

**Gas / Petrol  
1-inch Impact Wrench  
910071**

**Operating and Maintenance Manual**



# Gas / Petrol 1-inch Impact Wrench 910071

## Record of Changes

No.	Date	Description of Changes
Rev 1	9.2018	Engineering Updates
Rev 2	10.2019	Add Parts List. Update Logo / Branding
Rev 2.1	9.2021	Updated parts list
Rev 2.2	1.2023	Update Layout and Format
Rev 2.3	3.2023	Update Footer and Contact Information Update Parts and Service page with contact information
Rev 2.4	9.2023	Update Technical Support & Service information
Rev 2.5	1.2024	Update Parts List – add RRP Part Numbers

## Table of Contents

Section 1: Overview and Safety .....	5
1-inch Gas/Petrol Impact Wrench Overview .....	5
Environmental Protection .....	5
Safety Information .....	6
Safety Terms .....	6
Machine Use and Safety Precautions .....	6
Operator Safety.....	6
Tool Safety .....	7
Section 2: Specifications and Installation.....	9
Section 3: Tool Operation .....	10
Personal Protective Equipment .....	10
Fuel.....	10
Engine Start Up .....	10
Operation.....	12
Stopping the Engine .....	13
Section 4: Maintenance.....	14
Air Filter .....	15
Carburetor Adjustment .....	15
Spark Plug Check Up .....	16
Fuel Filter.....	16
Muffler .....	17
Impact Mechanism .....	17
Storage .....	17
Troubleshooting .....	18
Section 5: Parts and Service Support .....	20
Recommended Spare Parts List .....	21
Engine Exploded Drawing .....	22
Engine Exploded Parts List .....	23
Engine Components Exploded Parts List.....	26
Recoil Started Exploded Parts List.....	28
Carburetor: Exploded Parts List .....	30
Impact Mechanism: Exploded Parts List .....	32
Handle Components: Exploded Parts List.....	35
Section 6: Warranty Terms and Conditions .....	36

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Inspection and Warranty Registration .....	37
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## Section 1: Overview and Safety

### 1-inch Gas/Petrol Impact Wrench Overview

RRP designs and manufactures equipment primarily for the repair and new construction of rail and railroad tie track maintenance.

The 1-inch Gas/Petrol Impact Wrench is well balanced for either horizontal or vertical use. The roll bar doubles as handholds with vibration dampening rubber grips. The large front handle easily accommodates gloved hands.

- The Impact Wrench engine incorporates a unique design for maximum performance as opposed to the competition's chain saw engine.
- Can be used to drill lag screw holes for tie plate applications with optional auger adapter.
- Roll Bar protects engine components and fuel tank. The throttle trigger and shut off switch are fully enclosed inside roll bar for further protection.
- Weighing 43 lbs (20 kg), the powerful 46.5 cc (43x32 mm) engine with variable throttle control produces a torque fastening up to 1255 ft-lbs (1700 Nm).

**Do not** use this machine for other than its intended purpose.

Please read these instructions when using this tool, which can only be used for the specified purpose. Failure to do so could result in personal injury or equipment damage. This instruction manual should be kept throughout the life of the tool.

Note: Information in this document is subject to change without notice.

The operator of this tool should:

- Have access to this operation instruction.
- Read and understand this operation instruction.

### Environmental Protection



Comply with relevant national waste disposal laws and regulations. Waste electronic devices cannot be treated as household waste.

Equipment, accessories, and packaging shall be recyclable.



Don't throw the discarded equipment in trash cans.

## Safety Information

For safe installation and operation of this equipment, carefully read and understand the contents of this manual. Improper operation, handling, or maintenance can result in equipment damage and personal injury.

Only trained and authorized personnel should be allowed to operate this machine. In addition, all personnel at the worksite should be aware of the safety concerns and their individual responsibilities prior to working with this machine.

Please read and comply with all the safety precautions in this manual **before** operating this machine. Your safety is at risk.

### Safety Terms



**DANGER** indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury will occur.



**WARNING** indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury could occur.



**CAUTION** indicates a potentially hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided moderate or minor injury could occur.

## Machine Use and Safety Precautions



**Failure to follow safety precautions when operating this equipment can result in serious injury or death to the operator or other persons in the area.** Observe the following precautions whenever you are operating, working on or near this equipment.

### Operator Safety

**Always** wear appropriate personal protective clothing when operating this equipment: e.g., Orange safety vest, hard hat, safety glasses with side shields, hearing protection, steel-toed safety boots, leather gloves, dust respirator, etc.

**Always** lift heavy objects with the knees and legs, not the arms and back.

**Always** keep hands, arms, feet, head, clothing, etc., out of the operating area and away from all rotating or moving components when operating, working on or near this machine.

**Always** operate the engine only in a well-ventilated area and make sure that the air filters, air filter covers, and muffler are in good condition.

**Do not** wear loose clothing, jewelry, radio belts, etc., when operating, working on or near this equipment. They can be caught in moving parts and may result in severe injury.

Inspect safety decals and replace when they become unreadable or are damaged.

**Always** comply with all instructions provided on any decals or placards installed on the machine and with any relevant amplifying information provided in this manual or other general operating procedures.

**Always** keep the machine clean and free of debris. Operate the machine in a safe and responsible manner. Exercise caution when fueling, working on or near rotating or moving components, hot components, and fuel systems. Be aware of potential fire hazards and prevent sparks, exhaust, etc., from starting fires on the machine and/or work area.

**Always** shut off the engine. Make sure that all controls are in a safe position and install all appropriate locking and safety devices before doing any of the following:

- Lubricating
- Adjusting
- Installing Tooling
- Making Repairs
- Performing Service

**Do not** grab or hold the unit by the rotating anvil.

Hold the handles firmly with both hands and make sure to stand on a firm base or ground.

**Do not** touch the spark plug or the high voltage cord during operation as it may cause electric shock.

To avoid burn do not touch places like the engine, muffler, or exhaust when it will get very hot during use and even after the engine stops. It takes time to cool down.

When operating for a long period of time, take a break time to time to avoid possible white finger disease which is caused by vibration.



**Antivibration systems do not guarantee that you will not sustain white finger disease or carpal tunnel syndrome.**

Therefore, continual, and regular users should monitor closely the condition of their hands and fingers. If any of the above symptoms appear, seek medical advice immediately.

## Tool Safety

**Always** comply with all Lock Out / Tag Out Procedures and other safety procedures established for the local work environment.

**Do not** make any modifications without authorization or written approval from Racine Railroad Products. Replace all Racine Railroad Products and OEM parts with genuine Racine Railroad Products and OEM parts. Using non-OEM parts may compromise the safety of the machine.

**Always** make sure that all guards, covers, belts, hoses, and operating components are in good working order and that all controls are in the appropriate position before starting the engine.

Inspect the entire tool before each use. Replace damage parts. Check for fuel leaks and make sure all fasteners are in place and securely fastened.

Replace parts that are cracked, chipped, or damaged in any way before using the tool.

Use only accessories recommended by Racine Railroad Products for this tool.

Disconnect the spark plug before performing maintenance except for carburetor adjustments.

Keep others away when making carburetor adjustments.

Use only genuine replacement parts as recommended by the manufacturer.

### **Fuel Safety**

Mix and pour fuel outdoors and where there is no sparks or flames.

Use an approved container for fuel.

Do not smoke or allow smoking near fuel or the tool or while using the tool.

When filling up with fuel, stop the engine and make sure the engine is cool and choose places where there are no flammables and there is well ventilation.

Wipe up all fuel spills before starting the engine.

Move at least 3-feet / 3-meters away from the fueling site before starting the engine.

Stop the engine before removing the fuel cap.

Empty the fuel tank before storing the tool. It is recommended that the fuel be emptied after each use. If fuel is left in the tank, store the tool so fuel will not leak.

Store fuel in area where fuel vapors cannot reach sparks or open flames from water heaters, electric motors or switches, furnaces, etc.

### **Transport and storage**

Carry the tool by hand with the engine stopped and the muffler away from your body.

Allow the engine to cool, empty the fuel tank, and secure the tool before storing or transporting in a vehicle.

Store the tool out of the reach of children.

Clean the unit carefully and store it in a dry place.

Make sure the engine switch is off when transporting or storing.



## Section 2: Specifications and Installation

### Engine

Type .....	Two Stroke, Forced, Air Cooled, Single Cylinder
Displacement .....	46.5 cc (43x32 mm) Inner bore size x stroke
Fuel Tank Capacity .....	.25 gal (1 liter)
Fuel Mixture Ratio .....	25:1 (fuel: 2 cycle oil)
Revolution (idling) .....	2700 rpm $\pm$ 250
Revolution (loaded, impact) .....	7120 rpm
Revolution (non-loaded, max) .....	9880 rpm
Maximum Output .....	7500 rpm (2.3 Ps)
Maximum Torque .....	5500 rpm (0.34 kg-m)
Compression Rate .....	7.1: 1

### Ignition

Type .....	Electronic
Spark Plug Type .....	NGK BPMR6A

### Carburetor

Type .....	Diaphragm
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### Impact

Square Drive Size .....	1" (25 mm)
Fastening Torque Range .....	Full Throttle: 1255 ft. lbf (1700 Nm) Half Throttle: 701 ft. lbf (950 Nm)
Free Speed .....	1200 rpm

### Noise (ISO 15744)

Idle .....	74.6 dBA (LpA)
Loaded .....	104 dBA (LpA)

### Capacity

Bolt Diameter .....	1 1/4" (32 mm)
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### Weight

Without fuel .....	without damper 42.99 lbs (19.5 kg) with damper 46.96 lbs (21.3 kg)
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### Overall Dimensions

	Without Damper	With Damper
Length .....	28" (680 mm)	28" (680 mm)
Height .....	13" (338 mm)	13.5" (346 mm)
Width .....	15" (390 mm)	15" (390 mm)

### Accessories

Hex Key Wrench .....	4 mm 1 pc. 5 mm 1 pc. 6 mm 1 pc.
Spark Plug Wrench .....	1 pc
Spanner .....	10-13 mm 1 pc.

## Section 3: Tool Operation

### Personal Protective Equipment



Before operating this machine, make sure that all general safety precautions are observed, and that proper personal protective clothing is worn as described below.

At a minimum, operators should wear the following Personal Protective Equipment:

1. Safety Glasses
2. Hearing Protection
3. Hard Hat
4. High Visibility Safety Vest
5. Leather Work Gloves
6. Steel Toed Safety Shoes

### Fuel

Use only quality two cycle oil with fuel at mixture ratio of 25:1.

- Fuel: Two cycle oil.

Never use fuel only as the engine will burn.

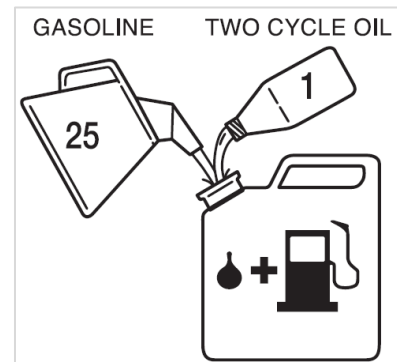


**Do not smoke and keep all other fire away from fuel tank during filling fuel as it causes fire or burn yourself.**

**Fill up fuel after well mixed fuel and oil in a separate clean container.**

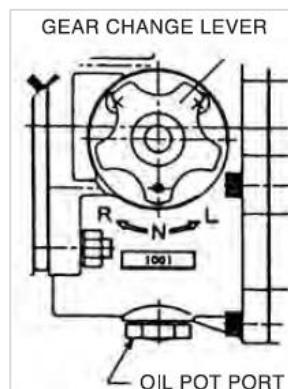


**Wipe up all fuel spills before starting engine.**

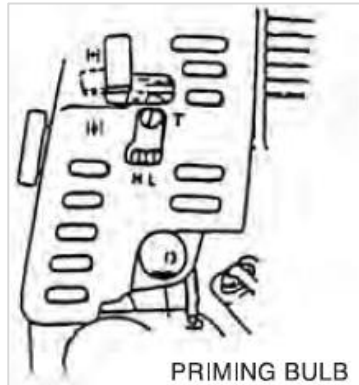


### Engine Start Up

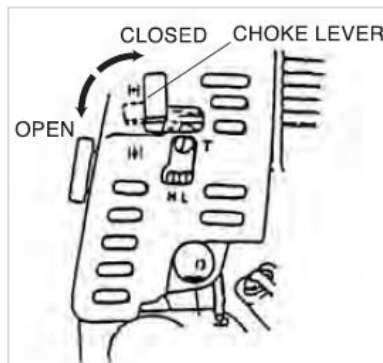
1. Place the tool on a firm stand or solid floor.
2. Set the gear change lever to neutral (N) position.



3. Press the priming bulb several times so that fuel flows through the bulb into the carburetor.

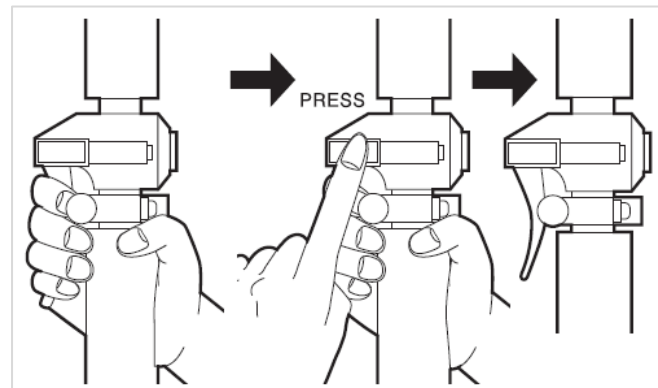


4. Turn the choke lever to a closed position.



5. Pull throttle lever and press the support button.

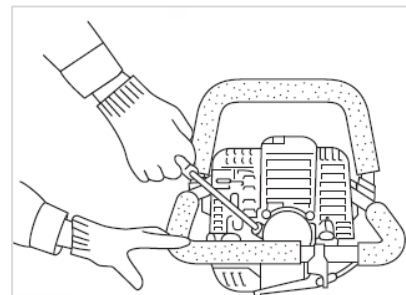
The throttle lever will stay in the half-throttle state and will not go back to the original location.



6. Pull recoil starter handle strongly, taking care to keep the handle in your grasp and not allow to withdraw rope until the end.



**Return recoil starter rope gently to its original position.**



7. After initial fires, the engine will continue to run, return choke lever slowly to open position.
  - If the engine will stop after a few fires, return the choke lever to the open position, and pull the recoil starter handle strongly again.
  - If the engine does not start, repeat the process from Step 4.
8. After starting the engine, return the throttle lever to idle position for slow engine. Allow the engine about 2-3 minutes to warm up before in use

**WARNING**

**Once starting the engine, do not leave the tool alone.** Always hold handle tightly so that tool will not move around on the stand or floor

Before and during operation, always take a firm stance and keep safety position from slipping or falling.

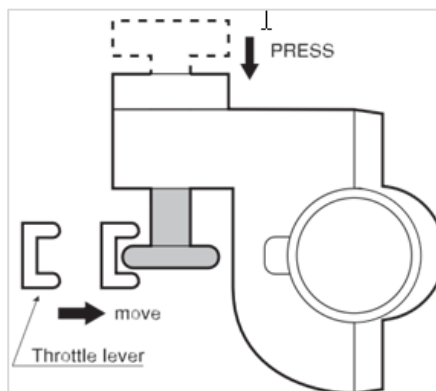
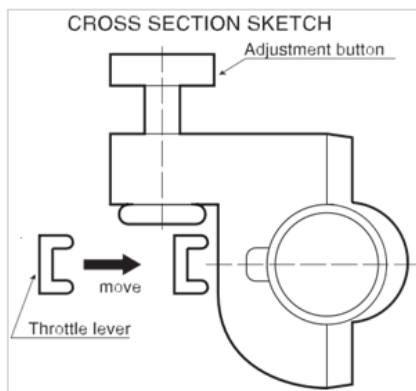
## Operation

1. Select **R for clockwise** direction or **L for counter-clockwise** direction for tightening or loosening the bolts and nuts.
2. Always release the throttle lever to allow for a slow engine for idling.  
Turn the gear change lever and do not change the gear with the engine is accelerating.
3. This model has the adjustment button to operate two different torque values

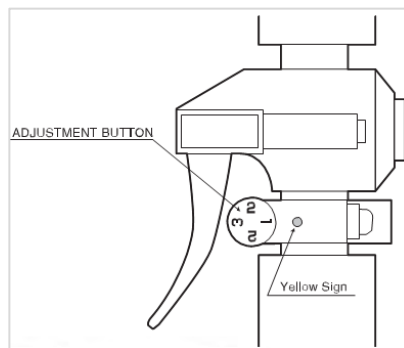
**Full throttle** (maximum torque) 1700 Nm

- Fully squeeze the throttle lever and the tool will run at maximum torque.

**Half throttle** (medium torque) about 950 Nm

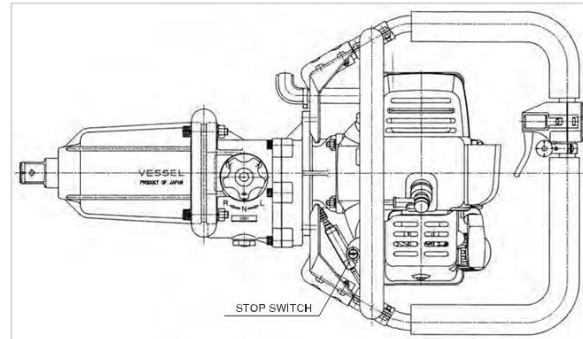


4. Press the adjustment button.
5. Squeeze the throttle level and the adjustment button will prevent the throttle lever from further movement.
6. Once the nuts and bolts are fastened, release the throttle lever for idling.



## Stopping the Engine

1. Release the throttle lever to decrease engine speed.
2. Push the stop switch to stop the engine.
3. Place the tool on a firm stand or solid floor and turn the lever to the N (neutral) position.



## Section 4: Maintenance

It is highly recommended to practice regular check-ups and maintenance in accordance with the usage frequency to keep your tool in better condition and reduces total running costs.



**Do not perform maintenance on the tool while the engine is running.**

### Engine Maintenance

Maintain the engine in accordance with the engine operator's manual.

### Storage Preparation

- Store all tools in an enclosed area to prevent weather from contaminating their systems.
- Store in the upright position. Secure tool to prevent it from being knocked over.
- Store the machine on a smooth level surface.
- The tool should be stored in a cool, dry environment which is not subjected to rapid temperature changes.

### Daily

- Wipe all tool surfaces, fittings, and couplings free of grease, dirt, and foreign materials.
- Inspect the tool, hoses, and fittings for signs of leaks, cracks, wear, and/or damage. Replace if necessary.
- Check that all nuts and screws are securely tightened.
- Check fuel level. Fill up with fresh fuel. Wipe up spills.
- Check the oil level of gear box through window. Oil level should be center of window. If it is lower. add oil.

### Weekly Maintenance

- Check the starter, especially the cord and return spring.
- Clean the exterior of the spark plug.
- Remove spark plug and check the electrode gap. Adjust it to 0.6 mm or change the spark plug.
- Clean the cooling fins on the cylinder.
- Check that the air intake at the starter is not clogged.
- Clean the air filter.

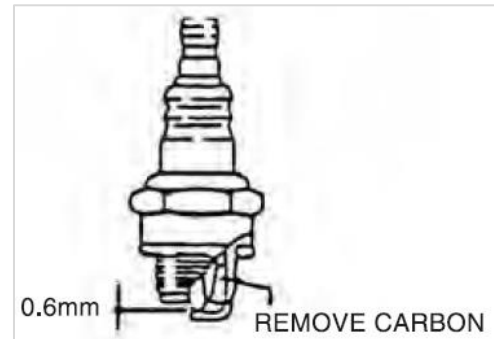
### Monthly Maintenance

- Clean the exterior of the carburetor and the space around it.
- Clean the fan and the space around it.

## Air Filter

When the air filter gets dirty and closed with dust, it can cause various issues:

- Carburetor malfunctions.
- Starting problems.
- Engine power reduction.
- Unnecessary wear on the engine parts.
- Abnormal fuel consumption.



## Cleaning the Air Filter

The air filter must be cleaned from dust and dirt regularly and the damaged filter must be replaced with a new one.

1. Remove the air filter cover and the filter.
2. Rinse it in warm soap suds and wring tight and dry it before re-assembly.
3. The damaged air filter must be replaced with a new one.

## Carburetor Adjustment

The carburetor on your unit has been factory adjusted but may require fine tuning due to a change in operating conditions. Adjustment is always required to make after tip sockets removed.

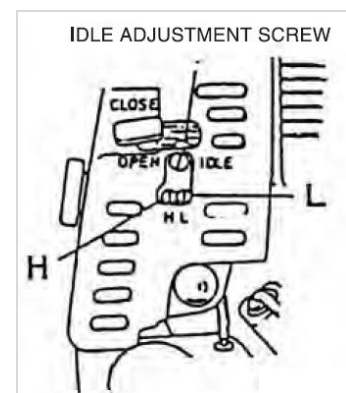
- Before adjusting the carburetor, make sure that the provided air/fuel filters are clean and fresh and the fuel properly mixed.
- Adjust after the engine has warmed up a few-minutes.

Use the idle adjustment screw to adjust to the correct speed.

- Turn to clockwise for higher idle
- Turn to counter-clockwise for lower idle.

How to adjust the L adjustment screw (lower speed fuel adjustment) and H adjustment (higher speed fuel adjustment)

1. In idle, turn L-adjustment screw to right or left to adjust for the peak of idle speed.
2. From this position, return the adjustment screw to the left 1/4 turn.
3. Full open the throttle lever and turn the H-adjustment screw to right or left and follow the same procedures as L-adjustment.



Carburetors are preset at the factory. Minor adjustments may optimize performance based on climate, altitude, etc.

Never turn the adjustment screws in increments greater than 90-degrees, as engine damage can result from incorrect adjustment. If you are not familiar with type of adjustment-assistance, ask your local distributor.

## Spark Plug Check Up

1. Remove the spark plug and touch it to a metal part *except* the spark plug mounting thread.

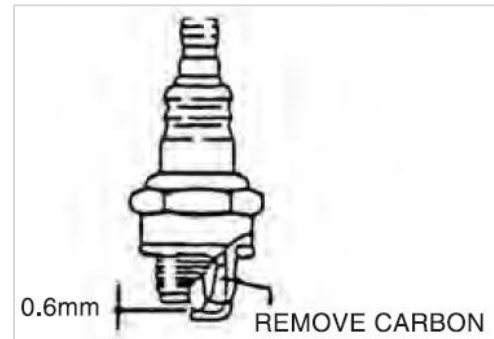
*Never touch spark plug to the area at spark plug mounting thread since remaining fuel might be exploded.*

2. Pull the recoil starter handle.

*When pulling the recoil starter handle, do not touch the metal part of spark plug or you will get electric shock.*

3. Clean up fuel around the place where spark plug to touch and make sure no fire possibility and check spark plug.

4. in normal conditions you will see a spark.



## Spark Plugs

Use the recommended type of spark plug.

In the best operation condition, electrodes on the spark plug show dark brown and keep dry.

If the spark plug is dirty, clean it and check the electrode gap. If readjustment is necessary, the correct gap is 0.6mm.

The spark plug condition is influenced by the following factors:

- An incorrect carburetor setting.
- Wrong fuel mixture (too much oil in the fuel).
- A dirty air filter.
- Hard running conditions (under cold weather operation).

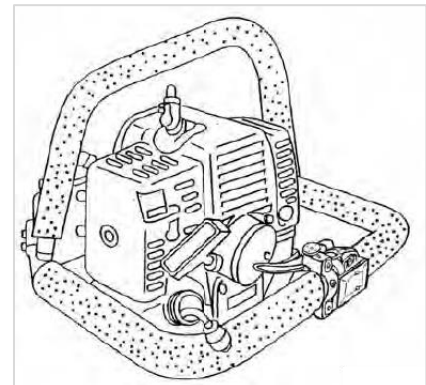
The spark plug should be replaced after about 100 operation hours or earlier if the electrodes are badly eroded.

## Fuel Filter

If the fuel filter is clogged with impurities in the fuel, fuel will not flow into carburetor, and it will make engine malfunction.

Regular check-up is recommended.

1. Drain all fuel from fuel tank and pull out the fuel filter line from tank.
2. Pull the filter element out of the holder assembly and rinse element in warm water with detergent.
3. Rinse thoroughly until all traces of detergent are eliminated.
4. Squeeze, but do not wring and keep dry.
5. If element is too dirty, replace it.

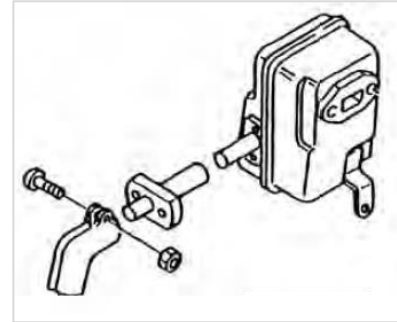




## Muffler

Engine power reduction may be caused by a lot of carbon accumulated around exhaust port on cylinder, muffler inlet or outlet in the long use. Regular clean-up is recommended.

1. Remove the muffler and clean up any excess carbon from the exhaust port or muffler inlet every 100 hours of operation.
2. When cleaning up, remove carbon carefully not to hurt piston, cylinder and do not let carbon into crank case.



## Impact Mechanism

When the contact places of the anvil and hammer become worn-out and dull by percussion, the tool will have reduced power. This will cause a longer percussion than normal condition, causing early damage and broken parts.

1. Empty all oil in the gear box and completely remove the hammer housing.
2. Check the degree of wear on the anvil and hammer at least once every month.
3. Apply grease around the contact areas.

## Storage

1. Clean each part and apply two cycle oil on the metal part to prevent corrosion.
2. If storing over three weeks:
  - Drain the fuel from the fuel tank.
  - Run the engine without load until the engine stops and exhaust all the remaining fuel in the carburetor.
3. Remove the spark plug and pour two-cycle oil into the cylinder and pull recoil starter handle several times to spread the oil.
4. Stop the recoil starter handle when you feel engagement.

Damaged parts should be repaired before storage.

5. Keep the tool out of dust, humidity, and temperatures below 32 °F (0 °C).
6. Store tool out of the reach of children.
7. Keep fuel in a safety container in a cool room or place with no flammable.

Do not use stale fuel. It causes engine troubles.

## Troubleshooting

Problem	Possible Cause	Remedy
<b>Engine does not start.</b>	<b>Fuel System</b>	
	Empty fuel or shortage.	Fill up fuel at mixture ratio 25 fuel: 1 two-cycle oil.
	Wet spark plugs due to too much intake of fuel.	<ol style="list-style-type: none"> <li>1. Remove spark plug.</li> <li>2. Exhaust exceeded fuel by pulling recoil starter handle 5-6 times.</li> <li>3. Install spark plug.</li> <li>4. Turn choke lever to open position and pull recoil starter handle.</li> </ol>
	Bent or disconnection of fuel pipe.	Repair.
	Poor function of carburetor.	Air leak from carburetor Incorrect carburetor adjustment Bad diaphragm in carburetor. Incorrect carburetor valve hinge height adjustment.
	<b>Electrical System</b>	
	Ignition stop switch in stop position.	Turn to the ON position.
	No spark.	<ol style="list-style-type: none"> <li>1. Bad connection/Ignition coil.</li> <li>2. Incorrect air gap/Ignition coil.</li> <li>3. Bad ignition coil.</li> </ol>
	Short circuit of stop switch lead wire.	Repair or replace.
	Dirty plug.	Clean up or replace.
	Wider spark plug gap.	Adjust correct gap to 0.6 mm.
	Poor connection of high voltage cord in ignition with spark plug.	Correct connection.
	Bad ignition coil.	Replace.
<b>Engine stalls soon after starting or stops.</b>	<b>Fuel System</b>	
	Shortage of fuel	Fill up fuel at correct mixture ratio 25 fuel: 1 two-cycle oil.
	Choke lever in closed position	Turn to open position.
	Air goes through to fuel system	Check if cracks are found on pipe or connector and pipe is securely fixed
	Poor function of carburetor.	Air leak from carburetor. Incorrect carburetor adjustment. Bad diaphragm in carburetor. Incorrect carburetor valve hinge height adjustment.

Problem	Possible Cause	Remedy
Engine stalls soon after starting or stops.	<b>Electrical System</b>	
	Bad spark plug.	Replace.
	Bad ignition coil.	Replace.
Engine Overheats.	Bad mixture ratio fuel.	Fill up fuel at correct mixture ratio 25 fuel: 1 two-cycle oil.
	Wrong selection of spark plug	Replace. Use recommended parts only.
	Clogged cylinder with dirt.	Clean up.
	Clogged cooling duct with dirt.	Clean up.
Anvil does not rotate.	Gear change lever in neutral position.	Turn to R clockwise direction. Or Turn to L counter- clockwise direction
	Worn out of drum shoe on clutch arm,	Replace.
Output power reduced.	Dirty air cleaner element.	Clean up.
	Carbon deposits in muffler, exhaust port on cylinder.	Clean up.
	Poor cylinder pressure due to worn out of piston, piston ring, cylinder.	Replace.
	Worn out anvil.	Replace.
	Worn out clutch.	Replace.
	Worn out cam plate.	Replace
	Worn out hammer.	Replace.
	Broken of return spring.	Replace.
	Carbon stuck on spark arrester.	Remove carbon on spark arrester.

## Section 5: Parts and Service Support

Telephone and web-based technical support is available for current production models through our Technical Service Department. Service Manuals and limited technical support may be available for models that are no longer in production.

### Telephone and E-mail Technical Support

Telephone and E-mail technical support is available on normal U.S. business days from 8:00 AM to 5:00 PM U.S. Central Time Zone (GMT +6 (+5 Daylight Savings Time)).



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Email: [info@racinerailroad.co.uk](mailto:info@racinerailroad.co.uk)  
[racinerailroad.co.uk](http://racinerailroad.co.uk)

### Non-Warranty Technical Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at the customer's expense*, to assist in the correction of non-warranty related problems. Contact our Customer Service Department to coordinate Non-Warranty Technical or Field Service Support.

### Warranty Support Technical Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Customer Service Department to coordinate Warranty Technical or Field Service Support.

### Warranty Parts Claims

Material claimed to be defective must be returned to our factory for evaluation. Defective materials will be replaced, or your account will be credited if replacement materials have already been purchased. Please contact our Customer Service Department at the address provided below if you have any questions or problems.

### Warranty Service Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Customer Service Department at the address provided above to coordinate Warranty Service Support.

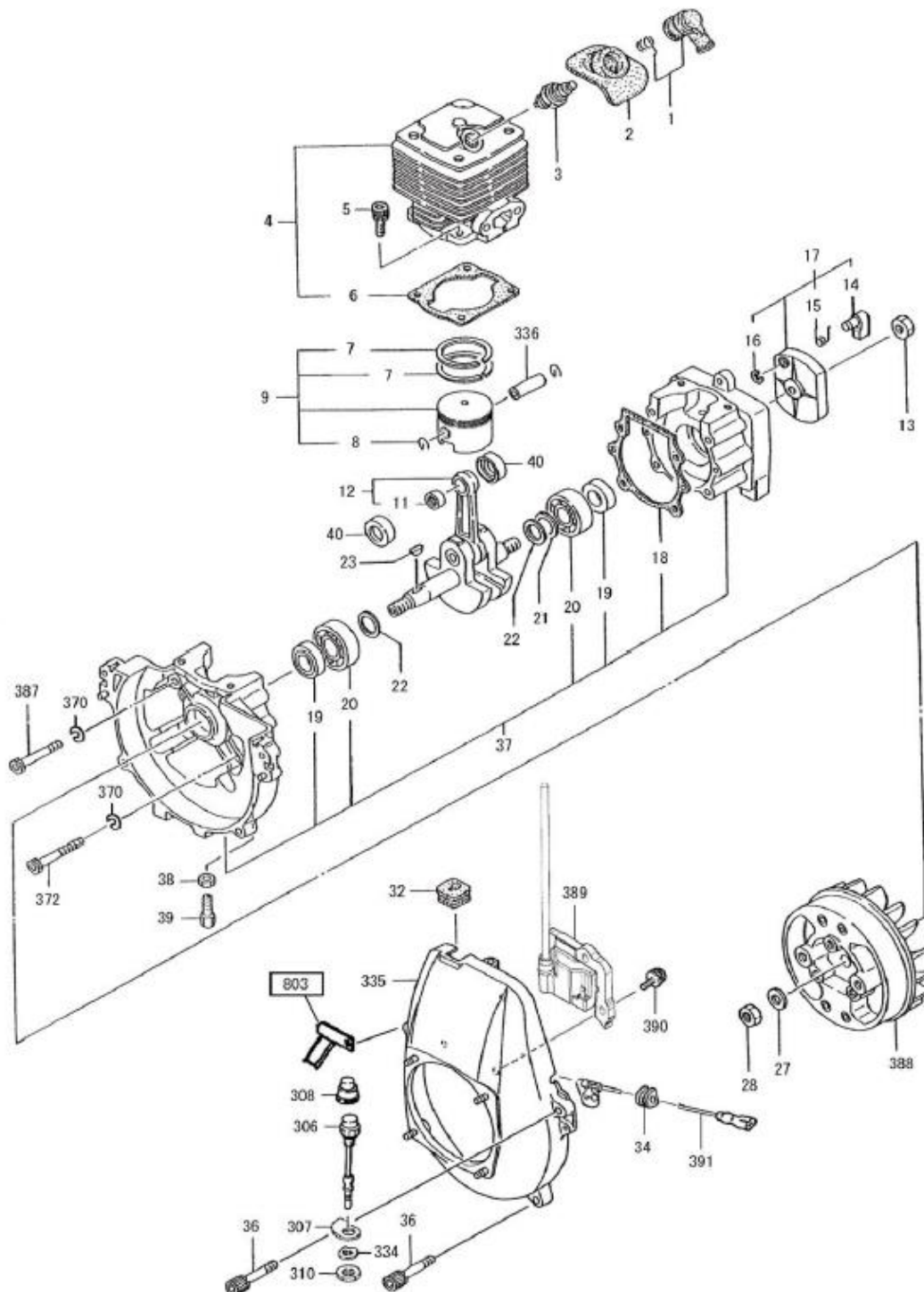
## Recommended Spare Parts List

Racine Railroad Products highly recommends having the following spare parts on hand in case the machine needs servicing.

Description	RRP Part Number
Anvil.....	464469
Case .....	713862
Cleaner Sponge .....	465546
Engine .....	465817
Ignition.....	464464
Ignitor .....	464465
Recoil .....	464466
Spark Plug.....	464804

## Engine Exploded Drawing

### ENGINE- EXPLODED DIAGRAM DRAWING



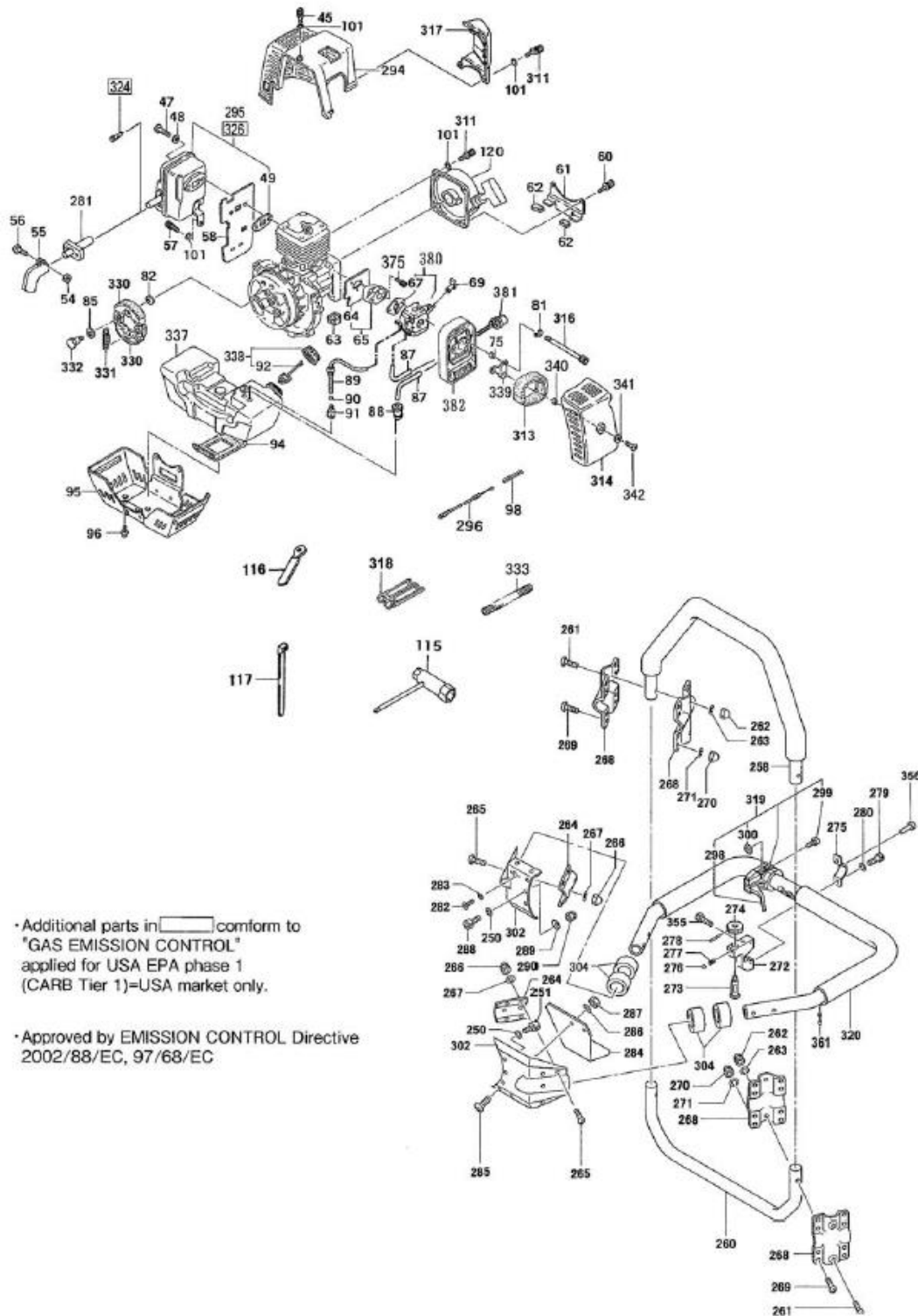
### Engine Exploded Parts List

Index NO	QTY	DESCRIPTION	RRP PART NO.
1	1	SPARK PLUG CAP ASS'Y	465426
2	1	SPARK PLUG RUBBER COVER	465427
3	1	SPARK PLUG BPMR6A	464804
4	1	CYLINDER SET (INDEX NO.4,6)	464462
5	4	HEX. HOLE BOLT M5x18/S	473434
6	1	CYLINDER GASKET	464667
7	2	PISTON RING	466029
8	2	PISTON PIN CIRCLIP	477190
9		PISTON SET (INDEX NO.7,8 AND 9)	464463
10			
11	1	NEEDLE BEARING, 1014125	465779
12	1	CRANKSHAFT COMPLETE	467803
13	1	SMALL NUT 10	466392
14	1	STARTER PAWL	466393
15	1	STARTER PAWL SPRING	477192
16	1	STOP RING E-5	471562
17	1	STARTER PULLEY (INDEX NO. 14,15, & 16)	464811
18	1	CRANK CASE GASKET	466884
19	2	OIL SEAL 15257	465780
20	2	BALL BEARING #6202 C3	470350
21	1	CRANK SHAFT SHIM 0.10	477197
21	1	CRANK SHAFT SHIM 0.20	477198
21	1	CRANK SHAFT SHIM 0.30	477199
22	2	CRANK SHAFT WASHER 0.5	477200
23	1	WOOD RUFF KEY 3x13X5	477201
27	1	SMALL WASHER 10	477202
28	1	NUT M10	477203
32	1	PRIMARY CORD GROMMET	470598
34	1	PRIMARY CORD GROMMET	470599
36	4	HEX. HOLE BOLT 6x20/S	501189
37	1	CRANK CASE ASS'Y (INDEX NO.18,19,20 AND37) NUT6	466728
38	1	NUT M6	477207
39	1	OUTER RECEIVER	465945
40	2	PISTON PIN COLLER	465785
		OIL, GEAR ISO 68	007017

Index NO	QTY	DESCRIPTION	RRP PART NO.
306	1	STOP SWITCH COMPLETE	465866: Includes complete set & #36 HEX. HOLE BOLT 6x20/S
307	1	RETAINER PLATE, STOP BUTTON	
308	1	RUBBER COVER, STOP BUTTON	
310	1	NUT, STOP BUTTON	477208
334	1	S. WASHER, 8	477142
335	1	FAN CASE COMPLETE	465758
336	1	PISTON PIN	465620
370	4	S. WASHER, 6	477211
372	2	HEX. HOLE BUTTON SCREW M6x35	477212
387	2	HEX. HOLE BUTTON SCREW M6x45	467530
388	1	MAGNET ROTOR COMPLETE	465628
389	1	IGNITION COIL ASS'Y	464464
390	3	HEX. HOLE BOLT M5X15/WS	477143
391	1	CORD B180M	466062
803	1	EXHAUST COVER (USA/EU MARKETS)	477216



ENGINE COMPONENTS - EXPLODED DIAGRAM DRAWING



### Engine Components Exploded Parts List

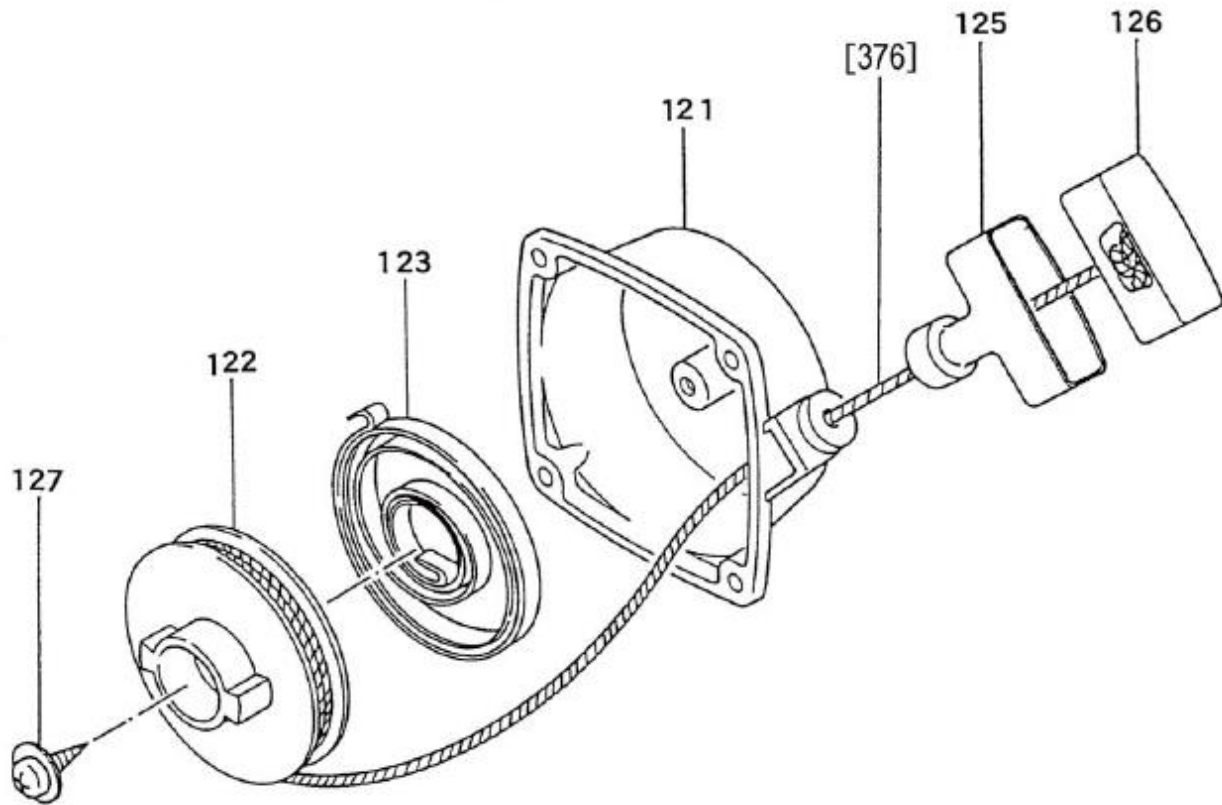
Index NO	QTY	DESCRIPTION	RRP PART NO.
45	1	HEX.HOLE BOLT 5x12S	466729
47	2	HEX.HOLE BUTTON SCREW 6x65	466373
48	2	WASHER 6	466885
49	1	MUFFLER GASKET	465517
54	1	U NUT 4	501005
55	1	TAIL PIPE COMPLETE	465319
56	1	SCREW 4x12	500026
57	1	HEX.HOLE BOLT 5x12S	466729
58	1	HEAT SHIELD	466732
60	2	HEX.HOLE BOLT 5x20PS	500515
61	1	TANK BRACKET	465172
62	2	FUEL TANK CUSHION RUBBER	465173
63	2	FUEL TANK CUSHION RUBBER	465106
64	1	INLET MANIFOLD GASKET	465619
65	1	CARB. INSULATOR SET (INDEX NO.64,65)	464692
67	1	CARBURETOR GASKET	465105
69	1	CHOKE LEVER 1565-30	465066
75	2	COLLAR 5.8	466709
81	2	S.WASHER 5	477219
82	2	CLUTCH WASHER B 1.6	465900
85	2	WAVE WASHER 10	465901
87	2	FUEL PIPE 2.5x4x90	466112
88	1	RETURN GROMMET	466620
89	1	FUEL PIPE ASS'Y 3x5x230	466726
90	1	CLIP, 6.3 DIA.	466727
91	1	PUMP FILTER BODY ASS'Y	464816
92	1	TANK CAP CHAIN	465755
94	1	CUSHION RUBBER	465174
95	1	TANK HOLDING METAL COMPLETE	465175
96	2	HEX.HOLE BOLT 1785x15WS	500518
98	1	ADJUST SPRING	465777

Index NO	QTY	DESCRIPTION	RRP PART NO.
274	1	BUTTON, ADJUSTMENT	468729
275	1	BRACKET, ADJUSTMENT	464829
276	1	BALL, ADJUSTMENT 4 IN DIA.	466069
277	1	SPRING, ADJUSTMENT S3.8x0.6	466070
278	1	FIXED PIN SP 2.5x16 FOR ADJUST BUTTON	467621
279	2	HEX. CAP BUTTON BOLT M5x12	467620
280	2	WASHER M5, SPRING	477233
281	1	BRACKET FOR TAIL PIPE	464830
282	2	HEX. CAP BUTTON BOLT M6x12	465356
283	2	WASHER 2H-M6, JAGGED SPRING	477234
284	1	COVER FOR WIRES	466195
285	2	HEX. CAP BUTTON BOLT M6x16	500066
286	2	WASHER M6, SPRING	501117
287	2	HEX NUT M6	501007
288	3	HEX. CAP THREAD-THROUGH BOLT M6x22	501184
289	3	WASHER 2H-M6, JAGGED SPRING	501117
290	3	HEX U-NUT M6	501078
294	1	MUFFLER PROTECTOR	465919
295	1	MUFFLER SET (INDEX NO.49,295)	466030
296	1	THROTTLE WIRE COMPLETE 300mm	464831
298	1	THROTTLE ARM	465826
299	1	5x20 SCREW	477235
300	1	SPECIAL NUT M5	468730
302	2	HANDLE BRACKET	465887
304	4	HANDLE BUMPER RUBBER	467202
311	2	HEX HOLE BOLT 5x30S	465784
313	1	CLEANER SPONGE	465546
314	1	CLEANER CAP	465346
316	2	HEX.HOLE BOLT 5x60	500517
317	1	AIR COVER	466730
318	1	CONNECTOR CASE	465629

Index NO	QTY	DESCRIPTION	RRP PART NO.
101	4	WASHER 5	501177
115	1	COMBI.BOX SPANNER 10x19, PLUS	470129
116	1	CORD CLAMP COMPLETE	466838
117	1	CORD CLAMP	477225
120	1	RECOIL STARTER BODY ASS'Y	464466
250	6	WASHER, SPRING M6	501117
251	3	HEX.CAP BOLT M6x12	500066
258	1	ANTI-VIBRATION SUPPORT HANDLE RUBBER COVERED	465918
260	1	PIPE FOR PROTECTING TANK	466174
261	4	HEX.CAP BUTTON BOLT M5x35	501186
262	4	HEX. U-NUT M5	501077
263	4	WASHER M5, SPRING	501116
264	2	PLATE FOR HANDLE	467212
265	8	HEX.CAP BUTTON BOLT M5x16	501187
266	8	HEX. U-NUT M5	477227
267	8	WASHER M5, SPRING	477228
268	4	BRACKET FOR SUPPORT HANDLE	467201
269	16	HEX.CAP BUTTON BOLT M5x14	501188
270	16	HEX. U-NUT M5	501077
271	16	WASHER M5, SPRING	501116
272	1	ADJUSTMENT BASE COMPLETE (INDEX NO. 272,273,274,276,277,278 AND 355)	464828
273	1	VALVE, ADJUSTMENT	466068

Index NO	QTY	DESCRIPTION	RRP PART NO.
319	1	THROTTLE LEVER ASS'Y (INDEX NO. 298,299,300 AND 319)	465676
320	1	HANDLE FRAME ASS'Y	466031
324	1	SPARK ARRESTER COMPLETE (USA/EU MARKETS)	467000
326	1	MUFFLER SET (USA/EU MARKETS)	477245
330	2	CLUTCH ARM COMPLETE	465902
331	1	CLUTCH SPRING	465903
332	2	CLUTCH STEP BOLT	465904
333	1	SPRIT PROTECTION TUBE 10x200L	466763
337	1	TANK, FUEL	464718
338	1	TANK CAP D-ASS'Y (INDEX NO.92,338)	464998
339	1	BLOW OVER CHECK BOARD	464813
340	1	COLLAR 10	466886
341	1	WASHER 1.6, BRAKE SHAKE	466887
342	1	BOLT, COVER FASTENING	465353
355	2	HEX. CAP BOLT M5x14	477247
356	1	RIVET	477248
361	1	THROTTLE WIRE COMPLETE 4T HEX.	477251
375	2	HOLE BOLT 5x20 PS CARBURETOR	477252
380	1	SET (USA/EU MARKETS) PRIMING	477253
381	1	PUMP COMPLETE PRIMING BODE	465170

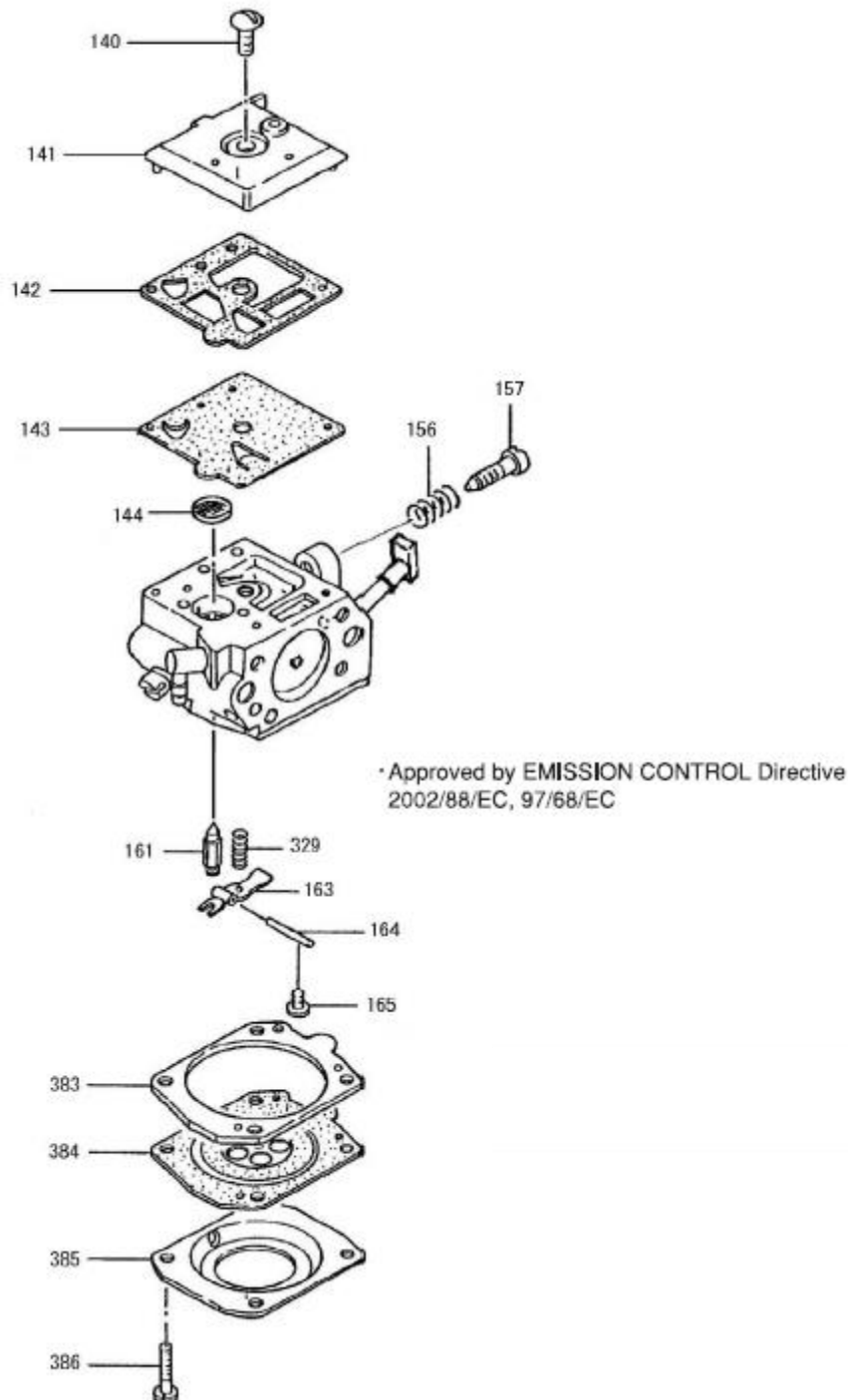
## RECOIL STARTER-EXPLODED DIAGRAM DRAWING & PARTS LIST



### Recoil Started Exploded Parts List

Index NO	QTY	DESCRIPTION	RRP PART NO.
	1	Complete Set: Includes all parts listed below	464466
121	1	RECOIL STARTER BODY Complete	466750
122	1	STARTER ROPE REEL	465677
123	1	RECOIL SPRING	466159
125	1	STARTER HANDLE CAP	477255
126	1	STARTER HANDLE	469684
127	1	SETSCREW	469081
376	1	STARTER ROPE	465834

CARBURETOR - EXPLODED DIAGRAM DRAWING & PARTS LIST

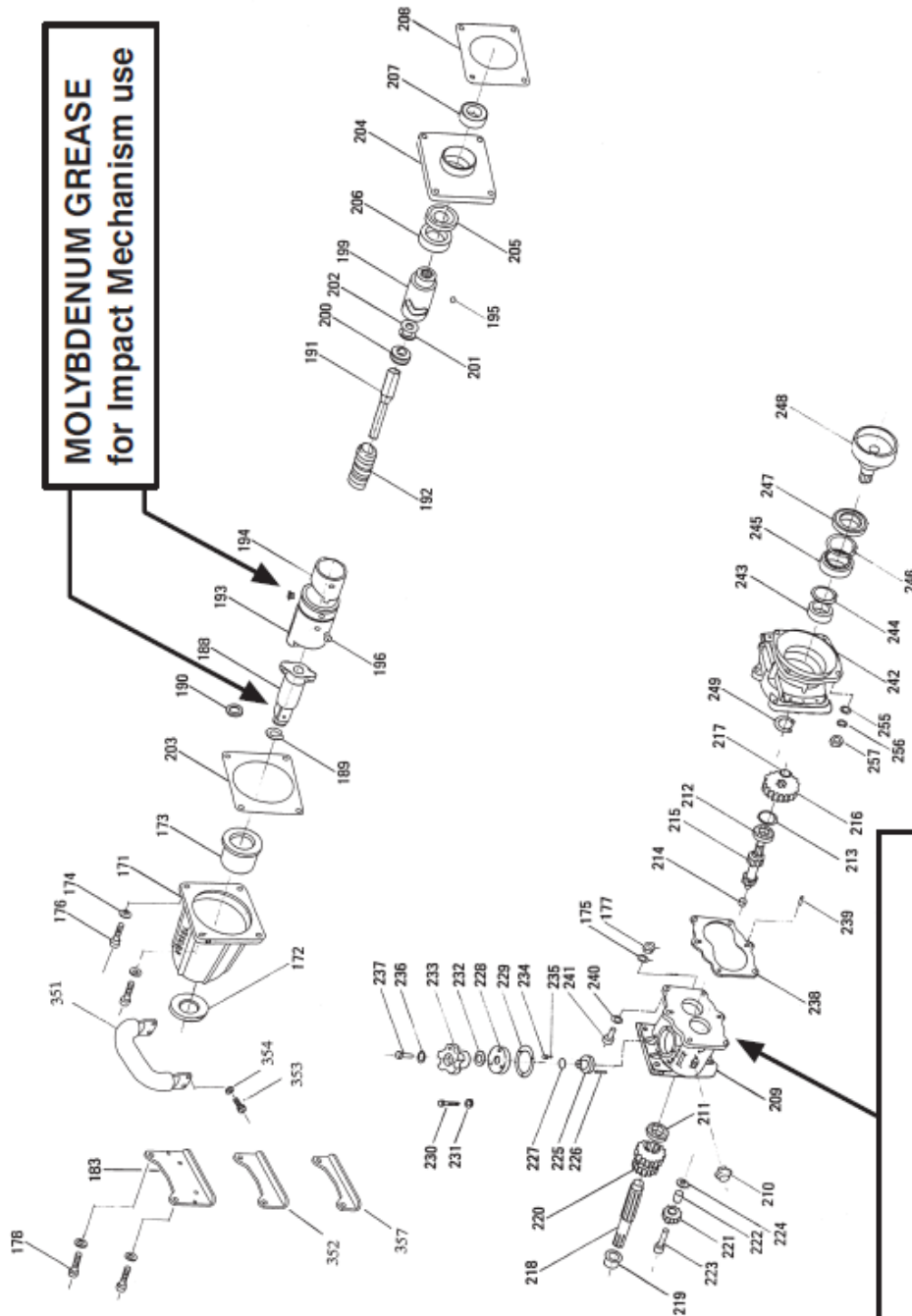


### Carburetor: Exploded Parts List

Index NO	QTY	DESCRIPTION	RRP PART NO.
140	1	SETSCREW	469081
141	1	PUMP BODY	477259
142	1	PUMP GASKET	464817
143	1	PUMP DIAPHRAGM	464818
144	1	INLET SCREEN	470100
156	1	IDLE ADJUST SPRING	477261
157	1	IDLE ADJUST SCREW	477262
161	1	NEEDLE VALVE	467321
163	1	CONTROL LEVER	467323
164	1	HINGE PIN	470128
165	1	HINGE PIN SET SCREW	477266
329	1	VALVE SPRING (USA/EU MARKETS)	467322
383	1	DIAPHRAGM GASKET	464819
384	1	MATERING DIAPHRAGM COMPLETE	464820
385	1	DIAPHRAGM COVER	477268
386	4	SETSCREW	469081
Not shown	1	SHUTTER SCREW	465884
Not shown	1	STEEL BALL	465351
Not shown	1	CHOKE VLAVE	465885
Not shown	1	CHOKE SHAFT	465350

# without Damper Unit

## IMPACT MECHANISM-EXPLODED DIAGRAM DRAWING



**MOLYBDENUM GREASE**  
for Impact Mechanism use

### GEAR OIL

The gearbox will take about 250 cc.  
APOLO OIL GEAR AP or equivalent for Automobile Gearbox.  
Make sure oil level is center or more of window.  
Sight of glass with Wrench in horizontal position.  
Refilling should be at every 3 months or at 10 hour operation.  
Depending on environment, it will be quite often as it gets dirty soon.



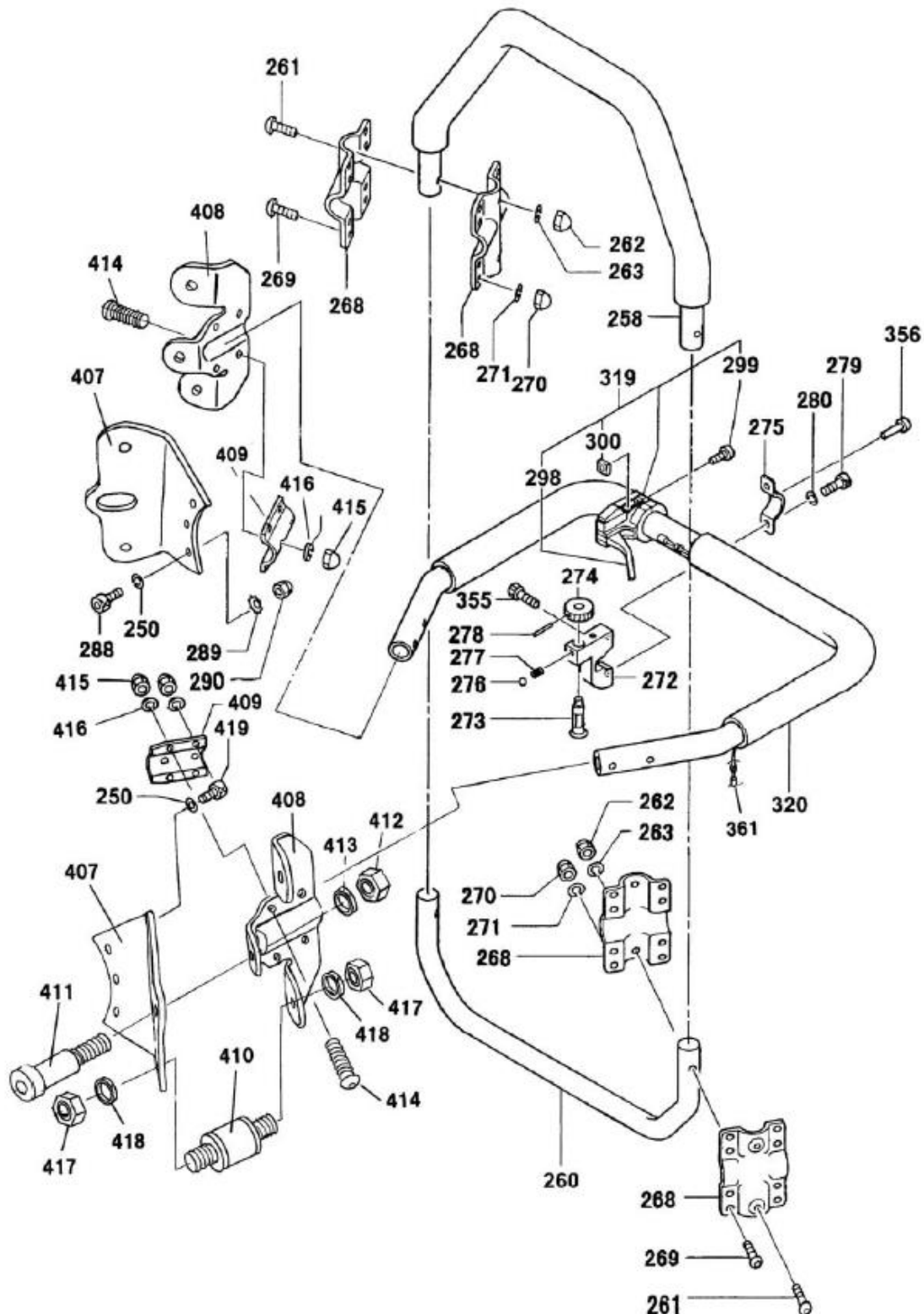
### Impact Mechanism: Exploded Parts List

Index NO	QTY	DESCRIPTION	RRP PART NO.
171	1	HAMMER HOUSING COMPLETE (INDEX NO.171, 172 and 173)	464821
172	1	OIL SEAL VB35505	465321
173	1	BUSHING, PRESS-IN TO INDEX NO.171	465322
174	4	WASHER 2H-M8, JAGGED SPRING	464822
175	3	WASHER M8, SPRING	501119
176	3	HEX. CAP BOLT M8X45	500554
177	3	U-NUT M8, HAMMER HOUSING	477270
178	1	HEX. CAP BOLT M8X50	500119
183	1	FOOT REST LONG	465352
188	1	ANVIL COMPLETE (INDEX NO.188,189 and 190)	464469
189	1	RING, RETAINER	466882
190	1	O-RING P18, RETAINER RING	466883
191	1	CENTRAL SHAFT	464823
192	1	SPRING, RETURN	464824
193	1	HAMMER COMPLETE (INDEX NO.193,194, and 196)	464470
194	1	CAM PLATE	473576
195	2	BALL, ROLLER 13/32 DIA.	464825
196	4	PLUG	465309
199	2	CLUTCH	464826
200	1	BEARING NSK51104, THRUST	464827
201	1	SPACER	465310
202	1	THRUST	465311
203	1	GASKET, HAMMER HOUSING	465290
204	1	RING FLANGE COMPLEIE [INDEX NO.204,205,206 and 207)	477272
205	1	OIL SEAL SC30527	465905
206	1	BEARING 6007VV, BALL	466053
207	1	BEARING 6006, BALL	466054
208	1	GASKET, RING FLANGE	465291
209	1	GEAR CASE COMP.(INDEX NO..209,210,211 and 214)	477274
210	1	OIL POT PORT PF3/8-19	465176
211	1	BEARING 16004, BALL	477275
212	1	BEARING 16003, BALL	477277
213	1	SNAP RING IRTW-35	477278
214	1	BUSHING, SELECTOR SHAFT	467122
215	1	SHAFT, SELECTOR	467126
216	1	GEAR	477280
217	1	SNAP RING STW-16	477281
218	1	SHAFT, BEARING COMPLETE (INDEX NO.218 AND 219)	477282
219	1	BUSHING, BEARING SHAFT	477284



Index NO	QTY	DESCRIPTION	RRP PART NO.
220	1	GEAR CLUSTER	473339
221	1	PLANETARYGEAR COMPLETE (INDEX NO.221 AND 222)	473340
222	1	BUSHING, PLANETARY GEAR	477287
223	1	PLANETARY PIVOT	477288
224	1	PLANETARY SPACER	477289
225	1	GEAR Selector COMPLETE (INDEX NO.225 and 226)	466723
226	1	SPIRAL PIN 5 IN DIA.X26, GEAR SELECTOR	477290
227	1	O-RING N14, GEAR SELECTOR	477291
228	1	GEAR FLANGE	477292
229	1	PACKING, GEAR FLANGE	465906
230	3	HEX. CAP BOLT M5X10	477293
231	3	WASHER 2L-M5, JAGGED SPRING	477294
232	1	WASHER WW-16, SPRING	477295
233	1	LEVER, GEAR CHANGE	477296
234	1	RETAINER SPRING S3. Bx7x0.6x6	465354
235	1	STEEL BALL DIA.4	465355
236	1	WASHER M6, SPRING	501117
237	1	HEX. CAP BOLT M6X20	477297
238	1	GASKET, GEAR CASE	465907
239	2	PIN 4 IN DIA. X13.B	477298
240	6	WASHER 2H-M6, JAGGED SPRING	466403
241	6	HEX. CAP BOLT M6X25	501184
242	1	CWTCH SUPPORT FLANGE COMPLETE (INDEX NO.242,243,244,245,246 and 247)	466774
243	1	BEARING 16005, BALL	470216
244	1	SNAP RING IRTW-47	477300
245	1	BEARING 6907, BALL	468858
246	1	SNAP RING IRTW-55	491839
247	1	OIL SEAL SC3555B	465909
248	1	CLUTCH RING SNAP	465865
249	1	RING STW-25	477302
255	4	WASHER 2H-M6, JAGGED SPRING	466403
256	4	SPRING WASHER M6	5011117
257	4	HEX. NUT M6	501007
351	1	D HANDLE ANTI-VIBRATION RUBBER COVERED	466731
352	1	FOOT REST SHORT 22mm	468522
353	4	HEX, CAP BUTTON BOLT M6X16	500380
354	4	WASHER 2H-M6, JAGGED SPRING	477304
355	1	FOOT REST SHORT 15mm	465314

HANDLE COMPONENTS - EXPLODED DIAGRAM DRAWING



### Handle Components: Exploded Parts List

Index NO	QTY	DESCRIPTION	RRP PART NO.
		HANDLE ASSEMBLY (INDEX NO. 401 – 419))	466395
400	1	BRACKET, VIBRATION DAMPER D-HANDLE	477305
401	1	BASE RETAINER, VIBRATION DAMPER D-HANDLE	475024
402	4	HEX. U NUT M6	477307
403	3	RUBBER, VIBRATION DAMPER VK25CR (BOLT EXPOSED 12mm)	477308
404	3	BUTTON BOLT, HEX CAPPED M6x12	477309
405	3	HEX. U NUT M6	477311
406	6	SPRING WASHER M6	4773012
407	2	BASE RETAINER, VIBRATION DAMPER	477314
408	2	HANDLE BRACKET, VIBRATION DAMPER	477315
409	2	BRACKET, VIBRATION DAMPER HANDLE	475023
410	4	RUBBER, VIBRATION DAMPER VK35CR (35H HARDNESS/ 45mm BOLT)	477318
411	2	SHOULDER BOLT, HEX CAP 12X16 M10	477319
412	2	HEX. U NUT M10	501176
413	2	SPRING WASHER M10	477321
414	8	BUTTON BOLT, HEX CAPPED M6x12	477322
415	8	HEX. U NUT M6	477323
416	8	SPRING WASHER M6	477324
417	8	HEX. U NUT M8	477325
418	8	SPRING WASHER M8	477326
419	3	HEX. CAP BOLT M6x16	477327

## Section 6: Warranty Terms and Conditions

### Warranty Period

Each new machine and new parts of our manufacture are warranted against defects in material and workmanship for one year from the date of shipment from our factory.

When contacting customer service for factory parts, service or warranty support please provide the:

- Racine Railroad Products Model
- Serial Number
- Any locally assigned identification

### Vendor Parts Warranty Period

Other equipment and parts used, but not manufactured by Racine Railroad Products, Inc., are covered directly by the manufacturer's warranty for their products.

### Warranty Parts and Service

We will repair or replace, without charge, F.O.B. factory, Racine, Wisconsin, USA, any part Racine Railroad Products manufactures which is proven to be defective during the warranty period.

Material claimed defective must be returned, if requested, to the factory within 30 days from the date of the claim for replacement. Ordinary wear and tear, abuse, misuse, and neglect are not covered by this warranty. Depending upon the circumstances, we may provide technical assistance and/or technical service support, without charge, to assist in the correction of warranty related problems.

### Non-Warranty Parts and Service

Material damaged through normal wear and tear, abuse, misuse and/or neglect are not covered by our warranty and should be ordered directly from our Customer Service.

**Note:** Parts for models that are no longer in production may not be available.

### Non-Warranty Parts Orders

When placing a parts order please provide the following information:

- Company Name and Billing Address
- Purchase Order Number and Issuing Authority
- Shipping Address
- Special Handling Instructions
- Contact Phone Number
- Machine Model and Serial Number
- Part Numbers and Quantities Being Ordered

**Note:** *Please use Racine Railroad Products part numbers when ordering parts.* Racine Railroad Products part numbers are shown in the parts lists and drawings of this manual and have only six (6) numbers.

Any part number with other than six numbers (e.g., contains alpha-numeric characters) is a Vendor Part Number and **not** a Racine Railroad Products part number.

**Unauthorized Modifications and Parts**

Racine Railroad Products is not responsible for any modifications made without authorization or written approval. Replace all Racine Railroad Products and OEM parts with genuine Racine Railroad Products and OEM parts. Using non-OEM parts may compromise the safety of the machine.

**Inspection and Warranty Registration**

The warranty period begins on the date of shipment from our factory. Upon delivery by the carrier, inspect the machine and shipping materials for damage. Make sure that all items indicated on the packing list have been received. Address items lost or damaged in shipment with the freight carrier.

**Removing Packing Materials / Delivery Inspection**

Remove the packing materials and inventory the contents of the packing list. Make sure that the Operating and Service Manuals, tool kits and any other materials sent with the machine are in good condition.