SPECIFICATIONS

Model	V270 / 2700V
Make of Engine	Yanmar
Engine Model (DPF Models)	4TNV98CT-NMS
Fuel	Diesel

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Mandatory Safety Shutdown Procedure

BEFORE cleaning, adjusting, lubricating or servicing the unit or leaving it unattended:

1. Move drive control handle(s) to the neutral position.

2. Lower the lift arm and attachment completely. If the lift arm *must* be left in the "raised" position, BE SURE to properly engage the lift arm support device.

3. Move the throttle to the low idle position, shut off the engine and remove the key.

4. Before exiting, move the lift/tilt control(s) to verify that controls do not cause movement of the lift arm or hitch.

Only after these precautions can you be sure it is safe to proceed. Failure to follow the above procedure could lead to death or serious injury.

Lift Arm Support Device

WARNING

BEFORE leaving operator's compartment to work on the loader with the lift arm raised, ALWAYS engage the lift arm support device. Turn the keyswitch to OFF, remove the key and take it with you. The safest method of engaging the lift arm support device requires two people - one person inside the loader and another person outside the loader to engage the support device.

Many service procedures require a raised lift arm to allow easier access to loader components. For operator and service personnel safety, a lift arm support device is standard on Gehl and Mustang skid-steer loaders. Used as a cylinder block, it helps prevent a raised lift arm from unexpectedly lowering.

BE SURE to engage the lift arm support device whenever the lift arm is raised. When the device is not being used, secure it to the right side timing link on the lift arm using the clamping knob provided.

The lift arm support device is a safety device which must be kept in proper operating condition at all times with decals in place.

The following procedures outline the correct way to engage and disengage the lift arm support device.

Lift Arm Support Device Engagement

1. Remove attachment from lift arm.
2. Raise the lift arm fully.
3. Turn keyswitch to OFF position to stop engine.
4. Have an assistant remove the lift arm support device from its storage location and place the lift arm support device on either the left or right cylinder rod.





5. Restart the engine.
6. Slowly lower the lift arm until the support device contacts the top end of the lift cylinder.
7. Look to be sure the support device is secure against the cylinder end. Then, stop the loader engine, remove the key and leave the operator's compartment.
8. Stop the engine, and exit the machine.

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Hydrostatic/Hydraulic Schematic - Dual Joystick Controls

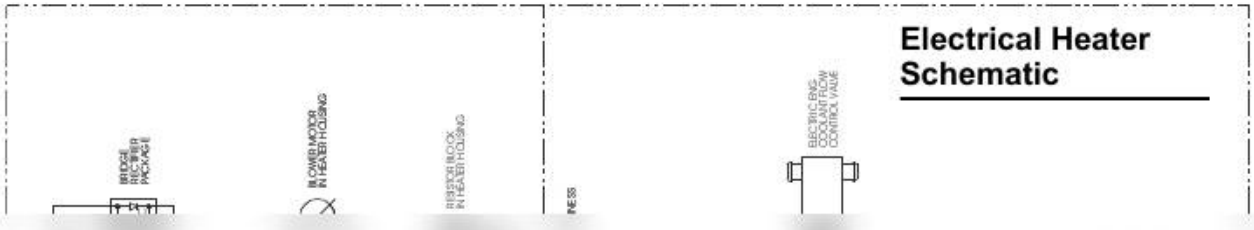


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Electrical Heater Schematic



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WARNING



NEVER use your hands to search for hydraulic fluid leaks. Use a piece of cardboard or paper. Escaping fluid under pressure can be invisible and penetrate the skin, causing serious injury. If any fluid is injected into your skin, see a doctor at once. Injected fluid MUST be surgically removed by a doctor familiar with this type of injury or gangrene may result.

WARNING

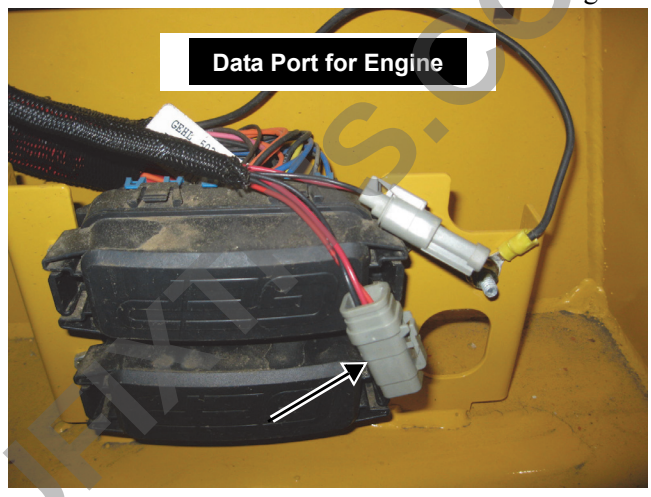


ALWAYS wear safety glasses when checking for hydraulic fluid leaks. Escaping fluid under pressure can be invisible and can cause permanent eyesight damage if safety glasses are not worn.

ALWAYS check for hydraulic fluid leaks after installing any components of the hydraulic system.

Engine Diagnostic Fault Codes

When detecting faults, the information center electronic display uses a diagnostic trouble code (DTC) screen to alert the operator to the occurrence of the fault conditions. The data port for accessing Yanmar's SMARTASSIST-Direct (SA-D) tool to further diagnose trouble codes can be found behind a swell latch panel at the operator's left foot. The following pages list descriptions, diagnostic trouble codes and fault codes for the engines.



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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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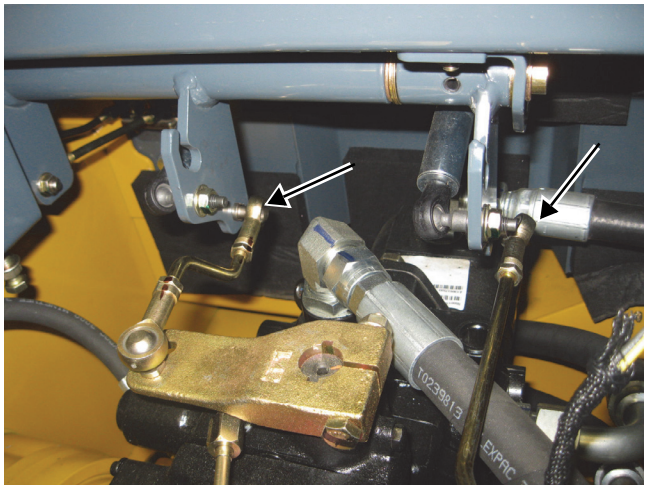
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5. Disconnect the rod ends of the wheel drive control rods from the pivot tube assembly underneath the crossmember.



6. Remove the eight tapping capscrews securing the crossmember to the chassis.
7. Using two people, carefully lift the crossmember with the control handles attached out of the chassis.

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

NOTE: When the control handle is installed, and if the control rod(s) are adjusted correctly, the control handle shafts are vertically straight, up and down. If changes are needed, refer to the "Control Handle Position Adjustment" procedure in the *Controls* chapter.

Hydraulic Oil Reservoir Removal and Installation

The hydraulic oil reservoir is a self-contained, welded steel reservoir located above and forward of the engine.

Removal Procedure

WARNING

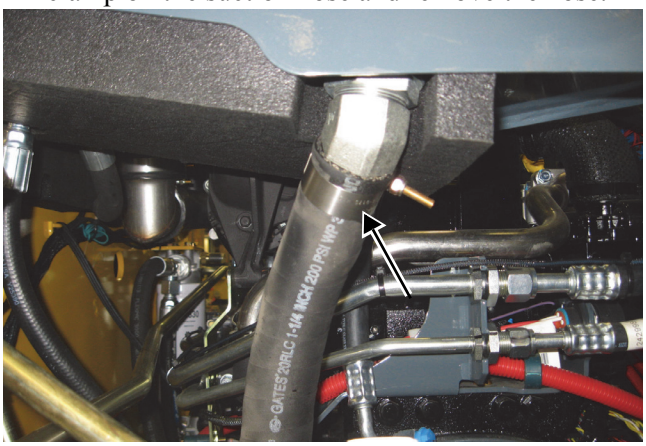
BEFORE beginning this service procedure, perform the following SAFETY procedures:

- **Remove attachment from lift arm.**
- **Raise lift arm; engage lift arm support device.**
- **Shut off the engine.**
- **Relieve hydraulic system pressure.**
- **Tilt back ROPS/FOPS until lock engages.**

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

IMPORTANT: Cap or plug ALL hydraulic hoses, tubes and fittings immediately after being disconnected to prevent fluid loss and contamination of the hydraulic system.

1. Disconnect the auxiliary fuel tank (if so equipped) from the hydraulic oil reservoir by removing two tapping screws and locknuts at the front.
2. Drain all the oil from the hydraulic reservoir into a suitable container capable of holding at least 11 to 12 gallons (41,6 to 45,4 L). For this procedure refer to the procedure in the *Lubrication* chapter.
3. Open the engine cover and lock open the rear grille.
4. At the front of the hydraulic reservoir, remove the clamp on the suction hose and remove the hose.



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Hydrostatic Pump Drive Coupling Removal and Installation

Removal Procedure

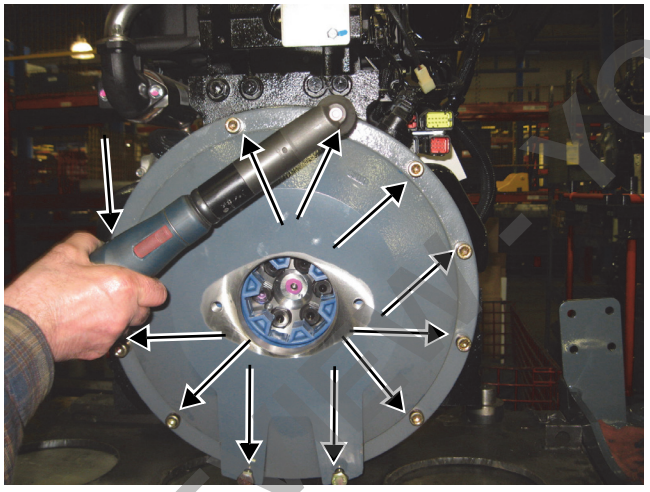
⚠ WARNING

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

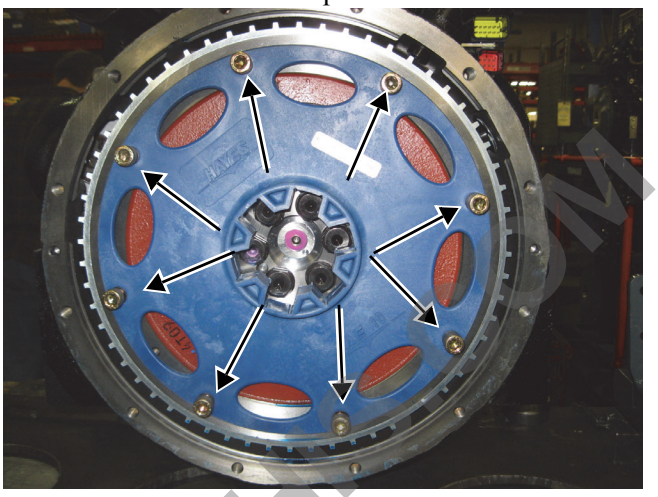
- **Remove attachment from lift arm.**
- **Raise lift arm, engage lift arm support device.**
- **Shut off the engine.**
- **Tilt back ROPS/FOPS until lock engages.**

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

1. Remove the hydrostatic pump per the procedure in this chapter.
2. Remove eleven socket-head capscrews (39 lbf-ft) (52,8 N•m) securing the flywheel housing to the engine. Use Loctite™ 242 or equivalent to reinstall.



3. Remove the eight capscrews (39 lbf-ft) (52,8 N•m) attaching the flexible coupling plate to the engine. Use Loctite™ 242 or equivalent to reinstall.



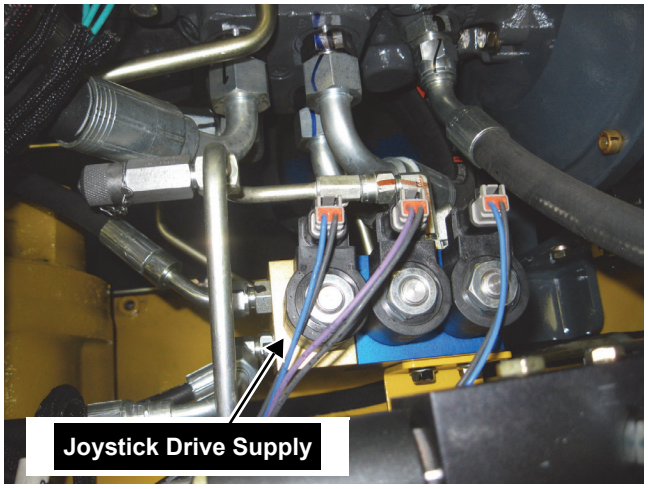
4. Do not apply any lubrication or grease to the flexible coupling plate when reinstalling. The leading edge of the coupler hub is to be positioned 0.39”-0.42” (9,9 mm - 10,6 mm) from the surface of the hydrostatic pump. Torque the set screws on the hub to 24 lbf-ft (34 N•m).

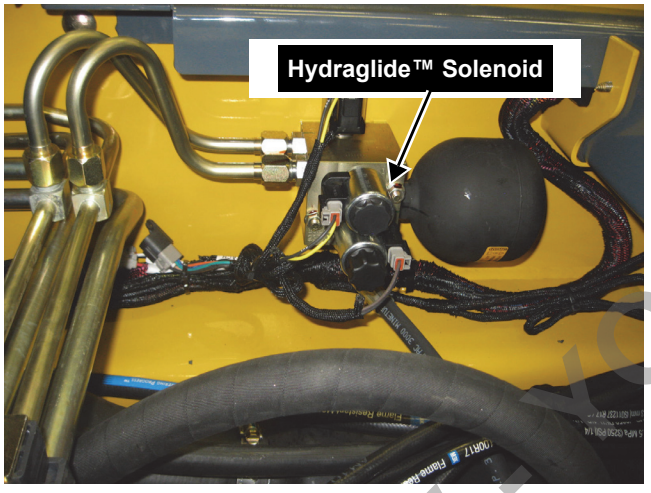
Installation Procedure - Follow all warnings first, then reverse the removal steps.

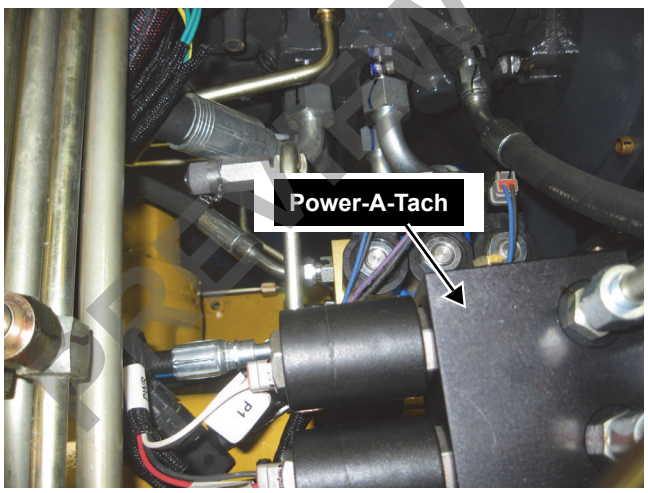
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nuts securing the solenoid valve to the chassis or to its bracket.







2. Remove the solenoid manifold from the skid-steer loader.

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

NOTE: After removing and/or replacing any component in the hydraulic system, ALWAYS check the level of hydraulic fluid in the reservoir. Add fluid if necessary. Refer to the *Lubrication* chapter for hydraulic fluid specifications.

ALWAYS check for hydraulic fluid leaks after assembling any component of the hydraulic system.

WARNING



NEVER use your hands to search for hydraulic fluid leaks. Use a piece of cardboard or paper. Escaping fluid under pressure can be invisible and penetrate the skin causing serious injury. If any fluid is injected into your skin, see a doctor at once. Injected fluid MUST be surgically removed by a doctor familiar with this type of injury or gangrene may result.

WARNING



ALWAYS wear safety glasses when checking for hydraulic fluid leaks. Escaping fluid under pressure can be invisible and can cause permanent eyesight damage if safety glasses are not worn.

3. ALWAYS check for hydraulic fluid leaks after reassembling components of the hydraulic system.

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Stationary Regeneration Procedure (DPF Models)

Take the following steps when performing a stationary regen. Refer to the DPF regen flowcharts for a further understanding of this procedure.

1. Move to a safe location that is well-ventilated.
2. Ensure there are no active DTC codes, DTC codes will prohibit a regen.
3. Set the acceleration of the engine to its lowest position and run the engine at idle speed. Ensure the engine's coolant temperature is above 140° F (60° C).
4. Engage the parking brake.
5. When the DPF regen request switch is pressed:

   • Operator Initiated: Press and hold for 10 seconds, release, then hold for an additional three seconds and the stationary regen starts. The engine speed will gradually increase to a high idle speed.

   • E-ECU Initiated: Press and hold for three seconds and the stationary regen starts. The engine speed will gradually increase to a high idle speed.
6. The stationary regen procedure takes approximately 25 to 30 minutes to perform.
7. When the above time has passed, the engine speed gradually decreases to the low idle speed and the DPF regen acknowledgement lamp and the EGT lamp turn off. Stationary regen is completed.

NOTE: When stationary regen starts, the DPF regen-required lamp turns off, the DPF acknowledge lamp briefly appears and the EGT lamp illuminates.

Stationary Regeneration Abort Procedure (DPF Models)

To abort a stationary regen, perform any one of the following steps.

1. Set the DPF switch to its inhibit/cancel state.
2. Command the accelerator to a position above its lowest position.
3. Turn the manual parking brake switch to its OFF position.
4. Turn the keyswitch to the OFF position.

NOTE: Depending upon the PM levels and which switch was used to abort the stationary regen, the E-ECU will either go back to normal operation or stationary regen standby mode. Interrupting a reset or stationary regen will require a full reset or stationary regen process in the future. The E-ECU does not command partial reset or stationary regens.

DPF Regen Flowcharts Introduction (DPF Models)

The following pages chart the logical progression of the DPF regen processes in easy to understand flow charts. Refer to these charts when either the operator or the engine itself is requesting a regen.

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