



Installation Instruction

Performance Intercooler

PORSCHE

Porsche 911 Turbo

930 1978-1989

PART NUMBER: ICM - 470

Description

This instruction shows how to replace the OE Intercooler with the do88 Performance intercooler.

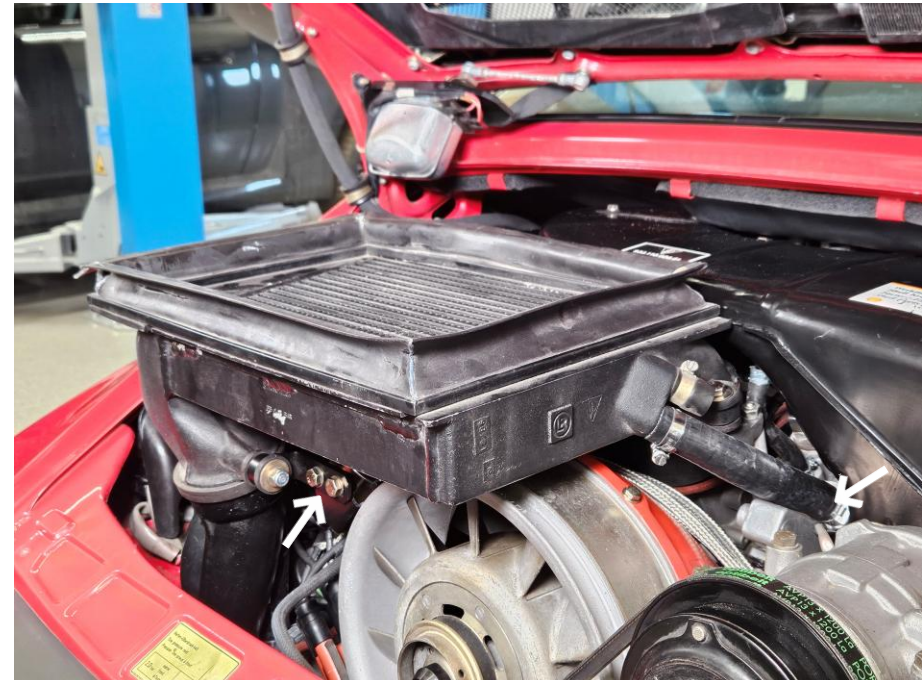
At this type of installation, we always recommend that you have mechanical experience and knowledge about safety during work on vehicles.

This installation instruction is performed on a Porsche 930 Turbo (1987) and the procedure may slightly differ if the installation is carried out on any other year model.



Parts List

1. Intercooler
2. Silicone hose, Turbo inlet pipe to Fuel head
3. Silicone hose, By-pass valve
4. Silicone hose, Turbo outlet for K26 Turbo (OE)
5. Silicone hose, Turbo outlet for K27 Turbo (Upgrade)
6. Silicone hose, Auxiliary air valve
7. Silicone hose, Vacuum limiter valve
8. Silicone hose, Vacuum hose for By-pass valve
9. Silicone hose, Vacuum hose for By-pass valve (50cm)
10. Silicone hose, Vacuum hose for Secondary Air Injection valve (SAI) (20cm)
11. Silicone hose, Wastegate (60cm)
12. By-pass valve (BOV)
13. Electrical cable extension
14. Bracket, intercooler inlet tank
15. Bracket, Vacuum limiter valve
16. Bracket, Aluminium pipe \varnothing 16mm / 103,7mm long (right side bracket)
17. Bracket, Aluminium pipe \varnothing 16mm / 98,5mm long (left side bracket)
18. Rubber bushing, Intercooler mounting (6pcs)
19. Sleeve, Intercooler mounting (3pcs)
20. Stud bolt, M8 50mm
21. Stud bolt, M8 154mm (left side bracket)
22. Stud bolt, M8 162mm (right side bracket)
23. Nut, M8 (3pcs)
24. Screw, M6x12 (2pcs)
25. Screw, M8x16
26. Washer, M8 (5pcs)
27. Hose clamp, 14-15mm (2pcs)
28. Hose clamp, 15.7mm
29. Hose clamp, 13.3mm
30. Hose clamp, 11mm (4pcs)
31. Hose clamp, 16-27mm (5pcs)
32. Hose clamp, 20-35mm (3pcs)
33. Hose clamp, 50-70mm
34. Hose clamp, 60-80mm
35. Hose clamp, 70-90mm (2pcs)
36. Plastic hose coupler, \varnothing 5mm (2pcs)



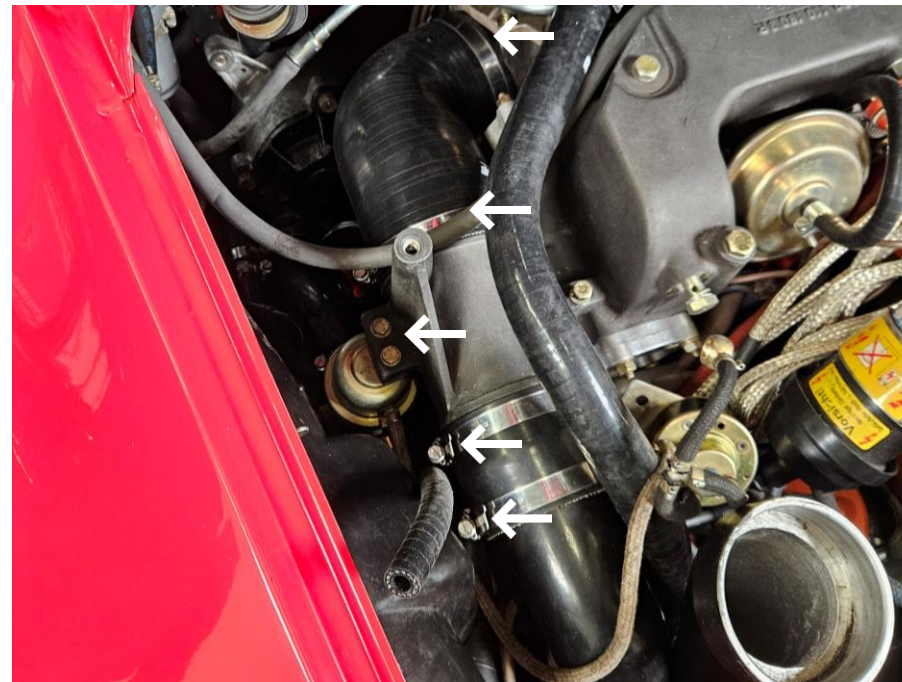
Step 1

Loosen both marked hose clamps and disconnect the hoses from their fittings.
Remove the four 13mm hex screws.
Carefully lift and remove the intercooler from the vehicle.



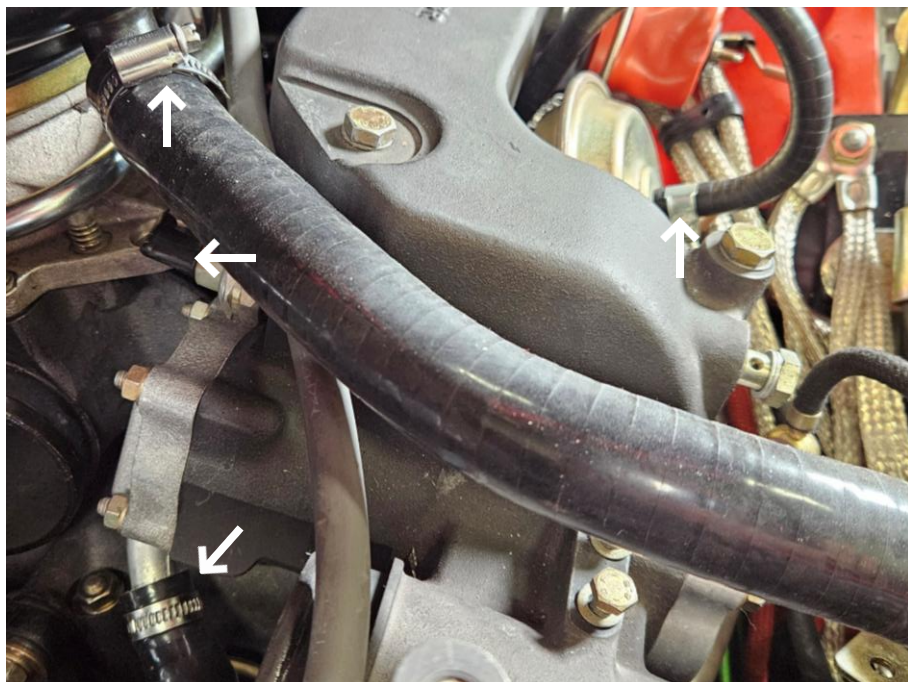
Step 2

Carefully disconnect the vacuum hose from the SAI valve T-fitting.
Remove the two 10mm hex screws and move the SAI valve aside.
Unplug the cable connector for the boost pressure sensor.



Step 3

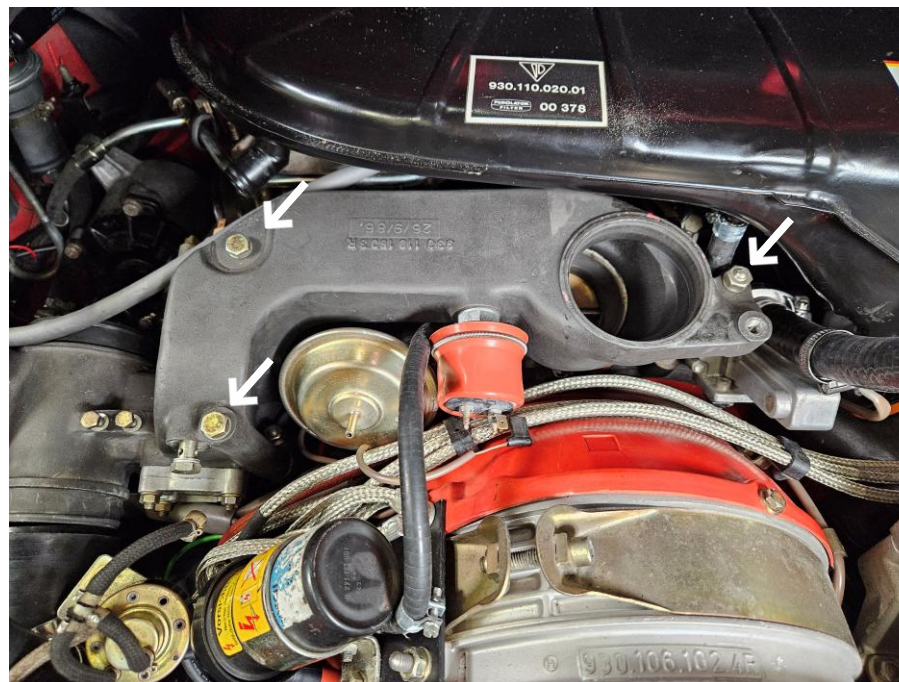
Loosen the four marked hose clamps.
Remove the elbow hose, then slide the straight hose coupler fully onto the turbo inlet pipe.
Remove the two 10mm hex screws from the SAI valve.



Step 4

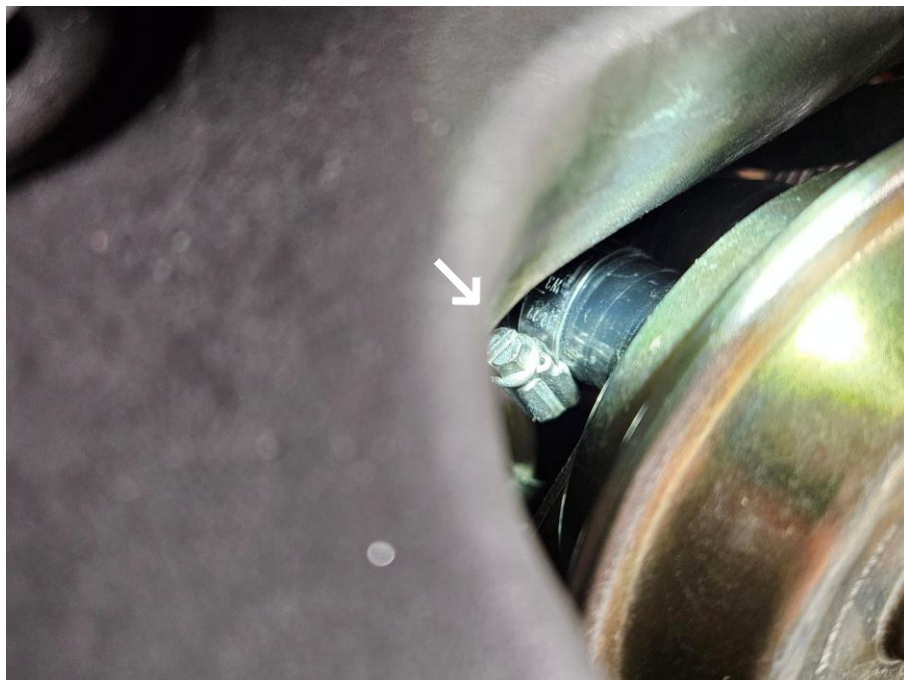
Loosen the three marked hose clamps and disconnect the hoses from their connections.

Unplug the cable connector for the boost pressure switch.



Step 5

Remove the two 13mm hex screws and one 13mm hex nut from the By-pass valve housing.



Step 6

Loosen one of the hose clamps securing the center hose on the vacuum limiter valve.



Step 7

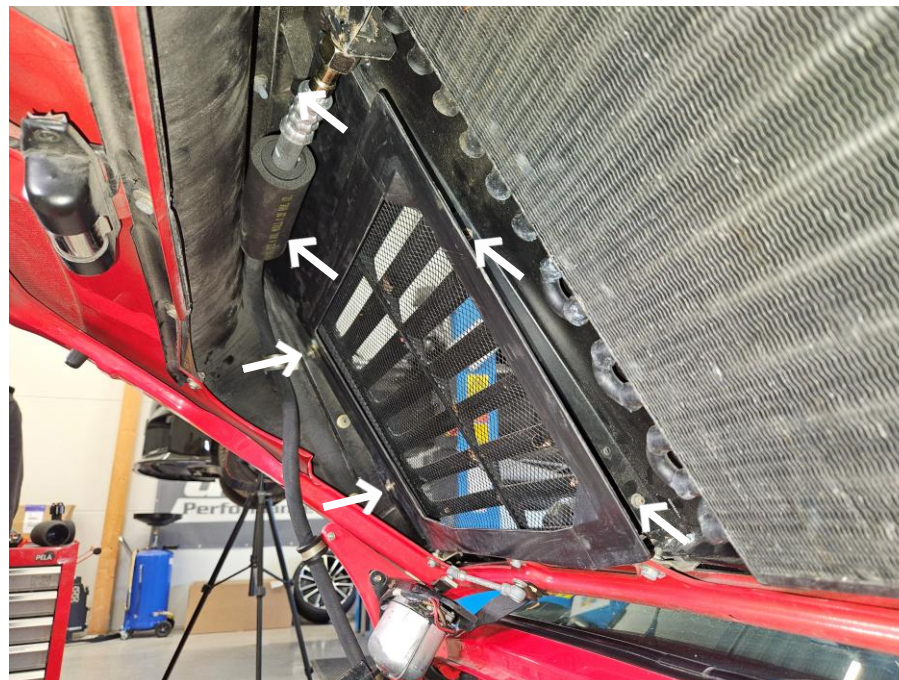
Remove the By-pass valve housing and the turbo outlet pipe. Also remove the O-ring from the turbo outlet.



Step 8

Remove the hose coupler from the turbo inlet pipe, auxiliary air valve hose, and bypass valve vacuum hose.

Also, remove the long M8 stud bolt along with its sleeve positioned below the throttle body connection.



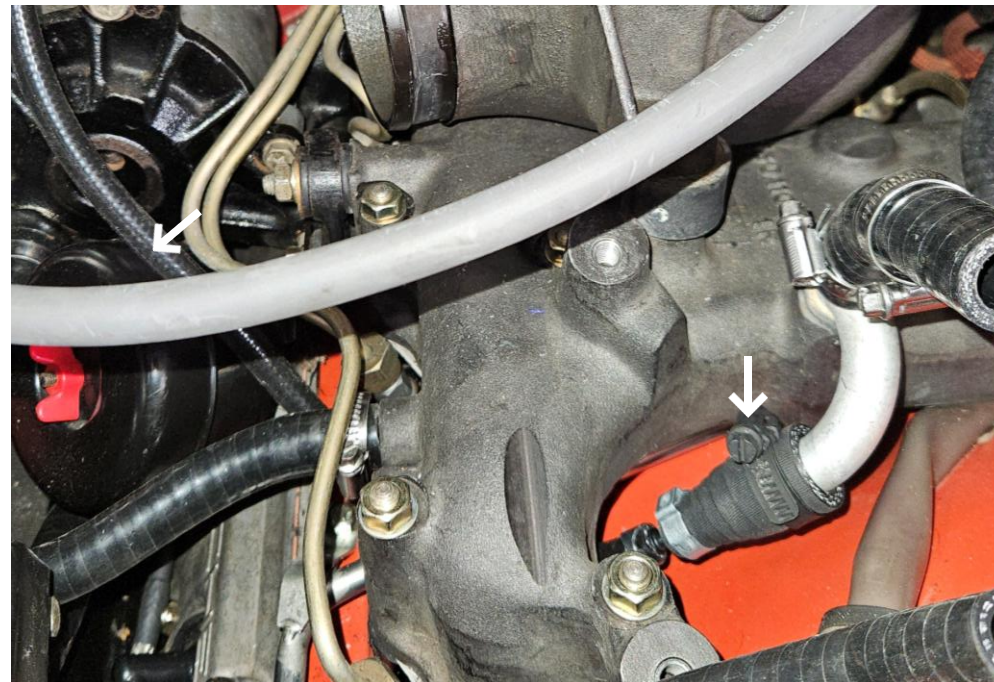
Step 9

Remove the intercooler air guide frame located inside the deck lid. It is secured with four 5mm Allen screws and two Phillips screws with 7mm nuts.



Step 10

Loosen the air filter box—removal is not necessary. Loosen the two 10mm hex screws and the 13mm hex nut. Also, loosen the marked hose clamp and disconnect the hose. The air filter box must be loose to allow for the installation of the do88 intercooler.



Step 11

Install the new by-pass valve vacuum line as shown in the photo. Route the hose underneath the intake manifold. Use the following included parts:

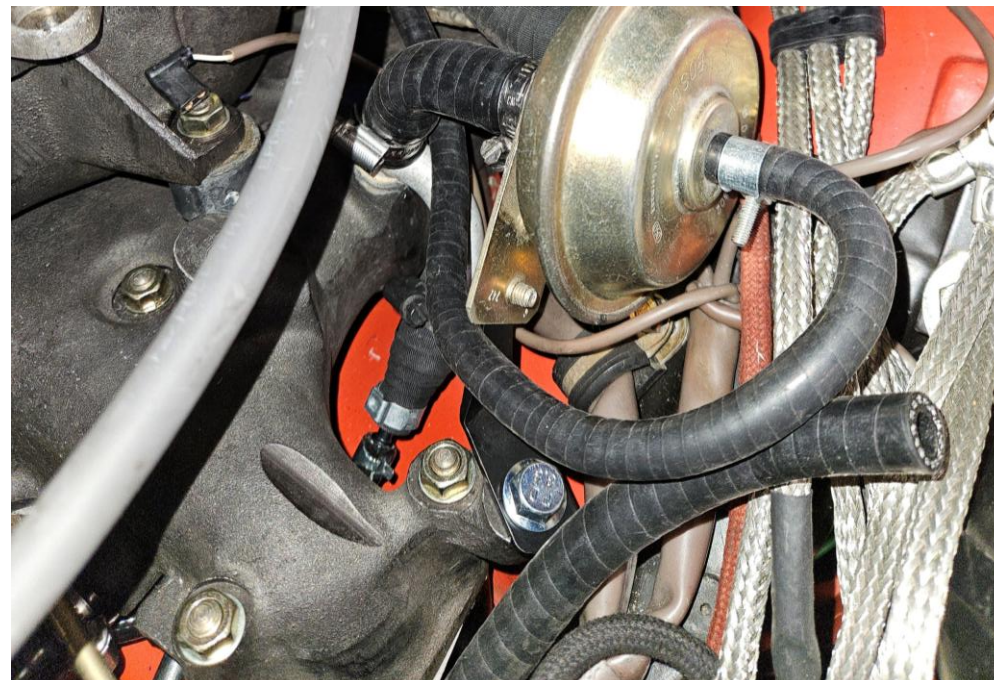
- Silicone hose reducer (#8)
- Ø5mm hose coupler (#36)
- 60cm silicone vacuum hose (#9)
- 11mm hose clamp (#30)
- 15.7mm hose clamp (#28)
- 16–27mm hose clamp (#31)



Step 12

Remove the following components from the by-pass valve housing:

- Boost pressure sensor (24mm hex)
- Boost pressure switch (24mm hex)
- Vacuum limiter valve (secured with two 10mm hex screws and one hose clamp)



Step 13

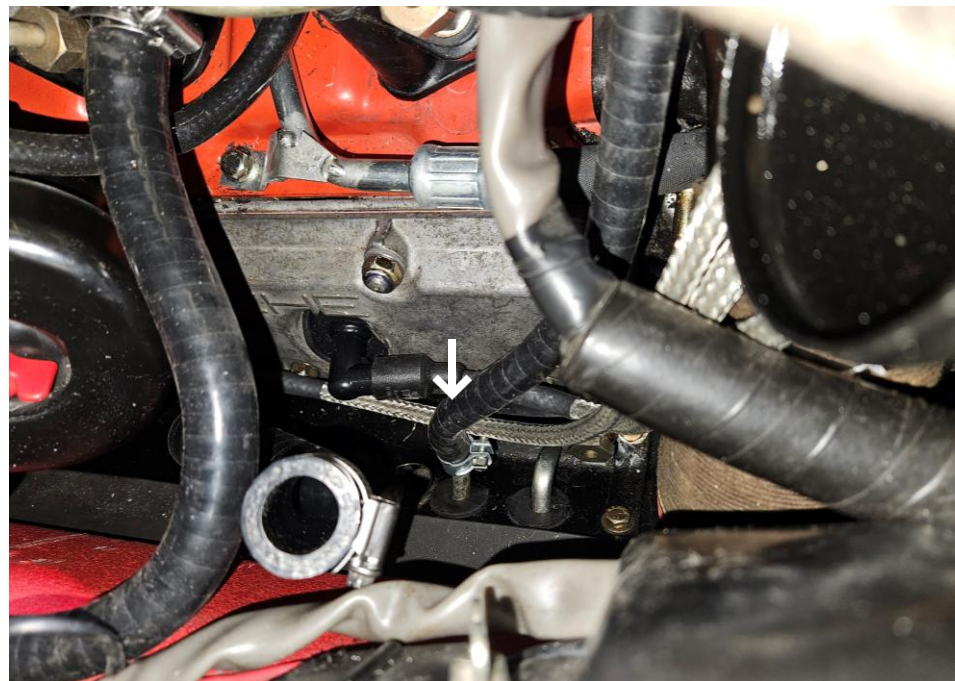
Reinstall the vacuum limiter valve using the included bracket and M8 screw (#15 and #25). Reconnect both the vacuum line and the centered hose and tighten the hose clamps securely.



Step 14

Mount the included parts at the marked locations shown in the photo:

- **Left side:** Install the 154mm M8 stud bolt, 98.5mm bracket pipe, and M8 washer (#21, #17, and #26).
- **Right side:** Install the 162mm M8 stud bolt, 103.7mm bracket pipe, and M8 washer (#22, #16, and #26).
- **Vacuum limiter hose:** Mount the included hose as shown in the photo (note orientation). Secure the clamp at the valve end and loosely place a hose clamp on the opposite end without tightening it yet (#7 and #31).



Step 15

Replace the wastegate vacuum line with the included 60cm Ø8mm silicone hose. Secure the clamp at the lower connection end and loosely fit a hose clamp on the opposite end without tightening it yet (#11 and #27).

This vacuum hose must be replaced because the OE hose is too short for the do88 intercooler.

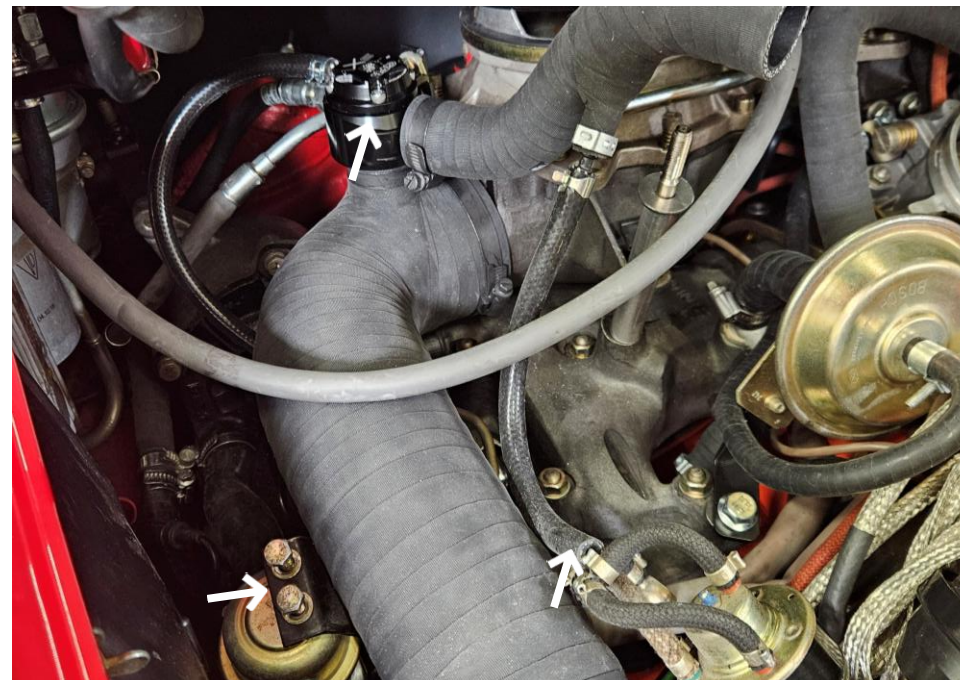


Step 16

Make a pre-assembly of these included parts like on the photo above (#2, #3, #10, #12, #29, #30, #34, #35, #36).

Note:

- Rotation of the By-pass valve and its recirculation hose (tighten its hose clamps)
- Fasten the vacuum line with plastic hose connector and the 11 and 13,3mm hose clamps. *(If your car don't have SAI you can simply plug this Ø5mm connection on the By-pass recirculation hose).*
- Put the included 60-80mm and 70-90mm hose clamps on the large hose connections (without tightening them).



Step 17

Install the pre-assembled components from step 16 into the vehicle. Tighten both hose clamps at each end of the turbo inlet-fuel head hose. Connect the vacuum hose to the T-connection on the SAI valve (same connection as in Step 2). The SAI valve, shown on the left side of the photo, can be secured with a zip tie around the turbo inlet-fuel head hose.

Note: When tightening the hose clamps, ensure the flat surface on the by-pass valve is horizontal.

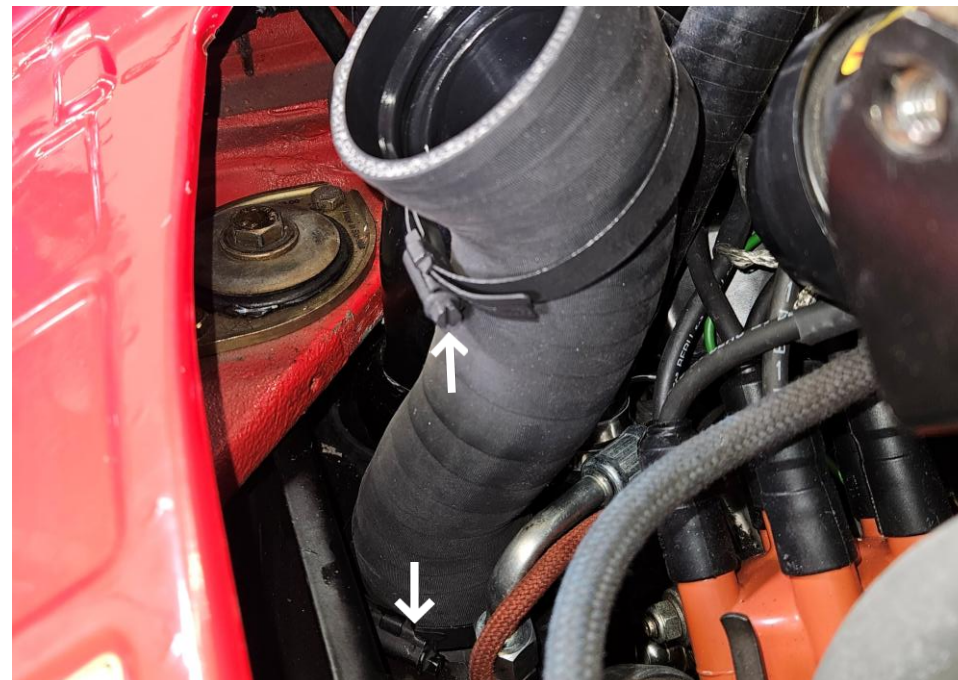
If not properly aligned, the by-pass valve's recirculation hose will not connect correctly to the intercooler.



Step 18

Pre-assemble the following included parts as shown in the photo:
(#6, #14, #18, #19, #20, #23, #26, #31 in the parts list)

- On the inlet tank, fasten the included bracket (#14) using the M8 stud bolt (#20), two rubber bushings (#18), sleeve (#19), washer (#26), and M8 nut (#23).
- On the outlet tank, insert two rubber bushings (#18) and one sleeve (#19) into both brackets.
- Attach the silicone hose (#6) as shown in the photo using the hose clamp (#31). Pay attention to the hose's orientation and which connection on the intercooler.
- Re-install the OE Boost pressure sensor and switch according to photo (removed in step 12)



Step 19

Install the included turbo outlet silicone hose (note rotation of the hose). Two versions are provided:

- Hose for OE K26 Turbo (#4): This hose has a stepped inner diameter facing the turbo.
- Hose for upgraded K27 Turbo (#5): This hose has a straight $\varnothing 51\text{mm}$ inner diameter facing the turbo.

Loosely fit hose clamps (#33 and #35) on both ends of the hose, but do not tighten them yet.



Step 20

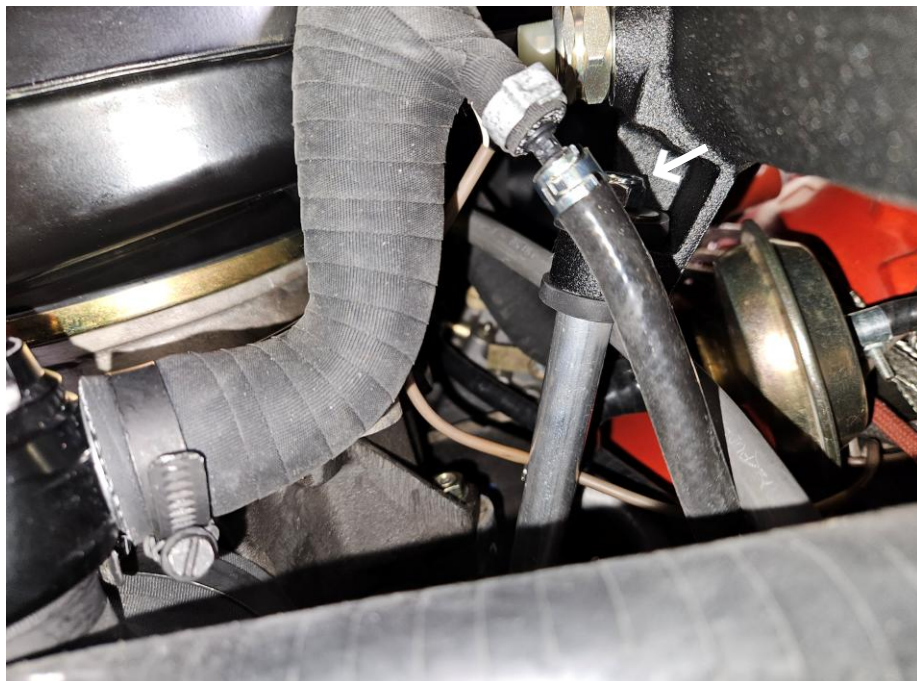
Now it's time to install the new intercooler in the car
(This step is much easier with two people.)

1. Apply fresh grease to the large throttle body O-ring.
2. While lifting the intercooler into place, also lift the air filter box.
3. Before fully positioning the intercooler, fasten the vacuum limiter hose (installed in Step 14) to the lower connection on the intercooler.
4. If the intercooler is difficult to push over the throttle body O-ring, loosen and adjust the engine-side inlet tank intercooler bracket (the same bracket used for the ignition coil), as marked with an arrow in the photo.



Step 21

1. Ensure the intercooler throttle body connection is fully and securely seated over the throttle body O-ring.
2. Fasten the inlet tank intercooler bracket using the included washer and nut (#23 and #26). Then re-install the two OE 13mm hex screws on the engine-side bracket.
3. Slide the turbo outlet silicone hose onto the intercooler connection and tighten both hose clamps securely.



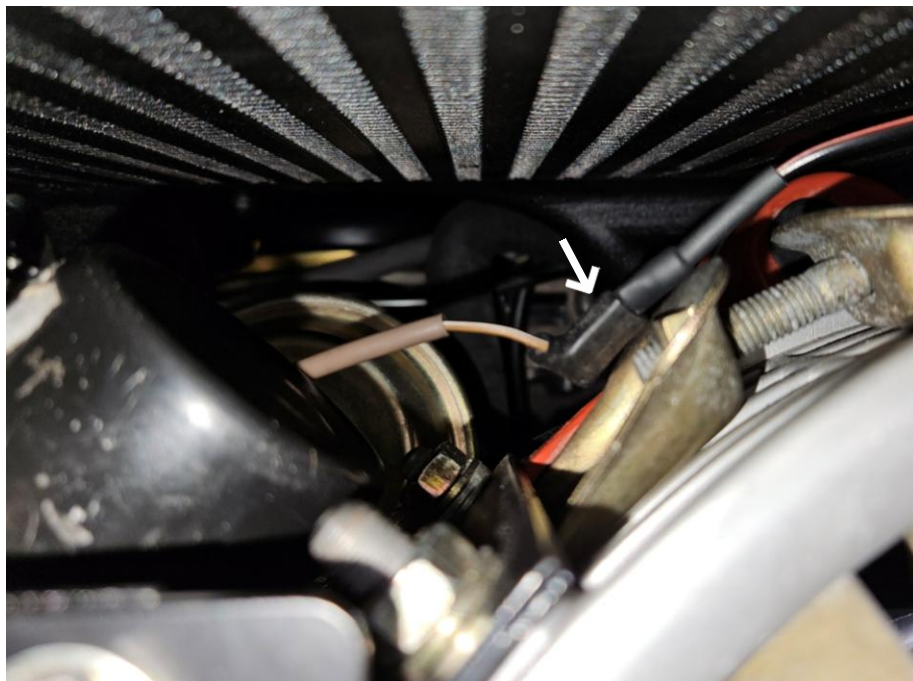
Step 22

1. Secure the left-side stud screw using the included washer and nut (#23 and #26).
2. Reconnect the boost pressure switch cable connector.
3. Attach the by-pass valve recirculation hose to the intercooler connection and tighten it using the included hose clamp (#32).



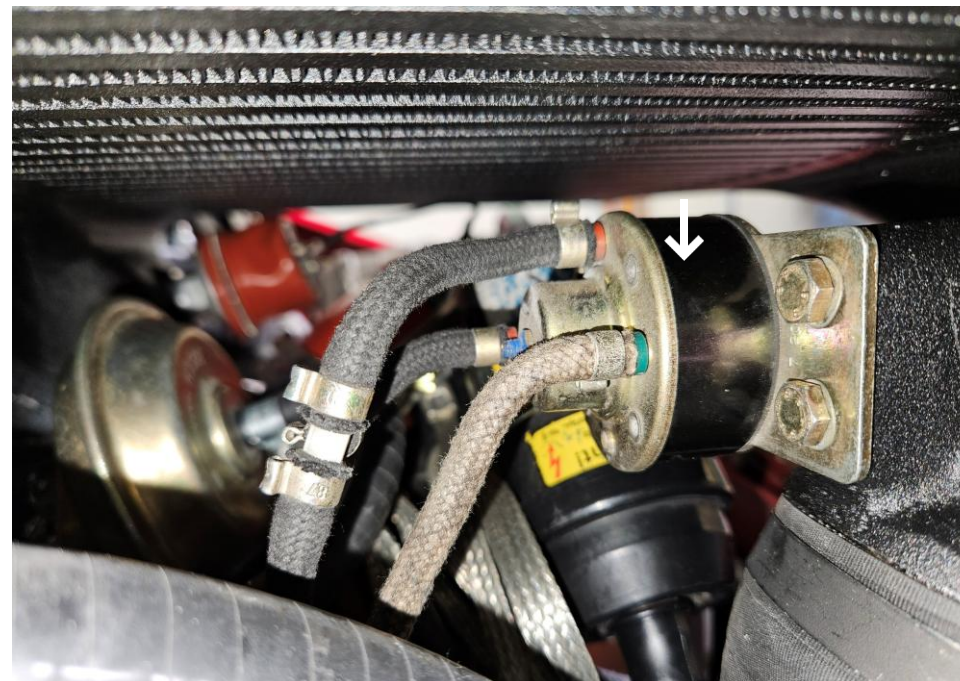
Step 23

1. Secure the right-side stud screw using the included washer and nut (#23 and #26).
2. Connect the auxiliary valve hose to its fitting and tighten it using the included hose clamp (#31).



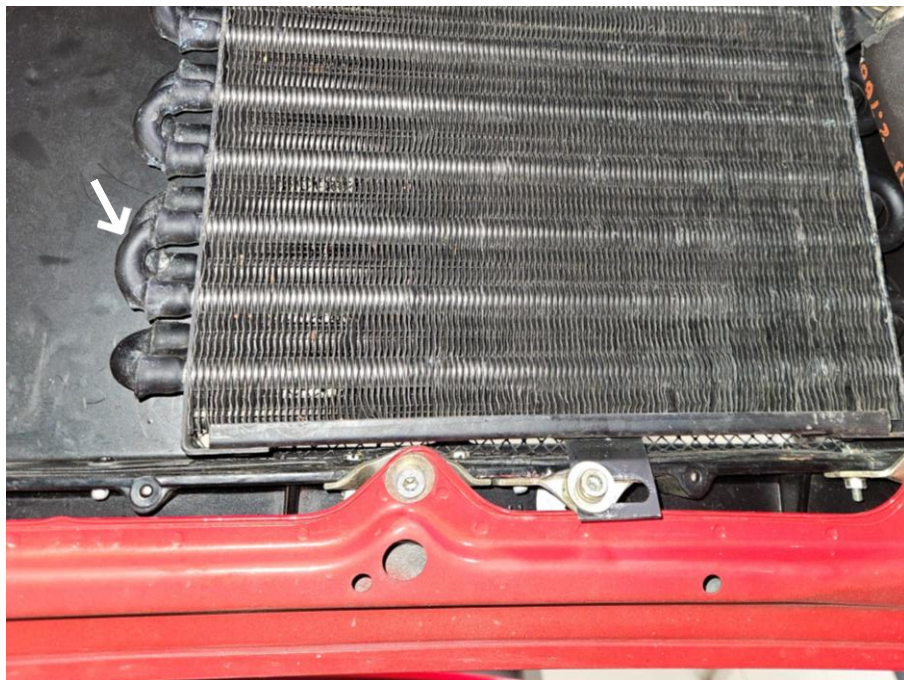
Step 24

Extend the boost pressure sensor cable using the included electrical extension cable (#13) and connect it to the boost pressure sensor located at the throttle body connection.



Step 25

1. Secure the SAI valve to the backside of the inlet connection using the included screws (#24).
2. Connect the wastegate hose to the $\varnothing 8\text{mm}$ fitting on the lower left side of the inlet tank.



Step 26

Carefully and slowly lower the deck lid (without fully closing it) and use a flashlight to check the clearance between the AC condenser tubes (on its left side) and the top-right corner of the intercooler.

If there is little or no clearance, loosen the AC condenser by loosening the three 5mm Allen screws, then gently shift it further to the right.



Step 27

Carefully and slowly lower the deck lid (without fully closing it) and make sure you have clearance for the rear window wiper motor.

If there is little or no clearance, loosen the two 5mm Allen screws and adjust the wiper motor position.



Step 28

Double-check that all hoses, screws, nuts, and cable connectors have been properly installed.

Reconnect and tighten all other parts in reverse order.



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