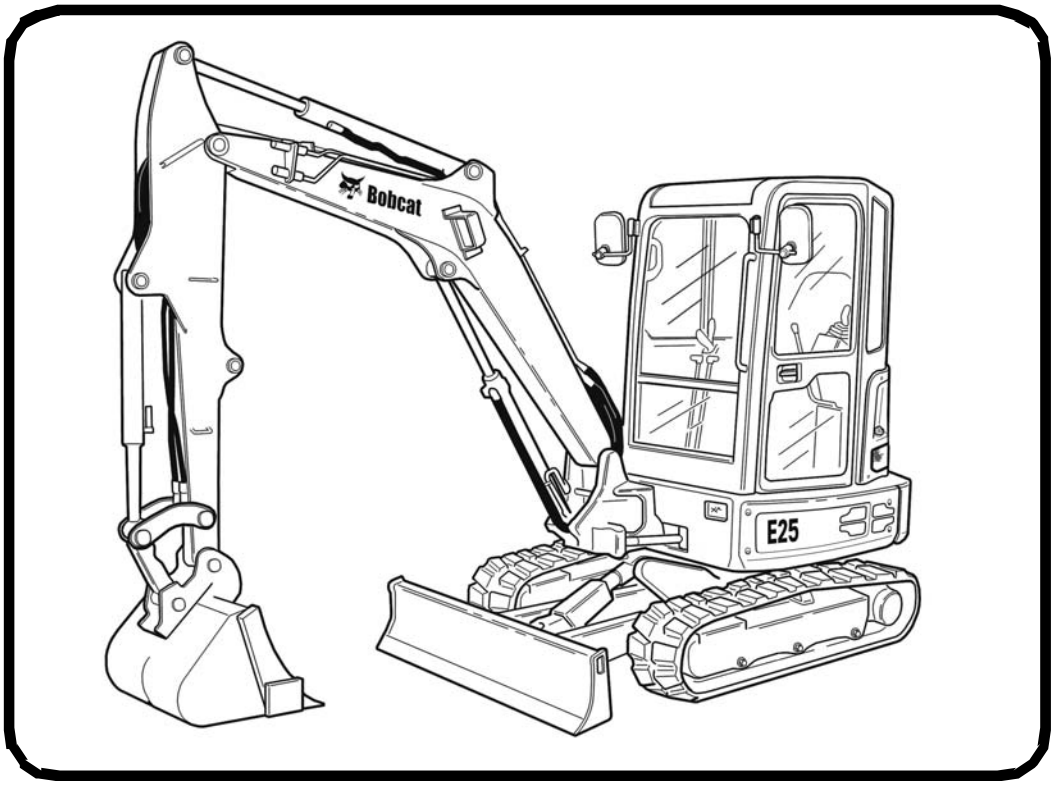
EN

Bobcat®

Operation & Maintenance Manual
E25 Compact Excavator

S/N AB8B11001 & Above



6989690-EN (10-12)

Printed in Belgium
Original Instructions

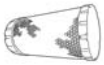
BOBCAT COMPANY IS IS0 9001 CERTIFIED

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) 6657635		BATTERY 6670251
	FUEL FILTER 6667352		HYDRAULIC FILL / BREATHER CAP 6692836
 	AIR FILTER, Outer 6673752 AIR FILTER, Inner 6673753		RADIATOR CAP 7022636
	PRIMARY HYDRAULIC FILTER 6661248 CASE DRAIN HYDRAULIC FILTER 7009365		

NOTE: Always verify Part Numbers with your Bobcat dealer.

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

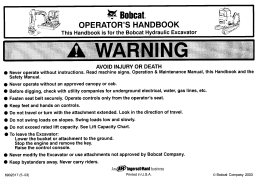
Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

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.

PUBLICATIONS AND TRAINING RESOURCES

The following publications are also available for your Bobcat Excavator. You can order them from your Bobcat dealer.

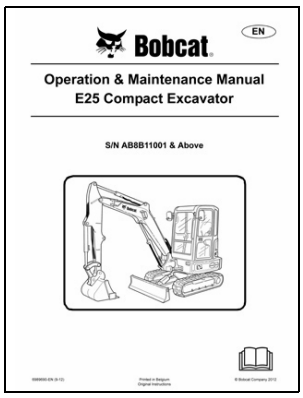
For the latest information on Bobcat products and the Bobcat Company, visit our web site at **www.bobcat.com**; you can also order Operator and Service Training materials online through **www.bobcatstore.com**


Bobcat
OPERATOR'S HANDBOOK
This Handbook is for the Bobcat Hydraulic Excavator
WARNING
AVOID INJURY OR DEATH
- Never operate without instructions. Read machine signs, Operation & Maintenance Manual, this Handbook and the Safety Manual.
- Never operate without an approved canopy or cab.
- Before digging, check with utility companies for underground electrical, water, gas lines, etc.
- Fasten seat belt securely. Operate controls only from the operator's seat.
- Keep feet and hands on controls.
- Do not travel or turn with the attachment extended. Look in the direction of travel.
- Do not swing loads on slopes. Swing loads low and slowly.
- Do not exceed rated lift capacity. See Lift Capacity Chart.
- To leave the Excavator:
  Lower the bucket or attachment to the ground.
  Stop the engine and remove the key.
  Fasten the safety belt.
- Never modify the Excavator or use attachments not approved by Bobcat Company.
- Keep bystanders away. Never carry riders.

OPERATOR'S HANDBOOK

6987271

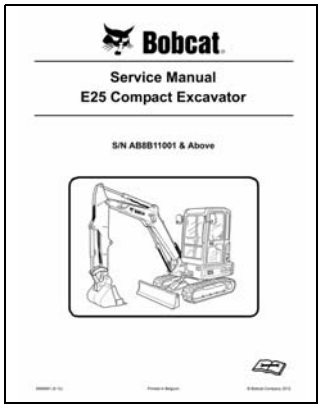
Gives basic operation instructions and safety warnings


Bobcat
EN
Operation & Maintenance Manual
E25 Compact Excavator
S/N AB8B11001 & Above

OPERATION & MAINTENANCE MANUAL

6989690

- Complete instructions on the correct operation and the routine maintenance of the BOBCAT Excavator.


Bobcat
Service Manual
E25 Compact Excavator
S/N AB8B11001 & Above

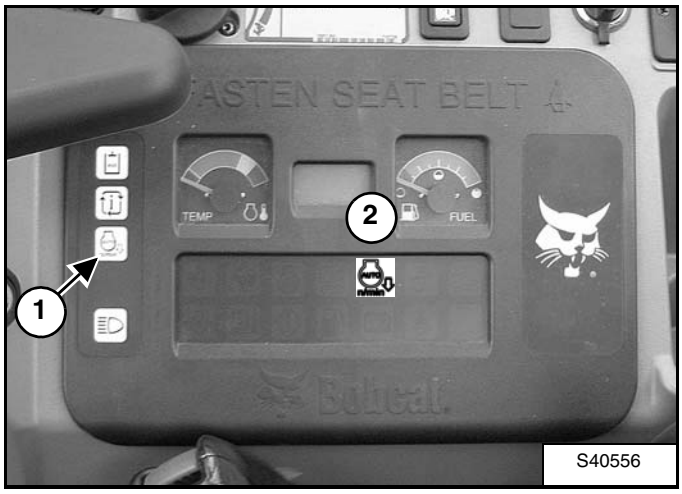
SERVICE MANUAL

6989691

- Complete maintenance instructions for your BOBCAT Excavator.

Auto Idle Feature

Figure 14



The auto idle feature (when engaged) will reduce the engine speed to low idle when the control levers (joystick, blade, travel, etc.) are in neutral and not used for approximately 4 seconds. The engine rpm will return to the set position as soon as any control lever is activated.

The automatic idle switch (Item 1) **[Figure 14]** is used to engage or disengage the automatic idle feature.

Press the switch (Item 1) once to engage automatic idle and the icon (Item 2) will illuminate. Press the switch (Item 1) a second time to disengage automatic idle, the icon (Item 2) **[Figure 14]** will be OFF.

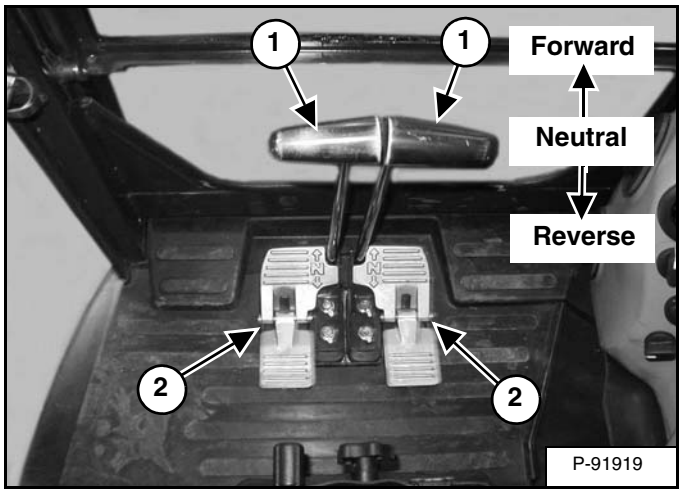
NOTE: Always disengage the auto idle feature when loading or unloading the excavator onto a transport vehicle.

TRAVEL CONTROLS

Forward And Reverse Travel

NOTE: The following procedures describe forward, reverse, left and right as seated in the operator's seat.

Figure 36



Put the blade so that it is at the front of the machine (as you sit in the operator's seat). Slowly move both steering levers* (Item 1) **[Figure 36]** forward for forward travel; backward for reverse travel.

* Travel can also be controlled with foot pedals (Item 2) **[Figure 36]**. Pivot the heel of the pedals forward for additional space on the floor.

⚠ WARNING

AVOID INJURY OR DEATH

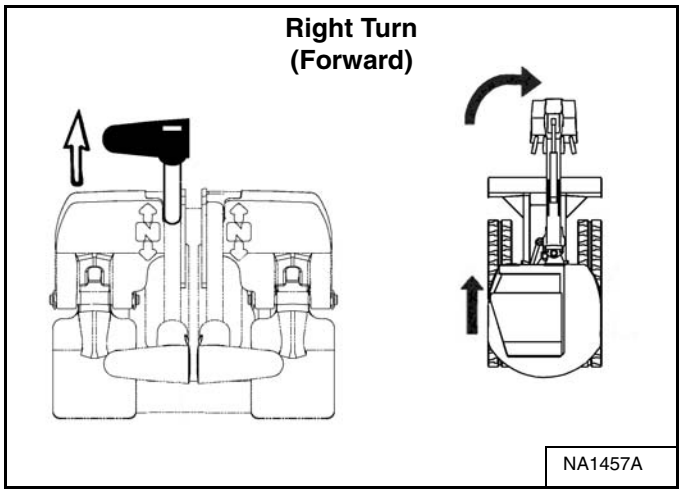
- **Check the blade location before traveling. When the blade is to the rear, operate the steering levers/foot pedals in the opposite direction to when the blade is in the front.**
- **Move the steering levers/foot pedals slowly. Abrupt lever motion will cause the machine to jerk.**

W-2235-0396

Turning

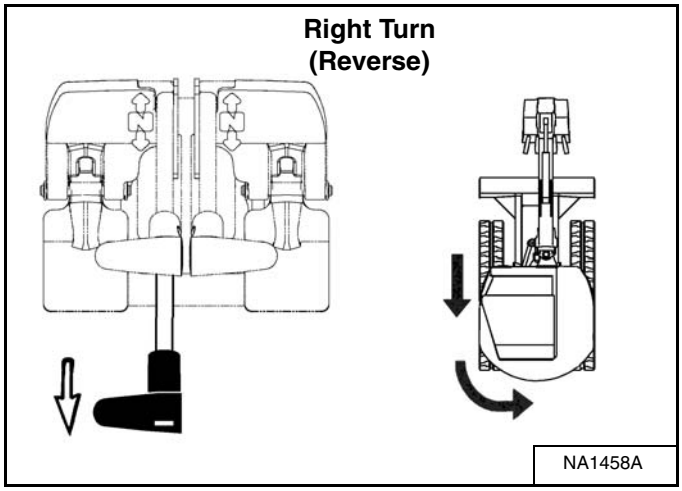
Right Turn

Figure 37



Push the left steering lever forward to turn right **[Figure 37]** while travelling forward.

Figure 38

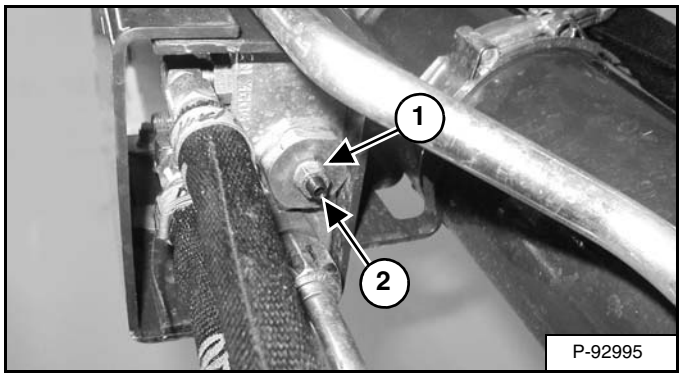


Pull the left steering lever backward to turn right while travelling backward **[Figure 38]**

BOOM LOAD HOLDING VALVE (CONT'D)

Lowering Boom With Load Holding Valve (Cont'd)

Figure 59



Lowering procedures:

With base end hose failure:

Loosen the jam nut (Item 1). Install a hex wrench into the valve screw (Item 2) **[Figure 59]** and slowly rotate the screw clockwise 45° to 90° turn and allow the boom to lower to the ground.

After the boom is fully lowered, rotate the screw anticlockwise (Item 2) 45° to 90° turn and tighten the lock nut (Item 1) **[Figure 59]**.

With rod end hose failure - with accumulator pressure:

Place a container under the valve and hose end to contain hydraulic fluid. Enter the excavator and turn the key switch to the ON position or press the ENTER CODE Button (Keyless Panel), but do not start the engine. Slowly move the joystick boom lower function and allow the boom to lower to the ground.

With rod end hose failure and NO accumulator pressure:

Remove the boom base end hose from the boom load holding valve. Place a container under the valve and base end hose to contain hydraulic fluid.

Loosen the jam nut (Item 1). Install a hex wrench into the valve screw (Item 2) **[Figure 59]** and slowly rotate the screw clockwise 45° to 90° turn and allow the boom to lower to the ground.

After the boom is fully lowered, rotate the screw (Item 2) anticlockwise 45° to 90° turn and tighten the lock nut (Item 1) **[Figure 59]**. Reinstall the base end hose.

Loss of hydraulic pressure:

Use the same procedure as: **With rod end hose failure and NO accumulator pressure**.

Keyless (Cont'd)

Press the STOP button (Item 4) **[Figure 79]** to stop the engine.

Stop the engine if the warning lights and alarm do not go OFF.

Check for the cause before starting the engine again.

Password Lockout Feature

See Password Lockout Feature. (See Password Lockout Feature on Page 144.)

⚠ 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

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.

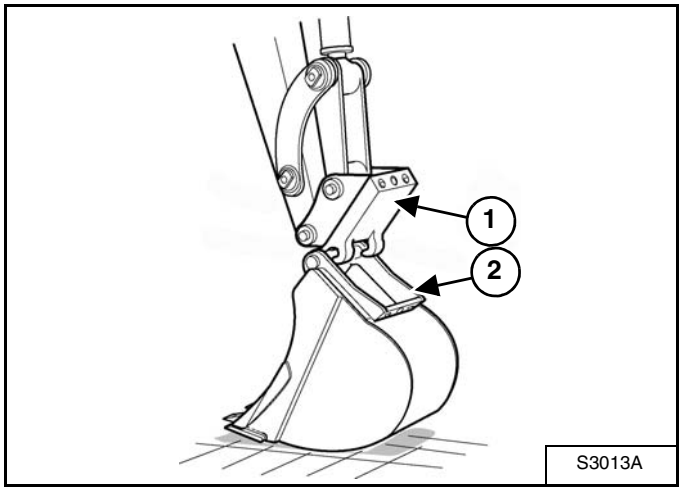
W-2052-0907

Enter the excavator. (See Entering The Excavator on Page 63.)

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

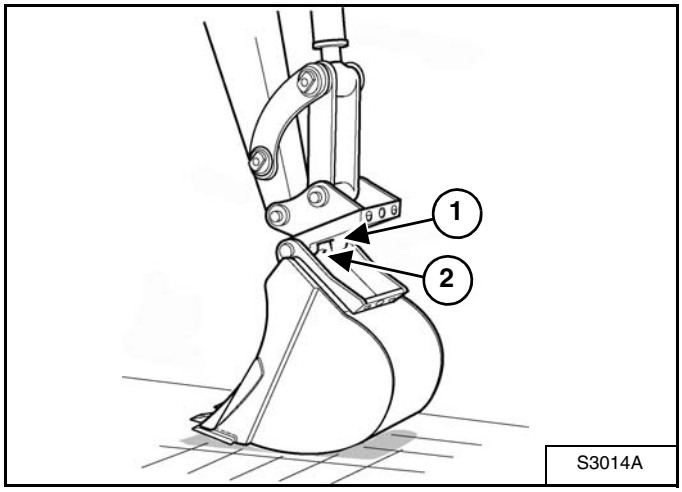
Fully retract the bucket cylinder.

Figure 104



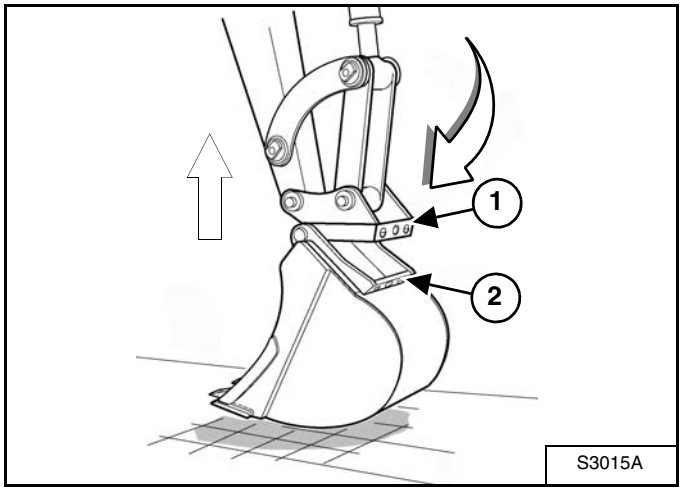
Lower the coupler (Item 1) onto the attachment (Item 2) **[Figure 104]**.

Figure 105



Engage the coupler hooks (Item 1) onto the attachment shaft (Item 2) **[Figure 105]**.

Figure 106



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 106]**.

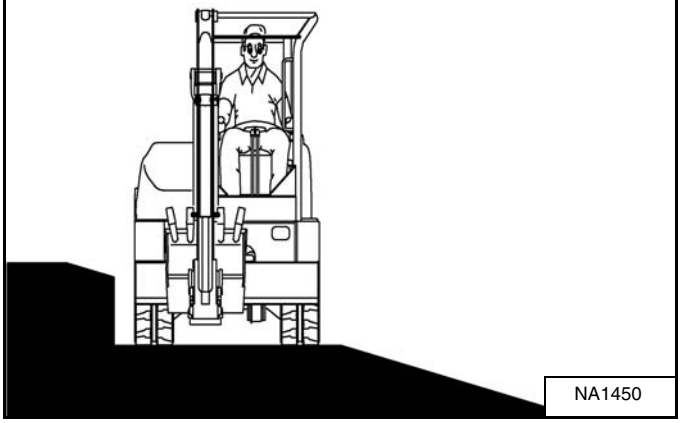
Engage the parking brake.

Stop the engine and exit the excavator.

Operating On Slopes (Cont'd)

Figure 133

Recommended Position For Working On A Slope



When operating on a slope, level the work area before beginning **[Figure 133]**.

If this is not possible, the following procedures should be used:

Do not work on slopes which are over 15 degrees.

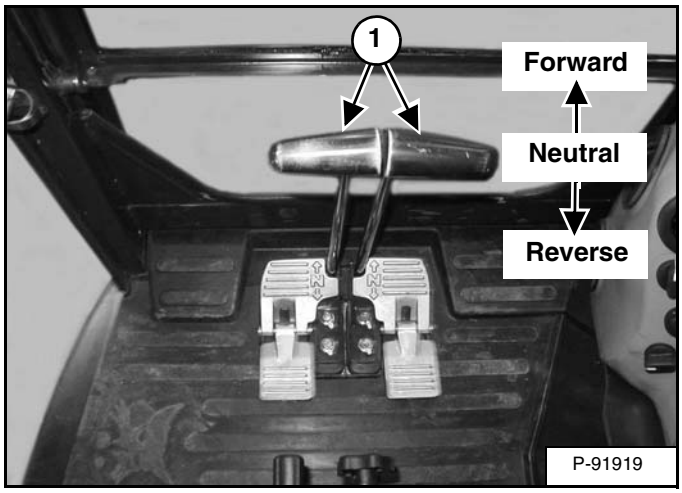
Use a slow work cycle.

Avoid working with the tracks across the slope. This will reduce stability and increase the tendency for the machine to slide. Position the excavator with the blade downhill and lowered.

Avoid swinging or extending the bucket more than necessary in a down hill direction. When you must swing the bucket downhill, keep the arm low and skid the bucket downhill.

When working with the bucket on the uphill side, keep the bucket as close to the ground as possible. Dump the spoil far enough away from the trench or hole to prevent the possibility of a cave in.

Figure 134



To brake the machine when going down a slope, move the steering levers (Item 1) **[Figure 134]** to the *NEUTRAL* position. This will engage the hydrostatic braking.

When the engine stops on a slope, move the steering levers to the neutral position. Lower the boom / bucket to the ground.

NOTE: If the engine stops, the boom / bucket (attachments) can be lowered to the ground using hydraulic pressure which is stored in the accumulator.

The console must be in the locked down position, and the key switch in the ON position.

Use the control lever to lower the boom.

Start the engine and resume operation.

SERVICE SCHEDULE

Chart

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the Bobcat excavator.

⚠ WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

W-2003-0807

SERVICE SCHEDULE		HOURS					
ITEM	SERVICE REQUIRED	8-10	50	100	250	500	[4] 1000
Engine Coolant	Check coolant level. Add premixed coolant as needed.						
Engine Oil	Check the engine oil level and add as needed.						
Hydraulic Fluid, Hoses and Tubelines, Reservoir Breather Cap	Check the hydraulic fluid level and add as needed. Check for damage and leaks. Repair or replace as needed.						
Engine Air Filter and Air System	Check condition indicator and empty dust cup as needed. Check air system for leaks.						
Tracks	Check and adjust track tension as needed.						
Indicators and Lights	Check for correct operation of all indicators and lights.						
Horn and Motion Alarm	Check for correct operation and repair as needed.	[1]					
Operator Canopy / Cab	Check condition. Check mounting hardware.						
Seat Belt	Check condition. Check mounting hardware.						
Safety Signs (Decals)	Check for damaged signs (decals). Replace any signs that are damaged.						
Pivot Points	Grease all machinery pivot points.						
Cab / Heater Air Filters	Clean the filters as needed.	[1]					
Console Lockout	Check console lockout for proper operation.						
Swing Circle and Pinion	Grease two fittings		[2]				
Fuel Tank and Filter	Drain water and sediment from fuel tank and fuel filter.						
Battery	Check battery, cables, connections and electrolyte level. Add distilled water as needed.						
Fuel Filter	Replace fuel filter.						
Travel Motor	Check oil level in both motors.						
Engine Oil and Filter	Replace oil and filter.		[3]				
Radiator, Oil Cooler	Clean debris from the radiator fins.						
Hydraulic Filter, Case Drain Filter and Reservoir Breather	Replace the hydraulic filter, case drain filter and reservoir breather.		[3]				
Alternator and Starter	Check the alternator and starter connections.		[3]				
Alternator Belt	Check condition and replace as needed.		[3]				
Engine Valves	Check and adjust the engine valve clearance.						
Hydraulic System	Replace the hydraulic fluid and filters. Clean the reservoir.						
Travel Motor	Replace the lubricant in both travel motors.		[3]				
Engine Coolant	Drain and flush the cooling system. Replace the coolant.	Every 2 years					

[1] If Equipped.
[2] Service every 10 hours when operating in water.
[3] Service at the first 50 hours, then as scheduled.
[4] Or every 12 months.

FUEL SYSTEM

Fuel Specifications

Use only clean, high quality diesel fuel, Grade No. 2 or Grade No. 1.

The following is one suggested blending guideline which should prevent fuel gelling during cold temperatures:

TEMPERATURE	NO. 2	NO. 1
-9°C (+15°F)	100%	0%
Down to -29°C (-20°F)	50%	50%
Below -29°C (-20°F)	0%	100%

At a minimum, low sulfur diesel fuel must be used in this machine. Low sulfur is defined as 500 mg/kg (500 ppm) sulfur maximum.

The following fuels may also be used in this machine:

- Ultra low sulfur diesel fuel. Ultra low sulfur is defined as 15 mg/kg (15 ppm) sulfur maximum.
- Biodiesel blend fuel - Must contain no more than five percent biodiesel mixed with low sulfur or ultra low sulfur petroleum based diesel. This is commonly marketed as B5 blended diesel fuel. B5 blended diesel fuel must meet ASTM D975 (US Standard) or EN590 (EU Standard) specifications.

⚠ WARNING

AVOID INJURY OR DEATH

Stop and cool the engine before adding fuel. NO SMOKING! Failure to obey warnings can cause an explosion or fire.

W-2063-0807

⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Biodiesel Blend Fuel

Biodiesel blend fuel has unique qualities that should be considered before using in this machine:

- Cold weather conditions can lead to plugged fuel system components and hard starting.
- Biodiesel blend fuel is an excellent medium for microbial growth and contamination which can cause corrosion and plugging of fuel system components.
- Use of biodiesel blend fuel can result in premature failure of fuel system components, such as plugged fuel filters and deteriorated fuel lines.
- Shorter maintenance intervals can be required, such as cleaning the fuel system and replacing fuel filters and fuel lines.
- Using biodiesel blended fuels containing more than five percent biodiesel can affect engine life and cause deterioration of hoses, tubelines, injectors, injector pump and seals.

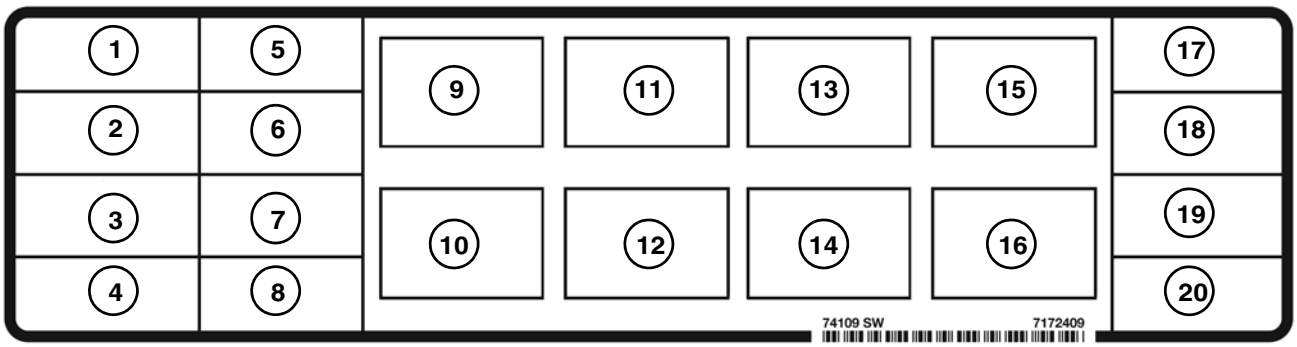
Apply the following guidelines if biodiesel blend fuel is used:

- Ensure the fuel tank is as full as possible at all times to prevent moisture from collecting in the fuel tank.
- Ensure that the fuel tank cap is securely tightened.
- Biodiesel blend fuel can damage painted surfaces, remove all spilled fuel from painted surfaces immediately.
- Drain all water from the fuel filter daily before operating the machine.
- Do not exceed engine oil change interval. Extended oil change intervals can cause engine damage.
- Before machine storage; drain the fuel tank, refill with 100% petroleum diesel fuel, add fuel stabiliser and run the engine for at least 30 minutes.

NOTE: Biodiesel blend fuel does not have long term stability and should not be stored for more than 3 months.

Fuse And Relay Location / Identification (Cont'd)

Figure 183



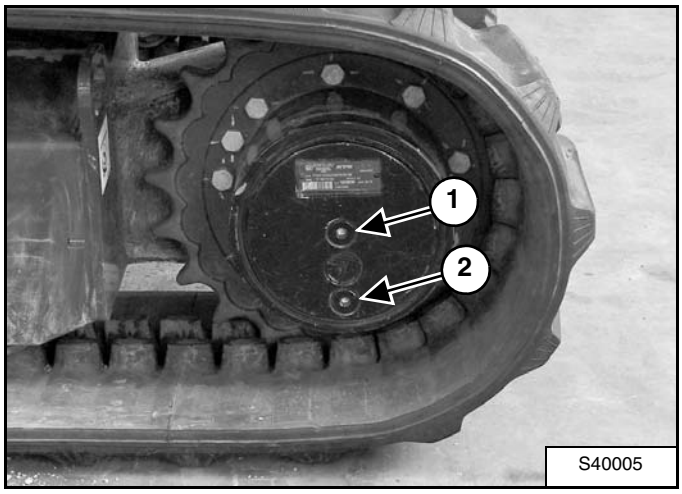
The location and amperage ratings are shown in the table below and on the decal **[Figure 183]**. Relays are identified by the letter "R" in the AMP column.

REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP
1		Auto Idle Controller (AIC)		**9**		Switched Power	R	**17**		Panel / Display Controller	25
2		Heater	25	**10**		Fuel Shutoff	R	**18**		ACD Unswitched Power	25
3		Start Key	5	**11**		Heater	R	**19**		LIGHTS	20
4		Fuel Shutoff	25	**12**		Lights	R	**20**		Power Port	15
5		Wiper / Washer	10	**13**		NOT USED	R				
6		Switched Power	20	**14**		Glow Plugs	R				
7		Alternator Excite / Heater	25	**15**		NOT USED	R				
8		ACD Switched Power	25	**16**		Starter	R				

TRAVEL MOTOR

Checking And Adding Oil

Figure 204



Park the excavator on a level surface with the plugs (Items 1 and 2) **[Figure 204]** in the vertical position as shown.

Remove the plug (Item 1) **[Figure 204]**. The lube level must be at the bottom edge of the hole.

Add lubricant (SAE 90W) through the hole if the lube level is low.

Removing And Replacing Oil

See the service schedule for the correct service interval. (See SERVICE SCHEDULE on Page 99.)

Park the excavator on a level surface with plugs (Items 1 and 2) **[Figure 204]** in the vertical position shown. Remove both plugs and drain the lubricant into a container.

⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

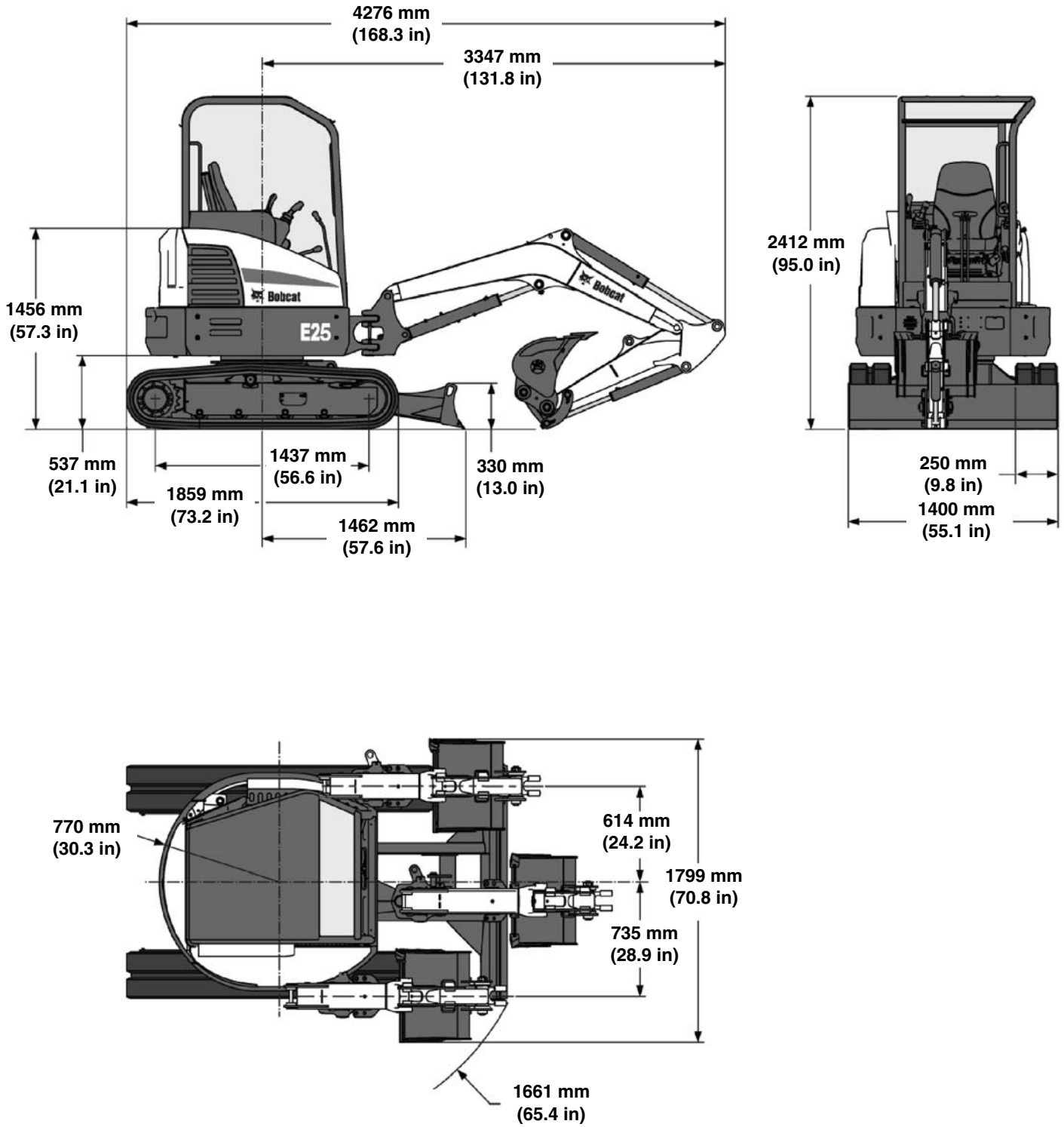
Install the bottom plug (Item 2) **[Figure 204]**. Add lubricant through the centre plug hole until the lube level is at the bottom edge of the hole.

Install the plug (Item 1) **[Figure 204]**.

(E25) EXCAVATOR SPECIFICATIONS

Machine Dimensions

- Where applicable, specification conform to SAE or ISO standards and are subject to change without notice.



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