## SERVICE DATA No. 442

# **Motor Trader**

## TRIUMPH TR4A

Manufacturers : Standard-Triumph International Ltd. Coventry

All rights reserved. This service Data Sheet is compiled by the technical staff of Motor Trader, from information made available by the vehicle manufacturers and from our own experience. It is the copyright of this journal, and may not be reproduced, in whole or in part, without permission. While care is taken to ensure accuracy we do not accept responsibility for errors or omissions.

ATEST in a line of well-known sports cars, the 4A model was added to the range in the early part of this year. The car is a development of the earlier model, and mechanical features of the 4Å car include the option for a rear swing-axle, similar to that employed on the 2000 car, Stromberg carburation on the engine and the adoption of various modifica-tions which had been made to the preceding series. Principal among differences in the sphere of maintenance is that with the 4A model, there has been a complete change of servicing routine. The new schedule of operations is set out on p. viii, and readers' attention is drawn to it. There are now only



DISTINGUISHING FEATURES. This model is, of course, almost identical externally with the earlier car, and is available in hard- or soft-top form. It is in the mechanical details that differences occur

two basic services, at 6,000 mile and 12,000 mile intervals, apart from a specific routine of opera-tions which relates to a "free" service, which is carried out only at the first 1,000 miles and conse-quently is not detailed in this article.

Layout of mechanical components is entirely orthodox, the four-cylindered overhead valve engine drives through a diaphragm spring clutch to a four-speed all-synchromesh gearbox, and thence by short

propeller shaft to the final drive contained within either a rigid, or swing rear axle, either type being available to choice. Additionally, there is the option of overdrive fitment to the gearbox; when so spe-cified, the overdrive compares in detail with that already described in Service Supplement No. 226/ C1, to which readers are referred for full constructional and repair Front suspension is indedata. pendent, of the coil spring and wishbone link pattern. In the case

27. Accelerator pedal

28. Brake pedal

29. Clutch pedal

of the swing rear axle cars, rear suspension is also independent, by the same means, and in the case of the rigid rear axle models, rear suspension is by half-elliptic leaf springs, similar to the TR4 cars. For data in this respect, readers are referred to Service Data No. 393, which contains information on this subject.

Vehicles are identified by Comor CTC. These numbers are to be found stamped on a plate which is attached to the dash panel ad-jacent to the screenwiper motor and visible with the bonnet raised. Car bodies also have serial numbers, and these numbers are to be seen on the right-hand side of the dash panel, also beneath the bonnet. Engines are serial numbered, and this serial location is on the nearside of the cylinder block casting. It is essential that all relevant

Commission and serial numbers are quoted when corresponding with the vehicle manufacturers, or when ordering spare parts through the Triumph distributive network.

Special tools for use in repair and overhaul work are available from the tool makers, V. L. Churchill & Co., Ltd., London Road, Daventry, Northants. A list of those which are considered essential for this purpose is set out

on p. iii. Throughout the car, threaded parts are of the Unified thread series pattern and form. For all practical purposes, the Unified and A.N.F. thread series are inter-changeable, but care should be taken to see that threaded parts are mated correctly on reassembly.

## ENGINE

#### Mounting

At front, bonded rubber blocks are inserted and bolted up between strengthened flanges either side of

## INSTRUMENTS, CONTROLS, GEAR POSITIONS AND BONNET LOCK

- Lighting switch Horn push
- Direction indicator control 3.
- Fresh air vent control
- Water temperature gauge 5 Oil pressure gauge 6.
- 7. **Fuel** gauge
- Ammeter
- Panel rheostat switch
- 11. Windscreen wiper switch 12. Ignition/starter switch **Choke control** 14. Heat control
- 15. Gear lever 16. Heater blower switch

10. Windscreen washer control

- 17. Heat distribution control
- 18. Handbrake

13

- 19. Scuttle ventilator control 20. Speedometer 21. Main beam warning light
- 22. Ignition warning light 23. Direction indicator warning
- light 24. Tachometer
- 25. Fresh air vent control 26. Bonnet release

30. Headlamp dip switch Insets show the location of the steering column mounted controls, and the operative positions of the centre-mounted gearlever.





front engine plate and feet welded to chassis frame. Bracing bar is inserted horizontally to add rigidity to front mountings. Front of chassis detachable to

facilitate engine removal.

At rear, rubber block mounted to removable cross members supports rear end of gearbox housing.

#### Removal

Engine and gearbox should be removed as unit, though it is possible to remove either component separately when occasion demands. To remove engine/gearbox as unit, proceed as follows: Take out bolts attaching bonnet to its hinges, and remove it completely. Drain remove it completely. Drain coolant, remove radiator cowl, and radiator matrix, which is held by one large bolt  $(\frac{1}{2}in)$  at either side of the base plate flange. Remove steady straps from top of radiator, disconnect hoses and thermometer and take out radiator core. Disconnect and remove front tubular cross member (3 bolts either end). Remove carburettors and manifolds and disconnect all pipes, wires and controls to engine/gear-box unit from car interior or from adjacent components. If overdrive is fitted, disconnect wire to solenoid switch on dash and to switch on gearbox. Disconnect pipe at tank or plug fuel pipe to prevent fuel draining by siphon action from rear-mounted fuel tank when pipes are uncoupled at fuel pump. Re-lease steering unit "U" bolts and steering column. Move steering unit forwards.

Take out floor centre section and

unscrew gearlever, first removing cover housing which is held *in situ* by long, screwed pin-bolt. Uncouple front propeller shaft flange, and take weight of engine/gearbox unit on suitable slings or lifting tackle arranged around fan pulley boss and rear of unit. Remove near mounting and cross-member and also steady bracket. Remove front engine mountings, taking weight of unit, tilt engine upwards and lift out to front of car.

#### Cylinders

Replaceable cast iron wet liners, located by machine faces on upper and lower projecting bosses which abut against cylinder block casting. Thin "spectacle" washers (one for each pair) fit between lower flange and block. When refitting use jointing compound on underside of washer only. Liners must stand proud of top face of block .003-.005in.

When removing cylinder head, do not turn engine over to break head joint as this practice is liable to break bottom joints. When head is off, clamp liners down in pairs by washers and distance-pieces on two studs.

#### Crankshaft

Three main bearings, white metal thin-wall lead-lined, steelbacked shells located by tabs in caps. No provision for hand fitting. Bearings are supplied in three nominal undersizes, .010, .020 and .030in for reground shafts. End float controlled by split thrust washers fitted either side of centre main bearing. Bottom halves of washers tabbed to locate in centre bearing cap. Setscrew size  $\frac{1}{2}$  in. Tighten fully to torque figures shown. All except rear main bearing may be changed without removal of shaft. Flywheel spigot is mounted and attached to crankshaft by four  $\frac{2}{6}$  in bolts and dowel located in flange. Bolted ring gear. Starter ring gear fitted, centre bush pressed in.

Timing sprocket keyed to front end of crankshaft by Woodruff key; aligning shims abut against inner boss of sprocket. Replaceable oil seal pressed into timing case cover. Dynamo drive pulley keyed to crankshaft by outer of two Woodruff keys, and four-bladed fan carried directly on extension-piece projecting from pulley and held by six  $\frac{1}{6}$  in bolts. Vee-belt drive taken to dynamo and water pump from crank pulley. Sump sealing by composition gasket around flange. Felt seal at rear located in housing attached to crankcase and rear main bearing cap which forms lower half of collecting ring around oil return thread on crankshaft. Felt should stand slightly proud on assembly. All bolts to be tightened to specified torque figures.

#### **Connecting Rods**

Lead-indium-bronze steel-backed shells, located by tabs in caps and rods, no hand fiting permissible. Bearings are available in standard undersizes for reground shafts. Gudgeon pins fully floating, retained by circlips in piston bosses. Rods H-section stamping, big ends split diagonally; assemble with cap to nearside; note: one locating dowel between each rod and cap. If small end bushes are replaced, see that oil drillings are aligned.

#### Pistons

Aluminium alloy, flat topped, diagonally split skirt. Available in three fitting grades, F G and H, with .0004in difference in size between them, H being largest. Gudgeon pin located in bosses by circlip fitting. Two butt-faced cast iron compression rings and one scarf-jointed cast-iron scraper ring all fitted above gudgeon pin. Big ends will pass through bores, rçmove and replace through top.

#### Camshaft

Endless chain drive fitted with spring-type tensioner. Crankshaft sprocket keyed in place, and camshaft sprocket retained on shaft front end by four offset bolts giving  $\frac{1}{2}$  tooth variations; sprocket reverses to give  $\frac{1}{4}$  and  $\frac{3}{4}$  tooth variations. Spring type tensioner, non-adjustable, fitted inside timing cover. Four-bearing cast iron shaft, running in four bearings in block. Front bearing cast iron, larger than intermediate and rear white metal bearings, thrust end float controlled on front bearing by bush flange bolted to front of crankcase giving from .004-.012in play.

To time engine, set crankshaft to T.D.C. (1 and 4 pistons, No. 1 firing). Check with dial or depth gauge, or flywheel mark. Nos. 7

SPECIAL TOOLS			
	Part No.		
ENGINE Con-rod aligning jig Master multi-purpose con-rod arbor Arbor adaptor (2.2325in) Camshaft bush remover and replacer: (main tool) (adaptors)	335 336 8.336-2 32 8.32-1		
CLUTCH AND GEARBOX Clutch assembly fixture Multi-purpose hand-press Shaft remover—main tool Constant pinion shaft remover (adaptor) Mainshaft ball bearing replacer Malnshaft ball bearing remover	99A 8.4221-A 4235 8.4235A-2 8.314 8.4221A-15		
REAR AXLE Hub remover Haff-shait remover (adaptor) Diff. case spreader Diff. bearing removal ring Pinion head bearing inner cone removor/ replacer Pinion bearing setting gauge Pre-load gauge	M.86A 8.4235A-3 8.101 8.103 T8.1 M.84 208M.98		
SWING AXLE MODELS Differential case spreader adaptors Rear hub adjusting nut wrench Halfshaft assembly holding Jig Outer hub taper bearing remover/replacer adaptors	8.101-1 8.317 8.318 8.4221A-16		
FRONT SUSPENSION AND STEERING Steering wheel remover 1.F.S. coil spring compressor 1.F.S. coil spring compressor (adaptor)	8.3600 8.112A 8.112-1A		

ENGINE DATA	1
GENERAL Type No. of cylinders Bore× stroke: mm in Gapacity: c.c. cu in Max. b.h.p. at r.p.m. Max. torque at r.p.m.	ohv 4 86 × 92 3.386 × 3.622 2.138 130.5 104-4,700 1.5901b/in 3.000
Compression ratio	9:1

Diameter Length Running clearance: m bi End float: main beari big ends Undersizes Con-rod centres	2.479in 1.745in pain bearings ig ends ngs	2.086in .967in .0010025in .00160035in	
Running clearance: m b End float: main beari big ends Undersizes Con-rod centres	ain bearings ig ends ngs	.0010025in .00160035in	
No. of teeth on starter	.0010025in .00180035in .004006in .007014in .010, .020, .030in 6.250 ± .002in 117/10		
PIST	ONS AND RINGS		
Clearance (skirt): top bottom Oversizes Weight tolerance		.00540057in .00320037in .010, .020, .030in not to exceed 4dr. in any set	
Gudgeon pin: diamete fit in pi fit in co	.850in push fit ficating		
	Compression	Oil control	
No. of rings Gap Side clearance in grooves Width of rings	2 .008010in .001003in .062in	1 .008010in .001003in .1560in	
	VALVES		

		Inlet	Exhaust
Head diameter Stem diameter Face-angle	1.55 .310 45°	8-1.562in 311in	1.299-1.303in .37053715in 45°
		nner*	Outer
Spring length: fro	e 2.08 ted 1.45	in in **	1.98in 1.56in 38ih

GAMSH	AFI		
Bearing Journal: diameter Bearing clearance End float Timing chain: pitch no. of links		1.872 in front 1.7157in—inter and rear .00260046in .004012in 3 in 52	
NUT TIGHTENING	TORQUE DA	ATA	
	Bolt size (in)	lb. ft	
ENGINE Cylinder head stud nuts Con-rod caps Engine plate and timing front	날 UNF 굲 UNF	100105 55-60	
cover Flywheel/crankshaft	NF NF	12-14 42-46	

-----

Flywheel/crankshaft Main bearing caps Rocker pedestals Flywheel ring gear	용 NF 날 UNG 글 UNF 규 UNF	42-46 85-90 24-26 16-18
GEARBOX Extension housing bolts and		
set screws	A UNC	14-16
Gearbox/engine	👬 NF & NC	8-10
Front cover/gearbox	Tr NC	14-16
Rear mounting/extension	1 UNF	50-55
REAR AXLE		
Grown wheel/diff. case	<b>¥ UNF</b>	40-45
Inner flange/inner axle	🕂 UNF	18-20
Mounting plate/hypoid hous-		
ing-rear	- UNF	26-28
mounting plate/nypoid nous-	JUNE	25
Damper/trame brackets	Z UNF	55-60
Inner driving flange/rear hub	16 0101	
and axle shaft	<b>XUNF</b>	28-30
Hubs	& UNF	100-110
EDANT SUBDENSION		
Rall nin/vertical link	1 UNE	55-65
Stub axle/vertical link	LUNF	16-18
Lower wishbone/fulcrum pin	LA UNF	26-28
Top wishbone/ ulcrum pin	· 규 UNF	26-40
Top inner fulcrum pin/chassis		
(boits and set screws)	# UNF	26-28
Brake disc attachment	3 UNF	20-28
Calliner attachment	ZNF	50-55
Pad retaining nlate holts	INF	5-6

and 8 valves on rock. Line up marks on camshaft sprocket, attach chain and replace cover.

#### Valves

Overhead, in line, non-interchangeable, inlet larger than exhaust. Split-cone cotter fixing, double springs to inlet valves, triple springs to exhaust. Springs located on stepped collar on cylinder head around guides. Valve guides plain, inner end chamfered. Press in until chamfered end protrudes approximately .78in from spot face of spring seat. Guides non-interchangeable.

#### **Tappets and Rockers**

Plain barrel-type tappets sliding directly in crankcase. Remove from top with long-nosed pliers. Pushrods may be taken out after removal of rocker shaft which is mounted in four pedestals, with three coil springs separating rockers on inner sides of posts. Shaft located by dowel bolt in rear pedestal. End rockers retained by double-coil spring washers and pinned caps. Rockers left- and right-handed (inlet and exhaust), interchangeable, phosphor bronze bushed. Oil feeds from camshaft by drillings to cylinder head and end rocker pillar, which is drilled to take oil supply to hollow rocker shaft and thence by radially drilled holes to rockers.

#### Lubrication

Hobourn-Eaton eccentric rotor pump, spigoted and flange bolted to bottom of crankcase. Separate drive shaft runs in long bronze bush in crankcase, flanged and pressed in from top. Oil is delivered to bearings from pump and from rear camshaft bearing to rocker gear. External filter is full flow type. Adjustable spring-loaded ball relief valve on filter body adjusted by grubscrew and locknut. Normal pressure set to 70 lb/sq in at engine speed of 2,000 r.p.m. at 70 deg C.

### **Cooling System**

Pump, fan and thermostat. Fan mounted directly on crankshaft pulley driving water pump impeller. Adjust tension of belt by swinging dynamo on bracket so that there is  $\frac{3}{4}$ in play in longest run of belt.

### T R A N S M I S S I O N

#### Clutch

Single dry plate, spring diaphragm pattern, hydraulically operated. Actuating cylinder mounted on bulkhead and connected by pressure hose to slave cylinder mounted on bell-housing. Access to clutch unit for servicing after removal of gearbox.

#### Gearbox

Four-speed, all-synchromesh, remote control by short centre lever.

#### To Remove Gearbox

Gearbox may be removed as unit with engine as detailed in engine removal section, or removed separ-

ately. To remove separately, disconnect battery, drain oil from gearbox and/or overdrive, remove seats and carpets. Disconnect all pipes, wires and controls to gear-box and bellhousing, first removing centre floor cover, facia support and dipper switch. Mark propeller dipper switch. Mark propeller shaft yoke flanges and remove shaft. Detach clutch slave cylinder (allow it to hang by flex pipe), and take off clutch plate cover from lower part of bellhousing. Using block of wood or jack, support weight of engine under sump and jack up engine/gearbox to facilitate rear mounting and cross-member removal. With bellhousing bolts, etc., removed, extract gearbox rearwards and upwards through floor, and manœuvre clear of vehicle.

#### To Dismantle Gearbox

With box on bench, remove securing bolts, spring washers, top cover, and gasket (grease nipple, taper bolt, bolt and spring washer). Withdraw cross-shaft, release spring and bearing, sleeve and fork. Remove Wedglock bolts and washers, detach front cover and plate. Remove rear extension by extracting peg bolt and spring washer, draw out speedo drive gear assembly; remove split pin, slotted nut and plain washer and withdraw flange, remove bolts and spring washers securing extension and draw off (Churchill Tool No. 20 S/63).

Insert Phillips screwdriver and remove layshaft securing screw and retaining plate. Withdraw layshaft, and reverse pinion shaft. With Tool No. S4235A extract primary shaft from box, after which remove locating circlips and spacer washer. To draw off race use Tool No. S4221-2 and if necessary extract spigot needle roller bearing. Detach mainshaft rear race (Tool No. S4221 A/15), and manœuvre shaft assembly out of box, lift out layshaft cluster and reverse pinion. Remove laygears from liub, if necessary, and needle bearings from hub bore. With Tool No. 20 SM69 remove securing circlip from mainshaft (3rd speed gear) and draw off gears and components. Remove lst/2nd and 3rd/4th synchro inner hubs from outer sleeves, preserve springs and balls.

#### To Reassemble Gearbox

Reverse dismantling procedure noting following points: layshaft: when assembling, use stepped drift and fit new needle roller bearing (lettered face outwards) into each end of hub. Refit gears to shaft in reverse order of dismantling. Stick on thrust washers with thick grease, lower cluster into box and fit layshaft. Check end float which should be .007-.012in. Reduce excessive end float by selective use of thrust washers and distance pieces. End float of mainshaft gears on bushes should be .004-.006in. Fit new bush to increase float, reduce bush length to decrease float. Overall end float of mainshaft with gears and bushes



#### Supplement to "Motor Trader," 3 November 1965

Wheelpase	7ft 4in
Track: front	4ît 1in
rear (I.R.S.)	4ft Olin
Turning circle	33ft Oin
Ground clearance	6in
Tyre size: front	6.95-15
rear 5	
Overall length	13ft Oin
Overall width	4tt 9½ in
Overall height	4tt 2in
Weight equipped: rigid axle model	2,21210
ind. rear axie	2,24010

CHASSIS DATA

Borg & Beck diaphragm

8±in 1.247-1.245in 1.010-1.005in 2.10in Belleville washer yellow/lt green 1.15-1.29in .27-.29in

spring 8±in

CLUTCH

Diameter

Spline dia. (OD) (ID) Flywheel face/cover

Driven plate: type springs colour Flywheel face/spring tips (released) Maximum travel

Make

Туре

PROPELLER	SHAFT	
Маке Туре	Hardy-Spicer needle roller brg. U.J	
FINAL DR	IVE	
Type Crownwheel/bevel pinion teeth	hypoid bevel 37/10 or 41/10	
BRAKES	3	
Туре	Girling disc front	, drum rear
	Front	Rear
Disc or drum diameter Disc run-out Lining: length	11in .002in	9in 8.66in
thickness No. of rivets per shoe		12

GEARBOX

Type No. of forward speeds

> 2nd O'drv. 2nd

3rd O'drv. 3rd

4th O'drv. 4th Rev

Final ratios: 1st

From Commission No. CT29985	Front	Rear
Type Wire dia. Rate No. of coils Free length Fitted length Fitted load	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
SHOCK ABSOR	RBERS	
Type Service	Telescopic front and rear replacement	
STEERING	BOX	
Make Type Adjustments: column end float cross shaft end float mesh	Alford & rack and shims shims un pad	Alder pinion der damper
FRONT-END SERV	ICE DATA	
Castor Camber King pin inclination Toe-in No. of turns lock to lock Adjustments: castor camber toe-in	$2^{\circ} 40' \pm \frac{1}{2}^{\circ}$ $9^{\circ} \pm \frac{1}{2}^{\circ}$ $9^{\circ} \pm \frac{1}{4}^{\circ}$ $Parallel t$ $2\frac{1}{4}$ $Nil$ $screwed ends$	° o tin toe in track roo

SPRINGS

assembled may be .003-.009in, obtain minimum end float by selective use of thrust washers. Following thrust washers available (coloured for identification), in sizes: .120-.118in—self finish; .123-.12lin—green; .126-.124in—blue; .129-.127in—orange; .133in—yellow. Check end float of 1st speed gear to be .003-.009in.

When re-assembling synchro units fit synchro springs, shims and balls to hubs, together with outer sleeves. Axial release load should be 3rd/4th:—19-21lb; 3rd/ 1st:—25-27lb. Add or decrease shims beneath synchro hub springs to achieve release load figures within these tolerances. Assemble mainshaft components on shaft and install in box, assemble primary shaft and ball-bearing (note: circlip groove to front), and replace front cover. Refit layshaft, using tapered pilot bar followed by layshaft; refit keeper plate, etc., and refit rear extension housing and speedo drive gear components; insert selector forks, and, finally, refit top cover, complete with selector shaft mechanism.

#### Overdrive

Where fitted, overdrive unit compares with that previously described in Trader Service Supplement No. 226/C.1 for dismantling and overhaul procedure. When fitted to the car overdrive is solenoid operated by a switch on the steering column.

#### **Propeller Shaft**

Hardy Spicer needle roller bearing: universal flange mounting either end.

#### Rear Axle

Either hypoid bevel swing-axle or hypoid bevel rigid axle. For details of latter type, readers are referred to appropriate section of Service Data No. 393. In the case of the swing-axle, final drive unit is bolted up to carrier, which is, in turn, bolted up to body. Pinion shaft housing is carried at apex of "V"-shaped channel section axle/suspension unit mounting member. Outer extremities of member carry mounting plates, rubber insulation buffers and centre bolt for attachment to body. Drive is transmitted to road wheels through short universally-jointed drive shafts, coupled to driving flanges either side of differential casing. Hubs, keyed to outer tapered ends of drive shafts, run on ball bearings at outer ends, and needle roller races at inner ends. Four-stud hub flanges have lipped oil seal behind, and hubs are retained by §in slotted nut. Outer ends of drive shafts and hubs are carried by wishbone-type aluminium alloy castings, inner ends are bushed and pivot on hardened steel bolts. Pivot carriers are bolted up to rear side of either arm of mounting member.

## CHASSIS

#### Brakes

Girling disc type at front, leading and trailing arrangement on rear wheels.

Disc brakes take the form of two segmental pads, hydraulically operated, and are housed in cast iron framework, which work on steel plates bolted up to wheel hubs. These plates replace the brake drums. Linings for the disc brakes are bonded to steel plates. Each is easily accessible for replacement or wear checks to be made. To replace the pads, remove retaining clips and pins. Remove pads and shim plates. Fit plates with arrow in D.O.R. of wheels. Adjustment of front hub bear-

Adjustment of front hub bearings is critical, due to rotational plane of friction discs, excessive clearance in hub bearings showing up as "rock" of discs. To permit fine adjustment of hubs, two holes are drilled in stub axle thread which allows hub nut adjustment of half-a-flat. Do not preload bearings.

synchromesh

4.1 axle

12.87 : 1 8.24 : 1 6.76 : 1 5.44 : 1 4.46 : 1 4.1 : 1 3.36 : 1 13.21 : 1

3.7 axle

11.61 : 1

7.43 : 1 6.1 : 1 4.9 : 1 4.02 : 1 3.7 : 1 3.034 : 1 11.93 : 1

Leading and trailing shoes in rear drums, with floating cylinder incorporating bisector unit for cable operation through handbrake.

Rear brakes have wedge bisectorexpanders. Square adjuster on backplates. Turn each clockwise until brakes bind then back-off until drum rotates freely (one or two clicks).

#### Front Suspension

Independent, with coil spring and double wishbone link. Inner pivots of upper and lower links have rubber bushes. Stub axle pins are spigoted in their respective vertical links and retained by nuts and split pins. Complete suspension assemblies are symmetrical and in-terchangeable from side to side except for steering arms. Upper end of each vertical link terminates in ball pin working in sealed ball socket bolted through both arms of upper wishbone. Lower end of each vertical link is threaded, working in bronze swivel housing. Serrated pin pressed into housing carries bronze bushed outer ends of lower link arms. Assembly on each side of housing consists of inner thrust washer with rubber seal, link arm, outer thrust washer with rubber seal, link arm, outer thrust washer with rubber seal (same as inner) registering in stepped washer with serrated bore, which fits serrations on outer end of pin. Assembly retained by plain washer and split pinned nut. With oil seals removed, tighten nut until .006in feeler is nipped between thrust washer and link arm giving .004-.008in end float when nut is locked and seals correctly replaced.

Alternative method is to tighten nut fully, all slack removed, and back off nut  $1-1\frac{1}{2}$  flats to obtain state of free movement, without slack.

To remove spring (telescopic

shock absorber inside); jack up front of vehicle, remove road wheels. Remove damper. Assemble special tool No. S112 and compress road spring until lower wishbone arms are horizontal. Remove spring pan securing nuts, bolts and spring-washers. Fit two guide rods to spring pan and lower wishbone arms ( $\frac{1}{8} \times 6$  in). Support suspension unit, unscrew wing nut on special tool and release spring tension. Dismantle spring compressor, detach spring pan, pads, spring and packing.

pressor, detach spring pan, pads, spring and packing. To dismantle suspension assembly: remove spring and shock absorber, disconnect brake fluid pipe, and track rod from steering arm. Undo nut inside upper link, holding upper ball joint to two halves of upper link. Detach lower link inner pivot brackets from chassis and remove vertical link and lower link assembly.

When reassembling the vertical link in lower swivel housing, screw in until rubber seal is just nipped, and back off until full movement is available.

Tighten inner pivot bearing nuts (upper and lower) when weight of car is on springs. Tighten lower inner pivot brackets to chassis last.

Hubs run on taper roller bearings. Adjust by tightening castellated nut to tolerances mentioned previously. Felt oil seals in retainers pressed into hubs outside inner bearings.

Track rods have sealed ball joints. Tie rod ends screwed leftand right-hand for track adjustment, and locked by nuts.

#### **Steering Gear**

Rack and pinion. Outer ends of rack connected to each stub axle by short track rods. Column is universally jointed and alteration of mesh adjustment is made by shims under damper pad flange nut. Provision for adjustment of end float of rack is made by insertion or removal of shims under pinion end plate cover.

TRIUMPH TR4A V



#### Supplement to "Motor Trader," 3 November 1965

	UCAS EQUIPMENT
	BATTERY
Model BT9A	
	GENERATOR
Model C40	Part No. 22715
	CONTROL BOX
Model RB106-2	Part No. 37283
8	STARTING MOTOR
Model M418G	Part No. 25550
Drive "S"-type Int	board
	DISTRIBUTOR
Model 25D4	Part No. 40795
	(H.C. Engine)
Max. centrifugal a 2.400 r.p.m.	advance (crank degrees): 18-22° at
No advance below	450 r.p.m.
<b>Centrifugal</b> advanc	e springs Part No. 54411614
Max. vacuum adva	nce (crank degrees) : 4°-8° at 15in Hg.
No advance below	1in Hg.
	IGNITION COIL
Model HA12	Part No. 45177
<b>Primary resistance</b>	3.0-3.5 ohms
Running current a	t 1,000 r.p.m. : 1·0 amp. INDSCREEN WIPER
Model DR3A	Part No. 75568
	FLASHER UNIT
Model FL5	Part No. 35011
	FUSE UNIT
Model 4FJ	
Fuse ratings 35 an	np.
35 90	nn.

SUNDRY EQUIPMENT Model

CZU60

SWITCHES

Part No.

36313

b

Ammeter

	Î	1	BULB OR	SEALED B	EAM UNIT
LAMP3	Model	Part No.	Lucas No.	Wattage	Cap
Head, R.H.D. (up lett) "Export Europe	F700 F700	59103 59104	54521872 410	60/50 45/40	SBU Unified
" Export France	F700	59167	411	45/40	Unified
" Export Sweden	F700	59105	410	45/40	Unified
Export N.A.D.A.	F700	59337	54522231	60/50	SBU
Side/flasher Export Switzerland	594	52607	380	6/21	SBC
Front flasher amber lens	594	52609	382	21	SCC
Stop/tail *Rear flasher	669	53939	{ 380 S.T. 382 F	6/21 21	SBC SCC
Number plate	550	53941	207	6	SCC
Reverse optional	661	53862	382	21	SCC
Parking/flasher repeater	771	{ 52737 L.H. 52738 R.H. }	{989 P 501 F.R.	6	MCC Capless
Panel bulbholder		54944812	987	2.2	MĖS
Speedo, bulbholder		554734	987	2.2	MES
gnition warning	WL11	38059	987	2.2	MES
Main beam warning Bulbholder		554734	987	2.2	MES
Flasher warning	WL11	38067	987	2.2	MES

Ξ.	266	also	Addenda	

					-
		Part No.	BULB		
LAMPS	Model		Lucas No.	Wattage	Cap
Front flasher, clear lens, Export Italy Front flasher, Export N.A.D.A. Stop tail and flasher, Export N.A.D.A.	594 691 669	52610 52649 53940	382 382 { 380 S.T. 382 F	21 21 6/21 21	SCC SCC SBC SCC

	Model	Part No.	TUNE-UP DATA					
Ignition/starter Starter solenoid Lighting and headlamp flasher - Direction indicator Dip Reverse lamp Panel light Wiper Steering column control Horn isolating, Export France	47SA 28T 102SA 125SA 103SA 8810 3R 58SA 609 65SA	31873 76464 34987 LHD 34898 RHD 34899 34536 31849 78391 35521 33577 34555	Firing order Tappet clearance (cold): inlet exhaust Valve timing*: inlet opens inlet closes exhaust opens exhaust closes Standard ignition timing Location of timing mark Plugs: make type size gap	1-3-4-2 .010in 17'BTDC 57° BBDC 57° BBDC 17° ATDC 4° BTDC 4° BTDC Flywheel and pointer Lodge CNY** 14mm .025in	Carburettor: make type Settings: Ncedle size (up to CTC 54939) Air cleaner: make type Fuel pump: make type pressure *For timing to these figures set valve cle *High-speed touringLodge HN; Co Lodge 2HN; Low octane fuel-Lodge	Stromberg 175 CD 2E 2H AC mech 1½-2½lb/sq. in. arances to .0185in mpetition use— CN		



TRIUMPH TR4A vii

Supplement to "Motor Trader," 3 November 1965



## KEY TO MAINTENANCE DIAGRAM

lubricate

#### WEEKLY

1. Radiator 2. Engine sump check and top up

#### MONTHLY

<ol> <li>Battery</li> <li>Tyre pressures</li> <li>Brake master cylinder</li> <li>Clutch master cylinder</li> </ol>	<pre>} check</pre>
EVERY 6,000 MILES	

- 7. Engine sump-drain and refill 8. Engine air cleaner-clean 9. Carburettor dashpots-top up \*10. Doorlocks, hinges controls, etc. 11. Clutch and brake pivot bushes 12. Upper steering swivels 13. Lower steering swivels 14. Propeller shaft 15. Propeller shaft splines 16. Handbrake cable and linkage \*17. Hydraulic pipes \*18. Suspension geometry \*19. Valve clearances 20. Fan belt tension -oil

8

- \*21. Sparking plugs—clean and reset
  \*22. Brakes—adjust
  23. Distributor—oil shaft bearing, auto. advance mechanism, contact breaker pivot, smear cam with grease, reset points gap
  \*24. Electrical equipment—check operation
  \*25. Road wheel nuts—check for tightness

## EVERY 12,000 MILES (as for 6,000 miles plus following)

- Engine oil filter element—renew
   Fuel pump—clean filter and sedir
   Crankcase breather valve—clear
   Water pump—grease

- 26. Engine oil filter element—renew
  27. Fuel pump—clean filter and sediment chamber
  28. Crankcase breather valve—clean
  29. Water pump—grease
  30. Gearbox (and/or o'drive)
  21. Rear axle
  32. Steering unit—grease gun
  \*33. Brakes—remove drums, de-dust, examine friction material and wheel cylinders
  34. Generator—lubricate end bearing
  \*35. Snarking nues—renew
- 34. Generator—lubricate end beari
  \*35. Sparking plugs—renew
  36. Front hubs—check and adjust
  37. Inner half shaft—lubricate

- \*Not shown on diagram.



#### **DRAINING POINTS**



Left: shows the radiator matrix drain tab. access from below, and right: the cylinder block drain tap, access from

4G

## RECOMMENDED LUBRICANTS

		Mobil	Shell	Esso	B.P.	Castrol	Duckham's	Regent
Engine		Mobilail Arstic or Mobilail Special	X-100 20W or Super Oil	Extra Motor Oil	Energo! Motor Oil 20W or Visco Static	Castrolite	Nol Twenty or Q5500	Havoline 20/20W or Havoline Special 10W/30
Upper Gylinder I	Lubricant	Upperlube	U.C.L.	U.C.L.	Energol U.C.L.	Castro!lo	Adcoids	U.C.L.
Garbureitor Dashpots	Summer	Mobiloil A	X-100 30	Extra Motor Oil	Energol Motor Oil 30	Castrol XL	Nol ** Thirty "	Havoline 30
	Winter	Mobiloil Arctic	X-100 20W	Extra Motor Oil	Energol Motor Oil 20W	Castrolite	Nol " Twenty "	Havoline 20/20W
Gearbox and Ov Rear Axle	erdrive	Mobilube QX.90	Spirax 90 E.P.	Gear Oil GP.90/140	Energol E.P. S.A.E. 90	Gastrol Hypoy	Hypoid 90	Universal Thuban 90
Steering Unit Grease Gun		Mobilgrease M.P.	Retinax A	MultiPurpose Grease H	Energrease L.2	Gastrolease L.M.	LB.10	Marfak Multipurpose 2
Oil Can		Handy Oil	X-100 20W	Engine Oil	Energol S.A.E. 20W	Everyman Oil	General Purpose Oil	Havoline 20/20W
Brake Cables		Mobilgrease M.P.	Retinax A	Multi-Purpose Grease H	Energrease L.2	Castrolease Brake Cable Grease	Keonol K.G.16	Marfak Multipurpose 2
Clutch and Brake Reservoirs Castrol Girling Brake and Clutch Fluid			Where the proprietary brand is not available other fluids which meet the S.A.E. 7					

Printea in England by Cornwall Press Ltd., Paris Garden, London, S.E. 1.