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REFERENCE INFORMATION

Write the correct information for YOUR Bobcat loader in the spaces below. Always use these numbers when referring to your Bobcat loader.

Loader Serial Number

Engine Serial Number

NOTES:

YOUR BOBCAT® DEALER:

ADDRESS:

PHONE:

FOREWORD

SAFETY

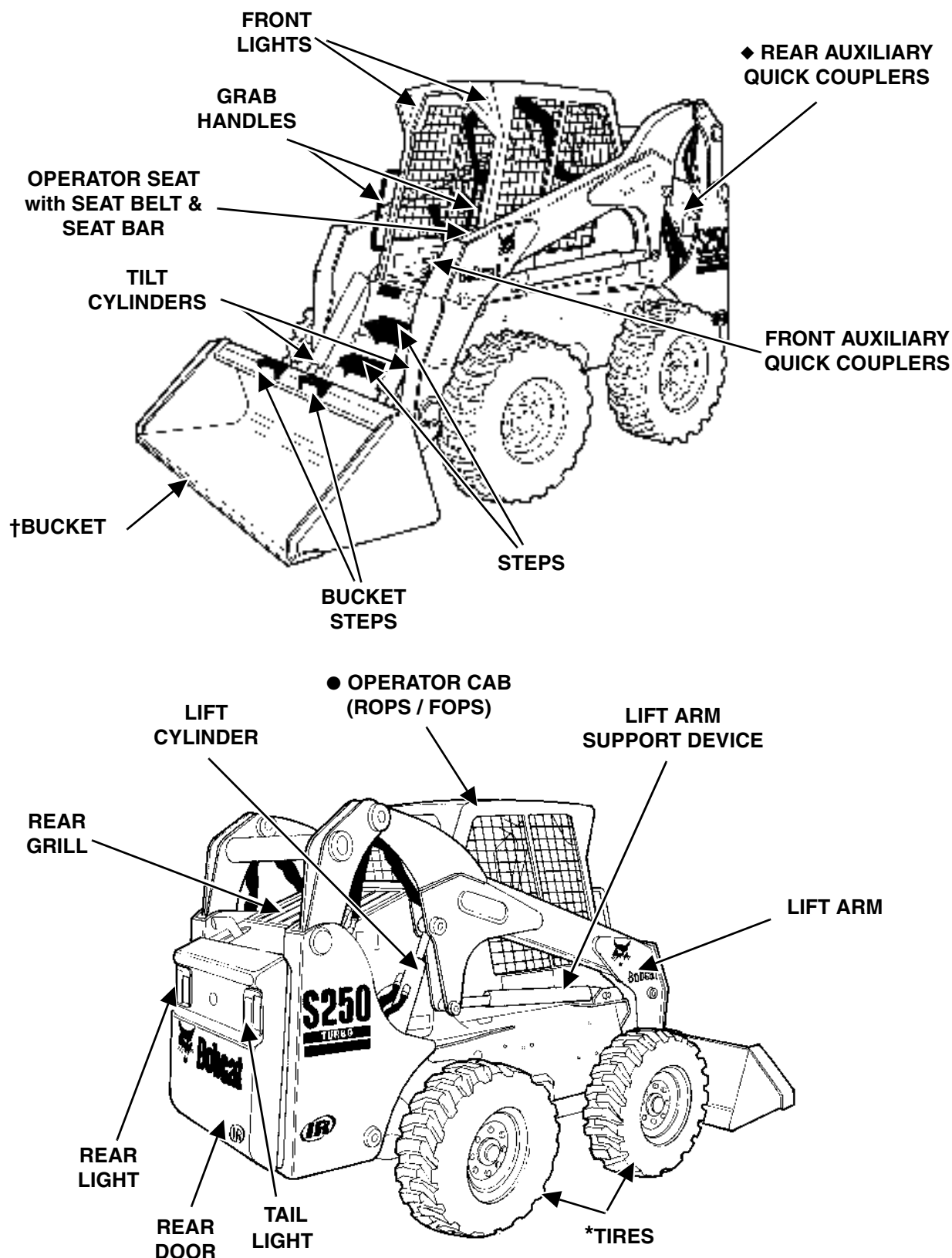
OPERATING
INSTRUCTIONS

PREVENTIVE
MAINTENANCE

SYSTEM SETUP &
ANALYSIS

SPECIFICATIONS

MACHINE IDENTIFICATION



◆ Optional or Field Accessory (Not Standard Equipment)

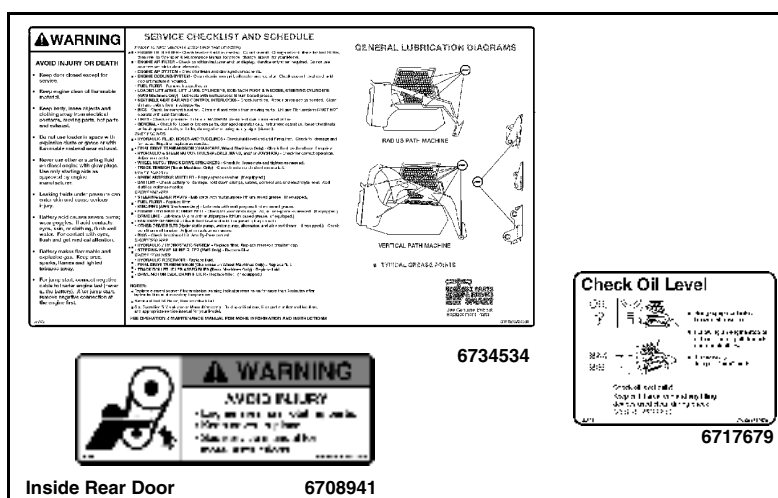
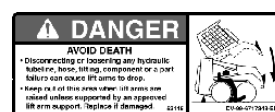
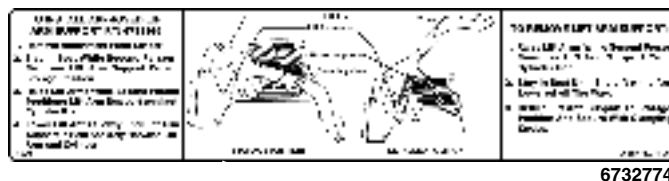
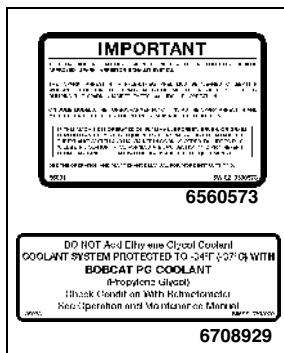
* TIRES - Tires shown may not be standard. The machine is factory equipped with standard tires. Other tires are available.

† Bucket - Several different buckets and other attachments are available for this machine.

● ROPS, FOPS - Roll Over Protective Structure, per SAE J1040 and ISO 3471, and Falling Object Protective Structure per SAE J1043 and ISO 3449, Level I. Level II is available.

MACHINE SIGNS (DECALS) (CONT'D)

Follow the instructions on all the Machine Signs (Decals) that are on the loader. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from you Bobcat loader dealer.



PRE-STARTING PROCEDURES

Before Starting The Engine

Figure OI-42



Use the bucket or attachment steps, grab handles and safety treads (on the loader lift arms and frame) to get on and off the loader [Figure OI-42]. Do not jump.

Safety treads are installed on the Bobcat loader to provide a slip resistant surface for getting on and off the loader.

Keep safety treads clean and replace when damaged. Replacement treads are available from your Bobcat dealer.

Read and understand the Operation & Maintenance Manual and the Operator's Handbook (Item 1) [Figure OI-42] before operating the loader.

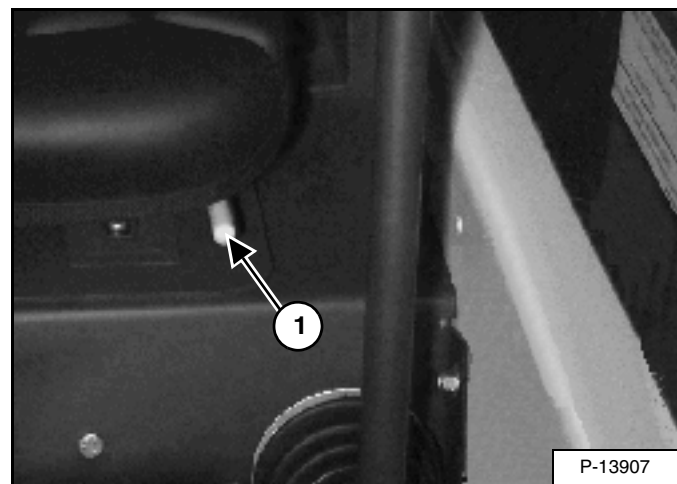
The Operation & Maintenance Manual and other manuals can be kept in a container (Item 2) [Figure OI-42] provided behind the operator seat.

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.

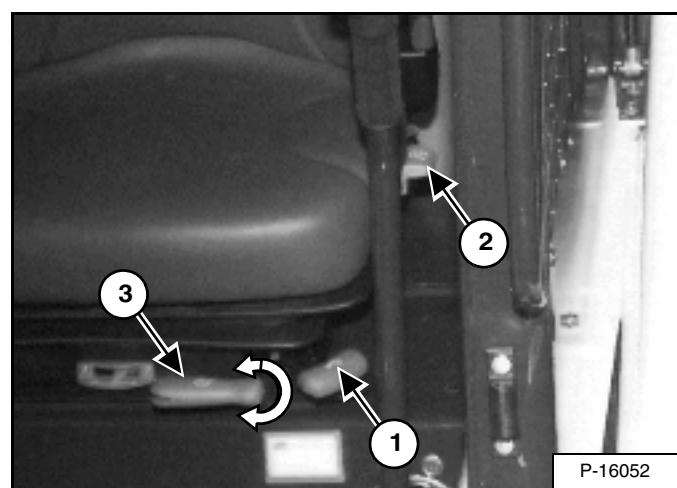
W-2003-0903

Figure OI-43



Release the seat lever (Item 1) [Figure OI-43] and adjust the seat position for comfortable operation of the loader controls.

Figure OI-44



Suspension Seat - (Option & Loaders with 2-Speed)
Release the lever (Item 1) [Figure OI-44] to adjust the seat distance from the levers and footrests.

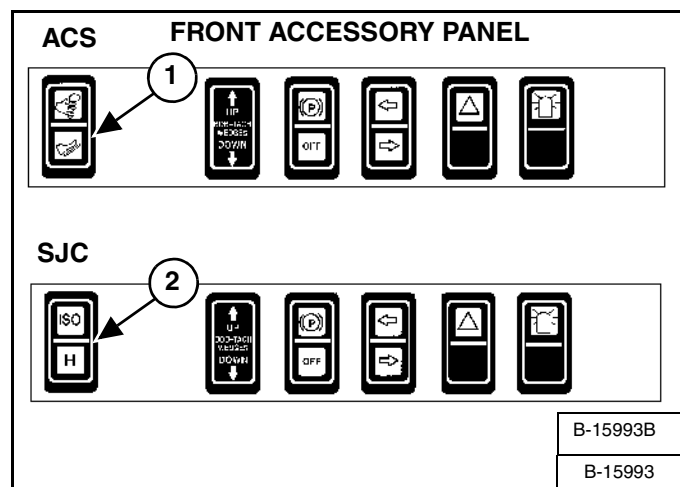
Release the lever (Item 2) [Figure OI-44] to adjust the angle of the seat back.

Turn the lever (Item 3) [Figure OI-44] to adjust the seat cushion for weight of the operator.

STARTING THE ENGINE (DELUXE PANEL, KEYLESS START (CONT'D))

Procedure (Cont'd)

Figure OI-54

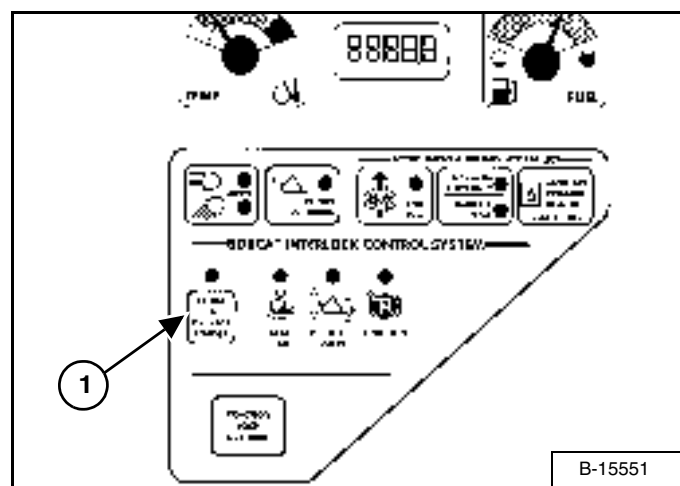


(ACS) Select hand control or foot pedal operation (Item 1) [Figure OI-54].

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) [Figure OI-54].

Figure OI-55



Press the PRESS TO OPERATE LOADER Button (Item 1) [Figure OI-55] to activate the BICS system and to perform hydraulic and loader functions. See also *Cold Temperature Starting* below.

NOTE: (SJC) The pending mode will flash which will indicate **PRESS TO OPERATE LOADER** is required. The light will flash when key is ON and continue to flash until the **PRESS TO OPERATE LOADER** button is pressed and thereafter it will light solid. If the mode (ISO/H) is changed while driving, the active mode will be solid and the pending mode will flash. When operation of the machine is returned to neutral, the active mode will then turn off and the pending mode will continue to flash until the **PRESS TO OPERATE LOADER** button is pressed.

Cold Temperature Starting

If the temperature is below freezing, perform the following to make starting the engine easier:

- Replace the engine oil with the correct type and viscosity for the anticipated starting temperature. (See **ENGINE LUBRICATION SYSTEM** on Page PM-19.)
- Make sure the battery is fully charged.
- Install an engine heater, available from your Bobcat loader dealer.

NOTE: The LCD of the Deluxe Panel may not be immediately visible when the temperature is below -15 degrees F (-26 degrees C). It may take 30 seconds to several minutes for the Display Panel to warm up. All systems remain monitored even when the display is off.

MONITORING THE DISPLAY PANEL

Figure OI-59

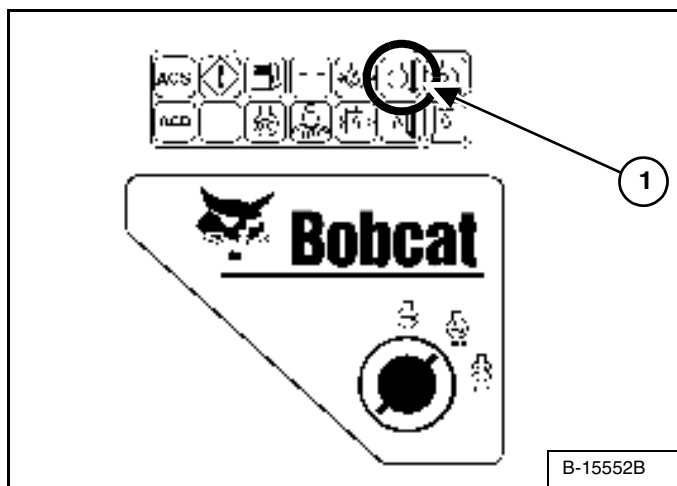
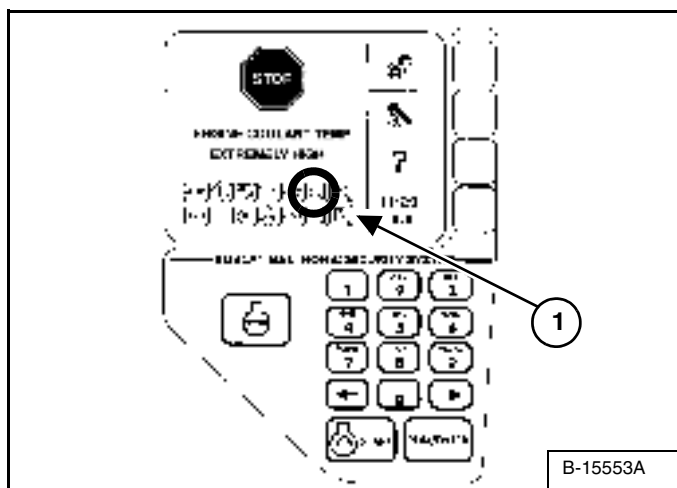


Figure OI-60



After the engine is running, frequently monitor the right instrument panel [Figure OI-59] (Standard Panel) and [Figure OI-60] (Deluxe Panel) for error conditions.

The associated icon will be ON if there is an error condition.

EXAMPLE: Engine Coolant Temperature is High

Standard Panel

The Engine Temperature Icon (Item 1) [Figure OI-59] and [Figure OI-60] will be ON.

Press and hold LIGHTS Button for 2 seconds. One of the following SERVICE CODES will be displayed.

- **08-10** Engine Coolant Temperature High
- **08-11** Engine Coolant Temperature Very High

Deluxe Panel

The Engine Temperature Icon (Item 1) [Figure OI-60] will be ON.

The SERVICE CODE will be in the hourmeter / code display (See left instrument panel).

In addition, the Deluxe Panel display screen will describe the extreme condition that can cause damage to the engine or loader systems [Figure OI-60].

WARNING and SHUTDOWN

When a WARNING condition exists, the associated Icon light will come ON and there will be 3 beeps from the alarm. Be aware that, if this condition is allowed to continue, there may be damage to the engine or loader hydraulic systems.

When a SHUTDOWN condition exists, the associated Icon light will come ON and there will be a continuous beep from the alarm and the monitoring system will automatically stop the engine in 10 seconds. The engine can be restarted to move or relocate the loader.

The SHUTDOWN feature is associated with the following Icons:

- General Warning
- Engine Oil Pressure
- Engine Coolant Temperature
- Hydraulic Oil Temperature
- Hydrostatic Charge Pressure

Whenever **STOP** appears on the display screen, lower the lift arms all the way, put the attachment flat on the ground and stop the engine to prevent damage to the engine or loader systems.

OPERATING PROCEDURE (CONT'D)

Foot Pedal Machines

Filling The Bucket:

Figure OI-78

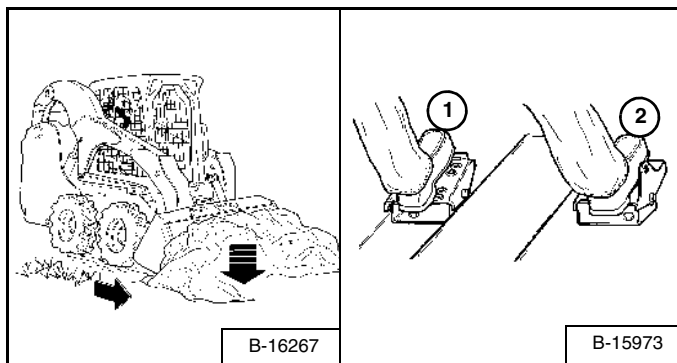
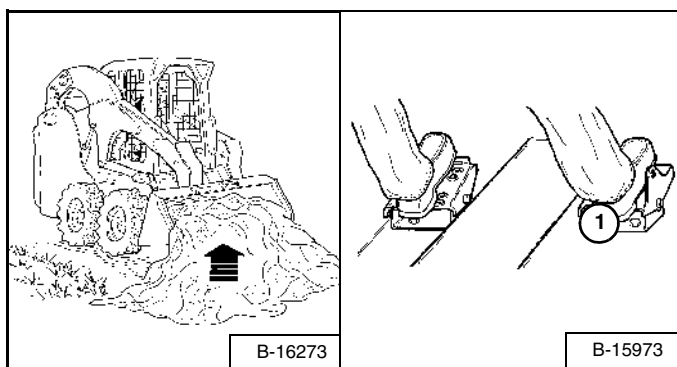


Figure OI-79



Lower the lift arms all the way (Item 1) [Figure OI-78].

Tilt the bucket forward (Item 2) [Figure OI-78] until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (Item 1) [Figure OI-79] all the way when the bucket is full.

Drive backward away from the material.

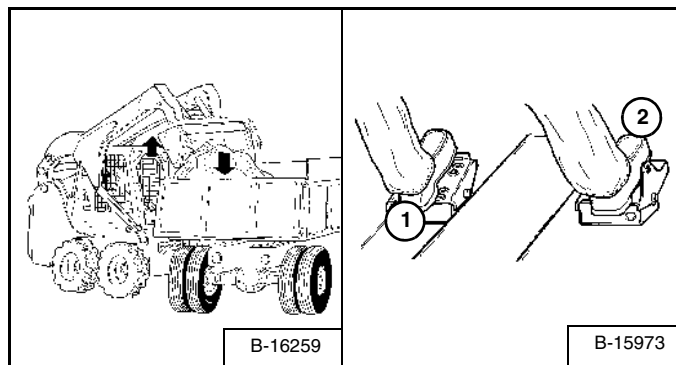
WARNING

Load, unload and turn on flat level ground. Do not exceed Rated Operating Capacity (ROC) shown on sign (decals) in cab. Failure to obey warnings can cause the machine to tip or roll over and cause injury or death.

W-2056-0903

Emptying The Bucket:

Figure OI-80



Keep the bucket low when moving to the area where you want to empty the bucket.

Raise the lift arms (Item 1) [Figure OI-80]. Level the bucket (Item 2) [Figure OI-80] while raising the lift arms to help prevent material from falling off the back of the bucket.

Drive forward slowly until the bucket is over the top of the truck box or bin.

Empty the bucket (Item 2) [Figure OI-80]. If all the material is near the side of the truck or bin, use the bucket tilt to move it to the other side.

WARNING

Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

LIFTING THE LOADER

Single Point Lift

! WARNING

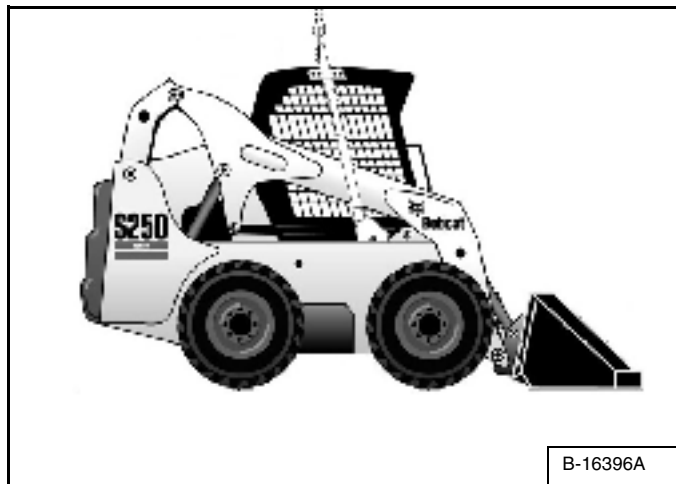
AVOID INJURY OR DEATH

- Before lifting, check fasteners on single point lift and operator cab.
- Assemble front cab fasteners as shown in this manual.
- Never allow riders in the cab or bystanders within 5 meters while lifting the machine.

W-2007-0497

The loader can be lifted with the Single Point Lift which is available as a kit from your Bobcat loader dealer.

Figure OI-99



Install the kit as explained in the Instructions with the kit and attach lift as shown [Figure OI-99].

The Single Point Lift, supplied by Bobcat, is designed to lift and support the Bobcat loader without affecting roll over and falling object protection features of the operator cab.

Four Point Lift

! WARNING

AVOID INJURY OR DEATH

- Before lifting, check fasteners on four point lift.
- Never allow riders in the cab or bystanders within 5 meters while lift the machine.

W-2160-0694

The loader can be lifted with the Four Point Lift which is available as a kit from your Bobcat loader dealer. The backhoe mounting kit must also be installed to provide lift points at the front of the loader.

Figure OI-100

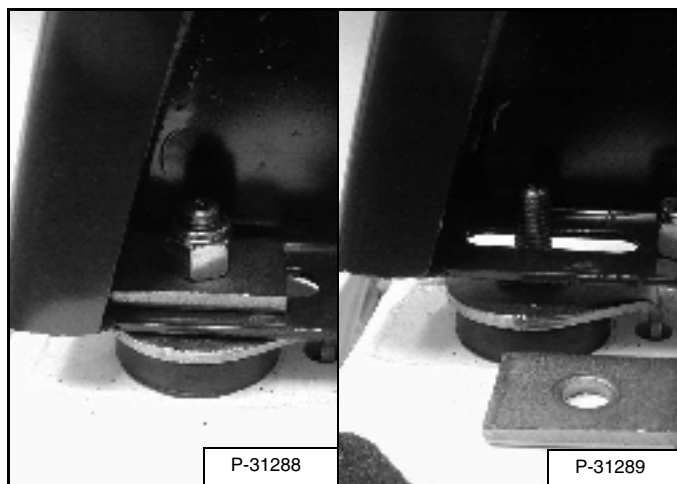


Attach cables or chains to lift eyes [Figure OI-100].

OPERATOR CAB (CONT'D)

Raising The Operator Cab (Cont'd)

Figure PM-5



Remove the nuts and plates [Figure PM-5] (both sides) at the front corners of the cab.

Figure PM-6



Lift on the grab handles and bottom of the operator cab [Figure PM-6] slowly until the cab is all the way up and the latching mechanism engages.

Advanced Control System (ACS)



! WARNING

Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Bobcat. Changes to the cab can cause loss of operator protection from rollover and falling objects, and result in injury or death.

W-2069-1299

REAR GRILL

Removing

Open the rear door.

Figure PM-20



Lift and pull the rear grill and remove it from the loader **[Figure PM-20]**.

Installing

Insert the tabs into the slots at the front end of the grill. Lower the grill to the frame.

Close the rear door.

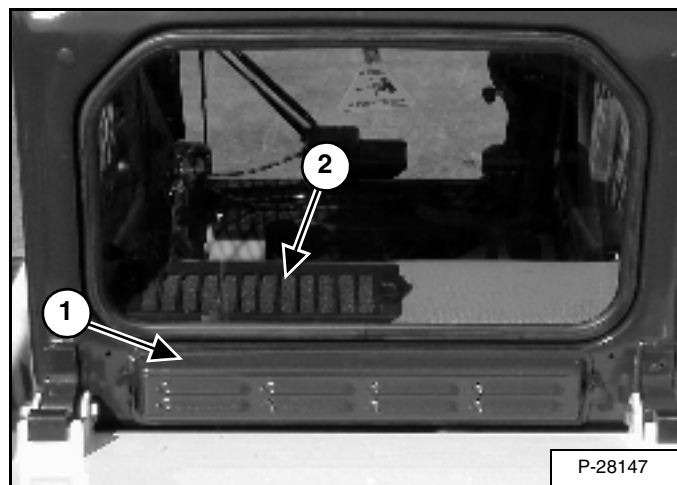
HEATING SYSTEM

Cleaning And Maintenance

The heating system requires regular inspection and maintenance. (See **SERVICE SCHEDULE** on Page PM-5) for intervals.

Filters

Figure PM-21



The Fresh Air Filter is located below the rear window of the cab (Item 1) **[Figure PM-21]**.

Remove the knobs and remove the filter housing.

Shake the filter or use low air pressure to remove dirt. The filter can be cleaned several times in this manner then it must be replaced.

Reinstall the filter housing.

The Recirculation Filter is located in front of the rear window inside the cab (Item 2) **[Figure PM-21]**.

Remove the clamping knobs, grill and filter.

Shake the filter or use low air pressure to remove dirt. The filter can be cleaned several times in this manner then it must be replaced.

Troubleshooting

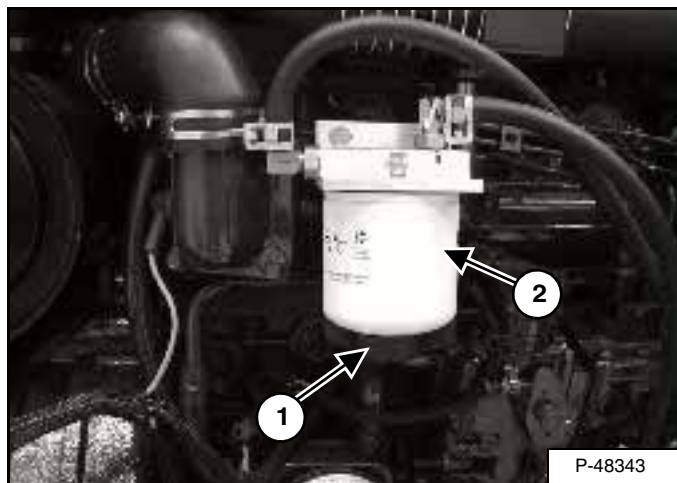
If the fan does not run, check the fuse (See **ELECTRICAL SYSTEM** on Page PM-21).

FUEL SYSTEM (CONT'D)

Fuel Filter

For the service interval for removing water from, or replacing the fuel filter (See SERVICE SCHEDULE on Page PM-5).

Figure PM-28



Loosen the drain (Item 1) [Figure PM-28] at the bottom of the filter element to remove water from the filter.

Remove the filter element (Item 2) [Figure PM-28].

Clean the area around the filter housing. Put clean oil on the seal of the new filter element. Install the fuel filter, and hand tighten.

Remove air from the fuel system. (See Removing Air From The Fuel System on Page PM-18.)

WARNING

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 which can result in injury or death.

W-2103-1285

Removing Air From The Fuel System

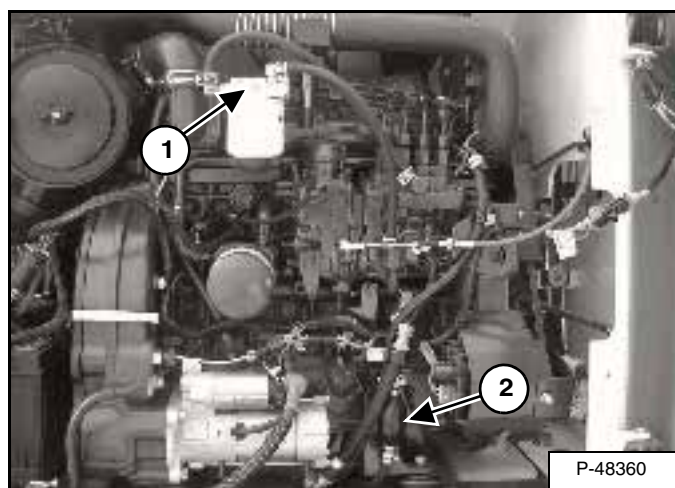
After replacing the filter element or when the fuel tank has run out of fuel, the air must be removed from the fuel system before starting the engine.

WARNING

Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes, causing serious injury or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical attention from a physician familiar with this injury.

W-2072-0496

Figure PM-29



Open the vent (Item 1) [Figure PM-29] on the fuel filter housing.

Squeeze the hand pump (priming bulb) (Item 2) [Figure PM-29] until fuel flows from the vent with no air bubbles.

Close the vent (Item 1) [Figure PM-29].

ELECTRICAL SYSTEM (CONT'D)

Removing And Installing The Battery

WARNING

Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body.

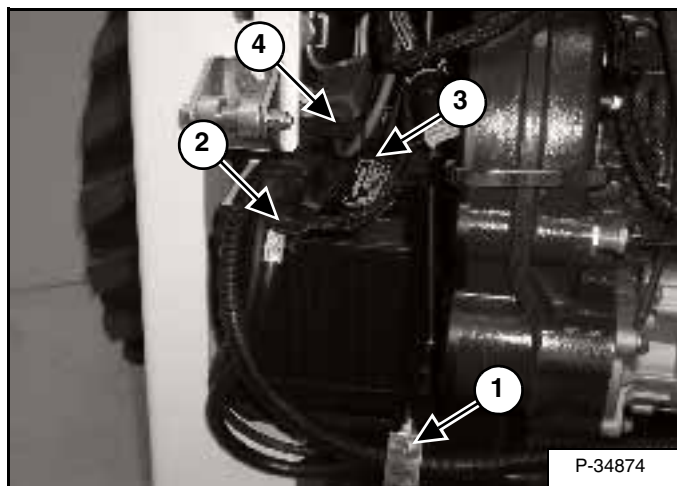
In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W-2065-1296

Open the rear door.

Figure PM-41



Remove the harness clamp (Item 1) [Figure PM-41].

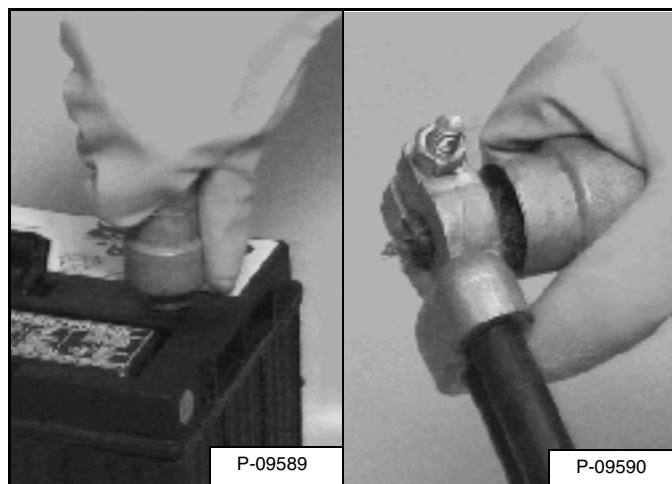
Disconnect the negative (-) cable (Item 2) [Figure PM-41].

Remove the battery hold down clamp (Item 3) [Figure PM-41].

Disconnect the positive (+) cable (Item 4) [Figure PM-41] from the battery.

Remove the battery from the loader.

Figure PM-42



Always clean the battery terminals and cable ends when installing a new or used battery [Figure PM-42].

When installing the battery in the loader, do not touch any metal parts with the battery terminals.

Connect the negative (-) cable last to prevent sparks.

Connect and tighten the battery cables.

Install and tighten the battery hold down.

WARNING

Keep arcs, sparks flames and lighted tobacco away from batteries. When *jumping* from booster battery make final connection (negative) at engine frame.

Do not jump start or charge a frozen or damaged battery. Warm battery to 16°C (60°F) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.

Battery gas can explode and cause serious injury.

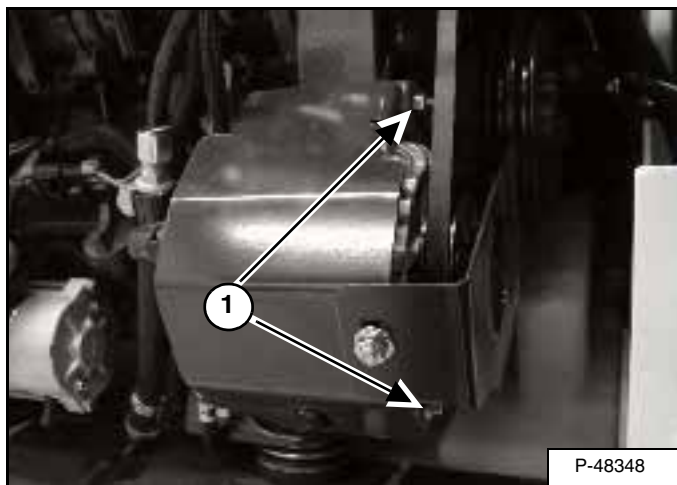
W-2066-1296

BELT ADJUSTMENTS

Adjusting The Alternator Belt

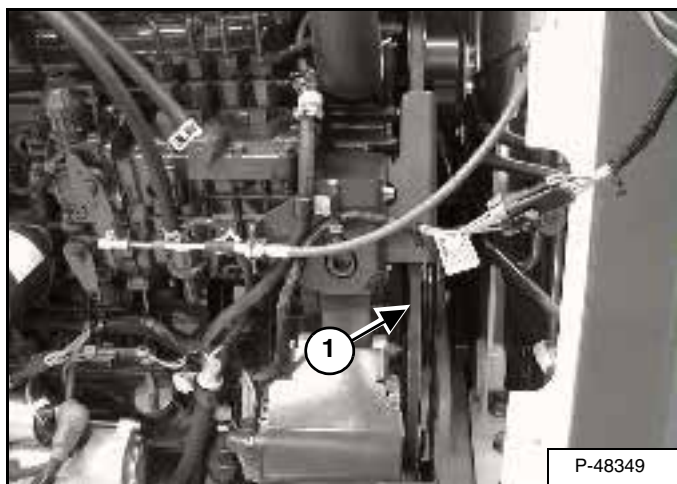
Stop the engine.

Figure PM-58



Loosen the alternator mounting and adjustment bolts (Item 1) [Figure PM-58].

Figure PM-59



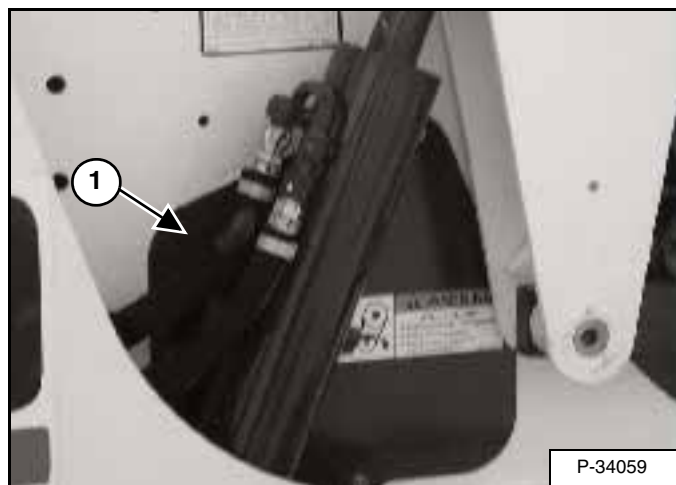
Move the alternator to tighten the belt. The tension is correct when there is 8,0 mm movement at the middle of the belt span (Item 1) [Figure PM-59] with 66 N of force.

Tighten the adjustment and mounting bolts (Item 1) [Figure PM-58].

Adjusting The Air Conditioner Belt

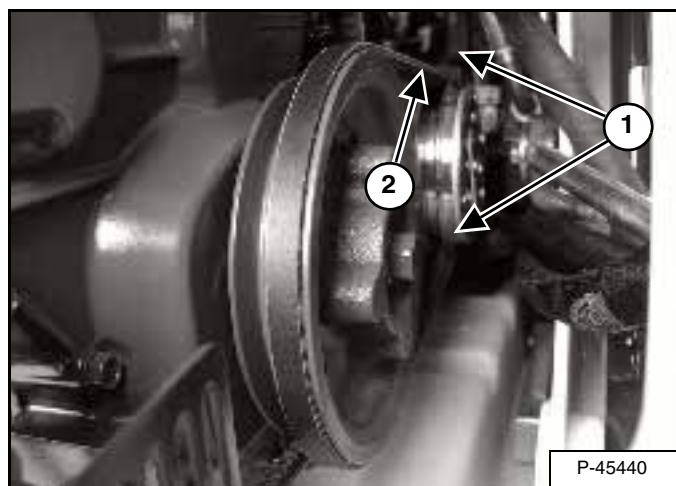
Stop the engine.

Figure PM-60



Remove the right side access cover (Item 1) [Figure PM-60].

Figure PM-61



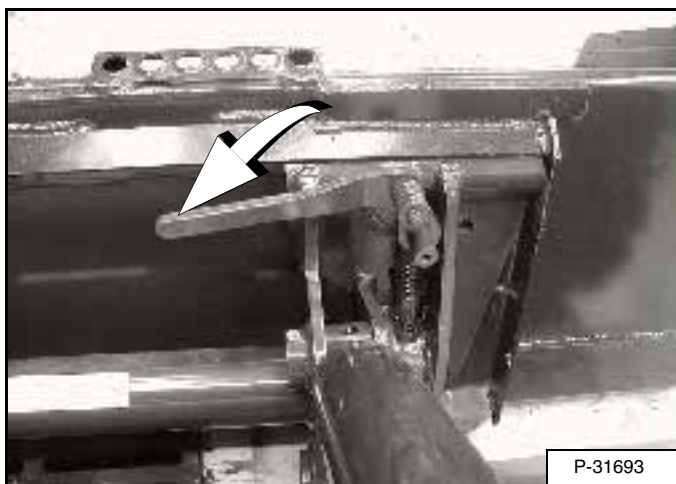
Loosen the mounting and adjustment bolts (Item 1) [Figure PM-61].

Move the air conditioner pump toward the front of machine to tighten the belt. The tension is correct when there is 8,0 mm movement at the middle of the belt span (Item 2) [Figure PM-61] with 66 N of force.

BOB-TACH (HAND LEVER)

Inspection And Maintenance

Figure PM-73



Move the Bob-Tach levers down to engage the wedges [Figure PM-73].

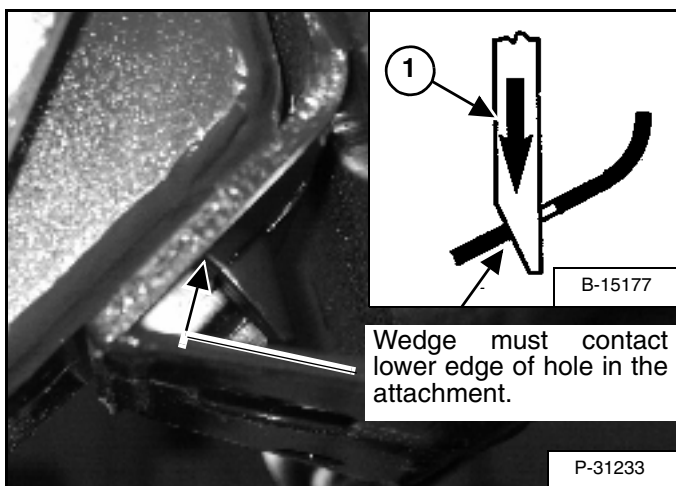
The levers and wedges must move freely.

WARNING

Bob-Tach wedges must extend through the holes in attachment. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

W-2102-0588

Figure PM-74

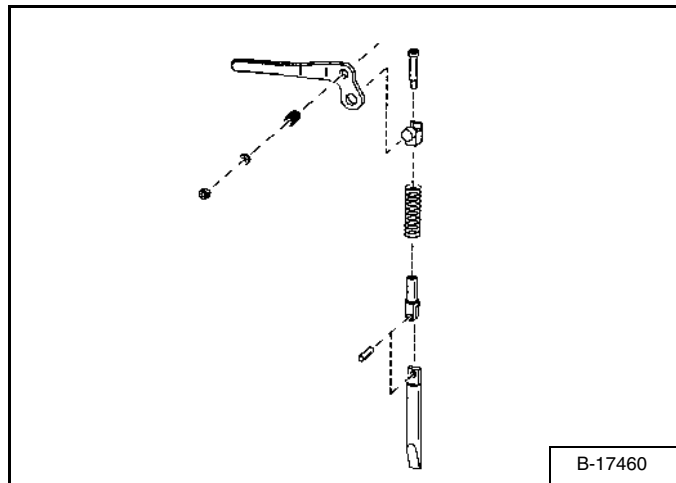


The wedges (Item 1) [Figure PM-74] must extend through the holes in the attachment mounting frame.

The spring loaded wedge (Item 1) [Figure PM-74] must contact the lower edge of the hole in the attachment (Item 2) [Figure PM-74].

If the wedge does not contact the lower edge of the hole [Figure PM-74], the attachment will be loose and can come off the Bob-Tach.

Figure PM-75



Inspect the mounting frame on the attachment and Bob-Tach, linkages and wedges for excessive wear or damage [Figure PM-75]. Replace any parts that are damaged, bent or missing. Keep all fasteners tight.

Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges (See SERVICE SCHEDULE on Page PM-5) and (See LUBRICATING THE BOBCAT LOADER on Page PM-32).

DIAGNOSTICS SERVICE CODES (CONT'D)

Number Codes List (Cont'd)

CODE		CODE	
39-04	Left joystick no communication to Bobcat controller	85-02	ACD output 'F' error ON
		85-03	ACD output 'F' error OFF
40-04	Right joystick no communication to Bobcat controller		
		86-02	ACD output 'G' error ON
44-02	Horn error ON	86-03	ACD output 'G' error OFF
44-03	Horn error OFF		
		87-02	ACD output 'H' error ON
45-02	Right blinker error ON	87-03	ACD output 'H' error OFF
45-03	Right blinker error OFF		
		90-02	Service tool output 'C' error ON
46-02	Left blinker error ON	90-03	Service tool output 'C' error OFF
46-03	Left blinker error OFF		
		91-02	Service tool output 'D' error ON
47-21	8 volt sensor supply out of range high	91-03	Service tool output 'D' error OFF
47-22	8 volt sensor supply out of range low		
		92-02	Service tool output 'E' error ON
48-02	Front light relay error ON	92-03	Service tool output 'E' error OFF
48-03	Front light relay error OFF		
		93-02	Service tool output 'F' error ON
49-02	Rear light relay error ON	93-03	Service tool output 'F' error OFF
49-03	Rear light relay error OFF		
60-21	Rear auxiliary control out of range high		
60-22	Rear auxiliary control out of range low		
60-23	Rear auxiliary control not returning to neutral		
64-02	Switched power relay error ON		
64-03	Switched power relay error OFF		
74-72	Bobcat controller in boot code		
74-73	Left hand panel system RX error		
80-02	ACD output 'A' error ON		
80-03	ACD output 'A' error OFF		
81-02	ACD output 'B' error ON		
81-03	ACD output 'B' error OFF		
82-02	ACD output 'C' error ON		
82-03	ACD output 'C' error OFF		
83-02	ACD output 'D' error ON		
83-03	ACD output 'D' error OFF		
84-02	ACD output 'E' error ON		
84-03	ACD output 'E' error OFF		