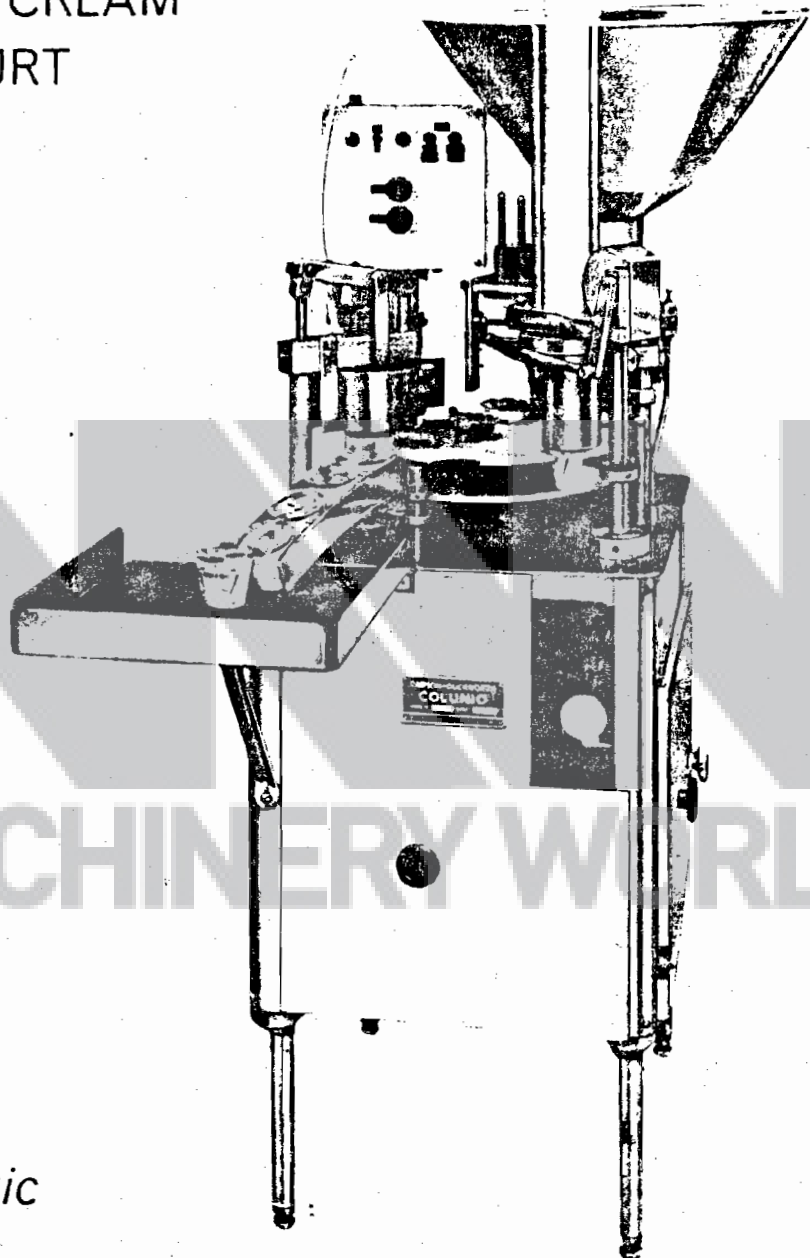


THE 'COLUNIO - JUNIOR' CARTONER

OPERATING & MAINTENANCE INSTRUCTIONS

FOR DAIRY CREAM
AND YOGHURT



fully automatic

DESIGNED AND MANUFACTURED BY



FROM



Caleb Duckworth Ltd.

COLUNIO WORKS PHILLIPS LANE COLNE LANCASHIRE BB8 9PJ ENGLAND

During the past 10 years several changes have been made to improve the 'COLUNIO-JUNIOR' CREAM CARTONER.

It is not possible to produce a 'parts list' covering all the changes which have been made, but if you find that your Cartonier is different from the one illustrated in this list, please refer to the part in this list and state how the part which you require differs. If the variation is difficult to describe, send us a very rough sketch.

HOW TO ORDER

When a part or assembly of parts is required, it is essential to have the following information on your order.

- a) Type, Model and Serial number of Cartonier.
- b) Item number AND Plate number of part.
- c) Description of part.
- d) Quantity of each part required.

NOTE Where the abbreviation S.C.S. appears it is also important to state container size, rim diameter and make.

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OPERATING INSTRUCTIONS FOR THE "COLUNIO-JUNIOR" CREAM CARTONER

The "COLUNIO-JUNIOR" CARTONER is designed to operate at a speed of 1,000 cups per hour and this rate should not be increased. The Cartonier is fully automatic, it dispenses the cups into a starwheel which transfers them to the filling head where they receive a determined quantity of cream or yoghurt. At the next station a preformed lid is drawn from the stack and placed on the filled cup. The next movement of the starwheel brings the cup bearing a loose lid beneath the Sealing Head where the lid is pressed onto the rim of the cup. Finally the cup is ploughed from the starwheel onto the Collecting Table.

Maintenance

Grease nipples should receive a charge of grease every week and do not overlook the one in the pump bracket. A hole has been put in the crossbar which carries the pump bracket and the machine should be turned by means of the handwheel until the nipple can be greased through this hole. Use a good quality thin car engine oil for the gearbox and fill up to the oil level every three months.

CUP DISPENSER

This mechanism has 6 cams which are operated by a rack which moves forwards and backwards. Attached to the cams are small pinions which have one long tooth. In the rack are six positions where the six long teeth can be inserted and this ensures that all the cams are synchronised perfectly. If the cups fail to drop evenly, inspect the cams and check whether the long tooth on every cam is in the appropriate position. This can be ascertained by peering into the mechanism and there is no need to strip it down. Another method of testing whether the cams are all synchronised is to put a single cup in the dispenser, disconnect the operating lever at the side and move the small projection from the rack by hand. You will then be able to ascertain if all the six cams commence to push the cups downwards simultaneously.

On Cartoners which have to deal with the 10 oz. tall English cups we have introduced a "gripper-plate" to assist in separating them. A small swing-over flap when moved away from the operating rod allows the Gripper-plate to operate. Its function is to come beneath the rim of the cup immediately above the bottom cup. This prevents the cup from dropping down in the Dispenser whilst the cams push the bottom cup downwards. When operating on cups which nest closely together, this applies generally to all cups up to and including 6 oz cups, swing the flap over towards the operating rod and see that it holds the Gripper-Plate out and prevents it from making any contact with the cups. **THIS IS VERY IMPORTANT.** If you have dispenser trouble with 3 oz., 4 oz., 5 oz. and 6 oz. cups immediately check that the Gripper-Plate is prevented from entering the Dispenser.

If no cups are dropping even though the side lever is operating, put your hand underneath the bottom cup and lift the stack gently upwards and lower them slowly and carefully keeping them as level as possible.

If this does not prove successful, check the lever-lug which is attached to the rack to see if its movement goes from end to end of the slot. If it doesn't it will be necessary to alter the length of rod which passes through the pillar which supports the Dispenser. This rod has a left-hand thread at one end and a right-hand thread at the other. Slacken off both the locking nuts against the Unibals or rod-ends and turn the rod. You have already ascertained that the lever-lug is not moving the length of the slot, after turning the rod a small amount run the machine to check if you have turned the rod in the correct direction and if so whether you have made sufficient adjustment. Do not forget to tighten the lock nuts when you have completed the adjustments which should be made very carefully, a little at a time.

If you find that cups are hitting the starwheel as they drop from the Dispenser, slacken the two grub screws which hold the pillar in the base flange and move the Dispenser so that a falling cup will enter the recess in the starwheel. Attached to the pillar is the 2-cup bridge. In the event of two cups dropping together, the top cup would hit this bridge and cause the machine to stop. Remove the top cup, move the starwheel forward till you feel the drive engage and restart the machine.

STARWHEEL.

Two starwheels are supplied with the machine. One is marked 10oz and the other 3 & 5oz. The starwheel marked 10oz should be used for cups of 7oz. 8oz. 9oz. and 10oz capacities whilst the starwheel marked 3 & 5oz. should be used for cups of 3oz. 4oz. 5oz and 6oz. capacities.

Beneath the starwheel there is a spinning platform and it is very important that this is correctly adjusted. Whatever size of cup is being used, the rim of the cup must be $\frac{3}{4}$ " above the top of the starwheel and a gauge is provided for this setting. Spin the platform either up or down until the gauge will just pass over the rim of the cup. Then insert the locking pin so that it passes through the nearest hole to it in the platform and this will prevent the spinning platform from moving during filling operations.

The Starwheel is driven by a vertical shaft from the gearbox but this is not a solid drive and, in the event of a cup sticking in the Sealing Head, the starwheel will be thrown out of drive. This causes the starwheel to rise about $\frac{1}{8}$ " and in doing so a microswitch button is depressed which stops the machine immediately. When this occurs, turn the machine back by using the black handwheel turning in a clockwise direction. This causes the Sealing Head to rise and enables the cup to be extracted. Should the cup prove difficult to extract it will be necessary to turn the knurled hand-nut a very small amount, unscrewing it from the Sealing Head until you hear the crimping spring release itself. This will allow the trapped cup to become free and you should move the large knurled hand-nut to its original position. THIS IS VERY IMPORTANT.

To reset the starwheel, turn it forward and you will feel the drive engage with an obvious click. Then restart the machine.

To set the plastic guides beneath the Sealing Head, place a cup in the starwheel and run the machine until it comes beneath the Sealing Head. Lower the Sealing Head, turning the machine by hand until it is in its lowest position. Then bring the plastic guide into a position where there is a space between the cup and the guide of this amount $\#$. Tighten the black plastic knob to make the guide secure. This guide must not trap the cup either as it enters or leaves the Sealing Head.

FILLING MECHANISM

The filling is volumetric. A piston operating in a cylinder controls the measure and by altering the length of the stroke the capacity is adjusted between 3 and 10 fl. ozs.

The capacity control, which is at the front right of the machine, has a scale which is visible through the perspex window. The numbers on this scale do not denote the amount which is filled but rather serve as an indication and very soon the operator will know the required settings in order to obtain the correct quantity of cream for the various sizes of cups.

The Supply Tank is mounted on top of the cock-housing which is positioned above the measuring cylinder. There is therefore only a short flow for the cream to pass from the tank to the measuring cylinder.

When the piston has completed its downwards stroke the cock turns through 90° and as the piston rises the flow of cream is directed to the filling head where the valve has opened to allow the cream to pass into the awaiting cup. When the full charge has been pumped into the cup the filling head valve closes, the cock turns back through 90° and the piston commences on its downward movement again.

The filling head valve is operated by a cam which is attached to the back of the boxcam responsible for the pumping. This cam also controls the cock movement so you will appreciate that since the pumping, the cock and the filling head are all controlled by one cam they should never get out of perfect synchronisation.

To strip down the filling mechanism for cleaning, act as follows.

1. Remove the Supply Tank and the connection to the cock housing.
2. Remove the knurled hand-nut which clamps the filling head in position. Take off the spring-loaded washer that secures the pivot for the valve operating levers and withdraw the pivot.
3. Withdraw the filling head from the cock-housing and take care not to drop the valve out of the filling head in doing so.
4. Remove the knurled hand-nut which fastens the cock operating rod in position and pull the rod away from the cock-housing.
5. Lift the circular ring at the base of the cylinder and withdraw the three headed studs.
4. Lift away the assembly comprising the cock and housing and measuring cylinder.
7. Remove the knurled hand-nut at the end of the cock, take off the bar, the collar with the O-ring insert and the nylon washer. Great care should be taken to prevent the cock dropping out of the housing so we suggest that this is done on a table. You can then wash thoroughly all parts.

FILLING MECHANISM CONTINUED.

8. The Nulip ring on the piston should be removed and washed but take care not to damage it. The piston flange can also be removed by undoing the hexagon setscrew.

Assembling the filling mechanism after cleaning.

1. Replace the nulip ring in the groove in the piston flange taking care to see that the ring is not twisted. Tighten the setscrew which fastens the flange to the piston rod.
2. Place the cock in the housing, replace the nylon washer, the collar with the O-ring against the nylon washer, the bar and the knurled hand-nut which should be as tight as you can turn it by hand.
3. Place the cylinder assembly over the piston and see that the stud retaining ring is round the cylinder.
4. Replace the three studs and let the stud retaining ring down into position.
5. Attach the operating rod with the knurled hand-nut and see that this is hand-tight.
6. Wriggle the filling head pipe into the cock-housing and replace the clamp and knurled hand-nut.
7. Replace the filling head valve operating levers so that the two lifting pins are in the groove in the valve. Put the pivot pin in position and the spring-loaded retaining washer.
8. Put the plastic tube on the cockbody outlet and replace the Supply Tank.

No-cup-no-fill.

If you examine this mechanism you will be surprised by its simplicity.

The presence of a cup beneath the filling head causes a triangular plate pivoted on the base of the machine to be moved backwards. When this is in its normal position one corner of this plate trips the tail of a pawl and prevents it from driving the large boxcam to which the clutch plate is fastened. The presence of a cup moves the trip plate backwards and allows the pawl to engage the clutch-plate and so drive the boxcam.

In the event of the Cartoner filling without there being a cup beneath the filling head it is most likely due to the fact that the triangular trip plate has stuck back and is not falling forward as it should by gravity. When this occurs apply a little thin oil to and move the trip plate by hand until it is quite free and falls forward freely.

If there is not filling in spite of there being a cup beneath the filling head the trouble is most likely due to the fact that the pawl has stuck and the spring is failing to bring the drive end in to engage the clutch-plate. Apply thin oil to the pawl and move it by hand until it is quite free. We suggest that this pawl is oiled regularly and flicked with your finger to make sure that it is quite free. Keep the wire which passes round the boxcam well greased.

FOIL LID DISPENSER.

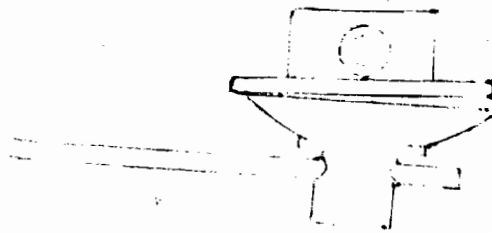
This is simple in operation. Beneath the table a piston operates in a cylinder to produce the necessary suction for drawing the lid from the stack. However, only when a cup comes beneath the lid dispenser is the suction line closed and then the sucker, making contact with the bottom lid in the stack, draws it away forcing it past the six retaining points, brings it down, turns it over and places it on the awaiting cup. The loose piece behind the sucker helps the lid to settle on the cup and should not be discarded. Lids with embossing on them should not be used unless the embossing is outside the diameter of the sucker. Keep a good stack of lids to ensure that they drop down to the 6 retaining points. The four guide rods are eccentric and should be used to centralise the lids in case lids of smaller diameter than the hole are being used.


The presence of a cup beneath the Dispenser actuates a lever which in turn closes an air vent in the suction line beneath the table. It forces a rubber pad onto a hole and by doing so it puts full suction into the centre of the lid sucker. If the suction appears to be poor and insufficient to pull the lid from the stack, it may be that some cream has got into the suction line and this should be cleared before proceeding. Disconnect the tube and blow through it.

If the suction is still weak, make certain that the presence of a cup against the lever causes the rubber pad to close the airvent. The only other cause for weak suction would be the piston cup which operates in the brass suction cylinder and this might need replacing.

If the bottom lid in the stack is crinkled, this would prevent it from being withdrawn so in the event of two or three cups missing lids examine the bottom lid and remove it from the stack, if damaged.

The sucker beneath the table which closes the air line should not be quite parallel with the brass face which it closes onto. If it is parallel the suction can pull the rubber sucker against the brass pad and cause lids to be removed from the stack even though there is no cup beneath the dispenser. Therefore set the angle of the brass pad as illustrated.



The setting of the 6 lid retaining screws is quite critical. Generally the protrusion of the points should be  but if the lids are rather smaller it may be necessary to move these 6 screws further in. Always slacken the locking nuts before altering the setting of these screws and tighten the locknuts after making any adjustments. Each of the 6 screws should protrude an equal amount. They are definitely too far in if the lids are distorted during the process of drawing them from the stack. Examine the distorted lid to ascertain if one particular screw is causing the distortion. If it is, adjust accordingly.

If the lids are being placed to one side of the cup, too far forward or too far back, slacken the setscrew under the table which holds the pillar secure and also slacken the two hexagon headed bolts above the table. Reset the position of the pillar and tighten the three locking screws.

THE SEALING HEAD.

This unit is simple in design. A coiled spring is used for crimping the skirt of the foil lid beneath the rim of the cup. There is no top pressure whatsoever during the sealing process providing the starwheel has been correctly set.

The Sealing Head lowers over the cup and in doing so presses the skirt of the foil lid downwards. Then the coiled spring is forced inwards by the circular wedge. The tightness of the crimp is determined by the position of the spring relative to the bottom of the rim. For this reason, if a number of sizes of cups are to be handled it is essential that the thickness of their rims should be the same. Otherwise the cup with the thick rim will seal tightly whilst the cup with the thin rim will have a very loose seal and it will be easy to turn the lid round on the cup. If the Sealing Head is adjusted for the thin rimmed cup, when a thick rimmed cup is put through the machine it will probably stick in the Sealing Head and disrupt the operations.

The correct setting.

Make certain that the spinning platform beneath the starwheel is correctly positioned by putting a cup in the starwheel and using the gauge to check that the rim of the cup is exactly $3/4$ " above the starwheel.

Allow the cup to travel round until it is under the Sealing Head and when this has lowered fully onto the cup (this is when the circular nut on the Sealing Head stem has touched the bracket) it should be possible to turn the cup round with your fingers because there should be NO top pressure. If the cup is under pressure from the Head the circular nut on the stem should be turned clockwise (looking from above) until the top pressure has been relieved and the circular nut should be locked tightly with the grubscrew. At this stage there should be no crimp on the cup. (To make this adjustment it is necessary to remove the circular guard which should be replaced.)

Turn the machine now by hand using the black plastic knob and the crimp will come gradually on but if it becomes hard to turn the machine it is obvious that the large nut at the bottom of the Sealing Head requires lowering VERY SLIGHTLY. Unscrew this nut (clockwise looking from above) about 1", no more, on the circumference and continue to turn the machine with the plastic knob. If it is still hard to turn release the large nut a little more but all adjustments should be made most carefully, a little at a time. When you have discovered the correct position for the large nut which will allow the crimping spring to pass beneath the rim of the cup with a lid on and also release itself after crimping, tighten the locking arrangement and it is a good plan to mark on the Sealing Head this position for future reference when dealing with cups of similar rim thickness.

Periodically you should clean inside the Sealing Head by unscrewing the removing the large base nut. When this is removed you will find that also the crimping spring and the circular wedge come away from the machine. After cleaning, grease the wedge before replacing it (this will cause it to hold up in the recess) and replace the circular nut. When this is fully screwed on insert the crimping spring and reset the nut to its correct position.

HEAT SEALING.

In the electric case mounted on top of the Cartoner there is a Graviner Thermistor Controller which operates in conjunction with a Probe in the Hot Head.

The Thermistor Controller can be set over a wide range and machines are usually set to provide a temperature in the Hot Head of 180°C. In winter it might be necessary to amend this setting to a higher reading if the seal which you are obtaining is not adequate. The Hot Head contains a mica element of 400 watts and also a Probe.

There are two lights on the control box cover, red and white, which light up when switched on. The white light should never go out until the Heat Seal is switched off, it indicates that current is passing through, but the red light will go out when the Hot Head has reached its preset heat and this light will continue to go in and out. It lights up when electricity is passing to the Hot Head and goes out when the temperature required has been reached. Do not commence operations until the Red Light goes out.

There are two fuses. The 2 amp fuse is between the mains and the Thermistor Controller and the 3 amp fuse between the Controller and the element in the Hot Head. Always keep spare fuses handy.

To change the element in the Hot Head, remove the guard, switch off the current, remove the Hot Head from the bracket, undo the three hexagon bolts and replace the element

Underneath the spinning table for adjusting the height of the cup there is a screw to take the downward pressure of the Hot Head. This must be adjusted every time a different size of cup is being dealt with. There should be just the smallest clearance between the spinning platform and the top of the screw which takes the top pressure.

If it is felt that increased top pressure is required, shorten very slightly the rod beneath the encased spring on the operating rod. One end is left-hand and the other is right-hand so slacken the locknuts at both ends of the rod and give a small turn to the rod. Always tighten both locknuts after making any adjustments. If the Hot Head is giving more pressure at one side than the other, there is a small adjustment on the lefthand bar which will lengthen or shorten this bar.

Always keep the face of the Hot Head clean otherwise the heat will not be conducted to the rim of the cup.

MAIN FRAME(JUNIOR CREAM)

<u>Part no.</u>	<u>Description</u>	<u>No. off.</u>	
10262A1	Bottom frame	1	
10263A1	Assy. table top	1	
10266A1	Support leg	1	
10267A1	Support leg	1	
20170A1	Support leg	2	
10268A1	Tie bar	1	
10269A1	Plain washer	4	$\frac{1}{4}$ " diam.
10558A1	Hex. head setscrew	4	$\frac{1}{2}$ " BSW x $1\frac{1}{4}$ " LG
10284A1	C/Sunk socket screw	2	$5/16$ " BSW x 1" LG
10275A1	Angle bracket	3	
10276A1	Vertical tie bar	1	
10003A1	Socket head cap screw	3	$\frac{1}{4}$ " BSW x $\frac{7}{8}$ " LG
10277A1	Hex. nut	2	$\frac{1}{4}$ " BSW
10004A1	Socket head cap screw	1	$\frac{1}{4}$ " BSW x 1" LG
10278A1	Socket head cap screw	1	$\frac{1}{4}$ " BSW x $1\frac{1}{4}$ " LG
10283A1	Taper pin	4	$\frac{1}{4}$ " x $1\frac{1}{2}$ " LG
10248A1	Socket set screw	8	$\frac{1}{4}$ " BSW x $\frac{1}{4}$ " LG
10280A1	Adjustable extension leg	4	
10282A1	Special hex. bolt	4	Make from 10281
10116A1	Hex. nut	4	$\frac{5}{8}$ " BSW
11304A1	Ferrule	1	
10702A1	Ferrule	1	
20254A1	Special washer - table top	4	

SUPPLY TANK AND FITTINGS

(JUNIOR CREAM)

<u>Part no.</u>	<u>Description</u>	<u>No. off.</u>	
10860A11	Assy. top supply tank	1	
10799A1	Support plate	1	
10801A1	Support block	1	
10802A1	Support pillar	1	
11700A1	Outlet valve	1	
13106A1 10807.	Bung	1	
13107A1	Bung-handle	1	
13453A1	Tank support	1	
10829A1	Hex. head set screw	3	$\frac{3}{8}$ " BSW x $1\frac{1}{2}$ " LG.
10483A1	Hex. head set screw	2	$\frac{5}{16}$ " BSW x 1" LG
10284A1	Socket C/Sunk screw	2	$\frac{5}{16}$ " BSW x 1" LG
10455A1	Hex. nut	1	$\frac{3}{16}$ " BSW.
10828A1	'O' Ring	3	$\frac{7}{8}$ " ID.
10824A1	Supply tube	1	1"OD x $\frac{3}{4}$ " ID x $7\frac{1}{2}$ " LG (Clear plastic)

PLATE 1

CARTON DISPENSER

Item on Plate 1	DESCRIPTION	No. off
1 10462	Push Rod ¹⁰⁶²⁴	1
2	Collar ... ¹⁰⁶⁴¹	1
3	Socket Setscrew 4BA	1
4	Hex. Head Screw $\frac{3}{8}$ " BSW	1
5	Thrust Rod	1
6	Tension Spring	1
7 10256	Self Locking Nut $\frac{3}{8}$ " BSW	1
<u>Assy 10624</u> 8 10626/B	Assy. Operating Levers ... (^{10625 SWIFT})	1
9	Hex. Head Bolt $\frac{3}{8}$ " BSW	1
10	Rd. Head Screw $\frac{1}{2}$ " BSW	1
11 10220	Flanged Bearing	2
12 10627	Bearing Block	1
13	Washer	2
14	Hex. Head Screw $\frac{3}{8}$ " BSW	2
15	Guard	1
16 11665	Support Pillar	1
17	Socket Head Screw $\frac{1}{2}$ " BSW	2
18 10257	Hex. Head Bolt $\frac{3}{8}$ " BSW	1
19 10161	Rod End Unibal $\frac{3}{8}$ " BSF (R. or L. Hand)	1
20	Pillar Bracket (S.C.S.)	1
21 10627	Dispenser Cam (S.C.S.)	6
22	Rack	1
23 11666	Guide Rod	3
24	Rd. Head Screw $\frac{1}{2}$ " BSW	1
25	Clamp Return Spring	1
26 10639	Csk. Screw 2BA	3
27	Split Pin	1
28	Case	1
29 1323	Carton Clamp Plate	1
30	Rd. Head Screw $\frac{1}{2}$ " BSW	1
31	Clamp Plate Cut Out	1

When ordering parts for the Carton Dispenser state whether your Dispenser is Right Hand or Left Hand. (R.H. or L.H.) This is very IMPORTANT.

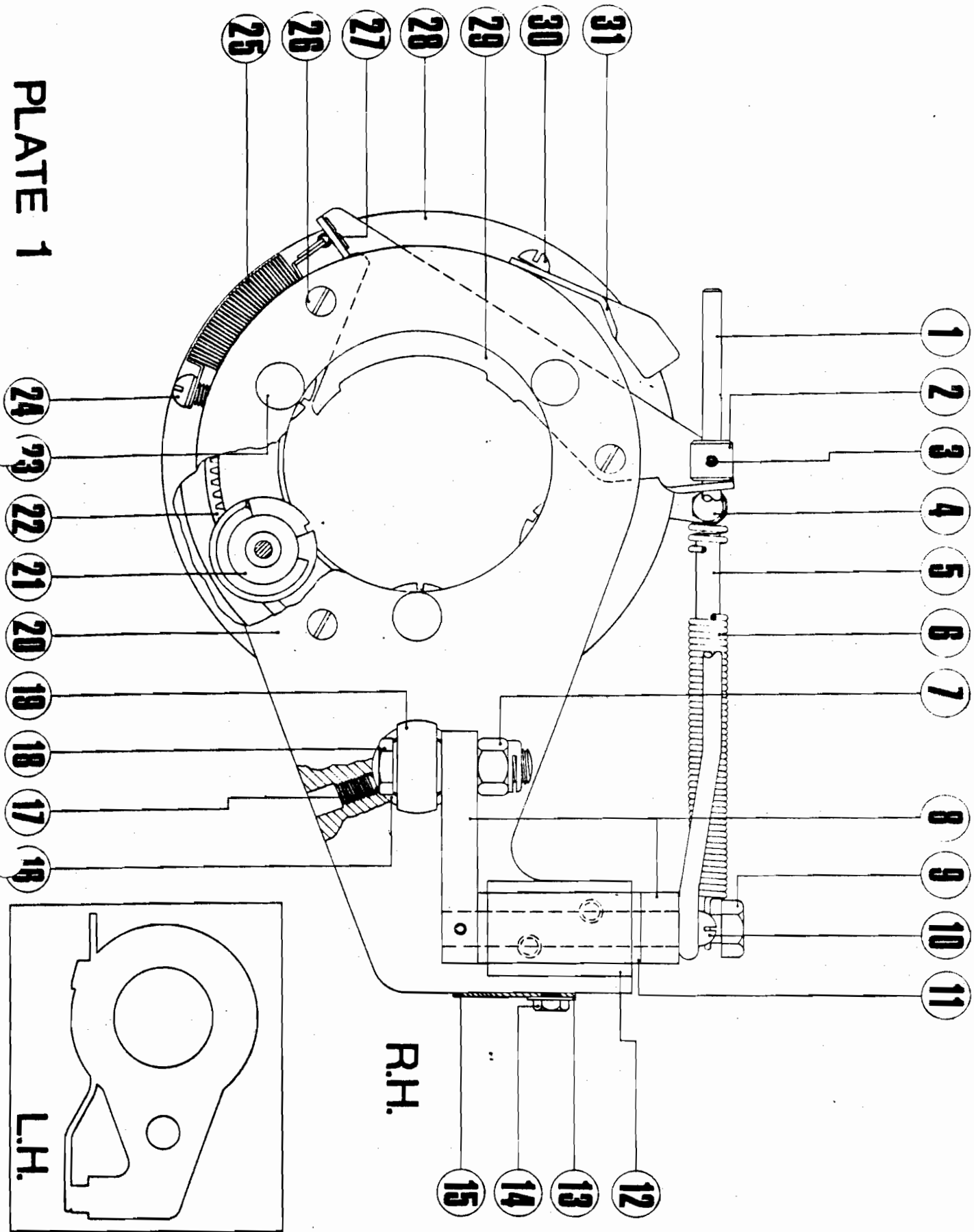


PLATE 1

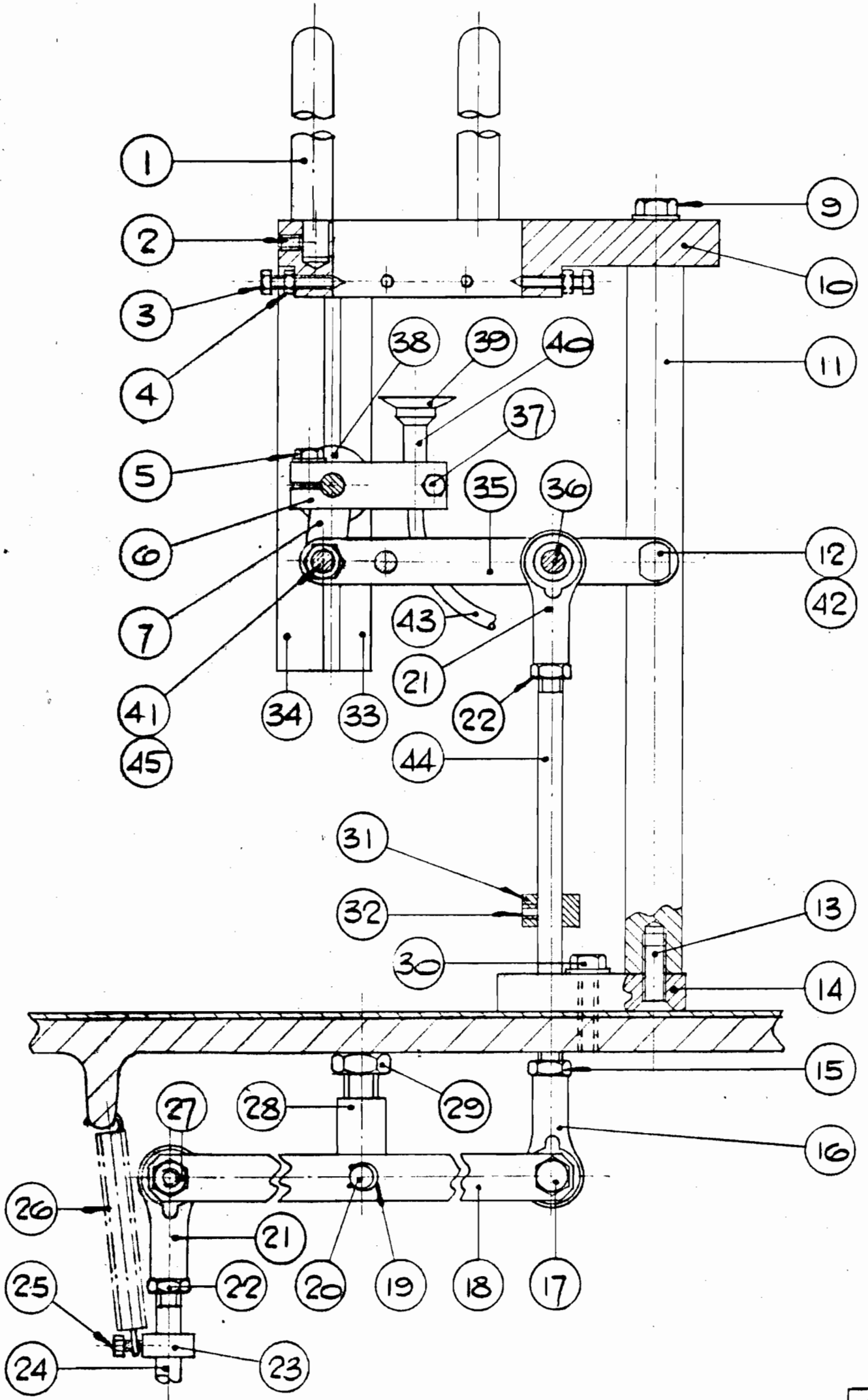
Item No. on Plate 2B	Description.	No. of.
1.	Rod End Bearing $\frac{3}{8}$ " B.S.F.	1.
2.	Support Lever.	1.
3.	Self Locking Nut $\frac{3}{8}$ " B.S.W.	3.
4.	Lock Nut. $\frac{1}{2}$ " B.S.F.	2.
5.	Pivot Post.	1.
6.	Stud.	1.
7.	Hex. Head Screw. $\frac{5}{16}$ " B.S.W.	2.
8.	Washer. $\frac{5}{16}$ " diam.	2.
9.	Support Bracket.	1.
10.	Flanged Oil Retaining Bearing.	1.
11.	Washer. $\frac{3}{8}$" diam.	2.
12.	Assembly operating lever.	1.
13.	Hex. Head Bolt. $\frac{1}{2}$" B.S.W.	1.
14.	Thrust Pad (S.C.S).	1.
15.	Assembly Terminal Knob.	1.
16.	Oil Retaining Bearing.	1.
17.	Lock Nut. $\frac{3}{8}$ " B.S.F. L.H.	1.
18.	Rod End Bearing. $\frac{3}{8}$ " B.S.F. L.H.	1.
19.	Hex. Head Bolt. $\frac{1}{2}$" B.S.W.	1.
20.	Locking Pin.	1.
21.	Assembly Swivel Bar.	1.
22.	Hex. Head Screw. $\frac{3}{16}$ " B.S.W.	3.
23.	Washer. $\frac{3}{16}$ " diam.	3.
24.	Cover Plate - eccentric.	1.
25.	Centre Piece - eccentric.	1.
26.	Outer Ring - eccentric.	1.
27.	Hex. Nut. $\frac{1}{2}$ " B.S.W.	1.
28.	Hex. Nut. $\frac{1}{4}$ " B.S.W.	2.
29.	Spacing Block.	1.
30.	Spacer.	1.
31.	Pivot Pin.	1.
32.	Solid Taper Pin.	1.
33.	Straight Grease Nipple.	1.
34.	Hex. Head Bolt. $\frac{1}{2}$ " B.S.W.	2.
35.	External Circlip.	2.
36.	Connecting Rod.	1.
37.	Grooved Pin.	1.
38.	Hex. Head Bolt. $\frac{3}{8}$ " B.S.W.	1.
39.	Operating Lever.	1.
40.	Socket Set Screw. $\frac{1}{4}$ " B.S.W.	1.

<u>ITEM ON PLATE 4B</u>	<u>DESCRIPTION</u>	<u>NO. OFF</u>
1	13423 Connecting Block	1
2	10701 Support Pillar	1
3	11330 Assy. Valve Lever	1
4	11410 Valve Guide	1
5	11565 'O' Ring	1
6	11319 Clamp	1
7	10791 'C' Ring	1
8	11327 Connecting Lever	2
9	11324 Connector	1
10	20579 Handwheel	1
11A	11560 Sealing Collar	1
11B	10791 'O' Ring	1
12	11561 Spacer	1
13	11340 Assy. Cock Body & Cock	1
14	11325 Pivot Arm	1
15	10656 Circlip	2
16	11326 Connecting Knuckle	1
17	11076 Stud	1
18	Support Arm	1
19	10714 Valve	1
20	10459 Assy. Filling Head	1
21	20573 Nu-lip Ring	1
22	11083 Piston	1
23	10395 Stud	1
24	10013 Cylindrical Bearing	1
25	10391 Piston Rod	1
26	10417 Cylinder Base	1
27	10418 Pump Cylinder	1
28	'O' Ring	1
29	Valve Head Block	1
30	Valve	1
31	Compression Spring	1
32	Valve Operating Levers	1
33	Valve Head Block	1
34	Pivot Pin	1
35	Valve Plate	1
36	Valve Head Base	1
37	'O' Ring	1
38	Pump Cylinder	1
39	Insert	1
40	11332 Pivot Pin	2

MARK I ONLY

MARK II ONLY

<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>REMARKS</u>
1	10532A1	Eccentric Guide Rod	3 or 4	
2	11010A1	Socket Set Screw 3/16" BSWx1" long	3 or 4	
3	10534A1	Separating Screw	6	
4	10210A1	Hex. Half Nut 3/16" BSW	6	
5	11302A1	Hex. Hd. Set Screw 1/4" BSW x 1/2" long	1	
6	13176A1	Sucker Holder Clamp	1	
7	13169A1	Link	2	
8	13025A1	Bracing Rod	1	
9	10829A1	Hex. Hd. Set Screw 3/8" BSWx1 1/2" long	2	
0	13164A1	Top Bracket	1	Send Lid Sample
1	13165A1	Support Pillar	2	
2	13168A1	Shouldered Stud	2	
3	10827A1	C/Sunk Screw 3/8" BSW x 1" long	2	
4	13019A1	Base Plate	1	
5	10253A1	Hex. Half Nut 3/8" BSF	2	
6	10161A1	Spherical Rod End Bearing - 3/8" BSF - R.H.	2	
7	10257A1	Hex. Hd. Screw 3/8" BSWx1 1/2" long	3	
8	11075A1	Operating Levers	1 pair	
9	10656A1	External Circlip 3/8" Dia.	2	
0	10556A1	Grooved Pin	1	
1	10162A1	Spherical Rod End Bearing 3/8" BSF - L.H.	2	
2	10254A1	Hex. Half Nut 3/8" BSF - L.H.	2	
3	20332A1	Collar	1	
4	11076A1	Stud	1	
5	10151A1	Hex. Hd. Screw 1/4" BSW x 3/4" long	1	
6	11079A1	Tension Spring	1	
7	10256A1	Self-Locking Nut 3/8" BSW	3	
8	13210A1	Offset Pivot Post	1	} State Which Type
8	20169A1	Plain Pivot Post (shown)	1	
9	10271A1	Hex. Nut 1/2" BSW	1	
0	10207A1	Hex. Hd. Set Screw 5/16" BSWx1" long	3	
1	20332A1	Collar	1	If Fitted
2	10248A1	Socket Set Screw 1/4" BSWx1" long	1	If Fitted
3	13166A1	Plain Guide	1	
4	13167A1	Turn Over Guide	1	
5	10540A1	Operating Lever	1 pair	
6	13024A1	Operating Rod	2	
7	10490A1	Hex. Hd. Set Screw 3/16" BSWx1/2" long	1	
8	13203A1	Assy. Turn Over Bar	1	
9	10531A1	Sucker 1 1/4" Dia.	1	
0	13175A1	Sucker Holder	1	
1	26247A1	Spacer	1	
2	10316A1	Bush-Operating Levers	2	3/8" x 1/2" x 3/8" lg.
3	13204A1	Vacuum Tube	1	
4	11362A1	Stud	1	
5	13330A1	Link Pin	2	
<u>ADDITIONAL PARTS (NOT ILLUSTRATED)</u>				
	11465A1	Rocker Arm - Main Gearbox	1	
	11550A1	Key - Rocker Arm	1	
	13192A1	Guard and Fittings	1	For Coding Unit



CODING UNIT

PLATE 44

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>REMARKS</u>
1	13230A1	Headed Stud	1	
2	13221A1	Retaining Plate	1	
3	10214A1	Torsion Spring	1	
4	10561A1	Round Hd. Screw 3/16"BSW x 1/2"lg.	1	
5	10309A1	Socket Set Screw 3/16"BSW x 3/16"lg.	2	
6	11131A1	Hinge Pin	1	
7	13790	Cylinder Rod End	1	
8	20393	Bush	3	
9	13182A1	Embossing Arm	1	With or without Tab Cut-out
10	KS 390	Die Insert - 1/4" dia. Barrel)		As reqd. Give full details of embossing required
10	KS 394	Die Insert - 5/16" dia. Barrel)		
11	13184A1	Die Holder - 2 Holes)		
11	13185A1	Die Holder - 3 Holes)		
12	13186A1	Embossing Pad	1	Flat Lids only
13	13187A1	Flat Pad Holder	1	Flat Lids only
14	10004A1	Socket Hd. Cap Screws 1/4"BSW x 1"lg.	2	
15	13188A1	Support Block	1	Flat Lids only
16	10110A1	Socket Hd. Cap Screw 1/4"BSW x 3/4"lg.	1	Flat Lids only
17	11301A1	Hex. Hd. Set Screw 5/16"BSW x 3/4"lg.	2	
18	10278A1	Socket Hd. Cap Screw 1/4"BSW x 1 1/4"lg.	2	
19	13170A1	Cylinder Clamp Block	2	
20	13171A1	Cylinder Trunnion	1	
21	13793	Air Cylinder	1	M6025/50
22	13792	Spares Kit for above	-	QM/6025/00
23	10311A1	Plain Washer 5/16" dia.	2	
24	13179A1	Pivot Block	1	
25	13189A1	Angled Pad Holder	1	S kirted Lids only
26	13229A1	Retaining Pin	1	
27	13554A1	Pivot Pin	1	
28	13177A1	Clamp Block	1	pr.

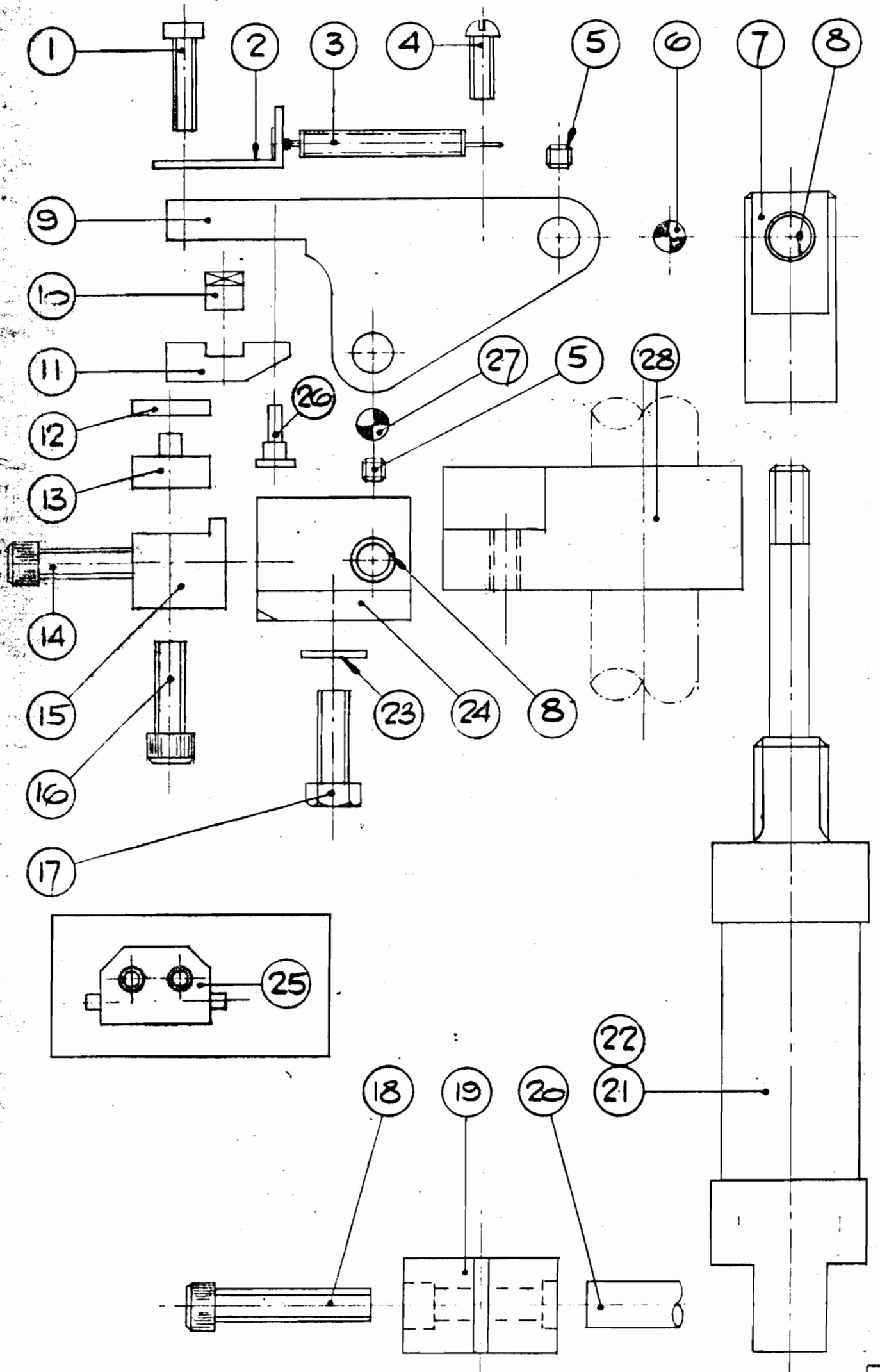


PLATE 3AB

NO-CARTON-NO-FILL MECHANISM.

Item No. on Plate 3AB	Description.	No. off.
1. 10652	Hex. Head Screw. 3/16" BSW.	4.
2. 10982	Clamp.	2.
3. 10455	Hex. Nut.. 3/16" BSW.	4.
4. 11070	Outer Tube.	1.
5. 10484	Oil Retaining Bearing.	3.
6. 11072	Assembly Pivot Shaft.	1.
7. 10453	Assembly Trip Lever.	1.
8. 10248	Socket Set Screw. 1/4" BSW.	3.
9. 10985	Assembly Cranked Arm.	1.
10. 10302	Spindle Bearing Housing.	1.
11. 10303	Oil Retaining Bearing.	2.
12. 10717	Assembly Cut Out Lever.	1.
13. 10631	Assembly Clutch Cut Out Plate.	1.
14. 10661	Hex. Head Bolt. 1/4" BSW.	2.
15. 10150	Washer. 1/4" diam.	2.
16. 10342	Pivot Block.	1.
17. 10655	Self Locking Nut. 5/16" BSW.	1.
18. 10632	Spring Anchor.	1.
19. 10309	Socket Set Screw. 3/16" BSW.	1.
20. 10348	Pivot Stud.	1.
21. 10684	Solid Taper Pin.	1.
22. 10345	Pawl Carrier.	1.
23. 10660	Pivot Stud - Pawl.	1.
24. 10654	Pawl Tension Spring.	1.
25. 10658	Cut-Out Pawl.	1.
26. 10656	External Circlip.	1.
27. 10110	Socket Head Screw. 1/4" BSW.	4.
28. 10678	Clutch Plate.	1.
29. 11568	Ring Fastener.	1.

<u>ITEM ON PLATE 4B</u>	<u>DESCRIPTION</u>	<u>NO. CFF</u>
1	13423 Connecting Block	1
2	10701 Support Pillar	1
3	11330 Assy. Valve Lever	1
4	11410 Valve Guide	1
5	11565 'O' Ring	1
6	11319 Clamp	1
7	10791 'C' Ring	1
8	11327 Connecting Lever	2
9	11324 Connector	1
10	20579 Handwheel	1
11A	11560 Sealing Collar	1
11B	10791 'O' Ring	1
12	11561 Spacer	1
13	11340 Assy. Cock Body & Cock	1
14	11325 Pivot Arm	1
15	10656 Circlip	2
16	11326 Connecting Knuckle	1
17	11076 Stud	1
18	Support Arm	1
19	10714 Valve	1
20	10459 Assy. Filling Head	1
21	20573 Nu-lip Ring	1
22	11083 Piston	1
23	10395 Stud	1
24	10013 Cylindrical Bearing	1
25	10391 Piston Rod	1
26	10417 Cylinder Base	1
27	10418 Pump Cylinder	1
28	'O' Ring	1
29	Valve Head Block	1
30	Valve	1
31	Compression Spring	1
32	Valve Operating Levers	1
33	Valve Head Block	1
34	Pivot Pin	1
35	Valve Plate	1
36	Valve Head Base	1
37	'O' Ring	1
38	Pump Cylinder	1
39	Insert	1
40	11332 Pivot Pin	2

MARK I ONLY

MARK II ONLY

PLATE 6B.

NO-CARTON-NO-ITEM NUMBER.

Item No. on Plate 6B.	Description.	No. off.
1. 10302	Spindle Bearing Housing.	1.
2. 10303	Oil Retaining Bearing.	2.
3. 11638	Sucker Retaining Rod.	1.
4. 10248	Socket Set Screw. $\frac{1}{4}$ " BSW.	1.
5. 11637	Assembly Trip Lever.	1.
6. 10325	Hex. Nut. $\frac{5}{16}$ " BSW.	1.
7.	Stop-Sucker Retaining Rod.	1.
8. 10531	Sucker.	1.
9. 10309	Socket Set Screw. $\frac{3}{16}$ " BSW.	1.
10. 10308	Sucker Retaining Boss.	1.
11. 10207	Hex Bolt $\frac{5}{16}$ " BSW	1.
12. 10288	Assembly Vacuum Cylinder.	1.
13. 10050	Countersunk Screw. $\frac{1}{4}$ " BSW.	1.
14. 10295	Clamping Plate Piston Cup.	1.
15. 10297	Piston Cup.	1.
16. 20239	Backing Plate Piston Cup.	1.
17. 10292	Assembly Piston Rod.	1.
18. 10253	Lock Nut. $\frac{3}{8}$ " BSF.	1.
19. 10161	Rod End Bearing. $\frac{3}{8}$ " BSF.	1.
20. 10257	Hex. Head Bolt. $\frac{3}{8}$ " BSW.	1.
21. 10256	Self Locking Nut. $\frac{3}{8}$ " BSW.	1.
22. 10310	Vacuum Tube	1.
23. 10298	Vacuum Passage Bar	1.
24. 10271	Hex Nut $\frac{1}{2}$ " BSW	1.

Item No. on Plate 7B.	Description.	No. off.
1. 20236	Compression Spring.	1.
2. 20146	Spring Housing.	1.
3. 10248	Socket Setscrews $\frac{1}{4}$ " BSW.	5.
4. 20237	Collar.	1.
5. 20143	Operating Shaft.	1.
6. 20210	P.T.F.E. Dry Bush.	2.
7.	Hex. Nut. $\frac{5}{16}$ " BSW.	2.
8.	Washer. $\frac{5}{16}$ " diam.	2.
9.	Hex. Head Bolt. $\frac{5}{16}$ " BSW.	2.
10.	P.T.F.E. Dry Bush.	4.
11.	Tabb Support Lever.	2.
12.	Hex. Head Screw. $\frac{3}{8}$" BSW.	2.
13.	External Circlip.	6.
14.	Red End Bearing. $\frac{3}{8}$" BSP.L.H.	4.
15.	Locknut. $\frac{3}{8}$" BSP. I.H.	4.
16. 11361	Support Bracket.	1.
17.	Thrust Lever - Bottom Section.	1.
18. 20154	Grooved Pin.	1.
19. 10924	External Circlip.	2.
20.	Stud.	3.
21.	Locknut. $\frac{5}{16}$" BSP.L.H.	1.
22.	Locknut. $\frac{3}{8}$" BSP.	4.
23.	Red End Bearing. $\frac{3}{8}$" BSP.	4.
24.	Self Locking Nut. $\frac{3}{8}$" BSW.	3.
25.	Pivot Shaft.	1.
26. 20223	P.T.F.E. Dry Bush.	2.
27.	Adjusting Screw.	1.
28.	Locknut. $\frac{5}{16}$" BSP.	1.
29. 20261	External Circlip.	8.
30.	Thrust Lever - Top Section.	1.
31. 20032	Operating Lever.	1 pair.
32. 20222	P.T.F.E. Dry Bush.	6.
33. 20018	Pivot Post.	1.
34. 20248	Grooved Pin.	2.
35. 20152	Grooved Pin.	1.
36. 20048	Connecting Block.	1.
37. 20209	P.T.F.E. Dry Bush.	2.
38. 10271	Hex. Nut. $\frac{3}{8}$ " BSW.	1.
39. 10269	Washer. $\frac{3}{8}$ " diam.	1.
40. 10441	Round Head Screw. $\frac{1}{4}$ " BSW.	2.
41. 20405	Circular Guard.	1.
42.	Pivot Bar.	1.
43. 20014	Head Shaft.	1.
44. 20454	P.T.F.E. Insulation Sheath.	1.
45. 10989	Collar.	1.
46. 10638	Socket Set Screw. 4BA.	1.
47. 20050	Thrust Lever.	2.
48. 20616	Outer Case.	1.
49.	Terminal Wire.	2.

PLATE 7B

HEAT SEALING MECHANISM (cont).

Item No. on Plate 7B	Description.	No. off.
50.	Hex. Head Screw. 3/16" BSW.	1.
51.	Washer. 3/16" diam.	1.
52.	Thermistor Control Probe.	1.
53.	Insulation Pad.	1.
54.	Heating Element.	1.
55. 13306	Element Housing (S.C.S.)	1.
56.	Hex. Head Screw. 1/4" BSW.	3.
57.	Round Head Screw 2BA.	1.
58.	Porcelain Connector.	1.
59.	Element Clamp Plate.	1.
60.	Insulation Sleeve.	2.
61.	Spacer.	1.
62.	Hex. Head Bolt. 3/8" BSW.	1.
63.	Stud.	1.
64.	Operating Lever.	1.
65.	6/16" Grease Nipple.	1.
66.	Hex. Head Bolt. 3/8" BSW.	1.
67.	Grooved Pin.	1.
68.	Pivot Shaft.	1.
69.	Phos. Bronze Bearing.	2.
70.	Hex. Head Bolt. 5/16" BSW.	2.
71.	Pivot Block.	1.
72. 20149	Connecting Bar.	1.
73. 20238	Socket C/sk. Screw. 5/16" BSW.	1.
74. 20150	Thrust Washer.	1.

PLATE 9BCRIMPING HEADITEM ON PLATE 9BDESCRIPTIONNO. OFF

<u>ITEM ON PLATE 9B</u>	<u>DESCRIPTION</u>	<u>NO. OFF</u>
1	20348 Socket Head Screw $\frac{3}{8}$ " BSW	1
2	Crimping Head Nut (S.C.S.)	1
3	11609 Clamp	1
4	10217 Knob	1
5	10141 Cylindrical Bearing	1
6	11614 Thrust Pad Assy. (S.C.S.)	1 Unit
7	10125 Operating Lever	1 Pair
8	11363 Pivot Pin	4
9	10135 Spindle	1
10	10973 Cylindrical Bearing	1
11	10248 Socket Setscrew $\frac{1}{4}$ " BSW	1
12	10134 Locknut	1
13	10581 Guard	1
14	10128 Crosshead	1
15	10253 Hex Nut $\frac{3}{8}$ " BSF	1
16	10579 Operating Lever	1 Pair
17	10925 Circlip	6
18	10127 Operating Lever	1 Pair
19	10248 Socket Setscrew $\frac{1}{4}$ " BSW	1
20	10131 Support Pillar	1
21	10033 Grease Nipple	1
22	10722 Guard	1
23	10697 Carton Guide	1
24	10719 Operating Rod	1
25	10249 Locknut 1" UHF	1
26	10147 Cylindrical Bearing	2
27	10780 Spacer	2
28	10130 Spindle	1
29	10144 Cylindrical Bearing	2
30	10151 Hex Head Setscrew $\frac{1}{4}$ " BSW	2
31	10150 Plain Washer $\frac{1}{4}$ " Dia. Nom.	2
32	Crimping Spring (S.C.S.)	1
33	Thrust Ring (S.C.S.)	1
34	Main Member (S.C.S.)	1
35	10122 Compression Spring	1
36	10139 Circlip	2
37	10142 Lockpin	1
38	Hex Head Setscrew $\frac{3}{16}$ " BSW	4
39	Locknut $\frac{3}{16}$ " BSW	4
40	Main Member (S.C.S.)	1
41	End Plate	1
42	Crimping Wedge	1

PLATE 10B

MAIN DRIVE

<u>Item No. on</u> <u>Plate 10B</u>	<u>Description</u>	<u>No. Off</u>
1	10777	2
2	10309	2
3	20624	4
4	10150	8
5	20623	4
6	10277	4
7	10248	1
8	10757	1
9	10759	1
10	20493	1
11	10758	1

PLATE 11AB.

DAWSON-DUCKWORTH REDUCTION GEARBOX.

Item No. on Plate 11AB.	Description.	No. off.
1. 10003	Socket Head Screw $\frac{1}{4}$ " BSW.	16.
2. 10251	Washer. $\frac{3}{8}$ " diam.	4.
3.	Spring Washer. $\frac{3}{8}$ " diam.	4.
4.	Solid Taper Pin.	4.
5. 10139	Hex. Head Bolt. $\frac{1}{2}$ " BSW.	4.
6. 10039	Oil Retaining Bearing.	1.
7. 10038	Needle Thrust Bearing.	1.
8. 10930	Key.	1.
9. 10024	Worm Wheel.	1.
10. 10006	Spacer.	1.
11. 10034	Helical Gear.	1.
12. 10930	Key.	2.
13. 10007	Worm Wheel Shaft.	1.
14. 10054	Drain Plug. $\frac{1}{4}$ " BSP.	1.
15. 10000	Gearbox Casing.	1.
16. 10026	Single Thrust Bearing (narrow).	1.
17. 10017	Oil Retaining Bearing.	2.
18. 10041	Shim - various thicknesses.	as reqd.
19. 10018	Closed bearing housing.	1.
20. 20303	Guard Support Stud.	1.
21. 10049	Shim - various thicknesses.	as reqd.
22. 10029	Bearing Housing.	1.
23. 10168	Socket C/sk. Screw $\frac{1}{4}$ " BSW.	4.
24. 10032	Oil Seal.	2.
25. 10045	Shim - various thicknesses.	as reqd.
26. 10014	Flanged oil retaining Bearing.	2.
27. 10011	Feed Drive Platform.	1.
28. 10010	Flanged Oil Retaining Bearing.	2.
29. 10941	Oil Retaining Bearing.	1.
30. 10054	Filler Plug. $\frac{1}{4}$ " BSP.	1.
31. 10036	Socket Setscrew. $\frac{1}{4}$ " BSW.	3.
32. 10899	Key.	1.
33. 10314	Roller Pin.	1.
34. 10316	Oil Retaining Bearing.	1.
35. 10315	Geneva Roller.	1.
36. 10338	Geneva Striker.	1.
37. 11539	Oil Level Window.	1.
38. 10001	Assembly Main Shaft.	1.
39. 10035	Helical Gear.	1.
40. 10012	Bearing Housing.	1.
41. 10013	Oil Retaining Bearing.	1.
42. 10033	Straight Grease Nipple.	1.
43. 10898	Worm.	1.
44. 10025	Single Thrust Bearing (wide).	1.
45. 10019	Bearing Housing.	1.
46. 10027	Oil Seal.	1.
47. 10022	Worm Gear Cover.	1.
48. 10005	Support Rail.	2.
49. 10004	Socket Head Screw. $\frac{1}{4}$ " BSW.	6.

PLATE 12AB FEED DRIVE BOX.

Item No. on Plate 12AB	Description	No. off
1. 10021	Cover Plate	1
2. 10110	Socket Head Screw $\frac{1}{4}$ "BSW	2
3. 20653	Stud.	4
4. 10331	Feed Drive Box	1
5. 10311	Washer. $\frac{5}{16}$ "dia.	4
6. 10325	Hex. Nut $\frac{5}{16}$ "BSW.	4
7. 10036	Socket Set Screw. $\frac{1}{4}$ "BSW.	1
8. 12562	Collar.	1
9. 10168	Lock Pin. $\frac{3}{16}$ "dia.	1
10. 10010	Flanged Oil Retaining Bearing	2
11. 10322	Wick Feed Oil Cup.	1
12. 10324	Assembly 6-Slot Geneva	1
13. 10333	Taper Pin $\frac{1}{4}$ "dia.	1
14. 11008	V-Ring Seal	1
15. 10326	Hex. Head Screw $\frac{3}{16}$ "BSW	2

PLATE 13AB

PUMP MECHANISM.

Item No. on Plate 13AB	Description.	No. off.
1. 10272	Lock Pin. $\frac{1}{4}$ " diam.	1.
2. 10343	Pivot Block.	1.
3. 10248	Socket Setscrew. $\frac{1}{4}$ " BSW.	1.
4. 10904	Phos. Br. Bearing.	2.
5. 10670	Pump Cam Lever.	1.
6. 10344	Pivot Stud.	1.
7. 10610	67 $\frac{1}{2}$ grease nipple.	4.
8. 13466	Washer. 7/16" diam.	1.
9. 11295	Hex. Nut. 7/16" UNF.	1.
10. 11203	Spacer.	1.
11. 10271	Hex. Nut. $\frac{1}{2}$ " BSW.	2.
12. 11294	Locknut. $\frac{1}{2}$ " BSW.	1.
13. 10601	Screwed Rod.	1.
14. 10608	Phos. Br. Bearing.	2.
15. 10586	Assembly Pump Mech. Lever.	1.
16. 10580	Round Head Screw. 3/16" BSW.	2.
17. 10600	Capacity Scale.	1.
18. 10615	Phos. Br. Bearing.	2.
19. 10592	Clevice.	1.
20. 10599	Pivot Stud.	2.
21. 10033	Straight Grease Nipple.	1.
22. 10602	Pivot Stud.	1.
23. 11203	Washer. $\frac{1}{2}$ " diam.	1.
24. 10674	Pump Cam.	1.
25. 10517	Flanged Oil Retaining Bearing.	1.
26. 20163	Bearing Support Block.	1.
27. 11296	Cam Follower.	1.
28. 10612	Rod End Bearing. $\frac{1}{2}$ " BSF.	1.
29. 11640	Special Bolt. $\frac{1}{2}$ " BSF.	1.
30. 20347	Phos. Br. Bearing.	1.
31. 10215	Tension Spring.	1.
32. 10651	Hex. Head Bolt. 5/16" BSW.	1.
33. 11636	Brake Cable.	1.
34.	Spring Washer. $\frac{5}{8}$ " diam.	2.
35. 10139	Hex. Head Bolt. $\frac{3}{8}$ " BSW.	2.
36. 13489	Plastic Knob. $\frac{1}{4}$ " BSW.	1.

Item No.
on Plate 6A.

Description.

No. of

601-103
751-104

Item No.	Description	No. of
1. 10302	Spindle Bearing Housing.	1.
2. 10303	Oil Retaining Bearing.	2.
3. 20380	Sucker Retaining Rod.	1.
4. 10248	Socket Set Screw. 1/4" BSW.	1.
5. 20735	Assembly Trip Lever.	1.
6. 10325	Hex. Nut. 5/16" BSW.	1.
7. 20384	Stop-Sucker Retaining Rod.	1.
8. 10531	Sucker.	1.
9. 10309	Socket Set Screw. 3/16" BSW.	1.
10. 10308	Sucker Retaining Boss.	1.
11. 20510	Cylinder Securing Boss.	1.
12. 20513	Assembly Vacuum Cylinder.	1.
13. 10976	Countersunk Screw. 1/4" BSW.	1.
14. 20520	Clamping Plate Piston Cup.	1.
15. 10373	Piston Cup.	1.
16. 20517	Backing Plate Piston Cup.	1.
17. 20528	Assembly Piston Rod.	1.
18. 10253	Lock Nut. 1/2" BSW.	1.
19. 10161	Rod End Bearing. 1/2" BSW.	1.
20. 11052	Hex. Head Bolt. 1/2" BSW.	1.
21. 10256	Self Locking Nut. 1/2" BSW.	1.
22. 20317	Tension Spring.	1.
23. 20385	Spring Anchor.	1.
24. 10277	Hex. Nut. 1/2" BSW.	1.

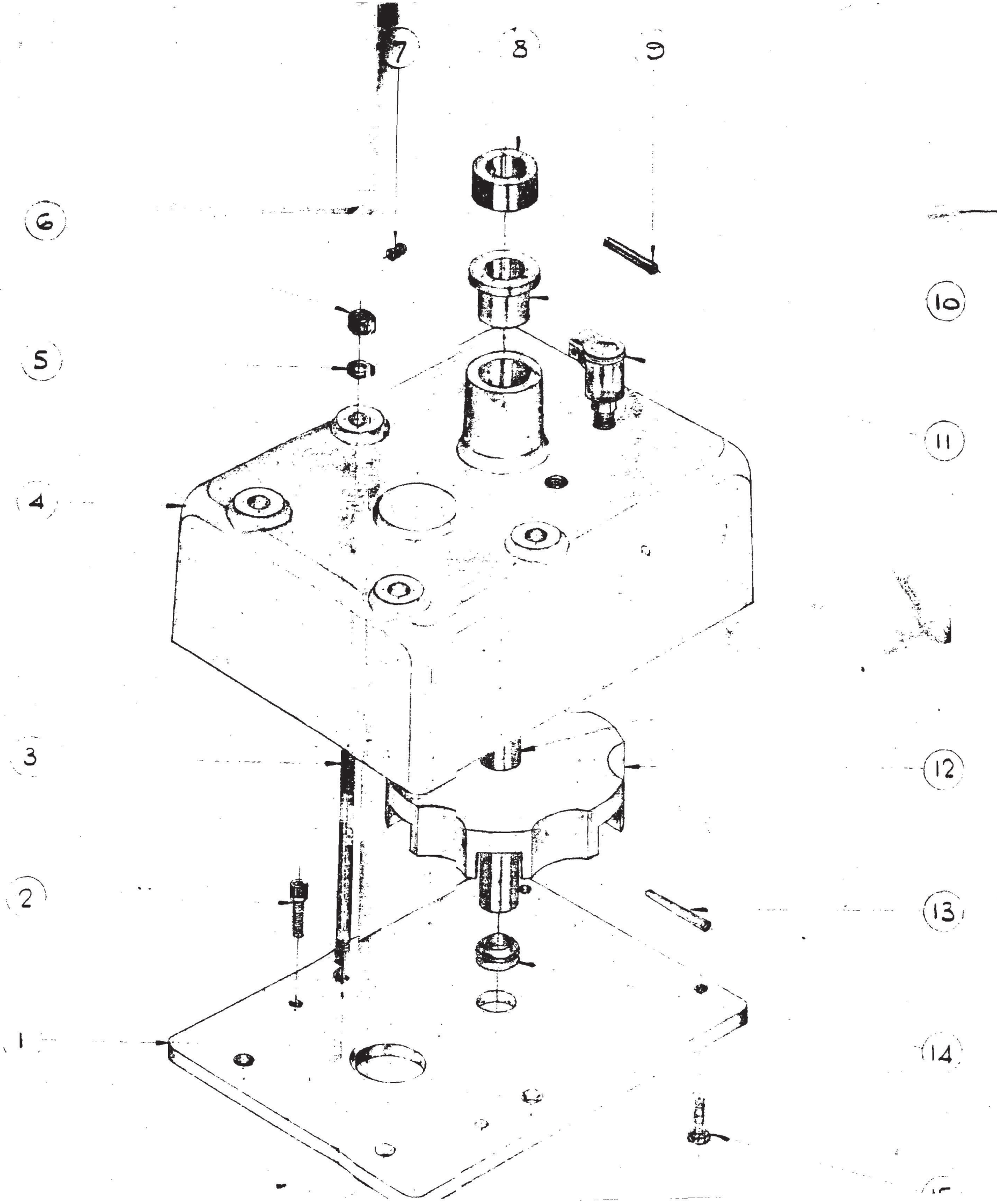
PLATE 12AB FEED DRIVE BOX.

Item No. on Plate 12AB	Description	No.	Q.
1. 10021	Cover Plate	1	
2. 10110	Socket Head Screw $\frac{1}{2}$ "BSW	2	
3. 20653	Stud.	4	
4. 10331	Feed Drive Box	1	
5. 10311	Washer. $\frac{5}{16}$ "dia.	4	
6. 10325	Hex. Nut $\frac{5}{16}$ "BSW.	4	
7. 10036	Socket Set Screw. $\frac{1}{4}$ "BSW.	1	
8. 12562	Collar.	1	
9. 10168	Lock Pin. $\frac{3}{16}$ "dia.	1	
10. 10010	Flanged Oil Retaining Bearing	2	
11. 10322	Wick Feed Oil Cup.	1	
12. 10324	Assembly 6-Slot Geneva	1	
13. 10333	Taper Pin $\frac{1}{2}$ "dia.	1	
14. 11008	V-Ring Seal	1	
15. 10326	Hex. Head Screw $\frac{3}{16}$ "BSW	2	

ITEM	PART NO.	DESCRIPTION	QTY	REMARKS
1.	10532A1	Eccentric Guide Rod	3 or 4	
2.	11010A1	Socket Set Screw 3/16" BSW x 1/2" long	3 or 4	
3.	10534A1	Separating Screw	6	
4.	10210A1	Hex. Half Nut 3/16" BSW	6	
5.	11302A1	Hex. Hd. Set Screw 1/4" BSW x 1/2" long	1	
	13176A1	Sucker Holder Clamp	1	
7.	13169A1	Link	2	
9.	10829A1	Hex. Hd. Set Screw 5/8" BSW x 1 1/2" long	2	
10.	13164A1	Top Bracket	1	Send Lid Sample
11.	13165	Support Pillar	2	
11.	20728	Support Pillar	2	==
12.	13168A1	Shouldered Stud	2	
13.	10827A1	C/Sunk Screw 3/8" BSW x 1" long	2	
14.	13019A1	Base Plate	1	
15.	10253A1	Hex Half Nut 3/8" BSF	2	
16.	10161A1	Spherical Rod End Bearing - 3/8" BSF - R.H.	2	
17.	10257A1	Hex. Hd. Screw 3/8" BSW x 1 1/2" long	2	
18.	11075A1	Operating Levers	1 pair	
19.	10656A1	External Circlip 1/8" dia.	2	
20.	10556A1	Grooved Pin	1	
21.	10162A1	Spherical Rod End Bearing 3/8" BSF - L.H.	2	
22.	10245A1	Hex. Half Nut 3/8" BSF - L.H.	2	
23.	20332A1	Collar	1	
24.	11076A1	Stud	1	
25.	10151A1	Hex. Hd. Screw 1/4" BSW x 1" long	1	
26.	11079A1	Tension Spring	1	
27.	10256A1	Self-Locking Nut 3/8" BSW	3	
28.	13210A1	Offset Pivot Post	1	} State which type
28.	20169A1	Plain Pivot Post (shown)	1	
29.	10271A1	Hex. Nut 1/4" BSW	1	
30.	10207A1	Hex. Hd. Set Screw 5/16" BSW x 1" long	3	
31.	20332A1	Collar	1	If fitted
32.	10248A1	Socket Set Screw 1/4" BSW x 1/4" long	1	If fitted
33.	13166A1	Plain Guide	1	
34.	13167A1	Turn Over Guide	1	
35.	10540A1	Operating Lever	1 pair	
36.	13024A1	Operating Rod	2	
37.	10490A1	Hex. Hd. Set Screw 3/16" BSW x 1/2" long	1	
38.	13203A11	Assy. Turn Over Bar	1	
39.	10531A1	Sucker 1 1/4" dia.	1	
40.	13175A1	Sucker Holder	1	
41.	26247A1	Spacer	1	
42.	10316A1	Bush-Operating Levers	2	Auxiliary 1.
43.	13204A1	Vacuum Tube	1	
44.	11362A1	Stud	1	
45.	13330A1	Link Pin	2	

ADDITIONAL PARTS (NOT ILLUSTRATED)

11465A1	Rocker Arm - Main Gearbox	1	
11550A1	Key - Rocker Arm	1	
13192A1	Guard and Fittings	1	For Coding Unit

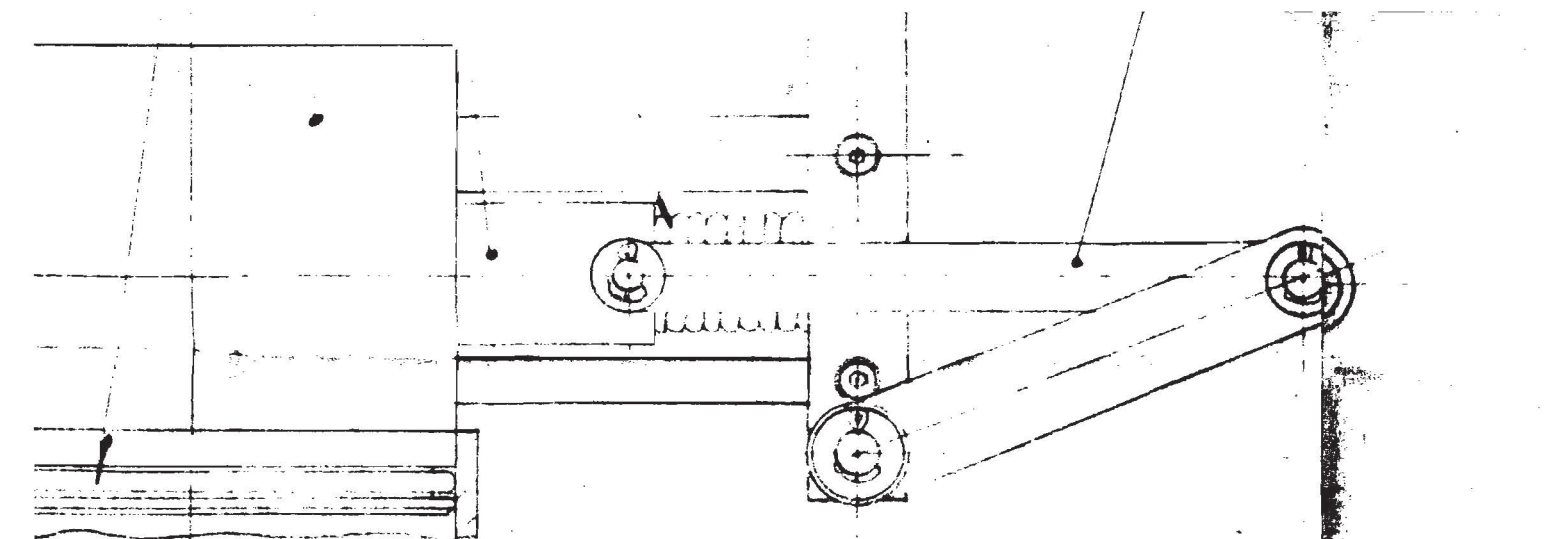


REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE:

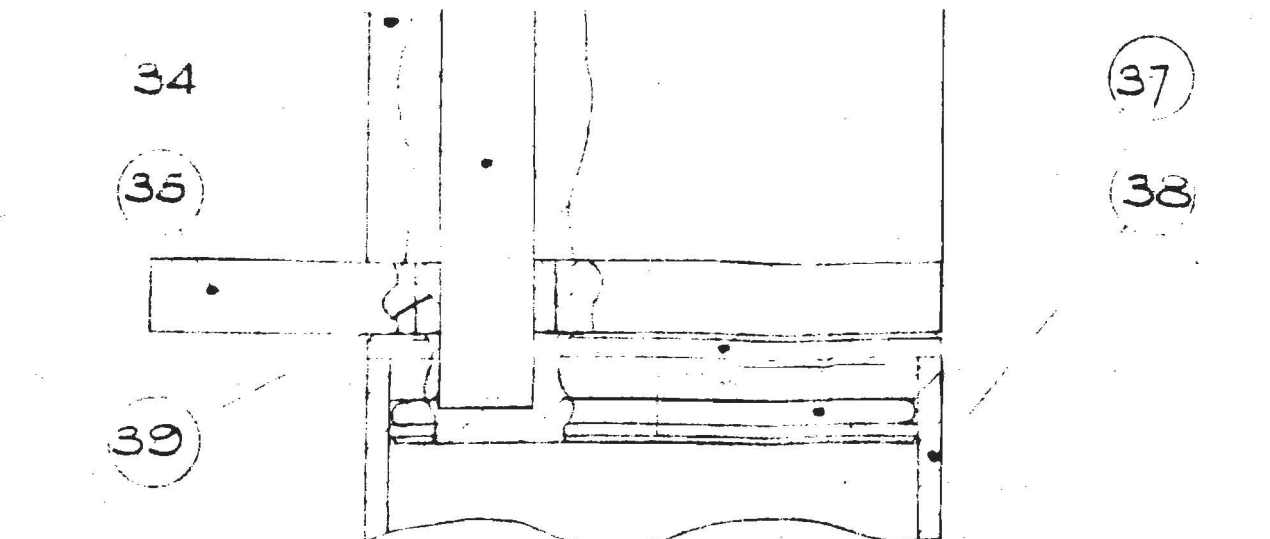
ONE PLACE
TWO PLACE
THREE PLACE
ANGLES

SCALE	DAWSON
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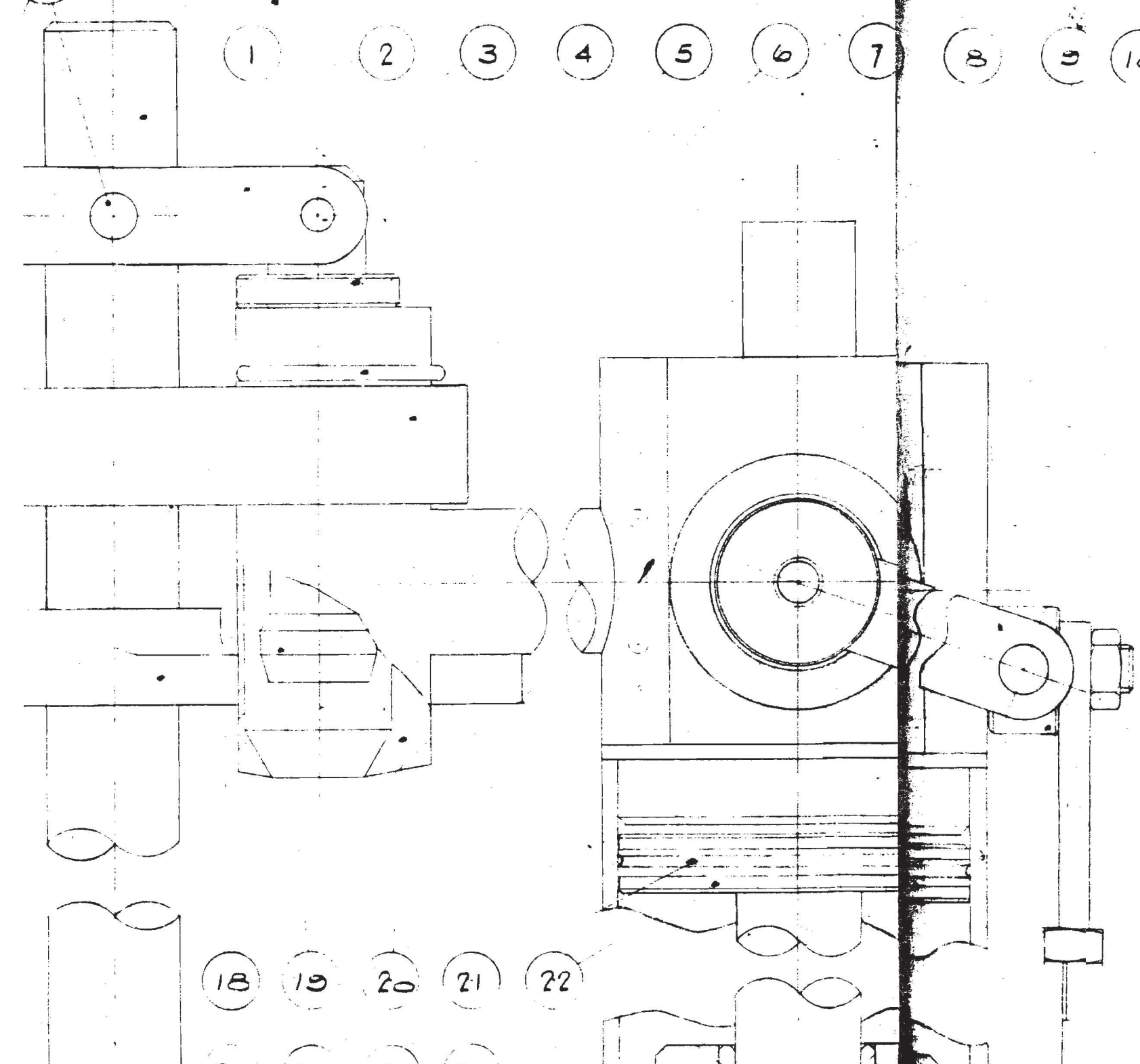
34
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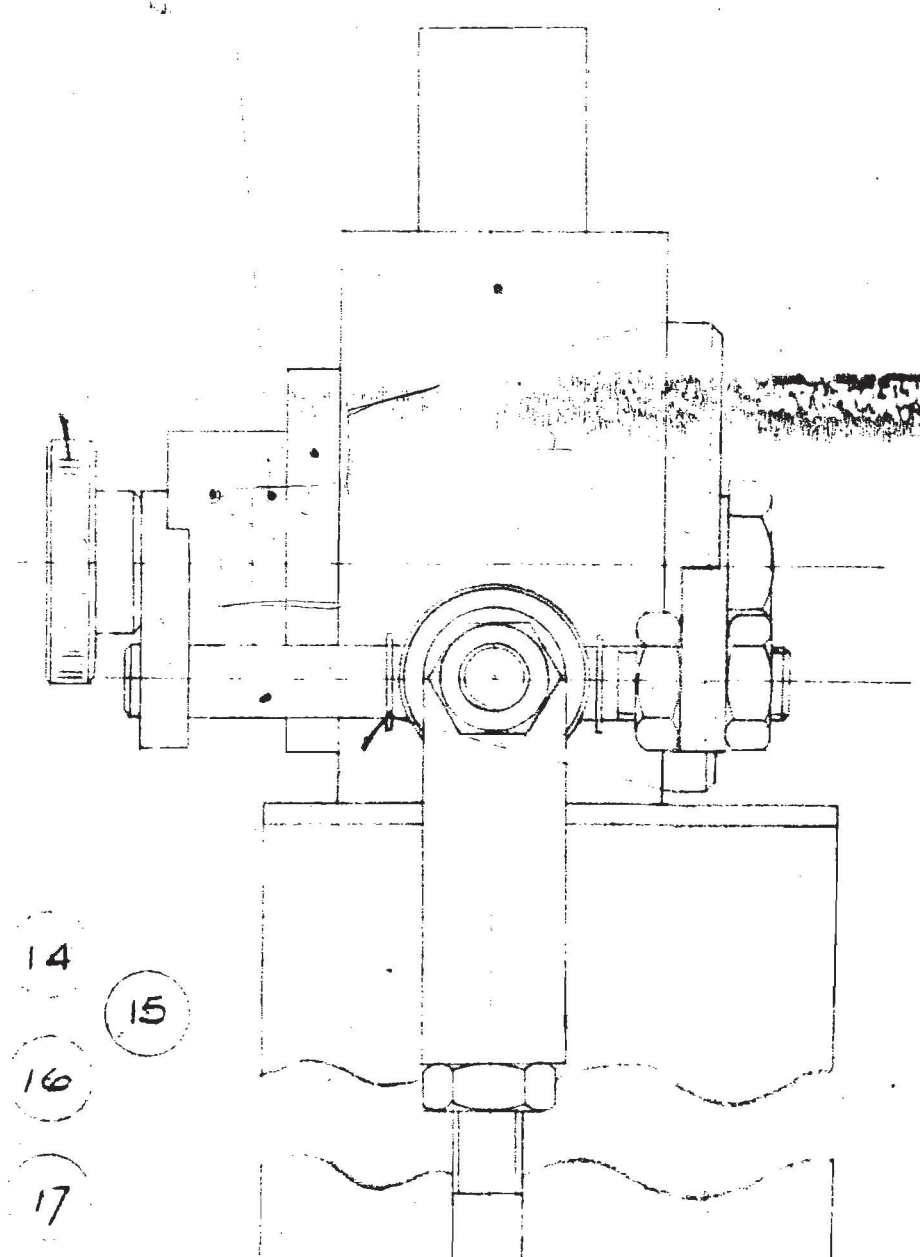
1 2 3 4 5 6 7 8 9 10 11A 11B 12 13



18 19 20 21 22

23 24 25 26

14
15
16
17



OLA E 4 B

REMOVE ALL BURRS AND SHARP EDGES	
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE:	ONE PLACE DECIMAL TWO PLACE DECIMAL THREE PLACE DECIMAL ANGLES
SCALE 1/1	DUCKWORTH - COLNE, LANC
JD	MATERIAL

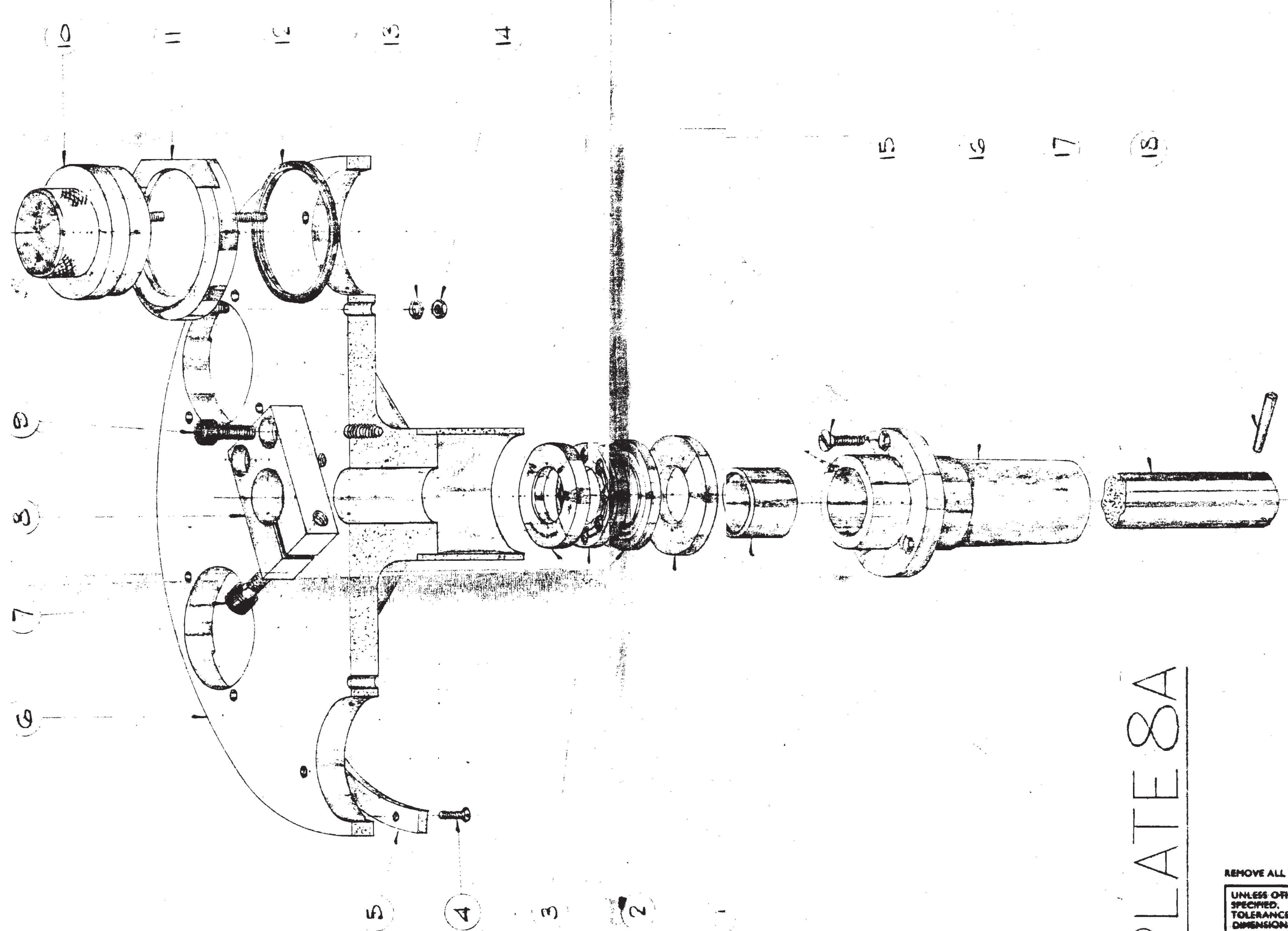


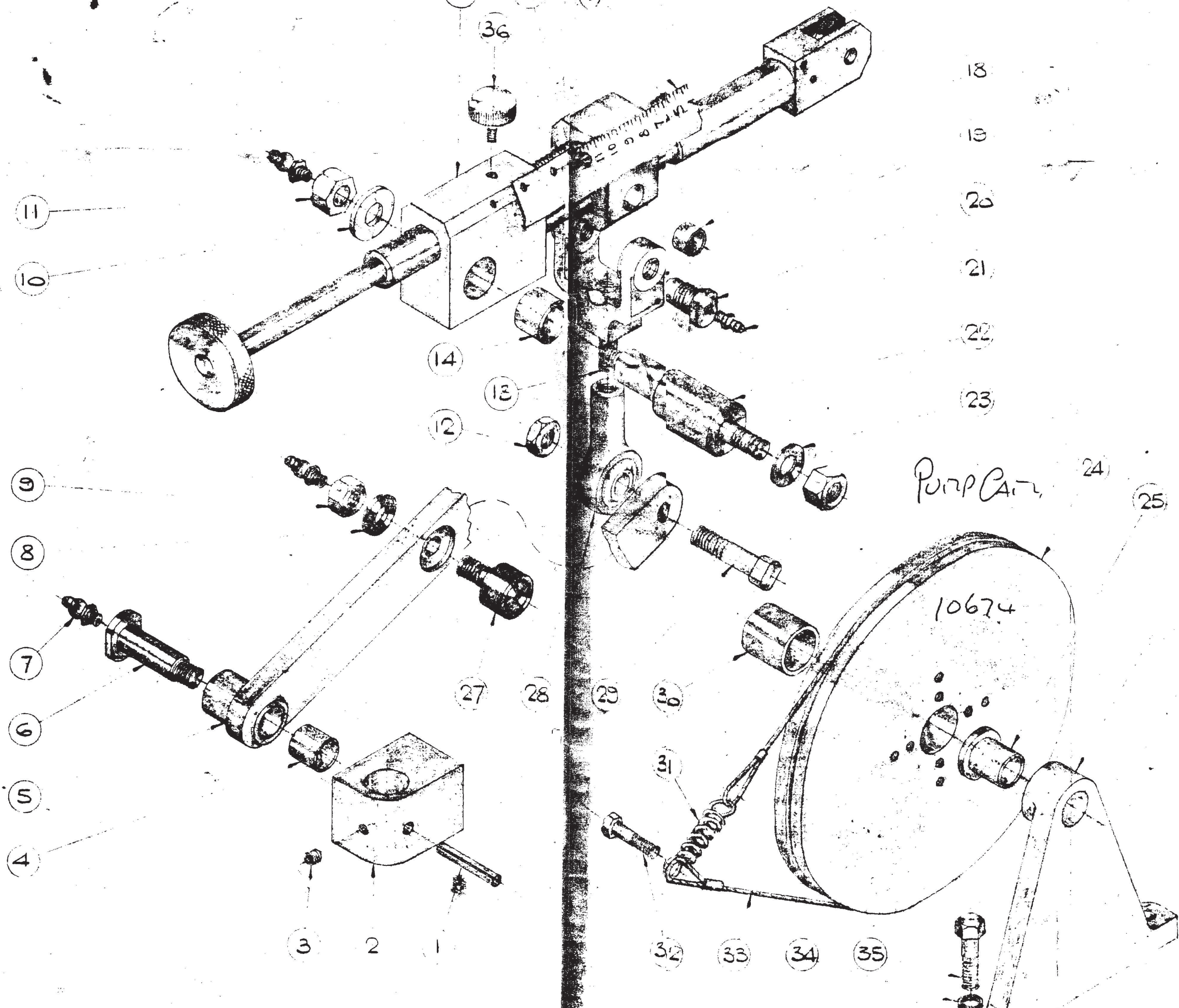
PLATE 8A

REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE:
 ONE-PLACE DECIMAL
 TWO-PLACE DECIMAL
 THREE-PLACE DECIMAL
 ANGLES

SCALE	DAWSON — COLNE.
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DRAWN	WIKF 1370	MATERIAL
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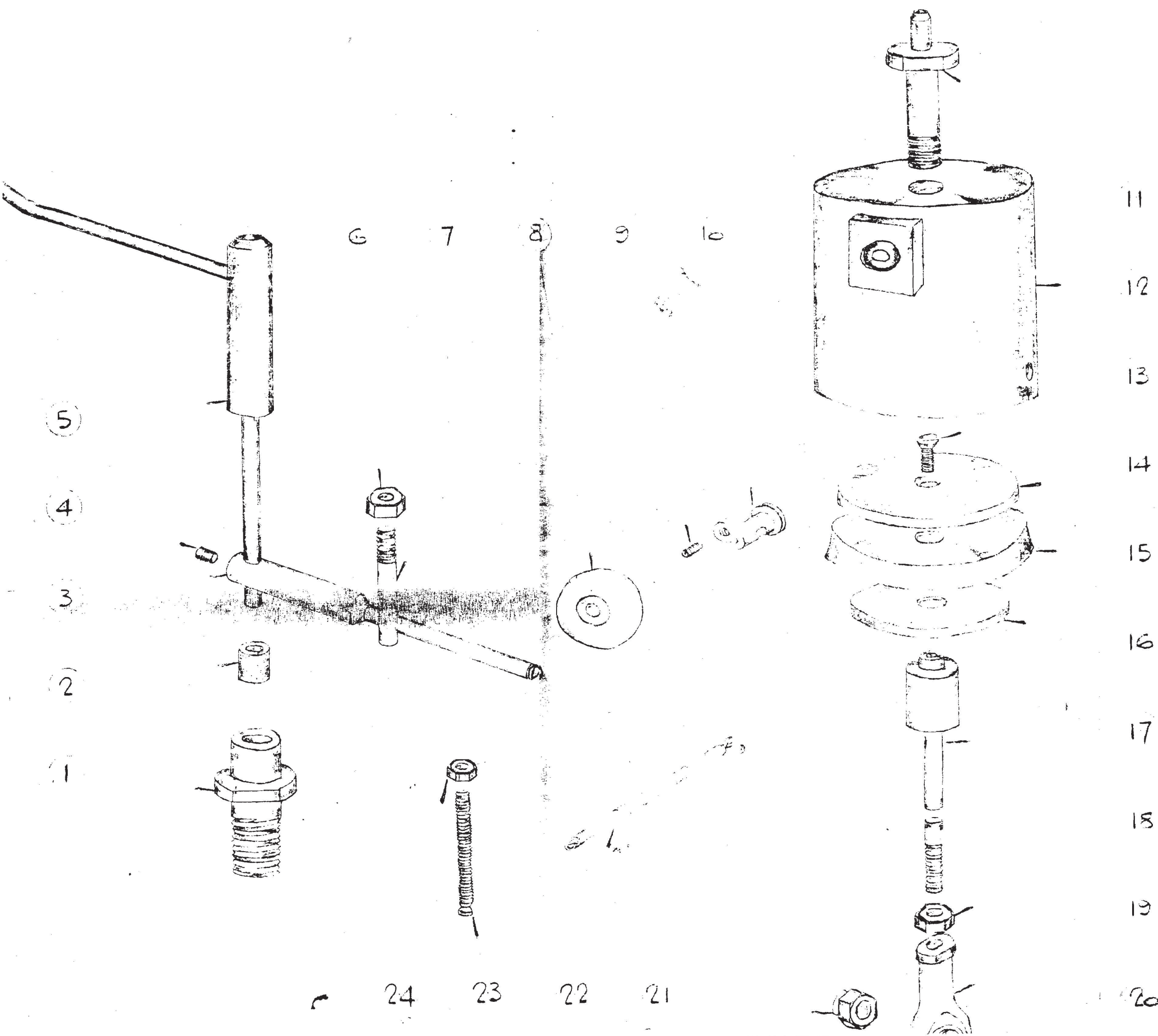


Pump Cam

REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE:
 ONE PLACE D
 TWO PLACE D
 THREE PLACE ANGLES

SCALE
 DAWSON - COLN



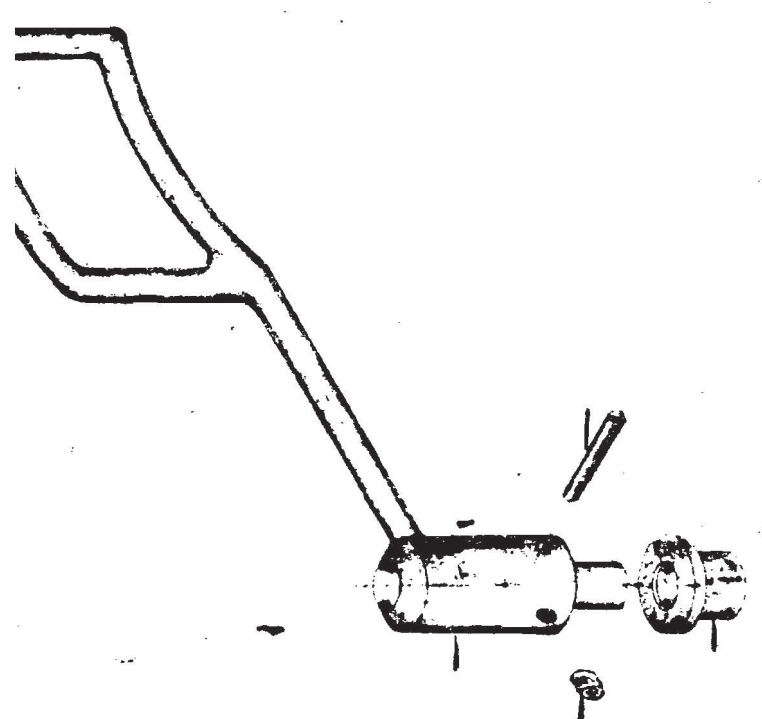
REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE:
 ONE PLACE DECIMALS (X)
 TWO PLACE DECIMALS (XX)
 THREE PLACE DECIMALS (XXX)
 ANGLES

SCALE
 DAWSON — DUCKWORTH
 COLNE, LANCASHIRE

DRAWN KSB MATERIAL

17 15 32 33 34 35



14

15

16

17

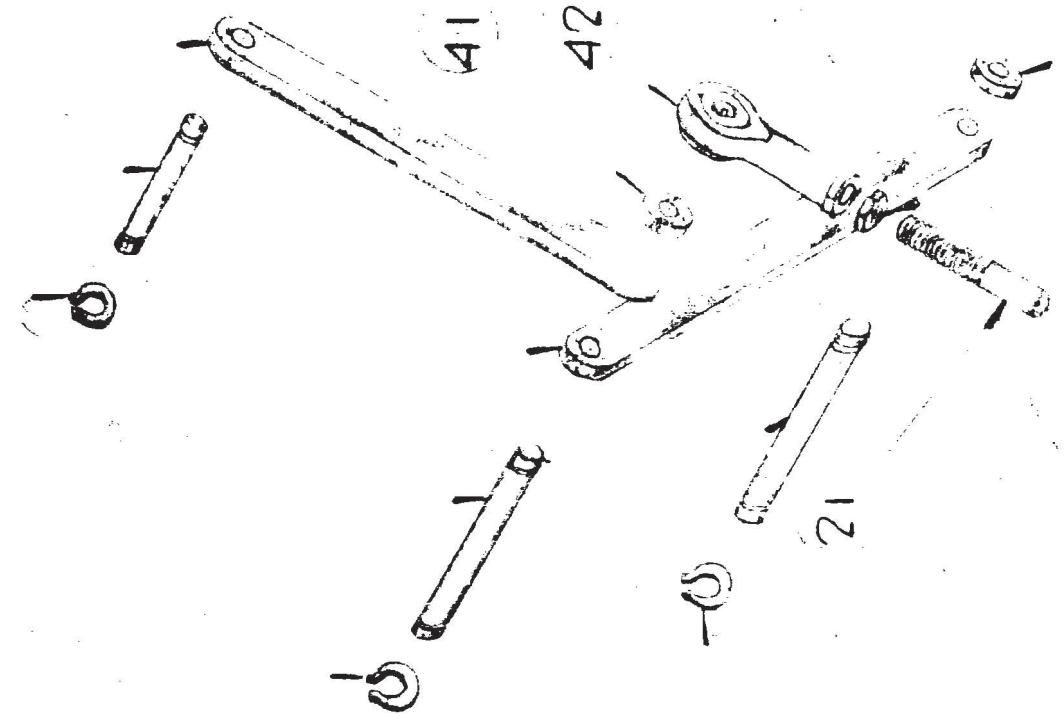
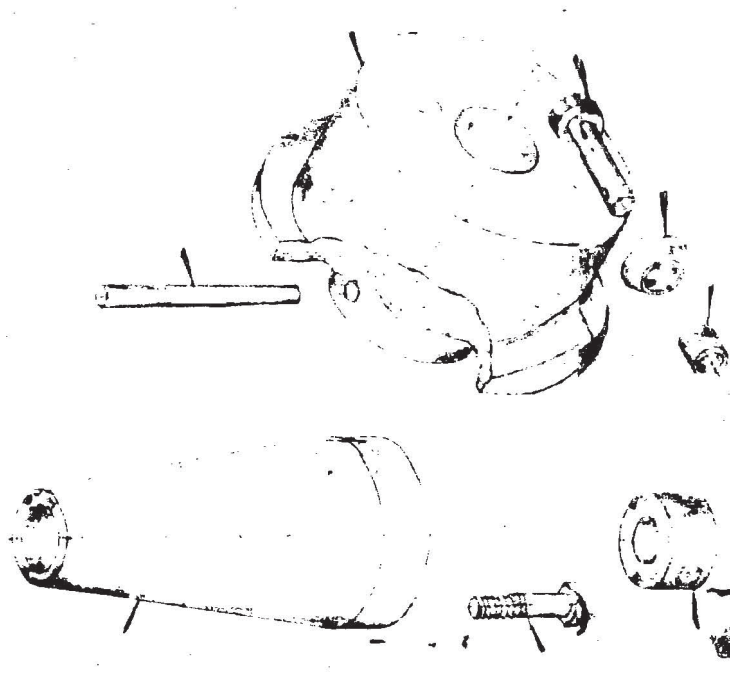
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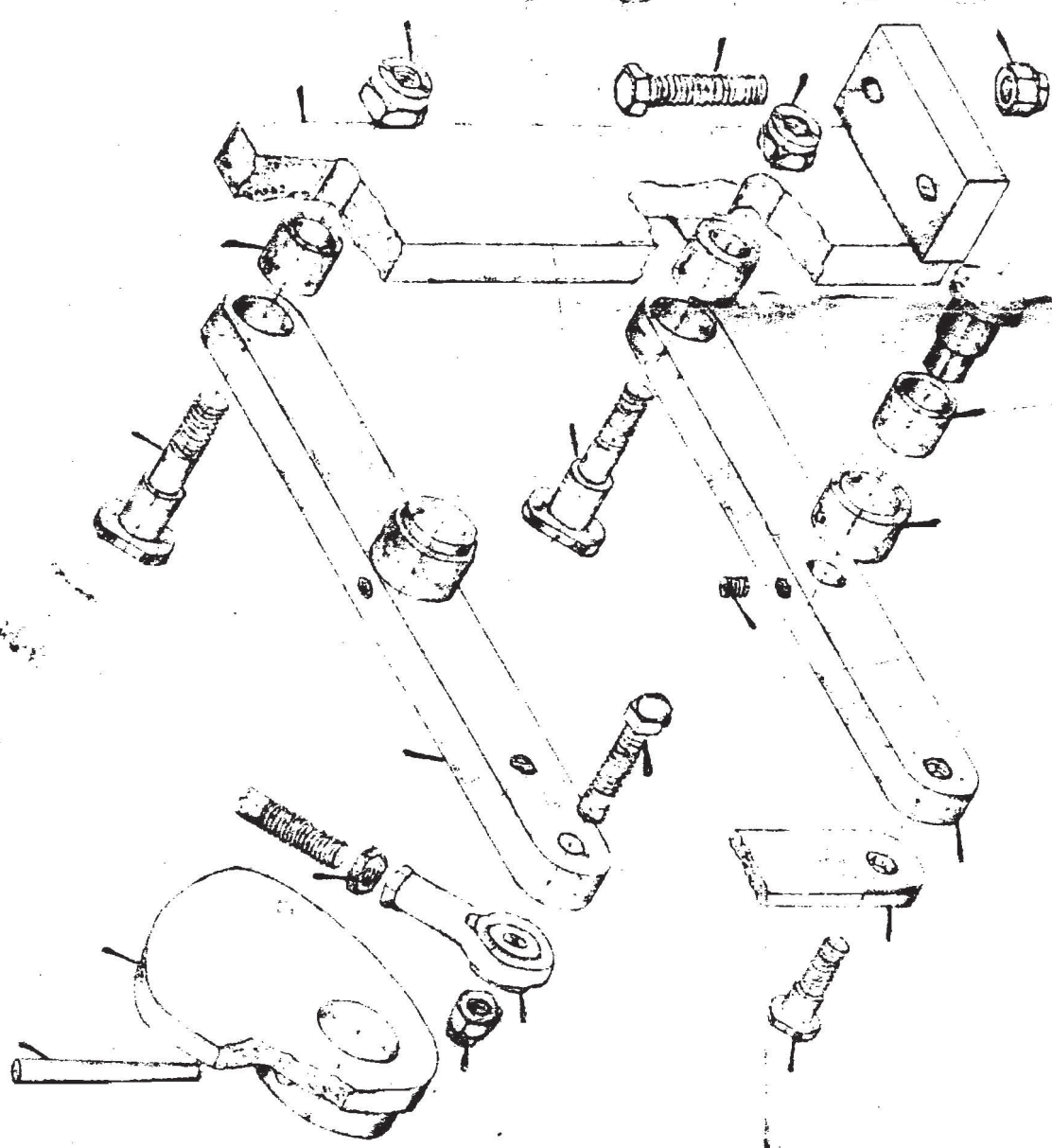
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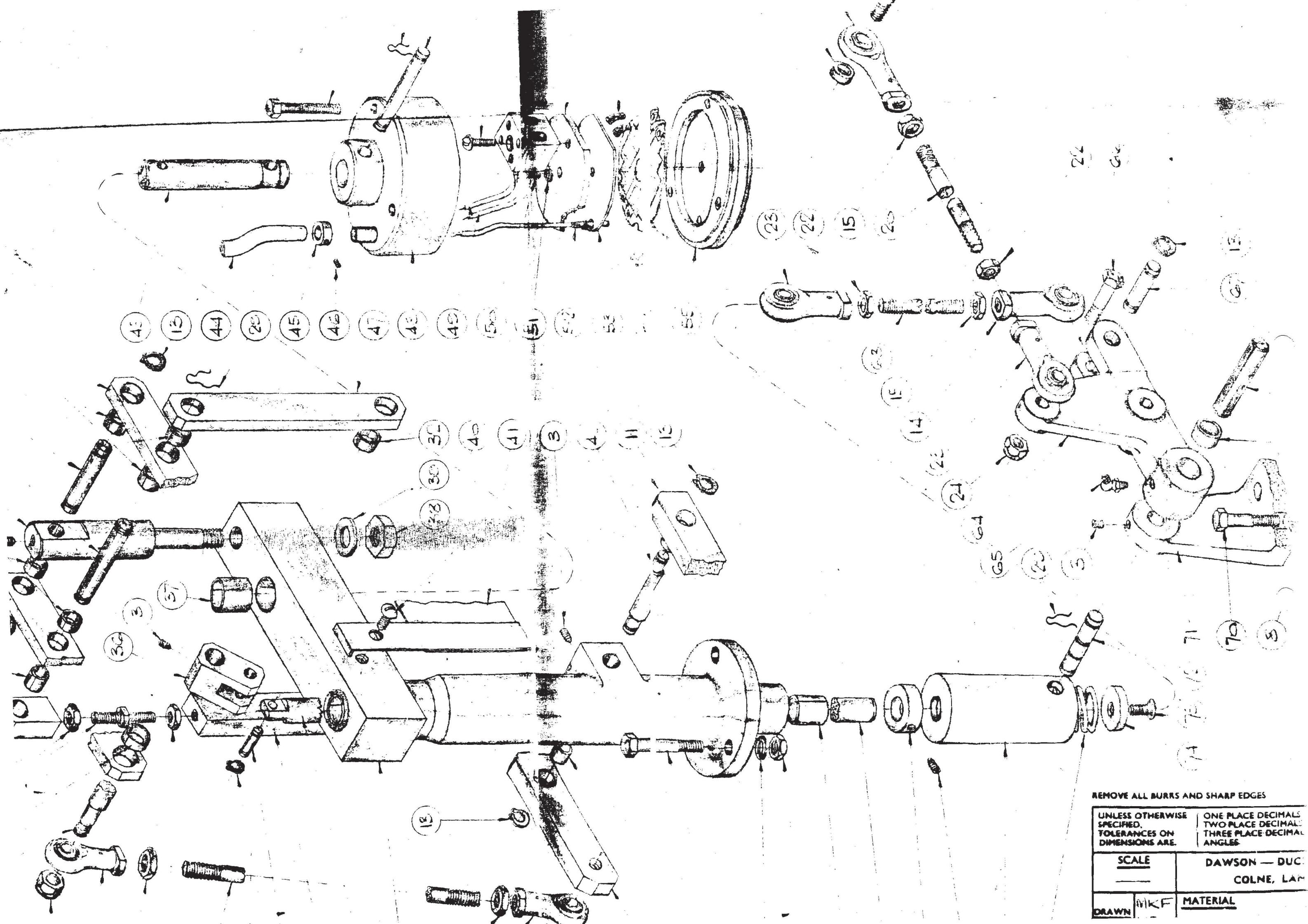
9 57 58 55

PLATE 9A

REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE: ONE-PLACE DIMENSIONS TWO-PLACE DIMENSIONS THREE-PLACE DIMENSIONS ANGLES

SCALE DAWSON COLN MATERIAL

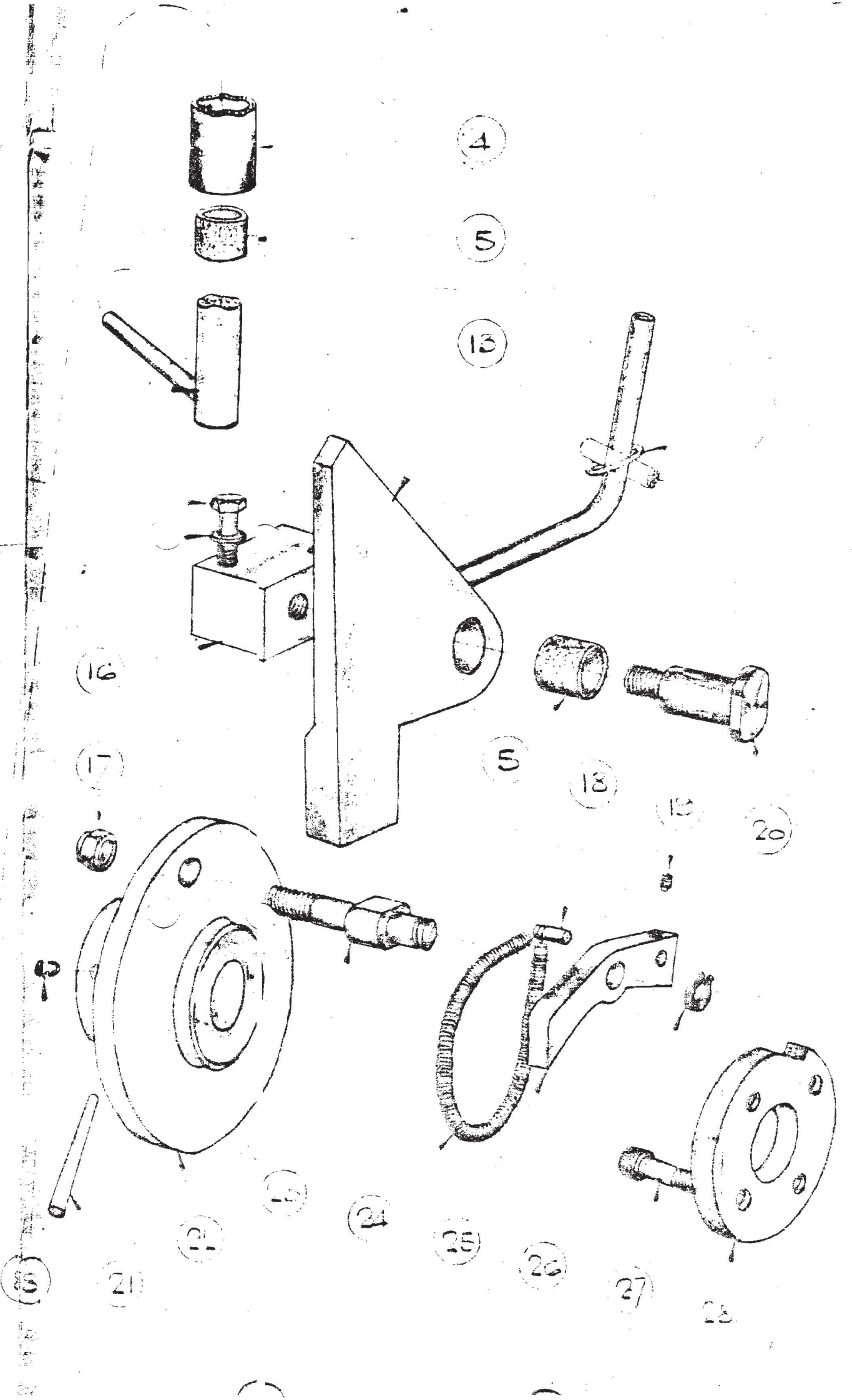
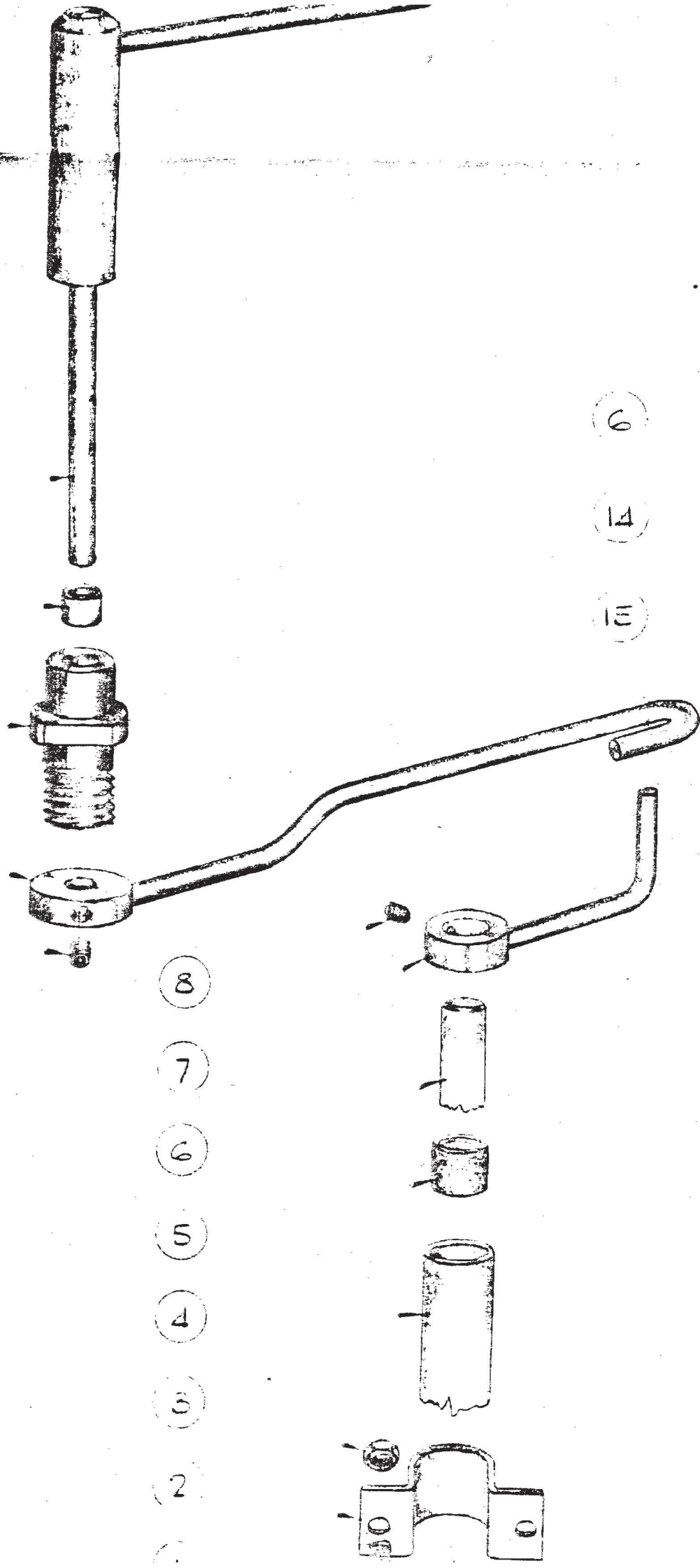


REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE: ONE PLACE DECIMALS TWO PLACE DECIMALS THREE PLACE DECIMALS ANGLES

SCALE	DAWSON — DUCOLNE, LAN
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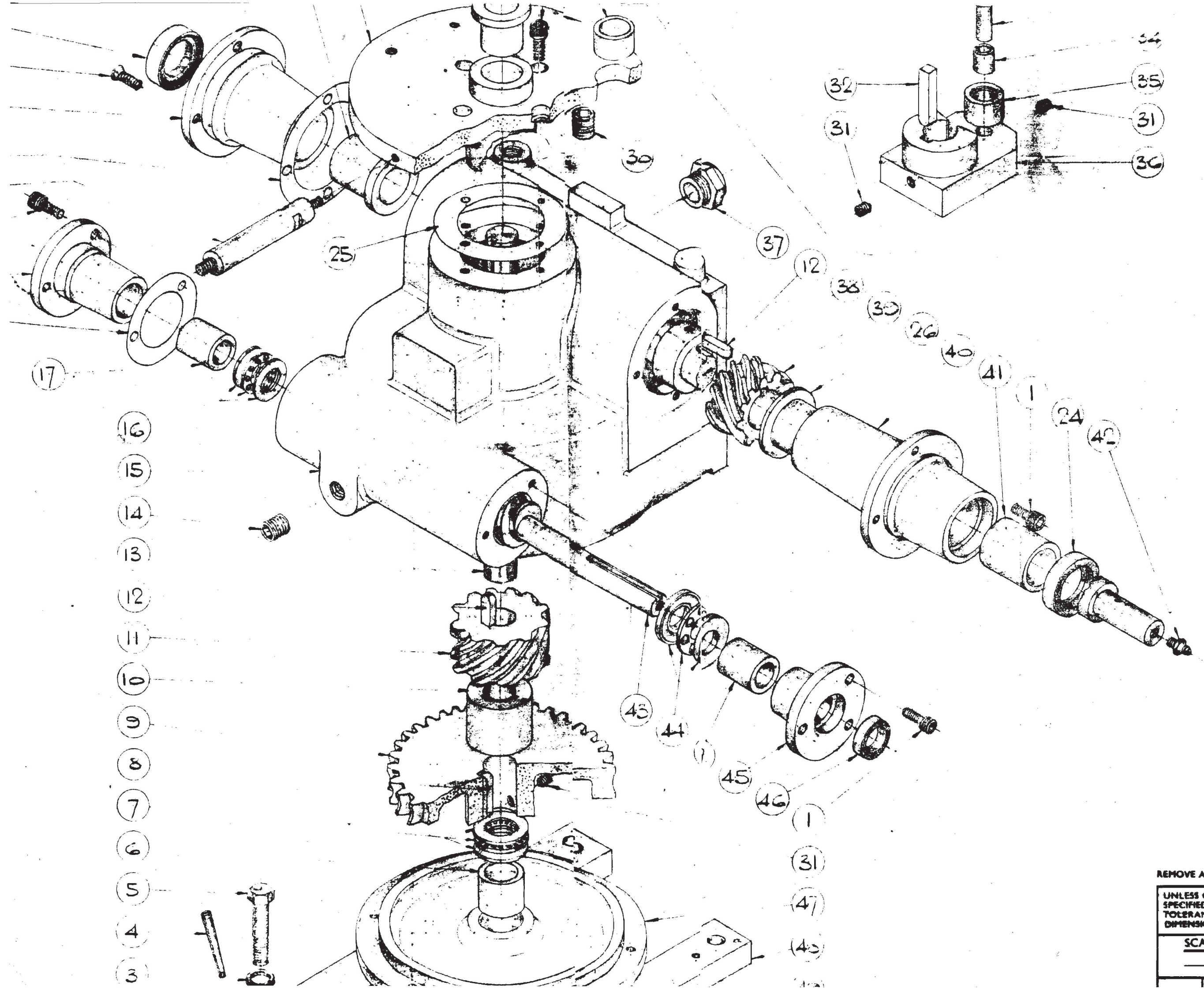
DRAWN	MKF	MATERIAL
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29

REMOVE ALL BURRS AND SHARP EDGES.

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE:		ONE PLACE DECIMALS	(1)
		TWO PLACE DECIMALS	(2)
		THREE PLACE DECIMALS	(3)
		ANGLES	(4)
SCALE		DAWSON — DUCKWORTH	
		COLNE, LANCASHIRE	
DRAWN	M. F.	MATERIAL	
	10/20		
TRACED		NAME PARTS LIST - NO.	



REMOVE ALL BURRS AND SHARP EDGES

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE:

ONE PLACE DECIMALS
TWO PLACE DECIMALS
THREE PLACE DECIMALS
ANGLES

SCALE	DAWSON — DUCK
	COLNE, LANC
MATERIAL	