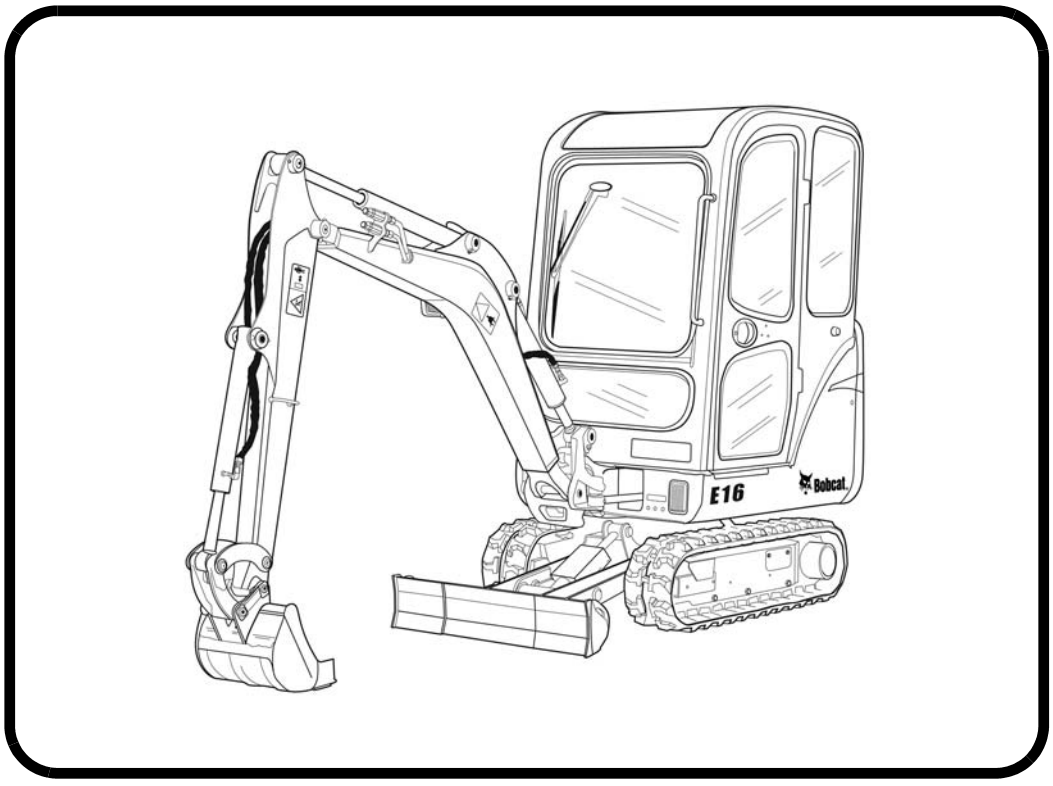
EN

Bobcat®

Operation & Maintenance Manual
E16 Compact Excavator

S/N AHLL11001 & Above



6989423 (12-09) Revised (5-12) (1)

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Original Instructions

BOBCAT COMPANY IS IS0 9001 CERTIFIED

ISO 9001 is an international standard that specifies requirements for a quality management system that controls the processes and procedures which we use to design, develop, manufacture and distribute Bobcat products.

British Standards Institute (**BSI**) is the Certified Registrar Bobcat Company chose to assess the Company's compliance with the ISO 9001 at Bobcat's manufacturing facilities in Gwinner and Bismarck, North Dakota (U.S.A.), Pontchateau (France), Dobris (Czech Republic) and the Bobcat corporate offices (Gwinner, Bismarck & West Fargo) in North Dakota. Only certified assessors, like BSI, can grant registrations.

ISO 9001 means that as a company we say what we do and do what we say. In other words, we have established procedures and policies, and we provide evidence that the procedures and policies are followed.

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER (6 Pack) 6671057		PRIMARY HYDRAULIC FILTER 6653336
	FUEL FILTER 6667352		BATTERY 6670251
 	AIR FILTER, Outer 6673752 AIR FILTER, Inner 6673753		HYDRAULIC FILL / BREATHER CAP 6692836

Avoid Silica Dust

Cutting or drilling concrete containing sand or rock containing quartz may result in exposure to silica dust. Use a respirator, water spray or other means to control dust.

FIRE PREVENTION

Maintenance

The machine and some attachments have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

The operator's area, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.

All fuels, most lubricants and some coolants mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Operation

Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

Electrical

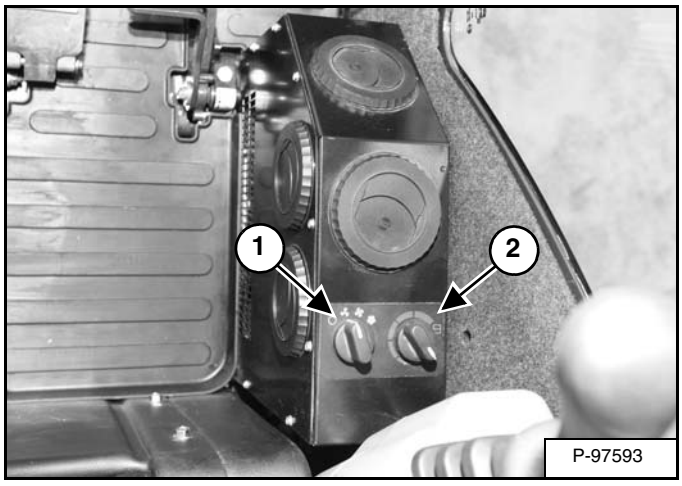
Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

Battery gas can explode and cause serious injury. Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

OPERATING INSTRUCTIONS

Heater

Figure 27



Heater **[Figure 27]**

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	Fan Motor Switch	Turn clockwise to increase fan speed; anticlockwise to decrease.
2	Temperature Control	Turn clockwise to increase temperature; anticlockwise to decrease.

EMERGENCY EXIT

The door, the right side rear window and the front window provide exits.

Right Side Rear Window

Figure 28

Slide the right side rear window to the front of the excavator and exit through the side window **[Figure 28]**.

Front Window

Figure 29

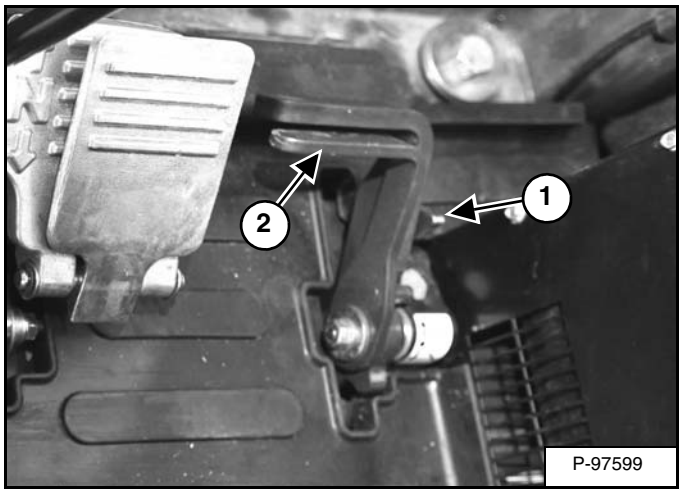
Open the front window and exit **[Figure 29]**.

NOTE: If the excavator has a Special Applications Kit installed, the front window is NOT an emergency exit.

BOOM SWING

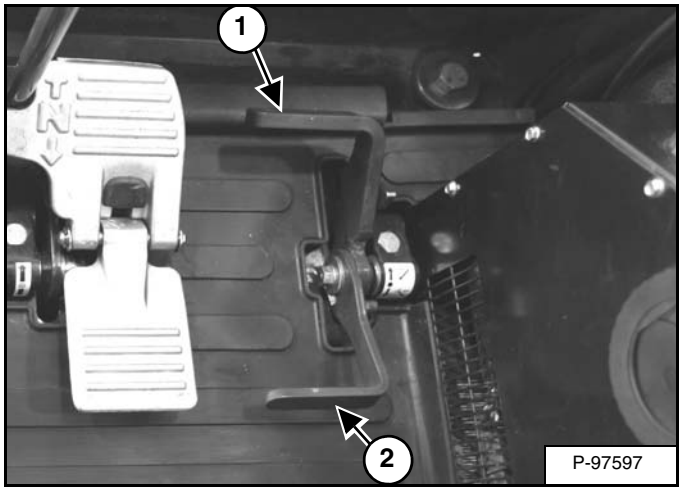
Operation

Figure 54



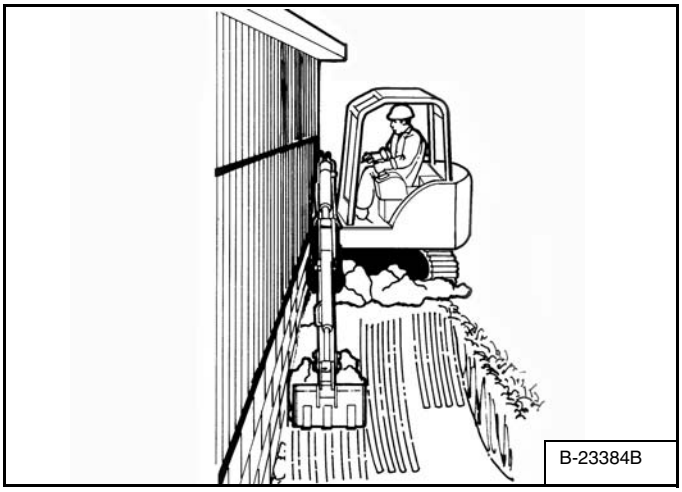
Release the pedal lock (Item 1) and swing the heel (Item 2) **[Figure 54]** on the pedal to the rear.

Figure 55



Push the toe of the pedal (Item 1) to swing the boom to the right; push the heel (Item 2) **[Figure 55]** to swing left.

Figure 56



NOTE: The purpose of the boom swing is to offset the boom with respect to the upperstructure for digging close to a structure [Figure 56].

Installing And Removing The Attachment (Quick Coupler, Lehnhoff® System)

Installation

NOTE: Installation and removal of the bucket is shown. The procedure is the same for other attachments. Disconnect any hydraulic lines that are operated by hydraulic power before removing any attachments (breaker, auger etc.).

⚠ WARNING

AVOID INJURY OR DEATH

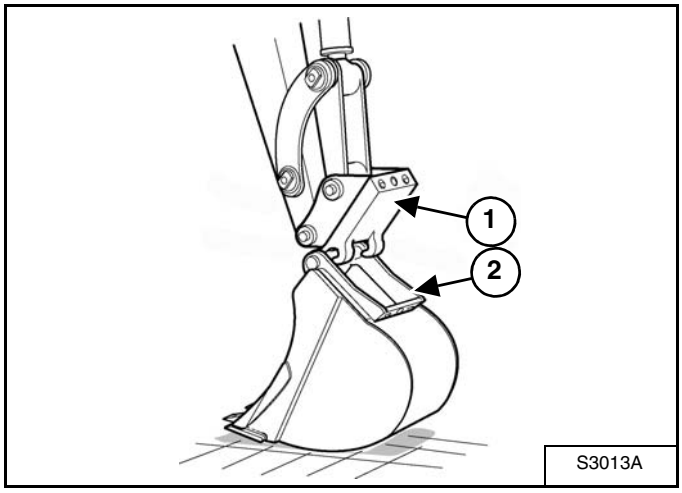
Never use attachments or buckets which are not approved by Bobcat Company. Buckets and attachments for safe loads of specified densities are approved for each model. Unapproved attachments can cause injury or death.

W-2052-0907

Position the excavator so the excavator arm is above the attachment.

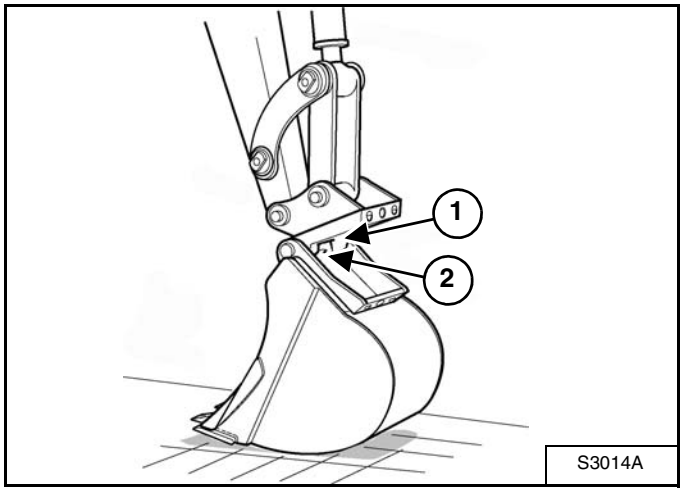
Fully retract the bucket cylinder.

Figure 78



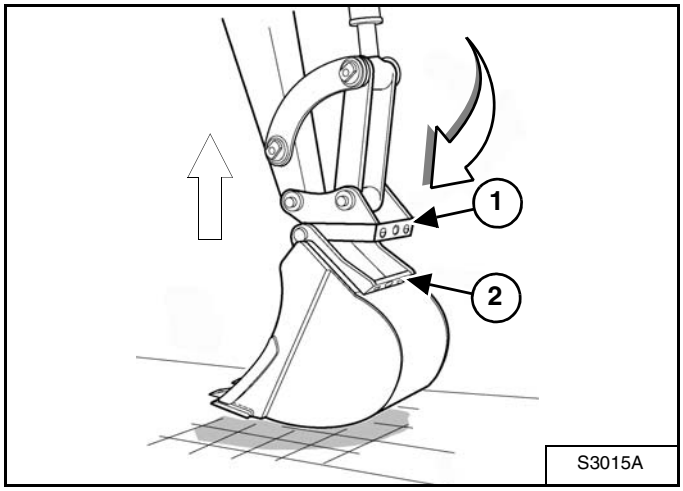
Lower the coupler (Item 1) onto the attachment (Item 2) **[Figure 78]**.

Figure 79



Engage the coupler hooks (Item 1) onto the attachment shaft (Item 2) **[Figure 79]**.

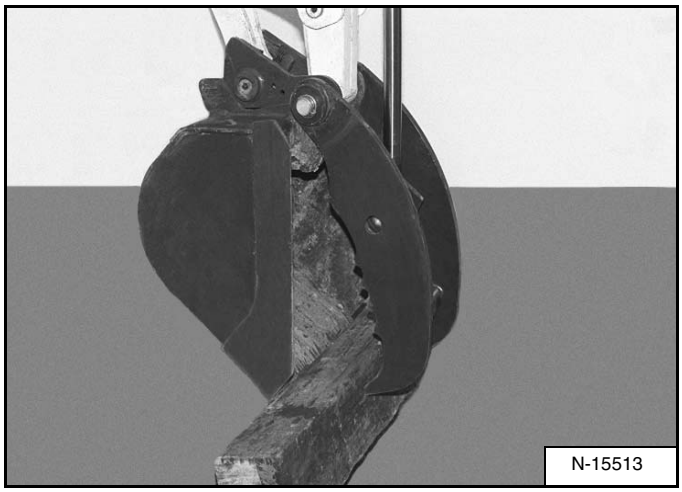
Figure 80



Extend (curl in) the bucket cylinder and slightly raise the boom until the coupler (Item 1) contacts the back of the attachment mount (Item 2) **[Figure 80]**.

Using The Clamp (If Equipped)

Figure 104



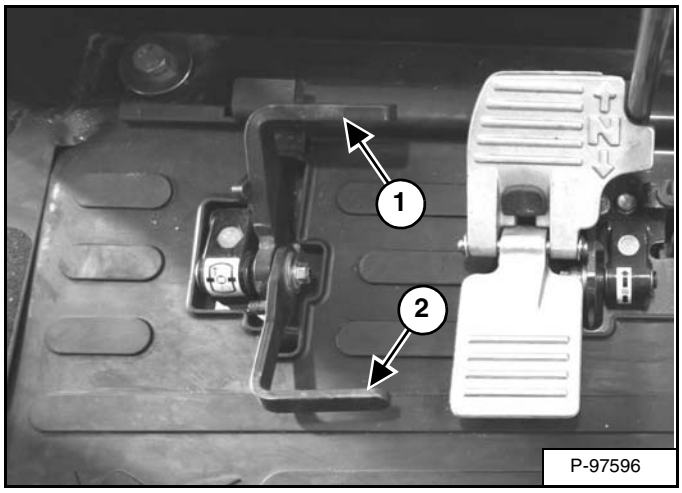
The optional lifting clamp attachment gives the excavator a wider range of use and mobility for debris removal **[Figure 104]**.

The lifting clamp cylinder must be fully retracted when the machine is being used for excavating.

The lift capacities are reduced by 27,2 Kg (60 lb) if the excavator is equipped with the optional lifting clamp.

When Using The Auxiliary Hydraulics To Activate Clamp

Figure 105



Push the toe of the pedal (Item 1) to activate hydraulic pressure / flow to the female coupler to close the clamp; heel (Item 2) **[Figure 105]** to activate hydraulic pressure / flow to the male coupler to open the clamp. (See Auxiliary Hydraulics (If Equipped) on Page 47.)

TRANSPORTING THE EXCAVATOR ON A TRAILER (CONT'D)

Fastening -Upperstructure Tie Downs (Optional)

Figure 131

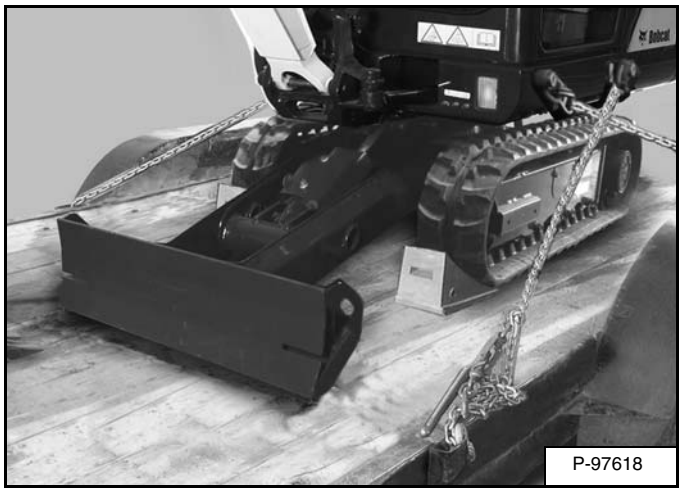
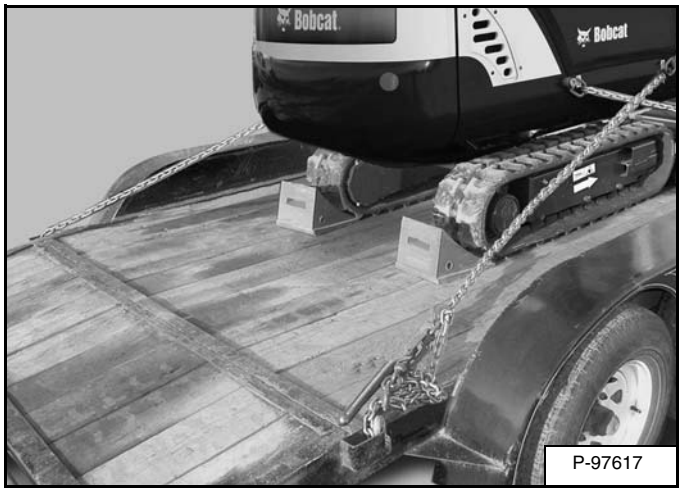


Figure 132

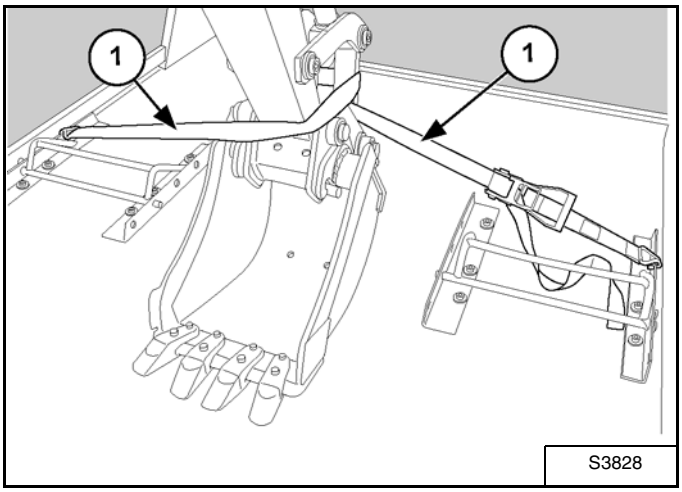


Fasten chains to the four upperstructure tie down links **[Figure 131]** and **[Figure 132]** to the prevent the machine from moving when going up or down slopes or during sudden stops.

Use chain binders to tighten the chains and then safely tie the chain binder levers to prevent loosening.

Fastening Arm - All Models

Figure 133



- When on the transport vehicle, loop the chains through the holes in the mounting frame.
- Loop the chain (Item 1) **[Figure 133]** around the bucket link.

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

Adequately designed ramps of sufficient strength are needed to support the weight of the machine when loading onto a transport vehicle. Wood ramps can break and cause personal injury.

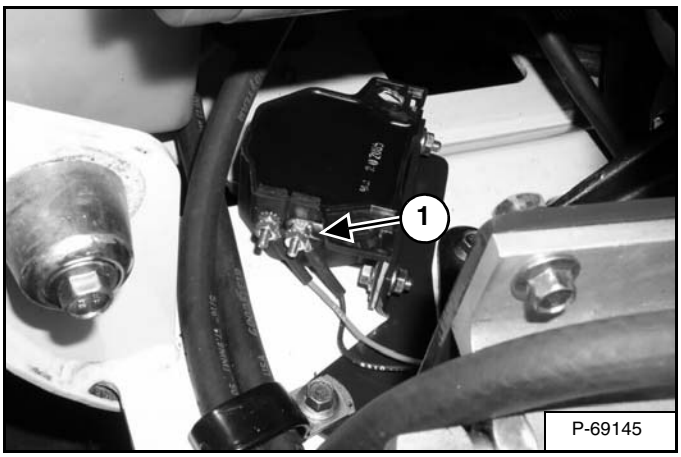
W-2058-0807

MOTION ALARM SYSTEM (IF EQUIPPED) (CONT'D)

Inspecting (Cont'd)

The motion alarm is located inside the rear of the excavator, below the hydraulic pump.

Figure 139

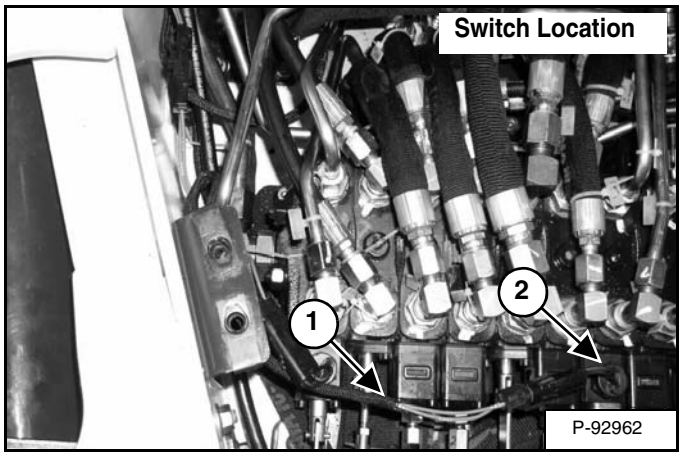


Inspect the motion alarm electrical connections and wire harness (Item 1) **[Figure 139]**, wire harness (Item 1) **[Figure 140]** and motion alarm switch (Item 2) **[Figure 140]** for tightness and damage. Repair or replace any damaged components.

If the motion alarm switch requires adjustment, see the following information.

Adjusting Switch Position

Figure 140



The motion alarm switch (Item 2) **[Figure 140]** is located in the travel control valve located under the floor plate. Remove the floormat and the floor plate to access the switch.

The switch (Item 2) **[Figure 140]** is non-adjustable. It must be fully installed into the travel control valve housings and tightened. Tighten the switch to 18 - 20 N•m (13 - 15 ft-lb).

Inspect the motion alarm system for proper function after switch replacement.

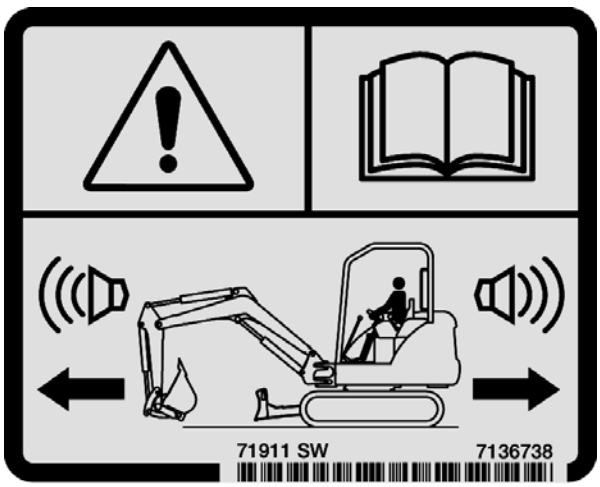
⚠ WARNING

This machine is equipped with a motion alarm.
ALARM MUST SOUND!
when operating forward or backward.

Failure to maintain a clear view in the direction of travel could result in serious injury or death.

The operator is responsible for the safe operation of this machine.

W-2786-0309



ENGINE COOLING SYSTEM

Check the cooling system every day to prevent overheating, loss of performance or engine damage. (See SERVICE SCHEDULE on Page 87.)

Cleaning

Open the tailgate. (See TAILGATE on Page 92.)

NOTE: Allow the cooling system and engine to cool before servicing or cleaning the cooling system.

Use air pressure or water pressure to clean the radiator and oil cooler.

Checking Level

⚠ WARNING

AVOID BURNS

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

W-2070-1203

⚠ WARNING

AVOID INJURY OR DEATH

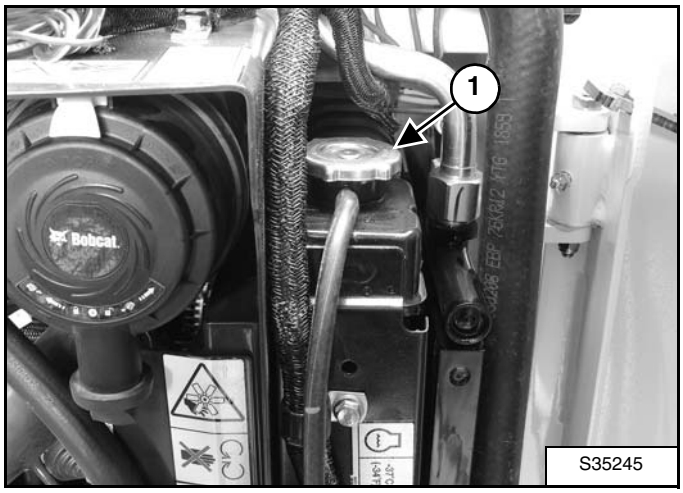
Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

W-2019-0907

Open the tailgate. (See TAILGATE on Page 92.)

Figure 159



When the engine is cool, remove the radiator cap (Item 1) **[Figure 159]**.

The coolant level must be 20 - 25 mm (0.79 - 0.98 in) below the filler neck.

If the coolant level is low, add premixed coolant to the radiator.

IMPORTANT

AVOID ENGINE DAMAGE

Always use the correct ratio of water to antifreeze.

Too much antifreeze reduces cooling system efficiency and may cause serious premature engine damage.

Too little antifreeze reduces the additives which protect the internal engine components; reduces the boiling point and freeze protection of the system.

Always add a premixed solution. Adding full strength concentrated coolant can cause serious premature engine damage.

I-2124-0497

SPARK ARRESTER MUFFLER

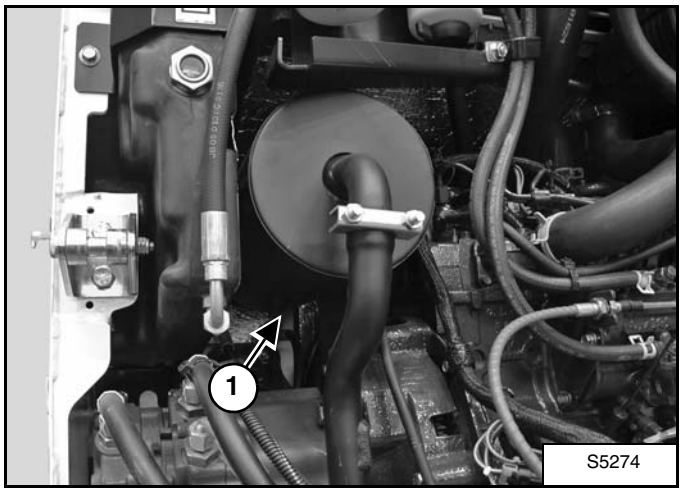
Cleaning Procedure

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 87.)

Do not operate the excavator with a defective exhaust system.

Stop the engine. Open the tailgate. (See TAILGATE on Page 92.)

Figure 182



Remove the plug (Item 1) **[Figure 182]** from the bottom of the muffler.

Start the engine and run for about ten seconds while a second person, wearing safety glasses, holds a piece of wood over the outlet of the muffler. (The carbon deposits will be forced out of the muffler cleanout hole.)

Stop the engine. Install and tighten the plug.

Close the tailgate.

⚠ WARNING

When the engine is running during service, the steering levers must be in neutral.

Failure to do so can cause injury or death.

W-2203-0595

⚠ WARNING

Never use machine in atmosphere with explosive dust or gases or where exhaust can contact flammable material. Failure to obey warnings can cause injury or death.

W-2068-1285

⚠ WARNING

Stop engine and allow the muffler to cool before cleaning the spark chamber. Wear safety goggles. Failure to obey can cause serious injury.

W-2011-1285

⚠ WARNING

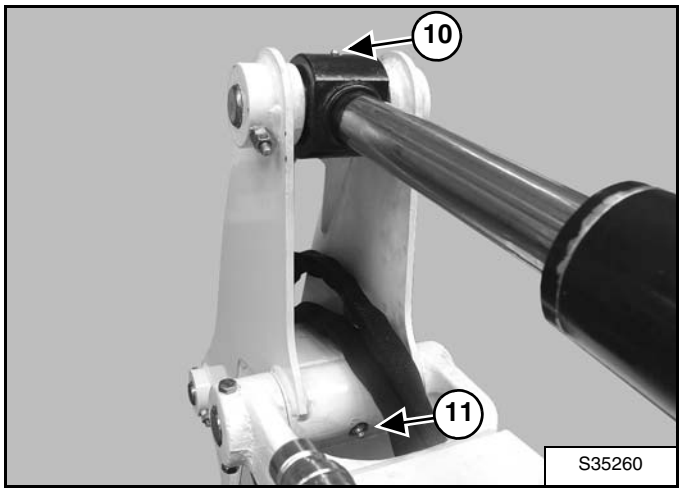
AVOID INJURY OR DEATH

When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning.

W-2050-0807

Lubrication Locations (Cont'd)

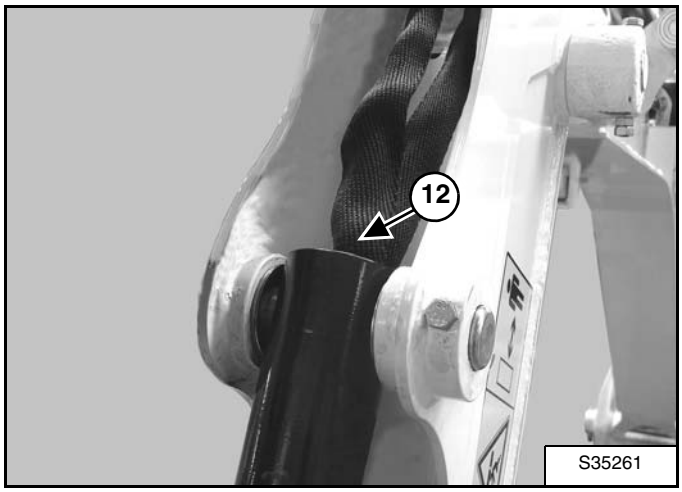
Figure 208



10. Arm Cylinder Rod End, every 8 - 10 hours (1) **[Figure 208]**.

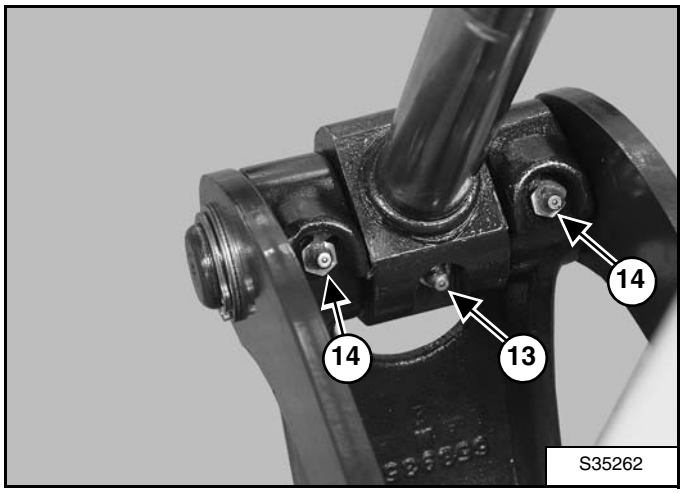
11. Arm Pivot, every 8 - 10 hours (1) **[Figure 208]**.

Figure 209



12. Bucket Cylinder Base End, every 8 - 10 hours (1) **[Figure 209]**.

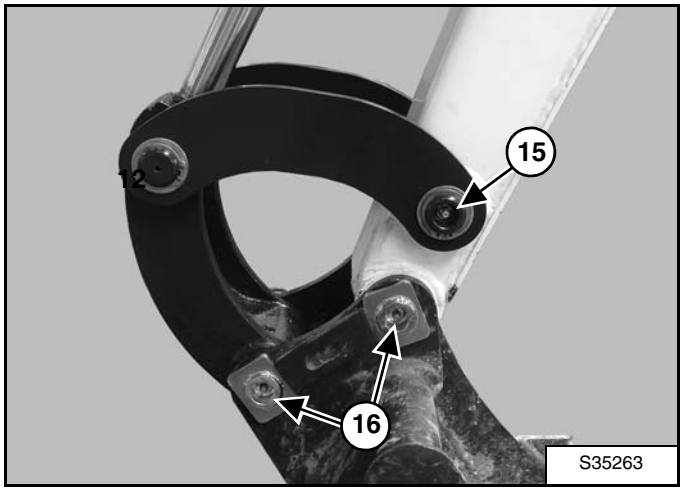
Figure 210



13. Bucket Cylinder Rod End, every 8 -10 hours (1) **[Figure 210]**.

14. Bucket Link Pivots, every 8 - 10 hours (2) **[Figure 210]**.

Figure 211

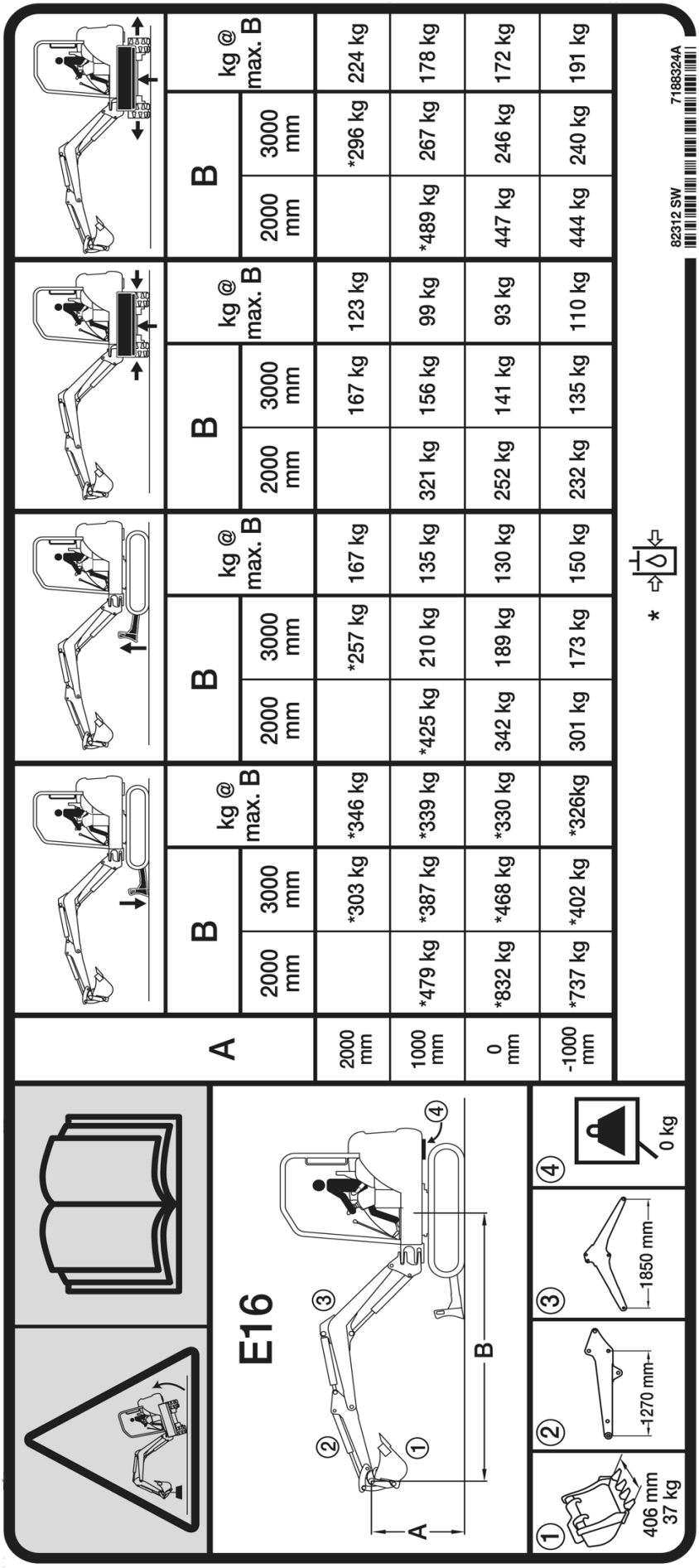


15. Bucket Link Pivot, every 8 - 10 hours (1) **[Figure 211]**.

16. Bucket Pivots, every 8 - 10 hours (2) **[Figure 211]**.

EXCAVATOR SPECIFICATIONS (CONT'D)

Lift Capacity (Long Arm)



A	B		kg @ max. B	B		kg @ max. B	B		kg @ max. B	B		kg @ max. B
	2000 mm	3000 mm		2000 mm	3000 mm		2000 mm	3000 mm		2000 mm	3000 mm	
2000 mm		*303 kg	*346 kg		*257 kg	167 kg					*296 kg	224 kg
1000 mm	*479 kg	*387 kg	*339 kg	*425 kg	210 kg	135 kg	321 kg	156 kg	99 kg	*489 kg	267 kg	178 kg
0 mm	*832 kg	*468 kg	*330 kg	342 kg	189 kg	130 kg	252 kg	141 kg	93 kg	447 kg	246 kg	172 kg
-1000 mm	*737 kg	*402 kg	*326kg	301 kg	173 kg	150 kg	232 kg	135 kg	110 kg	444 kg	240 kg	191 kg