# SPECIFICATIONS

| Model | | V420 / 4200V |
|---|---|---|
| Engine Make | | Deutz |
| Engine Model | | TCD36 |
| Fuel | | Diesel |

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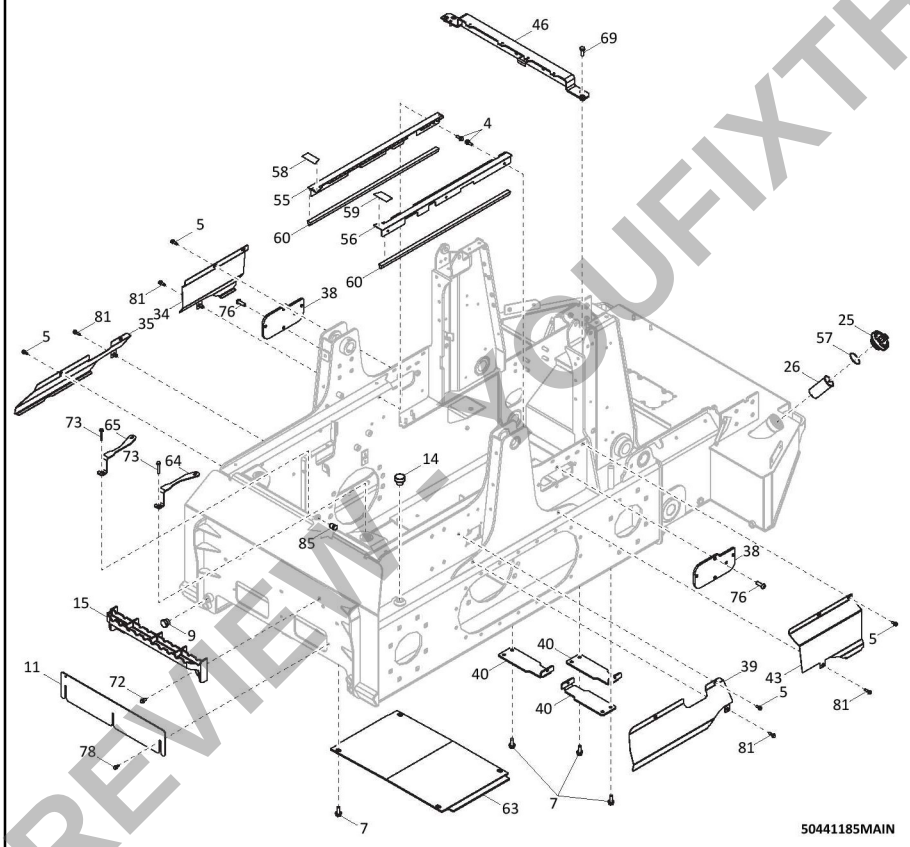
# Introduction

Gehl V420 and Mustang 4200V model skid-steer loaders have a welded steel chassis. Maintenance, service and repair may be performed through standard access panels.

Two side chaincases provide mounting for the drive motors and for the front and rear axles. The side cases also serve as sealed housings for the drive chains and sprockets. Oil is used inside these cases to ensure the chains always receive proper lubrication.

The lift arm and the lift and tilt cylinders are mounted with pivot pins. Capscrews are used to secure the pivot pins. A Rollover Protective Structure/Falling Object Protective Structure (ROPS/FOPS) is standard for operator safety, and both the seat and restraint bar include safety interlock switches.

## Mainframe - Chassis Components



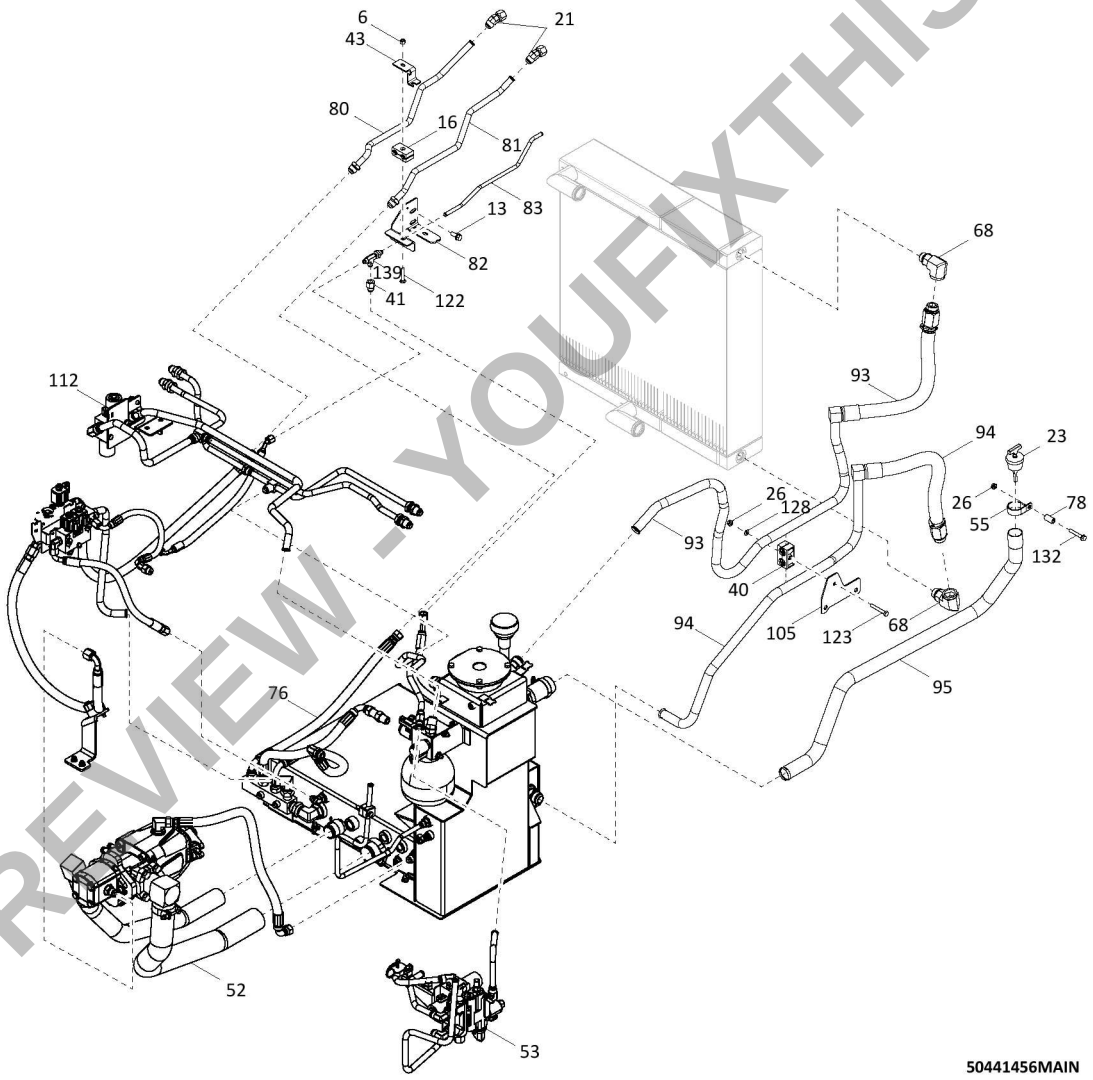

3 LN 5/16 CBZY
4 CS FL LOCK 3/8X1 C5ZY
5 CS FL LOCK 5/16X3/4 C5ZY
7 CS FL LOCK 1/2X1-1/4 C5ZY
9 PLUG MORB12
11 COVER/TOEPLATE
14 BREATHER/ 3/4"NPT
15 WLDMT/STEP
25 CAP/FUEL FILLER
26 STRAINER/FUEL
34 ASSY/COVER/REAR RH
35 ASSY/COVER/FRONT RH
38 COVER/CHASSIS
39 ASSY/COVER/FRONT LH
40 COVER/FLOOR PLATE
43 ASSY/COVER/REAR LH
46 BRACE/TOWER
55 WLDMT/SEAL/RT
56 WLMT/SEAL/LEFT
57 SECTION/RETAINING RING
58 SEAL/PAD
59 SEAL/PAD
60 SEAL/CHASSIS
63 PLATE/FLOOR
64 HOLD DOWN/BATTERY LH
65 HOLD DOWN/BATTERY RH
69 CS 1/2X1-1/4 C5ZY
72 HWHMS 3/8X3/4 C2ZY
73 CS FL 5/16X2 C8ZY
76 BHSCS 1/2X 1-1/2 C8 OCB
78 HWHTRS TAP/R 5/16X3/4 CZY
81 CS FL 5/16X1 C5ZY
85 PLUG MP08

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## Hydraulics - Standard Chassis Components

| | | | | | |
|---|---|---|---|---|---|
| 6 | HLN INST 5/16 CZY | 53 | VALVE/SELF LEVEL | 94 | HOSE/TUBE -16/-16 |
| 13 | CS FL LOCK 3/8X1 C5ZY | 55 | CLAMP/HOSE 1.56X.41 | 95 | TUBE/HYD -24 FILL NECK |
| 16 | CLAMP/TUBE .62 TWIN | 68 | 90 MAORB12-FORB16 | 105 | PLATE/MOUNT/TUBE |
| 21 | 45 MJ10-FJS10 | 76 | HOSE/HYD -10 X 25.25IN | 112 | VALVE/SOLENOID |
| 23 | CAP/HYD RESERVOIR | 78 | SPACER/.63X.083X1.14 | 122 | CB 5/16X1-3/4 C5ZY |
| 26 | LN FL SPIRALOCK 5/16 | 80 | TUBE/HYD -10 | 123 | CS 5/16X2-1/4 C5ZY |
| 40 | CLAMP/TUBE 1.00 TWIN | 81 | TUBE/HYD -10 | 128 | FW 5/16 ANZY |
| 41 | REDUCER FJ06-MJ08 | 82 | BRKT/HOSE | 132 | CS FL 5/16X2 C8ZY |
| 43 | BRKT/HARNESS | 83 | TUBE/HYD -06 | 139 | TEE BLKHD RUN |
| 52 | HOSE/SUCTION/MOLDED | 93 | HOSE/TUBE/COOLER | | |

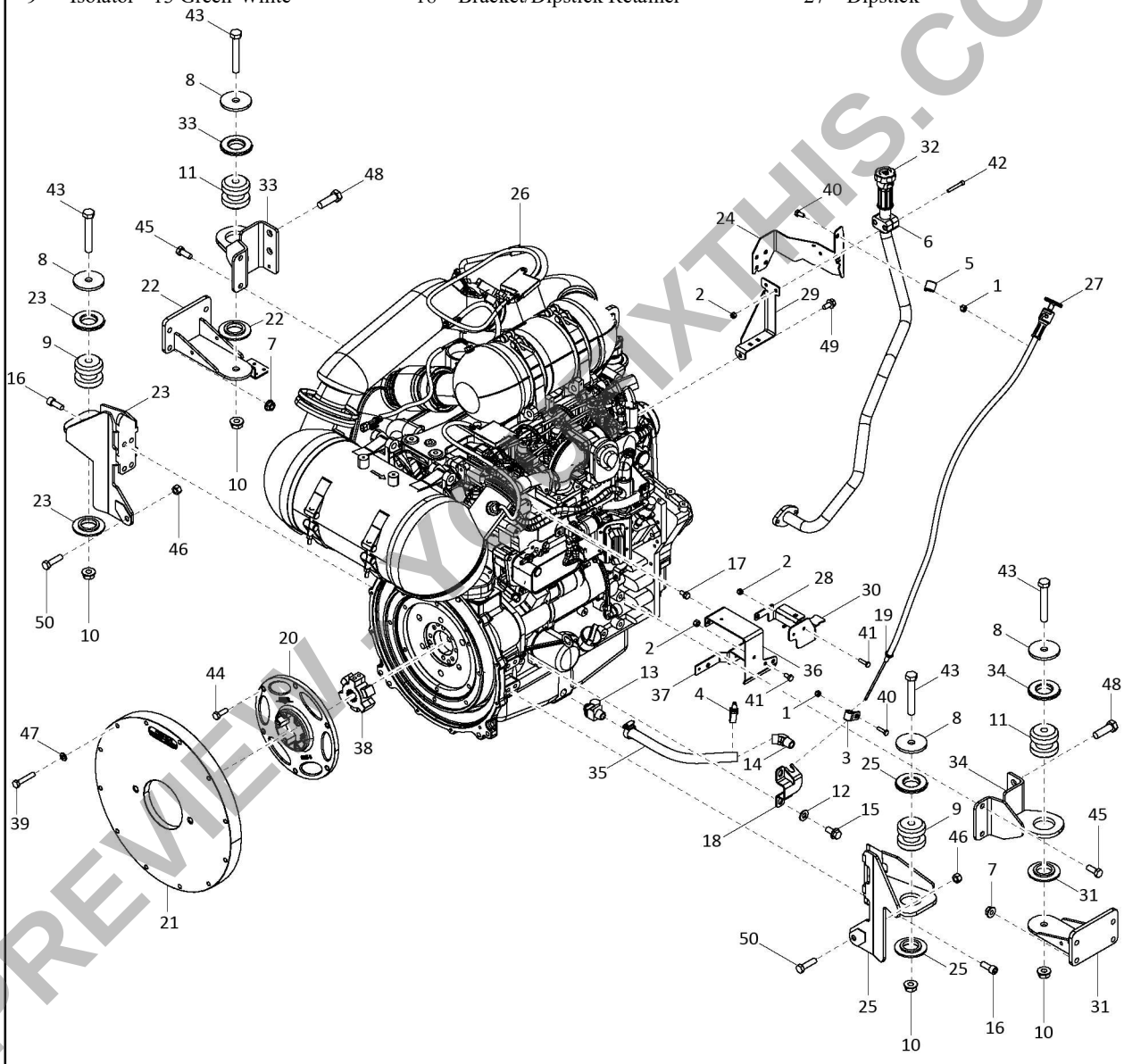



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## Engine Components

| | | | | | |
|---|---|---|---|---|---|
| 1 | HLN INST 5/16 CZY | 10 | LN FL SPIRALOCK 5/8 CZY | 19 | Washer/Sealing |
| 2 | HLN INST 1/4 CZY | 11 | Isolator -11 Red-White | 20 | Plate/Coupler/C-080 |
| 3 | Clamp/Hose .50 x .41 Hole | 12 | FW 1/2 HT ZY | 21 | Plate/Mtg/Pump |
| 4 | Clamp/Hose #10 | 13 | Valve/Drain/M18x1.5 | 22 | Wldmt/Mount/Eng |
| 5 | Clamp/Hose .69 x .41 Hole | 14 | 45 HB10-MP08 | 23 | Wldmt/Motor/Mnt/Front |
| 6 | Clamp/Tube 1.00 | 15 | CS FLH M12-1.75x25 C10.9 ZY SP | 24 | Plate/Mnt/Fill/Oil |
| 7 | LN FL SPIRALOCK 1/2 CZY | 16 | SHCS M12-1.75x30 C10.9OCG SP | 25 | Wldmt/Motor/Mnt/Front Lf |
| 8 | Washer ZY | 17 | CS FL LOCK M8-1.25x16 C8.8 ZY | 26 | Eng/090kw/Deutz/Tcd36/T4 |
| 9 | Isolator -13 Green-White | 18 | Bracket/Dipstick Retainer | 27 | Dipstick |



| | | | | | |
|---|---|---|---|---|---|
| 28 | Brkt/Tube | 36 | Brkt/Hose | 44 | CS M10-1.5x30 C10.9 ZY 50441076 |
| 29 | Brace/Fill/Oil | 37 | Brkt/Hose | 45 | CS M12-1.75x30 C10.9 ZY |
| 30 | Brkt/Tubes | 38 | Coupler/Splined | 46 | HN M12-1.75 C10 ZY |
| 31 | Wldmt/Mount/Eng | 39 | CS M10-1.5x55 C10.9 Z | 47 | FW M10.5x20x2.0 ZB Hardened |
| 32 | Fill/Oil | 40 | CS 5/16x5/8 C5ZY | 48 | CS M16-2x50 C8.8 ZY |
| 33 | Assy/Mount/Rt | 41 | CS 1/4x1 C5ZY | 49 | CS FL M10-1.50x20 8.8 ZY |
| 34 | Assy/Mount/Left | 42 | SHCS HS 1/4x1-3/4 C | 50 | CS M12-1.75x45 C10.9 ZY |
| 35 | Hose/Drain -10 x13.25 | 43 | CS 5/8x4 C8ZY | | |

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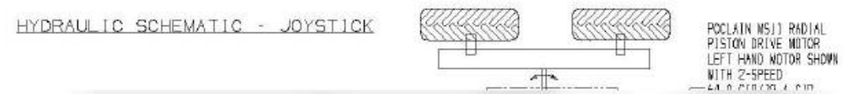
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Hydrostatic/Hydraulic Schematic

V 420 - SCHEMATIC - JOYSTICK

HYDRAULICS







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## Engine Access Cover - Removal and Installation

**WARNING**

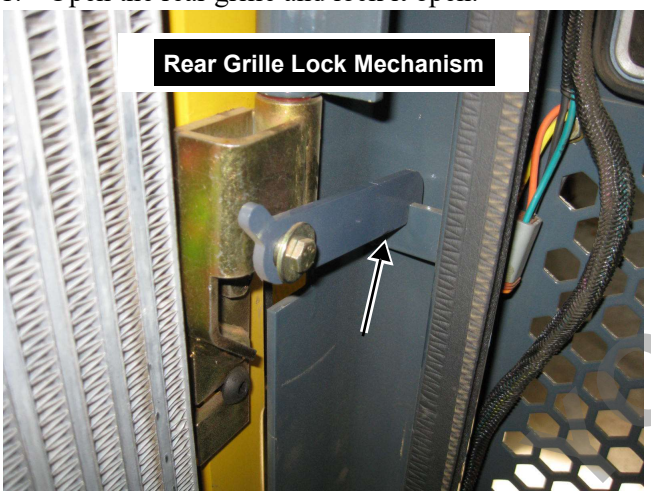
**BEFORE beginning this service procedure, perform the following SAFETY procedure:**

**• Shut off the engine and allow to cool.**

**(For detailed instructions, refer to the *Safety* chapter of this manual.)**

**Removal Procedure**

1. Open the rear grille and lock it open.

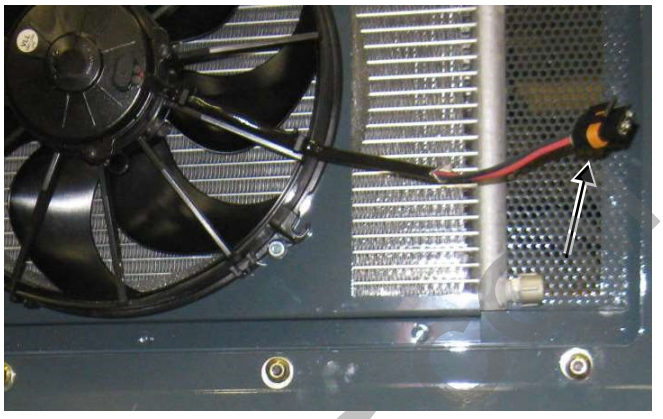



2. Open the engine access cover until the gas spring is completely extended.

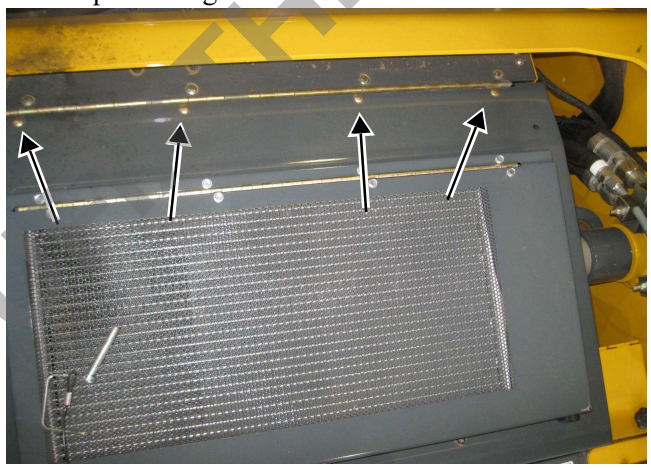
**CAUTION**

**DO NOT remove any air conditioning lines. If the condensor must be removed from the engine cover, the freon must first be evacuated.**

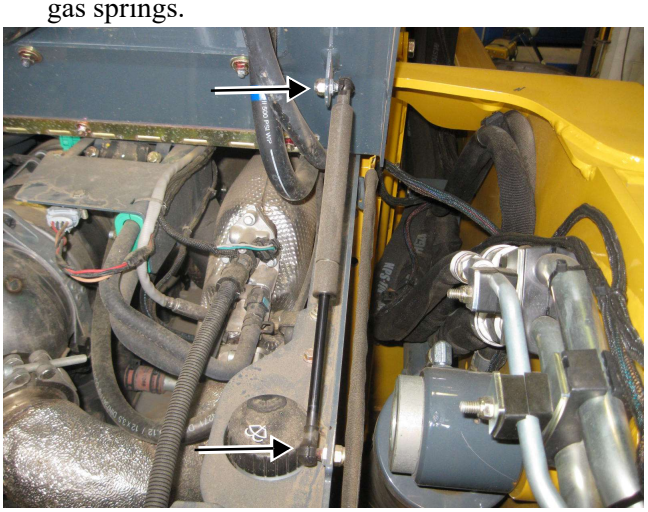
3. If equipped with air conditioning, disconnect the condensor fan electrical connector and lines.



4. Unbolt four carriage bolts and locknuts securing the engine access cover to the top engine cover at the piano hinge.



5. Support the engine access cover and disconnect the two gas springs from the engine access cover by removing the gas spring clips at both ends of the gas springs.



6. Remove the engine access cover.

**Installation Procedure - Follow all warnings first, then reverse the removal steps.**

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## Charge Pressure Test and Adjustment

Gehl V420 and Mustang 4200V model skid-steer loaders have, as standard equipment, two charge pressure test ports as part of the hydrostatic pump system. Before performing the following test, run the skid-steer loader to be sure the hydraulic oil is at normal operating temperature, around 140° F (60° C).

**NOTE:** This test requires a minimum of a 500 psi (34.5 bar) pressure gauge.

**⚠ WARNING**

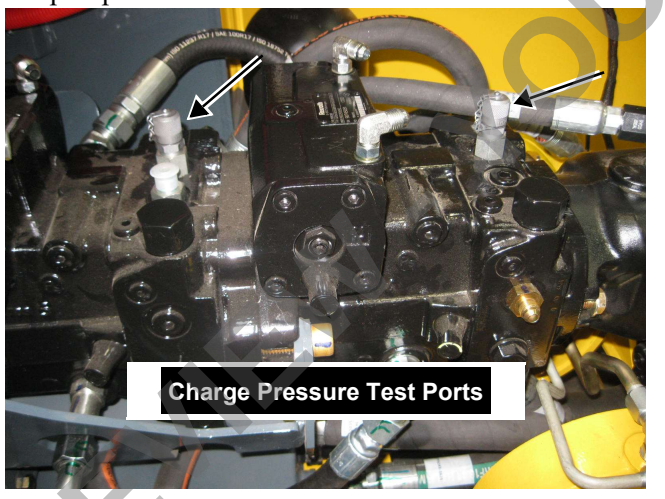
**BEFORE beginning this service procedure, perform the following SAFETY procedures:**

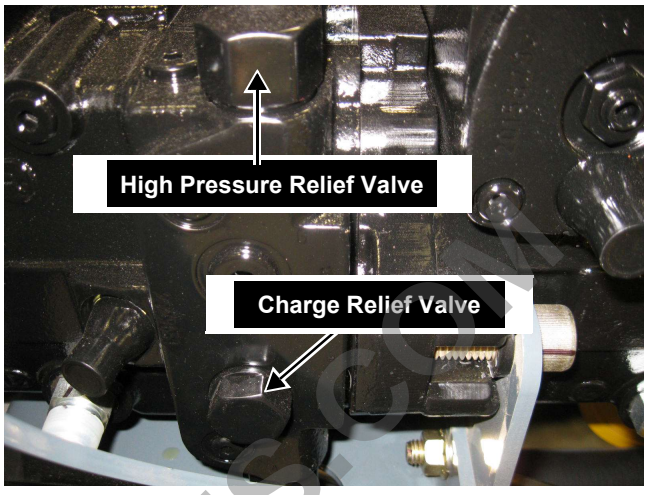
- **Shut off the engine.**
- **Tilt back ROPS/FOPS until lock engages.**

**(For detailed instructions, refer to the *Safety* chapter of this manual.)**

### Test Procedure

1. Locate the two test ports on top of the hydrostatic pump.




2. Remove the metal cap from one of the test ports (ISO 15171-2, coupling with M16x2 end for connections under pressure.)
3. Install a pressure gauge on the charge pressure test port.
4. Restart the engine and allow it to run until the hydraulic oil is at operating temperature, around 140° F (60° C) and check the pressure reading on the gauge. The gauge should read as follows:

   Dual Joystick Controls: 363 psi (25 bar)
5. If the pressure reading on the gauge is either lower or higher than specified, refer to the manufacturer's service manual for the hydrostatic pump, and the charge pressure adjustment procedure that follows.
6. Next, install a pressure gauge on the other charge pressure test port and repeat steps 4 and 5. Both pumps must be checked.
7. When finished, reinstall the metal cap on the test port.

### Adjustment Procedure

Add or remove shims on the charge pressure relief valve (on the hydrostatic pump, see next section) to adjust the charge pressure. Add shims to increase the charge pressure; remove shims to decrease the charge pressure.

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## Engine Diagnostic Fault Codes

| DTC | | | |
|---|---|---|---|
| SPN | FMI | Trouble Code Type | Error Description |
| 29 | 2 | Plausibility Error | Plausibility error between sensor and idle switch; Acceleration pedal detection. |
| 29 | 3 | Short-Circuit Error | Hand throttle idle validation switch; short circuit to battery |
| 29 | 4 | Out-Of-Range/Short Circuit Error | Hand throttle; short circuit to ground |
| 51 | 0 | Out-Of-Range Error | Warning threshold for an internal actuator error exceeded, < 4L EGR.actuator und >4L air intake flap |
| 51 | 1 | Out-Of-Range Error | Shut off threshold for an internal actuator error exceeded, < 4L EGR.actuator und >4L air intake flap |
| 51 | 3 | EGR Valve Actuator Error | Actuator of the external EGR valve: the ECU detects a short circuit to battery; short cut to battery on ECU pin A19 or pin A20; |
| 51 | 4 | EGR Valve Actuator Error | Actuator of the external EGR valve: The ECU detects a short circuit to ground; Short cut to ground on ECU pin A19 is detected; measured voltage by ECU is under limit |
| 51 | 5 | EGR Valve Actuator Error | Actuator error EGR Valve: signal range check low, measured current is blow target; open load on ECU output is detected |
| 51 | 6 | EGR Valve Actuator Error | Actuator error EGR Valve: signal range check high, measured current by ECU is over target; too high current is going into the actuator, output is switched off; overload by short-circuit |
| 51 | 7 | EGR Valve Actuator Error | Actuator position for EGR Valve is not plausible, internal error, angular misalignment of the flap |
| 51 | 11 | EGR Valve Actuator Error | Actuator EGR valve: temperature limit in powerstage of the actuator is reached due to high current |

| DTC | | |
|---|---|---|
| SPN | FMI | Trouble Code Type |
| 107 | 0 | Air Filter Restriction |
| 520601 | 5.6 | Self-Level |
| 520603 | 5.6 | Hydraglide |
| 520604 | 5.6 | Starter |
| 520607 | 5.6 | Float |
| 520612 | 5.6 | Parking Brake |
| 520622 | 5.6 | High Gear |
| 520642 | 5 | Front Work Lights |
| 520643 | 5 | Rear Work Lights |
| 520646 | 5.6 | Tilt/Lift Lockout |
| 520649 | 5 | Rear Marker Lights |
| 520650 | 5.6 | All-Tach Lock |
| 520651 | 5.6 | All-Tach Unlock |

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## General Information

The above safety alert symbol means: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! It stresses an attitude of "safety awareness" and can be found throughout this service manual and on decals on the machine.

Before operating or working on this machine, read and study the following safety information. In addition, be sure that everyone who operates or works on this equipment is familiar with these safety precautions. It is essential to have competent and careful operators, who are not physically or mentally impaired, and who are thoroughly trained in the safe operation of the machine and the handling of loads. It is recommended that the operator be capable of obtaining a valid motor vehicle operator's license.

The use of skid-steer loaders is subject to certain hazards that cannot be eliminated by mechanical means, but only by exercising intelligence, care and common sense. Such hazards include, but are not limited to, hillside operation, overloading, instability of the load, poor maintenance and using the equipment for a purpose for which it is not intended or designed.

Manitou Americas ALWAYS consider the operator's safety when designing machinery and guards exposed moving parts for the operator's protection. However, some areas cannot be guarded or shielded in order to assure proper operation. The Operator's Manual and the decals on the machine warn of additional hazards and should be read and observed closely.

These topics in the *Safety* chapter of the service manual include procedures, which, when followed, will allow for safe performance of service procedures: Mandatory Safety Shutdown Procedure, Lift Arm Support Device, Roll-Over Protective Structure (ROPS/FOPS)/Falling Object Protective Structure (FOPS) Lock Mechanism, Loader Raising and Lowering Procedures, and Relieving Hydraulic Pressure.

## Signal Words

**DANGER**

**"DANGER" indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.**

**WARNING**

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

**CAUTION**

**"CAUTION" indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. May also alert against unsafe practices.**

## Additional Safety Reminders



Read and understand the Service Manual and all decals before maintaining, adjusting or servicing this equipment.

**Doors, Guards and Shields** - Some photographs in this manual may show doors, guards and shields open or removed for illustrative purposes only. BE SURE all doors, guards and shields are in their proper operating positions before starting engine to operate unit.

**Damaged or Worn-out Parts** - For safe operation, replace damaged or worn-out parts with genuine Gehl/ Mustang service parts, before operating this equipment.

**Attachments** - Gehl and Mustang loaders are designed and intended to be used only with Manitou Americas attachments or approved referral attachments. Manitou Americas cannot be responsible for safety if the loader is used with a non-approved attachment.



**Battery Safety** - To avoid injury from a spark or short circuit, turn the electrical disconnect switch to the OFF position before servicing any part of the electrical system. Do not tip the battery more than 45º.

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