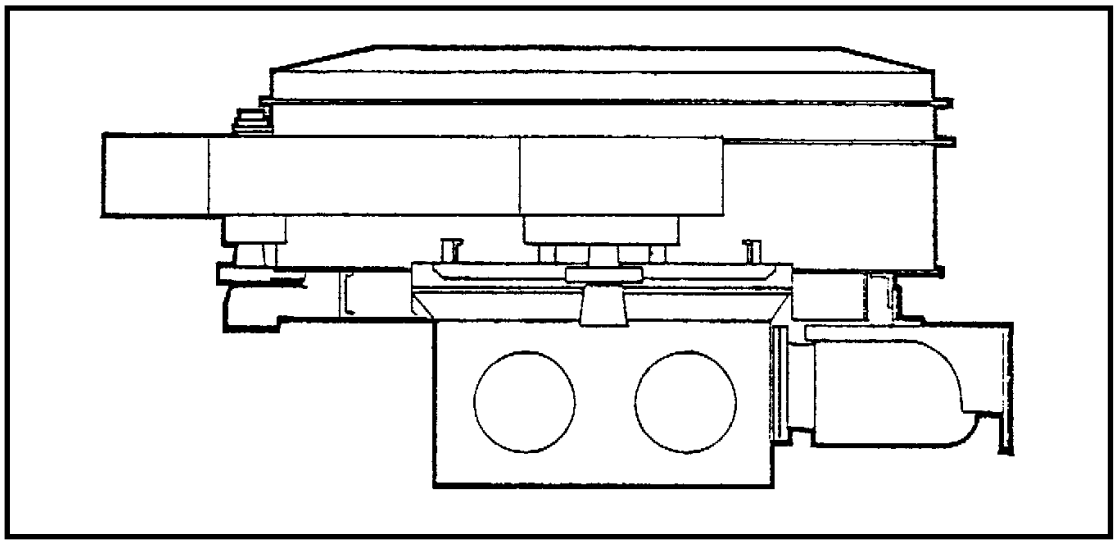
WINGET

OPERATION, MAINTENANCE & SPARE PARTS



1500P TURBOMIXER

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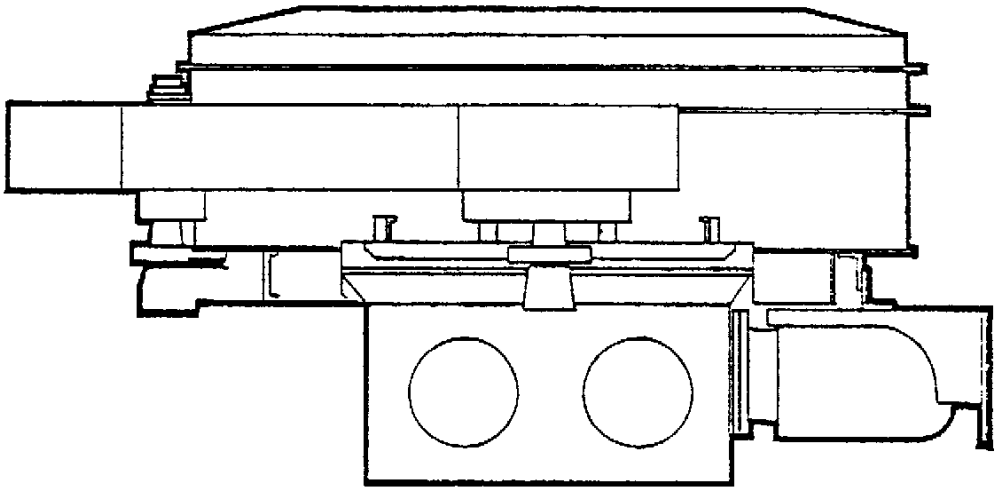
TURBOMIXER



1500P

This manual is a reprint of the Winget publication No S77 last printed during February 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 February 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.

Winget
LIMITED
CONSTRUCTION EQUIPMENT DIVISION

OPERATION MAINTENANCE & SPARE PARTS MANUAL

1500 P
Turbomixer

Publication No. S 77 Feb 73

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.

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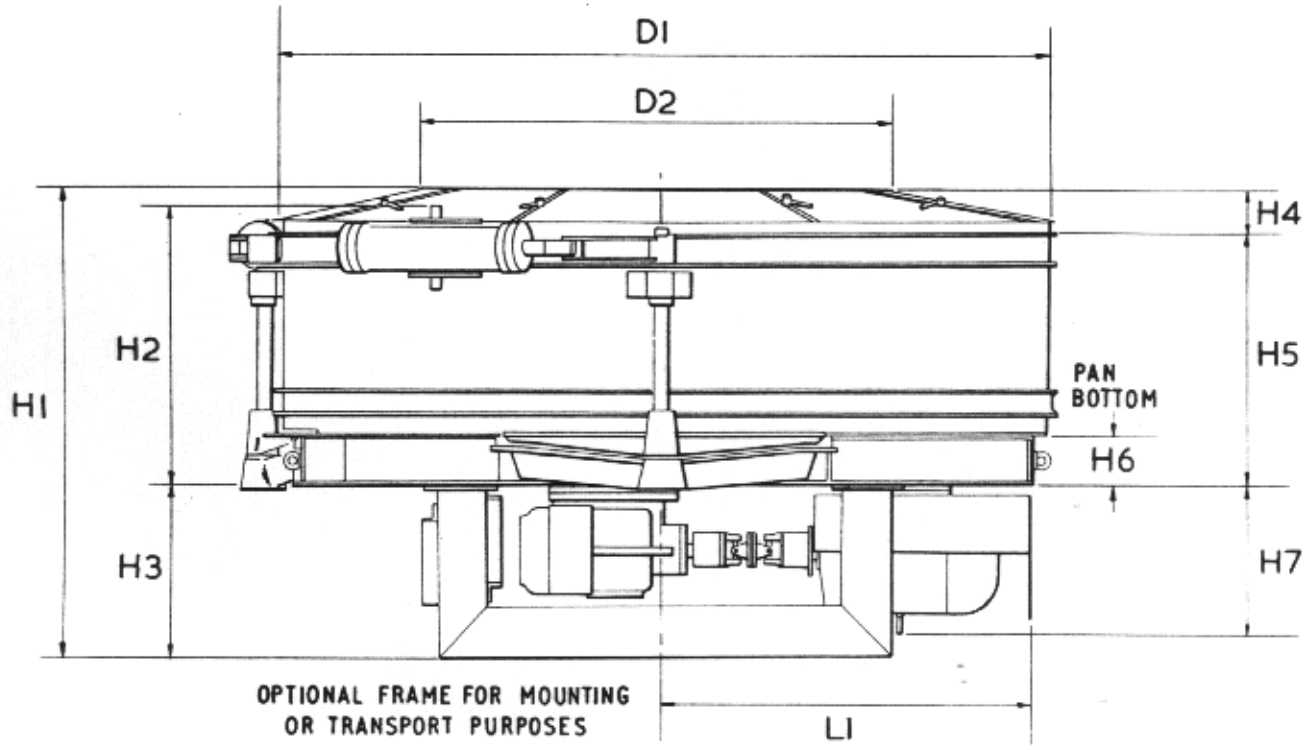
DESCRIPTION AND OPERATING INSTRUCTIONS

OVERHAUL AND MAINTENANCE INSTRUCTIONS

S77 FEB 73



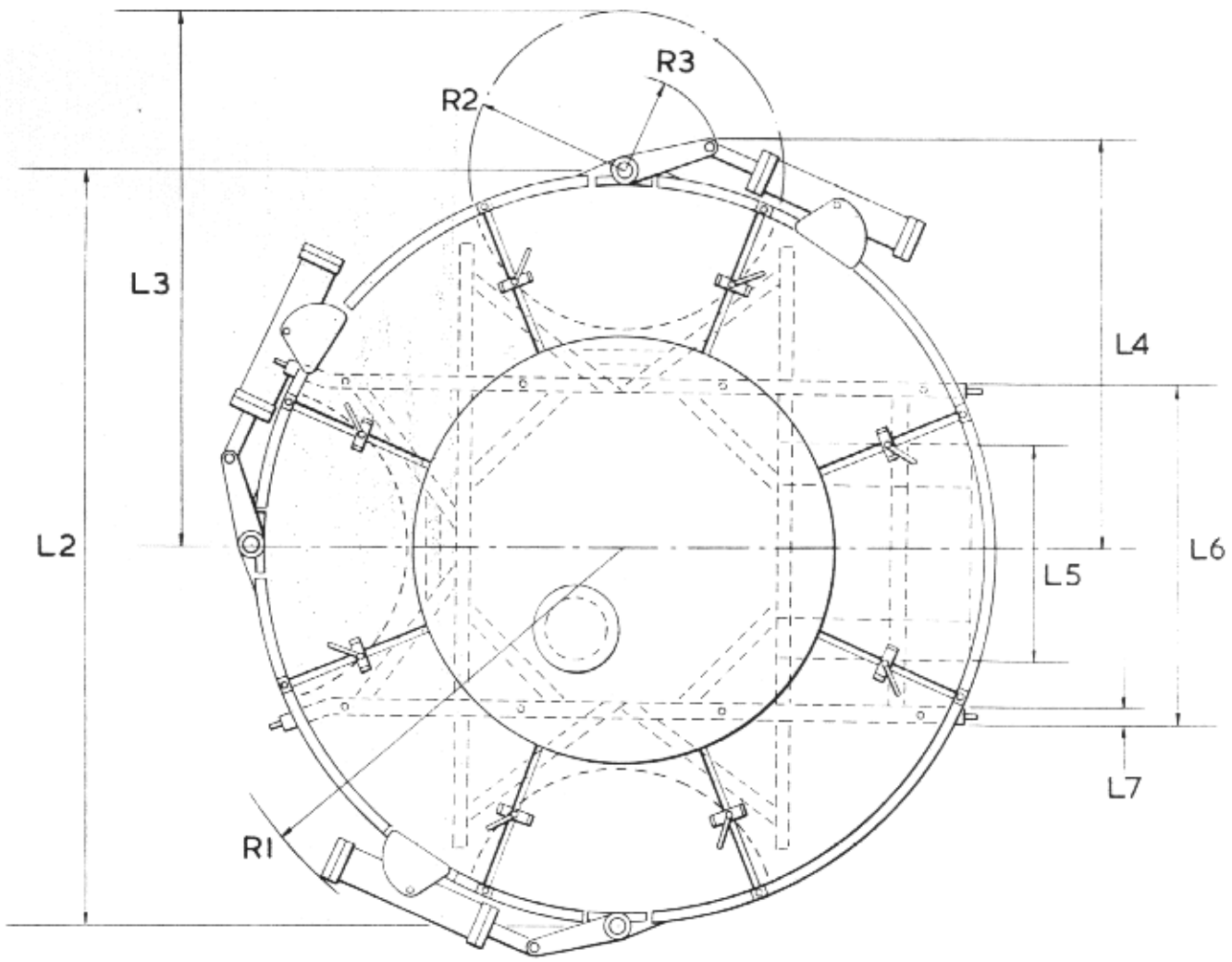


FIG I. SPECIFICATION

SPECIFICATION

BATCH FEEDING BASED ON 50 BATCHES PER HOUR

BATCH	INPUT OUTPUT	2210 LITRES 78 CU FT 1530 LITRES 54 CU FT
OUTPUT	CU METRES/HR. CU YDS/HR.	76.455 100
MOTOR	H.P. R.P.M.	75 1475
WEIGHT	Kilos Lbs.	7250 Kilos 16000 lbs.
NUMBER OF MIXING BLADES		12

OVERALL DIMENSIONS

LENGTH	MM.	INS.
D1	3251	128
D2	1930	76
H1	1892	74½
H2	1315	51¾
H3	711	28
H4	127	5
H5	1054	41½
H6	203	8
H7	616	24¼
L1	1556	61¼
L2	3429	135
L3	2419	95¼
L4	1864	73⅜
L5	914	36
L6	1553	61⅛
L7	76	3
R1	2044	80½
R2	705	27¾
R3	445	17½

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 an 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 11 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 cycle to a minimum where possible, the cement, water and aggregate be 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 fortyfive 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.

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. 25 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. 114 litres of oil of recommended grade as listed: (Approx. 25 Imp. Gallons.)

SHELL	-	MACOMA 72
ESSSO	-	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 34½ pints 19.50 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 removeable 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.

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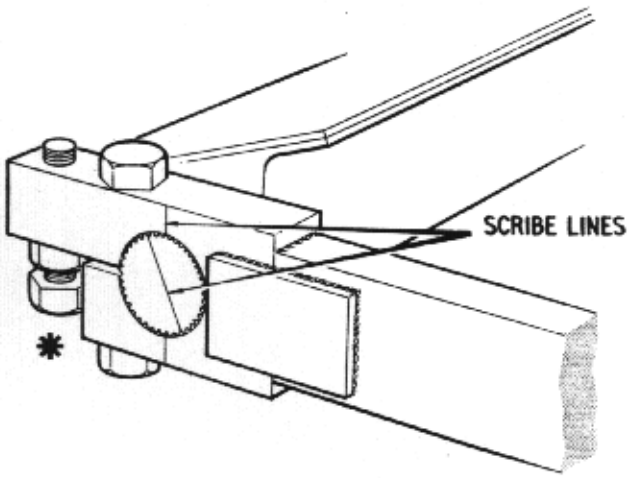
STAGE 1

LINE UP BASE OF 'FLEXITOR' PARALLEL TO TOP 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 MOUNTED BLOCK.

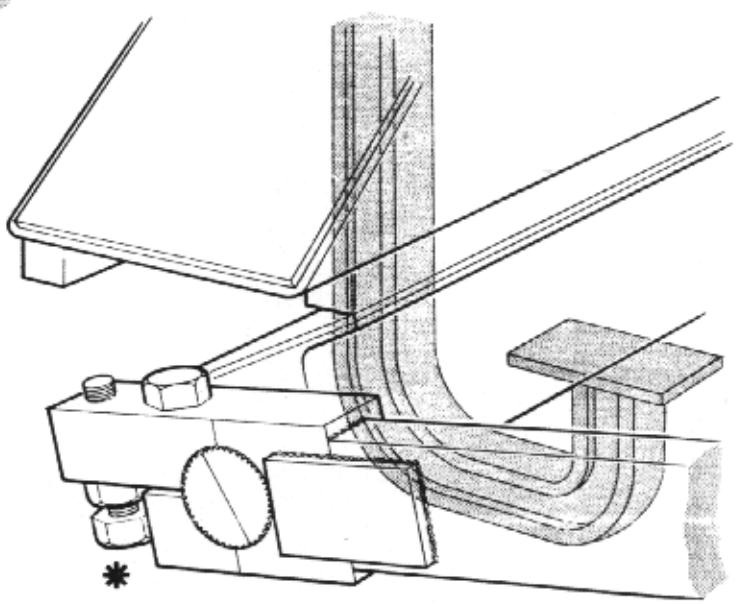
SECURE BLOCK TO SHAFT IN THAT POSITION.

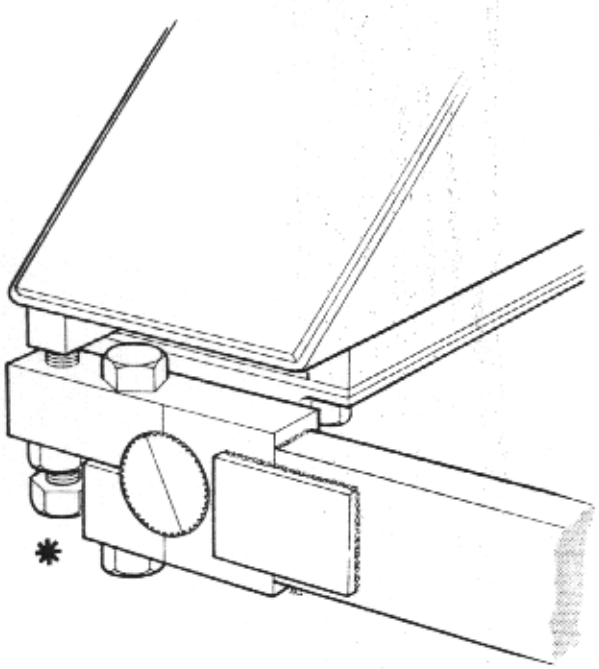


STAGE 2

OFFER UPPER EDGE OF 'FLEXITOR' BASE TO UNDERSIDE OF ROTOR ARM.

POSITION CLAMP AROUND FLEXITOR AND ROTOR ARM.





STAGE 3

SCREW UP CLAMP UNTIL 'FLEXITOR' IS POSITIONED FLUSH TO ROTOR ARM AND SECURE WITH SETSCREWS.

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 SECURE WITH NUT.

NOTE:

* SCREW MUST ONLY BE USED AS A STOP AND NOT FOR HEIGHT ADJUSTMENT.

FIG2 PRE-LOADING OF FLEXITORS

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 blade and the bottom or side of 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"

1) Line up flexitor base parallel to top edge of mounting block on mixing blade arm. Scribe a straight line across block and serrated shaft.

Assemble mixing blade arm to flexitor with shaft scribe line offset 2-3 serrations anti-clockwise as viewed on this end, secure mixing blade arm to shaft in this position.

2) With mixing blade fitted in its lowest position on blade arm(i.e. such that it can be adjusted for wear,)and resting on top of pan bottom wear plates, offer upper edge of flexitor base to underside of rotor arm. As shown in fig.1.

3) Position clamp around flexitor and rotor arm. Screw up on clamp until flexitor is positioned flush to rotor arm and secure with setscrews. Adjust 5/8 setscrew in mixing blade arm until it bears on under side of rotor arm and secure with nut.

Finally adjust mixing blade to give 1.6 mm (1/16") clearance between itself and pan bottom wear plates,

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.

ROTOR, GEARBOX AND MOTOR REPLACEMENT:

The notes given in this section are intended for general guidance only and may differ in detail over the five different models:

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 reconnections.

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. For 1500P only, bring hole in gearwheel in line with inspection cover by rotating motor shaft by hand, and fit a lifting eye bolt into the end of the worm -box 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 (1500P) 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 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 AND B.P. LTD.
NORPOL 35	ESSO PETROLEUM CO.LTD.
GALTEX SPINDLE OIL A.	REGENT OIL CO.LTD.
MOBILE VELOCITE NO.6	MOBIL OIL CO.LTD.

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 end 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 leading connection 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.

LUBRICATING AND 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 AND 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. Refil with Shell Livona 3.

MONTHLY or 800 hours

WORM GEARBOX	* Top bearing grease nipple using grease gun - 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.

* 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, 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 the 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 15 and 16.

SPARE PARTS ILLUSTRATIONS.

GROUP A	ROTOR PADDLE ARMS & BLADES ROTOR PADDLE ARMS & BLADES WITH SHEAR PINS
GROUP B	GEARBOX UP TO MACHINE NO. 63 GEARBOX FROM MACHINE NO. 64 GEARBOX OIL LEVEL ASSEMBLY
GROUP C	DRIVE ASSEMBLY
GROUP D	
GROUP E	DISCHARGE DOOR OPERATING RAM
GROUP F	AIR OPERATED DISCHARGE DOOR
GROUP G	PAN AND WEARING PLATES PAN BOTTOM WEARING PLATES
GROUP H	WORMBOX

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.

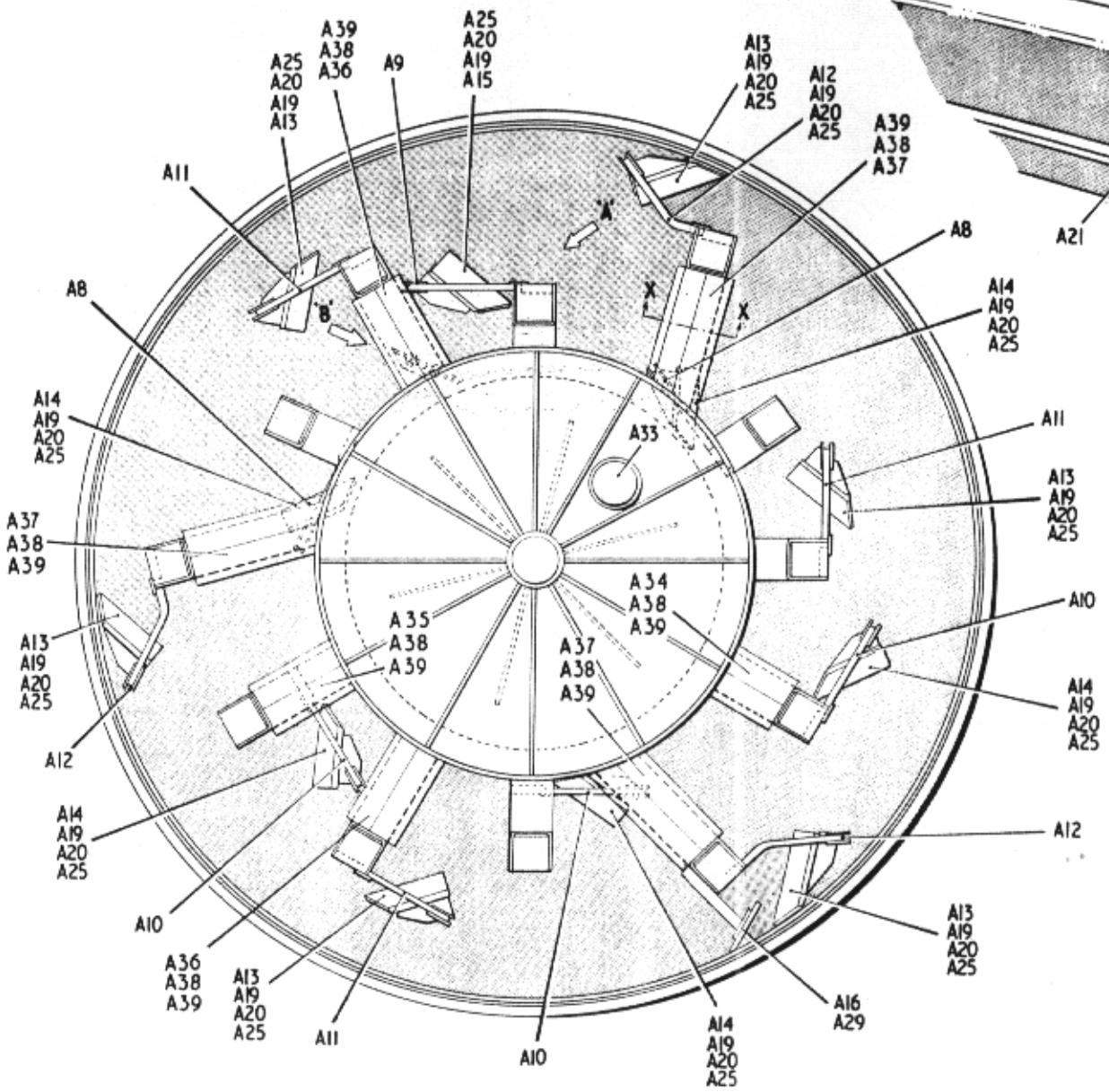
DESCRIPTION AND PART NUMBER.

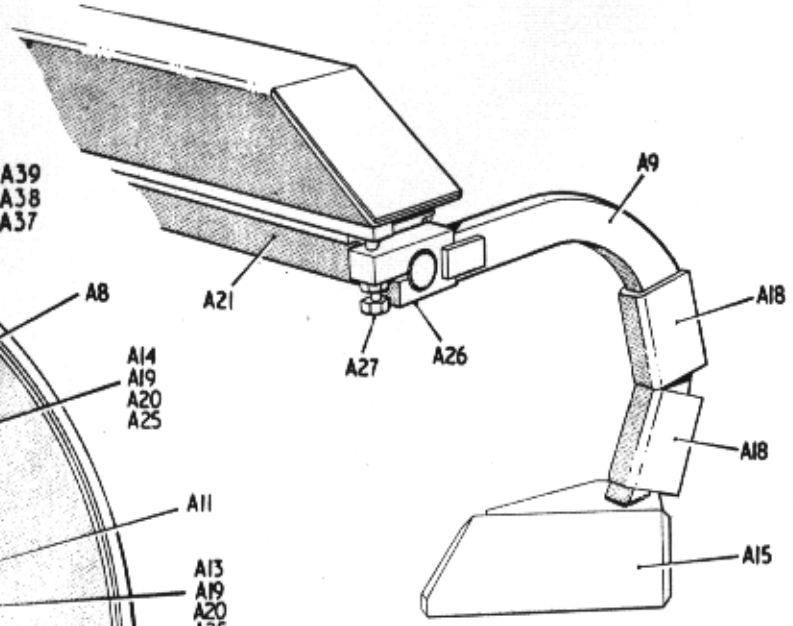
- exactly as listed in this publication.

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
A 1	1	Rotor	514-3021
A 2	1	Rotor Hub	514-3022
A 3	1	Rotor Retainer Plate	514-3025
A 4	3	Shear Pins	514-3024
A 5	3	Shear Pin Washers	514-3059
A 6	1	Inner Scraper Blade Support	514-2961
A 7	3	Access Cover Complete with Hex Hd. Setscrews & Sp. Washer	514-2963
A 8	2	Paddle Arms	514-2715
A 9	1	Paddle Arms	514-2716
A 10	3	Paddle Arms	514-2717
A 11	3	Paddle Arms	514-2718
A 12	3	Paddle Arms	514-2719
A 13	6	LH. Paddle Blade	514-2954
A 14	5	RH. Paddle Blade	514-2953
A 15	1	Intermediate Paddle Blade 45°	514-2955
A 16	1	Outer Scraper Blade	514-2714
A 17	1	Inner Scraper Blade	514-2962
A 18	24	Mixing Arm Wearing Plate	514-1331
A 19	24	Bolts for Paddle Blade	514-1624
A 20	24	Paddle Blade Washers	514-1625
A 21	12	Flexitor Unit. Complete with Setscrews and SP. Washers.	220-705
A 22	6	Headless press fit bush	120-410
A 23	1	90° Grease Nipple	333 ND
A 24	3	Hex Binx Nut	330-3616
A 25	24	Hex Binx Nut	330-1108
A 26	12	Hex Hd. H.T. Bolts with nuts and spring washers.	460-551026
A 27	12	Hex Hd. Setscrews with nuts.	418-351020
A 28	6	Hex Hd. Bolts with spring washers.	460-551014
A 29	4	Hex Hd. Bolt with binx nuts.	460-550814
A 30	3	Hex Hd. Bolt with nut and SP. Washer.	460-550812
A 31	2	Hex Hd. Bolt with nuts and SP. Plain Washers.	418-350404

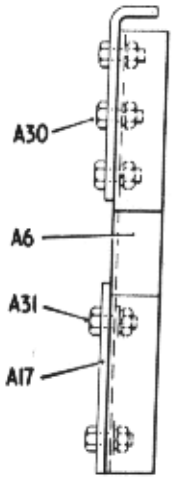
REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
A 32	1	Rotor	514-2960
A 33	1	Access Cover	514-2963
A 34	1	Rotor Arm Cover (Short)	514-3253
A 35	1	Rotor Arm Cover (Med)	514-3254
A 36	2	Rotor Arm Cover (Long)	514-3255
A 37	3	Rotor Arm Cover (Angled)	514-3256
A 38	7	Rotor Arm Cover Strap	514-3257
A 39	14	Hex. Hd. bolt with nut and spring washer.	460-50608

GROUP A

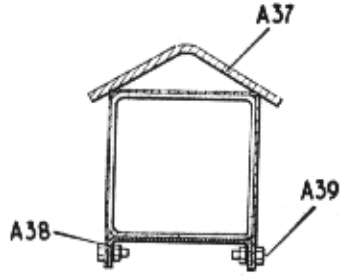




VIEW ON ARROW 'A'



VIEW ON ARROW 'B'



SECTION THROUGH 'X'-'X'

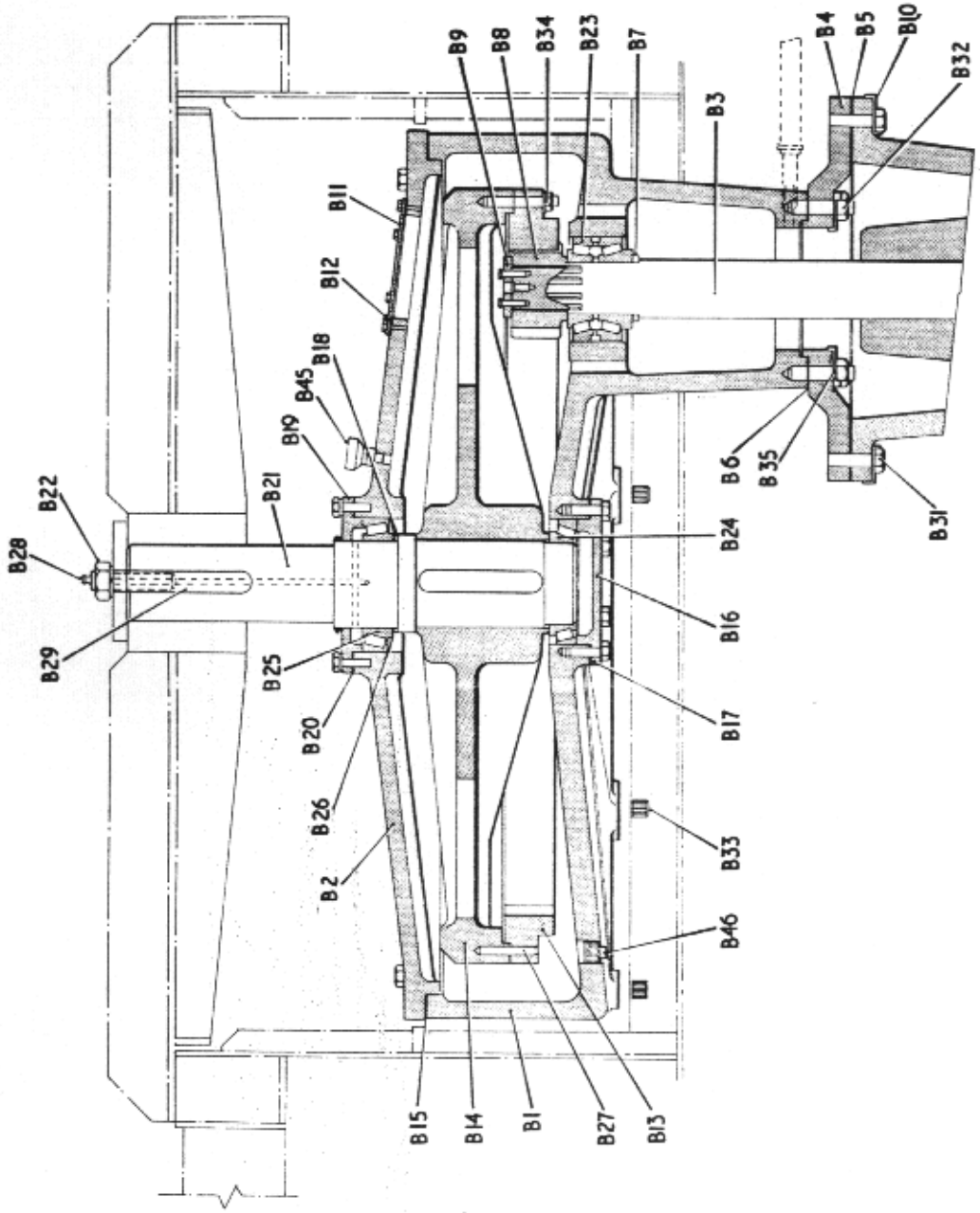
S77JAN72

GROUP A

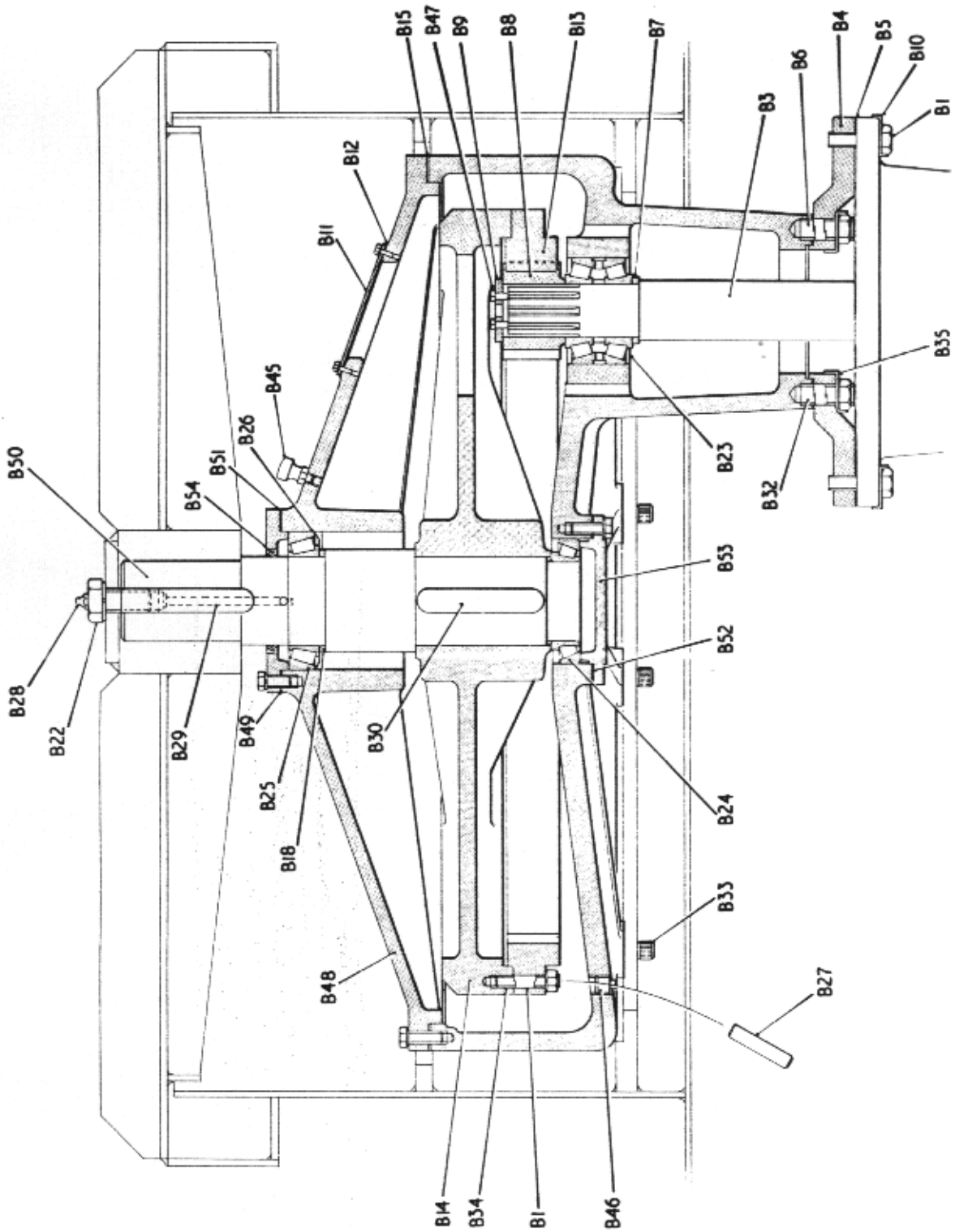
ROTOR PADDLE ARMS & BLADES WITH SHEAR PINS

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
B1	1	Gearcase - Lower Half	514-2972
B2	1	Gearcase - Upper half complete with Hex. Hd. Setscrews and Sp. Washers	514-2973
B3	1	Gear Unit	514-2974
B4	1	False Flange	514-2975
B5	1	Gear Box Gasket	514-2976
B6	1	False Flange Gasket	514-2977
B7	1	Thrust Washer for Gear Shaft	514-2978
B8	1	Gearbox Pinion 20 Teeth	514-2979
B9	1	Locking Plate complete with Hex. Hd. Setscrews and Spring Washers	514-2980
B10	6	Tab Washer	514-2981
B11	1	Access cover complete with hex. hd. setscrews and spring washers	514-2982
B12	1	Access Cover Gasket	514-2983
B13	1	Internal Gear Ring 151 Teeth	514-2984
B14	1	Gear Ring Hub	514-2985
B15	1	Gearcase Gasket	514-2986
B16	1	Bearing Retainer - Lower complete with Hex. Hd Setscrews and Spring Washers	514-2987
B17	1 set	Rotor Drive Shims	514-2988
B18	1	Spacer	514-2989
B19	1	Bearing Retainer - Upper complete with Hex. Hd. Setscrews and Sp. Washers	514-2990
B20	1	Bearing Retainer - Gasket	514-2991
B21	1	Rotor Drive Shaft	514-2992
B22	1	Rotor Setscrew complete with spring washers	514-2993
B23	1	Bearing	119-103000
B24	1	Bearing	119-104000
B25	1	Bearing	119-105000
B26	1	Ring	391-204000
B27	2	Silver Steel Dowel	532-122400
B28	1	Straight Grease Nipple	333-104200

GROUP B

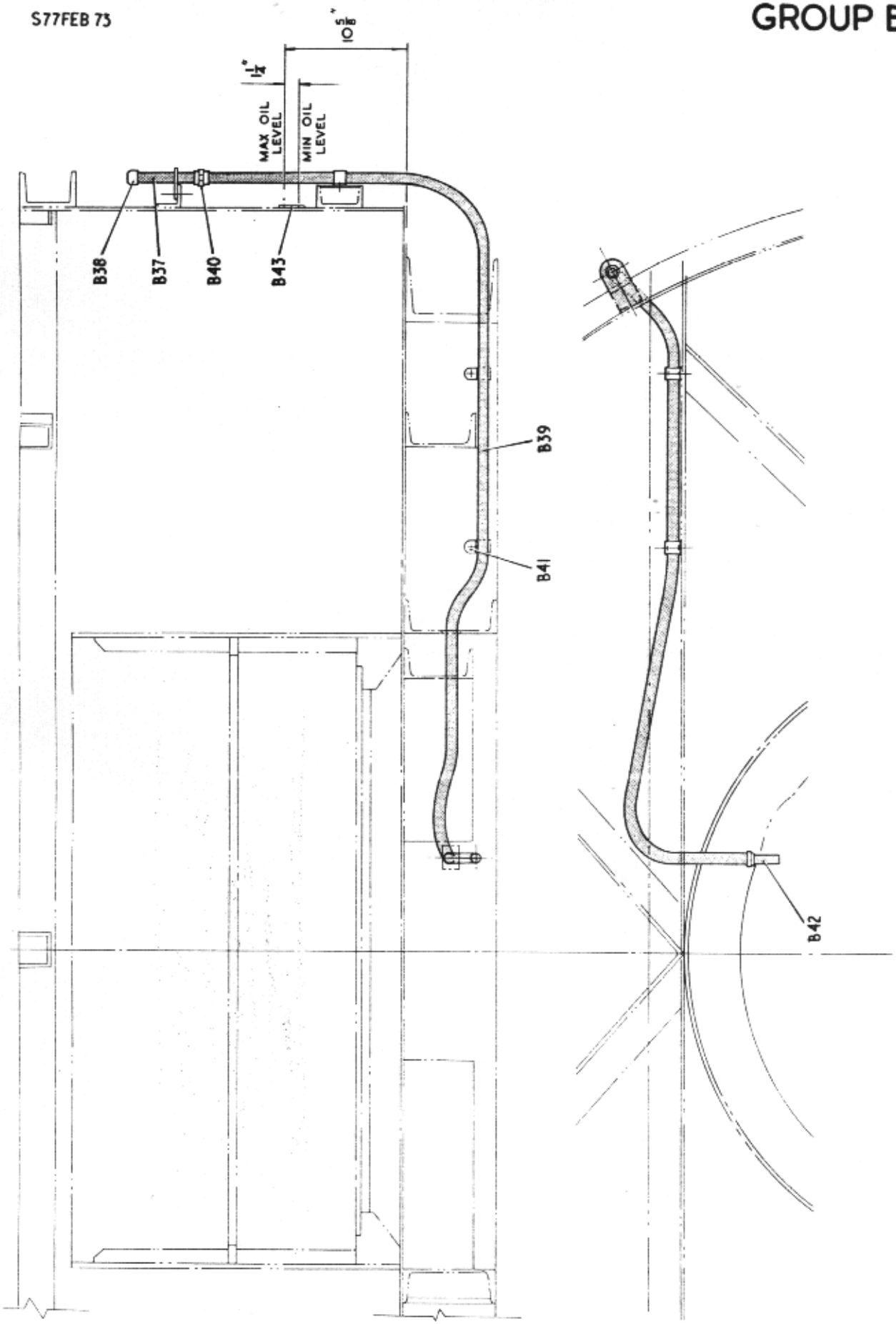


UP TO MACHINE N°63



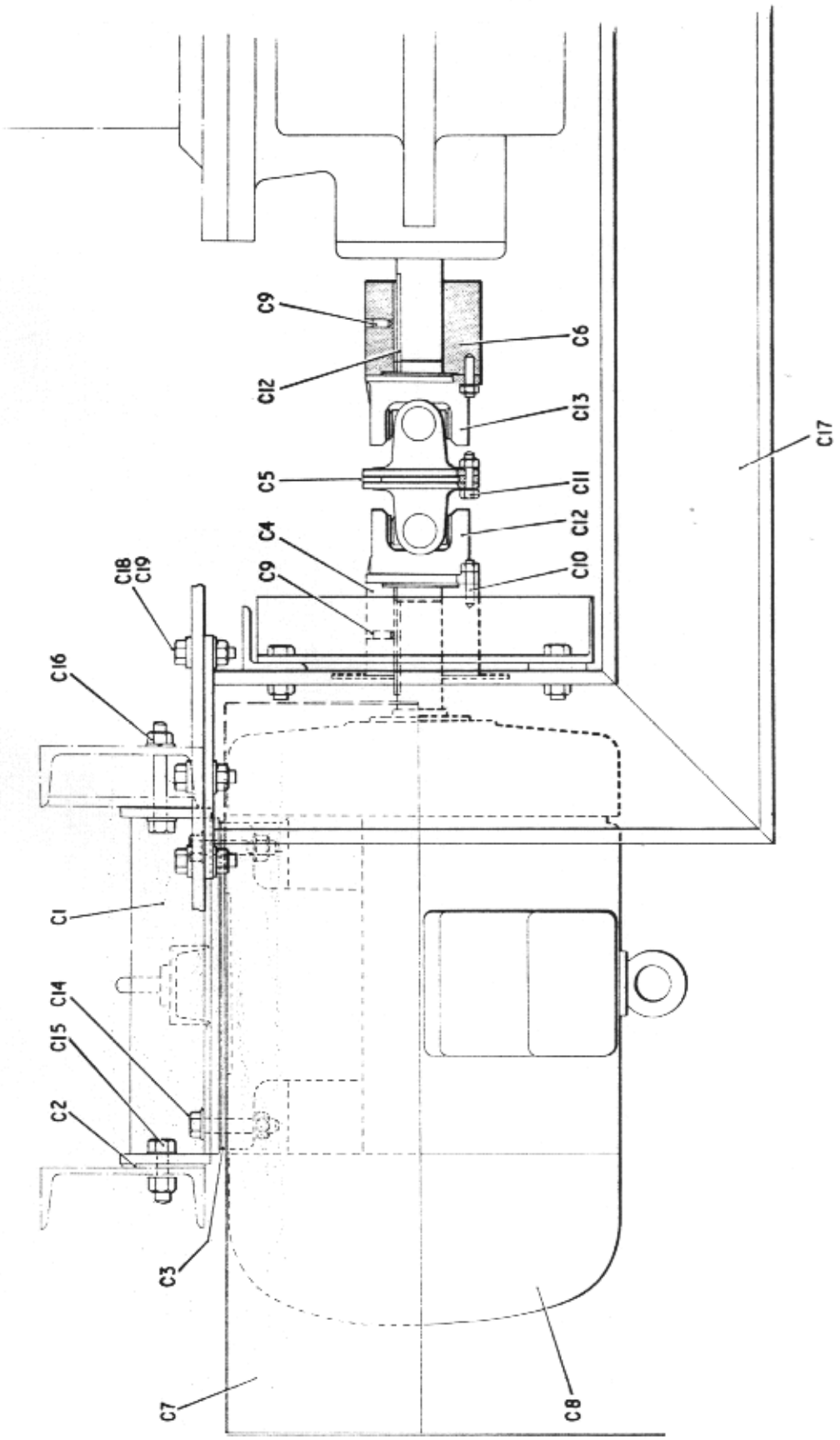
FROM MACHINE N°64

GROUP B



GEARBOX OIL LEVEL ASSEMBLY

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
C1	1	Motor Mounting	514-2964
C2	1	Motor Mounting Packer	514-2965
C3	1 Set	Shims for motor	514-2969
C4	1	Half coupling for electric motor	514-2966
C5	1	Spacer	514-2968
C6	1	Half coupling for worm unit	514-2967
C7	1	Water cover for electric motor	514-3066
C8	1	Electric Motor	-
C9	3	Cone point Skt. Setscrew	403-560616
C10	8	Stud for coupling complete with Binx nut and plain washers	514-3232
C11	4	Hex. Hd. Bolts (H.T.) with Binx Nuts and plain washers	460-350820
C12	1	Parallel Key with square ends	304-660300
C13	2	Hardy Spicer special joints	297-205000
C14	4	Hex Hd. Bolt (H.T.) with Binx Nuts and 2 plain washers	460-351230
C15	4	Hex. Hd. Bolt (H.T.) with nut spring and plain washers	460-351218
C16	4	Hex. Hd. Bolt (H.T.) with nut and spring and plain washers	460-351238
C17	1	Mixer Support	514-3348
C18	27	Hex. Hd Bolts (H.T.) with Binx Nuts and Plain Washers.	460-551218
C19	20	Taper Washers	465-212000

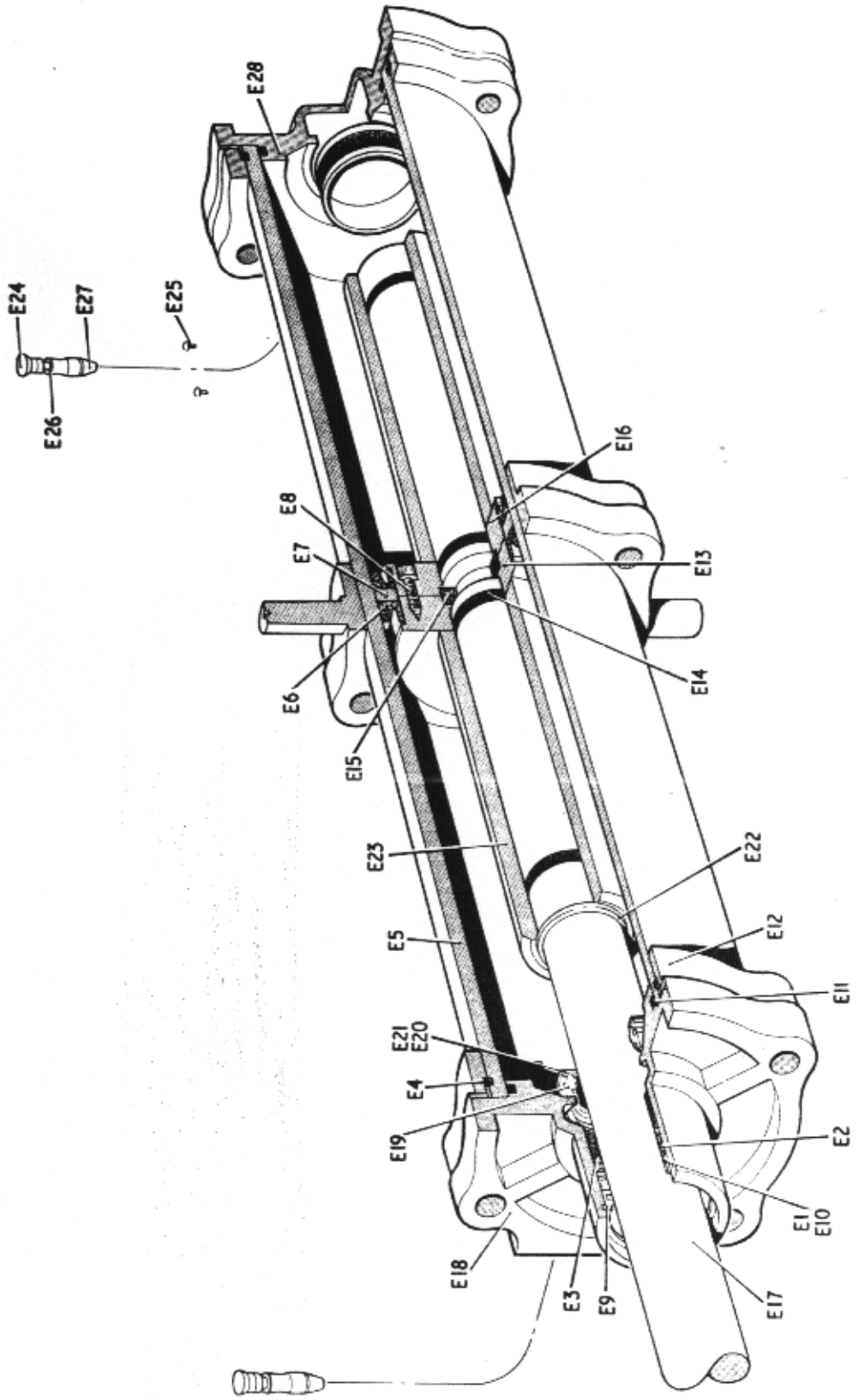

C9
C6
C12
C13
C17
C5
C11
C4
C12
C10
C9
C18
C19
C16
C1
C14
C15
C2
C3
C7
C8

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
E 1	1	Cage (009888)	
E 2	1	Neck Packing (015047) *	
E 3	1	Bearing Bush (009901)	
E 4	2	Circlip (009912) *	
E 5	1	Tube (009873)	
E 6	2	Distributor Seal (SP.86) *	
E 7	1	Follower (009911)	
E 8	4	Screw (SP 92)	
E 9	1	Retaining Ring (SP 670)	
E 10	1	Wiper Ring (SP 88) *	
E 11	2	'O' Ring (SP 83) *	
E 12	2	Ring (MOO 9891)	
E 13	1	Head (Tapped) (M501405)	
E 14	4	'O' Ring (SP.84) *	
E 15	1	Ring Split (009900)	
E 16	1	Head (C' Bored) (M501406)	
E 17	1	Rod (Cyl. Time) (L013705)	
E 18	1	End (L009877)	
E 19	2	Cushion Seal (009883) *	
E 20	2	Retaining Ring (SP 671)	
E 21	2	Washers (009884)	
E 22	2	Circlip (SP 423) *	
E 23	2	Sleeve (M015876/4)	
E 24	2	Escutcheon (009887)	
E 25	4	Rivet (SP.35)	
E 26	2	'O' Ring (SP.85) *	
E 27	2	Screw (009886)	
E 28	1	End (L009875)	

NOTE: number off for above is for one air cylinder only.

SEAL KIT 137125007 INCLUDES * ITEMS

RAM 137125006



DISCHARGE DOOR OPERATING RAM

AIR OPERATED, DISCHARGE DOOR — GROUP "F"

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
F1	1	Discharge Door Outlet	514-3027 (514422400)
F2	1	Discharge Door	514-3028 (514349300)
F3	1	Door Shaft	514-3446 (514 349200)
F4	1	Door shaft bearing	514-3030
F5	1	Air operated door lever	514-3031
F6	1	Pivot Block	514-3032
F7	1	Ram Pivot Pin complete with split pins	514-3033
F8	1	Door sealing strip	514-3064
F9	1	Adjusting sleeve	514-3035
F10	4	Sealing Strip Clamp	514-3036 (514406300)
F11	1 LH 1 RH	Packer for Pivot Plate	514-3037
F12	1 LH 1 RH	Upper and Lower Pivot Plate	514-3038
F13	1	Door shaft bearing packer	514-3039
F14	2	Standard Collars	145-502000
F15	1	Gib. Hd. Key	300-310400
F16	2	Plain Wahsers	463-416000
F17	2	Straight grease nipples	333-104000
F18	2	35° angle grease nipples	333-752020
F19	1	Single thrust ball bearing	111-212000 SKF 5111 2
F20	2	Cone Pt. Socket Set Screws	403-550808
F21	1	Locknut	331-222000
F22	2	Hex Hd. Bolts, nuts, spring, plain and tapered washers	460-551270
F23	8	Hex. Hd. Bolts, Nuts, Spring and Tapered Washers	460-551020
F24	3	Csk. Hd. Screws with nuts and SP. Washers	400-250816
F25	1	Air Cylinder	137-125600
F26	1	Cone Pt. Socket Setscrew	403-560812
F27	4	Special setscrews complete with locking wire and spring washers	514-3345/4
F28	1	Gib HD Key	300-310480

GROUP F

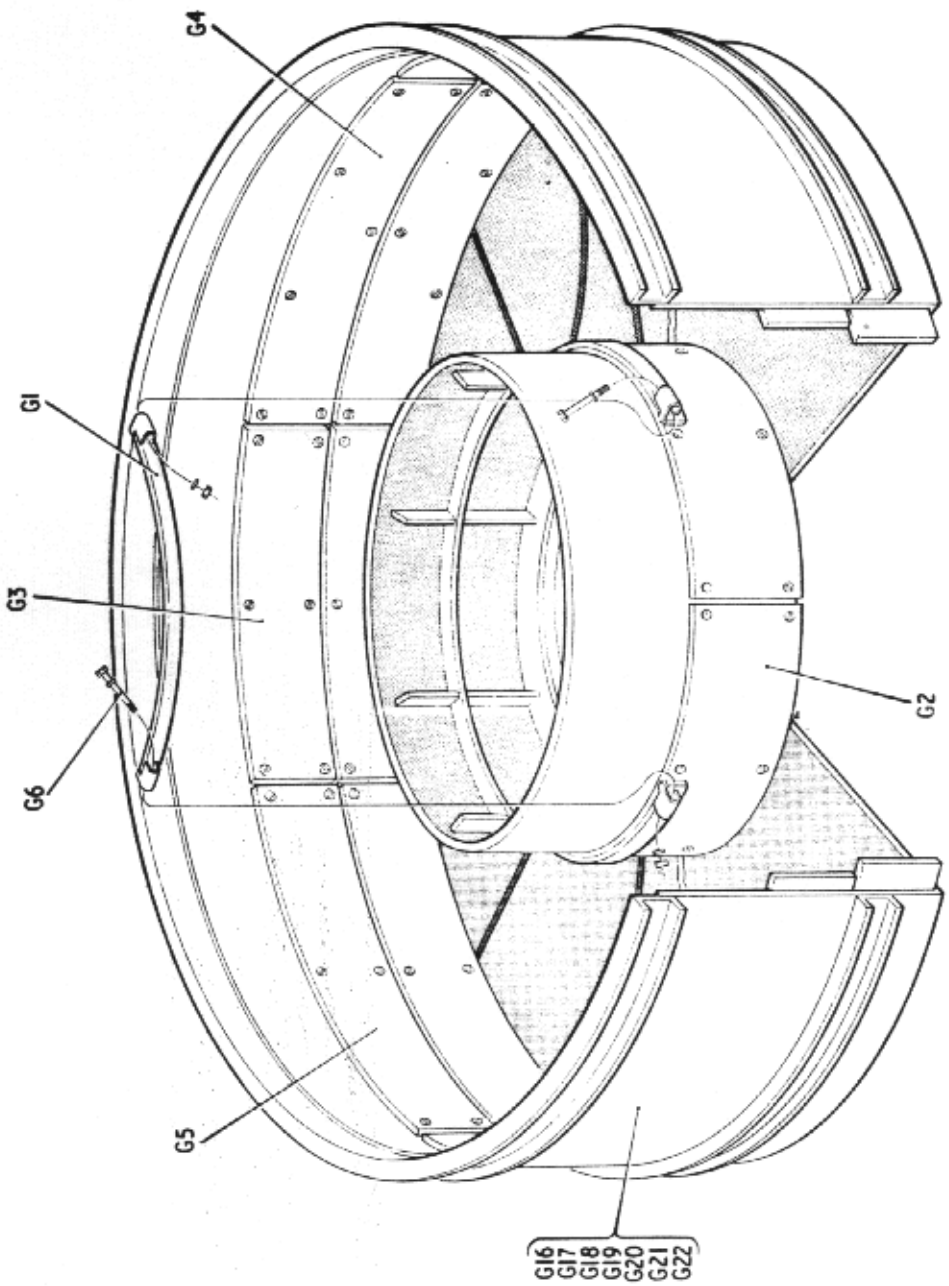
AIR OPERATED DISCHARGE DOOR

MIXING PAN & WEARING PLATES. GROUP "G"

REF NO	NO PER MACHINE	DESCRIPTION	PART NO.
G 1	4	Inner Wearing Plate Strap (1, 2 & 3 doors)	514-3049
G 2	4	Inner Wearing Plates complete with CSK hd. screws, nuts and spring washers (1 , 2 and 3 doors)	514-3050
G 3	8	Short outer wearing plate complete with CSK and screws, nuts and sp. washers. (1,2 and 3 doors)	514-3051
G 4	2	Outer Wearing Plate over door complete with CSK Hd. Screws with nuts and Sp. washers. (1 Door)	514-3052
	4	(2 Doors)	
	6	(3 Doors)	
G 5	6	Long outer wearing plate complete with CSK Hd. screws nuts and Sp. washers (1 Door)	514-3053
	4	(2 ,oors)	
	2	(3 Doors)	
G 6	4	Hex Hd. Bolts with Binx Nuts and 2 plain washers (1, 2 and 3 doors)	460-551046
G 7	1 LH 1 RH	Door Wearing plate (1 door)	514-3054
	2 LH 2 RH	Door Wearing plate (2 doors)	
	3 LH 3 RH	Door Wearing plate (3 doors)	
G 8	1 LH 1 RH	Bottom wear plate nearest door opening (1 door)	514-3055
	2 LH 2 RH	Bottom wear plate nearest door opening (2 doors)	
	3 LH 3 RH	Bottom wear plate nearest door opening (3 doors)	
G 9	8	Bottom wearing plate (Inner) Diagram 1.	
	7	Diagram 2.	
	8	Diagram 3.	
	5	Diagram 4.	
	5	Diagram 5.	514-3056
	6	Diagram 6.	
	3	Diagram 7.	

REF NOs	NO PER MACHINE	DESCRIPTION	PART NO.
G10	8	Bottom wear plate (outer) Diagram 1.	514-3057
	7	Diagram 2.	
	8	Diagram 3.	
	5	Diagram 4.	
	5	Diagram 5.	
	6	Diagram 6.	
	3	Diagram 7.	
G11	2	Bottom Wear Plate - 18° segment Diagrams (2,4,5 & 7)	514-3058
G12	52	Csk Hd. Screw with nut and spring washers. Diagram 1.	400-250810
	50	Diagram 2.	
	52	Diagram 3.	
	42	Diagram 4.	
	42	Diagram 5.	
	44	Diagram 6.	
	34	Diagram 7.	
G13	32	CSK Hd. Screw with Nut and Sp. Washers Diagram 1.	400-350140
	34	Diagram 2.	
	32	Diagram 3.	
	46	Diagram 4.	
	46	Diagram 5.	
	44	Diagram 6.	
	58	Diagram 7.	
G14	6	CSK Hd Screw with nut and Sp. Washers Diagram 1.	402-508160
	6	Diagram 2.	
	6	Diagram 3.	
	12	Diagram 4.	
	12	Diagram 5.	
	12	Diagram 6.	
	18	Diagram 7.	
G15	18	Taper Washer Diagram 1	665-208000
	20	Diagram 2.	
	18	Diagram 3.	
	18	Diagram 4.	
	18	Diagram 5.	
	16	Diagram 6.	
	16	Diagram 7.	
G16	1	Mixing pan single door opposite drive	514-3419

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
G17	1	Mixing pan single door to left of drive	514-3418
G18	1	Mixing pan single door to right of drive	514-3420
G19	1	Mixing pan 2 doors one to right and one to left of drive	514-3422
G20	1	Mixing Pan 2 doors one opposite and one to left of drive	514-3421
G21	1	Mixing pan 2 doors one opposite and one right of drive	514-3423
G22	1	Mixing pan 3 doors one opposite, one to left and one to right of drive	514-3424


G4
G1
G3
G6
G2
G5
G16
G17
G18
G19
G20
G21
G22

○ G12 ● G13 ◔ G14

NOTE: Screw Arrangement for all Doors Identical to Diagram 1

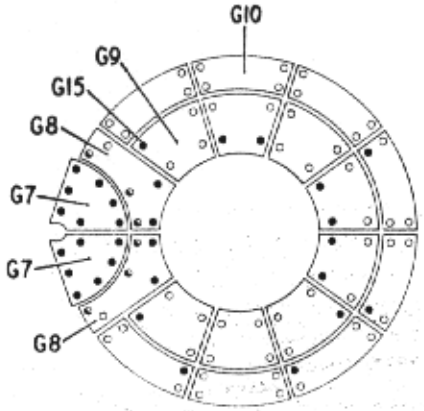
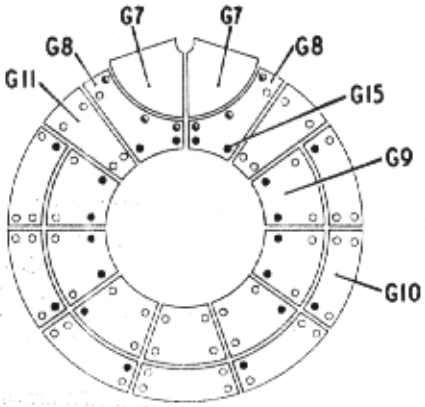
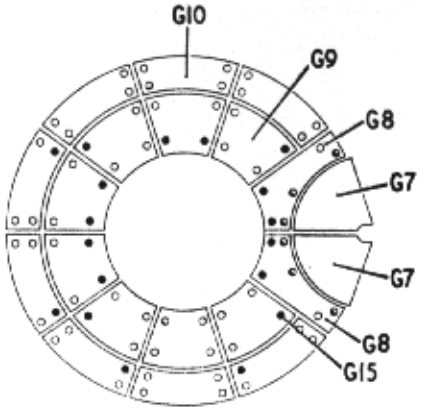


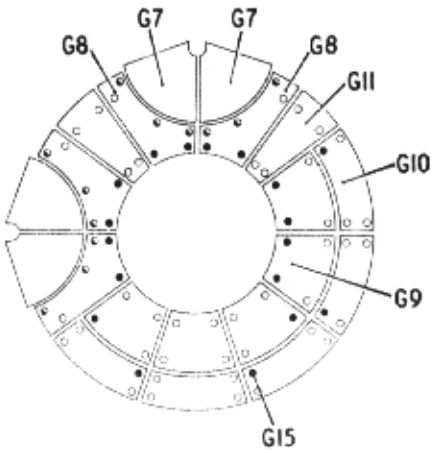
Diagram (1) One Door Left of Drive



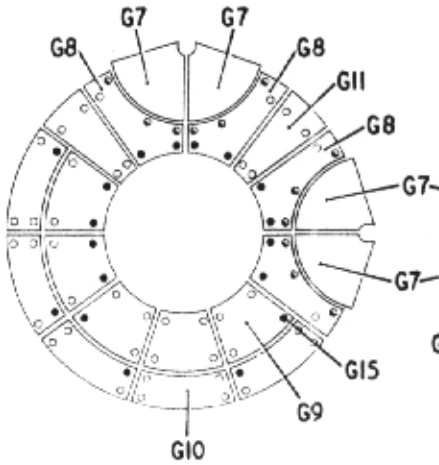
(2) One Door Opposite Drive



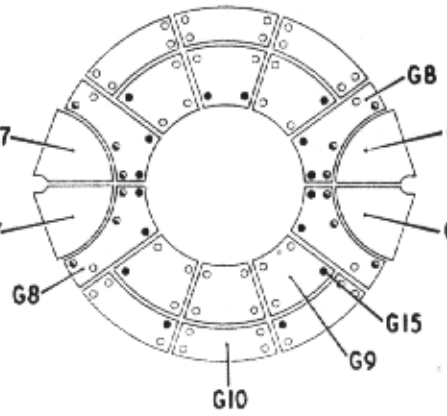
(3) One Door Right of Drive



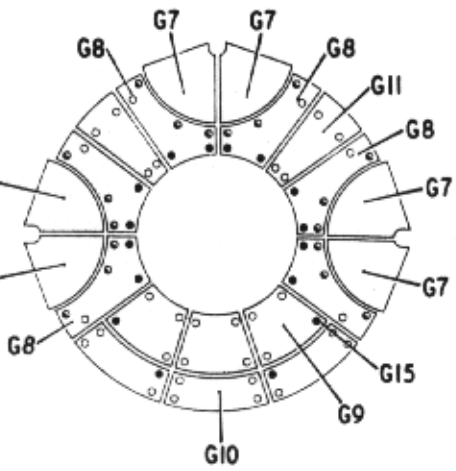
(4) Two Doors One Left & One Opposite Drive



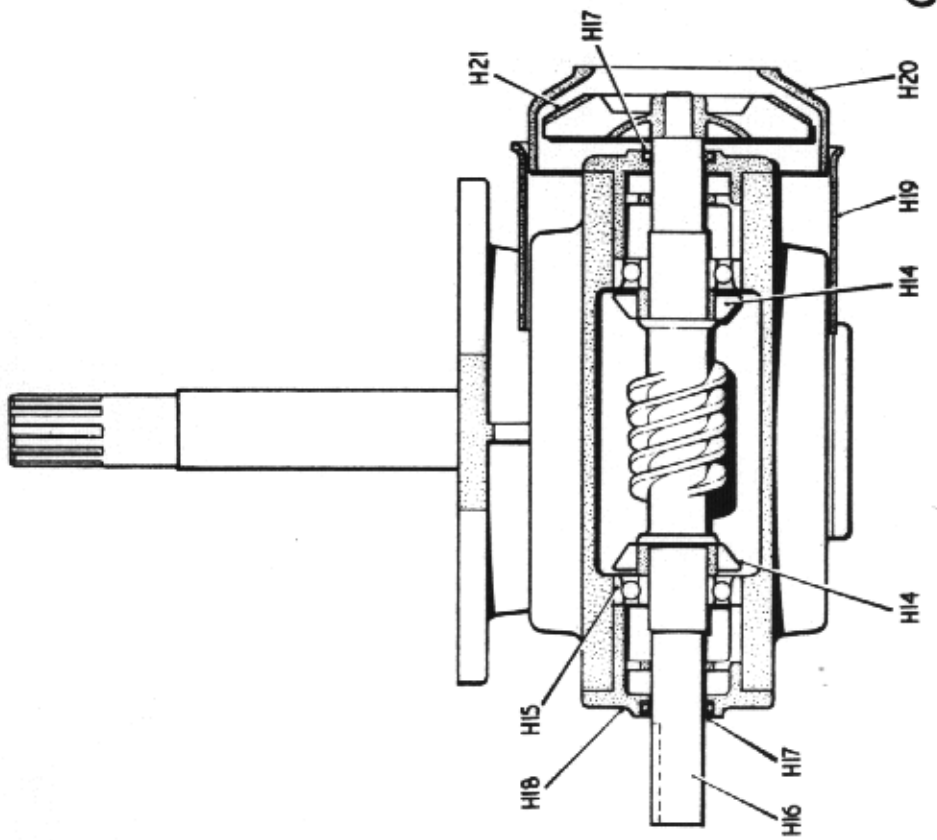
(5) Two Doors One Right & One Opposite Drive

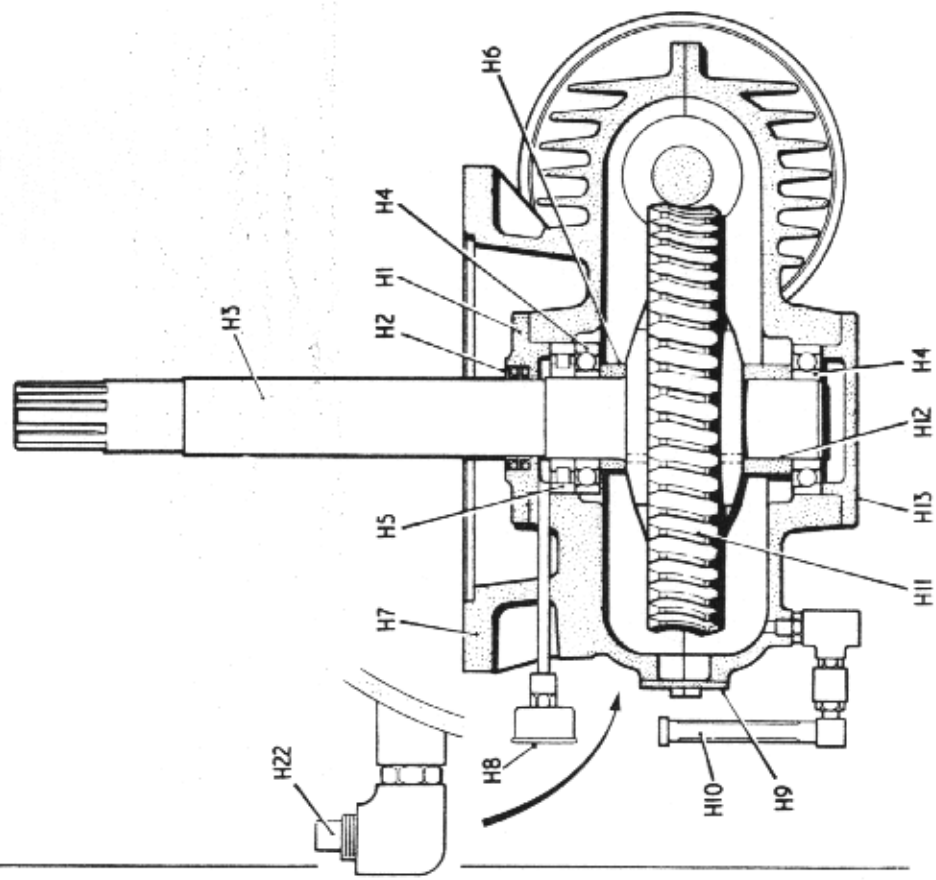


(6) Two Doors One Right & One Left of Drive



(7) Three Doors One Left, One Right & One Opposite Drive


H17
H21
H20
B44
H19
H14
H14
H15
H17
H18
H16


H6
H4
H1
H2
H3
H4
H12
H13
H5
H11
H7
H8
H10
H9
H22

REF. NO.	NO. PER MACHINE.	DESCRIPTION	PART NO.
H 1	1	Slow speed shaft open cover B36941	
H 2	2	Slow speed shaft oil seal 450312	
H 3	1	Slow speed shaft D36931	
H 4	2	S.S.S. Ball Bearing LS-20-AL	
H 5	1	S.S.S. Roller Bearing RLS20	
H 6	1	S.S.S. Spacing washer narrow B5504	
H 7	1	Gear case F36937	
H 8	1	Stauffer lubricator	
H 9	1	Inspection Cover B2854	
H 10	1	Oil sight gauge.	
H 11	1	Worm wheel C31275	
H 12	1	S.S.S. Spacing washer wide B5503	
H 13	1	S.S.S. Blank Cover - B5500	
H 14	2	Oil Flinger B5502	
H 15	2	W.S. Ball Bearings MS-17-AC.	
H 16	1	Worm shaft B31276	
H 17	2	Worm shaft oil seal 30028	
H 18	2	Worm shaft open cover B17197.	
H 19	1	Deflector B6479	
H 20	1	Fan Cowl B6462	
H 21	1	Fan C5509	
H 22	1	Filler and breather.	

REF NO.	NO PER MACHINE	DESCRIPTION	PART NO.
J 1	1	4 Way Valve (Mid Position Locked)	450-499
J.2	2	Regulators	450-4127
J 3	2	Reducing Bush (Brass)	240-506401
J 4	7	Hose Connectors (Brass)	130-3086
J 5	1	Oil Fog Vitaliser Unit	451-504
J 6	1	Rubber Hose 20' 0" long	260-303
J 7	7	Clips	132-100