



# OPERATOR/SERVICE MANUAL

MODEL: XN650R, XN650ROI, XT728R,  
XT728ROI, XM832R, XM832ROI,  
XJ834HG, XD836Y



STOMPER® - 2 Cycle Oil Injected and Pre-Mix,  
4 Cycle and Diesel

A 100% employee-owned American manufacturer



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OPERATOR/SERVICE MANUAL  
STOMPER**

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# FOREWORD

These instructions include:

- Safety regulations
- Operating instructions
- Maintenance instructions

**These instructions have been prepared for operation on the construction site and for the maintenance engineer.**

These instructions are intended to simplify operation of the machine and to avoid malfunctions through improper operation.

Observing the maintenance instructions will increase the reliability and service life of the machine when used on the construction site and reduce repair costs and downtimes.

**Always keep these instructions at the place of use of the machine.**

**Only operate the machine as instructed and follow these instructions.**

**Observe the safety regulations as well as the guidelines of the civil engineering trade association. Observe safety rules for the operation of compactors and the pertinent regulations for the prevention of accidents.**

Stone Construction Equipment, Inc. is not liable for the function of the machine when used in an improper manner and for other than the intended purpose.

Operating errors, improper maintenance and the use of incorrect operating materials are not covered by the warranty.

The above information does not extend the warranty and liability conditions of business of Stone Construction Equipment, Inc.

## Warranty Information

Please enter the following data. This will help expedite any service or warranty work.

1. Machine Type: \_\_\_\_\_

Machine S/N: \_\_\_\_\_

2. Engine Type: \_\_\_\_\_

Engine S/N: \_\_\_\_\_

3. VIN: \_\_\_\_\_

4. Purchase Date: \_\_\_\_\_

5. Dealer/Distributor Information:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone #: \_\_\_\_\_

Fax #: \_\_\_\_\_

### *Location of above information:*

1. Information on S/N tag.
2. Information on engine tag.
3. Information on S/N tag - if applicable.
4. Date you purchased machine.
5. Dealer machine was purchased from.

---

Stone Construction Equipment, Inc.  
P.O. Box 150, Honeoye, New York 14471  
Phone: (800) 888-9926  
Fax: (585) 229-2363

# Limited Warranty

The Manufacturer warrants that products manufactured shall be free from defects in material and workmanship that develop under normal use for a period of 90 days for concrete vibrators and electric pumps, one year for Rhino®, Bulldog®, WolfPac Rollers™, trowels, Stompers®, saws, forward plates, engine powered pumps, Lift Jockey™, Mortar Buggy™ and 6 months for all other products from the date of shipment. The foregoing shall be the exclusive remedy of the buyer and the exclusive liability of the Manufacturer. Our warranty excludes normal replaceable wear items, i.e. gaskets, wear plates, seals, O-rings, V-belts, drive chains, clutches, etc. Any equipment, part or product which is furnished by the Manufacturer but manufactured by another, bears only the warranty given by such other manufacturer. (The Manufacturer extends the warranty period to "Lifetime" for the drum bearings and seals for the mortar mixers, and agrees to furnish, free of charge, the bearings and seals only upon receipt of the defective parts. The warranty is two years for eccentric bearings on the forward plate compactors, mortar and plaster mixer drums, trowel gearboxes and five years on the Bulldog trench roller eccentric bearings.) A Warranty Evaluation Form must accompany all defective parts. Warranty is voided by product abuse, alterations, and use of equipment in applications for which it was not intended, use of non-manufacturer parts, or failure to follow documented service instructions. The foregoing warranty is exclusive of all other warranties whether written or oral, expressed or implied. No warranty of merchantability or fitness for a particular purpose shall apply. The agents, dealer and employees of Manufacturer are not authorized to make modification to this warranty, or additional warranties binding on Manufacturer. Therefore, additional statements, whether oral or written, do not constitute warranty and should not be relied upon.

The Manufacturer's sole responsibility for any breach of the foregoing provision of this contract, with respect to any product or part not conforming to the Warranty or the description herein contained, is at its option (a) to repair, replace or refund such product or parts upon the prepaid return thereof to location designated specifically by the Manufacturer. Product returns not shipped prepaid or on an economical transportation basis will be refused (b) as an alternative to the foregoing modes of settlement - the Manufacturer's dealer to repair defective units with reimbursement for expenses, except labor, and be reviewed with the Manufacturer prior to repair. A Warranty Evaluation Form must accompany all warranty claims.

Except as set forth hereinabove and without limitation of the above, there are no warranties or other affirmations which extends beyond the description of the products and the fact hereof, or as to operational efficiency, product reliability or maintainability or compatibility with products furnished by others. In no event whether as a result of breach of contract or warranty or alleged negligence, shall the Manufacturer be liable for special or consequential damages including but not limited to: Loss of profits or revenues, loss of use of the product or any associated product, cost of capital, cost of substitute products, facilities or services or claims of customers.

No claim will be allowed for products lost or damaged in transit. Such claims should be filed with the carrier within fifteen days.

Effective September 2001.



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# **1. TECHNICAL DATA**

# SOUND AND VIBRATION DATA

## 1.1 MACHINE SOUND LEVEL TEST

|                                     |   |
|-------------------------------------|---|
| Machine Type:                       | Stomper Compactor                       |
| Sound Level Meter Calibration Date: | December 9, 1994                        |
| Meter Type:                         | Simpson Model 886-2 Type 2              |
| Test Date:                          | December 9, 1994                        |
| Test Conditions:                    |   |
| Temperature:                        | 5 degrees Fahrenheit/-5 degrees Celsius |
| Ambient Sound:                      | 55 dba fast mode                        |
| Soil Condition:                     | Sand and grit                           |
| Moisture Limit:                     | Approximately equal to 50 percent       |
| Engine Speed:                       | 5000 rpm/83 Hz                          |
| Frequency:                          | 700 rpm/11.7 Hz                         |
| Test Site:                          | Honeoye, New York USA                   |
| Sound Level at Operator Position:   | 98 dba                                  |

## 1.2 VIBRATION TESTS

The effective acceleration value, determined with respects to ISO 8662, Part I and calculated in the domain are as follows:

| <b>Model</b> | <b>RMS Acceleration, M/S<sup>2</sup></b> |
|--------------|--|
| XN650R       | 5.7                                      |
| XT728R       | 5.1                                      |
| XT728ROI     | 5.1                                      |
| XM832R       | 6.5                                      |
| XM832ROI     | 6.5                                      |

## **2. HEALTH & SAFETY**

## **SAFETY USE**

These machines are designed to carry out the function of compacting material of the non-cohesive, bituminous and granular varieties.

If used correctly they will provide an effective and safe means of compaction and meet the appropriate performance standards.

It is essential that the driver/operator of the machine is adequately trained in its safe operation, be authorized to drive it, and have sufficient knowledge of the machine to ensure that it is in full working order, before being put to use.

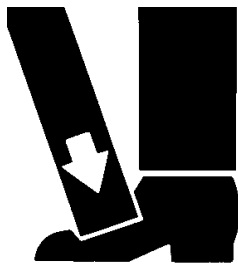
## SAFETY PRECAUTIONS

Before using this equipment, study this entire Owner's Manual to become familiar with its proper operation. Do not allow untrained or unauthorized personnel, especially children, to operate this equipment. Use only factory authorized parts for service. When safety

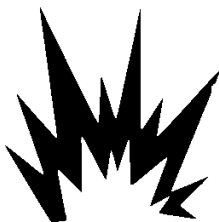
decals are destroyed or missing, contact factory immediately for replacement. For the safety of yourself and others, it is imperative that the following rules are observed. Failure to do so may result in serious injury or death.



- This notation appears before warnings in the text. It means that the step which follows must be carried out to avoid the possibility of personal injury or death. These warnings are intended to help the technician avoid any potential hazards encountered in the normal service procedures. We strongly recommend that the reader takes advantage of the information provided to prevent personal injury or injury to others.



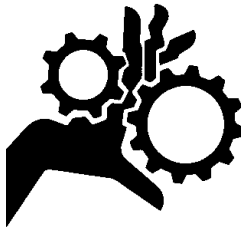
- Keep feet clear of the machine's shoe at all times.
- Be sure no one is in a position to be hit by operator's hand or arm during starting.
- Do not leave the machine running unattended.
- Keep work area free of bystanders.
- Do not operate this machine on any surface where it can get out of control.



- Transport and handle fuel only when contained in approved safety containers.
- Do not smoke when refueling or during any other fuel handling operation.
- Do not refuel while the engine is running or while it is still hot.
- If fuel is spilled during refueling, wipe it off the engine immediately and discard the rags in a safe place.
- Do not operate the equipment if fuel or oil leaks exist - repair immediately.
- Never operate this equipment in an explosive atmosphere.



- Never operate any gas powered equipment in a poorly ventilated or enclosed area.
- Avoid prolonged breathing of exhaust gases.



- Never perform any work on this equipment while it is running.
- Always stop the engine and disconnect the spark plug wire to prevent accidental starting.
- Keep hands, clothing, and jewelry away from all moving parts.
- Make sure all safety guards are secured and in proper position.



- Avoid contact with hot exhaust systems and engines.
- Allow engine to cool before performing any repairs or service.



- Ear protection required when operating this equipment.

# **3. OPERATIONS 2-CYCLE OIL INJECTED**





## 3.1 Specifications Oil-Injected Stomper®

| MODEL                              | STONE<br>XN650ROI     | STONE<br>XT728ROI | STONE<br>XM832ROI |
|------------------------------------|-----------------------|-------------------|-------------------|
| <u>Dimensions</u><br>Weight        | 125 lbs.              | 130 lbs.          | 158 lbs.          |
| <u>Dimensions</u><br>(L x W x H)   | 30.3" x 13.5" x 36.5" | 28.5" x 15" x 38" | 28.5" x 15" x 38" |
| <u>Shoe Size</u>                   | 10" x 13"             | 11" x 13"         | 11" x 13"         |
| <u>Operating System</u><br>Power   | 4 hp. Robin           | 4 hp. Robin       | 4 hp. Robin       |
| <u>Engine Specs</u>                | EC12D                 | EC12D             | EC12D             |
| <u>Engine RPM</u>                  | 4300                  | 4300              | 3900              |
| <u>Fuel Mixture</u>                | 50:1                  | 50:1              | 50:1              |
| <u>Fuel Tank Capacity</u>          | 3 qts.                | 3 qts.            | 3 qts.            |
| <u>Fuel Tank Material</u>          | Polyethylene          | Polyethylene      | Polyethylene      |
| <u>Performance</u><br>Impact Force | 2600 lbs.             | 2800 lbs.         | 3200 lbs.         |
| <u>Max. Blows/Min.</u>             | 780                   | 700               | 660               |
| <u>Max. Forward Travel Speed</u>   | 60' - 70' / Min.      | 60' - 90' / Min.  | 50' - 64' / Min.  |
| <u>Max. Productivity</u>           | 3500 Sq. Ft./ Hr.     | 4950 Sq. Ft./ Hr. | 3500 Sq. Ft./ Hr. |
| <u>Max. Lift</u>                   | 18"                   | 18"               | 22"               |
| <u>Max. Amplitude</u>              | 2.5"                  | Up to 4"          | Up to 3"          |
| <u>Options</u>                     | Extension             | Extension         | -                 |

\*Soil conditions can affect specifications.



# OPERATING INSTRUCTIONS

## 3.2 OPERATING PRINCIPLE

A tamping shoe is mounted at the lower end of a cylindrical spring housing. A piston, installed between massive opposing springs inside the spring housing, is actuated by a connecting rod and crank system which is driven by a high speed, 2 cycle gasoline engine through a gear train and centrifugal clutch. The piston alternately loads and unloads the springs. This results in a rapid lifting up and ramming down action of the tamping shoe to compact the underlying material.

The Stomper is effective for compaction of a wide variety of job soil substances, particularly clay lumps, silt, loam and all granular materials. Although relatively light in weight and easy to operate, the Stomper delivers a tremendous impact to the soil.

These instructions contain information to guide you in efficient use and proper maintenance of the Stomper. To get long and trouble-free service from this power tool, periodic maintenance of the engine and machine is essential.

The Stomper is shipped completely assembled and only requires filling with 2 cycle oil and regular unleaded gasoline as well as a brief check of lubricant levels in preparation for operation. You should first study these instructions.

## 3.3 PRE-OPERATION CHECKS

**CAUTION:** Sections on fuel mixture, air cleaner and lubrication must be followed exactly. Failure to follow these instructions may void the warranty.

### 3.3.1 Spark Plug

Check and clean spark plugs regularly. A fouled, dirty, or carboned spark plug causes hard starting and poor engine performance. Set spark plug gap as per specifications. See Engine Manual.

### 3.3.2 Starter Screen

This screen keeps dirt, etc. from entering the fan housing and clogging the air cooling passages. Because this engine is air-cooled, it is necessary to keep this screen clean at all times to permit the unrestricted passage of air into the fan housing.

### 3.3.3 Fasteners

Check all nuts and bolts after 4 hours, then every day of operation. Torque values for fasteners are found in the appropriate part drawings located in the back section of this manual.

### 3.3.4 Fuel Mixture

The gasoline and 2-cycle oil ***are not*** mixed prior to filling the unit.

Use regular unleaded gasoline. High test is not recommended.

Strain the fuel through a fine meshed screen when filling gasoline tank on engine to remove dirt if present.

**NOTE:** Special ratio for initial break-in period.  
See chart below

| FUEL Gasoline | 50:1 EC12 Two Cycle Oil     | 20:1 All Units Break-In Two Cycle Oil Mix (first 10 hours) |
|---------------|-----------------------------|--|
| 5 Gallons     | .80 pints (12.8 oz) (.38 L) | 2.00 pints (32 oz) (.94 L)                                 |
| 1 Gallons     | .16 pints (2.56 oz) (.08 L) | .40 pints (6.4 oz) (.19 L)                                 |
| 2 Quarts      | .08 pints (1.28 oz) (.04 L) | .20 pints (3.2 oz) (.09 L)                                 |

h:\netaldus\pm5\enr\manuals\stomper\56318\rev d\fuel chart.doc

### 3.3.5 Oil Pipe Replacement

Replace the oil pipe between oil tank and the joint every two (2) years.

**NOTE:** After replacing the oil pipe, make sure to discharge air in the pipe as much as possible, and then fill the fuel tank with gasoline mixed with 2-stroke engine oil at the ratio of 25 to 50 : 1.

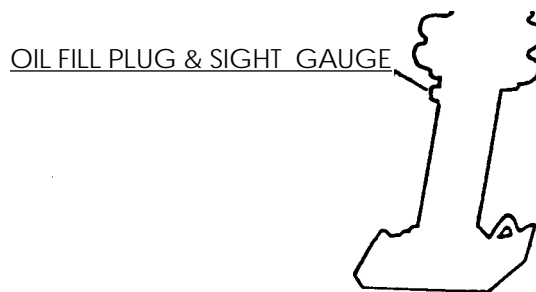
After running with the mixture of gasoline for enough time to discharge the air completely, refill the unleaded gasoline only for normal operation.

**NOTE:** The unit is equipped with a low oil shut-off sensor which is located inside the oil tank. When the oil level in the tank drops low enough to actuate the switch, the unit will shut off, even though there is still oil visible in the tank. The unit can not be restarted until the oil is replenished.

### 3.3.6 Lubrication

The oil level should be checked now and before first use of the Stomper. Thereafter, it should be checked every day as follows.

#### FOR XN, XT AND XM SERIES



1. With unit standing upright (in vertical position--not operating) so that the oil drains freely into the spring housing, check that the oil is at fill sight plug level.
2. Whenever the level is low, remove the fill sight plug and refill to level of fill sight plug with any good quality SAE-30.

**NOTE:** Use of a socket wrench is recommended to avoid damage to the sight gauge.

3. Change the oil every 300 operating hours or six months.

### 3.3.7 Air Cleaner

Engine life will be extended by maintaining clean engine air filters. Remove and clean the air filter elements daily, or more frequently under dustier job conditions. Wash the pre-filter element clean in a non-oily cleaning solvent such as "Solvesol". Let the filter dry before reinstalling it in the air cleaner.

Replace air cleaner element every 100 hours. (More frequently in dusty areas).

### 3.4 TO START MACHINE

1. Check fuel tank, oil tank, air cleaner and Stomper lubrication as previously instructed.
2. Open the fuel valve/shut-off switch on the lower right hand side of the engine and the air vent thumbscrew in the tank fill cap.
3. Raise throttle lever about halfway and apply the choke.

**NOTE:** A warm engine may not require choking.

4. Pull the starter briskly once or twice to prime the engine, then open choke slightly to prevent flooding and continue cranking as necessary to start.
5. When engine starts, set choke in the open or run position. Let the engine run at idle to warm up, then open up to full throttle for operation.

### 3.5 TO STOP MACHINE

1. Throttle engine down.
2. Close the fuel valve/shut-off switch and tank cap vent.

### 3.6 OPERATION OF MACHINE

## **WARNING**

**WHEN OPERATING THE STOMPER, KEEP FEET CLEAR FROM THE RAMMING SHOE. SERIOUS PERSONAL INJURY MAY OCCUR. WHEN OPERATING THE STOMPER, HEARING PROTECTION SHOULD BE WORN. HEARING LOSS MAY RESULT FROM PROLONGED EXPOSURE TO NOISE.**

**CAUTION:** Never operate on hard, unyielding surfaces. Unwarranted damage may result.

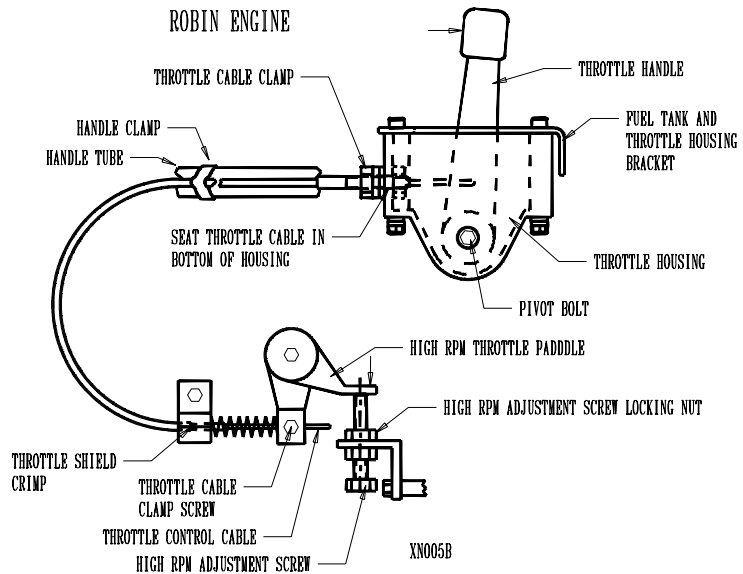
**CAUTION:** Always use both hands when operating this machine. This will ensure safe machine operation.

1. In operation, guide the machine but let the machine do the work. Bearing down on the handle is unnecessary and limits the shoe jump.
2. On nearly level surfaces, the machine moves forward in rapid jumps. On uneven surfaces or inclines, rocking the handle slightly may assist the Stomper in moving forward.
3. Always guide the Stomper so that the whole shoe, and not just the front or back edge, does the impacting.
4. As the soil becomes compacted, the jump height of the Stomper will increase.
5. After a brief experience, you will know how to adapt the technique to the job conditions.

# ROUTINE MAINTENANCE

## 3.7 THROTTLE CONTROL CABLE ADJUSTMENT

1. Loosen throttle cable clamp screw.
2. Push throttle handle all the way to the right.
3. Push down on high RPM throttle paddle until it rests on the high RPM adjustment screw and tighten throttle cable clamp screw.
4. Run machine and check engine RPM with a tachometer to see if it is running to specified RPM.



## 3.8 SETTING HIGH RPM (Operating Speed)

1. Loosen throttle control cable clamp screw and high RPM adjustment screw locking nut.
2. Turn high RPM adjustment screw counterclockwise to increase RPM or clockwise to decrease RPM, then tighten high RPM adjustment screw locking nut.
3. Push throttle handle all the way to the right.
4. Push down on the high RPM throttle paddle until it rests on the high RPM adjustment screw and tighten the throttle cable clamp screw.
5. Run machine and check engine RPM with a tachometer.

If engine is still not running to specified RPM, repeat above steps until recommended RPM is obtained.

## 3.9 THROTTLE HANDLE ADJUSTMENT

1. Retighten pivot bolt tight enough as to not allow throttle handle to move forward when machine is operating

## 3.10 IDLE SETTING

If the engine idles smoothly but at too high RPM, turn the idle stop screw counterclockwise a little at a time until the desired specification is obtained. To increase the idle speed, turn the idle stop screw slowly clockwise until the desired RPM is obtained. The idle stop screw is the black screw located behind the air cleaner base plate.

### 3.11 STORING STOMPERS

The following steps should be taken to prepare your Stomper for storage:

1. Disconnect fuel line and allow all fuel to drain from the gasoline tank only. Replace fuel line.
2. Start engine and allow to run until it stops from lack of fuel. This will use up all the fuel in the carburetor and prevent the formation of deposits due to evaporation of fuel.

## **WARNING**

**GASOLINE IS BOTH TOXIC AND FLAMMABLE. DO NOT SMOKE WHILE WORKING WITH FUEL. DO NOT USE NEAR OPEN FLAME. AVOID PROLONGED BREATHING OF VAPORS AND SKIN CONTACT. FLASH POINT OF GASOLINE IS 40°F (4°C). SERIOUS ILLNESS OR LOSS OF LIFE COULD RESULT.**

3. Close fuel valve/shut-off switch.
4. Remove spark plug and pour 60cc or 2 ounces (1/4 cup) of motor oil into the cylinder. Replace plug.
5. Crank the engine two or three times to distribute the oil throughout the cylinder. This will help prevent rusting during storage.
6. Store the unit in an upright position (as in the operating position) in a cool, dry, ventilated area.



# 4. OPERATIONS DIESEL





## 4.1 Specifications Stomper<sup>®</sup> Diesel

| MODEL                              | STONE XD836Y      |
|------------------------------------|-------------------|
| <u>Dimensions</u><br>Weight        | 215 lbs.          |
| Dimensions<br>(L x W x H)          | 31.5" x 15" x 38" |
| Shoe Size                          | 13" x 13"         |
| <u>Operating System</u><br>Power   | 4 hp. Yanmar      |
| Engine Specs                       | L40AE-D           |
| Engine RPM                         | 3000 - 3600       |
| Fuel Mixture                       | -                 |
| Fuel Tank Capacity                 | 3 qts.            |
| Fuel Tank Material                 | Polyethylene      |
| <u>Performance</u><br>Impact Force | 3650 lbs.         |
| Max. Blows/<br>Min.                | 630 - 700         |
| Max. Forward<br>Travel Speed       | 40' - 50' / Min.  |
| Max.<br>Productivity               | 3200 Sq. Ft./Hr.  |
| Max. Lift                          | 22"               |
| Max.<br>Amplitude                  | Up to 3.0"        |
| <u>Options</u>                     | -                 |

\*Soil Conditions can affect specifications.



# OPERATING INSTRUCTIONS

## 4.2 OPERATING PRINCIPLE

A tamping shoe is mounted at the lower end of a cylindrical spring housing. A piston, installed between massive opposing springs inside the spring housing, is actuated by a connecting rod and crank system which is driven by a powerful air-cooled 4 hp diesel engine through a gear train and centrifugal clutch. The piston alternately loads and unloads the springs. This results in a rapid lifting up and ramming down action of the tamping shoe to compact the underlying material.

The Stomper is effective for compaction of a wide variety of job soil substances, particularly clay lumps, silt, loam and all granular materials. Although relatively light in weight and easy to operate, the Stomper delivers a tremendous impact to the soil.

These instructions contain information to guide you in efficient use and proper maintenance of the Stomper. To get long and trouble-free service from this power tool, periodic maintenance of the engine and machine is essential.

The Stomper is shipped completely assembled and only requires filling engine with diesel fuel and a brief check of lubricant levels in preparation for operation. You should first study these instructions.

## 4.3 PRE-OPERATION CHECKS

**CAUTION:** Sections on *Engine Maintenance, Lubrication and Air Cleaner* must be followed exactly. Failure to follow these instructions may void the warranty.

### 4.3.1 Engine Checks

**DIESEL ENGINE:** Diesel fuel is mandatory for use in this engine. Always use clean fuel. Low quality or contaminated fuel will damage fuel injection components.

## WARNING

**DIESEL FUEL STORED IN GALVANIZED CONTAINERS REACTS CHEMICALLY WITH THE ZINC COATING ON THE CONTAINER. THE CHEMICAL REACTION CREATES POWDERY FLAKES OF ZINC SULFIDE. IF WATER IS PRESENT IN THE FUEL, A ZINC HYDROXIDE GEL WILL FORM.**

Periodic checks and maintenance are required to keep your unit running properly.

- **Fuel** Use Diesel Fuel only. Strain the fuel through a fine meshed screen when filling fuel tank on engine to remove dirt if present.
- **Lube Oil** Check crankcase oil level daily. Fill to proper level with SAE 15W 40 CC/CD oil of API engine service application.
- **Replace Oil** Engine oil should be changed after first 20 hours then every 100 hours thereafter.
- **Adjustment** Check and tighten engine parts daily. Clean engine cooling fins daily. Check and adjust valves every 300 hours. Clearance to be set at 0.15 mm while engine is cold.

#### 4.3.2 Starter Screen

This screen keeps dirt, etc., from entering the fan housing and clogging the air cooling passages. Because this engine is air-cooled, it is necessary to keep this screen clean at all times to permit the unrestricted passage of air into the fan housing.

#### 4.3.3 Fasteners

Check all nuts and bolts after 4 hours, then every day of operation. See parts lists for recommended torque values.

#### 4.3.4 Lubrication

The oil level should be checked now and before first use of the Stomper. Thereafter, it should be checked every day as follows.

FOR XD MODEL



1. With unit standing upright (in vertical position--not operating) so that the oil drains freely into the spring housing, check that the oil is at fill sight plug level.
2. Whenever the level is low, remove the fill sight plug and refill to level of fill sight plug with any good quality SAE-30 engine oil.

**NOTE:** Use of a socket wrench is recommended to avoid damage to the sight gauge.

3. Change the oil every 300 operating hours or six months.

#### 4.3.5 Air Cleaner

Engine life will be extended by maintaining a clean engine air filter. Remove and clean the air filter element daily or more frequently under dustier job conditions. Wash the pre-filter element clean in a non-oily cleaning solvent such as "Solvesol". Let the filter dry before reinstalling it in the air cleaner.

Replace air cleaner element every 100 hours. (More frequently in dusty areas).

### 4.4 TO START MACHINE

1. Check fuel tank, engine oil, air cleaner and Stomper lubrication as previously instructed.

**CAUTION:** Never use ether or other starting fluids to start the diesel engine. Engine failure will result.

2. Open the fuel valve under the tank and the air vent thumbscrew in the tank fill cap.
3. Raise throttle lever about 3/4 throttle.

4. Pull starting handle slowly until you feel resistance.
5. Return starting handle slowly.
6. Push decompression lever down and release. Lever should stay in down position.
7. Pull starting handle hard and fast.
8. If engine fails to start, try again from step 4.

#### 4.5 TO STOP MACHINE

1. Throttle engine down and let run at idle for about 3 minutes.
2. Return throttle to stop position.
3. Close the fuel valve and tank cap vent.

#### 4.6 OPERATION OF MACHINE

### **WARNING**

**WHEN OPERATING THE STOMPER, KEEP FEET CLEAR FROM THE RAMMING SHOE. SERIOUS PERSONAL INJURY MAY OCCUR.  
WHEN OPERATING THE STOMPER, HEARING PROTECTION SHOULD BE WORN.  
HEARING LOSS MAY RESULT FROM PROLONGED EXPOSURE TO NOISE.**

**CAUTION:** Never operate on hard, unyielding surfaces. Unwarranted damage may result.

**CAUTION:** Always use both hands when operating this machine. This will ensure safe machine operation.

1. In operation, guide the machine but let the machine do the work. Bearing down on the handle is unnecessary and limits the shoe jump.
2. On nearly level surfaces, the machine moves forward in rapid jumps. On uneven surfaces or inclines, rocking the handle slightly may assist the Stomper in moving forward.
3. Always guide the Stomper so that the whole shoe, and not just the front or back edge, does the impacting.
4. As the soil becomes compacted, the jump height of the Stomper will increase.
5. After a brief experience, you will know how to adapt the technique to the job conditions.

#### 4.7 LIFTING and TRANSPORTING

##### Lifting

- To lift Stomper, use only suitable lifting device.
- Secure lifting device to central lift point on handles.

##### Transporting

- Lay unit down on its front side.
- Tie down Stomper securely to prevent slipping and breaking away while in transport.

# ROUTINE MAINTENANCE

## ⚠ WARNING

DIESEL FUEL IS BOTH TOXIC AND FLAMMABLE. DO NOT SMOKE WHILE WORKING WITH FUEL. DO NOT USE NEAR OPEN FLAME. AVOID PROLONGED BREATHING OF VAPORS AND SKIN CONTACT. FLASH POINT OF FUEL NO. 2-D IS 125°F (52°C). SERIOUS ILLNESS OR LOSS OF LIFE COULD RESULT.

### 4.8 ENGINE IDLE

To adjust engine idle, it is necessary to use a strobe light with a digital readout for RPM's. Engine speed should be set at 3100 RPM  $\pm$  50 RPM.

Another way to set engine idle is to use the strobe light on ramming shoe. Shoe should run at about 620 blows per minute.

#### 4.8.1 Fuel System

##### Fuel Injection Pump Specifications

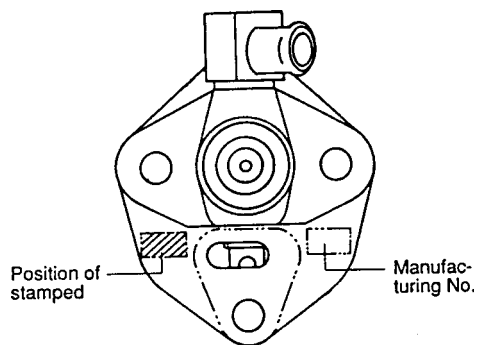
Model: YPFE-M

##### CAUTION:

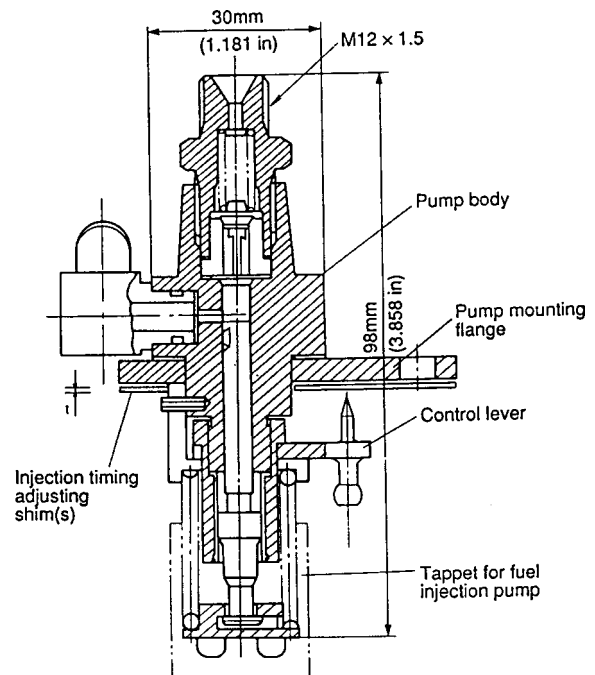
1. The ID marks for the pumps are on the pump-mounting flange.
2. Fuel injection pumps are not interchangeable.
3. The fuel injection pump for discrete engine differs from the generator in the direction of the fuel inlet pipe.

| Item         |               | Model L40AE |
|--------------|---------------|-------------|
| Stamped Mark | Bare Engine   | 40S         |
|              | Generator Set | 40D         |

|  | L40AE-L100AE    |
|--|-----------------|
| Adjusting Shims Standard thickness (shop assembly) | 0.5<br>(0.0197) |



Fuel pump mounting flange



(Configuration of fuel oil pump)

## 4.9 Disassembly and Reassembly - Fuel Injection Pump

This is a standard fuel injection pump body. Disassemble and reassemble the fuel pump in the direction order of "UP", "DOWN" and "SIDE" from the center of the fuel injection pump body (marked "C") as illustrated. Reassemble the gasket A and B for the delivery seat in the position at the time of disassembly.

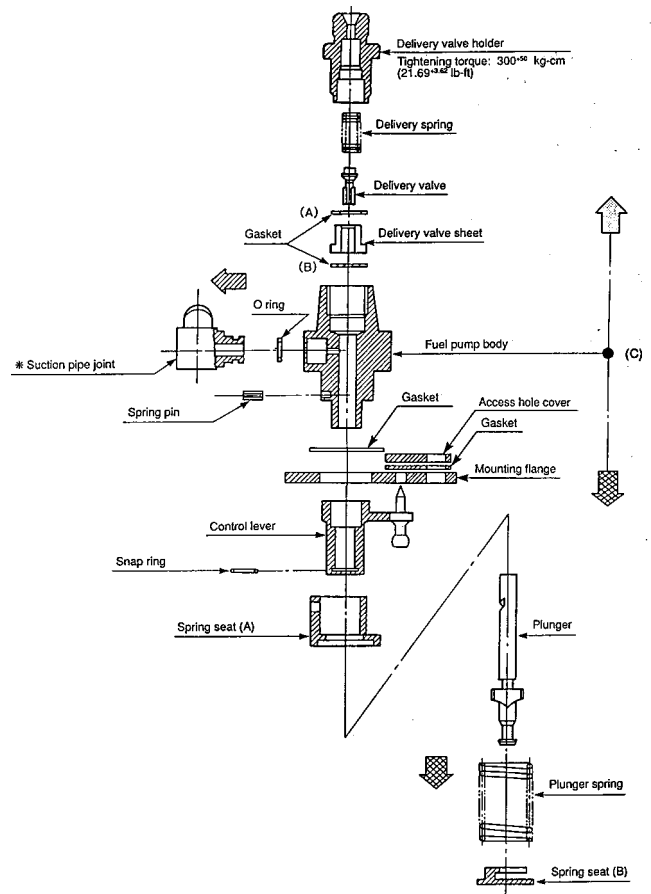
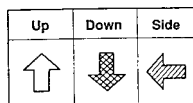
### NOTE:

See the position of mark\*.

Never remove the suction pipe joint from the pump body during routine disassembly.

Symbols;

Directions of disassembly from the center of fuel pump body (C).



## 4.10 Fuel Injection Valve

Specifications Model: YDLLA-P

Fuel Injection Valve Specifications

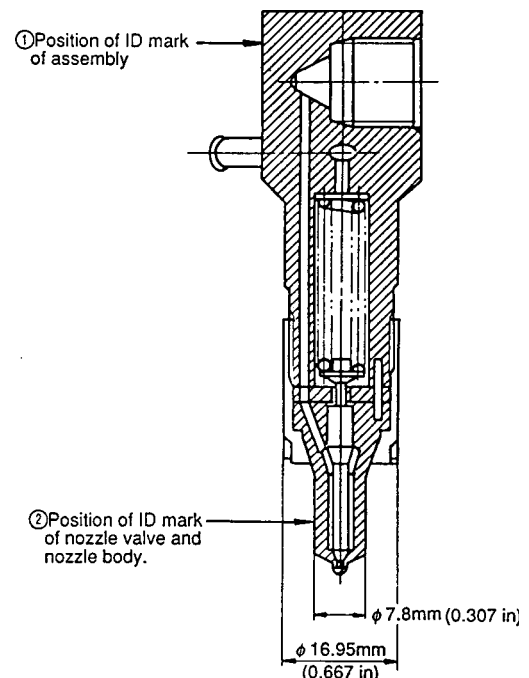
| Item  | Specification | L40AE/48AE              |
|---|---------------|-------------------------|
| Mark to identify assembly ①                     |               | AB                      |
| Mark to identify nozzle valve and nozzle body ② |               | YANMAR<br>150P<br>224A1 |

### Example:

Symbol 150P indicates an injection angle of 150°; symbol 224A1 implies 4 nozzle holes which are 0.22mm in injection hole diameter.

### CAUTION:

- When replacing fuel injection valve, be sure to check engine model against the identity marks shown above. Any injection valve is least identifiable in appearance.
- When removing the fuel injection valve, wrap it in cloth to protect the nozzle tip (injection port). Do not place the nozzle tip directly on the ground.



(Structure of injection valve)

**Check**

1. Carbon deposits (Flowering)—carbon deposits build up on the nozzle in the form of flowers. Flowering lowers combustion performance significantly. Make sure the nozzle is free from contamination.
2. Shape of injection spray—move the lever of the nozzle tester at a speed of approximately 1.2 time/sec. to check the spray pattern.

**Normal shape of spray**

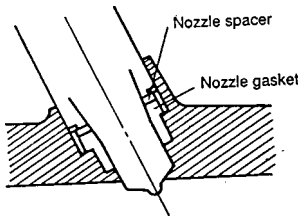
1. The spray should all be at the same angle (from all four injection ports).
2. The spray should be a fine mist.
3. The spray should be smooth and steady without deviations (4 nozzles).

**CAUTION:** When installing fuel injection valve:

1. Tighten the fuel injection valve assembly to the specified torque.
2. Clean the sleeve surface. Be sure to replace the nozzle gasket at the same time.

**NOTE:**

If nozzle gasket stays in cylinder head after injection valve assembly has been removed from cylinder head, screw M8 or M9 stud bolt (more than 100mm long) in nozzle gasket, then pull out stud bolts to remove gasket.



| Tightening Torque                   |       | kg-cm (lb-ft)          |
|-------------------------------------|-------|------------------------|
| Item                                | Model | L40AE~L100AE           |
| Installing fuel injection valve nut |       | 100–120<br>(7.2–8.7)   |
| Fuel injection nozzle case nut      |       | 400–450<br>(28.9–32.5) |

**4.11 Disassembly and Reassembly - Case Nut**

Remove the case nut and then all parts of the valve can be disassembled.

To disassemble and reassemble the case nut, use a 15mm deep socket wrench. The fuel valve positioning pin does not need to be removed in most cases.

**4.11.1 Adjustment**

The injection starting pressure is 200 kg. To adjust the nozzle injection starting pressure, remove the nozzle holder and increase or decrease the number of adjusting shims.

|                                   |  | mm (in)                      |
|-----------------------------------|--|------------------------------|
|                                   |  | L40AE~L100AE                 |
| Adjusting shim standard thickness |  | 0.60–0.65<br>(0.0236–0.0256) |

Adjustment by 0.1mm results in a change in the injection starting pressure of about 20 kg/cm<sup>2</sup>.

Adjusting shims come in the following thicknesses: 0.1, 0.15, 0.4, 0.5, 0.6, 0.7, and 0.8mm.

### 4.12 Fuel Filter

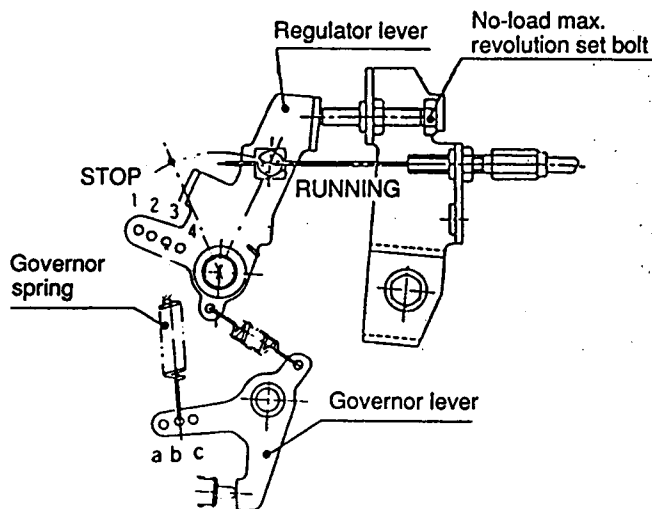
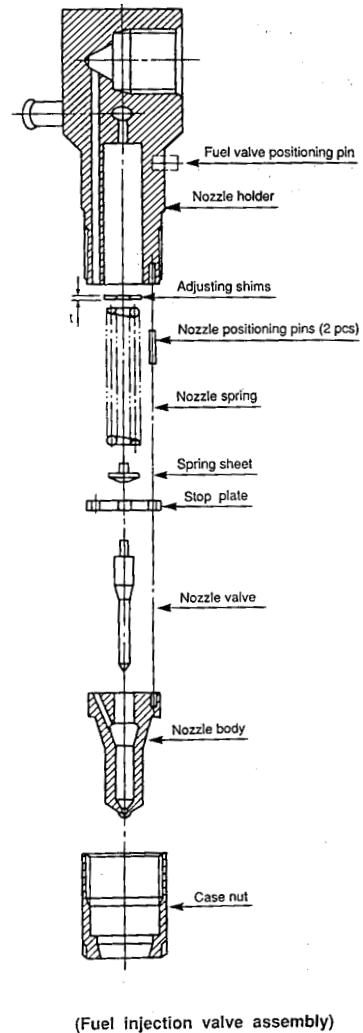
The fuel filter uses an element of nominal filterable particle diameter of 5 microns. During the periodical inspection of this part, check the element for break, separation from the frame to which it should be bonded, stoppage, etc., and if a deflection is found, replace it with new one. To detach the fuel filter, first remove the filter cap on fuel tank, then pull out it from the fuel filler port. But pull the filter downwards for YDG (generator set), YLP and YDP (pump set).

### 4.13 Speed Control Device

The position where governor spring must be installed differs depending on engine model and its rated rpm as shown in the following table and illustration.

Check the spring for position before ascertaining the fuel injection limit.

Factory setting has governor spring installation in holes 2 and B. See following Diagram.

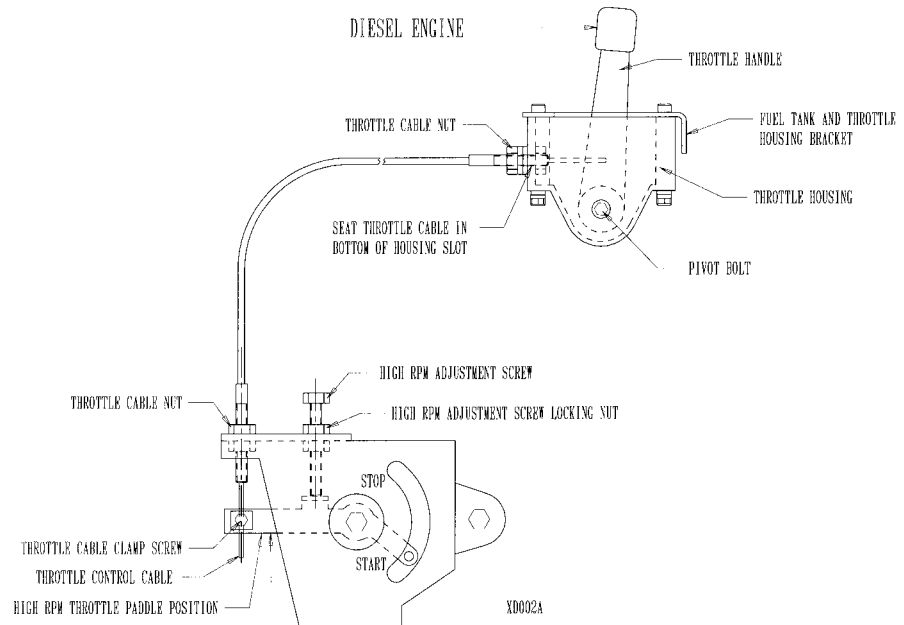


Position of Governor Spring Hole

| Model and Application   | Location of governor spring installation |                  |
|---|--|------------------|
|   | L40AE~L70AE                              |                  |
| Type of speed control device  | 3600 rpm (60 Hz)                         | 3000 rpm (50 Hz) |
| A Speed variable, regulator handle revolution/ fixed type (remote controllable) | 2 - b                                    | 2 - c            |
| B Remote control type   |  |                  |
| C Speed variable, (friction plate type)   | 1 - b                                    | 1 - c            |
| D Constant revolution, lock lever type  | 1 - b                                    | 2 - c            |

#### 4.14 THROTTLE CONTROL CABLE ADJUSTMENT

1. Loosen throttle cable clamp screw.
2. Push throttle handle all the way to the right.
3. Push up on high RPM throttle paddle until it rests on the high RPM adjustment screw and tighten throttle cable clamp screw.
4. Run machine and check engine RPM with a tachometer to see if it is running to specified RPM.



#### 4.15 SETTING HIGH RPM (Operating Speed)

1. Loosen throttle control cable clamp screw and high RPM adjustment screw locking nut.
2. Turn high RPM adjustment screw clockwise to increase RPM or counterclockwise to decrease RPM, then tighten high RPM adjustment screw locking nut.
3. Push throttle handle all the way to the right.
4. Push up on the high RPM throttle paddle until it rests on the high RPM adjustment screw and tighten the throttle cable clamp screw.
5. Run machine and check engine RPM with a tachometer.

If engine is still not running to specified RPM, repeat above steps until recommended RPM is obtained.

#### 4.16 THROTTLE HANDLE ADJUSTMENT

1. Retighten pivot bolt tight enough as to not allow throttle handle to move forward when machine is operating

#### 4.17 STORING STOMPERS

The following steps should be taken to prepare your Stomper for storage:

1. Operate engine for about three (3) minutes.
2. Stop engine. Drain lube oil and fill with clean oil.



3. Push decompression lever down and hold it while you pull recoil 2 or 3 times. (Do not start engine).
4. Pull decompression lever up and pull recoil slowly until you feel resistance. This will close intake and exhaust valves in compression position and help prevent rust from forming.
5. Disconnect fuel line and permit all fuel to drain from the fuel tank. Replace fuel lines.
6. Crank the engine two or three times to distribute the oil throughout the cylinder. This will help prevent rusting during storage.
7. Store the unit in an upright position (as in the operating position) in a cool, dry, ventilated area.



# **5. OPERATIONS**

## **2-CYCLE PRE-MIX**





## 5.1 Specifications Stomper® Pre-Mix

| MODEL                              | STONE<br>XN650        | STONE<br>XT728R   | STONE<br>XM832    |
|------------------------------------|-----------------------|-------------------|-------------------|
| <u>Dimensions</u><br>Weight        | 125 lbs.              | 130 lbs.          | 158 lbs.          |
| <u>Dimensions</u><br>(L x W x H)   | 30.3" x 13.5" x 36.5" | 28.5" x 15" x 38" | 28.5" x 15" x 38" |
| <u>Shoe Size</u>                   | 10" x 13"             | 11" x 13"         | 11" x 13"         |
| <u>Operating System</u><br>Power   | 4 hp. Robin           | 4 hp. Robin       | 4 hp. Robin       |
| <u>Engine Specs</u>                | EC12D                 | EC12D             | EC12D             |
| <u>Engine RPM</u>                  | 4300                  | 4300              | 3900              |
| <u>Fuel Mixture</u>                | 50:1                  | 50:1              | 50:1              |
| <u>Fuel Tank Capacity</u>          | 3 qts.                | 3 qts.            | 3 qts.            |
| <u>Fuel Tank Material</u>          | Polyethylene          | Polyethylene      | Polyethylene      |
| <u>Performance</u><br>Impact Force | 2600 lbs.             | 2800 lbs.         | 3200 lbs.         |
| <u>Max. Blows/Min.</u>             | 780                   | 700               | 660               |
| <u>Max. Forward Travel Speed</u>   | 60' - 70' / Min.      | 60' - 90' / Min.  | 50' - 64' / Min.  |
| <u>Max. Productivity</u>           | 3500 Sq. Ft./Hr.      | 4950 Sq. Ft./Hr.  | 3500 Sq. Ft./Hr.  |
| <u>Max. Lift</u>                   | 18"                   | 18"               | 22"               |
| <u>Max. Amplitude</u>              | 2.5"                  | Up to 4"          | Up to 3"          |
| <u>Options</u>                     | Extension             | Extension         | -                 |

\*Soil conditions can affect specifications.

# OPERATING INSTRUCTIONS

## 5.2 OPERATING PRINCIPLE

A tamping shoe is mounted at the lower end of a cylindrical spring housing. A piston, installed between massive opposing springs inside the spring housing, is actuated by a connecting rod and crank system which is driven by a high speed, 2 cycle gasoline engine through a gear train and centrifugal clutch. The piston alternately loads and unloads the springs. This results in a rapid lifting up and ramming down action of the tamping shoe to compact the underlying material.

The Stomper is effective for compaction of a wide variety of job soil substances, particularly clay lumps, silt, loam and all granular materials. Although relatively light in weight and easy to operate, the Stomper delivers a tremendous impact to the soil.

These instructions contain information to guide you in efficient use and proper maintenance of the Stomper. To get long and trouble-free service from this power tool, periodic maintenance of the engine and machine is essential.

The Stomper is shipped completely assembled and only requires filling with 2 cycle fuel mixture and a brief check of lubricant levels in preparation for operation. You should first study these instructions.

## 5.3 PRE-OPERATION CHECKS

**CAUTION:** Sections on fuel mixture, air cleaner, and lubrication must be followed exactly. Failure to follow these instructions may void the warranty.

### 5.3.1 Spark Plug

Check and clean spark plugs regularly. A fouled, dirty, or carboned spark plug causes hard starting and poor engine performance. Set spark plug gap as per specifications. See Engine Manual.

### 5.3.2 Starter Screen

This screen keeps dirt, etc., from entering the fan housing and clogging the air cooling passages. Because this engine is air-cooled, it is necessary to keep this screen clean at all times to permit the unrestricted passage of air into the fan housing.

### 5.3.3 Fasteners

Check all nuts and bolts after 4 hours, then every day of operation. See parts lists for recommended torque values.

### 5.3.4 Fuel Mixture

Use recommended fuel mixtures. To get this ratio, thoroughly mix the following quantities of gas and oil in a clean safety container:

Use regular unleaded gasoline. High test is not recommended.

Strain the fuel mixture through a fine meshed screen when filling gasoline tank on engine to remove dirt if present.

**NOTE:** Special ratio for initial break-in period.  
See chart below

| FUEL<br>Gasoline | 50:1 EC12<br>Two Cycle Oil  | 20:1 All Units Break-In<br>Two Cycle Oil Mix<br>(first 10 hours) |
|------------------|-----------------------------|--|
| 5 Gallons        | .80 pints (12.8 oz) (.38 L) | 2.00 pints (32 oz) (.94 L)                                       |
| 1 Gallons        | .16 pints (2.56 oz) (.08 L) | .40 pints (6.4 oz) (.19 L)                                       |
| 2 Quarts         | .08 pints (1.28 oz) (.04 L) | .20 pints (3.2 oz) (.09 L)                                       |

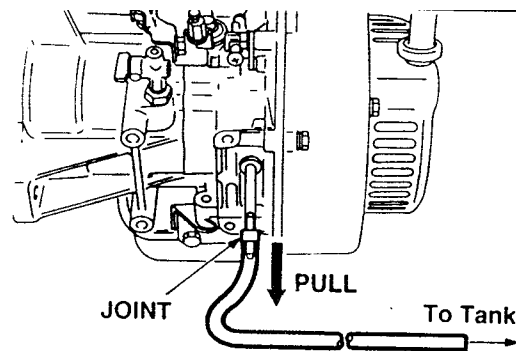
h:\netaldus\pm5\enr\manuals\stomper\56318\rev d\fuel chart.doc

### 5.3.5 Oil Pipe Replacement

Replace the oil pipe between oil tank and the joint every two (2) years.

**NOTE:** After replacing the oil pipe, make sure to discharge air in the pipe as much as possible, and then fill the fuel tank with gasoline mixed with 2-stroke engine oil at the ratio of 25 to 50 : 1.

After running with the mixture of gasoline for enough time to discharge the air completely, refill the unleaded gasoline only for normal operation.



### 5.3.6 Lubrication

The oil level should be checked now, and before first use of the Stomper. Thereafter, it should be checked every day as follows.

#### FOR XN, XT AND XM SERIES

1. With unit standing upright (in vertical position - not operating) so that the oil drains freely into the spring housing, check that the oil is at fill sight plug level.
2. Whenever the level is low, remove the fill sight plug and refill to level of fill sight plug with any good quality SAE-30. Use of a socket wrench is recommended to avoid damage to the sight gauge.
3. Change the oil every 300 operating hours or six months.

OIL FILL PLUG & SIGHT  
GAUGE



### 5.3.7 Air Cleaner

Engine life will be extended by maintaining a clean engine air filter. Remove and clean the air filter element daily, or more frequently under dustier job conditions. Wash the pre-filter element clean in a non-oily cleaning solvent such as "Solvesol". Let the filter dry before reinstalling in the air cleaner.

Replace air cleaner element every 100 hours. (More frequently in dusty areas).

## 5.4 TO START MACHINE

1. Check fuel tank, air cleaner, and Stomper lubrication as previously instructed.
2. Open the fuel valve under the tank and the air vent thumbscrew in the tank fill cap.
3. Raise throttle lever halfway and apply the choke.

**NOTE:** A warm engine may not require choking.

4. Pull the starter briskly once or twice to prime the engine, then open choke slightly to prevent flooding and continue cranking as necessary to start.
5. When engine starts, set choke in the open or run position. Let the engine run at idle to warm up, then open up to full throttle for operation.

## 5.5 TO STOP MACHINE

1. Throttle engine down.
2. Close the fuel valve shut-off switch.

## 5.6 OPERATION OF MACHINE

### **WARNING**

**WHEN OPERATING THE STOMPER, KEEP FEET CLEAR FROM THE RAMMING SHOE. SERIOUS PERSONAL INJURY MAY OCCUR.  
WHEN OPERATING THE STOMPER, HEARING PROTECTION SHOULD BE WORN.  
HEARING LOSS MAY RESULT FROM PROLONGED EXPOSURE TO NOISE.**

**CAUTION:** Never operate on hard, unyielding surfaces. Unwarranted damage may result.

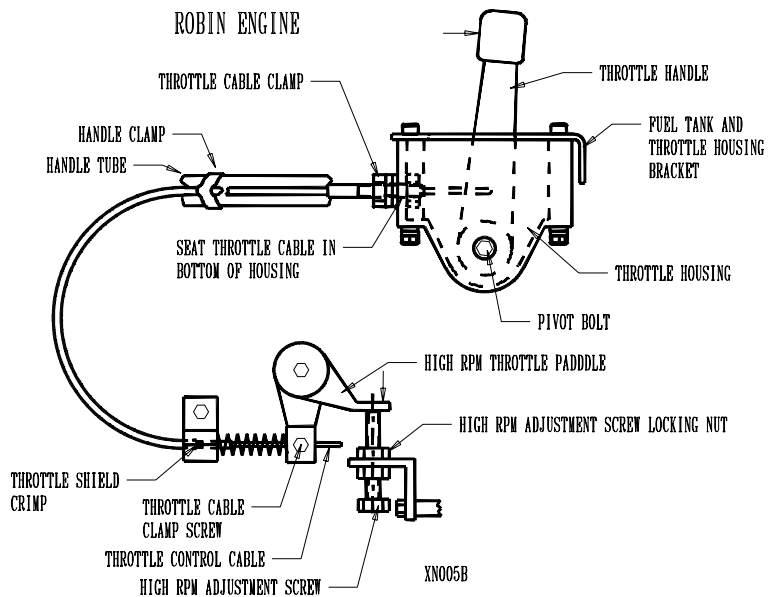
**CAUTION:** Always use both hands when operating this machine. This will ensure safe machine operation.

1. In operation, guide the machine but let the machine do the work. Bearing down on the handle is unnecessary and limits the shoe jump.
2. On nearly level surfaces, the machine moves forward in rapid jumps. On uneven surfaces or inclines, rocking the handle slightly may assist the Stomper in moving forward.
3. Always guide the Stomper so that the whole shoe, and not just the front or back edge, does the impacting.
4. As the soil becomes compacted, the jump height of the Stomper will increase.
5. After a brief experience, you will know how to adapt the technique to the job conditions.

# ROUTINE MAINTENANCE

## 5.7 THROTTLE CONTROL CABLE ADJUSTMENT

1. Loosen throttle cable clamp screw.
2. Push throttle handle all the way to the right.
3. Push down on high RPM throttle paddle until it rests on the high RPM adjustment screw and tighten throttle cable clamp screw.
4. Run machine and check engine RPM with a tachometer to see if it is running to specified RPM.



## 5.8 SETTING HIGH RPM (Operating Speed)

1. Loosen throttle control cable clamp screw and high RPM adjustment screw locking nut.
2. Turn high RPM adjustment screw counterclockwise to increase RPM or clockwise to decrease RPM, then tighten high RPM adjustment screw locking nut.
3. Push throttle handle all the way to the right.
4. Push down on the high RPM throttle paddle until it rests on the high RPM adjustment screw and tighten the throttle cable clamp screw.
5. Run machine and check engine RPM with a tachometer.

If engine is still not running to specified RPM, repeat above steps until recommended RPM is obtained.

## 5.9 THROTTLE HANDLE ADJUSTMENT

1. Retighten pivot bolt tight enough as to not allow throttle handle to move forward when machine is operating.

## 5.10 IDLE SETTING

If the engine idles smoothly but at too high RPM, turn the idle stop screw counterclockwise a little at a time until the desired specification is obtained. To increase the idle speed, turn the idle stop screw slowly clockwise until the desired RPM is obtained. The idle stop screw is the black screw located behind the air cleaner base plate.



## 5.11 STORING STOMPERS

The following steps should be taken to prepare your Stomper for storage:

1. Close fuel shut-off valve.
2. Start engine and allow to run until it stops from lack of fuel. This will use up all the fuel in the carburetor and prevent the formation of deposits due to evaporation of fuel.

### **WARNING**

**GASOLINE IS BOTH TOXIC AND FLAMMABLE. DO NOT SMOKE WHILE WORKING WITH FUEL. DO NOT USE NEAR OPEN FLAME. AVOID PROLONGED BREATHING OF VAPORS AND SKIN CONTACT. FLASH POINT OF GASOLINE IS 40°F (4°C). SERIOUS ILLNESS OR LOSS OF LIFE COULD RESULT.**

3. Disconnect fuel line and permit all fuel to drain from the fuel tank. Replace fuel lines.
4. Remove spark plug and pour 60cc or 2 ounces (1/4 cup) of motor oil into the cylinder. Replace plug.
5. Crank the engine two or three times to distribute the oil throughout the cylinder. This will help prevent rusting during storage.
6. Store the unit in an upright position (as in the operating position) in a cool, dry, ventilated area.



# **6. OPERATIONS**

## **4-CYCLE**

### **GASOLINE**





## 6.1 Specifications Stomper<sup>®</sup> Honda Gas

| MODEL                              | STONE<br>XJ834 HG        |
|------------------------------------|--------------------------|
| <u>Dimensions</u><br>Weight        | 200 lbs.                 |
| Dimensions<br>(L x W x H)          | 33.5" x 16.5" x 38.5"    |
| Shoe Size                          | 13" x 13"                |
| <u>Operating System</u><br>Power   | 4 hp. Honda              |
| Engine Specs                       | GX120                    |
| Engine RPM                         | 3050 -3250               |
| Fuel Mixture                       | -                        |
| Fuel Tank<br>Capacity              | 3 qts.                   |
| Fuel Tank<br>Material              | Polyethylene             |
| <u>Performance</u><br>Impact Force | 3400 lbs.                |
| Max. Blows/<br>Min.                | 630 - 700                |
| Max. Forward<br>Travel Speed       | 40' - 50' / Min.         |
| Max.<br>Productivity               | Up to 3200 Sq. Ft. / Hr. |
| Max. Lift                          | 22"                      |
| Max.<br>Amplitude                  | 2" - 3"                  |
| <u>Options</u>                     | -                        |

\*Soil Conditions can affect specifications.

# OPERATING INSTRUCTIONS

## 6.2 OPERATING PRINCIPLE

A tamping shoe is mounted at the lower end of a cylindrical spring housing. A piston, installed between massive opposing springs inside the spring housing, is actuated by a connecting rod and crank system which is driven by a high speed, 4 cycle gasoline engine through a gear train and centrifugal clutch. The piston alternately loads and unloads the springs. This results in a rapid lifting up and ramming down action of the tamping shoe to compact the underlying material.

The Stomper is effective for compaction of a wide variety of job soil substances, particularly clay lumps, silt, loam and all granular materials. Although relatively light in weight and easy to operate, the Stomper delivers a tremendous impact to the soil.

These instructions contain information to guide you in efficient use and proper maintenance of the Stomper. To get long and trouble-free service from this power tool, periodic maintenance of the engine and machine is essential.

The Stomper is shipped completely assembled and only requires filling 4 cycle engine with oil, fuel and a brief check of lubricant levels in preparation for operation. You should first study these instructions.

## 6.3 PRE-OPERATION CHECKS

**CAUTION:** Sections on fuel mixture, air cleaner, and lubrication must be followed exactly. Failure to follow these instructions may void the warranty.

### 6.3.1 Spark Plug

Check and clean spark plugs regularly. A fouled, dirty, or carboned spark plug causes hard starting and poor engine performance. Set spark plug gap as per specifications. See Engine Manual.

### 6.3.2 Starter Screen

This screen keeps dirt, etc. from entering the fan housing and clogging the air cooling passages. Because this engine is air-cooled, it is necessary to keep this screen clean at all times to permit the unrestricted passage of air into the fan housing.

### 6.3.3 Fasteners

Check all nuts and bolts after 4 hours, then every day of operation. See parts lists for recommended torque values.

### 6.3.4 Fuel Mixture

Use regular unleaded gasoline. High test is not recommended.

Strain the fuel through a fine meshed screen when filling gasoline tank on engine to remove dirt if present.

### 6.3.5 Lubrication

The oil level should be checked now, and before first use of the Stomper. Thereafter, it should be checked every day as follows.

## FOR XJ MODEL

1. With unit standing upright (in vertical position--not operating) so that the oil drains freely into the spring housing, check that the oil is at fill sight plug level.
2. Whenever the level is low, remove the fill sight plug and refill to level of fill sight plug with any good quality SAE-30. Use of a socket wrench is recommended to avoid damage to the sight gauge.
3. Change the oil every 300 operating hours or six months.

OIL FILL PLUG & SIGHT GAUGE



### 6.3.6 Air Cleaner

Engine life will be extended by maintaining a clean engine air filter. Remove and clean the air filter element every 50 hours, or more frequently under dustier job conditions.

1. Foam element: Wash the element in a solution of household detergent and warm water, then rinse thoroughly, or wash in nonflammable or high flash point solvent. Allow the element to dry thoroughly. Soak the element in clean engine oil and squeeze out the excess oil. The engine will smoke during initial start-up if too much oil is left in the foam.
2. Paper element: Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air (not exceeding 30psi [207 kPa]) through the filter from the inside out. Never try to brush the dirt off; brushing will force dirt into the fibers. Replace the paper element if it is excessively dirty.
3. Wipe dirt from the air cleaner case and cover. Be careful to prevent dirt from entering the air duct that leads to the carburetor.

Replace air cleaner element every 100 hours. (More frequently in dusty areas).

## 6.4 TO START MACHINE

1. Check fuel tank, air cleaner, and Stomper lubrication as previously instructed.
2. Open the fuel valve under the tank and the air vent thumbscrew in the tank fill cap.
3. Turn the ON/OFF switch to ON.
4. Raise throttle lever halfway and apply the choke.

**NOTE:** A warm engine may not require choking.

5. When engine starts, set choke in the open or run position. Let the engine run at idle to warm up, then open up to full throttle for operation.

## 6.5 TO STOP MACHINE

1. Throttle engine down.
2. Turn the ON/OFF switch to OFF.

## 6.6 OPERATION OF MACHINE

# **WARNING**

**WHEN OPERATING THE STOMPER, KEEP FEET CLEAR FROM THE RAMMING SHOE. SERIOUS PERSONAL INJURY MAY OCCUR.**

**WHEN OPERATING THE STOMPER, HEARING PROTECTION SHOULD BE WORN. HEARING LOSS MAY RESULT FROM PROLONGED EXPOSURE TO NOISE.**

**CAUTION:** Never operate on hard, unyielding surfaces. Unwarranted damage may result.

**CAUTION:** Always use both hands when operating this machine. This will ensure safe machine operation.

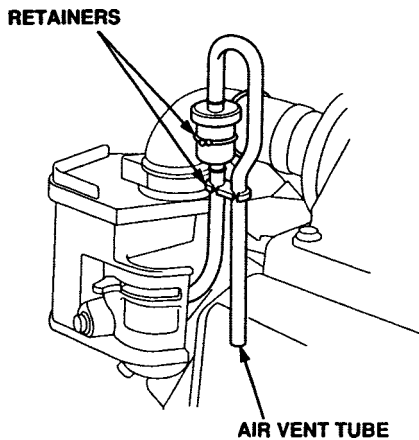
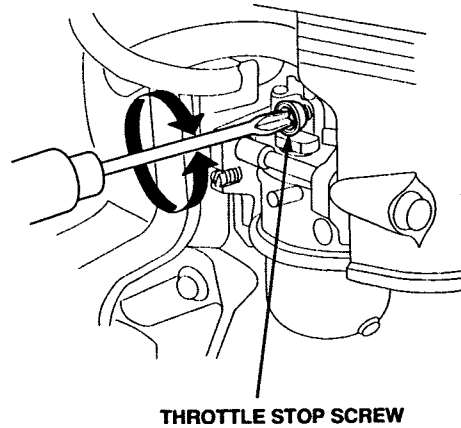
1. In operation, guide the machine but let the machine do the work. Bearing down on the handle is unnecessary and limits the shoe jump.
2. On nearly level surfaces, the machine moves forward in rapid jumps. On uneven surfaces or inclines, rocking the handle slightly may assist the Stomper in moving forward.
3. Always guide the Stomper so that the whole shoe, and not just the front or back edge, does the impacting.
4. As the soil becomes compacted, the jump height of the Stomper will increase.
5. After a brief experience, you will know how to adapt the technique to the job conditions.

# ROUTINE MAINTENANCE

Standard idle speed:  $1,500 \pm 50$  rpm

## 6.7 IDLE SPEED ADJUSTMENT

1. Start the engine and allow it to warm up to normal operating temperature.
2. With the engine idling, turn the throttle stop screw to obtain the standard idle speed.

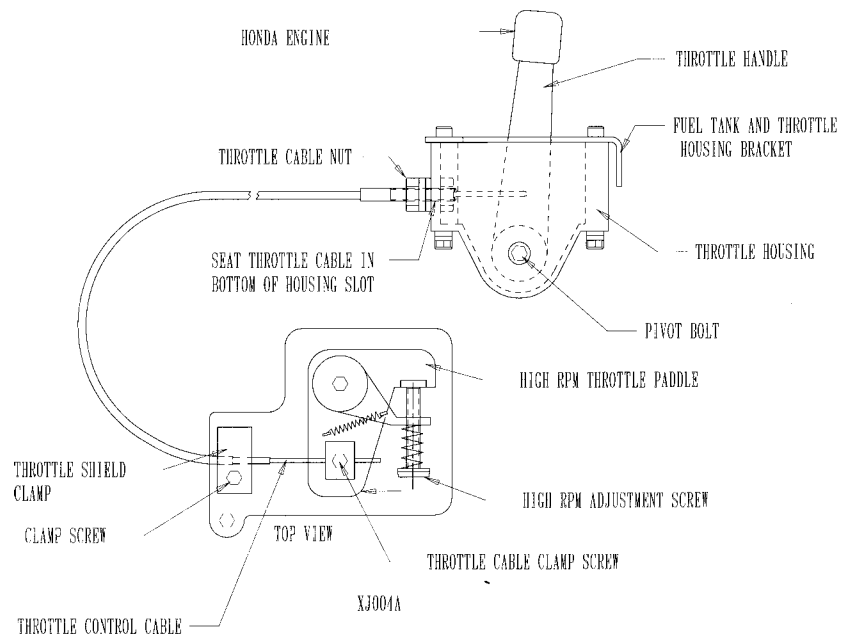


## 6.8 AIR VENT TUBE INSPECTION

Check that the air vent tube is secured by the tube retainers without collapsing or kinking.

## 6.9 THROTTLE CONTROL CABLE ADJUSTMENT

1. Loosen throttle cable clamp screw.
2. Push throttle handle all the way to the right.
3. Push the high RPM throttle paddle to the left until it rests on the high RPM adjustment screw and tighten throttle cable clamp screw.
4. Run machine and check engine RPM with a tachometer to see if it is running to specified RPM.





## 6.10 SETTING HIGH RPM (Operating Speed)

1. Loosen throttle control cable clamp screw.
2. Turn high RPM adjustment screw clockwise to increase RPM or counterclockwise to decrease RPM.
3. Push throttle handle all the way to the right.
4. Push the high RPM throttle paddle to the left until it rests on the high RPM adjustment screw and tighten the throttle cable clamp screw.
5. Run machine and check engine RPM with a tachometer.

If engine is still not running to specified RPM, repeat above steps until recommended RPM is obtained.

## 6.11 THROTTLE HANDLE ADJUSTMENT

1. Retighten pivot bolt tight enough as to not allow throttle handle to move forward when machine is operating

## 6.12 STORING STOMPERS

The following steps should be taken to prepare your Stomper for storage:

1. Close fuel shut-off valve.
2. Start engine and allow to run until it stops from lack of fuel. This will use up all the fuel in the carburetor and prevent the formation of deposits due to evaporation of fuel.

# WARNING

**GASOLINE IS BOTH TOXIC AND FLAMMABLE. DO NOT SMOKE WHILE WORKING WITH FUEL. DO NOT USE NEAR OPEN FLAME. AVOID PROLONGED BREATHING OF VAPORS AND SKIN CONTACT. FLASH POINT OF GASOLINE IS 40°F (4°C). SERIOUS ILLNESS OR LOSS OF LIFE COULD RESULT.**

3. Disconnect fuel line and permit all fuel to drain from the fuel tank. Replace fuel lines.
4. Remove spark plug and pour 60cc or 2 ounces (1/4 cup) of motor oil into the cylinder. Replace plug.
5. Crank the engine two or three times to distribute the oil throughout the cylinder. This will help prevent rusting during storage.
6. Store the unit in an upright position (as in the operating position) in a cool, dry, ventilated area.



# **7. MAINTENANCE**



## 7.1 IMPORTANT

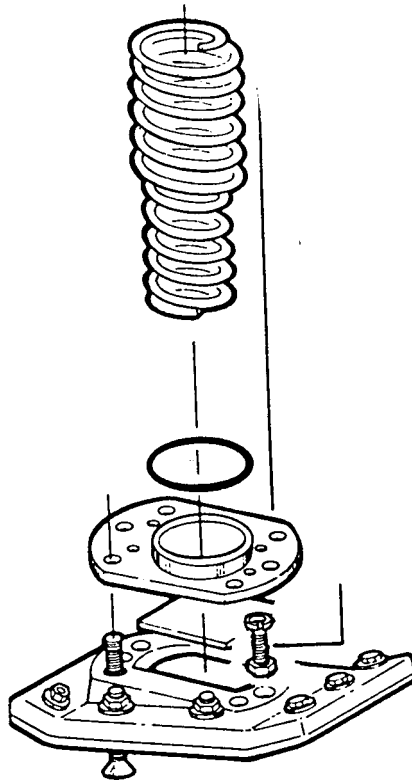
The person attempting *any* of the following maintenance tasks must be authorized to do so and have read *and* understood *all* sections within this manual.

## 7.2 INSTRUCTIONS FOR BASE PLATE REMOVAL



The spring retaining Base Plate retains heavy springs under compression. Follow the instructions carefully or severe personal injury may occur.

Detach shoe by removing six (6) shoe bolts and washers. Assemble two (2) threaded bolts, two (2) washers from bottom two corner bolt holes, fully thread two (2) nuts with two (2) washers from opposite side. WITH CAUTION, remove the four (4) sock head cap screws and then alternately back off the two thread rods approximately 1/2 inch at a time until all the spring tension is removed, then remove the threaded bolts and base plate to access springs.



| ITEM | P/N   | DESCRIPTION                                    | QUANTITY |
|------|-------|--|----------|
| KIT  | 23011 | Tool Kit, Base Plate Removal<br>(includes all) | 1        |
| 1.   | 43150 | Full Thread Bolt M12 x 8"                      | 2        |
| 2.   | 80896 | NUTFX M12                                      | 2        |
| 3.   | 80807 | WSHR M12 x 2400                                | 4        |
| 4.   | 56230 | Instructions Base Plate Removal                | 1        |

## 7.3 INSTRUCTIONS FOR SERVICE LOWER UNIT XN OIL INJECTED AND PRE-MIX STOMPER MODEL XN650



The spring retaining Base Plate retains heavy springs under compression. Follow the instructions carefully or severe personal injury may occur.

1. Detach the shoe from the stomper by removing (6) shoe bolts and washers.
2. Thread M8 nuts onto (2) full thread M8 x 5.50" bolts (provided in kit) 1.25" up from the bottom of the bolts (see Figure A).
3. Replace two bolts that are diagonal from each other on the bottom spring cover with assembled full thread bolts with nuts from Step 2. Make sure to thread the assembled bolts in a full 1.25" (see Figure B).
4. Remove the other (4) bolts from the bottom spring cover (leaving the full thread bolts in place).
5. Carefully back each nut off a .25" at a time on each side using two wrenches (one to hold the bolt in place and the other to back the nut off) until the spring tension is removed (see Figure C).
6. Then remove the full thread bolts and the bottom spring cover to access the springs.
7. Remove lower spring set.
8. Insert snubber puller, P/N 39539, under snubber (Item 14). Insert pry bar under snubber puller and pop loose snubber.
9. Using M24 deep socket, remove M16NY locknut from piston rod. Insert 5/8" or smaller rod through top of piston rod head to hold rod from turning to remove nut.
10. Piston puck and upper springs can now be accessed.
11. Reassemble in reverse order.

\* Use red loctite 264 on shoe bolts only.

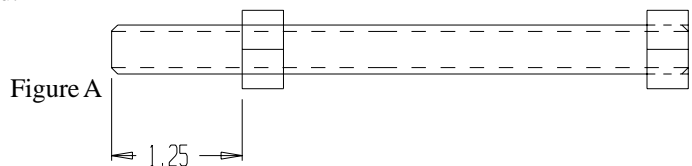


Figure B



Figure C

| ITEM | P/N   | DESCRIPTION                        | QUANTITY |
|------|-------|------------------------------------|----------|
| KIT  | 23159 | Kit Snubber Puller XN              | 1        |
| 1    | 56338 | Instructions Lower Unit Service XN | 1        |
| 2    | 50107 | Weld Thread M8 x 5.50 in.          | 2        |
| 3    | 39539 | Puller Snubber                     | 1        |
| 4    | 80854 | NUTFX M8-1/25                      | 2        |

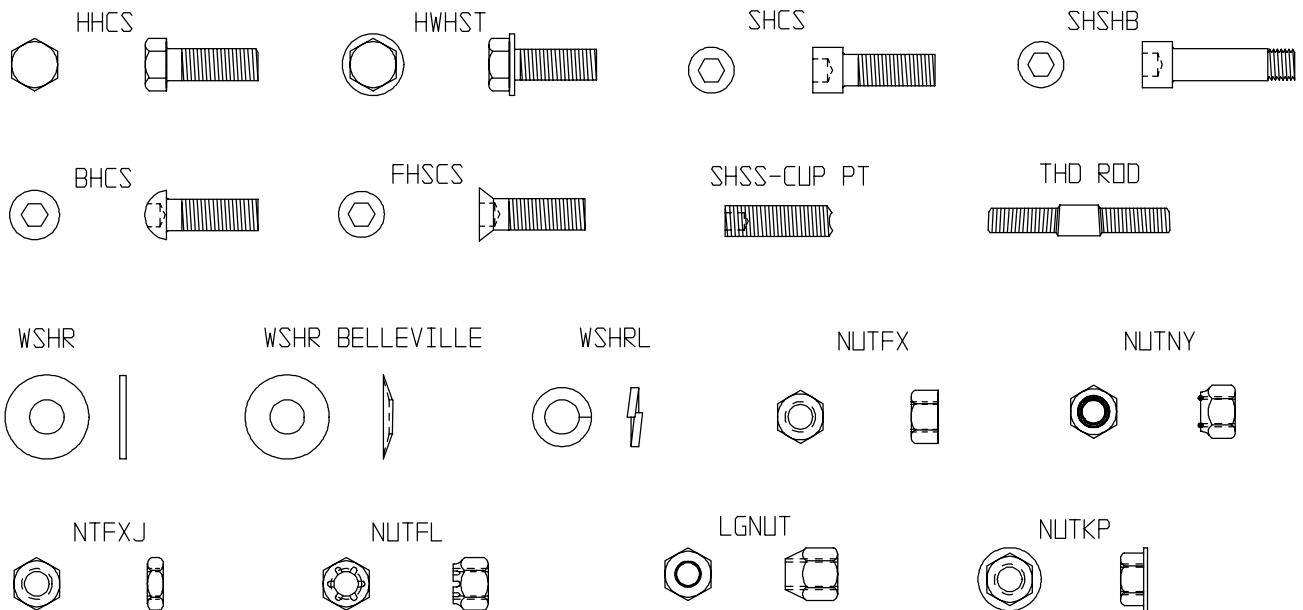
# **8. EXPLODED VIEWS WITH PARTS**





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### 8.1 HARDWARE KEY



**ZN = ZINC PLATED**  
**BLK = BLACK OXIDE FINISH**

**VR005A**

## 8.2 Torque Charts

| <b>SAE GRADE 5<br/>Coarse Thread, Zinc-Plated</b> |                 |           |
|---|-----------------|-----------|
| <b>SIZE</b>                                       | <b>TORQUE</b>   |           |
|   | <b>ft. lbs.</b> | <b>Nm</b> |
| 1/4 - 20 (.250)                                   | 6               | 8         |
| 5/16 - 18 (.3125)                                 | 13              | 18        |
| 3/8 - 16 (.375)                                   | 23              | 31        |
| 7/16 - 14 (.4375)                                 | 37              | 50        |
| 1/2 - 13 (.500)                                   | 57              | 77        |
| 9/16 - 12 (.5625)                                 | 82              | 111       |
| 5/8 - 11 (.625)                                   | 112             | 152       |
| 3/4 - 10 (.750)                                   | 200             | 271       |
| 7/8 - 9 (.875)                                    | 322             | 436.5     |
| 1 - 8 (1.000)                                     | 483             | 655       |

| <b>SAE GRADE 8<br/>Coarse Thread, Zinc-Plated</b> |                 |           |
|---|-----------------|-----------|
| <b>SIZE</b>                                       | <b>TORQUE</b>   |           |
|   | <b>ft. lbs.</b> | <b>Nm</b> |
| 1/4 - 20 (.250)                                   | 9               | 12        |
| 5/16 - 18 (.3125)                                 | 18              | 24        |
| 3/8 - 16 (.375)                                   | 33              | 45        |
| 7/16 - 14 (.4375)                                 | 52              | 70        |
| 1/2 - 13 (.500)                                   | 80              | 108       |
| 9/16 - 12 (.5625)                                 | 115             | 156       |
| 5/8 - 11 (.625)                                   | 159             | 215       |
| 3/4 - 10 (.750)                                   | 282             | 382       |
| 7/8 - 9 (.875)                                    | 454             | 615       |
| 1 - 8 (1.000)                                     | 682             | 925       |

| <b>SAE GRADE 5<br/>Fine Thread, Zinc-Plated</b> |                 |           |
|---|-----------------|-----------|
| <b>SIZE</b>                                     | <b>TORQUE</b>   |           |
|   | <b>ft. lbs.</b> | <b>Nm</b> |
| 1/4 - 28 (.250)                                 | 7               | 10        |
| 5/16 - 24 (.3125)                               | 14              | 19        |
| 3/8 - 24 (.375)                                 | 26              | 35        |
| 7/16 - 20 (.4375)                               | 41              | 56        |
| 1/2 - 20 (.500)                                 | 64              | 87        |
| 9/16 - 18 (.5625)                               | 91              | 123       |
| 5/8 - 18 (.625)                                 | 128             | 173       |
| 3/4 - 16 (.750)                                 | 223             | 302       |
| 7/8 - 14 (.875)                                 | 355             | 481       |
| 1 - 12 (1.000)                                  | 529             | 717       |
| 1 - 14 (1.000)                                  | 541             | 733       |

| <b>SAE GRADE 8<br/>Fine Thread, Zinc-Plated</b> |                 |           |
|---|-----------------|-----------|
| <b>SIZE</b>                                     | <b>TORQUE</b>   |           |
|   | <b>ft. lbs.</b> | <b>Nm</b> |
| 1/4 - 28 (.250)                                 | 10              | 14        |
| 5/16 - 24 (.3125)                               | 20              | 27        |
| 3/8 - 24 (.375)                                 | 37              | 50        |
| 7/16 - 20 (.4375)                               | 58              | 79        |
| 1/2 - 20 (.500)                                 | 90              | 122       |
| 9/16 - 18 (.5625)                               | 129             | 175       |
| 5/8 - 18 (.625)                                 | 180             | 244       |
| 3/4 - 16 (.750)                                 | 315             | 427       |
| 7/8 - 9 (.875)                                  | 501             | 679       |
| 1 - 12 (1.000)                                  | 746             | 1011      |
| 1 - 14 (1.000)                                  | 764             | 1036      |

## 8.2 Torque Charts

### Property Class 8.8

ZINC-PLATED

| SIZE | Coarse Thread |          | Fine Thread |          |
|------|---------------|----------|-------------|----------|
|      | Nm            | ft. lbs. | Nm          | ft. lbs. |
| M6   | 9.9           | 7        | 10          | 7        |
| M8   | 24            | 18       | 25          | 18       |
| M10  | 48            | 35       | 49          | 36       |
| M12  | 83            | 61       | 88          | 65       |
| M14  | 132           | 97       | 140         | 103      |
| M16  | 200           | 148      | 210         | 155      |
| M20  | 390           | 288      | 425         | 313      |
| M24  | 675           | 498      | 720         | 531      |

### Property Class 10.9

ZINC-PLATED

| SIZE | Coarse Thread |          | Fine Thread |          |
|------|---------------|----------|-------------|----------|
|      | Nm            | ft. lbs. | Nm          | ft. lbs. |
| M6   | 14            | 10       | 14          | 10       |
| M8   | 34            | 25       | 35          | 26       |
| M10  | 67            | 49       | 68          | 50       |
| M12  | 117           | 86       | 125         | 92       |
| M14  | 185           | 136      | 192         | 142      |
| M16  | 285           | 210      | 295         | 218      |
| M20  | 550           | 406      | 600         | 443      |
| M24  | 950           | 701      | 1000        | 738      |

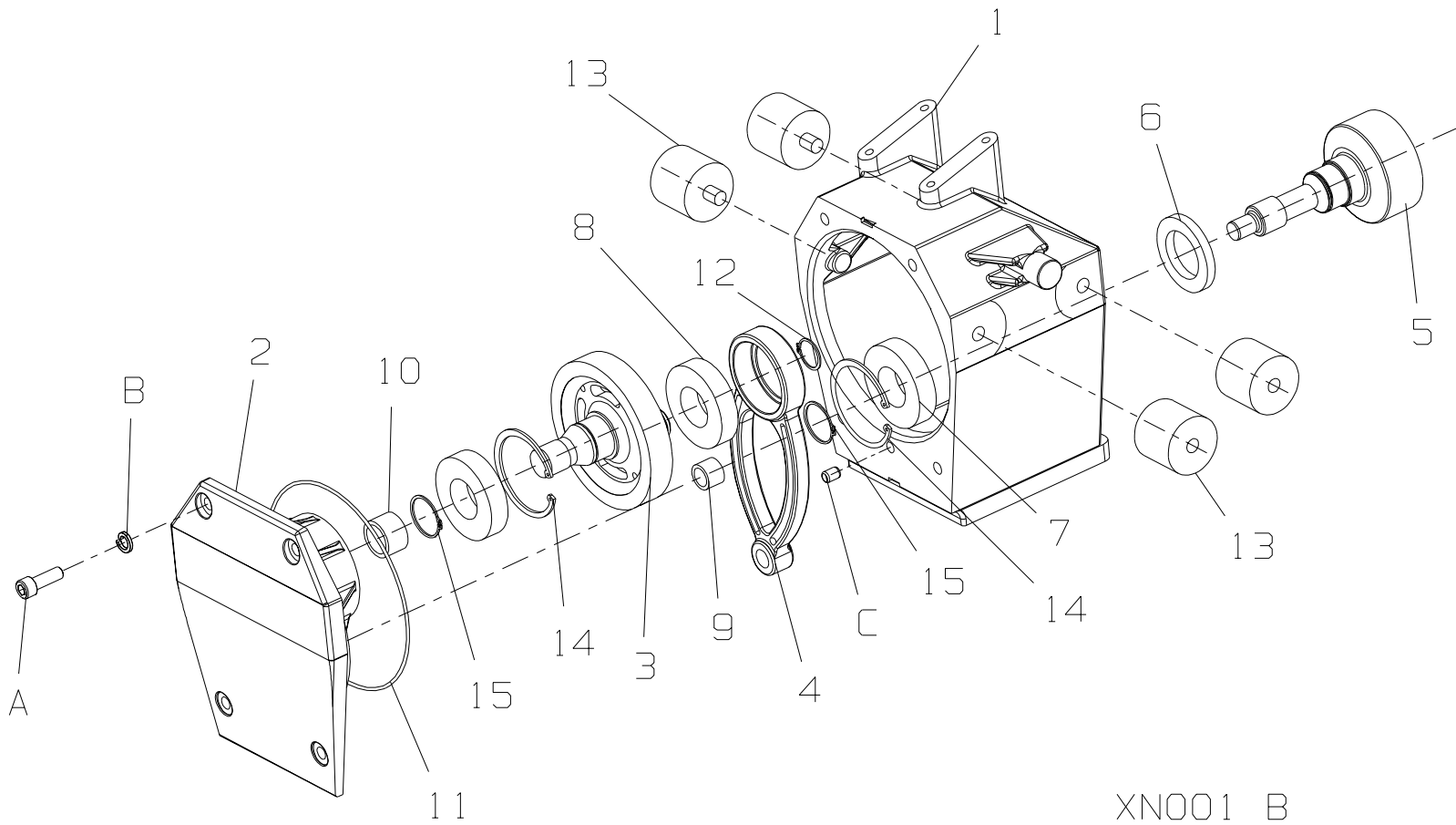
### Property Class 12.9

ZINC-PLATED

| SIZE | Coarse Thread |          | Fine Thread |          |
|------|---------------|----------|-------------|----------|
|      | Nm            | ft. lbs. | Nm          | ft. lbs. |
| M6   | 16.5          | 12       | 16.5        | 12       |
| M8   | 40            | 30       | 42          | 31       |
| M10  | 81            | 60       | 82          | 60       |
| M12  | 140           | 103      | 150         | 111      |
| M14  | 220           | 162      | 235         | 173      |
| M16  | 340           | 251      | 350         | 258      |
| M20  | 660           | 487      | 720         | 531      |
| M24  | 1140          | 841      | 1200        | 885      |

Conversion Factor: 1 ft. lb. = 1.3558 Nm

### 8.3 Gearcase for XN Oil Injected and Pre-Mix



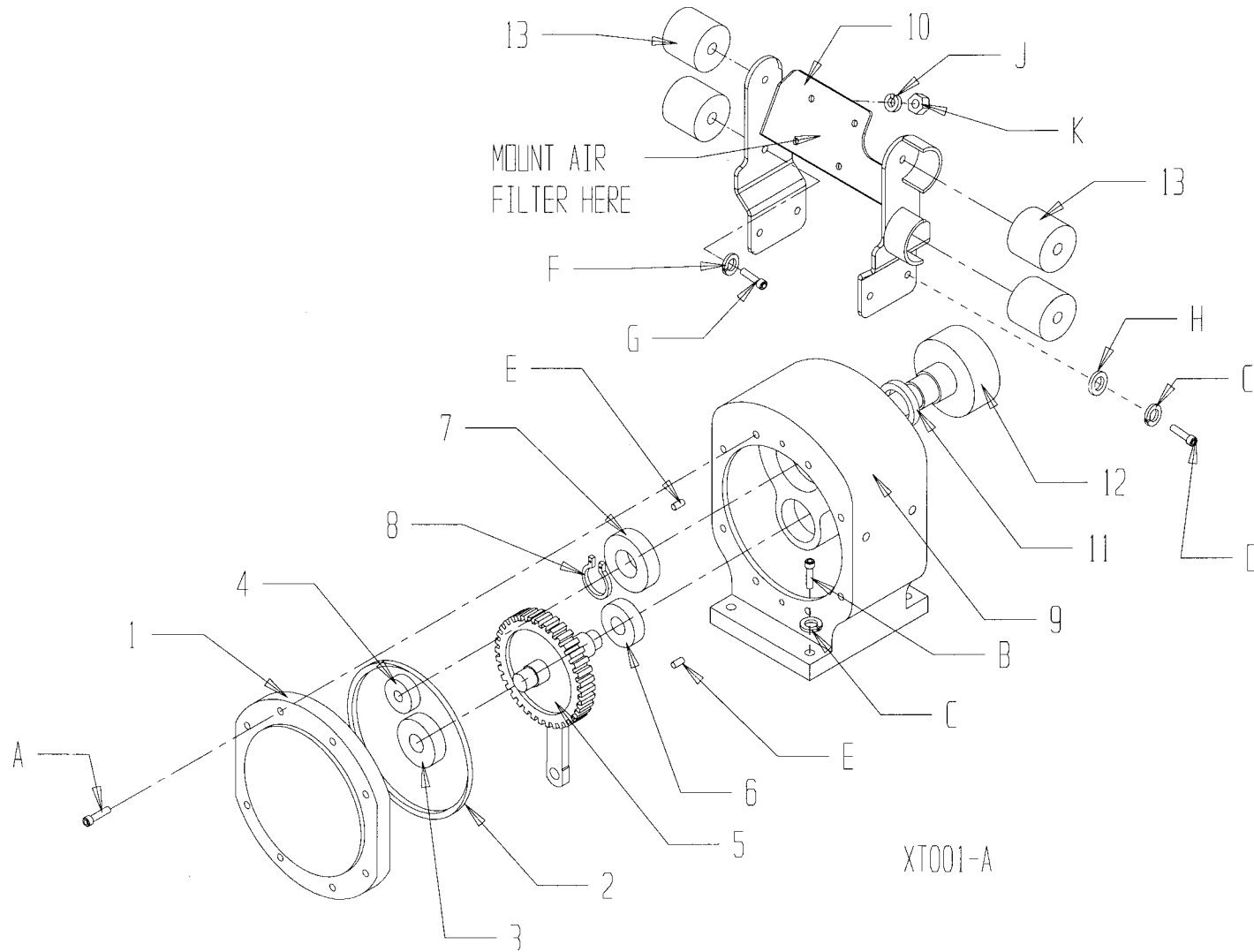
XN001 B

## 8.3 Gearcase for XN Oil Injected and Pre-Mix

| Item | Part No. | Description              | Qty. | Item | Part No. | Description                | Qty. | DIN  |
|------|----------|--------------------------|------|------|----------|----------------------------|------|------|
| 1    | 39373    | Gear Case, Machined      | 1    | A    | 80872    | SHCS M10 - 1.5 x 30 8.8 ZN | 4    | 912  |
| 2    | 39376    | Cover Front, Machined    | 1    | B    | 80804    | WSHRL M10 Split ZN         | 4    | 127B |
| 3    | 39379    | Gear Helical Crank       | 1    | C    | 80543    | PINDL 3/8 OD x 1/2 LG      | 1    | -    |
| 4    | 39380    | Connecting Rod, Machined | 1    |      |          |                            |      |      |
| 5    | 39388    | Pinion Helical           | 1    |      |          |                            |      |      |
| 6    | 39435    | Seal Shaft 1.563         | 1    |      |          |                            |      |      |
| 7    | 39428    | Bearing Ball             | 2    |      |          |                            |      |      |
| 8    | 39429    | Bearing Ball             | 1    |      |          |                            |      |      |
| 9    | 39431    | Bearing Needle           | 1    |      |          |                            |      |      |
| 10   | 39430    | Bearing Needle           | 1    |      |          |                            |      |      |
| 11   | 39437    | O-Ring 2.62MM x 177.47MM | 1    |      |          |                            |      |      |
| 12   | 39432    | Ring External .984       | 1    |      |          |                            |      |      |
| 13   | 39425    | Shock Mount              | 4    |      |          |                            |      |      |
| 14   | 39434    | Ring Internal 2.812      | 2    |      |          |                            |      |      |
| 15   | 39433    | Ring External 1.375      | 2    |      |          |                            |      |      |

REMARK:

## 8.4 Gearcase for XT Oil Injected and Pre-Mix

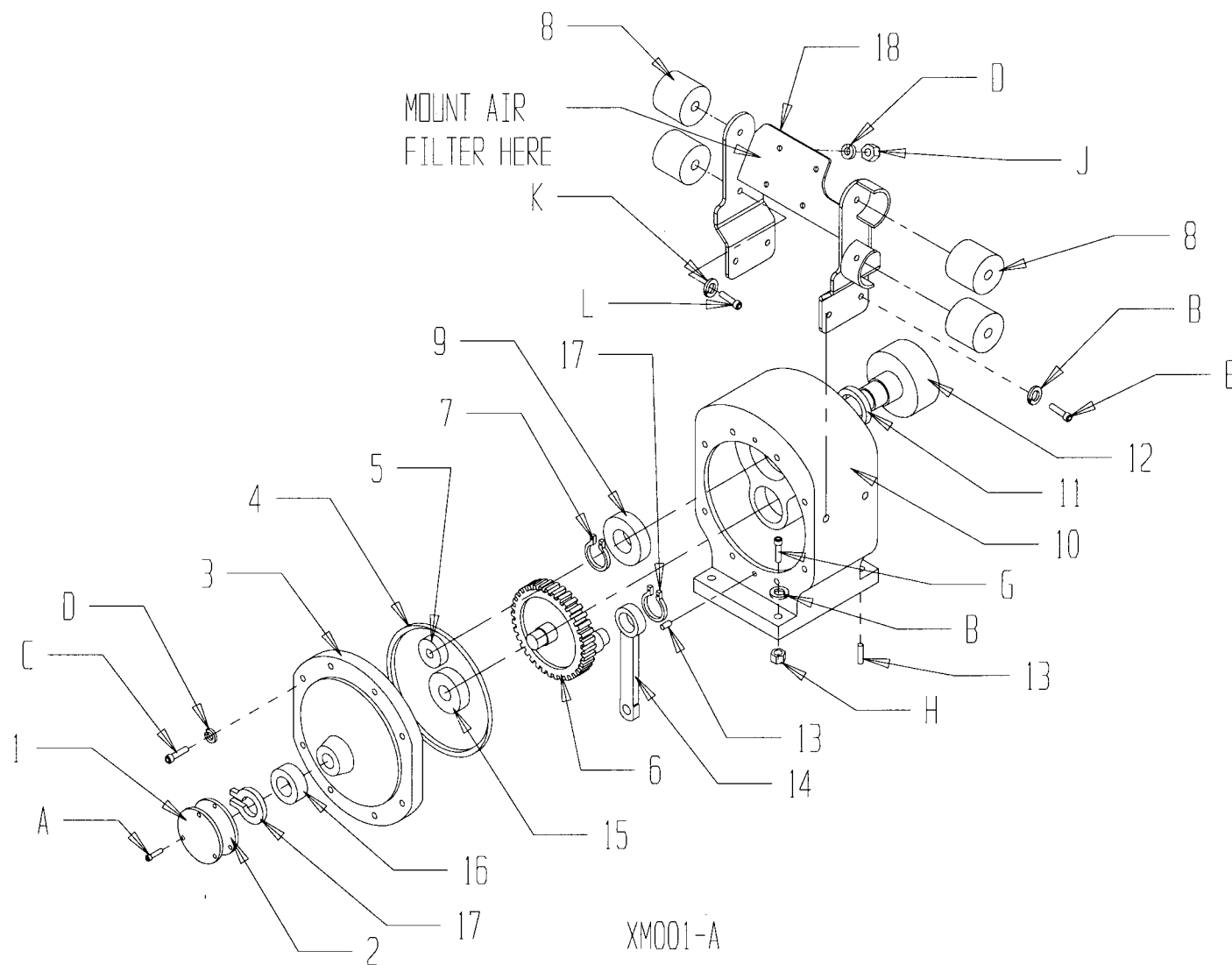


## 8.4 Gearcase for XT Oil Injected and Pre-Mix

| Item | Part No. | Description                 | Qty. | Item | Part No. | Description                  | Qty. | DIN  |
|------|----------|-----------------------------|------|------|----------|------------------------------|------|------|
| 1    | 21112    | Case Cover with Bearings    | 1    | A*   | 80802    | HWHST M8 -1.25 x 25mm ZN     | 8    | 7500 |
| 2    | 32254    | O-Ring                      | 1    | B*   | 80801    | SHCS M10 1.5 x 35mm 12.9 BLK | 4    | 912  |
| 3    | 32022    | Bearing                     | 1    | C    | 80804    | WSHRL M10 Split ZN           | 8    | 127B |
| 4    | 32255    | Bearing                     | 1    | D*   | 80803    | SHCS M10 1.5 x 25mm 8.8 ZN   | 4    | 912  |
| 5    | 42471    | Crank Shaft Assy 52T        | 1    | E    | 80002    | PIN 1/4 inch                 | 2    | -    |
| 6    | 32023    | Bearing                     | 1    | F    | 80805    | WSHRL M12 Split ZN           | 4    | 127B |
| 7    | 32213    | Bearing                     | 1    | G*   | 80808    | HHCS M12 1.75 x 20mm 8.8 ZN  | 4    | 933  |
| 8    | 30192    | Retaining Ring              | 1    | H    | 80806    | WSHR M10 Flat 20 OD ZN       | 4    | 125A |
| 9    | 65000-2  | Gearcase Assy with Bearings | 1    | J    | 80812    | WSHRL M8 Split ZN            | 4    | 127B |
| 10   | 44231-2  | Shock Mount Brkt            | 1    | K    | 80817    | NUTNY M8 1.25                | 4    | 985  |
| 11#  | 38507    | Shaft Seal                  | 1    |      |          |                              |      |      |
| 12   | 42466    | Clutch Shaft 8T             | 1    |      |          |                              |      |      |
| 13   | 65004    | Shock Mount                 | 4    |      |          |                              |      |      |

**REMARK:** # Lube seal with grease when replacing  
\* Loctite Required

## 8.5 Gearcase - XM Oil Injected and Pre-Mix



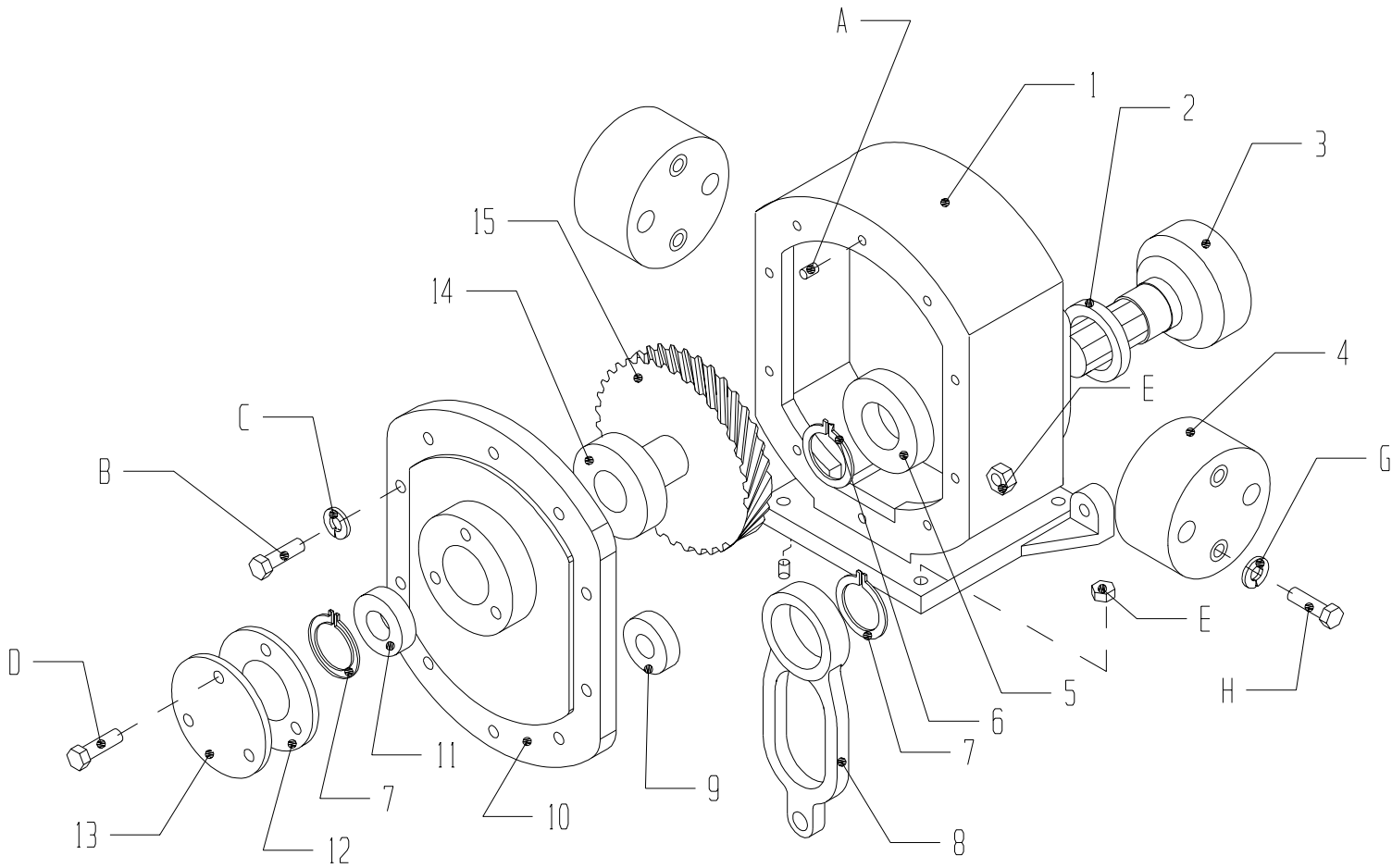


## 8.5 Gearcase - XM Oil Injected Pre-Mix

| Item | Part No. | Description         | Qty. | Item | Part No. | Description                     | Qty. | DIN  |
|------|----------|---------------------|------|------|----------|---------------------------------|------|------|
| 1    | 65029-2  | Cap Speed Cover     | 1    | A*   | 80821    | SHCS M5 .8 x 16mm 8.8 ZN        | 3    | 912  |
| 2    | 30189    | Gasket              | 1    | B    | 80804    | WSHRL M10 Split ZN XM           | 8    | 127B |
| 3**  | 22991    | Gearcase Cover Assy | 1    | C*   | 80810    | SHCS M8 1.25 x 20mm 8.8 ZN      | 8    | 912  |
| 4    | 32216    | O-Ring 81D          | 1    | D    | 80812    | WSHRL M8 Split ZN               | 12   | 127B |
| 5    | 32023    | Bearing - 204       | 1    | E*   | 80803    | SHCS M10 1.5 x 25mm 8.8 ZN      | 4    | 912  |
| 6    | 42638    | Gear 70 TH XM       | 1    | G*   | 80801    | SHCS M10 1.5 x 35mm 12.9 BLK XM | 4    | 912  |
| 7    | 30192    | Retaining Ring      | 1    | H    | 80833    | NUTNY M10 1.5 ZN SW             | 4    | 985  |
| 8    | 65004    | Shock Mount         | 4    | J    | 80817    | NUTNY M8 - 1.25                 | 4    | 985  |
| 9    | 32213    | Bearing - 206       | 1    | K    | 80805    | WSHRL M12 Split ZN              | 4    | 127B |
| 10   | 65023-2  | Case Machined       | 1    | L    | 80808    | HHCS M12 - 1.75 x 20mm 8.8 ZN   | 4    | 933  |
| 11#  | 30193    | Seal                | 1    |      |          |                                 |      |      |
| 12   | 28672    | Pinion Assy 10T XM  | 1    |      |          |                                 |      |      |
| 13   | 80002    | 1/4 Dowel Pin       | 3    |      |          |                                 |      |      |
| 14   | 28658    | Connecting Rod Assy | 1    |      |          |                                 |      |      |
| 15   | 32214    | Bearing - 307       | 1    |      |          |                                 |      |      |
| 16   | 32212    | Bearing - 205       | 1    |      |          |                                 |      |      |
| 17   | 30191    | Retaining Ring      | 2    |      |          |                                 |      |      |
| 18   | 44233-2  | Weld Handle Bracket | 1    |      |          |                                 |      |      |

**REMARK:** # Lube seal with grease when replacing  
 \*\* Gearcase Kit PN 23021 includes 1,3,5,16 & 17  
 \* Loctite Required

## 8.6 Gearcase- XD Diesel



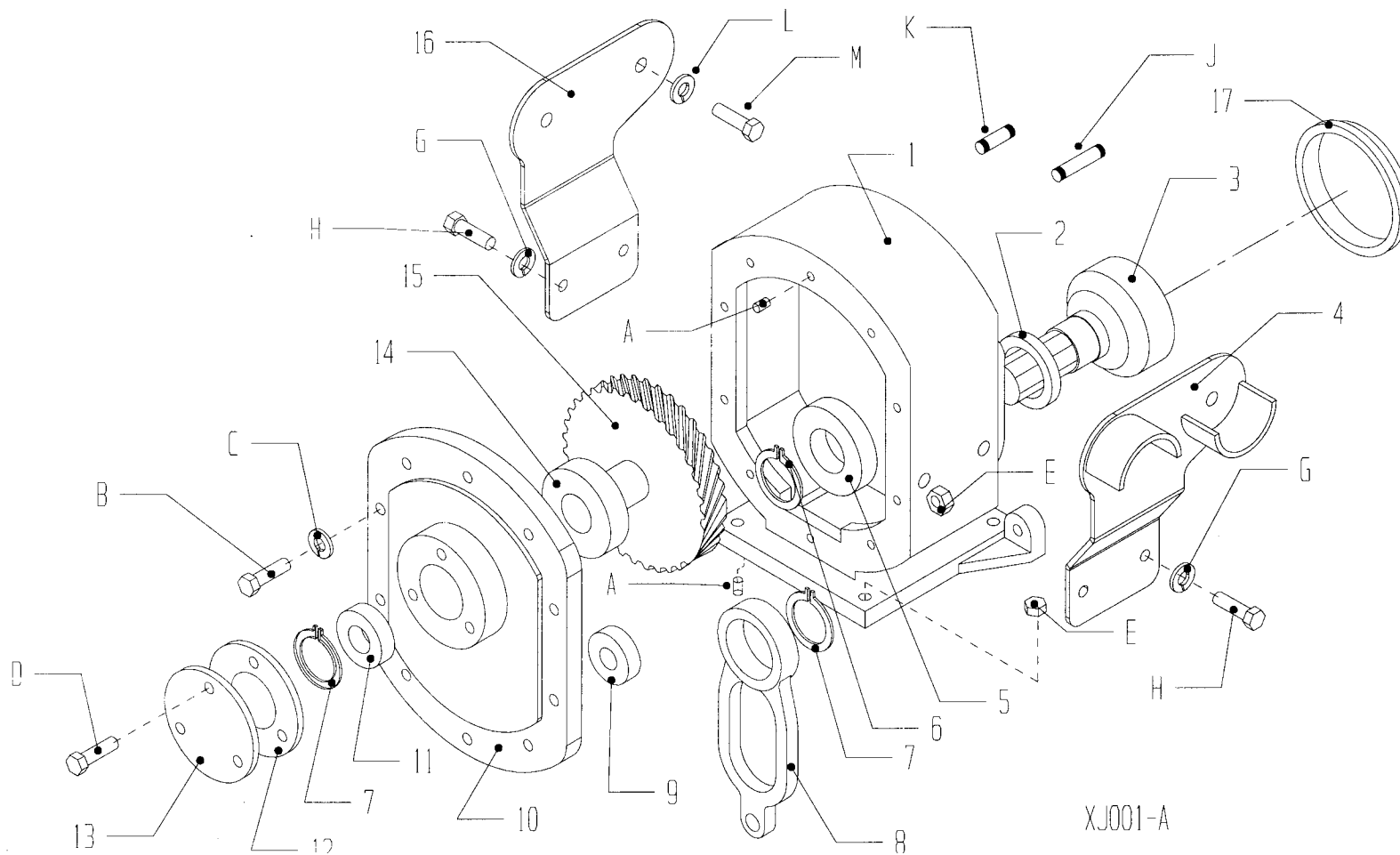
SD836-1B

## 8.6 Gearcase-XD Diesel

| Item | Part No. | Description                | Qty. | Item | Part No. | Description               | Qty. | DIN  |
|------|----------|----------------------------|------|------|----------|---------------------------|------|------|
| 1    | 65072-2  | Gearcase Machined Diesel   | 1    | A    | 80002    | PINDL 1/4 x 5/8 PLN       | 4    | -    |
| 2    | 39224    | Shaft Seal                 | 1    | B*   | 80810    | SHCS M8 -1.25 x 20 8.8 ZN | 10   | 912  |
| 3    | 43176    | Clutch Shaft Weld 14T      | 1    | C    | 80812    | WSHRL M8 Split ZN         | 10   | 27B  |
| 4    | 65025    | Shock Mount Metric         | 2    | D*   | 80821    | SHCS M5 -.8 x 16 8.8 ZN   | 3    | 912  |
| 5    | 32177    | Ball Bearing 6208-2RS      | 1    | E    | 80833    | NUTNY M10 - 1.5 ZN        | 4    | 985  |
| 6    | 32305    | Ring Ext Retaining 1.57    | 1    | G    | 80804    | WSHRL M10 Split ZN        | 4    | 127B |
| 7    | 30191    | Ring External 63/64        | 2    | H*   | 80825    | SHCS M10 -1.5 x 50 8.8 ZN | 4    | 912  |
| 8    | 43177    | Conn Rod Assembly Machined | 1    |      |          |                           |      |      |
| 9    | 32023    | Bearing Ball .787          | 1    |      |          |                           |      |      |
| 10   | 65073-2  | Gearcase Cover             | 1    |      |          |                           |      |      |
| 10A# | 23039-2  | Gearcase Cover Assembly    | 1    |      |          |                           |      |      |
| 11   | 32212    | Bearing 205                | 1    |      |          |                           |      |      |
| 12   | 30189    | Gasket Speed Cover         | 1    |      |          |                           |      |      |
| 13   | 65073    | Speed Cover - Diesel       | 1    |      |          |                           |      |      |
| 14   | 32214    | Bearing 1.378              | 1    |      |          |                           |      |      |
| 15   | 43179    | Weldment Crank Gear 70T    | 1    |      |          |                           |      |      |

**REMARK:** \* Loctite Required  
# PN 23039-2 includes 7, 9 - 13

## 8.7 Gearcase - XJ 4 Cycle

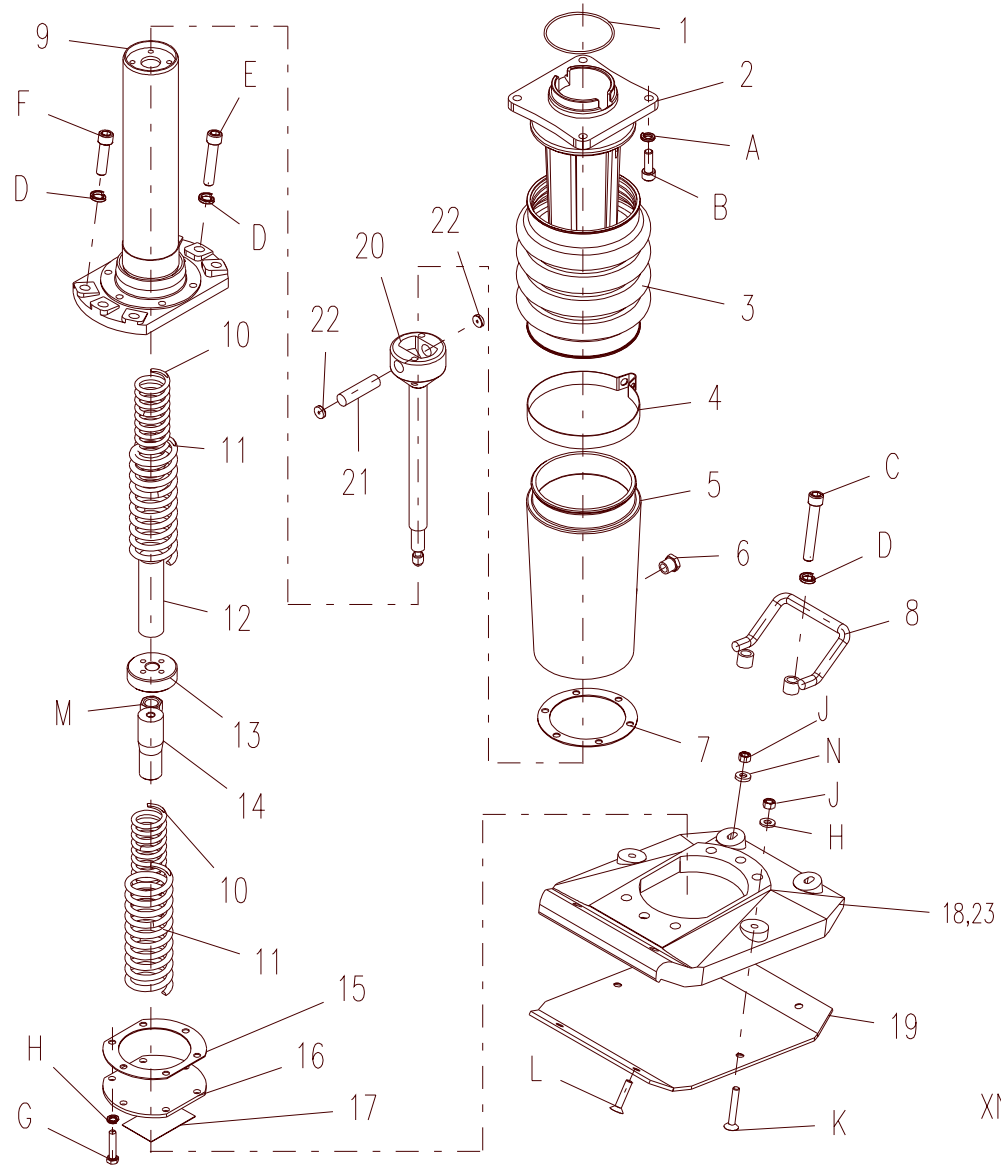


## 8.7 Gearcase - XJ 4 Cycle

| Item | Part No. | Description                  | Qty. | Item | Part No. | Description                 | Qty. | DIN   |
|------|----------|------------------------------|------|------|----------|-----------------------------|------|-------|
| 1    | 65072-2  | Gearcase Machined Diesel     | 1    | A    | 80002    | PINDL 1/4 x 5/8 PLN         | 4    | -     |
| 2    | 39224    | Shaft Seal                   | 1    | B*   | 80810    | SHCS M8 - 1.25 x 20 8.8 ZN  | 8    | 912   |
| 3    | 39472    | Clutch Shaft Weld 14T        | 1    | C    | 80812    | WSHRL M8 Split ZN           | 10   | 27B   |
| 4    | 39484-2  | Bracket Handle Weldment Left | 1    | D*   | 80821    | SHCS M5 - .8 x 16 8.8 ZN    | 3    | 912   |
| 5    | 32177    | Ball Bearing 6208-2RS        | 1    | E    | 80833    | NUTNY M10 - 1.5 AN          | 4    | 985   |
| 6    | 32305    | Ring Ext Retaining 1.57      | 1    | G    | 80804    | WSHRL M10 Split ZN          | 4    | 127B  |
| 7    | 30191    | Ring External 63/64          | 2    | H*   | 80886    | SHCS M10 - 1.5 x 20 8.8 ZN  | 4    | 912   |
| 8    | 43177    | Conn Rod Assembly Machined   | 1    | J    | 80937    | STUD M10 - 1.5 x 102 8.8 ZN | 1    | -     |
| 9    | 32023    | Ball Bearing .787            | 1    | K    | 80902    | STUD M10 - 1.5 x 60 8.8 ZN  | 3    | 939FO |
| 10   | 65073-2  | Gearcase Cover               | 1    | L    | 80805    | WSHRL M12 Split ZN          | 4    | 127B  |
| 10A# | 23039-2  | Gearcase Cover Assembly      | 1    | M    | 80808    | HHCS M12 - 1.75 x 20 8.8 ZN | 4    | 912   |
| 11   | 32212    | Bearing 205                  | 1    |      |          |                             |      |       |
| 12   | 30189    | Gasket Speed Cover           | 1    |      |          |                             |      |       |
| 13   | 65029-2  | Speed Cover                  | 1    |      |          |                             |      |       |
| 14   | 32214    | Bearing 1.378                | 1    |      |          |                             |      |       |
| 15   | 43179    | Weldment Crank Gear 70T      | 1    |      |          |                             |      |       |
| 16   | 39467-2  | Bracket Handle Right         | 1    |      |          |                             |      |       |
| 17   | 39475    | Adapter Ring                 | 1    |      |          |                             |      |       |

**REMARK:** \* Loctite Required  
# PN 23039-2 includes 7, 9 - 13

## 8.8 Lower Unit - XN Oil Injected and Pre-Mix



XN004-C

## 8.8 Lower Unit - XN Oil Injected and Pre-Mix

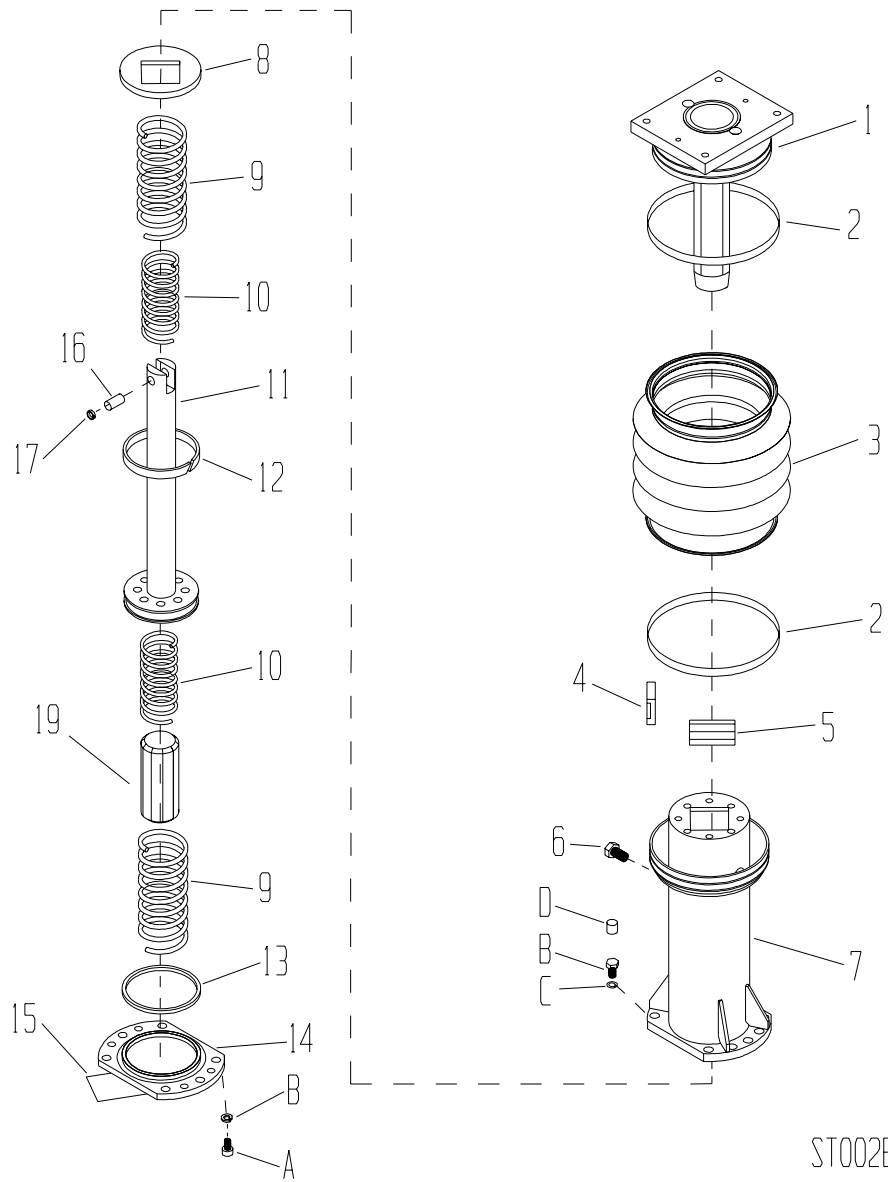
| Item | Part No. | Description  | Qty. | Item | Part No. | Description                     | Qty. | DIN  |
|------|----------|--|------|------|----------|---------------------------------|------|------|
| 1    | 39438    | O-Ring 2.5mm x 85mm                                    | 1    | A    | 80804    | WSHRL M10 Split ZN              | 4    | 127B |
| 2    | 39374    | Guide Tube Machined                                    | 1    | B*   | 80872    | SHCS M10 - 1.5 x 30 8.8 ZN      | 4    | 912  |
| 3    | 39372    | Boot   | 1    | C*   | 80943    | SHCS M12 - 1.75 x 100 8.8 ZN    | 2    | 912  |
| 4    | 39439    | Boot Clamp 650-85                                      | 2    | D    | 80805    | WSHRL M12 Split ZN              | 6    | 127B |
| 5    | 39377    | Cover Spring HSG Machined                              | 1    | E*   | 80824    | SHCS M12 - 1.75 x 80 8.8 ZN     | 1    | 912  |
| 6    | 34096    | Oil Sight Plug   | 1    | F*   | 80822    | SHCS M12 - 1.75 x 50 8.8 ZN     | 3    | 912  |
| 7    | 39399    | Gasket Spring HSG Cover                                | 1    | G*   | 80762    | HHCS M8 - 1.25 x 40 8.8 ZN      | 6    | 933  |
| 8    | 39405    | Lifting Grip Weldment                                  | 1    | H    | 80857    | WSHR M8 Flat 16 OD ZN           | 2    | 125A |
| 9    | 39398    | Spring HSG Weldment                                    | 1    | J**  | 80817    | NUTNY M8 - 1.25 ZN              | 6    | 985  |
| 10   | 39382    | Spring Inner   | 2    | K*   | 80948    | FHSCS M8 - 1.25 x 55 10.9       | 4    | 7991 |
| 11   | 39383    | Spring Outer   | 2    | L*   | 80949    | FHSCS M8 - 1.25 x 45 10.9       | 2    | 7991 |
| 12   | 39384    | Snubber Axial, Top                                     | 1    | M    | 80852    | NUTNY M16 - 2 ZN                | 1    | 985  |
| 13   | 39389    | Puck Piston Guide                                      | 1    | N    | 39233    | WSHR .343 ID x 1.00 OD x .17 ZN | 4    | ---  |
| 14   | 39385    | Snubber Axial, Lower                                   | 1    |      |          |                                 |      |      |
| 15   | 39390    | Gasket Spring Cover                                    | 1    |      |          |                                 |      |      |
| 16   | 39392    | Cover Bottom, Spring                                   | 1    |      |          |                                 |      |      |
| 17   | 55026    | Decal Waring Spring                                    | 1    |      |          |                                 |      |      |
| 18   | 39371    | Shoe   | 1    |      |          |                                 |      |      |
| 19   | 39400    | Plate Shoe   | 1    |      |          |                                 |      |      |
| 20   | 39381    | Rod Piston Machined                                    | 1    |      |          |                                 |      |      |
| 21   | 39436    | PINDL .625 x 2.25 LG                                   | 1    |      |          |                                 |      |      |
| 22   | 39401    | Button Pin Captivator                                  | 2    |      |          |                                 |      |      |
| 23#  | 65028    | Hex Insert   | 6    |      |          |                                 |      |      |
| 24#  | 23151    | Shoe Kit (Includes items 18, 19,<br>23, H, J, K, L, N) | 1    |      |          |                                 |      |      |



The spring retaining Base Plate retains heavy springs under compression. Follow the instructions (Base Plate Removal located on Page 53 of this manual) carefully or severe personal injury may occur.

**REMARK:** # Not Shown  
 \* Loctite  
 \*\* Torque 18 ft.lbs.(24.4 Nm)

## 8.9 Lower Unit - XT Oil Injected and Pre-Mix



ST002B



## 8.9 Lower Unit - XT Oil Injected and Pre-Mix

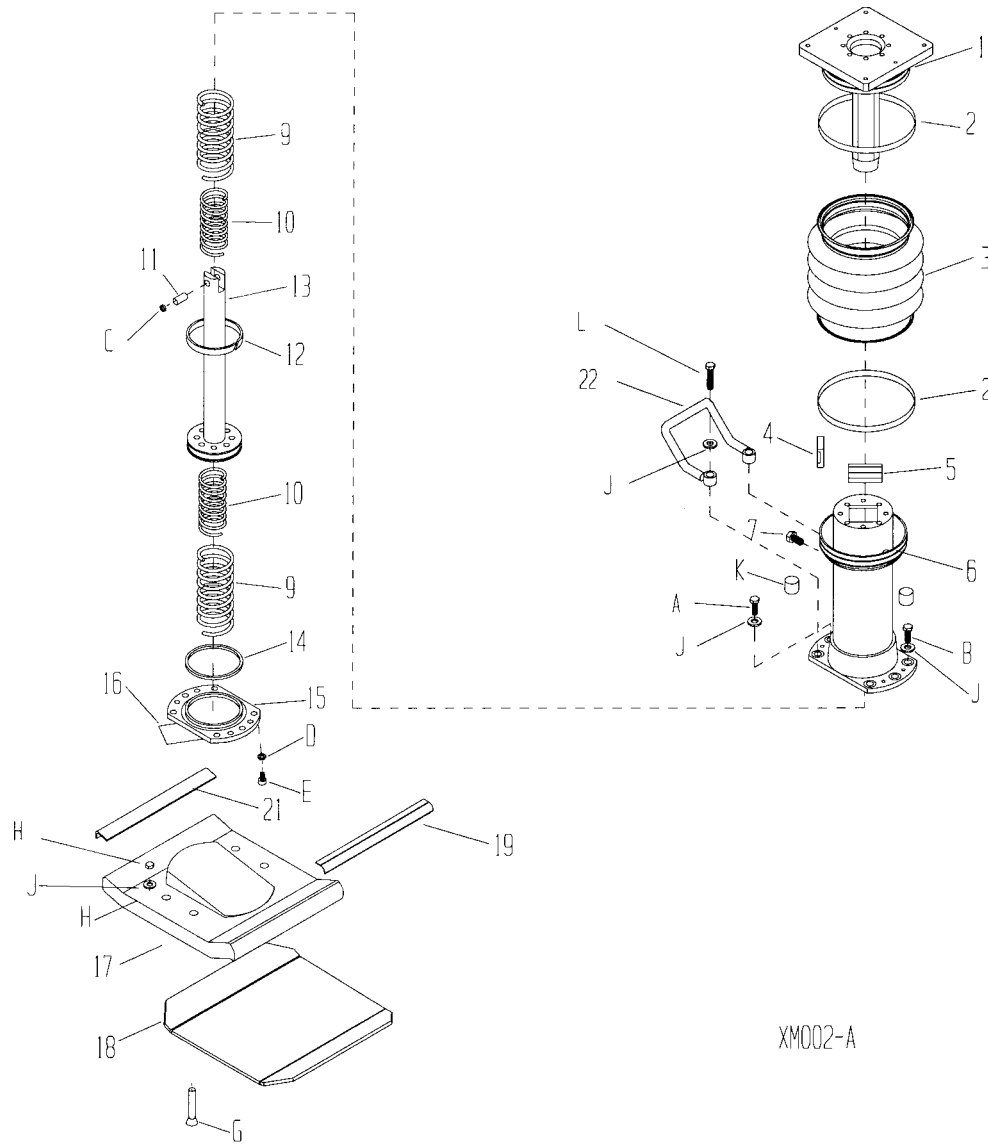
| Item | Part No. | Description            | Qty. | Item | Part No. | Description                 | Qty. | DIN  |
|------|----------|------------------------|------|------|----------|-----------------------------|------|------|
| 1    | 65050-2  | Guide Tube             | 1    | A*   | 80803    | SHCS M10 1.5 x 25mm 8.8 ZN  | 4    | 912  |
| 2    | 44106    | Boot Clamp             | 2    | B    | 80804    | WSHRL M10 Split ZN          | 4    | 127B |
| 3    | 47361    | Boot                   | 1    | C*   | 80819    | SHCS M12 1.75 x 35mm 8.8 ZN | 6    | 912  |
| 4    | 27938    | Bushing Short          | 2    | D    | 80805    | WSHRL M12 Split ZN          | 6    | 127B |
| 5    | 27939    | Bushing Long           | 2    | E    | 80765    | Cap Plastic Blk             | 6    | -    |
| 6^   | 34096    | Oil Sight Gauge        | 1    |      |          |                             |      |      |
| 7    | 65008-2  | Spring Housing         | 1    |      |          |                             |      |      |
| 8    | 42318    | Spring Spacer          | 1    |      |          |                             |      |      |
| 9    | 42619    | Spring Outer           | 2    |      |          |                             |      |      |
| 10   | 42620    | Spring Inner           | 2    |      |          |                             |      |      |
| 11   | 42923    | Piston Assy            | 1    |      |          |                             |      |      |
| 12   | 27521    | Piston Ring            | 1    |      |          |                             |      |      |
| 13   | 32033    | O-Ring                 | 1    |      |          |                             |      |      |
| 14   | 65009-2  | Base Plate             | 1    |      |          |                             |      |      |
| 15   | 55026    | Safety Decal           | 1    |      |          |                             |      |      |
| 16   | 80423    | Rod Pin                | 1    |      |          |                             |      |      |
| 17   | 80519    | Internal Retainer Ring | 1    |      |          |                             |      |      |
| 18   | 65011-2  | Shoe 11 (Not Shown)    | 1    |      |          |                             |      |      |
| 19   | 47441    | Snubber - Axial, Lower | 1    |      |          |                             |      |      |
| 20#  | 23344    | Snubber Kit            | 1    |      |          |                             |      |      |



The spring retaining Base Plate retains heavy springs under compression. Follow the instructions (Base Plate Removal located on Page 53 of this manual) carefully or severe personal injury may occur.

**REMARK:** ^ Use of a socket wrench is recommended to avoid damage to the sight gauge.  
 \* Loctite Required  
 # Not Shown

## 8.10 Lower Unit for XM Oil Injected and Pre-Mix



XM002-A

## 8.10 Lower Unit for XM Oil Injected and Pre-Mix

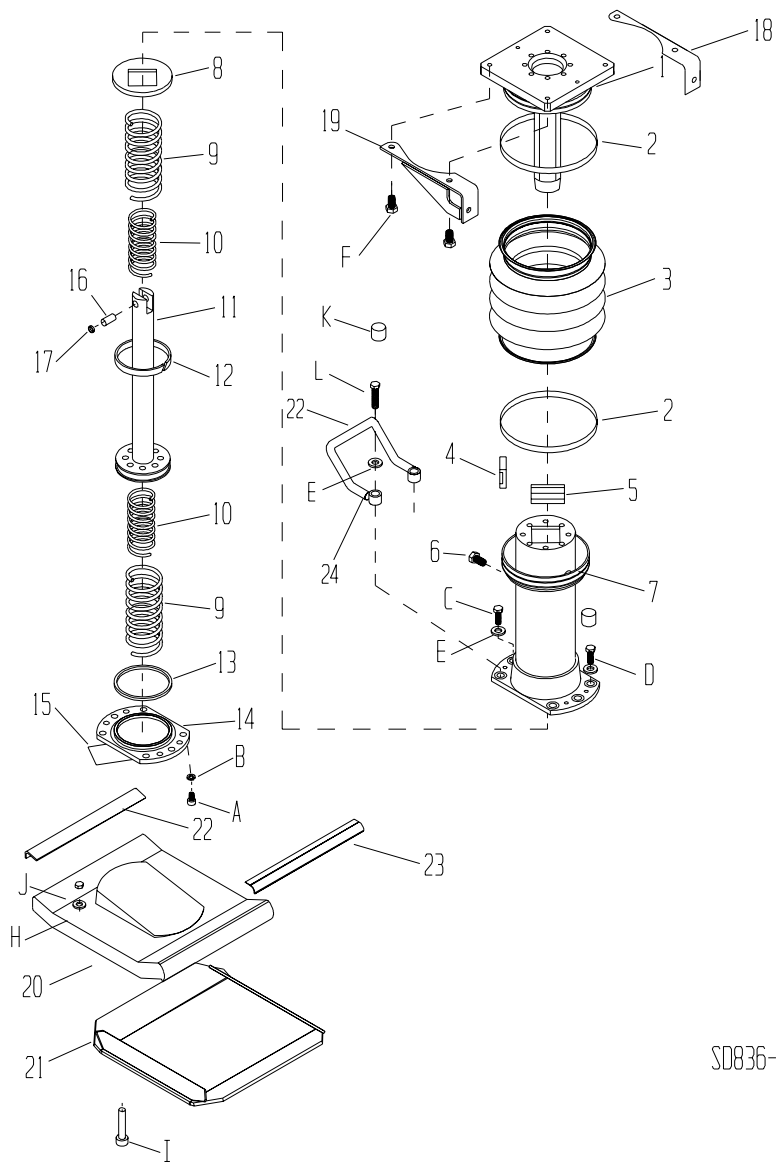
| Item | Part No. | Description                                   | Qty. | Item | Part No. | Description                    | Qty. | DIN   |
|------|----------|---|------|------|----------|--------------------------------|------|-------|
| 1    | 65032-2  | Guide Tube                                    | 1    | A    | 80824    | SHCS M12 - 1.75 x 80 8.8 ZN    | 3    | 912   |
| 2    | 44106    | Boot Clamp                                    | 2    | B    | 80822    | SHCS M12 - 1.75 x 50mm 8.8 ZN  | 3    | 912   |
| 3    | 47361    | Boot  | 1    | C    | 80519    | Internal Retaining Ring        | 1    | -     |
| 4    | 27938    | Bushing Short                                 | 2    | D    | 80812    | WSHRL M8 Split ZN              | 10   | 127B  |
| 5    | 27939    | Bushing Long                                  | 2    | E    | 80720    | SHCS M8 - 1.25 x 25mm 8.8 ZN   | 4    | 912   |
| 6    | 65051-2  | Spring Housing                                | 1    | F#   | 80813    | WSHR M8 x 24 OD ZN             | 10   | 9021B |
| 7*   | 34096    | Oil Sight Gauge                               | 1    | G    | 80823    | FHSCS M8 - 1.25 x 50mm 10.9 ZN | 10   | 7991  |
| 8    | 42318    | Spacer, Bearing to Spring                     | 1    | H    | 80814    | NUTNY M8 1.25 ZN               | 10   | 985   |
| 9    | 42661    | Spring Outer                                  | 2    | J    | 80805    | WSHRL M12 Split ZN             | 6    | 127B  |
| 10   | 42662    | Spring Inner                                  | 2    | K    | 80765    | Cap Plastic Blk                | 6    | -     |
| 11   | 80423    | Rod Pin                                       | 1    | L    | 80943    | SHCS M12 - 1.75 x 100 8.8 ZN   | 2    | 912   |
| 12   | 28694    | Piston Ring                                   | 1    |      |          |                                |      |       |
| 13   | 28701    | Piston Rod Assembly                           | 1    |      |          |                                |      |       |
| 14   | 32033    | O-Ring  | 1    |      |          |                                |      |       |
| 15   | 65026-2  | Base Plate                                    | 1    |      |          |                                |      |       |
| 16   | 55026    | Spring Housing Safety Decal                   | 1    |      |          |                                |      |       |
| 17   | 47302    | Shoe  | 1    |      |          |                                |      |       |
|      | 65028    | Insert  | 6    |      |          |                                |      |       |
| 18   | 65024-2  | Shoe Plate                                    | 1    |      |          |                                |      |       |
| 19   | 29215-2  | Shoe Edge Guard                               | 1    |      |          |                                |      |       |
| 21   | 42353-2  | Stiffener Rear Shoe                           | 1    |      |          |                                |      |       |
| #    | 22988    | Shoe Kit (includes 17,18,19, 21 and hardware) | 1    |      |          |                                |      |       |
| 22   | 39480    | Lifting Grip Weldment Assy.                   | 1    |      |          |                                |      |       |



The spring retaining Base Plate retains heavy springs under compression. Follow the instructions (Base Plate Removal located on Page 53 of this manual) carefully or severe personal injury may occur.

**REMARK:** \* Use of a socket wrench is recommended to avoid damage to the sight gauge.  
# Not Shown

# 8.11 Lower Unit- XD Diesel & XJ 4 Cycle



SD836-2D

## 8.11 Lower Unit- XD Diesel & XJ 4 Cycle

| Item | Part No. | Description                         | Qty. | Item | Part No. | Description                 | Qty. | DIN   |
|------|----------|-------------------------------------|------|------|----------|-----------------------------|------|-------|
| 1    | 65032-2  | Guide Tube Weld                     | 1    | A*   | 80720    | SHCS M8 -1.25 x 25 8.8 ZN   | 4    | 912   |
| 2    | 44106    | Clamp Boot                          | 2    | B    | 80812    | WSHRL M8 Split ZN           | 10   | 127B  |
| 3    | 47361    | Boot Urethane                       | 1    | C*   | 80822    | SHCS M12 -1.75 x 50 8.8 ZN  | 3    | 912   |
| 4    | 27938    | Bushing Short Square Guide          | 2    | D*   | 80824    | SHCS M12 -1.75 x 80 8.8 ZN  | 3    | 912   |
| 5    | 27939    | Bushing Long Square Guide           | 2    | E    | 80826    | WSHR M12 Split ZN           | 6    | 127B  |
| 6    | 34096    | Oil Sight Plug                      | 1    | F*   | 80838    | HHCS M10 -1.5 x 50 8.8 ZN   | 4    | 931   |
| 7    | 65069-2  | Spring Housing Diesel               | 1    | H    | 80813    | WSHR M8 x 24 OD ZN          | 10   | 9021B |
| 8    | 42318    | Spring Spacer Cast                  | 1    | I*   | 80823    | FHSCS M8 -1.25 x 50 10.9 ZN | 10   | 7991  |
| 9    | 42661    | Blue/Blue Spring Outer (Diesel)     | 2    | J    | 80814    | NUTNY M8 ZN                 | 10   | 985   |
|      | 42619    | Red/Blue Spring Outer (4 cycle)     | 2    | K    | 80765    | Cap Plastic Blk             | 6    | -     |
| 10   | 42662    | Blue/Yellow Spring Inner (Diesel)   | 2    | L    | 80943    | SHCS M12 - 1.75 x 100 8.8   | 2    | 912   |
|      | 42620    | Green/Yellow Spring Inner (4 cycle) | 2    |      |          |                             |      |       |
| 11   | 43181    | Weldment Diesel Piston              | 1    |      |          |                             |      |       |
| 12   | 28694    | Ring Piston                         | 1    |      |          |                             |      |       |
| 13   | 32033    | O-Ring 01-242 All                   | 1    |      |          |                             |      |       |
| 14   | 65065    | Shoe Plate Diesel                   | 1    |      |          |                             |      |       |
| 15   | 55026    | Decal Warning Spring                | 1    |      |          |                             |      |       |
| 16   | 80423    | Con Rod Pin .5 x 1.25 P             | 1    |      |          |                             |      |       |
| 17   | 80519    | Ring Internal 1/2 PLN               | 1    |      |          |                             |      |       |
| 18   | 65067    | Weldment Support Guide Right        | 1    |      |          |                             |      |       |
| 19   | 65066    | Weldment Support Guide Left         | 1    |      |          |                             |      |       |
| 20   | 47302    | Shoe                                | 1    |      |          |                             |      |       |
|      | 65028    | Insert                              | 6    |      |          |                             |      |       |
| 21   | 65064    | Base Plate Weld                     | 1    |      |          |                             |      |       |
| 22   | 42353    | Stiffener Rear                      | 1    |      |          |                             |      |       |
| 23   | 29215    | Shoe Guard                          | 1    |      |          |                             |      |       |
| 24   | 39480    | Lifting Grip Weld Assembly (XJ)     | 1    |      |          |                             |      |       |
| 25^  | 23038    | Shoe Kit                            | 1    |      |          |                             |      |       |

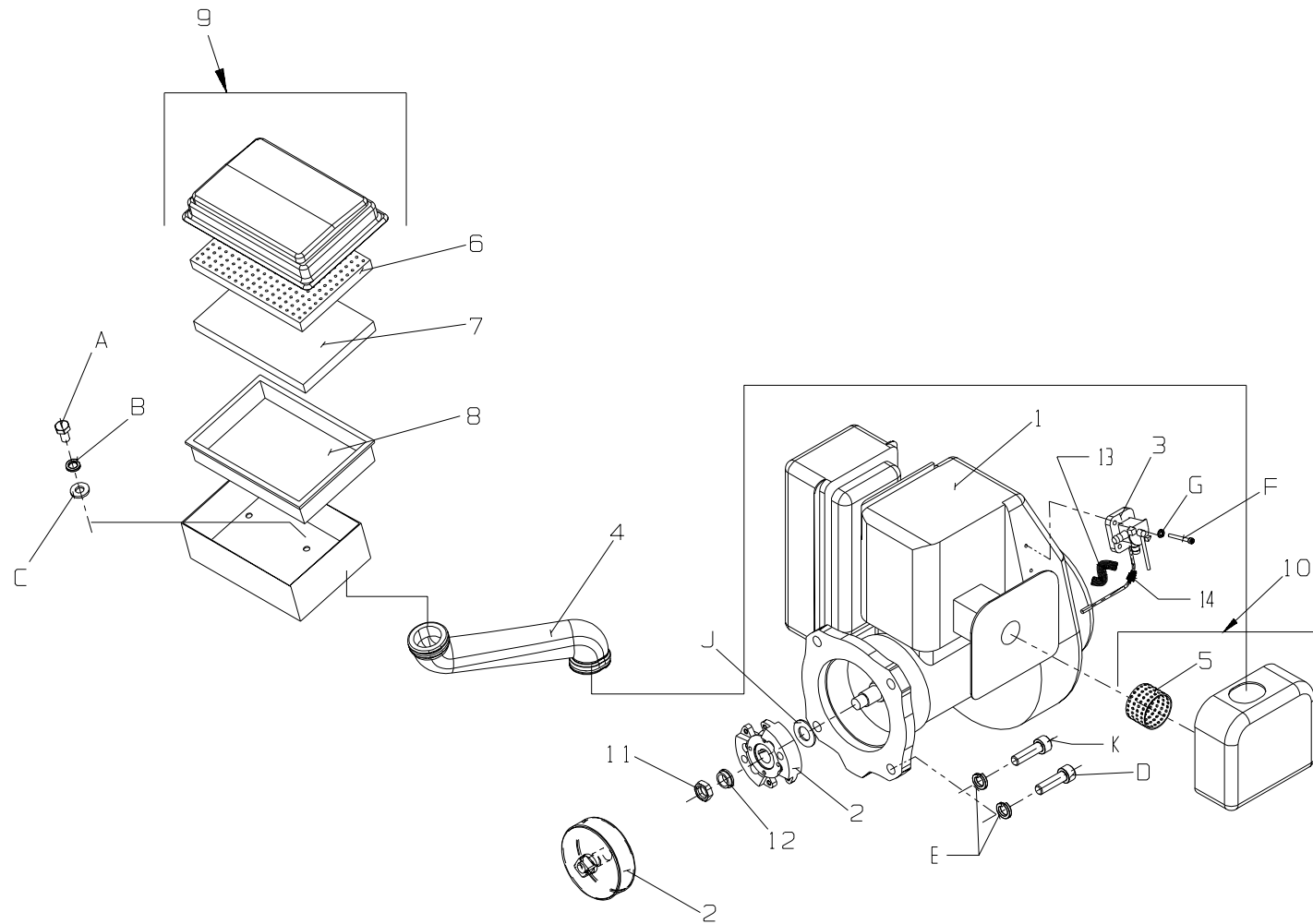


The spring retaining Base Plate retains heavy springs under compression. Follow the instructions (Base Plate Removal located on Page 53 of this manual) carefully or severe personal injury may occur.

**REMARK:** See Warning for Base Plate  
\* Loctite Required

^ Shoe Kit Includes Items 20, 21, 22, 23, B, C, D, H, I

## 8.12 Engine - XN, XT & XM Oil Injected and Pre-Mix



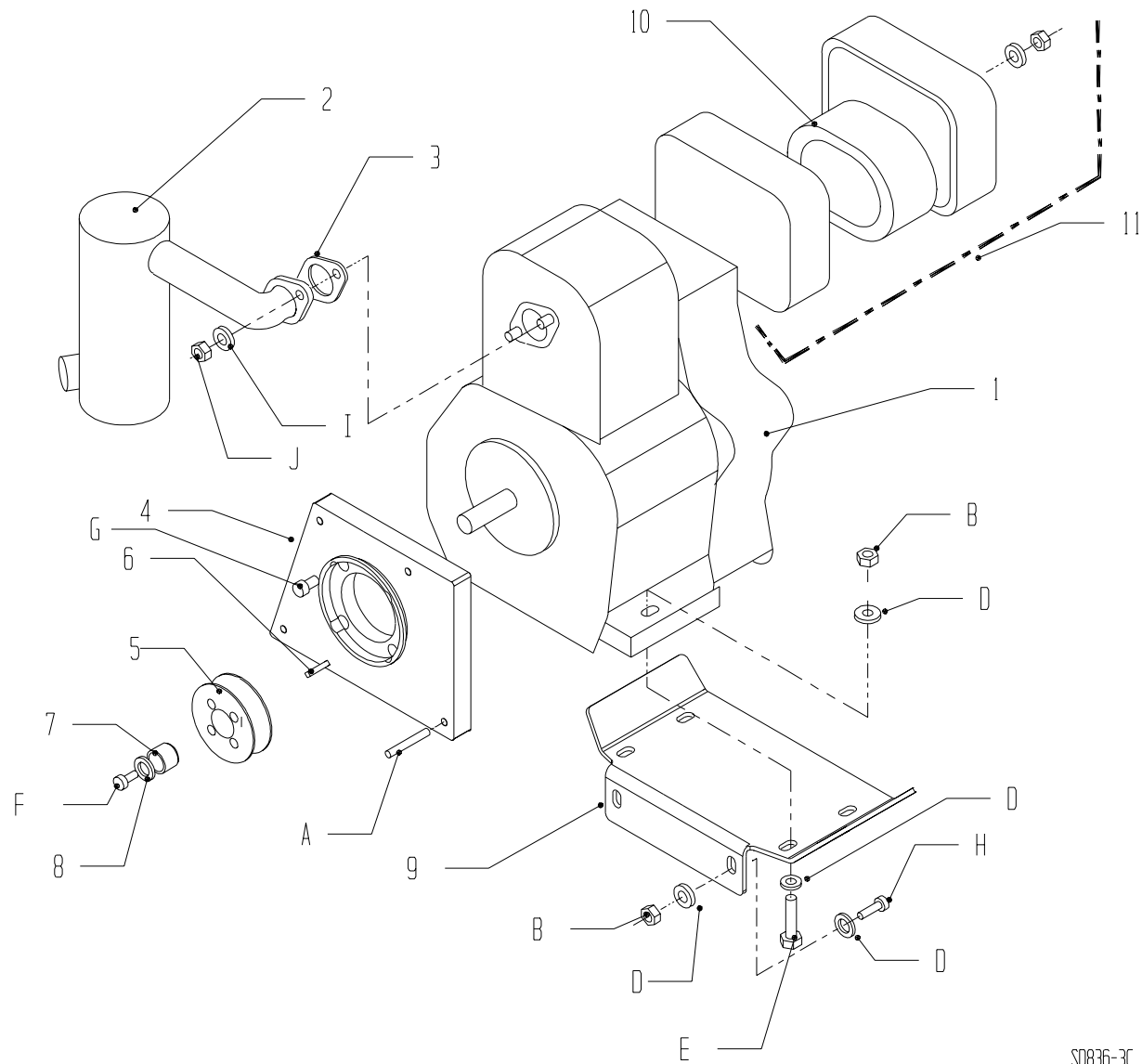
XN002-B

## 8.12 Engine - XN, XT & XM Oil Injected and Pre-Mix

| Item | Part No. | Description                       | Qty. | Item | Part No. | Description                   | Qty. | DIN   |
|------|----------|-----------------------------------|------|------|----------|-------------------------------|------|-------|
| 1**  | 23208    | Kit EC12 O/I Engine XN            | 1    | A*   | 80406    | HHCS M8 - 1.25 x 20mm 8.8 ZN  | 4    | 933   |
|      | 23209    | Kit EC12 O/I Engine XT            | 1    | B    | 80812    | WSHRL M8 Split ZN             | 4    | 127B  |
|      | 23210    | Kit EC12 Pre-Mix Engine XN        | 1    | C    | 80813    | WSHR M8 Flat 24 OD ZN         | 4    | 9021B |
|      | 23211    | Kit EC12 Pre-Mix Engine XT        | 1    | D*   | 80815    | HHCS M10 - 1.5 x 30mm 8.8 ZN  | 4    | 912   |
|      | 23212    | Kit EC12 O/I Engine XM            | 1    | E    | 80804    | WSHRL M10 Split ZN            | 4    | 7980  |
|      | 23213    | Kit EC12 Pre-Mix Engine XM        | 1    | F    | 80926    | CHSMS M4 x 16mm               | 2    | 7981  |
| 2    | 30356    | Clutch Robin Honda (XM, XJ)       | 1    | G    | 80929    | WSHRL M4 Split ZN             | 2    | 127B  |
|      | 30308    | Clutch (XN & XT)                  | 1    | J    | 80426    | WSHR 9/16 Type B ZN           | 1    | -     |
| 3    | 23148    | Kit Valve/Kill Switch             | 1    | K    | 80872    | SHCS M10-1.5 x 30 8.8 ZN (XM) | 2    | 912   |
| 4    | 39396    | Hose Air Filter (XN)              | 1    |      |          |                               |      |       |
|      | 39397    | Hose Air Filter (XT, XM)          | 1    |      |          |                               |      |       |
| 5    | 35995    | Filter/Precleaner Lower EC10/EC12 | 1    |      |          |                               |      |       |
| 6    | 39329    | Air Filter Coarse 1st Stage       | 1    |      |          |                               |      |       |
| 7    | 39330    | Air Filter Fine 1st Stage         | 1    |      |          |                               |      |       |
| 8    | 39332    | Frame Air Filter 1st Stage        | 1    |      |          |                               |      |       |
| 9    | 23144    | Air Filter Assy 1st Stage         | 1    |      |          |                               |      |       |
| 10   | 23142    | Air Filter Assy Primary           | 1    |      |          |                               |      |       |
| 11   | 35060    | Nut M12 - 1.25 (XN & XT)          | 1    |      |          |                               |      |       |
| 12   | 27242    | Spacer (XN & XT)                  | 1    |      |          |                               |      |       |
| 13   | 39489    | Fuel Line 3/16 ID x 2 3/4         | 1    |      |          |                               |      |       |
| 14   | 39502    | Clamp Cable .083                  | 1    |      |          |                               |      |       |
| 15   | 39478    | Fuel Line 3/16 ID x 23" LG        | 1    |      |          |                               |      |       |

**REMARK:** \* Loctite Required  
 \*\* Kit to include all parts shown fully assembled.

## 8.13 Engine - XD Diesel



SD036-3C

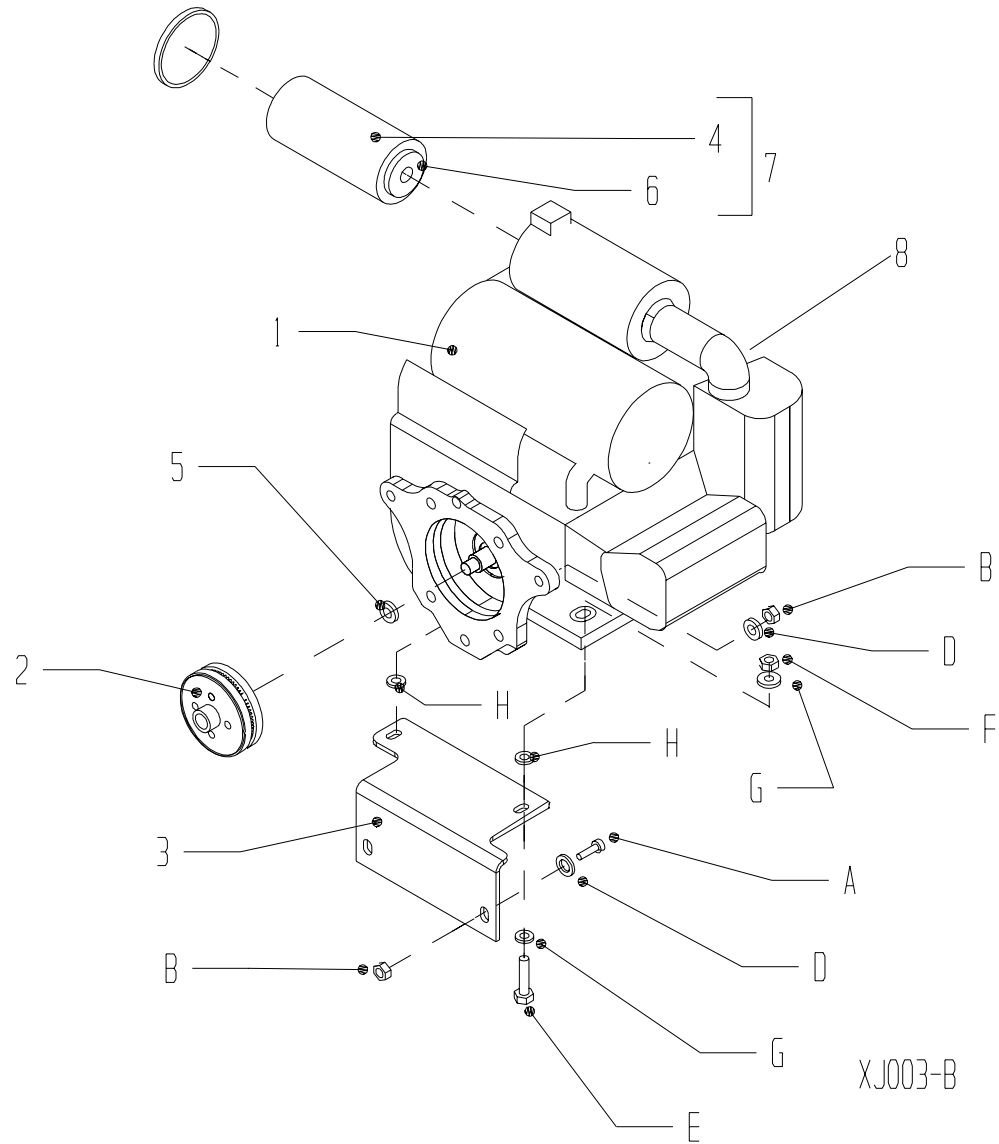


## 8.13 Engine - XD Diesel

| Item | Part No. | Description                | Qty. | Item | Part No. | Description                | Qty. | DIN   |
|------|----------|----------------------------|------|------|----------|----------------------------|------|-------|
| 1    | 31244    | Engine Yanmar L40A 4HP     | 1    | A*   | 80902    | STUD M10 - 1.5 x 60 8.8 ZN | 4    | 939   |
| 2    | 31245    | Muffler Special Yanmar     | 1    | B    | 80833    | NUTNY M10 - 1.5 ZN         | 6    | 985   |
| 3    | 39236    | Gasket Exhaust             | 1    | D    | 80806    | WSHR M10 Flat 200D ZN      | 12   | 125A  |
| 4    | 65071    | Adaptor Yanmar L40 Diesel  | 1    | E*   | 80838    | HHCS M10 - 1.5 x 50 8.8 ZN | 4    | 931   |
| 5    | 23042    | Clutch Assembly            | 1    | F*   | 80173    | HHCS5/16 - 24 x 1 GR5 ZN   | 1    | -     |
| 6    | 80611    | Square Key                 | 1    | G*   | 80810    | SHCS M8 - 1.25 x 20 8.8 ZN | 4    | 912   |
| 7    | 43187    | Spacer Clutch Hub Diesel   | 1    | H*   | 80803    | SHCS M10 - 1.5 x 25 8.8 ZN | 2    | 912   |
| 8    | 65075    | Washer Clutch Retainer     | 1    | I    | 80813    | WSHR M8 Flat 24 OD ZN      | 2    | 9021B |
| 9    | 65068    | Weldment Engine Support    | 1    | J    | 80814    | NUTFX M8 - 1.25 ZN2        | 2    | 934   |
| 10   | 39235    | Air Filter with Precleaner | 1    |      |          |                            |      |       |
| 11   | 39237    | Air Filter Assembly        | 1    |      |          |                            |      |       |

**REMARK:** \* Loctite Required

## 8.14 Engine - XJ 4 Cycle

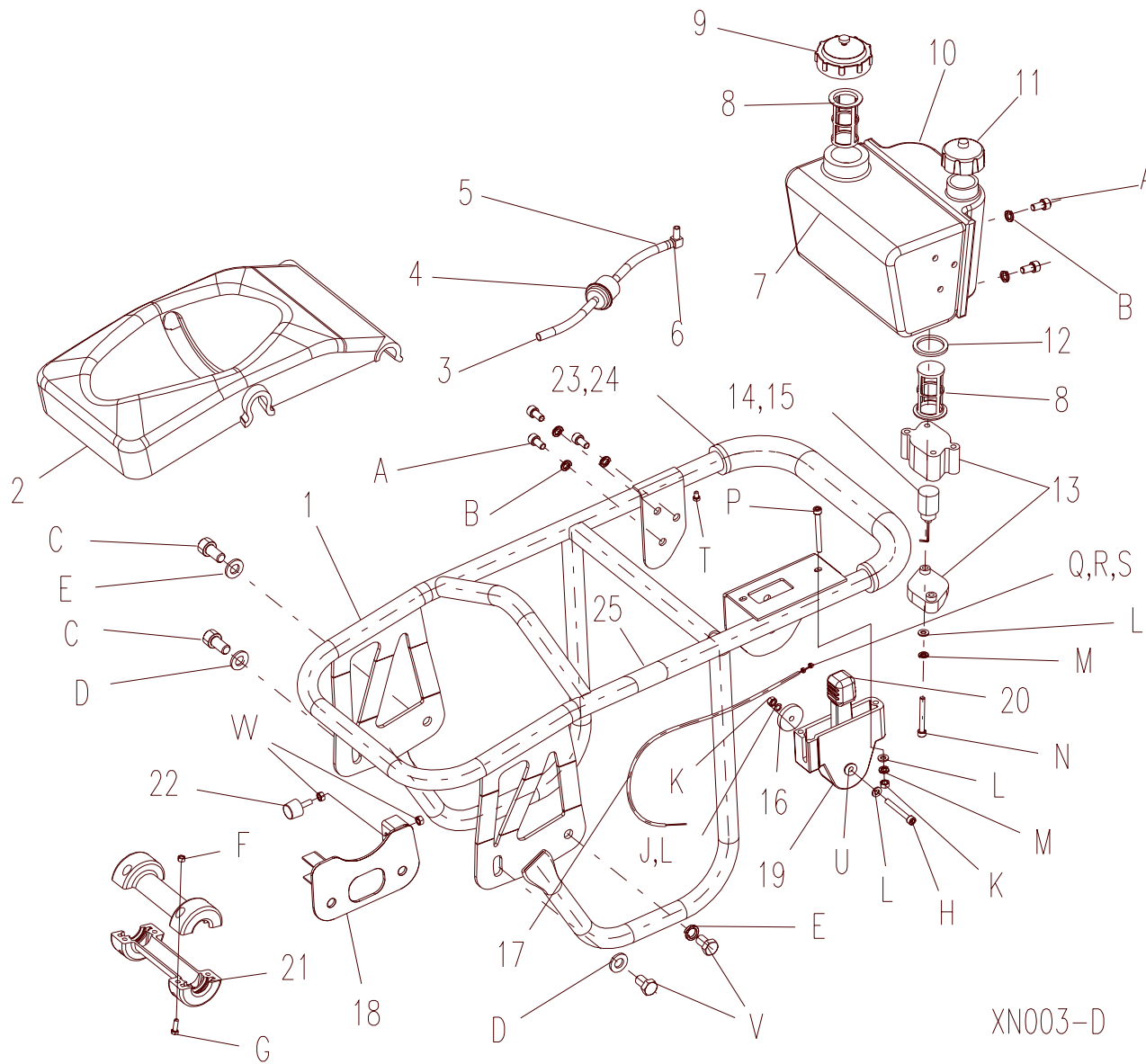


## 8.14 Engine - XJ 4 Cycle

| Item | Part No. | Description                  | Qty. | Item | Part No. | Description                | Qty. | DIN  |
|------|----------|------------------------------|------|------|----------|----------------------------|------|------|
| 1    | 30567    | Engine 4 Cycle Honda         | 1    | A*   | 80803    | SHCS M10 - 1.5 x 25 8.8 ZN | 2    | 939  |
| 2    | 30356    | Clutch Assembly              | 1    | B    | 80833    | NUTNY M10 - 1.5 ZN         | 6    | 985  |
| 3    | 39453-2  | Engine Support Weldment      | 1    | D    | 80806    | WSHR M10 Flat ZN           | 6    | 125A |
| 4    | 39490    | Air Filter Outer Honda GX120 | 1    | E*   | 80892    | HHCS M8 - 1.5 x 35 8.8 ZN  | 2    | 931  |
| 5    | 39498    | Spacer Clutch                | 1    | F*   | 80817    | NUTNY M8 - 1.25 ZN         | 2    | 985  |
| 6    | 39511    | Air Filter Inner Honda GX120 | 1    | G    | 80857    | WSHR M8 ZN                 | 4    | 912  |
| 7    | 23152    | Kit Air Filter Honda GX120   | 1    | H    | 26325    | WSHR 3/8 x 1.00 ZN         | 2    | -    |
| 8#   | 39513    | Fuel Reservoir Tip Over      | 1    |      |          |                            |      |      |

**REMARK:** \* Loctite Required  
# Not Shown

## 8.15 Handle and Fuel Tank - XN Oil Injected and Pre-Mix



XN003-D

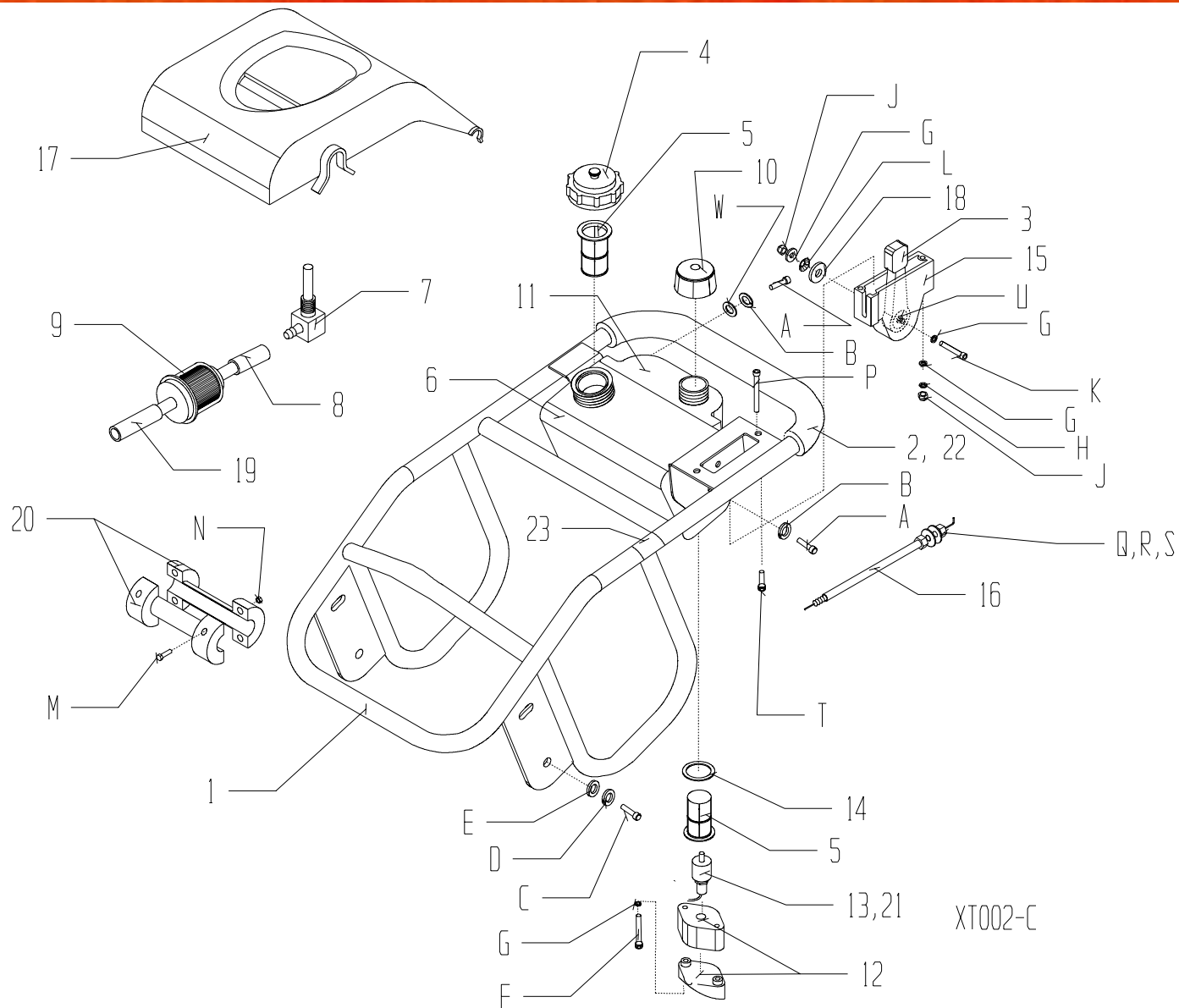
## 8.15 Handle and Fuel Tank - XN Oil Injected and Pre-Mix

| Item  | Part No. | Description                    | Qty. | Item | Part No. | Description                           | Qty. | DIN  |
|-------|----------|--------------------------------|------|------|----------|---------------------------------------|------|------|
| 1     | 39419-2  | Handle Weldment                | 1    | A*   | 80894    | SHCS M8 - 1.25 x 16 8.8 ZN (Pre-Mix)  | 6    | 912  |
| 2     | 39421    | Cover                          | 1    |      | 80894    | SHCS M8 - 1.25 x 16 8.8 ZN (Oil Inj.) | 10   | 912  |
| 3     | 39477    | Fuel Line 3/16 ID x 6 1/4" LG  | 1    | B    | 80812    | WSHRL M8 Split ZN (Pre-Mix)           | 6    | 127B |
| 4     | 35486    | Fuel Filter                    | 1    |      | 80812    | WSHRL M8 Split ZN (Oil Inj.)          | 10   | 127B |
| 5     | 39478    | Fuel Line 3/16 ID x 23" LG     | 1    | C*   | 80808    | HHCS M12 - 1.75 x 20 8.8 ZN           | 2    | 912  |
| 6     | 23022    | Tank Fitting                   | 1    | D    | 80807    | WSHR M12 Flat ZN                      | 4    | 125A |
| 7     | 65081    | Fuel Tank (Pre-Mix)            | 1    | E    | 80805    | WSHRL M12 Split ZN                    | 4    | 127B |
|       | 39350    | Fuel Tank (Oil Injected)       | 1    | F    | 80850    | NUTNY M5 - .8 ZN                      | 4    | 985  |
| 8     | 47219    | Fuel Strainer (Pre-Mix)        | 1    | G    | 80821    | SHCS M5 - .8 x 16 8.8 ZN              | 4    | 912  |
|       | 47219    | Fuel Strainer (Oil Injected)   | 2    | H    | 80947    | HHCS M6 - 1 x 40 8.8 ZN               | 1    | 931  |
| 9     | 35701    | Cap Plastic Gas                | 1    | J    | 80939    | WSHR M6 Belleville 1/4 ID             | 1    | -    |
| 10    | 39349    | Tank Oil (Oil Injected)        | 1    | K    | 80851    | NUTNY M6 ZN                           | 2    | 985  |
| 11    | 39346    | Cap Oil (Oil Injected)         | 1    | L    | 80856    | WSHR M6 Flat ZN (Oil Inj.)            | 6    | 125A |
| 12    | 32314    | Gasket (Oil Injected)          | 1    |      | 80856    | WSHR M6 Flat ZN (Pre-Mix)             | 4    | 125A |
| 13    | 23065    | Kit, Tank Guard (Oil Injected) | 1    | M    | 80860    | WSHRL M6 Split ZN (Oil Inj.)          | 4    | 127B |
| 14    | 39316    | Oil Sensor (Oil Injected)      | 1    |      | 80860    | WSHRL M6 Split ZN (Pre-Mix)           | 2    | 127B |
| 15    | 39476    | O-Ring (Oil Injected)          | 1    | N    | 80912    | SHCS M6 - 1 x 50 Black (Oil Inj.)     | 2    | 912  |
| 16    | 39402    | Washer Clutch, Throttle        | 1    | P    | 80940    | SHCS M6 - 1 x 60 8.8 ZN               | 2    | 912  |
| 17^ + | 39440    | Throttle Cont. Connector       | 1    | Q    | 80247    | NUTFX 5/16 - 24 ZN                    | 2    | -    |
| 18    | 39424-2  | Stopper Weldment               | 1    | R    | 80495    | WSHR 5/16 Plain ZN                    | 1    | -    |
| 19    | 39386    | Housing - Throttle             | 1    | S    | 80086    | WSHRL 5/16 Split ZN                   | 1    | -    |
| 20    | 39387    | Lever - Throttle               | 1    | T    | 80586    | HWHST 5/16 - 18 x .50 ZN              | 2    | -    |
| 21    | 39407    | Wheel - Handle (optional)      | 2    | U    | 80347    | WSHR 1/4 WROT ZN                      | 1    | -    |
| 22    | 39427    | Shock Mount Type KD            | 2    | V    | 80887    | HHCS M12 - 1.75 x 25 8.8 ZN           | 2    | 933  |
| 23    | 39411    | Tube Grip                      | 1    | W    | 80853    | NUTKP M6 ZN                           | 4    | -    |
| 24    | 39420    | Cushion Grip                   | 1    | #    | 39150    | Hose Guard 3/8 Nylo Braid (ROI)       | 1    | -    |
| 25+   | 34091    | Clamp Cable                    | 1    | #    | 48413    | Wiring Harness                        | 1    | -    |
|       |          |                                |      | #    | 39308    | Ferrule (ROI)                         | 2    | -    |
|       |          |                                |      | #    | 35448    | Clamp 5/8                             | 3    | -    |
|       |          |                                |      | #    | 39509    | Clamp 3/8                             | 1    | -    |
|       |          |                                |      | #    | 23428    | Kit Cable Control XN                  | 1    | -    |

**REMARK:** \* Loctite Required  
# Not Shown

^Lubricate Throttle Wire  
+ Included in P/N 23428

## 8.16 Handle and Fuel Tank - XT/XM Oil Injected and Pre-Mix

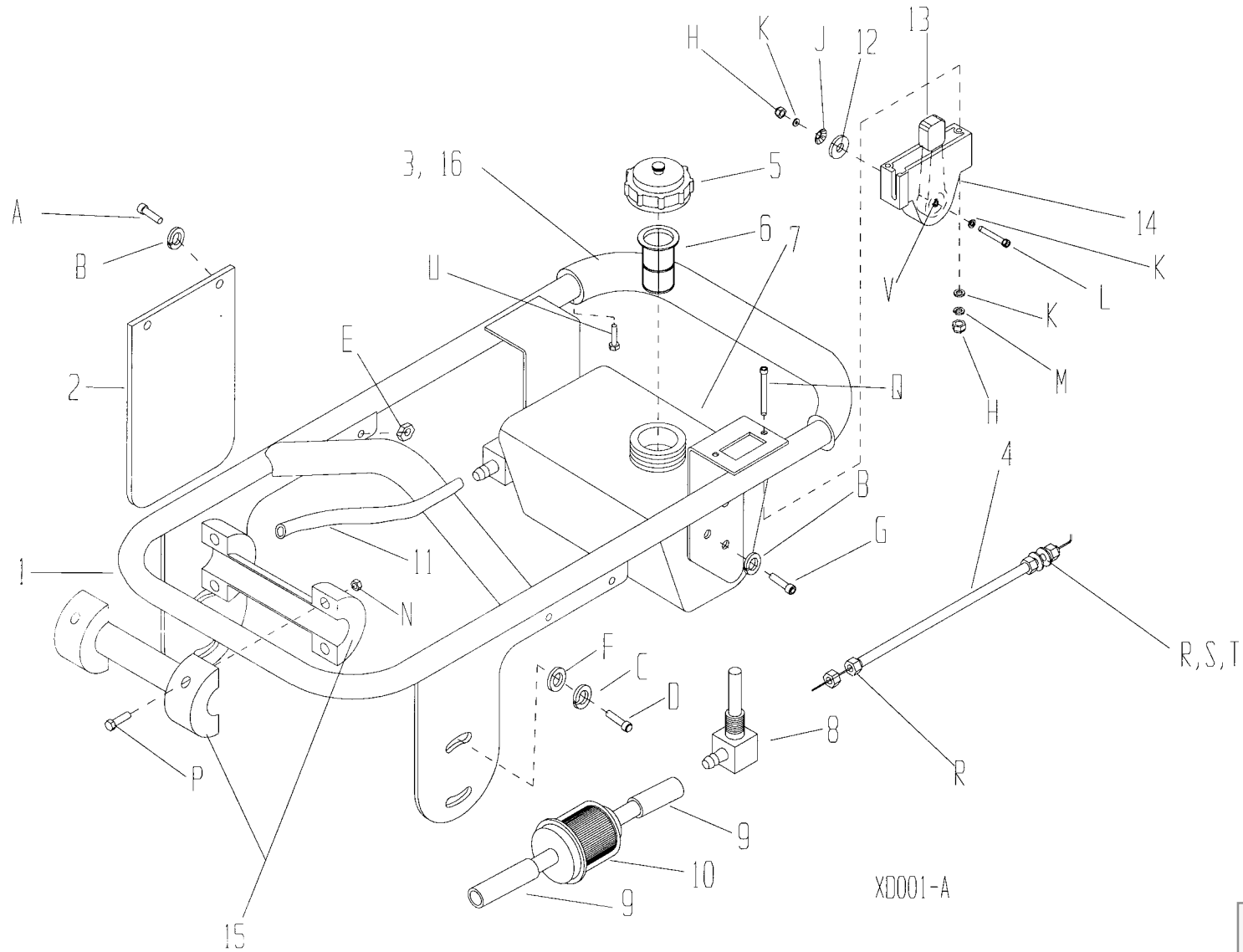


## 8.16 Handle and Fuel Tank - XT/XM Oil Injected and Pre-Mix

| Item  | Part No. | Description                     | Qty. | Item | Part No. | Description                             | Qty. | DIN  |
|-------|----------|---------------------------------|------|------|----------|---|------|------|
| 1     | 44215-2  | Handle Weld Assembly            | 1    | A*   | 80894    | SHCS M8 - 1.25 x 16mm 8.8 ZN (Oil Inj.) | 10   | 912  |
| 2     | 39483    | Handle Grip Cushion             | 1    |      | 80894    | SHCS M8 - 1.25 x 16mm 8.8 ZN (Pre-Mix)  | 6    |      |
| 3     | 39387    | Throttle Lever                  | 1    | B    | 80812    | WSHRL M8 Split ZN (Oil Inj.)            | 10   | 127B |
| 4     | 35701    | Cap Gas                         | 1    |      | 80812    | WSHRL M8 Split ZN (Pre-Mix)             | 4    |      |
| 5     | 47219    | Strainer (Oil Injected)         | 2    | C*   | 80887    | HHCS M12 - 1.75 x 25mm 8.8 ZN (XT)      | 4    | 933  |
|       | 47219    | Strainer (Pre-Mix)              | 1    | D    | 80805    | WSHRL M12 Split ZN (SM)                 | 4    | 127B |
| 6     | 39350    | Tank Gas (Oil Injected)         | 1    | E    | 80807    | WSHR M12 x 24 OD ZN (ST)                | 4    | 125A |
|       | 65081    | Tank Gas (Pre-Mix)              | 1    | F    | 80912    | SHCS M6 x 50 BLK BN2 (Oil Inj.)         | 4    | -    |
| 7     | 23022    | Tank Fitting                    | 1    | G    | 80856    | WSHR M6 Flat 12 OD ZN (Oil Inj.)        | 6    | 125A |
| 8     | 39488    | Fuel Line 3/16 ID x 15" LG      | 1    |      | 80856    | WSHR M6 Flat 12 OD ZN (Pre-Mix)         | 4    |      |
| 9     | 35486    | Filter Gas                      | 1    | H    | 80860    | WSHRL M6 ZN                             | 2    | 127B |
| 10    | 39346    | Cap Oil (Oil Injected)          | 1    | J    | 80851    | NUTNY M6 - 1.0                          | 3    | 985  |
| 11    | 39349    | Tank Oil (Oil Injected)         | 1    | K    | 80947    | HHCS M6 - 1 x 40 8.8 ZN                 | 1    | 931  |
| 12    | 23065    | Tank Guard Set (Oil Injected)   | 1    | L    | 80939    | WSHR Belleville 1/4 ID                  | 1    | -    |
| 13    | 39316    | Sensor Oil (Oil Injected)       | 1    | M    | 80821    | SHCS M5 - .8 x 16 8.8 ZN (optional)     | 4    | 933  |
| 14    | 32314    | Gasket, Oil Tank (Oil Injected) | 1    | N    | 80850    | NUTNY M5 - .8 ZN (optional)             | 4    | 985  |
| 15    | 39386    | Throttle HSG                    | 1    | P    | 80940    | SHCS M6 - 1 x 60 8.8 ZN                 | 2    | -    |
| 16^ + | 39485    | Throttle Control                | 1    | Q    | 80247    | NUTFX 5/16 - 24 ZN                      | 2    | -    |
| 17    | 39426    | Cover - Plastic                 | 1    | R    | 80086    | WSHRL 5/16 Split ZN                     | 1    | -    |
| 18    | 39402    | Washer Clutch                   | 1    | S    | 80495    | WSHR 5/15 Plain ZN                      | 1    | -    |
| 19    | 39477    | Fuel Line 3/16 ID x 6 1/4" LG   | 1    | T    | 80586    | HWHST 5/16 - 18 x .50 ZN                | 2    | -    |
| 20    | 39407    | Handle Wheel (optional)         | 2    | U    | 80347    | WSHR 1/4 WROT ZN                        | 1    | -    |
| 21    | 39476    | O-Ring (Oil Injected)           | 1    | V#   | 39509    | Clamp 3/8                               | 1    |      |
| 22    | 42819    | Tube Grip                       | 1    | W    | 80813    | WSHR M8 Flat (Oil Inj.)                 | 4    |      |
| 23+   | 34091    | Clamp Cable                     | 1    | X#   | 23427    | Kit Cable Control                       | 1    | -    |
| #     | 39150    | Hose, Guard (Oil Injected)      | 1    |      |          |   |      |      |
| #     | 48413    | Wiring Harness (Oil Injected)   | 1    |      |          |   |      |      |
| #     | 39308    | Ferrule (Oil Injected)          | 2    |      |          |   |      |      |

**REMARK:** \* Loctite Required      ^Lubricate Throttle Wire  
# Not Shown                              + Included in P/N 23427

# 8.17 Handle and Fuel Tank - XD Diesel



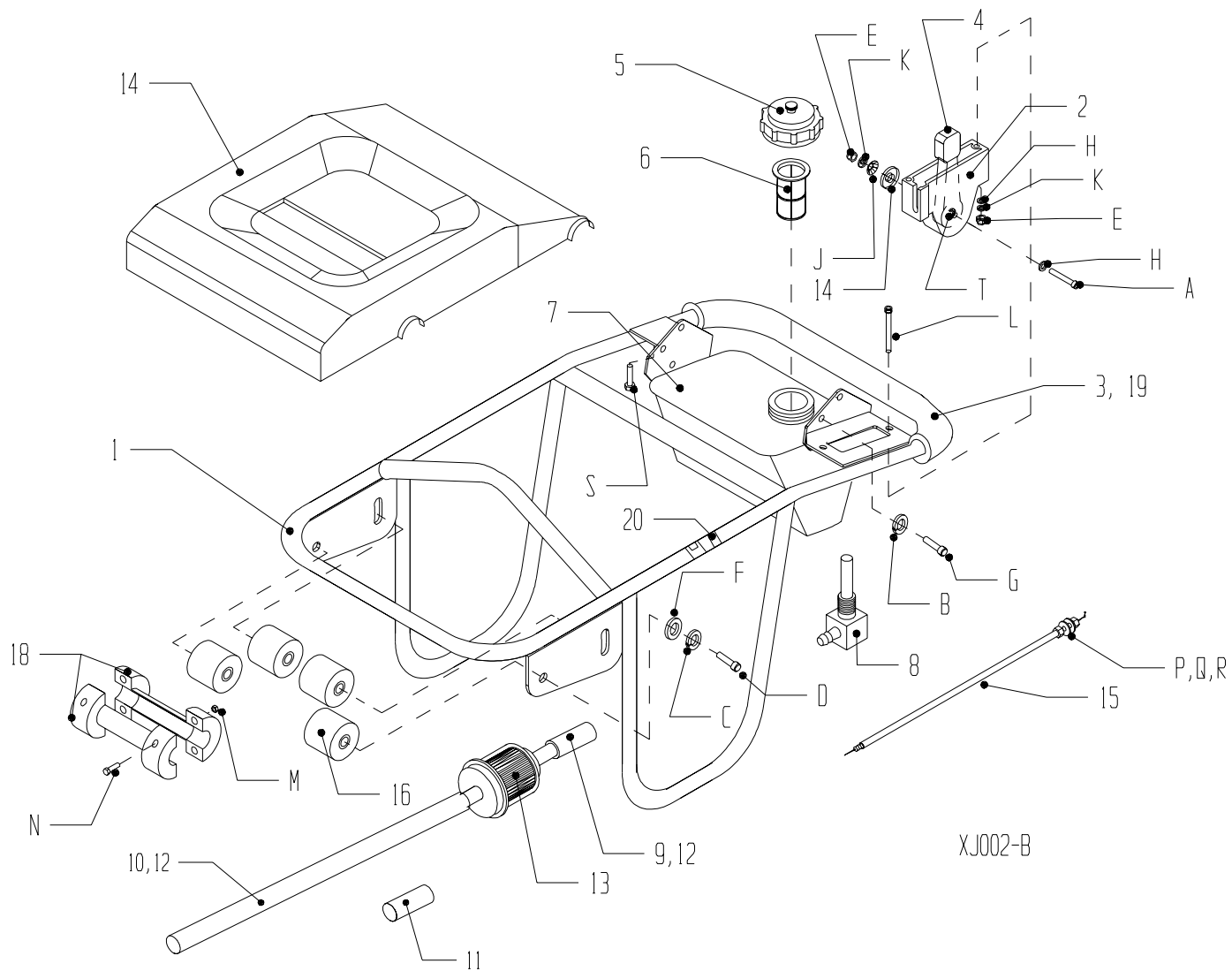


## 8.17 Handle and Fuel Tank - XD Diesel

| Item | Part No. | Description                 | Qty. | Item | Part No. | Description                 | Qty. | DIN  |
|------|----------|-----------------------------|------|------|----------|-----------------------------|------|------|
| 1    | 39482-2  | Handle Assembly Weld Diesel | 1    | A*   | 80810    | SHCS M8 - 1.25 x 20 8.8 ZN1 | 2    | 912  |
| 2    | 65007-2  | Guard Side                  | 2    | B    | 80812    | WSHRL M8 Split ZN           | 8    | 127B |
| 3    | 39483    | Handle Grip Cushion         | 1    | C    | 80804    | WSHRL M10 Split ZN          | 4    | 127B |
| 4^   | 39486    | Throttle Cont. Conn.        | 1    | D*   | 80803    | SHCS M10 - 1.5 x 25 8.8 ZN  | 4    | 912  |
| 5    | 35701    | Cap Plastic Gas/Water       | 1    | E    | 80817    | NUTNY M8 - 1.25 ZN          | 4    | 985  |
| 6    | 47219    | Fuel Strainer               | 1    | F    | 80806    | WSHR M10 Flat 20 OD ZN      | 4    | 125A |
| 7    | 65074    | Fuel Tank Modified Diesel   | 1    | G*   | 80894    | SHCS M8 - 1.25 x 16 8.8 ZN  | 6    | 912  |
| 8    | 39056    | Valve/Strainer              | 1    | H    | 80851    | NUTNY M6 - 1 ZN             | 3    | 985  |
| 9    | 47385    | Fuel Line 5/16 ID           | 4    | J    | 80939    | WSHR Belleville 1/4 ID      | 1    | -    |
| 10   | 39234    | Fuel Filter Diesel          | 1    | K    | 80856    | WSHR M6 Flat ZN             | 4    | 125A |
| 11   | 47386    | Fuel Line 1/4 ID            | 1    | L    | 80947    | HHCS M6 - 1 x 40 8.8 ZN     | 1    | 931  |
| 12   | 39402    | Washer Clutch               | 1    | M    | 80860    | WSHRL M6 Split ZN           | 2    | 127  |
| 13   | 39387    | Throttle Lever              | 1    | N    | 80850    | NUTNY M5 - .8 ZN            | 4    | 985  |
| 14   | 39386    | Throttle HSG                | 1    | P    | 80821    | SHCS M5 - .8 x 16 8.8 ZN    | 4    | 933  |
| 15   | 39407    | Handle Wheel                | 2    | Q    | 80940    | SHCS M6 - 1 x 60 8.8 ZN     | 2    | 912  |
| 16   | 42819    | Tube Grip                   | 1    | R    | 80247    | NUTFX 5/16 - 24 ZN          | 4    | -    |
|      |          |                             |      | S    | 80086    | WSHRL 5/16 Split ZN         | 1    | -    |
|      |          |                             |      | T    | 80495    | WSHR 5/16 Plain ZN          | 1    | -    |
|      |          |                             |      | U    | 80586    | HWHST 5/16 - 18 x .50 ZN    | 2    | -    |
|      |          |                             |      | V    | 80347    | WSHR 1/4 WROT ZN            | 1    | -    |

**REMARK:** \* Loctite Required  
 ^ Lubricate Throttle Wire

## 8.18 Handle and Fuel Tank - XJ 4 Cycle

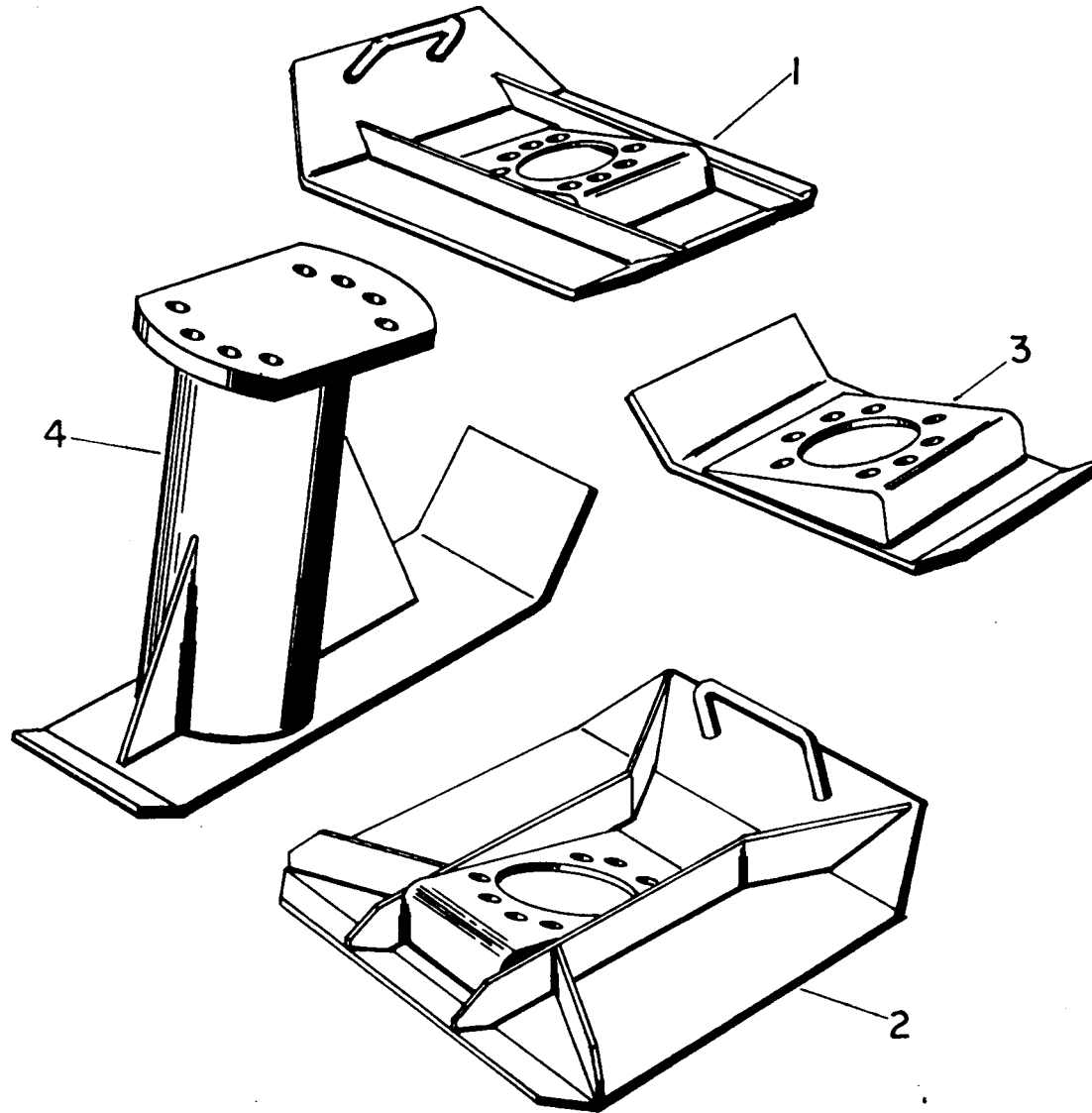


## 8.18 Handle and Fuel Tank - XJ 4 Cycle

| Item | Part No. | Description              | Qty. | Item | Part No. | Description                | Qty. | DIN  |
|------|----------|--------------------------|------|------|----------|----------------------------|------|------|
| 1    | 39661-2  | Handle Assembly Weld     | 1    | A    | 80947    | HHCS M6 - 1.0 x 40 8.8 NZ  | 1    | 931  |
| 2    | 39386    | Throttle HSG             | 1    | B    | 80812    | WSHRL M8 Split ZN          | 6    | 127B |
| 3    | 39470    | Handle Grip Black Vinyl  | 1    | C    | 80805    | WSHRL M12 Split ZN         | 4    | 127B |
| 4    | 39387    | Throttle Lever           | 1    | D    | 80808    | HHCS M12 - 1.75 x 20       | 4    | 912  |
| 5    | 35701    | Cap Plastic Gas/Water    | 1    | E    | 80851    | NUTNY M6 - 1.0             | 3    | 985  |
| 6    | 47219    | Fuel Strainer            | 1    | F    | 80807    | WSHR M12 Flat ZN           | 4    | 125A |
| 7    | 39474    | Fuel Tank Gasoline       | 1    | G*   | 80894    | SHCS M8 - 1.25 x 16 8.8 ZN | 6    | 912  |
| 8    | 39056    | Valve/Strainer           | 1    | H    | 80856    | WSHR M6 Flat               | 3    | 125A |
| 9    | 39526    | Hose Fuel 4.5mm x 2" LG  | 1    | J    | 80939    | WSHR Belleville 1/4 ID     | 1    | -    |
| 10   | 39662    | Hose Fuel 4.5mm x 14" LG | 1    | K    | 80860    | WSHRL M6 ZN                | 2    | 127B |
| 11   | 47410    | Support Hose 4.25 LG     | 1    | L    | 80940    | SHCS M6 - 1 x 60 8.8 ZN    | 2    | 912  |
| 12   | 47409    | Clamp Hose               | 3    | M    | 80850    | NUTNY M5 - .8 ZN           | 4    | -    |
| 13   | 39660    | Fuel Filter Gas          | 1    | N    | 80821    | SHCS M5 - .8 x 16 8.8 ZN   | 4    | -    |
| 14   | 39461    | Cover - Plaxtic Fox      | 1    | P    | 80247    | NUTFX 5/16 - 24 ZN         | 2    | -    |
| 15^  | 39485    | Throttle Control         | 1    | Q    | 80086    | WSHRL 5/16 Split ZN        | 1    | -    |
| 16   | 65004    | Shock Mount              | 4    | R    | 80495    | WSHR 5/16 Plain ZN         | 1    | -    |
| 17   | 39402    | Washer                   | 1    | S    | 80586    | HWHST 5/16 - 18 x .50 ZN   | 2    | -    |
| 18   | 39407    | Handle Wheel             | 2    | T    | 80347    | WSHR 1/4 WROT ZN           | 1    | -    |
| 19   | 39460    | Tube Grip                | 1    |      |          |                            |      |      |
| 20   | 34091    | Clamp Cable              | 1    |      |          |                            |      |      |

**REMARK:** \* Loctite Required  
 ^Lubricate Throttle

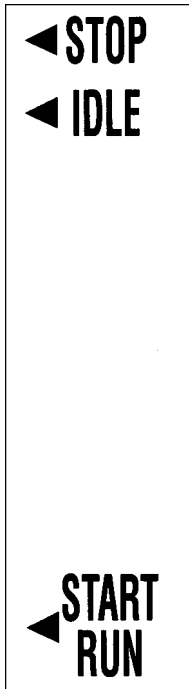
## 8.19 Shoes for XT/XN Oil Injected and Pre-Mix



## 8.19 Shoes for XT/XN Oil Injected and Pre-Mix

| Item | Part No. | Description                            | Qty. | Item | Part No. | Description | Qty. | DIN |
|------|----------|--|------|------|----------|-------------|------|-----|
| 1    | 22983    | Kit Shoe 11" Wide XT                   |      |      |          |             |      |     |
| 2    | 22984    | Kit Shoe Optional Shoe 15" Wide XT     |      |      |          |             |      |     |
| 3    | 22985    | Kit Shoe Optional 5" Wide XT           |      |      |          |             |      |     |
|      | 23145    | Kit Shoe 5" Wide XN                    |      |      |          |             |      |     |
|      | 23161    | Kit Shoe 6" Wide XN                    |      |      |          |             |      |     |
| 4    | 22986    | Kit Shoe Optional Extension 4" Wide XT |      |      |          |             |      |     |
|      | 23146    | Kit Shoe 4" Wide 10" Extension XN      |      |      |          |             |      |     |
|      | 23147    | Kit Shoe 5" Wide 15" Extension XN      |      |      |          |             |      |     |
| #    | 22987    | Kit Shoe Optional 4" Wide XT           |      |      |          |             |      |     |
| #    | 23244    | Kit Shoe Optional 5" Wide XJ           |      |      |          |             |      |     |

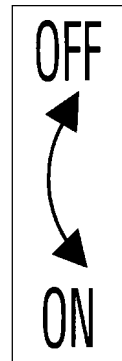
## 8.20 Decal Identification





55378  
Diesel



55379  
Robin



55322

|   |  |
|---|--|
| <b>CAUTION</b>  | <p><b>OPERATING INSTRUCTIONS</b></p> <p>Before starting, check oil level in oil tank. Fill with a quality grade two cycle oil.</p> <p>With engine off, fill fuel tank with regular grade gasoline.</p> <p>To start engine: Turn ignition/fuel switch to 'ON'; open air vent in fuel tank cap; close choke and pull starter rope.</p> <p>To stop: Turn ignition/fuel switch to 'OFF' and close fuel cap vent.</p> <p>See owners manual for additional instructions.</p> |
| <p> Hearing protection required when operating this machine.</p> <p> Read owners manual before operating or servicing this machine.</p> | <p>55336</p>   |

|   |                  |
|---|------------------|
| <p><b>AIR FILTER MAINTENANCE</b></p> <p>Daily clean filter located on top and the side of the engine.</p> <ul style="list-style-type: none"> <li>▪ Wash foam elements with detergent and water.</li> <li>▪ Dry the elements by squeezing between towels.</li> <li>▪ Relubricate with engine oil. Squeeze out excess oil and reinstall.</li> </ul> | <p>P/N 55337</p> |
|---|------------------|

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|--|
| <b>WARNING</b>   |
| <p>After servicing or repairing unit, make sure oil line is full or engine failure will occur.</p> |
| <p>55345</p>   |

## 8.20 Decal Identification

**CAUTION**

**FUEL OIL**

- USE DIESEL FUEL.
- CLEAN FILTER EVERY 500hrs.

**LUBE OIL**

- SAE 10W30 GRADE CC
- CHANGE LUBE OIL EVERY 100hrs.
- CLEAN FILTER EVERY 100hrs.

**STARTING**

- CHECK LUBE OIL LEVEL AND FUEL.
- FOR EASY STARTING IN COLD WEATHER, ADD 2cc LUBE OIL TO ROCKER ARM COVER.
- WARM UP WITHOUT LOAD.

**STOPPING**

- CLOSE FUEL COCK AFTER STOPPING ENGINE.

PN 55325 - Diesel

**HOW TO START**

1) Open the fuel cock

2) Put the Lever in the "START" position.

3) Pull the starting handle slowly.

4) Pull until you feel resistance. Then return it slowly.

5) Push the decompression lever down and release.

6) Pull the rope hard and fast.

If the engine doesn't start, try again from 3

PN55324 - Diesel

**NOTICE**

CONTACT THE MANUFACTURER IMMEDIATELY AT 1-800-888-9926 IF SAFETY OR HAZARD DECALS OR OWNER'S MANUAL ARE MISSING FROM THIS EQUIPMENT. 55156

**CHECK OIL DAILY**

USE 30 WT. MOTOR OIL

**OIL LEVEL**

**DO NOT OVERFILL**

PN 55053

**ON**

**OFF**

55377

**ON**

**OFF**

- Springs Under Compression
- May Cause Injury
- Consult Manual or Manufacturer Before Removing Plate.

1-800-888-9926 55026





**CALIFORNIA PROPOSITION 65 WARNING:  
Operation of this equipment and/or engine exhaust  
from this product contains chemicals known to the  
State of California to cause cancer, birth defects,  
or other reproductive harm.**



*Bred Tough. Technology Born to Work.  
The Way It Ought To Be.*

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