

OPERATION AND PARTS MANUAL



Mikasa SERIES
MODEL MVC-88VGE/VGEW
ONE-WAY PLATE COMPACTOR
(ROBIN EX170D54011 GASOLINE ENGINE)

Revision #1 (01/11/11)

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THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.



WARNING



CALIFORNIA — Proposition 65 Warning

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

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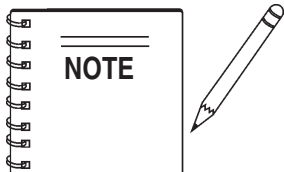
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*Specification and part number
are subject to change without
notice.*

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Note: Discounts Are Subject To Change



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Note: Discounts Are Subject To Change



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|---|--|
| <input type="checkbox"/> Dealer Account Number | <input type="checkbox"/> Specify Preferred Method of Shipment: |
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| <input type="checkbox"/> Shipping Address (if different than billing address) | <input type="checkbox"/> Priority One <input checked="" type="checkbox"/> Truck |
| <input type="checkbox"/> Return Fax Number | <input type="checkbox"/> Ground |
| <input type="checkbox"/> Applicable Model Number | <input type="checkbox"/> Next Day |
| <input type="checkbox"/> Quantity, Part Number and Description of Each Part | <input type="checkbox"/> Second/Third Day |

NOTICE

All orders are treated as *Standard Orders* and will ship the same day if received prior to 3PM PST.

WE ACCEPT ALL MAJOR CREDIT CARDS!



MVC-88VGE/VGEW PLATE COMPACTOR — 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 |
|  | Rotating parts hazards |

MVC-88VGE/VGEW PLATE COMPACTOR — 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.



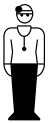
- **NEVER** operate this equipment under the influence of drugs or alcohol.



- **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.
- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.

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.



MVC-88VGE/VGEW PLATE COMPACTOR — SAFETY INFORMATION

COMPACTOR 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.

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

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.
- 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.
- **NEVER** tip the engine to extreme angles during lifting as it may cause oil to gravitate into the cylinder head, making the engine start difficult.

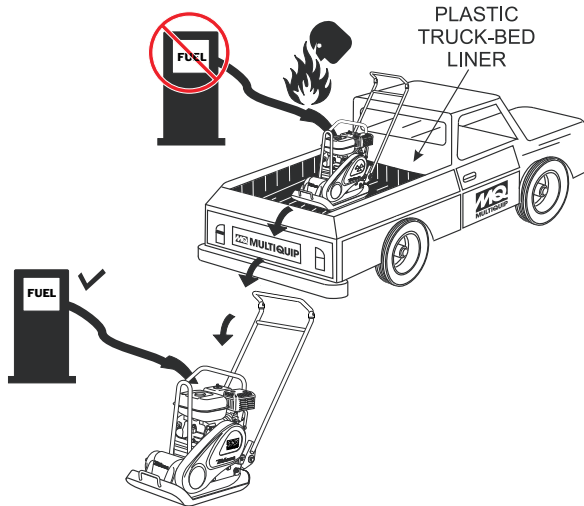



MVC-88VGE/VGEW PLATE COMPACTOR — SAFETY INFORMATION

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 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.

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.

MVC-88VGE/VGEW PLATE COMPACTOR — SPECIFICATIONS

TABLE 1. Specifications (Compactor)

| | |
|---|---|
| Models | MVC-88VGE/MVC-88VGEW |
| Centrifugal Force | 3,370 lbs. (1,530 kg) |
| Number of Vibrations | 6,000 vibrations/min |
| Traveling Speed | 72 ft./min (22 meters/min) |
| Plate Size (LxW) | 19.7 x 20.7 in. (.500 x .525 mm) |
| Operating Weight (VGE) Operating Weight (VGEW) | 196 lbs. (89.0 kg.) 217 lbs. (98.5 kg.) |
| Fuel Tank Capacity | 3.8 qt. (3.6 liters) |
| Water Tank Capacity (VGEW Model Only) | 13.7 qt. (13.0 liters) |
| Max. Area Of Compaction | 7500 sq. ft./hr. |

Table 2. Specifications (Engine)

| | |
|---------------------|---------------------------------|
| Engine Make | ROBIN (FUJI HEAVY INDUSTRIES) |
| Engine Model | EX170D54011 |
| Engine Type | OHV Gasoline Engine |
| Number of Cylinders | 1 |
| Displacement | 10.3 cu-in (169 cc) |
| Max Output | 5.7 H.P./3600 R.P.M. |
| Fuel Tank Capacity | Approx. 3.8 quarts (3.6 liters) |
| Fuel | Unleaded Automobile Gasoline |
| Lube Oil Capacity | 0.63 quartz (60 liters) |
| Starting Method | Recoil Start |
| Dry Weight | 33 lbs (15 Kg.) |

MVC-88VGE/VGEW PLATE COMPACTOR — GENERAL INFORMATION

Definition of Plate Compactor

The Mikasa MVC-88VGE/VGEW is a walk behind, plate compactor designed for the compaction of sand, mixed soils and asphalt. 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 compacting for road, embankments and reservoirs as well as backfilling for gas pipelines, water pipelines and cable installation work.

Vibratory Plates

The vibratory plates of the MVC-88VGE/VGEW produce low amplitude high frequency vibrations, designed to compact granular soils and asphalt.

The resulting vibrations cause forward motion. The engine and handle are vibration isolated from the vibrating plate.

Frequency/Speed

The compactor's vibrating plate has a frequency range between 5800 vpm (vibrations per minute). The travel speed of the compactor is approximately 56 feet/minute (17 meters/minute).

Engine

The Mikasa MVC-88VGE/VGEW Plate Compactor is equipped with a Robin EX170D54011 air cooled, 4-cycle gasoline engine. The engine drives an eccentric weight at a high speed to develop a compaction force.

Controls

Before starting the MVC-88VGE/VGEW Plate Compactor, identify and understand the function of the controls and components.

MVC-88VGE/VGEW PLATE COMPACTOR — COMPONENTS (COMPACTOR)

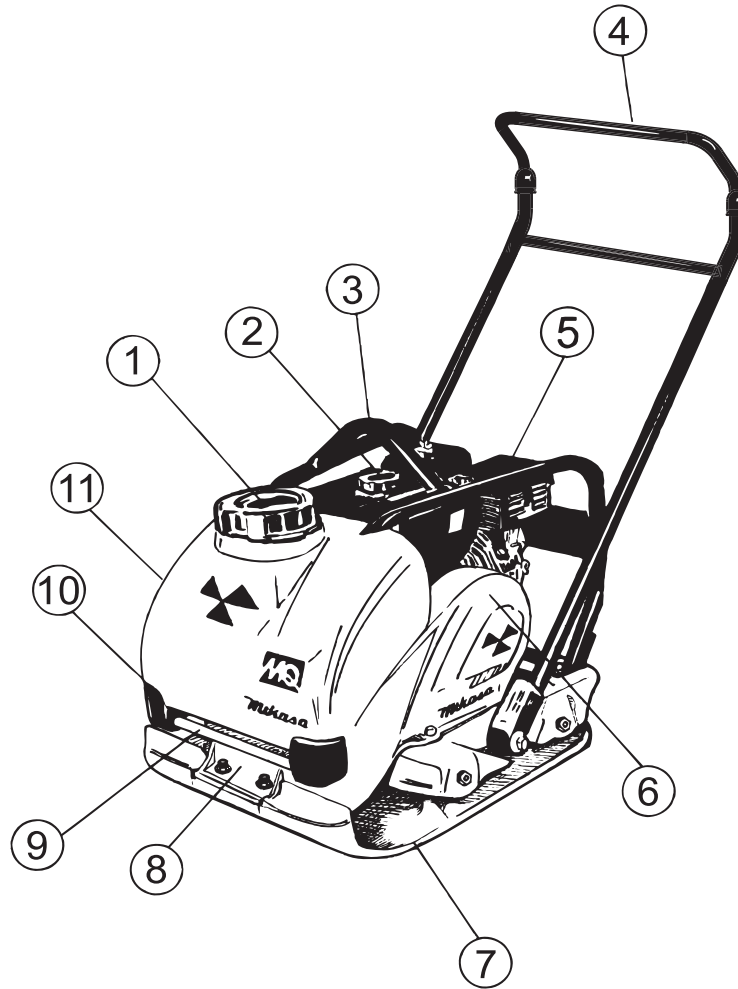


Figure 1. Plate Compactor Controls

Figure 1 shows the location of the basic controls and components of the MVC-88VGE/VGEW Plate Compactor. The function of each control is described below:

1. **Water Tank Cap (VGEW Only)** – Remove this cap to add water to the water tank.
2. **Fuel Tank Cap** – Remove this cap to add fuel.
3. **Lifting Bale** – When lifting of the compactor is required either by forklift, crane etc., tie rope or chain around this lifting point.
4. **Handle Bar** – When operating the compactor use this handle bar to maneuver the compactor.
5. **Gasoline Engine** – This plate compactor uses a ROBIN engine. Refer to the ROBIN owner's manual for engine information and related topics.
6. **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, the possibility exists that your hand may get caught between the V-belt and clutch, causing serious injury and bodily harm.
7. **Vibrating Plate** – A flat, open plate made of durable cast iron construction used in the compacting of soil.
8. **Vibration Case** – Encloses the eccentric, gears and counter weights.
9. **Water Tube (Sprinkler)** – Supplies water to the soil via a splash plate.
10. **Water Shut-Off Valve** – Turn this valve downward to let water flow from the water tank to the water tube.
11. **Water Tank (VGEW only)** – Holds 13.7 quarts of water (removable, no tools required).

MVC-88VGE/VGEW PLATE COMPACTOR — COMPONENTS (ENGINE)

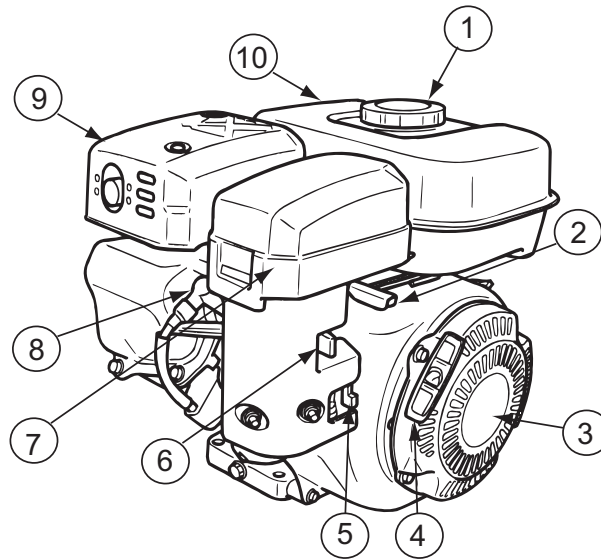


Figure 2. Engine Controls & Components

ENGINE COMPONENTS

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

1. **Fuel Filler Cap** – Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.

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.

! DANGER **Explosive 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.

NOTE

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

2. **Throttle Lever** – Used to adjust engine RPM speed (lever advanced forward - **SLOW**, lever back toward operator - **FAST**).
3. **Recoil Starter (pull rope)** – Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.
4. **Starter Grip**– Pull the starter grip until resistance is felt, then pull briskly and smoothly to start engine.

! WARNING **Burn Hazard**

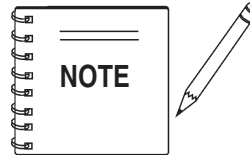
Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operating. **NEVER** operate the engine with the muffler removed.

8. **Spark Plug** – Provides spark to the ignition system. Set spark plug gap to 0.6 - 0.7 mm (0.028 - 0.031 inch) Clean spark plug once a week.
9. **Muffler** – Used to reduce noise and emissions.
10. **Fuel Tank** – Holds approximately 1 gallon (3.6 liters) of unleaded gasoline. For additional information refer to engine owner's manual.

MVC-88VGE/VGEW PLATE COMPACTOR — INSPECTION

Before Starting

1. Read safety instructions at the beginning of manual.
2. Clean the compactor, removing dirt and dust, particularly the engine cooling air inlet, carburetor and air cleaner.
3. Check the air filter for dirt and dust. If air filter is dirty, replace air filter with a new one as required.
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.



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 3. 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 |

Engine Oil Check

1. To check the engine oil level, place the pump on secure level ground with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole (Figure 3) and wipe clean.

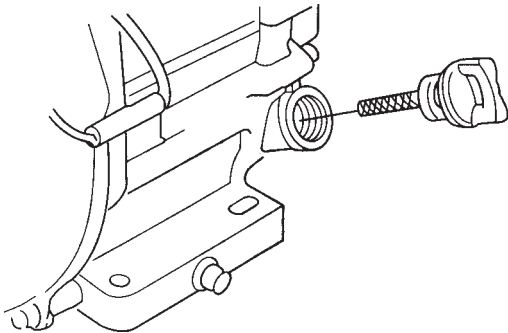


Figure 3. Engine Oil Dipstick (Removal)

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 4), fill to the edge of the oil filler hole with the recommended oil type (Table 3). Maximum oil capacity is 0.63 quarts (0.60 liters).

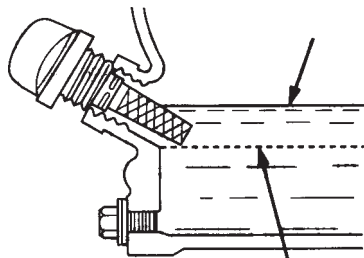




Figure 4. Engine Oil Dipstick (Oil Level)



DANGER

Explosive Fuel Hazard



Adding fuel to the fuel 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. **DO NOT** attempt to refuel the compactor if the engine is *hot!* or *running*.

Fuel Check

1. Remove the gasoline cap located on top of fuel tank.
2. Visually inspect to see if the 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 *immediately!*

V-Belt Check

CAUTION

NEVER attempt to check the V-belt with the engine running. Severe injury can occur if your hand (Figure 5) gets caught between the V-belt and the clutch. Always use safety gloves.

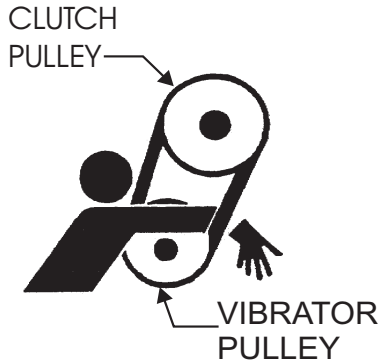


Figure 5. V-Belt Hazard

1. To check the V-belt tension, remove the three bolts that secure the belt cover to the frame as shown in Figure 6.

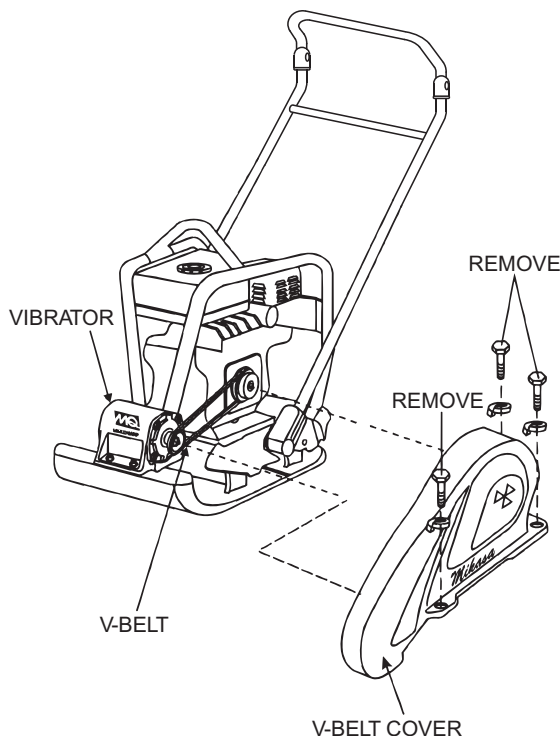


Figure 6. V-Belt Cover Removal

2. The V-belt tension is proper if the V-belt bends 10 to 15 mm (Figure 7) when depressed with finger at midway between the clutch and vibration pulley shafts.

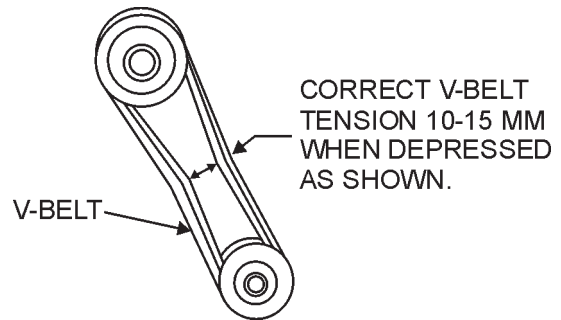


Figure 7. V-Belt Tension

3. A loose V-belt will decrease the power transmission output, causing reduced compaction and premature wear of the belt.
4. If the V-belt becomes worn or loose, replace it.

Vibrator Oil Check

1. Place the MVC-88VGE/VGEW plate compactor horizontally on a flat surface. Make sure the compactor is level when checking the oil in the vibrator assembly.
2. Check vibrator oil level by removing the plug (vibrator oil gauge) as shown in Figure 8. The oil level should be up to the oil plug. The vibrator holds 140 cc (approximately 4 oz.). **IMPORTANT**, if oil is required, replace using only SAE 10W-30 motor oil.

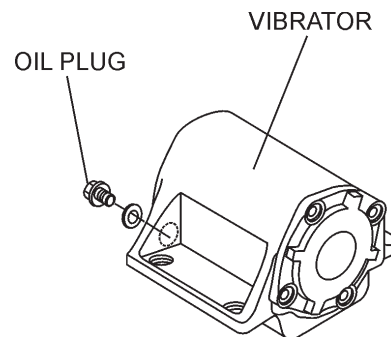
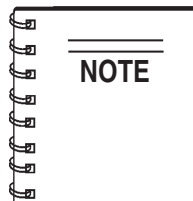


Figure 8. Vibrator Oil Plug

MVC-88VGE/VGEW— INITIAL START-UP

CAUTION

DO NOT attempt to run the compactor until the Safety and Initial Start-up sections have been read and understood.



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.

1. Place the **fuel valve lever** (Figure 9) in the "ON" position.

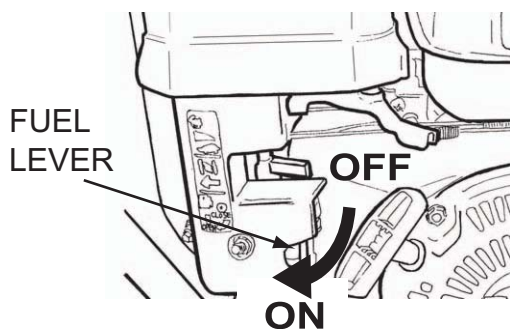


Figure 9. Fuel Valve Lever

2. Place the **Engine ON/OFF switch** (Figure 10) in the "ON" position.

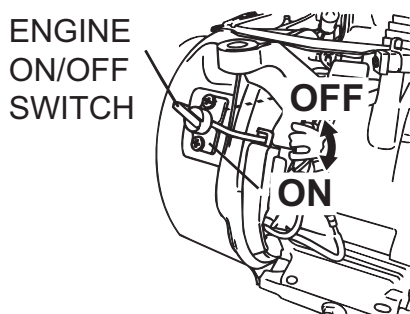


Figure 10. Engine ON/Off Switch

3. Place the **Choke Lever** (Figure 11) in the "OPEN" position.

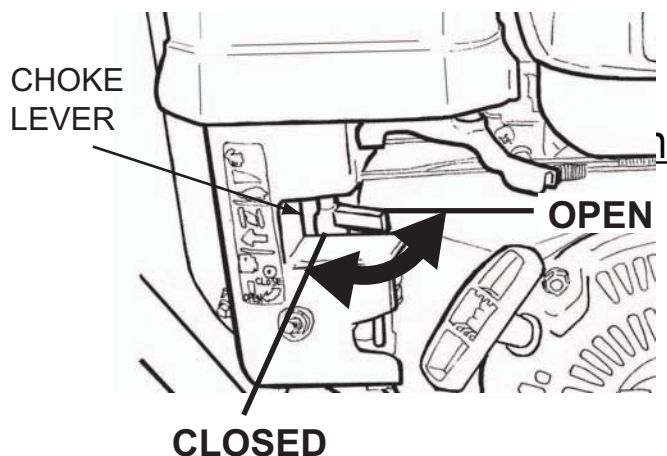


Figure 11. Choke Lever

4. Place the **throttle lever** (Figure 12) halfway between **fast** and **slow**.

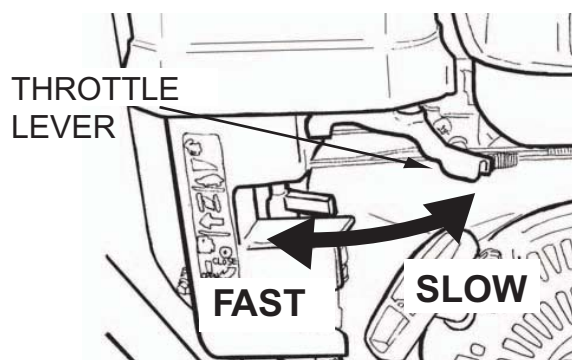
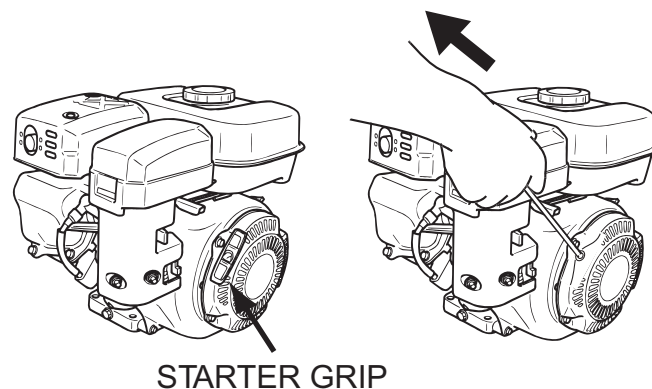


Figure 12. Throttle Lever

5. Grasp the starter grip (Figure 13) 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.



STARTER GRIP

Figure 13. Starter Grip

MVC-88VGE/VGEW— INITIAL START-UP/OPERATION

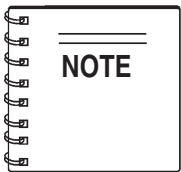
6. If the engine has started, slowly return the choke lever (Figure 11) to the **CLOSED** position. If the engine has not started repeat steps 1 through 5.
7. Before the compactor is put into operation run the engine for 3-5 minutes.
8. Check for abnormal engine noises or fuel leaks.

Operation

CAUTION

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

1. Once the engine has started, move the engine throttle lever quickly to the **fast** position.
2. With the throttle lever in the fast position, the engine speed should be around 2,300 RPM, therefore engaging the centrifugal clutch.



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

5. Firmly gasp the compactor's handle bar with both hands, the compactor will begin moving forward.
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.
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 equivalent material has been lodge in the plate mechanism. If so, wash with water and remove.
 - Remember 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 12) in **slow** position, and listen for the engine speed to decrease.
2. Place the **Engine ON/OFF switch** (Figure 10) in the "**OFF**" position.
3. Place the **fuel valve lever** (Figure 9) in the "**OFF**" position.

CAUTION

Inspection and other services should **always** be carried out on hard and level ground with the engine shutdown.

CAUTION

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

Inspection and Maintenance Service Tables.

- To make sure your plate compactor is always in good working condition before using, carry out the maintenance inspection in accordance with Tables 4 through 6.

CAUTION

Fuel piping and connections should be replaced every 2 years.

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 HONDA Shop Manual for service procedures.

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

TABLE 5. MACHINE INSPECTION

| Item | Hours of Operation | Remarks |
|-------------------------------------|---------------------------|--------------|
| (Starting check) | Every 8 hours (every day) | |
| Loosened or lost screws | Every 8 hours (every day) | |
| Damage of any part | Every 8 hours (every day) | |
| Function of controlling system part | Every 8 hours (every day) | |
| Vibrator oil check | Every 100 hours | See page 19. |
| Vibrator oil replacement | Every 200 hours | See page 19. |
| V-belt (clutch) check | Every 200 hour | See page 19. |

Daily Service

- Check for leakage of fuel or oil.
- Check engine oil.
- Check for loose screws including tightness. See Table 6 below (tightening torque), for retightening.

TABLE 6.

TIGHTENING TORQUE (in. kg/cm) Diameter

| Material | 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 (6mm) 300 ~ 350 (8mm) | | 650 ~ 700 (10mm) | | | | | |
| * (In case counter-part 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. | | | | | | | | |

ENGINE OIL

1. Drain the engine oil when the oil is **warm** as shown in Figure 14.
2. Remove the dipstick and then unscrew the oil plug and allow the oil to drain into a suitable container.
3. Replace engine oil with recommended type oil as listed in Table 3. For engine oil capacity, see Table 2 (engine specifications). **DO NOT** overfill.
4. Install drain bolt with sealing washer and tighten securely.

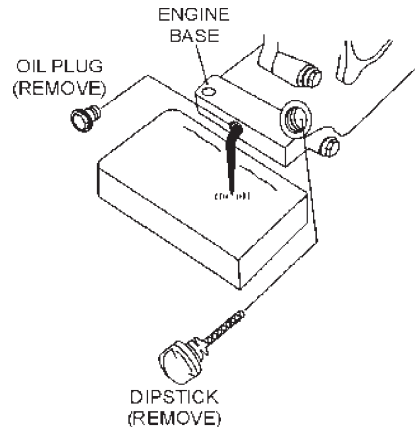


Figure 14. Engine Oil (Draining)

ENGINE AIR CLEANER

1. Remove the air cleaner cover and foam filter element as shown in Figure 15.
2. Tap the paper filter element (Figure 15) 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.
3. Clean foam element in warm, soapy water or nonflammable solvent. Rinse and dry thoroughly. Dip the element in clean engine oil and completely squeeze out the excess oil from the element before installing.

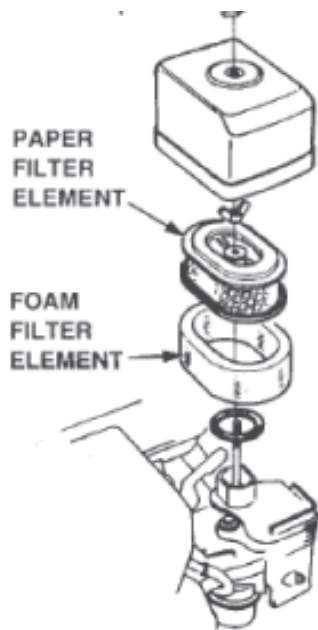


Figure 15. Air Cleaner

CHANGING VIBRATOR OIL

1. When changing the vibrator oil, remove the drain plug located at the bottom- right of the vibrator (Figure 8), and simply tip the compactor to drain the oil. Note that the oil will drain more easily while it is hot. Remember to use only 10W-30 motor oil when replacing vibrator oil.

! CAUTION

NEVER attempt to check the V-belt with the engine running. Severe injury can occur if your hand (Figure 5) gets caught between the V-belt and the clutch. Always use safety gloves.

Checking and Replacing the 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 reduces power transmission efficiency, causing weak compaction and reduces the life of the belt itself.

! CAUTION

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

■ 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 and, 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, check outer drum of the clutch for seizure and "V" groove for wear or damage with your eyes. Clean the "V" groove as necessary. Wear of lining or shoe should be checked frequently. If the shoe is worn, power transmission becomes deficient and slipping will result.

MVC-88VGE/VGEW— PREPARATION FOR LONG -TERM STORAGE

Plate Compactor Storage

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

- Drain the fuel tank completely or add STA-BIL to the fuel.
- Run the engine until the fuel is completely consumed.
- Completely drain the oil from the engine crankcase and follow procedures described in the **ROBIN** 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.

MVC-88VGE/VGEW—TROUBLESHOOTING (ENGINE)

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the **Engine**, and **Compactor** Troubleshooting (Tables 7, and 8) information.

If the problem cannot be remedied, please leave the unit as is and consult Multiquip's Service Department.

TABLE 7. 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 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, 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. |

MVC-88VGE/VGEW—TROUBLESHOOTING (ENGINE/COMPACTOR)

TABLE 7. 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, re-build 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 8. PLATE COMPACTOR TROUBLESHOOTING

| SYMPTOM | POSSIBLE CAUSE | SOLUTION |
|--|----------------------------------|---|
| Travel speed too low, and vibration is weak. | Engine speed too low? | Set engine speed to correct RPM. |
| | Clutch slips? | Check or replace clutch. |
| | V-belt slips? | Adjust or replace V-belt. |
| | Excessive oil in vibrator? | Drain excess oil and fill to proper level. |
| | Malfunction in vibrator housing? | Check eccentric, gears and counter weights. |
| | Bearing Failure? | Replace bearing. |
| | Insufficient Engine Output? | Check engine, compression, etc. |

MVC-88VGE/VGEW— EXPLANATION OF CODES 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.

MVC-88VGE/VGEW — SUGGESTED SPARE PARTS

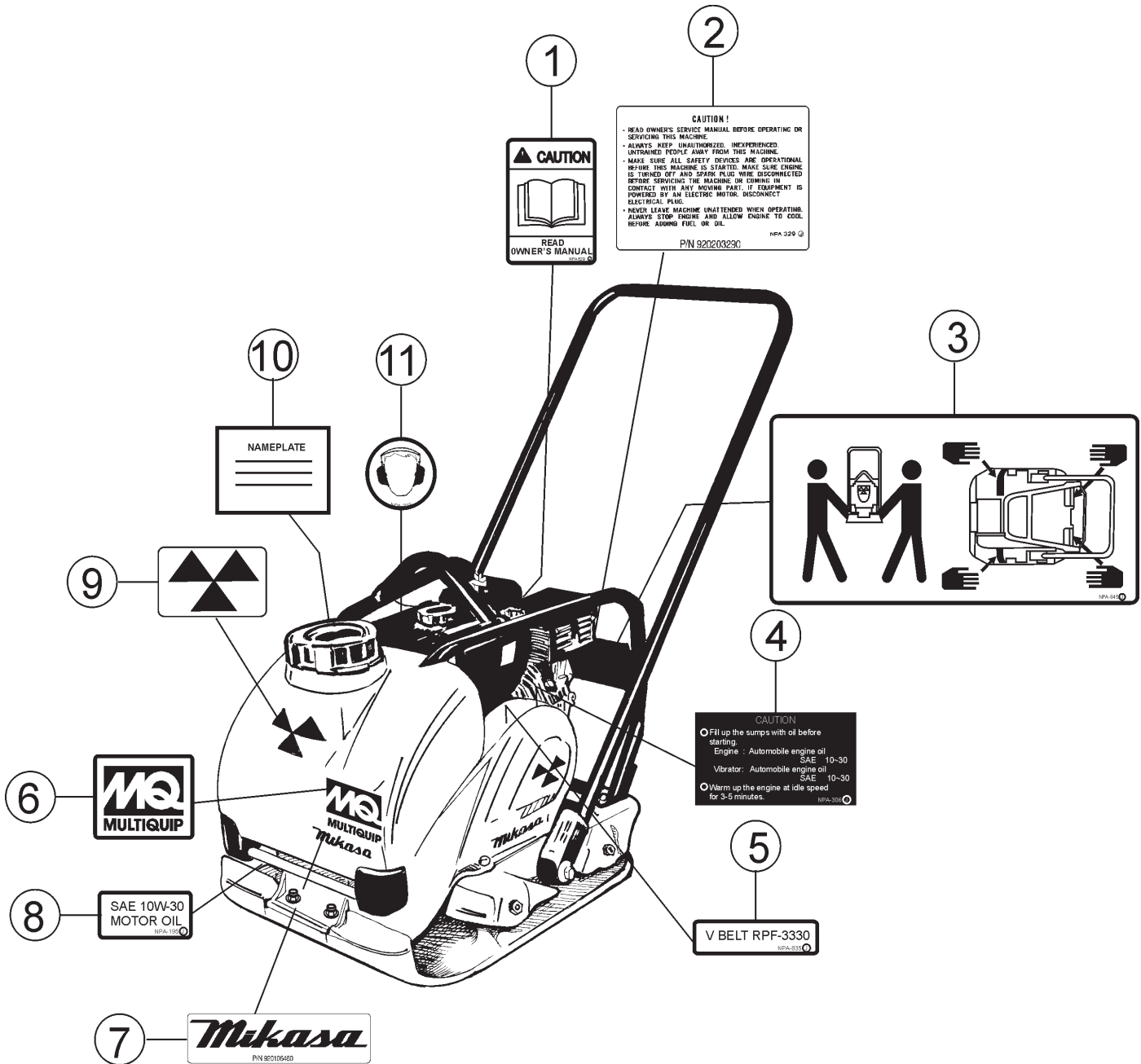
MVC-88VGE/VGEW 1 TO 5 UNITS WITH ROBIN
EX170D54011 ENGINE

1 to 5 Units

| <u>Qty.</u> | <u>P/N</u> | <u>Description</u> |
|-------------|------------------|------------------------|
| 3 | 070100332 | V-BELT |
| 5 | 0650149670 | SPARK PLUG |
| 1 | 2825011118 | ROPE, RECOIL STARTER |
| 5 | 2773261107 | ELEMENT, AIR CLEANER |
| 1 | 0430430060 | CAP, FUEL TANK |
| 1 | 0641360010 | FUEL FILTER, FUEL TANK |
| 4 | 939010140 | SHOCK ABSORBER |

MVC-88VGE/VGEW— NAME PLATE AND DECALS

NAME PLATE AND DECALS



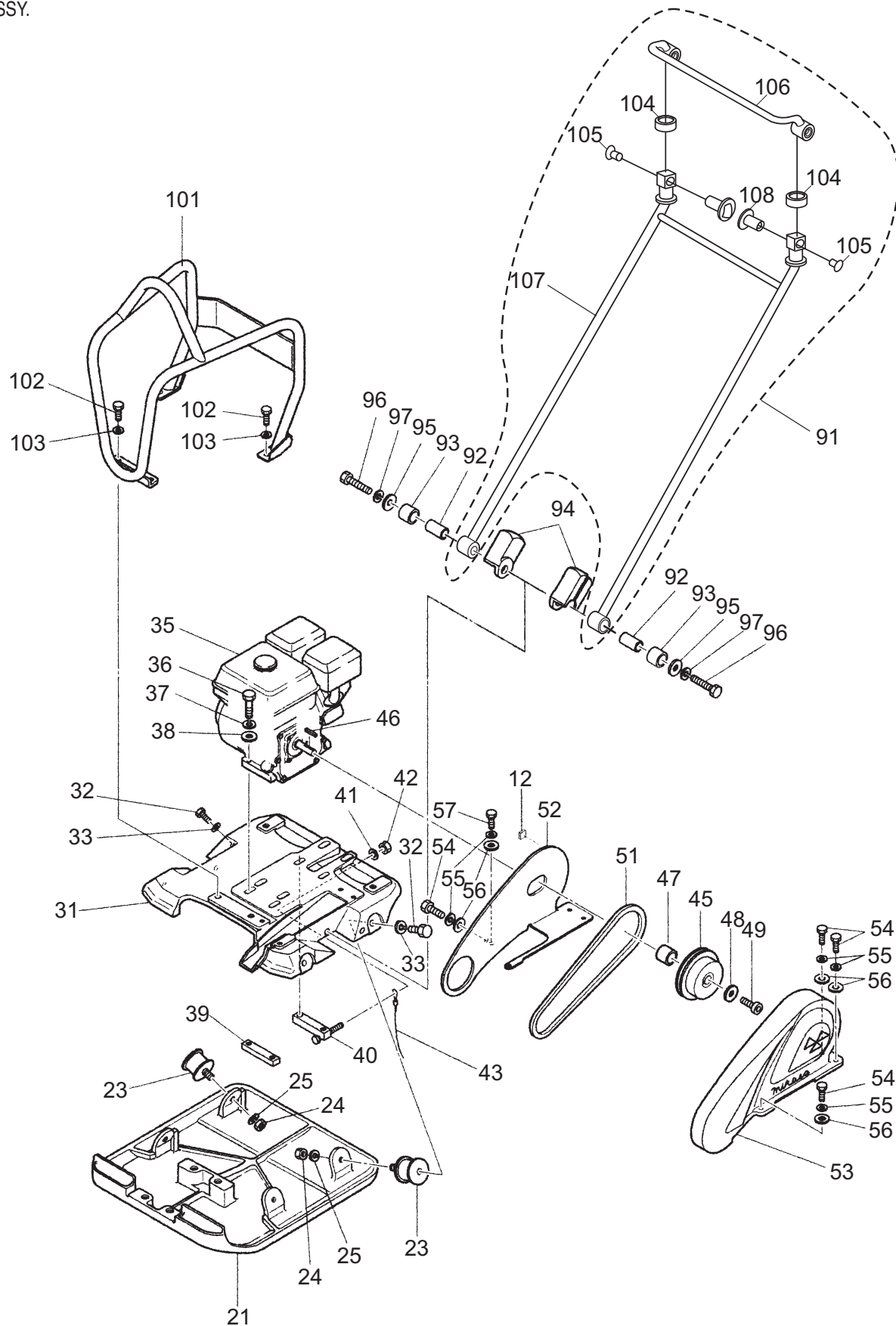
MVC-88VGE/VGEW— NAME PLATE AND DECALS

NAME PLATE AND DECALS

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|-----------------------------------|-------------|--------------------------------------|
| 1 | 920207690 | DECAL, READ OWNERS MANUAL | 1 | NPA-769 |
| 2 | 920203290 | DECAL, CAUTION | 1 | NPA-329 |
| 3 | 920208450 | DECAL, LIFTING | 1 | NPA-845 |
| 4 | 920203060 | DECAL, CAUTION (START ENG/VIBR) . | 1 | NPA-306 |
| 5 | 920208350 | DECAL, V- BELT RPF-3330 | 1 | NPA-835 |
| 6 | 920201580 | DECAL, MQ LOGO | 2 | NPA-158 |
| 7 | 920105070 | DECAL, MIKASA LOGO (NAME) | 1 | NPA-507 |
| 8 | 920201950 | DECAL, MOTOR OIL | 1 | NPA-195 |
| 9 | 920101410 | DECAL, MIKASA LOGO (TRIANGLE) ... | 1 | NPA-141 |
| 10 | | NAMEPLATE, SERIAL NO. | 1 | CONTACT MQ PARTS DEPT. W/MODEL & S/N |
| 11 | 920203330 | EAR PROTECTION LABEL | 1 | NPA-333 |

MVC-88VGE/VGEW—BODY ASSY.

BODY ASSY.



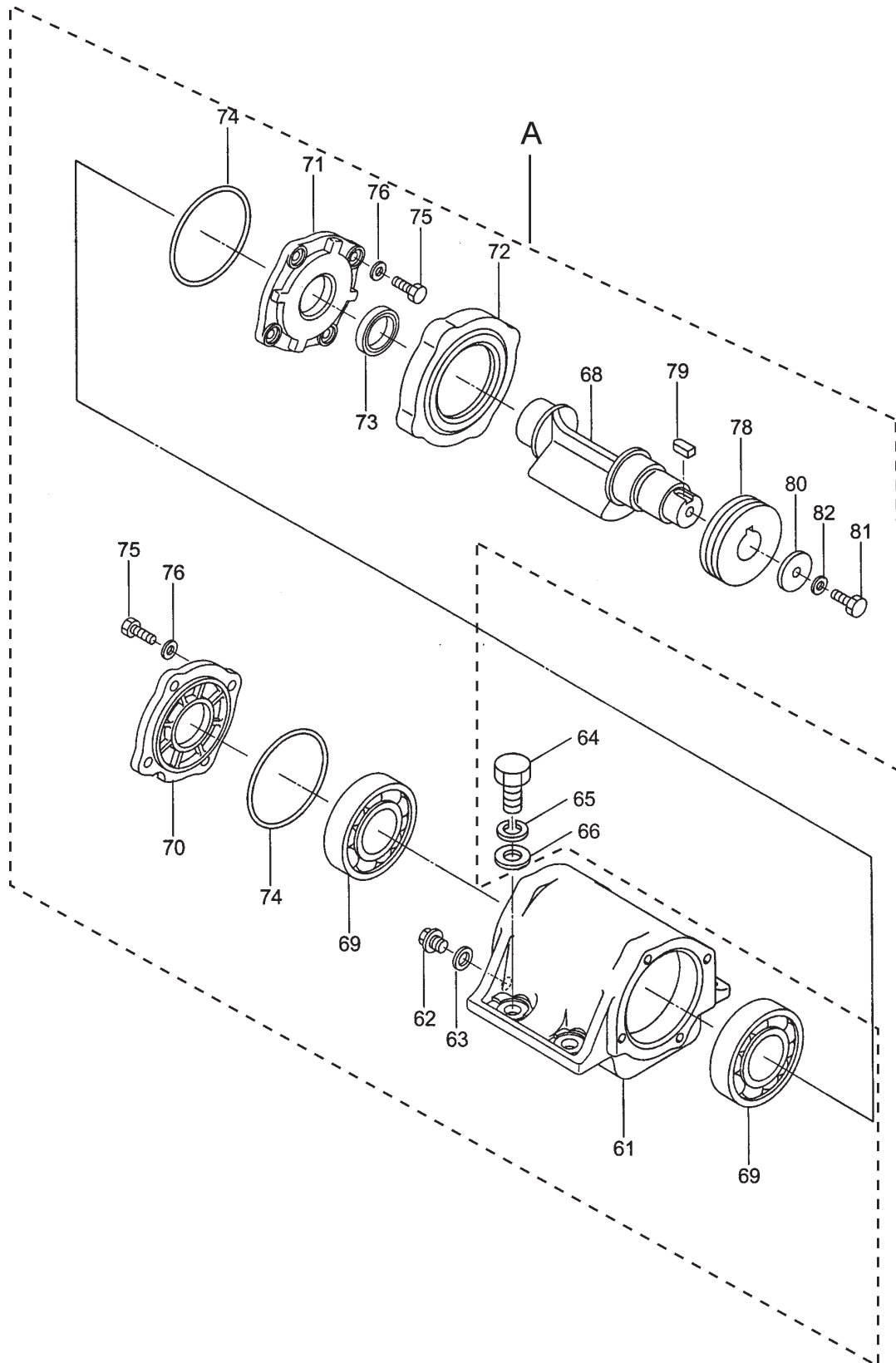
MVC-88VGE/VGEW— BODY ASSY.

BODY ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|--------------------------|-------------|---------------------|
| 12 | 416454360 | RUBBER PLATE 25X25X8 | 1 | |
| 21 | 416115973 | VIBRATING PLATE | 1 | |
| 23 | 939010140 | SHOCK ABSORBER 50D-45H | 4 | |
| 24 | 020310080 | NUT M10 | 4 | |
| 25 | 030210250 | WASHER, LOCK M10 | 4 | |
| 31 | 416115980 | BASE | 1 | |
| 32 | 001221025 | BOLT 10X25 T | 4 | |
| 33 | 030210250 | WASHER, LOCK M10 | 4 | |
| 35 | 911221701 | ENGINE ASSY. EX170D54011 | 1 | |
| 36 | 001220845 | BOLT 8X45 T | 4 | |
| 37 | 030208200 | WASHER, LOCK M8 | 4 | |
| 38 | 031108160 | WASHER, FLAT M8 | 4 | |
| 39 | 404412290 | ENGINE NUT | 1 | |
| 40 | 416452780 | ENGINE NUT (W/BOLT) | 1 | |
| 41 | 031108160 | WASHER, FLAT M8 | 1 | |
| 42 | 022710809 | NYLON NUT M8 | 1 | |
| 43 | 959404350 | EARTH WIRE | 1 | |
| 45 | 416338990 | CLUTCH ASSY. | 1 | |
| 46 | 2062600113 | KEY 4.77 X 4.77 X 35 | 1 | |
| 47 | 416452800 | COLLAR 19.05-25-15.6 | 1 | |
| 48 | 952400130 | WASHER | 1 | |
| 49 | 009110004 | SOCKET HEAD BOLT 5/16X24 | 1 | |
| 51 | 070100332 | V-BELT RPF-3330 | 1 | |
| 52 | 416115950 | BELT COVER (INSIDE) | 1 | |
| 53 | 416010020 | BELT COVER | 1 | |
| 54 | 001220825 | BOLT 8X25 T | 4 | |
| 55 | 030208200 | WASHER, LOCK M8 | 5 | |
| 56 | 031108160 | WASHER, FLAT M8 | 1 | |
| 57 | 001220820 | BOLT 8X20 T | 1 | |
| 91 | 416910070 | VIB. PROOF HANDLE | 1 | INCLUDES ITEMS W/ # |
| 92 | 416452730 | COLLAR 13-20-44 | 2 | |
| 93 | 404433430 | RUBBER 20X32X28.5/52H | 2 | |
| 94 | 416452360 | HANDLE STOPPER | 2 | |
| 95 | 952405600 | WASHER 12.5 X 35 X 4.5 | 2 | |
| 96 | 001211253 | BOLT 12X65 H | 2 | |
| 97 | 030212300 | WASHER, LOCK M12 | 2 | |
| 101 | 416115940 | GUARD HOOK | 1 | |
| 102 | 001221025 | BOLT 10X25 T | 4 | |
| 103 | 030210250 | WASHER, LOCK M10 | 4 | |
| 104# | 416459340 | RUBBER | 2 | |
| 105# | 009120407 | BOLT, SUNK HEAD 10X20T | 2 | |
| 106# | 416217070 | GRIP, HANDLE | 1 | |
| 107# | 416118520 | VIB. PROOF HANDLE | 1 | |
| 108# | 416459320 | NUT, VIB. PROOF HANDLE | 2 | |

MVC-88VGE/VGEW—VIBRATOR ASSY.

VIBRATOR ASSY.



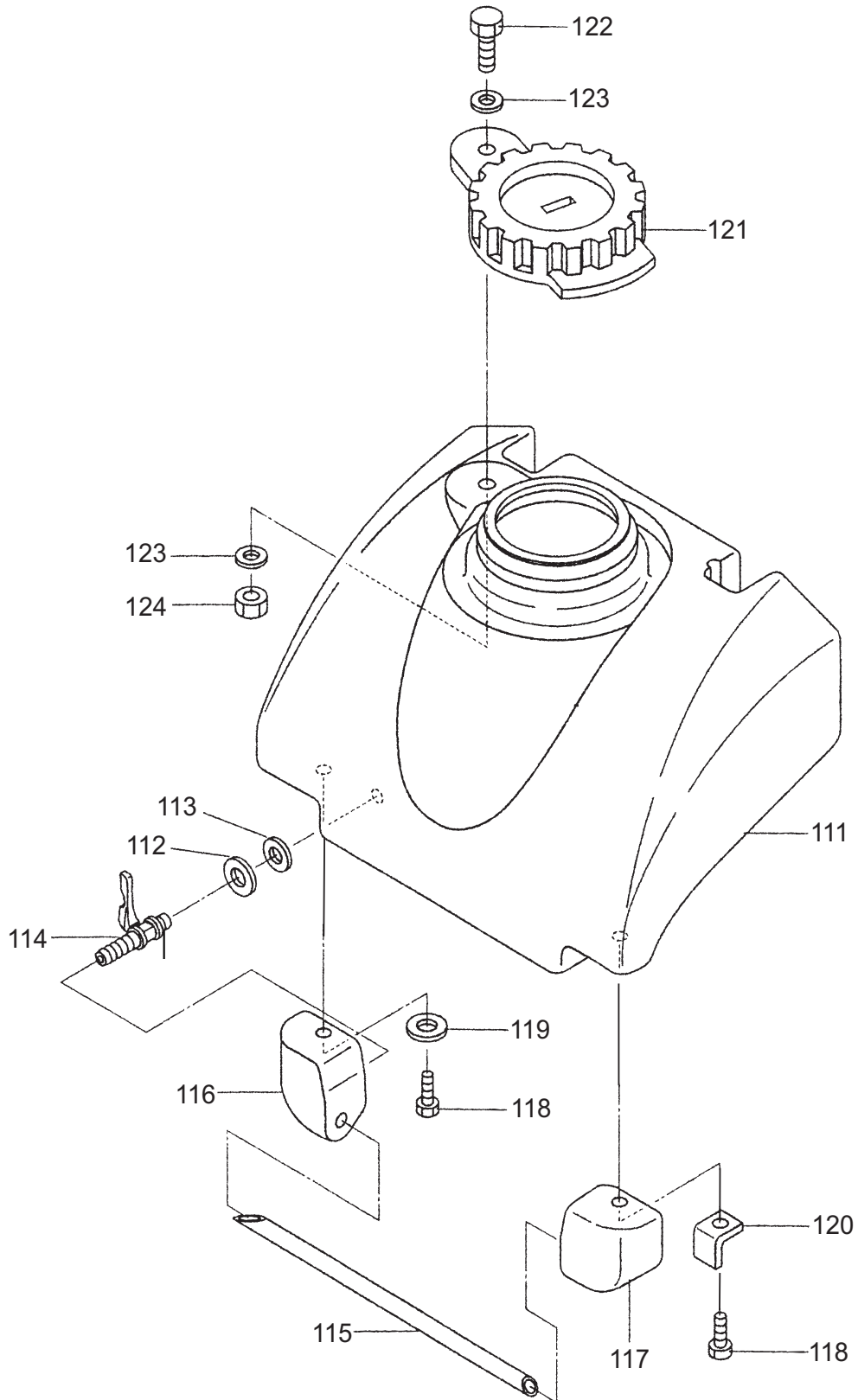
MVC-88VGE/VGEW—VIBRATOR ASSY.

VIBRATOR ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|---------------------|-------------|---------------------|
| A | 416910030 | VIBRATOR ASSY | 1 | INCLUDES ITEMS W/ # |
| 61# | 416115991 | VIBRATING CASE | 1 | |
| 62# | 953400270 | PLUG 1/4X14 10L | 1 | |
| 63# | 953405260 | PACKING 1/4 | 1 | |
| 64 | 001221640 | BOLT 16X40 T | 4 | |
| 65 | 030216400 | WASHER, LOCK M16 | 4 | |
| 66 | 031116260 | WASHER, FLAT M16 | 4 | |
| 68# | 416215530 | ECCENTRIC ROTATOR | 1 | |
| 69# | 040306211 | BEARING 6211C3 | 2 | |
| 70# | 416338900 | CASE COVER (R) | 1 | |
| 71# | 416338910 | CASE COVER (L) | 1 | |
| 72# | 416338920 | BELT COVER GUARD | 1 | |
| 73# | 060403060 | OIL SEAL TC-35488 | 1 | |
| 74# | 050101000 | O-RING G-100 | 2 | |
| 75# | 001220825 | BOLT 8X25 T | 8 | |
| 76# | 030208200 | WASHER, LOCK M8 | 8 | |
| 78# | 416454430 | PULLEY A1-28-81-20 | 1 | |
| 79# | 951405240 | KEY 7X7X19 R | 1 | |
| 80# | 952404250 | WASHER 11X40X4 | 1 | |
| 81# | 001221025 | BOLT 10X25 T | 1 | |
| 82# | 030210250 | WASHER, LOCK M10 | 1 | |

MVC-88VGE/VGEW—SPRINKLER ASSY. (OPTION)

SPRINKLER ASSY. (OPTION)



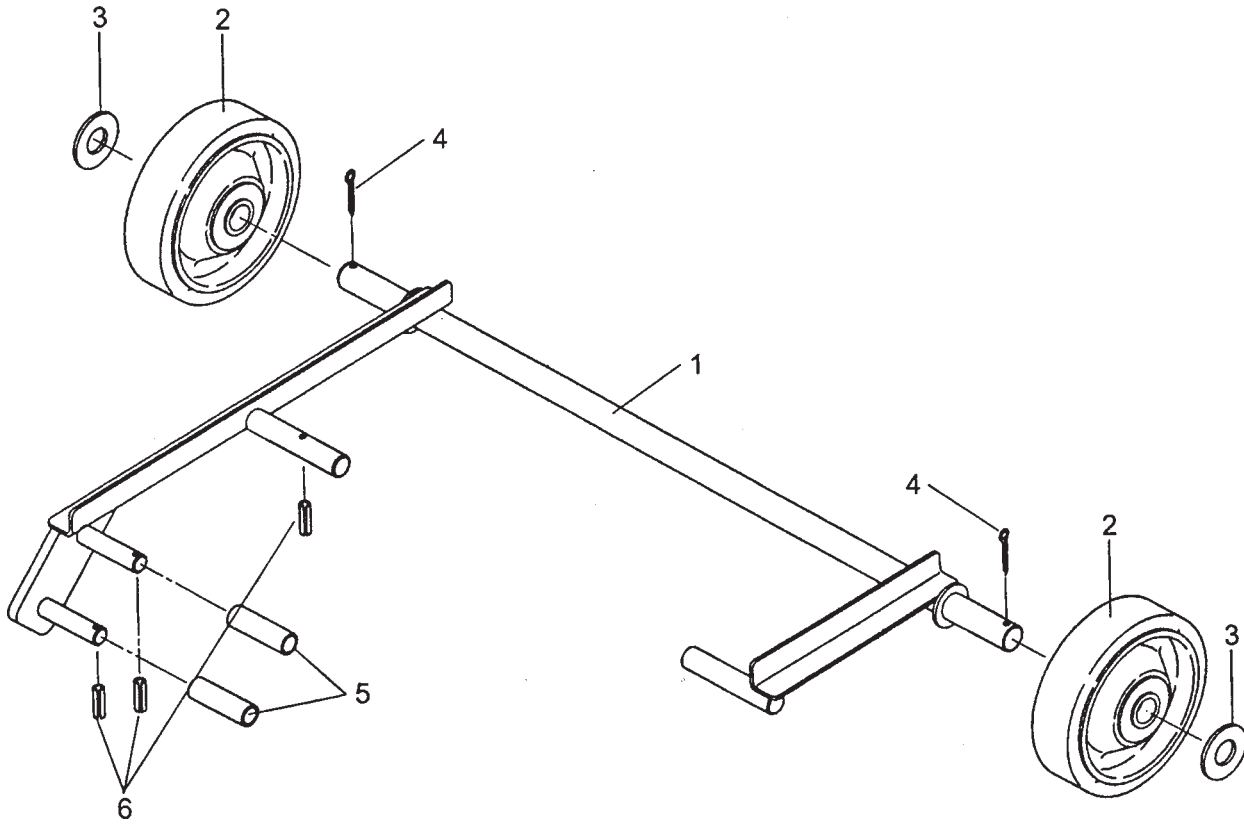
MVC-88VGE/VGEW—SPRINKLER ASSY. (OPTION)

SPRINKLER ASSY. (OPTION)

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|-------------------------------|-------------|--|
| 111 | 416910010 | WATER TANK (W/CAP ONLY) | 1 | REPLACES 416116010, INCLUDES ITEMS W/# |
| 112 | 033910050 | WASHER 14.5X30X1.6 | 1 | |
| 113 | 953406390 | PACKING 13X28X2 | 1 | |
| 114 | 954403241 | COCK PT1/4 | 1 | |
| 115 | 416338930 | SPRINKLING PIPE | 1 | |
| 116 | 416338940 | PIPE HOLDER (L) | 1 | |
| 117 | 416452750 | PIPE HOLDER (R) | 1 | |
| 118 | 001220825 | FLANGE BOLT 8X25 | 2 | |
| 119 | 416453780 | PACKING 8X19X2T | 3 | |
| 120 | 416452790 | STAY, PIPE HOLDER | 1 | |
| 121# | 954300342 | CAP, WATER TANK (NBR) | 1 | |
| 122# | 001241030 | BOLT 10X30 | 1 | |
| 123# | 033910010 | WASHER 10.5X21X2 | 2 | |
| 124# | 022910180 | NYLON NUT M10 | 1 | |

MVC-88VGE/VGEW—TRANSPORT WHEEL ASSY. (OPTION)

TRANSPORT WHEEL ASSY. (OPTION)



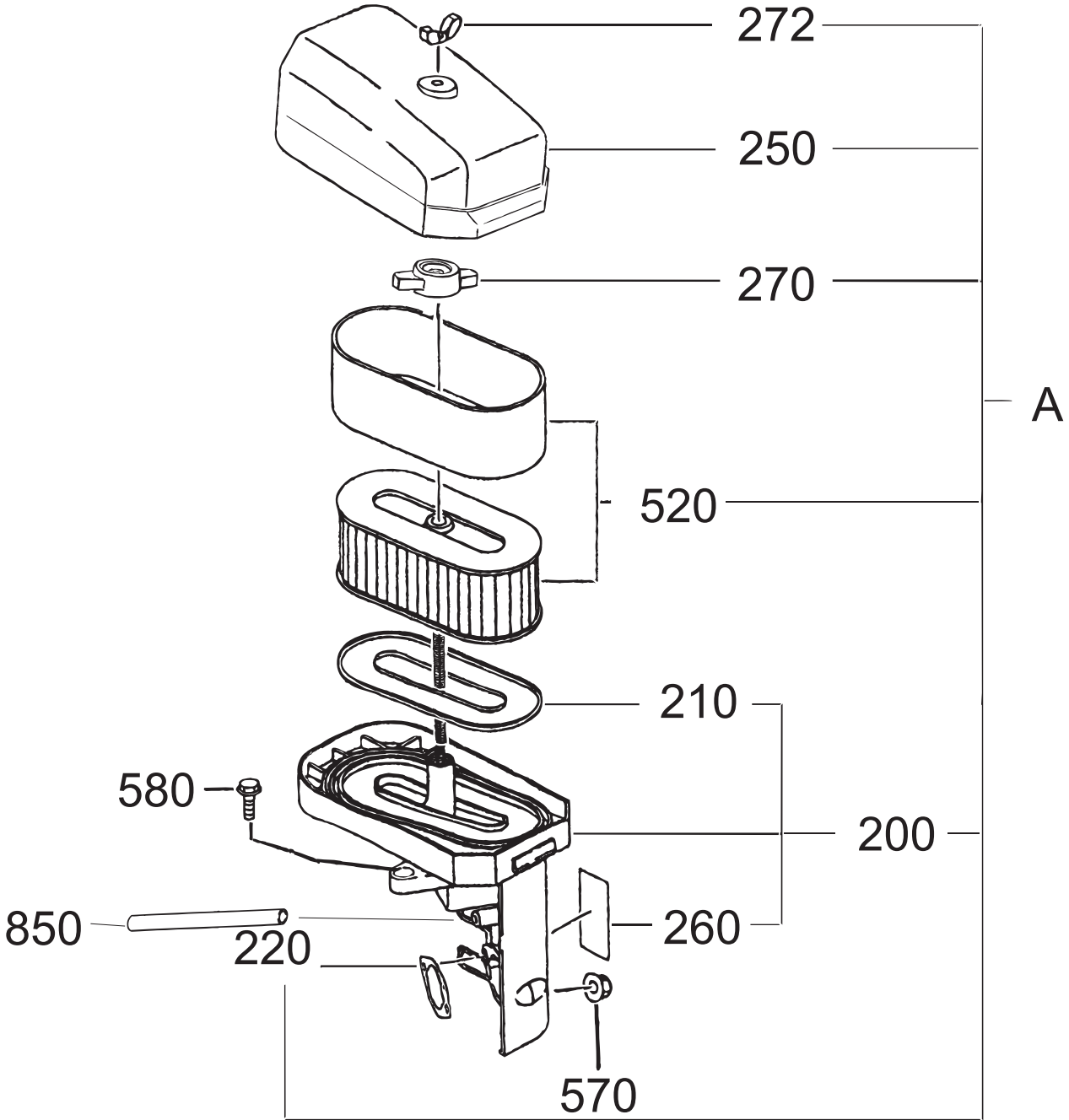
MVC-88VGE/VGEW—TRANSPORT WHEEL ASSY. (OPTION)

TRANSPORT WHEEL ASSY. (OPTION)

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|-----------------------|-------------|----------------|
| 1 | 416116160 | WHEEL SHAFT | 1 | |
| 2 | 959404310 | WHEEL 150X42 | 2 | |
| 3 | 031120320 | WASHER, FLAT M20 | 2 | |
| 4 | 025203030 | SPLIT COTTER PIN 3X30 | 2 | |
| 5 | 416454150 | ROLLER | 2 | |
| 6 | 025403025 | SPRING PIN 3X25 | 3 | |

ROBIN EX170D54011 ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.



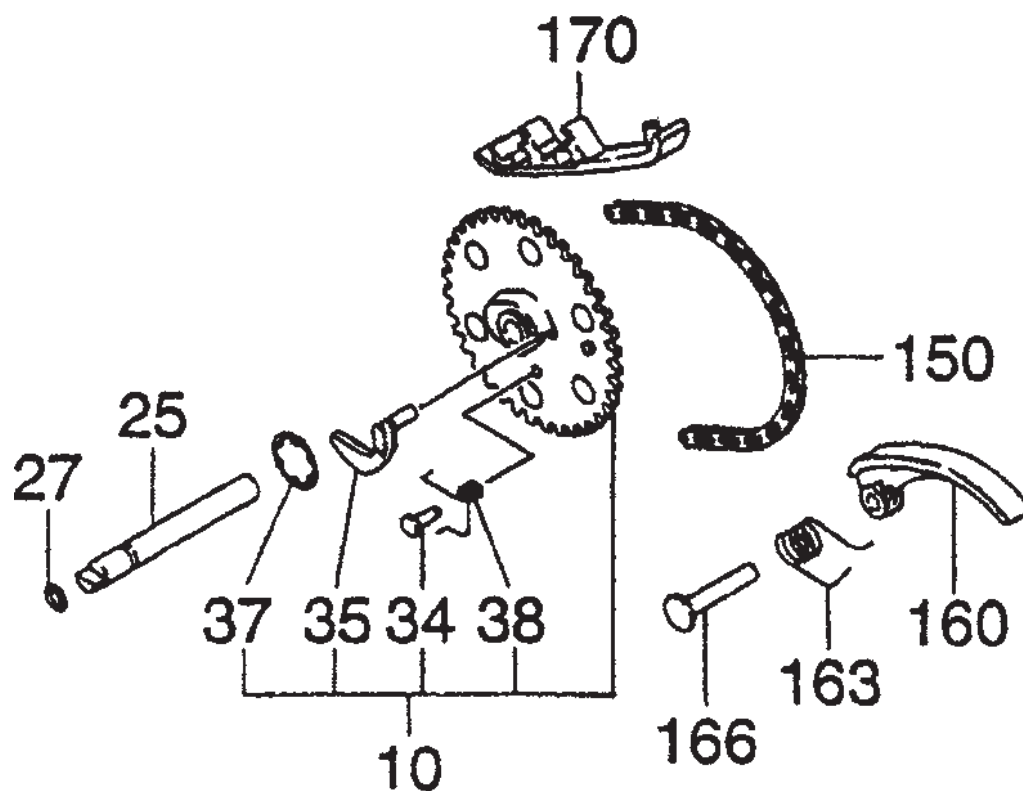
ROBIN EX170D54011 ENGINE — AIR CLEANER ASSY.

AIR CLEANER ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------|-------------|---------------------|
| A | 2773261500 | AIR CLEANER AY. | 1 | INCLUDES ITEMS W/ # |
| 200# | 2773263008 | BASE CP CLEANER | 1 | |
| 210# | 2773261008 | PACKING CLEANER | 1 | |
| 220# | 2773260408 | GASKET, CLEANER | 1 | |
| 250# | 2773264008 | COVER CP CLEANER | 1 | |
| 260# | 2773260908 | LABEL, THROTTLE | 1 | |
| 270# | 2773274108 | WING NUT(P) | 1 | |
| 272# | 2773274008 | WING NUT | 1 | |
| 272# | 2773274308 | WING NUT | 1 | |
| 520# | 2773261107 | CLEANER ELEMENT | 1 | |
| 570 | 0023806000 | FLANGE NUT | 2 | |
| 580 | 0110060050 | FLANGE BOLT | 1 | |
| 850 | 0851080000 | RUBBER PIPE, 8X11XM | 1 | |

ROBIN EX170D54011 ENGINE — CAMSHAFT ASSY.

CYLINDER BARREL ASSY.



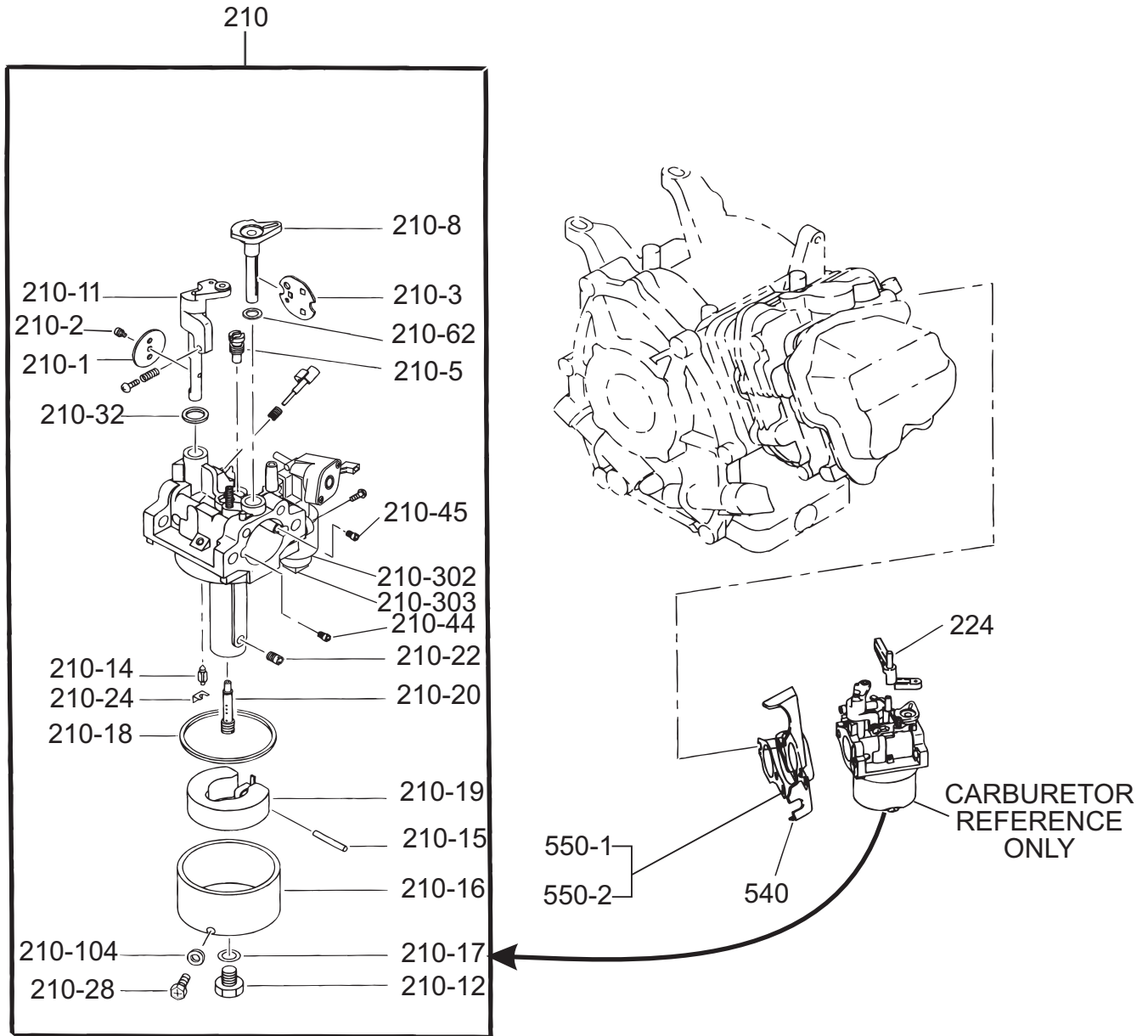
ROBIN EX170D54011 ENGINE — CAMSHAFT ASSY.

CAMSHAFT ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|-------------------|-------------|--------------------|
| 10 | 2773160101 | CAMSHAFT | 1 | INCLUDES ITEMS W/% |
| 25 | 2773510103 | PIN, CAMSHAFT | 1 | |
| 27 | 0240060010 | O-RING | 1 | |
| 34% | 2773860103 | PIN, SPRING | 1 | |
| 35% | 2773640103 | RELEASE LEVER | 1 | |
| 37% | 2773650103 | CLIP | 1 | |
| 38% | 2773870103 | RETURN SPRING | 1 | |
| 150 | 2773560111 | CHAIN, TIMING | 1 | |
| 160 | 2773691103 | TENSIONER | 1 | |
| 163 | 2773710103 | SPRING, TENSIONER | 1 | |
| 166 | 2773690203 | PIN, TENSIONER | 1 | |
| 170 | 2773691313 | CHAIN, GUIDE | 1 | |

EX-170D40050 — CARBURETOR ASSY.

CARBURETOR ASSY.



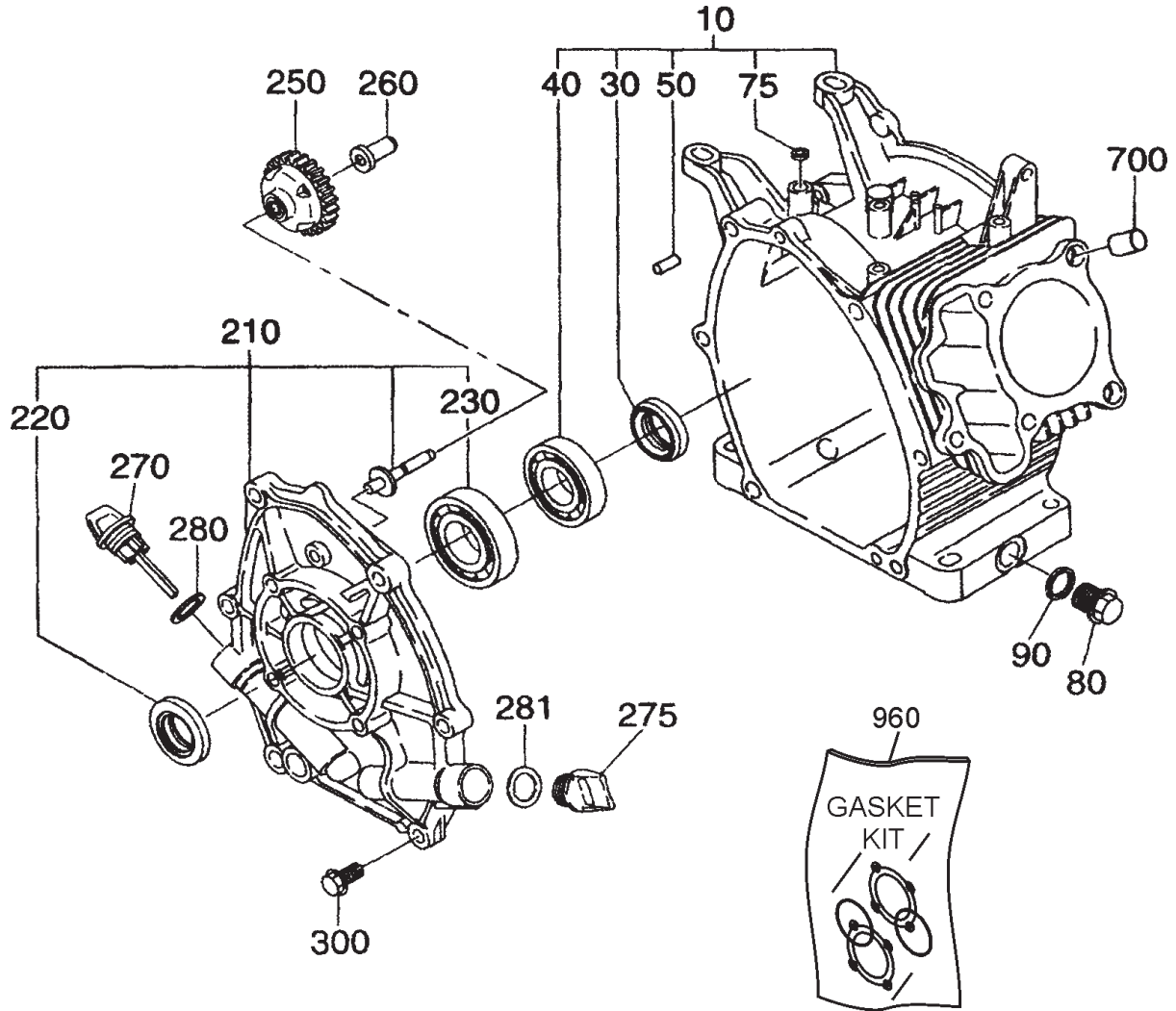
EX-170D40050 — CARBURETOR ASSY.

CARBURETOR ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|-----------------------|-------------|---------------------|
| 210 | 2776230220 | CARBURETOR ASSY. | 1..... | INCLUDES ITEMS W/ * |
| 210-1* | 2776253508 | THROTTLE VALVE | 1 | |
| 210-2* | 2096235108 | SCREW | 1 | |
| 210-3* | 2776252508 | CHOKE VALVE | 1 | |
| 210-5* | 2466242008 | PILOT JET | 1 | |
| 210-8* | 2776252008 | CHOKE LEVER | 1 | |
| 210-11* | 2776253108 | THROTTLE SHAFT | 1 | |
| 210-12* | 2276245108 | BOLT | 1 | |
| 210-14* | 2776250008 | NEEDLE | 1 | |
| 210-15* | 2776251508 | FLOAT PIN | 1 | |
| 210-16* | 2776250608 | FLOAT BODY | 1 | |
| 210-17* | 2146245008 | PACKING | 1 | |
| 210-18* | 2146254008 | FLOAT CHAMBER PACKING | 1 | |
| 210-19* | 2266250608 | FLOAT ASSY. | 1 | |
| 210-20* | 2776244008 | MAIN NOZZLE | 1 | |
| 210-22* | 2266241208 | MAIN JET | 1 | |
| 210-24* | 2266270108 | CLIP | 1 | |
| 210-28* | 2776236008 | BOLT | 1 | |
| 210-32* | 2466239008 | SEAL, THROTTLE | 1 | |
| 210-44* | 2486241008 | AIR JET | 1 | |
| 210-45* | 1066241008 | AIR JET (PILOT) | 1 | |
| 210-62* | 2366268008 | SEAL | 1 | |
| 210-104* | 2366254108 | PACKING | 1 | |
| 210-302* | 2776211018 | PACKING | 1 | |
| 210-303* | 2776210018 | CUP | 1 | |
| 224 | 2774380101 | CHOKE LEVER | 1 | |
| 540 | 27732902J1 | INSULATOR | 1 | |
| 550-1 | 27735902J3 | GASKET (1), INSULATOR | 1 | |
| 550-2 | 27735903J3 | GASKET (2), INSULATOR | 1 | |

ROBIN EX170D54011 ENGINE — CRANKCASE ASSY.

CRANKCASE ASSY.



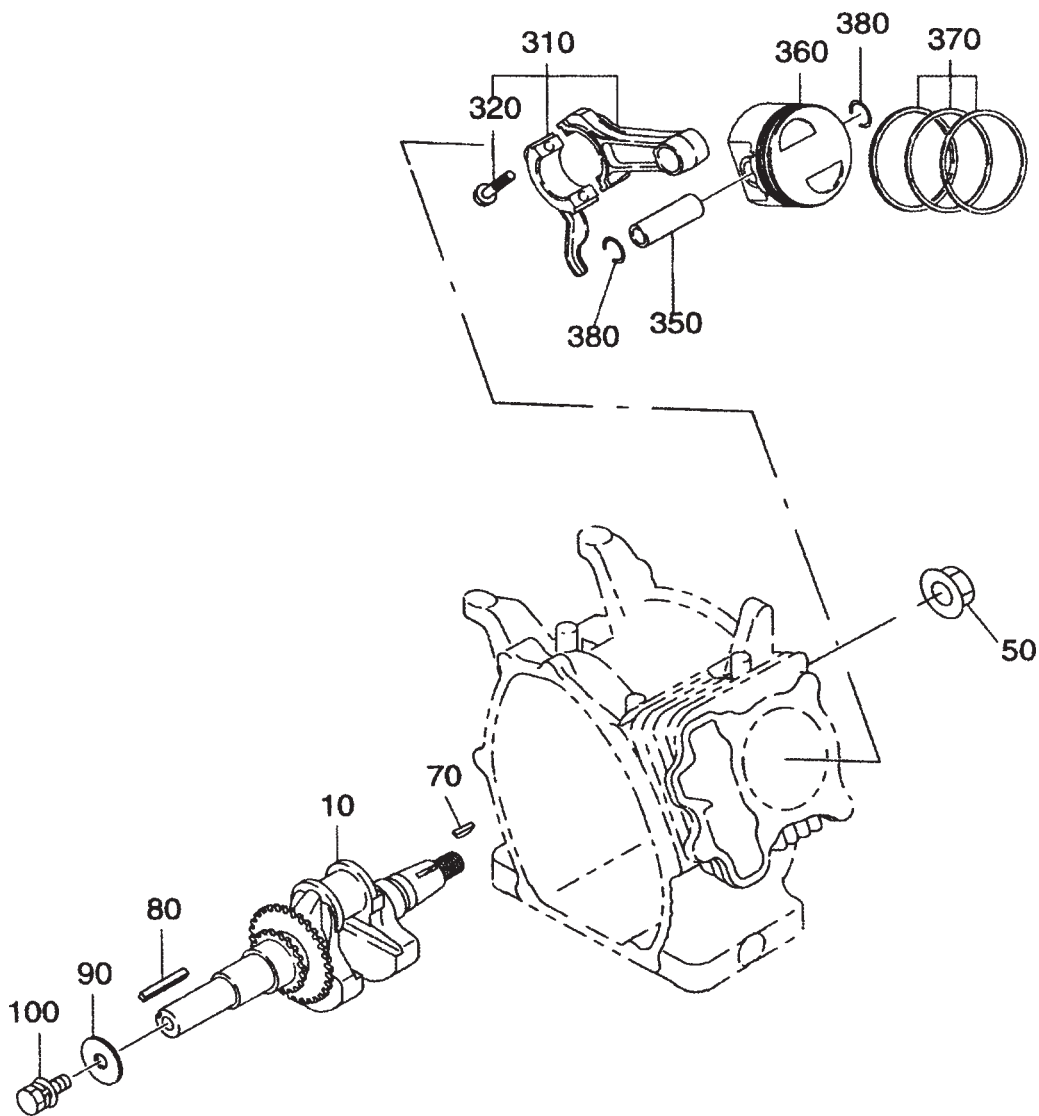
ROBIN EX170D54011 ENGINE — CRANKCASE ASSY.

CRANKCASE ASSY.

| NO | PART NO | PART NAME | QTY. | REMARKS |
|-----------|----------------|----------------------------------|-------------|---|
| 10 | 2771010241 | CRANKCASE CP, W/OIL SENSOR | 1 | INCLUDES ITEMS W/* |
| 30* | 0440250200 | OIL SEAL | 1 | |
| 40* | 0600280021 | BALL BEARING | 1 | |
| 50* | 2771501103 | PIPE KNOCK | 2 | |
| 75* | 0440060020 | OIL SEAL | 1 | |
| 80 | 0401140030 | PLUG | 2 | |
| 90\$ | 0211140020 | GASKET | 2 | |
| 210 | 2771100221 | MAIN BEARING COVER CP | 1 | INCLUDES ITEMS W/% |
| 220% | 0440250210 | OIL SEAL | 1 | |
| 230% | 0600250140 | BALL BEARING | 1 | |
| 250 | 27745004H1 | GOVERNOR GEAR | 1 | |
| 260 | 2774190103 | GOVERNOR SLEEVE | 1 | |
| 270 | 2776360113 | OIL GAUGE | 1 | |
| 275 | 2776500103 | FILLER, PLUG | 1 | |
| 280\$ | 0213160020 | GASKET | 1 | |
| 281 | 0213160020 | GASKET | 1 | |
| 300 | 0010408350 | FLANGE BOLT | 6 | |
| 700 | 2771501103 | PIPE KNOCK | 2 | |
| 960 | 2779900107 | GASKET SET | 1 | INCLUDES ITEMS W/ \$, ITEMS 620 AND 690 IN CYLINDER HEAD ASSY, AND ITEM 340 IN MUFFLER ASSY |

EX-170D40050 — CRANKSHAFT/PISTON ASSY.

CRANKSHAFT/PISTON ASSY.



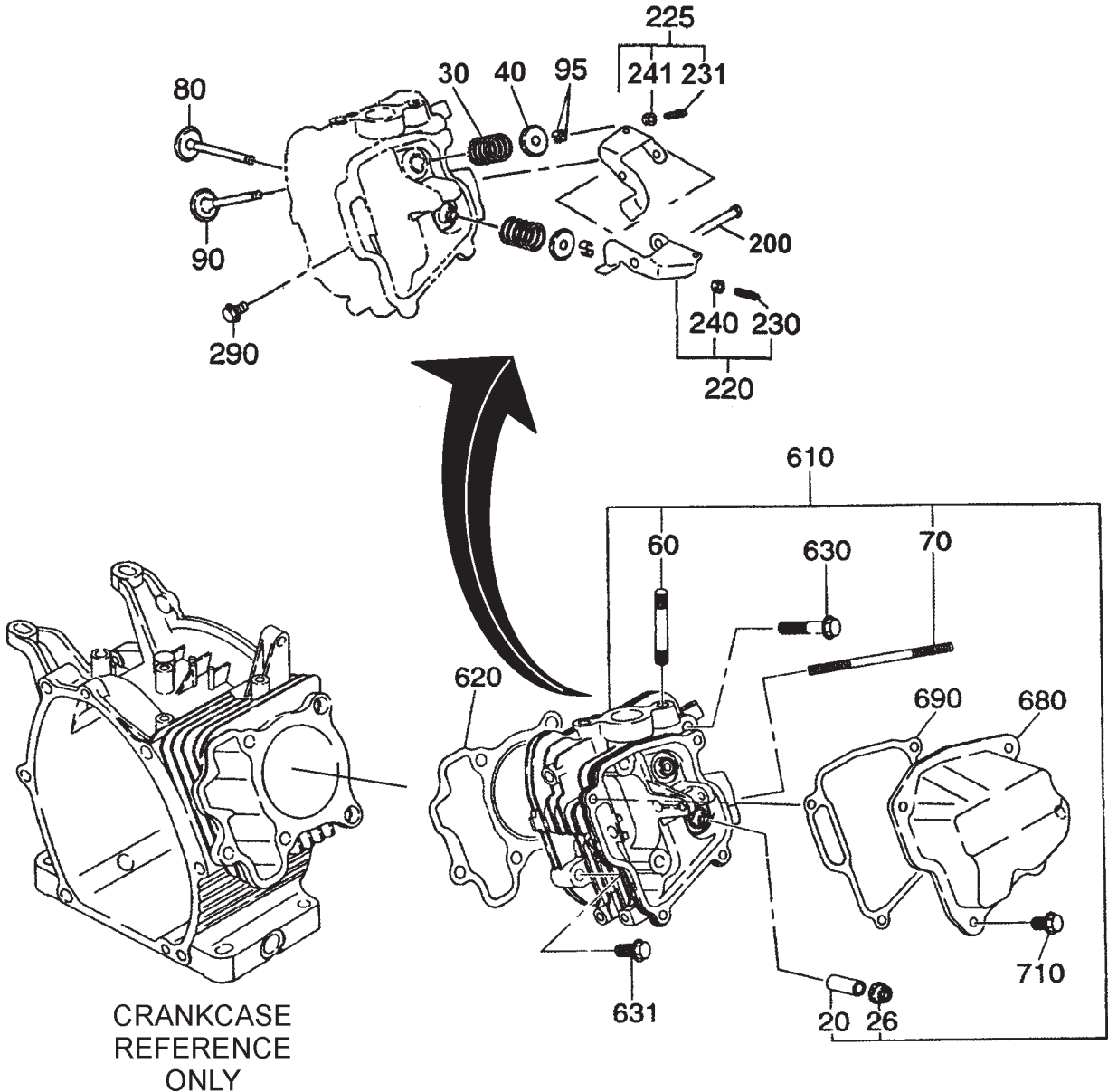
EX-170D40050 — CRANKSHAFT/PISTON ASSY.

CRANKSHAFT/PISTON ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|----------------------------|-------------|--------------------|
| 10 | 2772090141 | CRANKSHAFT | 1 | |
| 50 | 0180140020 | FLANGE NUT | 1 | |
| 70 | 0323030010 | WOODRUFF KEY | 1 | |
| 80 | 2062600113 | KEY | 1 | |
| 90 | 0200080050 | WASHER | 1 | |
| 100 | 0011308200 | BOLT & WASHER ASSY. | 1 | |
| 310 | 2772250110 | CONNECTING ROD ASSY. | 1 | INCLUDES ITEMS W/* |
| 320* | 2772300103 | CONNECTING ROD BOLT | 2 | |
| 350 | 2772330103 | PISTON PIN | 1 | |
| 360 | 27723401J3 | PISTON STD. | 1 | |
| 360 | 27723403H3 | PISTON, 0.25 O.S. | 1 | |
| 360 | 27723404H3 | PISTON, 050 O.S. | 1 | |
| 370 | 2772350117 | PISTON RING SET STD. | 1 | |
| 370 | 2772350217 | PISTON RING SET, 0.25 O.S. | 1 | |
| 370 | 2772350317 | PISTON RING SET, 0.5 O.S. | 1 | |
| 380 | 0565160010 | CLIP | 2 | |

EX-170D40050 — CYLINDER HEAD ASSY.

CYLINDER ASSY.



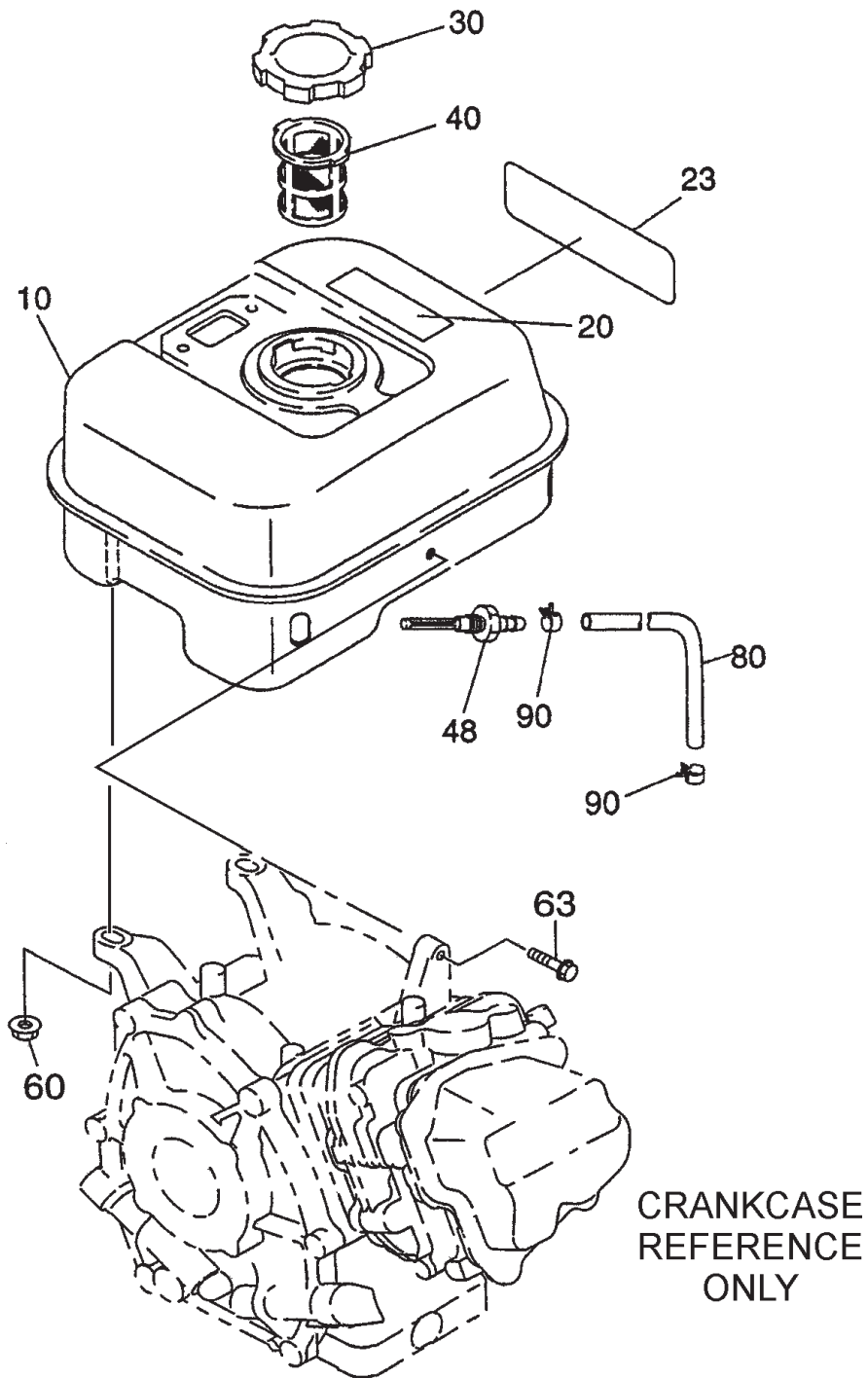
EX-170D40050 — CYLINDER HEAD ASSY.

CYLINDER ASSY.

| NO | PART NO | PART NAME | QTY. | REMARKS |
|-----------|----------------|----------------------------|-------------|----------------------|
| 20# | 2371420203 | VALVE GUIDE | 2 | |
| 26# | 2771601001 | STEM SEAL | 1 | |
| 30 | 2793360103 | VALVE, SPRING | 2 | |
| 40 | 2693370103 | SPRING RETAINER | 2 | |
| 60# | 0105080250 | STUD | 2 | |
| 70# | 0105060351 | STUD | 2 | |
| 80 | 27733401H3 | INTAKE VALVE | 1 | |
| 90 | 27733501H3 | EXHAUST VALVE | 1 | |
| 95 | 13210KA031 | COLLET VALVE | 4 | |
| 200 | 2773500201 | PIN, ROCKER | 1 | |
| 200-1 | 2773500203 | PIN (ONLY), ROCKER | 1 | |
| 200-2 | 0031305000 | CLIP 104# | | |
| 220 | 2773610100 | ROCKER, ARM ASSY. IN | 1 | INCLUDES ITEMS W/ + |
| 225 | 2773620200 | ROCKER, ARM EX | 1 | INCLUDES ITEMS W/ \$ |
| 230+ | 0149050020 | ADJUSTING SCREW | 1 | |
| 231\$ | 0149050020 | ADJUSTING SCREW | 1 | |
| 240+ | 0170050030 | NUT | 1 | |
| 241\$ | 0170050030 | NUT | 1 | |
| 290 | 0110060020 | FLANGE BOLT | 1 | |
| 610 | 2771300111 | CYLINDER HEAD | 1 | INCLUDES ITEMS W/ # |
| 620 | 2771500123 | GASKET HEAD | 1 | |
| 630 | 0110080240 | FLANGE BOLT | 4 | |
| 631 | 0010408350 | FLANGE BOLT | 1 | |
| 680 | 2771550101 | ROCKER, COVER | 1 | |
| 690 | 2771600113 | GASKET, LOCKER COVER | 1 | |
| 710 | 0110060020 | FLANGE BOLT | 4 | |

EX-170D40050 — FUEL TANK ASSY.

FUEL TANK ASSY.

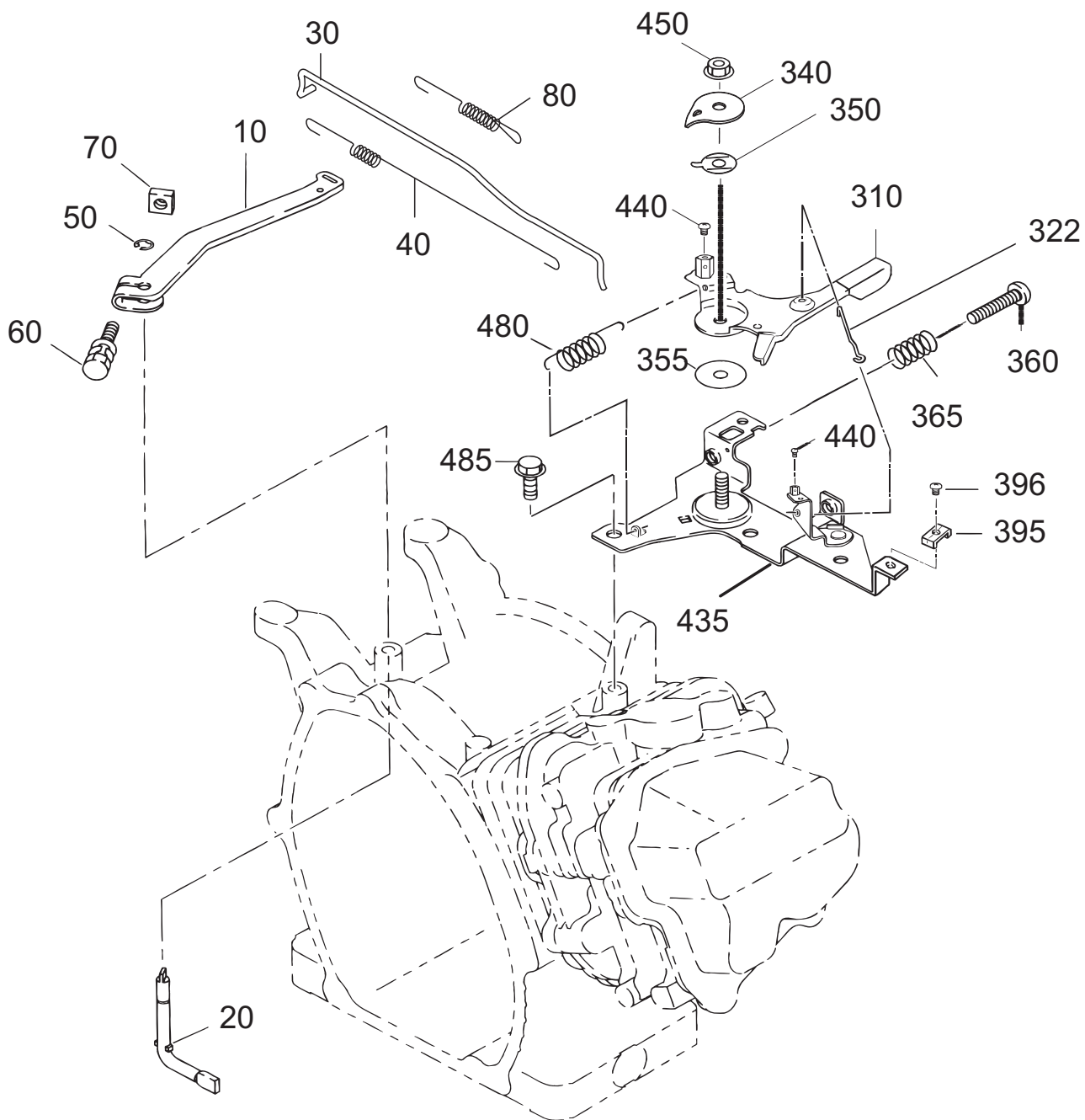


FUEL TANK ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------------|-----------------------|-------------------------|--------------------|-----------------------|
| 10 | 2776010201 | FUEL TANK | 1 | |
| 20 | 0732005181 | LABEL, WARNING | 1 | |
| 23 | 2779510103 | LABEL, MODEL | 1 | |
| 30 | 0430430060 | FUEL TANK, CAP | 1 | |
| 40 | 0641360010 | FUEL FILTER | 1 | |
| 48 | 0505120020 | UNION | 1 | |
| 60 | 0023806000 | FLANGE, NUT | 2 | |
| 63 | 0110060130 | FLANGE, BOLT | 1 | |
| 80 | 0851960000 | RUBBER PIPE, 6DX11D | 1 | |
| 90 | 0561100030 | HOSE CLAMP, 10DX8BX1T | 2 | |

EX-170D40050 — GOVERNOR ASSY.

GOVERNOR ASSY.



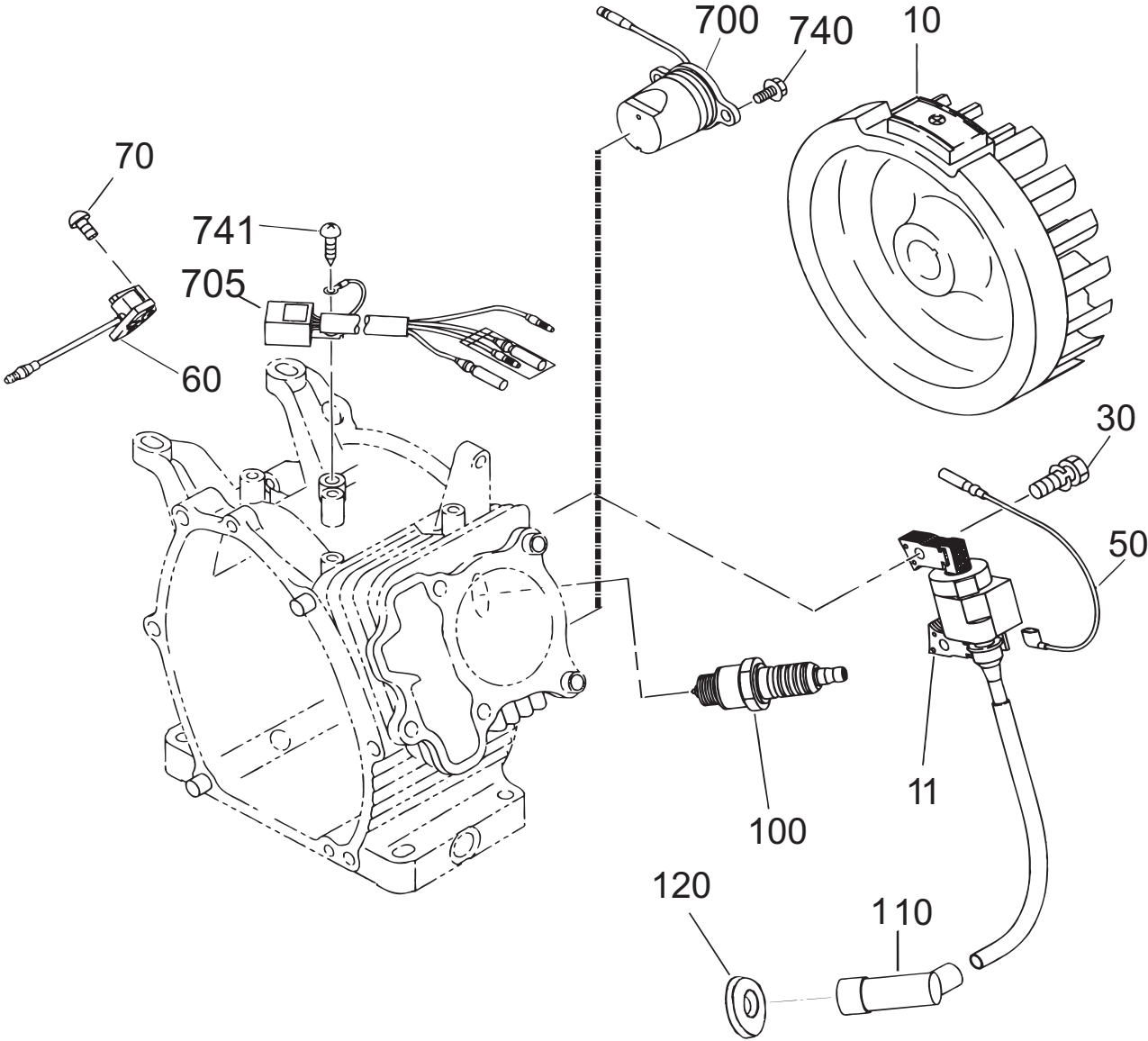
EX-170D40050 — GOVERNOR ASSY.

GOVERNOR ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|------------------------|-------------|----------------|
| 10 | 2774230123 | GOVERNOR, LEVER | 1 | |
| 20 | 2774220133 | GOVERNOR, SHAFT | 1 | |
| 30 | 2774270111 | GOVERNOR, ROD | 1 | |
| 40 | 2774280123 | ROD, SPRING | 1 | |
| 50 | 0031305000 | CLIP | 1 | |
| 60 | 0130060240 | BOLT & WASHER ASSY | 1 | |
| 70 | 0186060020 | NUT | 1 | |
| 80 | 2794250263 | GOVERNOR, SPRING | 1 | |
| 310 | 2774330601 | SPEED CONTROL, LEVER | 1 | |
| 322 | 2774370101 | LINK ROD CP | 1 | |
| 340 | 2774350203 | STOP, PLATE | 1 | |
| 350 | 2774450103 | FRICTION PLATE W/ LOCK | 1 | |
| 355 | 0217060070 | FRICTION, WASHER | 1 | |
| 360 | 0043106250 | SCREW | 1 | |
| 365 | 2374500423 | SPRING, ADJUST | 1 | |
| 395 | 2774390203 | CLAMP | 1 | |
| 396 | 0131050030 | SCREW AND WASHER ASSY | 1 | |
| 435 | 2774600201 | SPEED, CONT. BRACKET | 1 | |
| 440 | 0043104080 | SCREW | 2 | |
| 450 | 0023506000 | LOCK NUT | 1 | |
| 480 | 2674510103 | RETURN SPRING | 1 | |
| 485 | 0110060020 | FLANGE, BOLT | 2 | |

EX-170D40050 — IGNITION COIL/FLYWHEEL ASSY.

ELECTRIC DEVICE ASSY.



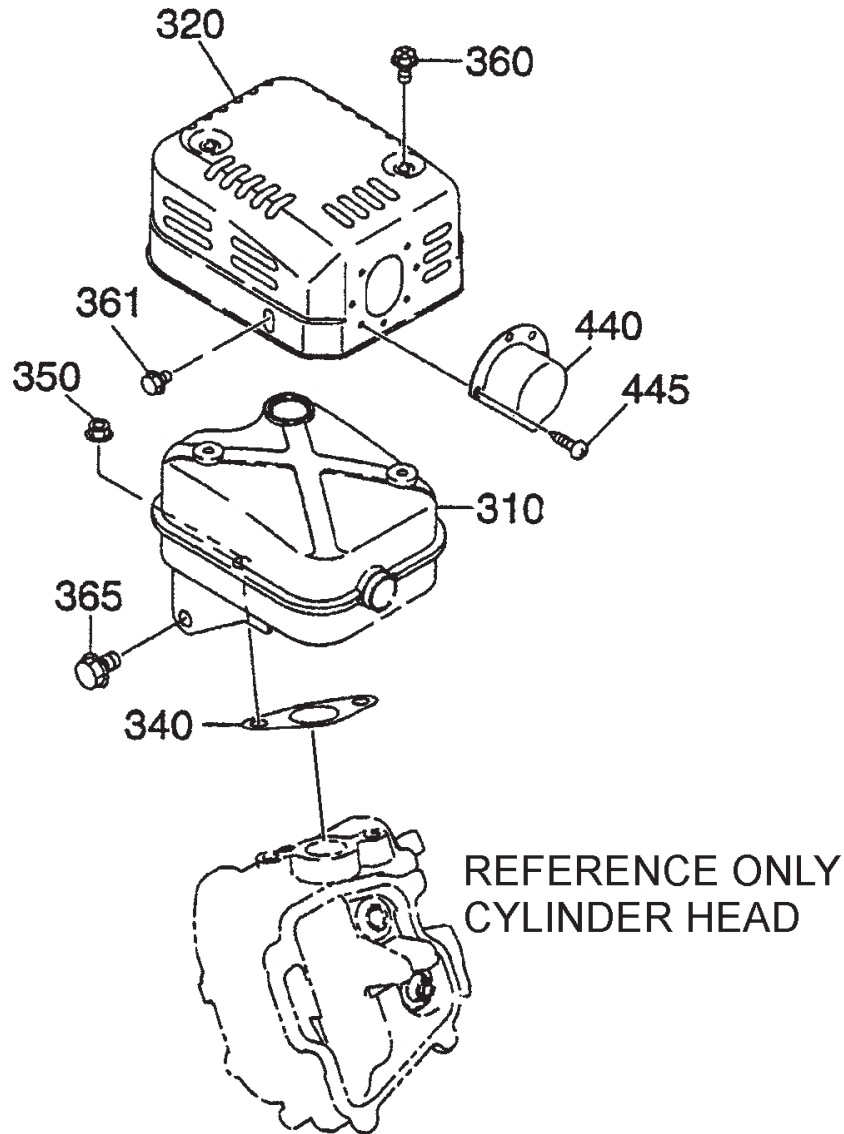
EX-170D40050 — IGNITION COIL/FLYWHEEL ASSY.

ELECTRIC DEVICE ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|---------------------------|-------------|----------------|
| 10 | 2777923011 | FLYWHEEL | 1 | |
| 11 | 2777943101 | IGNITION COIL | 1 | |
| 30 | 0011406250 | BOLT & WASHER | 2 | |
| 50 | 27773102H1 | WIRE 2 | 1 | |
| 60 | 0660000361 | STOP SWITCH ASSY., ON-OFF | 1 | |
| 70 | 0150040090 | TAPPING SCREW | 2 | |
| 100 | 0650149670 | SPARK PLUG | 1 | |
| 110 | 0655000270 | SPARK PLUG CAP | 1 | |
| 120 | 2795520103 | GROMMET, PLUG CAP | 1 | |
| 700 | 2777630111 | OIL SENSOR CP | 1 | |
| 705 | KU31104311 | FLOAT C/U CP | 1 | |
| 740 | 0011406160 | BOLT AND WASHER ASSY | 2 | |
| 741 | 0152050010 | TAPPING SCREW | 1 | |

EX-170D40050 — MUFFLER ASSY.

MUFFLER ASSY.



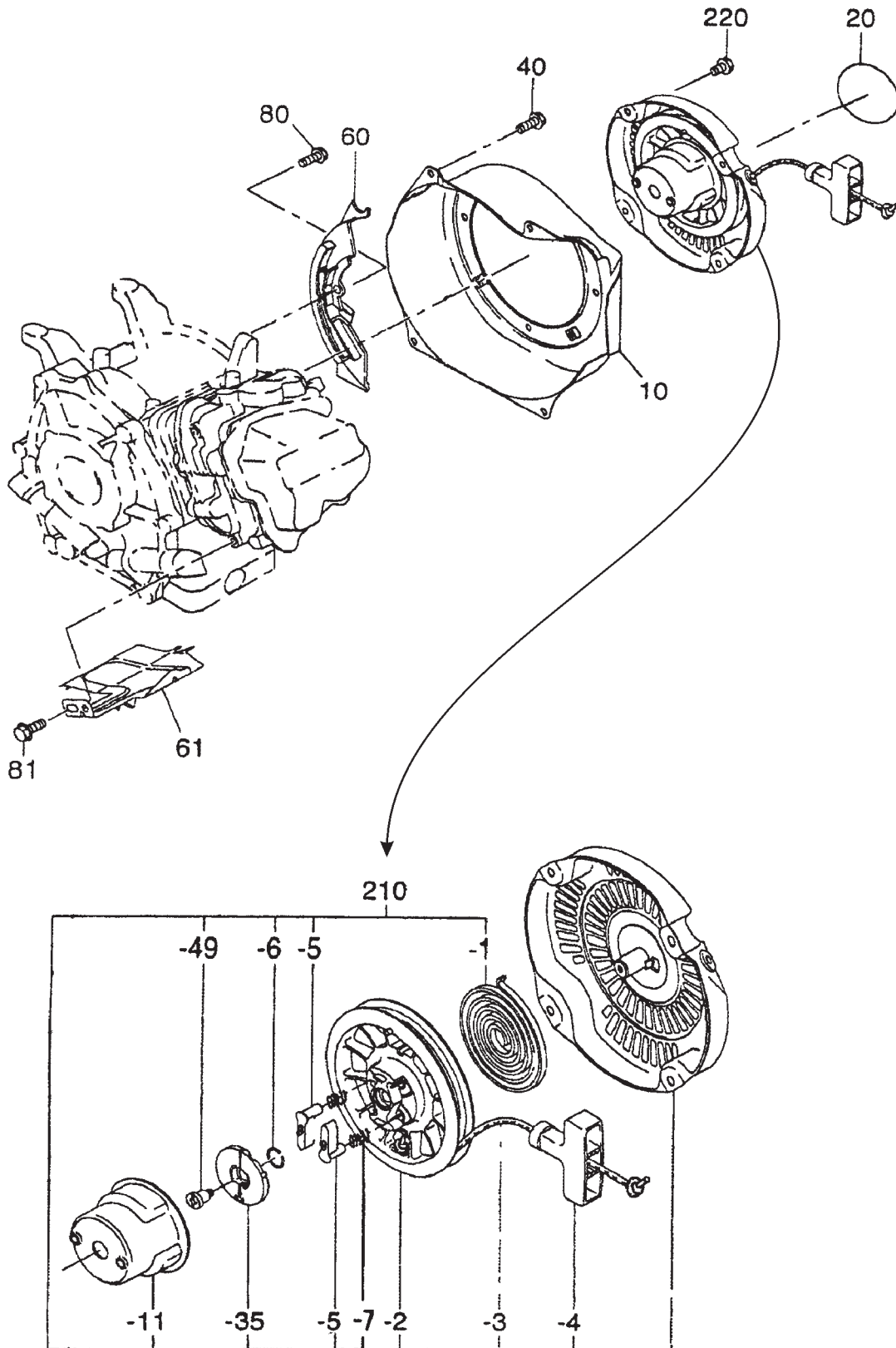
EX-170D40050 — MUFFLER ASSY.

MUFFLER ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|------------------|-------------|----------------|
| 310 | 2763010121 | MUFFLER | 1 | |
| 320 | 2773420111 | MUFFLER COVER | 1 | |
| 340 | 2773520203 | GASKET, MUFFLER | 1 | |
| 350 | 9802008280 | FLANGE, NUT | 2 | |
| 360 | 0152060090 | TAPPING BOLT | 2 | |
| 361 | 0110060010 | FLANGE BOLT | 1 | |
| 365 | 0110080150 | FLANGE BOLT | 1 | |
| 440 | 27737001H1 | DEFLECTOR | 1 | |
| 445 | 0150040060 | TAPPING SCREW | 2 | |

EX-170D40050 — RECOIL STARTER ASSY.

RECOIL STARTER ASSY.

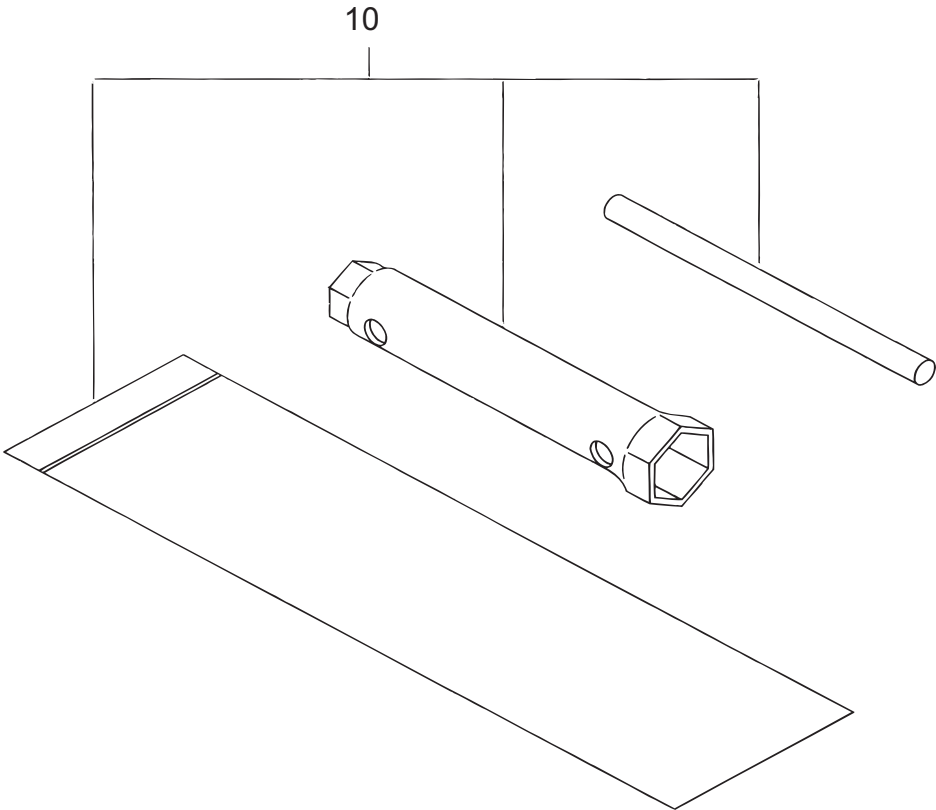


EX-170D40050 — RECOIL STARTER ASSY.

RECOIL STARTER ASSY.

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|---------------------------|-------------|--------------------|
| 10 | 2775120201 | BLOWER, HOUSING CP | 1 | |
| 20 | 0732005140 | LABEL, TRADEMARK | 1 | |
| 40 | 0110060030 | FLANGE, BOLT | 4 | |
| 60 | 2775271111 | BAFFLE, CASE 1 | 1 | |
| 61 | 2775270203 | BAFFLE, HEAD 2 | 1 | |
| 80 | 0010406160 | FLANGE, BOLT | 1 | |
| 81 | 0110060020 | FLANGE, BOLT | 1 | |
| 210 | 2695020130 | RECOIL STARTER ASSY. | 1 | INCLUDES ITEMS W/* |
| 210-1* | 2705011508 | SPIRAL, SPRING | 1 | |
| 210-2* | 2695012008 | REEL | 1 | |
| 210-3* | 2825011118 | STARTER ROPE | 1 | |
| 210-4* | 2615010008 | STARTER KNOB | 1 | |
| 210-5* | 2705012508 | RACHET | 2 | |
| 210-6* | 2275013108 | FRICTION SPRING | 1 | |
| 210-7* | 2275013508 | RETURN SPRING | 2 | |
| 210-11* | 2695014518 | STARTER PULLEY | 1 | |
| 210-35* | 2705026108 | RACHET GUIDE | 1 | |
| 210-49* | 2275015208 | SET SCREW | 1 | |
| 220 | 0110060010 | FLANGE, BOLT | 1 | |

TOOL KIT



EX-170D40050 — TOOL KIT ASSY.

TOOL KIT

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|-----------|----------------|------------------|-------------|----------------|
| 10 | 27790301H0 | TOOL KIT | 1 | |

TERMS AND CONDITIONS OF SALE — PARTS

PAYMENT TERMS

Terms of payment for parts are net 30 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
 - a. The parts numbers and descriptions must match the current parts price list.
 - b. The list must be typed or computer generated.
 - c. The list must state the reason(s) for the return.
 - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
 - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.

5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
 - a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
 - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
 - c. Any line item with an extended dealer net price of less than \$5.00.
 - d. Special order items.
 - e. Electrical components.
 - f. Paint, chemicals, and lubricants.
 - g. Decals and paper products.
 - h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

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

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

SPECIAL EXPEDITING SERVICE

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

LIMITATIONS OF SELLER'S LIABILITY

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

LIMITATION OF WARRANTIES

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

Effective: February 22, 2006

HERE'S HOW TO GET HELP

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

UNITED STATES

Multiquip Corporate Office

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

Service Department

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

Technical Assistance

800-478-1244 Fax: 310-943-2238

MQ Parts Department

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

Warranty Department

800-421-1244 Fax: 310-537-1173
310-537-3700

MEXICO

MQ Cipsa

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

CANADA

Multiquip

4110 Industriel Boul. Tel: (450) 625-2244
Laval, Quebec, Canada H7L 6V3 Tel: (877) 963-4411
Contact: jmartin@multiquip.com Fax: (450) 625-8664

UNITED KINGDOM

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