Technical Bulletin 218
06.2021

Contents

Item: **218.1**

Description: **Pinpoint Tests - Exhaust Valve**

Model Affected: **Speed Triple 1200 RS**

Two pinpoint tests have been released for fault codes P0475, P0476 - Exhaust Valve Actuator and P1081 – CAN Fault - Lost Communication With Exhaust Valve Actuator

The new pinpoint test will be added to the Service Manual at the next update.

The pinpoint test are described below.

P0475, P0476 - Exhaust Valve Actuator

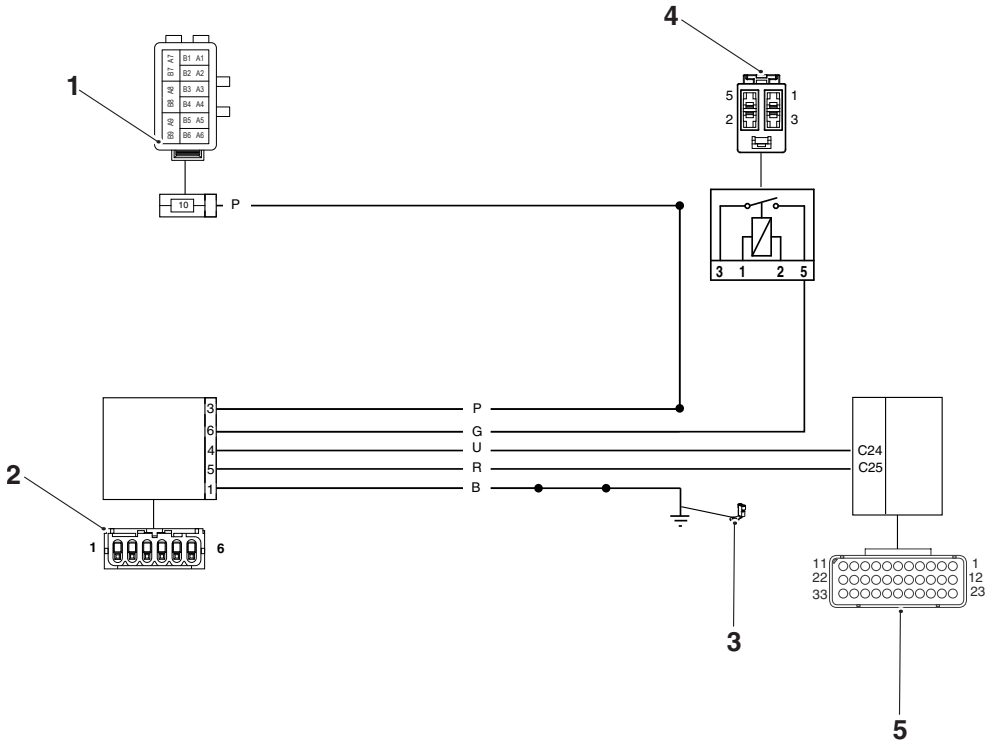
Fault Code	Possible cause	Action
P0475 P0476	Battery voltage. Cable adjustment Exhaust butterfly valve actuator internal fault	Make sure the exhaust butterfly valves actuator connector is secure. View and record the exhaust valve butterfly status using the diagnostic tool. If the diagnostic tool displays the exhaust valve butterfly Status = 01 proceed to pinpoint test 5, otherwise proceed to pinpoint test 1:

Pinpoint Tests

Test		Result	Action
1	Check cable and terminal integrity: - Exhaust valve butterfly actuator pin 1 - Exhaust valve butterfly actuator pin 38 - Exhaust valve butterfly actuator pin 4 - Exhaust valve butterfly actuator pin 5 - Exhaust valve butterfly actuator pin 6	OK	Disconnect the exhaust valve butterfly actuator and engine ECM and proceed to test 2
		Faulty	Rectify fault, proceed to test 6
2	Check cable continuity: - Engine ECM pin C24 to exhaust valve butterfly actuator pin 4 - Engine ECM pin C25 to exhaust valve butterfly actuator pin 5 - Exhaust valve butterfly actuator pin 1 to ground - Fuse box 1 fuse 6 to exhaust valve butterfly actuator pin 3 - Ignition Relay Pin 5 to exhaust valve butterfly actuator pin 6	OK	Proceed to test 3
		Faulty	Locate and rectify wiring fault, proceed to test 6
3	- Check fuse box 1 fuse 6 integrity.	OK	Proceed to test 4
		Faulty	Renew fuse, proceed to test 6
4	- Reconnect the harness, run the engine and measure the battery voltage.	OK (13.9V – 14.6V) Faulty	Proceed to test 5 Locate and rectify fault, proceed to test 6
		Short circuit	Locate and rectify wiring fault, proceed to test 6

Test		Result	Action
5	Check adjustment of cables is within specification using the diagnostic tool (see Exhaust Butterfly Cables - Check/ Adjustment).	OK	Adjust cable tension/span using the diagnostic tool and proceed to test 6
		Faulty	Renew relevant part and proceed to test 6
6	Reconnect harness, clear fault code and run diagnostic software function test to visually verify operation of the exhaust control valve actuator.	OK Fault still present	Action complete - quit test Contact Triumph service

Circuit Diagram



1. **Fuse box fuse 6**
2. **Exhaust valve actuator**
3. **Engine ground point**
4. **Ignition relay**
5. **Engine electronic control module connector C**

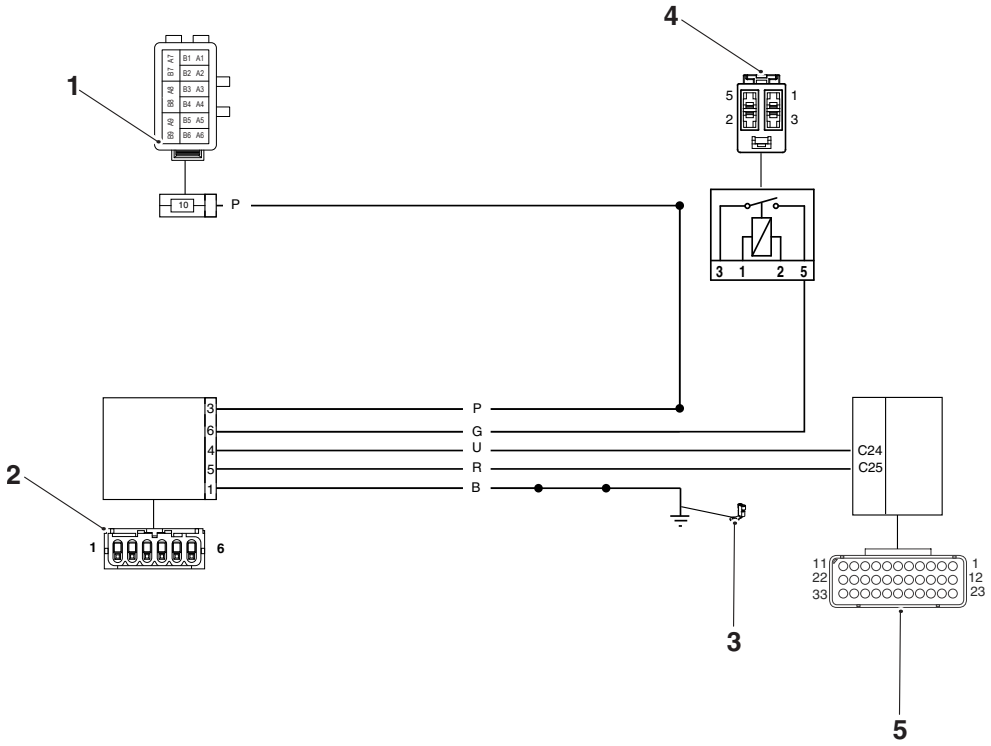
P1081 – CAN Fault - Lost Communication With Exhaust Valve Actuator

Fault Code	Possible cause	Action
P1081	CAN fault - lost communication with Exhaust Valve Actuator	View and note 'freeze-frame' data if available. Make sure the exhaust valve actuator connector is secure. Proceed to pinpoint test 1:

Pinpoint Tests

Test		Result	Action
1	Check cable and terminal integrity: - Engine ECM pin C25 - Engine ECM pin C24 - Exhaust valve butterfly actuator pin 1 - Exhaust valve butterfly actuator pin 38 - Exhaust valve butterfly actuator pin 4 - Exhaust valve butterfly actuator pin 5 - Exhaust valve butterfly actuator pin 6	OK	Disconnect the exhaust valve butterfly actuator and engine ECM and proceed to test 2
		Faulty	Rectify fault, proceed to test 6
2	Check cable for short circuit: - Engine ECM pin C25 to ground - Engine ECM pin C24 to ground	OK	Proceed to test 3
		Short circuit	Locate and rectify wiring fault, proceed to test 6
3	Check cable for short circuit: - Exhaust valve butterfly actuator pin 4 to ground - Exhaust valve butterfly actuator pin 5 to ground	OK	Proceed to test 4
		Short circuit	Locate and rectify wiring fault, proceed to test 6
4	Check cable continuity: - Engine ECM pin C24 to exhaust valve butterfly actuator pin 4 - Engine ECM pin C25 to exhaust valve butterfly actuator pin 5 - Exhaust valve butterfly actuator pin 1 to ground - Fuse box 1 fuse 6 to exhaust valve butterfly actuator pin 3 - Ignition Relay Pin 5 to exhaust valve butterfly actuator pin 6	OK	Proceed to test 5
		Faulty	Locate and rectify wiring fault, proceed to test 6
5	- Check fuse box 1 fuse 6 integrity.	OK	Proceed to test 6
		Faulty	Renew fuse, proceed to test 6
6	Reconnect harness, clear fault code and run the engine.	OK Fault still present	Action complete - quit test Contact Triumph service

Circuit Diagram



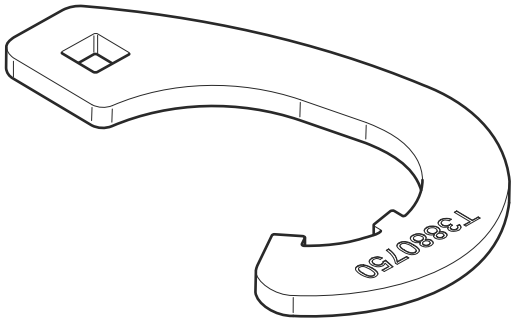
1. **Fuse box fuse 6**
2. **Exhaust valve actuator**
3. **Engine ground**
4. **Ignition relay**
5. **Engine electronic control module connector C**

Item: **218.2**

Description: **Steering Head Bearing Adjustment - Service Tool**

Model Affected: **Trident**

The Service Manual for the above model has been updated with the addition of an extra service tool.
The service tool used to hold and tighten the adjuster nut is now T3880750 - Headstock Service Tool. The service tool used to tighten the lock nut remains the same.



T3880750

T3880750 - Headstock Service Tool

When adjusting the steering head bearings on the above model, follow the process below.

Steering Head Bearing - Adjustment

⚠ Warning

Make sure the motorcycle is stabilised and adequately supported.
A correctly supported motorcycle will help prevent it from falling.
An unstable motorcycle may fall, causing injury to the operator or damage to the motorcycle.

1. Raise and support the front of the motorcycle.
2. Release the fixings securing the handlebar clamp to the upper yoke, detach the clamp and release the handlebar.
3. As an assembly, raise the handle bars until clear of the upper yoke. Rest the assembly forward of the steering stem such that access to the headstock top nut and the adjustment nuts is unrestricted. Ensure the master cylinder remains in an upright position.
4. Loosen the upper yoke pinch bolts.

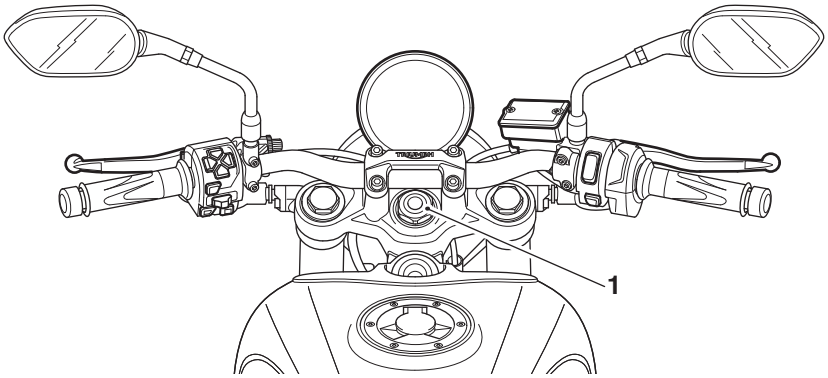
⚠ Warning

If the lower yoke fixings are also loosened, the forks will no longer support the weight of the motorcycle.
Do not loosen the lower yoke fixings as, in this condition, the motorcycle could topple over causing damage and/or risk of injury.

⚠ Caution

Care must be taken when removing the upper yoke centre nut, to ensure that the centre nut and upper yoke do not become scratched. Protect the surfaces with a suitable cloth or tape to prevent scratching.

5. Remove the upper yoke centre nut from the steering stem.



1. Upper yoke centre nut

6. Ease the upper yoke and instrument assembly from the forks and support while detached.

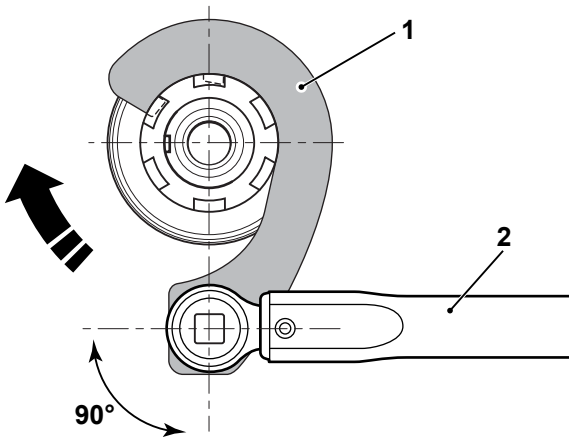
Note:

- **When adjusting the bearing free play, ensure that the threaded part of the stem is free from grease.**

Note:

- **Keep the torque wrench at 90 degrees to the centre line of service tool T3880750 when you tighten the adjustment nut in the stage that follows. This will apply the correct torque to the adjustment nut.**

7. Adjust the bearing free play as follows, using service tool T3880023 and service tool T3880750:
   - Remove the lock nut and tab washer using service tool T3880023. Discard the washer.
   - Thoroughly clean the threads on the steering stem.
   - Loosen the adjuster nut using service tool T3880750, then tighten to **40 Nm**. Keep the torque wrench at 90 degrees to the centre line of the tool.
   - Loosen the adjuster nut using service tool T3880750, then retighten to **10 Nm**. Keep the torque wrench at 90 degrees to the centre line of the tool.



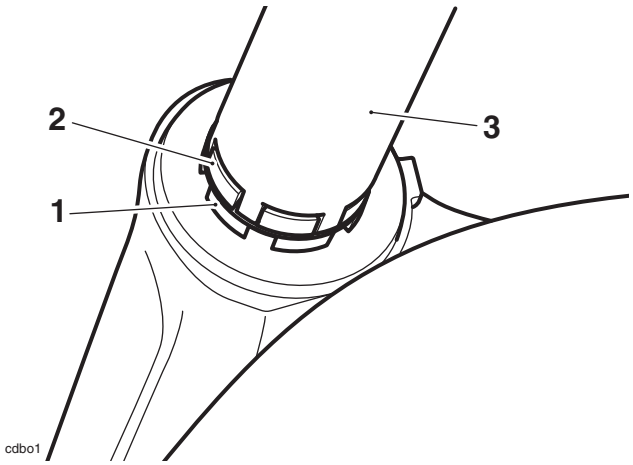
1. T3880750 - Headstock Service Tool
2. Torque wrench

   - Fit a new tab washer and the lock nut.

⚠ Warning

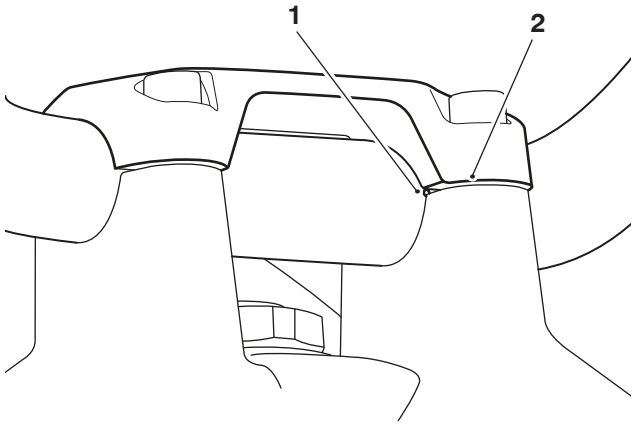
It is essential that the adjuster nut is not over-tightened. If the adjuster nut is over-tightened it will cause a pre-load on the headstock bearings. This will introduce tight steering, which could cause loss of control and an accident.

- Hold the adjuster nut in position while tightening the lock nut to **40 Nm**.



1. **Adjuster nut**
2. **Lock nut**
3. **T3880023 - 50 mm Socket**

8. Refit the upper yoke and instrument assembly to the forks.
9. Fit the upper yoke centre nut and tighten to **90 Nm**.
10. Tighten the upper yoke pinch bolts to **26 Nm**.
11. Locate the handlebar assembly in the lower halves of the clamps. Fit the upper clamps and bolts.
12. Rotate the handlebars so that the alignment mark on the handlebar aligns with the split line.
13. Tighten the front clamp bolts to **26 Nm**, then the rears.



1. **Alignment mark**
2. **Split line**

14. Recheck the bearing adjustment (see **Steering Head Bearing - Check** in the Service Manual).

When ordering replacement parts, refer to the EPC.

Item: **218.3**

Description: **Pinpoint Test - Coolant Temperature Sensor**

Model Affected: **Trident**

The pinpoint test for the Coolant Temperature Sensor (DTC P0115 and P0117) has been amended for the above model. This information changes the pinpoint test contained in the Fuel System and Engine Management section of the current Service Manual.

The revised pinpoint test is as described below.

Fault Code	Possible cause	Action
P0115	Engine coolant temperature sensor open circuit or short circuit to 5 Volt sensor supply	View and note diagnostic software freeze frame data if available View and note diagnostic software sensor data Ensure sensor connector is secure Disconnect Engine ECM and proceed to pinpoint test 1
P0117	Engine coolant temperature sensor short circuit to ground	Disconnect sensor and proceed to test 4

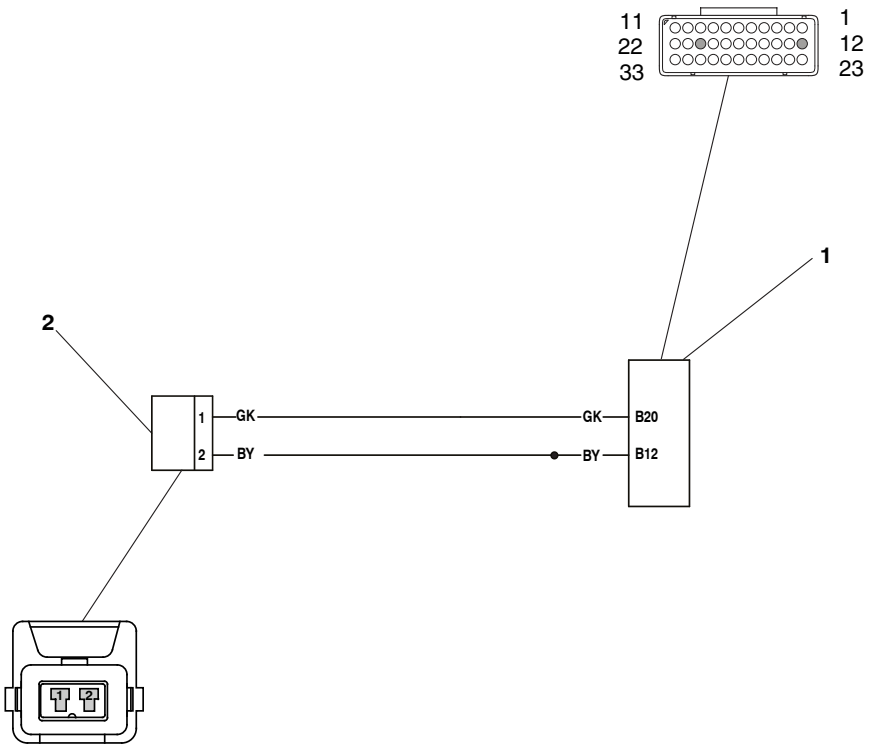
Pinpoint Tests

Test		Result	Action
1	Check cable and terminal integrity: - Engine ECM pin B20	OK	Proceed to test 2
		Faulty	Rectify fault, proceed to test 6
2	Check resistance value: - Engine ECM pin B20 to ground (Temperature dependent - see below)	OK	Disconnect temperature sensor and proceed to test 6
		Open circuit	Disconnect temperature sensor and proceed to test 3
		Short circuit	Disconnect temperature sensor and proceed to test 4
3	Check cable continuity: - Engine ECM pin B20 to sensor pin 1 - Ground to sensor pin 2	OK	Proceed to test 4
		Open circuit	Locate and rectify wiring fault, proceed to test 6
4	Check cable for short circuit: - Engine ECM pin B20 to ground	OK	Proceed to test 5
		Short circuit	Locate and rectify wiring fault, proceed to test 6
5	Check sensor resistance: - Sensor pin 1 to sensor pin 2 (Temperature dependent - see below)	OK	Proceed to test 6
		Faulty	Renew temperature sensor, proceed to test 6
6	Reconnect harness, clear fault code and run engine to verify fault cleared.	OK	Action complete - quit test
		Fault still present	Contact Triumph service

Resistance Data

Resistance data under typical conditions:
Warm engine (80°C): 200 to 400 Ohms
Cold engine:
20°C ambient 2.35 to 2.60 K Ohms
-10°C ambient 8.50 to 10.20 K Ohms

Circuit Diagram



1. **Engine ECM Connector B**
2. **Coolant Temperature Sensor**

Please mark your copy of the Service Manual with this information. For electronic service manuals, store this information in a readily accessible place and refer to it when working on the relevant Triumph motorcycle. This information will be included in the next service manual update.

Item: **218.4**

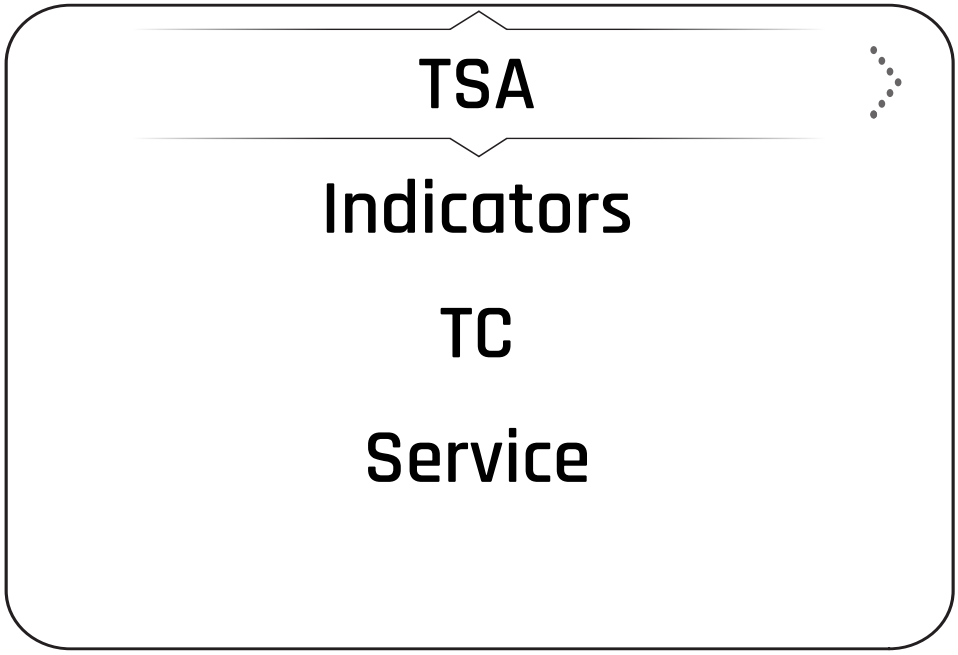
Description: **Triumph Shift Assist**

Model Affected: **Trident**

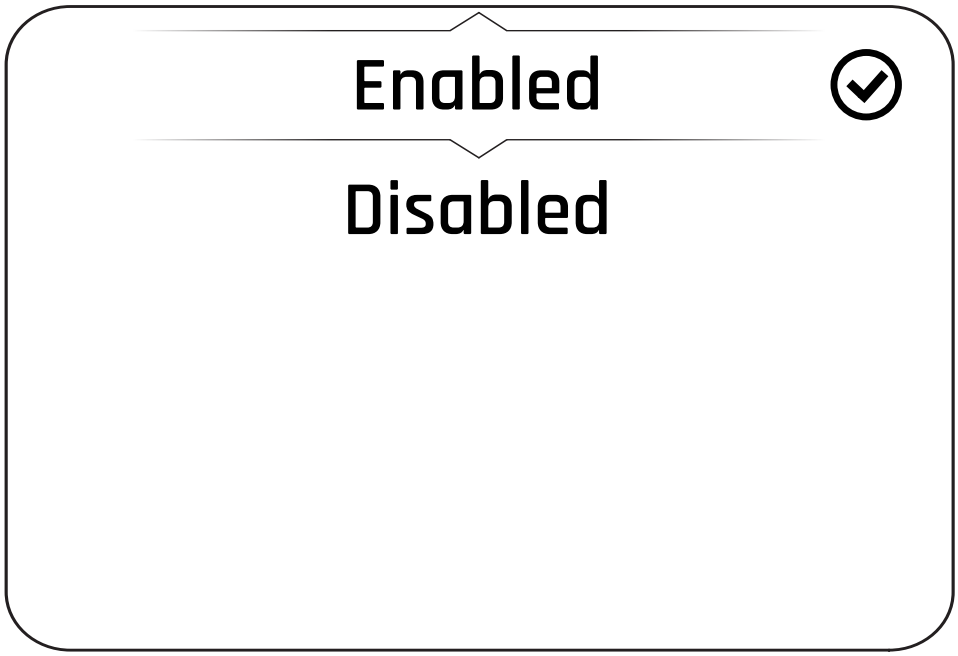
On the above model if the battery has been disconnected/connected, the Triumph shift assist (TSA) will be disabled when the battery is reconnected.

To enable the TSA, follow the procedure described below.

- From the Bike Setup menu, press the Up and Down buttons to select TSA.



- Press the Right button to view the available options.



- Press the Up and Down buttons to select Enabled or Disabled.
- Press the Select button to confirm. A tick is shown to indicate the selected option.

Item: 218.5

Description: Battery Terminal Connections

Model Affected: Trident

The Service Manual for the above model has been updated to include further information about the installation of the battery and the orientation of the battery leads.

When installing the battery on the above model, follow the process below.

Battery - Installation

⚠ Warning

Make sure the motorcycle is stabilised and adequately supported.

A correctly supported motorcycle will help prevent it from falling.

An unstable motorcycle may fall, causing injury to the operator or damage to the motorcycle.

⚠ Warning

Ensure that the battery terminals do not touch the motorcycle frame as this may cause a short circuit or spark, which would ignite battery gases causing a risk of personal injury.

Note:

- **Once the battery has been reconnected the rider's configuration settings should be reset as noted prior to the battery being disconnected.**

⚠ Warning

If the battery has been disconnected or the fuses removed for any reason advise the rider to confirm the original mode settings have been correctly set. Failure to reset the motorcycle to the rider's preferred rider mode settings and subsequently being ridden may cause loss of motorcycle control and an accident.

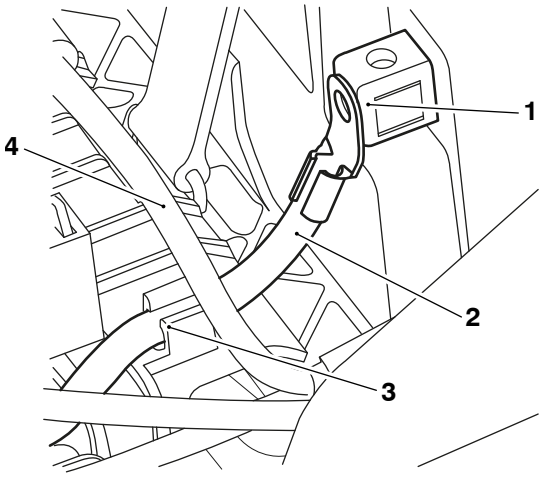
1. Place the battery into the battery tray and install the battery insert.
2. Reattach the battery strap.

Note:

- **The battery positive and negative leads are to be connected to the vertical face of the battery terminals.**
- **The battery positive lead routes underneath the diagnostic connector cable and clips to the Engine ECM moulding.**

3. Reconnect the battery, positive (red) lead first, routing the positive lead underneath the diagnostic connector cable, and tighten the battery terminals to **4.5 Nm**.

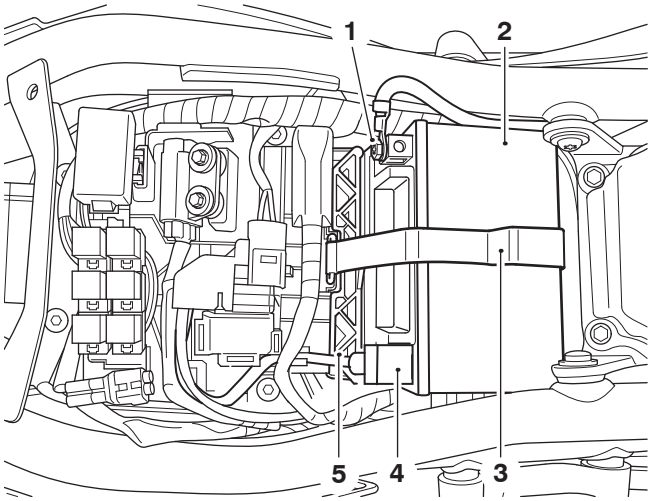
4. Make sure the battery positive (red) lead is clipped to the engine ECM tray.



1. **Battery positive terminal**
2. **Battery positive lead**
3. **Retaining feature on engine ECM moulding**
4. **Diagnostic connector cable**

5. Apply a light coat of grease to the terminals to prevent corrosion.

6. Cover the positive terminal with the protective cap.



1. **Negative (black) terminal**
2. **Battery**
3. **Battery strap**
4. **Positive (red) terminal**
5. **Battery insert**

Please mark your copy of the Service Manual with this information. For electronic service manuals, store this information in a readily accessible place and refer to it when working on the relevant Triumph motorcycle. This information will be included in the next service manual update.

When ordering replacement parts, refer to the EPC.

Circulation

Initial and date when read and return to central file holder

Service Manager	Parts Manager	Sales Manager	Workshop Supervisor	Technician 1	Technician 2