



OPERATION MANUAL & PARTS LIST



DRYSITE D5 3" DIAPHRAGM PUMP

000090Y YANMAR LN48 RECOIL START
000090YE YANMAR LN48 ELECTRIC START

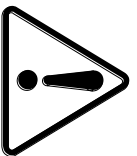
Caution: Do not attempt to operate this machine until
you have read and understood completely
ALL instructions and guidelines contained.
Keep this manual available at all times for
operators and service engineers.

Morris Machinery Ltd

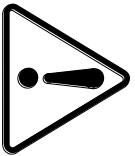
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Warning this equipment may constitute a potential hazard



This equipment is designed for use in General Pumping Applications and could cause serious injury or death if incorrectly used.

Before commencing the use of this equipment answer the following questions.

- (a) Have you been fully trained by a qualified instructor?
- (b) Have you read the manual?
- (c) Have you been equipped with the correct Personal Protective Equipment?
- (d) Do you fully understand all of the equipment being used in connection with this item?
- (e) Is the fluid to be pumped compatible with this equipment
- (f) Does the fluid to be pumped have any harmful effects
- (g) Has a risk assessment for this task been carried out?
- (h) Is the equipment suitable for the task in hand?
- (i) Has the working area been isolated and warning signs erected?

If you answer **NO** to any of the above, **or do not understand any question**, you may be in breach of Health and Safety Guidelines.
Do not proceed without consulting your Health and Safety Representative.

Morris Site Machinery do not accept responsibility for any event arising from incorrect or mis-use of the equipment.

Technical information, warning signs, personal protective equipment and training by qualified instructors are available from Morris Site Machinery – contact details below.

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Guarantee

Morris Site Machinery guarantee this product for a period of 12 months from the date of delivery. This guarantee covers both parts and labour against faulty workmanship or materials.

Components of the machine which are not of our manufacture i.e. engine, are subject to the warranty of the maker and are not covered by this guarantee.

Failure of rubber components such as diaphragms and valves are usually associated with overload & abuse and would only be replaced under guarantee if moulding defects are evident

Introduction

The Morris Site Machinery Hilti DRYSITE D5 diaphragm pump has been engineered to provide general purpose pumping of muddy water, sewage effluent, nuisance water etc. and will pass solids in suspension up to 40mm. its rugged construction combined with lightweight and compact size makes it ideal for use on building and construction sites, for factory maintenance and with public utilities

The pump is capable of running dry on 'snore' indefinitely and therefore suitable for running overnight for draining purposes.

Specification

Pump Performance	
Pump Speed (Max.)	64 Strokes/minute
Pump Speed (Normal)	60 Strokes/minute
Maximum output @ 64 stokes/min	22.5 cu. m/hr (5000 gallons/hour)
Maximum delivery head	14 Metres
Maximum suction lift	7.5 Metres
Maximum dry prime depth	5 Metres

Dimensions & Weights

YANMAR LN48			
Recoil Start		Electric Start	
3" BSP or 3" Lever cock			
Length	1450mm	1525mm	
Width	600mm		
Height	855mm		
Weight	138kgs	165kgs	
Power Unit	YANMAR L48 1.73kw at 2000rpm		
Fuel Tank	2.5 Litres	5.5 Litres	
Duration	5.5 Hours	11 Hours	
Starting	Recoil	Electric start with recoil backup	
Sound Power	110dB*		
Sound pressure at 7m	78dB(a)		

* Sound power measurement is in accordance with and as required by EU Directive 2000/14/EL

Safety Precautions

- Read the operating instructions before using the pump.
- Do not operate the pump indoors or in a confined area without adequate ventilation. Avoid inhaling the engine exhaust fumes.
- Keep children and animals away from the operating area.
- Permit only authorised persons to operate the pump.
- Stop the engine before refuelling.
- Do not overfill the tank and ensure that the fuel filter cap is securely replaced.
- Wipe up any split fuel before starting the engine.
- Do not smoke or permit naked flames or sparks in the area during refuelling or in the vicinity of stored fuel.
- Do not place or leave fuel or other flammable materials near the engine while it is running.
- Do not place anything on, or over the engine while it is running or while the silencer or engine are still hot.
- Do not transport or store the unit while the engine or silencer are still hot.
- Do not remove any protective guards while the engine is running, or operate the pump without guards.
- Do not operate the pump if it is damaged or faulty.
- Always position the pump and hoses so that they or the discharge do not create a hazard.
- Always wear protective gloves when handling hoses or when cleaning/flushing the pump as it may have been in contact with hazardous fluids.
- Always position the pump so that it will not move, if necessary chock the wheels.
- Hand starting a diesel engine can be dangerous in the hands of inexperienced people. Operators must be instructed in the correct procedures before attempting to start the engine. In all cases refer to the engine manufacturer's handbook supplied with this pump.

Operating Instructions

- Always position the pump on firm level ground with sufficient free space around it for safe operation. If necessary chock wheels to prevent movement.
- For the most effective operation, site the pump as low and as near to the water as possible.
- Make sure that the suction hose and its coupling are completely leak free. The sealing washer must be in place in the coupling.
- Make sure that the strainer is fitted securely to the suction hose. **Never use the pump without a strainer.**
- Do not allow the strainer to become buried in mud or blocked with floating debris.
- Keep delivery hose as straight and kink free as possible.
- Before starting the engine read the engine manufacturers handbook which is supplied with the pump.
- If possible start the engine with the suction hose out of the water. Immerse the suction hose once the engine has had time to warm up.
- Flush out pump with clean water after use with contaminated fluids.
- Drain off in frosty weather by running the pump with both hose disconnected. Tilting the pump in the direction of the delivery port will ensure complete draining.

**NEVER ATTEMPT TO START THE ENGINE IF THE PUMP IS FROZEN AS
SERIOUS DAMAGE WILL RESULT.**

Handling & Transportation

- Whenever the pump has to be lifted or carried always use the lifting eye provided for the purpose.
- When transporting the pump always rope down the pump chassis securely and if necessary chock the wheels.

Maintenance

After Use Or Every 6 Weeks

- Remove valves and port plates. Clean and inspect seating faces and renew if significantly worn or damaged.

- Check that the valve plates are securely bonded to the valve rubber.
- Check belt tension. Adjust if necessary by slackening off the three pump fixing bolts and sliding the pump sideways. Do not over tighten, allow approximately one inch of total belt movement between the pulleys.
- Lubricate pump conrod bearing by applying sufficient grease to expel any old discoloured grease.
- Check security and tightness of all fasteners, particularly the engine holding down bolts. See page 9 for torque figures.

Every 12 Months

Repeat 6 Weekly service and in addition:-

- Renew pump diaphragm unless recently changed.
- Renew valve assemblies unless recently changed.
- Renew drive belt.
- Check and reset engine speed to give a pump speed of 60 strokes/min.

Engine Servicing

- Servicing of the engine must be carried out as specified in the manufacturer's handbook supplied with the pump.

To Prevent Frost Damage

- Empty the pump when not in use whenever there is danger of frost.
- Damage will occur if attempts are made to start the pump if ice is present in the pump body.
- To empty, disconnect hoses and tilt the pump body so that any water will drain out through the delivery valve.
- Alternatively, the pump can be run for a few strokes with the hose disconnected.

A vacuum gauge and combined inlet adapted plate (available from Morris Site Machinery, pt.no. 001971) are an indispensable aid when fault finding. When placed on the pump inlet port the pump should achieve a maximum of 14" of mercury (approx. 0.5 bar)

Failure to Prime	
Cause	Remedies
Air leak in suction hose or joints.	Check that there are no splits in the suction hose. Check that the seal in the coupling is in place.

Outlet valve not sealing.	Remove the outlet valve & check valve and seat. Replace if necessary.
Perforated diaphragm.	Check for water above diaphragm, if present, renew.
Suction lift too deep.	Dry prime lift of 5 metres maximum can be marginally increased by adding water to the pump body through the inlet port. Reduce suction lift by re-siting the pump lower down, closer to the water if possible.

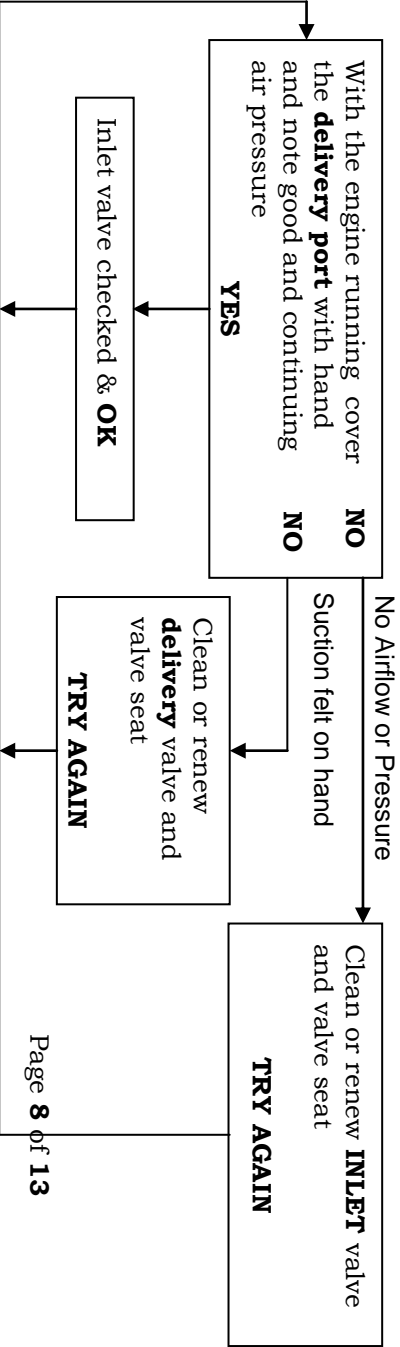
Failure to Pump / Low Output	
Causes	Remedies
Suction hose strainer buried or clogged.	Suspend strainer or place in sump.
Hose strainer removed.	Clear blockage from hose and/or pump. Fit strainer before recommencing to pump.
Valves not seating correctly. See 'test procedure'.	Remove and clean valves.
Suction hose collapsed.	Replace suction hose.
Drive belt slipping	Re-tension belts.

Diaphragm Ruptured	
Cause	Remedy
Excessive pump pressure	Check that the total head is within the capability of the pump and that there are no obstructions including ice or kinks in the delivery hose.

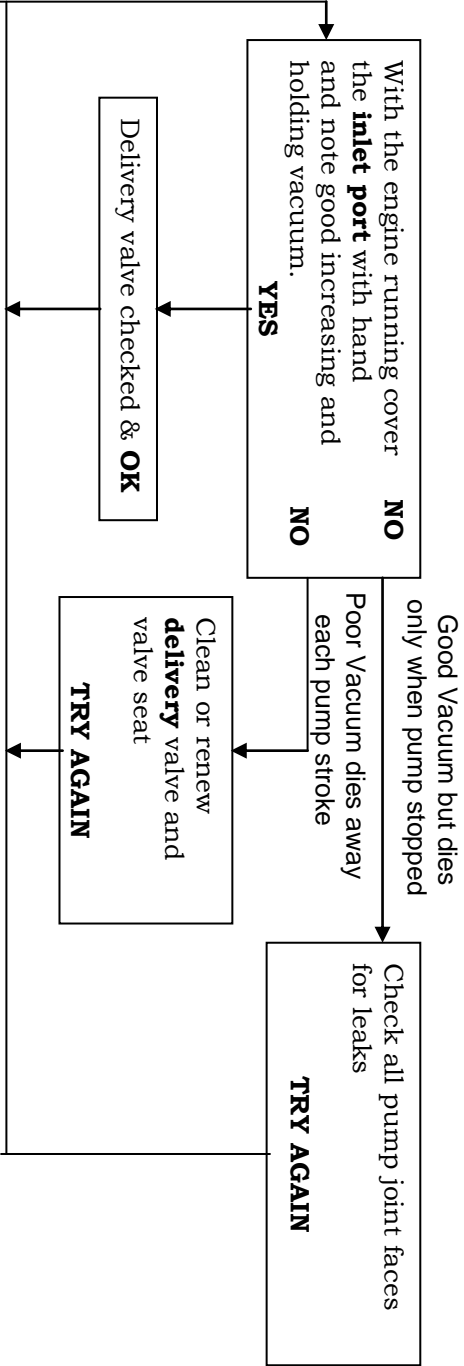
Pulsation Dampers
When replacing the pulsation dampers on the Drysite D5 diaphragm pump, please ensure that the silicone seals around the top cap, and the inlet and outlet ports are sealed correctly. If they are not correctly sealed, the pump will fail to create a vacuum. Please ensure that the clips are also secured tightly in call cases.

Diaphragm Pump test Procedure

To check INLET valve

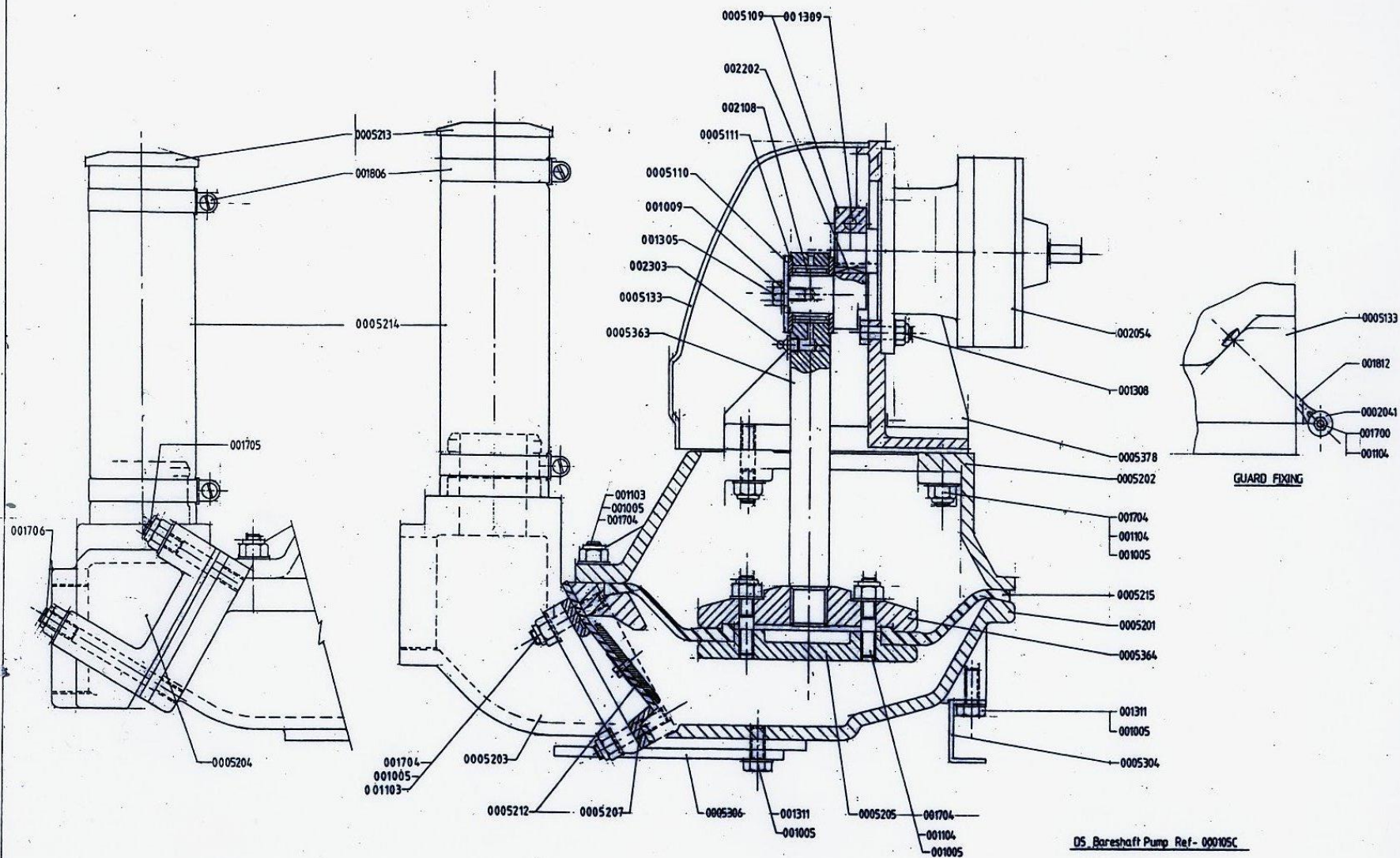


To check delivery valve

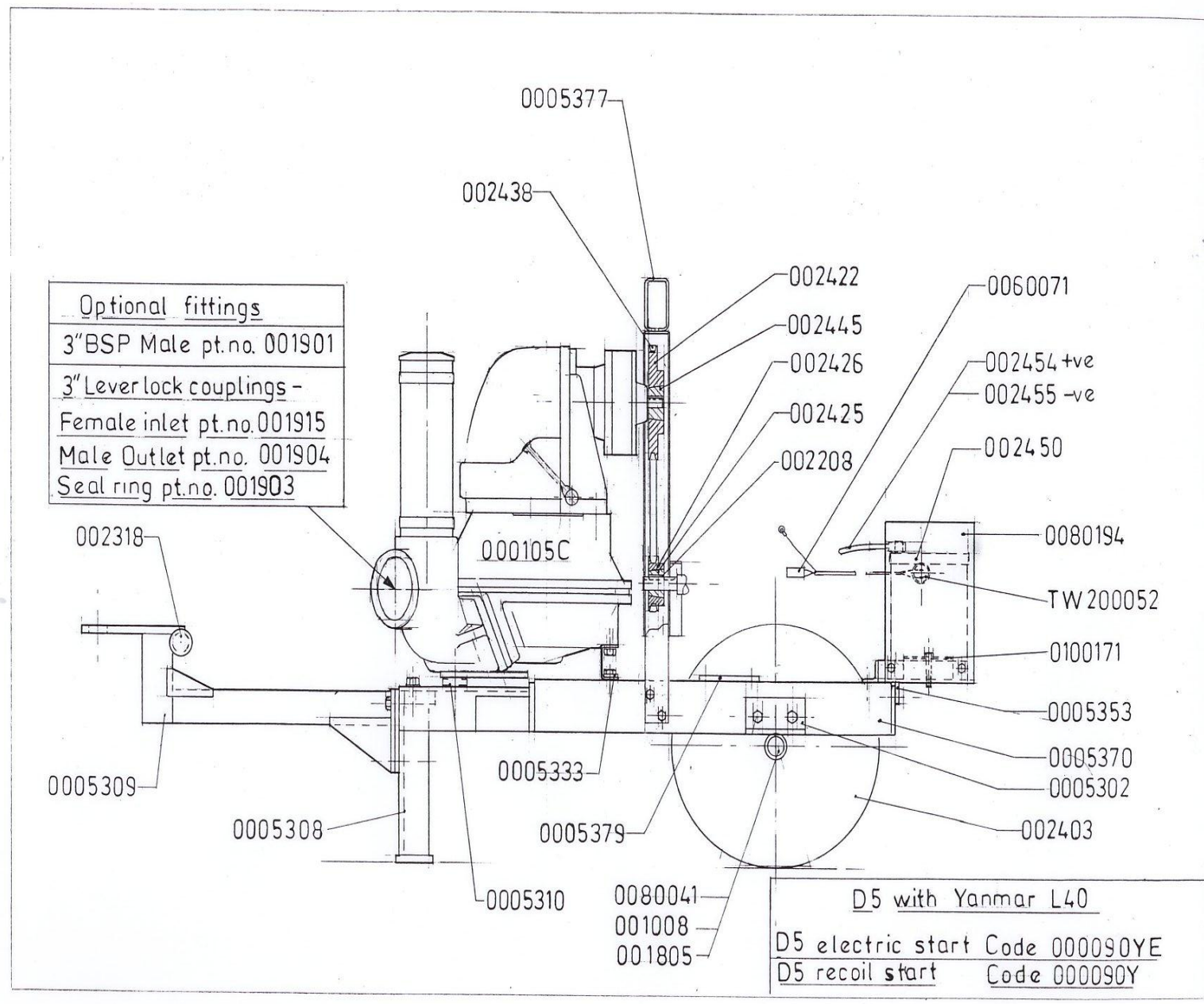


Fasteners Torque

Description	Size	Torque lbs.ft. (Nm)
Inlet Chamber	M12	12 (20)
Delivery Chamber	M12	12 (20)
Pump Body to Upper Body	M12	35 (47)
Drive Unit to Upper Body	M12	25 (47)
Diaphragm Clamp Plates	M12	30 (40)
Connecting Rod to Crank	M10	35 (47)
Crank to Output Shaft	M10	35 (47)
Pump to Chassis	M12	35 (47)
Engine to Chassis	M10	35 (47)



05 Bareshaft Pump Ref- 000105C



Drysite D5 Chassis Unit With YANMAR LN48

Part No.	Description
0005302	Axle
0005308	Foot
0005309	Handle
0005310	Spacer
0005333	Spacer
0005370	Chassis
0005377	Lifting Frame
0005379	Engine Spacer
0080041	Stub Shaft
001008	Washer
001805	Split Pin
002208	Key
002318	Handle Grip
002403	Wheel
002422	Pulley – Driven
002425	Taperlock bush
002426	Pulley – Drive
002438	Belt
002445	Taperlock Bush

The Following parts are for Electric Start Option

Part No.	Description
0005353	Battery Carrier
0060071	Harness
TW200084	Battery Cover
0100171	Battery Clamp
002450	Battery
002454	Battery Cable – Red
002455	Battery Cable - Black
TW200052	Push Button