

OPERATION AND PARTS MANUAL



Tamping Rammer *Mikasa* Model MTR-40HS

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Revision #2 (12/15/03)



MULTIQUIP INC.

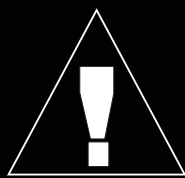
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CARSON, CALIFORNIA 90746
310-537-3700
800-421-1244
FAX: 310-537-3927

PARTS DEPARTMENT:

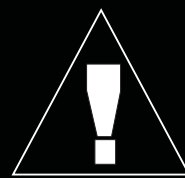
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WARNING



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.

HERE'S HOW TO GET HELP

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

MULTIQUIP'S MAIN PHONE NUMBERS

800-421-1244 FAX: 310-537-3927
310-537-3700

PARTS DEPARTMENT

800-427-1244 FAX: 800-672-7877
310-537-3700 FAX: 310-637-3284

MAYCO PARTS

800-306-2926 FAX: 800-672-7877
310-537-3700 FAX: 310-637-3284

SERVICE DEPARTMENT

800-478-1244 FAX: 310-537-4259
310-537-3700

MQ POWER SERVICE DEPARTMENT

800-835-2551 FAX: 310-638-8046
310-537-3700

TECHNICAL ASSISTANCE

800-478-1244 FAX: 310-631-5032

WARRANTY DEPARTMENT

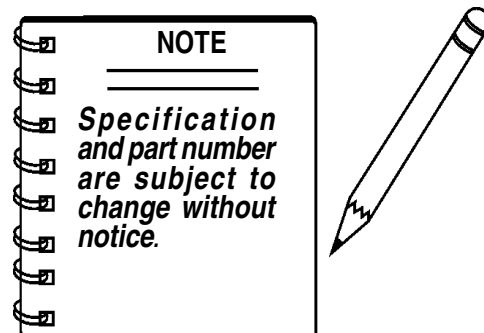
800-421-1244, EXT. 279 FAX: 310-537-1173
310-537-3700, EXT. 279

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When ordering parts, please supply the following information:

- Dealer account number
- Dealer name and address
- Shipping address (if different than billing address)
- Return fax number
- Applicable model number
- Quantity, part number and description of each part
- Specify preferred method of shipment:
 - ✓ FedEx or UPS Ground
 - ✓ FedEx or UPS Second Day or Third Day
 - ✓ FedEx or UPS Next Day
 - ✓ Federal Express Priority One
 - ✓ DHL
 - ✓ Truck

Note: Unless otherwise indicated by customer, all orders are treated as "Standard Orders", and will ship within 24 hours. We will make every effort to ship "Air Shipments" the same day that the order is received, if prior to 2PM west coast time. "Stock Orders" must be so noted on fax or web forms.



Here's how to get help...

Please have the model and serial number on hand when calling.

Parts Department

800-427-1244 Fax: 800-672-7877
310-537-3700 Fax: 310-637-3284

Mayco Parts

800-306-2926 Fax: 800-672-7877
310-537-3700 Fax: 310-637-3284

Service Department

800-478-1244 Fax: 310-537-4259
310-537-3700

MQ Power Service Department

800-835-2551 Fax: 310-638-8046
310-537-3700

Technical Assistance

800-478-1244 Fax: 310-631-5032

Warranty Department

800-421-1244, Ext. 279 Fax: 310-537-1173
310-537-3700, Ext. 279

Multiquip's Main Phone Numbers

800-421-1244 Fax: 310-537-3927
310-537-3700



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FAX: 310-537-3927
E-MAIL: mq@multiquip.com
WWW: multiquip.com

Place Your Parts Order Via Web or Fax For Even More Savings!

Extra Discounts!

All parts orders which include complete part numbers and are received by our automated web parts order system, or by fax qualify for the following extra discounts:

Ordered via	Standard orders	Stock orders (\$750 list and above)
Fax	3%	10%
Web	5%	10%

Special freight allowances when you order 10 or more line items via Web or Fax! **

FedEx Ground Service **at no charge for freight**
No other allowances on freight shipped by any other carrier.

NOTE: DISCOUNTS ARE SUBJECT TO CHANGE

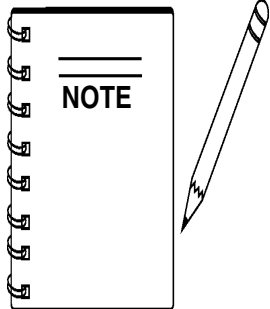
Direct TOLL-FREE access to our Parts Department:

Toll-free nationwide — 800-427-1244

MTR-40HS — SAFETY MESSAGE ALERT SYMBOLS

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

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.



This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the Multiquip MTR-40HS Tamping Rammer. Refer to the engine manufacturer's instructions for data relative to its safe operation.

Before using this Rammer, ensure that the operating individual has read and understands all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

The three (3) 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 three words: **DANGER**, **WARNING**, or **CAUTION**.



DANGER: You **WILL** be **KILLED** or **SERIOUSLY** injured if you do not follow directions.



WARNING: You **CAN** be **KILLED** or **SERIOUSLY** injured if you do not follow directions.



CAUTION: You **CAN** be injured if you do not follow directions.

Potential hazards associated with the MTR-40HS Tamping Rammer operation will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

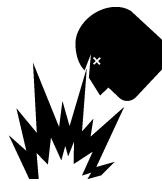
HAZARD SYMBOLS



Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.



Explosive Fuel



GASOLINE is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids. **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 approved containers, in well-ventilated areas and away from sparks and flames. **NEVER** use fuel as a cleaning agent.



Burn Hazards



Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. Never operate the engine with heat shields or heat guards removed.



Rotating Parts



NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.

MTR40-HS — SAFETY MESSAGE ALERT SYMBOLS



Accidental Starting



ALWAYS place the engine ON/OFF switch in the **OFF** position, and remove the ignition key when the machine is not in use.



Respiratory Hazard



ALWAYS wear approved respiratory protection.



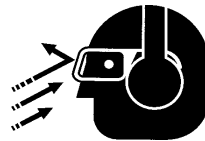
Over Speed Conditions



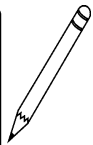
NEVER tamper with the factory settings of the engine governor or settings. Personal injury and damage to the engine or equipment can result if operating in speed ranges above maximum allowable.



Sight and Hearing hazard



ALWAYS wear approved eye and hearing protection.



This *rammer*, other property, or the surrounding environment could be damaged if you do not follow instructions.



Equipment Damage Messages

Other important messages are provided throughout this manual to help prevent damage to your rammer, other property, or the surrounding environment.

MTR-40HS — RULES FOR SAFE OPERATION

DANGER:



Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the MTR-40HS Tamping Rammer:

SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual.



- This equipment should not be operated by persons under 18 years of age.
- **NEVER** operate the rammer without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.



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

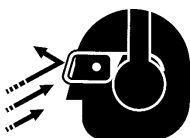


- **NEVER** operate the rammer under the influence of drugs or alcohol.



- **ALWAYS** check the rammer for loosened threads or bolts before starting.

- **ALWAYS** wear proper *respiratory* (mask), *hearing* and *eye*



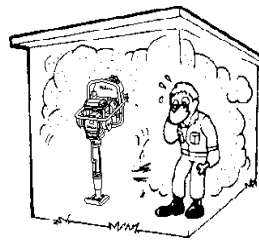
- Manufacturer does not assume responsibility for any accident due to equipment modifications.

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



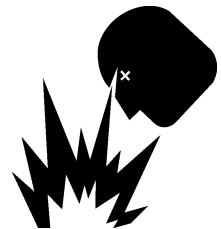
- **High Temperatures** – Allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with **hot!** components can cause serious burns.

- The engine of this rammer requires an adequate free flow of cooling air. **NEVER** operate the rammer in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the rammer's engine and may cause injury to people. Remember the rammer's engine gives off **DEADLY** carbon monoxide gas.



- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.

- **ALWAYS** use extreme caution when working with **flammable** liquids. When refueling, **stop the engine** and allow it to cool.



- **NEVER smoke** around or near the machine. Fire or explosion could result from **fuel vapors**, or if fuel is spilled on a **hot!** engine.



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

- Topping-off to filler port is dangerous, as it tends to spill fuel.

MTR-40HS — RULES FOR SAFE OPERATION

- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- **NEVER** Run engine without air filter. Severe engine may occur. Service air filter frequently to prevent carburetor malfunction.
- **AVOID** wearing jewelry or loose fitting clothing that may snag on the controls or moving parts, this can cause a serious injury.
- **ALWAYS** check to make sure that the operating area is clear before starting the engine.
- **NEVER** leave the machine *unattended* while running.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operations techniques before using rammer.
- **ALWAYS** read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.
- **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.
- Refer to the *ROBIN Engine Owner's Manual* for engine technical questions or information recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

Transporting

- **ALWAYS** shutdown engine before transporting.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Drain fuel when transporting rammer over long distances or bad roads.
- When placing the rammer inside a truck-bed for transport, always tie-down the rammer.
- **ALWAYS** use proper lifting techniques when moving the rammer.

Maintenance Safety

- **NEVER** lubricate components or attempt service on a running rammer.
- **ALWAYS** allow the rammer a proper amount of time to cool before servicing.
- Keep the rammer in proper running condition.
- Fix damage to the rammer immediately and always replace broken parts.
- 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.

Emergencies

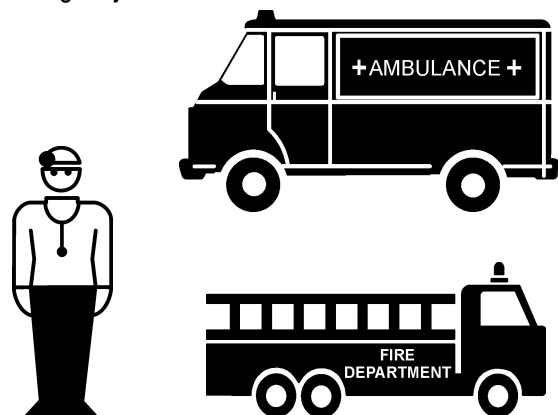
- **ALWAYS** know the location of the nearest *fire extinguisher*.



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



- In emergencies *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.



MTR-40HS — OPERATION AND SAFETY DECALS



P/N 920100240



P/N 920209100

NPA-910

When you stop the engine, be sure to close the fuel cock

NPA-399

P/N 920203990

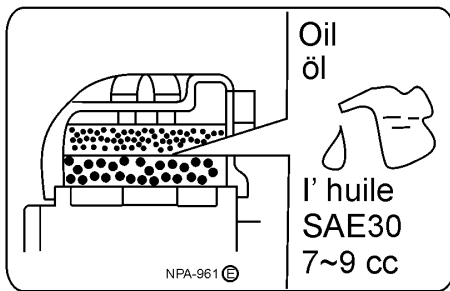
GREASE
NPA-120

P/N 920101200

CLEANING ELEMENT:
Remove the element from the pre-cleaner
Clean the element with solvent
Apply SAE30 motor oil with 7~9 cc, and squeeze out excess oil before re-installing.

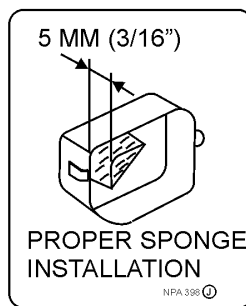
NPA-963

P/N NPA-963



NPA-961

P/N 920209610



NPA 398

P/N 920203980

DO NOT ALLOW WATER TO ENTER FUEL AND OIL TANKS

NP-599

P/N 920205990

To start, switch must be in the "ON" position

NPA 293

P/N 920202930

SECONDARY AIRFILTER SERVICE MONTHLY

NPA 1016

P/N NPA1016

GASOLINE ONLY

NPA-1017

P/N NPA1017

PRIMARY AIRFILTER CHECK DAILY

NPA 1018

P/N NPA1018

NAMEPLATE

CONTACT MULTIQUIP SERVICE DEPT.

- READ OWNER'S SERVICE MANUAL BEFORE OPERATING OR SERVICING THIS MACHINE.
- ALWAYS KEEP UNAUTHORIZED, INEXPERIENCED, UNTRAINED PEOPLE AWAY FROM THIS MACHINE.
- MAKE SURE ALL SAFETY DEVICES ARE OPERATIONAL BEFORE THIS MACHINE IS STARTED. MAKE SURE ENGINE IS TURNED OFF AND SPARK PLUG WIRE DISCONNECTED BEFORE SERVICING THE MACHINE OR COMING IN CONTACT WITH ANY MOVING PART. IF EQUIPMENT IS POWERED BY AN ELECTRIC MOTOR DISCONNECT ELECTRICAL PLUG.
- NEVER LEAVE MACHINE UNATTENDED WHEN OPERATING. ALWAYS STOP ENGINE AND ALLOW ENGINE TO COOL BEFORE ADDING FUEL OR OIL.

NPA-329

P/N 920203290

4250 ~ 4450 RPM
NPA-982

P/N 920107660

CAUTION

1. Check that all bolts are tight.
2. Before operation, check 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.
3. Fill the fuel tank. Use only regular unleaded gasoline.
4. To start the engine: Turn the ignition switch to the "on" position. Open the fuel-cock located under the fuel tank. Close the choke lever located on the carburetor and pull starter rope. When engine starts, open choke fully.
5. Should the engine become difficult to start, open the drain cock located on the lower side of the crankcase and discharge any excess fuel by cranking the engine 2 or 3 times.
6. Allow the engine to warm up for 4 to 5 minutes before operation.
7. To begin operation, move the throttle lever quickly from the "start" to the "run" or "on" position.
8. Remember to close the engine drain-cock after starting to ensure proper operation.
9. When operation is complete, stop the engine by turning the ignition switch to the "off" position.
10. Note: Transport the machine with the fuel-cock in the "off" position only.

NPA-581

P/N 920205810

Definition of Tamping Rammer

The Mikasa MTR-40HS 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 MTR-40HS levels and uniformly compacts voids between soil particles to increase dry density.

Circular motion is converted to create impact force. The MTR-40HS 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 MTR-40HS is equipped with a 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 MTR-40HS 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 MTR-40HS Tamping Rammer identify and understand the function of the controls, see Figure 1 on page 13.

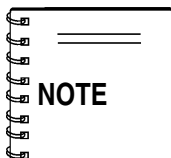
MTR-40HS — SPECIFICATIONS

Table 1. MTR-40HS Rammer Specifications

MODEL	MTR-40HS U.S. (metric)
Overall Height	43.7 in. (1,110 mm)
Overall Width	13.8 in. (351 mm)
Over Length	24.5 in. (622 mm)
Shoe Size	5.9 x 10.6 in. (150 x 270 mm)
Blows/minute	600 ~ 690
Tamping Area	1,445 sq. ft. per hr (134 sq.m per hr)
Impact Force	1,100 - 1,225 lbs./blow (500 - 550kg/blow)
Clutch	Automatic Centrifugal
Operating Weight	97 lbs. (44 kg)

Table 2. ROBIN EC-08HS Engine Specifications

	Model	ROBIN EC08HS
Engine	Type	Air-Cooled 2 Stroke Gasoline Engine
	Bore x Stroke	1-31/32 in. x 1-7/32 in. (50 mm x 40 mm)
	Piston Displacement	5.12 cu.in. (78.5 cc)
	Compression Ratio	6.5 : 1
	Continuous Rated Output	1.8 hp/ 4,000 rpm
	Max. Output	3.3 hp/5,500 rpm
	Max. Torque	3.7 ft-lb/3,600 rpm (0.551 Kg-m/3,600 rpm)
	Cooling System	Air-Cooled By Fan
	Lubrication System	Fuel-Lubrication Oil Spraying System
	Fuel Consumption	0.84 lb/hp/h (2.2hp/4,500 rpm)
	Fuel	Gasoline
	Spark Plug	NGK B-6HS
	Starting System	Recoil Starter
Dimension (L x W x H)	11 x 9.75 x 12 in. 280 x 248 x 305 (mm.)	
Dry Net Weight	17 lbs. (7.7 Kg.)	



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

MTR-40HS— CONTROLS AND COMPONENTS

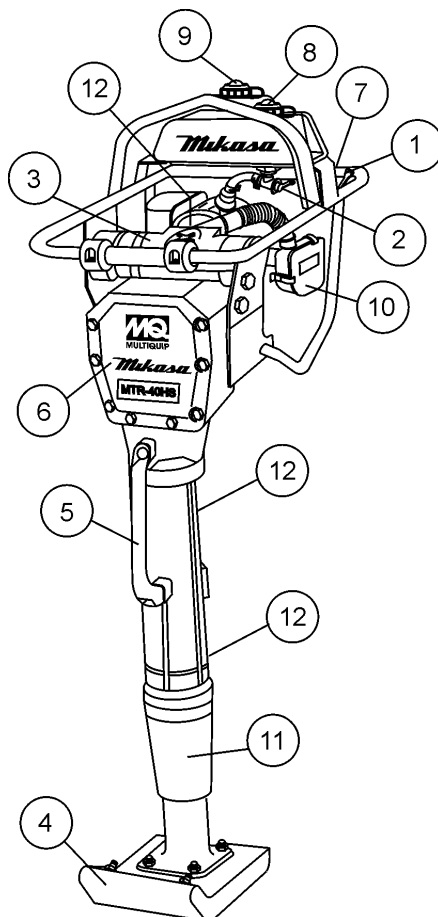


Figure 1. MTR-40HS Rammer

Figure 1 shows the location of the controls and components for the MTR-40HS Tamping Rammer. The functions of each control is described below:

1. **Throttle Lever** – Used to adjust engine speed (rpm). Move lever forward (**SLOW**) to reduce engine speed, move lever back toward operator (**FAST**) to increase speed.
2. **Fuel Shut-Off Valve** – Supplies fuel from the fuel tank to the engine. To begin fuel flow move the fuel shut-off valve downward.
3. **Primary Air Cleaner** – Pre-cleans (first stage) dirt and other debris from entering the engine.
4. **Foot** – Laminated wood with tempered steel plate for superior shock absorption.
5. **Grip** – When transporting the rammer, carry it by gripping the handle.
6. **Nameplate** – Displays information regarding the rammer.
7. **Handle** – To operate rammer **GRIP** handle assembly firmly on both sides.
8. **Fuel Tank/Cap** – Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.
9. **Oil Tank/Cap** – Remove this cap to add 2-stroke outboard motor oil to the oil tank. Make sure cap is tightened securely. **DO NOT** over fill.
10. **Engine Air Cleaner** – Prevents dirt (second stage) and other debris from entering the engine.
11. **Dust Sleeve** – Prevents dust and debris from entering into the spring cylinder.



WARNING

Adding fuel to the tank should be accomplished only when the engine is stopped and has had an opportunity to **cool down**. In the event of a fuel spill, **DO NOT** attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry.

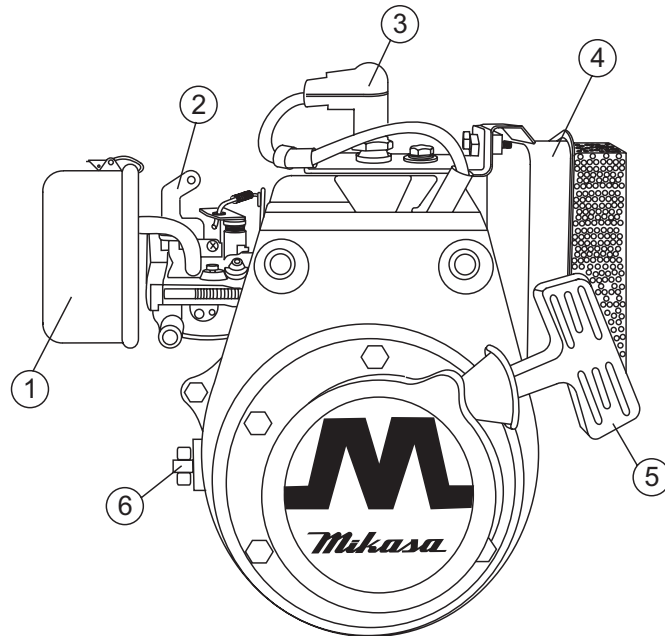


Figure 2. Engine Controls and Components

INITIAL SERVICING

The engine (Figure 2) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's Engine manual for instructions & details of operation and servicing.

1. **Secondary Air Cleaner** – Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cannister to gain access to filter element.
2. **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.
3. **Spark Plug** – Provides spark to the ignition system. Set spark plug gap to 0.6 - 0.7 mm (0.024 - 0.028 inch). Clean spark plug once a week.
4. **Engine ON/OFF Switch** – Controls the starting and stopping of the engine. Switch must be in the "ON" position when starting the engine.

5. **Recoil Starter (pull rope)** – Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
6. **Muffler** – Used to reduce noise and emissions.

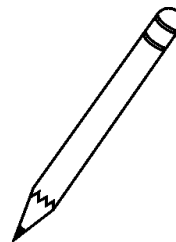


WARNING

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operating. **NEVER** operate the engine with the muffler removed.

NOTE

Operating the engine without an air filter, with a damaged air filter, or a filter in need of replacement will allow dirt to enter the engine, causing rapid engine wear.



This section is intended to assist the operator with the **pre-inspection** of the **MTR-40HS 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.

Inspection

- Check all nuts, bolts fasteners for tightness. Retighten as necessary.
- Clean any dirt from the recoil starter and engine cooling fins. Wipe the entire rammer clean before operating.
- Replace any missing or damaged Safety Operation decals.

CAUTION:



Failure to understand the operation of the **MTR-40HS Tamping Rammer** could result in severe damage to the rammer or personal injury.

Prior to Operation

1. When transporting the machine, carry it by the grip handle located on the body (Figure 3).

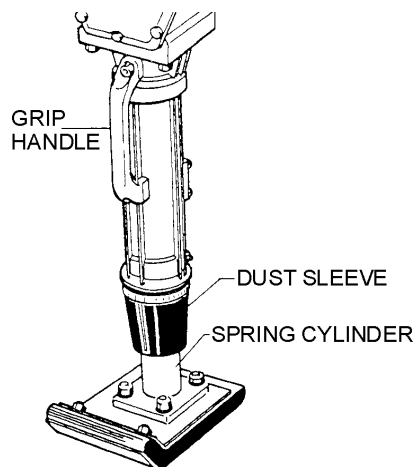


Figure 3. Grip Handle

2. The rammer should be greased with three shots of grease after each eight (8) hours of use.
3. Use MQ HIGH TEMPERATURE GREASE, P/N GRS2 or its equivalent.
4. Equivalent greases include Shell Darina or Texaco Thermatex, both of which have a bentone base and EP-2 rating.
5. If an inferior grease is used, it may become too thick or too thin due to changes in temperature, and improper lubrication could result.

Fuel

1. This rammer is equipped with a two-cycled gasoline engine. Use only unleaded gasoline. High test ethyl gasoline **is not recommended**.
2. If fuel is low, remove the fuel filler cap (Figure 4) and fill with only **unleaded** gasoline. Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. **DO NOT** attempt to refuel the pump if the engine is **hot!** or **running**.

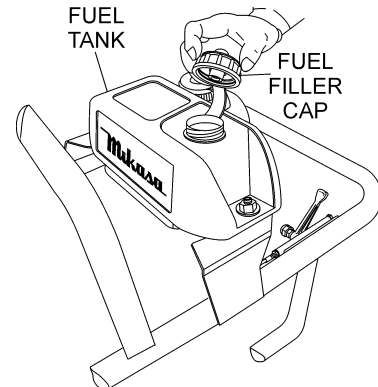


Figure 4. Fuel Tank

Engine Oil Check

1. Check the engine oil level at the sight gauge located on the operator's side of the **oil tank** (Figure 5). 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.
2. Make sure the oil hose is not pinched or squeezed. A sensor detects lack of oil and shuts down the engine automatically.
3. Remember low levels of engine oil may result in engine seizure due to high levels of consumption during operation. Always check oil regularly.

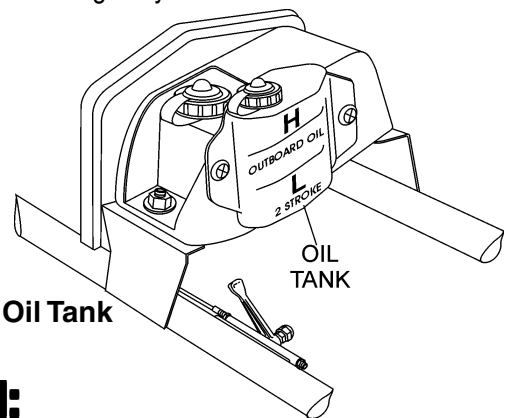


Figure 5. Oil Tank

CAUTION:



DO NOT USE REGULAR AUTOMOTIVE-TYPE MOTOR OIL.

This section is intended to assist the operator with the **initial start-up** of the **MTR-40HS** rammer. It is extremely important that this section be **read carefully** before attempting to use the rammer in the field.



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

CAUTION:



Failure to understand the **initial start-up procedures** of the MTR-40HS rammer could result in severe damage to the rammer or personal injury.

See Figure 1 (Page 13) for the location of any control referenced in this manual.

Initial Start-up

The following steps outline the procedure for starting the engine:

1. Open the **fuel shut-off valve** by moving the **fuel cock** lever to the **open** position (Figure 6).

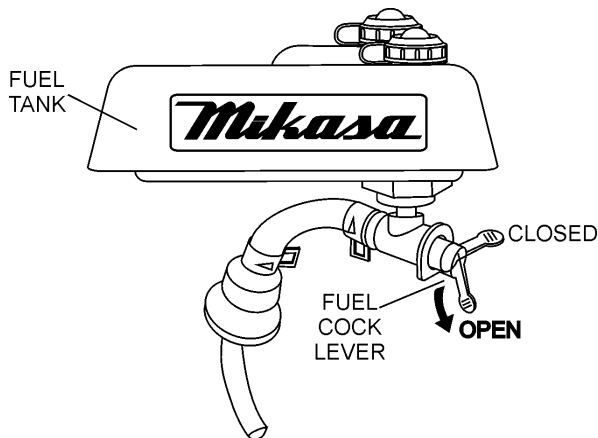


Figure 6. Fuel Shut-Off Valve (Open)

2. Set the engine ON/OFF switch (Figure 7) to the "ON" position (start).

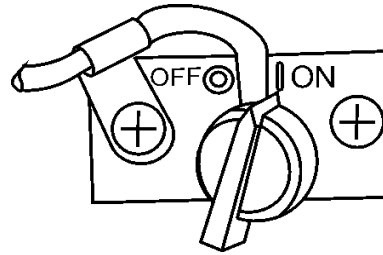


Figure 7. ON/OFF Switch (ON Position)

3. Move the throttle lever to the "IDLE" position (Figure 8).

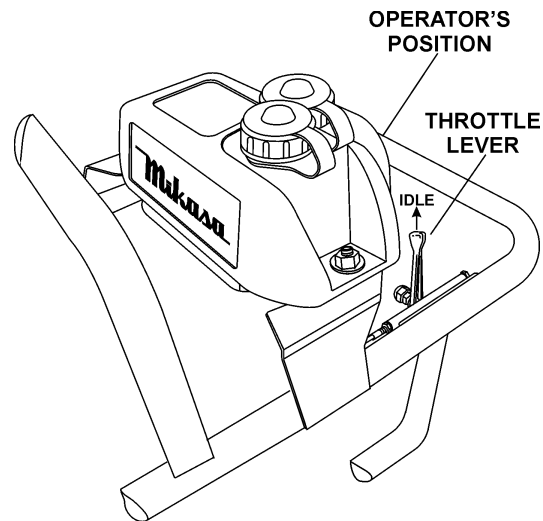


Figure 8. Throttle Lever (Idle)

4. In cold weather, start the unit with choke lever "Fully Closed" (Figure 9). In warm weather or when the engine is warm, the unit can be started with choke halfway or completely **open**.

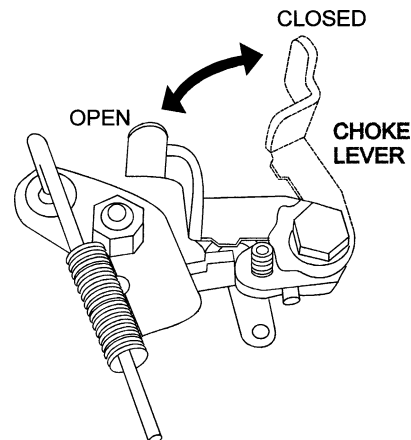


Figure 9. Choke Lever (Closed)

5. Grip the recoil starter (Figure 10) 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.

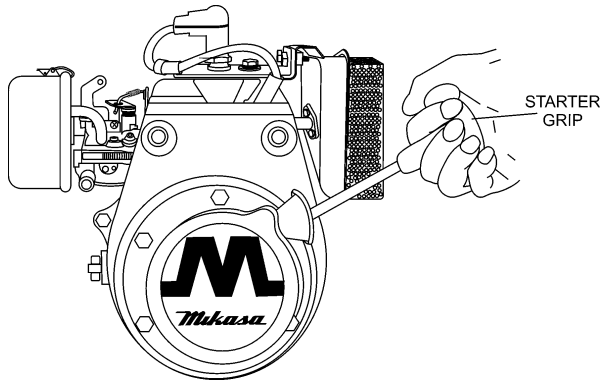


Figure 10. Recoil Starter

8. If the engine does not start after repeated attempts, check the spark plug for excess fuel. Clean and replace the spark plug as needed.
9. If the carburetor is flooded or the crankcase is loaded with excess fuel, open the drain plug as shown in (Figure 11) and drain out excess fuel, then try and start engine.

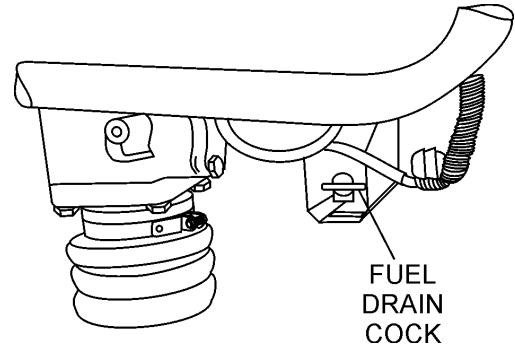


Figure 11. Fuel Drain Cock

6. If engine fails to start, move the choke lever (Figure 9) to the half open position to avoid flooding.
7. Repeat steps 1 through 6.

Operation

1. To start the rammer tamping action, move the throttle lever (Figure 12) **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.

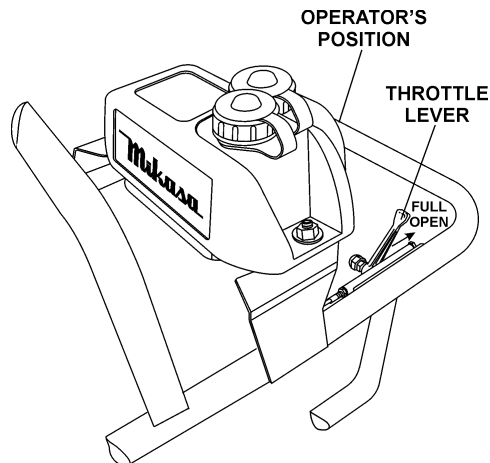


Figure 12. Throttle Lever (Full Open)

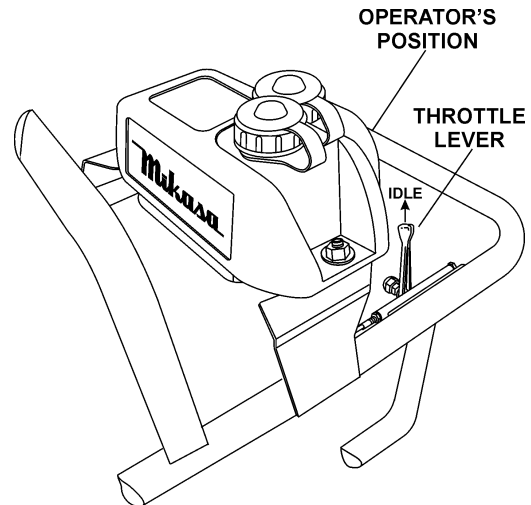


Figure 13. Throttle Lever (Idle)

2. After the engine **cools**, turn the engine **ON/OFF** switch to the **"OFF"** position (Figure 14).

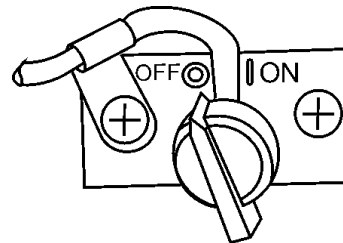


Figure 14. ON/OFF Switch (Off Position)

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

2. The MT-40HS tamping rammer is designed to run at 4,100 **rpm**. At optimum rpm the foot hits at the rate of 600~690 impacts per minute. Increasing throttle speed past factory set rpm does not increase impacts and may damage unit. The MT-40HS is designed to advance while tamping. For faster advance, pull back slightly on the handle so that rear of foot contacts soil first.

3. Close the **fuel shut-off valve** (Figure 15) by moving the fuel cock lever to the **CLOSED** position.

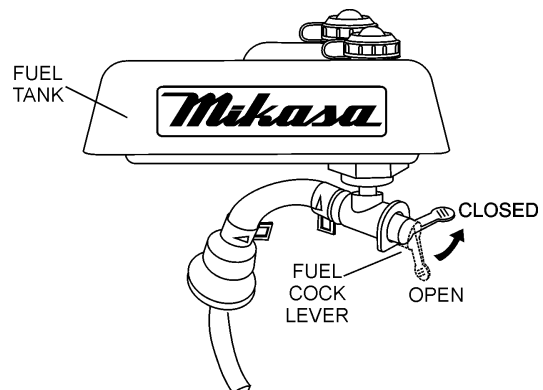


Figure 15. Fuel Shut-Off Valve (Closed Position)

Stopping The Engine

Normal Shutdown

1. Move throttle lever quickly from the **FULL OPEN** to **IDLE** position (Figure 13) and run the engine for three minutes at low speed.

Emergency Showdown

1. Move the throttle lever quickly to the **IDLE** position, and turn the engine **ON/OFF** switch to the **OFF** position. Turn the fuel valve lever to the **CLOSED** position.

MAINTENANCE

Perform the scheduled maintenance procedures as defined by Table 3 (page 21) and below:

DAILY

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

200 - 300 HOURS (Pre-Cleaner)

- Remove the element from the pre-cleaner (Figure 16) at the top of the crankcase (body side) and clean it with cleaning oil (kerosene).

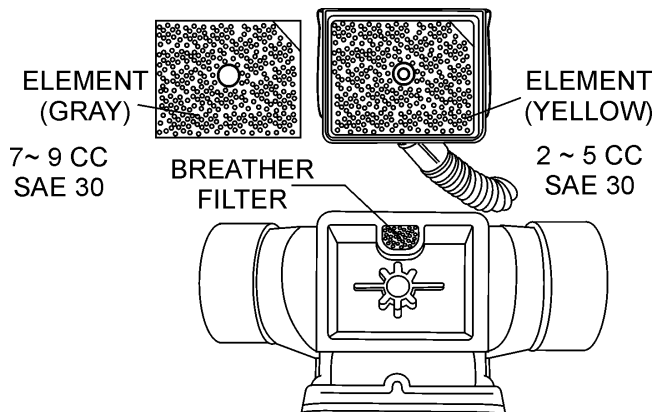


Figure 16. Primary Air Cleaner

- Lubricate the top element (yellow) with 2~5 cc of engine oil SAE-30.
- Lubricate bottom element (gray) with 7~9 cc of engine oil SAE-30 and completely squeeze out the excess oil from the element before installing.
- The air cleaner (Figure 17) on the engine side will hardly be contaminated, if it is, clean the outer foam gray element with cleaning solvent. Tightly squeeze outer foam element to remove any excess solvent before reinstalling.

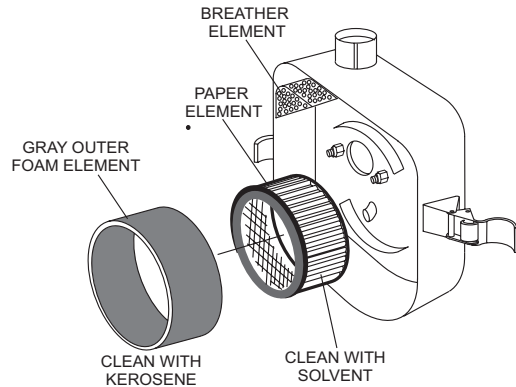


Figure 17. Engine Air Cleaner

- Tap the paper filter element (Figure 17) several times on a hard surface to remove dirt, or blow compressed air [not exceeding 30 psi (207 kPa, 2.1 kgf/cm²)] through the filter element from the air cleaner case side. **NEVER** brush off dirt. Brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.

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.

SPARK PLUG

- Remove and clean the spark plug (Figure 19), then adjust the spark gap to 0.024 ~0.028 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.

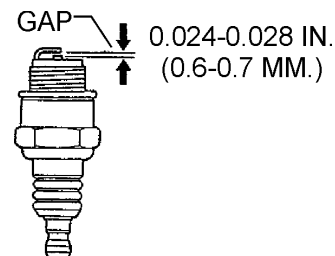


Figure 19. Spark Plug Gap

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 18) perform the following procedure:

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

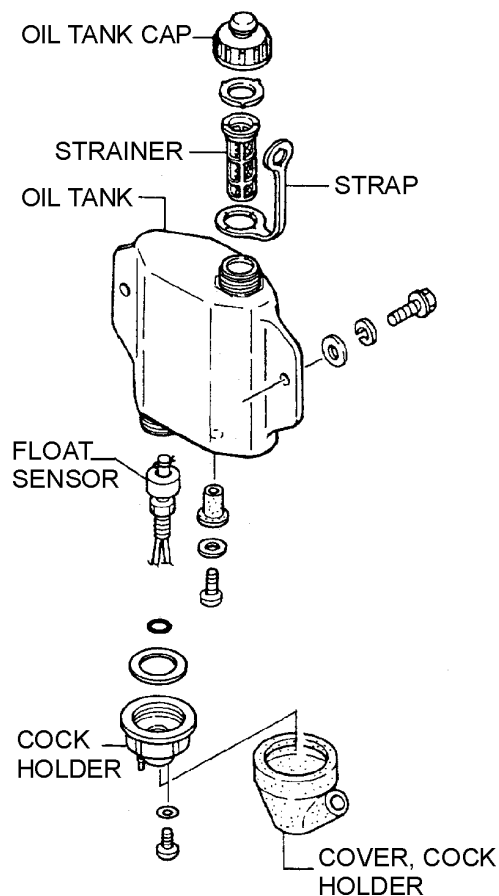


Figure 18. Oil Tank

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 and fuel tank with unleaded gasoline.
3. Operate rammer until all air is bled from oil injection line.

CLEANING THE RAMMER

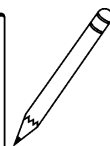
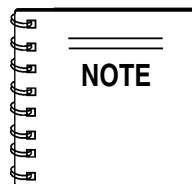
- If using a high pressure spray washer, be careful not to splash water directly on the air cleaner, carburetor, muffler, fuel and oil tank caps. Excessive amounts of water may cause severe engine damage.

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



Reference manufacturer engine manual for specific servicing instructions.

MTR-40HS — MAINTENANCE (ENGINE)

Perform the scheduled engine maintenance procedures as defined by Table 3 below:

Table 3. Engine Maintenance Schedule							
DESCRIPTION (3)	OPERATION	BEFORE	FIRST MONTH OR 10 HRS.	EVERY 3 MONTHS OR 25 HRS.	EVERY 6 MONTHS OR 50 HRS.	EVERY YEAR OR 100 HRS.	EVERY 2 YEARS OR 200 HRS.
Engine Oil	CHECK	X					
	CHANGE		X				
Air Cleaner	CHECK	X					
	CHANGE			X (1)			
All Nuts & Bolts	Re-tighten If Necessary	X					
Spark Plug	CHECK-CLEAN				X		
	REPLACE						X
Cooling Fins	CHECK				X		
Spark Arrester	CLEAN					X	
Fuel Tank	CLEAN					X	
Fuel Filter	CHECK					X	
Idle Speed	CHECK-ADJUST					X (2)	
Valve Clearance	CHECK-ADJUST						X (2)
Fuel lines	CHECK	Every 2 years (replace if necessary) (2)					

(1) Service more frequently when used in **DUSTY** areas.

(2) These items should be serviced by your servic dealer, unless you have the proper tools and are mechanically proficient. Refer to the HONDA shop Manual for service procedures

(3) For commercial use, log hours of operation to determine proper maintenance intervals.

MTR-40HS—TROUBLESHOOTING GUIDE

TABLE 4. ENGINE TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Difficult to start		
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 NOT 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 normal).	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 low).	Defective cylinder head gasket?	Tighten cylinder head bolts or replace head gasket.
	Cylinder worn?	Replace cylinder.
	Spark plug loose?	Tighen spark plug.
Operation not satisfactory		
Not enough power available (compression normal, no miss-firing).	Air cleaner clogged?	Clean or replace air cleaner.
	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.

MTR-40HS—TROUBLESHOOTING GUIDE

TABLE 4. ENGINE TROUBLESHOOTING (continued)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Operation not satisfactory		
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 spiral spring.

TABLE 5. RAMMER TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine rotates but amplitude 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 spiral spring.
	Speed of engine improper?	Adjust engine speed to correct operating RPM setting.

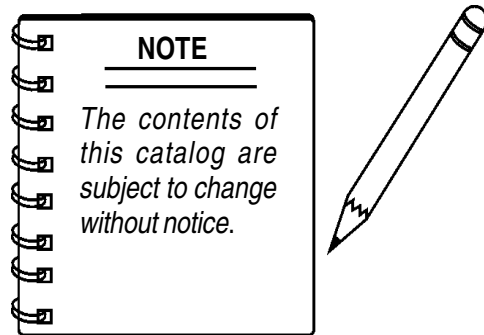
EXPLANATION OF CODE IN REMARKS COLUMN

How to read the marks and remarks used in this parts book.

Items Found In the “Remarks” Column

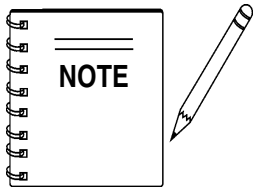
Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.



Items Found In the “Items Number” Column

All parts with same symbol in the number column, *, #, +, %, or >, belong to the same assembly or kit.



If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

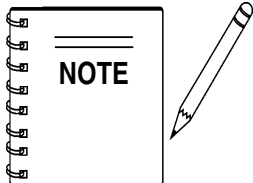
MTR-40HS— SUGGESTED SPARE PARTS

MTR-40HS RAMMER 1 TO 3 UNITS

Qty.	P/N	Description
1	362910060	THROTTLE LEVER ASSY.
1	956100044	THROTTLE WIRE
1	083000010	SPRING, COIL
3	362030020	ELEMENT, AIR CLEANER (YELLOW)
3	1573620101	ELEMENT SET (ENGINE)
3	0650140031	SPARK PLUG
1	361910021	CAP, FUEL TANK W/STRAP (ORANGE)
1	353030071	CAP, OIL TANK W/STRAP (YELLOW)
3	301419750	FUEL FILTER, IN-LINE
1	954404890	STRAINER, FUEL TANK (INSIDE)
1	954406010	STRAINER, FUEL (BOTTOM)
1	5805011040	STARTER ROPE
1	0660000361	SWITCH, STOP

MTR-40HS RAMMER 4 TO 10 UNITS

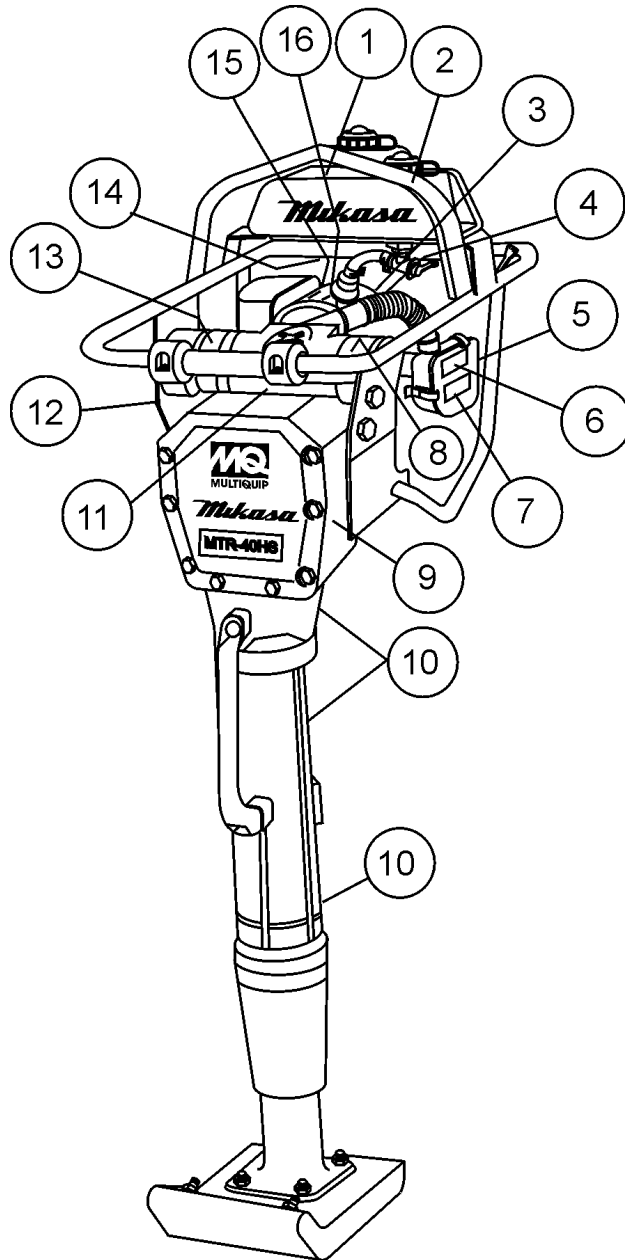
Qty.	P/N	Description
2	362910060	THROTTLE LEVER ASSY.
2	956100044	THROTTLE WIRE
2	083000010	SPRING, COIL
6	362030020	ELEMENT, AIR CLEANER (YELLOW)
6	1573620101	ELEMENT SET (ENGINE)
6	0650140031	SPARK PLUG
2	361910021	CAP, FUEL TANK W/STRAP (ORANGE)
2	353030071	CAP, OIL TANK W/STRAP (YELLOW)
6	301419750	FUEL FILTER, IN-LINE
2	954404890	STRAINER, FUEL TANK (INSIDE)
2	954406010	STRAINER, FUEL (BOTTOM)
2	5805011040	STARTER ROPE
2	0660000361	SWITCH, STOP
1	1293500403	GASKET, COMPLETE EXHAUST
1	2263272008	GASKET, AIR CLEANER
2	1063500103	GASKET, INSULATOR, CARBURETOR
1	KITCARBEC08H	CARBURETOR KIT
1	5806111000	CARBURETOR ASSEMBLY
2	050100800	O-RING, UPPER GUIDE CYLINDER



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

MTR-40HS— NAMEPLATE AND DECALS

NAMEPLATE AND DECALS



MTR-40HS— NAMEPLATE AND DECALS

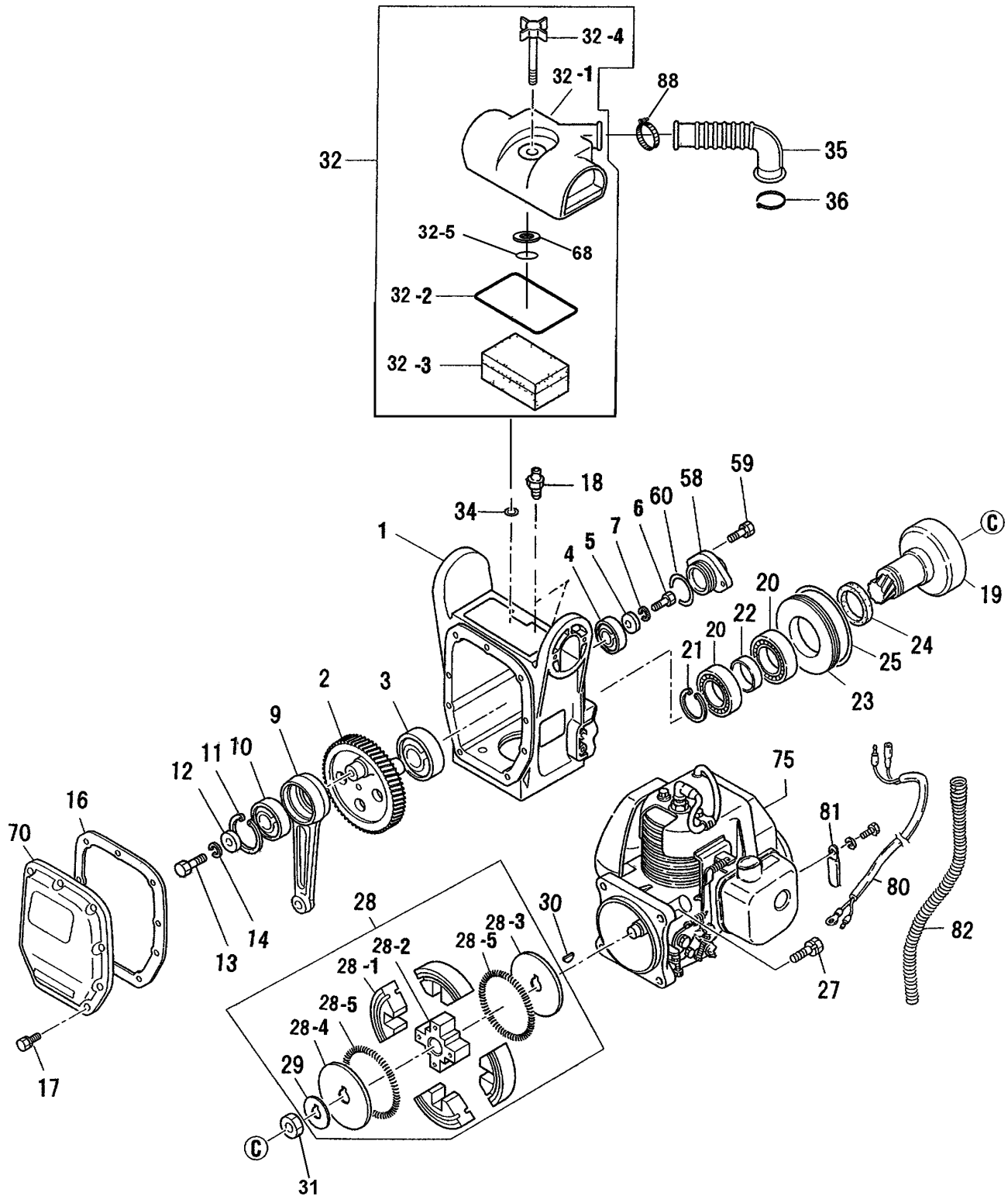
NAMEPLATE AND DECALS

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	NPA1017	DECAL: GASOLINE ONLY	1	
2	920205990	DECAL: CAUTION (WATER)	1	
3	920203990	DECAL: CAUTION (FUEL COCK)	1	
4	920107660	DECAL: ENGINE RPM	1	
5	920203980	DECAL: ELEMENT SET	1	
6	NPA1016	DECAL: SECONDARY AIR FILTER	1	
7	920203290	DECAL: CAUTION	1	
8	920209630	DECAL: CLEANING ELEMENT	1	
9	920209910	PLATE: SERIAL NO.	1	
10	920101200	DECAL: GREASE	3	
11	NPA1018	DECAL: PRIMARY AIR FILTER	1	
12	920209100	DECAL: RAMMER BOOT & HEARING	1	
13	920209610	DECAL: DECAL OIL 7-9 CC	1	
14	920205810	DECAL: CAUTION/OIL INJECT	1	
15	920100240	DECAL: (M-MARK)	1	
16	920202930	DECAL: SWITCH-ON	1	

FOR DECAL ILLUSTRATIONS SEE PAGE 10.

MTR-40HS— CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.



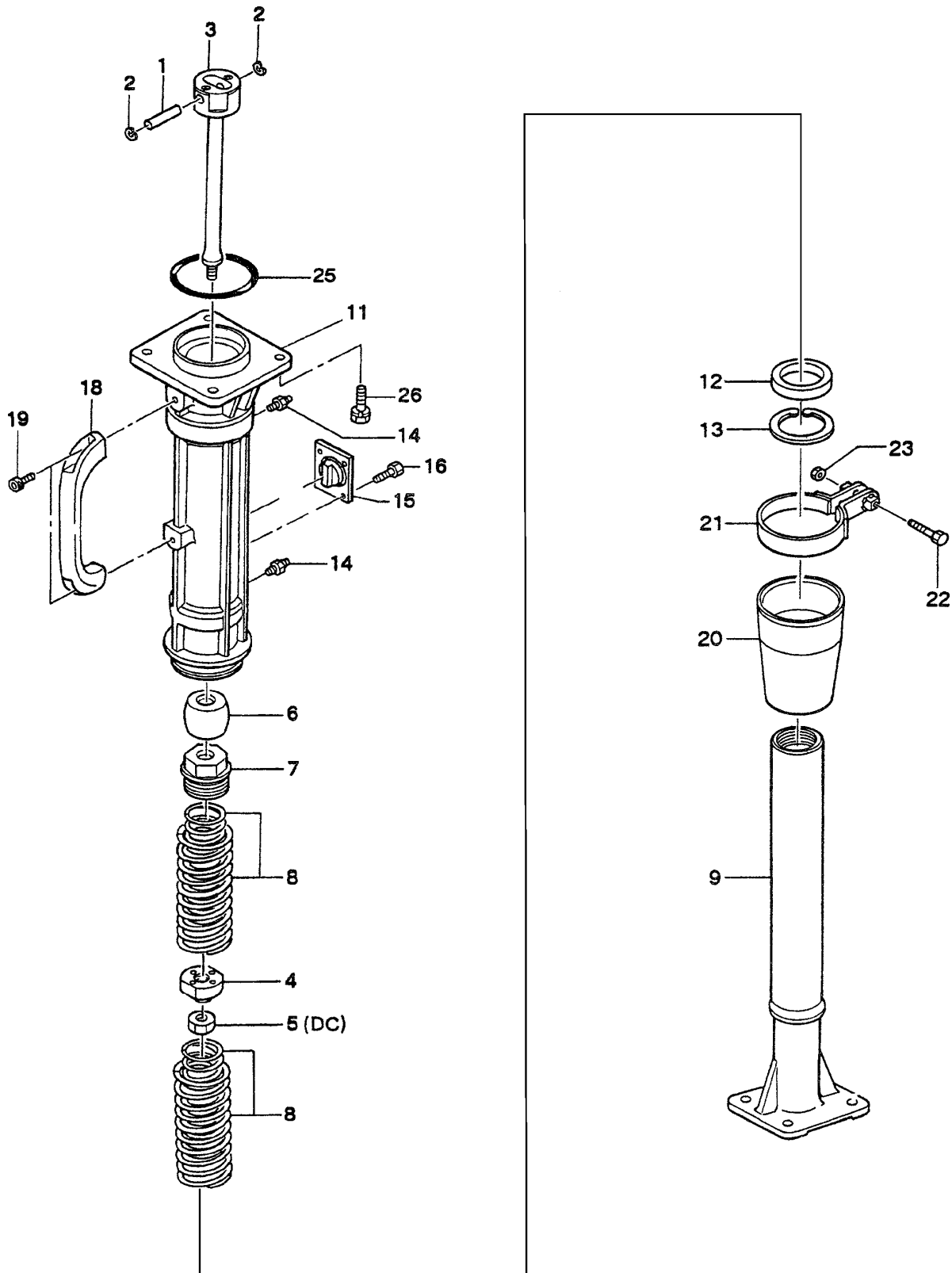
MTR-40HS— CRANKCASE AND ENGINE ASSY.

CRANKCASE & ENGINE ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	305117260	CRANK CASE	1	
2	362341650	CRANK GEAR 1300-59Z	1	
3	041006305	BEARING 6305Z	1	
4	041006203	BEARING 6203Z	1	
5	952401450	WASHER 8.5 x 22 x 3	1	
6	001220825	BOLT 8 x 25 T	1	
7	030208200	WASHER, LOCK M8	1	
9	305333090	CONNECTING ROD	1	
10	042006304	BEARING 6304ZZ	1	
11	080100520	STOP RING R-52	1	
12	952400130	WASHER 9304	1	
13	001220825	BOLT 8 x 25 T	1	
14	030208200	WASHER, LOCK M8	1	
16	362341610	PACKING, FRONT COVER	1	
17	002210620	BOLT 6 x 20 H,SW	9	
18	351010050	GREASE FITTING A-MT6X1	2	
19	303010084	PINION	1	
20	042006007	BEARING 6007ZZ	2	
21	080200350	STOP RING S-35	1	
22	351437750	SPACER 35.4-42.7-11	1	
23	351421900	SPACES, CLUTCH DRUM	1	
24	060504010	OIL SEAL VB-40525	1	
25	050300900	O-RING S-90	1	
27	002210830	BOLT 8 x 30 H,SW	4	
28	301421365	CLUTCH ASSY. CE120E	1	INCLUDES ITEMS W/*
28-1*	943020020	CLUTCH SHOE	4	
28-2*	943050050	CLUTCH BOSS	1	
28-3*	943060010	CLUTCH GUIDE (A)	1	
28-4*	943060020	CLUTCH GUIDE (B)	1	
28-5*	943030020	CLUTCH SPRING	2	
29*	301010210	LOCK WASHER, CLUTCH	1	
30	0053204201	WOODRUFF KEY	1	
31	0173120010	LOCK NUT	1	
32	362116870	AIR CLEANER ASSY.	1	INCLUDES ITEMS W/#
32-1#	362030010	COVER CP, AIR CLEANER	1	
32-2#	362030020	PACKING, AIR CLEANER	1	
32-3#	362030030	ELEMENT CP, AIR CLEANER	1	
32-4#	362030040	BOLT CP, AIR CLEANER	1	
32-5#	050300070	O-RING (7)	1	
34	031108160	WASHER, FLAT M8	1	
35	362341210	INTAKE PIPE	1	
36	507010110	CLAMP TC-200	2	
58	362455660	BEARING COVER	1	
59	002210620	BOLT 6X20 H,SW	2	
60	050100350	O-RING G-35	1	
68#	031108160	WASHER, FLAT M8	1	
70	362010060	FRONT COVER	1	
75	911100843	ENGINE ASSY. EC08DXX(EPA)	1	
80	353448490	WIRE CP	1	
81	2267510103	CLAMP	1	
82	355450600	OUTER LINER 525L	1	
88	64016	HOSE CLAMP 13x16, 1-1/2" SS	1	

MTR-40HS — GUIDE CYLINDER ASSY.

GUIDE CYLINDER AND FOOT ASSY.



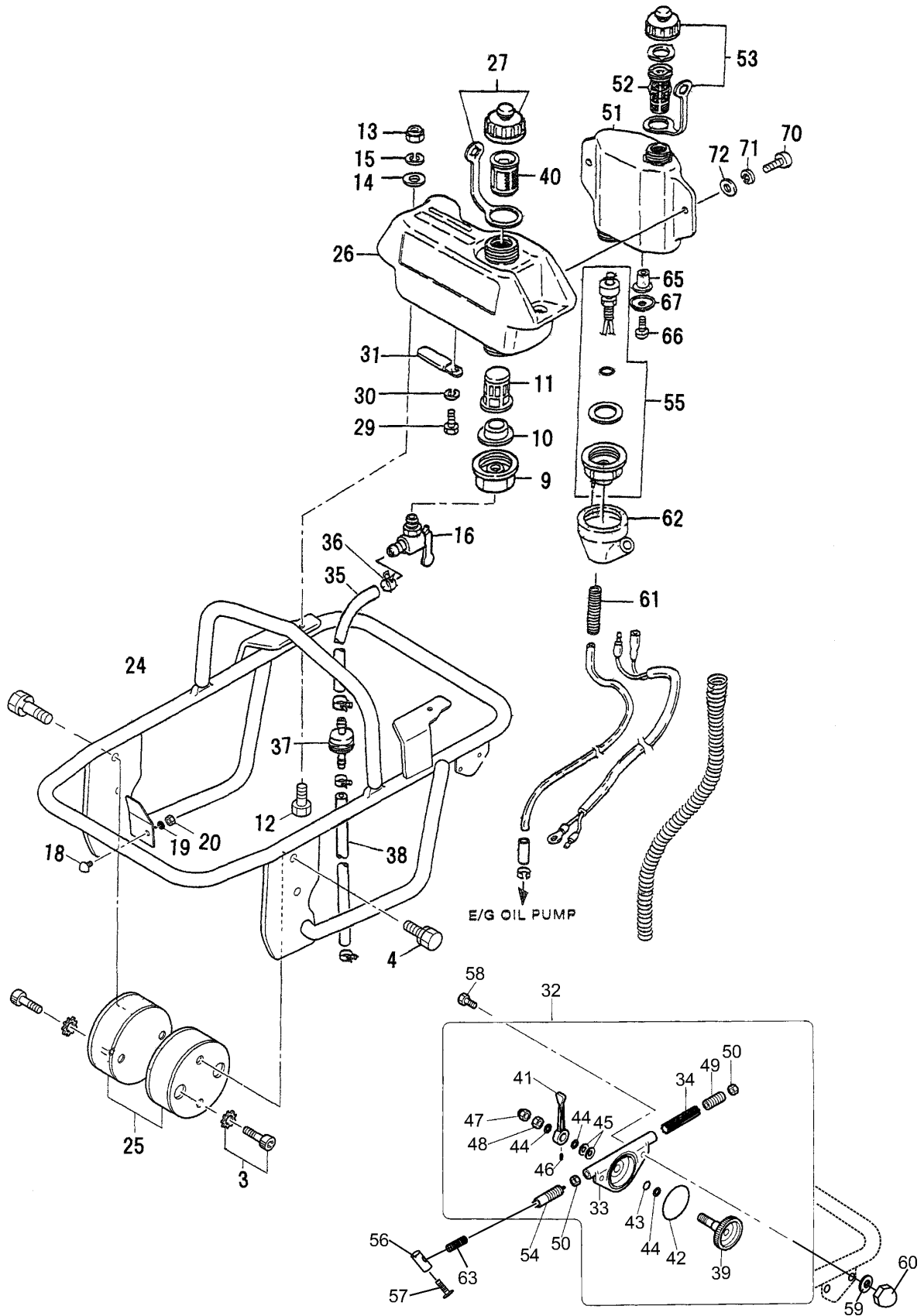
MTR-40HS— GUIDE CYLINDER ASSY.

GUIDE CYLINDER & FOOT ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	305446380	PISTON PIN	1	
2	080100120	STOP RING R-12	2	
3	305337980	PISTON ROD,M14	1	
4	305451550	PISTON END,M14	1	
6	305446400	STOPPER, UPPER	1	
7	305446410	CYLINDER CAP	1	
8	305446420	MAIN SPRING	2	
9	305212710	SPRING CYLINDER	1	
11	305112730	GUIDE CYLINDER	1	
12	065105010	DUST SEAL DKI-5367811	1	
13	080510680	STOP RING TH-R-68	1	
14	351010050	GREASE FITTING A-MT6x1	2	
15	305446430	STOPPER	1	
16	002210815	BOLT 8x15 H, SW	4	
18	305446440	GRIP	1	
19	001520815	SOCKET HEAD BOLT 8x15 T	2	
20	305446450	DUST SLEEVE	1	
21	305446460	SLEEVE BAND	1	
22	001200830	BOLT 8x30	1	
23	020308060	NUT M8	1	
25	050100800	O-RING G-80	1	
26	002211025	BOLT 10x25 H, SW	4	

MTR-40HS—TANK AND HANDLE ASSY.

TANK & HANDLE ASSY.



MTR-40HS—TANK AND HANDLE ASSY.

TANK & HANDLE ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
3	009110007	BOLT, W/STAR WASHER 10x20	4	
4	002211020	BOLT 10x20 H, SW	4	
9	351437785	HOLDER, COCK	1	
10	954406020	PACKING, FUEL TANK	1	
11	954406010	STRAINER (#110)	1	
12	001220830	BOLT 8x30 T	2	
13	022710809	NYLON NUT M8	2	
14	952401450	WASHER 8.5x22x3	2	
15	030208200	SW M8	2	
16	954406000	FUEL COCK ASSY. N18L-02	1	
18	939010210	STOPPER RUBBER EH1002	1	
19	030208200	SW M8	1	
20	020308060	NUT M8	1	
24	305117330	HANDLE	1	
25	351319900	SHOCK ABSORBER	2	
26	361116910	FUEL TANK 2.5L (GRAY)	1	
27	361910070	TANK CAP CP (ORANGE)	1	
29	001200610	BOLT 6x10	1	
30	030206150	WASHER, LOCK M6	1	
31	2267510103	CLAMP	1	
32	362910060	THROTTLE LEVER ASSY.	1	INCLUDES ITEMS W/*
33*	362341550	THROTTLE BODY	1	
34*	362455620	SLIDER	1	
35	302443340	FUEL HOSE R-75	1	
36	954403030	HOSE BAND (8)	4	
37	301419750	FUEL FILTER CP	1	
38	301420330	FUEL HOSE R-170	1	
39*	362455610	THROTTLE GEAR	1	
40	954404890	FILTER, TANK	1	
41*	362455630	THROTTLE LEVER	1	
42*	050100450	O-RING G-45	1	
43*	050200100	O-RING P-10	1	
44*	031110160	WASHER, FLAT M10	3	
45*	033910070	CONICAL SPRING WASHER	2	
46*	096206006	SOCKET HEAD SCREW 6 x 6	1	
47	022131008	CAP NUT M10	1	
48	020410060	NUT M10, H=6	1	
49*	096208020	SOCKET HEAD SCREW 8 x 20	1	
50	020408050	NUT M8, H=5	2	
51	353213710	OIL TANK	1	
52	353449001	STRAINER, OIL TANK	1	

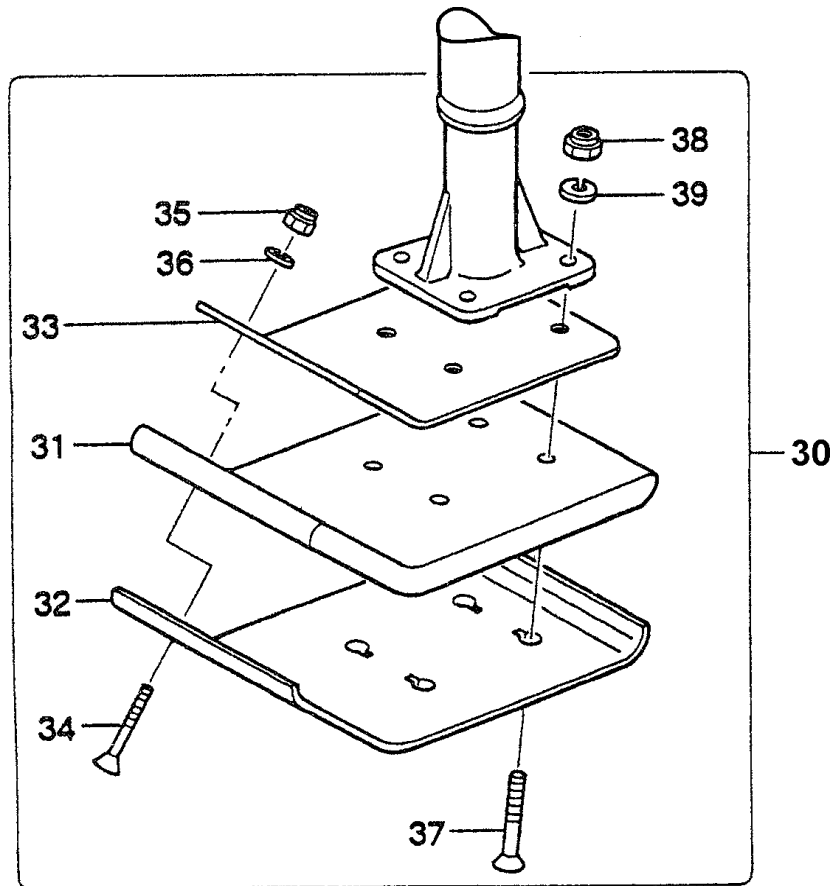
MTR-40HS—TANK AND HANDLE ASSY.

TANK & HANDLE ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
53	353030071	OIL TANK CAP CP (YELLOW)	1	
54	956100044	THROTTLE WIRE S390-485	1	
55	353910020	OIL SENSOR ASSY.	1	
56	959401750	WIRE STOPPER ASSY. (2.5D)	1	340210100
57	091004010	SCREW 4 x 10	1	301010820
58	001220620	BOLT 6 x 20T	2	
59	030206150	SW M6	2	
60	022130605	CAP NUT M6	2	
61	353450220	GUARD, OIL HOSE	1	
62	355448071	COVER, COCK HOLDER	1	
63	0830000010	COIL SPRING	1	
65	353030080	WELL NUT M5	1	
66	091005015	SCREW 5x15	1	
67	952405970	WASHER 6.4D-20D	1	
70	009110011	SOCKET HEAD SCREW 8x20	2	
71	030208200	SW M8	2	
72	952401450	WASHER 8.5x22x3	2	

MTR-40HS— FOOT ASSY. (OPTION)

FOOT ASSY. (OPTION)



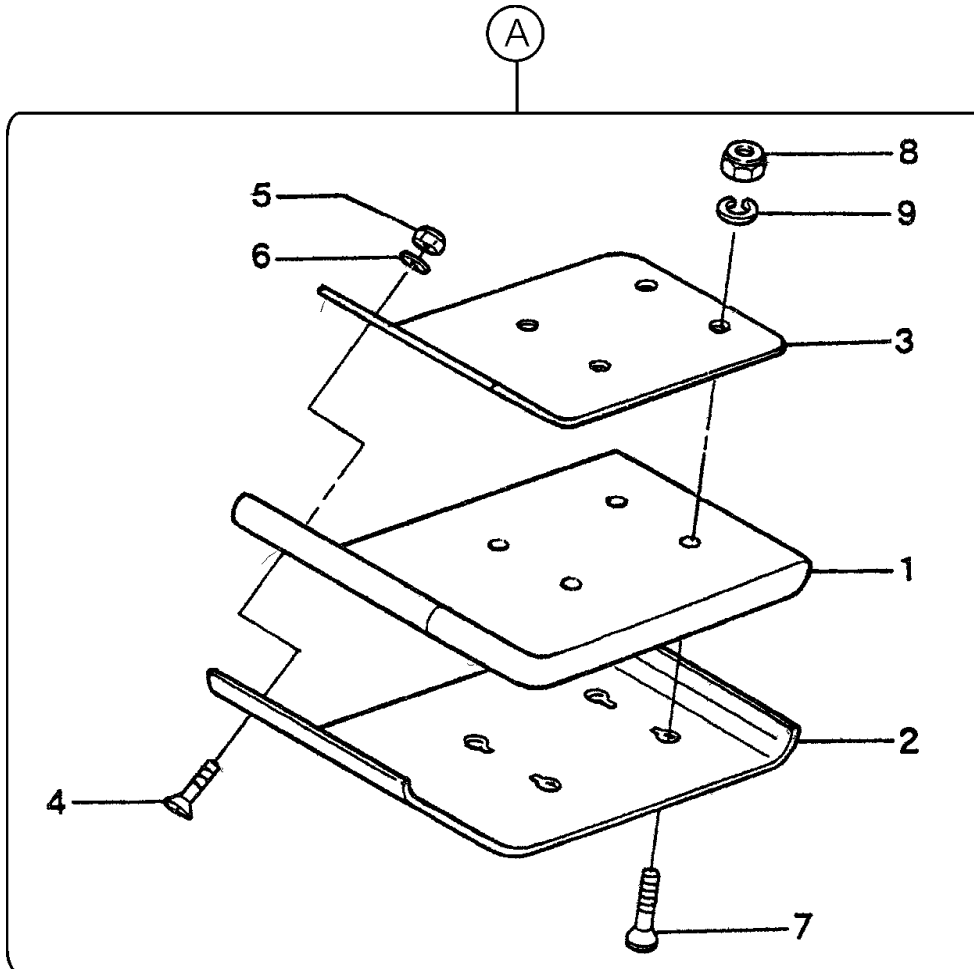
MTR-40HS— FOOT ASSY. (OPTION)

FOOT ASSY. (OPTION)

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
30	305910010	FOOT ASSY. 150B	1	INCLUDES ITEMS W/*
31*	305333120	FOOT 150B	1	
32*	305333130	METAL SHEET 150B	1	
33*	305446470	FOOT COVER	1	
34*	001611050	SUNK HEAD BOLT 10x50 H	2	
35*	022711012	NYLON NUT M10	2	
36*	030210250	WASHER, LOCK M10	2	
37*	001611252	SUNK HEAD BOLT 12x60 H	4	
38*	022711214	NYLON NUT M12	4	
39*	030212300	WASHER, LOCK M12	4	

MTR-40HS— NARROW FOOT ASSY. (OPTION)

NARROW FOOT ASSY. (OPTION)



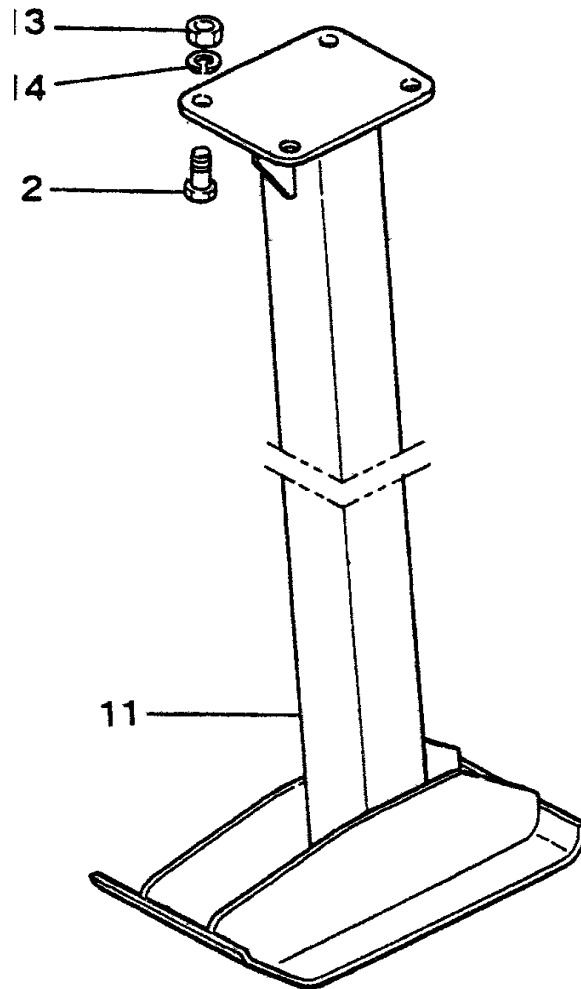
MTR-40HS— NARROW FOOT ASSY. (OPTION)

NARROW FOOT ASSY. (OPTION)

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
A	305910020	FOOT ASSY. 200B	1	INCLUDES ITEMS W/*
A	305910040	FOOT ASSY. 100B	1	INCLUDES ITEMS W/#
1*	305333140	FOOT 200B	1	200B
1#	305334930	FOOT 100B	1	100B
2*	305333150	METAL SHEET 200B	1	200B
2#	305334940	METAL SHEET 100B	1	100B
3*	305446470	FOOT COVER	1	200B
3#	305447810	FOOT COVER 96B	1	100B
4*#	001611050	SUNK HEAD BOLT 10x50 H	2	
5*#	022711012	NYLON NUT M10	2	
6*#	030210250	WASHER, LOCKM10	2	
7*#	001611252	SUNK HEAD BOLT 12x60 H	4	
8*#	022711214	NYLON NUT M12	4	
9*#	030212300	WASHER, LOCK M10	4	

MTR-40HS—TRENCH SHOE ASSY. (OPTION)

TRENCH SHOE ASSY.



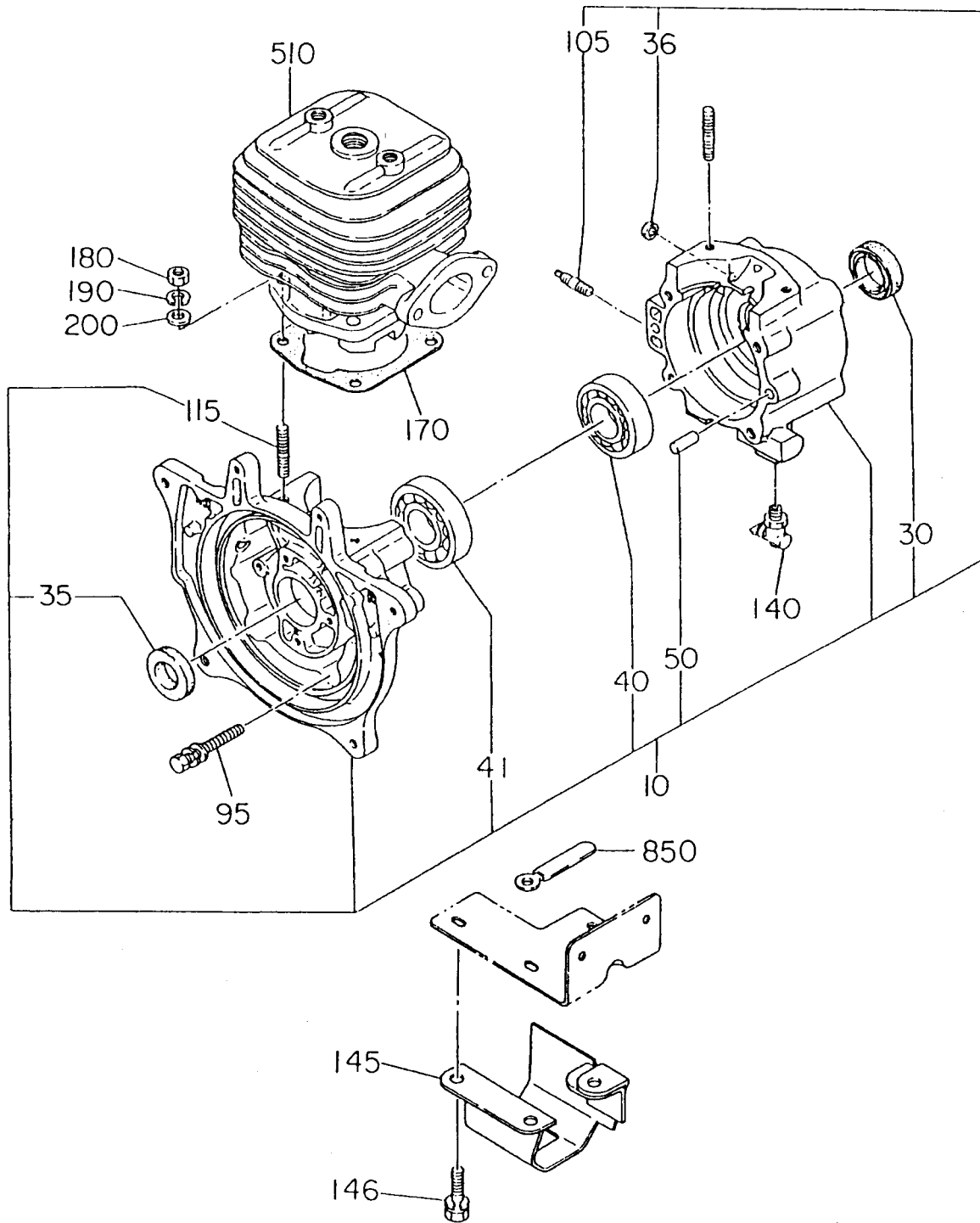
MTR-40HS—TRENCH SHOE ASSY. (OPTION)

TRENCH SHOE ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
11	305333160	TRENCH SHOE 500H-120B	1	
11	305333170	TRENCH SHOE 800H-120B	1	
11	305334390	TRENCH SHOE 305H-100B	1	
12	001221235	BOLT 12x35 T	4	
13	020312100	NUT M12	4	
14	030212300	WASHER, LOCK M12	4	

ROBIN EC-08HS ENGINE — CRANKCASE AND CYLINDER ASSY.

CRANKCASE AND CYLINDER ASSY.



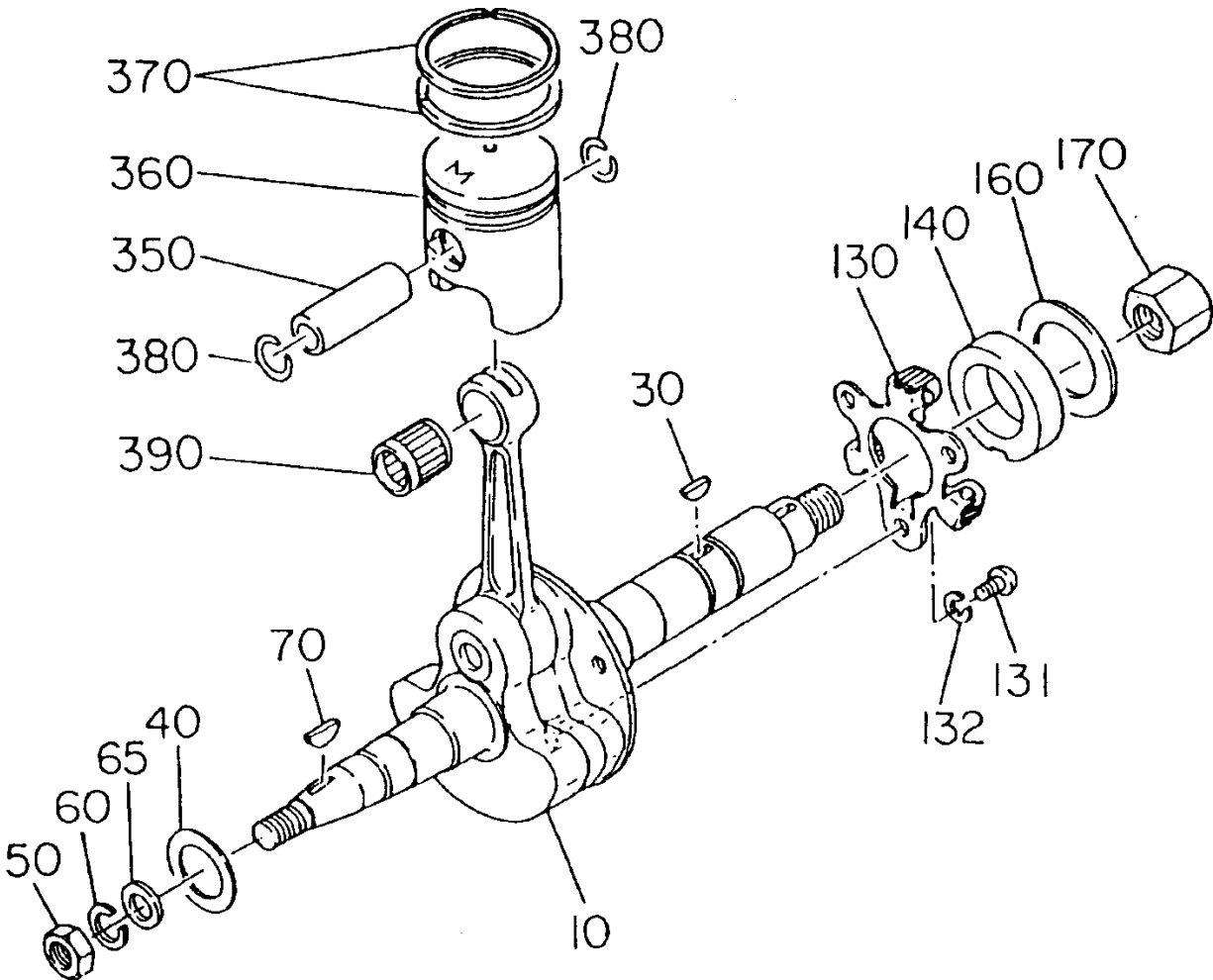
ROBIN EC-08HS ENGINE — CRANKCASE AND CYLINDER ASSY.

CRANKCASE AND CYLINDER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	5801056000	CRANK CASE CP	1	INCLUDES ITEMS W/*
30*	0440200020	OIL SEAL	1	
35*	0440200020	OIL SEAL	1	
36*	0440060010	OIL SEAL	1	
40*	0600200010	BALL BEARING 6004C3	1	
41*	0600200020	BALL BEARING 6204C3	1	
50*	0052606140	DOWEL PIN	2	
95	0011406450	BOLT ASSY	4	
105*	0105060050	STUD	1	
115*	0105064940	STUD	4	
140	0643000101	DRAIN COCK	1	REPLACES 0643109980
145	5809501600	PROTECTOR COMP.	1	REPLACES 5809011000
146	0011308180	BOLT AND WASHER ASSY	3	
170	5801501800	GASKET, CYLINDER	1	
180	0021706000	NUT	4	REPLACES 0021806000
190	030206150	SPRING WASHER	4	REPLACES 0032006000
200	0031006000	WASHER	4	
510	5801501400	CYLINDER CP	1	
850	1507520103	CLAMP	1	REPLACES 0566099950

ROBIN EC-08HS ENGINE — CRANKSHAFT AND PISTON ASSY.

CRANKSHAFT AND PISTON ASSY.



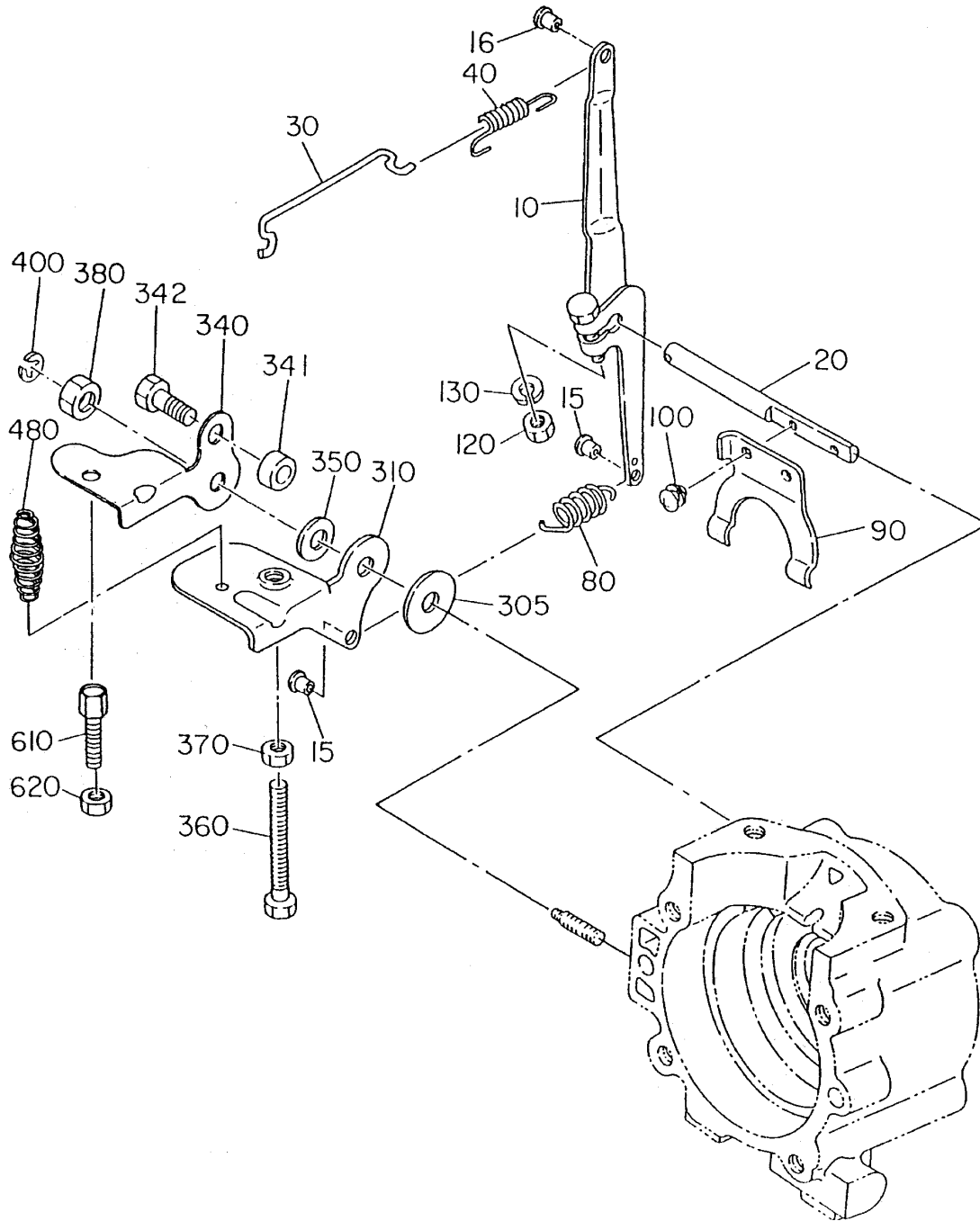
ROBIN EC-08HS ENGINE — CRANKSHAFT AND PISTON ASSY.

CRANKSHAFT AND PISTON ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	5802028000	CRANK SHAFT	1	
30	0323049950	WOODRUFF KEY	1	
40	1292500103	SPACER	2	
50	0039310000	NUT	1	REPLACES 0021810000
60	030210250	SPRING WASHER	1	REPLACES 0032010000
65	030206150	WASHER	1	REPLACES 0031010000
70	0053204201	WOODRUFF KEY	1	REPLACES 0323049950
130	5804010000	PLATE, GOVERNOR	1	
131	0131050020	SCREW (PAN HEAD)	3	REPLACES 0043105080
132	0032005000	SPRING WASHER	3	
140	5514500100	GOVERNOR SLEEVE	1	
160	0230230020	SPACER	1	
170	0173120010	LOCK NUT	1	
350	5802500700	PISTON PIN	1	REPLACES 5802500400
360	5802500600	PISTON	1	
370	5802023000	PISTON RING SET	1	REPLACES 5000008100
380	0565119990	CLIP	2	
390	0610120010	NEEDLE BEARING	1	

ROBIN EC-08HS ENGINE — GOVERNOR ASSY.

GOVERNOR ASSY.



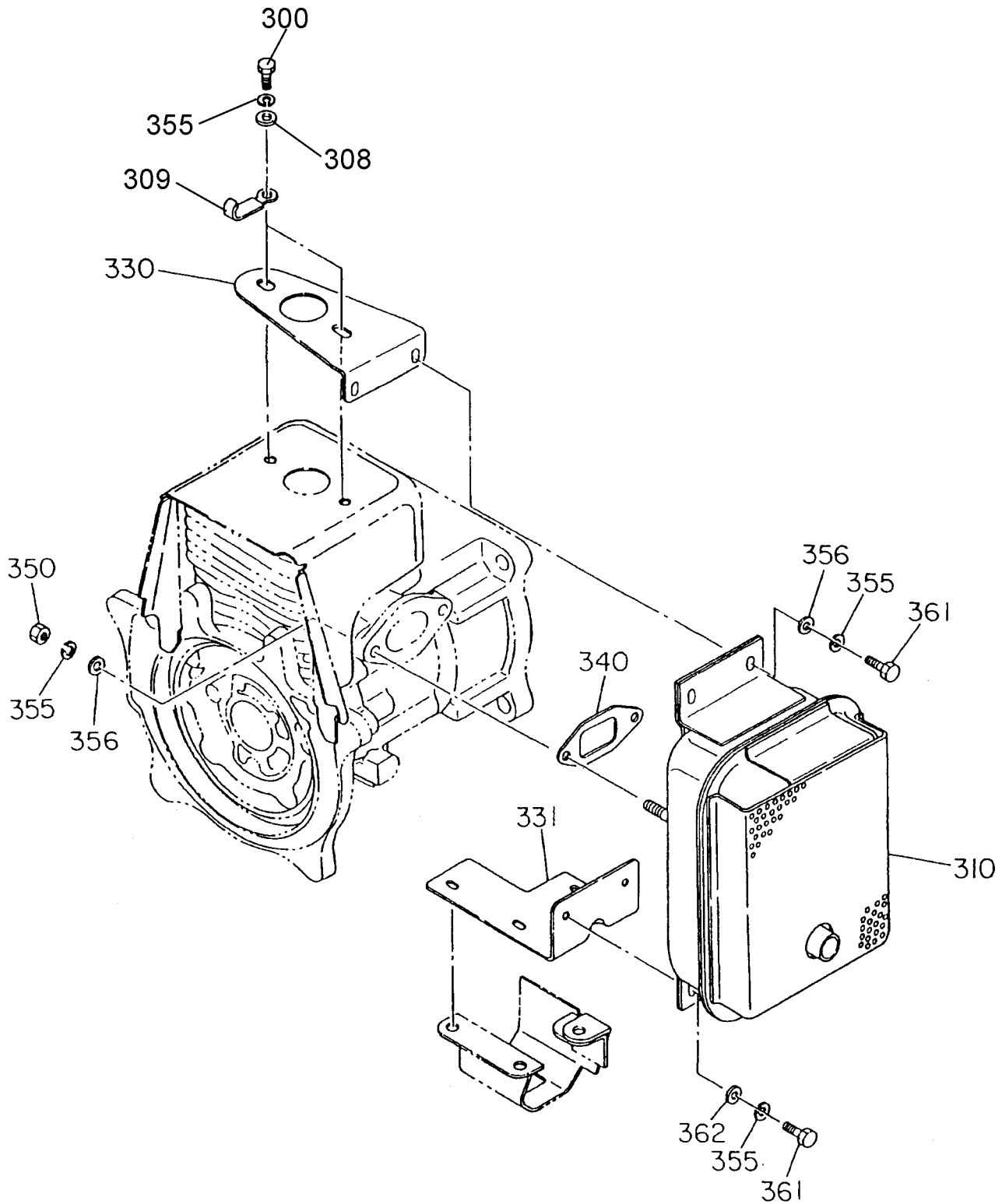
ROBIN EC-08HS ENGINE — GOVERNOR ASSY.

GOVERNOR ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	5804005000	GOVERNOR LEVER	1	
15	5804500900	BUSH	2	
16	2266255008	BUSH, NYLON	1	REPLACES 5806083060
20	1294220103	GOVERNOR SHAFT	1	
30	1054270111	GOVERNOR ROD	1	
40	1064280113	ROD SPRING	1	REPLACES 1064280111
80	1294250111	GOVERNOR SPRING	1	
90	1294210113	GOVERNOR YOKE	1	
100	0140039980	SCREW ASSY	2	
120	57028	NUT	1	REPLACES 0021706000
130	030206150	SPRING WASHER	1	REPLACES 0032006000
305	0217060020	FRICITION WASHER	1	
310	5804500800	CONTROL LEVER	1	
340	5804500600	STOP PLATE	1	
341	0230060090	SPACER	1	
342	0105050616	BOLT	1	REPLACES 6202500400
350	0200070010	WASHER	1	
360	0016506400	BOLT	1	
370	57028	NUT	1	REPLACES 0021706000
380	0170069960	U NUT	1	
400	1294500103	CLIP	1	
480	402010110	COIL SPRING	1	REPLACES 0830000010
610	0149060040	ADJUSTING SCREW	1	REPLACES 0149069981
620	020106050	NUT	1	REPLACES 0022706000

ROBIN EC-08HS ENGINE — MUFFLER ASSY.

MUFFLER ASSY.



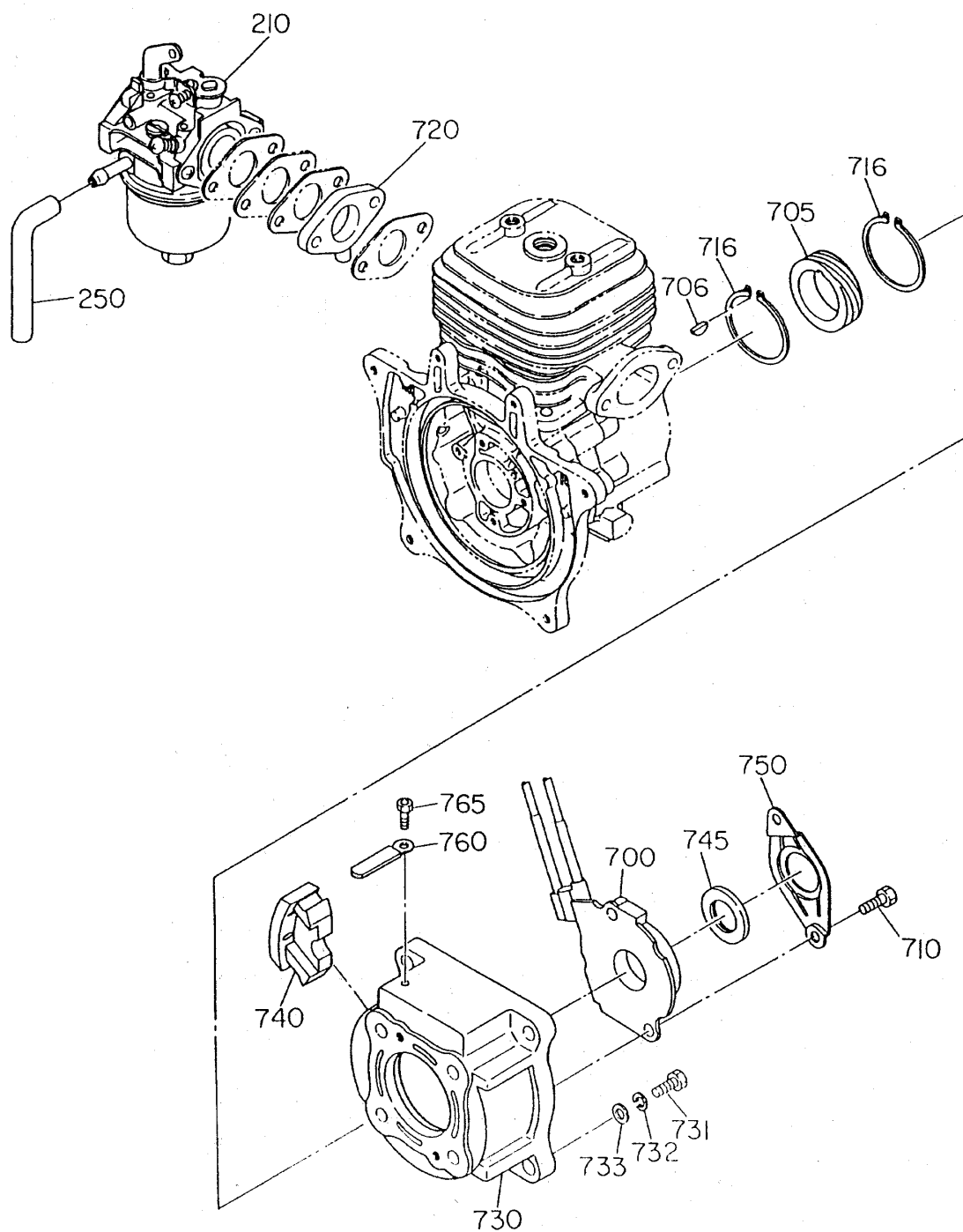
ROBIN EC-08HS ENGINE — MUFFLER ASSY.

MUFFLER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
300	0016706200	MUFFLER	2	
308	0031206000	WASHER, FLAT	2	
309	0566099950	CLAMP	1	
310	5803032000	MUFFLER	1	
330	5803033000	MUFFLER BRACKET A	1	
331	5803034000	MUFFLER BRACKET B	1	
340	1293500403	GASKET (MUFFLER)	1	
350	0170069960	U-NUT	2	
355	030206150	SPRING WASHER	7REPLACES 0032006000
356	0031006000	WASHER	4	
361	0016706160	BOLT (MUFFLER)	4	
362	0031006000	WASHER	2	

ROBIN EC-08HS ENGINE — CARBURETOR AND OIL PUMP ASSY.

CARBURETOR AND OIL PUMP ASSY.



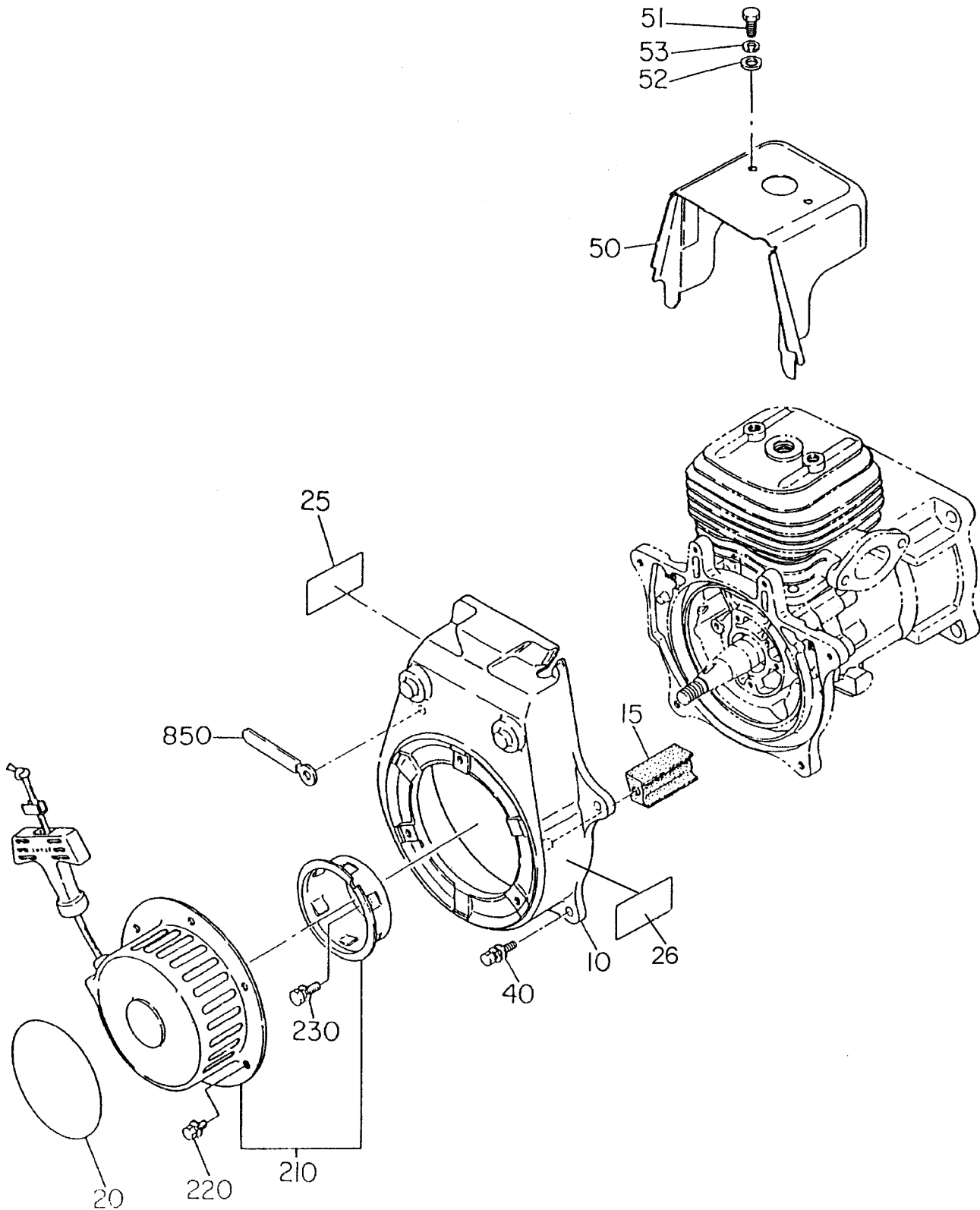
ROBIN EC-08HS ENGINE — CARBURETOR AND OIL PUMP ASSY.

CARBURETOR AND OIL PUMP ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
210	5806111000	CARBURETOR ASSY	1	SEE CARBURETOR FIG. FOR COMPONENTS
250	1616235308	HOSE	1	
700	5806113000	OIL PUMP ASSY	1	
705	5806502300	WORM GEAR	1	
706	0323039980	WOODRUFF KEY	1	
710	0011306250	BOLT AND WASHER ASSY	2	
716	0031520000	SNAP RING, OUTER	2	
720	1616350101	COLLAR CP (OIL INJ.)	1	
730	5806501900	OIL PUMP HOUSING	1	
731	0119089970	SOCKET HEAD BOLT	4	
732	030208200	SPRING WASHER	4	REPLACES 0032008000
733	0031008000	WASHER	4	
740	5806502000	GROMMET	1	
745	5806502100	SEAL	1	
750	5806502200	PLATE	1	
760	0566059980	CLAMP	1	
765	0119059610	SOCKET HEAD BOLT	1	

ROBIN EC-08HS ENGINE — RECOIL STARTER AND BLOWER ASSY.

RECOIL STARTER AND BLOWER ASSY.



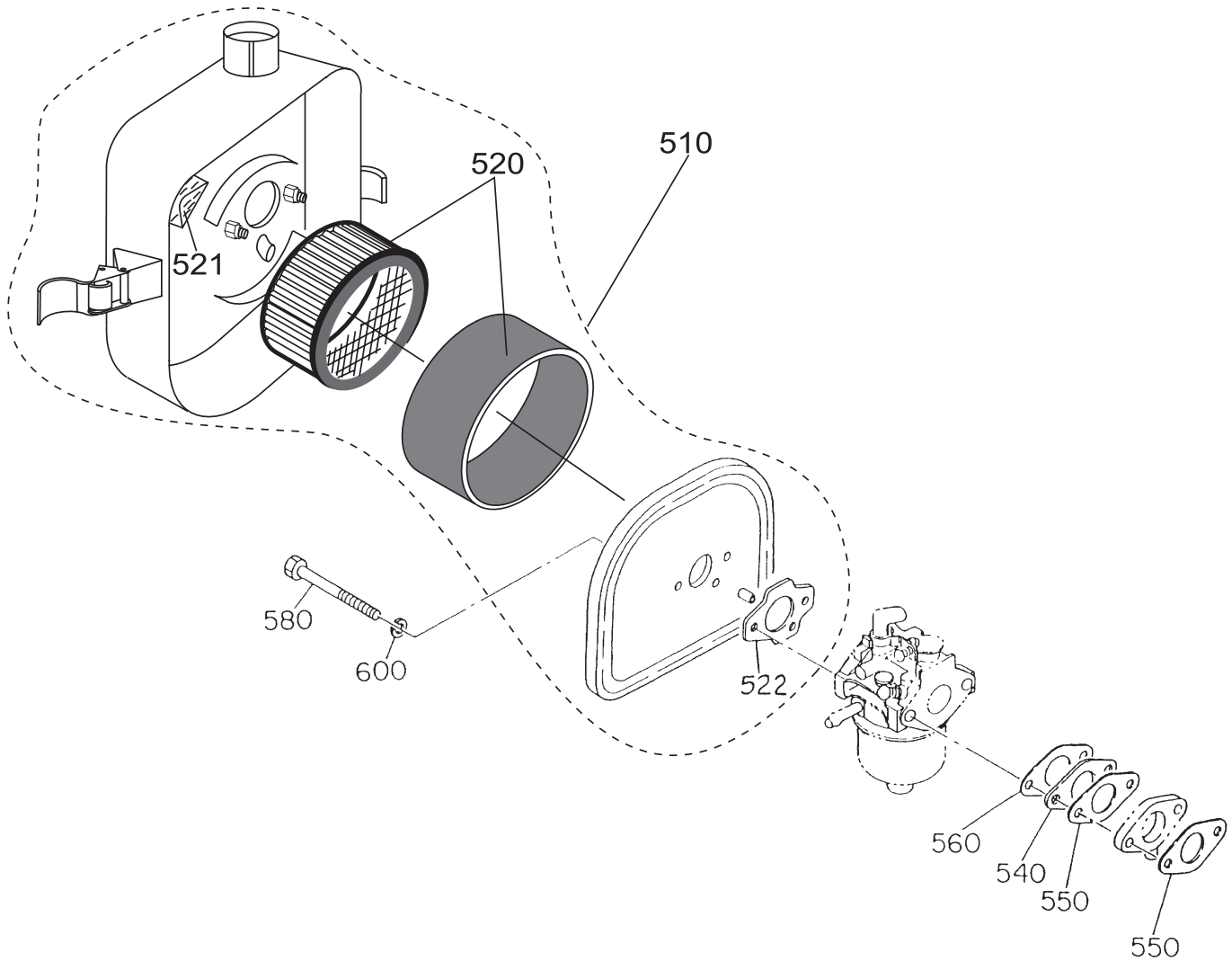
ROBIN EC-08HS ENGINE — RECOIL STARTER AND BLOWER ASSY.

RECOIL STARTER AND BLOWER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	5805501200	FAN COVER	1	
15	5515500200	GUIDE RUBBER	1	
20	920100240	DECAL, (M-MARK)	1	
25	5809503800	LABEL, ENGINE	1	
26	5809500501	LABEL, MODEL		
40	0011106200	BOLT ASSY	4	
50	5805022000	CYLINDER COVER CP	1	
51	011206020	BOLT (CYLINDER)	2	REPLACES 0016706200
52	0031206000	WASHER	2	
53	030206150	SPRING WASHER	2	REPLACES 0032006000
210	5805001000	RECOIL STARTER ASSY	1	SEE RECOIL STARTER FIG. FOR COMPONENTS' REPLACES 5805011001
220	0011006100	BOLT AND WASHER ASSY	3	
230	0011006140	BOLT ASSY	2	
850	0566000250	CLAMP	2	

ROBIN EC-08HS ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.



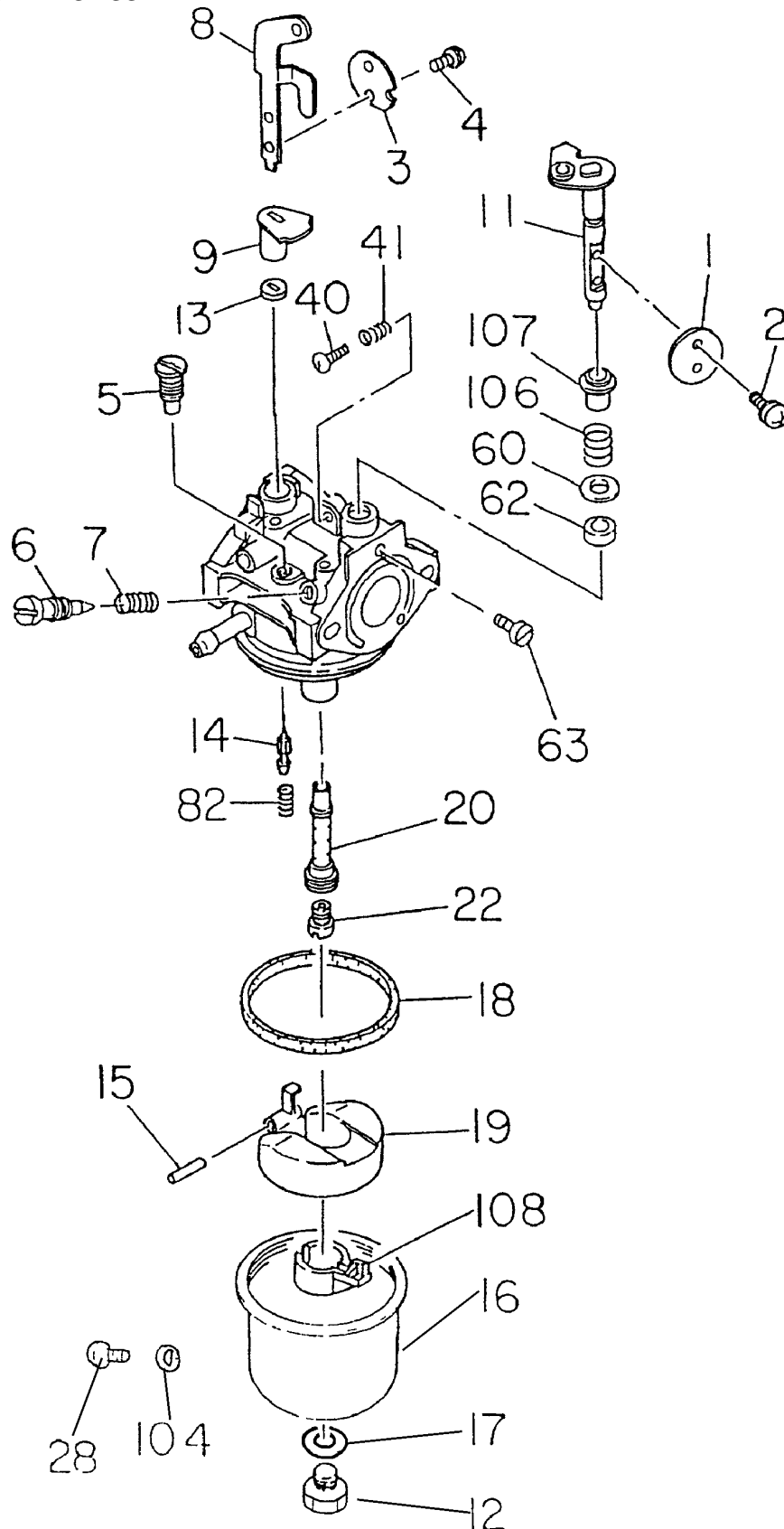
ROBIN EC-08HS ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
510	5803052000	AIR CLEANER ASSY	1	INCLUDES ITEMS W/*
520*	1573620101	ELEMENT SET	1	REPLACES 1573260007
521*	1613261008	ELEMENT	1	
522*	2263272008	GASKET (AIR CLEANER)	1	
540	1293290103	INSULATOR	1	
550	1063500103	GASKET (INSULATOR)	2	
560	2373590303	GASKET 2 (INSULATOR)	1	
580	0011306800	BOLT	2	
600	030206150	SPRING WASHER	2	REPLACES 0032006000

ROBIN EC-08HS ENGINE — CARBURETOR COMPONENTS ASSY.

CARBURETOR COMPONENTS ASSY.



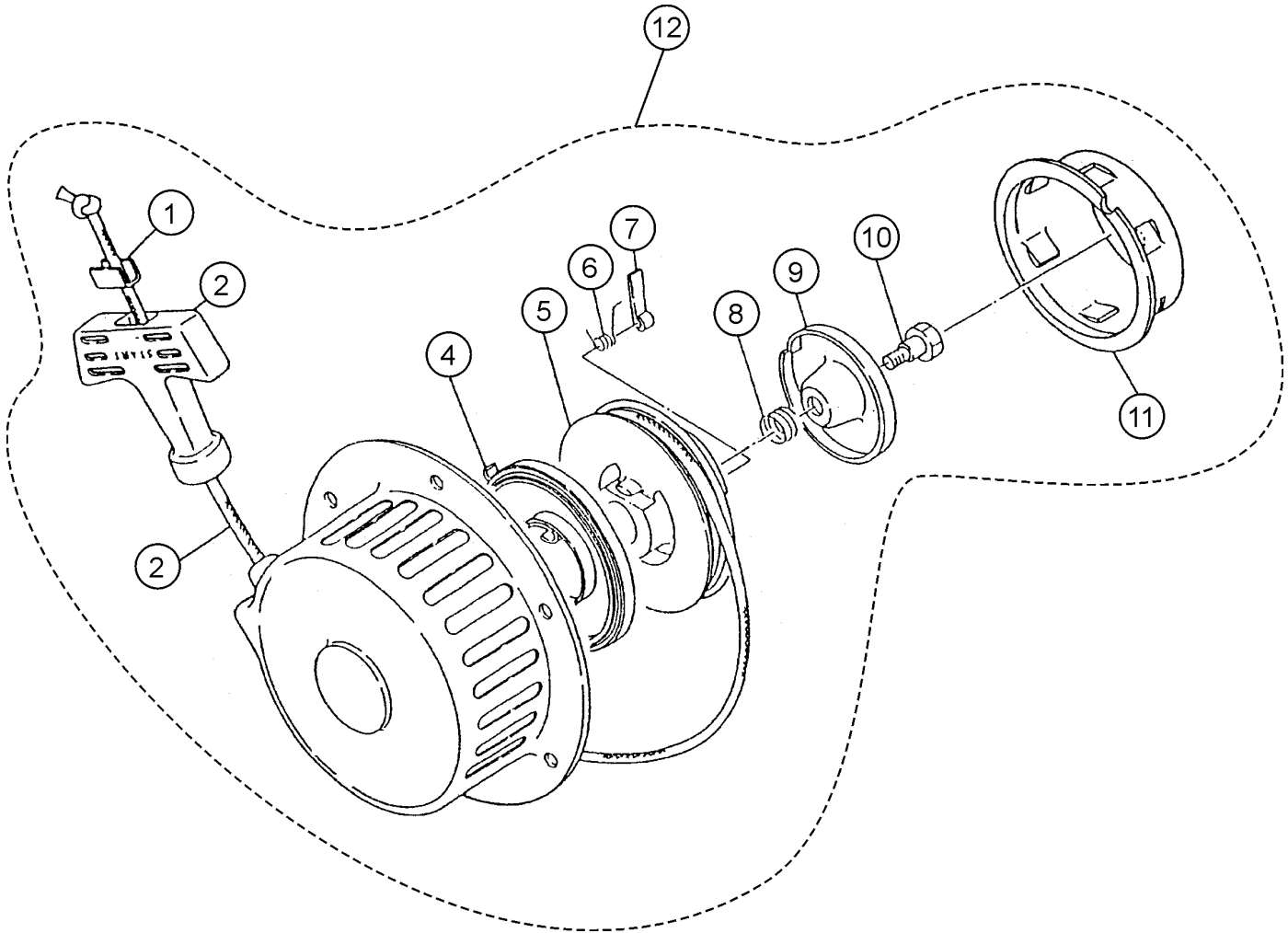
ROBIN EC-08HS ENGINE — CARBURETOR COMPONENTS ASSY.

CARBURETOR COMPONENTS ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
A	5806117000	CARBURETOR ASSY. (EPA)	1	INCLUDES ITEMS W/*
1*	1616253508	THROTTLE VALVE	1	REPLACES 5806083110
2*	5806111010	SCREW AND WASHER ASSY.	2	
3*	5806083310	CHOKE VALVE	1	
4*	5806111010	SCREW AND WASHER ASSY.	2	
5*#	2076242008	PILOT JET	1	REPLACES 5606003020
6*#	2136239008	PILOT SCREW	1	REPLACES 5416002150
7*#	2096244508	SPRING	1	REPLACES 8046001230
8*	5806083040	CHOKE LEVER	1	
9*	5806083050	RING	1	
11*	5806083030	THROTTLE SHAFT ASSY.	1	
12*#	5806083020	BOLT	1	
13*	5806083360	RING	1	
14*#	1616235208	NEEDLE	1	REPLACES 5806083400
15*#	2146251508	PIN	1	REPLACES 5416002050
16*	1616235008	FLOAT BODY ASSY.	1	REPLACES 5806083010
17*#	2366245008	PACKING	1	REPLACES 5806083330
18*#	2366254008	PACKING	1	REPLACES 5806083340
19*#	5806083350	FLOAT	1	
20*	5806083260	MAIN NOZZLE	1	
22*#	1296240008	MAIN JET	1	REPLACES 5306011010
28*	5806083150	SCREW	1	
40*#	2366235008	SCREW	1	REPLACES 5416002230
41*#	2096244508	SPRING	1	REPLACES 8046001230
60*	5806083230	PACKING	1	REPLACES 5806083230
62*	5806083210	SEAL	1	
63*	5806083230	SCREW	1	REPLACES 5806083230
82*#	2366244508	SPRING	1	REPLACES 5806083240
104*	2366254108	PACKING	1	REPLACES 5806083320
106*	5806083140	SPRING	1	
107*	5806083120	RING	1	
108*	5806083370	FLOAT STOPPER	1	
#	KITCARBEC08H	KIT, CARBURETOR EC08HS.....	1	INCLUDES ITEMS W/#

ROBIN EC-08HS ENGINE — RECOIL STARTER COMPONENTS ASSY.

RECOIL STARTER COMPONENTS ASSY.



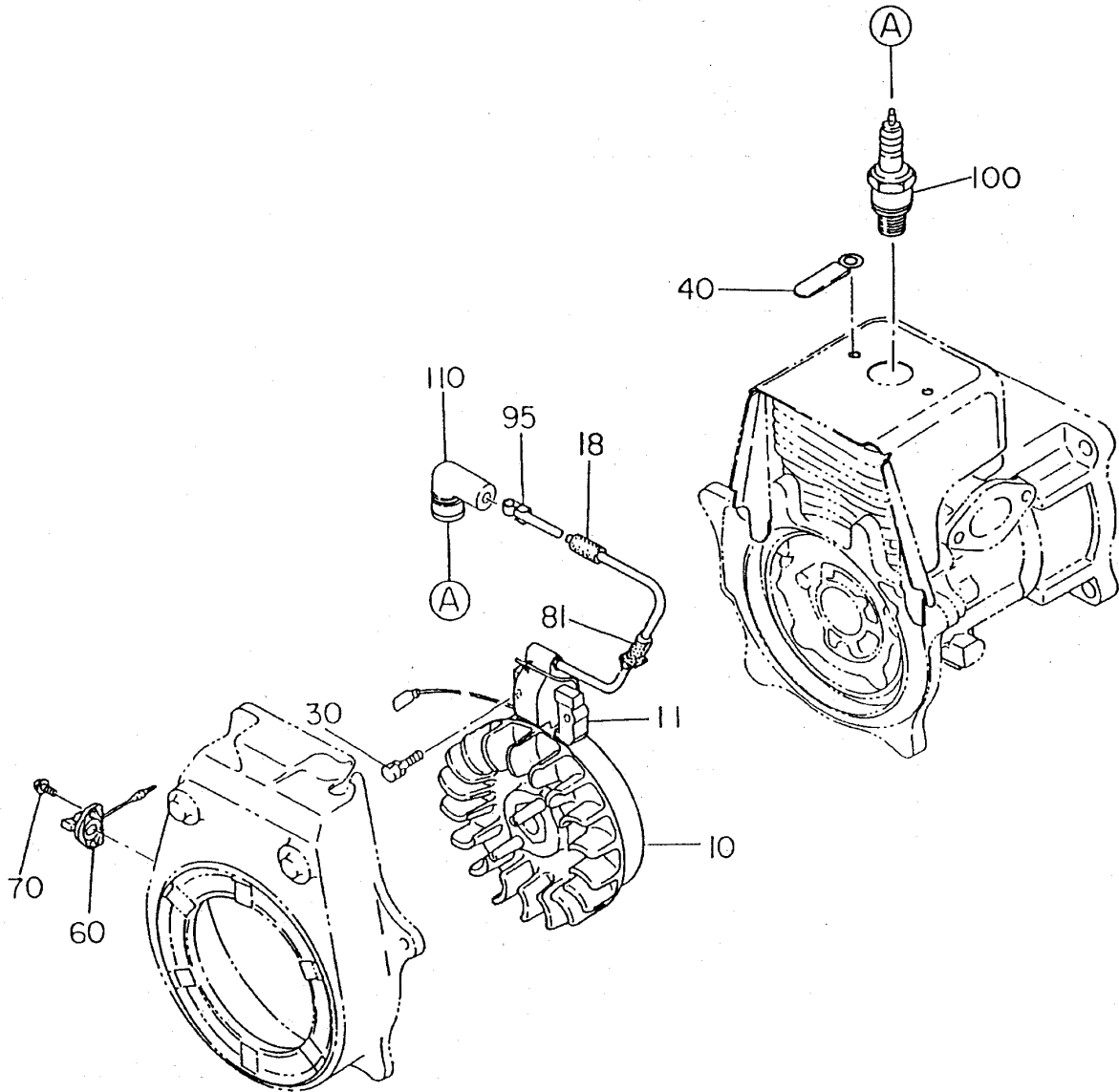
ROBIN EC-08HS ENGINE — RECOIL STARTER COMPONENTS ASSY.

RECOIL STARTER COMPONENTS ASSY.

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	5515005160	ROPE STOPPER	1	
2*	5805001030	STARTER HANDLE	1	
3*	5805011040	STARTER ROPE	1	
4*	5805004020	SPIRAL SPRING	1	
5*	5805004030	REEL	1	
6*	5805004050	RETURN SPRING	1	
7*	5805004040	RATCHET	1	
8*	5805004110	FRICTION SPRING	1	
9*	5805004120	FRICTION PLATE	1 REPLACES EC08A05038
10*	5805011020	CENTER SCREW	1	
11*	5805004140	STARTER PULLEY	1 REPLACES EC08A050311
12	5805001000	RECOIL STARTER ASSY.	1 INCLUDES ITEMS W/*

ROBIN EC-08HS ENGINE — MAGNETO ASSY.

MAGNETO ASSY.

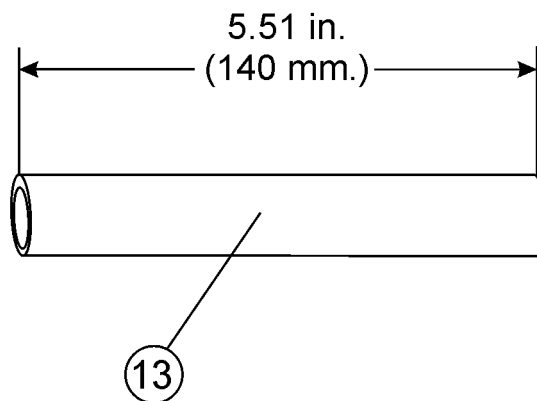
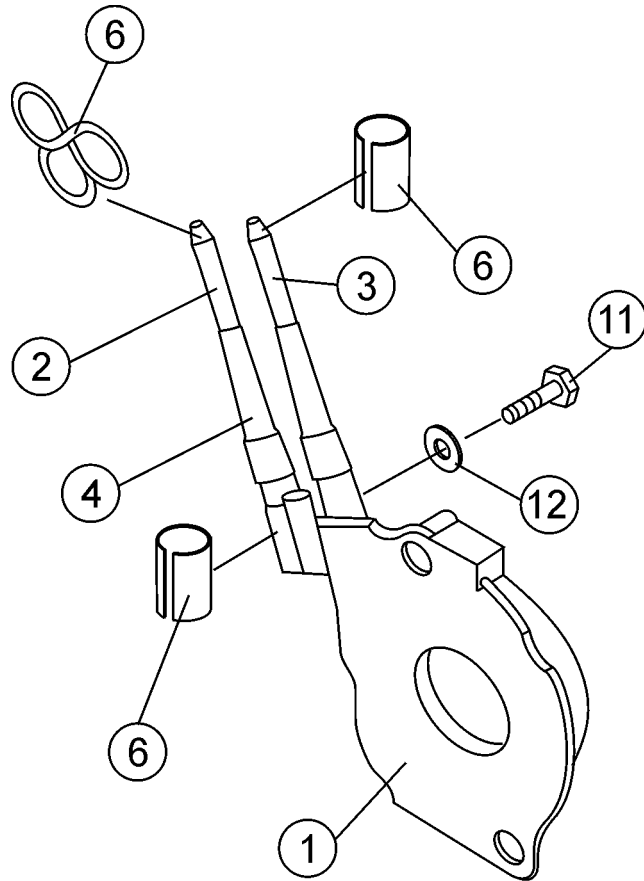


ROBIN EC-08HS ENGINE — MAGNETO ASSY.

MAGNETO ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	5807005010	FLYWHEEL	1	
11	5807007020	IGNITION COIL	1	
18	0851029960	VINYL PIPE	1	
30	0011105250	BOLT AND WASHER ASSY	2	
40	1507520103	CLAMP	1	REPLACES 0566099950
60	0660000361	STOP SWITCH ASSY (ON-OFF)	1	
70	0043304100	SCREW 4X10	2	
81	0241069980	GROMMET	1	
95	0659000010	SPARK PLUG CLIP	1	REPLACES 0655000100
100	0650140031	SPARK PLUG	1	REPLACES 00650149730
110	0655000140	SPARK PLUG CAP	1	

ROBIN EC-08HS ENGINE — OIL PUMP ASSY.



ROBIN EC-08HS ENGINE — OIL PUMP ASSY.

OIL PUMP ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	5806113000	OIL PUMP ASSY.	1	
2	5806113020	OIL HOSE	1	
3	5806113030	OIL HOSE	1	
4	5806113040	PROTECTOR	1	
6	1616391608	CLIP	3	
7	1616391008	CLIP	1REPLACES 0566099950
11	2266235408	SCREW	1	
12	1616391909	PACKING	1	
13	5806113140	PROTECTOR		

PAYMENT TERMS

Terms of payment for parts are net 10 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 here under 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.

OPERATION AND PARTS MANUAL

HERE'S HOW TO GET HELP

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

MULTIQUIP'S MAIN PHONE NUMBERS

800-421-1244 FAX: 310-537-3927
310-537-3700

PARTS DEPARTMENT

800-427-1244 FAX: 800-672-7877
310-537-3700 FAX: 310-637-3284

MAYCO PARTS

800-306-2926 FAX: 800-672-7877
310-537-3700 FAX: 310-637-3284

SERVICE DEPARTMENT

800-478-1244 FAX: 310-537-4259
310-537-3700

MQ POWER SERVICE DEPARTMENT

800-835-2551 FAX: 310-638-8046
310-537-3700

TECHNICAL ASSISTANCE

800-478-1244 FAX: 310-631-5032

WARRANTY DEPARTMENT

800-421-1244, EXT. 279 FAX: 310-537-1173
310-537-3700, EXT. 279



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