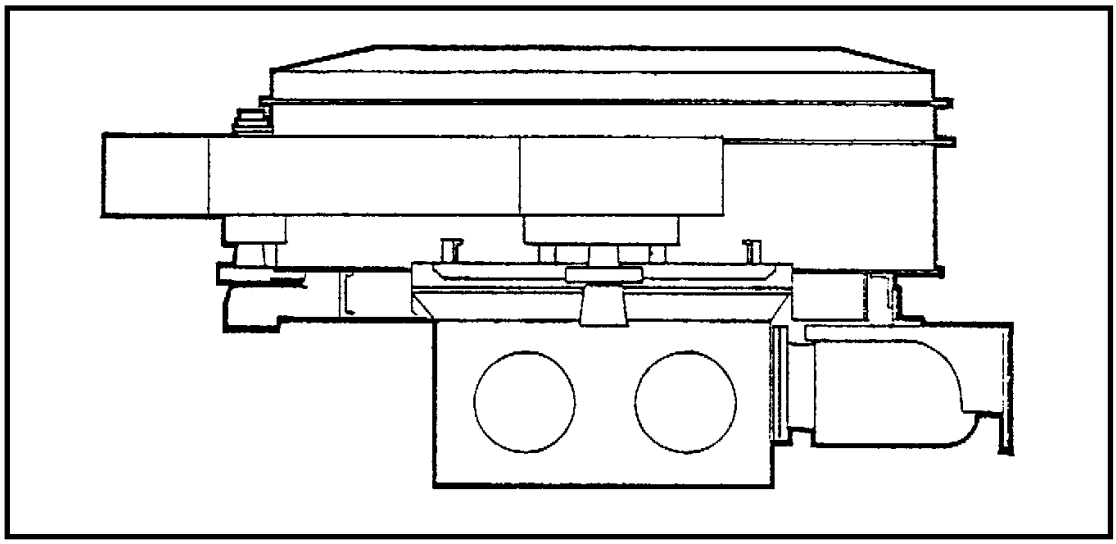
WINGET

OPERATION, MAINTENANCE & SPARE PARTS



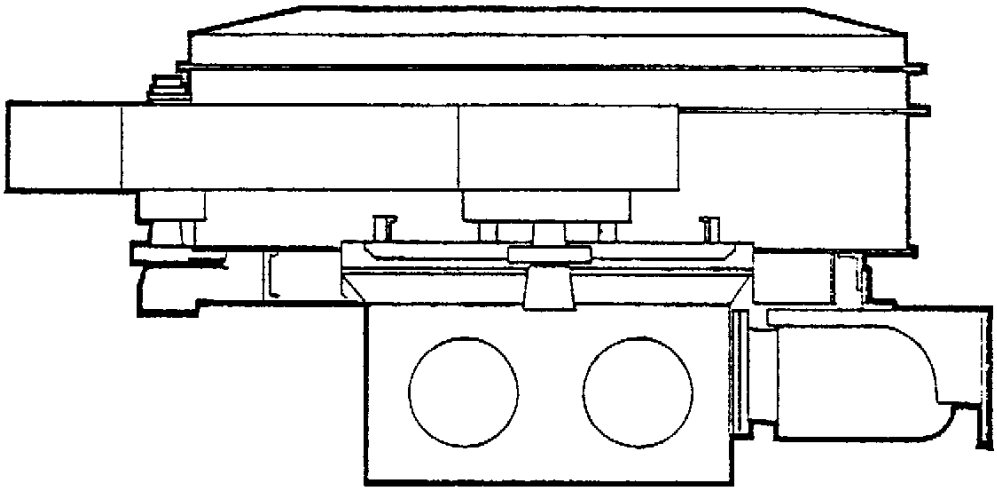
500P TURBOMIXER

PRINTED MARCH 1973
REPRINTED JUNE 2003

WINGET LIMITED
PO BOX 41
EDGEFOLD INDUSTRIAL ESTATE
PLODDER LANE
BOLTON
LANCS
BL4 OLS
TEL: ++ 44 (0) 1204 854650
FAX: ++ 44 (0) 1204 854663
service@winget.co.uk
parts@winget.co.uk
www.winget.co.uk

WINGET

TURBOMIXER



500P

This manual is a reprint of the Winget publication No S88 last printed during March 1973 and is a direct copy of one of the remaining original manuals.

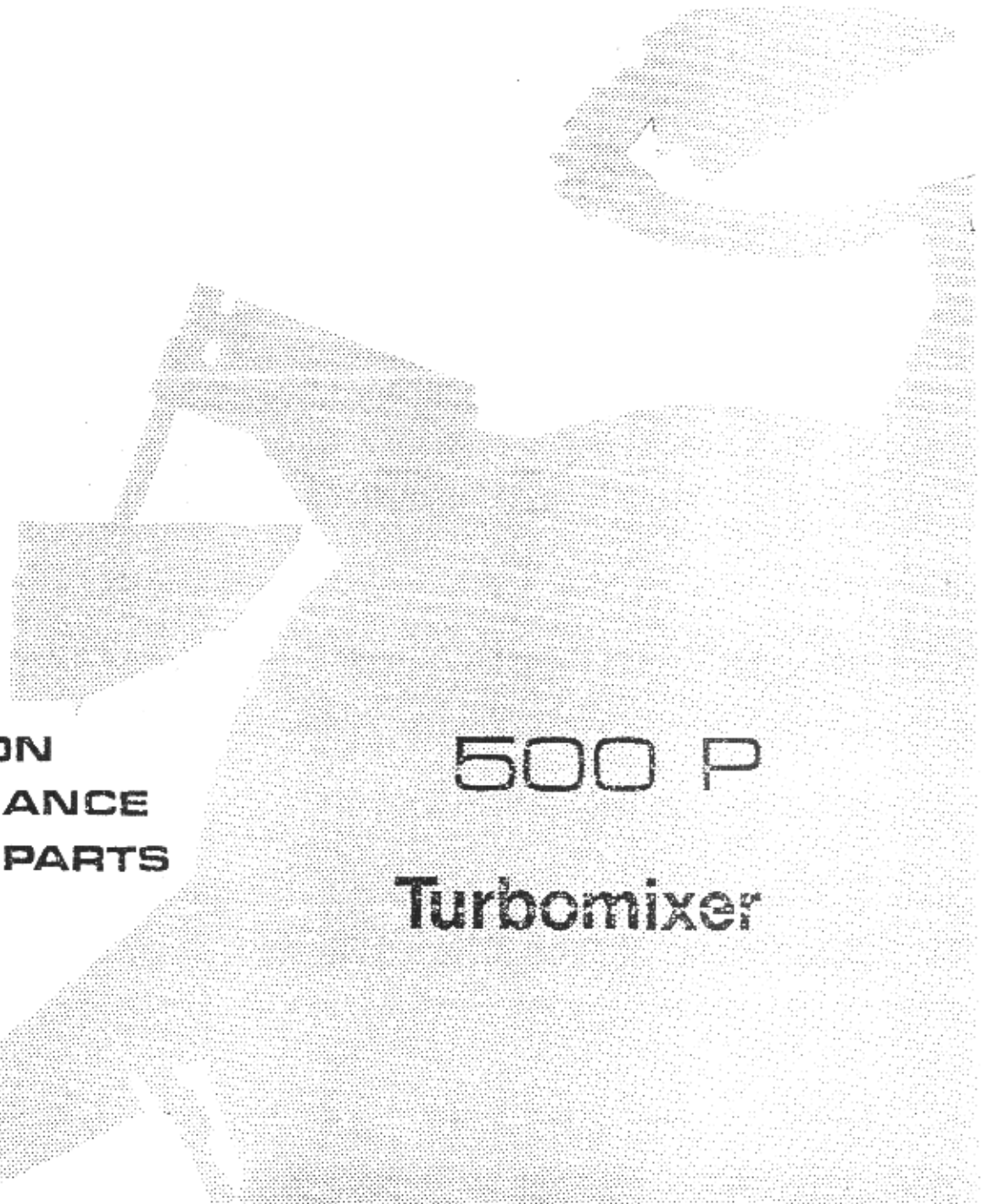
Winget Limited have always operated a policy of continuous product development. Therefore, some illustrations or text within this publication may differ from your machine. The contents of this manual, although correct at the time of publication in March 1973, may have been subject to alteration by the manufacturers in the intervening years without notice and Winget Limited can accept no responsibility for any errors or omissions contained within the following pages. Nor can we accept any liability whatsoever arising from the use of this manual howsoever caused.

Publication No. S 88 Feb 73

Winget

LIMITED

CONSTRUCTION EQUIPMENT DIVISION



OPERATION MAINTENANCE & SPARE PARTS MANUAL

500 P

Turbomixer

IMPORTANT

Your TURBOMIXER is a High Speed Mixer.

The Mix should never be allowed to remain in the pan for a period in excess of twice the mixing time required for any particular mix, otherwise, heavy overloading of the gear box will result.

Average mixing times are given on page 3 of this book.

Recourse to a wet hopper should be arranged if the take-off from the plant is erratic.

Under no circumstances should the Mixer be stopped and re-started during the mixing cycle.

NOTE:- When fitted in batching plant further information concerning water systems and electrical equipment will be given in batching plant manual.

"WINGET" LIMITED.

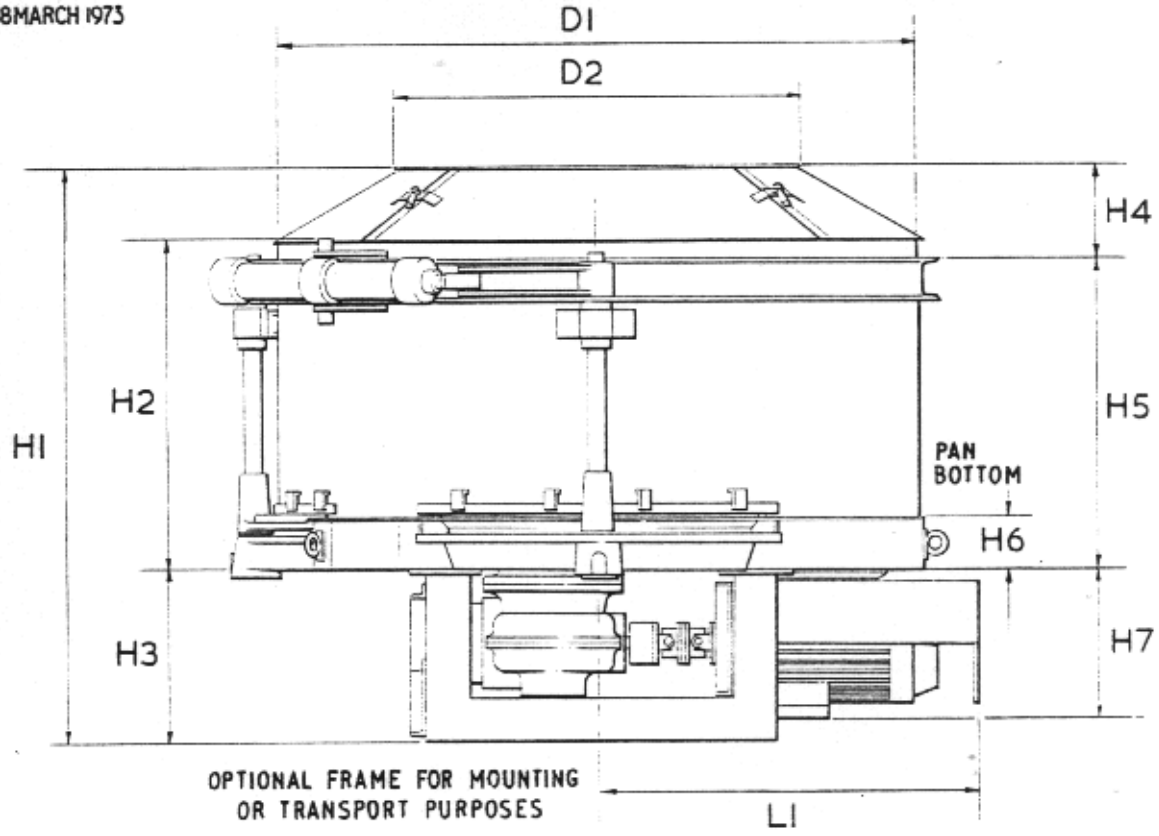
LIST OF CONTENTS

DESCRIPTION & OPERATING INSTRUCTIONS.

OVERHAUL & MAINTENANCE INSTRUCTIONS.

SPARE PARTS SECTION

ILLUSTRATIONS



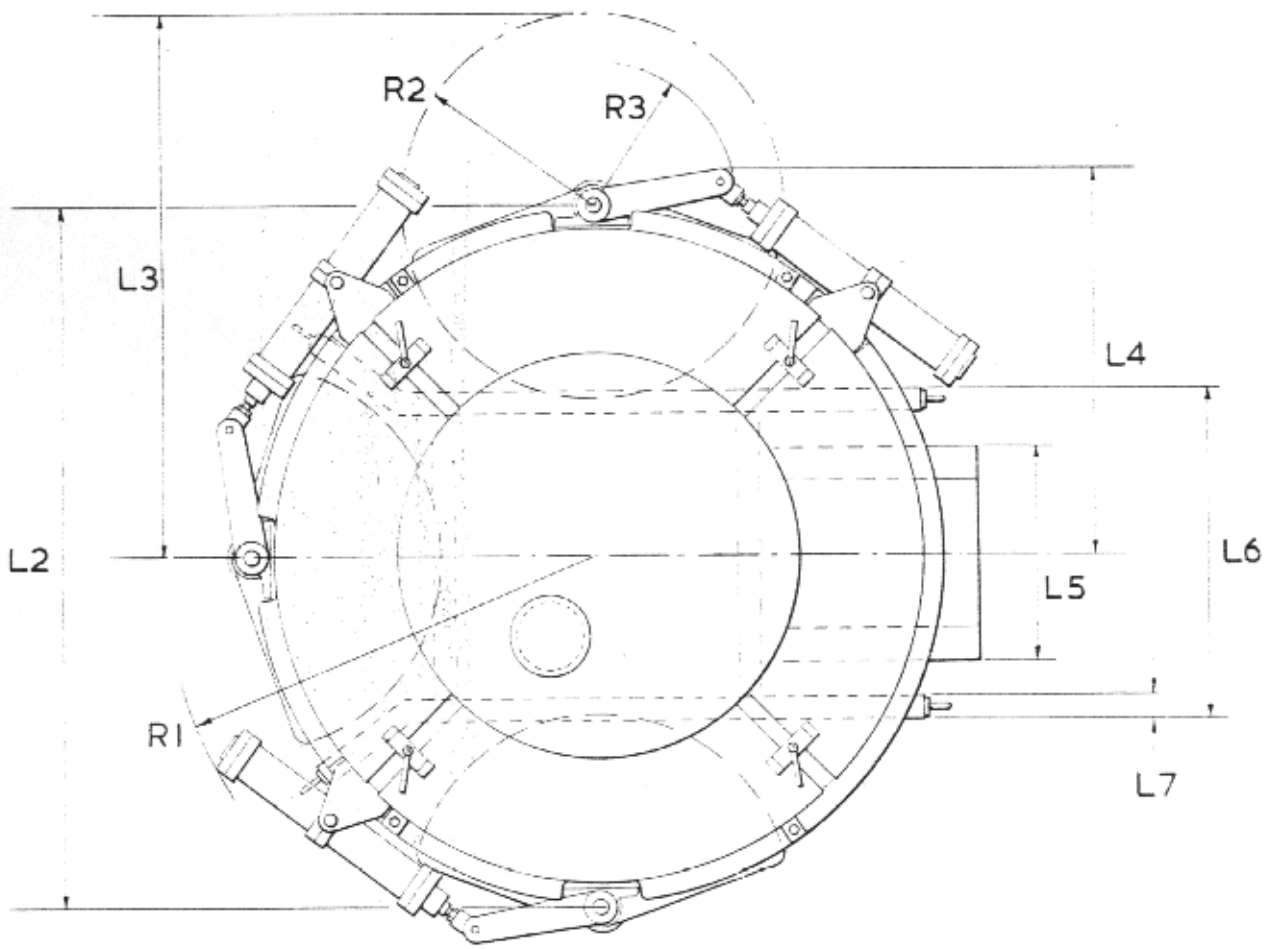


FIG I. SPECIFICATION

SPECIFICATION

Batch Feeding Based on 50 Batches per Hour.

BATCH	INPUT OUTPUT	750 LITRES 27 CU. FT. 500 LITRES 18 CU. FT.
OUTPUT	CU. METRES/HR CU. YDS/HR.	25 32
MOTOR	H.P. . R.P.M.	30 1460
WEIGHT	KILOS LBS.	2275 5000
NO. OF MIXING BLADES	-	6

OVERALL DIMENSIONS.

LENGTH	MM	INS
D1	1997	78.$\frac{5}{8}$
D2	1257	49$\frac{1}{2}$
H1	1553	61$\frac{1}{8}$
H2	892	35$\frac{1}{8}$
H3	533	21
H4	197	7$\frac{3}{4}$
H5	822	32$\frac{3}{8}$
H6	152	6
H7	445	17$\frac{1}{2}$
L1	1176	46.5/16
L2	2165	85$\frac{1}{4}$
L3	1616	63.5/8
L4	1197	47$\frac{1}{8}$
L5	737	29
L6	1029	40$\frac{1}{2}$
L7	76	3
R1	1359	53$\frac{1}{2}$
R2	533	21
R3	445	17$\frac{1}{2}$

WINGET LIMITED RETAIN THE RIGHT TO ALTER THIS SPECIFICATION WITHOUT NOTICE IN ACCORDANCE WITH THEIR POLICY OF IMPROVEMENT OF PRODUCTS.

DESCRIPTION AND OPERATING INSTRUCTIONS.

INSTALLATION

General:

The mixer must be installed in its working position ensuring that it is mounted horizontally, and that there is no distortion of the base frame. Provision should be made below the mixer to allow a free circulation of cooling air in and around the electric drive motor.

Access to the discharge door(s) from the underside of the mixer is recommended for inspection and maintenance of the mixing blades.

Air operated Discharge Door(s) - if fitted

The discharge door(s) on some mixers are operated by air cylinder. The working pressure required is in the range of 5.62 - 7.03 kilos per sq. cm. (80 - 100 p.s.i.) but should not exceed 10.55 kilos per sq. cm. (150 p.s.i.) The air supply is first passed through a filter to remove any dirt or moisture present, and then through an atomizing type airline lubricator.

Leaflets, supplied by the manufacturer, on the operation and servicing of these two units, are included at the back of this Manual. See page 10 for list of recommended lubricants.

PRE-RUNNING CHECKS.

1) Check the level of oil in spur gearbox and worm gearbox, top up as necessary - see page 5 for access instructions.

2) Check 1.6 mm (1/16") clearance between blades and pan, adjust as necessary - see page 7.

   It is recommended after any blade adjustment that the rotor be given a couple of complete turns by hand, to ensure all round clearance of the blades due to any possible distortion of the pan or rotor housing.

3) If the mixer is being used for the first time after the electrical circuit has been connected or re-connected, ensure correct rotation of mixing blades.

4) If the water system has been drained, re-connect supply and pass a quantity of water through flowmeter to ensure accurate operation.

OPERATION:

Mixing:

It is important that the mixing blades are rotating at their full working speed before any material is fed into the pan.

It is recommended that to reduce the mixing time cylcle to a minimum where possible, the cement, water and aggregatebe added to the pan simultaneously.

The actual charging and mixing time will vary depending on the type of mix, but should NEVER be less than thirty seconds, the average time being thirty to forty five seconds.

THE MIX SHOULD NEVER BE ALLOWED TO REMAIN IN THE PAN AFTER MIXING TIME HAS EXPIRED.

The action of the mixing blades and aggregate generates a small amount of heat which will cause the water content to drop and consequently stiffen the mix.

This stiffening would eventually reach a point when it would cause the overload trip mechanism of the starter switch to operate and stall the mixer.

In the event of the mixer stalling, the discharge door(s) should be opened, water added to the mix and as much concrete as possible shovelled out before any attempt is made to restart the electric motor.

To prevent the accidental starting of the mixer while manhandling concrete out of the pan the supply fuses must first be removed or the isolating switch locked in the "OFF" position.

Discharging:

An air operated semi-circular shaped discharge door (or doors) in the bottom of the mixing pan, allows the concrete to be quickly discharged by the action of the rotating mixing blades.

It is recommended that on a mixer fitted with two or more discharge doors, that if only one is consistently used for any period, to prevent the unused door(s) from sticking, that it/they be opened after approximately every 10 batches, to remove any grout that will have accumulated in the crevice between the door and the pan.

Cleaning the Mixer.

At the end of each day's working, or if the mixer is idle for a period of more than two Hours, the mixer should be thoroughly washed to prevent concrete setting in the pan or on the mixing blades.

REMEMBER a clean mixer is more efficient, reducing considerably the wear on the pan and mixing blades.

Washing down should be carried out as follows:

With the mixing blades rotating, rinse the inside of the pan using a high pressure hose pipe. A quantity of gravel added to the pan will assist in a more intensive cleaning action.

After 3 or 4 minutes, open the discharge door and completely empty the pan. Switch off the motor, lock the isolating switch in the "OFF" position or remove the supply fuses. Remove top cover and hose down the paddle arms to remove all traces of concrete.

Check the setting of each mixing and scraper blade daily and adjust if necessary, lubricate as described on page 7.

OVERHAUL AND MAINTENANCE INSTRUCTIONS

WARNING - BEFORE ANY MAINTENANCE WORK IS CARRIED OUT ON THE MIXER, THE ISOLATING SWITCH MUST BE LOCKED IN THE "OFF" POSITION, OR THE SUPPLY FUSES REMOVED BY A QUALIFIED ELECTRICIAN.

LUBRICATION

Spur Gearbox Topping Up:

Level of oil in the box should be checked weekly by means of a sight glass situated on the outer circumference of the turbomixer pan, an oil level indication plate is positioned behind the sight glass giving the Maximum and Minimum oil levels. If level of oil is found to be low remove the filler cap. Clean around neck of filler hole and top-up using oil of recommended grade only - SEE "OIL CHANGE".

Oil Change Spur Gearbox

The gearbox should be drained, flushed with diesel oil and refilled after the first 500 running hours. This procedure should be repeated after 3,000 running hours and subsequently every 5,000 running hours.

The recommended procedure for changing oil is as follows:-

1. Run mixer for a short period, lightly loaded to thin down the oil in the gearbox. Alternatively, carry out the oil change at the end of a working day whilst the oil remains warm.

2. Remove drain plug situated on the side of the upper half of the worm gearbox, collect the oil in a suitable container. Approx. 59 litres (13 imp. gallons)

3. Replace the drain plug, refill box with diesel fuel and run for about 10 minutes and drain off oil. If possible the box should be left draining overnight.

4. Refill through gearbox access cover using approx. 59 litres (13 Imp. gallons) of oil of recommended grade as listed:

SHELL	-	MACOMA 72
ESSO	-	ESSTIC 78
REGENT	-	CALTEX MEROPA 3
REGENT	-	M.T. GEAR OIL EP 90
MOBIL	-	COMPOUND B.B.

Spur Gearbox Top Bearing Lubrication: A grease nipple is provided on top of the rotor drive shaft. This requires lubrication at monthly intervals. Access to this grease nipple is gained through a hole situated near the centre of the pan cover.

* Worm Gearbox Topping Up: An oil sight glass is fitted to enable oil level to be checked at weekly intervals. If level of oil is low, remove the filler plug situated on the upper half of the gearbox case. Top up as necessary with SHELL VITREA 79.

Oil Change: Oil in worm gearbox should be changed after the first month's running, and subsequently every six months. This is best carried out at the end of a day's working with the machine stationery when the oil is warm, but allowing enough time for the oil to settle.

1. Remove drain plug adjacent to sight glass tube and collect oil in a suitable container, - Capacity 11¾ pints 6.7 litres.

2. Refill with SHELL VITREA 79 or equivalent oil to level on sight glass tube.

Stauffer Lubrication: At weekly intervals the Stauffer protruding from the wormbox case should be given several turns, Refill with SHELL LIVONA (3) grease when empty.

REPLACEMENT OF WEARING PLATES: To assist in the replacement of wearing plates, they have been divided into easily removable sections. After any plates have been replaced it is recommended as a final check that the rotor housing be turned by hand, to ensure correct adjustment of blades in relation to bottom of pan.

Bottom and Inner Plates:

1) Remove top cover to expose mixing blades.

2) Remove one mixing arm assembly complete.

3) Turn the rotor housing by hand, until the mounting brackets of the removed blade is a little to one side of the wearing plate segment to be replaced.

4) Remove the countersunk screws and the wearing plate from the pan.

5) Fit new wearing plate, assemble mixing arm and top cover.

* NOTE:- Some gearboxes are fitted with level plug in place of sight glass. The plug is positioned approx. ½" below joint in casing. When topping up fill to level of level plug.

Outer Wearing Plate:

1) Remove top cover to expose mixing blades.

2) Turn rotor housing by hand, until the outer scraper blade is clear of the segment to be replaced.

3) Remove the countersunk fixing bolts and remove wearing plate from pan. Fit new wearing plate.

MIXING AND SCRAPER BLADES.

Adjustment: The blades should be inspected daily for wear and adjusted if necessary to give approximately 1.6 mm (1/16") clearance between the blades and the bottom or side of the pan.

After any adjustments have been made, it is recommended that as a final check before the motor is started that the rotor housing be rotated by hand a couple of times, to ensure that the blades do not foul the pan.

Pre-loading of Flexitors. Line up base of "Flexitor" parallel to end edge of mounting block and scribe a straight line across block and serrated shaft. Turn "Flexitor" anti-clockwise until shaft scribe line is offset 2 or 3 serrations from line on mounting block and secure block to shaft in that position Fig. 2. offer "Flexitor" base to side of rotor support and position clamp around "Flexitor" and rotor arm support, screw up clamp until "Flexitor" is positioned flush to rotor arm and secure with setscrews. Lift paddle blade 1/16" from top of bottom wearing plate and adjust $\frac{1}{8}$" setscrew until it bears against underside of rotor arm. Secure with nut.

NOTE: Screw must only be used as a stop and not for height adjustment.

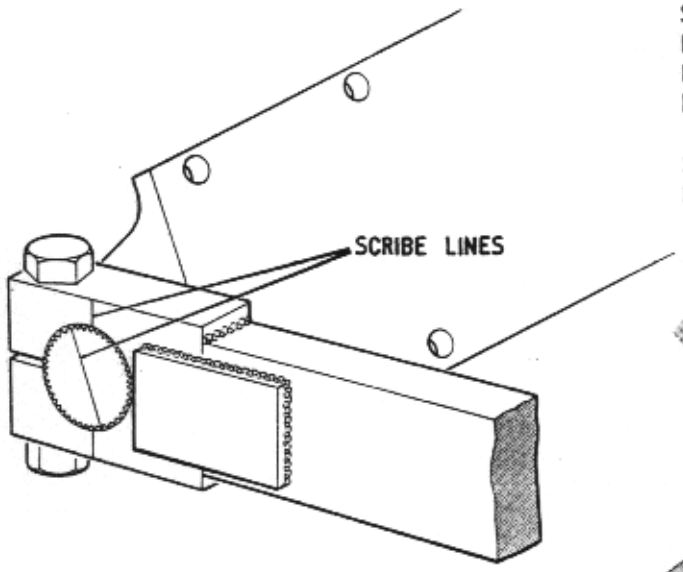
FITTING NEW BLADES: Badly worn blades should be renewed as follows:-

1) Open the discharge door and turn the rotor by hand, until the worn blade is over the door opening.

2) Detach the blade by removing the two fixing bolts securing it to the mixing arm.

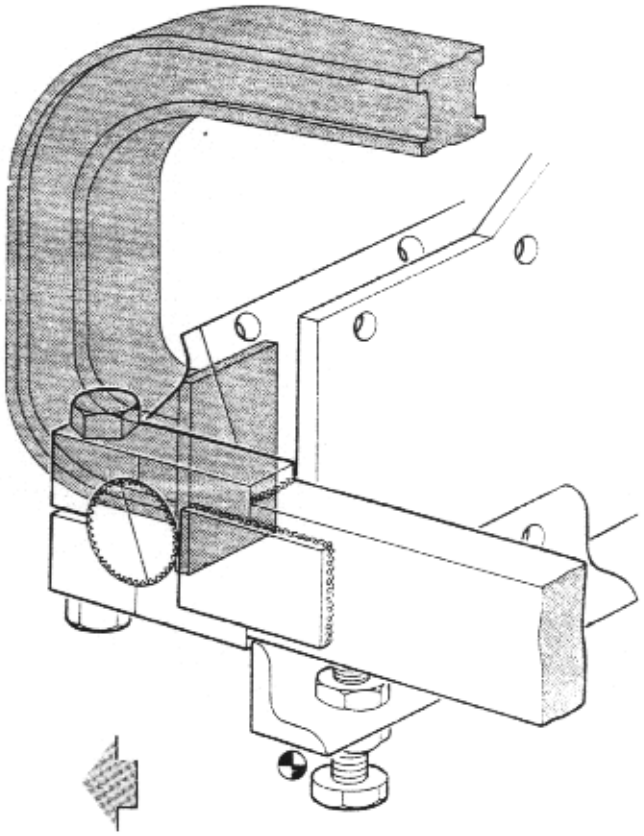
3) Fit new blade and tighten up bolts with them hard up to the top of the slotted holes in the mixing arm.

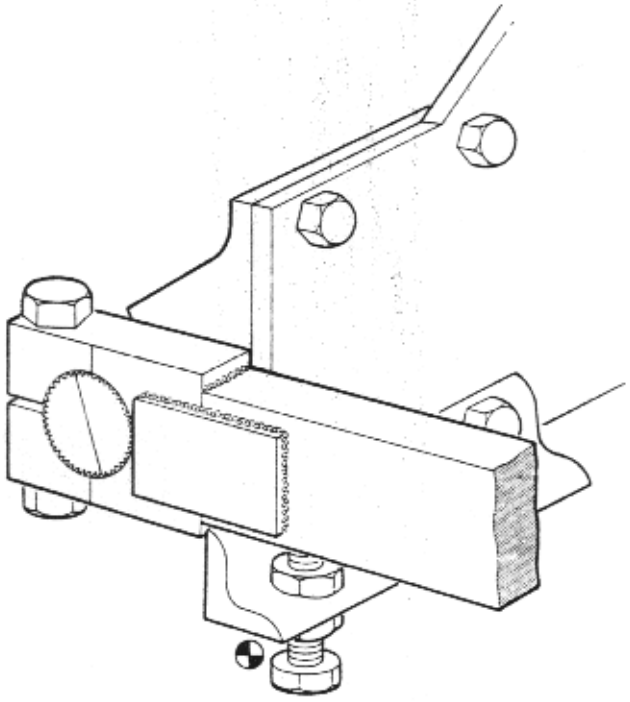
4) Reset blade until the correct clearance of 1.6 mm (1/16") is obtained as described.



STAGE 1
LINE UP BASE OF 'FLEXITOR' PARALLEL TO END EDGE OF MOUNTING BLOCK AND SCRIBE A STRAIGHT LINE ACROSS BLOCK AND SERRATED SHAFT.
TURN 'FLEXITOR' ANTI-CLOCKWISE UNTIL SHAFT SCRIBE LINE IS OFFSET 2-3 SERRATIONS FROM LINE ON MOUNTING BLOCK.
SECURE BLOCK TO SHAFT IN THAT POSITION.

STAGE 2
OFFER UP EDGE OF 'FLEXITOR' BASE TO ROTOR ARM.
POSITION CLAMP AROUND 'FLEXITOR' AND ROTOR ARM.





STAGE 3
SCREW UP ON CLAMP UNTIL 'FLEXITOR' IS POSITIONED FLUSH TO ROTOR ARM AND SECURE WITH SET SCREWS.
LIFT PADDLE BLADE 1/16 IN. FROM TOP OF BOTTOM WEARING PLATE, ADJUST 5/8 IN. SETSCREW UNTIL IT BEARS AGAINST UNDERSIDE OF ROTOR ARM AND SECURE WITH NUT.

NOTE:
⊕ SCREWS MUST ONLY BE USED AS A STOP AND NOT A HEIGHT ADJUSTMENT.

FIG.2 PRE LOADING OF FLEXITORS

ROTOR GEARBOX & MOTOR REPLACEMENT:

The notes given in this section are intended for general guidance only.

1) Disconnect the electrical supply from the mixer by removing the fuses, and the electrical connections from the motor at the starter switch. These should be clearly labelled to assist in easy reconnection.

2) Drain the oil from the spur gearbox into a clean container of suitable capacity, by removing the plug from the drain point at the top of the worm box body. When all oil is drained, detach the filling tube and remove nipple.

3) Remove top cover complete with spider frame if space available, or if not, dismantle, by detaching individual cover plates, loosening centre bolts, withdrawing spider arms, after raising outer ends above pockets in pan body.

4) Unscrew single bolt in top of rotor shaft and remove rotor complete with blades, if head room is available or detach blades if not.

5) Remove inspection cover in top of spur gearbox and fit a lifting eye bolt into the end of the wormbox output shaft.

6) Remove setscrews from wormbox flange and after disconnecting motor drive shaft, lower wormbox to ground complete with pinion and bearing, using suitable lifting tackle.

7) Remove false flange from underside of spur gearbox.

8) Screw lifting eye into rotor shaft and after removing bolts attaching spur gearbox to its mounting flange, lift gearbox complete, clear of pan and lower to ground.

Alternatively, the gearbox can be dismantled without removing it from the pan, providing care is taken to ensure no dirt or grit enters the box.

9) Motor replacement is carried out, by first removing the wear plate immediately above the motor, revealing a hole in the pan bottom which gives access to a lifting eye on top of the motor support frame.
The motor can then be lowered to the ground after removing bolts attaching the motor support frame to the pan frame.

NOTE: Motor can be replaced without removing spur or worm gearboxes.

To refit gearboxes and motor, carry out reverse procedure to above, finally refilling the spur gearbox with oil to the correct level, as indicated on the sight tube at the side of the pan. See page 5 for recommended oil and capacities.

Check that blade clearance of 1.6 mm (1/16") is maintained and rotate rotor by hand to ensure correct adjustment of blades relative to pan bottom.

Remake electrical connections to switch gear and replace covers before using the mixer, checking directions of rotation.

Recommended oils for use in the lubricator are as follows:

TELLUS 21	SHELL MEX & B.P. LTD.
NORPOL 35	ESSO PETROLEUM CO. LTD.
GALTEX SPINDLE OIL A.	REGENT OIL CO. LTD.
MOBILE VELOCITE NO. 6	MOBIL OIL CO. LIMITED.

DISCHARGE DOOR CYLINDER CUSHION ADJUSTMENT:

A needle valve located to the side of the main inlet port allows adjustment of the cushion.

Turning the valve clockwise will increase the cushioning effect, alternatively, an anti-clockwise rotation will reduce it.

The ideal cushion produces a uniform deceleration of the moving parts without shock.

Cushion Setting:

Turn the adjusting screw clockwise to its fullest extent and then anti-clockwise, for one turn. Operate the cylinder. If bouncing takes place turn the screw anti-clockwise one half turn. If, however, there is metallic impact from within the cylinder, turn the screw clockwise a fraction. Repeat this until the desired cushioning is achieved.

Servicing:

The only components subject to any appreciable deterioration are the flexible sealing members fitted to the piston head, and those contained within the front end cover.

Replacement of Seals:

NOTE: GENERALLY REPLACEMENTS MAY BE FITTED WITH THE CYLINDER IN SITU. ALL SEALS MUST BE HANDLED CAREFULLY TO PREVENT DAMAGE TO THEIR SEALING EDGES.

Piston Head:

Remove the end cover through which the piston rod emerges by unscrewing the four socket head screws. Withdraw front end cover, piston rod and piston head assembly from cylinder barrel. Remove the whole piston head assembly from the shaft by unscrewing the three socket head screws.

Replace the seals on each of the two halves of the piston head, taking care to re-assemble the seals with their flared sealing lips pointing away from each other.
Replace the piston head assembly on the shaft, taking care to locate the split ring in both the shaft and the tapped half of the piston head.

Tighten the three socket head screws securely. Replace the piston head assembly and front end cover into the cylinder barrel, making sure that the piston head seal lips are not pinched between piston head and barrel.
Finally, tighten end cover fixing bolts evenly, corner to corner.

Shaft Seal and Wiper Ring:

Remove the wiper ring and shaft seal retaining circlip from the end cover through which the piston rod emerges. Apply air to the front of the cylinder. This will eject both the wiper ring, cage and shaft seal. Be sure and remove the air supply from both ends of the cylinder at this stage.

Wrap a strip of thin material over the piston rod flats and slip shaft seal on to rod, ensuring that the flared sealing lips face away from the screwed end of the piston rod.
Wrap a strip of thin material inside nose of the front end cover to protect the larger diameter sealing lip of the seal whilst sliding over the circlip groove.

Fit new wiper seal in cage and replace sub-assembly in end cover, making sure that leading edge of the seal projects through larger diameter of cage and towards screwed end of piston rod - replace circlip.

Cushion Seals - Blank End Cover: Remove from cylinder by unscrewing the four socket head screws. Remove circlip spring washer and bonded cushion seal. Replace seal taking care that the metal insert faces towards the back of the end cover. Replace spring washer and circlip. Re-assemble and assembly, tightening each screw evenly corner to corner.

Cushion Seals - Front End Cover: Remove from cylinder dismantle piston head assembly Remove and replace cushion seal as already described. Re-assemble piston head and replace whole assembly as described previously.

NOTE: ON NO ACCOUNT MUST THE SHAFT BE REMOVED FROM THE END COVER. IF THIS HAPPENS, THE NECK PACKING SEALS WILL BE DAMAGED - NECESSITATING REPLACEMENT.

LOCATION OF SUSPECTED LEAKS.

Piston Head: Remove each port connection in turn and test for leak. Subject to bubble test if necessary by loading connections from end cover into still water.
Replace defective seals as described and before re-assembly, ensure that the cylinder bore is perfectly free from all foreign materials. Should the cylinder continue to leak past the piston head after replacement seals are fitted, return it to the Works for inspection.

Front End Assembly: Test for leakage by connecting air to front end cover or cylinder and applying soapy water around the rod where it emerges from the end cover. Presence of bubbles indicates a leak. Replace defective seal as described. If leaks persist, return cylinder to Works for inspection.

Worm Gear Unit for Electrically Operated Discharge Door: Oil level should be checked at regular intervals. After initial 500 hours of operation. Gear unit should be drained and refilled with Shell Vitrea 79 Capacity 6.8 litres (12 pints) thereafter every six months or 5000 hours.

LUBRICATION & SERVICING SCHEDULE

DAILY or 24 hours.

GENERAL	Thoroughly clean the inside and outside of the mixer paying particular attention to mixing and scraper blades. Give mixer a coating of equal parts of paraffin and engine oil. Apply a little engine oil to all moving parts, pin joints on discharge doors etc.
DISCHARGE DOOR	*Use grease gun - 2 nipples (each door)
AIR VALVE TOP & BOTTOM PLATE.	*Use grease gun - 2 nipples (each door)

WEEKLY or 200 hours

SPUR GEARBOX	Check oil level using sight glass, top up if necessary. For access see Page 5. Top up with recommended oil only See page 5
WORM GEARBOX	Check oil level using sight glass, top up if necessary. For access see page 6. Top up with recommended oil only See page 6 Turn Stauffer several times. Refill will Shell Livona 3.

MONTHLY or 800 hours

WORM GEARBOX	*Top bearing grease nipple using grease run - one nipple - For access see page 6
HARDY SPICER	*Use grease gun - three nipples

SIX MONTHLY or 5000 hours

WORM GEARBOX	Change oil in gearbox. See page 6.
SPUR GEARBOX	Change oil in gearbox. See page 5.
MOTOR	*Use grease gun - one nipple
WORM GEAR UNIT FOR ELECTRICALLY OPERATED DISCHARGE DOOR	Change oil in Gearbox. See Page 11.

*SHELL "ALVANIA" Grease No. 2 or "UNEDO" Grease No. 2.

Spares

Please note that a number of components are described as being c/w screws, nuts and washers, this is no longer the case and all fixings should be ordered separately if required. Imperial fixings may no longer be available and the nearest metric equivalent will be supplied.

TO FIND A SPARE PART

The assemblies on this machine have been divided into groups and given identification letters A, B and C etc. To identify a component, first find the relevant assembly in the list given on this page. This will give you a groups letter to turn to. On turning to this group, the illustrations will enable you to identify the part you require and give you a reference number. Against this number in the parts list will be found DESCRIPTION and PART NUMBER information which we require. Detailed instructions on how and where to order spares are given on Pages 14 and 15.

SPARE PARTS ILLUSTRATIONS.

GROUP A	ROTOR PADDLE ARMS & BLADES (SOLID TYPE ROTOR) ROTOR PADDLE ARMS AND BLADES WITH SHEAR PINS
GROUP B	GEARBOX UP TO MACHINE NO. 76 GEARBOX FROM MACHINE NO. 77 GEARBOX OIL LEVEL ASSEMBLY
GROUP C	DRIVE ASSEMBLY
GROUP D	
GROUP E	DISCHARGE DOOR OPERATING RAM
GROUP F	AIR OPERATED DISCHARGE DOOR ELECTRICALLY OPERATED DISCHARGE DOOR
GROUP G	PAN AND WEARING PLATES PAN BOTTOM WEARING PLATES
GROUP H	WORMBOX
GROUP J	ANCILLARY EQUIPMENT
GROUP K	WORM GEAR UNIT FOR ELECTRICALLY OPERATED DISCHARGE DOOR

HOW TO ORDER SPARES.

For fitting in your own Workshop.

FROM YOUR NEAREST DEPOT

This is the best and quickest method of obtaining spare parts. Main Winget Depots and Service Agents cover the country to give easier access to spares together with cheaper and more efficient service.

To avoid delays and errors, remember always to quote:-

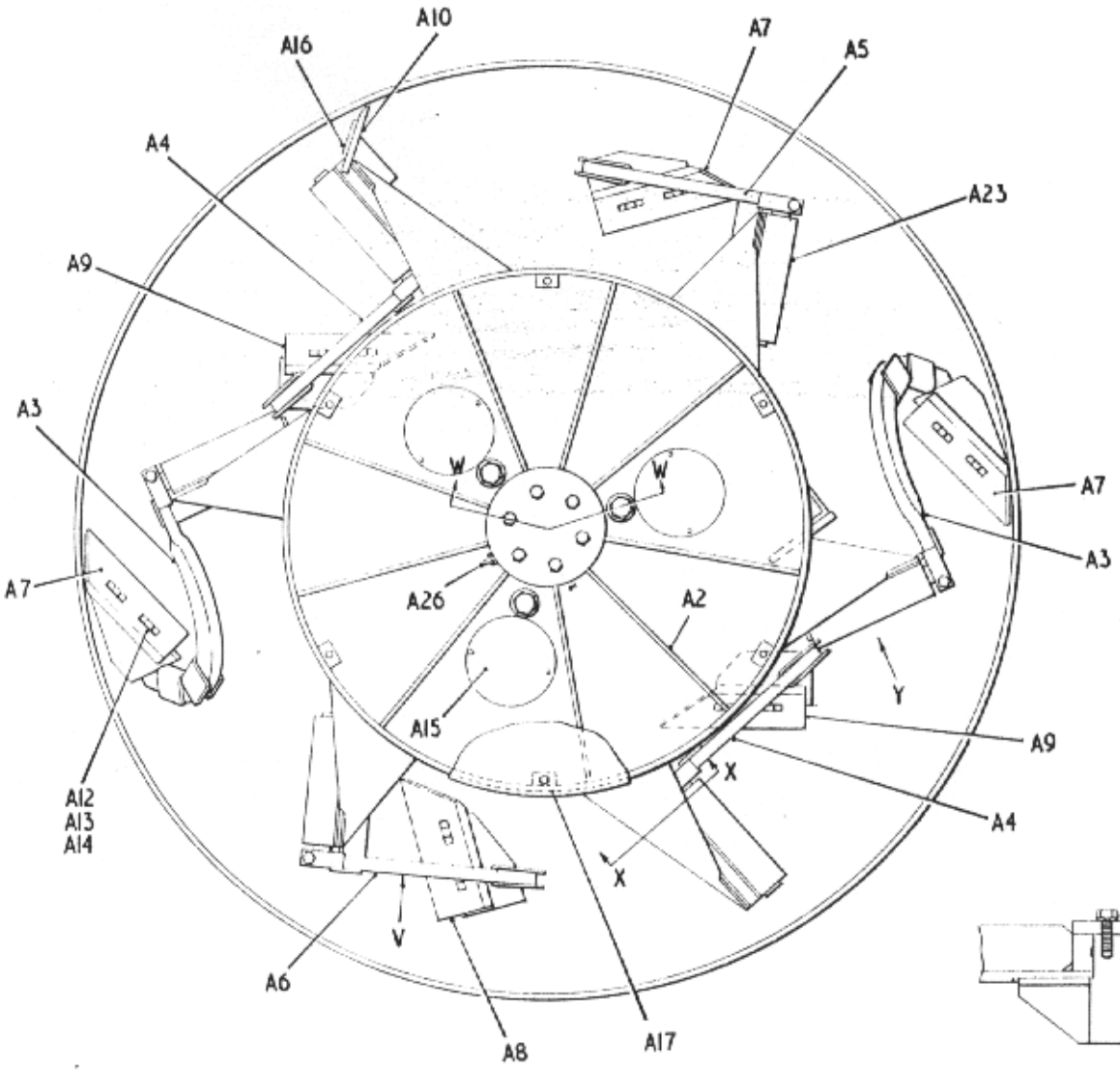
THE MACHINE NUMBER.

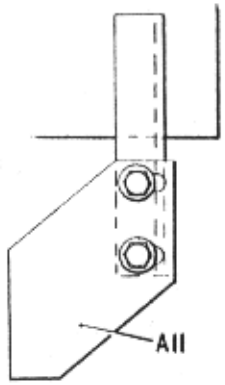
- which will be found stamped on a plate at the side of the machine.

DESCRIPTION AND PART NUMBER.

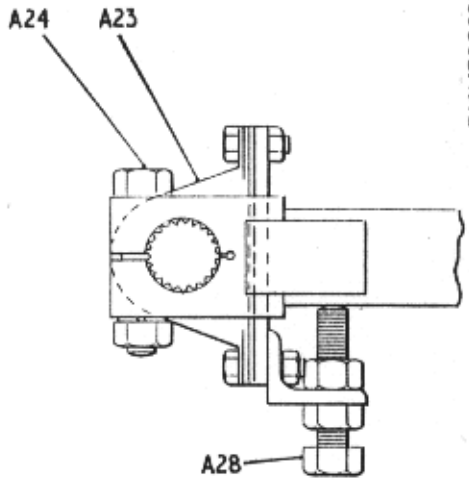
- exactly as listed in this publication.

REF NO.	NO. PER MACHINE.	DESCRIPTION	PART NO.
A1	1	Rotor (solid type)	514-3332
A2	1	Rotor (shear pin)	514-3333
A3	2	Paddle Arms	514-3324
A4	2	Paddle Arms	514-3325
A5	1	Paddle Arm	514-3326
A6	1	Paddle Arm	514-3327.
A7	3	L.H. Paddle Blade	514-2954
A8	1	Intermediate Paddle Blade (45°)	514-2955
A9	2	Paddle Blade (Inner)	514-2956
A10	1	Outer Scraper Blade Complete with hex. hd. bolts, buts, spring and plain washer.	514-3329
A11	1	Inner scraper blade complete with hex. hd. bolts, buts spring & plain washer	514-3323
A12	12	Bolt for paddle blade	514-1624
A13	12	Paddle Blade Washers	514-1625
A14	12	Binx Nuts	330-1108
A15	3 1	Access Cover (shear pin type) Access cover (solid type) complete with hex. hd. setscrews & spring washers.	514-2963
A16	1	outer scraper blade support	514-3330
A17	1	Cover Plate for rotor centre complete with hex. hd. setscrew & spring washers	514-3331
A18	1	Rotor Hub (shear pin type only)	514-3334
A19	3	Shear Pins	514-3336
A20	3	Shear Pin Washers	514-3337
A21	3	Binx Nuts	330-3612
A22	1	Rotor Retaining Plate complete with hex. hd. bolts and spring washers	514-3338
A23	6	Flexitor Units No. 10 complete with hex. hd. setscrews, bolts, Binx , spring and plain washers	220-705
A24	6	Hex Hd. Bolts (H.T.) with nuts and spring washers	460-551026
A25	6	Headless press fit bushes	114-704
A26	1	900 Grease Nipple	333-502
A27	2	Hex. hd. setscrews with nuts	418-351016
A28	4	Hex Hd. setscrew with nuts	418-351024

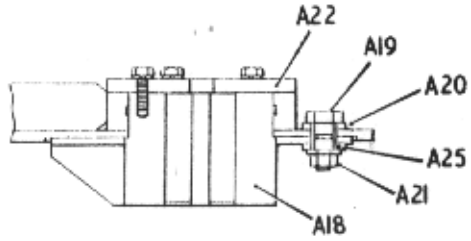




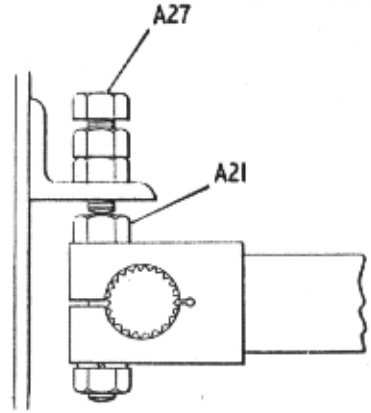
VIEW ON INNER SCRAPER BLADE IN DIRECTION OF ARROW 'Y'



TYPICAL VIEW ON PADDLE ARM IN DIRECTION OF ARROW 'V'

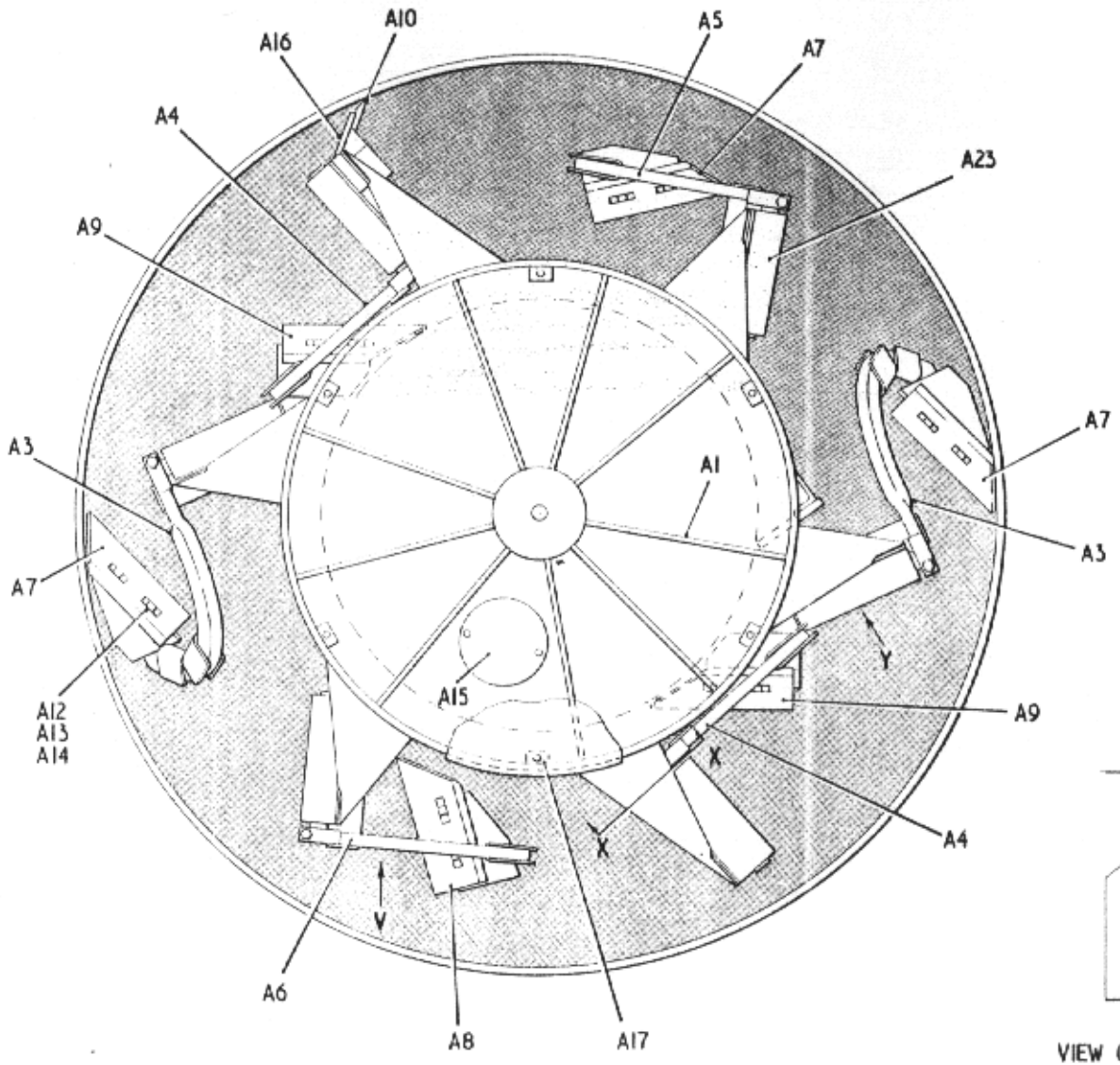


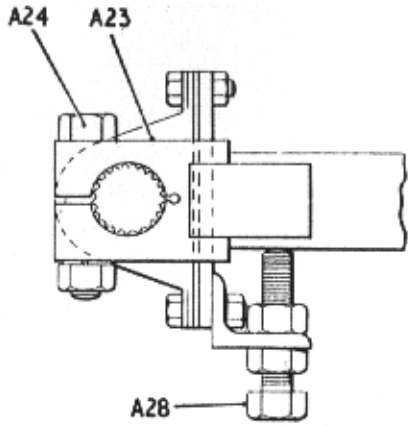
SECTION ON ARROW 'W-W'



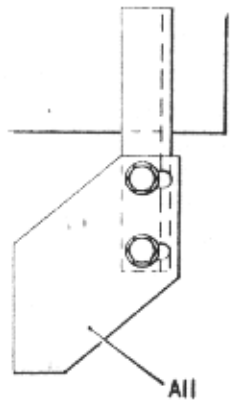
SECTION ON ARROW 'X-X'

NOTE:- REF A27 & A28 ARE TO BE USED AS STOP BOLTS ONLY AFTER INITIAL SETTING AND NOT FOR PADDLE ARM ADJUSTMENT

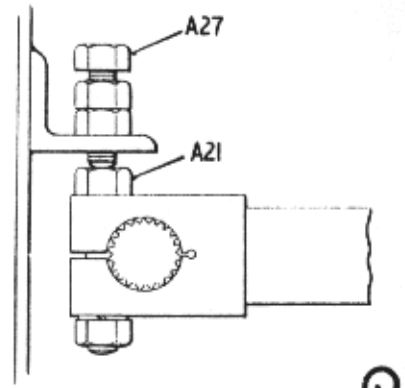




TYPICAL VIEW OF PADDLE ARM
IN DIRECTION OF ARROW 'V'



VIEW ON INNER SCRAPER BLADE
IN DIRECTION OF ARROW 'Y'



SECTION ON ARROW X-X

NOTE REF A27 & A28 ARE TO BE USED AS STOP BOLTS ONLY
AFTER INITIAL SETTING AND NOT FOR PADDLE ARM ADJUSTMENT

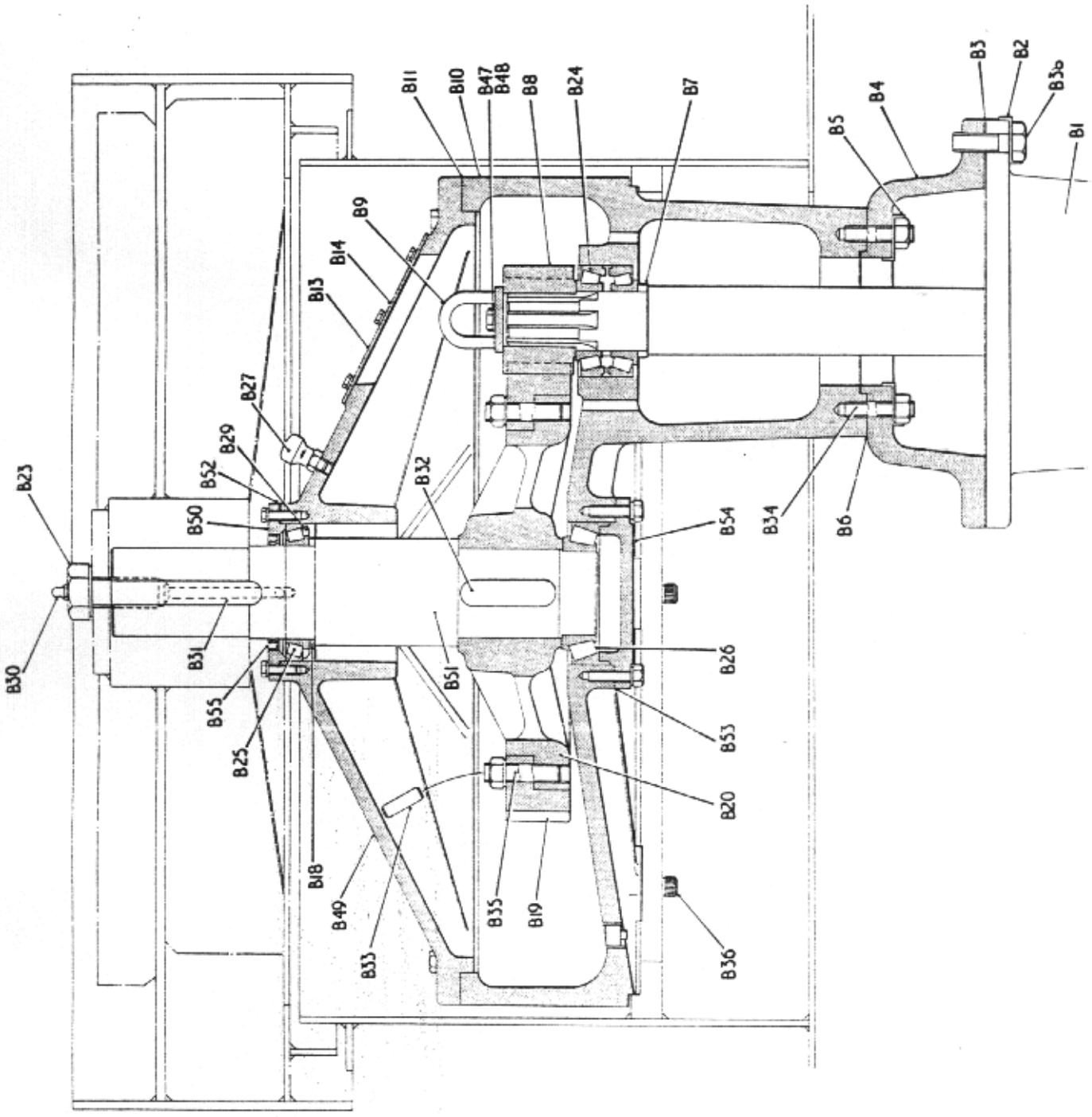
GROUP A

ROTOR PADDLE ARMS & BLADES (SOLID)

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
B1	1	Moss Gear Unit (750 unit)	514-3276
B2	4	Tab Washers	514-2994
B3	1	Moss Gearbox Gasket	514-3266
B4	1	Adaptor (gearbox to Moss box)	514-3267
B5	6	Tab Washers	514-2981
B6	1	Gearbox to adaptor gasket	514-3268
B7	1	Thrust Washer	514-3269
B8	1	Gearbox Pinion 16T	514-3078
B9	1	Lifting Eye	514-3081
B10	1	Gearcase - lower half complete with hex hd. setscrews and spring washers	514-3270
B11	1	Gearcase Gasket	514-3271
B12	1	Gearcase - upper half	514-3272
B13	1	Access cover complete with hex. hd. setscrews and spring washers	514-2982
B14	1	Gasket for access cover	514-2983
B15	1	Bearing retainer (upper) gasket	514-3085
B16	1	Bearing retainer (upper) complete with hex hd. setscrews and spring washers	514-3075
B17	1	Rotor drive shaft	514-3077
B18	1	Spacer	514-3080
B19	1	Gear ring 76 teeth	514-3273
B20	1	Gear ring hub	514-3274
B21	1	Bearing retainer (lower) complete with hex hd. setscrews and spring washers	514-3074
B22	1set	Rotor drive shims	514-3086
B23	1	Rotor setscrew complete with spring washer	514-2993
B24	1	Double taper roller bearing	119-108000
B25	1	Taper roller bearing	119-106000
B26	1	Taper roller bearing	119-107000
B27	1	Breather	220-247000
B28	1	'V' Ring Seal	417-770000
B29	1	Nilos Ring	391-602000
B30	1	Straight hydraulic grease nipple	333-104020
B31	2	Parallel key (one end round)	3-4-118000
B32	2	Parallel key (both ends round)	304-117000
B33	2	Silver Steel Dowels	353-212160

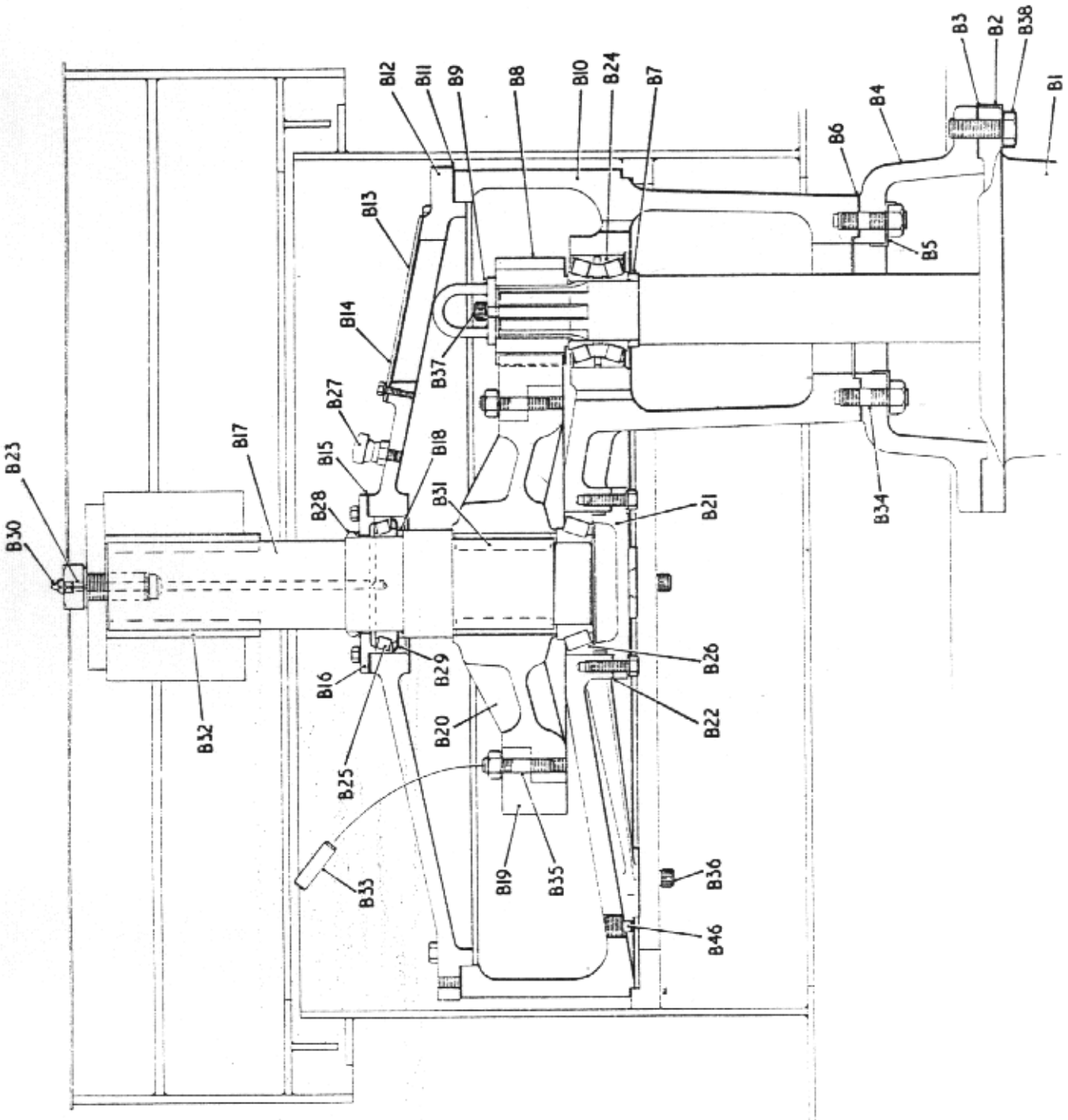
REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
B34	6	Studs complete with Hex. Nuts	411-912220
B35	8	Studs complete with Binx nuts and plain washers	411-910240
B36	9	Skt. Hd. Capscrews complete with spring washers	404-708240
B37	2	Skt. hd. capscrew complete with spring washers	404-708200
B38	4	Hex. Hd. Bolts H.T.	418-351418
B39	1	Reduction box filler pipe complete with hex. hd. bolts nuts and spring washers	512-1307
B40	1	Plastic pipe cap	512-1309
B41	1	Oil Filler Pipe	514-3065
B42	1	Self Adhesive Oil Level Plate	514-3364
B43	1	P.V.C. clear tube	260-803000
B44	2	Hose Clip complete with hex. hd. bolts nuts and spring washers	143-101000
B45	4	Clip	143-266000
B46	1	Drain Plug	241-706000
B47	1	Tab Washer	514-3390
B48	2	Hex. Hd. Setscrew	418-250810
B49	1	Gearcase Upper Half	514-3444
B50	1	Bearing retainer upper complete with hex hed. setscrews and spring washers	514-3388
B51	1	Rotor Drive Shaft	514-3391
B52	1 set	Bearing Retainer Shims	514-3394
B53	1	Lower Bearing Retainer Gasket	514-3389
B54	1	Bearing Retainer Lower	514-3387
B55	1	Oil Seal	417-100134

GROUP B

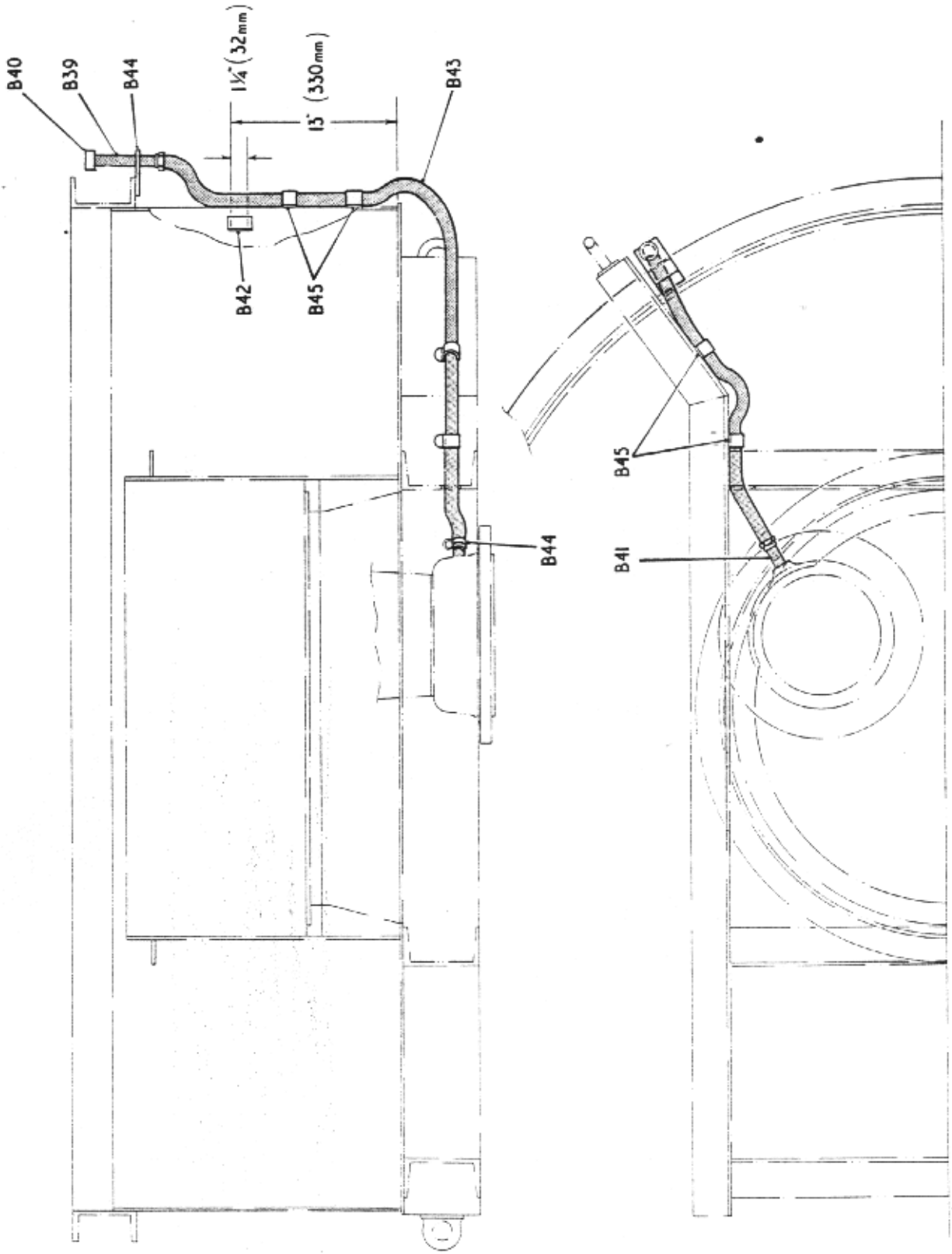


FROM MACHINE N°77

GROUP B



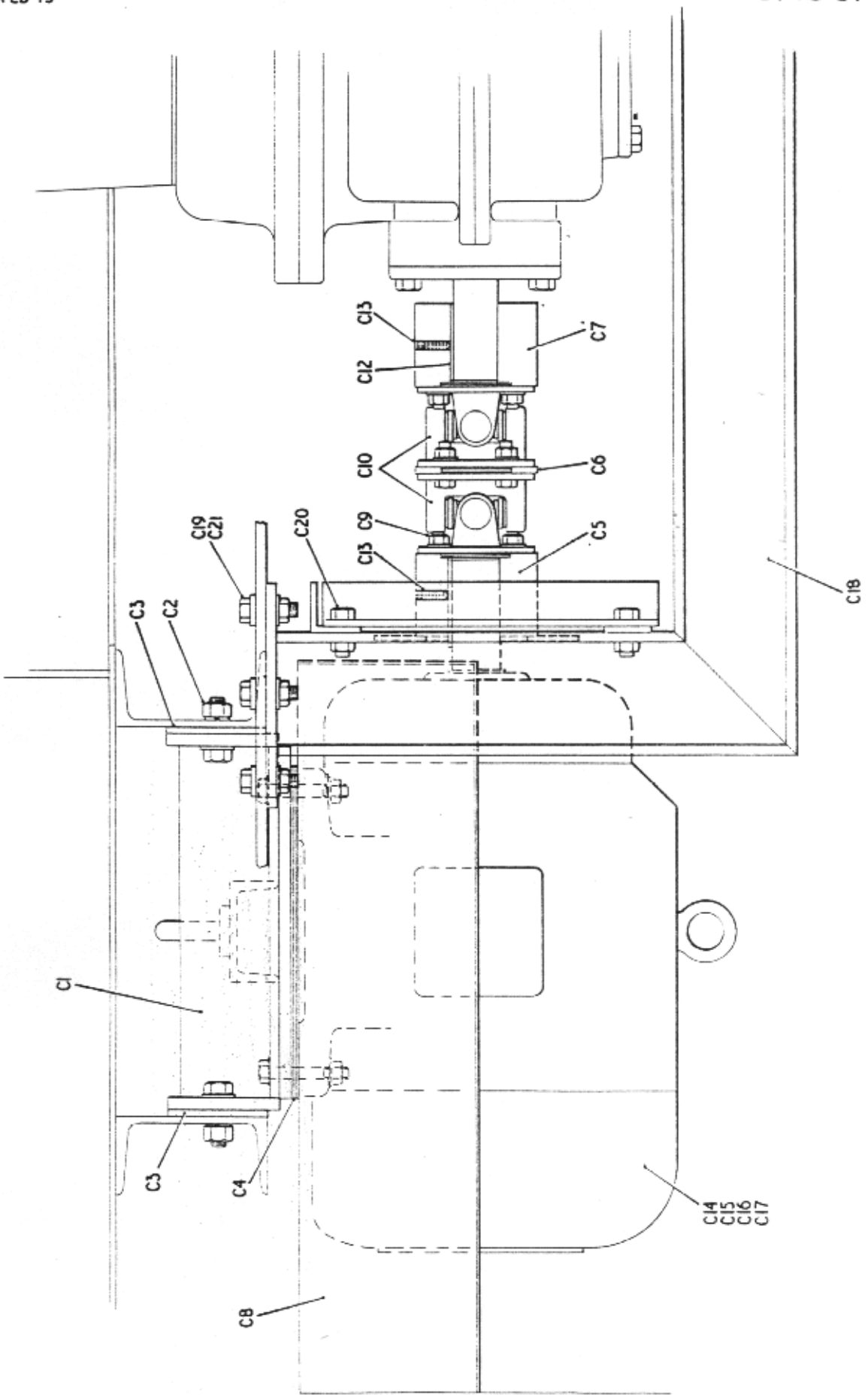
UP TO MACHINE N°76



GEARBOX OIL LEVEL ASSEMBLY

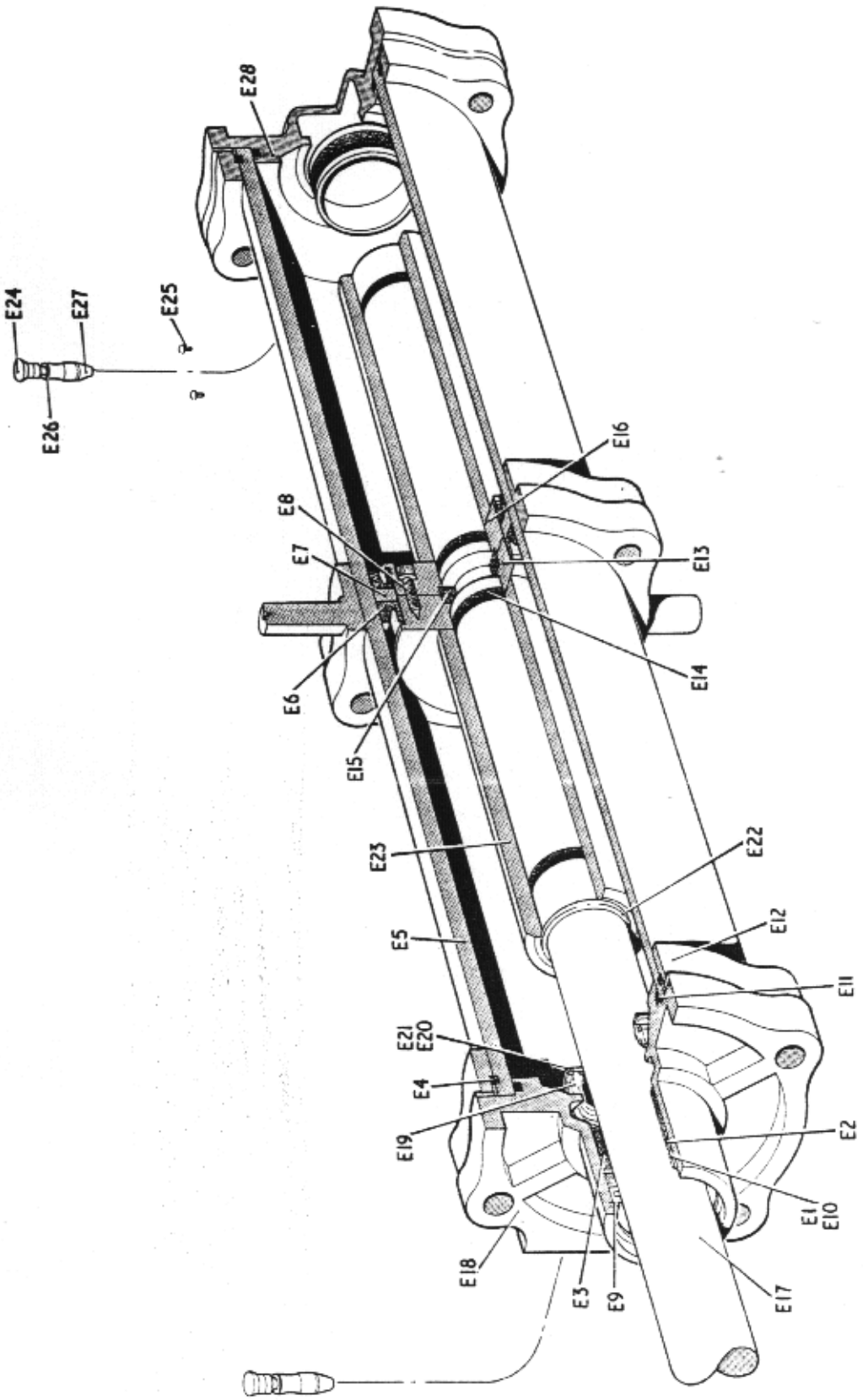
REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
C1	1	Motor Mounting	514-3277
C2	6	Hex Hd. Bolts H.T. with nuts, spring and plain washers	460-351016
C3	2	Motor Mounting Packer	514-3278
C4	1 set	Motor Shims	514-3279
C5	1	Half coupling for electric motor	514-3280
C6	1	Spacer	514-3111
C7	1	Half coupling for worm unit	514-3281
C8	1	Water cover for motor	514-3282
C9	8	Stud for coupling complete with Binx nuts and plain wahsers	514-3233
C10	1	Hardy Spicer special joint	130-957000
C11	4	Hex. Hd. Bolt H.T. with Binx Nuts and plain washers	460-350712
C12	1	Parallel Key	304-107240
C13	2	Cone Point SKT Setscrew	403-560616
C14	1	Electric motor either ASEA M180L 50 HP at 1460 r.p.m. NEWMAN D180L 50 HP at 1465 r.p.m. BROOK D180L 50 HP at 1460 r.p.m.	
C15	4	Hex Hd. Bolts H.T. Binx nuts and plain washers (ASEA Only)	460-350820
C16	4	Hex. Hd. Bolts H.T. Binx Nuts and plain washers (Newman only)	460-350826
C17	4	Hex. hd. bolts H.T. Binx nuts and plain washers (Brook only)	460-350824
C18	1	Mixer support	514-3346
C19	12	Hex. Hd. bolts H.T. Binx nuts plain and taper washers	460-551218
C20	15	Hex. Hd. Bolts H.T. Binx nuts and	460-551016
C21	8	Taper Washers	465-212000

GROUP C


C13
C12
C7
C10
C6
C19
C21
C20
C9
C5
C13
C18
C3
C2
C1
C3
C4
C14
C15
C16
C17
C8

DISCHARGE DOOR OPERATING RAM. GROUP "E"

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
E1	1	Cage (009805)	
E2	1	Neck Packing (014982)	
E3	1	Bearing Bush (009806)	
E4	2	Circlip (009803)	
E5	1	Tube (009792)	
E6	2	Distributor Seal (SP.66)	
E7	1	Follower (009796)	
E8	4	Screws (SP.71)	
E9	1	Retaining Ring (SP.668)	
E10	1	Wiper Ring (SP.67)	
E11	2	'O' Ring (SP.62)	
E12	2	Ring (M009802)	
E13	1	Head Tapped (MO 15874/3)	
E14	4	'O' Ring (SP.63)	
E15	1	Ring Split (009795)	
E16	1	Head (C Bored) (MO 15875/3)	
E17	1	Rod (Cyl. Type) (LO 13705)	
E18	1	End (L.009808)	
E19	2	Cushion Seal (009798)	
E20	2	Retaining Ring (SP.669)	
E21	2	Washer (009800)	
E22	2	Circlip (SP.422)	
E23	2	Sleeve (MO 15876/3)	
E24	2	Escutcheon (009810)	
E25	4	Rivet (SP.35)	
E26	2	'O' Ring (SP.94)	
E27	2	Screw (009809)	
E28	1	End (L.009804)	



DISCHARGE DOOR OPERATING RAM

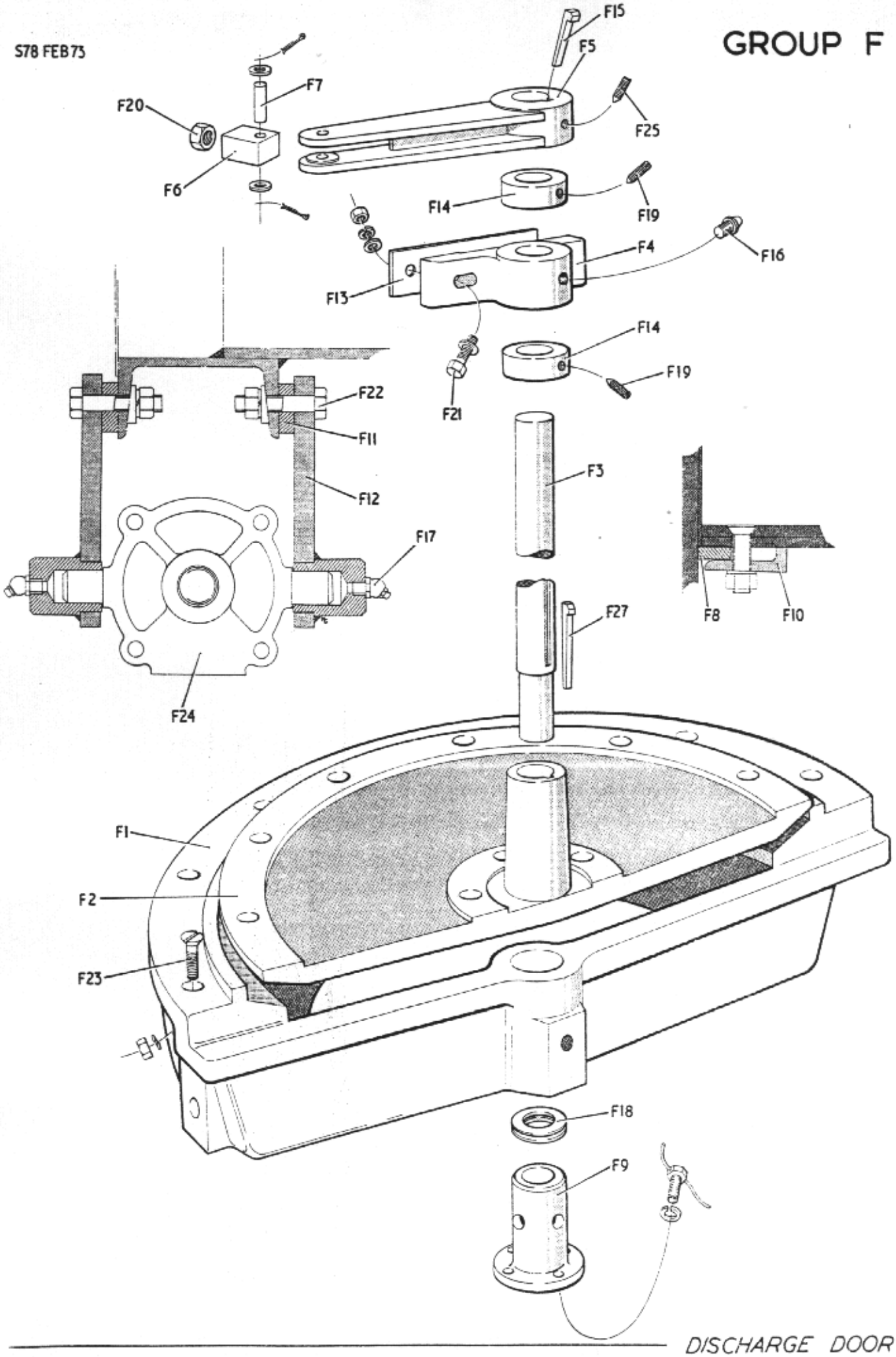
AIR & ELECTRICALLY OPERATED DISCHARGE DOORS.

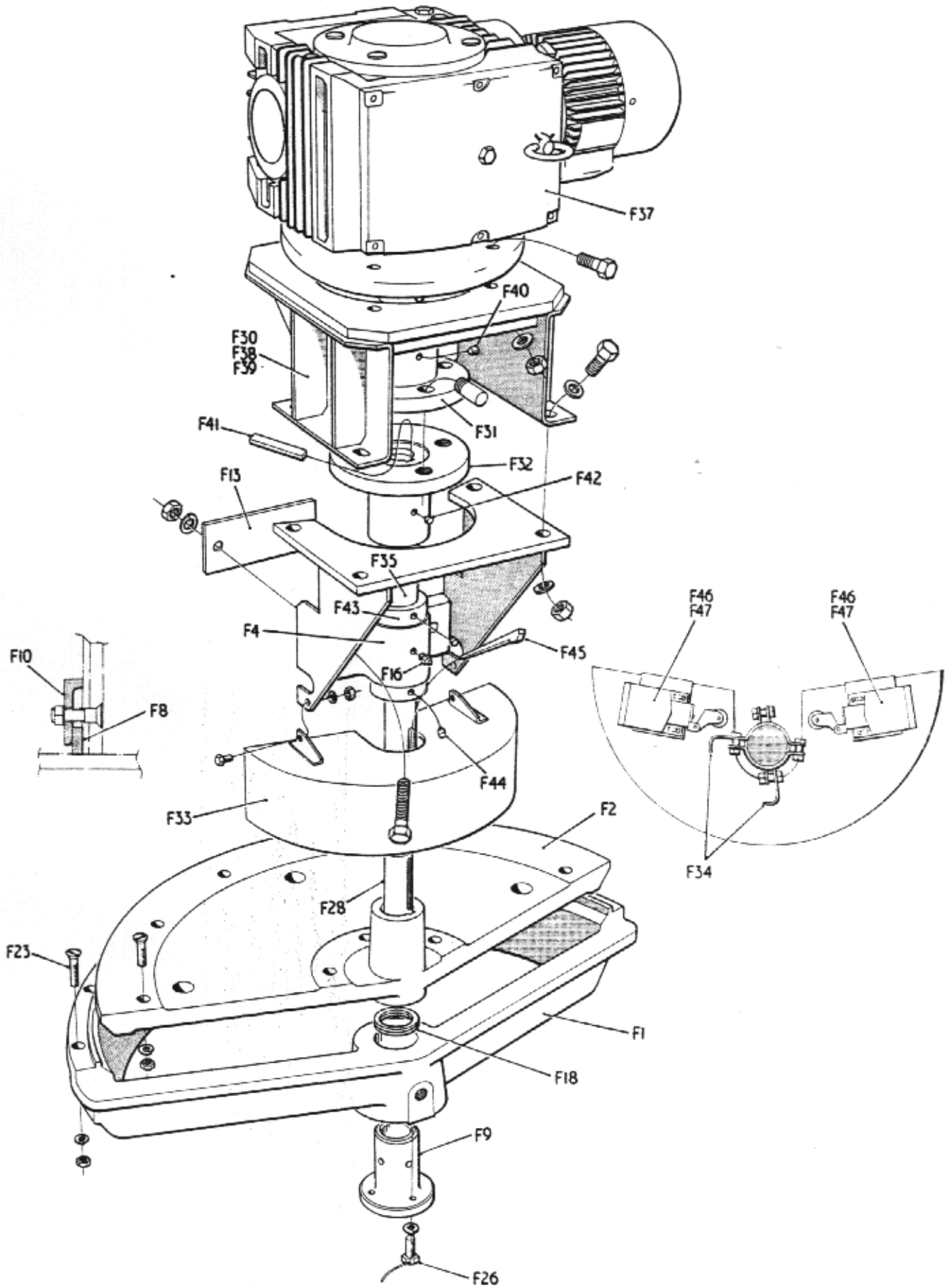
GROUP 'F'

REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
F1	1	Discharge door outlet	514-3262
F2	1	Discharge door 514349000 2 514349000	514-1533
F3	1	Door Shaft air operated	514-3455
F4	1	Door Shaft Bearing	514-3143
F5	1	Air operated door lever	514-1537
F6	1	Swivel Block	514-3145
F7	1	Ram Pivot Pin complete with Plain washers and split pin	514-1539
F8	1	Door Sealing Strip	514-3264
F9	1	Adjusting Sleeve	514-1534
F10	4	Sealing Strip Clamp	514-3036
F11	2	Pivot Plate Packer	514-3146
F12	2	Air cylinder pivot plate	514-3148
F13	1 set	Bearing packer	514-3147
F14	2	Stud Collar	145-501000
F15	1	Gib Hd Key	300-121000
F16	2	Straight Grease Nipple	333-104200
F17	2	35° Angle Grease Nipple	333-752020
F18	1	Single thrust ball bearing	111-210000
F19	2	Cone Pt. Socket setscrew	403-510806
F20	1	Hex. Locknut	331-218000
F21	2	Hex. Hd. Bolt with nut spring and taper washers	460-551024
F22	6	Hex. hd. bolts with nuts spring and taper washers	460-550820
F23	3	Csk. hd. bolts with nuts and spring washers	400-250816
F24	1	Baldwin Air Cylinder	137-198000
F25	1	Cone Pt. Socket Setscrew	403-560612
F26	4	Special Setscrews complete with locking wire and spring washers	514-3345/2
F27	1	Gib Hd Key	300-308480
F28	1	Discharge door shaft electrically operated	514-3457
F29	1	Mods to Mixing pan for electrically operated door (not illustrated)	514-3452
F30	1	Mounting	514-3453

REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
F31	1	Half Coupling	514-3369
F32	1	Half Coupling	514-3368
F33	1	Cover complete with hex. hd. bolts hex. nuts and spring washers	514-3367
F34	2	Operating arms complete with hex. hd bolts. hex nuts and spring washers	514-3366
F35	1	Spacer	514-3456
F36	1	Geared Motor	267-106000
F37	4	Hex Hd. H.T. bolts complete with Binx Nuts and Plain Washers	460-551018
F38	2	Hex. Hd. H.T. Bolts complete with Binx Nut Plain and Taper Washers	460-551018
F39	2	Hex Hd. H.T. Bolts Binx Nuts and 2 Plain Washers	460-551016
F40	1	Cone Pt. Skt Setscrew	403-560812
F41	1	Rectangular Key	304-108320
F42	1	Cone Pt. Skt. Setscrew	403-560610
F43	2	Collars	145-501000
F44	2	Cone Pt. Skt Setscrew	403-510811
F45	1	Gib Hd Key	301-108-480
F46	2	Limit Switches	208-532000
F47	4	Raised Cheese Hd. Screws with Hex Nut and Spring Washers	407-461016

GROUP F

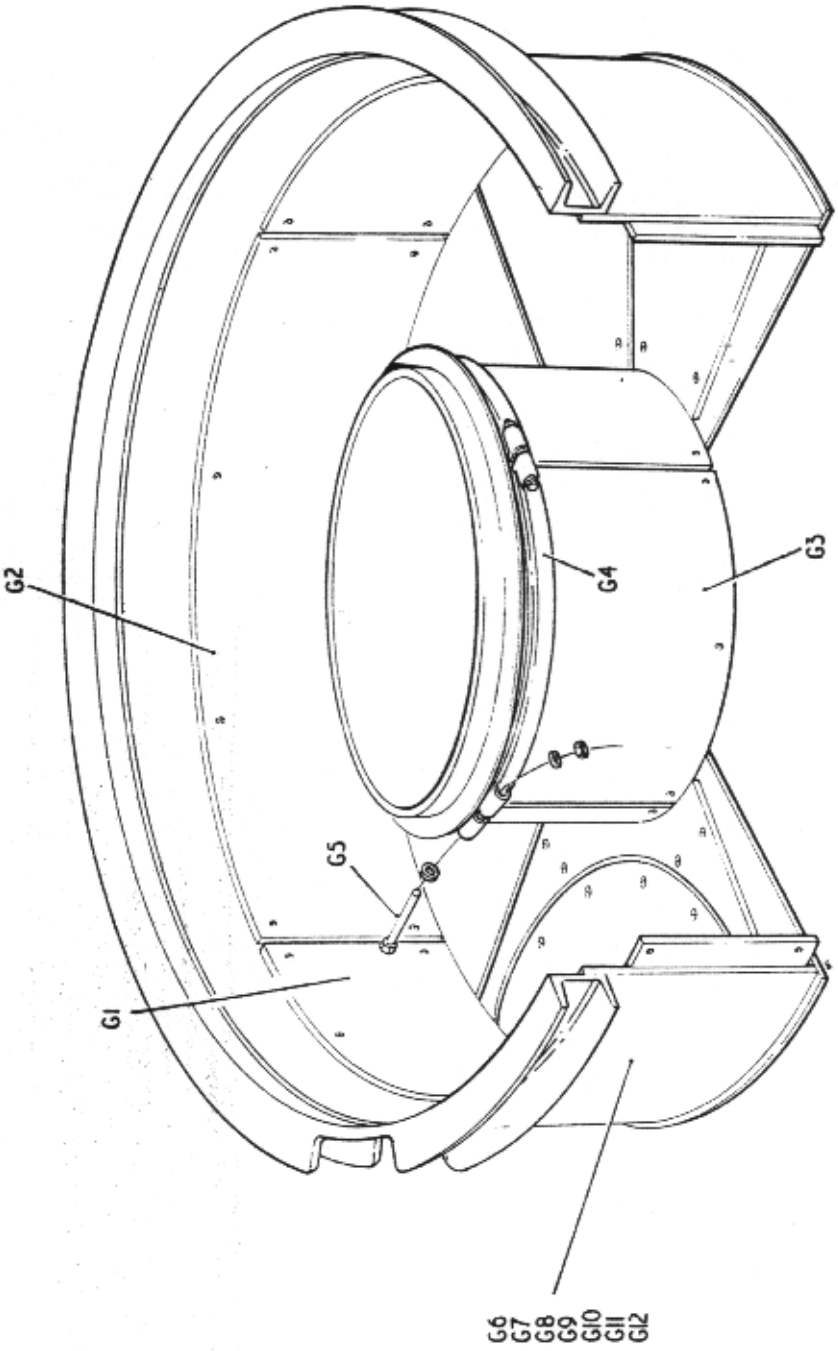

F15
F5
F7
F20
F25
F6
F14
F19
F4
F16
F13
F14
F19
F21
F22
F11
F3
F12
F17
F8
F10
F27
F24
F1
F2
F23
F18
F9


F37
F40
F30
F38
F39
F31
F41
F32
F13
F42
F35
F43
F4
F45
F10
F16
F8
F44
F33
F2
F28
F23
F1
F18
F9
F26
F46
F47
F46
F47
F34

REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
G1	1	Outer shroud wearing plate over discharge door (single door) complete with CSK Hd. Bolts nuts and spring washers	
	2	(2 door)	
	3	(3 door)	514-3319
G2	3	Outer shroud wearing plate (single door) complete with CSK Hd. Bolts nuts and spring washers.	
	2	(2 door)	
	1	(3 door)	514-3318
G3	3	Inner shroud wearing plate complete with CSK Hd. bolts nuts and spring washers	514-3320
G4	3	Straps for inner wearing plate	514-3311
G5	2	Hex Hd. Bolt, Binx Nut and 2 plain washers	460-551046
G6	1	Mixing Pan Single Door Opposite Drive	514-3404
G7	1	Mixing Pan Single Door to right of Drive	514-3405
G8	1	Mixing Pan Single Door to left of drive	514-3403
G9	1	Mixing pan two doors one to right and one to left of drive	514-3407
G10	1	Mixing Pan two doors one opposite and one to right of drive	514-3408
G11	1	Mixing pan two doors one opposite and one to left of drive.	514-3406
G12	1	Mixing pan three doors, oneopposite, one to left and one to right of drive	514-3409
G13		Door Wearing Plate	514-3096
	1	Diagram 1	
	1	Diagram 2	
	1	Diagram 3	
	2	Diagram 4	
	2	Diagram 5	
	2	Diagram 6	
	3	Diagram 7	
G14	1 LH 1 RH	Bottom wearing Plate 'A'	514-3312
G15	1	Bottom wearing Plate 'B'	514-3313

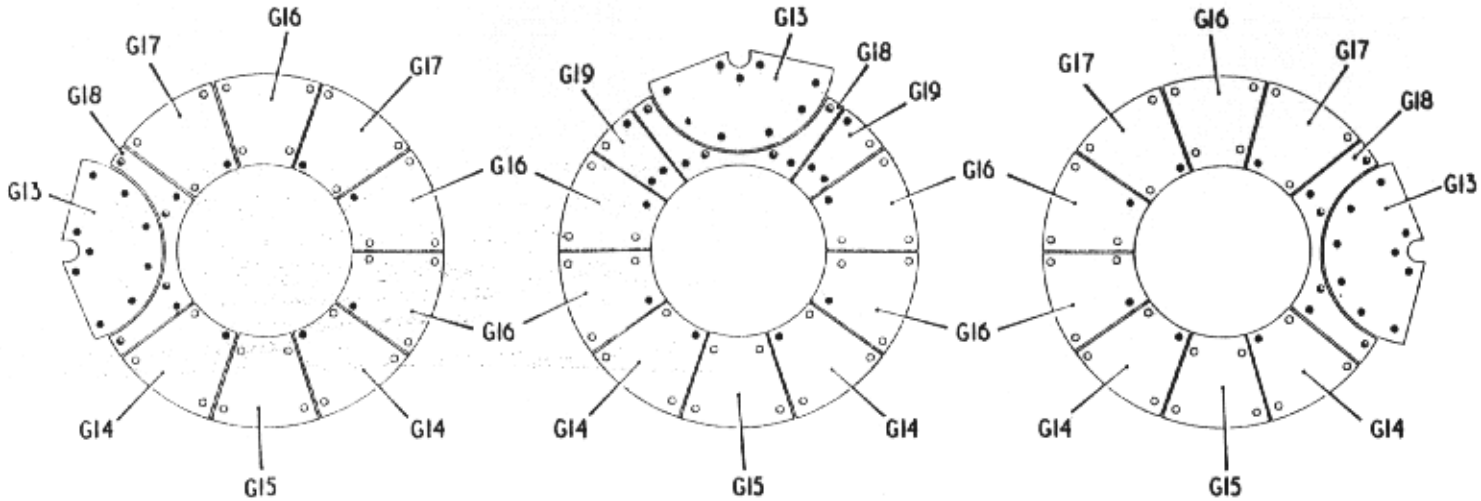
REF. NO.	NO PER MACHINE	DESCRIPTION	PART NO.
G16		Bottom Wearing Plate 'C'	514-3314
	3	Diagram 1.	
	4	Diagram 2.	
	3	Diagram 3.	
	2	Diagram 4.	
	2	Diagram 5.	
	1	Diagram 6.	
G17		Bottom Wearing Plate 'D'	514-3315
	2	Diagram 1.	
	2	Diagram 3.	
	2	Diagram 6.	
G18		Bottom Wearing Plate (door opening)	514-3316
	1	Diagram 1.	
	1	Diagram 2.	
	1	Diagram 3.	
	2	Diagram 4.	
	2	Diagram 5.	
	2	Diagram 6.	
	3	Diagram 7.	
G19		Bottom Wear Plate ($18^{\square}$ segment)	514-3317
	2	Diagram 2.	
	2	Diagram 4.	
	2	Diagram 5.	
	2	Diagram 7.	
G20		CSK HD Screws with nuts and spring washers	400-250818
	4	Diagram 1.	
	4	Diagram 2.	
	4	Diagram 3.	
	8	Diagram 4.	
	8	Diagram 5.	
	8	Diagram 6.	
	12	Diagram 7.	
G21		CSK HD Screws with nuts & spring washers	400-250814
	17	Diagram 1	
	23	Diagram 2	

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
	17	Diagram 3.	
	32	Diagram 4.	
	32	Diagram 5.	
	26	Diagram 6.	
	41	Diagram 7.	
G22		CSK HD Screws with nuts and spring washers	400-250611
	26	Diagram 1.	
	24	Diagram 2.	
	26	Diagram 3.	
	18	Diagram 4.	
	18	Diagram 5.	
	20	Diagram 6.	
	12	Diagram 7.	


G2
G4
G3
G5
G1
G6
G7
G8
G9
G10
G11
G12

GROUP G

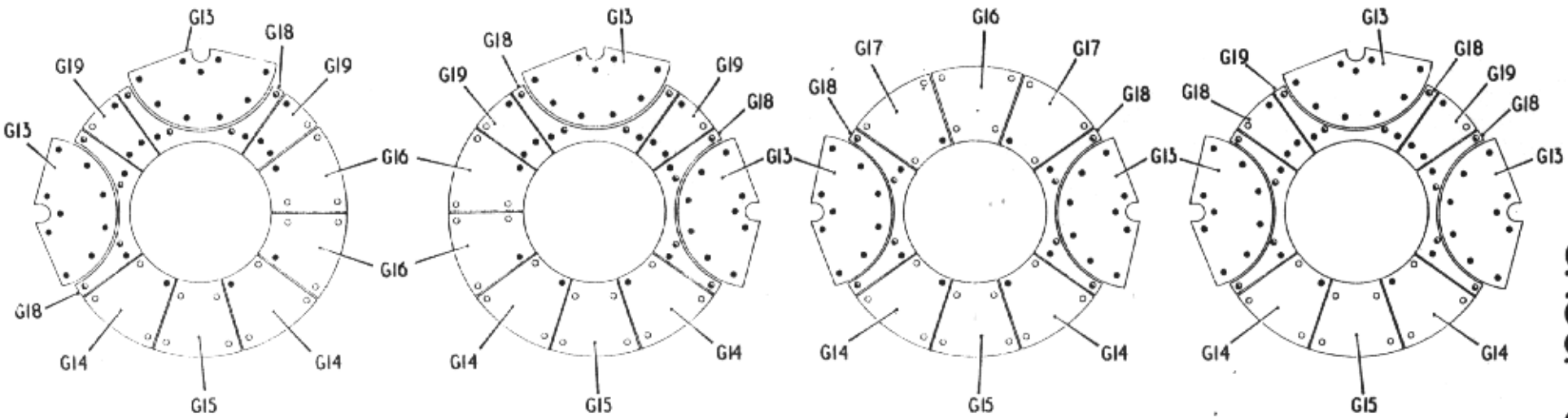
G20 G21 G22



1 ONE DOOR LEFT OF DRIVE

2 ONE DOOR OPPOSITE DRIVE

3 ONE DOOR RIGHT OF DRIVE



4 TWO DOOR ONE TO LEFT & ONE OPPOSITE DRIVE

5 TWO DOOR ONE TO RIGHT & ONE OPPOSITE DRIVE

6 TWO DOOR ONE TO LEFT & ONE TO RIGHT OF DRIVE

7 THREE DOOR ONE TO LEFT ONE TO RIGHT & ONE OPPOSITE DRIVE

WG2541090000

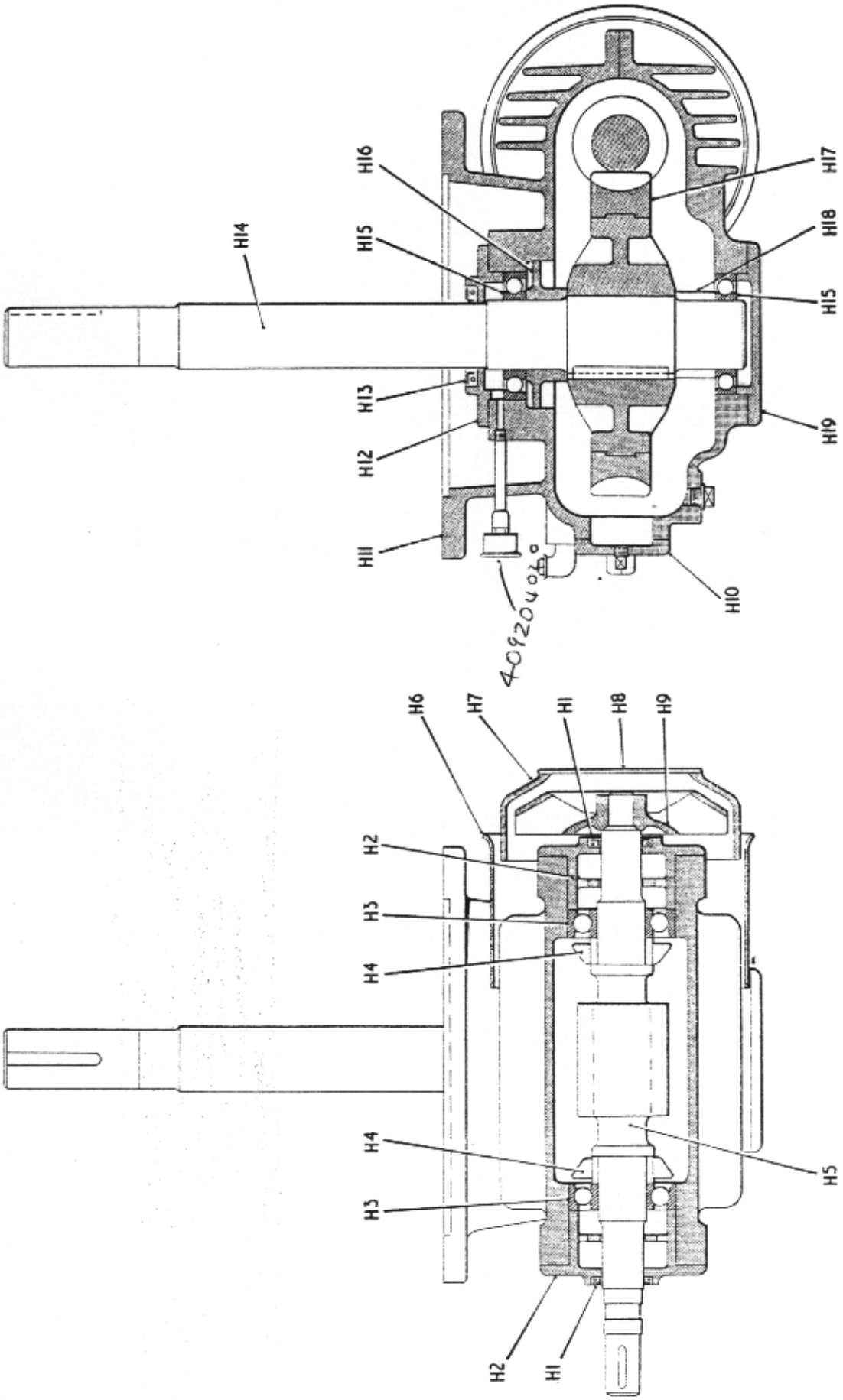
9/Box

WORM BOX

GROUP "H"

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
H1	2	WS Oil Seal (275124)	~~2541090116~~
H2	2	Wormshaft open cover (B21607)	2541090006
H3	2	Wormshaft ball bearing (M.S. 15 ACD)	2541090018 or 19
H4	2	Oil Flinger (B4814)	2541090004
H5	1	Wormshaft 1st (C37039)	2541090015
H6	1	Deflector (C14020)	2541090013
H7		Fan Cowl (C14019)	2541090012
H8	1	Wire Mesh Guard	2541090017
H9	1	Fan	2541090021
H10	1	Inspection Cover (B37043)	2541090024
H11	1	Gear Case (F35284)	2541090025
H12	1	S.S.S. Open Cover (B14782)	2541090005
H13	1	S.S.S. Oil Seal (400228)	
H14	1	Slow Speed Shaft (C37022)	2541090026
H15	2	S.S.S. Ball Bearing (175.A.C.D.)	2541090018 or 19
H16	1	Grease Retaining Plate (B35283)	2541090020
H17	1	Worm Wheel 30T (B37040)	2541090023
H18	1	S.S.S. Wide Spacer (B48C9)	2541090002
H19	1	S.S.S. Blank Cover (B.32553)	2541090011

GROUP H

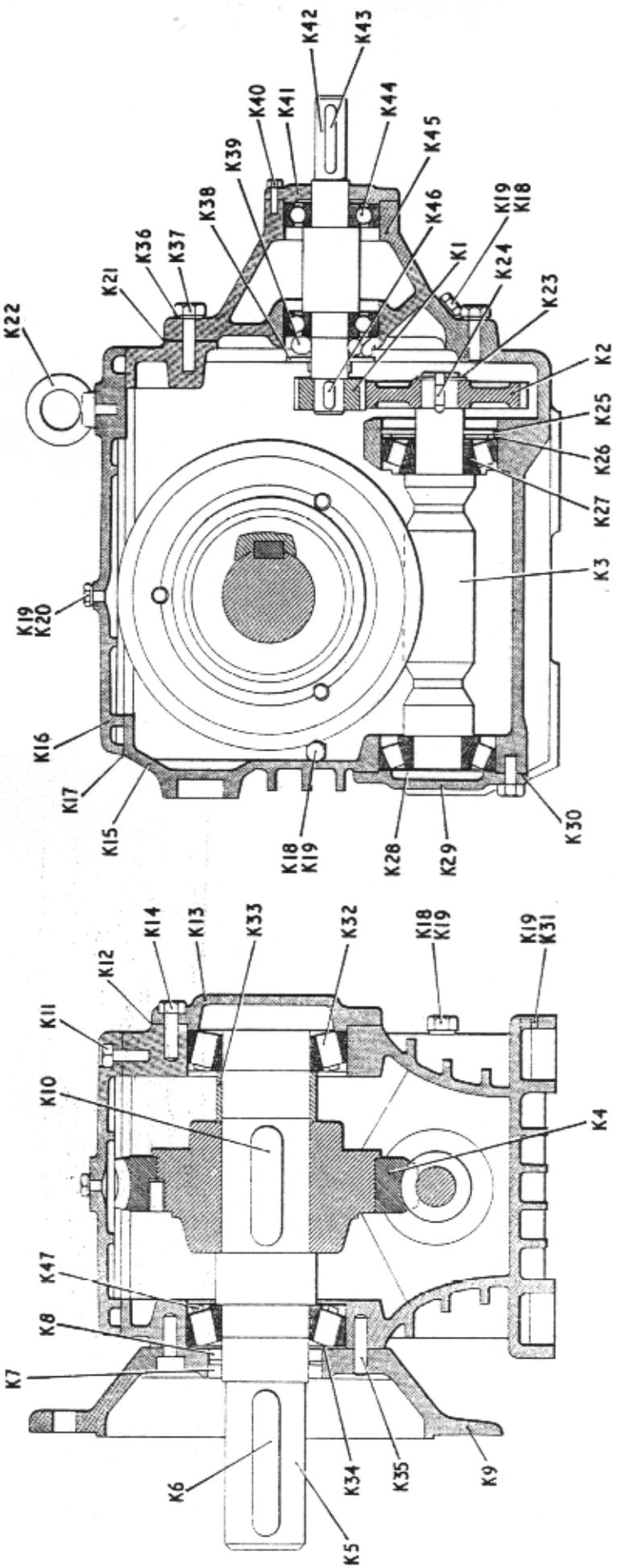

H16
H17
H14
H15
H18
H15
H13
H19
H12
H11
H10
H6
H7
H1
H8
H9
H2
H3
H4
H4
H5
H3
H2
H1

REF NO	NO PER MACHINE.	DESCRIPTION	PART NO.
J1	1	Three positioned index five port air valve	450-495
J2	2	Exhaust Hoods	450-4033
J3	1	Oil Fog Vitalizer Unit	451-502
J4	2	Reducing Bush	240-504202
J5	7	Hose Connector (Brass)	130-3044
J6	1	Rubber Hose 20'0" long	260-303
J7	7	Jubilee Clip	132-100

WORM GEAR UNIT FOR ELECTRICALLY OPERATED DISCHARGE DOOR. GROUP 'K'

REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
K1	1	1st stage gear pinion	
K2	1	1st stage gear wheel	
K3	1	Worm shaft	
K4	1	Worm Wheel	
K5	1	Wheel shaft 102 317 9	
K6	1	Feather Key (with second shaft)	010 0447
K7	1	Oil seal (with second shaft)	010 664 X
K8	1	Oil seal (with second shaft)	010 636 4
K9	1	Mounting flange 102 309 8	
K10	1	Feather key 010 045 5	
K11	2	Hex. hd. screw 010 160 S	
K12	2	Gasket 102 325 X	
K13	1	Bearing cover (not with second shaft) 102 313 6	
K14	10	Hex. Hd. Screw 010 165 6	
K15	1	Gear case 102 306 3	
K16	1	Cover 102 307 1	
K17	1	Gasket 102 327 6	
K18	6	Screw 010 222 9	
K19	8	Sealing washer 010 226 1	
K20	1	Breather Screw 010 467 1	
K21	1	Gasket 102 324 1	
K22	1	Eye Bolt 010 231 8	
K23	1	Circlip 010 277 6	
K24	1	Feather Key 010 054 4	
K25	1	Circlip 010 326 8	
K26	1	Spacer 010 358 6	
K27	2	Tapered Roller Bearing 010 602 X	
K28		Shim 010 380 2 Shim 010 404 3 Shim 010 421 3	
K29	1	Bearing Cover 102 315 2	
K30	1	Gasket 102 326 8	
K31	1	Drain plug (magnetic) 010 779 4	
K32	2	Tapered roller bearing 010 600 3	

REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
K33	1	Distance Pie	102 323 3
K34		Shim 010 383 7 Shim 010 407 8 Shim 010 423 X	
K35	2	Pin 010 757 3	
K36	4	Locking Washer 010 993 2	
K37	4	Hex. hd. screw 010 123 0	
K38	1	Oil flinger 010 771 9	
K39	1	Oil Seal 010 617 8	
K40	4	Hex. head screw 010 105 2	
K41	1	Bearing cap 100 529 4	
K42	1	Input shaft	
K43	1	Feather Key 010 023 4	
K44	2	Ball bearing 010 523 6	
K45	1	Input housing 100 555 3	
K46	1	Feather Key	
K47	2	Nilos Ring 010 723 9	



WORM GEAR UNIT FOR ELECTRICALLY OPERATED DISCHARGE DOOR