



GREASE LUBRICATION PUMPS FOR MANY OUTLETS SYSTEM 21

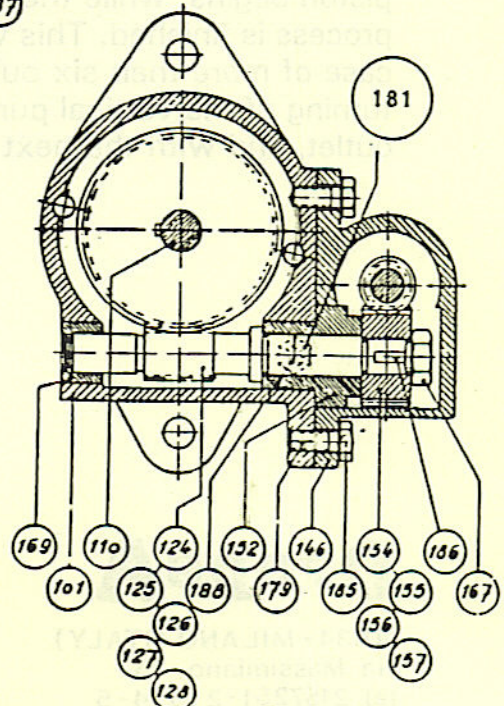
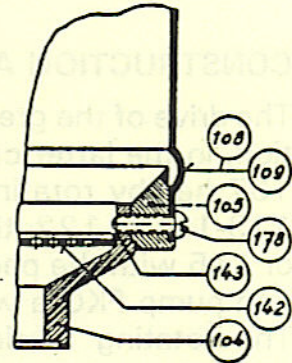
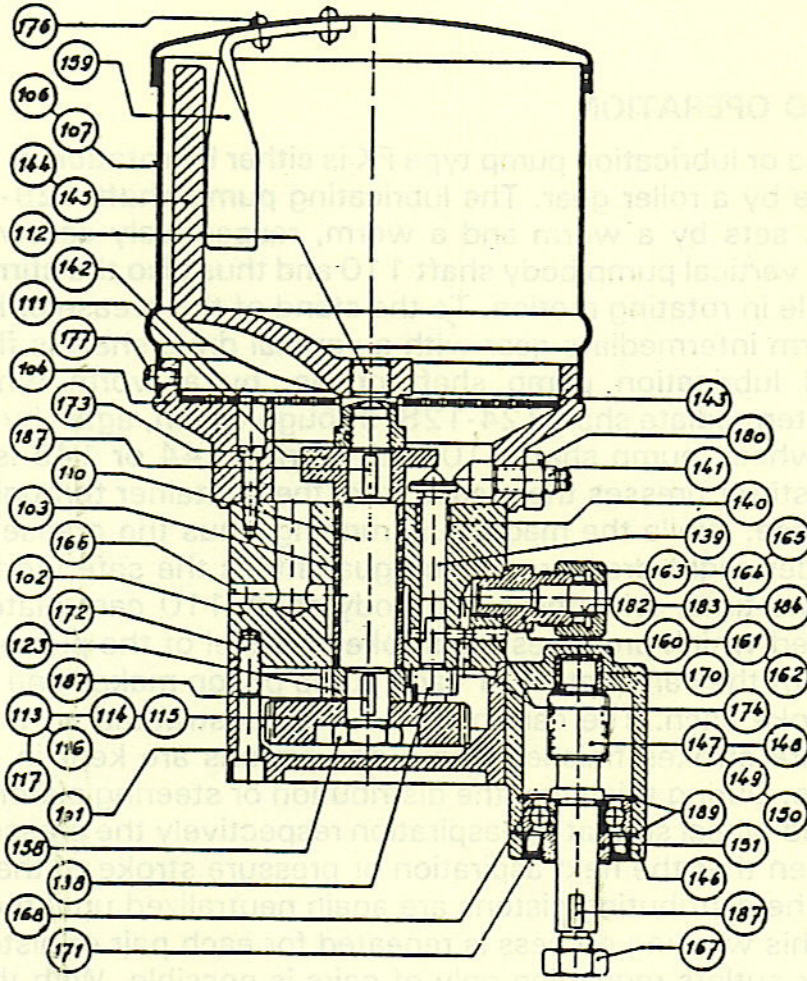
Series 37000
Type FKG-FK

CONSTRUCTION AND OPERATION

The drive of the grease or lubrication pump type FK is either by rotation or oscillation, in the latter case by a roller gear. The lubricating pump shaft 129-136 or 137 hereby rotating, sets by a worm and a worm, respectively screw wheel 113-121 or 122, the vertical pump body shaft 110 and thus also the stirrer 144 or 145 with the paddle in rotating motion. To the stand of the grease or lubrication pump FKG a worm intermediate gear with a vertical drive shaft is flanged. The rotating vertical lubrication pump shaft drives, by a worm wheel intermediate gear, an intermediate shaft 124-128, through which, again by means of worm and worm wheel, pump shaft 110 with stirring 144 or 145 is set in rotating motion. The stirrer presses the grease from the container through sieve 142 into the lower case. While the machine is running, thus the grease in this case is constantly under slight pressure, which guarantees the safe working of the pump; at the same time, with the pump body shaft 110 cam plate 111, keyed in on it, is turned which produces the stroke or travel of the pump piston 139. At each turning of the cam plate 111 each pump piston makes one aspiration and pressure stroke each. The cam plate 111 is constructed so that, the aspiration and pressure strokes finished, the pump pistons are kept in neutral position for some time. During this time, the distribution or steering pistons 138 are turned by a toothed wheel so that the aspiration respectively the pressure fully match. It is only then that the next aspiration or pressure stroke of the pump piston begins, while the distributing pistons are again neutralized until the work process is finished. This working process is repeated for each pair of pistons. In case of more than six outlets regulation only of pairs is possible. With the first turning of the vertical pump body shaft each pump piston pumps into the lower outlet, and with the next turning of the pump body shaft into the upper outlet.

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MAINTENANCE

While the grease pump is working the only maintenance necessary is to refill clean grease in time. Don't let the container be emptied too much, as otherwise only air is pumped into the pipes. It is recommendable to clean the grease pump thoroughly at least once a year with gasolin, petroleum or cleaning oil.

To clean sieve 142, the container must be removed by loosening some screws. After the stirrer has been screwed off, the sieve which is kept by a spring ring, can, when the ring is removed, be taken out and cleaned.

A cleaning of the pump work is necessary, whenever a grease pump was started first only some time after the delivery or has not been used for some months, as during that time grease remainders in the sieve and the distribution channels may harden and disturb the working of the pump.

171	Stirring	171	Stirring
172	Fastening screw	172	Fastening screw
173	Fastening screw	173	Fastening screw
174	Fastening screw	174	Fastening screw
175	Fastening screw	175	Fastening screw
176	Ball bolt	176	Ball bolt
177	Screw	177	Screw
178	Screw	178	Screw
179	Headed bolt	179	Headed bolt
180	Headed bolt	180	Headed bolt
181	Hexagon nut	181	Hexagon nut
182	Hold ring Ø	182	Hold ring Ø
183	Hold ring Ø	183	Hold ring Ø
184	Hold ring Ø	184	Hold ring Ø
185	Footed plate	185	Footed plate
186	GDK spring	186	GDK spring
187	GDK spring	187	GDK spring
188	Worm bolt	188	Worm bolt
189	Snap ring	189	Snap ring
190	Snap ring	190	Snap ring
191	Distance ring	191	Distance ring
192	Stirring	192	Stirring
193	Bearing bush	193	Bearing bush
194	Switch case	194	Switch case
195	Coil spring lever	195	Coil spring lever
196	Crank handle	196	Crank handle
197	Propelling core	197	Propelling core
198	Stopping core	198	Stopping core
199	Distance bush	199	Distance bush
200	Plate	200	Plate
201	Nut	201	Nut
202	Compression spring	202	Compression spring
203	Spring bolt	203	Spring bolt
204	Flat head screw	204	Flat head screw
205	Grooved dove pin	205	Grooved dove pin
206	Steel roll	206	Steel roll
207	Steel roll	207	Steel roll



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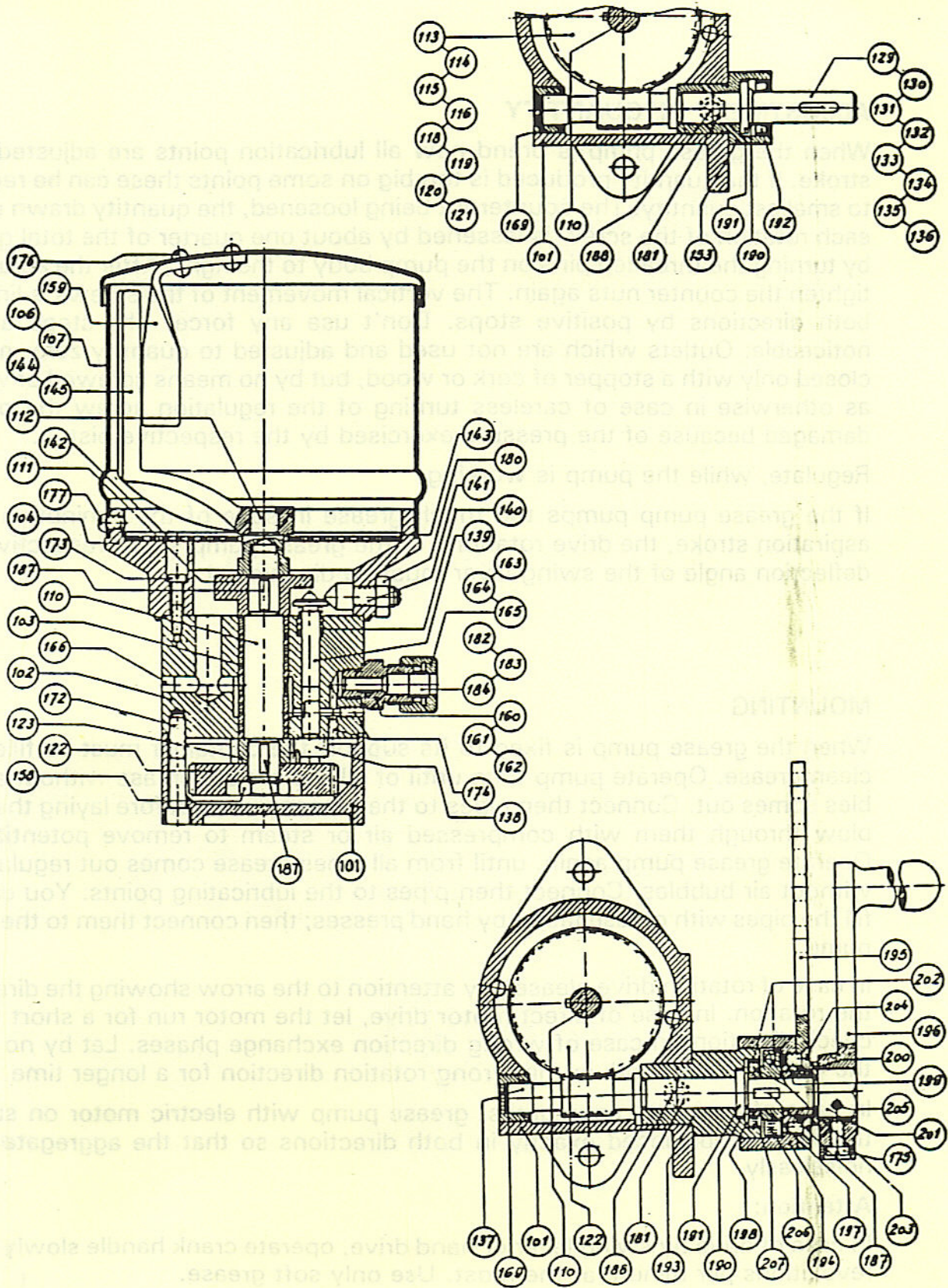
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Type FKG-FK

Pos.	Description	Pos.	Description
101	Case (lower part)	154	Toothed wheel, right
102	Pump body	155	Toothed wheel, right
103	Pump bush	156	Toothed wheel, left
104	Container ring	157	Toothed wheel, left
105	Container middle ring	158	Nut
106	Container 1 kg.	159	Stripper only for 1 kg.
107	Container 1,5 kg.	160	Screw connection 6 Ø
108	Container 2 kg.	161	Screw connection 8 Ø
109	Container 4 kg.	162	Screw connection 10 Ø
110	Shaft of pump body	163	Cap screw 6 Ø
111	Cam plate	164	Cap screw 8 Ø
112	Nut	165	Cap screw 10 Ø
113	Worm wheel, right	166	Steel bolt
114	Worm wheel, right	167	Nut
115	Worm wheel, right	168	Ball bearing
116	Worm wheel, right	169	Roll bearing
117	Worm wheel, right	170	Roll bearing
118	Worm wheel, left	171	Simmerring
119	Worm wheel, left	172	Fastening screw
120	Worm wheel, left	173	Fastening screw
121	Worm wheel, left	174	Fastening screw
122	Worm wheel, left	175	Fastening screw
123	Worm wheel, osc.	176	Steel bolt
124	Lubric. pump shaft, right	177	Screw
125	Lubric. pump shaft, right	178	Screw
126	Lubric. pump shaft, right	179	Hexagon screw
127	Lubric. pump shaft, right	180	Hexagon nut
128	Lubric. pump shaft, right	181	Hexagon nut
129	Lubric. pump shaft, right	182	Hold ring 6 Ø
130	Lubric. pump shaft, right	183	Hold ring 8 Ø
131	Lubric. pump shaft, right	184	Hold ring 10 Ø
132	Lubric. pump shaft, right	185	Toothed plate
133	Lubric. pump shaft, left	186	Disk spring
134	Lubric. pump shaft, left	187	Disk spring
135	Lubric. pump shaft, left	188	Worm bolt
136	Lubric. pump shaft, left	189	Snap ring
137	Lubric. pump shaft, osc.	190	Snap ring
138	Steering piston	191	Distance ring
139	Pump piston	192	Simmerring
140	Piston spring	193	Bearing bush
141	Regulating screw	194	Switch case
142	Sieve	195	Oscillating lever
143	Spring ring	196	Crank handle
144	Stirrer 1 and 1,5 kg.	197	Propelling core
145	Stirrer 2 and 4 kg.	198	Stopping core
146	Gear case	199	Distance bush
147	Gear case shaft, right	200	Plate
148	Gear case shaft, right	201	Nut
149	Gear case shaft, left	202	Compression spring
150	Gear case shaft, left	203	Spring bolt
151	Distance ring	204	Flat headscrew
152	Bearing bush	205	Grooved dowel pin
153	Bearing bush	206	Steel roll
		207	Steel roll



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ADJUSTMENT OF QUANTITY

When the grease pump is brand new all lubrication points are adjusted to full stroke. If the quantity produced is too big on some points these can be regulated to smallest quantity. The counternut being loosened, the quantity drawn up with each rotation of the screw is lessened by about one quarter of the total quantity by turning the threaded pins on the pump body to the right. After the adjustment tighten the counter nuts again. The vertical movement of the screws is limited in both directions by positive stops. Don't use any force! These stops are well noticeable. Outlets which are not used and adjusted to quantity zero, must be closed only with a stopper of cork or wood, but by no means screwed or welded, as otherwise in case of careless turning of the regulation screw the pump is damaged because of the pressure exercised by the respective piston.

Regulate, while the pump is working.

If the grease pump pumps too much grease in spite of the diminution of the aspiration stroke, the drive rotations of the grease pump shaft, respectively the deflection angle of the swing lever must be diminished.

MOUNTING

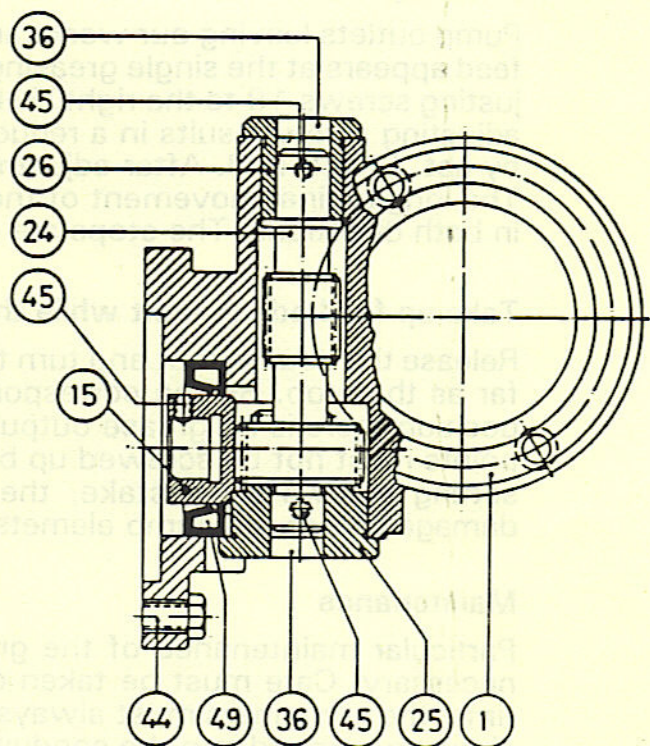
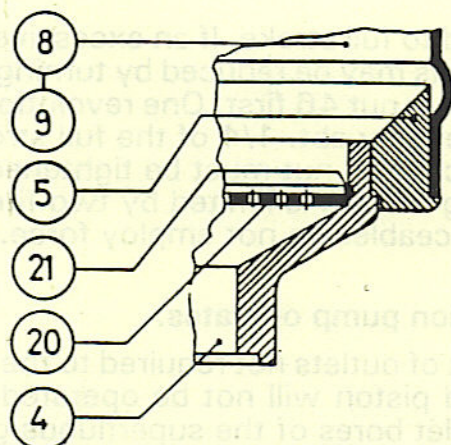
When the grease pump is fixed to its support the container must be filled with clean grease. Operate pump then until of all the outlets grease without air bubbles comes out. Connect then pipes to the grease pump (before laying the pipes, blow through them with compressed air or steam to remove potential dirt). Operate grease pump again, until from all pipes grease comes out regularly and without air bubbles. Connect then pipes to the lubricating points. You can also fill the pipes with grease faster by hand presses; then connect them to the grease pump.

In case of rotation drive please pay attention to the arrow showing the direction of the rotation. In case of direct motor drive, let the motor run for a short time to check direction. In case of wrong direction exchange phases. Let by no means the grease pump work in the wrong rotation direction for a longer time.

In case of complete aggregates, grease pump with electric motor on support, this is to be balanced exactly in both directions so that the aggregate works noiselessly.

Attention:

In case of drive by swing lever or hand drive, operate crank handle slowly with 8 revolutions per minute at the most. Use only soft grease.



Pos.	Description	Ref.	Pos.	Description	Ref.
1	Transmission case	36/001.1	33	Sleeve nut 8 Ø	20/034.2
2	Pump body	20/002.1	34	Sleeve nut 10 Ø	20/034.3
3	Sleeve	20/003	35	Stopper 6 Ø x 4	20/035
4	Container ring 1 and 1,5 kgs	20/004.1	36	Blind stopper 60/022	60/022
5	Container intermediate ring 2 and 4 kgs	20/036	37	Locking ring 6 Ø	60/027.2
6	Container 1 kg	20/005.1	38	Locking ring 8 Ø	40/026
7	Container 1,5 kgs	20/005.2	39	Locking ring 10 Ø	40/027
8	Container 2 kgs	20/005.1.5	40	Pan head screw M4x20	089
9	Container 4 kgs	20/005.4	41	Pan head screw M6x33	011
10	Pump shaft	20/006	42	Plate spring 4x5	024
11	Cam plate	20/007	43	Pan head screw AM4x10	091
12	Cap nut for pump shaft	20/008	44	Hexagon head bolt M5x20	133
13	Pump wheel	20/009.1	45	Threaded pin M4x6	027
14	Control wheel	20/037	46	Hexagon nut M8x1	090
15	Drive shaft	36/002	47	Button-headed rivet 3,5x8	020
16	Piston valve	20/012	48	Needle roller bearing BK 1212	087
17	Freed piston	20/013	49	Oil seal 25x40xB	200
18	Piston spring	20/014	50	Electromotor 0,25 kw	NF 025
19	Adjusting screw	20/016.1	51	Freed piston	24/008
20	Sieve sheet 1 and 1,5 kgs	20/017	52	Pump shaft	24/004
21	Spring ring 1 and 1,5 kgs	20/018	53	Cam plate	24/005
22	Agitator blade	20/019	54	Stopper 6 Ø x 4	20/035
23	Agitator blade 2 and 4 kgs	20/019.1	55	Pump body	24/002
24	Worm shaft	36/003	56	Sleeve	24/002.1
25	Bearing bush 1	36/004	57	Screw plug	24/012
26	Bearing bush 2	60/012.1	58	Pressure disk	24/007
27	Nut for pump shaft	20/029	59	Disk spring 4x5	
28	Stripper only for 1 kg	20/032	60	Pump wheel	24/006.2
29	Screw joint 6 Ø	20/033.1	61	Nut for pump shaft	24/011
30	Screw joint 8 Ø	20/033.2	62	Blind stopper	24/009
31	Screw joint 10 Ø	20/034	63	Pan head screw M6x18	
32	Sleeve nut 6 Ø	20/034.1			

Series 37000
Type FKMS

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Feed adjustment

Pump outlets leaving our works are adjusted to full stroke. If an excessive grease feed appears at the single greasing points, this may be reduced by turning the adjusting screws 19 to the right. Release counter nut 46 first. One revolution of the adjusting screw results in a reduction of feed by abt. 1/4 of the full stroke, i.e. by abt. 0,025 cm³. After adjustment, the counter nut must be tightened again. The longitudinal movement of the adjusting screws is limited by two firm stops in both directions. The stops are easily noticeable. Do not employ force.

Take up feed adjustment while the lubrication pump operates.

Release the counter nut and turn the screws of outlets not required to the right as far as the stop. So the corresponding feed piston will not be operated. In this position there is no grease output. The outlet bores of the superfluous greasing points must not be screwed up blind or tightly closed, since when adjusting the setting screws by mistake, the pressure produced by the feed piston may damage one of the pump elements and stop the lubrication pump entirely.

Maintenance

Particular maintenance of the grease lubrication pump during operation is not necessary. Care must be taken of the containers to be filled up with grease in time, the containers must always contain grease enough to prevent compressed air being pumped into the conduits and the pump being unable to feed grease for a long time even after filling it again. The grease lubrication pumps must be thoroughly cleaned once a year at least using gasoline or petroleum. A cleaning of the pump mechanism is indispensable whenever a lubrication pump was started some time after delivery or has not been operated for some months. The grease left in the control channels may have changed chemically by ageing and may infringe upon the function of the pump.

Design and function

The pump shaft 10 of the BEKA grease lubrication pumps design FKMS is driven by means of the joint electromotor 50 via a worm gear 13-24-15. The grease is pressed out to the container by the stirring blades 22-23 through the sieve into the space below and the snore holes of the pump body, from where it is exhausted by the suction stroke exerted by the feed piston 17. The pump shaft 10 rotates also the cam plate 11 effecting the pressure stroke motion of the feed piston 17. Each revolution of the cam plate results in a suction-and-pressure stroke of the individual feed pistons arranged in a circle. For each feed piston, a control piston 16 is arranged in prolongation of the cylinder bore. The control piston is guided by the pump shaft 10 by means of control wheel 14 in a way for the suction and pressure channels always to remain open in its full cross section during the adequate stroke of the feed piston. The outlet screwings for 1 to 6 greasing point connexions are arranged in a circle located in one level. For 6 to 12 outlets, 2 outlet screwings each are located one above the other. These two outlets are adjustable jointly from an adjusting screw 19.



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Serie 37000
Tipo FKMS

OPERATING INSTRUCTIONS

Checking and installation

Check the lubrication pump for possible damages occurred during transport. The fan blade of the motor must be easily rotating.

If possible, the lubrication pump should be mounted at an easily accessible position. Freed admission for cooling air must be provided.

Connexion of the electromotor

Pay attention to indications on the rating plate. Compare supply voltage. Observe wiring diagram in the terminal box. Connect motor to power supply by protective motor switch, if possible. The protective motor switch must be in the rated current position. Particular attention should be paid to explosion - proof motors (System of protection "erhöhte Sicherheit" according to VDE 0171/2.61).

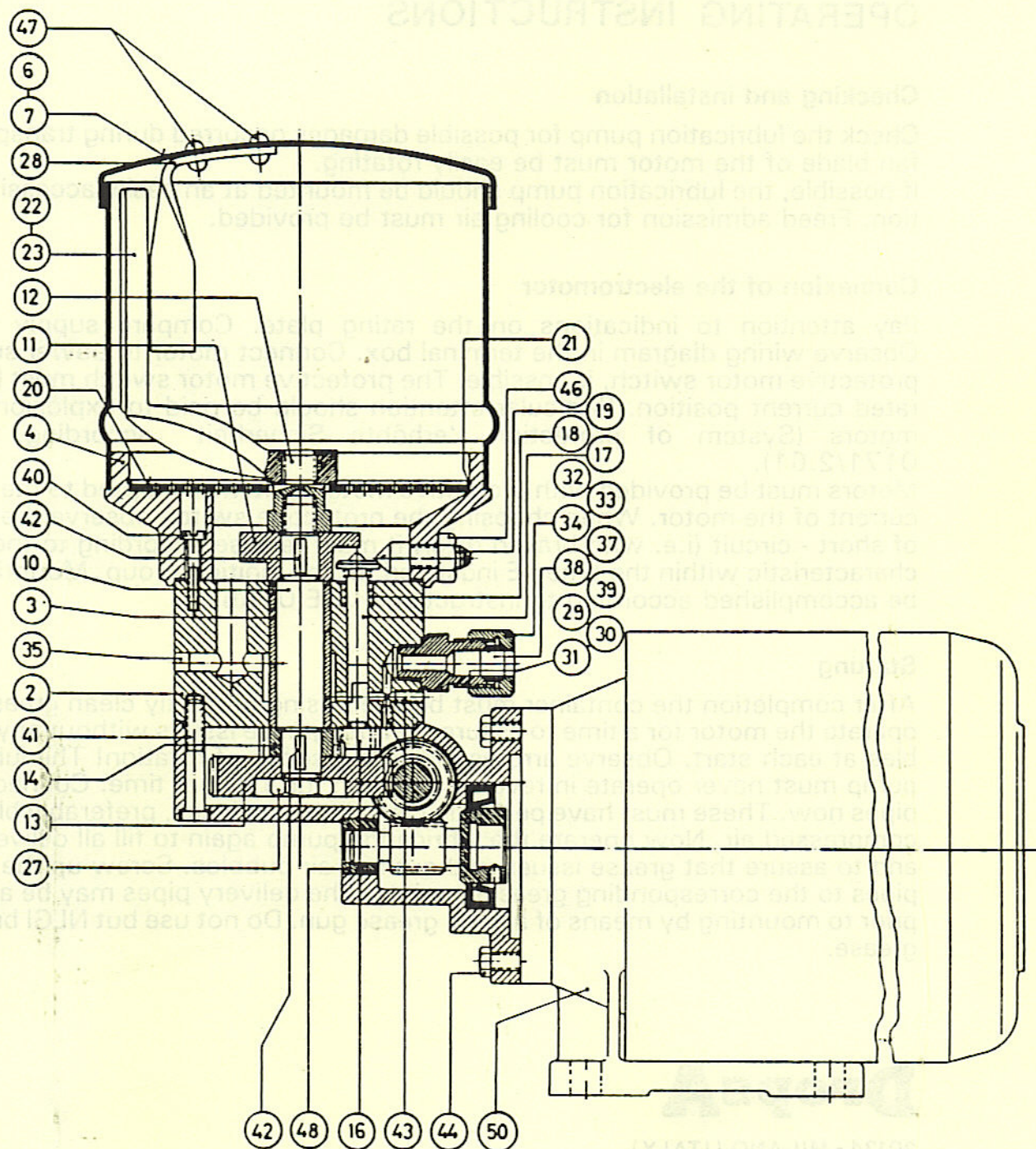
Motors must be provided with protective motor switches adapted to the nominal current of the motor. When choosing the protective switch observe that in case of short - circuit (i.e. with braked rotor) it must release according to the release characteristic within the time t_E indicated for the ignition group. Mounting must be accomplished according to instructions VDE 0165.

Starting

After completion the container must be filled using perfectly clean grease. Then operate the motor for a time to assure that the grease issues without any air bubbles at each start. Observe arrows indicating sense of rotation! The lubrication pump must never operate in reverse direction for a longer time. Connect the air pipes now. These must have perfectly clean inner surfaces, preferably blow with compressed air. Now operate the lubrication pump again to fill all delivery pipes and to assure that grease issues without any air bubbles. Screw up the delivery pipes to the corresponding greasing points. The delivery pipes may be also filled prior to mounting by means of a hand grease gun. Do not use but NLGI brand 0-3 grease.

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Note: The ref. 51 to 63 (schedule right) are only for pumps with 7 and 12 outlet.