

# **D10 Engine**

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

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**LT15**

**rev. B4.00**

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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 #1098*

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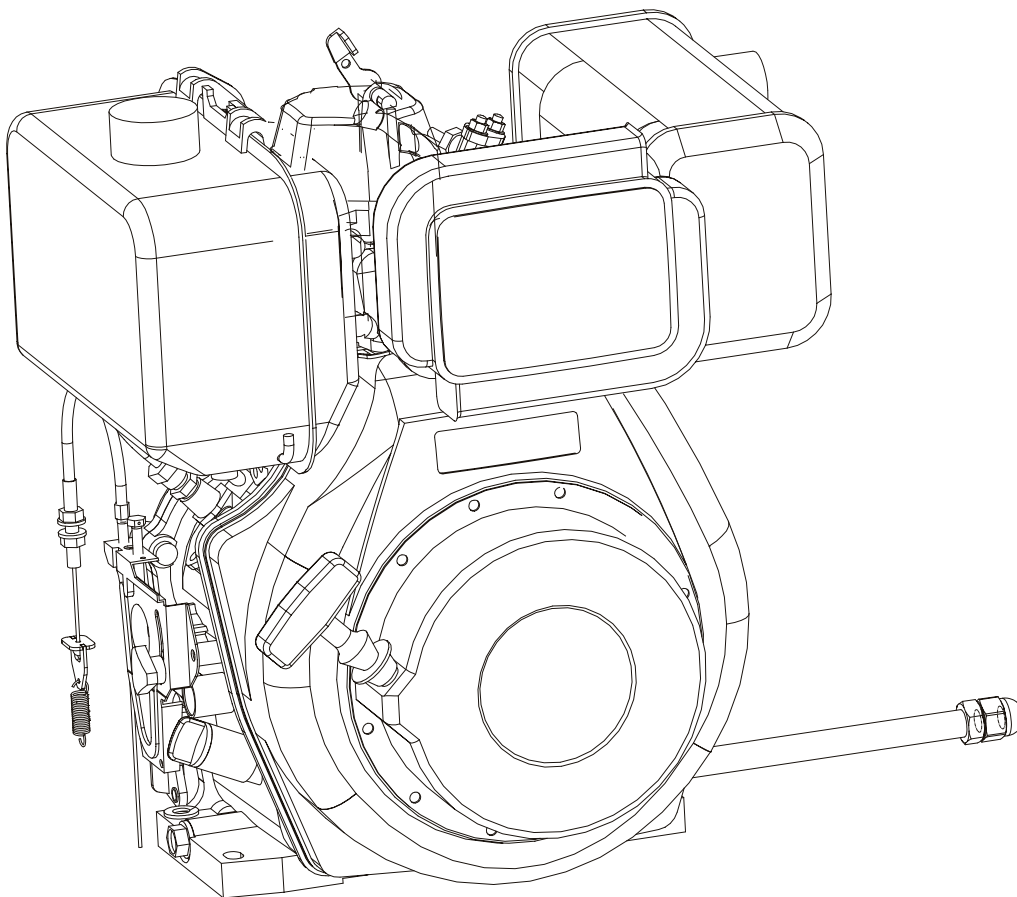
## ABOUT THIS MANUAL

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



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

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



## SECTION 1 OPERATION

While your engine is still new, applying heavy loads may reduce its life. Follow the breaking-in procedure below during the first 20 hours of operation.

### 1. Avoid overloading

Never apply heavy loads during the breaking-in period.

### 2. Change engine oil regularly

Change the engine oil after the first 50 hours of operation or after the first month (whichever comes first) and every 3 months or 200 hours thereafter.



**DANGER!** Always drain the oil while the engine is still warm. It may be difficult to drain the oil completely when the engine is cold.

## 1.1 Preparation For Starting

### 1. Fuel Selection And Handling

Use only diesel fuel recommended by the manufacturer. Before filling the fuel tank, make sure the fuel does not contain water and/or dust. Failure to do so may result in damage to the fuel injection pump and nozzles.

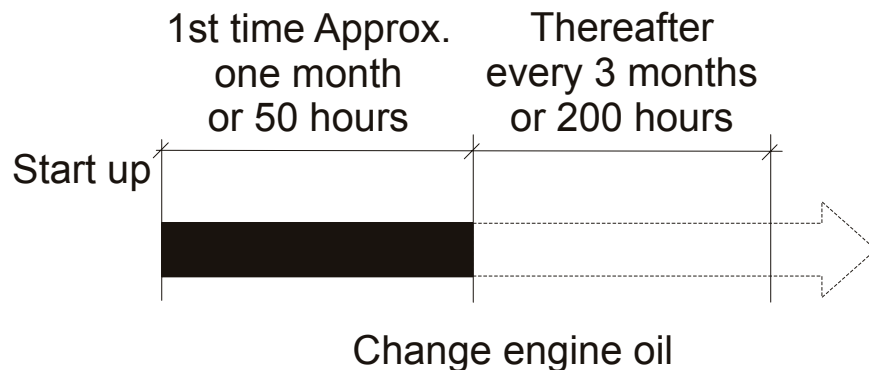


**CAUTION!** Use only recommended diesel fuel. Failure to do so may result in serious engine damage.

**CAUTION!** The cetane value of the diesel fuel should be above 45. This will ensure easy engine start and will prevent misfiring and white exhaust gases.

**CAUTION!** Diesel fuel substitutes are not recommended; they may cause damage to the fuel system.

**CAUTION!** The fuel should be free of water and dust. Damage to the fuel injection pump and nozzles may result.

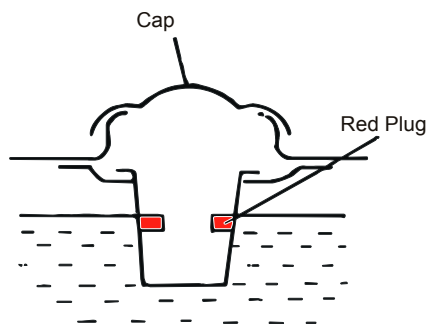


Overfilling is very dangerous. Do not fill the tank beyond the top of the red plug inside the fuel tank filter.

# 1 OPERATION

## Preparation For Starting

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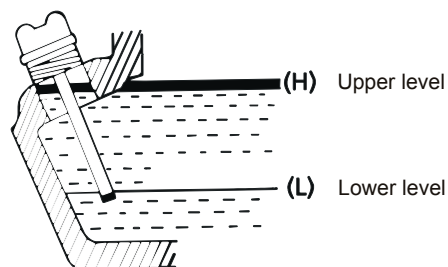


Fuel tank capacity: 4,7 l.

## 2. Engine Oil

**WARNING!** Always check the engine oil level before starting the engine. Add oil if necessary. If the lubricating oil level is too low, it may result in engine damage. If it is too high, a sudden increase of RPM can occur as a result of the lube oil combustion.

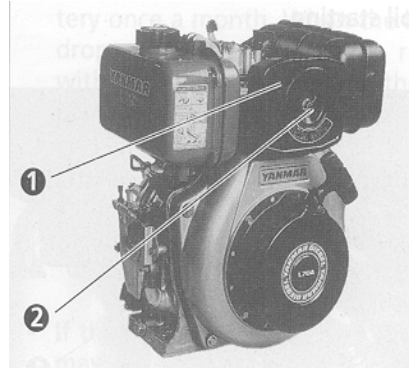
Use 5W/40 engine oil.



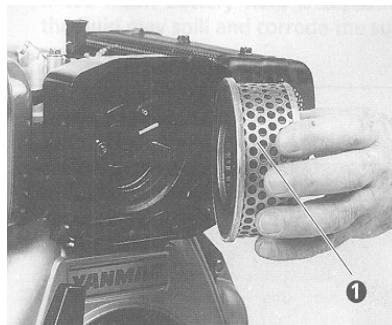
Pour the oil up to the mouth of the filler port. Make sure the engine is level when pouring the oil.

Lube oil capacity: 1.65 l.

### 3. Servicing The Air Cleaner



1 - Air cleaner, 2 - Wing nut



1 - Element



**CAUTION!** Do not clean the air cleaner element with detergents as it is of an oil-soaked type.

**CAUTION!** Replace the element when the power output decreases or a bad color of the exhaust gases is noticed.

**CAUTION!** Never run the engine without the air cleaner element. Doing so may result in quick engine wear.

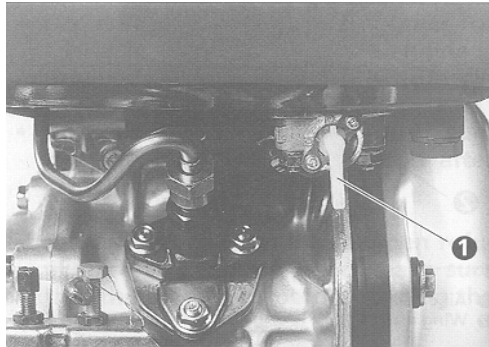
# 1 OPERATION

## *Starting The Engine*

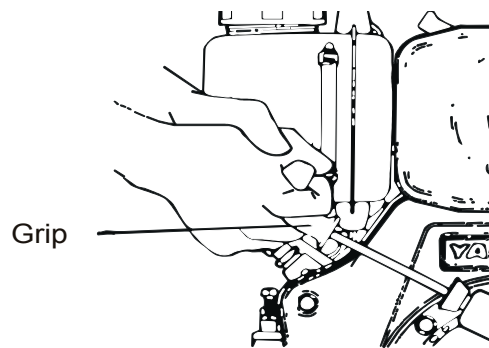
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### 1.2 Starting The Engine

#### Recoil Starting



1 - Fuel cock



#### **Perform the following steps to start the engine:**

1. Set the fuel cock in the open ("O") position.
2. Put the engine speed lever in the "START" position.



3. Pull out the start rope.

a) Holding the rope handle, pull the rope until you feel strong resistance and then allow the handle to return to its initial position.

b) Push the decompression lever down. It will return automatically to its original position-when the start rope is pulled again.

c) Pull out the start rope briskly holding the handle with both hands.



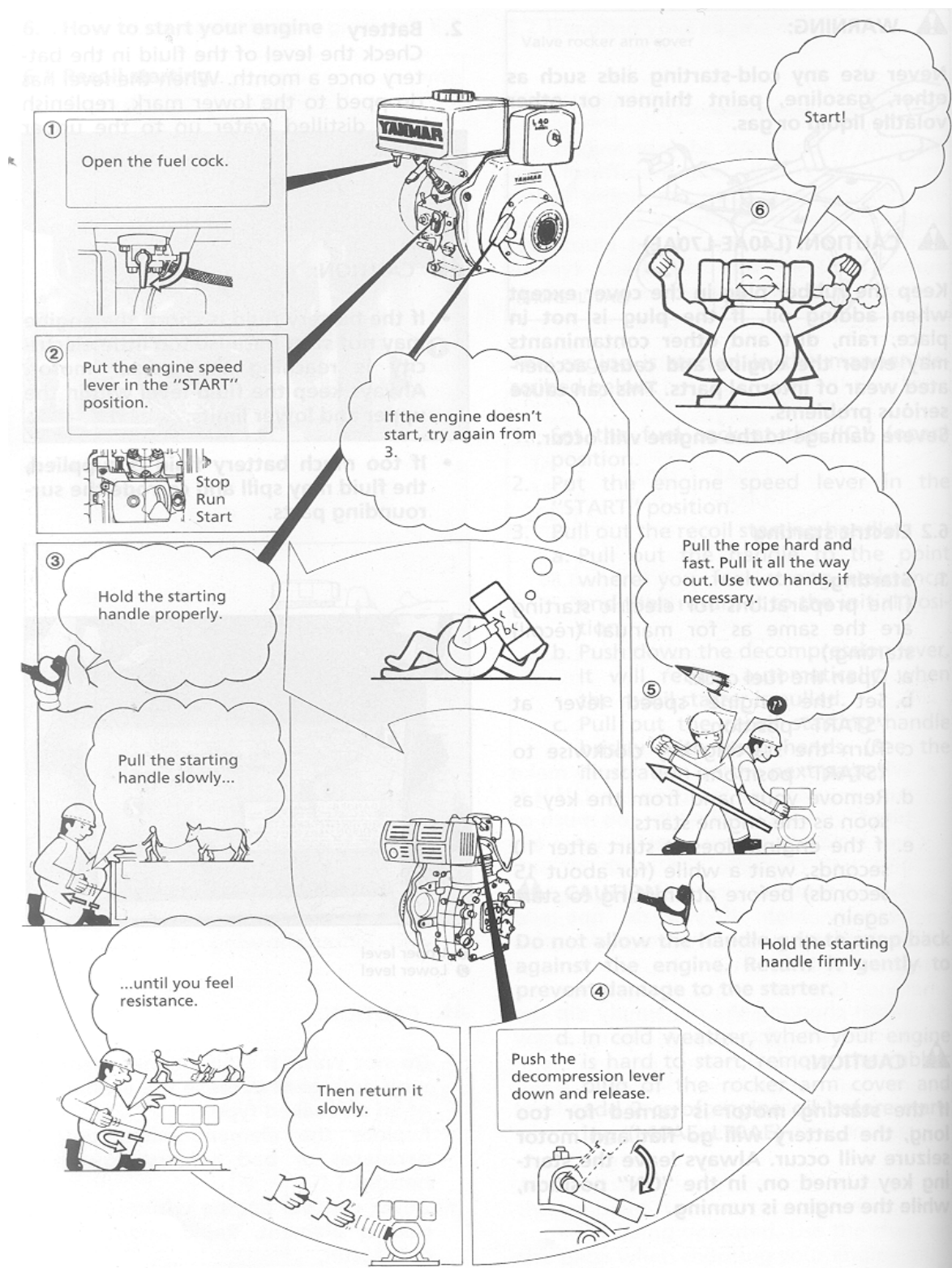
**CAUTION!** Do not allow the start rope handle to rapidly return to its original position. Release it gently to avoid damage to the starter.



**WARNING!** Never use any cold-starting aids such as ether, gasoline, paint thinner or other volatile liquid or gas.

# 1 OPERATION

## Starting The Engine





**CAUTION!** Always pull the rope hard and fast to start the engine.

Warm up the engine without load for about 3 minutes.



**CAUTION!** Do not loosen or readjust either the revolution speed limiting bolt or the fuel injection limiting bolt. Performance may be affected.

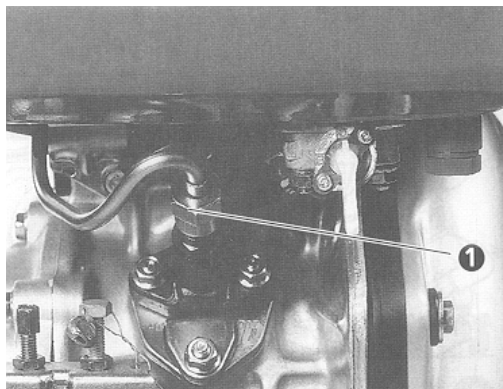


**WARNING!** The muffler can become very hot during operation. Be careful not to touch a hot muffler.




**WARNING!** Never perform refuelling while the engine is running.


### 1.3 Stopping The Engine




1 - Nut of high-pressure fuel pipe

1. Before stopping the engine, push the engine speed lever to the low-speed position and let the engine run for about 3 minutes with no load.
2. Return the engine speed lever to the “STOP” position.
3. Move the fuel cock lever to the “S” (closed) position.
4. Pull the start rope slowly until you feel resistance, i.e. until the engine is in the compression position (where the intake and exhaust valves are closed) and leave the engine in this position. This prevents rusting while the engine is not in use.

 **WARNING!** If the engine keeps on running even after the speed lever is placed in the “STOP” position, stop the engine either by closing the fuel cock (“S” position) or by loosening the nut of the high-pressure fuel pipe on the pump side.

 **CAUTION!** When stopping the engine, reduce the load slowly. Do not stop the engine suddenly as it may cause the temperature to raise abnormally.

 **CAUTION!** Do not stop the engine using the decompression lever.

## SECTION 2 MAINTENANCE



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



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



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

### 2.1 Air 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.

## 2.2 Air Filter & Pre-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.



Service the pre-cleaner every four hours of operation. Service by gently shaking excess sawdust and debris from the foam piece.



Clean the air filter (air cleaner element) and pre-cleaner (element wrapper) every eight hours of operation. See the engine manual for further instructions.



Change the air cleaner element every 6 months or 400 hours (or earlier if dirty).



**CAUTION!** Never run the engine without the element or with a defective element.



**WARNING!** A clogged element hinders the flow of air to the combustion chamber. This reduces engine output, increases lube oil and fuel consumption and makes starting difficult.



**WARNING!** Make sure you clean the element regularly.

## 2.3 Oil & Oil Filter

Change the oil after the first 50 hours of operation or after the first month (whichever comes first), and every 3 months or 200 hours thereafter.



**WARNING!** Always drain the oil while the engine is still warm. It may be difficult to drain the oil completely when the engine is cold.

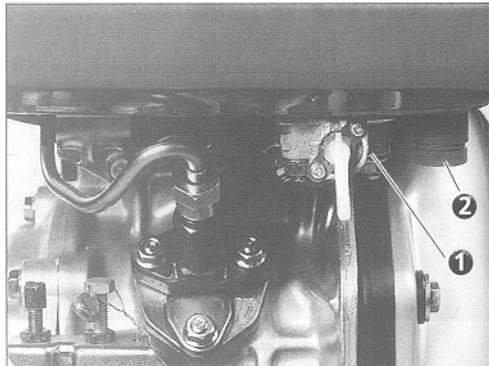
Change the oil filter every 6 months or 400 hours of operation.

Lube oil capacity: 1.65 l.



**WARNING!** Before adding oil make sure the engine is not tilted.

## 2.4 Fuel Filter



1 - Nuts, 2 - Drain plug

100

Clean: Every 3 months or 200 Hrs.

Replace: Every 6 months or 400 Hrs.

The fuel filter has to be cleaned regularly to insure maximum engine output.

1. Drain fuel from the fuel tank.
2. Loosen the fuel cock nuts and remove the filter from the F.O. tank filler port. Wash the filter thoroughly with diesel oil.



## 2.5 Drive Belt Adjustment



**WARNING!** Do not for any reason adjust the engine drive belts or belt support bracket with the engine running. Doing so may result in serious injury.

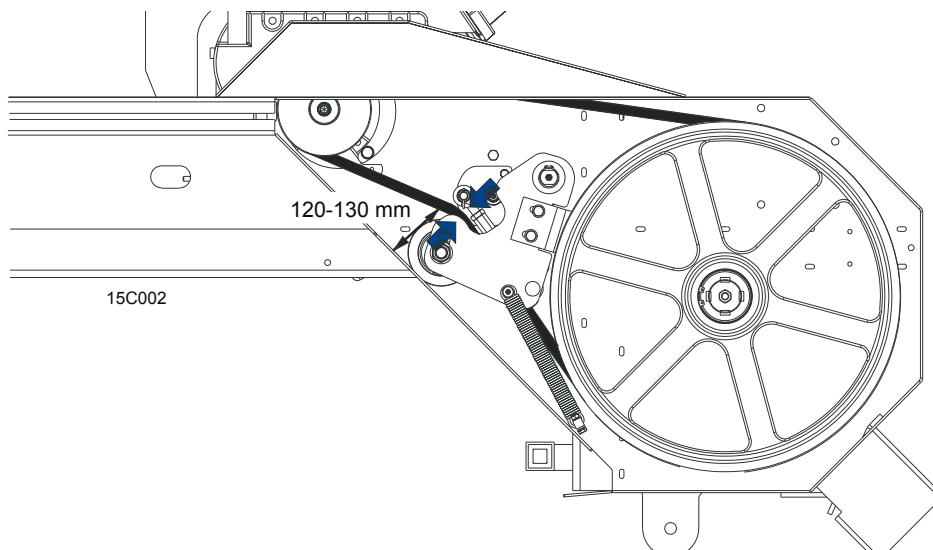


Check the drive belt tension after the first 20 hours, and every 50 hours thereafter.

To adjust the drive belt tension when the tensioner handle is disengaged:

1. Measure the distance from the blade housing to the drive belt with the tensioner handle disengaged as shown in Figure 3-1.
2. Adjust the distance by moving the engine assembly on the engine mount plate. To do that, turn the two jam nuts on the turnbuckle counterclockwise to tighten the belt or clockwise to loosen the belt. Retighten the jam nuts.

**See Figure 2-1.**



**FIG. 2-1**

To adjust the drive belt tension when the tensioner handle is engaged:

1. The drive belt tension is correct when you use 10 - 12 kG (100 - 120 N) of force to turn the tensioner handle to the up position. If you do not have a force gauge: the drive belt is too tight when you can feel vibrations while turning the tensioner handle to the up position. The drive belt is too loose when the engine pulley does not rotate the drive belt and the blade drive wheel when engaged.

# 2

## Maintenance

### Drive Belt Adjustment

2. Loosen the drive belt turnbuckle jam nut and turn the turnbuckle counterclockwise to tighten the belt, clockwise to loosen the belt.

See Figure 2-2.

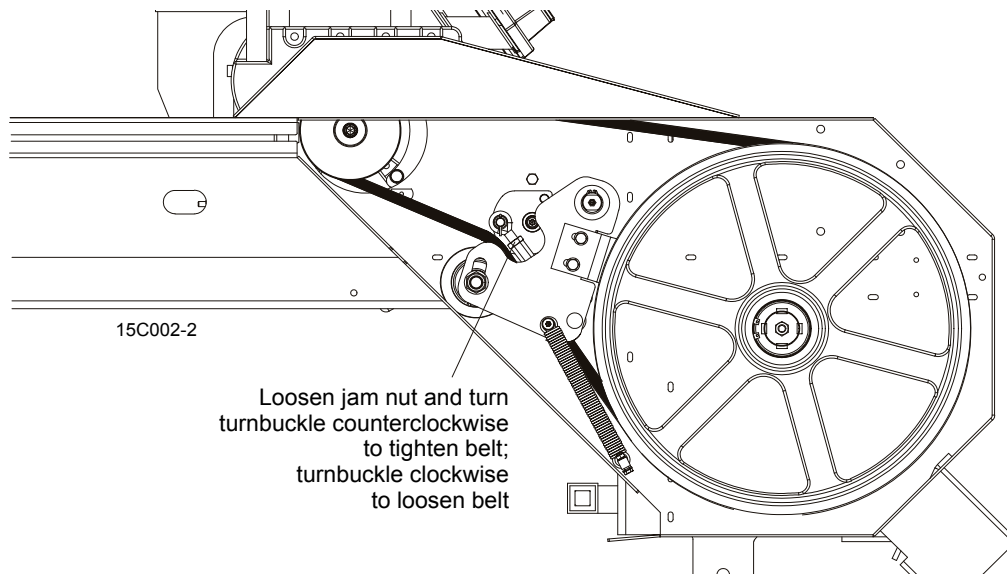


FIG. 2-2

After tensioning the drive belt, check throttle cable tension and adjust if necessary. Make sure that the throttle linkage is not affecting the engine RPM while the tensioner handle is disengaged. Make sure the cable is not bent or kinked. The throttle cable should be tensioned just enough so that the engine revs as soon as the tensioner handle is engaged. **NOTE:** A properly adjusted throttle will extend the cable spring ~13 mm when running and have a slight amount of slack in the cable when idling.

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

AR

## 2.6 RPM Adjustments



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

200

Check the RPM with a tachometer after the first 20 hours of operation and every 200 hours thereafter. High-end RPM should be 3600 ( $\pm 100$ ) RPM and low-end RPM should be 1150 (not to exceed 1500).

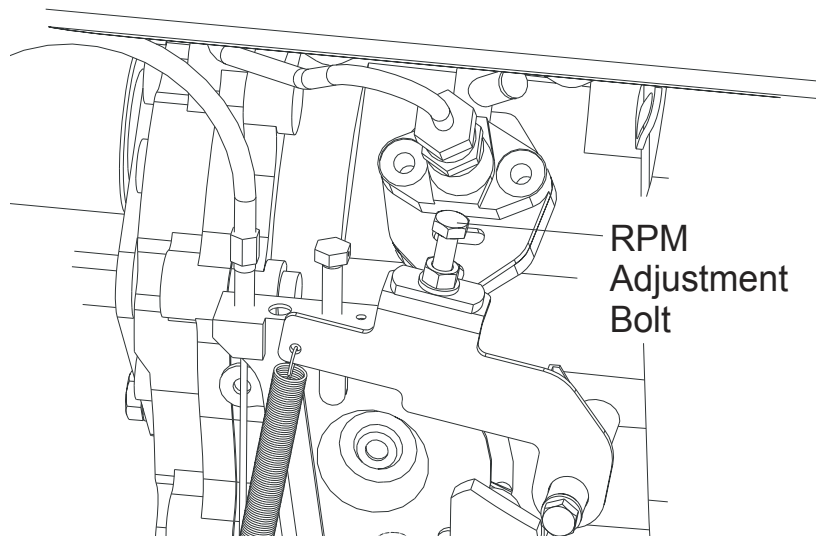
Before checking the RPM, make sure belt and brake strap tension are correct (See Saw-mill Maintenance).

1. Start the engine to measure the low-end RPM.

Make sure that the throttle linkage is not affecting the engine RPM while the clutch/brake handle is disengaged. Make sure the cable is not bent or kinked. Refer to the engine manual to adjust the low-end RPM.

2. Engage the clutch handle to throttle the engine and measure the high-end RPM. Readjust the throttle linkage if necessary to increase or reduce the high-end engine speed.

The engine should start to throttle as soon as you start moving the clutch handle down. If the engine dies instead, restart the engine and adjust the throttle linkage as far as possible without affecting low-end RPM. **NOTE:** A properly adjusted throttle will extend the cable spring ~13 mm when running and have a slight amount of slack in the cable when idling.



**RYS. 2-2**

## SECTION 3 REPLACEMENT PARTS

### 3.1 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.

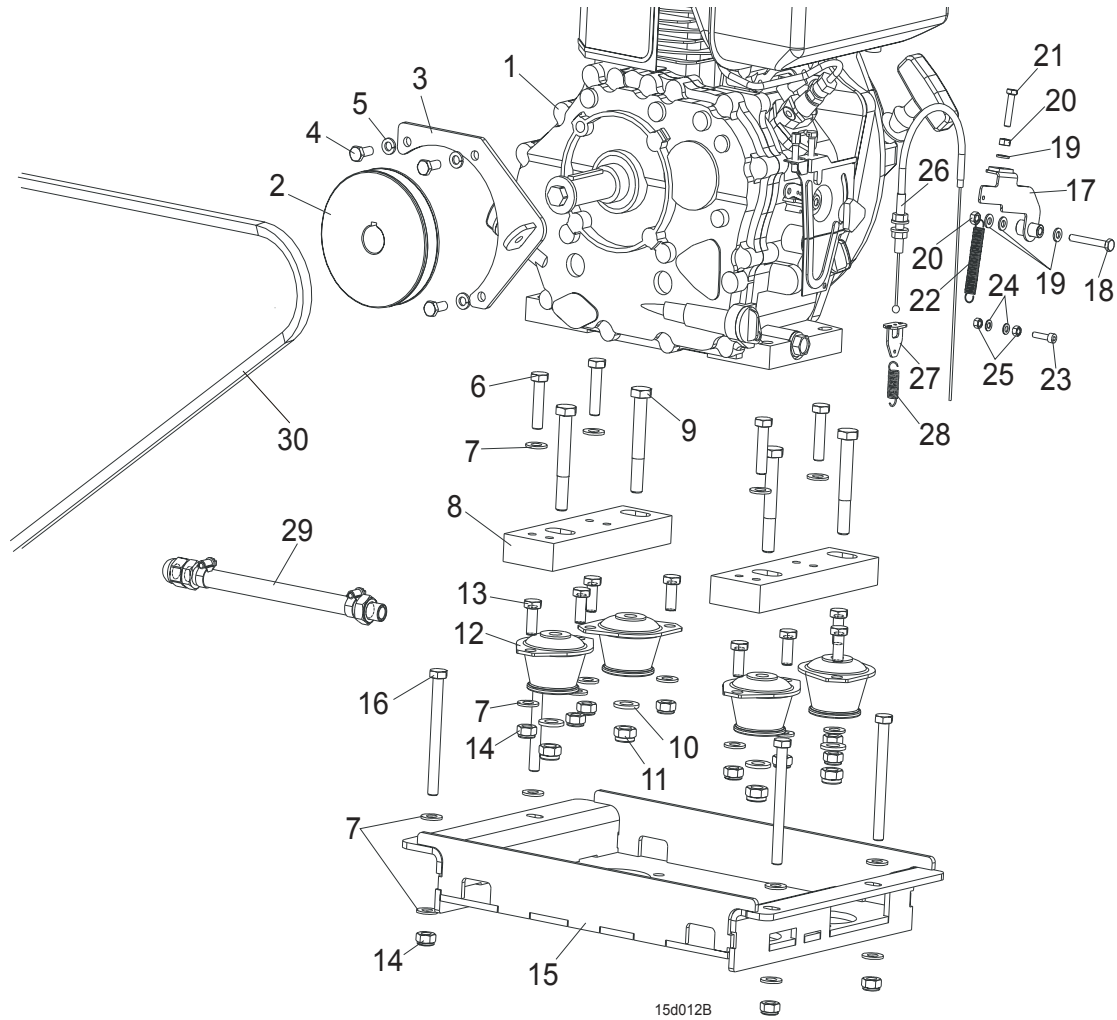
See the sample table below. Sample Part #A01111 includes part F02222-2 and subassembly A03333. Subassembly A03333 includes part S04444-4 and subassembly K05555. The diamond (◆) indicates that S04444-4 is not available except in subassembly A03333. Subassembly K05555 includes parts M06666 and F07777-77.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

<b>3.2 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 Europe call our European Headquarters and Manufacturing Facility in Kolo, Poland at **+48-63-2626000**. From the continental U.S., call **1-800-448-7881** 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.

### 3.3 Engine Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
	<b>ENGINE ASSEMBLY, D10</b>	091927	1
<b>1</b>	Engine, YANMAR L100AE-DYC W/Manual Starting	091907	1
	Muffler, #114970-13551	092614	1
	Gasket, #114699-13200 Muffler	092615	1
	Element, #114650-12591 Air Cleaner	090164	1
	Gasket, #114699-12210 Air Cleaner	092616	1
	Rope, #114699-76630 Starter	092617	1
	Spring, #114699-76540 Helical	092618	1
	Injector Assembly, #714650-53100 Fuel	092619	1
	Nozzle Assembly, #114650-53000 Fuel Injector	092620	1
	Filter, #114250-35110 Oil	090165	1

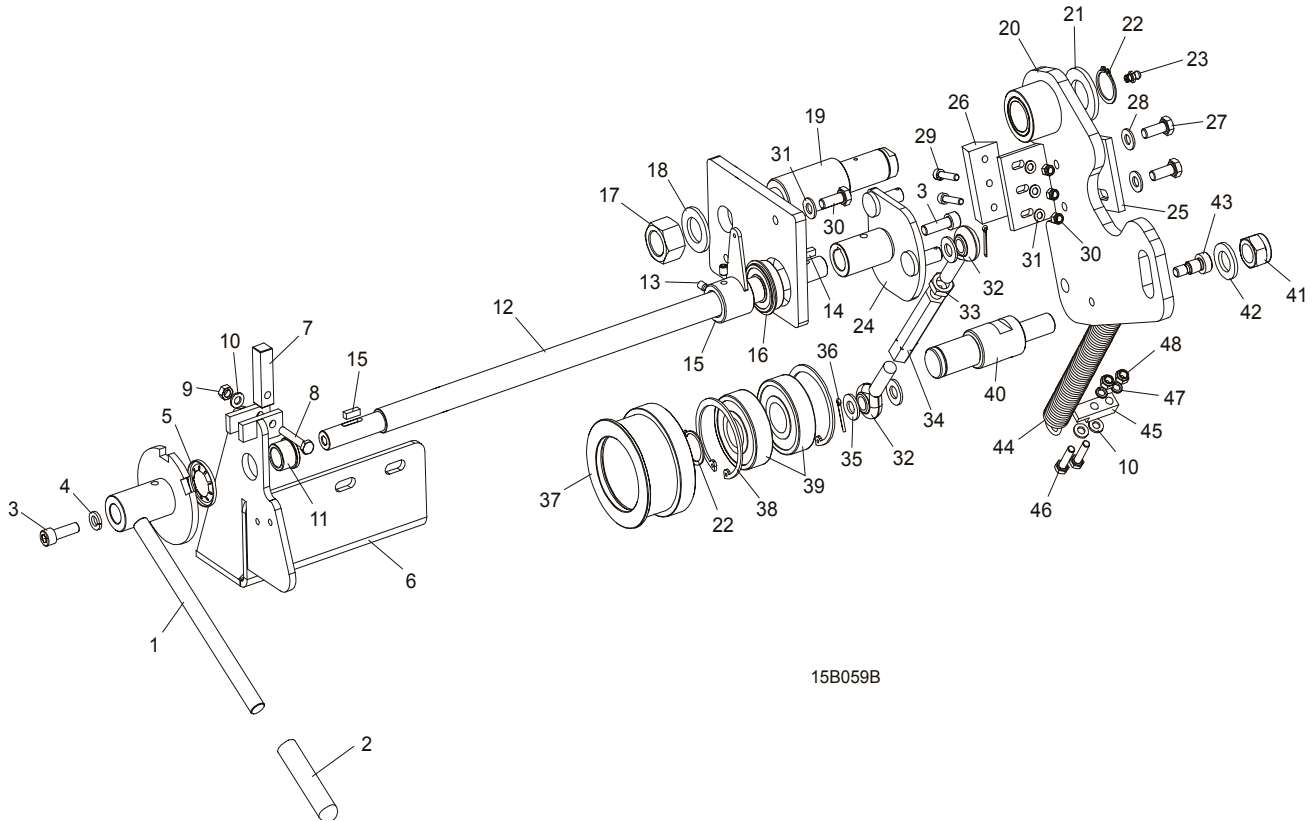
# 3

## Replacement Parts

### Engine Assembly

	Gasket Kit, #714988-92610	092621	1	
	Filter, #114250-55121Fuel	090163	1	
2	Pulley, D10 Engine Zinc-Plated	091909-1	1	
3	Bracket, Throttle Cable Painted	091921-1	1	
4	Bolt, M8x20mm Hex Head Grade 5.8 Zinc	F81002-4	3	
5	Washer, 8.2 Split Lock Zinc	F81054-4	3	
6	Bolt, M10x45mm Hex Head Full Thread Zinc	F81003-3	4	
7	Washer, M10 Flat Zinc	F81055-1	20	
8	Block, D10 Engine Mount Painted	092360-1	2	
9	Bolt, M12x90mm Hex Head Grade 5.8 Zinc	F81004-2	4	
10	Washer, M12 Flat Zinc	F81056-1	8	
11	Nut, M12 Hex Nylon Zinc Lock	F81034-2	4	
12	Absorber, # 210355 .65 ShA Shock	091933	4	
13	Bolt, M10-1.5x25mm Hex Head Grade 8.8	F81003-11	8	
14	Nut, M10 Hex Nylon Zinc Lock	F81033-1	12	
15	Mount, D10 Engine Painted	091760-1	1	
16	Bolt, M10x110 8.8 Hex Head Zinc	F81003-43	4	
	Shut-Off Weldment, Throttle Complete	091767	1	
17	Shut-Off Weldment, Throttle Painted	091764-1	1	
18	Bolt, M6x45mm Hex Head Full Thread Grade 5 (8.8) Zinc	F81001-6	1	
19	Washer, M6 Flat Zinc	F81053-1	4	
20	Nut, M6 Hexagon, Free Grade 5 (8.8) Zinc	F81031-1	2	
21	Bolt, M6x30mm Hex Head Grade 8.8 Zinc	F81001-8	1	
22	Spring, .8 x 9.5x76.2 Extension Zinc-Plated	091770	1	
23	Screw, M5x20-8.8 Hex Socket Head Cap Zinc	F81000-72	1	
24	Washer, M5 Flat Zinc	F81052-1	2	
25	Nut, M5 Hexagon Free Grade 5.8 Zinc	F81030-1	2	
26	Cable, D10 Throttle	091924	1	
27	Bracket, Throttle Cable	091918-1	1	
28	Spring, 1.6x12x38 Extension	092208	1	
29	Hose, D10 Oil Drain Complete	091755	1	
30	V-Belt, HB-2155 Li-2200 LW(KLEBERG)	092361	1	
31	Oil, 5W/40 SHELL HELIX ULTRA Engine	086187	1,6 l	

### 3.4 Throttle/Tensioner Assembly



REF	DESCRIPTION (◆ Indicates Parts Available In Assemblies Only)	PART #	QTY.
	<b>HANDLE ASSEMBLY, LT15 TENSIONER</b>	087630	1
1	Handle, Throttle/Tensioner	087645-1	1
2	Grip, 1/2" I.D. x 3" Long Handle	014835	1
3	Bolt, M8 x 25 Socket Head	F81002-21	2
4	Washer 8.2 Split Lock	F81054-4	1
5	Ring, 7/8"	F04254-31	1
6	Bracket Weldment, Throttle/Tensioner Handle	087637-1	1
7	Pawl, Detent	086156	1
8	Bolt, M6 x 35-8.8 Hex Head	F81001-71	1
9	Nut, M6-8 Hex	F81031-1	1
10	Washer, 6.4 Flat	F81053-1	1
11	Bushing, Handle Throttle/Tensioner	086676	1
12	Rod, Throttle/Tensioner Handle	087640-1	1
13	Screw, Retaining	F81001-28	5

# 3

## Replacement Parts

### Throttle/Tensioner Assembly

14	Key, A5 x 5 x 14	087365	1	
15	Bracket, Throttle/Tensioner Handle Pivot	087988-1	1	
16	Bearing, 6203-2RS w/Ring	086395	1	
17	Nut, M20-8 Hex	F81037-1	1	
18	Washer, 20.5	F81059-1	1	
19	Pin, Tensioner Handle	087643	1	
20	Bracket, Tensioner Main Mount	087675-1	1	
21	Washer, 25 Flat	F81059-5	1	
22	Ring, External Retaining	F81090-22	2	
23	Fitting, M6 Grease	086280	1	
24	Bracket, Tensioner Pivot	087638-1	1	
25	Bracket, Tensioner Brake Block	087669	1	
26	Block, Tensioner Brake	087648	1	
27	Bolt, M8 x 20-5.8 Hex Head	F81002-1	2	
28	Washer, 8.4 Flat	F81054-1	2	
29	Bolt, M5 x 25-5.8 Socket Head	F81000-7	3	
30	Nut, M5-8 Hex	F81030-2	3	
31	Washer, 5.3 Flat	F81052-1	3	
	Turnbuckle Assembly, Belt Tensioner			
32	Rod End, 7/16-20 Right Hand Thread	P11579	2	
33	Nut, 7/16-20 Hex Jam	F05010-38	1	
34	Turnbuckle, 3 3/4 Tensioner Handle	S12262	1	
35	Washer, 10.5 Flat	F81055-1	3	
36	Pin, 5 x 20 Cotter	F81043-1	2	
37	Wheel, Belt Tension	087671	1	
38	Ring, Internal Retaining	F81090-1	2	
39	Bearing, 6305 2RS NSK	P08066	2	
40	Pivot, Tension Wheel	087674	1	
41	Nut, M16-8 Hex	F81036-2	1	
42	Washer, 17 Flat	F81058-1	1	
43	Bolt, 10/M8 x 12-12.9	F81003-62	1	
44	Spring, Tensioner	P09136	1	
45	Bracket, Spring Mount	087989	1	
46	Bolt, M6 x 25-5.8 Socket Head	F81001-3	2	
47	Washer, 6.1 External Star	F81053-3	2	
48	Nut, M6-8 Hex	F81031-2	2	