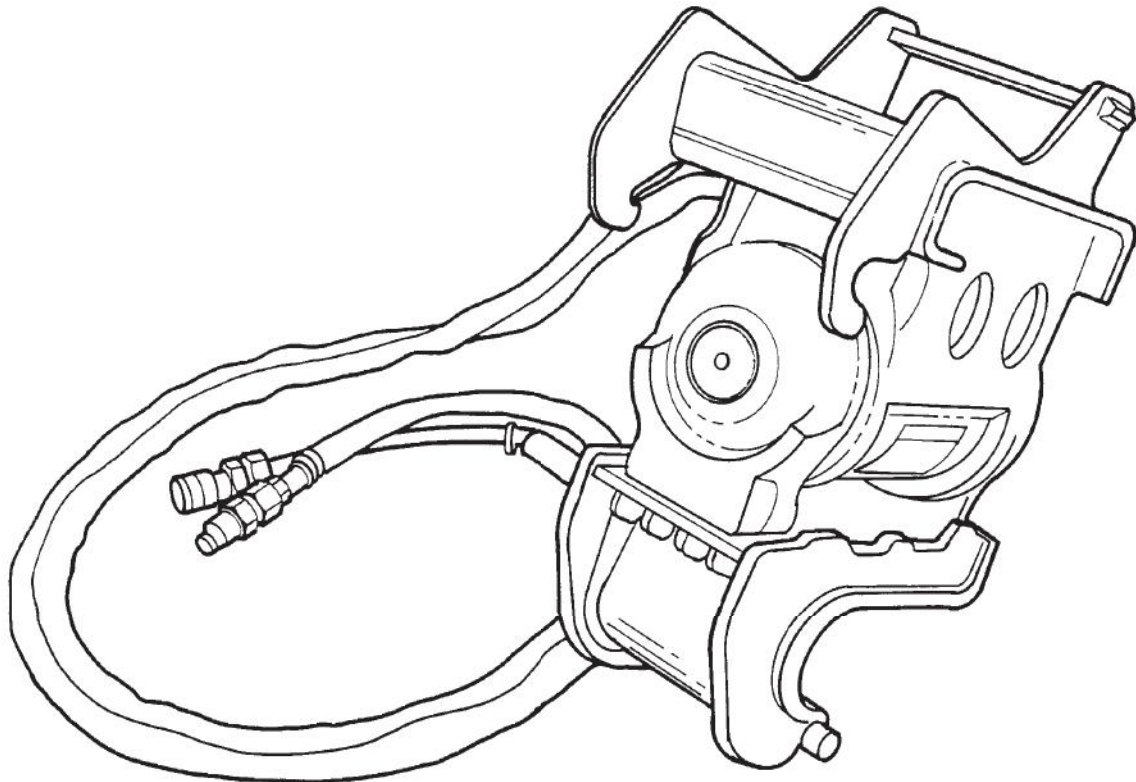




POWER TILT®

PTX3 (S/N 223600101 & Above)
PTX4 (S/N 223400101 & Above)

Service Manual



BOBCAT
INGERSOLL-RAND

6901002 (6-12)
1 of 48

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MAINTENANCE SAFETY



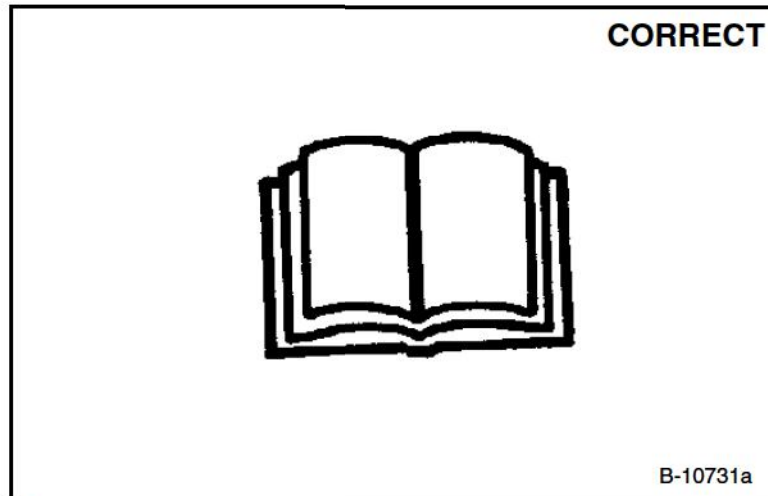
WARNING









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



Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



-  Never service attachments without instructions. See Operation & Maintenance Manual and Attachment Service Manual.
-  Cleaning and maintenance are required daily.
-  Never service or adjust attachment with the engine running unless instructed to do so in manual.
-  Always lower the attachment to the ground before lubricating or servicing.
-  Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate skin or eyes.
-  Stop, cool and clean engine of flammable materials before checking fluids.
-  Keep body, loose objects and clothing away from moving parts, electrical contacts, hot parts and exhaust.
-  Safety glasses are needed for eye protection from electrical arcs, battery acid, compressed springs, fluids under pressure and flying debris or when tools are used. Use eye protection approved for type of welding.

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**PREVENTIVE
MAINTENANCE**

MAIN FRAME

**SPECIFICATIONS
AND
SCHEMATICS**

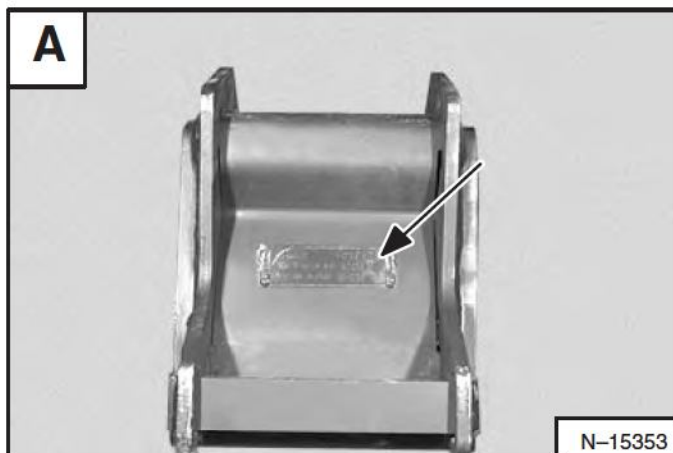
**CALIFORNIA
PROPOSITION 65 WARNING**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

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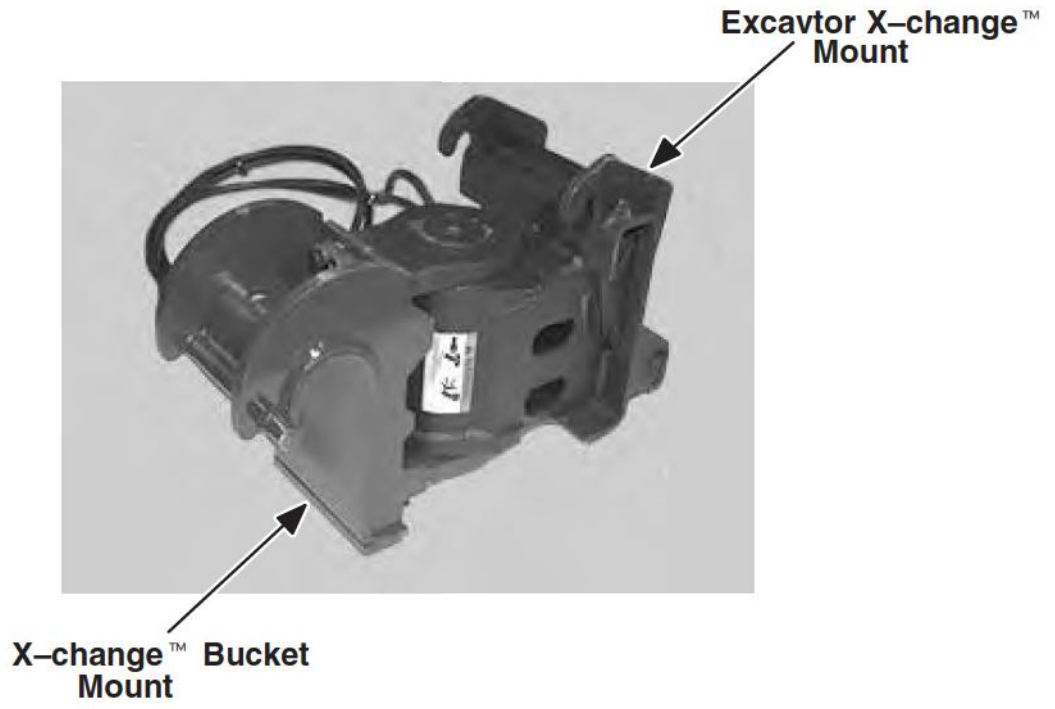
SERIAL NUMBER LOCATION

Always use the serial number of the Power Tilt when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation [A].

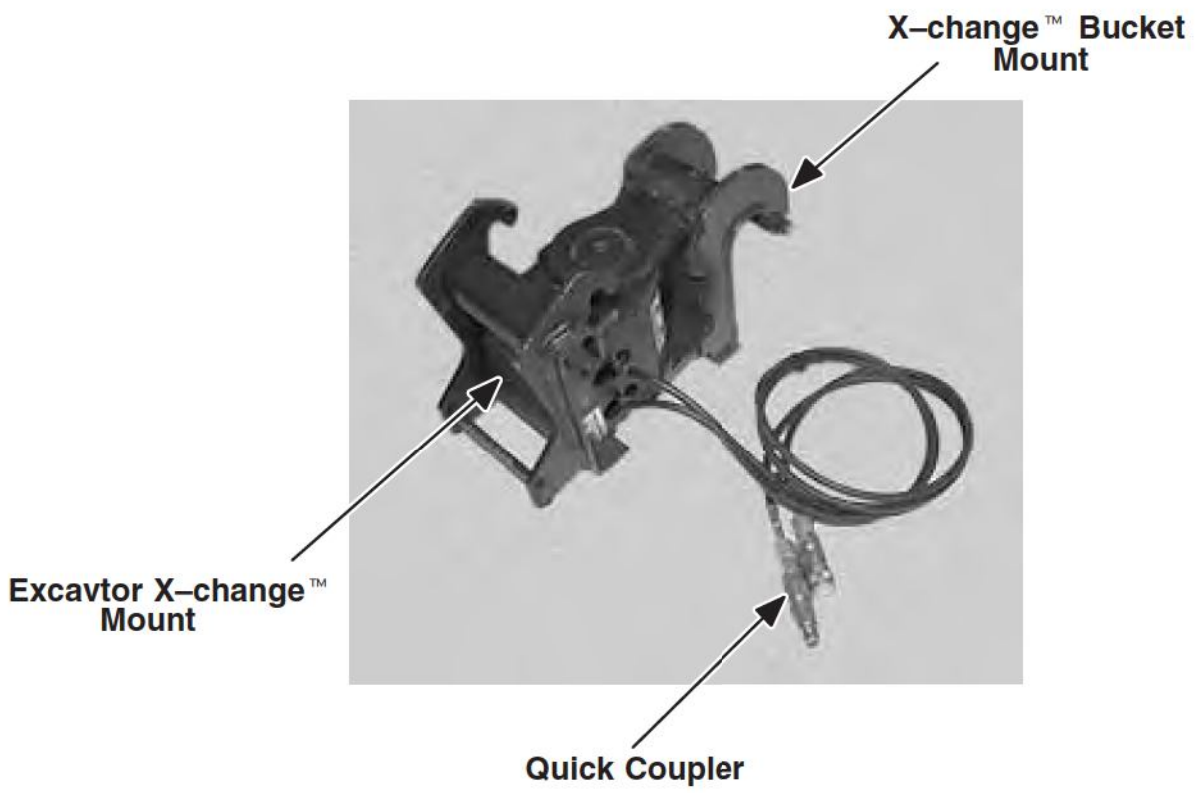


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IDENTIFICATION



P-15326



P-15327

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PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

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TROUBLESHOOTING



WARNING

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W-2003-0199

If the Power Tilt is not working correctly check the hydraulic system of the excavator thoroughly before making any repairs on the Power Tilt. Power Tilt problems can be affected by a hydraulic system that is not operating to specifications.

If the excavator operation is found to be correct, use the following troubleshooting chart to locate and correct problems with the Power Tilt.

PROBLEM	CAUSE	CORRECTION
Power Tilt does not hold position.	Excessive down pressure being applied by excavator causing buildup of pressure in the Power Tilt and opening the work port relief valves.	Check pressure setting of work port relief valves.
	Cross Port Relief Valve leaking oil.	Repair or replace as needed.
	Seals leaking oil.	Replace seals.
Power Tilt has spongy feel side to side.	Air in Power Tilt or hydraulic circuit.	Bleed air.
Forward and backward movement of shaft (axial play).	Worn or missing thrust bearings.	Repair or replace thrust bearings.
Side to side bucket movement.	Some movement is normal due to clearance required between internal spline teeth.	Normal movement is 1° to 1-1/2°. If greater than normal, check axial play; excessive axial play can contribute to side to side movement. If axial play is within acceptable limits, consult your dealer.

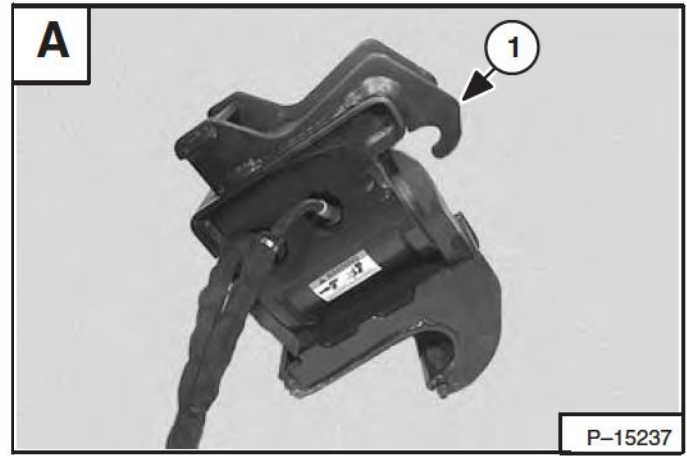
WEEKLY MAINTENANCE

Every forty hours of operation rotate the Power Tilt to the end of rotation. Continue to engage the auxiliary hydraulic pedal for approximately one minute. This will flush any contamination that may have settled in the Power Tilt. Rotate the Power Tilt to the opposite end of rotation and repeat the procedure.

INSPECTION

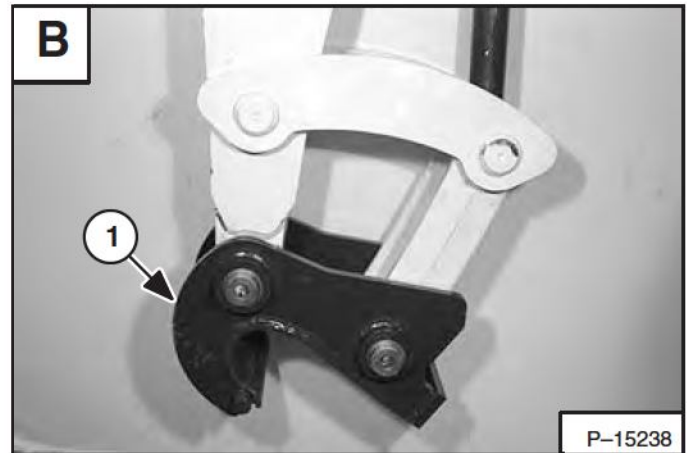
Power Tilt Mount Inspection

Inspect the Power Tilt mount (Item 1) [A] and all welds on the mount for wear and damage each time the Power Tilt is removed from the excavator.



X-Change™ Inspection

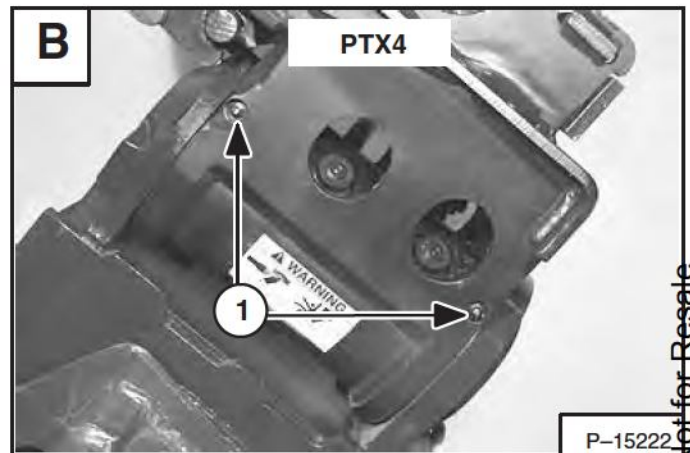
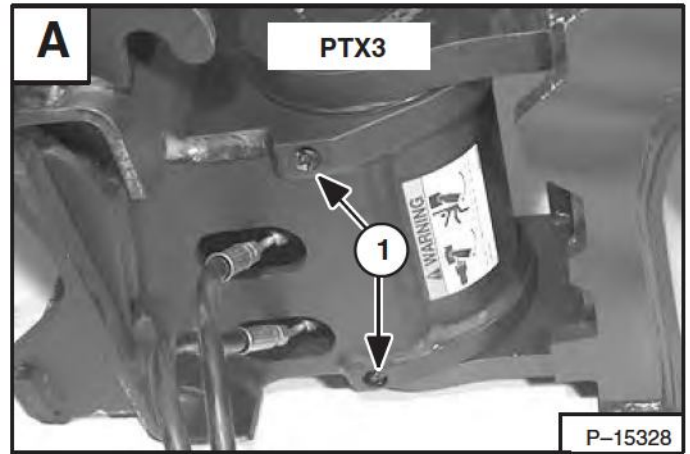
Inspect the X-Change™ (Item 1) [B] for damage or wear. Clean all dirt and debris from the X-Change™ latch (325, 328, 331 and 334 Excavators only).



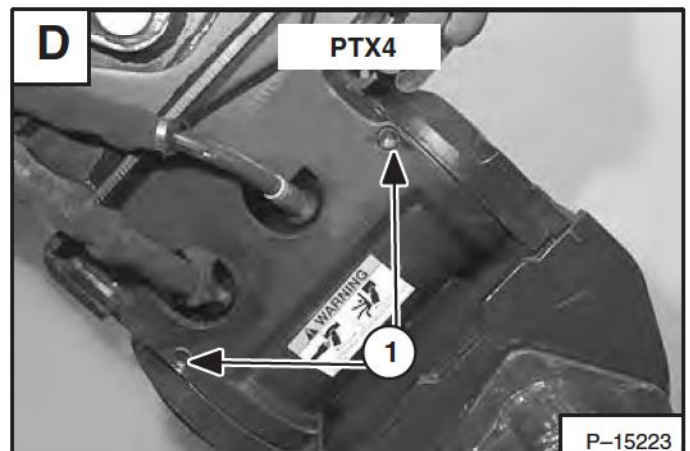
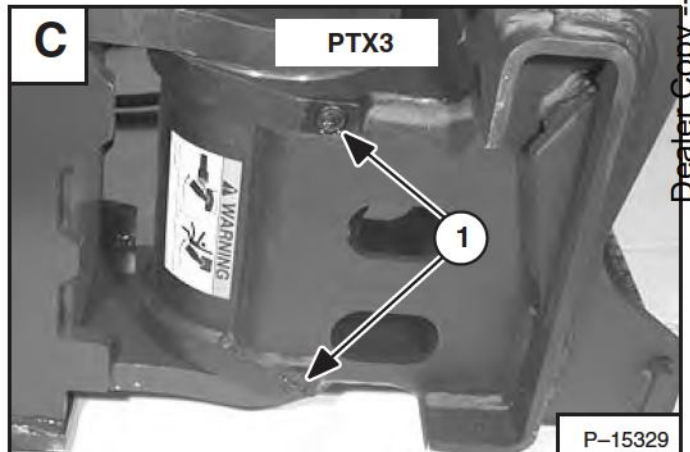
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LUBRICATION

Lubricate the bearings (Item 1) [A] & [B] every 8–10 hours using a high quality lithium grease.



Apply the grease until clean grease flows from the grease relief valves (Item 1) [C] & [D].



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MAIN FRAME

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MAIN FRAME

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