Triumph

MODEL COVERAGE

250
TR25W

500
T100C, "Trophy Trail"
T100R, "Daytona"

650
TR6R, "Trophy"
TR6C, "Trophy"
T120R, "Bonneville"

750 Twins
TR7V, "Tiger 750"
T140V, "Bonneville 750"

750 Triples
T150, "Trident"
T150V, "Trident"

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Oil Pump

The oil pump is located at the front right side of the engine inside the case cover.

DISASSEMBLY

1. Remove the four screws at the base of the pump and remove the baseplate and top cover.
2. Mark the worm gear for reassembly, then remove the nut and washer that secure the gear and driving spindle to the top cover.
3. Clean all parts thoroughly in kerosine or a cleaning solvent and blow them dry with compressed air.

INSPECTION

Examine the oil pump parts for excessive scoring and foreign object damage. If oil changes have been neglected, it will be evident by the damage done to the pump gear teeth and pump body. Small scratches can be ignored, but any more substantial wear calls for parts replacement.

Inspect the pump gears for worn or broken teeth. If formerly sharp edges have become rounded off, the gear should be replaced.

ASSEMBLY

1. Make sure all parts are absolutely clean and bathed in engine oil or assembly lube.
2. Insert the driving spindle into the pump top cover.
3. Install the worm drive gear and secure it with the nut and spring washer.
4. Install the driven spindle and gear in the top cover.
5. Install the lower pump gears and baseplate.
6. Rotate the spindle and gears to make certain there is no binding, then tighten the four securing screws.
7. Check the joining surfaces of the oil pump to make sure they are all parallel. If not, the pump may not be free to operate when installed in the engine.
8. Also check the crankcase breather located near the clutch cable abutment in the timing case. This breather *must* be free from obstruction.

500, 650, 750 TWINS

Checking Oil Pressure

Normal oil pressure at idle is about 20 to 25 psi, but may rise as high as 80 psi when the engine is cold. Normal running pressure is 65 to 80 psi.

Oil pressure can be checked by connecting a gauge and adaptor in place of the relief valve.

Oil Line Junction Block

REMOVAL AND INSTALLATION

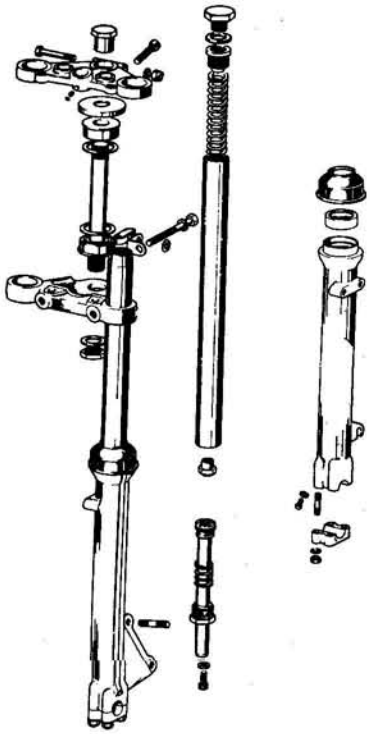
1. Drain the transmission oil.
2. Remove the gearbox outer cover as described in "Engine and Transmission."
3. Drain the oil tank.
4. Disconnect the rubber lines from

Engine Specifications—TR7V, T140V (cont.)

TIMING GEARS	
Inlet and exh. camshaft pinions	
Number of teeth	50
Interference fit on camshaft	0.000–0.001 in.
Intermediate timing gear	
Number of teeth	47
Bore diameter	0.5618–0.5625 in.
Intermediate timing gear bush	
Material	Phosphor bronze
Outside diameter	0.5635–0.5640 in.
Bore diameter	0.4990–0.4995 in.
Length	0.6775–0.6825 in.
Working clear. on spindle	0.0005–0.0015 in.
Intermediate wheel spindle	
Diameter	0.4980–0.4985 in.
Interference fit in crank.	0.0005–0.0015 in.
Crankshaft pinion	
Number of teeth	25
Fit on crankshaft	+0.0003/−0.0005 in.
CYLINDER BLOCK	
Material	Cast iron
Bore size	2.9911–2.9921 in.
Maximum oversize	+0.040 in.
Tappet guide block housing diameter	0.9990–0.9985 in.
CYLINDER HEAD	
Material	D.T.D. 424 Aluminum
Inlet port size	1.12 in.
Exhaust port size	1⅜ in. diam.
Valve seatings	
Type	Cast-in
Material	Cast iron
CONNECTING RODS	
Length (centers)	5.999–6.001 in.
Big-end bearings—type	Steel backed with white metal
Bearing side clearance	0.012–0.016 in.
Bearing diametrical clearance	0.005–0.0020 in.
PISTON PIN	
Material	High tensile steel
Fit in small-end bush	0.0005–0.0012 in. clear.
Diameter	0.6882–0.6885 in.
Length	2.151–2.156 in.
SMALL END BUSHING	
Material	Phosphor bronze
Outer diameter	0.8140–0.8145 in.
Length	1.030–1.031 in.
Finished bore diameter	0.6890–0.6894 in.

Clutch and Transmission Specifications—TR7V, T140V

CLUTCH	
Type	Multiplate with integral shock absorber
Number of plates	
Driving (bonded)	6
Driven (plain)	6
Pressure springs	
Number	3
Free length	1.75 in.
No. working coils	7½
Spring rate	169 lbs.
Approximate fitted load	83 lbs.
Bearing rollers	
Number	20
Diameter	0.2495–0.2500 in.
Length	0.231–0.236 in.
Clutch hub bearing diameter	1.3733–1.3743 in.
Clutch sprocket bore diameter	1.8745–1.8755 in.
Thrust washer thickness	0.052–0.054 in.
Engine sprocket teeth	29
Clutch sprocket teeth	58
Chain	Triplex endless—⅜ in. pitch x 84 links
CLUTCH OPERATING MECHANISM	
Conical spring	
Number of working coils	2
Free length	13/32 in.
Diameter of balls	⅜ in.
Clutch operating rod	
Diameter	7/32 in.
Length	11.812–11.822 in.
GEARS	
Mainshaft, high gear	
Bearing type	Needle roller (Torrington B1314)
Bearing length	0.865–0.875 in.
Spigot diameter (high gear)	1.5072–1.5077 in.



Late model "slim-line" front forks

The O-ring oil seal on the damper bleed valve should be removed and a new one fitted by hand.

13. Account for the sealing washer at the very bottom of each fork slider.

INSPECTION

1. Check all parts for wear or damage. Replace as necessary.

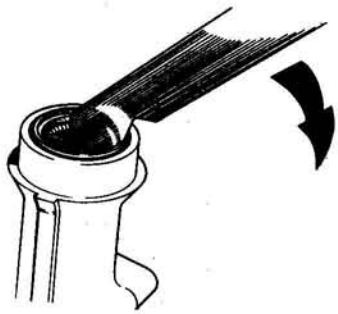
2. To replace the fork slider oil seal, use a tool similar to the one shown or a suitable substitute. The important thing is that the soft aluminum of the slider not be touched by the tool when removing the oil seal. Pry all around the circumference of the seal, gradually lifting it off its seat.

3. To replace the seal, cover the top of the fork tube with a thin plastic "sandwich bag" or something similar. Oil the lips of the seal, and slide it down over the top of the fork tube. Be very careful that the seal is not forced in any way. It is extremely easy to damage the seal.

Place the fork slider in position at the bottom of the fork tube, and bring the seal down to meet it.

A drift is needed to properly seat the oil seal in the slider or it will leak. After installation, remove the slider from the fork tube.

4. Clean all components thoroughly before reassembly.



Removing the slider oil seal

ASSEMBLY AND INSTALLATION

1. Refit the damper valve assembly into the bottom of the fork leg. Use a bit of thread locking compound on the damper retainer nut and tighten the nut to 25 ft lbs.

2. Locate the small sealing washer in the very bottom of the fork slider. Replace the dust cover atop the slider, and replace the slider on the fork leg.

3. Bring the slider up to meet the damper assembly and insure that the end of the damper rests on top of the sealing washer. Replace and tighten the allen screw in the bottom of the fork slider with the aid of the special tool.

4. Replace the fork leg assembly in the triple clamps. Push upward until the top of the fork tube is exactly flush with the top of the fork crown. Tighten the pinch bolts on the lower triple clamp and the fork crown to 20 ft lbs.

5. Replace the fork springs. Refill each leg with the correct grade and quantity of oil.

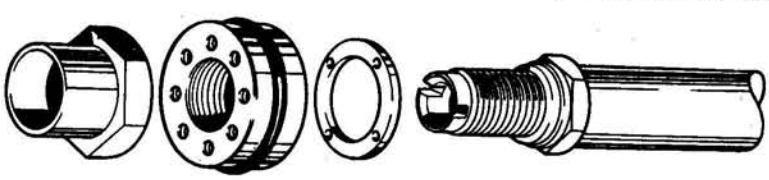
6. Smear the threads of the cap screws with a gasket compound, and tighten the screws to 40 ft lbs. Replace the instruments and the fork cap nuts. Tighten them to 40 ft lbs as well.

7. The remainder of the assembly procedure is the reverse of disassembly. Refer to "Front Wheel Installation" if necessary. Remember that the axle cap nuts on the left slider are tightened first.

ALIGNMENT

In the event that the fork alignment is not correct, loosen the axle cap nuts on the left slider, and tighten those on the right. Loosen the pinch bolts on the lower triple and the fork crown, including the pinch bolt just behind the fork crown center nut.

Pump the forks up and down several times and then retighten the axle cap nuts, the lower triple clamp pinch bolts, the fork crown pinch bolts at the fork tubes, and finally the fork crown pinch bolt behind the center nut. The nuts and bolts must be tightened in that order.



Damper assembly (1973 and later)

STEERING HEAD

TR25W

DISASSEMBLY

1. Remove the headlight assembly and speedometer head.

2. Disconnect the front brake cable and remove the zener diode and heat sink.

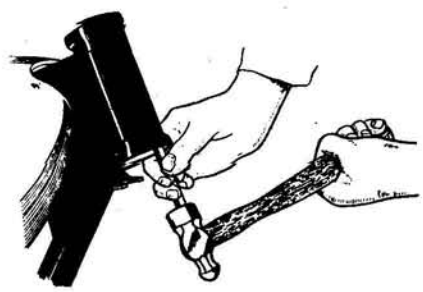
3. Protect the gas tank with a piece of cloth, then remove the handlebar mounting bolts and lay the handlebar on the tank.

4. Loosen the steering head clamp bolt and top yoke pinch bolt.

5. Remove the steering head adjusting nut.

6. Unscrew the fork leg caps and disconnect them from the damper rod (if so equipped).

7. Strike the underside of the top yoke smartly with a mallet. This should free the fork legs from their tapers in the top yoke.



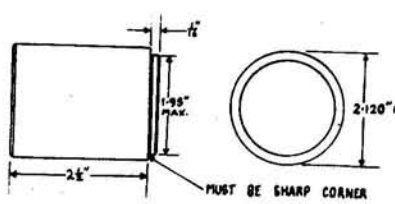
Removing the top bearing cone race

8. Locate the top yoke somewhere out of the way, then pull steering stem down and out of the head. Take care not to lose the bottom ball bearings as the stem is withdrawn.

9. Drive out the top cone race with a long narrow drift and mallet.

10. Pry out the bottom cone race by forcing it up with two levers.

11. Remove the cups by installing special tool no. 61-306.



Drift for cup removal (250)

INSPECTION

Examine the bearing balls for pitting, scoring, or flat spots and, if necessary, replace the bearings, cups, and cones.

Clean out the steering head bore and remove any burrs, etc., with emery cloth. Also clean up and inspect the stem itself.

ASSEMBLY

1. Install the bearing cups by driving them into position with a drift. Make sure the cups are square in their housings.

2. Drive the bottom cone into position