# SERVICE MANUAL


**4110 PROFI Classic , 4110 PROFI , 4120 PROFI , 4130 PROFI , 6115 PROFI , 6125 PROFI Classic , 6125 PROFI , 6140 PROFI Classic , 6140 PROFI**

84276591A 01/06/2010

# Contents

# INTRODUCTION

# Foreword

## Technical Information

This manual has been produced by a new technical information system. This new system is designed to deliver technical information electronically through CD-ROM and in paper manuals. A coding system called ICE has been developed to link the technical information to other Product Support functions e.g. Warranty.

Technical information is written to support the maintenance and service of the functions or systems on a customers machine. When a customer has a concern on his machine it is usually because a function or system on his machine is not working at all, is not working efficiently, or is not responding correctly to his commands. When you refer to the technical information in this manual to resolve that customers concern, you will find all the information classified using the new ICE coding, according to the functions or systems on that machine. Once you have located the technical information for that function or system then you will find all the mechanical, electrical or hydraulic devices, components, assemblies and sub assemblies for that function or system. You will also find all the types of information that have been written for that function or system, the technical data (specifications), the functional data (how it works), the diagnostic data (fault codes and troubleshooting) and the service data (remove, install adjust, etc.).

By integrating this new ICE coding into technical information , you will be able to search and retrieve just the right piece of technical information you need to resolve that customers concern on his machine. This is made possible by attaching 3 categories to each piece of technical information during the authoring process.

The first category is the Location, the second category is the Information Type and the third category is the Product:

- LOCATION - is the component or function on the machine, that the piece of technical information is going to describe e.g. Fuel tank.
- INFORMATION TYPE - is the piece of technical information that has been written for a particular component or function on the machine e.g. Capacity would be a type of Technical Data that would describe the amount of fuel held by the Fuel tank.
- PRODUCT - is the model that the piece of technical information is written for.

Every piece of technical information will have those 3 categories attached to it. You will be able to use any combination of those categories to find the right piece of technical information you need to resolve that customers concern on his machine.

That information could be:

- the description of how to remove the cylinder head
- a table of specifications for a hydraulic pump
- a fault code
- a troubleshooting table
- a special tool

## How to Use this Manual

This manual is divided into Sections. Each Section is then divided into Chapters. Contents pages are included at the beginning of the manual, then inside every Section and inside every Chapter. An alphabetical Index is included at the end of a Chapter. Page number references are included for every piece of technical information listed in the Chapter Contents or Chapter Index.

Each Chapter is divided into four Information types:

- Technical Data (specifications) for all the mechanical, electrical or hydraulic devices, components and, assemblies.
- Functional Data (how it works) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- Diagnostic Data (fault codes, electrical and hydraulic troubleshooting) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- Service data (remove disassembly, assemble, install) for all the mechanical, electrical or hydraulic devices, components and assemblies.

## Sections

Sections are grouped according to the main functions or a systems on the machine. Each Section is identified by a letter A, B, C etc. The amount of Sections included in the manual will depend on the type and function of the machine that the manual is written for. Each Section has a Contents page listed in alphabetic/numeric order. This table illustrates which Sections could be included in a manual for a particular product.

| | SECTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A - Distribution Systems | | | | | | | | | | |
| | | B - Power Production | | | | | | | | | |
| | | | C - Power Train | | | | | | | | |
| | | | | D - Travelling | | | | | | | |
| | | | | | E - Body and Structure | | | | | | |
| | | | | | | F - Frame Positioning | | | | | |
| | | | | | | | G - Tool Positioning | | | | |
| | | | | | | | | H - Working Arm | | | |
| | | | | | | | | | J - Tools and Couplers | | |
| | | | | | | | | | | K - Crop Processing | |
| | | | | | | | | | | | L - Field Processing |
| PRODUCT | | | | | | | | | | | |
| Tractors | X | X | X | X | X | X | | X | X | | |
| Vehicles with working arms: backhoes, excavators, skid steers, ..... | X | X | X | X | X | X | X | X | X | | |
| Combines, forage harvesters, balers, .... | X | X | X | X | X | X | X | X | X | X | |
| Seeding, planting, floating, spraying equipment, .... | X | X | X | X | X | X | X | | X | | X |
| Mounted equipment and tools, ..... | | | | | X | X | X | | X | | |

This manual contains these Sections. The contents of each Section are explained over the following pages.

**Contents**



## Section Contents

SECTION A, DISTRIBUTION SYSTEMS
This Section covers the main systems that interact with most of the functions of the product. It includes the central parts of the hydraulic, electrical, electronic, pneumatic, lighting and grease lubrication systems. The components that are dedicated to a specific function are listed in the Chapter where all the technical information for that function is included.

SECTION B, POWER PRODUCTION
This Section covers all the functions related to the production of power to move the machine and to drive various devices.

SECTION C, POWER TRAIN
This Section covers all the functions related to the transmission of power from the engine to the axles and to internal or external devices and additional Process Drive functions.

SECTION D, TRAVELLING
This Section covers all the functions related to moving the machine, including tracks, wheels, steering and braking. It covers all the axles both driven axles and non-driven axles, including any axle suspension.

SECTION E, BODY AND STRUCTURE
This Section covers all the main functions and systems related to the structure and body of the machine. Including the frame, the shields, the operator's cab and the platform.

SECTION G, TOOL POSITIONING
This Section covers all the functions related to the final and/or automatic positioning of the tool once the tool is positioned using the Working Arm or the machine frame.

SECTION K, CROP PROCESSING
This Section covers all the functions related to crop processing.

# Safety rules

## IMPORTANT NOTICE

All maintenance and repair operations described in this manual should be carried out exclusively by authorised workshops. All instructions should be carefully observed and special equipment where indicated should be used.
Anyone who carries out service operations described without carefully observing these instructions will be directly responsible for any damage caused.

## NOTES FOR EQUIPMENT

Equipment shown in this manual is:

- designed expressly for use on these tractors;
- necessary to make a reliable repair;
- accurately built and strictly tested to offer efficient and long-lasting working life.

## NOTICES

The words “front”, “rear”, “right hand”, and “left hand” refer to the different parts as seen from the operator’s seat oriented to the normal direction of movement of the tractor.

## SAFETY RULES

## PAY ATTENTION TO THIS SYMBOL

This warning symbol points out important messages involving personal safety. Carefully read the safety rules contained herein and follow advised precautions to avoid potential hazards and safeguard your safety.
In this manual you will find this symbol together with the following key-words:
WARNING -it gives warning about improper repair operations and potential consequences affecting the service technician’s personal safety.
DANGER - it gives specific warning about potential dangers for personal safety of the operator or other persons directly or indirectly involved in the operation.

## TO PREVENT ACCIDENTS

Most accidents and personal injuries taking place in workshops are due from non-observance of some essential rules and safety precautions.

The possibility that an accident might occur with any type of machines should not be disregarded, no matter how well the machine in question was designed and built.

A wise and careful service technician is the best precautions against accidents.

Careful observance of this basic precaution would be enough to avoid many severe accidents.

**⚠ DANGER ⚠**

**Never carry out any cleaning, lubrication or maintenance operations when the engine is running.**

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## SAFETY RULES

Generalities

- Carefully follow specified repair and maintenance procedures.

- Do not wear rings, wristwatches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get caught on moving parts. Use approved safety clothing such as anti-slipping footwear, gloves, safety goggles, helmets, etc.
- Wear safety glasses with side guards when cleaning parts using compressed air.
- Damaged or frayed wires and chains are unreliable. Do not use them for lifting or towing.
- Wear suitable protection such as approved eye protection, helmets, special clothing, gloves and footwear whenever welding. All persons standing in the vicinity of the welding process should wear approved eye protection. NEVER LOOK AT THE WELDING ARC IF YOUR EYES ARE NOT SUITABLY PROTECTED.
- Never carry out any repair on the machine if someone is sitting on the operator's seat, except if they are qualified operators assisting in the operation to be carried out.
- Never operate the machine or use attachments from a place other than sitting at the operator's seat or at the side of the machine when operating the fender switches.
- Never carry out any operation on the machine when the engine is running, except when specifically indicated. Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.
- All repair and maintenance operations should be carried out with the greatest care and attention.
- Disconnect the batteries and label all controls to warn that the tractor is being serviced. Block the machine and all equipment which should be raised.
- Never check or fill fuel tanks or batteries, nor use starting liquid if you are smoking or near open flames as such fluids are flammable.
- The fuel filling gun should always remain in contact with the filler neck. Maintain this contact until the fuel stops flowing into the tank to avoid possible sparks due to static electricity build-up.
- To transfer a failed tractor, use a trailer or a low loading platform trolley if available.
- To load and unload the machine from the transportation means, select a flat area providing a firm support to the trailer or truck wheels. Firmly tie the machine to the truck or trailer platform and block wheels as required by the transporter.
- Always use lifting equipment of appropriate capacity to lift or move heavy components.
- Chains should always be safely fastened. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stand near the fastening point.
- The working area should be always kept CLEAN and DRY. Immediately clean any spillage of water or oil.
- Never use gasoline, diesel oil or other flammable liquids as cleaning agents. Use non-flammable non-toxic proprietary solvents.
- Do not pile up grease or oil soaked rags, as they constitute a great fire hazard. Always place them into a metal container.

## START UP

- Never run the engine in confined spaces which are not equipped with adequate ventilation for exhaust gas extraction.
- Never bring your head, body, arms, legs, feet, hands, fingers near fans or rotating belts.

## ENGINE

- Always loosen the radiator cap very slowly before removing it to allow pressure in the system to dissipate. Coolant should be topped up only when the engine is stopped.
- Do not fill up fuel tank when the engine is running.
- Never adjust the fuel injection pump when the tractor is moving.
- Never lubricate the tractor when the engine is running.

## ELECTRICAL SYSTEMS

- If it is necessary to use auxiliary batteries, cables must be connected at both sides as follows: (+) to (+) and (-) to (-). Avoid short-circuiting the terminals. GAS RELEASED FROM BATTERIES IS HIGHLY FLAMMABLE. During

# SERVICE MANUAL

## HYDRAULIC - PNEUMATIC - ELECTRICAL - ELECTRONIC SYSTEMS


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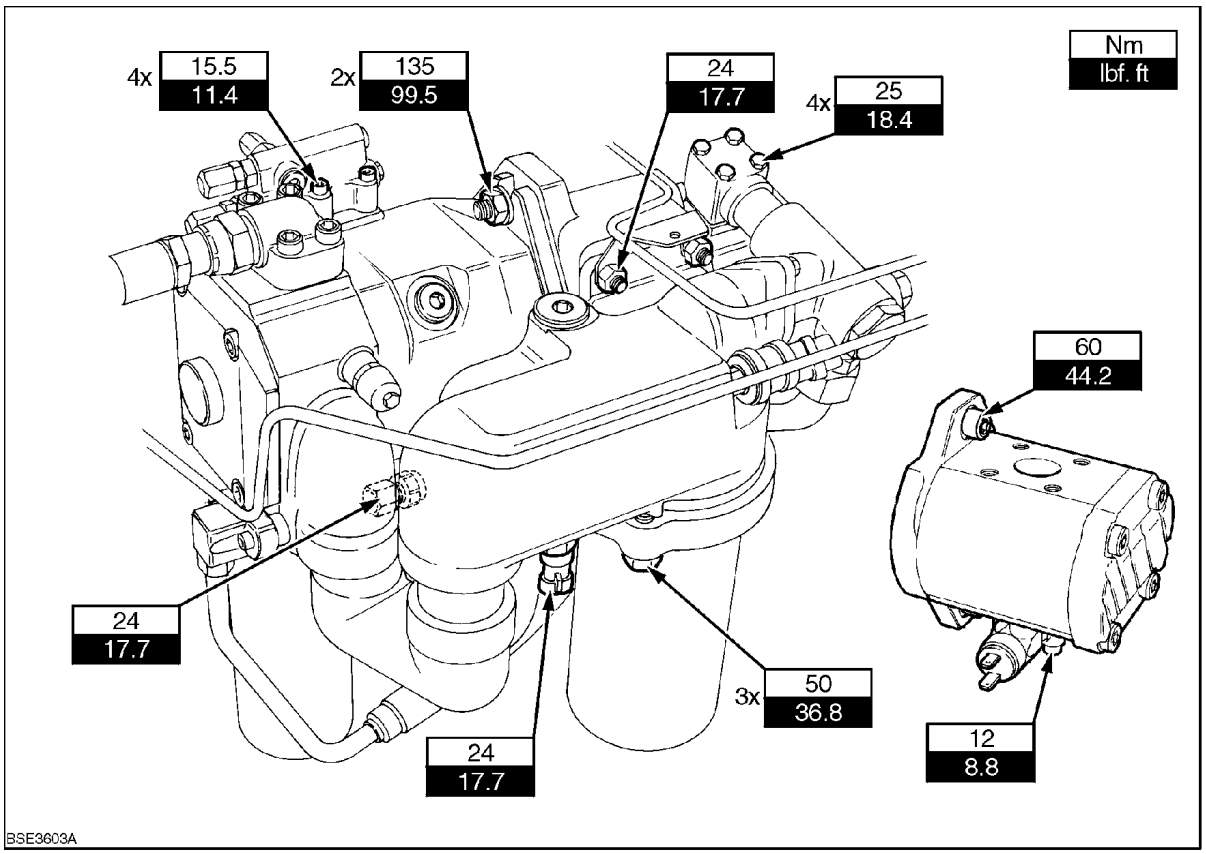
# PRIMARY HYDRAULIC POWER SYSTEM - Torque

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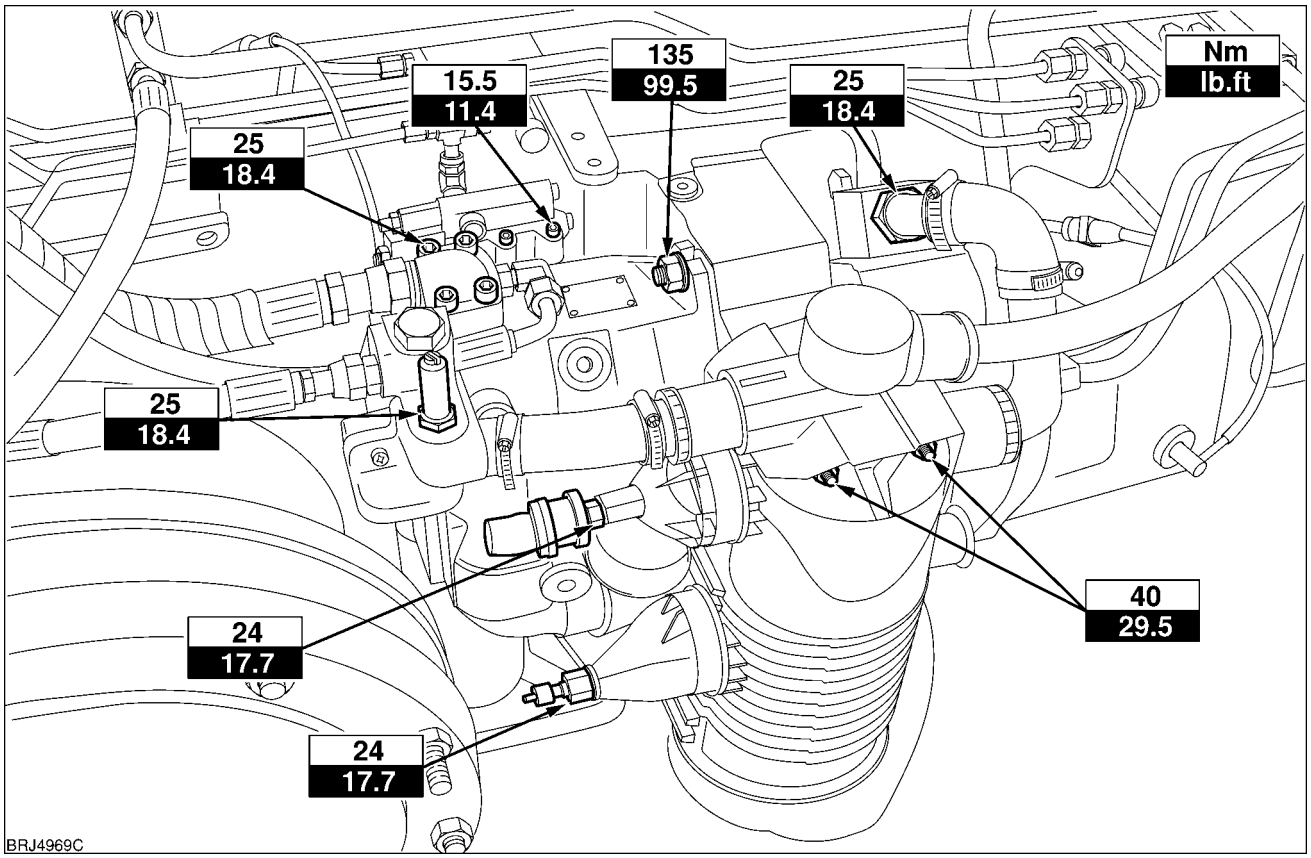


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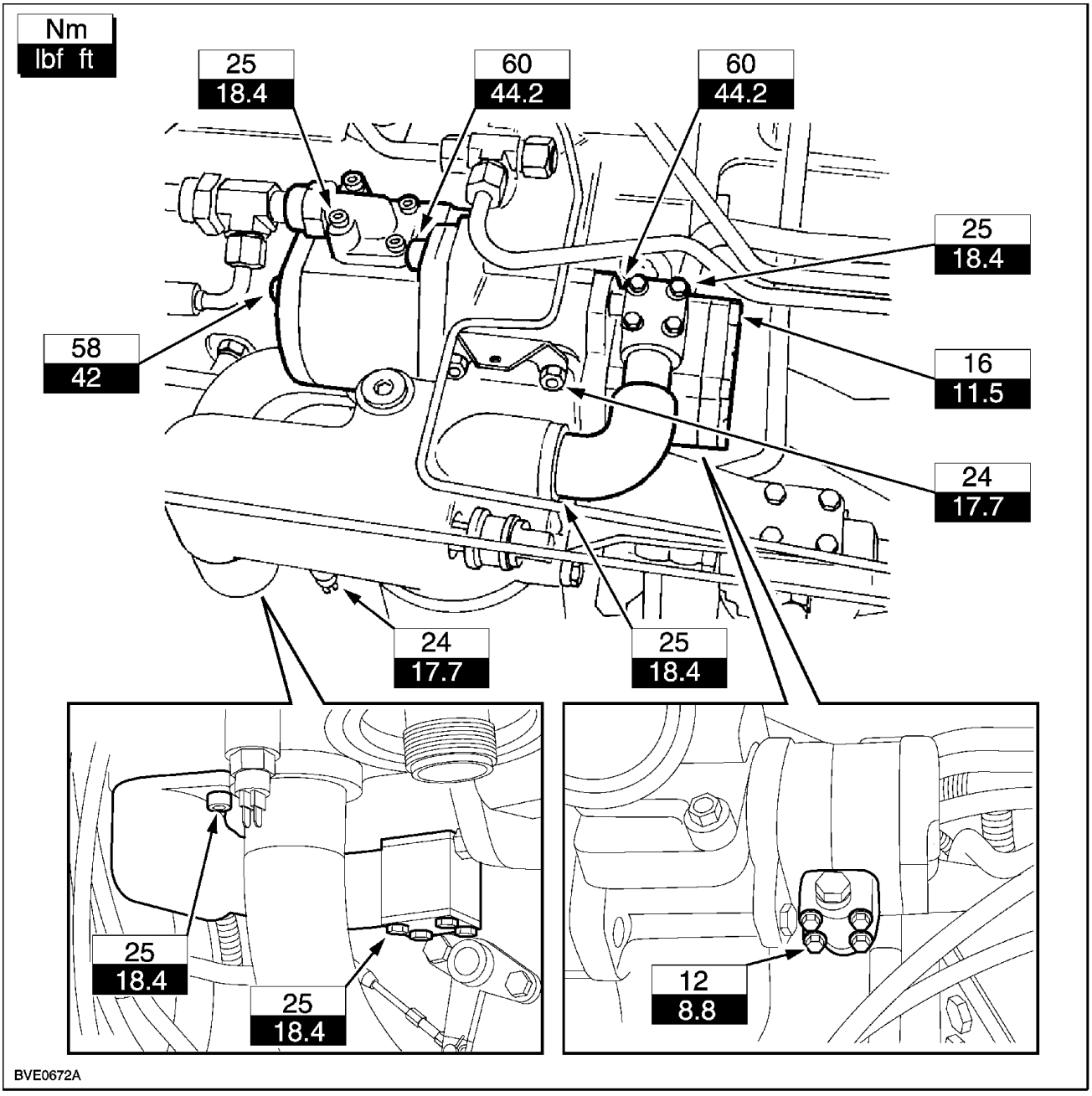
# PRIMARY HYDRAULIC POWER SYSTEM - Special tools

| DESCRIPTION | PART NUMBER |
|---|---|
| Tee adaptor 11/16 ORFS female x 11/16 ORFS male x 7/16 UNF female | **380000570*** |
| Adaptor M10 banjo x 7/16 UNF female | **380000572*** |
| Adaptor 7/16 UNF female x M12 x 1.5p male | **380000577*** |
| Adaptor 7/16 UNF male | **380000999** |
| Adaptor M14 banjo x M14 x 1.5p female | **380000579*** |
| Tee adaptor 7/16 UNF female x 1/4 BSP hose tail x 1/2 hose | **380000580*** |
| 7/16 UNF male Quick release adaptor | **380000492** |
| Adaptor M10 x 1.0p x 7/16 UNF female | **380000493** |
| Hand pump | **380000215** |
| Lift relief valve fitting | **380000217** |
| 90 quick release fitting with adaptor M8 x 1.0 male | **380001146**. |
| Blanking Cap 11/16 ORFS | **380000599*** |
| Pressure Gauge 0–10 bar | **380000551#** |
| Pressure Gauge 0–27 bar | **3800001145** |
| Pressure Gauge 0–40 bar (5 off) | **380000552#** |
| Pressure Gauge 0–250 bar | **380000553 #** |
| Remote valve coupling | **380000554#** |
| Quick release adaptor | **380000543** |
| Pressure gauge hose | **380000545#** |
| 1/8 NPT fitting to attach hose 292246 to gauge | **380000544#** |
| T–adaptor 13/16 ORFS female x 13/16 ORFS male x 7/16 UNF female | **380000842**. |
| Adaptor M10 x 1.0p x 7/16 JIC male (enables use of gauges with 7/16 JIC hoses if used) | **380000494** |
| diagnostic switch | **380000488** |
| Bypass connector | **380001147**. |
| Bypass connector | **380000561** |
| Trailer brake fitting | **380000550#** |
| Open Centre Lift Pressure Regulating Valve Adjusting Tool | **380000231** |
| Flow Meter **120 l/min**) | |
| * Part of hydraulic adaptor kit **380000464** | |
| # Part of hydraulic pressure test kit **380000240** | |
| Remote valve check valve removal tool | **380002720** |
| Charge pump pressure test adaptor | **380200015** |
| Lift ram pressure test tee piece 13/16 ORFS | **380200012** |
| Oil cooler pressure test adaptor | **380200006** |
| Hydraulic pump pressure test adaptor | **380200090** |
| Lube pressure test adaptor | **380200091** |

# Hydraulic pump Fixed displacement pump - General specification

| | |
|---|---|
| Filter<br>Type<br>Location | <br>Full-flow, screw-on cartridge<br>Pump intake, on the R.H. side of the rear axle housing |
| PUMP<br>Type<br>Location<br>Manufacturer<br>Drive<br>Corresponding rated output l/min<br>(US gallon/min) | <br>Gear type, with oil suction from transmission casing<br>On the R.H. side of the rear axle housing<br>BOSCH<br>Driven by PTO input shaft<br>80<br>21.1 |

# Hydraulic pump Fixed displacement pump - Torque

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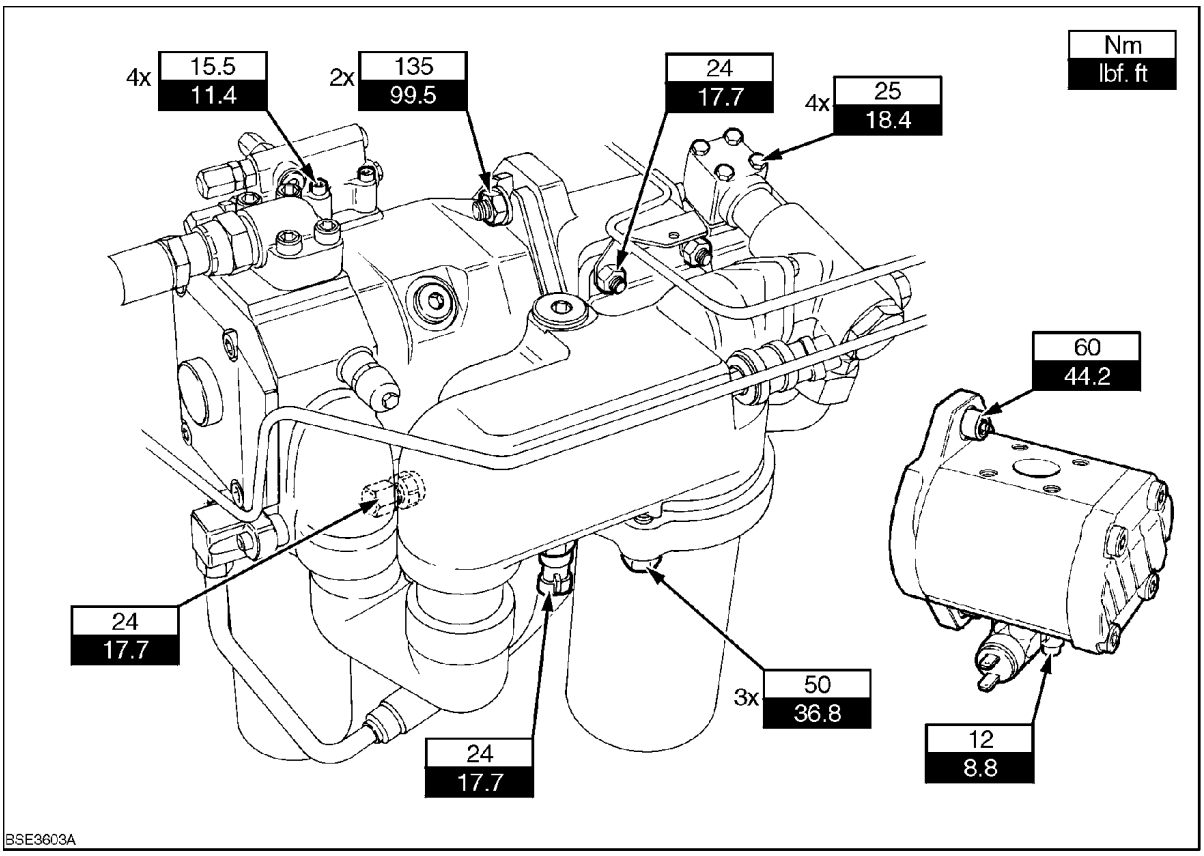
# Hydraulic pump Variable displacement pump - General specification

| | |
|---|---|
| Type | Variable Displacement Piston Pump (Swash Plate Controlled) |
| Rotation | Clockwise |
| Minimum Pump Speed | **800 RPM** |
| Maximum Pump Speed | **2662 RPM** |
| Pump Speed @ **2200 RPM** (enginespeed) | **2514 RPM** |
| Displacement | **45 cm³/rev** (**2.75 in³/rev**) |
| Output (new pump) @ **2200 RPM** (enginespeed) | **113 l/min** (**24.9 UK gpm**) **29.8 US gpm** |
| Standby Pressure | **23 bar +/- 1** ( **334 psi +/- 14.5**) |
| Maximum System Pressure | **210 bar +/- 5** ( **3045 psi +/- 72.5**) |
| Spike Clipper Relief Valve | **245 bar +/- 5** ( **3553 psi +/- 72.5**) |
| Peak Pressure | **315 bar** (**4568 psi**) |

# Hydraulic pump Variable displacement pump - Torque

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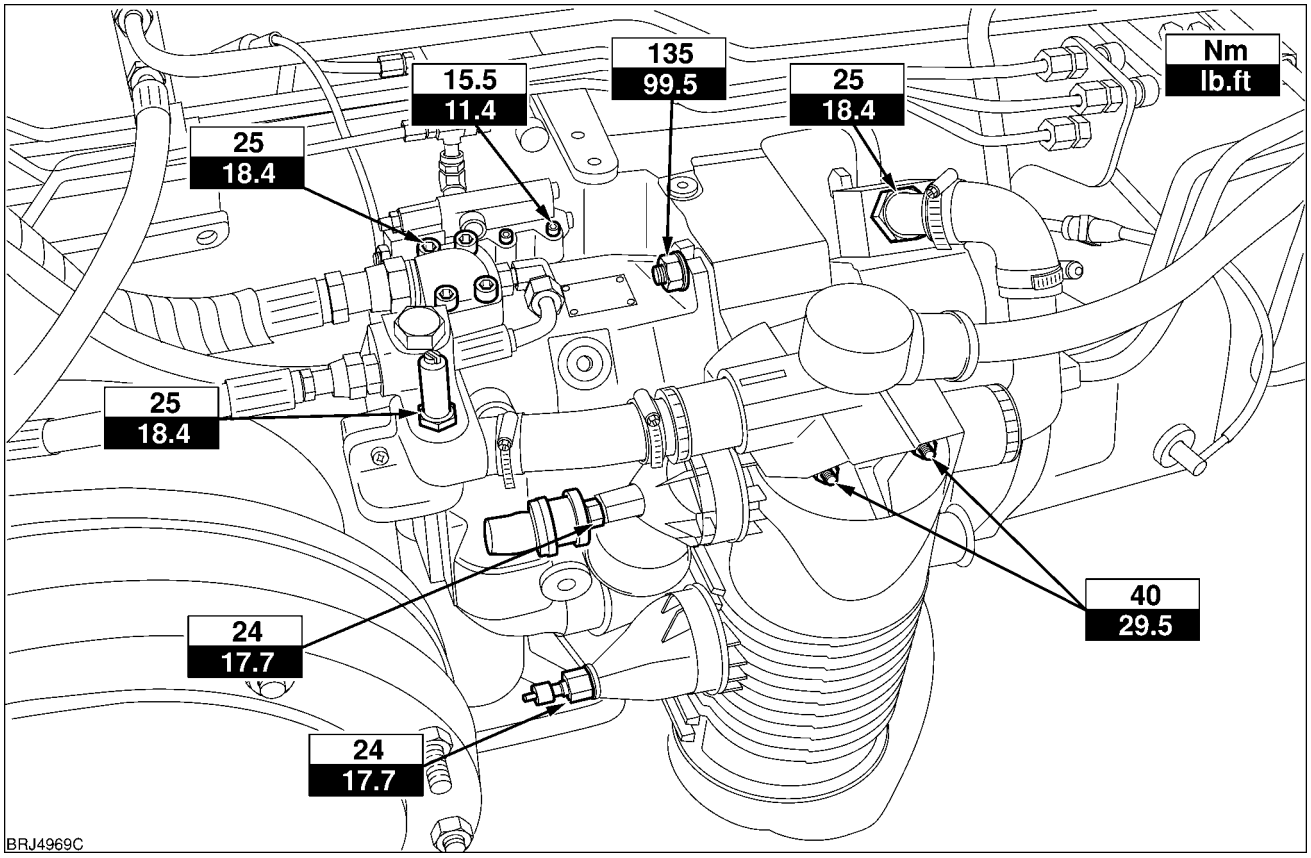
Nm
lb.ft
15.5
11.4
135
99.5
25
18.4
25
18.4
25
18.4
40
29.5
24
17.7
24
17.7
BRJ4969C

BRJ4969C 2

# PRIMARY HYDRAULIC POWER SYSTEM - Static description

The hydraulic systems can be separated into the following circuits:-

## High Pressure Circuit

Hydraulic Lift Assembly.
Remote Control Valves.
Trailer Brake (Where Fitted)
Suspended Front Axle.
Front Lift (Where fitted).

## Steering Circuit

Steering Motor and Cylinders

## Low Pressure Circuit

Independent Power Take Off (PTO).
Differential Lock
Front Wheel Drive engagement
Transmission clutch and synchroniser engagement
Creeper engagement (Where fitted)
Front PTO (Where fitted)
**50 kph** engagement (Where fitted)

## Lubrication Circuit

PTO Clutch Plates
Transmission Clutch Plates.
Transmission Shaft Pressure Lube
Pump Drive Gear Bearing.
Hydraulic Lift Cross Shaft
The high pressure circuit is of the 'Closed Centre Load Sensing' design on all tractor model options fed by either a Variable Displacement Pump or a Fixed Displacement Pump.
The steering, low pressure and lubrication circuits are fed by a separate fixed displacement pump via a solenoid activated lubrication block..

| Hydraulic Pump/ HPL/ Remote Valve Options | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less Hydraulic Trailer Brakes | | | | | | | | With Hydraulic Trailer Brakes | | | | | | | | Hydraulic Trailer Brake Italy | | | | | | | |
| | Fixed Disp. | | | | Variable Disp. | | | | Fixed Disp. | | | | Variable Disp. | | | | Fixed Disp. | | | | Variable Disp. | | | |
| | MDC | | EDC | | MDC | | EDC | | MDC | | EDC | | MDC | | EDC | | MDC | | EDC | | MDC | | EDC | |
| Remotes | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 |
| 24 x 24 | Y | Y | Y | Y | | | Y | Y | Y | Y | Y | Y | | | Y | Y | Y | Y | Y | Y | | | Y | Y |
| 16 x 16 | | | | | Y | Y | Y | Y | | | | | Y | Y | Y | Y | | | | | Y | Y | Y | Y |

Before commencing work on a tractor it is important to identify if the tractor has a variable displacement pump or fixed displacement pumps and the type of transmission.
Figure **1** shows the variable displacement pump with a 16 x 16 Transmission.

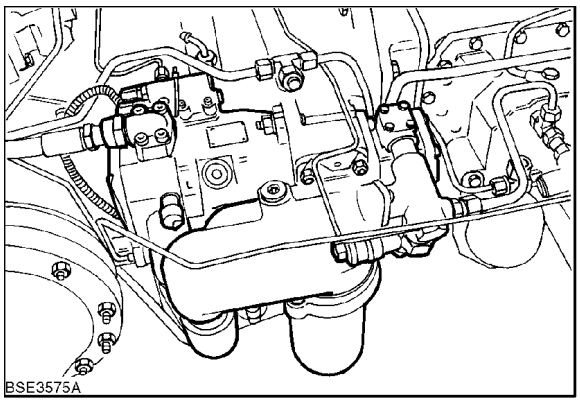


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Figure **2** shows the variable displacement pump with a 16 x 16 Transmission and ARGO hydraulic oil filter fitted to later models..

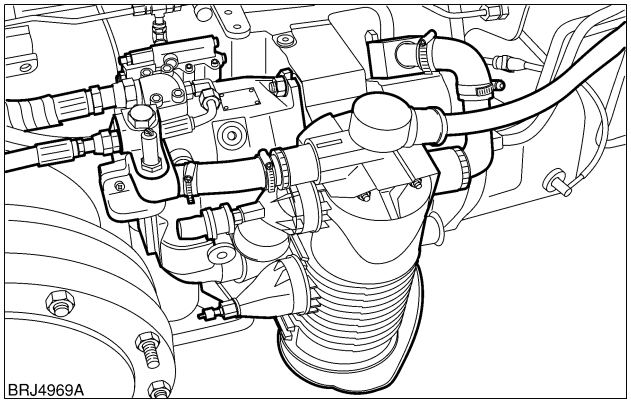


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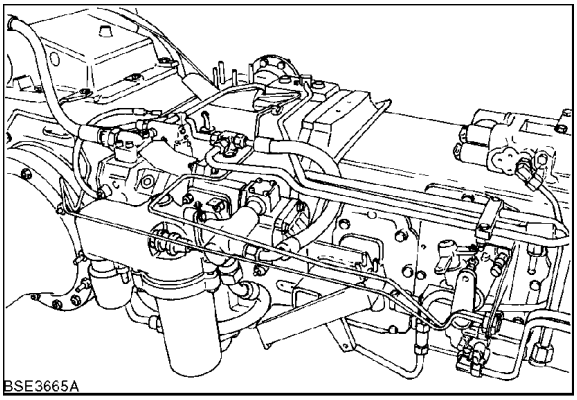
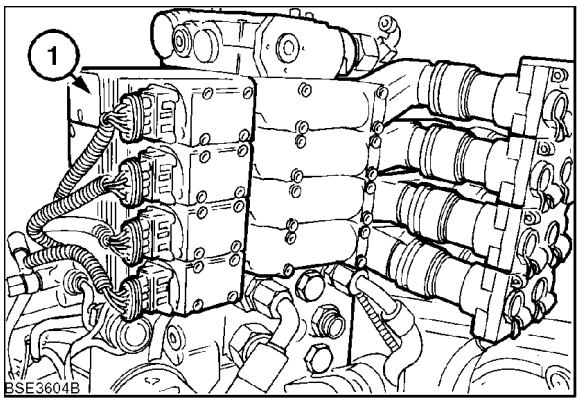
Figure **3** shows the fixed displacement pump with a 24 x 24 Transmission.




BSE3665A 3

Closed centre remote valves **(1)** and Electronic draft control .

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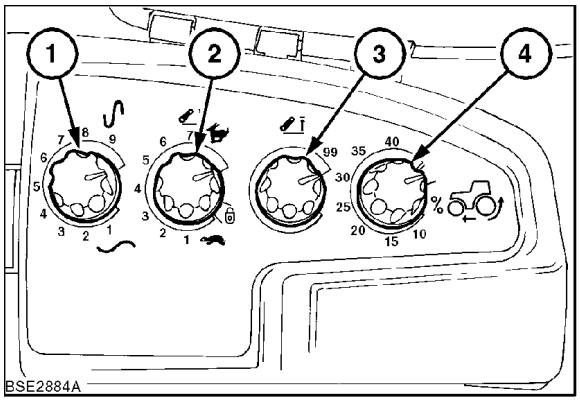
Tractors installed with the electronic draft control hydraulic lift assembly use a unique operator control panel.
**(1)**. Draft sensitivity control knob

**(2)**. Drop rate control knob
**(3)**. Height limit control knob
**(4)**. Slip limit control knob

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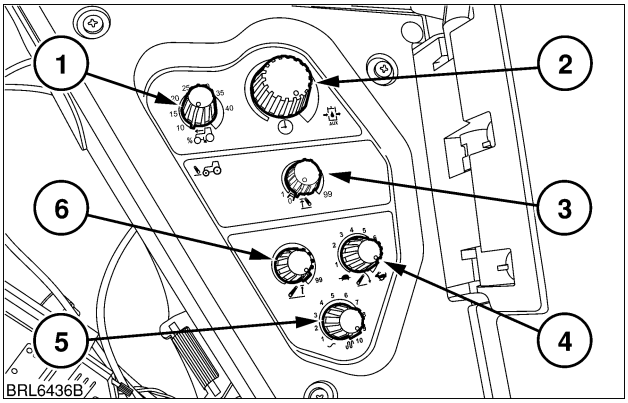
Profi Models from Z9BF60001-

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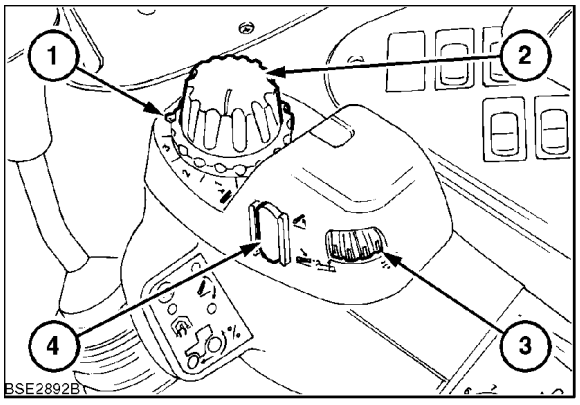
The lift arm position control is unique to tractors with electronic draft control.
Tractors with 24 x of 24 transmissions

.

**(1)**. Stop adjuster thumbwheel
**(2)**. Stop
**(3)**. Position control lever
**(4)**. Draft loading wheel
**(5)**. Raise/lower switch

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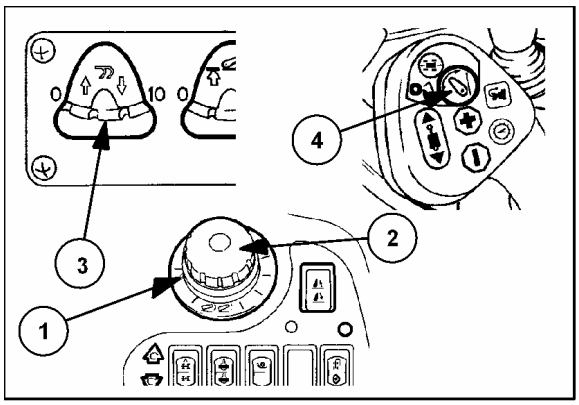
Tractors with 16 x of 16 transmissions
**(1)**. Stop adjuster thumbwheel
**(2)**. Stop
**(3)**. adjusting wheel of the traction power regulation
**(4)**. transport rule tracer

.

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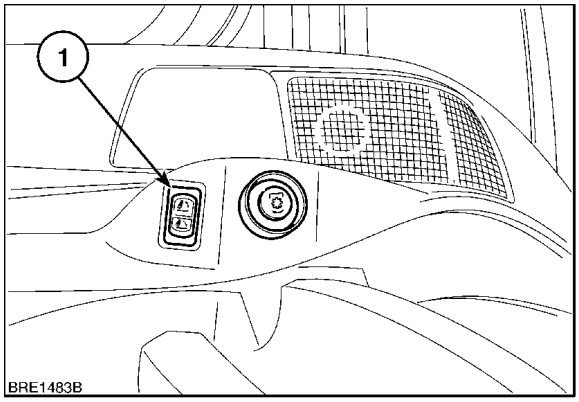
The raise and lowering functions of the electronic draft control lift system can also be operated from the rear fender switch **(1)**.

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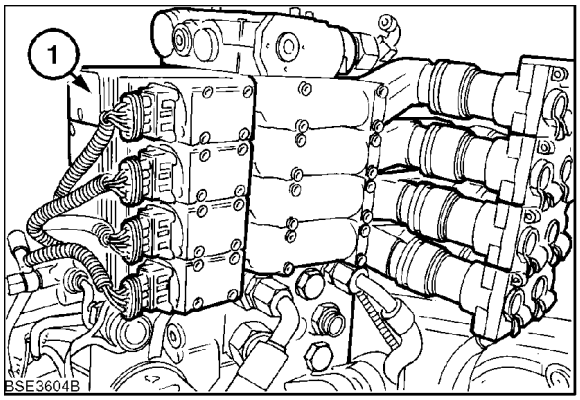
The closed centre model tractors can also have electro-hydraulic remote valves **(1)**.

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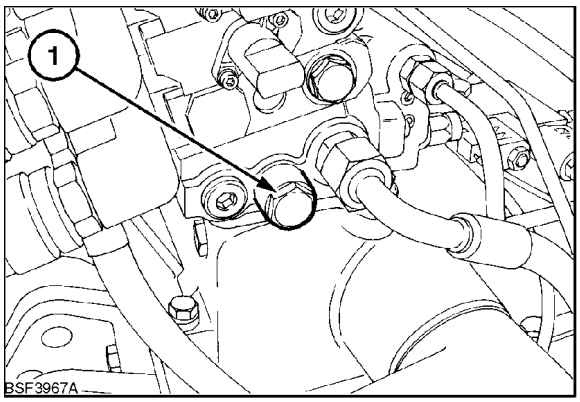
Located below the Electronic Draft Control valve (Where fitted), is the Hydraulic Power Tapping port (Power Beyond) block. This includes a priority valve **(1)** and also a low pressure regulating valve. This block also has a flange plate which allows the addition of a trailer brake valve.

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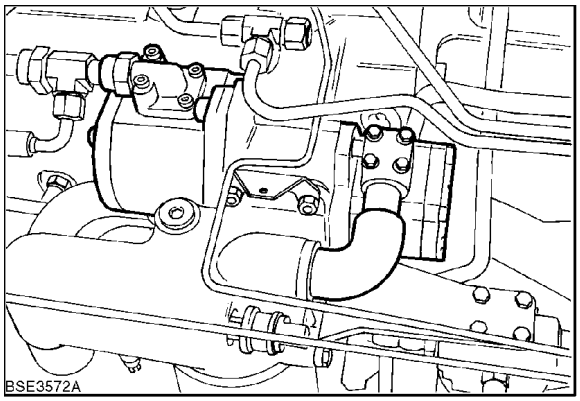
Fixed Displacement high pressure hydraulic systems can be identified from the following:-
Fixed displacement pump.

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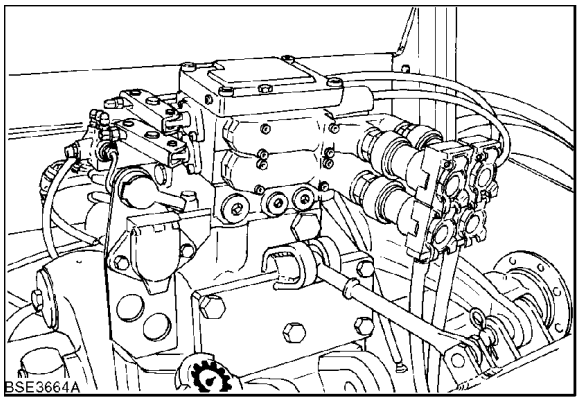
Mechanical remote control valves

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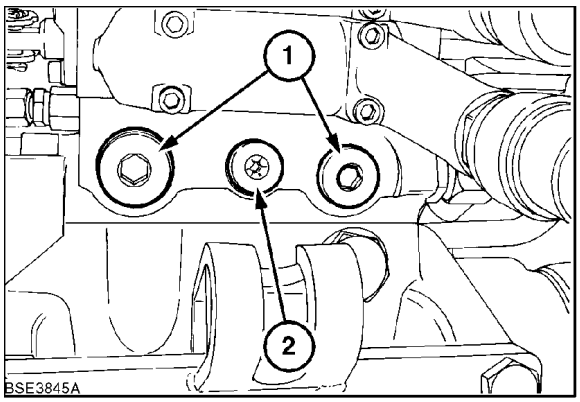
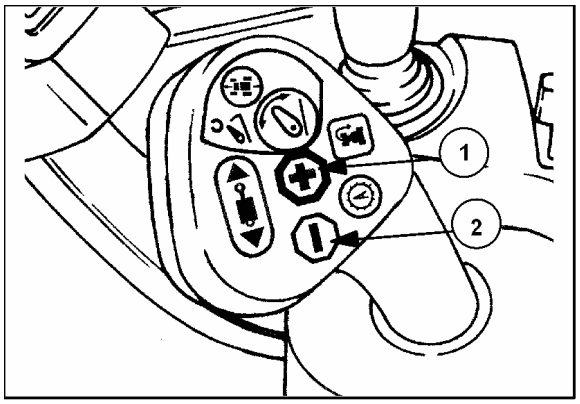
Located below the Electronic Draft Control valve (Where fitted), is the Hydraulic Power Tapping port (Power Beyond) block. This includes a priority valve and also a low pressure regulating valve. This block also has a flange plate which allows the addition of a trailer brake valve.

1. Power Beyond Ports
2. Pressure Relief Valve




BSE3845A 14

The type of transmission installed can be identified by inspecting the transmission control lever.
For tractors with 16 x 16 gearbox the key + for shift up **(1)** and the key - for shift down, are positioned on the multi controller.
This design is only existing at closed circuit hydraulic systems.

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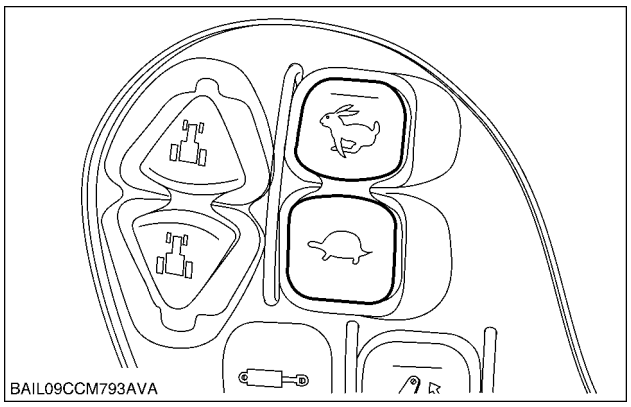
Models with armrest unit from Serial No Z9BF60001-

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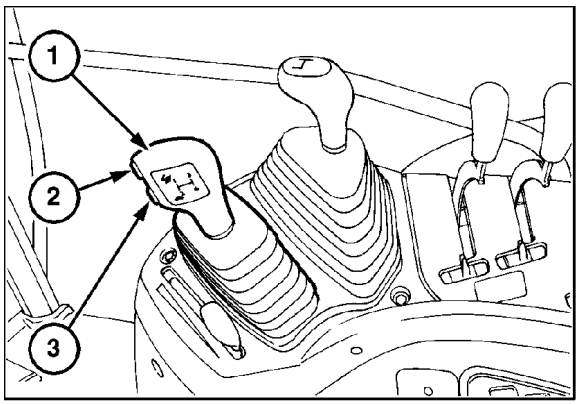
Tractors installed with 24 x 24 transmission uses two control levers. The main transmission lever **(1)** is provided with push buttons **(2)** and **(3)** to actuate the Dual Command function.
These tractors can use either variable displacement pump or a fixed displacement pump.

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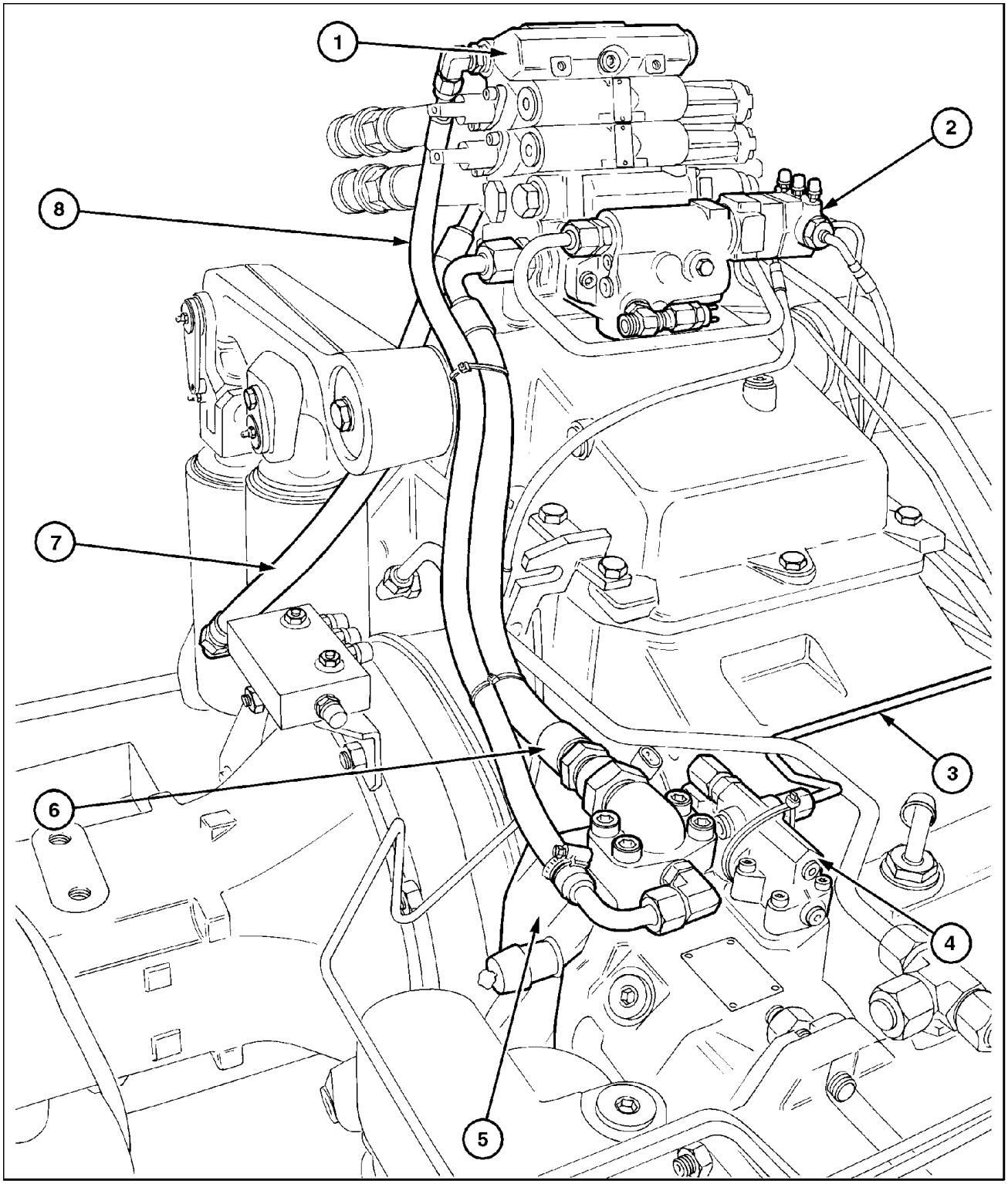
## CLOSED CENTRE LOAD SENSING HIGH PRESSURE HYDRAULIC CIRCUIT

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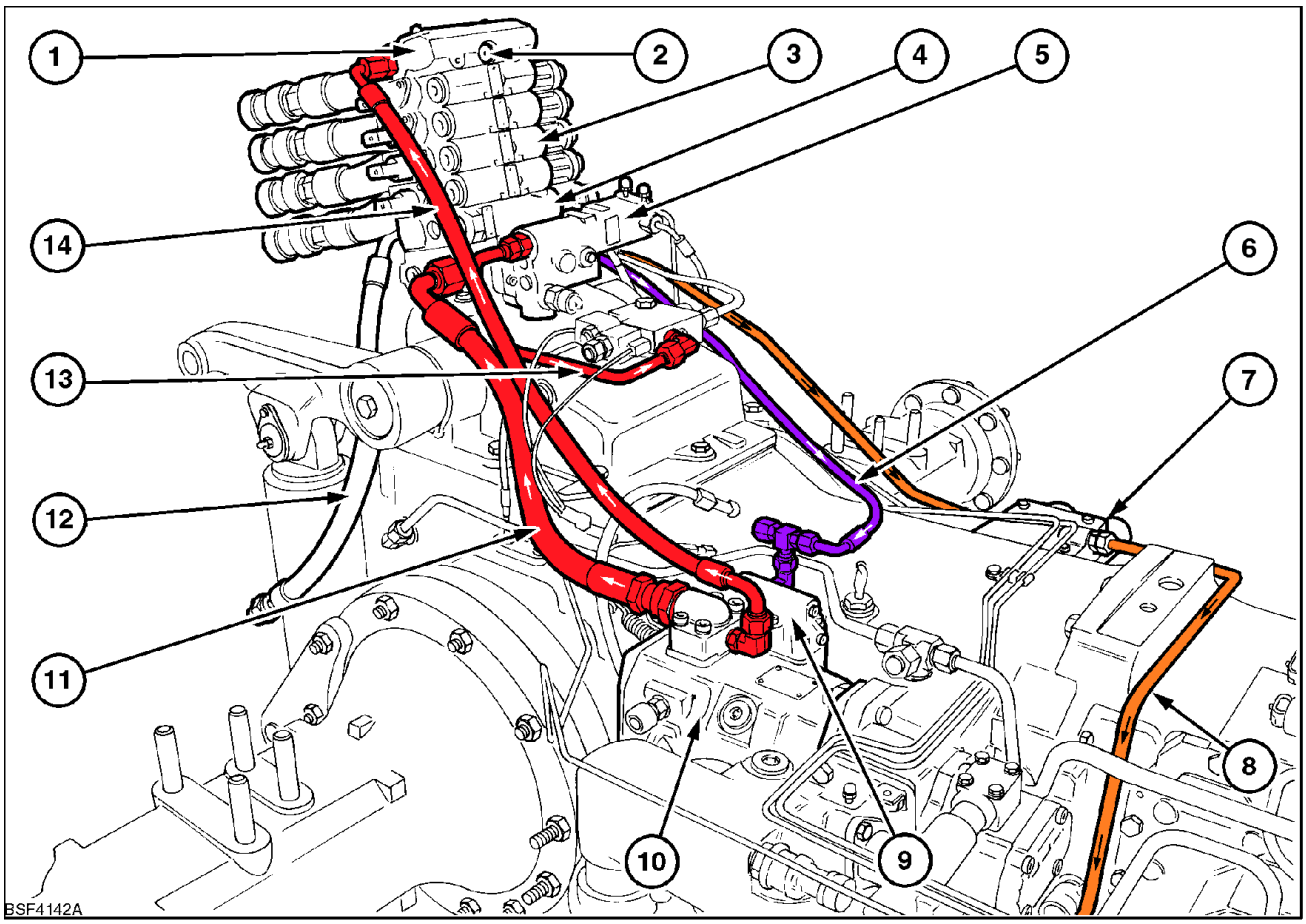
**High Pressure Circuit Components and Pipework**
**Tractors with Variable Flow Piston Pump**

1 Remote and EDC Control Valves
2 Trailer Brake Valve
3 Load Sense Lines
4 Flow and Pressure Compensator Valve
5 Variable Flow Hydraulic Pump
6 Feed to Remote Valves
7 To Hydraulic Lift Ram
8 Feed to Electro-Hydraulic Valve Pilot Line

The principal of operation of the closed centre load sensing high pressure hydraulic circuit with variable flow piston pump is to supply oil flow on demand. It also enables simultaneous operation of the trailer brakes, hydraulic lift, remote control valve assemblies and front axle suspension where fitted. The load sensing variable flow piston pump offers significant benefits in reducing the engine power loss that occurs in open centre systems where a high volume of oil, often far in excess of demand, is continuously pumped round the hydraulic circuit even when they are not being operated.

A fixed displacement pump (Charge Pump) serves as an initial displacement pump for the variable displacement pump . The variable displacement pump first of all supplies oil to the trailer brake valve (where fitted), the remote valves and electronic draft control valve and a pilot oil supply with lower priority. The highest load pressure is indicated to the flow and compensating valve on the pump via the load sensing line. The flow and compensator valve controls the pump pressure in such a way that it always exceeds the highest load pressure by a pre-set difference. A priority valve for low pressure circuit demand is located in the bottom subplate of the remote valve stack. Tractors fitted with Electro-hydraulic remote valves also have high pressure oil supplied from the variable displacement pump to the top plate of the remote valve stack. The oil passes through the top plate via a small filter and a pressure limiting valve ( **20 - 22 Bar**). The oil is then directed to the pilot oil supply of the electro-hydraulic control valve.

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**High Pressure Circuit Components and Pipework**
**Tractors with Variable Flow Piston Pump**

1 End Plate
2 Load Sensing port for Mid Mount Valve
3 Electro-Hydraulic Remote Valves
4 Electronic Draft Control Valve
5 Trailer Brake Valve (Where Fitted)
6 Load Sensing Line
7 Low Pressure Circuit Distribution Manifold
8 Low Pressure Feed
9 Flow and Pressure Compensator Valve
10 Variable Displacement Pump
11 High Pressure Feed to Electro-Hydraulic Remote Valves
12 Feed To Hydraulic Lift Cylinder
13 Feed to Italian type trailer brake solenoids
14 High Pressure Feed to Electro-Hydraulic Valve Pilot Line

The high pressure circuit is illustrated in **PRIMARY HYDRAULIC POWER SYSTEM - Overview (A.10.A)**. Hydraulic pump assembly.

Figure **20** shows the variable displacement pump assembly.
Integral with the high pressure variable displacement pump is the load sensing valve, containing the pressure and flow compensating valves, the steering pump , the charge pressure and main system filters and various electrical switches.

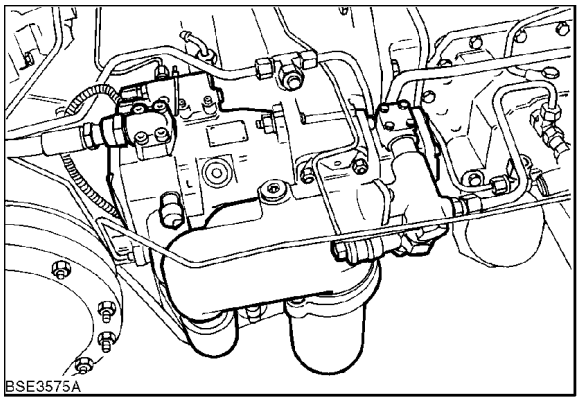


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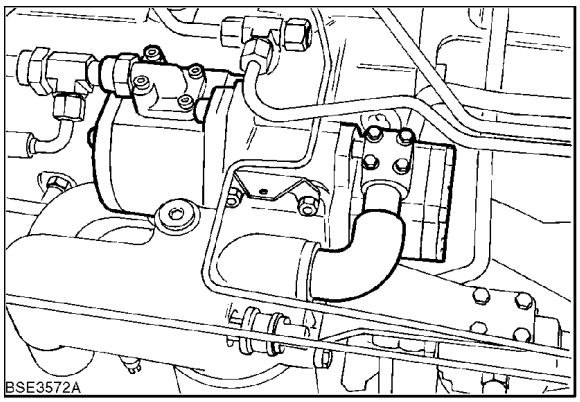
Figure **21** shows the fixed displacement pump assembly.

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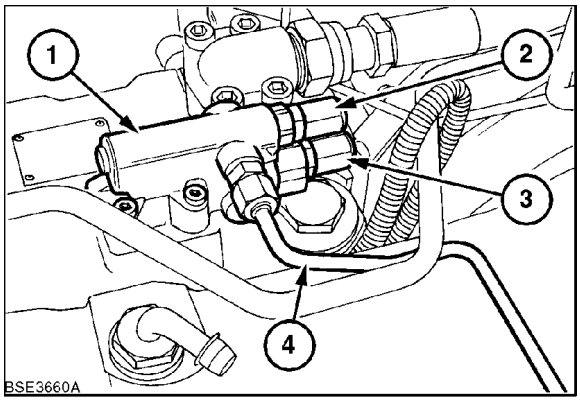
Load sensing valve assembly (1), consists of a flow compensating valve **(2)** and a high pressure control valve **(3)**. The load sensing valve receives hydraulic signals from operated components through the load sense line **(4)** and relays this to the pump which will adjust to satisfy the system demands.
Figure **22** shows the load sense valve assembly.

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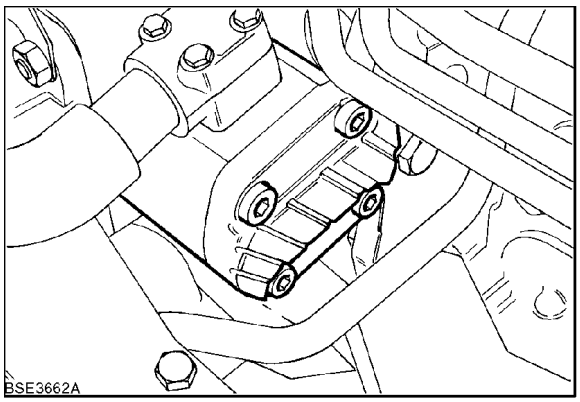
Steering pump,
The steering pump is a separate unit but still driven from the same drive gear as the main pump.

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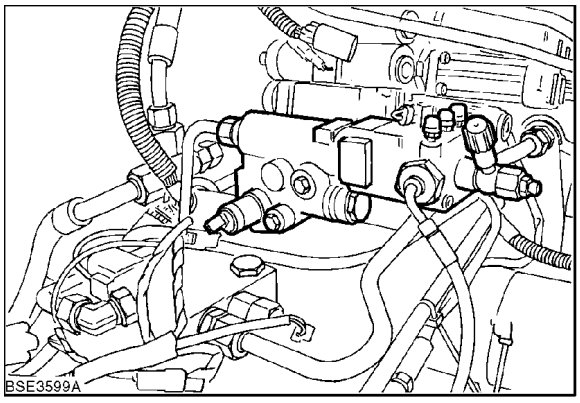
Trailer brake valve which is located beneath the cab just in front of the hydraulic lift assembly. The valve diverts oil pressure to the trailer brakes whenever both tractor brake pedals are depressed.

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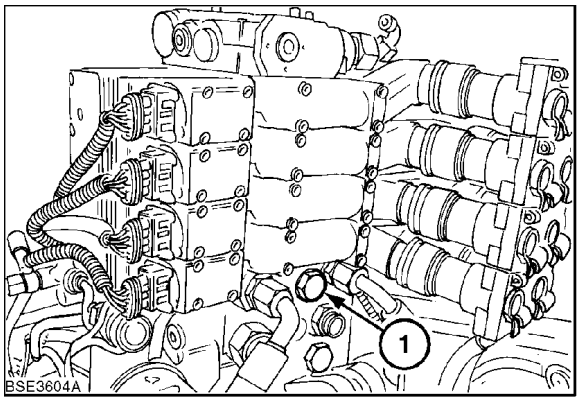
The hydraulic lift Electronic Draft Control Valve is a stack type design mounted together with the Remote Control Valves **(1)** at the rear below the cab, and incorporates the safety valve for the lift cylinders

The lift cylinder safety valve protects the lift cylinder from shock loadings and limits the pressure in the cylinder to **210 - 215 bar**

The hydraulic lift control valve is a proportional solenoid operated valve, controlled by a microprocessor, to raise and lower the hydraulic lift.

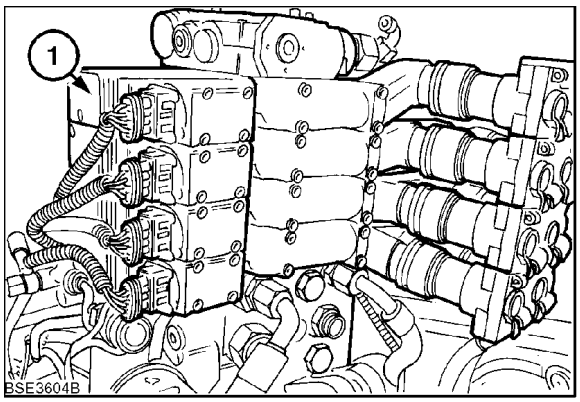



BSE3604A 25

Closed centre load sensing remote control valves

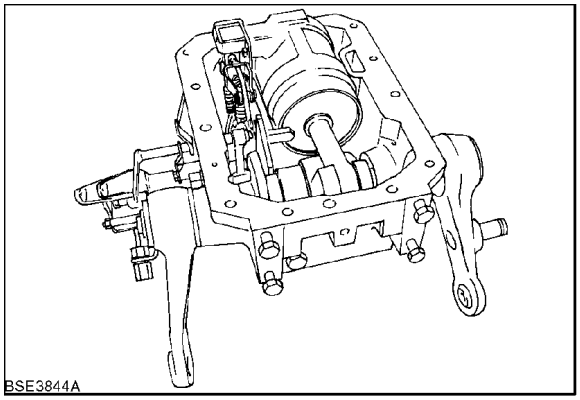
There are two types of remote valves available for the closed centre system. Standard fitment are the mechanical remote valves operated via a cable from within the cab and optional on all 16 x 16 models are electro hydraulically operated valves, **(1)**, Figure **26**, which are operated by electrical switches and have their own in-built processor to control oil flow via a solenoid valve.

Up to four mechanical type valves can be installed.




BSE3604B 26

Hydraulic Lift Cylinders.
Models with mechanical draft control utilize a main lift cylinder which is located internally within the rear axle top cover and also one or two **50 mm** external cylinders depending on specification , Figure **27**.

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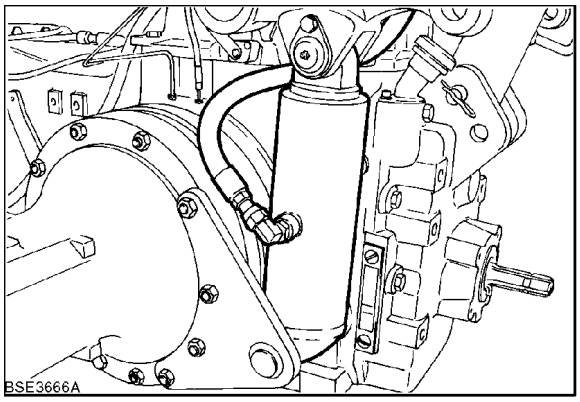
Models with electronic draft control utilize two external cylinders, one per lift arm, anchored to the rear axle with a bracket, Figure **28**.

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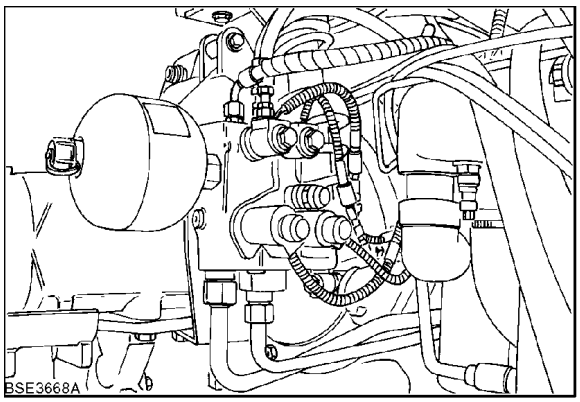
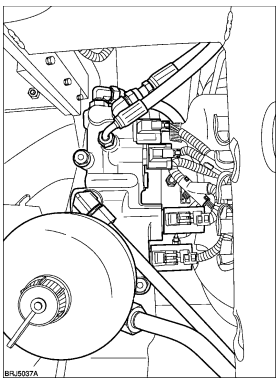
Suspended front axle control valve.
Located on the right hand side of the tractor and attached to the rear axle centre housing. Receives high pressure oil, via the trailer brake valve, if fitted, and with the use of processor controlled PWM valves controls oil to a cylinder, attached between the front axle and front support, to provide a hydraulically controlled suspended front axle.




BSE3668A 29

Models with armrest unit from Serial No Z9BF60001

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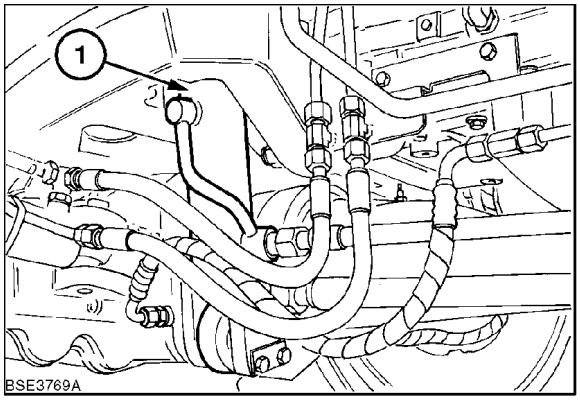
Front axle to front support hydraulic control cylinder **(1)**.




BSE3769A 31

Hydraulic system filters.

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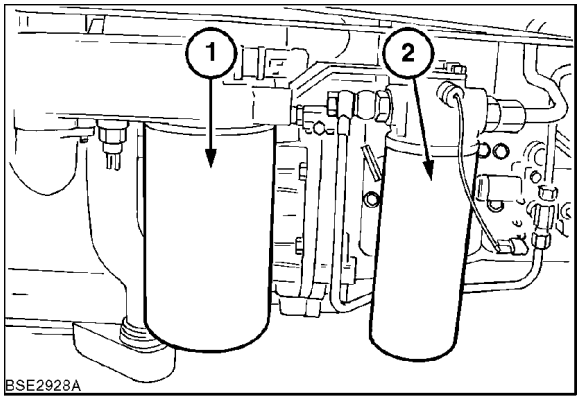
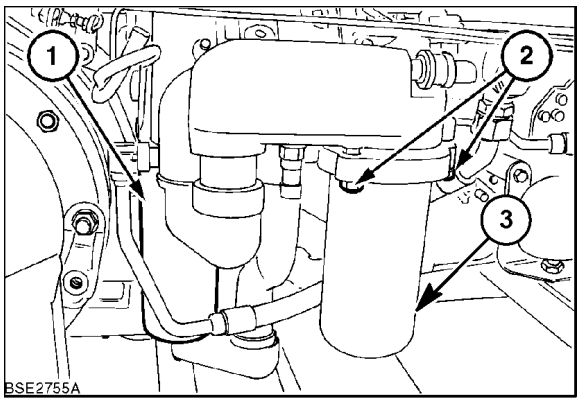
Figure **32** shows the main hydraulic filters for tractors with fixed displacement hydraulic pump. this type of pump is only fitted to tractors with 24 x 24 with mechanical draft control.




BSE2928A 32

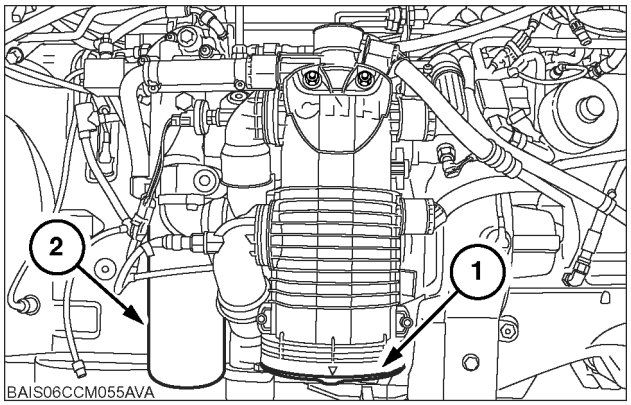
1. Intake Filter
2. Transmission Feed Pressure Filter

The main filter **(3)** and the charge filter **(1)** Figure **33** are only installed on tractors with variable displacement pump (CCLS system).




BSE2755A 33

The main filter **(1)** and the charge filter **(2)** Figure **27** are installed on tractors with variable displacement pump (CCLS system).

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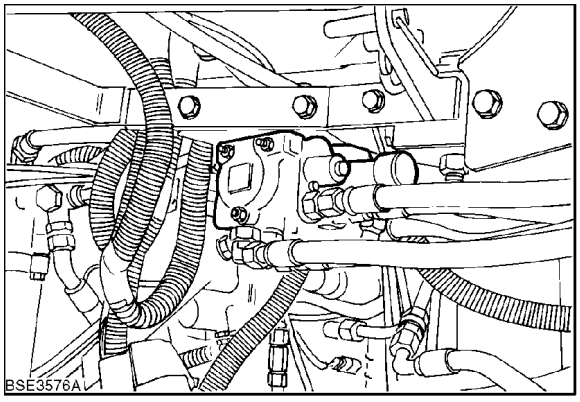
1. Main Intake (Suction) Filter
2. Charge Filter

Mid-Mount Remote Valves.
Optional additional remote valves are mounted under the cab. Connected into the high pressure oil line supplied from the hydraulic pump after the trailer brake valve and operated via a joystick control in the cab.

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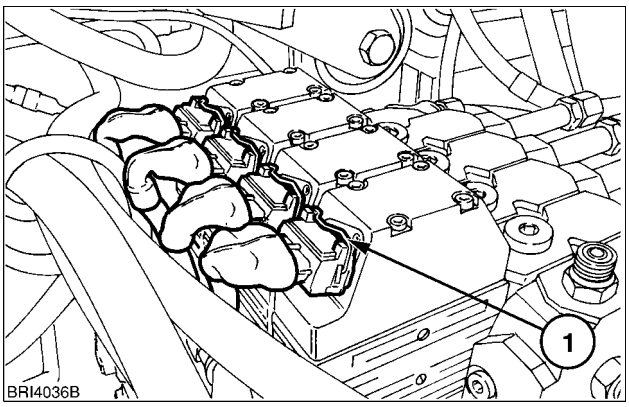
Models with armrest unit from Serial No Z9BF60001

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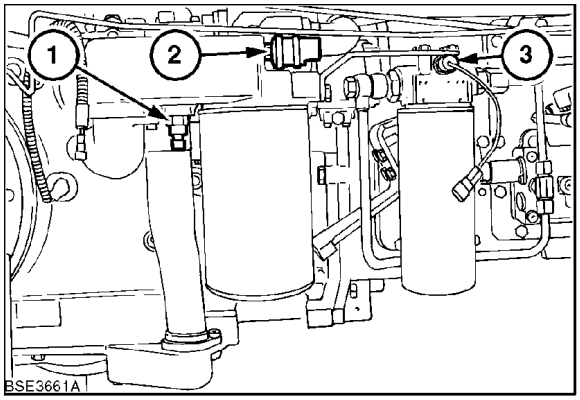
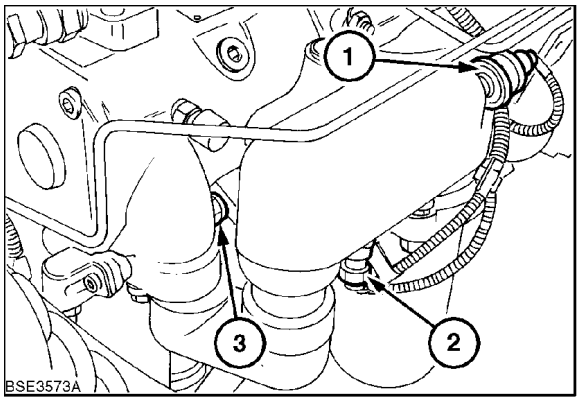
High Pressure Hydraulic System, Fixed Displacement Pump - Electrical Switches




BSE3661A 37

1. Oil Temperature Switch
2. Intake Filter restriction (vacuum) Switch
3. Steering Pressure Switch

## High Pressure Hydraulic System, Variable Displacement Pump(CCLS) - Electrical Switches




BSE3573A 38

1. Intake Filter restriction (vacuum) Switch
2. Low Oil Temperature Switch
3. Low Charge Pressure Warning Switch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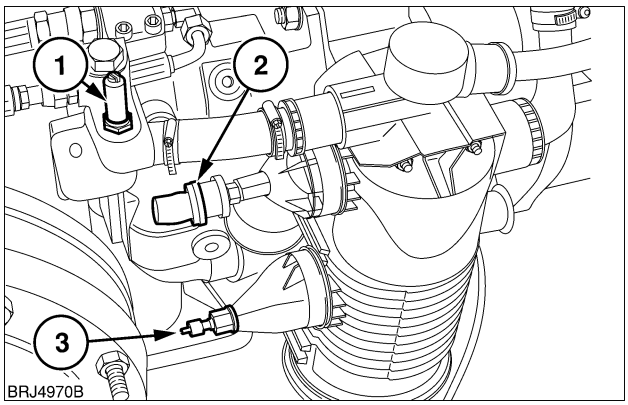
first, and then click the above link

to download the complete manual.

Thank you so much for reading

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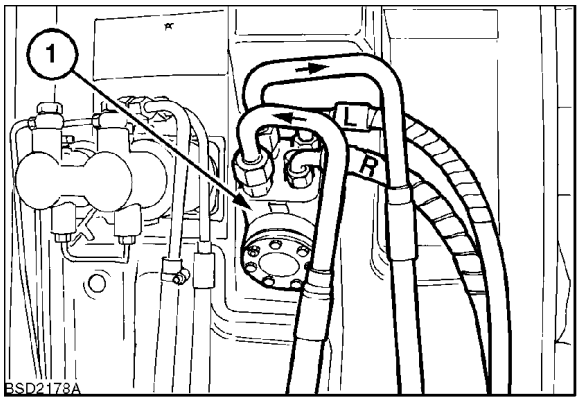
1. Low Charge Pressure Warning Switch
2. Intake Filter restriction (vacuum) Switch
3. Low Oil Temperature Switch

## Steering Motor

All models use a fixed displacement motor.

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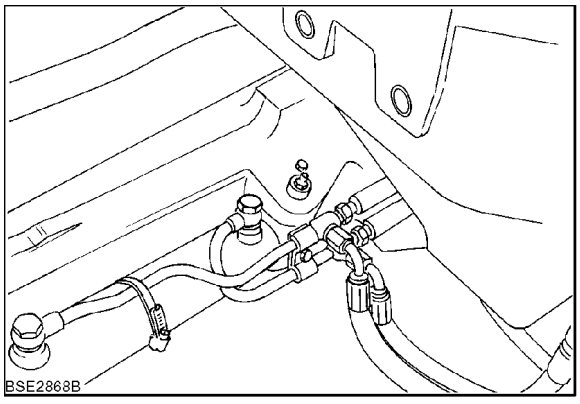
Steering Cylinders.
Receives high pressure oil directly from the steering motor.




BSE2868B 41

Load Sensing Shuttle Valve.
Located in each remote valve slice, the Electronic Draft Control valve and between the trailer brake valve, front suspension valve and mid-mounted valves, where fitted, is the load sensing shuttle valve **(2)**. This allows the function with the highest pressure demand to send sensing pressure to the load sensing valve, Figure **43**, on the variable displacement pump.