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Pump

PDT2A

PDI2A

PDT3A

PDI3A

OPERATOR'S MANUAL



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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.

1. Foreword

This manual provides information and procedures to safely operate and maintain this Wacker model. For your own safety and protection from injury, carefully read, understand and observe the safety instructions described in this manual.

Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy, please contact Wacker Corporation. This machine is built with user safety in mind; however, it can present hazards if improperly operated and serviced. Follow operating instructions carefully! If you have questions about operating or servicing this equipment, please contact Wacker Corporation.

The information contained in this manual was based on machines in production at the time of publication. Wacker Corporation reserves the right to change any portion of this information without notice.

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Nameplate / Typenschild / Placa de Identificación / Plaque signalétique

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.**

Ein Typenschild mit Typ, Artikelnummer, Version und Maschinen-Nummer ist an jedem Gerät angebracht. Die Daten von diesem Schild bitte notieren, damit sie auch bei Verlust oder Beschädigung des Schildes noch vorhanden sind. **Der Typ, die Artikel-Nummer, die Versions-Nummer und die Maschinen-Nummer sind bei der Ersatzteilbestellung oder Nachfragen bezüglich Service-Informationen stets erforderlich.**

Una placa de identificación con el modelo, número de referencia, nivel de revisión y número de serie ha sido añadida en cada máquina. Favor de anotar los datos en la placa en caso de que la placa de identificación sea destruida o perdida. **En todos los pedidos para repuestos necesita siempre el modelo, el número de referencia, el nivel de revisión y el número de serie de la máquina en cuestión.**

Une plaque signalétique mentionnant le modèle, le numéro de référence, le niveau de révision et le numéro de série est fixée sur chaque machine. Veuillez noter les informations relevées sur cette plaque de façon à ce qu'elles soient toujours disponibles si la plaque signalétique venait à être perdue ou endommagée. **Lorsque vous commandez des pièces détachées ou vous sollicitez des informations auprès-vente, on vous demandera toujours de préciser le modèle, le numéro de référence, le niveau de révision et le numéro de série de la machine.**

*My machine's numbers are / Die Nummern meines Gerätes sind /
Los números de mi máquina son / Les numéros de ma machine sont :*

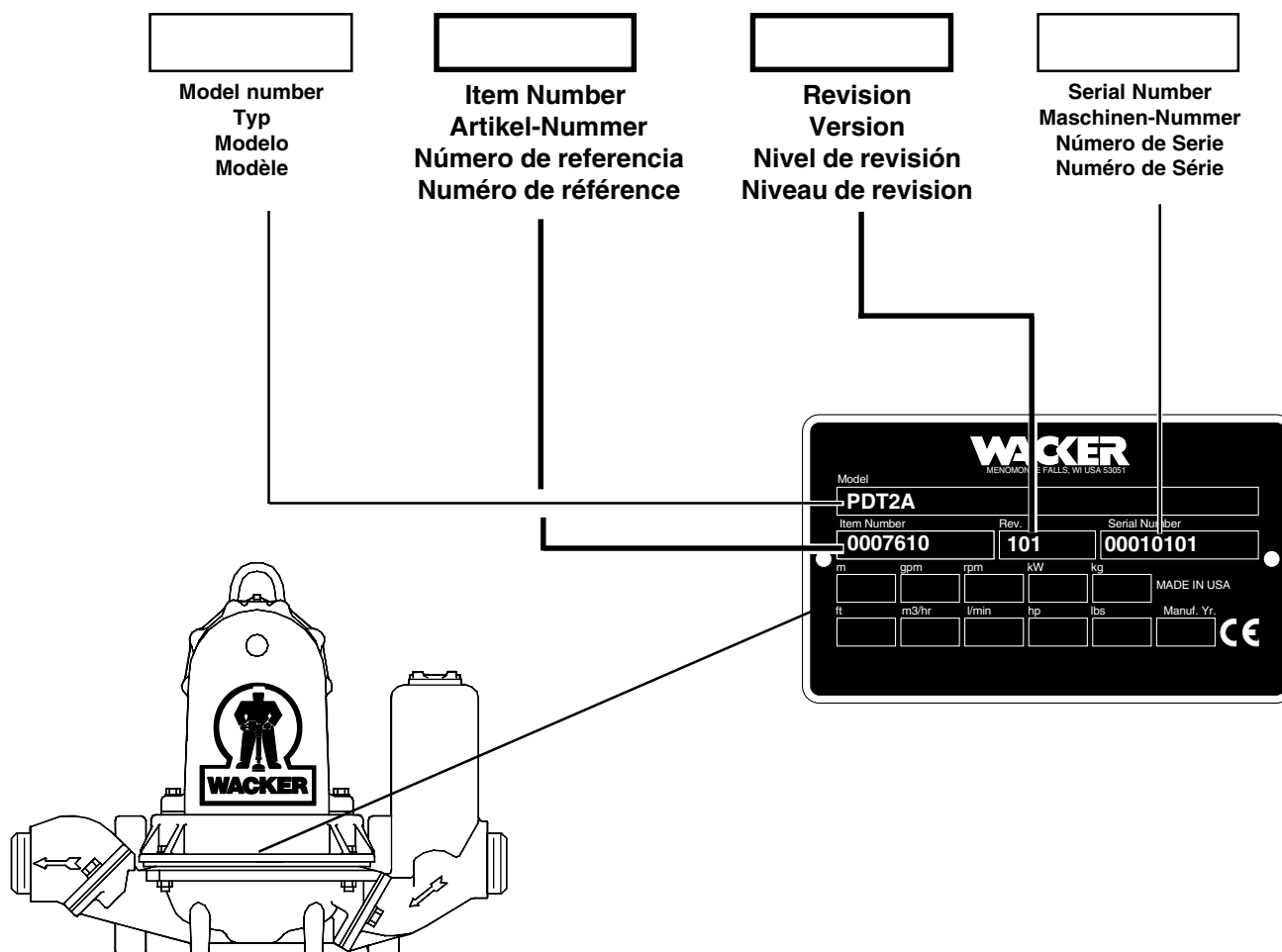


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1.1 Safety Information

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

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

WARNING

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

CAUTION

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.*

1.2 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.

1.3 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.

WARNING

NEVER allow improperly trained people to operate this equipment. People operating this equipment must be familiar with the potential risks and hazards associated with it.

NEVER touch engine or muffler while pump is operating or immediately after it has been turned off. These areas get hot and may cause burns.

NEVER use accessories or attachments which are not recommended by WACKER for this equipment. Damage to equipment and/or injury to user may result.

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.

ALWAYS read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.

ALWAYS be sure operator is familiar with proper safety precautions and operation techniques before using pump.

ALWAYS be sure pump is on a firm, level surface and will not tip, roll, slide, or fall while operating.

ALWAYS close fuel valve on engines equipped with one, when pump is not being operated.

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.

1.4 Operator Safety while using Internal Combustion Engines

Internal combustion engines present special hazards during operation and fueling! Failure to follow the safety guidelines described below could result in severe injury or death.

DANGER

DO NOT smoke while operating pump.

DO NOT smoke when refueling engine.

DO NOT refuel hot or running engine.

DO NOT refuel engine near open flame.

DO NOT spill fuel when refueling engine.

DO NOT operate near open flames.

ALWAYS refill fuel tank in well-ventilated area.

ALWAYS replace fuel tank cap after refueling.

1.5 Service Safety

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.

! WARNING

DO NOT attempt to clean or service pump while it is running. Rotating parts can cause severe injury.

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.

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.

DO NOT use gasoline or other types of fuels or flammable solvents to clean parts in enclosed areas. Fumes from fuels and solvents can accumulate and become explosive.

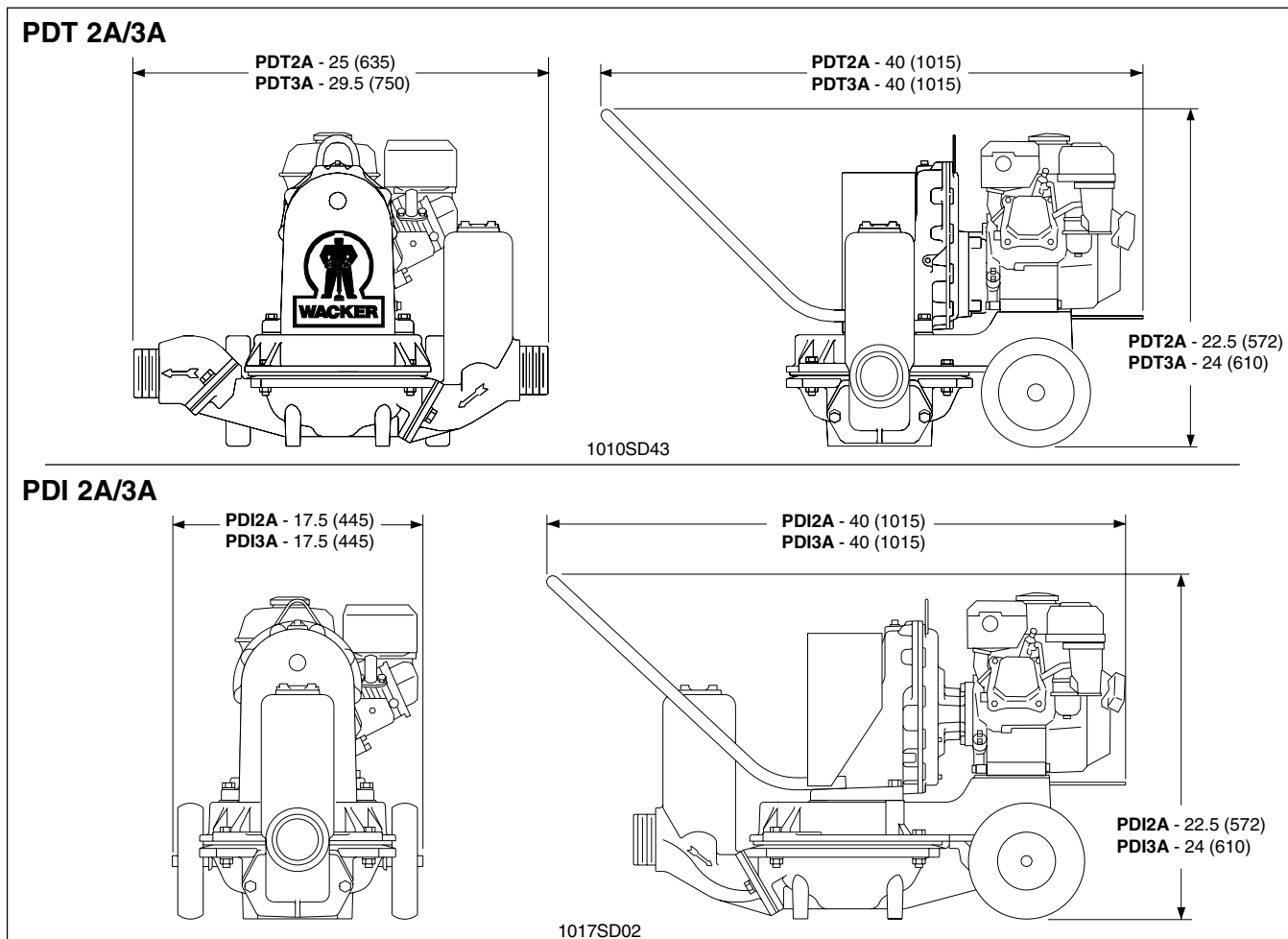
ALWAYS operate pump with all safety devices and guards in place and in working order.

ALWAYS keep area around muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite them, starting a fire.

ALWAYS replace worn or damaged components with spare parts designed and recommended by WACKER for servicing this machine.

ALWAYS remove or disconnect spark plug on pumps equipped with gasoline engines, before servicing pump, to avoid accidental start-up.

1.6 Dimensions in. (mm)



1.7 Technical Data

Engine

Engine Make		Honda
Engine Model		GX 120 K1 QX
Rated Power	Hp (kW)	4.0 (3.0)
Spark Plug	type	(NGK) BPR 6ES BOSCH WR 7DC
Electrode Gap	in. (mm)	0.028 - 0.031 (0.7 - 0.8)
Engine speed	rpm	3000 ± 100
Air Cleaner	type	Dual element
Engine Lubrication	oil grade	SAE10W30 - service class SF, SE, SD, or SC
Engine Oil Capacity	oz. (ml)	20 (600)
Fuel	type	Regular unleaded gasoline
Fuel Tank Capacity	qts. (l)	2.6 (2.5)

Pump

		PDT/PDI 2A	PDT/PDI 3A
Weight	lbs. (kg)	114 (52)	138 (63)
*Max. Suction Lift	ft. (m)	25 (7.5)	25 (7.5)
Max. Discharge Head	ft. (m)	25 (7.5)	25 (7.5)
Max. Total Head	ft. (m)	50 (15)	50 (15)
Max. Discharge Pressure	psi (kg/cm ²)	10.8 (0.76)	10.8 (0.76)
Max. Discharge Flow	gpm (m ³ h)	50 (11)	88 (20)
Gear Case Lubrication	oil grade oz. (ml)	SAE 30 32 (1000)	SAE 30 32 (1000)
Suction / Discharge Dia.	in. (mm)	2 (50)	3 (75)
Maximum Solid Size	in. (mm)	1.25 (30)	1.75 (45)

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

Sound Measurements

The required sound specifications, per Appendix 1, Paragraph 1.7.4.f of the EC-Machine Regulations, are:

- the sound pressure level at operator's location (L_{pA}) = 82 dB(A)
- the sound power level (L_{WA}) = 96 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.

The sound measurements were obtained with the unit operating on pavement at nominal speed.

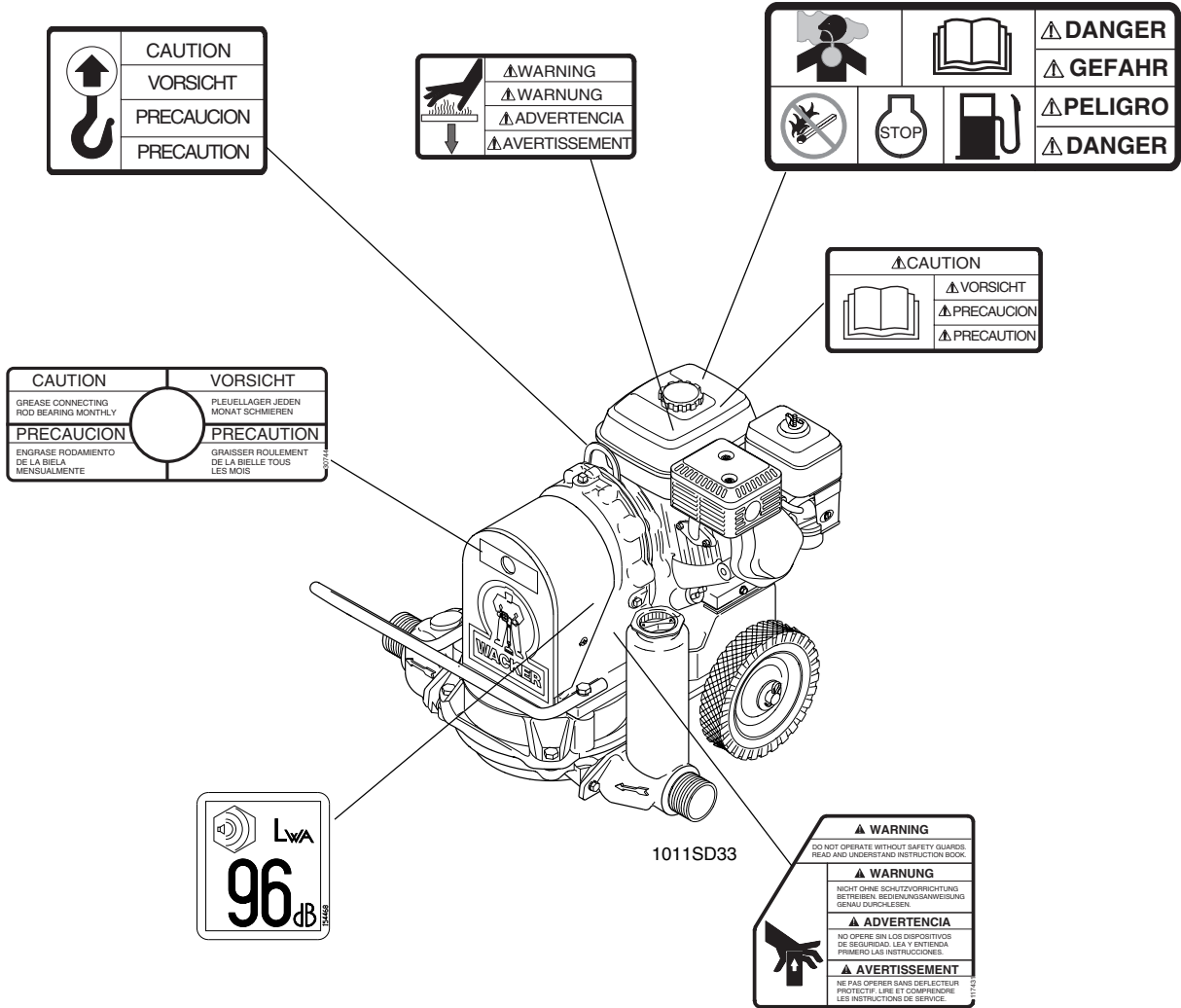


1.8 Safety Labels

This WACKER machine uses international pictorial labels where needed. These labels are described below:

Pictorial	Meaning
	<p>Danger! 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.</p>
117034	
	<p>Warning! Hot surface.</p>
117039	
	<p>Caution! Read and understand the supplied operator's manual before operating this machine. Failure to do so increases the risk of injury to yourself or others.</p>
117045	
	<p>Warning! Pinch point! Do not operate without safety guards. Read and understand the operator's manual.</p>
117431	
	<p>Caution! Grease connecting rod bearing monthly.</p>
30774	
	<p>Caution! Lifting point.</p>
117554	
	<p>Machine sound power level in dB(A).</p>
154468	

1.9 Label Locations



1.10 Application

This pump is intended for removing clean water or water containing a large amount of debris and suspended solids. The model PD 2A can pump water containing solids up to 1.25" (30 mm) diameter. The model PD 3A can pump water containing solids up to 1.75" (45 mm) in diameter.

Diaphragm pumps are ideal for pumping mud, slurries and seepage. Typical applications include dewatering of trenches, sewers, pipelines, septic tanks, holding tanks, farm ponds, fields and excavations where a large amount of solids may be present in the water.

1.11 Recommended Fuel

The engine requires regular grade unleaded gasoline. Use only fresh, clean gasoline. Gasoline containing water or dirt will damage fuel system.

1.12 Priming Pump

Diaphragm pumps are self priming and seldom need to have water added to them before starting. However, if the pump has not been used for several weeks and the rubber valves inside it are dry, adding water through the surge chamber (f) will help the valves seal and shorten the amount of time required for the pump to prime.

1.13 Before Starting

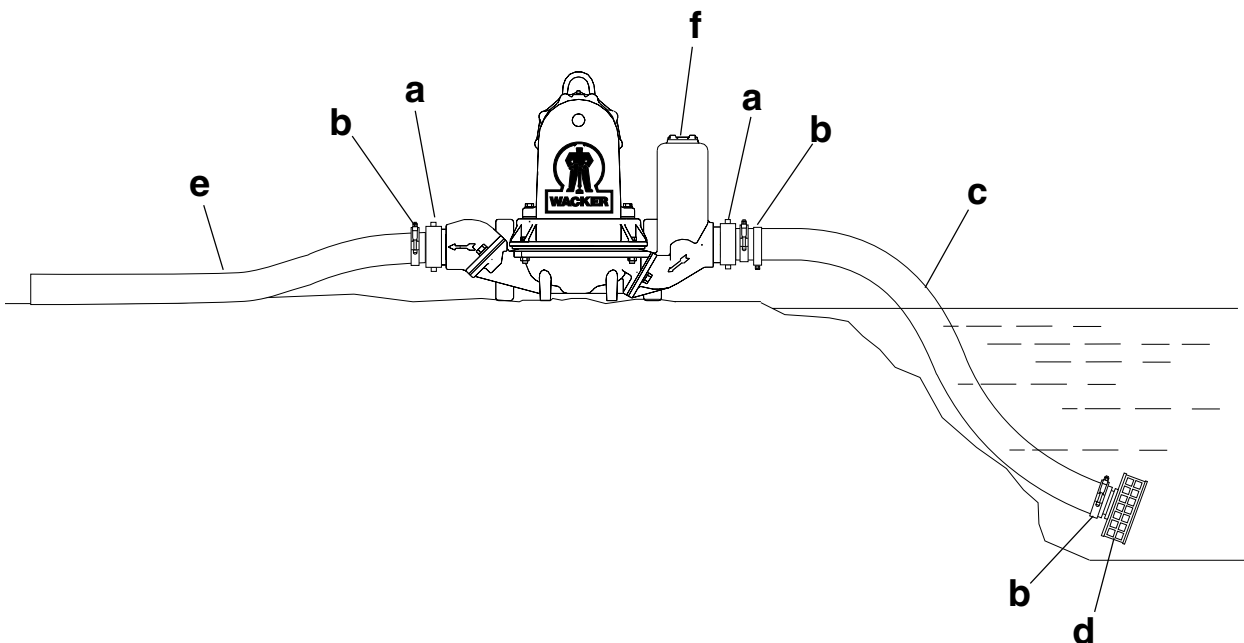
1. Read safety instructions at the beginning of manual.
2. Place pump as near to water as possible, on a firm, flat, level surface.
3. Check that hoses are securely attached to pump. Suction hose (c) must not have any air leaks. Check that all hose clamps (b) and couplings (a) are tight. Check that cap on surge chamber (f) is tight.
4. Check that discharge hose (e) is not blocked. Lay hose out as straight as possible. Remove any twists or sharp bends from hose which may block the flow of water.

Note: Operating the pump with any part of the discharge line positioned higher than 25' (7.5 m) above the pump can cause backflow into the pump and damage pump components.

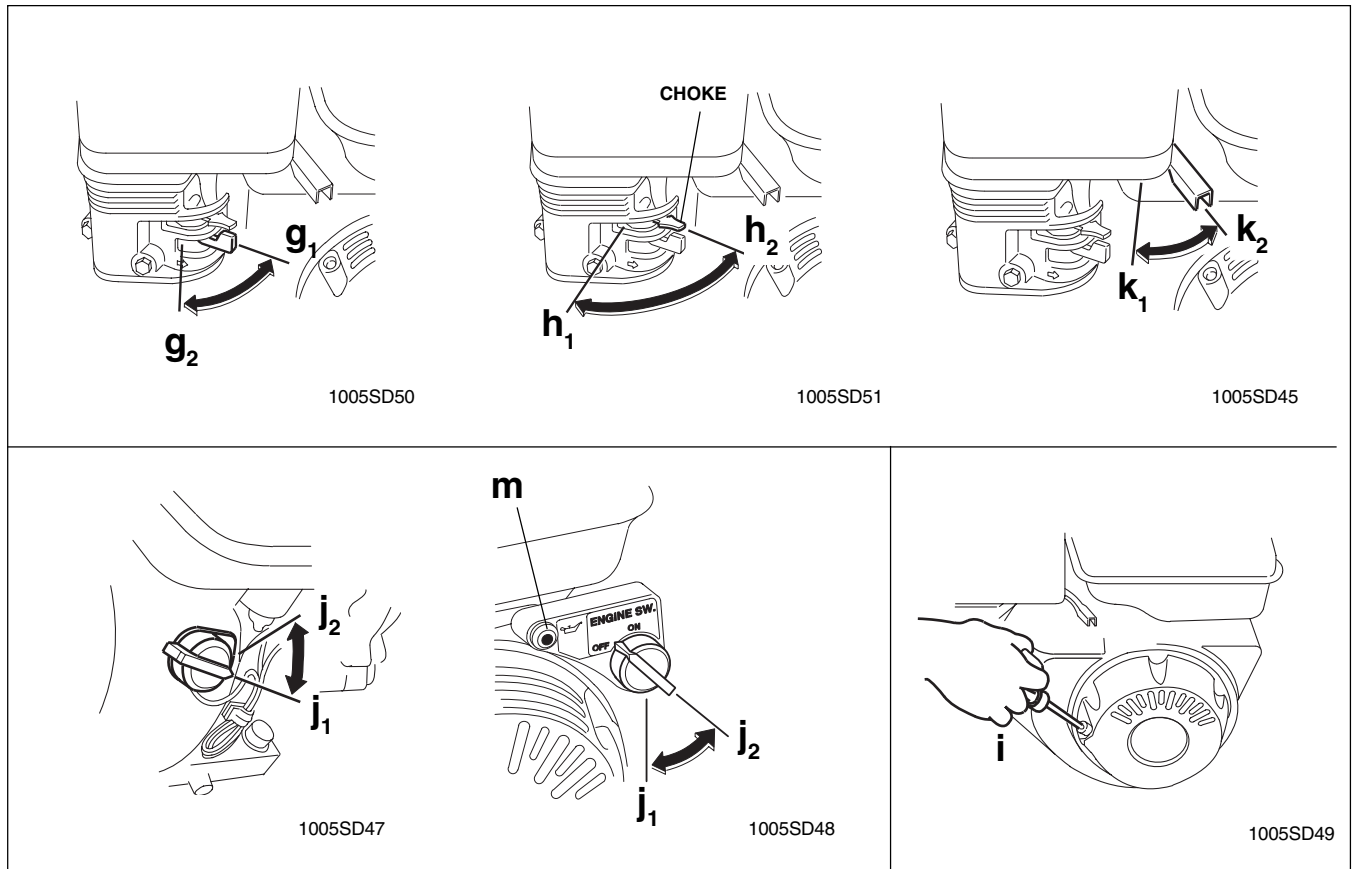
5. Make sure suction strainer (d) is clean and securely attached to end of hose. The strainer is designed to protect the pump by preventing large objects from being pulled into the pump.

Position strainer so it will remain under water as water level drops.

6. Check fuel level, engine oil level, and condition of air cleaner.



1010SD45



1.14 To Start

1. Open fuel valve by moving lever to the right (**g₁**).

Note: If engine is cold, move choke lever to close position (**h₁**). If engine is hot, set choke to open position (**h₂**).

2. Turn engine switch to “ON” (**j₁**).
3. Open throttle by moving it slightly to left (**k₁**).
4. Pull starter rope (**i**).

Note: If the oil level in the engine is low, the engine will not start. If this happens, add oil to engine. Some engines are equipped with an oil alert light (**m**) that will come on while pulling the starter rope.

5. Open choke as engine warms (**h₂**).
6. Open throttle fully to operate pump.

1.15 To Stop

1. Reduce engine RPM to idle by moving throttle completely to right (**k₂**).
2. Turn engine switch to “OFF” (**j₂**).
3. Close fuel valve by moving lever to the left (**g₂**).

1.16 Operation

Run engine at full speed while operating pump.

Pump should begin pumping water within a minute depending on length of suction hose and height of pump above water. Longer hoses will require more time.

If pump does not prime, check for loose fittings or air leak in suction hose. Make sure strainer in water is not blocked.

! WARNING

DO NOT pump flammable fluids, fuels, corrosive chemicals or fluids containing toxic substances. These fluids can create potentially dangerous health and environmental hazards. Contact local authorities for assistance.

1.17 Hoses and Clamps

Suction Hose

Suction hoses **(a)** must be rigid enough not to collapse when pump is operating.

Discharge Hose

Discharge hoses **(b)** are usually thin-walled collapsible hoses. Rigid hoses similar to those used as suction hoses may also be used as discharge hoses.

Note: Suction and discharge hoses are available from WACKER. Contact your nearest dealer for more information.

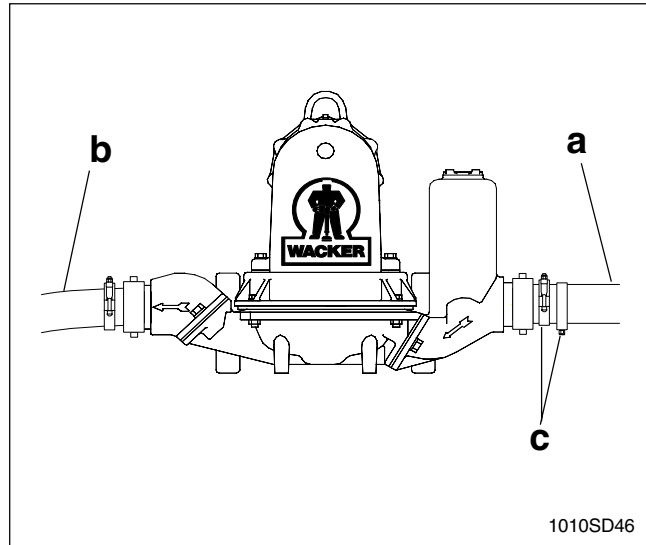
Suction Hose to Inlet Coupling

Two clamps **(c)** are recommended for connection of suction hoses to inlet coupling.

Note: This connection is important. Even a small air leak on the suction side of pump will prevent the pump from priming.

Other Hose Connections

For other hose connections, one T-bolt or worm-gear type clamp is usually sufficient to hold hoses in place. In some cases, slight variances in hose diameters may make it necessary to add more clamps in order to maintain tight connections.



1.18 Accessories

WACKER offers a complete line of fittings, hoses, and clamps to properly connect the pump to match various job conditions. Refer to the Parts Lists in Section 2 of this manual for a complete list of accessories.

1.19 Periodic Maintenance Schedule

The chart below lists basic pump and engine maintenance. Refer to engine manufacturer's Operation Manual for additional information on engine maintenance. A copy of the engine Operator's Manual was supplied with the machine when it was shipped.

	Daily before starting	After first 20 hours	Every 2 weeks or 25 hrs.	Every month or 100 hrs.	Every 3 months or 300 hrs.
Check fuel level.	●				
Check engine oil level.	●				
Inspect air filter. Replace as needed.	●				
Check and tighten external hardware.	●				
Change engine oil.		●		●	
Check oil level in pump gear case.			●		
Grease pump connecting rod bearing.				●	
Clean sediment cup on engine fuel system.				●	
Check and clean spark plug.				●	
Check and adjust valve clearance.					●
Change oil in pump gear case.					●

1.20 Changing Engine Oil

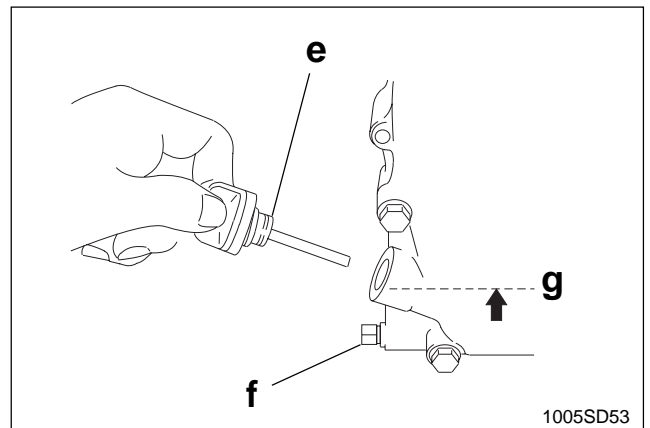
Drain oil while engine is still warm.

1. Remove oil fill plug **(e)** and drain plug **(f)** to drain oil.
2. Install drain plug.
3. Fill engine crankcase with recommended oil up to level of plug opening **(g)**.

Oil capacity: 21 oz. (0.6 liters).

4. Install oil filler plug.

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.*



1.21 Servicing Air Cleaner

Service air cleaner frequently to prevent carburetor malfunction.

NEVER run engine without air cleaner. Severe engine damage will occur.

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.

1. Remove air cleaner cover **(a)**. Remove both elements and inspect them for holes or tears. Replace damaged elements.

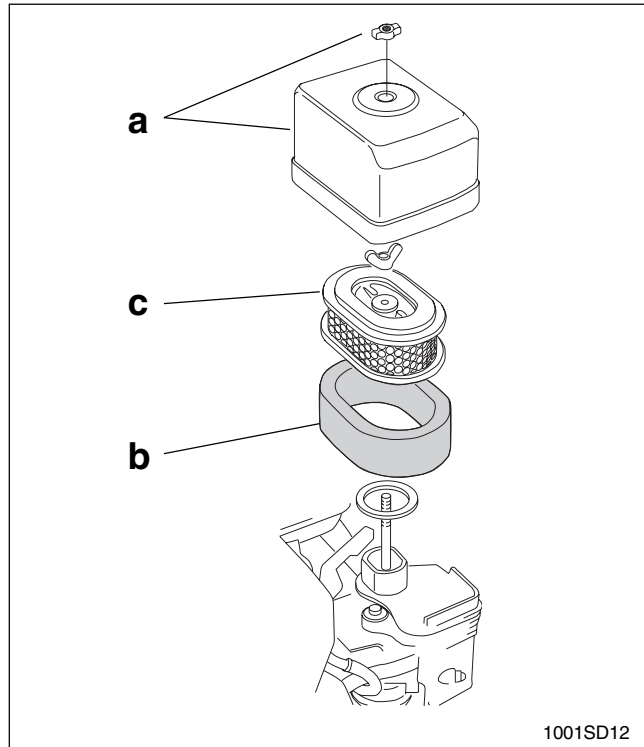
2. Foam Element **(b)**

Wash 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.

3. Paper element **(c)**

Tap element lightly to remove excess dirt or blow compressed air through filter from the inside out. Replace paper element if it appears heavily soiled.



1.22 Spark Plug

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

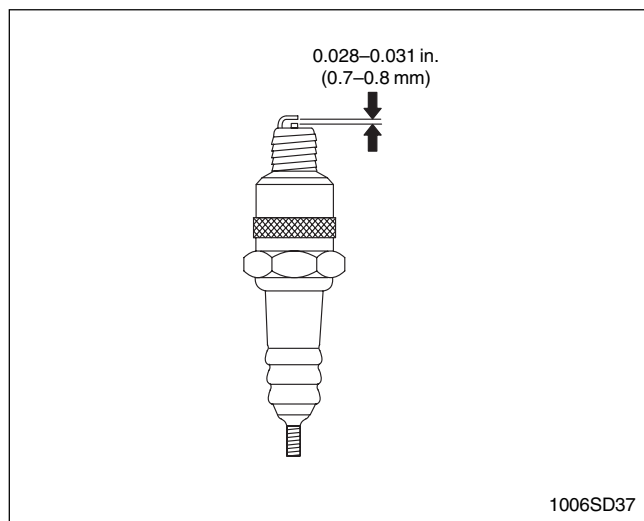
Recommended Plug: (NGK) BPR 6ES
BOSCH WR 7DC

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.

1. Remove spark plug and inspect it.
2. Replace plug if the insulator is cracked or chipped. Clean spark plug electrodes with a wire brush.
3. Set gap to 0.028–0.031" (0.7–0.8 mm).
4. Tighten spark plug securely.

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



1.23 Gear Case

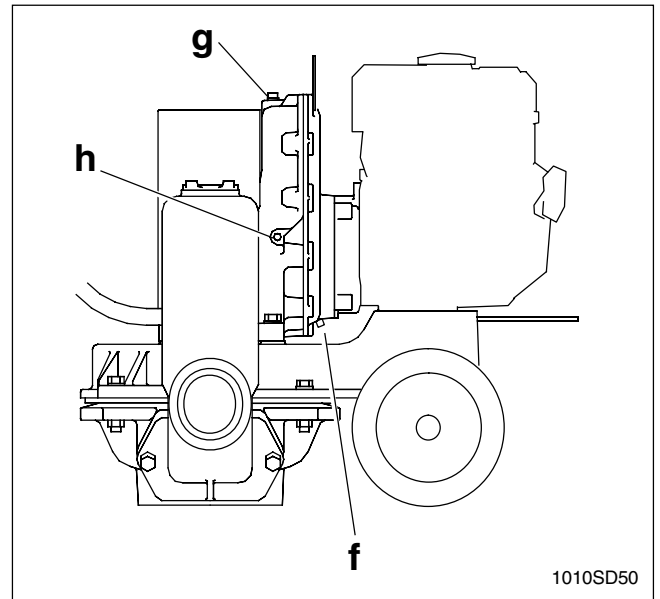
Check the oil level in the gear case once a week or every 25 hours of operation.

Remove oil level plug (**h**). Check that oil level is even with plug opening. If oil level is low, add oil through the top fill plug opening (**g**). Do not overfill.

Change oil in gear case once a year or every 300 hours of operation.

Drain oil through drain plug opening (**f**) at bottom of gear case. Add oil through fill plug on top of gear case.

Oil capacity: 32 oz. (1000 ml) SAE 30



1.24 Connecting Rod Bearing

Grease connecting rod bearing once a week or every 25 hours of operation.

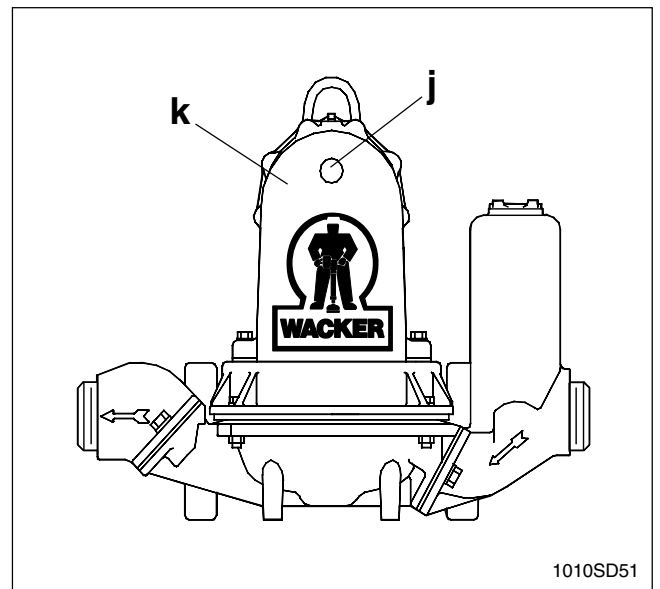
Use a hand operated grease gun. Add grease through grease fitting located behind access hole (**j**) provided on front cover.

1.25 Cleaning Pump

When pumping heavy sludges or water containing large amounts of dirt and solids, clean the pump often. If allowed to sit in the pump and dry, these materials will harden and could damage the valves or diaphragm inside the pump the next time it is used.

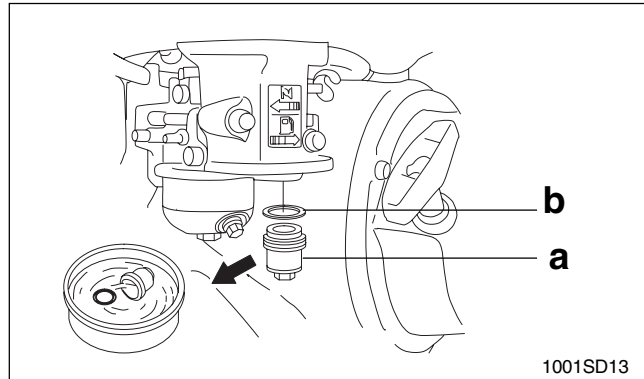
When cleaning pump:

1. Pump clean water through pump for a few minutes after each use to flush dirt from inside pump and hoses.
2. Remove dirt from between engine cooling fins to prevent them from clogging up. This will prevent engine from overheating.
3. Remove front cover (**k**) and clean dirt and grease build-up from connecting rod and inside of front pump cover.



1.26 Cleaning Sediment Cup

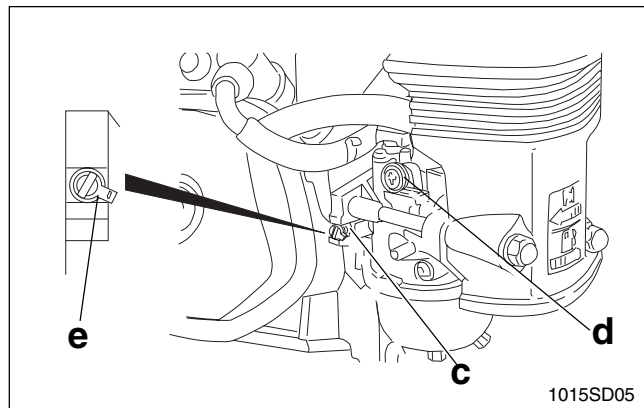
Turn fuel valve off. Remove sediment cup **(a)** and O-ring **(b)**. Wash them thoroughly in a nonflammable solvent. Dry them and reinstall. Turn fuel valve on and check for leaks.



1.27 Carburetor Adjustment

1. Start engine and allow it to warm up to operating temperature.
2. Set pilot screw **(c)** 2 turns out. See Note.
3. With the engine idling, turn pilot screw **(c)** in or out to the setting that produces the highest rpm.
4. After pilot screw is adjusted, turn throttle stop screw **(d)** to obtain the standard idle speed, 1400 ± 150 rpm.

Note: On some engines the pilot screw is fitted with a limiter cap **(e)** 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.



1.28 Storage

If pump is being stored for more than 30 days:

1. Clean pump as described on previous page.
2. Drain out any water left in the pump housing.
3. Remove pump cover and clean inside of pump housing. Spray connecting rod and inside of pump cover with a light film of oil.
4. Tape up suction and discharge ports to prevent anything from falling into pump.
5. Change engine oil and follow procedures described in engine manual for engine storage.
6. Cover pump and engine and store in a clean, dry area.

1.29 Troubleshooting

Problem / Symptom	Reason / Remedy
Engine does not start.	<ol style="list-style-type: none"> 1. Engine problem. See engine manufacturer's service manual for troubleshooting and repair. 2. Engine oil level too low. Add oil to engine. 3. Pump housing filled with dirt and debris. Disassemble and clean inside of pump. 4. Pump gear case damaged. Inspect and repair.
Engine starts but pump does not take in water.	<ol style="list-style-type: none"> 1. Pump is located too high above or too far away from water. Locate pump closer to water. 2. Air leak on suction side of pump. Check that hose fittings and cap on surge chamber are tight and sealing properly. 3. Suction hose damaged or collapsed. Repair or replace hose. 4. Strainer plugged. Clean or replace strainer. 5. Dirt collecting inside pump and hoses, blocking flow. Clean inside of pump and flush hoses. 6. Engine running slow. Check engine speed and adjust. See "Technical Data" for engine speed. 7. Pump valves damaged or not seating properly. Check for stones and gravel imbedded in valves. Replace valves. 8. Diaphragm loose or damaged. Inspect diaphragm for damage. Replace and tighten.
Pump output low.	<ol style="list-style-type: none"> 1. Pump located too high above or too far away from water. Locate pump closer to water. 2. Suction strainer or intake line partially plugged. Clean hose line and strainer. 3. Discharge hose is kinked or end is blocked. Check that hose lies straight and flows freely. 4. Discharge hose too narrow. Use hose of equal diameter or larger than suction hose.

**EC - CONFORMITY CERTIFICATE
EG-KONFORMITÄTSERKLÄRUNG
CE-CERTIFICADO DE CONFORMIDAD
CERTIFICAT DE CONFORMITÉ DE LA CEE**

WACKER CORPORATION, N92 W15000 Anthony Avenue, MENOMONEE FALLS, WISCONSIN USA

hereby certifies that the construction equipment specified hereunder:
bescheinigt, daß das Baugerät:
certifica que la máquina de construcción:
atteste que le matériel:

1. Category / Art / Categoría / Catégorie

**Pump
Pumpe
Bomba
Pompe**

2. Type - Typ - Tipo - Type

**PDT2A, PDT2A(I), PDT3A, PDT3A(I), PDT3A(WW), PDI2A,
PDI2A(I), PDI3A, PDI3A(I)**

3. Item number of equipment / Gerätetypnummer /

Número de referencia de la máquina / Numéro de référence du matériel :

**0007610, 0007611, 0007614, 0007615, 0007616, 0007624, 0007625,
0007628, 0007629**

4. Net installed power / absolute installierte Leistung /
Potencia instalada neta / Puissance installée nette:

3 kW

Has been sound tested per Directive 2000/14/EC / in Übereinstimmung mit Richtlinie 2000/14/EG bewertet worden ist /
Ha sido ensayado en conformidad con la norma 2000/14/CE / a été mis à l'épreuve conforme aux dispositions de la directive
2000/14/CEE :

Conformity Assessment Procedure Konformitätsbewertungsverfahren Procedimiento para ensayar conformidad / Procédé pour l'épreuve de conformité	Measured sound power level / Gemessener Schalleistungspegel / Nivel de potencia acústica determinado / Niveau de puissance acoustique fixé	Guaranteed sound power level/ Garantierter Schalleistungspegel / Nivel de potencia acústica garantizado / Niveau de puissance acoustique garanti
Annex V	95 dB(A)	96 dB(A)

and has been produced in accordance with the following standards:
und in Übereinstimmung mit folgenden Richtlinien hergestellt worden ist:
y ha sido fabricado en conformidad con las siguientes normas:
et a été produit conforme aux dispositions des directives européennes ci-après :

**2000/14/EC 91/368/EEC
EMC 89/336/EEC 93/44/EEC
EN 50082-1 98/37/EEC
VDE 0879-1
MSD 89/392/EEC**

29.10.01

Date / Datum / Fecha / Date

.....
William Lahner

.....
Dan Domanski

WACKER CORPORATION



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