

G38 Engine for LX450

**Safety, Operation, Maintenance
& Parts Manual**

**106907 Engine Assembly
used with LX450**

**rev. J.0
rev. A1.07**

Safety is our #1 concern!

Form #2229



WARNING! Read and understand this manual before using this machine.

California

Proposition 65 Warning



WARNING: Breathing gas/diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Always start and operate the engine in a well-ventilated area.
If in an enclosed area, vent the exhaust to the outside.
Do not modify or tamper with the exhaust system.
Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov.



WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection.

For more information go to www.P65Warnings.ca.gov/wood.

Active Patents assigned to Wood-Mizer, LLC

Wood-Mizer, LLC has received patents that protect our inventions which are a result of a dedication to research, innovation, development, and design. Learn more at: woodmizer.com/patents

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SECTION 1 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.


NOTICE 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.


SECTION 2 OPERATION


2.1 Starting The Engine

ENGINE CONTROL LIGHTS

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

 *Engine Temperature Indicator:* Not used.

 *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.

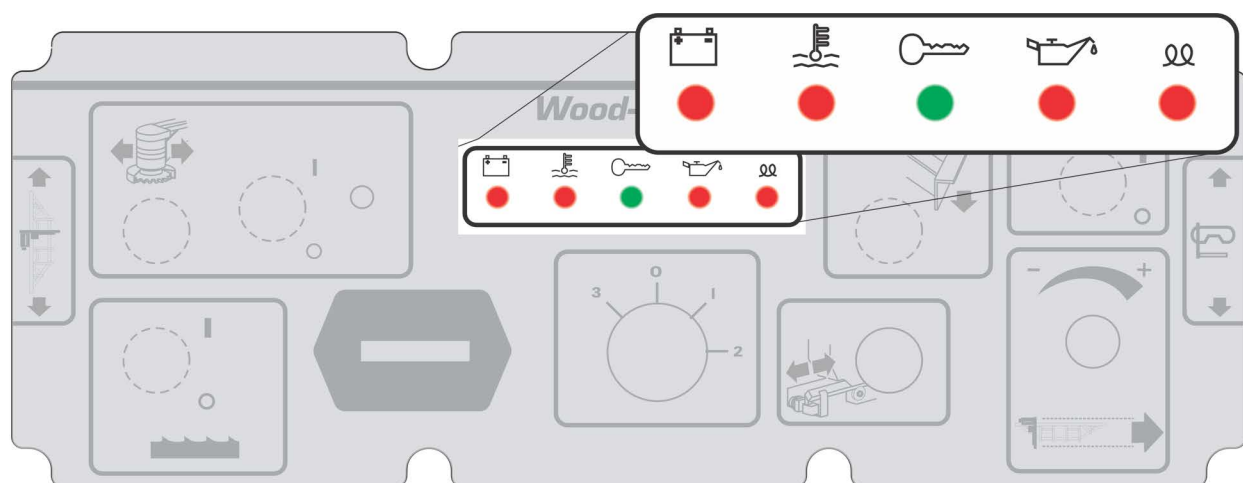




FIG. 2-1

ENGINE START

 **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.

 **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.

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.

Disengage the blade and remove all persons out of the path of the blade before starting the engine. Failure to do so may result in serious injury.

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.

NOTE: Always relieve all fuel pressure inside the tank prior to filling or connecting fuel fittings. Failure to do so may result in fuel spillage.

NOTE: Disconnect the fuel tank when not in use or during transportation. Failure to do so may result in engine flooding or fuel spillage.

NOTE: Do not engage the clutch lever repeatedly without the engine running. The engine floods when the throttle solenoid is engaged, an accelerator pump is activated which supplies fuel to the engine carburetor.

1. Turn the key switch momentarily to the start (2) position and release it to the run position (1).

ENGINE SHUTOFF

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

SECTION 3 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.

NOTICE 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.



WARNING! Clean sawdust from all guards, vents, control boxes, or any area where sawdust may gather **after every shift**. Failure to do so may result in fire, causing death or serious injury.



3.1 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.

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.

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.

3.2 Cooling System



Wash the engine or brush off sawdust and debris every 50 hours of operation. Clean the grass screen, cooling fins, and external surfaces. Remove any dust, dirt or oil. See engine manual for further instructions.

3.3 Air Cleaner



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.



Replace the outer air cleaner cartridge and check the inner cartridge every 250 hours of operation or more often if operating the sawmill in dirty conditions or if engine performance indicates a new cartridge is necessary.



CAUTION! Do not clean elements with water or compressed air. Do not handle the inner element unless it is to be changed. Handle new elements carefully. Contact with the element could cause damage and prevent the filter from operating properly.



Replace the inner air cleaner cartridge every 1200 hours of operation or more often if operating the sawmill in dirty conditions.

3.4 Fuel Filter



Replace the fuel filter every 100 hours of operation or as required for engine performance.

3.5 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.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.

3.6 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.

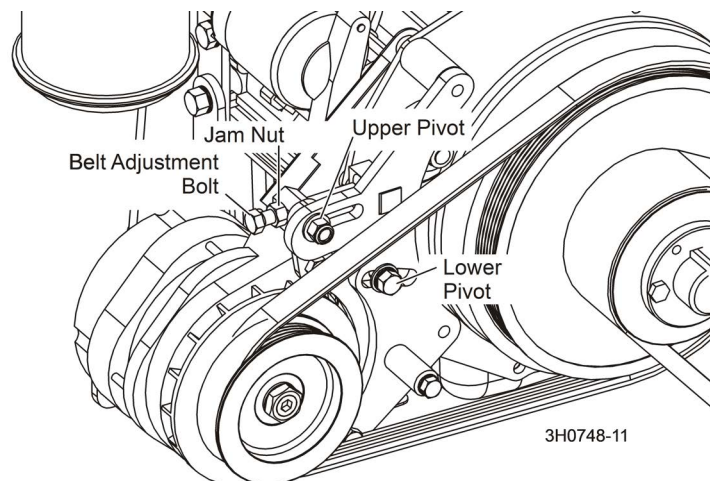


FIG. 3-1

1. Battery Council International, copyright 1987

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 over-tighten 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.

3.7 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 every 200 hours of operation.

Engine	High End RPM	Low End RPM
G38	3600	1500

TABLE 3-1

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

Make sure the throttle cable does not affect the engine RPM when the throttle solenoid is disengaged. Make sure the cable is not bent or kinked. **NOTE:** It is important that the above components are aligned. Proper alignment allows any slack in the cable (when engine is idling) to slide down into the cable spring. This maintains free operation of the cable and prevents the cable from kinking. Make sure the shoulder bolt does not rub against the crankcase vent tube.

1. Start the engine to measure the low-end RPM.
2. Refer to the engine manual to adjust the low-end RPM.
3. Engage the throttle solenoid to throttle the engine and measure the high-end RPM. The high-end RPM is factory-set at 3600. Readjust the throttle cable if necessary to increase or reduce the high-end engine speed.

The throttle cable should be tensioned just enough so that the engine revs as soon as the clutch/brake handle is engaged.

NOTE: A properly adjusted throttle will extend the cable spring 1/4" to 3/8" (6.4 - 9.5 mm) when running and have a slight amount of slack in the cable when idling.

3.8 Miscellaneous Maintenance

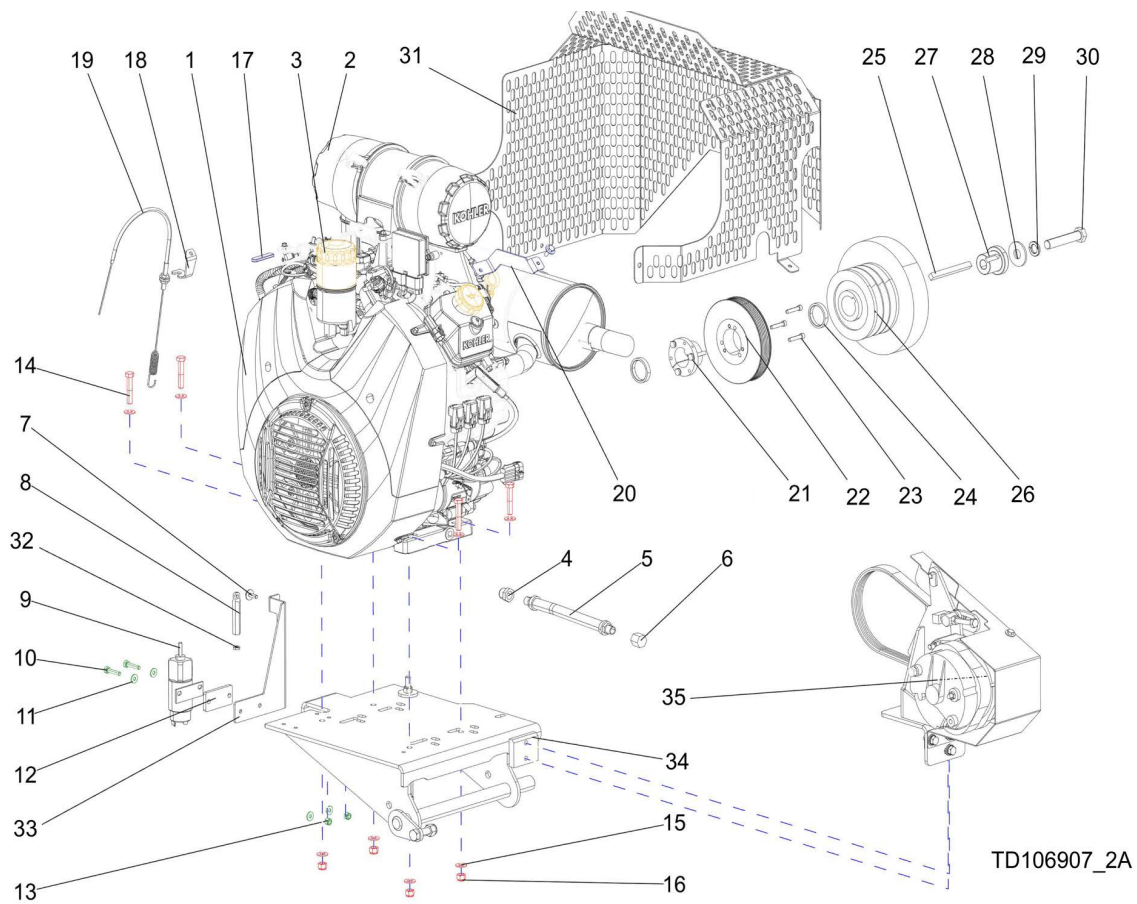


Clean and inspect the spark arrester every 50 hours of operation. Replace if damaged.

Review the manufacturer's engine manual for maintenance intervals.

SECTION 4 REPLACEMENT PARTS

4.1 Engine Assembly



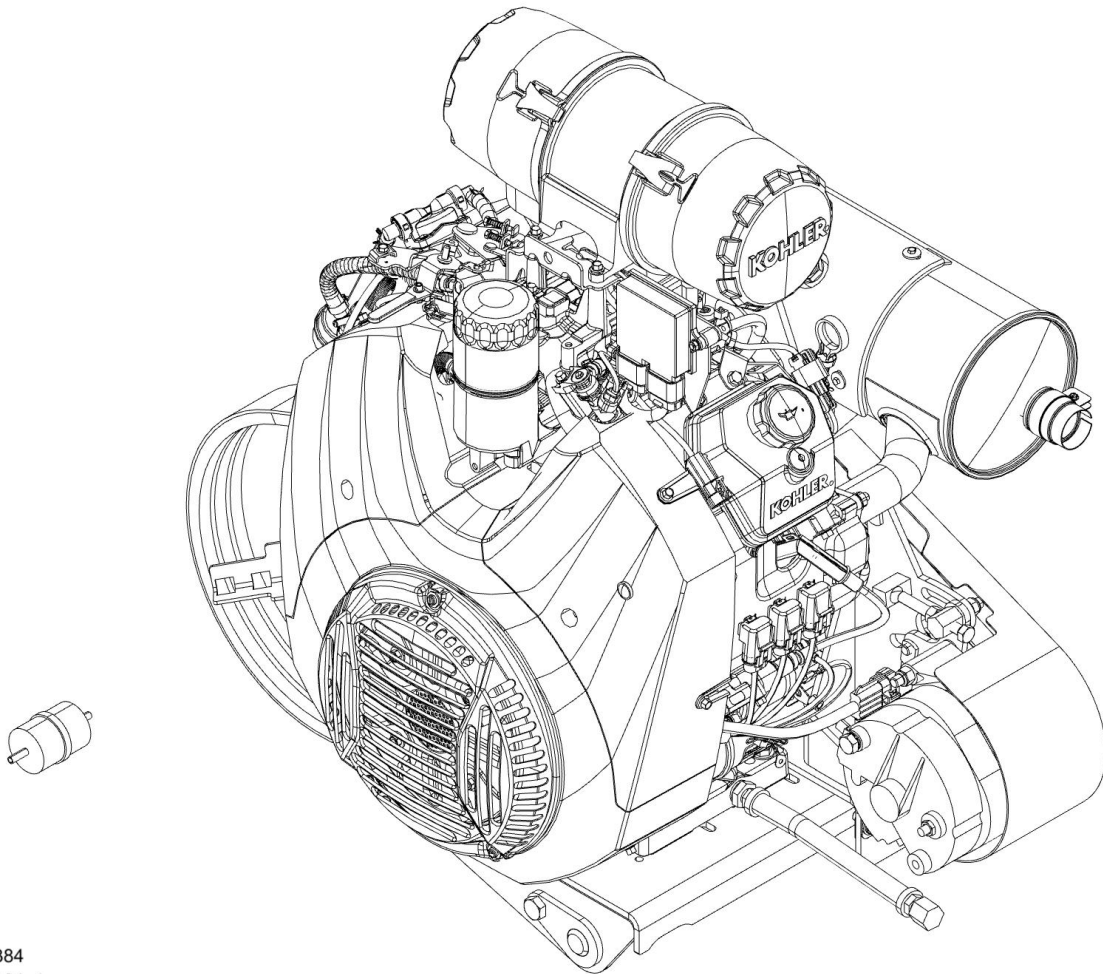
REF	PART #	DESCRIPTION	COMMENTS	QTY.
	CEG38	COVER, G38 ENGINE		1
	106907	ENGINE ASSEMBLY, 38HP KOHLER		1
1	079384	Engine, 38HP Kohler EFI Gas		1
2	N/A	Air Cleaner, Kohler 38HP		1
	046553	Filter, Kohler Primary Air #25-083-01-S		1
	046554	Filter, Kohler Secondary Air #25-083-04-S		1
3	014717	Filter, Kohler Oil #52-050-02-S		1
	061003	Plug, Kohler G38 Spark #62-132-04-S		2
	061231	Pump Electric, Fuel G26 25 755 73-s	High Pressure Electrical Pump	1
	061156	Pump, Fuel #62-559-01S	Low Pressure Mechanical Pump	1
	110658	Muffler		1
4	003227	Bushing, 1/2 MPTx3/8 FPT Brass		1
5	P10082	Hose, 3/8NPTx9 5/8 Rubber		1
6	P04332	Cap, 3/8 Pipe Galvanize		1
7	F05005-207	Bolt, 1/4-20x3/4 W/Conical Washer		2

4 Replacement Parts

Engine Assembly

REF	PART #	DESCRIPTION	COMMENTS	QTY.
8	107137	Adjuster, Throttle Cable		1
9	078156	Solenoid, Engine Dual Coil 12VDC		1
10	F05005-116	Bolt, 1/4-20x1 1/4 HH Gr5		2
11	F05011-11	Washer, 1/4 SAE Flat		4
12	076974	Plate, Soleniod Spacer		1
13	F05010-69	Nut, 1/4-20 Nylock		2
14	F05007-124	Bolt, 3/8-16 x 2 HH Grd 8 YZD		4
15	F05011-3	Washer, 3/8 Flat SAE		16
16	F05010-10	Nut, 3/8-16 Hex Nyl Lock		8
17	003229	Grip. 1/16x3/8x2 Black Vinyl		1
18	003222	Bracket, 1/8 G38 Throttle		1
19	034809	Cable Assembly, D10 Throttle		1
20	107130	Bracket, Engine Cover		1
	133356	Kit, LX450G38 Alternator Drive		1
21	016535	Bushing, SHx1 7/16		2
22	133353	Sheave, 6PKx5.88SH		2
23	F05005-48	Screw, 1/4-20x1 1/4 SHC		6
24	133354	Spacer, 1.438 x 1.75 x .31		2
25	076077	Key, 3/8sq x 4"		1
26	103817	Clutch, Centrifugal		2
27	106909	Bushing, Spacer		2
28	F05011-40	Washer, 5/8 Standard Zinc Flat		2
29	F05011-27	Washer, 5/8 Split Zinc Lock		2
30	F05009-98	Bolt, 5/8-18x4 HHC Grd 5		2
31	107126	Weldment, Engine Cover		1
32	F05010-113	Nut, 1/4-28 Hex Jam		1
33	107114	Bracket, Engine Cover Mounting		1
34	See Parts	Engine Mount Parts ((See Section 4.2))		1
35	See Parts	Alternator Parts ((See Section 4.3))		1
	036088	Belt, 5VFLX1000		1
	P12758	Filter, Kohler Fuel #24-050-13S		1

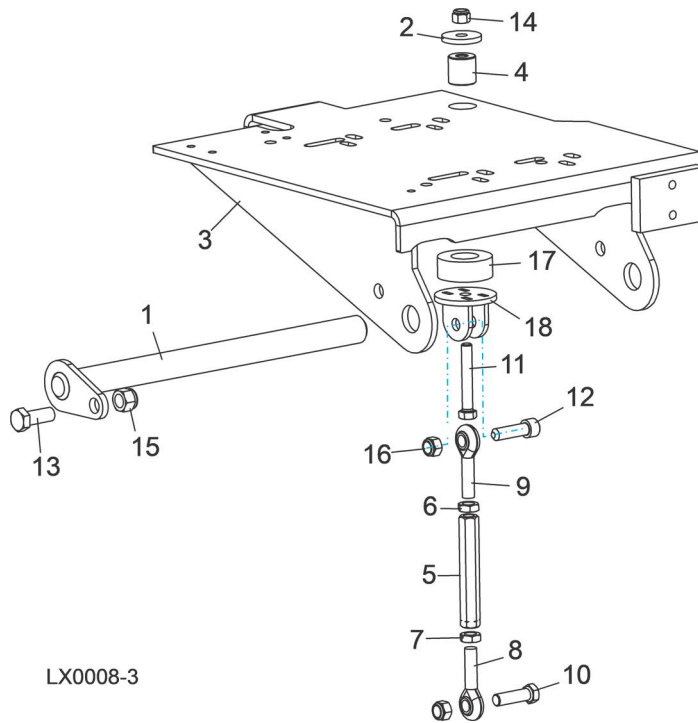
4.2 Engine Assembly



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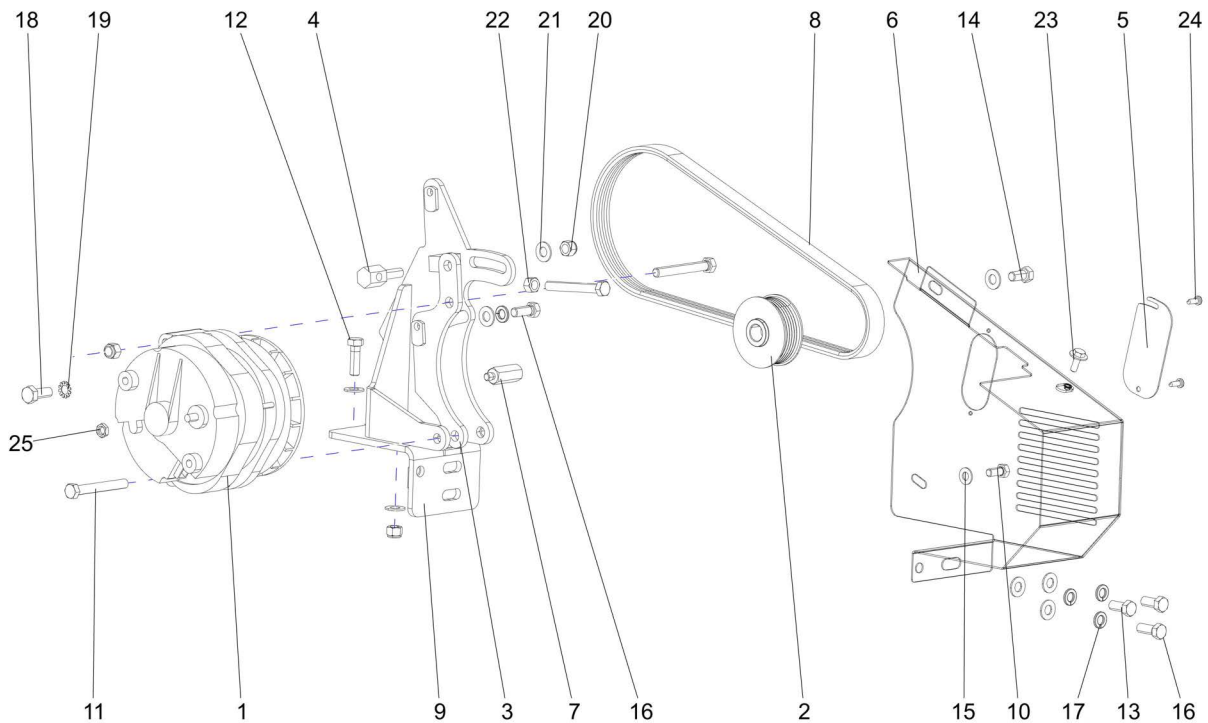
REF	PART #	DESCRIPTION	COMMENTS	QTY.
	014717	Filter, 13/15/19/25HP Kohler Engine Oil		1
	046554	Air Filter, Safety Element		1
	061426	Plug, Spark Kohler 62 132 04-S		2
	061371	Assembly, Starter 25 098 21S		1
	061156	Pump, Fuel 62 559 01S Low Pressure		1
	061231	Pump Electric, Fuel G26 25 755 73-s		1

4.3 Engine Mount Assembly



REF	PART #	DESCRIPTION	COMMENTS	QTY.
1	014154	PIN WELDMENT, MOTOR MOUNT PIVOT		1
2	021276	WASHER, .40X1.44X.18		1
3	106908	MOUNT WELDMENT, STD MOTOR		1
4	106911	BUSHING, 1 ODX.39IDX1 LONG		1
	107127	TURNBUCKLE ASSEMBLY, 4 1/8 CLUTCH		1
5	107128	Turnbuckle, 4-1/8" Clutch		1
6	F05010-38	Nut, 7/16-20 Jam		1
7	F05010-87	Nut, 7/16-20 Left Hand Jam		1
8	P11578	Rod End, 7/16-20 LH Male		1
9	P11579	Rod End, 7/16-20 RH Male		1
10	F05007-55	SCREW, 7/16-20X1 1/2 SHC		1
11	F05007-157	BOLT, 3/8-16X2 1/2 FT HEX HEAD C GRADE 2		1
12	F05007-55	SCREW, 7/16-20X1 1/2 SHC		1
13	F05008-37	BOLT, 1/2-13X1 1/4 HEX HEAD GRADE 5		1
14	F05010-10	NUT, 3/8-16 HEX NYLOC		1
15	F05010-8	NUT, 1/2-13 NYLON HEX LOCK		1
16	F05010-83	NUT, 7/16-20 NYLON LOCK		2
17	P05032	BUSHING, CLUTCH		1
18	W12411	YOKE WELDMENT, CLUTCH		1

5.4 Alternator Assembly



TD106907

REF	PART #	DESCRIPTION	COMMENTS	QTY.
	015969	WIRE ASSEMBLY, 61/140 AMP ALTERNATOR PLUG		1
	024308	WIRE ASSEMBLY, ALTERNATOR TO STARTER		1
	107115	ALTERNATOR ASSEMBLY, 140 AMP		1
1	023695	Alternator, 140 Amp		1
2	046402	Sheave, Alternator 2 3/4" O.D.		1
3	015875	Plate Weldment, Kubota Alt Mount		1
4	023764	Stud, 140 Alt. Tensioner		1
5	023794	Plate, Belt Guard Access		1
6	107086	Weldment, Guard G38 Alternator		1
7	107089	Spacer, 5/8 Hex x1-1/2		1
8	107116	Belt, 6PK0932 Fib		1
9	107138	Mount Weldment, 140 Alt G38		1
10	F05006-5	Bolt, 5/16-18x3/4 HH Gr2		1
11	F05007-1	BOLT, 3/8-16X3 HH FULL THRD, ZN		3
12	F05007-123	Bolt, 3/8-16x 1 1/4 HH Gr5		1
13	F05007-185	Bolt, 3/8-16x7/8 HH Gr5		2
14	F05007-27	Bolt, 3/8-16x3/4 HH Gr2		1
15	F05011-17	Washer, 5/16 SAE Flat		1
16	F05007-87	Bolt, 3/8-16x1 Gr5 HH		2
17	F05011-4	Washer, 3/8 Split Lock		4
18	F81003-11	Bolt, M10-1.5x25 HH CI 8.8		1

REF	PART #	DESCRIPTION	COMMENTS	QTY.
19	F05011-36	Washer, 3/8 Star External		1
20	F05010-10	Nut, 3/8-16 Hex Nyl Lock		8
21	F05011-3	Washer, 3/8 Flat SAE		16
22	F05010-1	Nut, 3/8-16 Hex		1
23	F05005-207	Bolt, 1/4-20x3/4 W/Conical Washer		1
24	F05015-17	Bolt, #10-24x1/2 PH		2
25	F05010-76	Nut, M8x1.25 Metric Jam		1

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