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BUNKER DRAINER

OPERATOR'S MANUAL



SAFETY WARNING

- Do not start engine with pump in water.
- Do not continue to run pump when not in water.
- Operate in a well vented area.
- Avoid loops or tight bends in flexi-drive.
- Inspect components regularly for damage.
- Never run petrol or diesel engines in trenches or confined spaces.
- Never attempt to carry out maintenance with engine or motor running.
- Never top up fuel tank whilst engine is running; don't smoke; wipe up spilt fuel.
- Dispose of fuel contaminated wipes safely.
- Always turn off fuel after use.
- Always isolate electric motors after use.
- Always use residual current devices with electric motors.
- Always wear suitable protective clothing, i.e. safety helmet, footwear, ear defenders and gloves.
- Ensure guards are always fixed in position when engines/motors are running.
- Always comply with site safety regulations.
- Do not attempt to carry out repairs to electric drive units unless you are a competent electrician.

Flexible Casing Used on Pumps COSHH Regulations

This data sheet provides the information required on Section 6 of the Health and Safety at Works Act 1974 as amended by Schedule 3 of the Consumer Protection Act 1987.

Data Sheet on Flexible Housing:

The Polymeric compounds used on hose may contain materials that can migrate to the surface from whence they could be transferred to the skin during handling. This may cause skin irritation to persons who frequently handle hose. Persons who have to handle the hose frequently are advised to follow good hygiene practices e.g. wear gloves whenever practicable. Use barriers cream and wash hands after work before eating, drinking or smoking.

Fire:

With a few exceptions the polymeric materials used by Dunlop Hose Ltd are not easy to ignite in bulk. However, when exposed to flame or to serious overheating they will decompose liberating noxious or toxic smoke or fumes. Fire precautions should recognise the hazards that may arise from indirect involvement in a fire as well as the inherent fire risk of the individual products. Specialised advice on fire precautions is available from local Fire Authorities and from Health and Safety Executive.

Storage:

Hose may deteriorate in appearance and physical properties during storage particularly if adverse storage conditions apply. BS3574 details the most suitable conditions for storage. In summary, hose should be stored in an unstressed darkened condition below 25°C and protected from moisture and air circulation. Exposure to atmosphere containing high concentration of ozone, (eg near discharge from electric motors) is to be particularly avoided. Hose should be stored away from direct heat and contact with strong oxidising agents should be avoided.

COMMISSIONING AND OPERATING INSTRUCTIONS

The machine as delivered will be in two main assemblies.

- A) The drive unit
- B) The pump head complete with flexible drive shaft and coupling.

To assemble the flexible pump drive to the power unit, raise the latch knob on the coupling housing on the engine and insert the coupling attached to the end of the flexible drive. On releasing the knob the plunger should locate itself in the groove in the plug-in connector. When connecting to a petrol or diesel engine it may be necessary to rotate the engine crankshaft by means of a rope or handle starter at the same time applying pressure to the coupling in order to obtain engagement. Check the engagement by pulling on the coupling after releasing the latch knob. The coupling must never be inserted into or removed from the housing with the engine or electric motor running.

If the coupling is disconnected from the flexible shaft at any time, be sure to protect all exposed ends from possible damage or entry of foreign matter.

When transporting flexible pump shaft assemblies, it is essential that they are never coiled too tightly, likewise acute bends should be avoided when operating on site. The recommended method of storing these flexible shafts is on timber racks so that the shaft is kept straight and supported throughout its full length.

PUMP DRIVE UNIT - PETROL OR DIESEL

Carefully read the engine manufacturer's instruction book before starting.

- Check oil level
- Turn fuel tap on
- Put speed control lever to tick-over
- If engine is cold, close the choke (petrol engines only)
- Turn engine switch to ON (1) position

Pull the starter rope toggle lightly until resistance is felt, then pull briskly using quick short pulls. Do not pull rope to its full extent or allow toggle to snap back against the engine. Return it gently to avoid damage. When engine is warm, open choke.

Position engine speed control lever to give required engine speed (usually full speed, but see note below).

To stop engine, position the engine speed control lever to slow, and turn the engine switch to off (0).

Turn the fuel valve to off.

NOTE: The governors of petrol and diesel engine drive units have been set at 2,750/2,850 rpm maximum. It is essential that the engine speed is not increased over 3,000 rpm as this will induce stress which may result in failure of the pump head or flexible shaft, and therefore may invalidate any warranty.

CHECK ENGINE SPEED.

Starting the Pump

With the coupling correctly inserted into the housing start the engine or switch on the electric motor. During cold weather it is advisable to run petrol or diesel engines for a few minutes before connecting to the flexible drive.

Avoid tight bends in the flexible drive shaft. Tight bends cause rapid wear of the flexible core.

Check on a regular basis (weekly) that all joints on the flexible drive are tight.

Do not allow the coupling end of the flexible drive to lie in wet conditions on the ground, as the entry of water to the bearings will cause rusting.

MAINTENANCE

Flexible Drive Shaft Type F535 – F545 – F550 – F565
(Refer also to Parts List)

The flexible drive shaft should be dismantled and recharged with grease every 500 working hours. As it is extremely difficult to keep accurate records, we would suggest that the flexible pump be overhauled at set regular intervals. This will ensure trouble free operation. The recommended grade of grease is Castrol BM2 or an equivalent.

Do not attempt to carry out the lubrication of the flexible shaft drive under site conditions; this should always be carried out in a maintenance workshop.

When dismantling the flexible pump drive, first remove the plug-in connector (left hand thread). The complete plug-in connector assembly may then be pulled away from the flexible shaft.

Hold the bearing housing of the pump head assembly in a vice, then unscrew the pump housing, complete with nose cap, in a clockwise direction (left hand thread).

Next unscrew the flexible drive outer case coupling from the bearing housing in a clockwise direction (left hand thread).

Pull the outer casing away so as to expose the core coupling.

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Hold the core coupling in a vice and unscrew the pendulum, complete with bearing and oil seal etc, in an anti clockwise direction (right hand thread).

The inner flexible core can now be withdrawn from the outer casing.

Clean the flexible steel inner core and core couplings thoroughly with grease solvent.

Clean ends of outer casing with a cloth.

After thoroughly cleaning the complete flexible drive shaft, inspect the inner core for any excessive wear due to rubbing action between the core and outer casing spiral reinforcement; also for damaged and broken outer layer wires. If there is a permanent bend in the outer casing we advise fitting a replacement, as this is liable to cause damage to the inner core.

Regrease the first 12" – 18" (30 – 40 cm) of the inner core with Castrol BM2 grease. Insert the greased inner core into the casing from the plug-in connector end. Continue greasing the inner core and at the same time insert it into the casing. Continue until the whole length of the inner core has been greased.

As the inner core is pushed through the outer casing, some of the grease will naturally adhere to the inner walls of the casing. To ensure adequate lubrication, it is advisable to draw out the core for approximately 6ft (2m) from the other end, and regrease as the core is inserted back into the casing.

It is essential during the regreasing operation to keep dirt and grit away from the component parts.

To re-assemble the flexible drive to the pump head, proceed as follows:

Pull out the inner core for about 4" (10cm) and screw the core coupling (right hand thread) on to the exposed end of the pendulum, then screw the outer case coupling into the bearing housing in an anti-clockwise direction (left hand thread). During this operation, ensure not to damage the fine thread.

Should it be necessary to dismantle the coupling, proceed as follows:

Unscrew main shaft head and remove internal circlip.

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Press out the main shaft complete with bearings etc, by means of an arbour or fly press. When carrying out this operation support the large diameter of the housing and apply pressure to the small end of the shaft.

Next remove the circlip and withdraw the key retaining collar, the key itself can now be withdrawn from its locating keyway.

The bearings and spacer can now be pressed off the main shaft.

Check the condition of the two ball bearings, and replace if necessary.

Reassembly is generally the reverse of the above procedure.

After fitting the ball bearing and spacer the driving key can be inserted in the keyway and the key-retaining collar replaced to hold the key in position.

Fit the circlip to retain the collar.

Fill the space between the two bearings with Castrol BM2 grease.

Press in the bearing sub-assembly into the housing until the inner bearing is in contact with its locating shoulder.

Refit internal circlip and screw on main shaft head.

When screwing on the plug-in connector to the flexible drive shaft, be sure that the core coupling keyway is fully engaged with the internal key of the main shaft.

POWER SOURCE

Metrix Petrol, diesel or 2 hp electric driving units with standard flexible drives and coupling. Up to four 3m lengths (40'0" total length) of flexible drive can be connected.

TECHNICAL DATA

When draining is finished remove the pump before switching off the driving unit. To ensure that the pump maintains maximum efficiency, it is necessary to flush with clear water after use, to remove sand or slurry from inlet holes, impeller and internal waterways.

Maximum capacity of water: 620 Lp min (138 i.g.m. Min) with 38mm outlet

Maximum head of water: 15 metres

PARTS LIST FOR METRIX DRAINAGE PUMP TYPE V500

Item	Part Number	Description	Quantity Required
1	92105	V5000 Pump Complete	1
2	51209	Bush	1
3	50703	Washer	1
4	50704	Shaft	1
5	50705	Bearing Case	1
6	50706	Case Centre	1
7	50707	Bottom Plate	1
8	50708	Sieve Plate	1
9	50709	Nut	
10	50711	Fly	1
11	50712	Seal Retainer	1
12	50713	Washer for Grease Seal	1
13	51191	Case Top	1
14	51192	Case Bottom	1
15	51193	Outlet, 50mm (2")	1
16	51194	Outlet, 63mm (2 1/2 ")	1
17	51196	Impeller	1
18	51198	Case Bottom Spacers	6
19	81004	Ball Race Upper	1
20	81005	Ball Race Lower	1
21	81106	O' Ring Large	1
22	81108	O' Ring Small	1
23	81205	Grease Seal Upper	1
24	81206	Grease Seal Lower	1

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25	81301	Circlip	1
26	81676	Shims	1-4
27	81577	Rubber Washer	4
31	81703	Hose Clip, 63mm	1
32	480/8	Nut Nyloc	8
33	435/8/90	Screw	6
34	435/6/40	Screw	4
35	51214	Bowl Shim	1-2*

To order spare parts please email spares@greentek.uk.com or call +44 (0)113 267 7000.

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Tel: +44 (0)113 267 7000
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Certificate of CE Conformity

GreenTek Solutions Ltd

Declare that the product Pump and Drive Units

Manufactured from 1 September 2004, conforms to the following Directives:

89/336/EEC, 89/392/EEC, 91/368/EEC, 2000/14/EC

Uses the following standards:

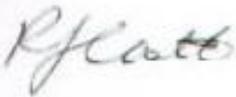
BS EN 292-1, BS EN 292-2, BS EN 294

Conforms to the following Statutory Instruments

The Supply of Machinery (Safety) Regulations 1992 & amendments

Complies with the relevant essential health and safety requirements of the Machinery Directive.

Technical Construction File no P.D.U.

	Technical
Signature	Position
R.J.Castle I.Eng M.I.Mech.E.	12/12/2005
Signed by	DateTechnical

GUARANTEE

We guarantee that should any defect in materials or workmanship occur within 24 months of the date of purchase we will repair, or at our option, replace the defective part free of charge provided that the fault is reported to us immediately it becomes apparent.

Damage caused by normal wear, misuse or in transit is not covered by this guarantee.

CONTACT US

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