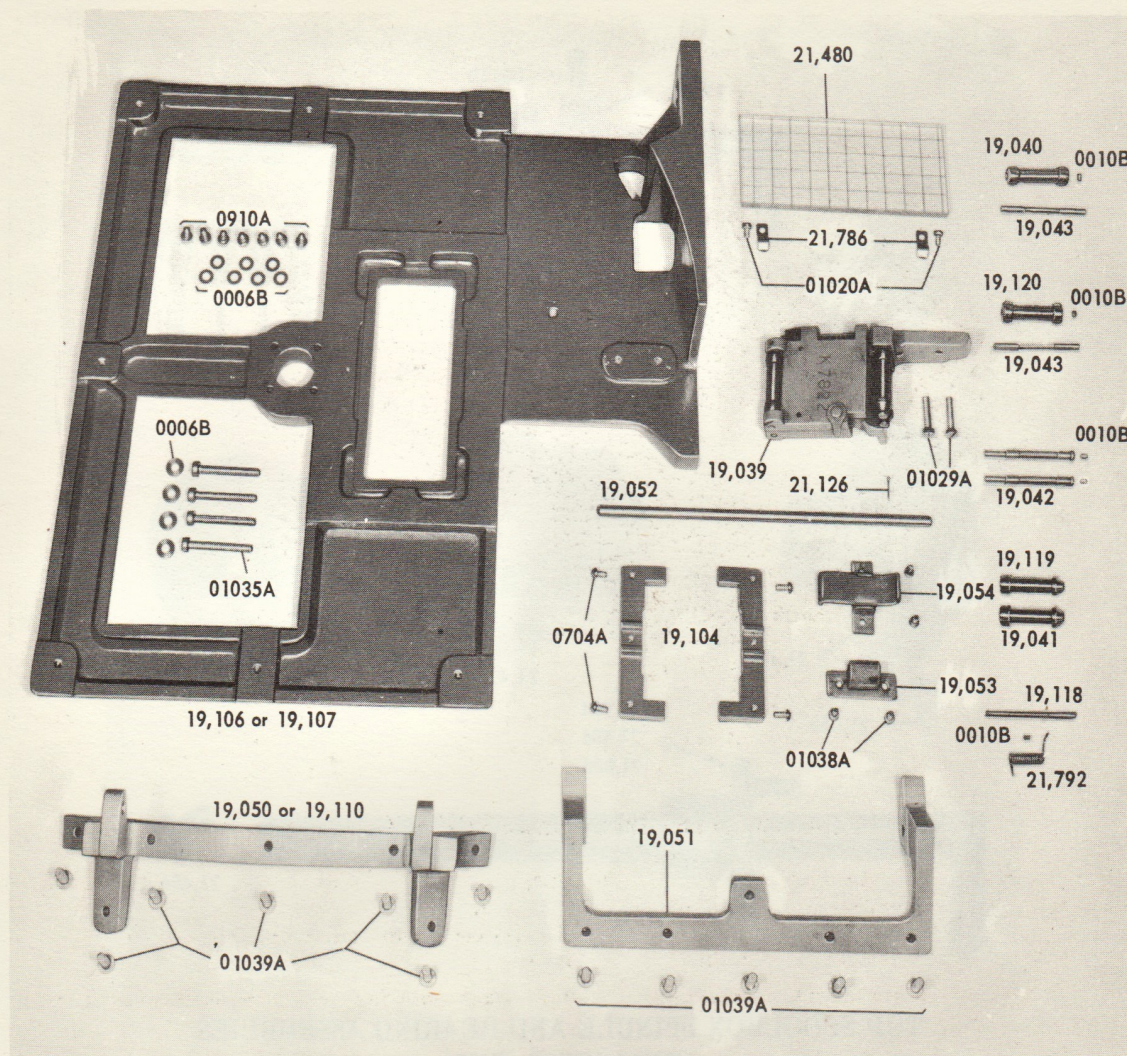


PLATE 19 (Cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
19112	33/16251	Complete hinge for 17½in Spoolbox	1	¾in ⅝in. Flat head rivet	01039A	12
19047	33/12353	Complete hinge for 19in Spoolbox	1			
* 21480	03/9602	Glass window	1	4BA. ¼in Filister head screw	01020A	2
* 21786	03/9598	Window clip	2			
Alternative items to glass window are listed below, and if required replace items marked *						
19113	03/18150	Window gauze	2	4BA. ⅝in Roundhead screw	0704A	4
19114	03/18151	Window frame	1	4BA. Washer	0018A	4
19115	03/18152	Special window pack	1	4BA. Nut	0015A	4

FIRETRAPS

Sundry items available for replacement purposes.

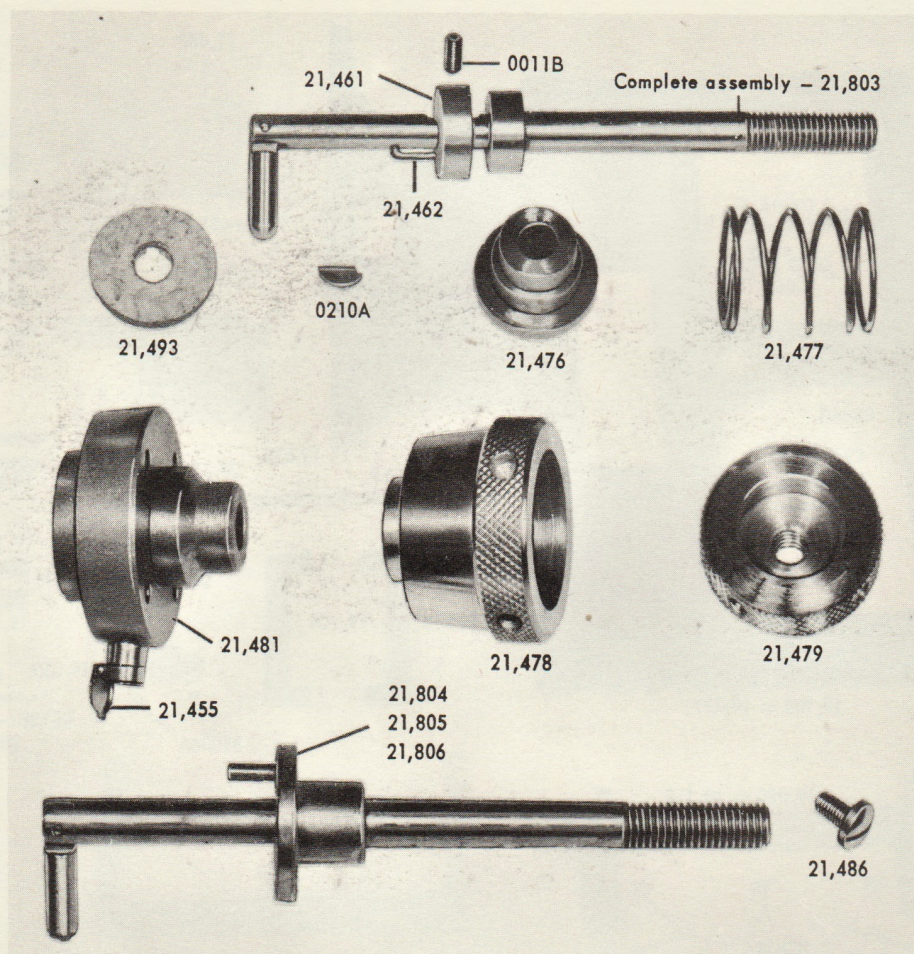
19118	05/644	Spindle for firetrap lid	1	6BA. ⅜in Grub screw	0010B	1
21792	S.30	Spring for lid	1			

SPOOLBOX HINGES

19050	03/11959	Half hinge for 19in Box only	1	Securing 19052		
19051	03/12190	Half hinge for lid	1			
19110	03/15697	Half hinge for 17½in box only	1			
19052	03/12193	Hinge pin	1			
21126	05/1116	Split pin	1			

If reel-end alarms are fitted, see Plate 24 for details of spool spindles and bearings.

PLATE 20

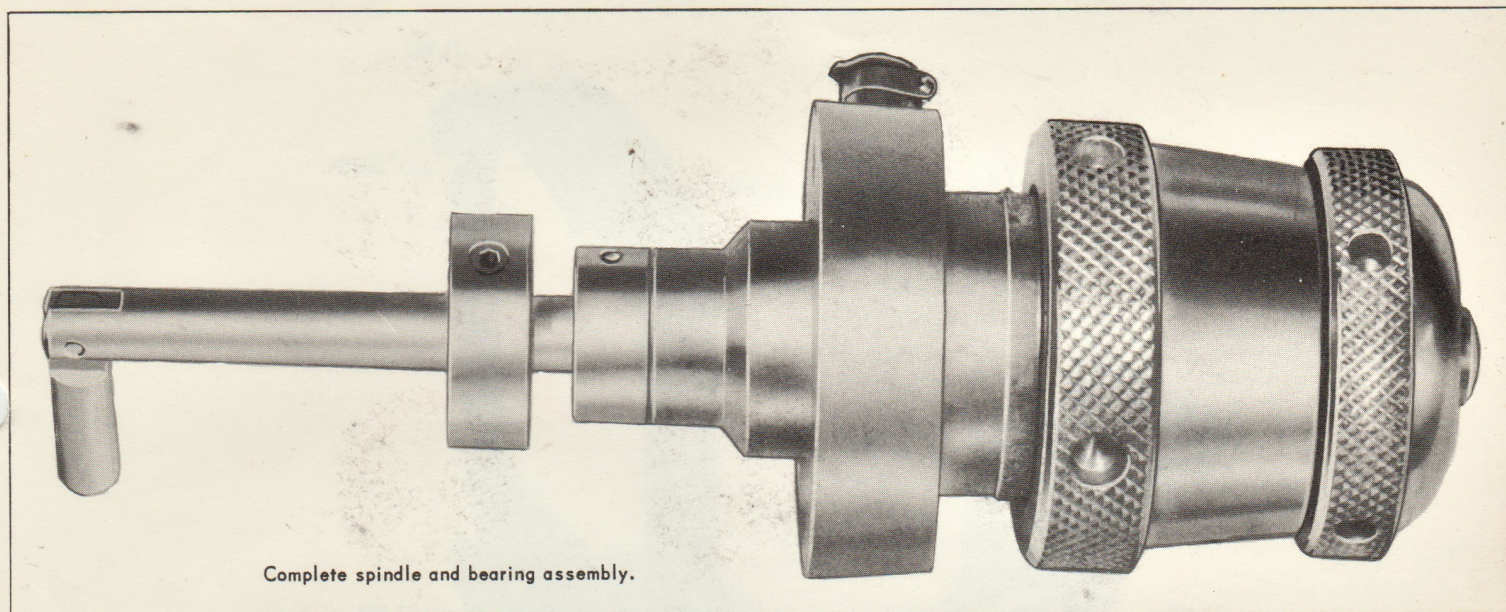


TOP SPOOLBOX SPINDLE AND BEARING ASSEMBLIES
GK19 - GK20 - GK21

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21799	33/9666	COMPLETE TOP SPOOLBOX SPINDLE AND BEARING ASSEMBLY WITH $\frac{5}{16}$ in. SPINDLE	1			
21800	33/10235	COMPLETE TOP SPOOLBOX SPINDLE AND BEARING ASSEMBLY WITH $\frac{3}{8}$ in. SPINDLE	1			
21801	33/11086	COMPLETE TOP SPOOLBOX SPINDLE AND BEARING ASSEMBLY WITH 9mm SPINDLE	1			
21802	33/12864	COMPLETE TOP SPOOLBOX SPINDLE AND BEARING ASSEMBLY WITH $\frac{1}{2}$ in. SPINDLE	1			
21803	33/9572	$\frac{5}{16}$ in. Top spoolbox spindle only, assembly	1	(Includes 21,461 and 21,462)		
21804	33/10236	$\frac{3}{8}$ in. Top spoolbox spindle only, assembly	1			
21805	33/11085	9mm. Top spoolbox, spindle only, assembly	1			
21806	33/12863	$\frac{1}{2}$ in. Top spoolbox spindle only, assembly	1			
21445	65/393	Oilcup $\frac{3}{8}$ in. Kingfisher $\frac{3}{16}$ in. Plain shank	1			
21476	03/9574	Spring collar	1	No. 2 Woodruff key	0210A	1
21477	03/9575	Pressure spring	1			
21478	03/9576	Spring tension nut	1			
21479	03/9577	Special locking nut	1			
21481	03/9665	Spindle bearing	1			
21486	03/9856	Stop screw	1	Retaining 21479		
21493	03/11335	Clutch disc	1			
21461	03/7540	Spool driving collar	1	2BA. $\frac{3}{8}$ in. Allen grub screw	0011B	1
21462	03/7546	Spool driving key	1	Retained by 21461		

NOTE:- If reel-end alarms are fitted, see Plate 24 for Spindle and Bearing details.

PLATE 20 (Cont'd)



Complete spindle and bearing assembly.

PLATE 21

PROJECTOR KIT FOR CINEMASCOPE
GK19 - GK20 - GK21 PROJECTORS

NOTE:- Quantity stated is per projector.

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
MAGNETIC AND MAG - OPTICAL TRACKS						
21893	33/20413	COMPLETE CONVERSION FOR MAGNETIC TRACKS				
21925	33/26352	COMPLETE CONVERSION FOR MAG - OPTICAL TRACKS				
*21697	33/17574	Steady roller assembly	1	4BA. 1/2 in. Cheesehead screw 4BA. Washer	0012B 0018A	2 2
‡21825	33/24032	Mask plate	1			
‡21832	03/20374	Aperture plate insert or	1	(Magnetic track)		
‡21831	03/20274	Aperture plate insert	1	(Mag - Optical track)		
†21873	02/20205	Intermittent sprocket	1			
†21874	03/20206	Top and bottom feed sprockets	2			
21894	03/20211	Reflector plate	1			

‡21825 and 21832 together form the complete aperture plate previously Cat. No. 21819.
21825 and 21831 together form the complete aperture plate previously Cat. No. 21820.

† 'Cinemascope' sprockets are marked 'C' at each end, and are now being fitted to projectors, consequently these items may not be required.

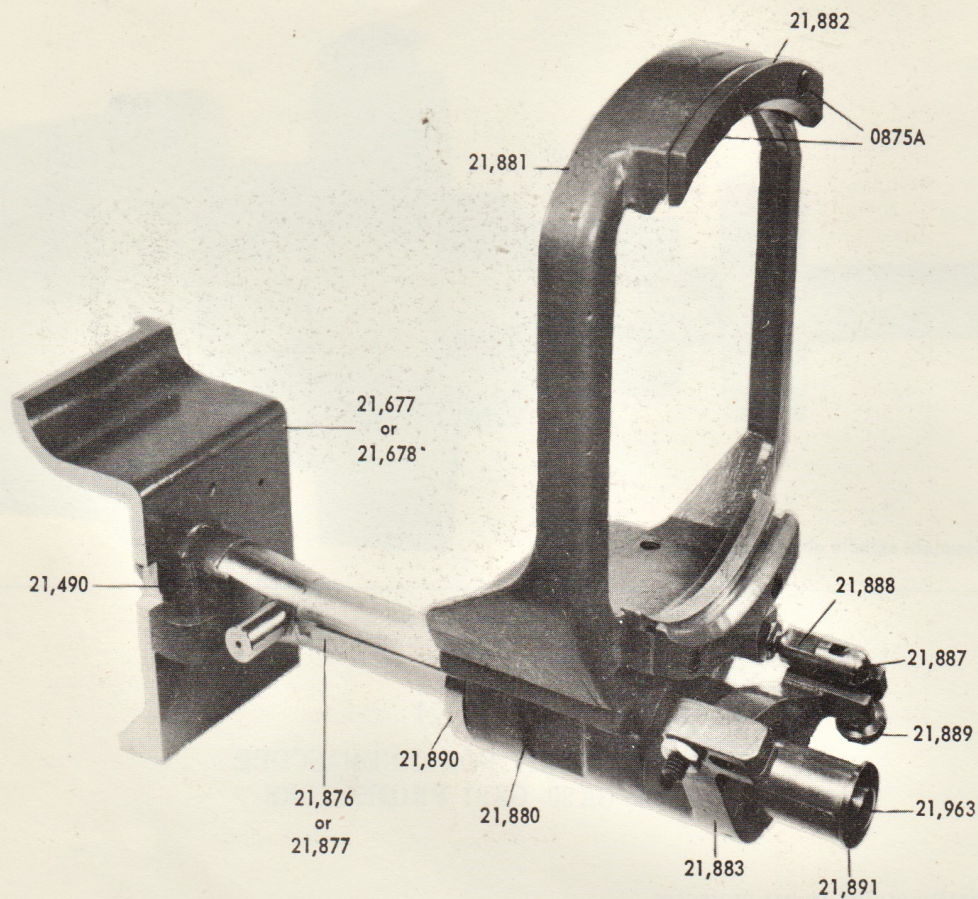
OPTICAL TRACK

21895	33/21240	COMPLETE CONVERSION KIT FOR OPTICAL TRACK				
*21697	33/17574	Steady roller assembly	1	4BA. 1/2 in. Cheesehead screw 4BA. Washer	0012B 0018A	2 2
‡21825	33/24032	Mask plate	1			
‡21831	03/20274	Aperture plate insert	1			
21894	03/20211	Reflector plate	1			

‡ These two items together form the complete aperture plate, previously Cat. No. 21820.

* This item is not required if already fitted to the projector. See Plate 7.

PLATE 22



ANAMORPHIC LENS ADAPTATION

NOTE:- Quantities stated are per projector

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21875	31/20394	COMPLETE ADAPTATION comprising:-				
21056	05/14111	Rubber stop	1	6BA. 1/4 in. Cheesehead screw	0008A	1
21202	03/10707	Friction spring for lens arm	1	6BA. Washer	0031A	1
21490	03/10242	Door hinge pin	1	4BA. 1/4 in. Cheesehead screw	0026A	1
21677	02/20382	Bottom right hand frame extension	1	See Plate 3 for details as to use		
21678	02/21201	Bottom right hand frame extension	1			
21715	02/20375	Special lens arm	1			
* 21716	03/20380	Stop ring	1	(82.5mm bore)		
* 21717	03/20381	Stop washer	1	4BA. 5/8 in. Allen cap screw	0580A	1
21854	03/20383	Lens adaptor 52.5mm bore	1	Supplied to order		
21855	03/20478	Lens adaptor 52.5mm bore (Eccentric)	1			
21856	03/20477	Lens adaptor 70.5mm bore	1			
21857	03/20384	Lens adaptor 70.5mm bore (Eccentric)	1		01036A	1
21858	03/20393	Locating pin for eccentric adaptors	1	(Required with each adaptor)		
21876	03/20391	Mounting shaft 12 1/8 in. (327mm) standard	1	1/2 in. Whitworth nut	01055A	1
† 21877	03/20984	Mounting shaft 17 in. (432mm) Special	1	1/2 in. Standard washer	0938A	1
21878	03/20388	Door stop pin	1			

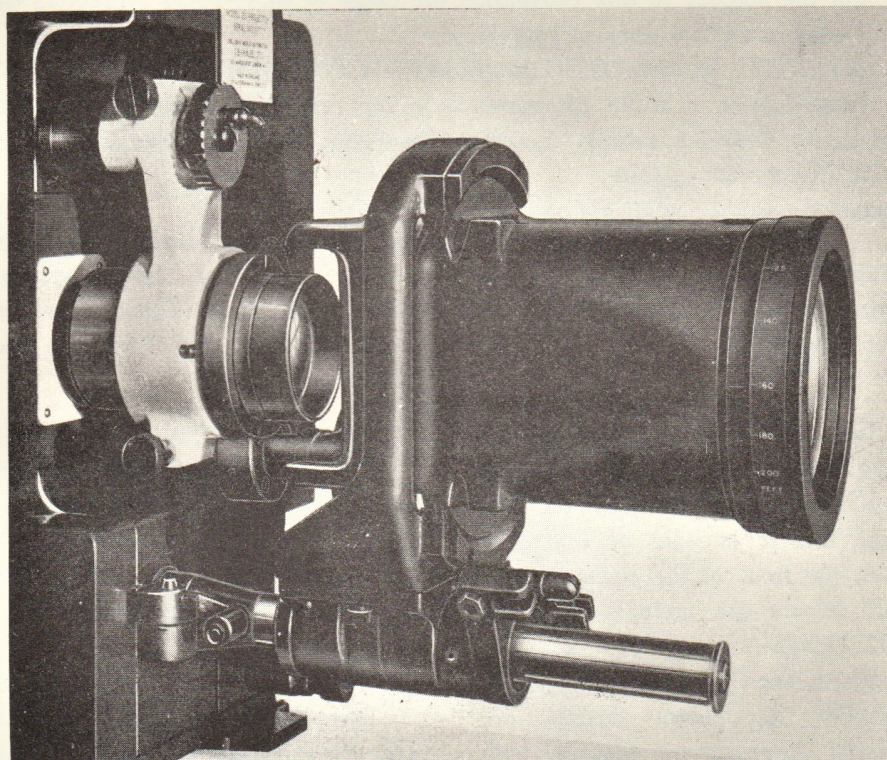


PLATE 22 (Cont'd)

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21879	31/20555	ANAMORPHIC LENS MOUNT comprising:-	1			
21880	02/20398	Mounting platform	1			
21881	02/20378	Mounting arm	1	$\frac{3}{8}$ in. Whit. $\frac{3}{8}$ in. Allen cap screw	0008B	2
21882	03/20399	Clamp plate	2	2BA. $\frac{3}{8}$ in. Allen cap screw	0875A	4
21883	02/20377	Stop bracket	1	$\frac{1}{4}$ in. Whit. $\frac{1}{4}$ in. Allen set screw	0980A	1
				$\frac{1}{4}$ in. Whit. $\frac{5}{16}$ in. Allen set screw ($\frac{1}{2}$ Dog point)	01057A	1
21884	03/20431	Pad for stop bracket	1	4BA. $\frac{3}{16}$ in. Allen set screw $\frac{1}{4}$ in. Whit. 1in. Allen set screw ($\frac{1}{2}$ Dog point)	0041A	1
				$\frac{1}{4}$ in. Whitworth locknut	01054A	1
21885	03/20392	Key for stop bracket	1	6BA. $\frac{3}{16}$ in. Countersunk screw	0080A	2
21886	03/20386	Eye bolt	1			
21887	03/20401	Hinge pin	1			
21888	03/20385	Stop pin	1	$\frac{5}{16}$ in. Whitworth locknut	01053A	1
21889	03/20387	Knurled nut	1			
21890	03/20390	Collar	1	2BA. $\frac{1}{4}$ in. Allen set screw	0042A	2
21891	03/20389	Stop washer	1	Retained by 21963		
21963	03/4709	Retaining screw	1			

NOTE:- Stiffening bracket kits are available for GK21, GK20 and GK19 stands if required:-

GK21 Stands:- Part No. 32/20591.

GK19 and GK20 Stands:- Part No. 32/18754.

*Not required where Series 'S' lenses above $5\frac{3}{4}$ in. focal length are to be used.

†21877 Mounted shaft is intended for use with Series 'S' backing lenses of $8\frac{1}{4}$ in. to 10in. focal length.

PLATE 23

CONVERTING AN EXISTING PROJECTOR TO WATER-COOLED GATE

For the purpose of this conversion the range of GK19-20-21 Projectors may be divided into three arbitrary categories:-

(1) INITIAL MODEL (2) INTERMEDIATE MODEL (3) CURRENT MODEL

Identification of these categories is by the type of Gate Bracket assembly, and Safety Shutter assembly. A sketch illustrating the differences is shown on Sheet GK21P/40a opposite.

Conversion kits are available as follows:-

Model	Part No.	} State whether for "Medium" or "Low" entry when ordering, and if suitable bottom right hand frame extension already exists on the Projector. (See Plates 3 and 7a).
Initial Model	32/22063	
Intermediate Model	32/22064	
Current Model	32/22065	

In the Initial Model both Gate Bracket assembly and Safety Shutter, have to be modified to conform to current design, and the necessary parts are supplied with the kit. It is also necessary to remove the rim on the front of the light cone on this Model. Full details are included with the Conversion kit (32/22063).

Intermediate Model, the Gate Bracket assembly requires modification to current design, the necessary parts and drawings are supplied with the Conversion kit. (32/22064)

Conversion of the Current Model requires the removal of the existing heat shield, and the addition of the water cooling unit and pipes. Although it is necessary to remove the Gate Bracket assembly for this purpose, no other replacement on the Gate assembly is required. The Conversion kit is supplied complete with drawing. (32/22065)

General fitting instructions

If the bottom right-hand frame extension has to be replaced, the oil must be drained from the Projector before the three socket screws securing the frame extension are removed. The same three screws are used to secure the new frame extension, and the Projector may be refilled with oil once the frame extension has been replaced.

Gate Bracket Assembly

(i) Remove the complete Gate Bracket as described in Section 7, (Sheet GK21T/5a)

(a) Initial Model; Strip and reassemble the Gate assembly to conform with Dwg. 32/22063. Remove the rim at the front of the light cone as indicated on this drawing.

(b) Intermediate Model; strip and reassemble the Gate Bracket assembly to conform with

Dwg. 32/22064.

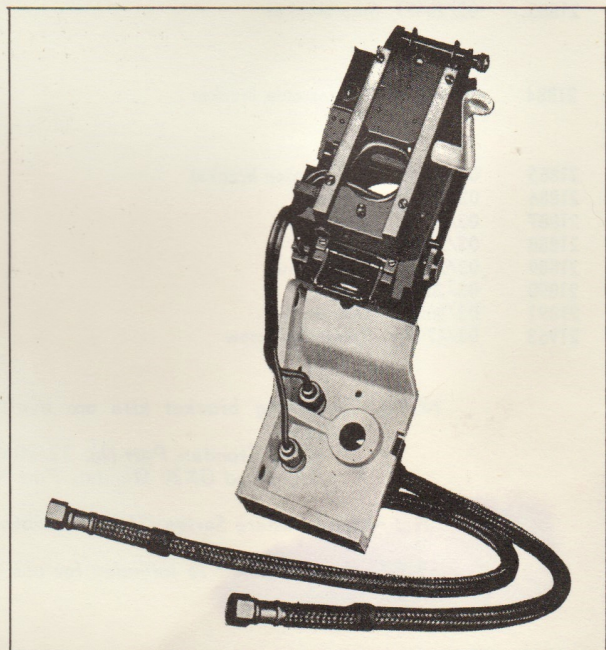
(c) Current Model; remove the two screws (01024A) securing the heat shield (21699), to the reflector plate (21700), and withdraw the heat shield. Fit the water cooling pipe and shield assembly in place of the heat shield.

(ii) Secure the cooling pipes to the Gate Bracket assembly by the clip (21701) and screw (0072A).

(iii) Reassemble the Gate Bracket assembly to the Projector.

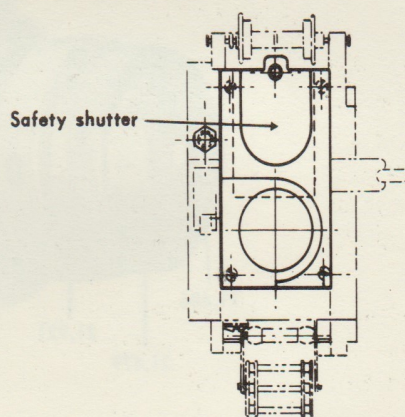
(iv) Fit the two double unions into the holes in the bottom right hand frame extension, and couple the water cooling pipes to the Projector side of these.

(v) Fit the water supply pipes ("Flow and Waste") to the other end of the double unions.



REAR VIEW OF GATE BRACKET ASSEMBLY (From Shutter case)

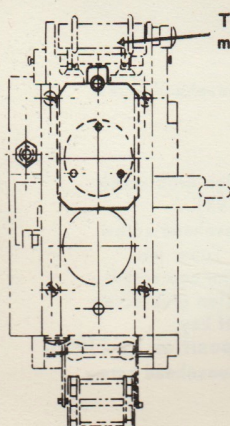
Sectional view of gate
bracket and cover - Initial
Model



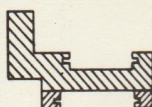
Safety shutter - Initial Model

INITIAL MODEL

INTERMEDIATE MODEL

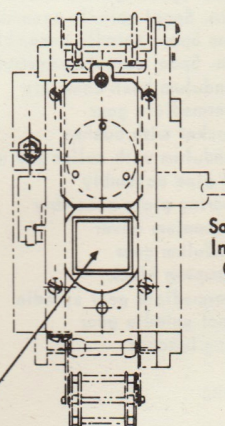


This steady roller assembly
may or may not be fitted on
Intermediate Models



Sectional view of gate
bracket and safety shutter
guides - Intermediate and
Current Models

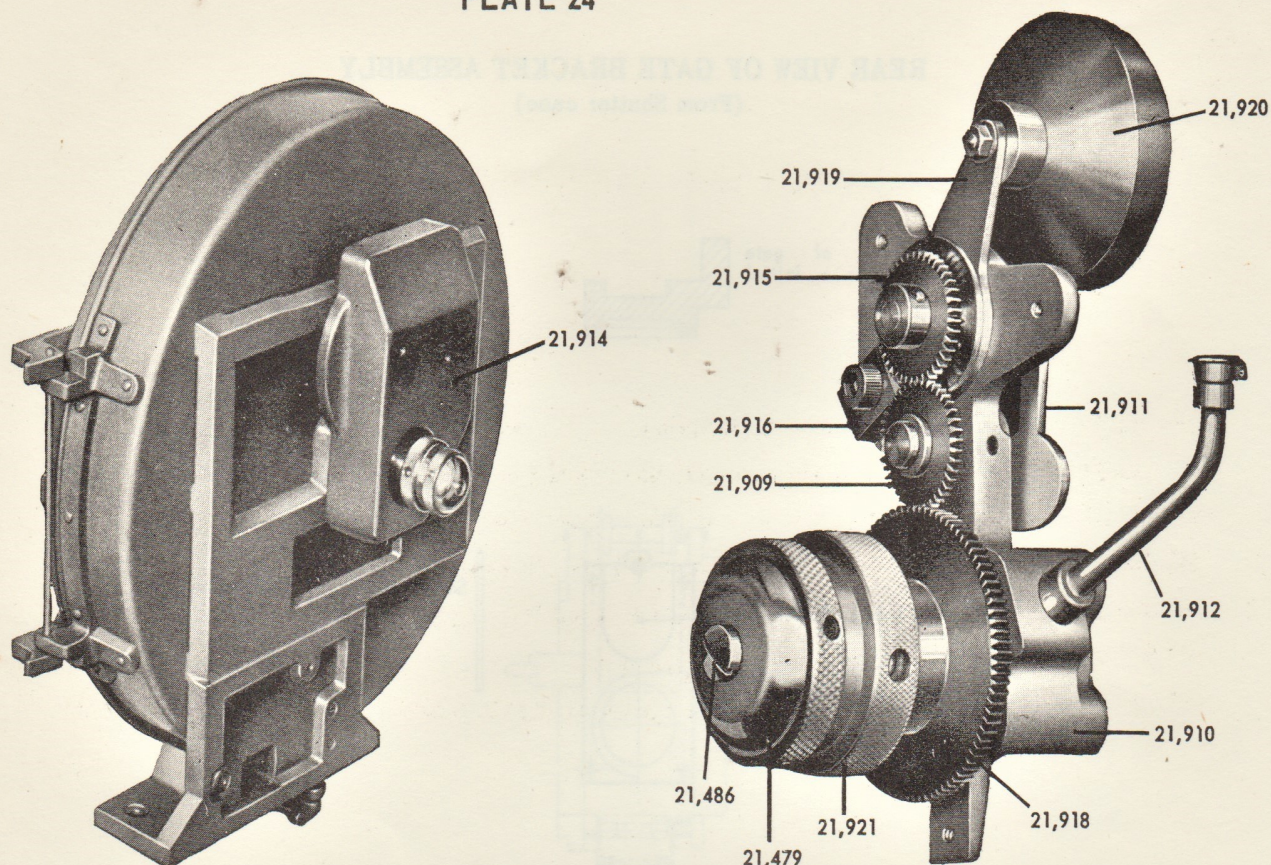
CURRENT MODEL



Heat shield fitted on Current
Model only

Safety Shutter -
Intermediate and
Current Models

PLATE 24



REEL END ALARMS GK19-20-21

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
21900	32/14210	COMPLETE REEL END ALARM ($\frac{5}{16}$ in. Spindle)	1	Fixing screws as normal top spoolbox spindle:- See Plates 18 and 19.		
21901	32/14211	COMPLETE REEL END ALARM ($\frac{3}{8}$ in. Spindle)	1			
21902	32/14212	COMPLETE REEL END ALARM (9 mm Spindle)	1			
21903	32/14213	COMPLETE REEL END ALARM ($\frac{1}{2}$ in. Spindle)	1			
21904	33/14206	$\frac{5}{16}$ in. Spool spindle assembly	1	As required		
21905	33/14207	$\frac{3}{8}$ in. Spool spindle assembly	1			
21906	33/14208	9 mm Spool spindle assembly	1			
21907	33/14209	$\frac{1}{2}$ in. Spool spindle assembly	1			
21908	33/14214	Pendulum bush complete	1	6BA. $\frac{3}{8}$ in. Cheesehead screw	01073A	3
21909	33/14215	Intermediate gear	1			
21910	33/14216	Bracket with bushes	1			
21911	33/14217	Pendulum with collar and spindle	1			
21912	33/14218	Oil pipe assembly	1	2BA. $\frac{5}{16}$ in. Allen grub screw	0150A	1
21913	33/17692	Wearing plate assembly	1	(Behind 21493)		
21914	02/14198	Mechanism cover	1	4BA. 1 in. Cheesehead screw	0007A	3
21915	03/14186	Pendulum gear	1	$\frac{1}{2}$ in. x $\frac{1}{16}$ in. Taper pin	0993A	1
21916	03/14187	Clamping block	1	OBA. $\frac{1}{2}$ in. Allen cap screw	01140A	1
21917	03/14188	Intermediate gear spindle	1	2BA. $\frac{5}{16}$ in. Allen grub screw	0150A	1
21918	03/14190	Spool spindle gear	1	No. 2 Woodruff key	0210A	1
21919	03/14192	Gong bracket	1	(Locked in position by 21908)		
21920	03/14193	Gong	1	4BA. $\frac{3}{8}$ in. Cheesehead screw	0068A	1
				4BA. Washer	0018A	1
				4BA. Nut	0015A	1
21921	03/14194	Spring tension nut	1			
21923	03/14201	Thrust washer	1	(Under spool spindle collar)		
*21477	03/9575	Pressure spring	1			
*21479	03/9577	Special nut	1			
*21486	03/9856	Stop screw	1			
*21493	03/11335	Clutch disc	1			

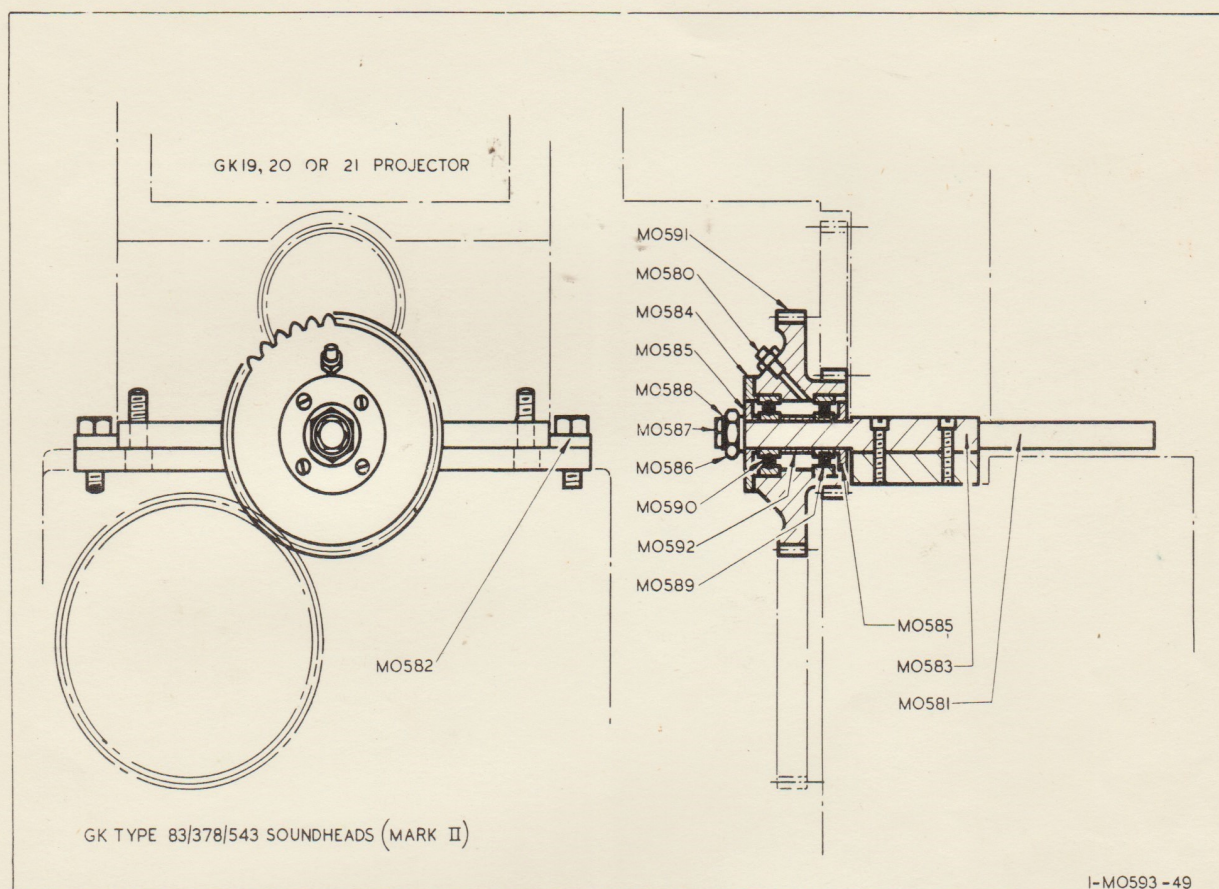
*These items are the standard parts and are identical to those illustrated in Plate 20.

PLATE 25

ADAPTATIONS TO VARIOUS SOUNDHEADS

<i>Cat. No.</i>	<i>Part No.</i>	<i>Description</i>	<i>Plate No.</i>	<i>Sheet No.</i>
MO.593	33/13225	GK19-20-21 to Types 83-378-543-678-834 or 890 soundheads	25a	GK21T/42a
MO.043	31/12918	GK19-20-21 to R.C.A. - M.I. 9031 Soundhead	25b	GK21T/43a
MO.044	31/10316	GK19-20-21 to R.C.A. - 1041 and 9001 Soundhead	25c	GK21T/44a
MO.040	31/11140	GK19-20-21 to W.E. Standard Universal Base Soundhead	25d	GK21T/45a
MO.035	31/10136	GK19-20-21 to W.E. - 3A Soundhead	25e	GK21T/46a
MO.036	31/11080	GK19-20-21 to W.E. - 2002A (Westrex R.2) Soundhead	25f	GK21T/47a

PLATE 25a

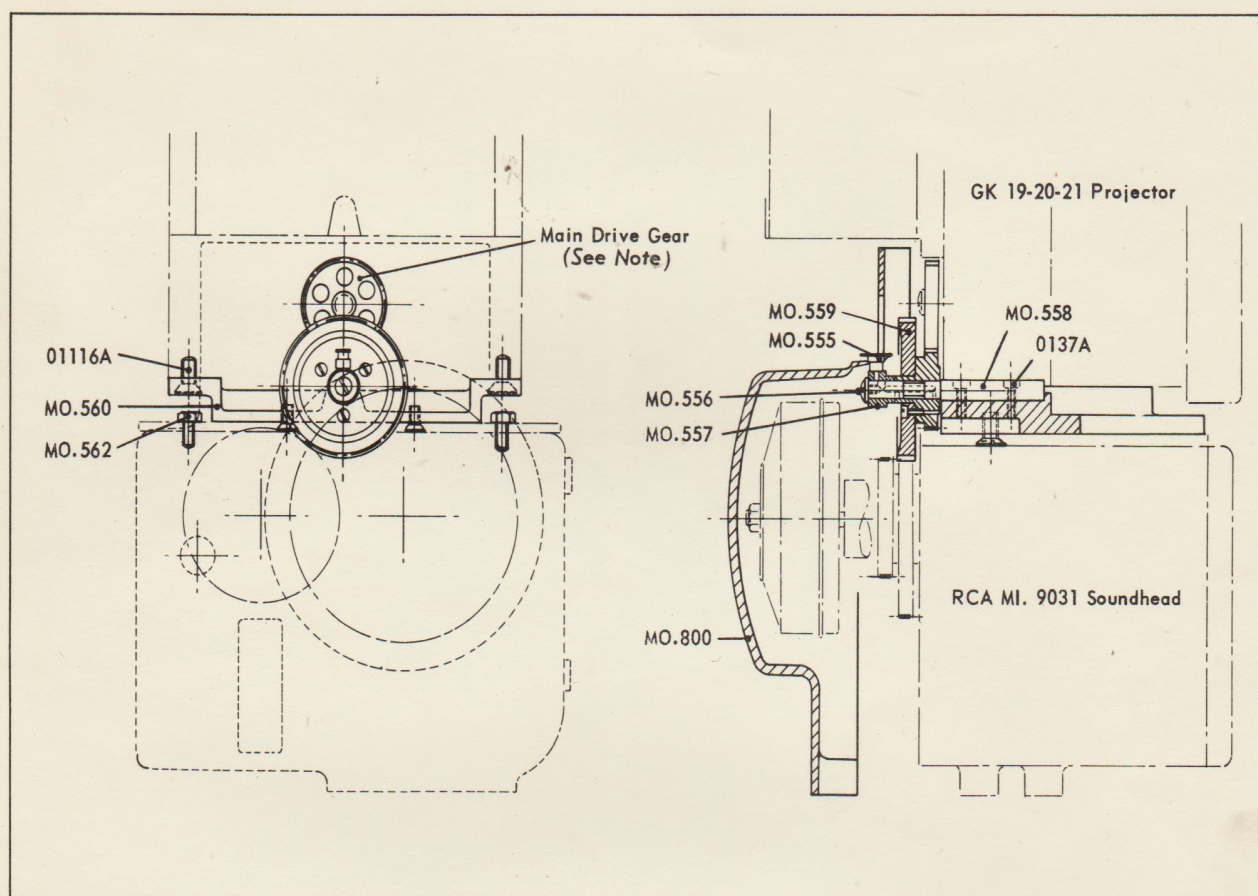


ADAPTOR GEAR AND PLATE ASSEMBLY

GK21, 20, 19, TO SOUNDHEADS TYPE 83, 378, 543, 678, 834, 890

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
MO593	32/13225	COMPLETE ADAPTOR GEAR AND PLATE ASSEMBLY				
MO594	33/12488	Adaptor gear and post assembly	1	2BA. $\frac{3}{8}$ in. Cheesehead screw	0137A	2
MO581	02/9625	Adaptor plate only	1	$\frac{3}{8}$ in. BSF. 1in. Allen cap screw (Securing adaptation to projector)	0588A	4
MO582	03/10871	Clamp	2	$\frac{3}{8}$ in. BSW. 1in. Hexagon head screws (Securing adaptation to soundhead)	0795A	4
MO594	33/12488	ADAPTOR GEAR AND POST ASSEMBLY				
MO583	03/12490	Adaptor post only	1			
MO591	03/12489	Compound Adaptor gear only	1			
MO589	65/538	Roller race	1			
MO592	03/12493	Spacing tube	1			
MO590	65/539	Ball race	1			
MO584	03/12491	Clamping ring	1	4BA. $\frac{3}{8}$ in. Roundhead screw	0705A	4
MO585	03/12492	Race cover	2			
MO580	65/537	Lubricator	1	Screwed into MO591		
MO586	03/12494	Locknut	1			
21728	05/14637	Lock washer	1	Securing complete gear to MO583		
MO587	03/13026	Lock screw	1			

PLATE 25b

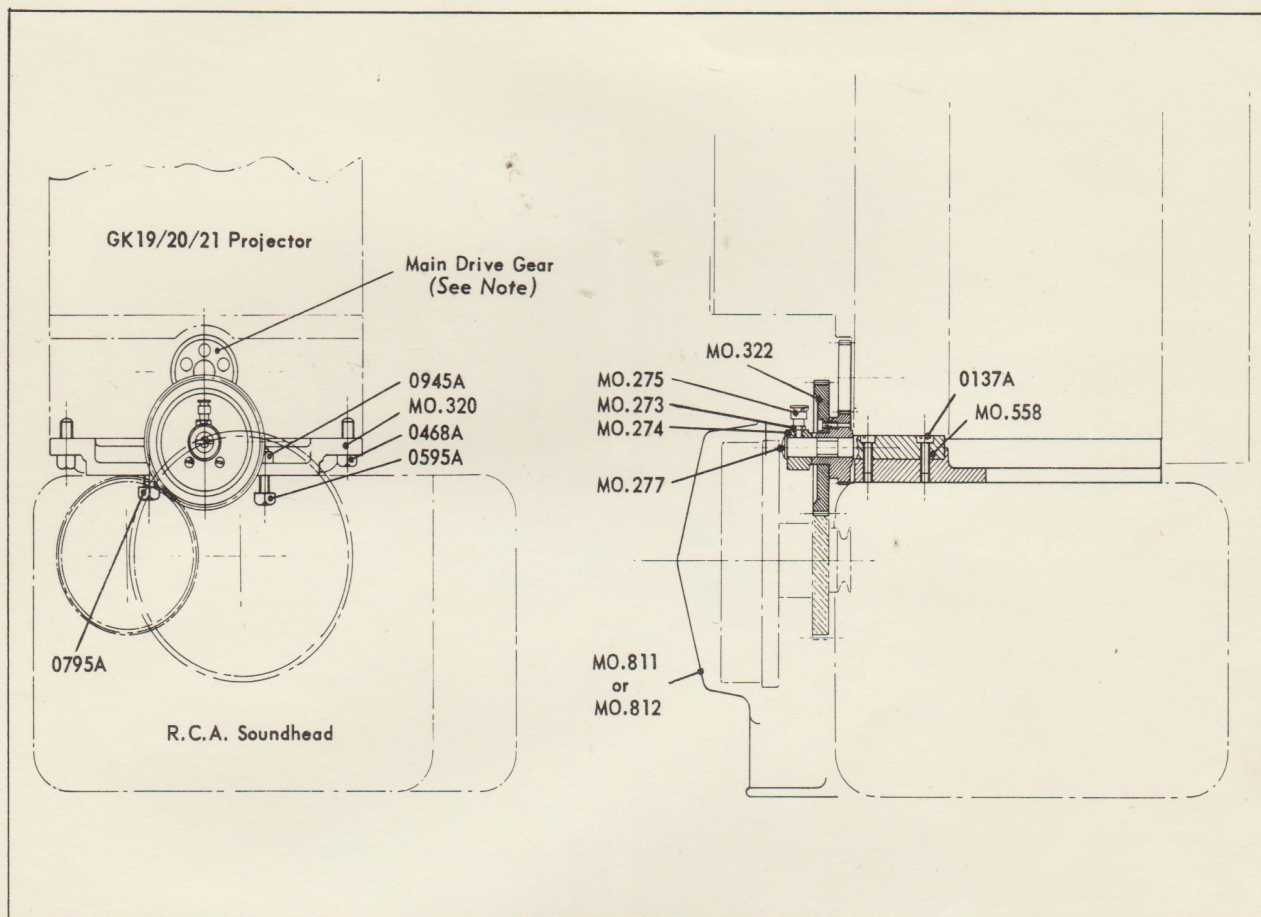


ADAPTATION GK21, 20, 19 PROJECTOR
TO R.C.A. - M.I. 9031 SOUNDHEAD

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
MO.043	31/12918	COMPLETE ADAPTATION		$\frac{3}{8}$ in.BSF. $\frac{3}{4}$ in.Allen countersunk screw	01116A	6
MO.555	65/393	Oilcup $\frac{3}{8}$ in. "Kingfisher" $\frac{3}{16}$ in. Plain shank	1			
MO.556	03/10493	Screw	1	Retaining MO.557		
MO.557	03/10547	Collar	1	2BA. $\frac{1}{8}$ in.Allen set screw	0042A	1
MO.558	03/10845	Adaptor gear post	1	2BA. $\frac{3}{8}$ in.Cheesehead screw	0137A	2
MO.559	33/15804	Compound gear	1			
MO.560	02/12922	Adaptor plate	1			
MO.562	03/12925	Screw (Hexagon Head)	4	Securing R.C.A. Mounting Plate		
MO.800	32/12926	COMPLETE GUARD ASSEMBLY comprising:-	1			
MO.561	02/12924	Guard only	1			
MO.563	05/14571	Hinge	2	2BA. $\frac{3}{8}$ in.Countersunk screw	0688A	4
MO.564	05/14572	Clip	1	4BA. $\frac{3}{8}$ in.Cheesehead screw	0068A	2
MO.565	05/14573	Knob	1	$\frac{1}{2}$ in.BSF. Nut.	0175A	1

NOTE:- If this adaptation is not supplied at the same time as the Projector Mechanism then a Main Drive Gear must be supplied. See Plate 13 Sheet GK21P/31b for details.

PLATE NO. 25c

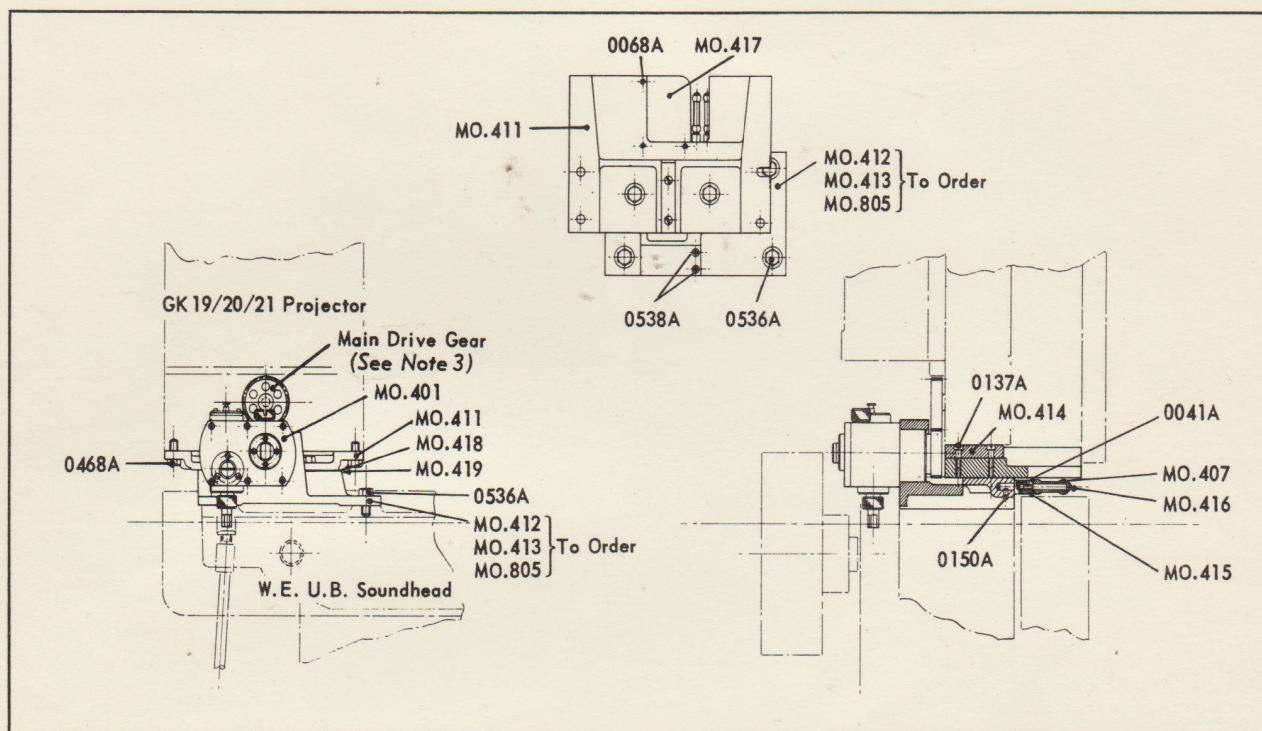


ADAPTATION GK21, 20 and 19 PROJECTORS
TO R.C.A. 1041 AND 9001 SOUNDHEADS

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
MO.044	31/10316	COMPLETE ADAPTATION	{ To Projector To Soundhead	$\frac{3}{8}$ in. BSF. $\frac{7}{8}$ in. Hexagon head screw $\frac{3}{8}$ in. BSW. 1in. Hexagon head screw $\frac{3}{8}$ in. BSW. $1\frac{1}{4}$ in. Hexagon head screw $\frac{3}{8}$ in. BSW. Unit 2BA. Allen set screw	0468A 0795A 0595A 0945A 0042A	4 1 1 2 1
MO.273	03/9404	Collar	1			
MO.274	03/9993	Washer for oiler	1			
MO.275	33/10215	Complete oiler	1			
MO.277	03/10493	Adaptor post screw	1			
MO.320	02/10598	Adaptor plate	1			
MO.322	33/15804	Compound gear 51 and 34 teeth	1			
MO.558	03/10845	Adaptor post	1	2BA. $\frac{3}{8}$ in. Cheesehead screw	0137A	2
MO.811	05/14052	Gear guard for R.C.A. 1041	1	2BA. $1\frac{1}{2}$ in. Cheesehead screw	01120A	4
MO.812	05/13747	Gear guard for R.C.A. 9001				

NOTE:- If this adaptation is not supplied at the same time as the Projector Mechanism, then a Main Drive gear must be supplied. See Plate 13 Sheet GK21P/31b for details.

PLATE 25d



ADAPTATION GK19/20/21 PROJECTOR TO W.E. STANDARD UNIVERSAL BASE SOUNDHEAD

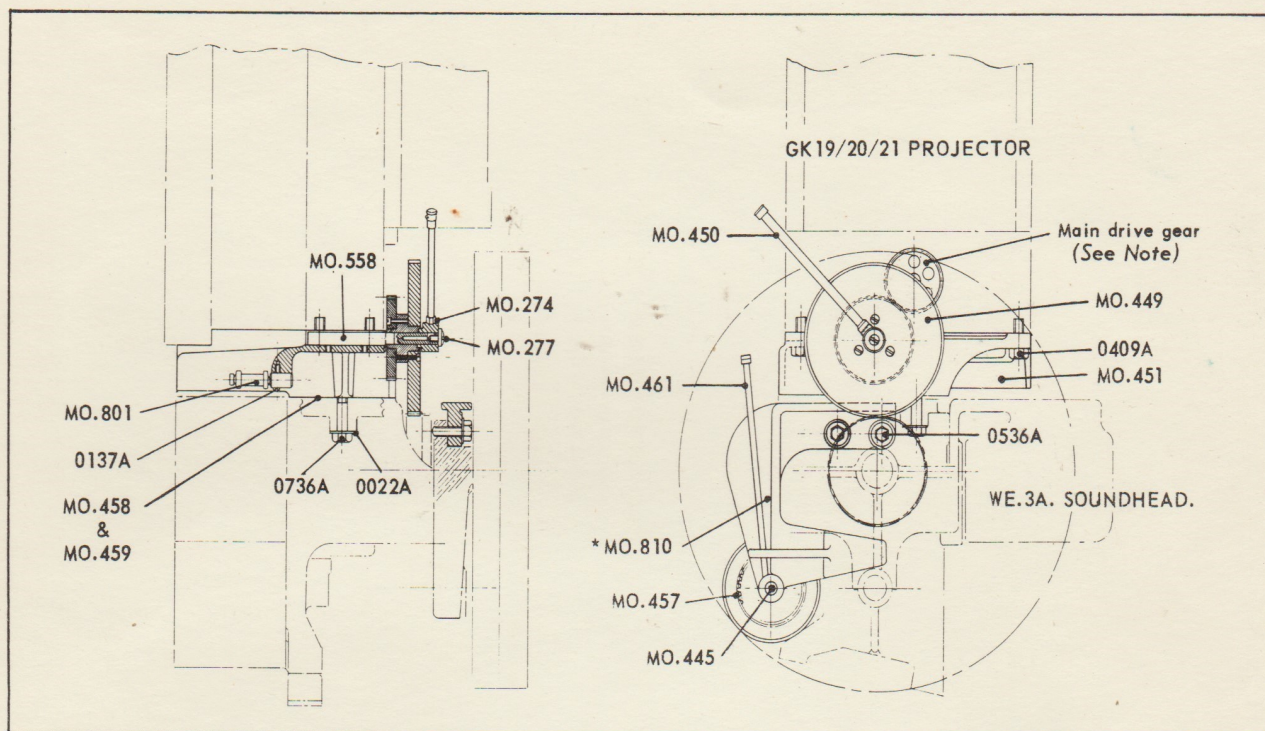
Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
MO.040	31/11140	COMPLETE ADAPTATION To Projector To Soundhead		$\frac{3}{8}$ in. BSF. $\frac{7}{8}$ in. Hexagon head screw	0468A	4
MO.363	35/6266	Spool adaptor	1	$\frac{3}{8}$ in. BSW. $\frac{7}{8}$ in. Hexagon head screw	0536A	3
MO.407	03/9445	Roller	2	Secured to soundhead adaptor plate by:- $\frac{3}{8}$ in. BSW. $\frac{7}{8}$ in. Hexagon head screw	0536A	2
MO.411	02/10834	Projector adaptor plate	1			
MO.412	02/10836	Soundhead adaptor plate (Standard)	1			
MO.413	02/12532	Soundhead adaptor plate (5° Positive rake) or	1			
MO.805	02/12164	Soundhead adaptor plate (3° Positive rake)	1			
MO.414	03/10837	Key (Aligning projector with MO.411)	1	2BA. $\frac{3}{4}$ in. Cheesehead screw	0137A	2
MO.415	03/10838	Roller post	2	2BA. $\frac{5}{16}$ in. Allen set screw	0150A	2
MO.416	03/10839	Roller spindle	2	4BA. $\frac{3}{16}$ in. Allen set screw	0041A	2
MO.417	03/10840	Patch Plate	1	4BA. $\frac{3}{8}$ in. Cheesehead screw	0068A	3
MO.418	03/12084	Shim (.002 in. thick)	2			
MO.419	03/12085	Shim (.005 in. thick)	2			
MO.401	32/12550	GEAR BOX ASSEMBLY	1	2BA. $1\frac{1}{4}$ in. Allen cap screw	0538A	2

NOTE (1):- Gearbox must be mounted horizontally irrespective of the tilt angle of the projector.

NOTE (2):- Ensure that the gearbox is filled to the oil level mark with 'Speedwell Sans Egal' oil. Fill oil cup to brim.

NOTE (3):- If this adaptation is not supplied at the same time as the projector mechanism then a Main drive gear must be supplied. See Plate 13, Sheet GK21P/31b.

PLATE 25e

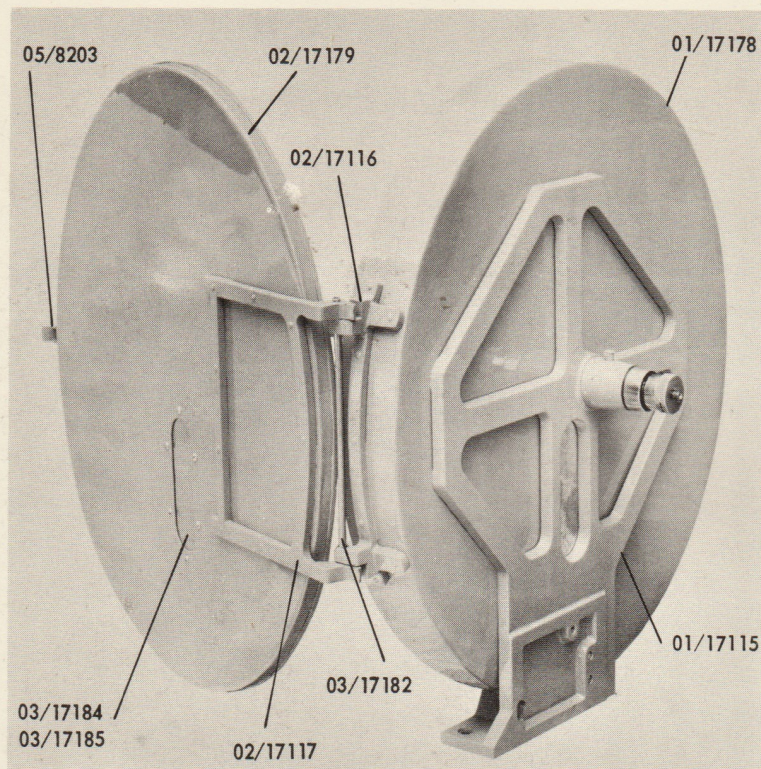


ADAPTATION GK21, 20 AND 19 PROJECTORS
TO W.E. 3A SOUNDHEAD

Cat. No.	Part No.	Description	Quantity	Screws Etc.	Part No.	Quantity
MO.035	31/10136	COMPLETE ADAPTATION	Securing to Soundhead Securing to Projector	{ 3/8 in. BSF. 1 3/4 in. Hexagon head screw 3/8 in. Washer 3/8 in. BSF. 1 in. Hexagon head screw	0736A 0022A 0409A	2 2 4
MO.274	03/9993	Oil pipe washer	1			
MO.277	03/10493	Adaptor post screw	1	Retaining MO.450		
MO.363	35/6266	Spool adaptor	1			
MO.449	33/10137	Complete gear 114T and pinion 57 teeth	1	Retained by MO.450		
MO.450	33/10142	Complete oil pipe	1	2BA. 3/4 in. Allen set screw	0042A	1
MO.451	02/10145	Adaptor plate	1			
MO.458	03/11689	Shim .005 in. thick	2			
MO.459	03/11690	Shim .002 in. thick	1			
MO.558	03/10845	Adaptor post	1	2BA. 3/4 in. Cheesehead screw	0137A	2
* MO.810	35/10122	COMPLETE TAKE-UP BRACKET comprising:-	1	{ 3/8 in. BSW. 7/8 in. Hexagon head screw 3/8 in. Washer	0536A 0022A	2 2
MO.445	05/9064	Idle gear spindle	1			
MO.446	05/9075	Idle gear spindle collar	1	1/4 in. BSW. 1/4 in. Allen set screw	0980A	2
MO.448	05/10124	Oilpipe retaining-clamp	1	4BA. 3/16 in. Filister head screw	01027A	2
MO.457	35/11022	Take-up sprocket 25T with gear 80 teeth	1	1/4 in. BSW. 1/4 in. Allen set screw	0980A	2
MO.461	33/14225	Complete oilpipe	1			
MO.462	33/15298	Bracket with bush	1	5/16 in. BSW. 1 1/4 in. Hexagon head adjusting screw.	0552A	2
				5/16 in. BSW. Nut	0553A	2
MO.801	33/10241	FILM GUIDE ROLLER ASSEMBLY comprising:-	2	2BA. 3/4 in. Cheesehead screw	0137A	2
MO.290	05/13453	Film guide roller	1			
MO.452	03/10147	Roller spindle	1			
MO.453	03/10148	Collar	1	1/16 in. 1/2 in. Taper pin	0993A	1

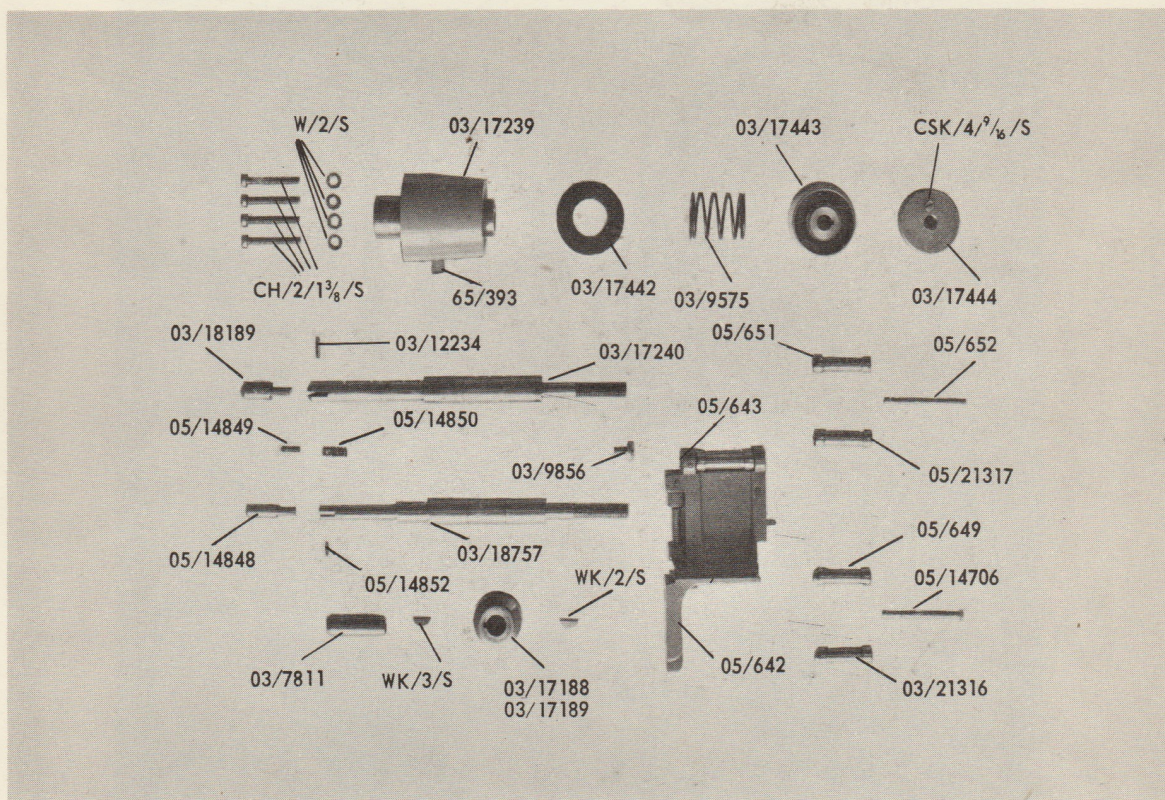
* MO.810 Complete take-up bracket with 0536A screws (2) and 0022A washers (2) is required when GK 21, 20 or 19 Projector is replacing any other Projector than Cine No. 11 or No. 12.

NOTE:- If this adaptation is not supplied at the same time as the Projector mechanism, then a Main drive gear must be supplied. See Plate 13, Sheet GK21P/31b.



GK21- GK20- GK19- GK18- 24" TOP SPOOLBOX ASSEMBLY

Part No.	Description	Qty	Screws etc	Part No.	Qty
31/17158	TOP SPOOLBOX ASSEMBLY COMPLETE (GK18 PROJECTOR)				
31/17159	TOP SPOOLBOX ASSEMBLY COMPLETE (GK21, GK20 & GK19 PROJECTOR)				
01/17115	Top Spool-arm (GK21, GK20 & GK19 PROJECTOR, TO ORDER)	1			
01/17113	Top Spool-arm (GK18 PROJECTOR, TO ORDER)	1			
01/17178	Spoolbox	1	{ Screw Washer	CH/2 $\frac{3}{8}$ /S W/2/S	13 13
02/17179	Spoolbox Lid	1			
03/17182	Hinge Pin	1	Split Pin	AGS166/1	1
02/17116	Body Hinge	1	$\frac{3}{16}$ " x $\frac{5}{8}$ " rivets flat head		7
02/17117	Lid Hinge	1	$\frac{3}{16}$ " x $\frac{5}{8}$ " rivets flat head		9
03/17186	Window Frame (not shown)	1			
03/17184	Window (gauze, to order)	2	{ Screw	RD/2 $\frac{1}{4}$ /S	6
03/17185	Window (mica, to order)	2	{ Nut	LN/2/S	6
05/8203	Sneak	1			
35/7725	Complete Catch (not shown)	1	{ Rivet	R232	4
35/802	COMPLETE FIRETRAP (upper)	1	Screw	FIL/2/1/S	2
05/642	Firetrap Body	1	As assembly		
05/643	Firetrap Lid	1			
05/644	Spindle for Lid (not shown)	1	Screw	GB/6 $\frac{3}{16}$ "/S	1
S30	Spring for Lid (not shown)	1			
05/653	Dowell Pin (not shown)	2			
05/651	Outside Roller	1			
03/21317	Outside Roller	1			
05/649	Inside Roller	1			
03/21316	Inside Roller	1			
05/652	Spindle for Outside Roller	2	Screw	GB/6 $\frac{3}{16}$ "/S	2
05/14706	Spindle for Inside Roller	2	Screw	GB/6 $\frac{3}{16}$ "/S	2
05/648	Pin for Thumb Piece (not shown)	1			
05/647	Thumb Piece for Lid (not shown)	1			



Part No.	Description	Qty	Screws wtc	Part No.	Qty
03/17240	Spool Spindle (1/2" dia, to order)	1			
03/18757	Spool Spindle (3/8" dia, to order)	1			
03/7811	Bush (1/2" dia, to order)	1			
03/18189	Spindle Click End (1/2" dia, to order)	1			
05/14848	Click End (3/8" dia Spindle, to order)	1			
03/12234	Pivot Pin (1/2" dia Spindle, to order)	1			
05/14852	Pivot Pin (3/8" dia Spindle, to order)	1			
05/14850	Spring	1			
05/14849	Plunger	1			
03/17189	Driving Pin	1			
03/17188	Spool Driving Collar	1			
03/17239	Spindle Bearing	1			
65/393	'Kingfisher' Oil Cup	1			
03/17442	Clutch Disc	1			
03/17443	Spring Collar	1			
03/9575	Spring (clutch)	1			
03/17444	Spring Tension Nut	1			
03/9856	Stop Screw	1			
			{ Woodruff Key	WK/3/S	1
			{ Screw	ALS/2/3/8/S	1
			{ Screw	CH/2/13/8/S	4
			{ Washer	W/2/S	4
			{ Threaded		
			Woodruff key	WK/2/S	1
			Screw	CSK/4/9/16"/S	1

The Standard Spool Spindle supplied with this equipment is 1/2" dia (Part No. 03/17240); a 3/8" dia Spool Spindle (Part No. 03/18757) with a 1/2" dia Bush (Part No. 03/7811), can also be supplied.

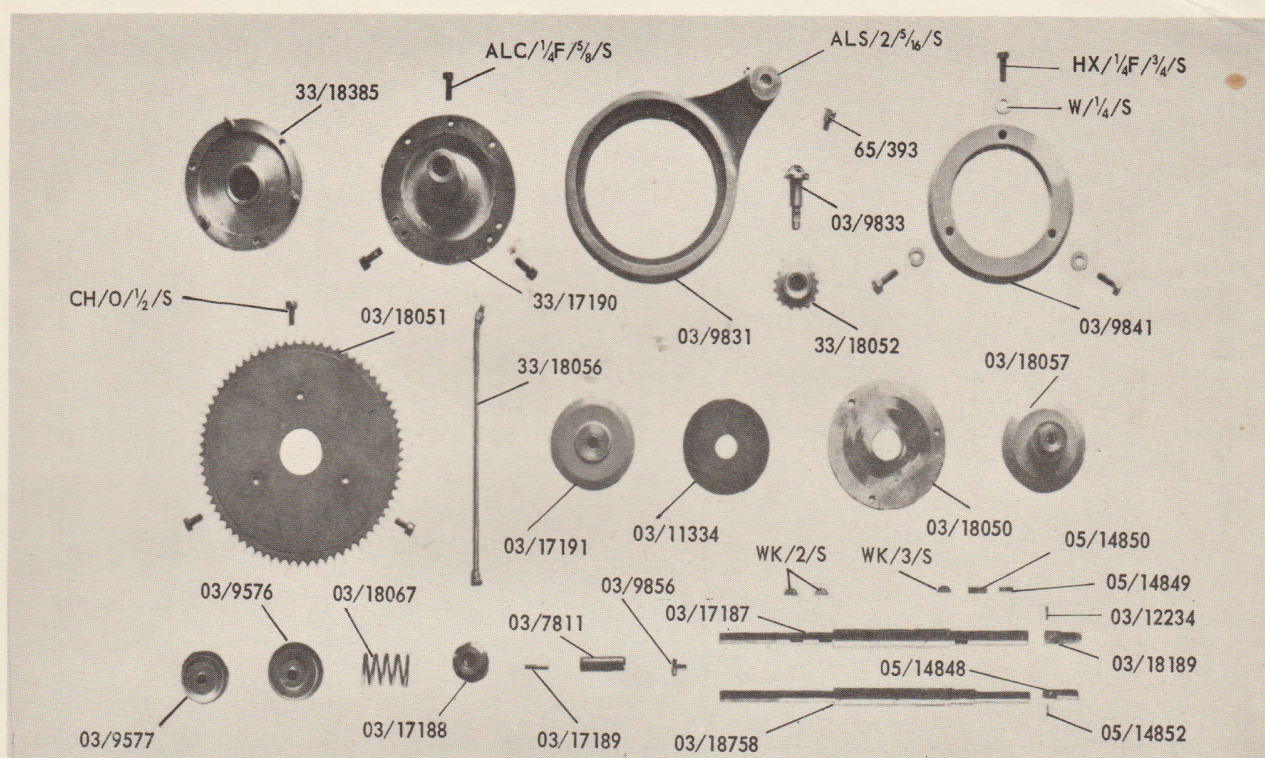


PLATE 27 contd

Part No.	Description	Qty	Screws etc	Part No.	Qty
03/17187	Spool Spindle ($\frac{1}{2}$ " dia, to order)	1			
03/18758	Spool Spindle ($\frac{3}{8}$ " dia, to order)	1			
03/7811	Bush ($\frac{1}{2}$ " dia, to order)	1			
03/18189	Click End ($\frac{1}{2}$ " dia Spindle, to order)	1			
05/14848	Click End ($\frac{3}{8}$ " dia Spindle, to order)	1			
03/12234	Pivot Pin ($\frac{1}{2}$ " dia Spindle, to order)	1			
05/14852	Pivot Pin ($\frac{3}{8}$ " dia Spindle, to order)	1			
05/14849	Plunger	1			
05/14850	Spring	1			
03/17189	Driving Pin	1			
03/17188	Spool Driving Collar	1	{ Screw	ALS/2/ $\frac{3}{8}$ " /S	1
			{ Woodruff key	WK/3/S	1
33/17190	Take-up Flange Assembly	1	{ Screw	ALC/ $\frac{1}{4}$ F/ $\frac{5}{8}$ " /S	4
03/9841	Clamp Ring	1	{ Screw	HX/ $\frac{1}{4}$ F/ $\frac{3}{4}$ " /S	3
			{ Washer	W/ $\frac{1}{4}$ " /S	3
03/9831	Jockey Arm	1			
33/18056	Take-up Oil Pipe Assembly	1			
03/9833	Jockey Spindle	1	{ Screw	ALS/2/ $\frac{5}{16}$ " /S	1
65/393	'Kingfisher' Oil Cup	1	{ Threaded		
33/18052	Jockey Sprocket Assembly	1			
33/18385	Chain Sprocket Adaptor Assembly	1			
03/18051	Chain Wheel	1	{ Screw	CH/O/ $\frac{1}{2}$ " /S	3
03/17191	Inner Clutch Plate	1	{ Screw	ALS/2/ $\frac{5}{16}$ " /S	1
			{ Woodruff key	WK/2/S	1
03/11334	Clutch Disc (large)	2			
03/18050	Driving Plate	1			
03/18057	Outer Clutch Plate	1	{ Woodruff key	WK/2/S	1
03/18067	Spring	1			
03/9576	Spring Tension Nut	1			
03/9577	Special Nut	1			
03/9856	Stop Screw	1			

The Standard Spool Spindle supplied with this equipment is $\frac{1}{2}$ " dia (Part No. 03/17187); a $\frac{3}{8}$ " dia Spool Spindle (Part No. 03/18758) with a $\frac{1}{2}$ " dia Bush (Part No. 03/7811), can also be supplied.

