OPERATION AND PARTS MANUAL

MULTIQUIP

Mikasa SERIES

MODEL MVH120VGH

REVERSIBLE PLATE COMPACTOR

(HONDA GX160U1SMX4 GASOLINE ENGINE)

Revision #2 (09/22/08)

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

MVH120VGH PLATE COMPACTOR

COMPONENT DRAWINGS

HONDA GX160U1SMX4 DRAWINGS

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 readand 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
	Rotating parts hazards

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.

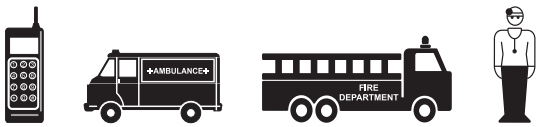
- **NEVER** operate this equipment under the influence of drugs or alcohol.

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.**

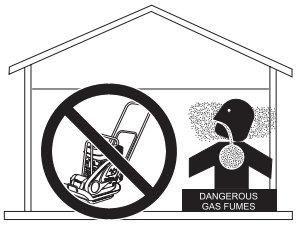
- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site.** Also, know the phone numbers of the nearest **ambulance, doctor** and **fire department.** This information will be invaluable in the case of an emergency.



COMPACTOR 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.



- **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.

⚠ 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.

ENGINE SAFETY

⚠ WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- Keep fingers, hands hair and clothing away from all moving parts to prevent injury.

- **DO NOT** remove the radiator cap while the engine is hot. High pressure boiling water will gush out of the radiator and severely scald any persons in the general area of the compactor.
- **DO NOT** remove the coolant drain plug while the engine is hot. Hot coolant will gush out of the coolant tank and severely scald any persons in the general area of the compactor.

- **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 compactor.

⚠ CAUTION

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

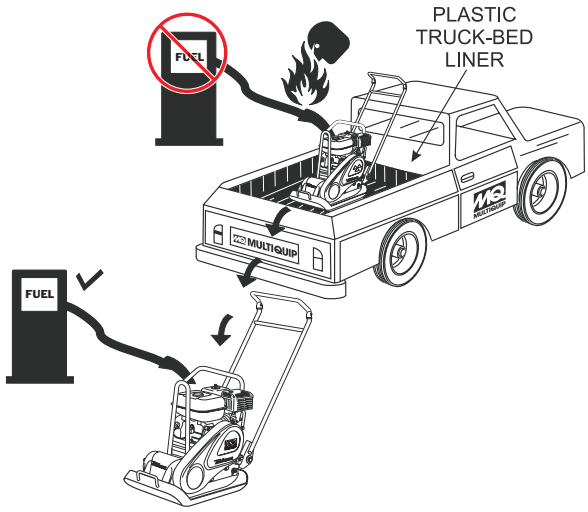
NOTICE

- **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. Diesel 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.

BATTERY SAFETY (ELECTRIC START ONLY)

⚠ DANGER

- **DO NOT** drop the battery. There is a possibility that the battery will explode.
- **DO NOT** expose the battery to open flames, sparks, cigarettes, etc. The battery contains combustible gases and liquids. If these gases and liquids come into contact with a flame or spark, an explosion could occur.

⚠ WARNING

- **ALWAYS** wear safety glasses when handling the battery to avoid eye irritation. The battery contains acids that can cause injury to the eyes and skin.

- Use well-insulated gloves when picking up the battery.
- **ALWAYS** keep the battery charged. If the battery is not charged, combustible gas will build up.
- **DO NOT** charge battery if frozen. Battery can explode. When frozen, warm the battery to at least 61°F (16°C).
- **ALWAYS** recharge the battery in a well-ventilated environment to avoid the risk of a dangerous concentration of combustible gases.
- If the battery liquid (dilute sulfuric acid) comes into contact with **clothing or skin**, rinse skin or clothing immediately with plenty of water.

- If the battery liquid (dilute sulfuric acid) comes into contact with **eyes**, rinse eyes immediately with plenty of water and contact the nearest doctor or hospital to seek medical attention.

⚠ CAUTION

- **ALWAYS** disconnect the **NEGATIVE battery terminal** before performing service on the equipment.
- **ALWAYS** keep battery cables in good working condition. Repair or replace all worn cables.

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 lifitng 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.

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.

Table 1. MVH-120VGH Specifications	
Centrifugal Force	5,060 lbf (22.5 kN)
Vibration Frequency	6,000 vpm (100 Hz)
Traveling Speed	0 to 75 ft/min (0 to 23 m/min)
Plate Size (L x W)	23 x 15.8 in (585 x 400 mm)
Max. Area of Compaction	5,904 sq. ft./h (552 sq. meters/h)
Operating Weight	260 lbs. (118 kg)
Vibrating Oil Capacity	0.37 quart (0.35 liter)

Table 2. Engine Specifications	
Model	**HONDA GX160U1SMX4**
Type	Air-cooled, 4-cycle Gasoline Engine
Bore X Stroke	2.68 in. X 1.77 in. (68 mm x 45 mm.)
Displacement	10 cu. in. (163 cc)
Max Power Output	7.1 HP (5.3 KW) @ 3600 R.P.M.
Fuel Tank Capacity	3.3 quarts (3.1 liters)
Fuel	Unleaded Automobile Gasoline
Operating Speed	3,600 rpm
Lube Oil Capacity	0.63 quarts (0.6 liters)
Starting Method	Recoil Start

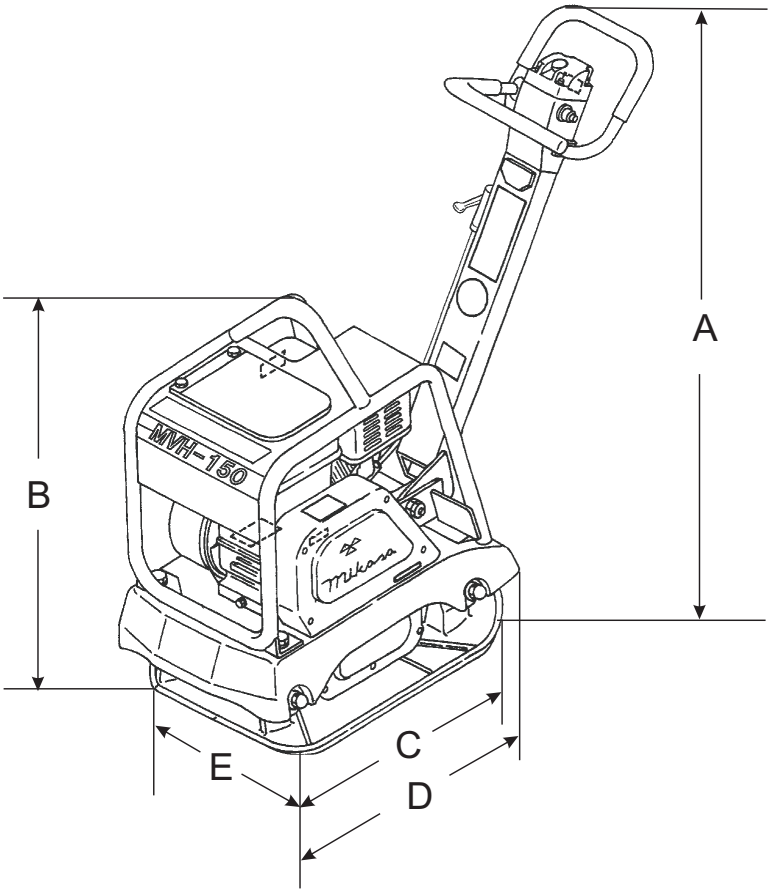


Figure 1. Compactor Dimensions

Table 3. Dimensions		
Reference	**Description**	**Measurement**
A	Height (Handle in Vertical Position)	46.5 in (1,180 mm)
B	Height of Main Body	27.4 in (696 mm)
C	Lenght of Plate	23 in (585 mm)
D	Length (Handle in Vertical Position)	28.4 in (720 mm)
E	Width of Plate	15.8 in (400 mm)

DEFINITION OF PLATE COMPACTOR

The Mikasa MVH120VGH is a walk-behind, reversible plate compactor designed for the compaction of sand and clay. This plate compactor is a powerful compacting tool capable of applying a tremendous force in consecutive high frequency vibrations 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.

ECCENTRIC WEIGHTS

A set of rotating eccentric weights within the vibrator case produces low amplitude high frequency vibrations, designed to compact granular soil. The rotation of the weights are controlled hydraulically through a lever on the control handle. Changing the position of the lever allows smooth transition between forward and reverse travel.

The resulting vibrations cause forward motion. The engine and handle are vibration-isolated from the vibrating plate. The heavier the plate, the more compaction force it generates.

ANTI-VIBRATION HANDLE SYSTEM (AVT)

This compactor is equipped with advanced anti-vibration handle design that reduces vibration to the operator by up to 50% compared to other plate compactors.

FREQUENCY/SPEED

The compactor's vibrating plate has a frequency range of 6000 vpm (vibrations per minute). The forward and reverse travel speed of the compactor is approximately 75 feet/ minute (23 meters/minute).

ENGINE

The plate compactor is equipped with a Honda GX160U1SMX4 air-cooled, 4-cycle, gasoline engine.

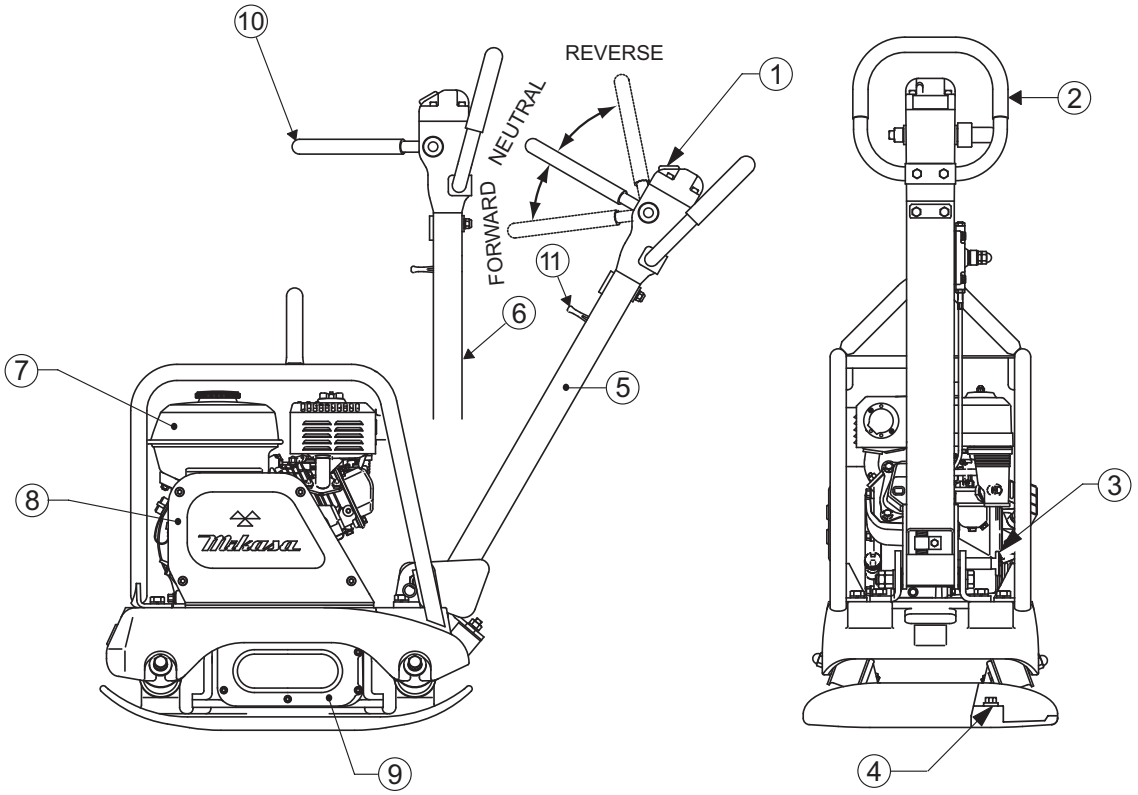


Figure 2. Compactor Components

Figure 2 shows the location of the controls, indicators and general maintenance parts. The function of each control is described below:

1. **Breather Cap –** Remove this cap to bleed (remove air) the hydraulic system. When replacing hydraulic oil, use "Shell Tellus #46" or equivalent.
2. **Hand Grip –** When operating the compactor use this hand grip to maneuver the compactor.
3. **Handle Lock –** Pull handle bar downward (working position), then pull handle lock to lock handle bar in place.
4. **Vibration Case Oil Level Check Plug –** Remove this plug to check the vibration case oil. Oil level should be all the way up to the filler port. When replacing vibration case oil, use 10W-30 engine oil.
5. **Handle Bar (working position) –** When operating the compactor, this handle is to be in the downward position.
6. **Handle Bar (stored position) –** When the compactor is to be ***stored***, move the handle bar to the upright position.
7. **Gasoline Engine –** This plate compactor uses a HONDA GX160 engine. Refer to the HONDA owner's manual for engine information.
8. **Belt Cover –** Remove this cover to gain access to the V-belts. **NEVER** run the compactor without the V-belt cover. If the V-belt cover is not installed, your hand may get caught between the V-belt and clutch, thus causing serious injury and bodily harm.
9. **Vibration Case –** Encloses the eccentric gears and counter weights.
10. **Forward & Reverse Lever –** ***Push*** the lever forward, the compactor will move in a forward direction. ***Pull*** the lever backwards, the compactor will move in backwards direction. Placing the lever in the middle (midway) will cause the compactor not to move (neutral).
11. **Throttle Control –** Move the throttle lever to the ***rabbit*** position for full throttle (max RPMs). For engine idle, move the throttle lever to the ***turtle*** position.

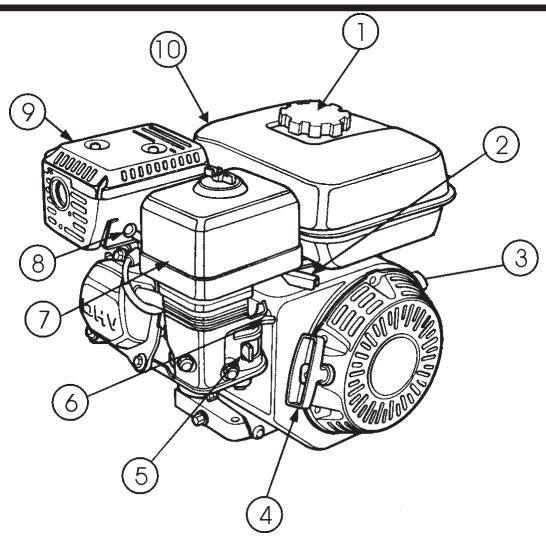


Figure 3. Compactor Components

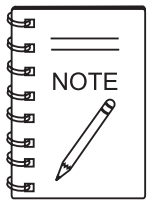
The engine (Figure 3) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for instructions and details of operation and servicing.

1. **Fuel Filler Cap –** Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.
2. **Throttle Lever –** Used to adjust engine RPM speed (lever advanced forward-***SLOW***, lever back toward operator-***FAST***).

⚠ DANGER — Fuel Hazard

Adding fuel to the tank should be done 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.

3. **Engine ON/OFF Switch –** ON position permits engine starting, OFF position stops engine operation.
4. **Recoil Starter (pull rope) –** Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
5. **Fuel Valve Lever – OPEN** to let fuel flow, **CLOSE** to stop the flow of fuel.
6. **Choke Lever –** Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.
7. **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.



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.

8. **Spark Plug –** Provides spark to the ignition system. Set spark plug gap to 0.024 - 0.028 inch (0.6 - 0.7 mm). Clean spark plug once a week.
9. **Muffler –** Used to reduce noise and emissions.

⚠ WARNING — Hot Components

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.

10. **Fuel Tank –** Holds unleaded gasoline. For additional information refer to engine owner's manual.

BEFORE STARTING

1. Read safety instructions at the beginning of manual.
2. Clean the compactor, removing dirt and dust. Particularly, the bottom of the plate, engine cooling air inlet, carburetor and air cleaner.
3. Check the air filter for dirt and dust. If the air filter is dirty, blow through the air filter cartridge from the inside, moving a jet of dry compressed air up and down until all dust is removed. Otherwise replace air filter with a new one.
4. Check carburetor for external dirt and dust. Clean with dry compressed air.
5. Check fastening nuts and bolts for tightness. Loosened screws or bolts due to vibration, could lead to unexpected accident.

ENGINE OIL CHECK

1. To check the engine oil level, place the plate compactor on secure level ground with the engine stopped.
2. Remove the filler cap/dipstick from the engine oil filler hole (Figure 4) and wipe it clean.

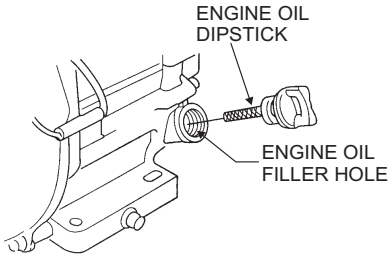


Figure 4. Engine Oil Dipstick

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 5), fill to the edge of the oil filler hole with the recommended oil type (Table 4). Maximum oil capacity is 0.63 quart.

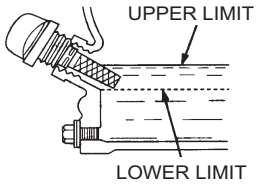
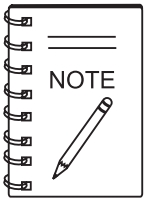


Figure 5. Engine Oil Level



The Oil Alert system will automatically stop the engine before the engine falls below safe limits. Always be sure to check the engine oil level prior to starting the engine.

Table 4. Oil Type

Season	Temperature	Oil Type
Summer	25°C or Higher	SAE 10W-30
Spring/Fall	25°C~10°C	SAE 10W-30/20
Winter	0°C or Lower	SAE 10W-10

GASOLINE CHECK

1. Remove the gasoline cap located on top of fuel tank.
2. Visually inspect to see if fuel level is low. If fuel is low, replenish with unleaded fuel.
3. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel.

VIBRATOR OIL CHECK

1. Place the compactor horizontally on a flat surface.
2. Check vibrator oil level by removing bolt (vibrator oil gauge) as shown in Figure 6. Use a 14-mm wrench to remove bolt. The vibrator oil level should be maintained between the two markings as shown in Figure 6. If oil is required, replace using SAE 10W-30.

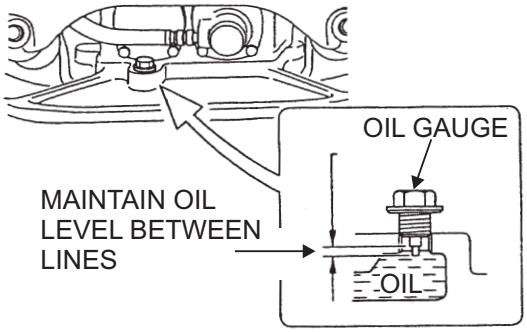


Figure 6. Vibrator Oil Gauge

HYDRAULIC OIL CHECK

1. With handle bar positioned vertically (storage position), remove the breather cap (Figure 7) from the breather plug.
2. Use a 24 mm wrench and remove breather plug (Figure 7). Visually check to see if hydraulic oil comes up to the oil level line that is etched on the back side of the handle.

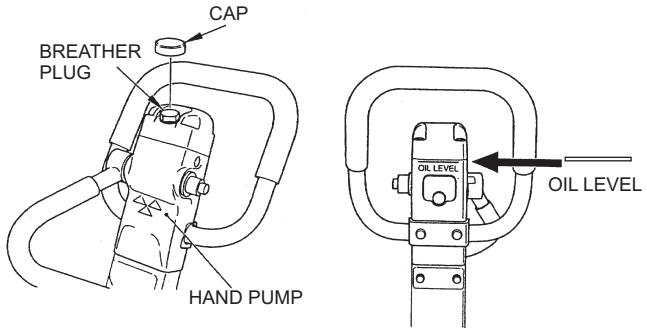


Figure 7. Hydraulic Oil Check

3. If the hydraulic oil level is low, replace with **"Shell Tellus"** oil #46 or equivalent.

V-BELT CHECK

⚠ CAUTION

Never attempt to check the V-belt with the engine running. Severe injury can occur if your hand (Figure 8) gets caught between the V-belt and clutch. Always use safety gloves.

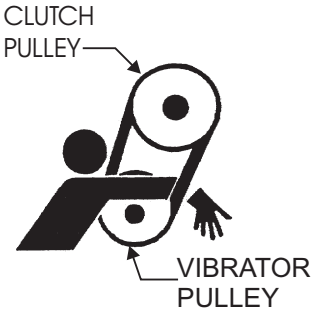


Figure 8. V-Belt Hazard

1. To check the V-belt tension (Figure 9), remove ***upper*** belt cover.

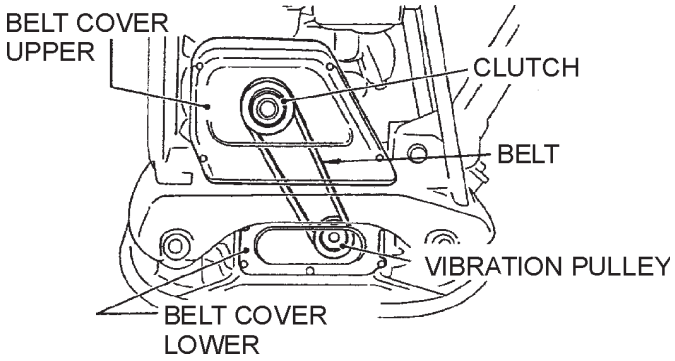


Figure 9. V-Belt Location

2. The V-belt tension is proper if the V-belt bends 10 to 15 mm (Figure 10) when depressed with finger at midway between the clutch and vibration pulley shafts.

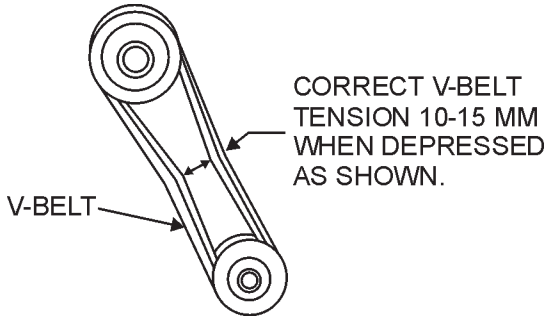


Figure 10. V-Belt Tension

3. A loose V-belt will decrease the power transmission output, causing reduced compaction and premature wear of the belt. V-belt in use is RPF-3320 (A-32 is also usable).
4. If the V-belt becomes worn or loose, replace it by using V-belt part number RPF-3320 or A-32.

INITIAL STARTUP

⚠ CAUTION

DO NOT attempt to run the compactor until the safety and initial startup sections have been read.

1. Place the ***fuel valve lever*** (Figure 11) in the "ON" position.

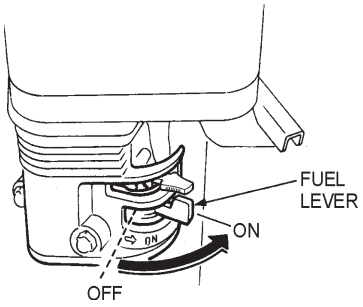


Figure 11. Fuel Valve Lever

2. Place the ***Engine ON/OFF switch*** (Figure 12) in the "ON" position.

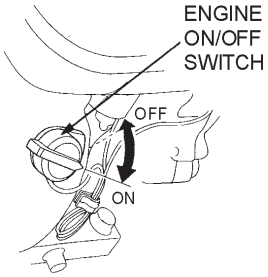


Figure 12. Engine ON/OFF Switch

3. Place the ***Choke Lever*** (Figure 13) in the "OPEN" position.

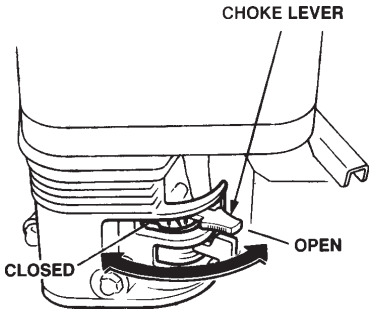
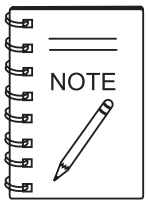


Figure 13. Choke Lever



The **CLOSED** position of the choke lever enriches the fuel mixture for starting a **COLD** engine. The **OPEN** position provides the correct fuel mixture for normal operation after starting and for restarting a warm engine.

4. Place the ***throttle lever*** (Figure 14), located near the hydraulic pump, halfway between ***fast*** and ***slow***.

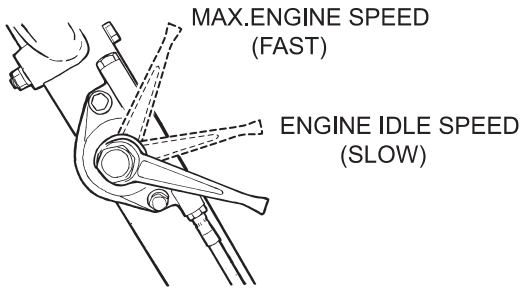


Figure 14. Engine Throttle Lever

5. Grasp the starter grip (Figure 15) and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding the compression point. Rewind the rope a little from that point and pull out sharply.

⚠ CAUTION

DO NOT pull the starter rope all the way to the end.

DO NOT release the starter rope after pulling. Allow it to rewind as soon as possible.

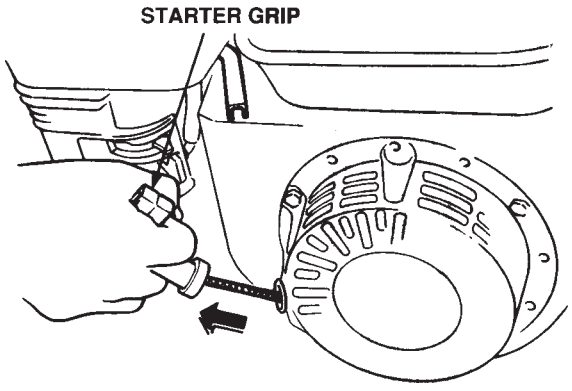


Figure 15. Starter Grip

6. If the engine has started, slowly return the choke lever (Figure 12) to the ***CLOSED*** position. If the engine has not started, repeat steps 1 through 5.
7. Before the compactor is put into operation, run the engine for 3 to 5 minutes.
8. Check for abnormal engine noises or fuel leaks.

OPERATION

⚠ CAUTION

Make sure to follow all safety rules referenced in the safety section of this manual before operating the compactor. Keep work area clear of debris and other objects that could cause damage to the compactor cause bodily harm.

1. Grasp the compactor's hand grip (Figure 15), and move the engine throttle lever quickly from the ***turtle*** position (idle) to the ***rabbit*** *position* (full throttle) position.
2. Run the compactor at full throttle (3,600 RPM), the centrifugal clutch will automatically engage when the engine speed reaches 2,300 RPM.

Always move the throttle lever quickly without hesitation because increasing the engine speed slowly causes the clutch to slip.

3. To make the compactor move in the forward direction push the travel lever (Figure 15) forward.
4. To make the compactor move in the reverse direction pull the travel lever (Figure 15) backwards.

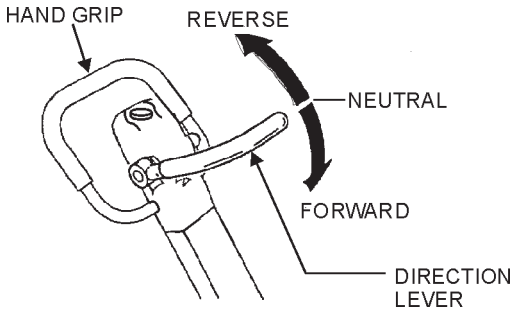


Figure 16. Direction Lever

5. Firmly grasp the compactor's hand grip, the compactor will begin moving in the desired position when the direction lever has been placed in the desired position.
6. Slowly walk behind the compactor and be on the lookout for any large objects or foreign matter that might cause damage to the compactor or bodily injury

⚠ CAUTION

Moving the direction lever back and forth a few times after the engine has been turned off will cause the lever to be locked in the forward position.

DO NOT operate the direction lever forcibly. The lever will operate normally when the engine is started and the compactor is in action.

.7. Compactor traveling speed may drop on soils which contain clay, however there may be cases where traveling speed drops because the compaction plate does not leave the ground surface easily due to the composition of the soil. To rectify this problem do the following:

- Check the bottom plate to see if clay or similar material has been lodged in the plate mechanism. If so, wash with water and remove.
- Keep in mind that the compactor does not work as efficiently on clay or soils that have a high moisture content level.
- If the soil has a high moisture level, dry soil to appropriate moisture content level or carry out compaction twice.

STOPPING THE ENGINE

⚠ CAUTION

NEVER stop the engine suddenly while working at high speeds.

1. Place the ***throttle lever*** (Figure 14) in ***slow*** position, and listen for the engine speed to decrease.
2. Place the ***engine ON/OFF switch*** (Figure 12) in the ***"OFF"*** position.
3. Place the ***fuel valve lever*** (Figure 11) in the ***"OFF"*** position.

⚠ CAUTION

Inspection and other services should always be carried out on solid and level ground with the engine shut down.

INSPECTION AND MAINTENANCE TABLES

1. To make sure your plate compactor is always in good working condition before using, carry out the maintenance inspection in accordance with Tables 5 and 6.

Table 5. Machine Inspection

ITEM	HOURS OF OPERATION
Loose or Missing Screws	Every 8 hours (every day)
Damaged Parts	Every 8 hours (every day)
Function of Controlling System Part	Every 8 hours (every day)
Hydraulic System Leak	Every 100 hours
Vibrator Oil Check	Every 100 hours
Vibrator Oil Replacement	Every 300 hours
Hydraulic Oil Check	Every 100 hours
Hydraulic Oil Replacement	First after 200 hours, then every 1,000 hours
V-belt (clutch) Check	Every 200 hours

⚠ CAUTION

These inspection intervals are for operation under normal conditions. Adjust your inspection intervals based on the number of hours plate compactor is in use, and particular working conditions.

⚠ CAUTION

Fuel piping and connections should be replaced every 2 years.

Table 6. Engine Check

Item	Hours of Operation
Spark Plug Check	Every 40 hours (every week)
Oil or Fuel Leak	Every 8 hours (every day)
Tightness of Fastening Threads	Every 8 hours (every day)
Engine Oil Check and Replenishment	Every 8 hours (every day) (Replenish to specified maximum level)
Engine Oil Replacement	After first 25 hours then every 50 to 100 hours
Valve Clearance (Check and Adjust)	After first 25 hours then every 200 hours or once a year
Air Filter Cleaning	Every 100 hours
See separate engine manual for details on engine check.	

DAILY SERVICE

- Check for leakage of fuel or oil.
- Check for loose screws including tightness. See Table 7 (Tightening Torque) for retightening.

Table 7. Tightening Torque (kg cm)

Material	Diameter							
	6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
4T	70	150	300	500	750	1,100	1,400	2,000
6-8T	100	250	500	800	1,300	2,000	2,700	3,800
11T	150	400	800	1,200	2,000	2,900	4,200	5,600
*	100	300~ 350	650 ~ 700					

* (In case counterpart is of aluminum)
(Threads in use with this machine are all right-handed)
Material and quality of material is marked on each bolt and screw.

- Remove soil and clean the bottom of compaction plate.
- Check hydraulic pump, piping and hose for any leakage. A loosened hydraulic hose can be a cause for leakage. Check hydraulic hose connections with wrench applied for tightness.
- Check engine oil.

ENGINE OIL REPLACEMENT

1. Replace engine oil, in first 20 hours of operation and every 100 hours afterwards.
2. Oil may be drained more easily when it is warm after operation (For more details, see separate HONDA Owner's Manual).

AIR FILTER

1. The air filter element should be cleaned because a clogged air cleaner can cause poor engine starting, lack of power and shorten engine life substantially.
2. To clean or replace air filter, loosen the wing nut on the air filter housing (Figure 17). Remove the cover and take out air filter cartridge. If only cleaning of the air filter is desired, blow through the air filter cartridge from the inside, moving a jet of dry compressed air up and down until all dust is removed.

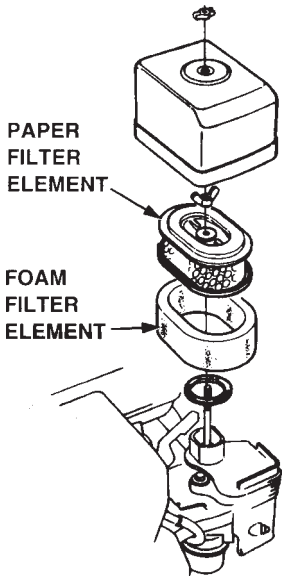


Figure 17. Air Filter

CHECKING AND REPLACING V-BELT AND CLUTCH

1. After 200 hours of operation, remove the upper belt cover to check the V-belt tension. Tension is proper if the belt bends about 10 mm when depressed strongly with finger between shafts. Loose or worn V-belts reduce power transmission efficiency, causing weak compaction and reducing the life of the belt itself.

Replacing the V-belt

Remove the upper and lower belt covers. Engage an offset wrench (13 mm) or the like to vibrator pulley (lower) fastening bolt. Engage waste cloth or the like at midway of V-belt on the left side and while pulling it back strongly, rotate the offset wrench clockwise so that the V-belt will come off.

Reinstalling the V-belt

Engage V-belt to lower vibrator pulley and push the V-belt to left side of upper clutch. In the same manner as in removal, rotate offset wrench clockwise so that the V-belt goes back on.

Checking Clutch

Check the clutch simultaneously with V-belt checking. With belt removed, visually check outer drum of the clutch for seizure and "V" groove for wear or damage. Clean the "V" groove as necessary. Regularly check the lining or shoe for wear. If the shoe is worn, power transmission becomes deficient and slipping will result.

⚠ CAUTION

Whenever the compactor's vibration becomes weak or lost during normal operation regardless of operation hours, check the V-belt and clutch immediately.

VIBRATOR OIL LEVEL CHECK

1. In every 300 hours of operation, with the machine positioned horizontally, remove vibrator oil level check plug (Figure 6) off vibrator (14 mm wrench) and see if oil is up to filler port. Be sure to clean area around check hole to prevent dirt and dust from entering.
2. In every 300 hours of operation, replace oil (capacity 400 cc). For draining oil through level check hole, have the machine inclined with a sleeper or the like placed under the compaction plate on opposite side.

   * Use engine oil 10W-30 for this lubrication.

⚠ CAUTION

Always clean the area around the vibrator oil level check hole before removing oil check plug. This will prevent dirt and debris from entering the system.

⚠ CAUTION

Make sure hydraulic oil in hand pump is at a normal save operating level. **DO NOT** over fill. Over filling (excessive oil) will cause excess oil to blow out of breather plug.

HYDRAULIC OIL

Check hydraulic oil in every 100 hours of operation. With handle bar positioned vertically (storage position), remove breather plug (Figure 1) off the top of hydraulic pump and check for proper oil level.

Replace hydraulic oil after first 200 hours and in every 1,000 hours of operation.

Replacing Hydraulic Oil

1. After removing plug cap of hand pump (Figure 7), remove plug of breather (24 mm wrench) and disconnect vibrator side of hydraulic hose (Figure 18) at vibrator cylinder. With travel lever placed in the ***FORWARD*** position, drain hydraulic oil in the pump.
2. After draining, reconnect the hydraulic hose to vibrator.

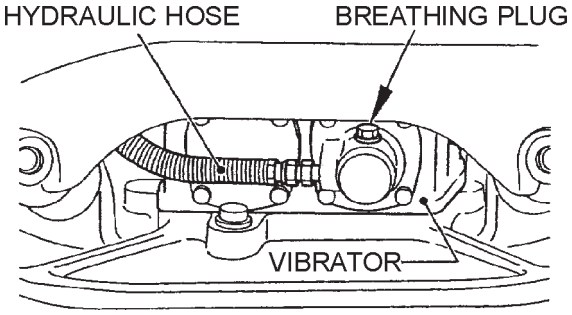


Figure 18. Hydraulic Hose

3. Fill oil through breather hole of hand pump. (capacity: about 300 cc). Use ***Shell Tellus Oil #46*** or equivalent.
4. Removing breather plug at vibrator cylinder causes oil to flow out of breather hole in a while. When aeration disappears, replace the plug and tighten securely.
5. Replace breather plug of hand pump and fit the plug cap. After making sure that oil in pump is at proper level, replace the breather plug.

STORAGE

For storage of the pump for over 30 days, the following is required:

- Drain the fuel tank completely.
- Run the engine until the fuel in the injection system is completely consumed.
- Completely drain the oil from the engine crankcase and follow procedures described in the HONDA engine Owner's Manual for engine storage.
- Completely drain the compactor's hydraulic oil from the vibrating case.
- Clean entire plate compactor, especially the bottom plate, removing all dirt and foreign matter.
- Cover plate compactor and engine with plastic covering or equivalent and store in a clean, dry place.

Table 8. Engine Troubleshooting		
Symptom	**Possible Cause**	**Solution**
Difficult to start, "fuel is available, but no SPARK at spark plug".	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.
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 dirtry?	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, and replace with correct type of fuel.
	Water or dust in fuel system?	Flush fuel system.
	Air cleaner dirty?	Clean or replace air cleaner.
Difficult to start, "fuel is available, spark is present and compression is low"	Suction/exhaust valve stuck or protruded?	Re-seat 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.	Fuel not available 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 clogged?	Replace fuel filter.
	Fuel tank cap breather hole clogged?	Clean or replace fuel tank cap.
	Air in fuel line?	Bleed fuel line.

Table 8. Engine Troubleshooting (continued)		
Symptom	**Possible Cause**	**Solution**
"Weak in power" compression is proper and does not misfire.	Air cleaner not clean?	Clean or replace air cleaner
	Improper level in carburetor?	Check float adjustment, rebuild carburetor.
	Defective Spark plug?	Clean or replace spark plug.
"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 improper?	Replace with correct type of spark plug.
	Correct type of fuel?	Replace with correct type of fuel
	Cooling fins dirty?	Clean cooling fins.
Rotational speed fluctuates.	Governor adjusted correctly?	Adjust governor.
	Governor spring defective?	Replace governor spring.
	Fuel flow restricted?	Check entire fuel system for leaks or clogs.
Recoil starter malfunction.	Recoil mechanism clogged with dust and dirt?	Clean recoil assembly with soap and water.
	Spiral spring loose?	Replace spiral spring.

Table 9. Compactor Troubleshooting		
Symptom	**Possible Cause**	**Solution**
Travel speed low and vibration weak.	Clutch slips?	Adjust or replace clutch.
	V-belt slips?	Adjust or replace V-belt.
	Excessive Oil in vibrator?	Fill to correct level..
	Trouble in vibrator internals?	Check vibrator assembly for any worn or defective parts, replace any defective parts.
	Aeration in hydraulic oil for for travel reversing syste.?	Purge air in hydraulic oil. (Bleed plug)
	Engine speed incorrect?	Set engine speed to correct RPM.
Travels forward or backward but unable to switch direction.	Travel reversing system inoperative.?	Check entire travel system.
	Reversing lever installation correct?	Clean installation of reversing lever.
	Broken or defective oil hose?	Replace oil hose.
	Aeration in hydraulic oil for for travel reversing syste.?	Purge air in hydraulic oil. (Bleed plug)
	Excessive oil in reversing system?	Fill to correct level..
	Selector valve clogged with trash?	Clean selector valve.
	Cylinder piston bearing failure?	Check piston bearing in cylinder for leakage at USH packing.
Does not travel in forward or reverse.	V-belt dis-engaged or slips?	Engage V-belt, adjust or replace.
	Clutch slips?	Adjust clutch, replace if necessary.
	Pump input shat key or adapter key-way damaged?	Replace input shatkey or adapter key-way
	Cylinder piston bearing failure?	Check piston bearing in cylinder for leakage at USH packing.
Reversing lever operating resistance great.	Excessive hydraulic oil?	Fill to correct level.

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.

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.

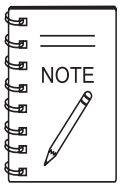
Sample Parts List:

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

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"

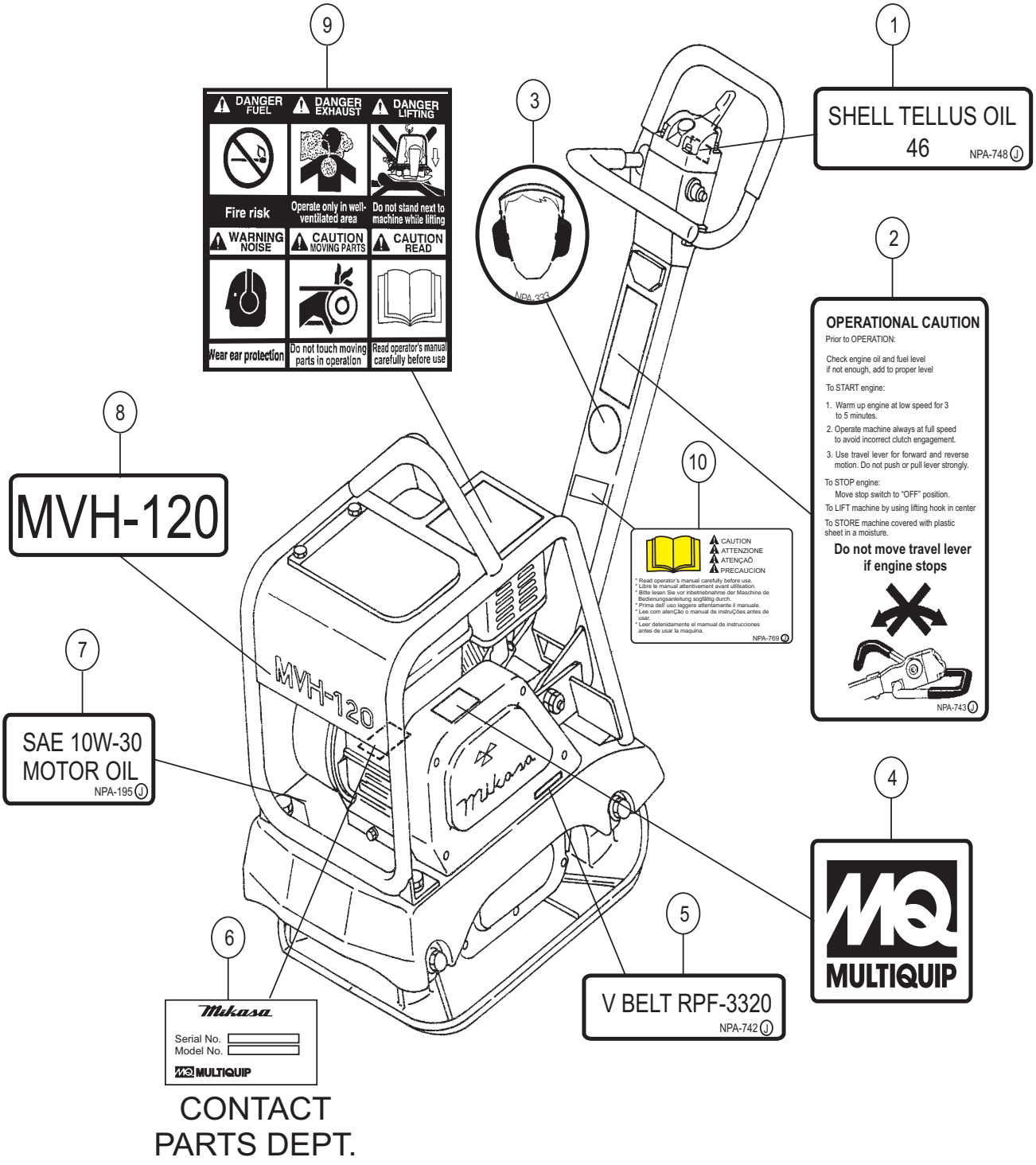
"Make/Obtain Locally" - Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

"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

MVH120VGH PLATE COMPACTOR WITH HONDA GX160U1SMX4 ENGINE

1 to 3 units

QTY.	P/N	DESCRIPTION
4	458450620	SHOCK ABSORBER
3	070100322	V-BELT
1	956100041	THROTTLE WIRE
3	9807955846	SPARK PLUG
1	28462ZH8003	ROPE, RECOIL STARTER
3	17218ZE1505	FILTER, OUTER, AIR
1	17620Z44000	CAP COMP, FUEL TANK (CHROME) (S/N 1125015 AND ABOVE)
3	17672Z4H000	FILTER, FUEL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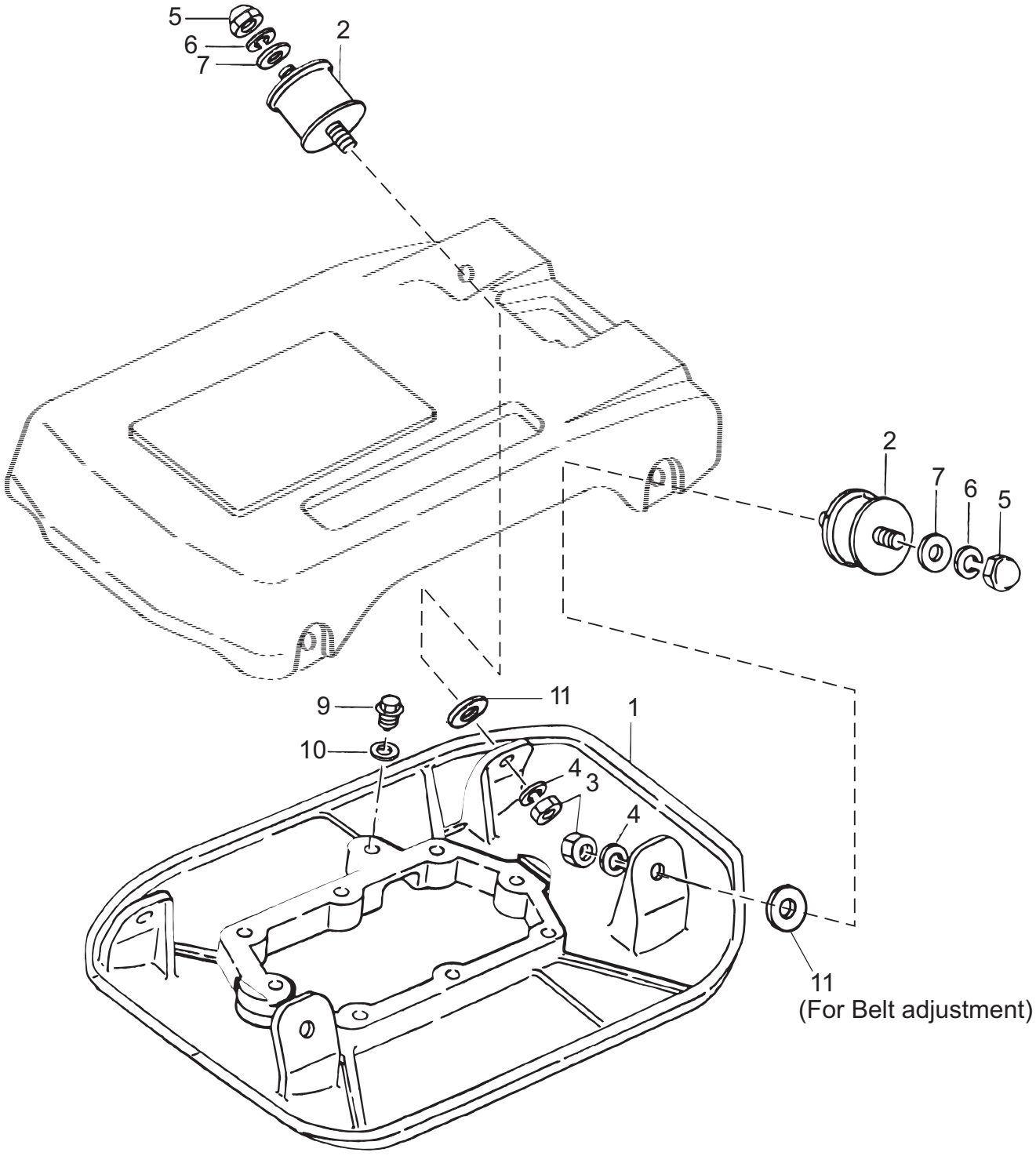
DANGER FUEL
DANGER EXHAUST
DANGER LIFTING
Fire risk
Operate only in well-ventilated area
Do not stand next to machine while lifting
WARNING NOISE
CAUTION MOVING PARTS
CAUTION READ
Wear ear protection
Do not touch moving parts in operation
Read operator's manual carefully before use
1
SHELL TELLUS OIL 46
NPA-748
3
NPA-229
2
OPERATIONAL CAUTION
Prior to OPERATION:
Check engine oil and fuel level if not enough, add to proper level
To START engine:
1. Warm up engine at low speed for 3 to 5 minutes.
2. Operate machine always at full speed to avoid incorrect clutch engagement.
3. Use travel lever for forward and reverse motion. Do not push or pull lever strongly.
To STOP engine:
Move stop switch to "OFF" position.
To LIFT machine by using lifting hook in center
To STORE machine covered with plastic sheet in a moisture.
Do not move travel lever if engine stops
NPA-743
8
MVH-120
10
CAUTION
ATTENZIONE
ATENÇAÕ
PRECAUCION
* Read operator's manual carefully before use.
* Libre le manual attentivement avant utilisation.
* Bitte lesen Sie vor Inbetriebnahme der Maschine de Bedienungsanleitung sogfältig durch.
* Prima dell' uso leggere attentamente il manuale.
* Lee com atenÇão o manual de instruÇões antes de usar.
* Leer detenidamente el mamual de instrucciones antes de usar la maquina.
NPA-769
7
SAE 10W-30 MOTOR OIL
NPA-195
4
MULTIQUIP
5
V BELT RPF-3320
NPA-742
6
Mikasa
Serial No.
Model No.
MULTIQUIP
CONTACT PARTS DEPT.

NO	PART NO	PART NAME	QTY.	REMARKS
1	920207480	DECAL, SHELL TELLUS OIL 46	1	NPA-748
2	920207430	DECAL, CAUTION	1	NPA-743
3	920203330	EAR PROTECTION LABEL	1	DCL333
4	920201580	DECAL, MQ MARK 71X55	1	
5	920207420	DECAL, V-BELT RPF-3320	1	NPA-742
6		PLATE, SERIAL NO	1	CONTACT MQ PARTS DEPT.
7	920201950	DECAL, OIL SAE 10W-30	1	NPA-195
8	920207440	DECAL, MODEL, MVH-120	1	
9	920207400	DECAL, DANGER-CAUTION	1	
10	920207690	DECAL, CAUTION(MANUAL)	1	NPA-769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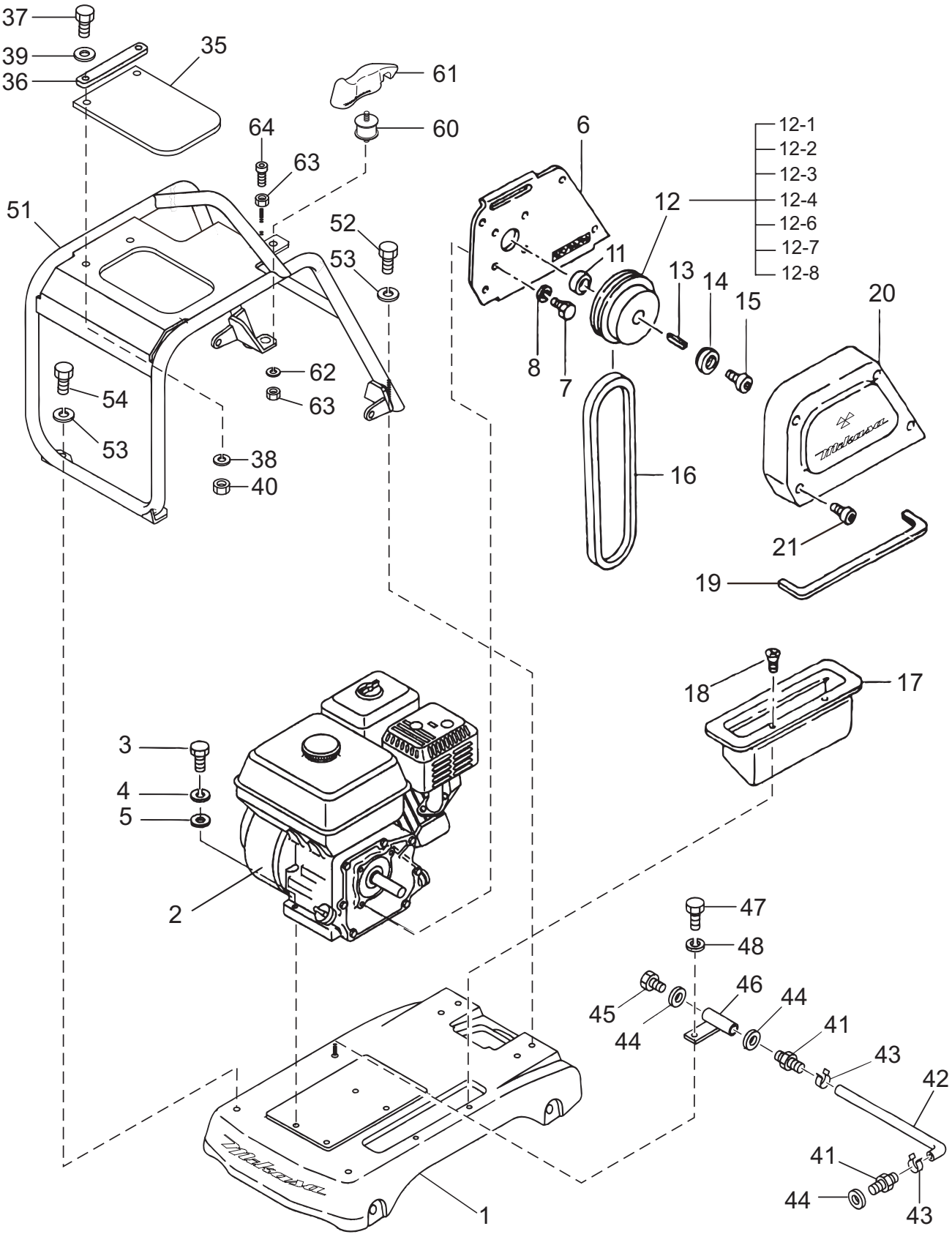
(For Belt adjustment)

VIBRATING PLATE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	458115140	VIBRATING PLATE	1	
2	458450620	SHOCK ABSORBER MED55 M12	4	
3	020312100	NUT M12	4	
4	030212300	WASHER, LOCK M12	4	
5	022131210	CAP NUT M12	4	
6	030212300	WASHER, LOCK M12	4	
7	952405600	WASHER 12.5X35X4.5	4	
9	460449160	OIL GAUGE	1	
10	953405260	PACKING 1/4 (CU)	1	
11	952401190	WASHER 13X43X4.5	4	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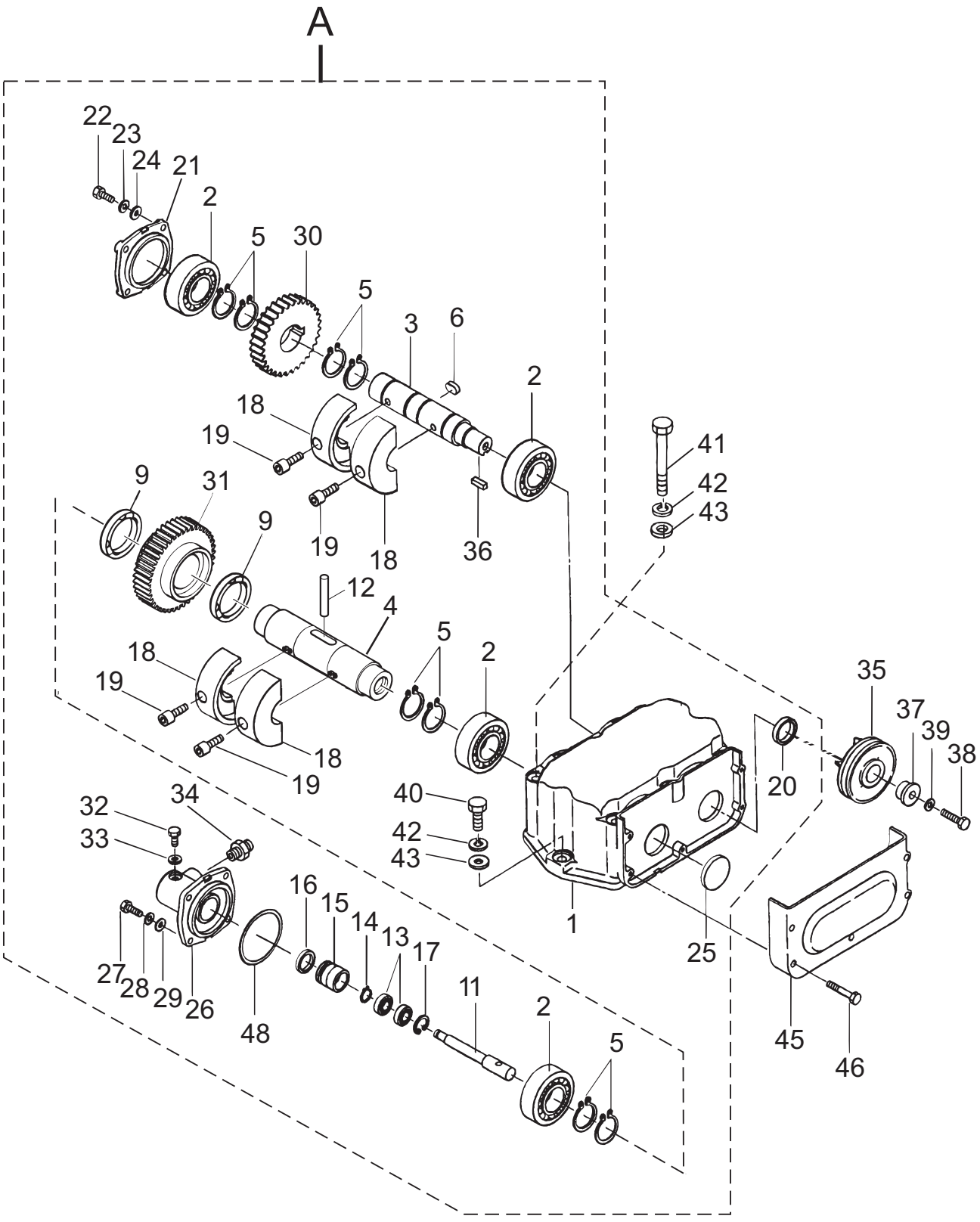
NO	PART NO	PART NAME	QTY.	REMARKS
1	458119620	BASE	1	
2	912216010	ENGINE AY GX160U1	1	
3	001220835	BOLT 8X35 T	4	
4	030208200	WASHER, LOCK M8	4	
5	031108160	WASHER, FLAT M8	4	
6	458214380	BELT COVER PLATE	1	
7	001220820	BOLT 8X20 T	4	
8	030208200	WASHER, LOCK M8	4	
11	458451370	SPACER 202512	1	
12	458337770	CLUTCH ASSY A112420	1	INCLUDES ITEMS W/ *
12-1*	941040510	CLUTCH SHAFT S20D45	1	
12-2*	941010390	CLUTCH PULLEY A1124	1	
12-3*	941020030	CLUTCH SHOE T90T	3	
12-4*	941030230	CLUTCH SPRING	2	
12-6*	080200300	STOP RING S30	1	
12-7*	080600550	STOP RING AR55	1	
12-8*	046006006	BEARING 6006DDU	1	
13	0320050150	KEY	1	
14	458451380	CLUTCH WASHER	1	
15	001520825	SOCKET HEAD BOLT 8X25 T	1	
16	070100322	VBELT RPF3320	1	
17	458214390	DUST COVER	1	
18	092006010	FLAT HEAD SCREW 6X10	2	
19	458337560	SPONGE, DUST COVER	1	
20	458115190	BELT COVER	1	
21	001520852	SOCKET HEAD BOLT 8X60 T	4	
35	458450830	RUBBER COVER	1	
36	458450810	PLATE, RUBBER COVER	1	
37	001220825	BOLT 8X25 T	2	
38	030208200	WASHER, LOCK M8	2	
39	031108160	WASHER, FLAT M8	2	
40	022710809	NYLON NUT M8	2	
41	15550ZK8P90	DRAIN JOINT	2	
42	15552ZB9000	DRAIN HOSE	1	
43	954010070	HOSE BAND 11.5D	2	
44	90601ZE1000	WASHER, DRAIN PLUG	3	
45	90131ZE1000	BOLT, DRAIN PLUG	1	
46	458450840	JOINT	1	
47	001220820	BOLT 8X20 T	1	
48	030208200	WASHER, LOCK M8	1	
51	458119650	GUARDFRAME(GX160) /120V	1	
52	001221235	BOLT 12X35 T	2	
53	030212300	WASHER, LOCK M12	4	
54	001221225	BOLT 12X25 T	2	
60	930103521	SHOCK ABSORBER ME35 15X15	1	
61	458347660	LOCK LEVER	1	
62	030208200	WASHER, LOCK M8	1	
63	020408050	NUT M8, H=5	2	
64	001520830	SOCKET HEAD BOLT 8X30 T	1	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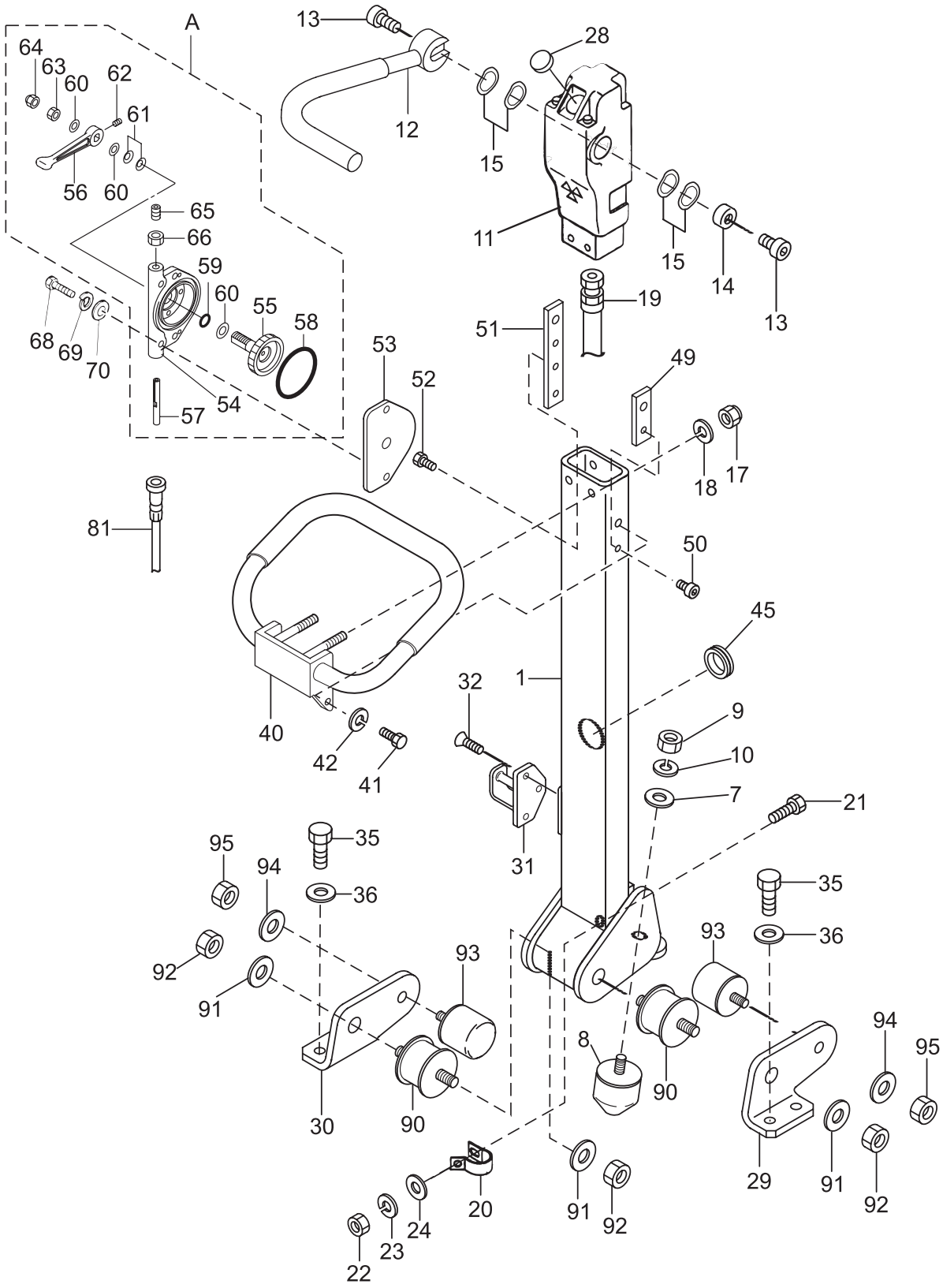
NO	PART NO	PART NAME	QTY.	REMARKS
A	458910011	VIBRATOR ASSY	1	INCLUDES ITEMS W/ #
1#	458115150	VIBRATING CASE	1	
2#	040406307	BEARING 6307C4	4	
3#	458337700	ROTARY SHAFT, DRIVE	1	
4#	458342580	ROTARY SHAFT, DRIVEN/NEW	1	
5#	080200350	STOP RING S35	8	
6#	951405460	KEY 10X8X19 RR	1	
9#	040306907	BEARING 6907C3	2	
11#	458337730	PISTON ROD	1	
12#	025508050	PIN 8X50	1	
13#	042506000	BEARING 6000ZZSG	2	
14#	080200100	STOP RING S10	1	
15#	455435051	PISTON, 22.4D	1	
16#	455010070	PACKING USH22.4X30X5	1	
17#	080100260	STOP RING R26	1	
18#	458451430	ECCENTRIC ROTATOR	4	
19#	009120304	SOCKET HEAD BOLT 10X25 T	4	
20#	060202040	OIL SEAL SC28458	1	
21#	458337740	BEARING COVER	1	
22#	001220820	BOLT 8X20 T	4	
23#	030208200	WASHER, LOCK M8	4	
24#	031108160	WASHER, FLAT M8	4	
25#	953405580	SEAL CAP SC458	1	
26#	458214370	CYLINDER	1	
27#	001220820	BOLT 8X20 T	4	
28#	030208200	WASHER, LOCK M8	4	
29#	031108160	WASHER, FLAT M8	4	
30#	460333002	GEAR (DRIVE) 2P	1	
31#	458342590	GEAR (DRIVEN)	1	
32#	001200812	BOLT 8X12	1	
33#	953404600	COPPER PACKING 8X16X2	1	
34#	954010020	CONNECTOR PT, PF1/4	1	
35	458337750	PULLEY 80D	1	
36#	951400990	KEY 7X7X20	1	
37	952400690	WASHER 9X35X4.5	1	
38	001220820	BOLT 8X20 T	1	
39	030208200	WASHER, LOCK M8	1	
40#	001221240	BOLT 12X40 T	2	
41	001221264	BOLT 12X120 T	6	
42	030212300	WASHER, LOCK M12	8	
43	031112230	WASHER, FLAT M12	8	
45	460212740	BELT COVER (LOWER)	1	
46	001520635	SOCKET HEAD BOLT 6X35 T	5	
48#	952406180	SHIM 70800.2T	1	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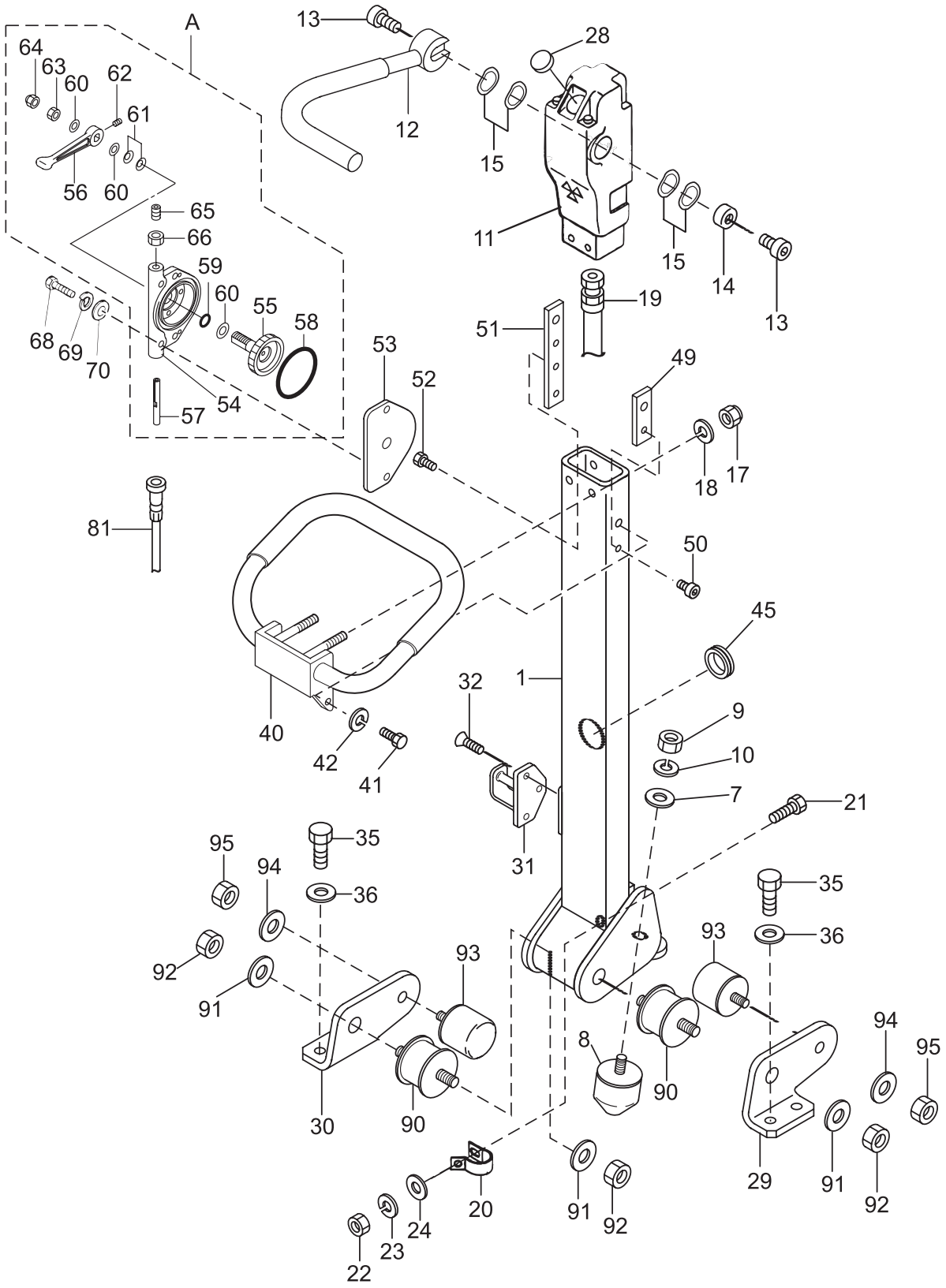
NO	PART NO	PART NAME	QTY.	REMARKS
1	458119640	HANDLE VAS/ MVH-120,150		
7	031110160	WASHER, FLAT M10	1	
8	939010320	STOPPER RUBBER 45X36H	1	
9	020410060	NUT M10, H=6	1	
10	030210250	WASHER, LOCK M10	1	
11	458338001	PUMP ASSY	1	
12	458337430	TRAVEL LEVER	1	
13	001520820	SOCKET HEAD BOLT 8X20 T	2	
14	458451420	COLLAR	1	
15	033910030	WAVE WASHER 15.5X20X0.3	4	
17	022710809	NYLON NUT M8	2	
18	030208200	WASHER, LOCK M8	2	
19	954002850	OIL HOSE 985L	1	
20	954404230	CLAMP SA12018	1	
21	001220625	BOLT 6X25 T	1	
22	020306050	NUT M6	1	
23	030206150	WASHER, LOCK M6	1	
24	031106100	WASHER, FLAT M6	1	
28	458451630	BREATHER CAP	1	
29	458347640	HANDLE BRACKET, L	1	
30	458347650	HANDLE BRACKET, R	1	
31	458461430	LOCK CATCH	1	
32	009120408	SUNK HEAD BOLT 8X20 T	3	
35	001221230	BOLT 12X30 T	2	
36	030212300	WASHER, LOCK M12	2	
40	458217830	HANDLE GRIP	1	
41	001220825	BOLT 8X25 T	2	
42	030208200	WASHER, LOCK M8	2	
45	953406280	GROMMET NG790	1	
49	458461450	MOUNT NUT, HANDLE	1	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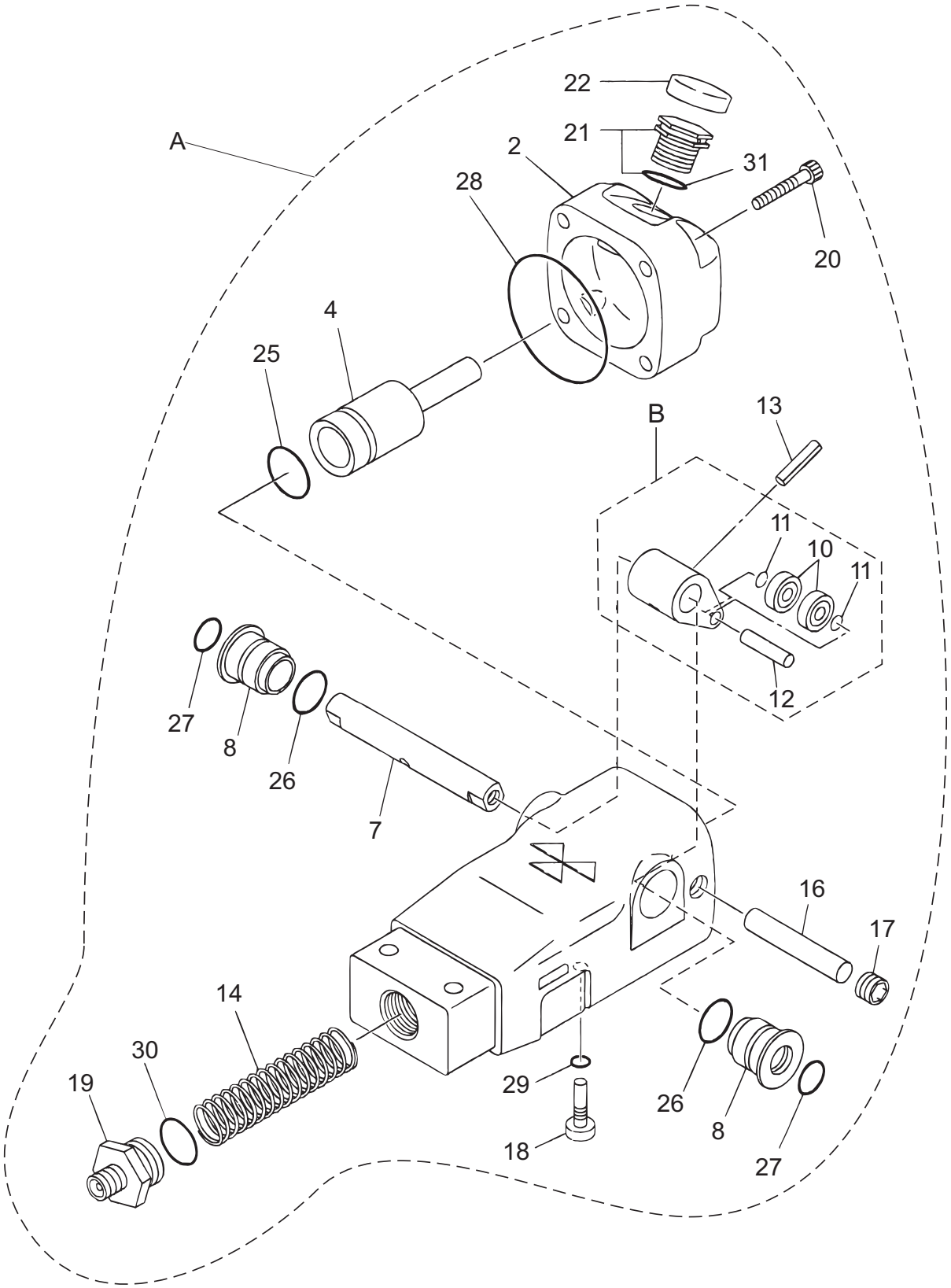
NO	PART NO	PART NAME	QTY.	REMARKS
A	362910060	THROTTLE LEVER ASSY	1	INCLUDES ITEMS W/ #
50	001520610	SOCKET HEAD BOLT 6X10 T	1	
51	458461440	MOUNT NUT, THROTTLE	1	
52	001520510	SOCKET HEAD BOLT 5X10 T	1	
53	463455950	SPACER,THROTTLE	1	
54#	362341550	THROTTLE BODY	1	
55#	362910090	THROTTLE,GEAR CP,W/BOLT	1	
56#	362455630	THROTTLE LEVER	1	
57#	362455620	SLIDER	1	
58#	050100450	ORING G45	1	
59#	050200100	ORING P10	1	
60#	031110160	WASHER, FLAT M10	3	
61#	032110180	CONICAL SPRING WASHER M10	2	
62#	096206006	SOCKET HEAD SCREW 6X6	1	
63#	020410060	NUT M10, H=6	1	
64#	022131008	CAP NUT M10	1	
65#	096208020	SOCKET HEAD SCREW 8X20	1	
66#	020408050	NUT M8, H=5	1	
68	001220625	BOLT 6X25 T	2	
69	030206150	WASHER, LOCK M6	2	
70	031106100	WASHER, FLAT M6	2	
71	511010040	CLAMP TC300	1	
81	956100041	THROTTLE WIRE 795875	1	
90	930106511	SHOCK ABSORBER ME65 M12	2	
91	030212300	WASHER, LOCK M12	4	
92	020312100	NUT M12	4	
93	939010310	STOPPER RUBBER 45X33H	2	
94	030210250	WASHER, LOCK M10	2	
95	020410060	NUT M10, H=6	2	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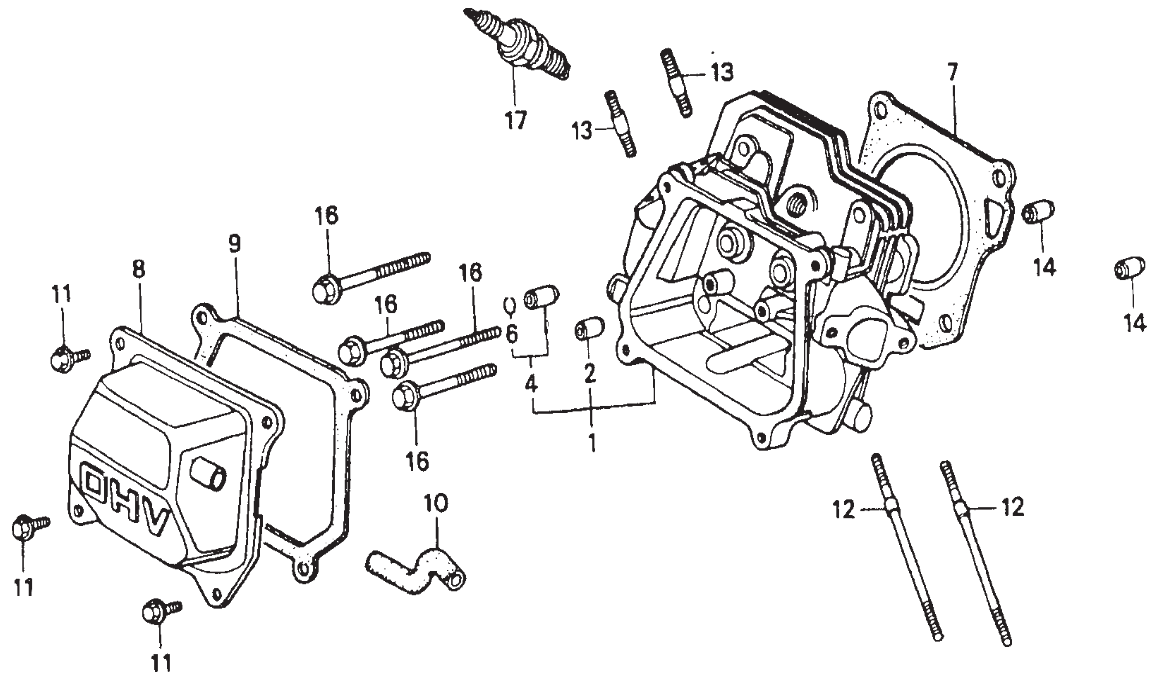
HAND PUMP ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
A	458338001	PUMP ASSY	0	INCLUDES ITEMS W/ *
B*	458010150	CAM COMP (PUMP)	1	INCLUDES ITEMS W/ #
2*	458010100	COVER (HAND PUMP)	1	
4*	458010170	PISTON CP (PUMP)	1	
7*	458010110	CONTROL SHAFT (PUMP)	1	
8*	458010120	BUSH	2	
10*#	042500607	BEARING 607ZZSG	2	
11*#	458010190	SPACER	2	
12*#	458010090	PIN 7X30	1	
13*	025406025	SPRING PIN 6X25	1	
14*	458010200	SPRING (PUMP)	1	
16*	458010210	STOPPER (PUMP)	1	
17*	458010220	PLUG	1	
18*	458010131	STOP PLUG	1	
19*	458010140	HOSE JOINT	1	
20*	001540635	SOCKET HEAD BOLT 6X35 S	4	
21*	458010080	BREATHER (PUMP)	1	INCLUDES ITEM W/ $
22*	458451630	BREATHER CAP	1	
25*	050100250	ORING G25	1	
26*	050200200	ORING P20	2	
27*	050200150	ORING P15	2	
28*	050300670	ORING S67	1	
29*	050300080	ORING S8	1	
30*	050200220	ORING P22	1	
31*$	050200180	ORING P18	1	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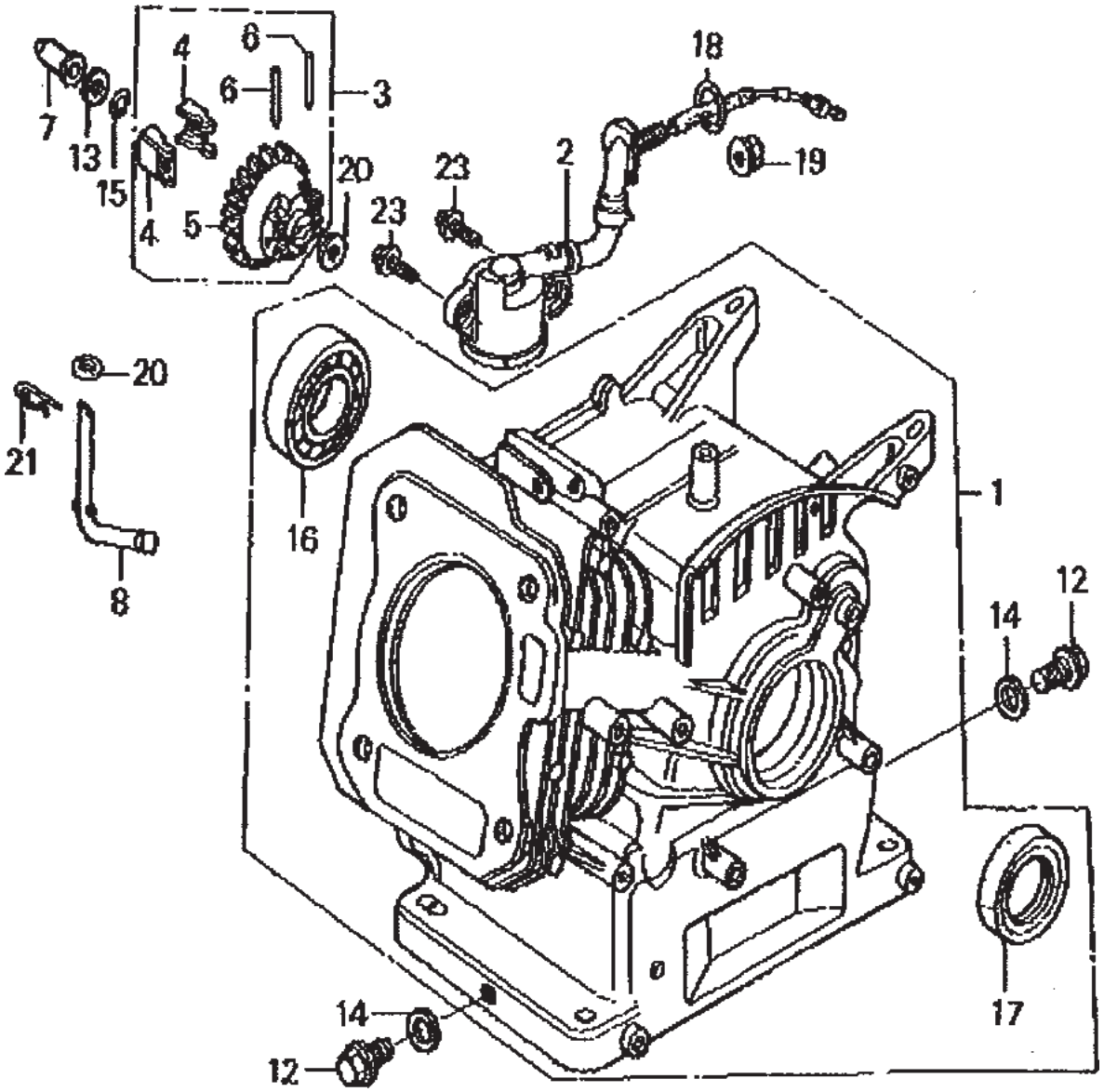
GX160U1SMX4 — CYLINDER HEAD ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	12210ZH8405	HEAD COMP., CYLINDER	1	INCLUDES ITEMS W/#
2#	12204ZE1306	GUIDE, IN. VALVE (O.S.), OPTION	1	
4#	12205ZE1315	GUIDE, EX. VALVE (O.S.), OPTION	1	INCLUDES ITEM W/%
6#%	12216ZE5300	CLIP, VLAVE GUIDE	1	
7	12251ZF1800	GASKET, CYLINDER HEAD	1	
8	12310ZE1020	COVER COMP., HEAD	1	
9	12391ZE1000	PACKING, HEAD COVER	1	
10	15721ZH8000	TUBE, BREATHER	1	
11	90013883000	FLANGE BOLT 6X12	4	
12	90043ZE1020	STUD BOLT 6X112	2	
13	90047ZE1000	STUD BOLT 8X32	2	
14	9430110160	DOWEL PIN 10X16	2	
16	957230806000	FLANGE BOLT 8X60	4	S/N 1144874 AND BELOW
16	957010806000	FLANGE BOLT 8X60	4	S/N 1144875 AND ABOVE
17	9807955846	SPARK PLUG BPR5ES, NGK	1	
17	9807955855	SPARK PLUG W16EPR-U DENSO	1	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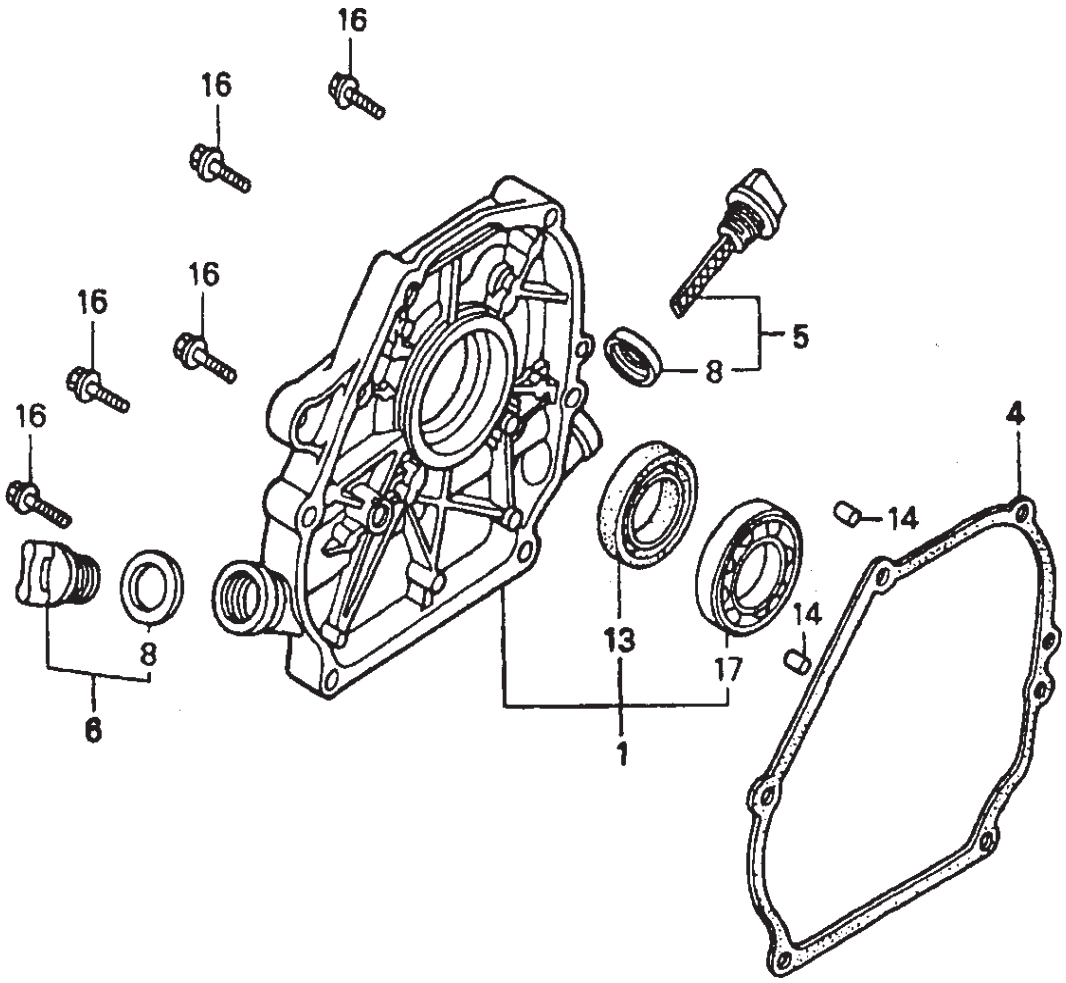
GX160U1SMX4 — CYLINDER BARREL ASSY.

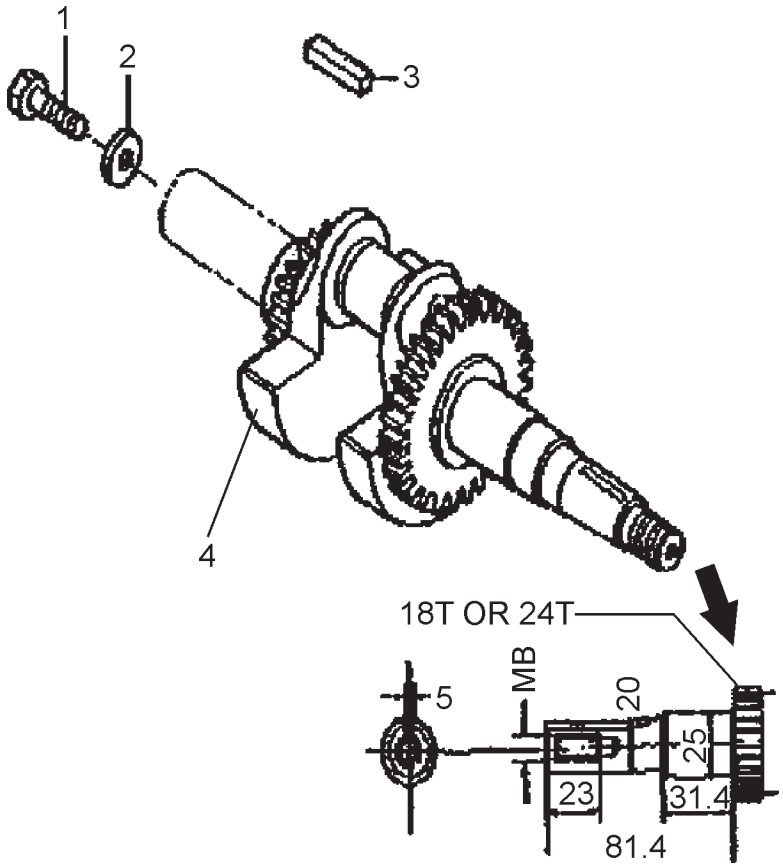
NO	PART NO	PART NAME	QTY.	REMARKS
1	12000ZH8426	BARREL ASSY., CYL. (OIL ALERT)	1	INCLUDES ITEMS W/#
2	15510ZE1033	SWITCH ASSY., OIL LEVEL	1	
3	16510ZE1000	GOVERNOR ASSY.	1	INCLUDES ITEMS W/%
4%	16511ZE1000	WEIGHT, GOVERNOR	2	
5%	16512ZE1000	HOLDER, GOVERNOR WEIGHT	1	
6%	16513ZE1000	PIN, GOVERNOR WEIGHT	2	
7	16531ZE1000	SLIDER, GOVERNOR	1	
8	16541ZE1000	SHAFT, GOVERNOR ARM	1	
12	90131ZE1000	BOLT, DRAIN PLUG	2	
13	90451ZE1000	WASHER, THRUST 6MM	1	
14	90601ZE1000	WASHER, DRAIN PLUG 10.2 MM	2	
15	90602ZE1000	CLIP, GOVERNOR HOLDER	1	
16#	91001ZF1003	BEARING, RADIAL BALL 6205TMB	1	
17#	91201Z0T801	OIL, SEAL 25X41X6	1	
18	91353671004	O-RING, 14 MM	1	
19	9405010000	NUT, FLANGE 10 MM	1	
20	9410106800	WASHER, PLAIN 6 MM	2	
21	9425108000	PIN, LOCK 8 MM	1	
23	957010601200	BOLT, FLANGE 6X12	2	

GX160U1SMX4 — CRANKCASE COVER ASSY.



GX160U1SMX4 — CRANKCASE COVER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	11300ZZE1634	COVER ASSY. CRANKCASE	1	INCLUDES ITEMS W/%
4	11381ZH8801	GASKET CRANKCASE	1	
5	15600ZE1003	OIL GAUGE/CAP ASSY. (GRAY)	1	INCLUDES ITEMS W/#
6	15600ZG4003	OIL PLUG ASSY.	1	INCLUDES ITEMS W/+
8#+	15625ZE1003	PACKING, OIL FILLER CAP	1	
13%	91201Z0T801	OIL SEAL 25X41X6	1	
14	9430108140	DOWEL PIN 8X14	2	
16	957010803200	FLANGE BOLT 8X32	6	
17%	961006205010	BEARING, RADIAL BALL 6205	1	REPLACES 961006205000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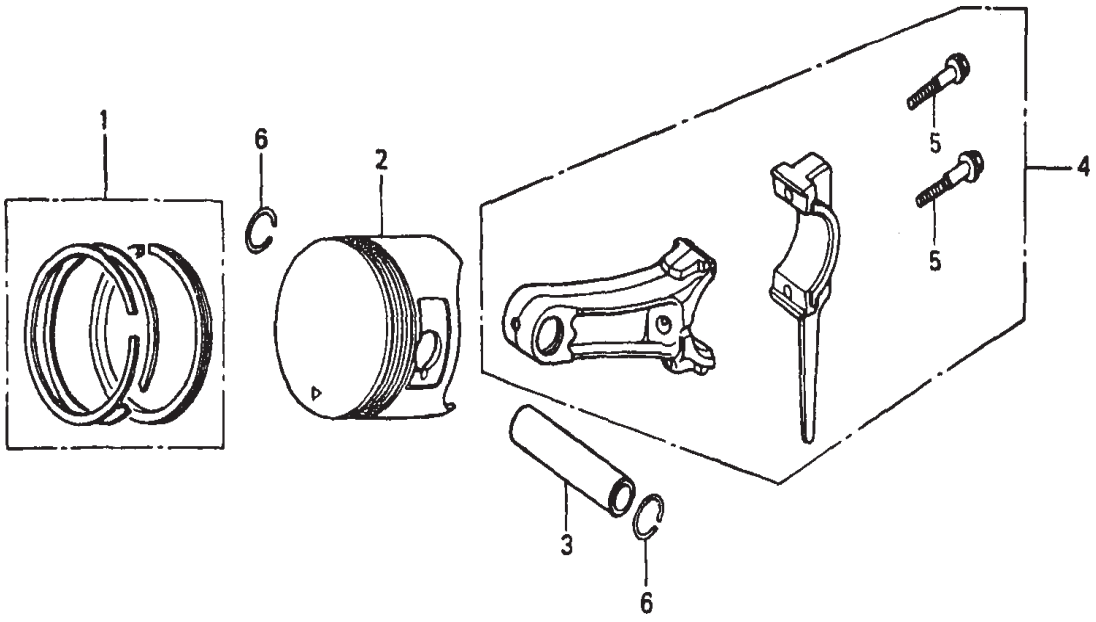
GX160U1SMX4 — CRANKSHAFT ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	92101080250A	BOLT	1	
2	90473842000	WASHER 8 MM	1	
3	90741883810	KEY 5X5X33 (YELLOW)	1	
4	13310ZE1000	CRANKSHAFT COMP.	1	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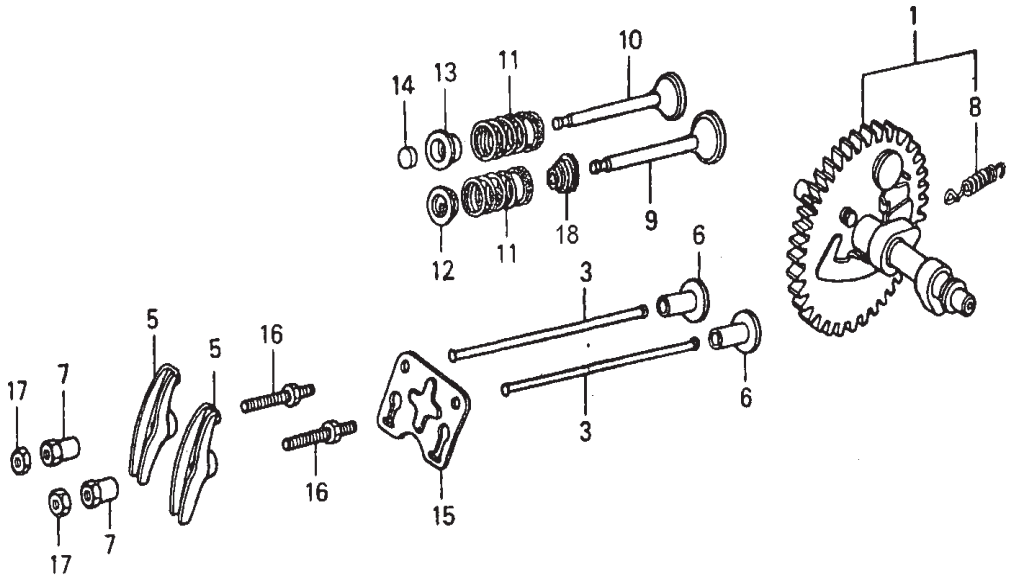
NO	PART NO	PART NAME	QTY.	REMARKS
1	13010ZL0003	RING SET, PISTON (STD)	1	S/N 1120413 AND BELOW
1	13010Z4K004	RING SET, PISTON (STD)	1	S/N 1120414 AND ABOVE
1	13011Z4K004	RING SET, PISTON (0.25)	1	S/N 1120413 AND BELOW
1	13011ZL0003	RING SET, PISTON (0.25)	1	S/N 1120414 AND ABOVE
1	13012ZL0003	RING SET, PISTON (0.50)	1	S/N 1120413 AND BELOW
1	13012Z4K004	RING SET, PISTON (0.50)	1	S/N 1120414 AND ABOVE
1	13013ZL0003	RING SET, PISTON (0.75)	1	S/N 1120413 AND BELOW
1	13013Z4K004	RING SET, PISTON (0.75)	1	S/N 1120414 AND ABOVE
2	13101ZH8010	PISTON (STD)	1	S/N 1120413 AND BELOW
2	13101ZH8020	PISTON (STD)	1	S/N 1120414 AND ABOVE
2	13102ZH8010	PISTON (0.25)	1	S/N 1120413 AND BELOW
2	13102ZH8020	PISTON (0.25)	1	S/N 1120414 AND ABOVE
2	13103ZH8010	PISTON (0.50)	1	S/N 1120413 AND BELOW
2	13103ZH8020	PISTON (0.50)	1	S/N 1120414 AND ABOVE
2	13104ZH8010	PISTON (0.75)	1	S/N 1120413 AND BELOW
2	13104ZH8020	PISTON (0.75)	1	S/N 1120414 AND ABOVE
3	13111ZE1000	PISTON PIN	1	
4	13200ZE1010	ROD ASSY., CONNECTING	1	INCLUDES ITEM W/#
5#	90001ZE1000	BOLT, CONNECTING ROD	2	
6	90551ZE1000	CLIP, PISTON PIN 18 MM	2	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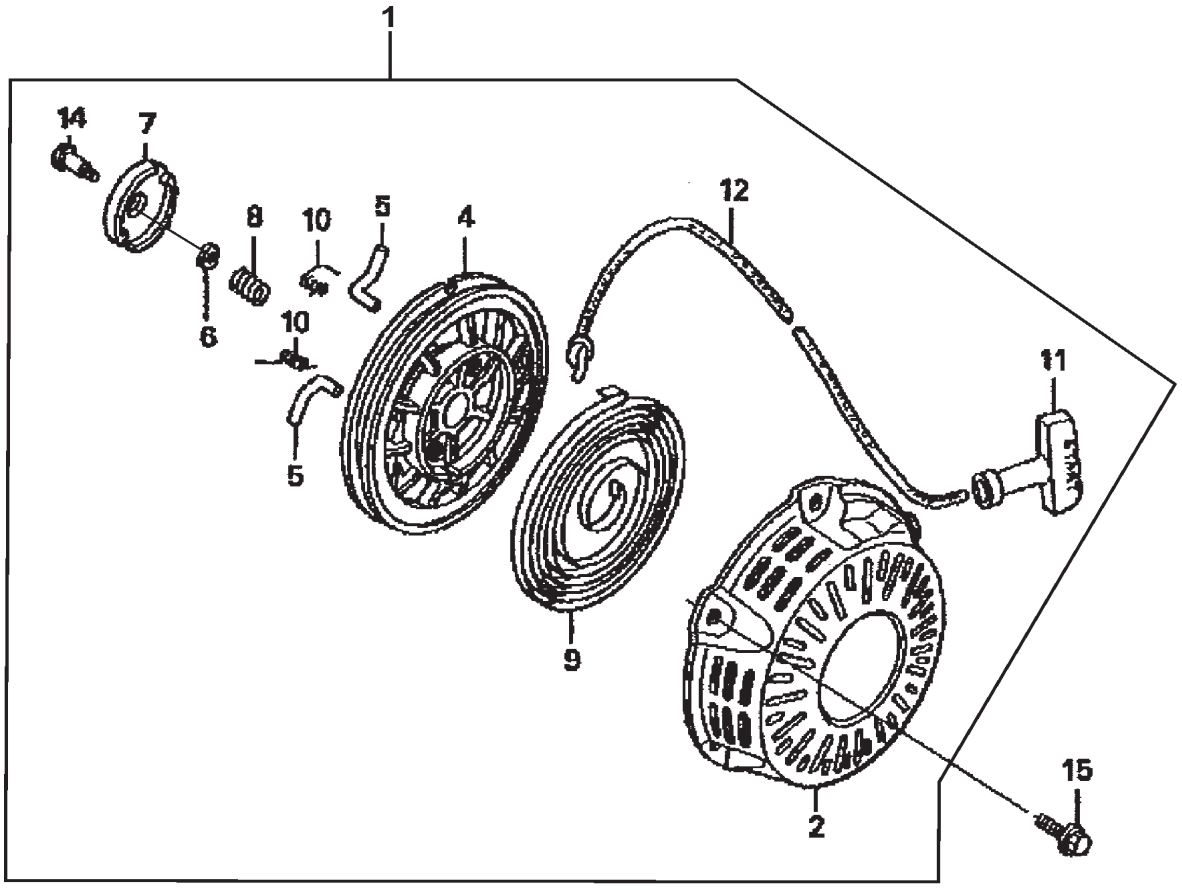
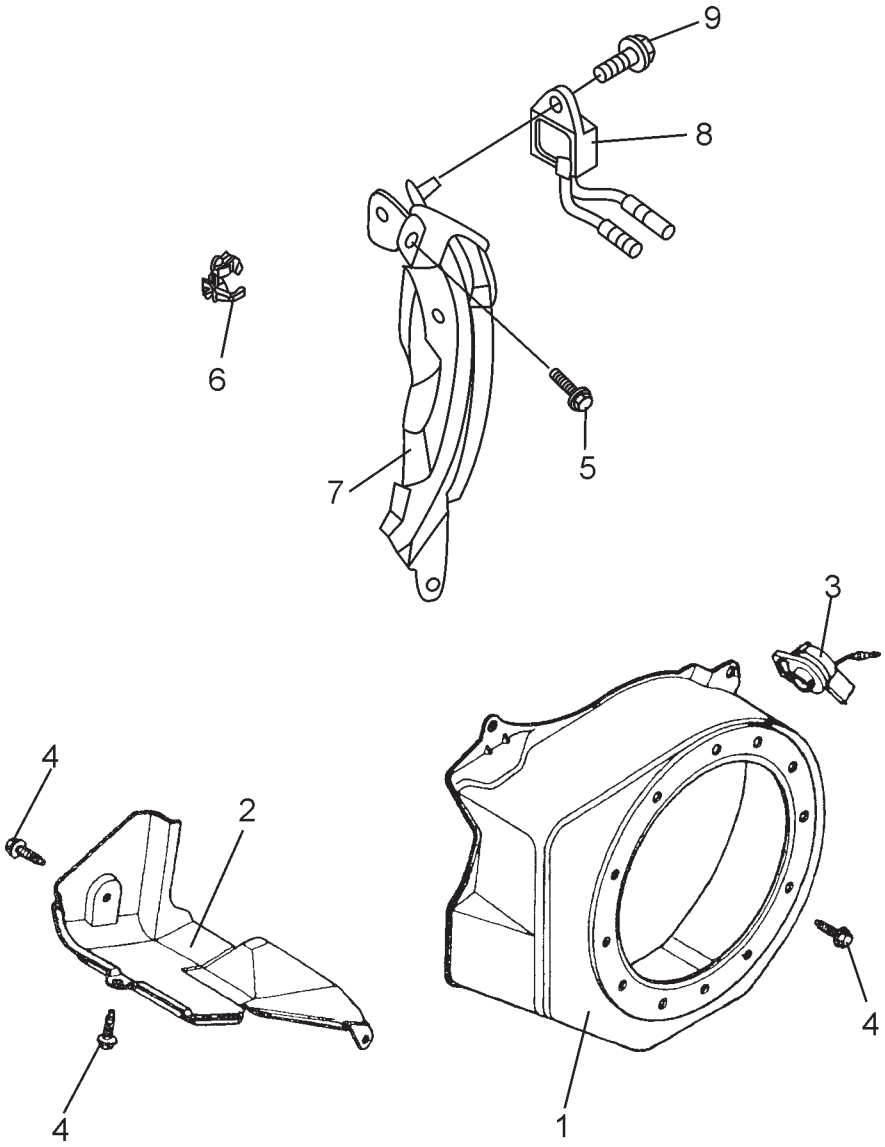
NO	PART NO	PART NAME	QTY.	REMARKS
1	14100ZE1812	CAMSHAFT ASSY.	1	INCLUDES ITEM W/#
3	14410ZE1010	ROD, PUSH	2	
5	14431ZE1000	ARM, VALVE ROCKER	2	
6	14441ZE1010	LIFTER, VALVE	2	
7	14451ZE1013	PIVOT, ROCKER ARM	2	
8#	14568ZE1000	SPRING, WEIGHT RETURN	1	
9	14711ZF1000	VALVE, INLET	1	
10	14721ZF1000	VALVE, EXHAUST	2	
11	14751ZF1000	SPRING, VALVE	1	
12	14771ZE1000	RETAINER, INTAKET VALVE	1	
13	14773ZE1000	RETAINER, EXHAUST VALVE	1	
14	14781ZE1000	ROTATOR, VALVE	1	
15	14791ZE1010	PLATE, PUSH ROD GUIDE	1	
16	90012ZE0010	BOLT, PIVOT 8 MM	2	
17	90206ZE1000	NUT, PIVOT ADJUSTING	2	
18	12209ZH8003	SEAL, VALVE STEM	1	

GX160U1SMX4 — RECOIL STARTER ASSY.



GX160U1SMX4 — RECOIL STARTER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	28400ZH8023ZB	STARTER ASSY., RECOIL (BLACK)	1	INCLUDES ITEMS W/#
2#	28410ZH8003ZB	CASE COMP., RECOIL STARTER NH1	1	
4#	28421ZH8801	REEL, RECOIL STARTER	1	
5#	28422ZH8801	RACHET STARTER	2	
6#	28431ZH8801	PLATE, FRICTION	1	
7#	28433ZH8801	GUIDE, RATCHET	1	
8#	28441ZH8801	SPRING, FRICTION	1	
9#	28442ZH8003	SPRING, RECOIL STARTER	1	
10#	28443ZH8801	SPRING, RETURN	2	
11#	28461ZH8003	GRIP, STARTER	1	
12#	28462ZH8003	ROPE, RECOIL STARTER	1	
14#	90003ZH8801	SCREW, SET	1	
15	90008ZE2003	BOLT, FLANGE, 6X10	3	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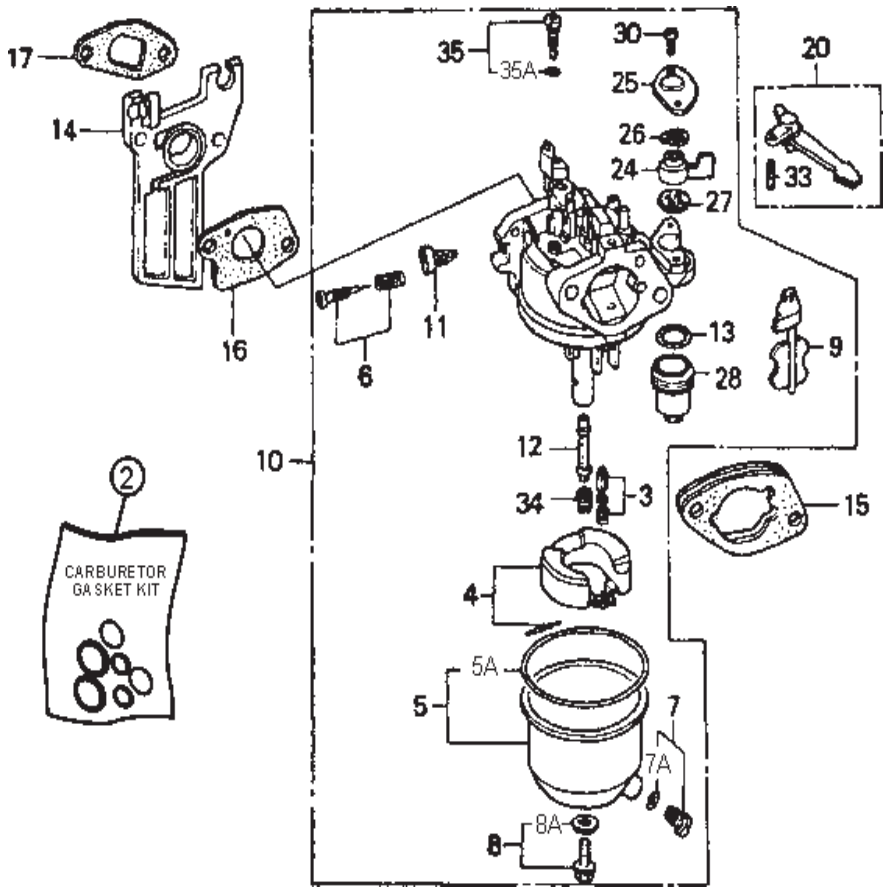
GX160U1SMX4 — FAN COVER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	19610ZE1000ZC	COVER COMP., FAN NH1	1	S/N 1120542 AND BELOW
1	19610ZE1010ZC	COVER COMP., FAN NH1	1	S/N 1120543 AND ABOVE
2	19630ZH8000	SHROUD COMP.	1	
3	36100ZF6P81	SWITCH ASSY. ENGINE STOP	1	S/N 1145482 AND BELOW
3	36100ZF6P82	SWITCH ASSY. ENGINE STOP	1	S/N 1145483 AND ABOVE
4	90013883000	BOLT, FLANGE 6X12	6	
5	90022888010	BOLT, FLANGE 6X20	1	
6	90601ZH7013	CLIP, HARNESS	1	
7	19611ZH8810	PLATE COMP., SIDE OIL ALERT	1	
8	34150ZH7003	ALERT UNIT, OIL	1	S/N 1145270 AND BELOW
8	34150ZH7013	ALERT UNIT, OIL	1	S/N 1145271 AND ABOVE
9	957010600800	BOLT, FLANGE 6X8	1	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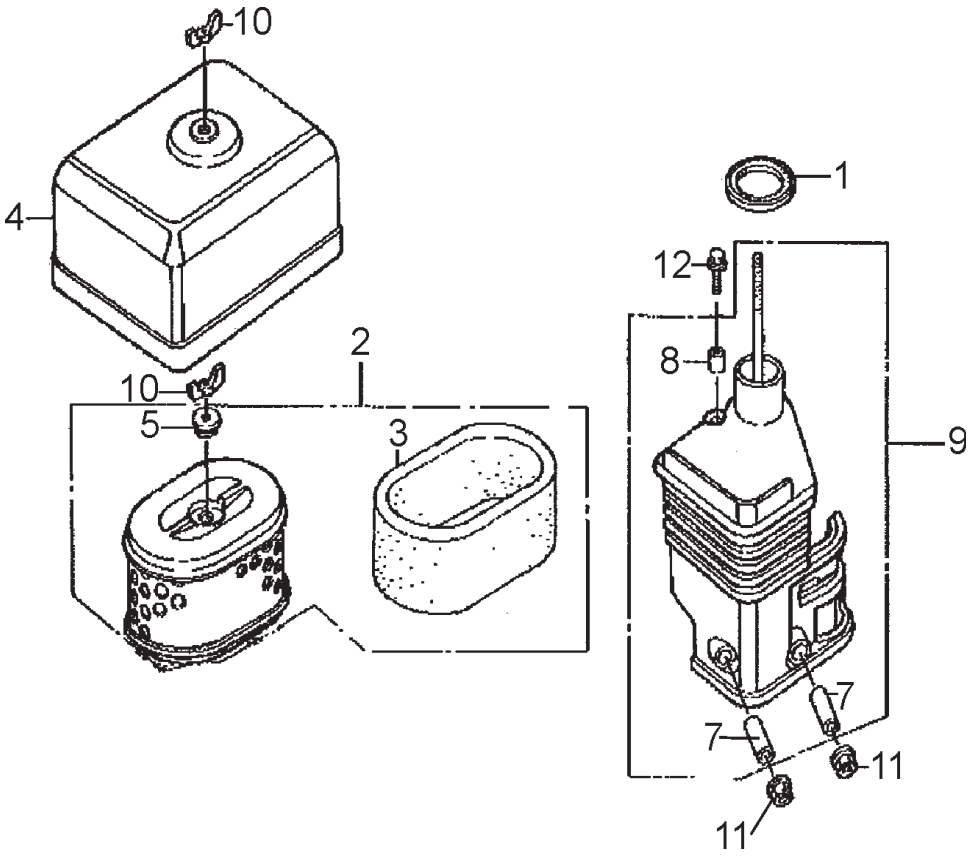
NO	PART NO	PART NAME	QTY.	REMARKS
2	16010ZE1812	GASKET SET	1	INCLUDES ITEMS W/ &
3#	16011ZE0005	FLOAT VALVE SET	1	
4#	16013ZE0005	FLOAT SET	1	
5#	16015ZE0831	FLOAT CHAMBER SET	1	INCLUDES ITEMS W/ *
5A&*		GASKET, FLOAT CHAMBER SET	1	NOT SOLD SEPARATELY
6#	16016ZH7W01	SCREW SET, PILOT	1	
7#	16024ZE1811	SCREW SET, DRAIN	1	INCLUDES ITEMS W/ $
7A&$		GASKET, DRAIN SCREW SET	1	NOT SOLD SEPARATELY
8#	16028ZE0005	SCREW SET	1	INCLUDES ITEMS W/ +
8A&+		GASKET, SCREW SET	1	NOT SOLD SEPARATELY
9#	16044ZE0005	CHOKE SET	1	
10	16100ZH8W51	CARBURETOR ASSY.	1	INCLUDES ITEMS W/ #
11#	16124ZE0005	SCREW, THROTTLE STOP	1	
12#	16166ZH8W50	MAIN NOZZLE	1	
13#&	16955283000	PACKING, FUEL STRAINER CUP	1	REPLACES 16173001004
14	16211ZE1000	INSULATOR, CARBURETOR	1	
15	16220ZE1020	SPACER COMP., CARBURETOR	1	
16	16221ZH8801	PACKING, CARBURETOR	1	
17	16212ZH8800	PACKING, INSULATOR	1	
20	16610ZE1000	LEVER COMP., CHOKE (STD)	1	INCLUDES ITEMS W/ %
24#	16953ZE1812	LEVER, COCK	1	
25#	16954ZE1812	PLATE, LEVER SETTING	1	
26#	16956ZE1811	SPRING, COCK LEVER	1	
27#&	16957ZE1812	PACKING, FUEL COCK	1	
28#	16967ZE0811	CUP, FUEL STRAINER	1	
30#	93500030060H	SCREW, PAN 3X6	2	REPLACES 93500030061H
33%	9430520122	PIN, SPRING 2X12	1	
34	99101ZH80650	MAIN JET #65, OPTION	1	
34	99101ZH80680	MAIN JET #68, OPTION	1	
34#	99101ZH80700	MAIN JET #70, OPTION	1	
35#	99204ZE00350	PILOT JET SET #35	1	INCLUDES ITEMS W/>
35A&>		GASKET, PILOT JET SET #35	1	NOT SOLD SEPARATELY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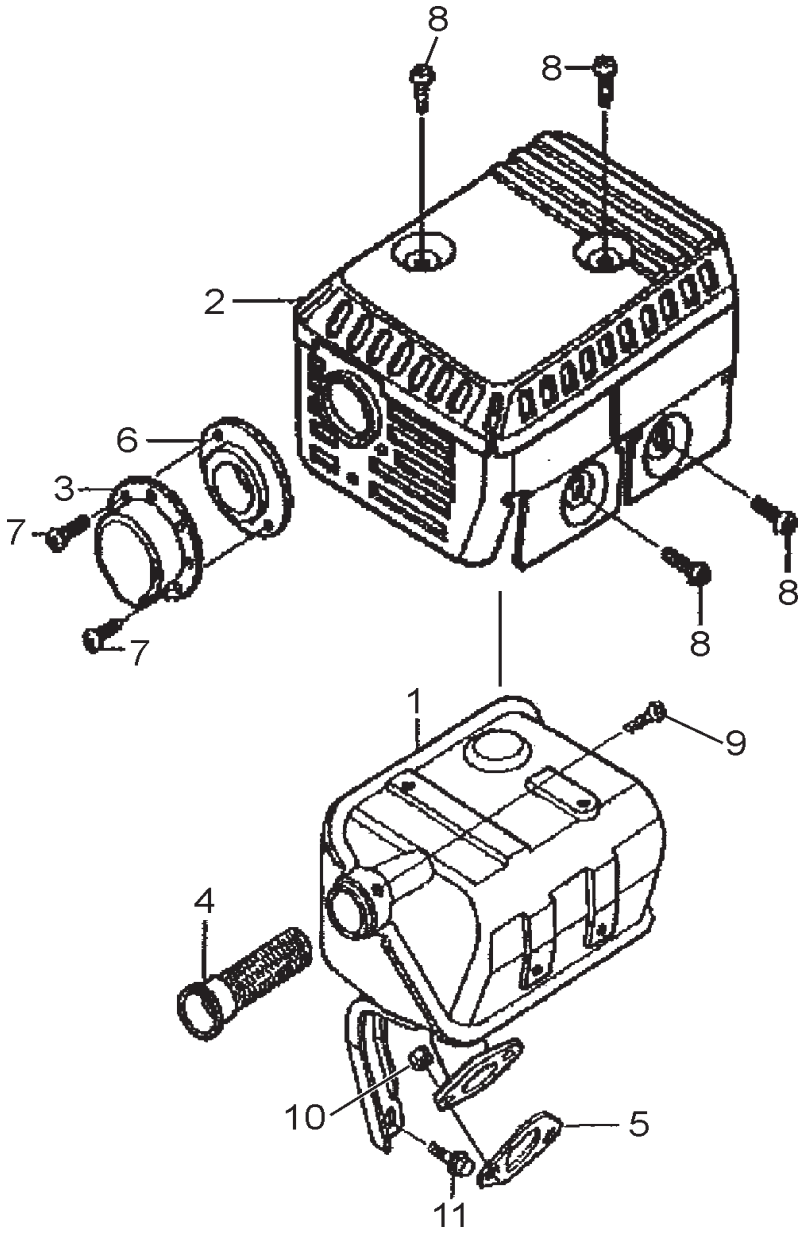
GX160U1SMX4 — AIR CLEANER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	16271ZE1000	PACKING, ELBOW	1	
2	17210ZE1505	CLEANER ELEMENT	1	INCLUDES ITEMS W/# REPLACES 17210ZE1822
3#	17218ZE1505	OUTER ELEMENT	1	REPLACES 17218ZE1821
4	17230ZE1820	COVER, AIR CLEANER	1	
5#	17232891000	GROMMET, AIR CLEANER	1	
7%	17238ZE7010	COLLAR, AIR CLEANER	2	
8%	17239ZE1000	COLLAR (B), AIR CLEANER	1	
9	17410ZE1020	ELBOW COMP., AIR CLEANER	1	INCLUDES ITEMS W/%
10	90325044000	NUT	2	
11	9405006000	NUT, FLANGE 6MM	2	
12	957010602000	BOLT, FLANGE 6X20	1	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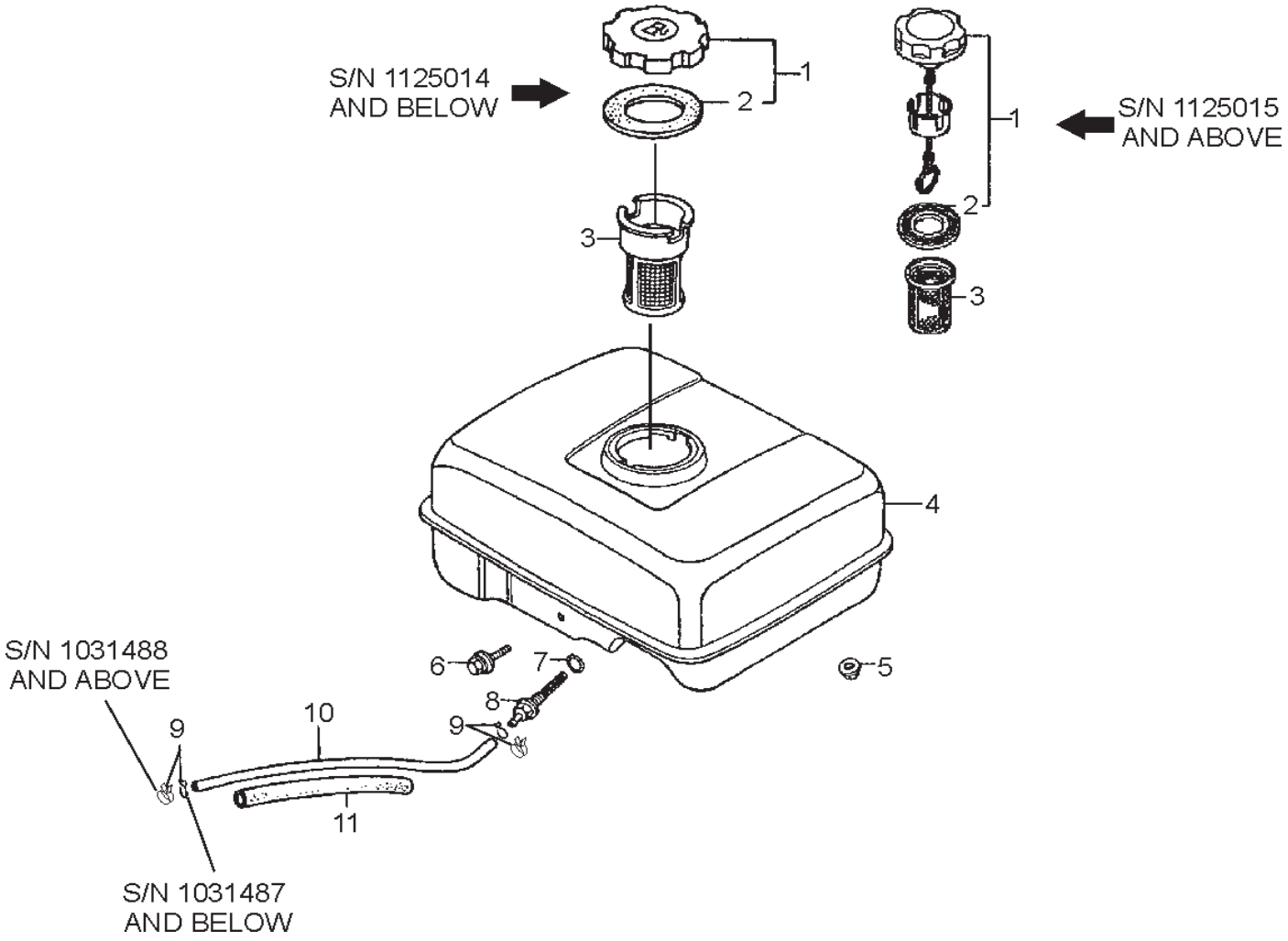
GX160U1SMX4 — MUFFLER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	18310ZH8810	MUFFLER COMP.	1	
2	19320ZF1H01	PROTECTOR, MUFFLER	1	
3	18340ZE1010	DEFLECTOR COMP.	1	
4	18355ZE1000	ARRESTOR, SPARK	1	
5	18381ZH8800	GASKET, MUFFLER	1	
6	18522ZE1000	GUIDE, MUFFLER	1	
7	90002ZG0003	SCREW, TAPPING 4X8	2	
8	90050ZE1000	SCREW, TAPPING 5X8	5	
9	90055ZE1000	SCREW, TAPPING 4X6	1	
10	020108060	NUT, HEX 8MM	2	REPLACES 94001080000S
11	90016ZE1000	BOLT, FLANGE 6X13	1	


S/N 1125014
AND BELOW
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S/N 1125015
AND ABOVE
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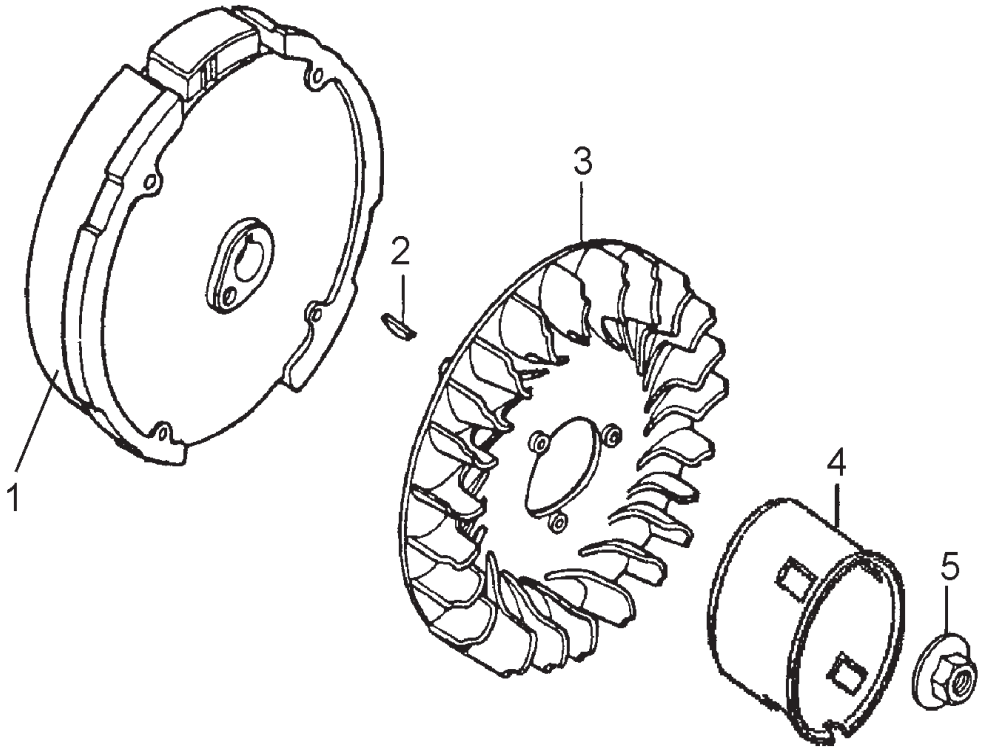
S/N 1031488
AND ABOVE
S/N 1031487
AND BELOW

GX160U1SMX4 — FUEL TANK ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	17620Z0T305	CAP COMP., CHROME PLATED	1	S/N 1125014 AND BELOW INCLUDES ITEM W/+
1	17620Z4H000	CAP COMP., CHROME PLATED	1	S/N 1125015 AND ABOVE INCLUDES ITEM W/%
2+	17631Z0T812	PACKING, FUEL FILLER CAP	1	S/N 1125014 AND BELOW
2%	17631Z0T801	PACKING, FUEL FILLER CAP	1	S/N 1125015 AND ABOVE
3	17672ZE2W01	FILTER, FUEL	1	S/N 1125014 AND BELOW
3	17672Z4H000	FILTER, FUEL	1	S/N 1125015 AND ABOVE
4	17510ZE1020ZF	FUEL TANK COMP.	1	
5	9405006000	FLANGE NUT 6 MM	2	
6	90004ZH7003	BOLT, FLANGE 6X29	1	
7	91353671003	O-RING 14 MM	1	REPLACES 91353671004
8	16955ZE1000	JOINT, FUEL TANK	1	
9	9500202080	CLIP, TUBE	2	S/N 1031487 AND BELOW
9	950024080008	CLAMP, TUBE	2	S/N 1031488 AND ABOVE
10	950014514040	TUBE, FUEL 4.5X140	1	S/N 1031487 AND BELOW
10	91424Z4F801	TUBE, FUEL 4.5X140	1	S/N 1031488 AND ABOVE
11	16854ZH8000	RUBBER, SUPPORT (107 MM)	1	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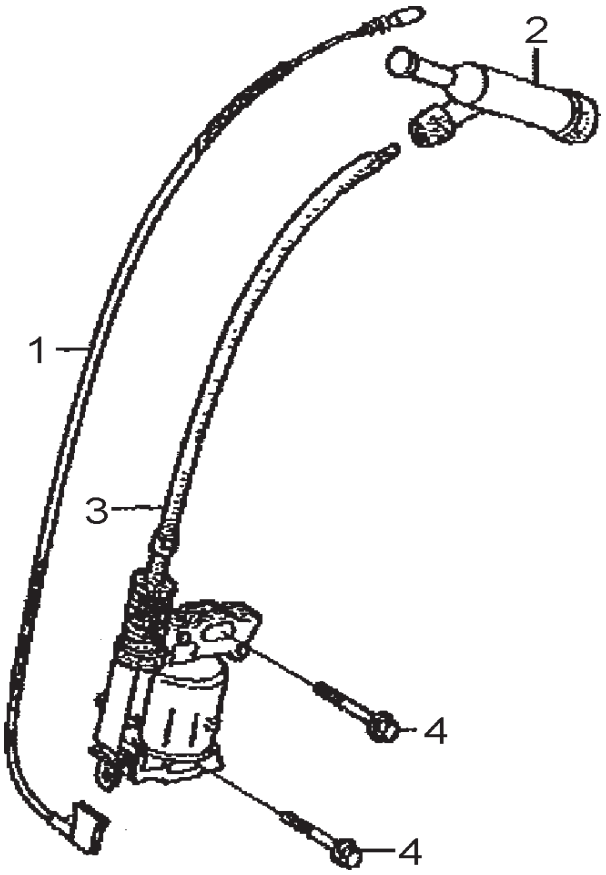
NO	PART NO	PART NAME	QTY.	REMARKS
1	31100ZE1010	FLYWHEEL COMP.	1	
2	13331357000	WOODRUFF KEY 25X18	1	
3	19511ZE1000	FAN, COOLING	1	
4	28451ZH8801	PULLEY, STARTER	1	
5	90201878003	SPECIAL NUT 14MM	1	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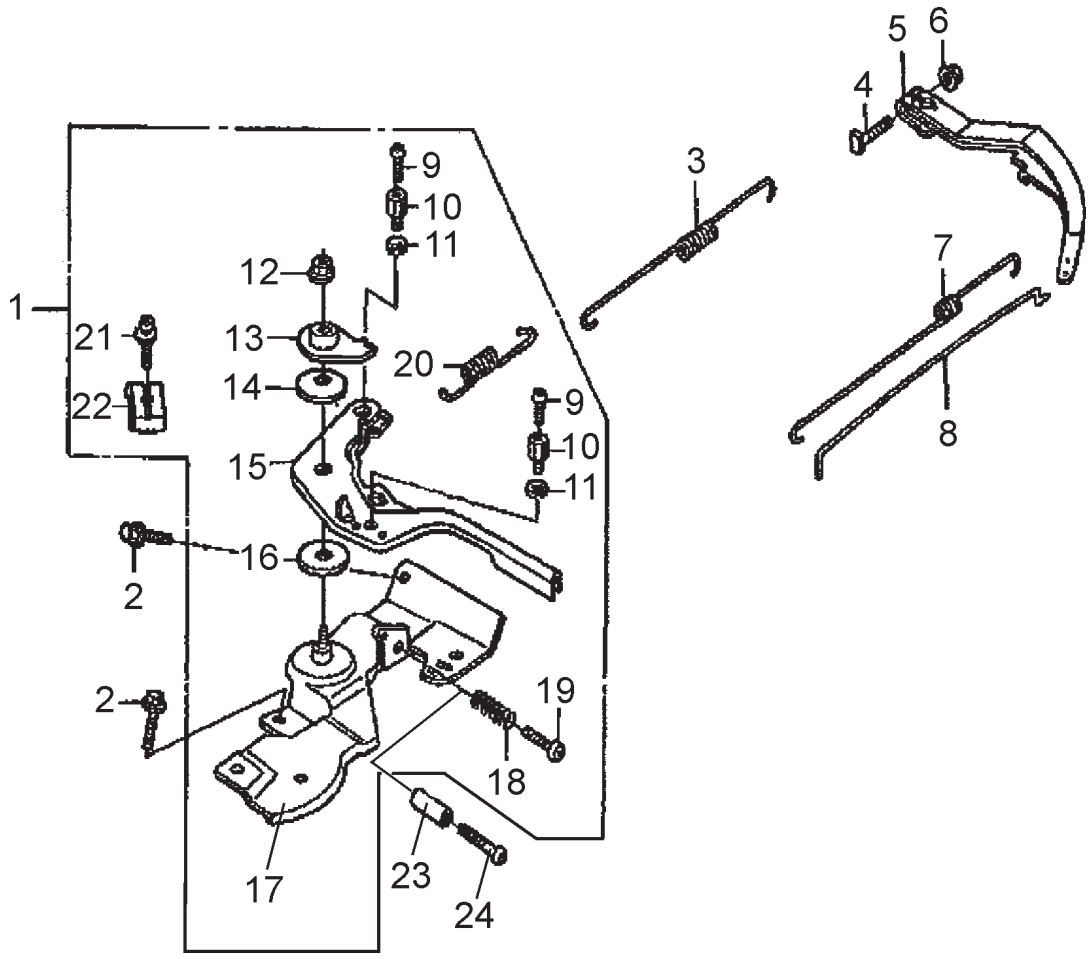
NO	PART NO	PART NAME	QTY.	REMARKS
1	36101ZE1010	CORD, STOP SWITCH (370 MM)	1	
2	30600ZE1013	CAP ASSY., NOISE SUPPRESSOR	1	
3	30500ZE1063	COIL ASSY., IGNITION	1	S/N 1141205 AND BELOW
3	30500ZE1073	COIL ASSY., IGNITION	1	S/N 1141206 AND ABOVE
4	90121952000	FLANGE BOLT 6X25	2	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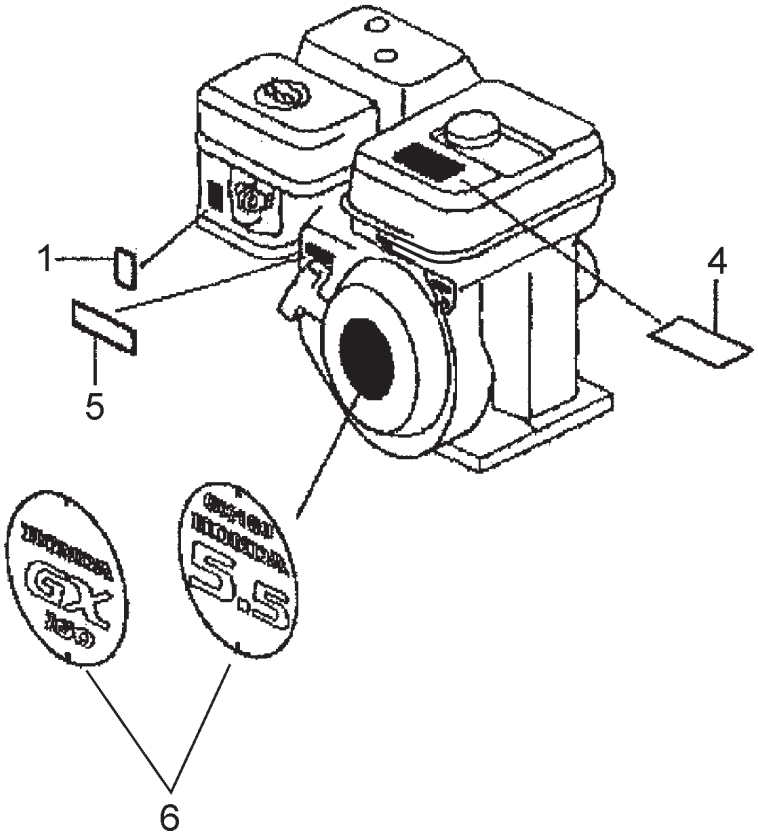
NO	PART NO	PART NAME	QTY.	REMARKS
1	16500ZH8U43	CONTROL ASSY.	1	INCLUDES ITEMS W/#
2	90013883000	FLANGE BOLT 6X12	2	
3	16561ZE1020	SPRING, GOVERNOR	1	
4	90015ZE5010	BOLT, GOVERNOR ARM	1	
5	16551ZE0010	ARM, GOVERNOR	1	
6	9405006000	NUT, FLANGE 6 MM	1	
7	16562ZE1020	SPRING, THROTTLE RETURN	1	
8	16555ZE1000	ROD, GOVERNOR	1	
9#	93500040060H	SCREW, PAN 4X6	2	
10#	16594883010	WIRE HOLDER	2	
11#	90605230000	CIRCLIP, 5 MM	2	
12#	90114SA0000	NUT, SELF-LOCK 6 MM	1	
13#	16575ZH8000	WASHER, CONTROL LEVER	1	
14#	16574ZE1000	LEVER SPRING	1	
15#	16571ZH8020	LEVER CONTROL	1	
16#	16578ZE1000	SPACER, CONTROL LEVER	1	
17#	16580ZH8813	BASE COMP., CONTROL	1	
18#	16584883300	SPRING, CONTROL ADJUSTING	1	
19#	93500050250H	SCREW, PAN 5X25	1	
20#	16592ZE1810	SPRING, CABLE RETURN	1	
21#	93500050160A	SCREW, PAN 5X16	1	
22#	16576891000	HOLDER, CABLE	1	
23	16599ZG1M10	COLLAR, STOPPER	1	OPTION
24	90016ZG9N30	SCREW, RECESSED 5X25	1	OPTION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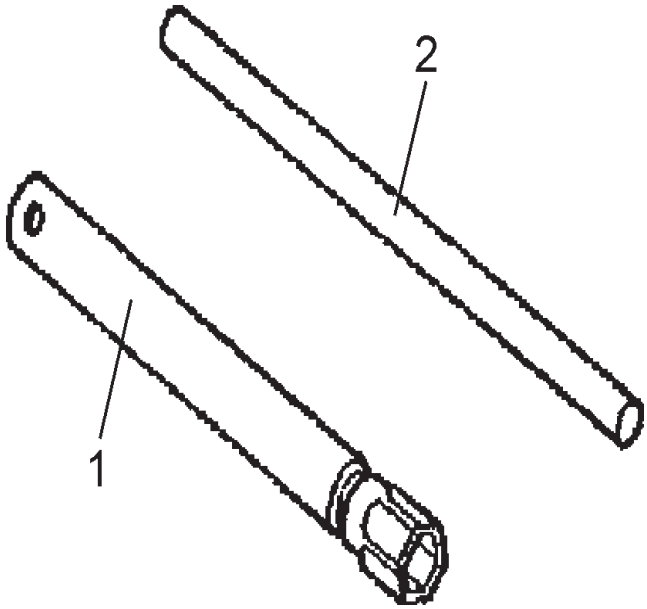
NO	PART NO	PART NAME	QTY.	REMARKS
1	87528ZH7000	MARK, CHOKE (GRAY)	1	
4	87516ZH7810	MARK, OPERATOR CAUTION (ENGLISH)	1	
5	87532ZH7000	MARK, THROTTLE INDICATION	1	
6	87521ZH8030	EMBLEM (GX160 5.5)	1	S/N 1120413 AND BELOW
6	87521ZH8040	EMBLEM (GX160 5.5)	1	S/N 1120414 AND ABOVE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NO	PART NO	PART NAME	QTY.	REMARKS
1	89218ZE1000	WRENCH COMPLETE, SPARK PLUG	1	
2	89219805000	HANDLE, BOX WRENCH	1	