4000V
4000V (EU)

Skid-Steer Loader

Operator's Manual

#50950005/CP0714

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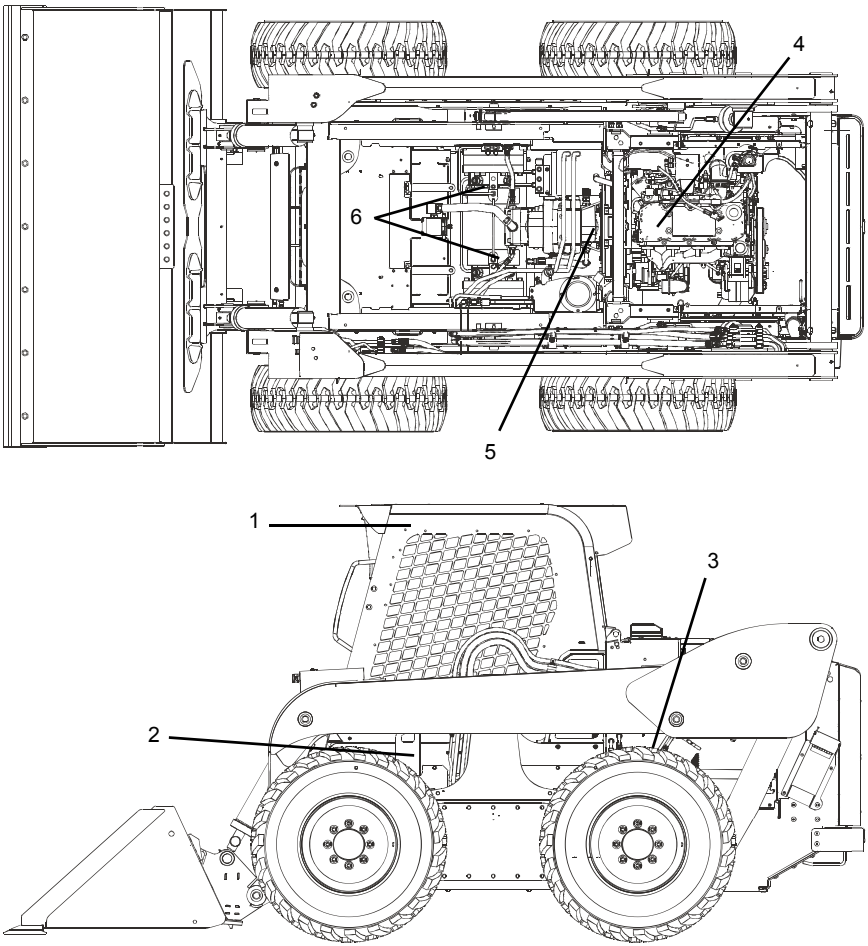
During Operation

- Machine stability is affected by: load being carried, height of the load, machine speed, abrupt control movements and driving over uneven terrain. **DISREGARDING ANY OF THESE FACTORS CAN CAUSE THE LOADER TO TIP, THROWING THE OPERATOR OUT OF THE SEAT OR LOADER, RESULTING IN DEATH OR SERIOUS INJURY.** Therefore: ALWAYS operate with the seatbelt fastened and the restraint bar lowered. Do not exceed the machine's Rated Operating Capacity. Carry the load low. Move the controls smoothly and gradually, and operate at speeds appropriate for the conditions.
- When operating on inclines or ramps, always travel with the heavier end of the loader toward the top of the incline for additional stability.
- Do not raise or drop a loaded bucket or fork suddenly. Abrupt movements under load can cause serious instability.
- Never activate the float function 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.
- Never carry riders. Do not allow others to ride on the machine or attachments, because they could fall or cause an accident.
- Always look to the rear before backing up the skid-steer loader.
- Operate the controls only from the operator's seat.
- Always keep hands and feet inside the operator's compartment while operating the machine.
- New operators must operate the loader in an open area away from bystanders. Practice with the controls until the loader can be operated safely and efficiently.
- Wear safety goggles and head protection while operating the machine. Operator must wear protective clothing when appropriate.
- Exhaust fumes can kill. Do not operate this machine in an enclosed area unless there is adequate ventilation.
- When parking the machine and before leaving the seat, check the restraint bar for proper operation. The restraint bar, when raised, deactivates the lift/tilt control and auxiliary hydraulics, and applies the parking brake.

Maintenance

- Never attempt to by-pass the key switch to start the engine. Use only the jump-starting procedure detailed in the *Operation* chapter of this manual.
- Never use your hands to search for hydraulic fluid leaks. Instead, use a piece of paper or cardboard. Escaping fluid under pressure can be invisible and can penetrate the skin and cause serious injury. If any fluid is injected into your skin, see a doctor at once. Injected fluid must be surgically removed by a doctor or gangrene may result.
- Always wear safety glasses with side shields when striking metal against metal. In addition, it is recommended that a softer (chip-resistant) material be

Product and Component Plate Locations



Product and Component Plates
1. Operator protective system plate: with, e.g., model, certification and operator protective system serial number
2. Seat plate according to ISO 7096
3. Product plate: with Product Identification Number and, e.g., model/type designation
4. Engine plate: with, e.g., type designation, product and serial numbers
5. Component plate hydrostatic pump: with, e.g., product and serial numbers
6. Component plate drive motor: with, e.g., product and serial numbers

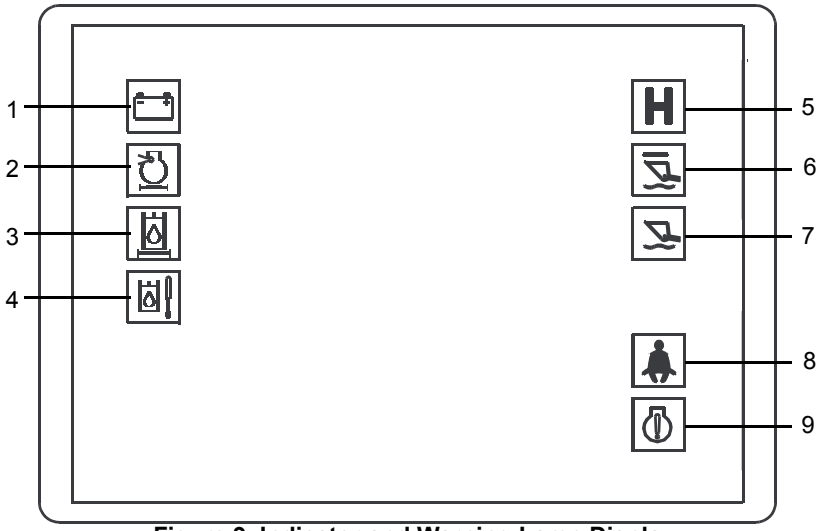


Figure 9 Indicator and Warning Lamp Display

The instrument panels and the indicator and warning lamp display (Figure 9) contain the switches and indicator lamps. Symbols on the indicator lamps are visible only when the indicator lamp are on.

Indicator and Warning Lamp Display

1. **Battery** – Lights if the charging voltage is too high or too low. During normal operation this indicator should be OFF.
2. **Engine Air Filter** – Lights when a restriction in the engine air filter is detected. Warning the operator to clean or replace the element in the engine air cleaner. During normal operation this indicator should be OFF.
3. **Hydraulic Oil Filter** – Lights if the hydraulic filter becomes restricted, warning the operator to stop the engine, allow the engine to cool, and then change the oil and filter. During normal operation this indicator should be OFF.
4. **Hydraulic Oil Temperature** – Lights if the hydraulic oil is too hot, warning the operator to reduce the hydraulic load and determine the cause of the high temperature. During normal operation this indicator should be OFF.
5. **High-Speed** – Lights when two-speed is engaged.
6. **Hydraglide™ Ride Control System** – Lights when the ride control system is activated.
7. **Float Indicator** – Lights when the lift arm "float" function is activated.
8. **Fasten Seatbelt** – A momentary visual (and audible) indicator to remind the operator to fasten the seatbelt(s).
9. **Engine Malfunction Shutdown Indicator** – Lights when the engine electronic control unit (ECU) has detected a failure warranting an automatic shutdown. The indicator lamp also displays error codes when the key switch is turned to the "on" position. See Engine Diagnostics chart on page 69.

Hand/Foot Controls

The loader may be equipped with hand/foot controls (Figure 15). The handles control the drive and the foot pedals control the lift/tilt.

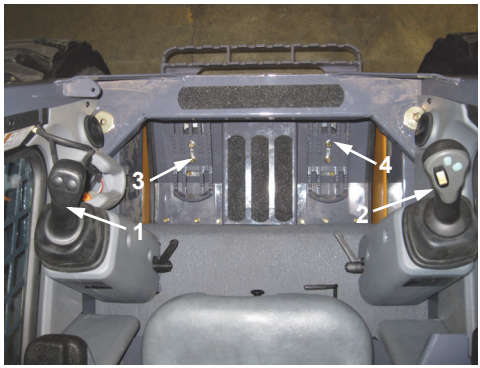


Figure 15 Hand/Foot Controls

1. Left Drive Control Handle
2. Right Drive Control Handle
3. Lift Control Pedal
4. Tilt Control Pedal

Drive Controls

Forward, reverse, speed and turning maneuvers are accomplished by movement of the control handles. To go **forward**, push both handles forward; for **reverse**, pull both handles rearward. For **turning**, move one handle farther forward or rearward than the other handle. Turn direction is determined by which handle is moved farther forward. To turn left, move the right handle farther forward than the left handle; to turn right, move the left handle farther forward than the right handle. For sharp turns, move the handles in opposite directions.

WARNING **Be sure the controls are in neutral before starting the engine. Operate the controls gradually and smoothly. Excessive speed and quick control movements without regard for conditions and circumstances are hazardous and could cause an accident.**

Moving the handles farther from neutral increases the speed steadily to the maximum travel speed. Tractive effort decreases as speed increases. For maximum tractive effort, move the handles only slightly away from the neutral positions. The engine will stall if the handles are moved too far forward when loading the bucket.

WARNING **Always maintain a safe distance from electric power lines and avoid contact with any electrically charged conductor or gas line. Accidental contact or rupture can result in electrocution or an explosion. Contact the "Call Before You Dig" referral system at 8-1-1 in the U.S., or 888-258-0808 in the U.S. and Canada or proper local authorities for utility line locations before starting to dig.**

Driving over Rough Terrain

When traveling over rough terrain, activate the ride control system and drive slowly with the bucket lowered.

Driving on an Incline

When traveling on an incline, travel with the heavy end pointing uphill.

Digging with a Bucket

Approach the digging site with the lift arm slightly raised and the bucket tilted forward until the edge contacts the ground. Dig into the ground by driving forward and gradually lowering the lift arm (Figure 22).

When the bucket is filled, tilt the bucket back and back the loader away from the material. Rest the lift arm against the loader frame before proceeding to the dumping area.

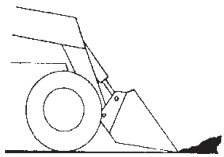


Figure 22 Digging

WARNING **Always carry the loaded bucket with the lift arm resting on the loader frame. For additional stability when operating on inclines, always travel with the heavier end of the loader toward the top of the incline.**

Loading a Bucket

Approach the pile with the lift arm fully lowered and the bucket tilted slightly forward until the edge contacts the ground. Drive forward into the pile, lifting the lift arm and tilting back the bucket to fill it. Back away from the pile (Figure 23).

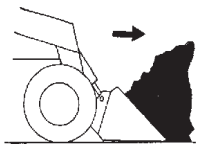


Figure 23 Loading

Loader Raising Procedure

To raise the skid-steer loader so all four tires are off the ground, use the procedure below:

WARNING **Do not rely on a jack or hoist to maintain the raised position without additional blocking and supports. Serious personal injury could result from improperly raising or blocking the loader.**

1. To block the loader, obtain enough suitable blocks (solid wood, hard plastic or metal) so all of the tires are raised off the ground.

Figure 30 Loader Properly Blocked

2. Using a jack or hoist capable of lifting the fully-equipped weight of the loader (with all attached options), lift the rear of the loader until the rear tires are off the ground.
3. Stack wooden, hard plastic or metal blocks under the flat part of the loader chassis. They should run parallel with, but not touch, the rear tires.
4. Slowly lower the loader until its weight rests on the blocks. If the tires still touch the ground, raise the loader again, add more blocks and lower again.
5. Repeat steps 2 through 4 for the front end. When the procedure is finished, all four tires are off the ground, so they could be removed.

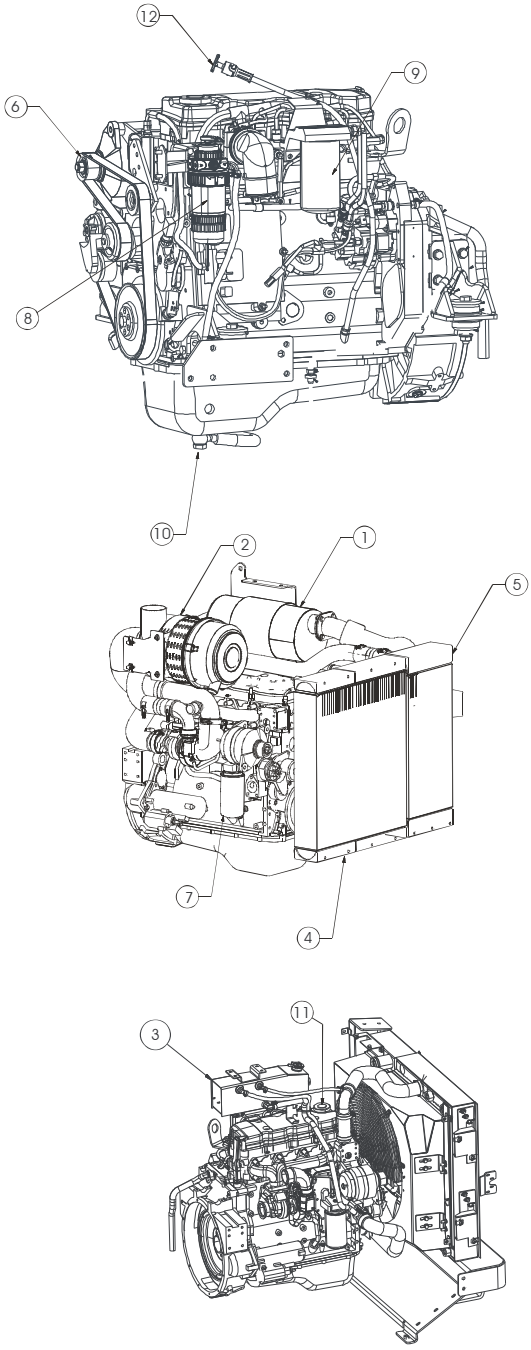


Figure 40 Engine Service Components

1. Muffler
2. Air Cleaner
3. Coolant Tank
4. Heat Exchanger
5. Cooler
6. Alternator Belt
7. Engine Oil Filter
8. Water Separator
9. Fuel Filter
10. Engine Oil Drain
11. Engine Oil Fill Cap
12. Engine Oil Dipstick

Engine Diagnostic Chart (cont.)

497	1377	2	Amber	Switch Circuit	Multiple Unit Synchronization Switch Circuit - Data Erratic, Intermittent, or Incorrect
523	611	2	Amber	System Diagnostic code # 1	OEM Intermediate (PTO) Speed switch Validation - Data Erratic, Intermittent, or Incorrect
527	702	3	Amber	Circuit - Voltage	Auxiliary Input/Output 2 Circuit - Voltage Above Normal, or Shorted to High Source
528	93	2	Amber	Switch - Data	Auxiliary Alternate Torque Validation Switch - Data Erratic, Intermittent, or Incorrect
529	703	3	Amber	Circuit - Voltage	Auxiliary Input/Output 3 Circuit - Voltage Above Normal, or Shorted to High Source
546	94	3	Amber	Fuel Delivery Pressure	Fuel Delivery Pressure Sensor Circuit - Voltage Above Normal, or Shorted to High Source
547	94	4	Amber	Fuel Delivery Pressure	Fuel Delivery Pressure Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
551	558	4	Amber	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Voltage Below Normal, or Shorted to Low Source
553	157	16	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail #1 Pressure High – Data Valid but Above Normal Operational Range - Moderately Severe Level
554	157	2	Amber	Injector Metering Rail 1 Pressure	Fuel Pressure Sensor Error - Data Erratic, Intermittent, or Incorrect
559	157	18	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail #1 Pressure Low – Data Valid but Below Normal Operational Range - Moderately Severe Level
584	677	3	Amber	Starter Solenoid Lockout Relay Driver Circuit	Starter Relay Circuit - Voltage Above Normal, or Shorted to High Source
585	677	4	Amber	Starter Solenoid Lockout Relay Driver Circuit	Starter Relay Circuit - Voltage Below Normal, or Shorted to Low Source
595	103	16	Amber	Turbocharger 1 Speed	Turbocharger #1 Speed High - Data Valid but Above Normal Operational Range – Moderately Severe Level
596	167	16	Amber	Alternate Potential (voltage)	Electrical Charging System Voltage High – Data Valid but Above Normal Operational Range - Moderately Severe Level
597	167	18	Amber	Alternate Potential (voltage)	Electrical Charging System Voltage Low – Data Valid but Below Normal Operational Range - Moderately Severe Level
598	167	1	Red	Alternate Potential (voltage)	Electrical Charging System Voltage Low – Data Valid but Below Normal Operational Range - Most Severe Level
599	640	14	Red	Engine External Protection Input	Auxiliary Commanded Dual Output Shutdown - Special Instructions
649	1378	31	Maint	Engine Oil Change Interval	Change Lubricating Oil and Filter – Condition Exists
687	103	18	Amber	Turbocharger 1 Speed	Turbocharger #1 Speed Low - Data Valid but Below Normal Operational Range – Moderately Severe Level
689	190	2	Amber	Engine Speed	Primary Engine Speed Sensor Error – Data Erratic, Intermittent, or Incorrect
691	1172	3	Amber	Turbocharger #1Compressor Inlet Temperature	Turbocharger #1 Compressor Inlet Temperature Sensor Circuit – Voltage Above Normal, or Shorted to High Source
692	1172	4	Amber	Turbocharger #1Compressor Inlet Temperature	Turbocharger #1 Compressor Inlet Temperature Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
697	1136	3	Amber	Sensor Circuit - Voltage	ECM Internal Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
698	1136	4	Amber	Sensor Circuit - Voltage	ECM Internal Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source

Fuse Panel

The main fuse panels (Figure 52) are located behind two covers in the operator's compartment directly behind the operator's foot area, as well as the electrical engine disconnect switch. The illustrations of the fuse panels on this page may be rotated for easier reading.

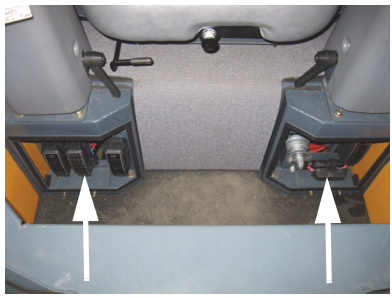


Figure 52 Main Fuse Panels and Engine Disconnect Switch

POWER RELAY 3
START SOL 30
BLOWER FAN 30
POWER RELAY 4

POWER RELAY 1
AC COND 30
POWER RELAY 2

SOL LOCK	AUX		HORN		START SAFETY	
				DIAG CON 3		ENG CNTRL
	ECU 30	KEY SW 10	ECU 5	FAN 15		

SEAT AIR 15	REAR WIPER 10	ACCESS CHASSIS 20	FRONT WIPER 15	POWER TACH 3	
FAN MOD 5	ACCESS ROPS 20	GAUGES 10	DOME LIGHT 10	INTER-LOCK 10	
SOL LOCK 15	AC/HEAT 20	RADIO 10	FLASHER 15	REAR WK LIGHT 15	
LIGHTS MARKER 10	AC/2 SP 10	HORN 10	B/U ALARM 5	AUX CONT 10	FRONT WK LIGHT 15

CHAPTER 7

MAINTENANCE

This *Maintenance Interval* chart was developed to match the *Service* chapter of this manual. Detailed information on each service procedure is in the *Service* chapter. A *Maintenance Log* follows this chart for recording maintenance performed. Recording 10-hour (or daily) service intervals is impractical and is not recommended.

Important: *Under severe operating conditions, more frequent service than the recommended intervals may be required. You must decide, based on your use, if your operation requires more frequent service.*

Service Procedure	Maximum Interval		
	10 Hours (or Daily)	250 Hours	500 Hours (or Annually)
Remove Foreign Material (page 60)	●		
Check Engine Air Cleaner Restriction Indicator (page 65)	●		
Check Engine Oil Level (page 68)	●		
Check Hydraulic Oil Level (page 81)	●		
Check Tire Pressures (page 85)	●		
Grease Hitch, Hitch-related Cylinder Pivots and Latch Pins (page 61)	●		
Check Bucket Cutting Edge (page 82)	●		
Test Safety Interlock System (page 20)	●		
Check Coolant Level (page 83)	●		
Clean Cooling System (page 83)	●		
Grease Lift Arm Pins (page 61)		●	
Check Drive Chain Tension (page 64)		●	
Check Wheel Nuts Torque (page 83)	❍	●	
Check All-Tach® Pivot Torque (page 83)		●	
Check Oil Level in Chaincases (page 63)		●	
Check Alternator/Fan Belt Tensions (page 82)		●	
Change Engine Oil and Filter* (page 68)	☐		●
Change Hydraulic Oil Filter (page 81)	☐		●
Check Battery (page 88)			●
Check Engine Mounting Hardware (page 68)			●
Change Fuel Filter (page 69)			●
Change Hydraulic Oil (page 82)			◆
Check and Drain Water Separator (page 69)	●		
Change Chaincase Oil (page 63)	☐		◆

❍ Perform the initial procedure at 2 hours then at "●" intervals.
☐ Perform the initial procedure at 50 hours then at "●" or "◆" intervals.
❖ Severe operating conditions.
◆ Perform the procedure at 1000 hours. * Every 500 hours or six months.