

OPERATION AND PARTS MANUAL



Mikasa **SERIES**
MODEL MVH508DZ
REVERSIBLE PLATE COMPACTOR
(HATZ 1D81S-325 DIESEL ENGINE)

Revision #0 (04/04/14)

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THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.



| |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  WARNING  |
| CALIFORNIA — Proposition 65 Warning |
| Diesel 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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MVH508DZ Reversible Plate Compactor

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NOTICE

Specifications and part numbers are subject to change without notice.

PARTS ORDERING PROCEDURES

Ordering parts has never been easier! Choose from three easy options:

Effective:
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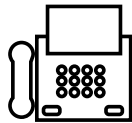
To obtain an MQ Account, contact your District Sales Manager for more information.

Goto www.multiquip.com and click on

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Use the **internet** and qualify for a **5% Discount** on *Standard orders* for all orders which include complete part numbers.*

Note: Discounts Are Subject To Change



Order via Fax (Dealers Only):

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Note: Discounts Are Subject To Change



Order via Phone: Domestic (US) Dealers Call:
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Non-Dealer Customers:

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International Customers should contact their local Multiquip Representatives for Parts Ordering information.

When ordering parts, please supply:

- Dealer Account Number
- Dealer Name and Address
- Shipping Address (if different than billing address)
- Return Fax Number
- Applicable Model Number
- Quantity, Part Number and Description of Each Part
- Specify Preferred Method of Shipment:
 - UPS/Fed Ex
 - Priority One
 - Ground
 - Next Day
 - Second/Third Day
 - DHL
 - Truck

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!



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 |

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.



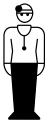
- **NEVER** operate this equipment under the influence of drugs or alcohol.



- **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.



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.

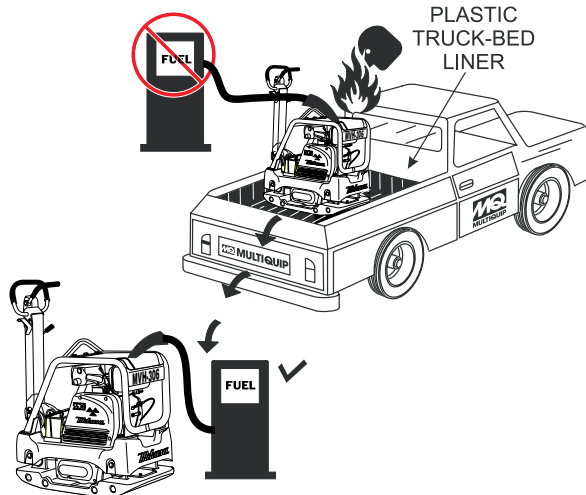



SAFETY INFORMATION

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.




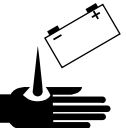
- **DO NOT** start the engine near spilled fuel or combustible fluids. Diesel fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** 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.

SAFETY INFORMATION

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/DECOMMISSIONING

NOTICE

Decommissioning is a controlled process used to safely retire a piece of equipment that is no longer serviceable. If the equipment poses an unacceptable and unrepairable safety risk due to wear or damage or is no longer cost effective to maintain (beyond life-cycle reliability) and is to be decommissioned (demolition and dismantlement), be sure to follow rules below:

- **DO NOT** pour waste or oil directly onto the ground, down a drain or into any water source.
- Contact your country's Department of Public Works or recycling agency in your area and arrange for proper disposal of any electrical components, waste or oil associated with this equipment.



- When the life cycle of this equipment is over, remove battery and bring to appropriate facility for lead reclamation. Use safety precautions when handling batteries that contain sulfuric acid.

- When the life cycle of this equipment is over, it is recommended that the trowel frame and all other metal parts be sent to a recycling center.

Metal recycling involves the collection of metal from discarded products and its transformation into raw materials to use in manufacturing a new product.

Recyclers and manufacturers alike promote the process of recycling metal. Using a metal recycling center promotes energy cost savings.

EMISSIONS INFORMATION

NOTICE

The diesel engine used in this equipment has been designed to reduce harmful levels of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx) contained in diesel exhaust emissions.

This engine has been certified to meet US EPA Evaporative emissions requirements in the installed configuration.

Attempting to modify or make adjustments to the engine emission system by unauthorized personnel without proper training could damage the equipment or create an unsafe condition.

Additionally, modifying the fuel system may adversely affect evaporative emissions, resulting in fines or other penalties.

Emission Control Label

The emission control label is an integral part of the emission system and is strictly controlled by regulations.

The label must remain with the engine for its entire life.

If a replacement emission label is needed, please contact your authorized Kohler Engine Distributor.

SPECIFICATIONS

| Table 1. MVH508DZ Specifications | |
|------------------------------------------|---------------------------------|
| Centrifugal Force | 14613 lbf (65 kN) |
| Vibration Frequency | 4,150 vpm (70 Hz) |
| Maximum Traveling Speed | 82 ft/min (25 m/min) |
| Plate Size (W x L) | 25.59 x 35.43 in (650 x 900 mm) |
| Plate Size (W x L) with extension plates | 31.5 x 35.43 in (800 x 900 mm) |
| Max. Forward Speed | 82 ft./min (25 m/min) |
| Operating Weight | 1157.42 lbs. (525 kg.) |
| Operating Weight with extension plates | 1181.68 lbs. (536 kg.) |

| Table 2. Engine Specifications | |
|---------------------------------------|--------------------------------------|
| Engine Make | HATZ |
| Engine Model | 1D81S-325 |
| Engine Type | Air-cooled, 4 Cycle Diesel Engine |
| Cylinder Bore X Stroke | 3.94 in. x 3.35 in. (100 mm x 85 mm) |
| Displacement | 40.7 cu-in (0.667 l) |
| Maximum Output | 11.9 BHP (8.9 kW) @ 2500 RPM |
| Fuel Type | Diesel |
| Oil Capacity | 2 qts (1.9 liters) |
| Starting Method | Recoil/Electric Start |
| Weight (Recoil Start) | 213.8 lbs (97 Kg.) |
| Weight (Electric Start) | 231.4 lbs (105 Kg.) |

DIMENSIONS

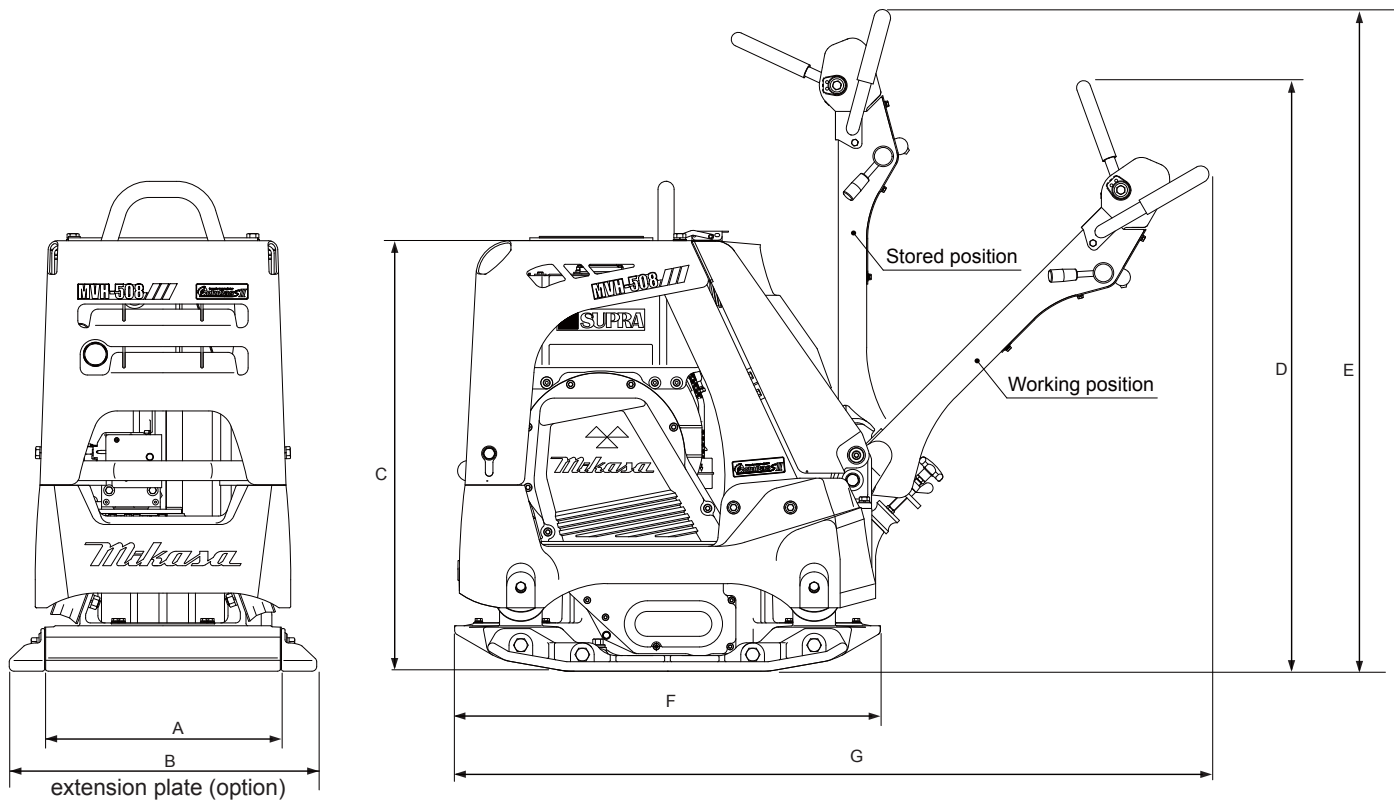


Figure 1. Dimensions

| Table 3. Dimensions | |
|---------------------|--------------|
| REF. DES | IN. (MM) |
| A | 25.59 (650) |
| B | 31.5 (800) |
| C | 40.94 (1040) |
| D | 47.64 (1210) |
| E | 53.54 (1360) |
| F | 35.43 (900) |
| G | 63.00 (1600) |

DEFINITION OF PLATE COMPACTOR

The Mikasa MVH508DZ is a reversible plate compactor designed for efficient compaction of sand, gravel and cohesive soils. 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 compactor 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 produces a vibration frequency of 4,150 VPM (vibrations per minute). The travel speed of the compactor is approximately 82 ft/minute (25 meters/minute).

ENGINE

This plate compactor are equipped with a Hatz 1D81S air cooled, 4-cycle diesel engine. The engine drives an eccentric weight at a high speed to develop a compaction force.

CONTROLS

Before starting the plate compactor identify and understand the function of all the controls and components.

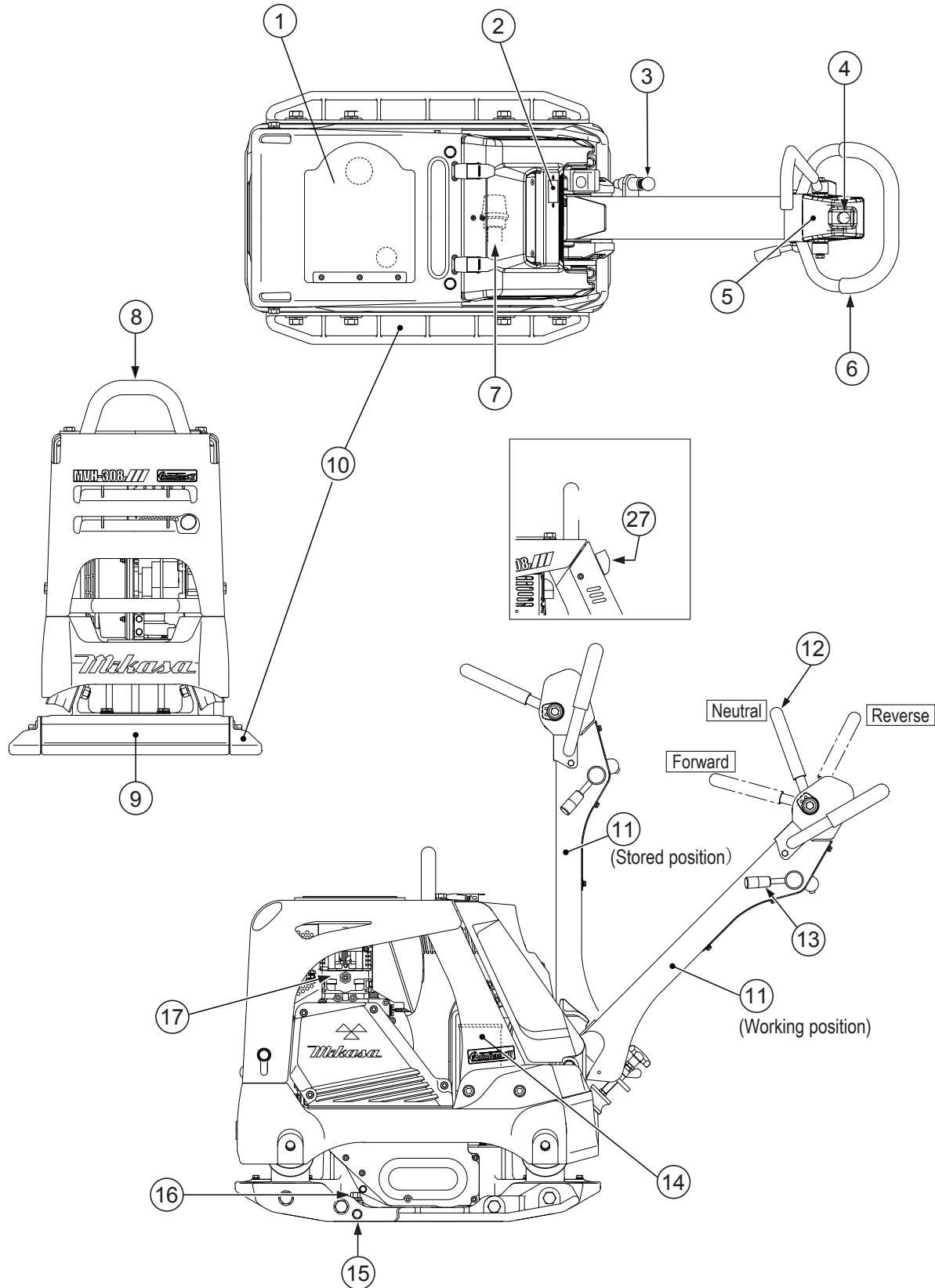


Figure 2. Plate Compactor Components

COMPONENTS

Figure 2 shows the location of the basic controls and components of the MVH508DZ Plate Compactor. The function of each control is described below:

1. **Rubber Cover** — Lift this rubber cover to gain access to the fuel tank.
2. **Hour/Tachometer** — Displays the cumulative time that the machine has been in use. During operation it displays the rpm reading. The tachometer also has a battery checker that lights red when the charge is low.
3. **Handle Bar Height Adjuster** — Adjusts the handle bar to the desired height by loosening the wing nut and turning the grip clockwise to raise the handle bar and counterclockwise to lower the handle bar.
4. **Breather Plug** — Allow pressure to escape to the air in the form of a gas from heat.
5. **Hydraulic Pump (Oil Reservoir)** — Regulates hydraulic oil flow produced by the direction of the control lever.
6. **Hand Grip** — When operating the compactor, use this hand grip to maneuver the compactor.
7. **Cyclone Cleaner** — Filters large dust particles to keep air cleaner from getting clogged easily.
8. **Lifting Bale** — When lifting of the compactor is required either by forklift, crane etc., tie rope or chain around this lifting point.
9. **Vibrating Plate** — A flat, open plate made of durable cast iron construction used in the compacting of soil.
10. **Extension Plate** — Provides additional area of vibration to the vibrating plate.
11. **Handle Bar** — When operating the compactor, this handle is to be in the downward position. When the compactor is to be **stored**, move the handle bar to the upright position.
12. **Direction Control Lever** — *Push* the lever forward to move compactor in a forward direction. *Pull* the lever backwards to move compactor in backwards direction. Placing the lever in the middle (midway) will cause the compactor not to move (neutral).
13. **Throttle Lever** — Controls speed of the plate compactor. Place straight vertically to start, **push** fully counterclockwise for full throttle and fully clockwise to stop plate compactor.
14. **Battery** — Provides +12V DC to the electrical system.
15. **Vibrator Oil Drain Plug** — Used to drain vibrator oil from the machine.
16. **Vibration Case Oil Filler** — Used to add oil to the vibration case.
17. **Engine** — This plate compactor uses a Hatz 1D81S diesel engine. Refer to the owner's manual for engine information.

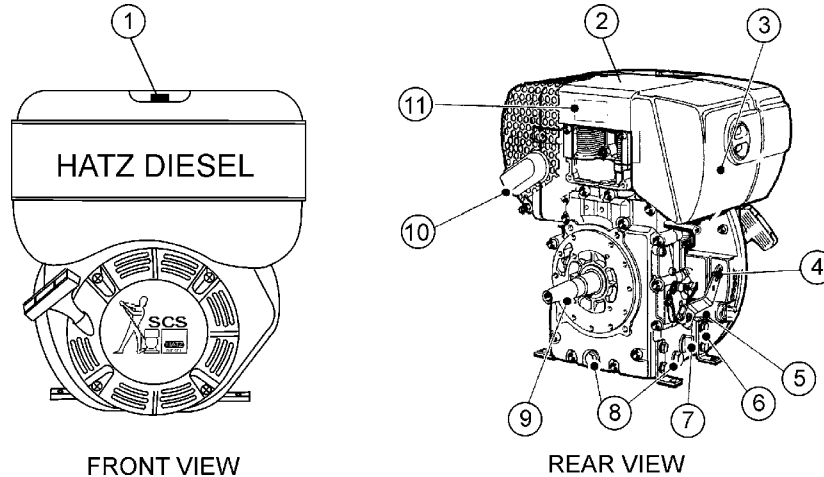


Figure 3. Engine Controls and Components

INITIAL SERVICING

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 operating and servicing information.

1. **Fuel Filler Cap/Fuel Tank** — Pull this latch to add **diesel** fuel to the tank. After refueling, always make sure the fuel cap is latched properly. **DO NOT** over fill. For additional information refer to engine owner's manual.

DANGER



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.

2. **Engine Lifting Straps/Cover** — Remove the air cleaner cover, then lift this cover (the one with decals on it) to gain access to the engine lifting straps.
3. **Air Cleaner/Cover** — Prevents dirt and other debris from entering the fuel system. Remove wing-nut on side of air filter cover to gain access to filter element.
4. **Speed Control Lever** — This lever is connected to the throttle control which is located on the side of the engine compartment cover. Use this lever to control engine speed.
5. **Dipstick** — Remove dipstick to determine if the engine oil level is low. If low, add oil as specified.

6. **Engine Motor Mounts** — Attach these engine mounts to the pump frame. Tighten securely.
7. **Oil Filter** — Remove this bolt to gain access (internal) to the engine oil filter. Service the oil filter as recommended in the maintenance section of this manual.
8. **Oil Drain Plugs** — There are two oil drain plugs, one is underneath the flywheel, the other on the side of the engine. Remove these plugs to drain engine oil from the engine crankcase.
9. **Crankshaft** — Connect this shaft to the input of the transmission.
10. **Muffler** — Used to reduce noise and emissions.
11. **Nameplate** — Contains information about the engine.

NOTICE

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

WARNING



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

BEFORE STARTING

1. Read all 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.

ENGINE OIL CHECK

1. To check the engine oil level, place the compactor on secure level ground with the engine stopped. If the oil level is low, add oil (Grade CC or above).
2. Lubrication is done from the top of the engine (Figure 4).

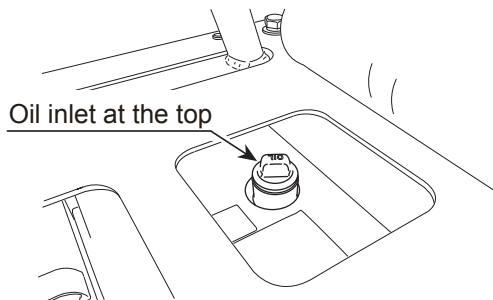


Figure 4. Adding Engine Oil

NOTICE

Pour oil slowly from the top. Oil might overflow if large amount of oil is poured right away.

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 |

DANGER



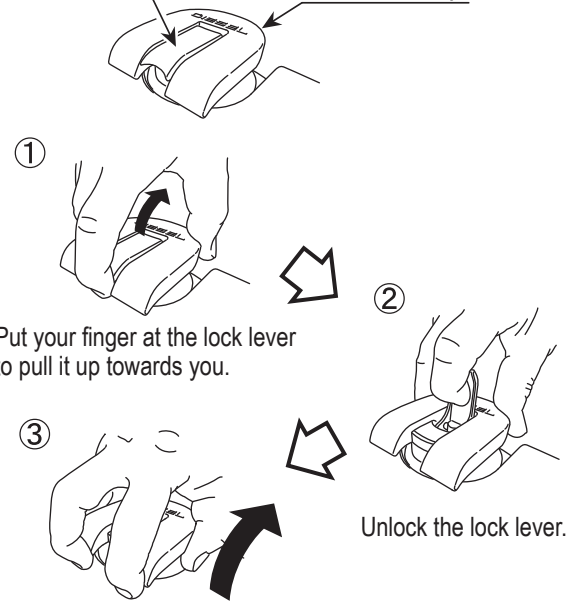
EXPLOSIVE FUEL!

Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. **DO NOT** attempt to refuel the compactor if the engine is hot or running!

FUEL CHECK

1. The fuel tank cap is equipped with a lock lever. Unlock the lever before opening cap (Figure 5).

Lock lever Fuel tank cap



Put your finger at the lock lever to pull it up towards you.

Put your fingers to the tabs at the two locations of the tank cap to pull up towards you.

Unlock the lock lever.

Figure 5. Unlocking Fuel Cap Lever

1. Visually inspect to see if fuel level is low. If fuel is low, replenish with unleaded fuel. Fuel inlet is located under the rubber cover at the front cover top portion.
2. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel immediately.

V-BELT COVER REMOVAL

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

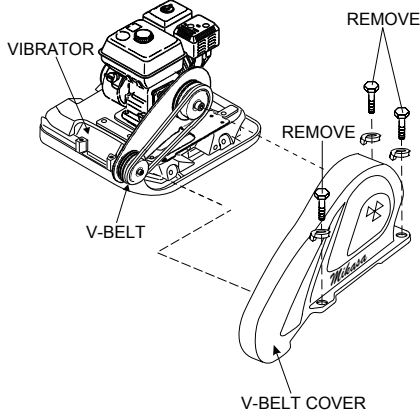


Figure 6. V-Belt Cover Removal

V-BELT INSPECTION

Visually examine the V-belt (Figure 7) and determine if it is full of tiny cracks, frayed, has pieces of rubber missing, is peeling or otherwise damaged.

Also, examine the belt and determine if it is **oil soaked** or **"glazed"** (hard shiny appearance on the sides of the belt). Either of these two conditions can cause the belt to run hot, which can weaken it and increase the danger of it breaking.

If the V-belt exhibits any of the referenced wear conditions replace the V-belt immediately.

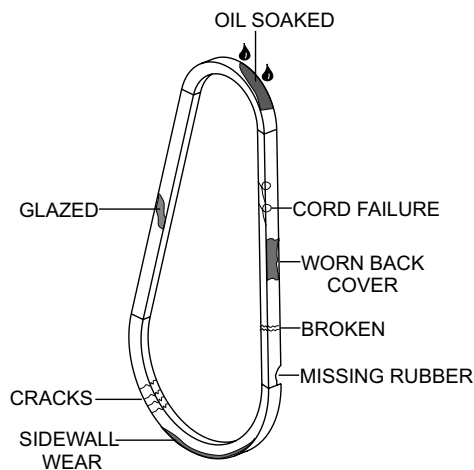


Figure 7. Drive Belt Inspection

V-BELT TENSION

The V-belt tension is proper if the V-belt bends 10 to 15 mm (Figure 8) when depressed with finger at midway between the clutch and vibrator pulleys.

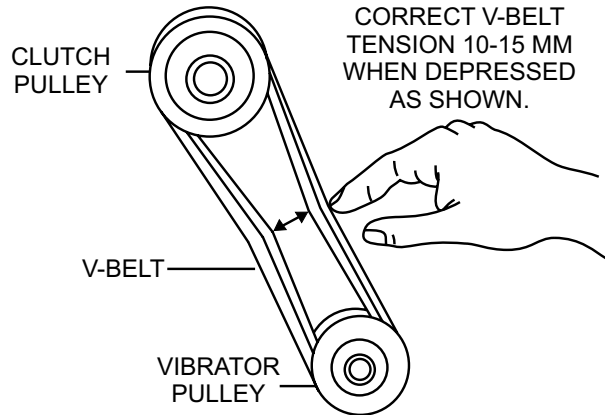


Figure 8. V-Belt Tension

VIBRATOR OIL CHECK

1. Place the 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 oil plug (vibrator oil gauge) as shown in Figure 9. Clean the oil gauge and re-thread back in. Remove the oil gauge again and confirm oil level does not exceed the cross hash of the oil plug. **DO NOT OVERFILL!**
3. The vibrator holds approximately 20.3 oz. (600 cc). **IMPORTANT**, if oil is required, replace using only SAE 10W-30 motor oil.

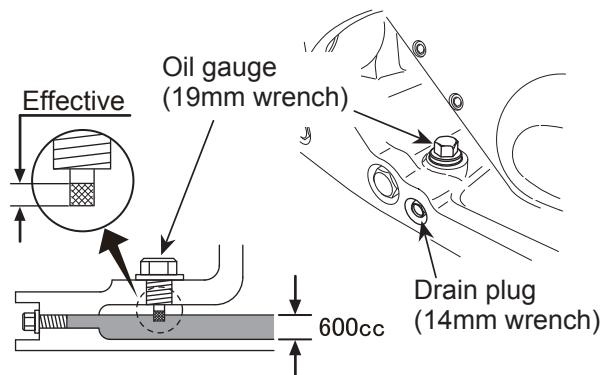


Figure 9. Vibrator Oil Check

HANDLE BAR

The height of the handle bar can be adjusted for ease of use. Adjust the handle height as follows. Refer to Figure 10.

1. Loosen the wing nut.
2. Turn the grip clockwise to raise the handle or counterclockwise to lower the handle.
3. When the handle bar is raised to the desired height, tighten the wing nut.

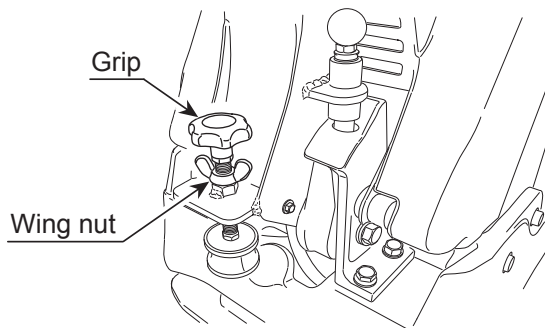


Figure 10. Handle Height Adjustment

CAUTION



DO NOT attempt to operate the compactor until the Safety, General Information and Inspection sections of this manual have been *read and thoroughly understood*.

This section is intended to assist the operator with the initial startup of the compactor. It is extremely important that this section be read carefully before attempting to use the compactor in the field.

STARTING THE ENGINE

Electric Start

1. Insert the key to the key switch.
2. Move the throttle lever (Figure 11) to the *idle* position.

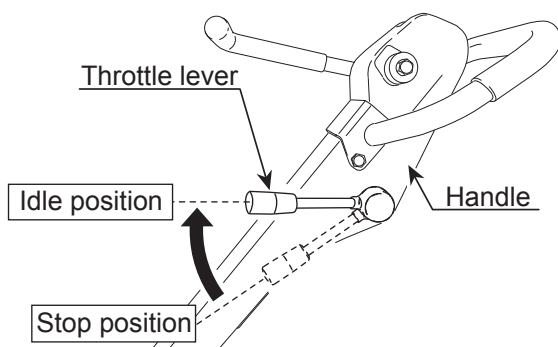


Figure 11. Throttle Lever (Idle Position)

3. Turn the key to the "Run" position (Figure 12). The buzzer sounds.

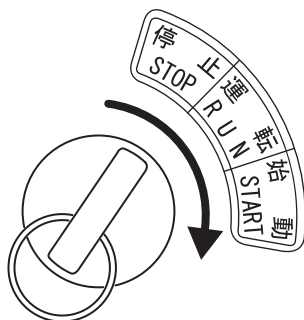
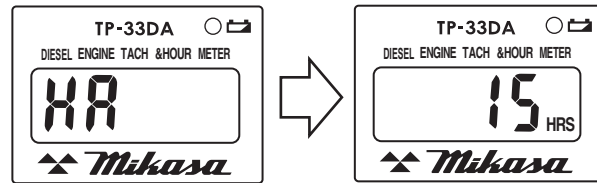


Figure 12. Key Positions

4. After "HA" is displayed on the hour tachometer, the display will change immediately to "cumulative time" (Figure 13).



"HA" is displayed at the operation position, then immediately it will change to "Cumulative time".

Figure 13. Hour Tachometer (Cumulative Time)

5. Turn the key further to the "Start" position to start the engine. When the engine starts, let go of the key. When the engine revolution increases, the buzzer stops.
6. When the engine is in operation, the Hour Tachometer display will show the "rotation number" (Figure 14).

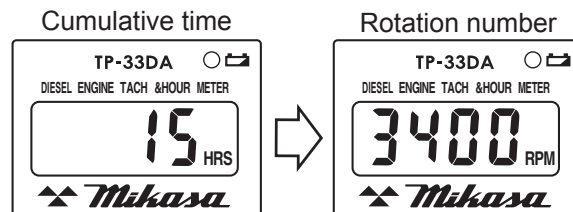


Figure 14. Hour Tachometer (Rotation Number)

7. After the engine has started, warm up the engine at low speed for 2 to 3 minutes, especially in cold weather.

CAUTION

When the engine does not start, do not run the cell motor continuously for more than 5 seconds. Move the key back to the "Run" position then wait about 10 seconds to restart.

While the engine is running, never turn the key switch to the "Start" position.

Recoil Start

1. Insert the key to the key switch.
2. Move the throttle lever (Figure 11) to the *idle* position.
3. Turn the key to the "Run" position (Figure 12). The buzzer sounds.
4. After "HA" is displayed on the hour tachometer, the display will change immediately to "cumulative time"
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.

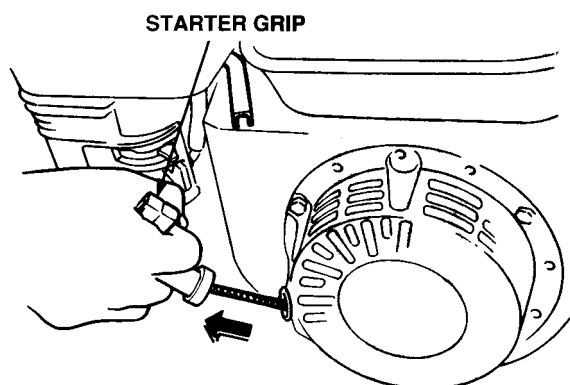


Figure 15. Starter Grip

NOTICE

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 slow as possible.

6. When engine starts, release the starter grip and allow the rope to recoil.
7. After the engine has started, warm up the engine at low speed for 2 to 3 minutes, especially in cold weather.
8. Before the compactor is placed in to operation, run the engine for several minutes. Check for fuel leaks, and noises that would associate with a loose component.

OPERATION

CAUTION



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

1. Once the engine has started, move the engine throttle lever quickly to the **operation** position (Figure 16).

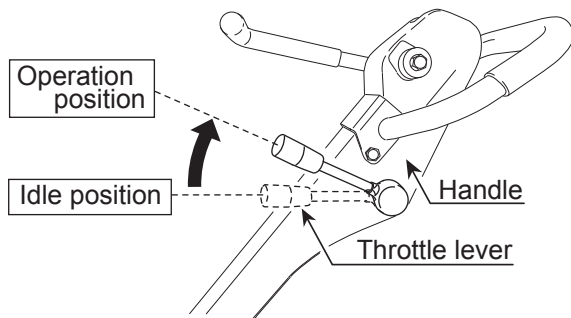


Figure 16. Throttle Lever (Operation Position)

2. With the throttle lever in the run position, the engine speed should be around 2,300 RPM, therefore engaging the centrifugal clutch.

NOTICE

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

3. Using the direction control lever, move the machine backward or forward (Figure 17). When the direction control lever is pushed forward, the machine moves forward. When pulled backward, the machine moves backward.

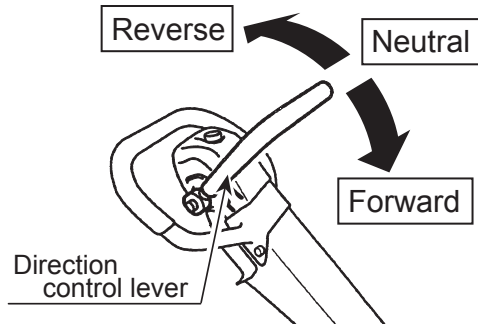


Figure 17. Direction Control Lever

4. When the direction control lever is the neutral position, the machine vibrates staying at the same location

NOTICE

NEVER stop the engine suddenly while working at high speeds.

5. 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

Normal Shutdown

1. Move the throttle lever to the **idle** position (Figure 18) and run the engine for three minutes at low speed.

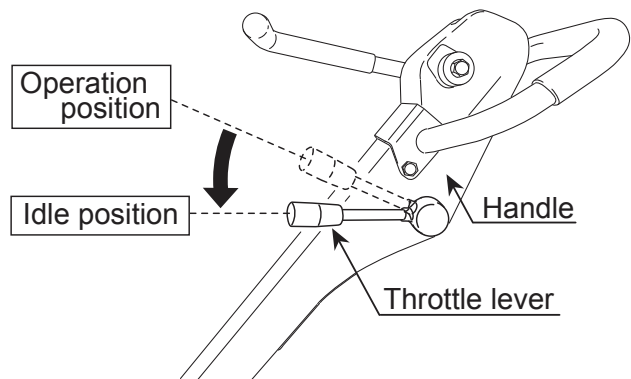


Figure 18. Throttle Lever (Idle)

2. Move the throttle lever (Figure 19) to the "Stop" position to stop the engine. The buzzer will sound.

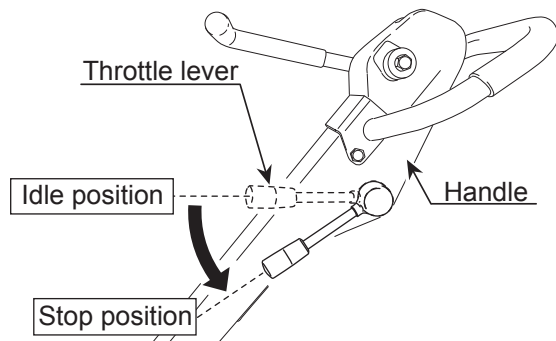


Figure 19. Throttle Lever (Stop Position)

3. Turn the key to the "Stop" position (Figure 20). The buzzer will stop.

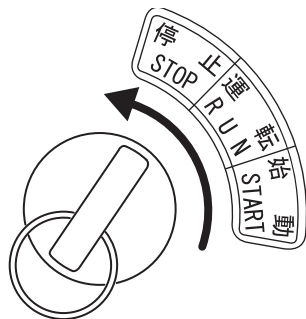


Figure 20. Key Switch (Stop)

Emergency Shutdown

1. Move the throttle lever quickly to the **IDLE** position, and turn the key to the "Stop" position.

GENERAL MAINTENANCE

General maintenance practices are crucial to the performance and longevity of your compactor. This equipment requires routine cleaning, inspection and lubrication. Refer to Table 5 and Table 6 for scheduled engine and compactor maintenance.

The following maintenance procedures can prevent serious compactor damage or malfunctioning.

NOTICE

Refer to **HATZ** engine manual supplied with your compactor for more detailed engine maintenance and troubleshooting.

CAUTION

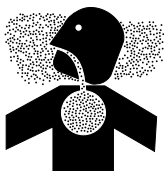


ALWAYS allow the engine to cool before servicing. **NEVER** attempt any maintenance work on a hot engine.

CAUTION

ALWAYS disconnect the spark plug wire from the spark plug and secure away from the engine before performing maintenance or adjustments on the machine.

WARNING



Some maintenance procedures may require the engine to be run. Ensure that the maintenance area is well ventilated. Fuel engine exhaust contains poisonous carbon monoxide gas that can cause unconsciousness and may result in **DEATH**.

General Cleanliness

Clean the compactor daily. Remove all dust and debris buildup (mud, clay etc.). If the compactor is steam-cleaned, ensure that lubrication is accomplished **AFTER** steam cleaning.

NOTICE

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

NOTICE

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

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

ENGINE MAINTENANCE

Perform engine maintenance as listed in Table 5.

| Table 5. 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 and Bolts | Retighten 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 **Hatz** Shop Manual for service procedures.
3. For commercial use, log hours of operation to determine proper maintenance intervals.

MACHINE INSPECTION

Perform machine inspection as listed in Table 6.

| Interval | Check | Solution |
|-----------------------|-------------------------|-------------------------------------------|
| Daily Before Starting | Machine | Clean if necessary. |
| | Fuel Tank For Leaks | Repair fuel leaks. |
| | Fuel System for Leaks | Repair fuel leaks. |
| | Engine Oil | Add oil if necessary. |
| | Vibrator Oil | Add oil if necessary. |
| | Air Cleaner Element | Clean/Replace |
| | Guard Frame | Inspect/deformations |
| | Shock Absorber | Replace if damaged. |
| | Hydraulic pump | Check/Repair Leaks |
| | Hydraulic Pipe System | Check/Repair leaks, Inspect for wear |
| | Direction Control Lever | Check bolts/nuts, Inspect for wear |
| Duct Hose | Check for crack/damage | |
| Every 20 Hours | Engine Oil/Oil Filter | Replace only after first 20 hrs. |
| Every 100 Hours | Engine Oil | Change |
| | Engine Oil Filter | Wash |
| | Vibrator Oil | Check oil level. Check for leaks/dirt. |
| | Hydraulic Oil | Check oil level. Check for leaks. |
| | Battery Terminal | Clean |
| Every 200 hours | V-Belt | Inspect, replace if damaged or worn. |
| | Clutch | Inspect, replace if not working properly. |
| | Engine Bolts | Replace bolts if deformed or elongated. |
| Every 300 hours | Vibrator Oil | Change |
| | Fuel Filter | Change |
| | Hydraulic Oil | Change |
| | Engine Oil Filter | Change |
| Every 2 years | Fuel Lines | Replace |

TIGHTENING TORQUE

Reference Table 7 below (Tightening Torque), for retightening of nuts and bolts.

| 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 | | | | | | | |
| Bolt threads used with this machine are all right handed | | | | | | | | |
| Material and quality of material is marked on each bolt, and screw. | | | | | | | | |

ENGINE AIR CLEANER

⚠ DANGER

DO NOT use gasoline or low flash point solvents for cleaning the air cleaner. The possibility exists of fire or explosion which can cause damage to the equipment and severe bodily harm or even **DEATH!**

⚠ CAUTION

Wear protective equipment such as approved safety glasses or face shields and dust masks or respirators when cleaning air filters with compressed air.

This engine is equipped with a replaceable, high-density paper air cleaner element. See (Figure 21) for air cleaner components.

1. Remove the air cleaner cover and foam filter element.
2. Tap the paper filter element 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 inside out. **NEVER** brush off dirt. Brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.

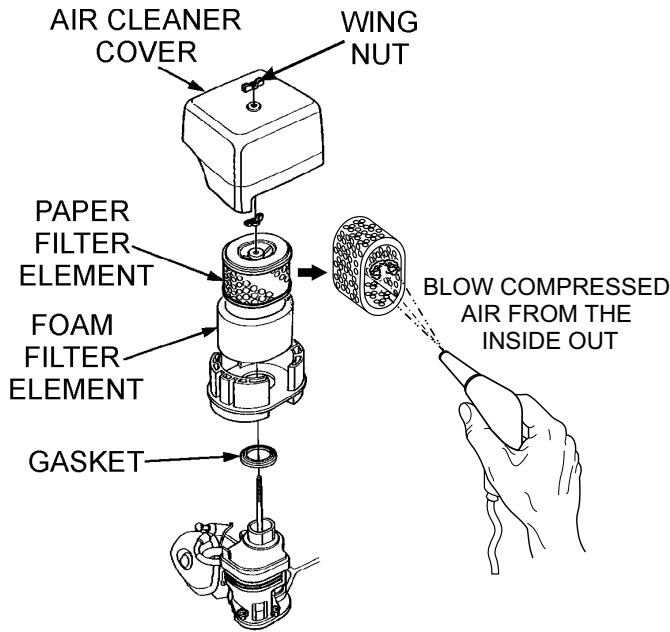


Figure 21. Engine Air Cleaner

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.

NOTICE

Operating the engine with loose or damaged air cleaner components could allow unfiltered air into the engine causing premature wear and failure.

CYCLONE CLEANER

Always clean the dust pot. A clogged dust pot reduces cyclone effect with cleaner element wearing easily.

1. Unlatch and remove dust pot (Figure 22).

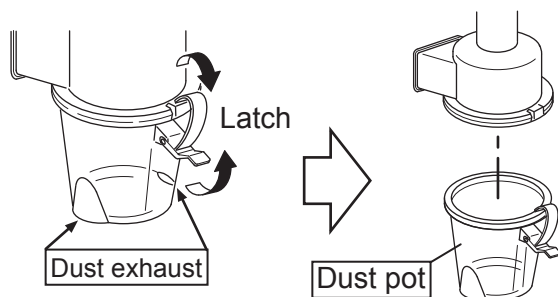


Figure 22. Unlatching Dust Pot

2. Clean dust pot with water and neutral detergent.
3. Return dust pot to air cleaner and latch securely.

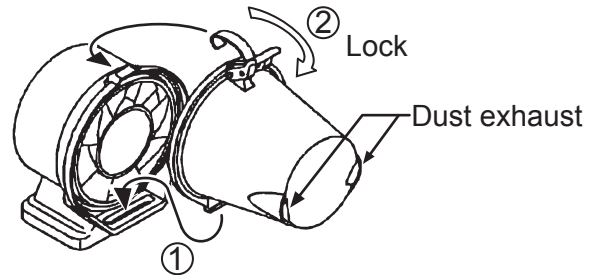


Figure 23. Latching Dust Pot

ENGINE OIL

NOTICE

Drain the engine oil when the oil is warm.

1. Remove the oil drain bolt (Figure 24), and sealing washer and allow the oil to drain into a suitable container.
2. Replace engine oil with recommended type oil as listed in Table 4. For engine oil capacity, see Table 2 (Engine Specifications). **DO NOT** overfill.
3. Reinstall drain bolt with sealing washer and tighten securely.

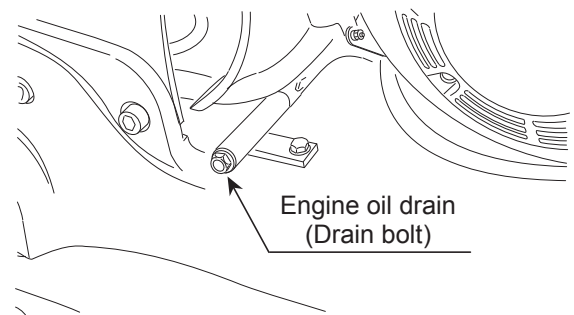


Figure 24. Draining Engine Oil

HYDRAULIC OIL

1. With the handle in vertical position, remove the plug cap from the hydraulic pump (Figure 25).

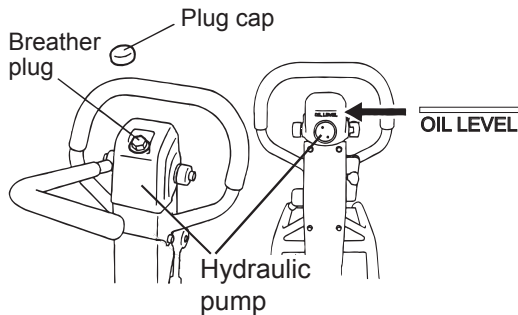


Figure 25. Removing Plug/Breather Cap

2. Remove the breather plug with a 24 mm wrench at the top of the hydraulic pump.
3. Remove the hydraulic hose connected to the cylinder on the vibrator side (Figure 26).

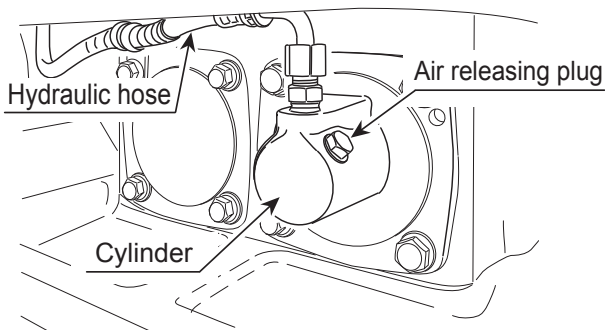


Figure 26. Removing Hydraulic Hose

4. Set the run lever to reverse.
5. Drain the hydraulic oil from the pump.
6. After the oil is drained, attach the hydraulic hose again to the cylinder on the vibrator side.

7. With the direction control lever at the forward-most position, secure the guard frame with a rope to immobilize (Figure 27).

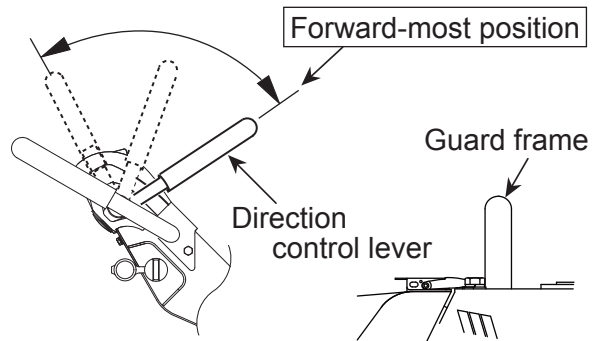


Figure 27. Direction Control Lever (Forward Position)

8. Pour hydraulic oil (550cc) to the hydraulic pump breather plug attachment hole (Figure 25).
9. Remove the air releasing plug of vibrator cylinder. Oil will then come out from the air releasing plug. After air bubbles stop coming out, reattach the plug. Tighten securely (Figure 26).
10. Release the direction control lever and move the lever forward and reverse several times (until no air bubbles are seen). Keep the lever at the forward position for 10 seconds every time. (Because the check valve is opened at the maximum forward position and air bubble will come out from the oil tank of the hydraulic pump).
11. In case the air bleeding is insufficient, repeat steps 9 and 10.
12. Attach the hydraulic pump breather plug and put on the plug cap. After making sure the hydraulic oil in the pump is at OIL LEVEL, attach the breather plug.

CAUTION

DO NOT exceed OIL LEVEL of hydraulic oil. If the level is higher, oil will burst out from the breather plug.

SPARK PLUG

NOTICE

NEVER use a spark plug of incorrect heat range.

1. Remove and clean spark plug (Figure 28) with a wire brush if it is to be reused. Discard spark plug if the insulator is cracked or chipped.
2. Using a feeler gauge adjust spark plug gap to 0.028 ~0.031 inch (0.7~0.8 mm).
3. Thread spark plug into cylinder hole by hand to prevent cross-threading, then tighten securely.

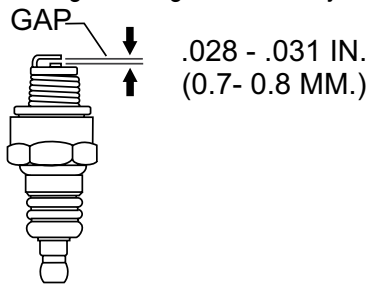


Figure 28. Spark Plug Gap

V-BELT

Visually examine the V-belt (Figure 29) and determine if it is full of tiny cracks, frayed, has pieces of rubber missing, is peeling or otherwise damaged.

Also, examine the belt and determine if it is **oil soaked** or **"glazed"** (hard shiny appearance on the sides of the belt). Either of these two conditions can cause the belt to run hot, which can weaken it and increase the danger of it breaking.

If the V-belt exhibits any of the above wear conditions replace the V-belt immediately.

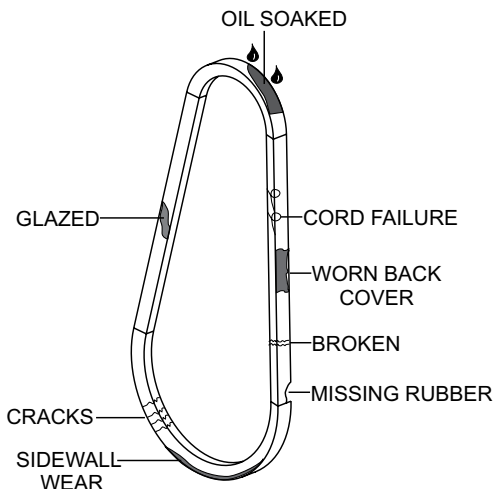


Figure 29. V-Belt Inspection

SPARK ARRESTER CLEANING

Clean the spark arrester every year or 100 hours.

1. Remove the 4 mm screw (3) from the exhaust deflector, then remove the deflector. See (Figure 30).
2. Remove the 5 mm screw (4) from the muffler protector, then remove the muffler protector.
3. Remove the 4 mm screw from the spark arrester, then remove the spark arrester.

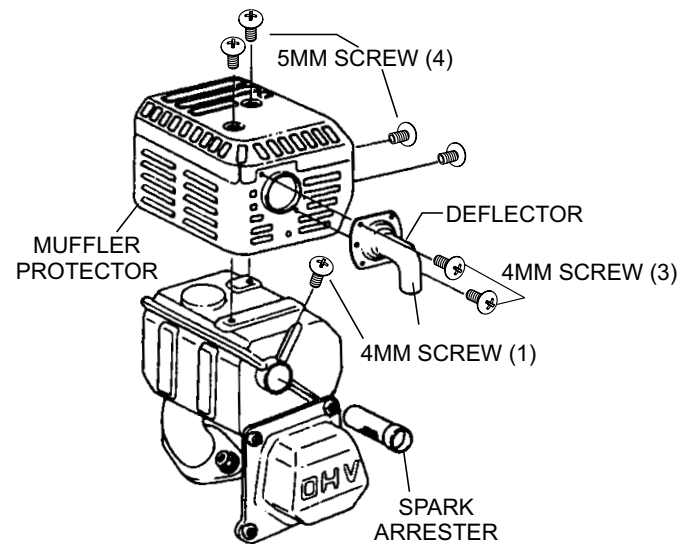


Figure 30. Spark Arrester Removal

4. Carefully remove carbon deposits from the spark arrester screen (Figure 31) with a wire brush.

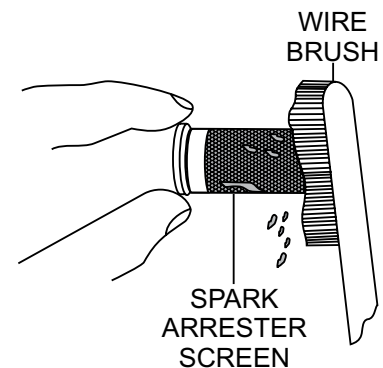


Figure 31. Cleaning The Spark Arrester

5. If the spark arrester is damaged and has breaks or holes, replace with a new one.
6. Reinstall the spark arrester and muffler protector in reverse order of disassembly.

BATTERY

NOTICE

Battery is not included with this machine

The standard battery is a maintenance-free battery. It is not necessary to supply battery fluid. In case of a sudden voltage drop, the battery cannot be charged quickly, so it has to be replaced with a new one.

Checking Battery Capacity

1. Check the battery checker on the hour tachometer (Figure 32).

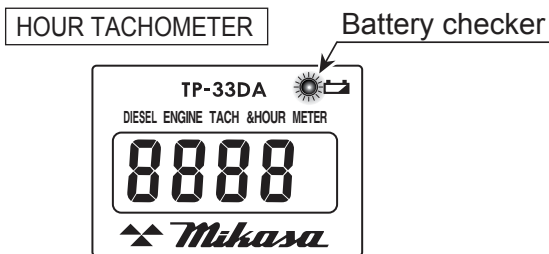


Figure 32. Battery Check

2. When the battery charge gets low, the battery checker lights red.

NOTICE

If an old battery is used, even when the battery checker is not lighted (indicating low charge), the cell starter might not operate because of low charging level. If that happens, change the battery with the new one.

Changing the Battery

1. Unlatch the two stoppers at the top portion of the rear cover to open the rear cover (Figure 33).

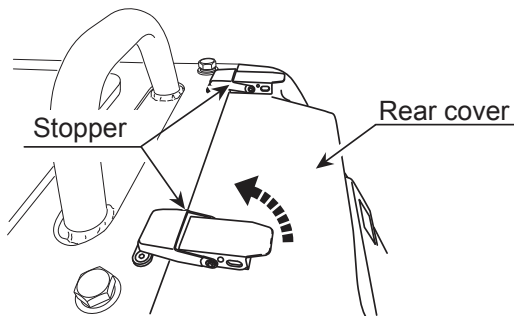


Figure 33. Opening Rear Cover.

2. Loosen the two bolts on each side of the bar connecting the battery to the side rails (Figure 34).

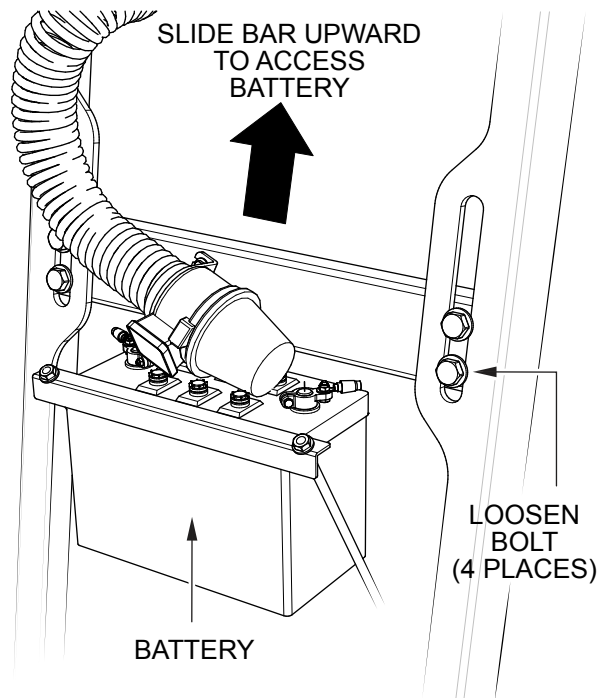


Figure 34. Raising the Battery

3. Slide the bar up the notches for easy access to the battery and tighten the bolts.
4. Take off the nuts and remove the battery holder (Figure 35).
5. After tilting the battery backward, disconnect the battery terminal. Always disconnect the black terminal on the negative side first.
6. Pull up the handle on the top of the battery to remove the battery from the machine.(Figure 35). Make sure that the battery terminals do not touch the frame.

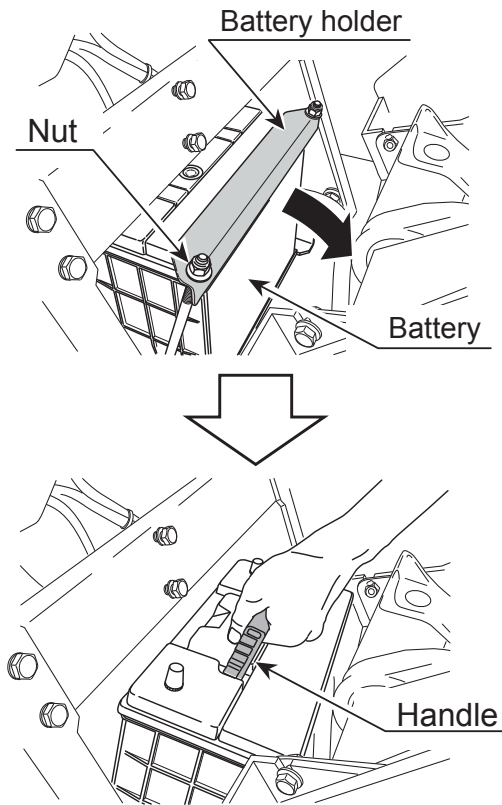


Figure 35. Removing Battery

7. To install new battery, perform the procedure in reverse. Make sure that the red terminal (positive side) is connected first.
8. Loosen the two bolts on each side of the battery bracket and slide the bracket down to lower the battery to its original location.
9. Tighten the four bolts.

STORAGE

1. Wash off dirt and soil from every part with water. While washing, be careful not to let the water splash on the electric components such as the battery and the engine muffler.
2. Cover the machine to prevent dust and dirt buildup.
3. Store the machine in a dry area away from direct sunlight.
4. Do not leave the machine outdoors. Keep it indoors.
5. When not used for a long period of time, drain the fuel from the fuel tank, and either disconnect the battery terminals or remove the battery itself.
6. When the machine is used after a long storage period, check the level of engine oil and battery capacity before using.

TROUBLESHOOTING (COMPACTOR)

| Troubleshooting (Compactor) | | |
|-------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Symptom | Possible Problem | 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 system? | 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. | Hydraulic pump problems? | Check hydraulic pump. |
| | Direction Control Lever installation wrong? | Correct installation of IDirection Control Lever. |
| | Broken or defective oil hose? | Replace oil hose. |
| | Aeration in hydraulic oil? | Purge air in hydraulic oil. (Bleed plug) |
| | Excessive oil in reversing system? | Fill to correct level. |
| | Hydraulic pump clogged with trash? | Clean valve inside hydraulic pump. |
| | Cylinder piston bearing failure? | Check piston bearing in cylinder for leakage. |
| Does not travel in forward or reverse | V-belt disengaged or slips? | Engage V-belt, adjust or replace. |
| | Clutch slips? | Adjust clutch, replace if necessary. |
| | Vibrator locks? | Check vibrator and correct problem. |
| | Cylinder piston bearing failure? | Check piston bearing in cylinder for leakage at USH packing. |
| Direction Control Lever operating resistance for reverse is high. | Piston inside hydraulic pump not moving smoothly? | Adjust or replace. |
| | Vibrator cylinder piston does not move smoothly | Adjust or replace. |

TROUBLESHOOTING (ENGINE)

| Troubleshooting (Engine) | | |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Symptom | Possible Problem | Solution |
| Engine will not start or start is delayed, although engine can be turned over. | No Fuel reaching injection pump? | Add fuel. Check entire fuel system. |
| | Defective fuel pump? | Replace fuel pump. |
| | Fuel filter clogged? | Replace fuel filter and clean tank. |
| | Faulty fuel supply line? | Replace or repair fuel line. |
| | Compression too low? | Check piston, cylinder and valves. Adjust or repair per engine repair manual. |
| | Fuel pump not working correctly? | Repair or replace fuel pump. |
| | Oil pressure too low? | Check engine oil pressure. |
| | Low starting temperature limit exceeded? | Comply with cold starting instructions and proper oil viscosity. |
| | Defective battery? | Charge or replace battery. |
| | Air or water mixed in fuel system? | Check carefully for loosened fuel line coupling, loose cap nut, etc. |
| At low temperatures engine will not start. | Engine oil too thick? | Refill engine crankcase with correct type of oil for winter environment. |
| | Defective battery? | Replace battery. |
| Engine fires but stops soon as starter is switched off. | Fuel filter blocked? | Replace fuel filter. |
| | Fuel supply blocked? | Check the entire fuel system. |
| | Defective fuel pump? | Replace fuel pump. |
| Engine stops by itself during normal operation. | Fuel tank empty? | Add fuel. |
| | Fuel filter blocked? | Replace fuel filter. |
| | Defective fuel pump? | Replace fuel pump. |
| | Mechanical oil pressure shutdown sensor stops the engine due to low oil? | Add oil. Replace low oil shutdown sensor if necessary. |
| Low engine power, output and speed. | Fuel tank empty? | Replace fuel filter. |
| | Fuel filter clogged? | Replace fuel filter. |
| | Fuel tank venting is inadequate? | Ensure that tank is adequately vented. |
| | Leaks at pipe unions? | Check threaded pipe unions tape and tighten unions as required. |
| | Speed control lever does not remain in selected position? | See engine manual for corrective action. |
| | Engine oil level too full? | Correct engine oil level. |
| | Injection pump wear? | Use No. 2-D diesel fuel only. Check the fuel injection pump element and delivery valve assembly and replace as necessary. |

TROUBLESHOOTING (ENGINE)

| Troubleshooting (Engine) - continued | | |
|-------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| Symptom | Possible Problem | Solution |
| Low engine power output and low speed, black exhaust smoke. | Air filter blocked? | Clean or replace air filter. |
| | Incorrect valve clearances? | Adjust valves per engine specification. |
| | Malfunction at injector? | See engine manual. |
| Engine overheats. | Too much oil in engine crankcase? | Drain off engine oil down to uppermark on dipstick. |
| | Entire cooling air system contaminated/ blocked? | Clean cooling air system and cooling fin areas. |
| | Fan belt broken or elongated? | Change belt or adjust belt tension. |
| | Coolant insufficient? | Replenish coolant. |
| | Radiator net or radiator fin clogged with dust? | Clean net or fin carefully. |
| | Fan, radiator, or radiator cap defective? | Replace defective part. |
| | Thermostat defective? | Check thermostat and replace if necessary. |
| Head gasket defective or water leakage? | Replace parts. | |

EXPLANATION OF CODE IN REMARKS COLUMN

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

NOTICE

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

SAMPLE PARTS LIST

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

NO. Column

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

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

NOTICE

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

PART NO. Column

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

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

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

QTY. Column

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

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

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

REMARKS Column

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

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

Indicated by:

“INCLUDES ITEMS W/(unique symbol)”

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

Indicated by:

“S/N XXXXX AND BELOW”

“S/N XXXX AND ABOVE”

“S/N XXXX TO S/N XXX”

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

Indicated by:

“XXXXX ONLY”

“NOT USED ON XXXX”

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

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

SUGGESTED SPARE PARTS

MVH508DZ PLATE COMPACTOR WITH 1D81S-325 DIESEL ENGINE

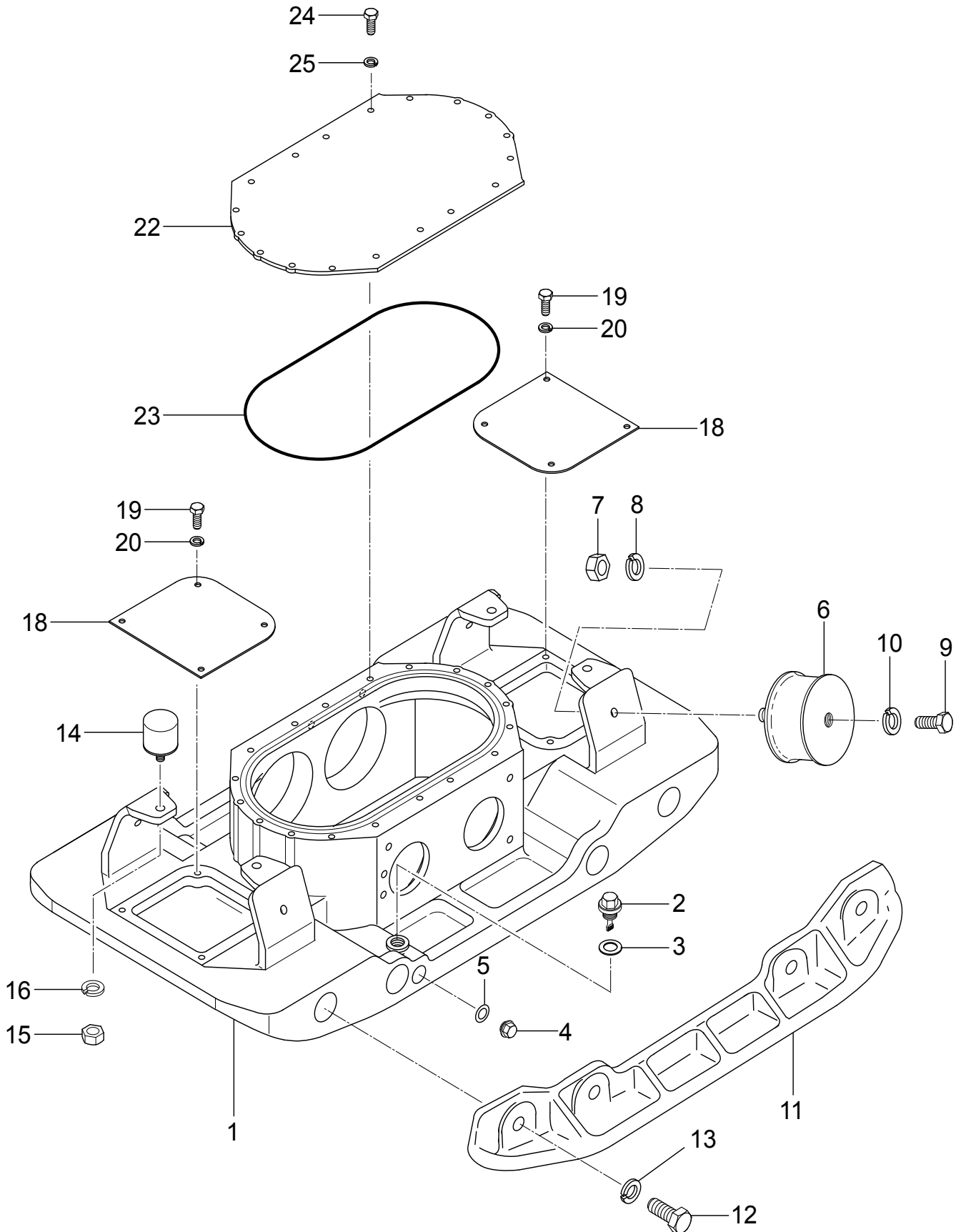
1 to 5 units

| Qty. | P/N | Description |
|--------|-----------------|-------------------------------|
| 4..... | .070200483..... | V-BELT |
| 4..... | .939010010..... | SHOCK ABSORBER, STOPPER |
| 3..... | .50478800..... | FUEL FILTER, IN-LINE |
| 4..... | .939010370..... | SHOCK ABSORBER |
| 1..... | .50384401..... | IGNITION SWITCH |
| 3..... | .50404900..... | KEY, IGNITION SWITCH |
| 1..... | .50385801..... | CAP, FUEL TANK |
| 1..... | .50387300..... | FUEL SIEVE |
| 3..... | .01493000..... | ELEMENT, AIR FILTER |
| 3..... | .01480001..... | ELEMENT, OIL FILTER W/ O-RING |

NOTICE

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

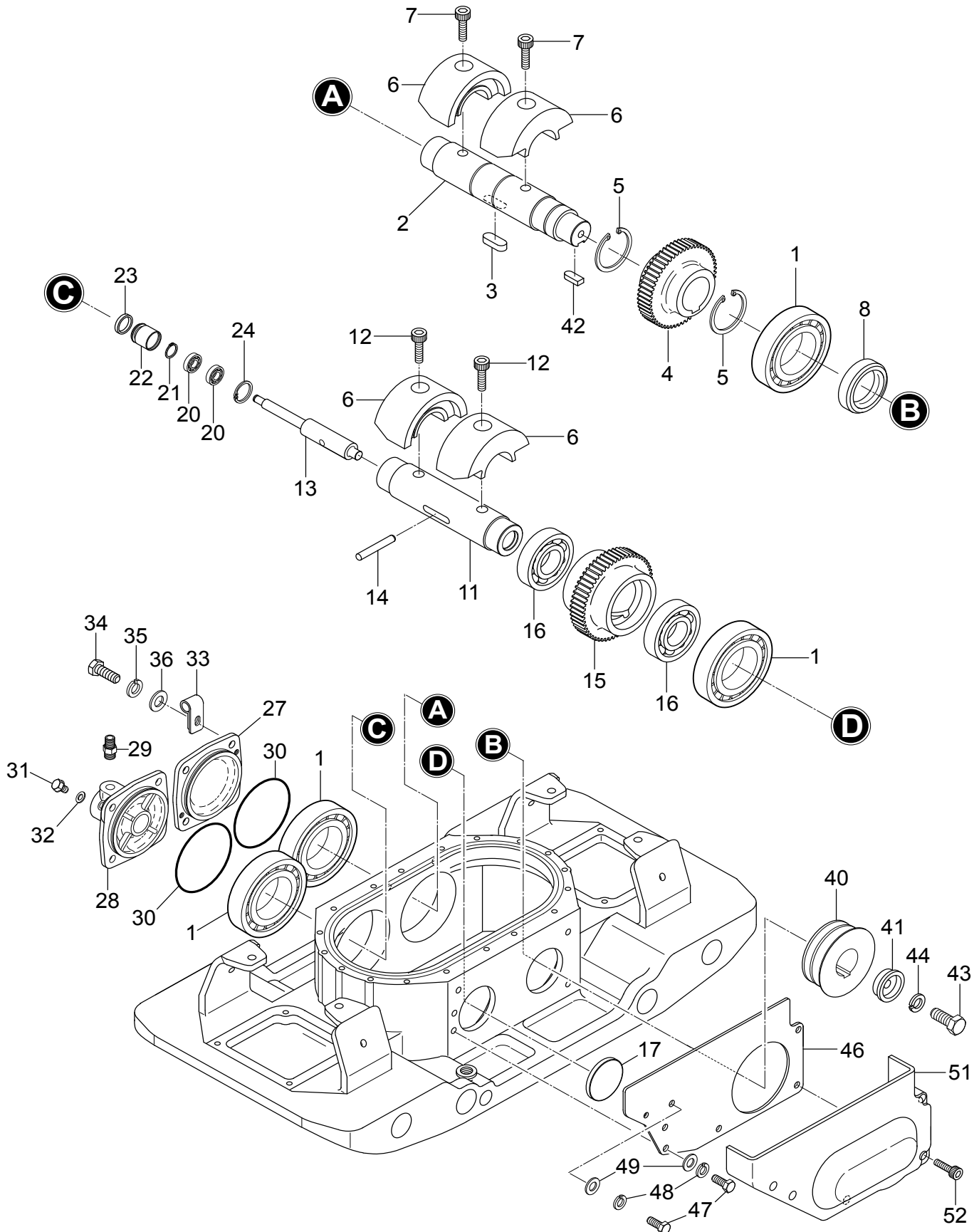
VIBRATING PLATE ASSY.



VIBRATING PLATE ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------|-------------|--------------------|
| 1 | 468121200 | VIBRATING PLATE | 1 | |
| 2 | 465460670 | OIL GAUGE | 1 | |
| 3 | 953402930 | COPPER PACKING | 1 | |
| 4 | 953400270 | PLUG | 1 | |
| 5 | 953405260 | PACKING 1/4 | 1 | |
| 6 | 939010370 | SHOCK ABSORBER | 4 | |
| 7 | 020316130 | NUT M16 | 4 | |
| 8 | 030216400 | WASHER, LOCK M16 | 4 | |
| 9 | 001221635 | BOLT 16X35 | 4 | |
| 10 | 030216400 | WASHER, LOCK M16 | 4 | |
| 11 | 467219050 | EXTENSION PLATE | 2 | |
| 12 | 012218050 | BOLT 18X50 | 8..... | REPLACES 001221850 |
| 13 | 58407 | WASHER, LOCK M18 | 8..... | REPLACES 030218460 |
| 14 | 939010010 | SHOCK ABSORBER, STOPPER | 4 | |
| 15 | 020310080 | NUT M10 | 4 | |
| 16 | 030210250 | WASHER, LOCK M10 | 4 | |
| 18 | 468352110 | COVER, VIBRATING PLATE | 2 | |
| 19 | 014208020 | BOLT 8X20 | 8..... | REPLACES 001220820 |
| 20 | 030208200 | WASHER, LOCK M8 | 8 | |
| 22 | 467351790 | COVER VIBRATOR | 1 | |
| 23 | 050103250 | O-RING | 1 | |
| 24 | 014208020 | BOLT 8X20..... | 18..... | REPLACES 001220820 |
| 25 | 030208200 | WASHER, LOCK M8 | 18 | |

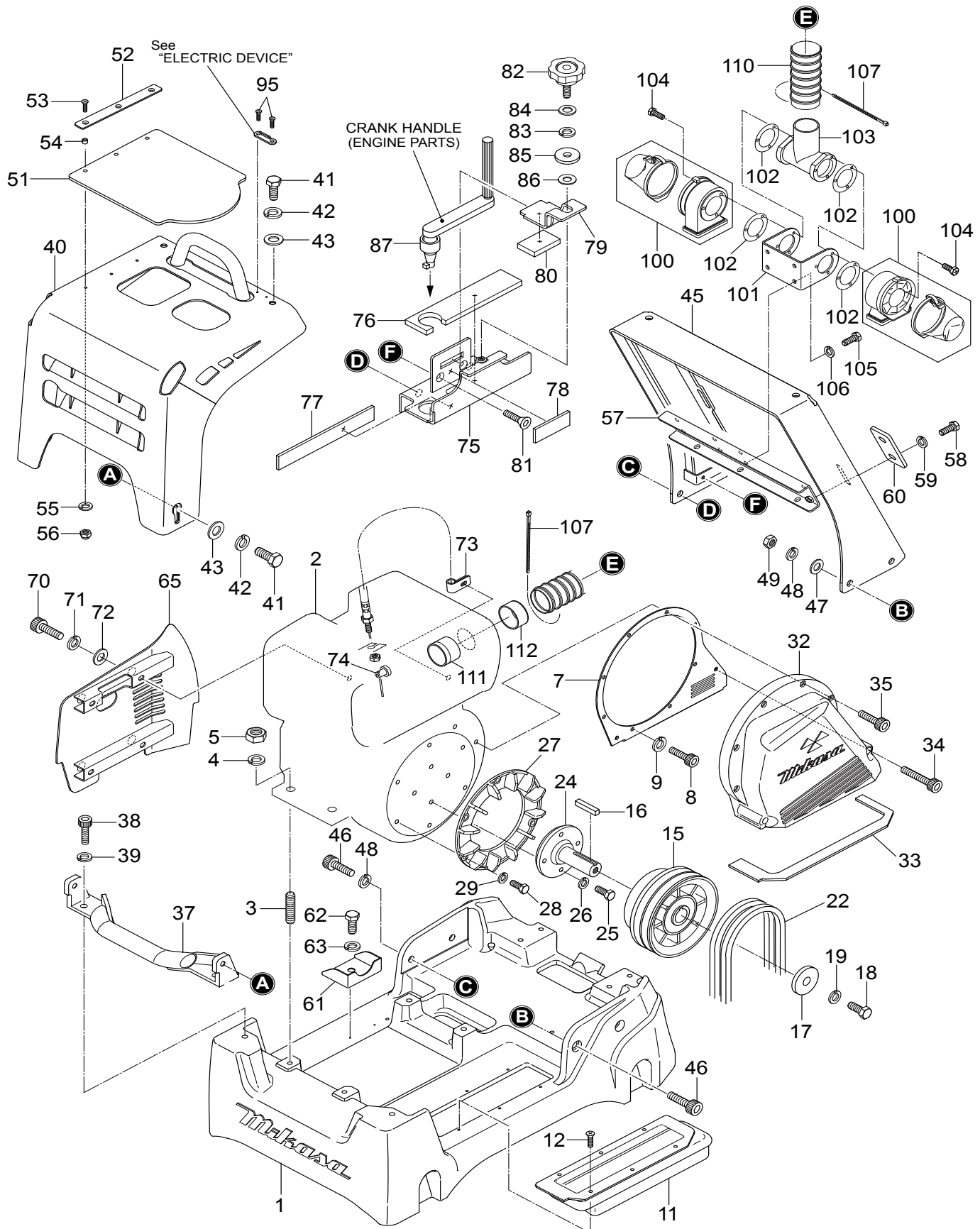
VIBRATOR ASSY.



VIBRATOR ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------|-------------|--------------------|
| 1 | 047920120 | ROLLER BEARING | 4 | |
| 2 | 457212410 | ROTARY SHAFT, DRIVE | 1 | |
| 3 | 951405370 | KEY 15X10X39 | 1 | |
| 4 | 456327150 | GEAR, DRIVE | 1 | |
| 5 | 080200550 | STOP RING | 2 | |
| 6 | 469352310 | ECCENTRIC ROTATOR | 4 | |
| 7 | 009120301 | SOCKET HEAD BOLT 16X40 | 2 | |
| 8 | 060105030 | OIL SEAL | 1 | |
| 11 | 456337670 | ROTARY SHAFT, DRIVEN | 1 | |
| 12 | 009120302 | SOCKET HEAD BOLT 16X30 | 2 | |
| 13 | 456337380 | PISTON ROD | 1 | |
| 14 | 456010010 | KNOCK PIN 10X70 | 1 | |
| 15 | 467351910 | GEAR (DRIVEN) | 1 | |
| 16 | 040306911 | BEARING | 2 | |
| 17 | 953010030 | SEAL CAP | 1 | |
| 20 | 042506000 | BEARING 6000ZZSG | 2 | |
| 21 | 0080000010 | STOP RING | 1 | REPLACES 080200100 |
| 22 | 455435051 | PISTON | 1 | |
| 23 | 455010070 | PACKING | 1 | |
| 24 | 080100260 | STOP RING | 1 | |
| 27 | 467352540 | BEARING COVER | 1 | |
| 28 | 467219070 | CYLINDER (R) | 1 | |
| 29 | 954010020 | CONNECTOR PT, PF 1/4 | 1 | |
| 30 | 050101050 | O-RING | 2 | |
| 31 | 001720812 | FLANGE BOLT 8X12 | 1 | |
| 32 | 953404600 | COPPER PACKING | 1 | |
| 33 | 959408880 | CLIP 15 (M10) | 1 | |
| 34 | 0105091025 | BOLT 10X25..... | 8 | REPLACES 001221025 |
| 35 | 030210250 | WASHER, LOCK M10 | 8 | |
| 36 | 031110160 | WASHER, FLAT M10 | 8 | |
| 40 | 469352320 | PULLEY | 1 | |
| 41 | 456437920 | WASHER, PULLEY | 1 | |
| 42 | 951404970 | KEY 12X8X30 | 1 | |
| 43 | 012212035 | BOLT 12X35 | 1 | REPLACES 001221235 |
| 44 | 030212300 | WASHER, LOCK M12 | 1 | |
| 46 | 467351920 | GUIDE, BELT COVER | 1 | |
| 47 | 014208020 | BOLT 8X20 | 2 | REPLACES 001220820 |
| 48 | 030208200 | WASHER, LOCK M8 | 2 | |
| 49 | 0401450080 | WASHER, FLAT M8 | 2 | REPLACES 031108160 |
| 51 | 469219030 | BELT COVER, LOWER | 1 | |
| 52 | 001520860 | SOCKET HEAD BOLT 8X100 | 5 | |

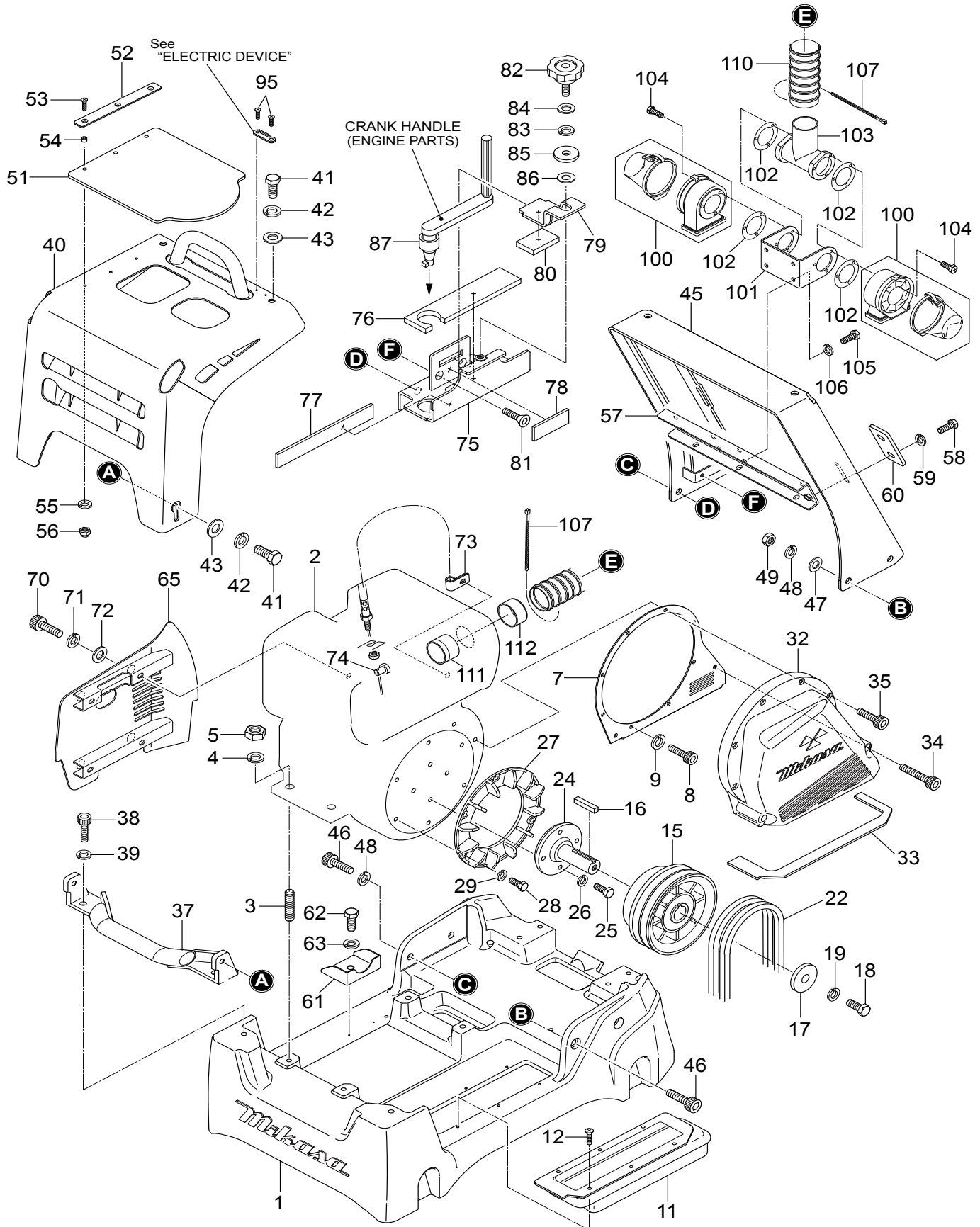
BASE AND ENGINE ASSY.



BASE AND ENGINE ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-----------------------------|-------------|--------------------|
| 1 | 469121280 | BASE | 1 | |
| 2 | 918401200 | ENGINE ASSY. | 1 | |
| 3 | 009120205 | STUD BOLT 12X25 | 4 | |
| 4 | 030212300 | WASHER, LOCK M12 | 4 | |
| 5 | 0039312000 | NUT M12 | 4 | REPLACES 020312100 |
| 7 | 469352260 | BELT COVER, IN | 1 | |
| 8 | 014210020 | SOCKET HEAD BOLT 10X20..... | 3 | REPLACES 001521020 |
| 9 | 030210250 | WASHER, LOCK M10 | 3 | |
| 11 | 469218980 | DUST COVER | 1 | |
| 12 | 092006010 | FLAT HEAD SCREW 6X10 | 6 | |
| 15 | 469352390 | CLUTCH ASSY. | 1 | |
| 16 | 951010130 | KEY 7X7X49 | 1 | |
| 17 | 952401390 | WASHER 11X40X6 | 1 | |
| 18 | 0105091025 | BOLT 10X25..... | 1 | REPLACES 001221025 |
| 19 | 030210250 | WASHER, LOCK M10 | 1 | |
| 22 | 070200483 | V-BELT, HDPF-5460 | 2 | |
| 24 | 457339571 | STUB SHAFT FAN | 1 | |
| 25 | 011208030 | BOLT 8X30..... | 4 | REPLACES 001220830 |
| 26 | 030208200 | WASHER, LOCK M8 | 4 | |
| 27 | 457336380 | FAN | 1 | |
| 28 | 014208020 | BOLT 8X20..... | 6 | REPLACES 001220820 |
| 29 | 030208200 | WASHER, LOCK M8 | 6 | |
| 32 | 469218990 | BELT COVER (OUT) | 1 | |
| 33 | 469352270 | DUST SPONGE (OUT) | 1 | |
| 34 | 001521058 | SOCKET HEAD BOLT 10X90 | 2 | |
| 35 | 001521045 | SOCKET HEAD BOLT 10X45 | 5 | |
| 37 | 469352280 | FRONT BUMPER | 1 | |
| 38 | 001521435 | SOCKET HEAD BOLT 14X35 | 2 | |
| 39 | 030214350 | WASHER, LOCK M14 | 2 | |
| 40 | 469121290 | FRONT COVER | 1 | |
| 41 | 001221435 | BOLT 14X35 T | 4 | |
| 42 | 030214350 | WASHER, LOCK M14 | 4 | |
| 43 | 031114260 | WASHER, FLAT M14 | 4 | |
| 45 | 469219330 | CENTER COVER | 1 | |
| 46 | 001521440 | SOCKET HEAD BOLT 14X40 | 4 | |
| 47 | 031114260 | WASHER, FLAT M14 | 2 | |
| 48 | 030214350 | WASHER, LOCK M14 | 4 | |
| 49 | 020314110 | NUT M14 | 2 | |
| 51 | 468466890 | RUBBER COVER, UPPER | 1 | |
| 52 | 467466760 | STOPPER COVER | 1 | |
| 53 | 009120424 | SOCKET HEAD BOLT 6X25 | 3 | |
| 54 | 617465130 | COLLAR 6.2X7.8X4.5 | 3 | |
| 55 | 030206150 | WASHER, LOCK M6 | 3 | |
| 56 | 022710607 | NYLON NUT M6 | 3 | |

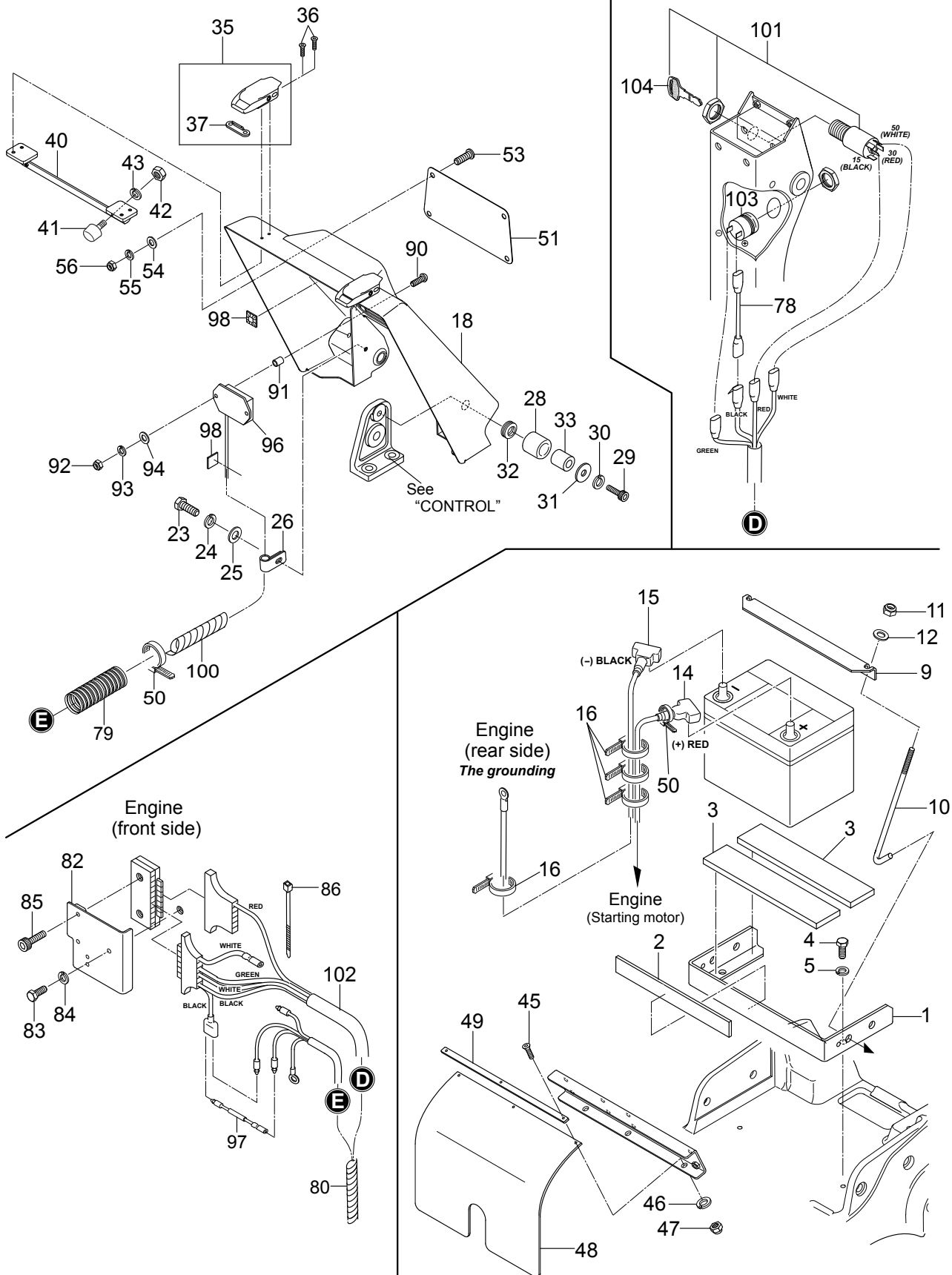
BASE AND ENGINE ASSY. CONTINUED



BASE AND ENGINE ASSY. CONTINUED

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|--------------------|
| 57 | 469352890 | CLEANER STAY | 1 | |
| 58 | 011208025 | BOLT 8X25..... | 4 | REPLACES 001220825 |
| 59 | 030208200 | WASHER, LOCK M8 | 4 | |
| 60 | 467467580 | PLATE, CLEANER STAY | 2 | |
| 61 | 469467000 | GUIDE, DRAIN | 1 | |
| 62 | 011008015 | BOLT 8X15 | 1 | REPLACES 001220815 |
| 63 | 030208200 | WASHER, LOCK M8 | 1 | |
| 65 | 469219010 | SIDE COVER | 1 | |
| 70 | 001521251 | SOCKET HEAD BOLT 12X55 | 4 | |
| 71 | 030212300 | WASHER, LOCK M12 | 4 | |
| 72 | 031112230 | WASHER, FLAT M12 | 4 | |
| 73 | 2067550101 | CLAMP COMPLETE | 1 | |
| 74 | DH50642000 | CLAMP | 1 | |
| 75 | 469219120 | HOLDER, CRANK HANDLE | 1 | |
| 76 | 469467320 | POLYURETHANE SEAT 222X50 | 1 | |
| 77 | 469467310 | POLYURETHANE SEAT 220X30 | 1 | |
| 78 | 469467300 | POLYURETHANE SEAT 80X30X5 | 1 | |
| 79 | 469352530 | HOLDER, CRANK HANDLE | 1 | |
| 80 | 469467330 | POLYURETHANE SEAT 60X40 | 1 | |
| 81 | 009120408 | SUNK HEAD BOLT 8X20 | 2 | |
| 82 | 959406961 | GRIP BOLT 45X10X30 | 1 | |
| 83 | 030210250 | WASHER, LOCK M10 | 1 | |
| 84 | 031110160 | WASHER, FLAT M10 | 1 | |
| 85 | 952403450 | WASHER 11X35X4.5 | 1 | |
| 86 | 952008940 | SEAL WASHER 10X17X1.6 | 1 | |
| 87 | 469467190 | RUBBER PIPE 25X33X20 | 1 | |
| 95 | 009120420 | SOCKET HEAD BOLT 5X10 | 4 | |
| 100 | 466218080 | CLEANER, CYCLONE | 2 | |
| 101 | 469352300 | CYCLONE STAY | 1 | |
| 102 | 466462850 | GASKET, AIR INTAKE | 4 | |
| 103 | 469219020 | JOINT CLEANER | 1 | |
| 104 | 009110057 | SOCKET HEAD BOLT 5X18 | 6 | |
| 105 | 011008015 | BOLT 8X15 T..... | 4 | REPLACES 001220815 |
| 106 | 030208200 | WASHER, LOCK M8 | 4 | |
| 107 | 506010060 | CLAMP | 2 | |
| 110 | 466348590 | DUCT HOSE 50X270 | 1 | |
| 111 | 469467010 | INTAKE PIPE | 1 | |
| 112 | 466462840 | DUCT GROMMET | 1 | |

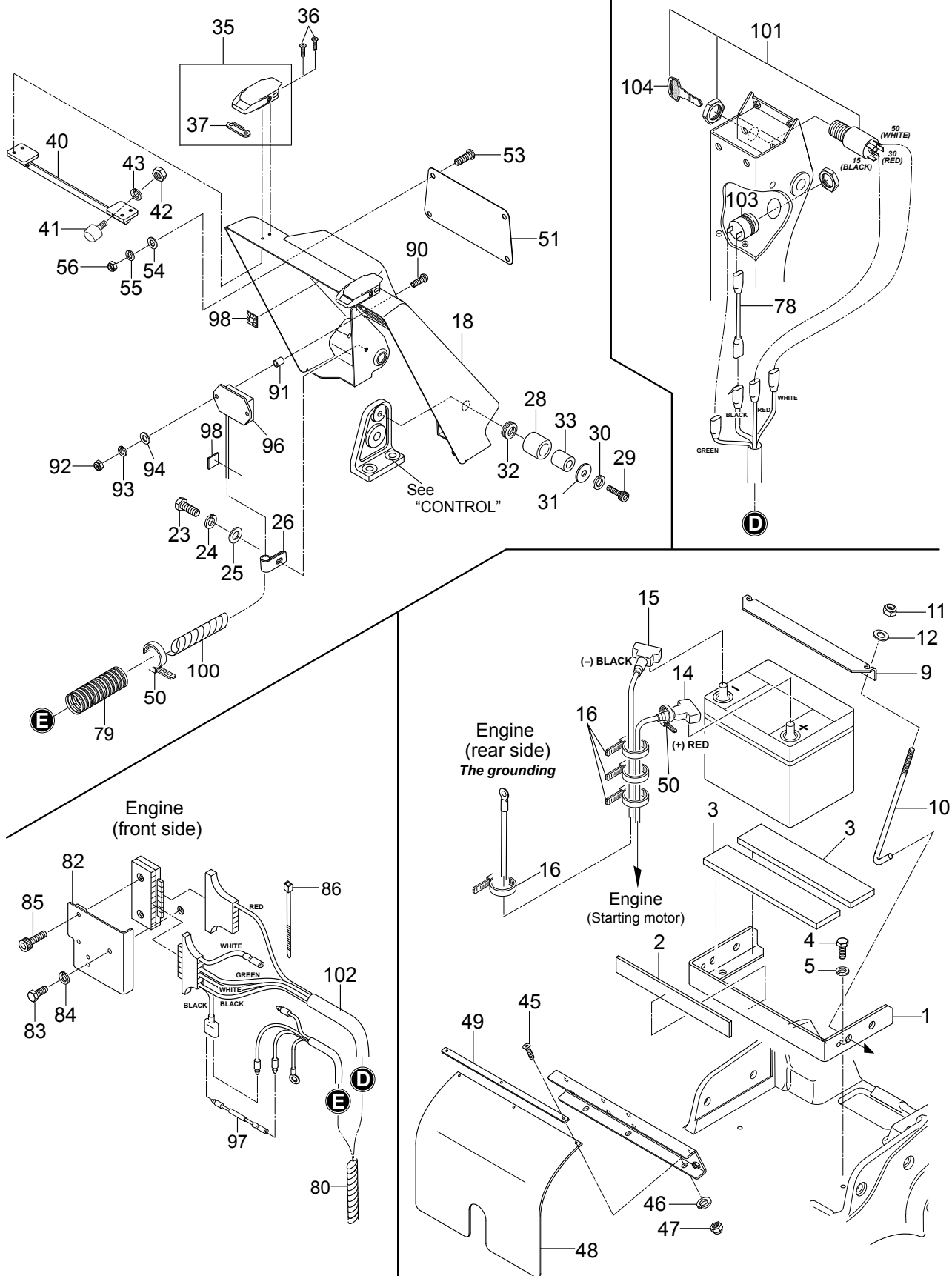
ELECTRIC DEVICE ASSY.



ELECTRIC DEVICE ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------|-------------|--------------------|
| 1 | 467218920 | BATTERY HOLDER | 1 | |
| 2 | 456447590 | RUBBER PLATE (E) | 1 | |
| 3 | 456447600 | RUBBER PLATE | 2 | |
| 4 | 012210020 | BOLT 10X20..... | 2..... | REPLACES 001221020 |
| 5 | 030210250 | WASHER, LOCK M10 | 2 | |
| 9 | 464313740 | HOLDER, BATTERY | 1 | |
| 10 | 469467170 | TIE-DOWN ROD, BATTERY | 2 | |
| 11 | 022710809 | NYLON NUT M8 | 2 | |
| 12 | 0401450080 | WASHER, FLAT M8 | 2..... | REPLACES 031108160 |
| 14 | 955301030 | BATTERY CABLE (+) | 1 | |
| 15 | 955301040 | BATTERY CABLE (-) | 1 | |
| 16 | 506010070 | CLAMP | 4 | |
| 18 | 469121300 | REAR COVER | 1 | |
| 23 | 014208020 | BOLT 8X20 T | 1..... | REPLACES 001220820 |
| 24 | 030208200 | WASHER, LOCK M8 | 1 | |
| 25 | 0401450080 | WASHER, FLAT M8 | 1..... | REPLACES 031108160 |
| 26 | 959408920 | CLIP 8 (M8) | 1 | |
| 28 | 404433430 | RUBBER | 2 | |
| 29 | 001521051 | SOCKET HEAD BOLT 10X55 | 2 | |
| 30 | 030210250 | WASHER, LOCK M10 | 2 | |
| 31 | 952403450 | WASHER | 2 | |
| 32 | 467467250 | RUBBER WASHER | 2 | |
| 33 | 417454420 | COLLAR | 2 | |
| 35 | 469467470 | CATCH CLIP | 2..... | INCLUDES ITEM W/\$ |
| 36 | 009120421 | SOCKET HEAD BOLT 5X15 | 4 | |
| 37\$ | 169467480 | HOLDER, CATCH CLIP | 2 | |
| 40 | 469352340 | BRACKET, STOPPER | 1 | |
| 41 | 939010360 | STOPPER, RUBBER | 2 | |
| 42 | 020108060 | NUT M8 | 2..... | REPLACES 020308060 |
| 43 | 030208200 | WASHER, LOCK M8 | 2 | |
| 45 | 001200520 | BOLT 5X20 | 3 | |
| 46 | 030205130 | WASHER, LOCK M5 | 3 | |
| 47 | 022710506 | NYLON NUT M5 | 3 | |
| 48 | 467466930 | RUBBER PLATE, BATTERY | 1 | |
| 49 | 467466920 | STOPPER, RUB-PLATE | 1 | |
| 50 | 454010020 | CLAMP | 1 | |

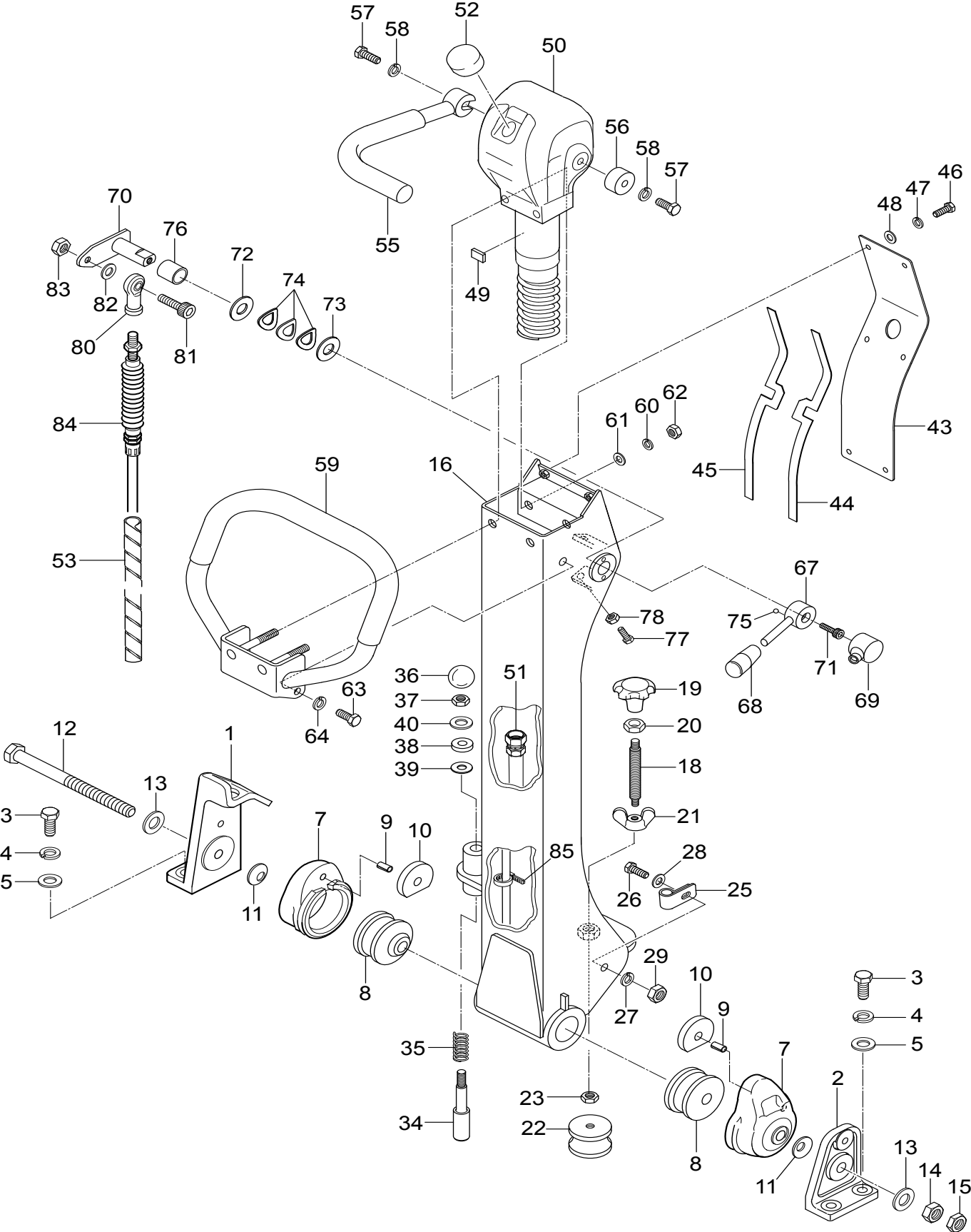
ELECTRIC DEVICE ASSY. CONTINUED



ELECTRIC DEVICE ASSY. CONTINUED

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------------|-------------|--------------------|
| 51 | 467352050 | PANEL, REAR COVER | 1 | |
| 53 | 009110062 | SOCKET HEAD SCREW 6X20 | 4 | |
| 54 | 952404470 | WASHER, FLAT M6 | 4..... | REPLACES 031106100 |
| 55 | 030206150 | WASHER, LOCK M6 | 4 | |
| 56 | 022710607 | NYLON NUT M6 | 4 | |
| 78 | 465459680 | RELAY CABLE/BUZZER | 1 | |
| 79 | 959026021 | CORRUGATE TUBE | 1 | |
| 80 | 959020014 | SPIRAL TUBE | 1 | |
| 82 | 469352400 | PANEL, WITH BUZZER | 1 | |
| 83 | 001220635 | BOLT 6X35 | 1 | |
| 84 | 030206150 | WASHER, LOCK M6 | 1 | |
| 85 | 001520530 | SOCKET HEAD BOLT 5X30 | 2 | |
| 86 | 506010070 | CLAMP | 1 | |
| 90 | 009110072 | PAN HEAD SCREW 5X35 | 2 | |
| 91 | 952407930 | COLLAR 6X10X13.5 | 2 | |
| 92 | 022710506 | NYLON NUT M5 | 2 | |
| 93 | 030205130 | WASHER, LOCK M5 | 2 | |
| 94 | 58151 | WASHER, FLAT M5 | 2..... | REPLACES 031105080 |
| 96 | 955301020 | TACH. AND HOUR METER | 1 | |
| 97 | 469467040 | RESISTOR, TACH. | 1 | |
| 98 | 955407970 | WIRING FIXED BASE | 2 | |
| 101 | 50384401 | IGNITION SWITCH W/ KEY | 1..... | INCLUDES ITEM W/ @ |
| 102 | 469352350 | WIRE HARNESS | 1 | |
| 103 | 50465100 | BUZZER | 1 | |
| 104@ | 50404900 | KEY, IGNITION SWITCH | 1 | |

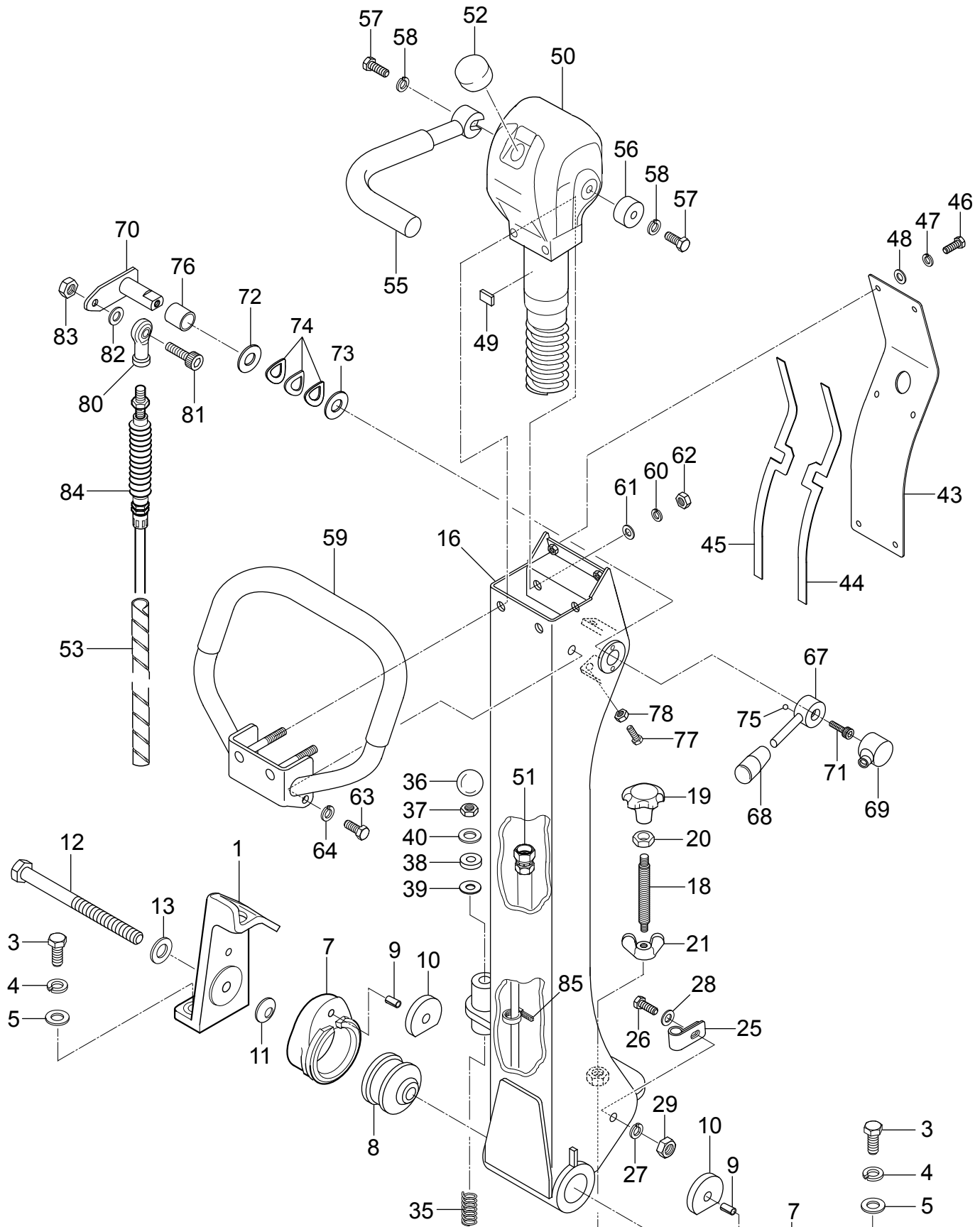
CONTROL ASSY.



CONTROL ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------|-------------|--------------------|
| 1 | 467351950 | HANDLE BRACKET (R) | 1 | |
| 2 | 467351960 | HANDLE BRACKET (L) | 1 | |
| 3 | 012212035 | BOLT 12X35..... | 4 | REPLACES 001221235 |
| 4 | 030212300 | WASHER, LOCK M12 | 4 | |
| 5 | 031112230 | WASHER, FLAT M12 | 4 | |
| 7 | 456336400 | RUBBER COUPLING | 2 | |
| 8 | 456449940 | SHOCK ABSORBER | 2 | |
| 9 | 025306016 | SPRING PIN 6X16 | 2 | REPLACES 025406016 |
| 10 | 456449930 | RUBBER PLATE | 2 | |
| 11 | 032124400 | CONICAL WASHER LOCK M24 | 2 | |
| 12 | 001221681 | BOLT 16X250 | 1 | |
| 13 | 0401450160 | WASHER, FLAT M16 | 2 | REPLACES 031116260 |
| 14 | 020316130 | NUT M16 | 1 | |
| 15 | 020416100 | NUT M16 | 1 | |
| 16 | 467121170 | HANDLE BAR | 1 | |
| 18 | 455434950 | SPINDLE | 1 | |
| 19 | 455010030 | KNOB | 1 | |
| 20 | 020412070 | NUT M12 | 1 | |
| 21 | 022411635 | WING NUT M16 | 1 | |
| 22 | 939010060 | SHOCK ABSORBER | 1 | |
| 23 | 020310080 | NUT M10..... | 1 | REPLACES 020410060 |
| 25 | 959408930 | CLIP | 1 | |
| 26 | 011206020 | BOLT 6X20..... | 1 | REPLACES 001220620 |
| 27 | 030206150 | WASHER, LOCK M6 | 1 | |
| 28 | 952404470 | WASHER, FLAT M6 | 1 | REPLACES 031106100 |
| 29 | 020106050 | NUT M6 | 1 | REPLACES 020306050 |
| 34 | 501402870 | HANDLE STOPPER | 1 | |
| 35 | 501402880 | SPRING/HANDLE | 1 | |
| 36 | 959403460 | BALL GRIP | 1 | |
| 37 | 020310080 | NUT M10..... | 1 | REPLACES 020410060 |
| 38 | 456449980 | RUBBER PACKING | 1 | |
| 39 | 953405260 | PACKING 1/4 | 1 | |
| 40 | 031110160 | WASHER, FLAT M10 | 1 | |
| 43 | 467351970 | HANDLE COVER | 1 | |
| 43 | 467351970 | HANDLE COVER | 1 | |

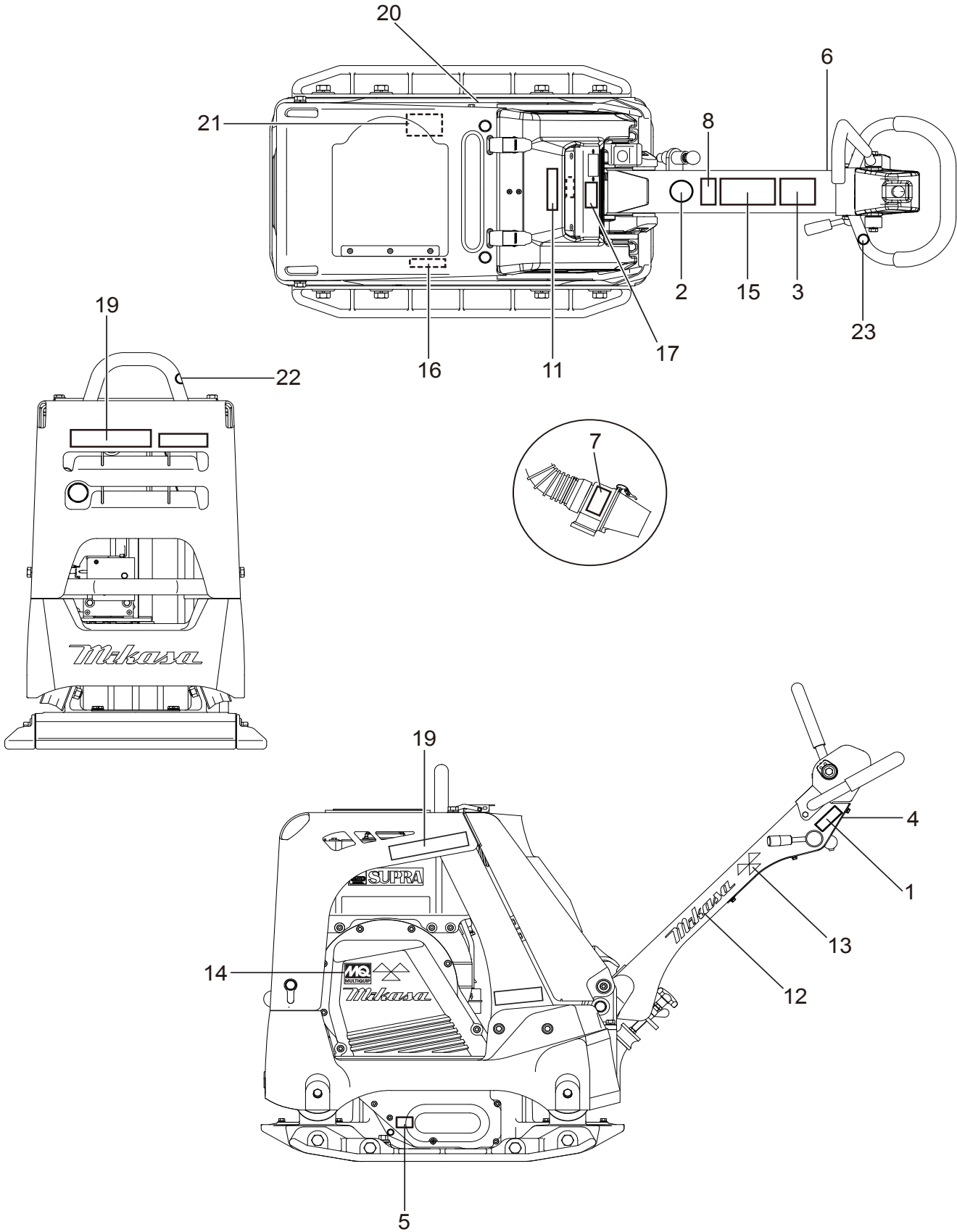
CONTROL ASSY. CONTINUED



CONTROL ASSY. CONTINUED

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------|-------------|--------------------|
| 44 | 467467340 | PACKING (L), HANDLE | 1 | |
| 45 | 467467350 | PACKING (R), HANDLE | 1 | |
| 46 | 0105050616 | BOLT 6X15 T | 6..... | REPLACES 001220615 |
| 47 | 030206150 | WASHER, LOCK M6 | 6 | |
| 48 | 952404470 | WASHER, FLAT M6 | 6..... | REPLACES 031106100 |
| 49 | 464457930 | RUBBER PIECE | 1 | |
| 50 | 469219180 | HYDRAULIC PUMP | 1 | |
| 51 | 954003100 | OIL HOSE | 1 | |
| 52 | 458451630 | BREATHER CAP | 1 | |
| 53 | 959021813 | SPIRAL TUBE | 1 | |
| 55 | 464216630 | TRAVEL LEVER | 1 | |
| 56 | 464457400 | HANDLE BOSS | 1 | |
| 57 | 012010030 | BOLT 10X30..... | 2..... | REPLACES 001221030 |
| 58 | 030210250 | WASHER, LOCK M10 | 2 | |
| 59 | 467218900 | GRIP | 1 | |
| 60 | 030210250 | WASHER, LOCK M10 | 2 | |
| 61 | 031110160 | WASHER, FLAT M10 | 2 | |
| 62 | 020310080 | NUT M10 | 2 | |
| 63 | 0105091025 | BOLT 10X25..... | 2..... | REPLACES 001221025 |
| 64 | 030210250 | WASHER, LOCK M10 | 2 | |
| 67 | 469466970 | THROTTLE LEVER | 1 | |
| 68 | 959403840 | BAR GRIP, I.D. | 1 | |
| 69 | 464457420 | COVER , THROTTLE LEVER | 1 | |
| 70 | 464457350 | ARM, THROTTLE | 1 | |
| 71 | 014208020 | SOCKET HEAD BOLT 8X20..... | 1..... | REPLACES 001520820 |
| 72 | 952408950 | WASHER | 1 | |
| 73 | 952409020 | WASHER | 1 | |
| 74 | 033910080 | CONICAL WASHER, LOCK | 3 | |
| 75 | 464457440 | STEEL BALL | 1 | |
| 76 | 464010010 | DRY BUSHING | 1 | |
| 77 | 011606025 | BOLT 6X25..... | 2..... | REPLACES 001220625 |
| 78 | 020106050 | NUT M6 | 2..... | REPLACES 020306050 |
| 80 | 464010020 | ROD END M5 | 1 | |
| 81 | 001520520 | SOCKET HEAD BOLT 5X20 | 1 | |
| 82 | 58151 | WASHER, FLAT M5 | 1..... | REPLACES 031105080 |
| 83 | 020305040 | NUT M5 | 1 | |
| 84 | 956100071 | THROTTLE WIRE | 1 | |
| 85 | 454010020 | CLAMP | 1 | |

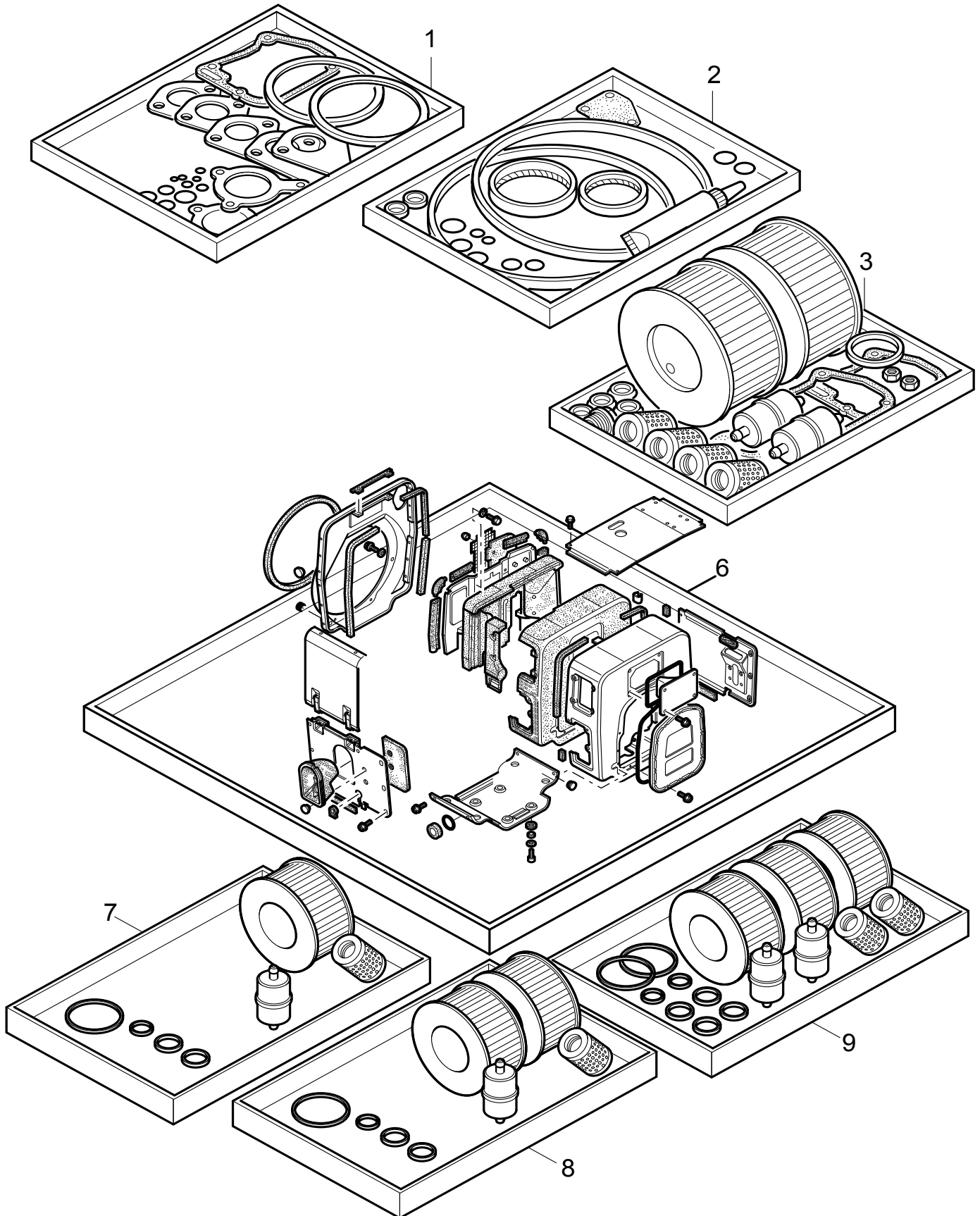
NAMEPLATE AND DECALS ASSY.



NAMEPLATE AND DECALS ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------|-------------|----------------|
| 1 | 920204580 | DECAL, FULL THROTTLE | 1 | |
| 2 | 920203330 | DECAL, EAR PROTECTION | 1 | |
| 3 | 920211060 | DECAL, CAUTION LEVER | 1 | |
| 4 | 920211090 | DECAL, SHELL TELLUS OIL 32 | 1 | |
| 5 | 920201950 | DECAL, OIL SAE 10W-30 | 1 | |
| 6 | 920106760 | DECAL, STOP-RUN-START | 1 | |
| 7 | 920214200 | DECAL, CAUTION CYCLONE | 1 | |
| 8 | 920214100 | DECAL, E/G FIRE WARNING | 1 | |
| 12 | 920217130 | DECAL, MIKASA MARK(W) 200L | 2 | |
| 13 | 920217110 | DECAL, MIKASA MARK 35X70 | 2 | |
| 14 | 920201580 | DECAL, MQ MARK 71X55 | 1 | |
| 15 | 920218390 | DECAL, CAUTION | 1 | |
| 16 | 920217700 | DECAL, V-BELT HDPF-5480 | 1 | |
| 17 | 920218150 | DECAL, E/G RPM 2400 | 1 | |
| 19 | 920217810 | DECAL, MODEL (R) | 2 | |
| 20 | 920217820 | DECAL, MODEL (L) | 1 | |
| 21 | 920217610 | PLATE, SERIAL NO. | 1 | |
| 22 | 920214740 | DECAL, LIFTING POSITION | 1 | |
| 23 | 920214730 | DECAL, DO NOT LIFT | 1 | |

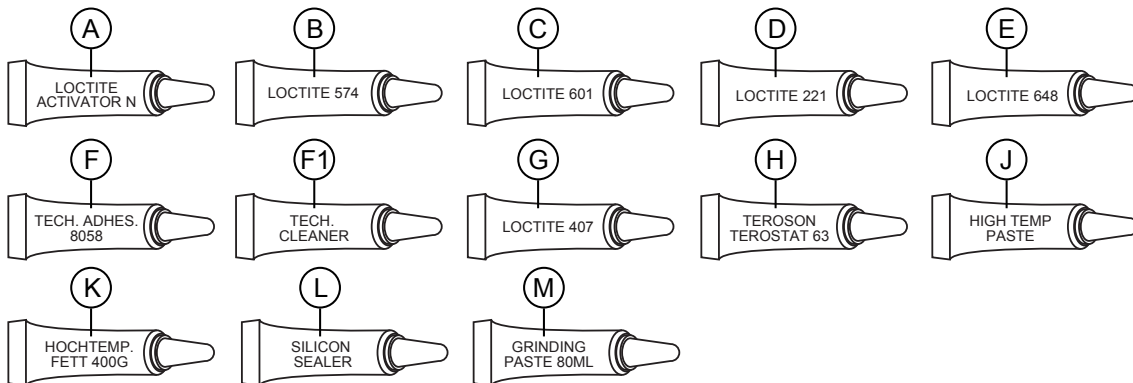
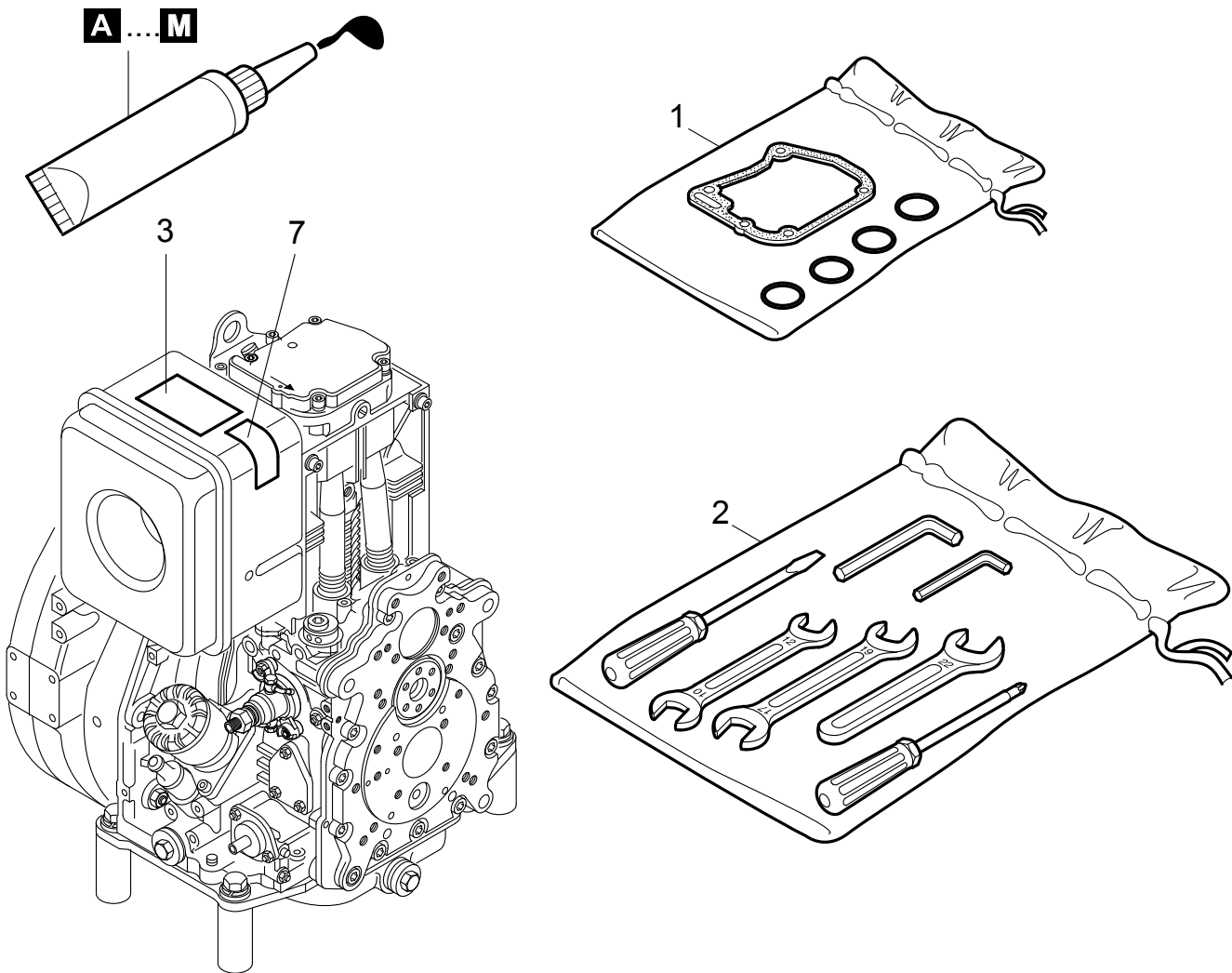
HATZ 1D81S-325 ENGINE SPARE PARTS KIT ASSY.



HATZ 1D81S-325 ENGINE SPARE PARTS KITS ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|----------------|
| 1 | 1517802 | GASKET SET, CYLINDER HEAD | 1 | |
| 2 | 1249322 | GASKET SET, CRANK CASE | 1 | |
| 3 | 1249410 | MAINTENANCE KIT, 1000H | 1 | |
| 6 | 1942000 | REPAIR SET, CAPSULE | 1 | |
| 7 | 2265300 | FILTER KIT, LIGHT | 1 | |
| 8 | 2268500 | FILTER KIT, MEDIUM | 1 | |
| 9 | 2269600 | FILTER KIT, HEAVY | 1 | |

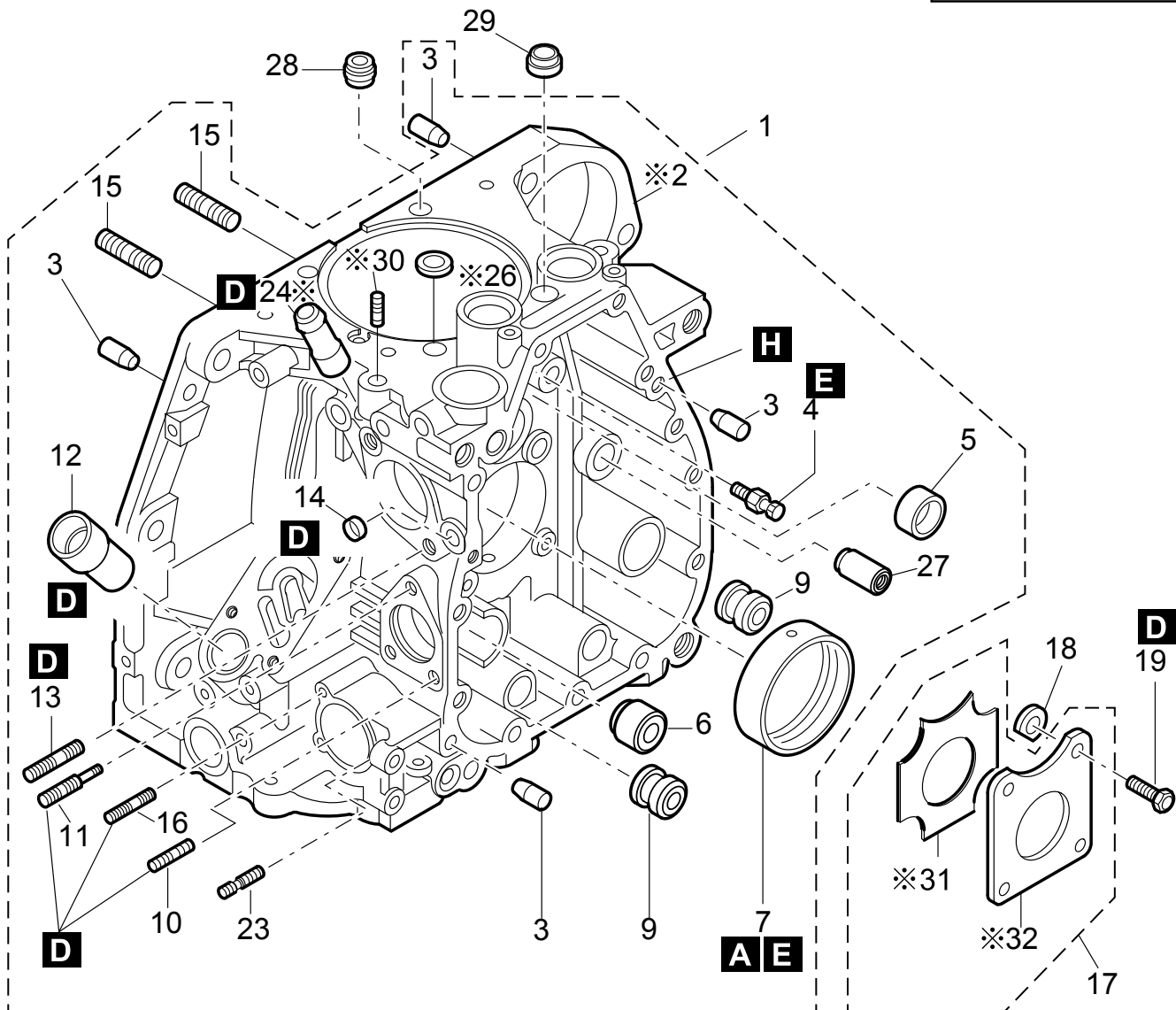
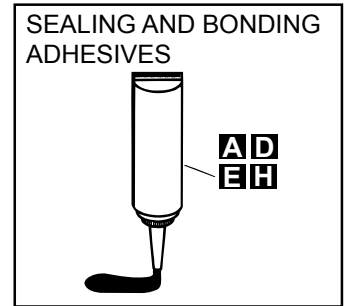
HATZ 1D81S-325 ENGINE ACCESSORIES ASSY.



HATZ 1D81S-325 ENGINE ACCESSORIES ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------|-------------|----------------|
| A | 50223001 | LOCTITE ACTIVATOR N | 1 | |
| B | 50223101 | LOCTITE 574 | 1 | |
| C | 50223200 | LOCTITE 601 | 1 | |
| D | 50223300 | LOCTITE 221 | 1 | |
| E | 50223400 | LOCTITE 648 | 1 | |
| F | 50223800 | TECHNICAL ADHESIVE 8058 | 1 | |
| F1 | 50223900 | TECHNICAL CLEANER | 1 | |
| G | 50256501 | LOCTITE IS 407 | 1 | |
| H | 70018944 | TEROSON TEROSTAT 63 | 1 | |
| J | 50283004 | HIGH TEMPERATURE PASTE | 1 | |
| K | 50342601 | HIGH TEMPERATURE FETT | 1 | |
| L | 50256600 | SILICON SEALER | 1 | |
| M | 50485100 | GRINDING PASTE | 1 | |
| 1 | 01247512 | ACCESSORIES KIT | 1 | |
| 2 | 01247600 | TOOLS | 1 | |
| 3 | 04048305 | STICKER DECAL | 1 | |
| 7 | 05025201 | STICKER DECAL "START" | 1 | |

HATZ 1D81S-325 ENGINE CRANKCASE 1 ASSY.

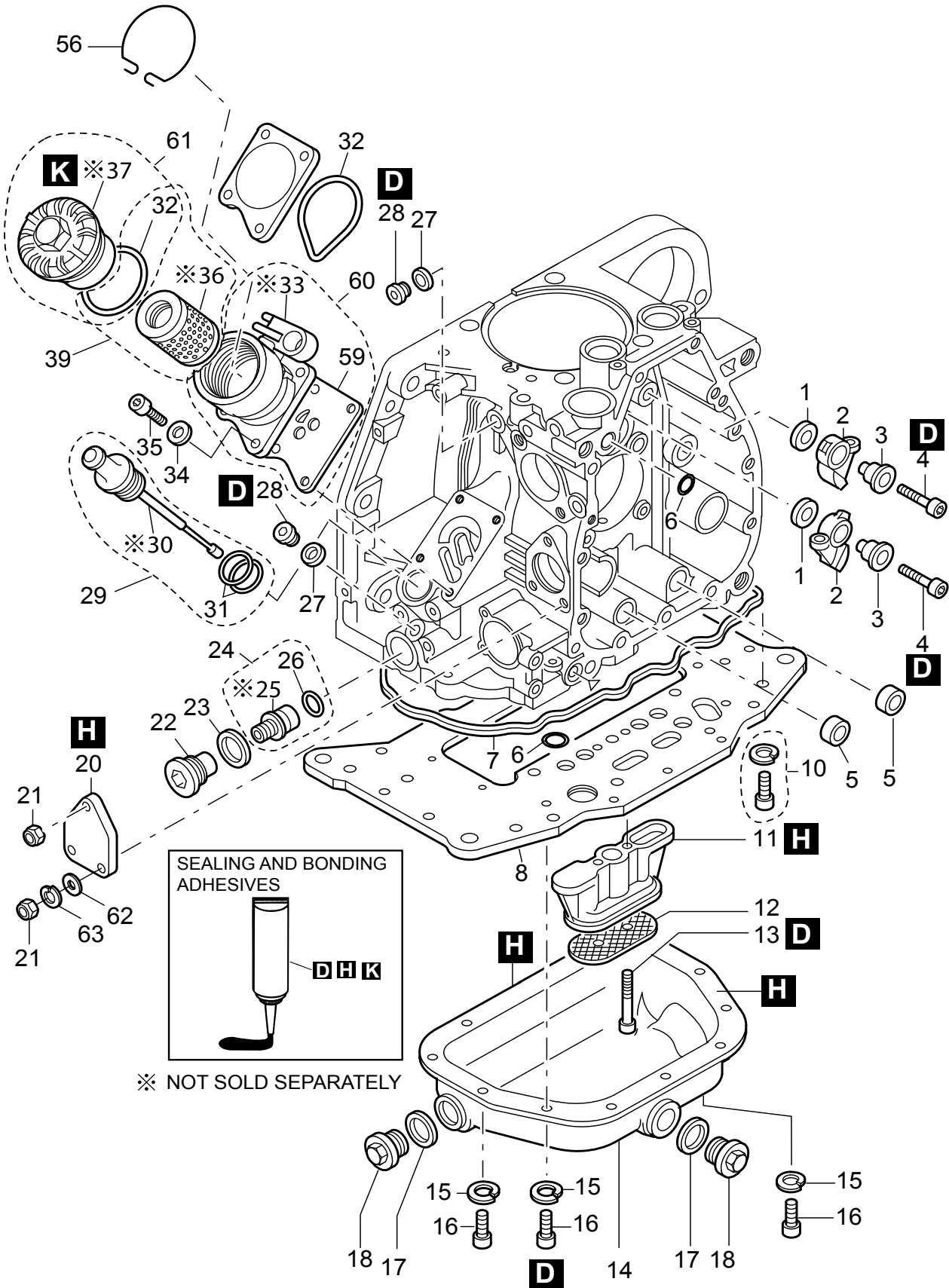


※ NOT SOLD SEPARATELY

HATZ 1D81S-325 ENGINE CRANKCASE 1 ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------------|-------------|---------------------|
| A | 50223001 | LOCTITE ACTIVATOR N | 1 | |
| D | 50223300 | LOCTITE 221 | 1 | |
| E | 50223400 | LOCTITE 648 | 1 | |
| H | 70018944 | TEROSON TEROSTAT 63 | 1 | |
| 1 | 01249070 | CRANKCASE ASSY..... | 1..... | INCLUDES ITEMS /\$ |
| 2\$ | | CRANKCASE..... | 1..... | NOT SOLD SEPARATELY |
| 3\$ | 50249102 | CYL. PIN | 4 | |
| 4\$ | 03793900 | NOZZLE | 1 | |
| 5\$ | 03793801 | BEARING BUSH | 1 | |
| 6\$ | 03794000 | PLUG | AR | |
| 7\$ | 03793700 | BEARING | 1 | |
| 7 | 04033700 | MAIN BEARING, O.S. 0.5MM..... | 1..... | FOR -0.5MM SHAFT |
| 9\$ | 04000800 | PLUG | AR | |
| 10\$ | 50144300 | STUD | 2 | |
| 11\$ | 03794510 | STUD | 1 | |
| 12\$ | 03794800 | INTERMEDIATE PIECE | 1 | |
| 13\$ | 50601200 | STUD | 2 | |
| 14\$ | 50325500 | COVER | 1 | |
| 15\$ | 50602901 | STUD | 8 | |
| 16\$ | 50328200 | STUD | 2 | |
| 17 | 02228000 | THRUST PLATE..... | 1..... | INCLUDES ITEMS W/@ |
| 18 | 04069500 | SHIM, 1.05 MM | AR | |
| 18 | 04069600 | SHIM, 1.2 MM | AR | |
| 19 | 04062010 | HEX. HD. SCREW | 4 | |
| 23 | 50328200 | STUD | 1 | |
| 24\$ | | PIPE..... | 1..... | NOT SOLD SEPARATELY |
| 26\$ | | O-RING..... | AR..... | NOT SOLD SEPARATELY |
| 27\$ | 04105000 | PLUG | 1 | |
| 28 | 50459800 | SEALING CYL. SCREW | 2 | |
| 29 | 04084500 | SEALING RING | 2 | |
| 30\$ | | STUD..... | AR..... | NOT SOLD SEPARATELY |
| 31@ | | GASKET..... | 1..... | NOT SOLD SEPARATELY |
| 32@ | | PLATE..... | 1..... | NOT SOLD SEPARATELY |

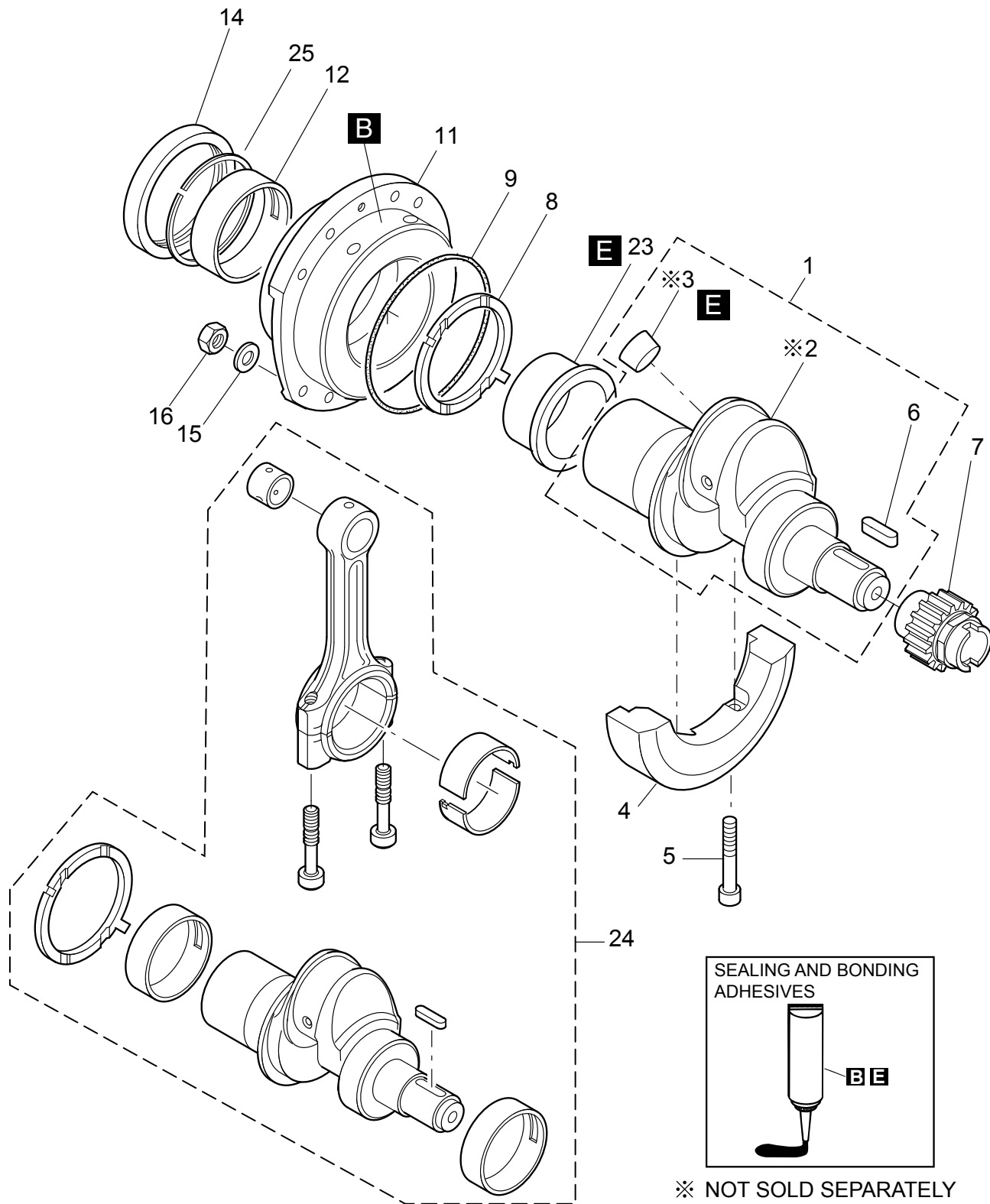
HATZ 1D81S-325 ENGINE CRANKCASE 2 ASSY.



HATZ 1D81S-325 ENGINE CRANKCASE 2 ASSY.

| NO. | PART NO. | PART NAME | QTY. | REMARKS |
|------|----------|------------------------------------------|------|---------------------|
| D | 50223300 | LOCTITE 221 | 1 | |
| H | 70018944 | TEROSON TEROSTAT 63 | 1 | |
| K | 50342601 | HIGH TEMPERATURE FETT | 1 | |
| 1 | 03794100 | WASHER | 2 | |
| 2 | 03794300 | CAM FOLLOWER | 2 | |
| 3 | 03794201 | CAM FOLLOW SP. | 2 | |
| 4 | 50545501 | ALLEN, SCREW | 2 | |
| 5 | 03795800 | O-RING | 2 | |
| 6 | 50329000 | O-RING | 3 | |
| 7 | 03795100 | O-RING | 1 | |
| 8 | 01248810 | PLATE | 1 | |
| 10 | 50417600 | ALLEN SCREW W / WASHER | 22 | |
| 11 | 03794900 | HOUSING | 1 | |
| 12 | 03795000 | SUCTION, SIEVE | 1 | |
| 13 | 50327100 | ALLEN SCREW | 2 | |
| 14 | 01241700 | OIL SUMP | 1 | |
| 15 | 50170900 | WASHER, LOCK | 12 | |
| 16 | 50329100 | ALLEN SCREW | 12 | |
| 17 | 50001600 | JOINT A | 2 | |
| 18 | 50373100 | DRAIN PLG. MAGNT. | 2 | |
| 20 | 03794701 | COVER | 1 | |
| 21 | 50328300 | HEXAGON NUT | 3 | |
| 22 | 01321200 | CLOS., SCREW +SIEVE | 1 | |
| 23 | 50286400 | JOINT A | 1 | |
| 24 | 01321100 | OIL RELIEF VALVE W/O-RING..... | 1 | INCLUDES ITEMS W/\$ |
| 25\$ | | OIL RELIEF VALVE..... | 1 | NOT SOLD SEPARATELY |
| 26\$ | 50460400 | O-RING | 1 | |
| 27 | 50062400 | JOINT A | 2 | |
| 28 | 50062300 | CLOS. SCREW | 2 | |
| 29 | 01241500 | OIL GAUGE W/O-RING | 1 | INCLUDES ITEMS W/# |
| 30# | | OIL GAUGE | 1 | NOT SOLD SEPARATELY |
| 31# | 50359700 | O-RING | 2 | |
| 32@% | 50329200 | RING | 2 | |
| 33+ | | HOUSING, LUBE, OIL FILTER..... | 1 | NOT SOLD SEPARATELY |
| 34 | 50081200 | WASHER, LOCK | 4 | |
| 35 | 50170600 | ALLEN SCREW | 4 | |
| 36@ | | ELEMENT, OIL FILTER..... | 1 | NOT SOLD SEPARATELY |
| 37% | | COVER, OIL FILTER..... | 1 | NOT SOLD SEPARATELY |
| 39 | 01480001 | ELEMENT, OIL FILTER W/RING | 1 | INCLUDES ITEMS W/@ |
| 56 | 04084001 | LIFTING SPRING | 1 | |
| 59+ | 05068900 | GASKET | 1 | |
| 60 | 01318300 | HOUSING, LUBE, OIL FILTER, W/GASKET | 1 | INCLUDES ITEMS W/+ |
| 61 | 01248901 | COVER, OIL FILTER W/RING | 1 | INCLUDES ITEMS W/% |
| 62 | 50144500 | WASHER, FLAT | 2 | |
| 63 | 50170900 | WASHER, LOCK | 2 | |

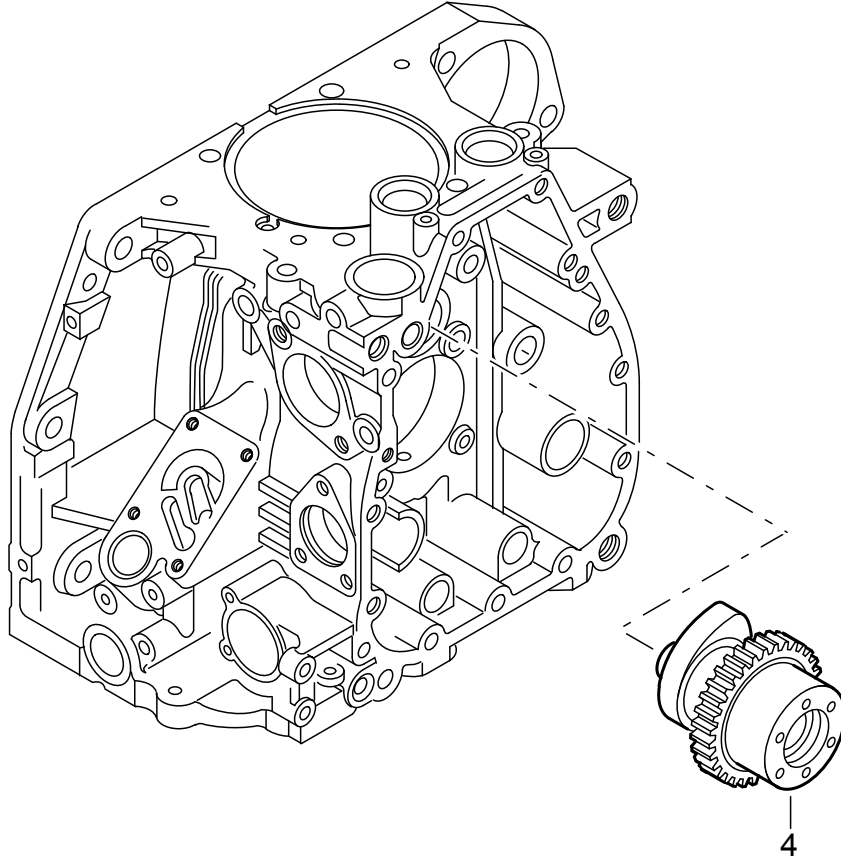
HATZ 1D81S-325 ENGINE CRANKSHAFT BEARING FLANGE ASSY.



HATZ 1D81S-325 ENGINE CRANKSHAFT BEARING FLANGE ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------------|-------------|---------------------|
| B | 50223101 | LOCTITE 574 | 1 | |
| E | 50223400 | LOCTITE 648 | 1 | |
| 1 | 01269820 | CRANKSHAFT ASSY..... | 1 | INCLUDES ITEMS W/\$ |
| 2\$ | | CRANKSHAFT..... | 1 | NOT SOLD SEPARATELY |
| 3\$ | | PLUG..... | 1 | NOT SOLD SEPARATELY |
| 4 | 03796000 | COUNTER WEIGHT | 1 | |
| 5 | 50055001 | ALLEN SCREW | 2 | |
| 6\$ | 50362600 | FITTING KEY | 1 | |
| 7 | 03796120 | GEARWHEEL, CRANKSHAFT | 1 | |
| 8 | 04000600 | BUFFER RING | 1 | |
| 9 | 50224900 | O-RING | 1 | |
| 11 | 04064211 | BEARING FLANGE | 1 | REPLACES 04064210 |
| 12 | 04006800 | MAIN BEARING | 1 | |
| 12 | 04036100 | MAIN BEARING, O.S. 0.5MM..... | 1 | FOR -0.5MM SHAFT |
| 14 | 50362701 | OIL SEAL | 1 | |
| 15 | 50413600 | WASHER | 8 | |
| 16 | 50364300 | HEXAGON NUT | 8 | |
| 23 | 50414400 | WEAR SLEEVE | AR | |
| 24 | 01512010 | REPAIR SET, CRANKSHAFT | 1 | |

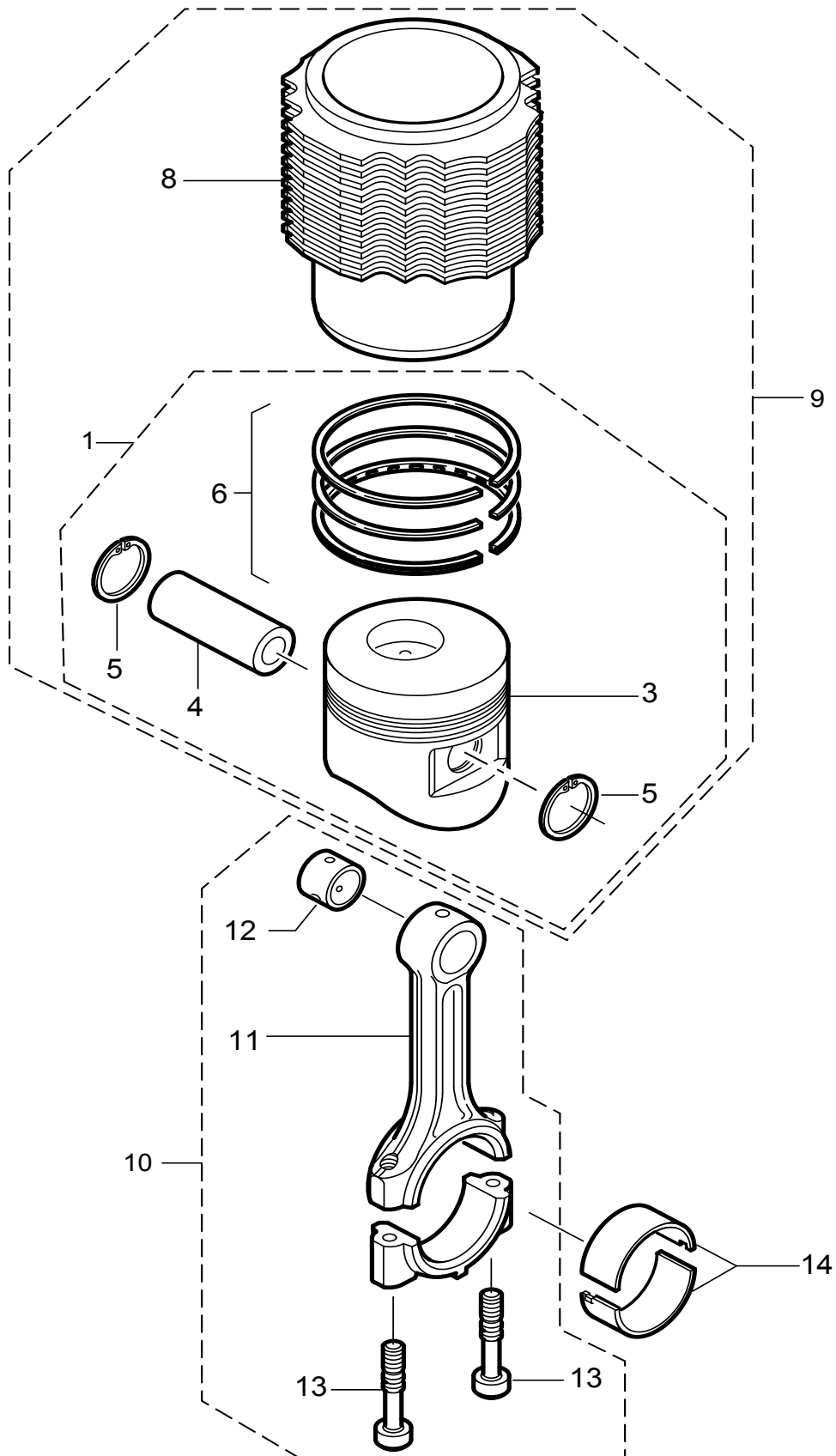
HATZ 1D81S-325 ENGINE CAMSHAFT ASSY.



HATZ 1D81S-325 ENGINE CAMSHAFT ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------|-------------|----------------|
| 4 | 04099920 | CAMSHAFT ASSY. | 1 | |

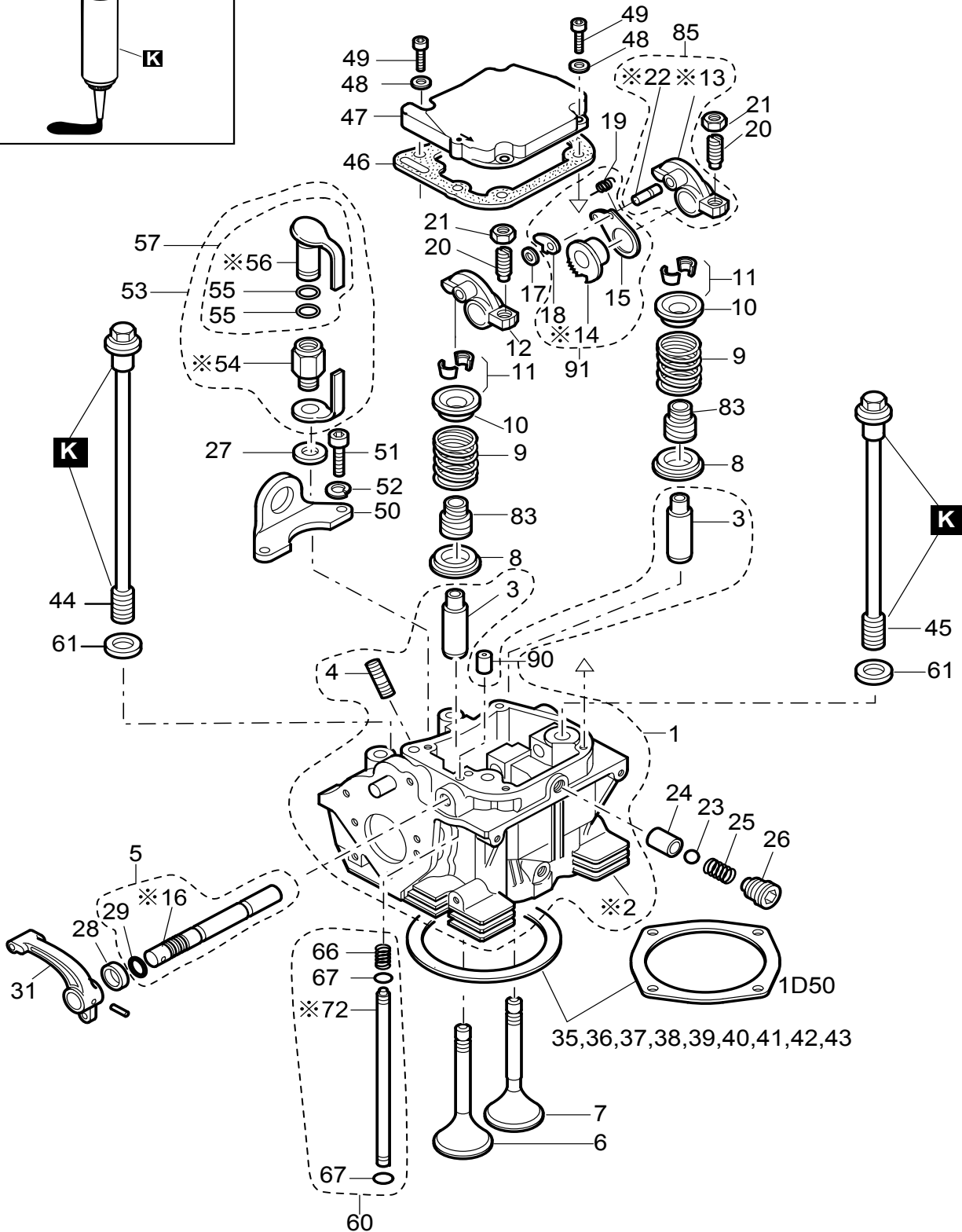
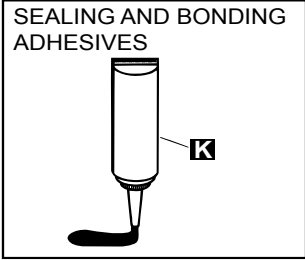
HATZ 1D81S-325 ENGINE PISTON ASSY.



HATZ 1D81S-325 ENGINE PISTON ASSY.

| NO. | PART NO. | PART NAME | QTY. | REMARKS |
|------------|-----------------|------------------------------------|-------------|---------------------|
| 1# | 01313542 | PISTON SET 100 STD..... | 1..... | INCLUDES ITEMS W/\$ |
| 1 | 01314641 | PISTON 100+0.5MM OVERSIZE..... | 1..... | INCLUDES ITEMS W/% |
| 3\$%# | | PISTON..... | 1..... | NOT SOLD SEPARATELY |
| 4\$%# | 50461900 | GUDGEON | 1 | |
| 5\$%# | 50594900 | CIR CLIP | 2 | |
| 6\$# | 01247310 | PISTON RING SET 100/STD | 1 | |
| 6% | 01264510 | PISTON RING SET100+0.5MM OVERSIZE | 1 | |
| 8# | | CYLINDER..... | 1..... | NOT SOLD SEPARATELY |
| 9 | 01508330 | CYLINDER ASSY. | 1..... | INCLUDES ITEMS W/# |
| 10 | 01244001 | CONNECTING ROD ASSY. | 1..... | INCLUDES ITEMS W/@ |
| 11@ | | CONNECTING ROD..... | 1..... | NOT SOLD SEPARATELY |
| 12@ | 04032200 | BUSH FOR CONROD | 1 | |
| 13@ | 04001810 | CONROD SCREW | 2 | |
| 14 | 02251900 | BEARING, BIG END STANDARD | 1 | |
| 14 | 02252100 | BEARING, BIG END, O.S. 0.5MM | 1..... | FOR -0.5MM BRG END |

HATZ 1D81S-325 ENGINE CYLINDER HEAD ASSY.

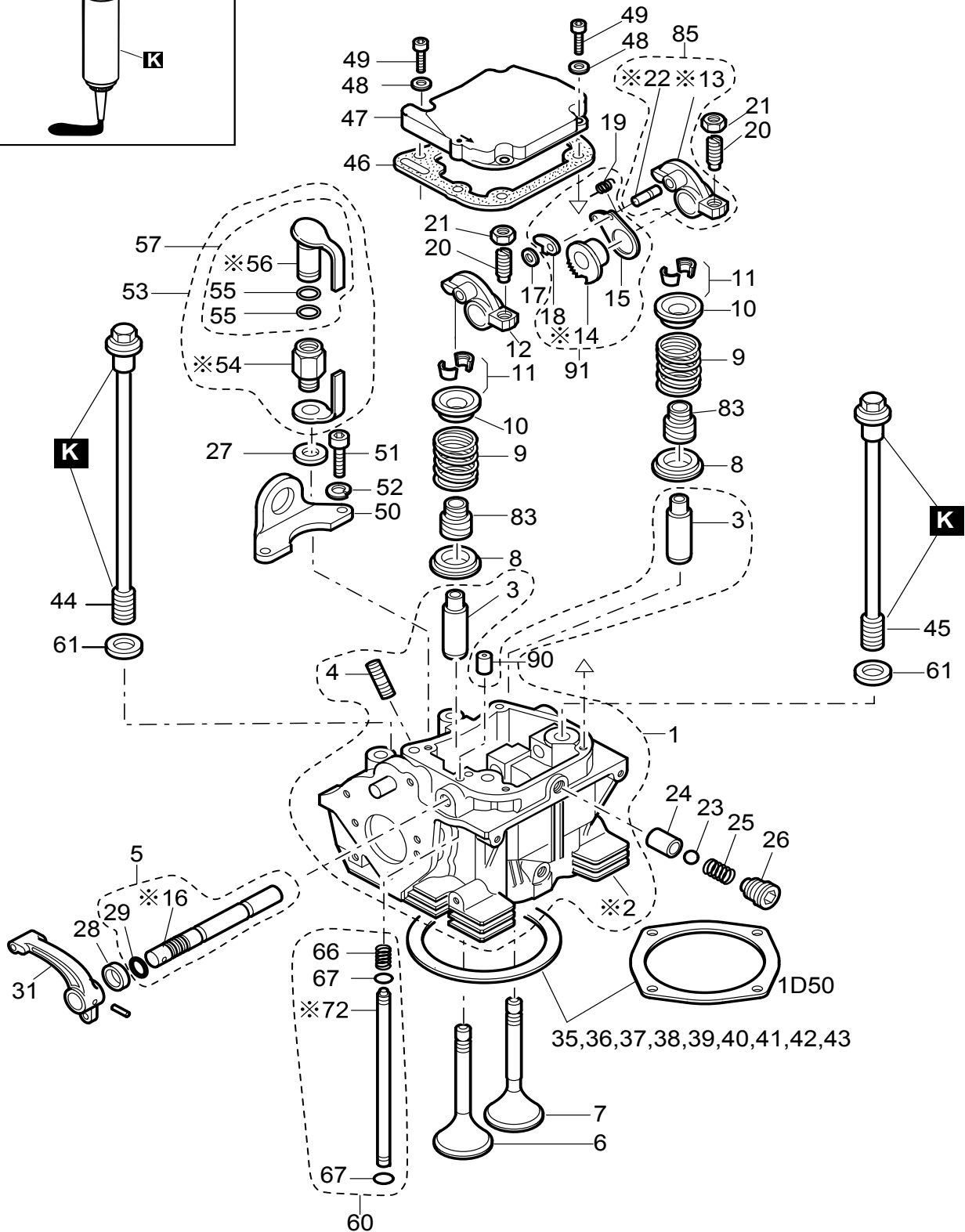
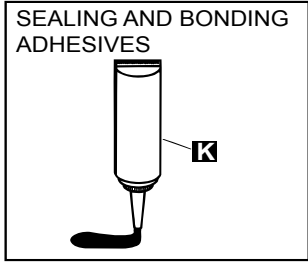


※ NOT SOLD SEPARATELY

HATZ 1D81S-325 ENGINE CYLINDER HEAD ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------------|-------------|---------------------|
| K | 50342601 | HIGH TEMPERATURE FETT | 1 | |
| 1 | 01499620 | CYLINDER HEAD ASSY..... | 1 | INCLUDES ITEMS W/\$ |
| 2\$ | | CYLINDER HEAD..... | 1 | NOT SOLD SEPARATELY |
| 3\$ | 04008712 | VALVE GUIDE | 2 | |
| 4\$ | 50038400 | STUD | 1 | |
| 5 | 01468920 | SHAFT ROCKER W/O-RING..... | 1 | INCLUDES ITEMS W/% |
| 6 | 04091001 | INTAKE VALVE | 1 | |
| 7 | 04091100 | EXHAUST VALVE | 1 | |
| 8 | 04005201 | WASHER | 2 | |
| 9 | 04005300 | VALVE SPRING | 2 | |
| 10 | 04005401 | CUP | 2 | |
| 11 | 02252200 | COLLET | 2 | |
| 12 | 04003710 | ROCKER INLET | 1 | |
| 13^ | | ROCKER, EXHAUST..... | 1 | NOT SOLD SEPARATELY |
| 14* | | GEAR HOLDER..... | 1 | NOT SOLD SEPARATELY |
| 15* | 03778401 | SPRING SHEET | 1 | |
| 16% | | SHAFT ROCKER..... | 1 | NOT SOLD SEPARATELY |
| 17 | 50117200 | CIRCLIP | 1 | |
| 18* | 03365710 | RATCHET F DECOMPR | 1 | |
| 19* | 03366001 | SPRING | 1 | |
| 20 | 03783000 | ADJUSTING SCREW | 2 | |
| 21 | 03173100 | HEXAGON NUT | 2 | |
| 22^ | | PIN, ROCKER EXHAUST..... | 1 | NOT SOLD SEPARATELY |
| 23 | 50123800 | BALL | 1 | |
| 24 | 04004700 | BUSH | 1 | |
| 25 | 04004800 | PRESSURE SPRING | 1 | |
| 26 | 01245200 | ADJUSTING SCREW | 1 | |
| 27 | 50001100 | JOINT A | 1 | |
| 28 | 04048900 | RUBBER, RING | 1 | |
| 29% | 40022401 | O-RING | 1 | |
| 30 | 50034700 | PIN | 1 | |
| 31 | 04009810 | HANDLE | 1 | |
| 35 | 04068800 | GASKET F. CYLINDER HEAD 0.5 MM | 1 | |
| 35 | 04240900 | GASKET CYLINDER HEAD 0.55 MM | 1 | |
| 36 | 04036800 | GASKET F. CYLINDER HEAD 0.6 MM | 1 | |
| 36 | 04241000 | GASKET F. CYLINDER HEAD 0.65 MM | 1 | |
| 37 | 04036500 | GASKET F. CYLINDER HEAD 0.7 MM | 1 | |
| 37 | 04241100 | GASKET F. CYLINDER HEAD 0.75 MM | 1 | |
| 38 | 04036600 | GASKET F. CYLINDER HEAD 0.8 MM | 1 | |
| 38 | 04241200 | GASKET F. CYLINDER HEAD 0.85 MM | 1 | |
| 39 | 04002700 | GASKET F. CYLINDER HEAD 0.9 MM | 1 | |
| 39 | 04241300 | GASKET F. CYLINDER HEAD 0.95 MM | 1 | |
| 40 | 04002800 | GASKET F. CYLINDER HEAD 1.0 MM | 1 | |
| 40 | 04241400 | GASKET F. CYLINDER HEAD 1.05 MM | 1 | |

HATZ 1D81S-325 ENGINE CYLINDER HEAD ASSY. (CONTINUED)

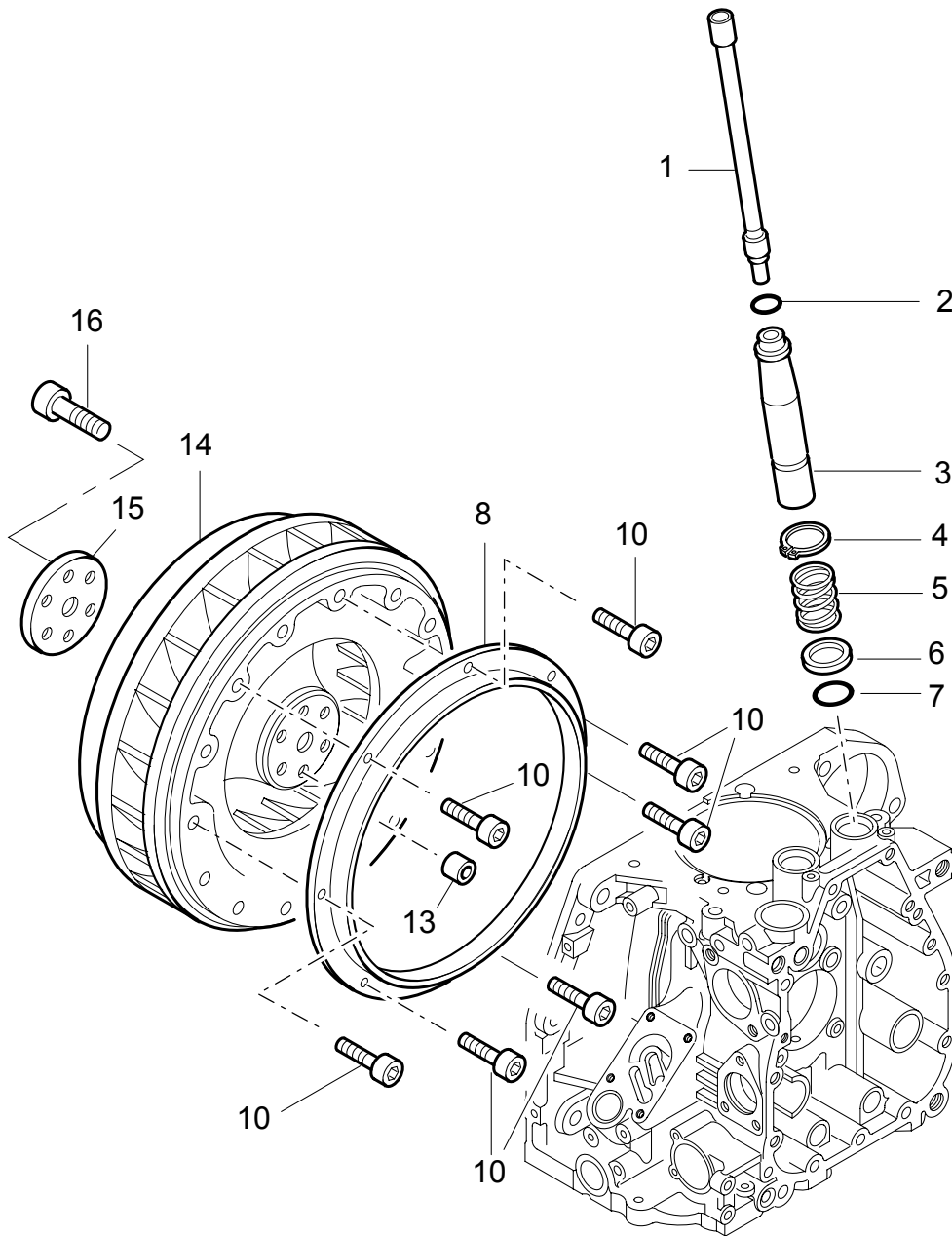


※ NOT SOLD SEPARATELY

HATZ 1D81S-325 ENGINE CYLINDER HEAD ASSY. (CONTINUED)

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------------------|-------------|---------------------|
| 41 | 04002900 | GASKET F. CYLINDER HEAD 1.1 MM | 1 | |
| 41 | 04241500 | GASKET F. CYLINDER HEAD 1.15 MM | 1 | |
| 42 | 04003000 | GASKET F. CYLINDER HEAD 1.2 MM | 1 | |
| 42 | 04241600 | GASKET F. CYLINDER HEAD 1.25 MM | 1 | |
| 43 | 04003100 | GASKET F. CYLINDER HEAD 1.3 MM | 1 | |
| 44 | 04003200 | CYLINDER HEAD SCREW | 2 | |
| 45 | 04003300 | CYLINDER HEAD SCREW | 2 | |
| 46 | 04006111 | GASKET, ROCKER COVER | 1 | |
| 47 | 01245414 | COVER CYLINDER HEAD | 1 | |
| 48 | 50081200 | WASHER, LOCK | 4 | |
| 49 | 50170800 | ALLEN SCREW | 4 | |
| 50 | 04008100 | LIFTING BRACKET | 1 | |
| 51 | 50366300 | ALLEN SCREW | 2 | |
| 52 | 50208500 | WASHER, LOCK | 2 | |
| 53 | 01493200 | PLUG, FILTER, ASSY..... | 1..... | INCLUDES ITEMS W/@ |
| 54@ | | CAP, FILTER PLUG | 1..... | NOT SOLD SEPARATELY |
| 55@+ | 50326200 | O-RING | 2 | |
| 56@+ | | PLUG, FILTER | 1..... | NOT SOLD SEPARATELY |
| 57 | 01308301 | CLOSING PLUG "S" W/O-RING & CAP | 1..... | INCLUDES ITEMS W/ + |
| 60 | 01269700 | OIL PRESSURE PIPE W/SPRING & ORINGS.. | 1..... | INCLUDES ITEMS W/ # |
| 61 | 03457500 | DISC F. STUD | 4 | |
| 66# | 04004200 | PRESSURE SPRING | 1 | |
| 67# | 50330100 | O-RING | 2 | |
| 72# | | PIPE OIL PRESSURE | 1..... | NOT SOLD SEPARATELY |
| 83 | 50634900 | VALVE STEM SEAL CAP | 2 | |
| 85 | 01285010 | ROCKER EXHAUST | 1..... | INCLUDES ITEMS W/ ^ |
| 90 | 04104300 | PIN | 1 | |
| 91 | 01557600 | GEAR, HOLDER, F. DECOMPR | 1..... | INCLUDES ITEMS W/* |

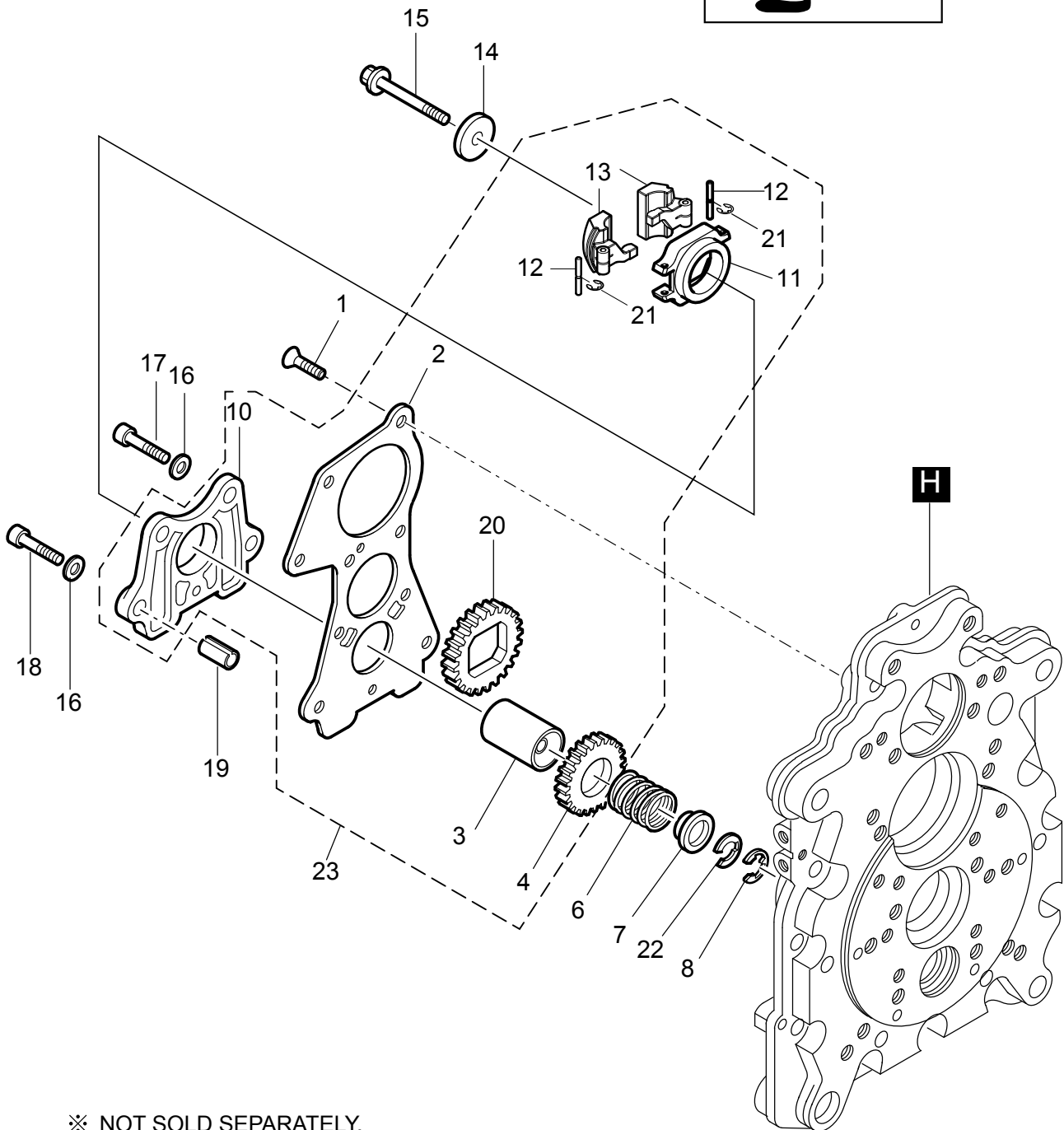
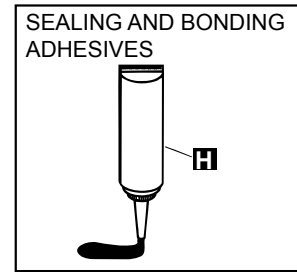
HATZ 1D81S-325 ENGINE PUSHROD, FLYWHEEL ASSY.



HATZ 1D81S-325 ENGINE PUSHROD, FLYWHEEL ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------|-------------|----------------|
| 1 | 01244310 | PUSHROD | 2 | |
| 2 | 50330200 | O-RING | 2 | |
| 3 | 04002500 | PROTECTION TUBE | 2 | |
| 4 | 50347000 | CIRCLIP | 2 | |
| 5 | 04002600 | PRESSURE SPRING | 2 | |
| 6 | 04002000 | PRESSURE RING | 2 | |
| 7 | 50330300 | O-RING | 2 | |
| 8 | 04007500 | RING, FLYWHEEL | 2 | |
| 10 | 50397100 | ALLEN SCREW | 1 | |
| 13 | 03123700 | BUSHING | 7 | |
| 14 | 04007133 | FLYWHEEL | 1 | |
| 15 | 04007410 | PLATE | 1 | |
| 16 | 50363100 | ALLEN SCREW | 6 | |

HATZ 1D81S-325 ENGINE OIL PUMP, GOVERNOR ASSY.

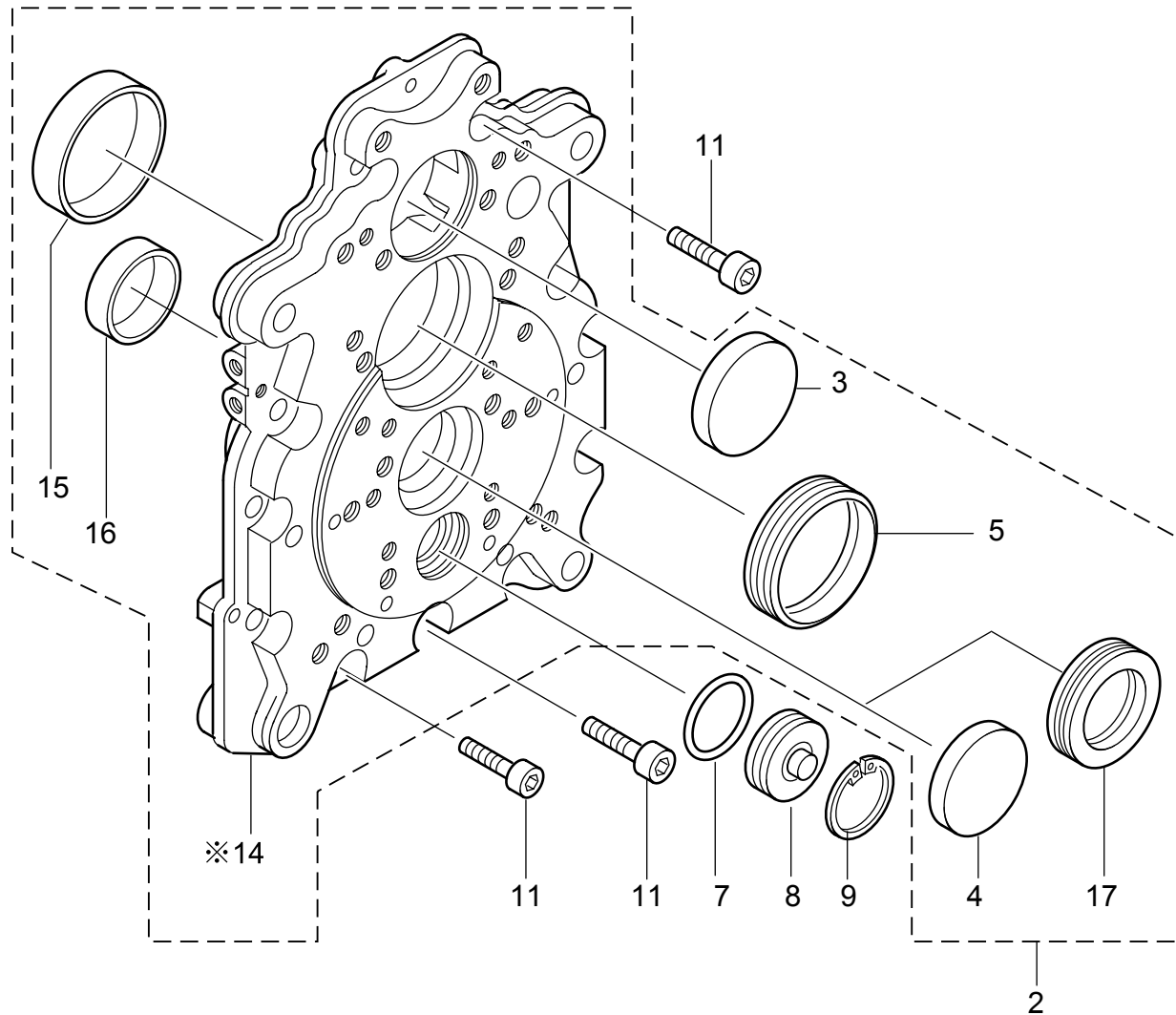


※ NOT SOLD SEPARATELY.

HATZ 1D81S-325 ENGINE OIL PUMP, GOVERNOR ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|----------------------|
| H | 70018944 | TEROSON TEROSTAT 63 | 1 | |
| 1 | 50328000 | COUNTERSUNK SCREW | 5 | |
| 2\$ | 03797412 | COVER, OIL PUMP | 1 | |
| 3\$ | 01242401 | SPRING CAPSULE+BUSH | 1 | |
| 4\$ | 03797310 | GEAR WHEEL | 1 | |
| 6 | 04063400 | GOVERNOR SPRING | 1 | |
| 7 | 03798600 | CUP | 1 | |
| 8 | 50334700 | CIRCLIP | 1 | |
| 10\$ | 03797512 | HOUSING FOR OIL PUMP | 1 | |
| 11\$ | 04277100 | PLATE, CENTRIFUGAL WEIGHT | 1 | |
| 12\$ | 04277300 | PIN | 1 | |
| 13\$ | 04277202 | FLYWEIGHT | 1 | |
| 14 | 03797900 | WASHER | 1 | |
| 15 | 03797801 | PIN | 1 | |
| 16 | 50081200 | WASHER, LOCK | 5 | |
| 17 | 50170800 | ALLEN SCREW | 3 | |
| 18 | 50051000 | ALLEN SCREW | 2 | |
| 19 | 50084901 | PIN | 2 | |
| 20\$ | 03798720 | GEAR WHEEL | 1 | |
| 21\$ | 50594300 | CIRCLIP | 2 | |
| 22 | 04262500 | CIRCLIP 0.3 MM | AR | |
| 22 | 04046000 | CIRCLIP 0.5 MM | AR | |
| 23 | 01242330 | SPRING SLEEVE ASSY. | 1..... | INCLUDES ITEMS W/ \$ |

HATZ 1D81S-325 ENGINE TIMING COVER ASSY.

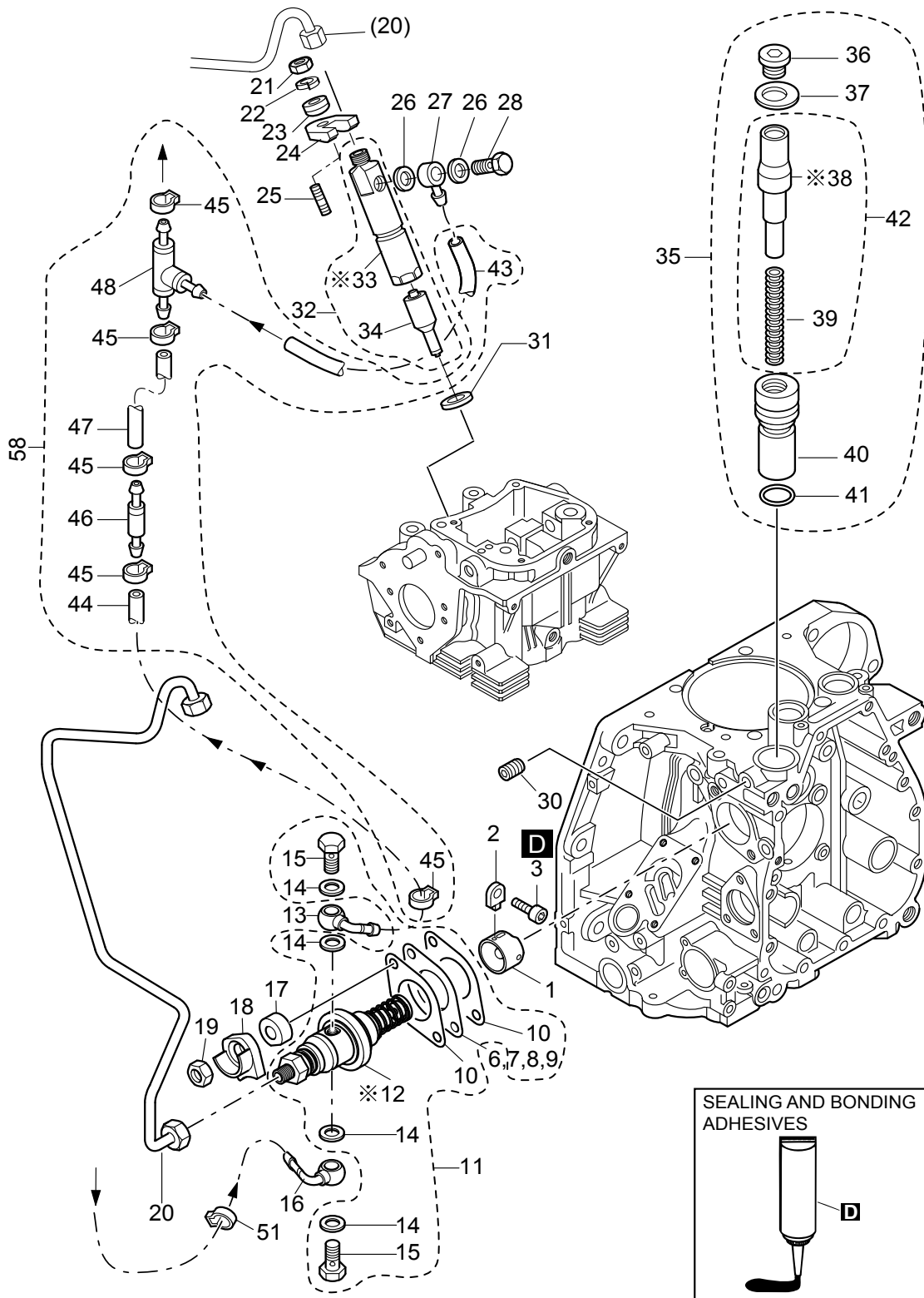


※ NOT SOLD SEPARATELY.

HATZ 1D81S-325 ENGINE TIMING COVER ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------|-------------|---------------------|
| 2 | 01267731 | TIMING COVER ASSY..... | 1..... | INCLUDES ITEMS W/\$ |
| 3\$ | 50325600 | COVER 50 | 1 | |
| 4\$ | 50325701 | COVER 52 | 1 | |
| 5\$ | 50325811 | OIL SEAL | 1 | |
| 7 | 50330400 | O-RING | 1 | |
| 8 | 04000400 | COVER | 1 | |
| 9 | 50399000 | CIRCLIP | 1 | |
| 11 | 50417400 | ALLEN SCREW | 13 | |
| 14\$ | | TIMING COVER..... | 1..... | NOT SOLD SEPARATELY |
| 15\$ | 04000310 | BEARING, BUSHING | 1 | |
| 16\$ | 04023210 | BEARING, BUSHING | 1 | |
| 17\$ | 50364701 | OIL SEAL | 1 | |

HATZ 1D81S-325 ENGINE FUEL PUMP ASSY.

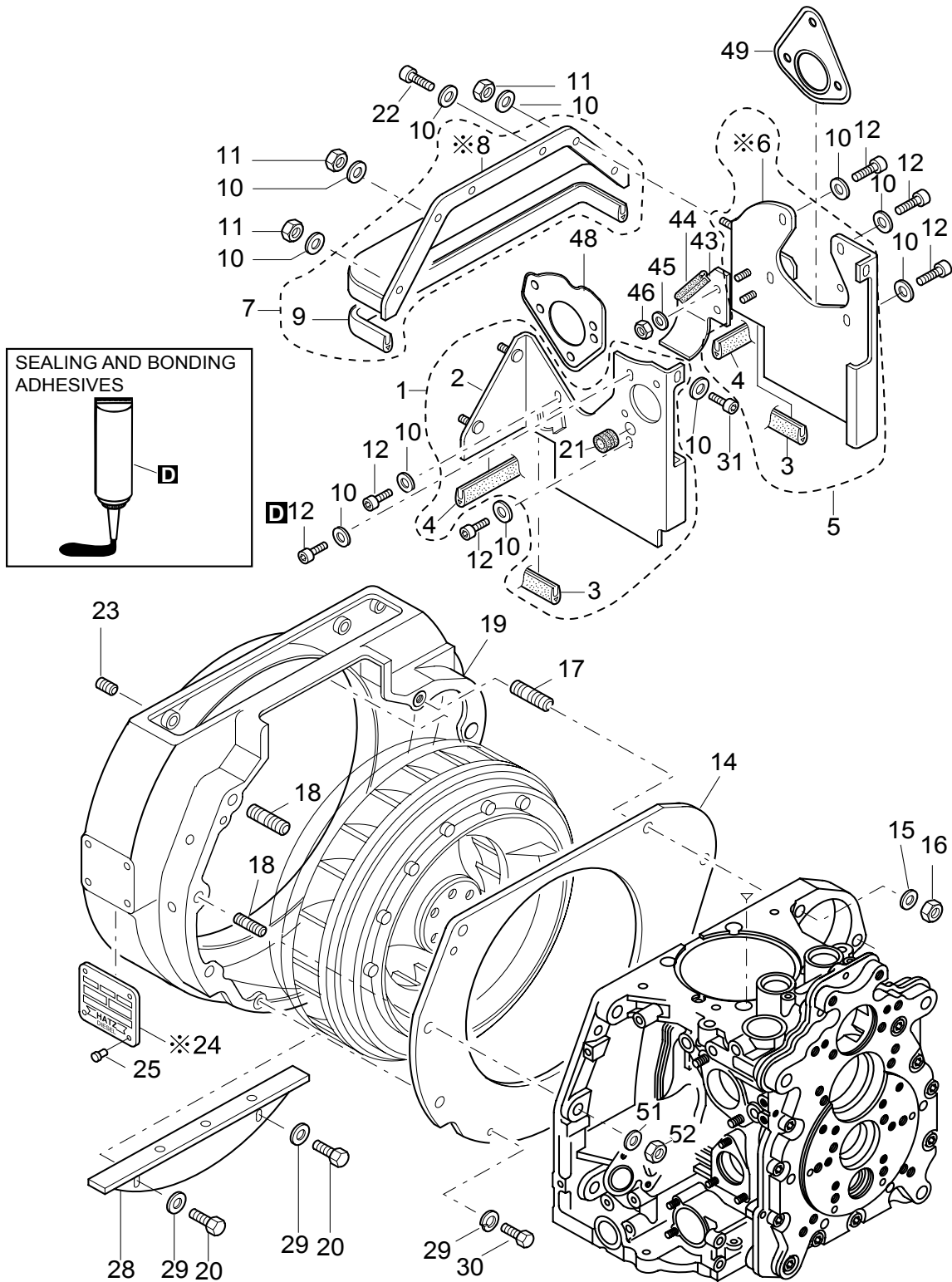


※ NOT SOLD SEPARATELY.

HATZ 1D81S-325 ENGINE FUEL PUMP ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------|-------------|----------------------|
| D | 70018918 | LOCTITE 221 | 1 | |
| 1 | 50492900 | ROLLER TAPPET | 1 | |
| 2 | 04169200 | GUIDE | 1 | |
| 3 | 50050700 | ALLEN SCREW | 1 | |
| 6 | 03209700 | SHIM 0.30 MM | AR | |
| 7\$ | 04102400 | SHIM 0.60 MM | AR | |
| 8\$ | 04102500 | SHIM 0.90 MM | AR | |
| 9\$ | 04102600 | SHIM 1.20 MM | AR | |
| 10\$ | 04071300 | GASKET 0.10 MM | AR | |
| 10 | 04102200 | GASKET 0.20 MM | AR | |
| 10 | 04102300 | GASKET 0.30 MM | AR | |
| 11 | 01864502 | INJECTION PUMP ASSY..... | 1 | INCLUDES ITEMS W/ \$ |
| 12\$ | | INJECTION PUMP..... | 1 | NOT SOLD SEPARATELY |
| 13 | 05299701 | BANJO CONNECTION | 1 | |
| 14\$ | 50586300 | PACKING RING | 4 | |
| 15\$ | 50577801 | BANJO BOLT | 2 | |
| 16 | 05299701 | BANJO CONNECTION | 2 | |
| 17 | 04239300 | SPACER | 2 | |
| 18 | 04239100 | CLAMP, INJECTION PUMP | 2 | |
| 19 | 04244300 | HEXAGON NUT | 2 | |
| 20 | 01313620 | FUEL PRESSURE PIPE | 1 | |
| 21 | 020108060 | HEXAGON NUT | 1 | REPLACES 50148000 |
| 22 | 50208500 | WASHER, LOCK | 1 | |
| 23 | 04035700 | WASHER | 1 | |
| 24 | 03792401 | FLANGE | 1 | |
| 25 | 50038400 | STUD | 1 | |
| 26 | 50000800 | JOINT A | 2 | |
| 27 | 50333400 | BANJO CONNECTION | 1 | |
| 28 | 50313000 | BANJO BOLT | 1 | |
| 30 | 50004600 | GRUB SCREW | 1 | |
| 31 | 04185200 | JOINT WASHER | 1 | |
| 32 | 50567310 | INJECTOR NOZZLE ASSY..... | 1 | INCLUDES ITEMS W/ % |
| 33% | | INJECTOR NOZZLE BODY | 1 | NOT SOLD SEPARATELY |
| 34% | 50567410 | INJECTOR NOZZLE | 1 | |
| 35 | 01498902 | PISTON CYLINDER ASSY. | 1 | INCLUDES ITEMS W/ @ |
| 36@ | 50330800 | CLOSS SCREW | 1 | |
| 37@ | 04001600 | DISC | 1 | |
| 38@# | | PISTON CYLINDER | 1 | NOT SOLD SEPARATELY |
| 39@# | 05035200 | PRESSURE SPRING | 1 | |
| 40@ | 04001410 | CYLINDER F. EXTR. FUEL DEV | 1 | |
| 41@ | 50328900 | O-RING | 1 | |
| 42 | 01519500 | PISTON W/SPRING | 1 | INCLUDES ITEMS W/ # |
| 43+ | 03962110 | FUEL HOSE | 1 | |
| 44+ | 05310200 | FUEL PIPE | 1 | |
| 45+ | 50570900 | CLAMP | 5 | |
| 46+ | 00805502 | VENT VALVE | 1 | |
| 47+ | 05310100 | FUEL PIPE | 1 | |
| 48+ | 03989601 | HOSE NIPPLE T | 1 | |
| 51 | 50590000 | CLAMP | 1 | |
| 58 | 01189910 | FUEL PIPE ASSY..... | 1 | INCLUDES ITEMS W/ + |

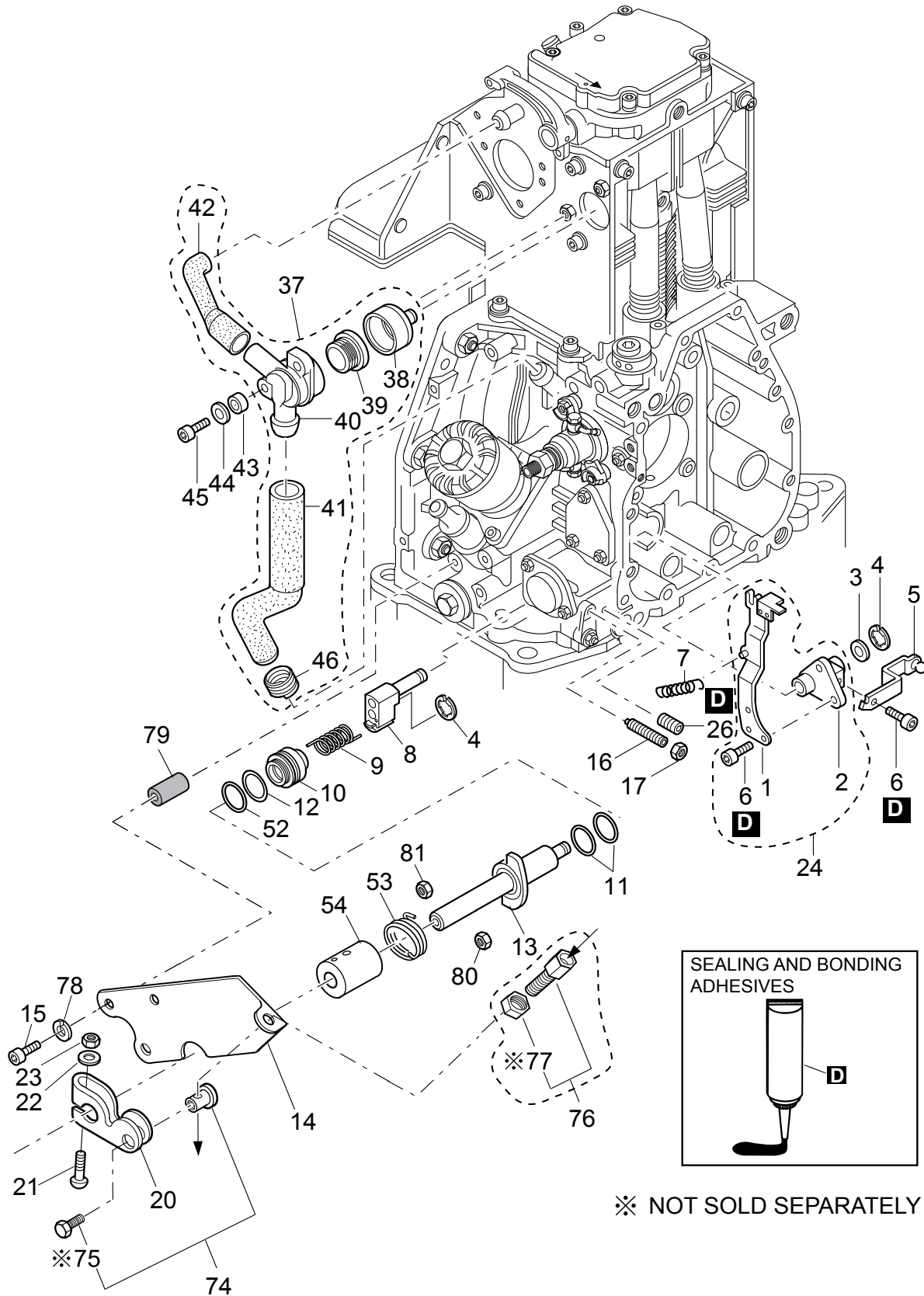
HATZ 1D81S-325 ENGINE AIR DUCTING ASSY.



HATZ 1D81S-325 ENGINE AIR DUCTING ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------------|-------------|------------------------|
| D | 50223300 | LOCTITE 221 | 1 | |
| 1 | 01246223 | COOLING AIR DUCTING | 1 | INCLUDES ITEMS W/ \$ |
| 2\$ | | AIR DUCT BRACKET | 1 | NOT SOLD SEPARATELY |
| 3\$@ | 04007601 | SEALING STRIP 35 MM | 2 | |
| 4\$@ | 04007720 | SEALING STRIP 76 MM | 2 | |
| 5 | 01246413 | COOLING AIR DUCTING | 1 | INCLUDES ITEMS W/@ |
| 6@ | | AIR DUCT BRACKET | 1 | NOT SOLD SEPARATELY |
| 7 | 01246600 | COOLING AIR DUCTING, UPPER | 1 | INCLUDES ITEMS W/ # |
| 8# | | AIR DUCT UPPER..... | 1 | NOT SOLD SEPARATELY |
| 9# | 04007901 | SEALING STRIP | 1 | |
| 10 | 50390701 | CON. WASHER, LOCK | 15 | |
| 11 | 020106050 | HEXAGON NUT | 4 | REPLACES 50144400 |
| 12 | 50528100 | ALLEN SCREW | 7 | |
| 14 | 04008500 | PARTING SHEET | 1 | |
| 15 | 50093700 | WASHER, FLAT | 2 | |
| 16 | 50093600 | HEXAGON NUT | 2 | |
| 17 | 50475000 | STUD | 2 | |
| 18 | 50474900 | STUD | 4 | |
| 19 | 01689100 | HOUSING, INTERMEDIATE | 1 | |
| 20 | 50333500 | HEXAGON SCREW | AR | |
| 21\$ | 50334800 | RUBBER SLEEVE | 1 | |
| 22 | 50416800 | ALLEN SCREW | 2 | |
| 23 | 50226000 | GRUB SCREW | 4 | |
| 24 | | MODEL ID PLATE..... | 1 | CONTACT MQ PARTS DEPT. |
| 25 | 40002500 | RIVET | 4 | |
| 28 | 04080410 | COVER, BLOWER DUCTING | AR | |
| 29 | 50170900 | WASHER, LOCK | AR | |
| 30 | 50177100 | HEXAGON SCREW | 2 | |
| 31 | 50416800 | ALLEN SCREW | 2 | |
| 43 | 01268010 | COOLING AIR DUCT | 1 | |
| 44 | 04038800 | SEALING STRIP 94 MM | 1 | |
| 45 | 50120000 | WASHER, FLAT | 2 | |
| 46 | 50328300 | HEXAGON NUT | 2 | |
| 48 | 04125700 | SEALING PLATE | 1 | |
| 49 | 04125601 | SEALING PLATE | 1 | |
| 51 | 50093700 | WASHER, FLAT | 4 | |
| 52 | 50093600 | HEXAGON NUT | 4 | |

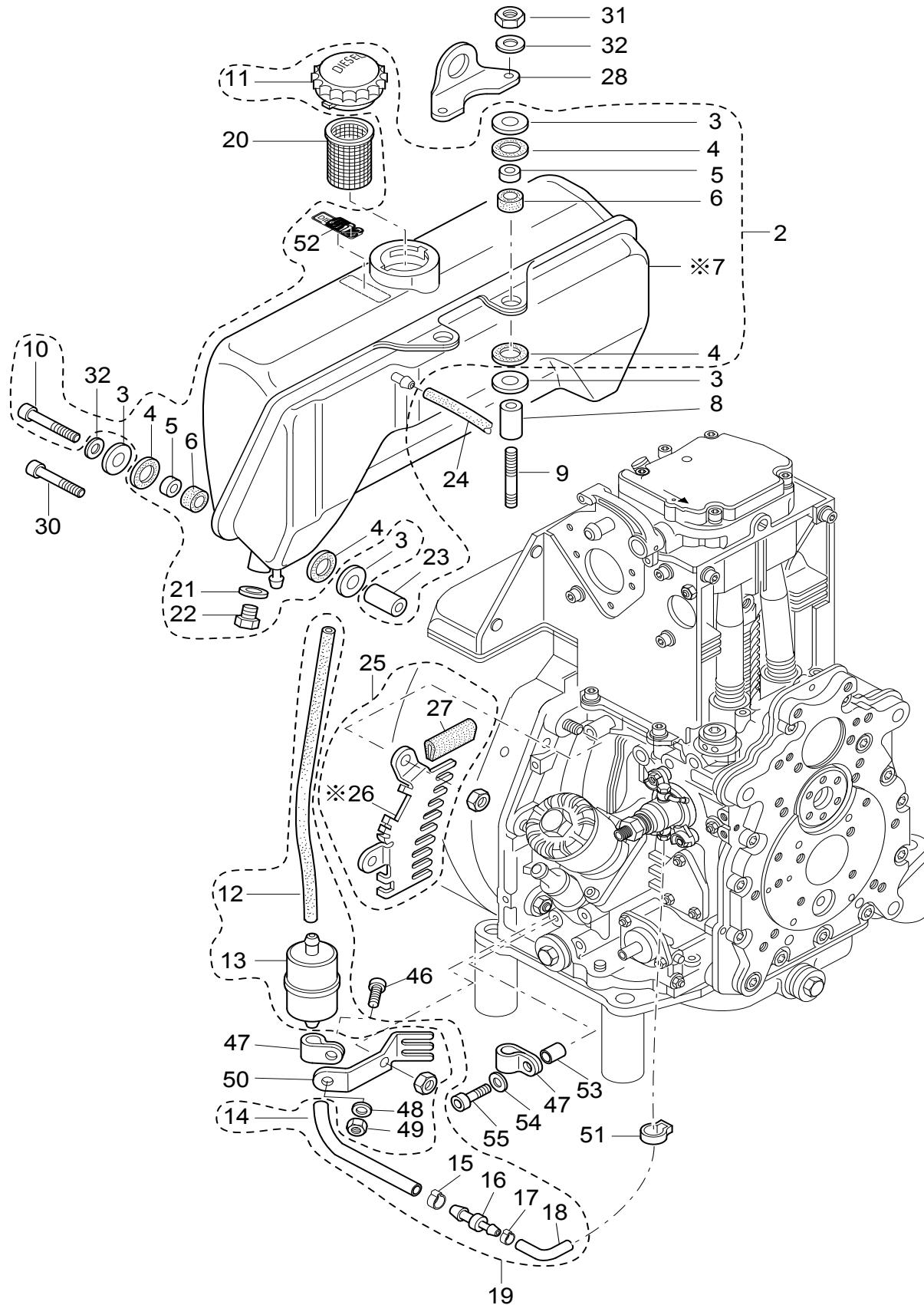
HATZ 1D81S-325 ENGINE SPEED CONTROL ASSY.



HATZ 1D81S-325 ENGINE SPEED CONTROL ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------------|-------------|----------------------|
| D | 50223300 | LOCTITE 221 | 1 | |
| 1\$ | | LEVER, SPEED CONTROL | 1 | NOT SOLD SEPARATELY |
| 2\$ | | BRACKET, SPEED CONTROL | 1 | NOT SOLD SEPARATELY |
| 3 | 04000100 | SHIM | 1 | |
| 4 | 50266100 | CIRCLIP | 2 | |
| 5 | 04037500 | LEVER | 1 | |
| 6\$ | 50328701 | ALLEN SCREW | 4 | |
| 7 | 04000200 | TENSION SPRING | 1 | |
| 8 | 01242811 | GUIDE | 1 | |
| 9 | 03799010 | THIGH SPRING | 1 | |
| 10 | 04052710 | SPACER RING | 1 | |
| 11 | 50412900 | O-RING | 2 | |
| 12 | 50129900 | O-RING | 1 | |
| 13 | 01279222 | STOP RING. SPD. CONT. S | 1 | |
| 14 | 03975602 | CONSOLE | 1 | |
| 15 | 50170600 | ALLEN SCREW | 3 | |
| 16 | 50507801 | GRUB SCREW | 2 | |
| 17 | 020106050 | HEXAGON NUT | 2 | REPLACES 50144400 |
| 20 | 03975801 | LEVER | 1 | |
| 21 | 03927301 | SCREW | 1 | |
| 22 | 50144500 | WASHER, FLAT | 1 | |
| 23 | 50346500 | HEXAGON NUT | 1 | |
| 24 | 01246803 | SPEED CONTROL, ASSY. | 1 | INCLUDES ITEMS W/ \$ |
| 26 | 50403500 | GRUB SCREW | 1 | |
| 37 | 01317000 | VALVE, BREATHER, ASSY. | 1 | INCLUDES ITEMS W/@ |
| 38@ | 04080300 | BREATHER CUP | 1 | |
| 39@ | 03568701 | DIAPHRAGM | 1 | REPLACES 03568700 |
| 40@ | | BREATHER VALVE | 1 | NOT SOLD SEPARATELY |
| 41@ | 04074700 | BREATHER HOSE | 1 | |
| 42@ | 04074800 | BREATHER HOSE | 1 | |
| 43 | 04080500 | BUSH | 2 | |
| 44 | 50081200 | WASHER, LOCK | 2 | |
| 45 | 50170700 | ALLEN SCREW | 2 | |
| 46@ | 04090500 | CLAMP | 1 | |
| 52 | 50453600 | SUPPORTING DISC | 1 | |
| 53 | 05046800 | THIGH SPRING | 1 | |
| 54 | 01494101 | COUPLING SHELL | 1 | |
| 74 | 50642000 | CABLE CLAMPING ASSY. | 1 | INCLUDES ITEMS W/ # |
| 75# | | BOLT, HX. HD..... | 1 | NOT SOLD SEPARATELY |
| 76 | 50374400 | ADJUSTING SCREW W/ NUT..... | 1 | INCLUDES ITEM W/ % |
| 77% | | NUT, HEX..... | 1 | NOT SOLD SEPARATELY |
| 78 | 50170900 | WASHER, LOCK | 3 | |
| 79 | 04021000 | BUSHING | 3 | |
| 80 | 05179300 | NUT. HEX. | 1 | |
| 81 | 50328300 | NUT, HEX. | 2 | |

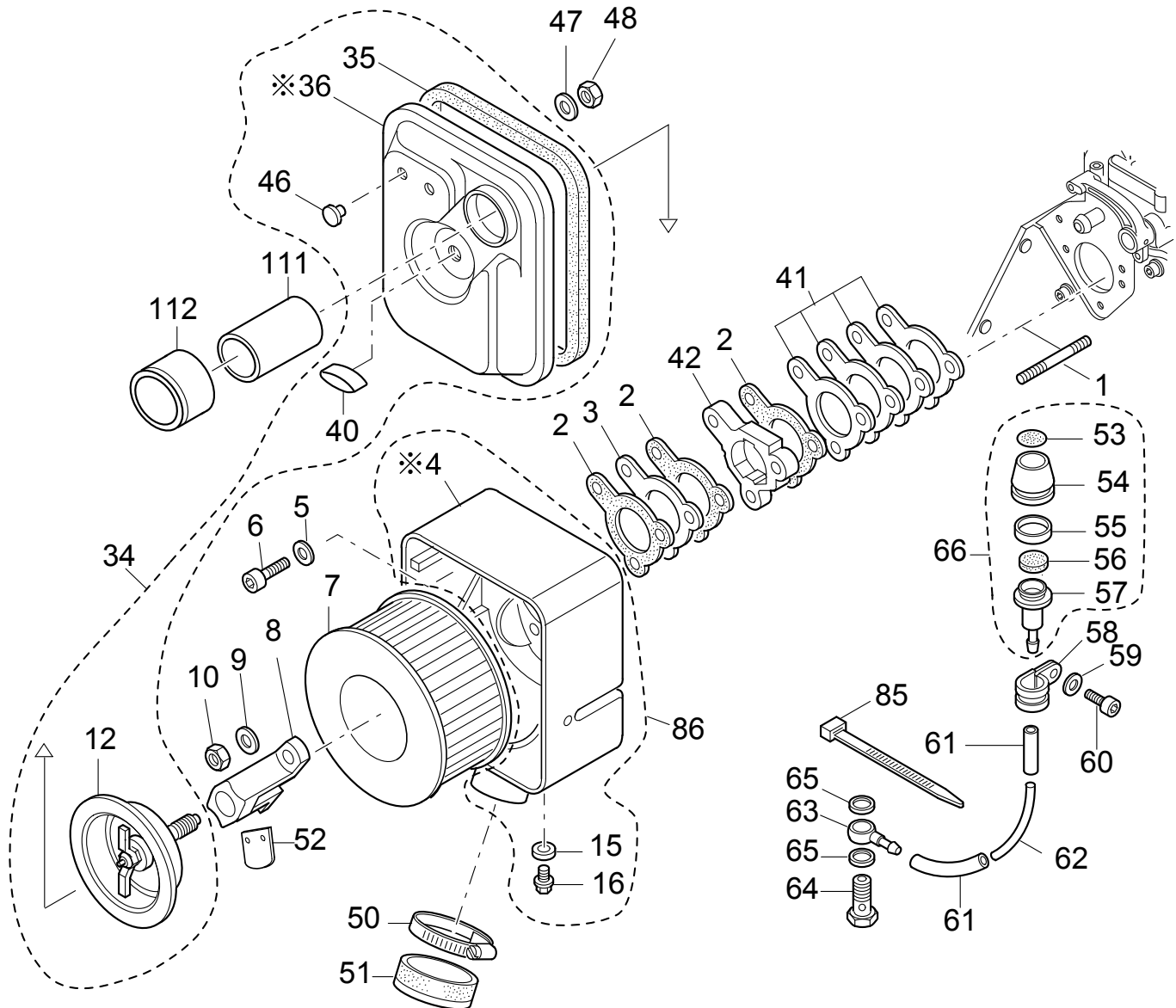
HATZ 1D81S-325 ENGINE FUEL TANK ASSY.



HATZ 1D81S-325 ENGINE FUEL TANK ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------------|-------------|---------------------|
| 2 | 01494200 | FUEL TANK ASSY..... | 1..... | INCLUDES ITEMS W/\$ |
| 3 | 05097600 | WASHER | 12 | |
| 4\$ | 03981802 | RUBBER WASHER | 12 | |
| 5\$ | 03981701 | BUSH | 6 | |
| 6\$ | 03981900 | RUBBER SHELL | 4 | |
| 7\$ | | FUEL TANK..... | 1..... | NOT SOLD SEPARATELY |
| 8 | 03989800 | BUSH | 2 | |
| 9 | 50377001 | STUD | 2 | |
| 10\$ | 50177500 | ALLEN SCREW | 4 | |
| 11\$ | 50385801 | CAP, FUEL TANK | 1 | |
| 12@ | 05323600 | FUEL HOSE | 1 | |
| 13@ | 50478800 | FUEL FILTER, IN-LINE | 1 | |
| 14@ | 05330000 | FUEL HOSE | 1 | |
| 15@ | 50523800 | CLAMP | 1 | |
| 16@ | 05240400 | NIPPLE | 1 | |
| 17@ | 50570900 | CLAMP | 1 | |
| 18@ | 03664310 | FUEL HOSE | 1 | |
| 19 | 01473610 | FUEL FILTER W./ HOSES | 1..... | INCLUDES ITEMS W/@ |
| 20 | 50387300 | FUEL FILTER/SIEVE | 1 | |
| 21\$ | 50001000 | JOINT A | 1 | |
| 22\$ | 05126000 | DRAIN PLUG | 1 | |
| 23\$ | 05029200 | BUSH | 4 | |
| 24 | 03663710 | FUEL HOSE | 1 | |
| 25 | 01490300 | PROTECT GUARD TOP W / SEAL..... | 1..... | INCLUDES ITEMS W/% |
| 26% | | PROTECT GUARD | 1..... | NOT SOLD SEPARATELY |
| 27% | 04030901 | SEALING STRIP | 1 | |
| 28 | 04008100 | BRACKET, LIFTING | 1 | |
| 30 | 50183000 | ALLEN SCREW | 1 | |
| 31 | 020108060 | HEXAGON NUT..... | 2..... | REPLACES 50148000 |
| 32 | 50208500 | WASHER, LOCK | 6 | |
| 46 | 50177100 | HEXAGON SCREW | 1 | |
| 47 | 50158400 | PIPE CLIP 14/15 | 2 | |
| 48 | 50144500 | WASHER, FLAT | 1 | |
| 49 | 020106050 | HEXAGON NUT | 1..... | REPLACES 50144400 |
| 50 | 05031900 | GUARD/FILTER | 1 | |
| 51 | 50590000 | CLAMP | 1 | |
| 52\$ | 05235602 | STICKER "DIESEL" | 1 | |
| 53 | 04098400 | SPACER TUBE | 1 | |
| 54 | 50170900 | WASHER, LOCK | 1 | |
| 55 | 50323900 | ALLEN SCREW | 1 | |

HATZ 1D81S-325 ENGINE AIR FILTER ASSY.

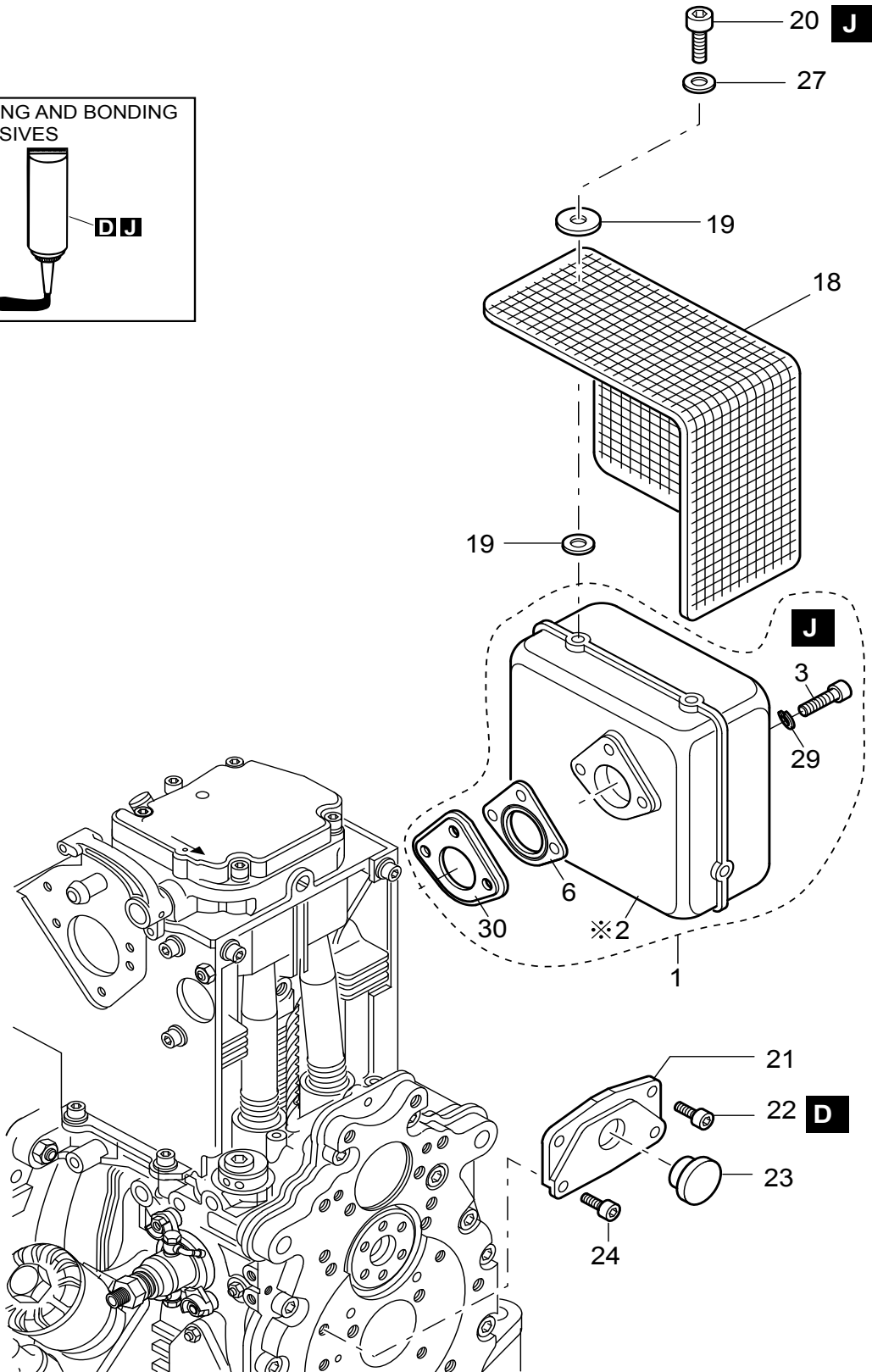


※ NOT SOLD SEPARATELY.

HATZ 1D81S-325 ENGINE AIR FILTER ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------------------|-------------|----------------------|
| 1 | 50038900 | STUD | 2 | |
| 2 | 04006300 | GASKET, AIR FILTER | 3 | |
| 3 | 04006200 | INSULATING FLANGE | 1 | |
| 4% | | HOUSING, AIR CLEANER | 1 | NOT SOLD SEPARATELY |
| 5 | 50095100 | WASHER, LOCK | 1 | |
| 6 | 50398400 | ALLEN SCREW | 1 | |
| 7 | 01493000 | ELEMENT, AIR FILTER | 1 | |
| 8 | 01483401 | RETAINING BRACKET | 1 | |
| 9 | 50148100 | WASHER, FLAT | 2 | |
| 10 | 50129500 | HEXAGON NUT | 2 | |
| 12# | 02024200 | CENTER RING COVER | 1 | |
| 15% | 50062400 | JOINT A | 1 | |
| 16% | 50062300 | ALLEN SCREW | 1 | |
| 34 | 02280100 | COVER, AIR FILTER, ASSY. | 1 | INCLUDES ITEMS W/ # |
| 35%# | 04047701 | SEAL STR. LG | 1 | |
| 36# | | COVER, AIR FILTER | 1 | NOT SOLD SEPARATELY |
| 40# | 50452200 | WING SCREW | 1 | |
| 41 | 01287900 | GASKET, AIR FILTER | 1 | |
| 42 | 04047300 | INTERMEDIATE FLANGE | 1 | |
| 46# | | PLUG, AIR FILTER COVER..... | 2 | NOT SOLD SEPARATELY |
| 47 | 50120000 | DISC | 2 | |
| 48 | 50602400 | NUT | 2 | |
| 50 | 50406600 | HOSE CLIP | 2 | |
| 51 | 00575900 | CAP | 1 | |
| 52 | 05033500 | VALVE PLATE | 1 | |
| 53\$ | 05044501 | INDICATOR. PLATE | 1 | |
| 54\$ | 05043601 | RUBBER CAP | 1 | |
| 55\$ | 05045600 | SIGNAL RING | 1 | |
| 56\$ | 05137200 | FILTER, MAINTENANCE INDICATOR | 1 | |
| 57\$ | 05043700 | ADAPTER | 1 | |
| 58 | 50173500 | PIPE CLIP | 1 | |
| 59 | 50170900 | WASHER, LOCK | 1 | |
| 60 | 50170600 | ALLEN SCREW | 1 | |
| 61 | 05325400 | FUEL HOSE | 2 | |
| 62 | 05043800 | HOSE | 1 | |
| 63 | 50159500 | RING PIECE | 1 | |
| 64 | 50006200 | BANJO BOLT | 1 | |
| 65 | 50062400 | JOINT A | 2 | |
| 66 | 01499801 | MAINTENANCE INDICATOR, ASSY. | 1 | INCLUDES ITEMS W/ \$ |
| 85 | 50358400 | STRAP | 1 | |
| 86 | 01486601 | AIR FILTER HOUSING, ASSY., W/SEAL..... | 1 | INCLUDES ITEMS W/ % |
| 111 | 469467010 | INTAKE PIPE, CLEANER | 1 | |
| 112 | 466462840 | DUCT GROMMET | 1 | |

HATZ 1D81S-325 ENGINE MUFFLER ASSY.

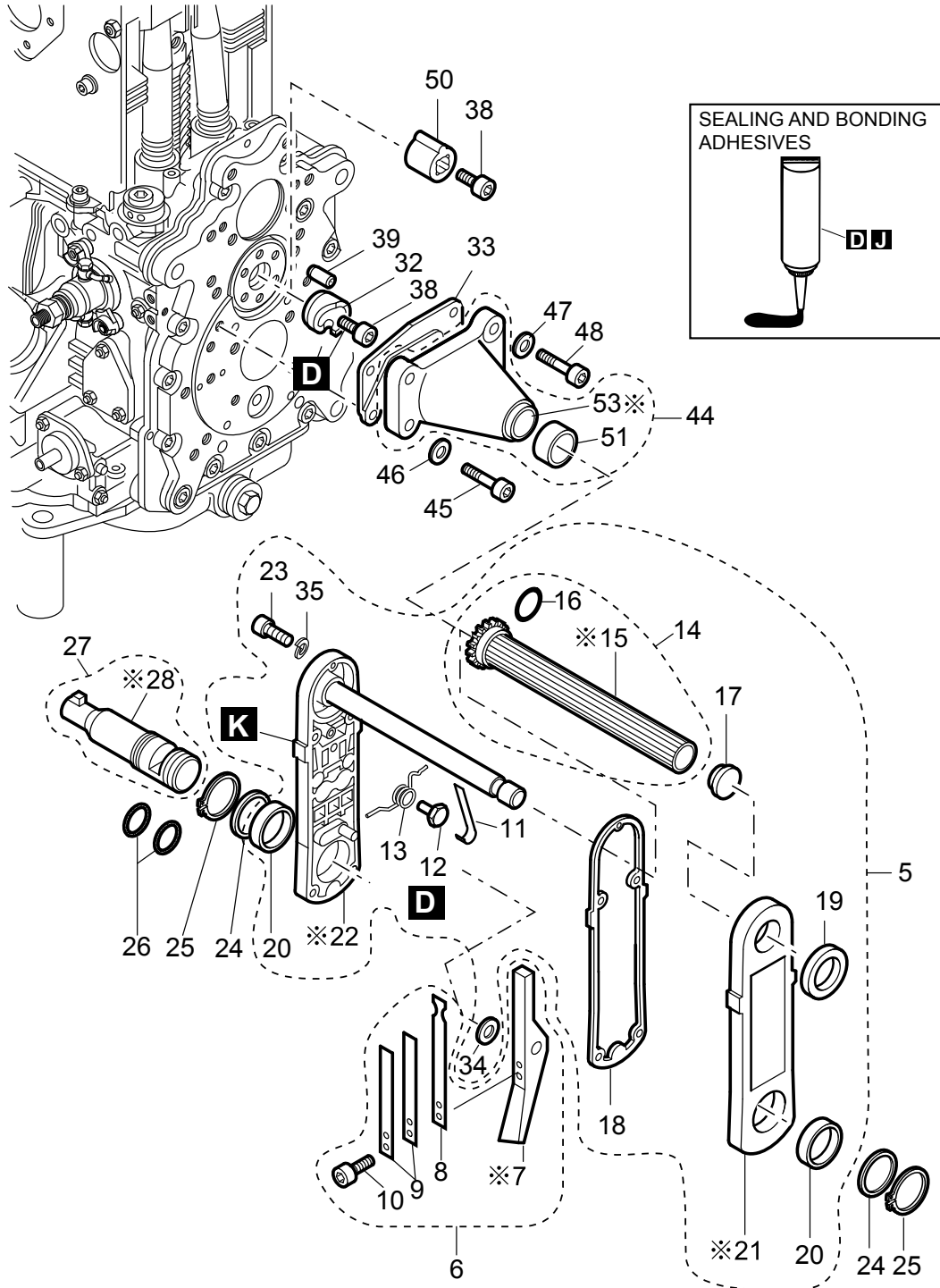


※ NOT SOLD SEPARATELY

HATZ 1D81S-325 ENGINE MUFFLER ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-----------------------------|-------------|----------------------|
| D | 50223300 | LOCTITE 221 | 1 | |
| J | 50283004 | HIGH TEMPERATURE PASTE | 1 | |
| 1 | 01498803 | EXHAUST SILENCER ASSY. | 1..... | INCLUDES ITEMS W/ \$ |
| 2\$ | | SILENCER, EXHAUST | 1..... | NOT SOLD SEPARATELY |
| 3\$ | 50404000 | ALLEN SCREW | 3 | |
| 6\$ | 03974300 | GASKET EXHAUST SILENCER | 1 | |
| 18 | 01191902 | MUFFLER, GUARD | 1 | |
| 19 | 05034202 | WASHER, LOCK | 10 | |
| 20 | 50255700 | ALLEN SCREW | 5 | |
| 21 | 03985300 | GUARD | 1 | |
| 22 | 50135700 | ALLEN SCREW | 2 | |
| 23 | 40091400 | CLOSING CAP | 1 | |
| 24 | 50165400 | ALLEN SCREW | 2 | |
| 27 | 50120000 | WASHER, FLAT | 5 | |
| 29\$ | 50208500 | WASHER, LOCK | 3 | |
| 30\$ | 04125601 | SEALING PLATE | 1 | |

HATZ 1D81S-325 ENGINE STARTING HANDLE ASSY.

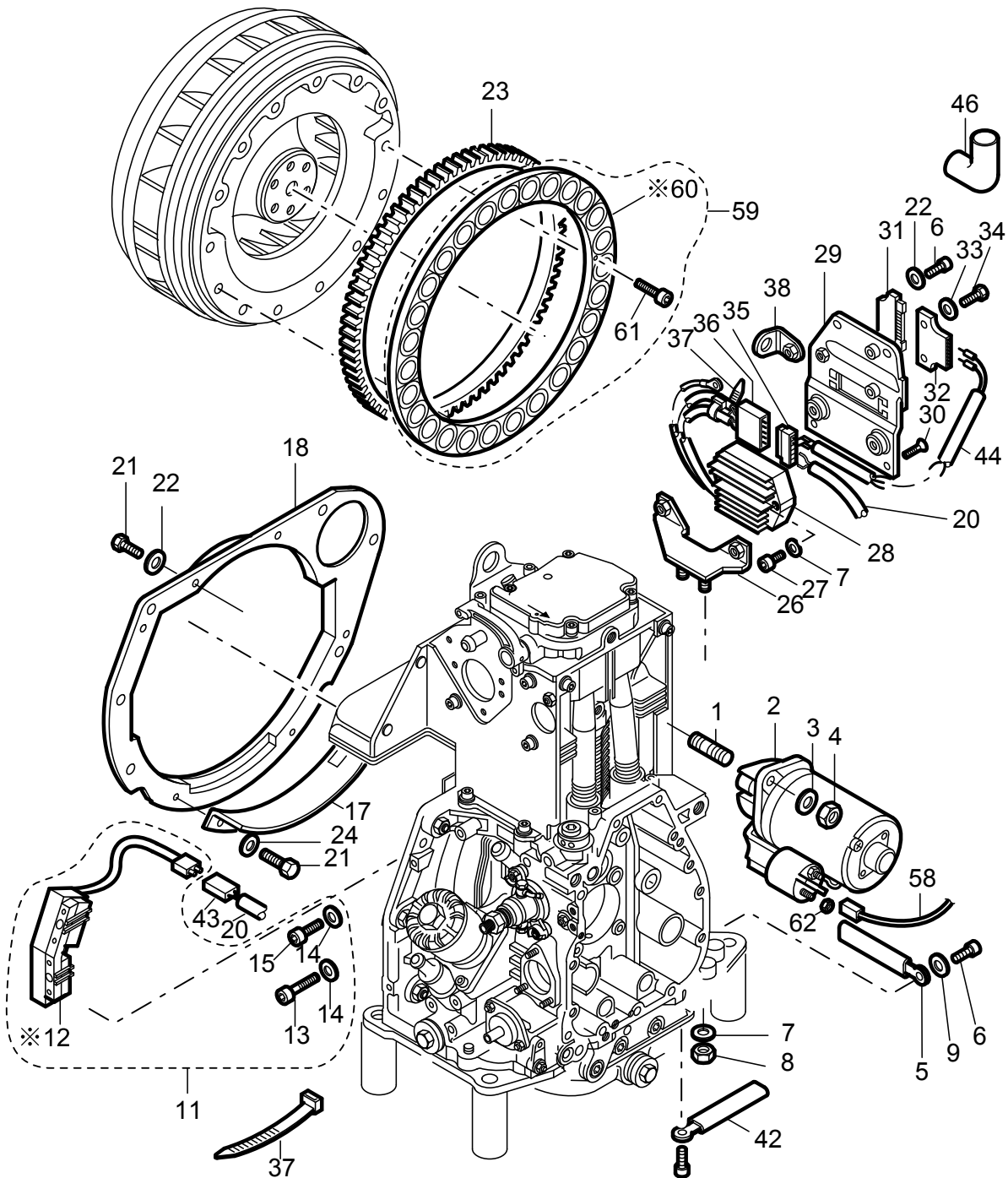


※ NOT SOLD SEPARATELY.

HATZ 1D81S-325 ENGINE STARTING HANDLE ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-----------------------------------|-------------|----------------------|
| D | 50223300 | LOCTITE 221 | 1 | |
| K | 50342600 | HIGH TEMPERATURE FETT | 1 | |
| 5 | 01027805 | CRANK HANDLE-SAFETY, ASSY. | 1 | INCLUDES ITEMS W/ \$ |
| 6\$ | 01011404 | LEVER, ASSY. | 1 | INCLUDES ITEMS W/ @ |
| 7\$@ | | LEVER | 1 | NOT SOLD SEPARATELY |
| 8\$@ | 03812102 | PLATE SPRING | 1 | |
| 9\$@ | 03917100 | PLATE SPRING | 2 | |
| 10\$@ | 50316500 | ALLEN SCREW | 2 | |
| 11\$ | 03954900 | PLATE SPRING | 1 | |
| 12\$ | 03955600 | HEXAGON SCREW | 1 | |
| 13\$ | 03955900 | SPRING A | 1 | |
| 14\$ | 01011310 | HANDLE, OUTER W / O-RING | 1 | INCLUDES ITEMS W/ # |
| 15\$# | | HANDLE, OUTER..... | 1 | NOT SOLD SEPARATELY |
| 16\$# | 50169100 | O-RING | 1 | |
| 17\$ | 50199200 | CLOSING PLUG | 1 | |
| 18\$ | 03813000 | GASKET | 1 | |
| 19\$ | 50194200 | OIL SEAL | 1 | |
| 20\$ | 50193400 | BUSH | 2 | |
| 21\$ | | HOLDER, CRANK HANDLE, OUTER | 1 | NOT SOLD SEPARATELY |
| 22\$ | | HOLDER, CRANK HANDLE, INNER..... | 1 | NOT SOLD SEPARATELY |
| 23\$ | 50236600 | ALLEN SCREW | 5 | |
| 24 | 03928610 | SHIM | 2 | |
| 25 | 50194300 | CIRCLIP | 2 | |
| 26 | 50258500 | O-RING | 2 | |
| 27 | 01187202 | SHAFT, CRANK HANDLE | 1 | INCLUDES ITEM W/+ |
| 28+ | | SHAFT | 1 | NOT SOLD SEPARATELY |
| 32 | 04020310 | CRANK JOW LEFT | 1 | |
| 33 | 03985300 | GUARD | 1 | |
| 34\$ | 50195800 | SHIM | 1 | |
| 35\$ | 50170900 | WASHER, LOCK | 5 | |
| 38 | 50134900 | ALLEN SCREW | 1 | |
| 39 | 50387100 | CYLINDER PIN | 1 | |
| 44 | 01459500 | GUIDING SHELL, W / BUSHING..... | 1 | INCLUDES ITEM W/ % |
| 45 | 50183000 | ALLEN SCREW | 2 | |
| 46 | 50148100 | WASHER, FLAT | 2 | |
| 47 | 50145900 | WASHER, FLAT | 2 | |
| 48 | 50327800 | ALLEN SCREW | 2 | |
| 50 | 04082900 | CRANKING DEVICE | 1 | |
| 51% | 50387601 | BUSHING 1" | 1 | |
| 53% | | GUIDING SHELL | 1 | NOT SOLD SEPARATELY |

HATZ 1D81S-325 ENGINE STARTING MOTOR ASSY.

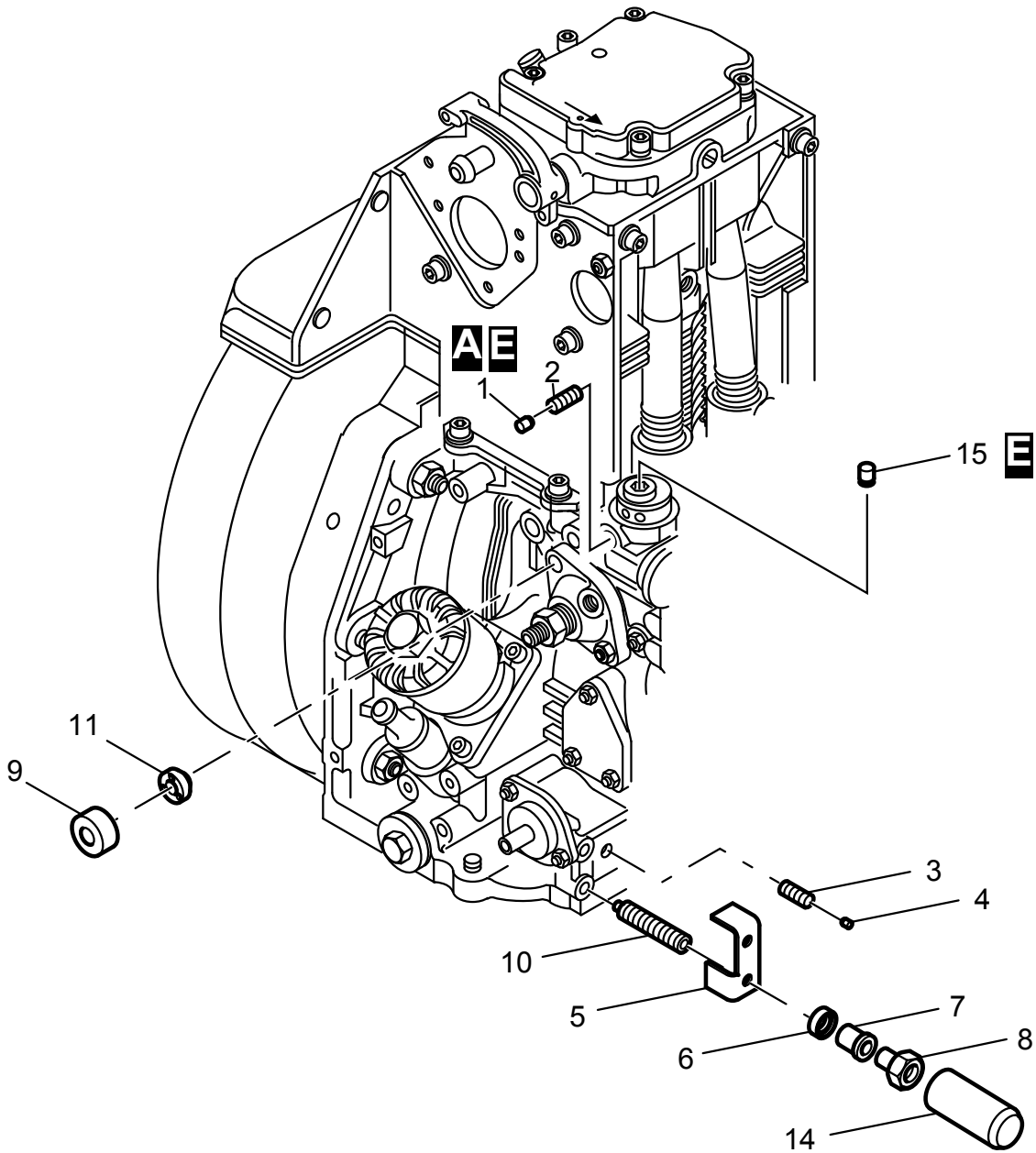


※ NOT SOLD SEPARATELY.

HATZ 1D81S-325 ENGINE STARTING MOTOR ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------------|-------------|----------------------|
| 1 | 50486400 | STUD | 2 | |
| 2 | 50495901 | STARTING MOTOR ASSY. | 1 | |
| 3 | 50093700 | WASHER, FLAT | 2 | |
| 4 | 50380600 | HEXAGON NUT | 2 | |
| 5 | 05001200 | CLIP | 2 | |
| 6 | 50149100 | ALLEN SCREW | 2 | |
| 7 | 50208500 | WASHER, LOCK | 4 | |
| 8 | 020108060 | HEXAGON NUT | 2..... | REPLACES 50148000 |
| 9 | 50144500 | WASHER, FLAT | 1 | |
| 11 | 01592400 | COIL ASSY. 12V 200W | 1..... | INCLUDES ITEMS W/ \$ |
| 12\$ | | COIL..... | 1..... | NOT SOLD SEPARATELY |
| 13\$ | 50448800 | ALLEN SCREW | 1 | |
| 14\$ | 50390701 | CON. WASHER, LOCK | 2 | |
| 15\$ | 50448700 | ALLEN SCREW | 1 | |
| 17 | 04021100 | PROTECT. ALTERNATOR | 1 | |
| 18 | 04009920 | PARTING SHEET | 1 | |
| 20 | 01558300 | ELECTRIC WIRE | 1..... | REPLACES 01462800 |
| 21 | 50165500 | HEXAGON SCREW | 5 | |
| 22 | 50170900 | WASHER, LOCK | 6 | |
| 23 | 04021210 | GEAR, RING | 1 | |
| 24 | 50144500 | WASHER, FLAT | 2 | |
| 26 | 01440303 | SUPPORT | 1 | |
| 27 | 50183000 | ALLEN SCREW | 2 | |
| 28 | 01983800 | REGULATOR 12V | 1 | |
| 29 | 01440100 | FASTENING PLATE | 1 | |
| 30 | 50422501 | COUNTER SUNK SCREW | 2 | |
| 31 | 50373700 | PLUG SLEEVE HOUSING | 1 | |
| 32 | 50373600 | PIN TERM. HOUSING 6-WAY | 1 | |
| 33 | 50216300 | WASHER | 2 | |
| 34 | 50335700 | HEXAGON SCREW | 2 | |
| 35 | 50402100 | PLUG SLEEVE HOUSING | 1 | |
| 36 | 50402000 | PLUG HOUSING 4-P | 1 | |
| 37 | 50358400 | STRAP | 4 | |
| 38 | 01440200 | SUPPORT | 1 | |
| 42 | 05023900 | CLIP | 2 | |
| 43 | 50379700 | PLUG HOUSING 2-P | 1 | |
| 44 | 01439400 | WIRING HARNESS | 1 | |
| 46 | 40026600 | PROTECTION CAP | 1 | |
| 58 | 01193401 | ELECT. WIRE STARTER | 1 | |
| 59 | 01587300 | MAGNETIC RING, ASSY. 200W | 1..... | INCLUDES ITEMS W/ % |
| 60% | | MAGNETIC RING | 1..... | NOT SOLD SEPARATELY |
| 61% | 50446900 | ALLEN SCREW | 14 | |
| 62 | 50344700 | HEXAGON NUT | 1 | |

HATZ 1D81S-325 ENGINE SPEC. EQUIPMENT ASSY.



HATZ 1D81S-325 ENGINE SPEC. EQUIPMENT ASSY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u> | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------|-------------|----------------|
| A | 50223001 | LOCTITE ACTIVATOR N | 1 | |
| E | 50223400 | LOCTITE 574 | 1 | |
| 1 | 04167010 | CLOSING PLUG | 1 | |
| 2 | 50004600 | GRUB SCREW | 1 | |
| 3 | 50403500 | GRUB SCREW | 1 | |
| 4 | 04153700 | CLOSING PLUG | 1 | |
| 5 | 04153800 | SUPPORT | 1 | |
| 6 | 04134200 | DISC | 1 | |
| 7 | 04129700 | BUSHING | 1 | |
| 8 | 04126700 | THREADED BUSHING | 1 | |
| 9 | 04244500 | CAP | 2 | |
| 10 | 50507800 | GRUB SCREW | 2 | |
| 11 | 04239200 | SECURING NUT | 2 | |
| 14 | 04187700 | CAP | 1 | |
| 15 | 04205900 | CLOSING PLUG | 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

OPERATION AND PARTS MANUAL

HERE'S HOW TO GET HELP

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

UNITED STATES

Multiquip Corporate Office

18910 Wilmington Ave.
Carson, CA 90746
Contact: mq@multiquip.com

Tel. (800) 421-1244
Fax (310) 537-3927

Service Department

800-421-1244
310-537-3700

Fax: 310-537-4259

Technical Assistance

800-478-1244

Fax: 310-943-2238

MQ Parts Department

800-427-1244
310-537-3700

Fax: 800-672-7877
Fax: 310-637-3284

Warranty Department

800-421-1244
310-537-3700

Fax: 310-943-2249

CANADA

Multiquip

4110 Industriel Boul.
Laval, Quebec, Canada H7L 6V3
Contact: jmartin@multiquip.com

Tel: (450) 625-2244
Tel: (877) 963-4411
Fax: (450) 625-8664

UNITED KINGDOM

Multiquip (UK) Limited Head Office

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Globe Lane,
Dukinfield, Cheshire SK16 4UJ
Contact: sales@multiquip.co.uk

Tel: 0161 339 2223
Fax: 0161 339 3226

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

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