

<b>Reference</b>	SSM72082
<b>Models</b>	F-TYPE / X152 XF / X250 XJ / X351 XK / X150
<b>Title</b>	Twin Solenoid(TS) starter motor diagnosis
<b>Category</b>	Electrical
<b>Last modified</b>	24-Nov-2014 00:00:00
<b>Symptom</b>	203000 Basic Electrical
<b>Attachments</b>	ssm starter image.pdf

**Content****Applicable Models and engine derivatives**

XK / X150 Engine AJ126 & AJ133 14 MY onwards  
 F-TYPE / X152 Engine AJ126 & AJ133 14MY onwards  
 XJ / X351 Engine TDV6, AJ126 & AJ133 13MY onwards  
 XF / X250 & XE X760 Engine DW12 2.2 DIESEL, TDV6, I4 GTDi (2.0), AJ126 & AJ133 12MY onwards

**Issue**

A significant number of TSS motors have been replaced under warranty, when returned to the supplier for analysis many are deemed as "No Fault Found".

DTC's may be present, due to this carry out a DTC global read using the recommended diagnostic and follow the help text for each DTC's.

It is possible during an ECO stop start that the vehicle does not re-start.

**Cause**

Incorrect diagnosis.

**Action**

Carry out the following steps:

DTC's may be present, due to this carry out a DTC global read using the recommended diagnostic and follow the help text for each DTC's.

1. Carry out a battery test using an EXP-1080 or GRX Midtronics diagnostic charger; follow the instructions on the battery tester as per the battery care requirements on Topix.

2. Pull out the Conventional Starter/TSS Pinion relay (Relay Starter Pinion), only the pinion rotation (free spin) should be heard whilst attempting to crank engine.

-If the pinion is heard to throw (Single click noise), then the harness requires checking as per the wiring diagram on Topix, carry out any repairs in line with harness repair manual.

-If nothing is heard-:

a) Check the pinion rotate relay (Relay Starter motor) and the wiring from the relay to the starter motor

b) Check the connection at the T30 terminal (B+), **see attachment**

c) Check for good earth grounding points

d) Check fuses

-Re-install the Pinion relay.

3. Pull out the TSS Starter MTR Relay (Relay Starter motor), and only the pinion engagement (Single click noise) should be heard whilst attempting to crank engine

- If the pinion is heard to rotate (free-spin), then the wiring is incorrect- please rectify the harness as per the wiring diagram on Topix.

- If nothing is heard-:

a) Check the Conventional Starter/TSS Pinion relay (Relay Starter Pinion) and the wiring from the relay to the starter motor

b) Check for good connection at the T50

c) Check fuses

-Re-install the Starter Motor relay.

Contact Technical support if failure persists. Please ensure you have the following information

Recorded Voltage present at the T45 and T30

Recorded Battery voltage  
Recorded Ambient temperature at time of testing  
DTC list

Ratings:

Technicians - Please rate this SSM and provide comments so that future communications can be improved.

- 1 = Poor – Basic information provided – The SSM does not help me resolve the customer concern.
- 3 = Average – Adequate information provided – The SSM partially helps me resolve the customer concern.
- 5 = Excellent – All required information provided to resolve the customer concern

