2016-2017 Triumph Tiger Explorer XR /XRX / XRT Motorcycle Service Manual

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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 regarding 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 electronic parts catalogue (EPC).
- 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.

Warnings, Cautions and Notes

Particularly important information is presented in the following form:



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

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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.

Noise Control System

Tampering with the noise control system is prohibited.

Owners are warned that the law may prohibit:

- 1. 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,
- 2. 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 parts 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

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tightened to a snug fit, evenly and in a cross pattern. This is to avoid distortion of the part and/or 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.

General Information

Ignition System Safety Precautions



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.



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



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, antifreeze, 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!

Third Party Products



Many proprietary products, such as chemicals, solvents and cleaning agents, will cause damage to components if used incorrectly or inappropriately. Always follow the manufacturer's instructions printed on the product container's labels and obey the instructions given. These instructions are included for your safety and well-being.

Damage to the motorcycle components caused by the incorrect or inappropriate use of chemicals, solvents and cleaning agents may reduce the components efficiency, resulting in loss of motorcycle control and an accident.

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



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



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 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, degrease components prior to handling.

MARNING

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



Do not pour oil on the ground, down sewers or drains, or into water courses. To prevent pollution of water

GENERAL INFORMATION

A CAUTION

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



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.

MARNING

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.

MARNING

Use only DOT 4 specification brake fluid as listed in the General Information section of this manual. The use of brake fluids other than those DOT 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.



Before installation, all internal brake components should be cleaned and lubricated with clean new DOT 4 brake fluid.

Never use solvents, petrol (gasoline), engine oil or any other petroleum distillate on internal brake components as this will cause deterioration of the hydraulic seals in the calipers and master cylinders.

A dangerous riding condition leading to loss of motorcycle control and an accident could result if this warning is ignored.

Safety Instructions

Jacking and Lifting



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 to 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, spilled 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



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



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.



The coolant antifreeze 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 antifreeze as specified in the Owner's Handbook. Never use a methanol based antifreeze as this does not contain the required corrosion inhibition properties.



Distilled water must be used with the antifreeze (see specification for antifreeze) 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.

Cleaning Components

A high flashpoint 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 reuse 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.



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 loosened 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).



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 over tightening 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 reuse 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 loosen back castle nuts when fitting a 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 reused, provided resistance can be felt when the locking portion passes over the thread of the bolt or stud.

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

Encapsulated Bolts

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.



Failure to replace an encapsulated bolt could lead to a dangerous riding condition. Always replace encapsulated bolts.

Oil and Grease Seals

Replace any oil or grease seals that are removed. Removal will cause damage to an oil seal which, if reused, 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.

With the sealing lip facing the lubricant, press or drift a seal to the depth of its housing, if the housing is shouldered, or flush with the face of the housing where no shoulder is provided.

Chassis Bearing Lubrication

Note

- This information relates only to bearing lubrication. For the procedures necessary to replace a bearing, always refer to the relevant section of this Service Manual.
- Bearings installed in engine and transmission applications are not covered by this information. Refer to the Lubrication chapter or the relevant engine chapter for additional information.

General

For a bearing to be serviceable for its anticipated life span it must be checked, adjusted and lubricated at regular intervals, as specified in the service schedules given in the Owner's Handbook and this Service Manual.

A correctly lubricated bearing will have a film of lubrication that separates the moving parts, disperses heat and protects the bearing surfaces from corrosion.

Note

- In all cases, use the lubricant recommended.
- Grease the bearing, not the cavity where it is located.
- · A bearing that is not regularly checked and lubricated will have a reduced life span.

New Bearings

New bearings are typically protected with an oil preservative to prevent corrosion etc. during storage. This is NOT the lubrication for the bearing but DOES NOT need to be washed off prior to assembly and in-service lubrication.

When lubricating a new bearing with grease the following steps should be taken:

- 1. Do not clean off the oil preservative.
- 2. Grease must be forced between the roller elements and the roller cage.
- 3. Rotate the bearing to ensure that the grease is distributed over the entire circumference of the internal parts.
- 4. Any excess grease should be smeared on the outside of the rollers.

Lubrication and Checks While Servicing a Bearing

- 1. Disassemble parts as necessary to access the bearing.
- 2. Inspect the old grease covering the bearing, looking for signs of bearing damage, i.e. flakes or specks of metal.
- 3. Remove the old grease.
- 4. Check the bearing for smooth operation and visually check for corrosion, dents and flaking in the bearing race, rollers or cage. Replace if necessary.