

# D40 Engine

## Safety, Operation, Maintenance & Parts Manual

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<b>1996 LT30 Super</b>	<b>rev. F4 - F6.01</b>
<b>1996 LT40 Super</b>	<b>rev. F5 - F7.01</b>
<b>1996 LT30HD Super</b>	<b>rev. F8 - F9.01</b>
<b>1996 LT40HD Super</b>	<b>rev. F8 - F9.01</b>

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

*July 1996*

*Form #662*

See page 42 for these revisions:

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<b>LT30 Super</b>	<b>rev. F7.00 - G8.00</b>
<b>LT40 Super</b>	<b>rev. F8.00 - G9.00</b>
<b>LT30HD Super</b>	<b>rev. G1.00 - H3.00</b>
<b>LT40HD Super</b>	<b>rev. G1.00 - H3.00</b>

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## SECTION 1 SAFETY & GENERAL INFORMATION



This symbol calls your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions. This symbol accompanies a signal word. The word **DANGER** refers to hazards that can cause death or serious, irreversible personal injury. The word **WARNING** suggests a safety hazard that can cause personal injury. **CAUTION** refers to hazards that can cause damage to the equipment or property only.

Read all safety instructions before operating this equipment and observe all safety warnings! Read the manufacturer's operation manual and observe any additional safety warnings applicable to the specific make and model you have purchased.

### 1.1 Refueling



**WARNING!** Store diesel fuel away from sawdust and other flammable materials.

**WARNING!** Do not store diesel fuel near hot or burning materials.

**WARNING!** Do not smoke near diesel fuel storage tank or during refueling.

### 1.2 Battery Handling



**WARNING!** Batteries can explode when charging or boosting. Always wear eye protection.

**WARNING!** Keep cigarettes, flames or sparks away from battery.

**WARNING!** Charge the battery in a well-ventilated area. Do not attempt to charge a frozen battery.



**CAUTION!** Place a rag over battery vent holes when handling to avoid electrolyte squirting from holes.

### 1.3 Engine Operation



**DANGER!** Do not operate engine in enclosed areas. Carbon Monoxide poisoning may occur.

**DANGER!** Do not operate engine without proper and operational spark arrester/muffler.

**DANGER!** Keep away from hot engine parts and engine exhaust.



**WARNING!** Do not start the engine when the clutch/brake lever is in the engaged (down) position. Always be sure the blade is disengaged and all persons are away from the blade before starting the engine.

**WARNING!** Make sure the carriage fwd/rev switch is in the neutral position before turning the key switch to the ON or ACC position. This will prevent unintended carriage movement.

**WARNING!** Wear eye protection when emptying the air cleaner debris collector.



**CAUTION!** Do not crank starter for more than 7 seconds at one time during starting attempts.

**CAUTION!** Let engine idle for 2 minutes before applying load to prevent engine damage.

**CAUTION!** Let engine idle for 2 minutes before shutting off to prevent engine damage. A minimum 2 minute idle time is also recommended to allow the battery charge to recover before the engine is shut off.

**CAUTION!** During the initial 50 hours, do not exceed 70% of the maximum rated power.

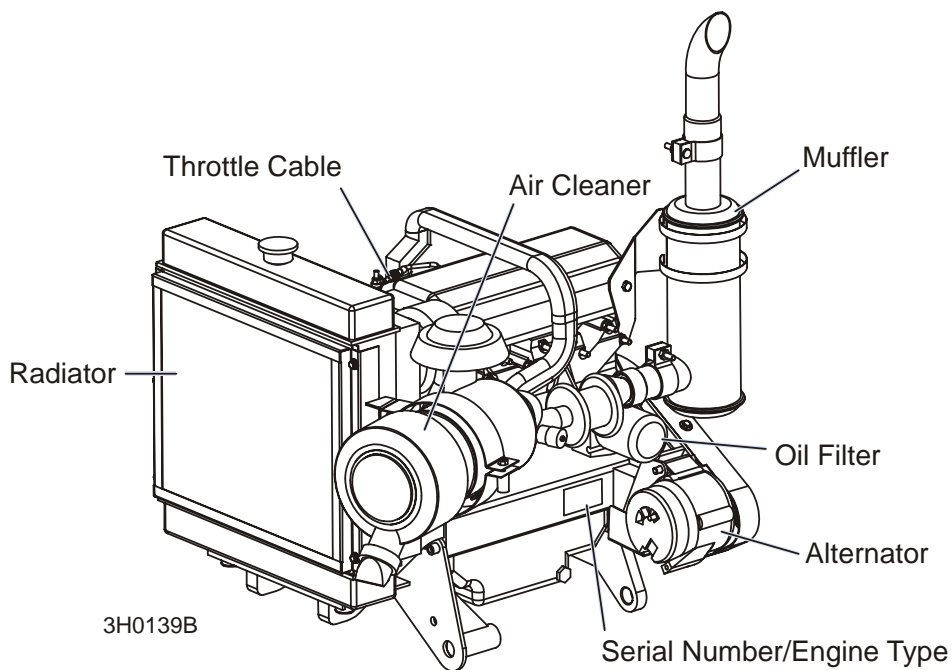
## 1.4 General Information



**IMPORTANT!** Read the engine manual for instructions and safety precautions before operating the engine.

For use with the Wood-Mizer sawmill, the radiator, air cleaner, alternator, and starter used differ from Lombardini's standard components.

See **Figure 1-1**. The main components of the diesel engine are shown.



**FIG. 1-1**

## SECTION 2 OPERATION

### 2.1 Starting The Engine



**DANGER!** Do not start the engine when the clutch/brake lever is in the engaged (down) position. Always be sure the blade is disengaged and all persons are away from the blade before starting the engine.



**WARNING!** Make sure the carriage fwd/rev switch is in the neutral position before turning the key switch to the ON or ACC (#1 or #3) position. This will prevent unintended carriage movement.




**IMPORTANT!** During the first 50 hours do not exceed 70% of the maximum rated power.


## 2 Operation


### Starting The Engine


#### Engine Control Lights


See **Figure 2-1**. The following indicator lights are located on the sawmill control panel. See the manufacturer's engine manual for troubleshooting tips.

- 

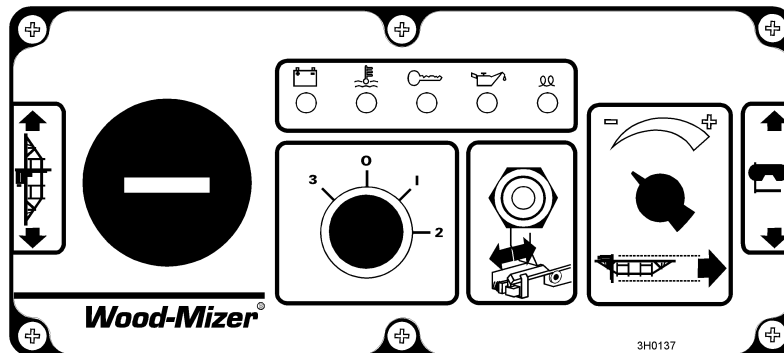
**Alternator Charge Indicator:** Lights up if the alternator is not charging the battery. **NOTE:** Indicator also lights up when engine is started and remains lit until engine initially reaches approximately 1300RPM.
- 

**Engine Temperature Indicator:** Lights up if the engine is overheating.
- 

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

**Oil Indicator:** Lights up if the oil pressure is too low.
- 

**Glow Plug Indicator:** Lights up after the key has been turned to the ON (#1) position.



**FIG. 2-1**

See **Table 2-1**. **IMPORTANT!** The glow plug sensing relay should be disconnected to provide manual control of glow plug operation. 1996 sawmills can be modified to improve hot starting performance ([see form #250](#)). See the table for recommended on times for manually operated glow plugs.

On Times For Manually Operated Glow Plugs	
Ambient Temperature	Suggested Glow Plug On Time
Less Than 32° F (0° C)	30 Seconds
32 - 60° F (0 -15° C)	25 Seconds
60 - 80° F (15 - 27° C)	15 Seconds
Above 80° F (27° C)	10 Seconds

**TABLE 2-1**

### **Engine Start**

1. See engine manual lubricating oil for specific temperature-range oil recommendations.
2. Use #2 or better quality diesel fuel for above freezing starting. Use a #1 quality diesel fuel for below freezing starting.
3. Turn the key switch on the control panel to the ON (#1) position.
4. Wait the recommended glow plug on time ([See Table 2-1.](#))
5. Turn the key switch to the START (#2) position and release.



**CAUTION!** Do not crank starter for more than 7 seconds at one time during starting attempts.

**CAUTION!** Let engine idle for 2 minutes before applying load to prevent engine damage. A minimum 2 minute idle time is also recommended to allow the battery charge to recover before the engine is shut off.

### **Engine Shutoff**



**CAUTION!** Let engine idle for 2 minutes before shutting off to prevent engine damage.

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



## 2.2 Cold Weather Operation

When sawing in extremely cold weather, you may need to use a different engine oil. Lombardini recommends using 0W30 for operating temperatures between -13° F (-25 C) and -31° F (-35° C). When sawing in temperatures below -31° F (-35° C), Lombardini recommends using a synthetic-based oil such as Mobil Delvac 1 5W40.

**NOTE:** Wood-Mizer offers a fuel additive (Stanadyne Performance Formula) which helps eliminate contaminants and water in fuel, prevents gelling in cold weather, and improves lubrication of fuel system parts. One 16 oz. bottle (WM Part #004878) treats 60 gallons of diesel fuel.

Wood-Mizer also offers an accessory engine water heater for Lombardini diesel engines. The heater unit installs around the lower radiator hose. When plugged into a grounded 120V outlet, the heater will keep the engine coolant warm enough to allow easy starts in cold climates.

## SECTION 3 MAINTENANCE



**IMPORTANT!** The Wood-Mizer maintenance schedule takes into account the specific use of engines in the Wood-Mizer sawmill. Therefore, the schedule may require certain procedures be performed at different time intervals than found in the engine manufacturer's manuals. Refer to the [manufacturer's manual](#) if you need more information on how to perform a procedure or on the engine itself.



**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.

### 3.1 Engine Oil & Filter

**See Figure 3-1.** The following chart details lubricating oil viscosity as a function of ambient temperature. Select the lubricating oil viscosity based upon the prevailing temperature range expected. If your application will be subject to large ambient temperature ranges during a given oil change interval, select the lubricating oil viscosity based upon the highest temperature expected. Should the prevailing ambient temperatures change during a given oil service period interval, and the lubricating oil within the engine is reflective of a lower temperature range, the lubricating oil should be changed to reflect the prevailing temperature.

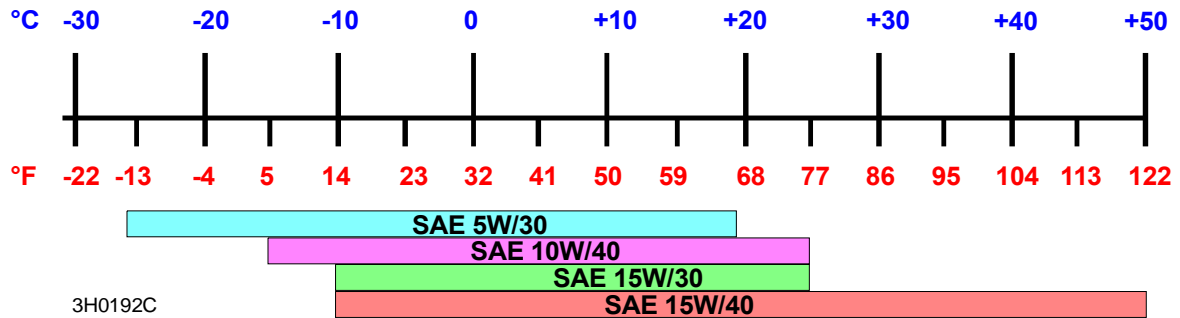
Only API grade CD should be used for oils with viscosity 5W30, 10W40, and 15W30. API grade CD-II, CE, and/or CF should be used for oils with viscosity 15W40. In addition to the API rating, lubricating oils should also meet or exceed MIL-L-2105E.

When operating in temperatures below those specified in the chart, [See Section 2.2 Cold Weather Operation](#).

Oil capacity (including oil filter) is 4.5 quarts, or 4.3 liters.

# 3

## Maintenance Engine Oil & Filter



3H0192C

FIG. 3-1

8

Check the oil level every 8 hours of operation. Add oil as necessary.

125

Change the oil and replace the oil filter after the first 50 hours of operation. Change the oil every 125 hours and replace the oil filter every 250 hours thereafter.

**IMPORTANT NOTE!** Before reinstalling the clean oil filter, wipe all dirt and oil deposits from the oil filter receptacle.

### 3.2 Air Cleaner

8

Empty the air debris collector every 8 hours of operation.

**See Figure 3-2.** 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!** Wear eye protection when emptying the air cleaner debris collector.

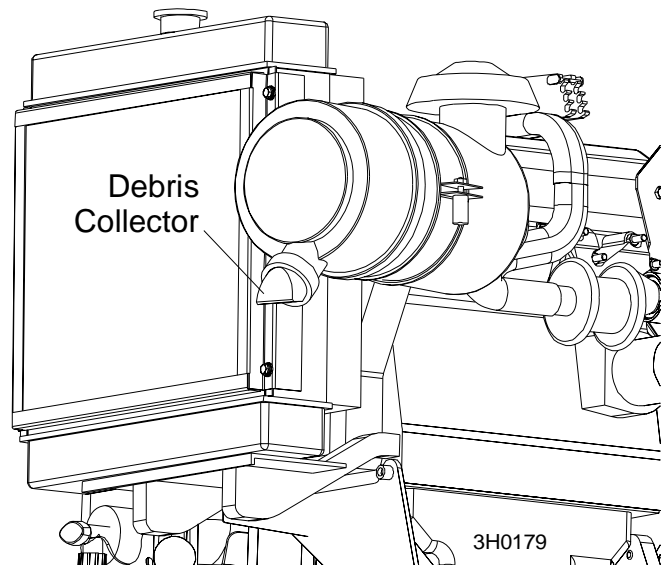


FIG. 3-2

AR

Replace the air filter when air filter indicator shows need (or every year). The air cleaner used on the Lombardini Diesel for Wood-Mizer sawmill applications is a special, non-standard filter which becomes more efficient with use. There is no need for periodic cleaning or servicing.

**See Figure 3-3.** The indicator is located on the side of the air cleaner housing, behind the radiator. A red band will appear in the sight window when the air restriction is at its maximum limit. Change the air filter and push the reset button on the indicator.

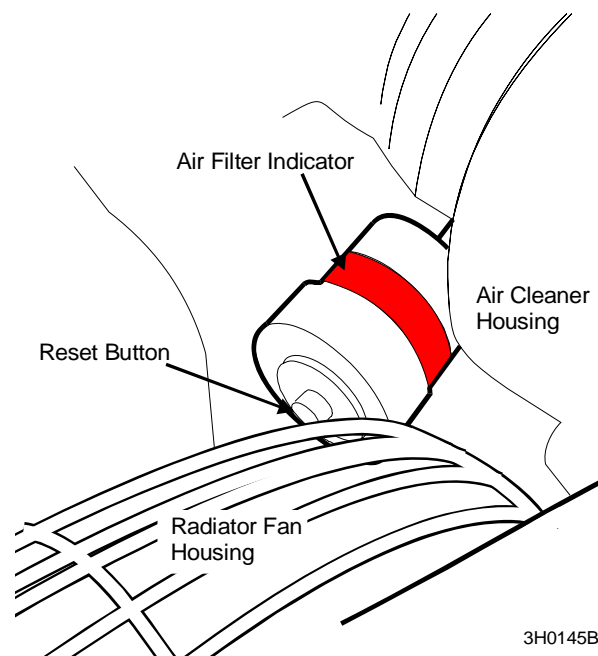


FIG. 3-3

### 3.3 Cooling System

8

Check the coolant level every 8 hours of operation.

8

Check the radiator fins every 8 hours of operation.

250

Clean the radiator fins every 250 hours of operation.

1000

Replace the coolant every 1000 hours of operation or every 2 years, whichever comes first. Use a mixture of 50% antifreeze and 50% water.

### 3.4 Fuel Filter



Replace the fuel filter every 250 hours of operation.

### 3.5 Battery



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



**WARNING!** Batteries contain explosive gases. Always wear eye protection and keep face away when charging or boosting battery. Charge battery in well-ventilated area. Keep battery away from hot or burning materials. Avoid spilling electrolyte when handling.

### 3.6 Alternator Belt

Check the alternator belt tension every 500 hours. Also check the alternator belt for tension and wear when battery is not charging properly or when the alternator belt is squealing. Adjust as needed.

Replace the alternator belt every 1000 hours.

### 3.7 Drive Belt Adjustment

50

**See Figure 3-4.** Check the drive belt tension after the first 20 hours, and every 50 hours thereafter. The drive belt should have 7/16" (11 mm) deflection with a 18 lb. deflection force. Always be sure to check the drive belt support after adjusting drive belt tension.

To adjust drive belt tension, remove the two belt covers located underneath the engine. Loosen the turnbuckle jam nuts. Turn the turnbuckle counterclockwise (as viewed from the top) to tighten the belts, clockwise to loosen the belts. Retighten the jam nuts. Replace the belt covers.

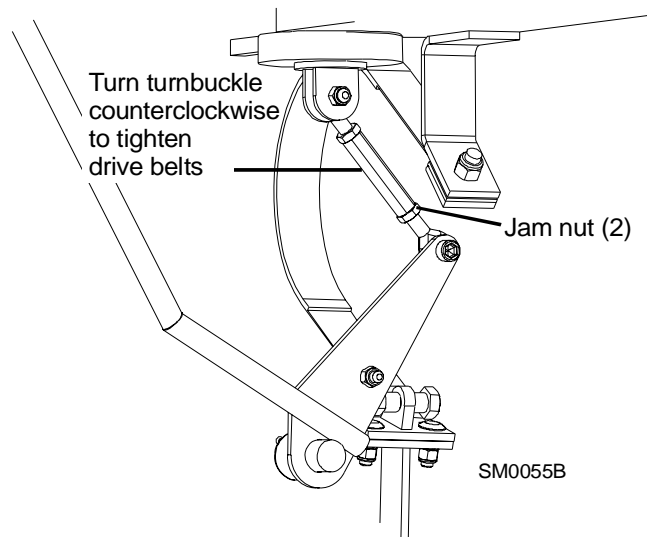


FIG. 3-4

AR

Periodically check all belts for wear. Replace any damaged or worn belts as needed.

AR

Adjust the drive belt support as needed. The drive belt support is designed to extend belt life. The bracket should be adjusted to NOT touch the drive belt when the clutch handle is engaged (down position), AND to hold the drive belt away from the engine pulley when the clutch handle is disengaged (up position).

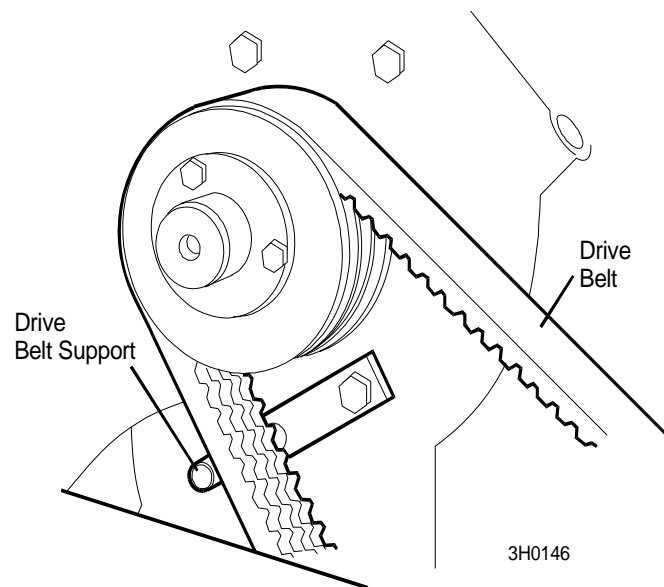


**DANGER!** Do not for any reason adjust the drive belt support with the motor running. Always stop the motor before reaching or looking into the drive belt area.

**See Figure 3-5.** To adjust the drive belt support:

1. Make sure the motor is not running. Loosen the adjustment bolt.

2. Position the bracket so that the prong is close to, but does not touch, the drive belt with the clutch handle engaged.
3. Retighten the adjustment bolt.

**FIG. 3-5**

### 3.8 Miscellaneous Maintenance

- 500 Check the valve clearance every 500 hours of operation. Adjust if necessary. See engine manual for further details.
- 1000 Clean the fuel tank every 1000 hours of operation.
- 1000 Clean and set the injectors every 1000 hours of operation. See engine manual for more information.
- 2500 Replace the timing belt every 2500 hours of operation.
- 2500 Perform a partial overhaul inspection as detailed in the engine manual every 2500 hours of operation.
- 5000 Perform a complete overhaul inspection as detailed in the engine manual every 5000 hours of operation.

### 3.9 RPM Adjustments



**DANGER!** Remove the blade from the sawmill before checking engine RPM.

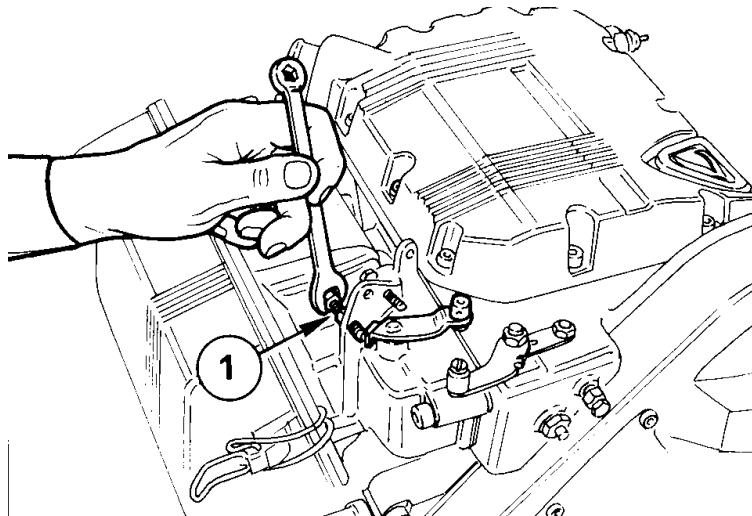
200

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

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

1. Start the engine to measure the low-end RPM. Let idle for 10 minutes.
2. With the engine at idle, check the low-end RPM. Adjust to 1500. To decrease speed, loosen the idle adjustment bolt. To increase speed, tighten the idle adjustment bolt. Tighten the lock nut to hold the bolt in place.

See Figure 3-6.



**FIG. 3-6**

3. Adjust the high-end RPM to 3200. To decrease speed, tighten the full speed adjustment bolt. To increase speed, loosen the full speed adjustment bolt. Tighten the lock nut to hold the bolt in place.



**CAUTION!** Do not adjust the high-end RPM above 3200.



See Figure 3-7.

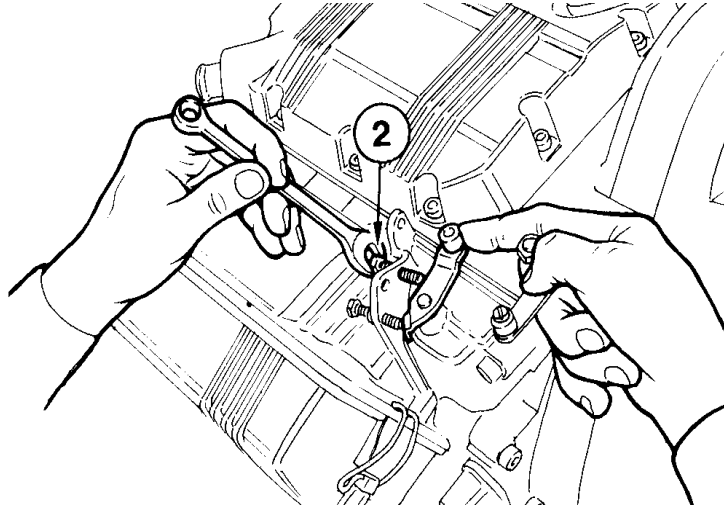


FIG. 3-7

## 3.10 Storage

### *Short Term Storage*

If storing the engine over 30 days but under 6 months, take the following maintenance steps:

1. Idle the engine for 15 minutes before shutting off.
2. Drain oil and refill crankcase with protection oil MIL-1-644-P9. Run engine at 3/4 full speed for 5-10 minutes.
3. Shut off engine.
4. While the engine is still warm, drain oil. Refill crankcase with standard oil.
5. Remove the fuel filter and drain the fuel tank. Replace gasket if need and reinstall the fuel filter.
6. Carefully clean the radiator fins, heads and fan.
7. Seal all openings with tape.
8. Remove injectors. Pour a spoonful of SAE 30 oil into the cylinders. Manually rotate the cylinders to distribute the oil. Reinstall injectors.
9. Spray SAE 10W oil into exhaust and intake manifolds, rocker arm, valves, tappet, etc. Grease all unpainted parts.
10. Loosen the fan belt.
11. Wrap the engine in a plastic film.
12. Store the engine in a dry place. Keep away from soil and high voltage electric lines.

### ***Long Term Storage***

If storing over 6 months follow these additional guidelines:

1. Use a rustproof type MIL-L-21260-P10 grade 2 SAE 30 oil, such as ESSO RUST BAN 623-AGIP, RUSTIA C - SAE 30 for the lubrication and the injection system as well as for moving parts. Let the engine run with rustproof oil and drain any excess.
2. Coat the external unpainted surfaces with an antirust type MIL-C-16173D grade 3 oil, such as ESSO RUST BAN 398-AGIP, RUSTIA 100/F.
3. Replace coolant every 2 years.

### ***Using Engine After Storage***

Before using the engine after short or long term storage, perform the following steps:

1. Clean the outside of the engine.
2. Remove protections and covers.
3. Remove antirust oil with an appropriate solvent or degreaser.
4. Remove the injectors, pour a spoonful of standard oil into the cylinders and rotate manually to distribute the oil. Remove the oil pan and drain the protective oil.
5. Check the injectors, valve clearance, belt tension, head tightening, oil filter and air cleaner for proper setting. If the engine has been stored over 6 months, check bearings for corrosion.

## SECTION 4 REPLACEMENT PARTS

### 4.1 How To Use The Parts List

- Use the table of contents or the index to locate the assembly that contains the part you need.
- Go to the appropriate section and locate the part in the illustration.
- Use the number pointing to the part to locate the correct part number and description in the table.
- Parts shown indented under another part are included with that part.
- Parts marked with a diamond (◆) are only available in the assembly listed above the part.

See the sample table below. Sample Part #A01111 includes part F02222-2 and subassembly A03333. Subassembly A03333 includes part S04444-4 and subassembly K05555. The diamond (◆) indicates that S04444-4 is not available except in subassembly A03333. Subassembly K05555 includes parts M06666 and F07777-77. The diamond (◆) indicates M06666 is not available except in subassembly K05555.

<b>4.2 Sample Assembly</b>				
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	<b>SAMPLE ASSEMBLY, COMPLETE (INCLUDES ALL INDENTED PARTS BELOW)</b>	A01111	1	
1	Sample Part	F02222-22	1	
	Sample Subassembly (Includes All Indented Parts Below)	A03333	1	
2	Sample Part (◆ Indicates Part Is Only Available With A03333)	S04444-4	1	◆
	Sample Subassembly (Includes All Indented Parts Below)	K05555	1	
3	Sample Part (◆ Indicates Part Is Only Available With K05555)	M06666	2	◆
4	Sample Part	F07777-77	1	

**To Order Parts:**

- From the continental U.S., call **1-800-525-8100** to order parts. Have your customer number, vehicle identification number, and part numbers ready when you call.
- From other international locations, contact the Wood-Mizer distributor in your area for parts.

# 4

## Replacement Parts

### Fuel Tank

REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	<b>TANK ASSEMBLY, 5 GALLON GREEN DIESEL</b>	A12132 <sup>1</sup>	1	
1	Tank, 5 Gallon Green Fuel	P12166	1	◆
2	Pickup, 9" Fuel	P12172	2	
3	Cap, 3/5 Gallon Fuel Tank	P09683	1	
4	Fitting, 1/4" NPT Male Quick Disconnect	015583 <sup>1</sup>	1	
5	Fitting, Female Quick Disconnect Barb	015582 <sup>1</sup>	1	
6	Fitting, 1/4" NPT Plastic Female Disconnect	P12175	1	
7	Fitting, 1/4" Barb Plastic Male Disconnect	P12176	1	
8	<b>HOSE, 1/4" ID FUEL</b>	P642 <sup>2</sup>	14.5 Ft	
9	<b>CLAMP, 7/32" - 5/8" HOSE</b>	P649 <sup>2</sup>	4	
	<b>ADDITIVE, DIESEL FUEL 16OZ BOTTLE</b>	004878 <sup>3</sup>	1	

<sup>1</sup> Tank assembly includes metal disconnect fittings 015582 and 015583 which replace plastic fittings p12174 and p12173 originally supplied on fuel pickup line. Metal fittings require clamp P649 which replaced clamp P12374 used for plastic fittings.

<sup>2</sup> P642 fuel hose replaces R01890-1 originally supplied, Use clamp P649 with new hose (replaces 015584 and P12374 used with old fuel hose).

<sup>3</sup> Stanadyne Performance Formula helps eliminate contaminants and water in fuel, prevents gelling in cold weather, and improves lubrication of fuel system parts. 16 oz. bottle treats 60 gallons of diesel fuel.

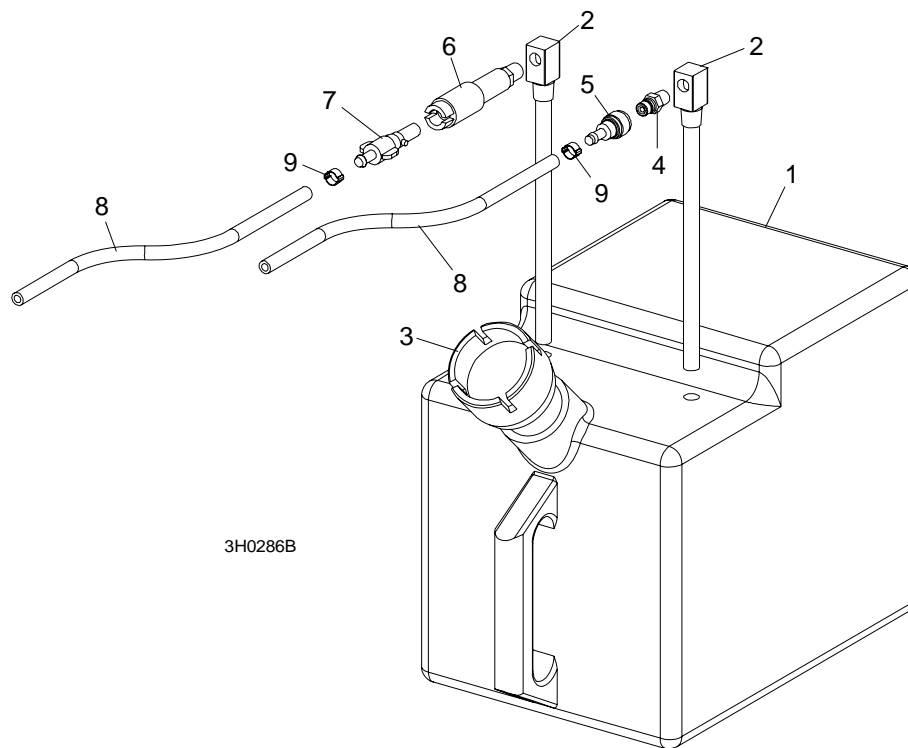


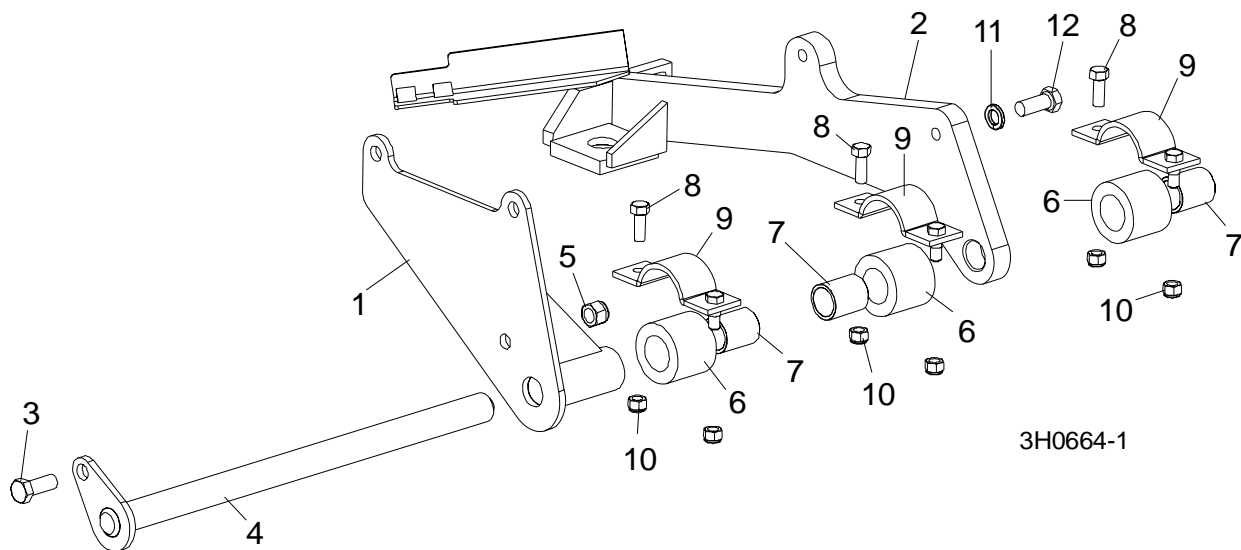
FIG. 4-1

REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	MOUNT, FRONT MOTOR	014028 <sup>1</sup>	1	
	MOUNT, FRONT MOTOR	014237 <sup>1</sup>	1	
2	MOUNT WELDMENT, DIESEL ENGINE	014060 <sup>1</sup>	1	
	MOUNT KIT, LOMBARDINI DIESEL ENGINE	016321 <sup>2</sup>	1	
	Mount Weldment, Diesel Engine	014219 <sup>1</sup>	1	◆
3	BOLT, 1/2-13 X 1 1/4" HEX HEAD GRADE 5	F05008-37	1	
4	PIN WELDMENT, MOTOR PIVOT	014056	1	
5	NUT, 1/2-13 HEX NYLON LOCK	F05010-8	1	
	BUSHING, RUBBER ASSEMBLY	A04127 <sup>3</sup>	3	◆
6	Bushing, Motor Mount Rubber	P12164	1	
7	Bushing, Clutch/Brake Lever	P05041	1	
8	BOLT, 3/8-16 X 1" HEX HEAD	F05007-7	6	
9	CLAMP, MOTOR MOUNT	014031	3	
10	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	6	
11	WASHER, 1/2" SPLIT LOCK	F05011-9	2	
12	BOLT, 1/2-13 X 1 1/4" SOCKET HEAD	F05008-38	2	

<sup>1</sup> Use front mount 014028 and rear mount 014060 for LT40HD Super Rev. F8001 - F8009 only. LT40HD Super Rev. F8010+ and all LT30 Super, LT40 Super and LT30HD Super use front mount 014237 and rear mount 016321.

<sup>2</sup> Mount Kit 016321 includes new rubber clutch handle mount bushings and hardware standard after 6/99.

<sup>3</sup> A04127 no longer available. Purchase individual component parts P12164 and P05041 or upgrade to aluminum bushing assembly 016380.



**FIG. 4-2**

## 4

## Replacement Parts

## Engine Assembly

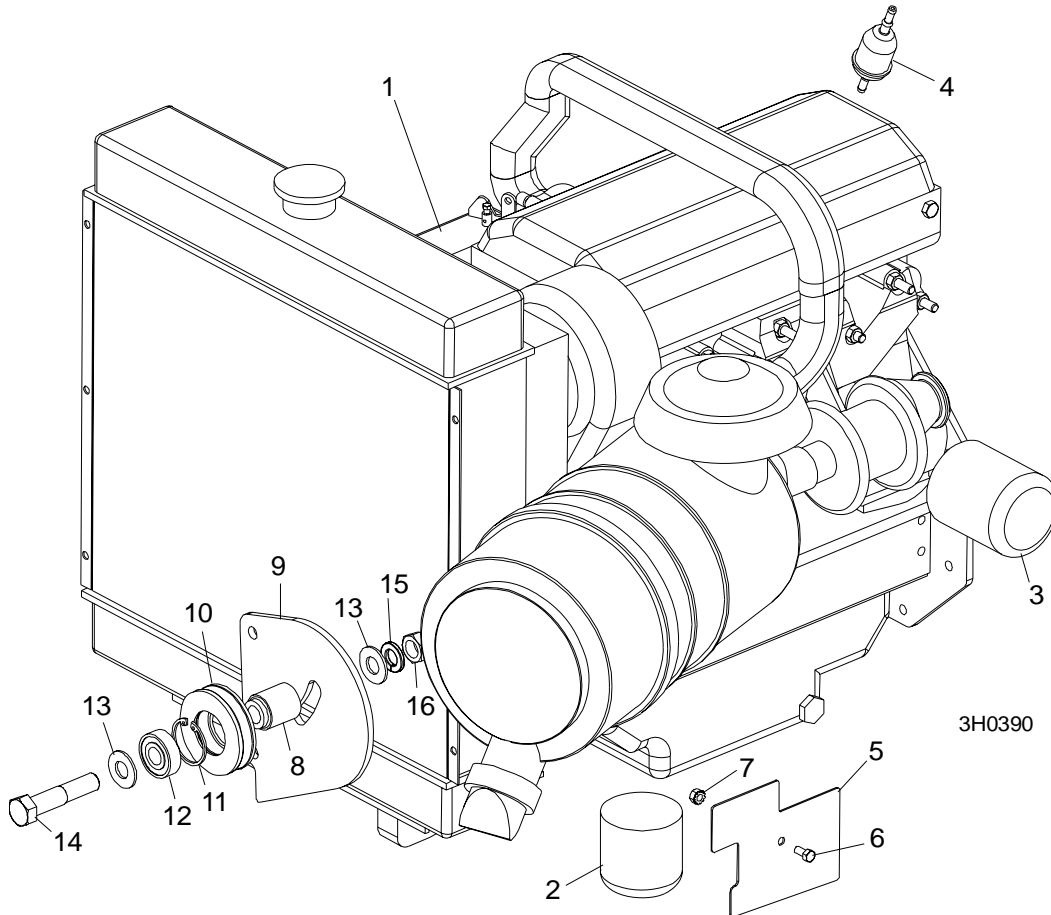
<b>4.5 Engine Assembly</b>				
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	<b>ENGINE, 40HP LOMBARDINI DIESEL LDW-1204T FOCS</b>	012978 <sup>1</sup>	1	◆
	Cap, Oil Fill	014294	1	
2	Filter, Diesel Fuel	014209	1	
3	Filter, Diesel Oil	014211	1	
4	Filter, In-Line Fuel	P07570 <sup>2</sup>	1	
	Alternator, Lombardini 65 Amp #1157-270	014277	1	
	Belt, Lombardini Alternator #2440-316	014212	1	
	Fuse Link, 80 Amp Glow Plug	014350	1	
	Gasket Kit, Lombardini Engine	014293	1	
	Plug, Diesel Glow	014278	1	
	Pump, Lombardini Fuel	014289	1	
	Pump, Lombardini Water	014288	1	
	Starter, Lombardini Diesel Engine	014286	1	
	Thermostat, Kubota Engine	028546 <sup>3</sup>	1	
	Valve, Fuel	014279	1	
	Guard, Lombardini Fan Left #6927-346	014747	1	
	Guard, Lombardini Fan Right #6927-350	014748	1	
	Rail Kit, Lombardini Replacement Fuel	016073 <sup>4</sup>	1	
	Rail, Lombardini Fuel #9375-966	016074	1	
	O-Ring, Lombardini Fuel Rail #1200-286	016075	8	
	Gasket, Lombardini Valve Cover #4400-057	016076	1	
	Instruction Sheet, D40 Fuel Rail Replacement	016073-573	1	
	Turbocharger, Lombardini Engine #9610-050	016220	1	
5	<b>PLATE, LOMBARDINI DUST SHIELD</b>	014400	1	
6	<b>BOLT, 1/4-20 X 1/2" HEX HEAD</b>	F05005-15	1	
7	<b>NUT, 1/4-20 SELF-LOCKING</b>	F05010-9	1	
8	<b>SPACER, D40 IDLER</b>	015333	1	
9	<b>PLATE, D40 IDLER</b>	015334	1	
10	<b>PULLEY, D40 IDLER</b>	015335	1	
	<b>BELT, LOMBARDINI IDLER #2440-316</b>	014212	1	
11	<b>RING, 1.575 I.D. 3000-156 RETAINING</b>	F04254-4	1	
12	<b>BEARING, 5/8" X 1.5" X .47"</b>	P06030-1	1	
13	<b>WASHER, 5/8" SAE FLAT</b>	F05011-5	2	
14	<b>BOLT, 5/8-11 X 3" HEX HEAD GRADE 2</b>	F05009-32	1	
15	<b>WASHER, 5/8" SPLIT LOCK</b>	F05011-9	1	
16	<b>NUT, 5/8-11 HEX JAM</b>	F05010-11	1	
	<b>TOOL, LOMBARDINI 01460-049 TIMING BELT TENSIONER</b>	014358	1	
	<b>HEATER, OPTIONAL ENGINE WATER (NOT SHOWN)</b>	014635	1	

<sup>1</sup> Use complete engine assembly 014157 for service replacement. Includes engine, mounts, alternator, radiator, throttle, relay, and muffler. 012978 Lombardini model 1404 engine replaces 014092 model 1204T previously supplied (6/00).

<sup>2</sup> In-Line fuel filter replaced by primary cartridge system originally supplied. Upgrade to cartridge system is recommended for previous revisions. See Section 4.6.

<sup>3</sup> Lombardini Thermostat 014296 no longer available (3/06). Use Kubota Thermostat 028546 as replacement.

<sup>4</sup> Fuel rail replacement for 1204T engines prior to serial number 4034285. Improved fuel rail eliminates rail failure which can cause fuel to mix with engine oil, resulting in the engine surging and in some cases cause engine run-away. Kit includes O-rings, valve cover gasket and installation instructions.



**FIG. 4-3**



# 4

## Replacement Parts

### Primary Fuel Filter Retrofit

4.6 Primary Fuel Filter Retrofit				
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	<b>FILTER KIT, PRIMARY DIESEL FUEL</b>	015906 <sup>1</sup>	1	
1	Filter Assembly, Standadyne Fuel #33816	015897	1	
2	Filter, Standadyne Fuel Cartridge #31865	015898	1	
3	Fitting, 1/4" NPT to 1/4" Hose Barb	P05393	2	
4	Hose, 1/4" ID Fuel	P642 <sup>2</sup>	7 Ft	
5	Clamp, 7/32 - 1/2 Hose	P649 <sup>3</sup>	2	
6	Bracket, Diesel Fuel Filter Mount	015905	1	
7	Bolt, 3/8-16 x 1 1/4" Carriage Head	F05007-11	6	
8	Washer, 3/8" Split Lock	F05011-4	6	
9	Nut, 3/8-16 Hex	F05010-1	6	
10	Fitting, 1/4" NPT Plug	P05498	2	
	Instruction Sheet, Diesel Fuel Filter Retrofit	015906-348	1	

<sup>1</sup> Primary fuel filter replaces in-line filter P07570 originally supplied.

<sup>2</sup> Replaces R01890-1 originally supplied.

<sup>3</sup> Replaces 016040 originally supplied.

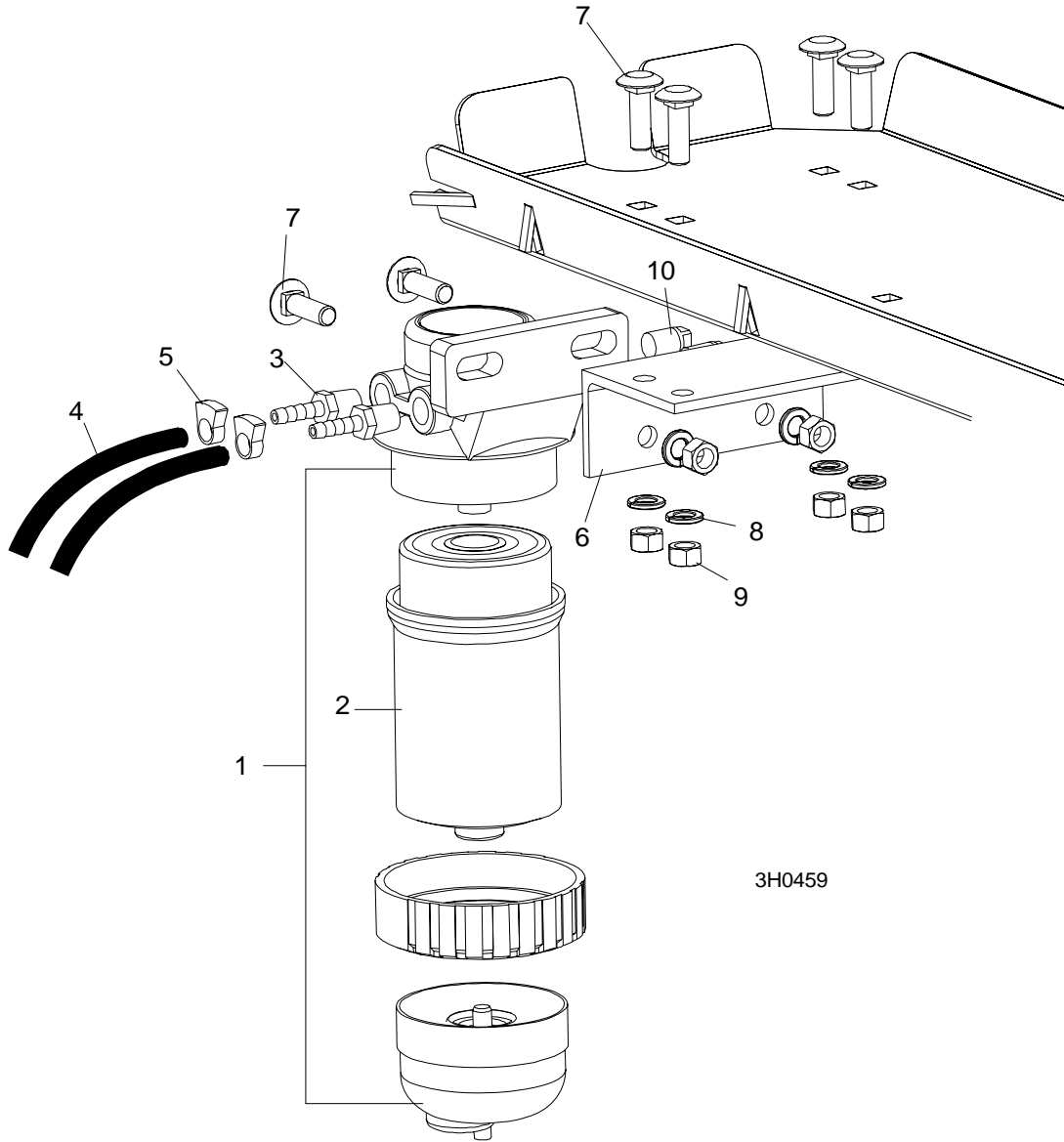


FIG. 4-4

## 4

## Replacement Parts

### Relay/Throttle Assembly

<b>4.7 Relay/Throttle Assembly</b>				
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	<b>CABLE KIT, D30/D40 THROTTLE REPLACEMENT</b>	016015 <sup>1</sup>	1	
1	Cable, D30/D40 .078" Throttle	016149 <sup>1</sup>	1	
2	Bolt, D30/D40 Throttle Cable	015985 <sup>2</sup>	1	
3	Washer, .266 x .50 x .28" Al-Bronze	015986 <sup>2</sup>	2	
4	Nut, 1/4-20 Nylon Lock	F05010-69 <sup>2</sup>	1	
5	Plate, Throttle Cable Retrofit	016128	1	
6	Bolt, 5/16-18 x 1/2" Hex Head Grade 5	F05006-15	1	
7	Washer, 5/16" Split Lock	F05011-13	1	
8	Bolt, 3/8-16 x 1 Hex Head	F05007-7	1	
9	Nut, 3/8-16 Nylon Lock	F05010-10	1	
	Instruction Sheet, D30/D40/G35 Throttle Cable Retrofit Installation	016015-840	1	
10	<b>SPRING, THROTTLE</b>	016033	1	
11	<b>NUT, 5/16-18 SELF-LOCKING HEX</b>	F05010-20	1	
12	<b>BOLT, 5/16-18 X 3/4" HEX HEAD</b>	F05006-5	1	
13	<b>BRACKET, THROTTLE CABLE MOUNT</b>	015566 <sup>3</sup>	1	
14	<b>PLATE WELDMENT, DIESEL RELAY BOX MOUNT</b>	014197	1	
15	<b>WASHER, #10-24 SPLIT LOCK</b>	F05011-20	2	
16	<b>BOLT, #10-32 X 1/2" HEX HEAD</b>	F05004-60	2	
17	<b>BOX, D40 GLOW PLUG RELAY</b>	014199	1	
18	<b>BOLT, 1/4-20 X 1/2" SLOTTED HEX HEAD</b>	F05015-1	2	
19	<b>RELAY, GLOW PLUG</b>	023359	1	
20	<b>DECAL, LOMBARDINI GLOW PLUG ON TIME (LOCATED ON CONTROL BOX)</b>	015814	1	
21	<b>SOCKET KIT, GLOW PLUG RELAY</b>	053049 <sup>4</sup>	1	
22	Fuse, 80A Lombardini Glow Plug	014350	1	

<sup>1</sup> Replaces 014097 originally supplied. .078" dia. cable 016149 replaces .059" dia. cable 015831 to provide improved durability. Kit includes hardware required to retrofit original cable.

<sup>2</sup> Replaces 015848 barrel-style cable clamp and (2) F05004-102 set screws supplied until 1/98. Also replaces 014608 clamp supplied until 9/97. *NOTE:* 015985 cable bolt requires (2) 015986 washers and (1) F05010-69 nut.

<sup>3</sup> 015566 replaces 014111 supplied until 1/98. Similar part used on D30.

<sup>4</sup> Replaces 023358 originally supplied. Kit includes pre-assembled socket with applicable wires, terminals and fuse.

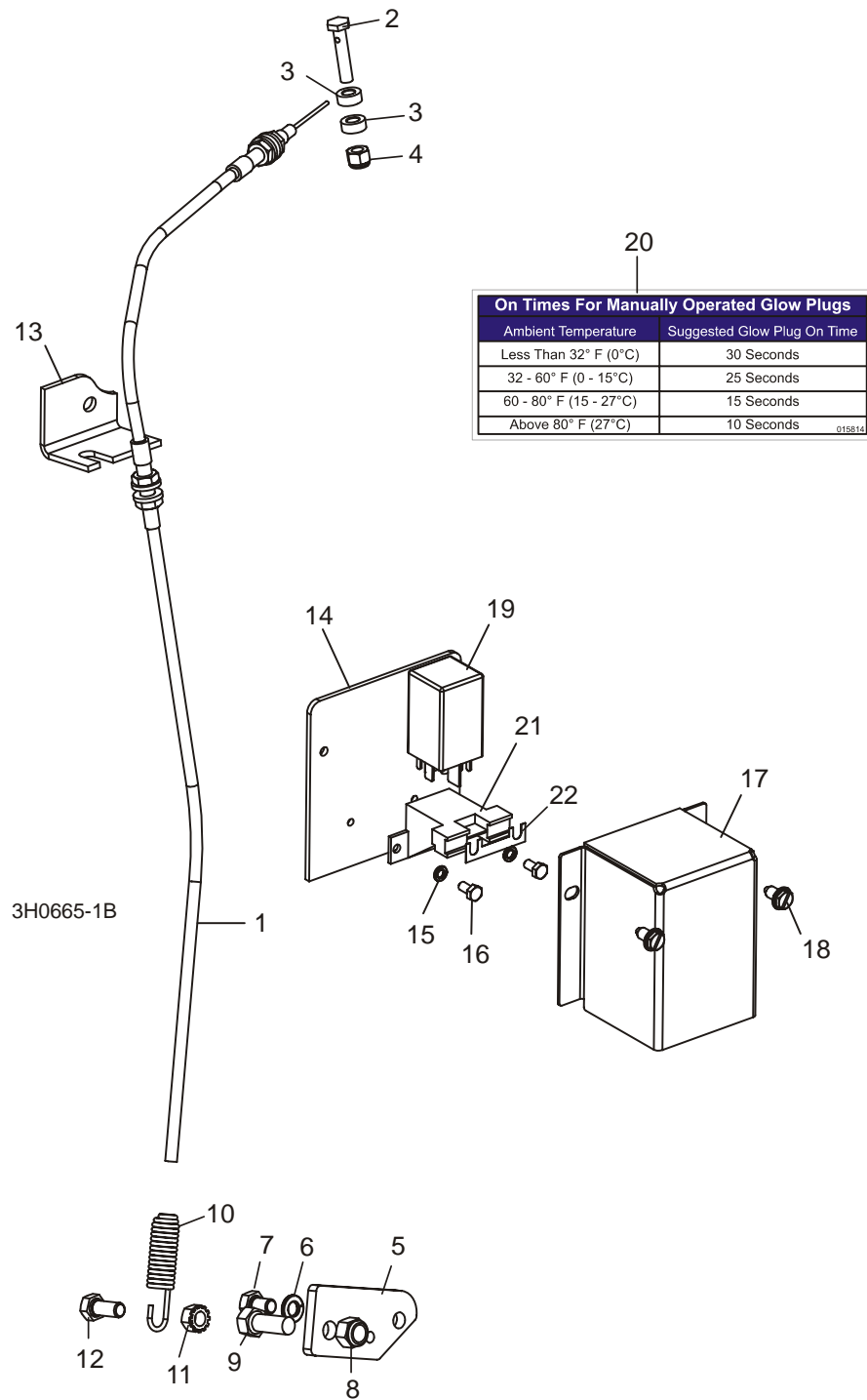


FIG. 4-5

# 4

## Replacement Parts

### Air Cleaner Assembly

4.8 Air Cleaner Assembly			
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	CLEANER ASSEMBLY, DONALDSON AIR COMPLETE	014280	1
2	Boot, Air Cleaner Evacuator	014287	1
3	Element, Donaldson Air Filter	014210	1
4	INDICATOR, AIR CLEANER RESTRICTION	014336	1
5	BOLT, 5/16-18 X 1" HEX HEAD	F05006-1	2
6	WASHER, 5/16" SAE FLAT	F05011-17	2
7	NUT, 5/16-18 HEX NYLON LOCK	F05010-58	2
8	CLAMP, 7" SPRING	014160	1
9	CLAMP, 3 3/4" HOSE	P04921	1

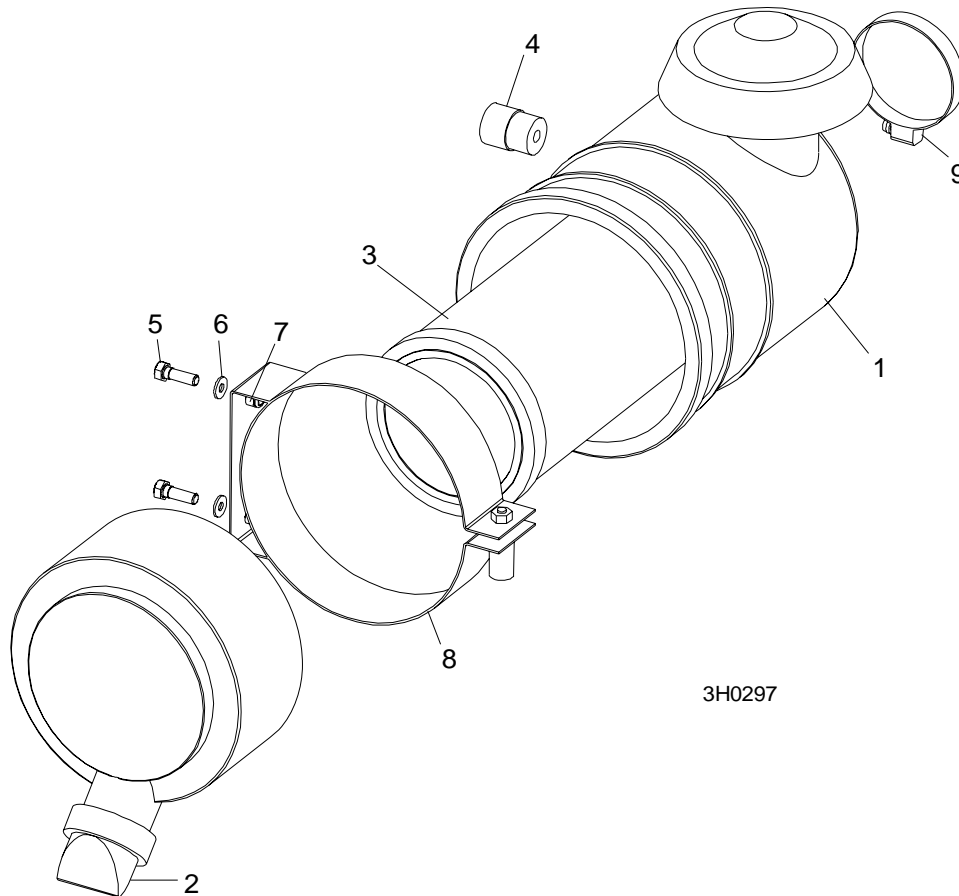


FIG. 4-6

4.9 Muffler Assembly				
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	MUFFLER, DIESEL	014093	1	
2	CLAMP, 5" WORM	014096	2	
3	CLAMP, MUFFLER	014095	1	
4	STACK, DIESEL MUFFLER	014094	1	
5	TUBE, LOMBARDINI EXHAUST	014319	1	
6	CLAMP, MUFFLER 2" NELSON 90869A	014205	1	
7	BRACKET, MUFFLER	014321 <sup>1</sup>	1	

<sup>1</sup> Replaces 014157 Muffler Bracket originally supplied before 3/96.

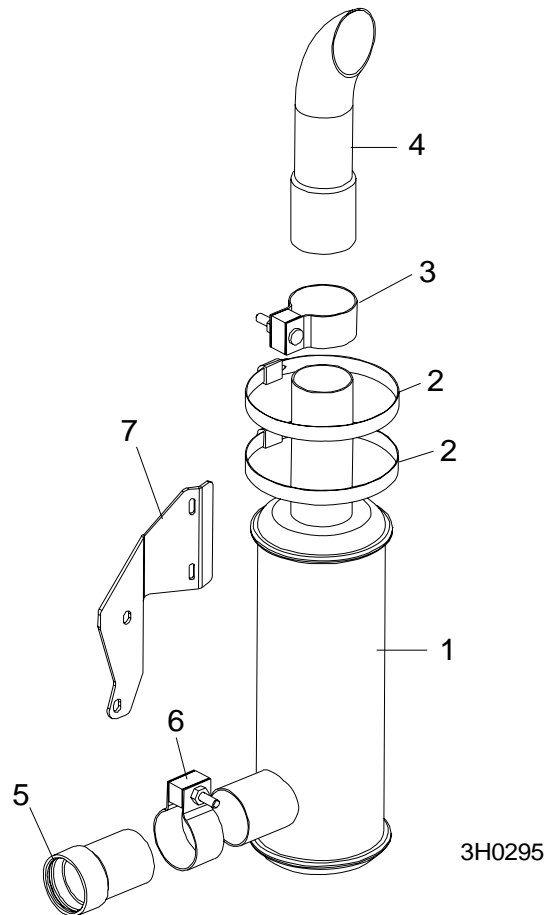
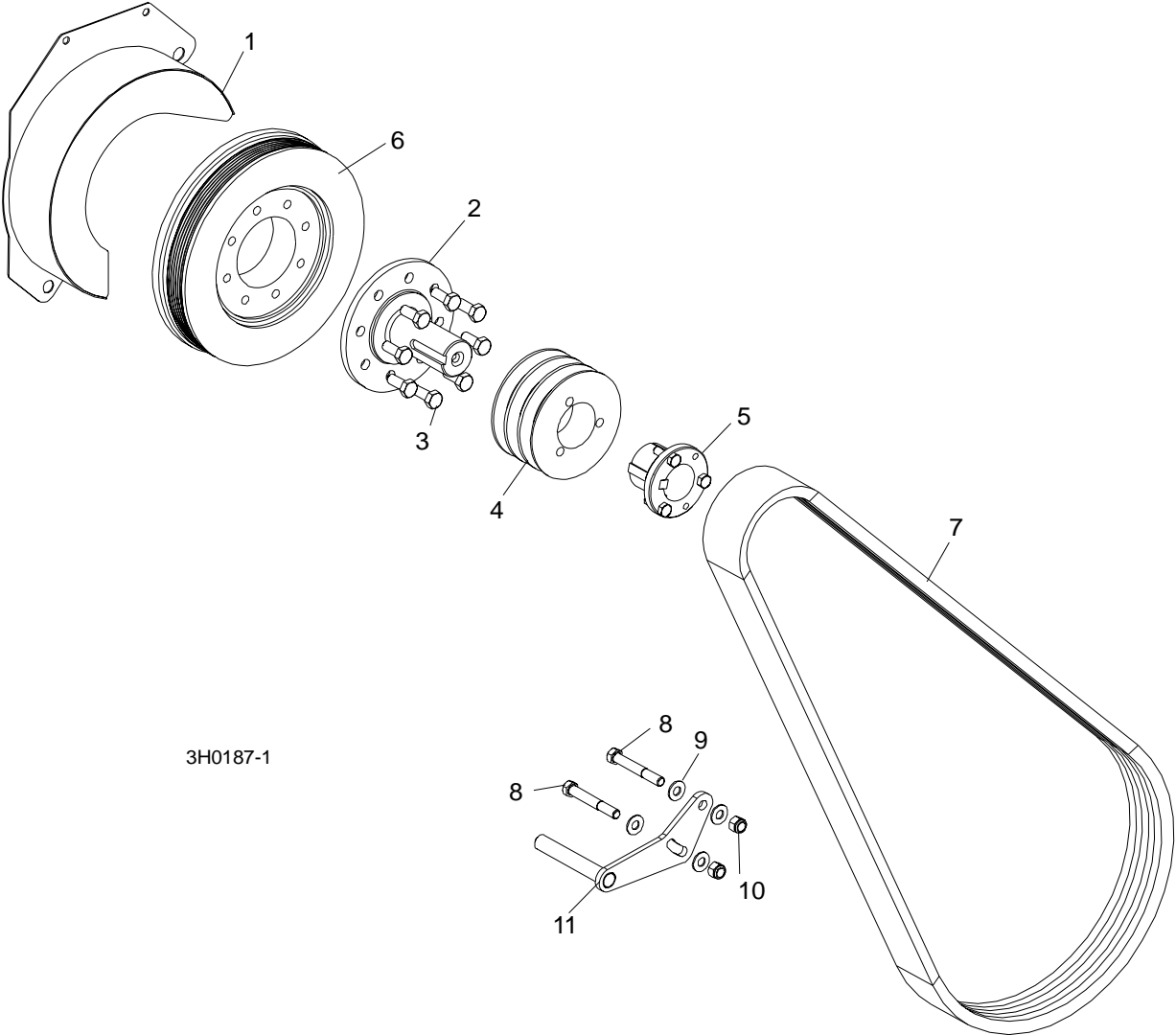


FIG. 4-7

**4****Replacement Parts***Drive Assembly***4.10 Drive Assembly**

REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	COVER WELDMENT, FLYWHEEL	014065	1	
2	SHAFT, OUTPUT	014024	1	
3	BOLT, M10X25 GRADE 10.9 HEX HEAD	F05009-52	8	
4	SHEAVE, 3TB42 MOTOR DRIVE	014007	1	
5	BUSHING, SPLIT TAPER, P1 1 9/16"	014003	1	
6	FLYWHEEL, SERPENTINE BELT	015309	1	
7	BELT, 3BX72	014085	1	
8	BOLT, 3/8-16 X 2 3/4" HEX HEAD	F05007-29	2	
9	WASHER, 3/8" SAE FLAT	F05011-3	4	
10	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	2	
11	SUPPORT, DRIVE BELT	014112	1	



3H0187-1

FIG. 4-8



## SECTION 5 ELECTRICAL INFORMATION

### 5.1 Electrical Symbol Diagram, LT30/LT40 D40

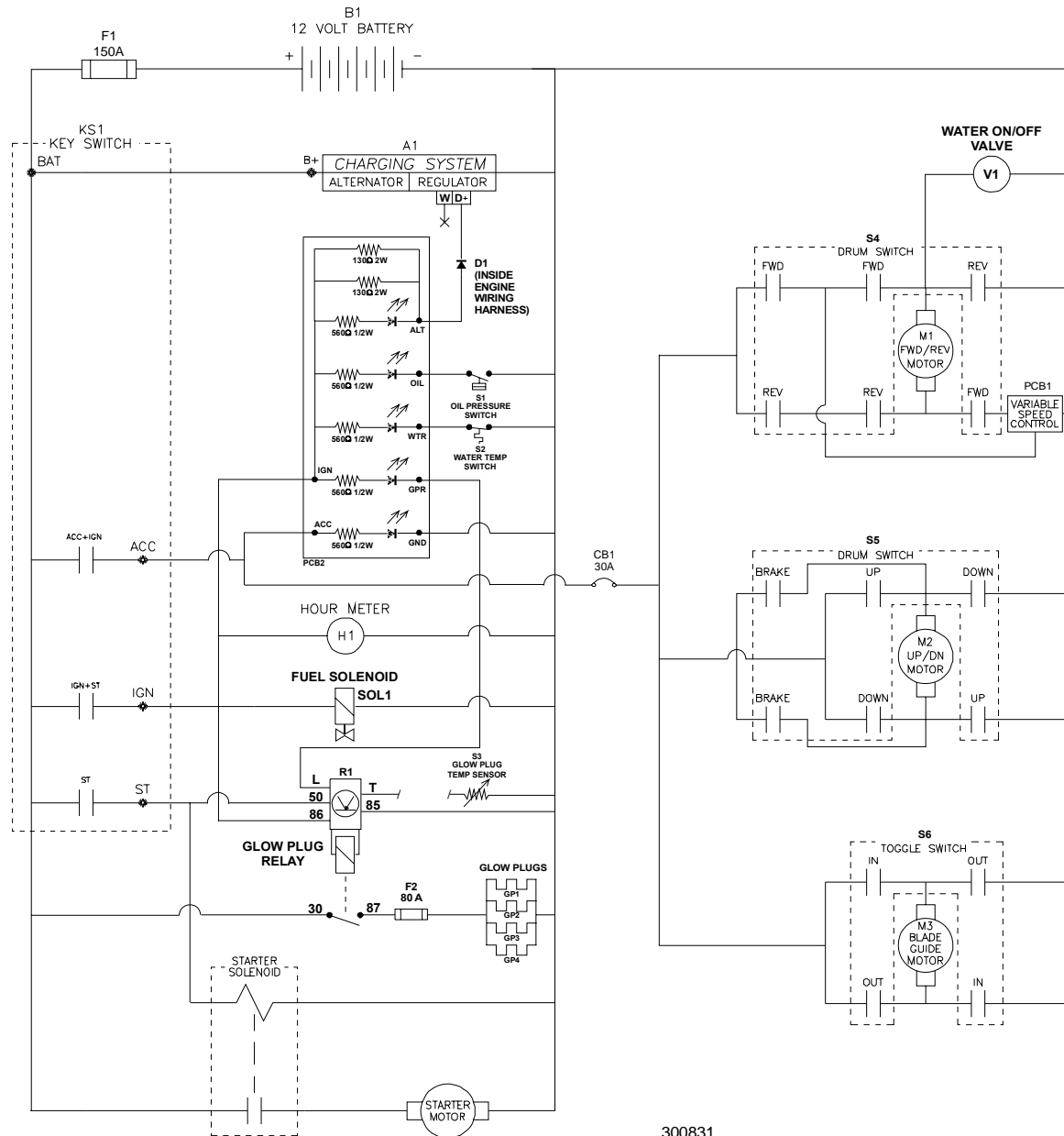
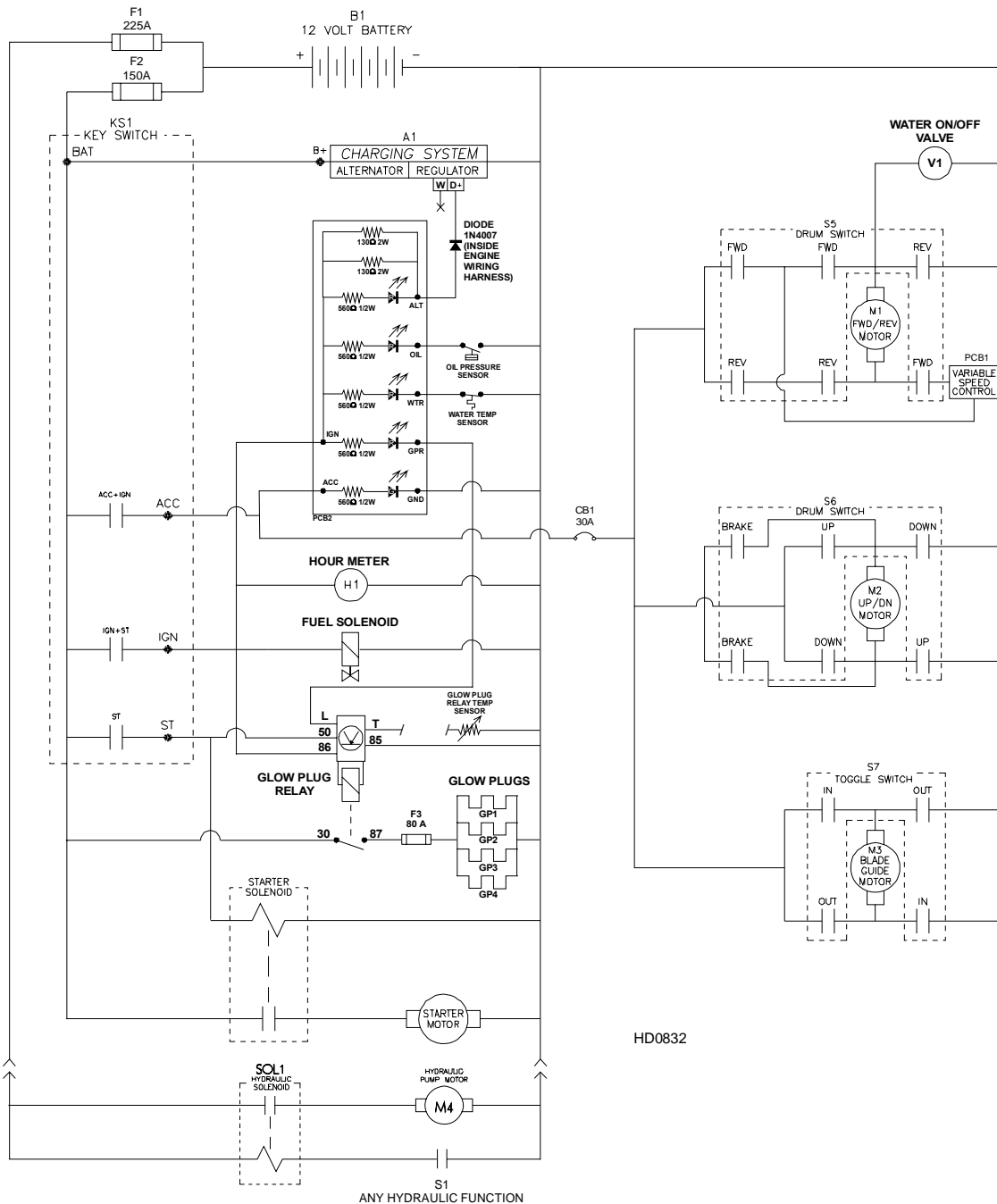


FIG. 5-1

**5.2 Electrical Symbol Diagram, LT30HD/LT40HD D40**



**FIG. 5-2**

### 5.3 Electrical Components, LT30/LT40 D40

Item	Mfg. Part No.	Mfg.	Wood-Mizer Part No.	Description
A1	1157-270	Lombardini	014277	Alternator, 65 Amp Lombardini
B1	724MFD	Deka	P12315	Battery, 12 V Deep Cycle LT30HD/40HD ( <a href="#">See Section 5.5</a> )
CB1	30128-30	Cole-Hersee	E20486 <sup>1</sup>	Circuit Breaker, 30 Amp, 12 Volt, For Power Feed Motor, Auto Reset
D1	1N4007	Motorola	014349	Diode, 1 Amp 400 Volt
F1	RL-150	Gould	023361	Fuse Link, 150 Amp, 250 Volt For Main + 12 Volt Starter, Alternator
F2	4062-232	Lombardini	014350	Fuse Link, 80 Amp Lombardini Glow Plug
GP1, GP2, GP3, GP4	2100-072	Lombardini	014278	Glow Plug
H1	T40 Series	ENM Corp.	P09631	Hour Meter, 12 Volt, Low Power T40 Series
KS1	121801	General	P04350	Key Switch, 4-position (Accessory, Off, Ignition, Start)
M1	1149-001	Current App.	006747 <sup>2</sup>	Motor, 12 Volt Power Feed
M2	1149-001	Current App.	006747 <sup>3</sup>	Motor, 12 Volt Up/Down
M3	P09698-1	Klauber	A10365	Motor, 12 Volt Blade Guide Arm 53:1 Gear
PCB1	024495	Wood-Mizer	024495 <sup>4</sup>	Circuit Board, Power Feed
PCB2	023042	Wood-Mizer	023042	Board, D40 LED Circuit
R1	2193-134	Lombardini	023359	Relay, Glow Plug
	053049	Wood-Mizer	053049 <sup>5</sup>	Socket Kit, D30/D40 Glow Plug Relay
S1	--	--	014557	Switch Kit, Oil Pressure Sending
	6745-044	Lombardini	014290	Switch, Oil Pressure Sending
	4670-060	Lombardini	014554	Gasket, Copper Oil Pressure
S2	--	--	014558	Switch Kit, Water Temperature Sending
	9195-077	Lombardini	014351	Switch, Water Temperature Sending
	4670-019	Lombardini	014555	Gasket, Copper Water Temperature
S3 <sup>6</sup>	--	--	014559	Switch Kit, Glow Plug Temperature Sending
	9195-067	Lombardini	014352	Switch, Glow Plug Temperature Sending
	4670-061	Lombardini	014556	Gasket, Copper Glow Plug Temperature
S4	2601-AF2-S11	Square D	E20439	Drum Switch, (U.S.), Power Feed Fwd/Reverse Motor
S5	2601-AF2-S12	Square D	E20440	Drum Switch, Up/Down Motor
S6	1121-0004	McGill	P10006	Toggle Switch, Blade Guide In/Out Motor
SOL1	3587-119	Lombardini	014279	Solenoid, Fuel
V1	S24C-6V 12VDC	Atkomatic Valve Co.	016280 <sup>7</sup>	Valve, Waterlube Solenoid

<sup>1</sup> A retrofit is available for Super model mills which provides a second circuit breaker. This will allow the power feed and up/down to be operated at the same time without nuisance tripping of the breaker. Order kit #024235.

<sup>2</sup> Motor 006747 replaced 014359 supplied until 11/08. .25HP motor directly replaces .49HP motor P04140 (Owosso #PR-4P07Q). Requires two rubber boots (P03807) to protect external motor terminals.

<sup>3</sup> Motor 006747 replaced P04140 and Service Kit A07974 supplied until 5/09 (Replacement requires new Mount Bracket 014073).

<sup>4</sup> Replaces A20428 originally supplied before 4/99. New assembly includes LED indicator lights for easier troubleshooting. Modularized components and surface mount technology improve durability and power capability.

<sup>5</sup> Replaces 023358 originally supplied. Kit includes pre-assembled socket with applicable wires, terminals and fuse.

**5****Electrical Information***Electrical Components, LT30/LT40 D40*

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- <sup>6</sup> Glow plug temperature sensor wire should be disconnected to provide manual control of glow plug operation. Sawmills can be modified to improve hot starting performance ([See form 250](#)).
- <sup>7</sup> Valve kit 016280 replaces 014165 solenoid valve, F05004-74 4mm x 12 screws and F05011-57 4mm lock washers originally supplied. 014165 valve no longer available. New valve 016140 requires #10 mounting hardware.

## 5.4 Electrical Components, LT30HD/LT40HD D40

Item	Mfg. Part No.	Mfg.	Wood-Mizer Part No.	Description
A1	1157-270	Lombardini	014277	Alternator, 65 Amp Lombardini
B1	24M-7 <sup>1</sup>	Deka	P12315	Battery, 12 V Deep Cycle LT30HD/40HD ( <a href="#">See Section 5.5</a> )
CB1	30128-30	Cole-Hersee	E20486 <sup>2</sup>	Circuit Breaker, 30 Amp, 12 Volt, For Power Feed Motor, Auto Reset
D1	1N4007	Motorola	014349	Diode, 1 Amp 400 Volt
F1	RL-150	Gould	023361	Fuse Link, 150 Amp, 250 Volt For Main + 12 Volt Starter, Alternator
F2	RL-225	Gould	P11550	Fuse Link, 225 Amp, 250 Volt For Hydraulic + 12 Volt Circuit
F3	4062-232	Lombardini	014350	Fuse Link, 80 Amp Lombardini Glow Plug
GP1 - GP4	2100-072	Lombardini	014278	Glow Plug
H1	T40 Series	ENM Corp.	P09631	Hour Meter, 12 Volt, Low Power T40 Series
KS1	121801	General	P04350	Key Switch, 4-position (Accessory, Off, Ignition, Start)
M1	1149-001	Current App.	006747 <sup>3</sup>	Motor, 12 Volt Power Feed
M2	1149-001	Current App.	006747 <sup>4</sup>	Motor, 12 Volt Up/Down
M3	P09698-1	Klauber	A10365	Motor, 12 Volt Blade Guide Arm 53:1 Gear
M4	08714	Monarch Hyd.	052807 <sup>5</sup>	Motor, 12 Volt Hydraulic Pump
PCB1	024495	Wood-Mizer	024495 <sup>6</sup>	Circuit Board, Power Feed
PCB2	023042	Wood-Mizer	023042	Board, D40 LED Circuit
R1	2193-134	Lombardini	023359	Relay, Glow Plug
	053049	Wood-Mizer	053049 <sup>7</sup>	Socket Kit, D30/D40 Glow Plug Relay
S1	--	--	014557	Switch Kit, Oil Pressure Sending
	6745-044	Lombardini	014290	Switch, Oil Pressure Sending
	4670-060	Lombardini	014554	Gasket, Copper Oil Pressure
S2	--	--	014558	Switch Kit, Water Temperature Sending
	9195-077	Lombardini	014351	Switch, Water Temperature Sending
	4670-019	Lombardini	014555	Gasket, Copper Water Temperature
S3 <sup>8</sup>	--	--	014559	Switch Kit, Glow Plug Temperature Sending
	9195-067	Lombardini	014352	Switch, Glow Plug Temperature Sending
	4670-061	Lombardini	014556	Gasket, Copper Glow Plug Temperature
S4	024198	Wood-Mizer	024198 <sup>9</sup>	Switch, Hydraulic Pump Levers
S5	2601-AF2-S11	Square D	E20439	Drum Switch, (U.S.), Power Feed Fwd/Reverse Motor
S6	2601-AF2-S12	Square D	E20440	Drum Switch, Up/Down Motor
S7	1121-0004	McGill	P10006	Toggle Switch, Blade Guide In/Out Motor
SOL1	3587-119	Lombardini	014279	Solenoid, Fuel
SOL2	586-902	Stancor	016371 <sup>10</sup>	Solenoid, 200 Amp Hydraulic Pump Motor
V1	S24C-6V 12VDC	Atkomatic Valve Co.	016280 <sup>11</sup>	Valve, Waterlube Solenoid

<sup>1</sup> Replaces 724MFD originally supplied.

<sup>2</sup> A retrofit is available for Super model mills which provides a second circuit breaker. This will allow the power feed and up/down to be operated at the same time without nuisance tripping of the breaker. Order kit #024235.

**5****Electrical Information***Electrical Components, LT30HD/LT40HD D40*

---

- <sup>3</sup> Motor 006747 replaced 014359 supplied until 11/08. .25HP motor directly replaces .49HP motor P04140 (Owosso #PR-4P07Q). Requires two rubber boots (P03807) to protect external motor terminals.
- <sup>4</sup> Motor 006747 replaced P04140 and Service Kit A07974 supplied until 5/09 (Replacement requires new Mount Bracket 014073).
- <sup>5</sup> Bosch motor P09955 replaced by vendor with Iskra motor 1/06. Brush kit P09585 no longer available to service Bosch motor. Replace motor using kit 052807 ([See Form #1578](#) for applicable discount information). Use Brush Kit 038682 to service Iskra motor.
- <sup>6</sup> Replaces A20428 originally supplied before 4/99. New assembly includes LED indicator lights for easier troubleshooting. Modularized components and surface mount technology improve durability and power capability.
- <sup>7</sup> Replaces 023358 originally supplied. Kit includes pre-assembled socket with applicable wires, terminals and fuse.
- <sup>8</sup> Glow plug temperature sensor wire should be disconnected to provide manual control of glow plug operation. Sawmills can be modified to improve hot starting performance ([See form 250](#)).
- <sup>9</sup> Saleable service assembly created which includes 014765 3-wire switch and crimped terminals (7/97). 014765 3-wire switch directly replaces P12735 2-wire switch (4/97).
- <sup>10</sup> Solenoid Kit 016371 replaces Solenoid 015470. Kit includes solenoid and replacement instructions. If replacing original P09595 100 amp solenoid, order retrofit kit 015783.
- <sup>11</sup> Valve kit 016280 replaces 014165 solenoid valve, F05004-74 4mm x 12 screws and F05011-57 4mm lock washers originally supplied. 014165 valve no longer available. New valve 016140 requires #10 mounting hardware.

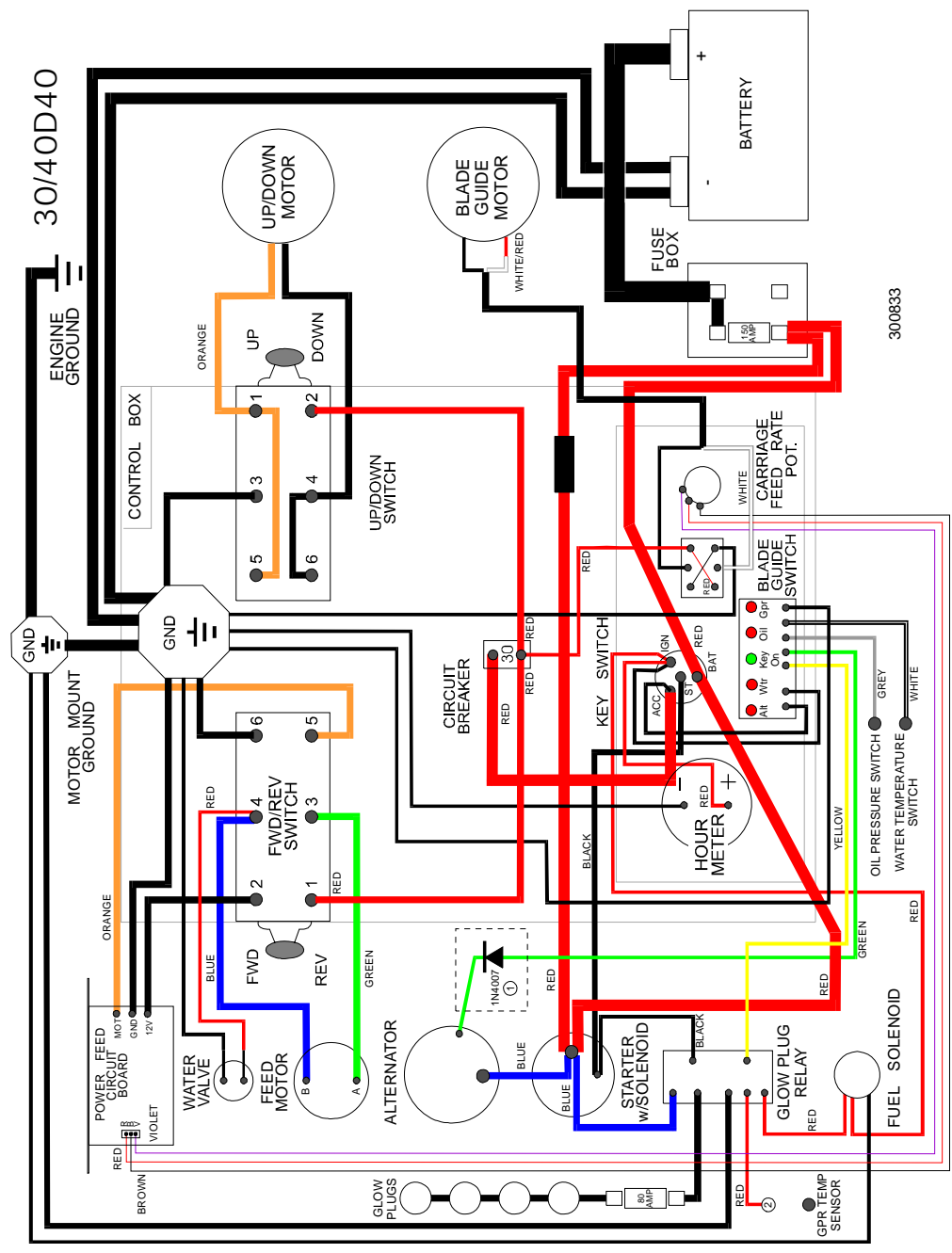
**5.5 Battery Specifications, LT30/LT40/LT30HD/LT40HD D40**

Group No.	Type No.	Performance Level		Approximate Weight	Maximum Overall Dimensions		
		Cranking Performance	Reserve Capacity	Wet	Length	Width	Height
24	24M-7 <sup>1</sup>	875CC	120	45.0 lb. (20.41 kg)	10.75 in. (273 mm)	6.75 in. (171 mm)	9.875 in. (251 mm)

**TABLE 5-1**

<sup>1</sup> Replaces 724MFD originally supplied.

**5.6** Wiring Diagram, LT30/LT40 D40

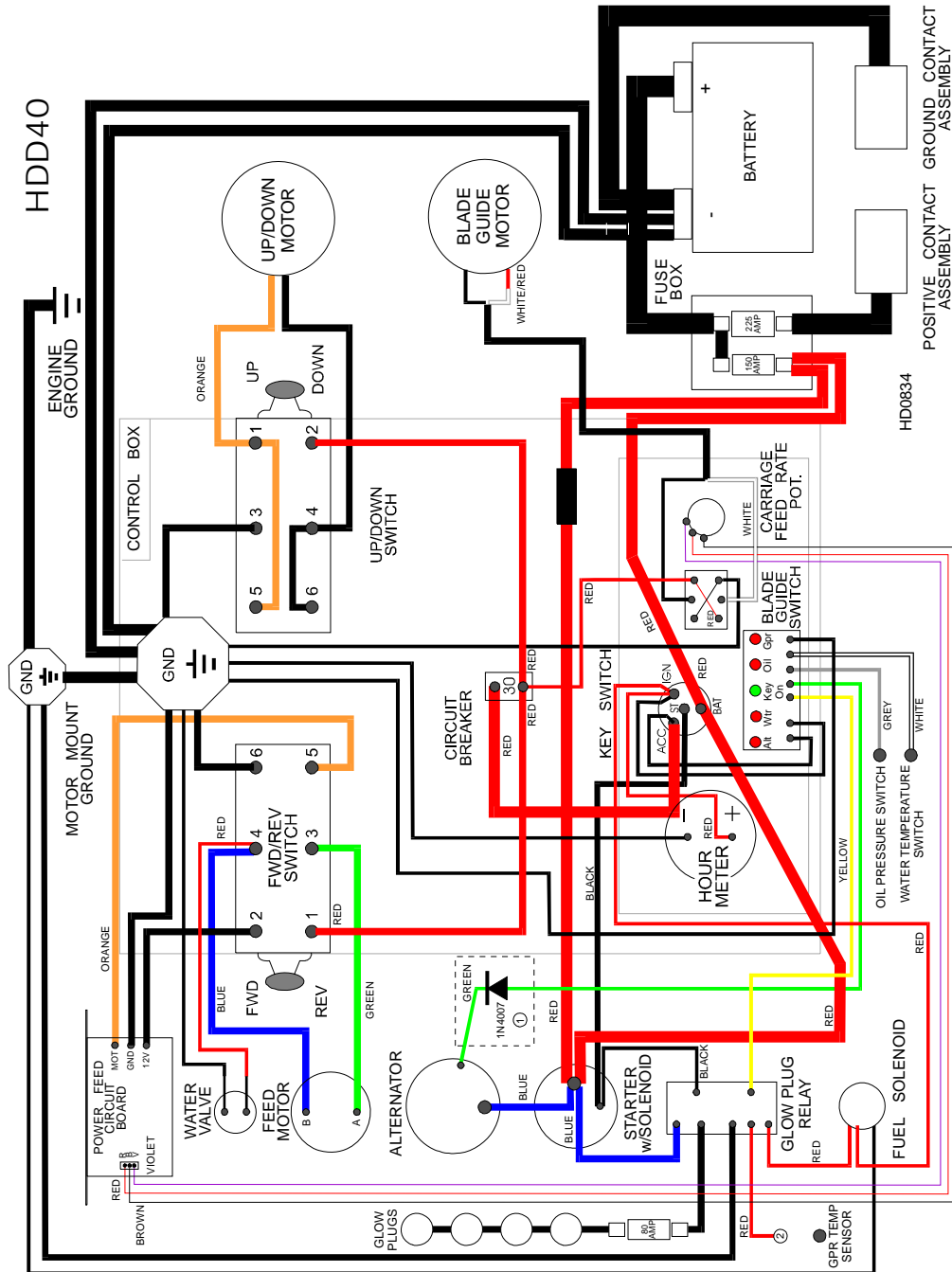


① Diode Located Inside Wiring Harness Between Alternator And Alternator Plug.  
 ② Wire disconnected from GPR temp sensor to allow manual control of glow plugs. (See decal for instructions)  
 NOTE: Black Wires Not Labeled With Color Designations.

**FIG. 5-3**



5.7 Wiring Diagram, LT30HD/LT40HD D40



- ① Diode Located Inside Wiring Harness Between Alternator And Alternator Plug.
  - ② Wire disconnected from GPR temp sensor to allow manual control of glow plugs. (See decal for instructions)
- NOTE: Black Wires Not Labeled With Color Designations.

FIG. 5-4

# D40 Engine

## Safety, Operation, Maintenance & Parts Manual

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<b>LT30 Super</b>	<b>rev. F7.00 - G8.00</b>
<b>LT40 Super</b>	<b>rev. F8.00 - G9.00</b>
<b>LT30HD Super</b>	<b>rev. G1.00 - H3.00</b>
<b>LT40HD Super</b>	<b>rev. G1.00 - H3.00</b>

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

*February 1998*

*Form #773*

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	<i>LT40HD Super Rev. G7.05+</i>	
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	<i>LT40HD Super Rev. H1.00+</i>	
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## I

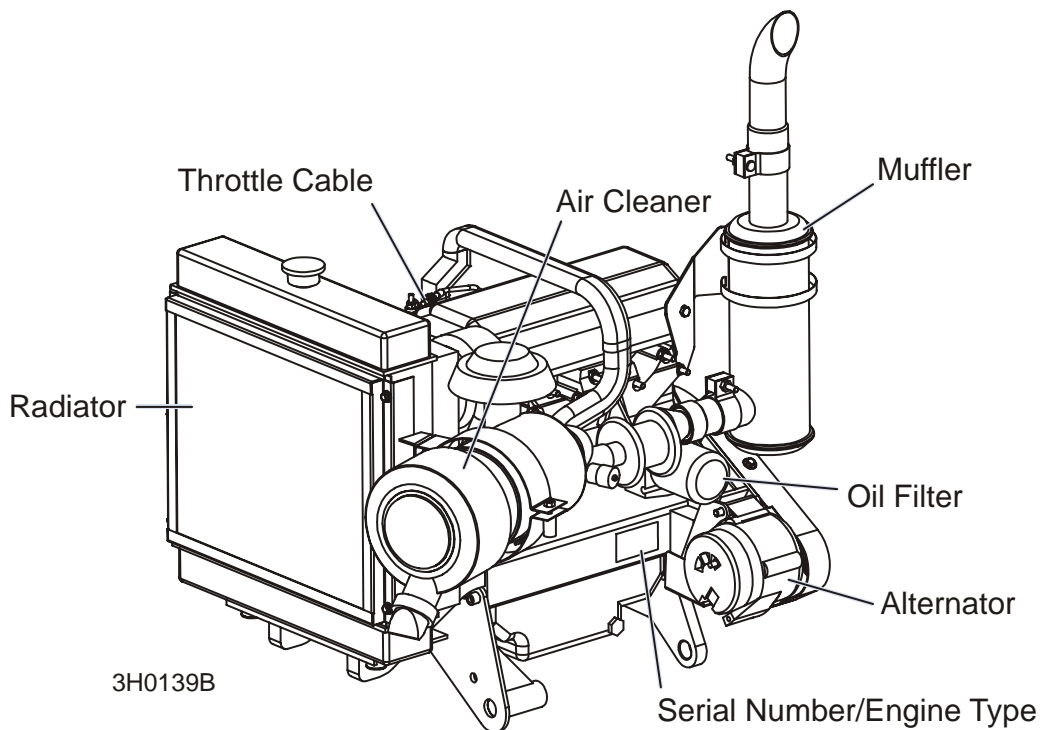
## ABOUT THIS MANUAL

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. See the manufacturer's engine manual for troubleshooting tips.



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



**NOTE:** Indicator also lights up when engine is started and remains lit until engine initially reaches approximately 1300RPM.



*Engine Temperature Indicator:* Lights up if the engine is overheating. **LT30 Super Rev. G4.01, LT40 Super Rev. G5.01, and LT30HD/40HD Super Rev. G8.01 and later only:** A circuit breaker assembly in the engine harness will shut the engine off if the engine overheats. Turn the key switch off and allow the engine to cool for a period of time before restarting. If the overheating condition persists, stop operating the engine until the condition is corrected. 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:* Lights up after the key has been turned to the on (#1) position.



# 1 Operation

## Starting The Engine

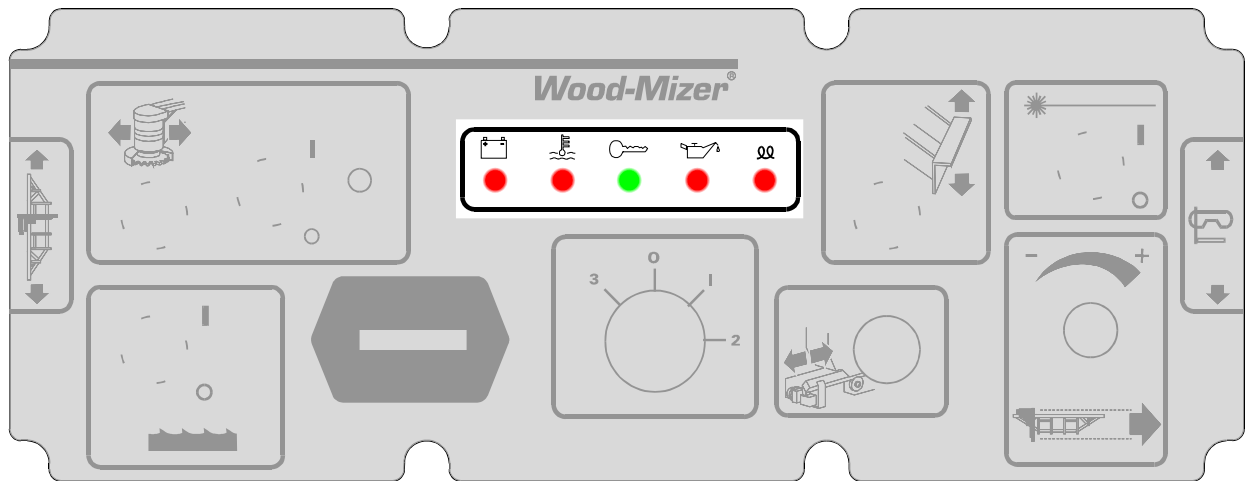


FIG. 1-1

See Table 1-1. **IMPORTANT!** The glow plug sensing relay is disconnected on LT30 Super Rev. F9.00, LT40 Super Rev. G1.00, LT30HD Super and LT40HD Super Rev. G3.00 to provide manual control of glow plug operation. Previous revisions can be modified to improve hot starting performance ([see form #250](#)). See the table for recommended glow plug on times.

On Times For Manually Operated Glow Plugs	
Ambient Temperature	Suggested Glow Plug On Time
Less Than 32° F (0° C)	30 Seconds
32 - 60° F (0 -15° C)	25 Seconds
60 - 80° F (15 - 27° C)	15 Seconds
Above 80° F (27° C)	10 Seconds

TABLE 1-1

**NOTE:** The glow plug light will stay on indefinitely when the key is in the pre-start (1) position. The glow plug light will go out after the engine is started.



**CAUTION!** Avoid leaving the key in the pre-start (1) position for more than 30 seconds while the engine is not running. Doing so will drain the sawmill battery which may reduce its service life.

### 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!** 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.



**CAUTION!** Do not crank starter for more than 7 seconds at one time during starting attempts. Damage to the engine may result.

**CAUTION!** Let engine idle for 2 minutes before applying load to prevent engine damage.



1. See the engine manufacturer's manual for lubricating oil recommendations for specific temperature ranges.
2. Use #2 or better quality diesel fuel for above freezing starting. Use a #1 quality diesel fuel for below freezing starting.
3. Turn the key switch on the control panel to the on (#1) position.
4. Wait the recommended glow plug on time (See [TABLE 1-1](#))
5. Turn the key switch to the start (#2) position and release.

### Engine Shutoff



**CAUTION!** Let engine idle for 2 minutes before shutting off to prevent engine damage. A minimum 2 minute idle time is also recommended to allow the battery charge to recover before the engine is shut off.

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

## 1.2 Cold Weather Operation

When sawing in extremely cold weather, you may need to use a different engine oil. Lombardini recommends using 0W30 for operating temperatures between -13° F (-25 C) and -31° F (-35° C). When sawing in temperatures below -31° F (-35° C), Lombardini recommends using a synthetic-based oil such as Mobil Delvac 1 5W40.

**NOTE:** Wood-Mizer offers a fuel additive (Stanadyne Performance Formula) which helps eliminate contaminants and water in fuel, prevents gelling in cold weather, and improves lubrication of fuel system parts. One 16 oz. bottle (WM Part #004878) treats 60 gallons of diesel fuel.

Wood-Mizer also offers an accessory engine water heater for Lombardini diesel engines. The heater unit installs around the lower radiator hose. When plugged into a grounded 120V outlet, the heater will keep the engine coolant warm enough to allow easy starts in cold climates.

## 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

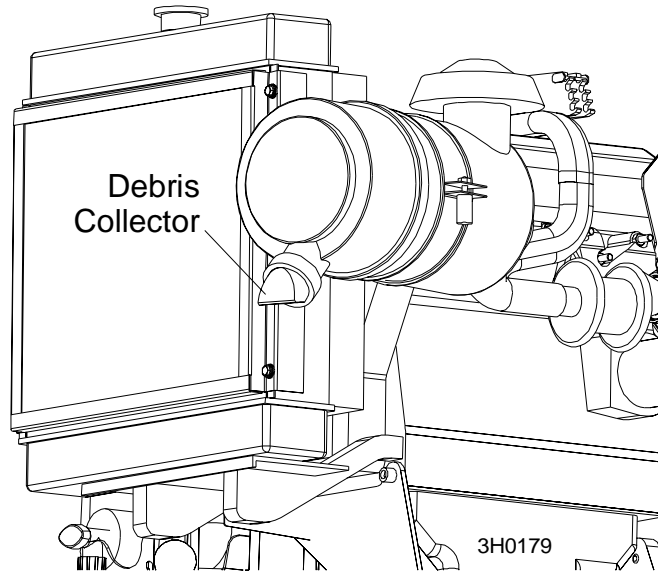
8

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 Maintenance

### Air Cleaner



Replace the air filter when air filter indicator shows need (or every year). The air cleaner used on the Lombardini Diesel for Wood-Mizer sawmill applications is a special, non-standard filter which becomes more efficient with use. There is no need for periodic cleaning or servicing.

**See Figure 2-2.** The indicator is located on the side of the air cleaner housing, behind the radiator. A red band will appear in the sight window when the air restriction is at its maximum limit. Change the air filter and push the reset button on the indicator.

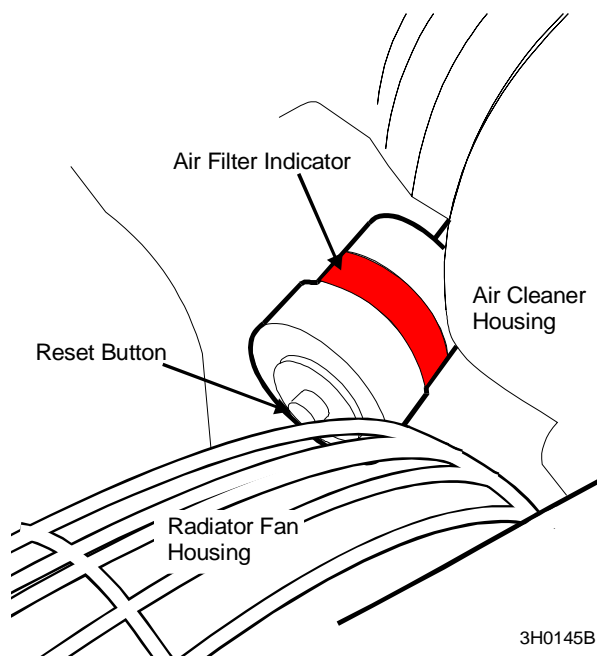


FIG. 2-2

### 2.3 Cooling System



Check the coolant level every 8 hours of operation.



Check the radiator fins every 8 hours of operation.



Clean the radiator fins every 250 hours of operation.



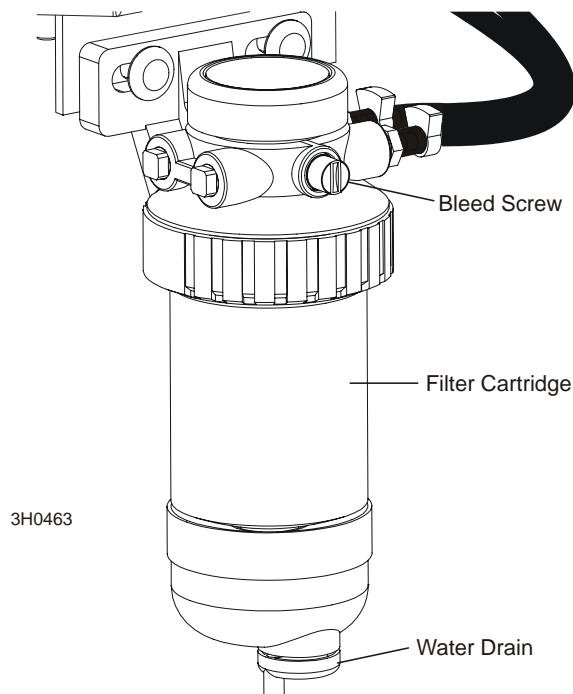
Replace the coolant every 1000 hours of operation or every 2 years, whichever comes first. Use a mixture of 50% antifreeze and 50% water.

## 2.4 Fuel Filter

LT30 Super Rev. G1.00+  
LT40 Super Rev. G2.00+  
LT30HD Super Rev. G4.00+  
LT40HD Super Rev. G4.00+

1500

**See Figure 2-3.** Replace the primary fuel filter cartridge every 1500 hours or one year of operation. After replacing the filter cartridge, loosen the air bleed screw and operate the fuel pump bail until fuel begins to flow from the valve and is free of air bubbles. Tighten the bleed screw. Inspect the water separator bowl periodically and drain the bowl as required by turning the drain cap counterclockwise as viewed from the bottom.



**FIG. 2-3**

LT30 Super Rev. F7.00 - F9.02  
LT40 Super Rev. F8.00 - G1.02  
LT30HD Super Rev. G1.00 - G3.03  
LT40HD Super Rev. G1.00 - G3.03

250

Replace the in-line fuel filter every 250 hours of operation. It is recommended that the in-line fuel filter be replaced with the primary cartridge filter/water separator system ([See above](#)). This system will eliminate water and particles that can cause premature failure of injection system components.

## 2.5 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.<sup>1</sup>



**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.

## 2.6 Alternator Belt

*LT30 Super Rev. G6.00+  
LT40 Super Rev. G7.00+  
LT30HD Super Rev. H1.00+  
LT40HD Super Rev. H1.00+*



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.



**IMPORTANT!** Sawmills built prior to March 1999 were provided with a sight hole in the alternator bracket to gauge belt tension. To achieve proper belt tension, **do not use the sight hole**. Follow the procedure below to check the belt tension and adjust if necessary.

1. Battery Council International, copyright 1987

## 2 Maintenance

### Alternator 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 2-4.

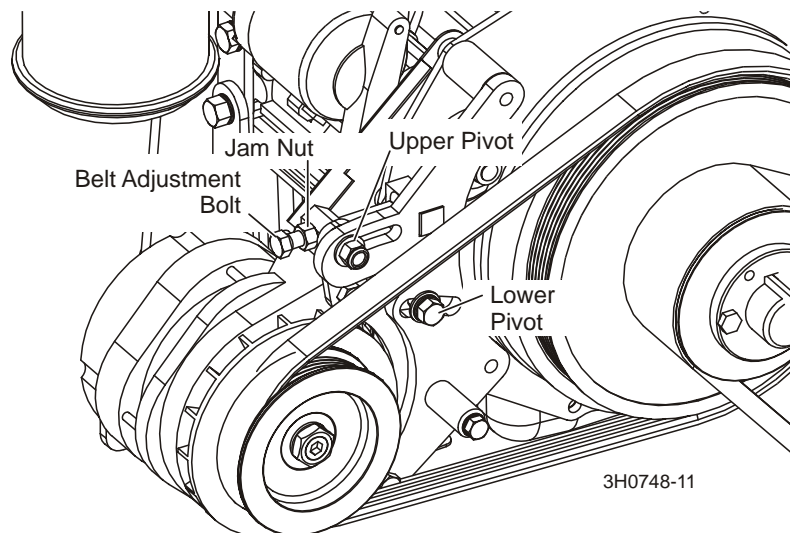


FIG. 2-4

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.

*LT30 Super Rev. F7.00 - G5.00*

*LT40 Super Rev. F8.00 - G6.00*

*LT30HD Super Rev. G1.00 - G9.00*

*LT40HD Super Rev. G1.00 - G9.00*

Replace the alternator belt every 1000 hours.

1000

Check the alternator belt tension every 500 hours. Also check the alternator belt for tension and wear when battery is not charging properly or when the alternator belt is squealing. Adjust as needed.

500

1. Remove the alternator belt guard.
2. Loosen the two bolts in the slotted alternator bracket holes (opposite holes in front and rear of bracket).

See Figure 2-5.

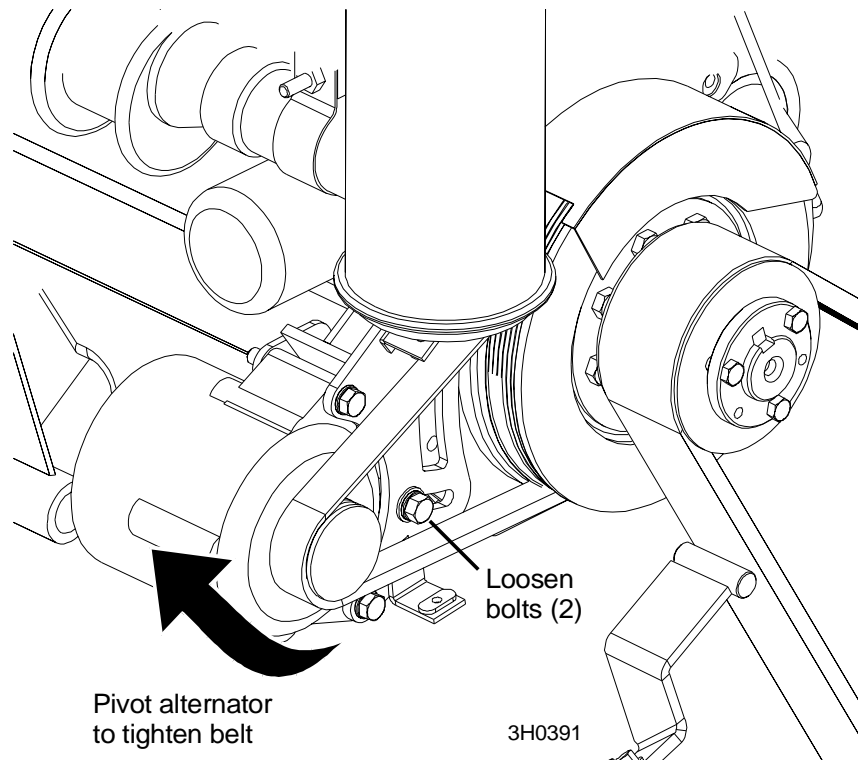


FIG. 2-5

3. Pivot the alternator to tighten the belt. Retighten the adjustment bolts and replace the belt guard.

## 2.7 Miscellaneous Maintenance

2500 Perform a partial overhaul inspection as detailed in the engine manual every 2500 hours of operation.

5000 Perform a complete overhaul inspection as detailed in the engine manual every 5000 hours of operation.



## 2.8 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
D40	3200	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.

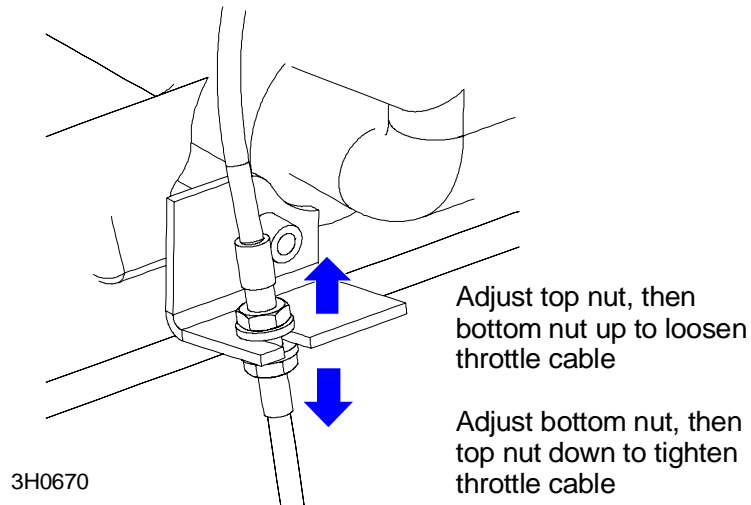
Make sure the throttle cable does not affect the engine RPM when the clutch handle is disengaged. Make sure the cable is not bent or kinked.

1. Use the bottom threaded cable mount to adjust the throttle cable. When the clutch handle is disengaged, the throttle cable should be taut but the spring not extended. When the clutch handle is engaged, the throttle spring should extend 1/8" to 1/4". Once the throttle cable is adjusted properly, use the adjustments provided on the engine to adjust the engine RPM (3200[+0, -100] high-end, 1500[±100] idle).



**CAUTION!** Do not extend the throttle spring over 1/4". Excessive tension may cause the throttle cable to fail prematurely.

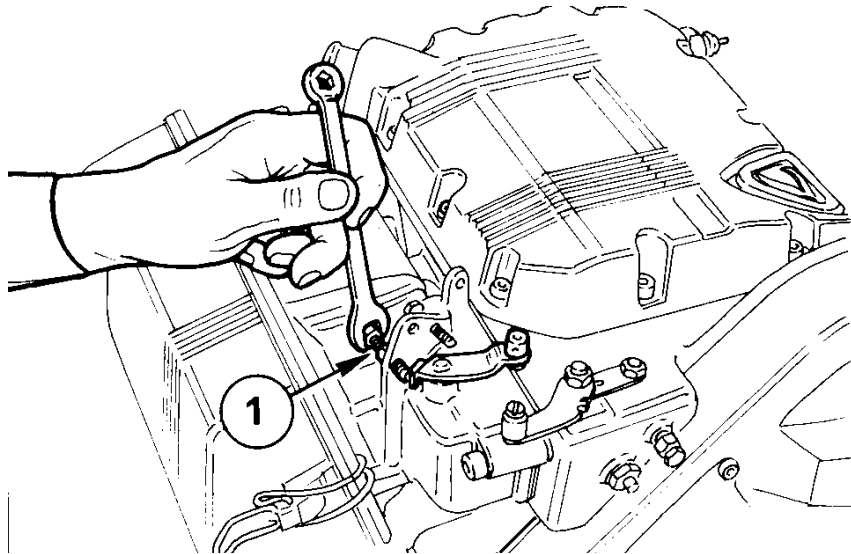
See Figure 2-6.



**FIG. 2-6**

2. Start the engine to measure the low-end RPM. Let idle for 10 minutes.
3. With the engine at idle, check the low-end RPM. Adjust to 1500. To decrease speed, loosen the idle adjustment bolt. To increase speed, tighten the idle adjustment bolt. Tighten the lock nut to hold the bolt in place.

See Figure 2-7.



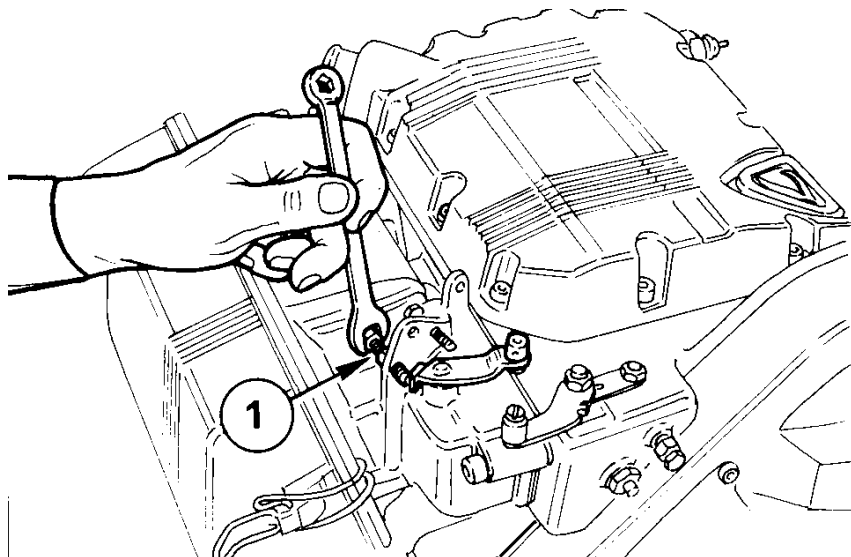
**FIG. 2-7**

4. Adjust the high-end RPM to 3200. To decrease speed, tighten the high-end adjustment bolt. To increase speed, loosen the high-end adjustment bolt. Tighten the lock nut to hold the bolt in place.



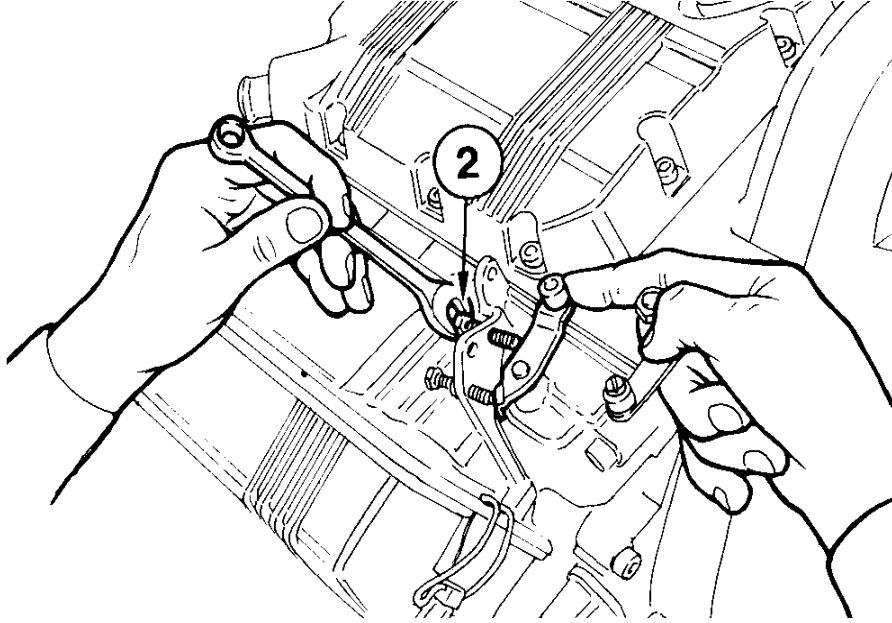
**CAUTION!** Do not adjust the high-end RPM above 3200. Doing so may cause damage to the engine.

See Figure 2-8.



**FIG. 2-8**

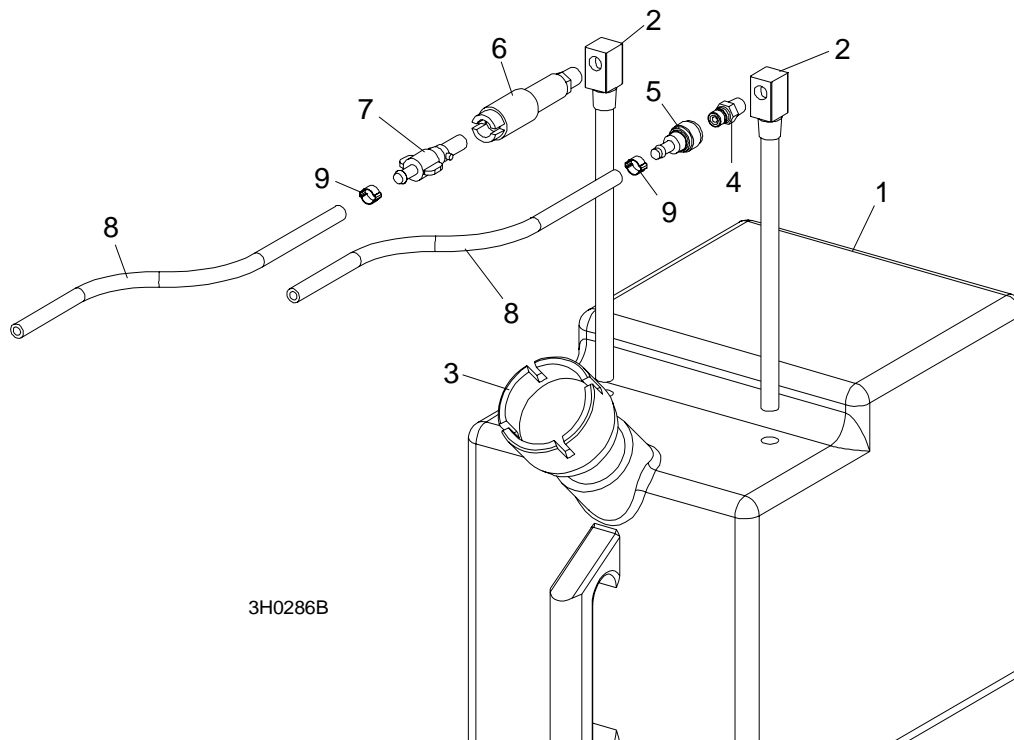
See Figure 2-9.



**FIG. 2-9**

## SECTION 3 REPLACEMENT PARTS

### 3.1 Fuel Tank



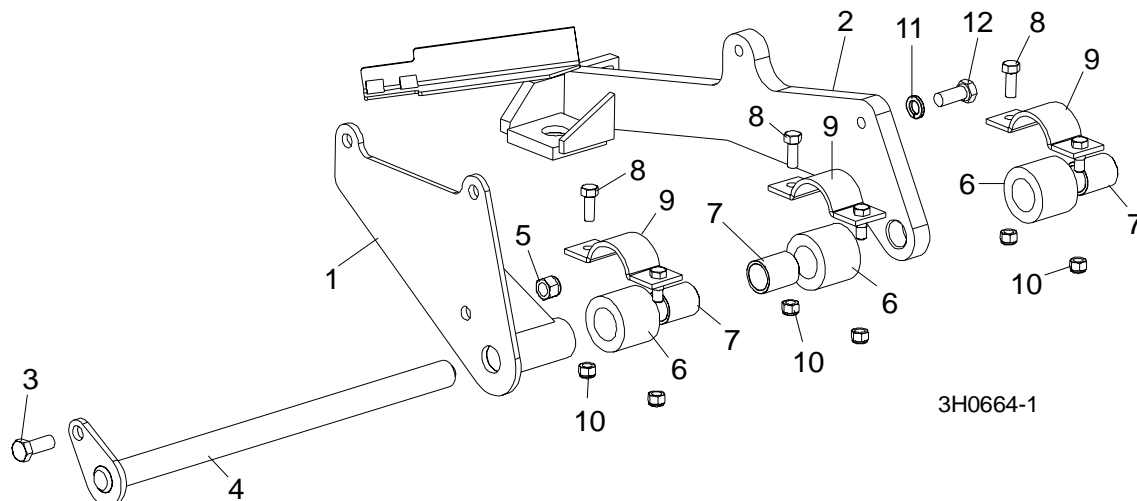
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
	<b>TANK ASSEMBLY, 5 GALLON GREEN DIESEL</b>	A12132 <sup>1</sup>	1	
1	Tank, 5 Gallon Green Fuel	P12166	1	◆
2	Pickup, 9" Fuel	P12172	2	
3	Cap, 3/5 Gallon Fuel Tank	P09683	1	
4	Fitting, 1/4" NPT Male Quick Disconnect	015583 <sup>1</sup>	1	
5	Fitting, Female Quick Disconnect Barb	015582 <sup>1</sup>	1	
6	Fitting, 1/4" NPT Plastic Female Disconnect	P12175	1	
7	Fitting, 1/4" Barb Plastic Male Disconnect	P12176	1	
8	<b>HOSE, 1/4" ID FUEL</b>	P642 <sup>2</sup>	15.6 Ft	
9	<b>CLAMP, 7/32 - 1/2 HOSE</b>	P649 <sup>2</sup>	6	
	<b>ADDITIVE, DIESEL FUEL 16OZ BOTTLE</b>	004878 <sup>3</sup>	1	

<sup>1</sup> Tank assembly includes metal disconnect fittings 015582 and 015583 which replaced plastic fittings P12174 and P12173 on fuel pickup line (LT30 Super rev. F8.02, LT40 Super rev. F9.02, LT30HD/40HD Super rev. G2.02). Metal fittings require clamp P649.

<sup>2</sup> P642 fuel hose replaces R01890-1 used prior to LT30 Super Rev. G3.02, LT40 Super Rev. G4.02, and LT30HD/40HD Super Rev. G7.02. Use clamp P649 with new hose (replaces 015584, P12374 and 016040 used with old fuel hose).

<sup>3</sup> Stanadyne Performance Formula helps eliminate contaminants and water in fuel, prevents gelling in cold weather, and improves lubrication of fuel system parts. 16 oz. bottle treats 60 gallons of diesel fuel.

### 3.2 Engine Mount Assembly



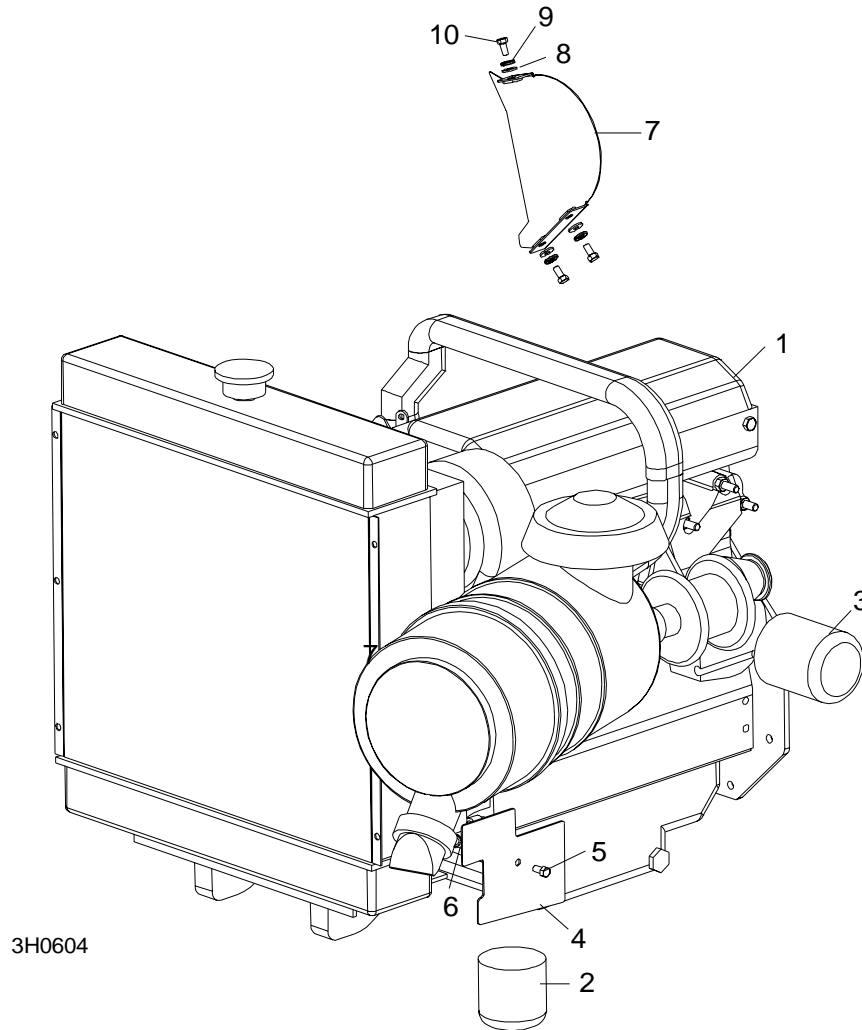
REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	<b>MOUNT, FRONT MOTOR</b>	014237	1	
	<b>MOUNT KIT, LOMBARDINI DIESEL ENGINE</b>	016321 <sup>1</sup>	1	
2	Mount Weldment, Lombardini Diesel Engine	014219	1	◆
3	<b>BOLT, 1/2-13 X 1 1/4" HEX HEAD GRADE 5</b>	F05008-37	1	
4	<b>PIN WELDMENT, MOTOR PIVOT</b>	014056	1	
5	<b>NUT, 1/2-13 HEX NYLON LOCK</b>	F05010-8	1	
	<b>BUSHING ASSEMBLY, MOTOR MOUNT</b>	016380 <sup>2</sup>	3	
6	Bushing, 2" OD x 2"	016378	1	◆
7	Bearing, 1" x 1 1/4" x 2"	016379	1	◆
8	<b>BOLT, 3/8-16 X 1" HEX HEAD</b>	F05007-7	3	
9	<b>CLAMP WELDMENT, MOTOR MOUNT</b>	014540	3	
10	<b>NUT, 3/8-16 HEX NYLON LOCK</b>	F05010-10	6	
11	<b>WASHER, 1/2" SPLIT LOCK</b>	F05011-9	1	
12	<b>BOLT, 1/2-13 X 1 1/4" SOCKET HEAD</b>	F05008-38	1	

<sup>1</sup> Mount Kit 016321 includes new rubber clutch handle mount bushings and hardware standard after 6/99 (See Clutch Handle parts in Sawmill Parts Manual).

<sup>2</sup> New assembly 016380 replaces original rubber pivot bushing P12164 and bronze bushing P05041 originally supplied. NOTE: When replacing original components with new assembly, it is best to replace all three assemblies at the same time.

### 3.3 Engine Assembly

*LT30 Super*                      *Rev. G3.05+*  
*LT40 Super*                      *Rev. G4.05+*  
*LT30HD Super*                  *Rev. G7.05+*  
*LT40HD Super*                  *Rev. G7.05+*



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
<b>1</b>	<b>ENGINE, 40HP LOMBARDINI DIESEL</b>	012978 <sup>1</sup>	1	◆
	Belt, Lombardini Idler	016071 <sup>2</sup>	1	
	Belt, Lombardini Timing #2440-298	016289 <sup>3</sup>	1	
	Cap, Oil Fill	014294	1	
<b>2</b>	Filter, Diesel Fuel	014209	1	
<b>3</b>	Filter, Diesel Oil	014211	1	
	Fuse Link, 80 Amp Glow Plug	014350	1	
	Gasket Kit, Lombardini Engine	014293	1	

# 3

## Replacement Parts

### Engine Assembly

	Gasket, Lombardini Head #4730-685	016178 <sup>4</sup>	1	
	Guard, Lombardini Fan Left #6927-346	014747	1	
	Guard, Lombardini Fan Right #6927-350	014748	1	
	Plug, Diesel Glow	014278	1	
	Pump, Lombardini Fuel	014289	1	
	Pump, Lombardini Water	014288	1	
	Filter, Lombardini Air #2175-165 (For 1404 replacement engine only)	048395	1	
	Rail Kit, Lombardini Replacement Fuel	016073	1	
	Rail, Lombardini Fuel #9375-966	016074	1	
	O-Ring, Lombardini Fuel Rail #1200-286	016075	8	
	Gasket, Lombardini Valve Cover #4400-057	016076	1	
	Instruction Sheet, D40 Fuel Rail Replacement	016073-573	1	
	Starter, Lombardini Diesel Engine	014286	1	
	Thermostat, Kubota Engine	028546 <sup>5</sup>	1	
	Solenoid, Lombardini D40 Fuel	014279	1	
<b>4</b>	<b>PLATE, LOMBARDINI DUST SHIELD</b>	014400	1	
<b>5</b>	<b>BOLT, 1/4-20 X 1/2" HEX HEAD</b>	F05005-15	1	
<b>6</b>	<b>NUT, 1/4-20 SELF-LOCKING</b>	F05010-9	1	
<b>7</b>	<b>GUARD WELDMENT, D40 IDLER</b>	016065 <sup>2</sup>	1	
<b>8</b>	<b>WASHER, 1/4" SAE FLAT</b>	F05011-11	3	
<b>9</b>	<b>WASHER, 1/4" SPLIT LOCK</b>	F05011-14	3	
<b>10</b>	<b>BOLT, 1/4-20 X 1/2" HEX HEAD</b>	F05005-15	3	
	<b>HARNES ASSEMBLY, LOMBARDINI DIESEL ENGINE</b>	024452 <sup>6</sup>	1	
	Breaker Assembly, Water Temp Max Circuit	024453 <sup>6</sup>	1	
	<b>TOOL, LOMBARDINI 01460-049 TIMING BELT TENSIONER</b>	014358	1	
	<b>HEATER, OPTIONAL ENGINE WATER (NOT SHOWN)</b>	014635	1	

<sup>1</sup> Use complete engine assembly 015347 for service replacement. Includes engine, mounts, alternator, radiator, throttle, relay, and muffler. 012978 Lombardini model 1404 engine replaces 014092 model 1204T previously supplied (6/00).

<sup>2</sup> 016065 guard and 016071 belt required for idler assembly supplied by Lombardini. [See Section 3.4](#) for Wood-Mizer idler parts supplied on previous revisions.

<sup>3</sup> Lombardini part 2440-298 replaces original timing belt 2440-338.

<sup>4</sup> Head Gasket only. This part was a kit that included (1) #2440-298 Timing Belt; (1) #4400-057 valve cover gasket; (8) #1200-286 O-rings; (1) #9375-966 fuel rail; (1) #4730-685 head gasket; (1) #2175-298 oil filter. Kit parts can be ordered separately.

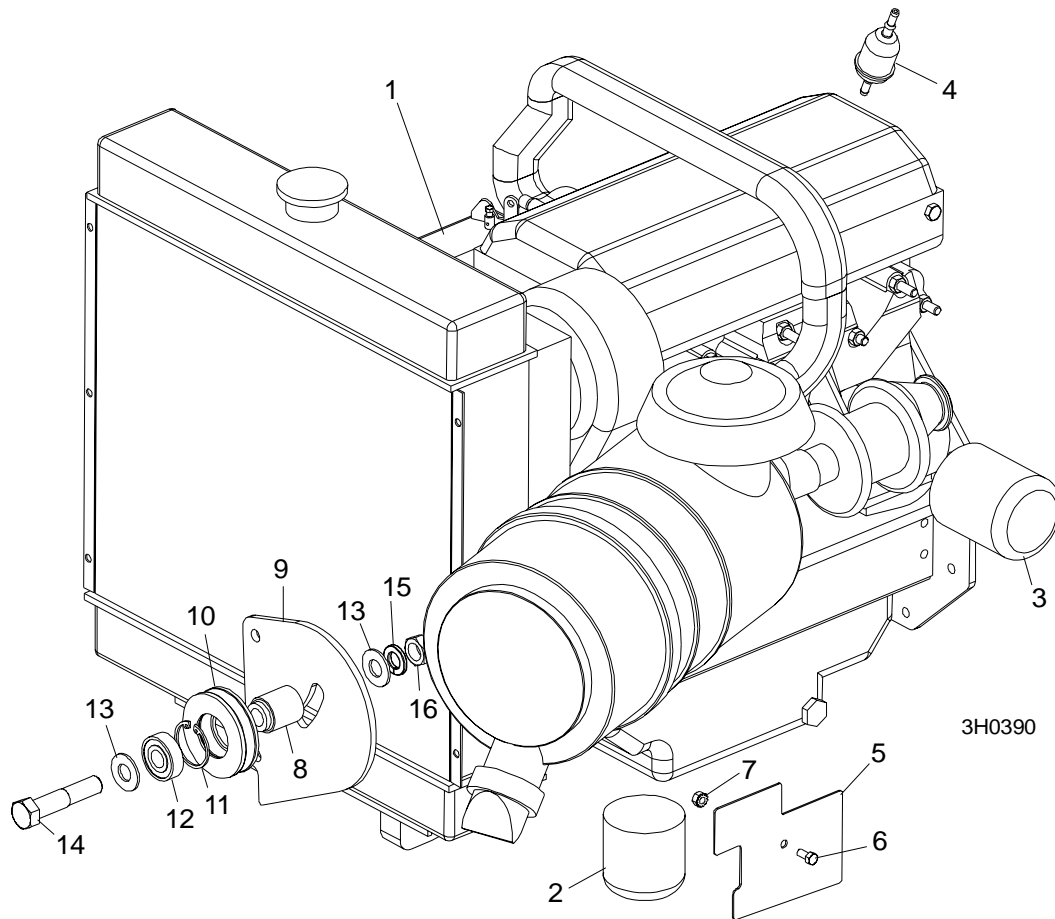
<sup>5</sup> Lombardini Thermostat 014296 no longer available (3/06). Use Kubota Thermostat 028546 as replacement.

<sup>6</sup> Engine harness with water temperature circuit breaker assembly added on LT30 Super Rev. G4.01, LT40 Super Rev. G5.01 and LT30HD/40HD Super Rev. G8.01.



### 3.4 Engine Assembly

LT30 Super Rev. F8.00 - G3.04  
 LT40 Super Rev. F9.00 - G4.04  
 LT30HD Super Rev. G1.00 - G7.04  
 LT40HD Super Rev. G1.00 - G7.04



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	<b>ENGINE, 40HP LOMBARDINI DIESEL LDW-1204T FOCS</b>	012978 <sup>1</sup>	1	◆
	Belt, Lombardini Timing #2440-298	016289 <sup>2</sup>	1	
	Cap, Oil Fill	014294	1	
2	Filter, Diesel Fuel	014209	1	
3	Filter, Diesel Oil	014211	1	
4	Filter, In-Line Fuel	P07570 <sup>3</sup>	1	
	Fuse Link, 80 Amp Glow Plug	014350	1	
	Gasket Kit, Lombardini Engine	014293	1	
	Gasket, Lombardini Head #4730-685	016178 <sup>4</sup>	1	
	Guard, Lombardini Fan Left #6927-346	014747	1	

# 3 Replacement Parts

## Engine Assembly

	Guard, Lombardini Fan Right #6927-350	014748	1	
	Plug, Diesel Glow	014278	1	
	Pump, Lombardini Fuel	014289	1	
	Pump, Lombardini Water	014288	1	
	Filter, Lombardini Air #2175-165 (For 1404 replacement engine only)	048395	1	
	Rail Kit, Lombardini Replacement Fuel	016073 <sup>5</sup>	1	
	Starter, Lombardini Diesel Engine	014286	1	
	Thermostat, Kubota Engine	028546 <sup>6</sup>	1	
	Turbocharger, Lombardini Engine #9610-050	016220	1	
	Solenoid, Lombardini D40 Fuel	014279	1	
5	<b>PLATE, LOMBARDINI DUST SHIELD</b>	014400	1	
6	<b>BOLT, 1/4-20 X 1/2" HEX HEAD</b>	F05005-15	1	
7	<b>NUT, 1/4-20 SELF-LOCKING</b>	F05010-9	1	
8	<b>SPACER, D40 IDLER</b>	015333 <sup>7</sup>	1	
9	<b>PLATE, D40 IDLER</b>	015334 <sup>7</sup>	1	
10	<b>PULLEY, D40 IDLER</b>	015335 <sup>7</sup>	1	
	<b>BELT, LOMBARDINI IDLER #2440-316</b>	014212 <sup>7</sup>	1	
11	<b>RING, 1.575 I.D. 3000-156 RETAINING</b>	F04254-4 <sup>7</sup>	1	
12	<b>BEARING, 5/8" X 1.5" X .47"</b>	P06030-1 <sup>7</sup>	1	
13	<b>WASHER, 5/8" SAE FLAT</b>	F05011-5 <sup>7</sup>	2	
14	<b>BOLT, 5/8-11 X 3" HEX HEAD GRADE 2</b>	F05009-32 <sup>7</sup>	1	
15	<b>WASHER, 5/8" SPLIT LOCK</b>	F05011-9 <sup>7</sup>	1	
16	<b>NUT, 5/8-11 HEX JAM</b>	F05010-11 <sup>7</sup>	1	
	<b>TOOL, LOMBARDINI 01460-049 TIMING BELT TENSIONER</b>	014358	1	
	<b>HEATER, OPTIONAL ENGINE WATER (NOT SHOWN)</b>	014635	1	

<sup>1</sup> Use complete engine assembly 015347 for service replacement. Includes engine, mounts, alternator, radiator, throttle, relay, and muffler. 012978 Lombardini model 1404 engine replaces 014092 model 1204T previously supplied (6/00).

<sup>2</sup> Lombardini part 2440-298 replaces original timing belt 2440-338.

<sup>3</sup> In-Line fuel filter replaced by primary cartridge system on LT30 Super Rev. G1.00, LT40 Super Rev. G2.00, LT30HD Super and LT40HD Super Rev. G4.00. Upgrade to cartridge system is recommended for previous revisions. [See Section 3.5.](#)

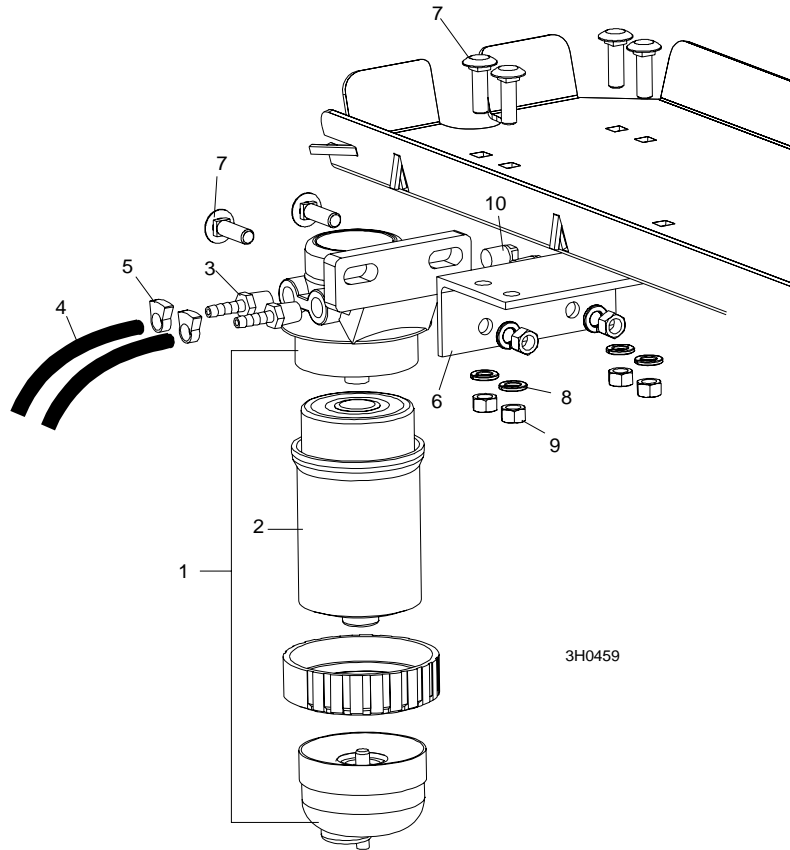
<sup>4</sup> Head Gasket only. This part was a kit that included (1) #2440-298 Timing Belt; (1) #4400-057 valve cover gasket; (8) #1200-286 O-rings; (1) #9375-966 fuel rail; (1) #4730-685 head gasket; (1) #2175-298 oil filter. Kit parts can be ordered separately.

<sup>5</sup> Fuel rail replacement for 1204T engines prior to serial number 4034285. Improved fuel rail eliminates rail failure which can cause fuel to mix with engine oil, resulting in the engine surging and in some cases cause engine run-away. Kit includes O-rings, valve cover gasket and installation instructions.

<sup>6</sup> Lombardini Thermostat 014296 no longer available (3/06). Use Kubota Thermostat 028546 as replacement.

<sup>7</sup> Idler assembly replaced with parts supplied by Lombardini. [See Section 3.3.](#)

### 3.5 Primary Fuel Filter Retrofit



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	<b>FILTER ASSEMBLY, STANDADYNE FUEL #33816</b>	015897 <sup>1</sup>	1
2	Filter, Standadyne Fuel Cartridge #31865	015898	1
3	<b>FITTING, 1/4" NPT TO 1/4" HOSE BARB</b>	P05393	2
4	<b>HOSE, 1/4" ID FUEL</b>	P642 <sup>2</sup>	7 Ft
5	<b>CLAMP, 7/32 - 1/2 HOSE</b>	P649 <sup>3</sup>	2
6	<b>BRACKET, DIESEL FUEL FILTER MOUNT</b>	015905	1
7	<b>BOLT, 3/8-16 X 1 1/4" CARRIAGE HEAD</b>	F05007-11	6
8	<b>WASHER, 3/8" SPLIT LOCK</b>	F05011-4	6
9	<b>NUT, 3/8-16 HEX</b>	F05010-1	6
10	<b>FITTING, 1/4" NPT PLUG</b>	P05498	2
	<b>INSTRUCTION SHEET, DIESEL FUEL FILTER RETROFIT</b>	015906-348	1

<sup>1</sup> Use Retrofit Kit 015906 to replace in-line filter P07570 originally supplied before LT30 Super Rev. G1.00, LT40 Super Rev. G2.00, LT30HD Super and LT40HD Super Rev. G4.00.

<sup>2</sup> Replaces R01890-1 originally supplied.

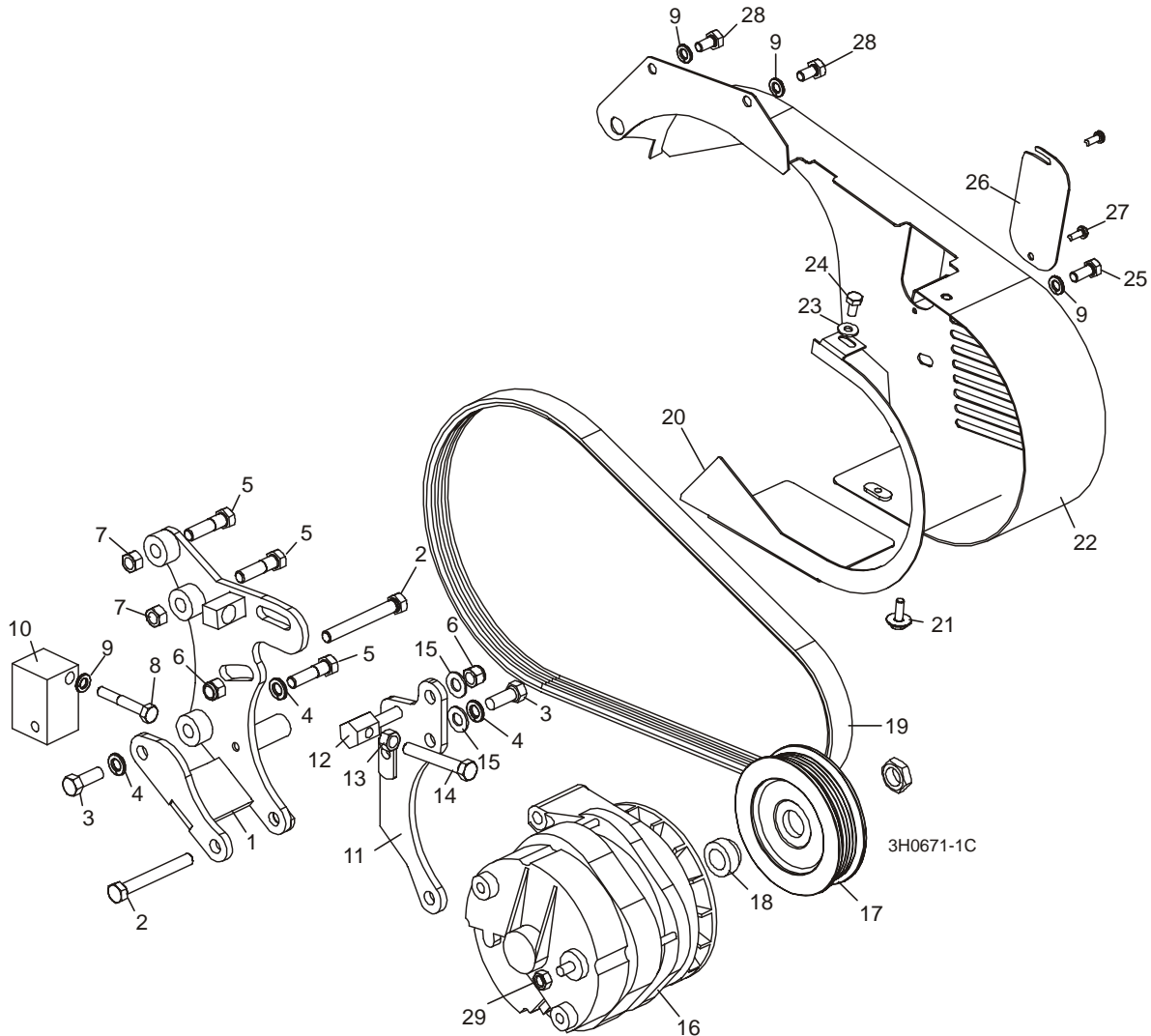
<sup>3</sup> Replaces 016040 originally supplied.

# 3 Replacement Parts

## Alternator Assembly

### 3.6 Alternator Assembly

**LT30 Super**                      **Rev. G6.00+**  
**LT40 Super**                      **Rev. G7.00+**  
**LT30HD Super**                  **Rev. H1.00+**  
**LT40HD Super**                  **Rev. H1.00+**



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
	<b>WIRE ASSEMBLY, 61/140 AMP ALTERNATOR PLUG</b>	015969 <sup>1</sup>	1
	<b>ALTERNATOR KIT, 140 AMP D40</b>	023803 <sup>1</sup>	1
	Belt Guard Parts ( <a href="#">See Section 3.16</a> )		
1	Bracket Weldment, Alternator Mounting	023762	1
2	Bolt, 3/8-16 x 3" Hex Head Full Thread	F05007-1	2
3	Bolt, 3/8-16 x 1" Hex Head	F05007-7	2
4	Washer, 3/8" Split Lock	F05011-4	3
5	Bolt, 3/8-16 x 1 1/2" Hex Head	F05007-3	3

<b>6</b>	Nut, 3/8-16 Nylon Lock	F05010-10	2	
<b>7</b>	Nut, 3/8-16 Hex Lock	F05010-25	2	
<b>8</b>	Bolt, M8x50mm Hex Head Grade 5	F81002-10	1	
<b>9</b>	Washer, 5/16" Split Lock	F05011-13	4	
<b>10</b>	Block, Alternator Mount	023714	1	
<b>11</b>	Plate Weldment, Alternator Mount	015875 <sup>2</sup>	1	
<b>12</b>	Stud, Alternator Belt Tension Adjustment	023764	1	
<b>13</b>	Nut, 3/8-16 Hex	F05010-1	1	
<b>14</b>	Bolt, 3/8-16 x 2 1/2" Hex Head Grade 2 Full Thread	F05007-157	1	
<b>15</b>	Washer, 3/8" SAE Flat	F05011-3	2	
	Alternator Assembly, 140 Amp	023730	1	◆
<b>16</b>	Alternator, 140 Amp	023695	1	
	Pulley Assembly, 140 Amp Alternator	036572 <sup>3</sup>	1	
<b>17</b>	Pulley, 140 Amp Alternator	023694	1	◆
<b>18</b>	Spacer, Alternator Pulley	036571	1	
<b>19</b>	Belt, 6PK425 Fiberglass	023709	1	
<b>20</b>	Guard, 140 Amp Alternator Belt Rear	023778	1	
<b>21</b>	Screw, 1/4-20 x 3/4" Conical Washer Head	F05005-134	1	
<b>22</b>	Guard Weldment, 140 Amp Alternator Belt	023777	1	
<b>23</b>	Washer, 1/4" SAE Flat	F05011-11	1	
<b>24</b>	Bolt, 1/4-20 x 1/2" Hex Head	F05005-15	1	
<b>25</b>	Bolt, 5/16-18 x 3/4" Hex Head	F05006-5	1	
<b>26</b>	Plate, Alternator Belt Access	023794	1	
<b>27</b>	Bolt, #10-24 x 1/2" Pan Head	F05015-17	2	
<b>28</b>	Bolt, M8 x 125 x 16mm Hex Head	F05004-47	2	
<b>29</b>	<b>NUT, M8 X 1.25 HEX JAM</b>	F05010-76	1	

<sup>1</sup> 140 amp alternator supplied on LT30 Super Rev. G6.00, LT40 Super Rev. G7.00 and LT30HD/LT40HD Super Rev. H1.00. [See Section 3.7](#) for 105 amp alternator parts. Previous revisions can retrofit to 140A alternator. Alternator Retrofit Kit 016238 includes alternator kit 023803, retrofit plug wire assembly, and installation instructions.

<sup>2</sup> 015875 replaces 023765 originally supplied before 12/99 (similar parts).

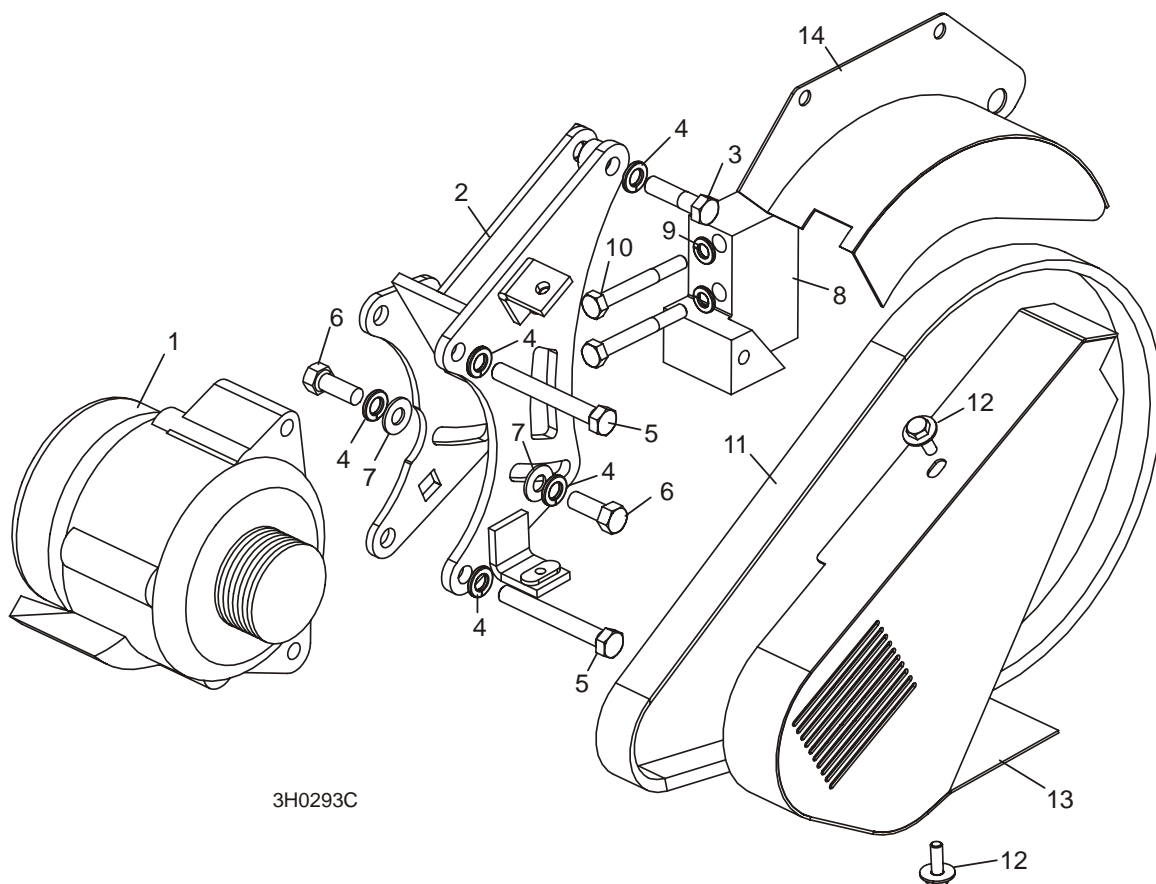
<sup>3</sup> Pulley Assembly 036572 replaces Pulley 023694 and Spacer 016279 supplied prior to 7/04. Pulley Assembly with pressed Spacer 036571 provides improved positioning relative to drive pulley.

# 3 Replacement Parts

## Alternator Assembly

### 3.7 Alternator Assembly

*LT30 Super*                      *Rev. F7.00 - G5.00*  
*LT40 Super*                      *Rev. F8.00 - G6.00*  
*LT30HD Super*                  *Rev. G1.00 - G9.00*  
*LT40HD Super*                  *Rev. G1.00 - G9.00*



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	ALTERNATOR, 105 AMP	015473 <sup>1</sup>	1
	WIRE ASSEMBLY, ALTERNATOR PLUG 105 AMP	015932 <sup>2</sup>	1
2	BRACKET WELDMENT, D40 ALTERNATOR MOUNT	015325	1
3	BOLT, 3/8-16 X 1 1/2" HEX HEAD GRADE 5	F05007-78	1
4	WASHER, 3/8" SPLIT LOCK	F05011-4	5
5	BOLT, 3/8-16 X 3" FULL THREAD HEX HEAD	F05007-1	2
6	BOLT, 3/8-16 X 1" HEX HEAD	F05007-7	2
7	WASHER, 3/8" SAE FLAT	F05011-3	2
8	BLOCK, ALTERNATOR MOUNTING	015331	1
9	WASHER, 5/16" SPLIT LOCK	F05011-13	2
10	SCREW, M8 X 1.25 X 65MM HEX HEAD	F05004-96	2
11	BELT, 6PK1015 ALTERNATOR	015474	1

## Replacement Parts 3

### Alternator Assembly

<b>12</b>	<b>BOLT, 1/4-20 X 3/4" HEX HEAD WITH CONICAL WASHER</b>	F05005-134 <sup>3</sup>	2	
<b>13</b>	<b>GUARD, D40 ALTERNATOR BELT</b>	015321	1	
<b>14</b>	<b>COVER WELDMENT, FLYWHEEL</b>	015338	1	

<sup>1</sup> 140A Alternator Retrofit 016238 available ([See Section 3.6](#)).

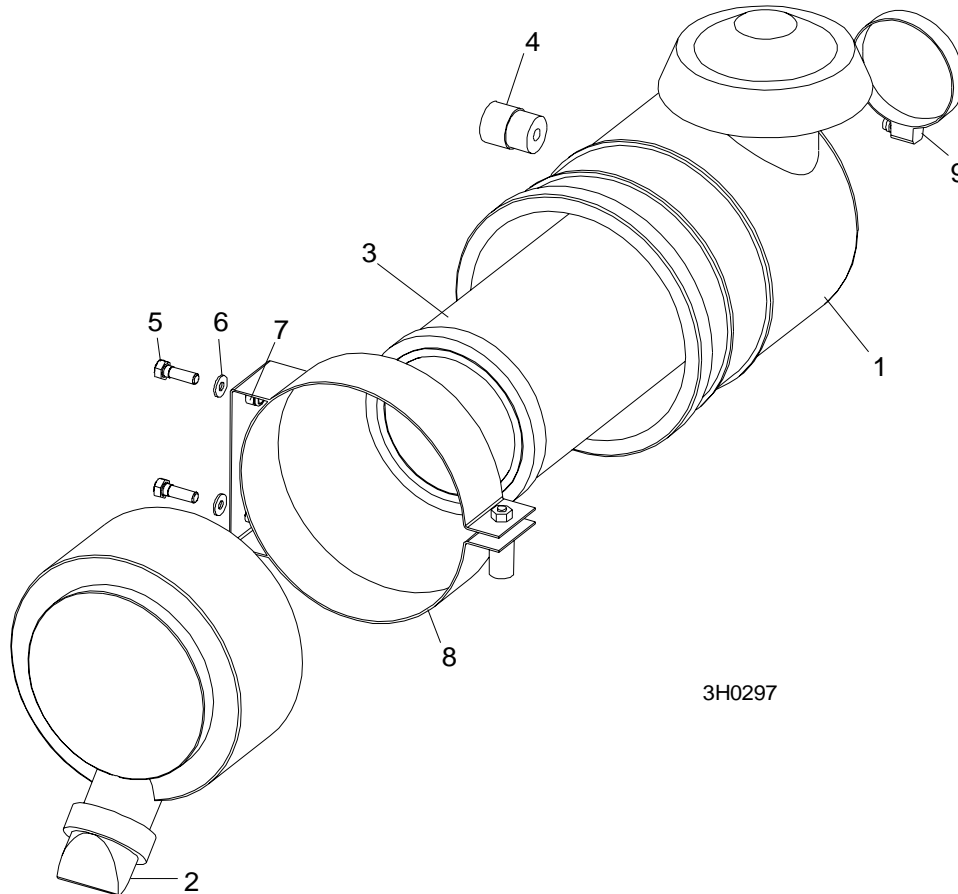
<sup>2</sup> New part available 11/97. Plug housing seals added to harness LT30 Super Rev. G4.00, LT40 Super Rev. G5.00, LT30HD Super and LT40HD Super Rev. G8.00.

<sup>3</sup> Replaces 1/4-20 x 3/4" hex head bolt (F05005-1), 1/4" SAE flat washer (F05011-11) and 1/4" split lock washer (F05011-14) originally supplied.

# 3 Replacement Parts

## Air Cleaner Assembly

### 3.8 Air Cleaner Assembly



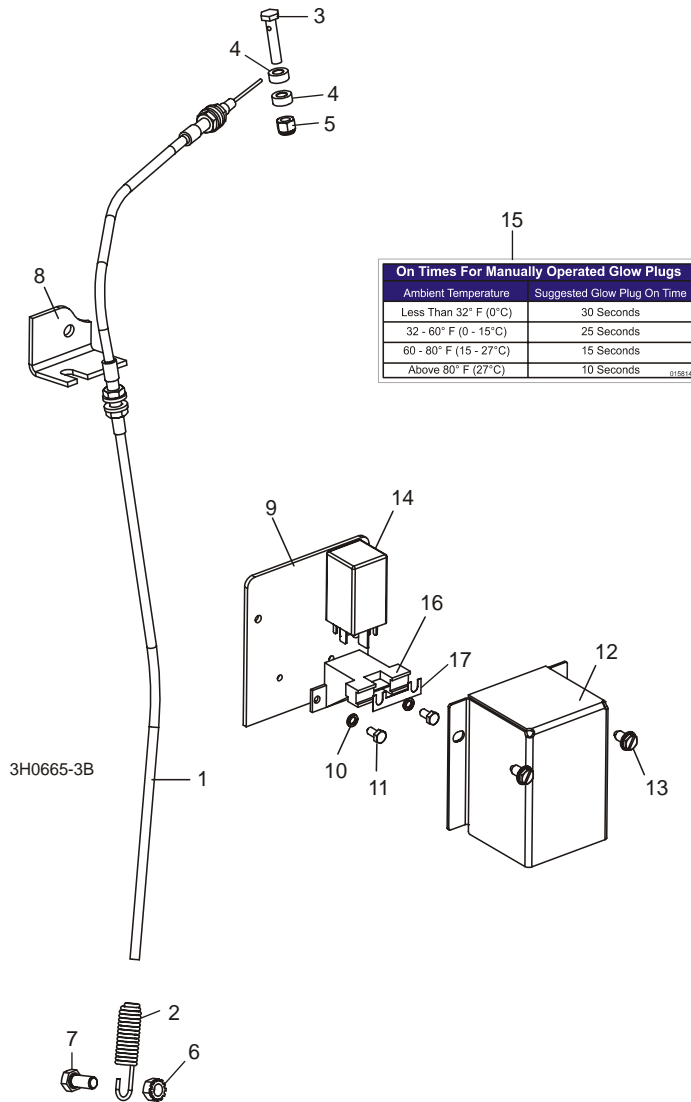
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REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	<b>CLEANER ASSEMBLY, DONALDSON AIR COMPLETE</b>	014280	1	
2	Boot, Air Cleaner Evacuator	014287	1	
3	Element, Donaldson Air Filter	014210	1	
4	<b>INDICATOR, AIR CLEANER RESTRICTION</b>	014336	1	
5	<b>BOLT, 5/16-18 X 1" HEX HEAD</b>	F05006-1	2	
6	<b>WASHER, 5/16" SAE FLAT</b>	F05011-17	2	
7	<b>NUT, 5/16-18 HEX NYLON LOCK</b>	F05010-58	2	
8	<b>CLAMP, 7" SPRING</b>	014160	1	
9	<b>CLAMP, 3 3/4" HOSE</b>	P04921	1	



### 3.9 Relay/Throttle Assembly

*LT30 Super*                      *Rev. G5.00+*  
*LT40 Super*                      *Rev. G6.00+*  
*LT30HD Super*                  *Rev. G9.00+*  
*LT40HD Super*                  *Rev. G9.00+*



On Times For Manually Operated Glow Plugs	
Ambient Temperature	Suggested Glow Plug On Time
Less Than 32° F (0°C)	30 Seconds
32 - 60° F (0 - 15°C)	25 Seconds
60 - 80° F (15 - 27°C)	15 Seconds
Above 80° F (27°C)	10 Seconds

REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	<b>CABLE ASSEMBLY, D30/D40 THROTTLE</b>	016125 <sup>1</sup>	1
	Cable Wire, D30/D40 .078" Throttle	016149 <sup>1</sup>	1
2	Spring, Throttle	016033	1
3	<b>BOLT, D30/D40 THROTTLE CABLE</b>	015985	1
4	<b>WASHER, .266 X .50 X .28" AL-BRONZE</b>	015986	2
5	<b>NUT, 1/4-20 NYLON LOCK</b>	F05010-69	1

**3****Replacement Parts***Relay/Throttle Assembly*

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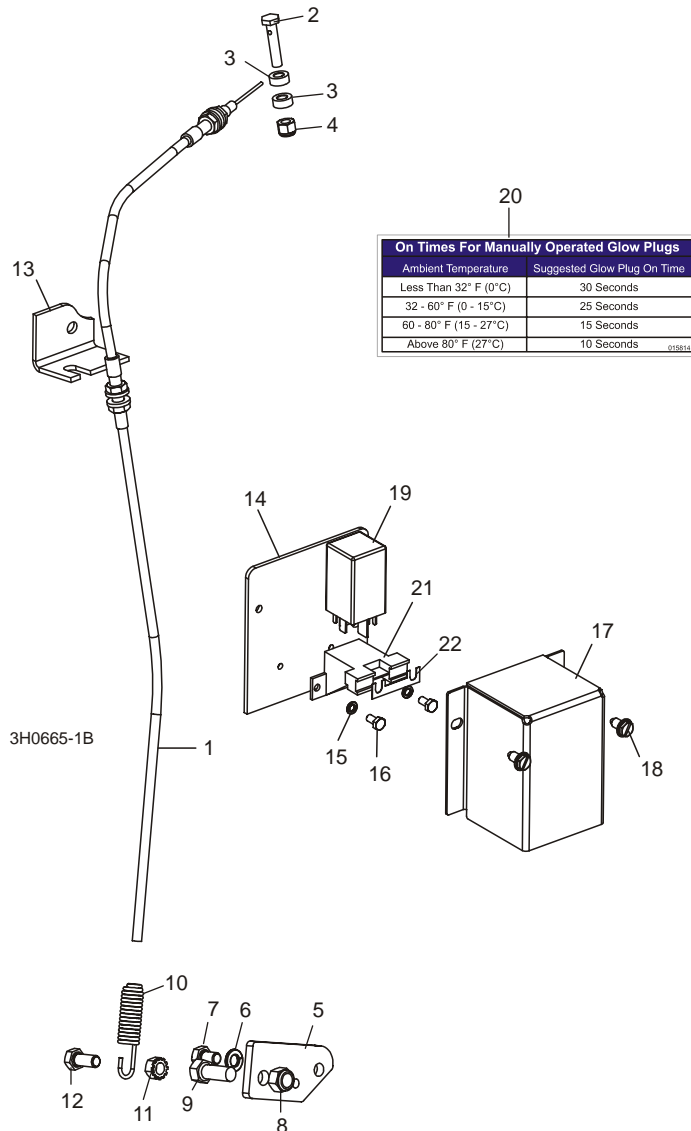
6	NUT, 5/16-18 SELF-LOCKING HEX	F05010-20	1	
7	BOLT, 5/16-18 X 3/4" HEX HEAD	F05006-5	1	
8	BRACKET, THROTTLE CABLE MOUNT	015566	1	
9	PLATE WELDMENT, DIESEL RELAY BOX MOUNT	014197	1	
10	WASHER, #10-24 SPLIT LOCK	F05011-20	2	
11	BOLT, #10-32 X 1/2" HEX HEAD	F05004-60	2	
12	BOX, D40 GLOW PLUG RELAY	014199	1	
13	BOLT, 1/4-20 X 1/2" SLOTTED HEX HEAD	F05015-1	2	
14	RELAY, GLOW PLUG	023359	1	
15	DECAL, LOMBARDINI GLOW PLUG ON TIME (LOCATED ON CONTROL BOX)	015814	1	
16	SOCKET KIT, GLOW PLUG RELAY	053049 <sup>2</sup>	1	
17	Fuse, 80A Lombardini Glow Plug	014350	1	

<sup>1</sup> Use throttle cable retrofit kit 016015 for revisions prior to LT30 Super Rev. G5.00, LT40 Super Rev. G6.00, and LT30HD/40HD Super Rev. G9.00. [See Section 3.10.](#)

<sup>2</sup> Replaces 023358 originally supplied. Kit includes pre-assembled socket with applicable wires, terminals and fuse.

### 3.10 Relay/Throttle Assembly

*LT30 Super*                      *Rev. F7.00 - G4.02*  
*LT40 Super*                      *Rev. F8.00 - G5.02*  
*LT30HD Super*                  *Rev. G1.00 - G8.02*  
*LT40HD Super*                  *Rev. G1.00 - G8.02*



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
<b>1</b>	<b>CABLE KIT, D30/D40 THROTTLE REPLACEMENT</b>	016015 <sup>1</sup>	1
	Cable Wire, D30/D40 .078" Throttle	016149 <sup>1</sup>	1
<b>2</b>	Bolt, D30/D40 Throttle Cable	015985 <sup>2</sup>	1
<b>3</b>	Washer, .266 x .50 x .28" Al-Bronze	015986 <sup>2</sup>	2
<b>4</b>	Nut, 1/4-20 Nylon Lock	F05010-69 <sup>2</sup>	1

# 3

## Replacement Parts Relay/Throttle Assembly

5	Plate, Throttle Cable Retrofit	016128	1	
6	Bolt, 5/16-18 x 1/2" Hex Head Grade 5	F05006-15	1	
7	Washer, 5/16" Split Lock	F05011-13	1	
8	Bolt, 3/8-16 x 1 Hex Head	F05007-7	1	
9	Nut, 3/8-16 Nylon Lock	F05010-10	1	
	Instruction Sheet, D30/D40/G35 Throttle Cable Retrofit Installation	016015-840	1	
10	<b>SPRING, THROTTLE</b>	016033	1	
11	<b>NUT, 5/16-18 SELF-LOCKING HEX</b>	F05010-20	1	
12	<b>BOLT, 5/16-18 X 3/4" HEX HEAD</b>	F05006-5	1	
13	<b>BRACKET, THROTTLE CABLE MOUNT</b>	015566 <sup>3</sup>	1	
14	<b>PLATE WELDMENT, DIESEL RELAY BOX MOUNT</b>	014197	1	
15	<b>WASHER, #10-24 SPLIT LOCK</b>	F05011-20	2	
16	<b>BOLT, #10-32 X 1/2" HEX HEAD</b>	F05004-60	2	
17	<b>BOX, D40 GLOW PLUG RELAY</b>	014199	1	
18	<b>BOLT, 1/4-20 X 1/2" SLOTTED HEX HEAD</b>	F05015-1	2	
19	<b>RELAY, GLOW PLUG</b>	023359	1	
20	<b>DECAL, LOMBARDINI GLOW PLUG ON TIME (LOCATED ON CONTROL BOX)</b>	015814	1	
21	<b>SOCKET KIT, GLOW PLUG RELAY</b>	053049 <sup>4</sup>	1	
22	Fuse, 80A Lombardini Glow Plug	014350	1	

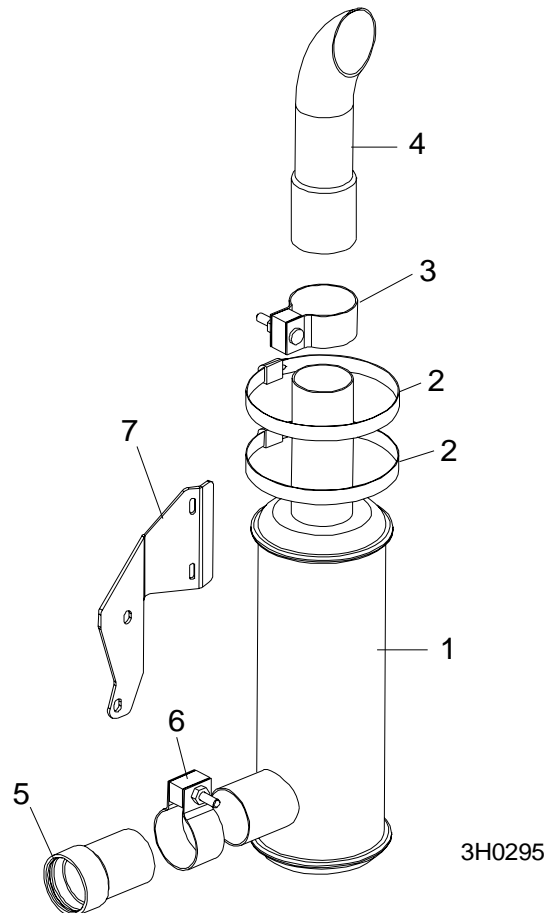
<sup>1</sup> Replaces 014097 originally supplied prior to LT30 Super Rev. G5.00, LT40 Super Rev. G6.00, and LT30HD/40HD Super Rev. G9.00. .078" dia. cable 016149 replaces .059" dia. cable 015831 to provide improved durability. Kit includes hardware required to retrofit previous revisions. [See Section 3.9](#) for replacement components if throttle cable has been retrofitted.

<sup>2</sup> Replaces 015848 barrel-style cable clamp and (2) F05004-102 set screws supplied from LT30 Super Rev. F9.01 - G2.00, LT40 Super Rev. G1.01 - G3.00, LT30HD Super and LT40HD Super Rev. G3.01 - G6.00. Also replaces 014608 clamp supplied prior to LT30 Super Rev. F9.01, LT40 Super Rev. G1.01, LT30HD Super and LT40HD Super Rev. G3.01. *NOTE: 015985 cable bolt requires (2) 015986 washers and (1) F05010-69 nut.*

<sup>3</sup> 015566 replaced 014111 1/98. Similar part used on D30.

<sup>4</sup> Replaces 023358 originally supplied. Kit includes pre-assembled socket with applicable wires, terminals and fuse.

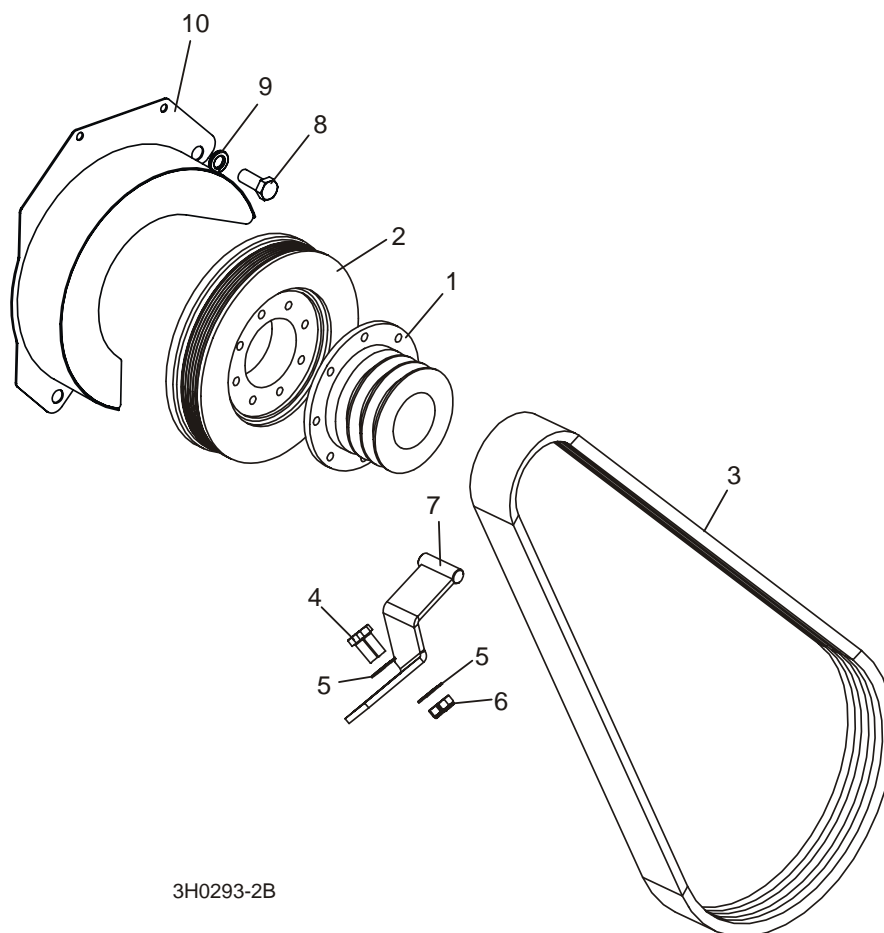
### 3.11 Muffler Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	MUFFLER	014093	1	
2	CLAMP, 5" WORM	014096	2	
3	CLAMP, MUFFLER	014095	1	
4	STACK, MUFFLER	014094	1	
5	TUBE, LOMBARDINI EXHAUST	014319	1	
6	CLAMP, MUFFLER 2" NELSON 90869A	014205	1	
7	BRACKET, MUFFLER	014321	1	

### 3.12 Drive Assembly

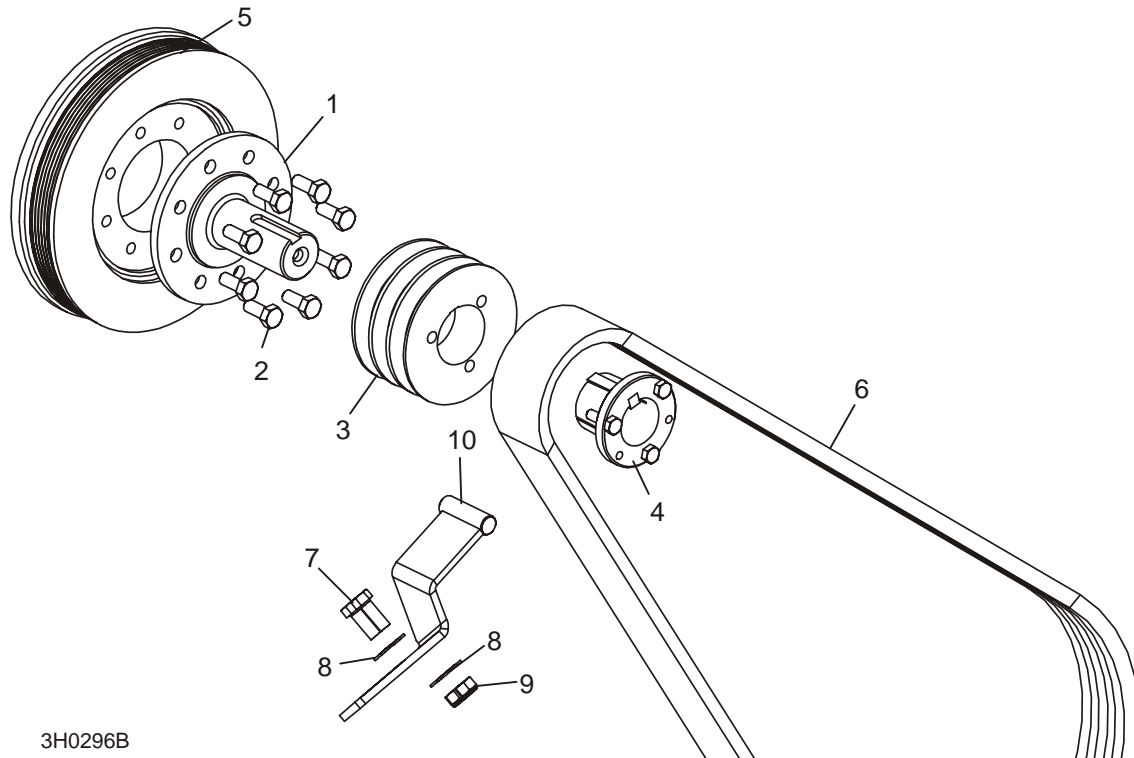
LT30 Super Rev. G4.01 - G8.00  
 LT40 Super Rev. G5.01 - G9.00  
 LT30HD Super Rev. G8.01 - H3.00  
 LT40HD Super Rev. G8.01 - H3.00



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	SHEAVE, LOMBARDINI DRIVE	016124	1
2	FLYWHEEL, ALTERNATOR BELT	015309	1
3	BELT, 3BX72	014085	1
4	BOLT, 3/8-16 X 1 1/4" CARRIAGE	F05007-11	2
5	WASHER, 3/8" SAE FLAT	F05011-3	4
6	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	2
7	SUPPORT, DRIVE BELT	015058	1
8	BOLT, 1/2-13 X 1 1/4" HEX HEAD GRADE 5	F05008-37	1
9	WASHER, 1/2" SPLIT LOCK	F05011-9	1
10	COVER WELDMENT, FLYWHEEL	014065	1

### 3.13 Drive Assembly

LT30 Super Rev. F8.00 - G4.00  
 LT40 Super Rev. F9.00 - G5.00  
 LT30HD Super Rev. G1.00 - G8.00  
 LT40HD Super Rev. G1.00 - G8.00



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	SHAFT, OUTPUT	014024 <sup>1</sup>	1
2	BOLT, M10X25 GRADE 10.9 HEX HEAD	F05009-52	8
3	SHEAVE, 3TB42 MOTOR DRIVE	014007 <sup>1</sup>	1
4	BUSHING, SPLIT TAPER, P1 1 9/16"	014003 <sup>1</sup>	1
5	FLYWHEEL, ALTERNATOR BELT	015309	1
6	BELT, 3BX72	014085	1
7	BOLT, 3/8-16 X 1 1/4" CARRIAGE	F05007-11	2
8	WASHER, 3/8" SAE FLAT	F05011-3	4
9	NUT, 3/8-16 HEX NYLON LOCK	F05010-10	2
10	SUPPORT, DRIVE BELT	015058	1

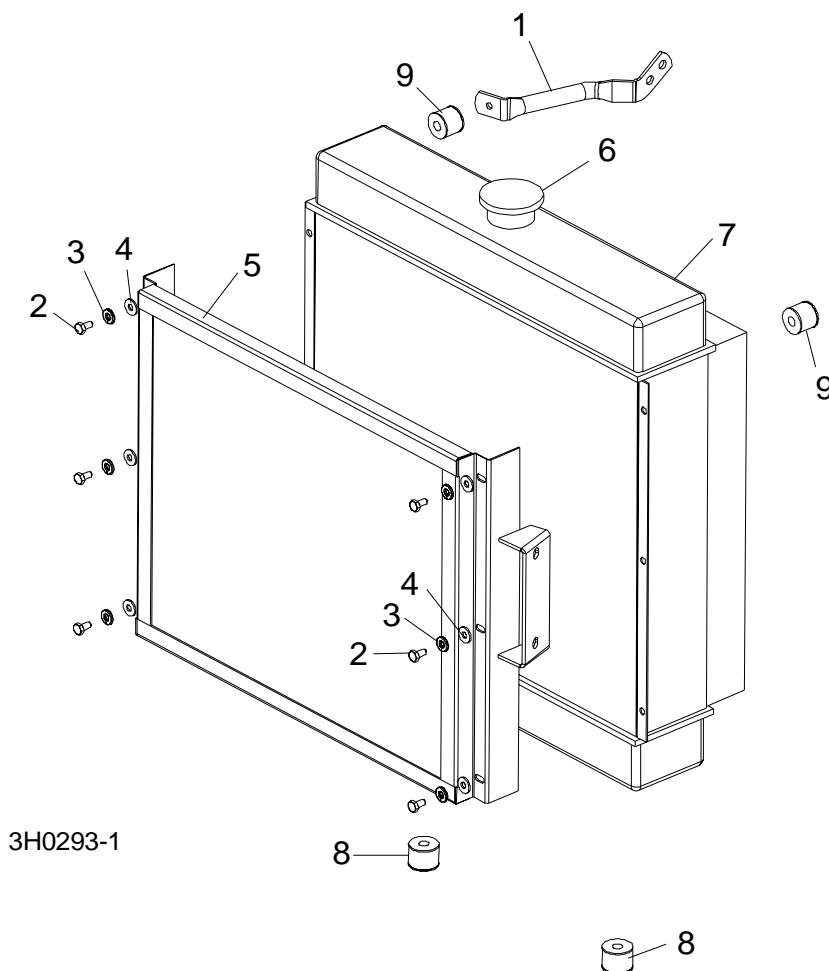
<sup>1</sup> Output Shaft, Sheave and Bushing replaced with single-piece sheave provided by Lombardini ([See Section 3.12](#)).

# 3 Replacement Parts

## Radiator Assembly

### 3.14 Radiator Assembly

*LT30 Super*                      *Rev. G4.01+*  
*LT40 Super*                      *Rev. G5.01+*  
*LT30HD Super*                  *Rev. G8.01+*  
*LT40HD Super*                  *Rev. G8.01+*

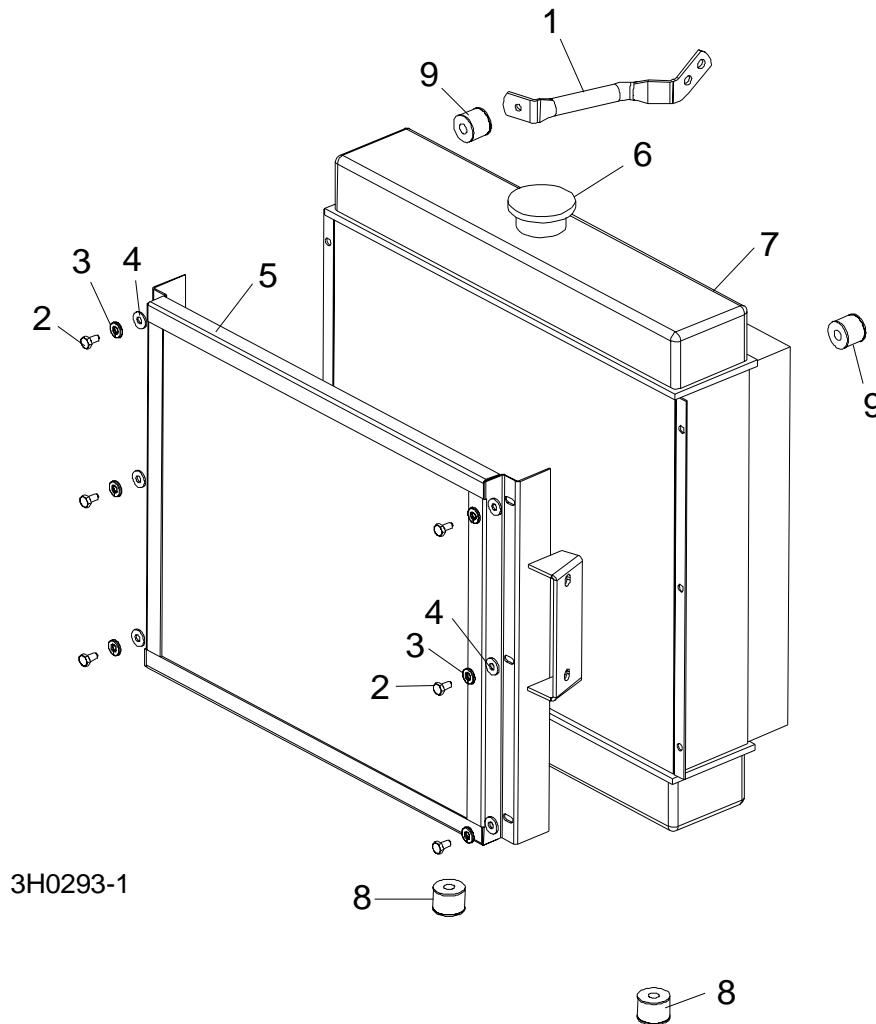


REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	BRACE, LOMBARDINI RADIATOR SUPPORT #9265-162	<a href="#">016171</a>	1	
	BRACE, LOMBARDINI RADIATOR SUPPORT #9265-161 (NOT SHOWN)	016172	1	
2	SCREW, M6X12 HEX HEAD CAP FULL THREAD	F05005-99	6	
3	WASHER, 1/4" SPLIT LOCK	F05011-14	4	
4	WASHER, 1/4" SAE FLAT	F05011-11	4	
5	GRILL, RADIATOR	015500	1	
6	CAP, RADIATOR FILL	014295	1	
7	RADIATOR, LOMBARDINI	N/A	1	
8	BUSHING, RADIATOR VIBRATION LOWER	016143	2	
9	BUSHING, RADIATOR VIBRATION UPPER	016144	2	



### 3.15 Radiator Assembly

LT30 Super Rev. F8.00 - G4.00  
 LT40 Super Rev. F9.00 - G5.00  
 LT30HD Super Rev. G1.00 - G8.00  
 LT40HD Super Rev. G1.00 - G8.00



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
1	BRACE, LOMBARDINI RADIATOR SUPPORT #9265-167	014563	1
2	SCREW, M6X12 HEX HEAD CAP FULL THREAD	F05005-99	6
3	WASHER, 1/4" SPLIT LOCK	F05011-14	6
4	WASHER, 1/4" SAE FLAT	f05011-11	6
5	GRILL, RADIATOR	014161 <sup>1</sup>	1
6	CAP, RADIATOR FILL	014295	1
7	RADIATOR, LOMBARDINI	014291 <sup>1</sup>	1
8	BUSHING, RADIATOR VIBRATION LOWER	016143	2

**3****Replacement Parts***Radiator Assembly*

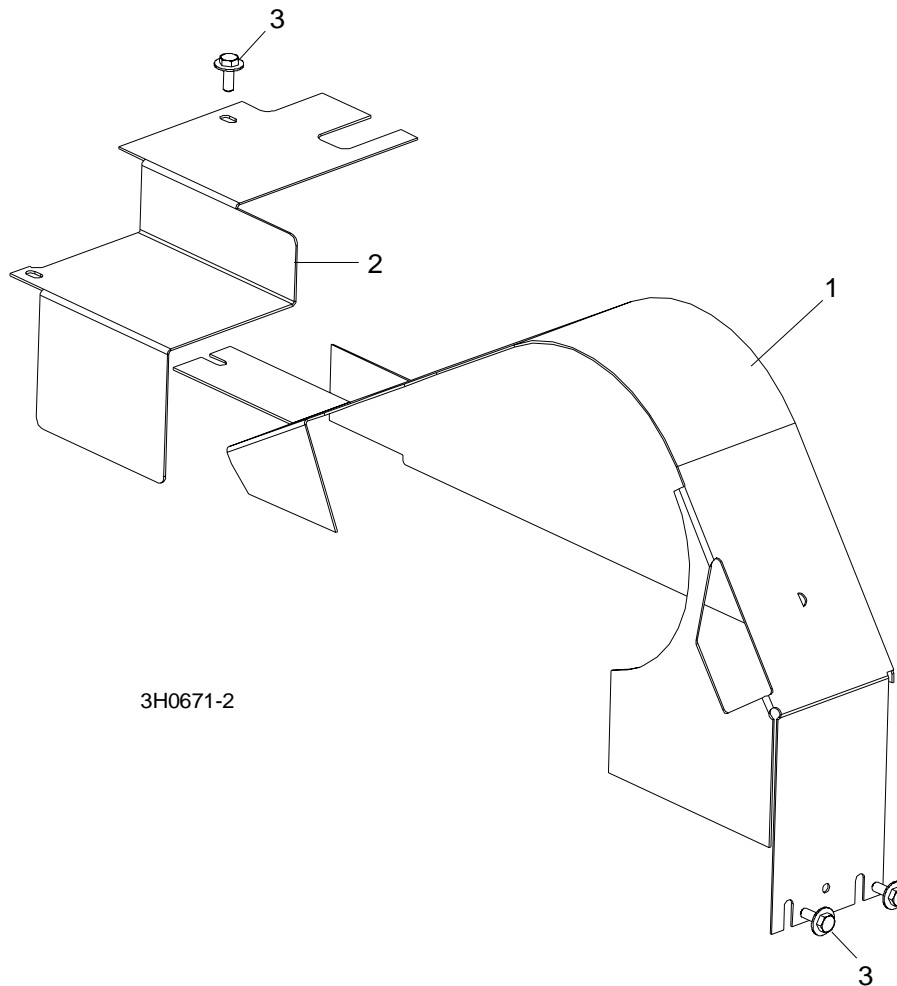
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9	BUSHING, RADIATOR VIBRATION UPPER	016144	2	
	HOSE, LOMBARDINI UPPER RADIATOR	014284	1	
	HOSE, LOMBARDINI LOWER RADIATOR	014285	1	
	HOSE, LOMBARDINI BYPASS	014297	1	

<sup>1</sup> Radiator and grill replaced with smaller radiator and grill to improve efficiency on LT30 Super Rev. G4.01, LT40 Super Rev. G5.01, and LT30HD/40HD Super Rev. G8.01. [See Section 3.14.](#)

### 3.16 Engine Pulley Guards

*LT30 Super*                      *Rev. G6.00+*  
*LT40 Super*                      *Rev. G7.00+*  
*LT30HD Super*                 *Rev. H1.00+*  
*LT40HD Super*                 *Rev. H1.00+*



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	GUARD WELDMENT, D40 ENGINE PULLEY	023787 <sup>1</sup>	1	
2	GUARD, D40 SIDE ENGINE PULLEY	016152 <sup>1</sup>	1	
3	BOLT, 1/4-20 X 3/4" HEX HEAD WITH CONICAL WASHER	F05005-134	3	

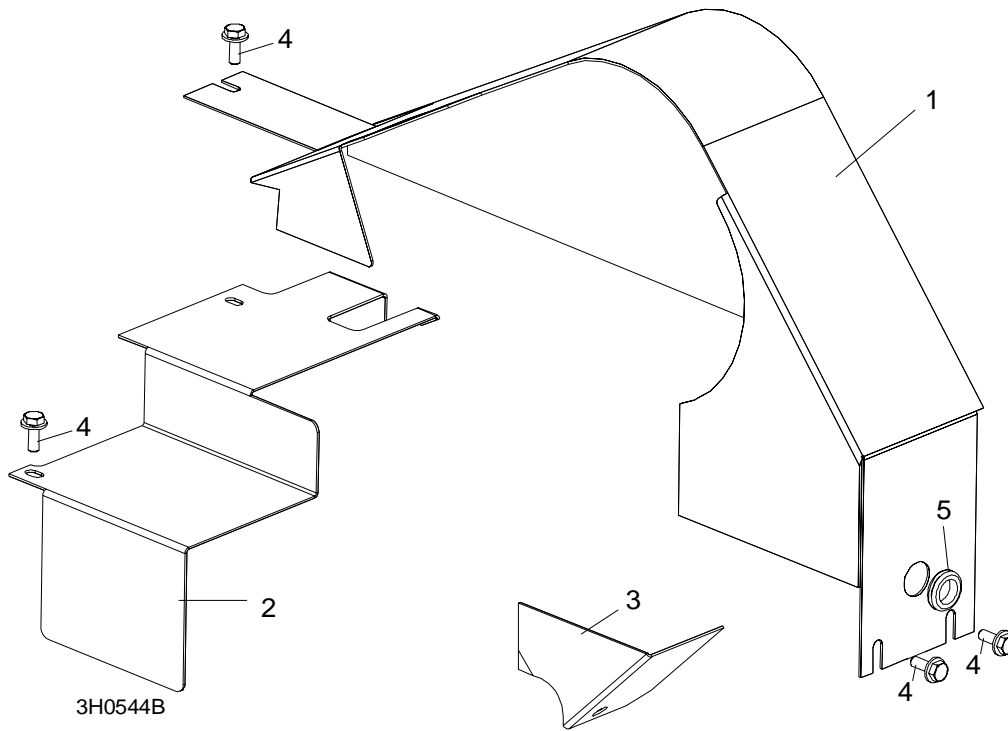
<sup>1</sup> Guards modified for 140 amp alternator supplied after LT30 Super Rev. G6.00+, LT40 Super Rev. G7.00+ and LT30HD/LT40HD Super Rev. H1.00+. [See Section 3.17](#) for covers used on previous revisions with 105 amp alternator.

# 3 Replacement Parts

## Engine Pulley Guards

### 3.17 Engine Pulley Guards

*LT30 Super*                      *Rev. F7.00 - G5.00*  
*LT40 Super*                        *Rev. F8.00 - G6.00*  
*LT30HD Super*                    *Rev. G1.00 - G9.00*  
*LT40HD Super*                    *Rev. G1.00 - G9.00*



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.	
1	GUARD WELDMENT, D40 ENGINE PULLEY	014519	1	
2	GUARD, D40 SIDE ENGINE PULLEY	015159	1	
3	GUARD, D40 BOTTOM ENGINE PULLEY	015158	1	
4	BOLT, 1/4-20 X 3/4" HEX HEAD WITH CONICAL WASHER	F05005-134 <sup>1</sup>	4	
5	GROMMET, 5/8" ID RUBBER	P11764	1	

<sup>1</sup> Replaces 1/4-20 x 3/4" hex head bolt (F05005-1) and 1/4" SAE flat washer (F05011-11) originally supplied.