INTERLUBE

A TIMKEN Brand

INTERLUBE GX PUMP RANGE

WITH AND WITHOUT CONTROLS

OPERATING AND MAINTENANCE MANUAL

ISF 120 Issue 4

INTERLUBE GX PUMP RANGE

(WITH AND WITHOUT CONTROLS)

OPERATING AND MAINTENANCE INSTRUCTIONS

CONTENTS

TECHNICAL DATA

ELECTRICAL DETAILS

a)	Voltage/Rating	230/240V AC 110/120V AC	50/60Hz 50/60Hz	2 amp fuse must be fitted 3 amp fuse must be fitted
b)	Motor type	Open frame shaded pole motor with thermal cut out with automatic reset.		
c)	Motor power	100 Watts		
d)	Motor RPM	2600 at 50Hz 3100 at 60Hz		
e)	Float switch	Voltage/Rating Mode	150V AC/200V DC 0.7A DC Normally closed Reservoir Full (fitted as standard on Pumps **with** controls)	
f)	Pressure switch	42V Max, 100VA, 2.5A Max		
g)	Conduit entry	Pg 13.5		

LUBRICATOR DETAILS

a)	Pump output volume	150cc per min at 50Hz 180cc per min at 60Hz
b)	Max ambient temperature	40°C
c)	Max oil temperature	60°C
d)	Recommended Lubricants	15 – 480 cSt oil/NLGI 000 grease
e)	Operating pressure	3 – 25 bar
f)	Reservoir capacity	3 Litre or 6 Litre options
g)	Weight (Full)	5.5Kg
h)	Protection class	IP54
i)	Pressure switch settings	Flow units 3 bar, PDU`s 12 bar, (both factory set)
j)	Pressure gauge	0 – 40 bar

INTRODUCTION

The **INTERLUBE GX** lubrication system is a single line system capable of providing metered lubrication for up to 500 points with traditional flow units or the more precise Positive Displacement Units (PDU`s). GX pumps are provided either with integral controls or without controls to allow it to be fitted to a system where the customer provides external controls. There are several optional fittings for either type.

These instructions make no reference to any external controls, instructions provided for integral controls are not relevant to units used in conjunction with external controls.

DESCRIPTION AND OPERATION

GX pumps without controls.

1) The reservoir is moulded from semi-transparent plastic and incorporates bosses into which are secured threaded inserts. The bosses are located at each corner of the open top for securing the top plate.

2) The motor housing incorporates a filler, motor housing flange, oilways for the passage of lubricant from the pump outlet to supply line connection and a pressure regulating valve. Allowances are made for optional fittings comprising; a pressure gauge into the oilways, a float switch, a pressure switch. A manual override button and indicator lamp is provided as standard on this model.

3) The filler is closed by a cap that is secured by a bayonet type fitting with an 'O' ring seal: the cap is vented to stop the reservoir from being pressurized.

Options when fitted.

1) The pressure gauge indicates the pressure in the supply line and is calibrated 0 – 40 bar. The Float switch is secured centrally into the reservoir and is 'Normally Closed'. (ie. Normally closed when reservoir is full).

2) The pressure switch is screwed into the pump outlet oilway in the motor housing, operation pressures are dictated by the type of system: 1 – 10 bar for a Flow Unit System and 10 – 20 bar for a PDU system. Both switches are 'Normally Open' type.

3) Electrical connections into the pump are via a Pg 13.5 cable gland which can either be on the left hand side of the motor housing (standard) or, as an option, on the right hand side. This leads to a terminal block where the mains leads can be connected. **IT IS IMPORTANT THAT AN EARTH WIRE IS CONNECTED TO THE TERMINAL BLOCK**. A top cover encloses all components apart from the filler, gauge and supply line connection.

4) The pressure regulating valve is located in the front of the motor housing just underneath the facia label. Lubricant from the pump passes through the pressure regulating valve to the pressure switch, when fitted and into the system. In a Flow Unit system a check valve is incorporated into the gear outlet body to ensure no lubricant drains back into the reservoir via the pump. In a PDU system a valve assembly is fitted which allows the system pressure to dissipate back to the reservoir when the pump stops.

GX pumps with controls.

1) The reservoir, motor, pump, float switch, pressure regulating valve and pressure gauge are all standard fit although the actual components may differ dependent on the requirements.

2) The facia label includes a manual override touch panel. Two LED`s are visible through the facia label.

   a) **GREEN LED**, a steady **GREEN LED** shows the pump is in delay mode. A flashing **GREEN LED** shows the pump is operating. Flash time: 1 second on, 1 second off.

   b) **RED LED,** a steady **RED LED** indicates low level lubricant warning. A flashing **RED LED and SOUNDER** indicates a low pressure warning. Flash time 1 second on, 1 second off.

   NOTE: If a low pressure signal is activated the pump motor will stop until the signal is removed.

3) The controls are contained on a PCB which incorporates its own microprocessor. The pump is mounted vertically in the motor housing, electrical connection is by 'Molex' connectors and a 7 way terminal block mounted across the top edge of the PCB. The row of 8 switches that control the pump running cycle are also mounted on the top edge of the PCB. Lubricators with control provide an instant pressure cycle on machine start up on any reset (if the supply is routed via the machine on/off system). The control options are as follows: -

PLEASE NOTE.

WHEN CONNECTING WIRES TO THE PCB IT IS SOMETIMES NECESSARY TO RAISE THE BOARD SLIGHTLY FOR ACCESS TO THE SCREW HEADS. CARE SHOULD BE TAKEN IN RETURNING THE BOARD TO ITS ORIGINAL POSITION BY ENSURING THE MANUAL OVERRIDE BUTTON IS NOT DAMAGED AS IT PASSES OVER THE PAD ON THE REAR OF THE FACIA LABEL.

ON INITIAL START UP A LOW PRESSURE WARNING MAY OPERATE FOR A FEW SECONDS

CONTROL OPTIONS

The standard unit with controls allows selection of either a **TIME MODE** of operation or a **COMBINATION MODE** of time period and impulse count delay period. Selection of modes and settings are achieved by the positioning of the 8 DIL switches:

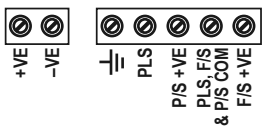
a) **ON TIME** – switches 1, 2 and 3. A total of 8 settings available from 12 seconds to 60 seconds.

b) **DELAY TIME** – switches 4, 5, 6, 7 and 8 **ON**. A total of 16 settings available from 2 minutes to 480 minutes.

c) **DELAY IMPULSE COUNT SWITCH** – switch 8 **OFF.** A total of 16 settings are available from 20 pulses to 5800 pulses.

SEE INSIDE LID FOR CONTROL & WIRING DIAGRAMS

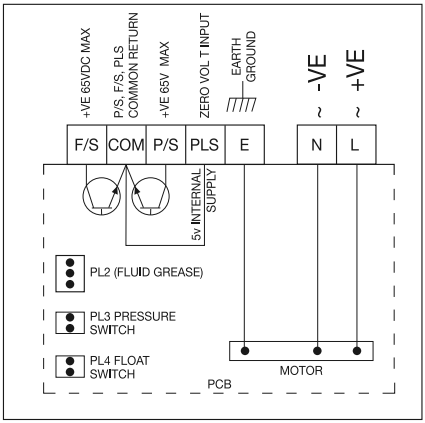
ON TIME	■ = ON		
SWITCH NUMBER	1	2	3
12 SECONDS	■	■	■
16 SECONDS		■	■
20 SECONDS	■		■
28 SECONDS			■
36 SECONDS	■	■	
44 SECONDS		■	
52 SECONDS	■		
60 SECONDS			



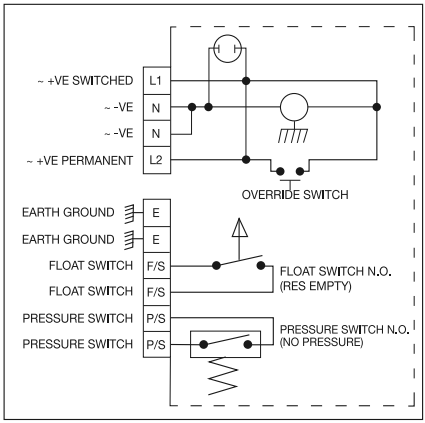
PLS, F/S & P/S ALL ZERO VOLT MAKE AND BREAK.
DO NOT EXCEED 12 SECONDS ON FOR EVERY 2 MINUTE OFF PERIOD.
THIS UNIT MUST BE EARTHED.
THIS UNIT MUST BE FUSED USING 115V = 3 Amp, 230V = 2 Amp.

OFF TIME SWITCH 8 = ON	PULSE COUNT SWITCH 8 = OFF	■ = ON SWITCH NUMBER			
		4	5	6	7
2 MINUTES	20 PULSES	■	■	■	■
4 MINUTES	100 PULSES		■	■	■
8 MINUTES	500 PULSES	■		■	■
10 MINUTES	750 PULSES			■	■
12 MINUTES	1000 PULSES	■	■		■
15 MINUTES	1400 PULSES		■		■
30 MINUTES	1800 PULSES	■			■
45 MINUTES	2200 PULSES				■
60 MINUTES	2600 PULSES	■	■	■	
75 MINUTES	3000 PULSES		■	■	
90 MINUTES	3400 PULSES	■		■	
120 MINUTES	3800 PULSES			■	
180 MINUTES	4200 PULSES	■	■		
240 MINUTES	4600 PULSES		■		
360 MINUTES	5400 PULSES	■			
480 MINUTES	5800 PULSES				

NOTE : If using signals P/S & F/S, do not exceed 65VDC, 100mA. Positive supply must be connected to the P/S & F/S terminals & return to COM terminal. If required an optional Relay Assembly is available for use with either P/S or F/S for over 65V. Relay rated to 240VAC, 10A. Part 83415-111. Relay assembly uses PL2 power supply (Relay cannot be used with Fluid Grease Option). Pulse (PLS) option is Zero volt. Do not use any external voltage for pulse control.



WITH CONTROLS



WITHOUT CONTROLS

FAULT DIAGNOSIS

FAULT	ACTION
Pump fails to run and no LED lit	1) Check mains supply 2) Check external fuse 3) Check molex connections and terminal board connections are correctly made.
Motor runs but pump fails to generate pressure.	1) Check pressure regulating valve. 2) Check suction filter for blockage 3) Check pump/motor drive shaft 4) Examine pipework and tubing for signs of leakage or damage. 5) If all above are correct change the gear pump.
GREEN DELAY on and **RED LED** flashing and lubricant level not low. Note, A **LOW PRESSURE** warning will inhibit pump running until fault is resolved, bur can be overridden by **MANUAL OVERRIDE**	1) Operate the **MANUAL OVERRIDE** check the LED`s correct themselves and the motor is running. If motor fails, thermal cut out has operated, this will reset when motor returns to a normal operating temperature.

FAULT DIAGNOSIS CONTINUED

FAULT	ACTION
LOW LEVEL LED is lit but Lubricant level is not low. Note, A **LOW LEVEL** warning does not inhibit pump running. On loss of suction the pump will cut out due to **LOW PRESSURE.**	1) Check the float switch connections are fully in place. 2) Check the float is free to move up and down the spindle and both retaining clips are in place. 3) If all above are correct change the float switch.
Pump cycle not as selected	1) Check connectors to PCB or terminal block are connected. 2) Use the tables to check **ON** and **DELAY** switches are correctly set. 3) If all above are correct, change the PCB.
Pump will not run with **MANUAL OVERRIDE** pressed.	1) Has the thermal cut out in the motor operated. 2) Check the power supply. 3) Check connectors on PCB. 4) Check if motor turns with power on. 5) If the motor does not turn change motor or PCB. 6) If motor turns check motor/pump drive. Replace parts as necessary. 7) If motor/pump drive is correct, change gear pump. 8) Check as fault 2.
System pressure below that required.	1) Check for blocked suction filter. 2) Examine pipework and tubing for signs of leakage or damaged. 3) Reset pressure regulating valve. 4) If adjusting pressure regulating valve does not cause pressure increase, fault could be in either the gear pump or pressure regulating valve. Change each in turn to solve problem.
On **PDU** systems pressure fails to dissipate when pump stops.	Blockage in regulating valve, change valve.

MAINTENANCE AND EXCHANGE OF FAULTY COMPONENTS

The only maintenance that is required to be carried out on the **INTERLUBE GX**, with or without controls, is to periodically check the lubricant level and topping up the recommended lubricant as necessary, occasionally checking the suction filter and inspecting pipework and tubing for damaged or loose connections and making good as required.

At all times observe the following for fault free operation: -

a) Use only INTERLUBE approved lubricants.

b) Ensure stored lubricant is kept dirt free at all times and before filling ensure all areas around filling cap are wiped clean and the inlet strainer is fitted.

c) After filling the reservoir ensure that the filler cap is fully secured.

If the unit fails to operate correctly, try to trace the fault using the chart and change the parts as necessary.

EXCHANGE OF MOTOR

1) Ensure the mains electrical supply is switched off and disconnected.

2) Remove the motor housing lid and disconnect the motor connection to the PCB and wires from the terminal block.

3) Release the 2-off 4mm tubes from the tee piece and remove the dump valve assembly from the gear housing.

4) Remove the filter then the 4-off screws holding the gear pump to the support column and withdraw the gear pump assembly, which should be kept clean.

5) Remove the 2 screws holding the motor assembly into the housing and withdraw through the top casting.

6) Insert the new motor assembly and secure with the 2 screws, plug the connector into the PCB.

7) Replace the gear pump assembly ensuring the drive shaft is correctly located and the discharge port on the gear pump is in line with the motor fixing screws (i.e. pointing towards the front of the pump).

8) Replace the dump valve assembly (this requires to be sealed with a suitable thread sealant). Reconnect the 4mm tubes and replace filter.

9) Re-assemble lid and replace pump into the reservoir, reconnect cables and replace lid.

EXCHANGE OF GEAR PUMP SANDWICH

1) Ensure the mains electrical supply is switched off and disconnected.

2) Separate the pump from the reservoir, release the 2-off 4mm tubes from the tee piece and remove the dump valve assembly from the gear housing, remove the filter and remove the 4-off screws holding the gear pump assembly. You can now separate this from the support column.

3) Replace the gear pump assembly ensuring the drive shaft is correctly located and the discharge port on the gear pump is in line with the motor fixing screws (i.e. pointing towards the front of the pump).

4) Replace the dump valve assembly (this requires to be sealed with a suitable thread sealant). Reconnect the 4mm tubes and replace the filter.

5) Reassemble pump to reservoir,

EXCHANGE OF DUMP VALVE/NON RETURN VALVE

1) Ensure the mains electrical supply is switched off and disconnected.

2) Separate the pump from the reservoir, release the 2-off 4mm tubes from the tee piece, remove the tee piece and unscrew the dump/non return valve.

3) Replace the new valve assembly (this requires to be sealed with a suitable thread sealant).

4) Replace the tee piece, 4mm tubes and assemble the pump to the reservoir.

EXCHANGE OF PCB

1) Ensure the mains electrical supply is switched off and disconnected

2) Remove the lid and disconnect all ‘Molex’ connectors and any wires connected to connector blocks, noting orientation for reconnection. Also note the DIL switch positions.

3) Slide the exchange PCB into slot taking care not to damage the manual override button as it passes over the pad fitted to the facia label. Replace the electrical connections as before and set the DIL switches to the required setting.

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