

# **PF120/150**

# **SHOP MANUAL**

**SAKAI®**

3498-64884-0



# Introduction

This manual provides important information to familiarize you with safe operating and maintenance procedures for your SAKAI product. Even though you may be familiar with similar equipment you must read and understand this manual before operating or servicing this unit.

Safety is everyone's business and it is one of your primary concerns. Knowing the guidelines presented in this manual will help provide for your safety, for the safety of those around you and for the proper operation and maintenance of the machine. Improper operation is dangerous and can result in injury or death.

Sakai Heavy Industries cannot foresee all possible circumstances or varying conditions to which the operator, serviceman or machine may be exposed to that might lead to a potential hazard. Therefore, the warnings and cautions listed in this manual and those placed on the machine are not intended to be all inclusive and liability for personal injury or damage to equipment or property cannot be assumed.

All information, specifications and illustrations in this publication are based on the product information available at the time that the publication was written. The contents may change without prior notice due to modifications of the model.

Refer to the engine manufacture's shop manual for data relative to engine maintenance and repairing.



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# **SAFETY**

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# 1. GENERAL SAFETY

## 1-1. Understanding the Safety Symbols and Words

The words DANGER, WARNING, and CAUTION are used with the safety-alert symbol. DANGER identifies the most serious hazard. When the symbols DANGER, WARNING and CAUTION are displayed, become alert. Your safety or those around you may be involved. NOTICE is used to provide important information that is not hazard related.

 **DANGER:** Indicates an imminently hazardous situation or condition which if not avoided can result in serious personal injury or death.

 **WARNING:** Indicates a potentially hazardous situation or condition which if not avoided can result in serious personal injury or death.

 **CAUTION:** Indicates a potentially hazardous situation or condition which if not avoided may result in moderate personal injury or damage to the machine or personal property.

(NOTICE): Indicates important information about operation or maintenance of the machine that may cause damage, breakdown, or shortened service life of the machine if you fail to observe or important point to maintain of quality in maintenance works.

★: Indicates standard value to judge whether measured value is good or not.



Items that indicate the weight of a part or equipment and require attention in wire selection and operating posture for slinging operation.



In the assembly operation, tightening torque in locations that require particular attention.

## 1-2. General

- Operators and maintenance personnel must be alert to recognize and avoid potential hazards. They should also have comprehensive training, the required skills and necessary tools to perform the job safely.
- The machine was built in accordance to the latest safety standards and recognized safety rules. Nevertheless, misuse of the machine may result in risk to life and limb of the user or nearby personnel and may cause damage to the machine or other property.
- The machine must only be used for its intended purpose as described in the Operator's Manual. It must be operated by safety-conscious persons who are fully aware of the risks involved when operating the machine. Any malfunctions especially those affecting the safety of the machine must be corrected immediately.

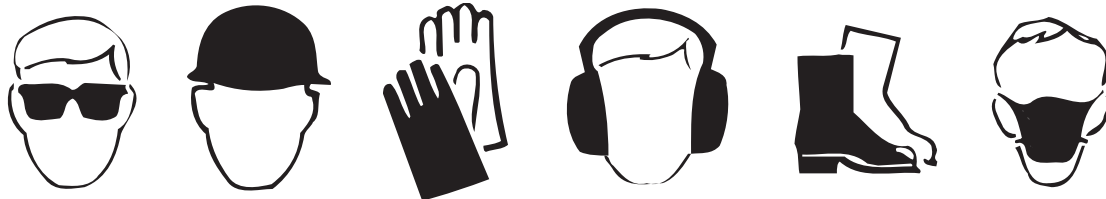
- The machine is designed specifically for the compaction of asphalt or soil road construction materials. Use of the machine for other purposes such as towing other equipment is considered contrary to the designated use. The manufacturer cannot be responsible or held liable for any damage resulting from such use. The risk for such use lies entirely with the user.
- Operating the machine within the limits of its designated use also involves compliance with the inspection and maintenance requirements contained in the Operation and Maintenance Manual.

### 1-3. Qualifications of Operators and Maintenance Personnel

- Work on the machine must be performed by qualified personnel only. Individual responsibilities of personnel regarding operation, maintenance, repair of the machine must be clearly stated.
- Define the operator's responsibilities; the operator should have authority to refuse instructions that are contrary to safety.
- Do not allow persons being trained to operate or perform maintenance on the machine without constant supervision by an experienced person.
- Work on the electrical system of the machine must be done only by an experienced person or under the guidance of a skilled electrician and according to electrical engineering rules and regulations.
- Work on the frame, brakes, hydraulic and steering systems must be performed by skilled personnel with special knowledge and training for such work.

### 1-4. Safety Practices and Policies

- Keep the manuals in the container provided on the machine. Manuals must always be available at the site where the machine is being used.
- The operator or user of the machine must be aware of all applicable or legal and mandatory regulations relevant to accident prevention and environmental protection. These regulations may also deal with handling of hazardous substances, the required proper personal safety and protective equipment and traffic or jobsite regulations.
- Machine operating instructions should also be supplemented with detailed instructions pertaining to the specific jobsite or work location.
- Always be sure the persons working on the machine have read the operating instructions and all safety precautions before beginning work. Reading safety instructions after work has already begun is too late.
- Wear close fitting garments and always tie back and secure long hair, also avoid wearing jewelry such as rings. Injury can result from loose clothing, hair or jewelry being caught up in the machinery or rotating parts.
- Use protective equipment as required by the circumstances or by law.



- Observe all safety instructions and warnings attached to the machine.
- Make sure all safety instructions and warnings on the machine are complete and perfectly legible.
- Stop the machine immediately in the event of any malfunction. Report any malfunction immediately to the supervisor or other person of authority.
- Never perform service or maintenance on the machine unless the drums or tires are adequately blocked, articulation lock bar and pin is in the locked position.
- Never make any modifications to the machine which might affect safety without the manufacturer's approval.
- Always perform the recommended routine inspections and adjustments according to the prescribed intervals.

### **1-5. Pre Start Inspection**

- Inspect your machine daily. Ensure that the routine maintenance and lubrication are properly performed. Repair or replace any malfunctioning, broken or missing parts before using the machine. Refer to the inspection and maintenance or maintenance schedule in the Operator's Manual.
- Check that all instructions and safety stickers are in place and readable.
- Never fill the fuel tank with the engine running or while near an open flame or while smoking.
- Always clean up any spilled fuel.
- Check for any warning tags placed on the machine, do not operate the machine until all repairs have been made and warning tags have been removed by authorized personnel.
- Know how to shut-down or stop the machine immediately in case of emergency.
- Know the capabilities and limitations of the machine such as speed and gradeability.
- Be aware of the dimensions of the machine such as height, weight especially for transporting.

### **1-6. Safety Instructions**

- Take all necessary precautions to ensure that the machine is used only when in a safe and reliable condition.
- Avoid any operational mode that might compromise safety.
- Operate the machine only if all protective and safety devices are in place and fully functional.

### **1-7. Starting**

- Watch that the warning lights and indicators during start-up and shutdown are working in accordance with operating instructions.
- Watch that no one is in danger before starting and when moving the machine.
- Check that steering and lights are fully functional before starting work or traveling with the machine.

### 1-8. Operating

- Always make sure that there are no obstructions or persons in your line of travel before starting the compactor in motion.
- Use caution and be very observant when operating in close quarters and congested areas.
- Obey all traffic regulations when working on public roads and make sure machine is compatible with these regulations.
- Know and use the hand signals for particular jobs and who has the responsibility for signaling.
- Do not work close to edges or in the vicinity of overhanging banks or on grades that could cause the compactor to slide or roll over. Avoid any areas that may be a risk to machine stability.
- Avoid side hill travel. Always operate up and down the slope. Always keep the propulsion (travel control) lever in low speed range when climbing or descending hills or steep grades.
- Never allow anyone to stand in the articulation area of the machine when the engine is running.
- Always look in all directions before reversing the direction of travel.
- Always switch on the lighting system (if equipped) during poor visibility conditions and after dark.
- Do not attempt to control the compactor travel speed with the throttle control. Maintain engine speed at the full operating RPM.
- Do not run the engine in a closed building for an extended period of time. Exhaust fumes can kill.

### 1-9. Stopping

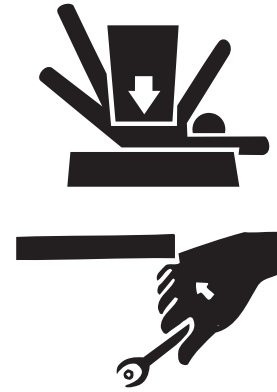
- Always park the machine in a safe area on solid and level ground. If this is not possible, always park at a right angle to the slope and block the drums or tires.
- Lock all lockable compartments.

### 1-10. Maintenance

- In any performing any work concerning the operation, adjustment or modification of the machine or it's safety devices or any work related to maintenance, inspection or repair, always follow the start-up and shut-down procedures in the Operator's Manual and the Maintenance Manual.
- Ensure that the maintenance area is safe and secure.
- If the machine is shut down for maintenance or repair work it must be secured against inadvertent starting by removing the starter key and attaching a warning sign to the starter switch.
- The machine must be parked on stable and level ground with the drums or tires blocked to prevent inadvertent movement.
- Immediately after the engine has stopped, the exhaust system, engine, radiator coolant, engine oil, hydraulic fluid and other lubricants and components will be very hot. Fluids can be under pressure, removing the radiator cap or draining oil or changing filters can cause serious burns. Wait until the machine has cooled down.



- Use care when attaching and securing lifting tackle to individual parts and large assemblies being removed or repositioned for repair purposes to avoid the risk of accident. Use lifting devices that are in perfect condition and of sufficient lifting capacity. Never stand under suspended loads.
- Always use the proper tools and workshop equipment in good condition when performing maintenance or repairs on the machine.
- Clean the machine, especially threaded connections of any traces of oil or fuel before carrying out any maintenance or repairs. Never use aggressive detergents. Use lint free cleaning rags.
- Examine all fuel, lubricant and hydraulic fluid lines and connectors for leaks, loose connections chafe marks or damage after cleaning.
- Repair or replace defective parts immediately.
- Whenever possible, avoid servicing or maintenance when the engine is running unless the drums or tires are adequately blocked, the articulation lock bar is in the locked position.
- Never fill the fuel tank with the engine running, while near an open flame or while smoking. Always clean up any spilled fuel.
- Ensure safe operation, optimum performance of the machine and its warranty by using only genuine SAKAI replacement parts.
- Use only the specified fluids and lubricants. Substitute only products known to be equivalent from reputable manufacturers.
- Disconnect the battery cables when working on the electrical system or when welding on the compactor.
- Be sure the battery area is well ventilated (clear of fumes) should it be necessary to connect a jumper cable or battery charger. Fumes can ignite from a spark and may explode.
- Be sure battery charger is OFF when making connections if charging is required.
- Use only original fuses with the specified rating. Switch off the machine immediately if trouble occurs in the electrical system.
- Work on the electrical system may only be carried out by a qualified electrician or by a specially trained person according to electrical engineering principles.
- Inspect the electrical equipment of the machine at regular intervals. Defects such as loose connections or burnt or scorched wires must be repaired or replaced immediately.
- Do not weld, flame cut or perform grinding on the machine unless expressly authorized, as there may be a risk of fire or explosion. Disconnect the battery when welding on the machine.
- Clean the machine and its surrounding from dust or other flammable substances and make sure the area is adequately ventilated before beginning welding, flame cutting or grinding operations.
- Inspect hydraulic hoses at regular intervals and immediately replace if they show signs of chafing, cracking, brittleness, deformation, blistering, fitting separation, leakage, corrosion or other damage which may affect their function or strength.
- Do not work on hydraulic system while the engine is running and the system is under pressure. The hydraulic system remains pressurized even after the engine has stopped.
- Do not disconnect hydraulic hoses or fittings until the pressure has been properly relieved.



## SAFETY

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- Wait until the systems and fluid have cooled down before disconnecting.
- Never use your hands to check for leaks when inspecting a hydraulic system. Use a piece of cardboard and always wear gloves and safety glasses.



- Get immediate medical attention if fluid has been injected under your skin. Fluid penetration from a pin hole leak can cause severe injury or death.
- Ensure that hydraulic lines and hoses are routed and fitted properly. Ensure that no connections are interchanged. All fittings, lengths and specifications of hoses must comply with the technical requirements.
- Observe all product safety regulations when handling fuel, oils, grease, engine coolant and other chemical substances. Be careful especially when these items are hot as there is a risk of burning or scalding.
- Operate internal combustion engines and fuel operated heating systems only in adequately ventilated premises. Before starting the engine in an enclosed area, make sure there is sufficient ventilation.



### 1-11. Transporting the Machine

- Use only suitable and approved trailers and haul vehicles and lifting equipment of sufficient capacity.
- Entrust to experienced personnel the fastening and lifting of loads and instructing of crane operators.
- Only experienced persons familiar with the operation of the machine may load and unload the machine.
- Use ramps or a loading dock when loading or unloading the machine. Ramps must be the proper strength, low angle and the proper height and width.
- Block the drums or tires (front and rear) of the hauling vehicle when loading and unloading the compactor. Ensure that the haul vehicle is on level ground and approach the loading ramps squarely to make sure that the compactor does not slide off the edge of the ramp.
- Position the compactor on the trailer or transport vehicle centered from side to side. Shut off the engine and lock all lockable compartments.
- Block the drums or tires and lock the articulation lock bar. Chain the machine down properly using the appropriate tackle.
- Know the overall height of the compactor and hauling vehicle. Observe height and weight regulations and be sure you can pass safely at overhead obstructions.

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# **SPECIFICATIONS**

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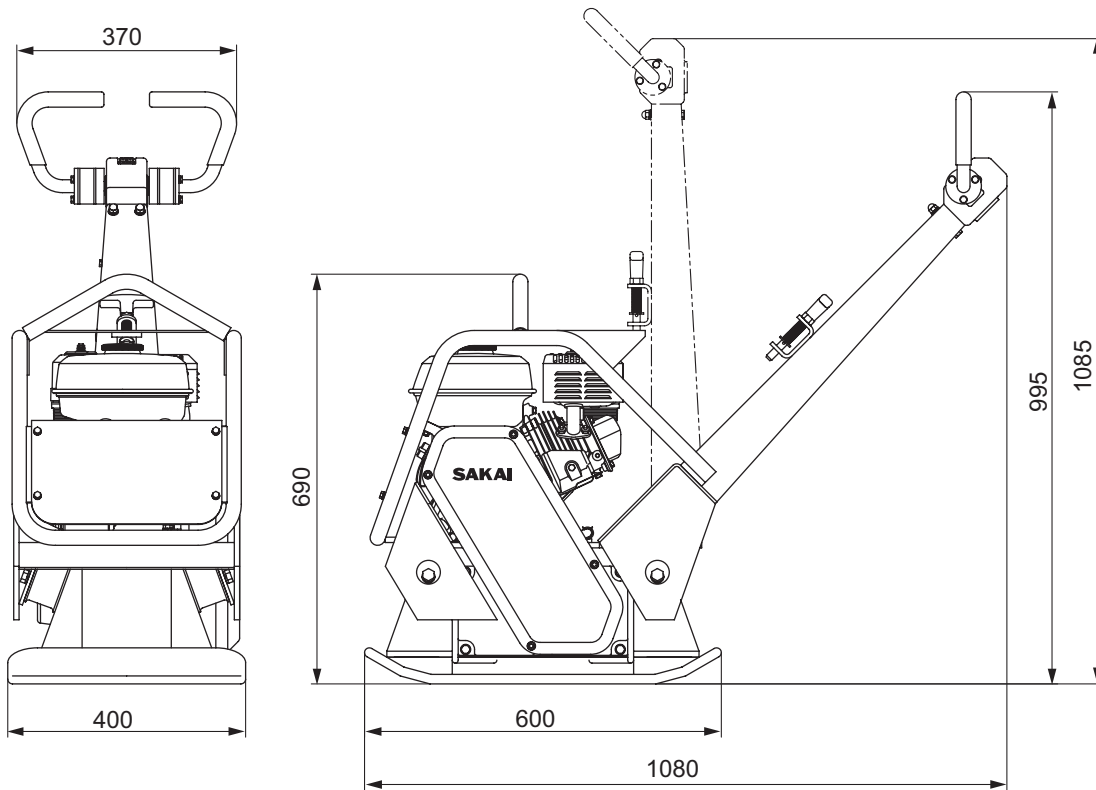
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# 1. SPECIFICATION DATA

## 1-1. PF120

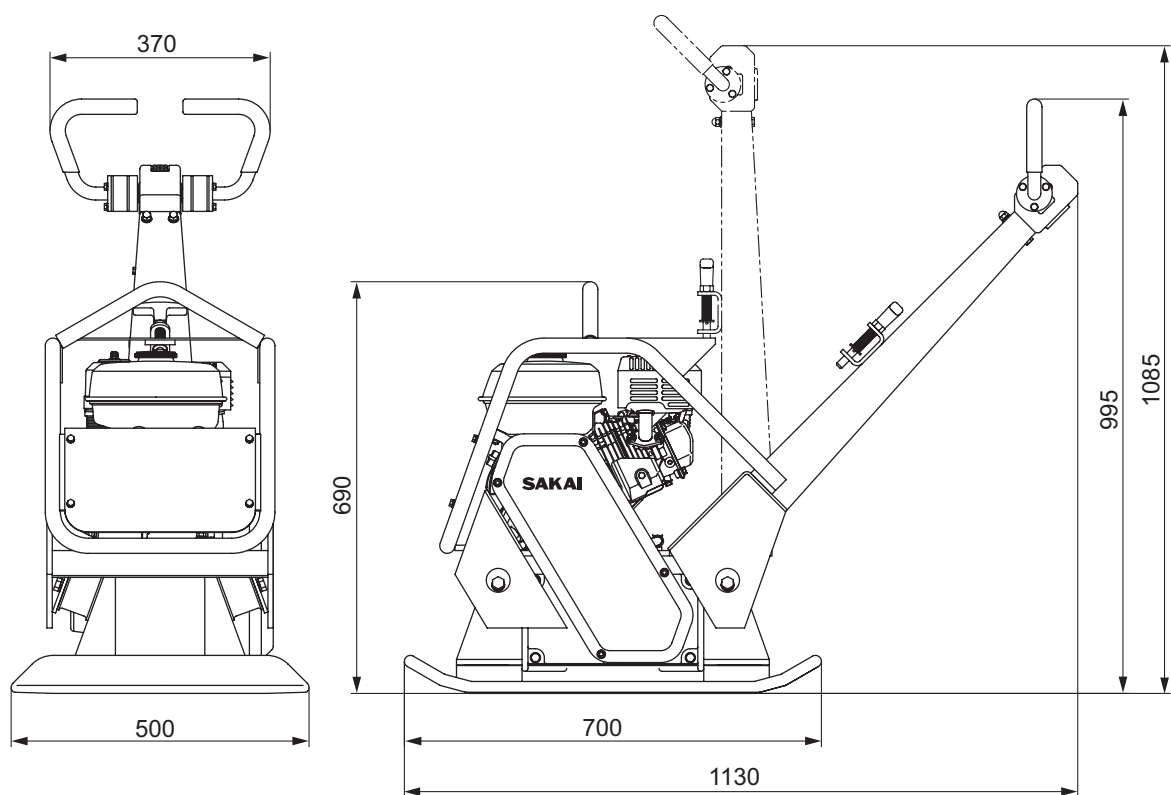


PF120-02001

Model	SAKAI PF120 PLATE COMPACTOR
Physical	
Machine Weight	120 kg (265 lbs.)
Total Length	1,080 mm (43 in.)
Total Width	400 mm (15.5 in)
Total Height	995 mm (39 in)
Size of Tamping Plate (L) X (W)	600 mm X 400 mm (23.5 in X 15.5 in)
Performance	
Vibration Frequency	93 Hz (5,580 vpm)
Traveling Speed	0 - 23 m/min (0-75 ft/min)
Vibratory Force	26 kN (5,840 lbf.)
Engine	
Manufacturer's Model	HONDA model GX160U
Maximum Output	4.1 kW/3,600 min <sup>-1</sup> (5.5 HP/3,600 rpm)
Fuel	Gasoline
Starting System	Recoil starter

## SPECIFICATIONS

### 1-2. PF150



PF120-02002

Model	SAKAI PF150 PLATE COMPACTOR
<b>Physical</b>	
Machine Weight	150 kg (330 lbs.)
Total Length	1,130 mm (44 in.)
Total Width	500 mm (19.5 in)
Total Height	995 mm (39 in)
Size of Tamping Plate (L) X (W)	700 mm X 500 mm (27.5 in X 19.5 in)
<b>Performance</b>	
Vibration Frequency	93 Hz (5,580 vpm)
Traveling Speed	0 - 23 m/min (0-75 ft/min)
Vibratory Force	31 kN (6,965 lbf.)
<b>Engine</b>	
Manufacturer's Model	HONDA model GX200U
Maximum Output	4.8 kW/3,600 min <sup>-1</sup> (6.4 HP/3,600 rpm)
Fuel	Gasoline
Starting System	Recoil starter

## 2. FUEL AND LUBRICANT

### 2-1. Fuel

Fuel to be employed: Regular gasoline for automobile

Fuel tank capacity: 3.6 liters

### 2-2. Recommended Lubricant

Lubricant	Service classification	Ambient temp. and applicable viscosity rating		
		-15~30°C Cold	0~40°C Moderate	5~55°C Tropical
Engine oil	API grade SD	SAE 10W-30	SAE 30	SAE 40
Vibrator oil	API grade SD	SAE 10W-30	SAE 30	SAE 40
Hydraulic oil	Wear resistant	ISO-VG32 over VI 140	ISO-VG32 over VI 140	ISO-VG68 over VI 110

### 3. TIGHTENING TORQUE CHART

N·m	(lbf·ft)
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	Nominal Dia.	Pitch	Strength Classification							
			6.8		8.8		10.9		12.9	
Metric coarse screw	5	0.8	4.9	(3.6)	5.9	(4.4)	7.8	(5.8)	7.8	(5.8)
	6	1.0	7.8	(5.8)	9.8	(7.2)	13	(9.6)	13	(9.6)
	8	1.25	17	(13)	23	(17)	31	(23)	31	(23)
	10	1.5	39	(29)	49	(36)	59	(44)	59	(44)
	12	1.75	69	(51)	78	(58)	108	(80)	108	(80)
	14	2.0	98	(72)	127	(94)	167	(123)	167	(123)
	16	2.0	157	(116)	196	(145)	265	(195)	265	(195)
	18	2.5	196	(145)	245	(181)	343	(253)	343	(253)
	20	2.5	294	(217)	392	(289)	539	(398)	539	(398)
	22	2.5	441	(325)	539	(398)	686	(506)	686	(506)
	24	3.0	539	(398)	637	(470)	883	(651)	883	(651)
	27	3.0	785	(579)	981	(724)	1324	(977)	1324	(977)
30	3.5	1079	(796)	1324	(977)	1765	(1302)	1765	(1302)	
Metric fine screw	10	1.25	39	(29)	49	(36)	69	(51)	69	(51)
	12	1.25	69	(51)	88	(65)	118	(87)	118	(87)
	14	1.5	108	(80)	137	(101)	186	(137)	186	(137)
	16	1.5	167	(123)	206	(152)	284	(209)	284	(209)
	18	1.5	245	(181)	294	(217)	392	(289)	392	(289)
	20	1.5	343	(253)	441	(325)	588	(434)	588	(434)
	22	1.5	490	(361)	588	(434)	785	(579)	785	(579)
	24	2.0	588	(434)	735	(542)	981	(724)	981	(724)
	27	2.0	834	(615)	1030	(760)	1422	(1049)	1422	(1049)
30	2.0	1177	(868)	1422	(1049)	1961	(1446)	1961	(1446)	

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# **INSPECTION AND MAINTENANCE**

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# 1. INSPECTION AND MAINTENANCE

## 1-1. Engine

Refer to a separate Engine Operation Manual for the engine.

## 1-2. Compactor Body

Wipe off dust, dirt, and oil stuck to the machine to check that it is in good order.

Check the bolts for tightness and check intensively around the engine, the belt cover, the cushion rubber, the control handle, and the sling hook.

## 1-3. V-belt

### ⚠ CAUTION

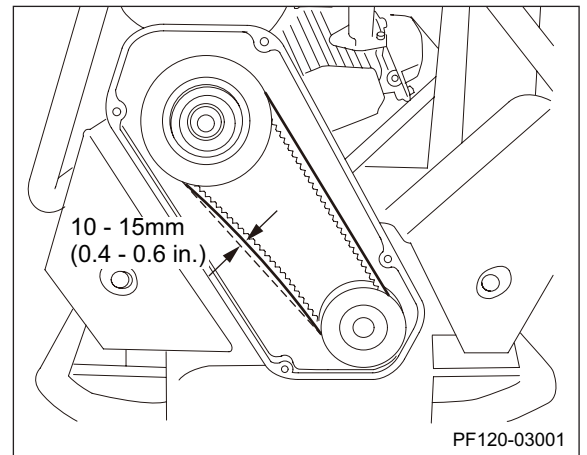
Never attempt to check the V-belt with the engine running. Severe injury can occur if hand get's caught between the V-belt and clutch.

Check the V-belt for its tension.

Adjust the tension so that it deflects 10 mm (0.4 in.) to 15 mm (0.6 in.) with a pressure applied with your thumb to a center point between both shafts.

If deflection is found too excessive, replace the V-belt with the new one (RPF-3330).

Parts No. : 1487-47034-0



## 1-4. Vibrator

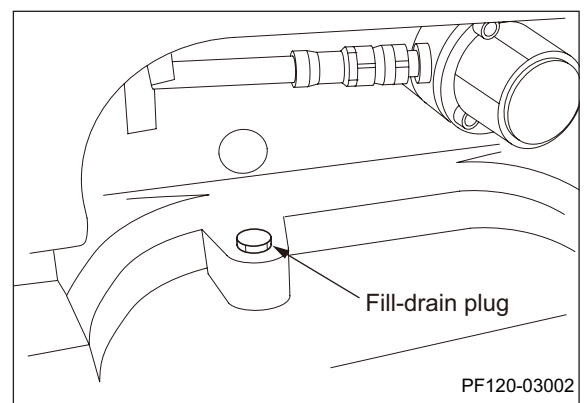
- 1) Stop the engine and keep the compactor level.
- 2) Remove the fill-drain plug to check that the oil spills out of the plug.
- 3) Supply oil if it has been found insufficient.

**Specified oil quantity (when in replacement):**

**0.7 L (0.18 gal.)**

### How to change oil:

- Remove the oil plug and tilt the compactor body to drain the oil, then fill the new oil. Wipe off oil stuck on the outside of compactor after oil change.
- Replace oil after 500 hours for initial operation and every 1000 hours or once a year thereafter.



### 1-5. Air Cleaner

- 1) Remove the wing nut from the air cleaner cover, and remove the cover.
- 2) Remove the wing nut from the air filter, and remove the filter.
- 3) Remove the foam filter from the paper filter.
- 4) Inspect both air filter elements, and replace them if they are damaged. Always replace the paper air filter element at the scheduled interval.
- 5) Clean the air filter elements if they are to be reused.

- Paper air filter element :

Tap the filter element several times on a hard surface to remove dirt.

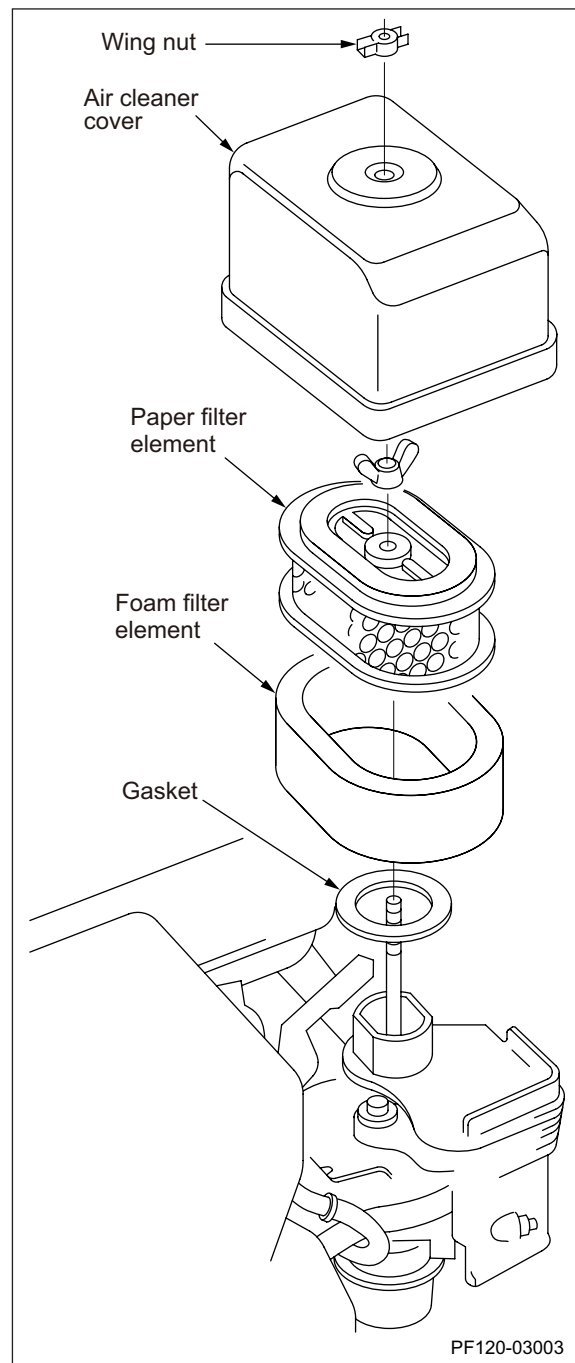
- Blow compressed air [not exceeding 207 kPa (30 psi)] through the filter element from the inside.

Never try to brush off dirt; brushing will force dirt into the fibers.

- Foam air filter element :

Clean in warm soapy water, rinse, and allow to dry thoroughly.

- Clean in nonflammable solvent and allow to dry. Dip the filter element in clean engine oil, then squeeze out all excess oil.

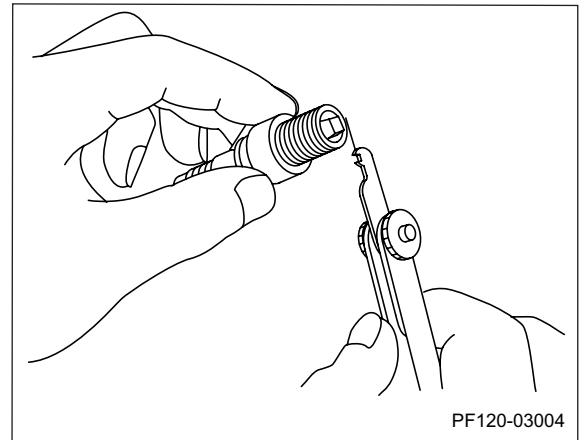




## 1-6. Spark Plug

Remove the spark plug to clean off carbon deposit on the plug. Adjust electrode gap to between 0.7 mm (0.028 in.) and 0.8 mm (0.031 in.).

**Plug : BPR6ES (NGK)**



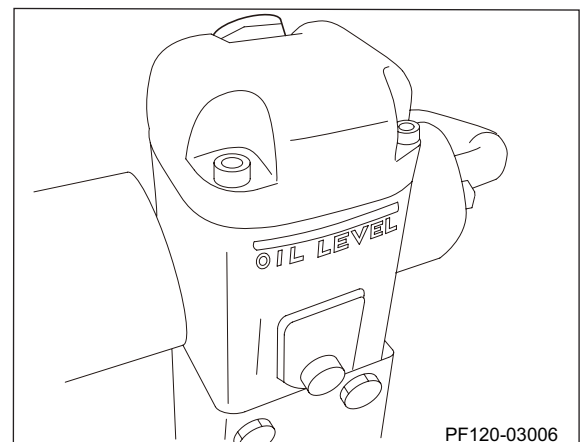
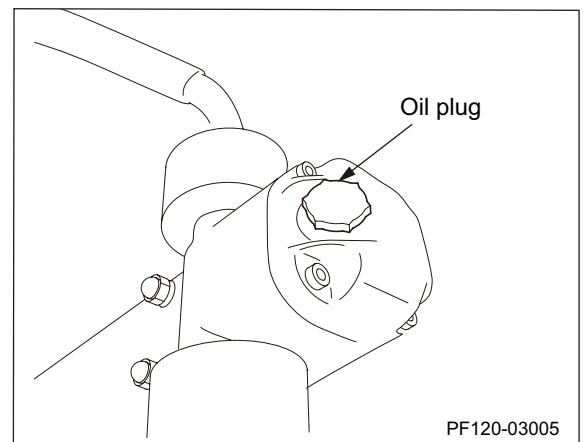
## 1-7. Hydraulic Oil

- 1) Put the handle at vertical position to remove the oil plug.
  - Check that the oil is filled up to a level that is almost overflows out of the port.
  - If it is found insufficient, replenish the specified hydraulic oil.

- 2) Replacement of hydraulic oil are to be carried out after 500 hours of initial operation and every 1000 hours of operation thereafter.

**Specified oil quantity (when in replacement):**

**0.17 L (0.045 gal.)**



## 2. BASIC TROUBLESHOOTING

Refer to following basic troubleshooting table if product have some problems or failures.

If the problem cannot be remedied, contact to Sakai authorized dealer or Sakai service department.

Symptom	Cause	Action
Engine will not start or engine malfunction.	No fuel in tank.	Confirm no fuel leak and fill with fuel in tank.
	No fuel at carburetor.	Clean fuel filter or strainer.
	Fuel valve does not open properly.	Disassemble and check fuel valve.
	Main jet or nozzle in carburetor clogged or fuel overflowing.	Disassemble, clean or adjust carburetor.
	No spark.	Check spark plug gap, insulation, dirt or damage and adjust plug gap. Replace it if necessary. Check ignition coil and adjust coil gap.
	Engine switch is faulty.	Check engine switch.
	Water, dust or air in fuel system.	Flush fuel system.
	Air cleaner is dirty or clogged.	Check and clean air cleaner. Replace it if necessary.
	Use deteriorated fuel.	Flush fuel system and fill with recommended fuel.
	Cylinder compression is too low.	Check cylinder head, gasket, valve or valve seat. Check excessive carbon has accumulated in combustion chamber. Check piston ring, piston or cylinder for worn. Check and adjust valve clearance. Tighten cylinder head and spark plug correctly.
Recoil starter internal mechanism malfunction.	Disassemble, check and clean recoil starter inner parts.	
Vibration does not work or weak.	Loosen or slip V-belt.	Check and adjust V-belt. Replace it if necessary.
	Engine speed is too low.	Adjust correct engine speed.
	Centrifugal clutch is faulty.	Check and replace centrifugal clutch.
	Eccentric shaft hold bearing damaged.	Check bearing and replace it if necessary.
	Insufficient vibrator oil.	Replenish vibrator oil.
Compactor moves neither forward nor backward.	Insufficient oil in forward-reverse lever pump.	Fill oil to correct level.
	Piston in forward-reverse lever pump faulty.	Replace forward-reverse lever pump.
	Cylinder is faulty.	Check, clean and bleeding air from cylinder.
	Variable weight positon does not shift.	Disassemble and check pin in variable weight shaft. Replace it if necessary.

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# **PARTS CATALOGUE**

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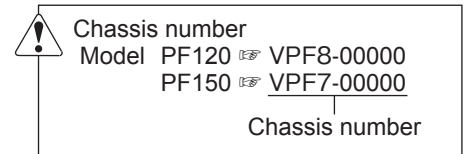
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# 1. GUIDE FOR USE OF PARTS CATALOGUE

1. Quote the following when placing an order for parts.

- (1) Vehicle model
- (2) Chassis number
- (3) Part number
- (4) Part name
- (5) Quantity of required parts.



The vehicle model and chassis number are engraved on the identification plate, and chassis number is also punched on the frame.

2. The chassis number to which parts are applicable are described in the remarks column as follows.

-No.10007 : Applicable up to 10007

No.10008- : Applicable from 10008

3. Each quantity shown in the quantity column is in principle one applied to a unit of vehicle.

However, each quantity as related to ASSEMBLY PARTS indicates one included in a single unit of assembly.

4. The following abbreviated words are used in this parts catalogue.

LH : Lefthand viewed from behind of vehicle.

RH : Righthand viewed from behind of vehicle.

Inc. O-O : Key number of parts constituting an assembly

OP : Option

N/S : Parts not to be supplied by a single piece

A/S : Parts to be supplied as an assembly composed or a kit of parts

AR : As required

Dom. : For use in Japan

Exp. : For use in countries other than Japan

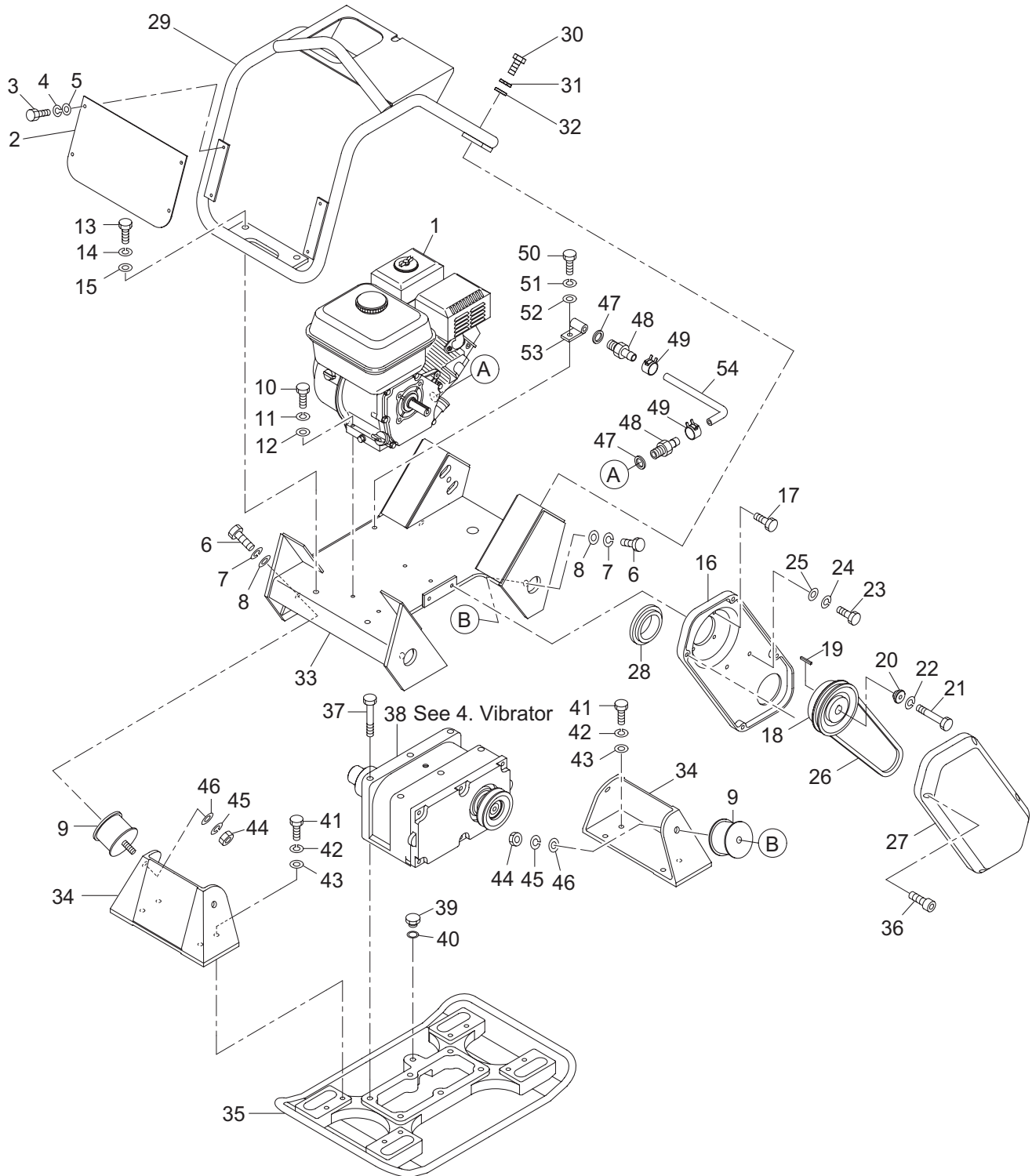
\* SEE PAGE OO : See page OO for component parts.

5. Part with "(cf. O)" in the remarks column indicates that it is supplied as an assembly represented by the key number O with which "cf." is attached. Quote the part number that follows the key number O when ordering.

6. Part number with a mark "\*" indicate that they have been corrected to the ones listed just below them. Quote the renewed part numbers when ordering.

7. Parts are subject to change without notice.

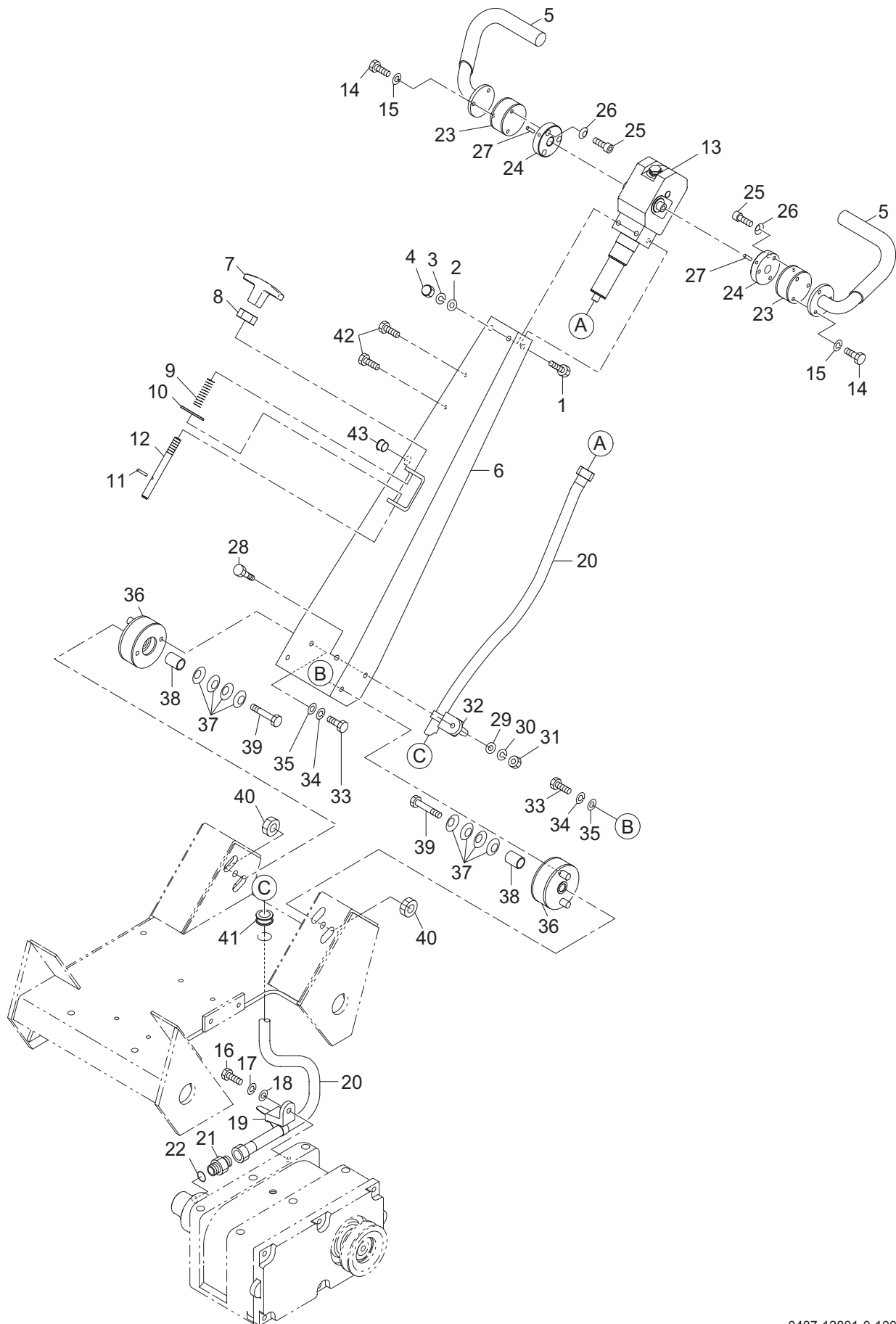
## 2. FRAME (PF120)



0488-47801-0-10006-A

記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
1	4032-08000-1	エンジン	ENGINE	1	INC.19 HONDA GX160
2	1487-47023-0	カバー	COVER	1	
3	2100-06012-1	ボルト	BOLT	4	
4	2171-06015-0	スプリングワッシャー	SPRING WASHER	4	
5	2170-06016-0	ワッシャー	WASHER	4	
6	2100-12025-1	ボルト	BOLT	4	
7	2171-12030-0	スプリングワッシャー	SPRING WASHER	4	
8	2170-12025-0	ワッシャー	WASHER	4	
9	3460-40073-0	防振ゴム	DAMPER	4	
10	2100-08035-1	ボルト	BOLT	4	
11	2171-08020-0	スプリングワッシャー	SPRING WASHER	4	
12	2170-08016-0	ワッシャー	WASHER	4	
13	2100-12025-1	ボルト	BOLT	2	
14	2171-12030-0	スプリングワッシャー	SPRING WASHER	2	
15	2170-12025-0	ワッシャー	WASHER	2	
16	1487-47015-0	カバー	COVER	1	
17	1486-47093-0	ボルト	BOLT	4	
18	4421-56000-0	クラッチ	CLUTCH	1	
19	2196-05036-1	キー	SUNK KEY	1	
20	1487-47033-0	ワッシャー	WASHER	1	
21	2100-08035-1	ボルト	BOLT	1	
22	2171-08020-0	スプリングワッシャー	SPRING WASHER	1	
23	2100-08025-1	ボルト	BOLT	2	
24	2171-08020-0	スプリングワッシャー	SPRING WASHER	2	
25	2170-08016-0	ワッシャー	WASHER	2	
26	1487-47034-0	V-ベルト	V-BELT	1	
27	1487-47016-0	カバー	COVER	1	
28	1484-47025-0	カバー	COVER	1	
29	1487-47020-0	ガード	GUARD	1	
30	2100-12030-1	ボルト	BOLT	2	
31	2171-12030-0	スプリングワッシャー	SPRING WASHER	2	
32	2170-12025-0	ワッシャー	WASHER	2	
33	1487-47018-0	ベース	BASE	1	
34	1487-47022-0	ブラケット	BRACKET	2	
35	1488-47002-1	プレート	PLATE	1	
36	2107-08035-3	ボルト	BOLT	4	
37	2107-16160-3	ボルト	BOLT	6	
38	0488-47001-0	起振体	VIBRATOR ASSY	1	
39	1590-47024-0	プラグ	PLUG	1	
40	1466-47062-0	パッキン	PACKING	1	
41	2100-10030-1	ボルト	BOLT	8	
42	2171-10025-0	スプリングワッシャー	SPRING WASHER	8	
43	2170-10020-0	ワッシャー	WASHER	8	
44	2120-12100-0	ナット	NUT	4	
45	2171-12030-0	スプリングワッシャー	SPRING WASHER	4	
46	2170-12025-0	ワッシャー	WASHER	4	
47	1488-47003-0	パッキン	PACKING	2	
48	1488-47005-0	ニップル	NIPPLE	2	
49	1487-47038-0	クランプ	CLAMP	2	
50	2100-10020-1	ボルト	BOLT	1	
51	2171-10025-0	スプリングワッシャー	SPRING WASHER	1	
52	2170-10020-0	ワッシャー	WASHER	1	
53	1487-47037-0	ソケット	SOCKET	1	
54	1487-47039-0	ホース	HOSE	1	

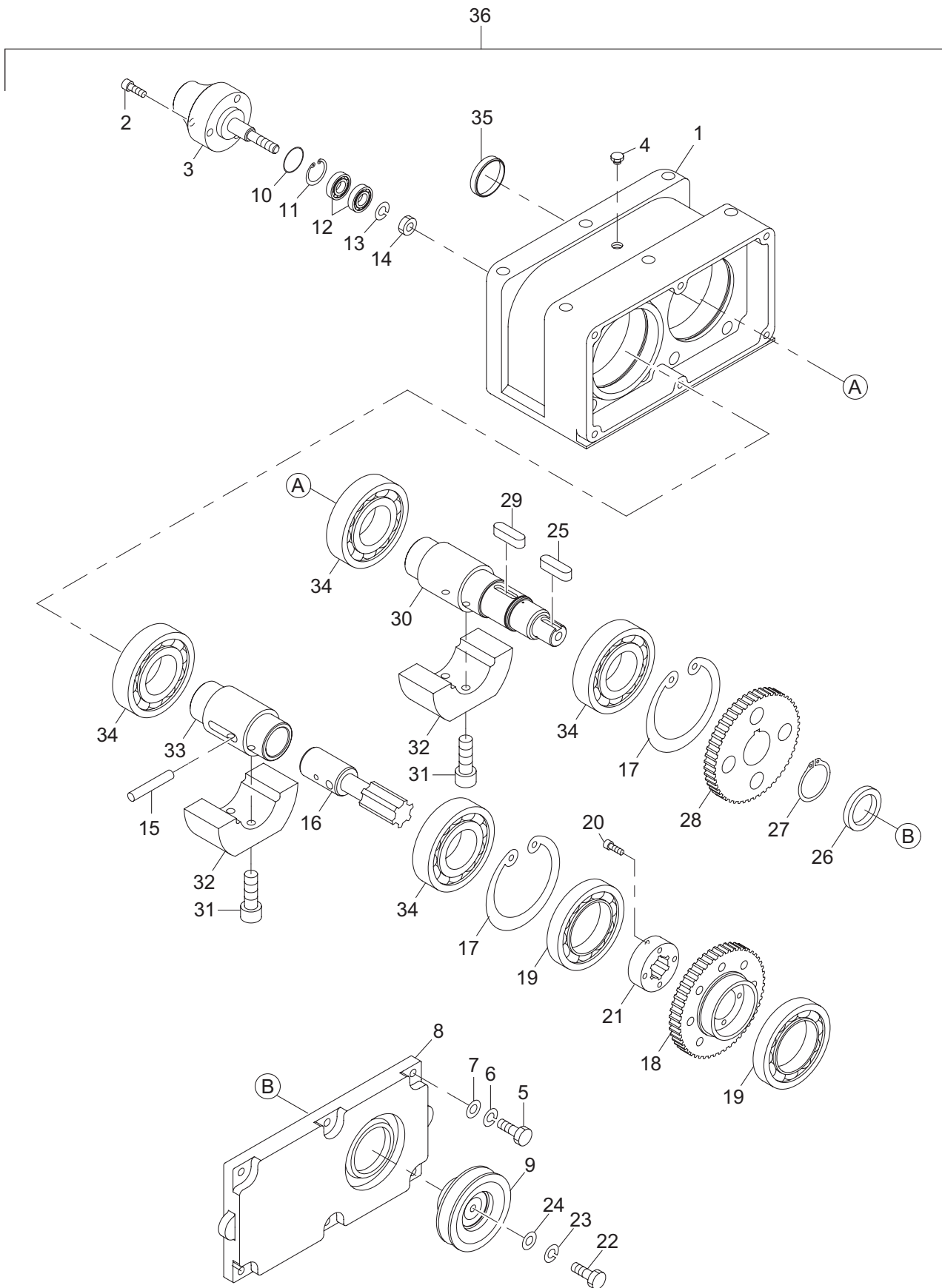
### 3. HANDLE (PF120)





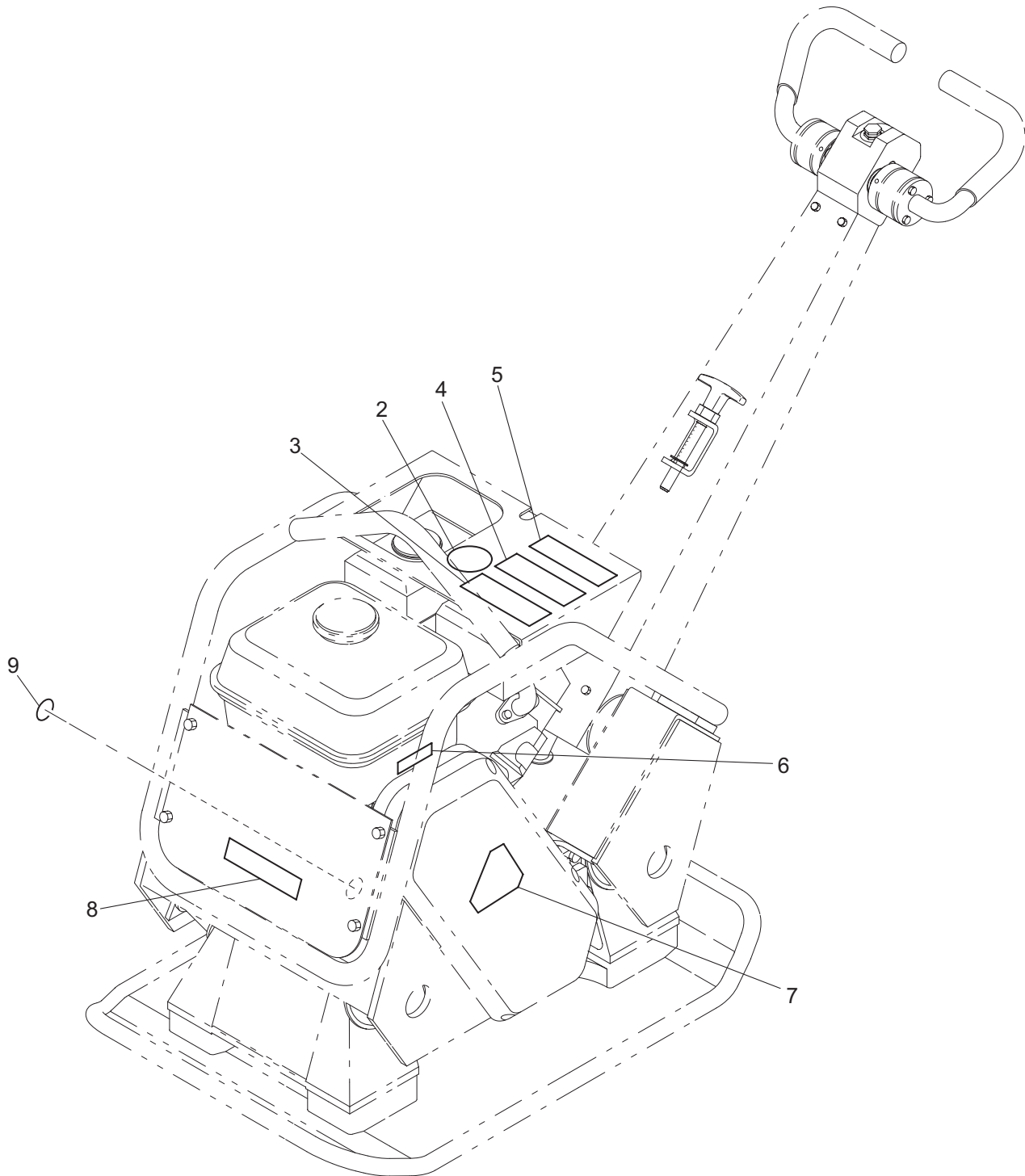
記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
1	2100-08060-1	ボルト	BOLT	2	
2	2170-08016-0	ワッシャ	WASHER	2	
3	2171-08020-0	スプリングワッシャ	SPRING WASHER	2	
4	3120-40014-0	ナット	NUT	2	
5	1487-47027-0	レバー	LEVER	2	
6	1487-47017-0	ハンドル	HANDLE	1	
7	3424-00027-0	グリップ	GRIP	1	
8	2120-12100-0	ナット	NUT	1	
9	1487-47014-0	スプリング	SPRING	1	
10	2170-12025-0	ワッシャ	WASHER	1	
11	2150-04020-0	スプリングピン	SPRING PIN	1	
12	1487-47013-0	ロッド	ROD	1	
13	0487-12001-1	ポンプ	PUMP	1	
14	2100-06016-1	ボルト	BOLT	6	
15	2171-06015-0	スプリングワッシャ	SPRING WASHER	6	
16	2100-08030-1	ボルト	BOLT	1	
17	2171-08020-0	スプリングワッシャ	SPRING WASHER	1	
18	2170-08016-0	ワッシャ	WASHER	1	
19	4911-21000-0	バンド	BAND	1	
20	2301-10092-2	ホース	HOSE	1	
21	2265-02002-2	アダプタ	ADAPTER	1	INC.22
22	2630-02011-0	Oリング	O-RING	1	
23	1487-47026-0	防振ゴム	DAMPER	2	
24	1487-47035-0	プレート	PLATE	2	
25	2107-06016-3	ボルト	BOLT	6	
26	2172-06010-1	コニカルワッシャ	CONICAL SPRING WASHER	6	
27	2150-05050-0	スプリングピン	SPRING PIN	2	
28	2100-08025-1	ボルト	BOLT	1	
29	2170-08016-0	ワッシャ	WASHER	1	
30	2171-08020-0	スプリングワッシャ	SPRING WASHER	1	
31	2120-08065-0	ナット	NUT	1	
32	4911-21000-0	バンド	BAND	1	
33	2100-08020-1	ボルト	BOLT	4	
34	2171-08020-0	スプリングワッシャ	SPRING WASHER	4	
35	2170-08016-0	ワッシャ	WASHER	4	
36	1492-47020-1	防振ゴム	DAMPER	2	
37	2461-12001-0	サハラネ	CONED DISC SPRING	8	
38	2580-12020-1	ブッシュ	BUSH	2	
39	2100-12050-1	ボルト	BOLT	2	
40	1579-47290-0	ナット	NUT	2	
41	1487-47036-0	グロメット	GROMMET	1	
42	2100-06012-1	ボルト	BOLT	2	
43	1487-12001-0	プラグ	PLUG	1	

# 4. VIBRATOR (PF120)



記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
1	1487-47001-0	ケース	CASE	1	
2	2107-08040-3	ボルト	BOLT	3	
3	4221-63000-0	シリンダ	CYLINDER	1	
4	2215-02002-3	プラグ	PLUG	1	
5	2100-08035-1	ボルト	BOLT	6	
6	2171-08020-0	スプリングワッシャ	SPRING WASHER	6	
7	2170-08016-0	ワッシャ	WASHER	6	
8	1487-47002-0	カバー	COVER	1	
9	1492-47012-2	プーリ	PULLEY	1	
10	2633-00360-0	Oリング	O-RING	1	
11	2194-02612-1	C-スナップリング	C-RETAINING RING	1	
12	2501-06000-0	ボールベアリング	BALL BEARING	2	
13	2171-10025-0	スプリングワッシャ	SPRING WASHER	1	
14	2120-10080-0	ナット	NUT	1	
15	1484-47021-0	ピン	PIN	1	
16	1487-47006-0	ギヤ	GEAR	1	
17	2194-10030-1	C-スナップリング	C-RETAINING RING	2	
18	1487-47004-0	ギヤ	GEAR	1	
19	2501-06914-0	ボールベアリング	BALL BEARING	2	
20	2107-06030-3	ボルト	BOLT	4	
21	1484-47009-0	ボス	BOSS	1	
22	2100-10020-1	ボルト	BOLT	1	
23	2171-10025-0	スプリングワッシャ	SPRING WASHER	1	
24	3931-00328-0	ワッシャ	WASHER	1	
25	2196-08025-1	キー	SUNK KEY	1	
26	2602-02085-0	オイルシール	OIL SEAL	1	
27	2194-04017-0	スナップリング	RETAINING RING	1	
28	1487-47003-0	ギヤ	GEAR	1	
29	2196-08032-1	キー	SUNK KEY	1	
30	1484-47007-0	シャフト	SHAFT	1	
31	2107-08030-3	ボルト	BOLT	4	
32	1488-47001-0	ウェイト	WEIGHT	2	
33	1487-47008-0	シャフト	SHAFT	1	
34	1591-47022-0	ボールベアリング	BALL BEARING	4	
35	1487-47040-0	キャップ	CAP	1	
36	0488-47001-0	起振体	VIBRATOR ASSY	1	INC.1-35

## 5. NAME PLATE (PF120)

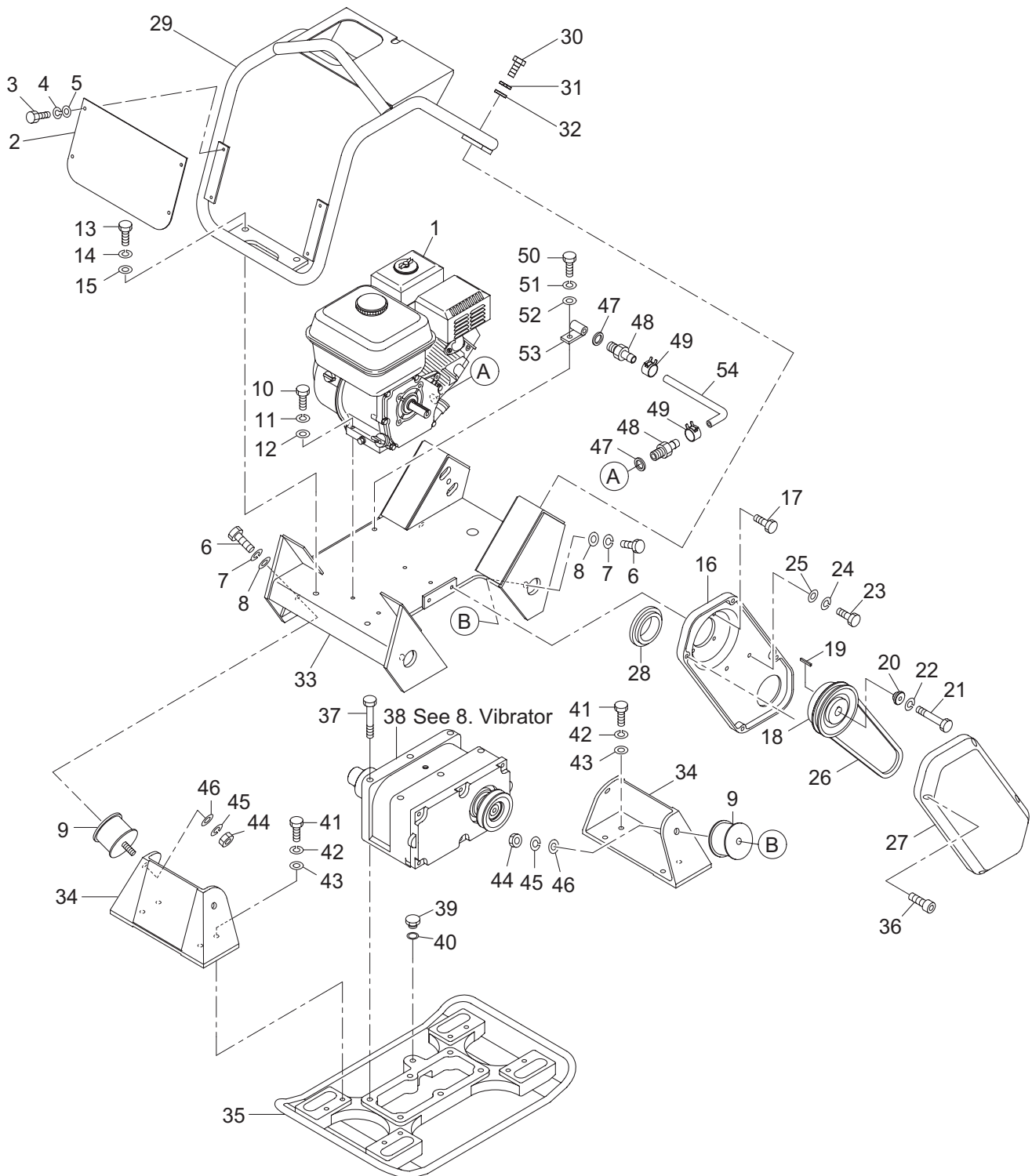


0488-19803-0-10019-0

## PARTS CATALOGUE

記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
2	3998-06140-0	デカール	DECAL	1	NOTICE
3	3998-16490-0	デカール	DECAL	1	DANGER
4	3998-15491-2	デカール	DECAL	1	WARNING
5	1462-19006-0	デカール	DECAL	1	HOT
6	1487-19003-1	デカール	DECAL	1	V-BELT
7	1488-19003-0	デカール	DECAL	1	
8	1596-19003-0	デカール	DECAL	1	SAKAI
9	1579-47510-1	デカール	DECAL	1	OIL

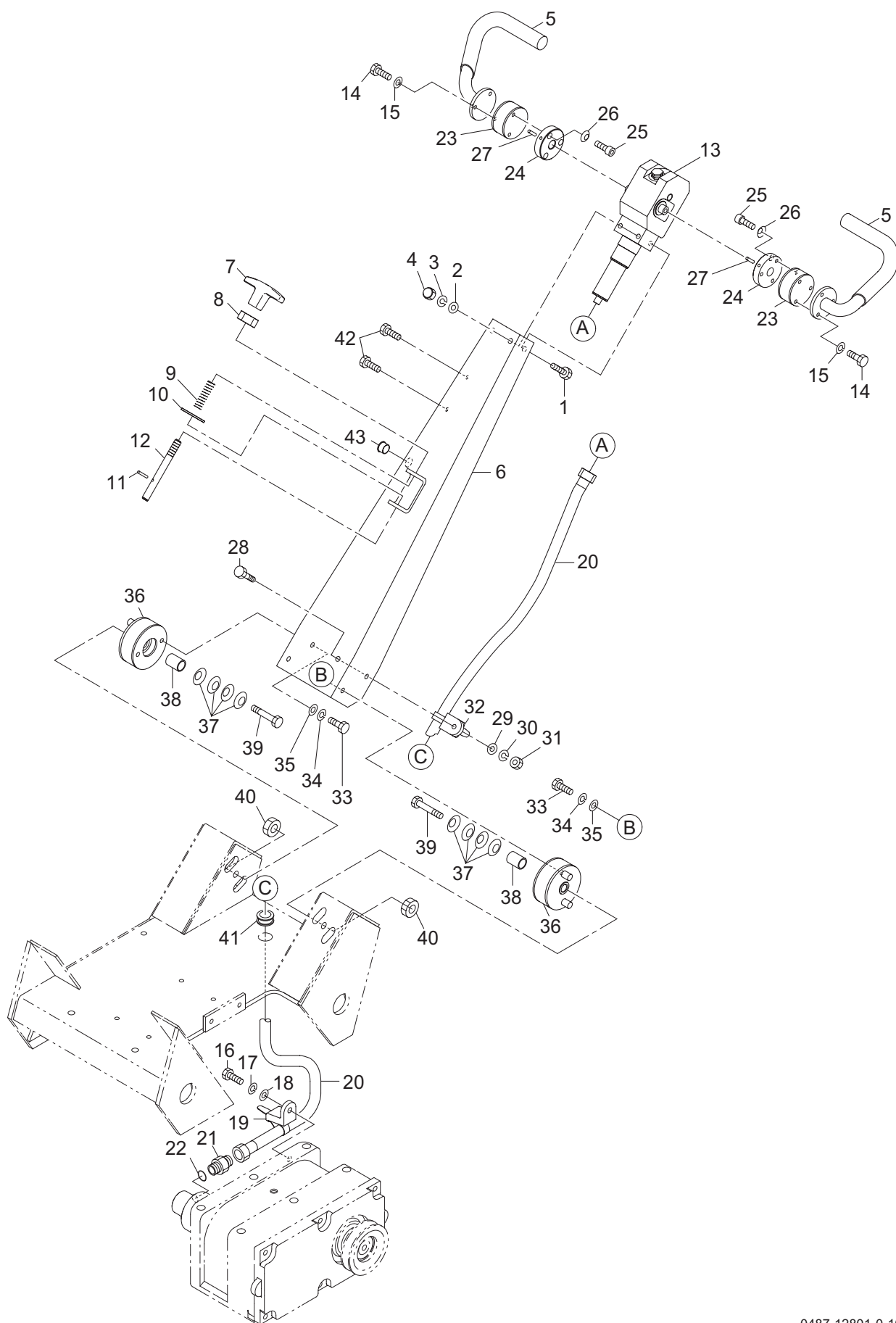
## 6. FRAME (PF150)



0487-47801-0-10042-A

記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
1	4032-50000-0	エンジン	ENGINE	1	HONDA GX200
2	1487-47023-0	カバー	COVER	1	
3	2100-06012-1	ボルト	BOLT	4	
4	2171-06015-0	スプリングワッシャー	SPRING WASHER	4	
5	2170-06016-0	ワッシャー	WASHER	4	
6	2100-12025-1	ボルト	BOLT	4	
7	2171-12030-0	スプリングワッシャー	SPRING WASHER	4	
8	2170-12025-0	ワッシャー	WASHER	4	
9	3460-40073-0	防振ゴム	DAMPER	4	
10	2100-08035-1	ボルト	BOLT	4	
11	2171-08020-0	スプリングワッシャー	SPRING WASHER	4	
12	2170-08016-0	ワッシャー	WASHER	4	
13	2100-12025-1	ボルト	BOLT	2	
14	2171-12030-0	スプリングワッシャー	SPRING WASHER	2	
15	2170-12025-0	ワッシャー	WASHER	2	
16	1487-47015-0	カバー	COVER	1	
17	1486-47093-0	ボルト	BOLT	4	
18	4421-56000-0	クラッチ	CLUTCH	1	
19	2196-05036-1	キー	SUNK KEY	1	
20	1487-47033-0	ワッシャー	WASHER	1	
21	2100-08035-1	ボルト	BOLT	1	
22	2171-08020-0	スプリングワッシャー	SPRING WASHER	1	
23	2100-08025-1	ボルト	BOLT	2	
24	2171-08020-0	スプリングワッシャー	SPRING WASHER	2	
25	2170-08016-0	ワッシャー	WASHER	2	
26	1487-47034-0	V-ベルト	V-BELT	1	
27	1487-47016-0	カバー	COVER	1	
28	1484-47025-0	カバー	COVER	1	
29	1487-47020-0	ガード	GUARD	1	
30	2100-12030-1	ボルト	BOLT	2	
31	2171-12030-0	スプリングワッシャー	SPRING WASHER	2	
32	2170-12025-0	ワッシャー	WASHER	2	
33	1487-47018-0	ベース	BASE	1	
34	1487-47022-0	ブラケット	BRACKET	2	
35	1487-47009-1	プレート	PLATE	1	
36	2107-08035-3	ボルト	BOLT	4	
37	2107-16160-3	ボルト	BOLT	6	
38	0487-47001-0	起振体	VIBRATOR ASSY	1	
39	1590-47024-0	プラグ	PLUG	1	
40	1466-47062-0	パッキン	PACKING	1	
41	2100-10030-1	ボルト	BOLT	8	
42	2171-10025-0	スプリングワッシャー	SPRING WASHER	8	
43	2170-10020-0	ワッシャー	WASHER	8	
44	2120-12100-0	ナット	NUT	4	
45	2171-12030-0	スプリングワッシャー	SPRING WASHER	4	
46	2170-12025-0	ワッシャー	WASHER	4	
47	1488-47003-0	パッキン	PACKING	2	
48	1488-47005-0	ニップル	NIPPLE	2	
49	1487-47038-0	クランプ	CLAMP	2	
50	2100-10020-1	ボルト	BOLT	1	
51	2171-10025-0	スプリングワッシャー	SPRING WASHER	1	
52	2170-10020-0	ワッシャー	WASHER	1	
53	1487-47037-0	ソケット	SOCKET	1	
54	1487-47039-0	ホース	HOSE	1	

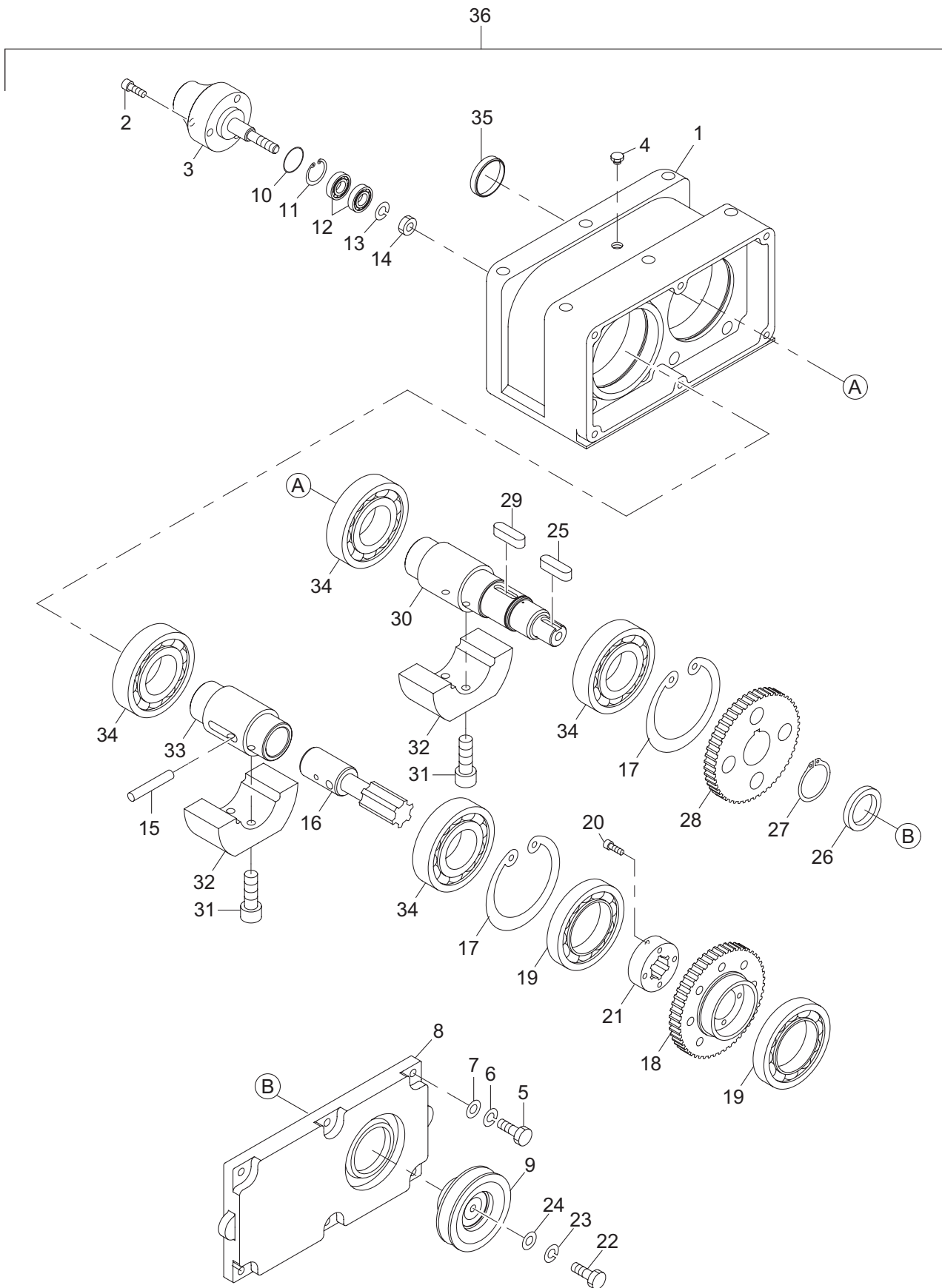
# 7. HANDLE (PF150)





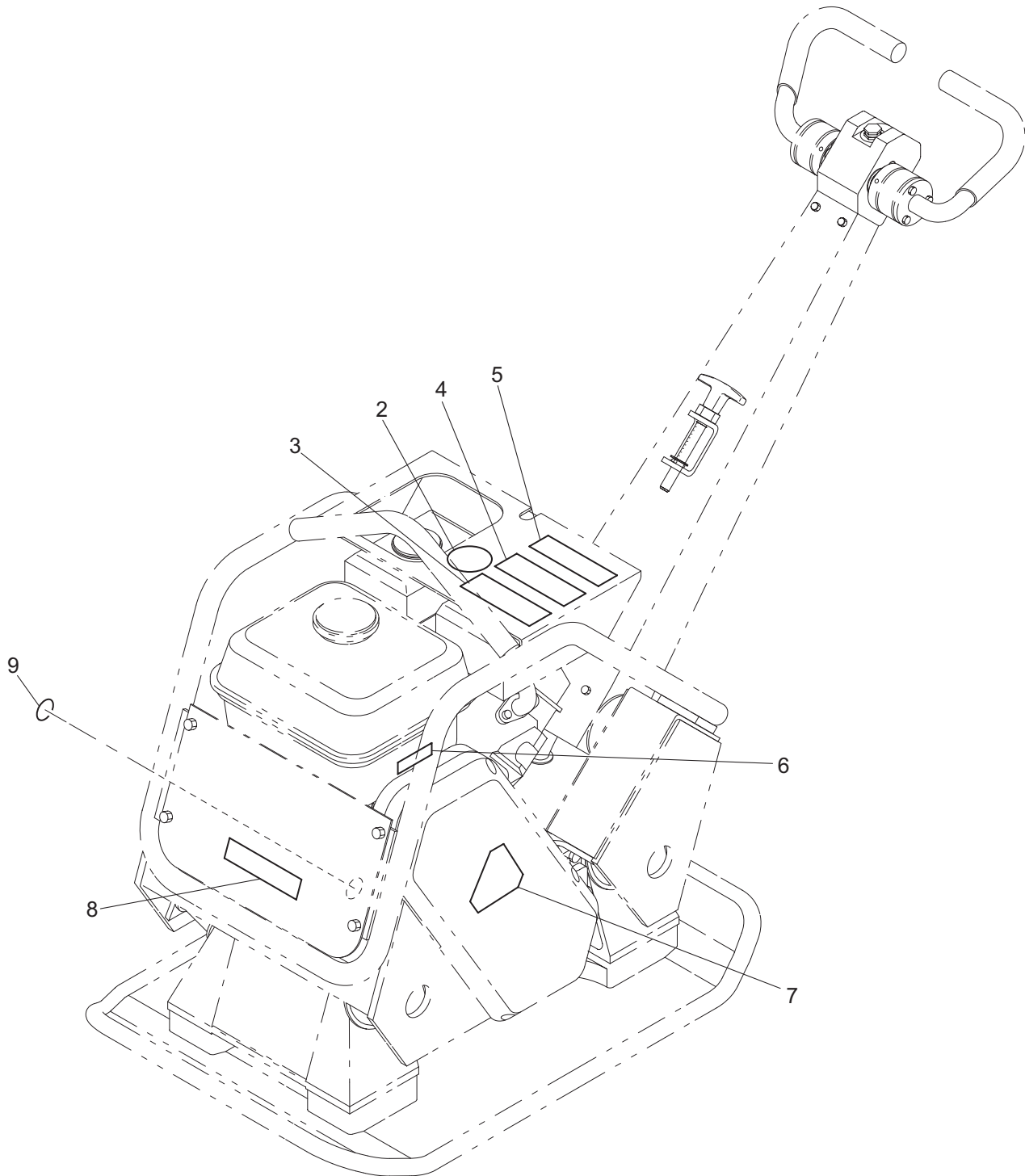
記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
1	2100-08060-1	ボルト	BOLT	2	
2	2170-08016-0	ワッシャ	WASHER	2	
3	2171-08020-0	スプリングワッシャ	SPRING WASHER	2	
4	3120-40014-0	ナット	NUT	2	
5	1487-47027-0	レバー	LEVER	2	
6	1487-47017-0	ハンドル	HANDLE	1	
7	3424-00027-0	グリップ	GRIP	1	
8	2120-12100-0	ナット	NUT	1	
9	1487-47014-0	スプリング	SPRING	1	
10	2170-12025-0	ワッシャ	WASHER	1	
11	2150-04020-0	スプリングピン	SPRING PIN	1	
12	1487-47013-0	ロッド	ROD	1	
13	0487-12001-1	ポンプ ASSY	PUMP ASSY	1	
14	2100-06016-1	ボルト	BOLT	6	
15	2171-06015-0	スプリングワッシャ	SPRING WASHER	6	
16	2100-08030-1	ボルト	BOLT	1	
17	2171-08020-0	スプリングワッシャ	SPRING WASHER	1	
18	2170-08016-0	ワッシャ	WASHER	1	
19	4911-21000-0	バンド	BAND	1	
20	2301-10097-2	ホース	HOSE	1	
21	2265-02002-2	アダプタ	ADAPTER	1	INC.22
22	2630-02011-0	Oリング	O-RING	1	
23	1487-47026-0	防振ゴム	DAMPER	2	
24	1487-47035-0	プレート	PLATE	2	
25	2107-06016-3	ボルト	BOLT	6	
26	2172-06010-1	コニカルワッシャ	CONICAL SPRING WASHER	6	
27	2150-05050-0	スプリングピン	SPRING PIN	2	
28	2100-08025-1	ボルト	BOLT	1	
29	2170-08016-0	ワッシャ	WASHER	1	
30	2171-08020-0	スプリングワッシャ	SPRING WASHER	1	
31	2120-08065-0	ナット	NUT	1	
32	4911-21000-0	バンド	BAND	1	
33	2100-08020-1	ボルト	BOLT	4	
34	2171-08020-0	スプリングワッシャ	SPRING WASHER	4	
35	2170-08016-0	ワッシャ	WASHER	4	
36	1492-47020-1	防振ゴム	DAMPER	2	
37	2461-12001-0	サハラネ	CONED DISC SPRING	8	
38	2580-12020-1	ブッシュ	BUSH	2	
39	2100-12050-1	ボルト	BOLT	2	
40	1579-47290-0	ナット	NUT	2	
41	1487-47036-0	グロメット	GROMMET	1	
42	2100-06012-1	ボルト	BOLT	2	
43	1487-12001-0	プラグ	PLUG	1	

# 8. VIBRATOR (PF150)



記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
1	1487-47001-0	ケース	CASE	1	
2	2107-08040-3	ボルト	BOLT	3	
3	4221-63000-0	シリンダ	CYLINDER	1	
4	2215-02002-3	プラグ	PLUG	1	
5	2100-08035-1	ボルト	BOLT	6	
6	2171-08020-0	スプリングワッシャ	SPRING WASHER	6	
7	2170-08016-0	ワッシャ	WASHER	6	
8	1487-47002-0	カバー	COVER	1	
9	1492-47012-2	プーリ	PULLEY	1	
10	2633-00360-0	Oリング	O-RING	1	
11	2194-02612-1	C-スナップリング	C-RETAINING RING	1	
12	2501-06000-0	ボールベアリング	BALL BEARING	2	
13	2171-10025-0	スプリングワッシャ	SPRING WASHER	1	
14	2120-10080-0	ナット	NUT	1	
15	1484-47021-0	ピン	PIN	1	
16	1487-47006-0	ギヤ	GEAR	1	
17	2194-10030-1	C-スナップリング	C-RETAINING RING	2	
18	1487-47004-0	ギヤ	GEAR	1	
19	2501-06914-0	ボールベアリング	BALL BEARING	2	
20	2107-06030-3	ボルト	BOLT	4	
21	1484-47009-0	ボス	BOSS	1	
22	2100-10020-1	ボルト	BOLT	1	
23	2171-10025-0	スプリングワッシャ	SPRING WASHER	1	
24	3931-00328-0	ワッシャ	WASHER	1	
25	2196-08025-1	キー	SUNK KEY	1	
26	2602-02085-0	オイルシール	OIL SEAL	1	
27	2194-04017-0	スナップリング	RETAINING RING	1	
28	1487-47003-0	ギヤ	GEAR	1	
29	2196-08032-1	キー	SUNK KEY	1	
30	1484-47007-0	シャフト	SHAFT	1	
31	2107-08030-3	ボルト	BOLT	4	
32	1487-47005-0	ウェイト	WEIGHT	2	
33	1487-47008-0	シャフト	SHAFT	1	
34	1591-47022-0	ボールベアリング	BALL BEARING	4	
35	1487-47040-0	キャップ	CAP	1	
36	0487-47001-0	起振体	VIBRATOR ASSY	1	INC.1-35

## 9. NAME PLATE (PF150)



0487-19803-0-10076-0

## PARTS CATALOGUE

記号 Key No.	部品番号 Parts No.	部品名称	Parts Name	数量 Q'ty	備考 Remarks
2	3998-06140-0	デカール	DECAL	1	NOTICE
3	3998-16490-0	デカール	DECAL	1	DANGER
4	3998-15491-2	デカール	DECAL	1	WARNING
5	1462-19006-0	デカール	DECAL	1	HOT
6	1487-19003-1	デカール	DECAL	1	V-BELT
7	1487-19008-0	デカール	DECAL	1	
8	1596-19003-0	デカール	DECAL	1	SAKAI
9	1579-47510-1	デカール	DECAL	1	OIL



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# **VIBRATOR**

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# 1. PRECAUTIONS FOR DISASSEMBLY AND REASSEMBLY

- When removing, installing, disassembling or reassembling the unit, observe the general precautions described below.

## 1) Precautions for removal work

- Coolant that contains antifreeze should be treated as a chemical, and must not be drained carelessly on the ground.
- To prevent dust from getting into disconnected hoses and tubes, cover them with a plug or similar means.
- When draining oil, use a receptacle with sufficient capacity to receive it.
- Before proceeding with the work, look for matchmarks that show the installation location. For reassembly, place matchmarks in the required locations to prevent errors. Then remove.
- When disconnecting wiring connectors, hold the connector components so that unreasonable force is not applied to the wires.
- Label wires and hoses to ensure correct installation location.
- When lifting parts, use lifting equipment of sufficient capacity.
- When separating parts by using pull bolts, tighten the bolts alternately.
- Before removing a unit, clean its surrounding area. Then after removal, cover it to prevent dust and other substances from getting in.
- Before removing piping for hydraulic oil or coolant, or removing related parts, satisfactorily release internal pressure.

## 2) Precautions for installation work

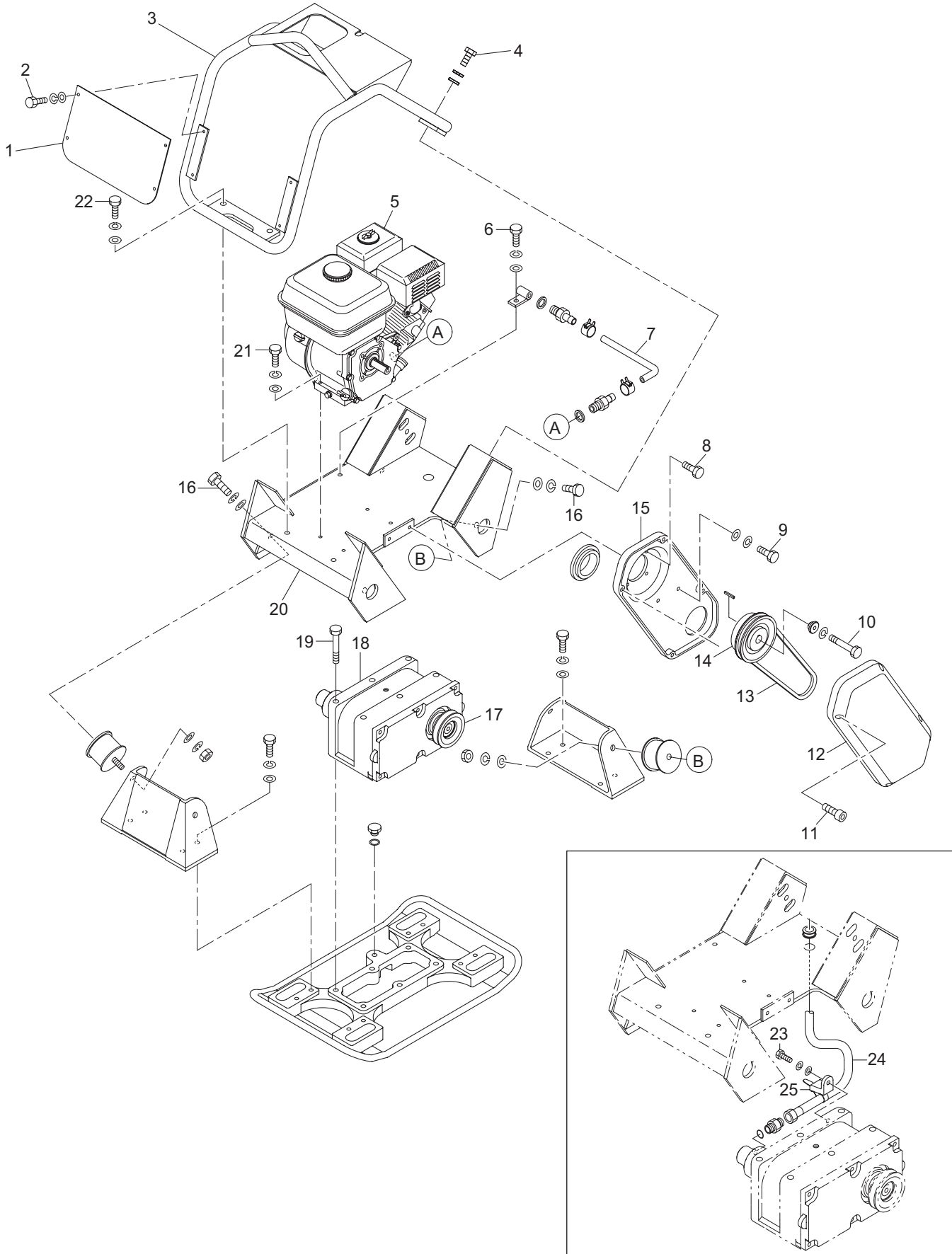
- Tighten bolts and nuts (sleeve nuts) to the specified torque (screw tightening torque table).
- When installing hoses, do not twist them or allow them to interfere with other parts.
- Replace gaskets, O-rings, split cotter pin, and lock plates with new parts.
- Properly bend split cotter pins and lock plates.
- When applying an adhesive, first clean and remove oil/grease from the surfaces properly. Then apply two or three drops to the threaded areas.
- When applying a liquid gasket, first clean and remove oil/grease from the application surface properly, and confirm that the surface is free of dust and damage. Then apply the product evenly.
- Clean parts well. Repair scratches, dents, burrs, rust, etc.
- Apply gear oil to rotating and sliding components.
- Apply grease to the surfaces of press-fit parts.
- After installing snap rings, confirm that they are properly seated in the grooves.
- Connect wiring connectors securely after cleaning off adhering oil, dust and water.
- Use lifting bolts that are not fatigued or deformed. Screw them in fully.
- When tightening a split flange, tighten screws alternately to prevent uneven tightening.
- Before installing hydraulic parts, confirm that they are free of damage and dust, etc.

## 3) Precautions when work is completed

- If coolant has been drained, securely retighten the drain cock and fill with coolant (mixing in long-life coolant) to the specified level. Start the engine and allow the coolant to circulate through the piping. Then add coolant again to the specified level.
- If hydraulic equipment has been removed and reinstalled, fill with hydraulic oil to the specified level. Start the engine and allow the oil to circulate through the piping. Then add oil again to the specified level.

## 2. REMOVAL AND INSTALLATION OF VIBRATOR

### 2-1. Removal of Vibrator



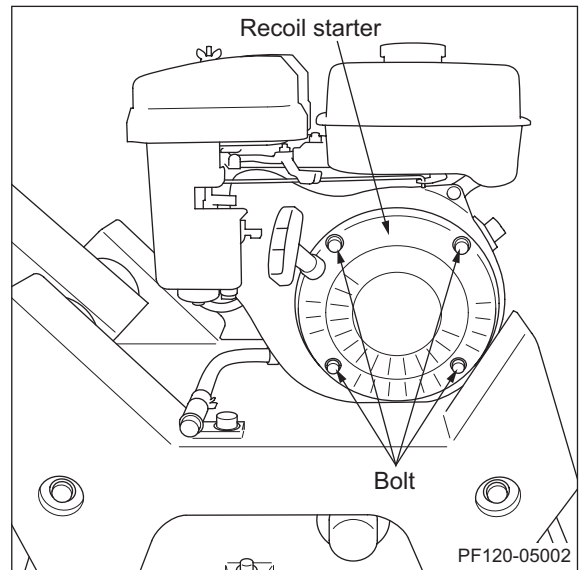
Part name and number in order of its removal	Q'ty	Remarks
1 : Safety cover	1	Remove the four M6 × 12 bolts (2).
3 : Safety guard	1	Remove the two M12 × 25 bolts (22) and the two M12 × 30 bolts (4).
12 : Belt cover	1	Remove the four M8 × 35 bolts (11).
13 : V-belt	1	<b>⚠ WARNING</b> <b>Be careful not to get your hands caught in the belt.</b>
14 : Centrifugal clutch	1	Refer to the 2-1-1. Removal of Centrifugal clutch .
17 : Pulley	1	Refer to the 2-1-2. Removal of Pulley.
15 : Cover	1	Remove the two M8 × 25 bolts (9) and the four M8 × 20 bolts (8).
5 : Engine	1	Remove the M10 × 20 bolt (6) and the engine drain hose (7).
		Remove the four M8 × 35 bolts (21).
20 : Base	1	Remove the M8 × 30 bolt (23) and the band (25).
		Disconnect the hydraulic hose (24). <b>(NOTE)</b> <b>• Attach a plug to the separated connection.</b>
		Remove the four M12 × 25 bolts (16).
18 : Vibrator assembly	1	Remove the four M16 × 160 bolts (19).

## VIBRATOR

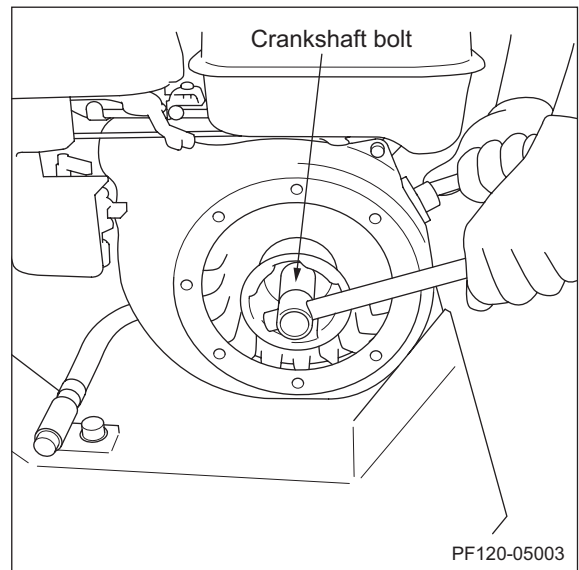
### 2-1-1. Removal of Centrifugal clutch

- The lead line numbers shown in the illustration below are consistent with the part numbers of the vibrator shown on page 5-002.

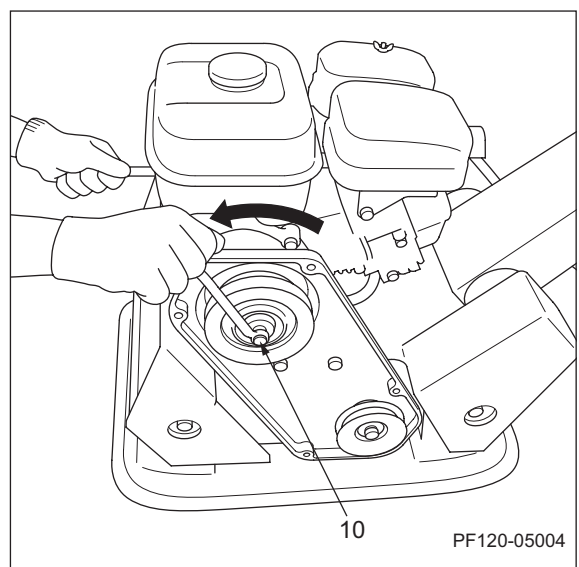
1) Remove the four bolts and recoil starter.



2) Hold down the crankshaft bolt.



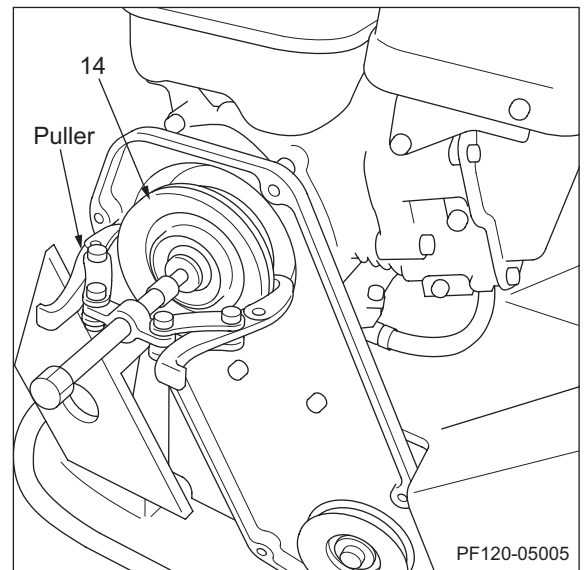
3) Rotate the M8 × 35 centrifugal clutch mounting bolt (10) in a counterclockwise direction to remove.



4) Use the puller to remove the centrifugal clutch (14).

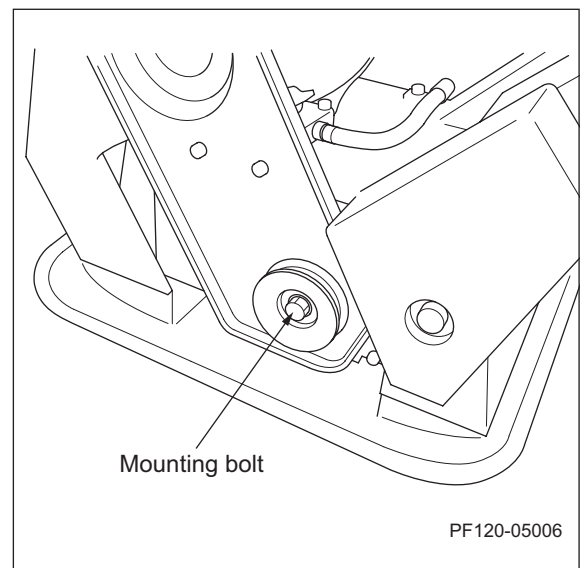
**CAUTION**

Be careful not to damage the thread groove of the crankshaft.



**2-1-2. Removal of Pulley**

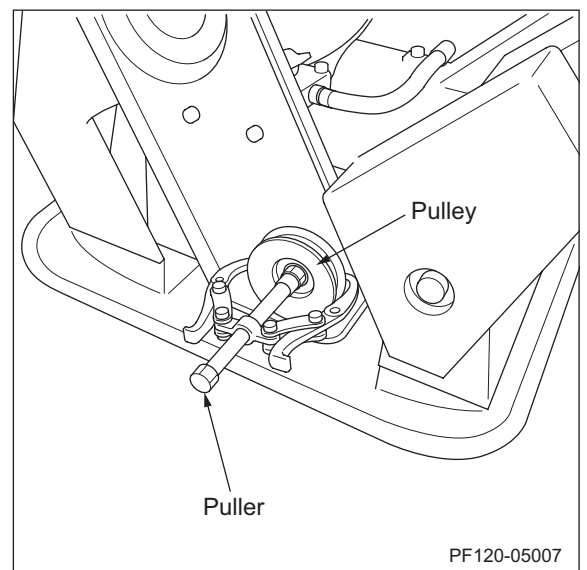
1) Remove the M10 × 20 pulley mounting bolt.



2) Use the puller to remove the pulley.

**CAUTION**

Be careful not to damage the thread groove of the shaft.



## 2-2. Installation of Vibrator

Install the vibrator assembly in the reverse order in which it was removed.

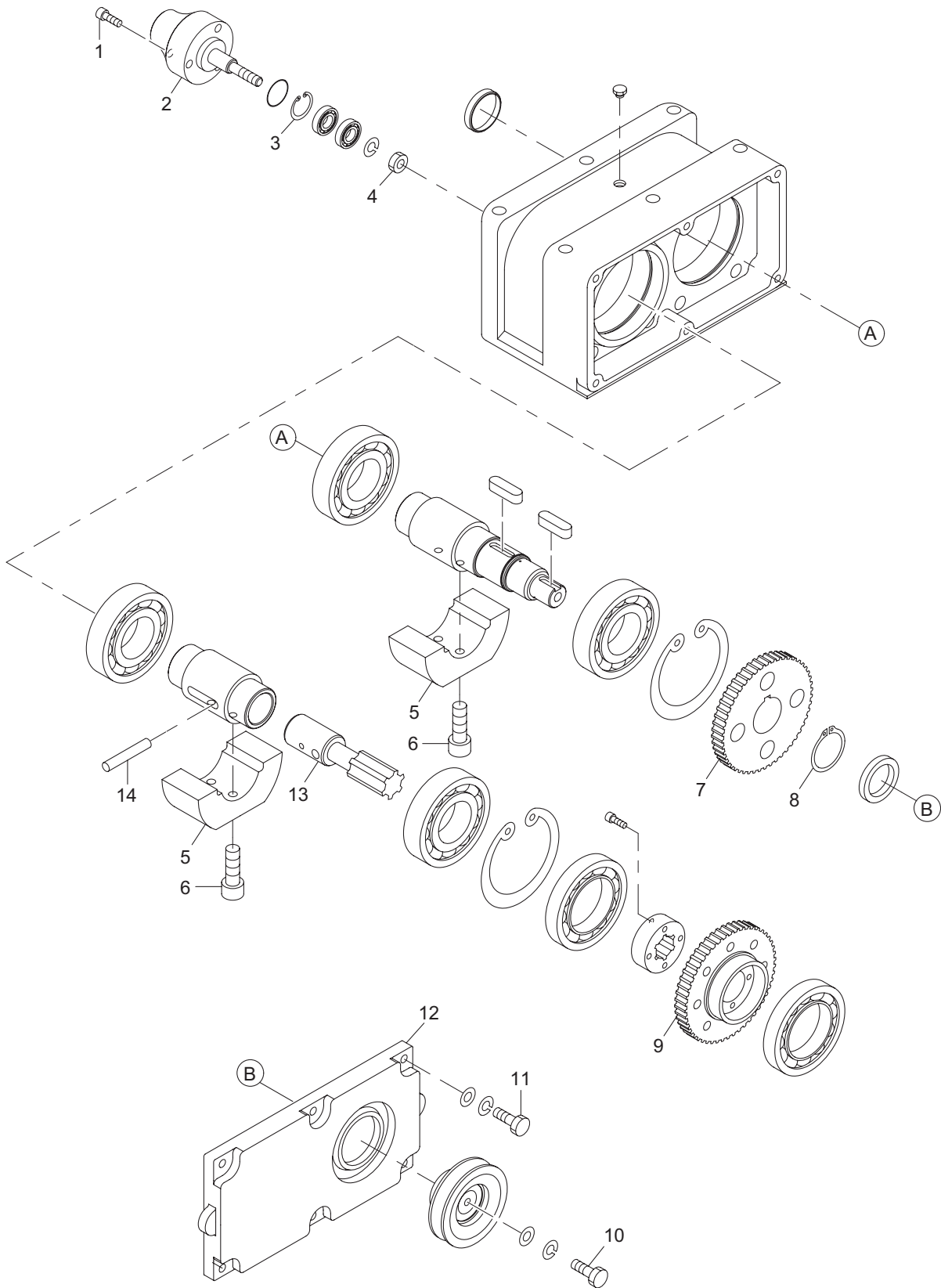
**(NOTICE)**

- When installing the vibrator assembly (18), apply liquid packing to the vibrator mounting surface.
- Apply a thread locking agent to the vibrator mounting bolt (19).
- Before mounting the engine (5) onto the base (20), temporarily install the cover (15) with two bolts (9) first to fix the engine mount position.
- Apply a thread locking agent to the M8 × 35 centrifugal clutch mounting bolt (10).
- Confirm the amount of hydraulic oil for the forward-reverse lever after installing the hydraulic hose (24).  
(Refer to P. 3-003)



### 3. DISASSEMBLY AND REASSEMBLY OF VIBRATOR

#### 3-1. Disassembly of Vibrator





Part name and number in order of its removal	Q'ty	Remarks
12 : Cover	1	Remove the six M8 × 35 bolts (11). <b>⚠ CAUTION</b> <b>Be careful not to damage the surface of joint parts and oil seal.</b>
7 : Gear (fixed weight side)	1	Remove the two M8 × 30 bolts (6) and the weight (5) on the fixed side shaft.
		Remove the retaining ring (8).
13 : Gear (variable weight side)	1	Remove the two M8 × 30 bolts (6) and the weight (5) on the variable side shaft.
		Remove the gear (9).
	1	Refer to 3-1-1. Removal of Pin.
	1	Remove the three M8 × 40 bolts (1) and the cylinder/gear assembly (2).
	1	Refer to 3-1-2. Removal of Gear.
2 : Cylinder	1	Remove the M10 nut (4).

## VIBRATOR

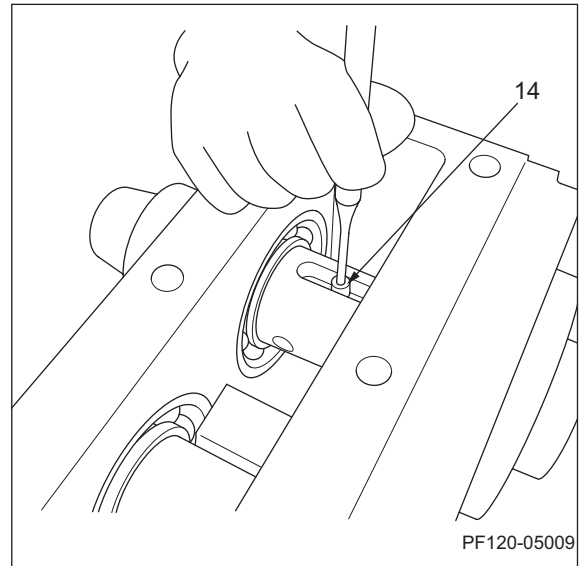
### 3-1-1. Removal of Pin

- The lead line numbers shown in the illustration below are consistent with the part numbers of the vibrator shown on page 5-007.

- 1) After removing the weight on the variable side shaft, tap the pin (14) out of the gear.

#### **CAUTION**

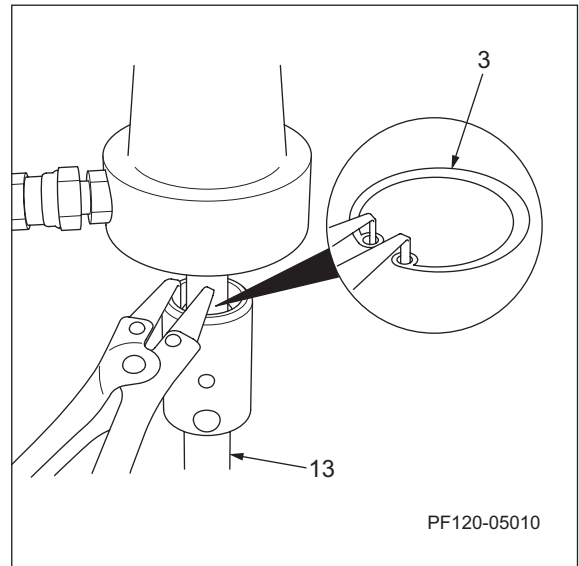
Be careful not to damage the gear.



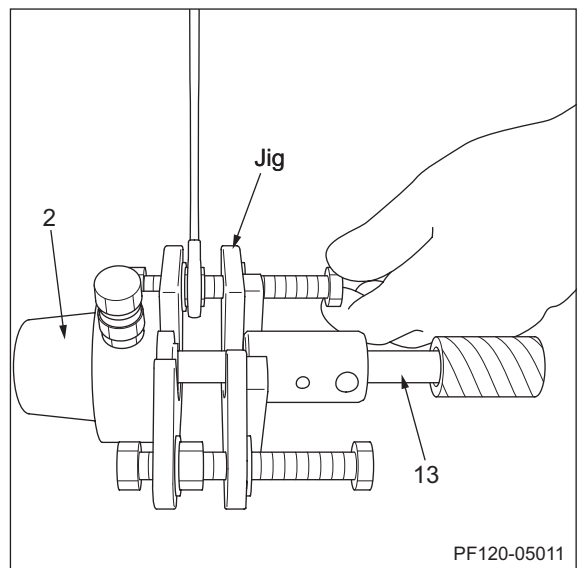
### 3-1-2. Removal of Gear

- The lead line numbers shown in the illustration below are consistent with the part numbers of the vibrator shown on page 5-007.

- 1) Undo the C-retaining ring (3) from gear (13).



- 2) Use a jig to remove the cylinder (2) from the gear (13).  
Jig part number: 9010-02023-0



## 3-2. Reassembly of Vibrator

Reassemble the vibrator in the reverse order in which it was disassembled.

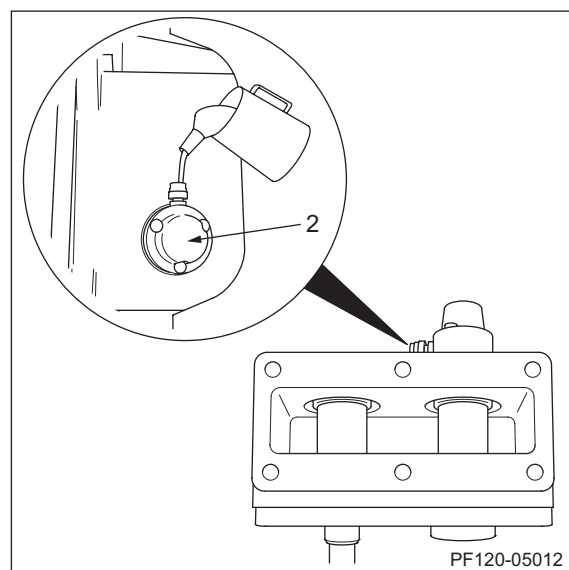
### (NOTICE)

- Before reassembling, clean the disassembled parts well and check that there is no abnormality.
- When mounting the shaft, gear, bearing and oil seal, apply gear oil to the slider.
- When installing the cylinder (2), bleed the air out of the cylinder. (Refer to 3-2-1)
- Install the pin (14) so that the protrusions sticking out of both sides of the shaft are equal.
- Perform the weight phase focusing procedure described below. (Refer to 3-2-2)
- When installing the cover (12), apply liquid packing to the cover mounting surface.
- After installing the vibrator, pour in the prescribed amount of oil. (Refer to P. 3-001)

### 3-2-1. Bleeding Air from the Cylinder

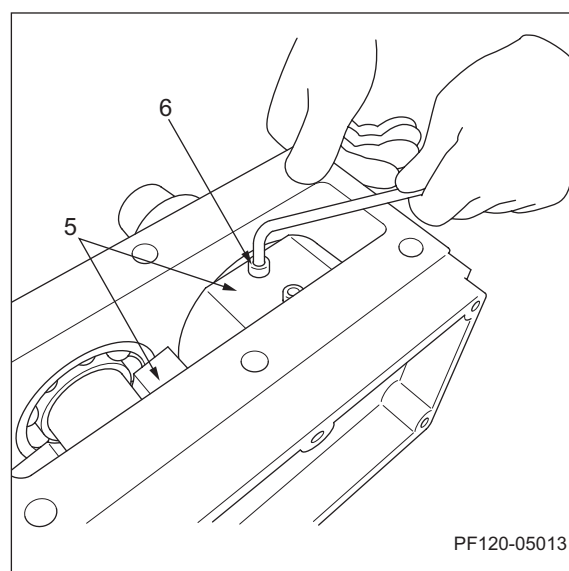
- The lead line numbers shown in the illustration below are consistent with the part numbers of the vibrator shown on page 5-007.

- 1) Take the plug out of the cylinder (2) and pour in the oil.
  - After pouring in the oil, turn the shaft lightly to bleed out the air.
  - Repeat this until air no longer comes out of the cylinder.
  - After bleeding the air out, insert the plug.



### 3-2-2. Weight Phase Focusing

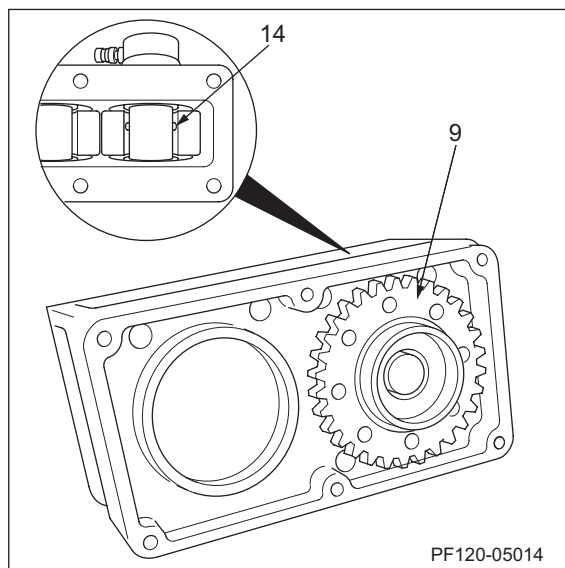
- 1) Apply a thread locking agent to the bolts (6)
  - Install both of the weights (5).



## VIBRATOR

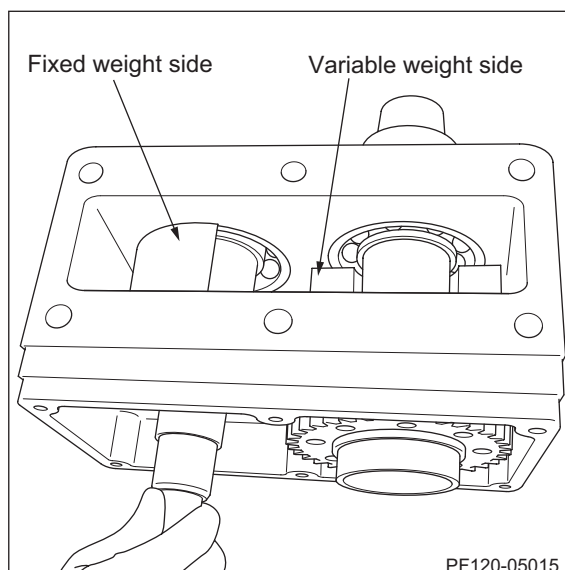
2) Install the gear (9) on the variable weight side shaft.

- Turn the gear (9) to install the pin as close as possible to the cylinder side.



3) Level off the weight on the variable side.

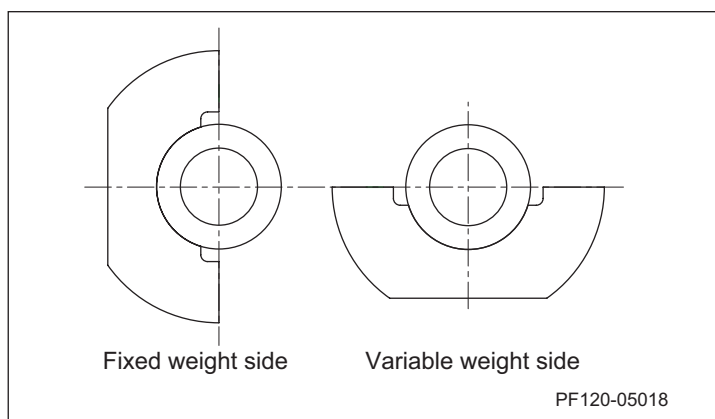
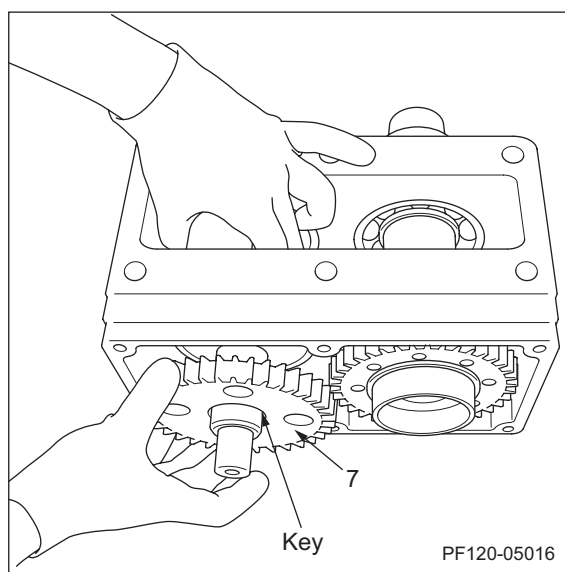
- Rotate the shaft on the fixed weight side
- Set the position of the fixed weight perpendicular as shown in the figure on the right.



4) While maintaining the position from Step 3), install the gear (7) on the fixed weight side by aligning it with the shaft key.

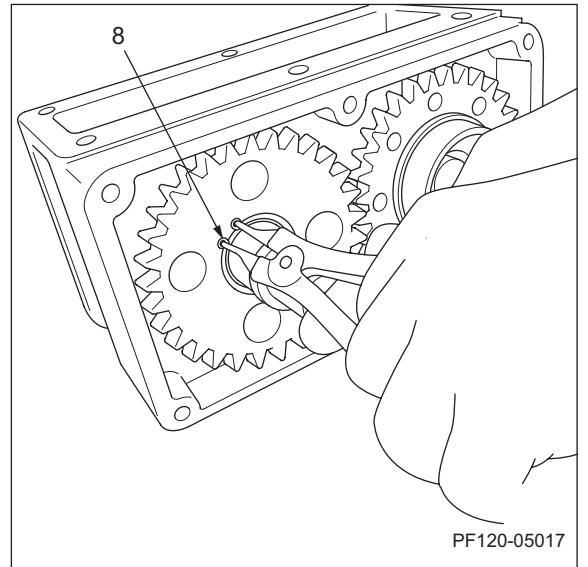
### (Notice)

- Confirm that the position of each weight is correct.



5) Install the retaining ring (8).

After installing the retaining ring, turn the gear on the variable weight side and check to see whether or not the pin (14) and gear (13) move smoothly.



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