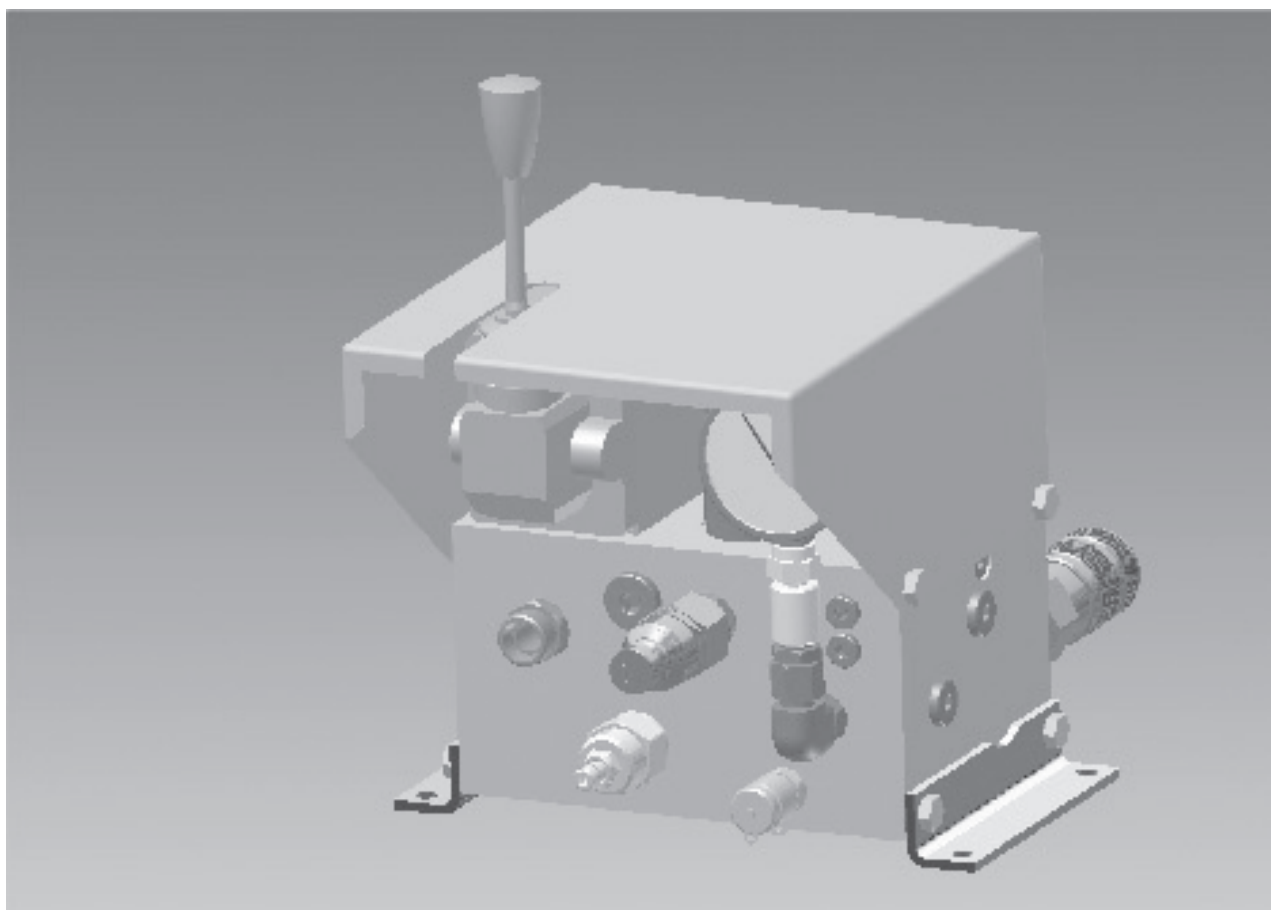

Hydraulic PTO Flow Device



Safety, Operation, and Maintenance Manual



WARNING

Improper use of this tool can result in serious bodily injury! This manual contains important information about product function and safety. Please read and understand this manual BEFORE operating the tool. Please keep this manual available for other users and owners before they use the tool. This manual should be stored in a safe place.

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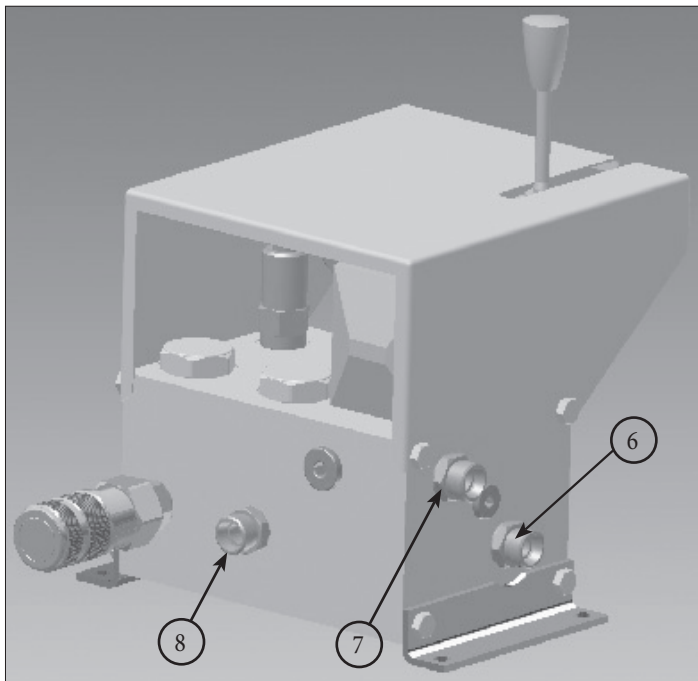
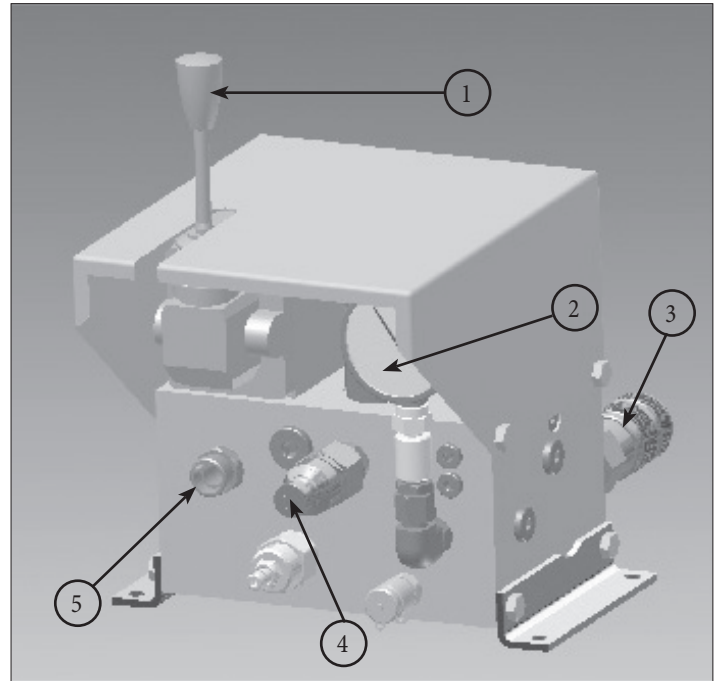
Limited Warranty

Flexco warrants to the original purchaser that this product is free from defects in material and workmanship, and agrees to repair or replace, at Flexco’s option, any defective product within 1 year from the date of purchase. This warranty is not transferable. It only covers damage resulting from defects in material or workmanship, and it does not cover conditions or malfunctions resulting from normal wear, neglect, abuse, accident or repairs attempted or made by other than our regional repair center or authorized warranty service center.

To obtain warranty service, return the product at your expense together with proof of purchase to Flexco or a Flexco authorized distributor.

Main Components

1. Directional manual valve
2. Regulated pressure gauge
3. Quick release coupling: Female coupler, low pressure return port from Flexco hydraulic tool (Driver, DR) to PTO flow device (TDR)
4. Quick release coupling: Male nipple, regulated flow and high pressure port to Flexco hydraulic tool (Driver, DR)
5. M22x1.5 female fitting, high pressure port to the original equipment (TU)



6. M22x1.5 female fitting, high pressure port from customer original hydraulic power pack (P)
7. M22x1.5 female fitting, low pressure return port from PTO flow device to customer original hydraulic power pack reservoir/tank (T)
8. M22x1.5 female fitting, low pressure return port from original equipment to PTO flow device (TTU)

Pre-Operative Checklist

This checklist must be checked prior to each use of the Flexco PTO (Power Take Off) flow device. This checklist is to be used as a guideline in conjunction with the maintenance and inspection procedures outlined in this manual. The Flexco PTO (Power Take Off) flow device and related equipment must be thoroughly inspected prior to each use by a trained person. A trained person is one who has read and thoroughly understands this instruction manual and related equipment manuals and, through training and experience, has shown knowledge regarding the safe operational procedures. If you do not have such a person in your organization, please contact Flexco or local distributors and they will assist you with training. Do not permit any person who is not fully trained to operate the Flexco PTO (Power Take Off) flow device or the associated hydraulic tool. It is recommended that this checklist be maintained as a permanent record.

Work Area Selection

1. Insure the Flexco PTO (Power Take Off) flow device is located in a well ventilated area.
2. Never use the Flexco PTO (Power Take Off) flow device in an explosive atmosphere and/or near combustible material that could be ignited by a spark.
3. Insure flammable storage is a least ten feet from the Flexco PTO (Power Take Off) flow device.
4. Insure the Flexco PTO (Power Take Off) flow device is positioned to minimize the amount of construction dust and debris it receives.
5. Work area is to be kept clear of unauthorized personnel at all times. Place barricades or secure the area in such a manner that no personnel can be injured.
6. Move fuel container at least ten feet from fueling point before starting.

Initial Equipment Status

1. Insure the Flexco PTO (Power Take Off) flow device has been properly maintained.
2. Insure hydraulic hoses are properly connected and in good condition.

Operating Personnel

1. Operators must thoroughly trained before operating the Flexco PTO (Power Take Off) flow device and associated equipment. A trained person is one who has read and thoroughly understands this instruction manual and related equipment manuals and, through training and experience, has shown knowledge regarding the safe operational procedures.
2. All crew members at the work site must be wearing personal protective equipment as defined by their employer.
3. Do not use the Flexco PTO (Power Take Off) flow device or associated hydraulic equipment when you are tired or fatigued.
4. Do not operate the Flexco PTO (Power Take Off) flow device or associated hydraulic equipment when under the influence of drugs, alcohol, or medication.

Introduction

Your Flexco hydraulic PTO flow device has been engineered to provide long-term performance and safety advantages that no other type can match. However, even a well-designed and well-built PTO (Power Take Off) flow device can malfunction or become hazardous in the hands of inexperienced and/or untrained users. Therefore, read this manual and related equipment manuals thoroughly before operating your Flexco hydraulic PTO flow device to provide maximum safety for all operating personnel, and to get the maximum benefit from your equipment.

Hydraulic PTO Specifications

Weight	35Kg
Operating pressure	115 bar, 11.5Mpa for Flexco hydraulic tool, part DR Unregulated for original equipment, port TU
Back pressure	7 bar max for Flexco hydraulic tool Unregulated for original equipment
Flow rate	23L/m for Flexco hydraulic tool, port DR No flow restriction to original equipment, port TU
Coupling	Flexco hydraulic tool: ISO 16028 flat face, quick release coupling Low pressure return: ½" body size, port TDR High pressure to tool: ¾" body size, port DR Original equipment and power pack: M22x 1.5 female fitting, port P, T, TU, TTU
Attachment hose between original power pack and equipment, 4x3 meters	MA approved hydraulic hose: ½" ID M22x 1.5 male fitting for port P, T, TU, TTU
Hose, 2x 10 meters	MA approved hydraulic hose: Low pressure return: ½" ID High pressure to tool: ¾" ID

General Safety Rules – Save These Instructions

Signal words

“DANGER” indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious injury. The signal word is limited to the most extreme situations.

“WARNING” indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.

“CAUTION” indicates a potentially hazardous situation which, if not avoided, **may** result in minor or moderate injury. It may also be used to alert against unsafe practices.

International Safety Symbol



This international safety symbol is used to identify and call attention to specific safety matters.

Safety Information

To Avoid Severe Personal Injury or Property Damage, read carefully and understand the following Safety Precautions.

1. SAFETY LABELS

WARNING

These labels warn you of potential hazards that could cause injury. Read them carefully. If a label comes off or becomes illegible, contact Flexco for replacement information.

2. SAFETY RULES

WARNING

Operators must be thoroughly trained before operating the Flexco PTO (Power Take Off) flow device and associated equipment. A trained person is one who has read and thoroughly understands this instruction manual and related equipment manuals and, through training and experience, has shown knowledge regarding safe operational procedures.

Follow the Pre-Operative Checklist before using the equipment.

DANGER

Never use the Flexco PTO (Power Take Off) flow device in an explosive atmosphere and/or near combustible material that could be ignited by a spark.

WARNING

Work area is to be kept clear of unauthorized personnel at all times. Place barricades or secure the area in such a manner that no personnel can be injured.

WARNING

Keep all clothing and all body parts clear of moving parts.

CAUTION

Always connect the **low pressure return** hose connections prior to connecting the **high pressure** hose connections.

General Safety Rules

WARNING

Never exceed the flow or pressure for which the hydraulic equipment is rated.

WARNING

Do not touch a hot muffler, or motor.

WARNING

Do not adjust the Flexco PTO (Power Take Off) flow device while it is running.

WARNING

Never adjust or service the associated hydraulic equipment during operation or while connected to the Flexco PTO (Power Take Off) flow device.

CAUTION

Know how to stop the Flexco PTO (Power Take Off) flow device pack quickly in case of emergency.

WARNING

Never disconnect hydraulic hoses or fittings while the Flexco PTO (Power Take Off) flow device is running.

DANGER

Do not use the Flexco PTO (Power Take Off) flow device or associated hydraulic equipment when you are tired or fatigued.

DANGER

Do not operate the Flexco PTO (Power Take Off) flow device or associated hydraulic equipment when under the influence of drugs, alcohol, or medication.

WARNING

At the end of operation, secure the Flexco PTO (Power Take Off) flow device and the associated hydraulic equipment to prevent unauthorized use. Never assume you will find the equipment in the same condition in which you left it.

WARNING

Only trained personnel are authorized to do repairs.

Operational Instructions

The Flexco PTO (Power Take Off) flow device is designed and engineered to continuously operate in the most challenging conditions. The flow device is designed for continuous splicing, high demand applications, such as, aboveground or underground coal, aggregate, belt shop, transportation port applications. The flow device is engineered to easily and quickly adapt to original hydraulic take up or belt clamp station power packs (Aboveground or underground). After connecting to original power pack, the device is designed to direct flow to either the Flexco hydraulic tool or original equipment without additional set up. The device is manufactured with high quality components, a custom steel manifold, and protective cover.

Before Operating The PTO Flow Device



WARNING: ONLY TRAINED PERSONNEL SHALL OPERATE THIS EQUIPMENT. A TRAINED PERSON IS ONE WHO HAS READ AND THOROUGHLY UNDERSTANDS THIS INSTRUCTION MANUAL AND RELATED EQUIPMENT MANUALS AND, THROUGH TRAINING AND EXPERIENCE, HAS SHOWN KNOWLEDGE REGARDING SAFE OPERATIONAL PROCEDURES.



WARNING: FOLLOW THE PRE-OPERATIVE CHECKLIST IN THE FRONT OF THIS MANUAL BEFORE OPERATING.

1. Thoroughly read the associated hydraulic equipment instruction manuals for complete safety, operating, and maintenance information before operating.
2. Obey all the safety labels provided on your hydraulic tool. These labels warn you of potential hazards that can cause death or serious injury. If a label comes off or becomes hard to read, contact Flexco for replacement information.
3. Construction area is to be kept clear of unauthorized personnel. Place barricades or secure the area in such a manner that no personnel can be injured.
4. Position the Flexco PTO (Power Take Off) flow device to minimize the amount of construction debris and dust it receives.

Checking the Hydraulic System

1. Before making any hydraulic connections, inspect all hydraulic lines, couplings and hoses for leaks and risks of rupture as follows:



WARNING: LIQUID UNDER HIGH PRESSURE CAN PIERCE THE SKIN, CAUSING DEATH OR SERIOUS INJURY. IN CASE OF INJURY, GET IMMEDIATE MEDICAL ATTENTION.

- a. Inspect each hydraulic line, couplings, and hose for breaks, cracks, worn spots, bulges, chemical attack, kinks or any other damage. Never try to stop any detected leak with any body parts. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic oil.
- b. Replace a damaged line, fitting or hose immediately. Never repair the part.

Operational Instructions

2. The Flexco PTO (Power Take Off) flow device uses ISO 16028 flat-face quick-release couplings that are durable and easy to clean. Wipe the mating surfaces of the couplings with a clean rag prior to making connection. They are always fitted such that the male nipple gives oil and the female coupler receives oil.



WARNING: INSURE HYDRAULIC HOSES ARE PROPERLY CONNECTED AND IN GOOD CONDITION.

- a. Connect the **low pressure return hose** ($\frac{1}{2}$ " ID) to the Flexco PTO (Power Take Off) flow device:
 - Connect the male nipple (hose) to the female coupler at port (TDR) at the Flexco PTO (Power Take Off) flow device.
 - Connect the female coupler (hose) to the male nipple at the hydraulic tool.
- b. Then connect the **high pressure hose** ($\frac{3}{8}$ " ID) to the Flexco PTO (Power Take Off) flow device:
 - Connect the male nipple (hose) to the female coupler at port (TDR) at the Flexco PTO (Power Take Off) flow device.
 - Connect the female coupler (hose) to the male nipple at the hydraulic tool .
- c. When making connections, do not over stretch the hoses or bend them at a sharp angle.
- d. To prevent unwanted disconnection, turn the female coupler locking collar about quarter turn to lock the connection.
- e. To disconnect the hose, turn the female coupler locking collar and align the half circle machined groove to the safety ball on the coupler body. Then pull the locking collar to release the connection.

Starting And Operating The Flexco PTO (Power Take Off) Flow Device



CAUTION: DO NOT OPERATE THE FLEXCO PTO (POWER TAKE OFF) FLOW DEVICE WITH THE TOOL DISCONNECTED.



WARNING: WHEN OPERATING THE FLEXCO PTO (POWER TAKE OFF) FLOW DEVICE, OBSERVE ALL SAFETY PRECAUTIONS DESCRIBED IN THE FLEXCO PTO (POWER TAKE OFF) FLOW DEVICE MOTOR AND HYDRAULIC TOOL INSTRUCTION MANUALS. FAILURE TO COMPLY COULD RESULT IN DEATH, SERIOUS INJURY AND/OR EQUIPMENT DAMAGE.

1. Insure directional manual valve is at "Flexco Hydraulic Tool" position.
2. DO NOT attempt to make any equipment adjustments during operation.

Storage Of The Flexco PTO (Power Take Off) Flow Device

At the end of operation, secure the equipment to prevent unauthorized use. Never assume you will find the equipment in the same condition that you left it.

Inspections And Maintenance

General Maintenance Rules

Proper maintenance of the Flexco PTO (Power Take Off) flow device and related hydraulic equipment consists of adhering to all the guidelines given in this chapter and in the Pre-Operative Checklist in the front of this manual. Proper maintenance is required to maintain the system in good condition, which is defined as each part being free of damage or functional defects.



WARNING: DO NOT ADJUST OR REMOVE HYDRAULIC COMPONENTS, LINES, OR COUPLINGS WHILE THE FLEXCO PTO (POWER TAKE OFF) FLOW DEVICE IS RUNNING OR WHENEVER THE HYDRAULIC FLUID IS HOT.



WARNING: LIQUID UNDER HIGH PRESSURE CAN PIERCE THE SKIN, CAUSING DEATH OR SERIOUS INJURY. IN CASE OF INJURY, GET IMMEDIATE MEDICAL ATTENTION.

1. Review and follow all the safety rules given in the General Safety Rules section before attempting any maintenance.
2. Only authorized personnel should be allowed in the maintenance area. Authorized personnel are the trained people as defined below.
3. Repairs must be made only by trained personnel. A trained person is one who has read and thoroughly understands this instruction manual and related equipment manuals and, through training and experience, has shown knowledge regarding the safe operational procedures.
4. All authorized maintenance personnel must wear the appropriate personal protective equipment as defined by their employer.

Hydraulic System Inspection And Maintenance

1. Check to see that the hydraulic fluid is clean, and change the oil and filter at recommended intervals to extend the life of the Flexco Flexco PTO (Power Take Off) flow device. Refer to the maintenance schedule.
2. Before making any hydraulic connections, inspect all hydraulic lines, couplings and hoses for leaks and risks of rupture as follows:
 - a. Inspect each hydraulic line, fitting, and hose for breaks, cracks, worn spots, bulges, chemical attack, kinks or any other damage. Never try to stop any detected leak with any body parts. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic oil.
 - b. Replace a damaged line, coupling or hose immediately. Never repair the part.
3. The Flexco PTO (Power Take Off) flow device uses flush-face quick-release couplings that are durable and easy to clean. Wipe the mating surfaces of the couplings with a clean rag prior to making connection. They are always fitted such that the male coupling gives oil.

Maintenance Schedule

The following table summarizes the type and frequency of maintenance required. Follow the manufacturer's instructions for proper lubrication and detailed maintenance. For repairs, contact the nearest authorized dealer.

TYPE OF MAINTENANCE	SERVICE FREQUENCY
Check that hydraulic oil is clean	Daily

Trouble Shooting

The following chart is intended to assist with troubleshooting the Flexco PTO (Power Take Off) flow device. While not all inclusive, the chart outlines the most common causes of a problem and the recommended course of action. The troubleshooting guide for the associated hydraulic tool is in the manual specifically for that equipment.

Symptom	Cause and Corrective Action
Flexco PTO (Power Take Off) flow device won't operate Flexco hydraulic tool— original power pack operating normally.	<p>Low fluid level in original power pack reservoir—fill to required level.</p> <p>No hydraulic oil pressure caused by:</p> <ul style="list-style-type: none">a. Directional manual valve—if the valve is shut off, there can be no pressure.b. Flexco PTO (Power Take Off) flow device flow adjustment valve setting is too low for the hydraulic tool being used—check hydraulic tool requirement.c. Flexco PTO (Power Take Off) flow device pressure regulator setting is too low for the hydraulic tool being used—check hydraulic tool requirement. <p>No hydraulic oil flow caused by:</p> <ul style="list-style-type: none">a. Original power pack turned off—turn to ON positionb. Hose is disconnected—check hose connections. <p>Flow restriction caused by:</p> <ul style="list-style-type: none">a. Flexco PTO (Power Take Off) device flow adjustment valve setting is too low for the hydraulic tool being used—check hydraulic tool requirement.b. Kinked or damaged hosec. Poor connection in either a hose or steel line <p>Original power pack not functional.</p>
Flexco PTO (Power Take Off) flow device is operating hydraulic tool slowly or erratically—original power pack operating normally.	<p>Low fluid level in reservoir—fill to required level.</p> <p>One or more of the following flow restrictions:</p> <ul style="list-style-type: none">a. Hose kinked or damagedb. System filter clogged—fluid going through bypass.c. Flexco PTO (Power Take Off) flow device flow adjustment valve setting is too low for the hydraulic tool being used—check hydraulic tool requirement. <p>Erratic pressure caused by:</p> <ul style="list-style-type: none">a. Contamination in fluid—drain fluid then inspect and replace filters and fluid.b. Air in fluid—inspect for oil leaks and repair to correct.

Trouble Shooting

Symptom	Cause and Corrective Action
Flexco PTO (Power Take Off) is operating hydraulic tool slowly or erratically—original power pack operating normally (continued).	<p>Oil viscosity too heavy for cold climate—contact your local supplier or Flexco for information.</p> <p>Original power pack pump or motor damaged or worn—contact your nearest authorized service center.</p> <p>Original power pack system relief valve malfunctioning:</p> <ol style="list-style-type: none">Stuck partially openHas broken spring. <p>Flexco PTO (Power Take Off) flow device pressure relief setting is too low for the hydraulic tool being used—check tool pressure requirement.</p> <p>Extension hoses too long:</p> <ol style="list-style-type: none">Hoses over 30 feet long add sufficient friction to the hydraulic system to slow down the hydraulic tool slightly.Where possible, use as few quick disconnects as possible.An increase in system pressure may be required to compensate for long hose runs. Consult your local supplier or Flexco for information. <p>Hydraulic oil flow too low—factory set at 23L/m</p>
System overheats—motor operating normally.	<p>Low fluid level in original power pack reservoir—fill to required level.</p> <p>Air in fluid—inspect for oil leaks and repair to correct.</p> <p>Severe operating conditions caused by:</p> <ol style="list-style-type: none">Extremely high ambient temperature—use a higher viscosity hydraulic oil. Consult your local supplier or Flexco for details.
Oil is foaming.	<p>Low fluid level in original power pack reservoir—fill to required level.</p> <p>Water in oil.</p> <p>Pump shaft seal worn out causing air to be drawn into pump.</p> <p>Air leak in suction line.</p>