

**LAVINA**®



# LAVINA® LB36G-S User Manual





## Warranty Registration Card

Complete and submit this form within 30 days from the date of purchase. The registration is invalid without the machine serial number.

### Section 1: Customer Information

Customer name

Address

City

State and Zip Code

Phone #

Email

### Section 2: Machine Information

LAVINA model

Serial #

Purchase Date

Purchased From (distributor, dealer)

*Email: [warranty@superabrasive.us](mailto:warranty@superabrasive.us) / Fax: 706-658-0357  
Superabrasive Inc., 9411 Jackson Trail Rd, Hoschton, GA 30548*

## WARRANTY AND RETURNS

### WARRANTY POLICY FOR LAVINA® X MACHINES

A warranty card must be submitted to Superabrasive within 30 days of purchase in order for the foregoing warranty to apply.

You can either mail a hard copy of the warranty card or submit it electronically - see page 2.

Superabrasive warrants, from the time of delivery and receipt by the original customer, new and unused products sold by Superabrasive or Superabrasive-appointed distributors or dealers. Goods shall be free from defects in materials and workmanship. Superabrasive or a Superabrasive-appointed repair facility shall either replace or repair any defects in the Goods resulting from faulty design, materials, or workmanship. Products repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period, or ninety (90) days from date of the repair or shipment of the replacement, whichever is longer. Spare parts for repair will be either new or equivalent to new.

Warranty period shall be 2 years from the time of delivery and receipt by the original customer, or 600 operating hours on the machine - whichever occurs first. Superabrasive will cover the shipping charges for the transportation of the machine to Superabrasive (or an approved repair facility) and back to the customer (within the contiguous 48 United States) in the event that the damage occurs and is reported within 200 operating hours. Shipping charges, if covered by Superabrasive, must be agreed upon in advance and approved by Superabrasive. Thereafter, the customer will have to cover the shipping charges to Superabrasive and back. Superabrasive will not warranty Goods after a period of 2 years from the time of delivery and receipt by the original customer, or 600 operating hours on the machine - whichever occurs first.

Superabrasive shall not be liable for any defects that are caused by circumstances that occur after the Goods have been delivered and whilst the Goods are in the possession of the purchaser. Furthermore, the warranty does not include normal wear and tear or deterioration. Wear parts are not warranted. Superabrasive is not liable for defects arising out of use of non-OEM parts.

The Warranty is void if the purchaser has not followed the maintenance plan stipulated by the machine's manual and warranty card. The warranty is void if the purchaser repairs said Goods himself, or if repairs are conducted by a repair facility that is not approved by Superabrasive. Superabrasive's

liability does not cover defects which are caused by faulty maintenance, incorrect operation, faulty repair by the purchaser, or by alterations conducted without Superabrasive's prior written consent. The same applies to any alterations of the Goods or services performed by another party other than Superabrasive, a Superabrasive-appointed distributor, or a Superabrasive-approved repair facility. The warranty is not applicable on a defect that arises due to tools or parts that are not original to Superabrasive. Replaced defective parts shall be placed at Superabrasive's disposal and shall become property of Superabrasive. If such defective parts are replaced

within the warranty period, the shipping charges will be covered by Superabrasive. In warranty complaint cases, when no defects are found for which Superabrasive is liable, Superabrasive shall be entitled to compensation for the labor, material cost, and shipping charges, incurred by Superabrasive as a result of the complaint.

The warranty herein is non-transferable, and only applies to the original owner or purchaser of the machine.

### RETURN POLICY FOR LAVINA® X MACHINES

The Lavina® X machines may be returned, subject to the following terms:

In no case, a machine is to be returned to Superabrasive Inc. for credit or repair without prior authorization. Please contact Superabrasive Inc. or your local distributor for an authorization and issuance of a return authorization number. This number along with the serial number of the machine must be included on all packages and correspondence. Machines returned without prior authorization will remain property of the sender and Superabrasive Inc. will not be responsible for them. No machines will be credited after 90 days from the date of invoice.

All returns must be shipped freight prepaid. Returned machines may be exchanged for other equipment or parts of equal dollar value. If machines are not exchanged, they are subject to a fifteen percent (15%) restocking fee.

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## 1. GENERAL INFORMATION

This owner's manual is intended for the operator of the Lavina®LB36G-S machine, the servicing technician as well as for anyone involved with operating or servicing the machine. We recommend that you read the instructions very carefully and follow them strictly. The manual includes information about assembling, using, handling, adjusting and maintaining your Lavina®LB36G-S floor polishing machine.

### MANUFACTURER

Superabrasive was founded in 1987, as a manufacturer of high quality diamond tools for the stone and concrete industry. Today, Superabrasive is one of the world's leading companies in the production of diamond tools and floor grinding machinery. At Superabrasive, we strive to deliver the very best solutions to our customers, and enable them to work more efficiently.

### GENERAL DESCRIPTION

Lavina® LB36G-S (Fig. 1.1) is three head wet and dry machine for polishing and buffing smooth surfaces. For bigger efficiency the tools are working on high revolutions and full contact with the treated surface. The walking speed of the operator also influences the polishing result. The operator should avoid any obstacle (high or low places) that can contact the tool on the treated surface. For best results, use only tools manufactured or recommended by Superabrasive Inc. and its distributors.

**⚠ WARNING** The Lavina® LB36G-S machine is manufactured and fitted for the above-mentioned applications only! Every other use may possess risks to the persons involved.

### MACHINE CHARACTERISTICS

The Lavina® LB36G-S machine is made of two main component sections:

#### LAVINA® LB36G-S MAIN DESIGN

- **The two main components** are the carriage and main head.

**The handle** on the frame is adjustable in height and allows the operator to work in a correct and safe posture.

- **The halogen spotlights** enable the operator to work in darker areas.

**⚠ WARNING** Lighting system does not replace adequate overhead lighting.

- **The propane tank** is placed on a tank holder on the backside of the frame.
- **The control panel** (fig.1.3) is positioned on top of the frame and contains switches that allow the operator to start/stop the engine, apply the electromagnetic clutch, and navigate the machine
- **The Engine Kawasaki FS481V** with electric clutch is mounted on the base plate in the carriage and drives the three heads with a belt system.

**The water tank** is placed on a tank holder in the center of the machine above the propane engine, such that the weight of the water does not affect the function of the machine.

The weight of the frame is equally distributed on the wheels.

The electrical water pump pumps water to the spout at the front of the device.

- **The planetary motion** is derived from the main engine and driven by a second flat belt
- **The self-leveling Guard** is designed to maintain contact with the work surface at all times, regardless of tool height.

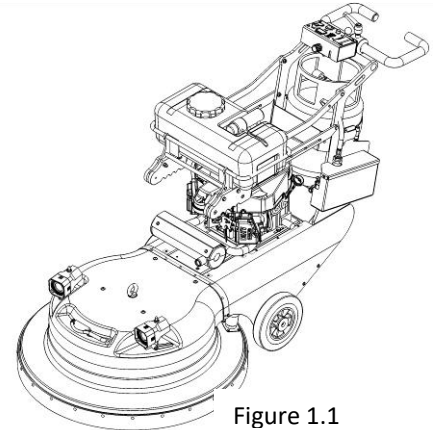


Figure 1.1

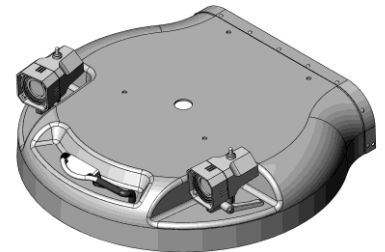


Figure 1.3

**ENVIRONMENTAL CONDITIONS**

The temperature range for operating the Lavina® LB36G-S machine outdoors is between 41°F and 86°F or 5°C and 30°C. Never use the Lavina® S machine during rain or snow when working outdoors. When working indoors, always operate the machine in well-ventilated areas

**VACUUM CONNECTION**

Lavina® LB36G-S has a system with dust-collecting fan and a vacuum bag on the carriage.

**TECHNICAL DATA**

	Lavina® B36G-S	
Engine	Kawasaki FS481V	
Capacity Of Engine	603cc	
Power	13.2 kW/3600 rpm	18 HP/3600 rpm
Tool Holder Rpm	1666-3000 rpm	
Engine Rpm	2000-3600 rpm	
Working Width	914.4 mm	36"
Tool Diameter	3 x 355.6 mm	3 x 14"
Weight	280 kg	617.3 lbs
Application	wet and dry	
Vacuum system	dust extractor with vacuum bag	
Water Tank Capacity	20 l	5.2 gal
Water Feed	Front stream with pump	
Propane Tank	Aluminium tank with vapor Withdraw	
Capacity Propane Tank	9 kg	20 lbs
Machine LxWxH	2000x950x1122 mm	78.7"x37.4"x44.2"
Packing LxWxH Skid	2050x1060x1290 mm	80.7"x41.7"x50.8"
Packing LxWxH Crate	2050x1060x1350 mm	80.7"x41.7"x53.1"

**VIBRATIONS**

The vibrations of the machine are within the limits of EU directives and standards when Lavina® LB36G-S is operated with the recommended tools and in normal conditions.

**NOISE EMISSIONS**

Noise emissions are within the limits of EU directives and standards when Lavina® LB36G-S is operated with the recommended tools and in normal conditions. However, as previously stated, the operator must wear ear protectors.

**LABEL DATA**

The data on the label provides the correct kW and RPM (needed for operational purposes); Weight (needed for transportation purposes); production year and serial number (needed for maintenance purposes).

**CUSTOMER SERVICE**

For customer assistance and technical support call your local distributor or call Superabrasive Inc. at 1-800-987-8403 or visit us at: [www.superabrasive.com](http://www.superabrasive.com), where you can download a copy of this manual.

**2. SAFETY INSTRUCTIONS****RECOMMENDED USE**  **WARNING**

Lavina® LB36G-S is designed and manufactured to polish and clean smooth surfaces. The machine is designed for dry and humid but not wet surfaces. The machine is equipped with dust-collecting fan and vacuum bag on the carriage.

**PROHIBITED USE** **WARNING**

**The machine MUST NOT be used:**

- For applications different from the ones stated in the General Description chapter.
- In environments which:
  - Possess risks of explosion
  - Possess high concentration of powders or oil substances in the air
  - Possess risks of fire
  - Feature inclement conditions.
  - Possess electromagnetic radiation.
  - In nursing homes, hospitals, day-care centers, etc
  - In areas where loose tiles or other objects are preventing proper use of the machine.
  - In rooms without proper ventilation

**PREPARATION FOR WORK** **WARNING**

**Make sure that:**

- You have closed the work area, so that no person unfamiliar with operating the machine can enter the area
- The tool plate and tools are mounted on the machine properly
- There are no missing parts of the machine
- The machine is in upright working position
- The protection devices are working properly.

**PROTECTION DEVICES**  **WARNING**

- The machine is equipped with several protection devices including the following:
  - A protection skirt and a hood for protecting the tool plates.
  - Front spoiler protected transmission.
  - These devices protect the operator and/or others persons from potential injuries. Do not remove them. On contrary, before using the machine, please ensure that all protection devices are mounted and function properly.
  - The Envirogard Emissions Monitoring System

**ARREST FUNCTIONS**  **WARNING**

- Functions of arresting of the machine are following:
  - Switch to stop the engine
  - Button to stop the polishing movement
  - Close the propane tank

**SAFE USE**  **WARNING**

• The LAVINA® LB36G-S is designed to eliminate all risks correlated with its use. However, it is not possible to eliminate the risks of an eventual accident with the machine. Unskilled or uninstructed operator may cause correlated residual risks. Such risks are:

- Position Risks due to operator's incorrect working position
- Tangling up Risks due to wearing inappropriate working clothes
- Training Risks due to lack of operational training

**NOTE:** In order to reduce all consequences of the above-mentioned risks, we advise that machine operators will follow the instructions in the manual at all times.



**PROPANE SAFETY****WARNING**

- Propane is a flammable gas whose vapors are heavier than air. As is the case with gasoline, propane can explode if the proper cautions are not heeded. Propane is odorized with an agent having a distinct odor that is recognizable at very low concentrations. This helps in identifying leaks, even when they are small.
- Awareness and basic safety precautions are required when working with propane. As long as these precautions are followed, risk is negligible. Ignorance, however, could pose needless risk.
- The two greatest hazards with propane powered floor care machines are:
  - **Carbon Monoxide Poisoning:** This is the most frequently reported incident associated with propane powered floor care machines and is caused by excessive exhaust emissions. The symptoms are headache, dizziness and nausea. A major cause involves engines with poor preventive maintenance practices, usually those with dirty air filters and machines operated in confined areas without adequate ventilation. Another cause may be substandard, inexpensive machines with no emissions control technology and improperly set carburetion.
  - **Overfilled Fuel Cylinders:** Nearly all fire related incidents reported result from bringing a cylinder into a building without first checking for overfill. This action is dangerous, unwise, and unnecessary.

**FIRE SAFETY****WARNING**

- Be aware of the potential dangers of fire or explosion when using propane, and take normal fire-safety precautions.
  - Fire:** There is a possibility of fire from LPG vapor leaking or venting from fuel cylinders or carburetion equipment.
  - Explosion:** LPG vapor concentrated or confined to a small, restricted space may explode or ignite.
  - Propane** may experience a **BLEVE**, a boiling liquid expanding vapor explosion.

**EMISSIONS****WARNING**

- All propane powered floor care machines produce emissions. Most are harmless, but some are dangerous and can be fatal. Carbon monoxide (CO) poses the greatest risk, since CO can be lethal within as little as 30 minutes exposure at 3,000 parts per million (ppm) concentration.
- Carbon monoxide is an invisible, odorless, colorless gas created when fossil fuels (such as gasoline, wood, coal, propane, oil and methane) burn incompletely.

**HAZARD COMMUNICATION****WARNING**

- A **Material Safety Data Sheet** for propane shall be posted in all buildings where propane will be used. Because propane is odorized, it is easily detected at levels of just

a few parts per million, which is much less than the exposure limit of 1000 parts per million.

**If you smell propane while operating a propane floor care machine, do the following:**

**Stop the engine:**

1. Pull the throttle to the stop position (if present) or turn the key switch to the off position.
2. Shut off the service valve on the propane cylinder.
3. Move the floor machine to a well-ventilated area.
4. Remove the cylinder from the machine and take it outside the building.
5. If the cylinder is leaking, contact a DOT approved repair shop to determine the cause of the leak and have the shop, not you, repair it.

**If a fire occurs while the machine is being operated, do the following:**

1. Stop the engine: pull the throttle to the stop position (if present) or turn the key switch to the off position.
2. Shut off the service valve on the propane cylinder if possible. Be careful not to be burned.
3. Move the machine outside if possible. If not possible, move it to a well-ventilated area away from flammable materials.
4. Do not attempt to extinguish the flame from a gas leak. If you do, the gas will build up in the area and could re-ignite. Starve the fire by shutting off the supply of gas.
5. Have the machine and cylinder inspected before using them again.

**LOCAL AGENCIES AND REGULATIONS****WARNING**

- **NFPA**

Operating a propane powered floor care machine requires compliance with certain safety regulations. The National Fire Protection Agency (NFPA) Standard for Storage and Handling of LP Gas is the appropriate authority for safe propane use. A copy of this publication is available through the NFPA in Quincy, MA (1-800-334-3555).

Among its regulations, NFPA #58 requires that all personnel employed in the handling of propane gas be trained in its proper handling and operating procedures. It also requires them to carry a written certification from their employer or training supervisor to attest to such training. Although this is directed mainly to those who fill and transport liquid propane gas, Onyx Environmental Solutions recommends that operators of propane powered floor care machines in public places be trained and certified as well.

With regard to operation of propane powered floor care equipment, even though NFPA 58 8-4.5 says "these machines shall be permitted to be used in buildings frequented by the public, including the times when such buildings are occupied by the public," Onyx Environmental Solutions suggests usage when occupancy of a given work area is minimal.

- **CARB / EPA**

The California Air Resource Board (CARB) and Environmental Protection Agency (EPA) also set limits for propane-powered

engines used outdoors, but CARB/EPA approval does not signify that the engine is safe to use indoors.

- **CGA**

The Canadian Gas Association (CGA) has set a limit of 1500 ppm CO in exhaust flow.

- **OSHA**

For propane powered machines used indoors, the Occupational Health and Safety Administration (OSHA) has established a limit of 50 ppm CO for 8-hour time weighted average (TWA) in ambient air and is considering a limit of 800 ppm CO in exhaust flow.

- **DOT**

The Department of Transportation (DOT) has established regulations regarding the safety of fuel cylinders including the ones used on propane powered floor care machines.

- **Local Agencies**

Local law enforcement agencies such as the local Fire Marshall also rely on independent testing labs such as UL and CGA before giving their approval of the use of some equipment. These labs thoroughly test equipment and submit their stamp of approval only after rigorous testing. While not being required by all law enforcement agencies, the stamp of approval by these agencies further assures the operator that he or she is working with and around safe equipment.

**NOTE:** In order to reduce all consequences of the above-mentioned risks, we advise that machine operators will follow the instructions in the manual at all times.

### RESIDUAL RISKS



## WARNING

During the normal operating and maintenance cycles, the operator is exposed to few residual risks, which cannot be eliminated due to the nature of the operations.

### BEFORE YOU BEGIN



## WARNING

- Working area must be clear from any debris or objects.
- A first-time operator must always read the manual and pay attention to all safety instructions.
- All propane connections and cables must be inspected for potential damages.
- Perform general daily inspections of the machine and inspect the machine before each use.
- Always inspect the safety devices:
- The machine must be clean
- Never operate the machine in the rain!
- Confirm that there are no missing parts especially after transportation, repair or maintenance.
- Before filling the water tank with water make sure the machine is not working.
- Before turning on the machine make sure that the base is placed on the floor, the machine MUST NOT be in an upright position when turned on!

### OPERATING MACHINE



## WARNING

- When operating the Lavina® LB36G-S, make certain that there is no one, but you around the machine.
- Never leave the machine unattended while working.

- The water hose must move freely and must be damage-free.
- Check if the floor, you work on, is not too uneven. If this is the case, it may damage the machine.

### AFTER WORK IS COMPLETED



## WARNING

- Clean the machine and its surroundings properly
- Empty and clean the water tank
- Store the machine in a safe place
- Place the Propane bottle outside in its storage

### THE WORK AREA



## WARNING

- Make certain that people or vehicles do not enter the work area.
- Avoid cables and hoses being in the way.
- Always check the floor for debris

### PERSONAL PROTECTIVE EQUIPMENT (PPE)



## WARNING

- Always wear safety shoes when working with the machine.
- Always wear ear protectors when working with the machine.
- All personnel in the immediate work area must wear safety glasses with side shields.
- Always wear safety gloves when changing the tools.
- Always wear clothes suitable for the work environment.
- Always wear Carbon Monoxide Indicator badges as an extra precaution.
- The plastic indicator contains a colored indicator button that darkens in the presence of Carbon Monoxide. The relative darkness of the indicator button indicates the level of CO in the ambient atmosphere. Most indicator badges have a useful life of 30 days, depending on the concentration of contaminants, humidity, and temperature.

### TESTING



## WARNING

- There are a great number of instruments offered on the market to test for toxic gases. Only those designed to read carbon monoxide resulting from combustion engines is considered acceptable for testing exhaust emissions from propane powered floor machines.
- Some instruments are used to read “ambient air” and may be damaged if used to take readings in the muffler or tail pipe. Selecting the proper instrument is an important part of meeting the testing requirements.
- Generally speaking, units capable of reading in ppm, (parts per million), at ranges from 0 to 1000 are adequate for checking ambient air (air in the breathing zone of the operator). Instruments capable of testing carbon monoxide in the exhaust should be able to read from 0 to at least

2000 ppm and should be certified by the manufacturer for that purpose.

- Some instruments and systems used for these purposes are:
- 1) AMBIENT AIR MONITORING
    - DRAGER Model 190: Manufactured by National Drager.
    - SENSIDYNE gas sampling system with YB-11038 Sensidyne detector tubes
    - DRAGER gas sampling system with YB-4620 Drager detective tubes
    - GAS-TECH Model CO-95
    - ENERAC POCKET 60: Manufactured by Energy Efficiency System
  - 2) ENGINE EXHAUST ANALYZERS
    - HORIBA GAS ANALYZER
    - ENERAC 2000 COMBUSTION ANALYZER
    - ENERAC POCKET 60
  - 3) DATA LOGGERS
    - INDUSTRIAL SCIENTIFIC CORP. MODEL STX-70 CO MONITOR, Data-Logger
    - BIOSYSTEMS INC. "TEXILOG" Data-Logger
- All instruments used for testing must be calibrated at intervals recommended by the manufacturer. The monitor, model number and date of calibration will be recorded with all test results.

## OPERATOR



**WARNING**

- The operator must know the machine's work environment.
- Only one operator at a time can work with the machine.
- The operator must be properly trained and well instructed prior operating the machine.
- The operator must understand all the instructions in this manual.
- The operator must understand and interpret all the drawings and designs in manual.
- The operator must know all sanitation and safety regulations pertaining to the operation of
- The operator must have floor grinding experience.
- The operator must know what to do in case of emergency.
- The operator must have an adequate technical knowledge and preparation.
- The operator is expected to operate their equipment safely and responsibly. They are responsible for the proper handling and storage of propane cylinders, identifying potential hazards associated with his job and avoiding these hazards at all times.

## PROPANE CYLINDERS



**WARNING**

- The Propane cylinders are constructed of either aluminum or steel. We recommend aluminum because it is lighter and guards against rusting. The cylinder used on propane powered floor machines is classified as a 4E240 cylinder. Its rated capacity is 20 lbs. and this designation refers to the model of the cylinder. Actual propane capacity achieved
- (1.5 m) of space between the cabinet and the nearest building opening (door or window), also away from heat

during filling can be less than, equal to, or slightly more than 20 lbs. Use only UL, CTC/DOT listed cylinders.

- The propane cylinder used on the floor machine is a motor fuel cylinder as listed by the Department of Transportation. Unlike the common 20-lb propane outdoor grill cylinders (which are not legal for use on propane floor machines), the motor fuel cylinder has a number of safety systems designed into it to ensure your safety at all times.
- There are two types of 20 lb. motor fuel cylinders.
  - Liquid draw
  - Vapor draw
- The liquid draw cylinder is used on larger vehicles like forklifts. These machines have special vaporizing carburetors to allow the propane to change from a liquid to a gas before being burned in the combustion chamber.
- The vapor draw cylinder is used on small machines like the propane powered floor care machines. The vacuum generated by the engine draws up the Propane gas vapor through the fuel system. The propane powered floor care machine does not have an evaporating system and will freeze up if liquid propane is introduced to it. It is necessary that special attention be paid to ensure that neither the liquid nor the vapor draw cylinders be overfilled.

## REFUELLING CYLINDERS



**WARNING**

- The proper filling of propane cylinders is a subject so important that it warrants special attention. Propane cylinders should only be filled by qualified propane dealers.
- Most important, propane cylinders should be filled no more than 80% of their rated capacity. The other 20%, which is about 4" (10 cm) from the top of the cylinder, is called the vapor space or headspace. This vapor can be compressed without causing the pressure relief valve to open and vent gas to the area around the cylinder. If there is no headspace to allow for fuel expansion, the pressure relief valve will open, releasing propane gas into the atmosphere. This is a very dangerous and volatile situation as there is always the possibility that enough of the vented gas could find its way down to the floor and come in contact with a pilot light from a furnace, hot water heater, or other source of ignition. Propane changes into a gas, is -44° F (-42° C). Exposing unprotected skin to propane gas or liquid could result in frostbite injury.
- All new cylinders should be vented and purged of air per manufacturer's instructions before use. Never bleed propane cylinders indoors.

## STORAGE CYLINDERS



**WARNING**

- When not in use, propane cylinders always should be stored outside in an upright position in a secure, tamperproof, steel mesh storage cabinet. This cabinet may be located next to the building but with at least five feet
- and direct sunlight.
- Do not install the cabinet near a stairway or street elevator

as vented propane gas will seek a lower level since it is heavier than air and could find its way into the basement of the building. Do not store cylinders full or empty inside a building or inside a vehicle. Although it is unlikely that propane will vent from a stored cylinder, if it should, the vapor could come in contact with an ignition source such as a spark from a power tool or other appliance and create a flash fire.

- Do not smoke or use a device with an open flame when handling or transporting propane cylinders.

#### TRANSPORTING CYLINDERS



- When transporting cylinders to a propane dealer or to a job, make sure the cylinders are securely fastened and standing in an upright position with the service valve closed.
- A cylinder rattling around in the back of a vehicle and banging into other objects constitutes a hazard. Avoid dropping or banging cylinders against sharp objects.

- The propane cylinders are sturdily constructed but a series of hard jolts could cause damage.
- Please note that any cylinder that has been filled is always considered full, no matter how little propane gas remains in it. This is because even when all liquid has evaporated into vapor there is still some propane gas vapor left in the cylinder. Because this remaining fuel is flammable, an empty cylinder should be treated with the same careful procedures as one that is filled to the 80% level with liquid propane. The only time that a cylinder is considered empty is when it is new, before it has been filled with propane.
- When transporting a propane powered floor machine, the propane cylinder may be strapped onto the machine as long as the machine itself is firmly secured in the vehicle.
- Of course, spare cylinders should always be secured in an upright position.

### 3. HANDLING AND TRANSPORTATION

#### ADJUSTING THE HANDLE

The Handle on the frame is adjustable in height and allows the operator to work in a correct and safe posture. Turn the handle in the upright position to change the tools (Fig. 3.1, Fig. 3.2, Fig. 3.3). Choose the upright position to move easy the machine (Fig. 3.3).



Figure 3.2

Figure 3.3

#### LIFTING

Three belts are needed to lift the machine. One belt should be hooked on the eye bolt of the operating head, and the other two on the slots of the carriage (fig. 3.4) (fig. 3.5). The belts length should be considered so their ends connect on one line above the axle of the wheels. The eye bolt and machine construction is rated only for the weight of the machine. Do not lift any other loads on the machine. Use always hoisting equipment rated for 350 kg (770 lbs) or more.

Figure 3.1

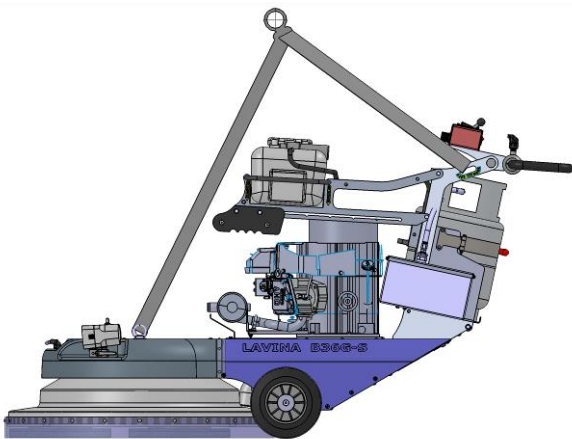


Figure 3.4

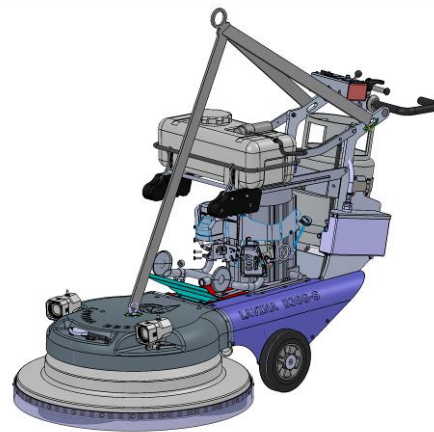


Figure 3.5

#### STORAGE

Always store and transport the LAVINA® LB36G-S machine in a dry place. Never transport the LAVINA® LB36G-S machine unprotected; it may be damaged if transported unprotected during rain or snow.

**⚠ WARNING** When, during the storage of the machine, the temperature may fall down to or less 32F (or 0° C) you should empty the water from the system using following steps:

- Pull the hose out of the tank (Fig.3.5) and (Fig.3.6).
- Divide the two cable of the power cord of the water pump (Fig.3.7).
- Remove the tank (Fig.3.8)



Figure 3.5

Figure 3.6

Figure 3.7

Figure 3.8

## 4. OPERATION

### PRELIMINARY CONTROLS

Inspect the working area as explained in the safety instructions. For wet use, fill in the water tank and check that the tool is mounted according to the instructions. Ensure the vacuum bag is placed correctly and has been emptied.

Make sure the bonnet air filter on top of the engine is clean. It should be cleaned hourly.

Check the engine oil level - screw the dipstick in to get reading. Make sure the tank is full (see also "Storage Propane tanks").

**TANK and FUEL LINES** – Check that any connections are not damaged or showing signs of wear, such as cracks or any corrosion. Screw the brass fuel line fitting onto the tank service-valve and hand tighten only. This connection **MUST** be secure because the service valve has a safety valve inside it, which will only open if the brass fuel-line fitting is **COMPLETELY** fitted into the service valve.

### WATER FLOW CONTROL UNIT

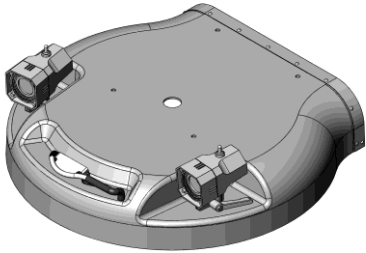


Figure 4.1

The operator may turn on the front water sprayer (Fig.4.1) by pressing the "PUMP" button on the control board.

### MOUNTING TOOLS

After choosing the proper tool (Fig.4.2), make sure that there is enough diamond bond material left. Put the tool on the tool holder in a coaxial position (Fig.4.3) and screw the tension nut (Fig.4.4).

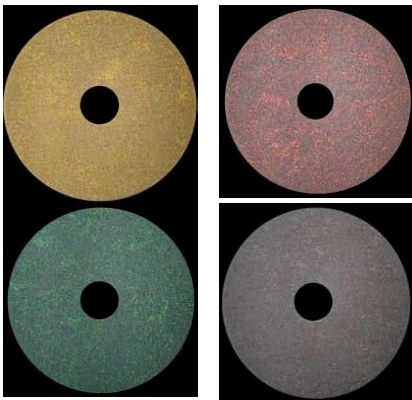


Figure 4.2



Figure 4.3

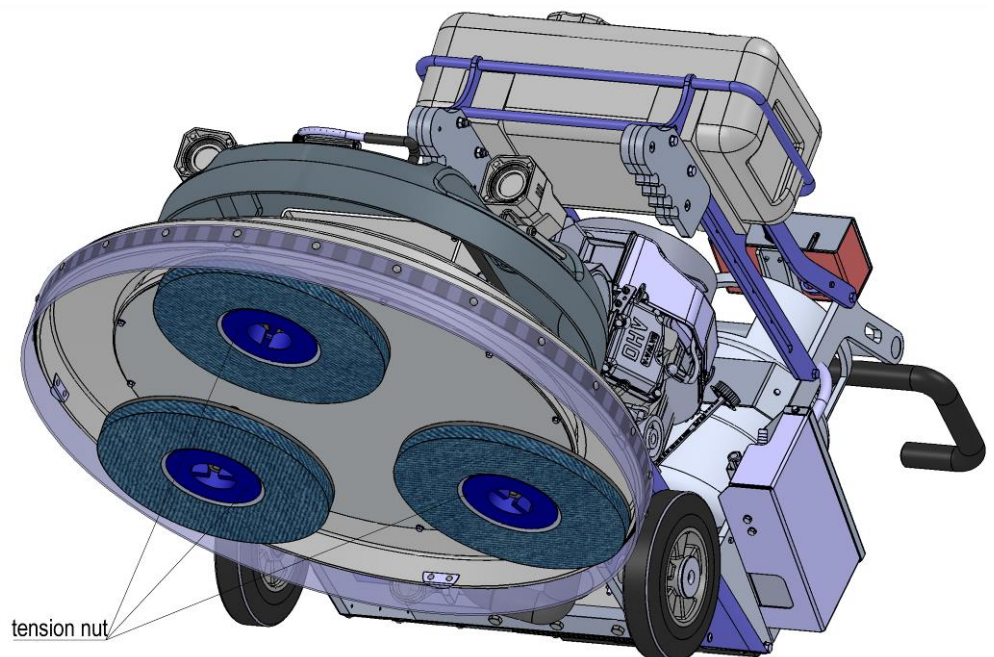


Figure 4.4

**THE CONTROL BOARD**

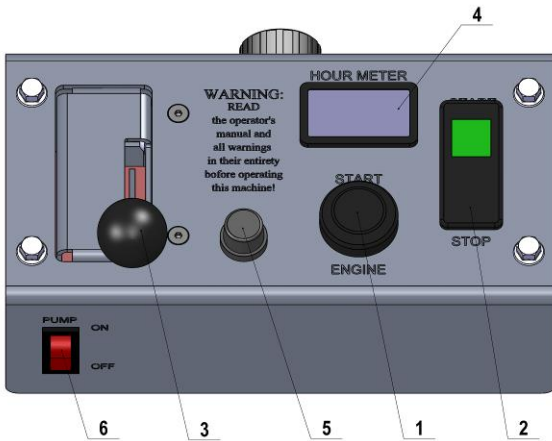


Figure 4.5

**6 Water pump switch** Lights orange when the water pump is running.

**1 Start/Stop Engine switch** Turn key fully to the right (make contact) to start the engine, fully to the left to stop the engine

**2 Start/Stop clutch** Start will electronically activate the grinding plates to spin; stop will disconnect engine from grinding heads

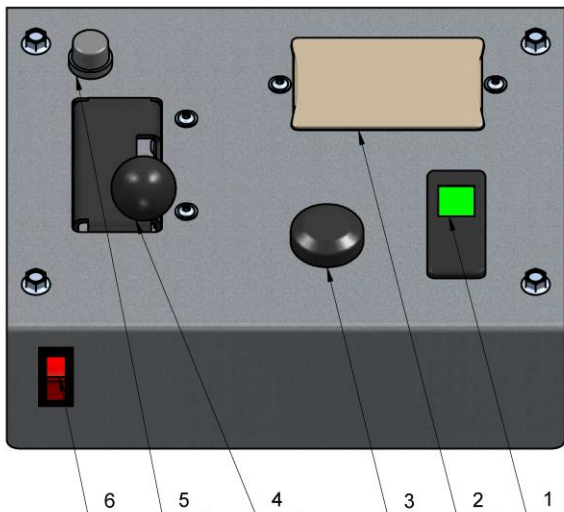
**3 Throttle** Push forward to accelerate.

**4 Digital RPM/workings hours indicator**  
When the motor runs it indicates the revolutions per minute of the motor, see the conversion table to know the rpm of the tools. When the motor does not run, it indicates the worked hours. The hour meter will blink between 48-52 hours as a reminder for oil change.

**5 Fuse** 30 Amp fuse for the electrical system.

Rpm engine	rpm tools
2000	1630
2100	1715
2200	1796
2300	1878
2400	1959
2500	2040
2600	2120
2700	2200
2800	2285
2900	2367
3000	2450
3100	2530
3200	2612
3300	2694
3400	2775
3500	2857
3600	2940

**THE CONTROL BOARD WITH DIGITAL FUEL CONTROL SYSTEM**



**1 Start/Stop clutch** Start will electronically activate the grinding plates to spin; stop will disconnect engine from grinding heads

**2 Complete Monitor Assembly** is a high-performance digital fuel control system.

**3 Start/Stop Engine switch** Turn key fully to the right (make contact) to start the engine, fully to the left to stop the engine

**4 Throttle** Push forward to accelerate.

**5 Fuse** 30 Amp fuse for the electrical system.

**6 Water pump switch** Lights orange when the water pump is running.

## VACUUM CLEANER BAG



Figure 4.6



Figure 4.7



Figure 4.7.1



Figure 4.7.2



Figure 4.7.3

The vacuum bag is on the back side of the machine under the propane tank. To access it, turn the red key to either side and pull back the cover (Fig. 4.6). To install the bag, push the cardboard to the tube. The tube should go into cardboard hole (Fig.4.7) (Fig.4.7.1). Move the cardboard until it stops by the wall, and straighten the bag along its length (Fig.4.7.2) and close the cover (Fig.4.7.3).

## STARTING THE MACHINE

First, follow the directions in the chapter on Safety Devices and Safety Instructions. Check oil level. Open the service valve on the propane tank about one and a half (counterclockwise) turns. Next, make sure the Start/Stop Clutch rocker (2) is in stop position and check that the throttle (3) in the IDLE position. This creates the necessary vacuum to open the lock-off valve inside the regulator. Actuation of the throttle lever will keep the lock-off valve from opening and the engine from getting fuel so the engine will not start. Proper maintenance will insure easy starting. Engage starter (1) for a **MAXIMUM** of 5 to 6 seconds or until the engine fires. Serious starter damage will result if this is exceeded and the warranty may not apply. Operate the engine at half throttle for approximately two minutes to properly warm engine. Then advance to full throttle for best results. If working wet, add water to the floor surface. If working dry, instead switch on the vacuum unit. Finally, hold the machine firmly and push the start of the Start/Stop clutch button (2).



## OPERATING THE MACHINE

After the engine is started, let it work on-site for 30 seconds. Then feed it to reach working speed.

Lower the working head to the floor while the machine is moving slowly forward.

Guide the machine in straight lines across the floor, slightly overlapping the previously completed surface with each new line. Work at a constant speed, allowing the tools time to work at a speed appropriate for the tools' grit size. Avoid vibrations. Do not stop the machine while tools are still running as they will mark the surface of the floor. When working wet, select the destination of the water feed with the water tap (fig. 4.2-1) and periodically run the pump (fig. 4.10-11) to release water onto the floor surface. Starting the pump is possible only if the machine motor is on. When working dry, check the floor surface periodically for dust accumulation. Check regularly to see if your vacuum works properly



Figure 4.8

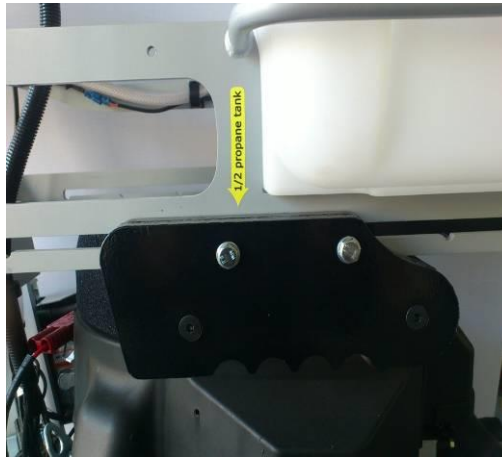


Figure 4.9

## STOPPING THE MACHINE

The stopping of the machine must be done gradually until the motor stops. Do not stop moving the machine before arresting the clutch as the tools could damage the surface. To stop push Stop clutch button (2), then close (clockwise) the service valve on the propane tank. ALWAYS allow the engine to run until it stops from lack of fuel. • ONLY IN AN EMERGENCY should the "stop" position on Start/Stop Engine switch (1) Disconnect the fuel line from the tank. REMEMBER, when you are finished with the machine, store the propane tank outside the building, in a **SECURE** place away from heat or direct sunlight. Use the Emergency button (9) only in emergency or use it to switch the power totally off. Remember not to hold the machine in one spot before turning off until the grinding plates stop moving.

**EnviroGard** employs a sensor (Fig. 4.9) in the exhaust path between the engine and the catalytic muffler to detect the oxygen content of the exhaust before it is passed through the catalyst. The oxygen sensor does not react to nor does it measure the CO content of the exhaust. It responds only to oxygen content.



Figure 4.9

The Control Module is set to ignore the readings from the oxygen sensor during the first three minutes the engine is running. This period allows:

The sensor to reach a stable operating temperature.  
The catalyst in the muffler to reach the temperature necessary to reduce the levels of CO, nitrogen oxides (NOx) and hydrocarbons (HC) in the exhaust.

The most common event in which the Control Module shuts down an engine is when the air filter becomes dirty enough to restrict the air intake flow, which changes the air-fuel ratio such that the oxygen sensor signal is outside the control limits. Once the air filter is properly cleaned, operation of the machine can be resumed.

### 5. EXPLODED VIEW

LAVINA® LB36G-S GENERAL EXPLODED VIEW (FIG.5.1)

LAVINA® LB36G-S TOP COVER EXPLODED VIEW 1 (FIG.5.2)

LAVINA® LB36G-S PLANETARY DRIVE EXPLODED VIEW (FIG.5.3)

LAVINA® LB36G-S BOTTOM COVER AND TOOL HOLDER EXPLODED VIEW (FIG.5.4)

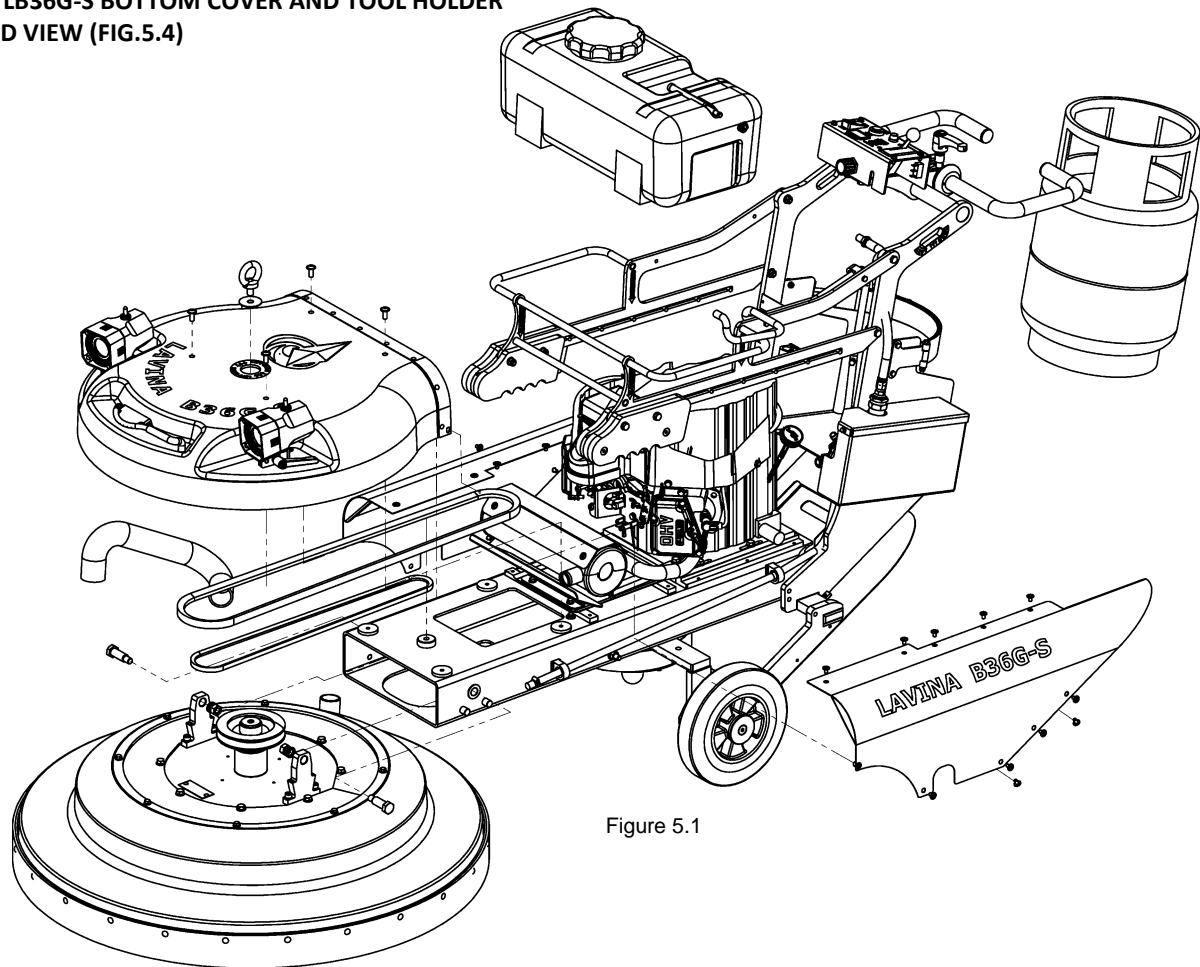


Figure 5.1

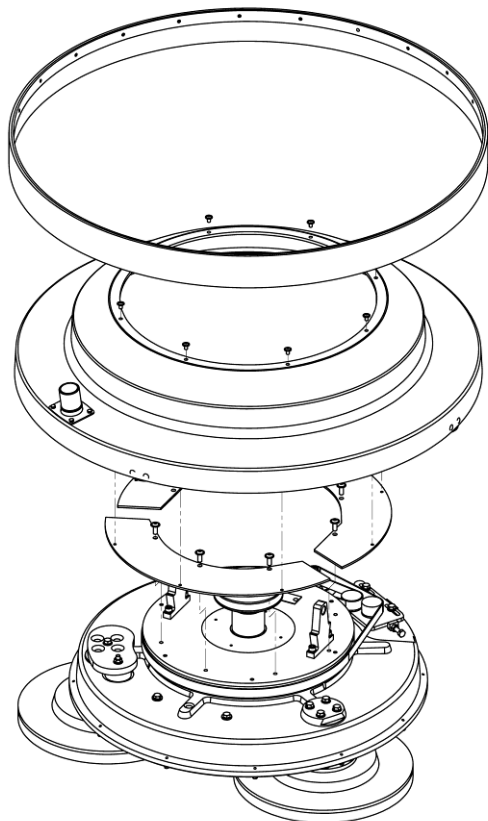


Figure 5.2

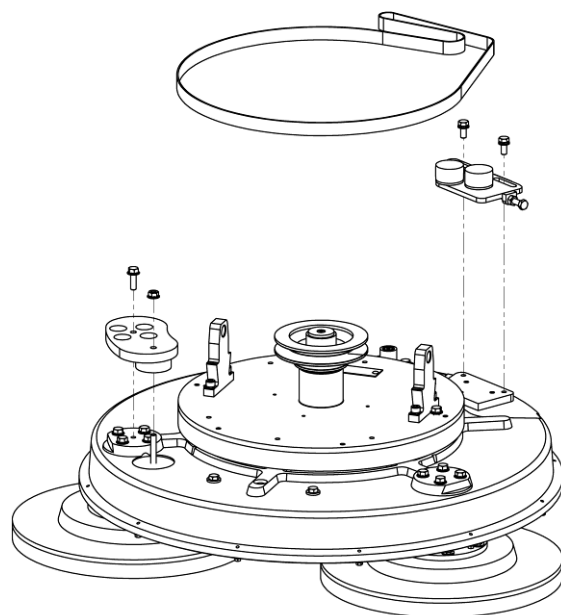


Figure 5.3

Figure 5.2

- LAVINA® LB36G-S TRANSMISSION BELT EXPLODED VIEW (FIG.5.5)
- LAVINA® LB36G-S TOP COVER EXPLODED VIEW 2 (FIG.5.6)
- LAVINA® LB36G-S CARRIAGE EXPLODED VIEW 1 (FIG.5.7)
- LAVINA® LB36G-S ENGINE PLATE ASSEMBLY EXPLODED VIEW (FIG.5.8)

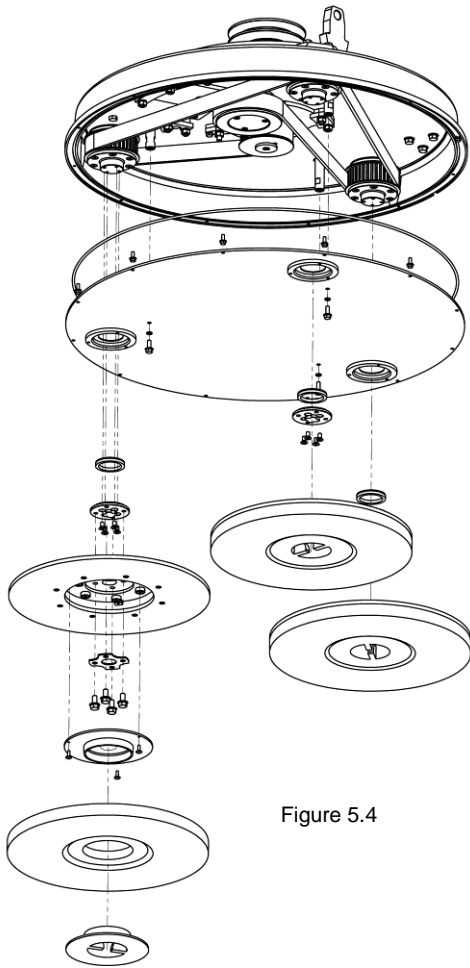


Figure 5.4

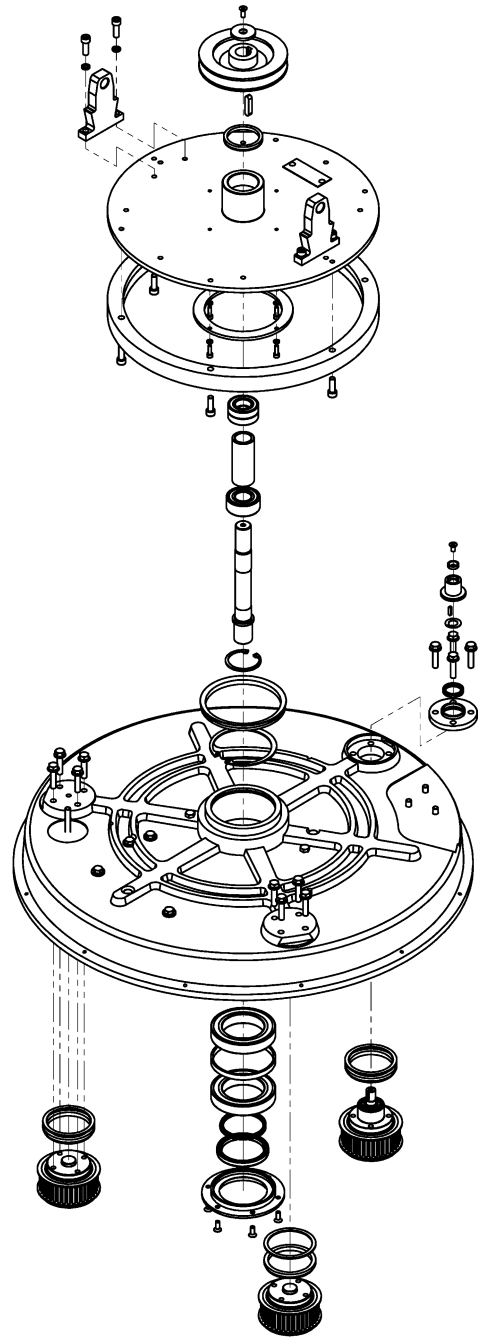


Figure 5.6

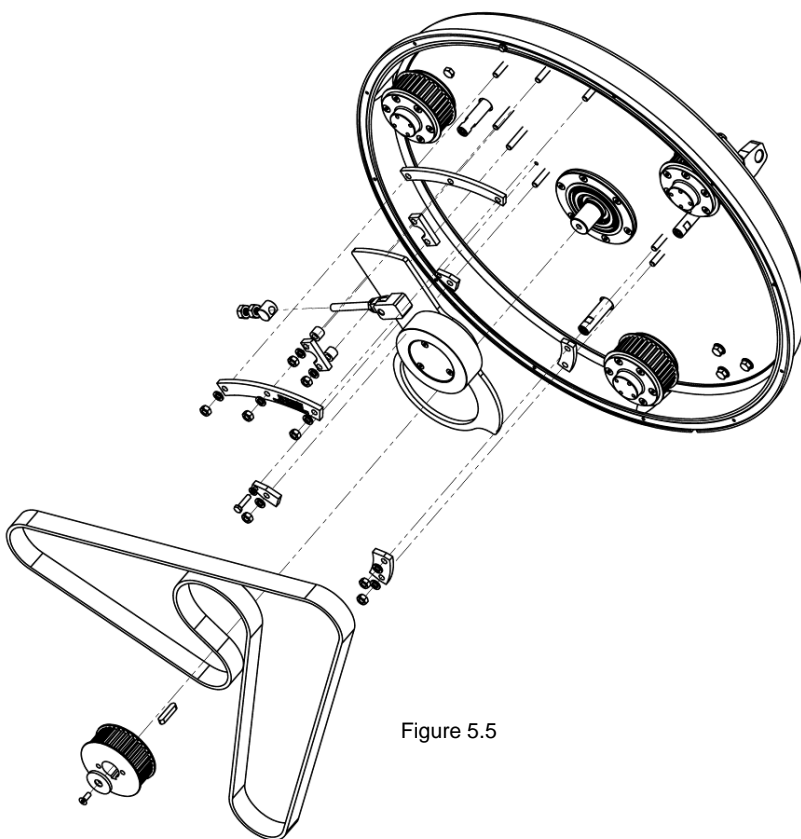


Figure 5.5

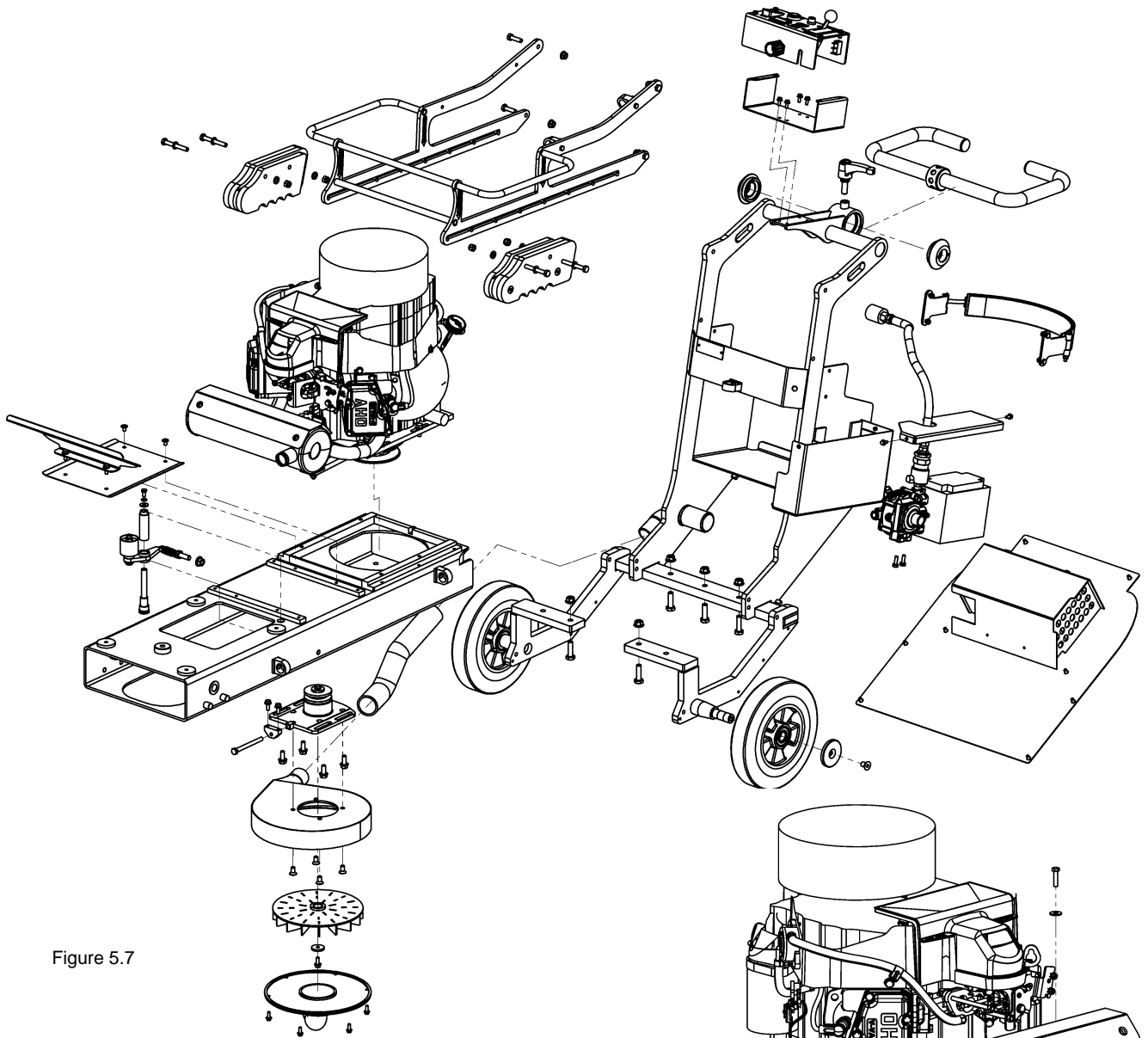


Figure 5.7

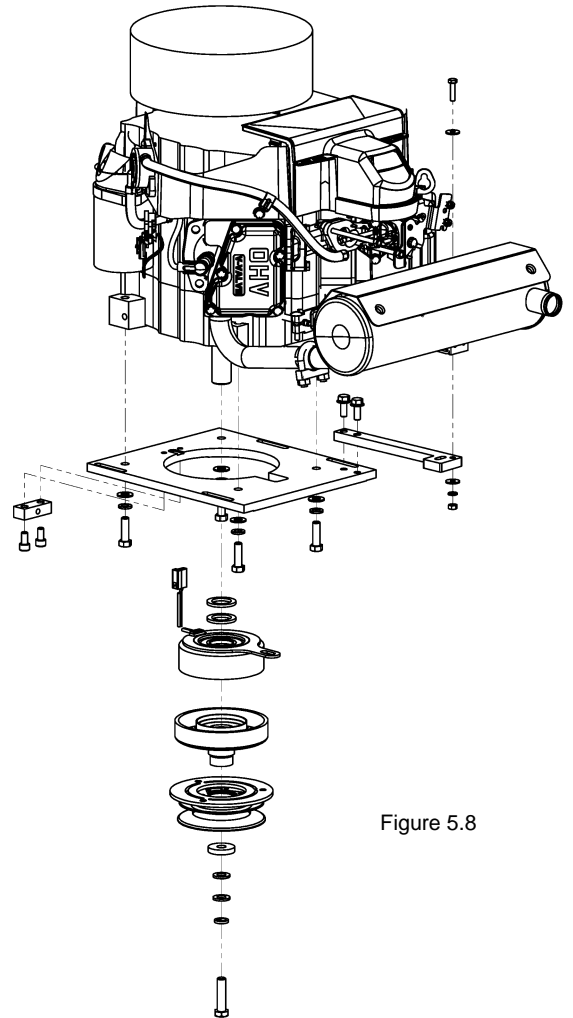


Figure 5.8

## 6. MAINTENANCE AND INSPECTION

### REMARK

#### Tampering w/Emission Control System Prohibited

Federal law and California State law prohibits the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element at design incorporated into any new engine for the purpose of emission control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the engine after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering, involve the parts/systems listed below:

- Carburetor and internal parts
- Spark plugs
- Magneto or electronic ignition system
- Fuel filter element
- Air cleaner elements
- Crankcase
- Cylinder heads
- Breather chamber and internal parts
- Intake pipe and tube

### MECHANICAL PARTS

Parts such as the belts, V-Ring, elastic elements, guard assembly, tires are subject to wear and should be replaced as needed.

### CLEANING

Keep your machine clean. Cleaning the machine on a regular basis will help detect and solve potential problems before they cause damage to the machine. Most importantly, check and clean the Propane installation and the water tank.

### CHECK HOURLY

**BONNET FILTER** - Make sure the bonnet air filter atop the engine is clean. It should be changed hourly and thoroughly cleaned before reuse. The same for the recoil dust filter. If neglected the engine will overheat and carbon monoxide emissions will elevate.

### CHECK DAILY

After operating the Lavina® B36G-S machine, the operator should conduct a visual inspection of the machine during cleaning the whole machine. Pay attention to loose bolt or screws. Any defect should be solved immediately.

Check vacuum cleaner bag daily.

#### Check oil level daily.

### CHECK AND REPLACE AFTER THE FIRST 8 WORKING HOURS

Replace the oil in the engine after the first 8 hours work, according to the instructions of the engine manufacturer.

Always use 30HD or 10W30 engine oil with all of the following ratings: SF, SG, and CC

### CHECK AND REPLACE EVERY 50 WORKING HOURS

Change engine oil, while changing check for leakage of engine oil at the various seals. The hour meter will blink between 48-52 hours as a reminder. /"Engine Oil Capacity" is 1.5L(1.6US.qt) when oil filter is not removed 1.7L(1.8US.qt) when oil filter is removed/.

#### Recommended Oil Change Intervals

Do not exceed the 50-hour oil change interval. Oil changes more frequent than 25 hours will give even longer engine life. In any case, always use 30HD or 10W30 engine oil with all of the following ratings: SF, SG, and CC. make sure the oil level is maintained at the "FULL" level.

### CHECK AND REPLACE EVERY 200 WORKING HOURS

Every 200 working hours the operator should inspect all parts of the machine carefully. Most importantly, inspect and clean the tool plate connections, vacuum hoses and water tank. Also, check the water flow. Check the guard assembly. Make certain the wheels are clean and rotate properly. Inspect the control buttons. If there are defective control parts, they should be replaced immediately. Replace worn vacuum- and water hoses.

Carefully inspect the seal rings and bearings of the polishing units, and replace any showing signs of excessive wear. For more information, refer to chapter troubleshooting below.

Dismount the tool holders (See Troubleshooting) replace V-Ring with the slightest damage or consume. Dismount front spoiler and check the main belt tension. Unscrew and pull out the Top Cover Assembly. Check of the planetary driving belt, by moving the main head the belt should not slip on the planetary pulley and drive the pulleys. **Return** machine to **authorized service center** for overall checkup of the Engine. For Propane safety, have the machine serviced by a **Certified Technician**, including emission check.

### CHECK AND REPLACE EVERY 400 WORKING HOURS

In addition to checks made every 200 working hours, replace sealer and V-rings as described in chapter "TROUBLESHOOTING - REPLACING BELT AND PULLEY UNITS. Check that the main belt, the fan belt tension, the planetary driving belt and bearings are in good condition, and change them if needed. Check if the elastic elements are in good condition, and change if needed. Return machine to authorized service center for overall checkup of the Engine. For Propane safety, have the machine serviced by a Certified Technician, including emission check.

### CHECK AND REPLACE EVERY 1000 WORKING HOURS

Besides the checks of 400 working hours, check if the transmission belt tension are in good condition, and change if needed.

### VACUUM

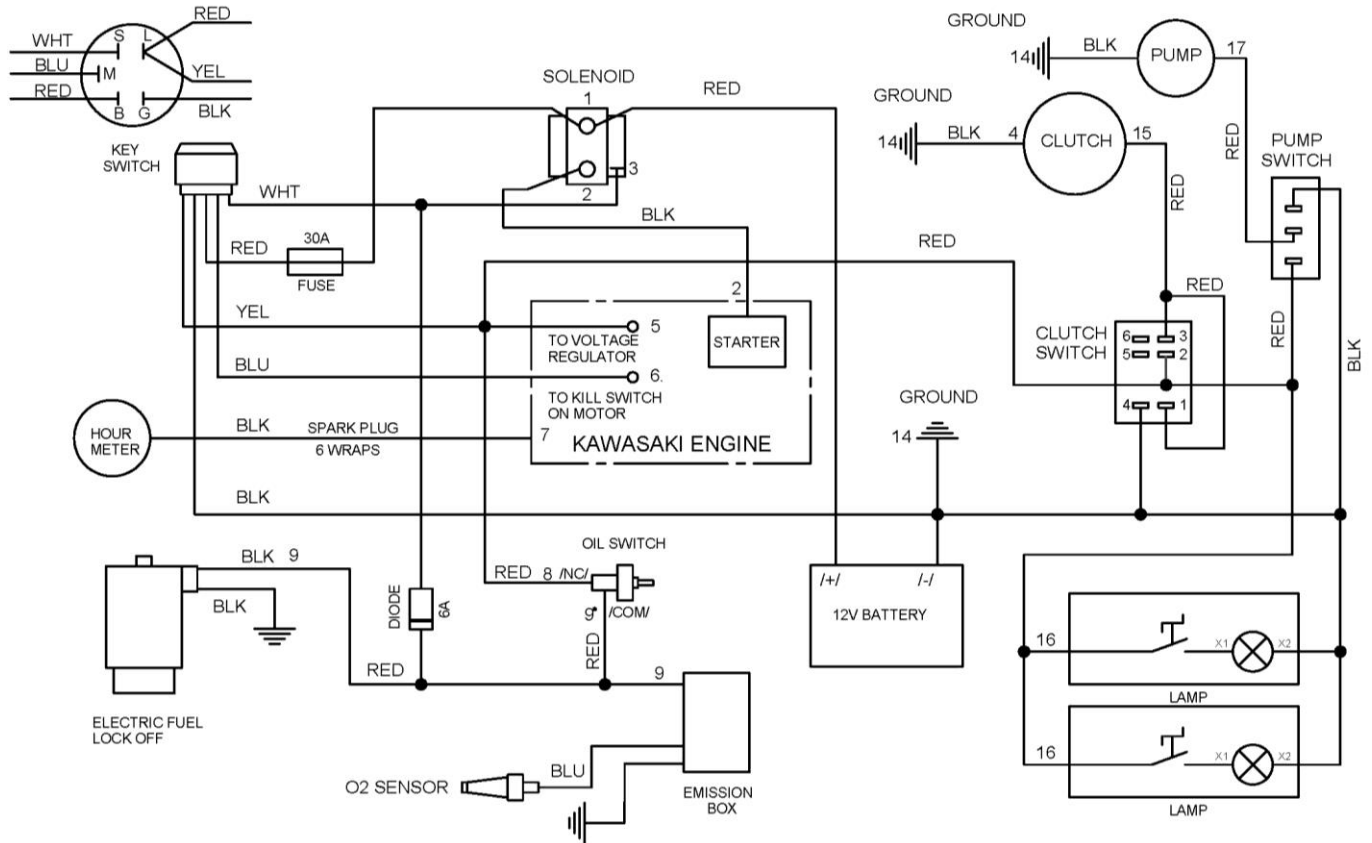
As stated previously, frequently check hoses and other parts for clogging.

**WATER LEAKS**

Replace any leaking parts immediately as the water could damage your machine

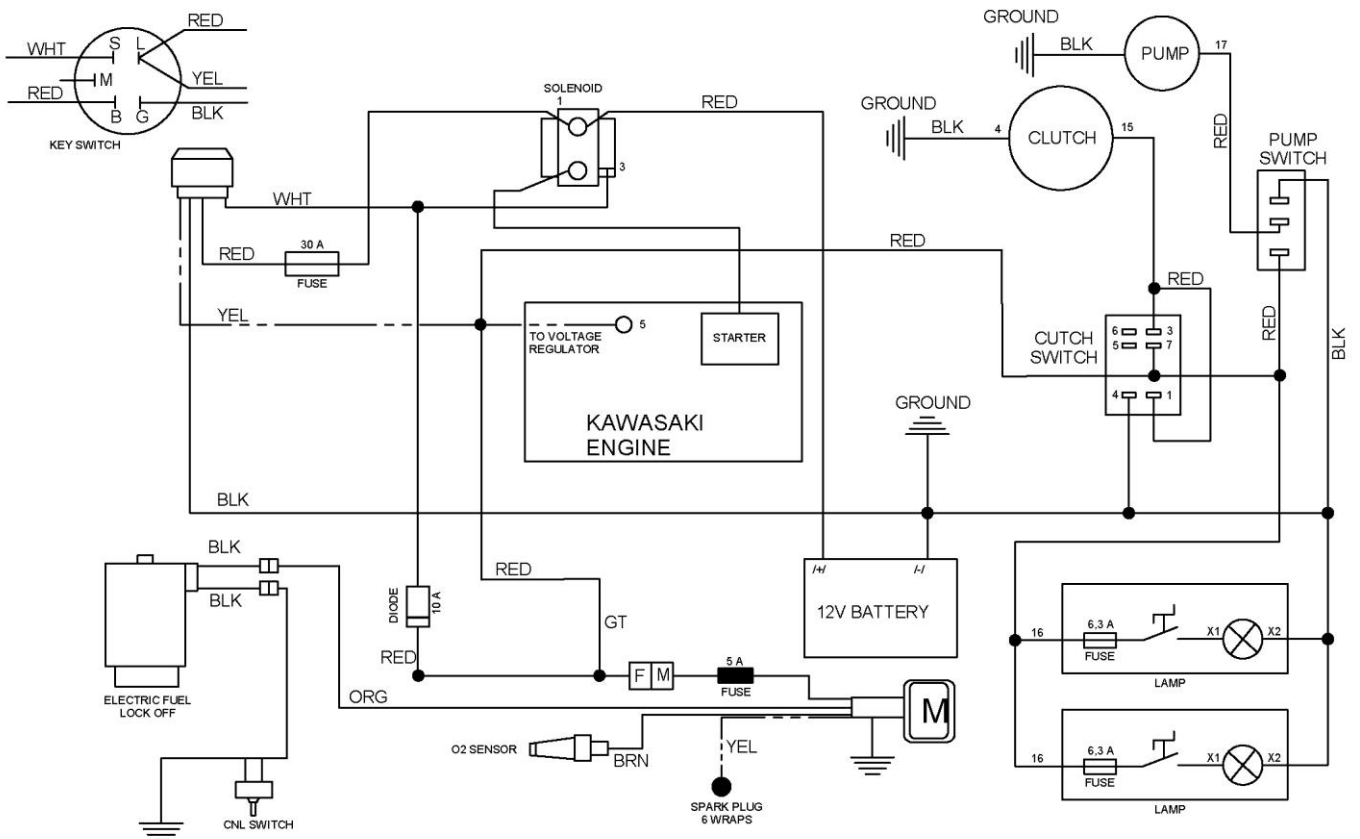
**ELECTRICAL SYSTEM**

**Electrical schemes with Kawasaki Engine**



**ELECTRICAL SYSTEM GT**

Electrical schemes with Kawasaki Engine and digital fuel control system



## FUEL-MINDER USER MANUAL

The SM40 Fuel-Minder is a high-performance, digital fuel control system featuring closed loop feedback, fuel lock-off capability, emissions safety warnings with shutdown, and an LCD screen for user interface. The system is highly responsive to changes in engine load, providing optimum the air-to-fuel ratio regardless of operating conditions.

### System Components

The following parts are included with the system

- Electronics Module
- Integrated Wire Harness
- Fuel Control Valve
- Fuel Control Housing
- O2 Sensor
- LPG Regulator with lock-off

\*Individual items are available as replacement parts if necessary\*

## Overview of Features

### Closed Loop Fuel Management System

The Fuel-Minder uses closed-loop feedback from the O2 sensor to control the amount of fuel introduced to the engine via the Fuel Control Valve. This technology continuously monitors engine emissions and is capable of making fuel corrections to compensate for varying engine loads and conditions.

### Faulty O2 Sensor Detection

If a faulty O2 sensor is detected, the Fuel-Minder will alert the user within 3-5 minutes from a cold-start. A message will be displayed on the LCD screen to let the user know that the O2 sensor needs to be replaced.

### Built-in Fuel Lockoff Controller

The Fuel-Minder also controls the fuel lockoff and only allows fuel to pass through if it detects the engine is cranking. Once the Fuel-Minder is powered off from the equipment key switch, the Fuel-Minder closes the fuel lockoff and shuts the engine down immediately.

### Emissions Warnings and Shutdown

If the Fuel-Minder detects engine emissions that are too lean or rich for a period of 5 minutes, it will shut the engine down via the fuel lockoff. The Red LED will blink and the LCD will display a message alerting the user of the issue and will prompt some common fix suggestions.

### Dual Hour Meters

The Fuel-Minder has two hour meters, one for the engine and the other for equipment. The Engine Hours are resettable, which should only be done if the engine is replaced. The Equipment Hours (located in Options Menu) is non-resettable and shows the total hours on the equipment, similar to the odometer of a vehicle.

### Battery Voltmeter

This feature allows for real-time display of the battery's voltage, which also helps for troubleshooting any battery or charging system issues that may arise.

### Engine Tachometer

Displays the current engine speed (in RPM). This should be used to assess proper idle, WOT and engine speed for the appropriate tooling.

### Job Timer

The job timer feature works when it is activated and while the engine is running, and will not continue to run if the engine is stopped. The allows for easy timing of jobs or work areas to help determine speed.

### Password Protection

Located in the options menu, the password feature allows a maintenance manager or owner to enable a password that prevents the user from resetting the Service Due alerts without the appropriate pin.

### Service Alerts

The Fuel-Minder also provides equipment-specific service alerts for the following items:

- Air Filter
- Oil Change + Filter
- Spark Plugs
- Seal Replacements
- Chain Inspections
- Belt Inspections
- Tooling Inspections

Each item has individual alerts at different hour intervals, and the Fuel-Minder will start alerting the user of upcoming maintenance within 3 hours of when it is due. To reset a particular service alert, simply scroll to it, using the + or - buttons, then hold the reset button for 2 seconds. The meter will then prompt you to reset that interval.

#### **Sleep Mode**

To conserve equipment battery life, the Fuel-Minder will enter sleep mode if there are no key inputs or engine activity. The backlight will dim after 30 seconds of inactivity, then turn off after 1 minute. The display will turn off after 2 minutes. To wake from sleep mode, simply press any key or start your engine.

## **Main Menu Navigation and Use**

This section outlines how to navigate the menu and interact with certain features.

#### **Main Menu**

The Main Menu contains the following screens, which can be viewed by simply using the + and - buttons to scroll. Please note: Upon startup or waking from sleep mode, the first screen shown is always Engine Hours.

- Engine Hours (Default screen)
- Clean Filters
- Oil Change + Filter
- Spark Plugs
- Chain Inspections
- Seal Replacements
- Belt Inspections
- Tooling Inspections
- Battery Voltage
- Tachometer
- Options Menu

#### **LED Alerts & Resetting Service Intervals**

The Fuel-Minder will alert you when service is due by blinking a red LED within 3 hours of the specified interval and displaying "Service Due" on the LCD screen. When you see this light, simply scroll through your menu to see which service item is due. To reset a specific interval, just scroll to that particular screen (for example, Oil Change), then hold the **SELECT** button for 2 seconds until you see the reset prompt, then press the + button to reset that interval.



## Options Menu Navigation and Use

### Options Menu

To enter the options menu, simply scroll until **Options Menu** is displayed on the screen, then press **SELECT**. The first option displayed by default is **Add Password**. Use the + or – buttons to scroll and view other options. To exit the options menu, scroll until you see **EXIT OPTIONS**, then press **SELECT**.

**Add Password**- This option allows you to add a password that prevents unauthorized users from resetting service intervals or performing a factory reset. This is a 4-digit pin that you set.

**Change Password**- Allows you to change your password, if one is saved. Note: This option is hidden unless a password has been created.

**Remove Password**- Used to disable the password feature, if a password is saved. Note: This option is hidden unless a password has been created.

**Factory Reset**- CAUTION, this option will erase all memory and restore your device to factory condition. This also allows for resetting the total engine hours. Password required if set.

**Factory Unlock**- This option is only used by SuperAbrasive and requires a factory assigned pin number to activate.

**Tach Settings**- This allows you to adjust the tachometer for a carbureted or fuel injected engine. It should come pre-set to the correct option and will not require changes.

**Equipment Hours**- This displays the total number of hours on your equipment and is non-resettable.

**Date of Purchase**- This can be used by the user or dealer to record the equipment purchase date. To enter the date, hold **SELECT** for 2 seconds; a cursor should appear under the MM. Use the + and – buttons to change the month field, then press **SELECT** to move to the Day field. Again, use the + and – buttons to select the desired day. Once you have the desired date, hold **SELECT** for 2 seconds and a prompt to save the information will appear.

**Engine Info**- To view the engine model/serial information, scroll to **Engine Info** in the Options Menu, and press **SELECT**. To edit this information, hold **SELECT** for 2 seconds. Then use the + and – buttons to select the appropriate letters and numbers. Press **SELECT** quickly to move the cursor, or hold **SELECT** for 7 seconds to save/exit.

**Equipment Info**- To view the equipment model/serial information, scroll to **Equipment Info** in the Options Menu, and press **SELECT**. To edit this information, hold **SELECT** for 2 seconds. Then use the + and – buttons to select the appropriate letters and numbers. Press **SELECT** quickly to move the cursor, or hold **SELECT** for 7 seconds to save/exit.

**Job Timer**- The job timer acts as a stopwatch, but only starts and stops when the engine is turned on/off. This allows you to accurately time how long your engine runs for a particular job.

**Exit Options**- Returns to the main menu, and default screen (Engine Hours).

## Safety Information

**Safety Information- Read all safety information before using this device to ensure safe and proper use.**

**Do not** interact with the device while operating your equipment. Doing so may distract your attention and cause an accident, or may be illegal depending on your region.

**Avoid** any direct contact with pressure washers, water sprayers or cleaning chemicals of any kind.

**Do not** drop or cause an impact to the device.

**Do not** bend or twist the device and/or the wire harness excessively.

**Do not** disassemble, modify or repair your device. This product contains no user serviceable parts.

### FCC Part 15.21

Any changes or modifications to this device that are not expressly approved by the manufacturer may void the user's authority to operate the device.

## 7. TROUBLESHOOTING

### 7.1 ENGINE

When troubles occur, be sure to check the simple causes which may at first seem too obvious to be considered. For example, a starting problem could be caused by fuel starvation due to an empty propane cylinder or an unopened service valve. If you do not check for this, starter burnout could result.

#### Some Troubles and solutions:

##### Surging idle

To smooth out the engines' idle characteristics, adjustment is provided by an idle screw on the lower left side of the carburetor as viewed from the operator's position. The screw is bright steel and 1/4" in diameter with a Phillips head on it. Rotating the screw clockwise will increase the idle speed and this should cure the "surging idle". If it does not, call our customer service.

##### Engine starts and idles, but will quit as the throttle is advanced

It is possible that the propane tank's service valve is faulty. To check for this, close the valve completely and then reopen very slowly while you listen for a "click" when the gas begins to travel through the valve. If you hear this very slight noise, the valve is only partially opening. This allows enough gas through to start and idle the engine, but not enough for full throttle operation. As the throttle is increased, allowing more air to enter the intake, the engine will quit from fuel starvation. Call your dealer or the factory for instructions on where to have the service valve replaced. Meanwhile, to get by, you can continue to open the service valve until you do not hear a "click" and then the engine will run normally. If it does not, call your customer service.

##### Starter barely turns the engine over or the solenoid just clicks

The battery is likely low in charge. This can be remedied by recharging the battery using a 12 Volt battery charger at 4.12 amperes. The battery is located under the frame at the rear of the buffer. The positive post is the one with the RED cable attached to it. Follow the instructions that came with the battery charger. REMINDER: this will continue to happen unless your engine is run for sufficient time between starts to recharge the battery.

### 7.2 CHECKING AND CHANGING OIL



Figure 7.2.1



Figure 7.2.2

Check the engine oil level, screw the dipstick in to get reading. While changing engine oil, check for leakage of engine oil at the various seals. The hour meter will blink between 48-52 hours as a reminder.

#### **Recommended Oil Change Intervals**

Do not exceed the 50-hour oil change interval. Oil changes more frequent than 25 hours will give even longer engine life. In any case, always use 30HD or 10W30 engine oil with all of the following ratings: SF, SG, and CC. make sure the oil level is maintained at the "FULL" level.

**7.3 DISMOUNTING/MOUNTING THE FRONT COVER**

Unscrew the lifting eye bolt (Fig. 7.3.1), the four screws (Fig. 7.3.2) and the two side screws (Fig. 7.3.3). Pull back the front cover (Fig. 7.3.4) and open the clamp holding the two cables and water hose with a flat-head screwdriver (Fig. 7.3.5). Unscrew one of the hose clamps and take it out of the tube (Fig. 7.3.6); disconnect both cables by pulling out the cable shoes (Fig. 7.3.7). Pull off the front cover (Fig. 7.3.8).



Figure 7.3.1



Figure 7.3.2



Figure 7.3.3



Figure 7.3.4



Figure 7.3.5



Figure 7.3.6



Figure 7.3.7



Figure 7.3.8

**7.4 DISMOUNTING/MOUNTING THE ENGINE**

Please note that the propane cylinder has to be removed and stored outside before any maintenance or reparation is done. Disconnect the connector of the battery (Fig. 7.4.1). Pull out the Propane hose (Fig. 7.4.2), the connectors of the lamp (Fig. 7.4.3), and the connectors of the regulator set (Fig. 7.4.4). Dismount the control panel (Fig. 7.4.5) (Fig. 7.4.6).



Figure 7.4.1



Figure 7.4.2



Figure 7.4.3



Figure 7.4.4

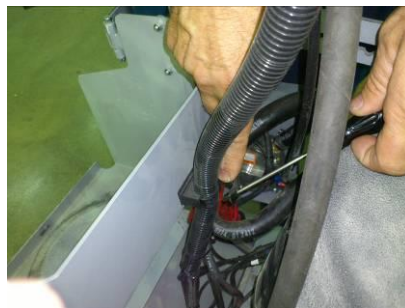


Figure 7.4.5



Figure 7.4.6

Loosen the motor base plate (Fig. 7.4.6), release the tension device (Fig. 7.4.7), and take out the belt (Fig. 7.4.8). Take off the engine (Fig. 7.4.9).



Figure 7.4.6

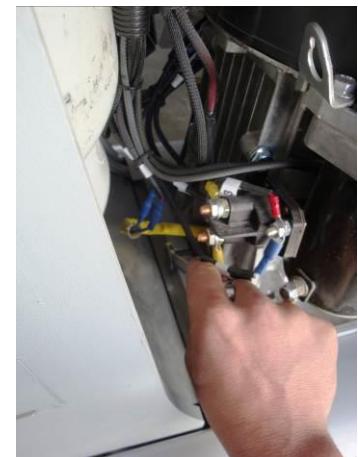


Figure 7.4.7

Reassemble as shown. (Fig. 7.4.9.1), Tension the belt with bolt (1) on (fig. 7.4.9.1). The belt tension can be tested with a OPTIKRIK II or manually by pushing with a force of 7.5 kg or 13 lbs in point A, the deflection of the existing belt must be 18,8 mm or  $\pm 0.74$  Inch. The deflection of the new belt must be 15,24 mm or  $\pm 0.6$  Inch.



Figure 7.4.8

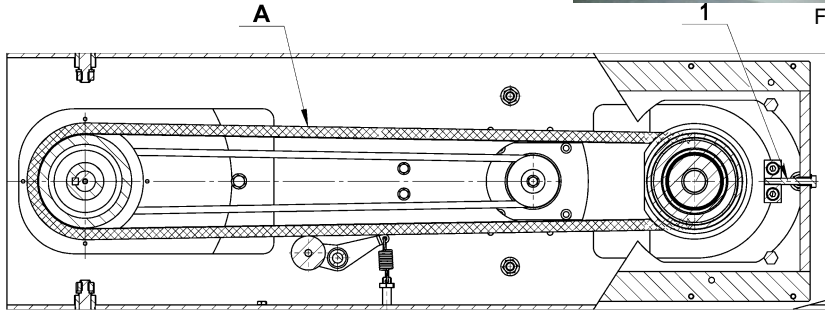


Figure 7.4.9

**ATTENTION:**

**NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DESTROYED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**

**7.5 REPLACING THE CLUTCH**



Figure 7.5.1



Figure 7.5.2

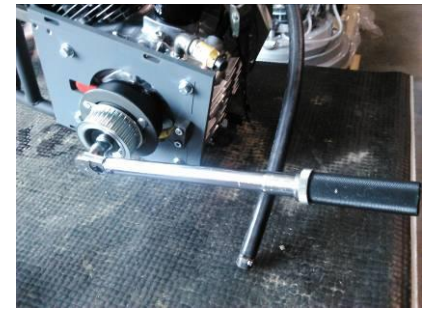


Figure 7.5.3



Figure 7.5.4

If the electric clutch has to be replaced, remove the engine (see previous chapter), lay it on its side with the oil drainage up (Fig. 7.5.1), and loosen the front nut to dismount the clutch (Fig. 7.5.2 and Fig. 7.5.3). Reassemble in the same manner. Do not forget to mount the washer on the shaft (Fig. 7.5.4). Apply Red Loctite to the clutch bolt. The torque on the front nut (Fig. 7.5.3) to mount the pulley and clutch should be 70 Nm or 52 ft lbs (Fig. 7.5.2 and Fig. 7.5.3).

**7.6 TENSIONING AND REPLACING THE FAN BELT**

Take out the vacuum cleaner bag (Fig. 7.6.1). Unscrew the fastening screws of the back cover and lay it hang down (Fig. 7.6.2) (Fig. 7.6.3). Unscrew the fastening screws of the two back spoilers (Fig. 7.6.4), and remove the spoilers. (Fig. 7.6.5). Loosen the four bolts (Fig. 7.6.6),(Fig. 7.6.7),(Fig. 7.6.8), loosen the nut (2) and fasten the belt ( screw bolt (1)) (Fig. 7.6.6),(Fig. 7.6.9),(Fig. 7.6.10). At the end fasten the nut (2) (Fig. 7.6.10).

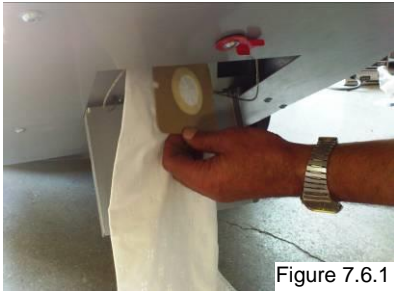


Figure 7.6.1



Figure 7.6.2

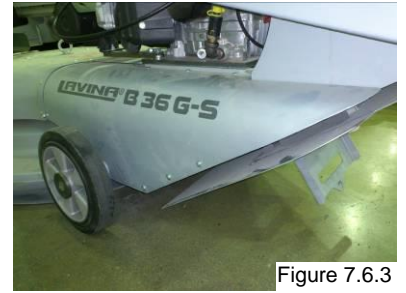


Figure 7.6.3



Figure 7.6.4

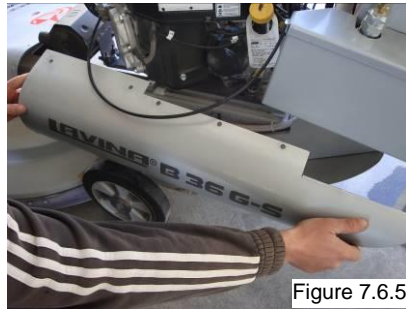


Figure 7.6.5

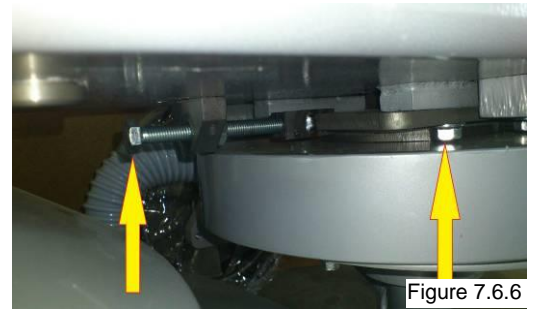


Figure 7.6.6

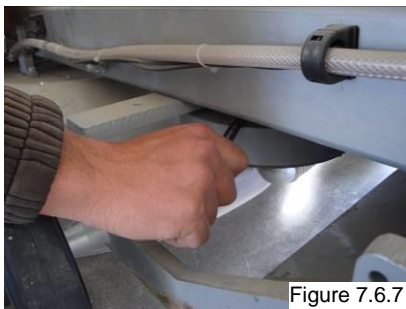


Figure 7.6.7



Figure 7.6.8



Figure 7.6.9

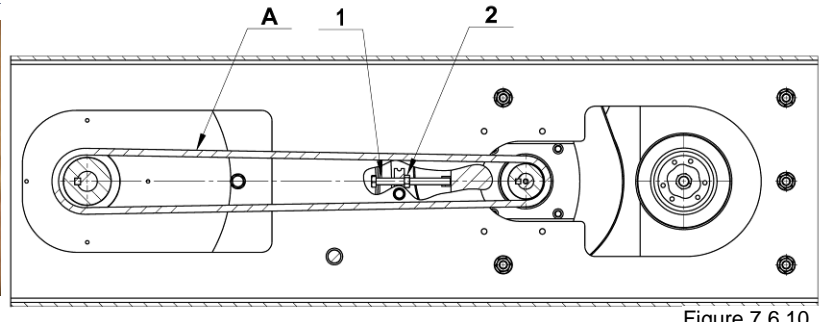


Figure 7.6.10

Replacing the belt is possible after dismantling the main belt (Section 7.4).

**ATTENTION:**

**NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DESTROYED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**

The belt tension can be tested with an OPTIKRIK 0 in position (A). The tension of the existing belt must be 70N. The tension of the new belt must be 91N.

**7.7 SEPARATING THE HEAD FROM THE CARRIAGE**

Please note that the propane cylinder has to be removed and stored outside before any maintenance or reparation is done.

Remove the front cover as per section (7.3). Loosen the motor base plate (Fig. 7.4.6), release the tension device (Fig. 7.4.7), and take out the belt (Fig. 7.4.8). Dismount fan belt as per section (7.6). Unscrew the nuts of the two pins and dismount the carriage (Fig. 7.7) (Fig. 5.1).



Figure 7.7

**7.8 MOUNTING AND DISMOUNTING TOOL HOLDERS TO CHANGE V-RINGS**

Unscrew the nut in the center of the tool (Fig.7.8.1). Unscrew the four bolts of the central part (Fig.7.8.2) (Fig.7.8.3) (Fig.7.8.4) and take out the tool holder with the elastic element and the tin holder.

Unscrew the three screws (Fig.7.8.5) and under the holder unscrew the other six screws (Fig.7.8.6) and take off the elastic element (Fig.7.8.7).

After taking out the holders unscrew the four bolts and take off the supporting disc (Fig.7.8.8). The V-Ring should be mounted with the lip rward.

Push down the V-Ring so it levels the cover (Fig.7.8.9) (Fig.7.8.10). Push the V-Ring with the supporting disc. The working lip of the V-Ring should slightly touch the friction plane. Do not push the V-Ring with fingers.



Figure 7.8.1



Figure 7.8.2



Figure 7.8.3

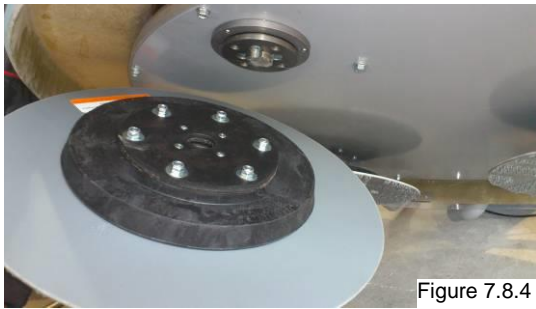


Figure 7.8.4



Figure 7.8.5

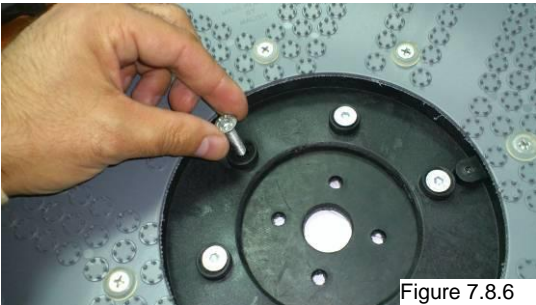


Figure 7.8.6



Figure 7.8.7



Figure 7.8.8



Figure 7.8.9

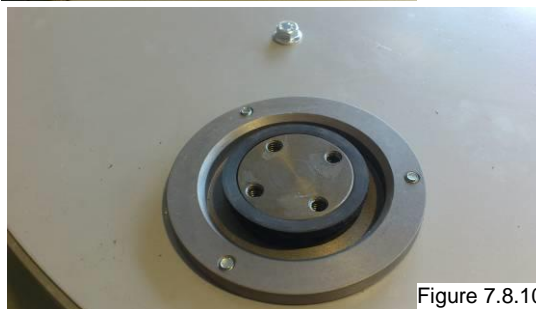


Figure 7.8.10

**7.9 TENSIONING AND REPLACING THE PLANETARY BELT**

To replace/tension the planetary belt, first follow section 7.3 to dismount the cover. Take off the vacuum hose (Fig.7.9.1). Unscrew the seven bolts attaching the top cover assembly (Fig.7.9.2). Tilt the machine into tool-changing position. Pull up the top cover assembly such that it lies on the machine frame (Fig.7.9.3). Unscrew the five fastening bolts and take out the front supporting ring (Fig.7.9.4) (Fig.7.9.5).



Figure 7.9.1



Figure 7.9.2



Figure 7.9.4



Figure 7.9.3



Figure 7.9.5

**7.10 TENSIONING USED PLANETARY BELT**

If there is a loss of speed in the planetary rotation, it is possible to tension the old planetary belt following the steps described in Section 7.11 - Mounting and tensioning a new planetary belt.



Figure 7.10.1



Figure 7.10.2



**7.11 MOUNTING AND TENSIONING A NEW PLANETARY BELT**

Loosen the two bolts of the tensioning device (Fig.7.10.1). Make 2 marks on the dismantled (untensioned) belt exactly 10 cm apart from one another (Fig.7.11.1). The purpose is to measure 10.2 cm on the belt under tension - tension of 2%; a maximum of 2.5% is allowed. **ATTENTION: NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DAMAGED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**



Mount the new belt around the planetary pulleys and the aluminum casting (Fig.7.11.2).

Mount the belt around the planetary pulley; check that the belt is behind the driving pulley (Fig.7.11.3). Put the belt around the tensioning device (Fig.7.11.3). Put the belt around the driving pulley

(Fig.7.11.4). Begin to tension until the distance of 10 cm between the marks becomes 10.2 cm (Fig.7.11.5) (Fig.7.11.6). While turning the bolt, rotate the planetary head so the belt can slide. (Fig.7.11.7). Do not forget to lock the tensioning device (Fig.7.11.8).



Figure 7.11.2



Figure 7.11.3



Figure 7.11.4



Figure 7.11.5



Figure 7.11.6



Figure 7.11.7

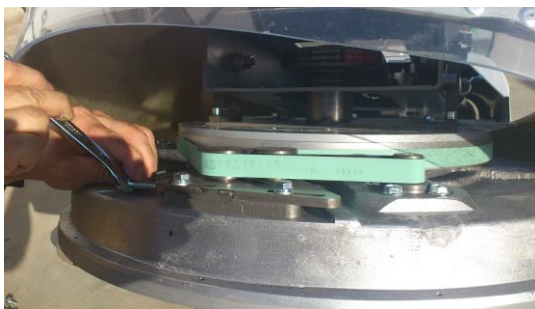


Figure 7.11.8

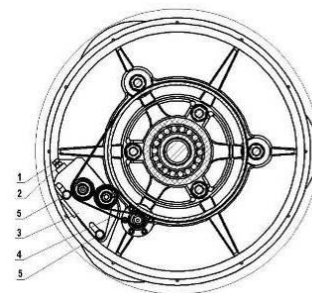


Figure 7.11.9

**7.12 CHECKING THE TENSION OF THE MAIN BELT**



Figure 7.12.1

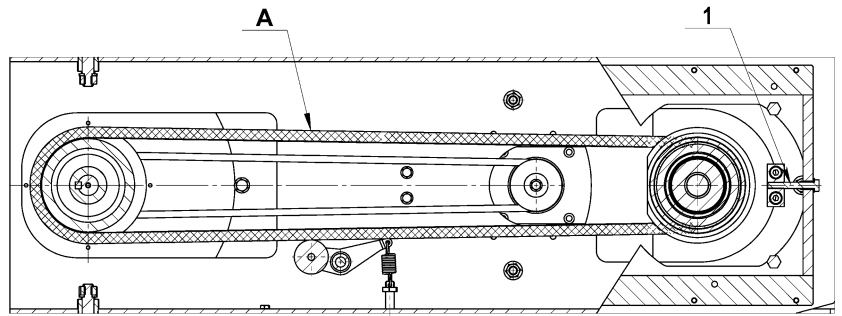


Figure 7.12.2

Dismantle the front cover as per 7.3. Measure the tension at point A (Fig.7.12.2). The belt tension can be tested manually by pushing with a force of 7.5 kg or 13 lbs at point A, the deflection of a used belt must be 18,8 mm or ± 0.74 Inch. The deflection of a new belt must be 15,24 mm or ± 0.6 Inch.

It is recommended that the tensioning of the belt be measured with Optikrik II Device (Measuring range: 500-1400 N) (Fig.7.12.1). Loosen the motor plate (Fig.7.12.3) and unscrew the tensioning bolt "1" (Fig.7.12.2) or (Fig.7.12.4).

The original pressure is P=717 N and will eventually drop to P=552 N.

After adjusting the belt, tighten the motor plate.

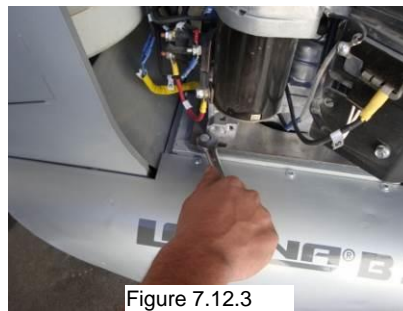


Figure 7.12.3

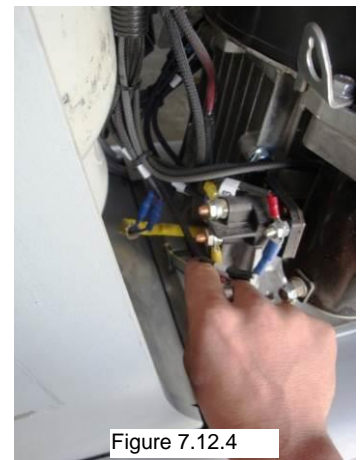


Figure 7.12.4

**ATTENTION:**

**NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DESTROYED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**

**7.13 CHECKING THE TENSION OF THE FAN BELT**

See section 7.6 - Tensioning and replacing the fan belt



Figure 7.13.1

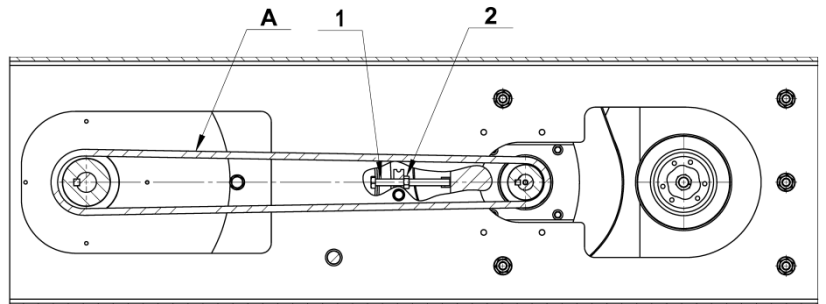


Figure 7.13.2

The measuring is done at point (A) of the belt (Fig.7.13.2). The belt tension can be tested with an OPTIKRIK 0 at point (A) (Fig.7.13.1) (Fig.7.13.2). The tension of an existing belt must be 70N. The tension of the a belt must be 91N.

**ATTENTION:**

**NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DESTROYED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**

### 7.14 CHECKING THE TENSION OF THE TRANSMISSION BELT

The belt tension can be tested with a Frequency tension Tester Optibelt 3 TT or manually by pushing with a force of 4,8 kg or 10,6 lbs at point A. The deflection of the belt must be 5,6 mm or  $\pm 0,22$  Inch. It is recommended that the tensioning of the belt be measured with a Frequency tension Tester Optibelt 3 TT. The tension of the belt should read 98 1/s (Hz).

**NEVER "OVER" TENSION THE BELT, THE BELT WILL BE DESTROYED AND IT WILL NEVER RECOVER ITS ORIGINAL TENSION**

Loosen the contra nuts (Fig. 7.14.3), loosen slightly the three bolts of the tension device (Fig. 7.14.2), and adjust the tension with the nut. When the right tension is reached: close the contra nuts and the three bolts of the support. Reassemble in the same manner.



Figure 7.14.1



Figure 7.14.2

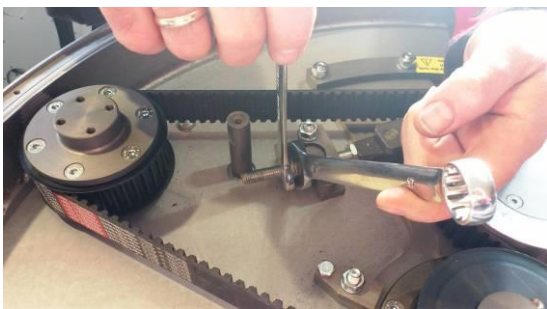


Figure 7.14.3

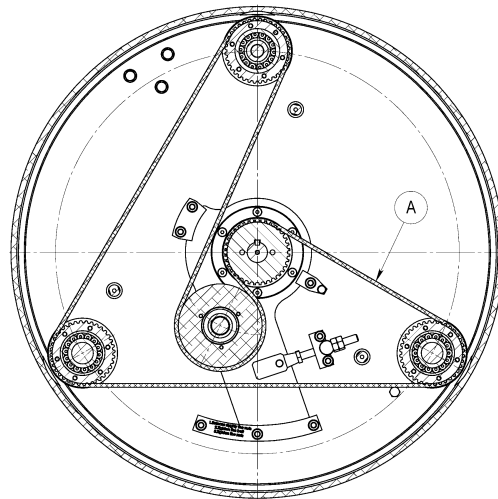


Figure 7.14.4

**7.15 REPLACING THE PULLEY UNITS**



Figure 7.15.1



Figure 7.15.2



Figure 7.15.3



Figure 7.15.4



Figure 7.15.5



Figure 7.15.6



Figure 7.15.7



Figure 7.15.8



Figure 7.15.9



Figure 7.15.10



Figure 7.15.11



Figure 7.15.12

**Dismounting the driving pulley:** take the top screw out to release the bushing (Fig.7.15.1), push the bushing together with the washer up (Fig.7.15.2), push washer down of the bushing (Fig.7.15.3), take bushing out (Fig.7.15.4), push key out (Fig.7.15.5), now the washer releases (Fig.7.15.6), dismount sealer cap (Fig.7.15.7)(Fig.7.15.8), the pulley can be released with two crowbars but do not use excessive force (Fig.7.15.9), push the sealer cap to dismount (Fig.7.15.10), by mounting back secure with sealant (Fig.7.15.11), center the holes to mount the pulley (Fig.7.15.12)

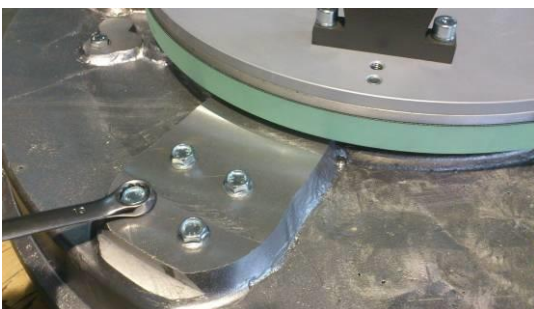


Figure 7.15.13



Figure 7.15.14

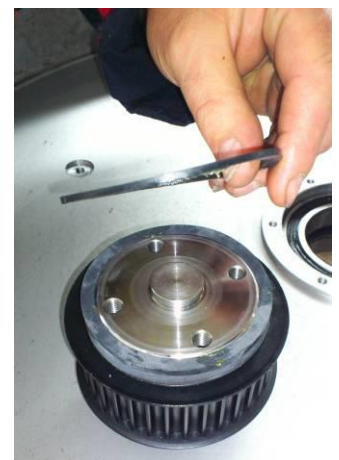


Figure 7.15.15

**The two other pulleys:** loose the five bolts of each pulley between the base plate and the motor base disc (Fig. 7.15.13). An oil seal ring (Fig. 7.15.14) and a seal (Fig. 7.15.15) should be placed on top of the pulley before mounting.

## 7.16 MOUNTING THE BELT

Shown is the schematic of the belt on the pulleys (Fig.7.16.1).

To dismount/mount the belt, place in position and tension according the section on tensioning the belt.

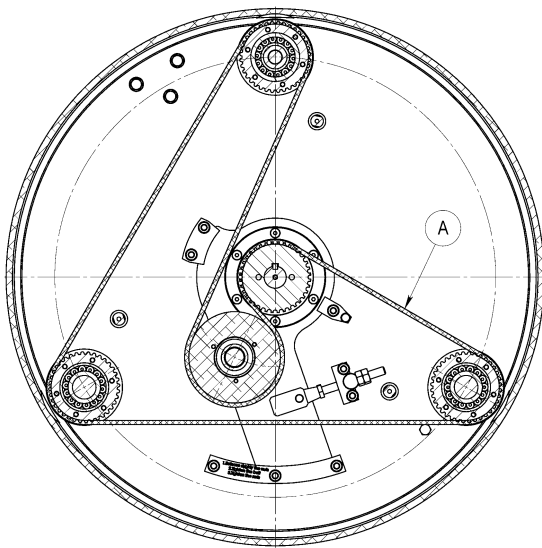


Figure 7.16.1

## 8. DISPOSAL

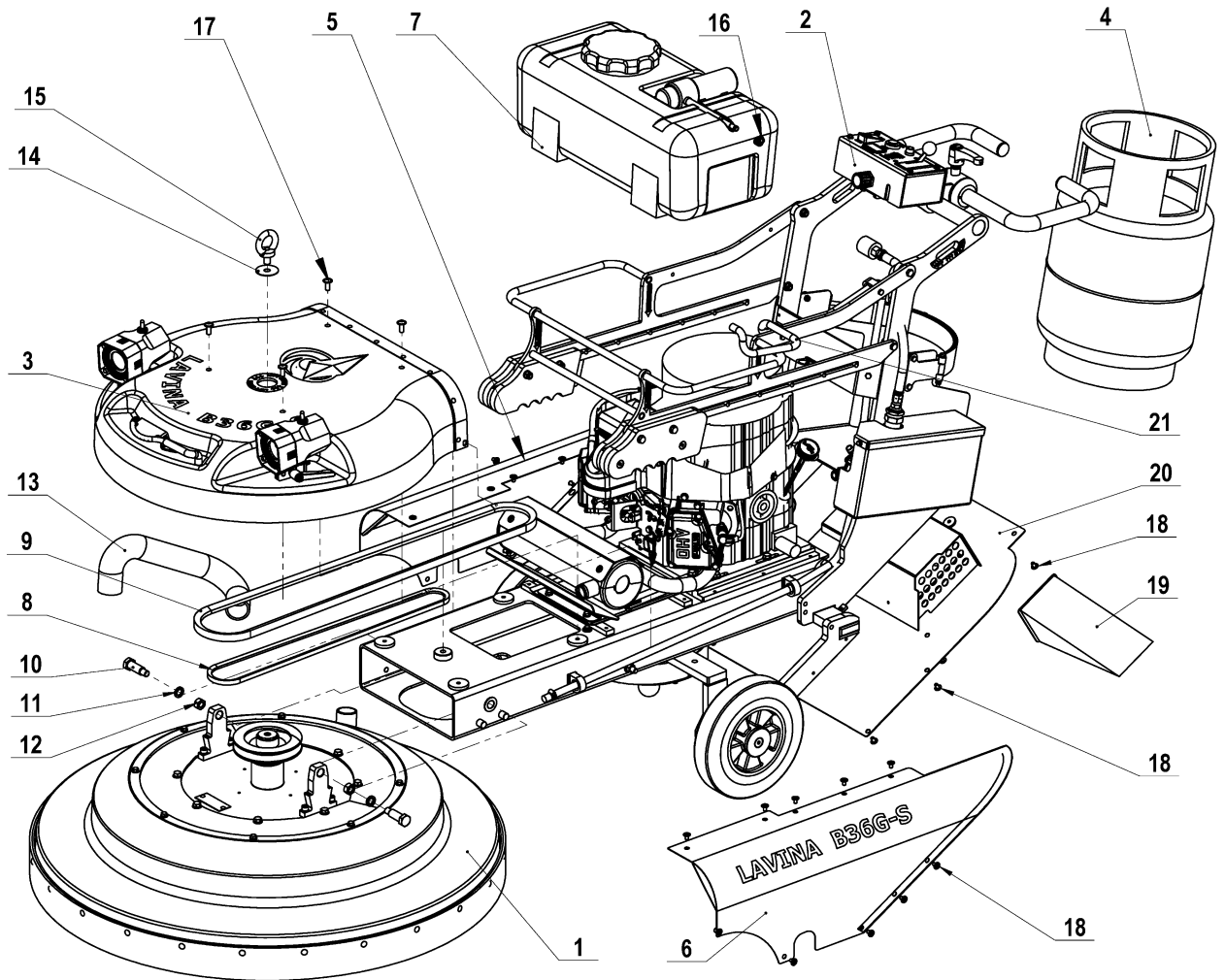
If your machine after time is not usable or needs to be replaced, send the machine back to Superabrasive or a local distributor, where a professional disposal complying with the environment laws and directives is guaranteed.

## 9. MANUFACTURER'S CONTACTS

If you need to contact Superabrasive Inc. with technical support questions, below is the contact information.

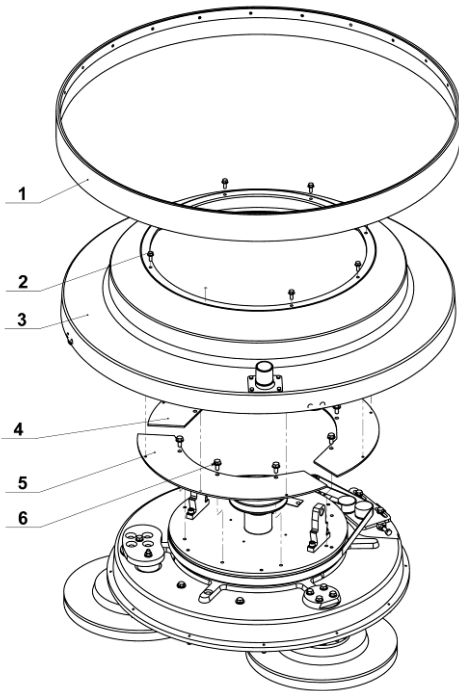
Address: 9411 Jackson Trail Road, Hoshton GA 30548, USA  
Email: [info@superabrasive.us](mailto:info@superabrasive.us)  
Tel.: 706 658 1122  
Fax: 706 658 0357  
Website: [www.superabrasive.com](http://www.superabrasive.com)

## 10. SPARE PARTS ASSEMBLY AND PARTS SPECIFICATIONS

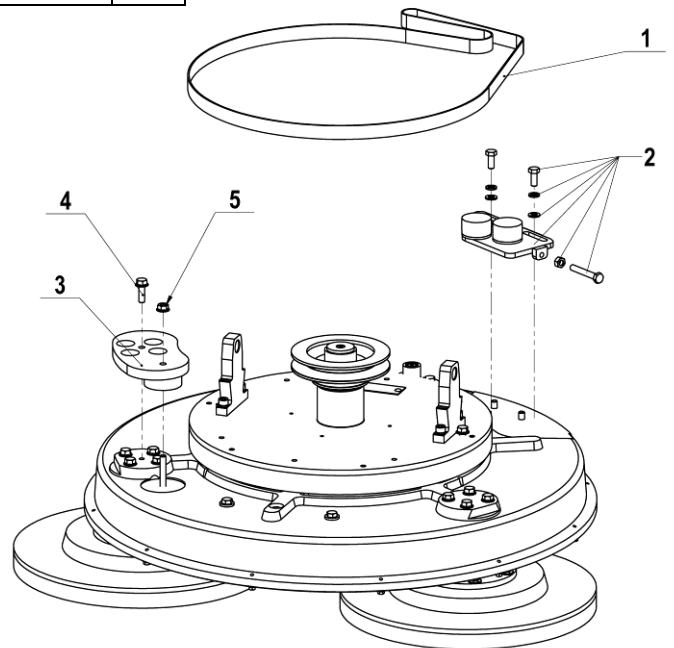


10.1 LAVINA® B36G-S GENERAL PARTS				
Model	No.	Item No.	Description	Pcs.
LB36G-S	1	L36GS-10.00.00	Main Head	1
LB36G-S	2	L36GS-20.00.00	Carriage	1
LB36G-S	3	L36GS-30.00.00	Front spoiler	1
LB36G-S	4	W2502	Propane Tank	1
LB36G-S	5	L36GS-80.00.00	Right rear spoiler	1
LB36G-S	6	L36GS-70.00.00	Left rear spoiler	1
LB36G-S	7	L36GS-60.00.00	Tank	1
LB36G-S	8	Super X-Power XPZ 1262	Fan belt	1
LB36G-S	9	Super X-Power XPB 1800	Main belt	1
LB36G-S	10	L32-00.00.00.00.02	Bolt	2
LB36G-S	11	M12DIN127B	Spring Washer	2
LB36G-S	12	M12DIN934	Nut	2
LB36G-S	13	D40L450	Vacuum Hose	1
LB36G-S	14	LB36GS-00.00.02	Washer	1
LB36G-S	15	M12DIN580	Eyebolt	1
LB36G-S	16	10-16DIN3017	Clamp	1
LB36G-S	17	M8x16DIN967	Screw	4
LB36G-S	18	M6X10ISO7380F	Screw	28
LB36G-S	19	UB101	Vacuum Bag	1
LB36G-S	20	LB36GS-27.00.00	Rear Cover	1
LB36G-S	21	MAR8.2000	Tube	1

10.2 LAVINA® B36G-S TOP COVER PARTS 1				
Model	No.	Item No.	Description	Pcs.
LB36G-S	1	L36GS-16.10.00	Guard Assembly	1
LB36G-S	2	M6x16DIN6921	Bolt	7
LB36G-S	3	L36GS-16.00.00	Top Cover Assembly	1
LB36G-S	4	L36GS-10.00.05	Front Supporting Ring	1
LB36G-S	5	L36GS-10.00.06	Rear Supporting Ring	1
LB36G-S	6	M8x16DIN6921	Bolt	8

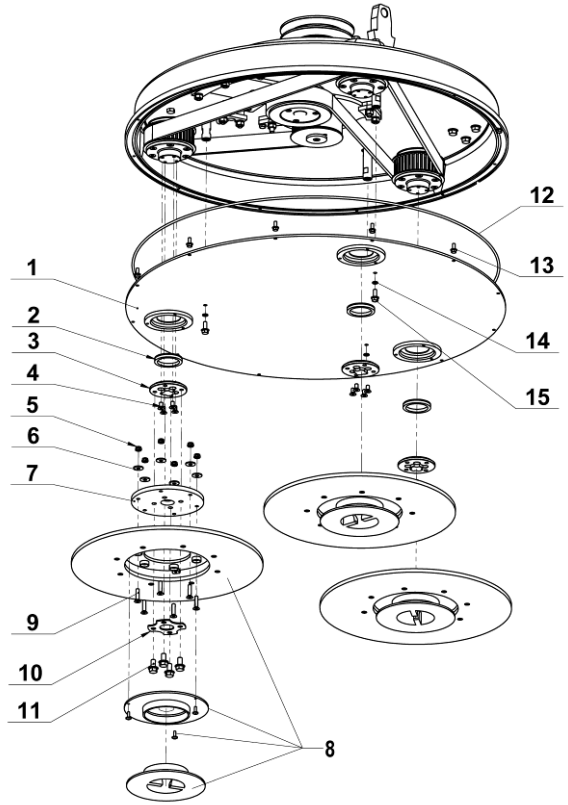


10.3 LAVINA® B36G-S PLANETARY DRIVE PARTS				
Model	No.	Item No.	Description	Pcs.
LB36G-S	1	TC-20/25EF1730X20X2	Endless Transmission Flat Belt	1
LB36G-S	2	L25S-17.00.00	Planetary Tensioning Unit	7
LB36G-S	3	L36GS-17.00.00	Ballance	1
LB36G-S	4	M8x16DIN6921	Bolt	1
LB36G-S	5	M8DIN6923	Nut	1



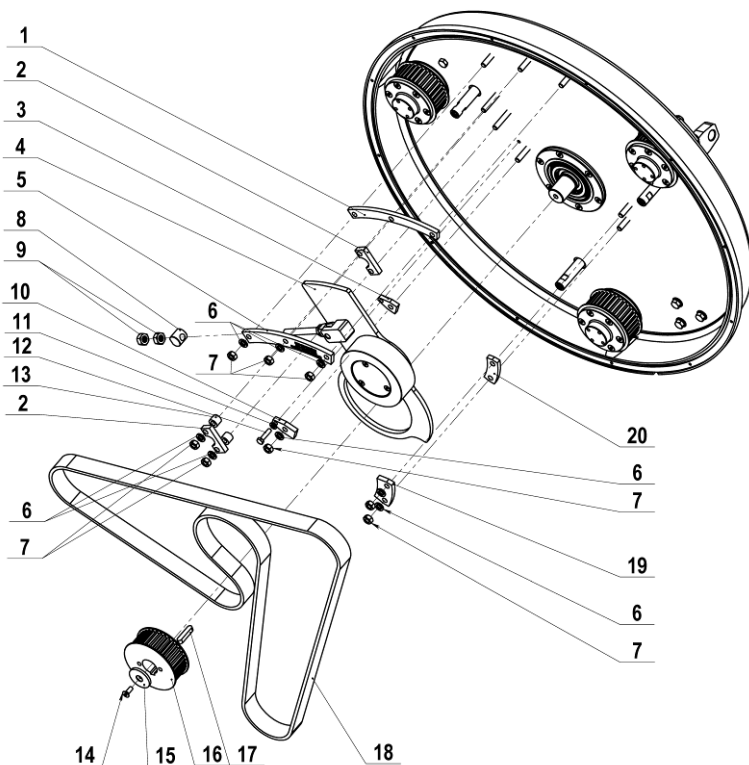
**10.4 LAVINA® B36G-S BOTTOM COVER AND TOOL HOLDER PARTS**

Model	No.	Item No.	Description	Pcs.
LB36G-S	1	L36GS-15.00.00	Bottom Cover Assembly	1
LB36G-S	2	TWVA00400	V-Ring Type A	3
LB36G-S	3	L36BGS-10.00.03	Supporting Disc	3
LB36G-S	4	M6x12DIN7991	Screw	12
LB36G-S	5	M6DIN985	Self Locking Nut	18
LB36G-S	6	M6DIN9021	Washer	18
LB36G-S	7	LB21-10.00.03	Elastic element	3
LB36G-S	8	L36GS-18.00.00	Holder 14"	3
LB36G-S	9	M6x25DIN9771	Screw	18
LB36G-S	10	L36GS-10.00.07	Support	3
LB36G-S	11	M8x16DIN6921	Bolt	12
LB36G-S	12	D4X2X2140	Seal	1
LB36G-S	13	M5x12DIN6921	Bolt	12
LB36G-S	14	OR6x2	O-Ring	3
LB36G-S	15	M6x16DIN6921	Bolt	3

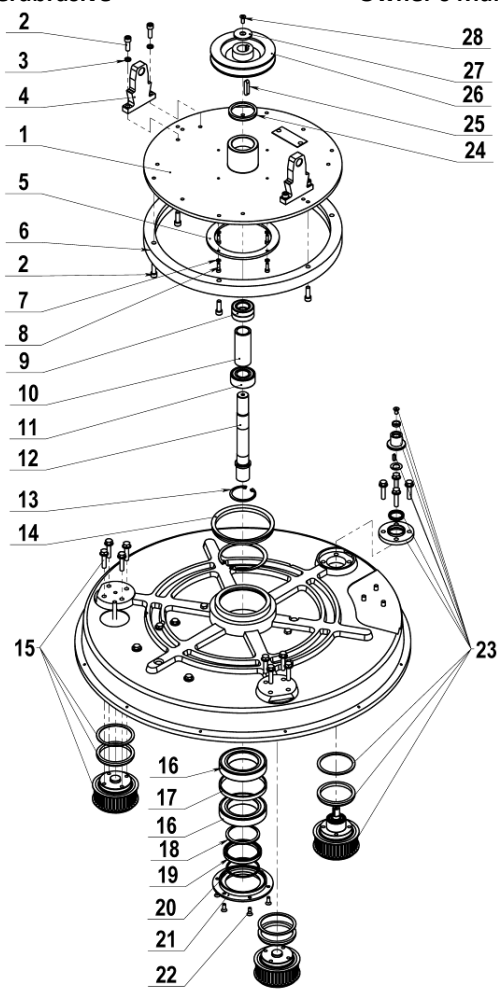


**10.5 LAVINA® B36G-S TRANSMISSION BELT PARTS**

Model	No.	Item No.	Description	Pcs.	No.	Item No.	Description	Pcs.
LB36G-S	1	L25L-10.00.13	Sector	1	11	M6DIN127B	Spring Washer	1
LB36G-S	2	L25L-10.00.07	Support	2	12	M6X30DIN933	Bolt	1
LB36G-S	3	L25L-10.00.15	Sector	1	13	L25L-10.00.08	Washer	2
LB36G-S	4	L36GS-12.00.00	Bolt Tensioning Support	1	14	M6x16DIN9771	Screw	1
LB36G-S	5	L25L-10.00.14	Sector	1	15	L25SPS-00.00.00.15	Front Washer	1
LB36G-S	6	M8DIN127B	Spring Washer	8	16	L36GS-10.00.02	Central Pulley	1
LB36G-S	7	M8DIN934	Nut	8	17	DIN6885A8X7X36	Key	1
LB36G-S	8	L32C.14.20.04	Nut	1	18	OMEGAHP24008MHP30	Transmission Timing Belt	1
LB36G-S	9	M10DIN934	Nut	2	19	L25L-10.00.12	Sector	1
LB36G-S	10	L25L-10.00.16	Sector	1	20	L25L-10.00.11	Sector	1







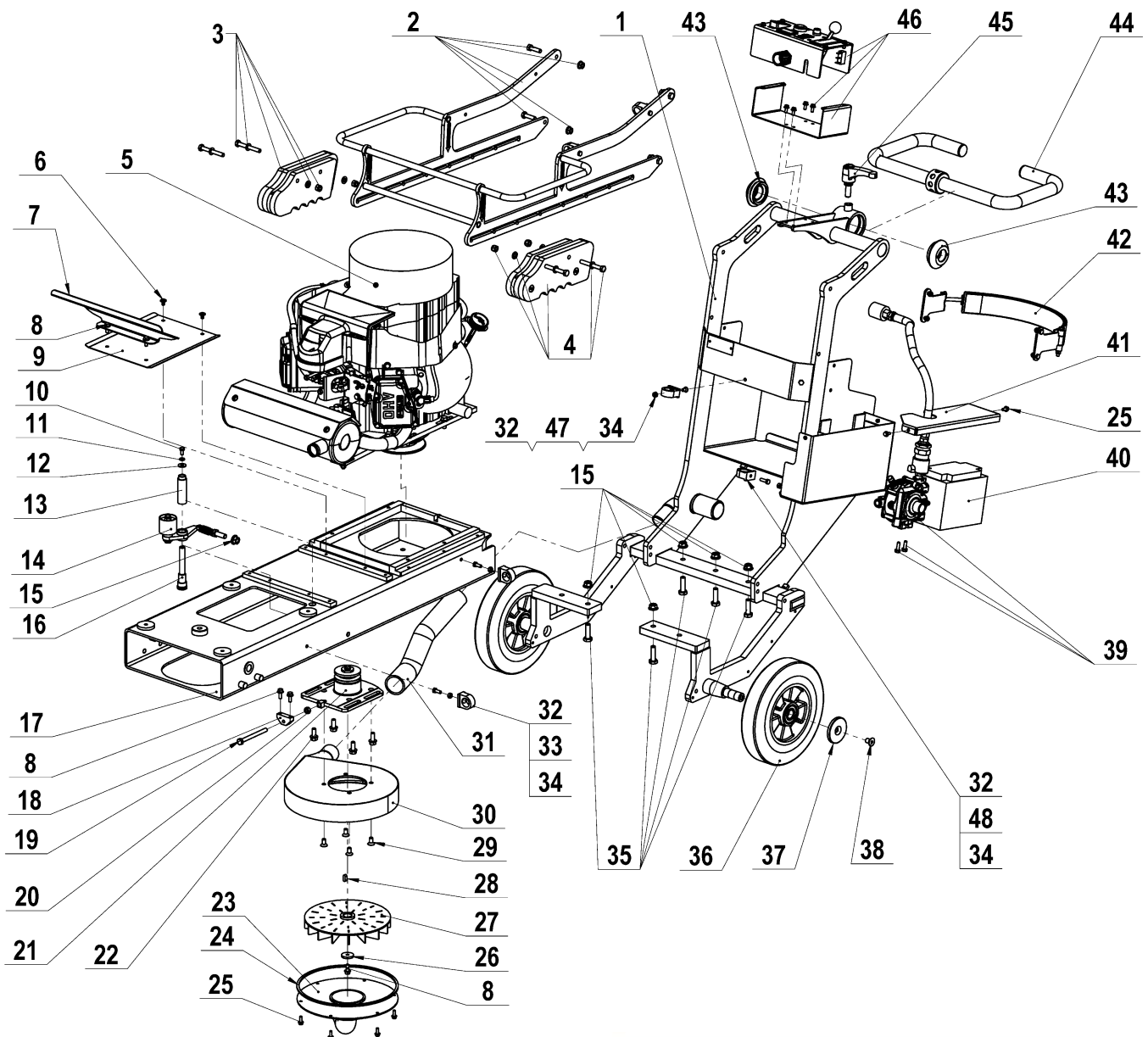
10.6 LAVINA® B36G-S TOP COVER PARTS				
Model	No.	Item No.	Description	Pcs.
LB36G-S	1	L36GS-11.10.00	Base plate	1
LB36G-S	2	M8x25DIN912	Screw	10
LB36G-S	3	M8DIN128B	Spring Washer	4
LB36G-S	4	L36GS-11.00.02	Supporting Part	2
LB36G-S	5	L25P-01.03.00.09	Flange	1
LB36G-S	6	L36GS-11.00.01	Planetary Pulley	1
LB36G-S	7	M5DIN7980	Spring Washer	4
LB36G-S	8	M5X16DIN912	Screw	4
LB36G-S	9	6005	Roller Assembly	2
LB36G-S	10	L25G-10.00.58	Bushing	1
LB36G-S	11	3205	Roller Assembly	1
LB36G-S	12	L25G-10.00.57	Shaft	1
LB36G-S	13	A52DIN472	Retaining Ring	1
LB36G-S	14	TWVA01200	V-Ring Type A	1
LB36G-S	15	L36G-S-14.00.00	Pulley Unit Assembly	2
LB36G-S	16	6013	Roller Assembly	2
LB36G-S	17	L25SPS-00.00.00.34	Distance Ring	1
LB36G-S	18	B65DIN471	Retaining Ring	1
LB36G-S	19	TRA000650	Rotary Seal	1
LB36G-S	20	L25SPS-00.00.00.23	Compensating Ring	1
LB36G-S	21	L25L-10.00.21	Cap	1
LB36G-S	22	M6X16DIN7991	Screw	7
LB36G-S	23	L36GS-13.00.00	Driving Pulley Unit	1
LB36G-S	24	TWVA00500	V-Ring Type A	1
LB36G-S	25	DIN6885A8X7X36	Key	1
LB36G-S	26	L36GS-10.00.04	Pulley	1
LB36G-S	27	L25SPS-00.00.00.15	Front Washer	1
LB36G-S	28	M6X16DIN7991	Screw	7

10.7 LAVINA® B36G-S Carriage parts

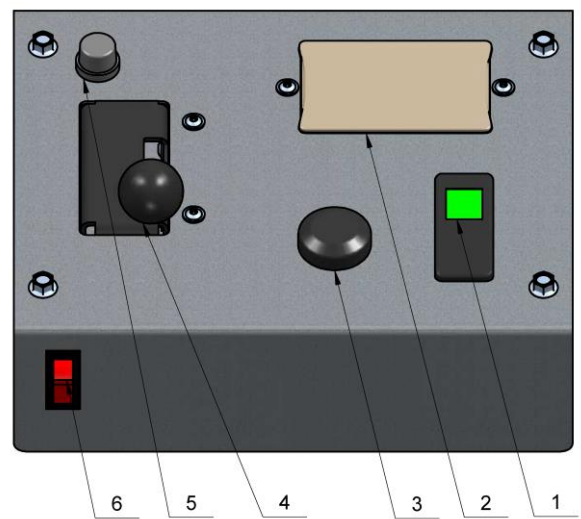
No.	Item No.	Description	Pcs.	No.	Item No.	Description	Pcs.
1 - 1**	LB36GS-22.00.00 LB36GS-22.00.00-1	Frame	1	26	LB36GS-20.00.15	Bush	1
2	LB36GS-26.00.00	Tank carrier	1	27	LB36GS-23.03.00	Dust wheel	1
3	LB36GS-50.00.00	Right Weight	1	28	DIN6885A6X6X16	Key	1
4	LB36GS-40.00.00	Left Weight	1	29	M8X16DIN7991	Screw	4
5	LB36GS-28.00.00	Engin Set	1	30	LB36GS-23.01.00	Fan Housing	1
6	M6X10ISO7380F	Screw	2	31	D40L450	Vacuum Hose	1
7	LB36GS-00.00.01	Guard	1	32	D21	Cable clamp	4
8	M6x16DIN6921	Bolt	5	33	M6X16DIN933	Bolt	2
9	LB36GS-00.00.03	Central spoiler	1	34	M6DIN934	Nut	4
10	M6X12DIN933	Bolt	1	35	M10X35DIN933	Bolt	5
11	M6DIN127B	Spring Washer	1	36	L25G-20.00.04	Wheel	2
12	M6DIN9021	Washer	1	36**	IFP250x50-25x60	Wheel	2
13	LB36GS-20.00.06	Bush	1	37	L32D-20.00.03	Wheel Cap	2
14	LB36GS-25.00.00	Damper	1	37**	L25X-20.00.03	Wheel Cap	2
15	M10DIN6923	Nut	6	38	M10X16DIN7991	Screw	2
16	LB36GS-20.00.07	Axle	1	39	L25G-26.00.00	Regulator set	1
17	LB36GS-21.00.00	Frame	1	40	CC01-25968	12V Battery & Wire Connector	1
18	LB36GS-20.00.03	Stop Tensioner	1	41 41***	L25G-20.00.05 L25G-20.00.05-1	Battery Cover	1
19	M8X80DIN933	Bolt	1	42	L25GS-25.00.00	Strap	1
20	M8DIN934	Nut	1	43	L25SPS-02.00.00.18-01	Nut	2
21	LB36GS-24.00.00	Fan Tensioner	1	44	L20SPS-02.05.00.00	Handle Assembly	1
22	M8x16DIN6921	Bolt	4	45	A58194	Swivel Bolt	1
23	LB36GS-23.02.00	Fan Suction	1	46- 46***	L38GS-24.00.00 LB36GS-29.00.00	Control Board Ass.	1
24	5X3X730	Gasket	1	47	M6X12DIN7991	Screw	1
25	M5x12DIN6921	Bolt	8	48	M6X20DIN933	Bolt	1

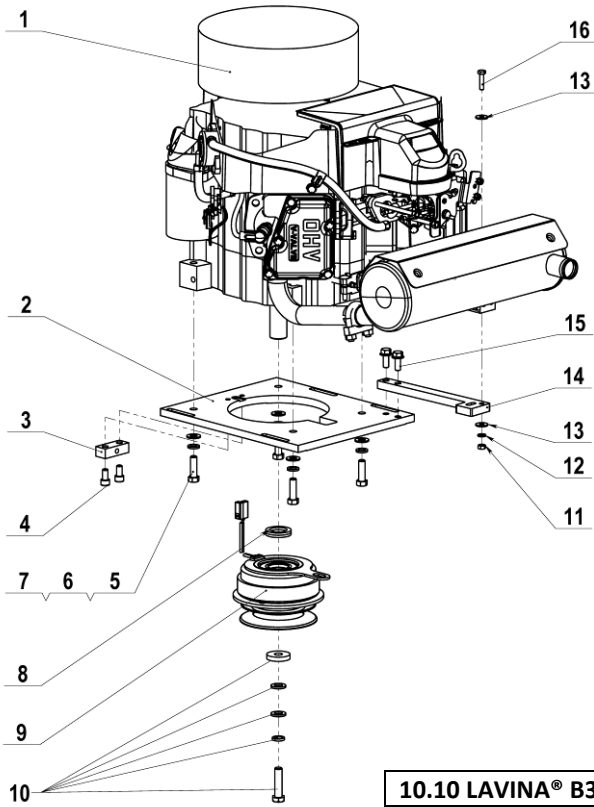
\*\* for machines after serial No 1711LB36GS3020

\*\*\* for machines after serial No 1803LB36GS2706



10.8 LAVINA® B36G-GTS CONTROL BOARD PARTS			
No.	Item No.	Description	Pcs.
1	W1330	Clutch Switch	1
2	GT-EM40	Complete Monitor Assembly	1
3	GT-440	Start/Stop Switch	1
4	109894	Throttle cable 53 in	1
5	6x30_30A	Fuse	1
6	W9999	Pump switch	1





10.9 LAVINA® B36G-S ENGINE BASE PLATE ASSEMBLY PARTS				
Model	No.	Item No.	Description	Pcs.
LB36G-S	1	FS481VA-CS10-M	Kawasaki Engine	1
LB36G-S	2	LB36GS-28.00.01	Engine Base Plate	1
LB36G-S	3	LB36GS-28.00.02	Tensioning Device Support	1
LB36G-S	4	M8x16DIN912	Screw	2
LB36G-S	5	F33008	Washer	4
LB36G-S	6	F33622	Washer	4
LB36G-S	7	F13107	Bolt	4
LB36G-S	8	W1220	Clutch Washer	2
LB36G-S	9	I-5215-63D	Electric Clutch	1
LB36G-S	10	L25G-10.02.02.S	Bolt Set	1
LB36G-S	11	M6DIN934	Nut	1
LB36G-S	12	M6DIN127B	Washer	1
LB36G-S	13	M6DIN9021A	Washer	2
LB36G-S	14	L25G-10.00.67-01	Support	1
LB36G-S	15	M8x20DIN6921	Bolt	3
LB36G-S	16	M6X25DIN933	Bolt	1

10.10 LAVINA® B36G-S ENGINE PARTS				
Model	No.	Item No.	Description	Pcs.
L25G-S	1	W3132	Kawasaki FS481V-AS10-M 18H 12V	1
L25G-S		K49065-7007	Oil Filter	12
L25G-S	2	W1325	Oil Pressure Switch	6
L25G-S	3	F466230	Elbow	1
L25G-S	4	K59071-7004	Joint	1
L25G-S	5	FE17409029909	Oil Drain Valve	1
L25G-S	6	K11013-7049	Element Air Filter	1
L25G-S	7	K11013-7046	Element Air Filter/ Fs481v (Foampre-Filter)	1
L25G-S	8	W3241A	Cat Muffler Assy.	1
L25G-S	9	W3305	Kawasaki Bonnet Filter	1

