Switches and Sensors Catalogue

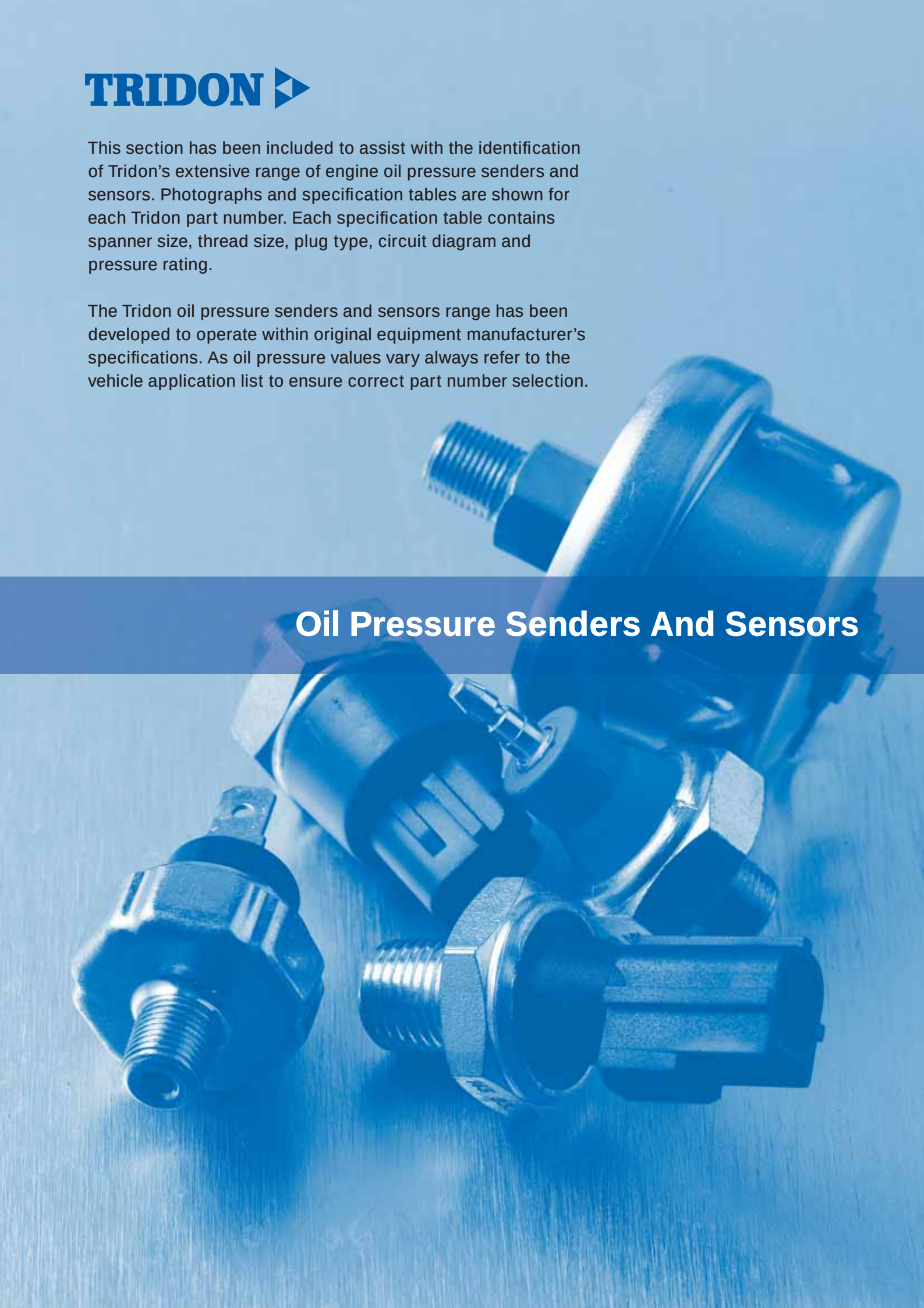
Oil Pressure • Water Temperature • Coolant Temperature

Thermo Fan • Stop Light • Reverse Light

TRIDON

This section has been included to assist with the identification of Tridon's extensive range of engine oil pressure senders and sensors. Photographs and specification tables are shown for each Tridon part number. Each specification table contains spanner size, thread size, plug type, circuit diagram and pressure rating.

The Tridon oil pressure senders and sensors range has been developed to operate within original equipment manufacturer's specifications. As oil pressure values vary always refer to the vehicle application list to ensure correct part number selection.



Oil Pressure Senders And Sensors

Oil Pressure Senders and Sensors

Function

The engine oil pressure sender/sensor is used to measure the integrity of the engine lubrication system. Normally located in the engine block, the oil pressure sender responds to changes in engine oil pressure modifying the signal from oil pressure instrumentation. This modified signal is used to determine the engine oil pressure via oil pressure light or gauge.

There are 3 main types of engine oil pressure senders and sensors; spring controlled diaphragm, thermal transducer and piezo-resistor.

Spring Controlled Diaphragm

- Contains a spring loaded diaphragm designed to open a set of contacts as pressure increases.
- For operation of oil pressure lights (only ON or OFF switch position).

Thermal Transducer

- Contains a diaphragm designed to close a set of contacts attached to a bimetal alloy leaf. The bimetal leaf deflects with changes in oil pressure. A corresponding bimetal leaf in the oil pressure gauge performs the same operation, registering the appropriate pressure reading.
- For operation of oil pressure gauges.

Piezo-Resistor

- Contains a semiconductor crystal, with special resistance properties. Changes in these properties occur when pressure is applied; the changes are then processed to operate an oil display.
- For operation of electronic oil pressure gauges.

Testing and Replacement

The engine oil pressure sender/sensor is an integral component in a vehicle engine warning system; a faulty engine oil pressure sender/sensor may provide incorrect warning signals leading to potential engine damage.

Engine oil pressure senders/sensors should be inspected regularly, the sender/sensor should be checked for any visible signs of contaminant. Note the engine oil itself, particularly old oil or incorrect oil levels may cause a sender/sensor to malfunction.

When an engine oil pressure sender/sensor malfunction or fault is suspected, the engine oil pressure sender/sensor should be checked and replaced by a trained professional.

Oil Pressure Sender/Sensor Testing Procedure

1. Check the oil pressure sender/sensor for visible faults or oil leaks.

2. Check correct oil pressure sender/sensor operation;

Spring Controlled Diaphragm (oil pressure lights)

Measure continuity across the oil pressure sender/sensor contacts;

- Using an Ohmmeter, remove the terminal or plug, connect the Ohmmeter between the sender/sensor terminal and the vehicle earth (ground).
- With the engine OFF, the reading given should be zero (0) or show a closed circuit.
- Start the engine, as the oil pressure rises the reading given should become infinite or open circuit.

Thermal Transducer (oil pressure gauges)

Test the operation of the oil pressure gauge circuit;

- Remove the wiring plug or terminal, connect a potentiometer between terminal and vehicle earth (ground).
- With the ignition turned on, test the operation of the oil gauge starting the potentiometer at a high resistance (around 500Ω) then slowly reduce the resistance to 0Ω. The gauge should operate from low pressure to high or a maximum pressure. (Resistance values will vary between make and models, test procedure should be used as a guide only).

Piezo-Resistor (electronic oil pressure displays)

For testing procedures for a Piezo-resistor type sensor refer to Thermal transducer type tests.

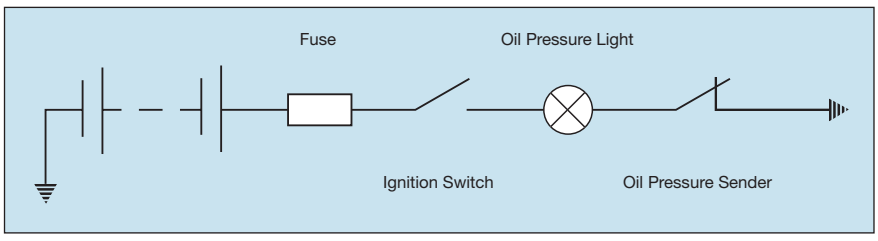
3. Replace the sender/sensor if readings are not as shown above.

4. Other oil pressure circuit tests include;

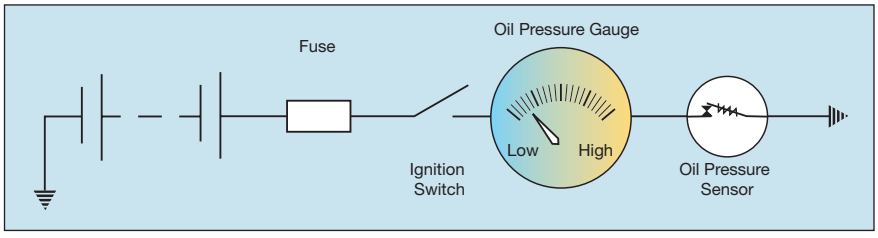
- Gauge and light tests with a potentiometer.
- Wiring tests, open and short circuits.
- Available voltage (check fuses) - voltage stabilizer or voltage regulator normally located in the instrument cluster.

The Tridon engine oil pressure sender/sensor range has been developed to operate with OEM specifications. As sender/sensor pressures values may vary, always refer to the Tridon Vehicle Application list to ensure correct part number selection.

Engine Oil Pressure Sender Circuit



Engine Oil Pressure Sensor Circuit



* Test procedure values will vary between make and models and should be used a guide only.

TPS001

14
1/8 GAS
6.3
NTC

TPS002

14
1/8 GAS
6.3
NTC

TPS003

14
1/8 GAS
6.3
NTC

TPS004

14
1/8 GAS
6.3
NTC

TPS005

14
1/8 GAS
6.3
NTC

TPS006

24
1/8 GAS
6.3

Bar
0.40

TPS007

24
1/8 GAS
6.3

Bar
0.30

TPS008

24
1/8 GAS
6.3

Bar
0.40

TPS010

27
1/8 PT

Bar
0.30

TPS011

24
1/8 GAS

Bar
0.20

TPS012

24
1/4-18 NPT
8-32 UNC

Bar
0.30

TPS013

24
1/8 GAS
M4

Bar
0.30

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TPS014

24
1/8 GAS
Ø 4
Bar
0.30

TPS015

24
1/8 GAS
Ø 4
Bar
0.40

TPS016

27
1/8 GAS
Ø 4
Bar
0.30

TPS017

24
1/8 GAS
Bar
0.20

TPS018

21
M14 x 1.5
6.3
Bar
0.30

TPS019

21
M14 x 1.5
6.3
Bar
0.30

TPS020

24
M10 x 1
6.3
Bar
0.30

TPS021

Note: Replaces original brown part

24
M10 x 1
6.3
Bar
0.30

TPS022

23
M18 x 1.5
6.3
Bar
0.70

TPS023

21
M16 x 1.5
6.3
Bar
0.60

TPS024

24
M14 x 1.5
6.3
Bar
0.30

TPS025

Note: Replaces original red part

24
M12 x 1.5
6.3
Bar
0.15

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TPS026

24
M12 x 1.5
6.3

Bar
0.35

Note: Replaces original brown and blue parts

TPS027

24
1/8-27 NPT
8-32 UNC

Bar
0.50

TPS029

24
1/4-18 NPT
6.3

Bar
0.40

TPS030

24
M10 x 1
6.3

Bar
1.80

Note: Replaces original white part

TPS031

24
M10 x 1
6.3

Bar
1.40

Note: Replaces original black part

TPS032

24
1/8-27 NPT
6.3

Bar
0.50

TPS033

24
1/8-27 NPT
6.3

Bar
0.30

TPS034

24
M14 x 1.5

Bar
0.50

TPS038

24
M14 x 1.5

Bar
0.50

TPS039

24
M12 x 1.5

Bar
0.30

TPS040

24
M10 x 1
6.3

Bar
0.30

TPS041

24
1/8-27 NPT

Bar
0.35

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TPS042

24
M10 x 1
6.3

Bar
0.90

Note: Replaces original brown and grey parts

TPS043

21
M14 x 1.5

Bar
0.30

TPS044

24
M12 x 1.5
M4

Bar
0.40

TPS045

24
M10 x 1
6.3

Bar
0.30

Note: Replaces original light blue part

TPS046

24
M10 x 1
6.3

Bar
2.50

TPS047

21
M16 x 1.5

Bar
0.50

TPS048

24
M10 x 1
6.3

Bar
0.50

TPS049

24
1/8 GAS

Bar
0.40

TPS050

21
M16 x 1.5

Bar
0.50

TPS051

24
M10 x 1

Bar
0.70

Note: Replaces original brown part

TPS052

24
M10 x 1

Bar
0.25

Note: Replaces original dark blue part

TPS053

24
M10 x 1

Bar
0.90

Note: Replaces original grey part

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TPS054

24
M10 x 1
Bar
1.40

Note: Replaces original black part

TPS055

24
M10 x 1
Bar
1.80

Note: Replaces original white part

TPS056

24
M10 x 1
Bar
0.50

Note: Replaces original green part

TPS057

24
1/4-18 NPT
Bar
0.40

TPS058

24
3/8 NPT
Bar
0.50

TPS059

21
M14 x 1.5
Bar
0.50

TPS061

24
1/4-18 NPT
6.3
Bar
0.40

TPS063

14
1/8 GAS
NTC

TPS064

27
1/4-18 NPT

TPS065

27
1/4-18 NPT
Ø 4.7
Bar
0.40

TPS066

27
1/4-18 NPT

TPS067

14
1/8 GAS
Bar
0.60

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

Quick Reference Guide

Circuit Type
N/C = Normally Closed
N/O = Normally Open

Part No.	Spanner	Thread	Circuit Type	Pressure	Notes
TPS001	14	1/8 GAS			
TPS002	14	1/8 GAS			
TPS003	14	1/8 GAS			
TPS004	14	1/8 GAS			
TPS005	14	1/8 GAS			
TPS006	24	1/8 GAS	N/C	0.40	
TPS007	24	1/8 GAS	N/C	0.30	
TPS008	24	1/8 GAS	N/C	0.40	
TPS010	27	1/8 PT	N/C	0.20	
TPS011	24	1/8 GAS	N/C	0.30	
TPS012	24	1/4 - 18 NPT	N/C	0.30	
TPS013	24	1/8 GAS	N/C	0.30	
TPS014	24	1/8 GAS	N/C	0.30	
TPS015	24	1/8 GAS	N/C	0.40	
TPS016	27	1/8 GAS	N/C	0.30	
TPS017	24	1/8 GAS	N/C	0.20	
TPS018	21	M14 x 1.5	N/C	0.30	
TPS019	21	M14 x 1.5	N/C	0.30	
TPS020	24	M10 x 1	N/C	0.30	
TPS021	24	M10 x 1	N/C	0.30	Replaces original brown part
TPS022	23	M18 x 1.5	N/C	0.70	
TPS023	21	M16 x 1.5	N/C	0.60	
TPS024	24	M14 x 1.5	N/C	0.30	
TPS025	24	M12 x 1.5	N/C	0.15	Replaces original red part
TPS026	24	M12 x 1.5	N/C	0.35	Replaces original brown and blue parts
TPS027	24	1/8 - 27 NPT	N/C	0.50	
TPS029	24	1/4 - 18 NPT	N/C	0.40	
TPS030	24	M10 x 1	N/O	1.80	Replaces original white part
TPS031	24	M10 x 1	N/O	1.40	Replaces original black part
TPS032	24	1/8 - 27NPT	N/C	0.50	
TPS033	24	1/8 - 27 NPT	N/C	0.30	
TPS034	24	M14 x 1.5	N/C	0.50	
TPS038	24	M14 x 1.5	N/C	0.50	
TPS039	24	M12 x 1.5	N/C	0.30	
TPS040	24	M10 x 1	N/O	0.30	
TPS041	24	1/8 - 27 NPT	N/C	0.35	
TPS042	24	M10 x 1	N/O	0.90	Replaces original brown and grey parts
TPS043	21	M14 x 1.5	N/C	0.30	
TPS044	24	M12 x 1.5	N/C	0.40	
TPS045	24	M10 x 1	N/C	0.30	Replaces original light blue part
TPS046	24	M10 x 1	N/O	2.50	
TPS047	21	M16 x 1.5	N/C	0.50	
TPS048	24	M10 x 1	N/C	0.50	
TPS049	24	1/8 GAS	N/C	0.40	
TPS050	21	M16 x 1.5	N/C	0.50	
TPS051	24	M10 x 1	N/O	0.70	Replaces original brown part
TPS052	24	M10 x 1	N/C	0.25	Replaces original dark blue part
TPS053	24	M10 x 1	N/O	0.90	Replaces original grey part
TPS054	24	M10 x 1	N/O	1.40	Replaces original black part
TPS055	24	M10 x 1	N/O	1.80	Replaces original white part
TPS056	24	M10 x 1	N/O	0.50	Replaces original green part
TPS057	24	1/4 - 18 NPT	N/C	0.40	
TPS058	24	3/8 NPT	N/C	0.50	
TPS059	21	M14 x 1.5	N/C	0.50	
TPS061	24	1/4 - 18 NPT	N/C	0.40	
TPS063	14	1/8 GAS			
TPS064	27	1/4 - 18 NPT			
TPS065	27	1/4 - 18 NPT	N/O	0.40	
TPS066	27	1/4 - 18 NPT			
TPS067	14	1/8 Gas		0.60	

TRIDON

This section has been included to assist with the identification of Tridon's extensive range of water temperature senders. Photographs and specification tables are shown for each Tridon part number. Each specification table contains spanner size, thread size, plug type and circuit diagram.

The Tridon water temperature sender range has been developed to operate within original equipment manufacturer's specifications. As Tridon water temperature sender circuits vary always refer to the Tridon vehicle application list to ensure correct part number selection.

Water Temperature Senders

Function

The water temperature sender is used to measure the integrity of the engine cooling system. Located on the engine side of the thermostat in the cooling system, the water temperature sender responds to changes in engine coolant temperature modifying the signal from engine temperature instrumentation. This modified signal is used to determine the engine coolant temperature via water temperature light or gauge.

The most common type of water temperature sender is a thermistor type sender unit, containing semiconductor materials which respond to coolant temperature changes. Most commonly used are thermistors with a negative temperature coefficient (NTC), which respond with decreasing resistance as the temperature increases. This decrease in resistance creates a higher current flow through the bimetal leaf located inside the temperature gauge, indicating the appropriate engine temperature reading.

Testing and Replacement

The water temperature sender is an integral component in a vehicle engine warning system; a faulty water temperature sender may provide incorrect warning signals leading to possible engine overheating and potential engine damage.

Water temperature senders should be inspected at regular service intervals, the sender should be checked for any visible signs of contaminant and conductivity. Note the coolant itself, particularly old coolant, incorrect coolant levels or mixture may cause the sender to malfunction.

When a water temperature sender malfunction or fault is suspected, the sender should be checked and replaced by a trained professional.

Water Temperature Senders

Water Temperature Sender Testing Procedures

1. Remove the water temperature sender from the vehicle.

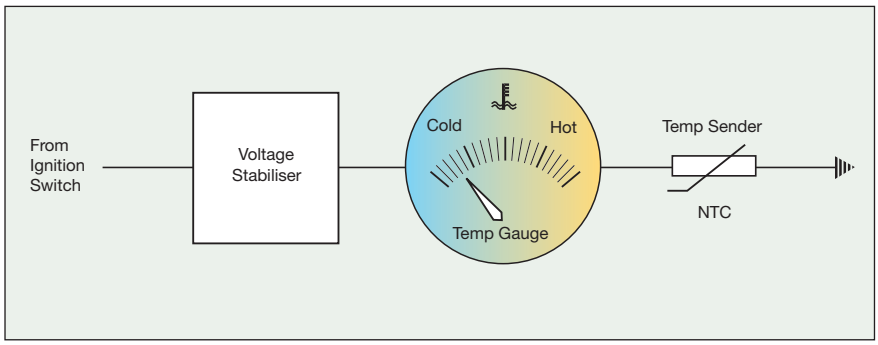
2. Check the water temperature sender for visible contaminant, conductivity or leaks.

3. Check correct water temperature sender operation;
- Suspend the sender in a beaker filled with water so that the bulb is covered.
- Using an Ohmmeter, measure the resistance across the terminals (or terminal to the body of the sender).
- Heat the water until a simulated engine operating temperature is achieved (80°C - 90°C). The sender is designed to respond to the change in temperature (as the water temperature increases the sender resistance will decrease or has a negative temperature coefficient NTC).
- At low temperatures the resistance values may be several thousand ohms (Ω) and reduce to as low as a few hundred ohms (Ω) at normal engine operating temperatures.

4. Other water temperature circuit tests include;
- Gauge and light tests with a potentiometer.
- Wiring tests, open and short circuits.
- Available voltage (check fuses) - voltage stabilizer or voltage regulator, normally located in the instrument cluster.

The Tridon engine water temperature sender range has been developed to operate with OEM specifications. As sender values may vary, always refer to the Tridon Vehicle Application list to ensure correct part number selection.

Typical Temperature Gauge Circuit



* Test procedure values will vary between make and models and should be used a guide only.

TTS001

12
1/8 GAS
6.3
NTC

TTS002

17
M16 x 1.5
Ø 4
NTC

TTS003

12
1/8 GAS
Ø 4
NTC

TTS004

12
1/8 GAS
6.3
NTC

TTS005

17
M16 x 1.5
6.3
NTC

TTS006

17
M16 x 1.5
6.3
NTC

TTS007

17
M16 x 1.5
NTC

Note: Replaces original black and grey parts

TTS008

12
1/8 GAS
NTC

Note: Replaces original black and grey parts

TTS010

17
3/8-18 NPT
10-32 UNF
NTC

TTS013

12
3/8 GAS
Ø 4
NTC

TTS014

17
M16 x 1.5
6.3
NTC

TTS015

12
M8 x 0.75
Ø 4
NTC

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TTS017

17
M16x1.5
Ø 4
NTC

TTS018

17
M16x1.5
6.3 6.3
NTC

TTS020

17
M16x1.5
6.3
NTC

TTS021

13
M12 x 1.25
6.3
NTC

TTS023

13
1/8-27 NPT
Ø 4.7
NTC

Note: Replaces original white part

TTS024

13
1/8-27 NPT
6.3
NTC

TTS025

19
M14x1.5
6.3
NTC

TTS027

19
5/8-18UNF
6.3
NTC

TTS028

17
M16x1.5
6.3
NTC

TTS029

19
5/8-18UNF
6.3
NTC

TTS030

13
M8 x 0.75
Ø 4
NTC

TTS031

17
M16 x 1.5
Ø 4
NTC

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TTS032

13
1/8-27 NPT
6.3
NTC

Note: Replaces original yellow and violet parts

TTS033

24
1/2 GAS
6.3
NTC

TTS034

24
M16 x 1.5
Ø 4
NTC

TTS035

19
M14 x 1.5
NTC

Note: Replaces original brown part

TTS036

13
M12 x 1.25
6.3
NTC

TTS037

13
1/8-27 NPT
M5
NTC

TTS038

—
—
NTC

Note: Replaces original black part

TTS039

19
M14x1.5
Ø 4
NTC

TTS040

19
5/8-18 UNF
NTC

Note: Replaces original black part

TTS043

19
M14 x 1.5
Ø 4
NTC

Note: Replaces original light blue part

TTS044

19
1/8-27 NPT
NTC

TTS045

13
M12 x 1.25
6.3
NTC

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TTS046

22
M16 x 1.5
NTC

Note: Replaces original brown part

TTS048

13
1/8-27NPT
M5
NTC

TTS049

13
1/8-27NPT
Ø 4
NTC

Note: Replaces original green part

TTS050

19
M14 x 1.5
Ø 4
NTC

TTS051

13
M12 x 1.25
6.3
NTC

TTS052

13
1/8-27 NPT
6.3
NTC

Note: Replaces original white part

TTS054

13
1/8-27NPT
6.3
NTC

TTS055

21
1/8-27NPT
NTC

TTS057

19
M14 x 1.25
PTC

TTS058

19
5/8-18

TTS059

—
—
Ø 4.7
NTC

TTS060

1/2”
1/8-27NPT
6.3
NTC

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TTS061

1/2"
1/8-27NPT
NTC

TTS062

1/2"
1/8-27NPT
6.3
NTC

TTS063

1/2"
1/8-27NPT
6.3
NTC

TTS064

1/2"
1/8-27NPT
6.3
NTC

Note: Replaces original brown part

TTS501

22
M14 x1.5
Ø 4
°C
110

TTS503

21
3/8 GAS
Ø 4
°C
60

TTS504

—
—
°C
120

Note: Replaces original white part

TTS505

—
—
°C
60

Note: Replaces original red part

TTS506

19
M10 x 1
6.3
°C
90

TTS507

—
—
°C
110

TTS508

—
—
°C
107 / 112

TTS509

—
—
°C
112 / 120

Note: Replaces original brown part

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TTS510

Note: Replaces original grey part

—

—

°C
102 / 115

TTS511

Note: Replaces original violet ring

20

M14 x 1.25

°C
60

TTS512

Note: Replaces original blue with yellow ring

20

M14 x 1.25

°C
120

TTS513

19

M10 x 1

6.3

°C
100

TTS514

Note: Replaces original blue with white ring

—

—

°C
95

TTS515

Note: Replaces original part with grey ring

20

M14 x 1.25

°C
115

TTS516

22

M14 x 1.5

°C
100

TTS517

Note: Replaces original dark blue - white and yellow parts

—

—

°C
95

TTS518

Note: Replaces original black part with dark blue ring

—

—

°C
100

TTS519

24

M12 x 1.5

°C
120

TTS520

22

M18 x 1.5

6.3 4.8

°C
115

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

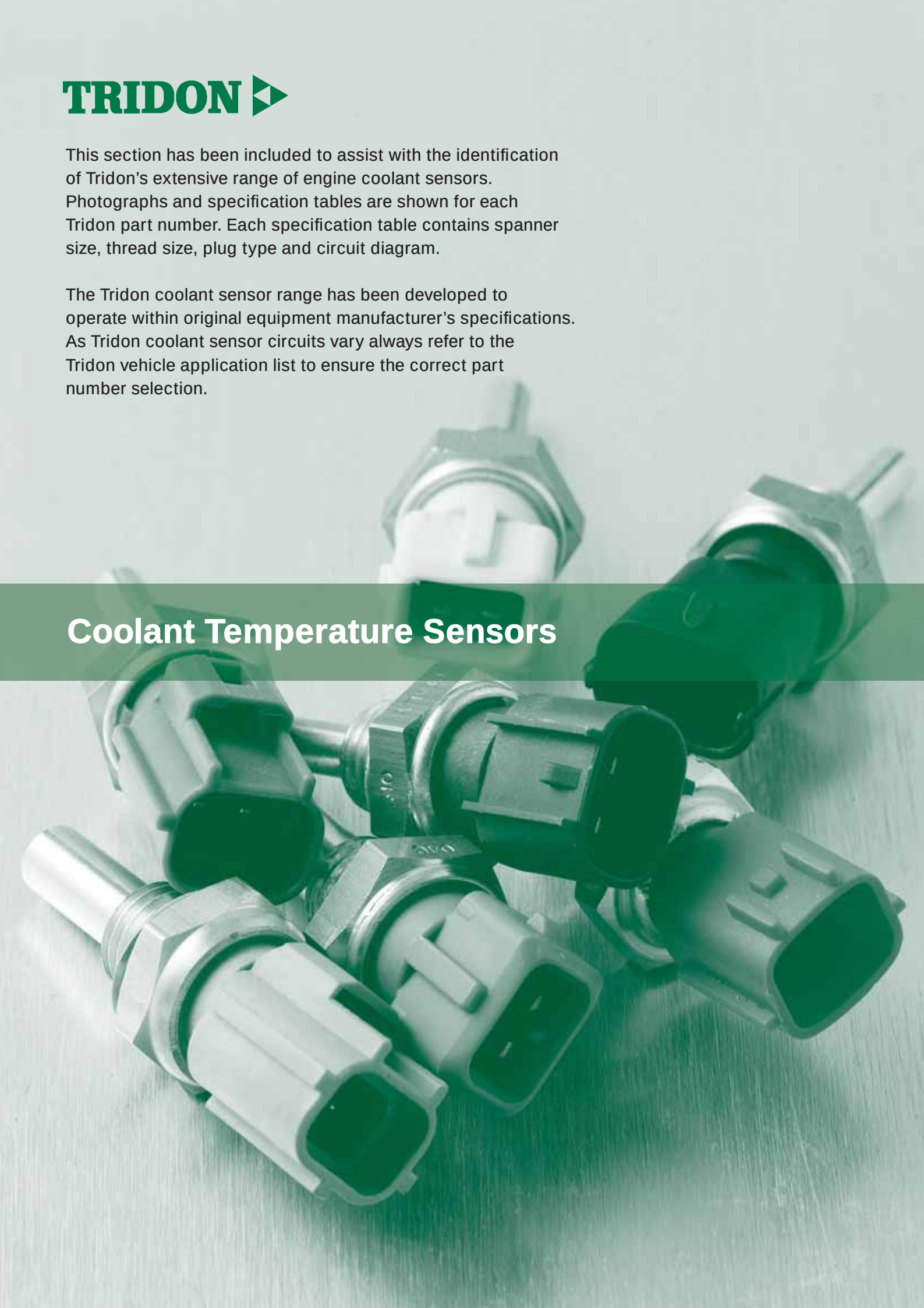
Quick Reference Guide

Part No.	Spanner	Thread	Temp Ratings	Notes
TTS001	12	1/8 GAS		
TTS002	17	M16 x 1.5		
TTS003	12	1/8 GAS		
TTS004	12	1/8 GAS		
TTS005	17	M16 x 1.5		
TTS006	17	M16 x 1.5		
TTS007	17	M16 x 1.5		Replaces original black and grey parts
TTS008	13	1/8 GAS		Replaces original black and grey parts
TTS010	17	3/8 - 18 DRYSEAL THREAD		
TTS013	12	1/8 GAS		
TTS014	17	M16 x 1.25		
TTS015	12	M8 x 0.75		
TTS017	17	M16 x 1.5		
TTS018	17	M16 x 1.5		
TTS020	17	M16 x 1.5		
TTS021	13	M12 x 1.25		
TTS023	13	1/8 - 27 NPT		Replaces original white part
TTS024	13	1/8 - 27 NPT		
TTS025	19	M14 x 1.5		
TTS027	19	5/8 - 18 UNF		
TTS028	17	M16 x 1.5		
TTS029	19	5/8 - 18UNF		
TTS030	13	M 8 x 0.75		
TTS031	17	M16 x 1.5		
TTS032	13	1/8 - 27 NPT		Replaces original yellow and violet part
TTS033	24	1/2 Gas		
TTS034	17	M16 x 1.5		
TTS035	19	M14 x 1.5		Replaces original brown part
TTS036	13	M12 x 1.25		
TTS037	13	1/8 - 27NPT		
TTS038	-	-		Replaces original black part
TTS039	19	M14 x 1.5		
TTS040	19	5/8 - 18UNF		Replaces original black part
TTS043	19	M14 x 1.5		Replaces original light blue part
TTS044	19	1/8 - 27 NPT		
TTS045	13	M12 x 1.25		
TTS046	22	M16 x 1.5		Replaces original brown part
TTS048	13	1/8 - 27 NPT		
TTS049	13	1/8 - 27 NPT		Replaces original green part
TTS050	19	M14 x 1.5		
TTS051	13	M12 x 1.25		
TTS052	13	1/8 - 27 NPT		Replaces original white part
TTS054	13	1/8 - 27 NPT		
TTS055	21	1/8 - 27 NPT		
TTS057	19	M14 x 1.25		
TTS058	19	3/8 - 18 DRYSEAL THREAD		
TTS060	1/2”	1/8 - 27NPT		
TTS061	1/2”	1/8 - 27NPT		
TTS062	1/2”	1/8 - 27NPT		
TTS063	1/2”	1/8 - 27NPT		
TTS064	1/2”	1/8 - 27NPT		
TTS501	22	M14 x 1.5	110°C	
TTS503	21	3/8 Gas	60°C	
TTS504	-	-	120°C	Replaces original white part
TTS505	-	-	60°C	Replaces original red part
TTS506	19	M10 x 1	90°C	
TTS507	-	-	110°C	
TTS508	-	-	107°C / 112°C	
TTS509	-	-	112°C / 120°C	Replaces original brown part
TTS510	-	-	102°C / 115°C	Replaces original grey part
TTS511	20	M14 x 1.25	60°C	Replaces original violet ring
TTS512	20	M14 x 1.25	120°C	Replaces original blue with yellow ring
TTS513	19	M10 x 1	100°C	
TTS514	-	-	95°C	Replaces original blue with white ring
TTS515	20	M14 x 1.25	115°C	Replaces original part with grey ring
TTS516	22	M14 x 1.5	100°C	
TTS517	-	-	95°C	Replaces original dark blue - white and yellow parts
TTS518	-	-	100°C	Replaces original black part with dark blue ring
TTS519	24	M12 x 1.5	120°C	
TTS520	22	M18 x 1.5	115°C	

TRIDON

This section has been included to assist with the identification of Tridon's extensive range of engine coolant sensors. Photographs and specification tables are shown for each Tridon part number. Each specification table contains spanner size, thread size, plug type and circuit diagram.

The Tridon coolant sensor range has been developed to operate within original equipment manufacturer's specifications. As Tridon coolant sensor circuits vary always refer to the Tridon vehicle application list to ensure the correct part number selection.



Coolant Temperature Sensors

Function

The coolant temperature sensor is a device designed to respond to changes in coolant temperature, this response causes a change in signal voltage which is returned to the vehicle computer (ECU). The registered change in voltage signal is then processed by the ECU to determine the engine temperature. The coolant temperature sensor is crucial for the control of temperature based functions performed ECU (e.g. ignition, instrumentation, fuel metering and transmission shifting).

There are two types of coolant temperature sensors, the thermocouple type and more commonly used thermistor type, normally located in the water jacket of the engine cylinder head or intake manifold. The thermistor type contains conductive materials which respond to coolant temperature changes. Two types of conductive material are used; material with a positive temperature coefficient (PTC), where the resistance increases as the temperature increases. Alternatively and more commonly used is material with a negative temperature coefficient (NTC), which responds with decreasing resistance as the temperature increases.

The coolant temperature sensor is critical to many temperature based functions performed by the ECU, these include;

- Electronic fuel injection system.
  - Changes to injector pulse width.
  - Operation idle speed solenoid.
- Ignition Timing systems.
  - Changes to spark timing.
- Variable valve timing.
- Transmission control.
- Electric cooling fan switching control (if separate fan switch is not used).

Testing and Replacement

The coolant temperature sensor is an integral component in a vehicle engine management system; a faulty coolant temperature sensor can result in poor engine performance including difficult starting, poor fuel economy, possible overheating and potential engine damage.

Coolant temperature sensors should be inspected every 20,000 kilometres, the sensor should be checked for any visible signs of contaminant and conductivity. Note the coolant itself, particularly old coolant, incorrect coolant levels or mixture may cause the sensor to malfunction.

When a coolant temperature sensor malfunction or fault is suspected the coolant temperature sensor should be checked and replaced by a trained professional.

Coolant Temperature Sensors

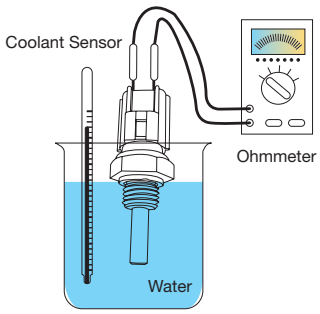
Coolant Temperature Sensor Testing Procedures

1. Remove the coolant temperature sensor from the vehicle.

2. Check the coolant temperature sensor for visible contaminant, conductivity or leaks.

3. Check correct coolant temperature sensor operation;

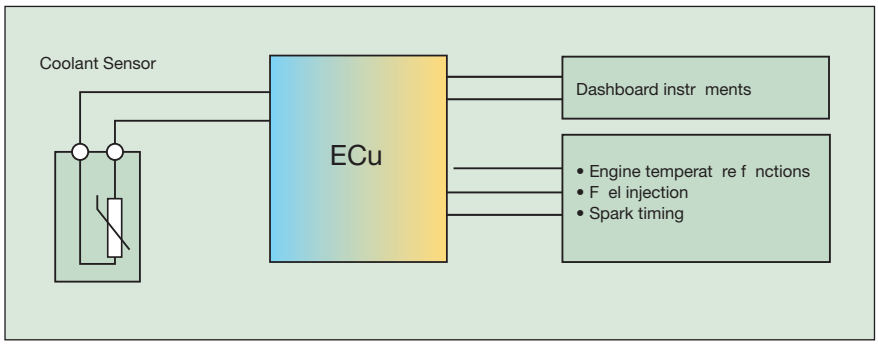
- Suspend the sensor in a beaker filled with water so that the bulb is covered.



- Using an Ohmmeter, measure the resistance across the terminals, (or terminal to the body of the sender).
- Heat the water until a simulated engine operating temperature is achieved (80°C - 90°C). The sensor is designed to respond to the change in temperature (as the water temperature increases the sensor resistance will decrease or has a negative temperature coefficient NTC).
- At low temperatures the resistance values may be several thousand ohms (Ω) and reduce to as low as a few hundred ohms (Ω) at normal engine operating temperatures.

The Tridon coolant temperature sensor range has been developed to operate with OEM specifications. As coolant temperature sensor values may vary, always refer to the Tridon Vehicle Application list to ensure correct part number selection.

Typical Coolant Temperature Sensor Circuit



* Test procedure values will vary between make and models and should be used a guide only.

TCS011

25

3/8-18
Dry Seal

NTC

TCS020

22

M16 x 1.5

NTC

Note: Replaces original black part

TCS022

17

M12 x 1.5

NTC

Note: Replaces original black part

TCS024

19

M12 x 1.5

NTC

Note: Replaces original green part

TCS026

19

M12 x 1.5

NTC

Note: Replaces original white part

TCS029

19

M12 x 1.5

NTC

Note: Replaces original white and black part

TCS030

17

3/8 GAS

6.3 6.3

NTC

Note: Replaces original black part

TCS032

19

M12 x 1.5

NTC

Note: Replaces original green and grey parts

TCS035

19

3/8 GAS

NTC

Note: Replaces original green part

TCS040

19

M12 x 1.5

NTC

Note: Replaces original dark blue part

TCS045

19

M12 x 1.5

NTC

TCS050

19

3/8 GAS

NTC

Note: Replaces original black part

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TCS055

19

3/8 GAS

NTC

Note: Replaces original black part

TCS060

19

M12 x 1.5

NTC

Note: Replaces original black part

TCS065

19

M12 x 1.5

NTC

Note: Replaces original dark blue part

TCS070

19

3/8-18 NPT

NTC

Note: Replaces original black part

TCS075

19

M12 x 1.5

NTC

Note: Replaces original red and dark blue parts

TCS080

19

M12 x 1.5

NTC

Note: Replaces original brown part

TCS085

19

3/8-18 NPT

NTC

TCS090

19

M12 x 1.5

NTC

Note: Replaces original black part

TCS091

—

—

NTC

Note: Replaces original dark blue part

TCS093

19

M14 x 1.5

NTC

Note: Replaces original white and black parts

TCS094

19

M12 x 1.5

NTC

Note: Replaces original dark blue part

TCS095

—

—

NTC

Note: Replaces original black and yellow parts

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TCS096

19
M12 x 1.5
NTC

Note: Replaces original green part

TCS098

22
M10 x 1
NTC

Note: Replaces original white part

TCS099

19
M14 x 1.5
NTC

Note: Replaces original black part

TCS102

19
M12 x 1.5
NTC

TCS106

19
M12 x 1.5
NTC

Note: Replaces original black part

TCS115

21
M12 x 1.5
NTC

TCS116

17
M16 x 1.5
Ø 4
NTC

TCS117

19
M12 x 1.5
NTC

TCS118

19
M12 x 1.5
NTC

TCS119

—
M12 x 1.5
NTC

TCS120

17
M12 x 1.5
NTC

TCS121

19
1/8-27NPT
NTC

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TCS124

19

M12 x 1.5

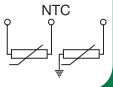
NTC

TCS125

19

M12 x 1.5

NTC



TCS127

19

3/8 GAS

NTC

TCS128

19

M12 x 1.5

NTC

Note: Replaces original black, grey, red and dark blue parts

Quick Reference Guide

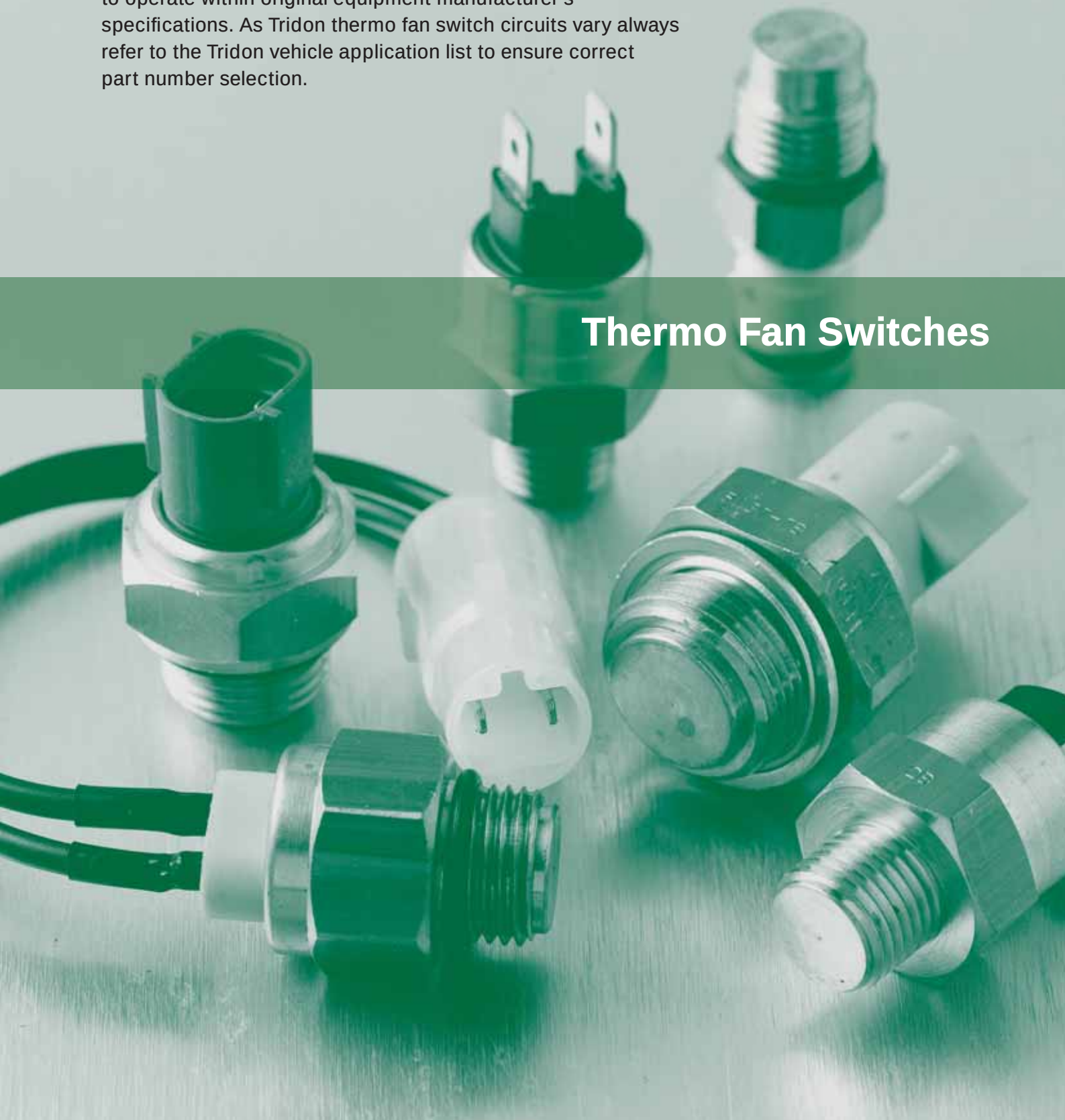
Part No.	Spanner	Thread	Notes
TCS011	25	3/8 -18 Dry Seal	
TCS020	22	M16 x 1.5	Replaces original black part
TCS022	17	M12 x 1.5	Replaces original black part
TCS024	19	M12 x 1.5	Replaces original green part
TCS026	19	M12 x 1.5	Replaces original white part
TCS029	19	M12 x 1.5	Replaces original white and black part
TCS030	17	3/8 Gas	Replaces original black part
TCS032	19	M12 x 1.5	Replaces original green and grey parts
TCS035	19	3/8 Gas	Replaces original green part
TCS040	19	M12 x 1.5	Replaces original dark blue part
TCS045	19	M12 x 1.5	
TCS050	19	3/8 Gas	Replaces original black part
TCS055	19	3/8 Gas	Replaces original black part
TCS060	19	M12 x 1.5	Replaces original black part
TCS065	19	M12 x 1.5	Replaces original dark blue part
TCS070	19	3/8 - 18 NPT	Replaces original black part
TCS075	19	M12 x 1.5	Replaces original red and dark blue parts
TCS080	19	M12 x 1.5	Replaces original brown part
TCS085	19	3/8 - 18 NPT	
TCS090	19	M12 x 1.5	Replaces original black part
TCS091	-	-	Replaces original dark blue part
TCS092	19	M10 x 1	
TCS093	19	M14 x 1.5	Replaces original white and black parts
TCS094	19	M12 x 1.5	Replaces original dark blue part
TCS095	-	-	Replaces original black and yellow parts
TCS096	19	M12 x 1.5	Replaces original green part
TCS097	22	M14 x 1.5	Replaces original black part
TCS098	19	M10 x 1	Replaces original white part
TCS099	19	M14 x 1.5	Replaces original black part
TCS100	22	M14 x 1.5	Replaces original black part
TCS101	-	-	
TCS102	19	M12 x 1.5	
TCS103	-	-	Replaces original black part
TCS104	-	-	Replaces original green part
TCS105	-	-	Replaces original dark blue and green parts
TCS106	19	M12 x 1.5	Replaces original black part
TCS107	22	M12 x 1.5	
TCS108	22	M12 x 1.5	
TCS109	19	M12 x 1.5	
TCS110	21	M12 x 1.5	
TCS111	-	-	
TCS112	19	-	
TCS113	21	M12 x 1.5	
TCS114	-	-	
TCS115	21	M12 x 1.5	
TCS116	17	M16 x 1.5	
TCS117	19	M12 x 1.5	
TCS118	19	M12 x 1.5	
TCS119	-	M12 x 1.5	
TCS120	17	M12 x 1.5	
TCS121	19	1/8 - 27 NPT	Replaces original black and red parts
TCS124	19	M12 x 1.5	Replaces original grey part
TCS125	-	M12 x 1.5	
TCS126	19	3/8 Gas	
TCS127	19	1/8 - 27 NPT	
TCS128	19	M12 x 1.5	Replaces original black, grey, red and dark blue parts

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TRIDON

This section has been included to assist with the identification of Tridon's extensive range of thermo fan switches. Photographs and specification tables are shown for each Tridon part number. Each specification table contains spanner size, thread size, plug type, circuit diagram and temperature rating.

The Tridon thermo fan switch range has been developed to operate within original equipment manufacturer's specifications. As Tridon thermo fan switch circuits vary always refer to the Tridon vehicle application list to ensure correct part number selection.



Thermo Fan Switches

Thermo Fan Switches

Function

The thermo fan switch is a mechanical switching device designed to respond to changes in coolant temperature allowing the operation of the electric radiator thermo fan(s).

Switching control is achieved through a bimetal alloy leaf, which deflects with changes in temperature opening or closing a set of contacts.
Each switch is calibrated to specific ON/OFF temperature ratings.

There are many different circuit functions of the thermo fan switch with variations depending on vehicle manufacturer's specifications.

Common triggering operations are as follows:

Single Speed Fan

- Normally closed between terminals.
- Normally open between terminals.
- Normally closed between earth and terminals.
- Normally open between earth and terminals.

Dual Speed Fans

- Double circuit, normally open.
- Double circuit - one normally closed, one normally open.
- Independent circuits, normally open.

Testing and Replacement

The thermo fan switch is an integral component in a vehicle cooling system; a faulty fan switch can cause possible overheating and potential damage to an engine.

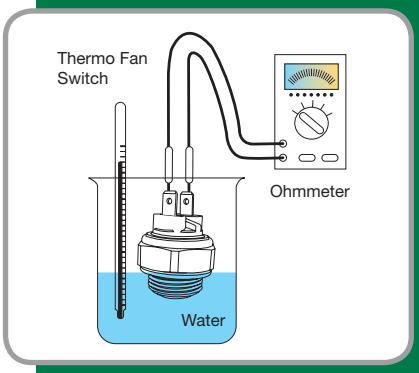
Thermo fan switches should be inspected at regular service intervals.
The switch should be checked for any visible signs of contaminant and conductivity. Note that the coolant itself, particularly old coolant, incorrect coolant levels or mixture may cause the thermo fan switch to malfunction.

When a thermo fan switch malfunction or fault is suspected the thermo fan switch should be checked and replaced by a trained professional.

Thermo Fan Switch Testing Procedure

1. Remove the thermo fan switch from the vehicle.

2. Check the thermo fan switch for any visible signs of contaminant, conductivity or leaks.



3. Check correct thermo fan switch operation;

- Suspend the switch in a beaker filled with water so that the bulb is covered.
- Using an Ohmmeter, measure for continuity across the switch terminals (or terminal to the body of the sender).
- Heat the water until the simulated fan switch operating temperature is achieved (ON/OFF temperature values located in fan switch identification guide).
- When the correct ON switching temperature is achieved a change in the Ohmmeter will be reading given; an indication switching between the contacts (0Ω or infinite depending to the type of switch).
- Allow the water to cool, as the water temperature reaches the OFF switching temperature the Ohmmeter will return to the original reading (opposite of the previous step).

4. Replace the thermo fan switch if the readings are not as shown above.

Note:

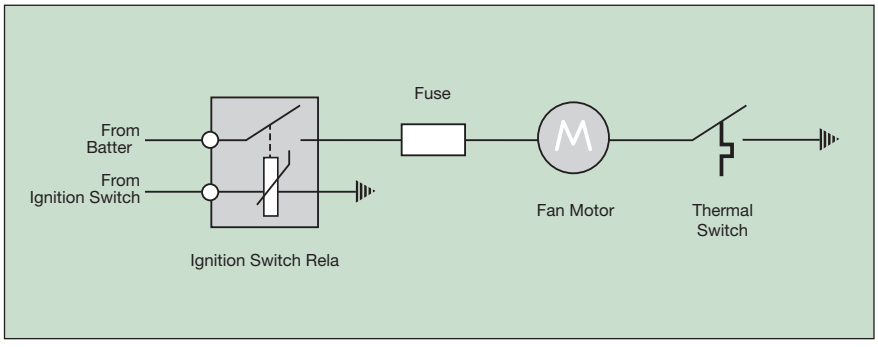
- Thermo fan switch temperature ranges and switching types may vary.
- Some vehicles have more than one thermo fan switch and more than one thermo fan.
- Please refer to vehicle applications and diagrams for correct thermo fan switch application.

5. Other thermo fan circuit tests include;

- Correct thermo fan motor operation.
- Wiring tests, open and short circuits.
- Relay operation.
- Available voltage (check fuses).

The Tridon thermo fan switch range has been developed to operate with OEM specifications. As thermo fan switch temperature values may vary, always refer to the Tridon Vehicle Application list to ensure correct part number selection.

Typical Thermo Fan Switch Circuit



* Test procedure values will vary between make and models and should be used a guide only.

TFS100

29
M22 x 1.5
6.3 6.3
°C
on 90
off 80

TFS101

29
M22 x 1.5
6.3 6.3
°C
on 85
off 75

TFS102

29
M22 x 1.5
6.3 6.3
°C
on 95
off 90

TFS103

29
M22 x 1.5
°C
on 95
off 90

TFS104

29
M22 x 1.5
°C
on 95-off 85
on 102-off 87

TFS105

22
M14 x 1.5
4.8 4.8
Note: Replaces original red part
°C
on 102
off 97

TFS106

22
M14 x 1.5
6.3 6.3
°C
on 95
off 90

TFS107

24
M14 x 1.5
°C
on 91-off 86
on 99-off 94

TFS108

22
M14 x 1.5
6.3 6.3
°C
on 100
off 95

TFS109

29
M22 x 1.5
6.3 6.3
°C
on 90
off 85

TFS110

21
3/8 GAS
6.3
°C
on 87
off 82

TFS111

21
3/8 GAS
6.3
°C
on 95
off 90

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS113

17
M16 x 1.5
°C
on 97
off 92

TFS114

17
M16 x 1.5
°C
on 90
off 85

TFS115

17
M16 x 1.5
6.3
°C
on 97
off 92

TFS116

21
M16 x 1.5
°C
on 90
off 85

TFS117

22
M16 x 1.5
°C
on 92
off 87

TFS119

21
M16 x 1.5
°C
on 90
off 85

TFS120

17
M16 x 1.5
°C
on 90
off 85

TFS121

22
M16 x 1.5
°C
on 92
off 82

TFS123

24
M16 x 1.5
°C
on 92
off 87

TFS124

22
M16 x 1.5
°C
on 92
off 87

TFS126

22
M16 x 1.5
°C
on 105
off 90

TFS127

22
M16 x 1.5
°C
on 92
off 87

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS128

22
M16 x 1.5
°C
on 92
off 77

TFS129

24
M18 x 1.5
°C
on 112
off 107

TFS130

24
M18 x 1.5
°C
on 95
off 90

TFS131

27
M16 x 1.5
Ø 4
°C
on 92
off 87

TFS132

21
M16 x 1.5
°C
on 85
off 80

TFS133

21
M16 x 1.5
°C
on 90
off 85

TFS134

21
M16 x 1.5
°C
on 85
off 80

TFS135

29
M22 x 1.5
6.3 6.3
°C
on 92
off 87

TFS136

17
M16 x 1.5
6.3
°C
on 90
off 85

TFS137

17
M16 x 1.5
°C
on 107
off 102

TFS138

17
M16 x 1.5
°C
on 97
off 92

TFS139

17
M16 x 1.5
6.3
°C
on 85
off 80

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS140

21
M16 x 1.5
°C
on 85
off 80

TFS141

22
M16 x 1.5
°C
on 85
off 80

TFS142

22
M16 x 1.5
°C
on 85
off 80

TFS143

27
M16 x 1.5
°C
on 85
off 80

TFS144

22
M16 x 1.5
°C
on 95
off 85

TFS145

29
M22 x 1.5
6.3 6.3
°C
on 102
off 97

TFS146

29
M22 x 1.5
6.3 6.3
°C
on 115
off 110

TFS147

—
—
6.3 6.3
°C
on 115
off 105

TFS148

22
M16 x 1.5
6.3 6.3
°C
on 95
off 90

TFS150

17
M16 x 1.5
°C
on 90
off 85

TFS151

17
M16 x 1.5
°C
on 95
off 90

TFS152

21
M16 x 1.5
°C
on 90
off 85

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS153

17
M16 x 1.5
°C
on 85
off 80

TFS154

17
M16 x 1.5
°C
on 105
off 100

TFS155

17
M16 x 1.5
°C
on 50
off 45

TFS156

22
M16 x 1.5
°C
on 87
off 82

TFS157

22
M16 x 1.5
°C
on 100
off 95

TFS158

24
M18 x 1.5
°C
on 100
off 95

TFS159

17
M16 x 1.5
°C
on 50
off 45

TFS160

17
M16 x 1.5
°C
on 110
off 105

TFS161

29
M22 x 1.5
°C
on 105-off 100
on 120 -off 115

TFS162

29
M22 x 1.5
°C
on 100
off 95

TFS163

29
M22 x 1.5
°C
on 95-off 90
on 105 -off 100

Note: Replaces original black part with violet ring

TFS164

29
M22 x 1.5
°C
on 95-off 90
on 120 -off 115

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS165

29
M22 x 1.5
°C
on 105-off 100
on 120-off 115

TFS166

29
M22 x 1.5
°C
on 100-off 95
on 105 -off 100

Note: Replaces original part with brown ring

TFS167

29
M22 x 1.5
°C
on 110-off 105
on 120 -off 115

TFS168

22
M16 x 1.5
°C
on 90
off 85

TFS169

27
M16 x 1.5
Ø 4
°C
on 85
off 80

TFS170

29
M22 x 1.5
6.3 6.3
°C
on 92
off 87

TFS171

29
M22 x 1.5
6.3 6.3
°C
on 87
off 77

TFS173

29
M22 x 1.5
°C
on 95
off 90

TFS174

21
M16 x 1.5
Ø 4
°C
on 92
off 87

TFS175

—
—
6.3 6.3
°C
on 92
off 87

TFS176

22
M16 x 1.5
°C
on 92
off 82

TFS179

29
M22 x 1.5
°C
on 95
off 90

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS181

21
3/8 GAS
Ø 4
°C
on 72
off 67

TFS182

29
M22 x 1.5
°C
on 92
off 82

TFS183

27
M16 x 1.5
Ø 4
°C
on 95
off 90

TFS184

29
M22 x 1.5
°C
on 92
off 87

TFS185

Note: Replaces original part with yellow ring

29
M22 x 1.5
°C
on 97
off 92

TFS186

29
M22 x 1.5
°C
on 100
off 95

TFS187

22
M14 x 1.5
6.3 6.3
°C
on 95
off 90

TFS188

29
M16 x 1.5
°C
on 112
off 107

TFS189

22
M14 x 1.5
Ø 4
°C
on 100
off 95

TFS190

Note: Replaces original brown part

29
M22 x 1.5
°C
on 95
off 90

TFS191

17
M16 x 1.5
°C
on 92
off 87

TFS193

21
M12 x 1.5
°C
on 105
off 100

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS194

17
M16 x 1.5
°C
on 90
off 85

TFS195

21
M16 x 1.5
Ø 4
°C
on 97
off 92

TFS196

17
3/8 GAS
°C
on 87
off 82

TFS197

21
M16 x 1.5
°C
on 95
off 90

TFS198

29
M22 x 1.5
°C
on 95
off 90

TFS199

21
M16 x 1.5
°C
on 90
off 85

TFS200

24
3/8 GAS
6.3
°C
on 92
off 87

TFS201

24
M14 x 1.5
°C
on 110
off 105

TFS202

24
3/8 GAS
6.3
°C
on 100
off 95

TFS203

17
3/8 GAS
°C
on 95
off 90

TFS204

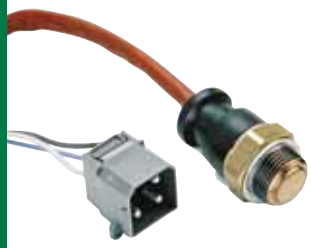
17
M16 x 1.5
6.3
°C
on 90
off 85

TFS205

29
M22 x 1.5
°C
on 87-off 77
on 92-off 82

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS206



29
M22 x 1.5

°C
on 92-off 87
on 105-off 100

TFS207

Note: Replaces original part with red ring

29
M22 x 1.5

°C
on 97-off 87
on 100-off 95

TFS208

29
M22 x 1.5

°C
on 95-off 85
on 102-off 92

TFS209

Note: Replaces original red part

22
M14 x 1.5

°C
on 100-off 95
on 107-off 102

TFS210

29
M22 x 1.5

°C
on 87-off 77
on 92-off 82

TFS211

Note: Replaces original dark blue part

29
M22 x 1.5

°C
on 90-off 80
on 97-off 87

TFS212

Note: Replaces original grey part

29
M22 x 1.5

°C
on 87-off 77
on 92-off 82

TFS213

Note: Replaces original black part

22
M22 x 1.5

°C
on 91-off 86
on 99-off 94

TFS214

Note: Replaces original green part

29
M22 x 1.5

°C
on 80-off 75
on 87-off 82

TFS215

29
M22 x 1.5

°C
on 110-off 105
on 120-off 115

TFS217

22
M14 x 1.5

°C
on 90-off 85
on 97-off 92

TFS218

29
M22 x 1.5

°C
on 97-off 87
on 102-off 97

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TFS219

—

—

°C
on 95-off 90
on 102-off 97

TFS220

22

M16 x 1.5

°C
on 95
off 85

TFS221

29

M22 x 1.5

°C
on 87
off 82

TFS222

Note: Replaces original grey part

29

M22 x 1.5

°C
on 102
off 97

TFS223

29

M22 x 1.5

°C
on 100
off 95

TFS224

29

M22 x 1.5

°C
on 95-off 90
on 105-off 100

TFS225

24

M18 x 1.5

°C
on 95
off 90

TFS226

17

M16 x 1.5

°C
on 100
off 95

TFS228

22

M16 x 1.5

°C
on 95
off 90

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

Thermo Fan Switch Style Variations

This section has been included to assist with Tridon thermo fan switch selection. Each thermo fan switch style includes corresponding Tridon part number with temperature range, photograph and specification table.

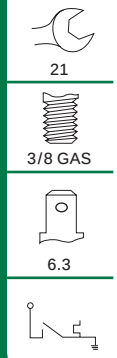
Style A

Part No.	on	off
TFS100	90°C	80°C
TFS101	85°C	75°C
TFS102	95°C	90°C
TFS109	90°C	85°C
TFS135	92°C	87°C
TFS145	102°C	97°C
TFS170	92°C	87°C
TFS171	87°C	77°C

Style B

Part No.	on	off
TFS106	95°C	90°C
TFS108	100°C	95°C

Style C



Part No.	on	off
TFS110	87°C	82°C
TFS111	95°C	90°C

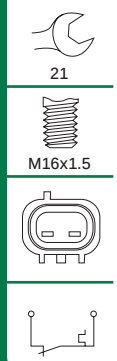
Style D

Part No.	on	off
TFS113	97°C	92°C
TFS114	90°C	85°C

Style E

Part No.	on	off
TFS115	97°C	92°C
TFS136	90°C	85°C

Style F



Part No.	on	off
TFS119	90°C	85°C
TFS197	95°C	90°C

Style G

Part No.	on	off
TFS120	90°C	85°C
TFS153	85°C	80°C

Style H

Part No.	on	off
TFS124	92°C	87°C
TFS126	105°C	90°C
TFS128	92°C	77°C

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

Style I

27

M16 x 1.5

Ø 4

Part No.	on	off
TFS131	92°C	87°C
TFS169	85°C	80°C
TFS183	95°C	90°C

Style J

17

M16 x 1.5

Part No.	on	off
TFS137	107°C	102°C
TFS138	97°C	92°C
TFS154	105°C	100°C
TFS160	110°C	105°C

Style K

22

M16 x 1.5

Part No.	on	off
TFS157	100°C	95°C
TFS220	95°C	85°C

Style L

24

3/8 GAS

6.3

Part No.	on	off
TFS200	92°C	87°C
TFS202	100°C	95°C

Style M

29

M22x1.5

Part No.	on	off
TFS164	95°C 120°C	90°C 115°C
TFS165	105°C 120°C	100°C 115°C
TFS215	110°C 120°C	105°C 115°C

Style N

29

M22 x 1.5

Part No.	on	off
TFS163	95°C 105°C	90°C 100°C
TFS166	100°C 105°C	95°C 100°C
TFS224	95°C 105°C	90°C 100°C

Style O

29

M22 x 1.5

Part No.	on	off
TFS104	95°C 102°C	85°C 87°C
TFS205	87°C 92°C	77°C 82°C
TFS208	95°C 102°C	85°C 92°C

Style P

29

M22 x 1.5

Part No.	on	off
TFS162	100°C	95°C
TFS221	87°C	82°C

Style Q

24

M18 x 1.5

Part No.	on	off
TFS158	100°C	95°C
TFS225	95°C	90°C

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

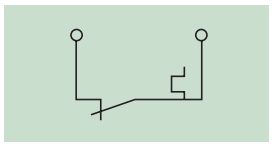
Quick Reference Guide

									
Tridon Part No.	**Style type, Common Thread, Plug and Circuit**	**Terminals**	**Temp °C on-off**	**N/O Term**	**N/C Term**	**N/O Ground**	**N/C Ground**	**Dual N/O-N/O**	**Dual N/C-N/O**
TFS100	**A**	2	90-80	X					
TFS101	**A**	2	85-75	X					
TFS102	**A**	2	95-90	X					
TFS103		2	95-90	X					
TFS104	**O**	3	95-85 and 102-87					X	
TFS105		2	102-97	X					
TFS106	**B**	2	95-90	X					
TFS107		3	90-86 and 99-94					X	
TFS108	**B**	2	100-95	X					
TFS109	**A**	2	90-85	X					
TFS110	**C**	1	87-82			X			
TFS111	**C**	1	95-90			X			
TFS113	**D**	1	97-92			X			
TFS114	**D**	1	90-85			X			
TFS115	**E**	1	97-92				X		
TFS116		2	90-85	X					
TFS117		2	92-87	X					
TFS119	**F**	2	90-85		X				
TFS120	**G**	1	90-85				X		
TFS121		2	92-82	X					
TFS123		2	92-87	X					
TFS124	**H**	2	92-87	X					
TFS126	**H**	2	105-90	X					
TFS127		2	92-87	X					
TFS128	**H**	2	92-77	X					
TFS129		2	112-107	X					
TFS130		2	95-90	X					
TFS131	**I**	2	92-87	X					
TFS132		2	85-80	X					
TFS133		2	90-85	X					
TFS134		2	85-80	X					
TFS135	**A**	2	92-87	X					
TFS136	**E**	1	90-85				X		
TFS137	**J**	1	107-102			X			
TFS138	**J**	1	97-92			X			
TFS139		1	85-80			X			
TFS140		2	85-80	X					
TFS141		2	85-80	X					
TFS142		2	85-80	X					
TFS143		2	85-80	X					
TFS144		2	95-85	X					
TFS145	**A**	2	102-97	X					
TFS146		2	115-110		X				
TFS147		2	115-105	X					
TFS148		2	95-90	X					

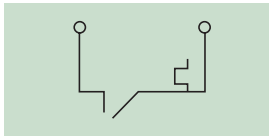
Tridon Part No.	Style type, Common Thread, Plug and Circuit	Terminals	Temp °C on-off	 N/O Term	 N/C Term	 N/O Ground	 N/C Ground	 Dual N/O-N/O	 Dual N/O-N/O
TFS150		1	90-85				X		
TFS151		1	95-90				X		
TFS152		2	90-85		X				
TFS153	**G**	1	85-80				X		
TFS154	**J**	1	105-100			X			
TFS155		1	50-45				X		
TFS156		2	87-82	X					
TFS157	**K**	2	100-95	X					
TFS158	**Q**	2	100-95	X					
TFS159		1	50-45				X		
TFS160	**J**	1	110-105			X			
TFS161		3	105-100 and 120-115						X
TFS162	**P**	2	100-95	X					
TFS163	**N**	3	95-90 and 105-100					X	
TFS164	**M**	3	95-90 and 120-115						X
TFS165	**M**	3	105-100 and 120-115						X
TFS166	**N**	3	100-95 and 105-100					X	
TFS167		3	110-105 and 120-115						X
TFS168		2	90-85	X					
TFS169	**I**	2	85-80	X					
TFS170	**A**	2	92-87	X					
TFS171	**A**	2	87-77	X					
TFS173		2	95-90	X					
TFS174		1	92-87			X			
TFS175		2	92-87	X					
TFS176		2	92-82	X					
TFS179		2	95-90	X					
TFS181		2	72-67		X				
TFS182		2	92-82	X					
TFS183	**I**	2	95-90	X					
TFS184		2	92-87	X					
TFS185		2	97-82	X					
TFS186		2	100-95	X					
TFS187		2	95-90	X					
TFS188		2	112-107	X					
TFS189		2	100-95	X					
TFS190		2	95-90	X					
TFS191		1	92-87				X		
TFS193		2	105-100	X					
TFS194		1	90-85			X			
TFS195		1	90-85			X			
TFS196		1	97-92			X			
TFS197	**F**	2	95-90		X				
TFS198		2	95-90	X					
TFS199		2	90-85	X					

Tridon Part No.	Style type, Common Thread, Plug and Circuit	Terminals	Temp °C on-off	N/O Term	N/C Term	N/O Ground	N/C Ground	Dual N/O-N/O	Dual N/C-N/O
TFS200	**L**	1	92-87			X			
TFS201		2	110-105		X				
TFS202	**L**	1	100-95			X			
TFS203		1	95-90			X			
TFS204		1	90-85				X		
TFS205	**O**	3	87-77 and 92-82					X	
TFS206		3	92-87 and 105-100					X	
TFS207		3	97-87 and 100-95					X	
TFS208	**O**	3	95-85 and 102-92					X	
TFS209		3	100-95 and 107-102					X	
TFS210		3	87-77 and 92-82					X	
TFS211		3	90-80 and 97-87					X	
TFS212		3	87-77 and 92-82					X	
TFS213		3	95-90 and 102-97					X	
TFS214		3	80-75 and 87-82					X	
TFS215	**M**	3	110-105 and 120-115						X
TFS217		3	90-85 and 97-92					X	
TFS218		3	97-87 and 102-97					X	
TFS219	**Note 1**	4	95-90 and 102-97						
TFS220	**K**	2	95-85	X					
TFS221	**P**	2	87-82	X					
TFS222		2	102-97	X					
TFS223		2	100-95	X					
TFS224	**N**	3	95-90 and 105-100					X	
TFS225	**Q**	2	95-90	X					
TFS226		1	105-100			X			
TFS228		2	95-90	X					

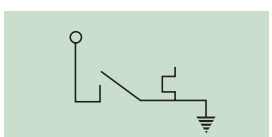
Single Circuit



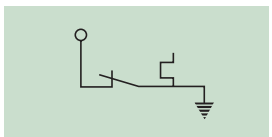
F – Normally closed between terminals



A,B,H,I,K,P,Q – Normally open between terminals

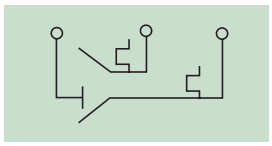


C,D,J,L – Normally open between ground and terminal

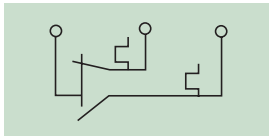


E,G – Normally closed between ground and terminal

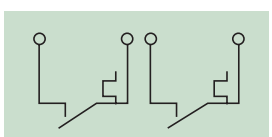
Double Circuit



N,O – Double circuit normally open



M – Double circuit one normally closed the other open



Note 1: TFS219 only – Two independant circuits normally open

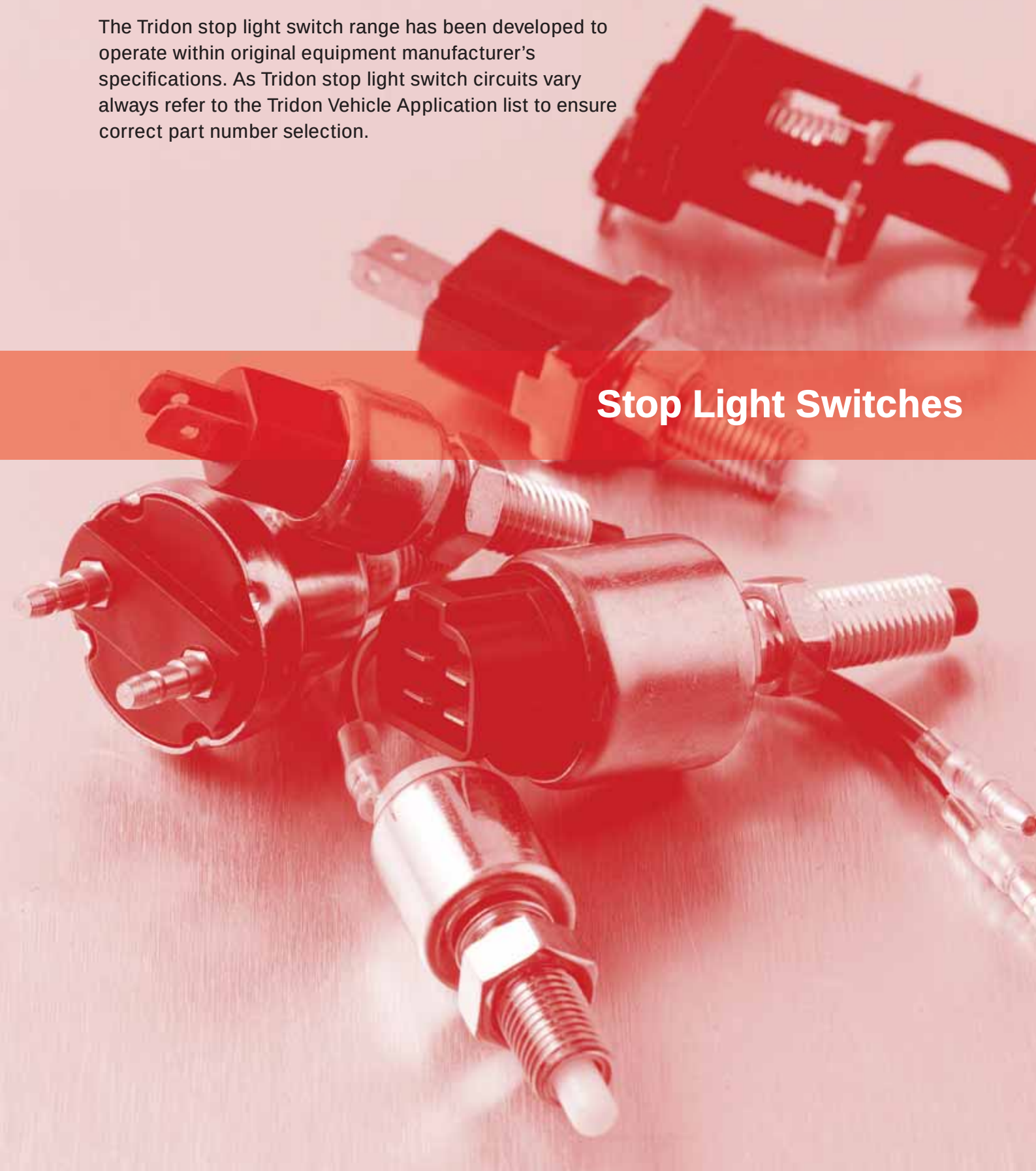
Temperature Conversion °F = (°C x 1.8) + 32

Refer to page 106-107 for common switch combinations with temperature variations.

TRIDON

This section has been included to assist with the identification of Tridon's extensive range of stop light switches. Photographs and specification tables are shown for each Tridon Part number. Each specification table contains spanner size, thread size, plug type and circuit diagram.

The Tridon stop light switch range has been developed to operate within original equipment manufacturer's specifications. As Tridon stop light switch circuits vary always refer to the Tridon Vehicle Application list to ensure correct part number selection.



Stop Light Switches

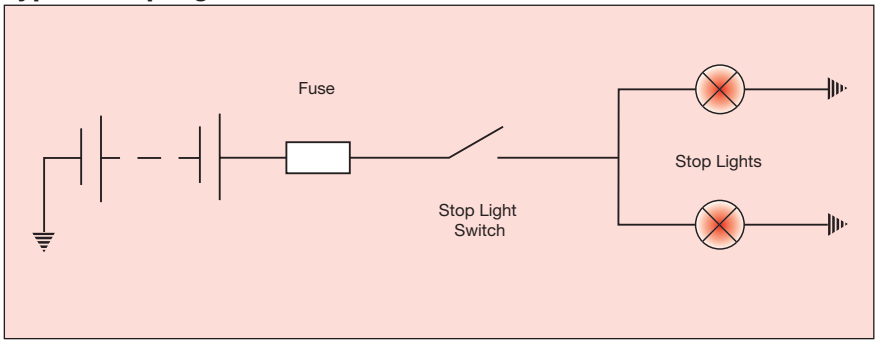
Stop Light Switches

Function

The stop light switch is a mechanical device whose primary function is to control circuit switching for the operation of the vehicles stop lights. Normally located within the brake pedal assembly, the stop light switch is activated by the application of the brake pedal, closing a set of contacts allowing current to flow through the stop light circuit.

A secondary function for the stop light switch is used on vehicles with cruise control. The stop light switch is used to interrupt the cruise control circuit, disengaging the cruise control when the brake is applied. This circuit uses a secondary set of contacts which open when the brake pedal is applied.

Typical Stop Light Circuit

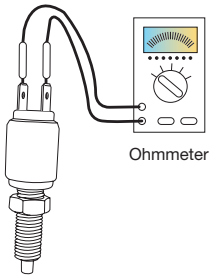


Testing and Replacement

When a stop light switch malfunction or fault is suspected, the stop light switch should be checked and replaced by a trained professional.

Stop Light Switch Testing Procedure

1. Ensure correct plunger adjustment.
- The stop light switch plunger should be slightly compressed when the brake pedal is in a resting position.
- When the brake pedal is applied the plunger should release.



Stop Light Switch

2. Check correct stop light switch operation.
- Using an Ohmmeter, measure for continuity across the stop light switch terminals.
- With the plunger depressed (the brake pedal in a resting position), the reading should be infinite or open circuit.
- As the plunger is slowly released (application of the brake pedal), the reading should become zero (0Ω), or show a closed circuit between the contacts.

3. Replace the stop light switch if the readings are not as shown above.

Note:
For vehicles with cruise control, the stop light switch may have more than two terminals and contain more than one circuit; refer to vehicle applications and diagrams for correct stop light switch application.

4. Other stop light circuit tests include;
- Faulty or blown stop light globes.
- Wiring tests, open and short circuits.
- Available voltage (check fuses).

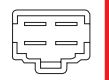
The Tridon stop light switch range has been developed to operate with OEM specifications. As switch circuits and operation may vary, always refer to the Tridon Vehicle Application list to ensure correct part number selection.

* Test procedure values will vary between make and models and should be used a guide only.

TBS001

14

M10 x 1.25



TBS002

14

M10 x 1.25

TBS003

14

M10 x 1.25

TBS004

14

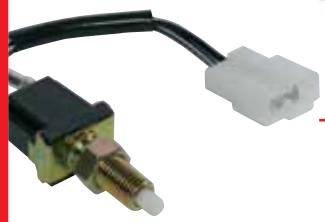
M10 x 1.25

TBS005

14

M10 x 1.25

TBS006



14

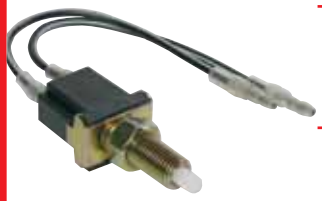
M10 x 1.25

TBS007

14

M10 x 1.25

TBS008



14

M10 x 1.25

Ø 4

TBS009

14

M10 x 1.25

6.3 6.3

TBS010

14

M10 x 1.25

Ø 4

TBS011

14

M10 x 1.25

Ø 4

TBS012

14

M10 x 1.25

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TBS014

14

M10 x 1.25

TBS015

14

M10 x 1.25

TBS016

14

M10 x 1.25

TBS017

14

M10 x 1.25

TBS018

14

M10 x 1.25

TBS019

14

M10 x 1.25

TBS020

14

M10 x 1.25

TBS021

14

M12 x 1.5

6.3 6.3

TBS022

—

M12 x 1.75

6.3 6.3

TBS023

17

M12x 1

6.3 6.3

TBS024

14

M10 x 1.25

6.3 6.3

TBS025

—

1/2-20 UNF

6.3 6.3

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TBS026

—

—

6.3 6.3

TBS027

22

—

6.3 6.3

TBS028

—

—

TBS029

—

—

TBS030

—

—

TBS031

—

—

TBS032

—

—

TBS034

—

M16 x 1.5

TBS035

—

—

TBS036

—

—

TBS037

22

M12 x 1.5

6.3 6.3

TBS038

—

M12 x 1.5

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TBS039

—

—

TBS040

—

—

TBS041

14

M10 x 1.25

TBS042

14

M10 x 1.25

TBS043

—

—

TBS044

22

1/8-27 NPT

6.3 6.3

TBS045

14

—

TBS046

—

—

TBS047

—

—

6.3 6.3

TBS048

—

M10 x 1.25

TBS049

—

M12 x 1.5

TBS050

—

—

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TBS051

TBS052

TBS053

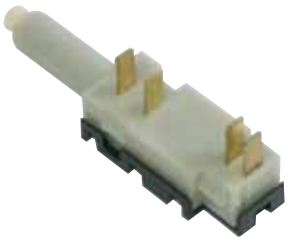
TBS055

TBS056

TBS059

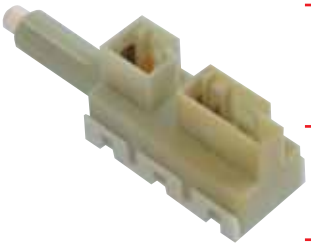
TBS060

TBS061



TBS064

TBS065

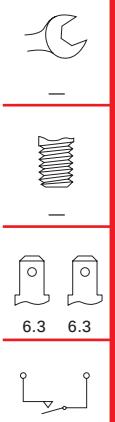


TBS068

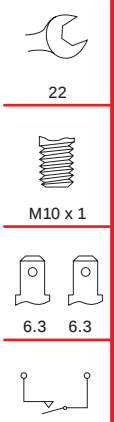
TBS069

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TBS070



TBS071



Quick Reference Guide

Circuit Type
N/C = Normally Closed
N/O = Normally Open

Part No.	Spanner	Thread	Circuit Type
TBS001	14	M10 x 1.25	Dual N/O - N/C
TBS002	14	M10 x 1.25	N/C
TBS003	14	M10 x 1.25	N/C
TBS004	14	M10 x 1.25	N/C
TBS005	14	M10 x 1.25	N/C
TBS006	14	M10 x 1.25	N/C
TBS007	14	M10 x 1.25	N/C
TBS008	14	M10 x 1.25	N/C
TBS009	14	M10 x 1.25	N/C
TBS010	14	M10 x 1.25	N/C
TBS011	14	M10 x 1.25	N/C
TBS012	14	M10 x 1.25	N/C
TBS014	14	M10 x 1.25	N/C
TBS015	14	M10 x 1.25	N/C
TBS016	14	M10 x 1.25	Dual N/O - N/C
TBS017	14	M10 x 1.25	Dual N/O - N/C
TBS018	14	M10 x 1.25	Dual N/O - N/C
TBS019	14	M10 x 1.25	Dual N/C - N/C
TBS020	14	M10 x 1.25	Dual N/O - N/C
TBS021	14	M12 x 1.5	N/C
TBS022	-	M12 x 1.75	N/C
TBS023	17	M12 x 1	N/C
TBS024	14	M10 x 1.25	N/C
TBS025	-	1/2 - 20 UNF	N/C
TBS026	-	-	N/C
TBS027	22	-	N/C
TBS028	-	-	N/C
TBS029	-	-	N/C
TBS030	-	-	Dual N/O - N/C
TBS031	-	-	N/C
TBS032	-	-	Dual N/O - N/C
TBS033	17	M12 x 1	Dual N/O - N/C
TBS034	-	M16 x 1.5	N/C

Part No.	Spanner	Thread	Circuit Type
TBS035	-	-	Dual N/C - N/C
TBS036	-	-	Dual N/O - N/C
TBS037	22	M12 x 1.5	N/C
TBS038	-	M12 x 1.5	N/C
TBS039	-	-	Dual N/O - N/C
TBS040	-	-	N/C
TBS041	14	M10 x 1.25	N/C
TBS042	14	M10 x 1.25	Dual N/O - N/C
TBS043	-	-	N/C
TBS044	22	1/8 - 27 NPT	N/O
TBS045	14	-	N/C
TBS046	-	-	N/C
TBS047	-	-	N/C
TBS048	-	M10 x 1.5	Dual N/O - N/C
TBS049	-	M12 x 1.5	Dual N/O - N/C
TBS050	-	-	N/C
TBS051	-	-	Dual N/O - N/C
TBS052	-	-	N/C
TBS053	-	-	Dual N/O - N/C
TBS054	-	-	Dual N/O - N/C
TBS055	-	-	Dual N/O - N/C
TBS056	-	-	N/C
TBS057	-	-	N/C
TBS058	-	-	Dual N/O - N/C
TBS059	-	-	Dual N/O - N/C
TBS060	-	-	N/O
TBS061	-	-	Dual N/O - N/C
TBS064	-	-	N/O
TBS065	-	-	Dual N/O - N/C
TBS068	-	-	N/O
TBS069	-	-	N/O
TBS070	-	-	N/O
TBS071	22	M10 x 1	N/O

TRIDON

This section has been included to assist with the identification of Tridon's extensive range of reverse light switches. Photographs and specification tables are shown for each Tridon part number. Each specification table contains spanner size, thread size, plug type and circuit diagram.

The Tridon reverse light switch range has been developed to operate within original equipment manufacturer's specifications. As Tridon reverse light switch circuits vary always refer to the Tridon vehicle application list to ensure correct part number selection.

Reverse Light Switches

Function

The reverse light switch is a mechanical device whose primary function is to control circuit switching for the operation of the vehicle reverse lights. Normally located within the gearbox (manual transmission), the reverse light switch is activated when reverse gear is selected. There are commonly two different switch circuit types, which may vary depending on vehicle manufacturer's specifications.

Common Switch Circuits

- Normally Open Contacts.

- Normally Closed Contacts.

Testing and Replacement

When a reverse light switch malfunction or fault is suspected, the reverse light switch should be checked and replaced by a trained professional.

Reverse Light Switches Testing Procedure

1. Remove the reverse light switch from the vehicle.
2. Check the reverse light switch for visible faults or oil leaks.
3. Check correct reverse light switch operation, using an Ohmmeter, measure for continuity across the reverse light switch terminals.

Normally CLOSED circuit type reverse light switch.

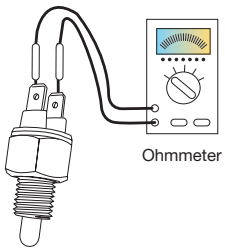
- With the plunger depressed, the reading should be infinite or open circuit.
- Slowly release the plunger to the resting position, the reading should become zero (0Ω), or show a closed circuit between the contacts.

Reverse Light Switches

Testing Procedure (cont.)

Normally OPEN circuit type reverse light switch.

- With the plunger depressed, the reading should be zero (0Ω), or show a closed circuit between the contacts.
- Slowly release the plunger to the resting position, the reading should be infinite or open circuit.



Reverse Light Switches

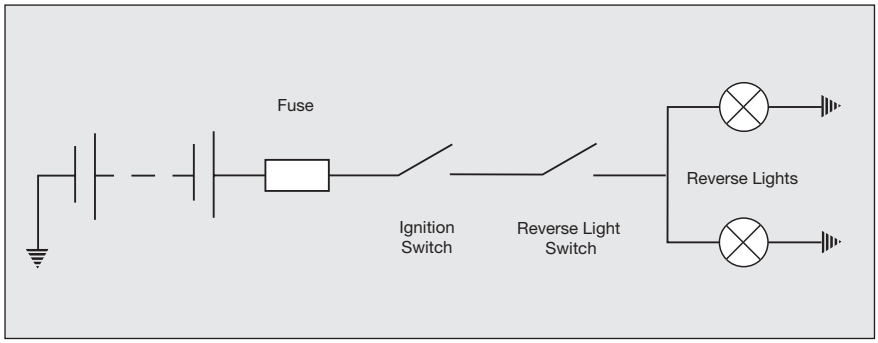
4. Replace the reverse light switch if the readings are not as shown above.

5. Other reverse light circuit tests include;

- Faulty or blown reverse light globes.
- Wiring tests, open and short circuits.
- Available voltage (check fuses).

The Tridon reverse light switch range has been developed to operate with OEM specifications. As switch circuits and operation may vary, always refer to the Tridon Vehicle Application list to ensure correct part number selection.

Typical Reverse Light Circuit



* Test procedure values will vary between make and models and should be used a guide only.

TRS001

21
M14 x 1.5

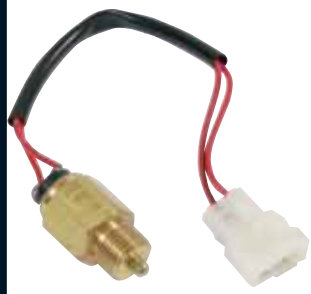
TRS002

21
M14 x 1.5

TRS003

21
M14 x 1.5

TRS004



21
M16 x 1.5

TRS005

19
M14 x 1.5
Ø 4

TRS006

25
M18 x 1.5

TRS007

27
M18 x 1.5

TRS008

19
M14 x 1.5

TRS009

19
M14 x 1.5

TRS010

24
M14 x 2
Ø 4

TRS011

24
M14 x 2

TRS012

24
M14 x 2

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TRS013

19

M12 x 1.25

Ø 4

TRS014

19

M12 x 1.25

Ø 4

TRS015

19

M12x 1.25

TRS016

24

M14 x 1.5

TRS017

19

M12 x 1.25

TRS018

19

M14 x 1.5

Ø 4

TRS019

19

M14 x 1.5

Ø 4

TRS020

19

M14 x 1.5

TRS021

22

M14 x 1.5

Ø 4.6

TRS022

19

M12 x 1.5

6.3 6.3

TRS023

19

M12 x 1.5

6.3 6.3

TRS024

22

M14 x 1.5

Ø 3.5

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TRS025

19

3/8-16UNC

Ø 4.5

TRS026

19

M12 x 1.5

TRS027

27

M16 x 1.5

6.3 6.3

TRS028

19

M14 x 1.5

Ø 4

TRS029

22

M14 x 1.5

6.3 6.3

TRS030

22

M14 x 1.5

TRS031

27

M18 x 1.5

TRS032

21

M12 x 1.5

TRS033

22

M18 x 1.5

TRS034

21

M12 x 1.5

TRS037

24

M14 x 2

TRS038

22

M16 x 1.5

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

TRS040

19

M14 x 1.5

TRS041

24

M14 x 2

TRS042

24

M14 x 2

TRS043

19

M14 x 1.5

TRS044

19

M14 x 1.5

TRS045

—

—

TRS046

27

M18 x 1.5

TRS047

22

M16 x 1.5

TRS048

22

M12 x 1.5

TRS049

22

M16x 1.5

TRS050

24

M14 x 2

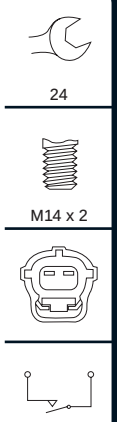
TRS051

24

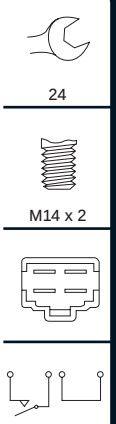
M14 x 2

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

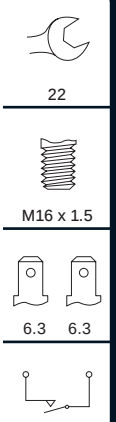
TRS052



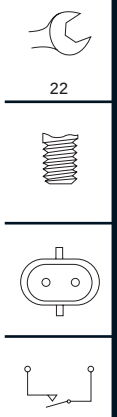
TRS053



TRS054



TRS055



TRS056

TRS059

Quick Reference Guide

Circuit Type
N/C = Normally Closed
N/O = Normally Open

Part No.	Spanner	Thread	Circuit Type
TRS001	21	M14 x 1.5	N/O
TRS002	21	M14 x 1.5	N/O
TRS003	21	M14 x 1.5	N/O
TRS004	21	M16 x 1.25	N/O
TRS005	19	M14 x 1.5	N/O
TRS006	25	M18 x 1.5	N/O
TRS007	27	M18 x 1.5	N/O
TRS008	19	M14 x 1.5	N/O
TRS009	19	M14 x 1.5	N/O
TRS010	24	M14 x 2.0	N/O
TRS011	24	M14 x 2.0	N/O
TRS012	24	M14 x 2.0	N/O
TRS013	19	M12 x 1.25	N/C
TRS014	19	M12 x 1.25	N/O
TRS015	19	M12 x 1.25	N/C
TRS016	24	M14 x 1.5	N/C
TRS017	19	M12 x 1.25	N/C
TRS018	19	M14 x 1.5	N/O
TRS019	19	M14 x 1.5	N/O
TRS020	19	M14 x 1.5	N/O
TRS021	22	M14 x 1.5	N/O
TRS022	19	M12 x 1.5	N/O
TRS023	19	M12 x 1.5	N/O
TRS024	22	M14 x 1.5	N/C
TRS025	19	3/8 - 16 UNC	N/O
TRS026	19	M12 x 1.5	N/O
TRS027	27	M16 x 1.5	N/O

Part No.	Spanner	Thread	Circuit Type
TRS028	19	M14 x 1.5	N/C
TRS029	22	M14 x 1.5	N/C
TRS030	22	M14 x 1.5	N/O
TRS031	27	M18 x 1.5	N/O
TRS032	21	M12 x 1.5	N/O
TRS033	22	M18 x 1.5	N/O
TRS034	21	M12 x 1.5	N/O
TRS037	24	M14 x 2	N/O
TRS038	22	M16 x 1.5	N/O
TRS039	21	M14 x 1.5	N/O
TRS040	19	M14 x 1.5	N/C
TRS041	24	M14 x 1.5	N/O
TRS042	24	M14 x 2	N/C
TRS043	19	M14 x 1.5	N/O
TRS044	19	M14 x 1.5	N/O
TRS045	-	-	N/O
TRS046	27	M18 x 1.5	N/O
TRS047	22	M16 x 1.5	N/O
TRS048	22	M12 x 1.5	N/O
TRS049	22	M16 x 1.5	N/O
TRS050	24	M14 x 2	N/O
TRS051	24	M14 x 2	N/O
TRS052	24	M14 x 2	N/O
TRS053	24	M14 x 2	N/O
TRS054	22	M16 x 1.5	N/O
TRS055	22		N/O

Note: To ensure correct product selection please check illustrations and specifications as values may differ.

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