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0105	

**Pump**

**PT 2 /...**

**PT 3 /...**

**REPAIR MANUAL**





This manual covers machines with Item Number:

**0009321, 0009322, 0009323, 0009098, 0009101, 0009240, 0009099,  
0009102, 0009241, 0009100, 0009103, 0009242, 0009318, 0009319,  
0009320, 0009092, 0009095, 0009237, 0009093, 0009096, 0009238,  
0009094, 0009097, 0009239**

## **Operating / Parts Information**

You must be familiar with the operation of this machine before you attempt to troubleshoot or make any repairs to it. Basic operating and maintenance procedures are described in the Operator's Manual supplied with the machine. Keep a copy of it with the machine at all times. Use the separate Parts Book supplied with the machine to order replacement parts. If either of the documents becomes lost, please contact Wacker Corporation to order a replacement.

Damage caused by misuse or neglect of the unit should be brought to the attention of the operator, to prevent similar occurrences from happening in the future.

This manual provides information and procedures to safely repair and maintain the above Wacker model(s). For your own safety and protection from injury, carefully read, understand, and observe all instructions described in this manual. THE INFORMATION CONTAINED IN THIS MANUAL IS BASED ON MACHINES MANUFACTURED UP TO THE TIME OF PUBLICATION. WACKER CORPORATION RESERVES THE RIGHT TO CHANGE ANY PORTION OF THIS INFORMATION WITHOUT NOTICE.

**CALIFORNIA****Proposition 65 Warning:**

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

**Laws Pertaining to Spark Arresters**

**Notice:** State Health Safety Codes and Public Resources Codes specify that in certain locations spark arresters be used on internal combustion engines that use hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arresters are qualified and rated by the United States Forest Service for this purpose.

In order to comply with local laws regarding spark arresters, consult the engine distributor or the local Health and Safety Administrator.

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## 1. Safety Information

This manual contains DANGER, WARNING, CAUTION, and NOTE callouts which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION:** Used without the safety alert symbol, CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**Note:** *Contains additional information important to a procedure.*

## 1.1 Operating Safety



Familiarity and proper training are required for the safe operation of equipment! Equipment operated improperly or by untrained personnel can be dangerous! Read the operating instructions contained in both this manual and the engine manual and familiarize yourself with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the equipment before being allowed to operate the machine.

- 1.1.1 NEVER allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with the risks and hazards associated with it.
- 1.1.2 NEVER use accessories or attachments that are not recommended by Wacker. Damage to equipment and injury to the user may result.
- 1.1.3 NEVER touch the engine or muffler while the engine is on or immediately after it has been turned off. These areas get hot and may cause burns.

NEVER pump volatile, flammable or low flash point fluids. These fluids could ignite or explode.

NEVER pump corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.
- 1.1.4 NEVER open priming plug when pump is hot. Never loosen or remove inlet or discharge hose fittings when pump is hot. Hot water inside could be pressurized much like the radiator on an automobile. Allow pump to cool to the touch before loosening plug and before loosening or removing inlet or discharge hose fittings.
- 1.1.5 NEVER open pump housing cover while pump is operating, or start pump with the cover off. The rotating impeller inside the pump can cut or sever objects caught in it.
- 1.1.6 NEVER block or restrict flow from inlet line or discharge line. Remove kinks from discharge line before starting pump. Operation with a blocked inlet line or discharge line can cause water inside pump to overheat.
- 1.1.7 ALWAYS be sure operator is familiar with proper safety precautions and operation techniques before using machine.
- 1.1.8 ALWAYS read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.
- 1.1.9 ALWAYS be sure machine is on a firm, level surface and will not tip, roll, slide, or fall while operating.
- 1.1.10 ALWAYS close fuel valve on engines equipped with one when machine is not being operated.



- 1.1.11 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.

## 1.2 Operator Safety while using Internal Combustion Engines



**DANGER**

Internal combustion engines present special hazards during operation and fueling! Read and follow warning instructions in engine owner's manual and safety guidelines below. Failure to follow warnings and safety guidelines could result in severe injury or death.

- 1.2.1 DO NOT smoke while operating machine.
- 1.2.2 DO NOT smoke when refueling engine.
- 1.2.3 DO NOT refuel hot or running engine.
- 1.2.4 DO NOT refuel engine near open flame.
- 1.2.5 DO NOT run engine near open flames.
- 1.2.6 DO NOT test for spark on gasoline-powered engines, if engine is flooded or the smell of gasoline is present. A stray spark could ignite fumes.
- 1.2.7 NEVER operate pump in enclosed or confined area.
- 1.2.8 ALWAYS refill fuel tank in well-ventilated area.
- 1.2.9 ALWAYS replace fuel tank cap after refueling.
- 1.2.10 Service Safety



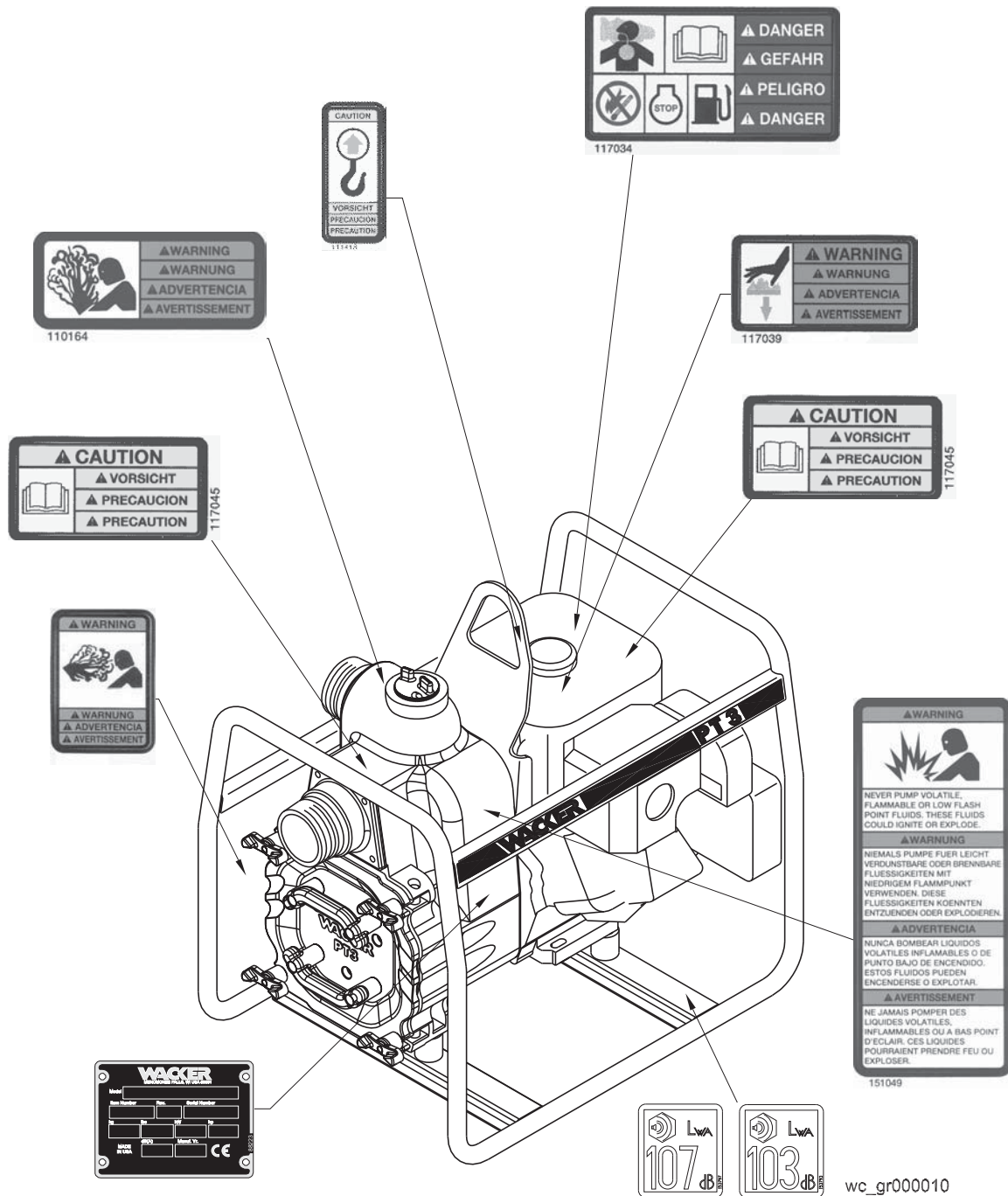
**WARNING**

Poorly maintained equipment can become a safety hazard! In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

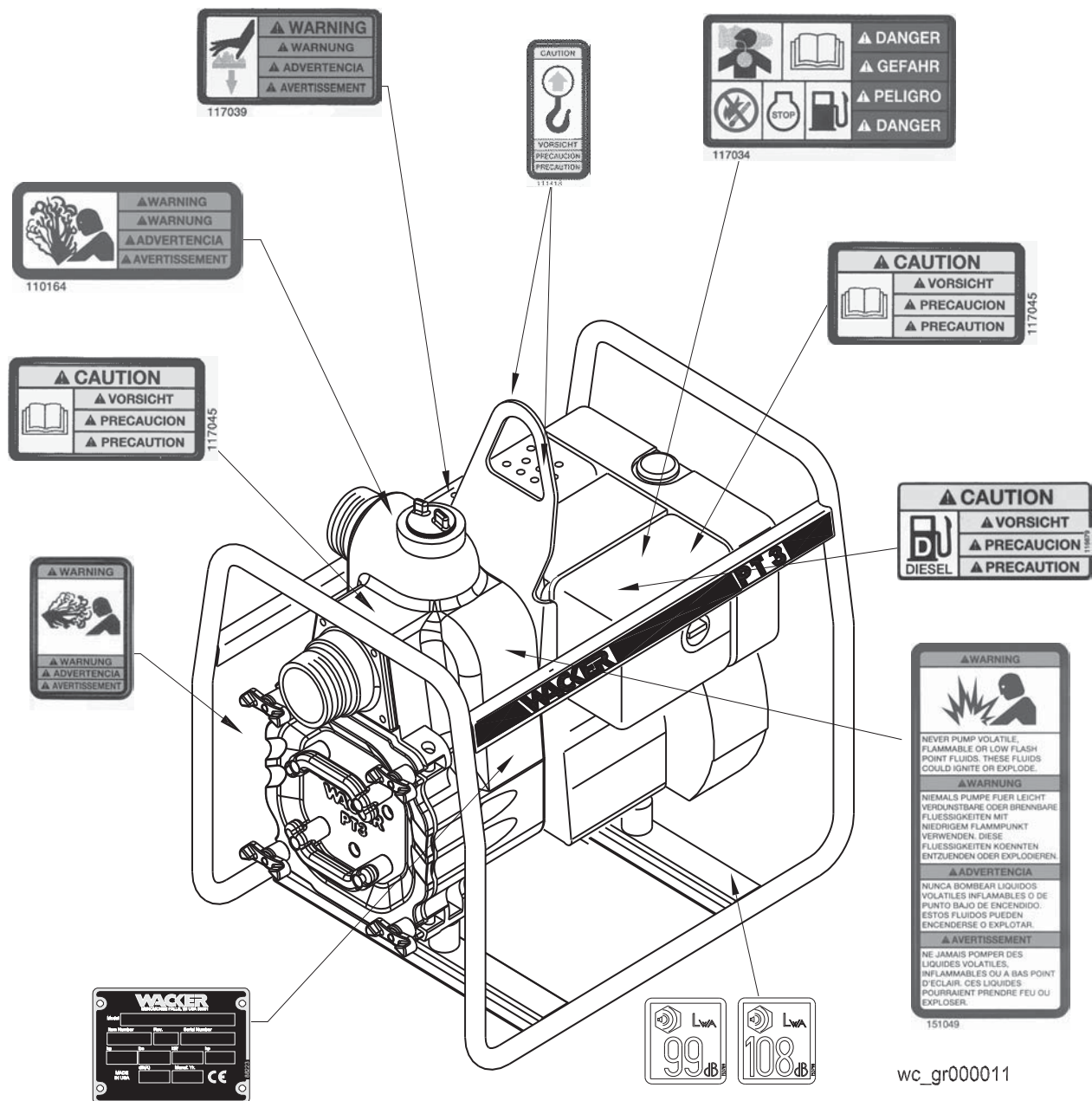
- 1.2.11 DO NOT attempt to clean or service machine while it is running. Rotating parts can cause severe injury.
- 1.2.12 DO NOT crank a flooded engine with the spark plug removed on gasoline-powered engines. Fuel trapped in the cylinder will squirt out the spark plug opening.
- 1.2.13 ALWAYS keep area around muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite them, starting a fire.
- 1.2.14 ALWAYS replace worn or damaged components with spare parts designed and recommended by Wacker.
- 1.2.15 ALWAYS disconnect spark plug on machines equipped with gasoline engines, before servicing, to avoid accidental start-up.
- 1.2.16 DO NOT use gasoline or other types of fuels or flammable solvents to clean parts, especially in enclosed areas. Fumes from fuels and solvents can become explosive.
- 1.2.17 ALWAYS handle impeller carefully. The impeller can develop sharp edges which can cut.



### 1.3 Label Locations (PT 2V / PT 3V)









## 1.4 Label Locations (PT 2H / PT 3H)




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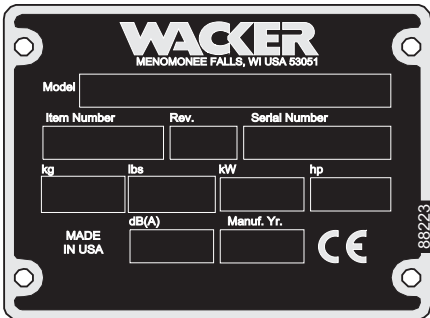

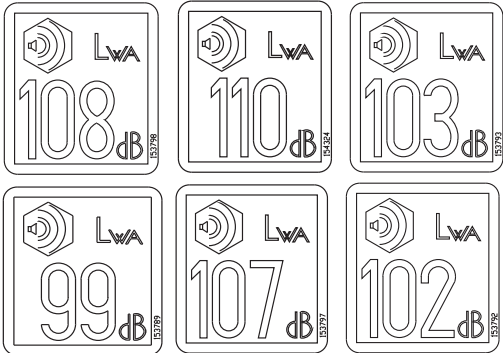
## 1.5 Safety Labels

Wacker machines use international pictorial labels where needed. These labels are described below:

Label	Meaning
 117034	<b>DANGER!</b> Engines emit carbon monoxide; operate only in well ventilated area. Read the Operator's Manual. No sparks, flames or burning objects near machine. Shut off engine before refueling.
 117039	<b>WARNING!</b> Hot surface!
 117045	<b>CAUTION!</b> Read and understand the supplied Operator's Manuals before operating this machine. Failure to do so increases the risk of injury to yourself or others.
 110164	<b>WARNING!</b> Do not open if pump is hot. Hot water and/or steam inside could be pressurized.
 151049	<b>WARNING!</b> Never pump volatile, flammable or low flash point fluids. These fluids could ignite or explode.
 111679	<b>CAUTION!</b> Use only clean, filtered diesel fuel.

Label	Meaning
	CAUTION! Lifting point.

## 1.6 Information Labels

Label	Meaning
	A nameplate listing the Model Number, Item Number, Revision, and Serial Number is attached to each unit. Please record the information found on this plate so it will be available should the nameplate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model, item number, revision number, and serial number of the unit.
	This machine may be covered by one or more patents.
	Guaranteed sound power level in dB(A).



## 2. Technical Data

## 2.1 Engine

Part No.	PT 3 0009321 0009322 0009323	PT 3A 0009098 0009101 0009240	PT 3V 0009099 0009102 0009241	PT 3H 0009100 0009103 0009242
Engine				
Engine Type	4-stroke, overhead valve, single cylinder		4-stroke, sin- gle cylinder, air cooled	4-stroke, air cooled, die- sel engine
Engine Make	Wacker	Honda	Briggs & Stratton	Hatz
Engine Model	WM270	GX 240 K1 QA	Vanguard 138432- 0134-E1	1B 30
Rated Power                      kW (Hp)	6.6 (9)	6 (8)	5.6 (7.6)	5.0 (7.0)
Displacement                      cm³ (in³)	265 (16.17)	242 (14.8)	215 (13.1)	347 (21.2)
Spark Plug	(NGK) BR 6HS Champion RL86C	(NGK) BPR 6ES BOSCH WR7DC	Champion	—
Electrode Gap                      mm (in)	0.028–0.031 (0.7–0.8)	0.028–0.031 (0.7–0.8)		—
Engine Speed - full load                      rpm	3500			
Engine Speed - idle                      rpm	1600 ±100			
Valve Clearance (cold) intake:                      mm (in.) exhaust:	—			0.10 (0.004) 0.20–0.25 (0.008–0.01)
Air Cleaner                      type	Dual Element			Dry Pleated Paper Ele- ment
Engine Lubrication                      oil grade	SAE 10W30 Service Class SF, SE, SD, or SC			CD, CE, CF, CG Rated
Engine Oil Capacity                      l (oz.)	1.1 (37)		0.9 (30)	1.1 (37)
Fuel                      type	Regular Unleaded Gasoline			No. 2 Diesel
Fuel Tank Capacity                      l (qts.)	6.0 (6.4)		4.5 (4.6)	5.0 (5.2)

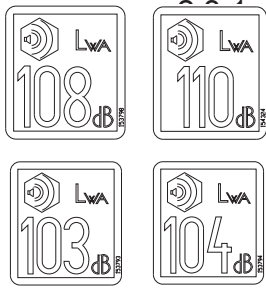
## 2.2 Pump

Part No.		<b>PT 3</b> 0009321 0009322 0009323	<b>PT 3A</b> 0009098 0009101 0009240	<b>PT 3V</b> 0009099 0009102 0009241	<b>PT 3H</b> 0009100 0009103 0009242
Pump					
Weight	kg (lbs.)	60 (132)	64 (141)	59 (130)	73 (161)
*Max. Suction Lift	m (ft.)	*7.5 (25)			
Max. Total Head	m (ft.)	29 (95)			
Max. Pressure	bar (psi)	2.83 (41)			
Max. Discharge	l/min (gpm)	1515 (400)			
Suction / Discharge Dia.	mm (in.)	75 (3)			
Max. Solid Size	mm (in.)	38 (1.5)			

\*Based on pump operating at sea level. Maximum suction lift will be less at higher altitudes.



## 2.3 Sound Measurements



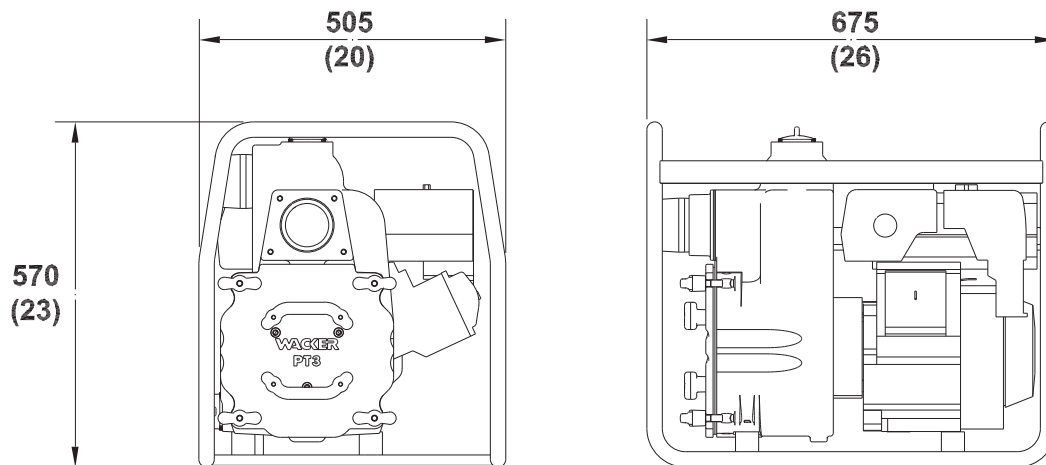
The required sound specification, per paragraph 1.7.4.f of 89/392/EEC Machinery Directive, is:

Guaranteed sound power level ( $L_{WA}$ ) = **PT 3A** 110 dB(A), **PT 3V** 103 dB(A), **PT 3H** 108 dB(A), **PT 3** 104 dB(A).

The sound pressure level at operator's location ( $L_{pA}$ ) = **PT 3A** 101 dB(A), **PT 3V** 91 dB(A), **PT 3H** 99 dB(A), **PT 3** 92 dB(A).

These sound values were determined according to ISO 3744 for the sound power level ( $L_{WA}$ ) and ISO 6081 for the sound pressure level ( $L_{pA}$ ) at the operator's location.

## 2.4 Dimensions



wc\_gr000012



## 3. Technical Data

## 3.1 Engine

Item No.	PT 2	PT 2A	PT 2V	PT 2H
	0009318 0009319 0009320	0009092 0009095 0009237	0009093 0009096 0009238	0009094 0009097 0009239
Engine				
Engine Type	4-stroke, overhead valve, single cylinder		4-stroke, single cylinder, air cooled	4-stroke, air cooled, diesel engine
Engine Make	Wacker	Honda	Briggs & Stratton	Hatz
Engine Model	WM170	GX 160 K1 TX2	Vanguard 117432-0235-E2	1B 20
Rated Power	kW (Hp)	4.5 (6)	4 (5.5)	4.5 (6)
Displacement	cm <sup>3</sup> (in <sup>3</sup> )	169 (10,3)	163 (9.4)	182 (11.1)
Spark Plug	(NGK) BR 6HS Champion RL86C	(NGK) BPR 6ES BOSCH WR7DC	Champion	—
Electrode Gap	mm (in)	0.024–0.028 (0.6–0.7)	0.028–0.031 (0.7–0.8)	—
Engine Speed - full load	rpm	3500		
Engine Speed - idle	rpm	1600 ±100		
Valve Clearance (cold)	mm (in.)	—	—	—
intake:				0.10 (0.004)
exhaust:				0.20–0.25 (0.008–0.01)
Air Cleaner	type	Dual Element		Dry Pleated Paper Element
Engine Lubrication	oil grade	SAE 10W30 Service Class SF, SE, SD, or SC		CD, CE, CF, CG Rated
Engine Oil Capacity	l (oz.)	0.6 (20)	.7 (24)	0.9 (34)
Fuel	type	Regular Unleaded Gasoline		No. 2 Diesel
Fuel Tank Capacity	l (qts.)	3.6 (3.8)	3,6 (3,8)	4,0 (4,2)
				3,0 (3,2)

### 3.2 Pump

Item No.		<b>PT 2</b>	<b>PT 2A</b>	<b>PT 2V</b>	<b>PT 2H</b>
		0009318	0009092	0009093	0009094
		0009319	0009095	0009096	0009097
		0009320	0009237	0009238	0009239
Pump					
Dimensions	mm (in.)	550 x 465 x 500 (21.7 x 18.3 x 19.6)		590 x 495 x 510 (23.2 x 19.4 x 20)	
Weight	kg (lbs.)	43 (96)		49 (107)	59 (131)
*Max. Suction Lift	m (ft.)	*7.5 (25)			
Max. Total Head	m (ft.)	32 (106)			
Max. Pressure	bar (psi)	3,2 (46)			
Max. Flow Rate	m <sup>3</sup> /hr (gpm)	48 (210)			
Suction / Discharge Dia.	mm (in.)	50 (2)			
Max. Solid Size	mm (in.)	25 (1)			

\*Based on pump operating at sea level. Maximum suction lift will be less at higher altitudes.

### 3.3 Sound Measurements



The required sound specification, Paragraph 1.7.4.f of 89/392/EEC Machinery Directive, is:

Guaranteed sound power level ( $L_{WA}$ ) = **PT 2A** 102 dB(A), **PT 2V** 99 dB(A), **PT 2H** 107 dB(A), **PT 2** 101 dB(A).

The sound pressure level at operator's location ( $L_{pA}$ ) = **PT 2A** 91 dB(A), **PT 2V** 88 dB(A), **PT 2H** 99 dB(A), **PT 2** 89 dB(A).

These sound values were determined according to ISO 3744 for the sound power level ( $L_{WA}$ ) and ISO 6081 for the sound pressure level ( $L_{pA}$ ) at the operator's location.

## 4. Maintenance

### 4.1 Periodic Maintenance Schedule

The chart below lists basic machine and engine maintenance. Refer to engine manufacturer's Operator's Manual for additional information on engine maintenance.

Pump	Daily before starting	After first 20 hrs.	Every 50 hrs.	Every 100 hrs.	Every 300 hrs.
Check and tighten external hardware.	•				
Inspect for leaks between pump and engine.	•				
Remove cover and clean sediment out of pump housing.	•				
Check housing cover O-rings.	•				
Inspect shockmounts for damage.	•				

Wacker / Honda / Vanguard	Daily before starting	After first 20 hrs.	Every 50 hrs.	Every 100 hrs.	Every 300 hrs.
Check fuel level.	•				
Check engine oil level.	•				
Inspect air filter. Replace as needed.	•				
Change engine oil.		•		•	
Clean air cleaner.			•		
Clean sediment cup.				•	
Check and clean spark plug.				•	

Hatz	Daily before starting	After first 20 hrs.	Every 50 hrs.	Every 250 hrs.	Every 500 hrs.
Change engine oil and filter.		•		•	
Clean cooling air system.			•		
Check and adjust valve clearances.				•	
Clean or replace air filter.					•
Replace fuel filter.					•

## 4.2 Engine Oil System (Hatz)

See Graphic: wc\_gr000023, wc\_gr002682

### Engine Oil Level

- 4.2.1 Check the oil with the machine standing on a level surface.
- 4.2.2 Clean around the dipstick.
- 4.2.3 Check the oil level on the extended dipstick **(a)**. If necessary, top up to the “max” mark.



#### WARNING

Engine may be hot enough to cause burns! Allow engine to cool prior to servicing.

### Changing Engine Oil

- 4.2.4 Change the oil with the machine standing on a level surface.
- 4.2.5 Run the engine for a few minutes and then stop the engine.
- 4.2.6 Drain the engine oil when it is still warm.

**Note:** In the interests of environmental protection, place a plastic sheet and a container under the machine to collect any liquid which drains off. Dispose of this liquid in accordance with environmental protection legislation.

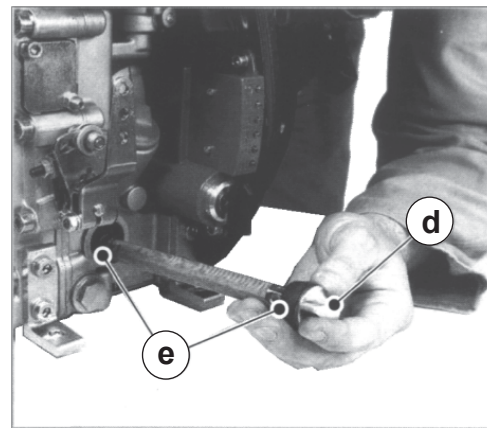
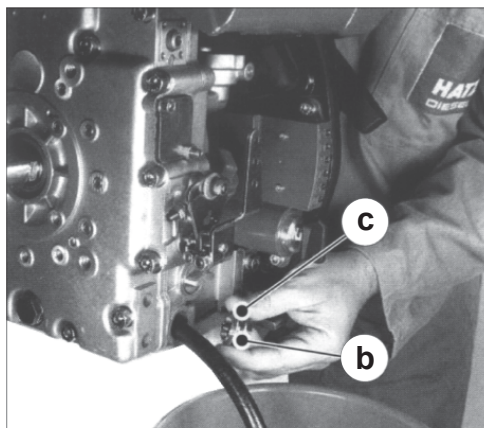
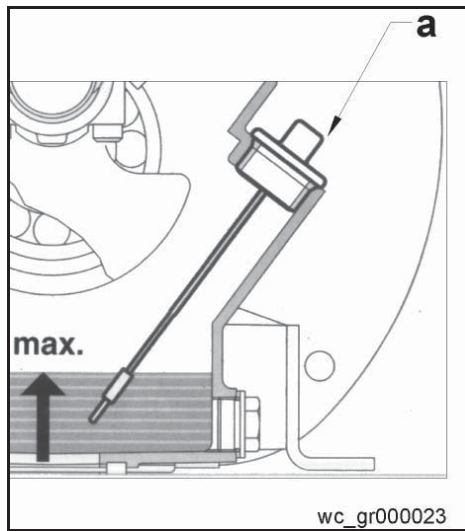


#### WARNING

Burn hazard. Care must be taken when draining hot engine oil. Hot oil can burn.

- 4.2.7 Unscrew the oil drain plug **(b)** and allow all the oil to drain into a container.
- 4.2.8 Clean the oil drain plug and attach a new seal **(c)**. Insert and tighten the plug.

- 4.2.9 Release filter screw **(d)** by hand and pull the oil filter out of its housing.
- 4.2.10 Use an air line to blow out oil filter dirt from the inside outwards.
- 4.2.11 Lightly oil the gaskets **(c)**.
- 4.2.12 Refit the oil filter. Apply slight pressure towards the engine block and tighten by hand.
- 4.2.13 Add engine oil.
- 4.2.14 Run for a short interval, then check at drain plug **(b)** for any leaks. Tighten if necessary.



### 4.3 Engine Oil (Wacker / Honda / Vanguard)

See Graphic: wc\_gr000022

4.3.1 Drain oil while the engine is still warm.

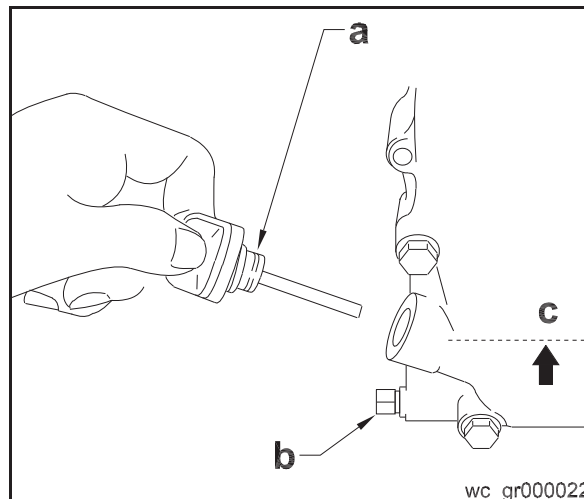
4.3.2 Remove the oil fill plug (a) and drain plug (b) to drain oil.

**Note:** In the interests of environmental protection, place a plastic sheet and a container under the machine to collect any liquid which drains off. Dispose of this liquid in accordance with environmental protection legislation.

4.3.3 Install drain plug.

4.3.4 Fill the engine crankcase with recommended oil up to the level of the plug opening (c). See *Technical Data* for oil quantity and type.

4.3.5 Install the oil filler plug.





## 4.4 Air Cleaner (Wacker)

See Graphic: wc\_gr000656



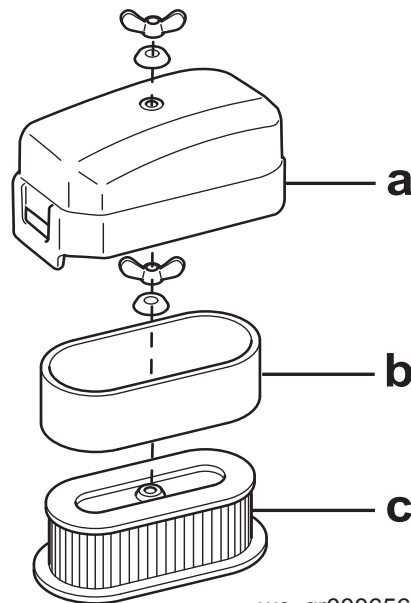
**WARNING**

NEVER use gasoline or other types of low flash point solvents for cleaning the air cleaner. A fire or explosion could result.

**CAUTION:** NEVER run engine without air cleaner. Severe engine damage will occur.

The engine is equipped with a dual element air cleaner. Under normal operating conditions, elements should be cleaned once every week. Under severe, dry and dusty conditions, the elements should be maintained daily. Replace an element when saturated with dirt that cannot be removed.

- 4.4.1 Remove the air cleaner cover **(a)**. Remove both elements and inspect them for holes or tears. Replace damaged elements.
- 4.4.2 Wash the foam element **(b)** in a solution of mild detergent and warm water. Rinse it thoroughly in clean water. Allow the element to dry thoroughly.
- 4.4.3 Tap the paper element **(c)** lightly to remove excess dirt or blow compressed air through the filter from the inside out. Replace the paper element if it appears heavily soiled.



wc\_gr000656

## 4.5 Air Cleaner (Honda)

See Graphic: wc\_gr000025

The engine is equipped with a dual element air cleaner. Service air cleaner frequently to prevent carburetor malfunction.

**CAUTION: NEVER** run engine without air cleaner. Severe engine damage will occur.

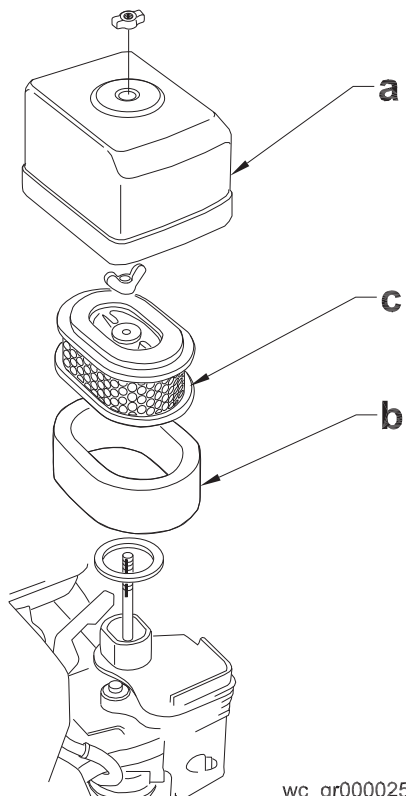


WARNING

**NEVER** use gasoline or other types of low flash point solvents for cleaning the air cleaner. A fire or explosion could result.

To service:

- 4.5.1 Remove air cleaner cover (a). Remove both elements and inspect them for holes or tears. Replace damaged elements.
- 4.5.2 Wash foam element (b) in solution of mild detergent and warm water. Rinse thoroughly in clean water. Allow element to dry thoroughly. Soak element in clean engine oil and squeeze out excess oil.
- 4.5.3 Tap paper element (c) lightly to remove excess dirt. Replace paper element if it appears heavily soiled.



wc\_gr000025

## 4.6 Air Cleaner (Vanguard)

See Graphic: wc\_gr000026

Service air cleaner frequently to prevent carburetor malfunction.

**CAUTION:** NEVER run engine without air cleaner. Severe engine damage will occur.



**WARNING**

NEVER use gasoline or other types of low flash point solvents for cleaning the air cleaner. A fire or explosion could result.

The engine is equipped with a dual element air cleaner. To service air cleaner:

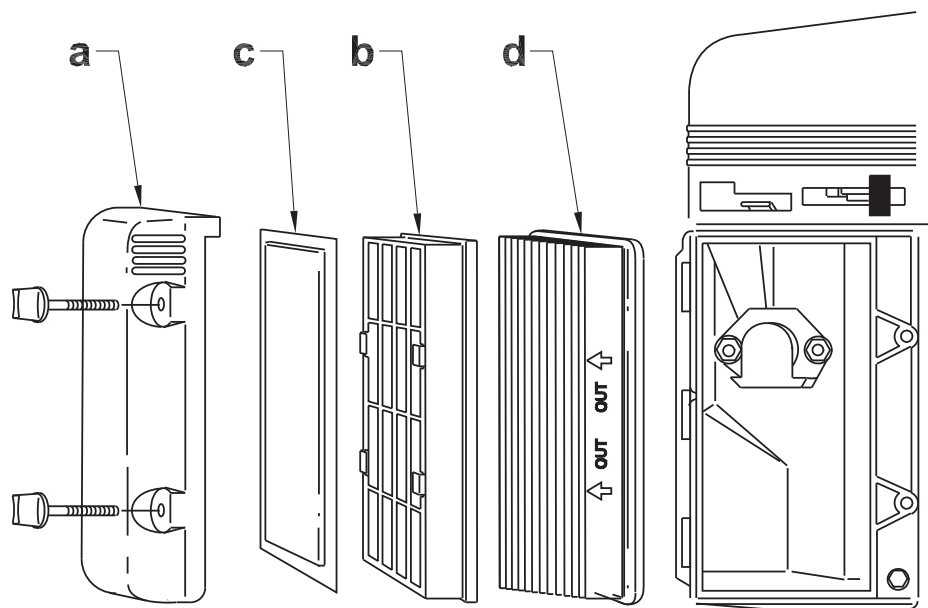
- 4.6.1 Loosen cover knobs and remove cover **(a)** from air cleaner assembly. Remove both elements and retainer **(b)**. Inspect elements for holes or tears. Replace damaged elements.

Foam element (pre-cleaner) **(c)**:

- 4.6.2 Wash in solution of mild detergent and warm water.  
4.6.3 Rinse thoroughly in clean water. Allow element to dry thoroughly.  
4.6.4 Soak element in clean engine oil and squeeze out excess oil.

Paper element **(d)**:

- 4.6.5 Tap element lightly to remove excess dirt. Replace paper element if it appears heavily soiled. Do not oil paper element.



wc\_gr000026

## 4.7 Air Cleaner (Hatz)

See Graphic: *wc\_gr000027*

The filter cartridge should always be replaced after 500 operating hours at the latest.

- 4.7.1 Remove the air cleaner cover (**a**).
- 4.7.2 Unscrew and remove knurled nut (**b**) and take off air cleaner element (**c**).
- 4.7.3 Clean the filter compartment and the cover. Dirt and other foreign debris must not be allowed to enter the engine's air inlet points.

The filter cartridge should either be replaced or, depending upon the degree of contamination, cleaned or checked, as follows:

### Dry Contamination:

- Use compressed air to blow through the filter cartridge from the inside outwards, until no further dirt emerges.

**CAUTION:** The air pressure must not exceed 73 psi (5 bar).

### Moist or Oily Contamination:

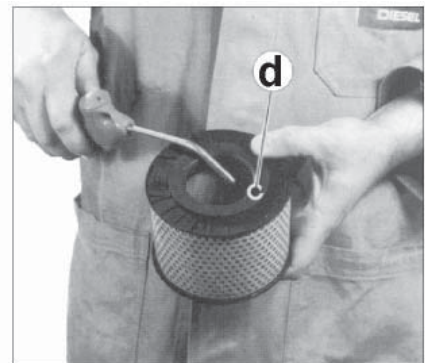
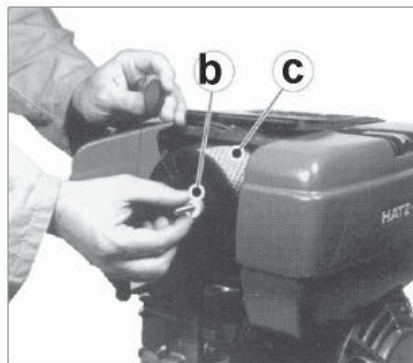
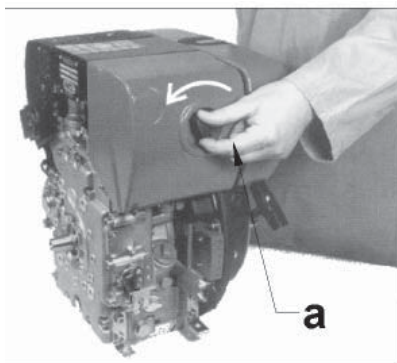
- Replace the filter cartridge.

### Checking the Filter Cartridge:

- Check filter cartridge's gasket surface (**d**) for damage.
- Check the filter cartridge for cracks or any other type of damage to the paper filter by holding it inclined towards the light or by shining a light source through it.

**CAUTION:** If there is the slightest damage to the paper filter, do not re-use.

- Re-assemble the filter cartridge in reverse order.



*wc\_gr000027*

## 4.8 Spark Plug (Wacker / Honda / Vanguard)

See Graphic: wc\_gr000028

Clean or replace spark plug as needed to ensure proper operation. Refer to the engine owner's manual.



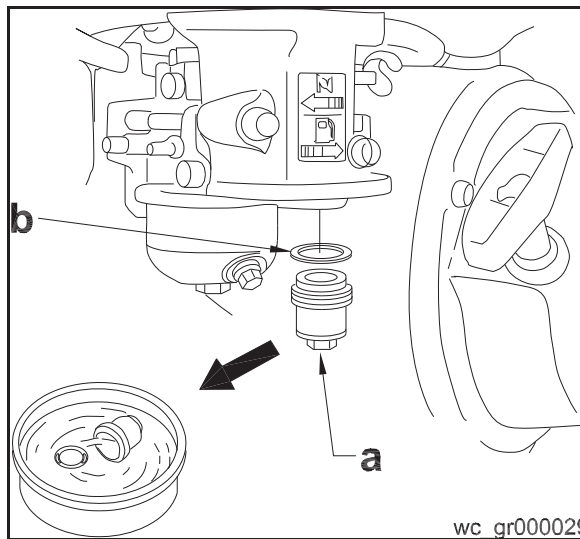
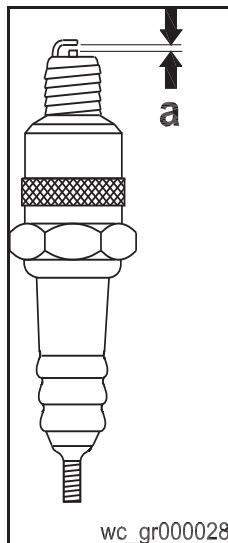
**WARNING**

The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Do not touch the muffler while it is hot.

**Note:** Refer to the Technical Data for the recommended spark plug type and the electrode gap setting.

- 4.8.1 Remove spark plug and inspect it.
- 4.8.2 Replace plug if the insulator is cracked or chipped.
- 4.8.3 Clean spark plug electrodes with a wire brush.
- 4.8.4 Set the electrode gap (a).
- 4.8.5 Tighten spark plug securely.

**CAUTION:** A loose spark plug can become very hot and may cause engine damage.



## 4.9 Sediment Cup (Honda)

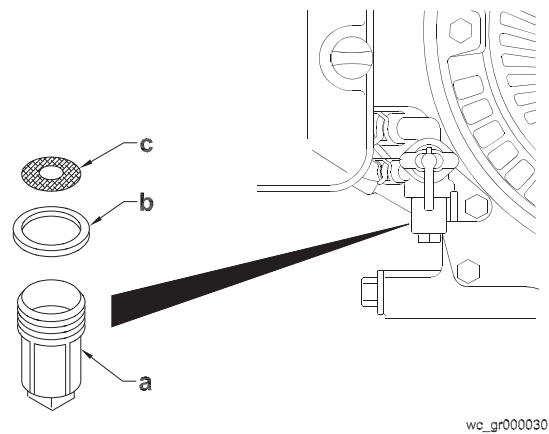
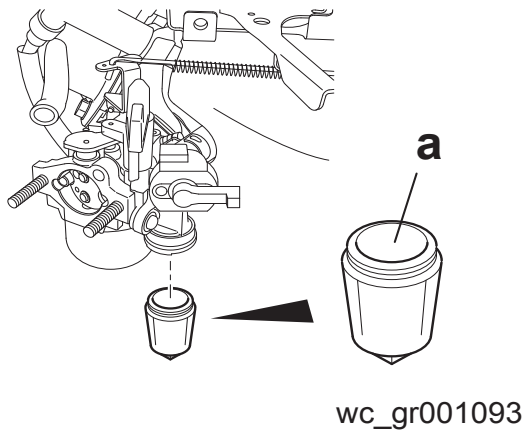
See Graphic: wc\_gr000029

- 4.9.1 Turn fuel valve off.
- 4.9.2 Remove sediment cup (a) and O-ring (b).
- 4.9.3 Wash both thoroughly in a nonflammable solvent. Dry and reinstall them.
- 4.9.4 Turn fuel valve on and check for leaks.

## 4.10 Cleaning Fuel Strainer (Wacker)

See Graphic: *wc\_gr001093*

- 4.10.1 To remove water and dirt, close the fuel lever and remove the fuel strainer.
- 4.10.2 Inspect fuel strainer **(a)** for water and dirt.
- 4.10.3 After removing dirt and water, wash the fuel cup with kerosene or gasoline.
- 4.10.4 Reinstall securely to prevent leakage.



## 4.11 Fuel Filter (Vanguard)

See Graphic: *wc\_gr000030*

- 4.11.1 Turn fuel valve off.
- 4.11.2 Remove bowl **(a)** gasket **(b)** and screen **(c)**.
- 4.11.3 Wash them thoroughly in a nonflammable solvent. Dry them and reinstall.
- 4.11.4 Turn fuel valve on and check for leaks.

## 4.12 Fuel Filter (Hatz)

See Graphic: wc\_gr000031

Fuel filter maintenance intervals depend on the purity of the diesel fuel used. If your fuel is dirty, perform this operation at 250 hours.

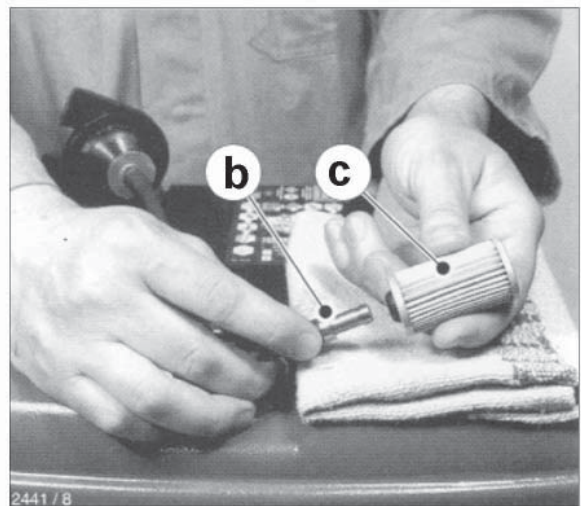


**WARNING**

Danger of explosion. Diesel fuel is flammable and must be treated with the necessary caution. Do not smoke. Avoid sparks and open flames.

- 4.12.1 Remove the fuel tank cap (**a**) and drain fuel tank.
- 4.12.2 Unscrew fuel line (**b**) at filter (**c**) and insert a new filter.
- 4.12.3 Fit the fuel filter again and close the tank cap.

**Note:** Bleeding of the fuel injection system takes place automatically.



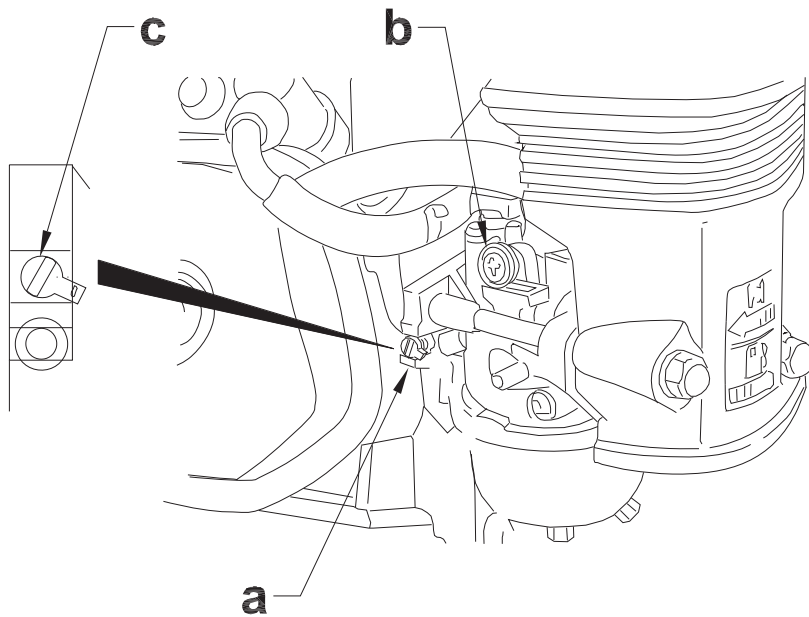
wc\_gr000031

### 4.13 Carburetor (Wacker / Honda)

See Graphic: wc\_gr000032

- 4.13.1 Start the engine and allow it to warm up to operating temperature.
- 4.13.2 Set the pilot screw **(a)** 2 turns out. See Note.
- 4.13.3 With the engine idling, turn the pilot screw **(a)** in or out to the setting that produces the highest rpm.
- 4.13.4 After the pilot screw is adjusted, turn the throttle stop screw **(b)** to obtain the standard idle speed. See *Technical Data*.

**Note:** On some engines the pilot screw is fitted with a limiter cap **(c)** to prevent excessive enrichment of the air-fuel mixture in order to comply with emission regulations. The mixture is set at the factory and no adjustment should be necessary. Do not attempt to remove the limiter cap. The limiter cap cannot be removed without breaking the pilot screw.



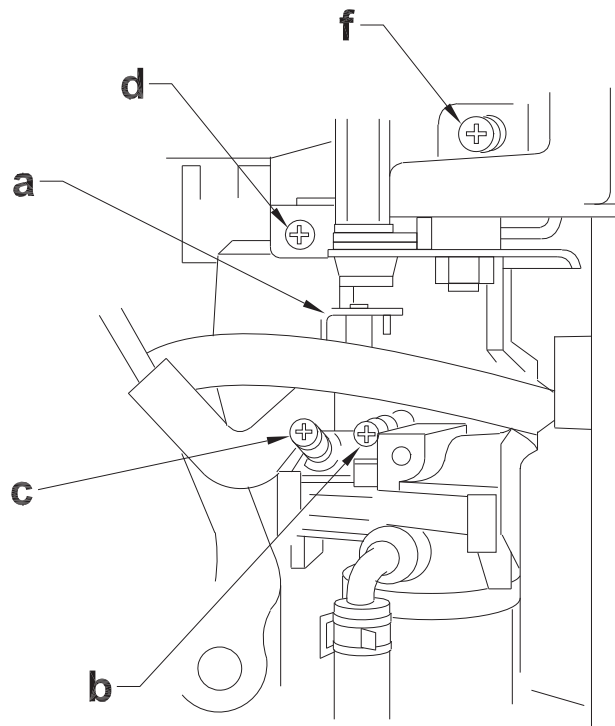
wc\_gr000032



## 4.14 Carburetor (Vanguard)

See Graphic: *wc\_gr000033*

- 4.14.1 Start engine and allow it to warm up to operating temperature.
- 4.14.2 Place throttle control in idle position. Hold carburetor throttle lever **(a)** against idle speed screw **(b)** to obtain 1300 RPM.
- 4.14.3 While still holding carburetor throttle lever against idle speed screw, turn idle mixture screw **(c)** clockwise (lean) or counterclockwise (rich) until engine runs smoothly. Release carburetor throttle lever.
- 4.14.4 Adjust governed idle screw **(d)** to 1400 RPM. Move throttle control to the fast position. Engine should accelerate smoothly. If it does not, readjust carburetor, usually to a slightly richer mixture, by turning idle mixture screw **(c)** 1/8 turn counterclockwise.
- 4.14.5 Adjust top speed screw **(f)** to 3500 RPM.



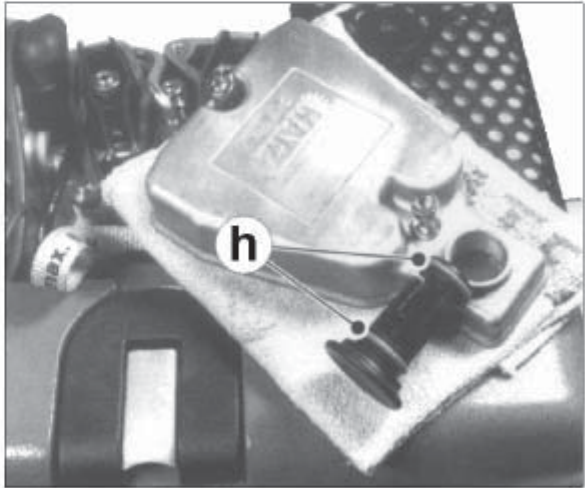
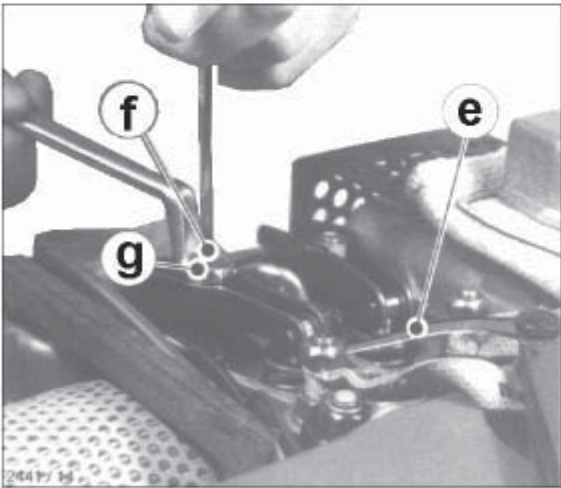
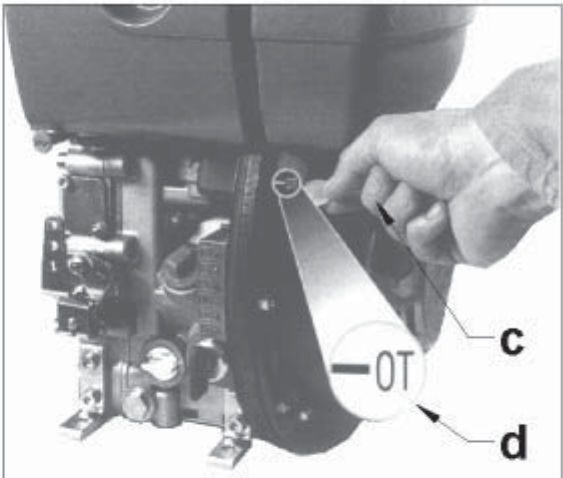
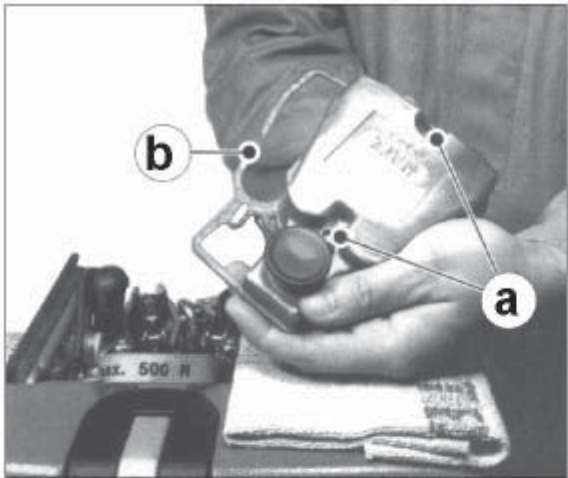
*wc\_gr000033*

## 4.15 Valve Clearances (Hatz)

See Graphic: *wc\_gr000034*

Only carry out adjustments when the engine is cold (42–62°F / 10–30°C).

- 4.15.1 Remove air cleaner cover and noise-insulating hood.
- 4.15.2 Remove any contamination adhering to the cover for the cylinder head.
- 4.15.3 Pull oil feed knob as far as the limit stop.
- 4.15.4 Remove screws **(a)** and take off the cylinder head cover with gasket **(b)**.
- 4.15.5 Remove rubber cap from the inspection hole cover **(c)**.
- 4.15.6 Turn the engine over in the normal direction of rotation until the valves are in the overlap position (exhaust valve not yet closed, inlet valve starts to open).
- 4.15.7 Turn crankshaft through 360° in direction of rotation and position it precisely at the TDC mark **(d)**.
- 4.15.8 Check valve clearance with feeler gauge **(e)**.  
**Note:** *Refer to the Technical Data for valve clearances.*
- 4.15.9 If valve clearances require adjusting, slacken off screw **(f)** and turn hex nut **(g)** until feeler gauge can be pulled through with just slight resistance when screw is retightened.
- 4.15.10 Check the O-rings **(h)** on the oil feed for cracks and/or damage.
- 4.15.11 Fit cover for cylinder head and tighten evenly, always using a new gasket.
- 4.15.12 Re-attach parts previously removed from engine.  
**Note:** *Don't forget to replace the rubber cap at the inspection hole cover.*
- 4.15.13 Carry out a brief test run, then check the cover for leaks.



wc\_gr000034

## 4.16 Adjusting Impeller Clearance

See Graphic: wc\_gr000035

If it is necessary to replace the impeller or the volute insert, be sure clearance between impeller and insert is adjusted correctly. The impeller **(a)** should be as close to the insert **(b)** as possible without rubbing against it. Clearance is adjusted by adding or removing shims **(c)**.

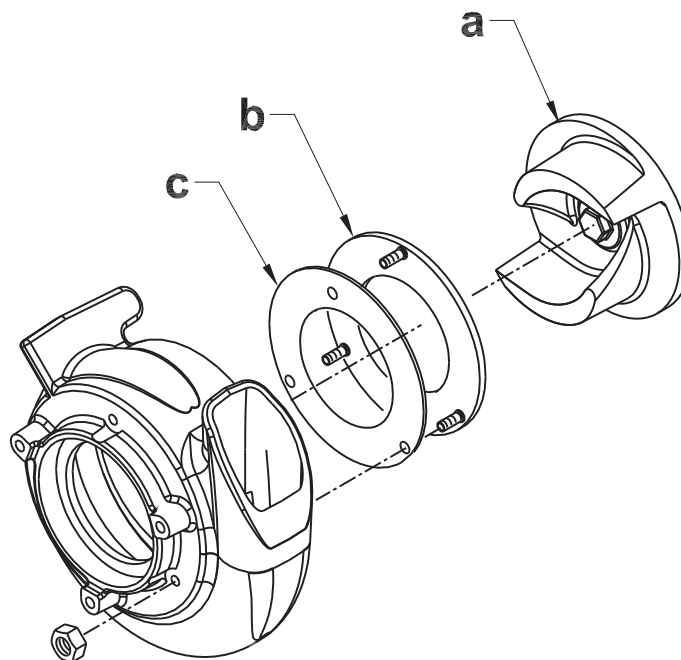
4.16.1 Remove spark plug (on units with Hatz engine, place speed control lever in STOP position) so that engine will not start.

4.16.2 Check clearance between impeller and insert by slowly pulling starter rope to turn impeller.

If starter rope is difficult to pull, or rubbing is heard from inside pump, the impeller and insert are too close to each other. Remove a shim from behind insert and check again for rubbing. Continue removing shims until impeller turns easily.

**Note:** *It is important not to remove too many shims or the clearance between the impeller and insert will become too wide and pump performance will be reduced.*

As the impeller wears down, additional shims may be required to maintain the clearance between the impeller and insert.



wc\_gr000035

## 4.17 Cleaning Pump

See Graphic: *wc\_gr000036*

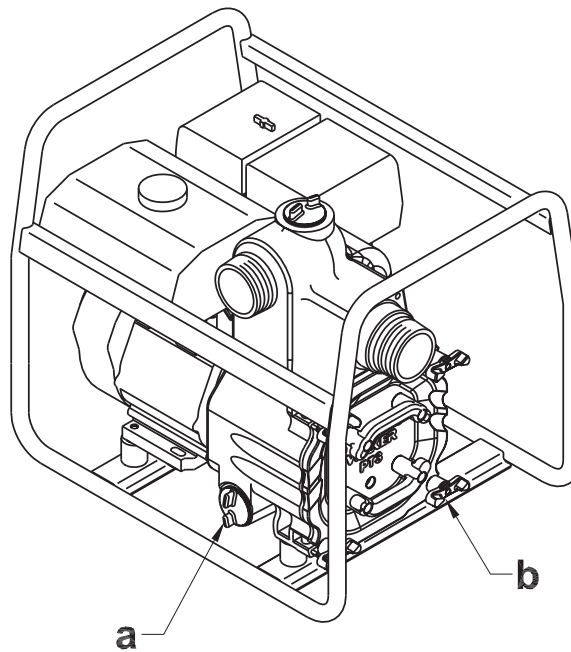
Clean inside of pump housing after every use.

- 4.17.1 Remove drain plug **(a)** from pump housing and drain any water left in pump.
- 4.17.2 Loosen the four knobs holding the pump cover **(b)** and remove cover.
- 4.17.3 Clean out dirt and debris. Inspect impeller and volute insert for wear.



**WARNING**

The impeller may develop sharp edges. Use care when cleaning around impeller to avoid getting cut.



*wc\_gr000036*

## 4.18 Storage

If pump is being stored for more than 30 days:



NEVER open priming plug, discharge plug, or cover when pump is hot.

- 4.18.1 Remove discharge plug from pump casing and drain out any water left in the housing after pump has cooled.
- 4.18.2 Remove pump cover and clean inside of pump housing. Coat inside of pump with a light film of oil to reduce corrosion. A spray can of oil works well for this.
- 4.18.3 Tape up suction and discharge ports to prevent anything from falling into pump.
- 4.18.4 Change engine oil and follow procedures described in engine manual for engine storage.
- 4.18.5 Cover pump and engine and store in a clean, dry area.

## 4.19 Accessories

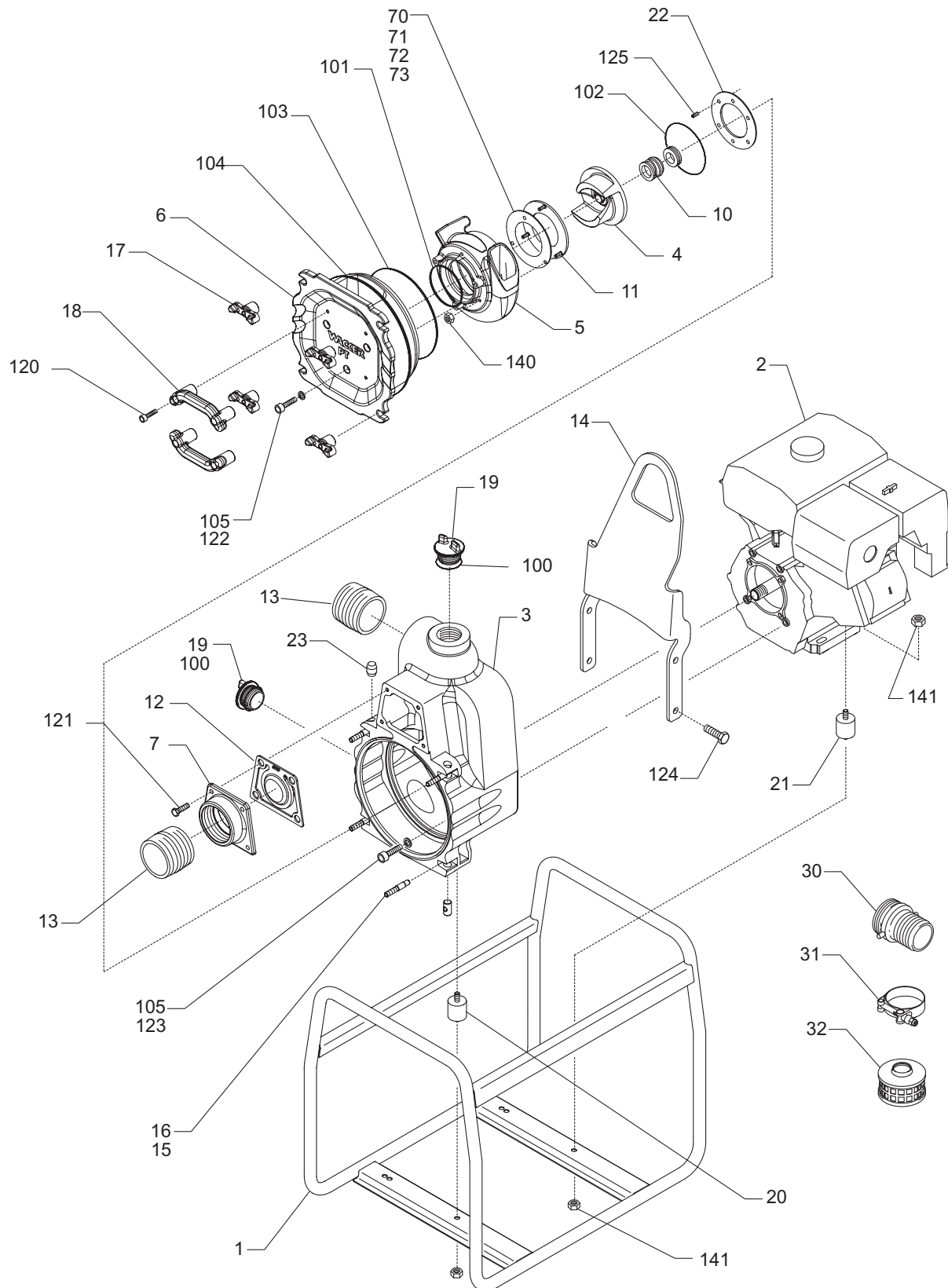
Wacker offers a complete line of fittings, hoses, and clamps to properly connect the pump to match various job conditions.

## 4.20 Troubleshooting

Problem / Symptom	Reason / Remedy
Pump does not take in water.	<ul style="list-style-type: none"> <li>• Not enough priming water in housing.</li> <li>• Engine speed too low. Adjust speed.</li> <li>• Strainer plugged. Clean strainer.</li> <li>• Suction hose damaged. Replace or repair hose.</li> <li>• Air leak at suction port. Check that fittings are tight and housing cover O-rings are sealing properly.</li> <li>• Pump too high above water.</li> <li>• Debris collecting in pump housing. Clean pump housing.</li> <li>• Too much clearance between impeller and insert.</li> </ul>
Pump takes in water, little or no discharge.	<ul style="list-style-type: none"> <li>• Engine speed too low. Adjust speed.</li> <li>• Suction strainer partially plugged. Clean strainer.</li> <li>• Impeller worn. Adjust clearance by adding shims or replace impeller.</li> <li>• Volute insert worn or damaged. Adjust clearance or replace insert.</li> </ul>
Suction hose leaks at inlet.	<ul style="list-style-type: none"> <li>• Clamps are not sealing properly. Tighten, replace, or add clamp.</li> <li>• Hose diameter is too large.</li> <li>• Hose is damaged.</li> </ul>
Discharge hose does not stay on coupling.	<ul style="list-style-type: none"> <li>• Pressure may be too high for clamps being used. Add another clamp.</li> <li>• Hose kinked or end blocked. Check hose.</li> </ul>
Impeller does not turn; pump is hard to start.	<ul style="list-style-type: none"> <li>• Impeller jammed or blocked. Open pump cover and clean dirt and debris from inside of pump housing.</li> <li>• Impeller and insert binding. Adjust clearance by removing shim from behind insert.</li> </ul>

## 5. Disassembly/Assembly Procedures

## 5.1 PT 2 Exploded View



wc\_ex0009092100



## 5.2 PT 2 Components

See Graphic: wc\_ex0009092100

Ref. Pos.	Part No. Artikel Nr.	Qty. St.	Description Beschreibung	Descripción Description	Measurem./Abm.	Norm
					Torque/Drehm.	Sealant Schmierstoff
1	0119402	1	Frame Rahmen	Chasis Châssis		
2	---	1	Engine Motor	Motor Moteur		
3	0119775	1	Housing Gehäuse	Caja Carter		
4	0119777	1	Impeller Pumpenlaufrad	Impulsor Turbine		
5	0119779	1	Volute Spiralgehäuse	Volute Volute		
6	0119781	1	Cover Deckel	Tapa Couvercle		
7	0119783	1	Flange Flansch	Brida Colerette		
10	0119784	1	Mechanical seal Gleitringdichtung	Sello mecánico Garniture mécanique		
10	0158125	1	Mechanical seal Gleitringdichtung	Sello mecánico Garniture mécanique		
11	0119785	1	Volute insert Einsatz	Inserto de voluta Insertion de volute		
12	0119786	1	Valve Ventil	Válvula Soupape		
13	---	2	<b>Nipple fitting Stutzen</b>	<b>Niple Raccord</b>		0029311
14	0152600	1	Lifting bracket Hebebügel	Ménsula alzadora Support de relèvement		
15	0117817	4	Pivot Drehteil	Pivote Pivot		
16	0117816	4	Stud Gewindebolzen	Perno prisionero Boulon	M10 49Nm/36ft.lbs	
17	0119406	4	Knob Griff	Empuñadura Poignée		
18	0117815	2	Handle Handgriff	Manija Poignée		
19	0119626	2	Cap Kappe	Tapa Couvercle		
20	0152399	2	Shockmount Puffer	Amortiguador Silentbloc	38 x 25	
21	0152400	2	Shockmount Puffer	Amortiguador Silentbloc	38 x 38	
22	0153973	1	Insert Einsatz	Inserto Insertion		
23	0153802	2	Pivot Drehteil	Pivote Pivot		
30	0026918	1	Coupling Kupplung	Acoplamiento Accouplement	50mm/2in	
31	0028698	1	Clamp Schelle	Abrazadera Agrafe		
32	0030550	1	Strainer Sieb	Tamizador Tamis	2in	

This exploded view diagram illustrates the assembly of a generator set. The components are numbered as follows:

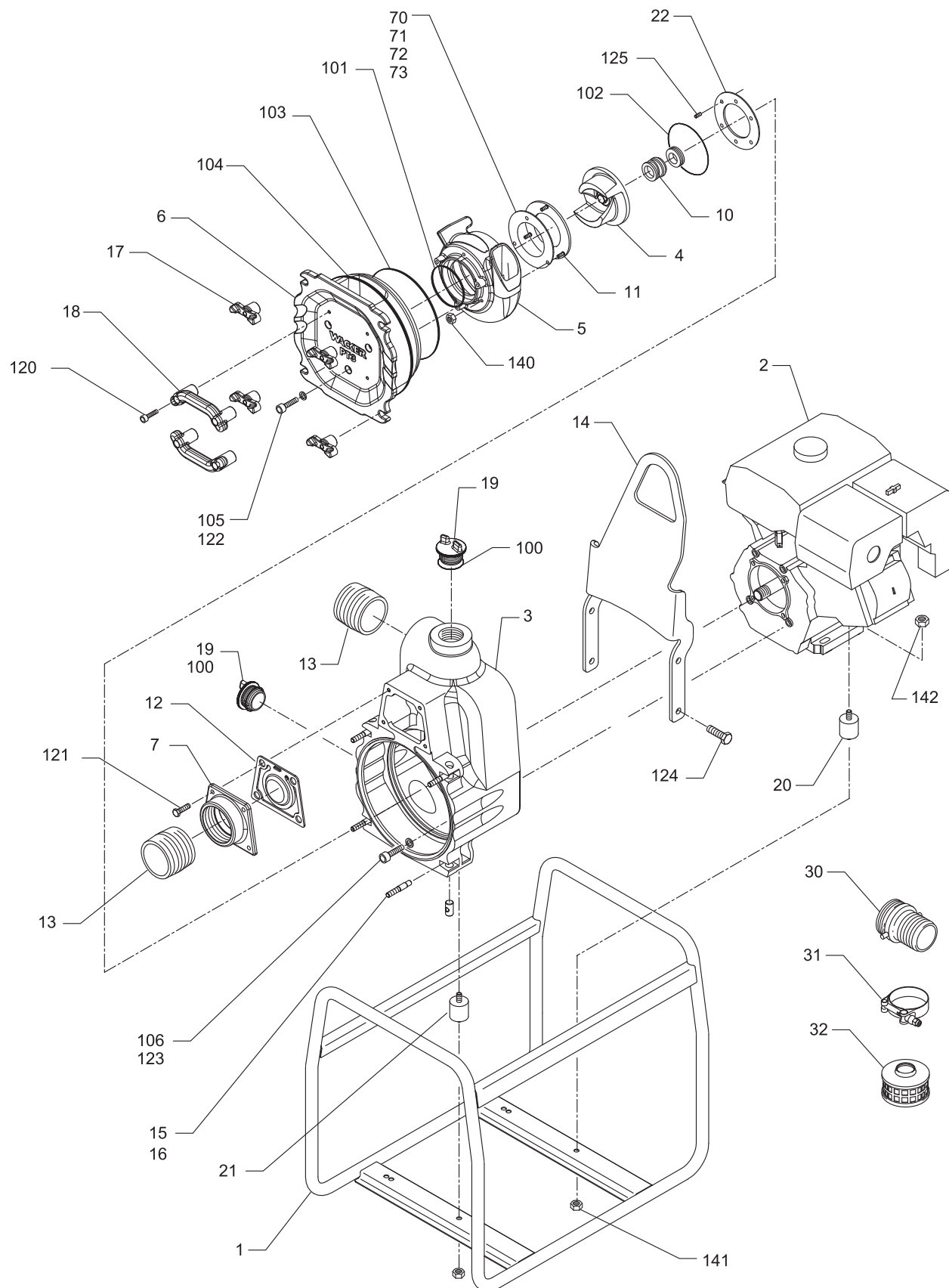
- Engine and Frame:** 1 (Frame), 2 (Engine), 14 (Side Panel), 15 (Base), 16 (Rear Panel), 20 (Generator Housing), 21 (Mounting Bolt), 30 (Generator Mounting Bracket), 31 (Generator Mounting Bracket), 32 (Generator Mounting Bracket).
- Generator Housing and Internal Components:** 3 (Generator Housing), 4 (Generator Mounting Bracket), 5 (Generator Mounting Bracket), 10 (Generator Mounting Bracket), 11 (Generator Mounting Bracket), 12 (Generator Mounting Bracket), 13 (Generator Mounting Bracket), 14 (Generator Mounting Bracket), 15 (Generator Mounting Bracket), 16 (Generator Mounting Bracket), 17 (Generator Mounting Bracket), 18 (Generator Mounting Bracket), 19 (Generator Mounting Bracket), 20 (Generator Mounting Bracket), 21 (Generator Mounting Bracket), 22 (Generator Mounting Bracket), 23 (Generator Mounting Bracket), 24 (Generator Mounting Bracket), 25 (Generator Mounting Bracket), 26 (Generator Mounting Bracket), 27 (Generator Mounting Bracket), 28 (Generator Mounting Bracket), 29 (Generator Mounting Bracket), 30 (Generator Mounting Bracket), 31 (Generator Mounting Bracket), 32 (Generator Mounting Bracket).
- Accessories and Fasteners:** 6 (Generator Mounting Bracket), 7 (Generator Mounting Bracket), 8 (Generator Mounting Bracket), 9 (Generator Mounting Bracket), 10 (Generator Mounting Bracket), 11 (Generator Mounting Bracket), 12 (Generator Mounting Bracket), 13 (Generator Mounting Bracket), 14 (Generator Mounting Bracket), 15 (Generator Mounting Bracket), 16 (Generator Mounting Bracket), 17 (Generator Mounting Bracket), 18 (Generator Mounting Bracket), 19 (Generator Mounting Bracket), 20 (Generator Mounting Bracket), 21 (Generator Mounting Bracket), 22 (Generator Mounting Bracket), 23 (Generator Mounting Bracket), 24 (Generator Mounting Bracket), 25 (Generator Mounting Bracket), 26 (Generator Mounting Bracket), 27 (Generator Mounting Bracket), 28 (Generator Mounting Bracket), 29 (Generator Mounting Bracket), 30 (Generator Mounting Bracket), 31 (Generator Mounting Bracket), 32 (Generator Mounting Bracket).

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## PT 2 Components

Ref. Pos.	Part No. Artikel Nr.	Qty. St.	Description Beschreibung	Descripción Description	Measurem./Abm.	Norm
					Torque/Drehm.	Sealant Schmierstoff
70	0152591	1	Shim Ausgleichscheibe	Laminilla Cale	0,13	
71	0152592	1	Shim Ausgleichscheibe	Laminilla Cale	0,25	
72	0152593	1	Shim Ausgleichscheibe	Laminilla Cale	0,51	
73	0152594	1	Shim Ausgleichscheibe	Laminilla Cale	1,02	
100	0119412	2	O-Ring O-Ring	Anillo-O Joint torique	43 x 3	
101	0152595	1	O-Ring O-Ring	Anillo-O Joint torique	59 x 4	
102	0119410	1	O-Ring O-Ring	Anillo-O Joint torique	123 x 5	
103	0152596	1	O-Ring O-Ring	Anillo-O Joint torique	213 x 4	
104	0152597	1	O-Ring O-Ring	Anillo-O Joint torique	235 x 5	
105	0078884	7	Ring seal Dichtungsring	Anillo sellador Rondelle à étancher	A8 x 14 x 1	
120	0119977	4	Screw Schraube	Tornillo Vis	M6 x 20 10Nm/7ft.lbs	DIN7500C
121	0119978	4	Screw Schraube	Tornillo Vis	M8 x 30 25Nm/18ft.lbs	DIN6921
122	0152598	3	Screw Schraube	Tornillo Vis	M8 x 65 25Nm/18ft.lbs	DIN912 0029311
123	0152599	4	Screw Schraube	Tornillo Vis	5/16-24 x 1 20Nm/14ft.lbs	
124	0028949	4	Screw Schraube	Tornillo Vis	M6 x 16 10Nm/7ft.lbs	0029311
125	0152303	6	Screw Schraube	Tornillo Vis	M4 x 10 3Nm/2ft.lbs	DIN7991
140	0119980	3	Locknut Sicherungsmutter	Contratuerca Contre-écrou	M6	DIN985
141	0030066	4	Locknut Sicherungsmutter	Contratuerca Contre-écrou	M8 25Nm/18ft.lbs	

### 5.3 PT 3 Exploded View



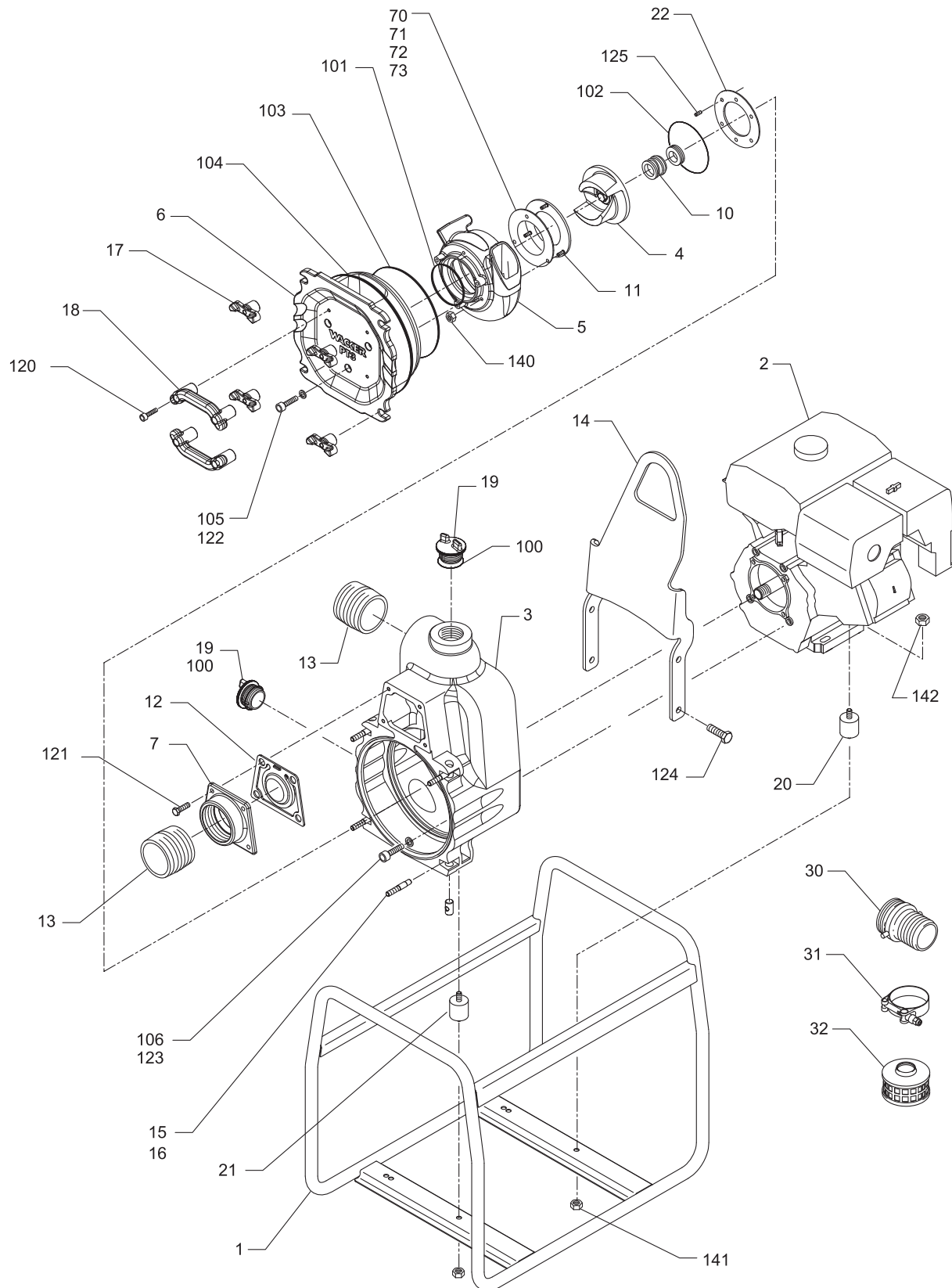
wc\_ex0009098100

## 5.4 PT 3 Components

See Graphic: wc\_ex0009098100

Ref. Pos.	Part No. Artikel Nr.	Qty. St.	Description Beschreibung	Descripción Description	Measurem./Abm.	Norm
					Torque/Drehm.	Sealant Schmierstoff
1	0119398	1	Frame Rahmen	Chasis Châssis		
2	---	1	Engine Motor	Motor Moteur		
3	0117804	1	Housing Gehäuse	Caja Carter		
4	0117806	1	Impeller Pumpenlaufrad	Impulsor Turbine		
5	0117808	1	Volute Spiralgehäuse	Voluta Volute		
6	0154697	1	Cover Deckel	Tapa Couvercle		
7	0117810	1	Flange Flansch	Brida Collettere		
10	0117819	1	Mechanical seal Gleitringdichtung	Sello mecánico Garniture mécanique		
10	0158126	1	Mechanical seal Gleitringdichtung	Sello mecánico Garniture mécanique		
11	0119403	1	Volute insert Einsatz	Inserto de voluta Insertion de volute		
12	0117814	1	Valve Ventil	Válvula Soupape		
13	---	2	Nipple fitting Stutzen	Niple Raccord		0029311
14	0119407	1	Lifting eye bracket Aufhängeöse	Punto de izaje Etrier de suspension		
15	0117817	4	Pivot Drehteil	Pivote Pivot		
16	0117816	4	Stud Gewindebolzen	Perno prisionero Boulon	M10	
17	0119406	4	Knob Griff	Empuñadura Poignée		
18	0117815	2	Handle Handgriff	Manija Poignée		
19	0119626	2	Cap Kappe	Tapa Couvercle		
20	0119404	2	Shockmount Puffer	Amortiguador Silentbloc	38 x 38	
21	0117818	2	Shockmount Puffer	Amortiguador Silentbloc	38 x 38	
22	0152275	1	Insert Einsatz	Inserto Insertion		
30	0028071	1	Coupling Kupplung	Acoplamiento Accouplement	76mm/3in	
31	0028699	1	Clamp Schelle	Abrazadera Agrafe		
32	0030549	1	Strainer Sieb	Tamizador Tamis	3in	
70	0119415	1	Shim Ausgleichscheibe	Laminilla Cale	0,13	

### PT 3 Exploded View



wc\_ex0009098100

## PT 3 Components

Ref. Pos.	Part No. Artikel Nr.	Qty. St.	Description Beschreibung	Descripción Descripción	Measurem./Abm.	Norm
					Torque/Drehm.	Sealant Schmierstoff
71	0119416	1	Shim Ausgleichscheibe	Laminilla Cale	0,25	
72	0119417	1	Shim Ausgleichscheibe	Laminilla Cale	0,51	
73	0119418	1	Shim Ausgleichscheibe	Laminilla Cale	1,02	
100	0119412	2	O-Ring O-Ring	Anillo-O Joint torique	43 x 3	
101	0119411	1	O-Ring O-Ring	Anillo-O Joint torique	84 x 4	
102	0119410	1	O-Ring O-Ring	Anillo-O Joint torique	123 x 5	
103	0119409	1	O-Ring O-Ring	Anillo-O Joint torique	228 x 4	
104	0119408	1	O-Ring O-Ring	Anillo-O Joint torique	250 x 5	
105	0078884	3	Ring seal Dichtungsring	Anillo sellador Rondelle à étancher	A8 x 14 x 1	
<b>106</b>	<b>0012086</b>	<b>4</b>	<b>Ring seal Dichtungsring</b>	<b>Anillo sellador Rondelle à étancher</b>	<b>A10 x 13,5</b>	
120	0119977	4	Screw Schraube	Tornillo Vis	M6 x 20	DIN7500C
121	0119978	4	Screw Schraube	Tornillo Vis	M8 x 30 25Nm/18ft.lbs	DIN6921
122	0119979	3	Screw Schraube	Tornillo Vis	M8 x 80	DIN912 0029311
123	0119413	4	Screw Schraube	Tornillo Vis	3/8-16 x 2,00in	0029311
124	0087023	4	Screw Schraube	Tornillo Vis	M8 x 22 25Nm/18ft.lbs	0113781
125	0152303	6	Screw Schraube	Tornillo Vis	M4 x 10	DIN7991
140	0119980	3	Locknut Sicherungsmutter	Contratuerca Contre-écrou	M6	DIN985
141	0030066	4	Locknut Sicherungsmutter	Contratuerca Contre-écrou	M8 25Nm/18ft.lbs	
142	0089316	2	Locknut Sicherungsmutter	Contratuerca Contre-écrou	M10	

## 5.5 Impeller and Mechanical Seal

See Graphic: wc\_gr002494

Impeller Disassembly:



Impeller edges can be extremely sharp; use care when removing.

- 5.5.1 Loosen the knobs **(a)** securing housing cover/volute assembly **(b)** to the pump housing and remove housing cover/volute assembly.
- 5.5.2 Remove impeller by turning nut **(c)** (molded into impeller casting) counterclockwise. If impeller is hard to remove, use special tool **(d)** (PN 0159381). Position the tool so that it holds the vanes of impeller. Insert socket extension and use an impact wrench to turn impeller off of shaft.

Impeller Assembly:

- 5.5.3 Apply Loctite 246 or an equivalent thread locking sealant to the engine shaft and screw impeller onto engine shaft.
- 5.5.4 Reinstall housing cover/volute assembly **(b)** to the housing and tighten with knobs **(a)**.

Mechanical Seal Disassembly:

- 5.5.5 Open pump housing and remove impeller.
- 5.5.6 Pull the front half of mechanical seal **(e)** off engine shaft.
- 5.5.7 Pry the back half **(f)** of the mechanical seal from engine shaft.

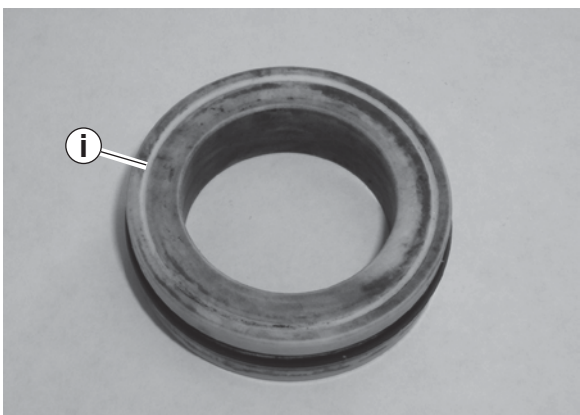
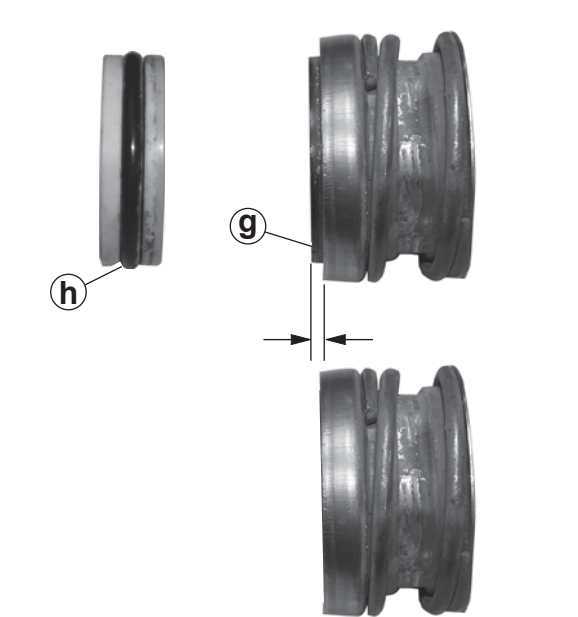
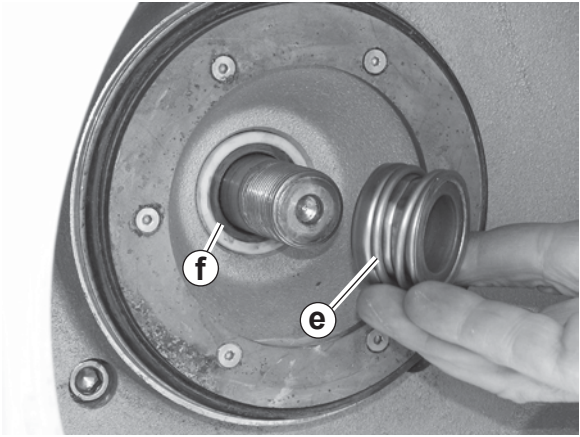
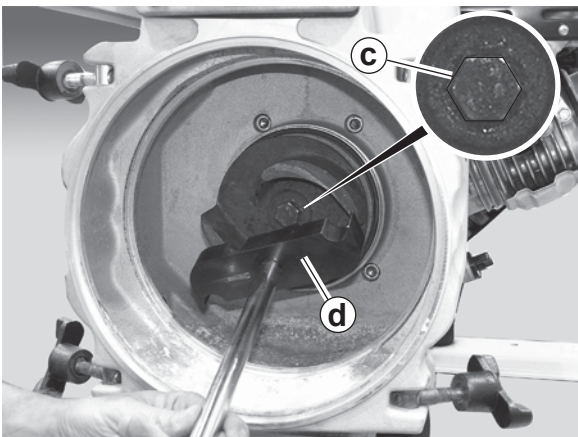
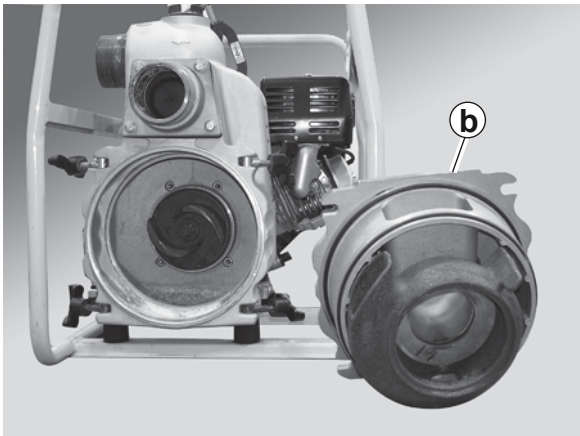
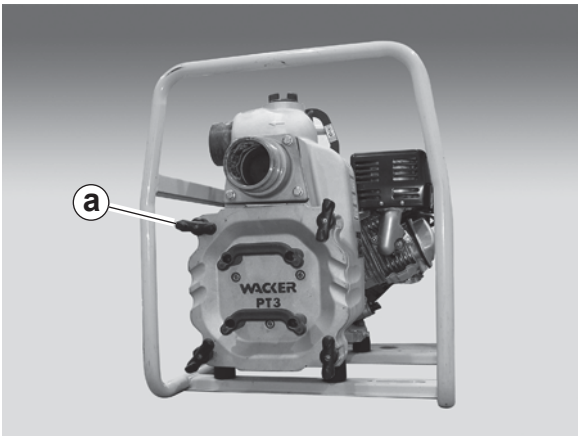
Mechanical Seal Assembly:

**Note:** Always replace both halves of the mechanical seal as a set. Clean the mating surfaces (carbon and ceramic) with alcohol before installing.

**Note:** If the carbon face **(g)** has worn flush with surface of the seal, replace the mechanical seal to prevent pump from leaking.

- 5.5.8 To ease installation, apply a thin film of lubricant to the O-ring **(h)** of the back half of the mechanical seal.
- 5.5.9 Position the back half **(f)** of the mechanical seal so that the grooved ceramic ring **(i)** faces the engine, and then slide it onto the engine shaft.
- 5.5.10 Position the front half **(e)** of the mechanical seal so that the carbon portion faces the engine, and then slide it onto the engine shaft.





wc\_gr002494

## 5.6 Volute and Shims

See Graphic: *wc\_gr002496*

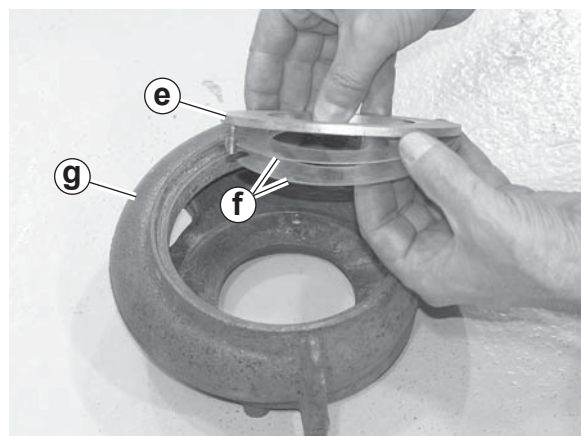
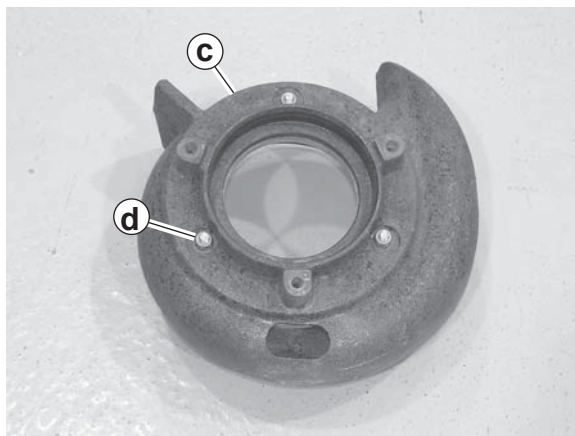
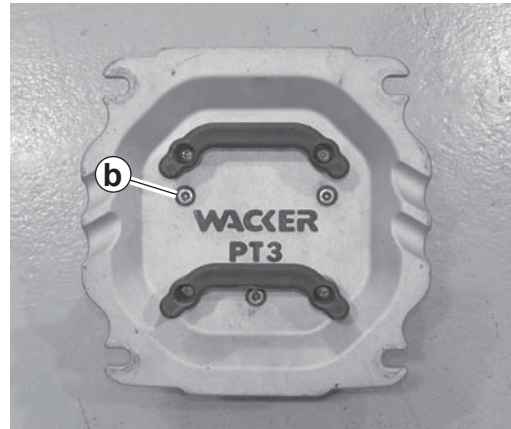
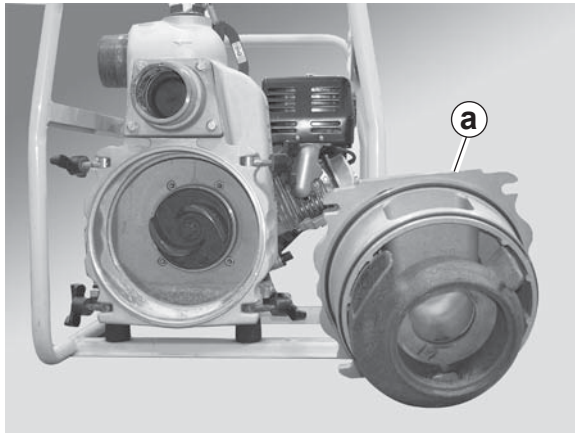
### Volute and Shims Disassembly:

- 5.6.1 Remove the housing cover/volute assembly **(a)** from the pump.
- 5.6.2 Remove the three screws **(b)** securing the volute assembly **(c)** to the housing cover and remove the volute assembly.
- 5.6.3 Remove the three screws **(d)** securing the shim plate **(e)** and shims **(f)** to the volute **(g)**. Remove the shims and the shim plate.

### Volute and Shims Assembly:

- 5.6.4 Remove spark plug (on units with Hatz engine, place speed control lever in STOP position) so that engine will not start.
- 5.6.5 Make sure impeller is installed.
- 5.6.6 Place 6–10 shims **(f)** between the shim plate **(e)** and the volute, and secure them to the volute with three screws **(d)**.
- 5.6.7 Install the volute assembly **(c)** to the housing cover.
- 5.6.8 Install the housing cover/volute assembly **(a)** to the pump housing.
- 5.6.9 Pull the starter rope. If the starter rope does not move, the impeller is binding and shim(s) must be removed. Disassemble the volute assembly and remove one shim. Reassemble the volute assembly to the housing cover and remount the housing cover/volute assembly **(a)** to the pump housing. Pull the starter rope. If the starter rope does not move, the impeller is still binding; remove another shim. Continue in this manner until the impeller is snug, yet moves freely when the starter rope is pulled.

**Note:** *The greater the distance between the impeller and volute, the less efficient the pump will be.*



wc\_gr002496

## 5.7 Flapper Valve and Pump Housing

*See Graphic: wc\_gr002495*

### Flapper Valve Disassembly:

- 5.7.1 Remove four bolts **(a)** securing flange **(b)** and remove the flange.
- 5.7.2 Remove flapper valve **(c)**.

### Flapper Valve Reassembly:

- 5.7.3 When re-installing flapper, match tab **(d)** in flapper valve with indent in flange **(e)**.
- 5.7.4 Apply Loctite 243 or equivalent on the four screws **(a)** and secure the flapper valve **(c)** and flange **(b)** to the pump housing.

### Pump Housing Disassembly:

- 5.7.5 Remove the two nuts securing the front shock mounts **(f)** to the frame.
- 5.7.6 Support the engine with a block of wood **(g)**.  
Remove the four screws **(h)** securing the housing to the engine and remove the housing from the engine.

### Pump Housing Reassembly:

- 5.7.7 Remove the block of wood **(g)**.
- 5.7.8 Apply Loctite 243 or equivalent on the screws **(h)** and secure the housing to the engine.
- 5.7.9 Secure the front shock mounts **(f)** to the frame with two nuts.

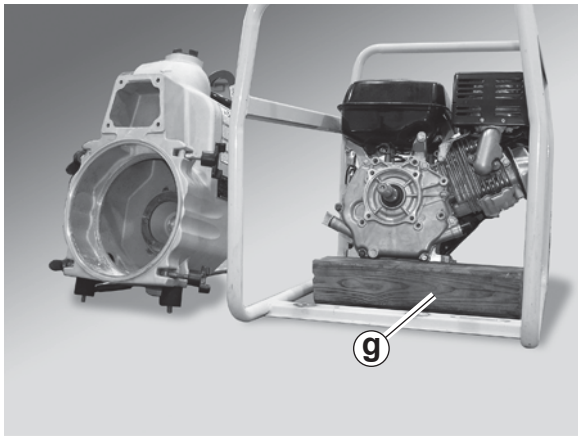
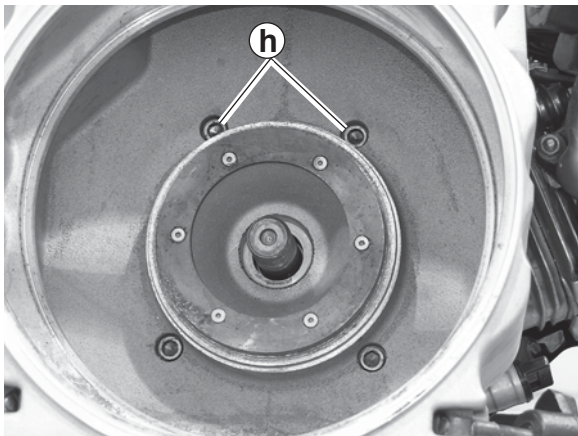
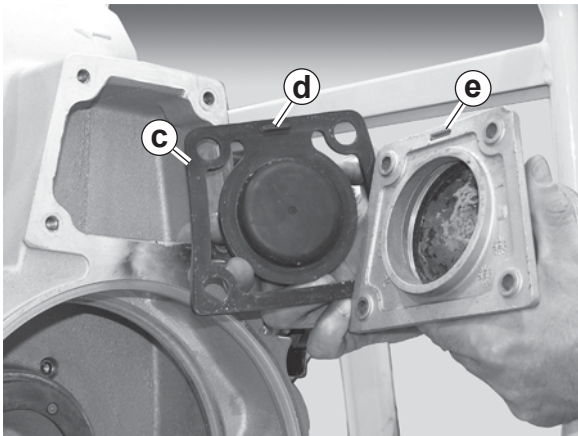
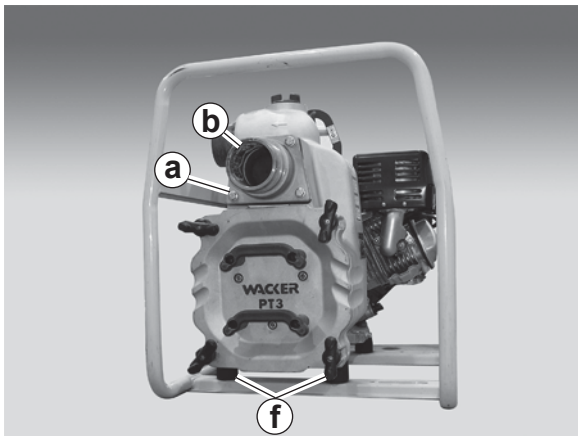
## 5.8 Checking O-rings

*See Graphic: wc\_gr002541*

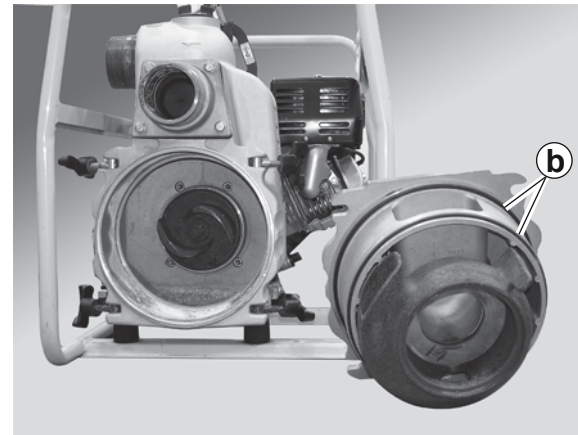
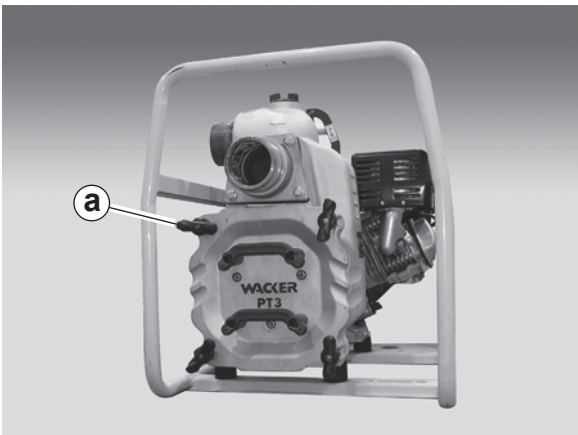
Inspect housing cover O-rings before each use.

- 5.8.1 Loosen the knobs **(a)** securing housing cover/volute assembly to the pump housing and remove housing cover/volute assembly.
- 5.8.2 Inspect the O-rings **(b)** for tears, rips, or cracks.
- 5.8.3 Replace damaged O-rings.





wc\_gr002495



wc\_gr002541



## Threadlockers and Sealants

Threadlocking adhesives and sealants are specified throughout this manual by a notation of “S” plus a number (S#) and should be used where indicated. Threadlocking compounds normally break down at temperatures above 175°C (350°F). If a screw or bolt is hard to remove, heat it using a small propane torch to break down the sealant. When applying sealants, follow instructions on container. The sealants listed are recommended for use on Wacker Neuson equipment.

TYPE ( ) = Europe	COLOR	USAGE	PART NO. – SIZE
Loctite 222 Hernon 420 Omnifit 1150 (50M)	Purple	Low strength, for locking threads smaller than 6 mm (1/4”). Hand tool removable. Temp. range: -54 to 149°C (-65 to 300°F)	73287 - 10 ml
Loctite 243 Hernon 423 Omnifit 1350 (100M)	Blue	Medium strength, for locking threads larger than 6 mm (1/4”). Hand tool removable. Temp. range: -54 to 149°C (-65 to 300°F)	29311 - .5 ml 17380 - 50 ml
Loctite 271/277 Hernon 427 Omnifit 1550 (220M)	Red	High strength, for all threads up to 25 mm (1”). Heat parts before disassembly. Temp. range: -54 to 149°C (-65 to 300°F)	29312 - .5 ml 26685 - 10 ml 73285 - 50 ml
Loctite 290 Hernon 431 Omnifit 1710 (230LL)	Green	Medium to high strength, for locking preassembled threads and for sealing weld porosity (wicking). Gaps up to 0.13 mm (0.005”) Temp. range: -54 to 149°C (-65 to 300°F)	28824 - .5 ml 25316 - 10 ml
Loctite 609 Hernon 822 Omnifit 1730 (230L)	Green	Medium strength retaining compound for slip or press fit of shafts, bearings, gears, pulleys, etc. Gaps up to 0.13 mm (0.005”) Temp. range: -54 to 149°C (-65 to 300°F)	29314 - .5 ml
Loctite 545 Hernon 947 Omnifit 1150 (50M)	Brown	Hydraulic sealant Temp. range: -54 to 149°C (-65 to 300°F)	79356 - 50 ml
Loctite 592 Hernon 920 Omnifit 790	White	Pipe sealant with Teflon for moderate pressures. Temp. range: -54 to 149°C (-65 to 300°F)	26695 - 6 ml 73289 - 50 ml
Loctite 515 Hernon 910 Omnifit 10	Purple	Form-in-place gasket for flexible joints. Fills gaps up to 1.3 mm (0.05”) Temp. range: -54 to 149°C (-65 to 300°F)	70735 - 50 ml

## Threadlockers and Sealants

### Threadlockers and Sealants (continued)

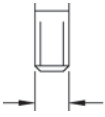



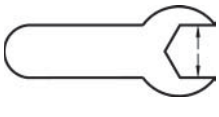
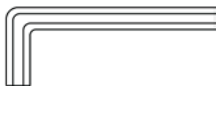
Threadlocking adhesives and sealants are specified throughout this manual by a notation of “S” plus a number (S#) and should be used where indicated. Threadlocking compounds normally break down at temperatures above 175°C (350°F). If a screw or bolt is hard to remove, heat it using a small propane torch to break down the sealant. When applying sealants, follow instructions on container. The sealants listed are recommended for use on Wacker Neuson equipment.

<b>TYPE</b> <b>( ) = Europe</b>	<b>COLOR</b>	<b>USAGE</b>	<b>PART NO. –</b> <b>SIZE</b>
Loctite 496 Hernon 110 Omnifit Sicomet 7000	Clear	Instant adhesive for bonding rubber, metal and plastics; general purpose. For gaps up to 0.15 mm (0.006”) Read caution instructions before using. Temp. range: -54 to 82°C (-65 to 180°F)	52676 - 1oz.
Loctite Primer T Hernon Primer 10 Omnifit VC Activator	Aerosol Spray	Fast curing primer for threadlocking, retaining and sealing compounds. Must be used with stainless steel hardware. Recommended for use with gasket sealants.	2006124-6 oz.



## Torque Values

### Metric Fasteners (DIN)

TORQUE VALUES (Based on Bolt Size and Hardness)							WRENCH SIZE			
		8.8		10.9		12.9				
Size	Nm	ft.lb.	Nm	ft.lb.	Nm	ft.lb.	Metric	Inch	Metric	Inch
M3	1.2	*11	1.6	*14	2.1	*19	5.5	7/32	2.5	–
M4	2.9	*26	4.1	*36	4.9	*43	7	9/32	3	–
M5	6.0	*53	8.5	6	10	7	8	5/16	4	–
M6	10	7	14	10	17	13	10	–	5	–
M8	25	18	35	26	41	30	13	1/2	6	–
M10	49	36	69	51	83	61	17	11/16	8	–
M12	86	63	120	88	145	107	19	3/4	10	–
M14	135	99	190	140	230	169	22	7/8	12	–
M16	210	155	295	217	355	262	24	15/16	14	–
M18	290	214	405	298	485	357	27	1-1/16	14	–
M20	410	302	580	427	690	508	30	1-1/4	17	–

1 ft.lb. = 1.357 Nm

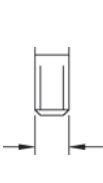
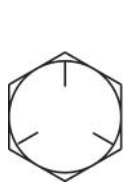
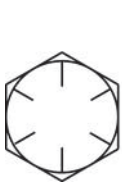
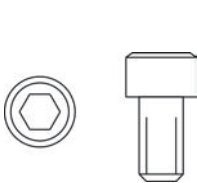
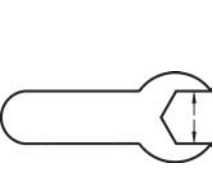
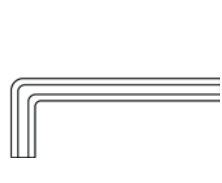
\* = in.lb.

1 inch = 25.4 mm

# Torque Values

## Torque Values (continued)

### Inch Fasteners (SAE)

	 SAE 5		 SAE 8							
Size	Nm	ft.lb.	Nm	ft.lb.	Nm	ft.lb.	Metric	Inch	Metric	Inch
No.4	0.7	*6	1.0	*14	1.4	*12	5.5	1/4	—	3/32
No.6	1.4	*12	1.9	*17	2.4	*21	8	5/16	—	7/64
No.8	2.5	*22	3.5	*31	4.7	*42	9	11/32	—	9/64
No.10	3.6	*32	5.1	*45	6.8	*60	—	3/8	—	5/32
1/4	8.1	6	12	9	16	12	—	7/16	—	3/32
5/16	18	13	26	19	33	24	13	1/2	—	1/4
3/8	31	23	45	33	58	43	—	9/16	—	5/16
7/16	50	37	71	52	94	69	16	5/8	—	3/8
1/2	77	57	109	80	142	105	19	3/4	—	3/8
9/16	111	82	156	115	214	158	—	13/16	—	—
5/8	152	112	216	159	265	195	24	15/16	—	1/2
3/4	271	200	383	282	479	353	—	1-1/8	—	5/8

1 ft.lb. = 1.357 Nm

\* = in.lb.

1 inch = 25.4 mm



