Thank you for purchasing a Harper ATM 72.

TO THE OWNER OR OPERATOR:

Please take time to read this manual carefully before operating the ATM 72. Each operator should be familiar with all safety precautions along with the operating and service procedures. Knowledge and familiarity will make a difference in how the machine performs.

As with all Harper products, the ATM 72 was developed through tough design and testing procedures to produce a sturdy, dependable machine. This manual gives assembly and operating information. Read and understand all instructional materials included with the unit and its components before operating or maintaining the equipment.

An All-Terrain Mower can present hazards to an operator who follows unsafe procedures in either the operation or maintenance of the unit. Therefore, **SAFETY WARNINGS** are present at certain locations in the text.

**SYMBOL:**

![SAFETY WARNING!](image)

**MEANING:** Failure to understand and obey this warning may result in injury to you or others. Whenever this symbol is used, please pay very close attention to the information presented, and make sure you fully understand. If you do not, contact your dealer or Harper Industries for clarification.

![SAFETY WARNING!](image)

All shields and guards must be in place for proper and safe operation of this equipment. Where they are shown removed in this manual, it is for purposes of illustration and instruction only. Do not operate this equipment unless all shields and guards are in place.

**WARNING:** Breathing 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/diesel

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LIMITED WARRANTY

The Harper ATM 72 is warranted against defects in workmanship and materials for a period of one (1) year from the original date of retail purchase to the original purchaser.

Harper Industries will repair or replace, at its own option, any part that evaluation shows to be defective. Warranty is limited to parts, labor and ground freight delivery of replacement parts. The user will pay freight charges for expedited orders of replacement parts and/or parts submitted for warranty evaluation. No product or part may be returned for warranty evaluation without prior approval.

This warranty does not apply to parts subjected to misuse, abuse, alteration, improper or inadequate maintenance, or normal wear (including belts, blades and tires).

Diesel engines are not covered under this warranty. Refer to manufacturer’s warranty for specific warranty information. Harper Industries makes no warranty with respect to trade accessories. They are subject to the warranties of the manufacturer.

RECORDS

Date of Purchase _____ / _____ / ______

Dealer’s Name _________________________________

Dealer’s Phone _________________________________

Serial Number Machine __________________________

Serial Number Engine ___________________________
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# Specifications

<table>
<thead>
<tr>
<th>Engine</th>
<th>Yanmar 3TNV82A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cylinders</td>
<td>3</td>
</tr>
<tr>
<td>Bore x Stroke in (mm)</td>
<td>3.23 x 3.31 (82 x 84)</td>
</tr>
<tr>
<td>Displacement cu. in / (cc)</td>
<td>81.22 / (1331)</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>18.0:1</td>
</tr>
<tr>
<td>Lubricating System</td>
<td>Forced / Trochoid pump</td>
</tr>
<tr>
<td>Cooling / Capacity</td>
<td>Radiator / 1.5 gal. (5.7 liters)</td>
</tr>
<tr>
<td>Firing Order</td>
<td>1-2-3</td>
</tr>
<tr>
<td>Engine Rotation</td>
<td>Counterclockwise (when looking at flywheel)</td>
</tr>
<tr>
<td>Output net hp / (kW)</td>
<td>29.4 / (21.9)</td>
</tr>
<tr>
<td>Output gross hp / (kW)</td>
<td>30.2 / (22.5)</td>
</tr>
<tr>
<td>Torque</td>
<td>85 lb. Ft (115 Nm) @ 1600 rpm</td>
</tr>
<tr>
<td>Starter</td>
<td>12 V HITACHI</td>
</tr>
<tr>
<td>Alternator</td>
<td>12 V / 40 A</td>
</tr>
<tr>
<td>Idle Speed</td>
<td>1275 rpm</td>
</tr>
<tr>
<td>Max. Speed</td>
<td>3000 rpm, (EPA Rating)</td>
</tr>
</tbody>
</table>

## Fuel

<table>
<thead>
<tr>
<th>#2 Diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity gallons / (liters)</td>
</tr>
<tr>
<td>Injection</td>
</tr>
<tr>
<td>Flow Rate</td>
</tr>
<tr>
<td>Filter, Primary</td>
</tr>
</tbody>
</table>

## Oil

<table>
<thead>
<tr>
<th>15W-40, API Classification CE/SF (10W-40 BElow 40° F (19° C))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity (liter)</td>
</tr>
<tr>
<td>Oil Pressure, Hot</td>
</tr>
<tr>
<td>Oil Pressure, Idle</td>
</tr>
<tr>
<td>Pressure Relief Valve</td>
</tr>
<tr>
<td>Filter / Interval</td>
</tr>
</tbody>
</table>

## Hydraulic System

<table>
<thead>
<tr>
<th>Capacity</th>
<th>8 gal. / (30.28 liters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propulsion Pump</td>
<td>Oil gear 1.35</td>
</tr>
<tr>
<td>Wheel Drive</td>
<td>Ross ME29</td>
</tr>
<tr>
<td>Steering</td>
<td>Ross /TRW/HFG</td>
</tr>
<tr>
<td>Deck Drive MTR</td>
<td>Parker gear pump</td>
</tr>
<tr>
<td>Blade Tip Speed</td>
<td>18,613 ft. per min.</td>
</tr>
<tr>
<td>Deck Drive Pump</td>
<td>Barnes gear pump</td>
</tr>
<tr>
<td>Charge Pump</td>
<td>Oil gear .61</td>
</tr>
<tr>
<td>Motor Oil</td>
<td>10W- 40 – (S.A.E. J183)</td>
</tr>
<tr>
<td>Hoses</td>
<td>12,000 PSI (82,740kPA) bursting pressure</td>
</tr>
<tr>
<td>Hot Oil Shut Down</td>
<td>230°F (114°C)</td>
</tr>
</tbody>
</table>
## Hydraulic Filters

<table>
<thead>
<tr>
<th>Filter Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return (10 Micron)</td>
<td>DewEze 822002</td>
</tr>
<tr>
<td>Propulsion Pump Filter</td>
<td>DewEze 220559</td>
</tr>
</tbody>
</table>

## System Pressures

<table>
<thead>
<tr>
<th>Component</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck</td>
<td>3000 PSI (20,685 kPA)</td>
</tr>
<tr>
<td>Propulsion</td>
<td>3750 PSI (25,856 kPA)</td>
</tr>
<tr>
<td>Leveling/Steering</td>
<td>1200 PSI (8,274 kPA)</td>
</tr>
<tr>
<td>Accumulators</td>
<td>$\frac{1}{2}$ pt @475 PSI Charge (.473 liters@3275@kPA)</td>
</tr>
</tbody>
</table>

## Tires

<table>
<thead>
<tr>
<th>Tires</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive</td>
<td>Bear Claw 25x12.5 –12</td>
</tr>
<tr>
<td></td>
<td>Inflate to 10-16 PSI (68.95 – 110.32 kPA)</td>
</tr>
<tr>
<td></td>
<td>Filled with 60oz. Tire Sealant</td>
</tr>
<tr>
<td>Stabilizer</td>
<td>Carlisle 16.5 x 8.5 – 8</td>
</tr>
<tr>
<td></td>
<td><em>Note: This tire must be filled with foam for proper operation of leveling system.</em></td>
</tr>
<tr>
<td>Deck Caster</td>
<td>Carlisle 11x 4-5 (foam filled)</td>
</tr>
</tbody>
</table>

## Weight

| Weight          | 2225 lbs. / (1000926 kg.) |

Tested Against ANSI / OPEI Standards B71.4-1990
Introduction

The objective of Harper Industries in designing the ATM 72 was to create a mowing machine that could function safely and comfortably on slopes and inclines. The result is an All-Terrain Mower that will automatically adjust itself to keep the operator in a vertical position on all slopes up to 34 degrees.

Driving with an automatic leveling device will be a new and different experience. After several minutes of driving, the smooth control and sturdy feel will become comfortable to you. The security of always sitting upright and the feel of powerful, positive traction will give you confidence and comfort in most mowing situations. However, we urge EXTREME CAUTION lest your confidence in these features get you into trouble.

REMEMBER: The features of the ATM 72 cannot replace good common sense.

Operating Guide

Starting
- Mower may be leaning after setting for a period of time, from internal hydraulic leakage. This will not affect operating leveling during mowing operations.
- COLD WEATHER starting: Turn key to Pre-heat, light on dash will light, hold until the light goes out, then start. The engine is designed for easy starting above 32°. Do not run starter for more than 15 seconds at a time or damage may occur to the fuel solenoid and starter motor.
- Engine will shut down if hydraulic oil over-heats, and will not start until cooled down.

Deck Service Mode
- Turn Auto Level OFF.
- With Manual Override switch, lean mower to right or left.
- Close the ball valve located on the leveling cylinder on the side the mower is leaning towards.
- Switch the Auto Level ON, or push the manual switch toward the deck to raise.
- Deck will raise.
- Turn engine OFF.
- Block deck up before working under the deck.

Cutting Height
- Adjust center of decks with the toggle switch on dash, raising the decks to maximum height. Adjust the pins and bushings at front and rear of center deck adjustments, up or down to desired height. By turning the bushings upside down, adjustments can be made in ½” increments.
- Adjust the front caster wheels on each deck with the hand cranks, to correspond with the change made on center deck.
- Adjust outer decks by moving the pins and bushings; can be adjusted in ½” increments.
- See “Adjustments” section for more details.

Lubrication
- GREASE DAILY:
  - Castor wheels
  - Steering cylinder
  - Stabilizer arms
  - Vertical Adjusting Shafts, outer decks
- ENGINE:
  - 50 Hours on new engine: Change oil and filter.
  - 100 Hours, after initial change: Change oil and filter.
Tow Valve
• Opening the Tow Valve (under cowl- ing, left side) allows the mower to be moved by pushing or towing a short distance without starting engine.

NOTE: If Tow Valve is left open, mower will operate, but have little propulsion power.

Auto Leveling
• Set Parking Brake.
• Run engine at full throttle.
• Set auto Level Switch ON.
• Lean mower to left with Manual Over- ride Switch. Release Manual Override switch.
• If mower does not return to vertical, turn LEFT adjusting screw Counter- Clock-Wise.
• If mower returns past vertical, turn LEFT adjusting screw Clock-Wise.
• Follow same procedure for right side leveling, adjusting the RIGHT adjusting screw.
• Adjust leveling so that mower returns to approximately 2 degrees from verti- cal, from left and right.
Control Identification

Hydraulic Reservoir
(located under hood at front of mower)

Tow Valve & Neutral Safety Switch
(located behind cowling and above propulsion pump)

Roll Over Bar

Hood

Cowling

Diesel Fuel Tank

Mercury Switches

Leveling Cylinder

Wheel Motor

Caster Wheel

Outside Deck Height Adjustment

Deck Lift & Center Deck Height Adjustment

Supporting Arm

Deck Motor

Stabilizer Arm

Equalizer Arm

Stabilizer Wheel

Cutting Deck

Caster Wheel

Control Panel
General Safety Guidelines

Equipment & Controls
• Before operating this equipment, read and understand the Operator’s Manual.
• Altering the unit in any way that adversely affects its safe operation, performance or durability will void the warranty and may cause hazardous conditions.
• Know the location and function of all controls and how to stop the equipment quickly in an emergency before you operate the unit.
• Keep all bolts, screws and fittings tight to ensure safe operation of equipment.

Guards & Shields
• Keep all safety devices in place and in good operating condition.
• Replace all worn, damaged, unusable, missing or lost safety shields and guards before operating unit.

Replacement Parts
• Use genuine factory parts or parts with equivalent characteristics including: type, strength and material.
• Replace locknuts and locking screws if they can be tightened without considerable resistance for several turns before they are completely tight.
• If hardware is not secure, or if fasteners are over-tightened, equipment failure may result posing possible safety hazards.
• Use proper torque specifications for all fasteners when they are replaced.

SAFETY WARNING!
Failure to use genuine factory parts may result in voidance of warranty, product malfunction or possible injury.

Before Operation
• Before starting the machine, visually inspect all nuts, bolts and other fasteners to see that they are properly secured.
• Nuts, bolts, screws and fittings should be inspected after the first hour of operation and every 8 to 10 hours thereafter for proper tightness.
• Make sure all belts and hoses are in good condition. Replace if necessary.
• Clear all foreign objects such as rocks, bottles or other hard materials that lay in the area to be mowed.

During Operation
• While operating the equipment, make sure that no foreign objects such as rocks, bottles or other hard materials pass under the deck of the mower.
• If an object should strike the blades causing an unusual noise or vibration, shut the engine off immediately and allow it to come to a complete stop. Take all prescribed safety precautions and do the following:
  1) Inspect for damage.
  2) Check for wire or string around the blades
  2) Repair or replace damaged parts.
  3) Tighten any loose fasteners or parts.
• Keep the engine area clean and free of debris and other accumulations.
After Operation
- Park in a level area, return hydrostat control to the neutral position and turn engine off (park brake will set).
- Remove key from ignition, lock doors and store key in a safe location.

While Traveling Roadway
- Raise deck, add spacers, and lock deck wings with safety chains before entering roadways.
- Turn on hazard lights and use turn signal when making turns. Use strobe to give additional alert to others when traveling or working alongside road ways.

Safety Decals
- If safety related or instructional decals become illegible or are removed, replace them immediately.
- If parts are replaced, make sure all safety related or instructional decals are present before the equipment is operated again.
- New decals may be obtained from your local Harper Dealer.

Hydraulics

To prevent serious injury or death:
- Relieve pressure on system before repairing, adjusting or disconnecting any hydraulic hose or fitting.
- Wear proper hand and eye protection when searching for leaks.
- Use wood or cardboard instead of hands when looking for leaks.
- Keep all hoses, fittings and components in good repair.
- Do not use any type of heat or flame (welding, soldering, cutting torch, etc.) near pressurized hydraulic lines.

SAFETY WARNING!
HIGH-PRESSURE FLUID HAZARD!
Escaping fluid under pressure can penetrate skin causing serious injury or death.

SAFETY WARNING!
Always keep a fire extinguisher with the ATM 72 during operation and service.

Diesel Fuel
- Always use an approved container for transporting diesel fuel.
- Do not allow open flames or sparks while performing maintenance or refueling.
- Never remove fuel tank cap or add fuel when engine is running or while it is hot.
- Only use ultra low sulfur diesel.
- Never fill fuel tank indoors. Fumes are heavy and will sink to the lowest point, collect and become hazardous.
- Wipe up spilled fuel immediately.
- Do not store fuel in a room with an appliance that has a gas pilot or electrical switch that may cause sparks.
- Always store diesel outside in a safety can (a can with flame arrestor and pressure relief valve in pour spout).
- Never store the equipment with fuel in the tank inside a building where fumes may reach an open flame or spark.
- Allow the engine to cool before storing in any enclosure.
- Be certain to provide adequate ventilation if an engine must be run indoors exhaust fumes are dangerous.

SAFETY WARNING!
Diesel fuel is extremely flammable and can be highly explosive.

SAFETY WARNING!
To prevent possible eye injury, always wear SAFETY GLASSES while operating or servicing the equipment.
Operation

Before Starting Unit
- Clear all foreign objects such as rocks, bottles or other hard materials that lay in the area to be mowed.
- Follow all procedures prescribed in the Maintenance section.
- Fill with #2 diesel fuel, if needed, while engine is cool.
- Visually check tires (10-12 psi).
- Visually inspect machine for loose fittings, fasteners, hoses, etc.
- Adjust seat to a comfortable position.
- Fasten safety belts.

⚠️ SAFETY WARNING! ⚠️
To prevent possible eye injury, always wear SAFETY GLASSES while operating or servicing the equipment.

Driving the ATM 72 LC
Driving the DEWEZE ATM 72 LC with the automatic leveling device will be a new and different experience. After several minutes of driving, the smooth control and sturdy feel will become comfortable to you. The security of always sitting upright, and the feel of powerful, positive traction will give you confidence and comfort in most mowing situations. We urge EXTREME CAUTION lest your confidence in these features get you in trouble. REMEMBER: The features of the machine cannot replace common sense.

⚠️ SAFETY WARNING! ⚠️
Auto level will not work if steering wheel is held against stop during extreme left or right turns.

Guidelines
1. Take some time to get used to the handling characteristics of the machine.
2. Always look before backing up.
3. SLOW DOWN over rough terrain.
4. DO NOT make sharp turns at high speeds.
5. Always keep your feet on the footrests while operating the machine.
6. Never attempt to operate the machine when it is malfunctioning.
7. Use extra caution when mowing slopes greater than 34 degrees. (see DewEze ATM Slope Capability on next page)
8. Turn up hill when maneuvering on a hill.
9. If it is necessary to park the mower on a hill, be sure to USE THE PARKING BRAKE AND CHOCK THE WHEELS!
10. Wear appropriate, protective clothing while operating the mower.
11. NEVER ALLOW PEOPLE IN THE AREA YOU ARE MOWING!
12. Always avoid mowing over debris that could be projected from the mower discharge or do damage to the machine or anything in the area.
13. FOR BEST RESULTS OPERATE THE MOWER ENGINE AT FULL THROTTLE. This will allow the blades to turn at optimum speed, and the leveling device to be the most responsive. Forward speed is easily controlled with the foot control pedal.
14. Slow down when turning on a hill. Fast turns may not allow the leveling system to function properly.
15. Before dismounting, turn off the blades. Place foot control in neutral position and set parking brake. Stop engine and remove ignition key.

Operating Tips
1. Read Safety Decals
2. Always check engine oil and hydraulic oil levels before starting.
3. Make sure you have plenty of fuel.
4. Visually check the tires.
5. Adjust seat to comfortable position.
6. Always use good judgement when using this machine.
7. Always wear safety belts.
Parameters for Cutting Grass
The principal objective when mowing is to achieve the highest quality cut with the greatest efficiency. However, there are many environmental conditions that work to diminish the capacity of the machine to achieve this goal. The variables include: type, density, length and moisture content of the vegetation. When determining the proper way to cut grass, each of these variables must be given serious consideration.

The operator is able to make adjustments that will increase the cutting efficiency of the machine. These adjustments include: deck height, ground speed and blade sharpness. Blades should be sharpened on a regular basis to improve cut and reduce resistance. Deck height and ground speed should be determined based on environmental conditions.

The highest quality of cut can usually be achieved by removing only 1/3 of the plant when the initial length is 9” or less. Mowing taller or extremely dense grass while using a low deck height setting will cause material to build up under the deck faster than it can be ejected. This build up can create enough resistance to slow the tip speed of the blade, causing a drastic reduction in cut quality. The configuration of the hydraulic system that powers the deck motors will exhibit stress in the left deck motor first. Deck height or mower speed should be adjusted when the right deck begins to outperform the left deck. This may occur without noticeable change in engine speed.

Certain situations may require two cuts with different deck heights and or a slower ground speed to achieve the desired cut quality. When a better looking finish cut is desired, making two passes in tall grass can dramatically improve the quality of the cut. The deck should be raised on the first cut to near maximum height to allow grass to escape freely. The deck should then be lowered to the desired height to make the final cut.

1. The lever with the yellow handle controls the chair’s horizontal movement.
2. The round knob adjusts the ride quality. Turn the knob clock-wise for a firmer ride, and counter-clockwise for a softer ride.

Adjust the screw to change the angle of the arm rests.

Adjust safety tether to allow proper seat travel and maintaining adequate safety.
Deck Lift Adjustment

Start your machine and raise the deck using the switch on the dash.

Adjust the height of the center of the deck first. Insert the pin and bushing in the third hole down from the top. The bushing should be installed with the short side down as shown in the picture below. The front and back of the deck should be set exactly the same.

Set the outside deck height using the pin and bushing and the hand crank. The pin should be installed in the fifth hole down from the top with the short side facing up as shown in the picture above.

Lastly, set the height of the caster wheels on the front of the deck using the hand crank (seen in above picture). Position the wheels as close to the ground as possible so that the wheel still turns and then turn it down one more turn so that the wheel carries a small amount of load.

**IMPORTANT**

**WHEN DONE CHANGING DECK HEIGHT ALWAYS REPLACE HAND CRANK PIN AND ALL BUSHING PINS.**

These adjustments will set the cut height at approximately 4”. The cut height can be adjusted higher in ½” increments by moving the pins and flipping over the bushings. When making adjustments to the deck height, it is suggested that the rear deck height be set slightly higher than the front of the deck to maximize efficiency and prevent double cutting.
Tow Valve

**IMPORTANT**
The Tow Valve must be opened before the unit is towed to avoid damage to the hydraulic pumps.

**Tow Valve Location**
The Tow Valve is located behind the right front cowling. The Tow Valve is accessible for adjustment through a small hole located in the cowling for this purpose.

**To Open Tow Valve**
1. Loosen the 9/16" locking nut.
2. Turn the 1/4" hex counter-clockwise a minimum of 2 full turns to ensure complete hydraulic system bypass.

**IMPORTANT**
Towing or pushing mower at more than one mph, with Tow Valve loosened, for more than 50 yards may cause serious damage to the hydraulic pumps and motors.

**NOTE:** Always close the Tow Valve before normal operation! If tow valve is left open the mower will operate but have little propulsion power.
**Level Adjustment**

The Manual Override Switch is located at the roll bar on the right hand side of the operator.

**Note:** The Manual Override Switch is the rear switch (see picture).

The box at the rear of the mower encloses the mercury switches that keep the machine level when the automatic leveling switch is on.

---

**To Adjust Mercury Switches**

Mower should be on level ground with the parking brake set, auto-level switch on, and engine at idle. Remove the two plastic covers from the mercury switch box.

1. Use manual over-ride switch to lean the mower to the right; release the switch and let the mower level itself.
   - If the mower does not reach a vertical position, and is still leaning some to the right, turn the RIGHT adjusting screw counter-clockwise and repeat No. 1 procedure. Continue this adjustment until mower returns to vertical position.
   - If mower passes vertical position, leaning some to the left, turn the RIGHT adjusting screw clockwise slightly and repeat No. 1 procedure. Continue this adjustment until mower returns to vertical position.

2. Use manual over-ride switch to lean the mower to the left; release the switch and let the mower level itself.
   - If mower does not reach vertical position, and is still leaning some to the left, turn the LEFT adjusting screw counter-clockwise slightly and repeat No. 2 procedure. Continue this adjustment until mower returns to vertical position.
   - If mower passes vertical position, leaning some to the right, turn the LEFT adjusting screw clockwise slightly and repeat No. 2 procedure. Continue this adjustment until mower returns to vertical position.
Neutral Adjustment
If the machine creeps forward or backward when pedal is in neutral position, the neutral adjustment must be made.

To Adjust
1. Remove the right side cowling. (The neutral adjustment is located behind the cowling and above the propulsion pump)
2. Position the screw on top of the neutral adjustment to the place where the mower does not creep forward or backward while in neutral.
Service Parts/Points

Filters
Engine Air Filter........................................................................................................ Deweze # 840027
Engine Oil Filter...................................................................................................... Deweze # 820220
Engine Fuel Filter.................................................................................................. Deweze # 842012
Engine Fuel/Water................................................................................................. Deweze # 852003
Hydraulic Return Filter........................................................................................ Deweze # 822002
Propulsion Pump Filter......................................................................................... Deweze # 822031
Hydraulic Tank Vent Filter..................................................................................... Deweze # 822018

Belts
Fan/Alt. Belt............................................................................................................ Deweze # 840038

Blades
Blade Set (Right) Swinging..................................................................................... Deweze # 500269
Blade Set (Left) Swinging....................................................................................... Deweze # 500268
Bolt Kit (Swinging) 1 Deck.................................................................................... Deweze # 500319
Blade Set (Right) Shear bolt................................................................................ Deweze # 500271
Blade Set (Left) Shear bolt................................................................................... Deweze # 500270
Bolt Kit (Shear Bolt) 1 Deck................................................................................ Deweze # 500320

Tires and Wheels
Stabilizer Wheel Assy............................................................................................ Deweze # 800057
Caster Wheel Assy................................................................................................ Deweze # 800093
Drive Tire................................................................................................................ Deweze # 800114
Drive Wheel (Rim)................................................................................................ Deweze # 500181
Drive Tire and Wheel Assy..................................................................................... Deweze # 800126
Hydraulic Breather
Change breather whenever hydraulic filter is serviced.
Breather part number: 822018

Hydraulic Filter
Change hydraulic filter whenever filter indicator needle runs in the red area.
**NOTE:** Check gauge when oil is at operating temperature.

Yanmar Engine - Right Side

- **Fuel Filter**
- **Fuel/Water Separator**
- **Engine Oil Dipstick**
- **Engine Oil Fill**
- **Engine Oil Filter**
- **Radiator Fluid Overflow**
- **Propulsion Pump Filter**

Propulsion Pump
For access to the propulsion pump filter, the left hand cowling must be removed.
Service Schedule
Disclaimer-On engine applications YANMAR Diesel Engine Co. recommends the following:

Daily
- Check Engine oil level
- Check Hydraulic oil level
- Check fuel level
- Visually inspect
- Check Coolant Level

Use HD 15-40, HD 10-40 if below 40°F (19°C)
Use HD 15-40 or HD 10-40 motor oil (HD 15-40 SUPPLIED FROM FACTORY)
Use Clean #2 Diesel
(Fan Belt, bolts, fittings, and hoses for signs of leaks or looseness)

Grease

Between Low and Full, 50% Ethylene glycol

refer to page 3.2

50 Hour Service- These and all previous items
- Air Filter
- Check Tire Pressure
- Change Engine Oil
- Change Engine Oil Filter
- Check Serviceability of Battery

5.5 liters dipstick upper limit/3.6 liters dipstick lower limit

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100 Hour Service-These and all previous items
- Change Engine Oil
- Change Engine Oil Filter
- Check Serviceability of Battery
- Clean Fuel Filter according to Yanmar manual
- Drain Fuel / Water Separator
- Adjust Fan Belt Tension to Yanmar Manual

200 Hour Service-These and all previous items

250 Hour Service
- Change Propulsion Pump Filter

400 Hour Service-These and all previous items
- Replace the Fuel Filter
- *Check Fuel Injection Condition* to Yanmar manual
- *Check Fuel Injection Timing* to Yanmar manual
- *Adjust the intake and Exhaust valve clearances* to Yanmar manual

1000 Hour Service or Annual Service-These and all previous items
- Change Hydraulic Oil
- Change Engine Coolant
- Repack stabilizer wheels
- Use a high quality bearing grease

*Check the Fuel Injection Pump* to Yanmar manual

Parts with asterisk mark *“* should be serviced by an authorized YANMAR Dealer, unless the owner has proficient mechanical ability and the proper tools