TRIUMPH T100R DAYTONA SUPER SPORTS

Triumph's 1966 Daytona road-race winner was the basis for 1967's twin-carburetor Tiger, which brings racing durability and handling to the sporting-type rider.

Ten years ago, the Triumph Engineering Company, Ltd., introduced its first-ever "unit-constructed" twin. The new model followed the vertical-twin layout made famous by Triumph, and had a total piston displacement of 348cc. It was obvious, right from the start, that the engine/transmission unit was destined for bigger things. The tip-off was in the bore and stroke dimensions, 58.25mm x 65.5mm. Even in 1957 the trend toward short-stroke engines was in full swing and this one, with a smaller .bore than stroke, made everyone a little suspicious—especially as it was also somewhat too big and sturdy for a "350." On the other hand, with the bore increased to something a bit more than the stroke, the new Triumph would make a very modern replacement for the old long-stroke 500cc "Tiger." And that is precisely the course Triumph followed. With a different cylinder-block and pistons, to get a 69mm bore, the displacement was pushed up to 490cc and Triumph had what still one of the finest five-hundreds available.

Naturally, the new-series Tiger became a favorite for our AMA "Formula-C" racing, because of its basic suitability for that kind of thing as well as because plenty of special racing hardware for the Tiger was quickly made available. And, frankly, it was the Tiger's potential as a racing machine that attracted our attention. Triumph's very decisive win at the 1966 Daytona 200-mile road race was a real attention-grabber. What we did not fully appreciate at the time was that the Tiger is also a first-rate sports/touring bike. Or perhaps we should say is a first-rate sports/touring bike. The years of racing have made the Tiger into a real thoroughbred, with a balanced blend of speed and handling.

Take the frame, for example. As originally produced, the frame had its top-tube positioned low, and curving up sharply at the front to run parallel with the front down-tube up to the steering-head. This arrangement permitted the use of a fuel tank that lacked the usual "tunnel" up its center, but left the steering-head supported by a rather flexible neck. Rigidity was restored by bolting the tank very solidly into the frame and using it to brace the steering head.

That measure worked, but created a tendency toward tank fractures, so the tank mounting was changed and a bolt-in tubular strut assumed the job of bracing. Now, following the lessons of racing, Triumph has redesigned the frame so that the top-tube leads straight into the steering-head. Just as important, with the changed 1967 frame, the head-angle has been increased a couple of degrees to improve stability.

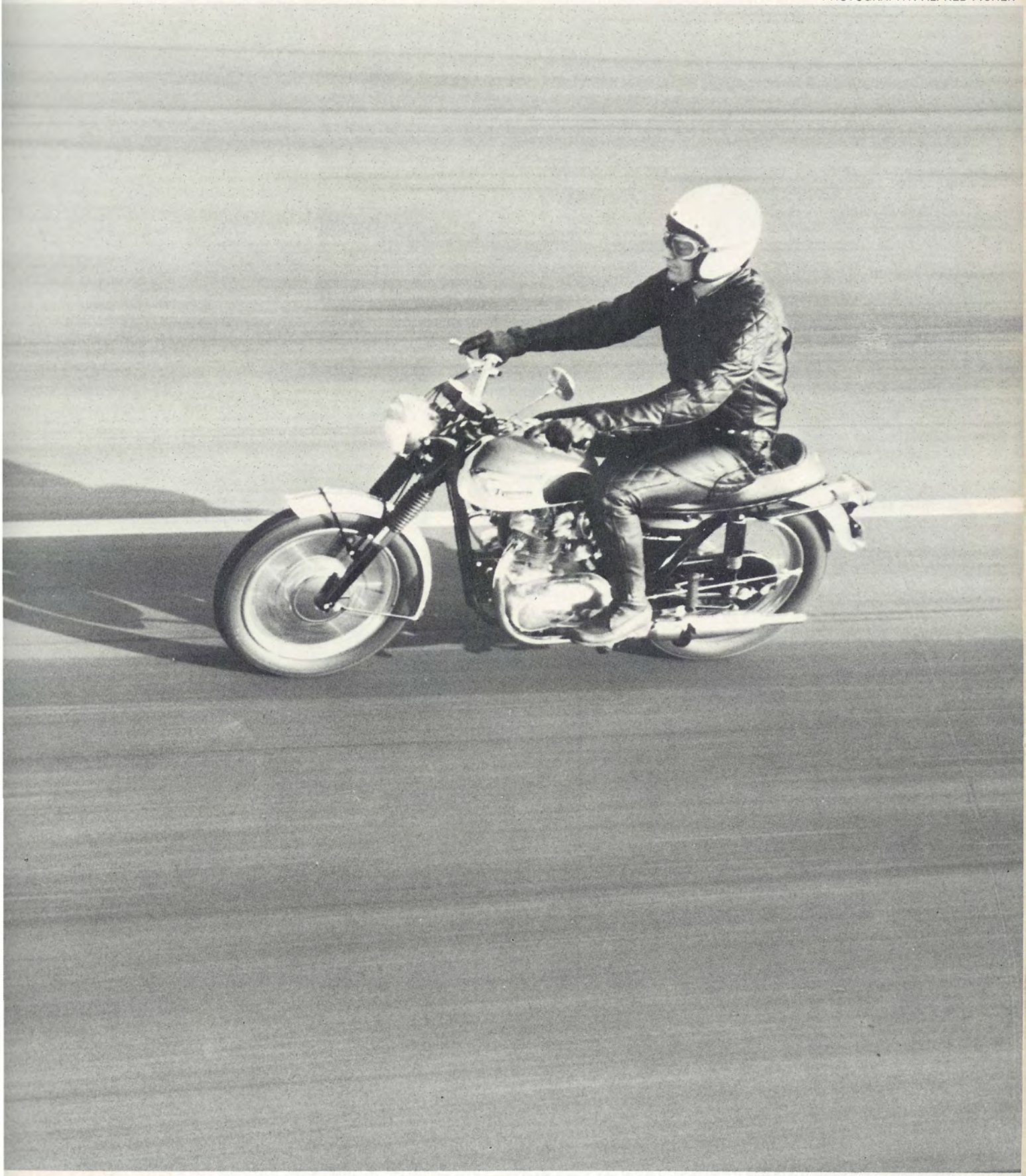
Another frame change is the addition of a pair of small tabs to steady the ends of the swing-arm pivot. This was developed for the 1966 racing bikes, when it was .discovered that the previous mounting, which placed all of the load on a single vertical tube, was allowing some flexing and upsetting the cornering characteristics. The added braces spread the loads better.

You will also find racing experience reflected in the Tiger's forks, which are the type Triumph introduced in 1964 to correct the damping deficiencies inherent in the earlier fork design. The old forks were adequate for normal touring use, but could behave rather peculiarly in competition—and that is what generated the pressure toward a change. These new forks leave little to be desired for racing or touring—even when the sort of racing under discussion is of the off-the-road variety.

We cannot tell you what has been done with the rear suspension (except for the modified swing-arm mounting) because the secret is all locked up inside the Girling dampers. Whatever it is, this latest Tiger rides smoothly, and handles like lovely. The right combination has obviously been found, and we only wish Triumph could be persuaded to make certain others privy to the secret.

This year will be the first in which the Triumph Tiger is available in twin-carburetor form. In T100R form (our test machine is one of these) the Tiger is fitted with a "new" cylinderhead and a pair of 1⅛" Amal Monobloc carburetors. It is this carburetor/cylinderhead setup that primarily distinguishes the Daytona Super Sports from the other Triumph Tigers, and this setup was developed for the 1966 Daytona races.

PHOTOGRAPHY: ALFRED FISHER



The same cylinderhead casting is used for all models, but in the Daytona, the included valve angle has been reduced by two degrees and the intake valve size increased. Last year's engine had an intake valve diameter of 1.4375 in., and that has been increased to 1.5312 in.

It might seem, at first, as though a narrowing of included valve angle and a bigger intake valve (the exhaust retains a 1.3125-in. diameter) do not go together. Generally, in hemispherical heads, it is the wider valve angles that make room for bigger valves. However, present day valve timing includes a considerable overlap period between exhaust and intake strokes when both valves are open. The tendency for the valves to meet during the overlap period is increased with wider valve angles, and in coping with this it has been found that a reduced valve angle will often permit an increased valve diameter.

These things matter in the Daytona Super Sports engine, for it has been outfitted with racing-model camshafts and cam-followers. Maybe not *the* racing-model parts, but there is every indication that the valve timing is a lot more sporting than the usual for touring motorcycles. Even with the calming effect of the Monobloc carburetors, small-diameter exhaust pipes and mufflers, the engine has the kind of curious surging idle so typical of *pur sang* racing equipment.

One of the things that makes the Triumph 500 engine so well suited to racing is the straightforward way it goes together. The valve-actuating rockers are housed in a pair of cast-aluminum boxes that bolt against the top of the cylinderhead, and you can remove those to get at the valve springs in a flash. Valve-clearance adjustment screws are reached by removing threaded caps. Pull off a side-cover and the timing gears are exposed. Pullers are required to remove the timing gears from the camshafts (the intake camshaft is behind the cylinders; the exhaust, in front), but once the gears are free, it is easy to slide the camshafts out. You do not have to separate the crankcases, as in the bigger Triumph.

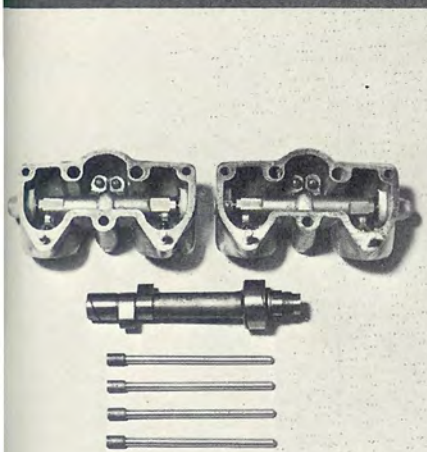
Getting at the crankshaft and connecting rods is a bit more involved, but not beyond the abilities of the average mechanically-inclined individual. You remove the clutch and primary drive, and after the cylinderblock and a few miscellaneous items have been cleared away, the cases separate and the crank/rods assembly is on the bench.

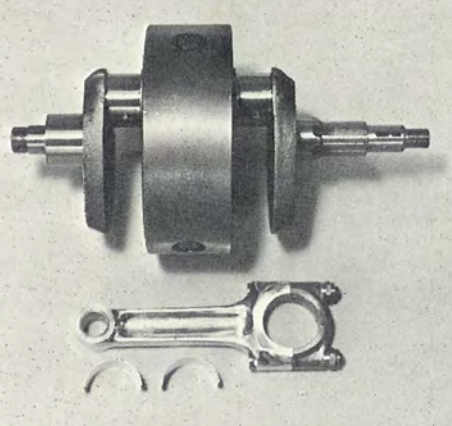
Because this engine has two-piece rods, like an automobile, rebuilding the "lower-end" is a snap. Unless the bearing journals are scored, you simply slip in new (inexpensive) plain-metal inserts. You may pause for a moment to marvel at the beautiful, light aluminum-alloy rods, which are somewhat unusual for having steel caps. It is these rods, incidentally, that impose the present limit on engine output, for they will fail if the engine is run at sustained speeds over 8500 rpm. The valve-gear, given some judicious trimming and polishing on the rockers, and racing valve springs, is free from "float" up to about 10,000 rpm but the rods hold present development at the 8500 rpm limit. Interestingly, our absolutely standard test bike ran into valve-crash at almost exactly 8500 rpm, so it may be that the designers have built-in a red-line that is impossible to ignore.

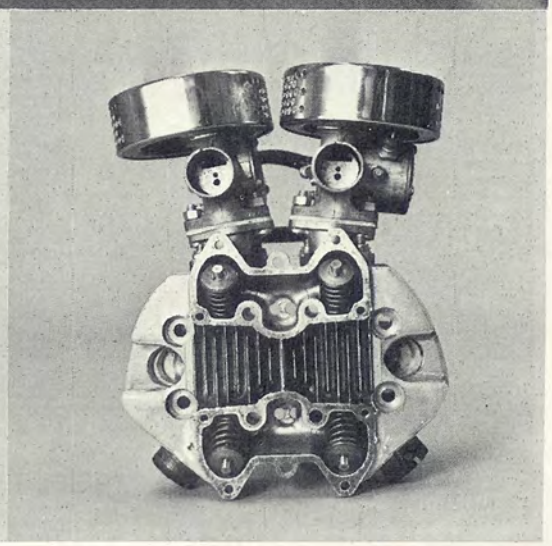
Engine repairs and/or modifications can be made without disturbing the transmission. And, conversely, you can pull apart the transmission without doing anything to the engine. Very handy. Our only complaint, regarding accessibility, concerns the transmission "countershaft" sprocket. To change this item, you must dismantle the entire primary drive and clutch, which is inconvenient to say the very least.

And then we have the electrical system, which is brilliantly conceived. Basically, what we have here is an alternator that supplies charging current to the battery and also feeds the ignition system. On the T100C, there is no battery and the alternator delivers direct to the coils, but this requires very precise phasing of alternator and breaker-points; a degree of precision, in fact, that is not always there. So, for the road-equipped T100R, you get a more conventional battery-and-coil system. And you get a big 12-volt battery that is beautifully insulated against shock and vibration by rubber-bushed mountings. On top of that is a Zener diode for charge-rate control, and a rectifier to convert the AC output to DC so the battery will charge. We looked the electricals over very thoroughly, and we have never seen them *looking* so neat and reliable. The point must be made that during the time we had the Triumph, nothing went wrong and that includes the electrical system. The bike started instantly and had bright lights and all like that. BUT . . . There is a recollection of all the Lucas electrical systems within our own range of experience, and all the readers' letters cursing same. Hopefully, this year Lucas will have provided Triumph with electricals as reliable as the rest of the motorcycle.

All such nagging doubts notwithstanding, we would buy the 1967 Triumph Daytona Super Sports even if we *knew* the electrical system was going to go up in a puff of smoke every 10,000 miles. It is a great motorcycle in almost every respect. With the price being within a hundred (and a few odd) dollars of the bigger Bonneville one might be tempted to dismiss the T100R for anything but a basic racing bike. That would be a







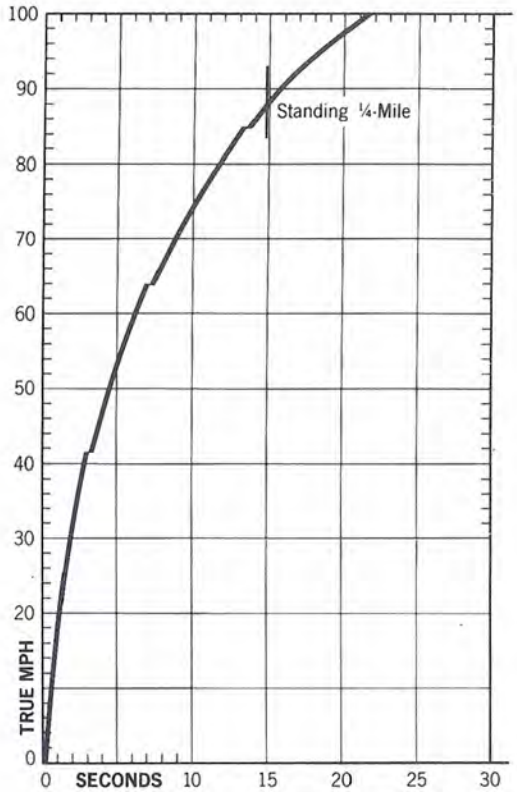
grievous error, for the Tiger has charms that make it worth the price.

Consider the matter of handling. The Tiger has a wheelbase 2 inches shorter than the Bonneville, and while it weighs only about 25 pounds less, the weight difference is topside. As a result, the Tiger feels much lighter and is quicker handling. You can whip it around like a lightweight. No! We'll amend that: you can whip it around ***better*** than most lightweights. Pull it right down until the footpeg-ends drag and it still behaves like a champion. Steady as a rock even on fast, bumpy bends that make some bikes act as though their frames had broken. Someone at the factory rides that way, too, for the stand and mufflers are tucked in tight and high so that you don't clang them on the pavement when sporting instinct leads you to do things that are foolish and fun;

The Tiger is fast, too. Best performance is obtained by using a 7500 rpm rev' limit. Without resorting to overly brutal riding methods, we were able to get down to a 14.9-second elapsed time for the standing-start "quarter" and the speed at the end was a very respectable 88 mph. That is, if anyone asks you, every bit as fast as a good Bonneville. Of course, the 650cc Bonneville pulls a "taller" overall gearing, and doesn't turn quite as fast at cruising speeds—and it responds better to sudden handsful of throttle without down-shifting.

An item we will mention, while wondering if it is necessary, is the Tiger's 7-inch front brake. This brake is adequate. It stops the bike and you can use it fairly vigorously without provoking any sign of fade. However, it seems to us that the 8-inch brake would be a better choice for the Tiger—if for no other reason than the fact that such a strong and sporting motorcycle ***deserves*** a maximum effort in the braking department. Fortunately, the big brake is directly interchangeable with the smaller.

Nothing but good may be said of the Tiger as day-in, day-out sporting transportation. It is a fantastically comfortable bike to ride, with a soft seat that is long enough to carry a passenger without crowding and two-pairs of well-placed footpegs. Starting it is a snap, for it fires very willingly and you only have to pump-through 250cc per revolution—another point where it offers advantages over the Bonneville. You even get a well-lighted speedometer and tach that are readable and give accurate information. Add to all that the obvious quality of materials and care in workmanship and you have a lot to like in the new triumph from Triumph. ◉



Price	East Coast POE $1,215
Tires	3.25" x 19" (front), 4.00" x 18" (rear)
Brake swept area	49.2 sq. in.
Brakes, front	Single leading shoe, 7 in. x 1.125 in.
rear	Single leading shoe, 7 in. x 1.125 in.
Specific brake loading	10.9 lb /sq. in.
Engine type	Four-stroke twin
Bore and stroke	2.72" x 2.58"; 69mm x 65.5mm
Piston displacement	30.5 cu. in.; 490cc
Compression ratio	9:1
Ignition	Battery and coil
Bhp @ rpm	41 @ 7,200
Mph/1000 rpm, top gear	13.82
Fuel capacity	2.38 gal.
Lighting	alternator, 120 watts
Battery	12 v, 10 ah
Gear ratios, overall	(1) 14.14 (2) 9.18 (3) 6.95 (4) 5.70
Wheelbase	53.5 in.
Seat height	30.0 in.
Ground clearance	7.13 in.
Curb weight	360 lb
Test weight	535 lb
Instruments	Speedometer, odometer, tachometer
Carburetion	(2) 28.6 mm, Amal