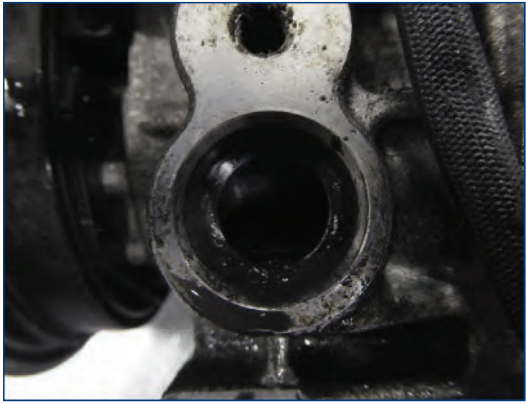




All original DENSO compressors are filled with the correct type of oil.

Compressor failure: fault analysis

Contamination by wear particles



The intake port is dirty and black.

Problem: No variable compression, compressor seizing up.
Cause: Contamination from worn oil and metal particles.
Consequence: Dirt particles circulate in the system and re-enter the compressor, which impairs lubrication or clogs the control valve.



The outlet opening is black and discoloured.

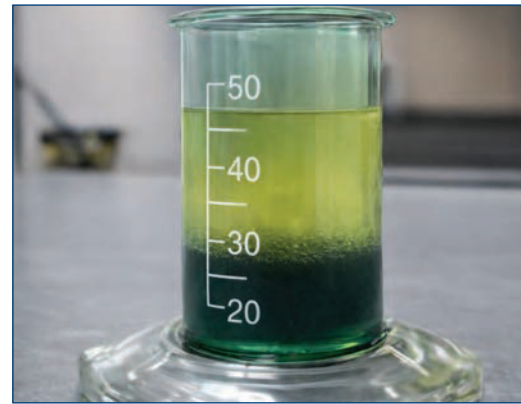
Problem: No variable stroke, compressor or air conditioning system fails.
Cause: Overheating of the compressor due to insufficient refrigerant (leaks/lack of maintenance), insufficient oil (incorrect repair) and poor cooling (condenser fan failure/contamination of the condenser).
Consequence: Insufficient oil return and high compression pressures lead to poor lubrication and overheating of the compressor.

Contamination in the circuit:



Paraffin-like substance

Problem: No variable stroke, system blocked or compressor or air conditioning fails.
Cause: PAO oil was added to the refrigerant circuit. PAG oil and PAO oil do not mix, resulting in the formation of a paraffin-like substance.
Consequence: Blockage of the compressor control valve or the refrigerant circuit.



Clear separation of two different types of oil, one transparent, the other not

Problem: No variable stroke, system blocked or compressor seized up.
Cause: PAO oil was added to the refrigerant circuit. PAG oil and PAO oil do not mix, forming a paraffin-like substance.
Consequence: a) Blockage of the compressor control valve or the refrigerant circuit. PAO oil = universal oil PAG oil = ND oil 8 & ND oil 12.
b) Metal chips are present in the system due to the compressor seizing up



Clear separation of two different types of oil, one floating in droplets on top of the other

Problem: Compressor makes loud noises and/or is seized up.
Cause: POE oil has been added to the refrigerant circuit. PAG oil and POE oil do not mix properly.
Consequence: a) Too high a proportion of POE reduces the lubricating performance. ND oil 11 = POE oil, ND oil 8 & ND oil 12 = PAG oil
b) Metal chips are present in the system due to the compressor seizing up



Rubber seals are deformed and do not fit into the intended position

Problem: No variable stroke, air conditioning system is leaking.
Cause: a) Incorrect refrigerant was filled into the system.
b) Additives (conditioners) or incorrect flushing agents were used.
Consequence: Refrigerant, oil, additives or flushing agents penetrate the rubber and cause deformation.



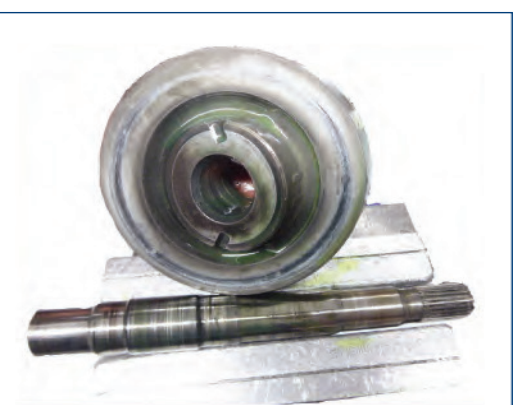
A hardened or gel-like substance in the oil or in the outlet opening

Problem: No variable stroke, system blocked or compressor seized up.
Cause: Additives such as leak stop or conditioner have been added to the refrigerant circuit.
Consequence: A chemical reaction with leak stop or conditioner leads to a blockage of the compressor control valve or expansion valve and/or metal chips are present in the system due to the compressor seizing up.



Too much or poor-quality UV contrast agent

Problem: Poor performance, compressor makes noise, compressor is seized up.
Cause: Too much UV contrast agent or poor-quality UV contrast agent. As a general rule, a maximum of 5 cc of UV contrast agent must be added to 1 kilogram of refrigerant in accordance with SAE J2297. (500 grams of refrigerant: 2 to 3 cc)
Consequence: a) Too much or poor-quality UV contrast agent can cause insufficient lubrication.
b) Metal shavings are present in the system due to the compressor seizing up.



Liquid hammer

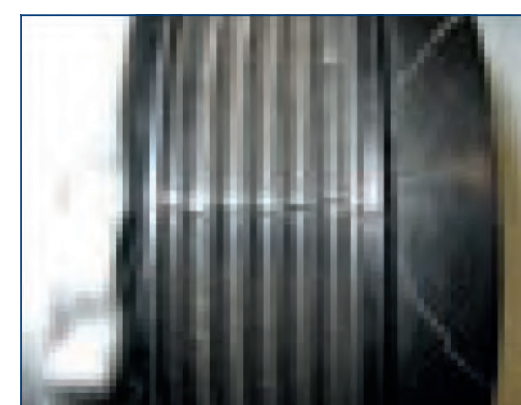
Problem: Poor performance, compressor makes noise, compressor or air conditioning system fails.
Cause: Too much compressor oil or refrigerant in the air conditioning system due to incorrect filling leads to liquid hammer.
Consequence: a) Valve plates and swash plate are damaged in the compressor.
b) Metal chips are present in the system due to the compressor seizing up.

Defective pulley:



Defective overload protection on the pulley

Problem: Compressor not working.
Cause: a) Excessive internal friction in the compressor or compressor or air conditioning system fails.
b) Liquid hammer.
c) Generator pulley freewheel, belt tensioner, crankshaft damper or dual-mass flywheel are defective.
Consequence: a+b) For safety reasons, the overload protection of the pulley breaks instead of the drive belt. c) Excessive oscillation of the drive belt exerts negative forces on the compressor pulley.



Cracked or broken plastic pulley

Problem: Drive belt makes noise or has come off.
Cause: a) Incorrect removal or installation of the drive belt.
b) The pulley was struck before or after installation.
Consequence: Excessive force on the pulley leads to cracks or breakage.

Other faults:



Compressor leaks at the oil drain screw

Problem: The air conditioning system is not working.
Cause: The sealing ring was not replaced after adjusting the oil fill quantity. (Included in the box.)
Consequence: Loss of refrigerant and oil.



The intake opening is clean and dry

Problem: Compressor or air conditioning system fails.
Cause: Inadequate lubrication caused by a) blockage or b) no running-in phase.
Consequence: a) No oil return and no lubrication of the internal parts of the compressor.
b) If the speed is too high during start-up, there is not enough time for the oil to mix with the refrigerant and return to the compressor.

