OPERATOR'S
SPARE PARTS &
SERVICE MANUAL

ELECTRIC SUBMERSIBLE PUMPS MODELS US-40A & US-40A/S

FAIRPORT
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1. DESCRIPTION

These submersible pumps are electrically operated and totally submersible. They are fitted with thermal cut-out switches to help prevent damage due to overload currents.

Four models are available:

USO-40A-110, with float switch operating on 110v
USO-40A-230, with float switch operating on 230v
US-40A-110, without float switch operating on 110v
US-40A-230, without float switch operating on 230v.

These pumps are designed for pumping clean water, or water containing a small percentage of suspended solids, up to a maximum head of 11 metres above the water level.

2. TECHNICAL DATA

Electrical

Power consumption:
110v type: 720w
230v type: 645w

Supply frequency: 50Hz

Ingress of water rating: IPX8

Cable length supplied: 10m

Maximum safe operating depth: 8m

Performance

Maximum discharge head: 11m

Maximum discharge flow: 14.3 cu m/hr

Minimum immersion for priming: 90mm

Dimensions

Length:	240mm
Width:	105mm
Height:	365mm
Weight:	19kg

3. SAFETY

The plug/coupler is the appliance disconnect device and should be kept easily accessible at all times.

Never carry out adjustments or maintenance without first disconnecting the plug/coupler from the mains electrical supply.

Never use the electrical cable to raise, lower or take the weight of the pump. Always use the rope supplied tied to the handle.

Always check the voltage of the pump is correct for the mains supply.

The appliance must be operated with an RCD with a leakage trip not exceeding 30mA.

Protect the electrical cable from damage - for example from sharp edges, wheeled transport etc.

Check daily the condition of the electrical cable. If the insulation is damaged, chafed, cracked etc. do not use pump until the cable has been renewed.

The pump must not be used or placed in a swimming pool while people are in the water.

The appliance must be earthed.

The appliance must be installed in accordance with the national wiring regulations.

Pollution of liquid could occur due to leakage of lubricant.

Renewal of the electrical cable and any other electrical work should only be carried out by a competent person.

When not in use the appliance should be stored in a way to avoid damage and deterioration.

Comply with site safety regulations.

Use only for pumping clean water or water with a small amount of solids in suspension. Do not use for pumping inflammable, corrosive or volatile liquids or solvents.

Do not use pump unless sieve plate is fitted.

4. INSTALLATION AND OPERATION

WARNING! When installing and using this appliance basic safety precautions should

always be followed to reduce the risk of fire, electric shock and personal injury. Read and understand this manual, particularly the section on safety.

Check electrical details on pump nameplate comply with the supply.

The supply voltage must be within +/- 6% of the nominal value. If in doubt have it checked by a qualified electrician at the plug/coupler.

When installing a pump to operate below ground level, always lower the pump into position using a rope (supplied) firmly tied to the handle. NEVER use the electrical supply cable.

If the bottom of the trench or excavation is muddy, silty or sandy suspend the pump well above the bottom with the rope to avoid excessive seal wear and/or the pump becoming choked.

If it is not possible to suspend the pump a piece of wood should be tied to the underside of the pump to prevent it from becoming buried.

It should be noted that this pump is not designed for pumping sludge. Excessive wear due to pumping abrasive material in the water could nullify the warranty.

Use the correct size hose (2" bore). If using lay flat hose avoid constrictions caused by sharp bends, twists, kinks etc.

The electrical circuit within the pump incorporates a thermal cut-out to protect the windings against overheating and subsequent burn-out due to clogging, low voltage etc. When the motor cools the cut-out will reset itself and the motor will restart. If the fault is not rectified the restart and stop cycles will eventually cause the motor to burn out because of the short duration overload conditions repeating themselves. It is important, therefore, to eliminate the cause of overload as soon as possible.

Ensure that the discharge end of the hose is not submerged otherwise, if the pump stops, water would flow back due to siphoning.

If using a pump with a float switch, ensure that there is no debris or other obstacles to adversely affect the operation of the float switch.

5. MAINTENANCE

Daily

Run pump in clean water to wash out any build-up of silt and other materials.

Check condition of electrical cable. Renew if suspect.

6 monthly or every 1000 hours

Drain the oil from the seal chamber and refill with 250ml (0.44 pints) of Shell

Vitrea oil 32 or an equivalent. This quantity will not completely fill the oil chamber. It should not be completely filled otherwise oil is likely to be forced into the motor area.

6. FAULT FINDING

Decrease or Failure of Discharge

Head too high - possibly caused by dropping water level.

Clogged strainer or impeller.

Worn out impeller and/or casing.

Pumping sludge or water with high solids content.

Hose filled with sludge.

Hose twisted/kinked.

Low voltage.

Thermal cut-out switch has operated.

Operation of Thermal Cut-Out

Low voltage.

Clogged strainer or impeller.

Pumping of water with very large solids content.

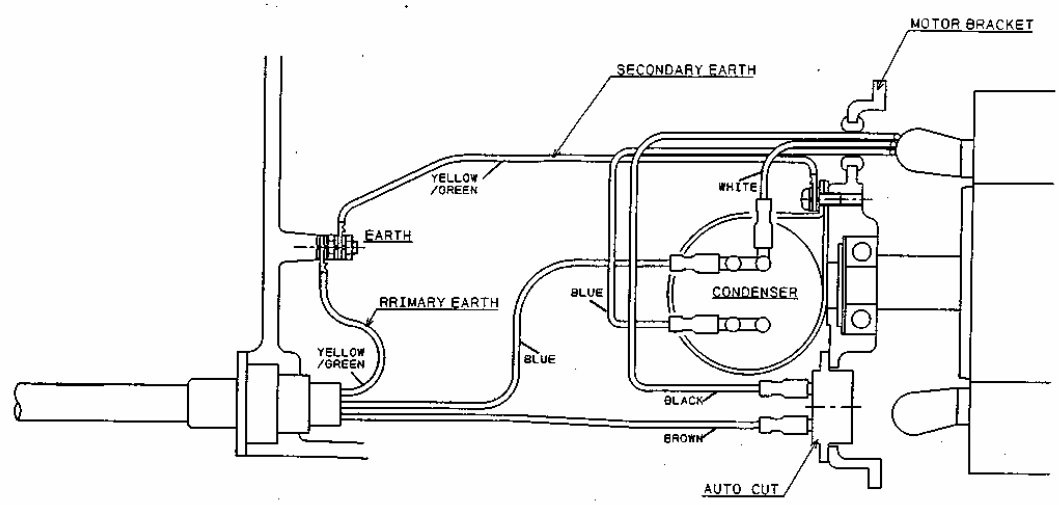
Broken bearings.

Pump run dry for long period.

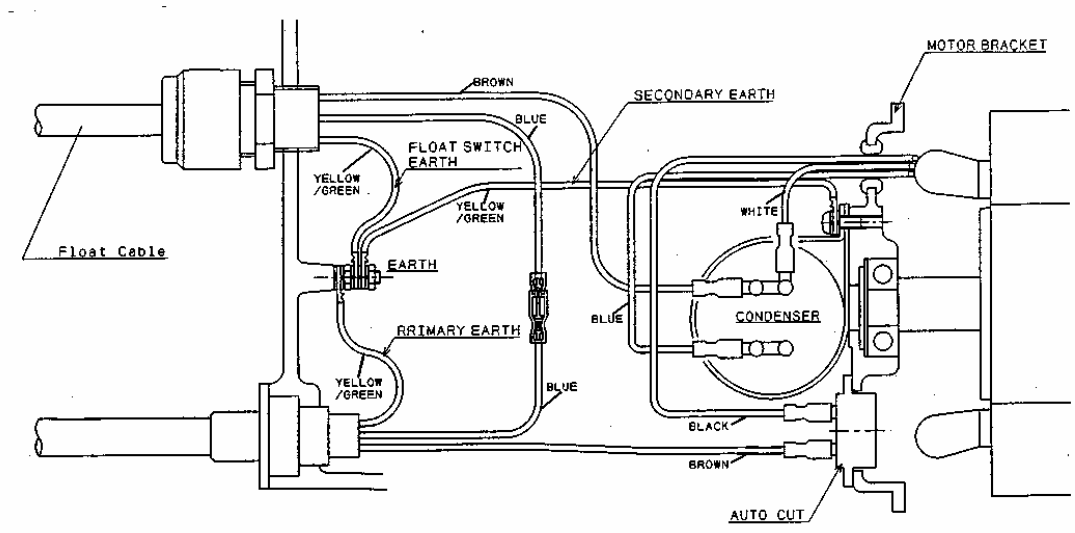
7. WIRING DIAGRAM

If it is necessary to replace the electrical cable or float switch the following diagrams indicate the correct connections:

US-40A - Without Float Switch



USO-40A - With Float Switch



Important

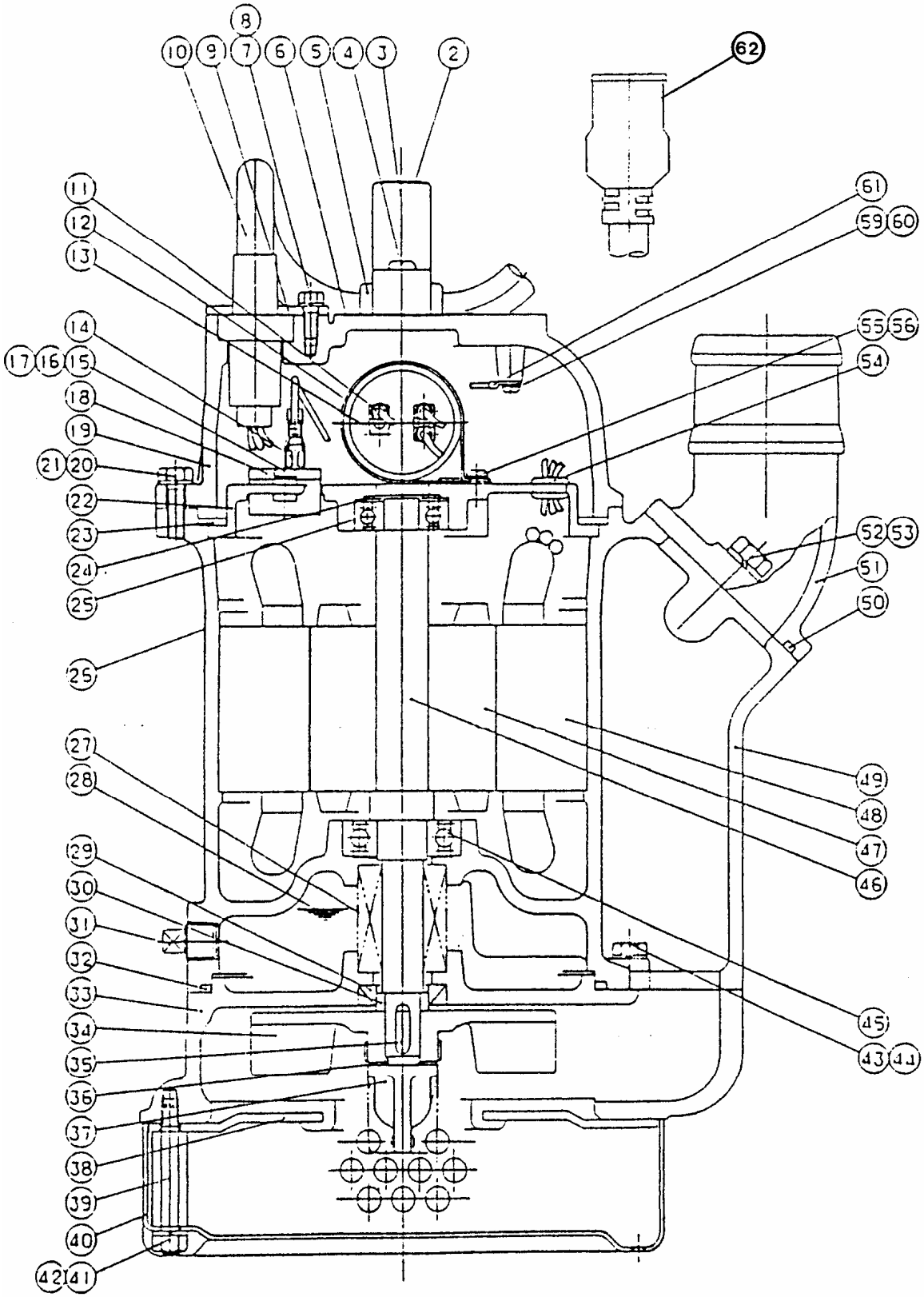
When replacing the head cover (item 19) it is advisable to renew the packing (item 23). Also, ensure the head cover is correctly positioned to avoid the power cable fouling the capacitor.

Repaired items must be subjected to thorough inspection and testing, to ensure full compliance with original manufacturers specifications and all relevant safety standards, before being returned to service.

8. PARTS LIST - MODEL US-40A

Item	Description	Required Qty.	Part No.
2	Model Plate	1	-
3	Handle	1	SW-80033
4	Screw	2	SW-PUM625
5	Rubber Bush	1	SW-70091
6	Name Plate	1	-
7	Hexagon Bolt	2	SW-BUM512
8	Spring Washer	2	SW-SWUM5B
9	Gland Plate	1	SW-76057
10	Supply Cable	1	W60876
11	Connector Tip	3	SW-TT028
12	Band	1	SW-74112
13	Running Capacitor	1	State model, voltage and serial no.
14	Connector Tip	2	SW-TT028
15	Screw	2	SW-PSM410
16	Spring Washer	2	SW-SWM4B
17	Plain Washer	2	SW-WSM4A
18	Auto Cut	1	State model, voltage and serial no.
19	Head Cover	1	SW-22158
20	Hexagon Bolt	4	SW-BUM620
21	Spring Washer	4	SW-SWUM6B
22	Motor Bracket	1	SW-21128
23	Packing	1	SW-70133
24	Wave Washer	1	SW-WW32
25	Bearing	1	SW-B620122NC
26	Caution Plate	1	-
27	Mechanical Seal	1	SW-MW15C
28	Lubricating Oil	1	Shell Vitrea 32
29	Oil Seal	1	SW-SC17307
30	Shaft Sleeve	1	SW-31061
31	Oil Plug	1	SW-PLUPT2B
32	"O" Ring	1	SW-OB29
33	Casing	1	SW-12241
34	Impeller	1	SW-10489
35	Impeller Key	1	SW-K5514A
36	Toothed Lock Washer	1	SW-TLWM12
37	Impeller Nut	1	SW-64047
38	Suction Cover	1	SW-13167
39	Strainer Bolt	3	SW-60082
40	Strainer	1	SW-14129
41	Hexagon Nut	3	SW-NUM6A
42	Spring Washer	3	SW-SWUM6B
43	Hexagon Bolt	4	SW-BUM620
44	Spring Washer	4	SW-SWUM6B
45	Bearing	1	SW-B620322

PARTS DIAGRAM - MODEL US-40A

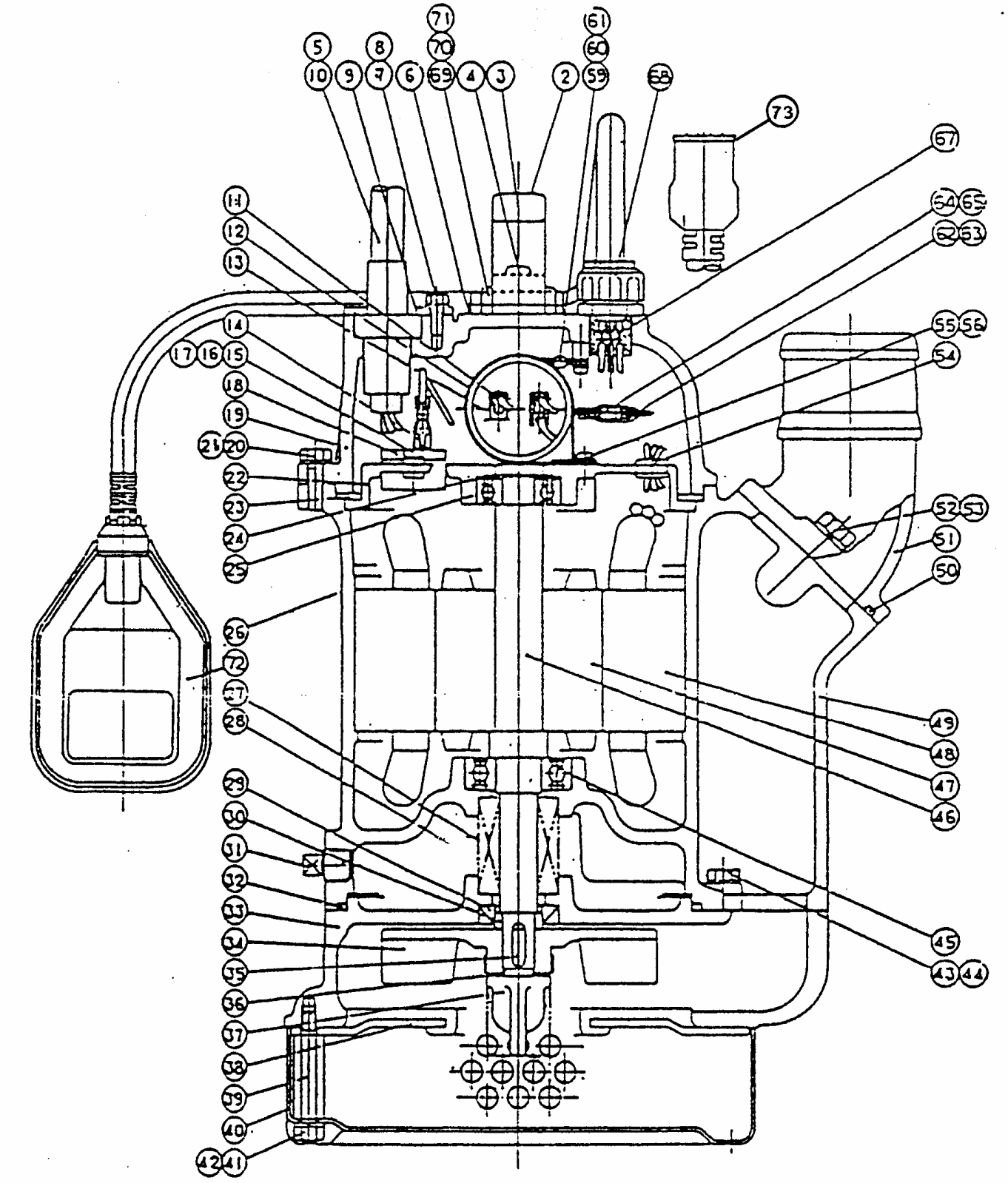


46	Motor Shaft	1	SW-30161
47	Rotor	1	SW-50176
48	Stator	1	State model and voltage
49	Motor Frame	1	SW-20187
50	"O" Ring	1	SW-0B6
51	Hose Coupling	1	SW-HCAF2A-2
52	Hexagon Bolt	2	SW-BUM825
53	Spring Washer	2	SW-SWUM8B
54	Rubber Bush	1	SW-70135
55	Screw	1	SW-PSM48
56	Spring Washer	1	SW-SWM4B
59	Screw	1	SW-PSM46
60	Spring Washer	1	SW-SWM4B
61	Tip	1	SW-TT1.25-4
62	Plug 110v	1	W19704
62	Plug 230v	1	W19706

9. PARTS LIST - MODEL USO-40A/S

Mark	Description	Required Qty.	Part No
2	Model Plate	1	SW-731010
3	Handle	1	SW-80033
4	Screw	2	SW-PUM625
5	Rubber Bush	1	SW-70144
6	Name Plate	1	SW-73977
7	Hexagon Bolt	2	SW-BUM512
8	Spring Washer	2	SW-SWUM5B
9	Gland Plate	1	SW-76057
10	Supply Cable	1	W60876
11	Tip	3	SW-TT028
12	Band	1	SW-74112
13	Capacitor	1	State model, voltage and serial no.
14	Tip	2	SW-TT028
15	Screw	2	SW-PSM410
16	Spring Washer	2	SW-SWM4B
17	Washer	2	SW-WSM4A
18	Auto Cut	1	SW-ACMGT22AGZ
19	Head Cover	1	SW-22158
20	Hexagon Bolt	4	SW-BUM620
21	Spring Washer	4	SW-SWUM6B
22	Motor Bracket	1	SW-21128
23	Packing	1	SW-70133
24	Wave Washer	1	SW-WW32
25	Bearing	1	SW-B620122NC
26	Caution Seal	1	SW-73431
27	Mechanical Seal	1	SW-MW15C

PARTS DIAGRAM - MODEL USO-40A/S



28	Lubricating Oil	1	Shell Vitrea 32
29	Oil Seal	1	SW-SC17307
30	Shaft Sleeve	1	SW-31061
31	Oil Plug	1	SW-PLUPT2B
32	"O" Ring	1	SW-0G125
33	Casing	1	SW-12241
34	Impeller	1	SW-10489
35	Impeller Key	1	SW-K5514A
36	Toothed Lock Washer	1	SW-TLWM12
37	Impeller Nut	1	SW-64047
38	Suction Cover	1	SW-13167
39	Strainer Bolt	3	SW-60082
40	Strainer	1	SW-14129
41	Hexagon Nut	3	SW-NUM6A
42	Spring Washer	3	SW-SWUM6B
43	Hexagon Bolt	4	SW-BUM620
44	Spring Washer	4	SW-SWUM6B
45	Bearing	1	SW-B620322
46	Motor Shaft	1	SW-30161
47	Rotor	1	SW-50176
48	Stator	1	SW-51297
49	Motor Frame	1	SW-20167
50	"O" Ring	1	SW-0G55
51	House Coupling	1	SW-HCAF2A-2
52	Hexagon Bolt	2	SW-BUM825
53	Spring Washer	2	SW-SWUM8B
54	Rubber Bush	1	SW-70135
55	Screw	1	SW-PSM48
56	Spring Washer	1	SW-SWM4B
59	Screw	1	SW-PSM48
60	Spring Washer	1	SW-SWM4B
61	Tip	2	SW-TT1.25-4
62	Plug	1	SW-TT020
63	Sleeve	1	SW-78029
64	Receptacles	1	SW-TT021
65	Sleeve	1	SW-78030
67	) Items 67 and 68 included with item 72		
68	)		
69	Rubber Bush	1	SW-70187
70	Cable Clamp	1	SW-74121
72	Float Switch c/w items 67, 68	1	W82182
73	Plug 110v	1	W19704
73	Plug 230v	1	W19706

10. WARRANTY CONDITIONS AND CLAIMS PROCEDURE

All products supplied by Fairport Construction Equipment Ltd (hereafter referred to as FCE) are warranted to be free of defects due to faulty materials or workmanship for a period of 12 months from the date of original despatch from FCE or as specified below:

Hydraulic hoses and hydraulic couplings – 3 months.
Hydraulic accumulators – 6 months.
Flexible drives – 6 months.
All spare parts used in repairs carried out by FCE or an authorised dealer or repairer – 3 months.

If the goods have been purchased through a stockist the above warranty periods also apply from receipt of the goods by the user of the equipment up to a total of a further 6 months from date of despatch from FCE whichever is earlier.

Filter elements, gauges and oils are specifically excluded from this warranty.

FCE shall at their option repair or replace during normal working hour's goods accepted as faulty free of charge to the user.

For proprietary items such as engines, the original manufacturer's warranty and conditions shall apply.

CONDITIONS

The goods shall be returned at the purchaser's expense to FCE or to a destination FCE may reasonably direct. Carriage costs will be refunded if warranty is accepted.

Warranty claims will not be considered where there is evidence that failure has been caused by carelessness, improper use, negligence, inadequate servicing, incorrect engine speeds, fair wear and tear or non-compliance with instructions issued by the manufacturer.

To the extent permitted by law, the liability of FCE under this section is confined only to providing a remedy for defective goods and does not extend to any consequential loss, loss of profit, injury or damage suffered.

Warranty will not be accepted on dismantled goods unless dismantling was carried out with the written permission of FCE.

No claim shall be considered if other than genuine parts supplied by FCE have been used.

Products are only covered by this warranty in the country to where they were supplied by FCE.

Warranty on products applies only to the original user of the equipment.

This warranty shall not apply if the serial number or other identifying numbers or marks applied by FCE have been removed, defaced or are otherwise illegible.

CLAIMS PROCEDURE

Check that the goods are still under warranty before returning them to FCE (see above for warranty periods).

Return the goods to FCE with an order number for the work to proceed. If warranty is accepted no charge will be made. If warranty is not accepted a quotation will be given for the repair and the conditions under the section headed REPAIRS AND ESTIMATES will apply.

In the customer's interest, goods must be accompanied by documentation detailing the nature of the fault or its symptoms. Phrases such as 'Faulty' are unacceptable and will result in delays and possible charges to defray costs incurred in identifying the fault.

In the case of hydraulic breakers and power packs, both the breaker and the pack should be returned

11. REPAIRS AND ESTIMATES

When returning a machine, or an assembly for repair, always include an Advice Note quoting model and serial number of the machine.

An official order must also be forwarded to FCE giving detailed instructions. No repair work can be carried out unless covered by an official order.

An estimate will be submitted before proceeding with any repair. To partly cover the cost in dismantling, cleaning and inspection, a small charge will be made; this however will be waived upon receipt of your official instructions to proceed with the repair.

In the event of the estimate not being accepted, a further charge will be made to defray the rebuilding of the machine.

Estimates must be treated as approximate only as it may be found necessary to use additional parts on further examination.