

# OPERATION AND PARTS MANUAL



*Mikasa* **SERIES**  
**MODEL MT85HS**  
**TAMPING RAMMER**  
**(ROBIN EC12HS GASOLINE ENGINE)**

Revision #9 (01/16/12)

To find the latest revision of this  
publication, visit our website at:  
[www.multiquip.com](http://www.multiquip.com)





# WARNING



### **CALIFORNIA — Proposition 65 Warning**

Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



# TABLE OF CONTENTS

## MT85HS Rammer

Proposition 65 Warning .....	2
Table Of Contents .....	4
Parts Ordering Procedures .....	5
Safety Information .....	6-9
General Information .....	10
Specifications .....	11
Components .....	12
Operation .....	13-15
Maintenance .....	16-17
Troubleshooting .....	18-19
Explanation Of Codes In Remarks Column .....	20
Suggested Spare Parts .....	21

## Robin EC12HS Engine

Crankcase and Cylinder Assembly .....	32-33
Crankshaft and Piston Assembly .....	34-35
Governor Assembly .....	36-37
Muffler & Air Cleaner Assembly .....	38-39
Carburetor and Oil Pump Assembly .....	40-41
Recoil Starter and Blower Assembly .....	42-43
Magneto Assembly .....	44-45
Loose Parts Assembly .....	46-47

Terms and Condition of Sale — Parts .....	48
---	----

## Component Drawings

Name Plate and Decals .....	22-23
Crankcase and Engine Assembly .....	24-25
Cylinder Guide and Foot Assembly .....	26-27
Tank and Handle Assembly .....	28-31

### NOTICE

*Specification and part number are subject to change without notice.*

# PARTS ORDERING PROCEDURES

## Ordering parts has never been easier! Choose from three easy options:

Effective:  
January 1<sup>st</sup>, 2006

www.multiquip.com



### Order via Internet (Dealers Only):

Order parts on-line using Multiquip's SmartEquip website!

- View Parts Diagrams
- Order Parts
- Print Specification Information



If you have an MQ Account, to obtain a Username and Password, E-mail us at: [parts@multiquip.com](mailto:parts@multiquip.com).

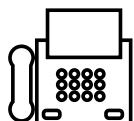
To obtain an MQ Account, contact your District Sales Manager for more information.

Goto [www.multiquip.com](http://www.multiquip.com) and click on

**Order Parts** to log in and save!

Use the **internet** and qualify for a **5% Discount** on *Standard orders* for all orders which include complete part numbers.\*

Note: Discounts Are Subject To Change



### Order via Fax (Dealers Only):

All customers are welcome to order parts via Fax.

**Domestic (US) Customers dial:**  
1-800-6-PARTS-7 (800-672-7877)

**Fax** your order in and qualify for a **2% Discount** on *Standard orders* for all orders which include complete part numbers.\*

Note: Discounts Are Subject To Change



**Order via Phone: Domestic (US) Dealers Call:**  
1-800-427-1244

### Non-Dealer Customers:

Contact your local Multiquip Dealer for parts or call 800-427-1244 for help in locating a dealer near you.



**International Customers** should contact their local Multiquip Representatives for Parts Ordering information.

## When ordering parts, please supply:

- |   |  |
|---|--|
| <input type="checkbox"/> Dealer Account Number                                | <input type="checkbox"/> Specify Preferred Method of Shipment:                         |
| <input type="checkbox"/> Dealer Name and Address                              | <input checked="" type="checkbox"/> UPS/Fed Ex <input checked="" type="checkbox"/> DHL |
| <input type="checkbox"/> Shipping Address (if different than billing address) | <input type="checkbox"/> Priority One <input checked="" type="checkbox"/> Truck        |
| <input type="checkbox"/> Return Fax Number                                    | <input type="checkbox"/> Ground  |
| <input type="checkbox"/> Applicable Model Number                              | <input type="checkbox"/> Next Day  |
| <input type="checkbox"/> Quantity, Part Number and Description of Each Part   | <input type="checkbox"/> Second/Third Day  |

### NOTICE

All orders are treated as *Standard Orders* and will ship the same day if received prior to 3PM PST.

WE ACCEPT ALL MAJOR CREDIT CARDS!



# SAFETY INFORMATION


Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.




## SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: **DANGER**, **WARNING**, **CAUTION** or **NOTICE**.


## SAFETY SYMBOLS

 **DANGER**

Indicates a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY**.

 **WARNING**

Indicates a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY**.







 **CAUTION**

Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY**.

**NOTICE**

Addresses practices not related to personal injury.

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety messages.

Symbol	Safety Hazard
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazards
	Respiratory hazards
	Accidental starting hazards
	Eye and hearing hazards

# SAFETY INFORMATION

## GENERAL SAFETY

### CAUTION

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.



- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.



- **NEVER** operate this equipment under the influence of drugs or alcohol.



- **ALWAYS** check the equipment for loosened threads or bolts before starting.
- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

### NOTICE

- This equipment should only be operated by trained and qualified personnel 18 years of age and older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

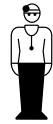
- **ALWAYS** know the location of the nearest fire extinguisher.



- **ALWAYS** know the location of the nearest first aid kit.



- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site**. Also, know the phone numbers of the nearest **ambulance, doctor and fire department**. This information will be invaluable in the case of an emergency.



## RAMMER SAFETY

### DANGER

- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death**.



### WARNING

- **NEVER** disconnect any **emergency or safety devices**. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.
- **DO NOT** use this machine on ground that is harder than the machine can handle, or for driving pilings or tamping rock beds. Furthermore, use of the machine on sloping ground, such as the side of an embankment, may make the machine unstable and can cause an accident. It can also result in premature machine wear due to uneven loads on the machine.

Use the machine with confidence for tamping earth and sand, soil, gravel, and asphalt. **DO NOT** use the machine for other types of jobs.

### CAUTION

- **NEVER** lubricate components or attempt service on a running machine.

### NOTICE

- **ALWAYS** keep the machine in proper running condition.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.

# SAFETY INFORMATION

## ENGINE SAFETY

### DANGER

- The engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- The engine of this equipment requires an adequate free flow of cooling air. **NEVER** operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine.



### WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the rammer.



### CAUTION

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



### NOTICE

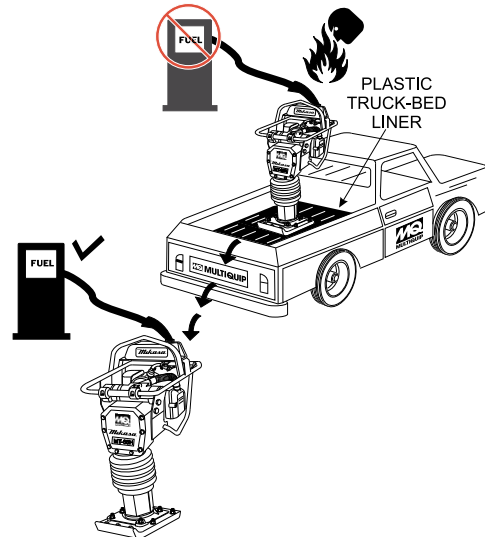
- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.



## FUEL SAFETY

### DANGER

- **DO NOT** add fuel to equipment if it is placed inside truck bed with plastic liner. Possibility exists of explosion or fire due to static electricity.



- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** liquids.
- **DO NOT** fill the fuel tank while the engine is running or hot.
- **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system.
- Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine.





## TRANSPORTING SAFETY

### CAUTION


- NEVER allow any person or animal to stand underneath the equipment while lifting.

### NOTICE

- Before lifting, make sure that the equipment parts (hook and vibration insulator) are not damaged and screws are not loose or missing.
- Always make sure crane or lifting device has been properly secured to the lifting bail (hook) of the equipment.
- **ALWAYS** shutdown engine before transporting.
- **NEVER** lift the equipment while the engine is running.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Use adequate lifting cable (wire or rope) of sufficient strength.
- Use one point suspension hook and lift straight upwards.
- **DO NOT** lift machine to unnecessary heights.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.
- Never allow any person or animal to stand underneath the equipment while lifting.

## ENVIRONMENTAL SAFETY

### NOTICE

- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters. 
- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.

## Definition of Tamping Rammer

The Mikasa MT-85HS Tamping Rammer is a powerful compacting tool capable of applying a tremendous force in consecutive impacts to a soil surface. Its applications include soil compacting for backfilling for gas pipelines, water pipelines and cable installation work.

The impact force of the MT-85HS levels and uniformly compacts voids between soil particles to increase dry density.

Circular motion is converted to create impact force. The MT-85HS tamping rammer develops a powerful compacting force at the foot of the rammer. To maintain optimum performance, proper operation and service are essential.

## Construction of Tamping Rammer

The Mikasa MT-85HS is equipped with an Robin air cooled, oil-injected two cycle gasoline engine. Transmission of the power takes place by increasing the engine speed to engage the centrifugal clutch.

## Rammer Gearbox and Spring Cylinder

The Mikasa MT-85HS uses an oil bath lubrication system. Always check the oil level through the oil level sight glass at the rear of the tamper foot.

## Controls

Before starting the MT-85HS Tamping Rammer identify and understand the function of the controls, see Figure 1.

**Table 1. MT-85HS Rammer Specifications**

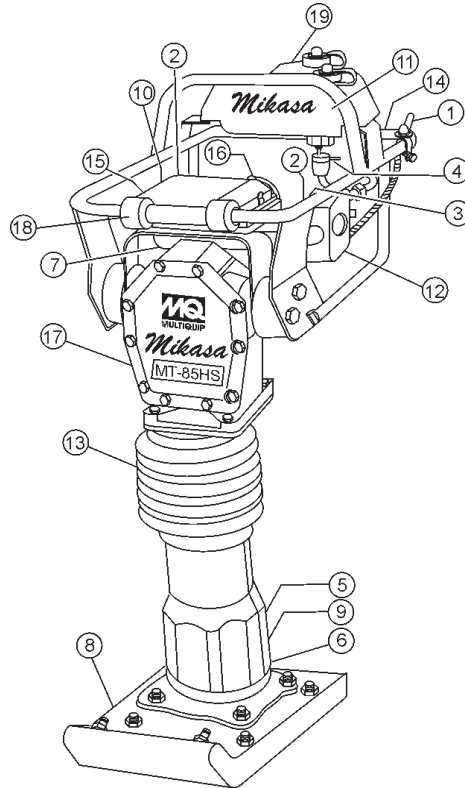
MODEL	MT-85HS U.S. (metric)
Overall Height	41.1 in. (1,045 mm)
Overall Width	16.1 in. (410 mm)
Over Length	29.9 in. (760 mm)
Shoe Size	13.0 X 13.4 in. (330 X 340 mm)
Blows/minute	690
Impact Force	4410 lbs./blow (2000 kg/blow)
Clutch	Automatic Centrifugal
Operating Weight	174 lbs. (79 kg)

**Table 2. ROBIN EC-12HS Engine Specifications**

MODEL	ROBIN EC-12HS ENGINE
Type	Air-Cooled 2 Stroke Gasoline Engine
Piston Displacement	6.96 cu.in. (114 cc)
Max. Output	4.3 hp/5,000 rpm
Max. Governed Speed, No Load	3,850 rpm
Cooling System	Air-Cooled By Fan
Lubrication System	Fuel-Lubrication Oil Spraying System
Fuel	Gasoline and 2-Stroke oil
Starting System	Recoil Starter

**NOTE**

Specifications are general and are subject to change without notice. If exact measurements are required, equipment should be weighed and measured.



**Figure 1. MT-85HS Rammer**

Figure 1 shows the location of the controls and components for the MT-85HS Tamping Rammer. The functions of each control is described below:

1. **Throttle Lever** – Controls engine speed and the tamping action of the rammer.
2. **Engine Stop Switch** – Controls the starting and stopping of the engine. Switch must be in the "ON" position when starting the engine.
3. **Choke Lever** – Used when starting the engine. Normally used in cold weather conditions. In cold weather turn the choke lever to the fully closed position, in warm weather set choke lever half way or completely open.
4. **Fuel Shut-Off Valve** – Supplies fuel from the fuel tank to the engine. To begin fuel flow move the fuel shut-off valve downward.
5. **Oil Bath Fill Plug** – Open this plug to add oil to the oil bath reservoir.
6. **Drain Valve** – Open this valve to remove oil from the bellows.
7. **Pre-Cleaner** – Pre-cleans (first stage) dirt and other debris from entering the engine.
8. **Foot** – Laminated wood with tempered steel plate for superior shock absorption.
9. **Oil Level Sight Glass** – Indicates the level of oil in the oil bath reservoir.
10. **Recoil Starting Handle** – Used when starting the engine. Pull starter handle sharply and quickly, then return starter handle to starter case before releasing.
11. **Fuel Tank/Cap** – Poly fuel tank to avoid rust and corrosion, remove this cap to add gasoline.
12. **Engine Air Cleaner** – Prevents dirt (second stage) and other debris from entering the engine.
13. **Bellows** – Reservoir for oil bath.
14. **Handle** – To operate rammer **GRIP** handle assembly firmly on both sides.
15. **Muffler** – Used to reduce noise and emissions.
16. **Spark Plug** – Provides spark to the ignition system, replace with engine manufactures recommended type spark plug.
17. **Name Plate** – Displays information regarding the rammer.
18. **Roller Bar** – Used when transporting rammer onto a truck bed. Place rammer on this roller bar then slide.
19. **Oil Tank** – Fill oil tank with 2-stroke motor oil.

This section is intended to assist the operator with the initial start-up of the MT-85HS Tamping Rammer. It is extremely important that this section be read carefully before attempting to operate the rammer.

**DO NOT** use your rammer until this section is thoroughly understood.

## CAUTION:

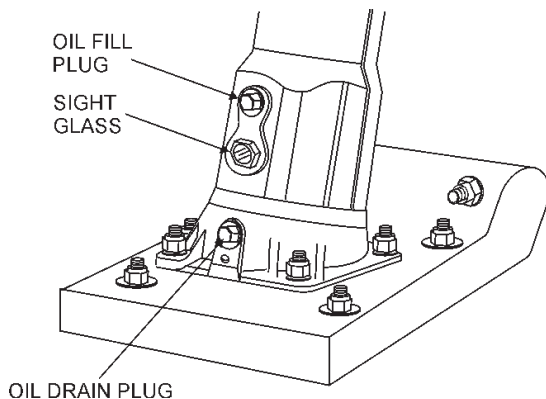


Failure to understand the operation of the MT-60HS Tamping Rammer could result in severe damage to the trowel or personal injury.

### Rammer Gearbox and Spring Cylinder Oil Bath

This unit uses an oil bath lubrication system. Perform the following:

1. Check the oil level through the oil level sight glass (Figure 2) at the rear of the tamping foot.



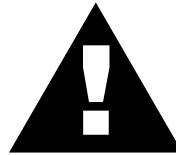
**Figure 2. Foot Housing Sight Glass**

2. If oil is not visible, add 10W-30 motor oil into the oil fill plug opening (Figure 2). The bath contains approximately 1.7 pints (800 cc.)

#### NOTE

The oil level should be kept at the half way point of the sight glass.

## CAUTION:

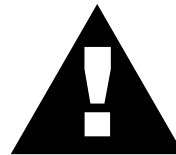


Failure to understand the operation of the MT-60HS Tamping Rammer could result in severe damage to the rammer or personal injury.

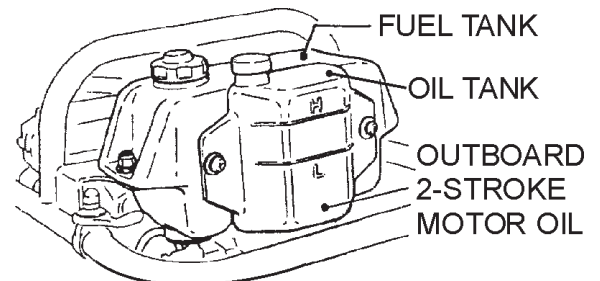
### Engine

1. Fill the fuel tank (Figure 3) with unleaded gasoline. At the same time, check the engine oil level at the sight gauge located on the operator's side of the oil tank. Fill the oil tank to the "H" level using only outboard (2-stroke) oil. Replenish the oil regularly before the oil level reaches the "L" level of the oil tank.

## CAUTION:

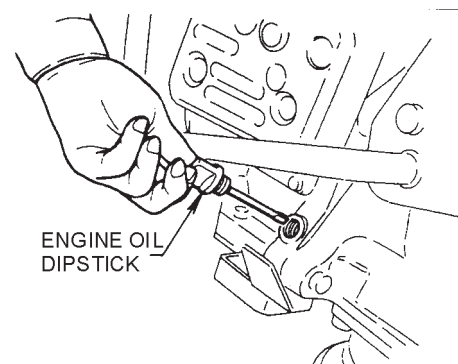


The oil hose is not to be depressed or damaged. A sensor detects lack of oil and shuts down the engine automatically.



**Figure 3. Fuel/Oil Tank**

2. Low levels of oil may result in engine seizure due to high levels of consumption during operations.
3. Check the engine oil level (Figure 4) and if the oil level is low, it should be refilled. Use the proper motor oil as suggested in Table 3.



**Figure 4. Engine Oil Dipstick**

**Table 3. Motor Oil Grade**

Season or Temperature	Grade of motor oil (higher than MS class)
Spring, Summer or Autumn +120° F to +15° F	SAE 30
Winter +40° F to +15° F	SAE 30
Below +15° F	SAE 10W-30

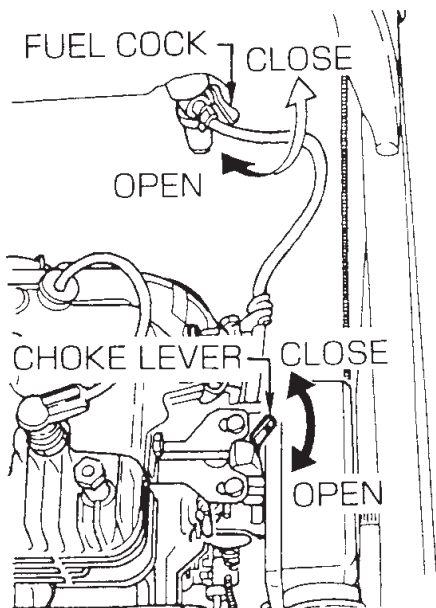
## Inspection

1. Check all nuts, bolts fasteners for tightness. Retighten as necessary.
2. Clean any dirt from the recoil starter and foot pedestal. Wipe the entire unit clean before operating.
3. Replace any missing or damaged Safety Operation decals.
4. Adjust height of handle. Adjust handle by loosening nuts and moving handle to suit operation. Retighten nuts.

## Initial Start-up

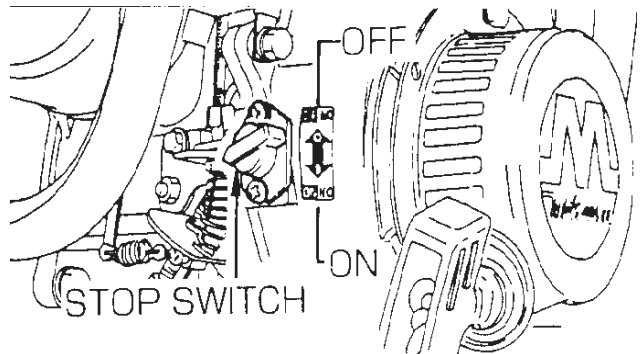
When starting the MT-85HS Tamping Rammer perform the following:

1. Open the fuel shut-off valve by moving the **fuel cock** lever to the **open** position (Figure 5).



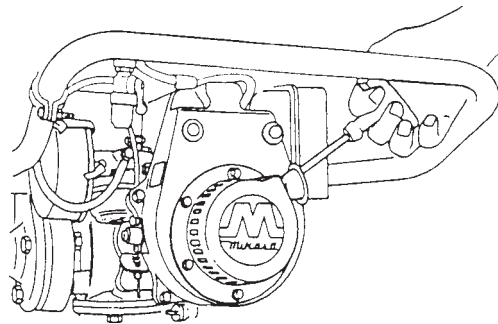
**Figure 5. Fuel Cock and Choke Lever**

2. Set the engine ON/OFF switch (Figure 6) to the "ON" position (start).



**Figure 6. Engine On/Off Switch**

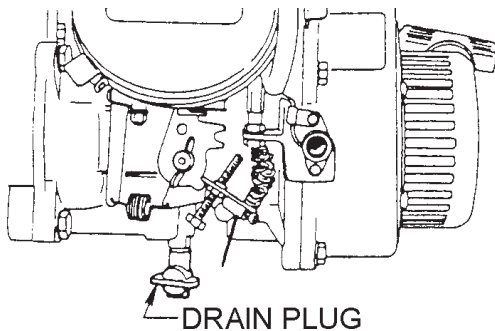
3. Close the choke lever (Figure 5) and move the throttle lever (Figure 9) to the "Full Open" position. Turning the choke lever 90 degrees clockwise closes the choke. In cold weather, start the unit with choke fully closed. In warm weather or when the engine is warm, the unit can be started with choke halfway or completely open.
4. Grip the recoil starter (Figure 7) handle and pull it until you feel a slight resistance. Then pull sharply and quickly. Return the recoil starter handle to the starter position before releasing.



**Figure 7. Recoil Starter**

5. If engine fails to start, move the choke lever (Figure 5) to the half open position to avoid flooding.
6. Repeat steps 1 thru 5.
7. If the engine does not start after repeated attempts, check the spark plug for excess fuel. Clean and replace the spark plug as needed.

7. If the carburetor is flooded or the crankcase is loaded with excess fuel, open the drain plug as shown in (Figure 8) and drain out excess fuel.



**Figure 8. Drain Plug**

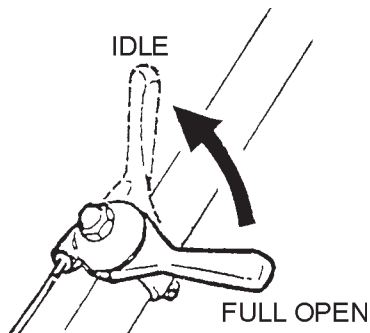
## Operation

1. To start the rammer tamping action, move the throttle lever (Figure 9) quickly from **IDLE** (close) to the **FULL OPEN** position. **DO NOT** move the throttle lever slowly as this may cause damage to the clutch or spring.

## CAUTION:



Make sure that the throttle lever is moved to the **FULL OPEN** position. Operating the rammer at less than full speeds can result in damage to the clutch springs or foot



**Figure 9. Throttle Lever**

2. The MT-85HS Tamping rammer is designed to run at 5,000 rpm. At optimum rpm the foot hits at the rate of 690 impacts per minute. Increasing throttle speed past factory set rpm does not increase impacts and may damage unit. The MT-85HS is designed to advance while tamping. For faster advance, pull back slightly on the handle so that rear of foot contacts soil first.

## Stopping The Engine

### Normal Shutdown

1. Move throttle lever quickly from the **FULL OPEN** to **IDLE** position (Figure 9) and run the engine for three minutes at low speed. After the engine **cools**, turn the engine *start/stop* switch to the "**OFF**" position (Figure 6) until engine comes to a complete stop.
2. Close the fuel shut-off valve by moving the fuel cock lever to the **CLOSED** position. See Figure 5

### Emergency Showdown

1. Move the throttle lever quickly to the **IDLE** position, and turn the engine ON/OFF switch (Figure 6) to the **STOP** position.

## Maintenance

Perform the scheduled maintenance procedures as indicated:

### DAILY

- Thoroughly remove dirt and oil from the engine and control area. Clean or replace the air cleaner elements as necessary. Check and retighten all fasteners as necessary. Check the spring box and bellows for oil leaks. Repair or replace as needed.

### WEEKLY

- Remove the fuel filter cap and clean the inside of the fuel tank.
- Remove or clean the filter at the bottom of the tank.
- Remove and clean the spark plug, then adjust the spark gap to 0.02~0.03 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.
- Clean air cleaner cover.

### 200 - 300 HOURS (Pre-Cleaner)

- Remove the element from the pre-cleaner (Figure 10) at the top of the crankcase (body side) and clean it with cleaning oil (kerosene).

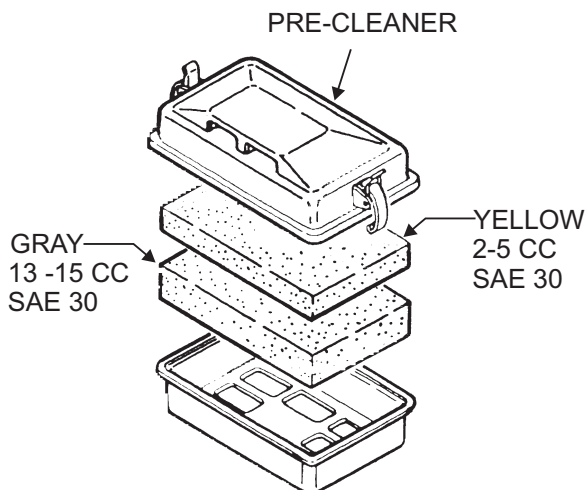


Figure 10. Pre-Cleaner

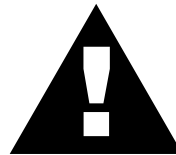
- Lubricate the top element (yellow) with 2~5 cc of engine oil SAE-30.
- Lubricate bottom element (gray) with 13 ~15 cc of engine oil SAE-30 and completely squeeze out the excess oil from the element before installing.

- The air cleaner on the engine side will hardly be contaminated, if it is, however after cleaning the element with kerosene, dip it in mixed oil consisting of 3 parts of gasoline and 1 part of engine oil. Then tightly squeeze outer primary element (sponge) and shake off well the inner secondary element before installing them.

### CLEANING THE OIL TANK

- Clean the inside of the oil tank regularly, preferably 2 or 3 times a year.
- In winter, be sure to clean the inside of oil tank to avoid the freezing of water that may have accumulated inside the tank.

### CAUTION:



If water accidentally got inside the oil tank, the oil may appear muddy. If this situation occurs, simply flush the tank, removing all foreign matter including water, and fill oil tank with fresh 2-stroke outboard motor oil.

- When cleaning the oil tank (Figure 11) perform the following procedure:

1. Remove the cock holder cover, oil hose, red and black lead wires from the float sensor.

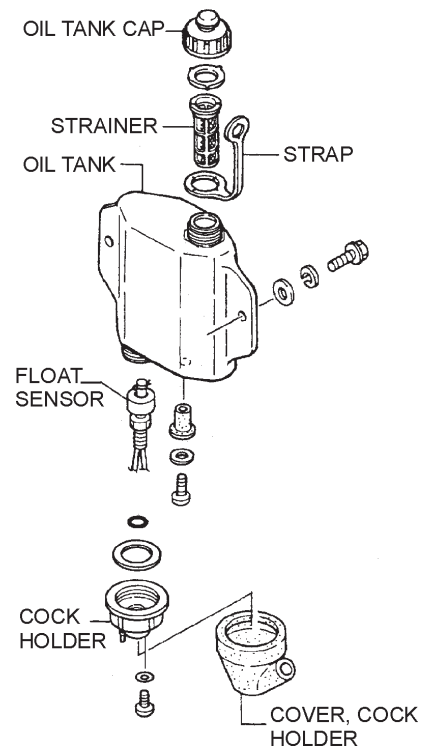


Figure 11. Oil Tank



2. Remove the bolts that secure the oil tank to the fuel tank, and drain all oil from the tank.
3. Remove cock holder, then clean strainer and cock holder in a kerosene solution.
4. Make sure every part is clean and dry, then reassemble oil tank. Fill oil tank with 2-stroke outboard motor oil (FB class) to the "H" level.

## FUEL AND OIL LINES

- Check the fuel and oil lines regularly for damage and ensure that there are no leaks.
- Replace fuel and oil lines every 2 years to maintain performance.
- When replacing the oil hose perform the following procedure:
  1. Replace oil hose with manufactures suggested type hose or equivalent.
  2. If necessary, fill oil tank with 2-stroke outboard motor oil.
  3. Fill fuel tank with 25:1 fuel mix ratio.
  4. Operate rammer with 25:1 fuel mixture until all air is bled from oil injection line.
  5. Once it is certain that all air has been purged from the oil injection line, regular unleaded gasoline may be used.

## CAUTION:



It is normal for a new 2-stroke engine to emit excess smoke, until moving parts have been seated to their normal operating specifications. This excess smoke normally stops after one full tank of fuel.

- The air cleaner (Figure 12) on the engine side will hardly be contaminated, if it is, however after cleaning the element with kerosene, dip it in mixed oil consisting of 3 parts of gasoline and 1 part of engine oil. Then tightly squeeze outer primary element (sponge) and shake off well the inner secondary element before installing them.

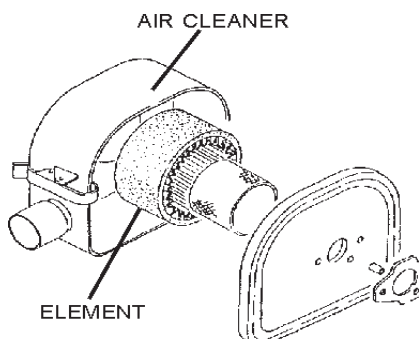


Figure 12. Air Cleaner

## CLEANING THE RAMMER

- If using a high pressure spray washer, be careful not to splash water directly on the air cleaner, carburetor, muffler, fuel and oil tank caps. Excessive amounts of water may cause severe engine damage.

### Yearly

- Check the fuel line and the oil line regularly for damage and to ensure that there are no leaks.
- Replace the oil and fuel lines every two years to maintain the performance and flexibility lines.

### Long Term Storage

- Drain fuel from fuel tank, fuel line and carburetor.
- Remove spark plug and pour a few drops of motor oil into cylinder. Crank engine 3 to 4 times so that oil reaches all internal parts.
- Clean exterior of rammer with an oil-moistened cloth.
- Store unit covered with plastic sheet in moisture free and dust free location out of direct sunlight

### 200 - 300 HOURS (Oil Bath)

- Drain oil reservoir on foot housing (Figure 13). Refill with approximately 1.7 pt. (800cc) of 10W-30 motor oil. Oil should be midway in sight glass. Break in oil should be changed after first 50 hours.

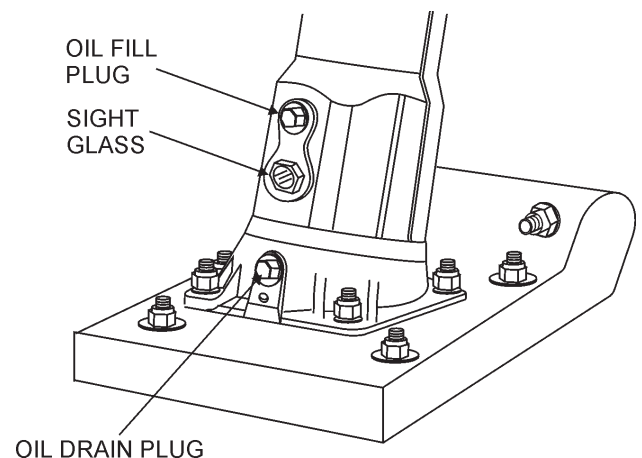


Figure 13. Oil Drain Plug

# TROUBLESHOOTING

TABLE 4. ENGINE TROUBLESHOOTING		
SYMPTOM	POSSIBLE PROBLEM	SOLUTION
<b>Difficult to start</b>		
Fuel is available but spark plug will not ignite. (Power available at high tension cable).	Ignition plug being bridge?	Check ignition system.
	Carbon deposit at ignition?	Clean or replace ignition.
	Short circuit due to defective insulators?	Replace insulators.
	Improper spark gap?	Set spark plug gap to the correct gap.
Fuel is available but spark plug will not ignite. (Power <b>NOT</b> available at high tension cable).	Short circuit at stop switch?	Check stop switch circuit. Replace stop switch if defective.
	Ignition coil defective?	Replace ignition coil.
Fuel is available and spark plug ignites (compression <b>normal</b> ).	Muffler clogged with carbon deposits?	Clean or replace muffler.
	Mixed fuel quality is inadequate?	Check fuel to oil mixture.
	Fuel in use inadequate (water, dust)?	Flush fuel sytem and replace with fresh fuel.
	Air Cleaner clogged?	Clean or replace air cleaner.
Fuel is available and spark plug ignites (compression <b>low</b> ).	Defective cylinder head gasket?	Tighten cylinder head bolts or replace head gasket.
	Cylinder worn?	Replace cylinder.
	Spark plug loose?	Tighen spark plug.
<b>Operation not satisfactory</b>		
Not enough power available (compression normal, no miss-firing).	Air cleaner clogged?	
	Air in fuel line?	Bleed (remove air) from fuel line.
	Fuel level in carbureator float chamber improper?	Adjust carbureator float
	Carbon deposits in cylinder?	Clean or replace cylinder
Not enough power available (compression normal, miss-firing).	Ignition coil defective?	Flush fuel sytem and replace with fresh fuel.
	Ignition plug often shorts?	Replace ignition wires, clean ignition.
	Fuel in use inadequate (water, dust)?	Flush fuel sytem and replace with fresh fuel.
Engine overheats.	Mixed fuel quality is inadequate?	Check fuel to oil mixture.
	Excessive carbon depostion in combustion chamber?	Clean or replace crankcase.
	Exhaust or muffler clogged with carbon.	Clean or replace muffler.
	Spark plug heat value incorrect?	Replace spark plug with correct type spark plug.

# TROUBLESHOOTING

<b>TABLE 4. ENGINE TROUBLESHOOTING (continued)</b>		
<b>SYMPTOM</b>	<b>POSSIBLE PROBLEM</b>	<b>SOLUTION</b>
<b>Operation not satisfactory</b>		
Rotational speed fluctuates.	Governor adjustment improper?	Adjust governor to correct lever.
	Governor spring defective?	Clean or replace ignition.
	Fuel flow erratic?	Check fuel line.
	Air taken in through suction line?	Check suction line.
Recoil starter not working properly.	Dust in rotating part?	Clean recoil starter assembly.
	Spring spring failure?	Replace sprial spring.

<b>TABLE 5. RAMMER TROUBLESHOOTING</b>		
<b>SYMPTOM</b>	<b>POSSIBLE PROBLEM</b>	<b>SOLUTION</b>
Engine rotates but amplituide not uniform or does not strike.	Operating speed of throttle lever is incorrectly set?	Set throttle lever to correct position.
	Oil in excess?	Drain excess oil. Bring to correct level.
	Clutch slips?	Replace or adjust clutch.
	Spring Failure?	Replace sprial spring.
	Speed of engine improper?	Adjust engine speed to correct operating RPM setting.

# EXPLANATION OF CODES IN THE REMARKS COLUMN

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

**NOTICE**

The contents and part numbers listed in the parts section are subject to change **without notice**. Multiquip does not guarantee the availability of the parts listed.

## SAMPLE PARTS LIST

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	12345	BOLT.....	1	INCLUDES ITEMS W/%
2%		WASHER, 1/4 IN.....		NOT SOLD SEPARATELY
2%	12347	WASHER, 3/8 IN....	1	MQ-45T ONLY
3	12348	HOSE .....		A/R ...MAKE LOCALLY
4	12349	BEARING .....	1	S/N 2345B AND ABOVE

### NO. Column

**Unique Symbols** — All items with same unique symbol

(@, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the “Remarks” column.

**Duplicate Item Numbers** — Duplicate numbers indicate multiple part numbers, which are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.

**NOTICE**

When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

### PART NO. Column

**Numbers Used** — Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at the time of publication.

A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the “Remarks” Column.

### QTY. Column

**Numbers Used** — Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the “Remarks” Column.

### REMARKS Column

Some of the most common notes found in the “Remarks” Column are listed below. Other additional notes needed to describe the item can also be shown.

**Assembly/Kit** — All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:

“INCLUDES ITEMS W/(unique symbol)”

**Serial Number Break** — Used to list an effective serial number range where a particular part is used.

Indicated by:

“S/N XXXXX AND BELOW”

“S/N XXXX AND ABOVE”

“S/N XXXX TO S/N XXX”

**Specific Model Number Use** — Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

Indicated by:

“XXXXX ONLY”

“NOT USED ON XXXX”

**“Make/Obtain Locally”** — Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

**“Not Sold Separately”** — Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

# SUGGESTED SPARE PARTS

## MT-85HS Tamping Rammer 1 to 3 Units

Qty.	P/N	Description
1	956300130	LEVER, THROTTLE LEVER
1	956106040	WIRE, THROTTLE ASSY
1	402010110	SPRING, RETURN
3	354030030	ELEMENT, YELLOW
3	354030040	ELEMENT, GRAY
3	1573620101	ELEMENT SET, ENGINE
3	0650140460	SPARK PLUG
1	0430440033	FUEL TANK CAP
3	954404890	FILTER, FUEL TANK
3	954405080	STRAINER, FUEL TANK
3	353449000	STRAINER, OIL TANK
1	954300390	FUEL COCK ASSY
3	301419750	FUEL FILTER, IN-LINE

## MT-85HS Tamping Rammer 3 to 5 Units

Qty.	P/N	Description
2	956300130	LEVER, THROTTLE LEVER
3	956106040	WIRE, THROTTLE ASSY
3	402010110	SPRING, RETURN
5	354030030	ELEMENT, YELLOW
5	354030040	ELEMENT, GRAY
5	1573620101	ELEMENT SET, ENGINE
5	0650140460	SPARK PLUG
2	0430440033	FUEL TANK CAP
5	954404890	FILTER, FUEL TANK
5	954405080	STRAINER, FUEL TANK
5	353449000	STRAINER, OIL TANK
2	954300390	FUEL COCK ASSY
5	301419750	FUEL FILTER, IN-LINE
1	354332700	BELLOWS, ORANGE

## MT-85HS Tamping Rammer 5 to 10 Units

Qty.	P/N	Description
4	956300130	LEVER, THROTTLE ASSY
5	956106040	WIRE, THROTTLE ASSY
5	402010110	SPRING, RETURN
10	354030030	ELEMENT, YELLOW
10	354030040	ELEMENT, GRAY
10	1573620101	ELEMENT SET, ENGINE
10	0650140460	SPARK PLUG
4	0430440033	FUEL TANK CAP
8	954404890	FILTER, FUEL TANK
8	954405080	STRAINER, FUEL TANK
8	353449000	STRAINER, OIL TANK
4	954300390	FUEL COCK ASSY
2	354332700	BELLOWS, ORANGE
2	354910020	BELLOWS, CLAMP
2	050201500	O-RING, UPPER GUIDE CYL.
4	050931500	O-RING, MIDDLE GUIDE CYL.
2	050101100	O-RING, LOWER GUIDE CYL.
2	050100950	O-RING, FOOT PLATE GUIDE CYL.
1	KITCARBEC12HS	KIT, CARBURETOR EC12HS
1	0660000371	STOP SWITCH ASSY (ON-OFF)
1	1611510101	GASKET COMPL, HEAD
2	0440250180	OIL SEAL, ENGINE
1	1613520101	GASKET, EXHAUST

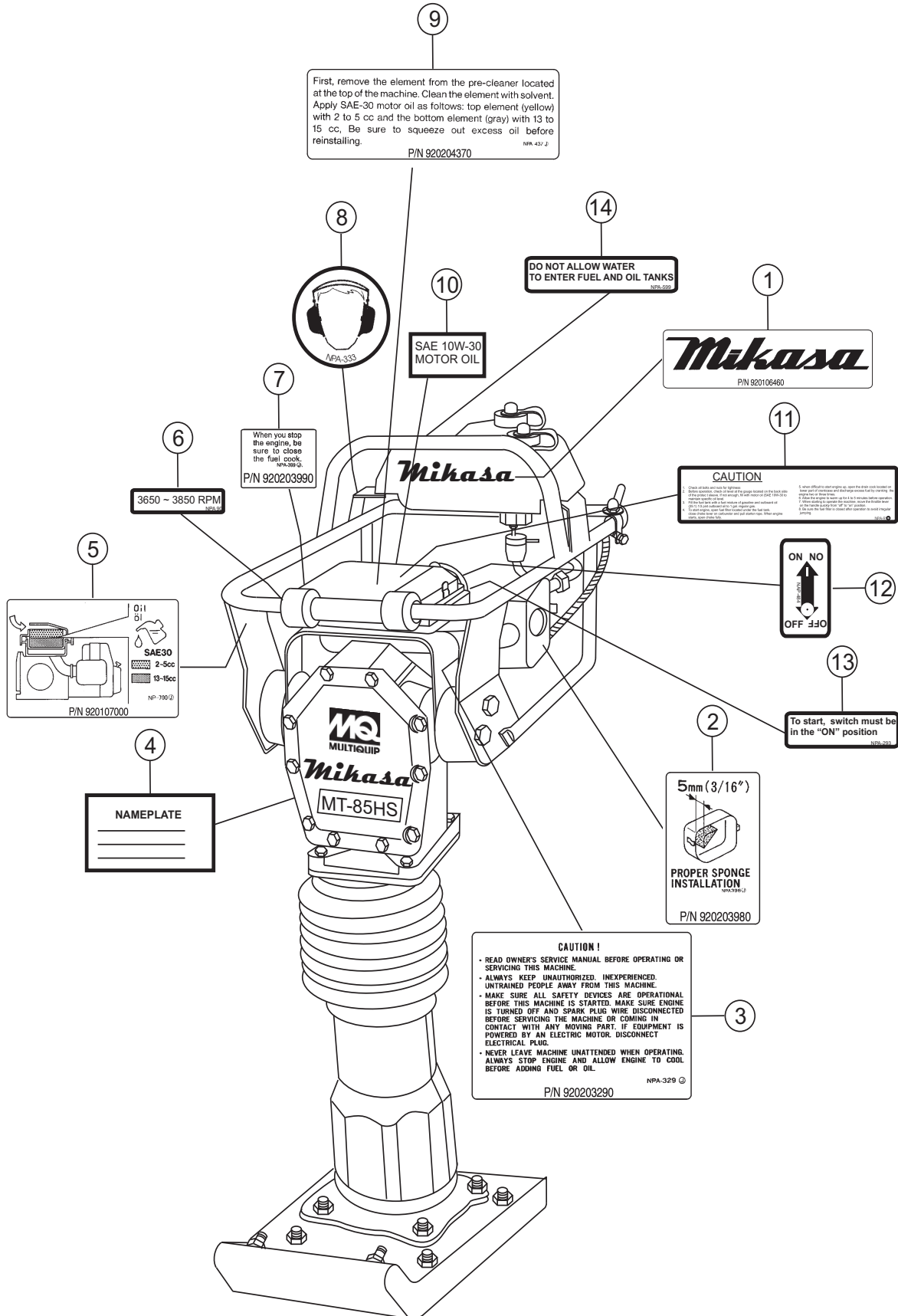
## MT-85HS Tamping Rammer 10+ Units

Qty.	P/N	Description
6	956300130	LEVER, THROTTLE ASSY
8	956106040	WIRE, THROTTLE ASSY
8	402010110	SPRING, RETURN
18	354030030	ELEMENT, YELLOW
18	354030040	ELEMENT, GRAY
18	1573620101	ELEMENT SET, ENGINE
18	0650140460	SPARK PLUG
6	0430440033	FUEL TANK CAP
15	954404890	FILTER, FUEL TANK
15	954405080	STRAINER, FUEL TANK
15	353449000	STRAINER, OIL TANK
8	954300390	FUEL COCK ASSY
15	301419750	FUEL FILTER, IN-LINE
4	354332700	BELLOWS, ORANGE
4	354910020	BELLOWS, CLAMP
6	050201500	O-RING, UPPER GUIDE CYL.
12	050931500	O-RING, MIDDLE GUIDE CYL.
6	050101100	O-RING, LOWER GUIDE CYL.
6	050100950	O-RING, FOOT PLATE GUIDE CYL.
3	KITCARBEC12HS	KIT, CARBURETOR EC12HS
1	1616230140	CARBURETOR, ASSY
1	1615010400	RECOIL STARTER ASSY
2	0660000371	STOP SWITCH ASSY (ON-OFF)
3	1611510101	GASKET COMPL, HEAD
6	0440250180	OIL SEAL, ENGINE
3	1613520101	GASKET, EXHAUST
1	301421363	CLUTCH, ASSY

### NOTICE

Part number on this Suggested Spare Parts List may supersede/replace the P/N shown in the text pages of this book.

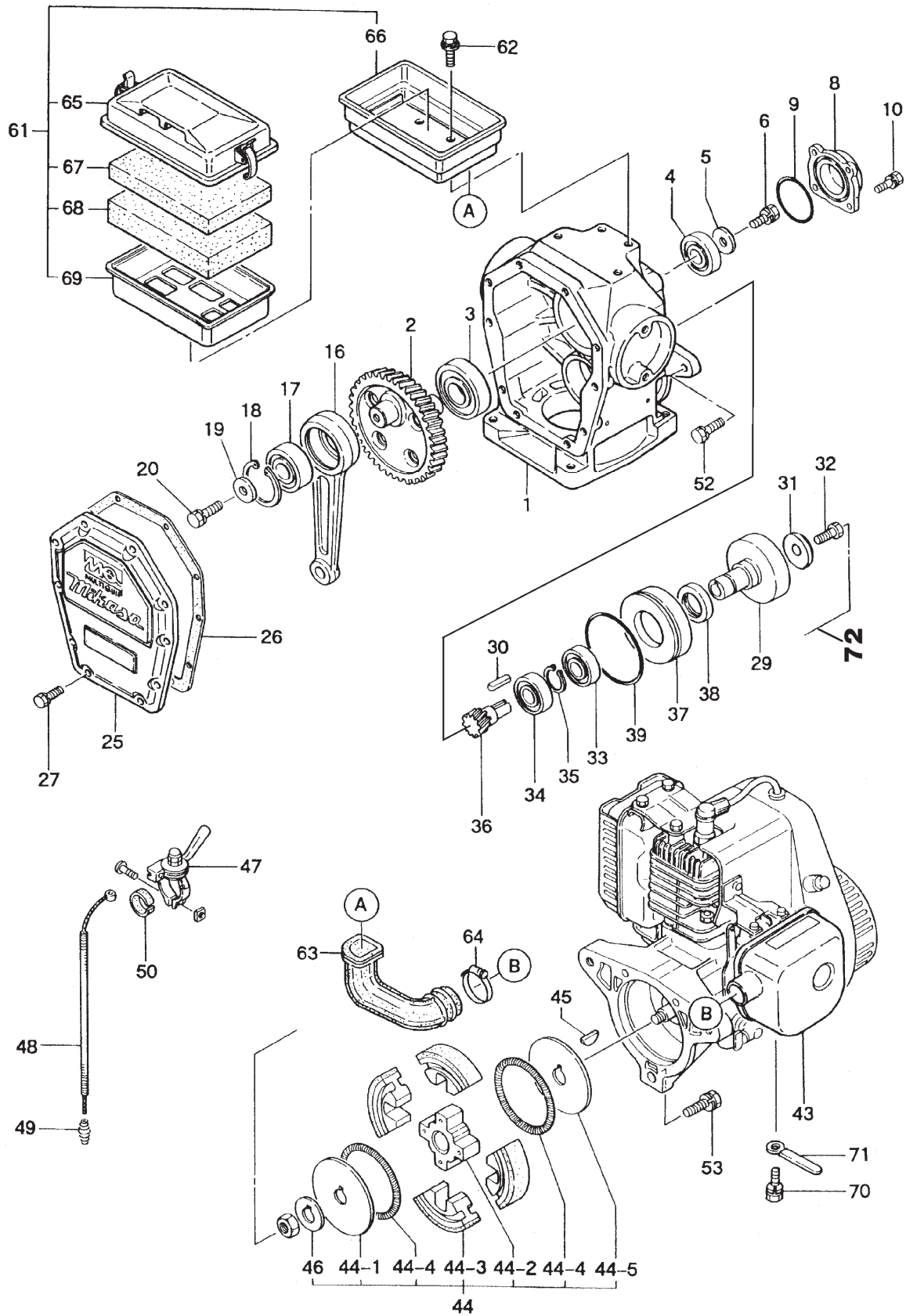
# NAMEPLATE AND DECALS



## NAMEPLATE AND DECALS

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	920106460	DECAL: MIKASA MARK	1	
2*	920203980	DECAL: ELEMENT SET	1	
3*	920203290	DECAL: READ OWNER'S MANUAL	1	
4		PLATE: SERIAL NO. ....	1	..... CONTACT MULTIQUIP PARTS DEPARTMENT
5*	920107000	DECAL: PRE-CLEANER	1	
6*	920107400	DECAL ENGINE R.P.M 3650-3850	1	
7*	920203990	DECAL: FUEL COCK	1	
8*	920203330	DECAL: EAR PROTECTION	1	
9*	920204370	DECAL: PRE CLEANER	1	
10*	920201950	DECAL: MOTOR OIL	1	
11*	920205810	DECAL: CAUTION	1	
12*	920204840	DECAL: SWITCH ON-OFF	1	
13*	920202930	DECAL: SWITCH ON	1	
14*	920205990	DECAL: CAUTION (WATER)	1	
15	DCLMT85HS	DECAL KIT .....	1	..... INCLUDES. ALL ITEMS W/*

# CRANKCASE AND ENGINE ASSY.

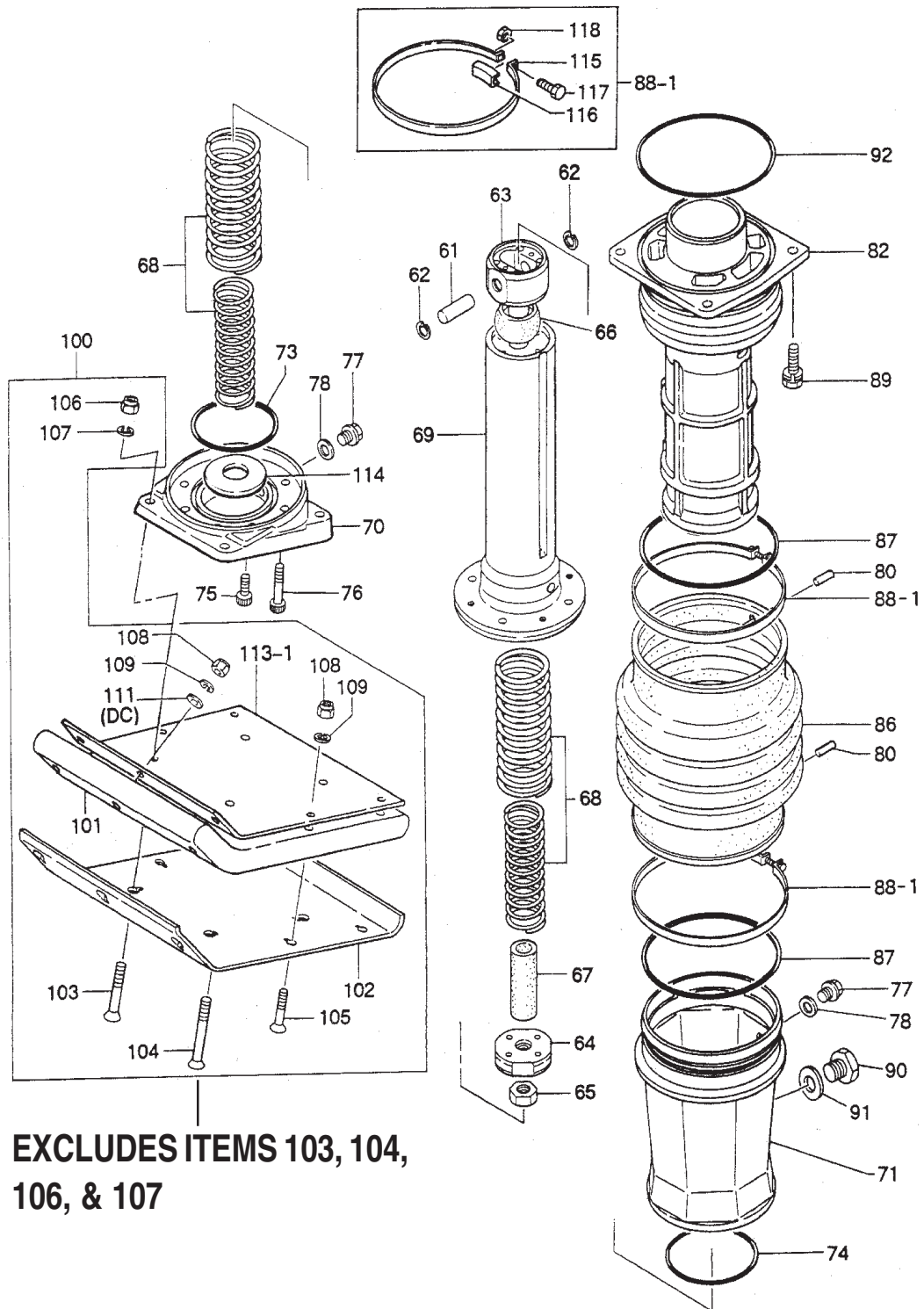




## CRANKCASE AND ENGINE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	354111690	CRANK CASE	1	
2	352321580	CRANK GEAR	1	
3	040006207	BEARING 6207	1	
4	040006305	BEARING 6305	1	
5	952400690	WASHER 9X35X4.5 .....	1	REPLACES 031108160
6	002210825	BOLT 8X25 H, SW .....	1	REPLACES 011708025
8	352423271	BEARING COVER	1	
9	050920630	O-RING JASO2063	1	
10	002210620	BOLT 6X20 H,SW .....	4	REPLACES 011706020
16	301300530	CONNECTING ROD	1	
17	040006305	BEARING 6305	1	
18	080100620	STOP RING R-62	1	
19	952400690	WASHER 9X35X4.5 .....	1	REPLACES 031108160
20	002210825	BOLT 8X25 H, SW .....	1	REPLACES 011708025
25	354213480	FRONT COVER	1	
26	354444460	PACKING, FRONT COVER	1	
27	002210620	BOLT 6X20 H,SW .....	10	REPLACES 011706020
29	352437870	CLUTCH DRUM	1	
30	951405500	KEY 5X5X28 R	1	
31	952405490	LOCK WASHER	1	
32	002210820	BOLT 8X20 H, SW	1	
33	041006207	BEARING 6207Z	1	
34	040006205	BEARING 6205 .....	1	REPLACES 0600250010
35	080200350	STOP RING S-35	1	
36	301010160	PINION	1	
37	352441340	SPACER	1	
38	060404010	OIL SEAL TC-40528	1	
39	050100950	O-RING G-95	1	
43	911101213	ENGINE ASSY EC12 .....	1	REPLACES 911101211
44	301421363	CLUTCH ASSY C812E .....	1	INCLS. PARTS W/*
44-1*	943060020	CLUTCH GUIDE/B	1	
44-2*	943050050	CLUTCH BOSS C812	1	
44-3*	943020020	CLUTCH SHOE C812	4	
44-4*	943030020	CLUTCH SPRING C812	2	
44-5*	943060010	CLUTCH GUIDE /A IT	1	
45	0053204201	WOODRUFF KEY	1	
46*	301010210	LOCK WASHER CLUTCH	1	
47	956300130	THROTTLE LEVER ASSY	1	
48	956106040	THROTTLE WIRE	1	
49	301010950	RETURN SPRING .....	1	REPLACES 402010110
50	959403750	RUBBER, SLIP STOP	1	
52	002211045	BOLT 10X45 H,SW .....	2	REPLACES 012710045
53	002211035	BOLT 10X35 H,SW .....	1	REPLACES 012710035
61	354211841	AIR CLEANER ASSY .....	1	INCLS. ALL ITEMS W/#
62	002200820	BOLT 8X20 SW .....	4	REPLACES 011008020
63	354330590	INTAKE PIPE	1	
64	507010110	CLAMP TC-200	1	
65#	354030011	BODY/W-CLEANER	1	
66#	354030020	BACK PLATE	1	
67#	354030030	ELEMENT, YELLOW	1	
68#	354030040	ELEMENT, GRAY	1	
69#	354030050	ELEMENT FRAME	1	
70	002200815	BOLT 8X15 SW	1	
71	0566000170	CLAMP	1	
72	002171400	NUT	1	

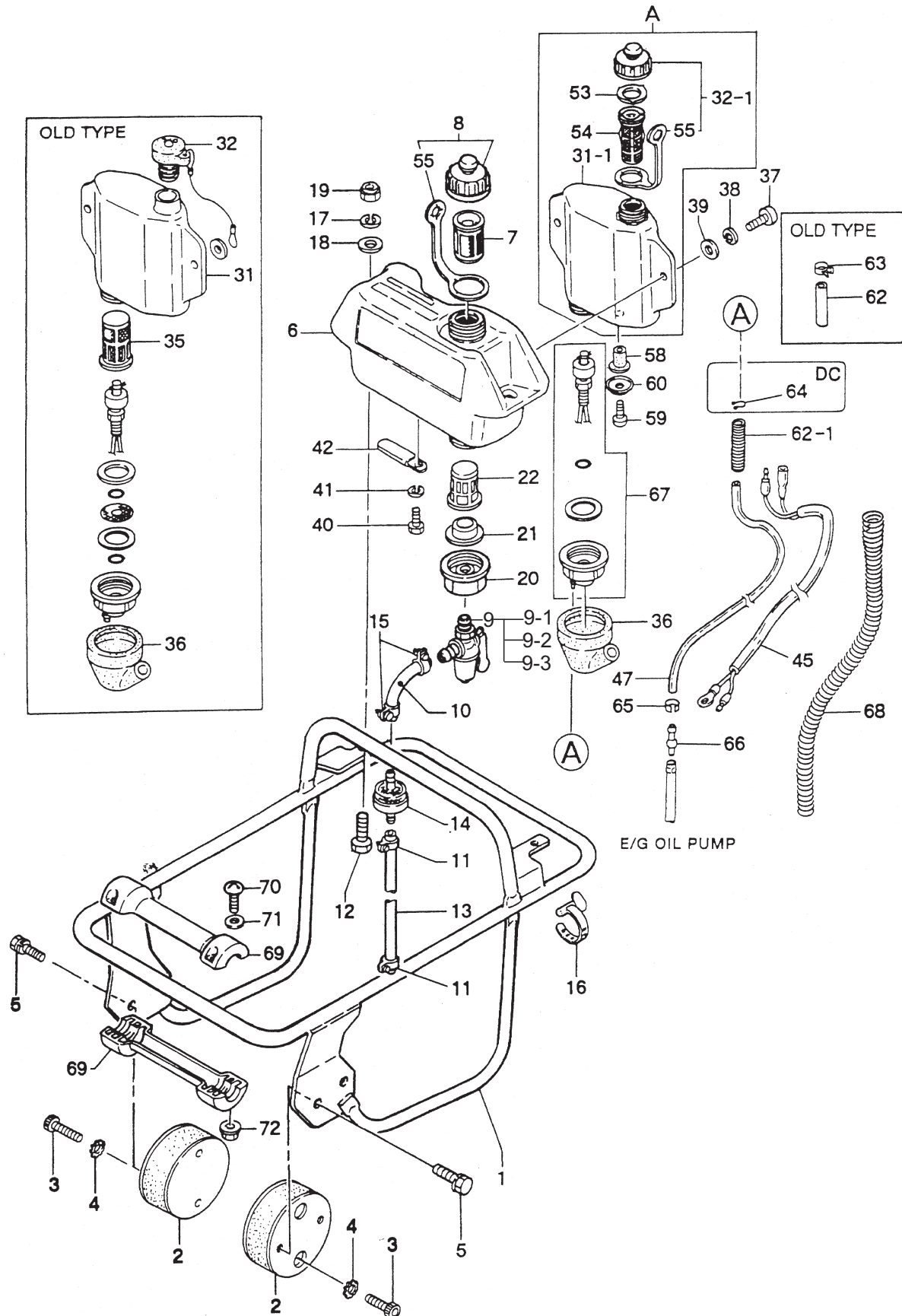
# GUIDE CYLINDER AND FOOT ASSY.



## GUIDE CYLINDER AND FOOT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
61	352423290	PISTON PIN	1	
62	080100150	STOP RING R-15	2	
63	352210380	PISTON ROD	1	
64	352437330	PISTON END	1	
65	020118150	NUT M18, P1.5	1	
66	352431430	STOPPER, UPPER	1	
67	352437470	STOPPER, LOWER	1	
68	352326610	MAIN SPRING	2	
69	354212480	SPRING CYLINDER (L)	1	
70	352210401	FOOT PLATE	1	
71	352110042	PROTECTION SLEEVE (L)	1	
73	050100950	O-RING G-95	1	
74	050101100	O-RING G-110	1	
75	001521020	SOCKET HEAD BOLT 10X20 T ...	4	REPLACES 014210020
76	001521035	SOCKET HEAD BOLT 10X35 T ...	4	REPLACES 014210035
77	953405270	PLUG 1/4X14 13L	2	
78	953405260	PACKING 1/4 (CU)	2	
80	354446170	PIN 6D-8.5L	2	
82	354212490	GUIDE CYLINDER (L)	1	
86	354332700	BELLOWS(L) ORANGE	1	
87	050931500	O-RING JASO3150	2	
88-1	354910020	BELLOWS CLAMP CP	2	INCLUDES ITEMS W/*
89	002211035	BOLT 10X35 H,SW	4	REPLACES 012710035
90	959010150	LEVEL GAUGE, PLUG TYPE	1	
91	953404670	COPPER PACKING 17X25.5X1	1	
92	050201500	O-RING P-150	1	
100	352910081	FOOT ASSY 330W-W/F.COVER ..	1	INCL'S ITEMS W/# 13" (W) X 13" (L)
100		FOOT ASSY 285W-E/F COVER...	1	OPTION INCL. ITEMS W/+ CONTACT UNIT SALES DEPT./ACCESSORY ITEM
101+	352108220	FOOT 285B-331L	1	OPTION
101#	352326620	FOOT 330B-331L	1	
102+	352108230	METAL SHEET 285W	1	OPTION
102#	362326630	METAL SHEET 330B	1	
103	001611259	SUNK HEAD BOLT 12X90 H	2	REPLACES 015112075 & 001611256
				INCLUDES ITEMS W/%
104	001611260	SUNK HEAD BOLT 12X100 H	2	INCLUDES ITEMS W/%
105#+	015110055	SUNK HEAD BOLT 10X55 H	7	REPLACES 001611051
				INCLUDES ITEMS W/\$
106	022711214	NYLON NUT M12	4	REPLACES 021112140
107	030212300	WASHER SW M12	4	
108#+	022711012	NYLON NUT M10	7	REPLACES 021110120
109#+	030210250	WASHER SW M10	7	
113-1#+	354332070	FOOT COVER	1	
114	352441730	SPRING SEAT 80D-1.6T	1	
115*	354329380	BELLOWS CLAMP	2	
116*	354442340	BAND GUIDE, BELLOWS	2	
117*	001210835	BOLT 8X35 H	2	REPLACES 011008035
118*	020308060	NUT M8	2	REPLACES 020108060

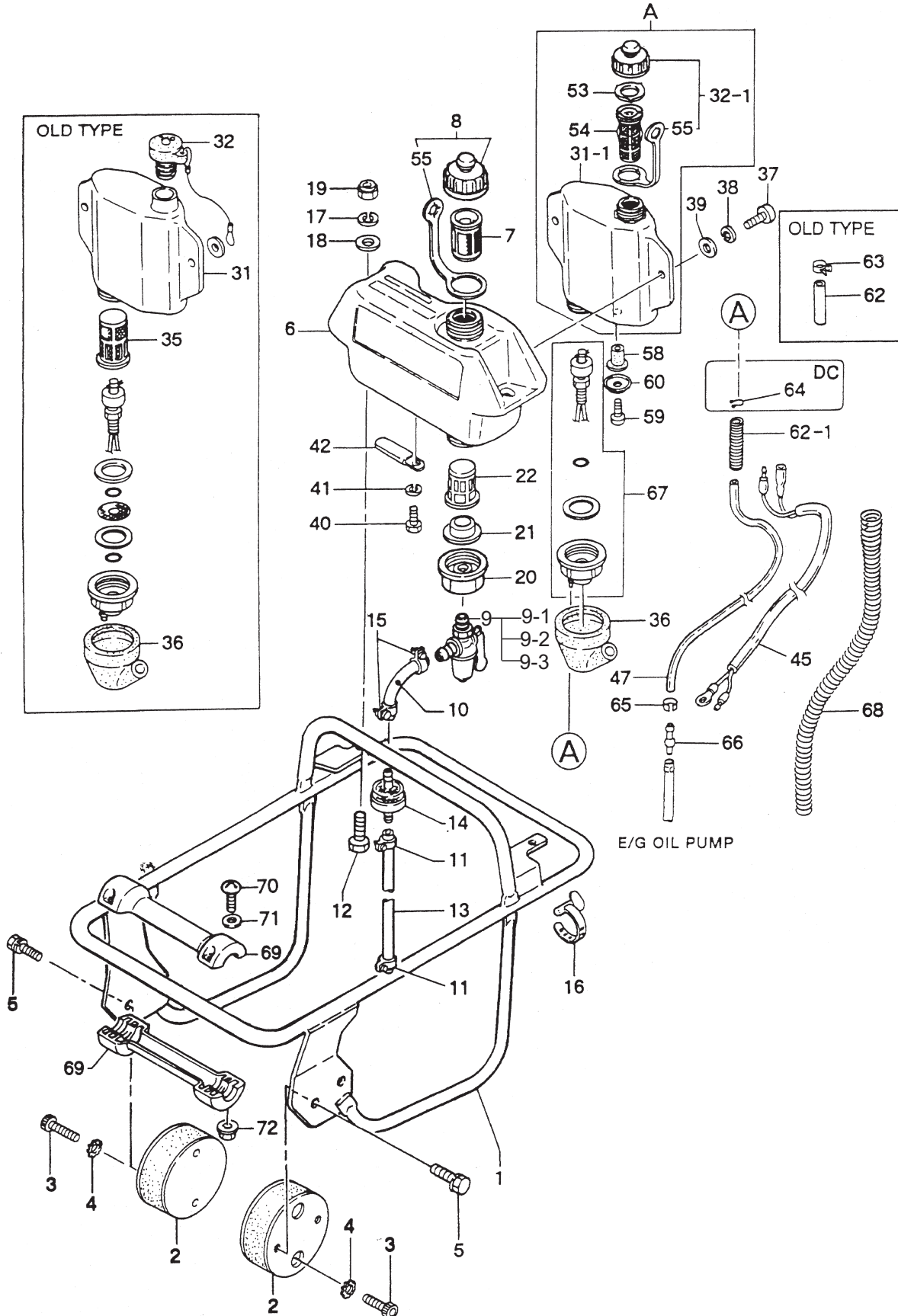
# TANK AND HANDLE ASSY.



## TANK AND HANDLE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
A	353213710CPL	OIL TANK ASSY W/CAP .....	1 .....	REPLACES 353910030
1	355115020	HANDLE (ROLLER)	1	
2	351319900	SHOCK ABSORBER 100D-45B	2 .....	REPLACES 355113570
3	001521020	SOCKET HEAD BOLT 10 x 20	4	
4	033121009	TOOTHED LOCK WASHER B M10	4	
5	002211020	BOLT 10 x 20 H, SW	4	
6	355113610	FUEL TANK	1	
7	954404890	FILTER, TANK	1	
8	361910020	TANK CAP ASSY (ORANGE)	1	
9	954405990	FUEL COCK ASSY CVL-1	1 .....	INCLUDES ITEMS W/#
9-1#	0642001410	BOWL FUEL FILTER	1	
9-2#	0642001420	STRAINER SCREEN	1	
9-3#	0642001430	PACKING	1	
10	351436350	FUEL HOSE R-150	1	
11	954404590	HOSE BAND 9.50D	2	
12	001220830	BOLT 8 x 30 T	2	
13	301418140	FUEL HOSE B-150	1	
14	301419750	FUEL FILTER CP, MQ75MIC	1	
15	954403030	HOSE BAND (8)	2	
16	303010450	BAND	1	
17	030208200	WASHER, SW M8	2	
18	952401450	WASHER 8.5 x 22 x 3	2	
19	022710809	NYLON NET M8	2	
20	351437785	HOLDER, COCK	1	
21	953405640	PACKING, COCK HOLDER	1	
21	9544S06020	PACKING, FUEL TANK	1	
22	954405080	STRAINER (#100)	1	
22	954406010	STRAINER (#110)	1	
31	*	OIL TANK	1 .....	*MUST ORDER NEW OIL TANK ASSY
31-1	353213710	OIL TANK	1	
32	*	OIL TANK CAP	1	
32-1	353030070	OIL TANK CAP CP (YELLOW)	1	
35		STRAINER, OIL TANK	1 .....	NO LONGER USED
36	355448071	COVER, COCK HOLDER	1 .....	REPLACES 355448070
37	009110011	SOCKET HEAD SCREW 8 x 20	2	
38	030208200	WASHER, SW M8	2	
39	952401450	WASHER 8.5 x 22 x 3	2	
40	001200610	BOLT 6 x 10	1	
41	030206150	WASHER, SW M6	1	
42	2267510103	CLAMP	1	
45	355448280	WIRE CP	1	
47	1616391308	HOSE	1	
53	353448990	PACKING, OIL TANK CAP	1	
54	353449001	STRAINER, OIL TANK	1 .....	REPLACES 353449000

# TANK AND HANDLE ASSY.

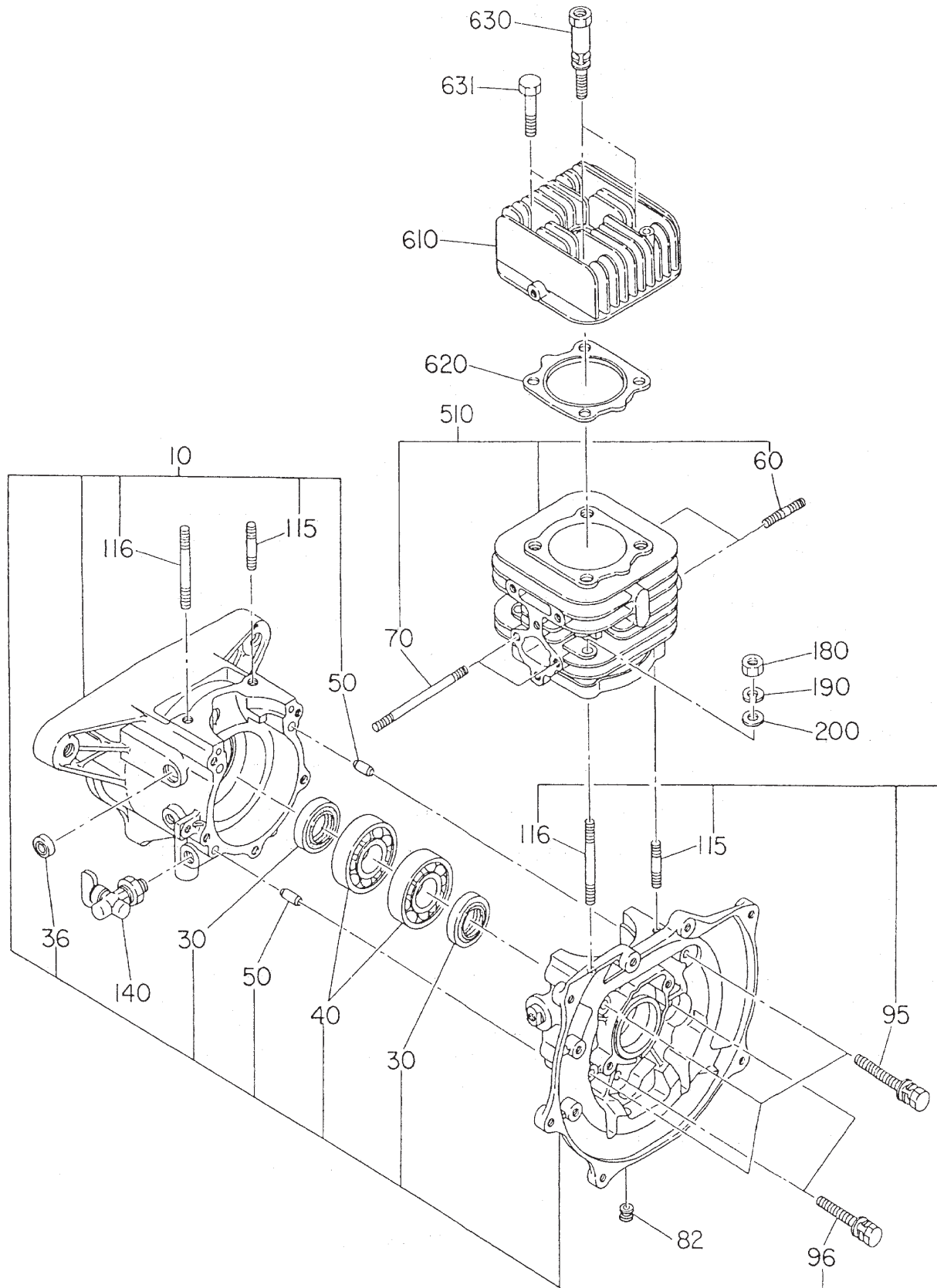


## TANK AND HANDLE ASSY.

---

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
55	353449010	STRAP, OIL TANK	2	
58	353030080	WELL NUT M5	1	
59	091005015	SCREW 5 x 15	1	
60	031105080	WASHER, PW M5	1	
60	952405970	WASHER 6.4D-20D	1	
62	353449240	OUTER HOSE 6 x 9 x 65	1	
62-1	353450220	GUARD, OIL HOSE	1	
63	954403030	HOSE, BAND	1	
64	1616391008	CLIP	1	
65	1616391608	CLIP	1	
66	1616391508	JOINT	1	
67	353910020	OIL SENSOR ASSY	1	
68	355450600	OUTER LINER 525L	1	
69	361910040	ROLLER ASSY. W/PIN .....	2	REPLACES 955200051
70	091005025	SCREW 5 x 25	4	
71	031105080	WASHER, PW M5	4	
72	022610505	FLANGE NUT M5 H	4	

# ROBIN EC12HS ENGINE — CRANKCASE ASSY.

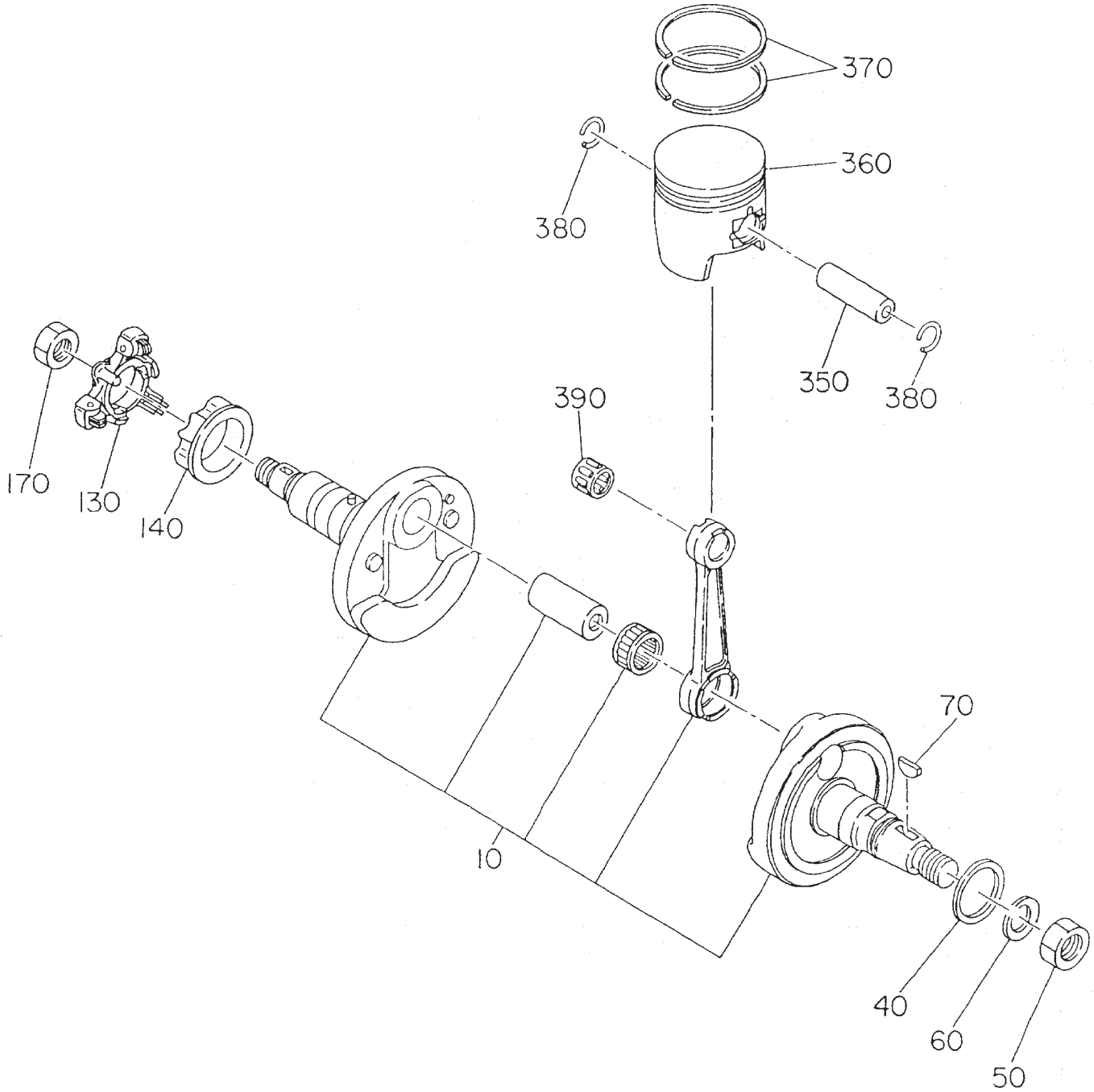




## ROBIN EC12HS ENGINE — CRANKCASE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	1611040301	CRANK CASE CP .....	1	INCLUDES ITEMS W/*
30*	0440250180	OIL SEAL EC13	2	
36*	0440080010	OIL SEAL VC 8X14X4	1	
40*	0600250010	BALL BEARING 6205C3	1	
50*	0310060010	DOWEL PIN	2	
60*#	0013208351	STUD	2	
70*#	0105060070	STUD	2	
82*	0241060010	GROMMET	1	
95*	0011406550	BOLT AND WASHER ASSY	3	
96*	0011406400	BOLT AND WASHER ASSY	2	
115*	0013208401	STUD	2	
116*	0013208651	STUD	2	
140	0643000101	DRAIN COCK	1	
180	0021708000	NUT .....	4	REPLACES 0021808000
190	030208200	WASHER .....	4	REPLACES 0032008000
200	0031008000	WASHER	4	
510	1611240311	CYLINDER CP .....	1	INCLUDES ITEMS W/# REPLACES 1611240301
610	1571310113	CYLINDER HEAD	1	
620	1611510101	GASKET COMPL.(HEAD) .....	1	REPLACES 161151011
630	0130080071	BOLT AND WASHER ASSY	2	
631	0011408350	BOLT AND WASHER ASSY	2	

# ROBIN EC1 2HS ENGINE — CRANKSHAFT AND PISTON ASSY.

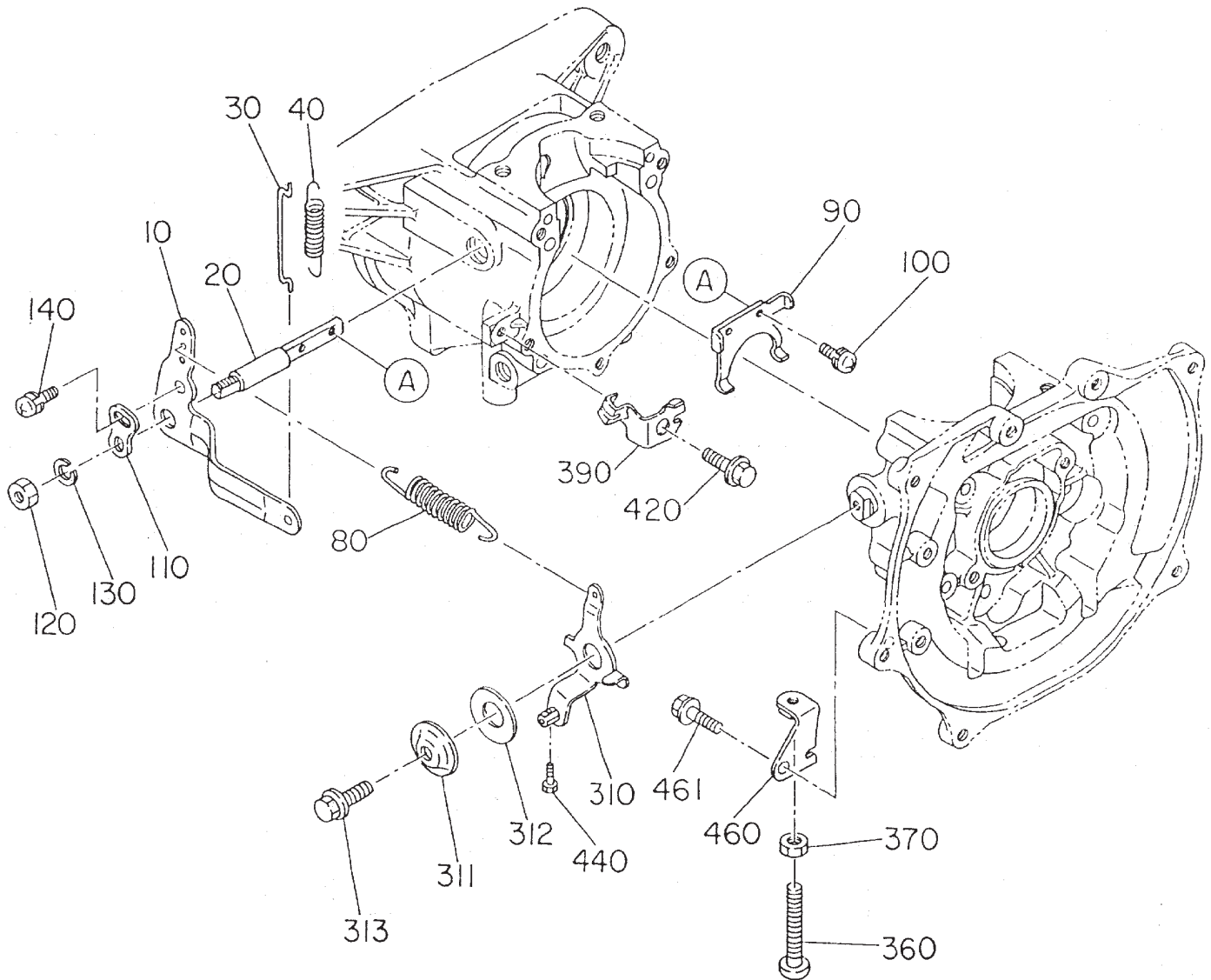


## **ROBIN EC12HS ENGINE — CRANKSHAFT AND PISTON ASSY.**

---

<b><u>NO.</u></b>	<b><u>PART NO.</u></b>	<b><u>PART NAME</u></b>	<b><u>QTY.</u></b>	<b><u>REMARKS</u></b>
10	1612040200	CRANK SHAFT ASSY	1	
40	1612500103	SPACER 0.IT	3	
40	1612500203	SPACER 0.3T	1	
50	0021714000	NUT	1	
60	0032014000	SPRING WASHER	1	
70	0053204201	WOODRUFF KEY	1	
130	1574170101	GOVERNOR PLATE COMPL.	1	
140	1574190103	GOVERNOR SLEEVE	1	
170	0173120010	LOCK NUT	1	
350	1572330103	PISTON PIN	1	
360	1612340101	PISTON COMPL. STD	1	
360	1612340201	PISTON COMPL. 0.25 OS	1	
360	1612340301	PISTON COMPL. 0.50 OS	1	
370	1612350107	PISTON RING SET STD	1	
370	1612350207	PISTON RING SET 0.25 OS	1	
370	1612350307	PISTON RING SET 0.50 OS	1	
380	0565120010	CLIP	2	
390	0610120010	NEEDLE BEARING	1	

# ROBIN EC12HS ENGINE — GOVERNOR ASSY.

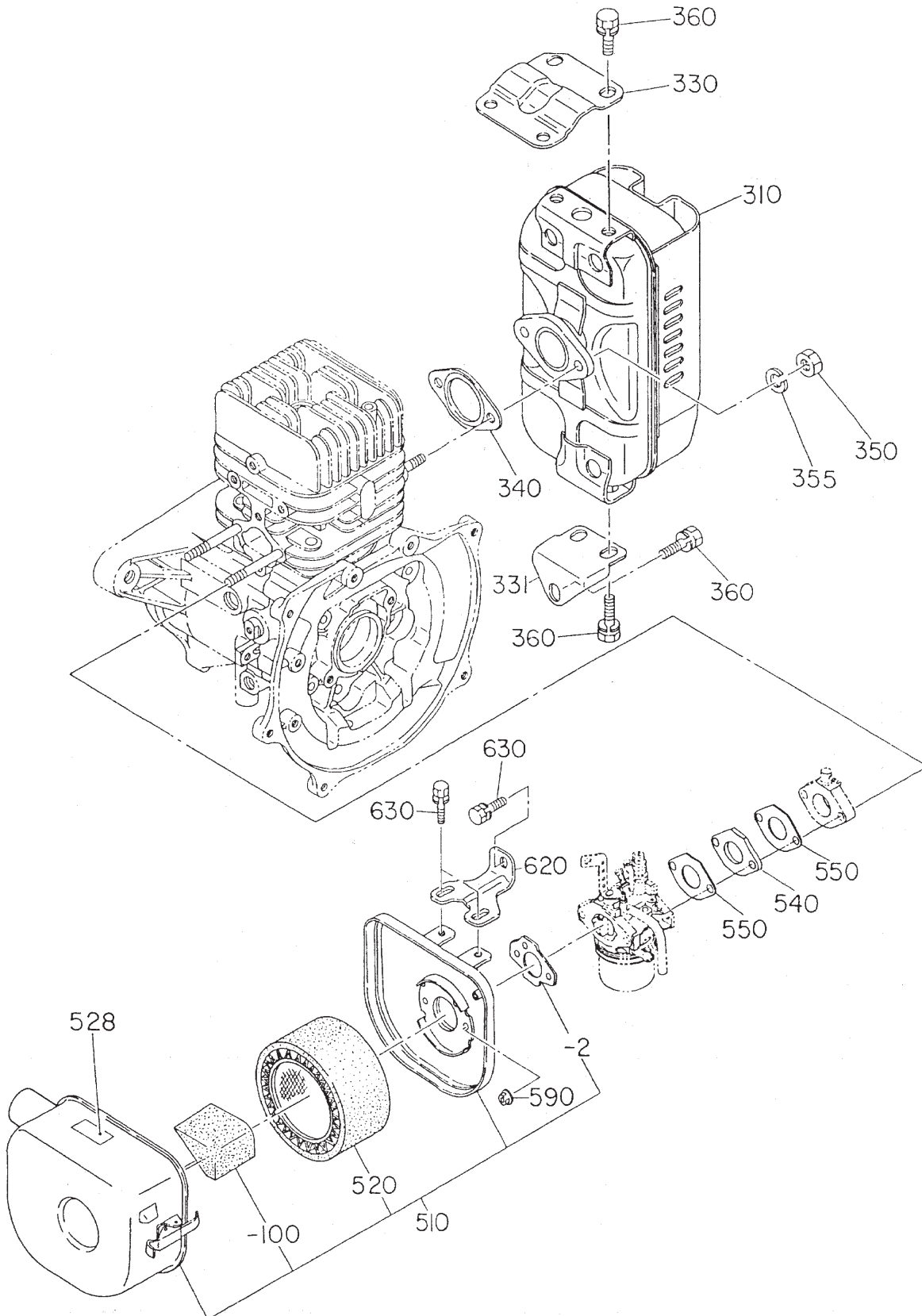


## ROBIN EC12HS ENGINE — GOVERNOR ASSY.

### GOVERNOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	1614230113	GOVERNOR LEVER	1	
20	1064220103	GOVERNOR SHAFT	1	
30	2274270101	GOVERNOR ROD	1	
40	1064280113	ROD SPRING	1	
80	1614250113	GOVERNOR SPRING	1	
90	1574210103	GOVERNOR YOKE	1	
100	0043504060	SCREW	2	
110	1064240101	ADJUSTING PLATE 88 .....	1	.....REPLACES 1574240103
120	0021906000	NUT	1	
130	030206150	SPRING WASHER .....	1	.....REPLACES 0032006000
140	0043504080	SCREW AND WASHER ASSY .....	1	.....REPLACES 0043604080
310	1614341001	SPEED CONTROL CP .....	1	.....REPLACES 1614341011
311	1574510101	COVER	1	
312	1574610103	WASHER	1	
313	0110060020	FLANGE BOLT	1	
360	0043106350	SCREW	1	
370	0021706000	NUT	1	
390	1614420113	WIRE BRACKET	1	
420	0110060020	FLANGE BOLT	1	
440	0115040010	BOLT	1	
460	1614350111	STOP PLATE COMP .....	1	.....REPLACES 1614350121
461	0110060020	FLANGE BOLT	1	

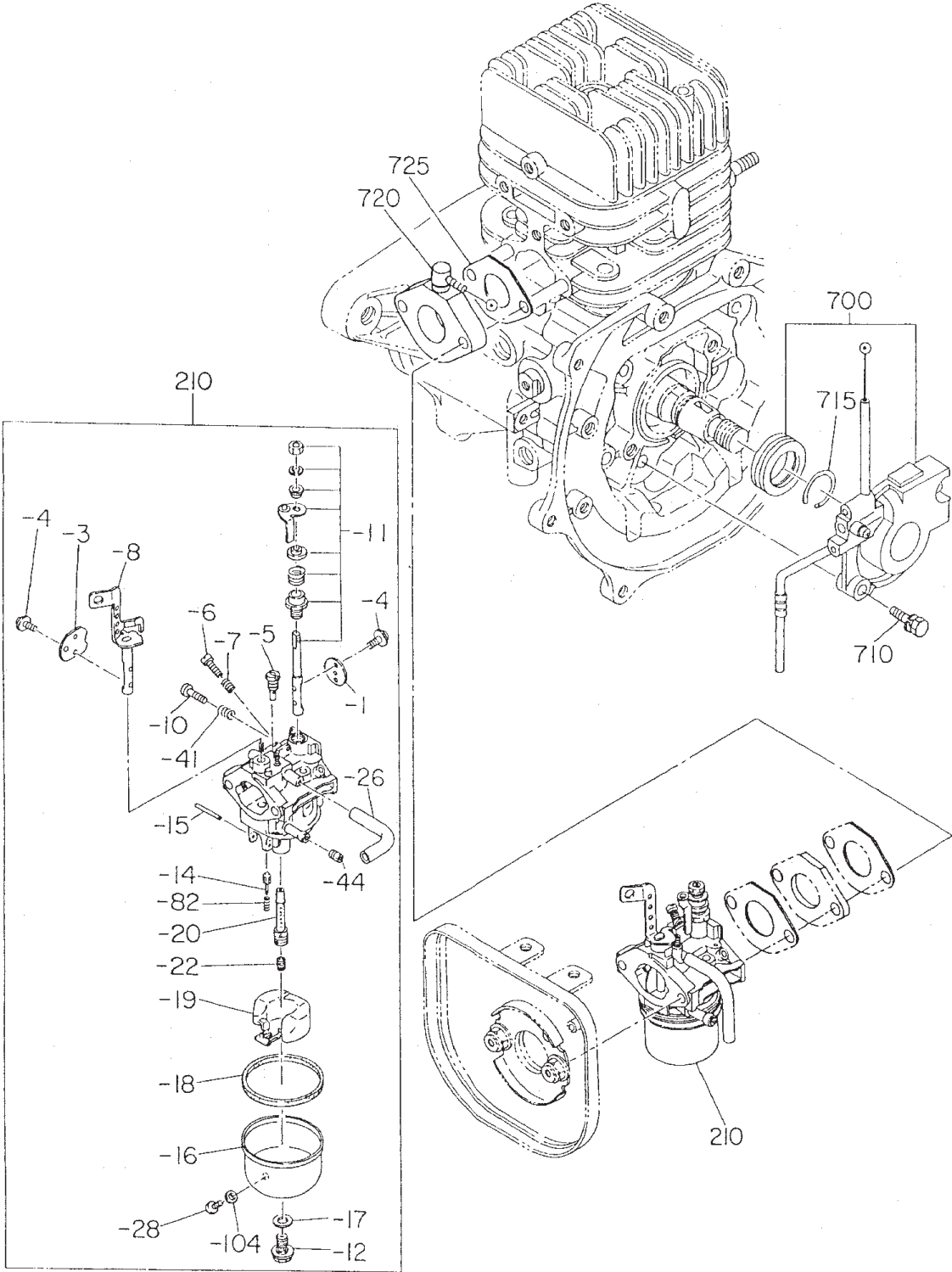
# ROBIN EC12HS ENGINE — MUFFLER/AIR CLEANER ASSY.



## ROBIN EC12HS ENGINE — MUFFLER/AIR CLEANER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
310	1613010111	MUFFLER COMPL.	1	
330	1613500101	MUFFLER BRACKET	1	
331	1613510101	MUFFLER BRACKET	1	
340	1613520101	GASKET CP (EXHAUST) .....	1	REPLACES 1613520111
350	020108060	NUT .....	2	REPLACES 0021908000
355	030208200	SPRING WASHER .....	2	REPLACES 0032008000
360	0011308160	BOLT AND WASHER ASSY	7	
510	1613270310	AIR CLEANER ASSY .....	1	INCLUDES ITEMS W/*
510-2*	2263272008	GASKET (AIR CLEANER)	1	
510-100*	1613261008	ELEMENT	1	
520*	1573620101	ELEMENT SET	1	
528	0732004430	LABEL(CHOKE)	1	
540	1063291203	INSULATOR	1	
550	1573500103	GASKET, INSULATOR	2	
590	0176060020	SELF LOCK NUT	2	
620	1613600203	BRACKET (CLEANER)	1	
630	0016606120	BOLT AND WASHER ASSY .....	3	REPLACES 0011006120

**ROBIN EC12HS ENGINE — CARBURETOR ASSY.**

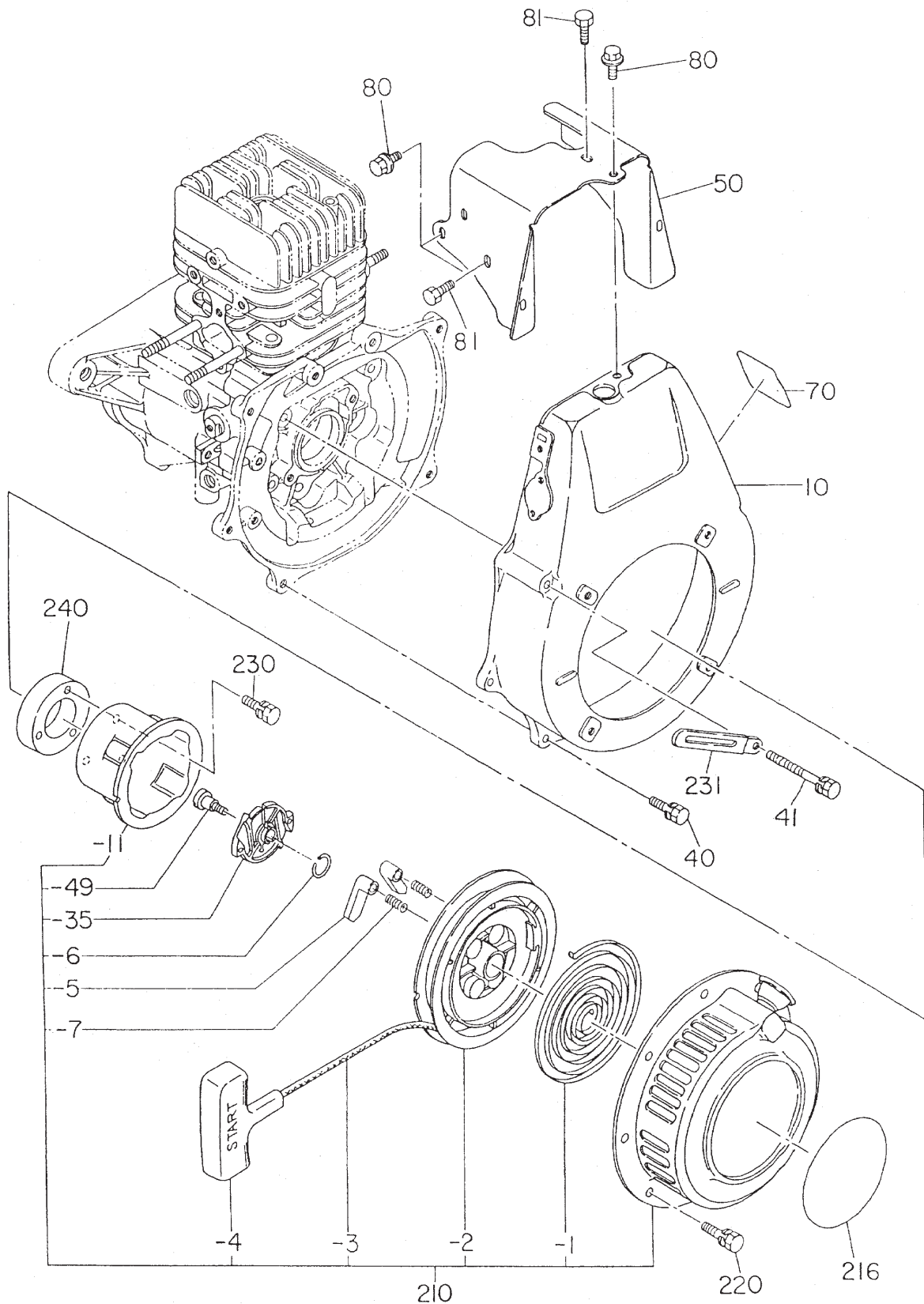




## ROBIN EC12HS ENGINE — CARBURETOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
210	1616230100	CARBURETOR ASSY .....	1	INCLS. ITEMS W/# REPLACES 1616230140
210-1#	1616253508	THROTTLE VALVE	1	
210-3#	5806083310	CHOKE VALVE .....	1	REPLACES 161625208
210-4#	2376245108	SCREW	1	
210-5#	2076242008	PILOT JET	1	
210-6#*	1616235408	ADJUSTER	1	
210-7#*	2306244608	SPRING	1	
210-8#	1616252008	SHAFT ASSY (CHOKE) .....	1	REPLACES 1616252038
210-10#*	2246245208	SCREW MC-0414	1	
210-11#	1616253080	SHAFT ASSY (THROTTLE)	1	
210-12#	1616235108	BOLT	1	
210-14#*	5806083400	NEEDLE .....	1	REPLACES 1616235208
210-15#	2146251508	FLOAT PIN	1	
210-16#	1616235008	FLOAT BODY	1	
210-17#*	2366245008	PACKING 826-08003	1	
210-18#*	2366254008	PACKING 826-42001	1	
210-19#	2366250508	FLOAT 859-14004	1	
210-20#	1616244008	MAIN NOZZLE	1	
210-22#*	2266240008	MAIN JET	1	
210-26#	1616235308	HOSE	1	
210-28#	2366235008	SCREW	1	
210-41#*	2066244608	SPRING	1	
210-44#*	1616240008	MAIN JET	1	
210-82#*	2366244508	SPRING 730-03012	1	
210-104#*	2366254108	PACKING	1	
700	1616390110	OIL PUMP ASSY .....	1	REPLACES 1616390100
710	0011406250	BOLT AND WASHER ASSY	2	
715	0565220011	CLIP	1	
720	1616350101	COLLAR CP (OIL INJ.)	1	
725*	1573500103	GASKET, INSULATOR	1	
*	KITCARBEC12HS	KIT,CARBURETOR EC12HS ....	1	INCLUDES ITEMS W/*

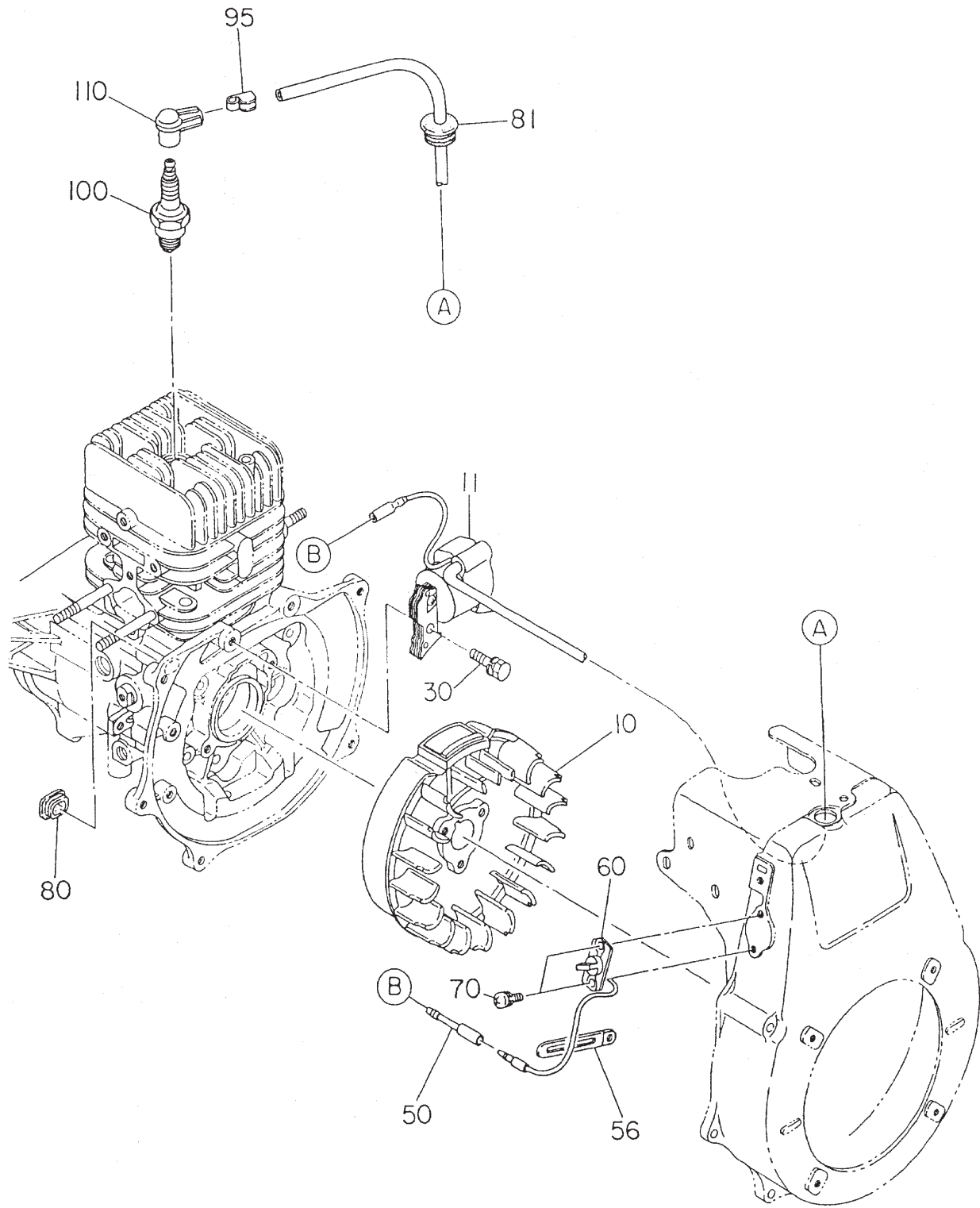
# ROBIN EC12HS ENGINE — RECOIL STARTER ASSY.



## ROBIN EC12HS ENGINE — RECOIL STARTER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	1615110701	FAN COVER .....	1 .....	REPLACES 1615110706
40	0011406200	BOLT AND WASHER ASSY	3	
41	0011406550	BOLT AND WASHER ASSY	2	
50	1615260203	CYLINDER BAFFLE	1	
70	1619186003	LABEL(ENGINE NAME)	1	
80	0110060020	FLANGE BOLT	3	
81	0152060070	TAPPING BOLT	3	
210	1615010400	RECOIL STARTER ASSY .....	1 .....	INCLUDES ITEMS W/*
210-1*	2155051508	SPIRAL SPRING	1	
210-2*	1615012008	REEL	1	
210-3*	1615011008	STARTER ROPE	1	
210-4*	2365010108	STARTER KNOB	1	
210-5*	1615012508	RATCHET	2	
210-6**	2275013108	FRICTION SPRING	1	
210-7*	2275013508	RETURN SPRING	2	
210-11*	1615014518	STARTER PULLEY	1	
210-35*	1615015008	RATCHET GUIDE	1	
210-49*	2275015208	SET SCREW	1	
216	920100240	DECAL, (M-MARK)	1	
220	0011406120	BOLT AND WASHER ASSY .....	4 .....	REPLACES 0011306120
230	0011306250	BOLT AND WASHER ASSY	3	
231	2267510103	CLAMP	1	
240	1615500113	PULLEY SPACER	1	

# ROBIN EC12HS ENGINE — ELECTRIC DEVICE ASSY.



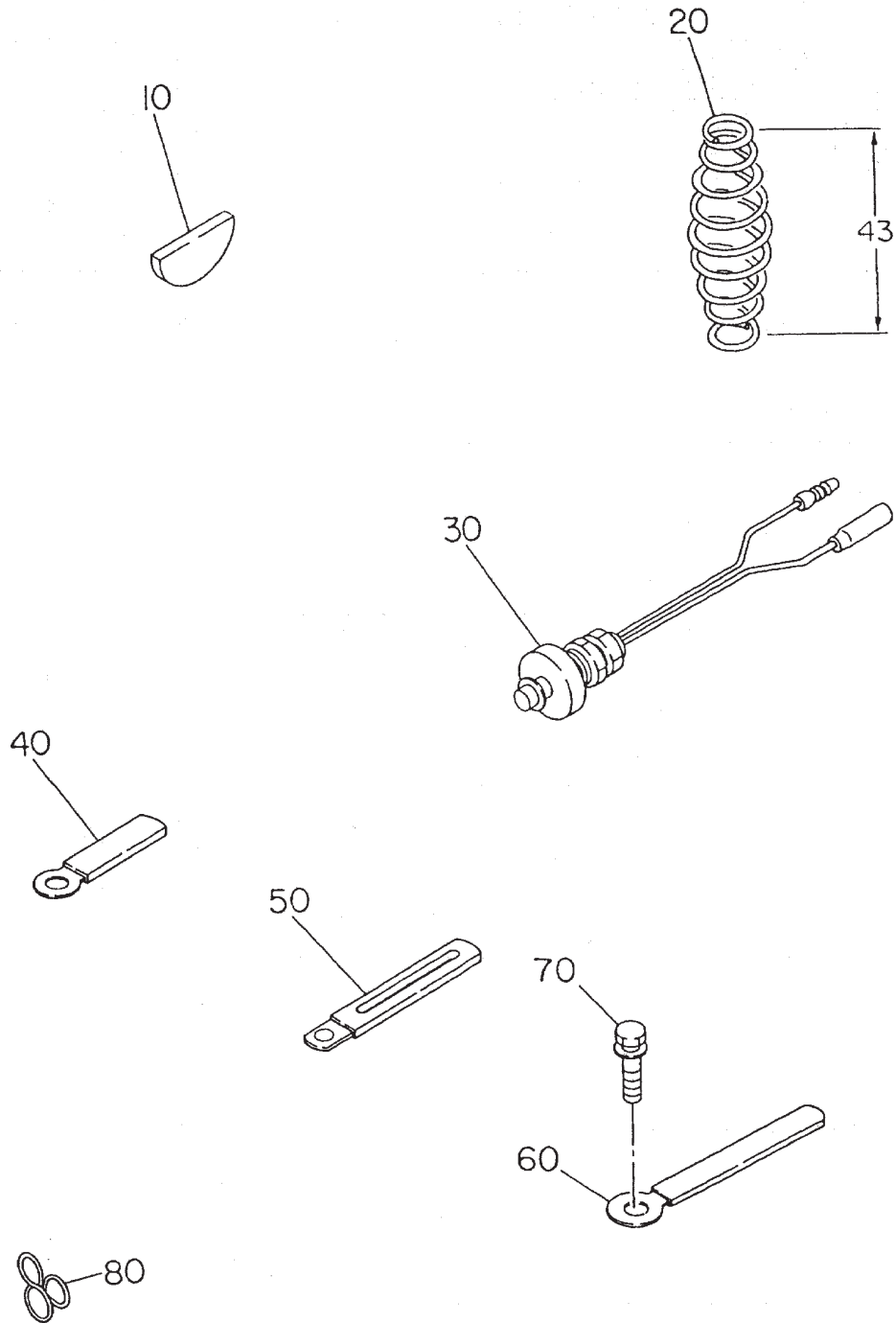
## ROBIN EC12HS ENGINE — ELECTRIC DEVICE ASSY.

---

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	1617012008	FLYWHEEL COMPL.	1	
11	1617013008	IGNITION COIL CP .....	1 .....	S/N 3531 & BELOW REPLACES 1617120101
11	1617120111	IGNITION COIL CP .....	1 .....	S/N 3532 & ABOVE
30	0011006200	BOLT AND WASHER ASSY	2	
50	2147312201	WIRE 22 CP	1	
56	1507520103	CLAMP	1	
60	0669900217	STOP SWITCH AY (ON-OFF).....	1 .....	REPLACES 0660000371
70	0043504120	SCREW AND WASHER ASSY	2	
80	1577500203	GROMMET	1	
81	1617500103	GROMMET, HIGH	1	
95	0659000010	PLUG TERMINAL	1	
100	0650140460	SPARK PLUG	1	
110	2307510113	SPARK PLUG CAP	1	

# ROBIN EC12HS ENGINE — LOOSE PARTS

---



## ROBIN EC12HS ENGINE — LOOSE PARTS

---

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	0053204201	WOODRUFF KEY	1	
20	402010110	COIL SPRING.....	1	.....REPLACES 0830000010
30	1617260101	SWITCH FLOAT CP	1	
40	2267510103	CLAMP	1	
50	1507520103	CLAMP	1	
60	0566000170	CLAMP	1	
70	011008015	BOLT AND WASHER ASSY .....	1	.....REPLACES 0011308120
80	1616391008	CLIP	1	

# TERMS AND CONDITION OF SALE — PARTS

## PAYMENT TERMS

Terms of payment for parts are net 30 days.

## FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

## MINIMUM ORDER

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

## RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
  - a. The parts numbers and descriptions must match the current parts price list.
  - b. The list must be typed or computer generated.
  - c. The list must state the reason(s) for the return.
  - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
  - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.

5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
  - a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
  - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
  - c. Any line item with an extended dealer net price of less than \$5.00.
  - d. Special order items.
  - e. Electrical components.
  - f. Paint, chemicals, and lubricants.
  - g. Decals and paper products.
  - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

## PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

## SPECIAL EXPEDITING SERVICE

A \$35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

## LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

## LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

Effective: February 22, 2006





# OPERATION AND PARTS MANUAL

## HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL  
NUMBER ON-HAND WHEN CALLING

### UNITED STATES

#### ***Multiquip Corporate Office***

18910 Wilmington Ave.  
Carson, CA 90746  
Contact: mq@multiquip.com

Tel: (800) 421-1244  
Fax: (800) 537-3927

#### ***Service Department***

800-421-1244  
310-537-3700

Fax: 310-537-4259

#### ***Technical Assistance***

800-478-1244

Fax: 310-943-2238

#### ***MQ Parts Department***

800-427-1244  
310-537-3700

Fax: 800-672-7877  
Fax: 310-637-3284

#### ***Warranty Department***

800-421-1244  
310-537-3700

Fax: 310-943-2249

### MEXICO

#### ***MQ Cipsa***

Carr. Fed. Mexico-Puebla KM 126.5  
Momoxpan, Cholula, Puebla 72760 Mexico  
Contact: pmastretta@cipsa.com.mx

Tel: (52) 222-225-9900  
Fax: (52) 222-285-0420

### CANADA

#### ***Multiquip***

4110 Industriel Boul.  
Laval, Quebec, Canada H7L 6V3  
Contact: jmartin@multiquip.com

Tel: (450) 625-2244  
Tel: (877) 963-4411  
Fax: (450) 625-8664

### UNITED KINGDOM

#### ***Multiquip (UK) Limited Head Office***

Unit 2, Northpoint Industrial Estate,  
Globe Lane,  
Dukinfield, Cheshire SK16 4UJ  
Contact: sales@multiquip.co.uk

Tel: 0161 339 2223  
Fax: 0161 339 3226

© COPYRIGHT 2012, MULTIQUIP INC.

Multiquip Inc, the MQ logo and the Mikasa logo are registered trademarks of Multiquip Inc. and may not be used, reproduced, or altered without written permission. All other trademarks are the property of their respective owners and used with permission.

This manual MUST accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

The information and specifications included in this publication were in effect at the time of approval for printing. Illustrations, descriptions, references and technical data contained in this manual are for guidance only and may not be considered as binding. Multiquip Inc. reserves the right to discontinue or change specifications, design or the information published in this publication at any time without notice and without incurring any obligations.

Your Local Dealer is:

