WINGET

OPERATION, MAINTENANCE & SPARE PARTS MANUAL

KOEHRING 112CT TILTING MIXER

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WINGET

TILTING MIXER

KOEHRING 112CT

MACHINE No 85 ONWARDS

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Description & Operation

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ILLUSTRATIONS.

DESCRIPTION

and

OPERATING INSTRUCTIONS.

GENERAL.

The 4 cu. yd. C.T. MIXER is usually mounted in a Central Batching and Mixing Plant. It has a high efficiency mixing action and a clean and speedy discharge.
The mixer is of the type usually known as the open inclined axis mixer, in which charging and discharging are accomplished through the same opening. The drum has an inclination of 15° for the charge and mixing position and is moved pneumatically to 50° for discharging the batch.
Mixing is accomplished by means of three axial blades revolving in a constant direction. Abrasion resisting steel liners are fitted around the inner surfaces of the drum and a wearing ring on the open end. (All are replaceable).
The drum is pivoted centrally on a spindle between two taper bearings, and has a gear ring secured on the back end, driven by a 40 h.p. geared head motor unit which is mounted horizontally on the underside of the yoke turning the drum at 11 r.p.m.

ERECTION PROCEDURE.

Before moving the mixer the yoke and mainframe must be lashed together with the air cylinders in the closed position.
There are four welded eyes positioned on the yoke allowing the mixer to be lifted safely on four points.
The mixer when positioned on its platform in the Central Batching and Mixing Plant, should be bolted securely.

PNEUMATIC CONTROLS FOR MIXER TILTING.

The mixer tilting arrangements comprise two entirely separate pneumatic circuits, a pilot air circuit with the control valves and a main circuit for the actual operation of the air rams which tilt and right the mixer. The pilot circuit actuates a shuttle valve which is the valve controlling the main air supply to the mixer tilting rams.
The shuttle valve, which is mounted in the mixer base frame, consists of a body containing five main ports and a shuttle, the movement of which opens and closes the various ports. To the right hand end of the shuttle is fitted a secondary

piston. The movement of the shuttle is effected by applying air through to the pilot ports "X" and "Z" in the body. It will be seen that by applying air at ports "X" or "Z" or both together, it is possible to obtain three positions of the shuttle, hard over to the left, hard over to the right and centrally disposed.

Pilot air Circuit :- From the diagrams it will be seen that the pilot circuit is supplied with air from the manifold in the control desk, the air being led through the hand-operated control valve "A" ports 4 and 2 and valve "B" ports 4 and 2 to the pilot port "Z" of the shuttle valve, and the similar valve "A" ports 5 and 3 and valve "B" ports 5 and 3 to the pilot port "X". The valve "A" is fitted in the control panel and the valve "B" on the mixer pedestal.

Main Air Circuit :- This is supplied with air from the main fitted to the mixer, through a vitaliser unit to the central port in the shuttle valve body. One outlet from this valve is taken to the top ends of the mixer tilt rams (righting air supply) and the other outlet to the bottom of the mixer tilt rams (tilting air supply).

To tilt the Mixer :- Move hand lever valve "A" to position marked "tilt". This action allows air to exhaust to atmoshpere from the shuttle valve, pilot port "A" via the exhaust port on the hand valve "A", port 1, thus unb lancing the pilot air circuit and allowing the shuttle to move hard over to the right. This action of the shuttle opens the port which supplies air to the base of the rams and the port which allows air to exhaust from the top of the rams and hence the mixer tilts. The position of the valve and the the air flows are shown on diagram (1).

Mixer hold control diagram (2) :- To stop the mixer tilting and hold it in a partially tilted position, release hand valve "A". This action re-applies air to the pilot port "Z" on the shuttle valve pushing the shuttle into the mid-position which action of the shuttle closes the air supply to the bottom end of the rams and

the exhaust from the top end of the rams. The rams are, therefore, locked since the air pressure is equalised on either side of the ram piston and the mixer will stay in the desired tilted position. It is possible to move the shuttle into this mid-position because of the effective area of the secondary piston is larger than the effective area of the opposite end of the shuttle and since equal pressures are applied at each end of the shuttle, the shuttle will move to the left. A shoulder is provided in the body of the shuttle valve with which the skirt of the secondary piston comes into contact, preventing the shuttle moving hard over to the left.

Mixer right control diagram (3) :- To right mixer, move hand lever valve "A" to position marked "right". This action allows air to exhaust to atmosphere from the shuttle valve pilot port "X" via the exhaust port on hand valve "A" port 1, unbalancing the pilot circuit and allowing the shuttle to move hard to the left which opens the port supplying air to the tops of the rams and the port which allows air to exhaust from the bottom of the rams, and the mixer righting action takes place.
When the hand valve "A" is released and pressure is re-applied to the pilot port "X", the shuttle stays in its hard over to the left position, since the opposite end of the shuttle now receives no assistance from the greater effective area of the secondary piston and hence pressures are balanced. Thus, it will be seen that at this stage in the sequence of operation of the shuttle valve, once the valve lever is moved to the right position, the shuttle position cannot be altered by releasing the valve "A" and hence once the righting action has been commenced, it continues until the mixer is fully righted whether the hand valve "A" is actuated or not. This situation is shown in diagram (4) which shows the conditions pertaining when the mixer is fully righted, the hand valves "A" "B" are not actuated and the system ready for the next mixer tilting operation.

General :- The mixer can be operated either from the control panel on the batching platform or from the pedestal of the mixer, but not both positions at the same time.

The latter set of controls is intalled to assist in controlling the mixer during maintenance without recourse to an assistant on the control panel.

The operation of control valve "B" is the same as for control valve "A" as shown in diagram 5 & 6.

Whilst the diagrams attached indicate hand-operated mixer "tilt" and "right" valves, the operations are exactly the same if solenoid operated "tilt" and "right" valves are installed, although these, of course, would be actuated by electrical push-button on the control panel. In this case, the pilot solenoid operated air control valves are located on the mixer pedestal and obtain their air supply from the main as that supplying the shuttle valve itself (not from the manifold in the control panel).

PRECAUTIONS BEFORE USING THE MIXER.

Before the unit is started and the mixer operated the following items should be checked :-

1) Mixer position fixed securely.

2) The manufacturer's instructions on the operation of the geared head motor should be understood.

3) The oil level in the geared head motor is up to the level hole (when the geared head is in the horizontal position).

4) Check that the gears are clean and free from foreign bodies.

5) Air and electric lines secure.

6) Rear lashing removed.

7) Raise and lower the drum several times to ensure that the pneumatics are functioning correctly.

BREAKING IN PROCEDURE.

Before placing your mixer into service it is recommended that the drum be charged with one cubic yard of 1½" (38 mm) aggregate and rotated for a period of not less than two hours. This procedure will not only ensure proper seating and running in of the gears and moving parts, but will polish the blades and drum so that concrete will have less tendency to adhere to these surfaces.

DIAGRAM 1.

DIAGRAM FOR MIXER TILT

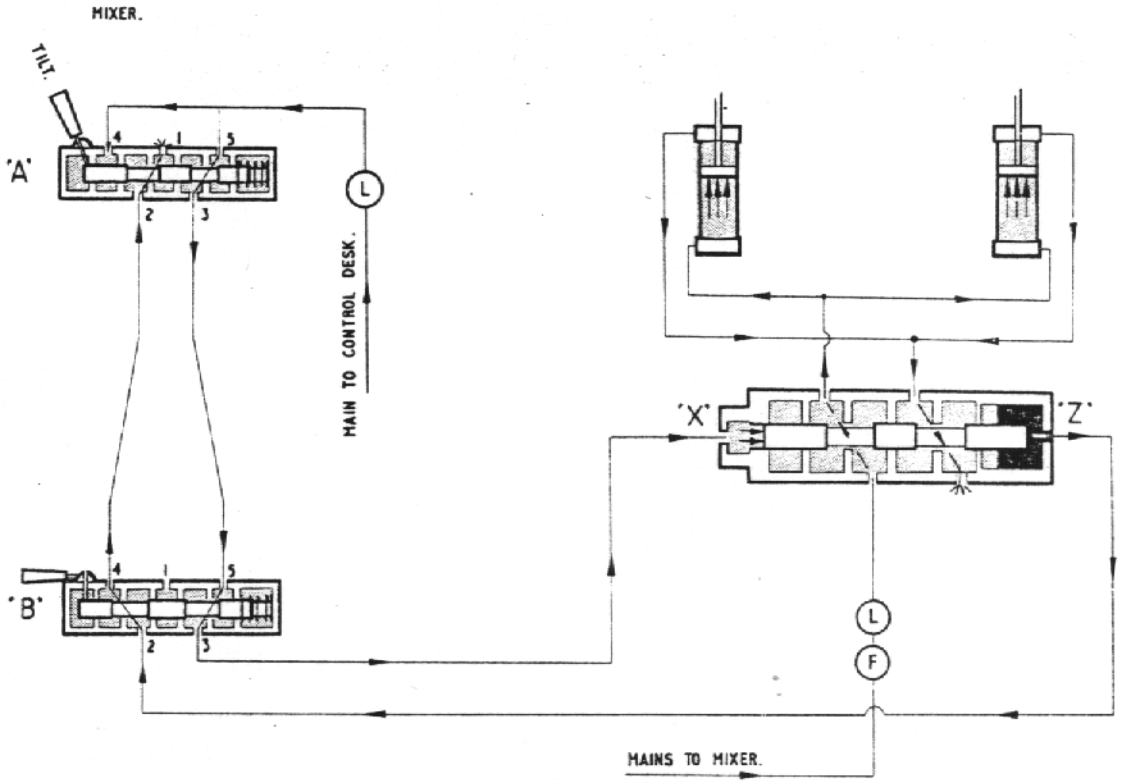
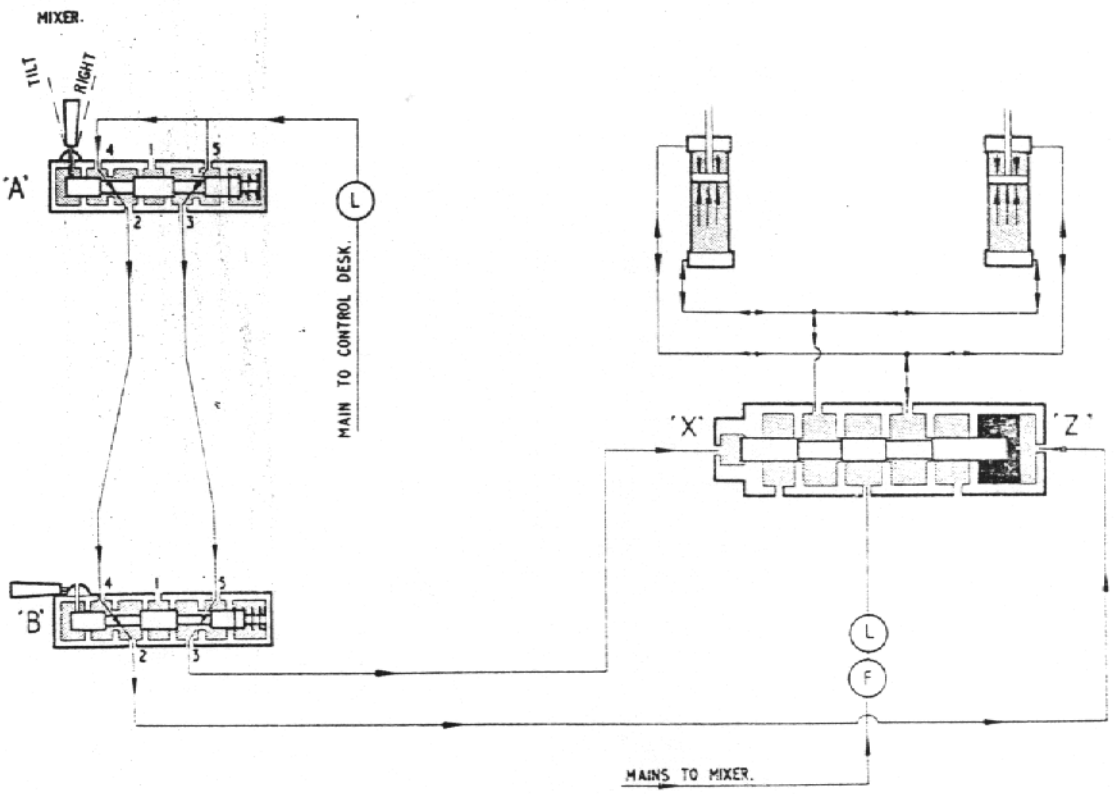


DIAGRAM 2.

DIAGRAM FOR MIXER HOLD



PNEUMATIC SYSTEM FIG.1

DIAGRAM 3

DIAGRAM FOR MIXER RIGHT

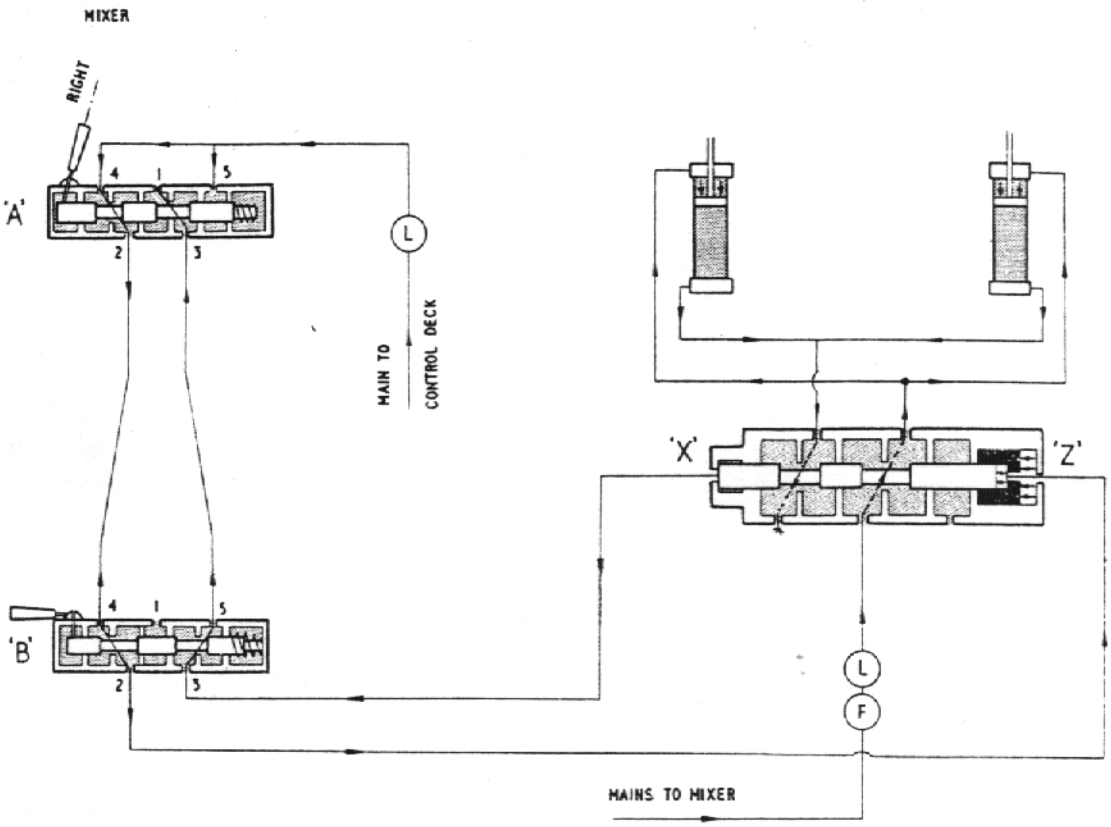
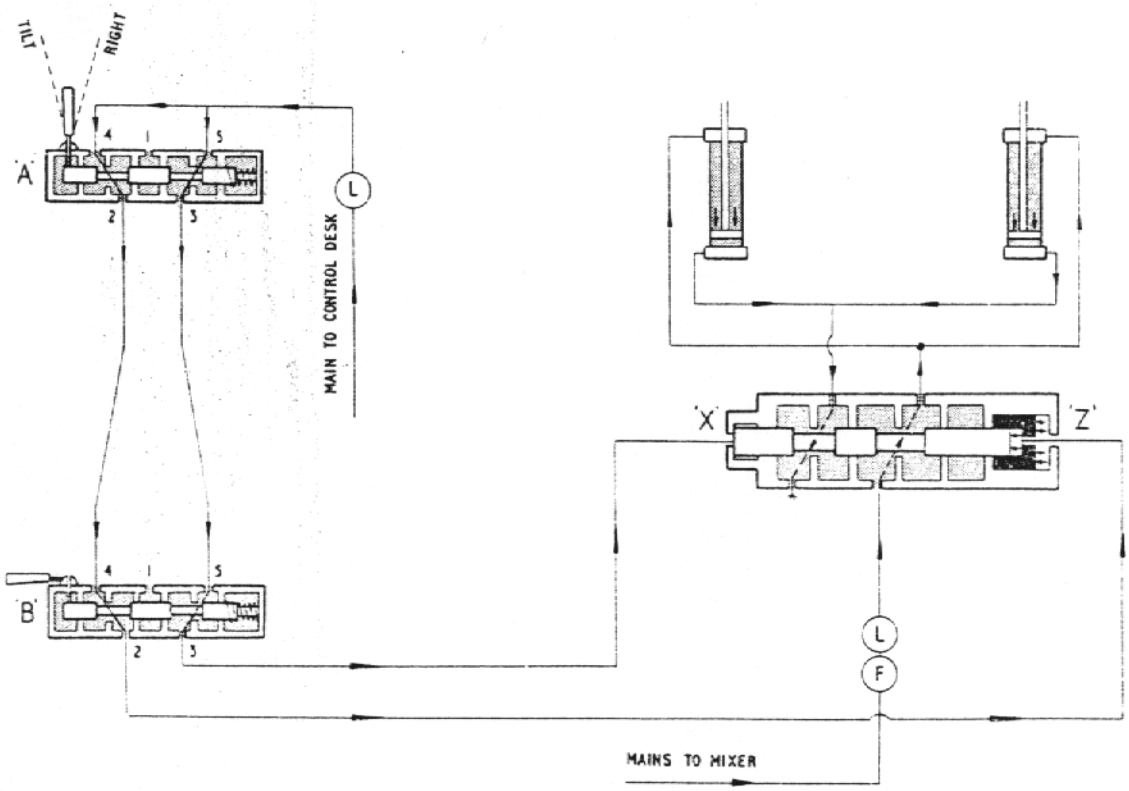


DIAGRAM 4

DIAGRAM FOR MIXER IN CHARGE POSITION



PNEUMATIC SYSTEM FIG.2

DIAGRAM 5

DIAGRAM FOR MIXER TILT

CONTROLLED FROM MIXER POSITION

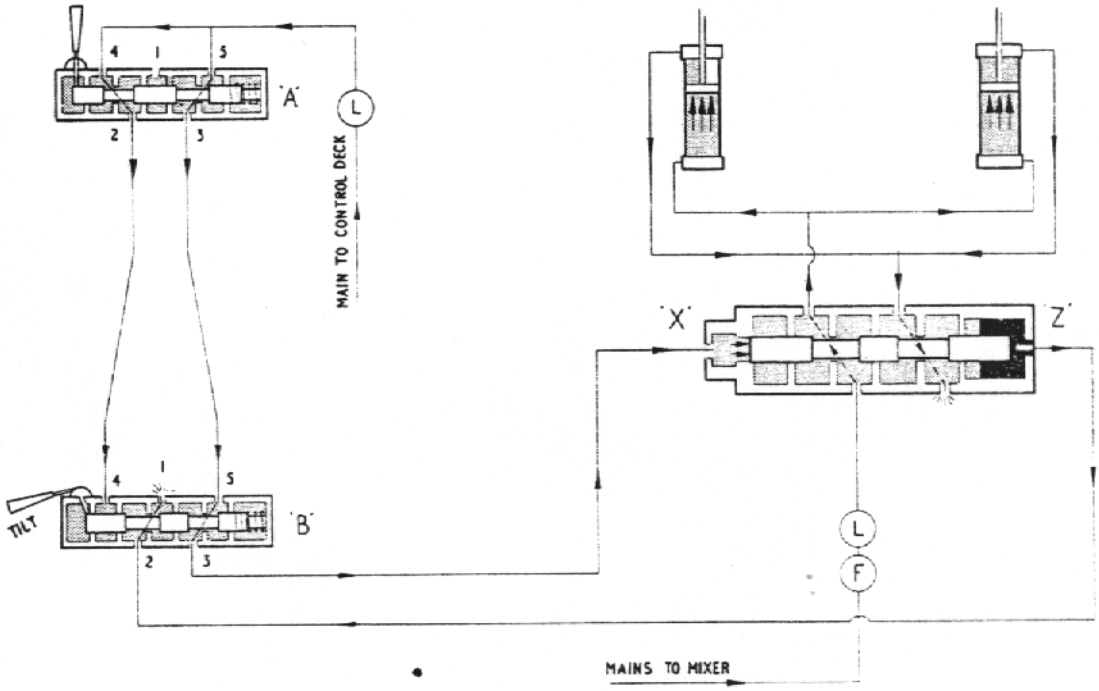
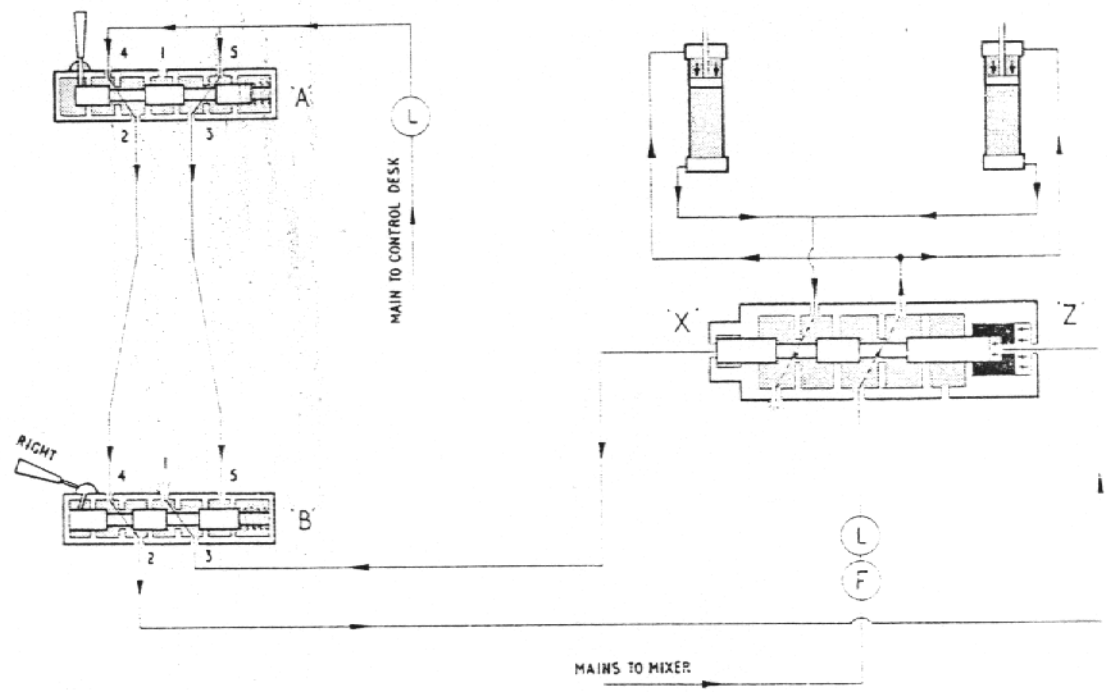


DIAGRAM 6

DIAGRAM FOR MIXER RIGHT

CONTROLLED FROM MIXER POSITION



Maintenance

MIXING.

The mixing and control of good concrete is a problem with which every operator is concerned. No definite procedure can be given, as equipment and materials differ in every plant. It is essential that operators experiment with their mixing to obtain the best results.
Mixing and discharging times will be reduced to a minimum if the interior of the mixing drum is kept as clean as possible.

CLEANING THE MIXER.

At the end of each day's work or if the mixer is idle for a period of more than two hours, the mixer should be thoroughly washed, particular attention being given to the drum mouth and drum blades. Admit 15 - 20 gallons of water to the revolving drum with .75 ins. (19 mm) aggregate for the final wash. This water must be discharged before the introduction of the next batch.

MAINTENANCE INSTRUCTIONS.

GEARHEAD MOTOR.

After running for 250 hours, thoroughly drain and clean out the gearhead motor and re-fill with "SHELL VITREA 37" - 20 pints approx capacity. It is advisable to drain and re-fill with new oil every 1000 hours,

To fill gearhead move into a horizontal position and remove the top plug from one side (filler plug) and lower plug from the other side, (level plug). Fill through filler hole until oil flows from level hole, after replace both plugs. The correct amount of oil required in the unit can only be determined by filling the unit until oil flows from the level hole.
A breather plug is fitted and should at all times be kept clean.

REMOVING GEARBOX AND MOTOR.

i) 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 for easy reconnections.

ii) Drain the oil from the gearbox into a clean container of suitable capacity by removing the plug from the underside of the box.

iii) If the motor is released separately from the box, secure the motor to a pulley block allowing the pulley to take the weight of the motor when the nuts, bolts and spring washers which hold the motor to the gearbox are released. Lower the motor to the ground and block up.

iv) In like manner secure the gearbox to the pulley, release the bolts, locknuts and washers and adjusting screws, lower the box to the ground, withdraw the motor pinion and key.

FITTING NEW MOTOR AND GEARBOX.

i) Carefully position motor onto the gearbox, meshing the motor pinion with its mating gear in the box and secure together.

ii) Hoist up the gearbox and motor, into position on the yoke assembly, ensuring correct alignment with drum gear and pinion. Secure in position.

iii) Fill the gearbox with oil until oil flows from the level hole. Replace oil level plug.

REPLACEMENT OF WEARING PLATES.

To assist in the replacement of wearing plates, they have been divided into easily removable sections.

i) Remove existing rivets, taking care not to damage the hole in the drum skin. Lift out the remaining wearing plate.

ii) Clean the inner section of the drum taking the new wearing plate, align the new plate with the hole in the drum skin and re-rivet using round headed rivets.

REPLACEMENT OF WEARING RING.

A periodic check should be made of the wearing ring fitted on the mouth of the drum. This should never be allowed to wear completely away as this may cause damage to the drum ring.

i) Release the bolts and washers holding the wearing ring and lower to the ground.

ii) Clean the mating surfaces of the new wearing plate and the drum ring. Lift into position and bolt together. Ensure that the thread end of the bolt is flush with the outer surface of the wearing ring.

REPLACEMENT OF BLADES.

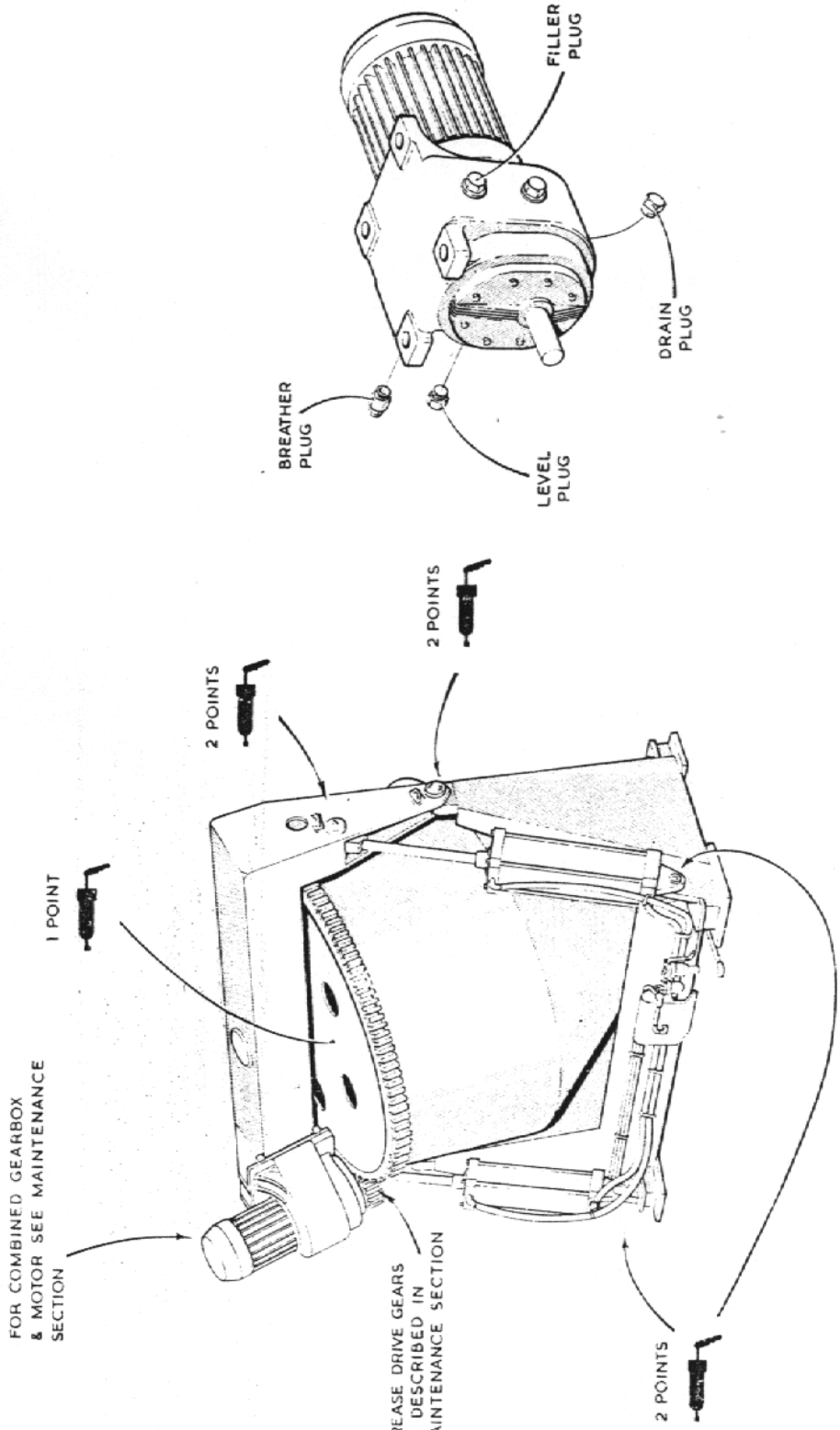
Badly worn blades should be renewed as follows :-

i) Remove rivets from brackets holding blades in the drum and lift out.

ii) New brackets should be bolted to the new blade.

iii) Clean around the holes and the surface area of the drum. Taking the new blade rivet this into position.

Reference Nos. for these parts may be located in the Spares Section under the relevant group heading.



LUBRICATION DIAGRAM FIG 4

LUBRICATION MAINTENANCE.

Note: After the first five hundred running hours all gearboxes should be drained, flushed out and refilled with new oil.

EVERY 24 HOURS.

MACHINE.	LOCATION.	ACTION.	RECOMMENDED LUBRICANTS.
Pneumatics.	Lubricators.	Check oil level and top up.	L. 13.
Mixer.	Pivot points. Main Bearings.	Grease. Grease.	L. 2. L. 2.

EVERY 250 HOURS.

Mixer.	Gearbox.	Check oil level and top up.	L. 24.
Mixer	Drive gears.	Grease.	L. 13.
Drum Gear Ring.	Drum.	Apply a good quality "Open Gear Grease"	

EVERY 1000 HOURS.

Mixer.	Gearbox.	Drain, flush out and refill.	L. 24.

LUBRICANT RECOMMENDATION.

In the following we list the lubricant specifications as recommended by various companies. These are intended as a guide only and should your site conditions be in any way abnormal your local supplier should be consulted.

NO.	SHELL	ESSO	MOBIL	CASTROL.	B.P.
L.2.	Alvania Grease 2	Cazar K2	Mobilux Grease 2	Spheerol APT.2.	Energrease LS 2
L.13.	Cardium Compound D	Surett N 850	Dorcia 150	Grippa 60.S.	Energol WRL
L. 24.	Shell Vitrea 37.	Pen-o-Led EP.3.	Compound DD	Alpha 417	Energol C5150

Note: Manufacturers special lubricating instructions should be adhered to.

GENERAL MAINTENANCE.

EVERY 24 HOURS.

MIXER.	Thoroughly clean the inside and outside of Mixer.

EVERY 7 DAYS.

WEARING PLATES.	Check the condition of all wearing plates and drum wearing ring.

Spares

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
B 2	6	Reinforcing Cone Wearing Plates with C'sk. bolt, nut and Sp. washers.	50-46021
B 3	6	Closed end cone wearing plates with round head rivets.	50-45817
B 4	6	Charge end cone wearing plates (ref: 1 & 2) with round head rivets.	50-45818
B 5	3	Drum Blades with round head setscrews, nuts and spring washers.	50-46045
B 6	3	Drum Blade extension.	50-46044
B 7	3	Brackets for Blade (charge end) with round head setscrews, nuts and spring washers, round head rivets.	50-45552
B 8	3	Brackets for Blade (extension) with round head setscrews, nuts and spring washers, round head rivets.	50-45551
B 9	3	Brackets for Blade (closed end) with round head setscrews, units and spring washers, round head rivets.	50-45553
B 10	1	Wearing ring to drum mouth with hex. head setscrews and spring washers.	50-46062
B 13	1	"SKEFCO" Lockwashers type MB30	466330
B 14	1	"SKEFCO" Self aligning sperical roller bearing type 23230C	113615
B 21	1	"SKEFCO" Self aligning spherical roller bearing type 23948	101418
B 23	1	Felt washers - $\frac{3}{8}$" x $\frac{1}{2}$" x 40" long.	22510806
B 25	1	Wearing Cap.	50-46064

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
		2 - SETS AIR CYLINDER SEALS, EACH SET COMPRISING :-	
C 59	2	Cushion Adjusting Seals.	39110502
C 60	2	Cushion Seals.	13770055
C 61	2	Piston Seals.	13770056
C 62	1	Piston Rod Packing.	13770054
C 63	1	Wiper Seal.	13770053
C 64	2	Gaskets.	7577
C 40	1	Baldwin 3 position, 5 port, hand operated air valve.	4504030

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
D 9	1	Gasket - Sump Cover	2/6775
D 11	1	Shim Output Shaft	2/6776
D 15	2	Bearing - Shaft (Item. 16)	RM 13½L
D 16	1	Bearing - Inner.	RL 18L
D 17	1	Bearing.	R385L
D 18	1	Oil Seal.	W4333451 R4
D 40	1	Drive Pinion.	50-46774
D 41	1	Key for Pinion Parallel	30511236
D 42	1 set	Drive Pinion Retaining Shims.	50-46772
D 43	1	Lockwasher.	50-46758
D 46	2	Hex. Hd. Setscrews complete with Spring Washers.	418250608

TO FIND A SPARE PART.

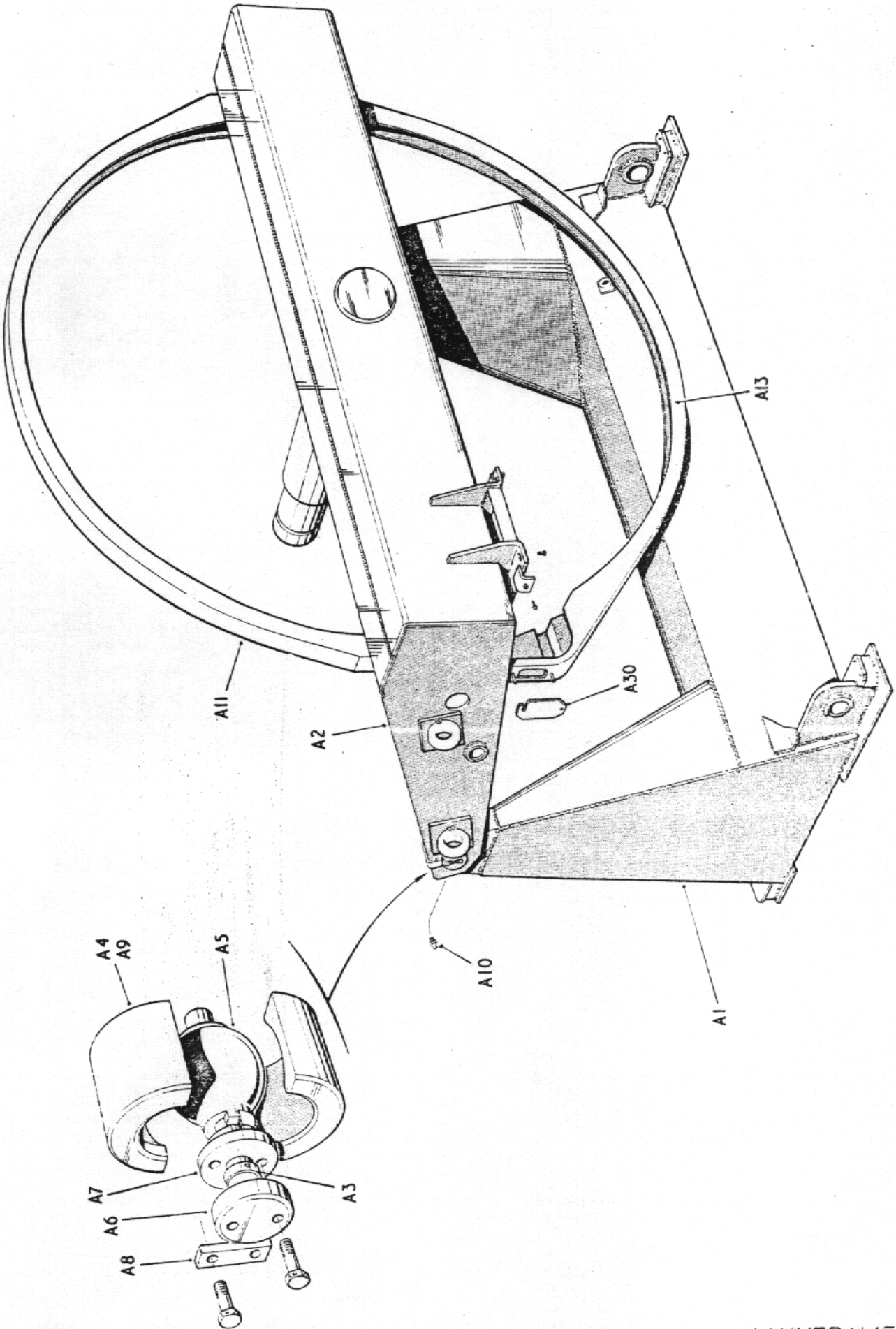
The assemblies have been divided into groups and given identification letters A. B. C. etc. To identify a component, first find the relevant assembly in the list given on this page, this will give you a group letter and page number to turn to. On turning to this group the illustrations will enable you to identify the part you require and give you a reference number. Against this number in the Parts List will be found the DESCRIPTION and PART NUMBER information which we require.

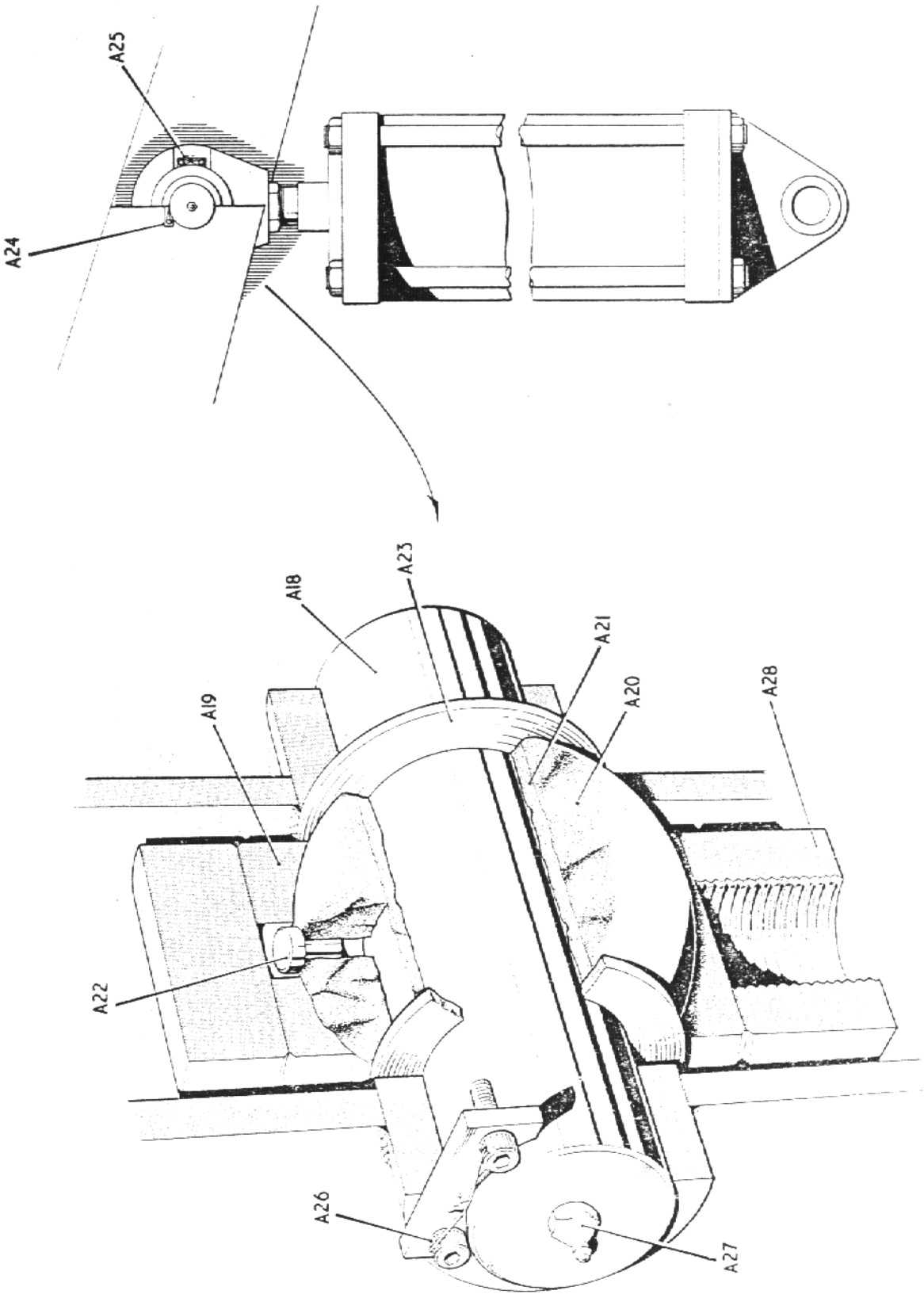
SPARES ASSEMBLY GROUPS.

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
A 1	1	Mainframe.	50-31564
A 2	1	Yoke Assembly.	50-46777
A 3	2	Yoke Fulcrum Pin.	50-31468
A 4	1 pair	Sherical Seating for Yoke (restrained)	50-31481
A 5	2	Spherical Journal.	50-31470
A 6	2	Yoke Fulcrum Cap with Hex. Head Machine Bolts and Copper Wire. ?	50-31477
A 7	2	Fulcrum Bush.	50-31469
A 8	2	Retaining Plates with Hex. Head Setscrews.	50-31476
A 9	1 pair	Spherical Seating for Yoke (free)	50-31480
A 10	2	Grease Nipple.	333202
A 11	1	Upper Gear Ring Guard with Hex. Head Bolt, Nut and Spring Washer.	50-46779
A 12			
A 13	1	Lower Gear Ring Guard with Hex. Head Bolt, Nut and Spring Washer.	50-46778
A 14	1	Inspection Cover.	50-31522
A 15	2	Philidas Nut and P/Washers.	342306
A 16	4	Motor Adjusting Bolt with Locknuts.	50-46204
A 17	4	Hex. Head Bolt H/T with Double Chamfered Nuts and Plain Washer.	460315632
A 18	2	Top Hinge Pin.	50-31483
A 19	4	Female Spherical Seating.	50-31479
A 20	4	Male Spherical Seating.	50-31478
A 21	4	Bushes for Spherical Seating.	50-31472

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
A 22	4	Locating Pin for Spherical Seating.	50-31473
A 23	4	Spacing Washer.	50-31471
A 24	4	Retaining Plates & Copper Wire.	50-31475
A 25	4	Retaining Plates & Copper Wire.	50-31474
A 26	16	Socket Head Capscrews.	40420606
A 27	4	Grease Nipple.	333202
A 28	2	Rod End for Cylinder.	50-46192
A 29	2	Bottom Hinge Pins.	50-31482

GROUP A





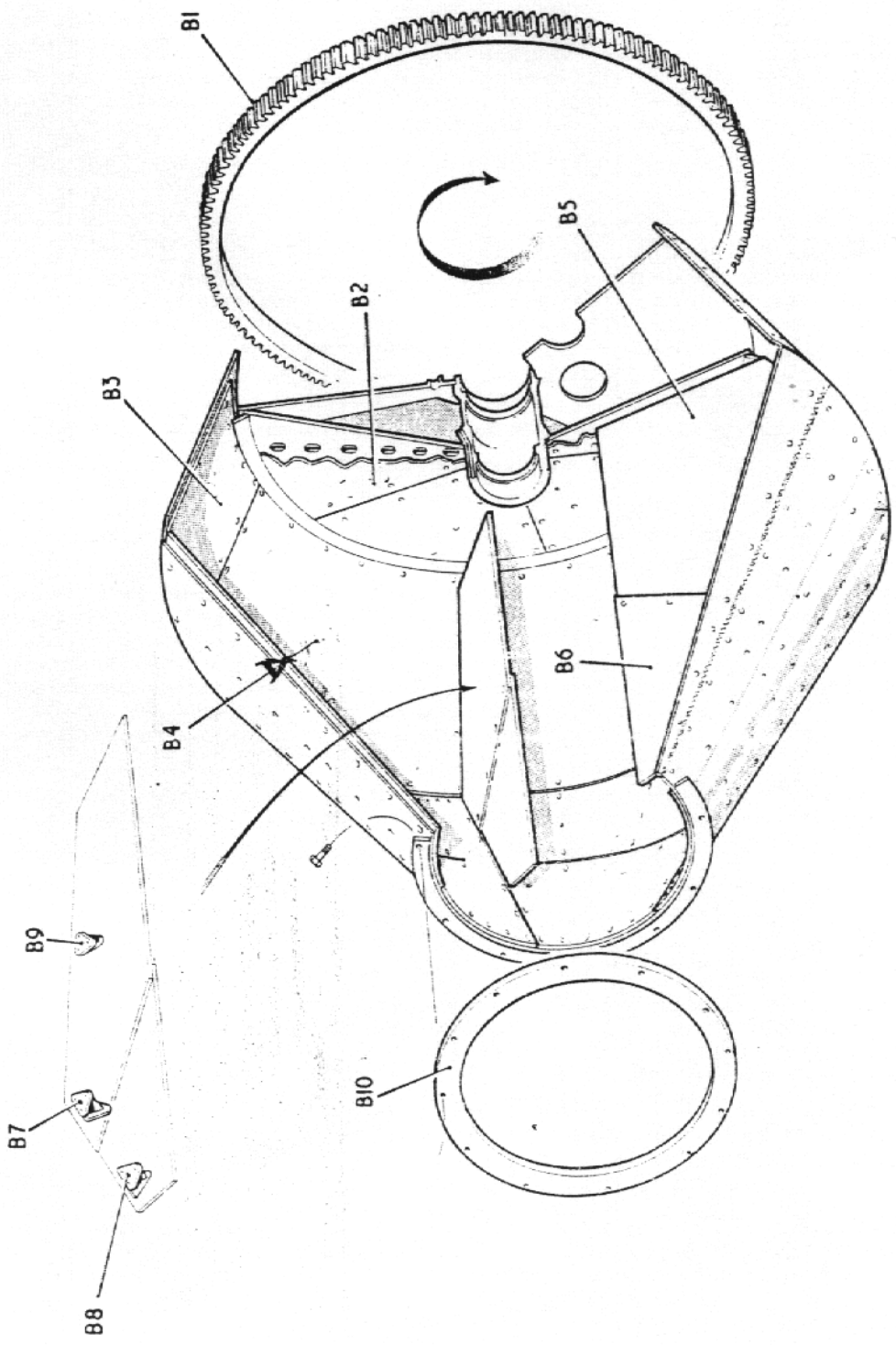
TOP HINGE FOR AIR CYLINDER

GROUP A

BOTTOM HINGE FOR AIR CYLINDER

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
B 1	1	Gear Ring.	50-46215
B 2	6	Reinforcing Cone Wearing Plates. with Csk. Bolts, Nuts & Spring Washers.	50-46021
B 3	6	Closed End Cone Wearing Plates with Rd. Hd. Rivets.	50-45817
B 4	6 + 6	Charge End Cone Wearing Plates with Rd. Hd. Rivets. Ref. 1 & Ref. 2.	50-45818
B 5	3	Drum Blades with Rd. Hd. Setscrew, Nuts and Spring Washers.	50-46045
B 6	3	Drum Blade Extension.	50-46044
B 7	3	Brackets for Blade (Charge End) with Rd. Hd. Setscrew, Nuts and Spring Washer - Rd. Hd. Rivets.	50-45552
B 8	3	Brackets for Blade (Extension) with Rd. Hd. Setscrew Nut and Spring Washer - Rd. Hd. Rivets.	50-45551
B 9	3	Brackets for Blade (Closed End) with Rd. Hd. Setscrew - Nut and Spring Washer, Rd. Hd. Rivets.	50-45553
B 10	1	Wearing Ring to Drum Mouth with Hex. Hd. Setscrew - Spring Washer.	50-46062
B 11	1	Bearing Housing Cap with Hex. Head Bolt and Spring Washers.	50-31281
B 12	1	Locknut.	50-31592
B 13	1	Lockwasher	466330
B 14	1	Self-aligning Race.	101417
B 15	1	Retaining Ring.	50-31618
B 16	1	Spacer Ring.	50-31620
B 17	1	Grease Pipe.	50-46065

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
B 18	1	Aligning Plug.	50-31288
B 19	1	Grease Nipple.	333.204
B 20	1	Retaining Ring.	50-31619
B 21	1	Self-aligning Race.	101.418
B 22	1	Cover Plate with Hex. Head Bolt and Spring Washer.	50-31286
B 23	1	Felt Washer.	22510806
B 24	1	Grease Nipple.	333.202
B 25	1	Wearing Cap.	50-46064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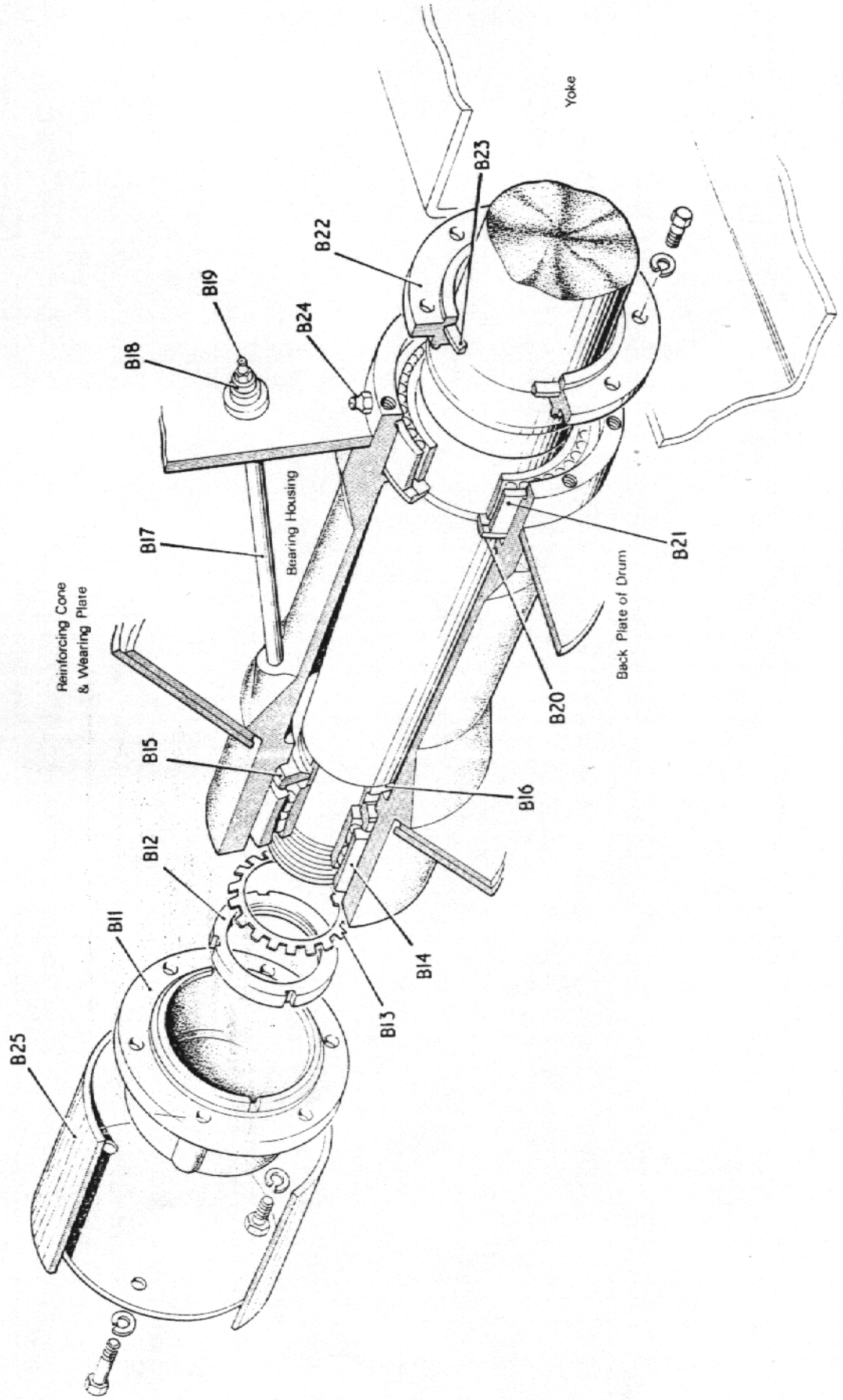
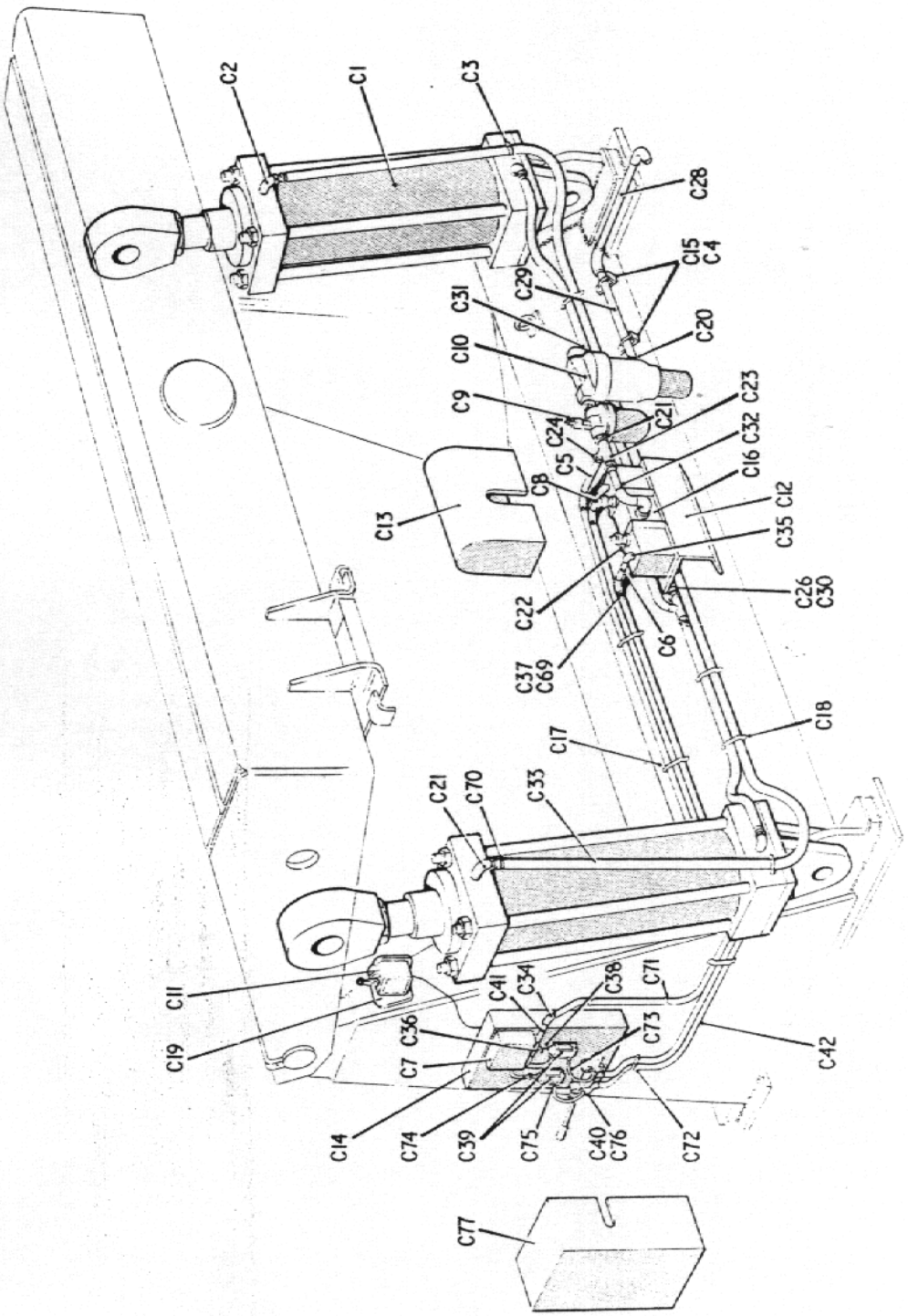

B25
B11
B12
B13
B14
B15
B16
B17
B18
B19
B20
B21
B22
B23
B24
Reinforcing Cone
& Wearing Plate
Bearing Housing
Back Plate of Drum
Yoke

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
C 1	2	Air Cylinder 12" Bore x 26" Stroke.	50-46111
C 2	8	Male - Female Elbows.	240708
C 3	2	Pipe Clip complete with Hex. Head Setscrews and Spring Washers.	50-46763
C 4	2	U-Bolt complete with Nut.	50-36482
C 5	1	Pipe $6\frac{5}{8}$"long Gal^{vd}	-
C 6	2	Pipe $4\frac{1}{2}$" long Gal^{vd}	-
C 7	1	Electrical Junction Box.	-
C 8	2	Speed Regulator.	CVA.481
C 9	1	Oil Fog Lubricator.	315705
C 10	1	Automatic Drain Filter.	CFA.216
C 11	1	Snap Lock Limit Switch.	208509
C 12	1	Valve Platform.	50-40763
C 13	1	Valve Platform Cover. Complete with Hex. Head Setscrews and Spring Washers.	50-40764
C 14	1	Control Panel complete with Hex. Head Setscrews and Spring Washers.	50-35806
C 15	2	Pipe Bracket.	50-36483
C 16	1	Valve 4 way.	4504030
C 17	5	Pipe Clip complete with Hex. Head Setscrews Nuts and Spring Washers.	50-40532
C 18	2	Double 1" Pipe Clip.	50-46764
C 19	1 RH	Limit Switch Bracket, complete with Hex. Head Setscrew Spring and Plain Washer.	50-42332
C 20	4	Elbow.	241108

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
C 21	8	Male-Female Elbow.	240.708
C 22	3	Reducing Elbow.	241208061
C 23	3	Tee.	242208
C 24	1	Straight Union Gal^{vd}	24270801
C 25	1	Hexagon Bush Gal^{vd}	241408
C 26	8	Hose Connector Brass.	CCA 316/8
C 27	2	Barrel Nipple.	24530801
C 28	1	Pipe 12" Lond Gal^{vd}	-
C 29	1	Pipe 21" long Gal^{vd}	-
C 30	2	Barrel Nipple Gal^{vd}	24530801
C 31	1	Pipe 8" long Gal^{vd}	-
C 32	2	Pipe 7" long Gal^{vd}	-
C 33	1 length	Rubber Hose x 30 ft.	260308
C 34	4	Elbow Gal^{vd}	2407102
C 35	2	Male/Female Elbow Gal^{vd}	240711
C 36	1	Tee	24220201
C 37	6	Hose Connector Brass.	1303046
C 38	1	Hex Nipple Brass.	245402103
C 39	2	Pilot Valve 3-Way complete with Hex. Head Setscrews - Nuts and Spring Washers.	CVA 469
C 40	1	Lever Operated Valve.	CVA 4/030
C 41	1	Pipe 3½" long Gal^{vd}	-
C 42	1	Rubber Hose x 25 long.	260303
C 43	2	Front End Cover.	10715

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
C 44	2	Rear End Cover.	10714
C 45	2	Piston.	1377064
C 46	2	Piston Rod Bearing.	10661
C 47	2	Clamping Nut.	-
C 48	16	Tie Rod Nuts.	1500/15
C 49	2	Adjusting Screws.	10405
C 50	2	Retaining Rings.	10666
C 51	2	Locking Screws.	1617/2
C 52	2	Bearing Bush.	1611/44
C 53	2	Bearing Screws.	1536/2
C 54	2 sets	Balls.	1593/12
C 55	2 sets	Pins.	1584/40
C 56	2	Cylinder Barrel.	10712
C 57	8	Tie Rods.	10665
C 58	2	Piston Rods.	10663
C 59	2	Cushion Adjusting Seals.	39110502
C 60	2	Cushion Seals.	13770055
C 61	4	Piston Seals.	13770056
C 62	2 sets	Piston Rod Packing.	13770054
C 63	2	Wiper Seal.	13770053
C 64	2	Gaskets.	7577
C 65	2	Retaining Rings.(Not Illustrated).	-
C 66	2	Trunnion	50-46109
C 67	2	Rod End for Cylinder.	50-46110

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
C 68	2	Locknuts.	50-46192
C 69	6	Hose Clip.	132110
C 70	8	Hose Clip.	132101
C 71	2	Single Pipe Clip.	50-46766
C 72	1	Double Pipe Clip.	50-46765
C 73	1 length	Copper Tube x 3 foot long.	43030420
C 74	1	Taper Male Stud Coupling.	141104021
C 75	8	Copper Connectors.	446320
C 76	4	Skt. Hd. Cap Screw complete with Nut and Spring Washer.	40410240
C 77	1	Control Panel Cover.	50-35808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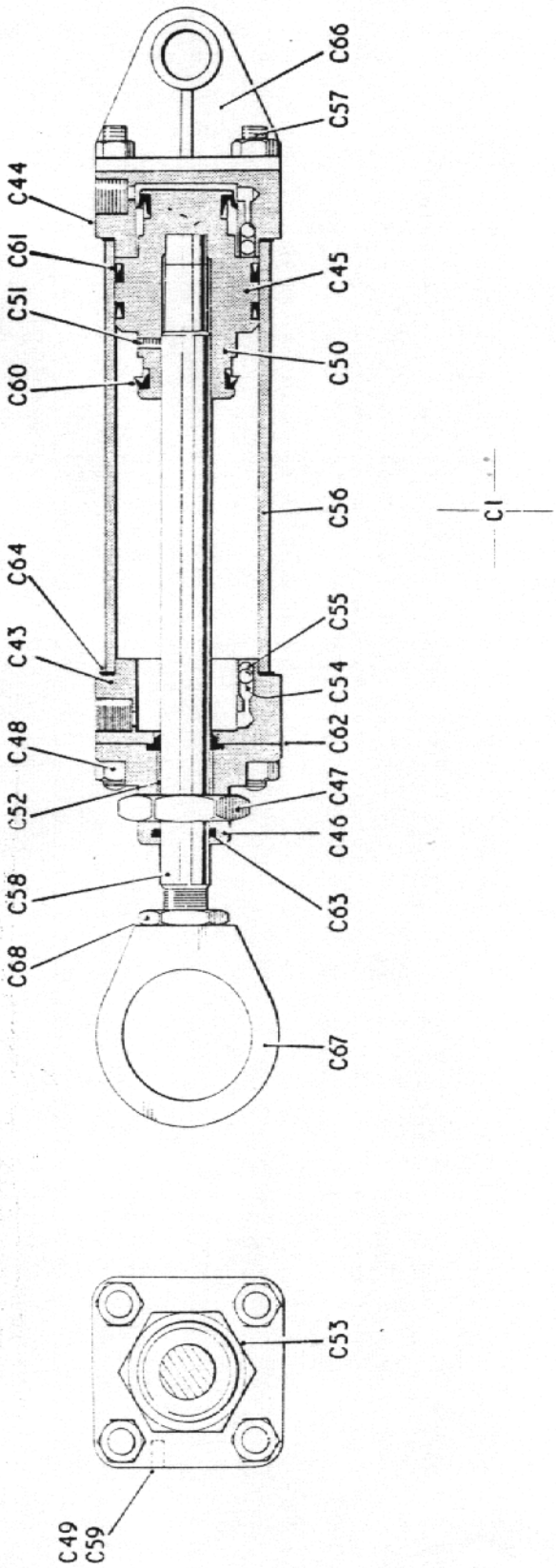
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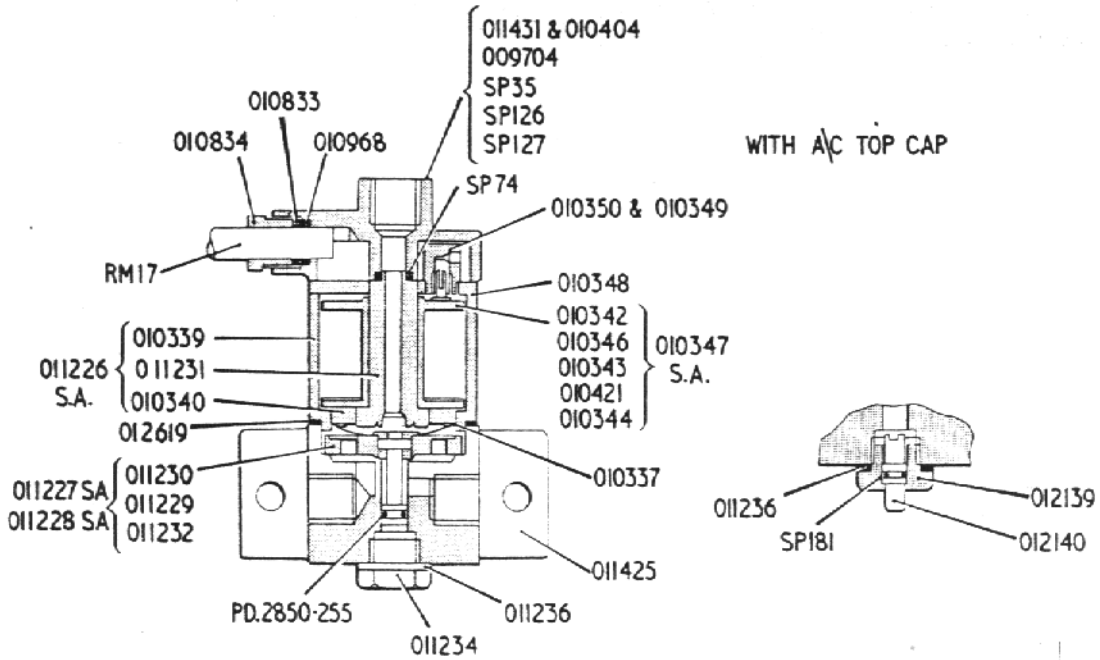
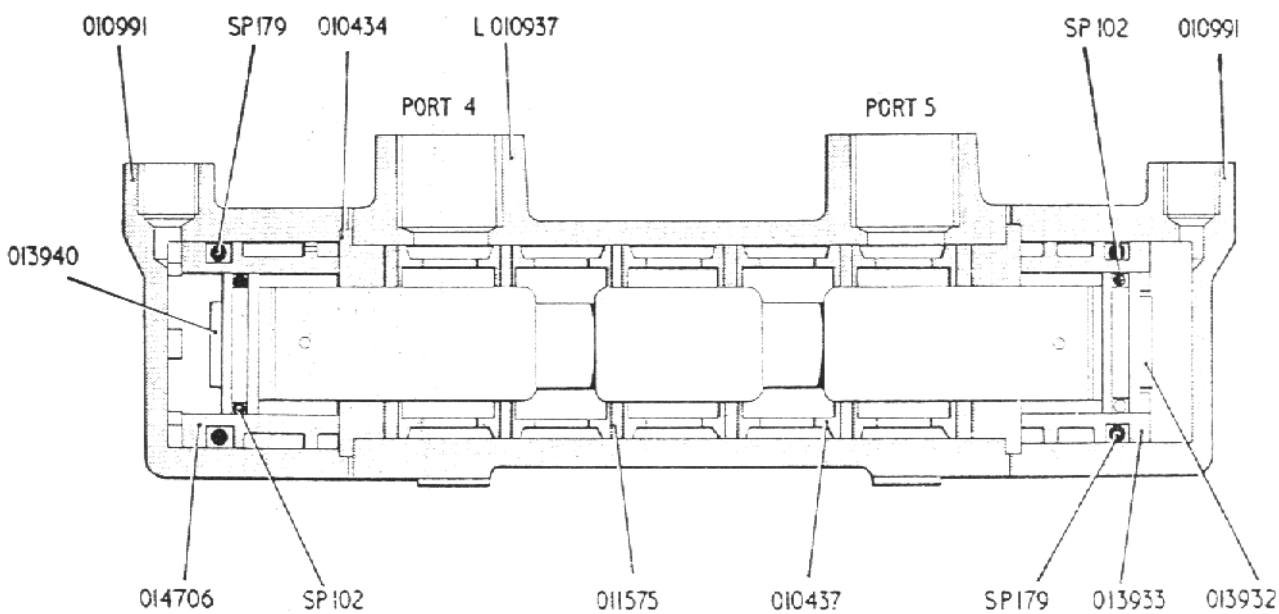

011431 & 010404
009704
SP35
SP126
SP127
010833
010834
010968
SP74
010350 & 010349
RM17
010348
010342
010346
010343
010421
010344
010347 S.A.
011226 S.A.
010339
011231
010340
012619
011227 SA
011228 SA
011230
011229
011232
010337
011425
PD.2850-255
011234
011236
WITH A/C TOP CAP
011236
SP181
012139
012140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SP179
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L 010937
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PORT 5
SP 102
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013940
014706
SP 102
011575
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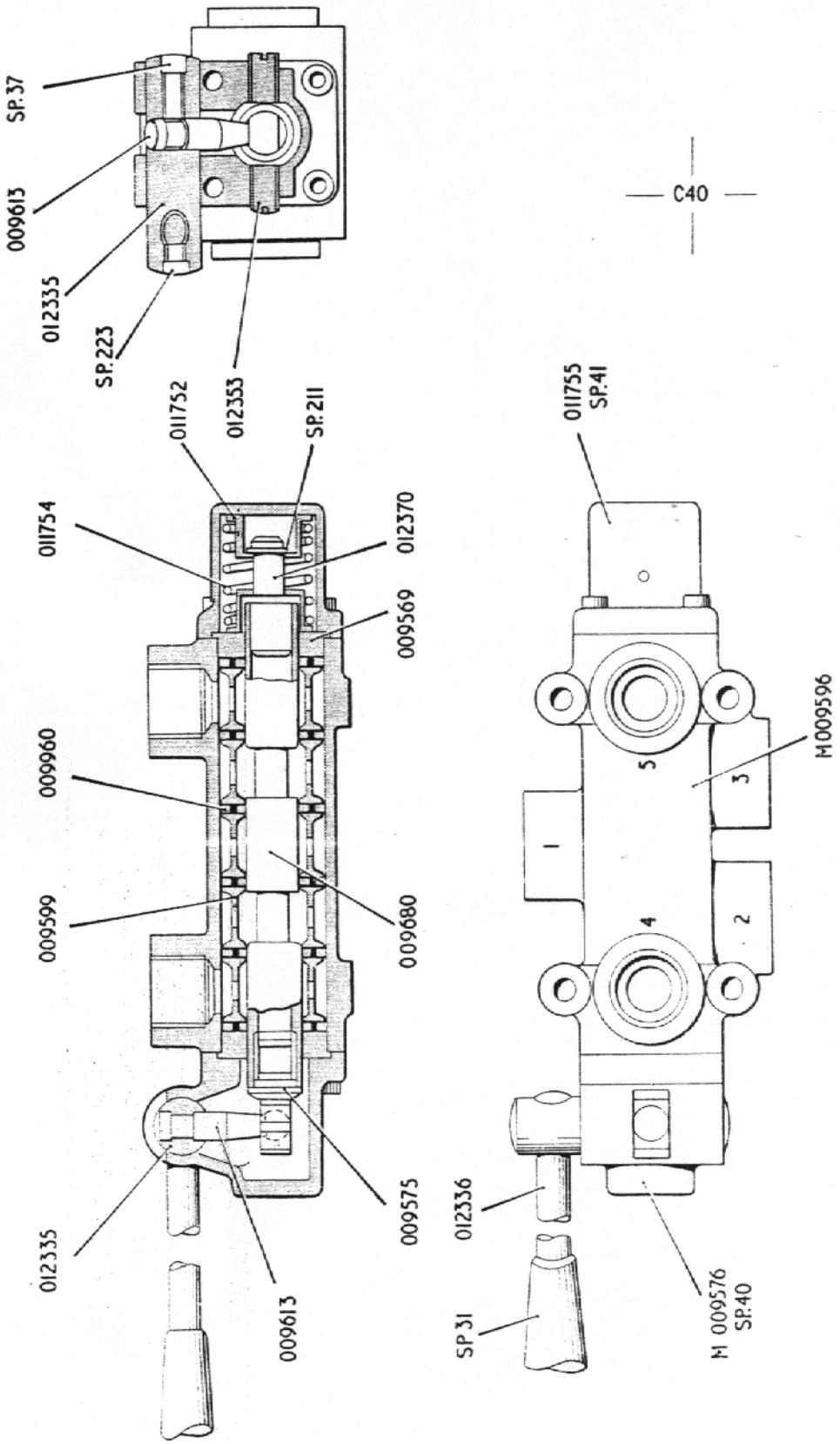
SP179
013933
013932


SP.37
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SP.211
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009569
009960
009599
009680
009575
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009613
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SP.41
M009596
012336
SP 31
M 009576
SP.40
C40
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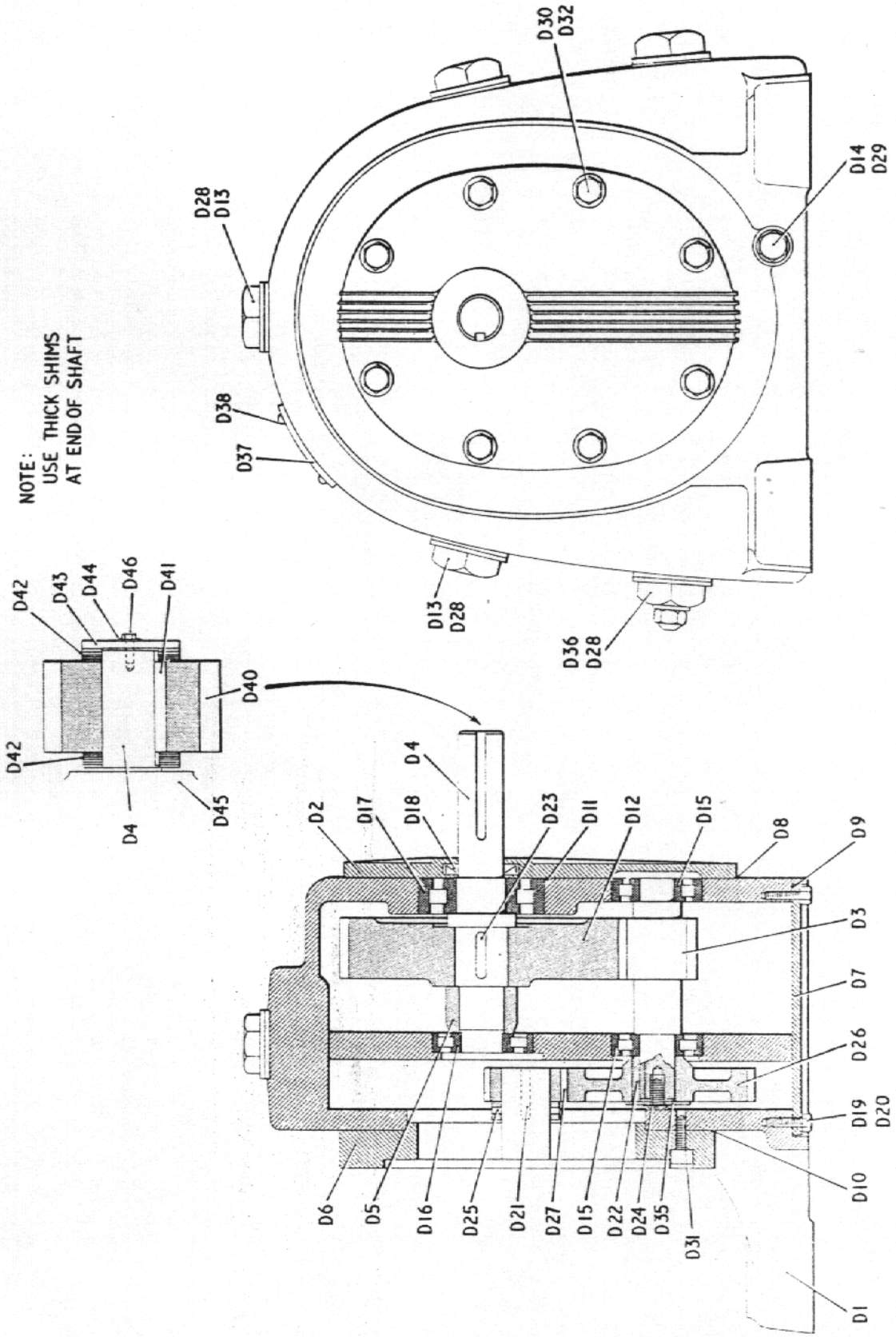
2
3
4
5

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
D 1	1	Body.	4/6737
D 2	1	Front Cover.	3/6738
D 3	1	1st Lay Shaft.	2/39362
D 4	1	Output Shaft.	3/36107
D 5	1	Spacer - Output Shaft.	1/6743
D 6	1	Motor Adaptor Plate.	2/39363
D 7	1	Sump Cover.	2/38514
D 8	1	Gasket - Front Cover.	2/6775
D 9	1	Gasket - Sump Cover.	2/38515
D 10	1	Gasket - Motor Cover.	2/6948
D 11	1	Shim Output Shaft.	2/6776
D 12	1	Output Gear	3/36108
D 13	4	Plugs - Filler & Level.	No. 6.
D 14	1	Drain Coller.	No. 3.
D 15	2	Bearing.	RM 13½ L
D 16	1	Bearing - Inner.	RL 18 L
D 17	1	Bearing Outer.	R 385 L
D 18	1	Oil Seal.	W43333451 R4
D 19	13	Screws Hex. Hd. - Sump Cover.	¼" BSF x ½"
D 20	13	Washers - Grover Spring.	¼" I/D
D 21	1	Key.	6mm x 10mm x 60mm (2⅜"1⅜)
D 22	1	Key.	7/16" x 9/32" x 2"
D 23	1	Key.	⅞" x ⅝" x 3⅛"
D 24	1	Tab Washer.	1/6762

REF. NO.	NO. PER MACHINE.	DESCRIPTION.	PART NO.
D 25	1	Locking Pin.	Sel-Lok Pin $\frac{3}{8}$"dia x $3\frac{1}{4}$" lg.
D 26	1	Laygear.	2/39361
D 27	1	Motor Pinion.	2/39360
D 28	5	Washers - Filler & Level.	$1\frac{3}{8}$"O/Dx$1\frac{1}{16}$" I/D x 1/16"
D 29	1	Drain	1"O/D x $1\frac{1}{16}$" I/D x 1/16"
D 30	3	Screws Hex. Hd. - Front Cover. 4	$\frac{3}{8}$" BSF 1"
D 31	4	Socket Head - Adaptor Plate.	$\frac{1}{2}$ BSF x $1\frac{1}{4}$"
D 32	3	Washers - Grover Spring. For Item 30	$\frac{3}{8}$" I/D
D 33	4	Screws Hex. Hd. Motor. (Not illustrated).	$\frac{3}{8}$" BSF x $1\frac{3}{4}$"
D 34	4	Washers - Grover Spring. For Item. 33 (Not illustrated).	-
D 35	1	Washer - Plain 'B' Gear.	1/6763
D 36	1	Breather Plug Assembly.	SA 1/35013
D 37	1	Name Plate.	SK 1645/1
D 38	4	Hammer Drive Screws.	No.2. x $\frac{13}{16}$"
D 39	1	Compton Parkinson 40 HP Motor. (Not Illustrated).	-
D 40	1	Drive Pinion.	50-46774
D 41	1	Key for Pinion $\frac{3}{4}$ x $\frac{1}{2}$ x $4\frac{1}{2}$ Parallel.	30511236
D 42	1 set	Drive Pinion Retaining Shims.	50-46772
D 43	1	Drive Pinion Retaining Plate.	50-46771
D 44	1	Lockwasher.	50-46758
D 45	1	Motorgear Spur Reduction Unit.	GM/E3
D 46	2	Hex. Hd. Setscrews complete with Spring Washers.	418250608


NOTE:
USE THICK SHIMS
AT END OF SHAFT
D30
D32
D28
D13
D14
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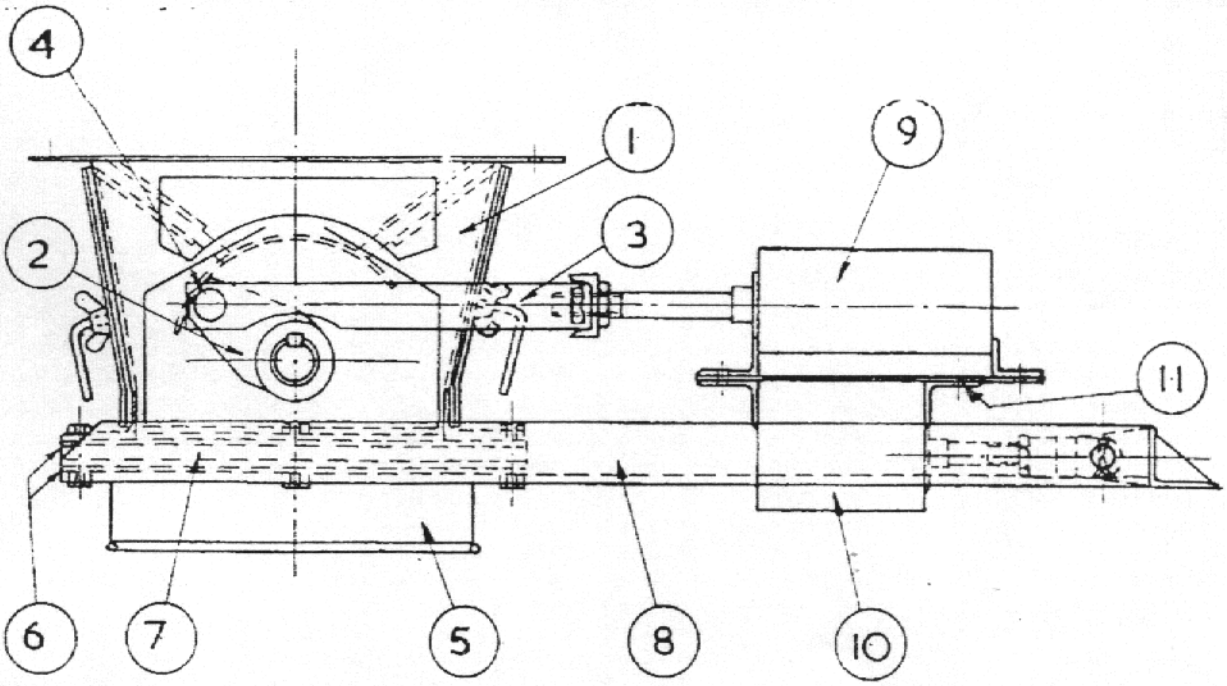
D1

Cement Valve

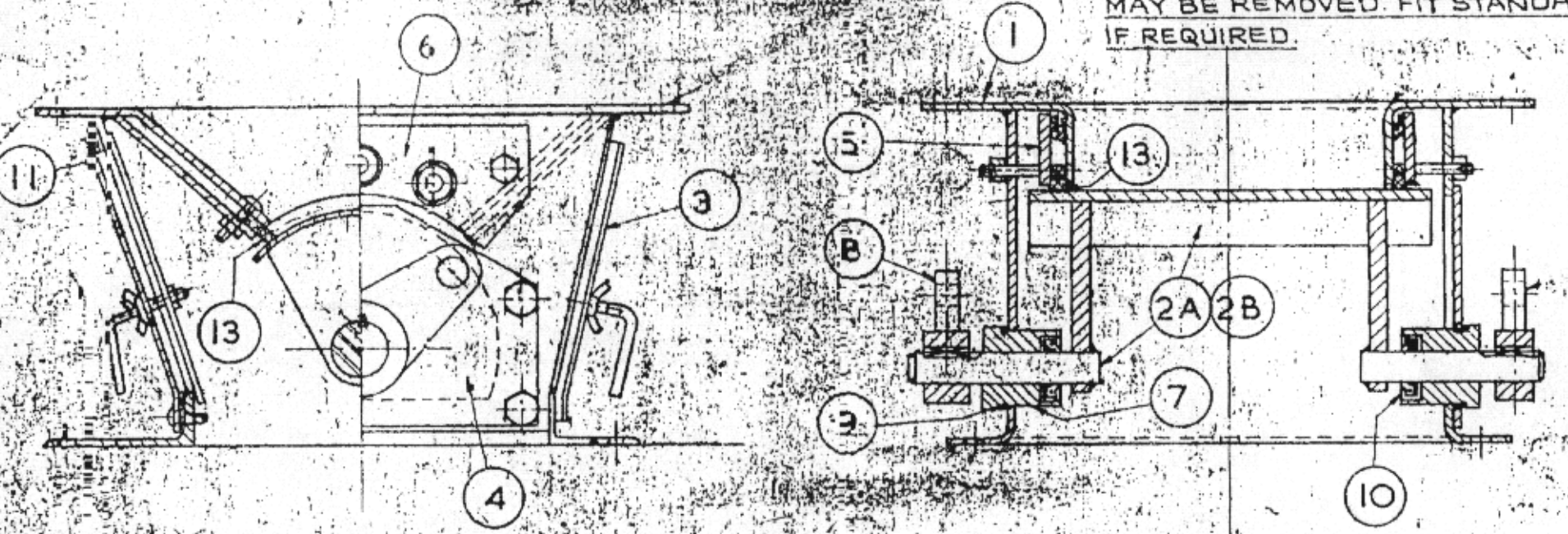
Plastic Socks



REF.	Nº OFF	DESCRIPTION	PART Nº
1	1	MK.1 2-STAGE PLUG VALVE	500.4432.D
2	2	OPERATING LEVER	50.49836.E
3	1	BRIDLE	50.60434.D
4	2	BRIDLE CONNECTING PIN	50.48981.E
5	1	SHROUD ADAPTOR	50.60435.D
6	2	RUBBER SEALING WASHER	50.42554.E
7	1	WOOD PACKER FOR SHROUD ADAPTOR	50.52550.D
8	1	AIR CYLINDER SUPPORT BRACKET	50.60436.C
9	1	MAXAM AIR CYL. 3" BORE x 3½" STROKE	
10	1	MAXAM AIR CYL. 3" BORE x 1½" STROKE	
11	1	CYLINDER RE.	50.60433.E

PLASTIC SHROUDS 50.59146 E.

NOTE:- ONE OPERATING ARM (N.4340.E.) MAY BE REMOVED. FIT STANDARD COLLAR IF REQUIRED.



PARTS LIST

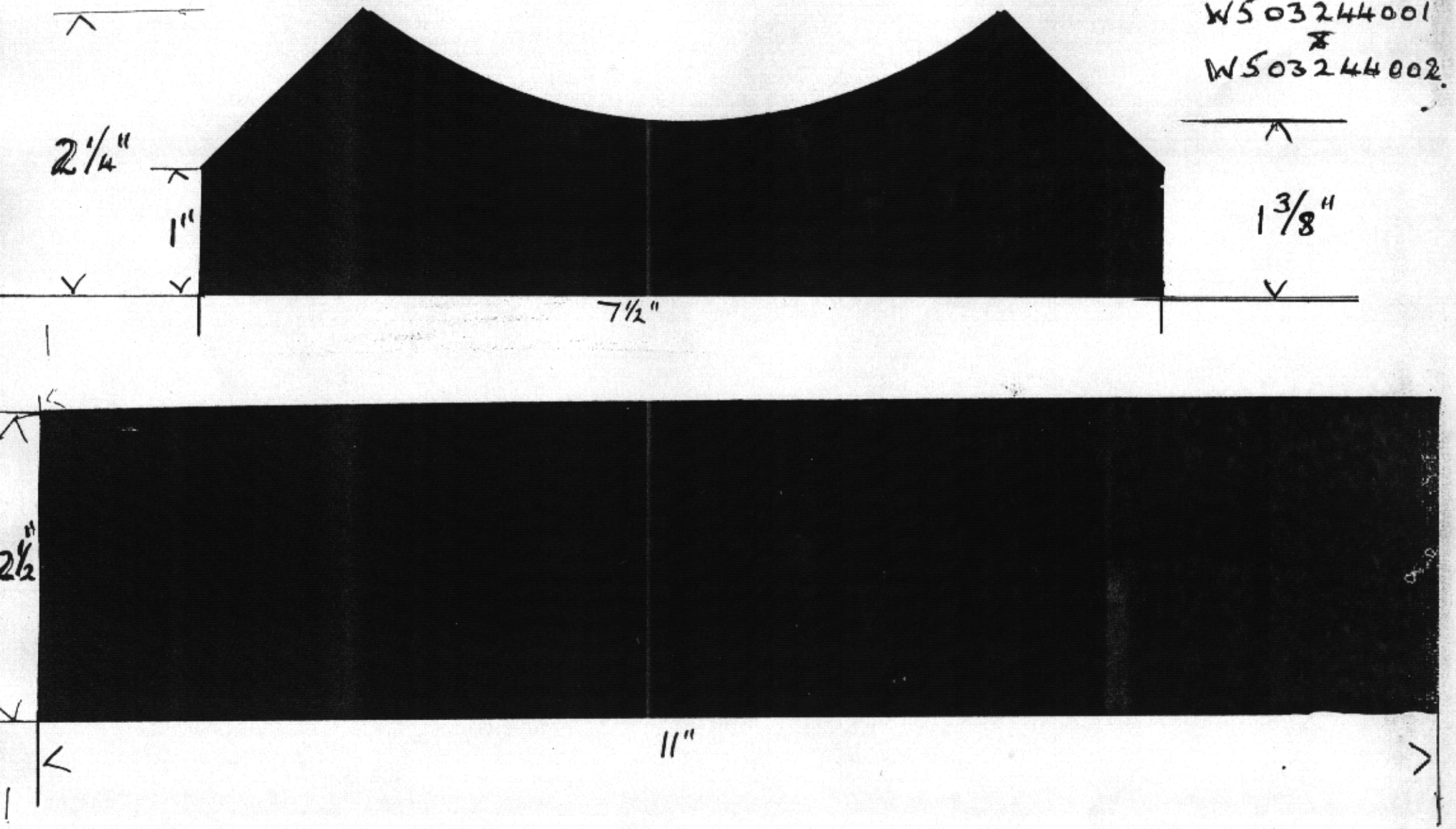
REF	DESCRIPTION	PART Nº	REF	DESCRIPTION	PART Nº
A	VALVE CASING ASSEMBLY	N.4433.C	7	BEARING	N.4438.E.
2A	VALVE PLUG - SINGLE STAGE	N.4436.D.02	8	OPERATING ARM - SEE CE.	N.4340.E.
2B	VALVE PLUG - 2 - STAGE	N.4437.D.	9	RUBBER SEALING RINGS 1/8" DIA. x 2½" MEAN DIA.	R.161.
B	COVER PLATE	N.4435.D.02	10	OIL SEALS Nº 23715030	
C	END PLATE	N.4437.E.	11	RUBBER SEALS FOR COVER PLATE.	N.19808.D.
D	CLAMP FOR PACKING	N.4485.E.01	12	LIST OF PARTS	
5	DUST COVER (RUBBER SEAL 4 x 8½ x 3 REQ.2)	N.4410.E.	13	1 - SET RUBBER WIPES.	N.32440.D.

S0602

12" CEMENT PLUG VALVES STAN

Rubber Wipes

WS03244001
&
WS03244002



Oil Fog Lubricators & Filters

Instructions

Form No. ENI. 110 10/68

OIL-FOG LUBRICATORS

Series 041E, 042E, S406E, X400E, Y400E, $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$", 1", $1\frac{1}{4}$" and $1\frac{1}{2}$" pipe sizes.
Series 039E, 040E, $\frac{1}{4}$", and $\frac{3}{8}$" sizes.
Series 10–026, 2" size.
TRANSPARENT BOWL
Max. Pressure: 150 p.s.i. Max. Temp.: 120°F.
METAL BOWL
Max. Pressure: 250 p.s.i. (X400E, Y400E and 10-026, 150 p.s.i.) Max. Temp.: 175°F.

INSTALLATION

Install close to component being served and downstream from filter and regulators. Arrows on collar visible through sight glass (1) indicate direction of air flow. To reverse direction of flow remove top plug (2) and drip gland (3) and turn venturi tube (4) 180° with screwdriver. (Series 10–026 unit is not reversible. Direction of flow left to right only). One lubricator recommended for two devices (max.). Keep valves, elbows, joints, to minimum between unit and devices being lubricated. Fill with oil through filler plug (5).

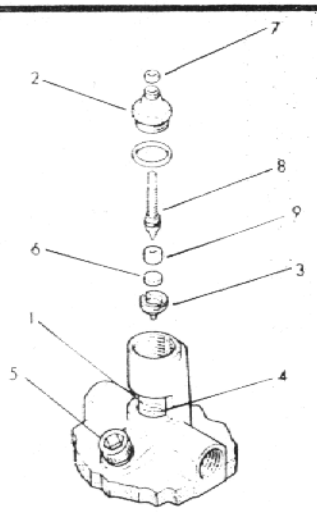
Note: If soluble or additive type oil (graphite or molybdenum disulphide) is used, remove felt disc (6), ensuring male cone of pressure disc (9) faces downwards on reassembly.

Lubricant Specification. Recommended list of oils is available. Preferably consult maker of device to be lubricated for correct oil. Compound oils containing soap, fillers, etc., are not recommended.

OPERATION

To adjust, slacken knurled lock nut (7), close needle (8) fully, turn on air and open needle until required oil flow is seen through sight glass (approx: 1 drop of oil required per 10 c.f.m.). Tighten knurled lock nut after adjustment.

Note: Series 10–026 units are provided with a tamper-proof cap. This must be removed prior to adjustment. If venturi bushing is required, insert from inlet or outlet port and line up holes to receive stem of venturi tube. To clean plastic bowls wash in SOAPY WATER ONLY.



LUBRICATOR ADJUSTMENTS

OLIENEVEL-SMEERAPPARATEN

behorende tot de series: 041E, 042E, S406E, X400E, Y400E, voor pijpmaten van $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$", 1", $1\frac{1}{4}$" en $1\frac{1}{2}$".
Series 039E, 040E voor de maten $\frac{1}{4}$" en $\frac{3}{8}$".
Series 10–026 voor de maten 2".
DOORZICHTIG RESERVOIR
Max. druk: 10,5 kg/cm². Max. temp.: 50°C.
METALEN RESERVOIR
Max. druk: 18 at (X400E, Y400E en 10-026, 10,5 at.)
Max. temp.: 80°C.
INSTALLATIE
Opstellen in nabijheid van te smeren apparatuur achter filters en regulateurs. De pijl op de kraag, zichtbaar door het kijkglas (1), geeft de richting van de luchstroom aan. Om de luchstroom om te keren moeten de bovenste plug (2) en de druppel gland (3) worden verwijderd; daarna de venturibuis (4) 180° verdraaien met een schroevedraaier. (Serie 10–026: deze apparaten zijn niet omkeerbaar. Stromingsrichting alleen van links naar rechts.) Aanbevolen wordt per apparaat niet meer dan twee smeerplaatsen te bedienen. Beperk het aantal kleppen, bochten en verbindingen tussen het smeerapparaat en de smeerpunten tot een minimum. Olie vullen door opening van vulplug (5)—dit kan worden gedaan terwijl de luchtdruk 'aanstaat'.
Opmerking: Indien een speciale mengolie of toevoeging wordt gebruikt, (grafiet of molybdeenbisulfide), moet het viltplaatje (6) worden verwijderd, er zorg voor dragend dat de conus van het drukplaatje (9) bij het monteren weer naar beneden wijst.
Specificatie smeermiddel. Er bestaat een lijst van aanbevolen oliesoorten. Het is raadzaam de fabrikant van het te smeren apparaat te raadplegen omtrent de juiste oliesoort. Compound olie die zeep of vulmiddelen e.d. bevat, dient te worden vermeden.
WERKING
Voor de juiste afstelling eerst kartelcontramoer (7) losdraaien, naald (8) helemaal indraaien, luchttoevoer aanzetten, naald uitdraaien, tot de gewenste olieloop door het kijkglas wordt waargenomen. (Per 0,28 Nm^3/min. is ongeveer 1 druppel olie nodig). Draai na deze instelling pakkingmoer aan (vroegere modellen) of draai kartelcontramoer.
N.B. Serie 10–026. Deze apparaten zijn voorzien van een speciaal deksel om het openen door onbevoegden te voorkomen. Dit deksel moet worden verwijderd voor het afstellen.
Indien venturibusjes vereist zijn, breng deze dan aan van in—of uitlaatpoort en zet de gaatjes in lijn voor steel van venturibusje.
De plastic kolf mag ALLEEN GEREINIGD WORDEN MET ZEEPWATER.

HUILEURS TYPE BROUILLARD D'HUILE

Séries 041E, 042E, S406E, X400E, Y400E, de $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$", 1", $1\frac{1}{4}$" et $1\frac{1}{2}$".
Séries 039E, 040E, de $\frac{1}{4}$", $\frac{3}{8}$".
Séries 10–026, de 2".
CUVE TRANSPARENTE
Pression max.: 10,5 kg/cm².
Température max.: 50°C.
CUVE METALLIQUE
Pression max.: 18 kg/cm² (X400E, Y400E, et 10-026, 10,5 kg/cm².)
Température max.: 80°C.
MONTAGE
Monter à proximité du dispositif à desservir et en aval du filtre et des régulateurs. Les flèches du venturi visibles à travers le verre compte-gouttes (1) indiquent le sens de circulation de l'air. Pour inverser le sens de circulation, enlever le bouchon supérieur (2) et le presse-étoupe compte-gouttes (3) et tourner le tube venturi (4) de 180° avec un tournevis. (Les modèles de la série 10–026 ne sont pas réversibles, l'écoulement se faisant uniquement de gauche à droite.) Un graisseur est recommandé pour un maximum de deux dispositifs à lubrifier. Réduire au minimum le nombre de robinets, coudes, joints, entre l'appareil et les dispositifs à lubrifier. Remplir d'huile par le bouchon de remplissage (5). Ce remplissage peut s'effectuer lorsque la conduite est sous pression.
Nota: Si l'on emploie de l'huile soluble ou du type à additif (graphite ou bisulfure de molybdène), enlever le disque en feutre (6) en s'assurant que le cône mâle du grain de pression (9) est dirigé vers le bas au remontage.
Spécification des huiles. Nous pouvons fournir une liste des huiles recommandées. Consulter de préférence le fabricant du dispositif à lubrifier pour le grade correct d'huile à employer. Les huiles compound contenant des savons, charges, etc., ne sont pas recommandées.
FONCTIONNEMENT
Pour ajuster desserrer l'écrou de fixation moleté (7), fermer complètement le pointeau (8), admettre l'air et ouvrir le pointeau jusqu'à ce que le débit désiré paraisse au travers du verre compte-gouttes (environ 1 goutte d'huile pour chaque 0,28 m^3/min). Resserrer l'écrou de fixation moleté après réglage.
Nota: Les modèles de la série 10–026 sont livrés avec un dispositif de sureté inviolable qu'il faut retirer avant de procéder au réglage. Si la pose d'un venturi est nécessaire, l'insérer à partir de l'orifice d'entrée ou de sortie, en veillant à faire correspondre les orifices destinés à recevoir la tige du tube. Pour laver les cuves en plastique, employer UNIQUEMENT DE L'EAU SAVONNEUSE.

Instructions

Form No. ENI-104 10/68

MANUAL AND AUTOMATIC-DRAIN FILTERS

Series FO1, $\frac{1}{4}$" and $\frac{3}{8}$" sizes.
Series FO2, $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$" and $\frac{3}{4}$" sizes.
Series 30BE and 30CG, $\frac{3}{4}$", 1", $1\frac{1}{4}$" and $1\frac{1}{2}$" sizes.
Series 12–063, $1\frac{1}{4}$", $1\frac{1}{2}$" and 2" sizes.
TRANSPARENT BOWL
Max. Pressure: 150 p.s.i. Max. Temp. 120°F.
METAL BOWL
Max. Pressure: 250 p.s.i. Max. Temp. 175°F.

INSTALLATION

Install near to components being served but upstream from regulators, air line lubricators, etc. The arrow on the body or port markings indicate direction of air flow. Connect a short straight drain pipe to the $\frac{1}{8}$" female pipe thread at the bottom of the Automatic-Drain Filters.

OPERATION

On Automatic-Drain Filters no adjustments are necessary. On manual filters, drain bowl regularly—*before moisture level reaches baffle*. Clean filter elements and, on automatic-drain models, monel screen regularly. If required, automatic-drain models can be manually tripped by pushing a thin rod up through the bottom of the automatic-drain mechanism to completely purge the bowl.

To remove filter element, shut off air supply, bleed off pressure from unit and proceed as follows:

12–063

Unscrew intermediate body, remove wing nut and detach louvre by twisting if necessary. Change filter element when necessary. Do not clean.

30BE, 30CG

Remove clamp ring screw and nut and ease the latched clamp ring segments apart (rotate intermediate body slightly and force upwards to release lock). Do not use a lever to force the two halves apart. Unscrew the deflector assembly and extract the filter element.

FO1, FO2

Unscrew the bowl anti-clockwise. Unscrew the baffle and withdraw the element and filter shield from filter guide.

To clean filter element, wash in paraffin and blow out thoroughly with compressed air.

To clean plastic bowls wash in SOAPY WATER ONLY.

HANDBEDIENDE EN AUTOMATISCHE AFTAPINRICHTINGEN

Serie FO1, voor de maten $\frac{1}{4}$", $\frac{3}{8}$".
Serie FO2, voor de maten $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$".
Series 30BE en 30CG, voor de maten $\frac{3}{4}$", 1", $1\frac{1}{4}$", $1\frac{1}{2}$".
Serie 12–063, voor de maten $1\frac{1}{4}$", $1\frac{1}{2}$", 2".
DOORZICHTIG RESERVOIR
Max. druk: 10,5 at. Max. temperatuur: 50°C.
METALEN RESERVOIR
Max. druk: 18 at. Max. temperatuur: 80°C
INSTALLATIE
Te monteren in nabijheid van te bedienen apparatuur maar vóór regulateurs, nevelsmeer-apparaten enz. De pijl op het huis of de poortmerktekens geven de juiste richting van de luchtstroom aan. Verbind een korte rechte afvoerpijp met de $\frac{1}{8}$" inwendige schoefdraad aan de onderkant van de filters met automatische afvoer.
BEDIENING
Automatisch—geen afstelling is nodig. Modellen met handafvoer, tap het reservoir regelmatig af *voordat het vloeistof-niveau de keerplaat bereikt*. Reinig het filterelement en—bij modellen met automatische afvoer—de monelmetalen zeef regelmatig. Desgewenst kunnen modellen met automatische afvoer met de hand worden uitgeschakeld door een dunne staaf door de onderkant van het automatische afvoermechanisme omhoog te duwen om het reservoir geheel te zuiveren.

Alvorens het filter te verwijderen, sluit de luchttoevoer af, laat de druk ontsnappen en voer de volgende werkzaamheden uit:

12–063

Schroef het tussenstuk uit, verwijder de vleugelmoer en verwijder de schoepenring, desnoods wringen. Vernieuw zonodig de filterpatroon. Dit geldt niet voor een gesinterd bronzen filterpatroon, die moet worden schoongemaakt in petroleum en daarna doorgeblazen.
30BE, 30CG
Alvorens te demonteren, luchttoevoer afsluiten; verwijder de klemringschoef en moer en haal de gekoppelde klemringonderdelen uit elkaar. Draai het tussenstuk een weinig (daarbij een opwaartse druk uitoefenend om vrij te maken). Gebruik geen heftboom om beide helften uiteen te wrikken. Schroef de schoepenring los en neem de filterpatroon uit.
FO1, FO2
Om het filterelement te verwijderen moet men de luchttoevoer afsluiten en het reservoir linksom losschroeven. Schroef de keerplaatt los en neem het element en het filterscherm uit de filtergeleider.
Reinig het filterelement in petroleum en blaas daarna goed met perslucht door.
Een plastic kolf mag ALLEEN MET ZEEPWATER worden gereinigd.

VIDANGE MANUELLE ET AUTOMATIQUE

Série FO1, de $\frac{1}{4}$" et $\frac{3}{8}$".
Série FO2, de $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$", et $\frac{3}{4}$".
Séries 30BE et 30CG, de $\frac{3}{4}$", 1", $1\frac{1}{4}$" et $1\frac{1}{2}$".
Série 12–063, de $1\frac{1}{4}$", $1\frac{1}{2}$" et 2"
CUVE TRANSPARENTE
Pression max.: 10,5 kg/cm².
Température max.: 50°C.
CUVE METALLIQUE
Pression max.: 18 kg/cm².
Température max.: 80°C.
MONTAGE
Monter à proximité des appareils à desservir mais en amont des régulateurs, huileurs de conduite d'air, etc. La flèche sur le corps de l'appareil ou les repères aux orifices indiquent le sens de la circulation d'air. Raccorder un tuyau de vidange court et droit au filetage intérieur de $\frac{1}{8}$" au bas des filtres à vidange automatique.
FONCTIONNEMENT
Automatique—aucun réglage à faire. Types à vidange manuelle, purger la cuve régulièrement—*avant que le niveau des condensats atteigne la chicane*. Nettoyer régulièrement l'élément filtrant et, sur les modèles à vidange automatique, l'écran en monel. Si besoin est, on peut actionner à la main les modèles à vidange automatique en introduisant une tige mince par le bas du mécanisme de vidange automatique et en la faisant remonter afin de purger complètement la cuve.

Pour démonter l'élement filtrant, fermer l'arrivée d'air, vider l'appareil de toute pression et procéder comme suit:

12–063

Dévisser le corps intermédiaire, enlever l'écrou-papillon et détacher le déflecteur, en le tournant au besoin. Changer l'élément filtrant quand besoin est. Ne pas le nettoyer ni le laver (filtre en carton special).
30BE, 30CG
Fermer l'air sous pression; enlever la vis et l'écrou du collier de serrage et séparer les segments de ce dernier (faire tourner légèrement le corps intermédiaire et forcer vers le haut pour dégager l'encliquetage des segments). Ne pas forcer avec un levier pour séparer les deux moitiés. Dévisser l'ensemble déflecteur et extraire l'élément filtrant.
FO1, FO2
Fermer l'air sous pression et dévisser la cuve dans le sens contraire aux aiguilles d'une montre. Dévisser la chicane et retirer l'élément et le protège-filtre du guide-filtre.
Pour nettoyer l'élément filtrant, le laver dans du pétrole et bien le souffler à l'air comprimé.
Pour laver les cuves en plastique, employer UNIQUEMENT DE L'EAU SAVONNEUSE.

MANUELLER UND AUTOMATISCHER ABLASSMECHANISMUS

Serie F01. Rohranschluss R¼" und R⅜"
Serie F02. Rohranschluss R¼", R⅜", R½" und R¾"
Serie 30BE und 30CG. Rohranschluss R¾", R1", R1¼" und R1½".
Serie 12–063. Rohranschluss R1¼", R1½" und R2"
Betriebsdruck:
Bis 10,5 kp/cm² mit Kunststoffbehälter
Bis 18 kp/cm² mit Metallbehälter
Temperaturbereich:
bis 50°C mit Kunststoffbehälter
Bis 80°C mit Metallbehälter

EINBAU

Nahe der Verbrauchsstelle, jedoch vor allen Druckreglern, Nebelölern usw. einbauen. Richtungspfeile auf dem Gehäuse oder an den Öffnungen zeigen die korrekte Richtung des Luftstromes an. Eine kurze gerade Ablaufleitung an das 3,2-mm-Rohrinnengewinde unten an Filtern mit automatischer Entwässerung anbringen.

BETRIEB

Automatische Modelle—keine Einstellungen notwendig. Modelle mit Händentwässerung: der Behälter ist regelmässig und *bevor die Flüssigkeit bis zur Trennkappe reicht*, zu entleeren. Filtereinsatz und—bei automatischen Modellen—Monelsieb sind regelmässig zu reinigen. Auf Wunsch können Modelle mit automatischer Entwässerung auch handbetätigt werden, indem man eine dünne Stange durch den Boden des Mechanismus zur automatischen Entwässerung schiebt, um den Behälter vollkommen zu reinigen.

Zum Ausbau des Filtereinsatzes, wird die Luft abgestellt und der Filter entlüftet, und wie folgt vorgehen:

12–063

Werden das Zwischenstück und die Flügelmutter ausgeschraubt und der Drallkörper abgenommen, wenn erforderlich, durch Verdrehen. Filtereinsatz, wenn nötig, erneuern. Nicht reinigen.

30BE, 30CG

Zum Zerlegen wird der Luftdruck abgestellt, die Klemmringschraube samt Mutter entfernt und die verspannten Segmente des Klemmrings durch leichtes Drehen des Zwischengehäuses und Aufwärtsdrücken zum Lösen der Sperre gelockert. Die beiden Hälften dürfen nicht durch Hebelwirkung voneinander getrennt werden. Der Drallkörper einschliesslich O-Ring und Drallring wird herausgeschraubt und der Filtereinsatz herausgenommen.

F01, F02

Zum Ausbau des Filtereinsatzes wird die Druckluft abgestellt und der Behälter links herum abgeschraubt. Ablenkplatte ausschrauben und den Filtereinsatz und Filtersieb aus Filterführung herausnehmen.

Reinigen des Filtereinsatzes erfolgt durch Spülen in Paraffin, danach gründlich mit Druckluft ausblasen. Kunststoffbehälter NUR IN SEIFENLAUGE waschen.

SPURGO MANUALE E AUTOMATICO

Serie F01, da ¼" e ⅜".
Serie F02, da ¼", ⅜", ½" e ¾".
Serie 30BE e 30CG, da ¾", 1", 1¼" e 1½".
Serie 12–063, da 1¼", 1½" e 2".
CALOTTA TRASPARENTE
Pressione max.: 10,5 kg/cm².
Temperatura max.: 50°C.
CALOTTA METALLICA
Pressione max.: 18 kg/cm².
Temperatura max.: 80°C.

MONTAGGIO

Montare il filtro in prossimità del componente da servire, a monte dei regolatori, dei lubrificatori della linea dell'aria, ecc. La freccia presente sul corpo o i contrassegni sulle aperture indicano la direzione del flusso d'aria. Collegare una sezione corta e dritta di tubo di scarico al filetto da ⅛" situado al fondo dei filtri autoscaricanti.

FUNZIONAMENTO

Modelli automatici—non occorrono regolazioni. Modelli a scarico manuale, scolare la calotta regolarmente—*prima che la condensa di vaporizzazione raggiunga il livello del deflettore*. Pulire l'elemento del filtro e, per i modelli autoscaricanti, la reticella di monel regolarmente. Se necessario, i modelli autoscaricanti, possono venir fatti scattare a mano, spingendo un'astina sottile attraverso il fondo del meccanismo per lo scarico automatico, onde spurgare la calotta completamente.

Per smontare l'elemento del filtro, escludere l'alimentazione dell'aria e lasciar scaricare la pressione dal gruppo, e proseguire nel modo seguente:

12–063

Svitare il corpo intermedio, togliere il dado ad alette ed estrarre la protezione a persiana torcendola, se necessario. Non si pulisca, ma si sostituisca l'elemento quando necessario.

30BE, 30CG

Escludere la pressione dell'aria, togliere la vite ed il dado della ghiera, allentarne ed allontanarne i segmenti (far girare il corpo intermedio, leggermente e spingerlo in alto per liberarlo). Non si usi una leva per separare i due semicorpi. Smontare, svitandolo, il gruppo del deflettore suddetto ed estrarre l'elemento del filtro.

F01, F02

Escludere la pressione dell'aria e svitare la calotta, girandola in senso antiorario. Svitare il deflettore indi togliere elemento e schermo del filtro dalla guida.

Lavare l'elemento del filtro in modo analogo ed asciugarlo accuratamente con un getto d'aria.

Lavare le calotte di plastica ESCLUSIVAMENTE CON ACQUA INSAPONATA.

PURGA MANUAL E AUTOMATICA

Serie F01, de ¼" y ⅜".
Serie F02, de ¼", ⅜", ½" y ¾".
Serie 30BE y 30CG, de ¾", 1", 1¼" y 1½".
Serie 12–063, de 1¼", 1½" e 2".
DEPOSITO TRANSPARENTE
Presión máxima: 10,5 kg/cm².
Temperatura máxima: 50°C.
DEPOSITO METALICO
Presión máxima: 18 kg/cm².
Temperatura máxima: 80°C.

INSTALACION

Instalar cerca de los aparatos que se vayan a servir, pero antes de reguladores, lubricadores de tuberia de aire comprimido, etc. La flecha grabada en el cuerpo o las marcas en las lumbreras indican el sentido de flujo del aire. Enroscar un tubo de purga corto y recto en la rosca hembra de ⅛" que se encuentra en el fondo de los filtros de purga automática.

OPERACION

Automática—no se necesitan ajustes. Versiones de purga manual, purgar el depósito regularmente—*antes de que el nivel de humedad llegue al desviador*. Limpiar regularmente el elemento filtrante y, en modelos automáticos, la pantalla de metal monel. En caso necesario, los modelos de purga automática se pueden inmovilizar introduciendo una varilla delgada desde el fondo del mecanismo de purga automática, a fin de purgar completamente el depósito.

Para desmontar el elemento filtrante, cerrar el suministro de aire, purgar la presión y proceder del modo siguiente:

12–063

Desenroscar el cuerpo intermedio, quitar la tuerca de palomilla y separar la rejilla retorciéndola si es preciso. Cambiar el elemento filtrante cuando sea necesario. No limpiarlo.

30BE, 30CG

Cerrar la presión de aire; quitar la tuerca y tornillo del anillo abrazadera y separar los segmentos unidos (girar el cuerpo intermedio ligeramente y forzar hacia arriba para soltar el cierre). No apalancar para separar ambas mitades. Desenroscar el conjunto del deflector y extraer el elemento filtrante.

F01, F02

Cerrar la presión de aire y desenroscar el depósito dando vueltas hacia la izquierda. Desenroscar el deflector y separar de la guía el elemento y el protector del filtro.

Para limpiar el elemento filtrante, lavarlo con parafina y secarlo bien con aire comprimido.

Para lavar los depósitos, emplear UNICAMENTE AGUA JABONOSA.

MANUELL OCH AUTOMATISK TÖMNING

Typ F01, med ¼" eller ⅜" anslutning.
Typ F02, med ¼", ⅜", ½" eller ¾" anslutning.
Typ 30BE, och 30CG med ¾", 1", 1¼" eller 1½" anslutning.
Typ 12–063, med 1¼", 1½" eller 2" anslutning.
GENOMSYNLIG BEHÅLLARE
Max. tryck: 10,5 kg/cm². Max. temperatur: 50°C.
METALLBEHÅLLARE
Max. tryck: 18 kg/cm². Max. temperatur: 80°C.

INSTALLATION

Filtret monteras nära intill den betjänade anläggningen men före eventuella regulatorer, luftsmörjapparater o.s.v. i ledningen. Pilen på huven eller markeringar på öppningarna visar luftströmningens riktning. Ansult ett kort, rakt avtappningsrör till den ⅛" innergången nedtill på filter med automatisk avtappning.

DRIFT

Automatisk—inga justeringar behövliga. Manuella avtappningstyper: Töm behållaren regelbundet och *innan fuktighetsnivån når skiljeplåten*. Rengör filterelementet och ifråga om automatiska modeller monelskärmen regelbundet. Vid behov kan automatiska modeller utlösas, genom att man skjuter upp en smal stång genom bottnen på avtappningsmekanismen, så att behållaren tömmes helt och hållet.

Vid borttagning av filterelementet: Då filterelementet skall avlägsnas, stäng av tryckluftstillförseln, avlufta aggregatet och förfar sedan på följande sätt:

12–063

Skruva av mellanhuset, tag av vingmuttern och lösgör deflektorn genom att vid behov vrida den. Byt ut filterelementet vid behov. Rengör det inte.

30BE, 30CG

Skall tryckluften först stängas av. Tag bort fastringens skruv och mutter och skilj försiktigt fastringens bägge delar åt (vrid lätt på mellanhuset och tryck det uppåt för att lossa på fastringen). Använd inte någon hävstång för att skilja de båda halvorna åt. Skruva av deflektoraggregatet och drag ut filterelementet.

F01, F02

Skall tryckluften stängas av, varefter behållaren skruvas loss moturs. Skruva bort skiljeplåten samt drag ut elementet och filterskärmen ur filterstyrningen.

Filterelementet rengörs genom att sköljas i fotogen och blåsas ut noga med tryckluft.

Behållare av plast skall tvättas ENBART I TVÅLVATTEN.

Instructions

Form No. ENI. 111 10/68

MICRO-FOG LUBRICATORS

Series 3041–L, 3041–LC, S3406–LC, X3400–LC, Y3400–LC, ¼" to 1" pipe sizes.
Series 10AF–L and 3040–L, ¼" and ⅜" sizes.
Max. Pressure: 150 p.s.i. Max. Temp.: 120°F.

INSTALLATION

Install so that the air flows through unit in direction indicated by arrow on body. For maximum efficiency, install a filter and regulator immediately upstream of the lubricator. Fill with lubricant to oil level mark. *Lubricant Specification.* Recommended list of oils is available. Preferably consult maker of device to be lubricated for correct oil. Compound oils containing soap, fillers, etc. are not recommended.

PERFORMANCE

Refer to appropriate Table for recommended min. and max. air flow.

Note: 'Vane Closed' refers to rotatable venturi plug (Fig 1) having arrow aligned with adjacent index mark A; 'Vane Open' is when arrow is at 'B'. Intermediate positions may be selected. Max. flow may be exceeded if pressure drop does not jeopardise function of system.

Approximately 1/20th of oil passing through sight dome (1 drop in 20) enters air line as 'micro-fog'.

Operating Pressure (p.s.i.)	AIR FLOW-cfm					
	¼" Size		⅜" and ½" Sizes		¾" and 1" Sizes	
	Vane closed A position (min.)	Vane open B position (max.)	Vane closed A position (min.)	Vane open B position (max.)	Vane closed A position (min.)	Vane open B position (max.)
10	1·7	18	1·7	40	1·7	95
20	2·6	24	2·6	56	2·6	135
30	3·2	28	3·2	66	3·2	160
40	3·7	32	3·7	74	3·7	183
50	4·1	34	4·1	81	4·1	205
60	4·4	36	4·4	88	4·4	220
70	4·8	38	4·8	94	4·8	238
80	5·2	40	5·2	100	5·2	252
90	5·4	42	5·4	108	5·4	268
100	5·7	44	5·7	113	5·7	280
110	6·0	46	6·0	120	6·0	295
120	6·2	48	6·2	125	6·2	302
130	6·3	50	6·3	130	6·3	322
140	6·5	52	6·5	134	6·5	335
150	6·7	54	6·7	139	6·7	345

1 p.s.i. = 0·07 Kg/cm2 — 1 cfm. = 28·32 litres/minute

Series 3041–L, 3041–LC, S3406–LC, X3400–LC and Y3400–LC.

OPERATION

To replenish oil, shut off air and fill to level mark. To set on installation, remove dome clamp ring (1), sight dome and venturi locking washer, and adjust venturi plug so that arrow is positioned between the index marks 'A' and 'B' to suit AIR FLOW requirements of associated device being lubricated. 'A' = min. air flow; 'B' = max. air flow. This adjustment is not critical. Refit venturi locking washer, sight dome and clamp ring.

To adjust OIL FEED, turn on air supply and operate associated device; observe oil flow at sight dome and rotate oil feed adjusting screw (2) anti-clockwise to increase oil flow (or vice versa) as necessary. Refer to PERFORMANCE. If required rates of oil feed cannot be obtained, readjust venturi plug and then repeat oil feed adjustment.

Note: Rotation of venturi plug towards 'B' increases sensitivity of oil feed adjustment; rotation towards 'A' decreases sensitivity, but gives higher oil feed rates.

'LC' SERIES

The 'LC' series is fitted with a small jet air pump and constant level oil cup. Lubricator syphon tube draws oil from the oil cup which is kept full at all times by the pump

To clean plastic bowls wash in SOAPY WATER ONLY.

Operating Pressure (p.s.i.)	cfm	
	Vane closed A position (min.)	Vane open B position (max.)
10	·6	10·3
20	·8	14
30	1·0	16·4
40	1·2	18·5
50	1·4	20·2
60	1·5	21·8
70	1·6	23·2
80	1·7	24·5
90	1·8	26
100	1·85	27·2
110	1·9	28·6
120	1·93	29·8
130	1·96	30·9
140	1·98	31·9
150	2·0	33

Series 10AF–L and 3040–L

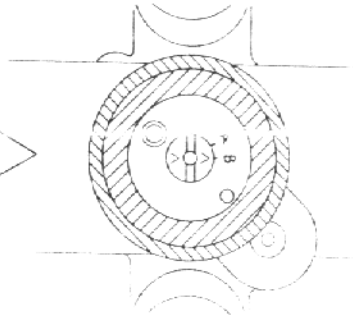


Fig. 1

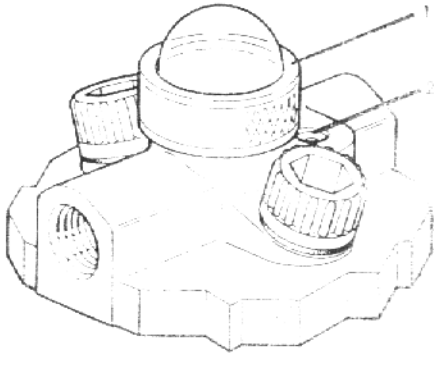
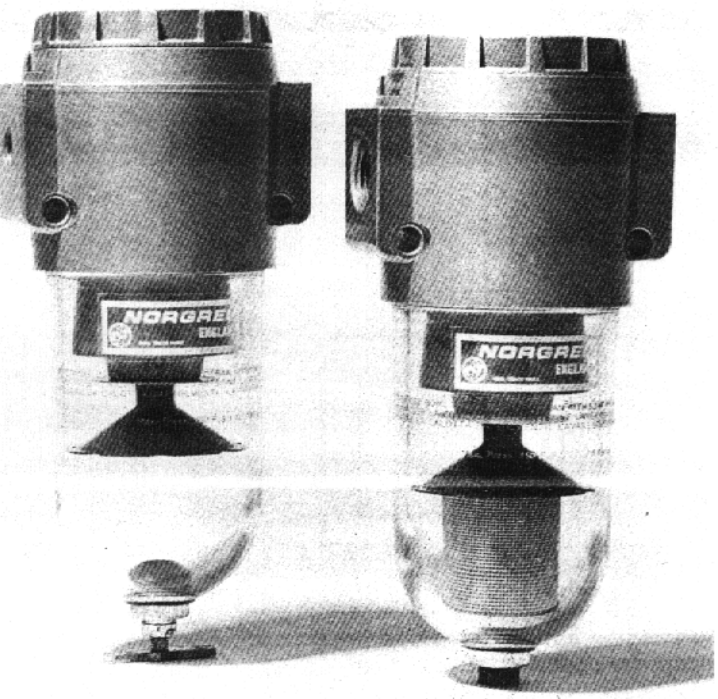


Fig. 2

The Norgren *Citation* Line
offers a NEW STANDARD in Compressed Air Filtration

Standard Filter

1/4"-3/4" • WITH INTERCHANGEABLE MANUAL OR AUTOMATIC DRAIN

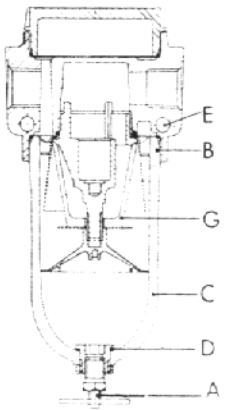


SPECIFICATIONS

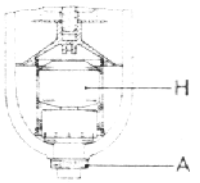
PIPE SIZES: $\frac{1}{4}$", $\frac{3}{8}$", $\frac{1}{2}$", $\frac{3}{4}$" B.S.P. Taper
BOWLS: $\frac{1}{3}$ PT (0·20 litres) SAFETY CLEAR
TRANSPARENT (STANDARD)
METAL (OPTIONAL)
FILTER ELEMENTS:
50 MICRON SINTERED BRONZE (STANDARD)
5 AND 25 MICRON SINTERED BRONZE (OPTIONAL)
MAXIMUM PRESSURE:
Transparent Bowl: 150 psi (10·5 Kg/cm²)
Metal Bowl: 250 psi (18 Kg/cm²)
MAXIMUM TEMPERATURE:
Transparent Bowl: 120°F (50°C)
Metal Bowl: 175°F (80°C)
AUTOMATIC OR MANUAL DRAIN
MOUNTING HOLES: $\frac{5}{16}$" (7 mm)

FEATURES

A. Interchangeable automatic drain or manual drain.
B. Threaded bowl is easily removed – no clamp ring.
C. Safety-Clear, non shattering, transparent bowl.
D. Plastic insert with draincock reduces internal stress.
E. Built in mounting provision.
F. This filter removes more water than any competitive filter on the market today.
G. Large filter element minimises pressure drop.
H. Automatic - Drain operates under FLOW and NO FLOW conditions.



Manual-Drain Models



Automatic-Drain Models

WHERE TO USE

The FO2 filter is designed for general application on air and non-corrosive gas systems where effective filtration is required.

NORGREN
SHIPSTON-ON-STOUR, WARWICKSHIRE, ENGLAND

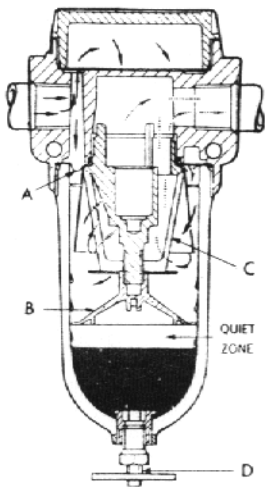
OPERATION

Air flows through the directional louvres (A) forcing it into whirling flow pattern. Liquid particles are thrown against the inside wall of the bowl by centrifugal force. The liquid particles run down into the bottom of the bowl. The baffle (B) maintains a "quiet zone" in the lower part of the bowl to prevent air turbulence from picking up the liquid and returning it to the air stream. The air then passes through the filter element (C) to remove solid contaminants.

Liquid contaminants are drained by opening the manual drain-cock (D).

Alternatively, an automatic drain assembly, easily interchangeable with the manual drain, automatically dumps liquid as it collects. When the liquid level in the bowl reaches a predetermined height the float (E) opens a pilot valve (F). This admits air above the piston (G), thus causing the drain valve (H) to open. The liquid is expelled by air pressure to a drain whereupon the float closes the pilot valve and so the drain valve.

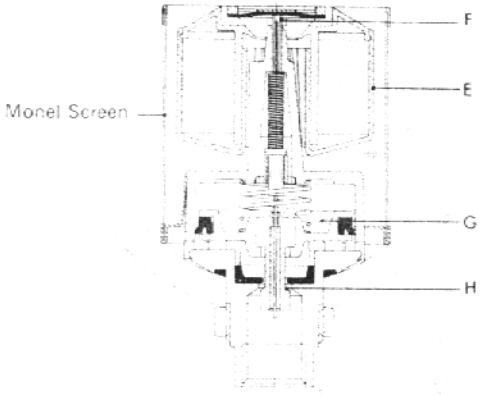
The mechanism is designed to open when no air pressure is in the line permitting overnight draining. It is a sealed unit.



Contaminated Air ⟶

Clean Air ⟶

Liquid ■



AUTOMATIC DRAIN

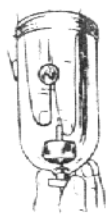
AUTO-DRAIN KITS

FO2 Filters can be quickly converted from manual to automatic-draining types. Order appropriate Auto-Drain Kit listed in accessories table and follow these easy assembly steps:—

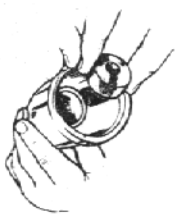
1 Remove bowl, unscrew draincock and retaining ring and remove bowl insert.

2 Place automatic-drain mechanism in bowl.

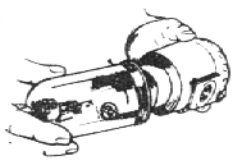
3 Screw up retaining ring on external thread of automatic-drain mechanism.



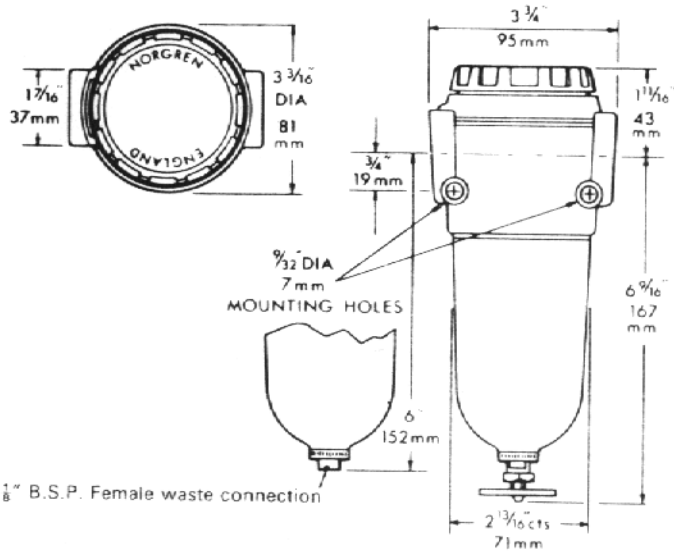
4 Position protective monel screen (open end upwards) and float.



5 Screw back bowl into body.

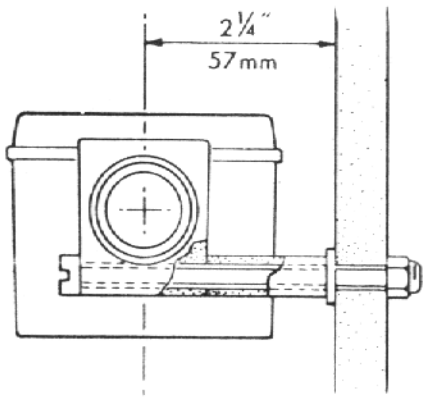


DIMENSIONS

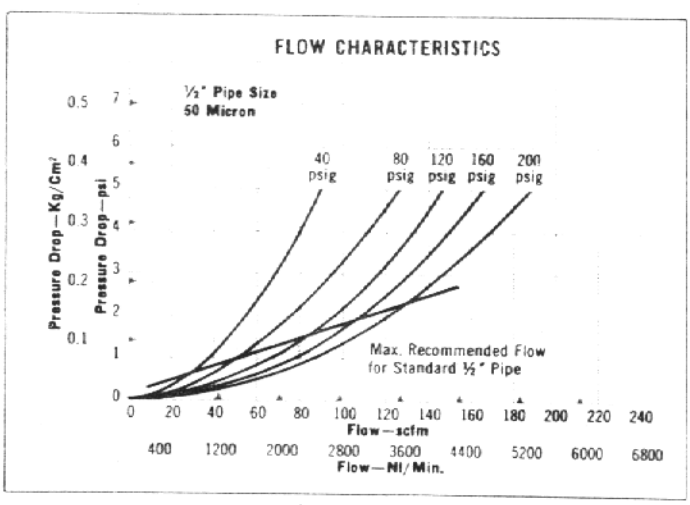


AUTOMATIC DRAIN MANUAL DRAIN

MOUNTING DIMENSIONS



PERFORMANCE CHARACTERISTICS



ORDER TABLE

BOWL TYPE	DRAIN TYPE	†PIPE SIZE	STANDARD	OPTIONAL MODELS	
			FILTER ELEMENT		
			50-MICRON	25-MICRON	5-MICRON
SAFETY-CLEAR	AUTOMATIC	¼"	**FO2-200-A3TB**	FO2-200-A2TB	FO2-200-A1TB
		⅜"	**FO2-300-A3TB**	FO2-300-A2TB	FO2-300-A1TB
		½"	**FO2-400-A3TB**	FO2-400-A2TB	FO2-400-A1TB
		*¾"	**FO2-600-A3TB**	FO2-600-A2TB	FO2-400-A1TB
	MANUAL	¼"	**FO2-200-M3TB**	FO2-200-M2TB	FO2-200-M1TB
		⅜"	**FO2-300-M3TB**	FO2-300-M2TB	FO2-300-M1TB
		½"	**FO2-400-M3TB**	FO2-400-M2TB	FO2-400-M1TB
		*¾"	**FO2-600-M3TB**	FO2-600-M2TB	FO2-600-M1TB

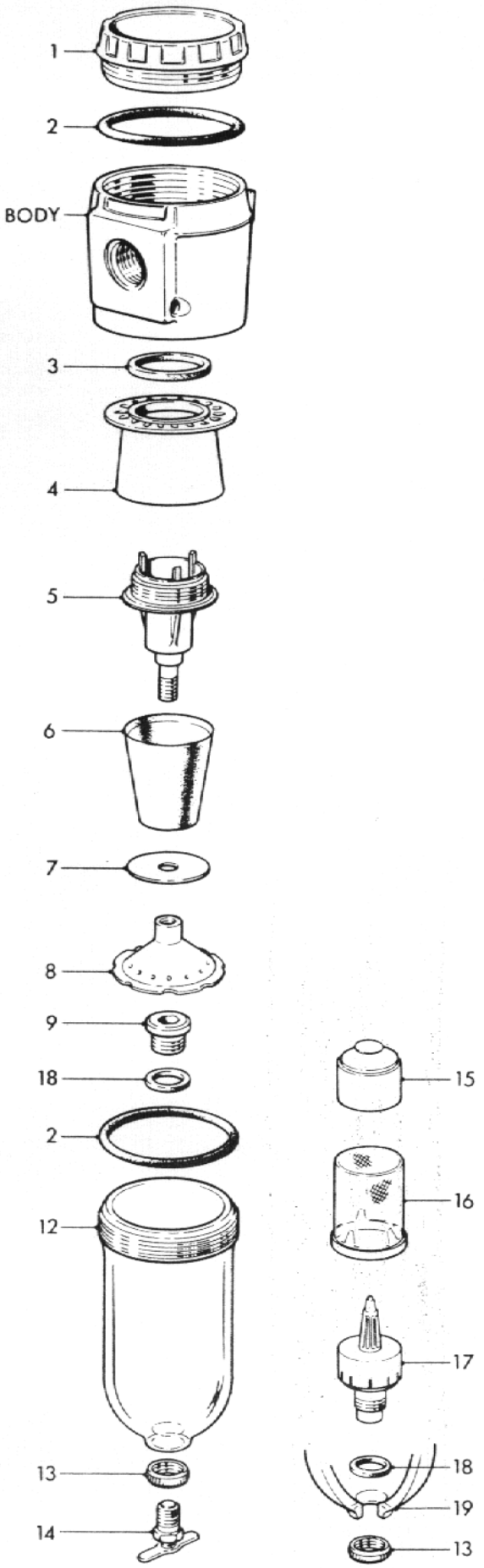
BOWL TYPE	DRAIN TYPE	†PIPE SIZE	OPTIONAL MODELS		
			50-MICRON	25-MICRON	5-MICRON
METAL	AUTOMATIC	¼"	FO2-200-A3MB	FO2-200-A2MB	FO2-200-A1MB
		⅜"	FO2-300-A3MB	FO2-300-A2MB	FO2-300-A1MB
		½"	FO2-400-A3MB	FO2-400-A2MB	FO2-400-A1MB
		*¾"	FO2-600-A3MB	FO2-600-A2MB	FO2-600-A1MB
	MANUAL	¼"	FO2-200-M3MB	FO2-200-M2MB	FO2-200-M1MB
		⅜"	FO2-300-M3MB	FO2-300-M2MB	FO2-300-M1MB
		½"	FO2-400-M3MB	FO2-400-M2MB	FO2-400-M1MB
		*¾"	FO2-600-M3MB	FO2-600-M2MB	FO2-600-M1MB

**¾" Models are ½" units tapped ¾" for use with ¾" o.d. copper pipe fittings.*

†Standard pipe threads are B.S.P. Taper.
Alternative pipe threads B.S.P. Parallel and ANPT must be specified.

ACCESSORIES

	**BOWL GUARD KIT** (includes special transparent bowl) Perforated metal gives positive protection yet allows visibility of bowl contents.	For Manual Drain Models 18-012-986 For Automatic-Drain Models 18-012-987
	**MOUNTING KIT** Consists of metal and wood screws, spacer tubes, washers and self locking nuts. Fits built-in mounting holes.	18-026-999 (W 7)
	**AUTO-DRAIN KITS** For simple conversion from manual to automatic-drain. For Transparent Bowl Models For Metal Bowl Models	 3000-01 3000-99



MANUAL DRAIN AUTOMATIC DRAIN

MAINTENANCE

To remove the filter element, shut off air pressure and unscrew the bowl anti-clockwise (12, 19). Unscrew the baffle (8) and withdraw the element and filter shield (6, 7) from filter guide (5). To clean filter element, wash in paraffin and blow out thoroughly with compressed air. Keep filter clean for best performance and minimum pressure drop. Remove the monel screen (16) from the bowl of automatic-drain models and blow out with compressed air.

Clean TRANSPARENT BOWLS in soapy water. DO NOT USE SOLVENTS AS THEY WILL DESTROY THE BOWL.

To completely dis-assemble remove the filter guide, which retains the deflector assembly (4) by means of a $\frac{1}{2}$" open wrench.

After cleaning, inspect "O" rings and gaskets for nicks and cuts. On re-assembly ensure they are not twisted and slightly smear with silicone grease. Do not crush filter element by over-tightening baffle.

On automatic-drain models, the float assembly (15) is not attached and will drop out when the bowl is turned upside down. The automatic-drain assembly (17) can be removed by loosening the knurled retaining ring (13) and withdrawing the component from the bowl. The float and automatic-drain assemblies are not repairable items. Care should be taken on re-assembly to ensure that the monel screen is installed with the internal guides at the bottom of the bowl and also that the gasket (18) is in position on the bottom of the automatic-drain assembly.

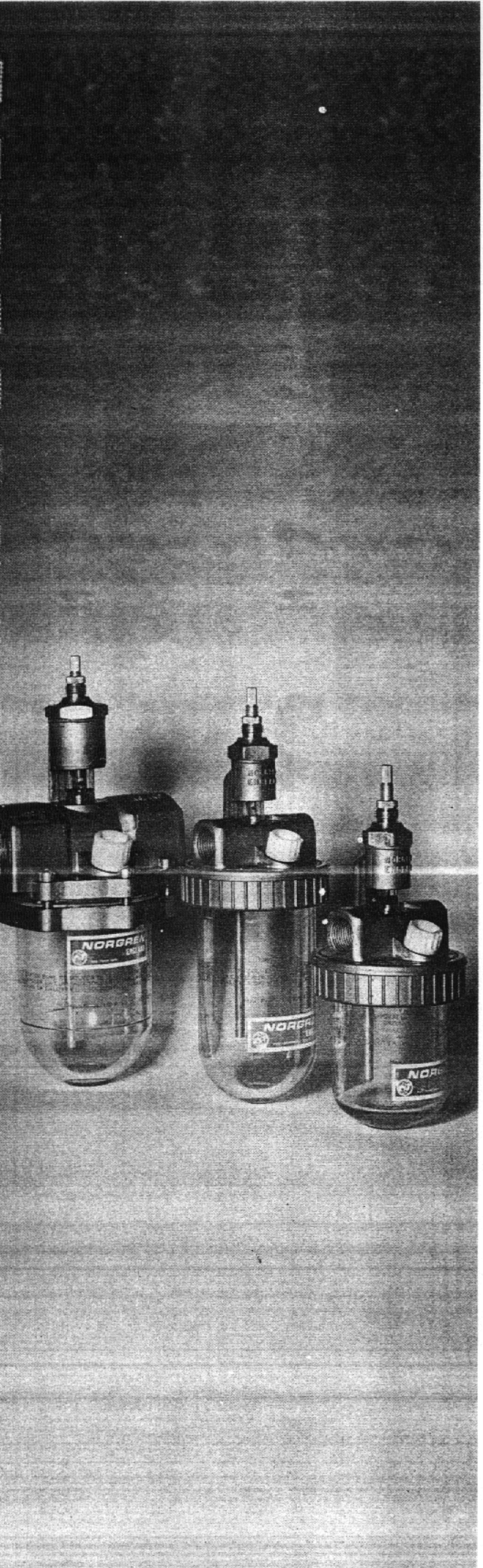
PARTS

Gasket Kit		FO2-4-GK
	Comprises:	
2	'O' Ring ($2\frac{3}{4}$" o.d.) set of 2	2315-38
3	Gasket, Filter Guide ($1\frac{5}{8}$" o.d.)	2382-05
18	Gasket ($\frac{3}{4}$" o.d.)	2811-01
For Manual-Drain Models		
Repair Kit		FO2-4-100M
	Comprises:	
	Gasket Kit	FO2-4-GK
	Filter Element (50 micron)	2992-02
	Draincock	684-01
For Automatic-Drain Models – Transparent Bowl		
Repair Kit		FO2-4-100A
	Comprises:	
	Gasket Kit	FO2-4-GK
6	Filter Element (50 micron)	2992-02
16	Monel Screen	2991-98
Auto-Drain Kit		3000-01
	Comprises:	
15	Float	3003-50
17	Automatic-Drain Mechanism	3000-02
16	Monel Screen	2991-98
13	Retaining Ring	2797-01
18	Gasket ($\frac{3}{4}$" o.d.)	2811-01
For Automatic-Drain Models – Metal Bowl		
Repair Kit		FO2-4-100AM
	Comprises:	
	Gasket Kit	FO2-4-GK
6	Filter Element (50 micron)	2992-02
16	Monel Screen	2991-99
Auto-Drain Kit		3000-99
	Comprises:	
	Auto-Drain Kit	3000-01
16	with Monel Screen	2991-99
	substituted for Monel Screen	2991-98
Further Replacement Parts		
1	Cap	2486-01
8	Baffle	2740-01
4	Deflector Assembly	2488-50
5	Filter Guide	2483-89
7	Filter Shield	3404-01
13	Retaining Ring	2797-01
6	Filter Element (50 micron)	2992-02
6	Filter Element (25 micron)	2992-03
6	Filter Element (5 micron)	2992-04
For Manual-Drain Models		
12	Transparent Bowl Assembly including draincock	2487-51
	Metal Bowl Assembly including draincock	3047-50
9	Bowl Insert	2796-99
14	Draincock	684-01
For Automatic-Drain Models		
19	Transparent Bowl	2487-58
	Metal Bowl	3047-01
15	Float	3003-50
17	Automatic-Drain Mechanism	3000-02
16	Monel Screen (transparent bowl)	2991-98
16	Monel Screen (metal bowl)	2991-99

WHEN ORDERING SPARES QUOTE MODEL NUMBER AND KIT OR PART DESCRIPTION

NORGREN

SHIPSTON-ON-STOUR, WARWICKSHIRE, ENGLAND



Types 0-39E
0-40E, SO-40E
0-41E, SO-41E
0-42E, SO-42E

EINC-301a
February, 1969

'E' Type Oil Fog Lubricators

¼" — 1" • 3 OZ., ¼ PT., ⅓ PT. NOMINAL OIL CAPACITIES

SPECIFICATIONS

PIPE SIZES: ¼", ⅜" ½", ¾", 1" B.S.P.T.
OIL RESERVOIRS: NOMINAL CAPACITIES
3 oz. (0.10 litres),
¼ pt. (0.15 litres),
⅓ pt. (0.20 litres)
SAFETY CLEAR TRANSPARENT BOWLS
¼ pt. (0.15 litres),
⅓ pt. (0.20 litres),
METAL BOWLS (Optional)
MAXIMUM PRESSURE: TRANSPARENT BOWL,
150 p.s.i. (10.5 kg/cm²)
METAL BOWL,
250 p.s.i. (18 kg/cm²)
MAXIMUM TEMPERATURE:
TRANSPARENT BOWL,
120°F (50°C)
METAL BOWL,
175°F (80°C)
MINIMUM OPERATING AIR FLOW
AT 80 p.s.i. (5.6 kg/cm²)
¼": 4.5 CFM (127 litres/min)
⅜": 6 CFM (170 litres/min)
½": 12 CFM (340 litres/min)
¾": 18 CFM (510 litres/min)
1": 33 CFM (850 litres/min)
MAXIMUM OPERATING AIR FLOW: ABOVE MAXIMUM RECOMMENDED FLOW FOR PIPE SIZE.
AIR FLOW: NORMALLY SUPPLIED FOR LEFT TO RIGHT AIR FLOWS *

* *Reversible — simple adjustment permits lubricators to be used for air flow in either direction.*

FEATURES

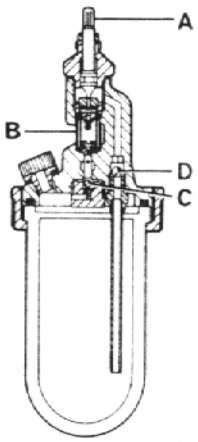
A Easily set — thumbscrew allows precise adjustment of oil feed rate.

B Sight tube for visible oil feed. Every drop of oil seen enters the air stream.

C Check valve–can be refilled without shutting off air supply.

D Non-return valve in syphon tube ensures immediate lubrication when used intermittently.

E Easy maintenance.



NORGREN
SHIPSTON-ON-STOUR, WARWICKSHIRE, ENGLAND

WHERE TO USE

Tests prove air tools operate over 20 times longer when lubricated properly

Designed to provide lubrication for air tools, air cylinders, and other air operated equipment. One lubricator should not normally serve more than two tools.

If the tool operates over a widely varying range of air flows, use a Constant Density Lubricator. Micro-Fog Lubricators are recommended where there are lengthy complex piping systems or multiple points of lubrication.

WHY LUBRICATE AIR TOOLS?

The proper lubrication of pneumatic tools and cylinders prevents friction damage and rust corrosion, thereby increasing their working life substantially. Lubrication reduces down-time, lowers maintenance and replacement costs.

Actual comparative tests using a control group of like air-powered tools with and without lubrication have shown that the tools with lubrication will last 20 times as long as the air tools without any lubrication.

For flexibility of installation, most 'E' Type Oil Fog lubricators can be easily adjusted for either left-to-right or right-to-left air flow.

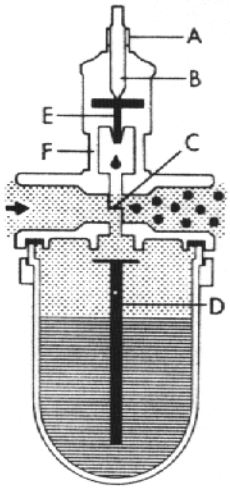
An oil feed adjustment conveniently located on top of the lubricator controls the rate of oil feed through the sight feed glass. You know the lubricator is functioning and how much oil is going into the air stream.

Adjustment can be made from one drop per minute to a full stream of oil.

Whether on intermittent or continuous operation, the lubricator will provide properly lubricated air whenever the air is flowing.

OPERATION

To adjust, slacken knurled lock nut (A), close needle (B) fully, turn on air and open needle until required oil flow is seen through sight glass (approx: 1 drop of oil required per 10 c.f.m.). Tighten knurled lock nut after adjustment.

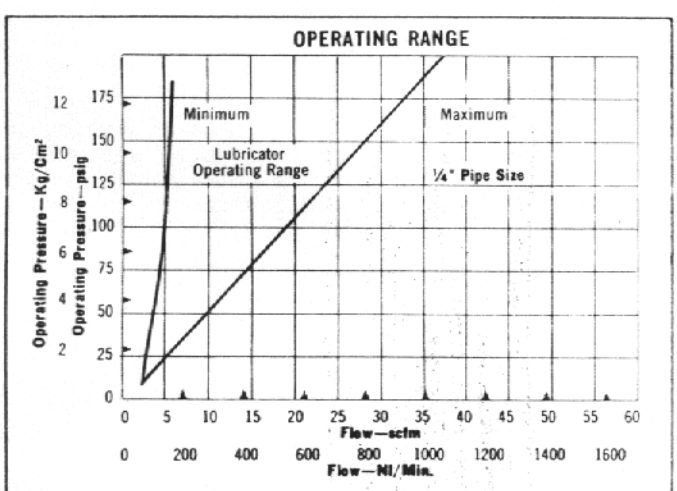


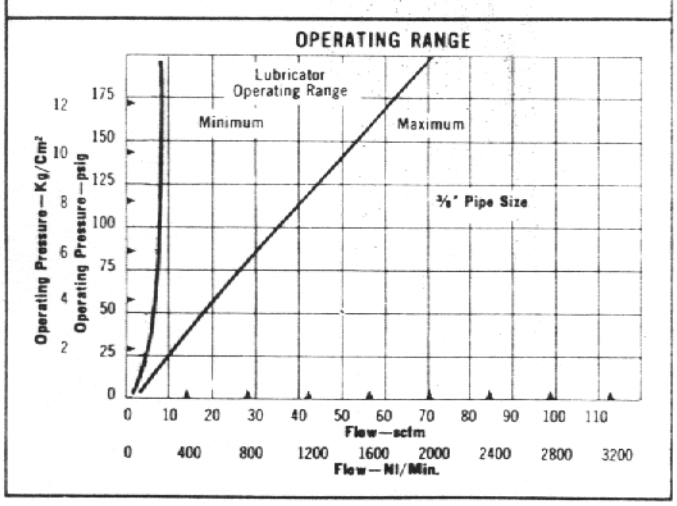
Air enters the lubricator as indicated. Air flowing through the lubricator causes a suction as it passes through the venturi section (C). Thus, oil is caused to flow up the syphon tube (D) to the chamber above the drip gland. Here the flow of oil is controlled by a needle valve and permitted to drip at the desired rate of feed from the drip gland (E), through the sight feed chamber (F) and into the air line. As oil enters the air stream, it is atomized into an air-borne oil fog which is carried to the pneumatic device.

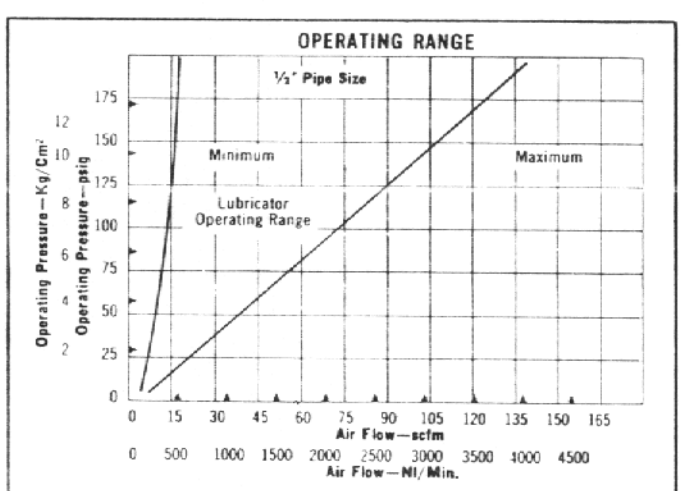
The check valve ball and spring permits the reservoir to be refilled without shutting off the air supply.

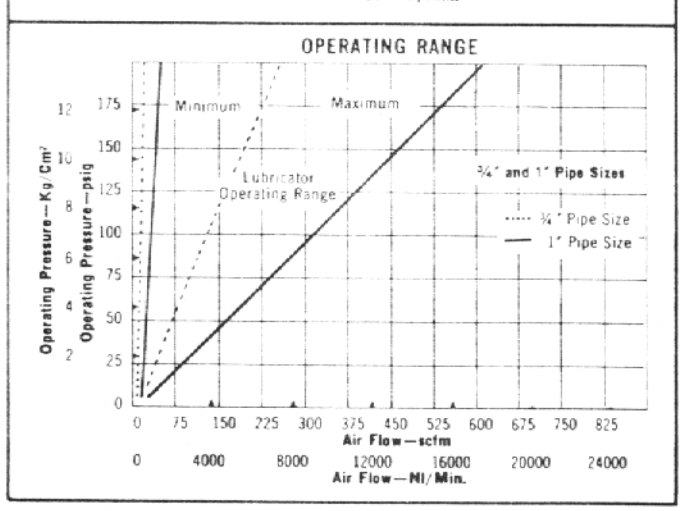
INTERNATIONAL PNEUMATIC SYMBOL

TYPICAL PERFORMANCE CHARACTERISTICS

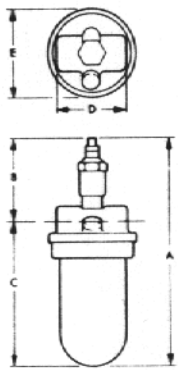




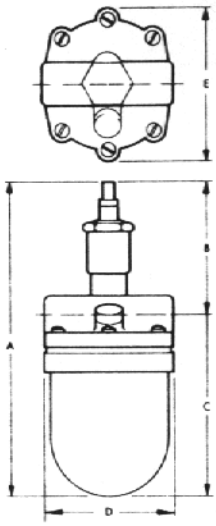




DIMENSIONS



3 OZ. & ¼ PT. SIZES

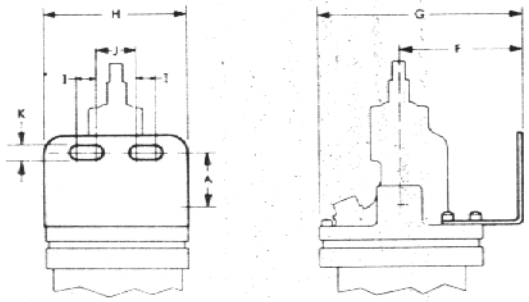


⅛ PT. SIZE

Nominal Oil Capacity	Pipe Size	DIMENSIONS — Inches and Millimetres				
		A*	B	C*	D	E
3 oz.	¼", ⅜"	6⅜ 161	2 12/16 71	3 7/16 90	2 5/16 59	2⅞ 73
¼ pt.	¼", ⅜"	7¾ 197	2 12/16 71	4 13/16 125	2 5/16 59	2⅞ 73
⅓ pt.	¼", ⅜", ½"	8⅜ 213	3 11/16 94	4 11/16 119	3⅜ 86	3 13/16 97
	¾", 1"	8 12/16 223	3⅞ 98	4 11/16 125	4 102	3 13/16 97

* For Series S0-41E and S0-42E, add ⅛" (3 mm) to dimensions A and C.
For Series S0-40E add 3/16" (5 mm) to dimensions A and C.

MOUNTING DIMENSIONS



Nominal Oil Capacity	Pipe Size	DIMENSIONS — Inches and Millimetres						
		A	F	G	H	I	J	K
3 oz, ¼ pt.	¼", ⅜"	⅝ 16	1 12/16 46	3 5/16 84	2 13/16 63	½ 13	⅞ 22	12/64 7
⅓ pt.	¼", ⅜", ½"	1 5/16 37	2¼ 57	4 5/16 106	3¼ 83	⅝ 16	1¼ 32	12/64 7
	¾", 1"	1 3/16 30	2¼ 57	4 5/16 106	3¼ 83	⅝ 16	1¼ 32	12/64 7

ORDER TABLE

Nominal Bowl Capacity	*Pipe Size B.S.P.T.	Standard Models: Transparent Bowl	Optional Models: Metal Bowl
3 oz.	¼"	0-39-2E	—
	⅜"	0-39-3E	—
¼ pt.	¼"	0-40-2E	S0-40-2E
	⅜"	0-40-3E	S0-40-3E
⅓ pt.	¼"	0-41-2E	S0-41-2E
	⅜"	0-41-3E	S0-41-3E
	½"	0-41-4E	S0-41-4E
	¾"	0-42-6E	S0-42-6E
	1"	0-42-8E	S0-42-8E

* *Alternative pipe threads B.S.P.P. and A.N.P.T. must be specified.*

ACCESSORIES

Mounting Brackets For use on any vertical surface. Heavy gauge steel. *Screws included*	For Series 0-39E, 0-40E, S0-40E ¼" size ⅜" size For Series 0-41E, 0-42E, S0-41E, S0-42E All sizes	18-001-999 (W-62) 18-001-998 (W-63) 18-001-017 (W-2)
Syphon Tube Filter 200 Mesh Monel screen ensures delivery of clean oil.	For all models	1788-01
Draincock Models available with draincock fitted to bowl.	For all models	Specify
Tamper-proof Cap Prevents unauthorised adjustment of lubricator setting. Hexagon cap screws down over Top Plug Assembly.	For all models	2131-99
Bowl Guard (with modified clamp ring and special bowl). Expanded metal cage gives positive protection yet allows visibility of bowl contents.	For Series 0-40E For Series 0-41E, 0-42E	18-012-993 18-012-997
Streamline Wyes Improve efficiency of fog delivery.	Inlet ¼" B.S.P., 2 outlets ¼" B.S.P. Inlet ¼" A.N.P., 2 outlets ¼" A.N.P.	18-006-987 18-006-016
Aerosol Distributor Simplifies piping arrangement.	Inlet ¼" B.S.P., 8 outlets, ⅛" B.S.P. Outlets not required are plugged—specify.	18-005-002 (A1-8)
Venturi Bushings Reduce venturi section for low air flow applications.	For ¼" Pipe Size. Minimum Flow at 80 p.s.i. (5.6 kg/cm²) 2.2 cfm (62 litres/min)	3 oz., ¼ pt. 1643-01 ⅓ pt. 1506-01

RAPID CYCLE MODELS

These models are designed to provide oil for rapid-cycle applications such as welding machines. Consult Factory for full details.

NORGREN COMPATIBLE PRODUCTS

Norgren also offers similar lubricators with 1 qt., 1⅓ gal., and 5 gal., nominal oil capacities as well as compatible filters and regulators.

MAINTENANCE

To dismantle, shut off air, remove clamp ring (23, 24) and detach bowl (22); unscrew check valve seat (17) and syphon tube (19) to remove balls (15, 18) and spring (16). Unscrew top plug (2) and drip gland (7) and push venturi tube (11) and sight tube (9) out of top of body. TO CLEAN THE TRANSPARENT BOWL, WASH IN SOAPY WATER, DO NOT USE SOLVENTS AS THEY WILL DESTROY THE BOWL. Clean parts with paraffin and blow out with air. On re-assembly smear rubber parts with silicon grease.

Hold sight glass while firmly tightening drip gland. Male cone of pressure disc(5)must face downwards.Tighten clamp ring firmly.If venturi bushing is fitted, insert from inlet or outlet port and line up holes to receive stem of venturi tube.

(1) *If oil fails to flow,* ensure lubricator is correct size for task (see Performance characteristics). Check air flow direction corresponds with arrows on venturi tube. Thoroughly clean all oil passages with paraffin and compressed air. Examine check valve ball and seat for foreign matter. Check sight tube for hairline cracks. If oil still fails to flow, examine check valve seat to ensure seat still slightly spoilt.

(2) *If oil or air leaks around sight glass tube,* tighten drip gland. If this fails to stop leak inspect sight tube washers (8, 10).

PARTS

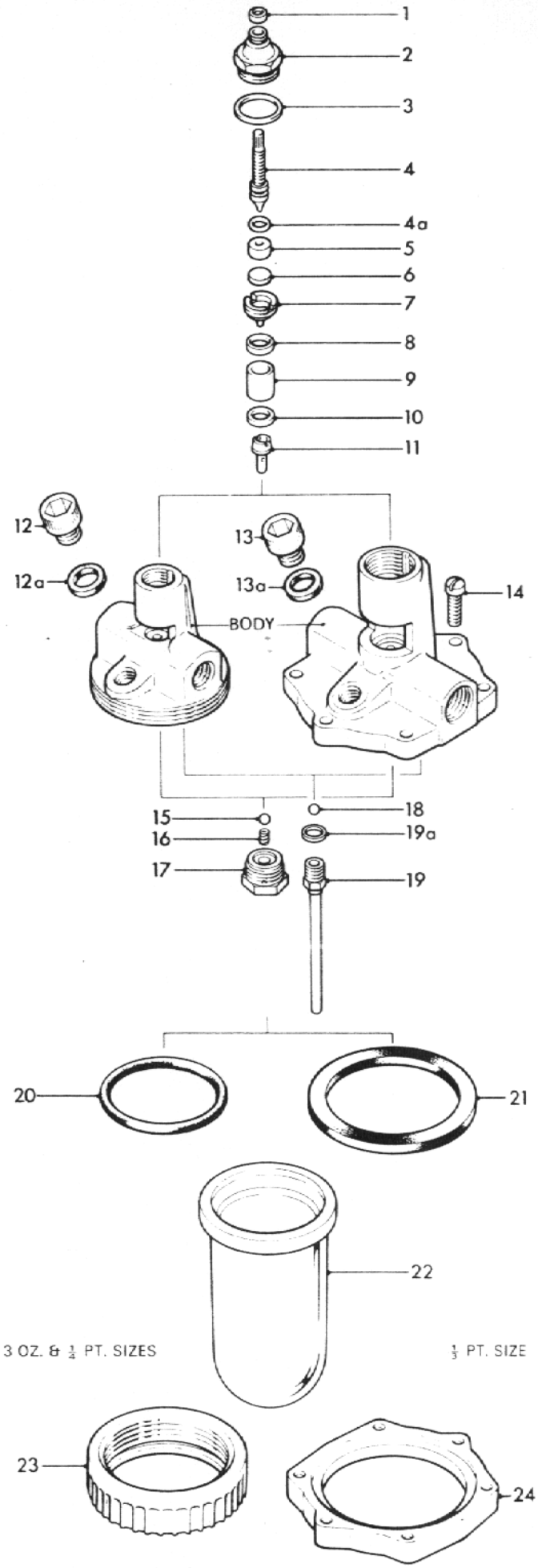
FOR 3 OZ. AND ¼ PT. MODELS

	GASKET KIT	040E-GK
	Comprises:	
19a	Gasket, Syphon Tube	1802-01
12a	Gasket, Filler Plug	1955-01
3	Gasket, Top Plug	1188-01
6	Felt Disc	1006-01
10	Lower Sealing Washer	1189-01
8	Upper Sealing Washer	1190-01
20	'O' Ring (2¼" o.d.)	131-01
4a	'O' Ring (⅞" o.d.)	705-01
–	Packing (Pre 1966)	1214-99
	REPAIR KIT	040E-100
	Comprises:	
	Gasket Kit	040E-GK
16	Check Valve Spring	998-01
12	Filler Plug Assembly	1186-02
4	Needle Assembly (includes 'O' Ring)	1202-92
5	Pressure Disc	1005-01
15,18	Stainless Steel Ball (2 off)	1004-01
9	Sight Glass Tube	1179-01
	FURTHER REPLACEMENT PARTS	
22	Bowl, Transparent (0–39)	0-73
22	Bowl, Transparent (0–40)	278-94
–	Bowl, Transparent with draincock (0–39E) alternative	0-30
–	Bowl, Transparent with draincock (0–40E) alternative	278-96
22	Bowl, Metal (S0–40E)	588-99
–	Bowl, Metal with draincock (S0–40E) alternative	588-97
23	Clamp Ring	1994-02
17	Check Valve Seat	999-01
7	Drip Gland	1181-01
12	Filler Plug Assembly	1186-02
–	Needle (early models)	1184-99
4	Needle Assembly (includes 'O' Ring)	1202-92
1,2,4	Top Plug Assembly, complete	18-004-990
1	Knurled Locknut	619-96
11	Reversible Venturi Tube	1140-01
9	Sight Glass Tube (metal bowl units)	1179-01
9	Sight Plastic Tube (transparent bowl units)	1179-99
19	Syphon Tube Assembly (0–39E) inc. gasket	231-99
19	Syphon Tube Assembly (0–40E) inc. gasket	1819-01

FOR ⅓ PT. MODELS

	GASKET KIT	042E-GK
	Comprises:	
19a	Gasket, Syphon Tube	1802-01
3	Gasket, Top Plug	1280-01
13a	Gasket, Filler Plug	1956-01
21	Gasket, Bowl	1029-01
10	Lower Sealing Washer	1210-01
8	Upper Sealing Washer	1212-01
–	Packing (Pre 1966)	1214-99
6	Felt Disc	1006-01
4a	'O' Ring (⅞" o.d.)	705-01
	REPAIR KIT	042E-100
	Comprises:	
	Gasket Kit	042E-GK
16	Check Valve Spring	998-01
13	Filler Plug Assembly	1206-02
4	Needle Assembly (includes 'O' Ring)	1202-92
5	Pressure Disc	1005-01
15,18	Stainless Steel Balls (2 off)	1004-01
14	Screws (set of six)	1031-91
9	Sight Glass Tube	1196-01
	FURTHER REPLACEMENT PARTS	
17	Check Valve Seat	999-01
7	Drip Gland	1197-01
13	Filler Plug Assembly	1206-02
11	Reversible Venturi Tube (¼", ⅜", ½")	1433-01
11	Reversible Venturi Tube (¾", 1")	1434-01
9	Sight Glass Tube (metal bowl units)	1196-01
9	Sight Plastic Tube (transparent bowl units)	1196-99
–	Needle (early models)	1202-99
4	Needle Assembly (includes 'O' Ring)	1202-92
1,2,4	Top Plug Assembly Complete	18-004-991
1	Knurled Locknut	619-96
22	Bowl, Transparent	216-77
–	Bowl, Transparent with Draincock (alternative)	216-16
22	Bowl, Metal	2101-98
–	Bowl, Metal with Draincock (alternative)	2101-91
24	Clamp Ring	1018-02
19	Syphon Tube Assembly, inc. Gasket	1819-01

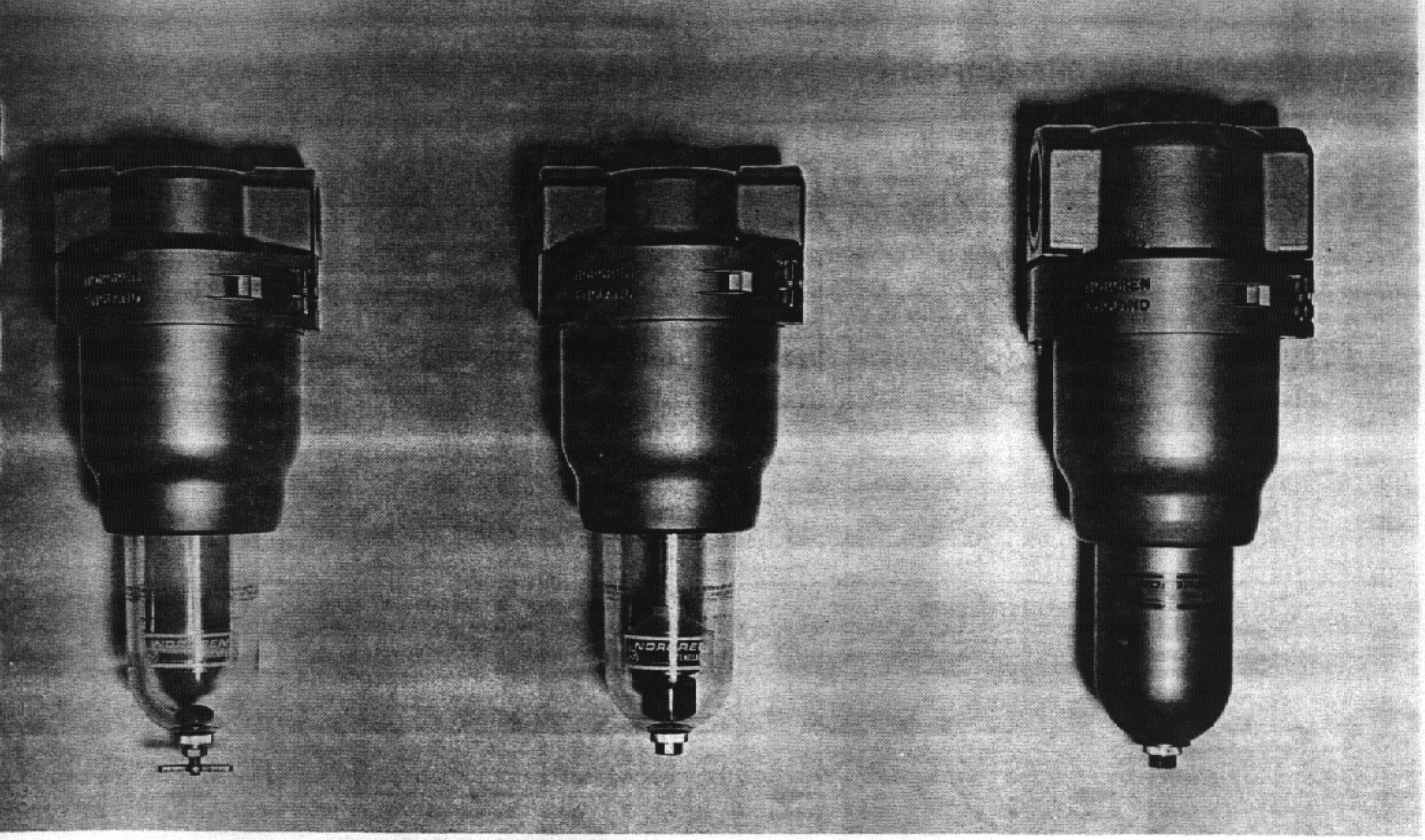
WHEN ORDERING SPARES, QUOTE MODEL NUMBER AND KIT OR PART DESCRIPTION



C. A. NORGREN LTD

SHIPSTON-ON-STOUR, WARWICKSHIRE, ENGLAND

EINC-301a 2/69

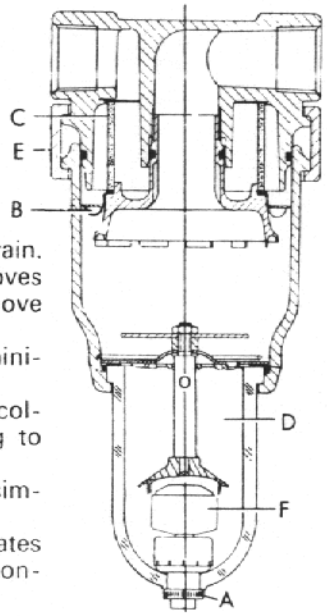


Types 30BE and 30CG

EINC-102a
February 1969

General Purpose Filters

3/4″–1 1/2″ PIPE SIZES • MANUAL OR AUTOMATIC DRAIN



SPECIFICATIONS

PIPE SIZES: ¾″, 1″, 1¼″, 1½″ B.S.P. Taper
BOWLS: SAFETY CLEAR TRANSPARENT (STANDARD)
METAL (OPTIONAL)
FILTER ELEMENTS:
64 MICRON SINTERED BRONZE (STANDARD)
25, 10 and 5 MICRON SINTERED BRONZE OR 74 MICRON MONEL WIRE SCREEN (OPTIONAL)
MAXIMUM PRESSURE:
Transparent Bowl 150 psi (10·5 Kg/cm²)
Metal Bowl 250 psi (18 Kg/cm²)
MINIMUM OPERATING PRESSURE FOR AUTOMATIC MODELS: 5 psi (0·35 Kg/cm²)
MAXIMUM TEMPERATURE:
Transparent Bowl 120°F (50°C)
Metal Bowl 175°F (80°C)
AUTOMATIC OR MANUAL DRAIN

WHERE TO USE

General application filters for larger air flows.

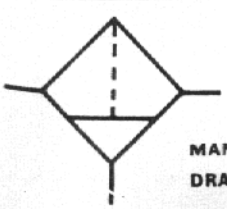
FEATURES

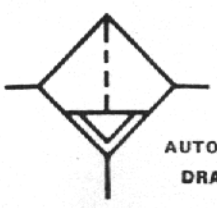
A. Manual or Automatic-Drain.
B. Directional louvre improves centrifugal action to remove moisture and oil emulsions.
C. Large filter element minimises pressure drop.
D. Quiet Zone prevents collected liquids from returning to air line.
E. Hinged clamp ring for simplified maintenance.
F. Automatic-Drain operates under Flow or No Flow conditions.

COMPATIBLE PRODUCTS

Norgren also catalogue pressure regulators and lubricators in these pipe sizes.

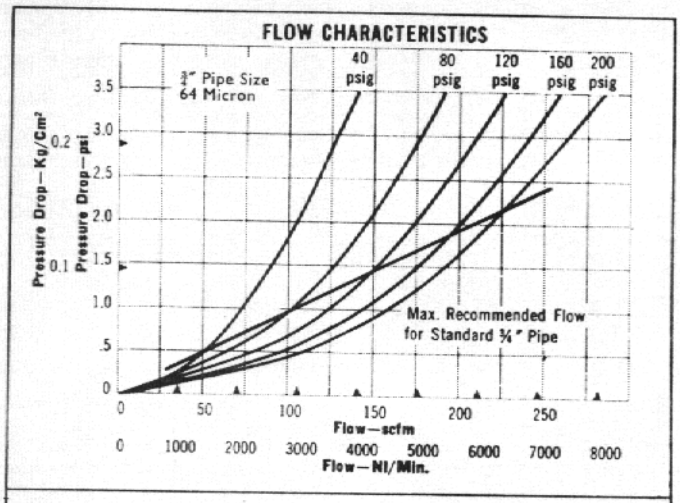
INTERNATIONAL PNEUMATIC SYMBOLS

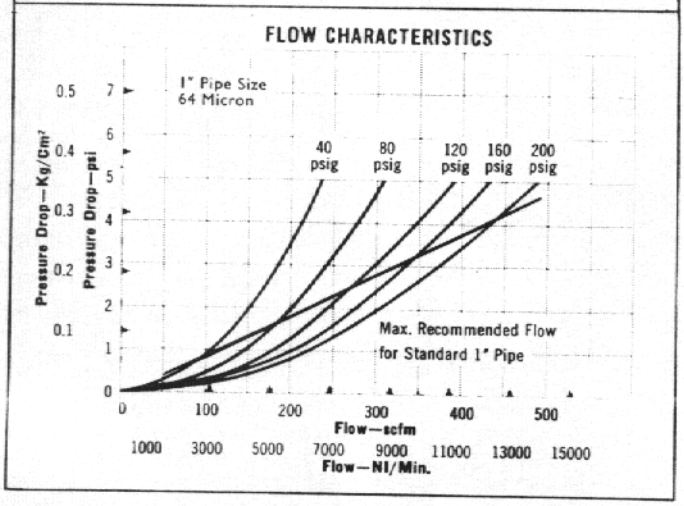

MANUAL DRAIN


AUTOMATIC DRAIN

NORGREN
SHIPSTON-ON-STOUR, WARWICKSHIRE, ENGLAND

TYPICAL PERFORMANCE CHARACTERISTICS





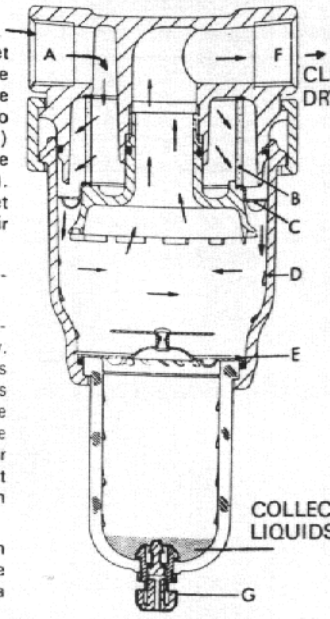
OPERATION

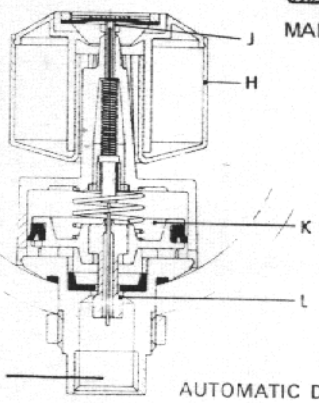
The air enters the filter through the inlet port (A) and is first filtered to remove solids, passing from inside to outside the filter element (B). It is then directed into a centrifugal flow pattern by louvres (C) which forces the liquid particles to the inside wall of the intermediate body (D). From here liquids run down into the quiet zone underneath the baffle (E). Clean air leaves the outlet port (F).

When draincock (G) is opened, accumulated liquids are blown out of the bowl.

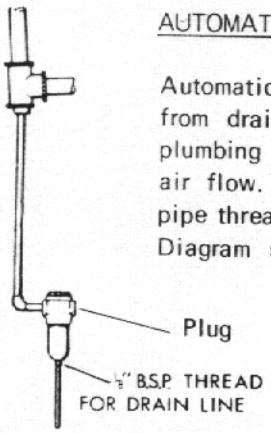
Alternatively an automatic-drain assembly dumps collected liquids automatically. When the liquid level in the bowl reaches a predetermined height the float (H) opens a pilot valve (J). This admits air above the piston (K) thus causing the drain valve (L) to open. The liquid is expelled by air pressure to a drain whereupon the float closes the pilot valve and so the drain valve.

The mechanism is designed to open when no air pressure is in the line permitting overnight draining. It is a sealed unit.





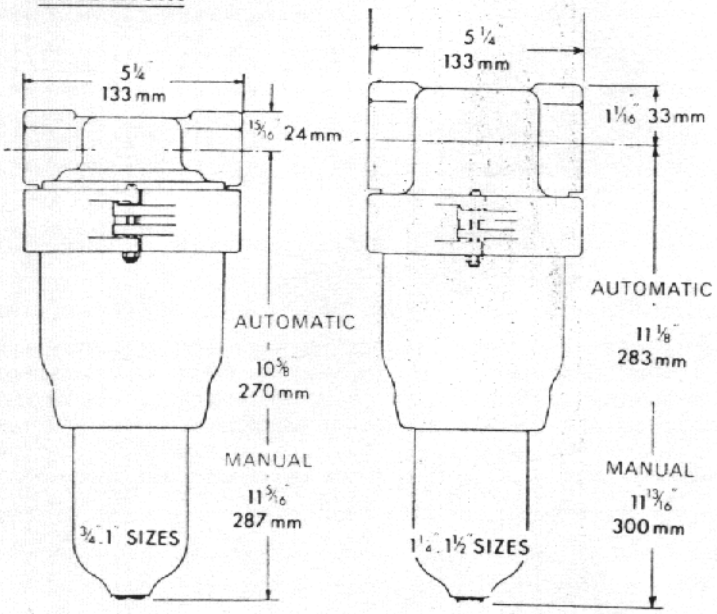
DEAD END SERVICE



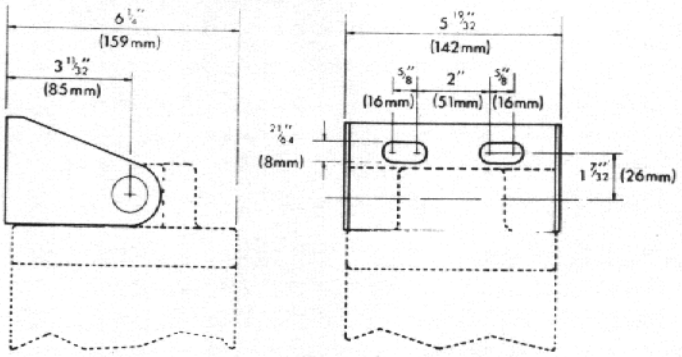
AUTOMATIC DRAIN MODELS

Automatically dump collected fluids from drain legs or other dead end plumbing installations. Requires no air flow. Equipped with ¼" female pipe thread for attaching a drain line. Diagram shows typical installation.

DIMENSIONS



MOUNTING DIMENSIONS



¾" and 1" SIZES

ORDER TABLE

BOWL TYPE	DRAIN TYPE	*PIPE SIZE	STANDARD	OPTIONAL MODELS			
			FILTER ELEMENT				
			64-MICRON	25-MICRON	10-MICRON	5-MICRON	74-MICRON
TRANSPARENT	MANUAL	¾"	30BE–6	30BE–6 (25)	30BE–6 (10)	30BE–6 (5)	30–BE–6 (74)
		1"	30BE–8	30BE–8 (25)	30BE–8 (10)	30BE–8 (5)	30BE–8 (74)
		1¼"	30BE–10	30BE–10 (25)	30BE–10 (10)	30BE–10 (5)	30BE–10 (74)
		†1½"	30BE–12	30BE–12 (25)	30BE–12 (10)	30BE–12 (5)	30BE–12 (74)
	AUTOMATIC	¾"	30CG–6	30CG–6 (25)	30CG–6 (10)	30CG–6 (5)	30CG–6 (74)
		1"	30CG–8	30CG–8 (25)	30CG–8 (10)	30CG–8 (5)	30CG–8 (74)
		1¼"	30CG–10	30CG–10 (25)	30CG–10 (10)	30CG–10 (5)	30CG–10 (74)
		†1½"	30CG–12	30CG–12 (25)	30CG–12 (10)	30CG–12 (5)	30CG–12 (74)

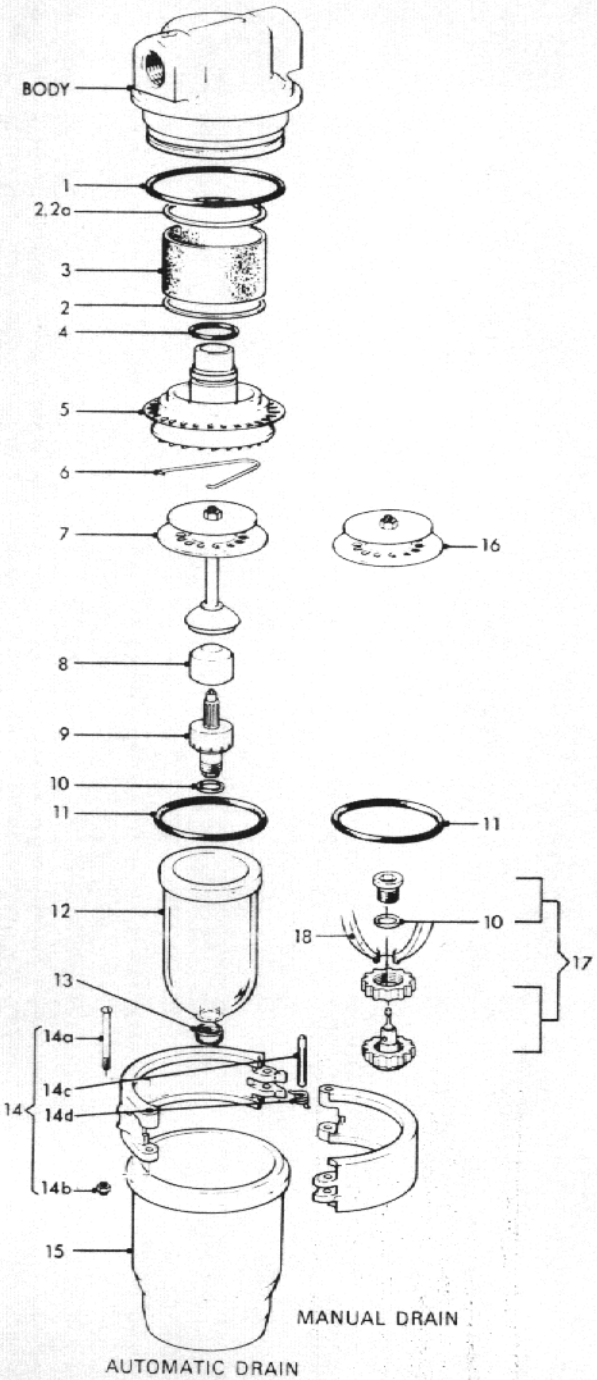
BOWL TYPE	DRAIN TYPE	*PIPE SIZE	OPTIONAL MODELS				
			FILTER ELEMENT				
			64-MICRON	25-MICRON	10-MICRON	5-MICRON	74-MICRON
METAL	MANUAL	¾"	30BE–N6	30BE–N6 (25)	30BE–N6 (10)	30BE–N6 (5)	30BE–N6 (74)
		1"	30BE–N8	30BE–N8 (25)	30BE–N8 (10)	30BE–N8 (5)	30BE–N8 (74)
		1¼"	30BE–N10	30BE–N10 (25)	30BE–N10 (10)	30BE–N10 (5)	30BE–N10 (74)
		†1½"	30BE–N12	30BE–N12 (25)	30BE–N12 (10)	30BE–N12 (5)	30BE–N12 (74)
	AUTOMATIC	¾"	3CG–N6	3CG–N6 (25)	30CG–N6 (10)	3CG–N6 (5)	3CG–N6 (74)
		1"	30CG–N8	30CG–N8 (25)	30CG–N8 (10)	30CG–N8 (5)	30CG–N8 (74)
		1¼"	30CG–N10	30CG–N10 (25)	30CG–N10 (10)	30CG–N10 (5)	30CG–N10 (74)
		†1½"	30CG–N12	30CG–N12 (25)	30CG–N12 (10)	30CG–N12 (5)	30CG–N12 (74)

† *1½" Models are 1¼" units tapped 1½" for use with 1½" o.d. copper pipe fittings.*
. . . for air flows reaching the maximum for 1½" pipe order Series 12–063.

* *Standard pipe threads are B.S.P. Taper.*
Alternative pipe threads B.S.P. Parallel and A.N.P.T. must be specified.

ACCESSORIES

 **Mounting Bracket** For use on any vertical surface	For ¾" size For 1" size	18–001–033 (W–86) 18–001–034 (W–88)
 **Bowl Guard Kit** (includes special intermediate body) Expanded metal cage gives positive protection yet allows visibility of bowl contents.	All Models	18–012–995
Conversion Kits Convert manual-drain filters to automatic-drain types.	For Transparent Bowl Types For Metal Bowl Types	3600–01 3600–99



Note: Gaskets 2, 2a are used with sintered bronze elements only.

PARTS

For all Models

Gasket Kit		30CG–GK
Comprises:		
2	Gasket (3⅛" o.d.) (2 off)	814–01
2a	Gasket (2 3/32" o.d.) (For 1¼", 1½" sizes)	814–99
1	'O' Ring (4⅛" o.d.)	1922–01
4	'O' Ring (1½" o.d.)	1982–01
11	'O' Ring (3¼" o.d.)	1941–01
10	Gasket (¾" o.d.)	2811–01
14a	Clamp Ring Screw	1977–01
14b	Nut	00–74

Repair Kits for Automatic-Drain Models
For ¾" and 1" sizes

Repair Kit		30CG–8–120
Comprises:		
	Gasket Kit	30CG–GK
3	Filter Element, 64 micron	793–01
6	Snap Ring	813–01
13	Retaining Ring	2797–01

For 1¼" and 1½" sizes

Repair Kit		30CG–12–120
Comprises:		
	Repair Kit	30CG–8–120
3	With filter element	793–99
3	Replacing filter element	793–01

Repair Kits for Manual-Drain Models
For ¾" and 1" sizes

Repair Kit		30BE–8–100
Comprises:		
	Repair Kit	30CG–8–120
17	Drain Cock Assembly Kit	684–84

For 1¼" and 1½" sizes

Repair Kit		30BE–12–100
Comprises:		
	Repair Kit	30CG–12–120
17	Drain Cock Assembly Kit	684–84

Further Replacement Parts

14	Clamp Ring Assembly		729–99
14c	Swivel Pin		1975–01
14d	Spring		431–01
5	Deflector Assembly (including 809–01 louvre and 1982–01 'O' Ring)		810–99
15	Intermediate Body (including 1941–01 'O' Ring)		808–98
7	Baffle Assembly Automatic Types		799–94
16	Baffle Assembly Manual Types		799–02
12	Transparent Bowl	Automatic Types	603–98
12	Metal Bowl	Automatic Types	601–92
18	Transparent Bowl with Draincock	Manual Drain Types	603–07
18	Metal Bowl with Draincock	Manual Drain Types	601–98
17	Drain Cock Assembly Kit	Manual Drain Types	684–84
13	Retaining Ring		2797–01
9	Automatic-Drain Mechanism (incl Gasket)		3000–03
8	Float		3003–50

Filter Elements
For ¾" and 1" units

3	Filter Element, 50/64 micron	793–01
3	Filter Element, 25 micron	793–02
3	Filter Element, 5 micron	00–89
3	Monel Screen, 74 micron	795–01

For 1¼" and 1½" units

3	Filter Element, 50/64 micron	793–99
3	Filter Element, 25 micron	793–98
3	Filter Element, 5 micron	793–96
3	Monel Screen, 74 micron	795–99

WHEN ORDERING SPARES QUOTE MODEL NUMBER AND KIT OR PART DESCRIPTION

MAINTENANCE

To remove filter element (3), shut off air pressure; detach nut and screw securing the clamp ring (14). Rotate intermediate body (15) slightly and force upwards to release clamp ring lock. Do not use a lever to force the two halves apart. Remove intermediate body and bowl. Unscrew deflector assembly (5).

To detach bowl (12, 18) remove snap ring (6) and baffle assembly (7, 16).

On automatic-drain models remove float (8), and unscrew the knurled retaining ring (13) to free the automatic-drain mechanism (9).

To clean filter element, wash in paraffin and blow out thoroughly with compressed air. Keep filter clean to ensure best performance and minimum pressure drop.

Clean TRANSPARENT BOWLS in soapy water. DO NOT USE SOLVENTS AS THEY WILL DESTROY THE BOWL.

The float and automatic-drain assemblies are not repairable items. Care should be taken on re-assembly to ensure that the gasket (10) is in position on the bottom of the automatic-drain assembly.

When re-assembling complete unit, ensure that gaskets, 'O' rings and snap ring are properly located. Apply silicone grease to 'O' rings and grooves. Do not crush filter element by over-tightening deflector assembly.

C. A. NORGREN LTD
SHIPSTON-ON-STOUR, WARWICKSHIRE, ENGLAND

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