

**04** GENERAL SPECIFICATION DATA

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—Manual gearbox and transfer gearbox ratio's	1
—Automatic gearbox and transfer gearbox ratio's	1
—Automatic shift speeds	2
—Propeller shafts	2
—Rear axle	2
—Front axle	2

**06** TORQUE WRENCH SETTINGS

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—Transfer gearbox	1
—Automatic gearbox	2
—Manual gearbox	3
—Front axle	3
—Rear axle	4

**37** LT77 FIVE SPEED GEARBOX

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—Remove and refit	1
—Overhaul	3

**37** LT230T TRANSFER GEARBOX

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—Renew speedometer drive pinnion	19
—Renew rear output shaft oil seals	19
—Renew front output shaft oil seals	19
—Remove and refit	20
—Overhaul	26

*Continued*

**44** AUTOMATIC GEARBOX

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- Fault diagnosis 1
- Service tools and data 9

**STAGE I**

- Inhibitor switch leak elimination and replacement 17
- Intermediate plate screw plugs leak elimination 17
- Selector shaft leak elimination 17
- Oil pan leak elimination and replacement 17
- Kickdown cable leak elimination 18
- Extension case leak elimination and replacement 19
- Oil screen replacement 19
- Control unit replacement 20
- Oil inlet sealing rings renewal 21
- Manual valve operating mechanism 22
- Governor housing renewal 24
- Governor hub renewal 24
- Parking brake mechanism renewal 25

**STAGE II**

- ZF gearbox, remove and refit 27
- Eliminating leaks/replacing torque converter 28
- Eliminating leaks on the pump housing 29
- Eliminating leaks between gearbox housing and intermediate plate 30
- Replacing bellhousing 31
- Replacing pump 31
- Replacing intermediate plate 33
- OVERHAUL 34

**47** PROPELLER SHAFTS

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- Overhaul 1

**51** REAR AXLE AND FINAL DRIVE

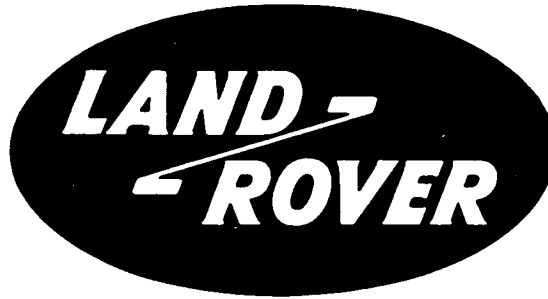
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- Remove and refit axle assembly 1
- Overhaul rear differential 2
- Rear discs—remove and refit 8
- Remove and overhaul rear hubs 8

**54** FRONT AXLE AND FINAL DRIVE

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- Remove and refit axle assembly 1
- Overhaul front differential 1
- Front discs—remove and refit 2
- Remove and overhaul front hubs 2
- Overhaul—stub axle 5
- Axle shaft 5
- Constant velocity joint 6
- Swivel assembly 7



# Special Service Tools

The use of approved special service tools is important. They are essential if service operations are to be carried out efficiently, and safely. The amount of time which they save can be considerable.

Every special tool is designed with the close co-operation of Land Rover Ltd., and no tool is put into production which has not been tested and approved by us. New tools are only introduced where an operation cannot be satisfactorily carried out using existing tools or standard equipment. The user is therefore assured that the tool is necessary and that it will perform accurately, efficiently and safely.

Special tools bulletins will be issued periodically giving details of new tools as they are introduced.

All orders and enquiries from the United Kingdom should be sent direct to V. L. Churchill. Overseas orders should be placed with the local V. L. Churchill distributor, where one exists. Countries where there is no distributor may order direct from V. L. Churchill Limited.

The tools recommended in this Repair Operation Manual are listed in a multi-language, illustrated catalogue obtainable from Messrs. V. L. Churchill at the above address under publication number 2217/2/84 or from Land Rover Ltd., under part number LSM0052TC from the following address: Land Rover Limited, Service Department, Lode Lane, Solihull, West Midlands, England B92 8NW.

## ABBREVIATIONS AND SYMBOLS USED IN THIS MANUAL

Across flats (bolt size) .....	AF	Midget edison screw .....	MES
After bottom dead centre.....	ABDC	Millimetre .....	mm
After top dead centre .....	ATDC	Miles per gallon .....	mpg
Alternating current .....	a.c.	Miles per hour.....	mph
Ampere .....	amp	Minimum.....	min
Ampere-hour .....	amp hr	minute (angle) .....	—
Atmospheres.....	Atm	Minus (of tolerance).....	—
Before bottom dead centre.....	BBDC	Negative (electrical).....	—
Before top dead centre .....	BTDC	Number .....	No.
Bottom dead centre.....	BDC	Ohms .....	ohm
Brake mean effective pressure .....	BMEP	Ounces (force).....	ozf
Brake horse power .....	bhp	Ounces (mass) .....	oz
British Standards.....	BS	Ounce inch (torque).....	ozf.in.
Carbon monoxide .....	CO	Outside diameter .....	o.dia.
Centimetre.....	cm	Paragraphs .....	para.
Centigrade (Celsius) .....	C	Part number.....	Part No.
Cubic centimetre .....	cm <sup>3</sup>	Percentage.....	%
Cubic inch.....	in <sup>3</sup>	Pints.....	pt
Degree (angle).....	deg or °	Pints (US).....	US pt
Degree (temperature).....	deg or °	Plus (tolerance) .....	+
Diameter.....	dia.	Positive (electrical).....	+
Direct current .....	d.c.	Pound (force).....	lbf
Fahrenheit .....	F	Pounds feet (torque) .....	lbf.ft.
Feet.....	ft	Pounds inches (torque) .....	lbf.in.
Feet per minute.....	ft/min	Pound (mass).....	lb
Fifth.....	5th	Pounds per square inch .....	lb/in <sup>2</sup>
Figure (illustration).....	Fig.	Radius .....	r
First .....	1st	Rate (frequency) .....	c/min
Fourth.....	4th	Ratio .....	:
Gramme (force).....	gf	Reference.....	ref.
Gramme (mass).....	g	Revolution per minute .....	rev/min
Gallons.....	gal	Right-hand .....	RH
Gallons (US) .....	US gal	Right-hand steering.....	RHStg
High compression .....	h.c.	Second (angle).....	"
High tension (electrical).....	H.T.	Second (numerical order).....	2nd
Hundredweight .....	cwt	Single carburetter .....	SC
Independent front suspension .....	i.f.s.	Specific gravity.....	sp.gr.
Internal diameter.....	i.dia.	Square centimetres .....	cm <sup>2</sup>
Inches of mercury .....	in.Hg	Square inches.....	in <sup>2</sup>
Inches .....	in	Standard.....	std.
Kilogramme (force).....	kgf	Standard wire gauge.....	s.w.g.
Kilogramme (mass).....	kg	Synchroniser/synchromesh.....	synchro.
Kilogramme centimetre (torque) .....	kgf.cm	Third.....	3rd
Kilogramme per square centimetre .....	kg/cm <sup>2</sup>	Top dead centre .....	TDC
Kilogramme metres (torque).....	kgf.m	Twin carburetters .....	TC
Kilometres .....	km	United Kingdom.....	UK
Kilometres per hour .....	km/h	Vehicle Identification Number .....	VIN
Kilovolts .....	kV	Volts .....	V
King pin inclination .....	k.p.i.	Watts .....	W
Left-hand steering .....	LHStg	<b>SCREW THREADS</b>	
Left-hand thread .....	LHThd	American Standard Taper Pipe.....	NPTF
Litres .....	litre	British Association .....	BA
Low compression .....	l.c.	British Standard Fine .....	BSF
Low tension.....	l.t.	British Standard Pipe .....	BSP
Maximum.....	max.	British Standard Whitworth.....	Whit.
Metre.....	m	Unified Coarse.....	UNC
Microfarad .....	mfd	Unified Fine.....	UNF