



<b>1</b>	<b>Determine the cause of breakdown</b>	<b>Before installing a new steering pump – please determine what has caused the old pump to break down – fitting a new pump will not improve the rest of the system, and defects that are not repaired might also damage the new pump.</b>
<b>2</b>	<b>Compare the old and new pump</b>	<b>Check that the pump is equivalent to the one from the vehicle – same pulley size, offset, same fixation measurement &amp; connections (hydraulic as well as electric).</b>
<b>3</b>	<b>Flushing is necessary</b>	<b>In general, it is recommended to flush the steering system, when replacing the pump. This is done to ensure that any particles that could have caused the failure of the pump are removed.</b>
<b>4</b>	<b>Check the power steering lines</b>	<b>The hoses wear from inside out, so their condition cannot be assessed visually. If any hoses feel stiff, porous or hard, the replace all hoses. They have been installed for an equal length of time, so they are likely equally deteriorated.</b>
<b>5</b>	<b>For electro-hydraulic pumps</b>	<b>Ensure that the battery is in good condition. Clear any stored error codes, before removal of the old pump.</b>
<b>6</b>	<b>Bleeding the system</b>	<b>After the new pump has been installed, it is necessary to bleed the steering system. This includes filling the system with fresh power steering fluid (following the recommendations of the vehicle manufacturer). In specific cases, it may be necessary to use a vacuum pump, to remove all airlocks.</b>
<b>7</b>	<b>Programming electro-hydraulic pumps</b>	<b>The electro-hydraulic pumps need to be calibrated and programmed to the car. Please follow the vehicle manufacturers guidelines.</b>
<b>8</b>	<b>Check the fluid level</b>	<b>After finalising the installation of the pump, including bleeding the system, remember to check that the level of power steering fluid is within the minimum and maximum mark on the container or dip stick. Running with either too little or too much fluid may damage the system.</b>

# Troubleshooting guidelines: Steering Pumps - POSSIBLE ERRORS

Product group	Problem	Cause	How to identify	Solution	Preventive actions
PSP	Leaking.	The spring plate, clamping the pinion and rack bar have been installed too tight.	Power steering fluid is visible on the outside of the unit, and spills have been cleaned up.	Ensure the o-rings/gaskets have been changed, if the leak is present at the hydraulic lines. If the leak is present elsewhere, the unit must be returned.	Always renew o-rings/gaskets for the hydraulic lines, when installing a new rack or pump.
PSP	Excessive noise.	Air lock in the steering system.	With the engine running there is a distinct whirring coming from the unit.	Bleed the steering system. Some units require vacuum bleeding to remove air locks.	Check if the vehicle manufacturer recommends any specific steps to be taken in the renewal of the steering system.
PSP & EHPSP	No/low pressure.	Debris in the steering system, or collapsed hydraulic lines. Air lock in the steering system.	The steering feels heavy.	Bleed the steering system. Some units require vacuum bleeding to remove air locks. The hydraulic lines may have degraded – most lines last around 10 years.	Always check condition of old power steering fluid for debris, as this may indicate degradation of the hydraulic lines.

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EHPSP = Electro-Hydraulic Steering Pump

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EHPSP	Error codes.	Error codes from the old unit was not cleared prior to removing it. Battery voltage can be too low. The unit is not initialised/programmed with the car.	It is not possible to clear the error codes related to the unit.	If the error codes was not cleared prior to the removal of the old unit, the codes have been transferred to the replacement. The unit must be returned for exchange. Check battery voltage as this will also affect the unit. Initialise/program the unit, following the vehicle manufacturers instructions.	Always clear the system of error codes prior to removal of the old unit. Remember to initialise/program the unit with the car.

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EHPSP	Non-communication	If the incorrect unit is installed it will not function correctly – and in many cases, communication with the unit is impossible.	It is not possible to establish a diagnostics connection with the unit.	Confirm that the installed part is correct to the vehicle, and that it matches the old unit.	Always order by VIN number or OE reference on the old unit.

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