DURAPAC
ENGINEERED FOR RELIABILITY

Instruction Manual

Diesel Driven Power Unit
Model – PDM1724

Maximum Operating Pressure – 138 bar

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This is a safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid injury or death

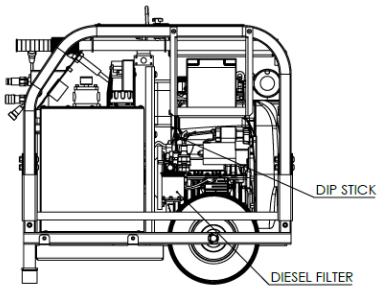
1.0 Product Information

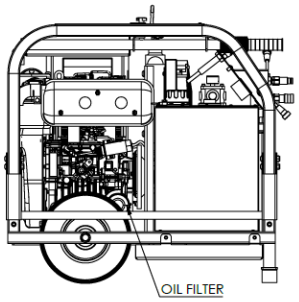
DURAPAC – Diesel Driven Power Units are engineered to meet Industrial Standards for Performance and Safety. The PDM1724 model is suitable for heavy duty applications in the field and can deliver a minimum flow of 38 Lpm at 138 bar pressure. It is specifically designed to operate a wide variety of hydraulic tools such as saws, drills and paving breakers for construction and demolition tasks. It features a flow combine valve to choose between operating 2 x 19 Lpm circuits or 1 x 38 Lpm circuit. Each tool also has an individual directional ON/OFF control valve. The power unit has a 19 L usable oil capacity coupled with the reliability of a 17 HP KOHLER KD477-2® diesel motor.

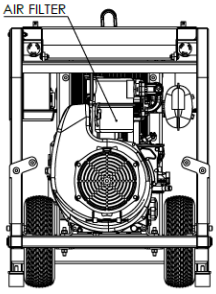
- Flow combine valve to choose operating 2 x 19 Lpm circuits or 1 x 38 Lpm circuit
- 12 volt battery
- 12 volt 10 amp power outlets
- 19 litre fuel tank
- Throttle control lever for manual flow adjustment
- Oil filter accessible for ease of service
- Air cooled diesel 17 HP engine with variable speed control
- 12 volt electric start/stop control panel
- 63 mm panel mounted 0 - 250 bar pressure gauges
- Shutdown protection on high temperature and low oil pressure
- Exhaust silencer with mesh guard

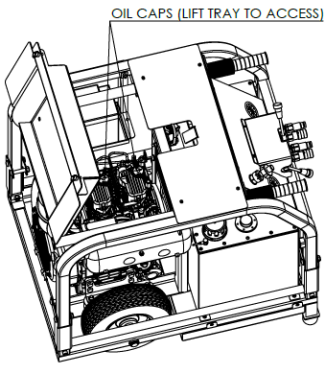
Please see the KOHLER Diesel Instruction Book to obtain further information, safety warnings and alerts that relate specifically to the KOHLER diesel engine.

Special skill, knowledge and training may be required for a specific task and the product may not be suitable for all jobs. The user must ultimately make the decision regarding suitability of the product for any given task and assume the responsibility of safety for all in the work area. Contact a Durapac representative if you are unsure of your power units' suitability for a particular application.









2.0 Receiving Instructions

It is recommended prior to use that an inspection be done by qualified personnel and that any missing or damaged parts, decals, warning/safety labels or signs are replaced with Durapac authorised replacement parts only. Any power unit that appears to be damaged in any way, is worn, leaking or operates abnormally should be removed from service immediately until such time as repairs can be made. Any power unit that has been or suspected to have been subject to a shock load should be removed from service immediately until inspected by a Durapac authorised service centre. Owners and operators of this equipment should be aware that the use and subsequent repair of this equipment may require specialised training and knowledge.

3.0 Safety

Save these instructions. For your safety, read and understand the information contained within. The owner and operator should have an understanding of this product and safe operating procedures before attempting to use this product. Instructions and safety information should be conveyed in the operator's native language before use of this product is authorised. Make certain that the operator thoroughly understands the inherent dangers associated with the use and misuse of the product. If any doubt exists as to the safe and proper use of this product as outlined in this factory authorised manual, remove from service immediately.

DANGER:

- To avoid personal injury keep hands and feet away from work area during operation
- **Do NOT** handle pressurised hoses. Escaping oil under pressure can penetrate the skin causing serious injury. If oil is injected under the skin, see a doctor immediately
- Stay clear of loads supported by hydraulics. A cylinder, when used as a load lifting device, should never be used as a load holding device. After the load has been raised or lowered, it must always be supported mechanically

WARNING:

- The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system
- Always wear appropriate *personal protective equipment* (*PPE*) when operating hydraulic equipment. The operator must take precaution against injury due to failure of the tool or work piece(s)
- **Do NOT** hold or stand directly in line with any hydraulic connections while pressurising
- **Do NOT** attempt to disconnect hydraulic connections under pressure. Release all line pressure before disconnecting hoses
- All personnel must be clear before lowering load or depressurising the system
- **Do NOT** attempt to lift a load weighing more than the capacity of the cylinder

IMPORTANT:

- If at any stage, the safety related decals become hard to read, these must be replaced

- Minimum age of the operator must be 18 years. The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the equipment. The operator is responsible for this activity towards other persons
- **Do NOT** lift hydraulic equipment by the hoses or couplers. Use the carrying handle or other means of safe transport
- Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Durapac authorised service centre in your area. To protect your warranty, use only high quality hydraulic oil

CAUTION:

- **KEEP HYDRAULIC EQUIPMENT AWAY FROM FLAMES AND HEAT.** Hydraulic fluid can ignite and burn. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65°C (150°F) or higher. Protect all equipment from weld spatter
- No alteration should be made to this device

3.1 Hydraulic Power Units

- **Do** use a gauge or other load measuring instrument to verify load
- **Do NOT** exceed the rated capacity of the power unit or any equipment in the system. Burst hazard exists if connection pressure exceeds rated pressure
- **Do NOT** operate the system with bent or damaged couplers or damaged threads
- **Do NOT** subject the power unit and its components to shock loads
- Use only Durapac approved accessories and components
- **Do NOT** connect to an application which can return more oil to the reservoir than the power unit reservoir can hold
- **Do NOT** connect power unit to a hydraulic system that is powered by another pump

3.2 Hydraulic Hoses & Fluid Transmission Lines

- Avoid short runs of straight line tubing. Straight line runs do not provide for expansion and contraction due to pressure and/or temperature changes
- Reduce stress in tube lines. Long tubing runs should be supported by brackets or clips. Before operating the power unit, tighten all hose connections with proper tools. Do not over tighten. Connections should be tightened securely and leak-free. Over tightening can cause premature thread failure or high pressure fittings to burst
- Should a hydraulic hose ever rupture, burst or need to be disconnected, immediately shut off the power unit and release all pressure. Never attempt to grasp a leaking pressurised hose with your hands. The force of escaping hydraulic fluid can inflict injury

- **Do NOT** subject the hose to potential hazard such as fire, sharp objects, extreme heat or cold or heavy impact
- **Do NOT** allow the hose to kink, twist, curl, crush, cut or bend so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses also must not come in contact with corrosive materials such as battery acid, creosote-impregnated objects and wet paint. Never paint a coupler or hose

Please also refer to the KOHLER Diesel Instruction Book for safety warnings and alerts that relate specifically to the KOHLER diesel engine.

FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY AS WELL AS PROPERTY DAMAGE.

4.0 Installation

IMPORTANT:

- This power unit is for use hydraulic tools having a pressure and return port ONLY! Ensure that both pressure and return ports are properly connected to the hydraulic tool
- Always secure threaded port connections with high grade, non-hardening pipe thread sealant. Teflon tape can be used if only one layer of tape is used and it is applied carefully, two threads back, to prevent the tape from being introduced into hydraulic system, which could cause jamming of precision-fit parts

4.1 Familiarise yourself with the specifications and illustrations in this owner's manual. Know your power unit, its limitations and how it operates before attempting to use. Refer to specification chart below or if in doubt, contact a Durapac representative.

Model Number	Motor		Pressure Rating (bar)	Flow Rate Lpm		Usable Oil Capacity (L)	Oil Port Thread	Dry Weight (kg)
	HP	rpm		Combine OFF	Combine ON			
PDM1724	17	3,600	138	2 x 19	38	19	7/8"-14 UNF	240

4.2 Ensure that there is adequate oil in the reservoir to perform the required function. Ideally the gauge should not read less than 1/3. If this is the case, see Section 6.1 - Adding Hydraulic Fluid.

4.3 Hydraulic connections – check all system fittings and connections to be sure they are tight and leak free.

4.4 Fill the fuel tank with diesel following the instructions in the KOHLER Diesel Instruction Book. The bleeding of the fuel system is manual if required.

5.0 Operation

IMPORTANT:

- **Do NOT** operate the power unit in closed or badly ventilated rooms
- **Never** set the relief valve to a higher pressure than the maximum rated pressure of the power unit. Higher settings may result in equipment damage and/or personal injury
- **Do NOT** remove the relief valve
- The power unit has a high pressure safety valve set to 148 bar. The operator should ensure the tool being operated is adequately rated
- Always monitor pressure, load or position using suitable equipment. Pressure may be monitored by means of an optional manifold and gauge. Correct application position can only be determined by the operator of the equipment
- **Do NOT** operate a power unit that is disconnected from the application. If operated in this condition, the hose and connections will become pressurised. This increases the chance of a burst hazard. Damage may also occur to the power unit and its components

5.1 Before Using the Power Unit

5.1.1 Check all system fittings and connections to be sure they are tight and leak free.

5.1.2 Check hydraulic oil level in reservoir. See section 6.1 Adding Hydraulic Fluid, if required.

5.1.3 Check the engine oil level. Refill as per the KOHLER Diesel Instruction Book, if required.

5.1.4 Check fuel level. Refill as per the KOHLER Diesel Instruction Book, if required.

5.1.5 Auxiliary equipment should be placed in neutral.

5.2 Before Starting the Engine

5.2.1 Twist the speed control knob counter-clockwise to the idle position.

5.2.2 Choose combiner valve OFF (2 x 19 Lpm circuits) or ON (1 x 38 Lpm circuit) – see Figure 1 (below).

5.2.3 Ensure tool ON/OFF valves are in the OFF position.

5.2.4 Twist the speed control knob counter-clockwise to increase RPM

Note - Starting at a lower speed will minimise exhaust smoke.

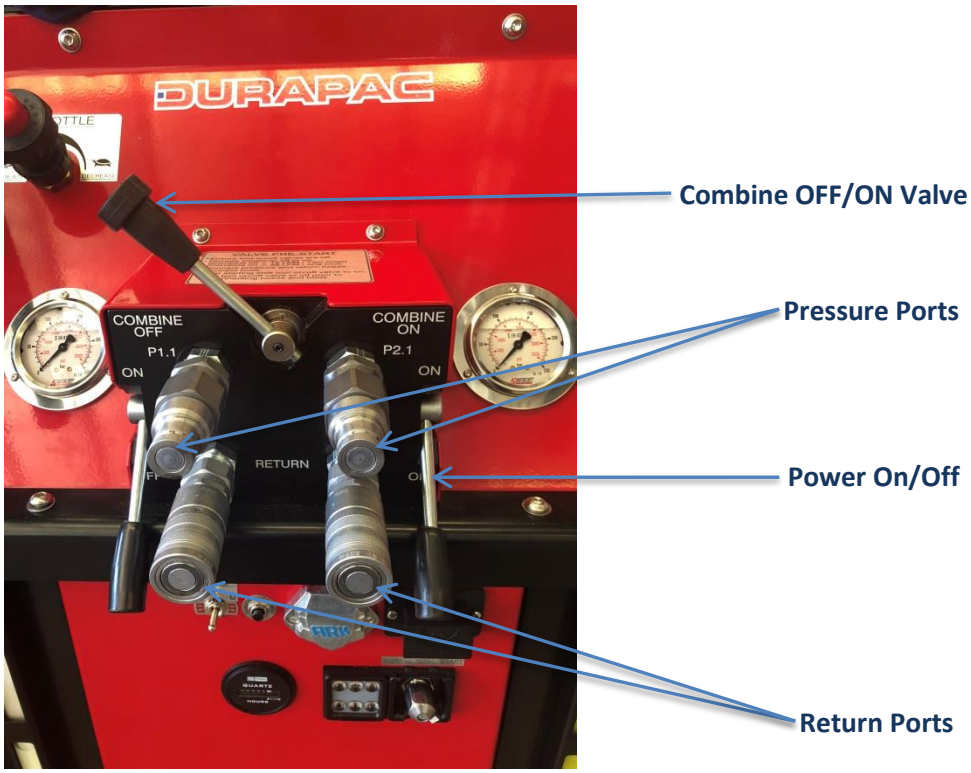


Figure 1 – Power Unit Operation

5.3 Starting the Engine

5.3.1 Turn the key to RUN position – see Figure 2 (below). Fuel and oil lights will be illuminated.

5.3.2 Turn the key to START position.

5.3.3 Once the engine has started, release the key. The key will automatically return to the RUN position. All lights will be extinguished.

⚠ Do not activate the starter for more than 20 seconds at a time. If engine does not start, wait one minute before repeating attempt

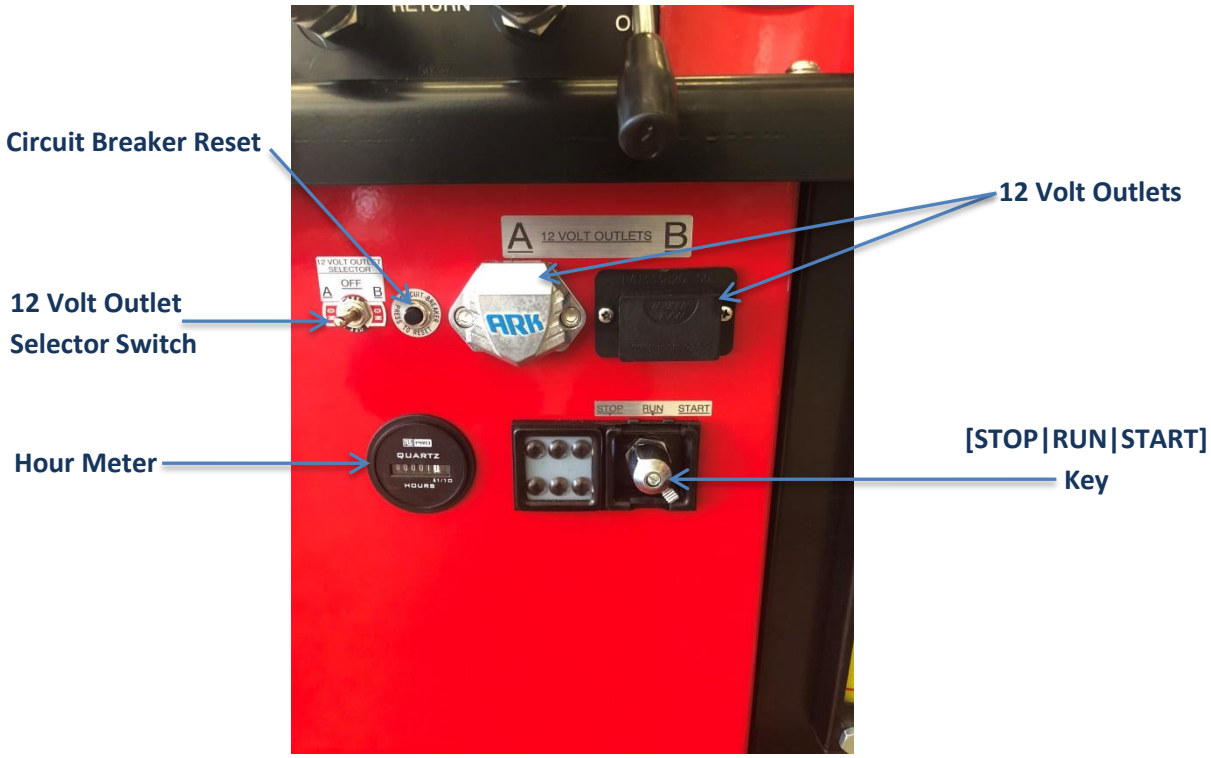


Figure 2 –Engine Controls

5.4 Stopping the Engine

5.4.1 Reduce the throttle to idle position.

5.4.2 Turn the key to OFF position (Figure 2).

5.5 Tool Operation

5.5.1 Ensure pressure and return hoses are correctly connected to the pressure and return coupling outlets on the power unit.

5.5.2 Move the ON/OFF valve or valves to the ON position.

5.5.3 The operator can now control the tool on/off through the tool mounted control valve.

5.6 Relief Valve Adjustment

All power units contain a factory set relief valve to prevent over-pressurisation of the system.

Please refer to the KOHLER Diesel Instruction Book for further operational details, safety warnings and alerts that relate specifically to the KOHLER diesel engine.

6.0 Maintenance

IMPORTANT:

- Check oil level regularly
- Use only good quality hydraulic fluid. **Do NOT** use brake fluid, transmission fluid, turbine oil, motor oil, alcohol, glycerine etc. Use of anything other than good quality hydraulic oil will void warranty and damage the power unit, hose, and application. We recommend Durapac Hydraulic Oil or equivalent
- Equipment must only be serviced by a qualified hydraulic technician. For repair service, contact your local Durapac authorised service centre
- Damage to hydraulic hoses may not be detected during visual inspections. For this reason, Durapac recommends that hydraulic hoses be replaced on a regular basis
- Tighten connections as needed. Use non-hardening pipe thread compound when servicing connections

Dirt, sand, etc. will quickly ruin any hydraulic system. Ensure that couplings are clean and free of foreign matter. After each use, clean couplings and attach dust caps.

Maintenance is required when wear or leakage is noticed. Periodically inspect all components to detect any problem that may require service and maintenance.

6.1 Adding Hydraulic Fluid

⚠ WARNING: Always add oil with cylinders fully retracted (or extended, if pull cylinders) or the system will contain more oil than the reservoir can hold

6.1.1 Depressurise and disconnect hydraulic hose from application/cylinder.

6.1.2 With the power unit in its upright, horizontal position, remove the filler plug located on the top plate of the reservoir.

6.1.3 Take out the filling plug.

6.1.4 Use a small funnel to fill the oil to within 20mm of the opening.

6.1.5 Bleed air from system if necessary.

6.1.6 Wipe up any spilled fluid and reinstall the air vent plug/reservoir cap.

6.2 Changing Hydraulic Fluid

⚠ For best results, change fluid once a year or every 300 hours of use

6.2.1 Repeat Steps 6.1.1 to 6.1.3 (above).

6.2.2 Tilt power unit to drain out old oil into a sealable container.

6.2.3 Repeat Steps 6.1.4 to 6.1.6 (above).

6.2.4 Dispose of fluid in accordance with local regulations.

6.3 Storage

6.3.1 When not in use, depressurise and disconnect the power unit from the application.

6.3.2 Wipe clean, thoroughly and store in clean, dry environment. Avoid temperature extremes.

6.3.3 For transportation or long storage, replace the air vent plug with the shipping plug.

Please also refer to the KOHLER Diesel Instruction Book for maintenance tasks that relate specifically to the KOHLER diesel engine.

7.0 Troubleshooting

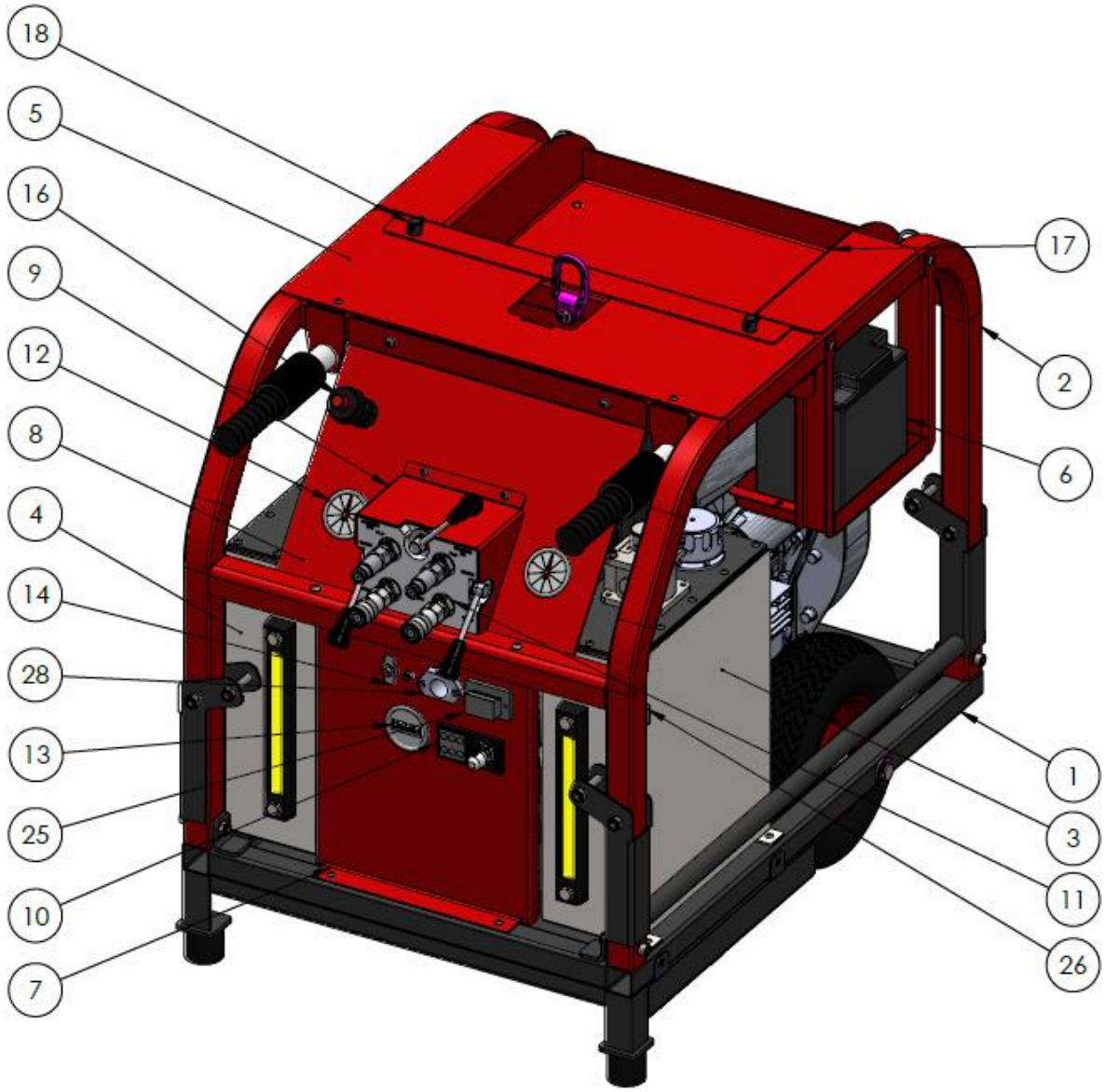
Problem	Cause	Solution
Noisy operation	Air trapped in system	• Check all points where air may leak into the system • Refer to 6.2 – Bleeding Air from the System
	Power unit reservoir too full	• Drain fluid to correct level
	Low fluid level in power unit reservoir	• Refer to 6.1 – Adding Hydraulic Fluid • Fill and bleed the system
Power unit oil is over-heating	Oil viscosity is too high	• Refer to 6.3 – Changing Hydraulic Fluid • Refill with a good quality hydraulic oil
	High pressure leakage on upper pressure plate	• Tighten plug
	Low fluid level in power unit reservoir	• Refer to 6.1 – Adding Hydraulic Fluid • Fill and bleed the system
Power unit runs but will not pump oil	Power unit is not primed	• Run power unit a few minutes tipping from side to side
	Externally adjustable relief valve is not correctly set	• Reset the relief valve to appropriate level
	Damaged o-ring	• Send to a Durapac authorised service centre for repair
	Defective control valve	• Send to a Durapac authorised service centre for repair
Power unit does not reach rated capacity	Low fluid level in reservoir	• **Secure load by other means** • Depressurise power unit and hose, remove application, then fill and bleed the system
	Leaking system components	• Repair or replace as necessary
Poor performance	Fluid level in power unit is low	• **Secure load by other means** • Depressurise power unit and hose, remove application, then fill and bleed the system
Application does not extend, move or respond to pressurised fluid	Overload condition	• Remedy overload condition
	Loose couplers	• Tighten couplers
	Faulty couplers	• Replace couplers
	Malfunctioning power unit	• Contact a Durapac authorised service centre for repair
Application does not fully extend (cylinder or spreader)	Reservoir overfilled	• **Secure load by other means** • Depressurise power unit and hose, remove application, then drain fluid to proper level
	Low fluid level in power unit reservoir	• **Secure load by other means** • Depressurise power unit and hose, remove application, then fill and bleed the system

Problem	Cause	Solution
	Load above capacity of system	• Use correct equipment
Application responds slower than normal	Loose connection or coupler	• Tighten couplers
	Restricted hydraulic line or fitting	• Clean and replace if damaged
	Power unit not operating correctly	• Check the power unit's operating instructions • Check the KOHLER Diesel Instruction Manual • Repair or replace as necessary
	Low fluid level in power unit reservoir	• **Secure load by other means** • Depressurise power unit and hose, remove application, then fill and bleed the system
Application responds to pressurised fluid, but system does not maintain pressure	Leaky connection	• Clean, reseal with thread sealant, and tighten connection
	Leaking cylinder seals	• Replace worn seals. Look for excessive contamination or wear. Replace contaminated fluid
	Power unit or valve not operating correctly	• Contact a Durapac authorised service centre for repair
	Overload condition	• Remedy overload condition
Application does not return fluid to power unit (i.e. cylinder will not retract)	Closed release valve	• **Secure load by other means** • Open release valve
	Loose couplers	• **Secure load by other means** • Tighten couplers
	Blocked hydraulic lines	• **Secure load by other means** • Clean and flush lines
	Weak or broken retraction springs	• **Secure load by other means** • Contact a Durapac authorised service centre for repair
	Internally damaged cylinder	• **Secure load by other means** • Contact a Durapac authorised service centre for repair
	Power unit reservoir too full	• **Secure load by other means** • Depressurise power unit and hose, remove application, then drain fluid to proper level

Please also refer to the KOHLER Diesel Instruction Book for maintenance tasks that relate specifically to the KOHLER diesel engine.

8.0 Parts Breakdown and List

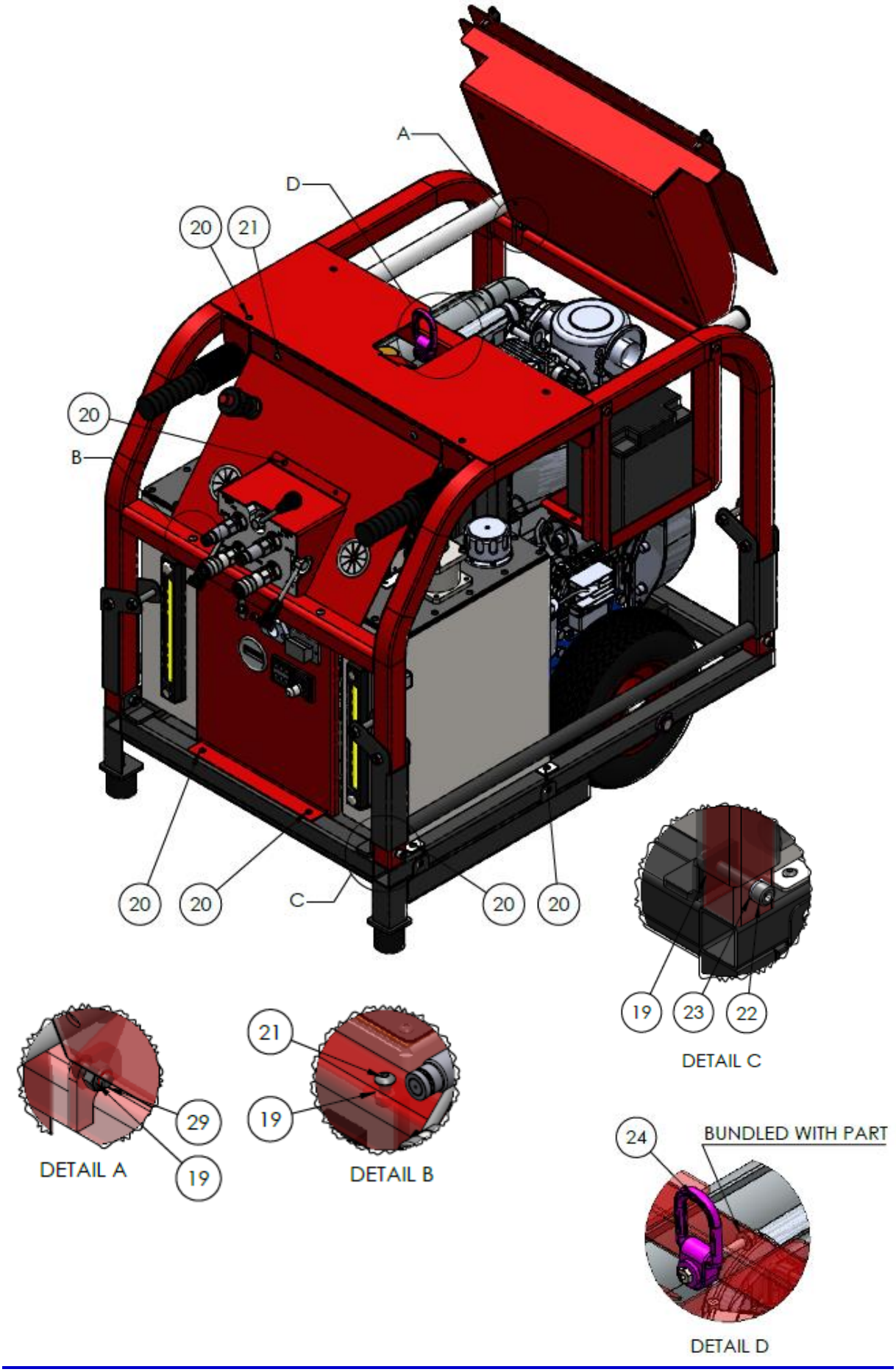
8.1 Complete Assembly



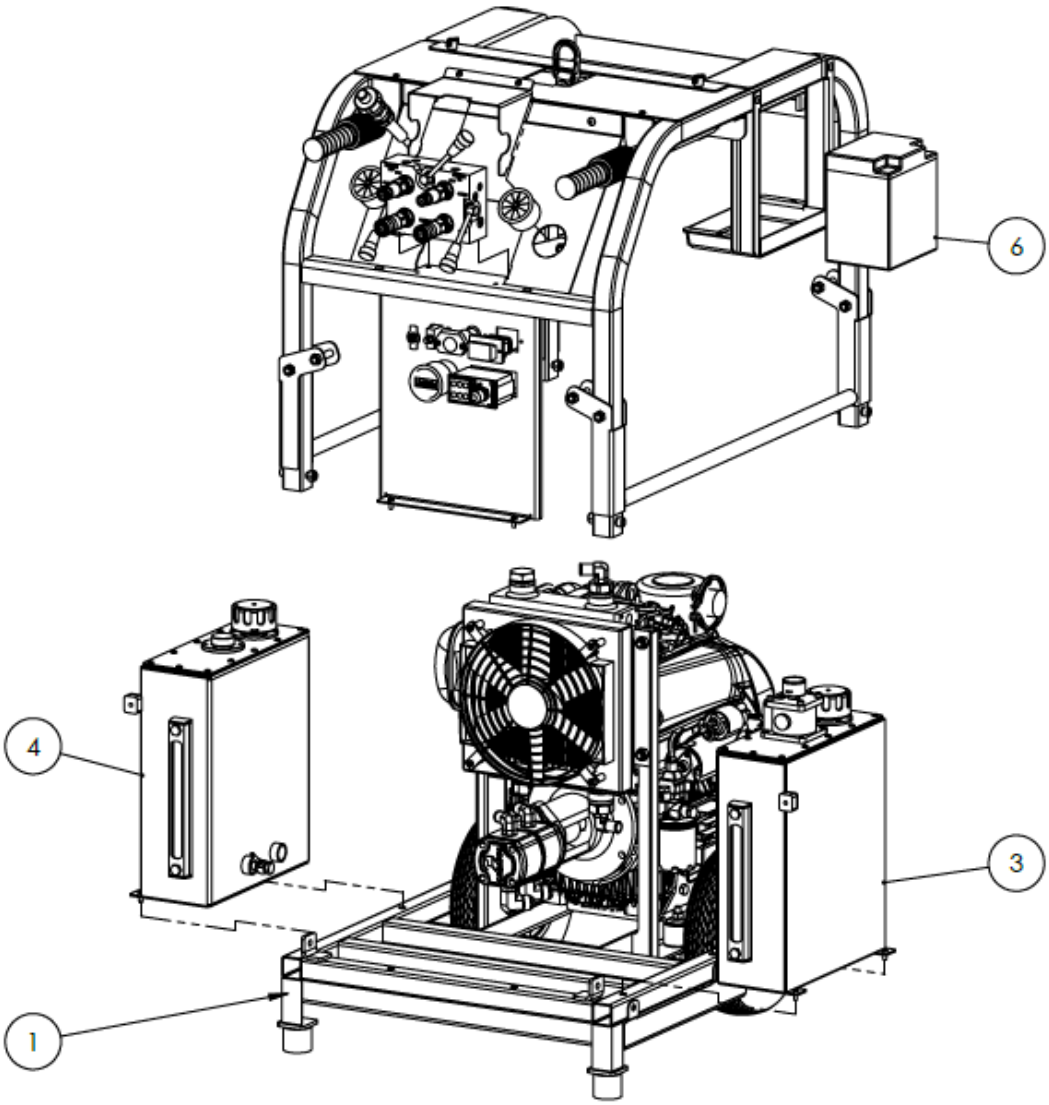
Item	Description	Qty	Supplier	Supplier Part No.
1	Base	1	AE*	DDU-0001
2	Frame top	1	AE*	DDU-0024
3	Hydraulic reservoir	1	AE*	DDU-0054
4	Diesel reservoir	1	AE*	DDU-0063
5	Top plate (complete)	1	AE*	DDU-0095
6	Battery	1	Federal	GPL-U1T
7	Dash panel (complete)	1	AE*	DDU-0074
8	Upper dash panel (complete)	1	AE*	DDU-0077
9	Cover manifold (complete)	1	AE*	DDU-0080
10	Engine control module	1	AE*	DDU-0122
11	Assembly manifold	1	AE*	HPR20271A
12	Pressure gauge & flange	2	Southcott	PG63FM-250
13	Hour counter	1	AE*	896-6939
14	Power switch	1	AE*	ZAE1147
16	Throttle knob (RD)	1	EPG	22ECABLE20M
17	Tray hose reel (complete)	1	AE*	DDU-0116
18	Wing knob	2	AE*	478-440
19	Nylok nut NN M10 (see next diagram)	8	AE*	-
20	SCR BHSS M6 x 16 (see next diagram)	10	AE*	-
21	SCR BHSS M8 x 20 (see next diagram)	4	AE*	-
22	SCR SHCS M10 x 60 (see next diagram)	4	AE*	-
23	Self-lock washer SLW M10 (see next diagram)	4	AE*	-
24	Lifting eye VLBG plus M8 (see next diagram)	1	AE*	20988
25	Assembly power connector	1	AE*	SB50
26	Spacer tanks	2	AE*	DDU-0127
27	Surge reset switch	1	AE*	55510
28	Power socket 7-poles	1	AE*	MS70B
29	SCR BHSS M10 x 25 (see next diagram)	2	AE*	-

*Absolute Equipment

Complete Assembly (cont.) – Tray Hose Reel lifted & Detail A – D

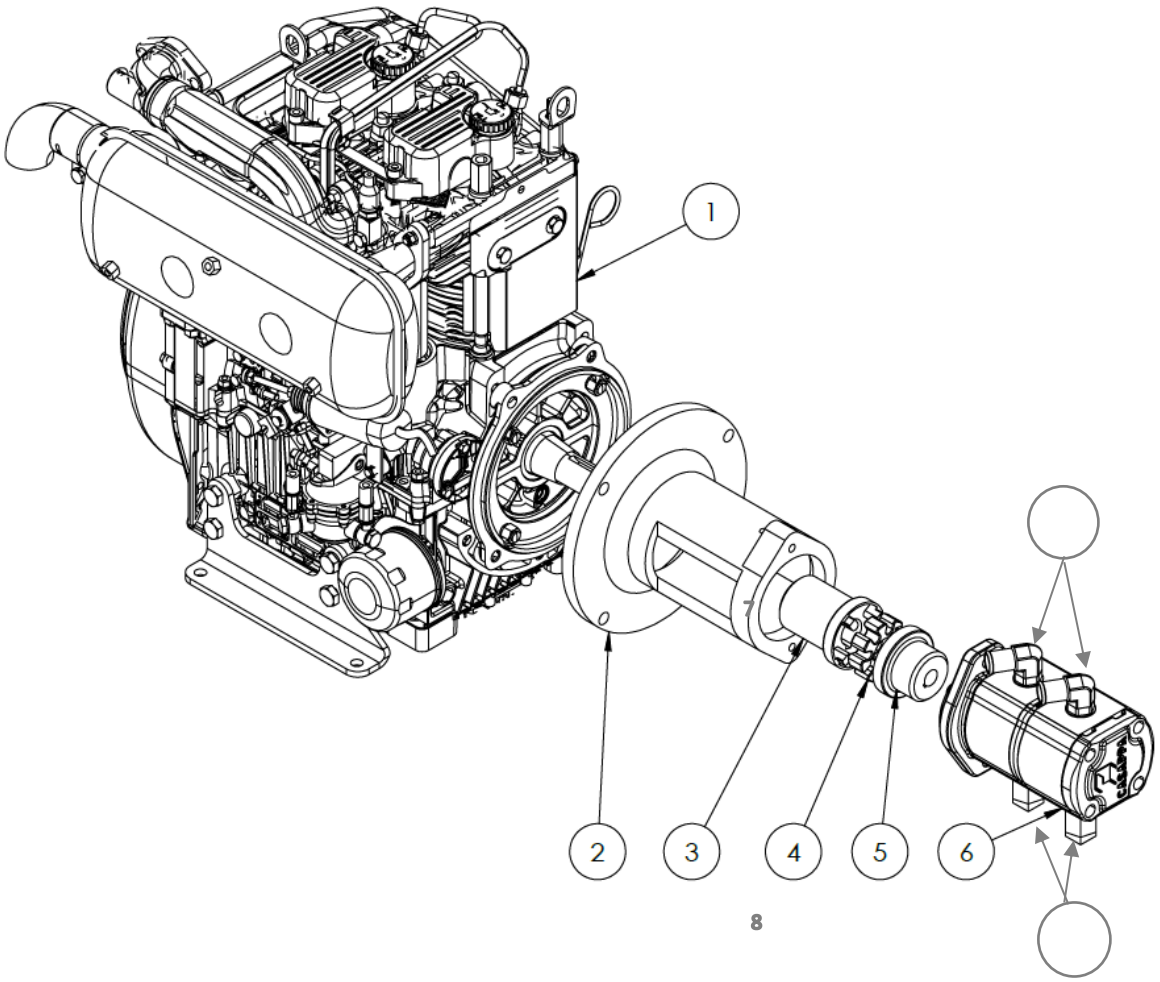


Complete Assembly (cont.) – Main Sub-assembly



Note - Exploded view above excludes hoses

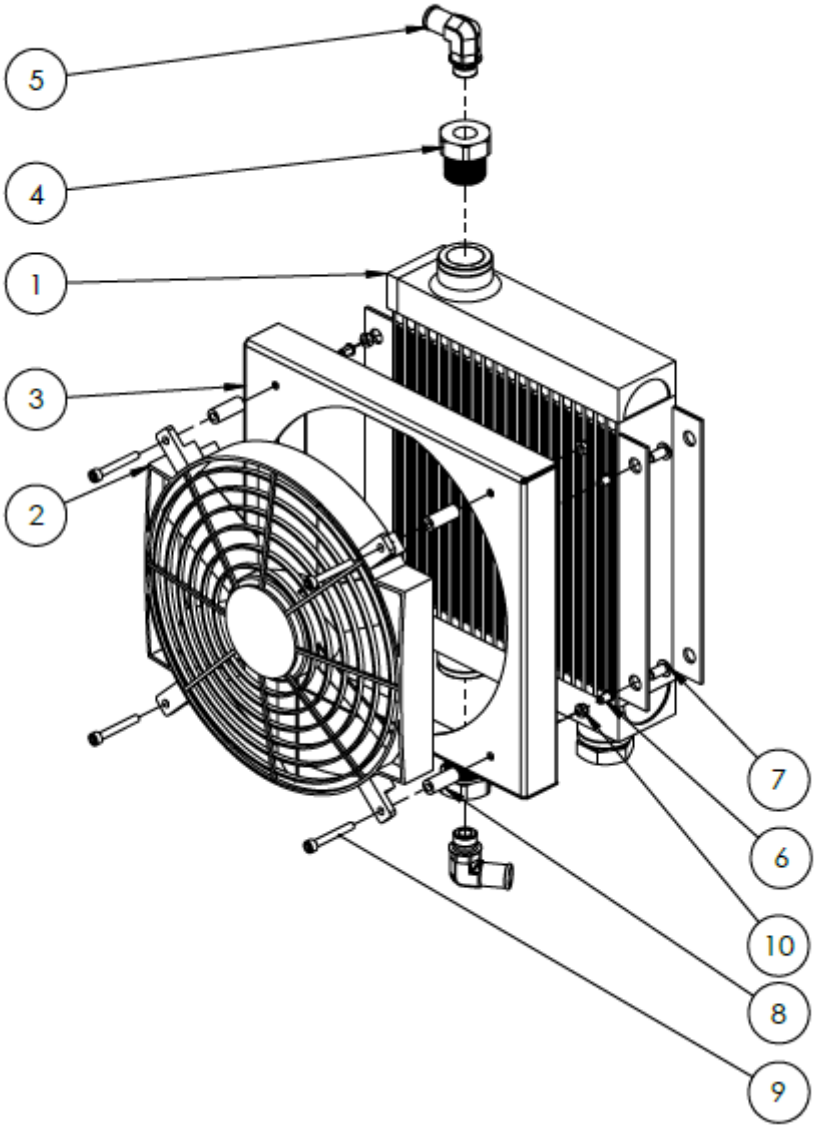
8.2 Motor Pump Assembly



Item	Description	Qty	Supplier	Supplier Part No.
1	KOHLER motor	1	EPG	K0477-2
2	Bell housing petrol 7-18HP SAE A 2B	1	EPG	ACCBHPE3044 (machined by AE*)
3	Coupling Half 1-1/8" (53 MM body)	1	Southcott	SNDH86-PH/09
4	Spider elastic for SND65	1	Southcott	R82-SPIDER
5	Coupling Half 5/8" +GS	1	Southcott	SNDH86-PH/05C
6	Hydraulic pump assembly	1	Southcott	PLP20-6.3D-3151/6.3G
7	Nipple	2	Southcott	CP2-0814
8	Elbow	2	Southcott	CP60-0812

*Absolute Equipment

8.3 Cooling Assembly



Item	Description	Qty	Supplier	Supplier Part No.
1	Heat exchanger	1	Southcott	18/07804
2	Fan	1	Davies Craig	162
3	Fan case (complete)	1	AE*	DDU-0085
4	Clamp on 90° elbow 1" BSPP x 3/4" tail (combined)	2	Southcott	CP60-1612
5				
6	Nutsert IN08	4	Profast	IN08-2822
7	SCR BHSS M8 x 16	4	AE*	-
8	Spacer M6-10 x 30	4	AE*	-
9	SCR SHCS M6 x 45	4	AE*	-
10	Nylok nut NN M6	4	AE*	-

*Absolute Equipment

8.4 Hydraulic Hose Assemblies

Description	Length	Hose Type
Pressure to valve x 2 - 7/8" JIC Female Swivel Ends	39 cm	Gates 8M2T megaflex 1/2" ID
Feed to hydraulic reservoir x 2	39 cm	Gates Multimaster SD megaflex 3/4" ID
Valve tank to cooler x 1	44 cm	Gates Multimaster SD megaflex 3/4" ID
Cooler to return filter x 1	43cm	Gates Multimaster SD megaflex 3/4" ID

8.5 Service Kits

Description	Supplier	Part No.
Manifold seal kit	AE*	HPR20271AKIT
Hydraulic oil line filter element	Stauff	RE014N10B
Fuel filter	EPG	2175288
Engine oil filter	EPG	2175296
Air filter element	EPG	359R026
PVC filter	EPG	060R048
Diesel engine oil (box of 12)	EPG	2175296

*Absolute Equipment