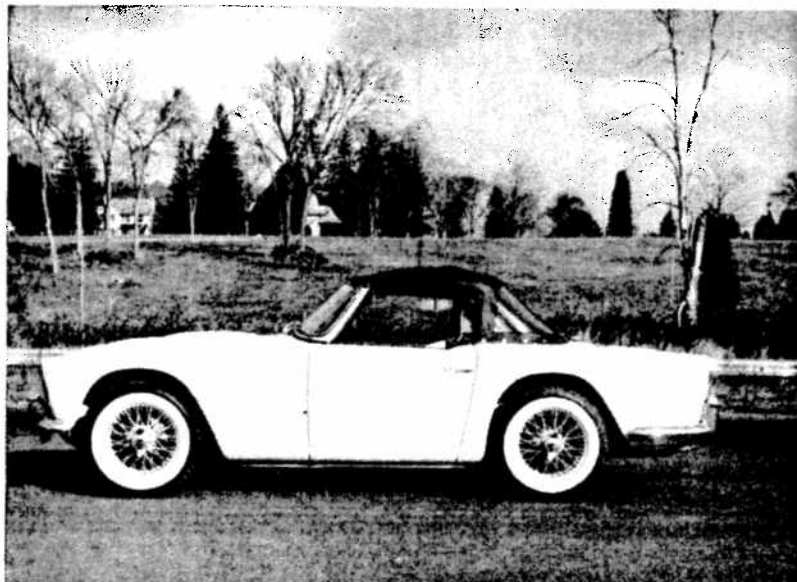


Road Research Report

TRIUMPH TR-4



Along with the marvelous achievements of the double-overhead-camshaft Le Mans Triumphs in recent years, the TR-2 and TR-3 have been building up a favorable reputation for Triumph throughout the world. Triumph was, of course, a famous name in sports-car racing before the war, with such drivers as Donald Healey and Tony Rolt at the wheel of such unforgettable cars as the Gloria, Dolomite and Vitesse models.

As early as 1946, Triumph had a new sports car at the London Motor Show, the handsome "1800," which shared mechanical components with the Standard "14" and the razor-edged Triumph Mayflower. Three years later came a roadster of contrasting design with very bulbous lines, which failed to conquer the sports-car-buying public and was discontinued.

Triumph's third post-war sports car, the TR-2 of 1953, was created on a basis of existing components within the Standard-Triumph group rather than by making use of the basic elements of successful pre-war sports models. The engine was borrowed from the Standard Vanguard and given a different head. The gearbox was also of Vanguard origin, while the rear axle came from the Mayflower. The front suspension was also Mayflower inheritance, while the frame itself was modified from the Standard Eight. Mayflower brakes were originally suggested for the TR-2, but chief engineer L. H. Dawtrey found that Vanguard brakes were more in keeping with the car's performance. After the organization acquired BRM's Ken Richardson as chief tester, even these brakes proved too small, and the TR-2 was soon given 10-inch drums.

IMPROVEMENT THROUGH DETAILS

W. J. Belgrove, the body designer, was faced with the problem of getting high speeds from a non-thoroughbred. The management, headed by Alick S. Dick, stipulated a top speed in excess of 90 mph, and Belgrove made it by keeping frontal area down to a minimum and stretching the tail as much as practical considerations would allow. The highly popular TR-3, which appeared in 1955, was the logical development of the TR-2, and was fitted with disc brakes in 1957. Shortly afterwards, the design team went to work on what has become the TR-4. Its main points of difference from its predecessor are the reinforced frame, softer shock absorbers, the addition of synchromesh on

first gear, rack-and-pinion steering, a track four inches wider, and a new Michelotti-designed body. Admittedly, these developments have nothing really radical about them, but they have nevertheless resulted in an enormously improved car. A full description of the TR-4 appeared in *CAR AND DRIVER*, October 1961, page 19.

The TR-4 engine is notably more powerful, particularly in the lower ranges, and combines response with tractability to an unusual degree. It will idle at 800-900 rpm, but the accelerator can be floored even below that speed, in any gear, without a trace of protest. In top gear, however, detonation will occur if the car is going uphill with under 1,500 rpm on the tach and a wide throttle opening. No running-on was experienced, and starting from cold was instant, even after overnight parking in 35°F temperature.

QUIET CRUISING, TIGHT TOP

As for silence, it is a fact that twin SU H6 carburetors with wire-mesh filters do not provide the most noiseless system of aspiration. There is a whistling noise as well as a dampened roar on acceleration, but when the throttle is released the noise drops to an unobtrusive level. Cruising at 70 mph, the engine is so subdued that wind noise seems to dominate, and as soft tops go, this one is not particularly noisy. It fits very snugly (although it takes quite a while to remove or put up) and was never brought to flap or give any other indication of wind influence. In addition, it seems watertight and draftproof.

The clutch is a combination of smoothness and bite. There is never any doubt as to whether it is in or out, yet engagements are so gradual that stalling the engine is well-nigh impossible when starting off in first. Moving off from standstill in second is quite possible on level ground, which is surprising when you remember that the same 2.01-to-one second gear takes you up to 55 mph.

The gearbox was still stiff, in typical Triumph fashion, after 2,000 miles, but will no doubt be more pleasant to use when fully run in. The movements are short and precise, and the ratios very well spaced. The remote-control gear lever is correctly placed, but the handbrake, in left-hand-drive version, is difficult to reach in its location, well forward on the far side of the floor tunnel encroaching on the passenger's room.

The steering wheel is placed almost vertically on the so-called collapsible post (loosen two nuts to adjust) and operates the rack-and-pinion steering gear without any lost motion whatever. Steering effort is very light and self-centering action is unusually small. However, unevenness in the road surface is transmitted to the steering wheel in no uncertain manner. On a rough road, the whole steering assembly will rock about, giving the impression that it is flexibly attached to both frame and body. This impression can also be had with the car at standstill and the engine idling—a situation in which it is normal for the gear lever to vibrate—for on the TR-4, the steering wheel, too, reacts to engine vibration. The rack-and-pinion steering gear requires less frequent maintenance than the TR-3's. It requires a small amount of grease to be forced in under low pressure every 12,000 miles, whereas the TR-3 steering box needed lubrication every 6,000 miles.

The handling of the TR-4 is perfectly predictable under all circumstances. The car gently but definitely oversteers. On easy curves the oversteer does not make itself felt to any extent, but on hard corners one does not have to go very fast for the rear end to try to help the car round the turn. If sometimes unpleasant, this is an important advantage on a winding road, both in reducing driver fatigue and as a safety factor in itself. On straightaways, however, the tracking is not perfect, and the car must be steered all the way.

CHOPPY RIDE, PERFECT CORNERING

The ride, on a second-class surface, is something less than comfortable. The front suspension continues basically unchanged from the TR-3, with softer shock-absorber settings. The rear suspension remains the same, with piston-type shock absorbers and an under-slung frame. This design may be helpful in obtaining a low center of gravity, but it imposes a severe limit on wheel travel. The longitudinal semi-elliptic leaf springs are identical with those of the TR-3, so the same choppy ride is inevitable. It was not uncommon for one rear wheel to be lifted clean off the road on a straight but uneven stretch. If this sort of thing happens on a curve, the car is automatically forced off the correct line. If there is one important disadvantage in the TR-4, it is certainly the design of the rear suspension and the choice of spring rates. On a completely smooth surface, the car corners like an image of perfection, so the problem should be in no way insoluble. One cannot help wondering how a long-standing fault of the TR-3 was permitted to live on in the TR-4.

The bucket seats are well shaped to give ample lateral support in a car where body roll is never apparent to any degree, and fore-and-aft adjustment has a wide range. Legroom is restricted sideways only. The question of a clutch-leg footrest has been neglected to the extent that the dimmer switch is mounted on a bracket in the place the left foot should rightly occupy. It does not seem right for the switch to support the driver's leg, and the bracket may not be strong enough for him to brace himself on. If he tries, it becomes most inconvenient during night driving, when the selection of high and low beams should not be a haphazard thing. After every gear change, the left foot seeks its place, and it is terribly easy to hit the dimmer.

Instrumentation is very good. There are warning lights only for ignition, turn signals and high beam, while proper instruments are provided to give exact readings of battery charging, oil pressure and water temperature as well as the more usual items. The tachometer is mechanically driven from the distributor

shaft. The speedometer is the same size as the tachometer, but was somewhat optimistic all along the range, when an error of almost 10% at the top end. For a car as fast as the TR-4, one naturally expects a few items to facilitate high-speed travel, but it does have some shortcomings in this respect. The wipers have only one speed, and there is no headlight flasher.

Visibility is excellent forward and good backward through the large plastic rear window. Side visibility leaves nothing to be desired except for drivers who sit with the seat all the way back, who need an exterior mirror or must lean forward to look out when entering a faster lane on the highway or a major road at a sharp angle.

ALLIANCE AND EXPANSION

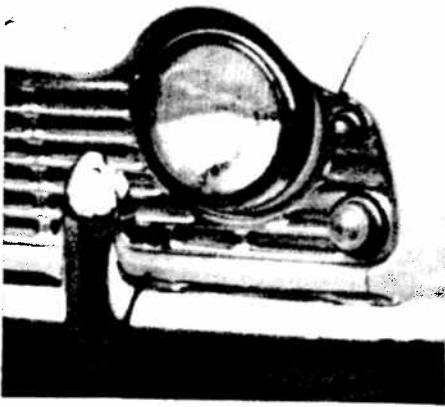
Standard and Triumph were Britain's sixth largest manufacturer when they joined forces in 1946. They have since expanded considerably, and are still in the middle of an expansion scheme which will bring total production to 300,000 cars annually by 1963. The management headquarters and design offices remain at Banner Lane, Coventry, and the Canley and Fletchamstead plants have been enlarged to the point where they are now adjacent to each other and constitute one large manufacturing and assembly force. The group had no foundry of its own until 1958, when Standard-Triumph took over the entire Bean Industries, builders of great cars from 1919 to 1932, at Tipton, Birmingham. The group had no facilities for bodybuilding until recently, when the huge Merseyside factory was put in operation. TR-4 bodies are made there now and transported to Coventry for assembly. Previously, Standard Vanguard bodies were made by the Pressed Steel Company of Oxford and the Super Eight and Super Ten bodies by Fisher and Ludlow. Early TR bodies were made by Mulliners Ltd., but this company has also passed into Standard-Triumph ownership as has its subsidiary, Forward Radiator Co.

LEYLAND TAKES OVER

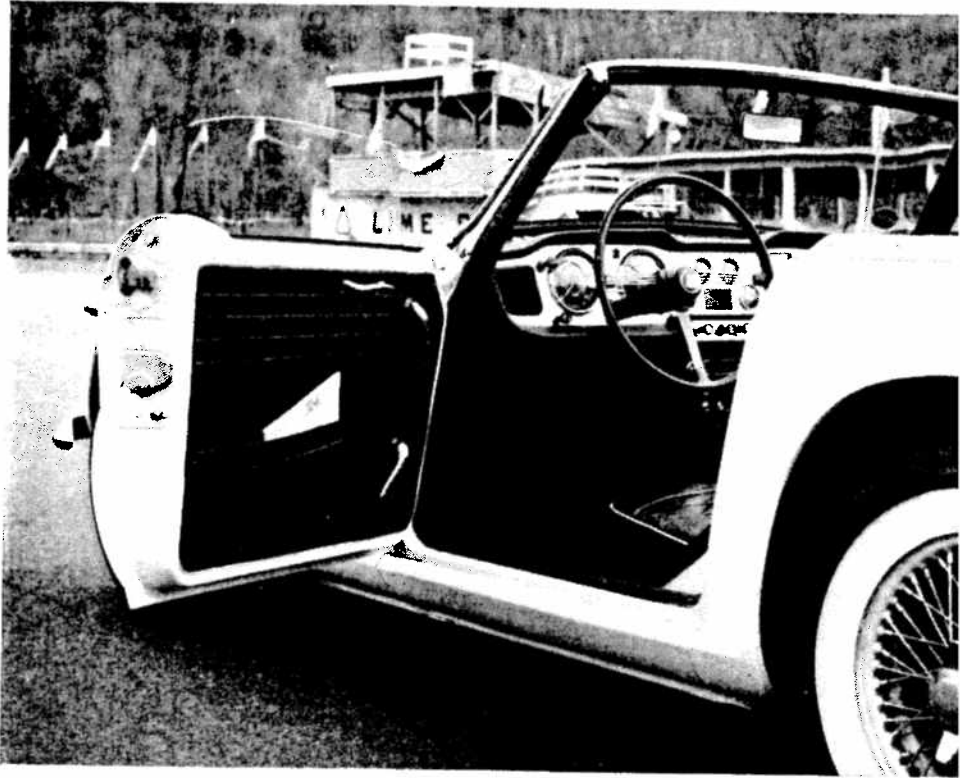
Last year, Standard-Triumph was in its turn absorbed by Leyland. The dynamic Leyland Group, under Sir Henry Spurrier's management, builds Leyland trucks and buses, Albion, Crossley and Maudslay trucks, and with this latest move controls a substantial share of Britain's passenger-car output. Leyland accepted Alick Dick's resignation and placed Stanley Markland, 58, at the head of the company. Now, early in 1962, Triumph is reaching its scheduled production of 500 Heralds and TR-4s per week, with the American market receiving a majority of the latter model. The near future is not expected to bring any major changes in the state of affairs at Standard-Triumph. With Leyland methods of quality control and service policy, the cars and their sales should be better than ever.

The future competition program is uncertain, however. The Leyland Group has never had any connection with motor racing, and although Triumph's twin-cam-engined model has been a regular competitor at Le Mans in recent years, with excellent results, there is a risk that this scheme may be dropped by the new leaders.

The TR-4 is now coming into American ports in considerable quantities and will no doubt soon become a familiar sight on our roads. The many options available will give it an appeal to many who would normally hesitate to buy a sports car, and those who wish to race it will find competition equipment listed among the factory options. With a basic price of \$2,849 for the convertible and \$2,999 for the hardtop, it offers a lot for the money whichever type of body you prefer.



The horizontal grille accommodates the headlights, parking lights and flashers.



Interior trim of the TR-4 is superior to that found in many cars of considerably higher price and pretense. It has both a fair-sized glove box and door pockets.



Fuel filler cap is centrally located and has convenient quick-opening mechanism.



The air vent opening is controlled by the easily adjustable wheel at the left.



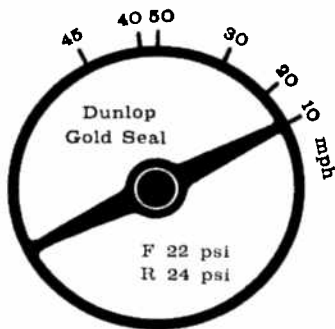
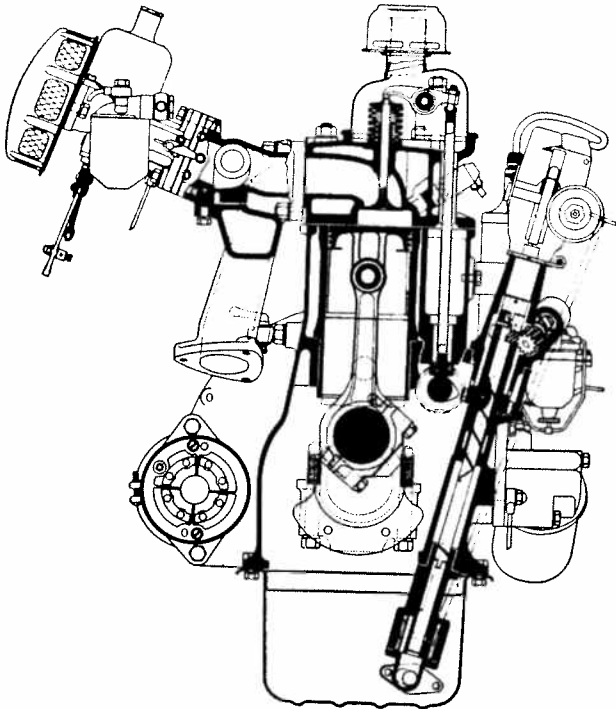
Compact overall dimensions have been a feature of all TRs. This latest one in the series is improved in appearance and practicality as well as performance.

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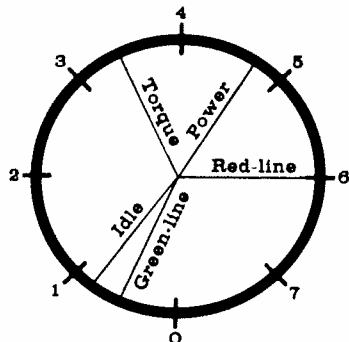
Importer: Standard-Triumph Motor Company, Inc. 1745 Broadway, New York 19, New York

Number of U.S. dealers: 350
 Planned annual production: 18,000
 Dollar value of spare parts in U.S.: \$2 million



Steering Behavior

Wheel position to maintain 400-foot circle at speeds indicated.



Engine Flexibility
 RPM in thousands

PRICES

Basic price POE East Coast, Gulf Ports and Great Lakes

Convertible	\$2,849.00
Hardtop coupe	2,999.00
Options fitted on test car:	
Wire wheels	110.00
Heater	65.00
Radio	57.50
Whitewall tires	35.00
Tonneau cover	35.00
Windshield washer	20.00
Total price of car as tested	3,171.50
Options available:	
Overdrive	160.00
Competition anti-sway bar	19.50
Dunlop high-speed tires	35.00
Skid plate	17.00
Aluminum snump	26.25
Competition springs	4.00
Competition shock absorbers	4.00

OPERATING SCHEDULE:

Fuel recommended	Premium
Mileage	22-30 mpg
Range on 14-gallon tank	310-420 miles
Oil recommended	SAE 10/30W
Crankcase capacity	13.2 pints
Change at intervals of	3,000 miles
Number of grease fittings	24
Lubrication interval	1,000 miles
Most frequent maintenance:	Top up oil level: 250 miles

ENGINE

Displacement	130.5 cu in. 2,138 cc
Dimensions	4 cyl. 3.59 in bore, 3.62 in stroke
Valve gear	Pushrod-operated in-line overhead valves.
Compression ratio	9.0 to one
Power (SAE)	105 bhp @ 4,750 rpm
Torque	128 lb-ft @ 3,350 rpm
Usable range of engine speeds	600-6,000 rpm
Corrected piston speed @ 4,750 rpm	2,780 fpm

CHASSIS

Wheelbase	88 in
Tread	F 50 in, R 49 in
Length	156 in
Ground clearance	6.0 in
Suspension: F: Ind. wishbones and coil springs; R: Live axle and semi-elliptic leaf springs	
Steering	Rack and pinion
Turns, lock to lock	2 1/2
Turning circle diameter, between curbs	33 ft
Tire and rim size	5.90 x 15, 15 x 5K
Pressures recommended	Normal, F 22, R 24; High-speed, F 27, R 29
Brakes, type, swept area	11-in discs front, 9-in drums rear, 370 sq. in.
Curb weight (full tank)	2,235 lbs
Percentage on the driving wheels	49.5

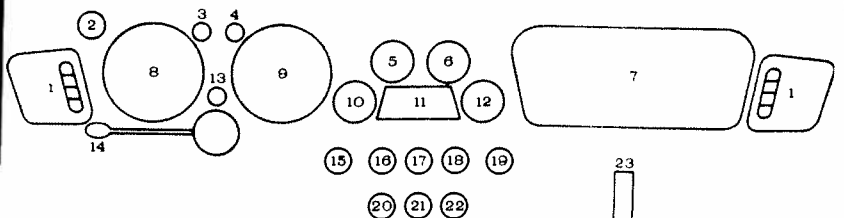
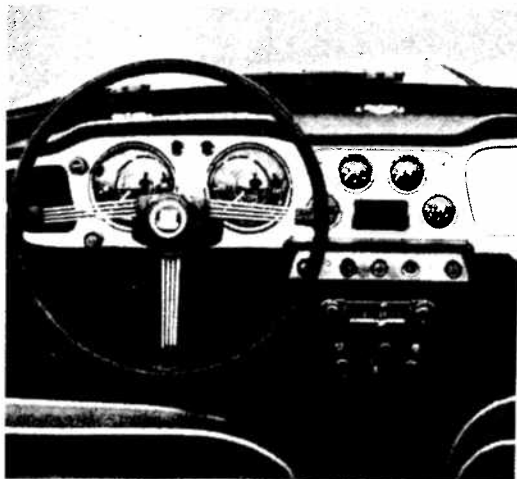
DRIVE TRAIN

Gear	Synchro	Ratio	Step	Overall	Mph per 1000 rpm
Rev	No	3.22	---	11.93	6.2
1st	Yes	3.14	56%	11.61	6.4
2nd	Yes	2.01	51%	7.44	10.0
3rd	Yes	1.33	33%	4.90	15.2
4th	Yes	1.00		3.70	20.0

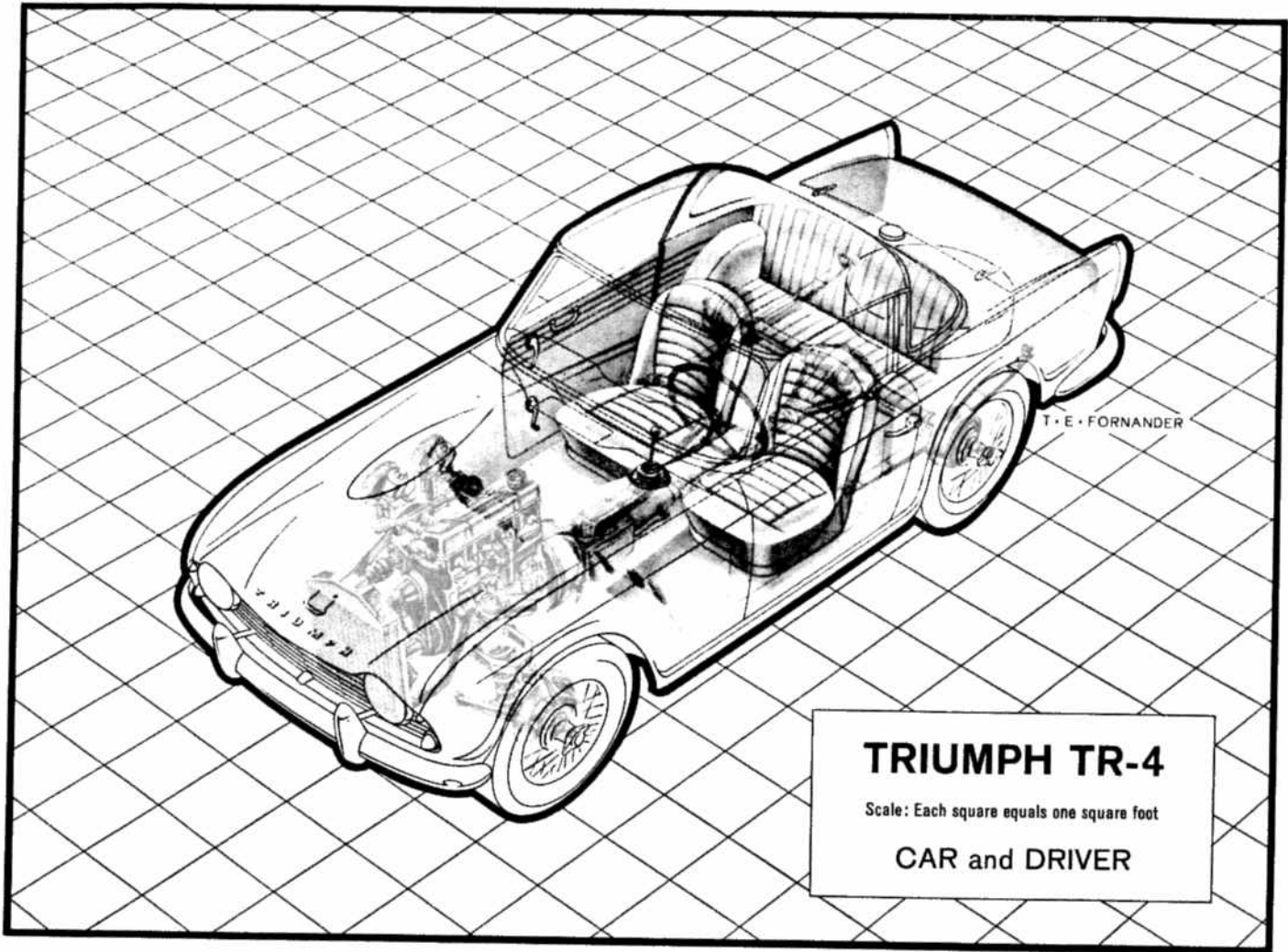
Final drive ratio: 3.70 to one standard, 4.10 optional. Both available with 0.82 to one Laycock-de Normanville overdrive.

ACCELERATION

Zero to	Seconds
30 mph	5.5
40 mph	5.7
50 mph	8.2
60 mph	11.5
70 mph	14.6
80 mph	19.2
90 mph	25.1
100 mph	33.0
Standing 1/4-mile	18.2



- | | | |
|--------------------------|----------------------------|-----------------------------|
| 1 Fresh air vent | 9 Speedometer | 16 Windshield washer |
| 2 Cigarette lighter | 10 Water temperature gauge | 17 Windshield wiper |
| 3 Turn signal indicator | 11 Ashtray | 18 Ignition key and starter |
| 4 Ignition warning light | 12 Oil pressure gauge | 19 Choke |
| 5 Ammeter | 13 High beam warning light | 20 Heater control |
| 6 Fuel gauge | 14 Turn signal lever | 21 Heater fan control |
| 7 Glove box | 15 Headlight switch | 22 Defroster control |
| 8 Tachometer | | 23 Cowl ventilator control |



TRIUMPH TR-4

Scale: Each square equals one square foot

CAR and DRIVER

