

OPERATION AND PARTS MANUAL



Mikasa SERIES
MODEL MTR40SF
TAMPING RAMMER
(ROBIN EH092F GASOLINE ENGINE)

Revision #0 (11/28/12)



THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

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PROPOSITION 65 WARNING



CALIFORNIA — Proposition 65 Warning

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

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NOTICE

Specifications and part numbers are subject to change without notice.

SAFETY INFORMATION

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



SAFETY MESSAGES

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

SAFETY SYMBOLS

! DANGER

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

! WARNING

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

! CAUTION

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

NOTICE

Addresses practices not related to personal injury.

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

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

SAFETY INFORMATION

GENERAL SAFETY

CAUTION

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



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



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



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

NOTICE

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



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



RAMMER SAFETY

DANGER

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



WARNING

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

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

CAUTION

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

NOTICE

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

SAFETY INFORMATION

ENGINE SAFETY

DANGER

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



WARNING

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



CAUTION

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



NOTICE

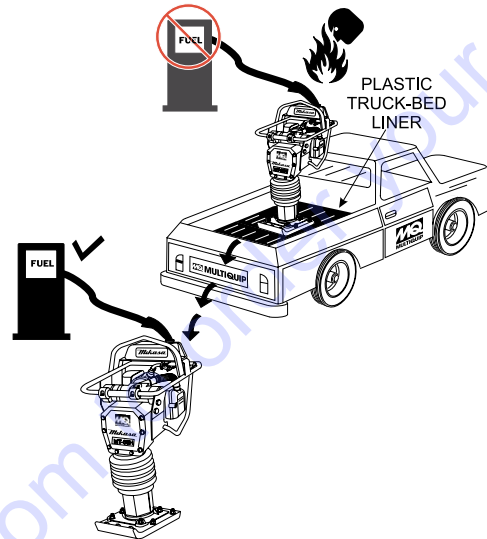
- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating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



FUEL SAFETY

DANGER

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



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



TRANSPORTING SAFETY

CAUTION


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

NOTICE

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

ENVIRONMENTAL SAFETY

NOTICE

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

SPECIFICATIONS

Table 1. Rammer Specifications

Overall Height	43.7 in. (1,110 mm))
Overall Width	13.8 in. (351 mm)
Over Length	24.5 in. (622 mm)
Shoe Size (W x L)	5.9 x 10.6 in. (150 x 270 mm)
No. of Impacts Per Minute	650 ~ 699
Tamping Area	1,453 sq. ft. per hr (135 sq.m per hr)
Impact Force	1,215 lbs./blow (550 kg/blow)
Clutch	Automatic Centrifugal
Travel Speed	30 fpm (9 mpm))
Stroke (Jump Height)	2.2 in. (55 mm)
Operating Weight	101 lbs. (46 kg)

Table 2. Engine Specifications

Model	Robin EH092F45010 Engine
Type	Air-cooled 4-stroke, single cylinder, OHV, horizontal shaft gasoline engine
Bore x Stroke	2.01 in. X 1.65 in. (51 mm x 42 mm)
Piston Displacement	5.24 cu. in (86 cm ³)
Max. Output	3.3 H.P./4100 R.P.M. (2.5 kW))
Fuel	Unleaded gasoline
Fuel Tank Capacity	2.1 quarts (2.0 liters)
Lube Oil Capacity	0.79 gal. (0.3 liters)
Speed Control Method	Centrifugal Fly-weight Type
Spark Plug	NKG BMR4A
Air Cleaner	Dual Element Type
Ignition System	Flywheel Magneto (Solid State)
Starting Method	Recoil Start
Dimension (L x W x H)	9.1 x 11.6 X 13.0 in. (232 X 295 X 330 mm.)
Dry Net Weight	Dry Net Weight 20.7 lbs. (9.4 Kg.)

GENERAL INFORMATION

The Multiquip MTR40SF 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 MTR40SF levels and uniformly compacts voids between soil particles to increase dry density.

Circular motion is converted to create impact force. The MTR40SF tamping rammer develops a powerful compacting force at the foot of the rammer. To maintain optimum performance, proper operation and service are essential.

The MTR40SF 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.

The Mikasa MTR40SF uses zerk grease fittings to lubricate the spring cylinder and crankcase bearings. Lubricate these grease fittings as indicated in the maintenance section of this manual.

Before starting the MTR40SF Tamping Rammer identify and understand the function of the controls.

CAUTION



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).

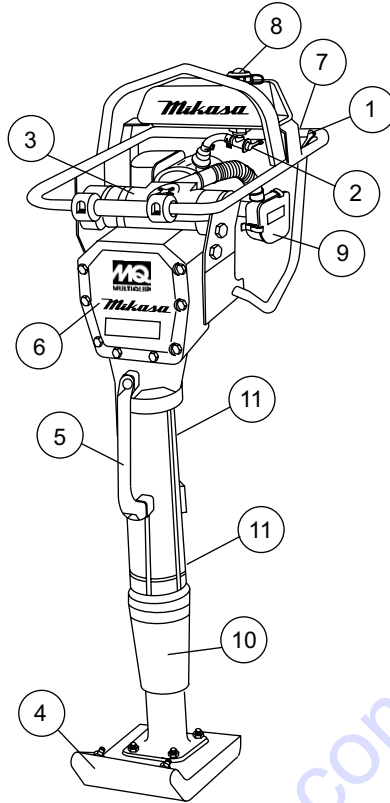


Figure 1. MTR40SF Rammer

Figure 1 shows the location of the controls and components for the MTR40SF Tamping Rammer. The functions of each control is described below:

1. **Throttle Lever** — Used to adjust engine speed (rpm). Move lever forward (**SLOW**) to reduce engine speed, move lever back toward operator (**FAST**) to increase speed.
2. **Fuel Shut-Off Valve** — Supplies fuel from the fuel tank to the engine. To begin fuel flow, move the fuel shut-off valve downward.
3. **Primary Air Cleaner** — Pre-cleans (first stage) dirt and other debris from entering the engine.
4. **Foot** — Laminated wood with tempered steel plate for superior shock absorption.
5. **Grip** — When transporting the rammer, carry it by gripping the handle.
6. **Nameplate** — Displays information regarding the rammer.

7. **Handle** — To operate rammer GRIP handle assembly firmly on both sides.
8. **Fuel Tank/Cap** — Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.

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. **Engine Air Cleaner** — Prevents dirt (second stage) and other debris from entering the engine.
10. **Dust Sleeve** — Prevents dust and debris from entering into the spring cylinder.
11. **Zerk Fittings** — Lubricates main springs and crankcase bearings.

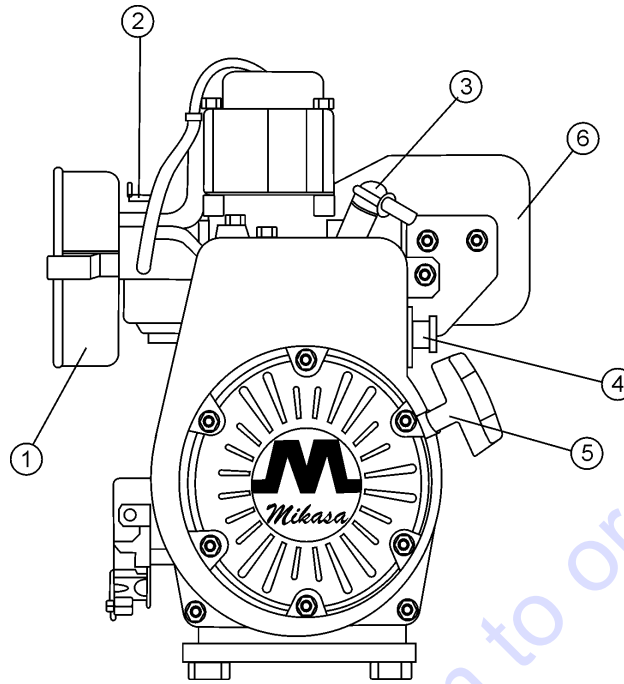


Figure 2. Robin Engine

The engine (Figure 2) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for instructions and 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 0.02 - 0.03 inch (0.6 - 0.7 mm). 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.

NOTICE

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.

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.

This section is intended to assist the operator with the inspection of the 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.
- Check all nuts, bolts fasteners for tightness. Retighten as necessary.
- Clean any dirt from the recoil starter and engine cooling fins. Wipe the entire rammer clean before operating.
- Replace any missing or damaged Safety Operation decals. 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.

Prior to Operation

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

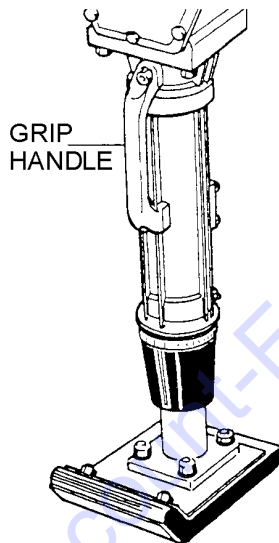


Figure 3. Grip Handle

Main Spring and Crankcase Lubrication

1. There are 2 grease fittings (Figure 18) that require lubrication of the main springs. Lubricate these fittings as outlined in the maintenance section of this manual.
2. There are 2 grease fittings (Figure 19) that require lubrication of the crankcase. Lubricate these fittings as outlined in the maintenance section of this manual. to replenish it often (Figure 5).

Fuel

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

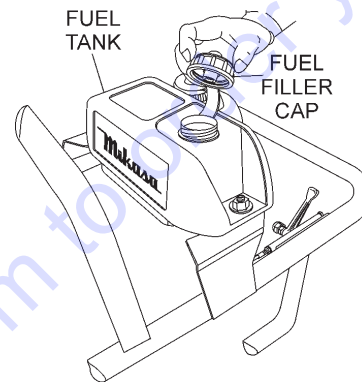


Figure 4. Fuel Tank

Engine Oil Check

1. To check the engine oil level, place the rammer on secure level ground with the engine stopped.
2. Remove the filler cap/dipstick from the engine oil filler hole (Figure 5) and wipe it clean.

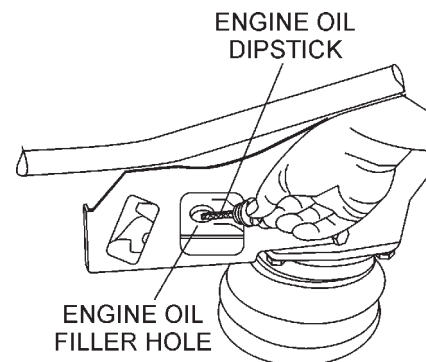


Figure 5. Engine Oil Dipstick

3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.

4. If the oil level is low (Figure 6), fill to the edge of the oil fillerhole with the recommended oil type (Table 3). Maximum oil capacity is .079 gallons (0.3 liters).

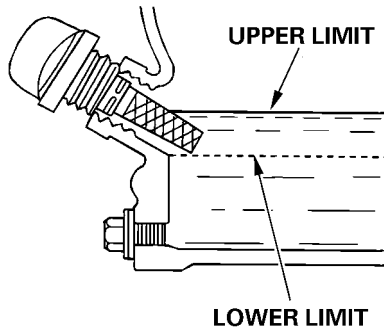


Figure 6. Oil Level

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

GENERAL 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.

OPERATION

CAUTION

Failure to understand the operation of the Tamping Rammer could result in severe damage to the unit or personal injury.

When starting the MTR40SF, perform the following:

1. Open the fuel shut-off valve by moving the fuel cock lever to the open position (Figure 7).

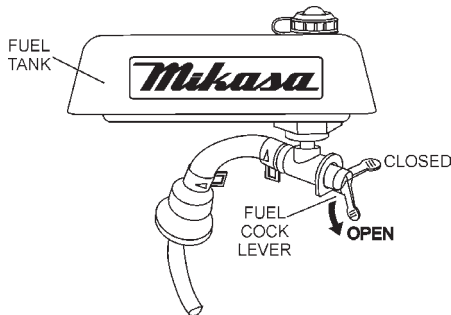


Figure 7. Fuel ShutOff Valve (Open)

2. Set the engine ON/OFF switch (Figure 8) to the "ON" position (start).

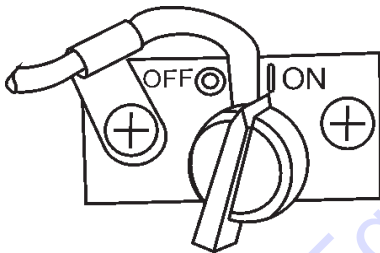


Figure 8. ON/OFF Switch (ON Position)

3. Move the throttle lever to the "IDLE" position (Figure 9).

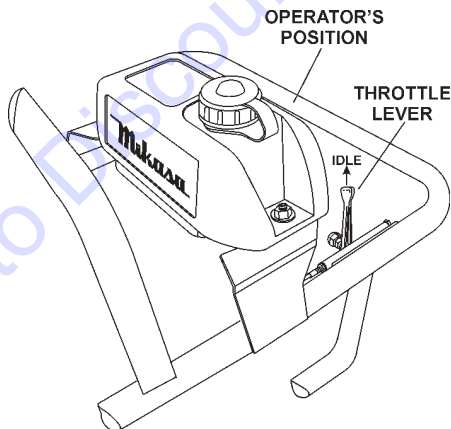


Figure 9. Throttle Lever (Idle)

4. In cold weather, start the unit with choke lever "Fully Closed" (Figure 10). In warm weather or when the engine is warm, the unit can be started with choke halfway or completely open.

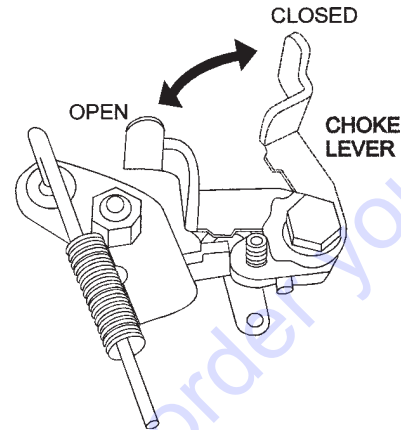


Figure 10. Choke Lever (Closed)

5. Grip the recoil starter (Figure 11) 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.

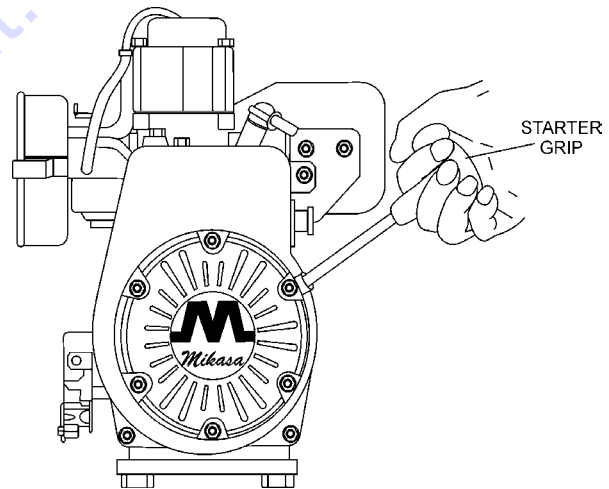


Figure 11. Recoil Starter

6. If engine fails to start, move the choke lever (Figure 10) to the half open position to avoid flooding.
7. Repeat steps 1 thru 6.
8. If the engine does not start after repeated attempts, check the spark plug for excess fuel. Clean and replace the spark plug as needed.

OPERATION

1. To start the rammer tamping action, move the throttle lever (Figure 12) quickly from **IDLE** (close) to the **FULL OPEN** position. **DO NOT** move the throttle lever slowly as this may cause damage to the clutch or spring.

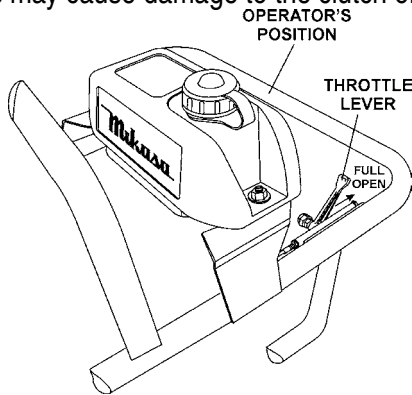


Figure 12. Throttle Lever (Full Open)

CAUTION

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

2. The MTR40SF tamping rammer is designed to run at 3,800 to 4,100 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 MTR40SF is designed to advance while tamping. For faster advance, pull back slightly on the handle so that rear of foot contacts soil first.

STOPPING THE ENGINE

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

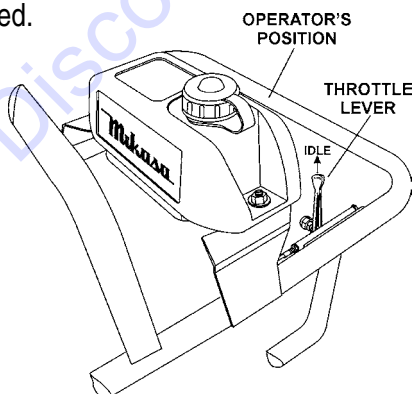


Figure 13. Throttle Lever (Idle)

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

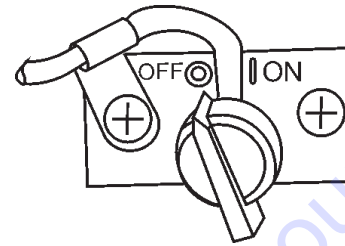


Figure 14. ON/OFF Switch (OFF Position)

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

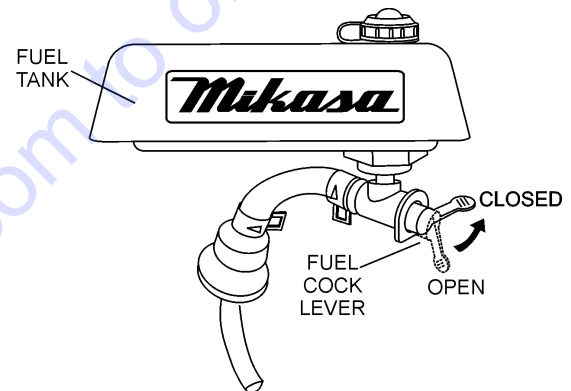


Figure 15. Fuel ShutOff Valve (Closed)

Emergency Showdown

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

DAILY

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

200 - 300 HOURS (PRE-CLEANER)

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

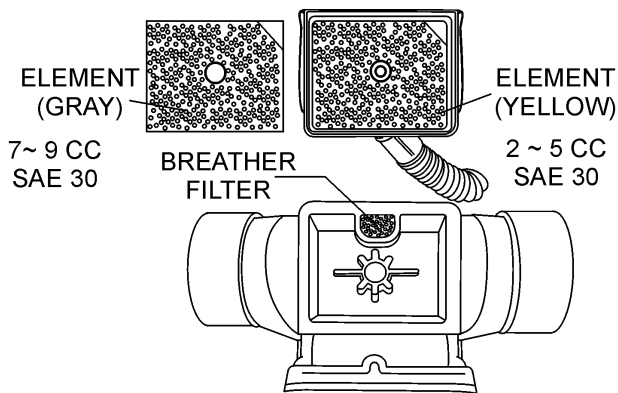


Figure 16. Primary Air Cleaner

- Lubricate the top element (yellow) with 2~5 cc of engine oil SAE-30.
- Lubricate bottom element (gray) with 7~9 cc of engine oil SAE-30 and completely squeeze out the excess oil from the element before installing.

AIR CLEANER

- The air cleaner (Figure 17) on the engine side will hardly be contaminated, if it is, clean the outer foam gray element with cleaning solvent. Tightly squeeze outer foam element to remove any excess solvent before reinstalling.
- Tap the paper filter element (Figure 17) several times on a hard surface to remove dirt, or blow compressed air [not exceeding 30 psi (207 kPa, 2.1 kgf/cm²)] through the filter element from the air cleaner case side. **NEVER** brush off dirt. Brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.

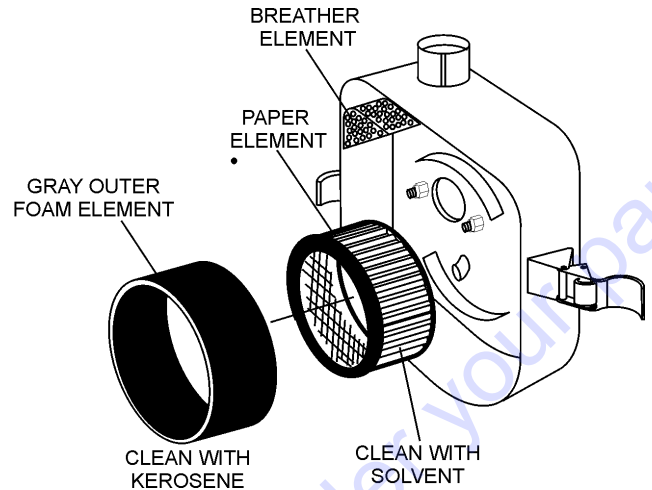


Figure 17. Engine Air Cleaner

MAIN SPRINGS LUBRICATION

- The rammer main springs (Figure 18) should be lubricated with five shots of grease with a hand grease gun after each eight (8) hours of use.
- Use MQ HIGH TEMPERATURE GREASE, P/N GRS2 or its equivalent.
- Equivalent greases include Shell Darina or Texaco Thermatex, both of which have a bentone base and EP-2 rating.
- If an inferior grease is used, it may become too thick or too thin due to changes in temperature, and improper lubrication could result.

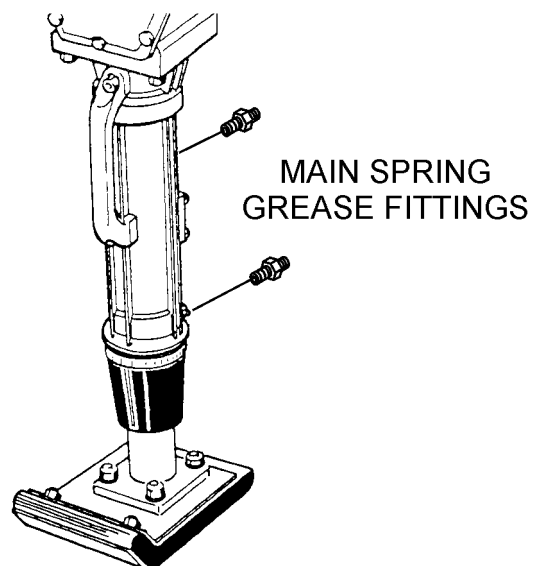


Figure 18. Grease Fittings (Main Springs)

CRANKCASE LUBRICATION

- The rammer crankcase bearings (Figure 19) should be lubricated with five shots of grease with a hand grease gun after each eight (8) hours of use.

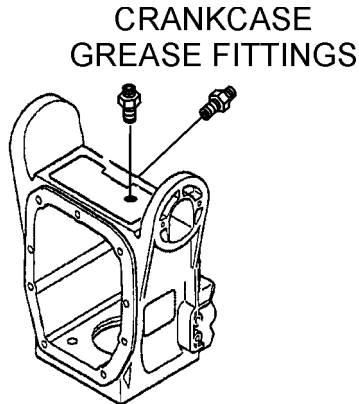


Figure 19. Grease Fittings (Crankcase)

- Use MQ HIGH TEMPERATURE GREASE, P/N GRS2 or its equivalent.

FUEL LINES

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

CLEANING THE RAMMER

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

SPARK PLUG

- Remove and clean the spark plug (Figure 20), then adjust the spark gap to 0.024 ~0.028 inch (0.6~0.7 mm). This unit has electronic ignition, which requires no adjustments.

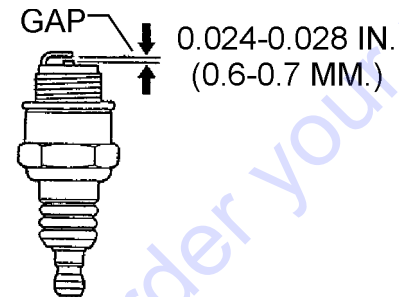


Figure 20. Spark PLug Gap

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.

MAINTENANCE

Table 4. Engine Maintenance Schedule

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

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

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

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

TROUBLESHOOTING

Troubleshooting (Engine)		
Symptom	Possible Problem	Solution
Difficult to start, fuel is available, but no spark at spark plug.	Combo lever in incorrect position?	Make sure combo lever is in start position.
	Spark plug bridging?	Check gap, insulation or replace spark plug.
	Carbon deposit on spark plug?	Clean or replace spark plug.
	Short circuit due to deficient spark plug insulation?	Check spark plug insulation, replace if worn.
	Improper spark plug gap?	Set to proper gap.
	Fuel reaching carburetor?	Check fuel line.
	Water in fuel tank?	Flush or replace fuel tank.
	Fuel filter clogged?	Replace fuel filter.
	Stuck carburetor?	Check float mechanism.
	Spark plug is red?	Check transistor ignition unit.
	Spark plug is bluish white?	If insufficient compression, repair or replace engine. If injected air leaking, correct leak. If carburetor jets clogged, clean carburetor.
	No spark present at tip of spark plug?	Check transistor ignition unit is broken, and replace defective unit. Check if voltage cord cracked or broken and replace. Check if spark plug if fouled and replace.
No oil?	Add oil as required.	
Difficult to start, fuel is available, and spark is present at the spark plug.	ON/OFF switch is shorted?	Check switch wiring, replace switch.
	Ignition coil defective?	Replace ignition coil.
	Improper spark gap, points dirty?	Set correct spark gap and clean points.
	Condenser insulation worn or short circuiting?	Replace condenser.
	Spark plug wire broken or short circuiting?	Replace defective spark plug wiring.
Difficult to start, fuel is available, spark is present and compression is normal.	Wrong fuel type?	Flush fuel system, replace with correct type of fuel.
	Water or dust in fuel system?	Flush fuel system.
	Air cleaner dirty?	Clean or replace air cleaner.
	Choke open?	Close choke.
Difficult to start, fuel is available, spark is present and compression is low.	Suction/exhaust valve stuck or protruded?	Reseat valves.
	Piston ring and/or cylinder worn?	Replace piston rings and/or piston.
	Cylinder head and/or spark plug not tightened properly?	Torque cylinder head bolts and spark plug.
	Head gasket and/or spark plug gasket damaged?	Replace head and spark plug gaskets.
No fuel present at carburetor.	No fuel in fuel tank?	Fill with correct type of fuel.
	Fuel cock does not open properly?	Apply lubricant to loosen fuel cock lever, replace if necessary.
	Fuel filter/lines clogged?	Replace fuel filter.
	Fuel tank cap breather hole clogged?	Clean or replace fuel tank cap.
	Air in fuel line?	Bleed fuel line.

TROUBLESHOOTING

Troubleshooting (Engine) - continued		
Symptom	Possible Problem	Solution
Weak in power, compression is proper and does not misfire.	Air cleaner dirty?	Clean or replace air cleaner.
	Improper level in carburetor?	Check float adjustment, rebuild carburetor.
	Defective spark plug?	Clean or replace spark plug.
	Improper spark plug?	Set to proper gap.
Weak in power, compression is proper but misfires.	Water in fuel system?	Flush fuel system and replace with correct type of fuel.
	Dirty spark plug?	Clean or replace spark plug.
	Ignition coil defective?	Replace ignition coil.
Engine overheats.	Spark plug heat value incorrect?	Replace with correct type of spark plug.
	Wrong type of fuel?	Replace with correct type of fuel.
	Cooling fins dirty?	Clean cooling fins.
	Intake air restricted?	Clear intake of dirt and debris. Replace air cleaner elements as necessary.
	Oil level too low or too high?	Adjust oil to proper level.
Rotational speed fluctuates.	Governor adjusted incorrectly?	Adjust governor.
	Governor spring defective?	Replace governor spring.
	Fuel flow restricted?	Check entire fuel system for leaks or clogs.
Recoil starter malfunctions. (if applicable)	Recoil mechanism clogged with dust and dirt?	Clean recoil assembly with soap and water.
	Spiral spring loose?	Replace spiral spring.
Starter malfunctions.	Loose, damaged wiring?	Ensure tight, clean connections on battery and starter.
	Battery insufficiently charged?	Recharge or replace battery.
	Starter damaged or internally shorted?	Replace starter.
Burns too much fuel.	Over-accumulation of exhaust products?	Check and clean valves. Check muffler and replace if necessary.
	Wrong spark plug?	Replace spark plug with manufacturer's suggested type.
Exhaust color is continuously "white".	Lubricating oil is wrong viscosity?	Replace lubricating oil with correct viscosity.
	Worn rings?	Replace rings.
Exhaust color is continuously "black".	Air cleaner clogged?	Clean or replace air cleaner.
	Choke valve set to incorrect position?	Adjust choke valve to correct position.
	Carburetor defective, seal on carburetor broken?	Replace carburetor or seal.
	Poor carburetor adjustment, engine runs too rich?	Adjust carburetor.
Will not start, no power with key "ON". (if applicable)	ON/OFF device not activated ON?	Turn on ON/OFF device.
	Battery disconnected or discharged?	Check cable connections. Charge or replace battery.
	Ignition switch/wiring defective?	Replace ignition switch. Check wiring.

TROUBLESHOOTING

Troubleshooting (Rammer)		
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 spiral spring.
	Speed of engine improper?	Adjust engine speed to correct operating RPM setting.
	Soil over-compacted?	Shut down machine and test soil.

EXPLANATION OF CODE IN REMARKS COLUMN

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

NOTICE

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

SAMPLE PARTS LIST

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

NO. Column

Unique Symbols — All items with same unique symbol

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

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

NOTICE

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

PART NO. Column

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

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

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

QTY. Column

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

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

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

REMARKS Column

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

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

Indicated by:

“INCLUDES ITEMS W/(unique symbol)”

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

Indicated by:

“S/N XXXXX AND BELOW”

“S/N XXXX AND ABOVE”

“S/N XXXX TO S/N XXX”

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

Indicated by:

“XXXXX ONLY”

“NOT USED ON XXXX”

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

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

SUGGESTED SPARE PARTS

MTR40SF TAMPING RAMMER WITH ROBIN ROBIN EH09-2F ENGINE

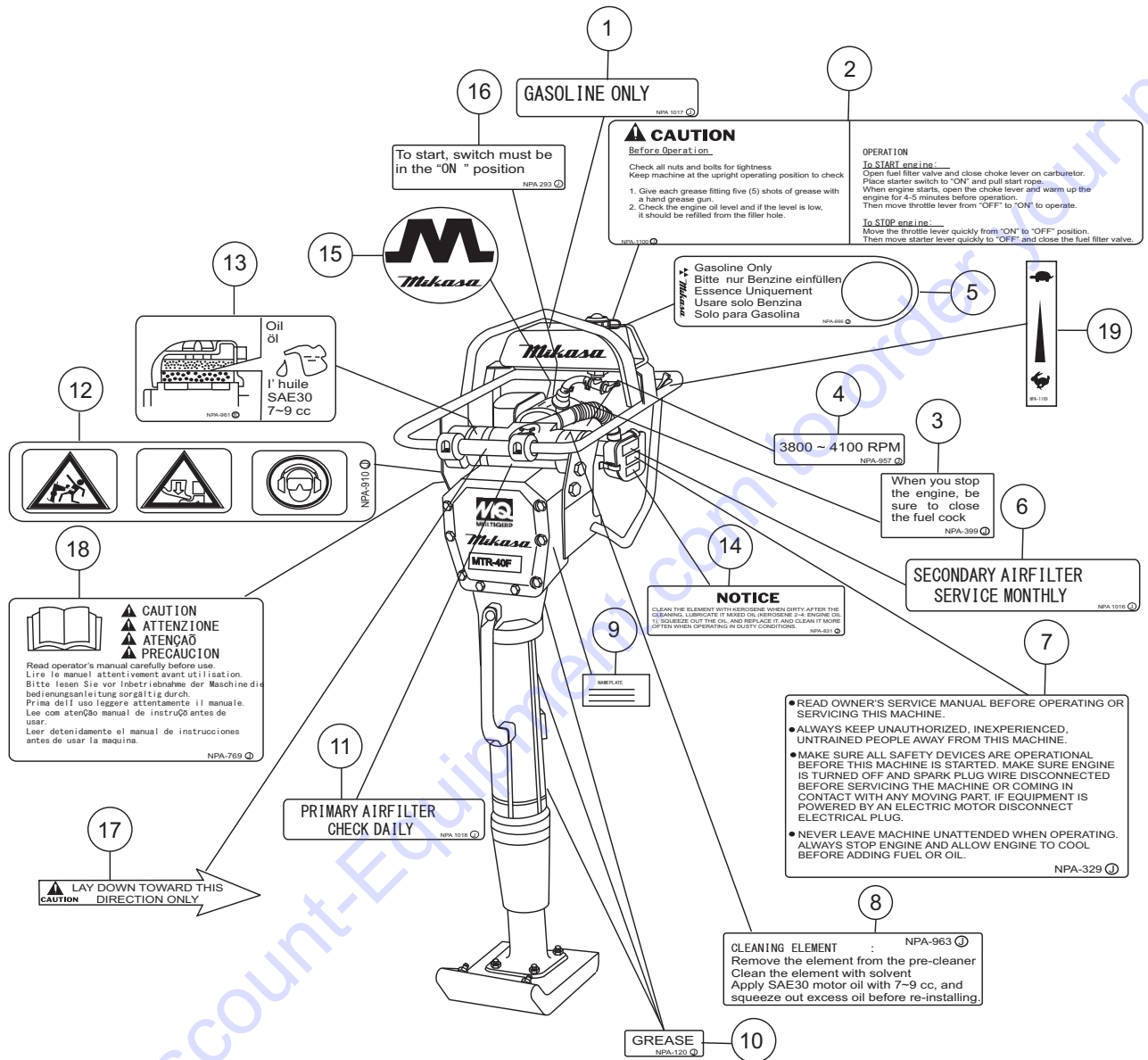
1 to 3 units

Qty.	P/N	Description
1.....	956100040.....	THROTTLE WIRE
3.....	362030030.....	ELEMENT, AIR CLEANER
1.....	361910070.....	CAP, FUEL TANK W/STRAP
3.....	301419750.....	FILTER, IN-LINE FUEL
3.....	0650140380.....	SPARK PLUG
1.....	2745011208.....	ROPE, RECOIL STARTER
3.....	20F3260608.....	ELEMENT, ENGINE

NOTICE

Part numbers on this Suggested Spare Parts list may supersede/replace the part numbers shown in the following parts lists.

NAMEPLATES AND DECALS

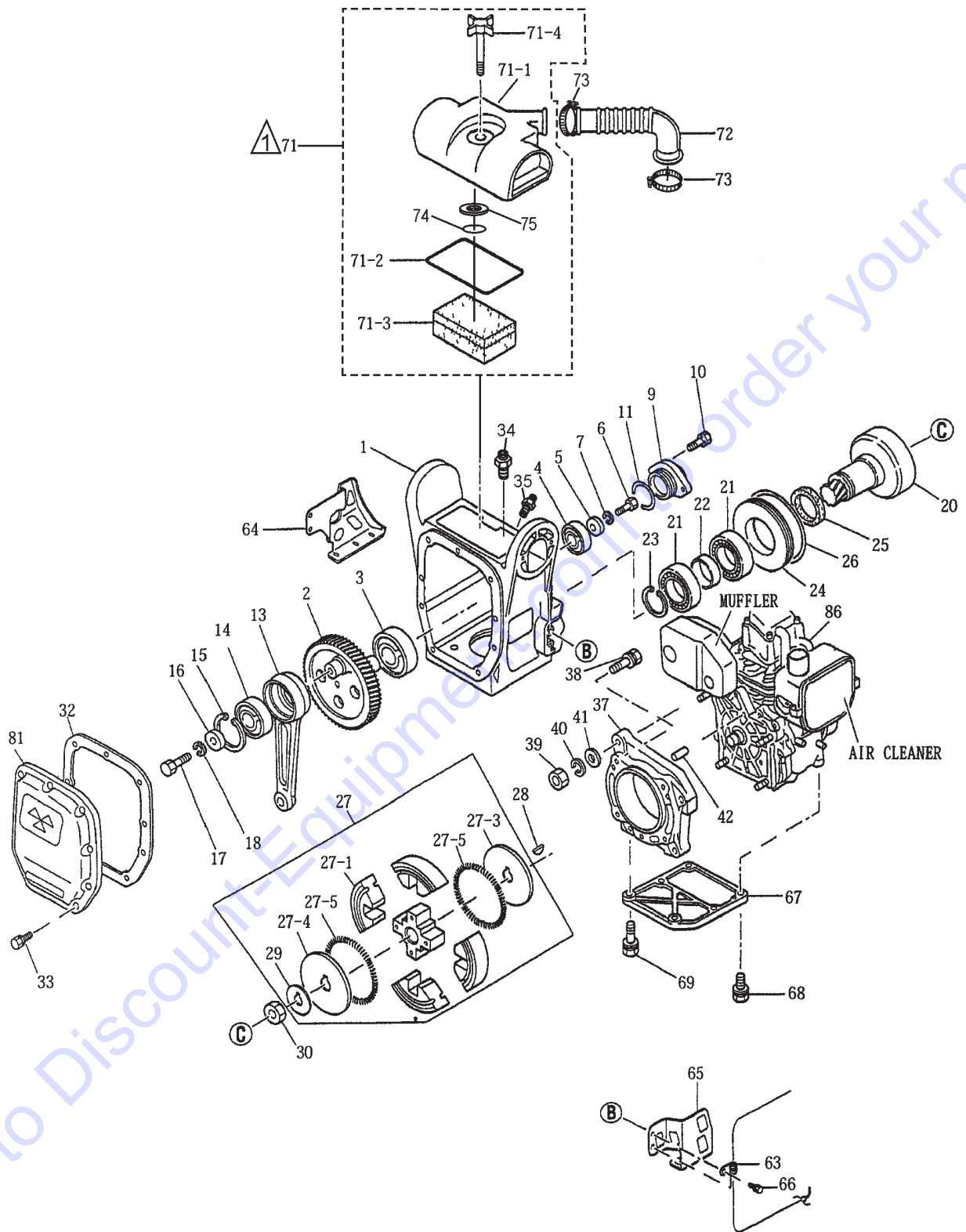


20 **WARNING**
Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
NPA-1410

NAMEPLATES AND DECALS

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	920210170	DECAL: GASOLINE ONLY	1	
2	920211000	DECAL: CAUTION (OPERATION)	1	
3	920203990	DECAL: CAUTION (FUEL COCK)	1	
4	920209570	DECAL: ENGINE RPM	1	
5	920208960	DECAL: ELEMENT SET	1	
6	920210160	DECAL: SECONDARY AIR FILTER	1	
7	920203290	DECAL: CAUTION	1	
8	920209630	DECAL: CLEANING ELEMENT	1	
9		PLATE: SERIAL NO.	1	CONTACT DISCOUNT-EQUIPMENT
10	920100120	DECAL: GREASE	3	REPLACES 920101200
11	920210180	DECAL: PRIMARY AIR FILTER	1	
12	920209100	DECAL: RAMMER BOOT & HEARING	1	
13	920209610	DECAL: DECAL OIL 7-9 CC	1	
14	920208310	DECAL: CAUTION/OIL INJECT	1	
15	920100240	DECAL: (M-MARK)	1	
16	920202930	DECAL: SWITCH-ON	1	
17	920206910	DECAL: LAYDOWN	1	
18	920207690	DECAL: CAUTION	1	
19	920211690	DECAL: LEVER OPERATION	1	
20	920214100	DECAL: E/G FIRE WARNING	1	

CRANKCASE AND ENGINE ASSY



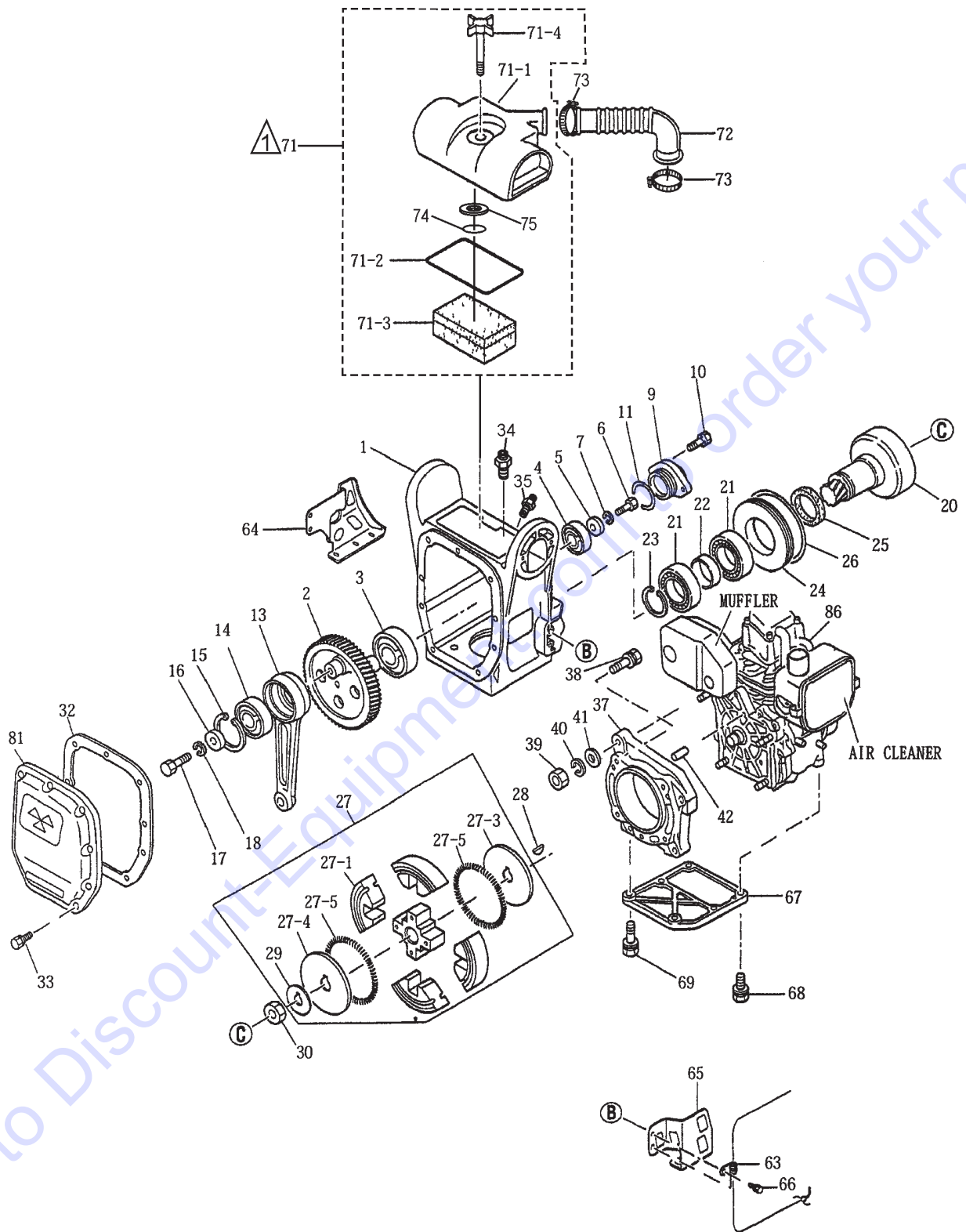
NOTES:

- ▲ AIR CLEANER ASSY., INCLUDES ITEMS WITHIN DASHED LINES EXCEPT FOR ITEMS 74 AND 75.

CRANKCASE AND ENGINE ASSY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	305117260	CRANK CASE	1	
2	305343780	CRANK GEAR	1	
3	041006305	BEARING 6305Z	1	
4	041006203	BEARING 6203Z	1	
5	952401450	WASHER 8.5X22X3	1	
6	011208025	BOLT 8X25 T	1	REPLACES 001220825
7	030208200	WASHER, LOCK M8	1	
9	362455660	BEARING COVER	1	
10	011706020	BOLT 6X20 H, SW	2	REPLACES 002210620
11	050100350	O-RING G-35	1	
13	305333090	CONNECTING ROD	1	
14	042006304	BEARING 6304ZZ	1	
15	080100520	STOP RING R-52	1	
16	952400130	WASHER 9304	1	
17	011208025	BOLT 8X25 T	1	REPLACES 001220825
18	030208200	WASHER, LOCK M8	1	
20	303010084	PINION	1	
21	042006007	BEARING 6007ZZ	2	
22	351437750	SPACER	1	
23	080200350	STOP RING S-35	1	
24	351421900	SPACER, CLUTCH DRUM	1	
25	060504010	OIL SEAL VB-40525	1	
26	050300900	O-RING S-90	1	
27	361463840	CLUTCH ASSY. CE120P	1	INCLUDES ITEMS W/ *
27-1*	943020020	CLUTCH SHOE C812	4	
27-3*	943060100	CLUTCH GUIDE (A)	1	
27-4*	943060020	CLUTCH GUIDE (B)	1	
27-5*	943030021	CLUTCH SPRING	2	
28	0053204201	WOODRUFF KEY	1	
29*	301010210	LOCK WASHER, CLUTCH	1	
30	0173120010	LOCK NUT	1	
32	362341610	PACKING, FRONT COVER	1	
33	011706020	BOLT 6X20 H, SW	9	REPLACES 002210620
34	351010050	GREASE FITTING A-MT6X1	1	
35	959010320	GREASE FITTING B-MT6X1	1	
37	2741500123	ADAPTER FLANGE	1	
38	0011408400	BOLT AND WASHER ASSY.	4	
39	020108060	NUT	4	REPLACES 0021808000
40	030208200	WASHER, LOCK	4	REPLACES 0032008000

CRANKCASE AND ENGINE ASSY



NOTES:

- ▲ AIR CLEANER ASSY., INCLUDES ITEMS WITHIN DASHED LINES EXCEPT FOR ITEMS 74 AND 75.

CRANKCASE AND ENGINE ASSY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
41	0031008000	WASHER	4.....	REPLACES 0031108000
42	0310060020	DOWEL PIN	2	
63	959006120	CLIP (TCP-10509B)	1	
64	362341620	OIL GAUGE PROTECTOR	1	
65	362341630	LINK PROTECTOR	1	
66	3013820	BOLT 8X20 W/FLAT/LOCK WASHER.....	4.....	REPLACES 002400820
67	2741600113	STIFFENER	1	
68	0011408250	BOLT AND WASHER	4	
69	0011408300	BOLT AND WASHER ASSY.	2	
71	362116871	AIR CLEANER ASSY.....	1.....	INCLUDES ITEMS W/#
71-1#	362030011	COVER CP, AIR CLEANER	1	
71-2#	362030020	PACKING, AIR CLEANER	1	
71-3#	362030030	ELEMENT CP, AIR CLEANER	1	
71-4#	362030040	BOLT CP, AIR CLEANER	1	
72	362341210	INTAKE PIPE	1	
73	507010110	CLAMP TC-200	2	
74	050300070	O-RING (7)	1	
75	0401450080	WASHER, FLAT M8.....	1.....	REPLACES 031108160
81	306010020	FRONT COVER	1	
86	911210918	ENGINE ASSY., EH092F	1	

PARTS FINDER

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Parts Order Form

Please fill in the following information to help us find the right part for your machine.

Manufacturer:	<input type="text"/>
Model:	<input type="text"/>
Description:	<input type="text"/>
Part Number:	<input type="text"/>
Quantity:	<input type="text"/>
Notes:	<input type="text"/>

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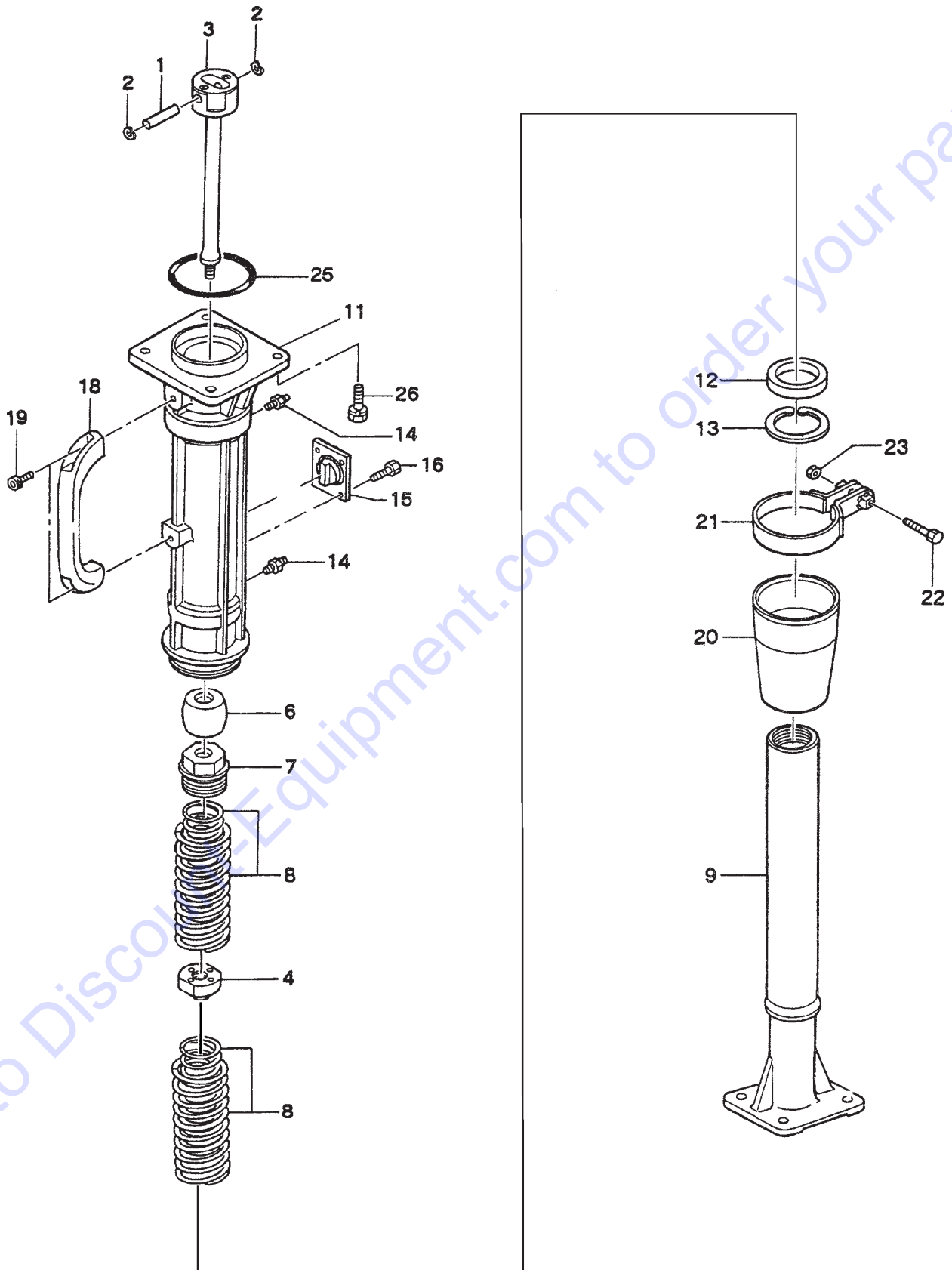
Florida: **561-964-4949** Outside Florida TOLL FREE: **877-690-3101**

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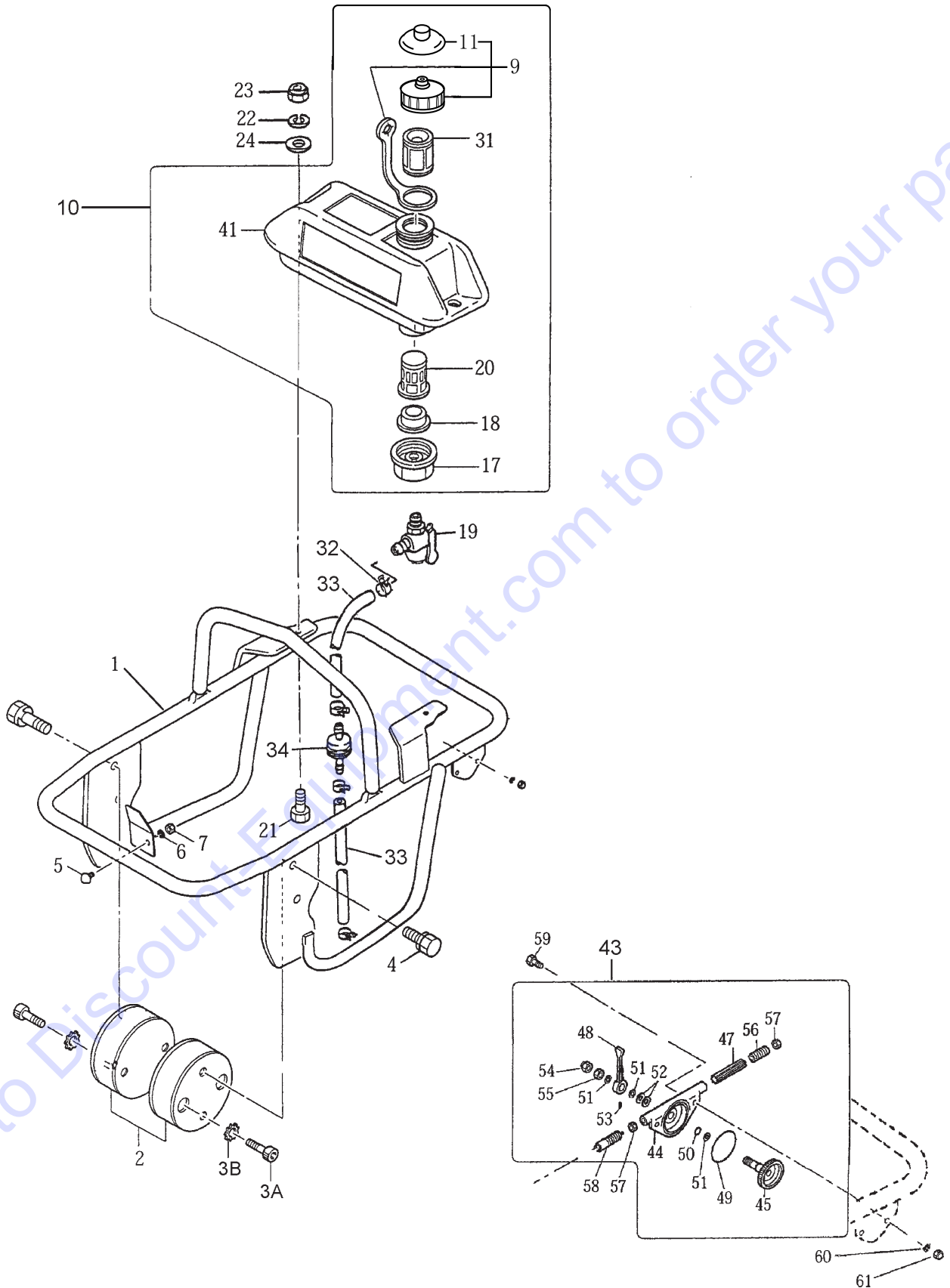
GUIDE CYLINDER ASSY



GUIDE CYLINDER ASSY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	305464130	PISTON PIN	1	
2	368459920	PISTON PIN PLUG	1	
3	305337980	PISTON ROD, M14	1	
4	305451550	PISTON END, M14	1	
6	305446400	STOPPER, UPPER	1	
7	305446410	CYLINDER CAP	1	
8	305446420	MAIN SPRING	2	
9	305212710	SPRING CYLINDER	1	
11	305112730	GUIDE CYLINDER	1	
12	065105010	DUST SEAL DKI-5367811	1	
13	080510680	STOP RING TH-R-68	1	
14	351010050	GREASE FITTING A-MT6X1	2	
15	305446430	STOPPER	1	
16	001220816	BOLT 8X15 H, SW	4	REPLACES 002200815
18	305446440	GRIP	1	
19	001520815	SOCKET HEAD BOLT 8X15 T	2	
20	305446450	DUST SLEEVE	1	
21	305446460	SLEEVE BAND	1	
22	011208035	BOLT 8X35.....	1	REPLACES 001220835
23	020308060	NUT M8.....	1	REPLACES 020308060
25	050100800	O-RING G-80	1	
26	012210025	BOLT 10X25 H, SW	4	REPLACES 002211025

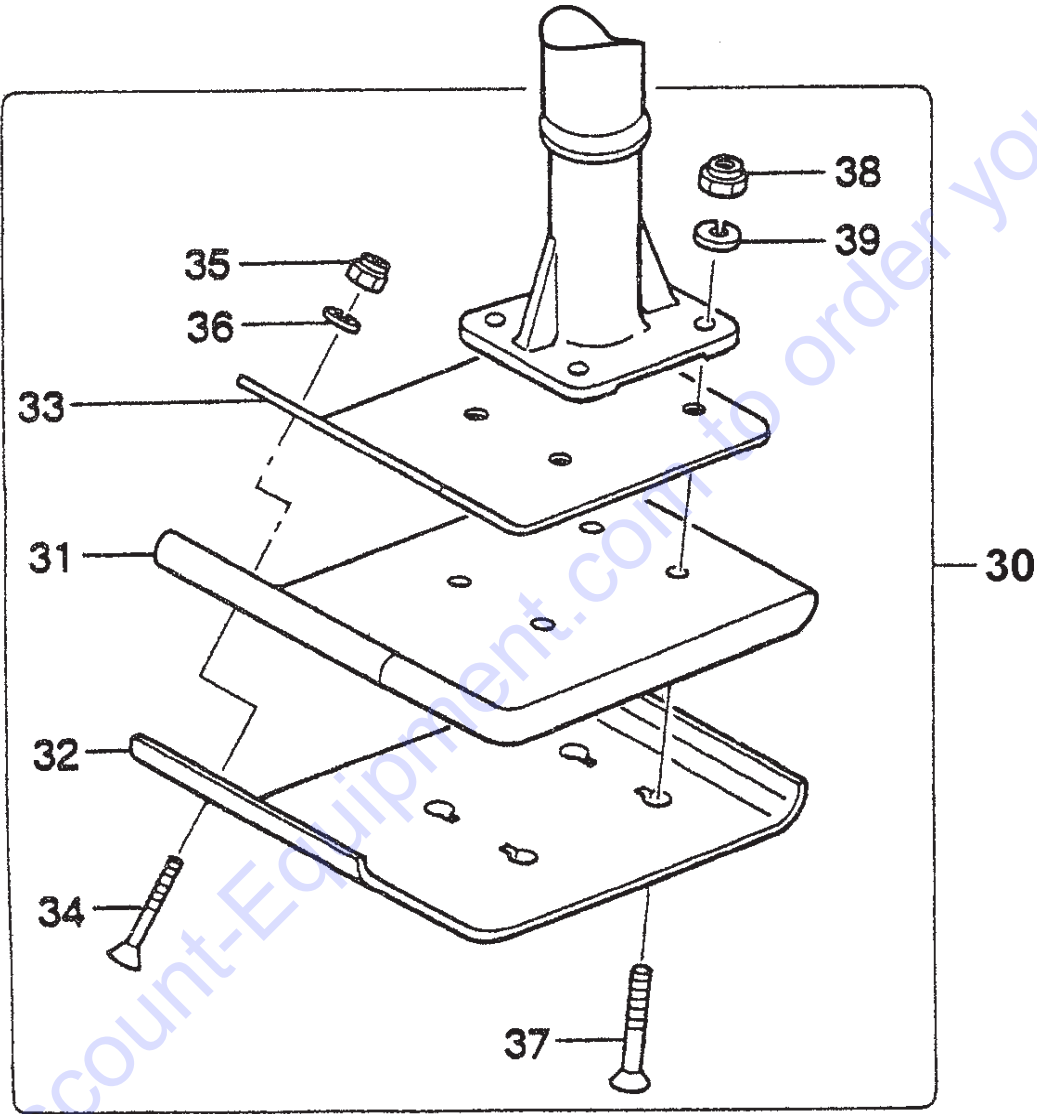
FUEL TANK AND HANDLE ASSY



FUEL TANK AND HANDLE ASSY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	306117960	HANDLE	1	
2	351319900	SHOCK ABSORBER	2	
3A	009110007	SOCKET HEAD BOLT 10X20 T	4	
3B	033121009	TOOTHED LOCK WASHER B M10	4	
4	012210020	BOLT 10X20 H, SW	4	REPLACES 002211020
5	939010210	STOPPER RUBBER EH1002	1	
6	030208200	WASHER, LOCK M8	1	
7	020108060	NUT M8	1	REPLACES 020308060
9#	361910070	TANK CAP CP (ORANGE)	1	
10	305910036	FUEL TANK (EVP) ASSY.	1	INCLUDES ITEMS W/#
11#	362458350	SUB CAP	1	
17#	351437785	HOLDER, COCK	1	
18#	954406020	PACKING, FUEL TANK	1	
19	954300720	FUEL COCK ASSY./CVL-08	1	
20#	954406010	STRAINER (#110)	1	
21	011208030	BOLT 8X30 T	2	REPLACES 001220830
22	030208200	WASHER, LOCK M8	2	
23	022710809	NYLON NUT M8	2	
24	952401450	WASHER 8.5X22X3	2	
31#	954404890	FILTER, TANK	1	
32	0561080020	HOSE CLAMP	4	
33	959328404	FUEL HOSE, L=150 EVP	2	
34	301419750	FUEL FILTER CP	1	
41#	363218260	F. TANK 2L (GRAY) EVP	1	
43	362910060	THROTTLE LEVER ASSY.	1	INCLUDES ITEMS W/ *
44*	362341550	THROTTLE BODY	1	
45*	362910090	THROTTLE, GEAR CP. W/BOLT	1	
47*	362455620	SLIDER	1	
48*	362455630	THROTTLE LEVER	1	
49*	050100450	O-RING G-45	1	
50*	050200100	O-RING P-10	1	
51*	031110160	WASHER, FLAT M10	3	
52*	033910230	CONICAL SPRING WASHER	2	
53*	096206006	SOCKET HEAD SCREW 6X6	1	
54	022131008	CAP NUT M10	1	
55	020310080	NUT M10, H=6	1	REPLACES 020410060
56*	014208020	SOCKET HEAD SCREW 8X20	1	REPLACES 096208020
57*	020408050	NUT M8, H=5	2	
58*	956100040	THROTTLE WIRE 620-710	1	
59	011206020	BOLT 6X20T	2	REPLACES 001220620
60	030206150	WASHER, LOCK	2	
61	022130605	CAP NUT M6	2	

FOOT ASSY

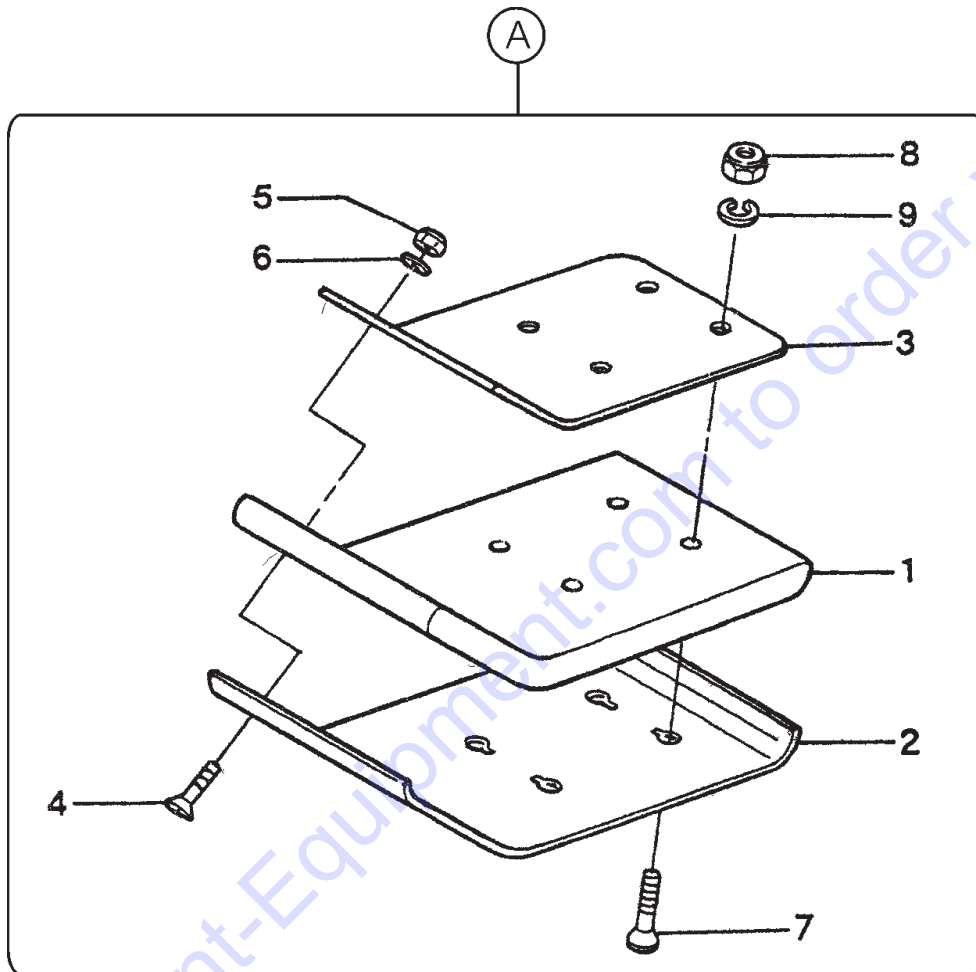


FOOT ASSY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
30	305910050	FOOT ASSY. 150B.....	1.....	INCLUDES ITEMS W/ *
31*	306347930	FOOT 150B	1	
32*	306347960	METAL SHEET 150B	1	
33*	306461630	FOOT COVER	1	
34*	009110033	SUNK HEAD BOLT 10X50 H	2	
35*	021110120	NYLON NUT M10.....	2.....	REPLACES 022711012
36*	030210250	WASHER, LOCK M10	2	
37*	009110034	SUNK HEAD BOLT 12X65 H	4	
38*	021112140	NYLON NUT M12.....	4.....	REPLACES 022711214
39*	030212300	WASHER, LOCK M12	4	

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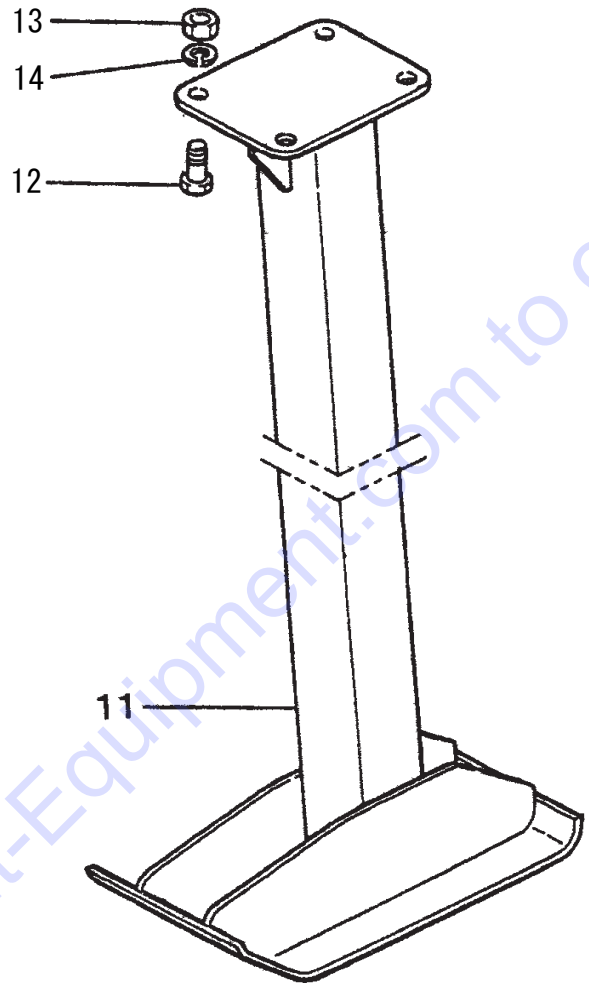
NARROW FOOT ASSY. (OPTION)



NARROW FOOT ASSY. (OPTION)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
A	305910060	FOOT ASSY. 200B.....	1.....	INCLUDES ITEMS W/ *
A	305910070	FOOT ASSY. 100B.....	1.....	INCLUDES ITEMS W/ #
1*	306347940	FOOT 200B.....	1.....	200B
1#	306347920	FOOT 100B.....	1.....	100B
2*	306347970	METAL SHEET 200B.....	1.....	200B
2#	306347950	METAL SHEET 100B.....	1.....	100B
3*	306461630	FOOT COVER	1.....	200B
3#	306461620	FOOT COVER 96B.....	1.....	100B
4*#	015110050	SUNK HEAD BOLT 10X50 H.....	2.....	REPLACES 001611050
5*#	021110120	NYLON NUT M10	2.....	REPLACES 022711012
6*#	030210250	WASHER, LOCK M10	2	
7*#	015112060	SUNK HEAD BOLT 12X60 H.....	4.....	REPLACES 001611252
8*#	021112140	NYLON NUT M12	4.....	REPLACES 022711214
9*#	030212300	WASHER, LOCK M10	4	

TRENCH SHOE ASSY



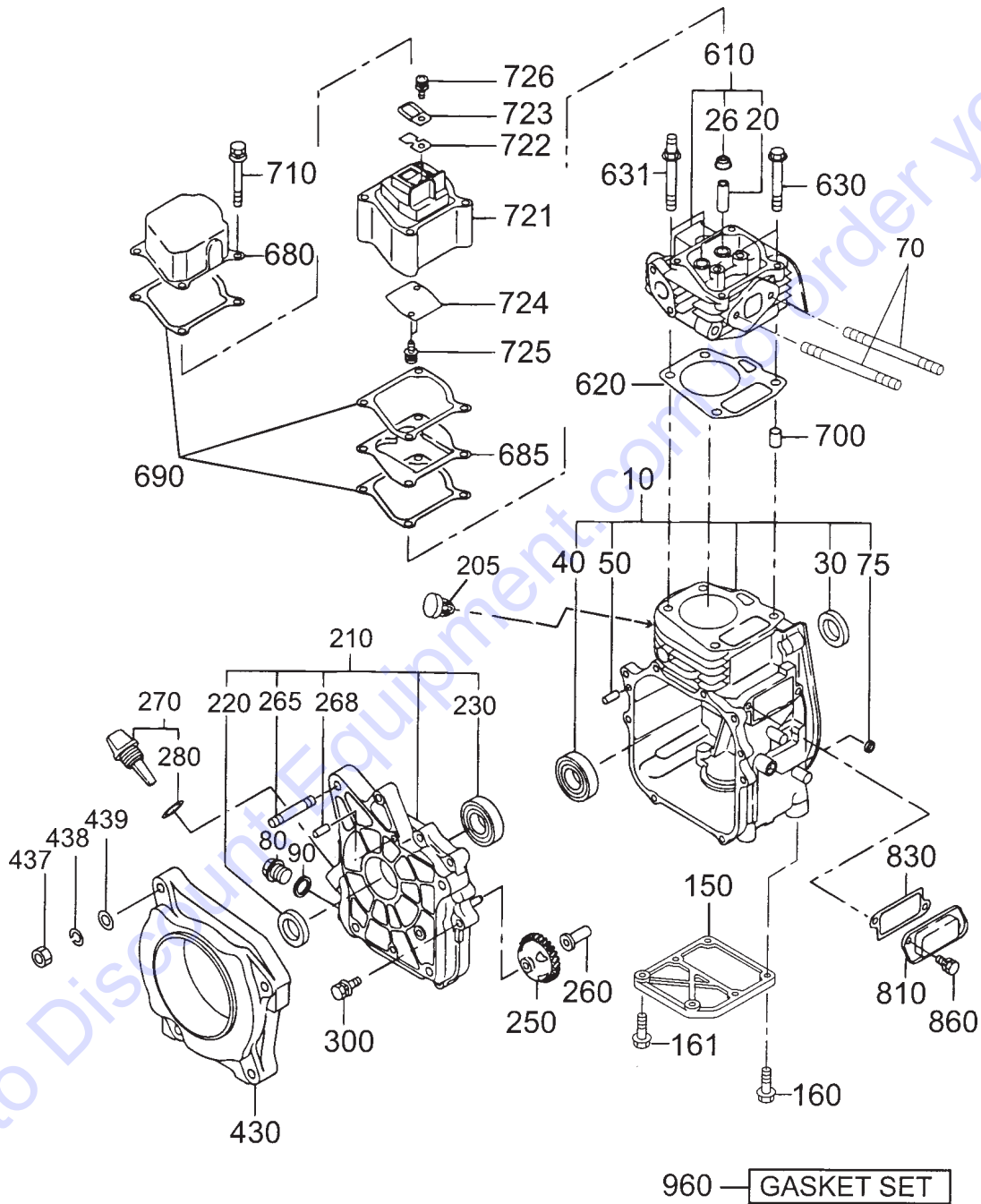
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TRENCH SHOE ASSY

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
11	305333160	TRENCH SHOE 500H-120B	1	
11	305333170	TRENCH SHOE 800H-120B	1	
11	305334390	TRENCH SHOE 305H-100B	1	
12	012212035	BOLT 12X35 T.....	4.....	REPLACES 001221235
13	020312100	NUT M12	4	
14	0039312000	WASHER, LOCK M12.....	4.....	REPLACES 030212300

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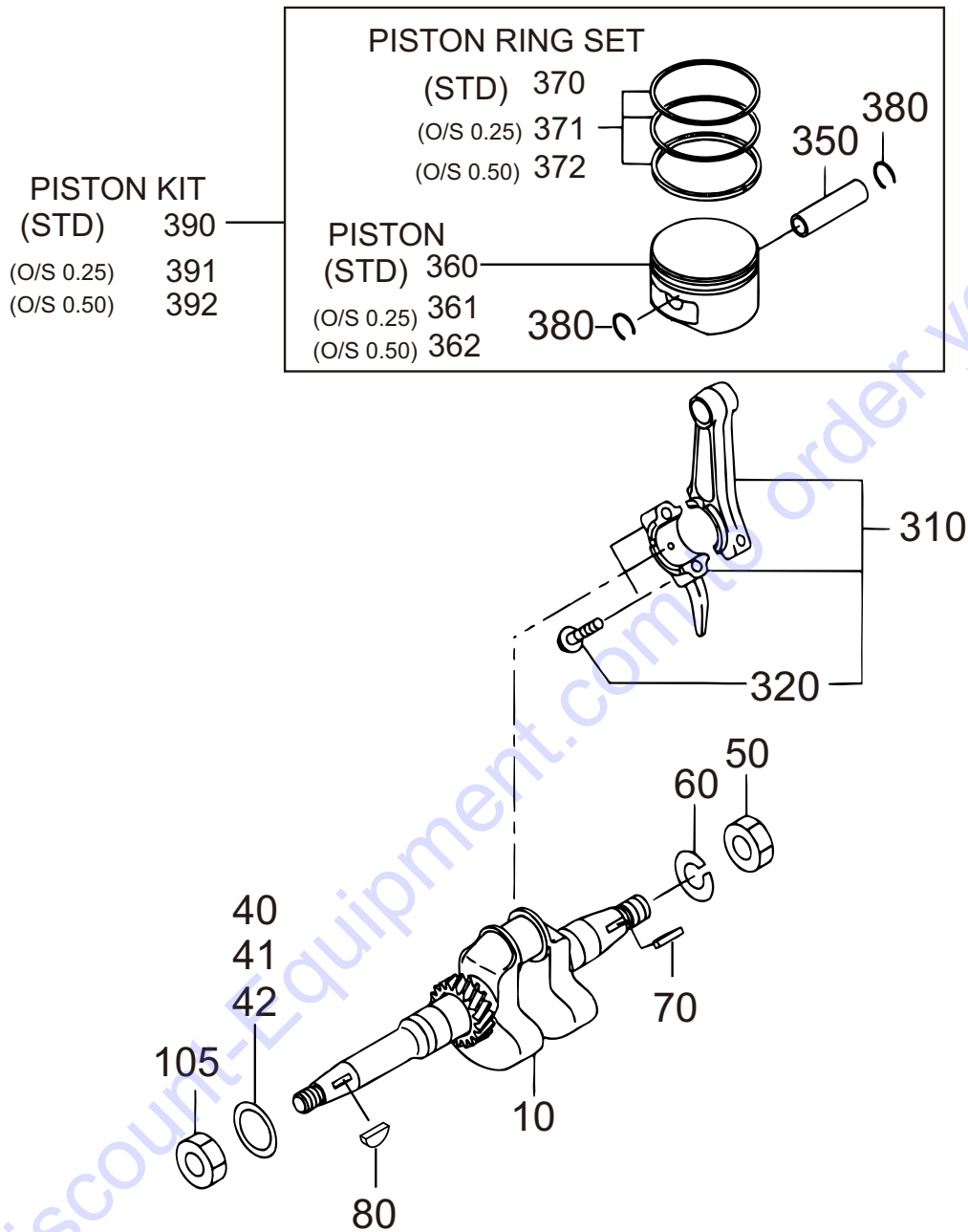
ROBIN EH09-2F ENGINE — CRANKCASE ASSY.



ROBIN EH09-2F ENGINE — CRANKCASE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
10	20F1010421	CRANKCASE CP	1	INCLUDES ITEMS W/#
20&	2371420203	VALVE GUIDE	2	
26&	2771601001	STEM SEAL CP	1	
30#	2096244508	OIL SEAL 20X32X6	1	REPLACES 0440200070
40#	0600200110	BALL BEARING, 60074C3	1	
50#	0310060020	DOWEL PIN	2	
70	0105060430	STUD	2	
75#	0440060020	OIL SEAL	1	
80	0401140030	PLUG	1	
90	0211140020	GASKET	1	
150	2741600113	STIFFENER	1	
160	0011408250	BOLT & WASHER	4	
161	0011408300	BOLT & WASHER ASSY.	2	
205	0241090060	GROMMET	1	
210	20F1110131	MAIN BEARING COVER	1	INCLUDES ITEMS W/*
220*	0440200110	OIL SEAL 20X32X6	1	
230*	0600200110	BALL BEARING, 6004C3	1	
250	2844500301	GOVERNOR GEAR CP	1	
260	2054190103	GOVERNOR SLEEVE	1	
265*	0013908500	STUD	4	
268*	0310060020	DOWEL PIN	2	
270	2306360111	OIL GAUGE	1	INCLUDES ITEMS W/%
280%	0213160020	GASKET	1	REPLACES X213160020
300	0130060200	BOLT & WASHER	9	
430	2741500123	ADAPTER FLANGE	1	
437	020108060	NUT	4	REPLACES 0021808000
438	030208200	SPRING WASHER.....	4	REPLACES 0032008000
439	0031008000	WASHER	4	REPLACES 0031108000
610	2841300110	CYLINDER HEAD ASSY.....	1	INCLUDES ITEMS W/&
620	2841500113	GASKET HEAD	1	
630	0110080210	FLANGE BOLT	1	
631	0100080410	BOLT	2	
680	2841550203	ROCKER COVER	1	
685	2841450203	OIL SHELTER PLATE	1	
690	2841600703	GASKET, ROCKER COVER	3	
700	2771501103	PIPE KNOCK	2	
710	0110060400	FLANGE BOLT	4	
721	2841560203	BREATHER PLATE	1	
722	2841600103	LEAF VALVE	1	
723	2841600203	BREATHER PLATE	1	
724	2841450103	OIL SHELTER PLATE	1	
725	0131050020	SCREW & WASHER ASSY.	2	
726	0131050020	SCREW & WASHER ASSY.	1	
810	2841700103	COVER CASE	1	
830	2301600613	GASKET TAPPET COVER NA	1	
860	0011406160	BOLT & WASHER ASSY.	2	
960	2849900407	GASKET SET	1	

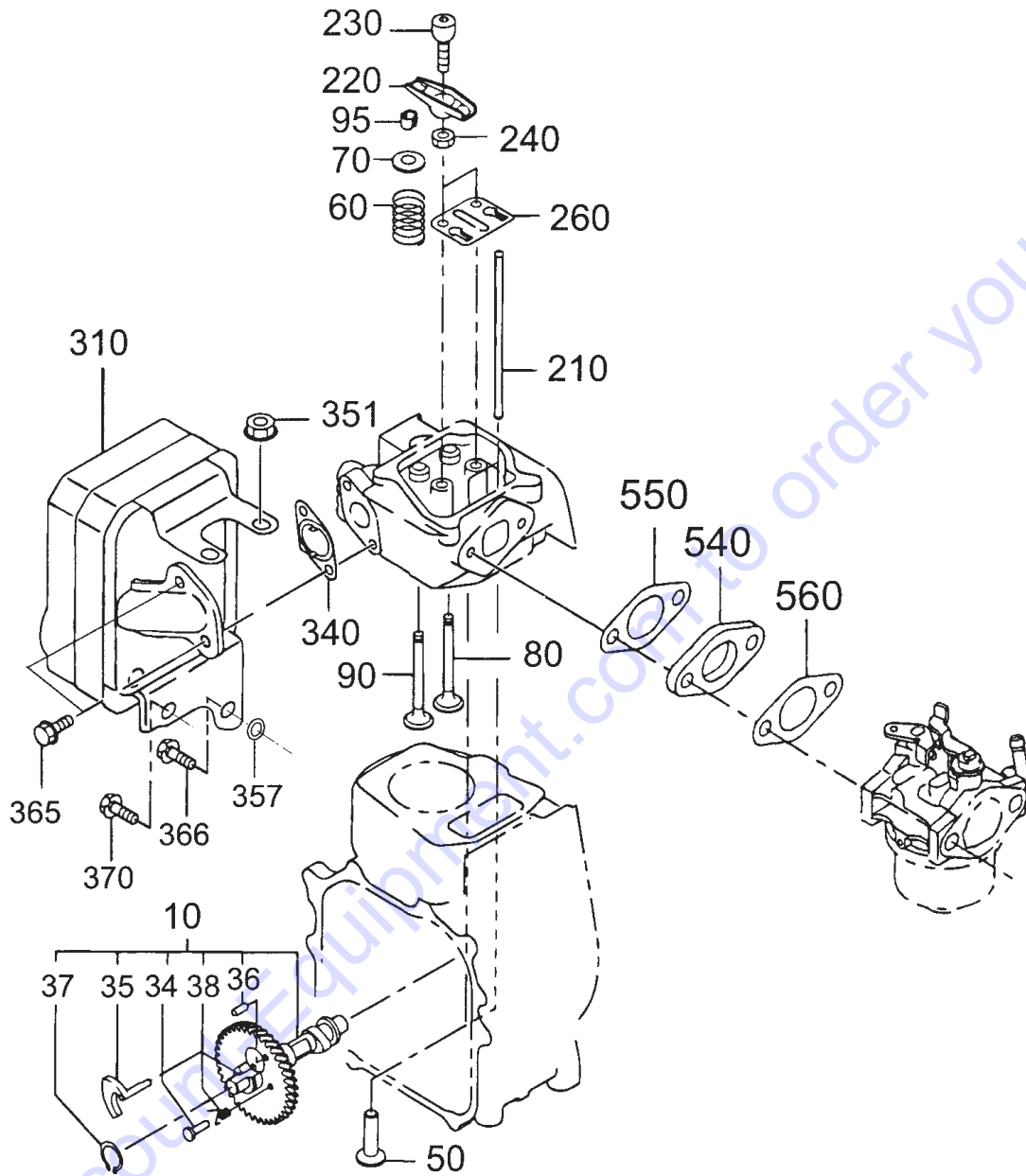
ROBIN EH09-2F ENGINE — CRANKSHAFT, PISTON ASSY.



ROBIN EH09-2F ENGINE — CRANKSHAFT, PISTON ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2842030101	CRANKSHAFT CP	1	
40	0230200100	SPACER T=0.8	1	
41	0230200110	SPACER T=1.0	1	
42	0230200120	SPACER T=1.2	1	
50	0021814000	NUT	1	
60	0032014000	SPRING WASHER.....	1	REPLACES 0032012000
70	0053203101	WOODRUFF KEY	1	
80	0053204201	WOODRUFF KEY	1	
105	0173120010	LOCK NUT	1	
310	2842250130	CONNECTING ROD ASSY	1	INCLUDES ITEMS W/%
320%	2842300103	CONNECTING ROD BOLT	2	
350	2302330103	PISTON PIN	1	
360	28423401H3	PISTON	1	
361	28423402H3	PISTON 0.25MM	1	
362	28423403H3	PISTON 0.50MM	1	
370	2842351107	PISTON RING SET	1	
371	2842351207	PISTON RING SET 0.25MM	1	
372	2842351307	PISTON RING SET 0.50MM	1	
380	0565110010	CLIP	2	
390	28427011H7	PISTON KIT/EH09-2/MT, STD	1	
391	28427012H7	PISTON KIT/EH09-2/0.25/MT	1	
392	28427013H7	PISTON KIT/EH09-2/0.50/MT	1	

ROBIN EH09-2F ENGINE — INTAKE, EXHAUST ASSY.

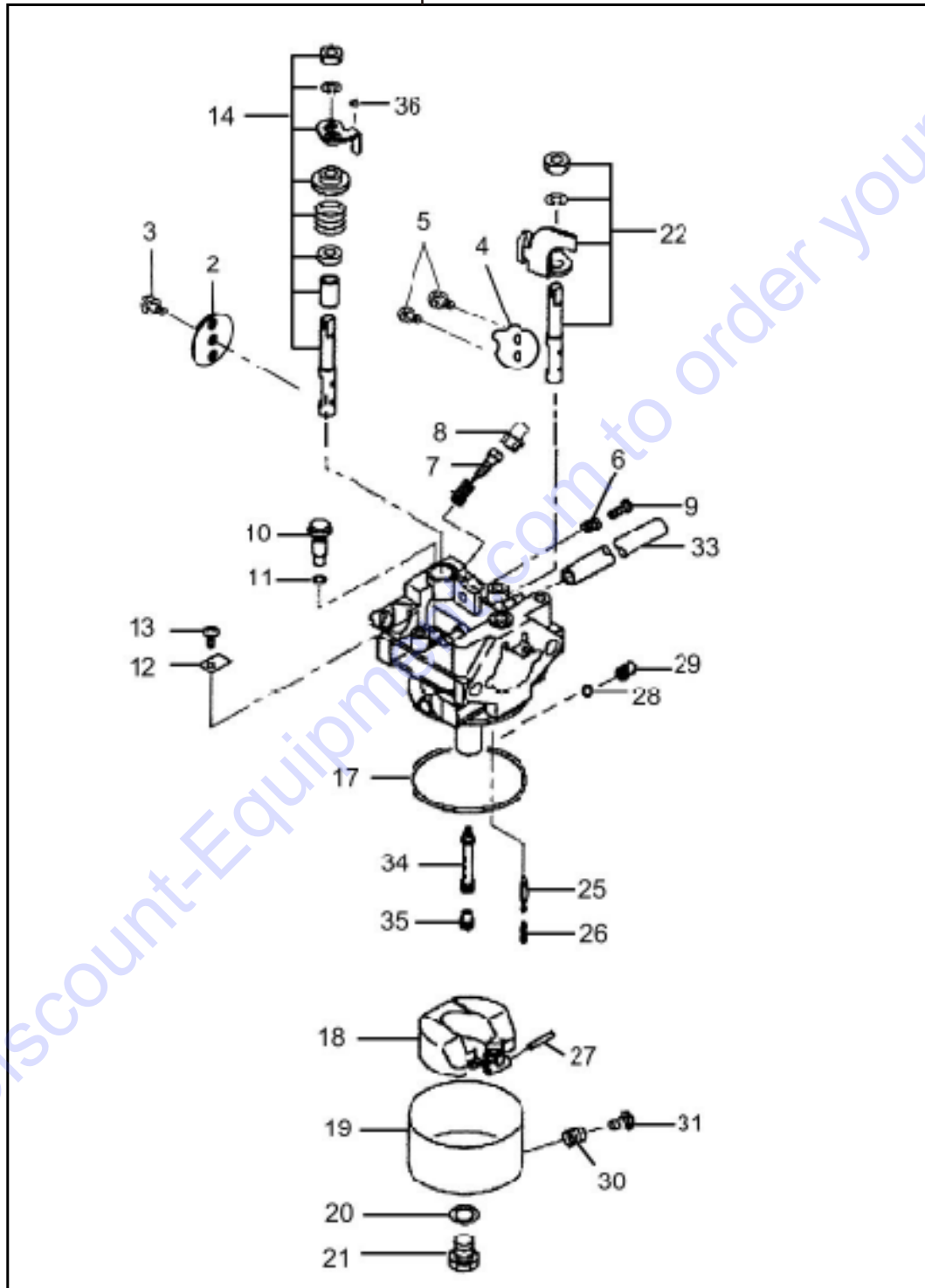


ROBIN EH09-2F ENGINE — INTAKE, EXHAUST ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2843170121	CAMSHAFT CP	1.....	INCLUDES ITEMS W/%
34%	2273860123	PIN (SPRING)	1	
35%	2843640103	RELEASE LEVER	1	
36%	0051904100	SPRING PIN	1	
37%	0031517000	SNAP RING	1	
38%	2743870123	RETURN SPRING	1	
50	2743330103	TAPPET	2	
60	2743360103	VALVE SPRING	2	
70	2743370203	SPRING RETAINER	2	
80	2743340103	INTAKE VALVE	1	
90	2743350103	EXHAUST VALVE	1	
95	13210KA031	COLLET VALVE	4	
210	2743530103	PUSH ROD	2	
220	2843600113	ROCKER ARM	2	
230	2693580103	BOLT (PIVOT)	2	
240	0170060090	NUT	2	
260	2743650103	GUIDE PLATE	1	
310	20F3010501	MUFFLER CP	1	
340	2843520103	GASKET (EXHAUST)	1	
351	0023808000	FLANGE NUT	2	
357	0200080170	WASHER	1	
365	0110060460	FLANGE BOLT	2	
366	0011408160	BOLT & WASHER 8X16	1	
370	0130080240	BOLT & WASHER ASSY.	1	
540	1063292103	INSULATOR	1	
550	2843590213	GASKET (INSULATOR)	1	
560	1573500103	GASKET 2 (INSULATOR)	1	

ROBIN EH09-2F ENGINE — CARBURETOR ASSY.

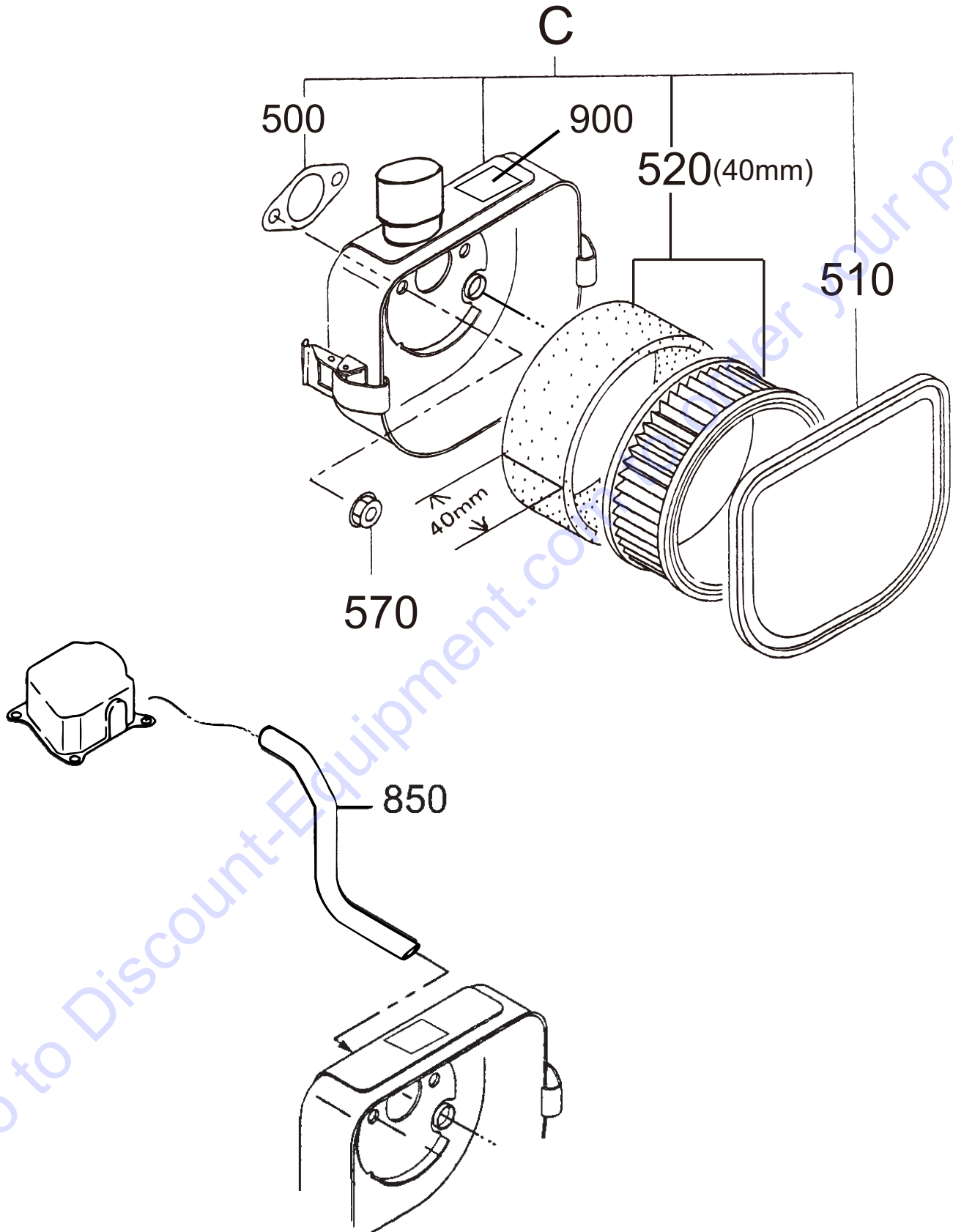
210



ROBIN EH09-2F ENGINE — CARBURETOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
210	2846237200	CARBURETOR ASSY.....	1.....	INCLUDES ITEMS W/#
2#	2306253608	THROTTLE VALVE	1	
3#	2776258008	SCREW 30400	1	
4#	2366252808	CHOKE VALVE	1	
5#	2796235608	SCREW	2	
6#	2306244608	SPRING	1	
9#	2466243508	ADJUST SCREW	1	
10#	2796242108	PILOT JET/EH09-2F	1	
11#	1066238408	O-RING	1	
12#	2936235008	PLATE/EH09-2F	1	
13#	2796235108	SCREW	1	
14#	2936253008	TH, SHAFT/EH09-2F	1	
17#	2366254008	PACKING, CHAMBER 826-42001	1	
18#	2366250508	FLOAT	1	
19#	2936250508	FLOAT. BAY	1	
20#	2366245008	PACKING 826-08003	1	
21#	2376245008	BOLT PV18/695	1	
22#	2936252008	CHOKE SHAFT	1	
25#	1616235208	NEEDLE	1	
26#	2366244508	SPRING	1	
27#	2146251508	FLOAT PIN	1	
29#	2766240008	MAIN JET 30100	1	
30#	2106231808	SPRING	1	
31#	2246245008	SCREW	1	
33#	2846236008	HOSE	1	
34#	2936244018	NOZZLE	1	
35#	2356242508	GUIDE HOLDER	1	
36#	2844550103	BUSH, THRO	1	

ROBIN EH09-2F ENGINE — AIR CLEANER ASSY.

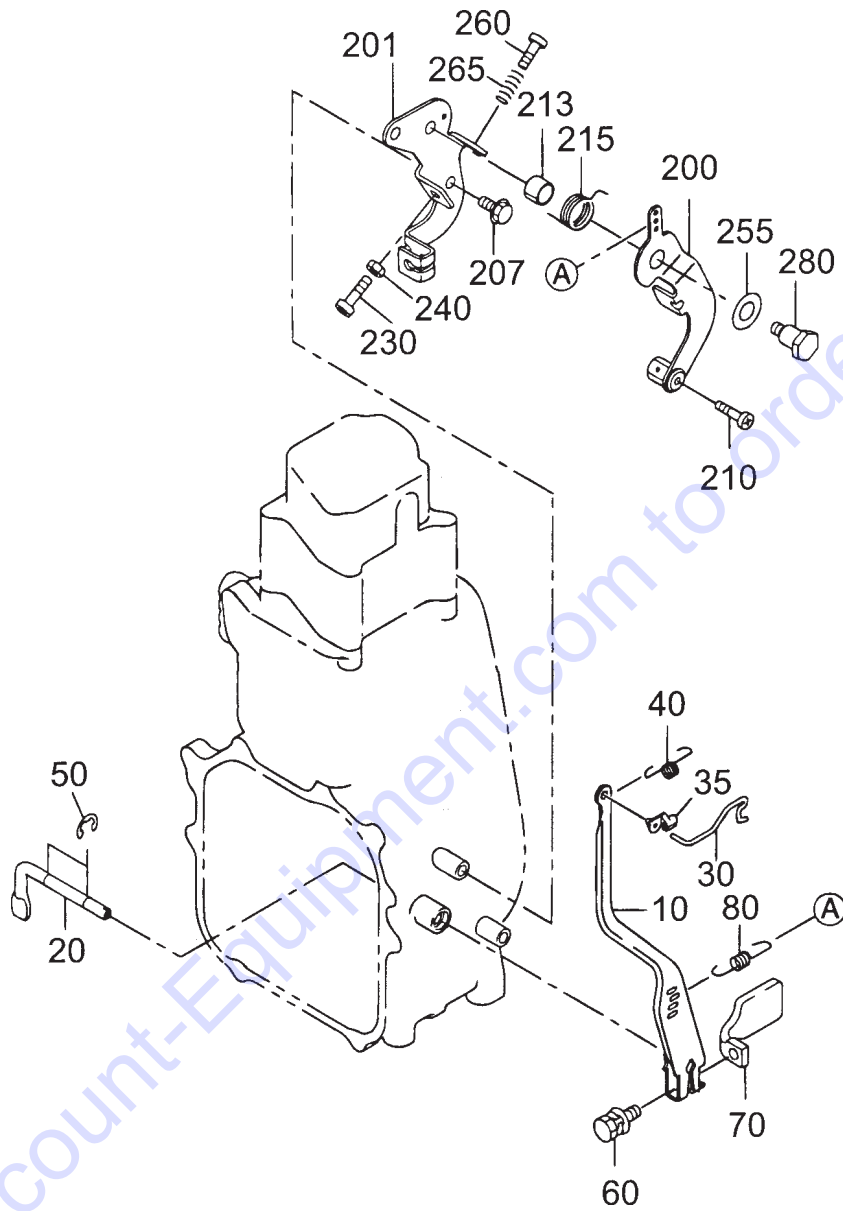


ROBIN EH09-2F ENGINE — AIR CLEANER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
C	20F3260300	AIR CLEANER ASSY.	1.....	INCLUDES ITEMS W/#
500#	20F3265108	PACKING, CLEANER/09-2F	1	
510#	20F3264108	CLEANER COVER/EH09-2F/MT	1	
520#	20F3260608	ELEMENT ASSY/09-2F/MT	1	
570	0176060030	SELF LOCK NUT	2	
850	2841610403	RUBBER PIPE	1	
900#	0732004430	LABEL, CHOKE	1	

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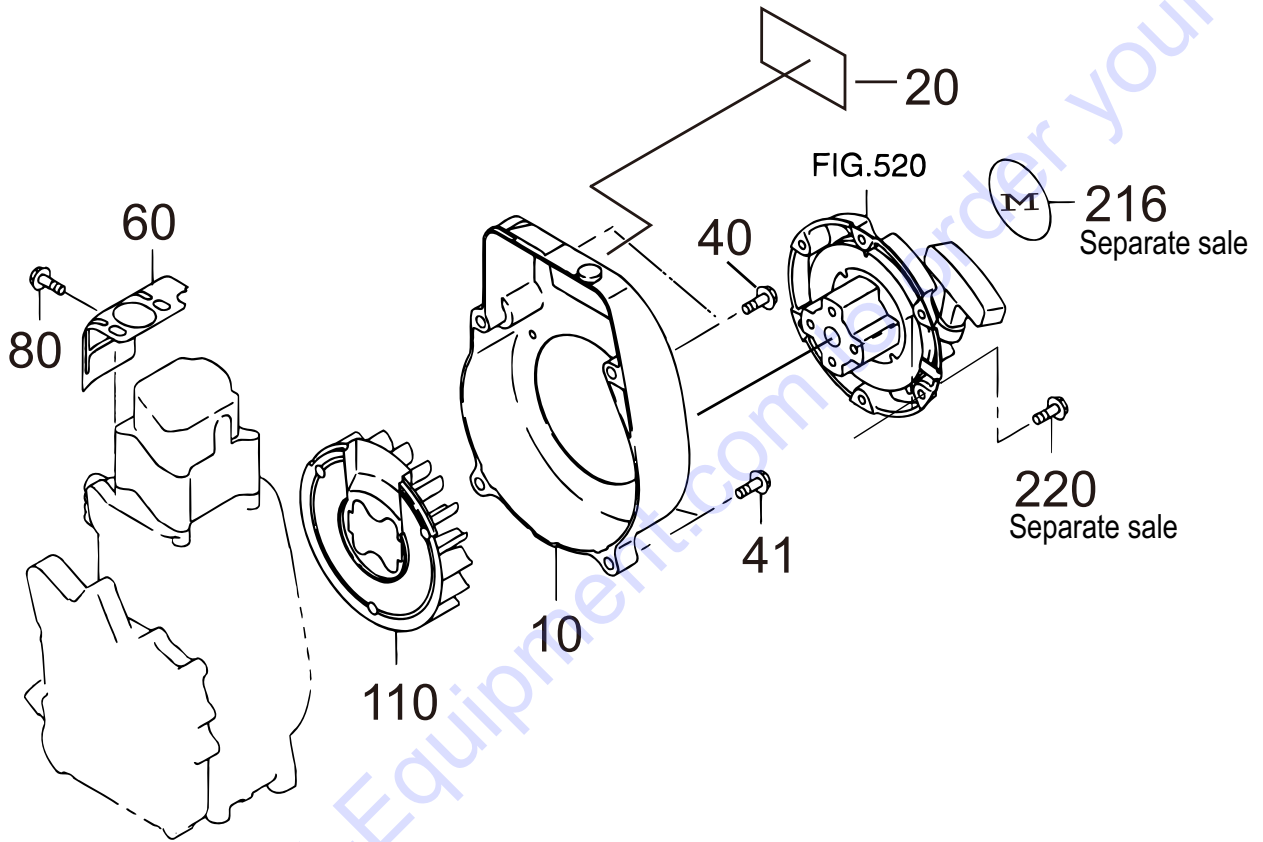
ROBIN EH09-2F ENGINE — GOVERNOR, OPERATION ASSY.



ROBIN EH09-2F ENGINE — GOVERNOR, OPERATION ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2844230403	GOVERNOR LEVER	1	
20	2304220113	GOVERNOR SHAFT	1	REPLACES 2304220103
30	2844270201	GOVERNOR ROD	1	
35	2844560103	LINKAGE BUSHING	1	
40	2844280403	ROD SPRING	1	
50	0031305000	CLIP	2	
60	0011406300	BOLT & WASHER ASSY.	1	
70	2844900201	WEIGHT CP	1	
80	2524250323	GOVERNOR SPRING	1	
200	2304330210	SPEED CONTROL ASSY.	1	
201	2744510101	BASE PLATE	1	
207	957010600800	FLANGE BOLT.....	2	REPLACES 0110060010
210	0043104140	SCREW, PAN HEAD	1	
213	0230100040	SPACER	1	
215	2264500313	RETURN SPRING	1	
230	0043106300	SCREW	1	
240	020106050	NUT.....	1	REPLACES 0022706000
255	0217100020	FRICTION WASHER	1	
260	0140040070	SCREW	1	
265	2684500113	CONTROL SPRING	1	
280	2264310301	LINK PIVOT	1	

ROBIN EH09-2F ENGINE — BLOWER HOUSING ASSY.

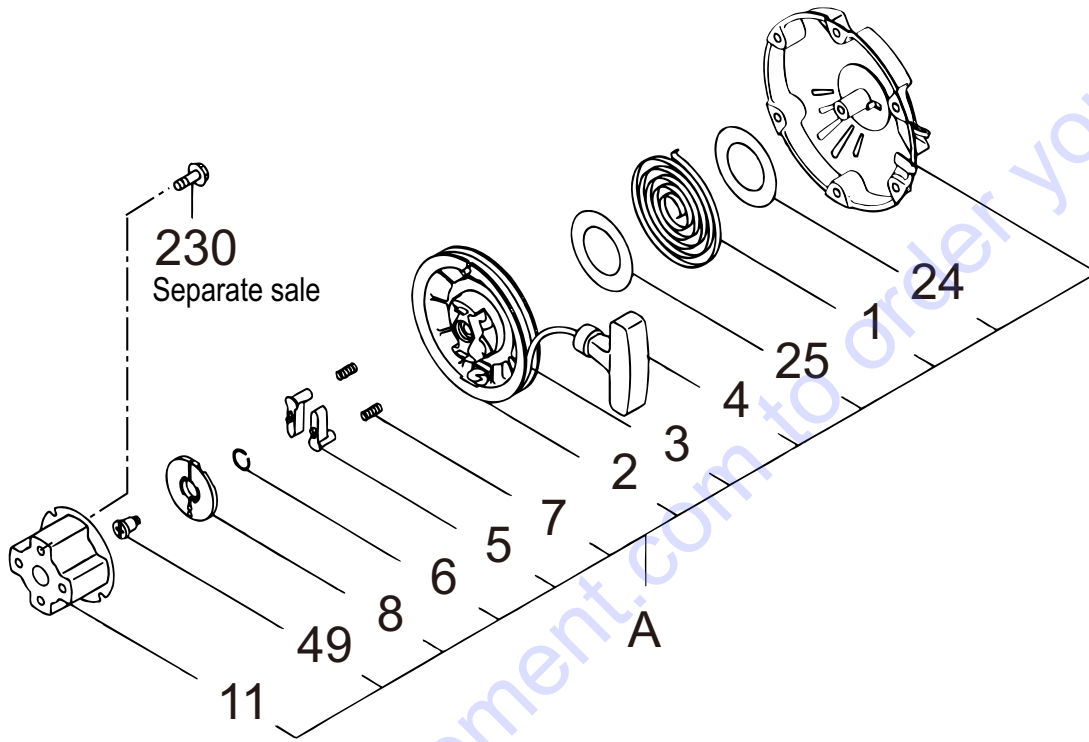


ROBIN EH09-2F ENGINE — BLOWER HOUSING ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	20F5110213	BLOWER HOUSING CP	1	
20	2849510203	LABEL	1	
40	0010408350	FLANGE BOLT	1	
41	0010408200	FLANGE BOLT	1	
60	2845260123	CYLINDER BAFFLE	1	
80	957010600800	FLANGE BOLT.....	2.....	REPLACES 0110060010
110	2845410103	COOLING BLOWER	1	
216	920100240	DECAL, M-MARK	1	
220	957010600800	FLANGE BOLT.....	3.....	REPLACES 0110060010

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ROBIN EH09-2F ENGINE — RECOIL STARTER ASSY.

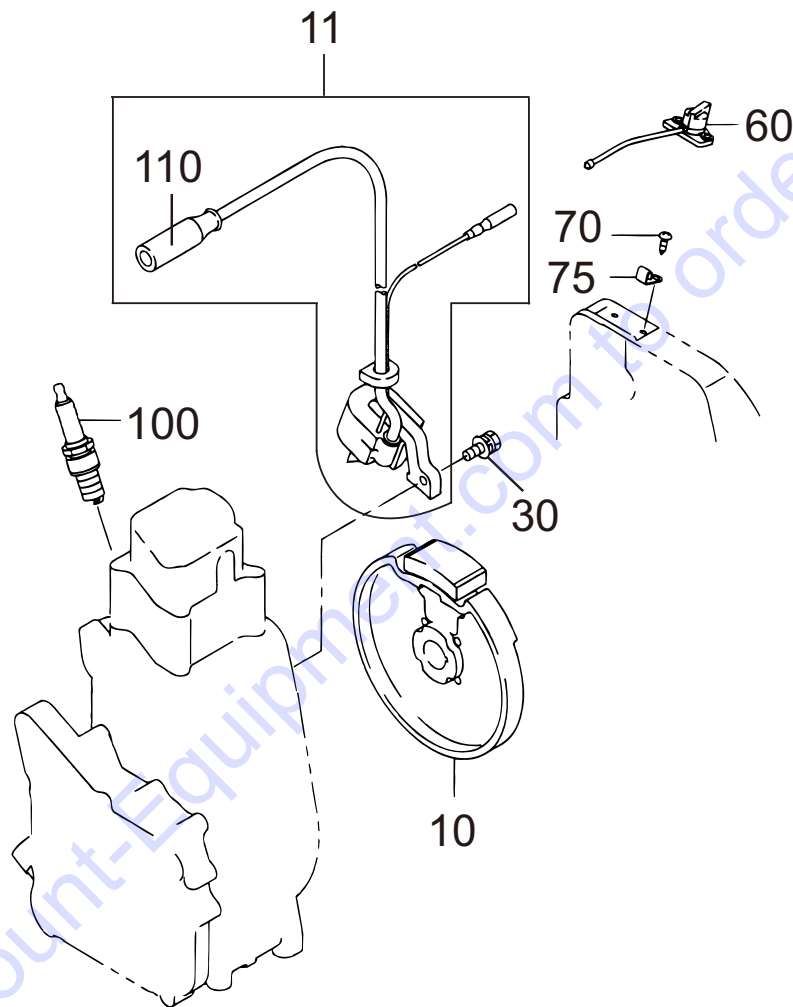


ROBIN EH09-2F ENGINE — RECOIL STARTER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
A	2845021130	RECOIL STARTER ASSY.	1.....	INCLUDES ITEM W/ *
1*	2745011508	SPIRAL SPRING	1	
2*	2745012018	REEL	1	
3*	2745011208	STARTER ROPE	1	
4*	2615010008	STARTER KNOB	1	
5*	2705012508	RATCHET	2	
6*	2745013108	FRICTION SPRING	1	
7*	2275013508	RETURN SPRING	2	
8*	2705026108	RATCHET GUIDE	1	
11*	2845014508	STARTING PULLEY	1	
24*	2745015208	SLIDE PLATE, B	1	
25*	1315015008	SLIDE PLATE	1	
49*	2275015208	SET SCREW	1	
230*	0110060020	FLANGE BOLT	4	

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ROBIN EH09-2F ENGINE — ELECTRIC DEVICE ASSY.

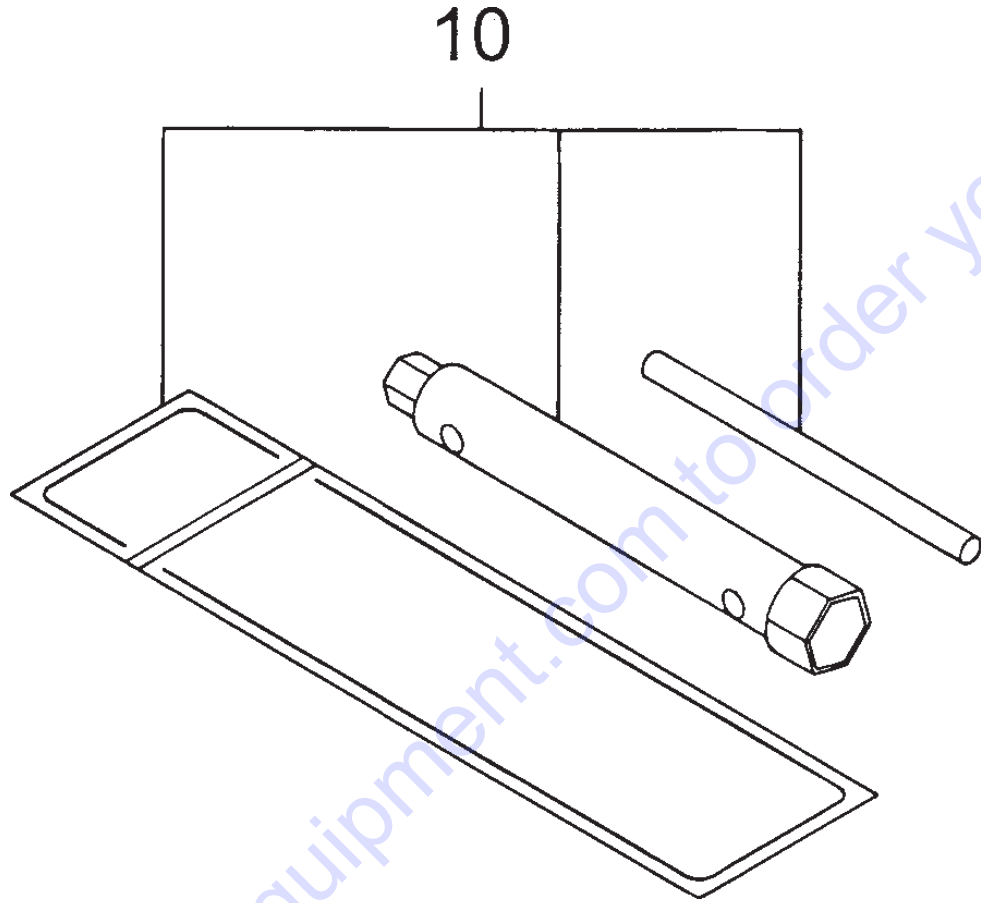


ROBIN EH09-2F ENGINE — ELECTRIC DEVICE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2847933021	FLYWHEEL CP	1	
11	2847943021	IGNITION COIL CP	1	
30	0011706250	BOLT & WASHER ASSY.	2	
60	0660000471	SWITCH ASSY.	1	
70	0043504120	SCREW & WASHER ASSY.	2	
75	0566030010	CLAMP	1	
100	0650140380	SPARK PLUG	1	
110	2847510203	SPARK PLUG CAP	1	

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ROBIN EH09-2F ENGINE — ACCESSORIES



ROBIN EH09-2F ENGINE — ACCESSORIES

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
10	2269030710	ACCESSORY TOOL KIT	1	

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