

PARTS AND OPERATION MANUAL



Mikasa

Tamping Rammer Model MT-85HS

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Revision #8 (06/26/01)



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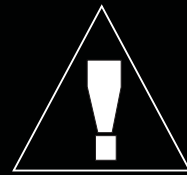
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PARTS DEPARTMENT:

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SERVICE DEPARTMENT/TECHNICAL ASSISTANCE:
800-478-1244
FAX: 310-631-5032



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*

PARTS DEPARTMENT

800-427-1244 or 310-537-3700

FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE

800-478-1244 or 310-537-3700

FAX: 310- 537-4259

WARRANTY DEPARTMENT

888-661-4279, or 310-661-4279

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NOTE

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

PARTS ORDERING PROCEDURES

- 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:
 - UPS Ground
 - UPS Second Day or Third Day*
 - UPS Next Day*
 - Federal Express Priority One (please provide us with your Federal Express account number)*
 - Airborne Express*
 - Truck or parcel post

**Normally shipped the same day the order is received, if prior to 2PM west coast time.*

Earn Extra Discounts when you order by FAX!

All parts orders which include complete part numbers and are received by fax qualify for the following extra discounts:

<u>Number of line items ordered</u>	<u>Additional Discount</u>
1-9 items	3%
10+ items**	5%

Get special freight allowances when you order 10 or more line items via FAX! **

- UPS Ground Service at no charge for freight
- PS Third Day Service at one-half of actual freight cost

No other allowances on freight shipped by any other carrier.

**Common nuts, bolts and washers (all items under \$1.00 list price) do not count towards the 10+ line items.

DISCOUNTS ARE SUBJECT TO CHANGE

Fax order discount and UPS special programs revised June 1, 1995

**Extra Fax Discount
for Domestic USA
Dealers Only**

**Up to 5%
extra savings!**

**UPS
Special**
For faxed orders only

**Now! Direct TOLL-FREE access
to our Parts Department!**

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Toll-free FAX:

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RULES FOR SAFE OPERATION

CAUTION:



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 MT-85HS Tamping Rammer:

GENERAL 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 this equipment 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.

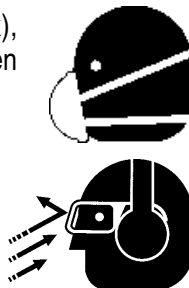


- **NEVER** operate this equipment under the influence of drugs or alcohol.



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

- **ALWAYS** wear proper respiratory (mask), hearing and eye protection equipment when operating the rammer.



- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.

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

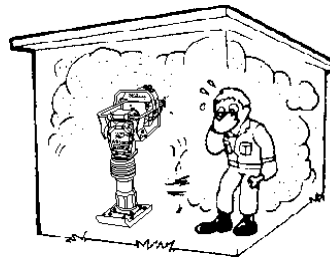
- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

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



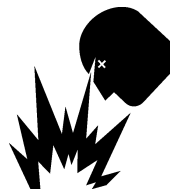
- **High Temperatures** – Allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with *hot* components can cause serious burns.

- The engine section 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 or 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. **DO NOT** 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.

RULES FOR SAFE OPERATION

- **NEVER** Run engine without air filter. Severe engine may occur.
- Always service air cleaner frequently to prevent carburetor malfunction.
- Always be sure the operator is familiar with proper safety precautions and operations techniques before using rammer.
- 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.
- **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.
- **NEVER** Run engine without air cleaner. Severe engine damage may occur.
- Always read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.
- Always be sure the operator is familiar with proper safety precautions and operations techniques before using pump.
- 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.

Emergencies

- Always know the location of the nearest **fire extinguisher** and **first aid kit**. Know the location of the nearest telephone. Also know the phone numbers of the nearest **ambulance**, **doctor** and **fire department**. This information will be invaluable in the case of an emergency.

Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- Always allow the machine a proper amount of time to cool before servicing.
- Keep the machinery in proper running condition.
- Fix damage to the machine 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 plastic containers to dispose of hazardous waste.

OPERATION AND SAFETY DECALS

Mikasa

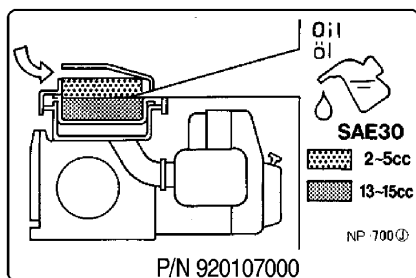
P/N 920106460



P/N 920203330

NAMEPLATE

CONTACT MULTIQUIP
SERVICE DEPT.



P/N 920107000

CAUTION !

- 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.

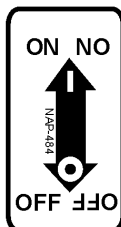
NPA-329 (J)

P/N 920203290

First, remove the element from the pre-cleaner located at the top of the machine. Clean the element with solvent. Apply SAE-30 motor oil as follows: top element (yellow) with 2 to 5 cc and the bottom element (gray) with 13 to 15 cc. Be sure to squeeze out excess oil before reinstalling.

NPA 437 (J)

P/N 920204370



P/N 920204840

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

NPA-293

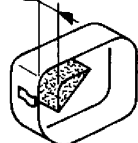
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DO NOT ALLOW WATER TO ENTER FUEL AND OIL TANKS

NPA-599

P/N 920205990

5mm (3/16")



PROPER SPONGE
INSTALLATION

NPA-398 (J)

P/N 920203980

3650 ~ 3850 RPM

NPA 90

P/N 920107400

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

NPA-399 (J)

P/N 920203990

SAE 10W-30
MOTOR OIL

P/N 920201950

CAUTION

1. Check all bolts and nuts for tightness.
2. Before operation, check oil level at the gauge located on the back side of the protect sleeve. If not enough, fill with motor oil (SAE 10W-30 to maintain specific oil level).
3. Fill the fuel tank with a fuel mixture of gasoline and outboard oil (25:1) 1/3 pint outboard oil to 1 gal. regular gas.
4. To start engine, open fuel filter located under the fuel tank. close choke lever on carburetor and pull starter rope. When engine starts, open choke fully.
5. when difficult to start engine up, open the drain cock located on lower part of crankcase and discharge excess fuel by cranking the engine two or three times.
6. Allow the engine to warm up for 4 to 5 minutes before operation.
7. When starting to operate the machine, move the throttle lever on the handle quickly from "off" to "on" position.
8. Be sure the fuel filter is closed after operation to avoid irregular jumping.

NPA-91 (J)

P/N 920205810

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 on page 11.

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.

MT-85HS — CONTROLS AND COMPONENTS

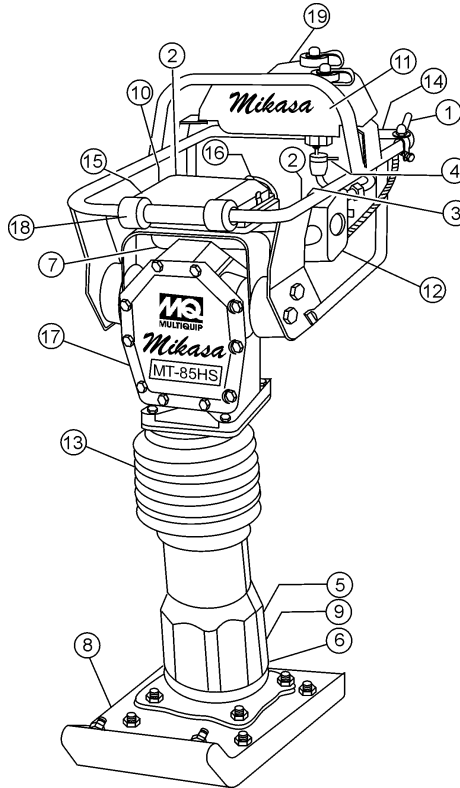


Figure 1. MT-85HS Rammer

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 tamper foot.

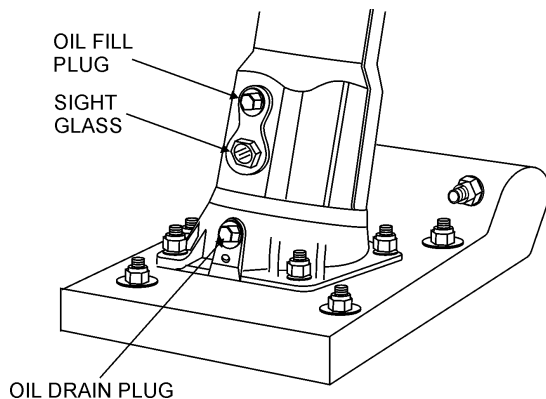


Figure 2. Foot Housing Sight Glass

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.

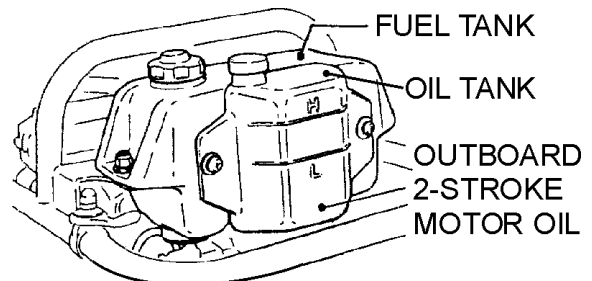


Figure 3. Fuel/Oil Tank

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.

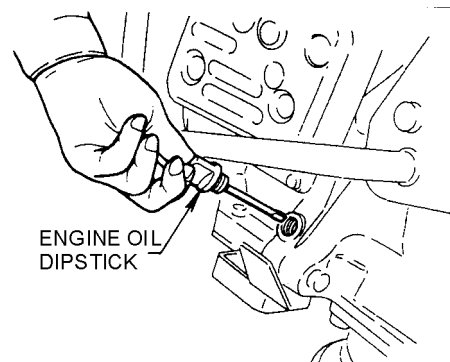


Figure 4. Engine Oil Dipstick

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).

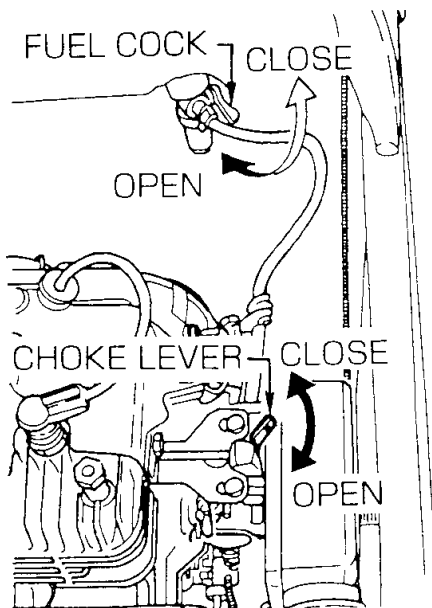


Figure 5. Fuel Cock and Choke Lever

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

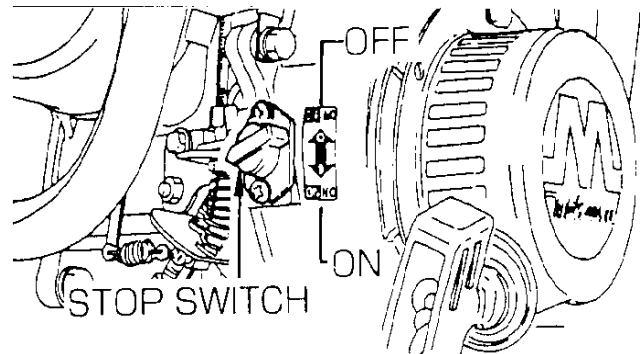


Figure 6. Engine On/Off Switch

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.

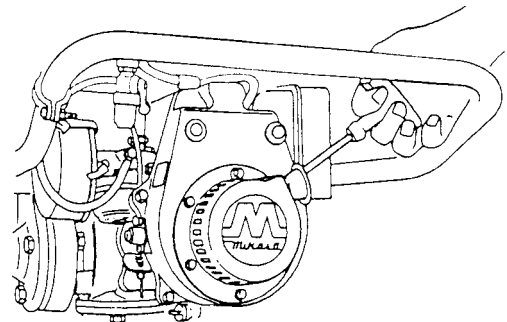


Figure 7. Recoil Starter

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.

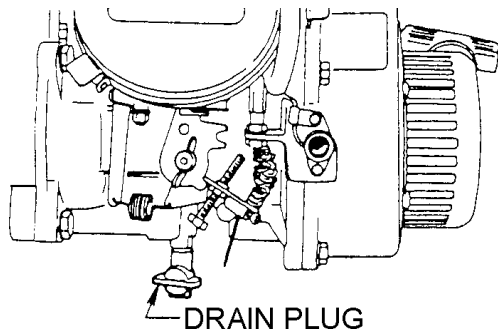


Figure 8. Drain Plug

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

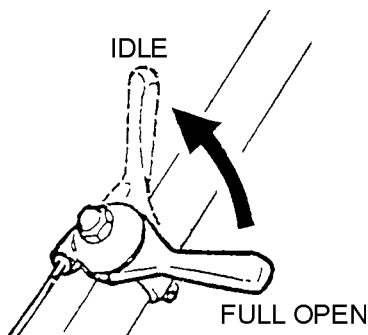


Figure 9. Throttle Lever

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.

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.

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).

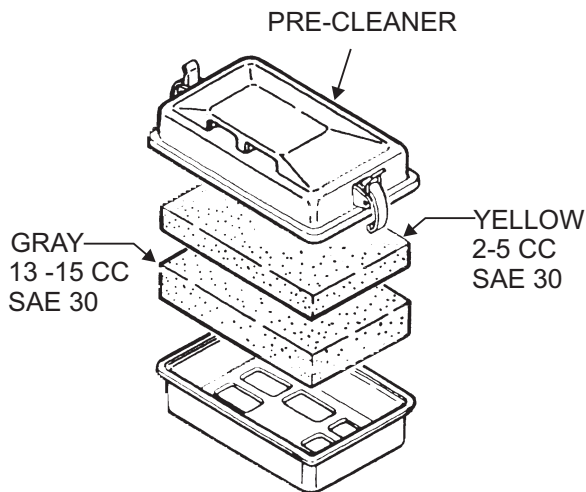


Figure 10. Pre-Cleaner

- 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:

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

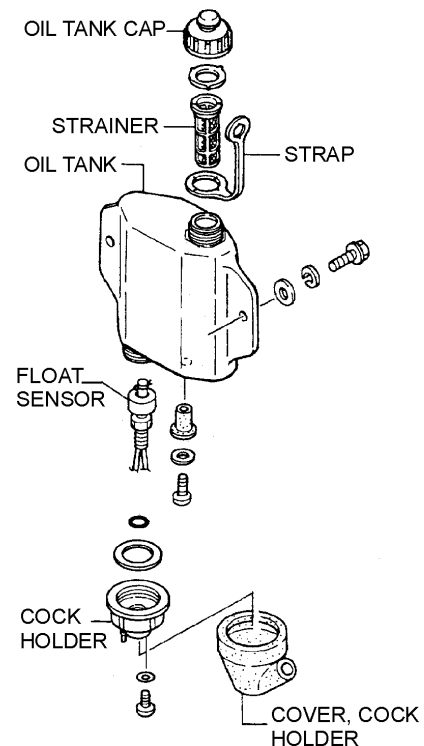


Figure 11. Oil Tank

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.

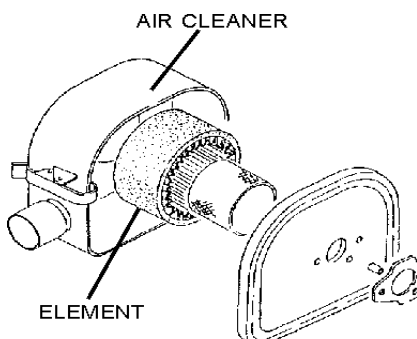


Figure 12. Air Cleaner

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.

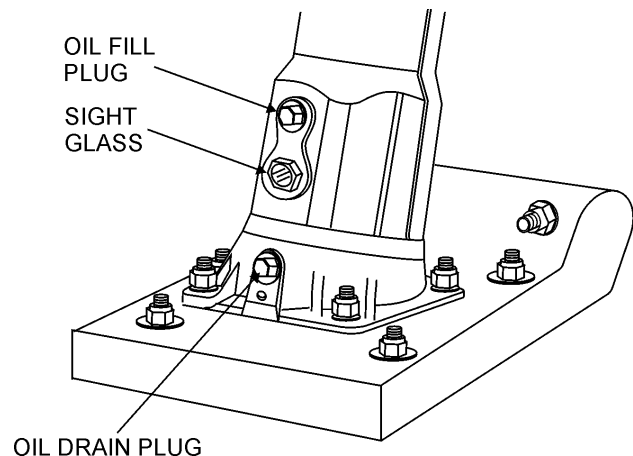


Figure 13. Oil Drain Plug

MT-85HS — 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?	
	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.

MT-85HS — 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 sprial spring.

TABLE 5. RAMMER TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
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.

[illegible]

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.

NOTE

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

NOTE

The contents of this catalog are subject to change without notice.

MT-85HS — 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

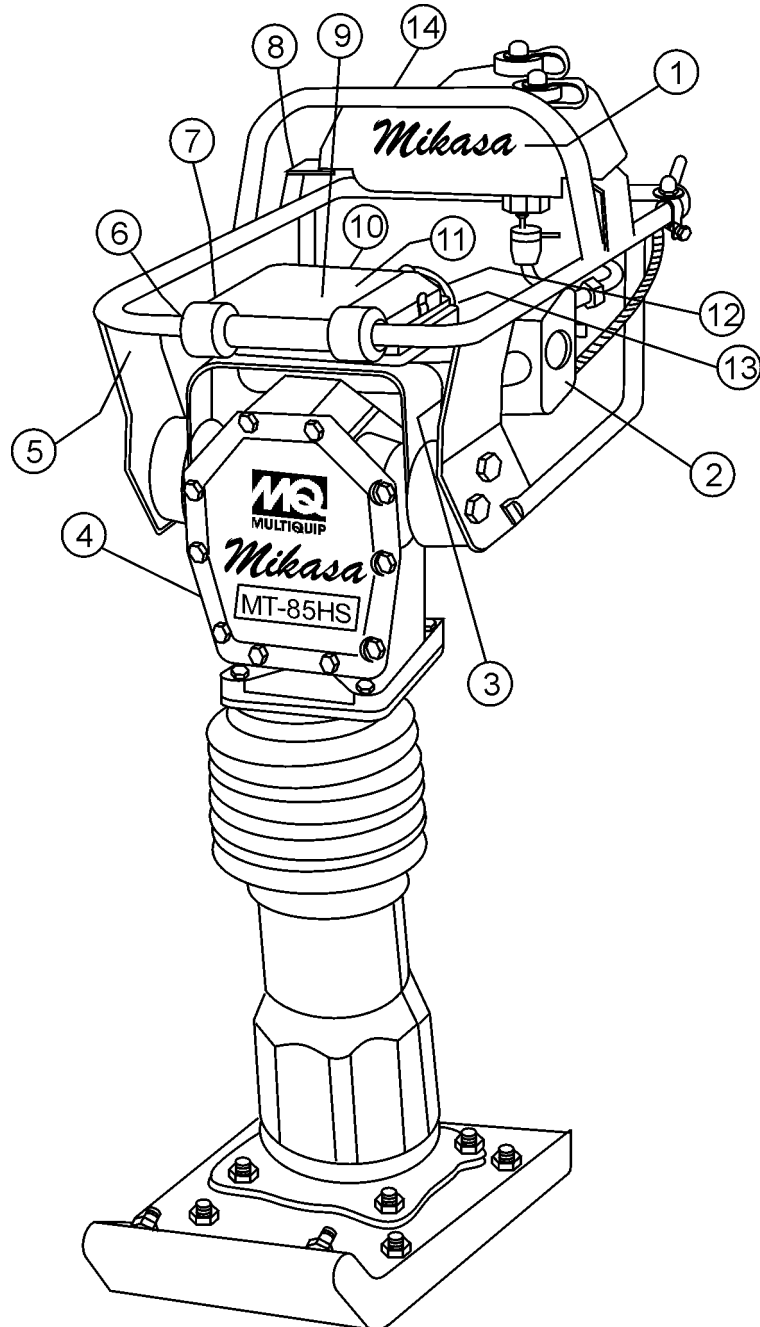
MT-85HS Tamping Rammer 10+ Units

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

NOTE

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

NAMEPLATE AND DECALS



MT-85HS — NAMEPLATE AND DECALS

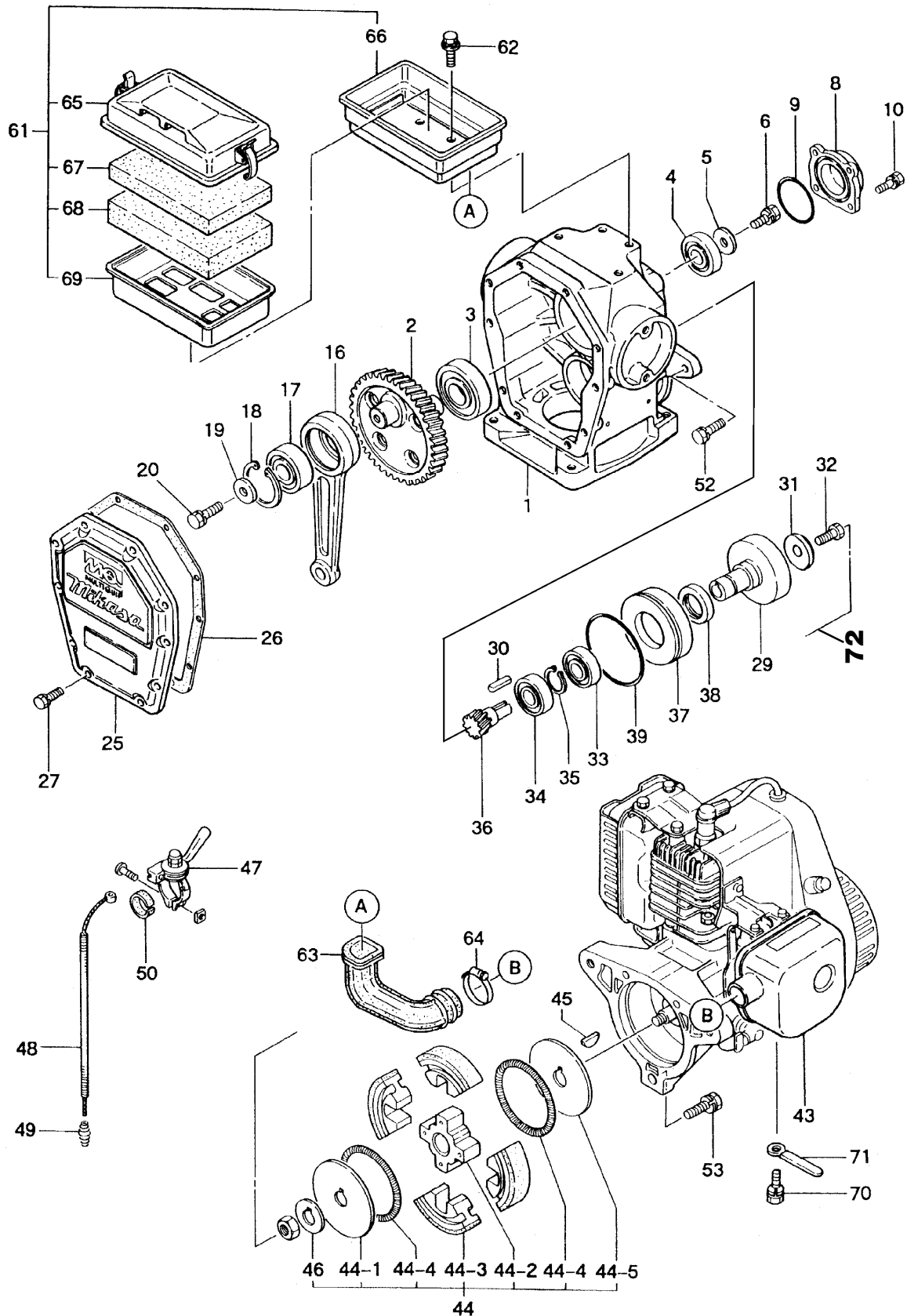
NAME PLATE AND DECALS

<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	ORDER FROM MQ SER. DEPT. W/MODEL & S/N
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	INCLS. ALL ITEMS W/*

FOR DECAL ILLUSTRATIONS SEE PAGE 8.

MT-85HS — CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.



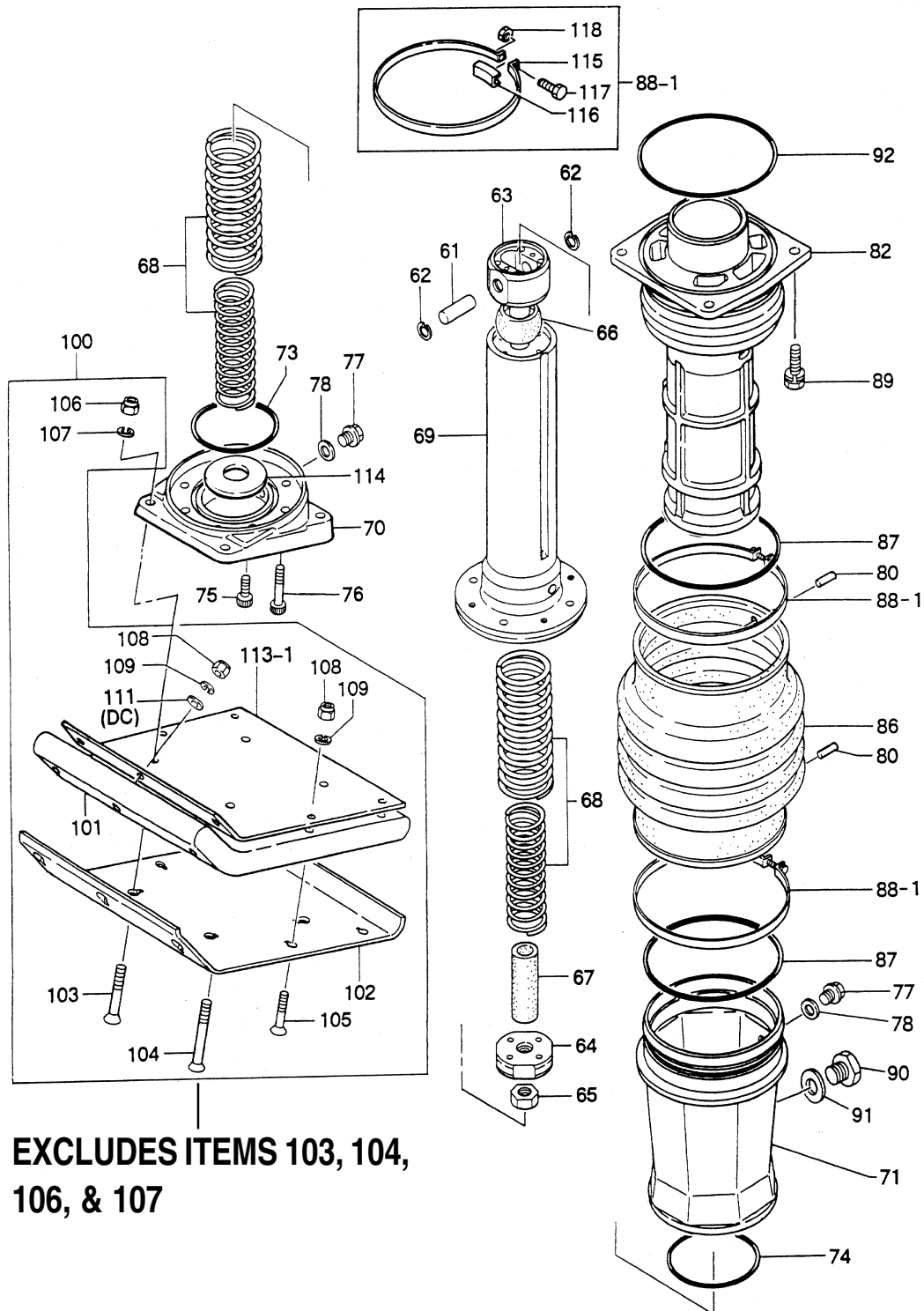
MT-85HS — CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
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	

MT-85H S— CYLINDER GUIDE AND FOOT ASSY.

CYLINDER GUIDE AND FOOT ASSY.



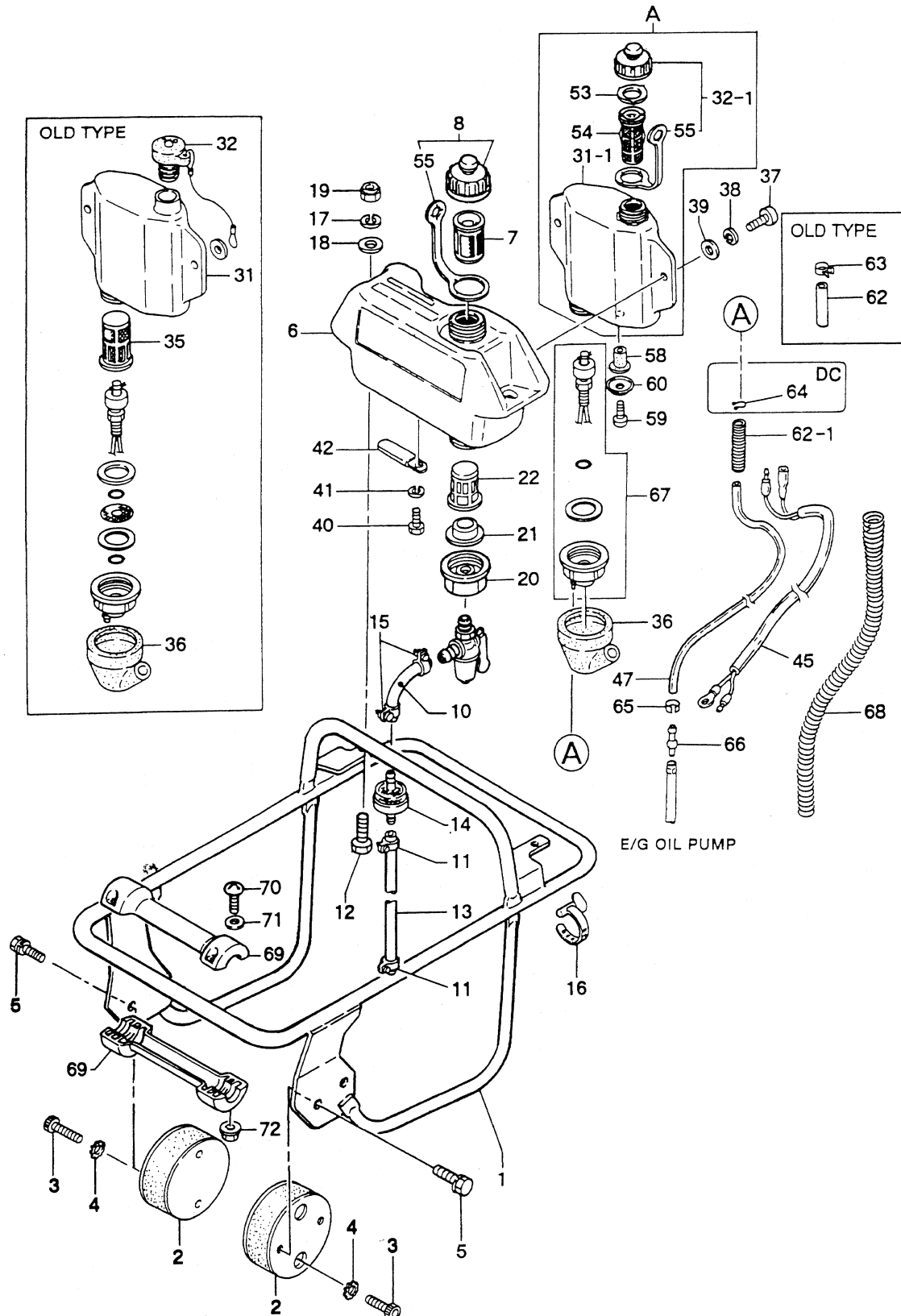
MT-85H S— CYLINDER GUIDE AND FOOT ASSY.

CYLINDER GUIDE 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

MT-85HS — TANK AND HANDLE ASSY.

TANK AND HANDLE ASSY.



MT-85HS — 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	954300390	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.



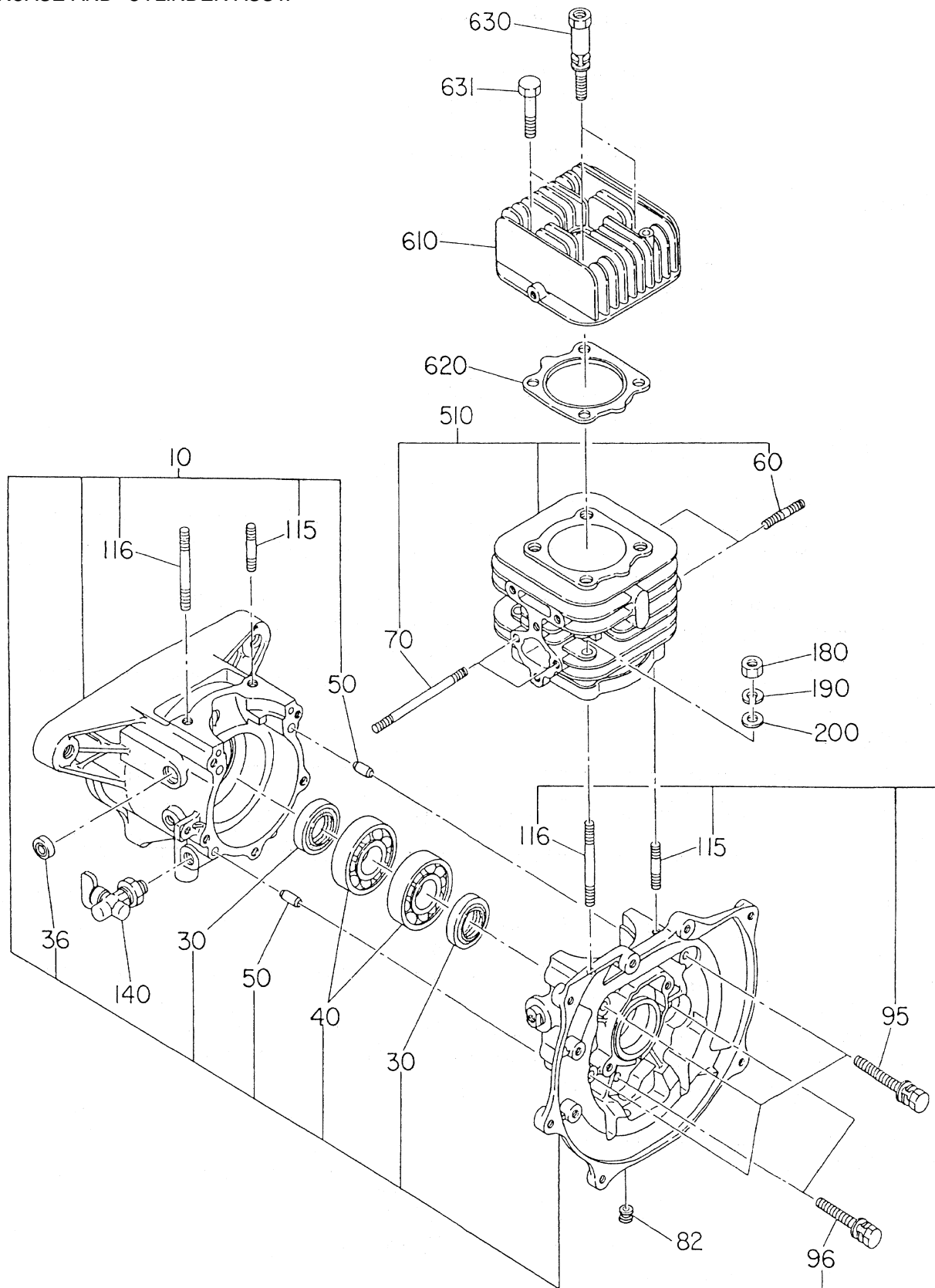
MT-85HS — TANK AND HANDLE ASSY.

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 EC-12HS ENGINE — CRANKCASE AND CYLINDER ASSY.

CRANKCASE AND CYLINDER ASSY.



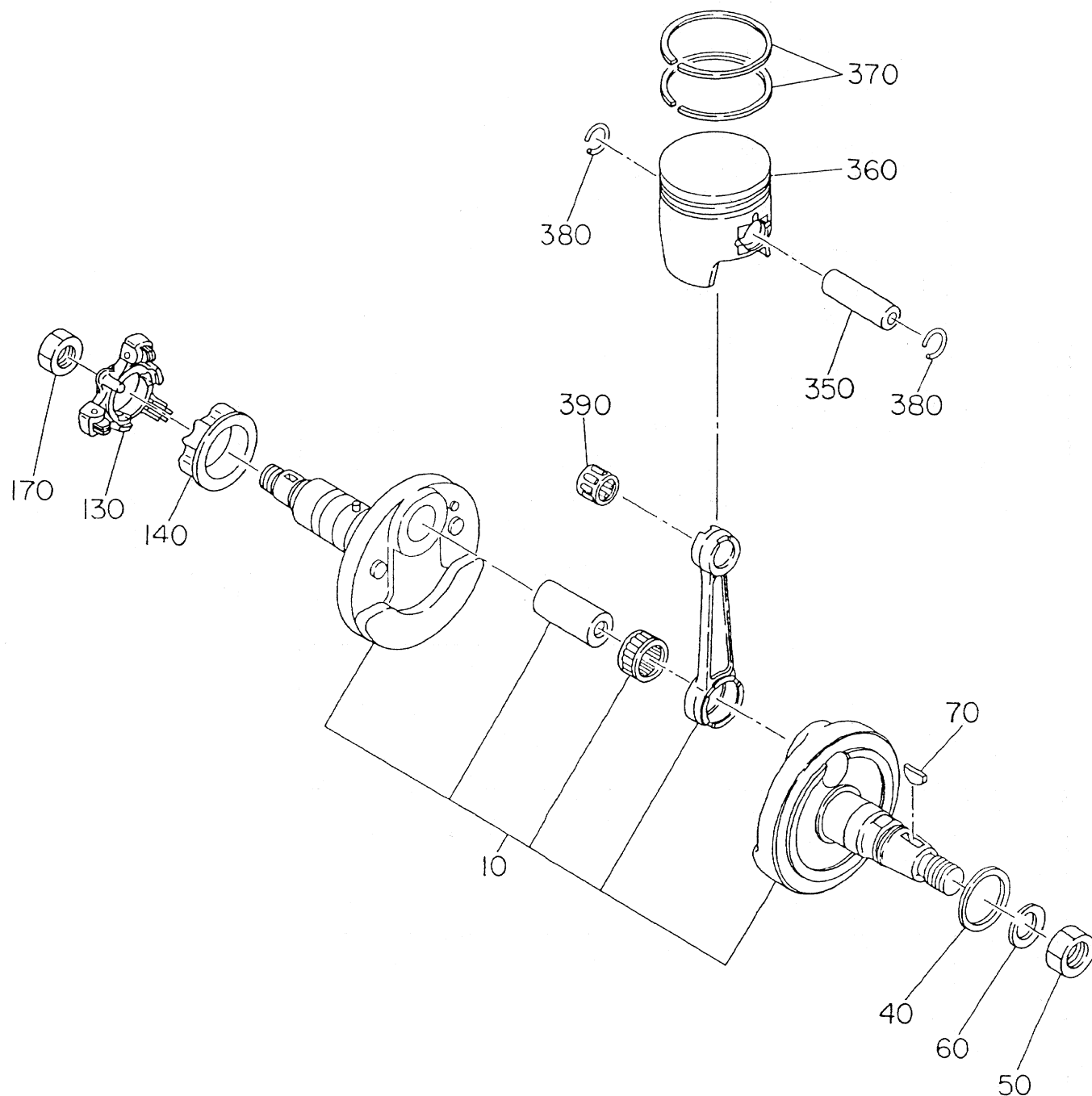
ROBIN EC-12HS ENGINE—CRANKCASE AND CYLINDER ASSY.

CRANKCASE AND CYLINDER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	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 EC-12HS ENGINE — CRANKSHAFT AND PISTON ASSY.

CRANKSHAFT AND PISTON ASSY.



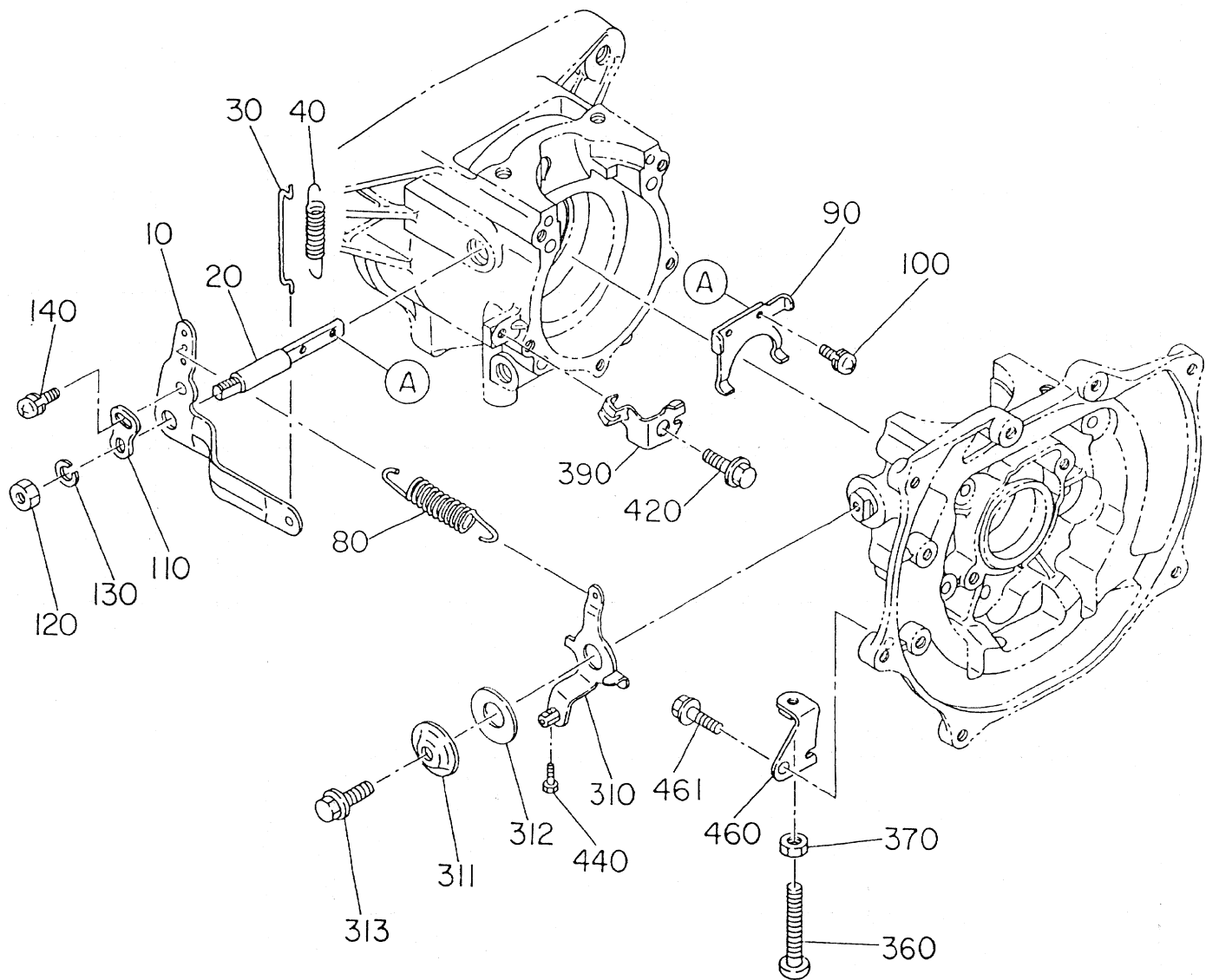
ROBIN EC-12HS ENGINE — CRANKSHAFT AND PISTON ASSY.

CRANKSHAFT AND PISTON ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	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 EC-12HS ENGINE—GOVERNOR ASSY.

GOVERNOR ASSY.



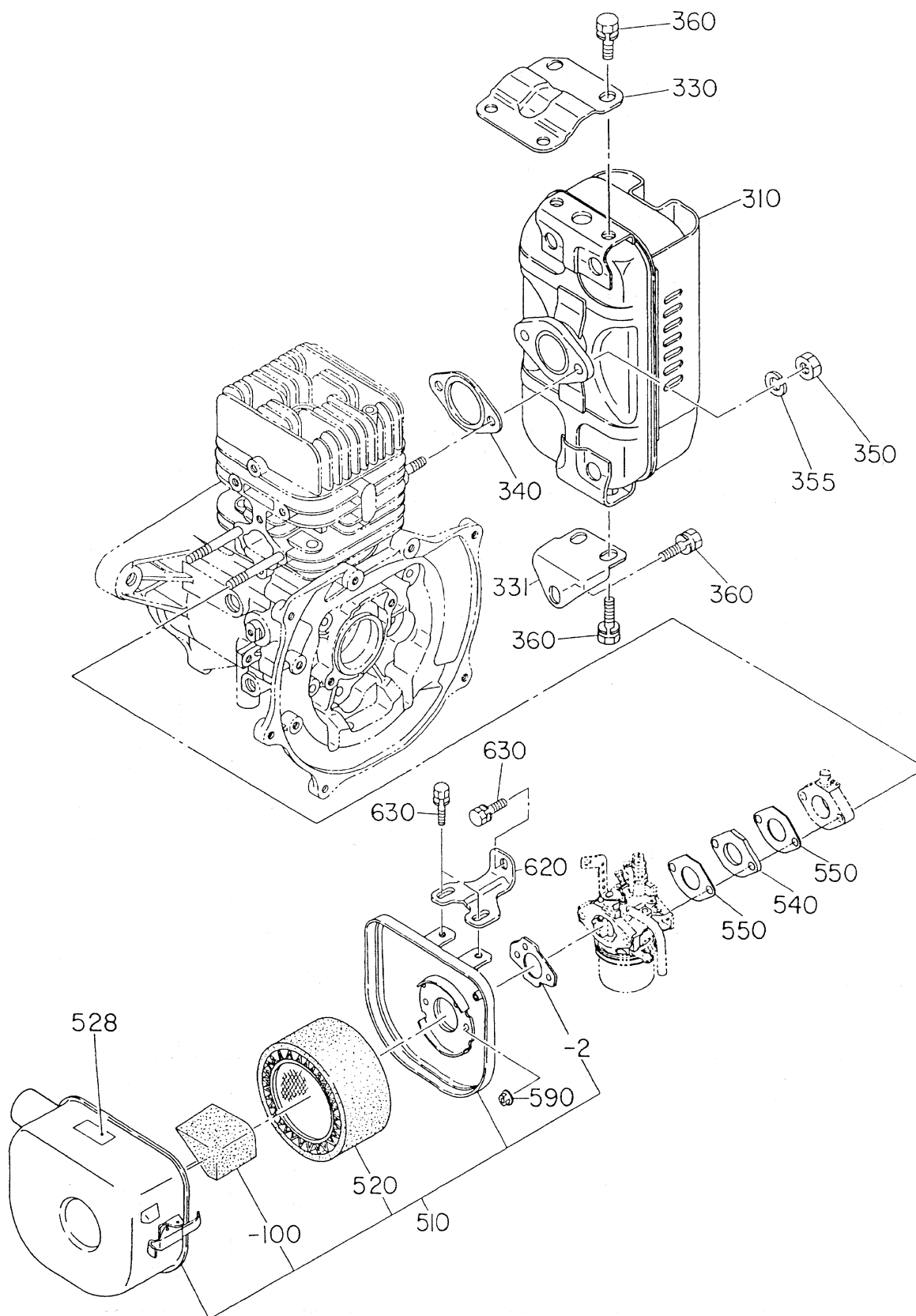
ROBIN EC-12HS ENGINE — GOVERNOR ASSY.

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 EC-12HS ENGINE —MUFFLER AND AIR CLEANER ASSY.

MUFFLER AND AIR CLEANER ASSY.



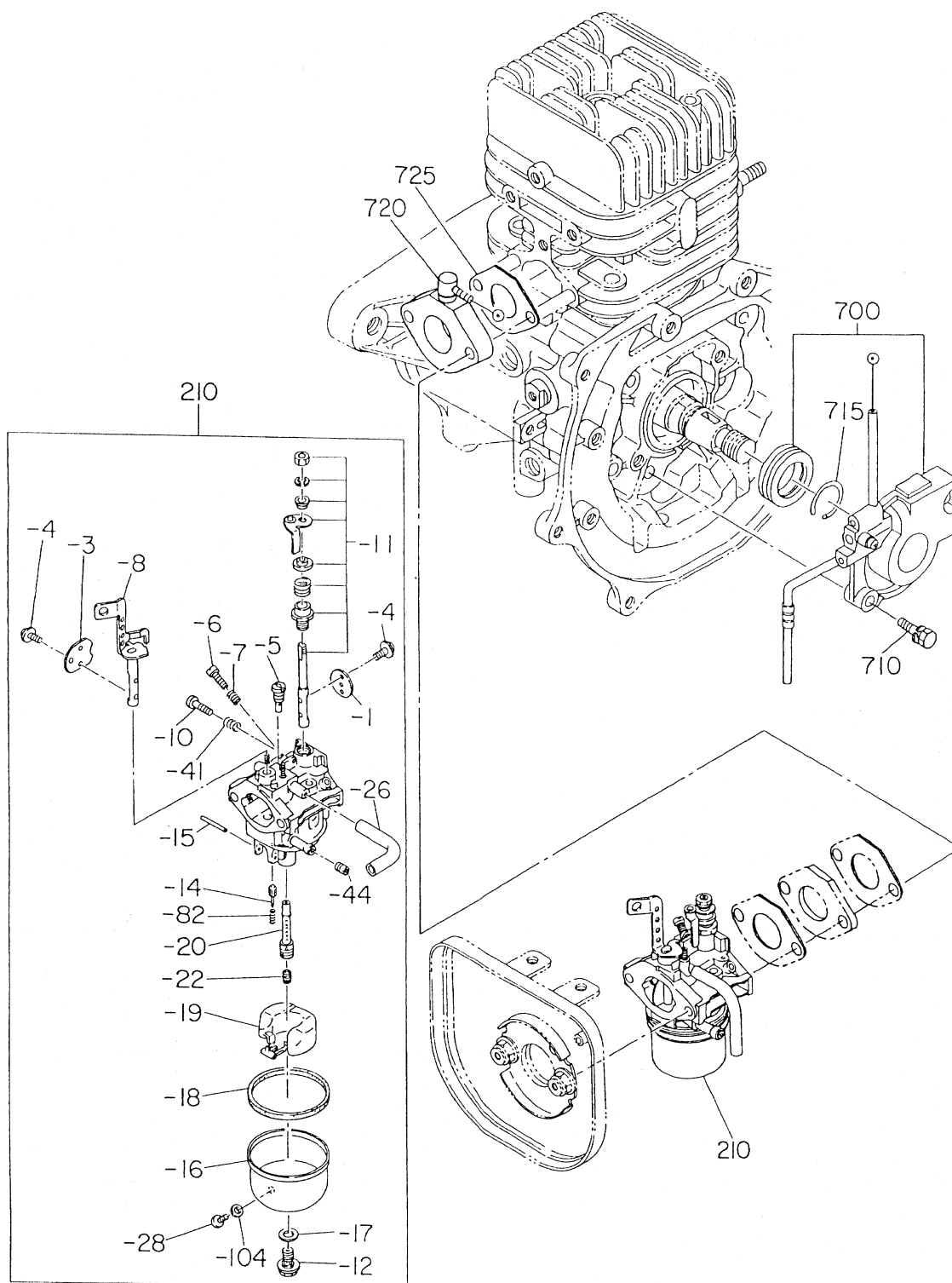
ROBIN EC-12HS ENGINE—MUFFLER AND AIR CLEANER ASSY.

MUFFLER AND 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 EC-12HS ENGINE — CARBURETOR AND OIL PUMP ASSY.

CARBURETOR AND OIL PUMP ASSY.



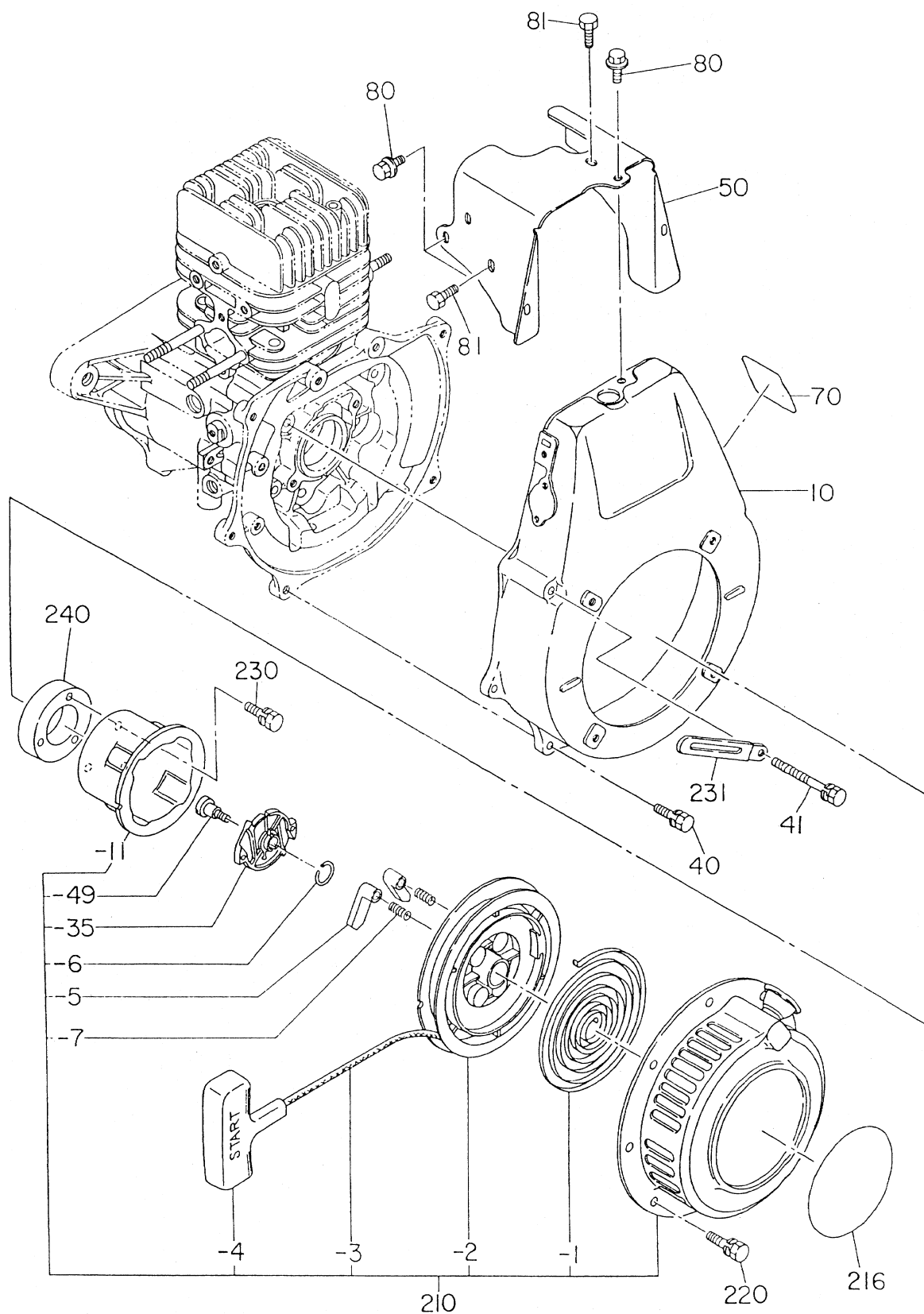
ROBIN EC-12HS ENGINE — CARBURETOR AND OIL PUMP ASSY.

CARBURETOR AND OIL PUMP ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
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 EC-12HS ENGINE — RECOIL STARTER AND BLOWER ASSY.

RECOIL STARTER AND BLOWER ASSY.



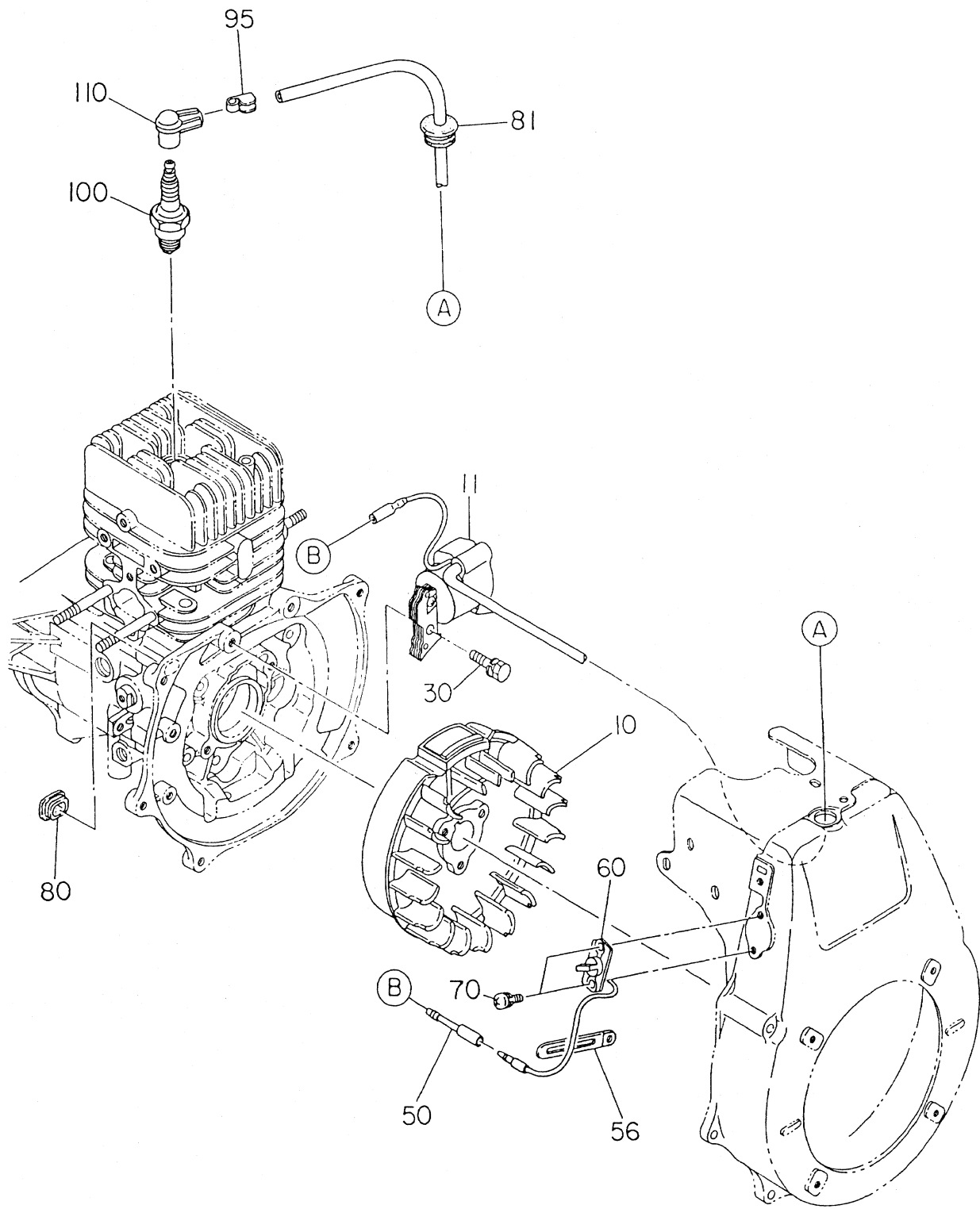
ROBIN EC-12HS ENGINE — RECOIL STARTER AND BLOWER ASSY.

RECOIL STARTER AND BLOWER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	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 EC-12HS ENGINE — MAGENTO ASSY.

MAGNETO ASSY.



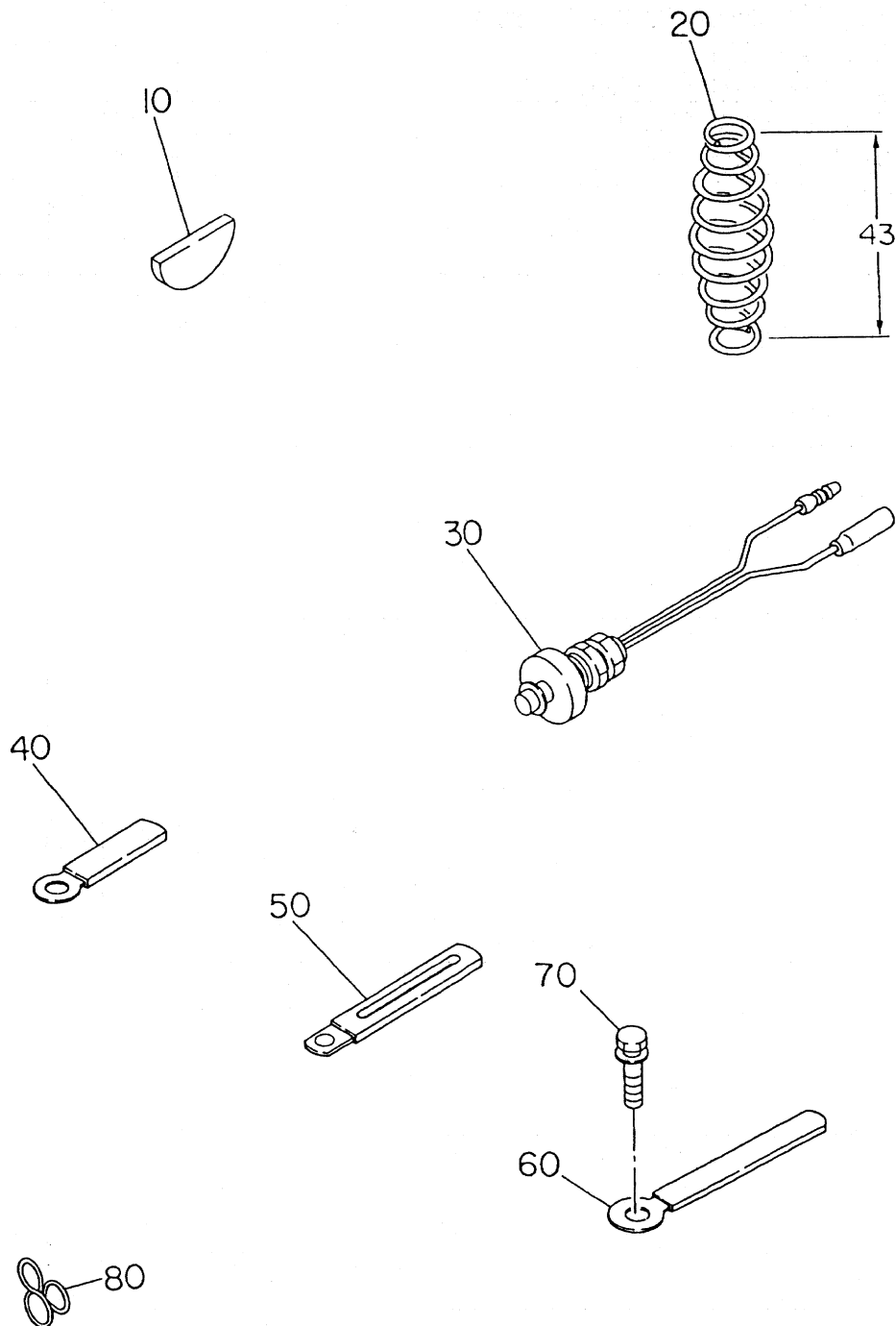
ROBIN EC-12HS ENGINE — MAGNETO ASSY.

MAGNETO 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 EC-12HS ENGINE — LOOSE PARTS ASSY.

LOOSE PARTS ASSY.



ROBIN EC-12HS ENGINE — LOOSE PARTS ASSY.

LOOSE PARTS ASSY.

<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	

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 listed in the parts price book 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 5 working days from notification, pending instructions. If a reply is not received within 5 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 \$20.00 to \$50.00 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.

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PARTS AND OPERATION MANUAL

HERE'S HOW TO GET HELP

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

PARTS DEPARTMENT

800-427-1244 or 310-537-3700

FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT/TECHNICAL ASSISTANCE

800-478-1244 or 310-537-3700

FAX: 310- 537-4259

WARRANTY DEPARTMENT

888-661-4279, or 310-661-4279

FAX: 310- 537-1173

MAIN

800-421-1244 or 310-537-3700

FAX: 310-537-3927



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WWW: multiquip.com

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by
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