

## Document Information

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Vehicles affected:

P11: 12C, 12C Spider, 650S, 650S Spider, 625C

P13: 570S, 570S Spider, 540C, 570GT, 600LT

Location: Engine Systems – Engine Miscellaneous

Concern: Lack of power and/or MIL light ON

Condition: Under acceleration

## Diagnostic Trouble Codes

ECM:

P029900 Boost Pressure Control Bank 1 Under Boost

P02CB00 Boost Pressure Control Bank 2 Under Boost

P023400 Boost Pressure Control Bank 1 Over Boost

P02CA00 Boost Pressure Control Bank 2 Over Boost

P226100 Turbocharger Bypass Valve (Dump Valve) Bank 1 Monitor pulsations in induction system (Dump Valve Rationality)

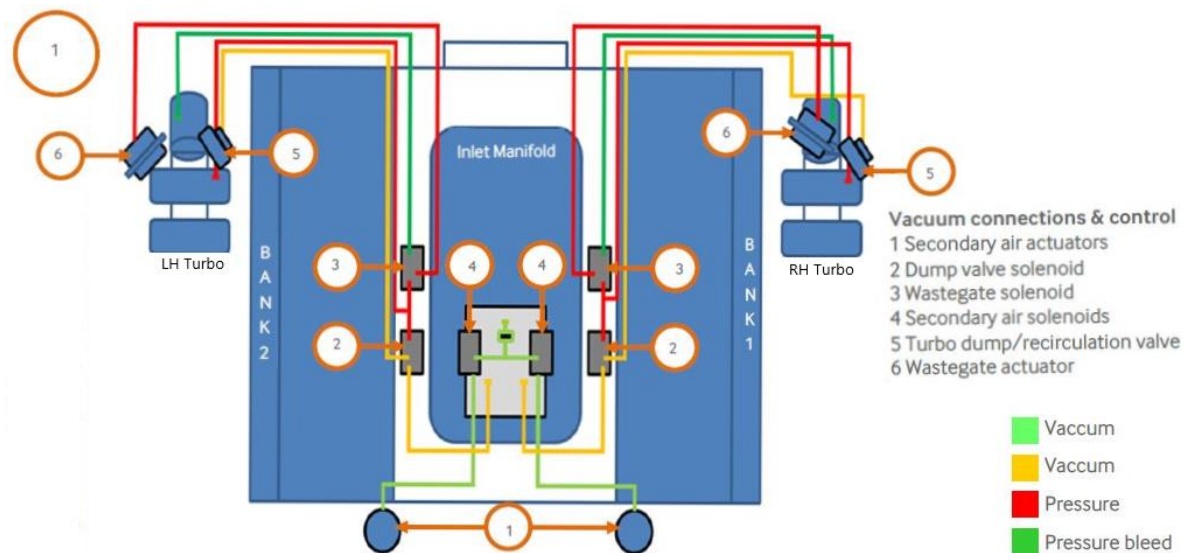
P00C400 Turbocharger Bypass Valve (Dump Valve) Bank 2 Monitor pulsations in induction system (Dump Valve Rationality)

## Measure

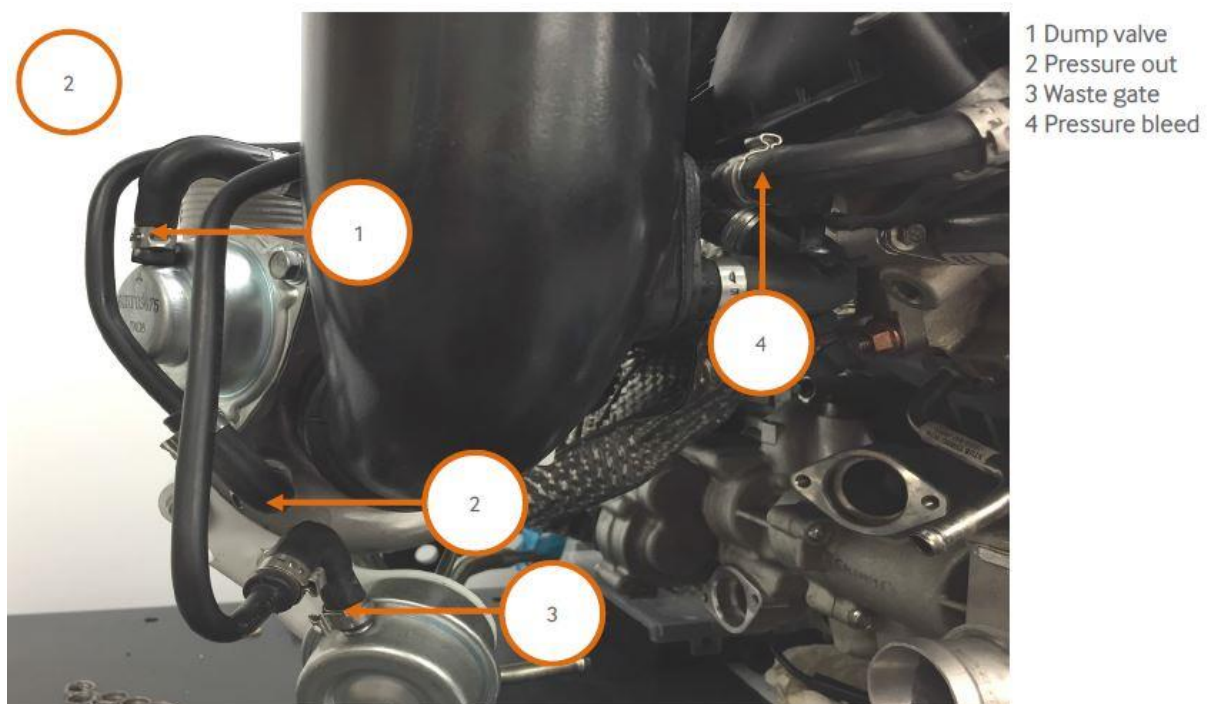
**Care Point:** Sports Series and 675LT vehicles only have wastegate's controlled by this circuit. The dump valves are controlled by an electronic actuator. This guide can be used for these vehicles also, excluding Step 4.

## System Overview

Below is a diagram (1) of the turbo control system.



Below is a picture (2) of the Bank 1 turbo control circuit connections for reference purposes.



The tooling required is a vacuum/pressure tester, an example is shown below (3).



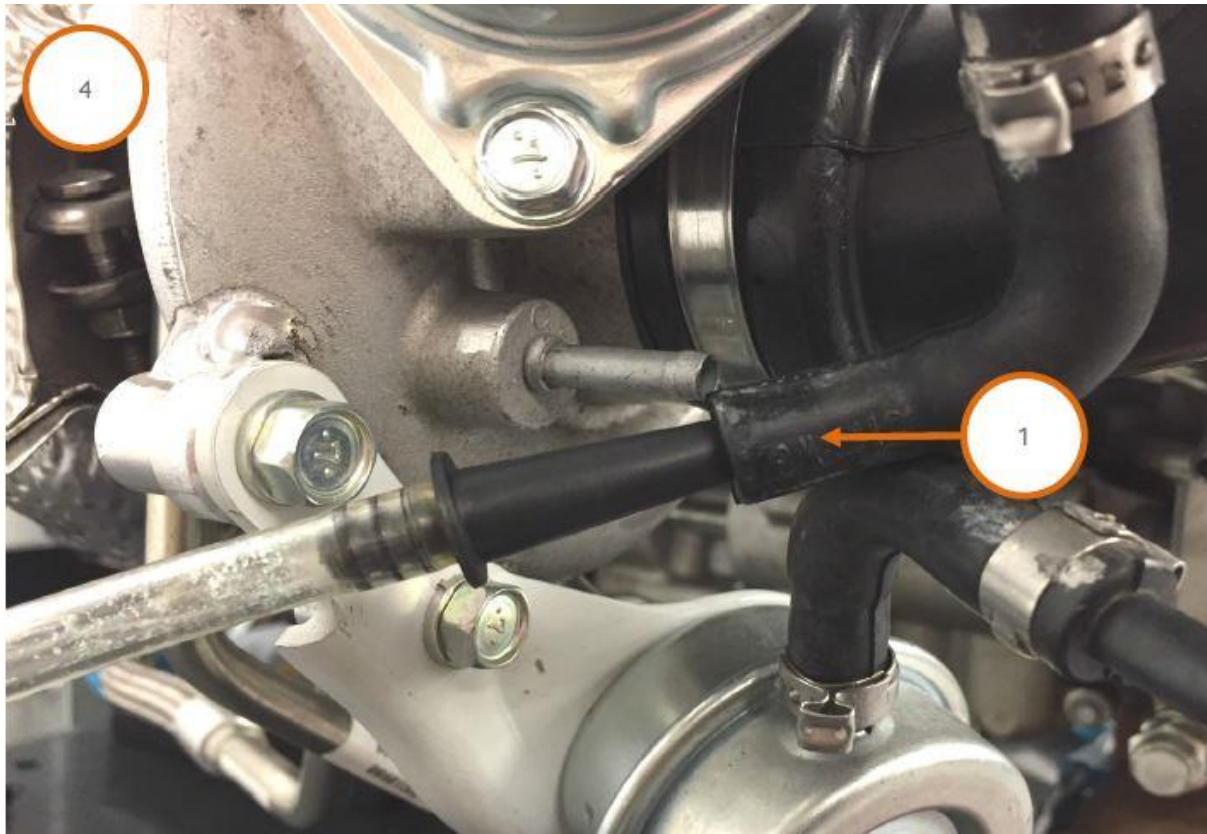
## Diagnosis Guide

### Step 1:

**Care Point:** Always check wastegate adjustment after any leak repair or component replacement.

Ensure all the connections of turbos are secure as shown in picture (2) and with the correct size Oetiker clamps (the dump valve pipe should be bonded on with Loctite 454). If a loose pipe is found refit correctly, clear faults and road test. If fault does not return no further action is required.

If all the connections are secure, pressure test the turbo control circuit on each bank even if only one bank has a DTC stored. Remove the 90 degree elbow (as shown on image 4 ) from each turbo, pressurise each circuit in turn up to 12 psi.



At this point there are four possible results:

1. No pressure is built up in the system - proceed to Step 3
2. Pressure builds but decays after 1 minute - proceed to Step 3
3. Pressure builds, the wastegate actuator moves and the pressure holds for more than 1 minute - proceed to Step 2
4. Pressure builds, the wastegate actuator doesn't move and the pressure holds for more than 1 minute - proceed to Step 6

Step 2:

If both wastegates open and the circuit holds pressure, the adjustment of the wastegate could be incorrect. If this is the case, carry out the adjustment procedure on SIS "Remove/install wastegate assembly - turbo charger" for the relevant model, (ignore the steps to remove and install the waste gate actuator).

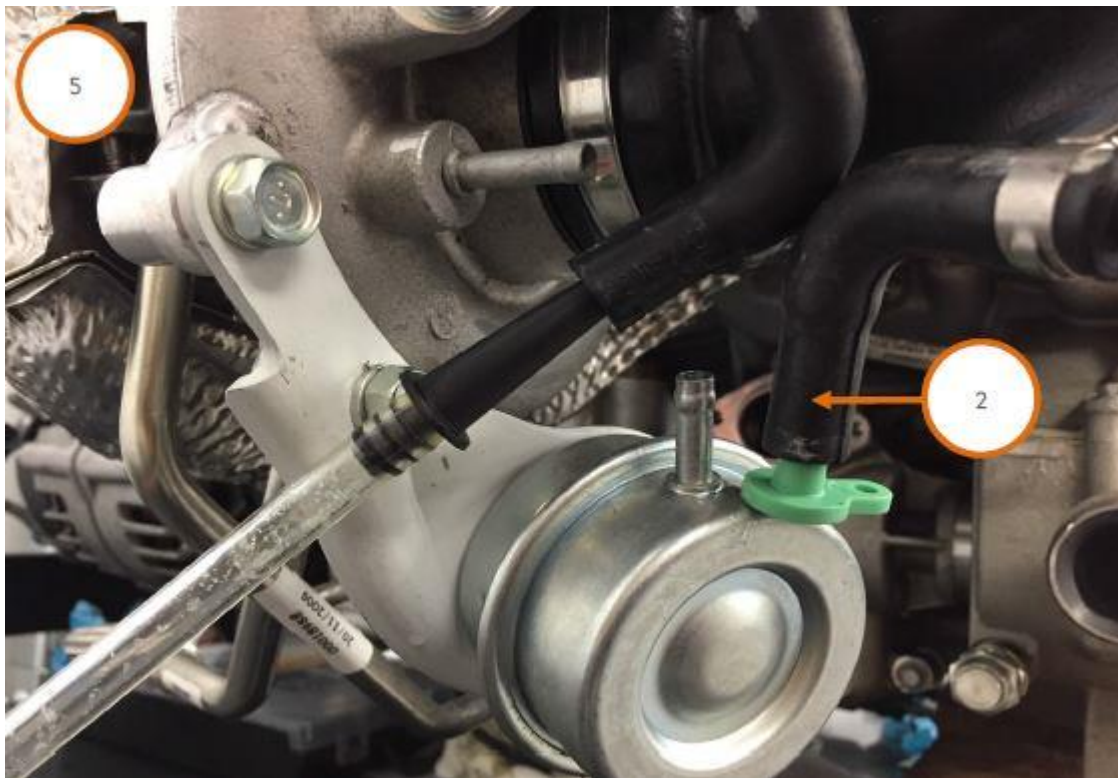
If you cannot get a wastegate adjustment into spec then you will need to replace the wastegate actuator.



### Step 3:

If one or more turbo circuits do not build any pressure, you will need to carry out the following steps on each faulty circuit.

We now need to find the leak in the system. To do this start by removing and blanking off the 90 deg rubber pipe on the waste-gate (2) then try to pressurise the circuit. If it does at this point build pressure, then you have a fault with this wastegate.

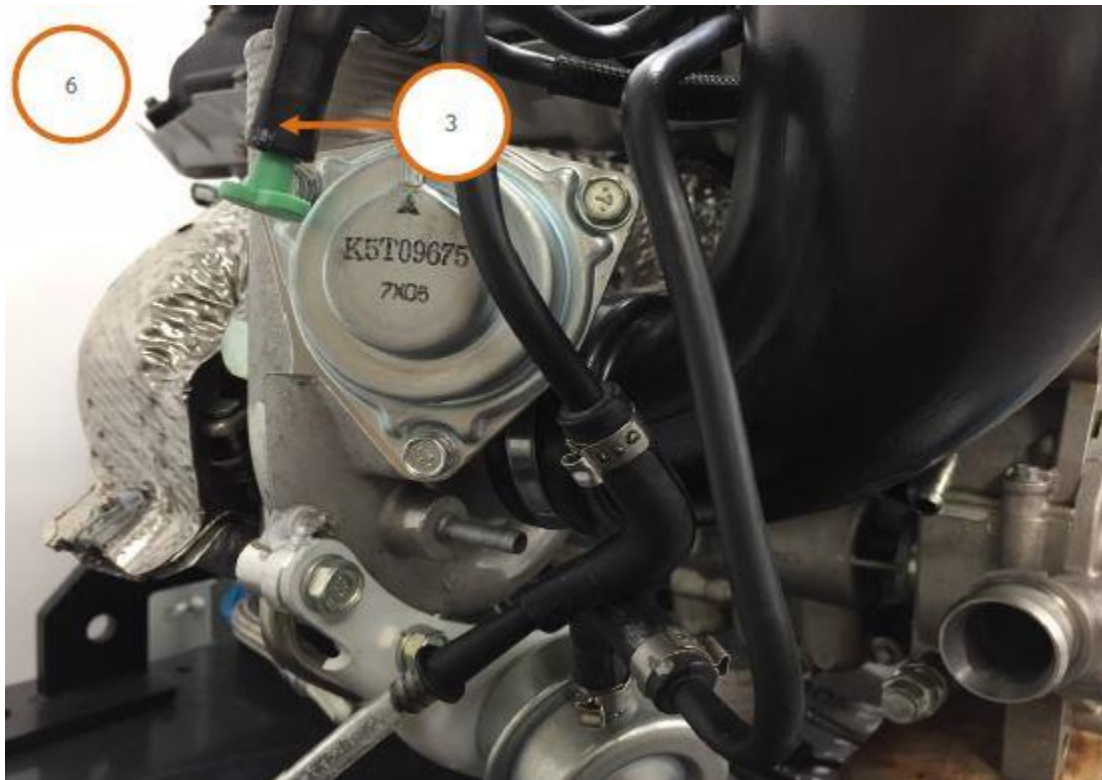


### Step 4:

Once both wastegates have been checked and found to be ok, proceed to check the dump valves on each circuit. Detach the 90 degree rubber pipe (3) on each dump valve. With the pipe removed, check that the elbow pipe and dump valve are not blocked/restricted with Loctite.

Now insert a bung into the elbow and pressurise the circuit again on each bank. If pressure now builds then the fault is with the dump valve. To confirm the dump valve is faulty, connect the vacuum/pressure gauge directly to the dump valve.

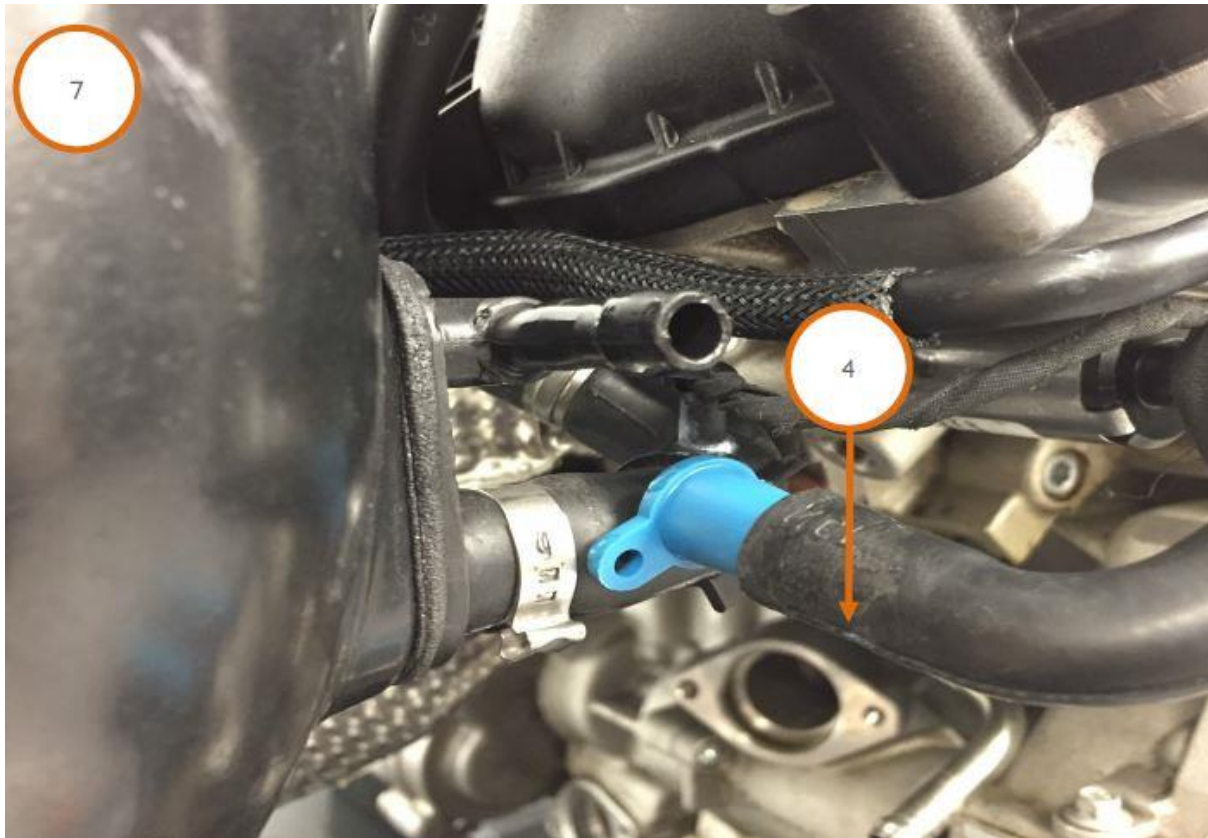
Set the pump to vacuum and pump up to 75Kpa, If no vacuum is generated or it decays within a minute then the dump valve is faulty.



Step 5:

At this point if pressure does not build then the fault is with the vacuum harness.

There is another test to confirm this, detach the 90 degree vacuum harness pressure bleed pipe elbow (4) that connects to the MAF tube, blank it off. Pressurise the system, if it now builds pressure the vacuum circuit is confirmed as faulty.



#### Step 6:

If the wastegate is not moving when the system is pressurised, the wastegate is seized. Please refer to the SIS instruction "Remove/install wastegate assembly - turbo charger" for the relevant model and follow steps to undo the turn buckle (5). Then check if the wastegate arm can be moved, it should move freely.



Care Point: Always check wastegate adjustment after any leak repair or component replacement.

## MTI Updates Information

N/A

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