

The Meriden Multi is a Classic Tourer

TRIUMPH

TRIDENT 750

The past two or three years have been some of the most exciting in the history of motorcycling. The variety of machines available to the buying public has never been so great. For a time it seemed that most of the manufacturers were concentrating on machines intended for the small and medium capacity market. Now, we have machines with three and four cylinders designed for the rider who wants to tour in grand style.

One of the first mass produced multi-cylinder (more than two pots) bikes to reach these shores was the three cylinder Triumph Trident. Since then BSA has followed with a machine that used the same engine as the Triumph, Kawasaki has introduced a three cylinder two stroke of 500cc capacity and Honda has brought out their 750cc four banger. The big bikes are upon us and the features they offer are found in no other machines.

Much of the excitement created by the introduction of the Triumph Trident has died down, mainly because of the multis which followed it into existence. Now that the motorcycle industry has calmed down it's time to take a close look at the Trident and evaluate it on its own merits.

As is true with all of the multis the engine in the Trident is by far its most interesting feature. Each cylinder displaces slightly more than 250cc. Total engine capacity is 753 cubic centimeters, developed from a bore of 67mm and a stroke of 70mm. Compression ratio is listed as 9.5:1 and 60 horsepower develops at just under 8,000 revolutions per minute. Both the cylinder block and head assembly are cast of light alloy mater-

ial. Two long rocker box covers allow you to adjust valve clearances without removing the gastank . . . but it is a bit tight on the inboard pot. A one-piece forged crankshaft is supported on four bearings; the two inner bearings are of the plain variety, the drive side main is a ball bearing and the timing side of the crank turns on a roller bearing.

The crankpins are spaced 120 degrees apart, thus accounting for much of the smoothness of the machine. The crankpins are the same diameter as those found in the 650cc Triumphs. The connecting rods are forged of aluminum and fitted with insert bearings. Steel big end caps are utilized to stabilize the bearing seats.

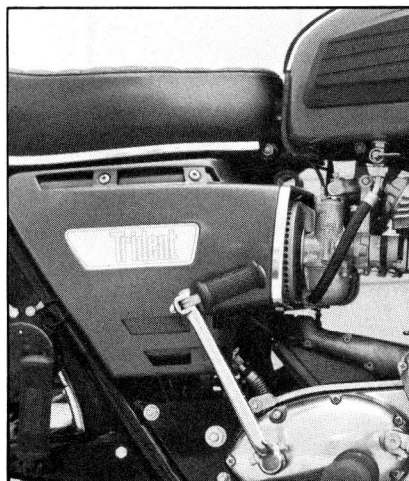
Four tubes house the pushrods that transmit the drive from the cams to the rockers. Both gear driven cams are nitrided to resist wear; the exhaust cam serves more than one purpose. The tachometer drive is taken off the center of the cam and an extension on the end of the shaft operates the points cam. A total of 12 bolts are used to secure the cylinder head in place, several of these bolts also secure the rocker boxes. With everything cinched down the head/rocker box assembly is very rigid. Each rocker spindle is supported at four points, and each carries three rockers. Valve adjustment is made with the standard screws and locknuts.

The combustion chambers in the Trident are formed by inserting iron alloy liners into the cast alloy block. The cylinder is cast with air gaps between the barrels to allow for a better flow of cooling air. Fuel is metered to the combustion chamber by a trio of 27mm Amal concentric

bowl carburetors. The carburetors are bolted directly to a cast alloy manifold. An articulated beam pivots on the manifold and raises the slides. The beauty of this set-up is that only one throttle cable is necessary to control fuel feed. Short stubs are bolted to the intake ports of the barrels, these are connected to the alloy manifold with flexible rubber hoses. The rubber couples do a fine job of isolating the float bowls from engine vibration. The slides are raised by rods fastened to the manifold pivot, rather than by the more common cables. Once set at the Triumph factory, this arrangement is very unlikely to get out of whack.

Once the carburetors have passed the fuel to the combustion chamber it's up to the exhaust system to get rid of the residue (obvious statement, that!). From the standpoint of function the exhaust system on the Trident does an excellent job. From the standpoint of styling the Trident system leaves us cold. A one-piece expiece exhaust manifold takes the hot gasses of the barrels. The output of the center pot is siamesed and fed to the pipes that service the outboard cylinders. The pipes terminated in oval shaped mufflers with three little stubs protruding from their ends.

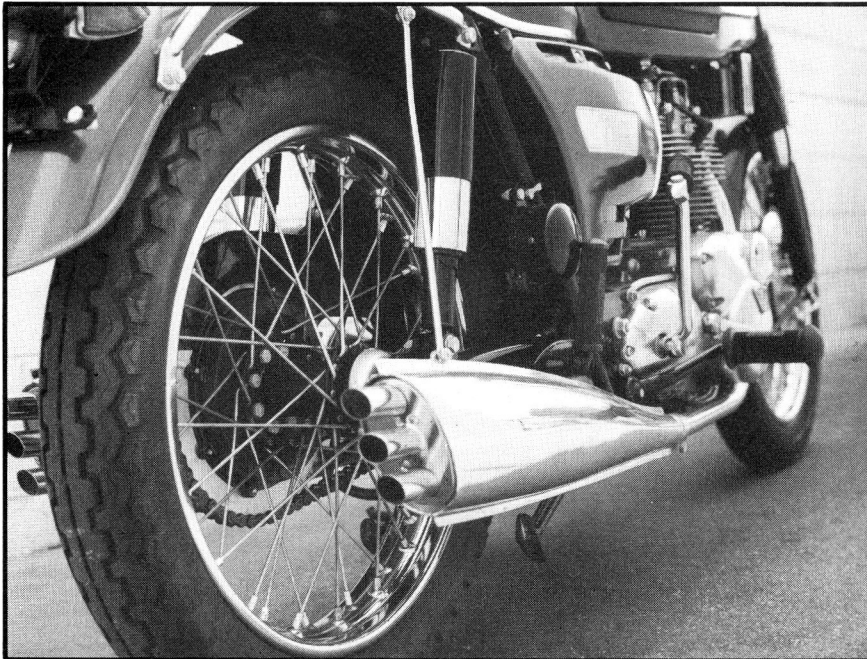
Engine lubrication is another area where the Triumph engineers came up with departures. Because of the use of plain metal bearings in the engine it is essential to supply a more than adequate amount of oil to the bearing surfaces. The oil tank, with a capacity of 6 pints, is carried on the right side of the machine. A dipstick is attached to the filler cap, making it easy for the owner to accurately determine the amount of lubricant remaining. An indicator



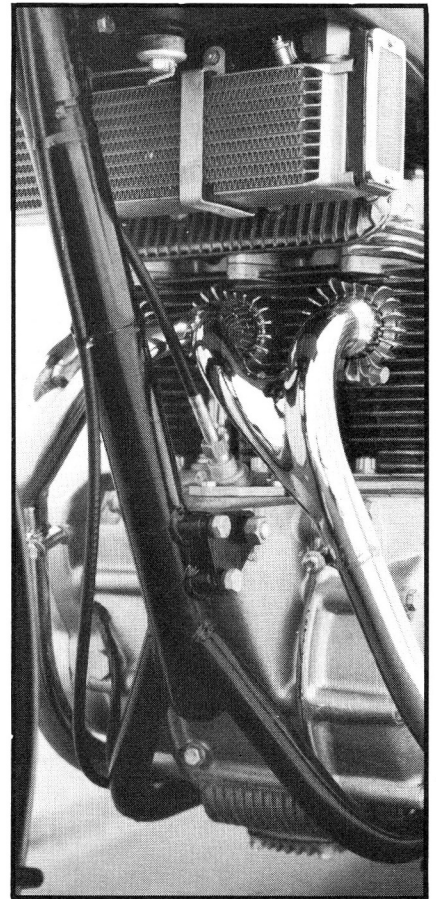
Double leading shoe front binder proved to be a bit on the mushy side. Excessive bends in the control cable might account for the soft feeling.

Oil tank is mounted beneath the cover that bears the Trident logo. A total of three filters ensures that the lubricant will remain clean.

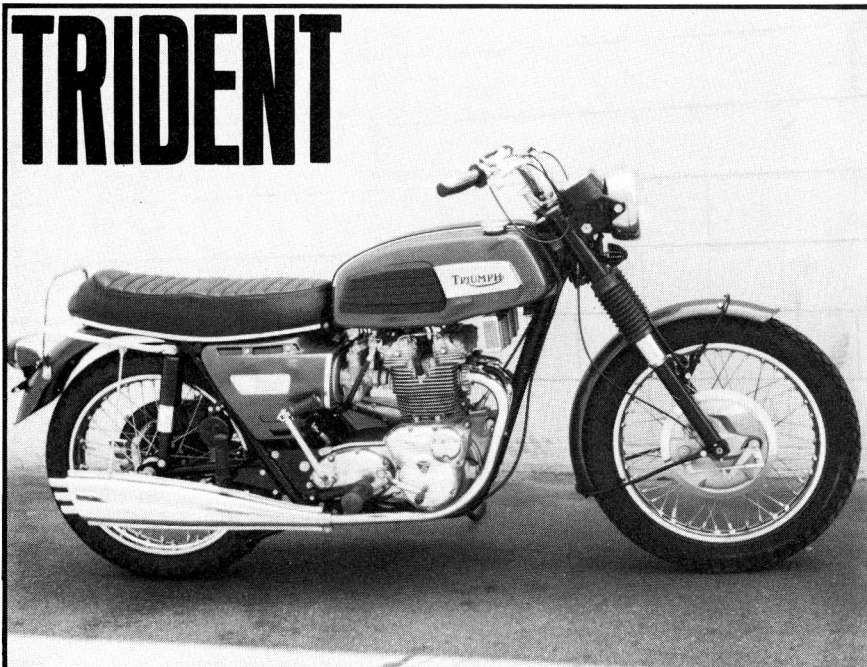
Make	TRIUMPH	Final Drive	CHAIN
Model	TRIDENT 750	Starting System	KICK, FOLDING CRANK
Price as Tested	\$1,765.00	Gear Ratios	1ST 11.91:1; 2ND 8.26:1;
Engine Type	4 CYCLE, THREE CYLINDER		3RD 5.82:1; 4TH 4.88:1
Bore	67MM	Top Speed	121 MPH
Stroke	70MM	Tire Size	FRONT 3.25 x 19; REAR 4.10 x 18
Displacement	753CC	Suspension	FRONT: TELESCOPIC FORK;
Compression Ratio	9.5:1		REAR: SWINGING ARM
B.H.P. at R.P.M.	60 AT 8,000	Frame Type	TUBULAR STEEL, SINGLE LOOP
Carburetor	AMAL CONCENTRIC (3-27MM)	Weight	504 POUNDS
Ignition	BATTERY & COIL	Wheel Base	57 INCHES
Fuel Capacity	5 GALLONS	Ground Clearance	6 INCHES
Lubricating System	DRY SUMP	Peg Height	11 INCHES
Clutch Type	DRY (AUTOMOTIVE TYPE)	Seat Height	32 INCHES



We have yet to find anyone who likes the looks of the mufflers. They do, however, emit a delightful sound! Adjustable shocks are a good feature on a machine of this size.



Exhaust from the center cylinder is split and fed to main exhaust pipes. Small radiator beneath the gastank cools the oil. Single loop frame keeps everything running straight and true.



Overall finish on the Trident is very good. The paint is well applied, chrome plating is used in tasteful amounts and the alloy engine cases are nicely polished.

light at the instrument cluster warns the owner if the oil pressure drops below the recommended psi.

One half of the two-stage pump forces the oil on its appointed rounds through the engine on its way to the crankcase. The second stage of the gear driven pump collects the lubricant and passes it through a cooling radiator on the way back to the tank. At any given moment the radiator is cooling a quarter pint of oil. Proper filtering was not ignored when the Triumph engineers designed the Tridents oiling system. A fine mesh screen cleans the oil as it passes from the tank to the pump, and another screen filters the oil as it returns to the tank from the crankcase. A third filter sees to it that the engine is protected: a replaceable Fram fiber element filters the oil just before it reaches the bearings. The beauty of this final bit of insurance is that it can be removed and replaced without any great effort. The filter is accessible from outside of the engine.

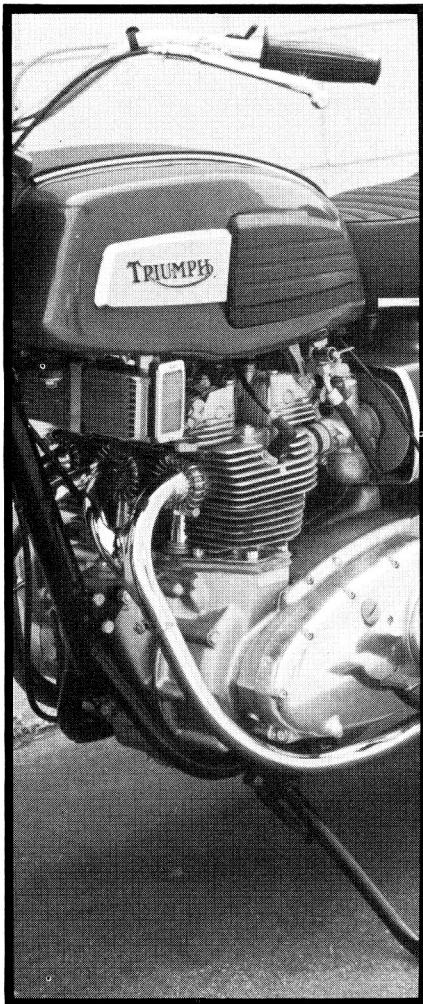
With the exception of the clutch assembly the transmission in the Trident strongly resembles that found in the Triumph Bonneville. Primary drive, from the crankshaft to the transmission, is by triplex chain with a rubber faced pressure pad to adjust tension. The clutch in the Trident is a single plate unit made by Borg & Beck. (This is the same clutch found in a number of smaller British automobiles.) The diaphragm type spring used in the clutch accounts for the ease with which the clutch control lever moves.

The four speeds in the transmission are well chosen and the Trident moves through the gears with a rush similar to that experienced in a turbine driven vehicle. The shift lever is on the right side of the machine and the pattern is: down for low then up with the toe for the remaining speeds. A large rubber vaned cush takes much of the shock loading out of the drive system.

One ride on the Trident and two impressions are immediately formed: the machine is fast and it is smooth! Both characteristics can be credited to the well laid out engine. The 120 degree location of the crankpins and the care of construction and design account, largely, for the smoothness. The speed comes from the same sources!

In the frame department the Tri-

dent also resembles the Bonneville. The configuration is much the same, only on a slightly larger scale. The single loop cradle is constructed with larger back and down tubes. At the base of the down tube two slightly smaller diameter tubes fork and pass under the engine. Past the engine these tubes curve up and terminate at the tops of the rear dampers. The backbone tube runs from the steering head to the nose of the sub-frame with a smaller diameter



Five gallon fuel tank allows long trips with a minimum of fueling stops. Saddle is equally good for solo riding or two-up touring.

parallel tube providing additional bracing. The swinging arm pivots on hefty plates welded within the curves of the cradle tubes. A number of cross braces are used in the construction of the frame to ensure that everything remains relatively rigid.

The use of a single loop frame on a machine like the Triumph Trident might be greeted with doubt by those unfamiliar with the bike. (We admit that we were in this category before we spent any time with the

machine.) It takes but a short time in the saddle to show that the frame is more than capable of handling the demands made of it. The Trident corners well (up to a certain point) and tracks very nicely through the turns. The point where the Trident loses its cornering ability is easily determined . . . you can hear mufflers and things beginning to scrape the pavement. The Trident can be forced into a turn at a goodly rate but it seems much happier when cornered with the style usually used on touring bikes.

Wheels, hubs and suspension components on the Trident offer no great surprises. They look to be the same as those used on the Bonneville. The rear tire is something a little different. The cover is called the Trigonon, it's made by Dunlop and it measures 4.10 x 19. The Trigonon tire looks much like the boots seen on Grand Prix racing machinery. The front rim on the Triumph is supplied with a 3.25 x 19 Dunlop K-70. The brakes are carried in full width alloy hubs; the front binder is a double leading shoe device while the rear functions with a single leading shoe. On our test machine we found the back brake to be adequate and the front brake to be soft, or mushy. We feel that the lack of control over the front brake was caused by the extreme length of the control cable. A shorter cable with a more direct run would probably make the front binder a lot more acceptable.

Overall finish on the Triumph Trident is quite good; the dark green metallic paint is well applied, a tasteful amount of chrome plating is used and the alloy engine cases are nicely polished. We are forced to question some of the plastic parts used on the machine; they seem out of place on a bike of this caliber.

The Trident really shines in the performance department. The bike moves away from a dead stop with an ever increasing rush. As the revs build up the acceleration becomes a real experience. It's important to remember that the Trident is a touring bike and not a light and agile roadster. It will dive into a turn if forced but it's much happier cornering in a more upright stance. The Trident is a motorcycle that makes its owner long for the excuse for the long haul. A day spent in the saddle of the Triumph Three is a quick lesson in what road riding is all about. ●