

Gehl 4640E Power2 Gehl 5240E Power2 Mustang 2056 Series II

Form No.
50950037
Revision A
02/12

with Tier 4i Yanmar
4TNV98-ZNMS2 Engine

SKID-STEER LOADERS



Service Manual

INTRODUCTION

With correct maintenance and proper use, the Gehl 4640/5240E Power2 and Mustang 2056 Series II skid-steer loaders with a Tier 4i Yanmar 4TNV98-ZNMS2 engine will give years of dependable service. This service manual addendum is intended to be a guide in the assembly and disassembly, installation and removal, adjustment and testing, troubleshooting and replacement of components that together make up the Gehl 4640/5240E Power2 and Mustang 2056 Series II skid-steer loaders.

In many of the procedures found within, the installation steps are the exact opposite of the removal steps and vice versa, and therefore, the opposite procedure is not written. Instead, a note to reverse the procedure will be stated. This reduces redundancy and excessive pages in the manual. In cases though, where the assembly and disassembly or removal and installation procedures differ and additional steps or safety concerns are paramount, the entire reverse procedure will be written out to include the new information.

The Table of Contents and Index can be used to make the procedure you need to find an easier process. Many schematics, photographs, and line art drawings are used to help perform the necessary repairs, tests, or adjustments that the skid-steer loader needs to keep it in good running condition.

If you have any additional questions, please contact your authorized Gehl dealer/Mustang dealer or call the Gehl/Mustang Service Department for assistance.

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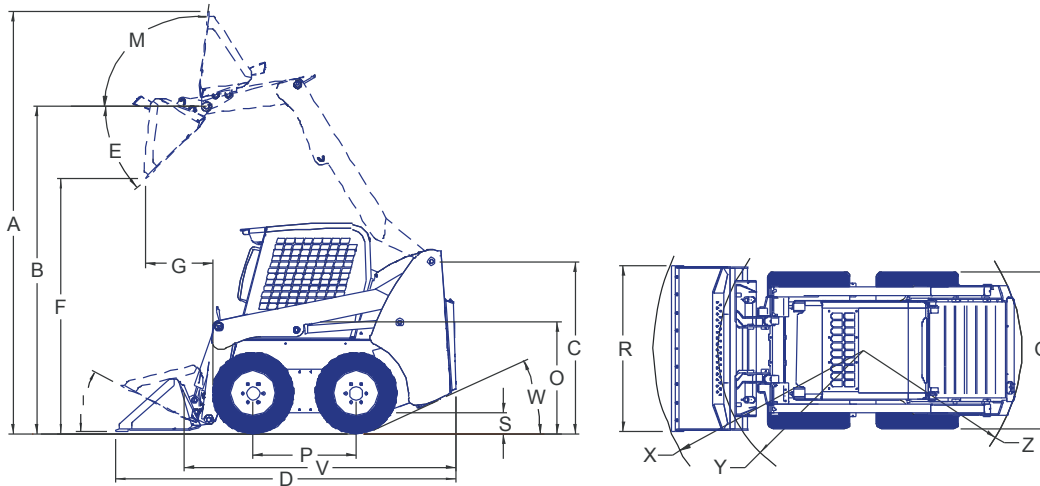
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SECTION NOTES

SPECIFICATIONS

Model	4640E Power2
Make of Engine	Yanmar
Engine Model	4TNV98-ZNMS2
Fuel	Diesel
Displacement	202 CID (3,31 L)
Horsepower - Net	68 hp (51 kW)
Peak Torque	180 lbf-ft (244 N•m)
Operating Load - SAE*	1650 lbs (748 kg)
Operating Weight	6300 lbs (2858 kg)
Shipping Weight	5700 lbs (2585 kg)
Capacities	Capacities
Engine Oil	9.0 US qts (8,5 L), 9.5 US qts (8,5 L) with filter change
Fuel Tank	14.0 US gal (53 L)
Chaincase (each)	8.0 US qts (7,57 L)
Hydraulic Reservoir	15.0 US gal (56,8 L)
Engine Coolant	9.7 US qts (9,18 L)
Electrical System	Electrical
Battery	12-V DC, Group 31, 950 CCA, 170 Reserve
Starter	12-V DC (2,0 kW)
Alternator	95 A
Hydraulic System	Hydraulic System
Hydraulic System Pressure	2750 PSI (190 bar): High-Flow 2600 PSI (179 bar)
Standard Auxiliary Flow Rate	19 gal/min (72 L/min)
High-Flow Auxiliary Flow Rate	30 gal/min (114 L/min)
Travel Speed - Single-Speed	0 to 8.4 mph (0 to 13,5 km/h)
Travel Speed - Two-Speed	0 to 12.5 mph (0 to 20 km/h)
Tire Options	Tire Options Description
10 X 16.5 Heavy Duty 8-Ply	Flotation Wide Sidewall
10 X 16.5 Heavy Duty 8-Ply	Flotation Wide Sidewall Foam-Filled
12 x 16.5 Heavy Duty 10-Ply	Flotation Wide Sidewall
12 x 16.5 Heavy Duty 10-Ply	Flotation Wide Sidewall Foam-Filled
33 x 15.50 x 16.5 12-Ply	Extra Wide / Wide Sidewall
31 x 15.50-15	Heavy Duty
10 x 16.5 10-Ply	H/E Severe Duty
10 x 16.5 10-Ply	H/E Severe Duty Foam-Filled
12 x 16.5 12-Ply	H/E Severe Duty
12 x 16.5 12-Ply	H/E Severe Duty Foam-Filled
10 x 16.5	Solid Flex
12 x 16.5	Solid Flex
8.00 x 16	Solid Rubber
Buckets and Capacities	
Width - inches (millimeters) - Description	Capacity (Heaped)
60 inches (1524 mm) - Dirt/Construction	11.0 cubic feet : 0,31 cubic meters
61.5 inches (1562 mm) - Dirt/Construction	11.3 cubic feet : 0,32 cubic meters
66 inches (1676 mm) - Dirt/Construction	15.1 cubic feet : 0,43 cubic meters
66 inches (1676 mm) - Dirt/Construction w/ spillguard	18.0 cubic feet : 0,51 cubic meters
70 inches (1778 mm) - Dirt/Construction	16.1 cubic feet : 0,46 cubic meters
66 inches (1676 mm) - Utility/Snow	19.0 cubic feet : 0,54 cubic meters
70 inches (1778 mm) - Utility/Snow	20.3 cubic feet : 0,57 cubic meters
15.75-19.68-24 inches (400-500-610 mm) Pallet	NA

*Operating capacity rated with a 66" inch (1676 mm) 15.1 cubic foot (0.43m³) dirt/construction bucket in accordance with SAE J818, SAEJ732 and ISO 14397-1.



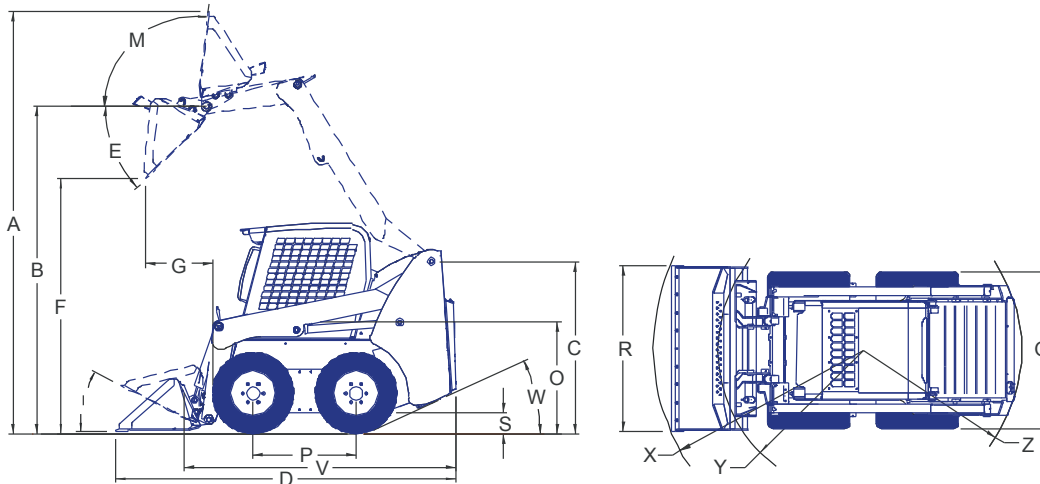
Dimensional Specifications		4640E Power2 ¹	
		in.	mm
A	Overall operation height - fully raised	152.5	3873,5
B	Height to hinge pin - fully raised	115.5	2933,7
C	Overall height - top of ROPS	78.5	1994
D	Overall length - bucket down	122	3099
E	Dump angle @ full height		43.5°
F	Dump height	84.5	2146,3
G	Dump reach - bucket (full height)	26.5	673
I	Rollback at ground		23°
M	Rollback angle @ full height		88.5°
O	Seat-to-ground height	37.5	952,5
P	Wheelbase - nominal	38	965
Q	Overall width - less bucket	63	1600
R	Overall bucket width	60-70	1524-1778
S	Ground clearance to chassis (between wheels)	6.5	165
U	Maximum back grading angle		89°
V	Overall length (less bucket)	91	2311
W	Departure angle		21°
X	Clearance circle - front (with bucket)	77	1956
Y	Clearance circle - front (less bucket)	45	1143
Z	Clearance circle - rear	52.5	1333,5

1 - w/15.1 cu. ft. (0.43m³) bucket., w/ 10 x 16.5 tires

SPECIFICATIONS

Model	5240E Power2 / 2056 Series II
Make of Engine	Yanmar
Engine Model	4TNV98-ZNMS2
Fuel	Diesel
Displacement	202 CID (3,31 L)
Horsepower - Net	68 hp (51 kW)
Peak Torque	180 lbf-ft (244 N•m)
Operating Load - SAE*	1900 lbs (862 kg)
Operating Weight	6900 lbs (3130 kg)
Shipping Weight	6300 lbs (2858 kg)
Capacities	Capacities
Engine Oil	9.0 US qts (8,5 L), 9.5 US qts (9,0 L) with filter change
Fuel Tank	16.0 US gal (60 L)
Chaincase (each)	8.0 US qts (7,57 L)
Hydraulic Reservoir	15.0 US gal (57 L)
Engine Coolant	9.7 US qts (9,18 L)
Electrical	Electrical
Battery	12-V DC, Group 31, 950 CCA, 170 Reserve
Starter	12-V DC (2,0 kW)
Alternator	95 A
Hydraulic System	Hydraulic System
Hydraulic System Pressure	2750 PSI (190 bar): High-Flow 2650 PSI (183 bar)
Standard Auxiliary Flow Rate	19 gal/min (72 L/min)
High-Flow Auxiliary Flow Rate	30 gal/min (114 L/min)
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Travel Speed - Two-Speed	0 to 12.5 mph (0 to 20 km/h)
Tire Options	Tire Options Description
10 X 16.5 Heavy Duty 8-Ply	Flotation Wide Sidewall
10 X 16.5 Heavy Duty 8-Ply	Flotation Wide Sidewall Foam-Filled
12 x 16.5 Heavy Duty 10-Ply	Flotation Wide Sidewall
12 x 16.5 Heavy Duty 10-Ply	Flotation Wide Sidewall Foam-Filled
33 x 15.50 x 16.5 12-Ply	Extra Wide / Wide Sidewall
31 x 15.50-15	Heavy Duty
10 x 16.5 10-Ply	H/E Severe Duty
10 x 16.5 10-Ply	H/E Severe Duty Foam-Filled
12 x 16.5 12-Ply	H/E Severe Duty
12 x 16.5 12-Ply	H/E Severe Duty Foam-Filled
10 x 16.5	Solid Flex
12 x 16.5	Solid Flex
8.00 x 16	Solid Rubber
Buckets and Capacities	
Width - inches (millimeters) - Description	Capacity (Heaped)
60 inches (1524 mm) - Dirt/Construction	11.0 cubic feet : 0,31 cubic meters
61.5 inches (1562 mm) - Dirt/Construction	11.3 cubic feet : 0,32 cubic meters
66 inches (1676 mm) - Dirt/Construction	15.1 cubic feet : 0,43 cubic meters
66 inches (1676 mm) - Dirt/Construction w/ spillguard	18.0 cubic feet : 0,51 cubic meters
70 inches (1778 mm) - Dirt/Construction	16.1 cubic feet : 0,46 cubic meters
66 inches (1676 mm) - Utility/Snow	19.0 cubic feet : 0,54 cubic meters
70 inches (1778 mm) - Utility/Snow	20.3 cubic feet : 0,57 cubic meters
15.75-19.68-24 inches (400-500-610 mm) Pallet	NA

*Operating capacity rated with a 66" inch (1676 mm) 15.1 cubic foot (0.43m³) dirt/construction bucket in accordance with SAE J818, SAEJ732 and ISO 14397-1.



Dimensional Specifications		5240E Power2 / 2056 Series II ¹	
		in.	mm
A	Overall operation height - fully raised	153.5	3899
B	Height to hinge pin - fully raised	121	3073,4
C	Overall height - top of ROPS	79.4	2016,7
D	Overall length - bucket down	126.3	3208
E	Dump angle @ full height		43°
F	Dump height	91.75	2330,5
G	Dump reach - bucket (full height)	22.75	578
I	Rollback at ground		24°
M	Rollback angle @ full height		88°
O	Seat-to-ground height	37.5	952,5
P	Wheelbase - nominal	42	1067
Q	Overall width - less bucket	63.5	1613
R	Overall bucket width	60-70	1524-1778
S	Ground clearance to chassis (between wheels)	7.5	190,5
U	Maximum back grading angle		88°
V	Overall length (less bucket)	95	2413
W	Departure angle		23°
X	Clearance circle - front (with bucket)	79.5	2019,3
Y	Clearance circle - front (less bucket)	43.75	1111,3
Z	Clearance circle - rear	57.25	1454,2

1 - w/ 17.9 cu. ft. (0.43m³) bucket., w/ 12 x 16.5 tires



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 considers the operator’s safety when designing its 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. Furthermore, 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 safe performance of service procedures: Mandatory Safety Shutdown Procedure, Lift Arm Support Device, Roll-Over Protective Structure (ROPS)/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 Gehl/ Mustang Company attachments or approved referral attachments. The Company cannot be responsible for operator safety if the loader is used with a non-approved attachment.

Battery Safety - To avoid injury from a spark or short circuit, disconnect the negative (-) battery cable before servicing any part of the electrical system. Do not tip the battery more than 45° to avoid spilling electrolyte.



Loader Stability - A skid-steer loader's stability is determined by its wheelbase and tread width. The following elements can affect stability: terrain, engine speed, load being carried or dumped, and sudden control movements. **DISREGARDING ANY OF THESE FACTORS CAN CAUSE THE LOADER TO TIP, POSSIBLY RESULTING IN DEATH OR SERIOUS INJURY.** Therefore, **ALWAYS** have the operator restraint bar lowered and wear the seat belt. Operate the controls only from the operator's seat. Operate the controls smoothly and gradually at an appropriate engine speed that matches the operating conditions.

DO NOT exceed the rated operating capacity of the machine. For additional stability when operating on inclines or ramps, **ALWAYS** travel with the heavier end of the loader toward the top of the incline.

ALWAYS look to the rear before backing up.

When parking machine, before leaving seat, check restraint bar for proper operation. The restraint bar, when raised, applies the parking brake and deactivates lift/tilt controls and auxiliary hydraulics.

Keyswitch - NEVER attempt to bypass the keyswitch to start the engine. Use the jump-starting procedure detailed in the *Service* chapter of the Operator's Manual.



Hydraulic Fluid Leaks - NEVER use hands to search for hydraulic fluid leaks. Instead, use paper or cardboard. Fluid under pressure can be invisible, penetrate the skin and cause a serious injury. If any fluid is injected into skin, see a doctor at once. Injected fluid **MUST** be surgically removed by a doctor or gangrene may result.



Wear Safety Glasses - **ALWAYS** wear safety glasses with side shields when operating the machine or striking metal against metal. In addition, it is recommended that a softer (chip-resistant) material be used to cushion the blow. Failure to heed could lead to serious injury to eyes or other parts of the body.

ALWAYS wear safety glasses when searching for hydraulic leaks or when working near batteries.

Loaded Bucket/Fork - DO NOT raise or drop a loaded bucket or fork suddenly. Abrupt movements under load can cause serious loader instability.

NEVER push the lift control into the "float" position with the bucket or attachment loaded or raised, because this will cause the lift arm to lower rapidly.

DO NOT drive too close to an excavation or ditch. BE SURE that the surrounding ground has adequate strength to support the weight of the loader and the load.



DO NOT smoke or have any spark-producing equipment in the area while filling the fuel tank or while working on the fuel or hydraulic systems.

Exhaust Gases - Exhaust fumes can kill. DO NOT operate this machine in an enclosed area unless there is adequate ventilation.

Engine - NEVER use ether or starting fluid.

People - NEVER carry riders. DO NOT allow others to ride on the machine or attachment, because they could fall or cause an accident.

BE SURE all persons are away from the machine and warn others in the area before starting the engine.



ALWAYS face the machine and use handholds and steps when getting on and off. DO NOT jump off machine.

Wear appropriate ear protection for prolonged exposure to excessive noise.

ALWAYS perform a daily inspection of the machine before using it. Look for damage, loose or missing parts, leaks, etc.

Remove trash and debris from the machine and engine compartment each day to minimize risk of fire.

New operators **MUST** operate loader in an open area away from bystanders. Practice with controls until the loader can be operated safely and efficiently.

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 loader with lift arm raised, ALWAYS engage lift arm support device. Turn keyswitch to OFF, remove key and take it with you.

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 anchor on the underside of the lift arm using the lock pin and retainer provided.

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

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

Lift Arm Support Device Engagement

1. Lower lift arm until contact with loader frame.
2. Turn keyswitch to OFF position to stop engine.
3. **Gehl Models:** Leave operator’s compartment. Press in and hold lock pin button to release its locking mechanism. Remove lock pin holding support device up against lift arm. Allow support device to come down into contact with lift cylinder.



4. **Mustang Models:** Leave operator’s compartment. Remove lock pin holding support device up against

lift arm. Allow support device to come down into contact with lift cylinder.



5. Return to the operator’s compartment and restart the engine.
6. Use lift control to raise lift arm until lift arm support device drops over the end of the lift cylinder and around cylinder rod. Slowly lower lift arm until free end of support device contacts top end of lift cylinder.





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.

Lift Arm Support Device Disengagement



WARNING

NEVER leave the operator's compartment to disengage the lift arm support device with the engine running.

To return the lift arm support device to its storage position, proceed as follows:

1. Raise the lift arm completely.
2. Turn the keyswitch to the OFF position to stop the engine, remove the key and take it with you.



WARNING

BEFORE testing the machine, **ALWAYS** clear people from the area.

3. Before leaving the operator's compartment, check to be sure the lift arm is being held in the raised position by the solenoid valve (See NOTE).

NOTE: With the keyswitch OFF, and the solenoid valve functioning properly, the lift arm will not move when the lift control is moved forward. If the valve does NOT hold the lift arm, do NOT leave the operator's compartment. Instead, have someone store the support device for you. Then, contact your Gehl or Mustang

dealer to determine the reason why the lift arm lowers while the keyswitch is in the OFF position.

4. **Gehl Models:** To store the lift arm support device, lift it up and inside the lift arm. Insert lock pin through the hole in the lift arm and through the support device.



5. **Mustang Models:** To store the lift arm support device, lift it up and inside the lift arm. Insert lock pin through the hole in the welded tab and lock the ring up to the pin.



ROPS/FOPS – Raising

For service, the ROPS/FOPS can be unbolted and tilted back. Gas-charged springs help tilt it back. A self-actuating lock mechanism engages to lock the ROPS/FOPS in a rolled-back position.

1. The lift arm should be lowered or locked in the raised position as per the “lift arm Support Device Engagement” procedure in this chapter.
2. Turn the keyswitch to the OFF position to stop the engine. Remove the key and take it with you.
3. Leave the operator’s compartment.

WARNING

DO NOT leave the operator’s compartment with the engine running. Before leaving the loader, shut off the engine according to the “Mandatory Safety Shut down Procedure” described in this chapter.

4. Remove one capscrew and washer on each side of the ROPS/FOPS forward stantions.



5. Lift ROPS/FOPS up and tilt it back until the self-actuating lock mechanism engages. The lock

mechanism locks the ROPS/FOPS in a rolled-back position.



IMPORTANT

BEFORE raising the ROPS/FOPS, position the seat as far back as it will go. Avoid damaging control handles by slowly raising the ROPS/FOPS. **BE SURE** the control handles clear the ROPS/FOPS.

ROPS/FOPS – Lowering

1. Apply upward force on the ROPS/FOPS and push the lock mechanism handle toward the front of the loader.



- Lower the ROPS/FOPS until it contacts the chassis.



IMPORTANT

Avoid damaging control handles by slowly lowering the ROPS/FOPS. BE SURE the control handles clear the ROPS/FOPS.

- Be sure control handles clear the ROPS/FOPS.

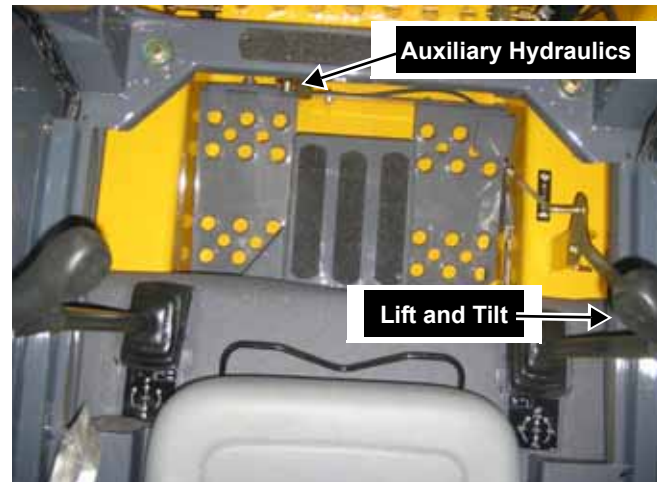


- Reinstall the two capscrews and flat washers that secure the ROPS/FOPS front uprights to the chassis.

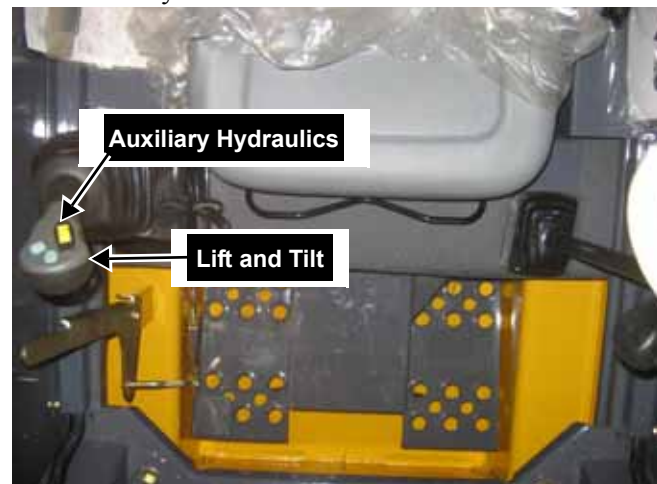
Relieving Hydraulic Pressure

The following procedure should be used to relieve pressure in the hydraulic system before performing service procedures on hydraulic system components.

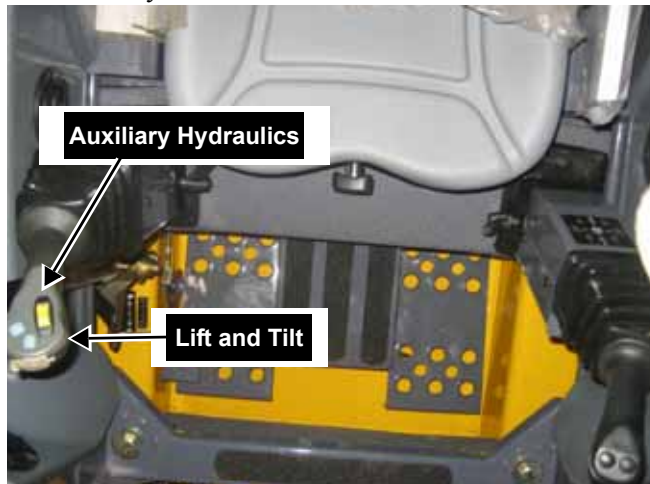
- Completely lower the bucket or attachment.
- Turn the keyswitch to the "OFF" position to shut off engine.
- With the operator in the seat and the restraint bar lowered, turn the keyswitch to the "ON" position, but DO NOT start the engine.
- Move the lift, tilt and auxiliary hydraulics controls through several cycles,
- T-Bar units:



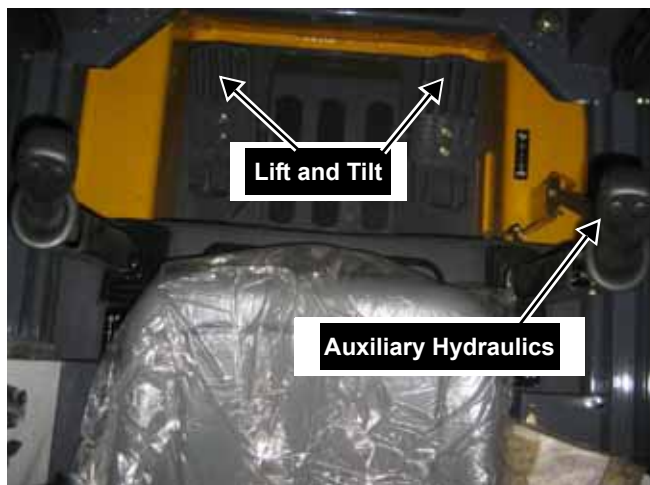
- T-Bar/Joystick units:



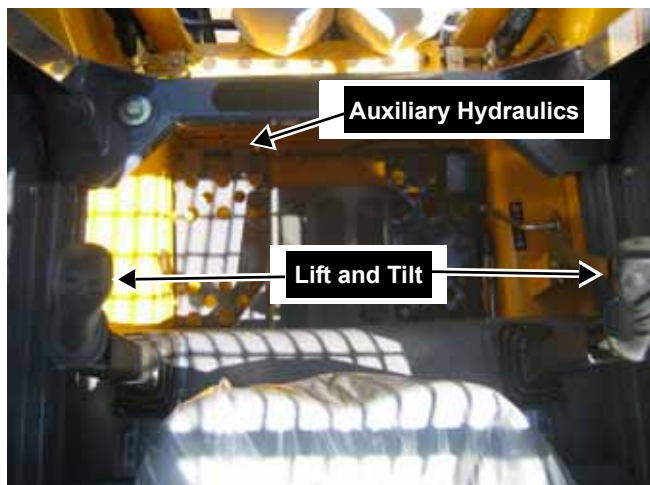
7. Dual Joystick units:



8. Hand/Foot units:



9. Dual Hand units:



10. Turn the keyswitch to the "OFF" position.

Loader Raising Procedure

The following procedure is used to raise the skid-steer loader so that all four tires are off the ground.

WARNING

BEFORE servicing the machine, exercise the "Mandatory Safety Shutdown Procedure" described in this chapter.

WARNING

DO NOT rely on a jack or hoist to maintain the "raised" position without a additional blocking and supports. Serious personal injury could result from improperly raising or blocking the skid-steer loader.

1. To raise and block the skid-steer loader, obtain four jack stands (or blocks) of sufficient strength to support the loader.
2. Using a jack or hoist capable of raising the fully-equipped loader, lift the rear of the loader until the tires are off the ground.



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GEHL 4640E/5240E Power2 / MUSTANG 2056 Series II

3. Place two jack stands (or blocks) under the flat part of the loader chassis. Place them parallel with, but not touching, the rear tires.



4. Slowly lower the loader so that its weight rests on the jack stands (or blocks).
5. Repeat steps 2-4 for the front end. When the procedure is finished, all four tires will be off the ground, and the wheels can be removed as necessary.

Loader Lowering Procedure

When the service procedures are complete, the skid-steer loader can be taken down from the “raised” position. To lower the loader onto its tires:

1. Using a jack or hoist, raise the front of the loader until its weight no longer rests on the jack stands (or blocks).
2. Carefully remove the jack stands (or blocks) under the front of the loader.
3. Slowly lower the loader until the front tires are on the ground.
4. Repeat steps 1-3 for the rear of the loader.