

G36 Engine

Safety, Operation, Maintenance & Parts Manual

LT30	rev. H7.00 - J7.04	LT30HD	rev. J1.00 - J8.05
LT40	rev. H8.00 - J8.05	LT40HD	rev. J1.00 - J9.06
LT30 Super	rev. H6.00 - J3.04	LT30HD Super	rev. J1.00 - J8.05
LT40 Super	rev. H7.00 - J4.04	LT40HD Super	rev. J1.00 - J8.05



Safety is our #1 concern! Read and understand all safety information and instructions before operating, setting up or maintaining this machine.

January 2004

Form #974

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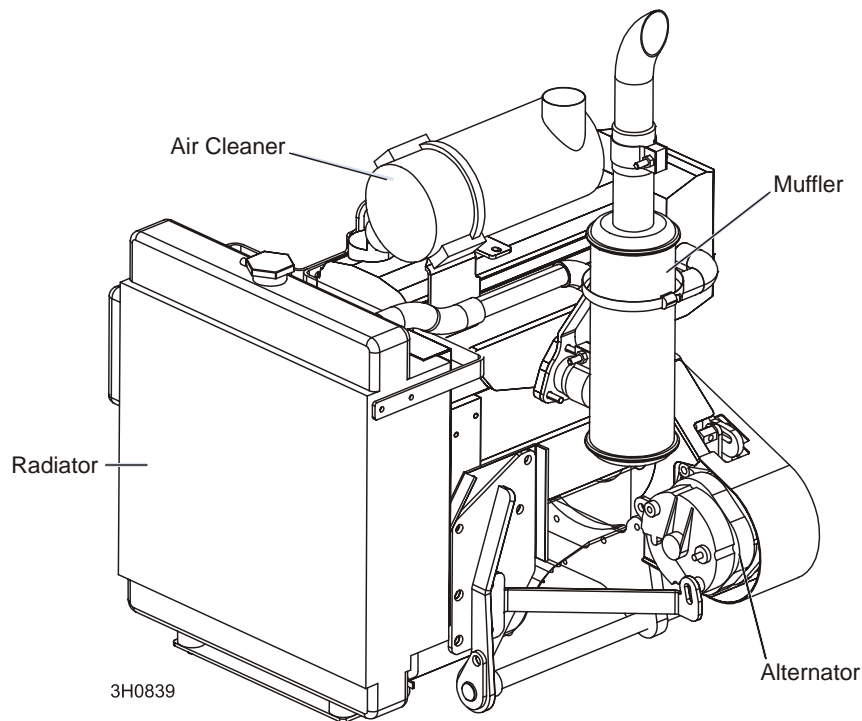
ABOUT THIS MANUAL

This manual is provided as a supplement to the equipment manufacturer's manuals. This manual provides information specific to the use of this equipment on the Wood-Mizer® sawmill. Refer to the sawmill operator's manual and manufacturer's manual before attempting to operate this equipment.



IMPORTANT! Read the sawmill operator's manual and engine manufacturer's manual for instructions and safety precautions before operating this equipment.

The information and instructions given in this manual do not amend or extend the limited warranties for the equipment given at the time of purchase.













ENGINE COMPONENTS

SECTION 1 OPERATION

1.1 Starting The Engine

Engine Control Lights

See **Figure 1-1**. The following indicator lights are located on the sawmill control panel.

-  *Alternator Charge Indicator:* Lights up if the alternator is not charging the battery.

-  *Engine Temperature Indicator:* Lights up if the engine is overheating. The engine will automatically switch to low idle if an overheating condition occurs.

-  *Key Switch Indicator:* Lights up when the key is in either the on or accessory (#1 or #3) position.

-  *Oil Indicator:* Lights up if the oil pressure is too low. The engine will automatically switch to low idle if a low oil condition occurs.

-  *Glow Plug Indicator:* Not used for gasoline engines.


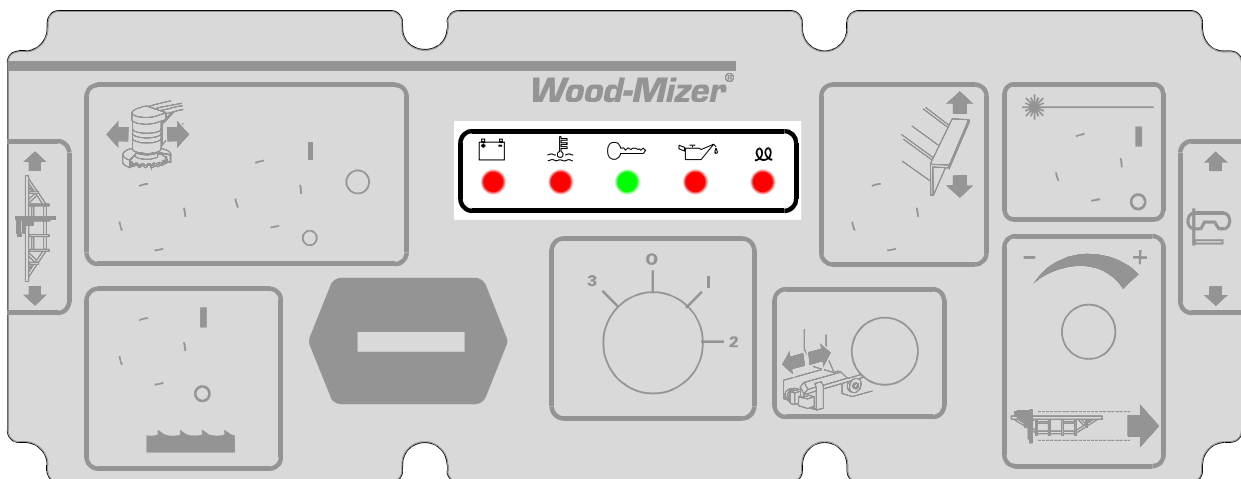


FIG. 1-1

Engine Start



DANGER! Always be sure the blade is disengaged and all persons are out of the path of the blade before starting the engine. Failure to do so will result in serious injury.

DANGER! Operate your engine/machine only in well ventilated areas. The exhaust gases of your engine can cause nausea, delirium and potentially death unless adequate ventilation is present.

DANGER! Never operate an engine with a fuel or oil leak. The leaking fuel or oil could potentially come in contact with hot surfaces and ignite into flames.



WARNING! Be sure the power feed switch is in the neutral position before turning the key switch to the on (#1) or accessory (#3) position. This prevents accidental carriage movement, which may cause serious injury or death.

WARNING! The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

WARNING! Do not operate engine without proper and operational spark arrester/muffler. Sparks emitted from the engine exhaust could ignite surrounding materials, causing serious injury or death.

Turn the key switch to the start (#2) position and release.

For more information, see the engine manufacturer's operation manual.

Engine Shutoff



CAUTION! A minimum 2 minute idle time is recommended to allow the battery charge to recover before the engine is shut off.

Turn the key switch to the off (#0) position.

SECTION 2 MAINTENANCE

Refer to the manufacturer's manual for maintenance intervals and procedures unless otherwise instructed in this manual. Follow the manufacturer's recommendations for dusty conditions.



IMPORTANT! This manual only provides information about additional procedures or procedures to be performed at different time intervals than found in the manufacturer's manuals. Refer to the manufacturer's manual for complete maintenance instructions.

2.1 Safety

Use caution when performing maintenance or service to the engine.



DANGER! Always be aware of and take proper protective measures against rotating shafts, pulleys, fans, etc. Always stay a safe distance from rotating members and make sure that loose clothing or long hair does not engage rotating members resulting in possible injury.

DANGER! Engine components can become very hot during operation. Avoid contact with any part of a hot engine. The exhaust components of your engine are especially hot during and following operation. Contact with hot engine components can cause serious burns. Therefore, never touch or perform service functions on a hot engine. Allow the engine to cool sufficiently before beginning any service function.



WARNING! Remove the blade before performing any engine service. Failure to do so may result in serious injury.

WARNING! Always wear proper and necessary safety equipment when performing service functions. Proper safety equipment includes eye protection, breathing protection, hand protection and foot protection.




This symbol identifies the interval (hours of operation) at which each maintenance procedure should be performed. "AR" signifies maintenance procedures which should be performed as required.

2.2 Air Cleaner

1200 Replace the air cleaner cartridge every 1200 hours of operation or after one year. Change the cartridge more often if operating the sawmill in dirty conditions or if engine performance indicates a new cartridge is necessary.

8 Empty the air debris collector every 8 hours of operation.

See Figure 2-1. Squeeze the rubber tip of the collector to open it. After all debris has been emptied from the collector, release the tip and allow it to close.

 **WARNING!** Always wear proper and necessary safety equipment when performing service functions. Proper safety equipment includes eye protection, breathing protection, hand protection and foot protection.

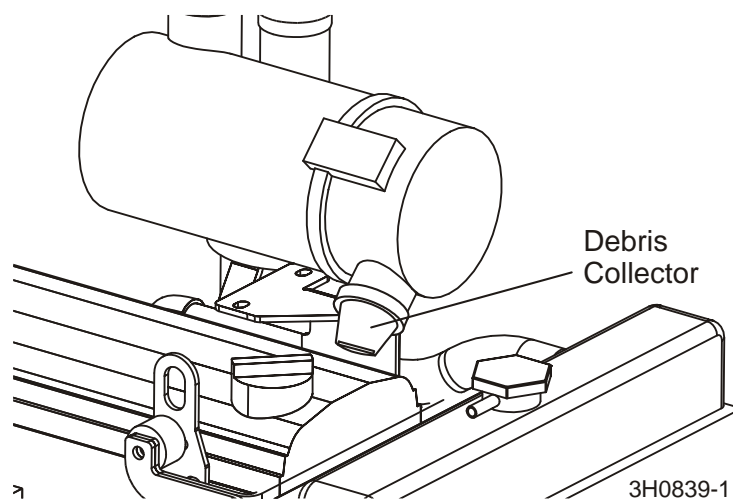


FIG. 2-1

2.3 Fuel Filter



Replace the fuel filter every 600 hours of operation or as required for engine performance.

2.4 Cooling System



Clean the radiator fins every 250 hours of operation. Spray the radiator with water from a hose or compressed air to clean sawdust from the radiator fins. Do not use a pressure sprayer.

2.5 RPM Adjustments



WARNING! Remove the blade before performing any engine service. Failure to do so may result in serious injury.



Check the RPM with a tachometer after the first 20 hours of operation and every 200 hours thereafter.

See Table 2-1.

Engine	High End RPM	Low End RPM
G36	3600	1500

TABLE 2-1

Before checking the RPM, make sure belt and brake strap tensions are correct (See Saw-mill Maintenance). Also check oil, fuel, and coolant levels.

See the engine operator's manual for instructions for adjusting the low-end idle RPM. The high-end RPM is electronically controlled and should not be adjusted.

2.6 Battery



Check the battery electrolyte level every 50 hours of operation. See manufacturer's manual for instructions.



DANGER! Batteries expel explosive gases. Keep sparks, flames, burning cigarettes, or other ignition sources away at all times. Always wear safety goggles and a face shield when working near batteries. Failure to do so will cause serious injury.¹



WARNING! Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

1. Battery Council International, copyright 1987

2.7 Alternator Belt



The belt tension should be checked after the first 100 hours of operation, when the battery is not charging properly or when the alternator belt is squealing. If the battery continues to not charge properly or the belt continues to squeal after the initial belt adjustment, replace the belt.

1. Release the blade tension and remove the blade from the sawmill if necessary. Turn the key switch to OFF (0) and remove the key.
2. Remove the drive belt cover and alternator cover.

See Figure 2-2.

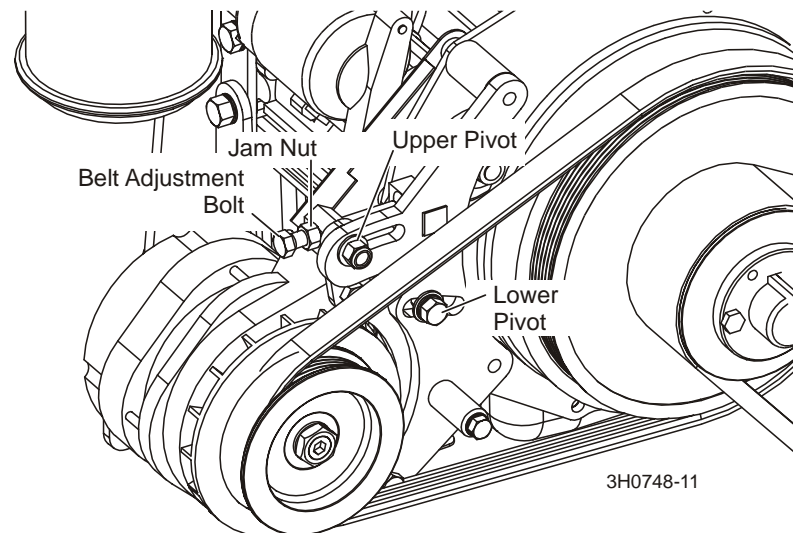


FIG. 2-2

3. Use a belt tension gauge to measure the belt tension. Place the gauge on the belt at the midpoint between the two pulleys. If the belt tension is less than 3/16" with 9 lb. of deflection, tighten the belt as described below.
4. Loosen the upper pivot, lower pivot and the adjustment bolt jam nut.
5. Turn the belt tension adjustment bolt clockwise to tighten the belt, counterclockwise to loosen the belt. Adjust the bolt until the proper belt tension is achieved.



CAUTION! Do not overtighten the alternator belt. Damage to the alternator will occur.

6. After the alternator belt has been tensioned, tighten the adjustment bolt jam nut. Tighten the upper and lower pivots and replace the belt covers.

2.8 Governor Sensor

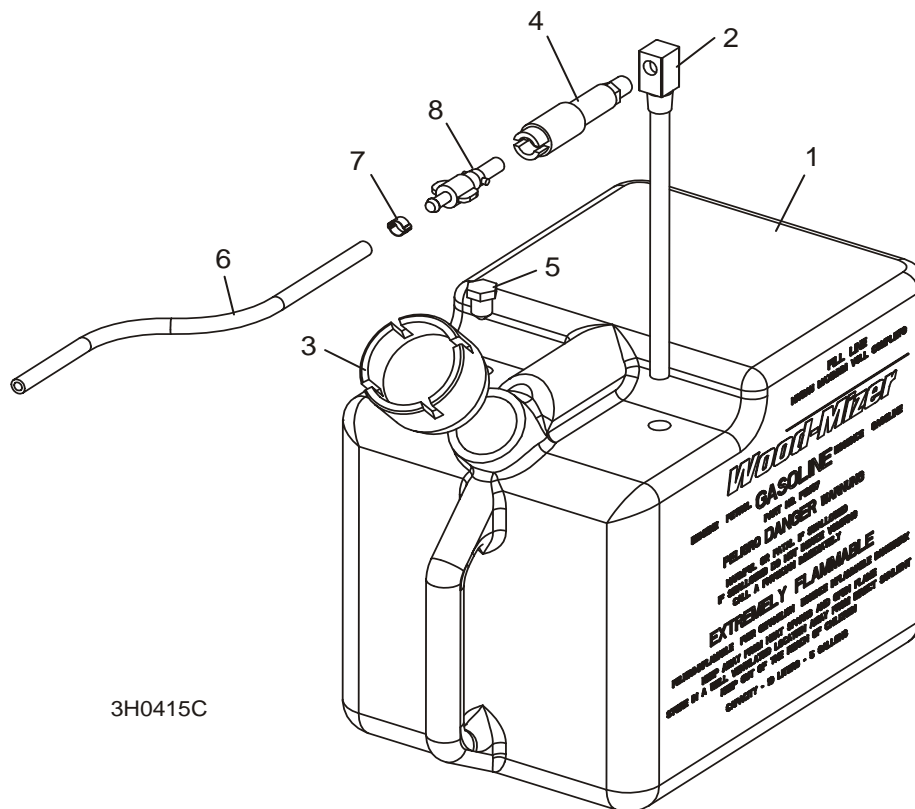
A sensor positioned near the clutch handle pivot signals the engine to rev to operating speed. The sensor and bracket are adjustable so the sensor can be located properly from the clutch pivot plate. Before adjusting the sensor or bracket, first check the drive belt and brake strap are properly adjusted.

Loosen the bracket mounting bolts to move the sensor horizontally in relation to the clutch pivot plate. Loosen the sensor mounting bolts to adjust the distance of the sensor to the pivot plate.

If any metal shavings happen to stick to the magnetic sensor causing the engine to always run at full speed, wipe the shavings from the sensor. Remove any obstacles trapped between the sensor and clutch pivot plate that might interfere with operation of the engine.

SECTION 3 REPLACEMENT PARTS

3.1 Fuel Tank



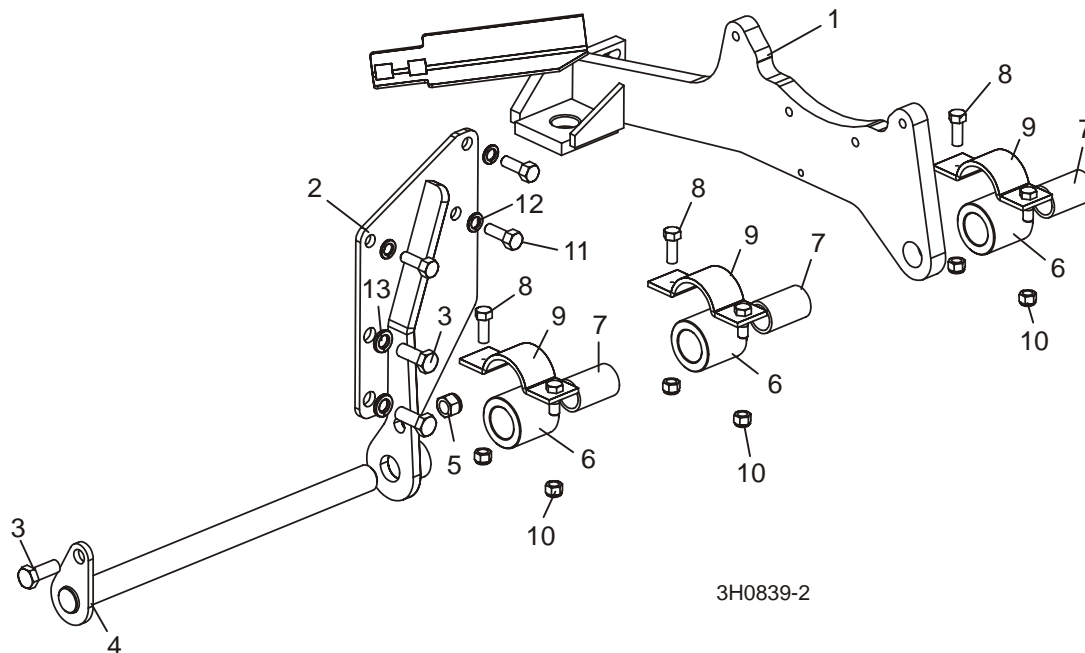
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REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	TANK ASSEMBLY, 5-GALLON RED GASOLINE	A12285	1	
1	Tank, 5-Gallon Red Fuel	P12167	1	◆
2	Pickup, 9" Fuel	P12172	1	
3	Cap, 3 or 5-Gallon Fuel Tank	P09683	1	
4	Fitting, 1/4" NPT Plastic Female Disconnect	P12175	1	
5	Fitting, 3/8" NPT Hex Plug	P10367 ¹	1	
6	HOSE, 1/4" ID FUEL	P642	6.7 Ft	
7	CLAMP, 7/32 - 1/2 HOSE	P649	6	
8	FITTING, 1/4" NPT PLASTIC MALE DISCONNECT	P12176 ²	1	

¹ Plug fitting P10367 added 11/03. Hole added to fuel tank to accommodate return line for fuel injected engines.

² Replacement requires qty. 1 hose clamp (P649).

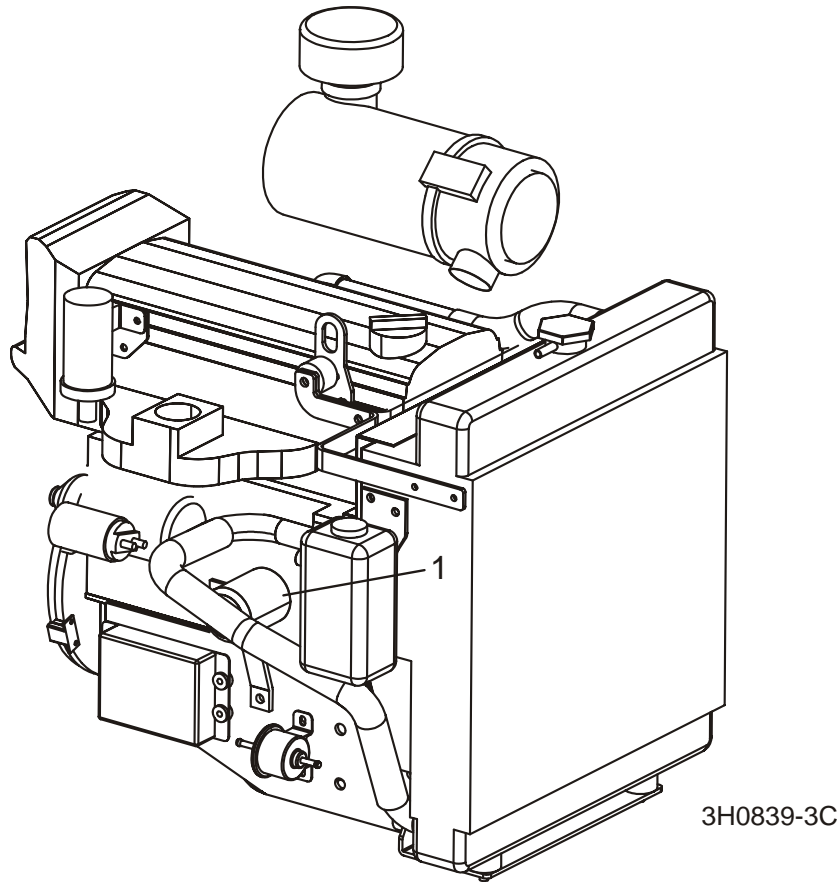
3.2 Engine Mount Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	MOUNT WELDMENT, NISSAN ENGINE REAR	016628	1	
2	MOUNT WELDMENT, NISSAN ENGINE FRONT	033379	1	
3	BOLT, 1/2-13 X 1 1/4" HEX HEAD GRADE 5	F05008-37	3	
4	PIN WELDMENT, ENGINE MOUNT PIVOT	015855	1	
5	NUT, 1/2-13 HEX NYLON LOCK	F05010-8	1	
	BUSHING ASSEMBLY, MOTOR MOUNT	016380	3	
6	Bushing, 2" OD x 2"	016378	1	◆
7	Bearing, 1" x 1 1/4" x 2"	016379	1	◆
8	BOLT, 3/8-16 X 1" HEX HEAD	F05007-7	3	
9	CLAMP WELDMENT, MOTOR MOUNT	014540	3	
10	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	6	
11	BOLT, M10-1.5 X 25MM HEX HEAD GRADE 8.8	F81003-11 ¹	3	
12	WASHER, 10MM SPLIT LOCK	F05011-88	3	
13	WASHER, 1/2" SPLIT LOCK	F05011-9	2	

¹ Course thread bolt F81003-11 should be used rather than fine thread bolt F81003-25 originally shown.

3.3 Engine Assembly

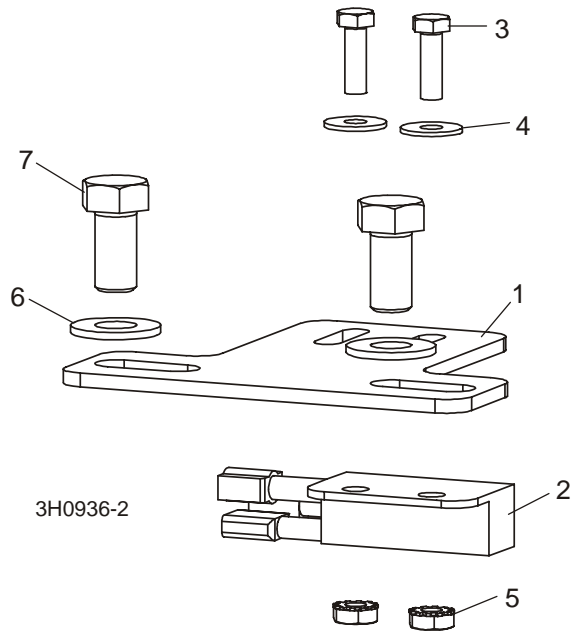


REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
	ENGINE, 36HP NISSAN MODEL CG13	016623	1
	Gasket, Nissan Head #11044-41B00	028610	1
	Gasket, Nissan Valve Cover #13270-41B01	028611	1
1	Filter, Nissan Oil #15208-53B00	028612	1
	Filter, Nissan Fuel	016646	1
	Pump, Nissan Fuel #17020-72W00	034004	1
	Belt, Nissan Fan #11720-73W00	028613	1
	Valve, Nissan PVC E11810-41B02	028614	1
	Thermostat Assy, Nissan #21200-41B00	028615	1
	Plug, Nissan Spark #22401-50Y05	028618	4
	Wire Set, Nissan Plug #22440-70W10	028619	1
	Wire, Nissan Coil #22450-1C711	028620	1
	Cap, Nissan Distributor #22162-70W11	028621	1
	Rotor, Nissan Distributor #22157-55K10	028622	1

3 Replacement Parts

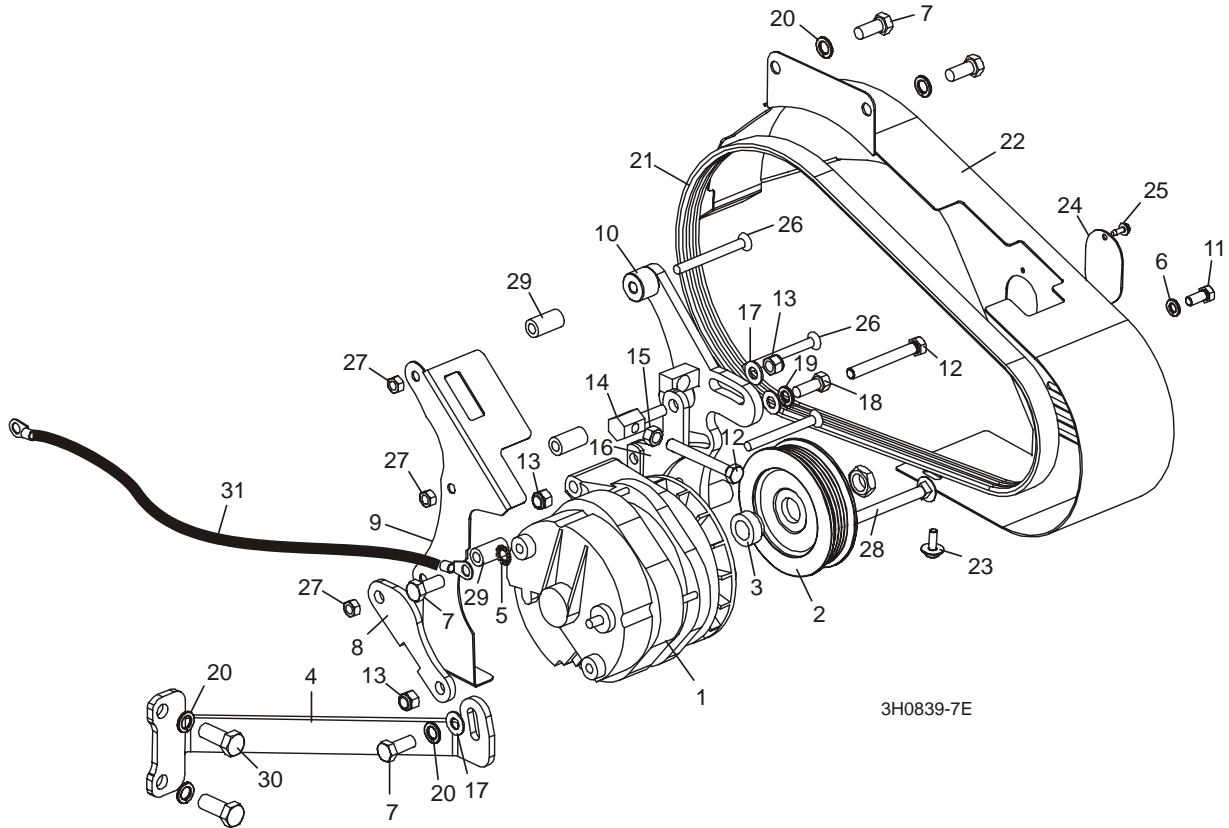
Throttle Assembly

3.4 Throttle Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	BRACKET, SENSOR MOUNT	016617	1
2	SENSOR, NISSAN THROTTLE	024878	1
	HARNESS ASSEMBLY, NISSAN THROTTLE SENSOR	024972	1
3	BOLT, #10-24 X 5/8" HEX HEAD	F05004-18	2
4	WASHER, #10 SAE FLAT	F05011-18	2
5	NUT, #10-24 SELF-LOCKING HEX	F05010-14	2
6	WASHER, 3/8" SAE FLAT	F05011-3	2
7	BOLT, 3/8-16 X 3/4" HEX HEAD	F05007-27	2

3.5 Alternator Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	WIRE ASSEMBLY, 61/140 AMP ALTERNATOR PLUG	015969	1	
	ALTERNATOR ASSEMBLY, 140 AMP	023730	1	◆
1	Alternator, 140 Amp	023695	1	
	Pulley Assembly, 140 Amp Alternator	036572 ¹	1	
2	Pulley, 140 Amp Alternator	023694	1	◆
3	Spacer, Alternator Pulley	036571	1	
4	BRACKET, ALTERNATOR SUPPORT	016630	1	
5	WASHER, 3/8" STAR LOCK	F05011-36 ²	1	
6	WASHER, 5/16" SPLIT LOCK	F05011-13	1	
7	BOLT, M10-1.5X25MM HEX HEAD GRADE 8.8	F81003-11 ³	4	
8	PLATE, REAR ALTERNATOR MOUNT	023759	1	
9	GUARD WELDMENT, REAR ALTERNATOR	015924	1	
10	BRACKET WELDMENT, ALTERNATOR MOUNT	016626	1	
11	BOLT, 5/16-18 X 3/4" HEX HEAD GRADE 2	F05006-5	1	

3

Replacement Parts

Alternator Assembly

12	BOLT, 3/8-16 X 3" HEX HEAD FULL THREAD	F05007-1	2	
13	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	3	
14	STUD, ALTERNATOR BELT TENSION ADJUSTMENT	023764	1	
15	NUT, 3/8-16 HEX	F05010-1	1	
16	PLATE WELDMENT, ALTERNATOR PIVOT	015875	1	
17	WASHER, 3/8" SAE FLAT	F05011-3	3	
18	BOLT, 3/8-16 X 1" HEX HEAD	F05007-7	1	
19	WASHER, 3/8" SPLIT LOCK	F05011-4	1	
20	WASHER, 10MM SPLIT LOCK	F05011-88	2	
21	BELT, 6PK425 FIBERGLASS ALTERNATOR	023709	1	
22	GUARD WELDMENT, ALTERNATOR BELT	016636	1	
23	BOLT, 1/4-20 X 3/4" HEX CONICAL WASHER HEAD	F05005-134	1	
24	PLATE, ALTERNATOR BELT ACCESS COVER	015925	1	
25	SCREW, #10-24 X 1/2" SELF-TAPPING	F05015-7	1	
26	BOLT, M8 X 1.25 X 80MM FLAT SOCKET HEAD GRADE 8	F05004-169	3	
27	NUT, M8 HEX NYLON LOCK	F05010-132	3	
28	BOLT, 3/8-16 X 3 1/2" CARRIAGE HEAD BOLT	F05007-161	1	
29	SPACER, 11/32" ID X 5/8" OD X 1 3/16" LONG	016635	3	
30	BOLT, 1/2-13 X 1 1/4" HEX HEAD GRADE 5	F05008-37	2	
31	WIRE ASSEMBLY, ENGINE-TO-ALTERNATOR GROUND	050941 ⁴	1	

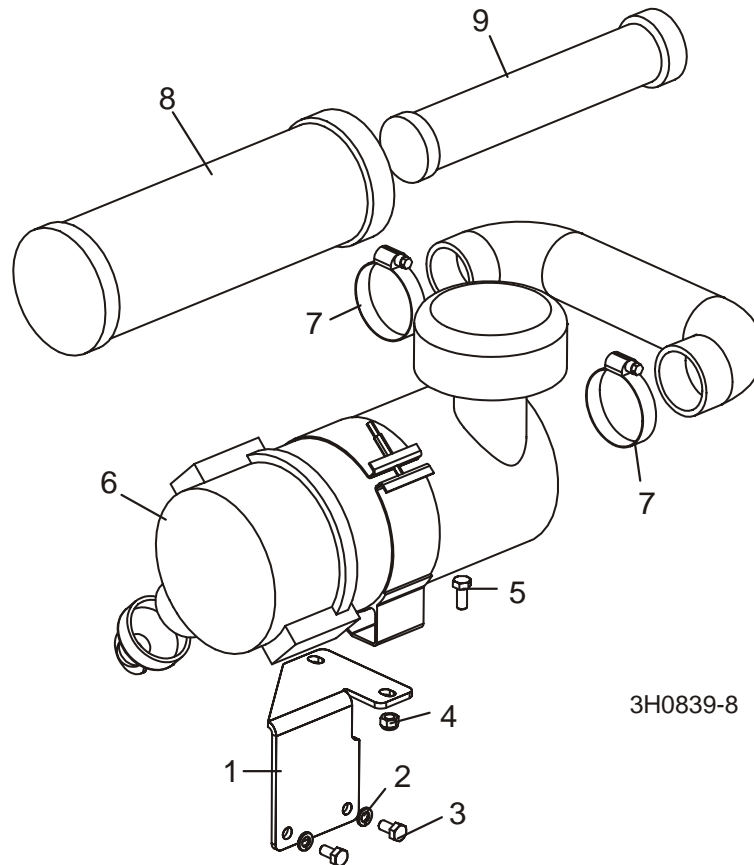
¹ Pulley Assembly 036572 replaces Pulley 023694 and Spacer 016279 supplied prior to 7/04. Pulley Assembly with pressed Spacer 036571 provides improved positioning relative to drive pulley.

² Star lock washers added to improve grounding contact (LT30 Rev. J3.00, LT40 Rev. J4.00, LT30HD Rev. J4.00, LT40HD Rev. J5.00, LT30 Super Rev. H8.00, LT40 Super Rev. H9.00 and LT30HD/40HD Super Rev. J4.00).

³ Use metric bolt F81003-11 instead of F05004-40 incorrectly shown previously.

⁴ Ground wire added LT30 Rev. J4.03, LT40 Rev. J5.03, LT30HD Rev. J5.03, LT40HD Rev. J6.03, LT30 Super Rev. H9.04, LT40 Super Rev. H1.04 and LT30HD/40HD Super Rev. J5.04. Use kit [051294](#) to retrofit previous revisions. Kit includes wire, mounting bolt, lock washers and installation instructions (Form [#1147](#)).

3.6 Air Cleaner Assembly

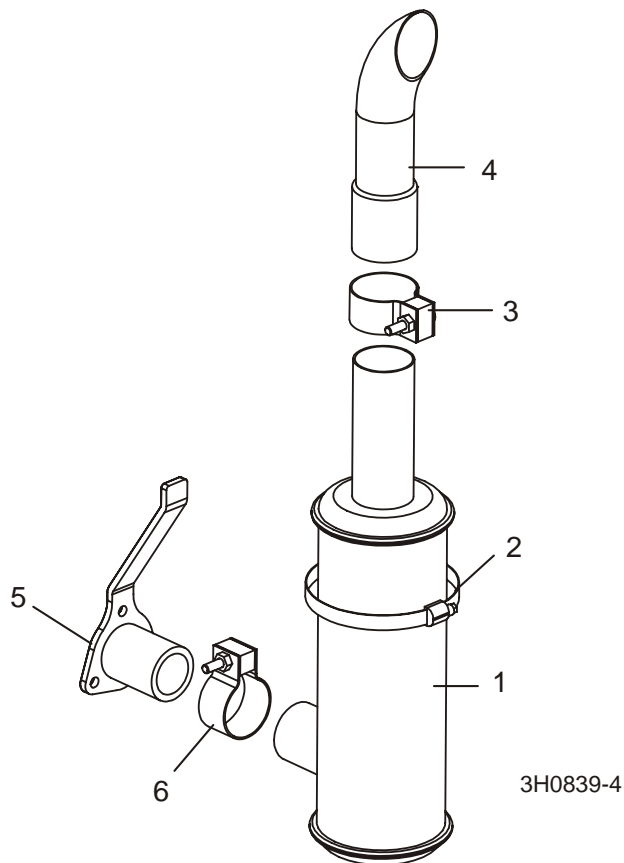


REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	BRACKET, AIR CLEANER MOUNT	016629	1	
2	WASHER, 5/16" SPLIT LOCK	F05011-13	2	
3	BOLT, M8-1.25 X 16MM HEX HEAD	F05004-47	2	
4	NUT, 5/16-18 HEX NYLON LOCK	F05010-58	2	
5	BOLT, 5/16-18 X 3/4" HEX HEAD	F05006-5	2	
6	HOUSING, AIR CLEANER	028397	1	
7	CLAMP, 2 1/2" HOSE	P09895	1	
8	ELEMENT, AIR FILTER	028597	1	
9	ELEMENT, AIR FILTER SAFETY	028598	1	

3 Replacement Parts

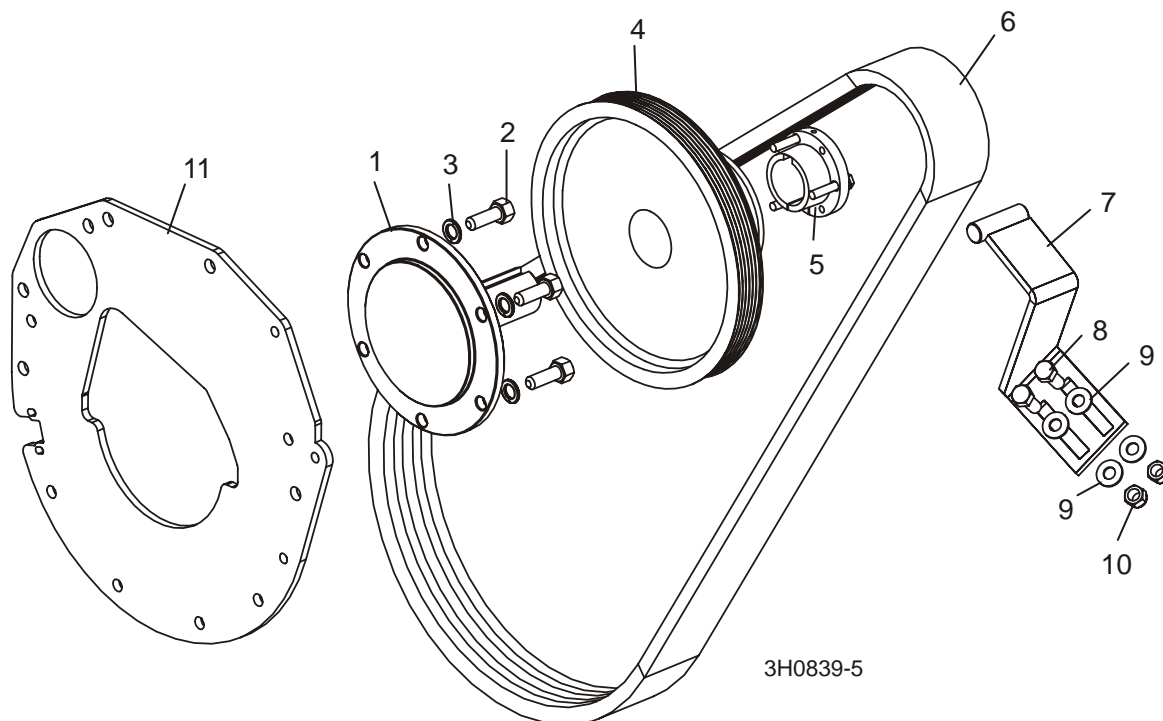
Muffler Assembly

3.7 Muffler Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	MUFFLER	014093	1	
2	CLAMP, 5" WORM	014096	1	
3	CLAMP, MUFFLER	014095	1	
4	STACK, MUFFLER	014094	1	
5	BRACKET WELDMENT, G36 MUFFLER MOUNT	016640	1	
6	CLAMP, MUFFLER 2" NELSON 90869A	014205	1	

3.8 Drive Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	SHAFT, NISSAN POWER	033255	1
2	BOLT, M10-1.5 X 25MM HEX HEAD GRADE 8.8	F81003-11 ¹	6
3	WASHER, 10MM SPLIT LOCK	F05011-88	6
4	SHEAVE, 5V X 4.06" POLY V	016534	1
5	BUSHING, SH X 1 7/16"	016535	1
6	BELT, 3/5VL750	006672 ²	1
7	BRACKET, DRIVE BELT SUPPORT	016364	1
8	BOLT, 3/8-16 X 1" HEX HEAD	F05007-7	2
9	WASHER, 3/8" SAE FLAT	F05011-3	4
10	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	2
11	PLATE, NISSAN REAR DRIVE	033285	1

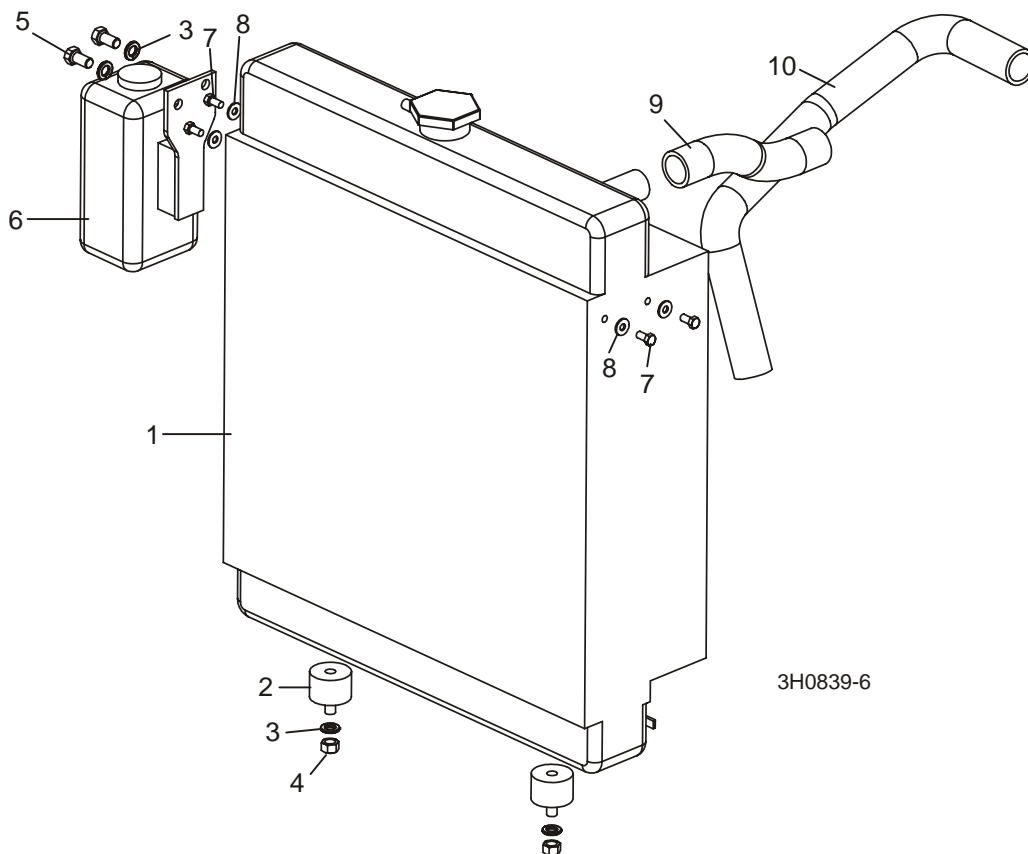
¹ Course thread bolt F81003-11 should be used rather than fine thread bolt F81003-25 originally shown.

² Cog-style belt 006672 replaces 016556 originally supplied prior to 7/08 to reduce slippage. If sawmill equipped with 3 3/4" turnbuckle supplied prior to 9/03, replace with a revised 3 1/2" turnbuckle assembly A11576 to allow proper tensioning of belt.

3 Replacement Parts

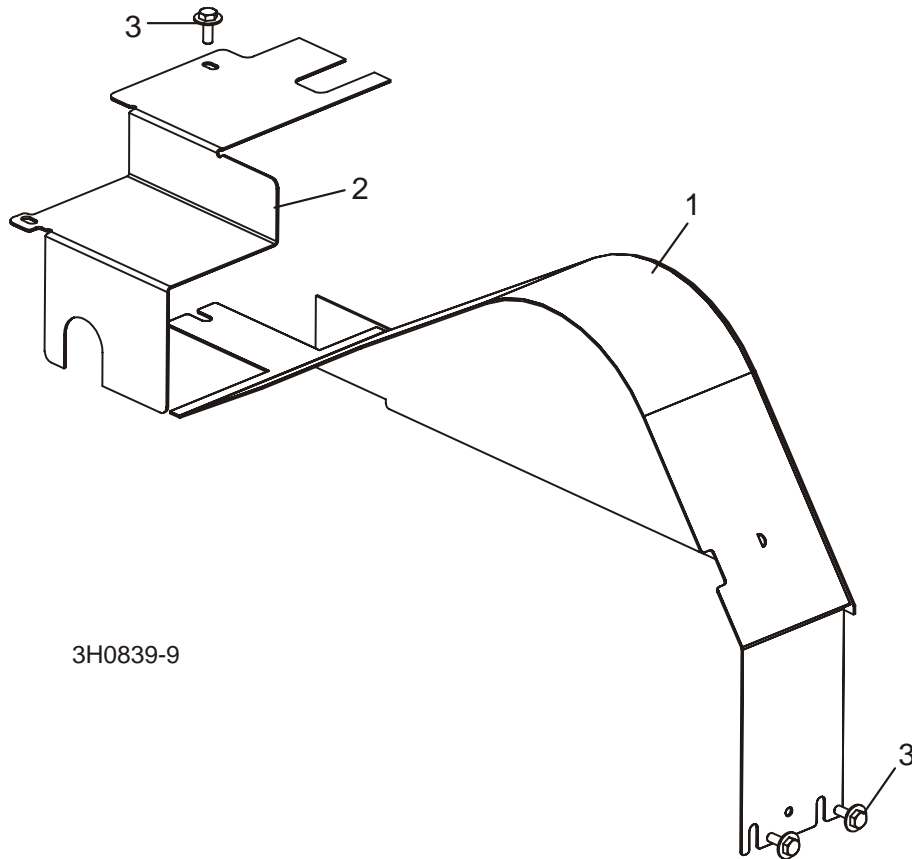
Radiator Assembly

3.9 Radiator Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	RADIATOR	N/A	1
2	BUSHING, RADIATOR MOUNT	028217	2
3	WASHER, 3/8" SPLIT LOCK	F05011-4	4
4	NUT, 3/8-16 HEX	F05010-1	2
5	BOLT, 3/8-16 X 3/4" HEX HEAD	F05007-27	2
6	BOTTLE, COOLANT RESERVOIR	028558	1
7	BOLT, 1/4-20 X 1/2" HEX HEAD	F05005-15	4
8	WASHER, 1/4" SAE FLAT	F05011-11	4
9	HOSE, UPPER RADIATOR	028616	1
10	HOSE, LOWER RADIATOR	028617	1

3.10 Engine Pulley Guards



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	GUARD WELDMENT, ENGINE PULLEY	015876	1	
2	GUARD, SIDE ENGINE PULLEY	016152	1	
3	BOLT, 1/4-20 X 3/4" HEX HEAD WITH CONICAL WASHER	F05005-134	3	

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