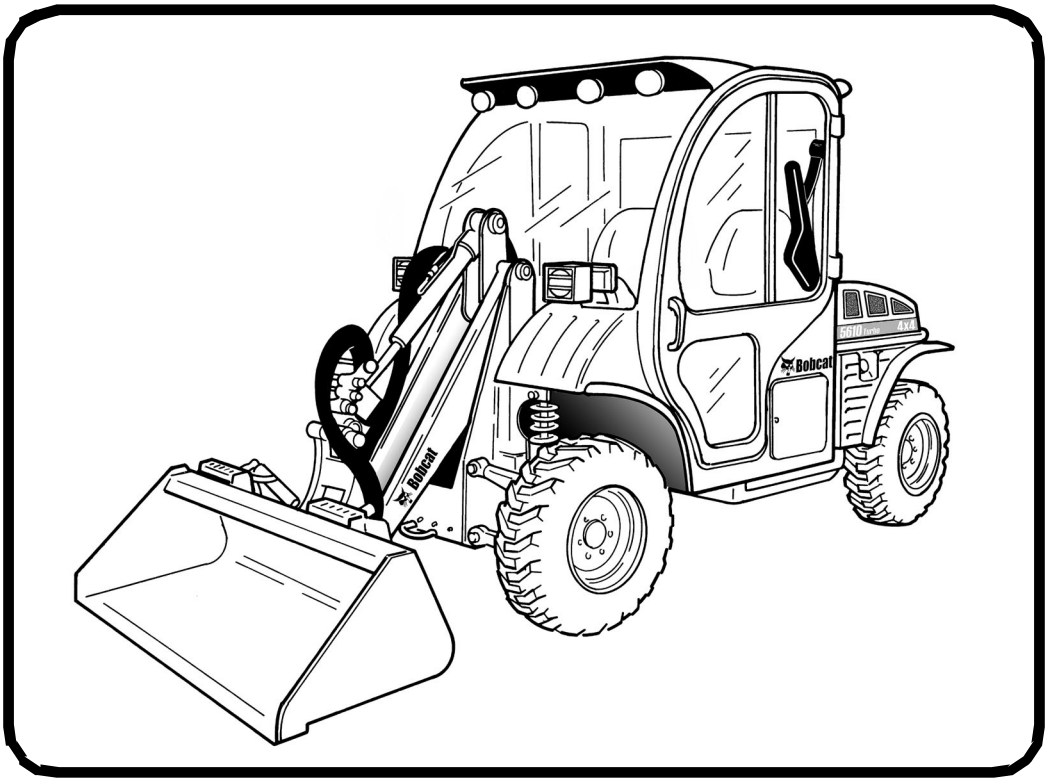
Operation & Maintenance Manual
Toolcat™ 5610 Utility Work Machine

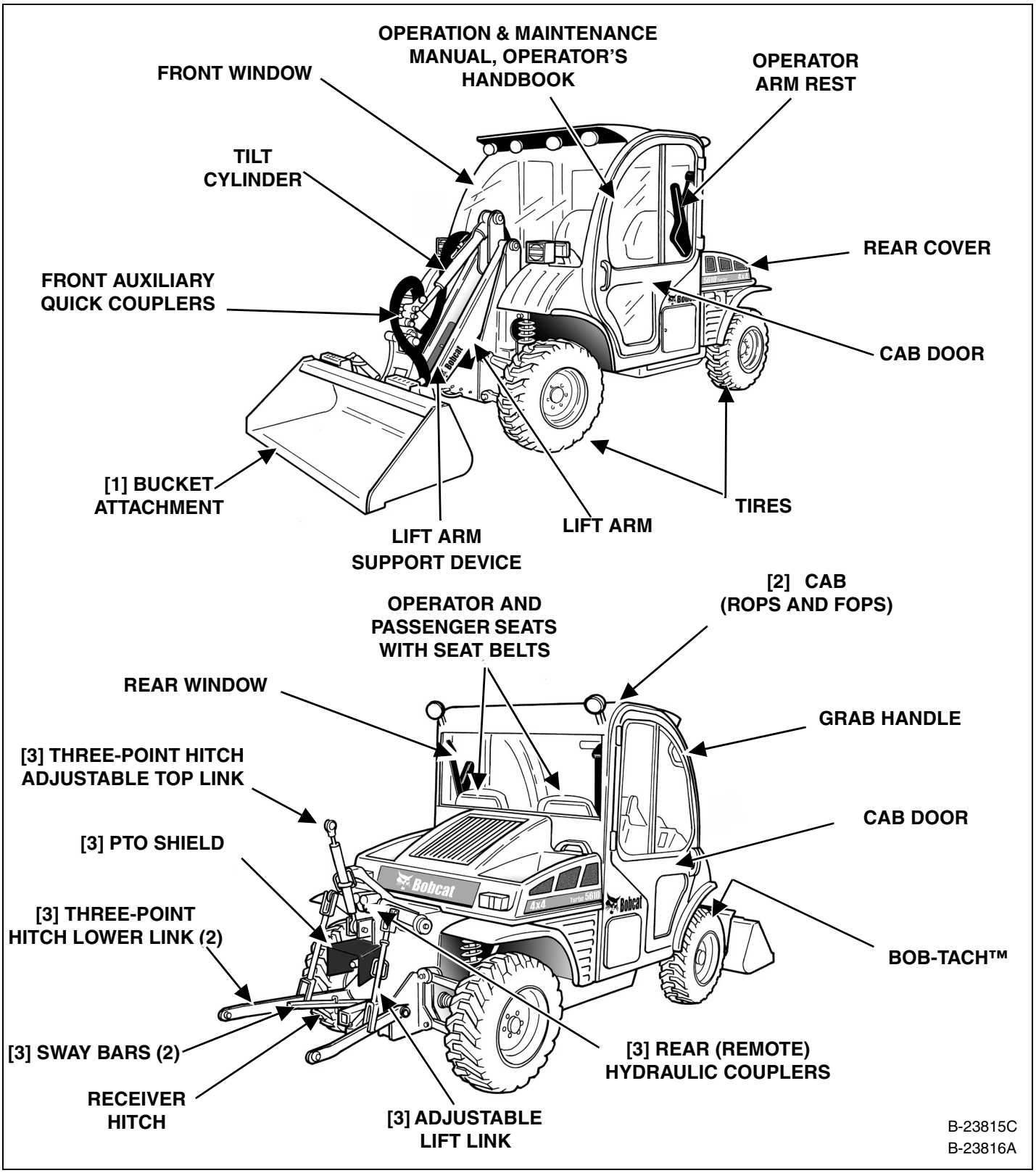
S/N APFB11001 & Above



EQUIPPED WITH
TOOLCAT INTERLOCK
CONTROL SYSTEM (TICS™)

6990053enUS (10-20) (E)

Printed in U.S.A.



[1] BUCKET - Buckets and other attachments are available for the Toolcat™ utility work machine.

[2] ROPS, FOPS - Roll Over Protective Structure, per ISO 3471, and Falling Object Protective Structure per ISO 3449, Level I.

[3] OPTIONAL OR FIELD ACCESSORIES (Not Standard Equipment).

FIRE PREVENTION (CONT'D)

Hydraulic System

Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling

Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

Ultra Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations with higher Sulfur content. Avoid death or serious injury from fire or explosion. Consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

Starting

Do not use ether or starting fluids on any engine that has glow plugs. These starting aids can cause explosion and injure you or bystanders.

Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting.

Spark Arrester Exhaust System

The spark arrester exhaust system is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

Check the spark arrester exhaust system regularly to make sure it is maintained and working properly. Use the procedure in the Operation & Maintenance Manual for cleaning the spark arrester muffler (if equipped).

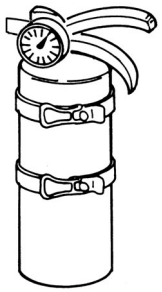
Welding And Grinding

Always clean the machine and attachment, disconnect the battery, and disconnect the wiring from the Bobcat controllers before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine when welding.

Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.

Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

Fire Extinguishers

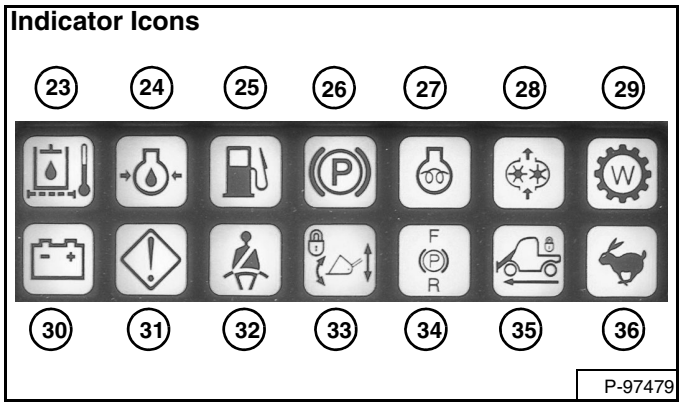


Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

SI TC3PT-1016

Indicator Icons

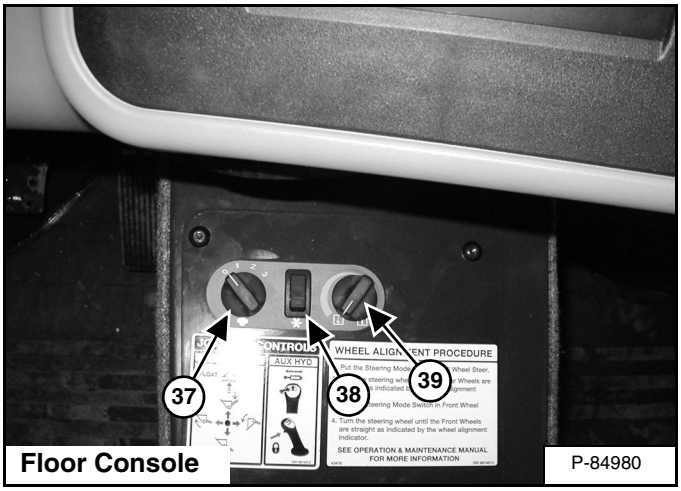
Figure 8



REF NO	INDICATOR ICONS
	When Indicator Icon Is Lighted . . . .
23	Plugged Hydraulic Filter or High Hydraulic Temperature
24	Low Engine Oil Pressure
25	Low Fuel Level
26	Parking Brake Engaged
27	Glow Plugs Activated
28	Auxiliary Hydraulics Engaged
29	Work Mode Engaged
30	Low Battery Voltage
31	General Warning (See Viewing Service Codes on Page 157.)
32	Fasten Seat Belt Reminder
33	Lift Arm and Tilt Functions Deactivated
34	Return to PARK reminder (Must be in PARK to start engine.)
35	Cruise Control Engaged
36	High Speed Engaged

Floor Console

Figure 9



REF NO	DESCRIPTION	FUNCTION / OPERATION
37	HVAC Fan	Turn clockwise to increase speed.
38	Air Conditioner	Press rear of switch to start; front to stop. Fan (Item 37) must be On for A/C to operate.
39	Temperature Control	Turn clockwise to increase the cab temperature; counterclockwise to decrease.

NOTE: Turning the air conditioner on with the temperature control set to the highest position will improve the function of the window defroster by drying the air. The air coming out of the vent will still be warm.

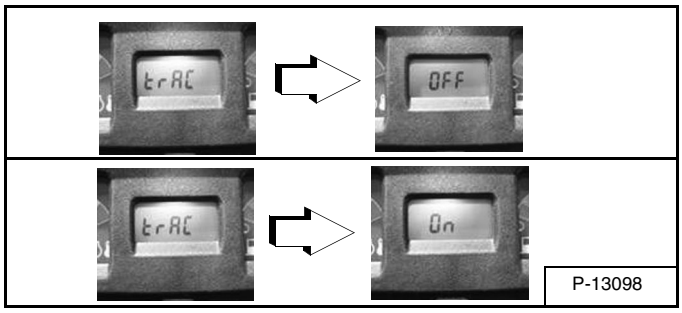
TRACTION CONTROL

Description

The traction control system (If equipped) increases lower speed drive performance in low traction and un-balanced terrain situations. The traction control system is automatically enabled at engine start. The traction control system is active in low range only. The traction control system monitors wheel slippage at lower speeds and re-directs wheel torque to the wheels that have traction. The traction control actives only when the controller detects wheel slippage and signals the system to re-direct the wheel traction.

Figure 22

Figure 23



Operation

Traction Control Operation In Low Range:

- The traction control system is enabled at engine start.
- The light in switch (Item 1) **[Figure 22]** is OFF when traction control system is enabled.
- When traction control is engaged, the light in the switch will flash. (The traction control actives only when the controller detects wheel slippage and signals the system to engage and re-directs the wheel traction.)
- Traction control will only engage in low range (automatically disabled in high range).

Traction Control - Turned OFF / ON By Operator:

- Press the switch (Item 1) **[Figure 22]** once to disable traction control. The dash **[Figure 23]** will flash trAC, then OFF, before going back to rpm screen.
- The light in the switch (Item 1) **[Figure 22]** is ON when traction control is disabled.
- Press the switch (Item 1) **[Figure 22]** a second time to enable traction control. The light in the switch will turn OFF. The dash **[Figure 23]** will flash trAC, then ON, before going back to rpm screen.

Traction Control Operation In High Range:

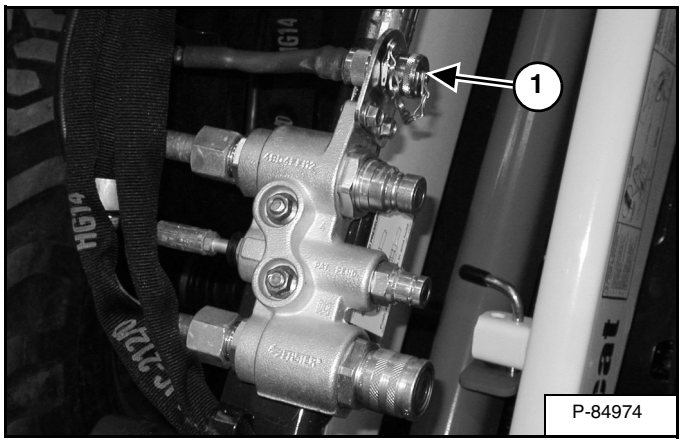
- The traction control system automatically disables when the machine is put into High Range.
- When put into High Range, the dash **[Figure 23]** will flash trAC, then OFF, before going back to rpm screen.
- The light in switch (Item 1) **[Figure 22]** is ON when High Range is engaged.
- Pressing the switch (Item 1) **[Figure 22]** when in High Range will not engage the traction control system. (Traction Control can not be force ON when in high range.)

NOTE: If the traction control system is disabled when the engine is stopped, it will automatically be enabled at engine start up.

ATTACHMENT CONTROL DEVICE (ACD)

Description

Figure 49



Connect the attachment electrical harness to the attachment control device (if equipped) (Item 1) **[Figure 49]**.

Figure 50

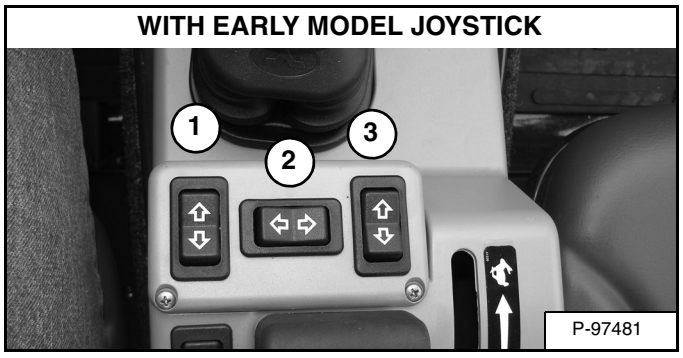
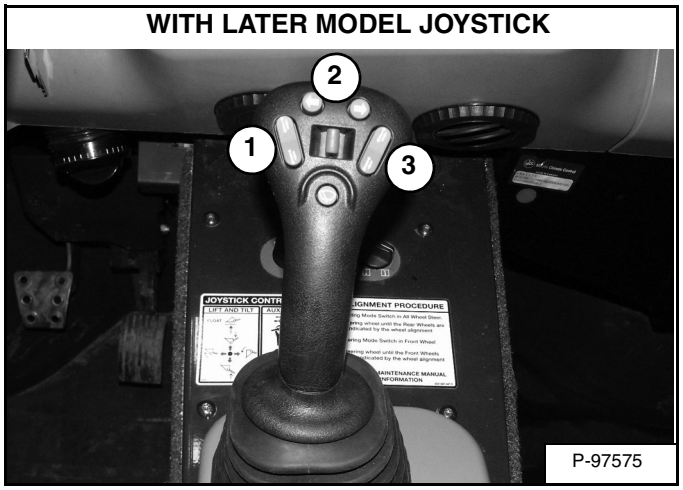


Figure 51

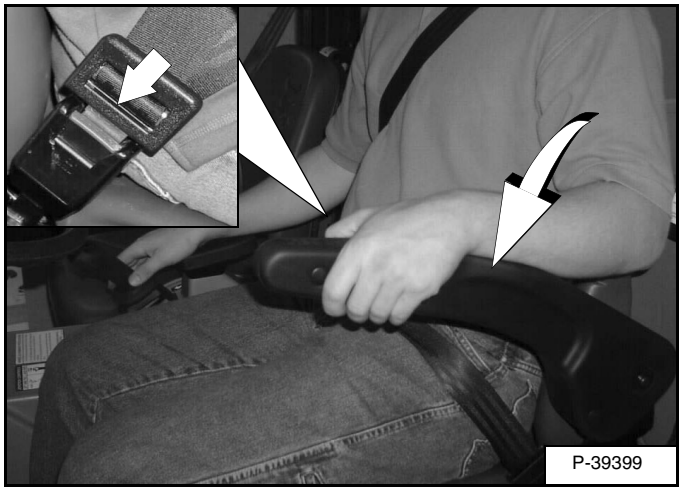


Auxiliary hydraulic function switches (Items 1, 2, and 3) **[Figure 50]** or **[Figure 51]** are used to control some attachment functions through the attachment control device.

See the appropriate attachment Operation & Maintenance Manual for control details.

Seat Belt Adjustment And Arm Rest

Figure 66



Fasten the seat belt snugly and lower the operator arm rest **[Figure 66]**. Adjust the belt so that it fits snug around the lower part of your hips. Passenger must also fasten seat belt.

IMPORTANT

Check the seat belt and shoulder belt retractors for correct operation.

Keep retractors clean and replace as necessary.

I-2199-0200

Installing And Removing The Attachment (Power Bob-Tach) (Cont'd)

Removing

Lower the lift arm and put the attachment flat on the ground.

If the attachment is hydraulically and / or attachment electrical harness controlled (i.e.: sweeper, auger, etc.):

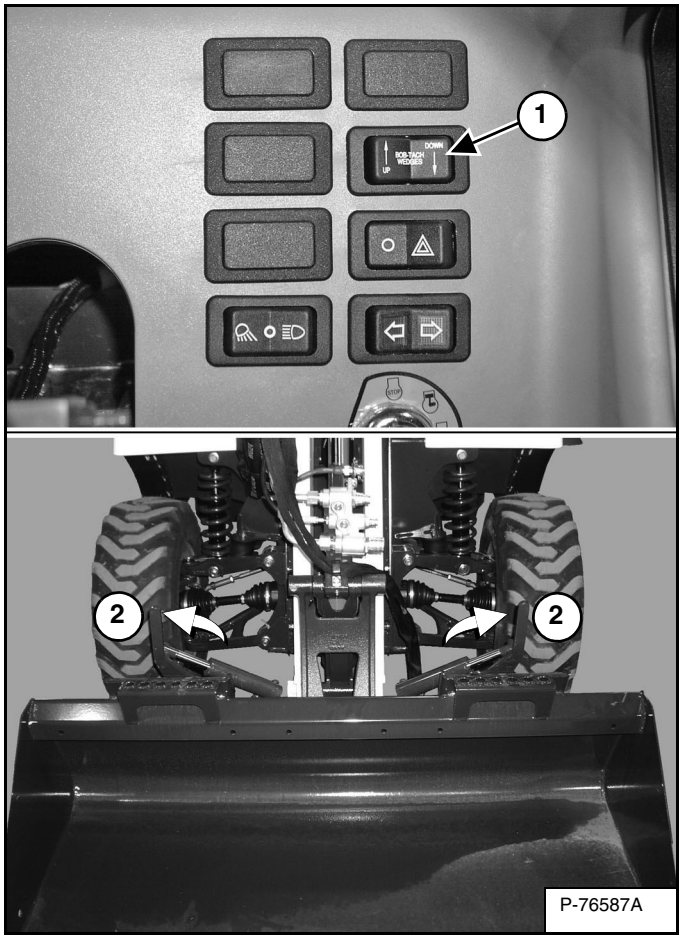
Stop the engine and relieve hydraulic pressure in the auxiliary circuit. (See Relieve Hydraulic Pressure (Utility Work Machine And Attachment) on Page 44.)

Put the Travel Direction Control Lever in PARK, unfasten the seat belt, raise the arm rest, and exit the cab.

Disconnect the hydraulic hoses and / or the attachment electrical harness connection (if equipped).

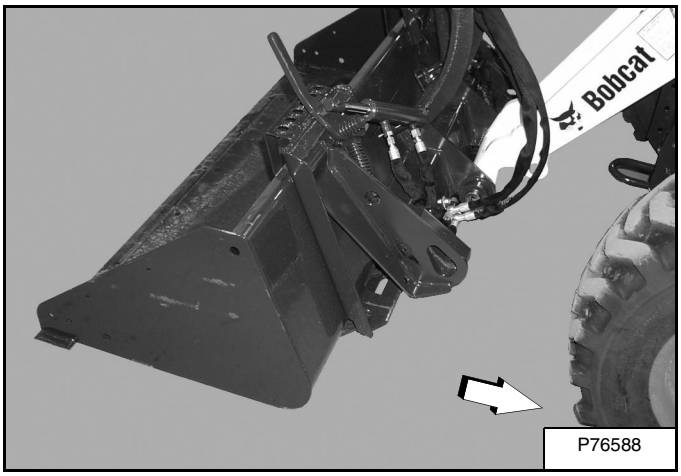
Enter the utility work machine and perform the pre-start procedure. (See PRE-STARTING PROCEDURE on Page 58.)

Figure 86



Press and hold the Bob-Tach "WEDGES UP" switch (Item 1) until the levers are in the unlocked position (Item 2) **[Figure 86]** (wedges fully raised).

Figure 87



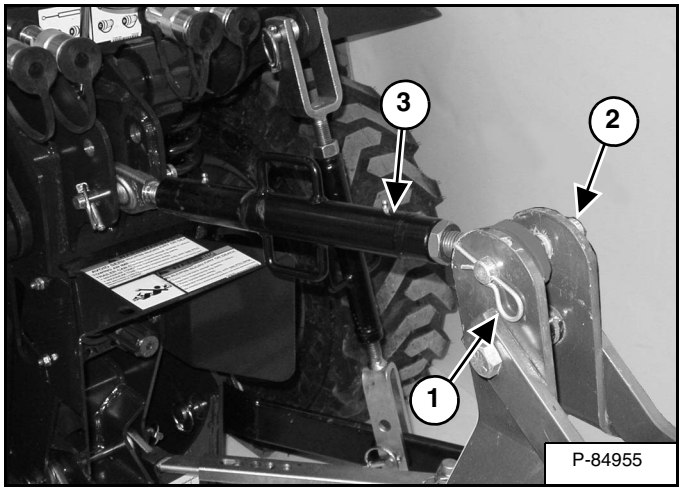
Tilt the Bob-Tach forward and move the utility work machine backward, away from the bucket or attachment **[Figure 87]**.

NOTE: The Power Bob-Tach system has continuous pressurized hydraulic oil to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the switch (WEDGES UP) before removing an attachment to be sure both wedges are fully raised before removing the attachment.

Installing And Removing Three-Point Hitch Mounted Implements (Cont'd)

Removal (Cont'd)

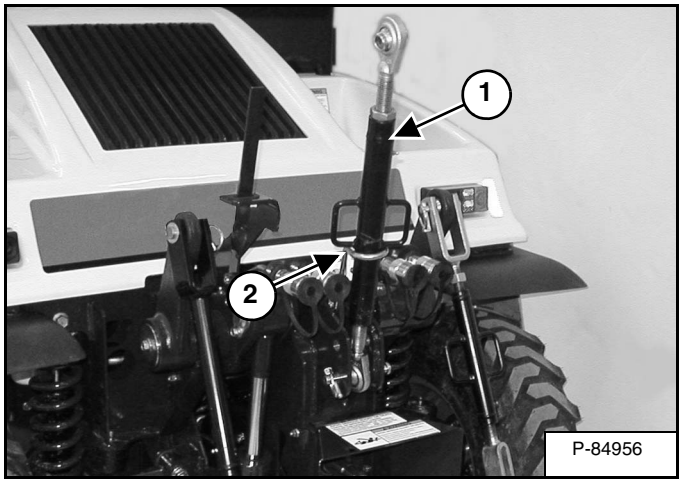
Figure 100



Remove the retainer pin (Item 1) and pin (Item 2) **[Figure 100]**.

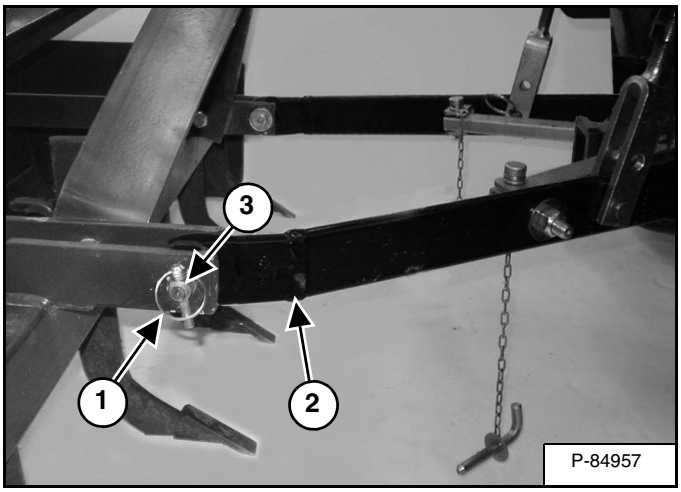
Remove the top link (Item 3) **[Figure 100]** from the implement.

Figure 101



Place the top link (Item 1) into the storage position bracket (Item 2) **[Figure 101]**.

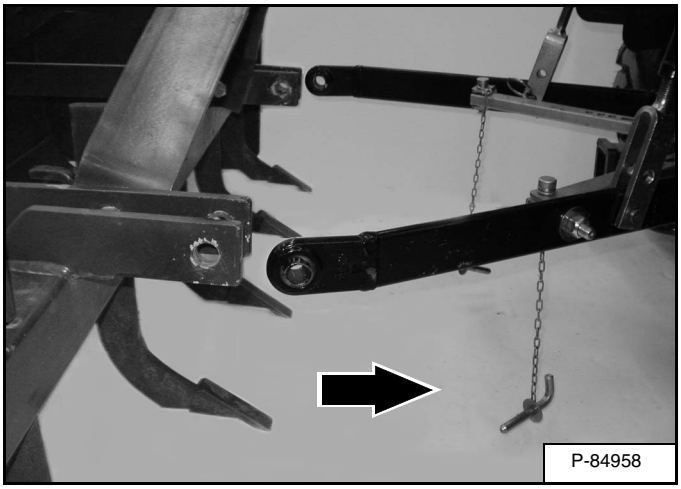
Figure 102



Remove the retainer pins (Item 1) **[Figure 102]** from the three-point hitch links (both sides).

Move the lower links (Item 2) out from the implement pins (Item 3) **[Figure 102]** (both sides). (See Sway Bar Adjustment on Page 81.)

Figure 103



Enter the utility work machine and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 58.)

Reinstall the sway bar pins (if removed). (See Sway Bar Adjustment on Page 81.)

Slowly drive the utility work machine away from the implement **[Figure 103]**.

Operating The Three-Point Hitch Implement

The three-point hitch on the utility work machine is classified as a **Category 1** Three-Point Hitch.

⚠ WARNING

AVOID INJURY OR DEATH

- **Always fasten the seat belt.**
- **Never modify equipment or use unapproved implements.**
- **Operate the utility work machine from the operator's seat only.**
- **Keep bystanders away. Never carry riders (except in the passengers seat with the seat belt fastened).**

W-2731-0608

Read and understand the implement Operation & Maintenance Manual and the utility work machine Operation & Maintenance Manual prior to installing or using any implement.

⚠ WARNING

AVOID INJURY OR DEATH

- **Load, unload and turn on flat, level ground only.**
- **Do not exceed the Three-Point Hitch lift capacity or machine rated capacity.**
- **Always carry load low. Slow down when turning.**

W-2745-0708

When operating on a public road or highway, always follow local regulation. For example: Slow Moving Vehicle (SMV) Sign or directional signals and hazard / flasher lights may be required.

Always warm up the engine and hydrostatic system before operating the utility work machine.

Always inspect the utility work machine and the implement before use. Inspect for damaged or loose parts, damaged or missing PTO shields and guards.

New operators must operate the utility work machine in an open area without bystanders. Operate the controls until the utility work machine can be handled at a efficient and safe speed for all conditions of the work area.

Check for safe operating speed, safe stopping distances and braking characteristics that may be different with each type of implement. Know that when implements are installed, the utility work machine braking distance may increase.

Before beginning operation, inspect the work area for unsafe conditions.

Look for drop-offs or rough terrain. Have underground utility lines (gas, water, sewer, irrigation, etc.) located and marked.

Remove objects or other construction material that could damage the utility work machine or cause personal injury.

See the implement Operation & Maintenance Manual for the correct operating procedure for your implement.

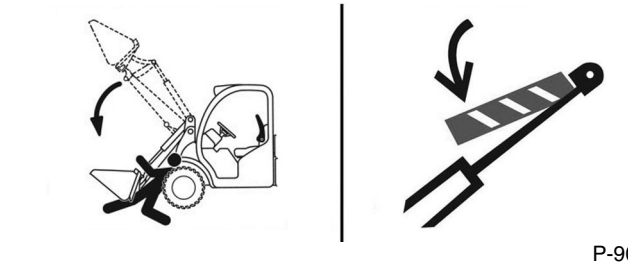
LIFT ARM SUPPORT DEVICE

Installing

WARNING

Never work on a machine with the lift arm up unless the lift arm is supported by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arm or attachment to fall and cause injury or death.

W-2447-1102



P-90775

AVOID DEATH

- **Never reach under or stand under raised lift arm unless supported by an approved lift arm support.**
- **Moving a lift arm control or failure of a part can cause lift arm to drop.**

D-1010-0709

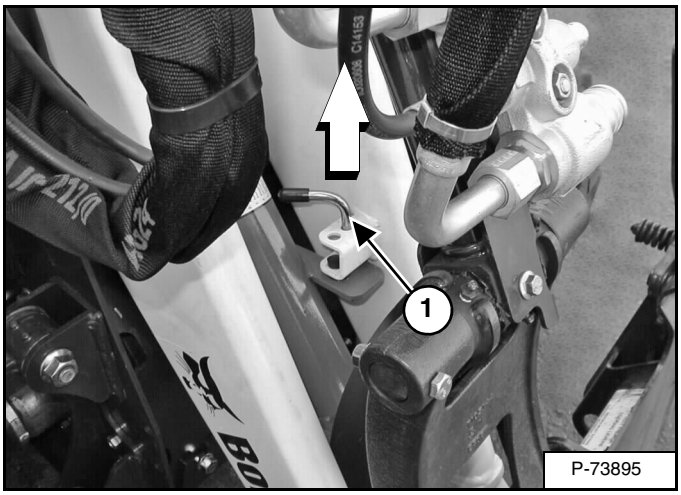
WARNING

Service lift arm support device if damaged. Using a damaged lift arm support can cause lift arm to drop causing injury or death.

W-2448-1102

Remove any attachment from the Bob-Tach and fully lower the lift arm before performing this procedure.

Figure 137



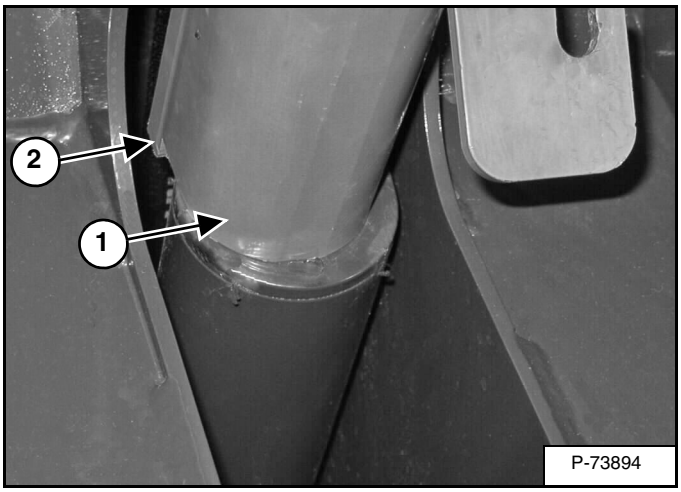
Pull the latch (Item 1) **[Figure 137]** up to release the lift arm support.

Enter the cab, lower the arm rest, fasten the seat belt and start the engine.

Raise the lift arm all the way up.

Stop the engine and exit the cab.

Figure 138



Swing the lift arm support (Item 1) **[Figure 138]** toward the cylinder rod. Raise and place into position on top of cylinder base. Lift arm support must contact cylinder rod.

The tab on each side of lift arm support (Item 2) **[Figure 138]** will hook in place around cylinder base when properly installed.

Enter the cab, lower the arm rest, fasten the seat belt and start the engine.

Lower the lift arm until it is supported by the support device.

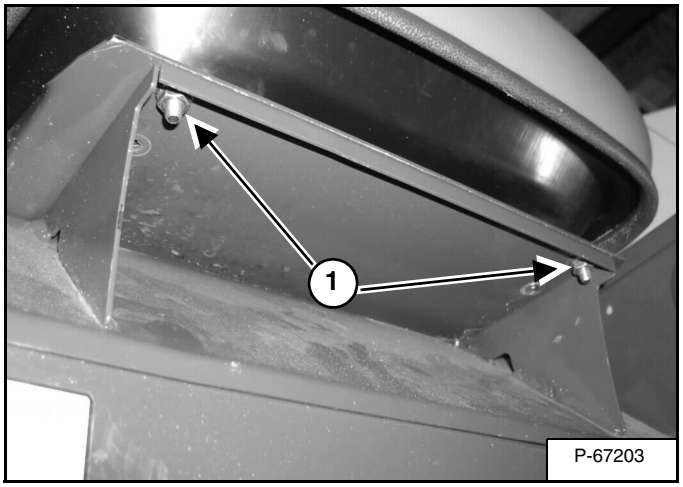
Stop the engine and exit the cab.

PASSENGER SEAT

Removal And Installation

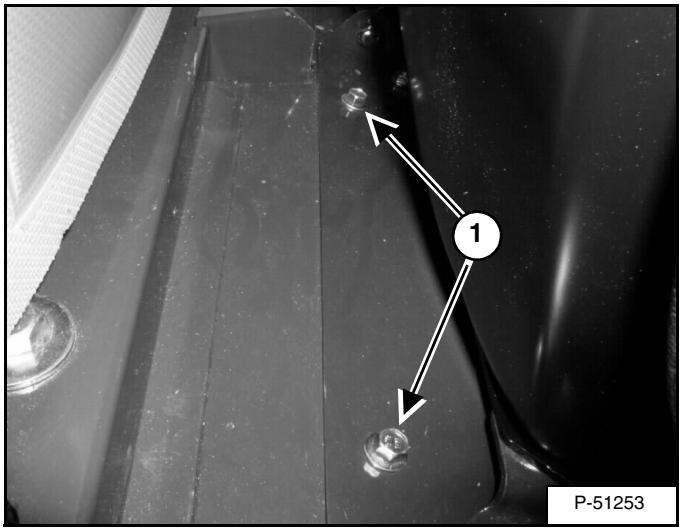
Removal

Figure 169



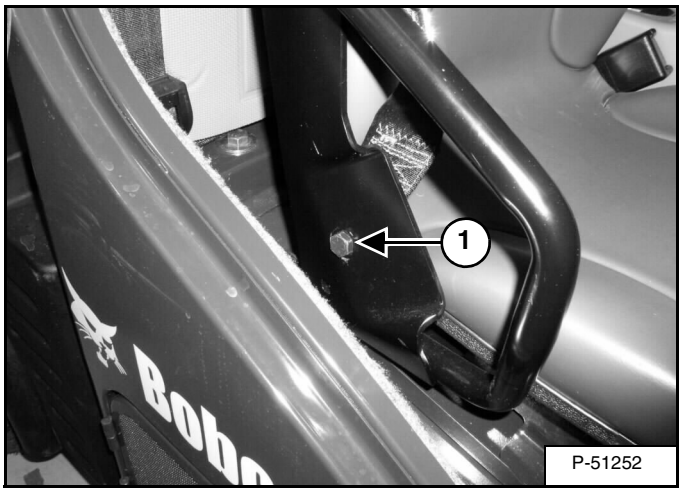
Remove the two front seat mounting nuts (Item 1) **[Figure 169]** from the passenger seat.

Figure 170



Remove the two seat mounting bolts (Item 1) **[Figure 170]** from behind the passenger seat.

Figure 171



Remove the bolt (Item 1) **[Figure 171]** from the seat.

Remove seat from operator cab.

Installation

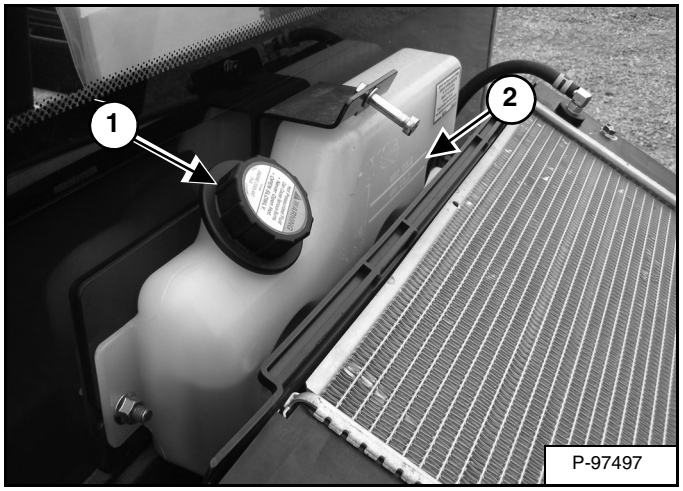
Install the seat into the cab. Reinstall the seat belt mounting bolt (Item 1) **[Figure 171]**. Tighten the bolt to 84 - 92 N•m (62 - 68 ft-lb) torque.

Install the two rear mounting bolts (Item 1) **[Figure 170]**. Tighten the bolts to 43 - 47 N•m (32 - 35 ft-lb) torque.

Install the two nuts (Item 1) **[Figure 169]**. Tighten the nuts to 24 - 26 N•m (18 - 19 ft-lb) torque.

Removing And Replacing Coolant

Figure 192



Stop the engine and allow to cool. Raise the rear cover. (See REAR COVER on Page 113.)

⚠ WARNING

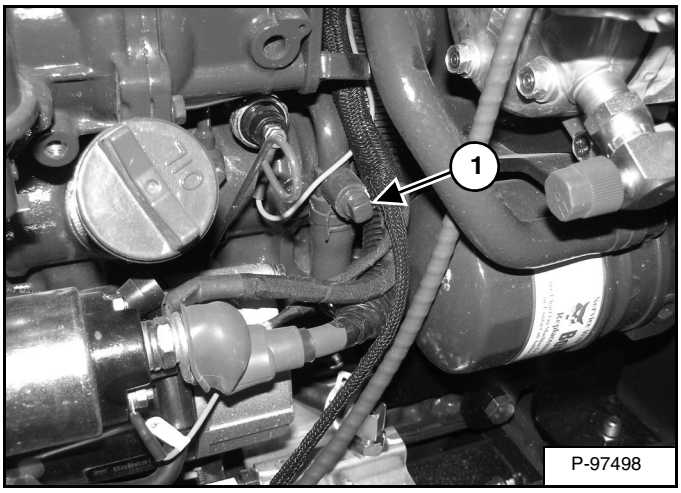
AVOID INJURY

Do not remove engine coolant cap when the engine is hot. You can be seriously burned.

W-2607-0804

Remove the cap (Item 1) **[Figure 192]** from the coolant recovery tank.

Figure 193



Open the right side access cover. (See RIGHT COVER on Page 114.)

Remove the cap (Item 1) **[Figure 192]** from the coolant recovery tank.

Remove the coolant drain plug (Item 1) **[Figure 193]**. Position a funnel and drain hose under the drain plug and drain the coolant into a container.

Reinstall the drain plug.

IMPORTANT

Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

I-2067-0499

Reuse or dispose of the used coolant in an environmentally safe manner.

Add premixed coolant to the coolant recovery tank until it is at the full mark. Install the cap. (See Propylene Glycol on Page 125.)

Start the engine and allow to run until it is at operating temperature.

Stop the engine and check the coolant level. Add premixed coolant to the recovery tank as needed.

Close the right side access cover. (See RIGHT COVER on Page 114.)

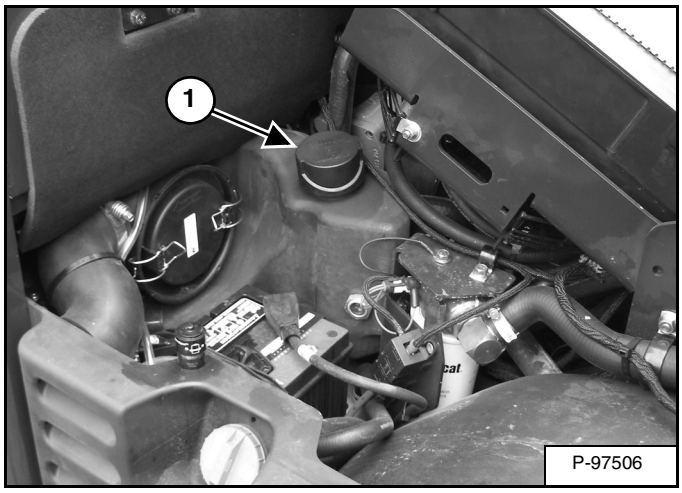
Lower the rear cover. (See REAR COVER on Page 113.)

Breather Cap

Replace breather cap at the correct service interval. (See SERVICE SCHEDULE on Page 103.)

Stop the engine. Raise the rear cover. (See REAR COVER on Page 113.)

Figure 215



Thoroughly clean the area around the breather cap.

Remove the breather cap (Item 1) **[Figure 215]** and discard.

Install new breather cap.

Lower the rear cover. (See REAR COVER on Page 113.)

LUBRICATING THE UTILITY WORK MACHINE

Lubrication Locations

Lubricate as specified for the best performance of the machine. (See SERVICE SCHEDULE on Page 103.)

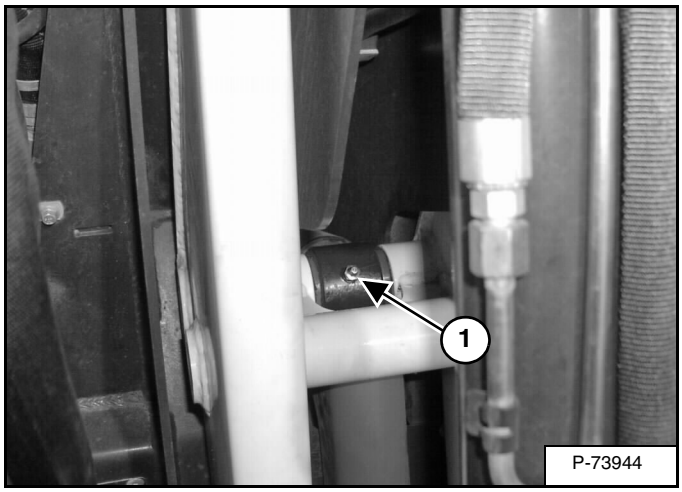
Record the operating hours each time you lubricate the machine.

Always use a good quality lithium based multi-purpose grease. Apply lubricant until extra grease shows.

Stop the engine.

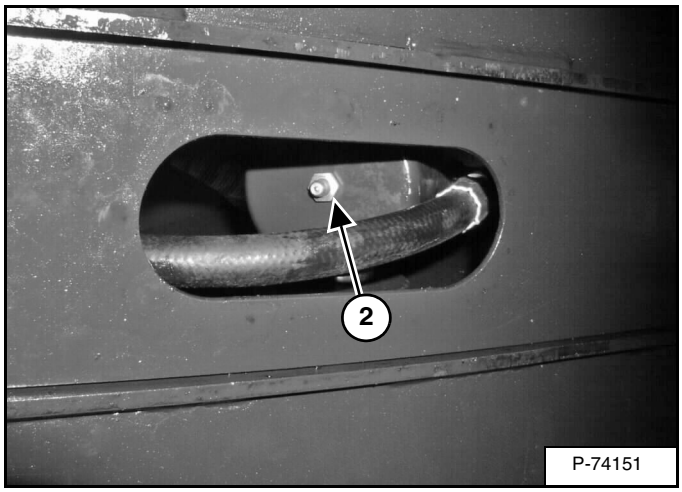
Lubricate the following:

Figure 236



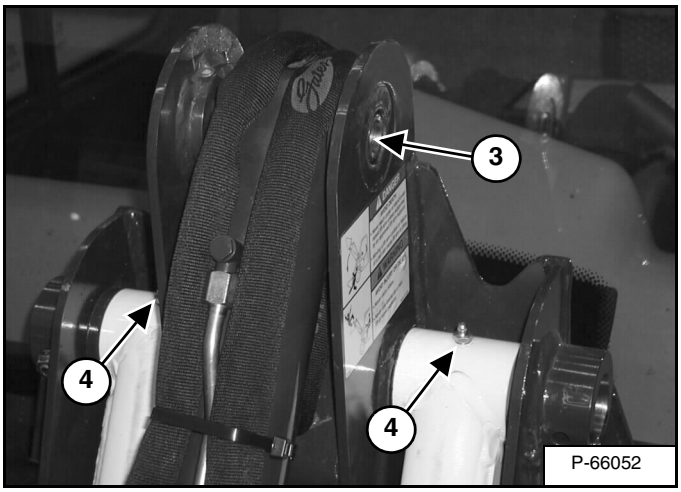
1. Rod End Lift Cylinder (1) **[Figure 236]** (between arm uprights).

Figure 237



2. Base End Lift Cylinder (1) **[Figure 237]** (under machine).

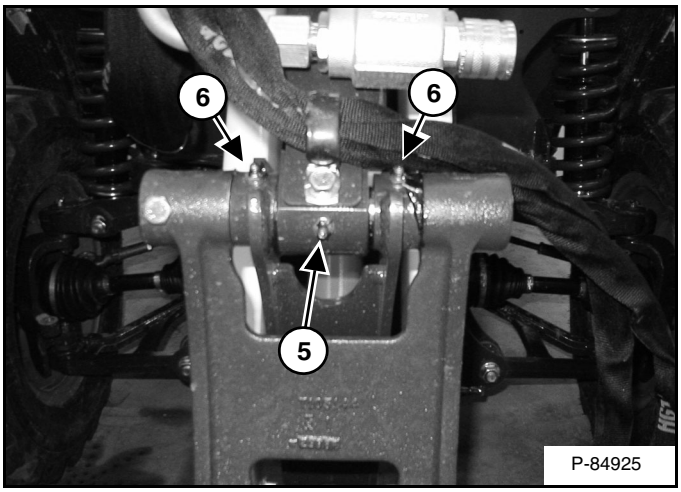
Figure 238



3. Base End Tilt Cylinder Pivot Pin (1) **[Figure 238]**.

4. Lift Arm Pivot (2) **[Figure 238]**.

Figure 239



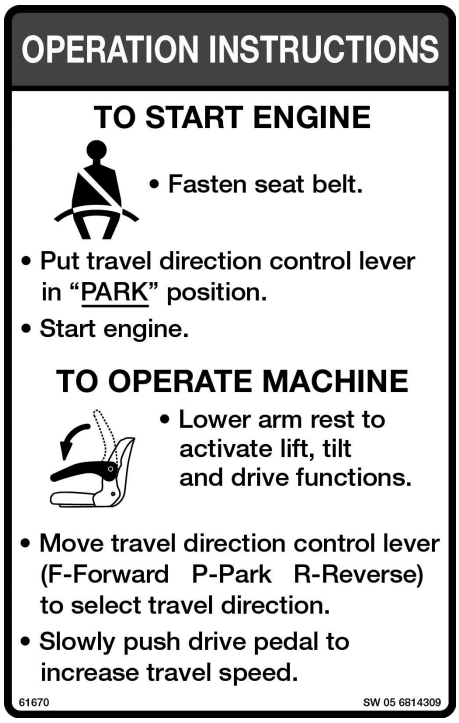
5. Rod End Tilt Cylinder (1) **[Figure 239]**.

6. Upper Guide Link Pivot (2) **[Figure 239]**.

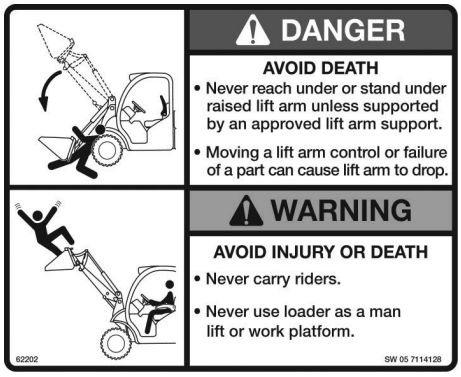
Service Codes List (Cont'd)

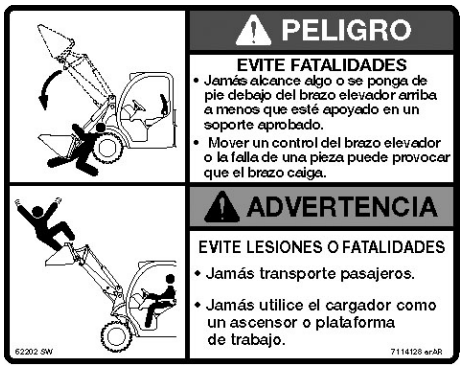
CODE	DESCRIPTION	CODE	DESCRIPTION
50-31	FWD Drive Coil Short To Battery (Coil Return)	50-65	Aux Base Coil Short To Ground or Open Circuit
50-32	FWD Drive Coil Short To Battery	50-66	Aux Rod Coil Short To Ground
50-33	FWD Drive Coil Short To Ground or Open Circuit	50-67	Servo Coil Short To Ground or Open Circuit
50-34	Pump Not Calibrated	50-70	Fan Coil In Error
50-35	Servo Coil Max Current	50-72	Fan Coil Short To Ground
50-36	Servo Coil Over Current	50-73	Throttle Sensor Ch A Out Of Range High
50-39	REV Drive Coil Short To Battery (Coil Return)	50-74	Throttle Sensor Ch A Out Of Range Low
50-40	REV Drive Coil Short To Battery	50-75	Throttle Sensor Ch B Out Of Range High
50-41	REV Drive Coil Short To Ground or Open Circuit	50-76	Throttle Sensor Ch B Out Of Range Low
50-42	Throttle Sensor Not Calibrated	50-77	Aux Diverter Error ON
50-43	Aux Base Coil Short To Battery (Coil Return)	50-78	Aux Diverter Error OFF
50-44	Aux Base Coil Short To Battery	50-80	PTO Speed Sensor Out Of Range High
50-45	Aux Rod Coil Short To Battery (Coil Return)	50-81	PTO Speed Sensor Out Of Range Low
50-46	Aux Rod Coil Short To Battery	50-82	PTO Speed Sensor Open Circuit
50-47	Two Speed Output Short To Ground	50-83	Brake Coil 2 Short To Battery (Return Side)
50-48	Two Speed Output Short To Battery	50-84	Brake Coil 2 Short To Battery (High Side)
50-49	Brake Coil Short To Battery (Coil Return)	50-85	Brake Coil 2 Short To Ground or Open Circuit
50-50	Brake Coil Short To Battery	50-86	Axle Speed Sensor Out Of Range High
50-51	Brake Coil Short To Ground or Open Circuit	50-87	Axle Speed Sensor Out Of Range Low
50-52	Brake Lights Short To Battery	50-88	Axle Speed Sensor Open Circuit
50-53	Brake Lights Short To Ground	50-99	In Calibration Mode
50-54	Swash Plate Not In Neutral	50-100	Software Update
50-55	Swash Plate Unresponsive	63-05	Console Sensor Short To Battery
50-56	CAN Communications Fault	63-06	Console Sensor Short To Ground
50-57	Drive Controller Not Calibrated	64-05	Switched Power Relay Short to Battery
50-59	Swash Plate Position Uncommanded	64-06	Switched Power Relay Short To Ground
50-60	Remote Hydraulics Short To Battery	64-07	Switched Power Relay Open Circuit
50-61	Remote Hydraulics Short To Ground	67-05	Power Bob-Tach Short To Battery
		67-06	Power Bob-Tach Short To Ground

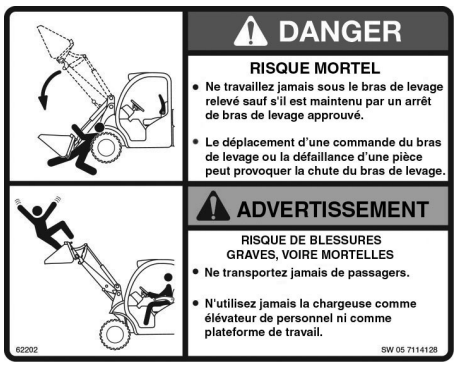
Operation Instruction (6814309)



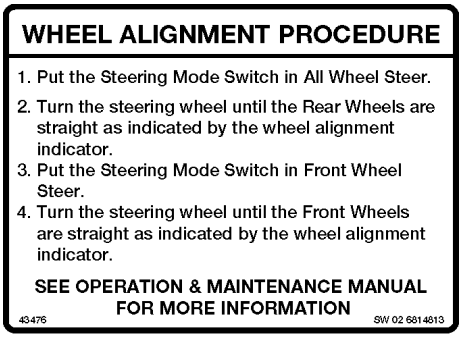
Danger (7114128)

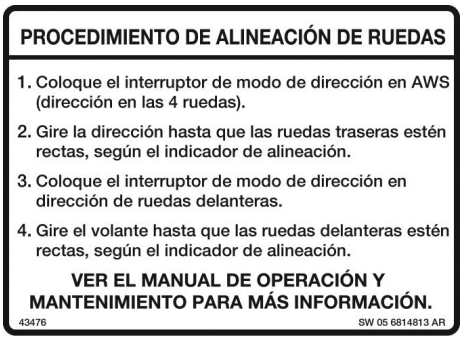


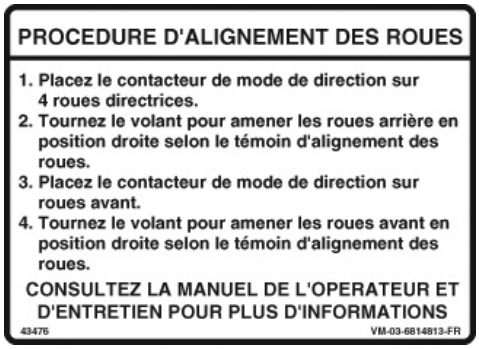




Wheel Alignment (6814813)







MACHINE LOAD CAPACITIES

Loader Rated Operating Capacity (ROC)

Without Three-Point Hitch (1): The operating load on the lift arms with a standard dirt bucket is **590 kg (1300 lb)**.

With Three-Point Hitch (2): The operating load on the lift arms with a standard dirt bucket is **680 kg (1500 lb)**.

NOTE: If longer buckets or other attachments such as a Pallet Fork is used, the load center is moved forward and lift arm capacity is reduced.

Three-Point Hitch Lift Capacity

Without Attachment (3): The lift capacity of the three-point hitch is **658 kg (1450 lb)** at 610 mm (24 in) behind the lift points.

With Empty Standard Bucket (2): The lift capacity of the three-point hitch is **805 kg (1775 lb)** at 610 mm (24 in) behind the lift points.

NOTE: Implements with load centers greater than 610 mm (24 in) will reduce the lift capacity.

Maximum Storage Bin Load (Each)

The maximum load that can be carried in each storage bin is **22 kg (50 lb)**.

Machine Rated Capacity (3) = (A + B + C + F)

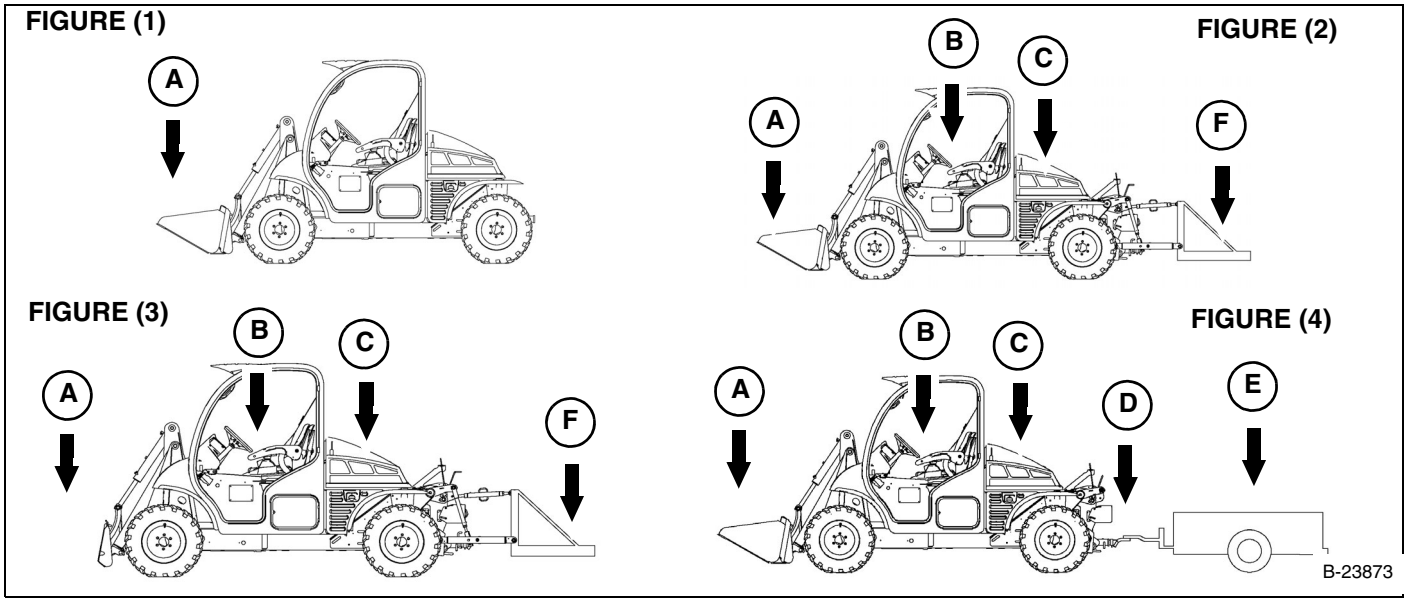
The total capacity that the machine can handle when the lift arm and three-point hitch are used together is up to **997 kg (2200 lb)**. This includes the combined weight of load on lift arm, storage bins, three-point hitch, operator and passenger.

Maximum Trailer Hitch Tongue Weight

The maximum vertical load that can be applied to the receiver hitch is **227 kg (500 lb)**.

Total Rated Capacity (4) = (A + B + C + D + E)

The maximum load that can be applied to the machine. while towing is **1905 kg (4200 lb)**. This includes the combined weight of the load on the lift arm, storage bins, operator and passenger and the tow weight (tow weight includes the weight of the trailer and the cargo).



A - Loader **R**ated **O**perating **C**apacity (ROC)***** = *Without Three-Point Hitch* **590 kg (1300 lb) Maximum,**
With Three-Point Hitch **680 kg (1500 lb) Maximum**

B - Operator and Passenger Weight

C - Maximum Storage Bin Load (Each) = **22 kg (50 lb)**

D - Maximum Trailer Hitch Tongue Weight = **227 kg (500 lb)**

E - Tow Weight = **1814 kg (4000 lb)** (Including weight of trailer)

F - Maximum Three-Point Hitch Load = *(With Empty Standard Bucket)* **805 kg (1775 lb)**
(Without Attachment) **658 kg (1450 lb)**

Machine Rated Capacity = **A + B + C + F = 997 kg (2200 lb)**

(A) must not exceed **680 kg (1500 lb), (C)** must not exceed **22 kg (50 lb) each, (F)** must not exceed **805 kg (1775 lb)**

Total Rated Capacity (when towing) = **A + B + C + D + E** = **1905 kg (4200 lb) Maximum**

(A) must not exceed **680 kg (1500 lb), (C)** must not exceed **22 kg (50 lb) each, (D)** must not exceed **227 kg (500 lb), (E)** must not exceed **1814 kg (4000 lb)**

***** Loader **ROC** is determined by using a standard dirt bucket and material of normal density, such as dirt or dry gravel. If longer buckets or other attachments such as Pallet forks are used, the load center is moved forward and the lift arm capacity is reduced. If very dense material is loaded, the volume must be reduced.

WARRANTY