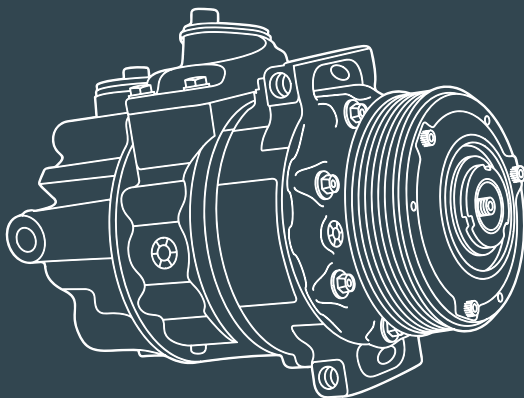


## TROUBLESHOOTING GUIDELINES - AC COMPRESSOR



### INSTALLATION STEPS

Determine the cause of the breakdown.	Before installing a new compressor – please determine what has caused the old compressor to break down – fitting a new compressor will not improve the rest of the system, and defects that are not repaired might also damage the new compressor.
Compare the old and new compressor.	Check that the compressor is equivalent to the one from the vehicle – same pulley size, offset, same fixation measurement, plugs, same oil type, same gas etc.
Flushing is necessary.	In general it is recommended to flush the AC system, when replacing the compressor. Remember, most modern condensers cannot be flushed, so if the oil is contaminated, you will need to fit a new condenser. If anti leak additives, or excessive amounts of UV dye has been added to the system, you will need to flush the system completely, as this will deteriorate the lubrication of the compressor.
If no flushing, adjust oil level.	If the oil from the old compressor is not contaminated or miscoloured, and you do not flush the system, you will have to adjust the oil level in the new compressor to the same level, as is in the old compressor, as the remaining part of the oil is still flowing in the rest of the system.
If flushing, adjust the oil level according to OE an.	If you flush, you must remember that some of our compressors are used on many different cars, so you will need to adjust the oil level to the recommendation of the manufacturer – please refer our oil filling data on the label of the compressor to the OE recommendation of the vehicle, and drain or top up if needed.
Change Filter drier/accumulator, expansion valve.	Remember to change the filter drier/accumulator, orifice tube and expansion valve, and apply vacuum for a minimum of 45 minutes after installation.
Check gas type.	Check that the gas type mentioned on the label of the new compressor is the same as used in the vehicle – R1234YF gas is not compatible with oil for R134A, and can cause breakdown of the system.
Fill with correct amount of gas.	Rotate the hub of the compressor by hand 10 turns before starting up the vehicle, fit belt and fill up the system with the exact amount of gas, that is specified by the manufacturer, adding extra gas, or filling it with too little gas can ruin the new compressor.
Control the pressure after fitting at idle.	When starting up the vehicle, leave it to idle, and turn on the AC at minimum temperature, to allow the oil to return to the compressor. Please observe the pressure on both high and low side to ensure, that the system is working properly, and that there are no clogging or dents in the tubes, causing too high pressure. If the pressure is too high, turn off the AC immediately and find the cause.

## TROUBLESHOOTING GUIDELINES - AC COMPRESSOR

## POSSIBLE ERRORS

Problem	Cause	How to identify	Why the problem occurs	Solution	Preventive actions
Noise from compressor/belt or clutch broken or burnt, even though the axle of the compressor spins lightly.	Belt tensioner not working properly/ crankshaft damper worn out/ dual mass flywheel worn out.	Check alignment and tension of all pulleys/idlers/ tensioners. Check if crankshaft pulley/ damper is too "soft/ loose". If dual mass flywheel is damaged, there can be noise/ vibration, causing the belt to slip. Also check the offset of the new compressor pulley is identical to the old.	Wear of belt belt drive or dampers/ wrong compressor installed.	Replace defective parts in the belt drive/driveline.	Always check individual components in the belt drive, when replacing a compressor.
Noise from compressor/belt.	Belt tensioner not working properly/ crankshaft damper worn out/ dual mass flywheel worn out.	Check alignment of all pulleys/idlers/ tensioners. Check if crankshaft pulley/ damper is too "soft/ loose". If dual mass flywheel is damaged, there can be noise/ vibration, causing the belt to slip. Also check the offset of the new compressor pulley is identical to the old.	Wear/wrong compressor installed.	Replace defective parts in the belt drive/driveline.	Always check individual components in the belt drive, when replacing a compressor.
No cooling effect.	Air mixing flaps in car do not work properly.	Check LP pressure.	Aircon system works properly but cold air is not transferred by flaps to passenger cabin.	Repair flaps or flaps actuator.	
Compressor with electro control valve does not create pressure.	No PWM signal present at the plug of the valve.	Use appropriate Multimeter/scope to check if PWM signal is present.	Usually a sensor somewhere else is defect, causing the system not to send PWM signal to the compressor.	Check temperature sensors, pressure sensor's fans, and other important components, that could shut down the system, and erase possible error codes from the system.	Check signal before changing the compressor.
Compressor with electrical clutch does not create pressure.	Clutch not engaged.	Pulley rotating, but hub standing still.	Poor connection or damaged wiring to the compressor/ error code possibly not erased.	Measure voltage & check where the wiring is disconnected, plugs, etc. Erase errors from the system if it is a vehicle that stores errors.	Check voltage at the plug before fitting a new compressor.
System leaking.	O-rings dry/condenser corroded or damaged, hoses damaged.	Too little gas. When emptying, oil from compressor is black from overheating.	Damaged components, or system not operated to allow oil to hydrate the seals.	Check with UV dye or with appropriate tracing gas, where the leak is, change O-rings, and leaking parts. If oil is black, flush the system, apply vacuum, and fill with proper amount of gas/oil for the vehicle.	Operate AC system regularly to secure lubrication. At service check condition of condenser, tubes/ hoses to ensure they are tight.

## POSSIBLE ERRORS

Problem	Cause	How to identify	Why the problem occurs	Solution	Preventive actions
Compressor not working – seized – hub broken on valve controlled compressor/clutch burned/rust colored on clutch.	System overheated due to poor condenser, fan, pressure switch, too much oil or/and gas on the system, creating too high pressure.	Oil from the compressor is black.	Corrosion of the condenser, fan not working, or pressure sensor defective.	Flush system, replace condenser, filter dryer, compressor, expansion valve or orifice tube, if necessary the pressure switch. Apply proper vacuum and fill with correct amount of gas.	Check condenser temperatures top & bottom at regular service. Check visual quality of external condenser surface (corrosion and dirt).
Compressor not working – seized – hub broken on valve controlled compressor/clutch burned/rust colored on clutch.	Compressor damaged by debris from previous compressor break down/compressor damaged from lack of lubrication.	Oil in the compressor is silver or green with debris.	Not enough gas on the system, too little oil, not proper run in procedure, no or improper flushing before installation of new compressor, or system clogged, obstructing return of gas & oil to the compressor.	Flush system, replace condenser, filter dryer, valve/orifice, apply vacuum, fill with proper amount of gas/oil and follow run in procedure –turn aircon fully up start and idle engine, and allow to run idle for 3 minutes. Check the pressures, and check temperature on tubing to rule out dents/internal damage.	Flush system at replacement of a compressor.