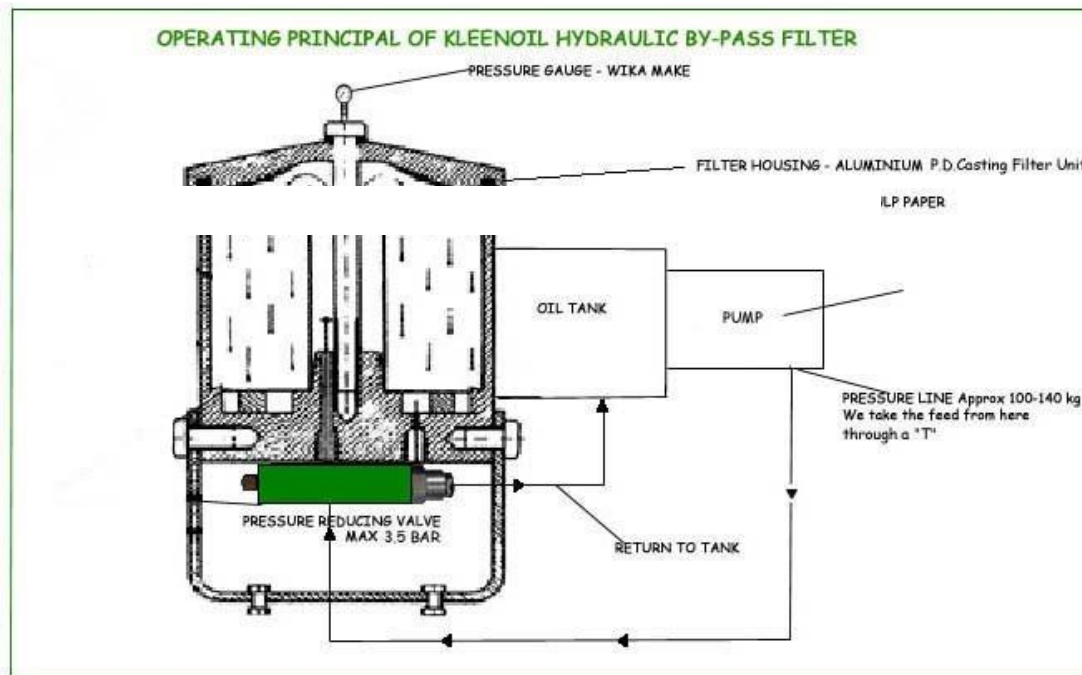


How clean is your oil ?

Hydraulic Filter Unit 9778H & 9788H

Units can be installed on any type of hydraulic system. For systems with pressure lines below 120psi a unit can be used without the pressure limitation valve.



HYDRAULIC FILTER UNIT DIAGRAM



Hydraulic Filter Unit

The "high pressure" oil filter can be fitted on the "by pass" basis to all hydraulic systems with oil at pressure up to a maximum of 3000psi. The flow through the filter is controlled to approx. 4ltrs per minute at 40psi. A flow rate which is low enough to have negligible effect on most "system pressures", yet high enough to provide good quality filtration and ensure that oil is being kept in "as new" condition.



How clean is your oil ?

Benefits:

- Removes contaminant particles down to 1 micron
- Absorbs water content.
- Prevents corrosion of components
- Reduces component wear (seals, piston rods, pumps etc.)
- Reduces the incidence of sticking & worn valve components
- Extends life of in-line OEM filters and components.
- End to the need to change hydraulic fluids
- All properties of oil being cleaned are maintained
- Filter cartridge can be changed within minutes.
- Can easily be removed and re-installed on replacement equipment
- Simple to install and no moving parts
- Used in all industries world-wide
- UK manufactured
- Can be used with virtually any petroleum/synthetic based oil
- Greatly reduced collection of waste oil by disposal companies

Pressure Limiting Valve



The valve is mounted to the base of the Bypass Filtration Unit. There are three ports on the valve block as listed:

- **Port 1:** Low Pressure output approximately 40-50 PSI is normally blanked off but may be used to supply another filter housing
- **Port 2:** High pressure input up to maximum of 3000 PSI
- **Port 3:** Return to hydraulic reservoir. This port is fitted with adaptors to suit particular applications e.g. JIC, BSP and it is important that the return hose is of at least 3/8 bore for hydraulic systems.



How clean is your oil ?

Hydraulic Fluid Facts:

- More than 70% of hydraulic failures are caused by contaminants in the oil.
- Heavily contaminated oil can reduce power by as much as 15-20%, slowing machine response and taking longer to perform an operation.
- By following a few basic rules, the life of piston rods, seals, valves, and pumps can be more than doubled.
- By maintaining the hydraulic fluid in 'as-new' condition, the life of the same components can be increased ten-fold.

Particles Breed Particles: An abrasive particle passing through the system scrapes off further particles. Larger ones join the original to create a mass of wear catalysts, smaller ones become silt which builds up on metal surfaces to clog oil flow and cause sticking valve components. In line filters do not remove silt, (particles below 15 micron) and do not remove water.

Filtration Level: Particulate contamination in accordance with BS 5540 Part 4: 1981 and ISO/DIS 4406 14/9, equivalent to NAS 1638 Class 6 (Hydraulic Oil Specification). **Water Retention:** To <0.025% NAS GRADE (National Aerospace Standard 1638)

TECHNICAL SPECS:

	SDU 9788	HDU 9778	LDU 9768
Fitted with Cartridge	1888	1878	1868
Suitable for tanks (single unit)	Up to 1360 ltrs	Up to 540 ltrs	Up to 120 ltrs
Water retention (down to<0.05%)	1.2ltrs	0.56ltrs	0.32ltrs
Technical Specs	H 180 Dia 212mm	H 165 Dia 168mm	H 160 Dia 120mm

Our Mission Is To Give Your Equipment The Finest Treatment

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 Co Reg Number: 05525184 Vat Reg Number: GB843 0628 38



How clean is your oil ?

MAINTENANCE PROCEDURES FOR FILTRATION UNITS Introduction With filtration unit correctly installed on an engine, a hydraulic system or on a transmission, the oil will be finely recycled and the water removed during operation. This means the oil is maintained in a clean useable condition. As a result of this process, it is practical to extend the life of the oil dramatically, while at the same time giving the engine added protection against wear and corrosion. Equipment users are encouraged to carry out regular oil analysis as part of their good management practices. These analyses will indicate whether or not the oil is reusable.

Maintenance Procedures for filtration units installed on diesel engines in heavy duty trucks and equipment

1. Take regular oil samples and obtain analysis reports for equipment management.
2. Change oil and full flow filters when the filtration unit is installed.
3. Thereafter, change the cartridge **every 8,000 to 15000 miles (or 100 to 300 hours)**, or as instructed by your maintenance manager. (This is usually around the time you previously changed oil). **Do NOT change the oil. Do NOT change the full flow filters at this time.**
4. Change the oil and full flow filters as indicated by oil analysis or as directed by your maintenance manager. This will probably be in the region of 10 times longer than you previously experienced. **In many cases, it is practical to move to a 1 year oil and OEM filter change routine.** In any event, the OEM oil filter must be changed at least once each year. They will degrade if immersed in oil longer than 12 months.

Maintenance Procedures for filtration units installed on diesel and gas engines in light duty trucks

1. Take regular oil samples and obtain analysis reports for equipment management
2. Change oil and full flow filters when the filtration unit is installed.
3. Thereafter, change the Kleenoil Filtration cartridge every **8,000 to 10000** miles or as instructed by your maintenance manager. **Do NOT change the oil. Do NOT change the full flow filters at this time.**
4. Change the oil and full flow filters as indicated by oil analysis or as directed by your maintenance manager. This will probably be in the region of 10 times longer than you previously experienced. **In many cases, it is practical to move to a 1 year oil and OEM filter change routine.** In any event, the OEM oil filter must be changed at least once each year. They will degrade if immersed in oil longer than 12 months.
5. In the case of a gasoline or natural gas engine, it is probable that you will never need to change the oil again.

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How clean is your oil ?

Maintenance Procedures for filtration units installed on hydraulics

1. Take regular oil samples and obtain analysis reports for equipment management.
2. Change the filtration cartridges every 400 to 600 hours or as instructed by your maintenance manager.
3. Change oil only when indicated by oil analysis.
4. Change standard filters according to OEM specifications.
5. Please note that the frequency of cartridge change varies according to the operating conditions.
6. It is highly likely that you may never change the hydraulic oil again.

Changing the Filtration Cartridge: (2 to 5 minutes)

1. Remove the lid with a wrench.
2. Wrap the new plastic cover over the lidless Kleenoil filtration unit.
3. With one finger through the plastic cover and the brass ring on the top of the cartridge, wiggle the cartridge to remove suction and pull out of the unit. Seal the plastic with the old cartridge inside ready for disposal.
4. Place the new cartridge in the unit with the brass ring uppermost.
5. Replace or return the lid sealing ring, place the lid in position, and tighten down with a wrench using between 24 and 28 lbs ft.
6. Run the engine for a few minutes until warm, and top up the oil level.
7. Users/mechanics should get used to checking units on a regular basis. If the unit is warm or hot during normal operations, then it and the engine oil system are working well. If at any time during normal operations the unit is cold, then the unit is not working. Assuming that the proper maintenance has been carried out, this is a warning sign that something is wrong in the engine or with the oil feed to the unit.

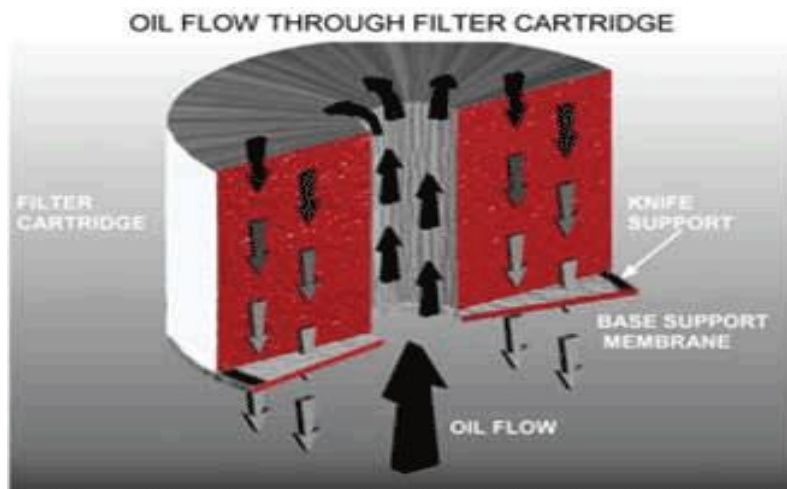


How clean is your oil ?

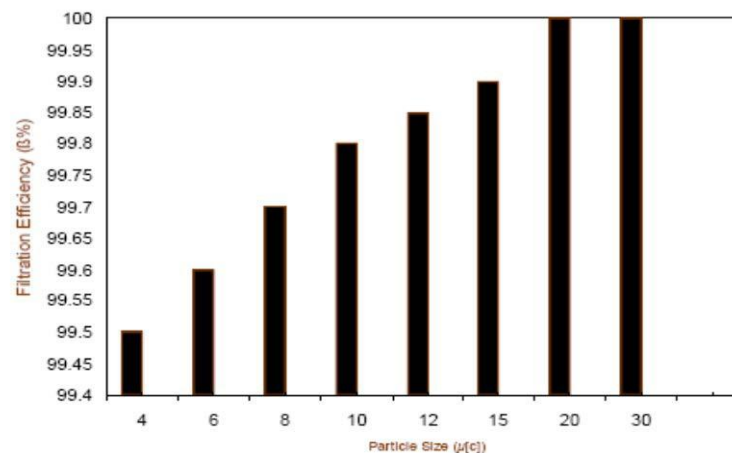
Notes:

1. If the oil samples indicate that too much contamination remains in the oil, then either the cartridge change interval should be reassessed or the size of the unit may not be adequate for the conditions involved.
2. If diesel fuel is leaking into the oil, the problem should be addressed at source. Usually leaking injectors. Continued leakage of diesel into the oil, will change the properties of the oil which will then require attention.
3. Diesel leakage through the cartridge can be detected by a grey colour (instead of black) on the top of a spent cartridge, together with the obvious smell of the diesel in the system.

FILTER CARTRIDGE



Multipass Test Data



How clean is your oil ?

TEST DATA FOR CARTRIDGES

Based on the multi-pass method for evaluating filtration performance according to ISO 16889 (1999).

The results have been presented after 8 hours of operation. With the ability to remove water, the cartridge is designed to perform at below 4 micron absolute on a minimum of 5 passes.

Cartridge Description.

The filter cartridge is a depth cartridge made of long fibre cellulose with a strengthened cellulose knife support ring. The filter is covered with a nylon outer cover. The cartridge can be used on all types of pure oil based products, synthetic and mineral.

Filtration is carried out on the off-line principle and on low pressure to provide the necessary filtration.

Pressures are controlled between 1 and 4 bar with 8 bar maximum.

Cartridge Disposal.

Used cartridges should be disposed of in accordance with local regulations and are made from fully combustible materials.

Operating Temperature Cartridges will operate within the majority of applications at -10 to +120 Centigrade

Installation examples:

HITACHI EX455



CATERPILLAR 345C



ATLAS COPCO DRILL RIG



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MARINE ENGINE



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ECO WARRIOR CRUSHER



VOLVO EXCAVATOR

