

Table of Contents

Introduction	ii
General Information	1
Scheduled Maintenance	2
Cylinder Head	3
Clutch	4
Crankshaft	5
Bevel Box and Drive Shaft	6
Balancer	7
Transmission	8
Lubrication	9
Engine Removal and Refit	10
Fuel System/Engine Management	11
Cooling	12
Rear Suspension	13
Front Suspension	14
Brakes	15
Wheels/Tyres	16
Frame and Bodywork	17
Electrical System	18

This page intentionally left blank

Introduction

Introduction

This manual is designed primarily for use by trained technicians in a properly equipped workshop. However, it contains enough detail and basic information to make it useful to the owner who desires to perform his own basic maintenance and repair work. The work can only be carried out if the owner has the necessary hand and special service tools to complete the job.

A basic knowledge of mechanics, including the proper use of tools and workshop procedures is necessary in order to carry out maintenance and repair work satisfactorily. Whenever the owner has insufficient experience or doubts his ability to do the work, an authorised Triumph dealer must undertake all adjustments, maintenance, and repair work.

In order to perform the work efficiently and to avoid costly mistakes, read the text and thoroughly familiarise yourself with procedures before starting work.

All work should be performed with great care and in a clean working area with adequate lighting.

Always use the correct special service tools or equipment specified. Under no circumstances use makeshift tools or equipment since the use of substitutes may adversely affect safe operation.

Where accurate measurements are required, they can only be made using calibrated, precision instruments.

For the duration of the warranty period, an authorised Triumph Dealer must perform all repairs and scheduled maintenance.

To maximise the life of your Motorcycle:

- Accurately follow the maintenance requirements of the periodic maintenance chart in the service manual.
- Do not allow problems to develop. Investigate unusual noises and changes in the riding characteristics of the motorcycle. Rectify all problems as soon as possible (immediately if safety related).
- Use only genuine Triumph parts as listed in the parts catalogue/parts microfiche.
- Follow the procedures in this manual carefully and completely. Do not take short cuts.
- Keep complete records of all maintenance and repairs with dates and any new parts installed.
- Use only approved lubricants, as specified in the owner's handbook, in the maintenance of the motorcycle.

How to use this manual

To assist in the use of this manual, the section title is given at the top.

Each major section starts with a contents page, listing the information contained in the section.

The individual steps comprising repair operations are to be followed in the sequence in which they appear.

Adjustment and repair operations include reference to service tool numbers and the associated illustration depicts the tool.

Where usage is not obvious, the tool is shown in use.

Adjustment and repair operations also include reference to wear limits, relevant data, torque figures, specialist information and useful assembly details.

Warning, Caution and Note

Particularly important information is presented in the following form:

 Warning
This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.

 Caution
This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

Note:

- **This note symbol indicates points of particular interest for more efficient and convenient operation.**

Tampering with Noise Control System Prohibited

Owners are warned that the law may prohibit:

- a) The removal or rendering inoperative by any person other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; and
- b) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

References

References to the left-hand or right-hand side given in this manual are made when viewing the motorcycle from the rear.

Operations covered in this manual do not always include reference to testing the motorcycle after repair. It is essential that work is inspected and tested after completion and if necessary a road test of the motorcycle is carried out particularly where safety related items are concerned.

Dimensions

The dimensions quoted are to design engineering specification with service limits where applicable.

During the period of running-in from new, certain adjustments may vary from the specification figures given in this manual. These will be reset by the dealer at the 500 mile/800 km service, and thereafter should be maintained at the figures specified in this manual.

Repairs and Replacements

Before removal and disassembly, thoroughly clean the motorcycle. Any dirt entering the engine or other parts will work as an abrasive and shorten the life of the motorcycle. Particular attention should be paid when installing a new part, that any dust or metal filings are cleared from the immediate area.

Force

Common sense should dictate how much force is necessary in assembly and disassembly. If a part seems especially difficult to remove or install, stop and examine what may be causing the problem. Never lever a component as this will cause damage both to the component itself and to the surface being levered against.

Whenever tapping to aid removal of an item is necessary, tap lightly using a hide or plastic faced mallet.

Edges

Watch for sharp edges, especially during engine disassembly and assembly. Protect the hands with industrial quality gloves.

When replacement parts are required, it is essential that only genuine Triumph parts are used.

Safety features and corrosion prevention treatments embodied in the motorcycle may be impaired if other than genuine Triumph parts are fitted. In certain territories, legislation prohibits the fitting of parts not to the manufacturer's specification.

Tightening procedure

Generally, when installing a part with several bolts, nuts or screws, they should all be started in their holes and tightened to a snug fit, evenly and in a cross pattern. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely, bolts, nuts, or screws, should all be loosened (in sequence if specified) by about a quarter of a turn and then removed.

Where there is a tightening sequence specified in this Service Manual, the bolts, nuts, or screws must be tightened in the order and by the method indicated.

Torque wrench setting figures given in this Manual must be observed. The torque tools used must be of accurate calibration.

Locking devices, where specified, must be fitted. If the efficiency of a locking device is impaired during removal it must be renewed. This applies particularly to micro-encapsulated fixings which must always be replaced if disturbed. Where necessary, the text in this manual will indicate where such a fixing is used.

This page intentionally left blank

1 General Information

Table of Contents

Ignition System Safety Precautions	1-3
Dangerous Substances.....	1-3
Fluoroelastomers	1-3
Oils	1-3
Health Protection Precautions	1-3
Environmental Protection Precautions	1-4
Brakes.....	1-4
Safety Instructions	1-5
Jacking and lifting	1-5
Precautions against damage	1-5
Coolant	1-5
Cleaning components	1-6
Lubrication	1-6
Joints and joint faces	1-6
Gaskets, O-rings.....	1-6
Liquid gasket, non-permanent locking agent	1-6
Screw Threads	1-6
Locking Devices	1-7
Fitting a split pin	1-7
Circlips, retaining rings	1-7
Self locking nuts	1-7
Encapsulated bolt.....	1-7
Oil and grease seals.....	1-7
Press	1-7
Ball bearing.....	1-7
Fuel Handling Precautions	1-7
General.....	1-7
Petrol - Gasoline.....	1-8
Fuel tank removal.....	1-8
Chassis repairs.....	1-8
Electrical Precautions	1-9
Battery disconnecting	1-9
Disciplines.....	1-9
Electrical wires	1-10
Inspection	1-10

General Information

Replacement Parts	1-10
Service data	1-10
Specification	1-10
Service tools	1-11
Special service tools:.....	1-11
Torque Wrench Settings	1-20
Cylinder head area	1-20
Clutch	1-20
Crankshaft and crankcases	1-20
Engine Covers	1-20
Transmission	1-21
Lubrication System	1-21
Cooling System	1-21
Fuel System, Exhaust System and Airbox	1-22
Rear Suspension	1-22
Front Suspension	1-22
Wheels	1-22
Front Brakes	1-23
Rear Brakes	1-23
Footrests and Control Plates	1-23
Bodywork	1-24
Electrical	1-24
Routings	1-25
Clutch Cable Routing	1-25
Handlebar Cable Routing	1-26
Main Wiring Harness Routing	1-27
Rear Mudguard Harness Routing	1-28
Front Brake Hose Routing	1-29
Rear Brake Pipe and Hose Routing	1-30
Throttle Cable Routing	1-31
Fuel Hose and Fuel Tank Breather Hose Routing (non-evaporative emission control versions)	1-32
Fuel Hose and Evaporative/Fuel Tank Breather Hose Routing	1-33

Ignition System Safety Precautions

 **Warning**

The ignition system produces extremely high voltages. Do not touch any part of the ignition system or any cables while the engine is running. An electric shock caused by contact with the ignition system may lead to illness, injury or death.

 **Warning**

Wearers of surgically implanted heart pacemaker devices should not be in close proximity to ignition circuits and or diagnostic equipment. The ignition system and any diagnostic equipment may interrupt the normal operation of such devices causing illness or death.

Dangerous Substances

 **Warning**

Many liquids and other substances used in motor vehicles are poisonous and should under no circumstances be consumed and should, as far as possible, be kept from contact with the skin. These substances among others include acid, anti-freeze, asbestos, brake fluid, fuel, lubricants, and various adhesives. Always pay close attention to the instructions printed on labels and obey the instructions contained within. These instructions are included for your safety and well-being.

NEVER DISREGARD THESE INSTRUCTIONS!

Fluoroelastomers

 **Warning**

Fluoroelastomer material is used in the manufacture of various seals in Triumph motorcycles. In fire conditions involving temperatures greater than 315°C this material will decompose and can then be potentially hazardous. Highly toxic and corrosive decomposition products, including hydrogen fluoride, carbonyl fluoride, fluorinated olefins and carbon monoxide can be generated and will be present in fumes from fires. In the presence of any water or humidity hydrogen fluoride may dissolve to form extremely corrosive liquid hydrofluoric acid. If such conditions exist, do not touch the material and avoid all skin contact. Skin contact with liquid or decomposition residues can cause painful and penetrating burns leading to permanent, irreversible skin and tissue damage.

Oils

 **Warning**

The engine and bevel box oils may be hot to the touch. Contact with hot oil may cause the skin to be scalded or burned.

 **Warning**

Prolonged or repeated contact with engine oil can lead to skin dryness, irritation and dermatitis. In addition used engine oil contains potentially harmful contaminants which can cause cancer. Wear suitable clothing and avoid skin contact.

Health Protection Precautions

- Avoid prolonged and repeated contact with oils, particularly used engine oils.
- Wear protective clothing, including impervious gloves where practicable.
- Do not put oily rags in pockets.
- Overalls must be cleaned regularly. Discard heavily soiled clothing and oil impregnated footwear.
- First aid treatment should be obtained immediately for open cuts and wounds. Always

General Information

be aware of who your nearest first-aider is and where the medical facilities are kept.

- Use barrier creams, applying before each work period to protect the skin from the effects of oil and grease and to aid removal of the same after completing work.
- Wash with soap and water to ensure all oil is removed (skin cleansers and nail brushes will help). Preparations containing lanolin replace the natural skin oils which have been removed.
- Do not use petrol, kerosene, diesel fuel, gas oil, thinners or solvents for cleaning skin.
- If skin disorders develop, obtain medical advice without delay.
- Where practicable, de-grease components prior to handling.

Warning

Any risk of eye injury must be avoided. Always wear eye protection when using a hammer, air line, cleaning agent or where there is ANY risk of flying debris or chemical splashing.

Environmental Protection Precautions

Caution

Do not pour oil on the ground, down sewers or drains, or into water courses. To prevent pollution of water-courses etc., dispose of used oil sensibly. If in doubt contact your local authority.

Burning of used engine oil in small space heaters or boilers can be recommended only for units of approved design. If in doubt, check with the appropriate local authority and/or manufacturer of the approved appliance.

Dispose of used oil and used filters through authorised waste disposal contractors, to licensed waste disposal sites, or to the waste oil reclamation trade. If in doubt, contact your local authority for advice on disposal facilities.

Brakes

Warning

Brake fluid is hygroscopic which means it will absorb moisture from the air. Any absorbed moisture will greatly reduce the boiling point of the brake fluid causing a reduction in braking efficiency.

Replace brake fluid in line with the routine maintenance schedule. A dangerous riding condition could result if this important maintenance item is neglected!

Do not spill brake fluid onto any area of the bodywork as this will damage any painted or plastic surface.

Always use new brake fluid from a sealed container and never use fluid from an unsealed container or from one that has been previously opened.

Do not mix different brands of fluid. Check for fluid leakage around brake fittings, seals and joints.

Check regularly for brake hose damage.

FAILURE TO OBSERVE ANY OF THE ABOVE WARNINGS MAY REDUCE BRAKING EFFICIENCY LEADING TO AN ACCIDENT.

Warning

If there has been an appreciable drop in the level of the fluid in either brake fluid reservoir, consult your authorised Triumph Dealer for advice before riding.

If the brake lever or pedal feels soft when it is applied, or if the lever/pedal travel becomes excessive, there may be air in the brake lines or the brake may be defective.

It is dangerous to operate the motorcycle under such conditions and remedial action must be taken by your authorised Triumph dealer before riding the motorcycle.

Failure to take remedial action may reduce braking efficiency leading to an accident.

Warning

Use only D.O.T. 4 specification brake fluid as listed in the general information section of this manual. The use of brake fluids other than those D.O.T. 4 fluids listed in the general information section may reduce the efficiency of the braking system leading to an accident.

Failure to change the brake fluid at the interval specified in the routine maintenance schedule may reduce braking efficiency resulting in an accident.

 **Warning**

Never use mineral based grease in any part of the braking system or in any area where contact with the braking system is possible. Mineral based grease will damage the hydraulic seals in the calipers and master cylinders.

Damage caused by contact with mineral based grease may reduce braking efficiency resulting in an accident.

Safety Instructions

Jacking and lifting

 **Warning**

Always ensure that any lifting apparatus has adequate load and safety capacity for the weight to be lifted. Ensure the motorcycle is well supported to prevent any possibility of the machine falling prior during lifting or jacking or while repairs and servicing are carried out.

Never rely on a single means of support when working with the motorcycle. Use additional safety supports and straps to prevent toppling.

Do not leave tools, lifting equipment, spilt oil, etc. in a place where they could become a hazard to health. Always work in a clean, tidy area and put all tools away when the work is finished.

Precautions against damage

Avoid spilling brake fluid or battery acid on any part of the bodywork. Wash spillages off with water immediately.

Disconnect the battery earth lead before starting work, see **ELECTRICAL PRECAUTIONS**.

Always use the recommended service tool where specified.

Protect exposed bearing and sealing surfaces, and screw threads from damage.

Coolant

 **Warning**

Coolant mixture, which is blended with anti-freeze and corrosion inhibitors contains toxic chemicals which are harmful to the human body. Never swallow anti-freeze, corrosion inhibitors or any of the motorcycle coolant.

 **Warning**

Do not remove the radiator cap when the engine is hot. When the engine is hot, the coolant inside the radiator is hot and also under pressure. Contact with the pressurised coolant will cause scalds and skin damage.

 **Caution**

The coolant anti-freeze contains a corrosion inhibitor which helps prevent damage to the metal surfaces inside the cooling system. Without this inhibitor, the coolant would 'attack' the metals and the resulting corrosion would cause blockages in the cooling system leading to engine overheating and damage. Always use the correct anti-freeze as specified in the Owner's Handbook. Never use a methanol based anti-freeze as this does not contain the required corrosion inhibition properties.

 **Caution**

Distilled water must be used with the anti-freeze (see specification for anti-freeze) in the cooling system.

If hard water is used in the system, it causes scale accumulation in the water passages, and considerably reduces the efficiency of the cooling system. Reduced cooling system efficiency may lead to the engine overheating and engine damage.

General Information

Cleaning components

A high flash-point solvent is recommended to reduce fire hazard.

Always follow container directions regarding the use of any solvent.

Always use the recommended cleaning agent or equivalent.

Do not use degreasing equipment for components containing items which could be damaged by the use of this process. Whenever possible, clean components and the area surrounding them before removal. Always observe scrupulous cleanliness when cleaning dismantled components.

Lubrication

The majority of engine wear occurs while the engine is warming up and before all the rubbing surfaces have an adequate lubrication film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface, which has lost its lubrication film. Old grease and dirty oil should be cleaned off. This is because used lubricants will have lost some lubrication qualities and may contain abrasive foreign particles.

Use recommended lubricants. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended. This manual makes reference to molybdenum disulphide grease in the assembly of certain engine and chassis parts. Always check manufacturer recommendations before using such special lubricants.

Joints and joint faces

Assemble joints dry unless otherwise specified in this Manual.

If gaskets and/or jointing compound is recommended for use; remove all traces of old jointing material prior to reassembly. Do not use a tool which will damage the joint faces and smooth out any scratches or burrs on the joint faces using an oil stone. Do not allow dirt or jointing material to enter any tapped holes.

Gaskets, O-rings

Do not re-use a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign matter and perfectly smooth to avoid oil or compression leaks.

Liquid gasket, non-permanent locking agent

Follow manufacturer's directions for cleaning and preparing surfaces where these compounds will be used. Apply sparingly as excessive amounts of sealer may block engine oil passages and cause serious damage.

Prior to reassembly, blow through any pipes, channels or crevices with compressed air.

 Warning
To prevent injury, always use eye, face and ear protection when using compressed air. Always wear protective gloves if the compressed air is to be directed in proximity to the skin.

Screw Threads

Metric threads to ISO standard are used.

Damaged nuts, bolts and screws must always be discarded.

Castellated nuts must not be slackened back to accept a split-pin, except in those recommended cases when this forms part of an adjustment.

Do not allow oil or grease to enter blind threaded holes. The hydraulic action on screwing in the bolt or stud could split the housing.

Always tighten a nut or bolt to the recommended torque figure. Damaged or corroded threads can affect the torque reading.

Unless specified, threaded fixings must always be fitted dry (no lubrication).

 Warning
Never lubricate a thread unless instructed to do so. When a thread of a fixing is lubricated, the thread friction is reduced. When the fixing is tightened, reduced friction will cause overtightening and possible fixing failure. A fixing which fails in service could cause component detachment leading to loss of control and an accident.

Locking Devices

Always release locking tabs and fit new locking washers, do not re-use locking tabs.

Fitting a split pin

Always fit new split-pins of the correct size for the hole in the bolt or stud. Do not slacken back castle nuts when fitting split pin, except in those recommended cases when this forms part of an adjustment.

Always fit new roll pins of an interference fit in the hole.

Circlips, retaining rings

Replace any circlips and retaining rings that are removed. Removal weakens and deforms circlips causing looseness in the circlip groove. When installing circlips and retaining rings, take care to compress or expand them only enough to install them.

Always use the correct replacement circlip as recommended in the Triumph parts catalogue.

Self locking nuts

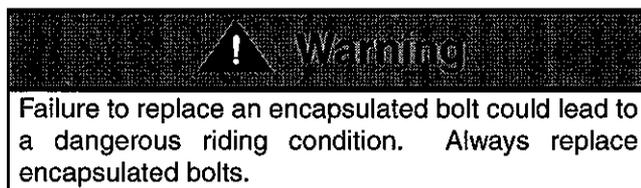
Self-locking nuts can be re-used, providing resistance can be felt when the locking portion passes over the thread of the bolt or stud.

DO NOT re-use self-locking nuts in critical locations, e.g. suspension components. Always use the correct replacement self-locking nut.

Encapsulated bolt

An encapsulated bolt can be identified by a coloured section of thread which is treated with a locking agent.

Unless a specified repair procedure states otherwise, encapsulated bolts cannot be reused and MUST be replaced if disturbed or removed.



Oil and grease seals

Replace any oil or grease seals that are removed. Removal will cause damage to an oil seal which, if re-used, would cause an oil leak.

Ensure the surface on which the new seal is to run is free of burrs or scratches. Renew the component if

the original sealing surface cannot be completely restored.

Protect the seal from any surface which could cause damage over which it has to pass when being fitted. Use a protective sleeve or tape to cover the relevant surface and avoid touching the sealing lip.

Lubricate the sealing lips with a recommended lubricant. This will help to prevent damage in initial use. On dual lipped seals, smear the area between the lips with appropriate grease.

When pressing in a seal which has manufacturer's marks, press in with the marks facing out.

Seals must be pressed into place using a suitable driver. Use of improper tools will damage the seal.

Press

A part installed using a press or driver, such as a wheel bearing, should first be coated with oil or grease on its outer or inner circumference so that it will locate smoothly.

Ball bearing

When installing a ball bearing, the bearing race which is an interference fit should be pushed by a suitable driver. This prevents severe stress or damage to the load carrying components. Press a ball bearing until it touches the shoulder in the bore or on the shaft.

Press or drift seals to the depth of its housing, with the sealing lip facing the lubricant to be retained if the housing is shouldered, or flush with the face of the housing where no shoulder is provided.

Fuel Handling Precautions

General

The following information provides basic precautions which must be observed if petrol (gasoline) is to be handled safely. It also outlines other areas of risk which must not be ignored. This information is issued for basic guidance only and, if in doubt, appropriate enquiries should be made of your local Fire Officer.

General Information

Petrol - Gasoline

When petrol (gasoline) evaporates it produces 150 times its own volume in vapour which when diluted with air becomes a readily ignitable mixture. The vapour is heavier than air and will always fall to the lowest level. It can readily be distributed throughout any indoor environment by air currents, consequently, even a small spillage of petrol (gasoline) is potentially very dangerous.

Warning

Petrol (gasoline) is highly flammable and can be explosive under certain conditions. When opening the fuel tank cap always observe all the following items;

Turn the motorcycle ignition switch OFF.

Do not smoke.

Always have a fire extinguisher containing FOAM, CO₂, HALON or POWDER close at hand when handling or draining fuel or fuel systems. Fire extinguishers must also be present in areas where fuel is stored.

Always disconnect the vehicle battery, negative (black) lead first, before carrying out dismantling or draining work on a fuel system.

Whenever petrol (gasoline) is being handled, drained, stored or when fuel systems are being dismantled, make sure the area is well ventilated. All potential forms of ignition must be extinguished or removed (this includes any appliance with a pilot light). Any lead-lamps must be flame-proof and kept clear of any fuel spillage.

Warning notices must be posted at a safe distance from the site of the work to warn others that petrol is being openly handled. The notice must instruct the reader of the precautions which must be taken.

Failure to observe any of the above warnings may lead to a fire hazard which could result in personal injury.

Warning

No one should be permitted to repair components associated with petrol/gasoline without first having specialist training on the fire hazards which may be created by incorrect installation and repair of items associated with petrol/gasoline.

Repairs carried out by untrained personnel could bring about a safety hazard leading to a risk of personal injury.

Warning

Draining or extraction of petrol/gasoline from a vehicle fuel tank must be carried out in a well ventilated area.

The receptacle used to contain the petrol/ gasoline must be more than adequate for the full amount of fuel to be extracted or drained. The receptacle should be clearly marked with its contents, and placed in a safe storage area which meets the requirements of local authority regulations.

When petrol/gasoline has been extracted or drained from a fuel tank, the precautions governing naked lights and ignition sources should be maintained.

Failure to observe any of the above warnings could bring about a safety hazard leading to a risk of personal injury.

Fuel tank removal

Fuel tanks should have a 'PETROL (GASOLINE) VAPOUR' warning label attached to them as soon as they are removed from the vehicle. In all cases, they must be stored in a secured, marked area.

Chassis repairs

Warning

If the motorcycle is involved in an accident or collision it must be taken to an authorised Triumph dealer for repair or inspection. Any accident can cause damage to the motorcycle, which if not correctly repaired, may cause a second accident which may result in injury or death.

The frame must not be modified as any modification to the frame such as welding or drilling may weaken the frame resulting in an accident.

Electrical Precautions

The following guidelines are intended to ensure the safety of the operator whilst preventing damage to the electrical and electronic components fitted to the motorcycle. Where necessary, specific precautions are detailed in the relevant sections of this manual which should be referred to prior to commencing repair operations.

Equipment - Prior to commencing any test procedure on the motorcycle ensure that the relevant test equipment is working correctly and any harness or connectors are in good condition, in particular mains leads and plugs.

 **Warning**

The ignition system produces extremely high voltages. Do not touch any part of the ignition system or any cables while the engine is running. An electric shock caused by contact with the ignition system may lead to illness, injury or death.

 **Warning**

Wearers of surgically implanted heart pacemaker devices should not be in close proximity to ignition circuits and or diagnostic equipment. The ignition system and any diagnostic equipment may interrupt the normal operation of such devices causing illness or death.

 **Warning**

The battery contains harmful materials. Always keep children away from the battery whether or not it is fitted in the motorcycle. Do not jump start the battery, touch the battery cables together or reverse the polarity of the cables as any of these actions may cause a spark which would ignite battery gasses causing a risk of personal injury.

High Voltage Circuits - Whenever disconnecting live H.T. circuits always use insulated pliers. Exercise caution when measuring the voltage on the coil terminals while the engine is running, high voltage spikes can occur on these terminals.

Connectors and Harness - The engine of a motorcycle is a particularly hostile environment for electrical components and connectors. Always ensure these items are dry and oil free before disconnecting and connecting test equipment. Never force

connectors apart either by using tools or by pulling on the wiring itself. Always ensure locking mechanisms are disengaged before removal and note the orientation to enable correct reconnection. Ensure that any protective covers and substances are replaced if disturbed.

Having confirmed a component to be faulty, switch off the ignition and disconnect the battery negative (black) lead first. Remove the component and support the disconnected harness. When replacing the component keep oily hands away from electrical connection areas and push connectors home until any locking mechanism becomes fully engaged.

Battery disconnecting

Before disconnecting the battery, switch off all electrical equipment.

 **Warning**

To prevent the risk of a battery exploding and to prevent damage to electrical components ALWAYS disconnect the battery negative (black) lead first. When reconnecting the battery, always connect the positive (red) lead first, then the negative (black) lead. Always disconnect the battery when working on any part of the electrical system. Failure to observe the above warnings may lead to electrical damage and a fire hazard which could cause personal injury.

Always ensure that battery leads are routed correctly and are not close to any potential chafing points.

Disciplines

Switch off the ignition prior to making any connection or disconnection in the system. An electrical surge can be caused by disconnecting 'live' connections which can damage electronic components.

Ensure hands and work surfaces are clean and free of grease, swarf, etc. as grease collects dirt which can cause tracking or high-resistance contacts.

Prior to commencing any test, and periodically during any test, touch a good earth to discharge body static. This is because some electronic components are vulnerable to static electricity.

General Information

Electrical wires

All the electrical wires are either single-colour or two-colour and, with only a few exceptions, must be connected to wires of the same colour. On any of the two-colour wires there is a greater amount of one colour and a lesser amount of a second colour. A two-colour wire is identified by first the primary colour and then the secondary colour. For example, a yellow wire with thin red stripes is referred to as a 'yellow/red' wire; it would be a 'red/yellow' wire if the colours were reversed to make red the main colour.

Inspection

Disassembled parts should be visually inspected and replaced with new ones if there are any signs of the following:

Abrasions, cracks, hardening, warping, bending, dents, scratches, colour changes, deterioration, seizure or damage of any nature.

Replacement Parts

Warning

Only Triumph genuine parts should be used to service, repair or convert Triumph motorcycles. To ensure that Triumph genuine parts are used, always order parts, accessories and conversions from an authorised Triumph dealer. The fitting of non-approved parts, accessories or conversions may adversely affect the handling, stability or other aspects of the motorcycle operation which may result in an accident causing serious injury or death.

Warning

Always have Triumph genuine parts, accessories and conversions fitted by an authorised Triumph dealer. The fitment of parts, accessories and conversions by a dealer who is not an authorised Triumph dealer may affect the handling, stability or other aspects of the motorcycle operation which may result in an accident causing serious injury or death.

Warning

Always have Triumph approved parts, accessories and conversions fitted by a trained technician. To ensure that a trained technician is used, have an authorised Triumph dealer fit the parts. The fitment of parts, accessories and conversions by personnel other than a trained technician at an authorised Triumph dealer may affect the handling, stability or other aspects of the motorcycle operation which may result in an accident causing serious injury or death.

Service data

The service data listed in this manual gives dimensions and specifications for brand new, original parts. Where it is permissible to allow a part to exceed these figures, then the service limit is given.

The terms of the motorcycle warranty will be invalidated by the fitting of other than genuine Triumph parts.

All genuine Triumph parts have the full backing of the motorcycle warranty. Triumph dealers are obliged to supply only genuine Triumph recommended parts.

Specification

Triumph are constantly seeking to improve the specification, design and production of their motorcycles and alterations take place accordingly.

While every effort has been made to ensure the accuracy of this Manual, it should not be regarded as an infallible guide to current specifications of any particular motorcycle.

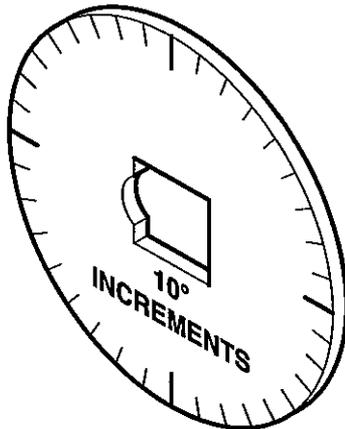
Authorised Triumph Dealers are not agents of Triumph and have no authority to bind the manufacturer by any expressed or implied undertaking or representation.

Service tools

Special service tools have been developed to facilitate removal, dismantling and assembly of certain mechanical components in a practical manner without causing damage. Some operations in this service manual cannot be carried out without the aid of the relevant service tools. Where this is the case, the tools required will be described during the procedure.

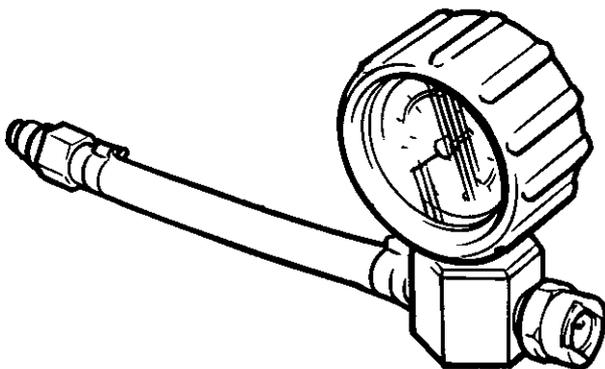
Special service tools:

T3880105 - Angular torque gauge



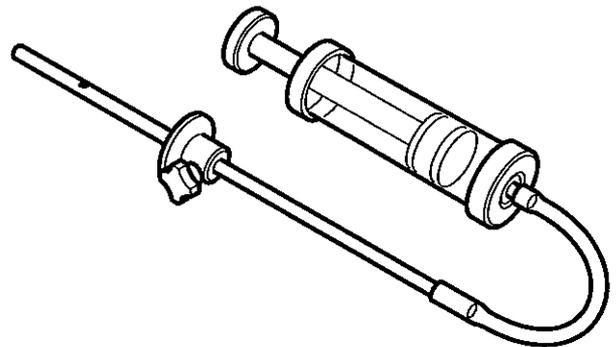
cbxt

T3880048 - Fuel pressure gauge



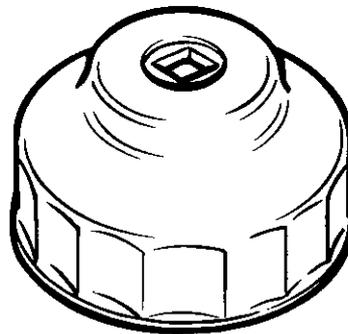
jafi

3880160-T0301 - Fork filler evacuator



ocha

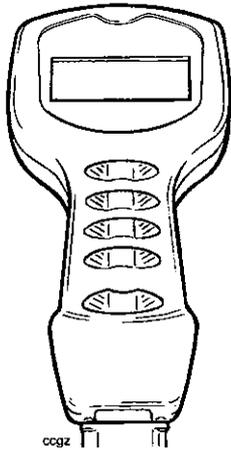
T3880312 - Oil filter wrench



gahc

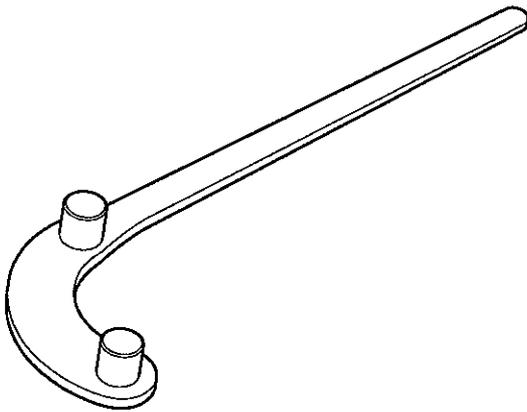
General Information

T3880250 - Diagnostic tool



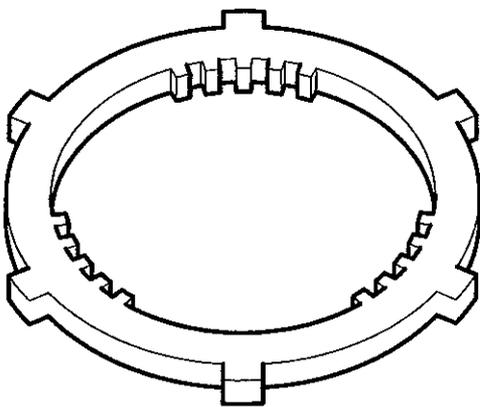
ccgz

T3880201 - Anti-rotation jig - alternator



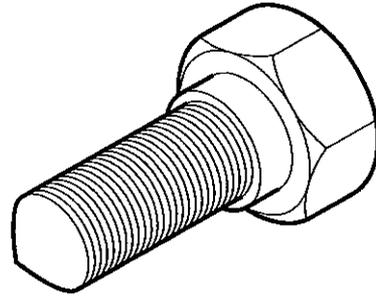
ccgy

3880025-T0301 - Clutch anti-rotation jig



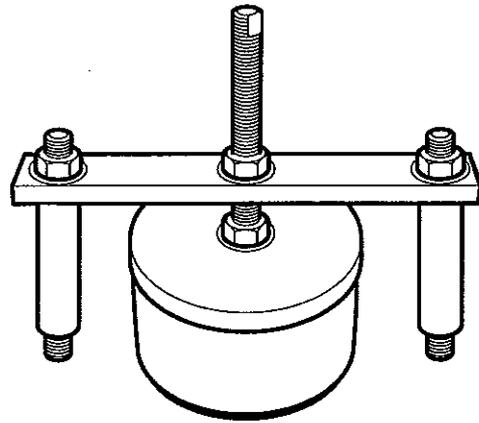
cchd

T3880200 - Puller - alternator



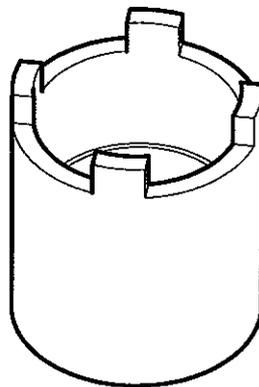
cche

T3880061 - Extractor, liners



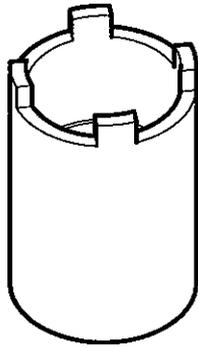
cchb

T3880062 - Castle wrench - 38 mm



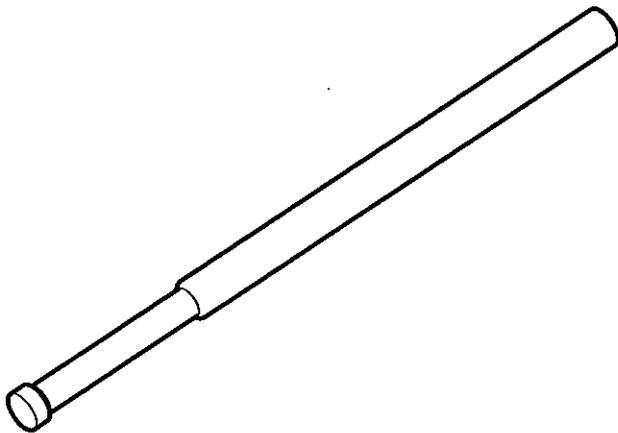
ccgu

T3880063 - Castle wrench – 31 mm



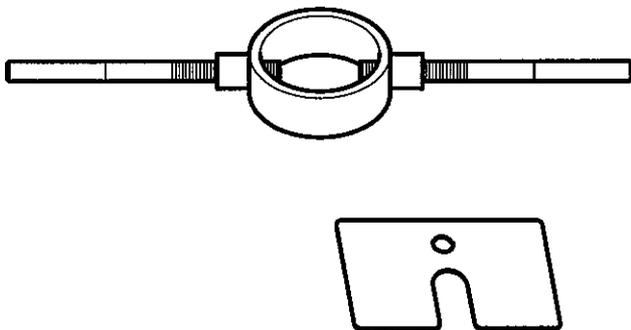
ccgt

3880085-T0301 - Fork assembly rod



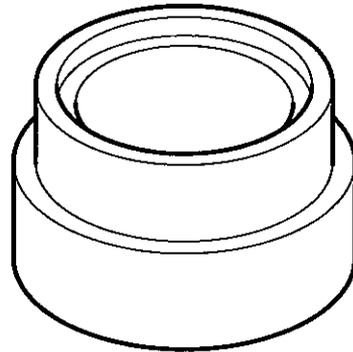
ccgs

T3880067 - Fork spring compressor



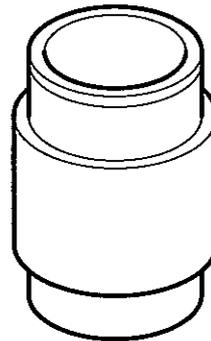
ccgw

T3880064 - Drift, swinging arm bearings



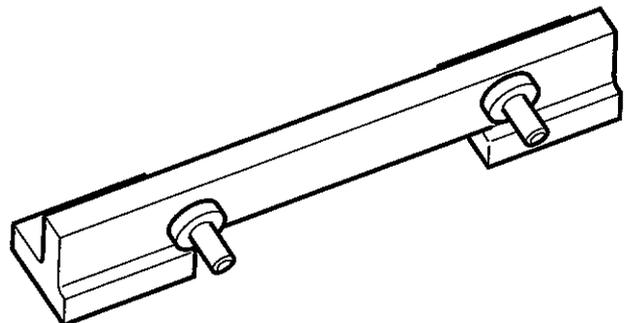
cchc

3880090-T0301 - Fork service tool



ccgv

T3880202 - Cam timing jig



ccgx

General Information

Full Specification

Rocket III

Engine	.3 Cylinder 12 Valve DOHC
Arrangement	.In line, longitudinal,
Displacement	.2294 cc
Bore x Stroke	.101.6 x 94.3 mm
Compression Ratio.	.8.7:1
Cylinder Numbering	.Number 1 at front
Firing order.	.1-2-3
Max. Power (DIN 70020)	.142 PS at 5,750 rpm
Max. Torque	.200 Nm at 2,500 rpm

Cylinder Head

Valve Head Dia.	In.	.37.90 mm
	Ex.	.32.30 mm
Valve Lift.	In.	.8.30 mm
	Ex.	.8.30 mm
Valve Stem Dia.	In.	.5.475 - 5.490 mm (std)
	Ex.	.5.475 - 5.490 mm (std)
Valve Guide Bore Dia.		.5.485 - 5.500 mm (std)
Valve Seat Width (in head)		.1.000 - 1.100 mm (std)
		.1.500 mm (service limit)
Valve Seat Width (valve)		.1.98 - 2.26 mm (std)
Valve Seat Angle		.90° inclusive
Valve Spring Length		.43.2 mm (std)
Valve Spring 'Load at Length'	In.	.180 N +/- 10 N at 36.2 mm
	Ex.	.180 N +/- 10 N at 36.2 mm
Valve Clearance	In.	.0.10 - 0.15 mm
	Ex.	.0.15 - 0.20 mm
Valve Bucket Bore Dia.	In.	.28.015 - 28.035 mm
	Ex.	.28.015 - 28.035 mm
Valve Bucket Dia.	In.	.27.978 - 27.993 mm
	Ex.	.27.978 - 27.993 mm
Valve Timing (at 1 mm lift)		
Inlet	open	.12° BTDC
	close	.28° ABDC
	duration.	.220°
Exhaust	open	.41° BBDC
	close	.11° ATDC
	duration.	.232°
Camshaft Journal Dia.		.22.93 - 22.96 mm (std)
Camshaft Journal Clearance		.0.040 - 0.091 mm (std)
		.0.13 mm (service limit)

Full Specification

Rocket III

Camshaft Journal Bore Dia.	23.000 - 23.021 mm (std)
Camshaft End Float	0.10 - 0.13 mm (std)
Camshaft Run-out.	0.015 mm (std)
Camchain Tensioner Spring Free Length	73.7 mm

Clutch/Primary Drive

Primary Drive	Type	Gear, with backlash eliminator
	Reduction Ratio ..	1.034:1
Clutch	Type	Wet, multi-plate
No. of Friction Plates		10
Plate Flatness Limit.		0.30 mm
Friction Plate Thickness (new)		3.72 – 3.88 mm
Friction Plate Thickness (service limit)		3.5 mm
Clutch Actuation Method.		Cable
Cable Free Play (at lever)		2-3 mm

Piston/Crankshaft

Cylinder Liner Dia.	101.591 – 101.609 mm (std)	
	101.659 mm (service limit)	
Piston Diameter.	101.561 – 101.577 mm (std)	
	101.511 mm (service limit)	
Piston Ring to Groove Clearance	Top	0.002 – 0.006 mm (std)
		0.16 mm (service limit)
	Second	0.02 – 0.06 mm (std)
		0.16 mm (service limit)
Piston Ring Groove Width	Top	1.01 – 1.03 mm (std)
		1.11 mm (service limit)
	Second	1.01 – 1.03 mm (std)
		1.11 mm (service limit)
	Oil	2.51 – 2.53 mm (std & service limit)
Piston Ring End Gap.	Top	0.20 – 0.35 mm (std)
		0.55 mm (service limit)
	Second	0.30 – 0.50 mm (std)
		0.675 mm (service limit)
	Oil	0.20 – 0.70 mm (std)
		0.875 mm (service limit)
Gudgeon Pin Bore Dia. In Piston		21.994 – 22.001 mm (std)
		22.011 mm (service limit)
Gudgeon Pin Dia.		21.982 – 21.987 mm (std)
		21.972 mm (service limit)
Connecting Rod Small End Dia.		22.005 – 22.018 mm (std)
		22.028 mm (service limit)

General Information

Full Specification

Rocket III

Connecting Rod Big End Dia	44.000 – 44.009 mm (std)
Connecting Rod Big End Side Clearance015 – 0.30 mm (std) 0.50 mm (service limit)
Crankshaft Big End Journal Dia.	40.946 – 40.960 mm(std) 40.922 mm (service limit)
Crankshaft Big End Bearing Clearance	0.035 – 0.065 mm (std) 0.100 mm (service limit)
Crankshaft Main Journal Dia.	43.092 – 43.108 mm (std) 43.068 mm (service limit)
Crankshaft Main Bearing Clearance	0.018 – 0.041 mm (std) 0.10 mm (service limit)
Crankshaft End Float	0.05 – 0.20 mm (std) 0.40 mm (service limit)
Crankshaft run-out	0.04 mm (std) 0.07 mm (service limit)

Transmission

Type	5 Speed Constant Mesh
Gear Ratios	Primary 1.034:1 1st 2.929:1 2nd 1.947:1 3rd 1.435:1 4th 1.160:1 5th 0.964:1 Secondary 1.043:1
Gear Selector Fork Thickness	5.90 – 6.00 mm (std) 5.80 mm (service limit)
Gear Selector Groove Width	6.05 – 6.15 mm (std) 6.30 (service limit)
Gear Selector Fork to Groove Clearance	0.05 – 0.25 mm (std) 0.50 (service limit)

Final Drive

Final Drive Type	Bevel geared crown wheel and pinion
Drive system	Universal-jointed shaft with torsional damper
Final Drive Ratio	2.846:1
Final Drive Oil	Mobilube SHC 95/W 90 fully synthetic hypoid oil (or equivalent)
Final Drive Oil Capacity	0.17 litres

Lubrication

Oil Capacity (incl. filter, dry fill)	5.9 litres
Oil and filter change	5.4 litres

Full Specification

Rocket III

Oil change only	5.1 litres
Recommended Oil Approval Rating	API SH (or higher) and JASO MA
Viscosity	10W/40 or 15W/50
Type.	Semi or fully synthetic
Oil Pressure (in main gallery)	3.00 – 3.60 Bar at 3,500 rpm
Oil Pump Rotor Tip Clearance	0.15 mm (std – both pumps) 0.20 (service limit – both pumps)
Oil Pump Body Clearance.	0.15 – 0.22 mm (std – both pumps) 0.20 mm (service limit – both pumps)
Oil Pump Rotor End Float	0.02 – 0.07 mm (std – both pumps) 0.10 mm (service limit – both pumps)

Ignition System

Type.	Digital, inductive
Electronic Rev-Limiter.	6,500 rpm
Pick up Coil Air Gap	Fixed, not adjustable
Pick up Coil Resistance	0.56 K Ω
Ignition Coil Type.	Inductive, twin output
Spark Plug Type	NGK DPR8EA9, 2 per cylinder
Spark Plug Gap.	0.9 mm

Fuel System

Fuel Type.	Unleaded, 95 RON (US - 89 RON/MON)
Fuel Tank Capacity	25 litres
Low Level Warning Lamp	5.5 litres remaining
Fuel Pump Type	Submerged, electric
Fuel Pressure (nominal)	3.0 Bar
Purge control system	Modulated, vacuum

Fuel Injection System

Type.	Multi point sequential
Idle Speed.	800 rpm
Injector Type	Single nozzle
Throttle	Twin butterfly
Idle speed control	Stepper motor
Control Sensors	Coolant temperature, manifold absolute pressure (all cylinders), intake air temperature, barometric pressure, gear position, road speed, primary and secondary throttle position.

Cooling System

Coolant Mixture.	50% anti freeze in distilled water
Anti-Freeze Type.	Mobil Antifreeze

General Information

Full Specification

Rocket III

Cooling System Capacity	3.2 litres
Radiator Cap Opening Pressure	1.2 bar
Thermostat Opening Temperature	85° C
Cooling Fan Switch On Temperature	
Temperature Gauge Sensor Resistance	187Ω at 100°C

Suspension

Front Fork Travel	120 mm
Recommended Fork Oil Grade	Kayaba 01 oil (SAE 0W)
Oil Level (fork fully compressed)	89 mm
Oil Volume (dry fill)	667 cm ³ +/- 4.0 cm ³
Front Fork Pull Through	0 mm (top of the outer tube flush with top yoke)
Fork spring rate	K = 16 N/mm
Rear Wheel Travel	105 mm

Brakes

Front type	Two four piston callipers acting on twin discs
Caliper Piston Dia.	33.96 mm/30.23 mm
Disc Dia.	320 mm
Disc Thickness	5.0mm standard (4.0 mm service limit)
Disc Run-out Max.	0.3 mm
Master Cylinder Diameter	14 mm
Recommended Fluid	DOT 4
Rear Type	
Caliper Piston Dia.	32 mm
Disc Dia.	316 mm
Disc Thickness	7.5 mm standard (6.5 mm service limit)
Disc Run-out Max.	0.15 mm
Master Cylinder Diameter	12.7 mm
Recommended Fluid	DOT 4

Wheels and Tyres

Front Wheel Size	MT 3.5 x 17
Front Wheel Rim Axial Run-out	0.5 mm
Front Wheel Rim Radial Run-out	0.5 mm
Front Tyre Size	150/80 R17
Front Tyre Pressure (cold)	34 lb/in ²
Front Tyre Tread Depth min.	Over 130 kmh – 3 mm (or minimum legal limit, whichever is greater) Under 130 kmh – 2 mm (or minimum legal limit, whichever is greater)
Rear Wheel Size	MT 7.5 x 16

Full Specification

Rocket III

Rear Wheel Rim Axial Run-out	0.5 mm
Rear Wheel Rim Radial Run-out	0.5 mm
Rear Tyre Size	240/50 R16
Rear Tyre Pressure (cold)	42 lb/in ²
Rear Tyre Tread Depth min.	Over 130 kmh – 3 mm (or minimum legal limit, whichever is greater) Under 130 kmh – 2 mm (or minimum legal limit, whichever is greater)

Frame

Frame Type	Tubular steel
Overall Length	2480 mm
Overall Width	880 mm
Wheelbase	1690 mm
Seat Height	740 mm
Castor	32°
Trail	152 mm
Dry Weight	320 kg
Max. Payload (rider, passenger, luggage & accessories)	235 kg

Electrical Equipment

Battery Rating	12 volt, 18 amp hour
Alternator Rating	37 amps/min at 2,000 rpm 41 amp/min at 6,000 rpm

General Information

Torque Wrench Settings

Cylinder head area

Application	Torque (Nm)
Cam cover to cylinder head	10
Cam chain tensioner to crankcase	9
Cam ladder to head	See text
Camshaft sprocket to camshaft	15
Cam chain tensioner blade to crankcase	18
Cam chain top pad to head	See text
Cylinder head to crankcase	See text
Noise suppression bolt to cam chest	10

Clutch

Application	Torque (Nm)
Clutch cover to crankcase	9
Clutch centre nut	105
Clutch pressure plate to basket	10

Crankshaft and crankcases

Application	Torque (Nm)
Connecting rod big end bolts	See text
Crankcase to crankcase bolts	See text
Transmission shaft bearing cap	See text
Main bearing ladder bolts	See text
Lubrication circuit threaded inserts	45

Engine Covers

Application	Torque (Nm)
Clutch cover to crankcase	9
Clutch outer cover to inner cover	9
Alternator cover to crankcase	9
Torsional damper shaft cover to crankcase	28 (M8) 9 (M6)
Cam chain inspection plug to clutch cover	18

Transmission

Application	Torque (Nm)
Detent wheel to selector drum	12
Selector drum bearing retaining screw	12
Spring abutment bolt	23
Gear change pinch bolt	9
Gear change pedal pivot bolt	27
Input shaft bearing retainer to crankcase	12
Output gear to output shaft	145

Lubrication System

Application	Torque (Nm)
Sump to crankcase	12
Sump plugs (front and rear)	25
Oil pick up strainers to sump	12
Oil pick up pipes to crankcase	9
Oil tank drain plug to sump	25
Oil pressure relief valve to crankcase	15
Oil filter adapter	10
Oil pumps to crankcase	12
Oil pump chain retainer plate to crankcase	9
Oil pressure relief valve	15

Cooling System

Application	Torque (Nm)
Water pump to crankcase	10
Radiator to frame	9
Thermostat housing to head	4
Fan shroud to radiator	2
Cooling system bleed screw	10

General Information

Fuel System, Exhaust System and Airbox

Application	Torque (Nm)
Fuel tank to frame (pivot bolt)	9
Fuel tank to frame (front fixing)	9
Fuel pump mounting plate to fuel tank	5
Fuel pump clamp screw	2
Throttle body transition piece to cylinder head	12
Exhaust headers to cylinder head	19
Exhaust headers to cat box clamp bolt	22
Exhaust cat box to frame	27
Silencer mounting bracket to frame	27
Fuel level sensor to fuel tank	10
Air filter cover to airbox	3
Airbox to bracket	9

Rear Suspension

Application	Torque (Nm)
Swinging arm pivot bolt – fixed (left hand)	100
Swinging arm pivot bolt – adjustable (right hand)	15
Swing arm pivot bolt lock ring (right hand)	100
Rear suspension unit upper mounting bolt	28
Rear suspension unit lower mounting bolt	28

Front Suspension

Application	Torque (Nm)
Upper yoke pinch bolt	20
Lower yoke pinch bolt	22
Fork top cap to inner tube	30
Upper yoke centre nut	65
Damping cylinder bolt	45
Handlebar clamp to top yoke	35
Handlebar clamp bolt	26
Handlebar clamp cover plate bolts	3

Wheels

Application	Torque (Nm)
Front wheel spindle/axle bolt	65
Fork to wheel spindle pinch bolts	22
Rear wheel spindle flanged locknut	110

Front Brakes

Application	Torque (Nm)
Calliper to fork	40
Pad retaining pin (hexagon drive)	18
Calliper bleed screw	5
Hose to calliper	25
Master cylinder to handlebar	15
Hose to master cylinder	25
Disc to wheel	22
Fluid reservoir to bracket	6

Rear Brakes

Application	Torque (Nm)
Calliper bleed screw	8
Hose to calliper	25
Master cylinder to frame	27
Master cylinder reservoir to frame	7
Hose to brake pipe joint	25
Hose to brake light switch	15
Brake pedal pivot bolt	30
Brake disc to wheel	22

Footrests and Control Plates

Application	Torque (Nm)
Foot rest mounting bar to engine (left and right)	27
Rear footrest to hanger	27
Side stand to engine	40
Side stand pivot bolt	20
Side stand pivot locknut	25
Front footrest end screw to footrest	9
Heel guards to control plate bar	9
Bank angle peg to footrest	10

General Information

Triumph Rocket III Motorcycle Service Repair Workshop Manual

Full Download: <https://www.aresairmanual.com/downloads/triumph-rocket-iii-motorcycle-service-repair-workshop-manual/>

<https://www.aresairmanual.com/downloads/triumph-rocket-iii-motorcycle-service-repair-workshop-manual/>

Bodywork

Application	Torque (Nm)
Engine to frame bolts	See text
Front mudguard to forks	27
Front mudguard finisher to mudguard	3
Rear mudguard/covers to frame	See text
Rear seat to mudguard	9
Side covers to frame	9
Engine infill panels to frame	4

Electrical

Application	Torque (Nm)
Starter motor to engine	28
Alternator rotor to crank	120
Alternator stator to crankcase	12
Alternator rectifier to bracket	9
Alternator cover to crankcase	9
Rear light to mudguard	7
Number plate light to bracket	9
Indicators to brackets	9
Indicator lenses to indicators	2
Headlight horizontal adjuster	15
Headlight vertical adjuster	20
Headlight bezel clamp	4

Sample of manual. Download All 426 pages at:

<https://www.aresairmanual.com/downloads/triumph-rocket-iii-motorcycle-service-repair-workshop-manual/>