

**TORQUE VALUES , TRANSFER GEARBOX LT230**

**WARNING: Components in bold type must not be reused.**

<b>COMPONENT</b>	<b>Nm</b>	<b>ft lb</b>
Pinch bolt • operating arm to crank arm .....	7 to 10	5 to 7
End cover gear change housing .....	7 to 10	5 to 7
Speedometer cable retainer .....	7 to 10	5 to 7
Rear output/speedometer housing .....		See note
Bottom cover to transfer case .....	22 to <b>28</b>	16 to <b>21*</b>
Front output housing to transfer case .....	22 to 28	16 to <b>21*</b>
Cross shaft housing to front output housing .....	22 to 28	16 to 21
Gear change <b>housing</b> .....	<b>22</b> to <b>28</b>	16 to 21
Pivot shaft to <b>link</b> arm .....	22 to 28	16 to 21
Connecting rod to adjustable <b>clevis</b> .....	22 to 28	16 to 21
Anti-rotation plate intermediate shaft .....	22 to 28	16 to 21'
Front output <b>housing</b> cover .....	22 to 28	16 to 21'
Pivot bracket to extension housing .....	22 to 28	16 to <b>21*</b>
Finger housing to front output housing .....	22 to <b>28</b>	16 to 21'
Bearing housing to transfer case .....	22 to 28	16 to 21
Brake drum to coupling flange .....	22 to 28	16 to 21
Bearing housing cover to transfer gearbox .....	40 to 50	29 to 37'
Rear output speedometer housing to transfer gearbox .....	40 to 50	29 to <b>37*</b>
Selector finger to cross shaft high/low .....	22 to <b>28</b>	16 to <b>21*</b>
Selector fork, high/low to shaft .....	22 to 28	16 to <b>21*</b>
Transmission brake to speedometer housing .....	65 to 80	48 to 59
<b>Intermediate shaft stake nut</b> .....		See text
Gate plate to grommet plate .....	<b>7 to 10</b>	5 to 7
Plunger switch setting .....	6.75 max	4.82 max
Gearbox to transfer case .....	40 to 50	29 to 37
Gearbox to transfer case .....		See note
Oil drain plug .....	25 to 35	19 to 26
Differential case (front to rear) .....	55 to 64	40 to 47
Output flanges .....	146 to 179	108 to 132
<b>Differential case rear stake nut</b> .....	66 to 80	50 to 59
Oil filler/level plug .....	25 to 35	19 to 26
Transfer breather .....	14 to 16	10 to 12
Transfer box front drive flange to drive shaft .....	41 to 52	30 to 38
Transfer box rear drive flange to drive shaft .....	41 to 52	30 to 38
Transfer gearbox mounting brackets to chassis .....	33 to 27	24 to 20
Mounting brackets to transfer gearbox .....	52	38
Mounting rubbers to mounting brackets .....	20 to 22	13 to 16

**NOTE: Studs to be assembled into casings with sufficient torque to wind them fully home, but this torque must not exceed the maximum figure quoted for the associated nut on final assembly.**

**NOTE: These bolts must have threads coated with Loctite 290 prior to assembly.**

**ZF4HP22 AUTOMATIC GEARBOX**

	<b>Nm</b>	<b>ft lb</b>
Coupling shaft to mainshaft .....	36 to 48	26 to 34'
Filler tube to sump .....	60 to 75	45 to 55
Gear change lever to gearbox .....	22 to 28	16 to 21
Cooler pipe adaptor to gearbox .....	36 to 48	26 to 34
Securing screws • clutch F .....	10	7
Securing screw • parking pawl .....	10	7
Securing screws • pump .....	10	7
Intermediate plate plugs (M20) .....	50	37
Intermediate plate plugs (M14) .....	40	29
Bell housing mounting bolts .....	46	34
Governor mounting screws .....	10	7
Extension housing bolts .....	23	17
Control unit mounting bolts .....	8	6
Sump plug .....	10	7
Mounting screws for sump .....	8	6
Drive plate to converter .....	35 to 42	25 to 30'
Gearbox to engine .....	36 to 48	26 to 34
Strut (threaded end) .....	36 to 48	26 to 34
Bottom cover to converter housing .....	7 to 10	5 to 7
Cover • converter housing .....	7 to 10	5 to 7
Drive plates to crankshaft adaptor .....	35 to 46	25 to 33*
Adaptor to crankshaft .....	77 to 90	55 to 65

**NOTE: \*These bolts must have threads coated with Loctite 270 prior to assembly.**

**FRONT AXLE**

	<b>Nm</b>	<b>ft lb</b>
Hub driving shaft to hub .....	41 to 52	30 to 38
Brake disc to hub .....	65 to 80	48 to 59
Stub axle to swivel pin housing .....	60 to 70	44 to 52*
Brake caliper to swivel pin housing .....	75 to 88	55 to 65
Upper swivel pin to swivel pin housing .....	68 to 88	50 to 65*
Lower swivel pin to swivel pin housing .....	68 to 88	50 to 65*
Oil seal retainer to swivel pin housing .....	9 to 12	7 to 9
Swivel bearing housing to axle case .....	65 to 80	48 to 59'
Pinion housing to axle case .....	36 to 46	26 to 34
Crown wheel to differential housing .....	55 to 61	40 to 45
Differential bearing cap to pinion housing .....	80 to 100	59 to 74
Differential drive flange to drive shaft .....	41 to 52	30 to 38
Mudshield to bracket lower swivel pin .....	9 to 12	7 to 9
Bevel pinion nut .....	95 to 163	70 to 120
<b>Draglink</b> to hub arm .....	40	30
<b>Panhard</b> rod to axle bracket .....	88	65
Radius arm to axle .....	190	140
Radius arm to chassis side member.. ..	190	140

**FRONT AXLE ABS VEHICLES**

Hub driving member to hub .....	60 to 70	44 to 52*
Brake disc to hub .....	65 to 80	48 to 59'
Stub axle to swivel pin housing .....	60 to 70	44 to 52*
Brake caliper to swivel pin housing .....	75 to 88	55 to 65
Upper swivel pin to swivel pin housing .....	60 to 70	44 to 52
Lower swivel pin to swivel pin housing.....	22 to 28	16 to 21*
Oil seal retainer to swivel pin housing .....	9 to 12	7 to 9
Swivel pin bearing housing to axle case .....	65 to 80	48 to 59'
Disc shield to bracket lower .....	7 to 10	5 to 7

**NOTE: \*These bolts to be coated with Loctite 270 prior to assembly.**

REAR AXLE	Nm	ft lb.	in lb
Axle shaft to hub .....	41 to 52	30 to 38	
Brake disc to hub .....	65 to 80	48 to 59	
Stub axle rear to axle case .....	60 to 70	44 to 52	
Brake caliper to axle case .....	75 to 88	55 to 65	
Pinion housing to axle case .....	36 to 46	26 to 34	
Crown wheel to differential case .....	55 to 61	40 to 45	
Differential bearing cap to pinion housing .....	80 to 100	59 to 74	
Differential drive flange to drive shaft .....	41 to 52	30 to 38	
Mudshield to axle case .....	9 to 12	7 to 9	
Bevel pinion nut .....	95 to 163	70 to 120	
Lower link to axle .....	176	130	
Pivot bracket ball joint to axle .....	176	130	

**REAR AXLE ABS VEHICLES**

Hub driving member to hub .....	60 to 70	44 to 52'	
Brake disc to hub .....	65 to 80	48 to 59'	
Stub axle rear to axle case .....	60 to 70	44 to 52	
Brake caliper to axle case .....	75 to 88	55 to 65	
Disc shield to axle case .....	9 to 12	7 to 9	
Sensor ring to brake disc .....	7 to 10	5 to 7	

**NOTE:** • These bolts to be coated with loctite 270 prior in assembly.

**BORG WARNER TRANSFER GEARBOX**

Brake drum back plate to rear output housing .....	65-80	48-59	
Brake drum to drive flange .....	22-28	16-21	
Centre differential (front to rear) .....	36-41	27-30	
Centre differential to sprocket .....	41-61	<b>30-45</b>	
Drive flanges to transfer gearbox .....	203-244	150-180	
Drive shafts to drive flanges .....	41-52	30-38	
Front cover to rear cover-main case .....	30-49	<b>22-36</b>	
Front output housing to main case .....	24-31	<b>18-23</b>	
Gearbox mounting brackets to chassis .....	52	29-37	
Mounting bracket to gearbox .....	52	68-83	
Neutral warning switch .....	14-19	10-14	
Oil drain plug .....	1V-30	14-22	
Oil filler/level plug .....	1V-30	<b>14-22</b>	
Oil pump fixings.. ..	4-8.5		35-75
Rear output housing to main case .....	30-49	22-36	
Selector lever shaft-Torx screw .....	7-9	5-7	60-84
Selector fork operating arm-Torx screw .....	7-9	5-7	60-84

**CHARTS BELOW GIVE TORQUE SETTINGS FOR ALL SCREWS AND BOLTS USED EXCEPT FOR THOSE THAT ARE SPECIFIED OTHERWISE.**

SIZE	METRIC		SIZE	UNC		UNF	
	Nm	ft lb		Nm	ft lb	Nm	ft lb
M5	5-7	3.7-5.2	1/4	6.8-9.5	5-7	8.1-12.2	6-9
M6	7-10	5.2-7.4	5/16	20.3-27.1	15-20	20.3-27.1	15-20
M8	22-28	16.2-20.7	3/8	35.3-43.4	26-32	35.3-43.4	26-32
M10	40-50	29.5-36.9	7/16	67.8-88.1	50-65 90-110	67.8-88.1	50-65
M12	80-100	59.0-73.8	1/2	81.3-101.7	60-75	81.3-101.7	60-75
M14	90-120	66.4-88.5	5/8	122.0-149.1		122.0-149.1	90-110
M16	160-200	118.0-147.5					

