



V8 XJ Series/XK

DATE 04/01

303-43

SERVICE

# TECHNICAL BULLETIN

## Drivability Diagnosis – AJ 26 Engines

**MODEL**

1997-98 MY XK8 Range

1998 MY V8 XJ Series

**VIN**

1998-99 MY XJR

**Issue:**

This Technical Bulletin has been issued to give diagnostic information relating to various engine drivability concerns. Driven by the symptoms that the customer experiences, the guide takes you through the faultfinding process in a logical order.

**Note:** Diagnostic guides covering other engine concerns will follow.

**Action:**

Before using the guide, check the Symptom Matrix on the next page for the diagnostic flowchart sequence. For example, if the **engine cuts-out soon after start**, work through flow charts P3, P2, P1, P5 etc. Following the flowcharts in the sequence identified will help rectify any concerns while optimizing the utilization of workshop time.

**Note:** When working on any vehicle ensure that exposed paintwork is protected with the appropriate fender protection covers.

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## RELAY CODES AND DATE STAMPS

Relay date codes come in two forms:

- Relays prior to December 1998 have the format: Letter – Number – Letter i.e. R6 K1
- Relays post December 1998 have the format: Number – Letter – Letter i.e. 2AB

All date codes are printed in white on the top face of the relay, adjacent to the part number.

**⚠ Warning:** Working on the fuel system can result in fuel vapor being emitted into the atmosphere. Fuel vapor is extremely flammable; hence great care should be taken when working on the fuel system.

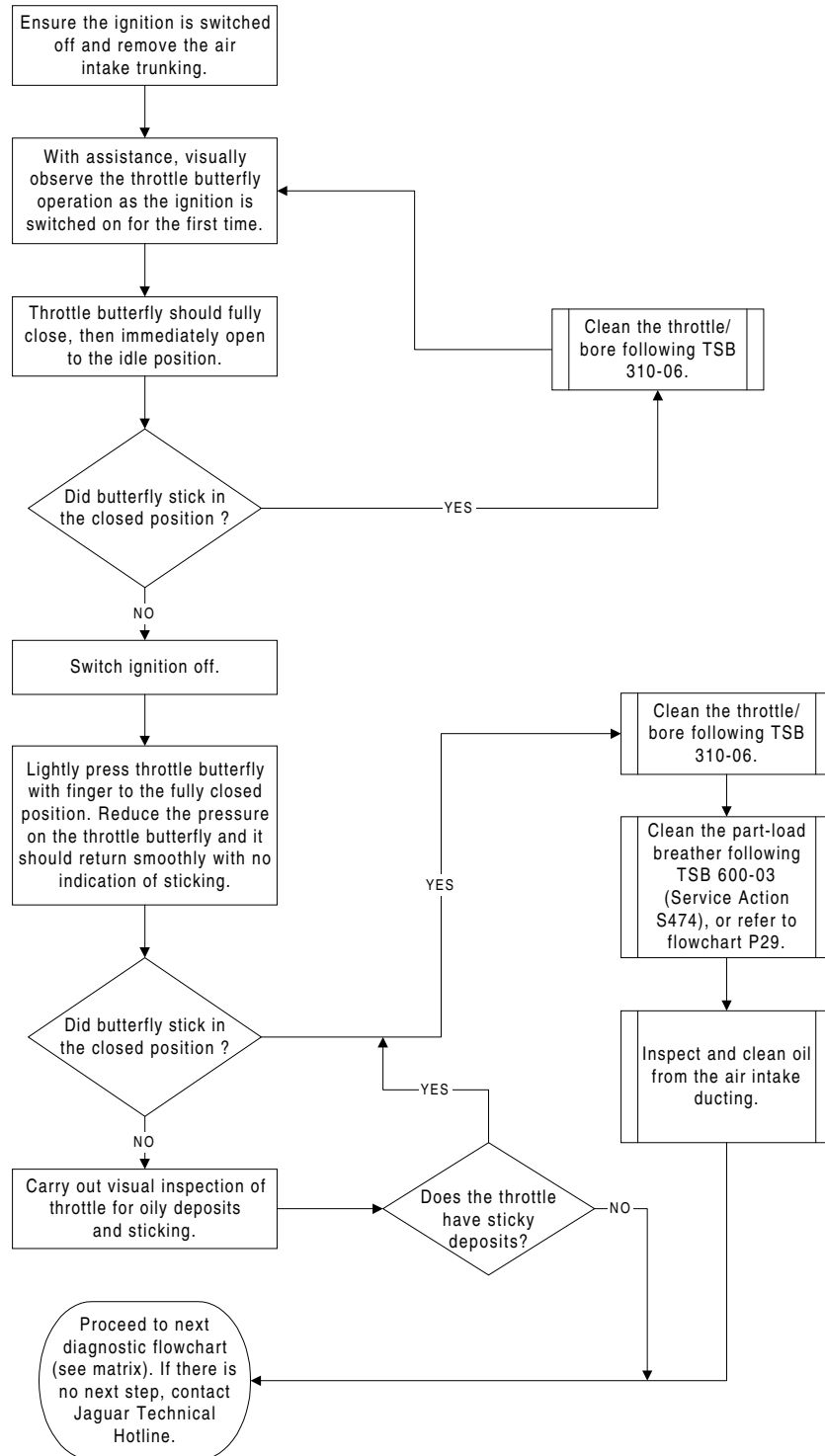
Do not smoke in the working area and ensure that there is a CO2 fire extinguisher close by. The working area must be well ventilated and extraction equipment used when appropriate. When emptying fuel, use suitable fireproof equipment and an authorized explosion-proof container.

## SYMPTOM MATRIX

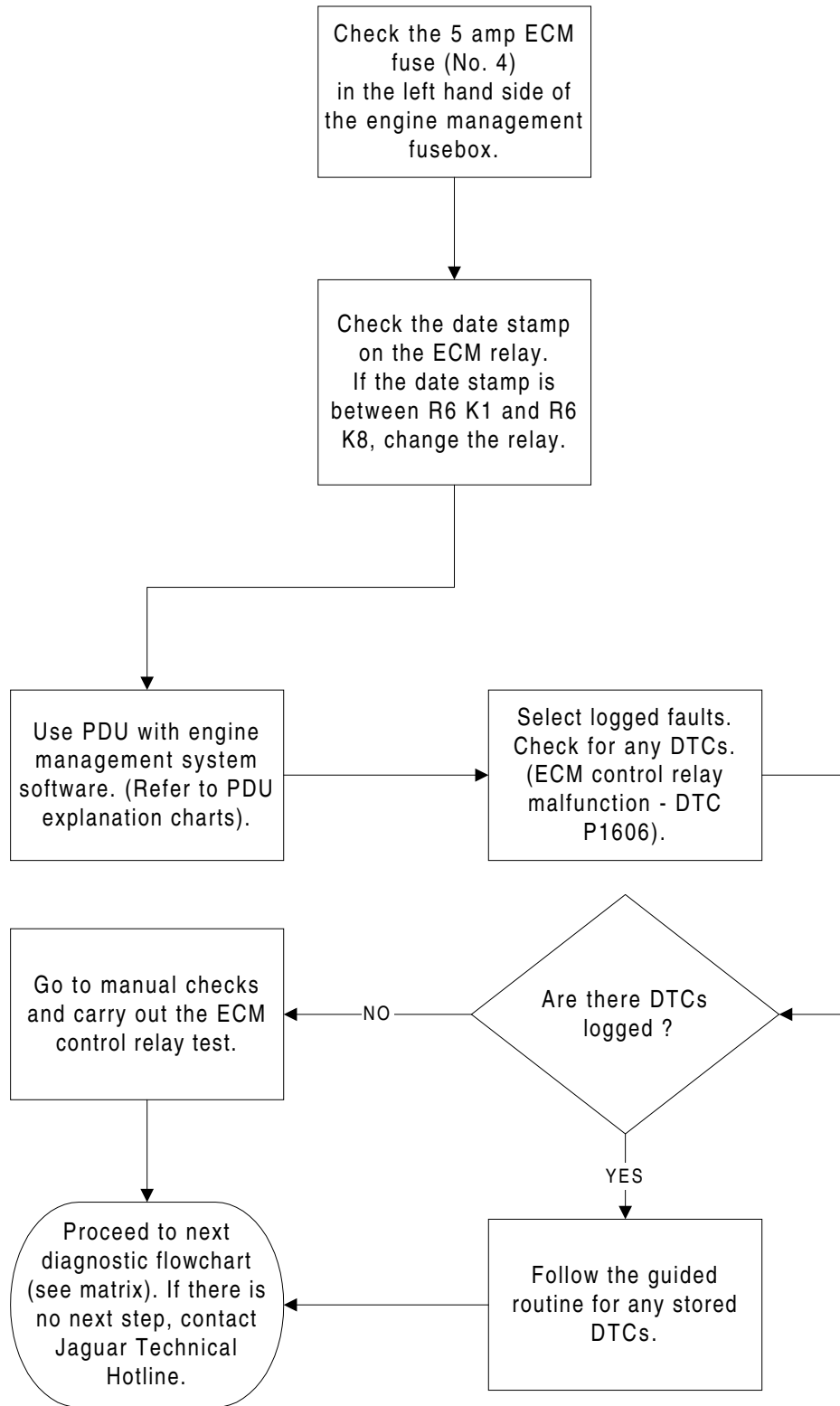
| <b>Stalling Symptom</b>    | <b>Suspect Area<br/>(check in order of listing)</b>   | <b>See<br/>Chart</b>   |
|----------------------------|---|--|
| Soon After Start           | <ol style="list-style-type: none"> <li>1. Fuel Pump Relay</li> <li>2. ECM Relay</li> <li>3. Throttle (Contaminated)</li> <li>4. DTC P1336</li> <li>5. Harness</li> <li>6. Fuel Pump</li> <li>7. Mass Air Flow Sensor</li> <li>8. Engine Coolant Temperature Sensor</li> <li>9. Fuel Lines</li> <li>10. Air Leakage</li> </ol> | P3<br>P2<br>P1<br>P5<br>P14<br>P17<br>P19<br>P18<br>P21<br>P23 |
| On Deceleration            | <ol style="list-style-type: none"> <li>1. Throttle (Contaminated)</li> <li>2. ECM Relay</li> <li>3. Fuel Pump Relay</li> <li>4. DTC P1336</li> </ol>  | P1<br>P2<br>P3<br>P5   |
| At Steady Speed            | <ol style="list-style-type: none"> <li>1. Throttle (Contaminated)</li> <li>2. ECM Relay</li> <li>3. Fuel Pump Relay</li> <li>4. Immobilizer</li> <li>5. DTC P1336</li> <li>6. Harness</li> <li>7. Blocked Part-Load Breather</li> </ol>   | P1<br>P2<br>P3<br>P4<br>P5<br>P14<br>P29                       |
| With Speed Control Enabled | <ol style="list-style-type: none"> <li>1. Throttle (Contaminated)</li> <li>2. ECM Relay</li> <li>3. Fuel Pump Relay</li> <li>4. Immobilizer</li> <li>5. DTC P1336</li> <li>6. Harness</li> <li>7. Blocked Part-Load Breather</li> </ol>   | P1<br>P2<br>P3<br>P4<br>P5<br>P14<br>P29                       |
| When Maneuvering           | <ol style="list-style-type: none"> <li>1. ECM Relay</li> <li>2. Fuel Pump Relay</li> <li>3. DTC P1336</li> </ol>  | P2<br>P3<br>P5   |

## P1 - CONTAMINATED THROTTLE DIAGNOSTIC FLOW CHART

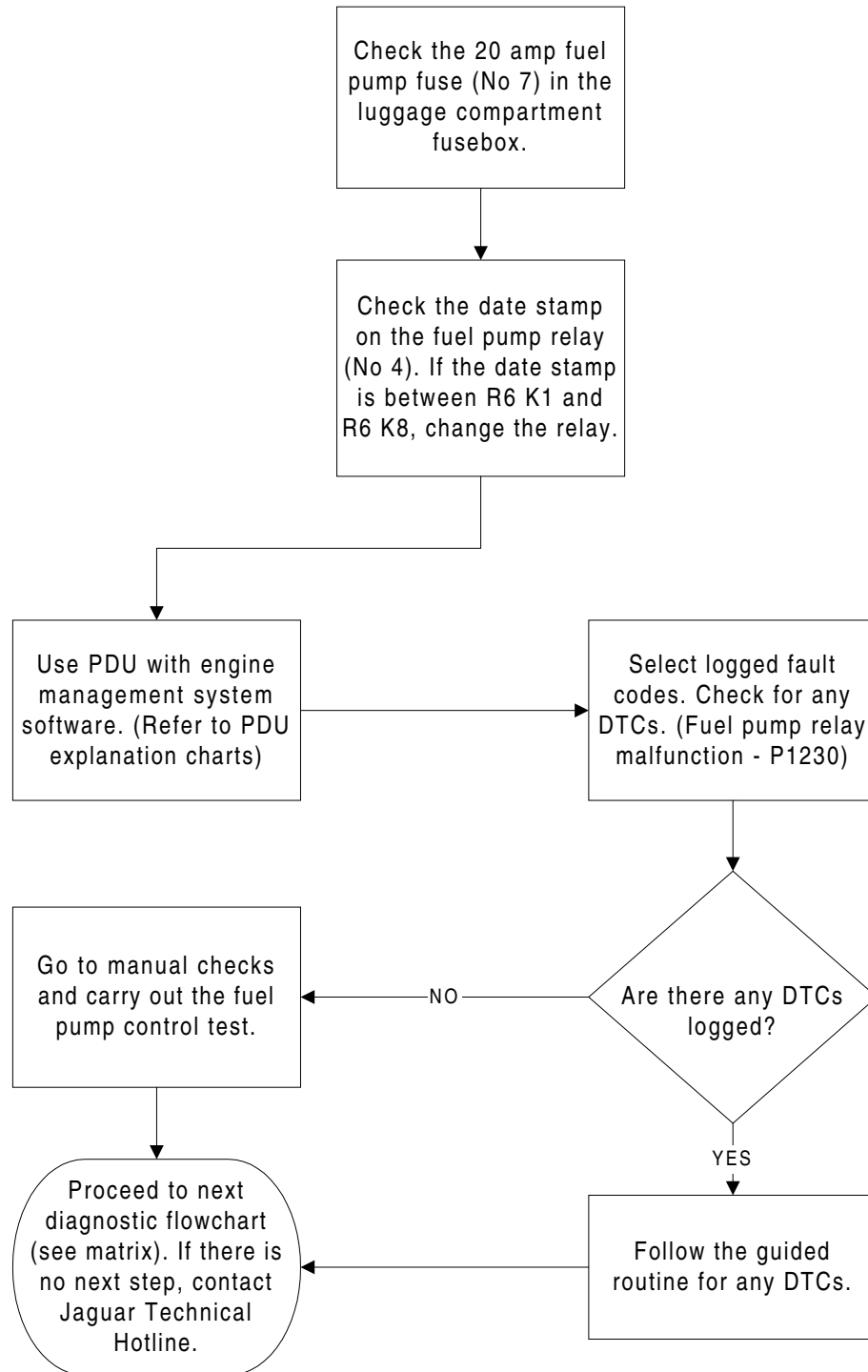
**Note:** Before proceeding with the diagnostic flowchart, ensure that the engine is cold, since oily deposits are not sticky when the engine is hot.



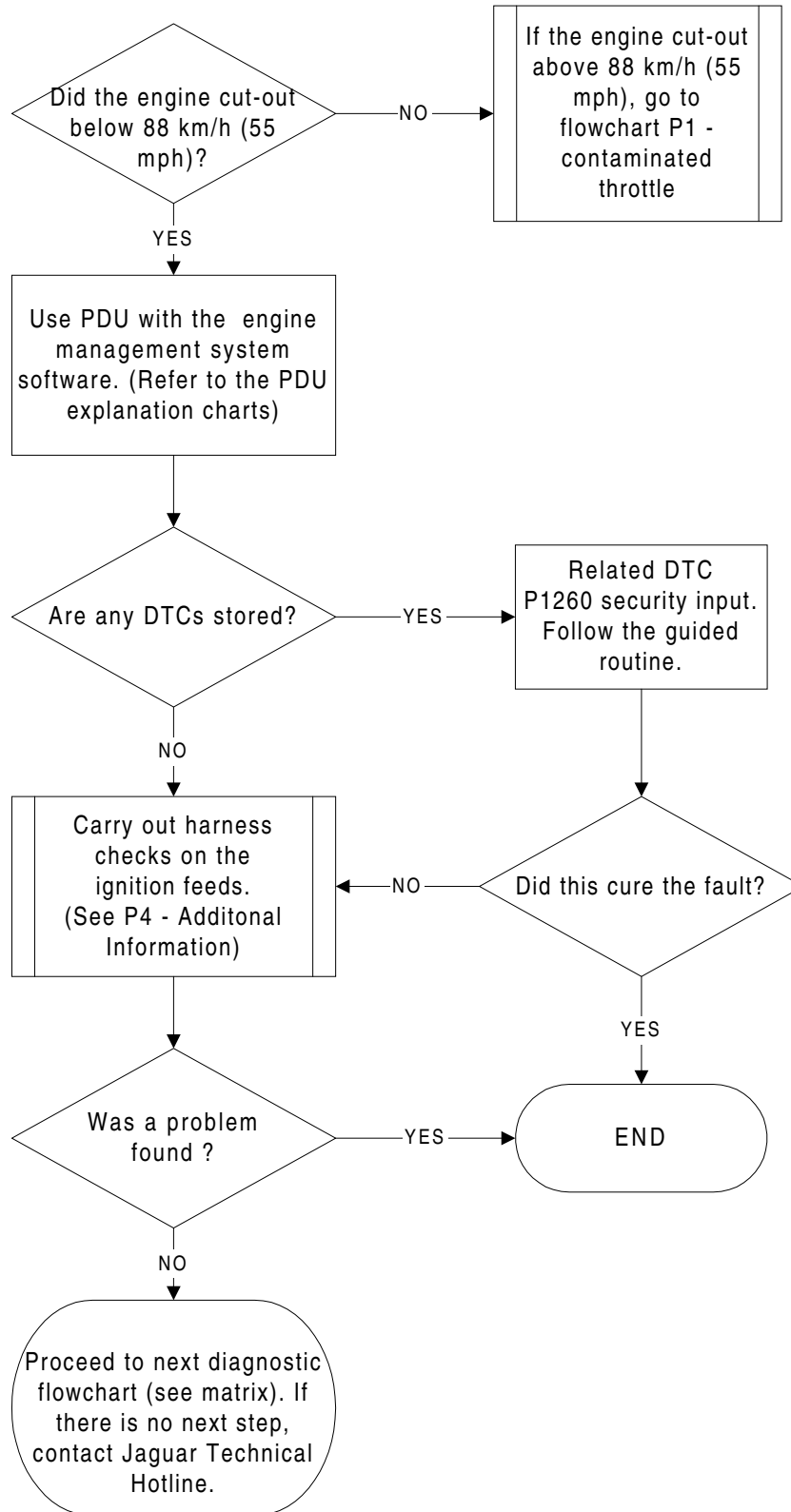
P2 - ECM RELAY DIAGNOSTIC FLOW CHART



## P3 - FUEL PUMP RELAY DIAGNOSTIC FLOW CHART



**P4 - IMMOBILIZATION (STALL SITUATION) DIAGNOSTIC FLOW CHART**

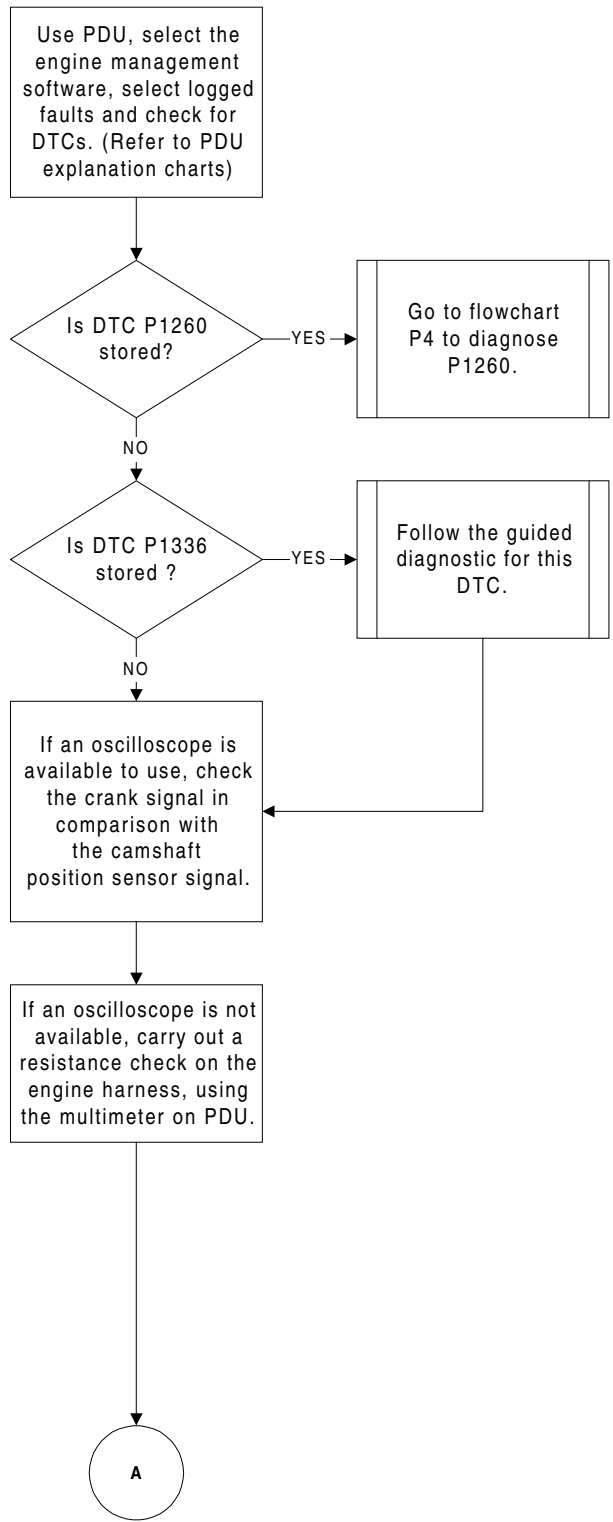


P4 - IMMOBILIZATION (STALL SITUATION) DIAGNOSTIC FLOW CHART - IGNITION INPUTS

| <b>Ignition feed</b> | <b>Connector</b> | <b>Fuse</b>                        |
|----------------------|------------------|------------------------------------|
| Feed 1               | EMO10/1          | EMS Fuse box F10 5a                |
| Feed 2               | EMO14/3          | EMS Fuse box F10 5a                |
| Feed 3               | EMO10/5          | Engine Compartment Fuse box F5 10a |

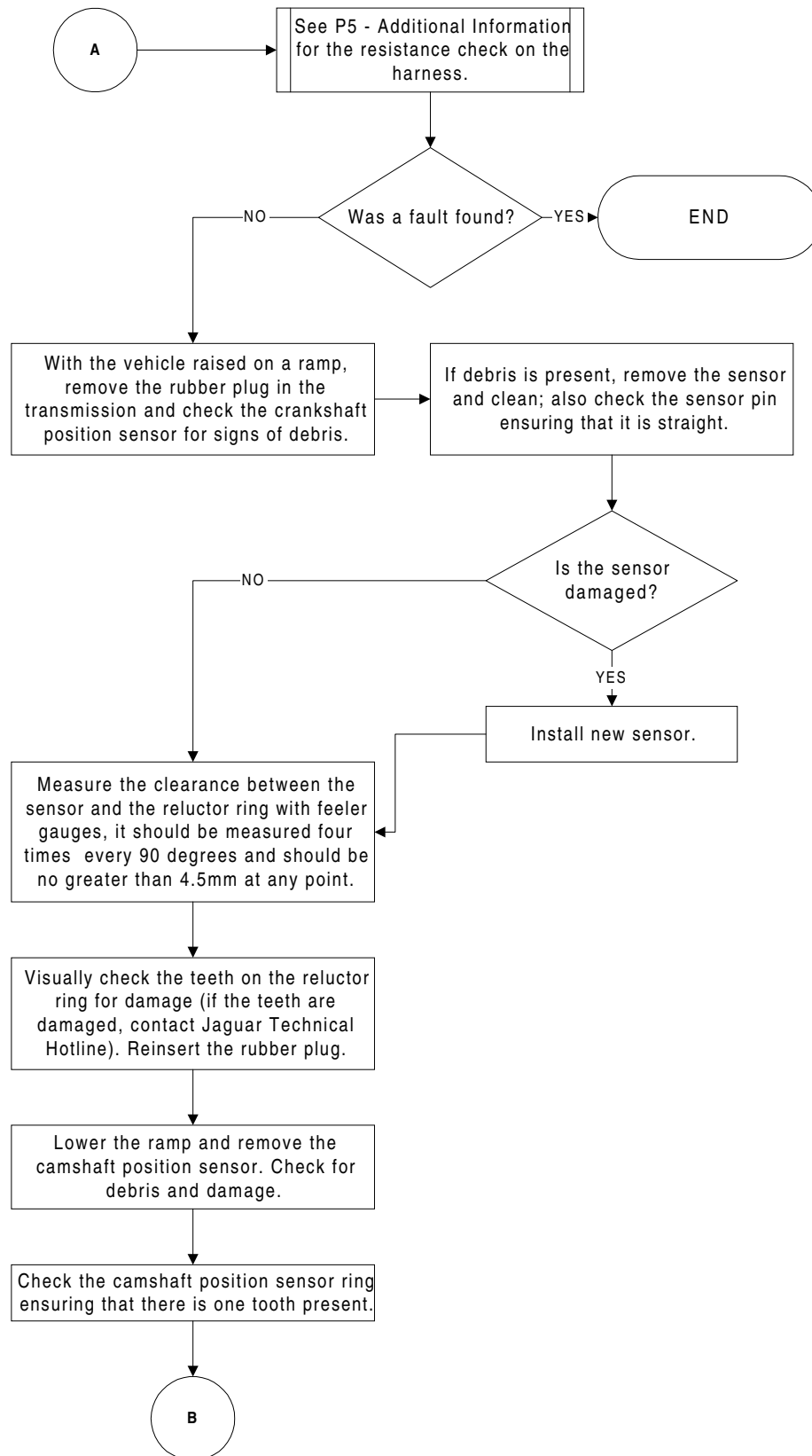
**Note:** Carry out continuity checks using the multimeter on PDU.

# P5 - DTC 1336 DIAGNOSTIC FLOW CHART

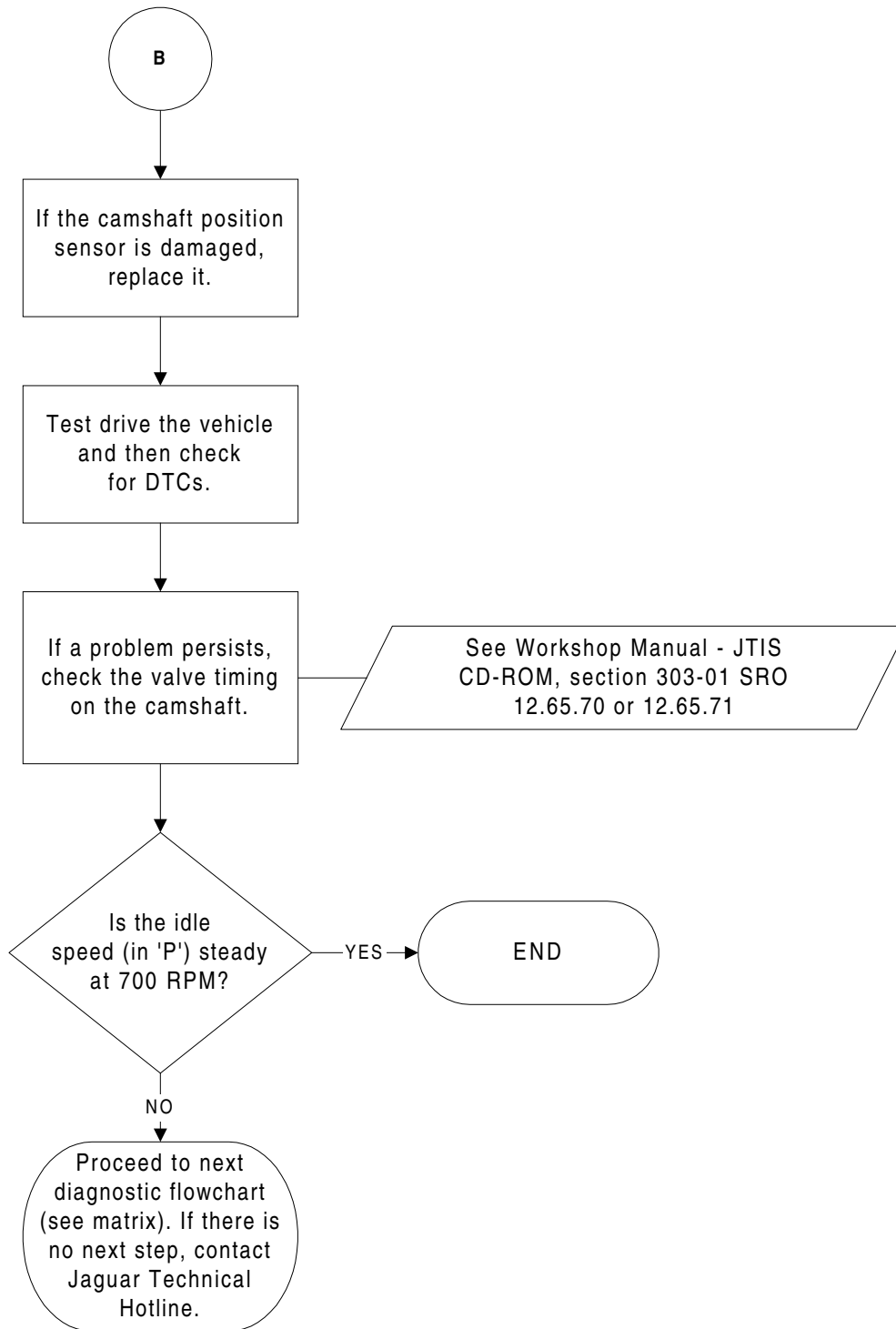




P5 - DTC 1336 DIAGNOSTIC FLOW CHART - CONT.



P5 - DTC 1336 DIAGNOSTIC FLOW CHART - CONT.



## P5 - DTC 1336 - ADDITIONAL INFORMATION

| <b>Component</b>           | <b>Part Number</b> | <b>+ 20 °C</b>   | <b>+10 ~ +50 °C</b> | <b>+50 ~ +100 °C</b> |
|----------------------------|--------------------|------------------|---------------------|----------------------|
| Crankshaft Position Sensor | LCA 1640AE         | 950 ~ 1250 Ohms  | 835 ~ 1400 Ohms     | 1060 ~ 1645 Ohms     |
| Camshaft Position Sensor   | LCA 1646AD         | 1850 ~ 2450 Ohms | 1630 ~ 2740 Ohms    | 2065 ~ 3225 Ohms     |

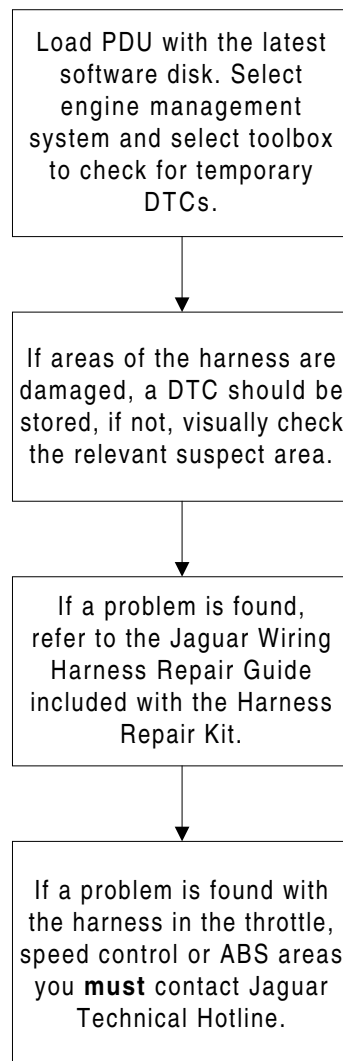
Resistance is in ohms at the engine management connector EM013 for the crankshaft position sensor.

- Disconnect the engine management connector EM013.
- Check the resistance between Pins 19 and pin 28 (sensor ground).
- The reading should be between the parameters above for the relative temperature.

Resistance is in ohms at the engine management connector EM013 for the camshaft position sensor.

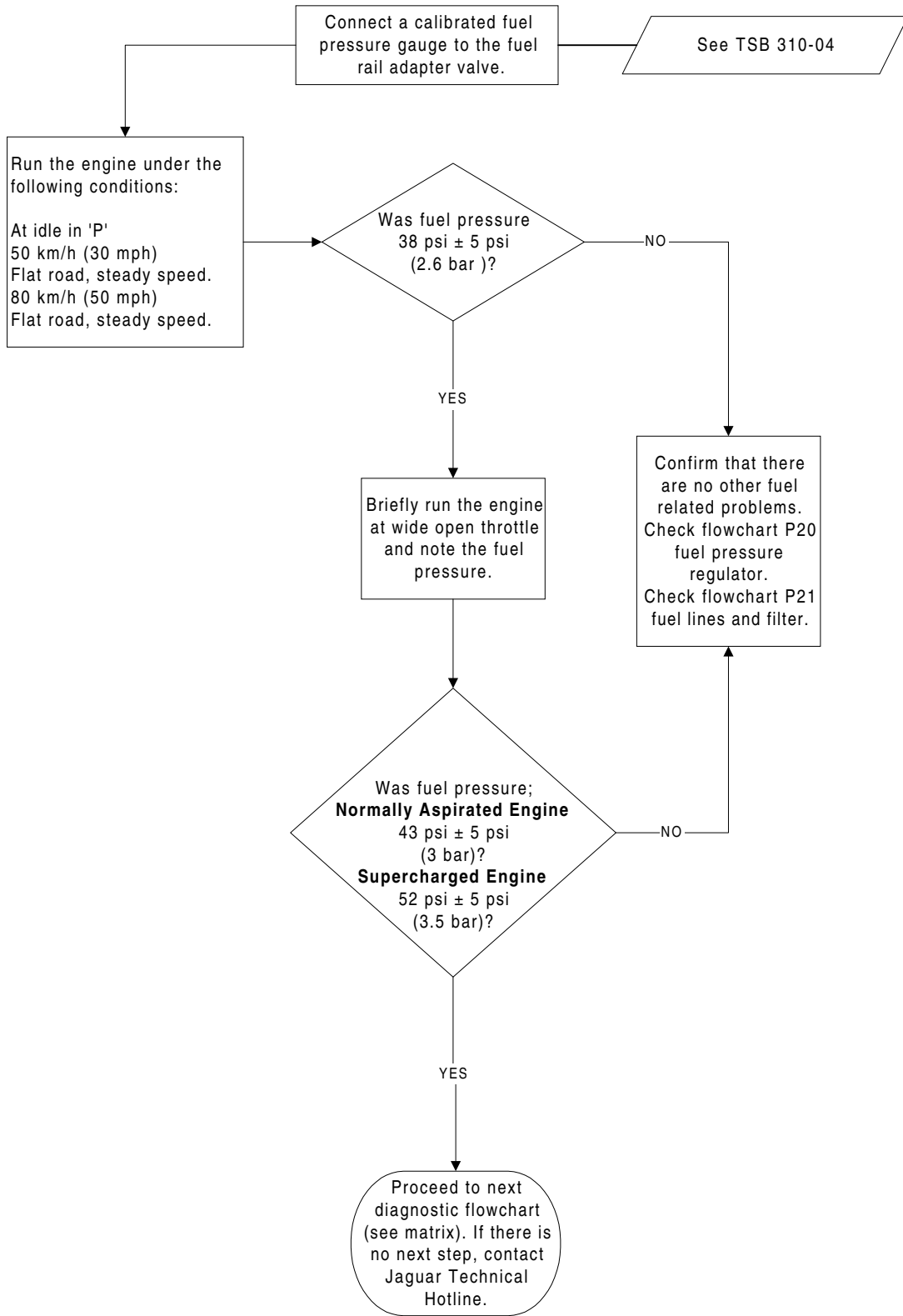
- Disconnect the engine management connector EM013.
- Check the resistance between Pins 20 and pin 29 (sensor ground).
- The reading should be between the parameters above for the relative temperature.

## P14 - ENGINE HARNESS DIAGNOSTIC FLOW CHART

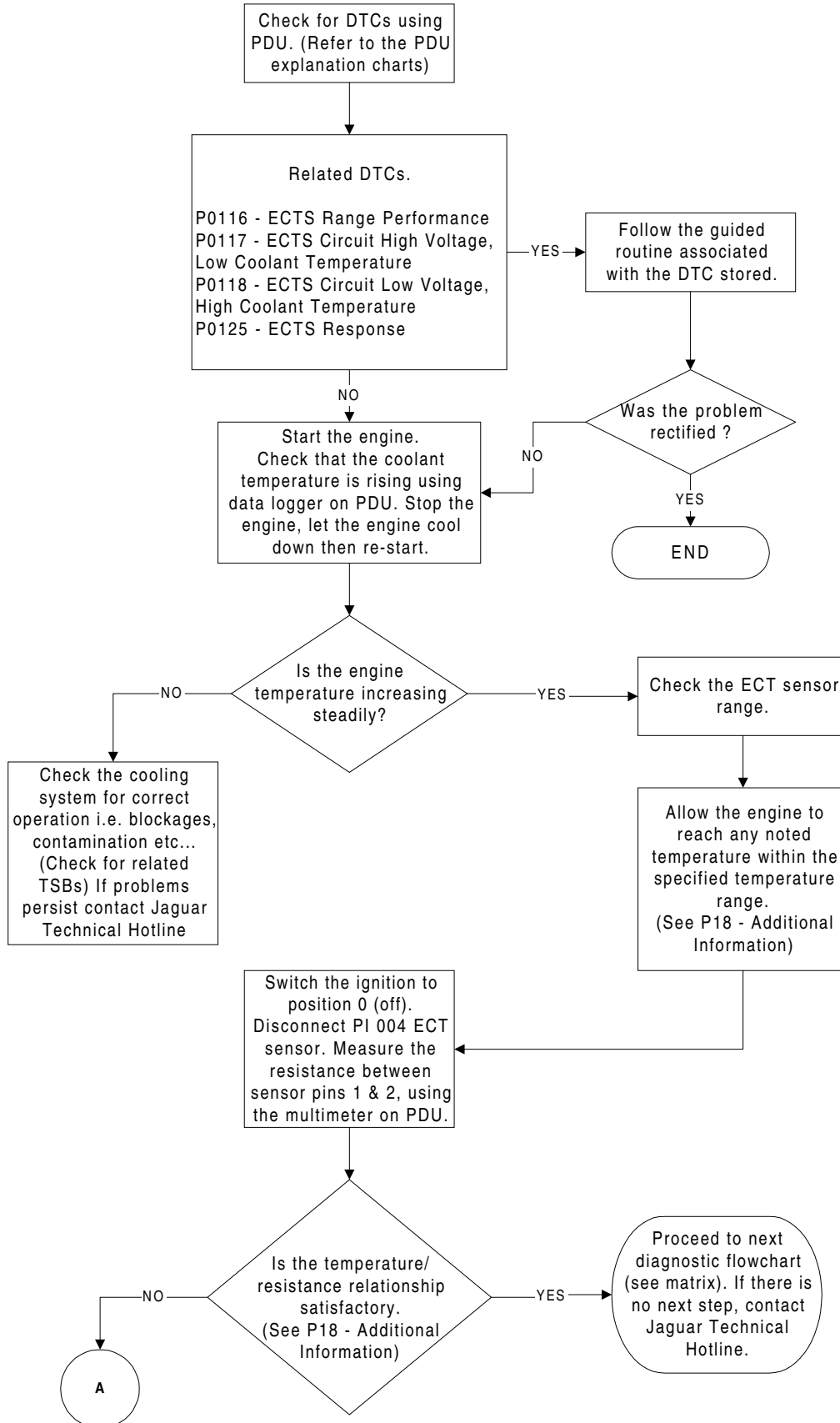


**Caution! Use care when probing pins. Use the correct adaptors and tools as defined in the harness repair guide.**

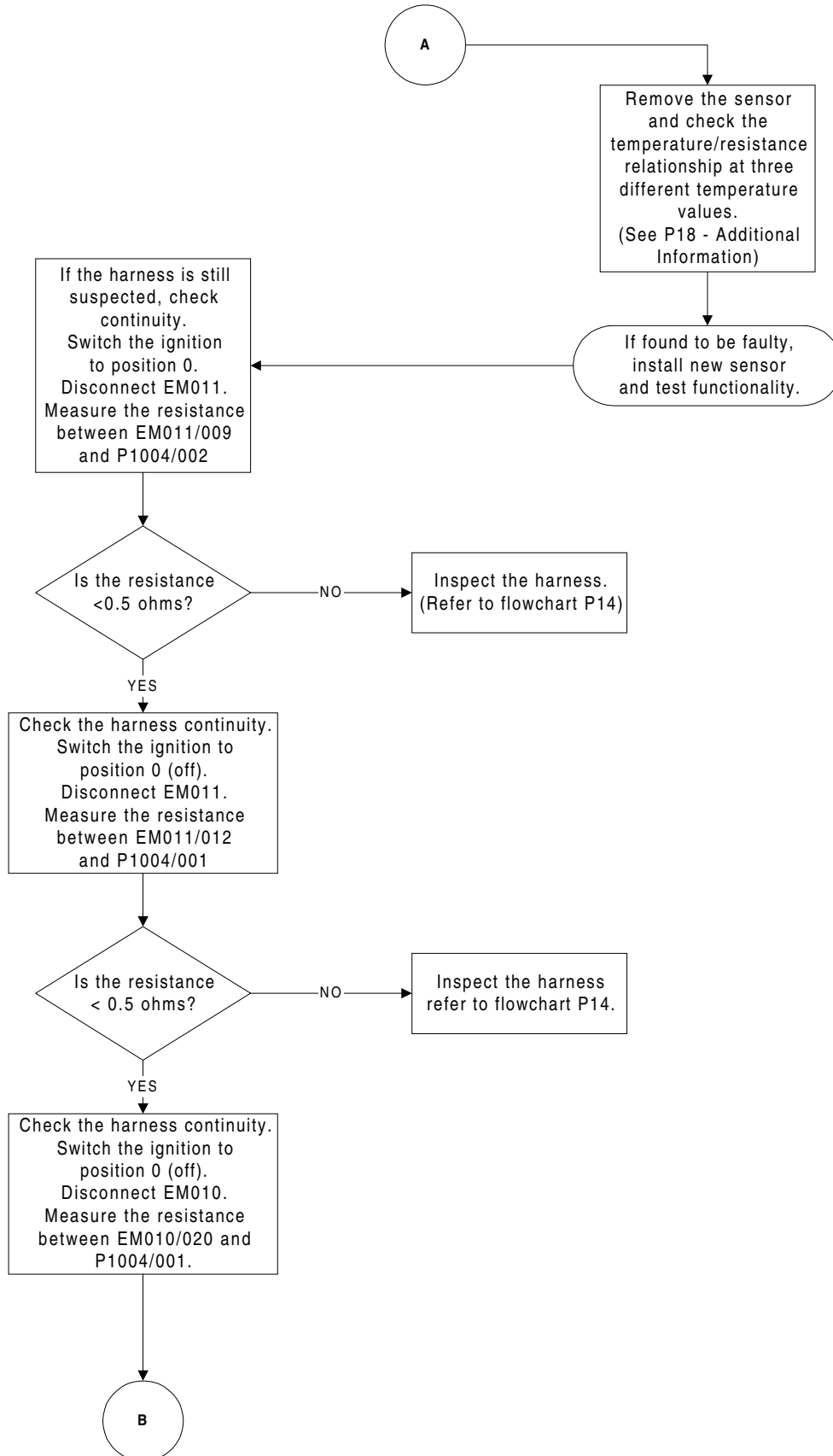
# P17 - FUEL PUMP DIAGNOSTIC FLOW CHART



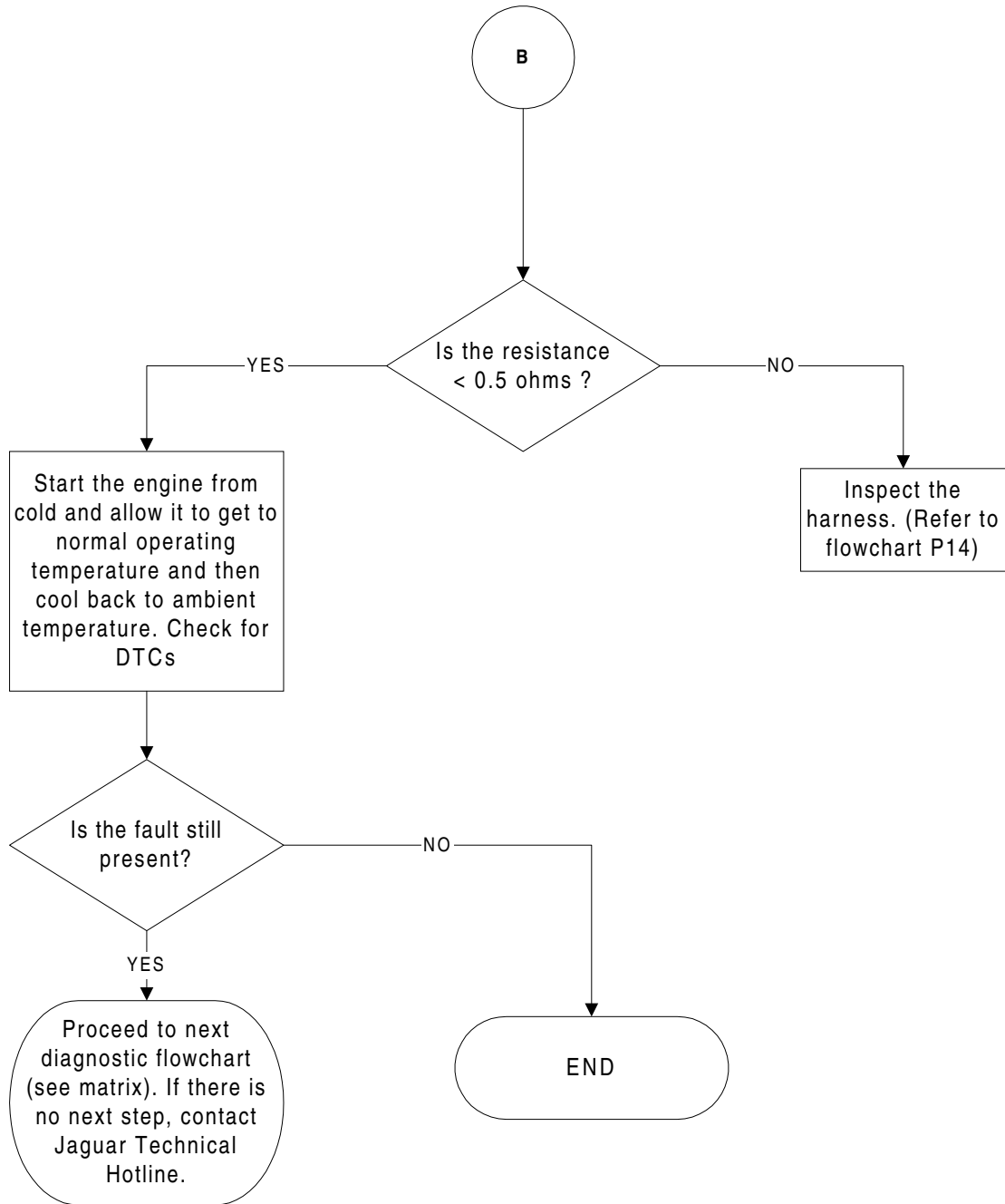
# P18 - ENGINE COOLANT TEMPERATURE SENSOR DIAGNOSTIC FLOW CHART



P18 - ENGINE COOLANT TEMPERATURE SENSOR DIAGNOSTIC FLOW CHART - CONT.



P18 - ENGINE COOLANT TEMPERATURE SENSOR DIAGNOSTIC FLOW CHART - CONT.

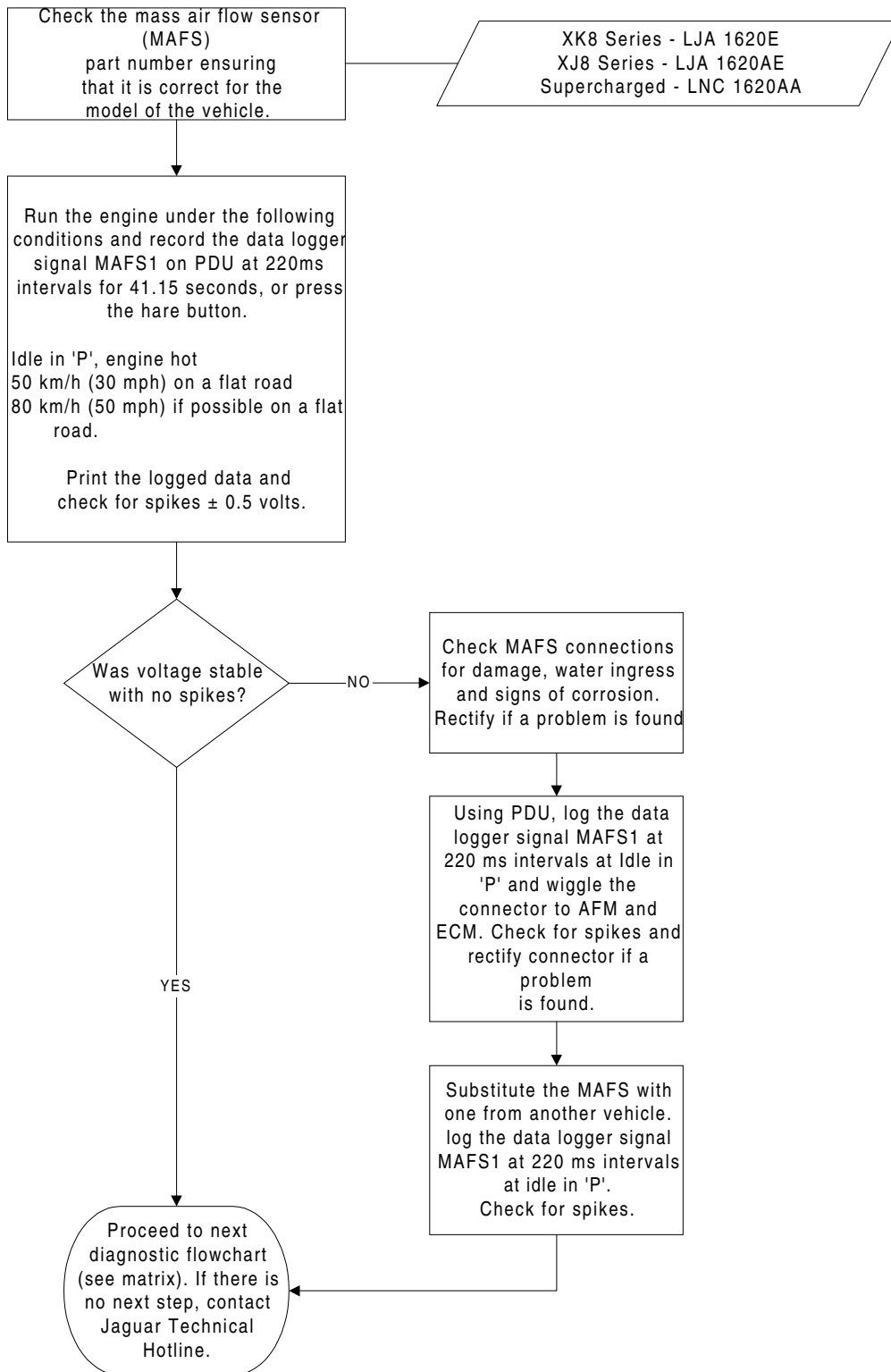




P18 - ENGINE COOLANT TEMPERATURE SENSOR - RESISTANCE VALUES

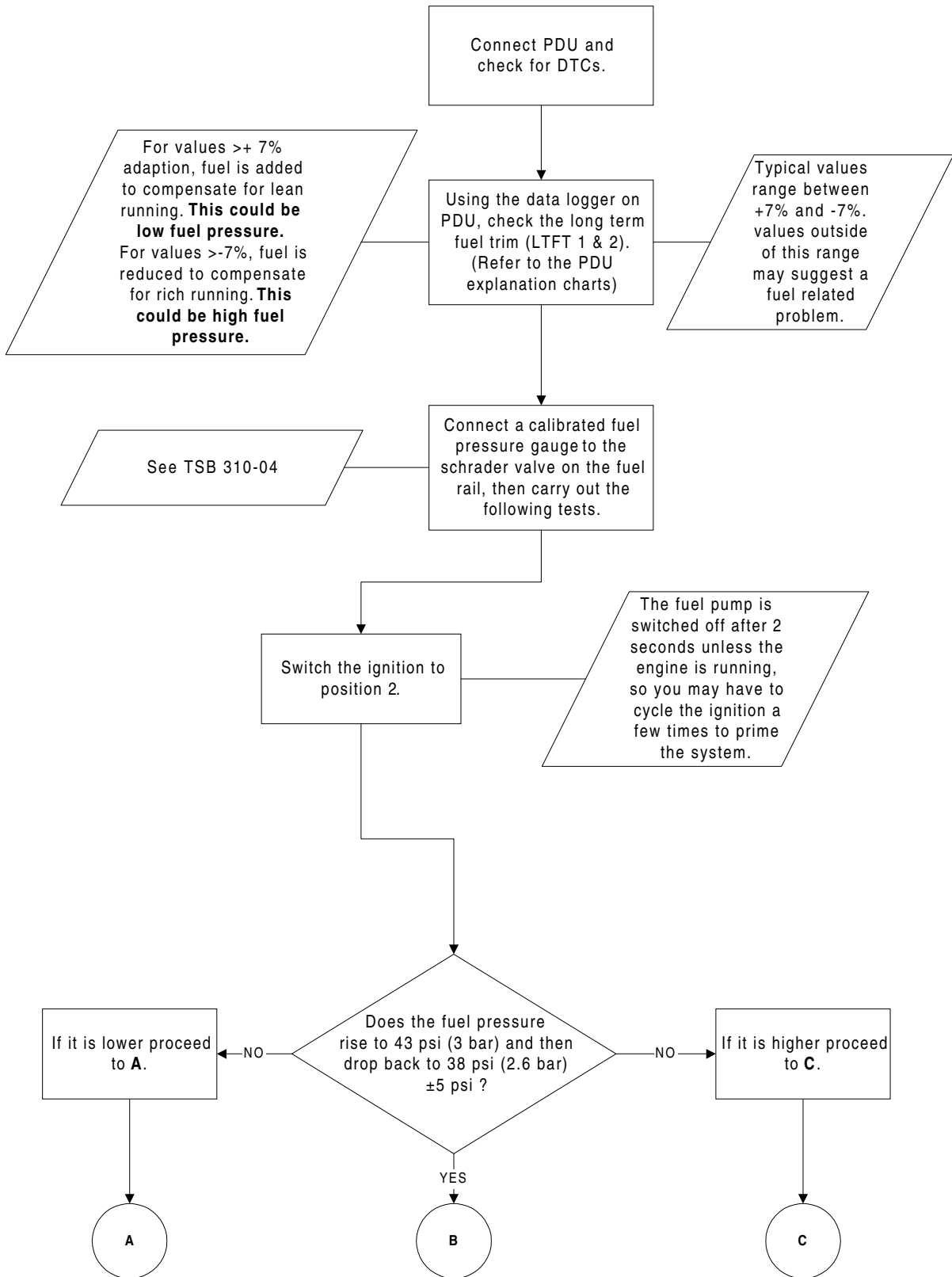
| <b>Temperature °C</b> | <b>Resistance K Ohms</b> | <b>Voltage V</b> |
|-----------------------|--------------------------|------------------|
| - 10                  | 9.20                     | 4.05             |
| 0                     | 5.90                     | 3.64             |
| 10                    | 3.70                     | 2.89             |
| 20                    | 2.50                     | 2.42             |
| 30                    | 1.70                     | 2.20             |
| 40                    | 1.18                     | 1.78             |
| 50                    | 0.84                     | 1.44             |
| 60                    | 0.60                     | 1.17             |
| 70                    | 0.435                    | 0.95             |
| 80                    | 0.325                    | 0.78             |
| 90                    | 0.25                     | 0.65             |
| 100                   | 0.19                     | 0.55             |

# P19 - MASS AIR FLOW SENSOR DIAGNOSTIC FLOW CHART

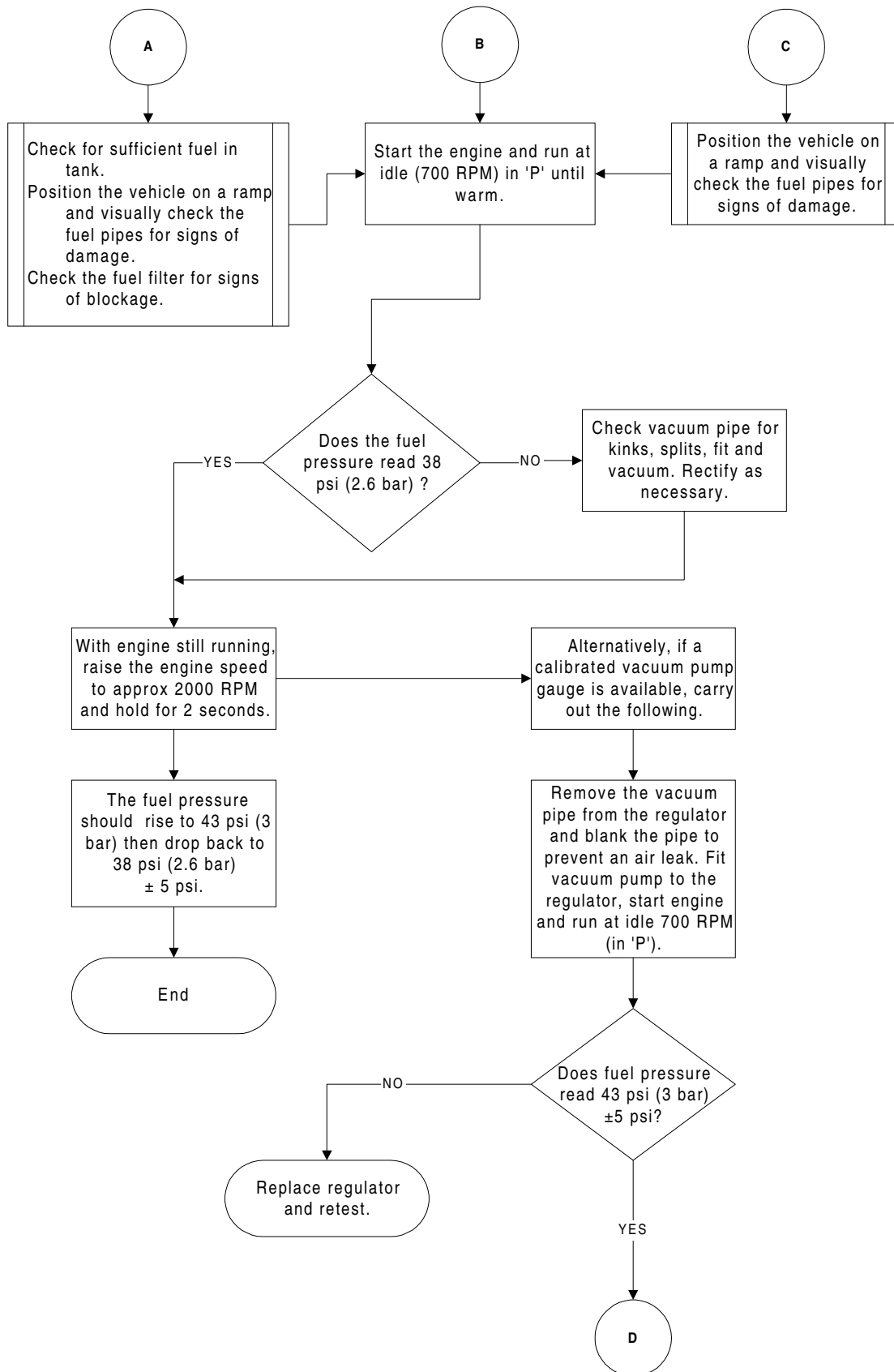


XK8 Series - LJA 1620E  
XJ8 Series - LJA 1620AE  
Supercharged - LNC 1620AA

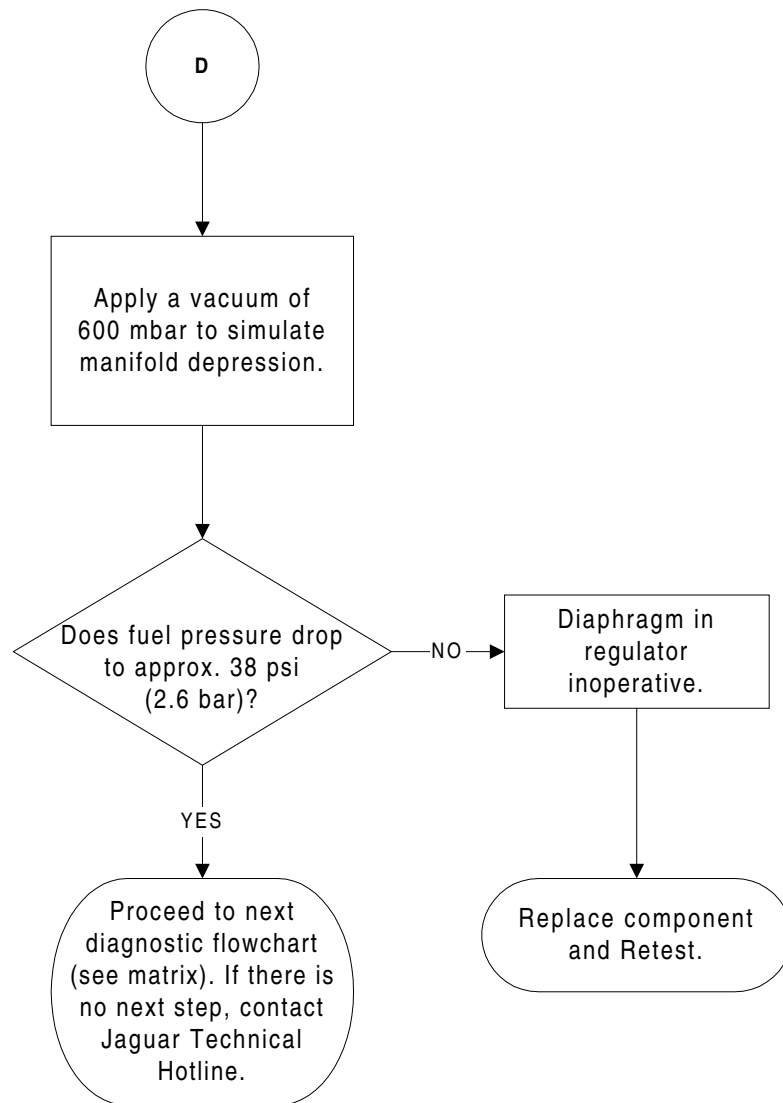
## P20 - FUEL PRESSURE REGULATOR DIAGNOSTIC FLOW CHART



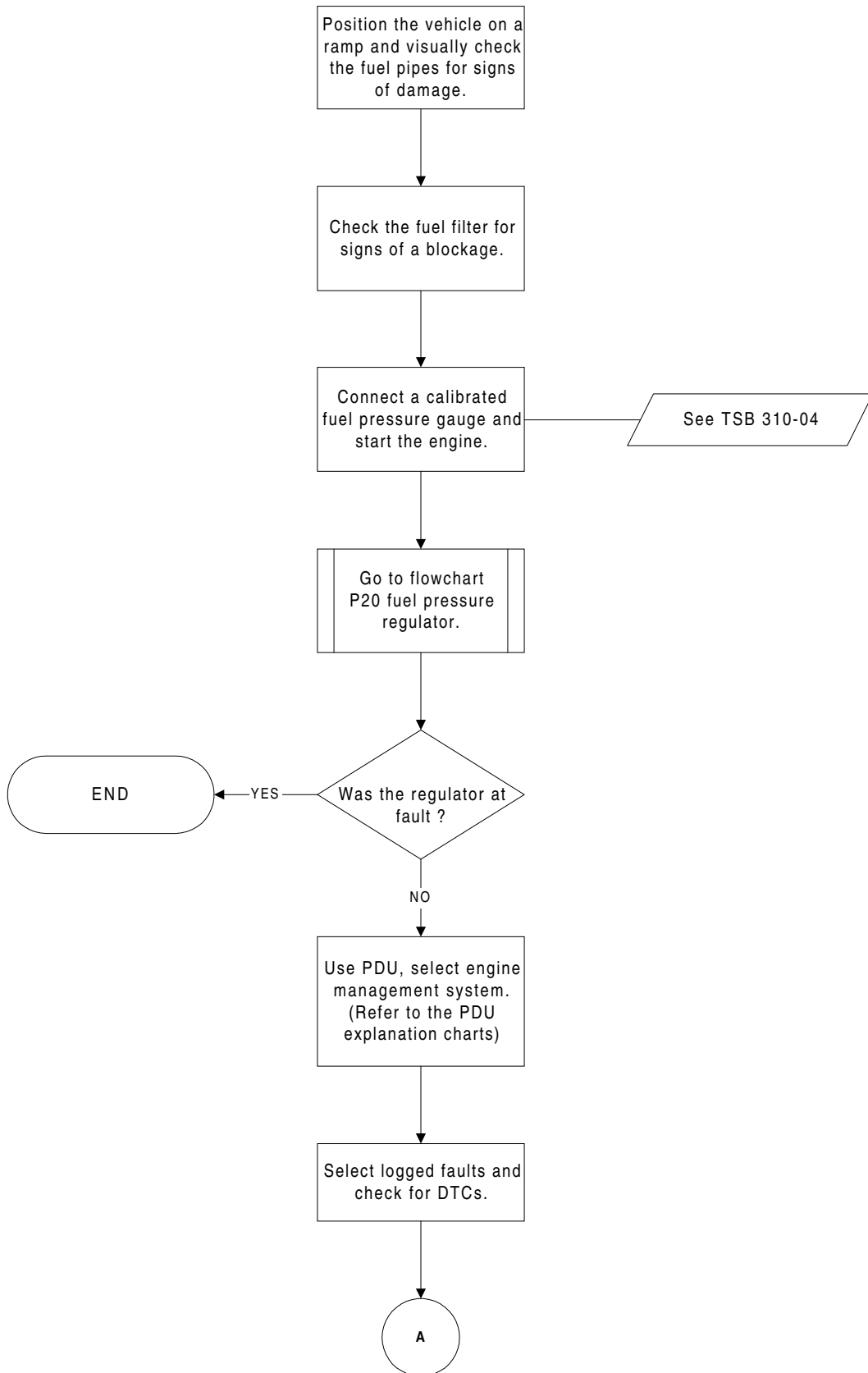
**P20 - FUEL PRESSURE REGULATOR DIAGNOSTIC FLOW CHART - CONT.**



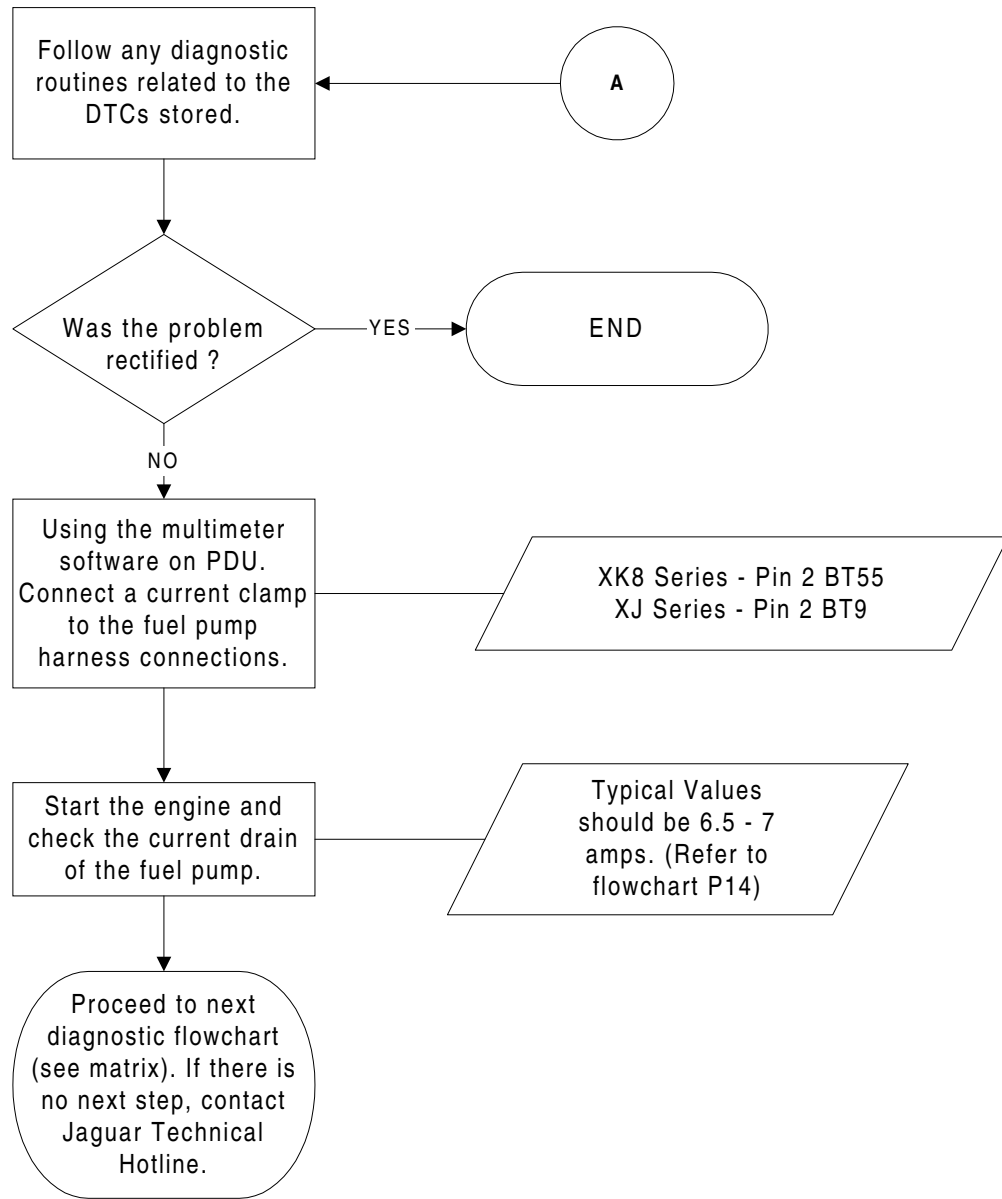
P20 - FUEL PRESSURE REGULATOR DIAGNOSTIC FLOW CHART - CONT.



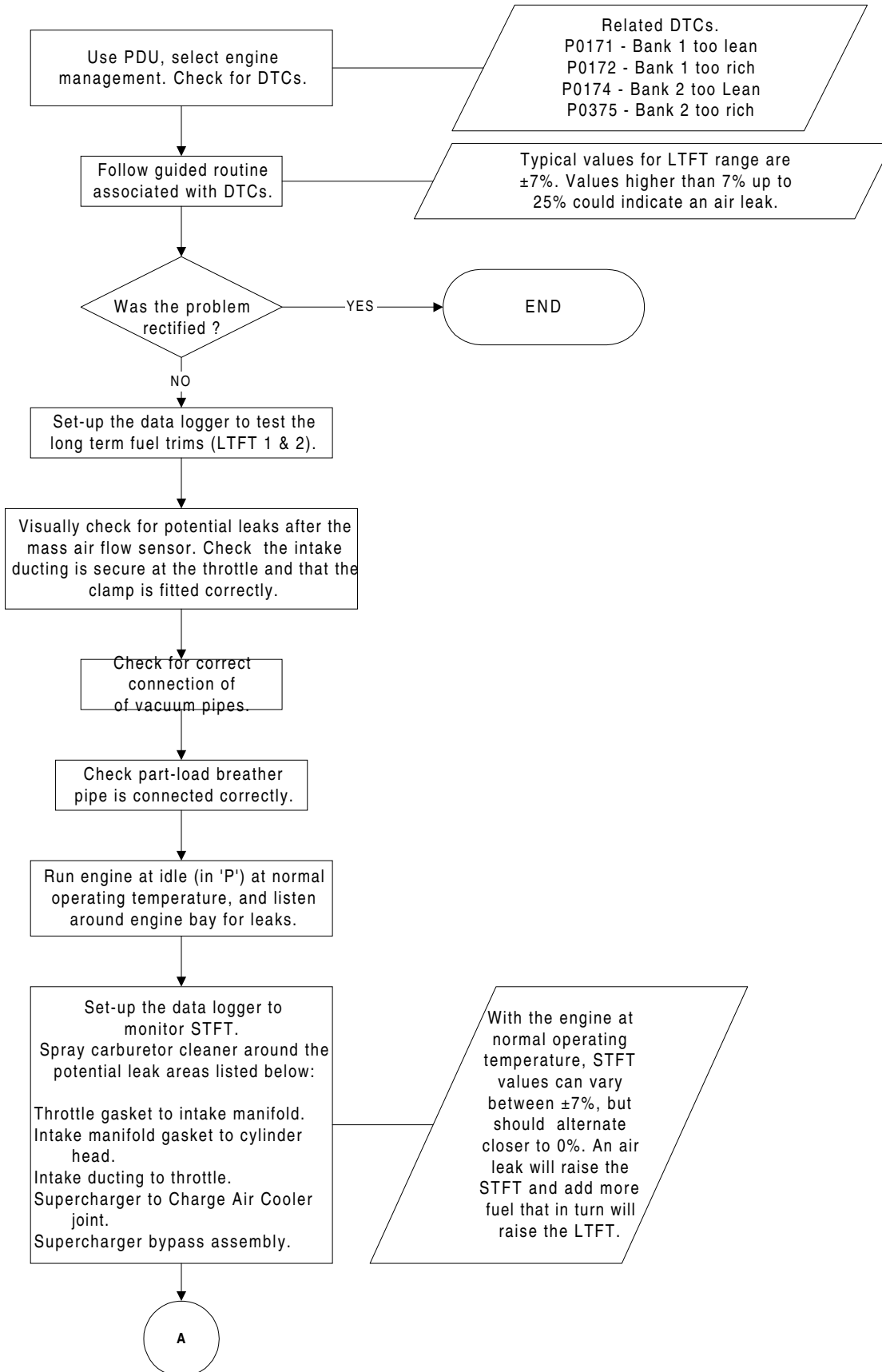
# P21 - FUEL LINES DIAGNOSTIC FLOW CHART



P21 - FUEL LINES DIAGNOSTIC FLOW CHART - CONT.

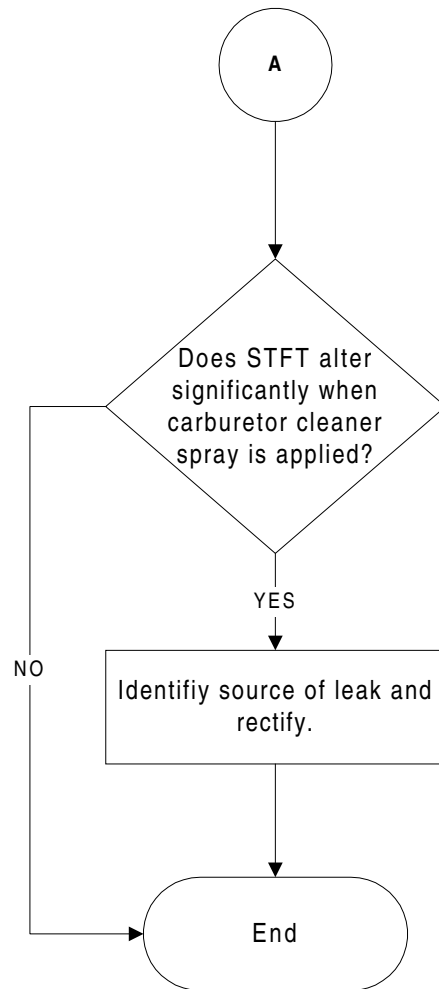


# P23 - AIR LEAKAGE DIAGNOSTIC FLOW CHART

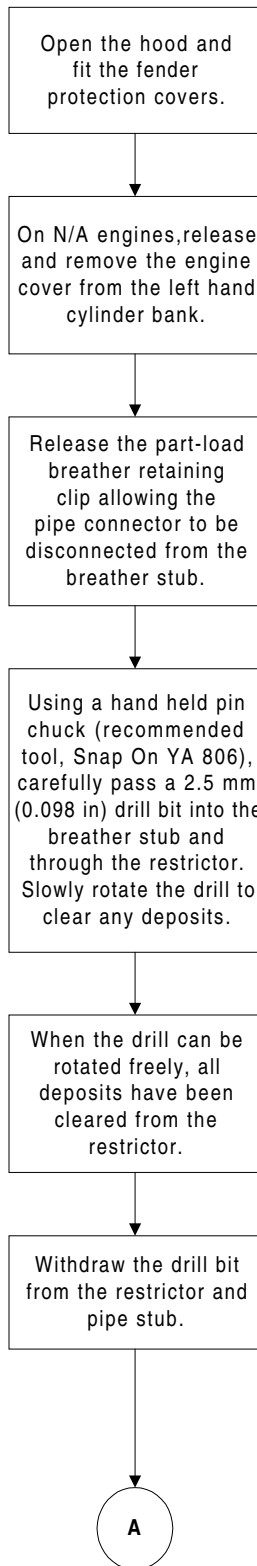




P23 - AIR LEAKAGE DIAGNOSTIC FLOW CHART - CONT.

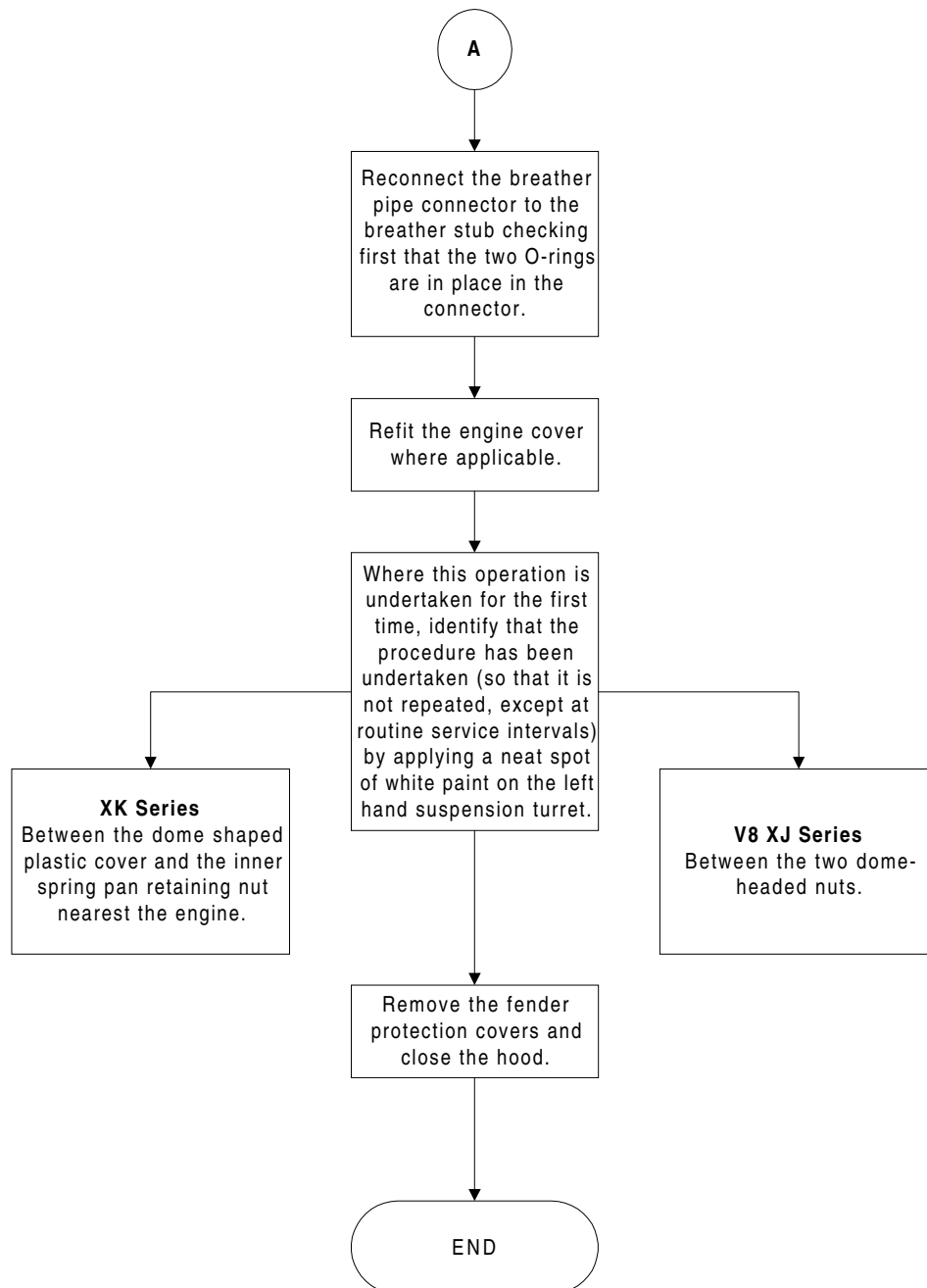


P29 - BLOCKED PART LOAD BREATHER CLEANING PROCEDURE



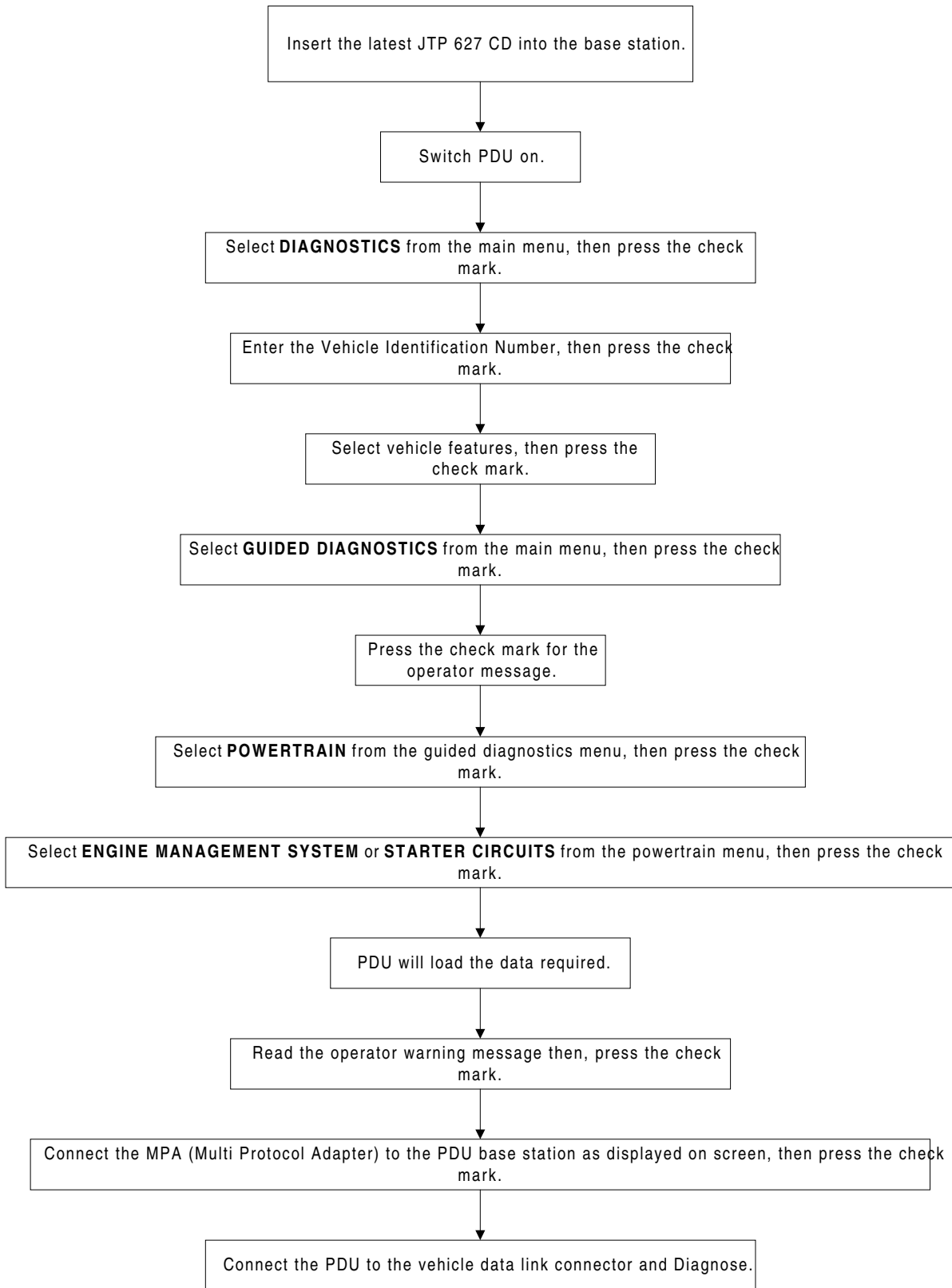
**Note: In no circumstances must a power drill be used, it should always be rotated by hand. The drill bit should never exceed 2.5 mm (0.098 in)**

P29 - BLOCKED PART LOAD BREATHER CLEANING PROCEDURE - CONT.

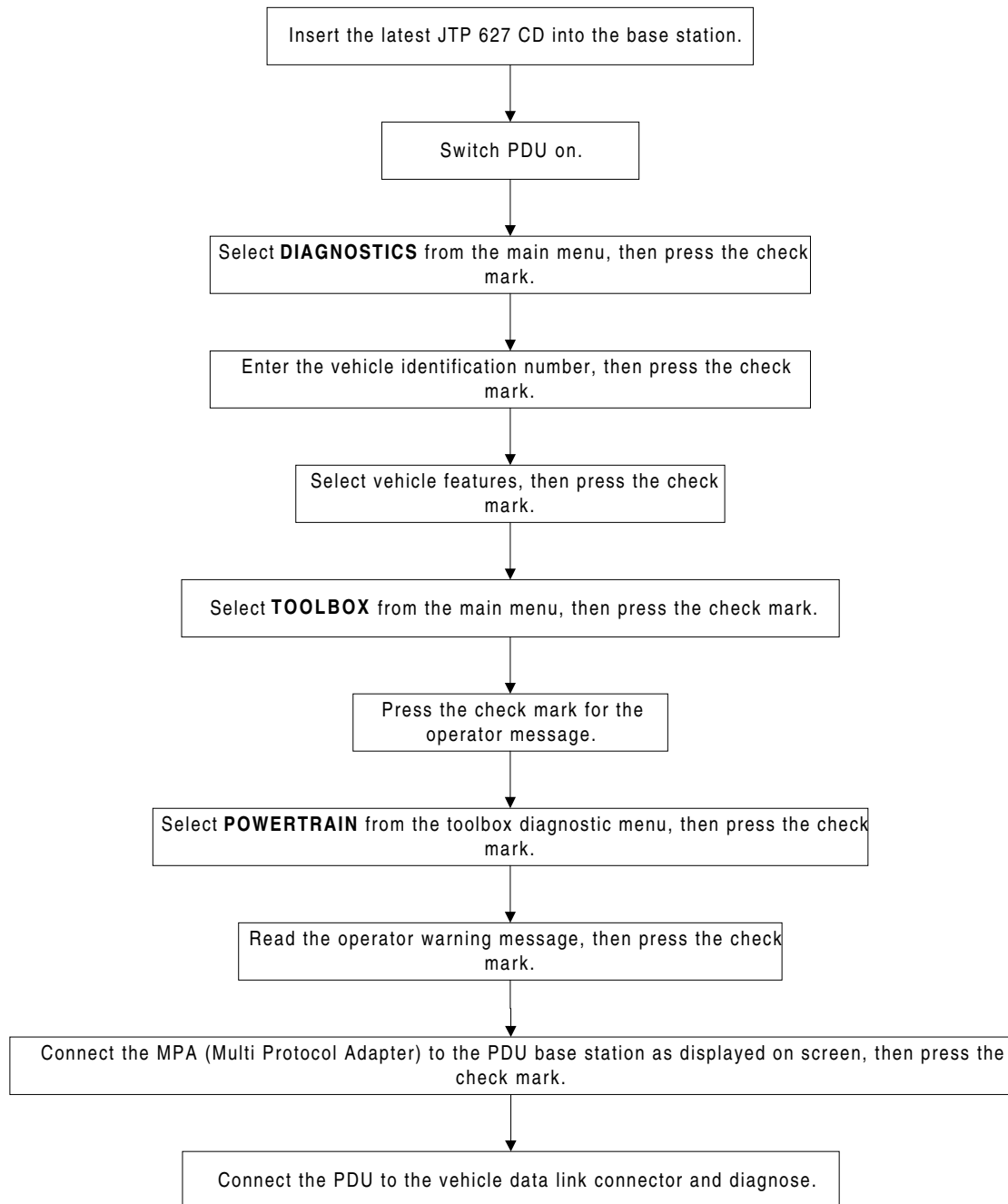


**Note: The information in this flowchart has been taken from Technical Bulletin 600-03 (Service Action S474). Use the chart in conjunction with Technical Bulletin 600-03.**

## PDU EXPLANATION FLOW CHART GUIDED - DIAGNOSTICS



## PDU EXPLANATION FLOW CHART - TOOLBOX



## PDU EXPLANATION FLOW CHART - MULTIMETER

