

OPERATION AND PARTS MANUAL



Mikasa **SERIES**
MODEL MT-65HA
TAMPING RAMMER
(HONDA GASOLINE ENGINE)

Revision #1 (06/20/05)

To find the latest revision of this
publication, visit our website at:
www.multiquip.com



THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.



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.

[illegible]

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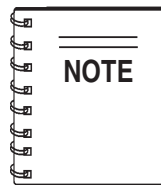
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HONDA GX100KRBM ENGINE

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

MT-65HA — PARTS ORDERING PROCEDURES

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.

MULTIQUIP CORPORATE OFFICE

18910 Wilmington Ave. 800-421-1244
Carson, CA 90746 FAX: 310-537-3927
Email: mq@multiquip.com
Internet: www.multiquip.com

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

800-421-1244 FAX: 310-537-4259
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

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

(Domestic USA Dealers Only)

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.

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

NOTE: DISCOUNTS ARE SUBJECT TO CHANGE



MULTIQUIP INC.
18910 WILMINGTON AVENUE
POST OFFICE BOX 6254
CARSON, CALIFORNIA 90749
310-537-3700 • 800-421-1244
FAX: 310-537-3927
E-MAIL: mq@multiquip.com
INTERNET: www.multiquip.com

Direct TOLL-FREE access to our Parts Department:

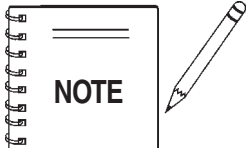
Toll-free nationwide — 800-427-1244

Toll-free FAX — 800-6-PARTS-7 (800/672-7877)

MT-65HA — 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 **MQ Mikasa, Model MT-65HA Tamping Rammer**. Refer to the engine manufacturers 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**,

DANGER

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

WARNING

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

CAUTION

You **CAN** be **INJURED** if you **DO NOT** follow these directions.

HAZARD SYMBOLS

Potential hazards associated with the operation of a **MT-74F Tamping Rammer** will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.



WARNING

Lethal Exhaust Gas Hazards

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.



WARNING

Explosive Fuel Hazards

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.



WARNING

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.



WARNING

Respiratory Hazards

ALWAYS wear approved **respiratory** protection when required.



MT-65HA — SAFETY MESSAGE ALERT SYMBOLS

CAUTION

Rotating Parts Hazards

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



CAUTION

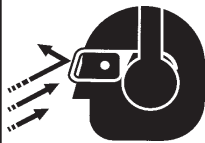
Accidental Starting Hazards

ALWAYS place the **ON/OFF** switch in the **OFF** position when the rammer is not in use.



CAUTION

Eye and Hearing Hazards

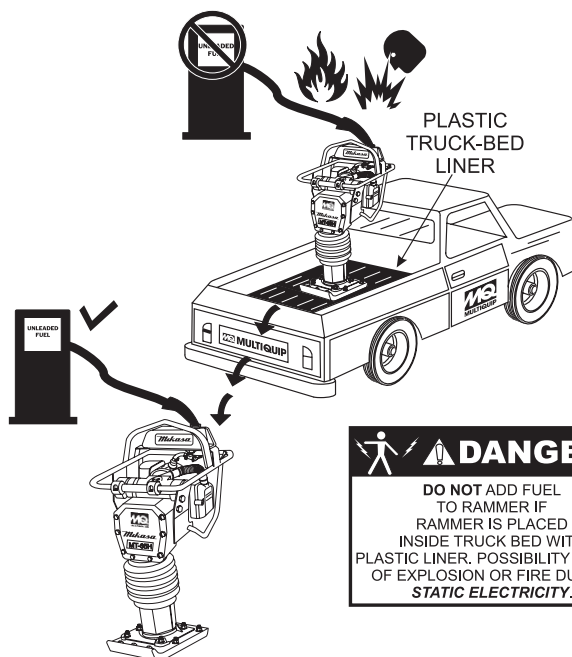



ALWAYS wear approved eye and hearing protection.

DANGER

Refueling Hazard

NEVER refuel rammer when placed in truck bed with plastic liner. The possibility exists of explosion due to static electricity. When adding fuel, remove rammer from truck bed and place on ground.



 DANGER
DO NOT ADD FUEL TO RAMMER IF RAMMER IS PLACED INSIDE TRUCK BED WITH PLASTIC LINER. POSSIBILITY EXISTS OF EXPLOSION OR FIRE DUE TO **STATIC ELECTRICITY**.

CAUTION

Equipment Damage Hazards

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

CAUTION

Lifting Handle

Before starting operation, check the lifting handle to make sure there is no damage on the bolts, no cracks or breakage on the handle, and no fissure on the surface.

This handle is for **manual lifting only**. Use handle to lift the shoe part of the rammer with the body laid down on the ground or truck bed. Use proper lifting techniques to avoid back injury.

Do not use this rammer as a rammer lift point. Use the lifting point on top of the rammer.

Do not move the rammer with the lifting handle and the front rollers more than 5 meters.

CAUTION

Read Manual

Before attempting to operate the pump, and to avoid serious injury to personnel, always read and understand operation manual. Failure to read and understand operation manual could result in serious harm or even death!

	WARNING
	<p>To avoid injury, you MUST read and understand operator's manual before using this machine.</p> <p>This machine to be operated by qualified personnel only. Ask for training as needed.</p>

MT-65HA — RULES FOR SAFE OPERATION



DANGER

Read this manual!

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-65HA 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**.

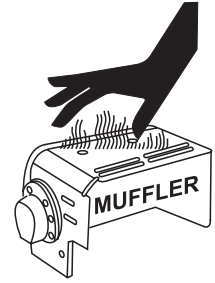


- **ALWAYS** wear proper respiratory (mask), hearing and eye protection equipment when operating the rammer.



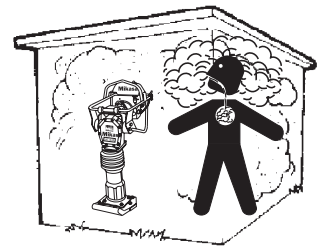
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications.
- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage 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**.

- **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.



- Topping-off to filler port is dangerous, as it tends to spill fuel.
- Stop the engine when leaving the rammer unattended.
- Maintain this equipment in a safe operating condition at all times.

MT-65HA — RULES FOR SAFE OPERATION

- **ALWAYS** stop the engine before servicing, adding fuel and oil.
- **NEVER** run engine without air filter. Severe engine may occur.
- **ALWAYS** service air cleaner frequently to prevent carburetor malfunction.
- **ALWAYS** check the machine for loosened threads or bolts before starting.
- **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.
- **DO NOT** operate this equipment unless all guards and safety devices are attached and in place.
- **CAUTION** must be exercised while servicing this equipment. Rotating and moving parts can cause injury if contacted.
- Keep all ***inexperienced*** and ***unauthorized*** people away from the equipment at all times.
- Unauthorized equipment modifications will void all warranties.
- **NEVER** pour or spray water over the engine.
- Test the engine **ON/OFF** switch before operating. The purpose of this switch is to shut down the engine of the rammer.
- Refer to the ***HONDA Engine Owner's Manual*** for engine technical questions or information recommended by Multiquip for this equipment.

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

MAINTENANCE

- **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*** and ***first aid kit***.



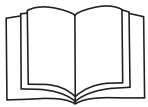
- In emergencies ***always*** know the location of the nearest phone or ***keep a phone on the job site***. Also know the phone numbers of the nearest ***ambulance***, ***doctor*** and ***fire department***. This information will be invaluable in the case of an emergency.



MT-65HA — OPERATION AND SAFETY DECALS

Mikasa

P/N 920106460




CAUTION
ATTENZIONE
ATENÇÃO
PRECAUCION

* Read operator's manual carefully before use.
 * Lire le manuel attentivement avant utilisation.
 * Bitte lesen Sie vor inbetriebnahme der Maschine die Bedienungsanleitung sorgfältig durch.
 * Prima dell'uso leggere attentamente il manuale.
 * Lee com atenção o manual de instruções antes de usar.
 * Leer detenidamente el manual de instrucciones antes de usar la máquina.

NPA-769 ⓘ

P/N 920207690



Oil
öl
l'huile
SAE30
7~9 cc

NPA-961 ⓘ

P/N 920209610

GASOLINE ONLY

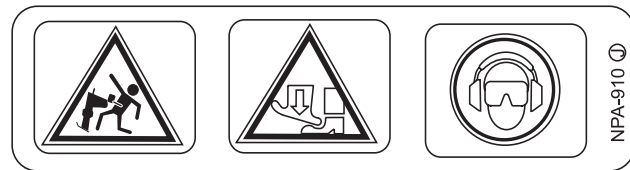
NPA-1017

P/N 920210170

- 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



P/N 920209100

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 920209630

**SECONDARY AIRFILTER
SERVICE MONTHLY**

NPA-1016

P/N 920210160

**PRIMARY AIRFILTER
CHECK DAILY**

NPA-1018

P/N 920210180

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

NPA-293

P/N 920202930

3800 ~ 4100 RPM

NPA-957 ⓘ

P/N 920209570

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

NPA-399 ⓘ

P/N 920203990

NAMEPLATE

**CONTACT MULTIQUIP
PARTS DEPT.**

CAUTION

Prior to each operation check

- Check all nuts and bolts for tightness.
Check oil levels in both the engine and the lower unit.
Keep machine at the upright operating position to check.
1. Lower unit assembly-Check sight glass for proper level.
 2. Engine-Fill to the lower outer rim.

NPA-975 ⓘ

OPERATION

To START engine:

Open fuel filter valve and close choke lever on carburetor.
Place starter switch to "ON" and pull start rope.
When engine starts, open the choke lever and warm up the engine for 4-5 minutes before operation.

To STOP engine:

Move the throttle lever quickly from "ON" to "OFF" position.
Then move starter switch to "OFF" and close the fuel filter valve.

P/N 920209750

Definition of Tamping Rammer

The Mikasa MT-65HA 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 road, embankments and reservoirs as well as backfilling for gas pipelines, water pipelines and cable installation work.

The impact force of the MT-65HA levels and uniformly compacts voids between soil particles to increase dry density.

Circular motion is converted to create impact force. The MT-65HA 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-65HA is equipped with an air cooled, four-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-65HA 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-65HA Tamping Rammer identify and understand the function of the controls, see Figure 1 on page 13.

CAUTION

Handle Operation



Before starting operation check the lifting handle to:

1. Make sure that there is no damage on the bolts.
2. Make sure that there is no crack or breakage on handle.
3. Make sure that there is no fissure on the surface. If there is any abnormality or damage, replace with new one.

For operation:

This handle is to be used to lift up the shoe part of the machine with the body laid down on the ground or truck bed.

1. Use proper lifting techniques to avoid back injury. This handle is for manual lifting only.
2. Do not use this handle as a rammer lift point. Use the lifting point on the top of the machine.
3. Do not move the rammer with the lifting handle and the front rollers more than 16 feet (5 meters).

MT-65HA — SPECIFICATIONS

Table 1. MT-65HA Rammer Specifications

MODEL	MT-65HA
Overall Height	40.2 in. (1,020 mm)
Overall Width	14.8 in (375 mm)
Over Length	28.7 in (730 mm)
Shoe Size	13.4 x 11.2. (340 x 285 mm)
Blows/minute	645 - 695
Stroke (Jump Height)	3.15 in. (80 mm)
Travel Speed	29.5 - 39.4 ft./min (9 - 12 meters/min)
Impact Force	2,900 lb (1,300 kg)
Clutch	Automatic Centrifugal
Fuel Tank Capacity	2.1 qt. (2 liters)
Max Area of Compaction	2,145 sq. ft./hr.
Operating Weight	152 lbs. (69 kg)

Table 2. Engine Specifications

Model	Honda GX100KRB Engine
Type	Air-Cooled 4 Stroke, Overhead camshaft, single cylinder gasoline engine.
Piston Displacement	6.0 cu.in. (98 cc)
Max. Output	3.0 hp/4,200 rpm (2.2 KW)
Max. Governed Speed, No Load	3,800 - 4,100 rpm
Cooling System	Air-Cooled
Engine Oil Capacity	0.32 qt. (0.3 liters)
Fuel	Unleaded gasoline
Lubricant for Engine	Automobile Oil; Class SE or higher
Starting System	Recoil Starter
Spark Plug Type	DENSO: U16FSR-UB
Carburetor System	Diaphragm

NOTE



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

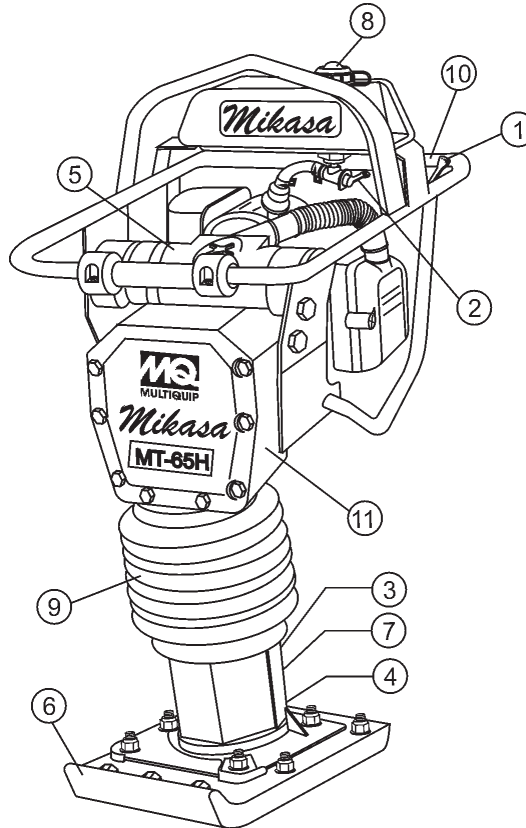


Figure 1. MT-65HA Rammer

Figure 1 shows the location of the controls and components for the MT-65HA 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. **Oil Bath Fill Plug** – Open this plug to add oil to the oil bath reservoir.
4. **Drain Valve** – Open this valve to remove oil from the bellows.
5. **Primary Air Cleaner** – Pre-cleans (first stage) dirt and other debris from entering the engine.
6. **Foot** – Laminated wood with tempered steel plate for superior shock absorption.
7. **Oil Level Sight Glass** – Indicates the level of oil in the oil bath reservoir.

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.



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.

9. **Bellows** – Reservoir for oil bath.
10. **Handle** – To operate rammer **GRIP** handle assembly firmly on both sides.
11. **Nameplate** – Displays information regarding the rammer.

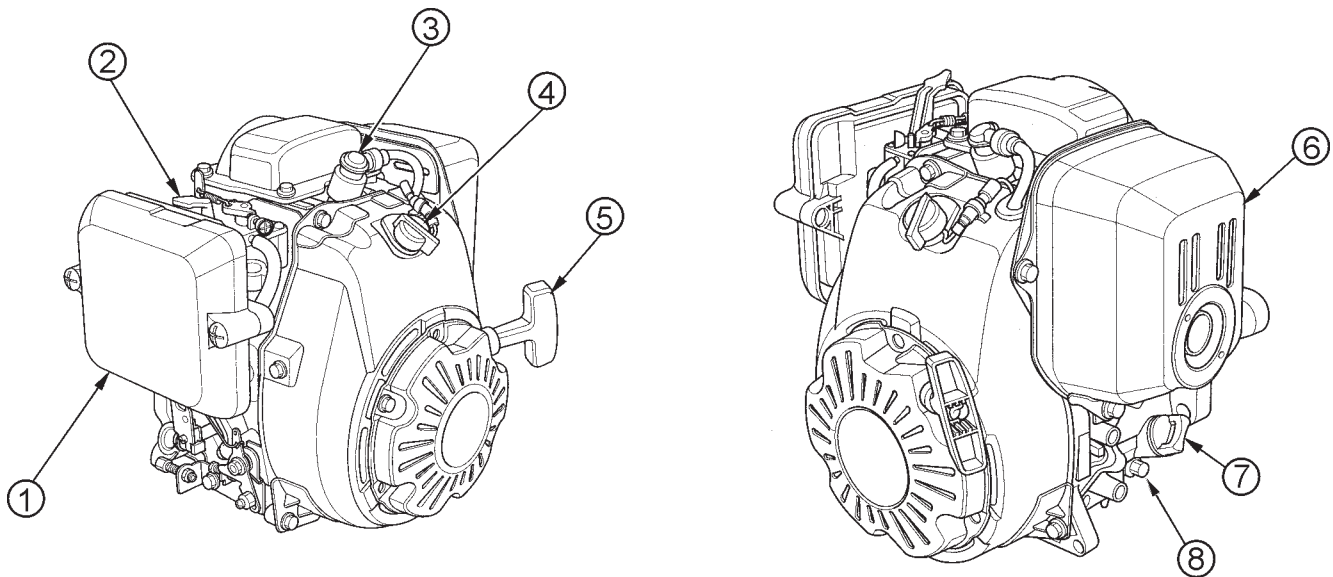


Figure 6. Engine Controls and Components

INITIAL SERVICING

The engine (Figure 6) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturers 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.

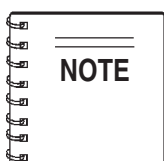
5. **Recoil Starter (pull rope)** – Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
6. **Muffler** – Used to reduce noise and emissions.



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.

7. **Dipstick/Oil Filler Cap** – Remove this cap to determine if the engine oil is low. Add oil through this filler port as recommended in Table 3.
8. **Oil Drain Plug** – Remove this plug to remove oil from the engine's crankcase.



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 initial start-up of the MT-65HA 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-65HA 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.

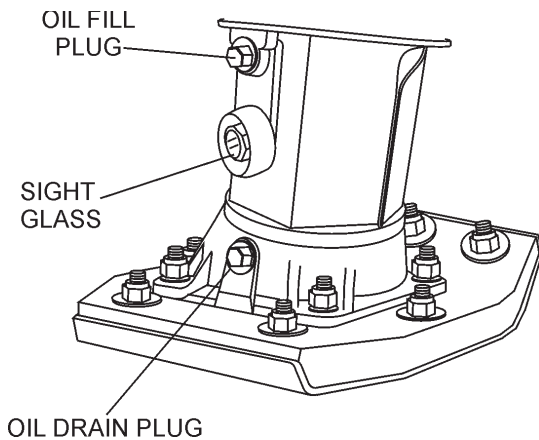
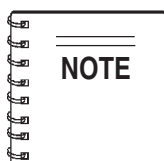


Figure 2. Foot Housing Sight Glass

2. If oil is not visible, add 10W-30 SE, SF or higher grade 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.

Engine

1. Fill the fuel tank (Figure 3) with unleaded gasoline. At the same time, check the engine oil and make it a habit to replenish it often.

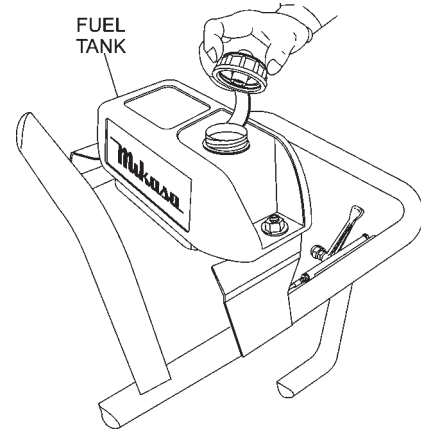


Figure 3. Fuel Tank

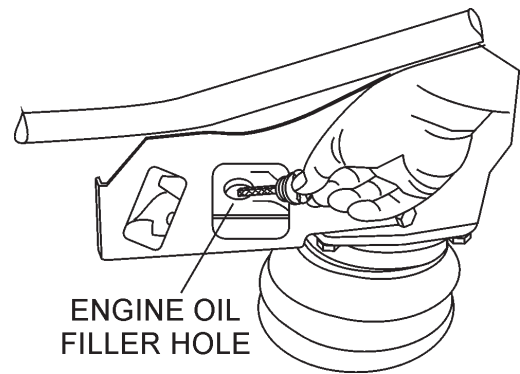


Figure 4. Engine Oil Dipstick

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

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-65HA Tamping Rammer perform the following:

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

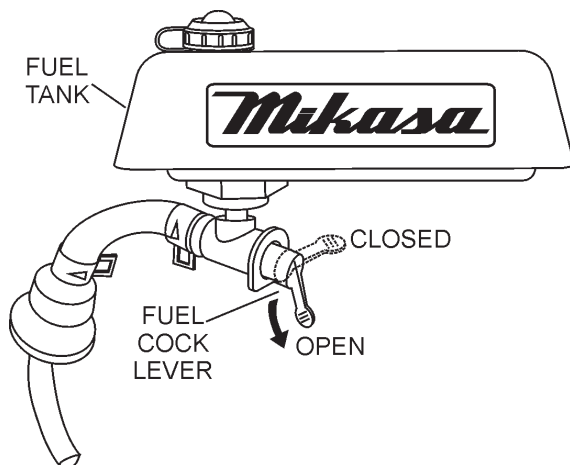


Figure 5. Fuel Shut-Off Valve (ON)

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

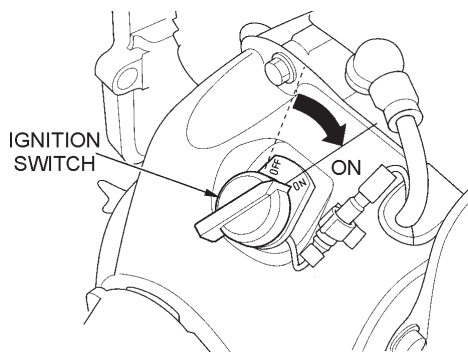


Figure 6. On Off Switch

3. Close the choke lever Figure 7 and move the throttle lever 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.

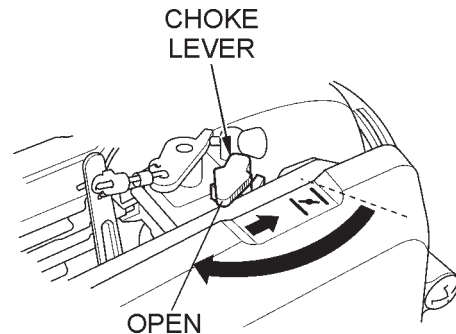


Figure 7. Choke Lever

4. Grip the recoil starter (Figure 8) handle and pull it until you feel a slight resistance. Then pull sharply and quickly. Return the recoil starter handle to the starter case before releasing.

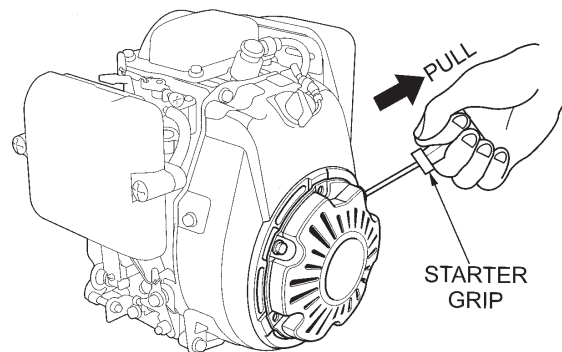


Figure 8. Recoil Starter

5. If engine fails to start, move the choke lever (Figure 7) to the half open position to avoid flooding.
6. Repeat steps 1 thru 4.
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.

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.

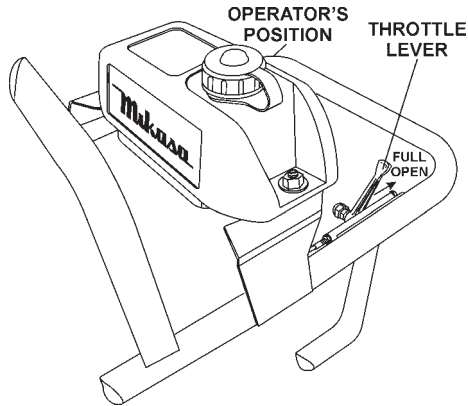


Figure 9. Throttle Lever (Full Open)

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-65HA Tamping rammer is designed to run at 3,600 rpm. At optimum rpm the foot hits at the rate between 590 ~ 695 impacts per minute. Increasing throttle speed past factory set rpm does not increase impacts and may damage unit. The MT-65HA is designed to advance while tamping. For faster advance, pull back slightly on the handle so that rear of foot contacts soil first.
3. To stop the tamping action, move throttle lever quickly from the **FULL OPEN** to **IDLE** position.

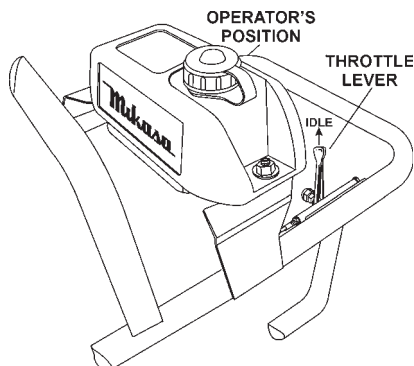


Figure 10. Throttle Lever (Idle)

Stopping The Engine

Normal Shutdown

1. Move throttle lever quickly from the **FULL OPEN** to **IDLE** position (Figure 10) and run the engine for three minutes at low speed. After the engine **cools**, turn the engine start/stop switch to the **"STOP"** position (Figure 11).

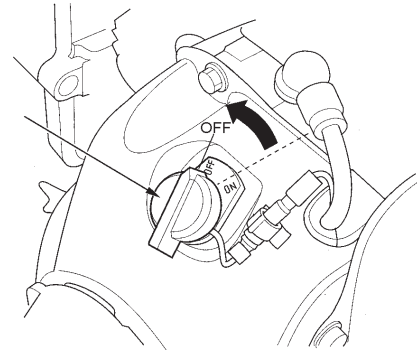


Figure 11. ON/OFF Switch (Off Position)

2. Close the **fuel shut-off valve** (Figure 12) by moving the fuel cock lever to the **CLOSED** position.

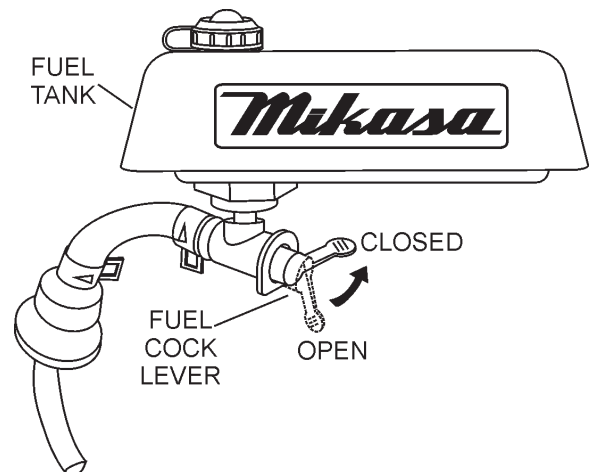


Figure 12. Fuel Shut-OFF Valve (Off Position)

Emergency Showdown

1. Move the throttle lever quickly to the **IDLE** position, and turn the engine start/stop switch to the **STOP** position.

Maintenance

Perform the scheduled maintenance procedures as indicated:

DAILY

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

WEEKLY

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

150 HOURS (Pre-Cleaner)

- Remove the element from the pre-cleaner (Figure 11) at the top of the crankcase (body side) and clean it with cleaning oil (kerosene). Check daily if rammer is used in a dusty area.

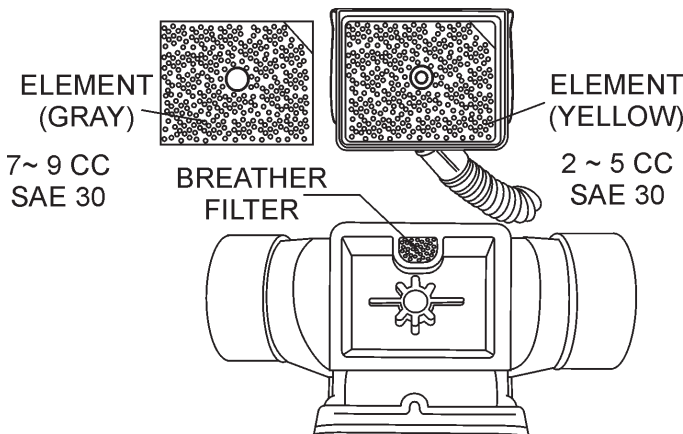


Figure 11. Primary Air Filter

- 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.
- Tap the paper filter element (Figure 12) 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.

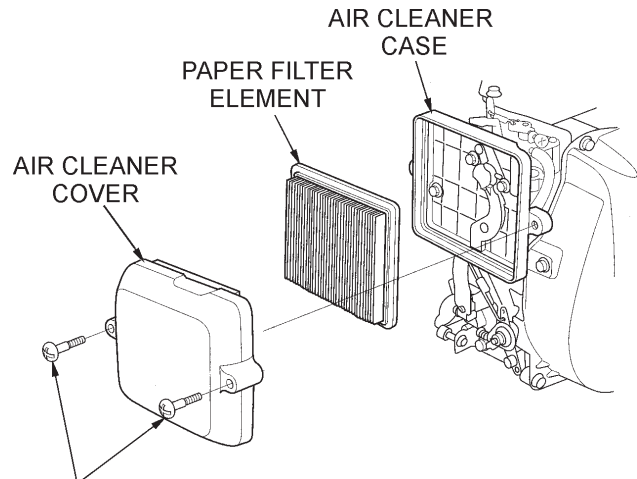


Figure 12. Engine Air Cleaner

150 HOURS (Oil Bath)

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

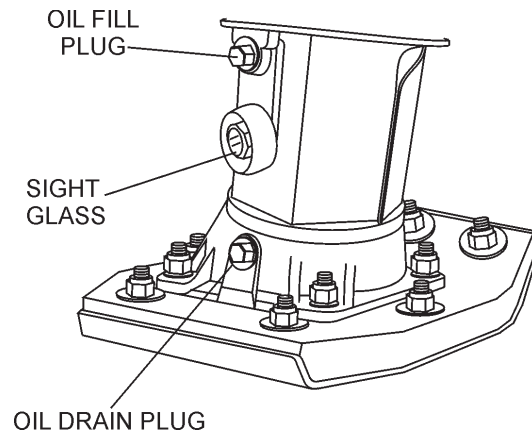


Figure 13. Foot Housing Drain Plug

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 with a cloth soaked in clean oil.
- Store unit covered with plastic sheet in moisture free and dust free location out of direct sunlight

MT-65HA — 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-65HA — 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 runs but rammer jumps erratically or not at all..	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.
	Soil over-compacted?	Shut-down machine and test soil.

[illegible]

MT-65HA—EXPLANATION OF PARTS SECTION REMARKS

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

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

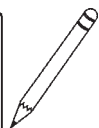
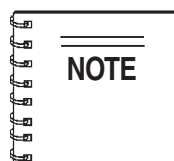
Sample Parts List:

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

NO. Column

Unique Symbols - All items with same unique symbol (*, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the "Remarks" column.

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



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

PART NO. Column

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

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

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

QTY. Column

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

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

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

REMARKS Column

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

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

Indicated by:

"INCLUDES ITEMS W/(unique symbol)"

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

Indicated by:

"S/N XXXXX AND BELOW"

"S/N XXXX AND ABOVE"

"S/N XXXX TO S/N XXX"

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

Indicated by:

"XXXXX ONLY"

"NOT USED ON XXXX"

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

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

MT-65HA— SUGGESTED SPARE PARTS

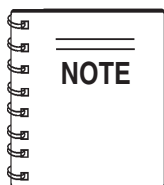
MT-65HA RAMMER 1 TO 3 UNITS WITH HONDA

GX100KRBM ENGINE

Qty.	P/N	Description
1	362455630	LEVER, THROTTLE
1	956100048	THROTTLE WIRE
3	362030030	ELEMENT, AIR CLEANER
3	362030020	PACKING, AIR CLEANER
3	362456610	ELEMENT, CRANKCASE
1	361910070	CAP, FUEL TANK W/ STRAP
1	954300720	COCK, FUEL ASSY.
2	16910GB2005 ..	FILTER, IN-LINE FUEL
3	17211ZL8003 ...	ELEMENT, SET ENGINE
1	36100ZE1015 ..	STOP, SWITCH
3	9805655757	SPARK PLUG
1	954406010	STRAINER, FUEL TANK
1	28462Z0DV02 ..	ROPE, RECOIL STARTER

MT-65HA RAMMER 3TO 5 UNITS WITH HONDA GX100KRBM ENGINE

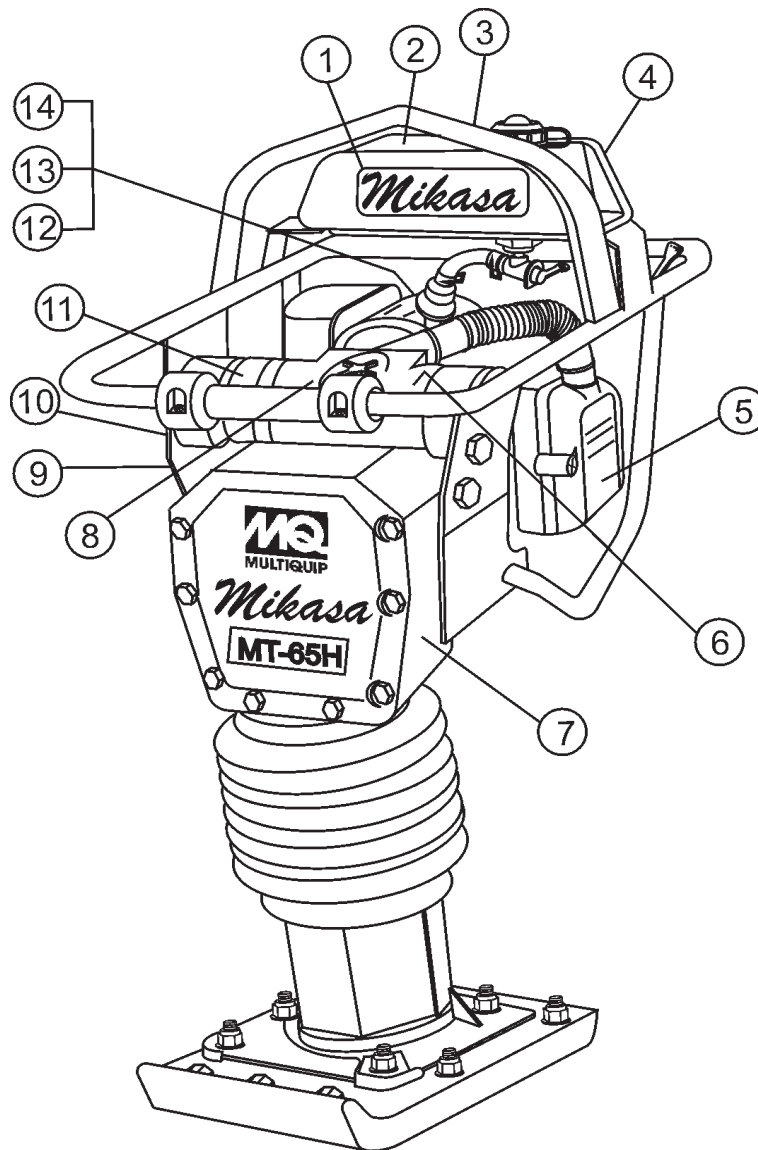
Qty.	P/N	Description
1	362455630	LEVER, THROTTLE
1	956100048	THROTTLE WIRE
3	362030030	ELEMENT, AIR CLEANER
5	362030020	PACKING, AIR CLEANER
3	362456610	ELEMENT, CRANKCASE
2	354336352	CLAMP, BELLOWS
1	354010010	BELLOWS
1	361910070	CAP, FUEL TANK W/ STRAP
1	954300720	COCK, FUEL ASSY.
2	16910GB2005 ..	FILTER, IN-LINE FUEL
3	17211ZL8003 ...	ELEMENT, SET ENGINE
1	36100ZE1015 ..	STOP, SWITCH
3	9805655757	SPARK PLUG
1	362454441	CLUTCH
1	14400ZOD03 ...	BELT, TIMING
1	28462Z0DV02 ..	ROPE, RECOIL STARTER



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

MT-65HA— NAMEPLATE AND DECALS

NAME PLATE AND DECALS



MT-65HA— NAMEPLATE AND DECALS

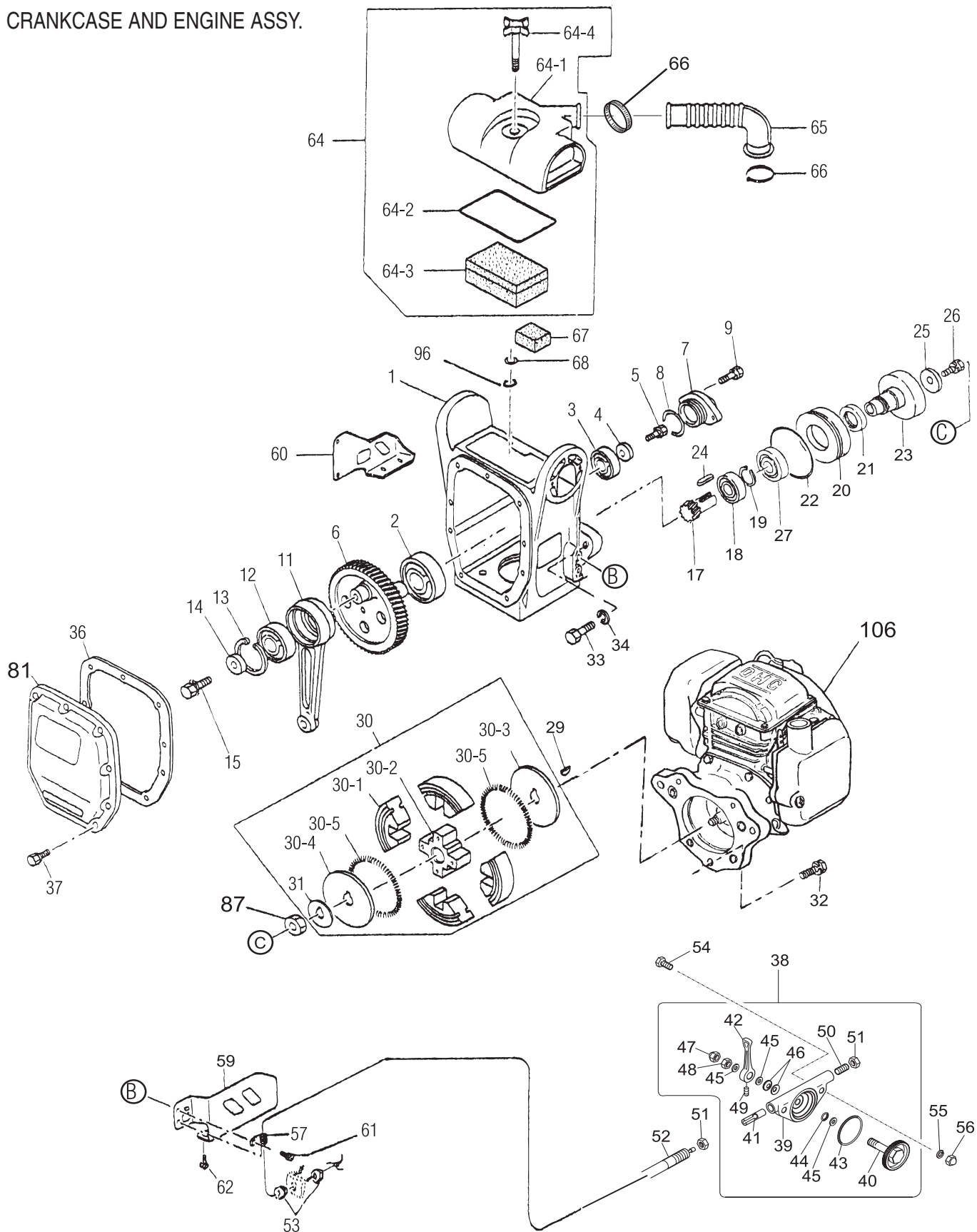
NAME PLATE AND DECALS

<u>NO</u>	<u>PART NO</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	920106460	DECAL: MIKASA LOGO	1	
2*	920203290	DECAL: READ MANUAL	1	NPA329
3*	920210170	DECAL: GASOLINE ONLY	1	NPA1017
4*	920209750	DECAL: CAUTION/OPERATION	1	NPA975
5*	920210160	DECAL: SECONDARY AIR FILTER .	1	NPA1016
6*	920209630	DECAL: CLEANING ELEMENT	1	NPA963
7		DECAL: NAMEPLATE	1	CONTACT MQ PARTS DEPT. W/MODEL & S/N
8*	920210180	DECAL: PRIMARY AIRFILTER	1	NPA1018
9*	920207690	DECAL: CAUTION READ MANUAL .	1	NPA769
10*	920209100	DECAL: RAMMER, BOOT, HEARING ...	1	NPA910
11*	920209610	DECAL: OIL 7~9 cc	1	NPA961
12*	920203990	DECAL: FUEL COCK	1	NPA399
13*	920202930	DECAL: START SWITCH	1	NPA293
14*	920209570	DECAL: 3800~4100 RPM	1	NPA957
	DCLMT65H	KIT, DECAL	1	INCLUDES ITEMS W/ *

SEE DECAL ILLUSTRATIONS ON PAGE 10.

MT-65HA — CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.



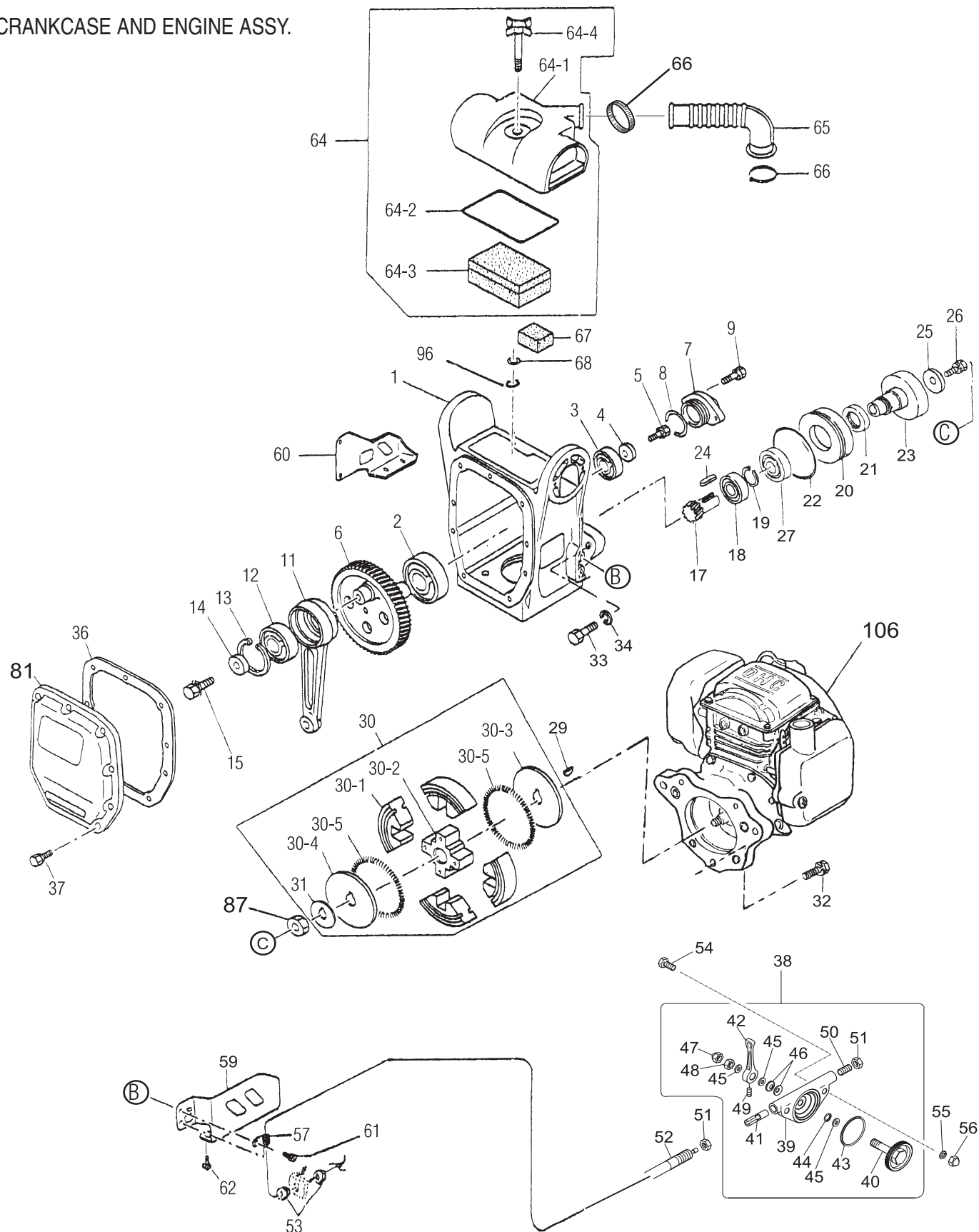
MT-65HA — CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	363117950	CRANK CASE	1	
2	040006207	BEARING 6207	1	
3	0600200020	BEARING 6204	1	REPLACES P/N 040006204
4	952400130	WASHER 9304	1	
5	011708025	BOLT 8X25 H,SW	1	REPLACES P/N 002210825
6	363342750	CRANK GEAR	1	
7	363456230	BEARING COVER	1	
8	050300440	O-RING S-44	1	
9	011008020	BOLT 8X20 H, SW	2	REPLACES P/N 002210820
11	371334730	CONNECTING ROD	1	
12	040006304	BEARING 6304	1	
13	080100520	STOP RING R-52	1	
14	952400130	WASHER 9304	1	
15	002210825	BOLT 8X25 H, SW	1	
17	363456410	PINION	1	
18	0600200020	BEARING 6204	1	REPLACES P/N 040006204
19	080200350	STOP RING S-35	1	
20	352441340	SPACER	1	
21	060404010	OIL SEAL TC-40528	1	
22	050100950	O-RING G-95	1	
23	355447210	CLUTCH DRUM	1	
24	952405610	KEY 5X5X19R	1	
25	952405490	LOCK WASHER	1	
26	011008020	BOLT 8X20 H, SW	1	REPLACES P/N 002210820
27	041006007	BEARING 60072	1	
29	0053204201	WOODRUFF KEY	1	
30	362454441	CLUTCH AY/CE120P	1	INCLUDES ITEMS W/+
30-1 +	943020020	CLUTCH SHOE C812	4	
30-2 +	943050050	CLUTCH BOSS C812	1	
30-3 +	943060100	CLUTCH GUIDE (A) 1.6T, 1C	1	
30-4 +	943060020	CLUTCH GUIDE /B	1	
30-5 +	943030021	CLUTCH SPRING	2	
31 +	301010210	LOCK WASHER, CLUTCH	1	
32	012710035	BOLT 10X35 H, SW	1	REPLACES P/N 002211035
33	001111040	BOLT 10X40	2	
34	030210250	WASHER, SW M10	2	
36	363342490	PACKING, FRONT COVER	1	
37	011706020	BOLT 6X20 H, SW	9	REPLACES P/N 002210620
38	362910060	THROTTLE LEVER ASSY	1	INCLUDES ITEMS W/ *
39*	362341550	THROTTLE BODY	1	
40*	362910090	THROTTLE GEAR CP, W/ BOLT	1	

MT-65HA — CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.



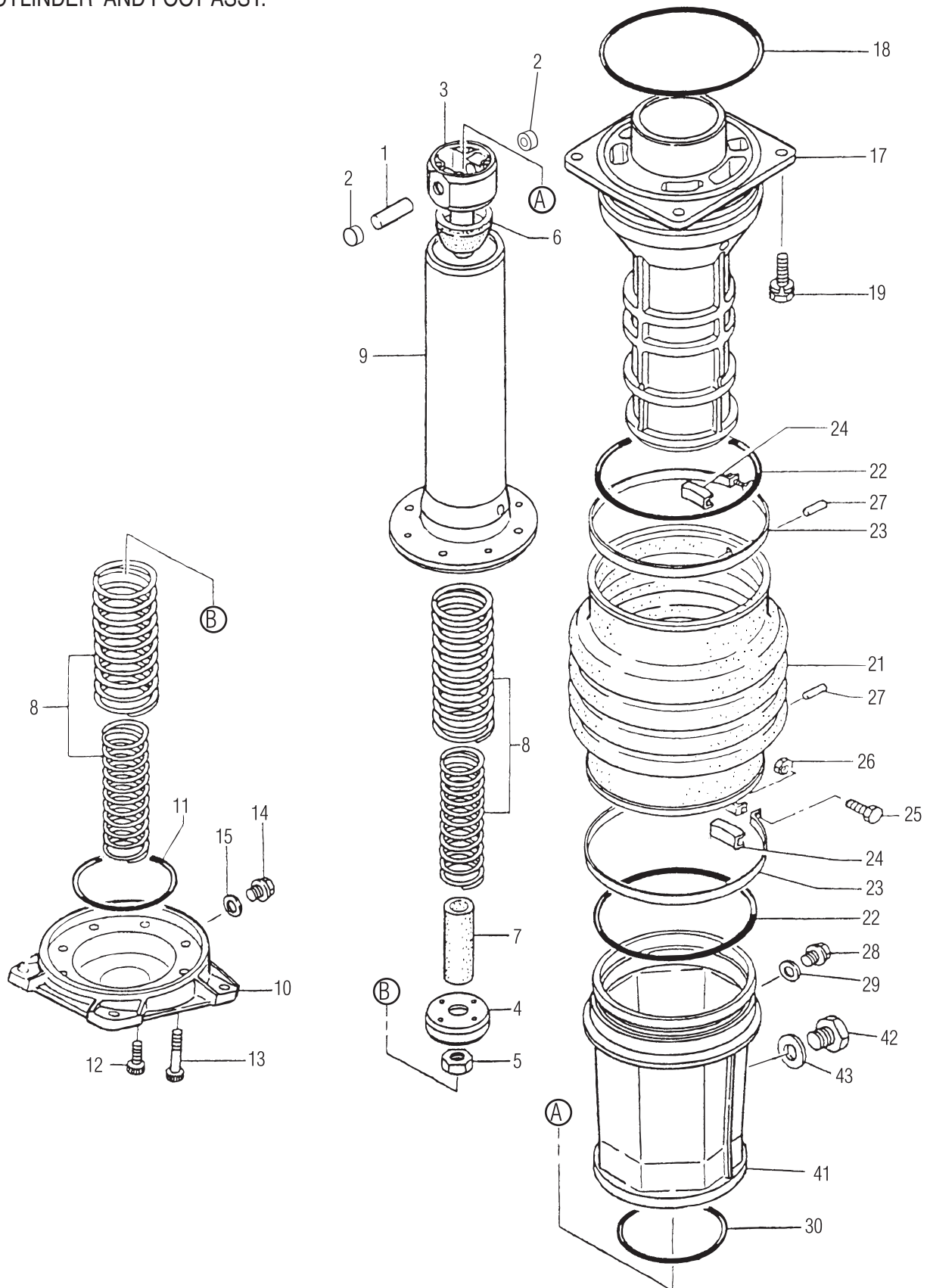
MT-65HA — CRANKCASE AND ENGINE ASSY.

CRANKCASE AND ENGINE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
41*	362455620	SLIDER	1	
42*	362455630	THROTTLE LEVER	1	
43*	050100450	O-RING G-45	1	
44*	050200100	O-RING P-10	1	
45*	031110160	WASHER, PW M10	3	
46*	032110180	CONICAL SPRING WASHER	2	
47*	022131008	CAP NUT M10	1	
48*	020410060	NUTM10, H=6	1	
49	096206006	SOCKET HEAD SCREW 6X6	1	
50	096208020	SOCKET HEAD SCREW 8X20	1	
51	020408050	NUT M8, H=5	2	
52	956100048	THROTTLE WIRE 720-850	1	
53	020108060	NUT M6	2	REPLACES P/N 020406040
54	011206020	BOLT 6X20 T	2	REPLACES P/N 001220620
55	030206150	WASHER, SW M6	2	
56	022130605	CAP NUT M6	2	
57	959006120	CLIP (TCP2-10509B)	1	
59	363342520	LINK PROTECTOR	1	
60	363342530	MUFFLER PROTECTOR	1	
61	002400820	BOLT 8X20 SW, PW	4	
62	002400825	BOLT 8X25 SW, PW	4	
64	362116871	AIR CLEANER ASSY.	1	INCLUDES ITEMS W/ #
64-1#	362030011	COVER CP, AIR CLEANER	1	
64-2#	362030020	PACKING, AIR CLEANER	1	
64-3#	362030030	ELEMENT CP, AIR CLEANER	1	
64-4#	362030040	BOLT CP, AIR CLEANER	1	
64-5#	050300070	O-RING (S-7)	1	
65	353342400	INTAKE PIPE	1	
66	507010110	CLAMP TC-200	2	
67	362456610	ELEMENT BREATHER	1	
68	031108160	WASHER, PW M8	1	
81	363030010	FRONT COVER MQ	1	
96	050300070	O-RING (S-7)	1	
106	912210007	ENGINE ASSY., GX100KRB	1	

MT-65HA — GUIDE CYLINDER AND SPRING ASSY.

GUIDE CYLINDER AND FOOT ASSY.

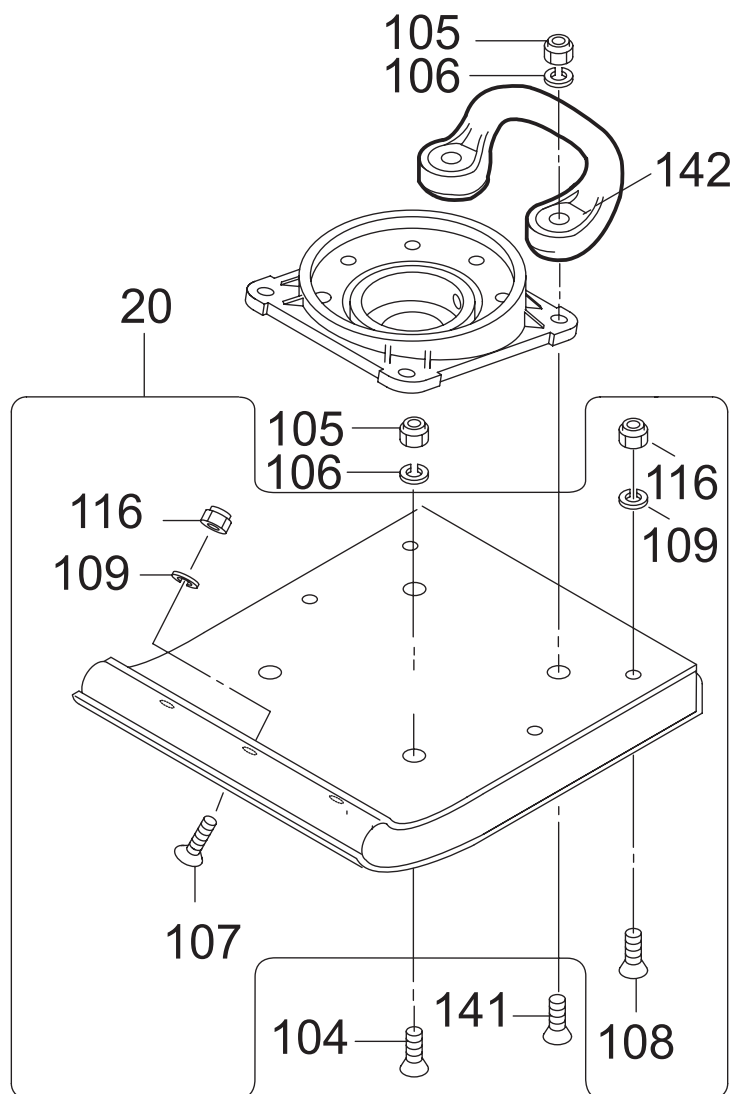


MT-65HA — GUIDE CYLINDER AND SPRING ASSY.

GUIDE CYLINDER AND FOOT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	352423290	PISTON PIN	1	
2	363457870	PLUG, PISTON PIN	2	
3	363344350	PISTON ROD	1	
4	355452340	PISTON END	1	
5	020118150	NUT M18, P1.5	1	
6	355447250	STOPPER, UPPER	1	
7	355447260	STOPPER, LOWER	1	
8	363456260	MAIN SPRING	2	
9	363342440	SPRING CYLINDER	1	
10	355214140	FOOT PLATE 14	1	
11	050100900	O-RING G-90	1	
12	014210020	SOCKET HEAD BOLT 10X20 T. 4	4	REPLACES P/N 001521020
13	014210040	SOCKET HEAD BOLT 10X40 T. 4	4	REPLACES P/N 001521040
14	953405270	PLUG 1/4X14 13L	1	
15	953405260	PACKING 1/4 (CU)	1	
17	355213010	GUIDE CYLINDER	1	
18	050201500	O-RING P-150	1	
19	012710035	BOLT 10X35 H, SW	4	REPLACES P/N 002211035
21	354010010	BELLOWS, ORANGE	1	
22	050931500	O-RING JAS03150	2	
23	354336352	BELLOWS CLAMP (1.6T)171D	2	
24	354442340	BAND GUIDE, BELLOWS	2	
25	011008040	BOLT 8X40 H	2	REPLACES P/N 001210840
26	020108060	NUT M8	2	REPLACES P/N 020308060
27	354446170	PIN 6D-8.5L	2	
28	953405270	PLUG 1/4X14 13L	1	
29	953405260	PACKING 1/4 (CU)	1	
30	050100950	O-RING G-95	1	
41	355113960	PROTECTION SLEEVE	1	
42	959010150	LEVEL GAUGE, PLUG TYPE	1	
43	953404670	COPPER PACKING 17X25.5X1	1	

FOOT ASSY.

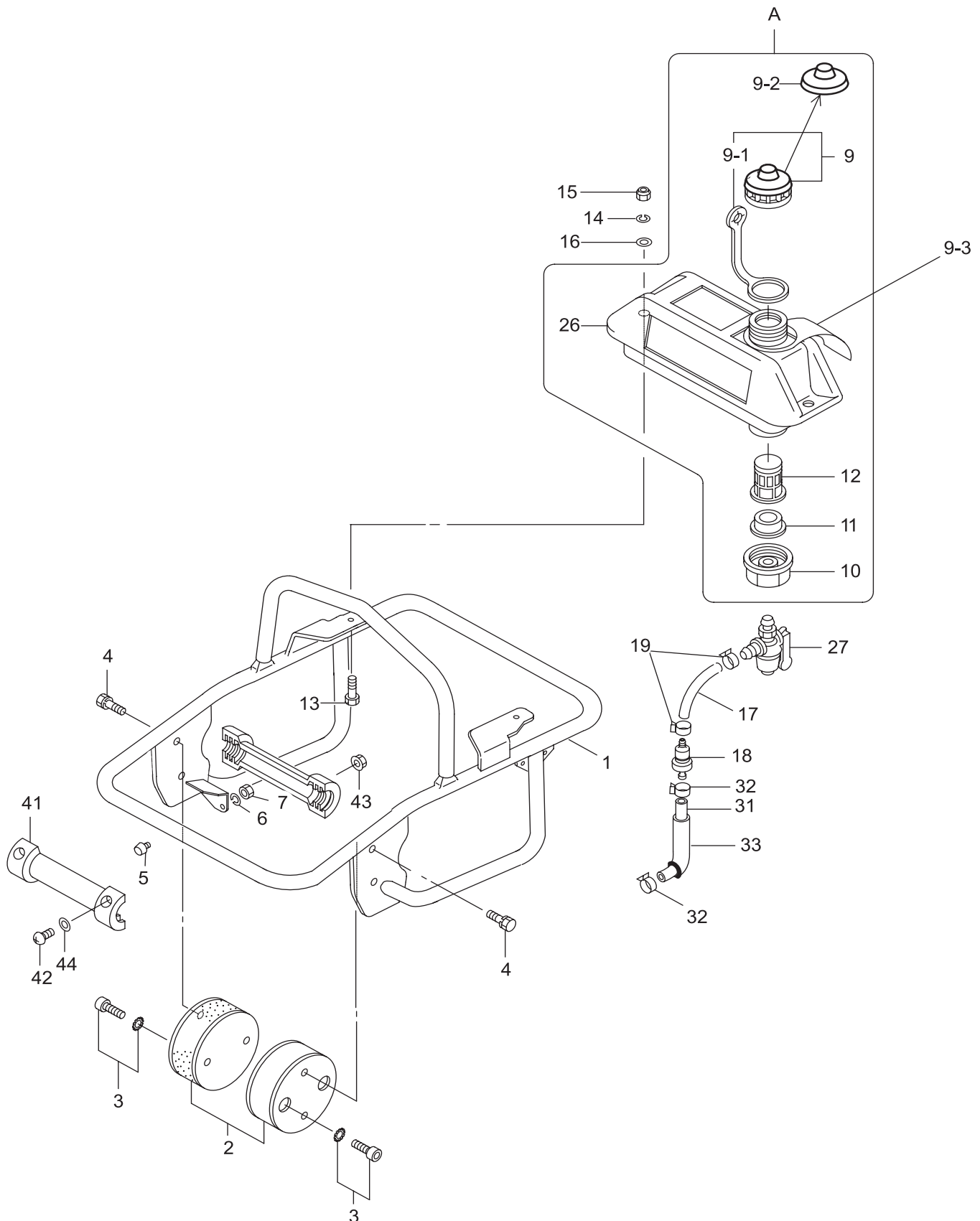


FOOT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
20	362910130	FOOT ASSY 285W-EXP	1	INCLUDES ITEMS W/#
104	001611253	SUNK HEAD BOLT 12 x 65 H	2	
105	022711214	NYLON NUT M12	4	
106	030212300	WASHER, SW M12	4	
107#	001611051	SUNK HEAD BOLT 10 x 55 H	3	
108#	015110050	SUNK HEAD BOLT 10 x 50 H	4	
109#	030210250	WASHER, SW M10	7	
116#	022711012	NYLON NUT M10	7	
141	001611259	SUNK HEAD BOLT 12 x 95 H	2	
142	363343390	HANDLE	1	

MT-65HA — TANK AND HANDLE ASSY.

TANK AND HANDLE ASSY.



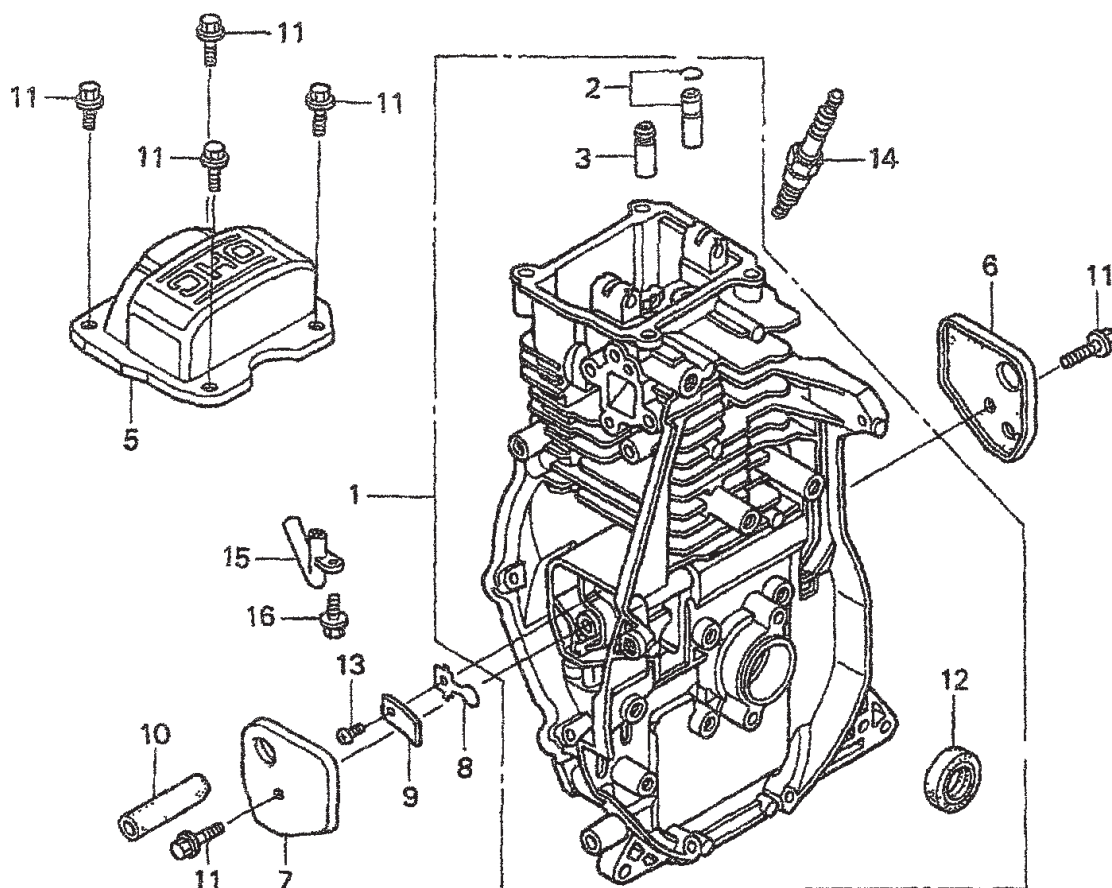
MT-65HA — TANK AND HANDLE ASSY.

TANK AND HANDLE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
A	305910032	FUEL TANK ASSY	1	INCLUDES ITEMS W/ #
1	363118260	HANDLE	1	
2	351337070	SHOCK ABSORBER	2	
3	009110007	GT CAP SA,10X20	4	
4	012210020	BOLT 10X20 H,SW	4	REPLACES P/N 002211020
5	939010270	STOPPER RUBBER EH1002	1	
6	030208200	WASHER, SW M8	1	
7	020108060	NUT M8	1	REPLACES P/N 020308060
9#	361910070	TANK CAP ASSY	1	INCLUDES ITEMS W/ *
9-1*#	353449010	STRAP, TANK CAP	1	
9-2*#	361455740	SUB CAP (B), TANK CAP	1	
9-3	920208960	TAG, GASOLINE ONLY	1	
10#	351437785	HOLDER, COCK/MT	1	
11#	954406020	PACKING, FUEL TANK	1	
12#	954406010	STRAINER (#110)	1	
13	011208030	BOLT 8X30 T	2	
14	030208200	WASHER, SW M8	2	
15	022710809	NYLON NUT M8	2	
16	952401450	WASHER 8, 5X22X3	2	
17	959026401	FUEL HOSE/4.5 X9 X 80L	1	
17	950014500150M	FUEL HOSE/4.5 X9 X1000L	1	OPTIONAL PART L=1M
18	16910GB2005	FUEL FILTER CP/G100KRB	1	
19	950024085008	HOSE BAND 9	2	
26#	362116890	FUEL TANK 2L (GRAY)	1	
27	954300720	FUEL COCK ASSY/ CVL-08	1	
31	959026421	FUEL HOSE/4.5X9X280L	1	
31	950014500150M	FUEL HOSE/4.5 X9 X1000L	1	OPTIONAL PART L=1M
32	950024085008	HOSE BAND 9	2	
33	950033602120	V.TUBE 11X13X20	1	
36	959026421	FUEL HOSE/4.5X9X210L	1	
36	950014500150M	FUEL HOSE/ 5.5X10.5X1000L ..	1	OPTIONAL PART L=1M
41	361910040	ROLLER, W/PIN, KIT	1	REPLACES P/N 955200053 INCLUDES ITEMS W/ \$
42\$	011005025	SCREW 5X25	4	REPLACES P/N 091005025
43\$	022610505	FLANGE NUT M5 H	4	
44\$	58151	WASHER, PW M5	4	REPLACES P/N 031105080

HONDA GX100KRBM ENGINE — CYLINDER BARREL ASSY.

CYLINDER BARREL ASSY.



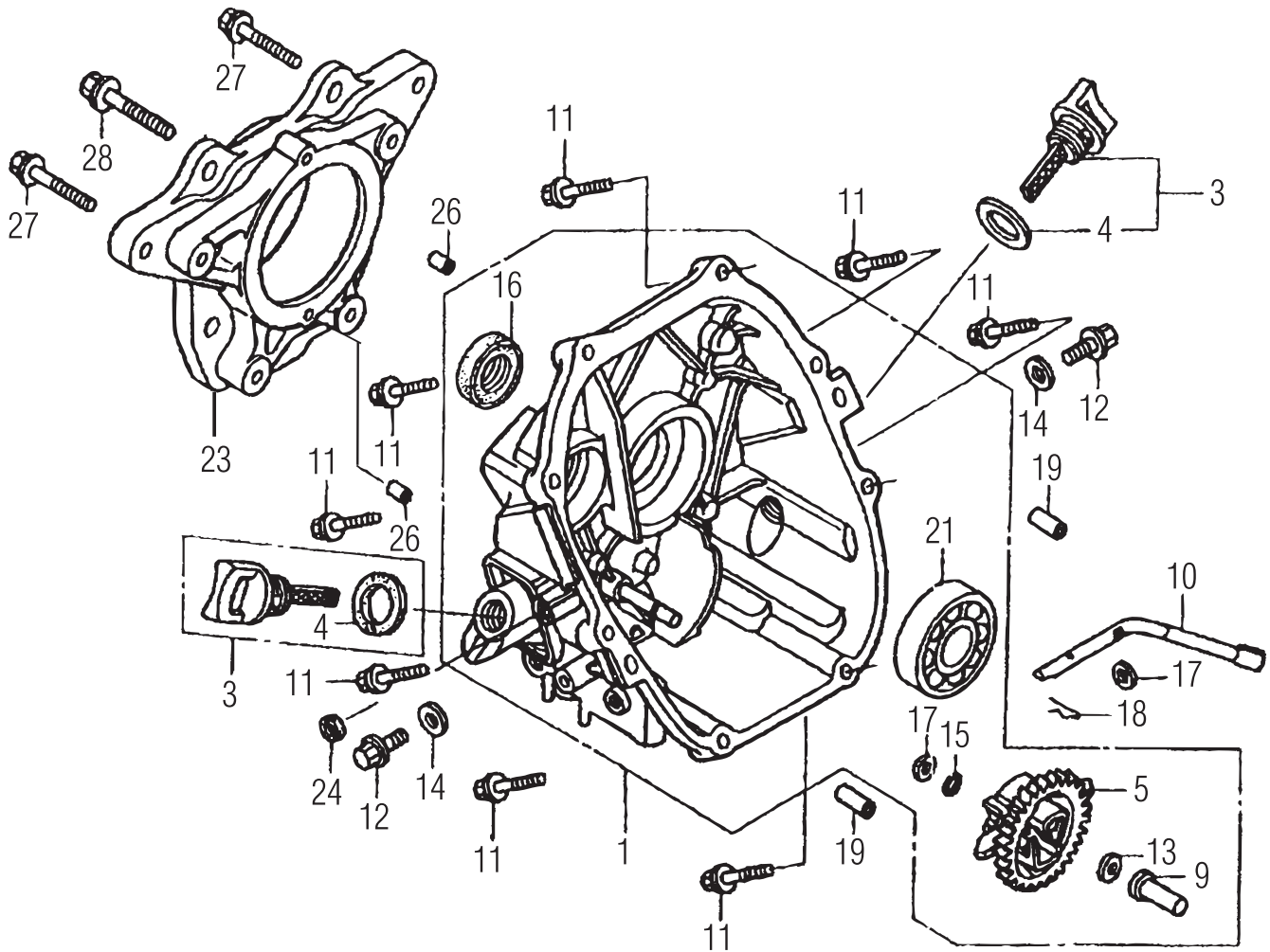
HONDA GX100KRB ENGINE — CYLINDER BARREL ASSY.

CYLINDER BARREL ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	12000Z0D405	BARREL ASSY., CYLINDER	1	INCLUDES ITEMS W/★
2★	12201Z0D305	GUIDE ASSY., EX VALVE (O.S.)	1	
3★	12204Z0D305	GUIDE, INLET VALVE (O.S)	1	
5	12311Z0D000	COVER, HEAD T	1	
6	12355Z0D000	COVER COMP A, BREATHER	1	
7	12365Z0D000	COVER COMP B, BREATHER	1	
8	15571Z0DV71	VALVE, OIL OUTLET	1	
9	15572ZM7000	PLATE, STOPPER	1	
10	15721Z0D000	TUBE, BREATHER	1	
11	90014952000	VOLT, FLANGE 6X14 (CT200)	6	
12★	91202KJ9003	OIL SEAL 20X32X6	1	
13	93500030050A	SCREW 3X5	1	
14	9805655757	PLUG, SPARK (U16FSR-UB)	1	
15	15171Z0DV00	PIPE, BREATHER	1	
16	90008ZM7000	BOLT 4X10	1	

HONDA GX100KRBM ENGINE — CRANKCASE COVER ASSY.

CRANKCASE COVER ASSY.



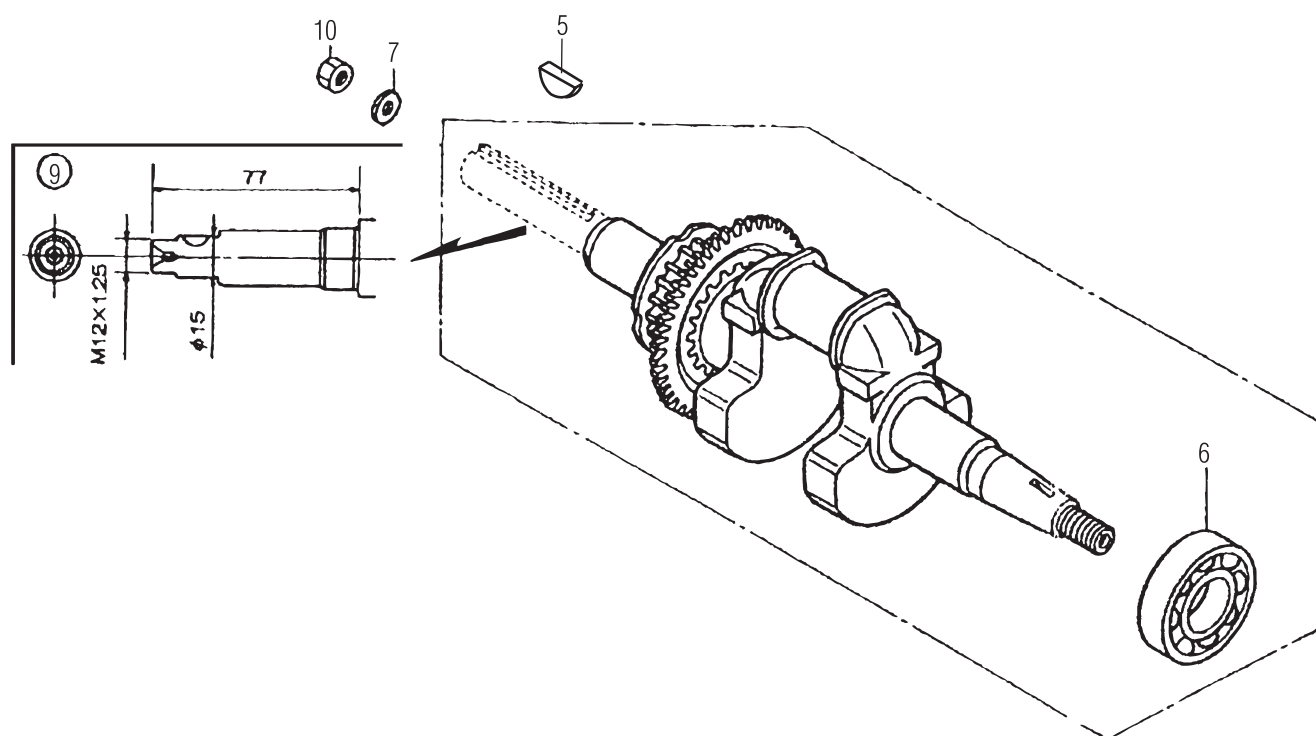
HONDA GX100KRB ENGINE — CRANKCASE COVER ASSY.

CRANKCASE COVER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	11300Z0D409	COVER ASSY., CRANK CASE ..	1	INCLUDES ITEMS W/*
3	15600ZM7003	OIL FILLER CAP ASSY	2	INCLUDES ITEMS W/#
4#	15625ZE1003	PACKING, OIL FILLER CAP	2	
5*	16510ZL8000	GOVERNOR ASSY.	1	
9*	16531ZE1000	SLIDER, GOVERNOR	1	
10	16541Z0D000	SHAFT, GOVERNOR ARM	1	
11	90121952000	FLANGE BOLT 6x25	8	
12	90131ZE1000	BOLT, DRAIN PLUG	1	
13*	90451ZE1000	THRUST WASHER 6 MM	1	
14	90601ZE1000	WASHER, DRAIN PLUG	1	
15*	90602ZE1000	CLIP, GOVERNOR HOLDER	1	
16*	91202KJ9003	OIL SEAL 20x3x6	1	
17*	9410106800	PLAIN WASHER 6 MM	2	
18	9425108000	LOCK PIN	1	
19	9430108200	KNOCK PIN	2	
21*	91001Z0DV01	BEARING, RADIAL BALL 6204	1	
23	11511Z0DV10	FLANGE JOINT PTO	1	
24	91231891003	OIL SEAL 6x11x4	1	
26	9430306100	KNOCK PIN 6x10	2	
27	957010804500	FLANGE BOLT 8x40	4	
28	934021004000	BOLT WASHER 10x40	2	

HONDA GX100KRBM ENGINE — CRANKSHAFT ASSY.

CRANKSHAFT ASSY.



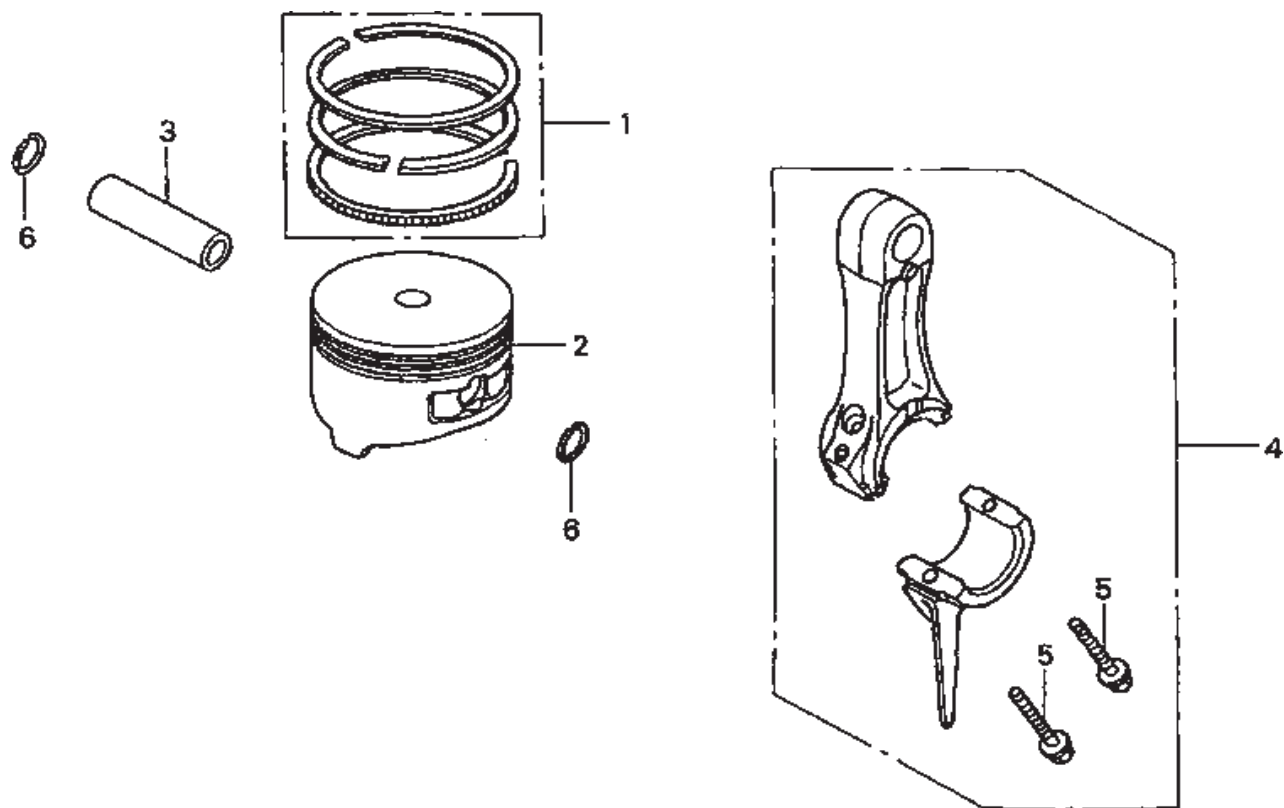
HONDA GX100KRB ENGINE — CRANKSHAFT ASSY.

CRANKSHAFT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
5	0053204201	WOODRUFF KEY 13X12	1	
6*	91001Z0DV01	BEARING, RADIAL BALL 6204C	2	
7	301010210	LOCK WASHER, CLUTCH	1	
9	13310Z0DV00	CRANK SHAFT COMP.	1	INCLUDES ITEM W/ *
10	94002120000S	NUT M12	1	

HONDA GX100KRBM ENGINE — PISTON CONNECTING ROD ASSY.

PISTON CONNECTING ROD ASSY.



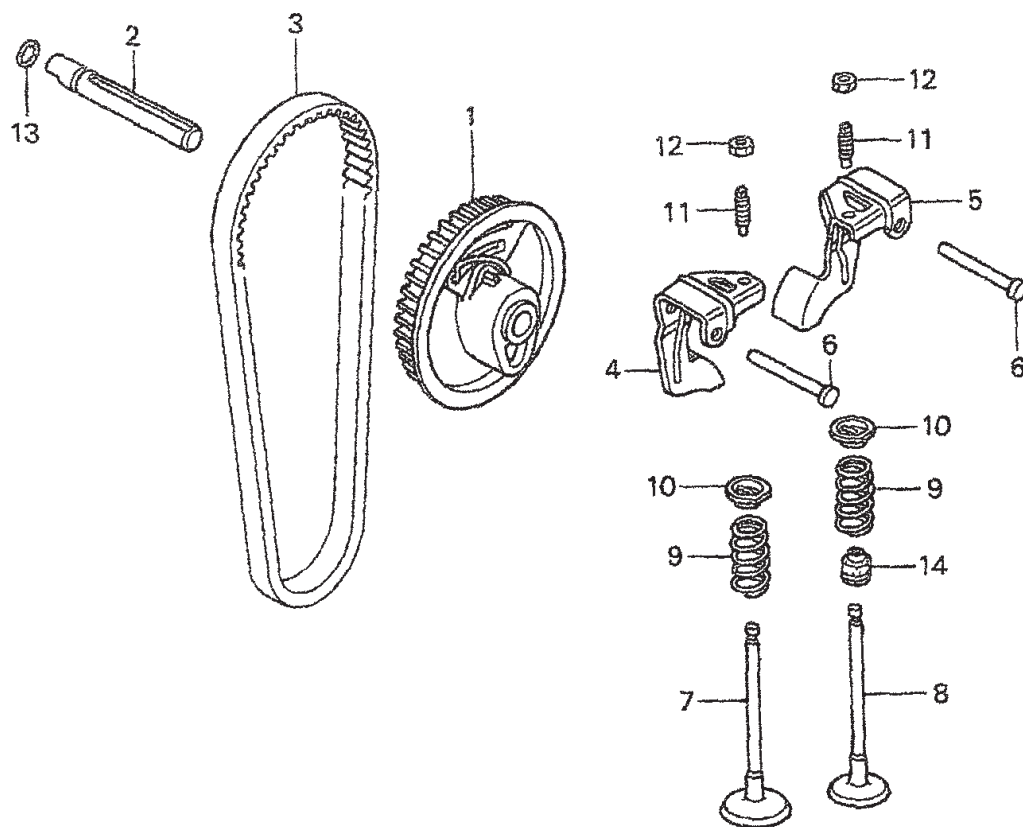
HONDA GX100KRB ENGINE — PISTON CONNECTING ROD ASSY.

PISTON CONNECTING ROD ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	13010Z0D003	RING SET, PISTON	1	
2	13101Z0D000	PISTON	1	
3	13111ZE0000	PISTON PIN	1	
4	13200Z0D000	CONNECTING ROD ASSY.	1	INCLUDES ITEM W/ *
4	13200Z0D305	CONNECTING ROD ASSY.	1	UNDERSIZE, INCLUDES ITEM W/ *
5*	90001ZM7000	CONNECTING ROD BOLT	2	
6	90551ZE0000	CLIP, PISTON PIN 13MM	2	

HONDA GX100KRB ENGINE — CAMSHAFT ASSY.

CAMSHAFT ASSY.



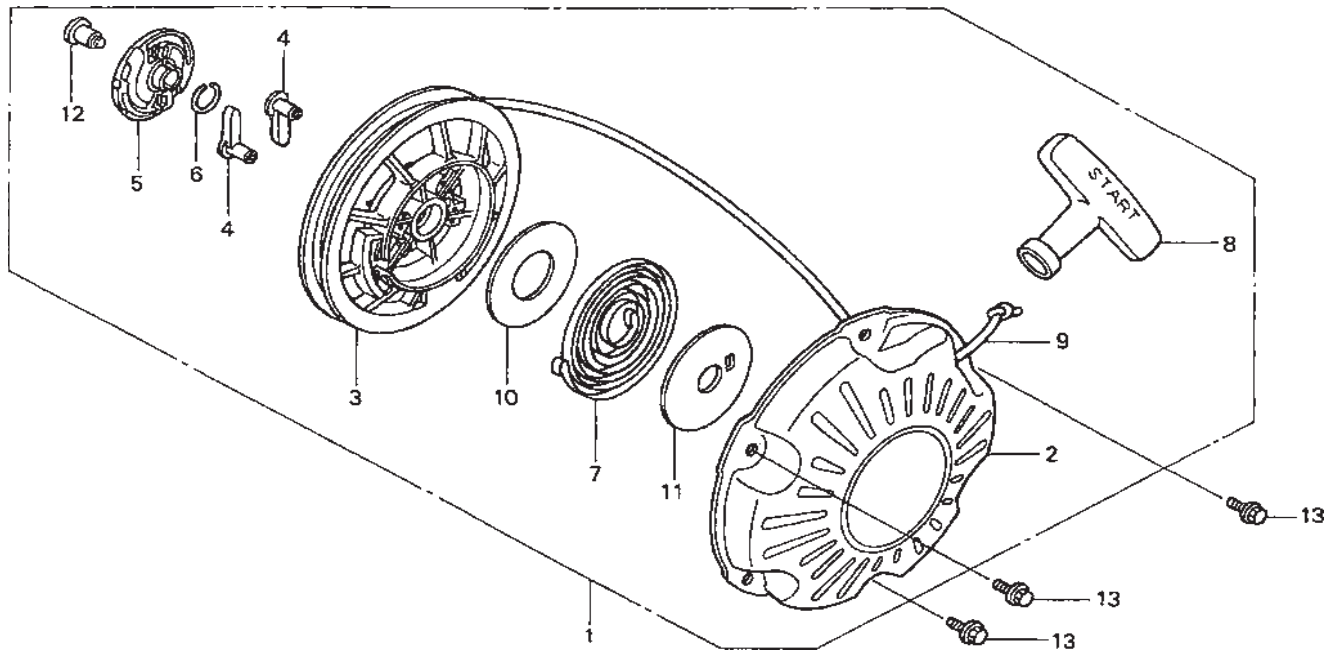
HONDA GX100KRBM ENGINE —CAMSHAFT ASSY.

CAMSHAFT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	14320Z0D010	PULLEY, COMP., CAMSHAFT	1	
2	14324Z0D000	SHAFT, CAM PULLEY	1	
3	14400Z0D003	TIMING BELT (61YU7 G-200)	1	
4	14431Z0D000	ROCKER ARM, INTAKE VALVE	1	
5	14441Z0D000	ROCKER ARM, EXHAUST VALVE	1	
6	14461ZL8000	SHAFT, ROCKER ARM	2	
7	14711Z0D000	INLET VALVE	1	
8	14721Z0D000	EXHAUST VALVE	1	
9	14751Z0D000	SPRING, VALVE	2	
10	14771ZM3010	RETAINER, VALVE SPRING	2	
11	90012333000	SCREW,TAPPET ADJUSTING	2	
12	90206001000	NUT, TAPPET ADJUSTING	2	
13	91301ZM0V31	O RING 6.8X1.9	1	
14	12209KT7013	SEAL, VALVE STEM	1	

HONDA GX100KRBM ENGINE — RECOIL STARTER ASSY.

RECOIL STARTER ASSY.



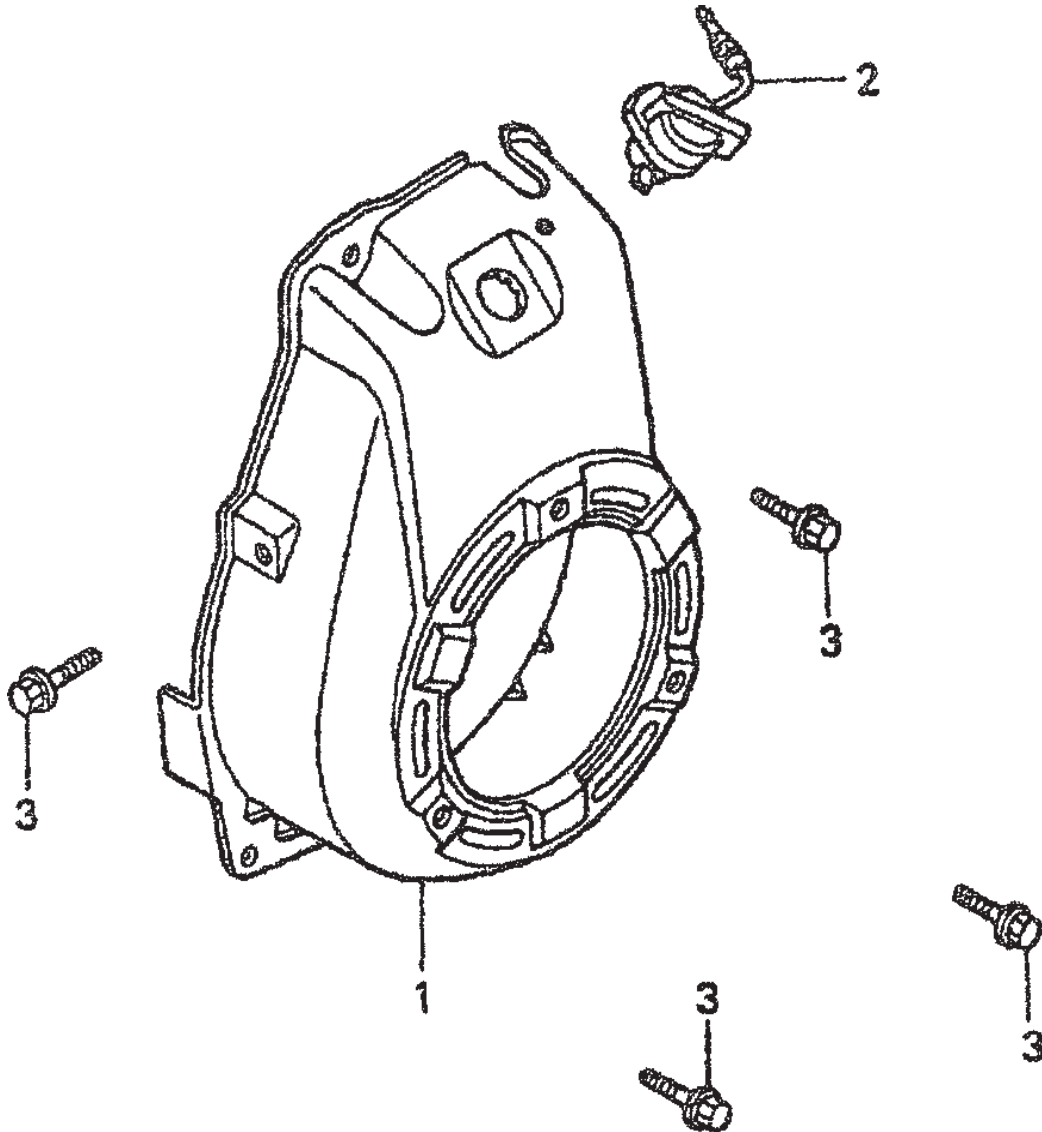
HONDA GX100KRB ENGINE — RECOIL STARTER ASSY.

RECOIL STARTER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	28400Z0DV02ZA	RECOIL STARTER ASSY	1	INCLUDES ITEMS W/ *
2*	28410Z0DV02ZA	CASE COMP., RECOIL *5-3-5	1	
3*	28421Z0DV02	REEL, RECOIL STARTER	1	
4*	28422ZG0W02	RATCHET, STARTER	1	
5*	28433ZG0W02	GUIDE, RATCHET	1	
6*	28441ZW6003	SPRING, FRICTION	1	
7*	28442ZH8003	SPRING, RECOIL STARTER	1	
8*	28461ZH8003	STARTER KNOB	1	
9*	28462Z0DV02	ROPE, RECOIL STARTER	1	
10*	28467Z0DV02	PLATE, SIDE	1	
11*	28468Z0DV02	PLATE, SLIDE	1	
12*	90003ZH8003	SET SCREW	1	
13	957010600800	BOLT, FLANGE 6X8	1	

HONDA GX100KRBM ENGINE — FAN COVER ASSY.

FAN COVER ASSY.



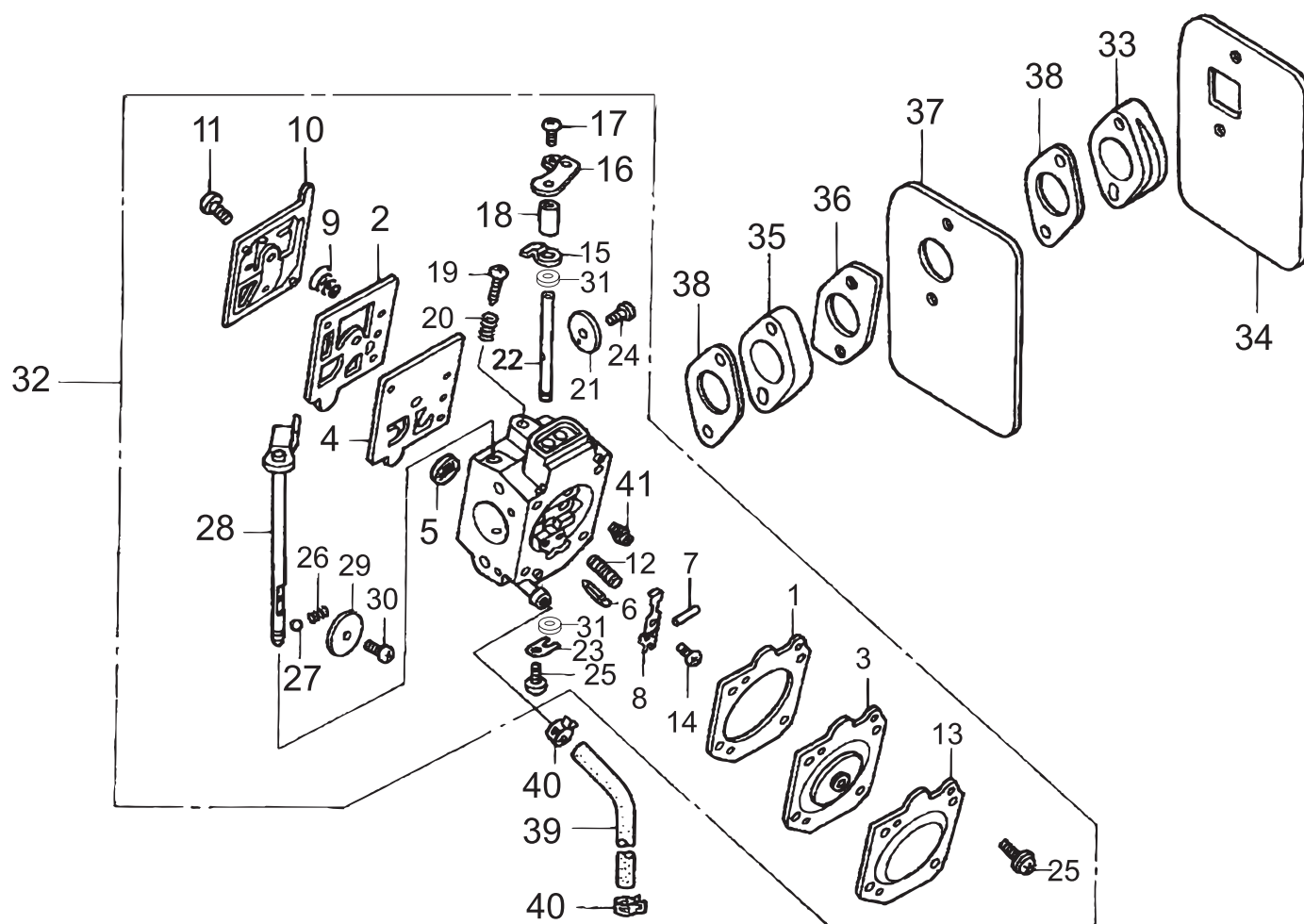
HONDA GX100KRB ENGINE — FAN COVER ASSY.

FAN COVER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	19610Z0DV00ZB	FAN COVER CP.	1	
2	36100ZE1015	STOP SWITCH ASSY.	1	
3	90014952000	BOLT, FLANGE 6X14 (CT200)	4	

HONDA GX100KRBM ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.



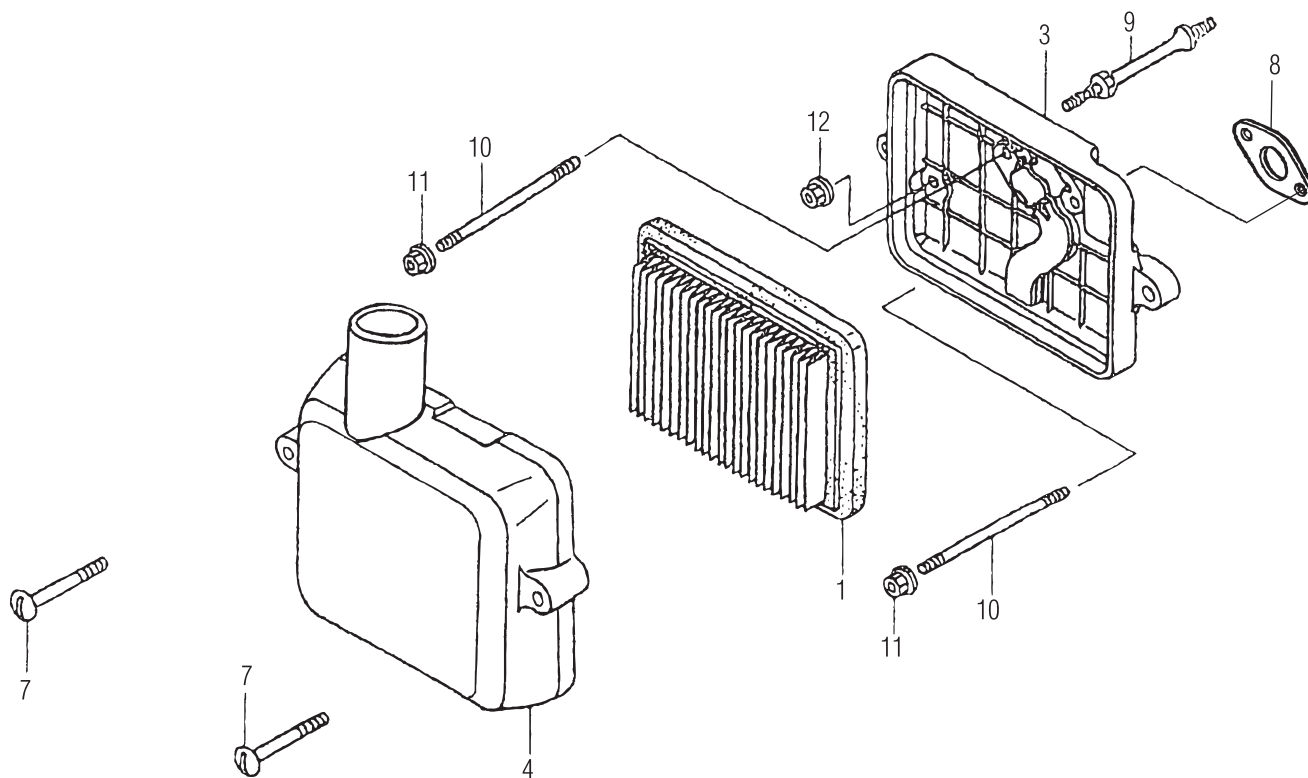
HONDA GX100KRB ENGINE — CARBURETOR ASSY.

CARBURETOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1*	16010Z0DV02	GASKET, METALING DIAPHRAGM	1	
2*	16011Z0DV02	GASKET, PUMP	1	
3*	16013Z0DV02	DIAPHRAGM ASSY, METALING	1	
4*	16014Z0DV02	DIAPHRAGM, PUMP	1	
5*	16018ZM3004	SCREEN, INLET	1	
6*	16019ZM3004	VALVE, INLET NEEDLE	1	
7*	16022ZM3014	PIN, METALING LEVER	1	
8*	16023Z0DV02	LEVER, METALING	1	
9*	16030ZM3004	SPRING, PUMP	1	
10*	16040Z0DV02	COVER, PUMP	1	
11*	16041Z0DV02	SCREW	1	
12*	16042Z0DV02	SPRING	1	
13*	16043Z0DV02	COVER, METALING DIAPHRAGM	1	
14*	16044Z0DV02	SCREW	1	
15*	16045Z0DV02	STOPPER, THROTTLE LEVER	1	
16*	16046Z0DV02	LEVER, THROTTLE	1	
17*	16054Z0DV02	SCREW, VALVE	1	
18*	16048Z0DV02	SPACER, THROTTLE LEVER	1	
19*	16049Z0DV02	SCREW, IDLE ADJUSTING	1	
20*	16050Z0DV02	SPRING	1	
21*	16051Z0DV02	VALVE, THROTTLE	1	
22*	16052Z0DV02	SHAFT, THROTTLE	1	
23*	16053Z0DV02	CLIP, THROTTLE SHAFT	1	
24*	16054Z0DV02	SCREW, VALVE	1	
25*	16055Z0DV02	SCREW ASSY	5	
26*	16056Z0DV02	SPRING	1	
27*	16057Z0DV02	BALL	1	
28*	16058Z0DV02	SHAFT ASSY, CHOKE	1	
29*	16059Z0DV03	VALVE, CHOKE	1	
30*	16060Z0DV02	SCREW	1	
31*	16061Z0DV02	SEAL, DUST	2	
32	16100Z0DV04	CARBURETOR ASSY. (HAD 201C) ...	1	INCLUDES ITEMS W/ *
33	16211Z0DV00	INSULATOR, CARBURETOR	1	
34	16212Z0DV00	PACKING, INSULATOR	1	
35	16213Z0DV00	INSULATOR B, CARBURETOR	1	
36	16214Z0DV00	PACKING B, INSULATOR	1	
37	16215Z0DV00	PLATE, INSULATOR	1	
38	16221Z0DV00	PACKING, CARBURETOR	2	
39	950033602120	TUBE, VINYL 11X13X210	1	
40	950024085008	CLAMP, TUBE	2	
41*	99101Z0D0540	JET #54 (0 to 5,000 feet)	1	
41	99101Z0D0520	JET #52 (5,000 to 8,000 feet)	1	OPTIONAL
41	99101Z0D0500	JET #50 (8,000 feet and above)	1	OPTIONAL

HONDA GX100KRBM ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.



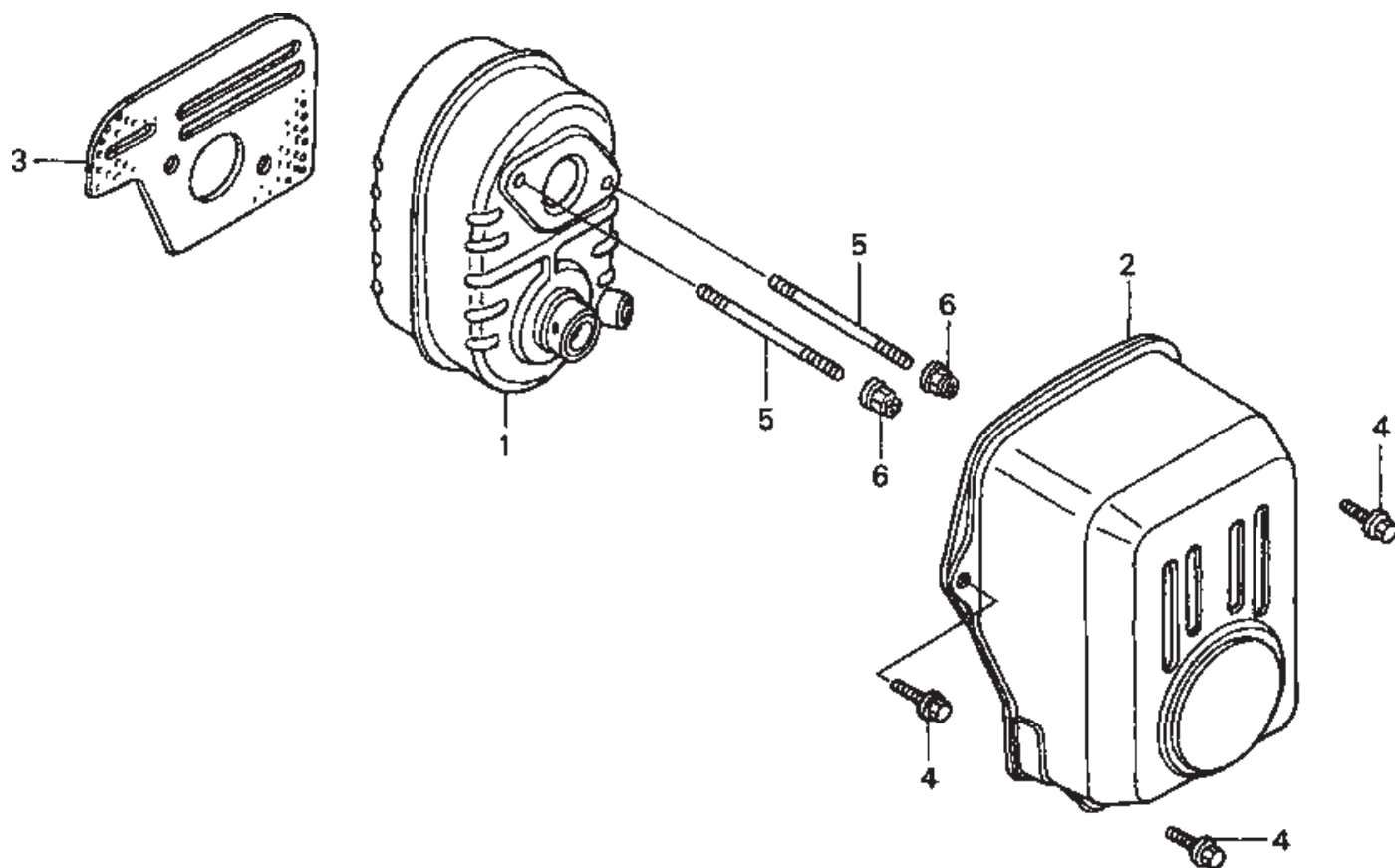
HONDA GX100KRB ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	17211ZL8003	CLEANER ELEMENT	1	
3	17220Z0DV00	CASE COMP., AIR CLEANER	1	
4	17231Z0DV60	COVER, AIR CLEANER.....	1	S/N 1144521
7	90011Z0D000	BOLT, AIR CLEANER COVER	2	
8	17228Z0DV01	PACKING, AIR CLEANER	1	
9	90041Z0DV00	STUD BOLT	1	
10	90042Z0DV00	STUD BOLT 5X85	2	
11	9405005000	FLANGE NUT 5MM	2	
12	9405006000	FLANGE NUT 6MM	1	

HONDA GX100KRBM ENGINE — MUFFLER ASSY.

MUFFLER ASSY.



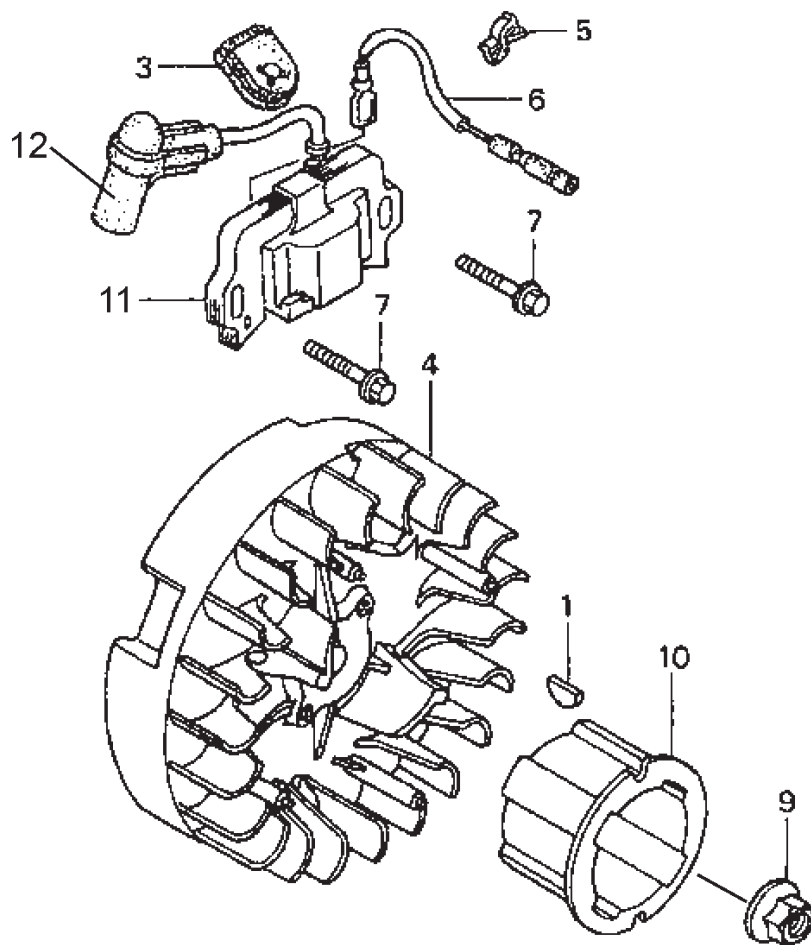
HONDA GX100KRBH ENGINE — MUFFLER ASSY.

MUFFLER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	18310Z0DV20	MUFFLER COMP.	1	
2	18321Z0DV20	MUFFLER PROTECTOR	1	
3	18381Z0D000	GASKET, MUFFLER	1	
4	90014952000	VOLT, FLANGE 6X14 (CT200)	3	
5	90048Z0DV00	STUD BOLT 5X78	2	
6	90343ZE6000	NUT, SELF-LOCK 6MM	2	

HONDA GX100KRBM ENGINE — FLYWHEEL IGNITION ASSY.

FLYWHEEL IGNITION ASSY.



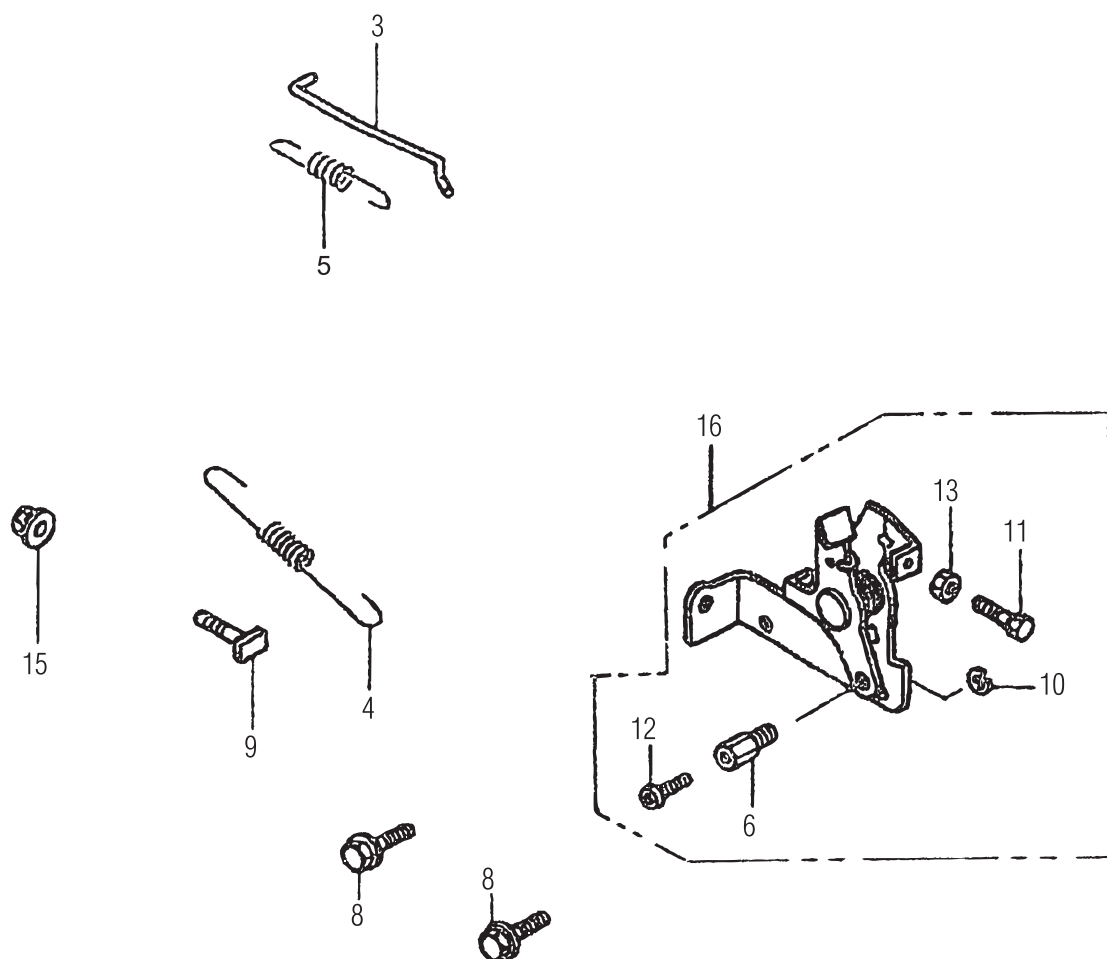
HONDA GX100KRBM ENGINE — FLYWHEEL IGNITION ASSY.

FLYWHEEL IGNITION ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	13331ZM7000	WOODRUFF KEY 25X18	1	
3	30564ZA5000	GROMMET, CORD	1	
4	31110Z0D003	FLYWHEEL COMP.	1	
5	30701883000	CLIP, HIGH TENSION CORD	1	
6	32195Z0D000	CORD, STOP SWITCH	1	
7	90022888010	FLANGE BOLT 6X20	2	
9	9405012000	FLANGE NUT M12	1	
10	28451Z0DV02	STARTER PULLEY	1	
11	30500Z0DV01	IGNITION COIL ASSY	1	INCLUDES ITEMS W/ *
12*	30700Z0DV01	TERMINAL ASSY.	1	

HONDA GX100KRBM ENGINE — CONTROL ASSY.

CONTROL ASSY.



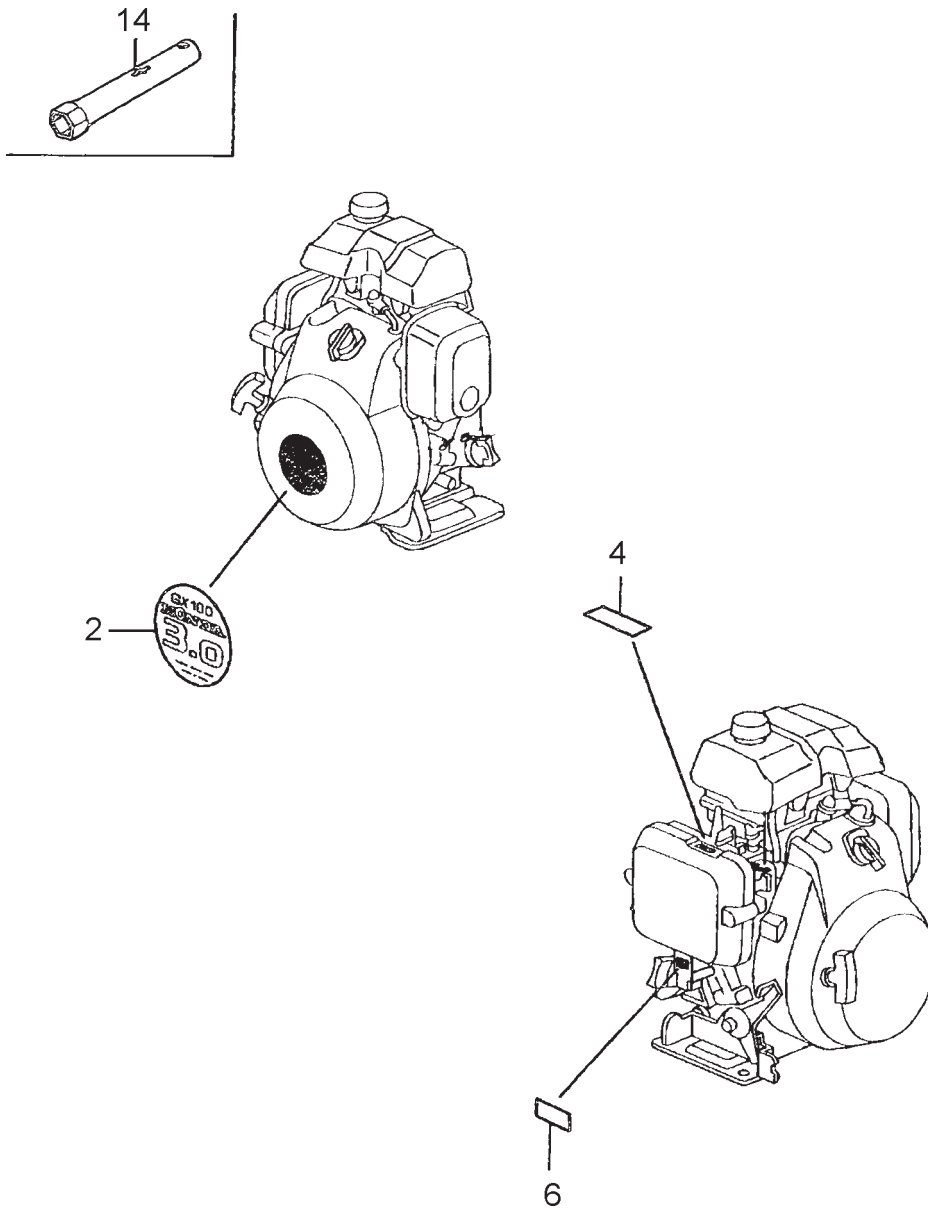
HONDA GX100KRB ENGINE — CONTROL ASSY.

CONTROL ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
3	16555Z0DV00	GOVERNOR ROD	1	
4	16561Z0DV00	GOVERNOR SPRING	1	
5	16562Z0DV00	SPRING, THROTTLE RETURN	1	
6*	16594883010	HOLDER, WIRE	1	
8	90014952000	VOLT, FLANGE 6X14 (CT200)	2	
9	90015ZE5010	BOLT, GOVERNOR ARM	1	
10*	90605230000	CIR CLIP	1	
11*	92301050200A	BOLT 5X20	1	
12*	93500040060H	SCREW 4X6	1	
13*	94001050000S	NUT 5MM	1	
15	94050060000	FLANGE NUT 6MM	1	
16	16500Z0DV50	CONTROL ASSY	1	INCLUDES ITEMS W/ *
17	16550Z0DV01	GOVERNOR ARM	1	

HONDA GX100KRBM ENGINE — LABELS ASSY.

LABELS ASSY.



HONDA GX100KRBM ENGINE — LABELS ASSY.

LABELS ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
2	87521Z0DV01	LABEL, TRADE MARK	1	
4	87528Z0D000	MARK, CHOKE	1	
6	87601Z0DR50	MARK, TYPE (KRBM)	1	
14	89216130690	WRENCH, SPARK PLUG	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 in the price book and shows as being replaced by another item, it is obsolete.)
 - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
 - c. Any line item with an extended dealer net price of less than \$5.00.
 - d. Special order items.
 - e. Electrical components.
 - f. Paint, chemicals, and lubricants.
 - g. Decals and paper products.
 - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

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

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

SPECIAL EXPEDITING SERVICE

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

LIMITATIONS OF SELLER'S LIABILITY

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

LIMITATION OF WARRANTIES

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

[illegible]

OPERATION & PARTS MANUAL

HERE'S HOW TO GET HELP

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

UNITED STATES

Multiquip Corporate Office

18910 Wilmington Ave. Tel. (800) 421-1244
Carson, CA 90746 Fax (800) 537-3927
Contact: mq@multiquip.com

Mayco Parts

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

Service Department

800-421-1244 Fax: 310-537-4259
310-537-3700

MQ Parts Department

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

Warranty Department

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

Technical Assistance

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

MEXICO

MQ Cipsa

Carr. Fed. Mexico-Puebla KM 126.5 Tel: (52) 222-225-9900
Momoxpan, Cholula, Puebla 72760 Mexico Fax: (52) 222-285-0420
Contact: pmastretta@cipsa.com.mx

CANADA

Multiquip

4110 Industriel Boul. Tel: (450) 625-2244
Laval, Quebec, Canada H7L 6V3 Fax: (450) 625-8664
Contact: jmartin@multiquip.com

UNITED KINGDOM

Multiquip (UK) Limited Head Office

Hanover Mill, Fitzroy Street, Tel: 0161 339 2223
Ashton-under-Lyne, Fax: 0161 339 3226
Lancashire OL7 0TL
Contact: sales@multiquip.co.uk

BRAZIL

Multiquip

Av. Evandro Lins e Silva, 840 - grupo 505 Tel: 011-55-21-3433-9055
Barra de Tijuca - Rio de Janeiro Fax: 011-55-21-3433-9055
Contact: cnavarro@multiquip.com.br, srentes@multiquip.com.br

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

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