INTERLUBE
A TIMKEN Brand

# HDI PUMP

SERVICE & MAINTENANCE MANUAL

## SERVICE and MAINTENANCE MANUAL for INTERLUBE LUBRICATION SYSTEM

ISSUE 02/2011

# SAFETY

As with all equipment, all due care must be used when servicing the HDI lubrication system.

Throughout this manual there will be information provided which requires special attention. This information will be displayed under the headings of **WARNING**, **CAUTION**, or **NOTE**.


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# TABLE OF CONTENTS



TUV UKQA GB 00195 UKAS MANAGEMENT 005

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# 1. INTRODUCTION

This manual gives instructions for operating, maintaining, and servicing the Interlube HDI Pump & Distribution systems. Because of the importance of providing the correct lubricant amount to the moving parts of the equipment, read this manual to become familiar with your HDI pump and system.

Review and follow the procedures given before attempting maintenance or service. Illustrations are provided to aid in disassembly and reassembly.

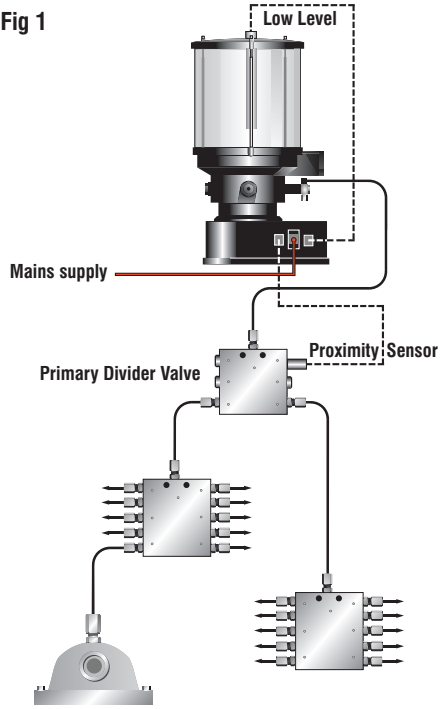
If there are any questions not answered by this manual, contact Interlube Systems.

# 2. GENERAL DESCRIPTION

A typical HDI lubrication system includes the following components (see fig 1):

- Pump with integral controls and reservoir
- Pumping Units
- Divider Valves
- Tubing to the lubrication points
- Fittings at the lubrication points

**Fig 1**




Pumps are available with 3, 6, 9 and 15 litre reservoirs. Fig 2 shows 6 litre version. There is a specific version for the USA with push/pull style pumping units

**Fig 2**

The HDI pumps are electrically operated (12/24v DC) piston pumps able to accept up to 3 pumping units.

These pumping units (either fixed or adjustable output,fixed pumping elements are fitted as standard) feed lubricant to the primary divider valve which in turn feeds (where applicable) further secondary divider valves. The bearings on the machine/plant are connected to the secondary divider valves by hose or tube, bearings can also be fed direct from the pump.

### Ordering Method

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | 1 12V D.C. |
| | | | | | | | 2 24V D.C. |
| HDI | | | | | | | A USA VERSION |
| Reservoir size (ltr) | Options | Pumping Units | | | | | P Moulded Reservoir 3 litre only |
| 3 | 0 Base Pump | 0 No pumping unit fitted | | | | | |
| 6 | 1 End of Line | 1 1- off fitted in position 1 | | | | | |
| 9 | 2 Low level | 2 2- off fitted in position 1 & 2 | | | | | |
| 15 | 3 End of line + Low Level | 3 3- off fitted in position 1,2 & 3 | | | | | |
| | 4 No controls | | | | | | |

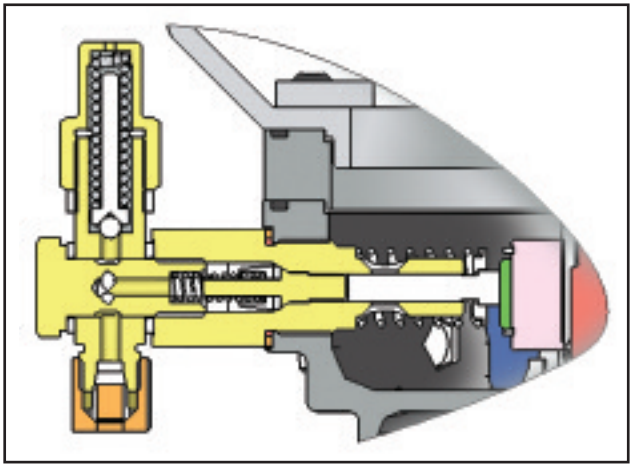
All pumps have dual fill options, quick fill and grease nipple.

# 3. COMPONENT OPERATION

## 3.1 HDI Pump Outputs

All HDI Pumps are supplied with one pump element as standard. Up to three pump elements can be fitted into one HDI pump

**Fig 3**



### Pumping Unit Spares

**Pump Elements Standard Pump**

Spring Return
Element
PU 300-350
PU 400-350

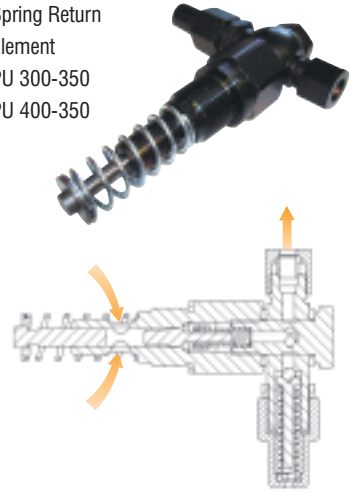
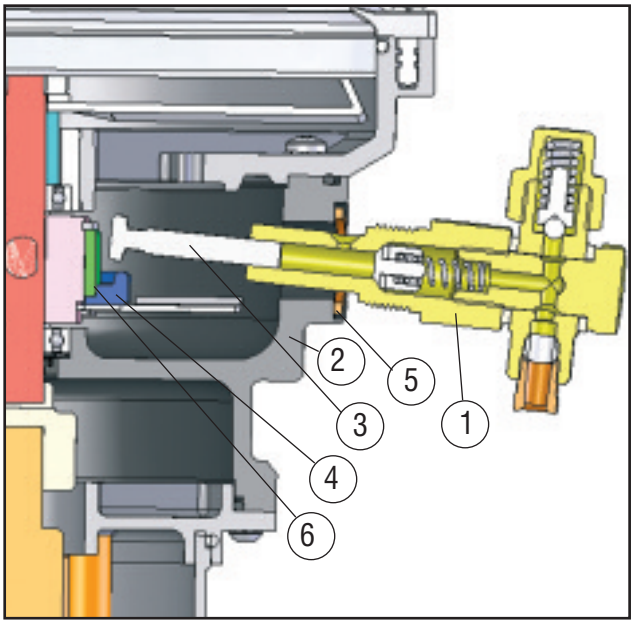
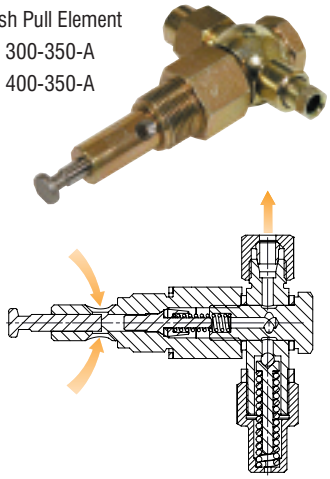


**Fig 4**




**Pump Elements - USA Pumps**

Push Pull Element
PU 300-350-A
PU 400-350-A



## Operation

The electric motor drives an eccentric cam during the pumps operating time.

The pump element piston sucks the grease from the reservoir and then dispenses an accurate precise amount of lubricant to the connected metering device.

## Pump Output

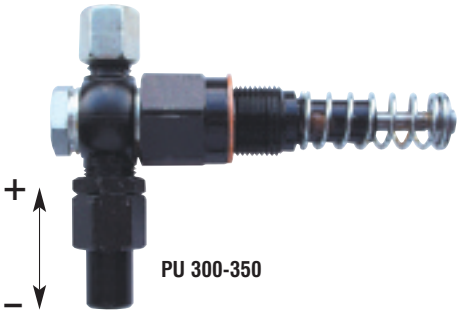
| Standard HDI pump operates at 19/23revs/min | | | | | |
|---|---|---|---|---|---|
| **Part No** | **Max output/min pressure (BAR/PSI)** | **Output/min (cc)** | **Volume (cu in)** | **Pump Element Outlet Size** | **Relief Valve Setting 350 BAR 5145 PSI** |
| PU 300-350 | 400 (5880) | 3.2 | (0.20) | 6mm O.D | |
| PU 300-350-A | 400 (5880) | 3.2-1.4 | (0.20-0.08) | 6mm O.D | |
| PU 400-350 | 400 (5880) | 3.2 | (0.20) | 6mm O,D | |
| PU 400-350-A | 400 (5880) | 3.2- 1.4 | (0.20-0.08) | 6mm O.D | |
| **Operation conditions +40C° to - 30C°** | | | | | |

The grease output figures were based on NLGI 2 Grease at ambient conditions, the output volume may vary depending on lubricant specification and temperature

## (USA Version) Fig 4

**USA Version**

## 3.3 Relief Valve Settings




**PU 300-350**

## Pumping unit replacement

Using a 27mm AF spanner loosen pumping unit body (1) and unscrew until the thread is clear of the pump body (2). Tilt the pumping unit body (1) to lift the piston (3) clear of the cam ring (4) and then remove. Ensure the piston does not remain in the pump body.

To replace unit pull out the piston (3) from the body (1) of the new pumping unit to the end of it's stroke. Ensure the copper washer (5) is in position and insert the pumping unit body (1) into the pump body (2). This should be done with the pumping unit body (1) tilted upwards. When the piston (3) touches the cam ring (6) the pumping unit body (1) should be moved to a horizontal position. This should now seat the piston (3) into the cam ring (4). Tighten the pumping unit body (1) using the 27mm AF spanner.

The relief valve is a fixture of the pump elements, both spring return and push pull type.
The relief valves are factory set to 350 Bar to protect the pump from damage should a blockage occur in the system.
The relief valve can be adjusted manually to vent at lower pressure. this can be adjusted on-site using a standard spanner.

# 4. WIRING

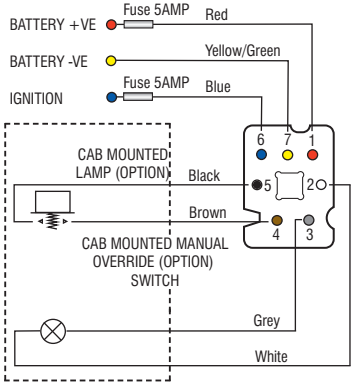
Fig 5

Pump supplied with power/push button plug with 10m of 7 core cable

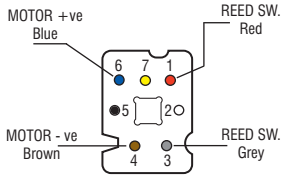
**Note:**
Terminal 5 is connected to the ignition of the vehicle or mobile plant. If terminal 1 is connected to the Battery + then the pump will operate without the ignition on.

## 4.1 WIRING DETAILS

### Wiring Diagram for HDI Pump (With Controls)



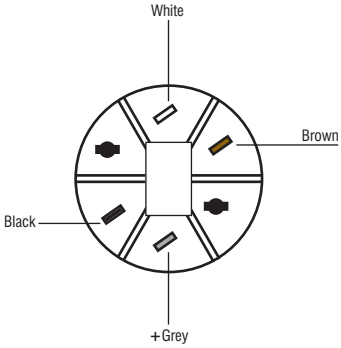

## 4.2 Wiring Diagram for HDI (Without Controls)



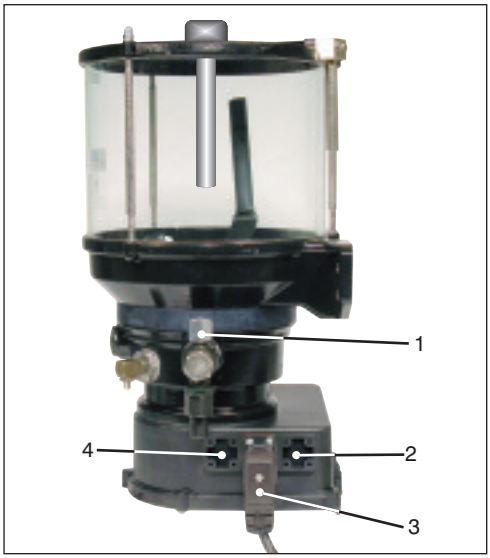

### Push Button

12V HDI - 36070-5
24V HDI - 36070-6

### Push Button Wiring diagram

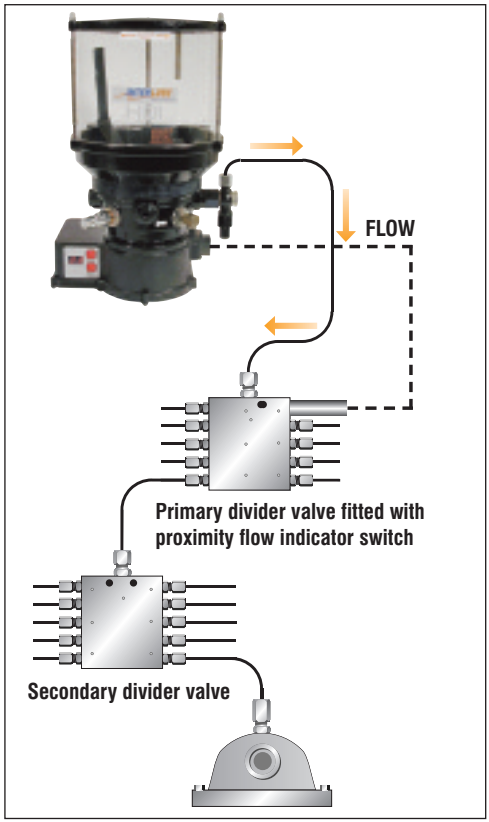


## 4.3. ALARM FUNCTIONS




1. **Pump elements (see page 4 & 5)**
2. **Low level connection (not supplied as standard on base models)**
3. **Power cable (30ft) and 7 pin connector supplied as standard with all models (see details on page 8 and wiring diagram on page 6)**
4. **End of line or primary flow proximity sensor alarm connection (not supplied as standard on base models)**

### Flow Alarm



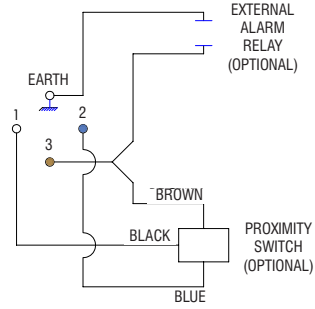

## 4.4. Remote Alarm Functions

The HDI Pump can be supplied with or without an internal controller (PCB).

**The pump without** control facility is fitted with an internal reed switch; this can be used to monitor the pumps internal cam rotation.

**The pump with** control facility has an in-built alarm function, which can be connected to an external alarm relay as an option.
In general the HDI is connected to progressive divider valves as illustrated.
The progressive divider valves are designed to feed a positive set amount of grease to each connected point in turn, without missing a point out. The primary divider valve is fitted with a proximity flow indicator switch, which will signal positive flow back to the HDI PCB. Should the pump operate and the PCB not receive a flow signal the pump would alarm. This alarm signal could be connected to an external remote audio or visual alarm on the machine or alternatively connected to the machines PLC.The PLC could be programmed to stop the machine from operating should the lubrication system fail to operate correctly.

### Wiring for Alarm Switch




## 4.5. Low Level Sensors

These highly reliable capacitive sensors are fully sealed and encapsulated to operate in the most arduous conditions with NLGI 2 grease.

Fig 6 shows pictorial view and Fig 7 the version for a 3 litre pump. (Extensions are used for larger capacity reservoirs).

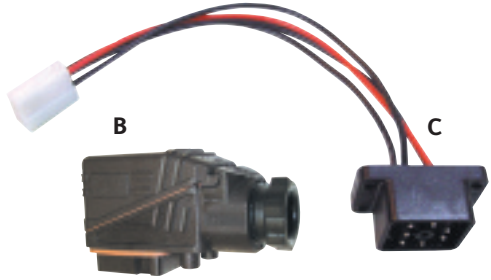
## Low Level Kit

| Part No | Description |
|---|---|
| HDI/SP9/3P | 3 Ltr Moulded Kit |
| HDI/SP9/6 | 6 KG Standard Kit |
| HDI/SP9/9 | 9 KG Standard Kit |
| HDI/SP9/15 | 15 KG Standard Kit |

Kit comprises of pump connector, low level and plug

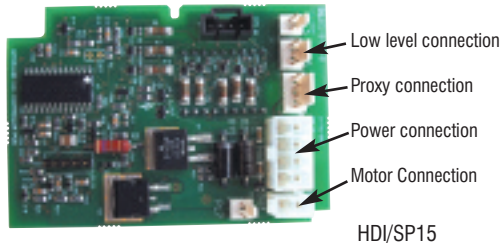
## 4.6 Proximity sensor Conversion kit

Proximity alarm plug A plus pump plug with internal loom to PCB




| Part No | Description |
|---|---|
| HDI/SP9 | Low level External Alarm Facility (B+C) |
| HDI/SP4 | Power/push button plug with 10m cable (A) |
| HDI/SP8 | Proximity alarm plug (B+C) |

## Control Card 12/24V (HDI/SP15)




HDI/SP15

# 5. HDI PROGRAMME SETTING

## Programming the HDI Controller

Programming is carried out using the select and enter buttons as shown in the picture.

The setting details are shown on the digital display at each stage.

**Pump Run Time Options**
With Time “ON” Mode (t) from 1 min to 99 mins.
**Pump Delay Time**
Variable from 1 min to 99 hours 59 mins.

## Time "ON"/Time "OFF" mode

Press select and enter buttons together for 5 seconds to enter programme mode.

**1)** Display will show "S1" (Run time) Press enter button then select button to set run time in minutes from "01" to "99" (for example 05 gives a run time of 5 mins ). Will provide run time from 1 min to 99 mins Press enter to accept

**2)** Display will show "S2" (Delay time) Press enter button, for example to set a delay time of 1 hour 20 mins, press select button to display "OI " then enter to accept, then select button to display "20". Press enter to accept.

**3)** Display will show "S3" (End of line switch setting) Press enter button, display shows "EL" press select to choose between a) When "EL" is flashing end of line sensing is "OFF" or b) When "EL" is continuously lit end of line sensing is "ON" Press enter to accept. If end of line switch is "ON" next display will show "OI Select between "OI " to "10" for the number of cycles of the lubrication system Press enter to accept.

**4)** Display will show "S4" (low level option) Press enter button, display shows "LL" press select to choose between a) When "LL" is flashing low level sensing is "OFF" or b) When "LL" is continuously lit low level sensing is "ON" Press enter to accept

**5)** Display shows "PC" (Programming complete) After 10 seconds return to run mode.

## CHANGING PROGRAMME

Press select and enter buttons together for 5 Secs to enter programming mode

**1)** Display will show S1

**2)** Press select button to choose the setting you want to change S2,S3 etc then press enter

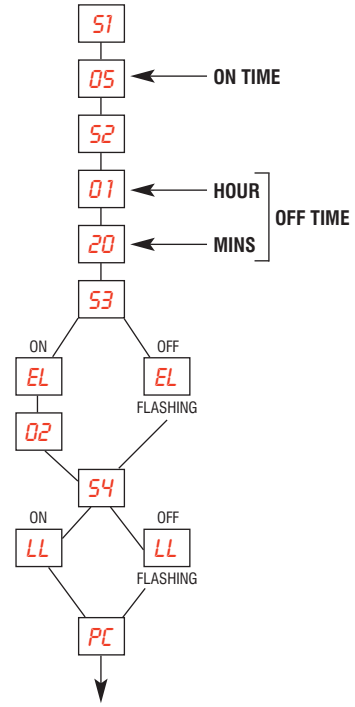
**3)** After making the change press enter to accept

**4)** Press select button until display shows ‘PC’ “Programme complete” PC

### Notes: -

**To view current programmed settings**
a) press the "select" button for 10 seconds this will activate the programme view mode displaying the setting of each step for 3 seconds. After showing "PC" for 3 seconds the pump will return to run mode.

**Low level warning**
b) If a low level alarm is triggered the pump will continue operating and any alarm warnings will continue until the reservoir is re-filled.




**PROGRAMMED CYCLE**

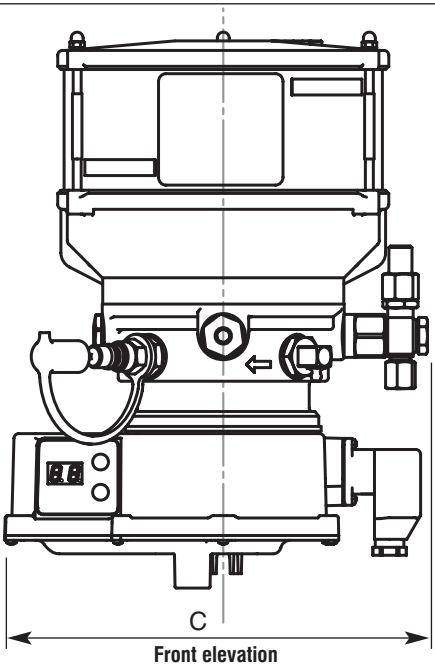
**To prime the system**
c) set the delay time to "00" hours and "00" minutes. Please note this time setting is not intended as an operating mode.

### Note:-

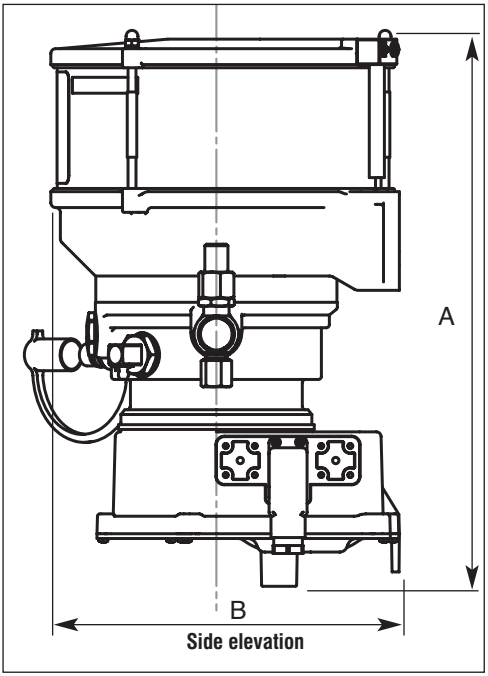
The manual override button on the pump can be operated at any time without the need for the ignition circuit to be on, a positive safety benefit. Operating the manual override will start one cycle of the pre-set run time.

# 6. PUMP DIMENSIONS

**Diagram shows a standard HDI pump**




**Front elevation**



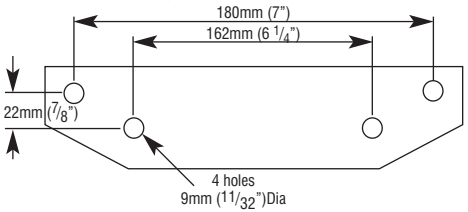

**Side elevation**

## Pump Dimensions

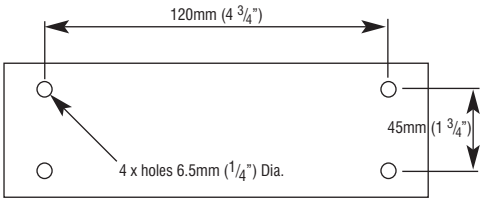
| Reservoir Size | A | | B | | C | |
|---|---|---|---|---|---|---|
| 3 Ltr Moulded | 340mm | 13 1/2" | 260mm | 10" | 270mm | 10 1/2" |
| 3 Ltr Standard | 300mm | 12" | 260mm | 10" | 270mm | 10 1/2" |
| 6 Ltr Standard | 400mm | 16" | 260mm | 10" | 270mm | 10 1/2" |
| 9 Ltr Standard | 490mm | 19 1/2" | 260mm | 10" | 270mm | 10 1/2" |
| 15 Ltr Standard | 700mm | 27 1/2" | 260mm | 10" | 270mm | 10 1/2" |

## Mounting Positions of the HDI Pump

**Standard HDI 3, 6, 9, 15 Ltr**




**HDI 3Ltr (Moulded Reservoir Model)**




# 7. TECHNICAL DATA

## 7.1. Pump with integral controls

- Available with 3, 6, 9 or 15 litre reservoirs
- Supplied in either 12 or 24v DC. Output speed 19/23 RPM.
  - 12v DC max running current 5A
  - 24v DC max running current 5A
  - Start up current 10A
- PCB dual voltage & EMC compliant
- Built in memory, recommencing either run or delay cycle on power up.
- Transient protection to ISO 7637 Road Vehicles.
- Dual LED digital display used for programming & run information
- IP65 protected
- Uses lubricants from SAE 80 oil up to & including NLGI 2 Grease.
- Operating temperature +40ºC to - 30ºC (using low temperature grease)
- 2 fill options - quick fill or grease nipple
- Can be used with divider valves
- Maximum of 3 pumping units per pump.
- Low level sensor an option

# 8. PUMP FILLING

## HDI FILLING METHODS

### HDI Dual Fill


All HDI models are supplied with dual fill

(A) standard grease nipple use air operated grease pump to fill the reservoir.

(B) quick release coupling use a hand operated volume bucket pump.

(C) Or alternatively fit the pump with a quick fill adapter and use a quick fill gun to fill the reservoirs.

### Quick Fill Gun

### Hand operated quick fill gun

| Part No. | Description |
|---|---|
| HDI - 57549-1 | Quick fill gun |
| HDI - 36763-1 | Straight adapter for the pump |
| HDI - 36763-2 | 90°adapter |


### Bucket Pump

Hand operated bulk fill pump complete with:
1.5m hose, female quick release coupling to fit directly onto the Interlube quick connect fitting fitted to the pump. Ideal for use with NLGI 1 or 2 greases.

| Part No | Description |
|---|---|
| IL-108501 | European Pump (12.5-18 KG), cover 265mm to 310mm |
| IL-108502 | USA Pump (35lb) cover 285mm to 330mm |
| IL-417001 | Grease follower plate 260mm to 298mm |
| IL-417003 | Grease follower plate 300mm to 340mm |

## 9. TROUBLESHOOTING

| PROBLEM | POSSIBLE CAUSE | REMEDY |
|---|---|---|
| A. All lubrication points appear dry. | 1. Empty reservoir<br>2. Inoperative pump<br>3. Time between lube cycle is too long.<br>4. Reservoir has been filled with an unsuitable lubricant.<br>5. Inoperative Pumping Unit<br>6. Pumping unit not "sitting" in cam ring (USA Version)<br>7. Main Pressure Line damaged/broken.<br>8. Reservoir vent blocked from over filling. | 1. Refill the reservoir, using the correct lubricant.<br>2. Refer to **PROBLEM** "E".<br>3. Adjust pump **CYCLE TIME** setting.<br>4. Remove the lubricant and replace with correct grade of lubricant.<br>5. Replace Pumping Unit<br>6. Remove & refit correctly.<br>7. Find breakage & replace with new hose.<br>8. Clear vent and only fill to max level. |
| B. One or more lubrication point appears dry while others receive sufficient lubrication. | 1. Broken or severed secondary grease lines.<br>2. Incorrect specification of divider valves. | 1. Determine cause, and if necessary, re-route.<br>3. Re-configure divider valve specification to higher output. |
| C. All lubrication points are over-lubricated. | 1. Incorrect setting of "on-time" or "Delay Time". | 1. Reduce "On Time" or increase "Delay Time", or both. |
| D. One or more lubrication points are over-lubricated. | 1. Incorrect specification of divider valves. | 1. Re-configure divider valve specification to lower output. |
| E. Inoperative pump. | 1. No input power.<br>2. Fuse is blown.<br>3. Loose wire connection inside the pump.<br>4. Defective PCB.<br>5. Defective Motor. | 1. Check for power to the pump. and controller.<br>2. Check in-line fuse. Replace if necessary.<br>3. Check all wires and connections in the pump.<br>4. Replace PCB.<br>5. Replace Motor. |
| F. Inoperative Pumping Unit. | 1. Pumping Unit not "sitting" in cam ring. (USA Version)<br>2. Inoperative Pump<br>3. No Grease flow | 1. See Section 7.5<br>2. Refer to **PROBLEM** "E".<br>3. Replace pumping unit |
| G. Grease flowing from Pumping Unit Relief Valve. | 1. One or more lubrication points are blocked, and will not accept grease.<br>2. Fault in Divider valve assembly. | 1. Remove pipe from fitting and flush bearing through with grease gun.<br>2. Replace the faulty Divider valve |

# 10. SERVICE PROCEDURES

The rugged design and simple construction of the HDI lubrication system assures the operator of a long and trouble free service. If service is necessary use the following procedures to ensure correct replacement of parts.

## 10.1. Lid Replacement - All models (does not apply to moulded reservoir pumps)

10.1.1. Remove 3 nuts (5) holding lid to tie rods (6)
10.1.2. Remove lid (7) and 'O' ring (8)
10.1.3. Replace with new lid (7) and 'O' ring (8) position on reservoir (3) and tie rods (6) tighten nuts (5)

## 10.2. Reservoir replacement - (Clear models)

10.2.1. Remove lid as in 7.1
10.2.2. Withdraw reservoir (3) and lower 'O' ring (9)
10.2.3. Clean around area where new reservoir will be fitted. Position 'O' Ring (9) and replace reservoir between tie rods
10.2.4. Replace lid as in 7.1.3.

### (3 Litre moulded version)

10.2.5. Remove the 3 screws holding the reservoir in position on the pump body
10.2.6. Remove reservoir and 'O' Ring
10.2.7. Position new 'O' ring on new reservoir
10.2.8. Re-assemble reservoir to pump body ensuring the breather tube is closest to the mounting bracket
10.2.9. Insert & tighten screws to torque 3Nm, be careful not to overtighten screws.

## 10.3. Paddle Assy Replacement - All models

10.3.1. Remove lid and reservoir as in 7.1 and 7.2
10.3.2. Remove nut (10) and washer (11) then remove paddle (16)
10.3.3. Replace new paddle (12) then washer (11)and nut (10). Tighten to 6.5Nm
10.3.4. Replace Reservoir and lid as in 7.1.3 and 7.2.3

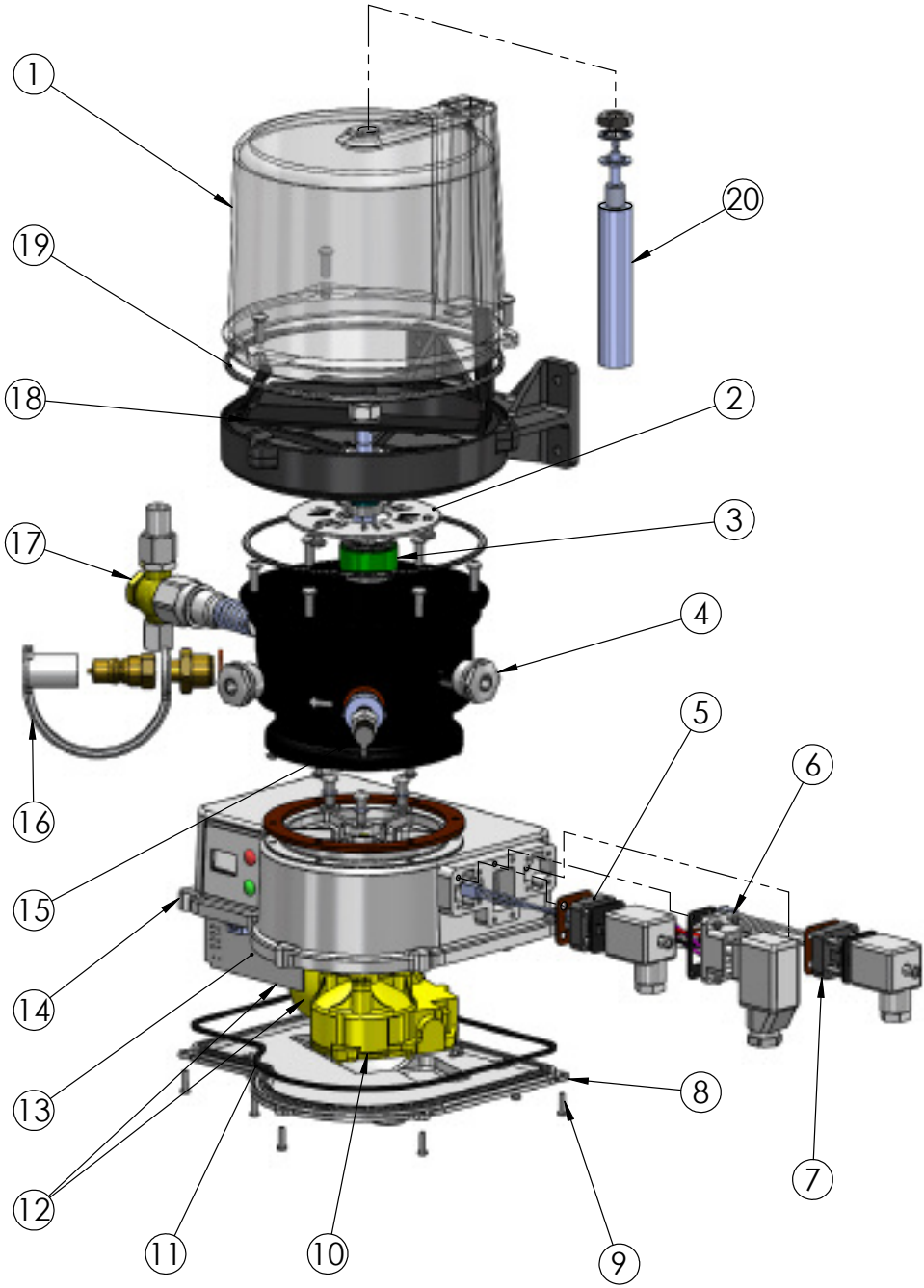
## 10.4. Replace PCB - All models.

10.4.1. Remove 8 screws (13) securing the bottom cover (4) and 'O' ring (15)
10.4.2. Slide out PCB (18) from housing (19) and remove all the electric connectors
10.4.3. Replace all connectors on new PCB (18) and slide back into housing (19)
10.4.4. Replace cover (14) and 'O' ring (15) securing with 8 screws (13). Tighten to 0.6Nm

## 10.5 Pumping unit replacement spring return version (Fig 9)

10.5.1. Using a 27mm AF spanner loosen pumping unit body. Remove spring loaded pumping unit. Ensure there is no loose dirt around the pumping unit aperture then screw in the new pumping unit tightening with a 27mm AF spanner.

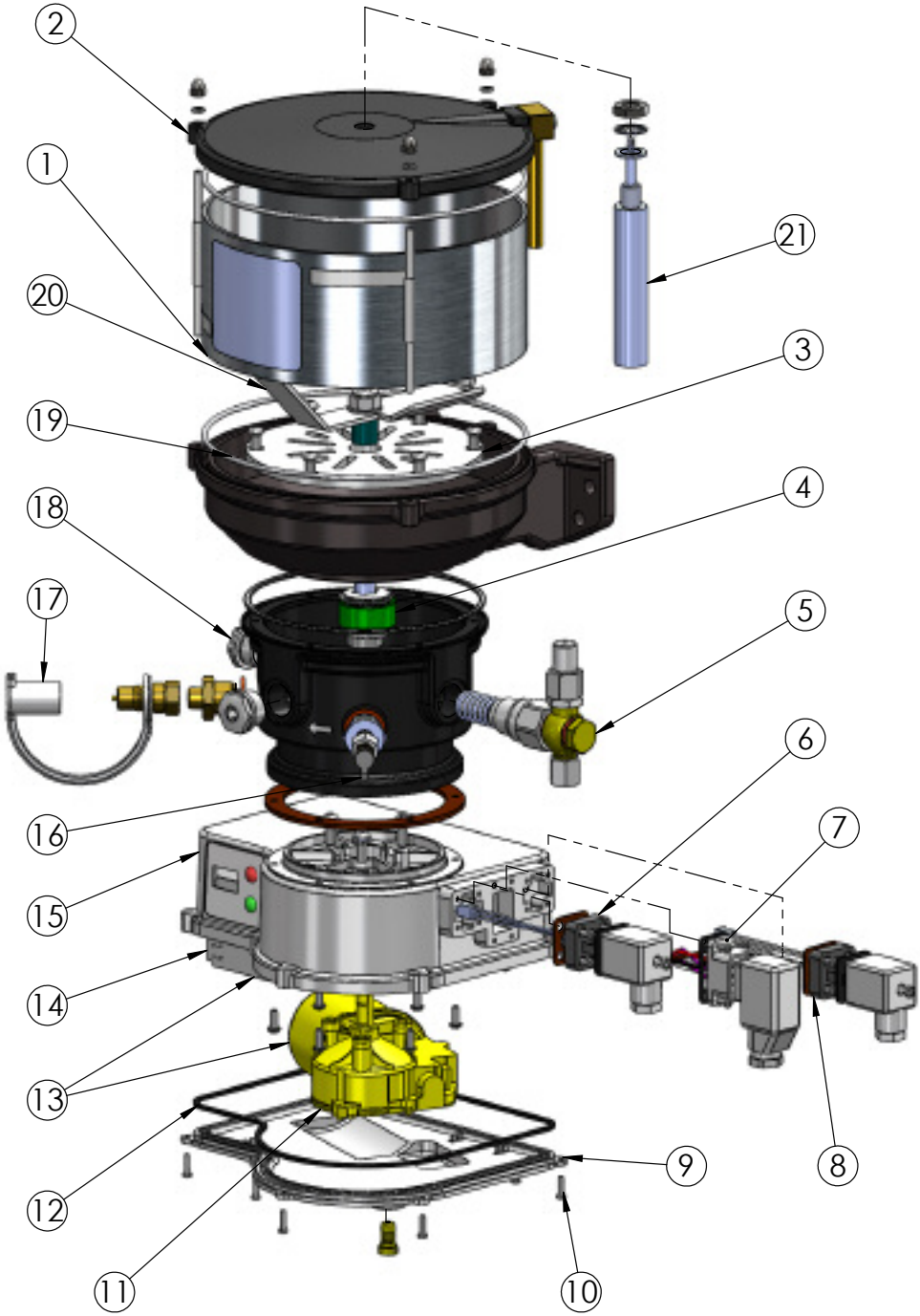
## 11 Pump - Exploded View 3Ltr Moulded



## 11.1 Parts List

| Item | Part No | Description | QTY | Notes |
|---|---|---|---|---|
| 1 | HDI SP7/3P | 3 LT Reservoir | 1 | O Ring (SP10/P) and Screws Incl |
| 2 | HDI SP13/P | Restrictor Plate | 1 | |
| 3 | HDI SP4<br>HDI SP4/A | Cam Assy & Seals | 1 | Cam for spring return pump element<br>Cam for push-pull pump element |
| 4 | HDI SP28 | Blanking Plug | 2 | |
| 5 | HDI SP8 | Proximity Alarm Plug Conversion Kit with Internal Loom | 1 | Gaskets, Connector Base, Screws & Din Connector Incl |
| 6 | HDI 2P12/12-24 | 7 Way Connector Assy & PCB Internal Loom 12/24V | 1 | Gasket, 7 Way Connector, Screws and 7 Pin Hirschmann CNCTR Incl. |
| 7 | HDI SP9/3P | Low Level Conversion Kit with Internal Loom + Low Level sensor | 1 | Gaskets, Connector Base, Screws & Din Connector Incl. |
| 8 | HDI SP24 | Bottom Cover Assy | 1 | Screws, Seal & Vent Incl. |
| 9 | HDI SP25 | Bottom Cover Fixing Screws (BULK) | | |
| 10 | HDI SP1<br>HDI SP2 | Spare HDI 12V Motor<br>Spare HDI 24V Motor | | |
| 11 | HDI SP26 | Bottom Cover O Ring (BULK) | 1 | |
| 12 | HDI SP14 | Motor to PCB Loom | 1 | |
| 13 | HDI SP15 | 12-24V Standard PCB CNTRL Board | 1 | |
| 14 | HDI SP18<br>HDI SP19 | Housing W/O Controls<br>Housing with Controls | 1 | Gasket Included |
| 15 | HDI SP27 | Grease Nipple with Adaptor | 1 | |
| 16 | HDI SP3 | Quick Fill Adaptor (MALE) | 1 | |
| 17 | PU300/350<br>PU300/350/A | Pump Element with PRV (UNIT) 350BAR | 1 | Spring Return Pump Element<br>Push-Pull Pump Element |
| 18 | HDI SP11/3P | Paddle Blade Assy | 1 | Nut Included |
| 19 | HDI SP10P | Reservoir Seal 3LTR Moulded | 1 | |
| 20 | HDI SP5/3P | Spare Low Level Sensor 3LTR | 1 | Lead, Nut & Washers Incl. |
| 21 | HDI SP29 | Reed Switch | 1 | Supplied with no Control Version HDI |

## 12. Pump - Exploded View 3, 6, 9 & 15 Litre Standard

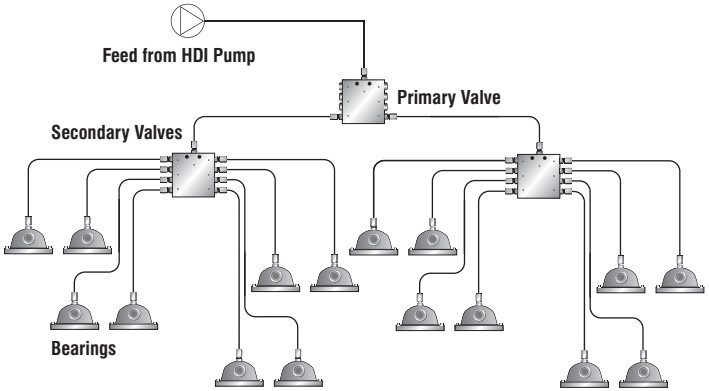


## 12.1 Parts List

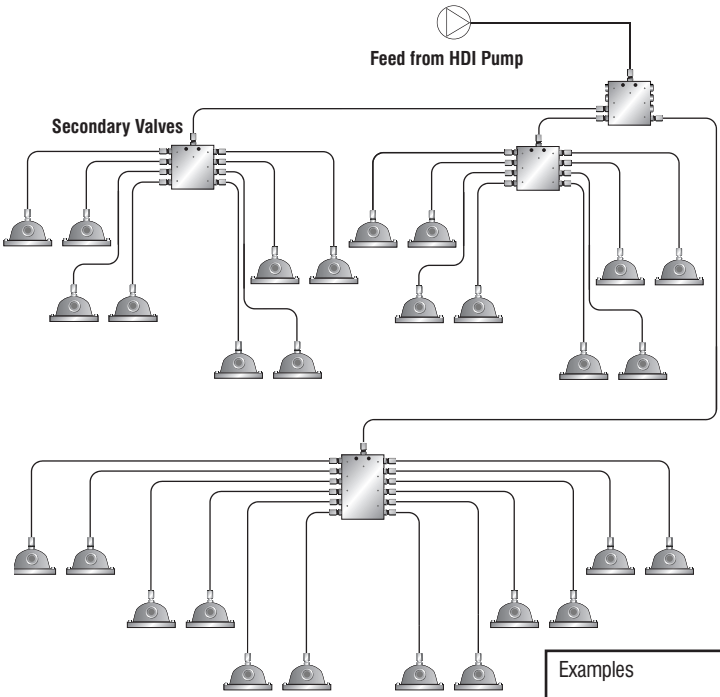
| Item | Part No | Description | QTY | Notes |
|---|---|---|---|---|
| 1 | HDI SP7/3<br>HDI SP7/6<br>HDI SP7/9<br>HDI SP7/15 | 3 LT Reservoir<br>6 LT Reservoir<br>9 LT Reservoir<br>15 LT Reservoir | 1<br>1<br>1<br>1 | Tie Rods, Nuts and O Ring Incl. |
| 2 | HDI SP6 | Cast Lid Assy with Breather | | |
| 3 | HDI SP13/C | Internal Plate | | |
| 4 | HDI SP4<br>HDI SP4/A | Cam Assy & Seals | 1 | Seals Incl. |
| 5 | PU300/350<br>PU300/350A | Pump Element with PRV (UNIT) 350 Bar | 1 | Spring Return Pump Element<br>Push-Pull Pump Element |
| 6 | HDI SP8 | Proximity Alarm Plug Conversion Kit with Internal Loom | 1 | Gaskets, Connector Base, Screws & Din Connector Incl |
| 7 | HDI SP12/12-24 | 7 Way Connector Assy & PCB Internal Loom 12/24V | 1 | Gasket, 7 Way Connector, Screws and 7 Pin Hirschmann CNCTR Incl. |
| 8 | HDI SP9/3<br>HDI SP9/6<br>HDI SP9/9<br>HDI SP9/15 | Low Level Conversion Kit with Internal Loom + Low Level sensor | 1 | Gaskets, Connector Base, Screws & Din Connector Incl. |
| 9 | HDI SP24 | Bottom Cover Assy | 1 | Screws, Seal & Vent Incl. |
| 10 | HDI SP25 | Bottom Cover Fixing Screws (BULK) | 1 | |
| 11 | HDI SP1<br>HDI SP2 | Spare HDI 12V Motor<br>Spare HDI 24V Motor | 1 | |
| 12 | HDI SP26 | Bottom Cover O Ring (BULK) | 1 | |
| 13 | HDI SP14 | Motor to PCB Loom | 1 | |
| 14 | HDI SP15 | 12-24V Standard PCB CNTRL Board | 1 | |
| 15 | HDI SP18<br>HDI SP19 | Housing W/O Controls<br>Housing with Controls | 1 | Gasket Included |
| 16 | HDI SP27 | Grease Nipple with Adaptor | 1 | |
| 17 | HDI SP3 | Quick Fill Adaptor (MALE) | 1 | |
| 18 | HDI SP28 | Blanking Plug | 2 | |
| 19 | HDI SP10/C | Standard Reservoir Seal | 1 | |
| 20 | HDI SP11/3<br>HDI SP11/6<br>HDI SP11/9<br>HDI SP11/15 | Paddle Blade Assy for 3Ltr Reservoir<br>Paddle Blade Assy for 6Ltr Reservoir<br>Paddle Blade Assy for 9Ltr Reservoir<br>Paddle Blade Assy for 15Ltr Reservoir | 1<br>1<br>1<br>1 | Nut Included |
| 21 | HDI SP5/3<br>HDI SP5/6<br>HDI SP5/9<br>HDI SP5/15 | Spare Low Level Sensor 3LTR<br>Spare Low Level Sensor 6LTR<br>Spare Low Level Sensor 9LTR<br>Spare Low Level Sensor 15LTR | 1<br>1<br>1<br>1 | Lead, Nut & Washers Incl. |
| 22 | HDI SP29 | Reed Switch | 1 | Supplied with no Control Version HDI |

# 13. HDI PROGRESSIVE SYSTEM EXAMPLES USING INTERLUBE SPL VALVES.

**16 Lubrication points, from one central application point**




**28 Lubrication points, from one central application point**




## Specification and outlet combinations for the lubricant divider valves

Since the divider valves are positive progressive piston displacement devices, it means that whatever quantity of lubricant is continuously supplied to the inlet port, it is positively divided in relation to the outlet port combinations and equals the sum total of the output quantities.

## Delivery sequence

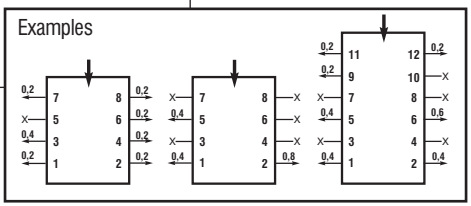
The commencement of the delivery sequence depends on the position of the delivery pistons. In each case the lubricant divider valves operate until all the lubricant which has been supplied, is completely delivered. If the lubricant supply is interrupted by a pause in the lubrication, then, after supply is resumed, the delivery sequence will be continued where it was stopped.

## Outlet combinations

When an outlet is closed with one of the closure plugs, the lubricant is automatically redirected internally to the next adjacent outlet in descending numerical order

**Note: Outlets 1 and 2 must never be closed.**

Examples

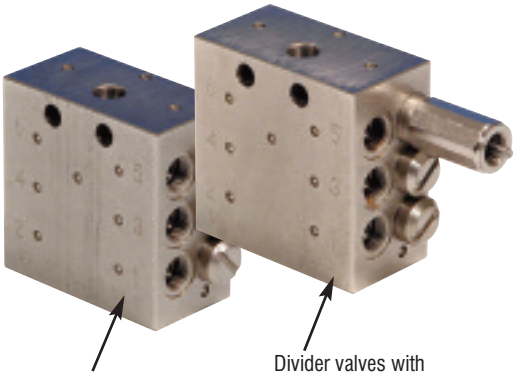


closed outlet —X

open outlet (in $cm^3$/stroke) →

(lubricant output in $cm^3$/stroke)

## 13.1 DIVIDER VALVES
### Standard Progressive Divider Valves



Standard Divider Valve

Divider valves with visual indicator pin

| Part No | Number of outlets | Monitoring | Max flow per min |
|---|---|---|---|
| SPL-06 | 6 | | 200 cc |
| SPL-06K | 6 | Indicator Pin | 200 cc |
| SPL-08 | 8 | | 600 cc |
| SPL-08K | 8 | Indicator Pin | 600 cc |
| SPL-10 | 10 | | 700 cc |
| SPL-10K | 10 | Indicator Pin | 700 cc |
| SPL-12 | 12 | | 800 cc |
| SPL-12K | 12 | Indicator Pin | 800 cc |
| SPL-14 | 14 | | 900 cc |
| SPL-14K | 14 | Indicator Pin | 900 cc |

### Divider Valves

- Monobloc design with number of outlets from 6 to 14
- Each outlet delivers 0.20ccs/cycle
- Crossporting and single outlets possible
- Available with cyclic indicator pins
- Max operating pressure 350bar
- Operating temperature -30ºC to 100ºC
- Outlets Tapped M10 x 1
- Inlet Tapped 1/8 BSP
- Proximity sensor an option

## 13.2 DIVIDER VALVE ACCESSORIES
### Proximity Switch

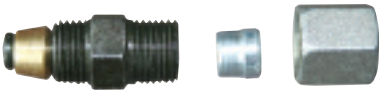
SPL 512-4482

### Proximity Adapters

SPL36713-1

**IMPORTANT**
**All SPL DIVIDER VALVE OUTLETS MUST BE FITTED WITH SPL CHECK VALVES OR BLANKED OFF WITH SPL CLOSURE PLUGS. NEVER BLANK PORTS 1 & 2 ON A SPL VALVE**

### Check Valve Outlet Fittings



SPL-30364-4 M10x1 Check Valve
SPL-12374-9 6mm Nut
SPL-12295-2 6mm Olive

### Closure Plug

SPL- 17499-3



For all Accessories refer to our Catalogue request from Interlube Systems Ltd or look on our website: www.interlubesystems.com

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