

SPECIFICATIONS

MODEL	SL35B	SL40B
ENGINE		
MANUFACTURER	NEW HOLLAND	NEW HOLLAND
MODEL	N843	N843H
CYLINDERS	3	3
ASPIRATION	NATURAL	NATURAL
CYCLE	4 STROKE	4 STROKE
BORE AND STROKE	84 x 90 mm (3.3" x 3.54")	84 x 90 mm (3.3" x 3.54")
DISPLACEMENT	1496 cu. cm (91.3 cu. in.)	1496 cu. cm (91.3 cu. in.)
COMPRESSION RATIO	22 to 1	22 to 1
SPEEDS		
-FAST (no load)	3070 - 3150 RPM	3410 - 3480 RPM
-IDLE (no load)	950 - 1050 RPM	950 - 1050 RPM
HORSEPOWER		
(GROSS) Mfg rating	33 @2900 RPM	38 @3200 RPM
(SAE NET)	30 @2900 RPM	36 @3200 RPM
TORQUE (Mfg rating) Gross	94.2 N·m (69.5 ft. lbs.)	99 N·m (73 ft. lbs.)
VALVE CLEARANCE		
Intake (cold)	0.21 mm (0.008")	0.21 mm (0.008")
Exhaust (cold)	0.21 mm (0.008")	0.21 mm (0.008")
FIRING ORDER	1-2-3	1-2-3
FUEL CONSUMPTION		
(approximate at continuous full load)	7.6 L (2.0 US.gal.)	8.7 L (2.3 gal.)
IGNITION TYPE	Compression	Compression
GRADEABILITY (Intermittent duty)		
All Directions	30 Degrees	30 Degrees
FUEL SYSTEM		
Type of fuel	Diesel	Diesel
Injection Type	Indirect	Indirect
Cleaning system	Inline filter replaceable	Inline filter replaceable
	Inline water trap (diesel)	Inline water trap (diesel)

TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Engine will crank but does not start	Faulty key switch	Correct the connection and/or replace switch
	Blown 5-amp electronic ignition fuse (cab fuse panel)	Replace fuse
	Fuel solenoid not operating	Check solenoid for battery voltage and correct
	Battery insufficiently charged or completely discharged	Charge or replace battery
	Lack of fuel	Fill fuel tank
	Air mixed in the fuel system	Bleed the air
	Clogged fuel filter	Replace
	Irregular and faulty fuel supply (electric fuel pump)	Check power supply and/or replace pump
	Irregular and faulty fuel supply (injection pump trouble)	Repair in an authorized service shop
	Glow plug not heating	Failure of the glow plug; replace
	Improper viscosity of the lubricating oil	Inspect and replace
	Clogged air cleaner	Clean or replace
Engine will not crank or start	Low compression	Repair in a service shop
	Seat belt not fastened	Buckle seat belt
	Faulty key switch	Correct the connection and/or replace switch
	Battery insufficiently charged or complete discharged	Charge or replace battery
	Blown 5-amp electronic battery fuse (engine fuse panel)	Replace fuse
	Blown 15-amp key main fuse (engine fuse panel)	Replace fuse
	Open in W/O (white-orange) wire between the seat/seat belt connector and start interlock relay	Check and repair as required
Irregular running of the engine	Faulty start interlock relay	Check and repair as required
	Air mixed in the fuel system	Bleed the air from the system
	Uneven fuel injection (faulty fuel injection pump)	Repair at authorized shop
	Clogged fuel filter	Replace
	Defective governor	Check and correct
	Engine itself defective	Repair in a service shop

Op. 10 001 10**ENGINE REMOVAL**

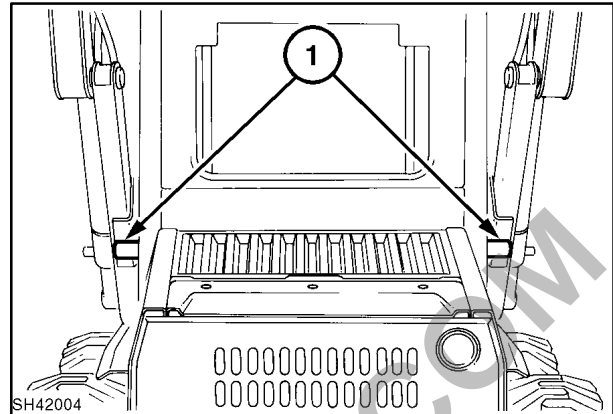
The engine can be removed from the skid steer by two methods:

Method 1 Removing the rear door, radiator, oil cooler, and support as an assembly.

Method 2 Tilting the cab and boom forward to gain access.

Method 1 is the recommended procedure and should be followed unless other circumstances require the cab to be tilted.

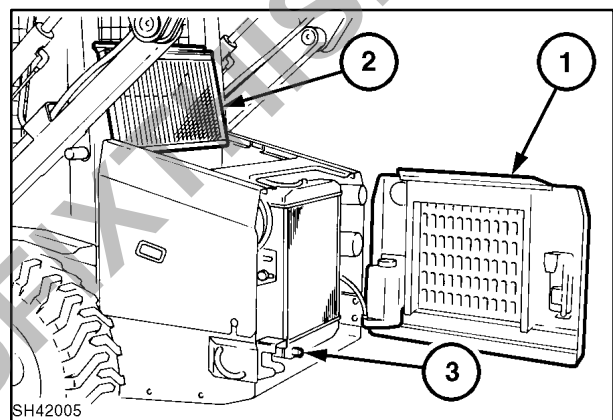
For either method, raise and support the boom on the boom lock pins, 1, to access the engine area.



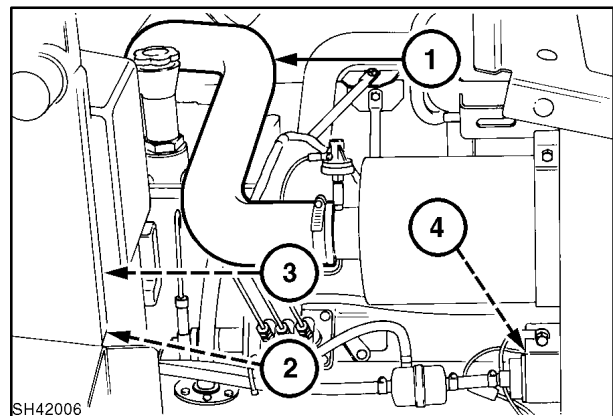
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METHOD 1**(Without Tilting Cab)**

1. Open rear door, 1. Remove the top engine hood, 2, and both the right and left engine side covers.
2. Remove the battery.
3. Drain the cooling system, radiator, and engine block, 3.
4. Remove the upper and lower radiator hoses from the engine block and plug the hoses with plastic plugs.
5. Remove the air cleaner hose, 1, from the intake manifold and cap.
6. Unplug the engine wire harness from the main harness, 2, and ground wires from the engine bellhousing, 3.
7. Unhook the control valve hydraulic oil return line at the oil cooler and cap at 4.



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MINIMUM HARDWARE TIGHTENING TORQUES

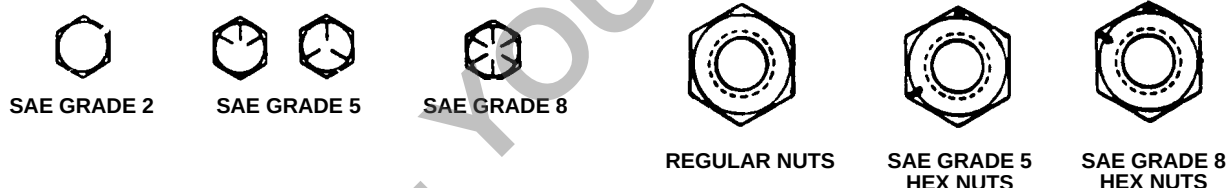
IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

INCH HARDWARE AND LOCKNUTS

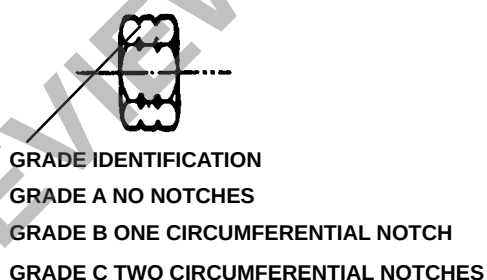
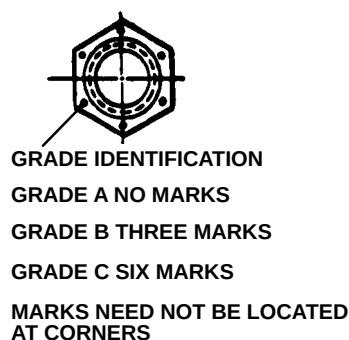
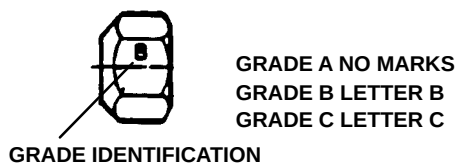
NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (18)	61* (6.9)	86* (9.8)	1/4
5/16	115* (13)	149* (17)	178* (20)	229* (26)	250* (28)	324* (37)	125* (14)	176* (20)	5/16
3/8	17 (23)	22 (30)	26 (35)	34 (46)	37 (50)	48 (65)	19 (26)	26 (35)	3/8
7/16	27 (37)	35 (47)	42 (57)	54 (73)	59 (80)	77 (104)	30 (41)	42 (57)	7/16
1/2	42 (57)	54 (73)	64 (87)	83 (113)	91 (123)	117 (159)	45 (61)	64 (88)	1/2
9/16	60 (81)	77 (104)	92 (125)	120 (163)	130 (176)	169 (229)	65 (88)	92 (125)	9/16
5/8	83 (112)	107 (145)	128 (174)	165 (224)	180 (244)	233 (316)	90 (122)	127 (172)	5/8
3/4	146 (198)	189 (256)	226 (306)	293 (397)	319 (432)	413 (560)	160 (217)	226 (306)	3/4
7/8	142 (193)	183 (248)	365 (495)	473 (641)	515 (698)	667 (904)	258 (350)	364 (494)	7/8
1	213 (289)	275 (373)	547 (742)	708 (960)	773 (1048)	1000 (1356)	386 (523)	545 (739)	1

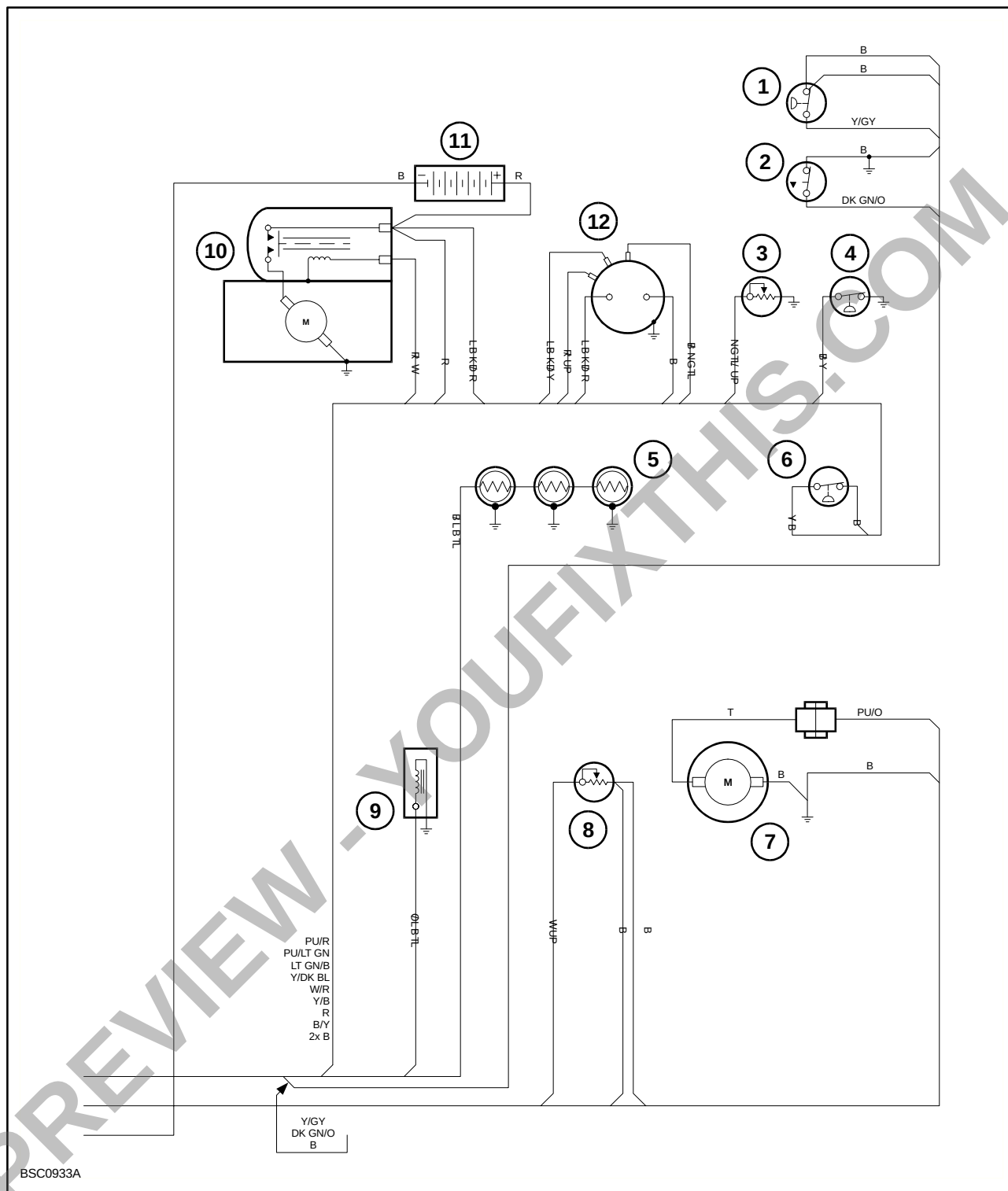
NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION CAP SCREWS AND CARRIAGE BOLTS



LOCKNUTS

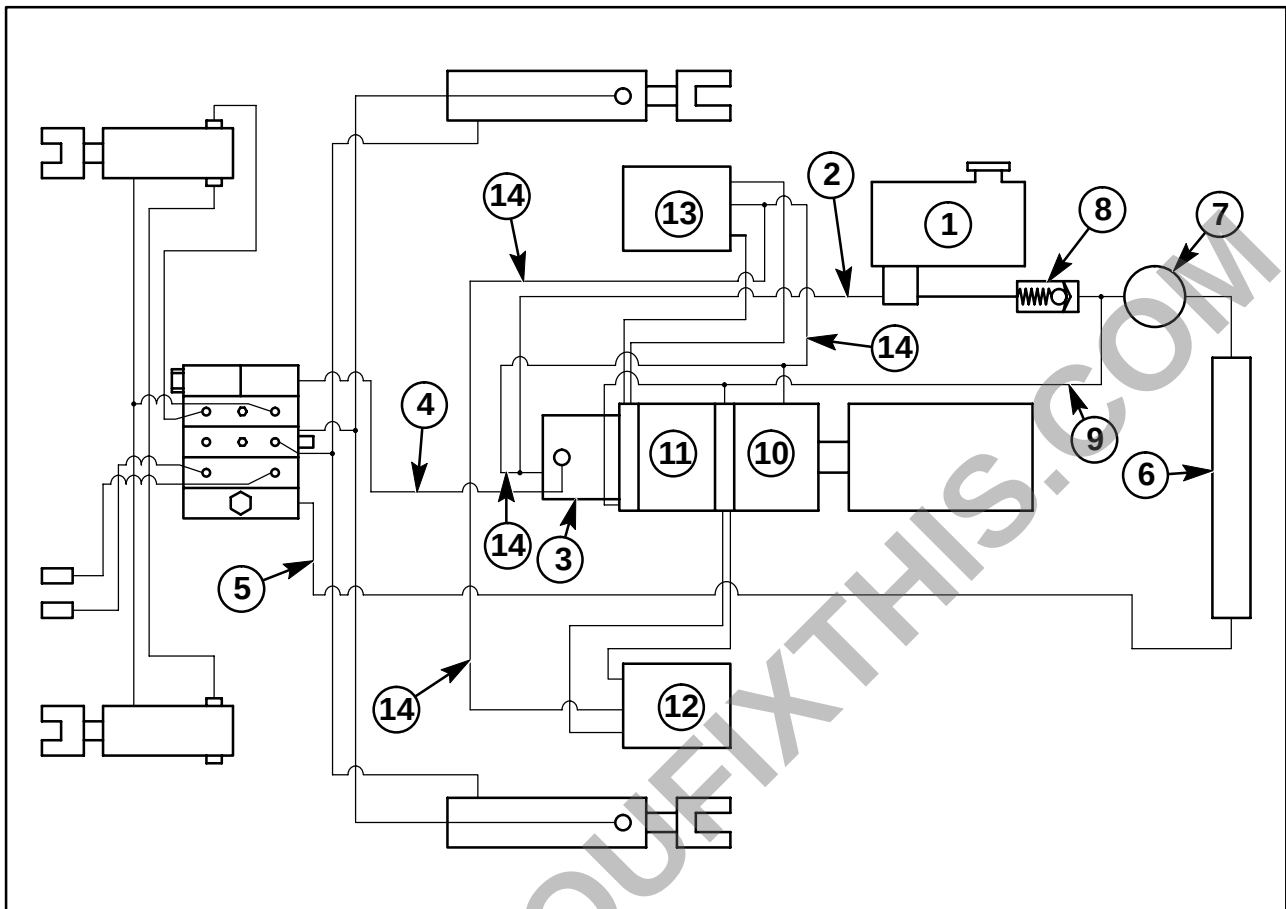




ENGINE COMPONENTS ELECTRICAL DIAGRAM

1. Hydraulic oil pressure switch
2. Hydraulic oil filter switch
3. Engine coolant temperature sender
4. Engine oil pressure switch
5. Glow plugs
6. Air filter vacuum switch

7. Fuel pump
8. Fuel level sender
9. Fuel solenoid
10. Starter
11. Battery
12. Alternator



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Hydrostatic System Components – SL35B & SL40B

1. Hydraulic reservoir - Right front of engine compartment
2. Suction line - From reservoir to the gear pump under the operator's seat.
3. Hydraulic gear pump - Attached to the front of the hydrostatic pumps.
4. Pressure line - From the gear pump to the control valve under the operator's seat.
5. Return line - From control valve to oil cooler.
6. Oil cooler - Engine side of radiator in engine compartment.
7. Oil filter - After the oil cooler engine compartment rear door.
8. Charge check valve - In return line between oil filter and reservoir.
9. Hydrostatic transmission charge line - From the charge check valve to the hydrostatic pumps under the operator's seat.
10. Hydrostatic pump for left drive - Under operator's seat.
11. Hydrostatic pump for right drive - Under operator's seat.
12. Hydrostatic motor for left drive - Under operator's seat.
13. Hydrostatic motor for right drive - Under operator's seat.
14. Hydrostatic system case drain line - From pumps and motors to the suction line fitting at gear pump under operator's seat.

SECTION 00 – GENERAL INFORMATION

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AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the highway, are caused by the failure of some individuals to follow simple and fundamental safety rules or precautions. For this reason **MOST ACCIDENTS CAN BE PREVENTED** by recognising the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment there are conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

Carefully read indications, cautions and safety warning quoted in the "SAFETY RULES" section.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule would prevent many thousand serious injuries each year.

That rule is:

Never attempt to clean, oil or adjust a machine while it is in motion.



ATTENTION

On machines having hydraulically, mechanically and/or cable controlled equipment (such as showels, loaders, dozers, scrapers etc.) be certain the equipment is lowered to the ground before servicing, adjusting and/or repairing.

If it is necessary to have the equipment partially or fully raised to gain access to certain items, be sure the equipment is suitably supported by means other than the hydraulic lift cylinders, cable and/or mechanical device used for controlling the equipment.

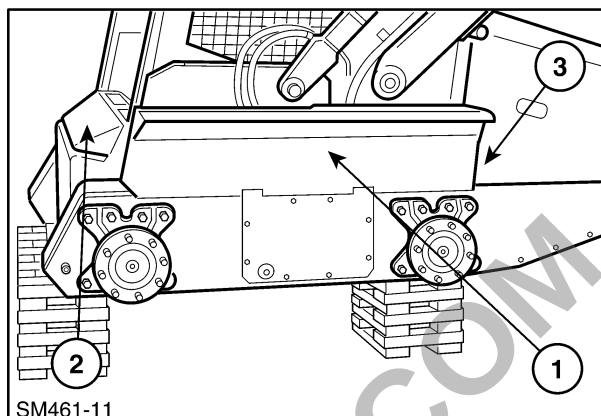
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7. Remove fenders, 1, right and left sides.
8. Remove the front step shield, 2.
9. Remove the front engine shield supports, 3, right and left sides.

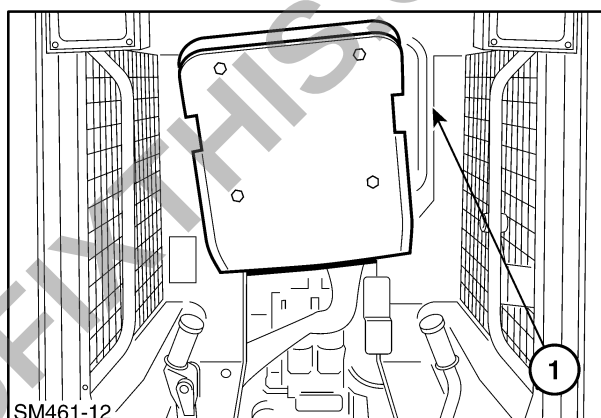


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10. Raise the seat and lock in the up position, 1. Make sure the seat pan assembly is latched securely.

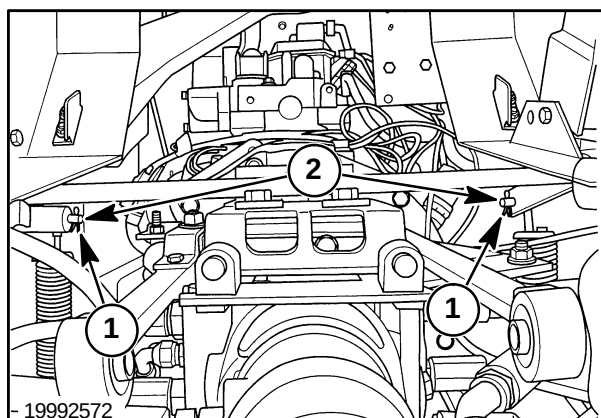


Do not work under the seat and pan unless it is properly latched in the raised position.



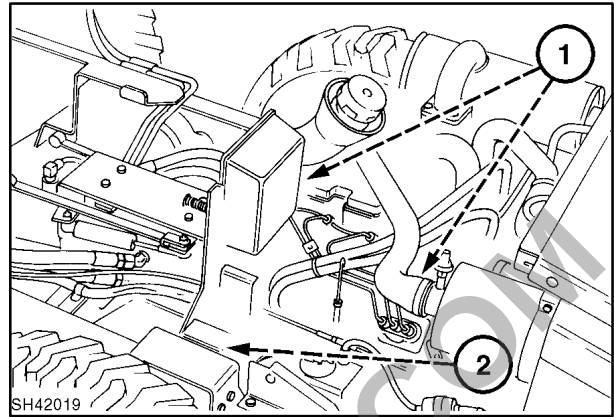
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11. Remove the cotter pins from the parking brake linkage at 1, unhook link rod, 2, and raise the parking brake lever to the engaged position.



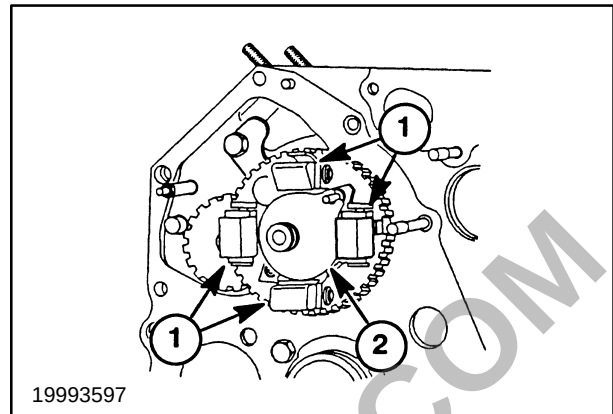
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12. Attach lifting chains to the engine lift eyes at 1, and hook to the lifting device to support the engine.
13. Remove the fuse panel support hardware, 2, and move the panel for clearance.
14. Remove the engine motor mount hardware. Lift the engine assembly from the skid steer frame, moving it as required to clear the fan shroud.



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As the engine speed decreases, the governor weights, 1, pivot inward allowing the slider cone, 2, to move rearward.

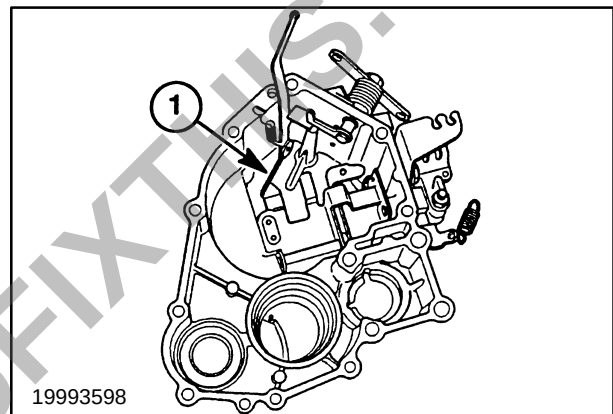


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As the slider cone, 2, Figure 97, moves rearward, the governor linkage arm, 1, allows the fuel injection pump rack to move rearward to the full fuel position and the engine speed increases.

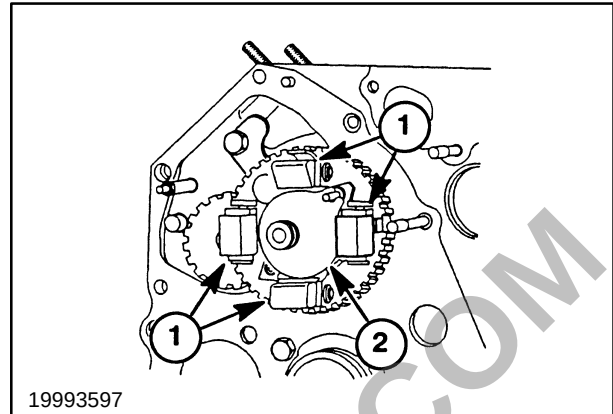
Engine speed depends upon several factors: the throttle setting determined by governor spring tension; the pressure exerted by the slider cone on the governor linkage; and, positioning of the injection pump rack.

All the governor linkage parts are located inside the engine timing gear cover. To inspect or replace any of the governor linkage parts, the timing gear case and injection pump must be removed from the engine.



98

As the engine speed decreases, the governor weights, 1, pivot inward allowing the slider cone, 2, to move rearward.

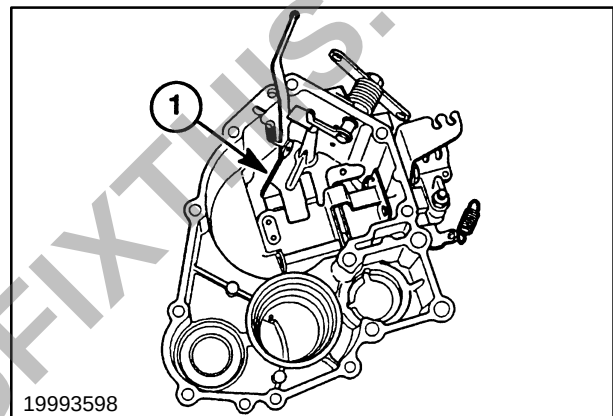


164

As the slider cone, 2, Figure 164, moves rearward, the governor linkage arm, 1, allows the fuel injection pump rack to move rearward to the full fuel position and the engine speed increases.

Engine speed depends upon several factors: the throttle setting determined by governor spring tension; the pressure exerted by the slider cone on the governor linkage; and, positioning of the injection pump rack.

All the governor linkage parts are located inside the engine timing gear cover. To inspect or replace any of the governor linkage parts, the timing gear case and injection pump must be removed from the engine.



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6. Raise the operator's seat and latch in the raised position, 1.



Never work under a raised seat unless it is securely latched in the raised position.

7. Remove the step shield, 2, to access the hydrostatic pump area. For more access, remove the right and left hydrostatic control handle assemblies at 3.

8. Relieve all pressure in the hydraulic and hydrostatic systems.



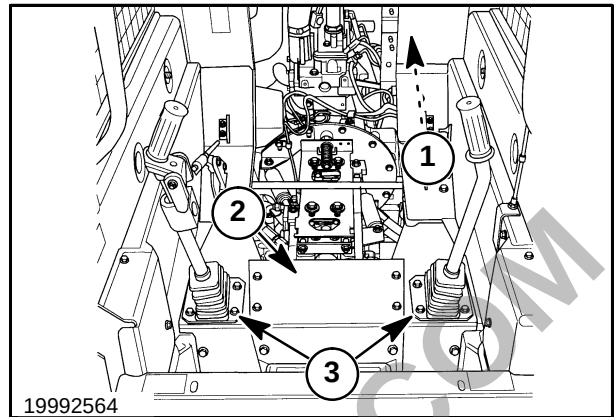
Never loosen any hydraulic lines without first relieving all pressure in the systems to avoid serious injury.

Draining the hydraulic oil reservoir is not required if the suction and return lines are capped to prevent loss of oil. If the hydraulic system requires cleaning, draining is required.

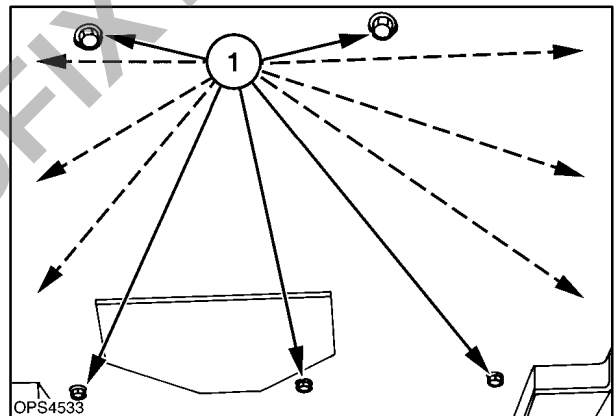
9. Remove the rear engine belly pan, 1.



Use a floor jack to support the belly pan to prevent serious injury.



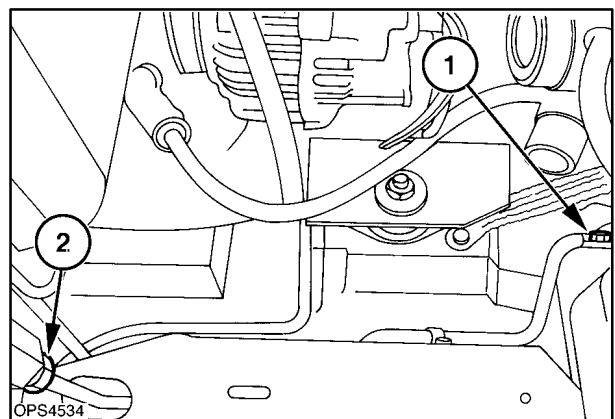
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10. Drain the hydraulic reservoir.

- Loosen the return line clamp, 1.
- Remove the return line at 2, and rotate the line into a suitable drain pan.



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HYDRAULIC SYSTEM CLEANING PROCEDURE

After A Hydraulic System Or Transmission Overhaul

The hydraulic/hydrostatic system must be cleaned if during repair the cause was from contamination and the transmissions show wear on the pistons and shoes, rotating piston blocks, valve plate or cam plate.

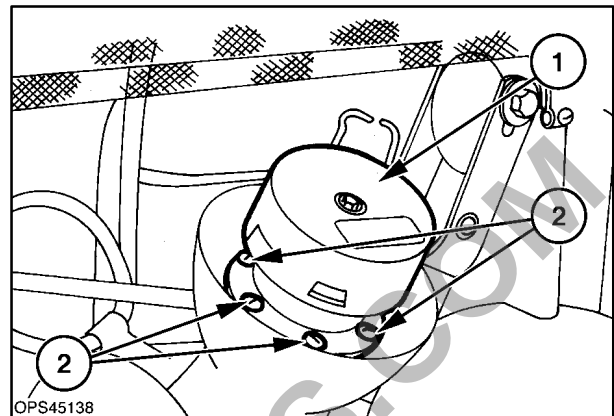
IMPORTANT: Do not use the gear pump and charge pump to flush the system with solvent. The solvent will not provide enough lubrication to protect moving parts inside the transmissions or gear pump.

1. Drain all remaining oil from the hydraulic system.
2. Remove fill cap, 1, and screen by removing the six retaining screws, 2, from the reservoir fill. Thoroughly clean the screen and fill breather cap in solvent.
3. Drain and flush the hydraulic oil reservoir.
Remove the rear engine belly pan hardware, 1, and remove the belly pan.

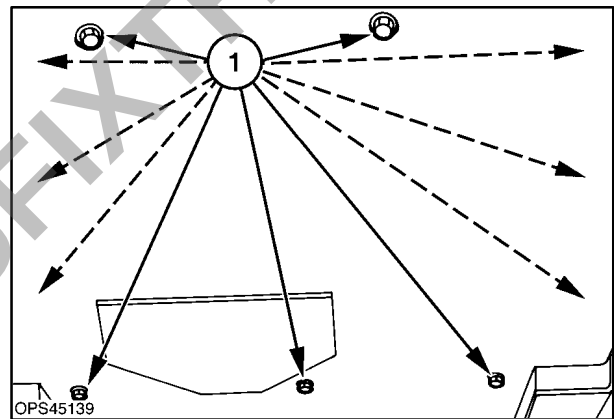


CAUTION

Use a floor jack to support the belly pan to prevent serious injury.

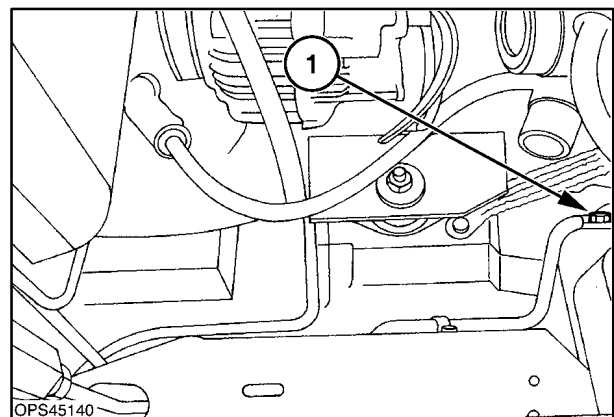


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Loosen the return line clamp, 1.



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SECTION 33 – BRAKES AND CONTROLS

Chapter 1 – Parking Brake

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33 110	Parking Brake	33-8
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Boom lift check test:

Pretest instructions:

- * Operator in seat
- * Service/Run switch in "RUN" position
- * Seat belt fastened
- * Ignition switch in the "ON" position
- * Engine running half throttle, 1500 RPM

STEP	TEST	RESULT	PROBABLE CAUSE AND CORRECTION
1	Boom stopped midrange and restarted, the boom should start raising without dropping first.	YES NO	System OK Check for a leaking lift check valve, broken spring, or scored plunger and/or seat. If OK go to next step.
2			Check cylinders for leaky packing.
3			Check O ring and backup washer on circuit relief valve and O ring on front plug in control valve.

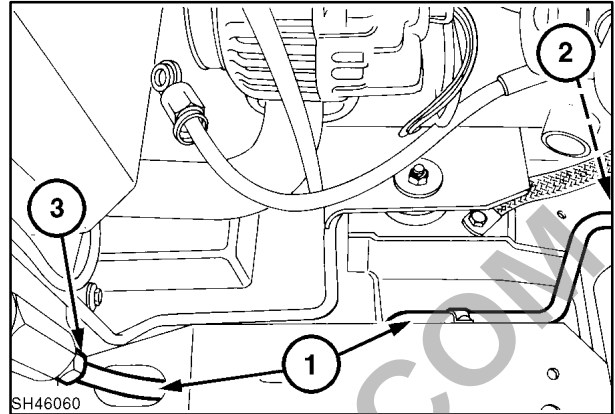
Boom drift down test:

Pretest instructions:

- * Operator in seat
- * Service/Run switch in "RUN" position
- * Seat belt fastened
- * Ignition switch in the "ON" position
- * Engine running half throttle, 1500 RPM

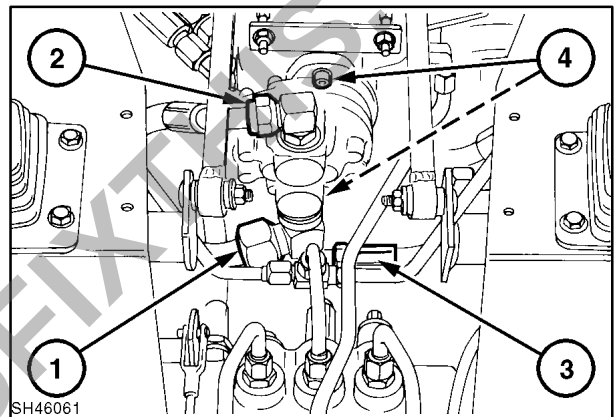
STEP	TEST	RESULT	PROBABLE CAUSE AND CORRECTION
1	Boom stopped midrange should hold in position with no visual movement.	YES NO	System OK Check control valve spool for centering, if OK go to next step.
2			Check for leaky packing in cylinders, if OK go to next step.
3			Check boom circuit relief valve, if OK go to next step.
4			Check control valve for leakage.
5			Check O ring and backup washer on circuit relief valve and O ring on front plug in control valve.

6. Drain the hydraulic reservoir.
 - a. Loosen the return line, 1, at clamp, 2.
 - b. Remove the return line at 3, and rotate the line into a suitable drain pan.



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7. Remove the suction line, 1, and cap to prevent loss of oil.
8. Remove the pressure line, 2, and cap.
9. Remove the case drain line, 3, and cap.
10. Remove the gear pump retaining hardware, 4, and remove the gear pump from the loader.



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SECTION 37 – TOWING HOOKS AND BALLASTING

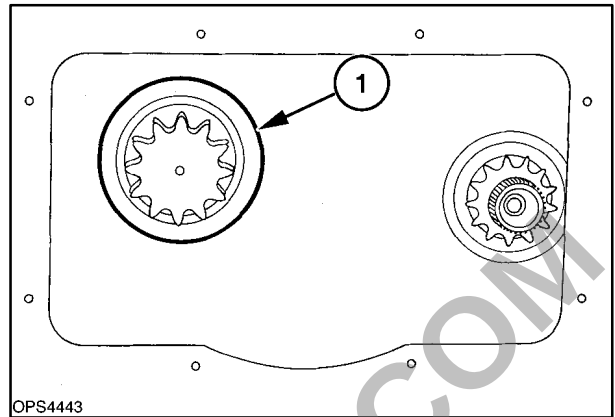
Chapter 1 – Rear Counterweights

CONTENT

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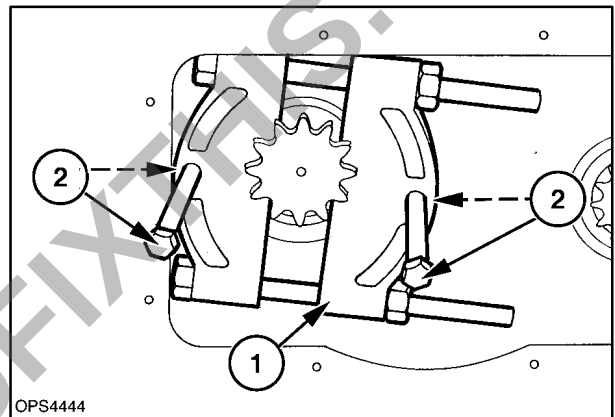
PREVIEW - YOUFIXTHIS.COM

20. Remove the wear ring at 1.



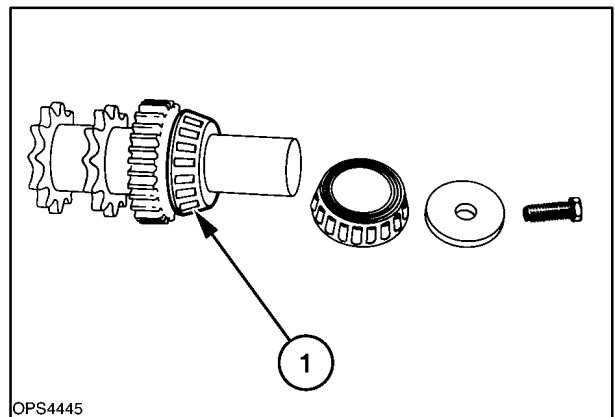
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21. Using a puller arrangement as shown at 1, remove the shaft assembly from the hub.
Place a flat plate or large flat washer under the puller bolts at 2, to prevent damage to the chain case.



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22. The complete shaft and bearing assembly is shown. If required, remove the outer shaft bearing, 1, at this time.



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ELECTRICAL DIAGRAM

PREVIEW - YOUFIXTHIS.COM

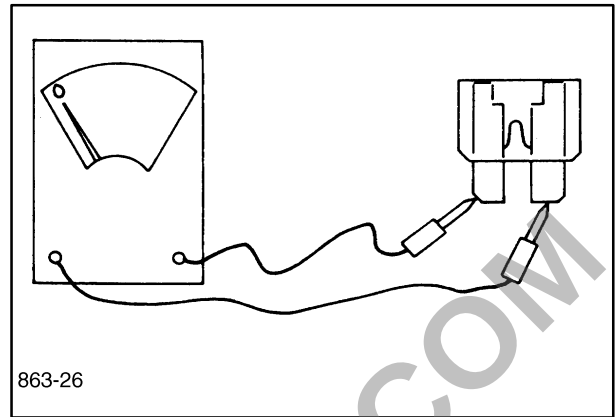
IMPORTANT: If any servicing or adjustments require the battery to be disconnected, or welding is required on the skid steer, disconnect the negative (–) ground cable. Failure to disconnect the battery may result in damage to the EIC (Electronic Instrument Cluster) monitoring system and other electrical components.

IMPORTANT: If the EIC requires removal from the dash area or the skid steer, disconnect the negative (–) ground battery cable. This will shut off power to the EIC and prevent damage to the EIC board, or prevent blowing the 5-amp fuses, if the board is accidentally grounded.

IMPORTANT: Do not use magnetized tools while working around the EIC board or damage to the EIC may occur.

To test for a blown fuse, remove the fuse from the fuse block and visually examine the fuse link. If the fuse link is blown, replace the fuse.

If the fuse link appears OK, check the fuse with an ohmmeter and check for continuity across the fuse legs; if there is continuity, the fuse is OK.



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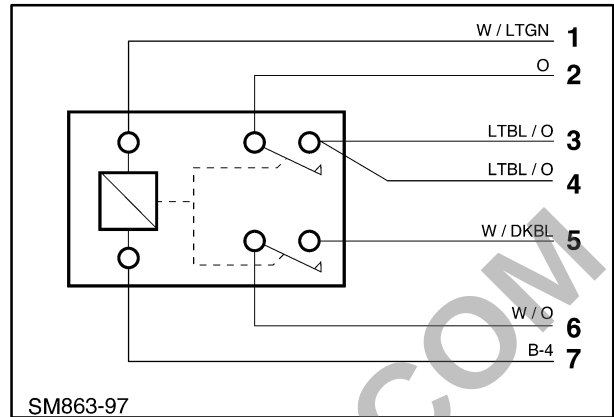
START INTERLOCK RELAY WIRING**Service/Run Switch - Run Position**

Ref	Color	Destination	Battery Voltage
1	W/LTGN	From Service/Run Switch	Key "START" position
2	O	From Cab Fuse Panel 5A Electronic Ignition Fuse	Key "ON" position
3	LTBL/O	To Fuel Solenoid	Key "ON" position *
4	LTBL/O	From EIC Board Pin #5, P2 connector	Key "ON" position *
5	W/DKBL	To Start Relay	Key "START" position Sitting in Seat with Seat Belt Buckled
6	W/O	From Connector at Boom/Bucket Control Valve	Key "START" position Sitting in Seat with Seat Belt Buckled
7	B-4	To Start Relay	Ground Circuit

* Voltage will be 0.5 - 1.0 volt below battery voltage.

Service/Run Switch - Service Position

Ref	Color	Destination	Battery Voltage
1	W/LTGN	From Service/Run Switch	No Voltage Anytime
2	O	From Cab Fuse Panel 5A Electronic Ignition Fuse	Key "ON" position
3	LTBL/O	To Fuel Solenoid	Key "ON" position
4	LTBL/O	From EIC Board Pin #5	Key "ON" position
5	W/DKBL	To Start Relay	Key "START" position
6	W/O	From the Seat/Seat Belt Connector and Connector at Boom/Bucket Control Valve	Sitting in Seat with Seat Belt Buckled
7	B-4	To Start Relay	Ground Circuit



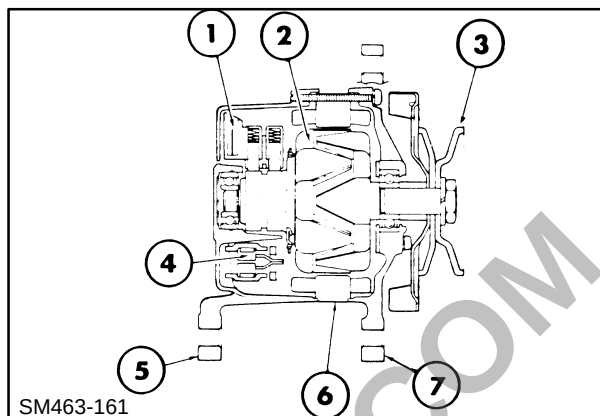
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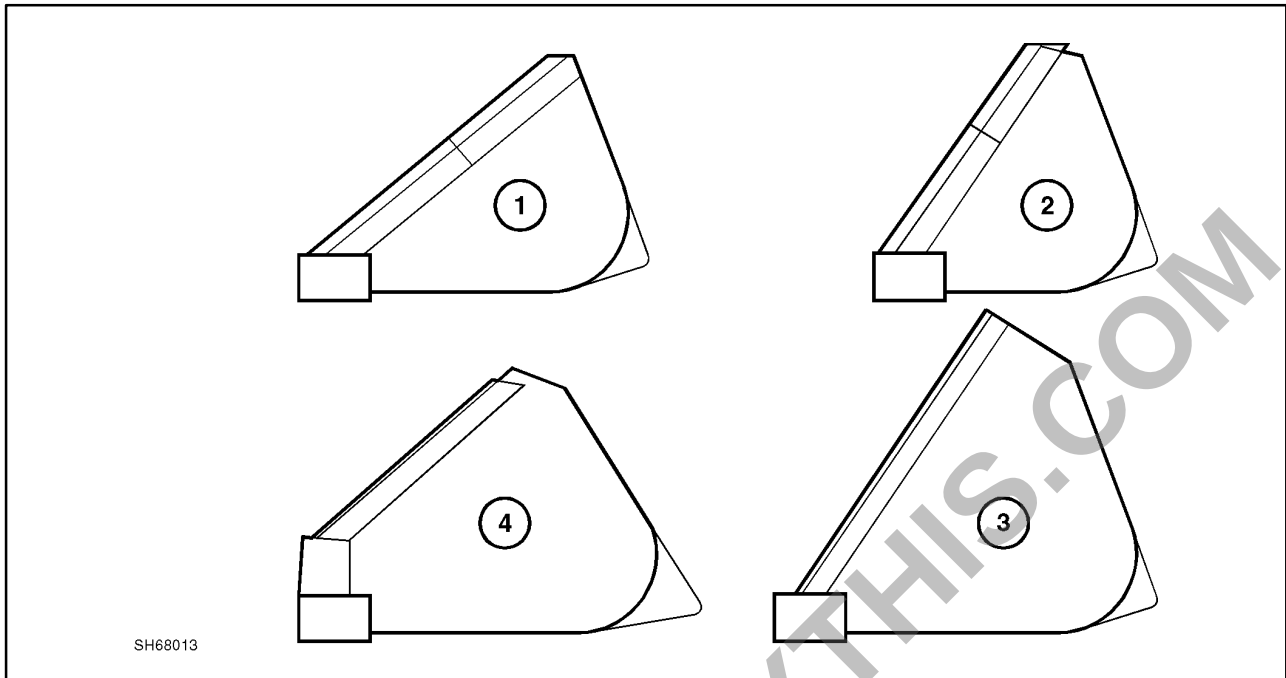
Alternator Construction

The principal components of the IC alternator are the IC voltage regulator, 1, the rotor, 2, the pulley, 3, the rectifier assembly, 4, the rear support bracket, 5, the stator, 6, and the front support bracket, 7.

The rectifier assembly consists of two diode heat sinks, one positive and one negative, and a diode trio. The diode trio is used as a field supply diode and is connected to the field coil and terminal L on the alternator.

The built-in Integrated Circuit regulator is a solid state unit which can only be serviced as an assembly.





SH68013

1

Op. 82 100**Bucket Capacity Cubic Feet****GENERAL INFORMATION****BUCKETS****Bucket Types****1 - LP - Low profile**

The low-profile bucket has a shorter back and is longer from bucket heel to cutting edge for optimum cutting edge visibility. This is important for finish grading and accurate cut and fill jobs.

2 - D & F - Dirt and foundry

The dirt and foundry bucket is shorter from bucket heel to cutting edge to provide maximum breakout force for tough digging conditions.

3 - M & F - Manure and fertilizer (slurry)

The manure and slurry bucket is for handling loose or fluid materials with more rollback to minimize spillage.

4 - LM - Light material

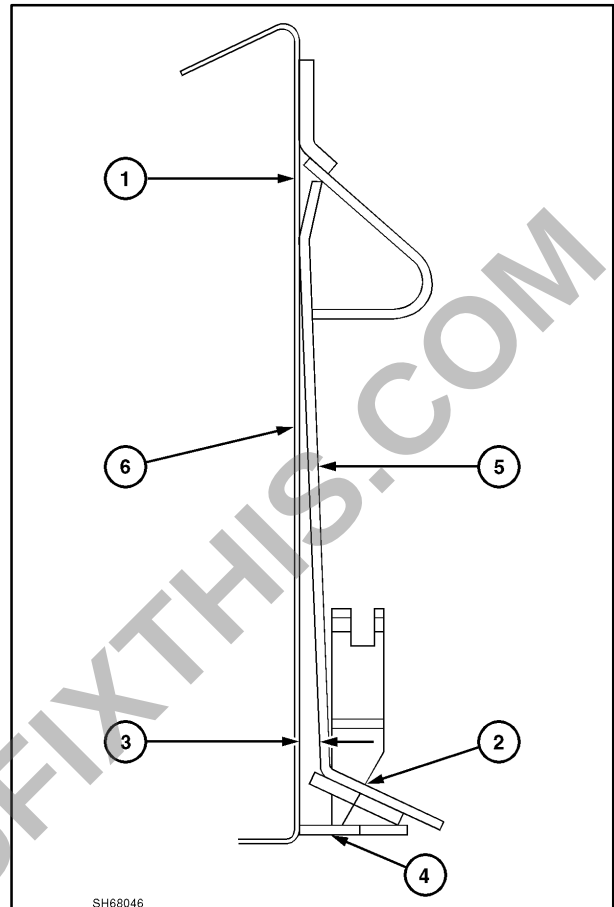
The light-material bucket is for light, high- volume materials for more productivity handling light material.

Select bucket styles and sizes to provide both adequate breakout force and reasonable carrying capacity. Handle dense materials with a relatively small bucket. Handle lighter materials with higher capacity buckets. Refer to the following bucket capacity chart and the material weight chart in the operator's manual when choosing the bucket for a job.

Width		Bucket Capacity Heaped (cu ft)	Bucket Capacity Struck (cu ft)
54"	Utility fork	N/A	N/A
54"	Low profile	10.3	8.0
54"	Dirt and foundry	10.2	7.8
60"	Low profile	11.5	8.9
60"	Dirt and foundry	11.5	8.7
66"	Low profile	13.2	9.7
66"	Dirt and foundry	15.2	11.6

Loader faceplate, 5, and attachment, 6, engagement.

3. Check the saddle area of the attachment at 1, for interference, weld, debris, etc. to prevent the attaching plate and attachment from seating properly.
4. The loader latch pin should engage the lower latch plates as shown at 2.
5. Check for clearance between the faceplate and attachment at 3, minimum 0.8 mm (1/32") and maximum 9.5 mm (3/8"), with the latch pins fully engaged.
 - a. If there is no clearance at 3, the loader faceplate is too short or the distance between the top saddle area and lower latch plates is too great, 2, Figure 87.
 - b. If the clearance is too great or the latch pins will not engage into the latch plates on the attachment, the loader faceplate is too long or the distance between the top saddle area and lower latch plates is too short, 2, Figure 87 or the latch plates are located incorrectly, 1, Figure 87.
6. When the latch pins are fully engaged, FIAT KOBELCO land buckets only, the end of the pin should not extend beyond the lower plate at 4.
 - a. If the latch handles do not fully engage, the dimension from the back of the attachment to the rear of the slot in the latch plates is too short at 1, Figure 87.
 - b. If the latch pins extend below the lower plate at 4, the dimension from the back of the attachment to the rear of the slot in the latch plate is too long at 1, Figure 87.



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