

Repair Manual

Rammer

BS 50 / BS 60 / BS 70

BS 500 / BS 600 / BS 700

BS 65 / BS 650

DS 70 / DS 720



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1.3 Operating Safety

Operator qualifications

Only trained personnel are permitted to start, operate, and shut down the machine. They also must meet the following qualifications:

- have received instruction on how to properly use the machine
- are familiar with required safety devices

The machine must not be accessed or operated by:

- children
- people impaired by alcohol or drugs

Operator training

Before operating the machine:

- Read and understand the operating instructions contained in all manuals delivered with the machine.
- Familiarize yourself with the location and proper use of all controls and safety devices.
- Contact Wacker Neuson Corporation for additional training if necessary.

When operating this machine:

- Do not allow improperly trained people to operate the machine. People operating the machine must be familiar with the potential risks and hazards associated with it.

Personal Protective Equipment (PPE)

Wear the following Personal Protective Equipment (PPE) while operating this machine:

- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

- 1.3.1 Never operate this machine in applications for which it is not intended.
- 1.3.2 Do not allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with the risks and hazards associated with it.
- 1.3.3 Do not 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.
- 1.3.4 Do not operate the machine with unapproved accessories or attachments.

3.3 Periodic Maintenance Schedule (BS 50/60/70-2i)

The table below lists basic machine maintenance. Tasks designated with check marks may be performed by the operator. Tasks designated with square bullet points require special training and equipment.

	Daily before starting	After first 5 hours	Every week or 25 hours	Every month or 100 hours	Every 3 months or 300 hours	Every Year
Check fuel level.	✓					
Check engine oil level.	✓					
Check air filter indicator. Replace as needed.	✓					
Check ramming system oil level in sightglass.	✓					
Check fuel line and fittings for cracks or leaks. Replace as needed.	■					
Tighten ramming shoe hardware.		■	■			
Check engine cylinder screws.		■	■			
Check external hardware.		✓	✓			
Clean engine cooling fins.			✓			
Clean and check spark plug gap.			■			
Replace spark plug.				■		
Clean recoil starter.					✓	
Change ramming system oil.*					■	
Clean engine muffler and exhaust port.					■	
Inspect lifting cable for wear, damage, or abuse.					■	
Inspect fuel filter.						✓
<p>* Change ramming system oil after first 50 hours of operation. Note: If engine performance is poor, check, clean, and replace air filter elements as needed.</p>						

4.4 Throttle Control (pre-2010 models)

See Graphic: wc_gr003876

4.4.1 Adjust the nut **(a)** on the throttle control lever **(b)** so that the lever moves freely but still holds its position while the rammer is operating. The recommended torque value is 2.9 Nm (2.1 ft.lbs.).

To adjust the throttle cable:

4.4.2 Place the throttle lever in the STOP position **(c)**.

4.4.3 Loosen the clamp screws **(d)**.

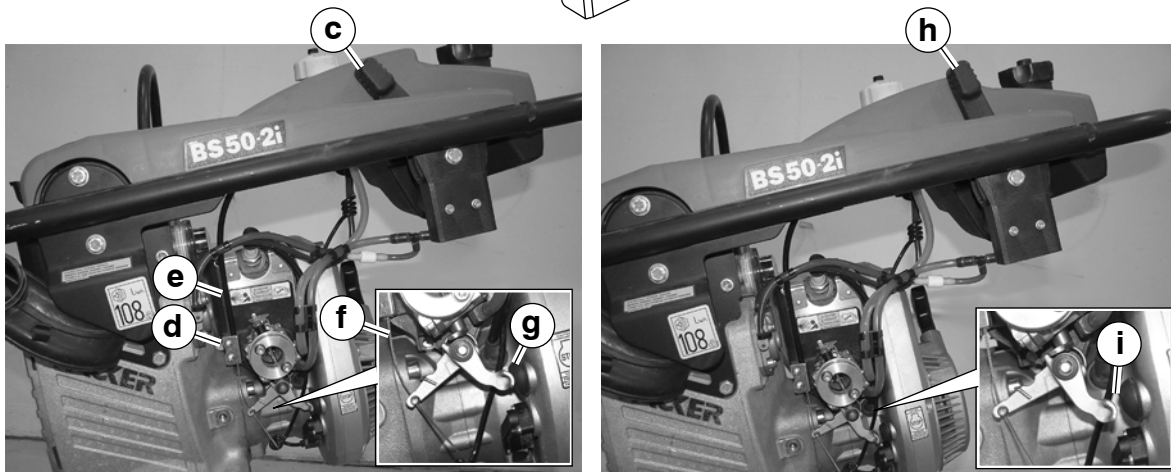
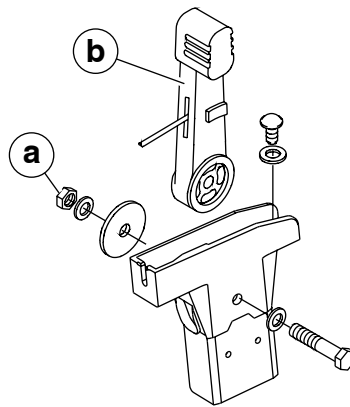
4.4.4 Slide the throttle cable **(e)** through the clamp until there is slack **(f)** in the throttle cable and the stop lever activates the stop button **(g)**.

4.4.5 Tighten the clamp screws.

4.4.6 Place the throttle control in the IDLE position **(h)**.

4.4.7 Check that the stop button is not activated. There should be a gap **(i)** between the stop lever and the stop button.

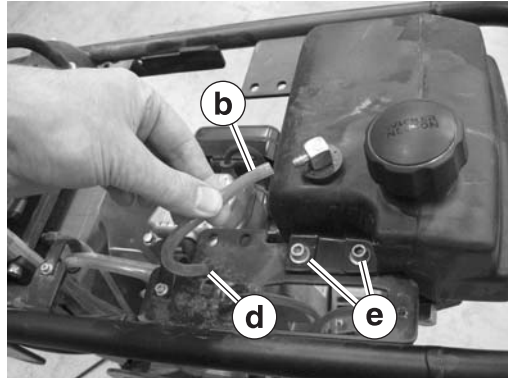
4.4.8 Adjust the cable at the clamp as necessary so that the engine stops when the throttle control is in the STOP position and idles when the throttle control is in the IDLE position.



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- 4.8.8 Remove the screws (**e**) that hold the fuel tank to the guide handle.



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- 4.8.9 Disconnect the upper fuel line (**b**) from the tank. Thread the fuel line through the hole in the guide handle (**d**), then reconnect it to the fuel tank. Place the fuel tank (**c**) on top of engine.

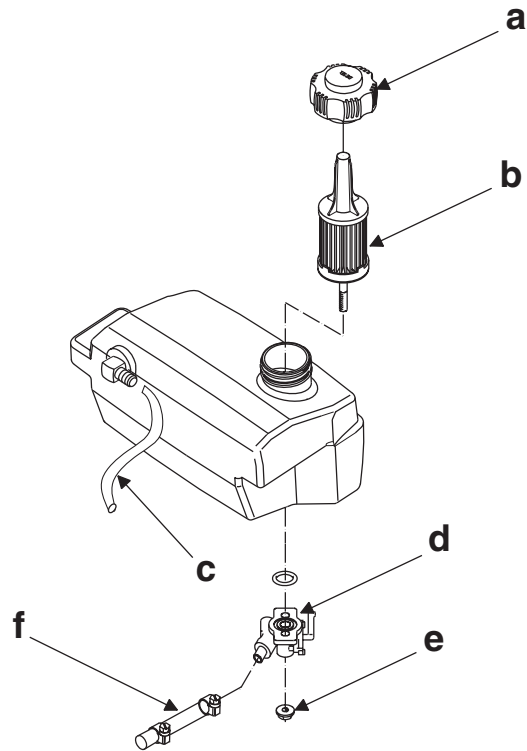
- 4.8.10 Remove the screws that hold the guide handle (**g**) to the shock mounts and remove the guide handle from the machine.



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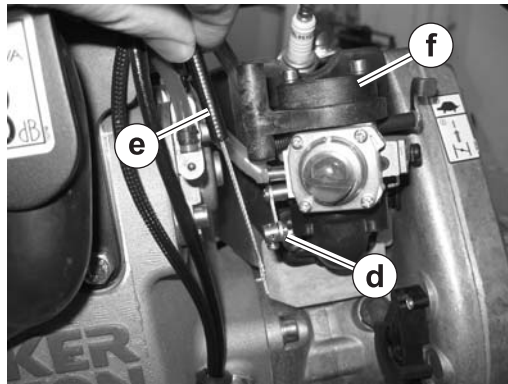
Result

The removal procedure is now complete.

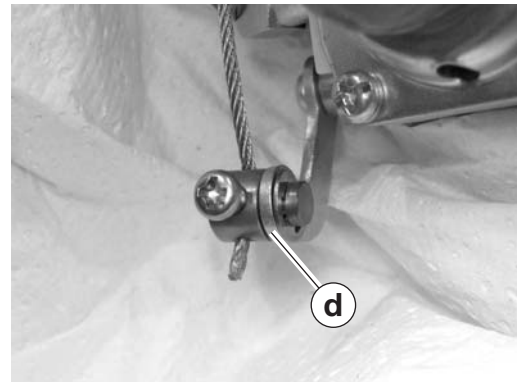


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- 4.19.4 Slide the throttle cable (e) through the adapter (f) and reconnect it to the clamp (d).

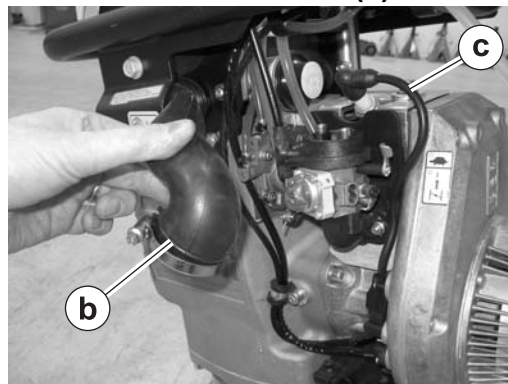


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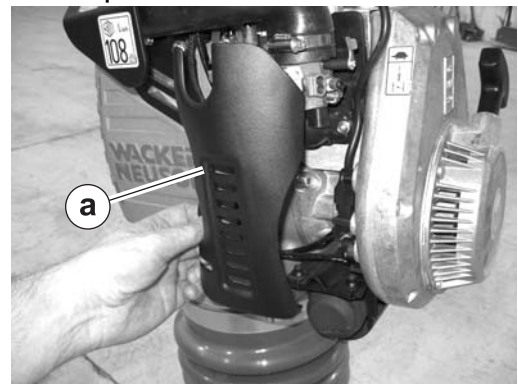


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- 4.19.5 Install the air duct (b) with the hose clamp.



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- 4.19.6 Using Loctite® 243 on the screws, install the carburetor guard (a).

Result

The installation procedure is now complete.

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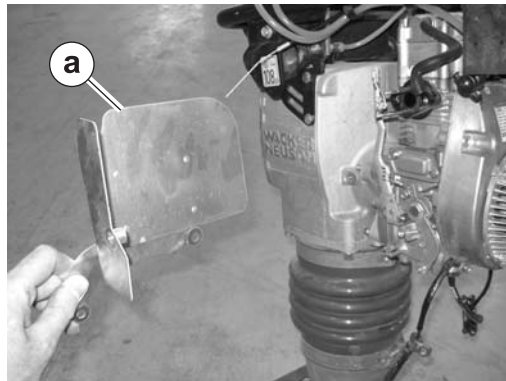


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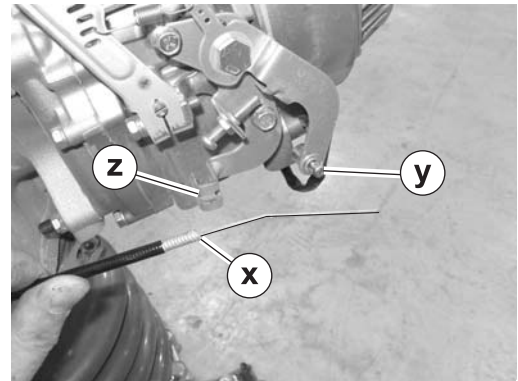
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4.23.6 Remove the heat shield (a).



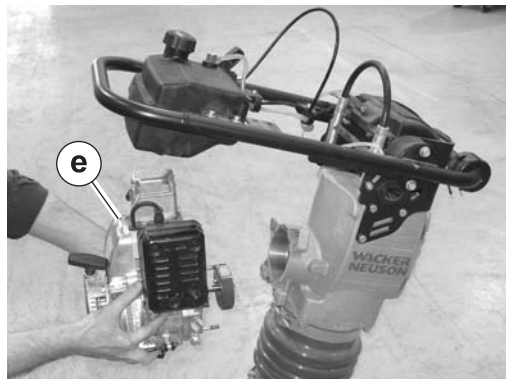
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4.23.7 Disconnect the throttle cable (x) at the swivel (y) and the clamp (z).

4.23.8 Remove the nuts that hold the engine and remove the engine (e) from the machine.

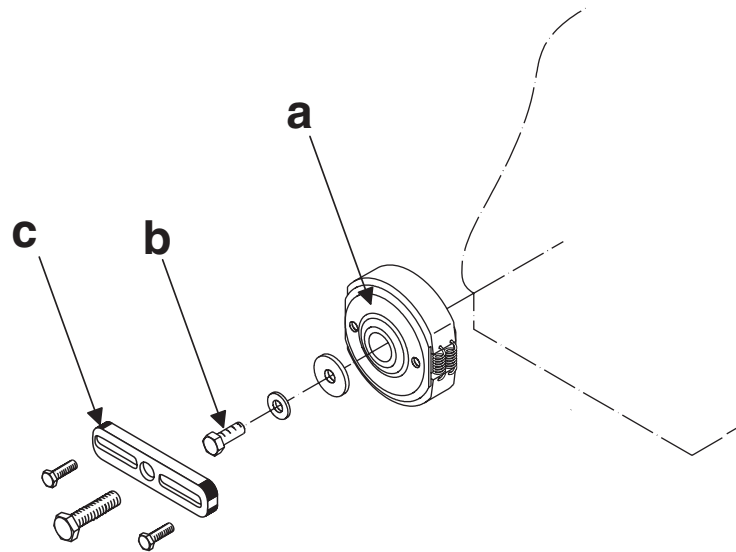


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Result

The removal procedure is now complete.

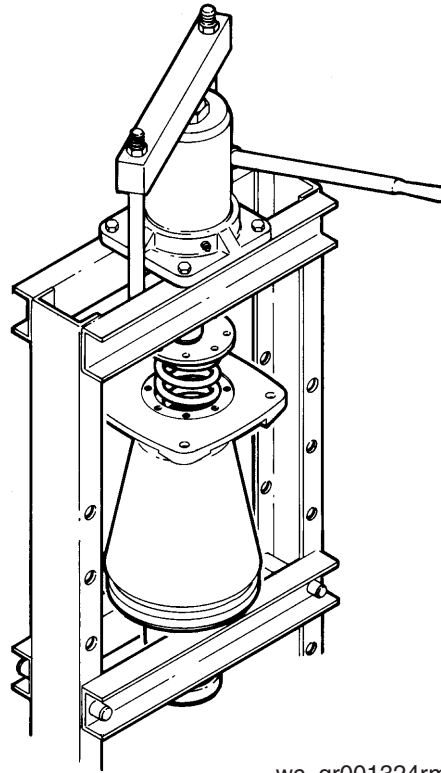
DS 720 Models



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5.3.14 Attach the ramming system to the upper machinery.

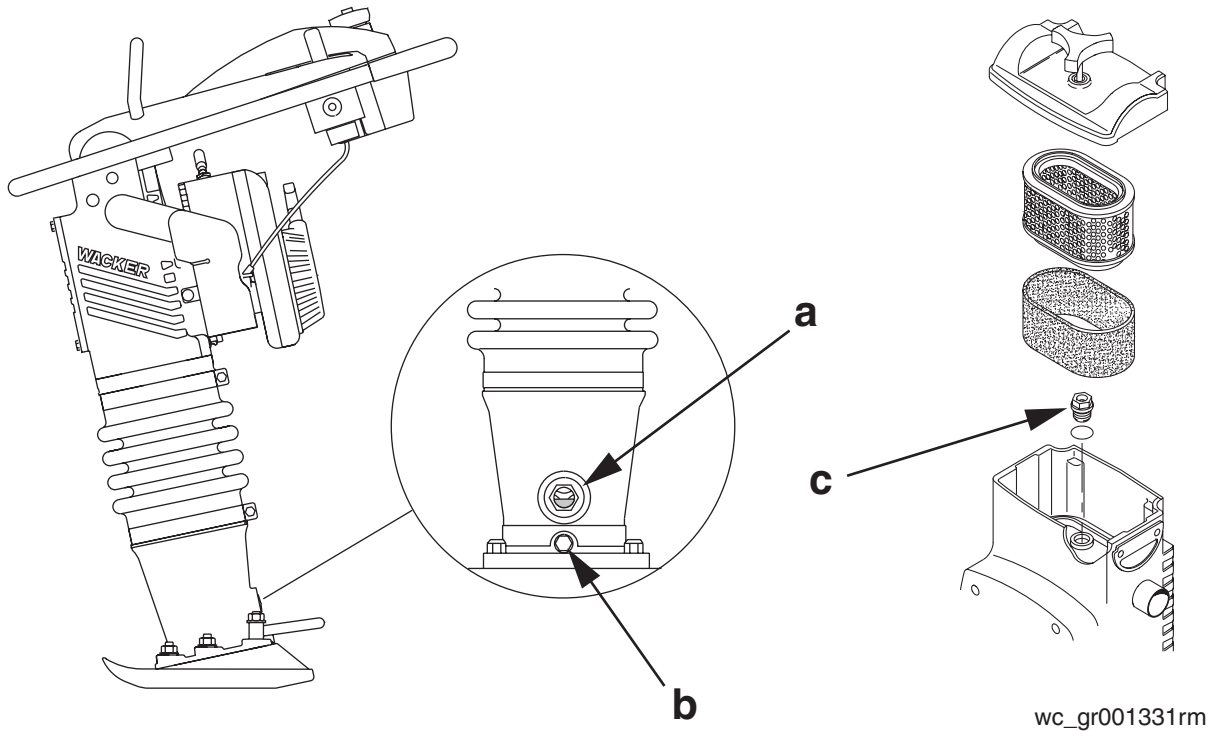
Hydraulic Press Method

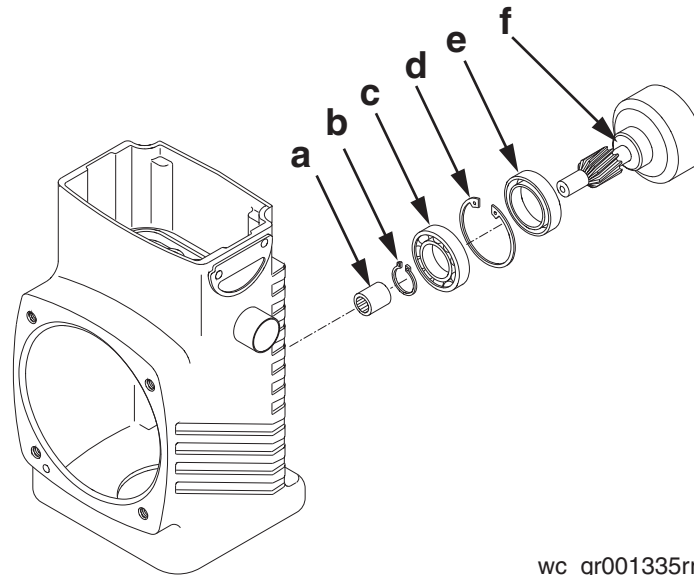


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5.7.9 Reinstall the seal-ring and the fill plug. Torque the fill plug to 47 Nm (35 ft.lbs.).

Note: An alternate method of changing the oil is to drain and fill the oil from the sightglass.





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Assembly

- 6.3.14 If the needle bearing was removed, press a new bearing into the cover until the outer race is flush with the flange surface.

NOTICE: Keep the inside of the clutch drum absolutely free of any oil and grease.

- 6.3.15 Press the clutch drum ball bearing into the crankcase.
- 6.3.16 Secure the bearing with the large retaining ring.
- 6.3.17 Pack the shaft seal cavity with Shell Alvania RL2 grease. Install the shaft seal with the open side facing toward the bearing.
- 6.3.18 Press the clutch drum into the crankcase.
- 6.3.19 Secure the clutch drum with the small retaining ring.
- 6.3.20 Assemble the cover to the crankcase. Apply Loctite 243 and torque the screws to 49 Nm (36 ft.lbs.).
- 6.3.21 Connect the crankcase to the ramming system as follows:

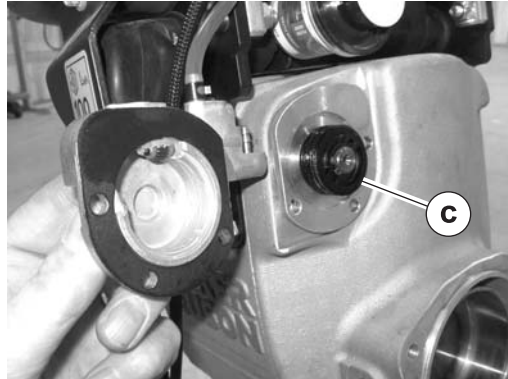
- a. Position the upper machinery over the guide cylinder.
- b. Align the connecting rod inside the ram.
- c. Install the piston pin and the end plugs.

Note: Use new end plugs whenever the piston pin has been removed.

- d. Fasten the guide cylinder to the crankcase. Apply Loctite 243 and torque the screws to 43 Nm (32 ft.lbs.).

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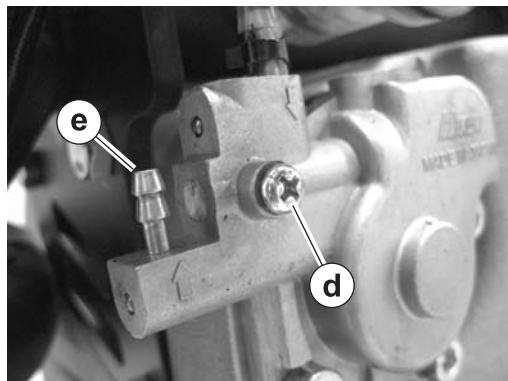
- 7.5.5 Separate the pump from the cartridge portion of the pump assembly. The cartridge may remain in the engine.



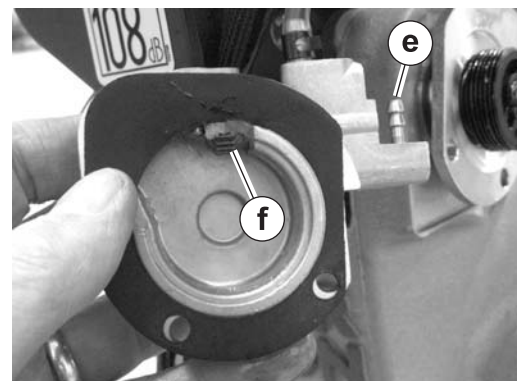
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- 7.5.6 Inspect the gear (c) for damage. If the gear is damaged, replace it.

- 7.5.7 Open the bleed screw (d) until oil flows from the output nipple (e), then close the bleed screw.



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- 7.5.8 Rotate the small gear (f) within the pump housing. Oil should flow out of the output nipple (e) within 20 revolutions of the small gear. If no oil flows out of the output nipple, replace the pump.

Note: The pump puts out a 0.8 mm (0.030 in.) droplet of oil every 7–9 seconds of running at 4350 rpm.

This procedure continues on the next page.

10.4 BS 500S

Item Number:		BS 500S 0009211
Rammer		
Engine Model	type	WM80
Engine Speed - full	rpm	4700 ± 100
Engine Speed - idle	rpm	1800 ± 100
Clutch Engagement	rpm	2800 ± 100
Spark Plug	type	Champion RL95YC
Electrode Gap	mm (in.)	0.5 (.020)
Cylinder Head Compression (cold)	bar/cm ³ (psi)	8.0–9.7 (120–140)
Engine Lubrication	oil grade	With standard two-cycle oil - use 50:1 ratio. With Wacker Neuson two-cycle or two-cycle oil per NMMA TC-W3, API TC, JASO FC or ISO EGD specifications - 100:1 or 50:1 ratio.
Ramming System Lubri- cation	oil grade	SAE 10W30
Ramming System Capacity	ml (oz.)	562 (19)

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