

SERVICE SPECIFICATIONS

	Page
CLUTCH	A-2
MANUAL TRANSAXLE (S54)	A-3
MANUAL TRANSAXLE (E153)	A-6
AUTOMATIC TRANSAXLE (A241E)	A-10
SUSPENSION AND AXLE	A-14
BRAKE SYSTEM	A-16
STEERING	A-17
SRS AIRBAG	A-18
BODY	A-18
LUBRICANT	A-19

CLUTCH**Specifications**

Pedal height (from asphalt sheet)		184 – 194 mm	7.2 – 7.6 in.
Release point (from pedal stroke end position)	Minimum	25 mm	0.98 in.
Push rod play pedal top		1.0 – 5.0 mm	0.039 – 0.197 in.
Pedal freeplay		5 – 15 mm	0.20 – 0.59 in.
Clutch start switch	ON-OFF stroke	5.0 ± 0.5 mm	0.197 ± 0.020 in.
Reservoir tank slotted spring pin protrusion		1.5 – 3.5 mm	0.059 – 0.138 in.
Disc rivet head depth	Limit	0.3 mm	0.012 in.
Disc runout	Limit	0.8 mm	0.031 in.
Diaphragm spring tip alignment	Limit	0.5 mm	0.020 in.
Diaphragm spring finger wear	Depth	0.6 mm	0.024 in.
	Width	5.0 mm	0.197 in.
Flywheel runout	Limit	0.1 mm	0.004 in.

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Clutch master cylinder x Body	130	9	13
Clutch line union x Clutch master cylinder	155	11	15
Clutch release cylinder x Transaxle case	120	9	12
Flexible hose x Transmission control cable bracket	235	17	23
Clutch line union x Flexible hose	200	14	20
Bleeder plug	110	8	11
Transmission control cable bracket x Clutch release cylinder tube	155	11	15
Clutch release cylinder tube x Release cylinder body	155	11	15
Heat insulator x Release cylinder body	120	9	12
Engine front mounting bracket x Transaxle case	790	57	77
Release fork support x Transaxle case	480	35	47
Clutch cover x Flywheel	195	14	19
Crankshaft x Flywheel	1,000	72	98

MANUAL TRANSAXLE (S54)

Specifications

S54 transaxle	Input shaft				
	Roller bearing journal diameter	Limit	29.970 mm	1.1799 in.	
	3rd gear journal diameter	Limit	33.090 mm	1.3028 in.	
	4th gear journal diameter	Limit	32.420 mm	1.2764 in.	
	5th gear journal diameter	Limit	26.970 mm	1.0618 in.	
	Runout	Limit	0.05 mm	0.0020 in.	
	Slotted spring pin drive in depth		4.5 – 5.5 mm	0.177 – 0.217 in.	
	Output shaft				
	Roller bearing journal diameter	Limit	31.970 mm	1.2587 in.	
	1st gear journal diameter	Limit	37.970 mm	1.4949 in.	
	2nd gear journal diameter	Limit	31.970 mm	1.2587 in.	
	Runout	Limit	0.05 mm	0.0020 in.	
	Slotted spring pin drive in depth		4.5 – 5.5 mm	0.177 – 0.217 in.	
	Gear thrust clearance	1st	STD	0.10 – 0.29 mm	0.0039 – 0.0114 in.
			Limit	0.35 mm	0.0138 in.
		2nd	STD	0.20 – 0.44 mm	0.0079 – 0.0173 in.
			Limit	0.50 mm	0.0197 in.
		3rd	STD	0.10 – 0.25 mm	0.0039 – 0.0098 in.
			Limit	0.30 mm	0.0118 in.
		4th	STD	0.20 – 0.45 mm	0.0079 – 0.0177 in.
			Limit	0.50 mm	0.0197 in.
		5th	STD	0.20 – 0.40 mm	0.0079 – 0.0157 in.
			Limit	0.45 mm	0.0177 in.
	Gear oil clearance				
	1st, 2nd, 3rd & 4th	STD	0.009 – 0.053 mm	0.0004 – 0.0021 in.	
		Limit	0.070 mm	0.0028 in.	
	5th	STD	0.009 – 0.050 mm	0.0004 – 0.0020 in.	
		Limit	0.070 mm	0.0028 in.	
	Shift fork to hub sleeve clearance	Limit	1.0 mm	0.039 in.	
	Synchronizer ring to gear clearance	Limit	0.6 mm	0.024 in.	
	Reverse shift fork oil clearance	Limit	0.70 mm	0.0276 in.	
	Input shaft snap ring thickness				
	No. 2 clutch hub		Mark		
		1	1.95 – 2.00 mm	0.0768 – 0.0787 in.	
		2	2.00 – 2.05 mm	0.0787 – 0.0807 in.	
		3	2.05 – 2.10 mm	0.0807 – 0.0827 in.	
		4	2.10 – 2.15 mm	0.0827 – 0.0846 in.	
		5	2.15 – 2.20 mm	0.0846 – 0.0866 in.	
		6	2.20 – 2.25 mm	0.0866 – 0.0886 in.	
	No. 3 clutch hub		Mark		
		1	1.60 – 1.65 mm	0.0630 – 0.0650 in.	
		2	1.65 – 1.70 mm	0.0650 – 0.0669 in.	
		3	1.70 – 1.75 mm	0.0669 – 0.0689 in.	
		4	1.75 – 1.80 mm	0.0689 – 0.0709 in.	
		5	1.80 – 1.85 mm	0.0709 – 0.0728 in.	
		6	1.85 – 1.90 mm	0.0728 – 0.0748 in.	
		7	1.90 – 1.95 mm	0.0748 – 0.0768 in.	
		8	1.95 – 2.00 mm	0.0768 – 0.0787 in.	
		9	2.00 – 2.05 mm	0.0787 – 0.0807 in.	
		10	2.05 – 2.10 mm	0.0807 – 0.0827 in.	
		11	2.10 – 2.15 mm	0.0827 – 0.0846 in.	
		12	2.15 – 2.20 mm	0.0846 – 0.0866 in.	
		13	2.20 – 2.25 mm	0.0866 – 0.0886 in.	
		14	2.25 – 2.30 mm	0.0886 – 0.0906 in.	
		15	2.30 – 2.35 mm	0.0906 – 0.0925 in.	

Specifications (Cont'd)

S54 transaxle (cont'd)	Input shaft snap ring thickness (cont'd)			
	Rear bearing	Mark		
		A	2.15 – 2.20 mm	0.0846 – 0.0866 in.
		B	2.20 – 2.25 mm	0.0866 – 0.0886 in.
		C	2.25 – 2.30 mm	0.0886 – 0.0906 in.
		D	2.30 – 2.35 mm	0.0906 – 0.0925 in.
		E	2.35 – 2.40 mm	0.0925 – 0.0945 in.
	Output shaft snap ring thickness			
	No. 1 clutch hub	Mark		
		1	2.50 – 2.55 mm	0.0984 – 0.1004 in.
		2	2.55 – 2.60 mm	0.1004 – 0.1024 in.
		3	2.60 – 2.65 mm	0.1024 – 0.1043 in.
		4	2.65 – 2.70 mm	0.1043 – 0.1063 in.
		5	2.70 – 2.75 mm	0.1063 – 0.1083 in.
		6	2.75 – 2.80 mm	0.1083 – 0.1102 in.
	Differential			
	Side gear backlash		0.05 – 0.20 mm	0.0020 – 0.0079 in.
	Side gear thrust washer thickness		0.95 mm	0.0374 in.
			1.00 mm	0.0394 in.
			1.05 mm	0.0413 in.
			1.10 mm	0.0433 in.
			1.15 mm	0.0453 in.
			1.20 mm	0.0472 in.
	Side bearing preload (at starting)		8 – 16 kg-cm	6.9 – 13.9 in.-lb 0.8 – 1.6 N·m
	Side bearing adjusting shim thickness		Mark	
			1	1.90 mm 0.0748 in.
			2	1.95 mm 0.0768 in.
			3	2.00 mm 0.0787 in.
			4	2.05 mm 0.0807 in.
			5	2.10 mm 0.0827 in.
			6	2.15 mm 0.0846 in.
			7	2.20 mm 0.0866 in.
			8	2.25 mm 0.0886 in.
			9	2.30 mm 0.0906 in.
			10	2.35 mm 0.0925 in.
			11	2.40 mm 0.0945 in.
			12	2.45 mm 0.0965 in.
			13	2.50 mm 0.0984 in.
			14	2.55 mm 0.1004 in.
			15	2.60 mm 0.1024 in.
			16	2.65 mm 0.1043 in.
			17	2.70 mm 0.1063 in.
			18	2.75 mm 0.1083 in.
			19	2.80 mm 0.1102 in.
	No. 2 fork shaft slotted spring pin drive in depth		29.5 – 30.5 mm	1.16 – 1.20 in.
	No. 1 shift head slotted spring pin drive in depth		2.0 – 3.0 mm	0.08 – 0.12 in.
	No. 1 fork shaft slotted spring pin drive in depth		3.5 – 4.5 mm	0.14 – 0.18 in.
	Control shaft cover oil seal drive in depth		9.7 – 10.3 mm	0.38 – 0.41 in.

Torque Specifications

S54 transaxle	Part tightened	kg-cm	ft-lb	N-m
	Transaxle x Engine 12 mm bolt	650	47	64
	10 mm bolt	470	34	46
	Transaxle x Starter	400	29	39
	Transaxle x Front engine mounting bracket	790	57	77
	Transaxle x Rear engine mounting bracket	790	57	77
	LH engine mounting bracket x Transaxle	530	38	52
	LH engine mounting stay x Transaxle	380	27	37
	LH engine mounting stay x LH engine mounting	740	54	73
	LH engine mounting x LH engine mounting bracket	650	47	64
	Input shaft front bearing lock plate bolt	185	13	18
	Output shaft front bearing lock plate bolt	185	13	18
	Differential side bearing retainer x Transmission case	185	13	18
	Straight screw plug	130	9	13
	Transaxle case x Transmission case	300	22	29
	Reverse shift arm bracket x Transaxle case	185	13	18
	Reverse idler gear shaft lock bolt	300	22	29
	Rear bearing retainer x Transmission case	210	15	21
	5th driven gear lock nut	1,250	90	123
	Control shaft cover x Transmission case	375	27	37
	Lock ball assembly	230	17	23
	No. 1 lock ball assembly lock nut	375	27	37
	Shift fork x Fork shaft	185	13	18
	No. 1 oil receiver pipe x Transmission case	75	65 in.-lb	7.4
	Transmission case cover x Transmission case	300	22	29
	Release bearing retainer x Transaxle case	75	65 in.-lb	7.4
	Back-up light switch	450	33	44
	Transaxle case oil receiver x Transaxle case	75	65 in.-lb	7.4
	Drain plug	500	36	49
	Filler plug	500	36	49
	Transmission case protector x Transmission case	185	13	18
	Clutch release cylinder x Transaxle	120	9	12
	Stiffener plate	380	27	37
	Selecting bell crank x Transmission case	200	14	20
	Shift lever x Shift and select lever shaft	120	9	12
Shift lever and control cable	Shift lever retainer x Body	120	9	12
	Shift lever plate x Shift lever retainer	195	14	19
	Shift lever x Shift control cable	135	10	13
	Cable bracket x Body	50	43 in.-lb	5
	Grommet retainer set nut	50	43 in.-lb	5

MANUAL TRANSAXLE (E153)

Specifications

E153 transaxle	Input shaft				
	3rd and 4th gear journal diameter	Limit	35.950 mm	1.4154 in.	
	5th gear journal diameter	Limit	32.930 mm	1.2965 in.	
	Runout	Limit	0.05 mm	0.0020 in.	
	Output shaft				
	Roller bearing journal diameter	Limit	32.070 mm	1.2626 in.	
	1st and 2nd gear journal diameter	Limit	38.950 mm	1.5335 in.	
	Runout	Limit	0.06 mm	0.0024 in.	
	Gear thrust clearance	1st	STD	0.10 – 0.35 mm	0.0039 – 0.0138 in.
			Limit	0.40 mm	0.0157 in.
		2nd	STD	0.10 – 0.45 mm	0.0039 – 0.0177 in.
			Limit	0.50 mm	0.0197 in.
		3rd	STD	0.10 – 0.35 mm	0.0039 – 0.0138 in.
			Limit	0.40 mm	0.0157 in.
		4th	STD	0.10 – 0.55 mm	0.0039 – 0.0217 in.
			Limit	0.60 mm	0.0236 in.
		5th	STD	0.10 – 0.57 mm	0.0039 – 0.0224 in.
			Limit	0.65 mm	0.0256 in.
	Gear oil clearance				
	1st & 4th	STD	0.009 – 0.051 mm	0.0004 – 0.0020 in.	
		Limit	0.070 mm	0.0028 in.	
	2nd & 3rd	STD	0.009 – 0.053 mm	0.0004 – 0.0021 in.	
		Limit	0.070 mm	0.0028 in.	
	5th	STD	0.009 – 0.050 mm	0.0004 – 0.0020 in.	
		Limit	0.070 mm	0.0028 in.	
	Reverse idler	STD	0.056 – 0.090 mm	0.0022 – 0.0035 in.	
		Limit	0.120 mm	0.0047 in.	
	Shift fork to hub sleeve clearance	Limit	1.0 mm	0.039 in.	
	Synchronizer ring to gear clearance	Limit	0.6 mm	0.024 in.	
	Output shaft bearing preload (at starting)				
		New bearing	8 – 16 kg-cm (6.9 – 13.9 in.-lb, 0.8 – 1.6 N·m)		
		Reused bearing	5 – 10 kg-cm (4.3 – 8.7 in.-lb, 0.5 – 1.0 N·m)		
	Side bearing preload (at starting)				
		New bearing	Output shaft bearing preload 1.9 – 3.7 kg-cm (1.6 – 3.2 in.-lb, 0.2 – 0.4 N·m)		
		Reused bearing	Output shaft bearing preload 1.2 – 2.3 kg-cm (1.0 – 2.0 in.-lb, 0.1 – 0.2 N·m)		
	Speedometer driven gear oil seal drive in depth		33 mm	1.30 in.	
	Oil pump				
	Body clearance	STD	0.10 – 0.16 mm	0.004 – 0.006 in.	
		Limit	0.30 mm	0.012 in.	
	Tip clearance	STD	0.08 – 0.15 mm	0.003 – 0.006 in.	
		Limit	0.30 mm	0.012 in.	
	Side clearance	STD	0.03 – 0.08 mm	0.001 – 0.003 in.	
Limit		0.15 mm	0.006 in.		

Specifications (Cont'd)

E153 transaxle (cont'd)	Input shaft snap ring thickness No. 2 clutch hub	Mark		
		H	2.30 mm	0.0906 in.
		J	2.35 mm	0.0925 in.
		K	2.40 mm	0.0945 in.
		L	2.45 mm	0.0965 in.
		M	2.50 mm	0.0984 in.
		N	2.55 mm	0.1004 in.
		P	2.60 mm	0.1024 in.
	Input rear bearing	Mark		
		1	2.35 mm	0.0925 in.
		2	2.40 mm	0.0945 in.
		3	2.45 mm	0.0965 in.
		4	2.50 mm	0.0984 in.
		5	2.55 mm	0.1004 in.
		6	2.60 mm	0.1024 in.
		7	2.65 mm	0.1043 in.
		8	2.70 mm	0.1063 in.
	Output shaft snap ring thickness No. 1 clutch hub	Mark		
		A	2.80 mm	0.1102 in.
		B	2.85 mm	0.1122 in.
		C	2.90 mm	0.1142 in.
		D	2.95 mm	0.1161 in.
		E	3.00 mm	0.1181 in.
		F	3.05 mm	0.1201 in.
		G	3.10 mm	0.1220 in.
	No. 3 clutch hub	Mark		
		Q	2.25 mm	0.0886 in.
		R	2.30 mm	0.0906 in.
		S	2.35 mm	0.0925 in.
		T	2.40 mm	0.0945 in.
		U	2.45 mm	0.0965 in.
		V	2.50 mm	0.0984 in.
		W	2.55 mm	0.1004 in.
	Output shaft rear bearing adjusting shim thickness	X	2.60 mm	0.1024 in.
		Y	2.65 mm	0.1043 in.
		Mark		
		0	1.30 mm	0.0512 in.
		1	1.35 mm	0.0531 in.
		2	1.40 mm	0.0551 in.
		3	1.45 mm	0.0571 in.
		4	1.50 mm	0.0591 in.
		5	1.55 mm	0.0610 in.
		6	1.60 mm	0.0630 in.
		7	1.65 mm	0.0650 in.
		8	1.70 mm	0.0669 in.
		9	1.75 mm	0.0689 in.

Specifications (Cont'd)

E153 transaxle (cont'd)	Output shaft rear bearing adjusting shim thickness (cont'd)	Mark		
		A	1.80 mm	0.0709 in.
		B	1.85 mm	0.0728 in.
		C	1.90 mm	0.0748 in.
		D	1.95 mm	0.0768 in.
		E	2.00 mm	0.0787 in.
		F	2.05 mm	0.0807 in.
		G	2.10 mm	0.0827 in.
		H	2.15 mm	0.0846 in.
		J	2.20 mm	0.0866 in.
		K	2.25 mm	0.0886 in.
		L	2.30 mm	0.0906 in.
		M	2.35 mm	0.0925 in.
		N	2.40 mm	0.0945 in.
		P	2.45 mm	0.0965 in.
		Q	2.50 mm	0.0984 in.
	Differential pinion to side gear backlash		0.05 – 0.20 mm	0.0020 – 0.0079 in.
	Differential side gear thrust washer thickness		0.80 mm	0.0315 in.
			0.90 mm	0.0354 in.
			1.00 mm	0.0394 in.
			1.10 mm	0.0433 in.
			1.20 mm	0.0472 in.
			1.30 mm	0.0512 in.
			1.40 mm	0.0551 in.
	Differential side bearing adjusting shim thickness	Mark		
		0	2.00 mm	0.0787 in.
		1	2.05 mm	0.0807 in.
		2	2.10 mm	0.0827 in.
		3	2.15 mm	0.0846 in.
		4	2.20 mm	0.0866 in.
		5	2.25 mm	0.0886 in.
		6	2.30 mm	0.0906 in.
		7	2.35 mm	0.0925 in.
		8	2.40 mm	0.0945 in.
		9	2.45 mm	0.0965 in.
		A	2.50 mm	0.0984 in.
		B	2.55 mm	0.1004 in.
		C	2.60 mm	0.1024 in.
		D	2.65 mm	0.1043 in.
		E	2.70 mm	0.1063 in.
		F	2.75 mm	0.1083 in.
		G	2.80 mm	0.1102 in.
		H	2.85 mm	0.1122 in.

Torque Specifications

E153 transaxle	Part tightened	kg-cm	ft-lb	N·m
	Transaxle x Engine	650	47	64
		470	34	46
		380	27	37
	Transaxle x Starter	400	29	39
	Transaxle x Front engine mounting bracket	790	57	77
	Transaxle x Rear engine mounting bracket	790	57	77
	LH engine mounting stay x Transaxle	380	27	37
	LH engine mounting stay x LH engine mounting	740	54	73
	LH engine mounting x LH engine mounting bracket	650	47	64
	Oil pump cover bolt	105	8	10
	Differential right case x Differential left case	640	46	63
	Differential case x Ring gear	1,260	91	124
	Transmission case x Transaxle case	300	22	29
	Transmission case x Case cover	300	22	29
	Rear bearing retainer x Transmission case	430	31	42
	5th driven gear lock nut	1,250	90	123
	Reverse idler shaft lock bolt	300	22	29
	Control shaft cover bolt	200	14	20
	Reverse shift arm bracket x Transaxle case	175	13	17
	Shift fork x Fork shaft	240	17	24
	Filler plug	500	36	49
	Drain plug	500	36	49
	Back-up light switch	410	30	40
	Selecting bellcrank x Transmission case	200	14	20
	Oil pipe clamp	175	13	17
	Shift lever x Shift and select lever shaft	120	9	12
	Lock bolt x Transmission case	500	36	49
	Straight screw plug	250	18	25
	Stiffener plate	380	27	37
	Clutch release cylinder x Transaxle	120	9	12
Shift lever and control cable	Same the S54 manual transaxle (See page A-5)			

AUTOMATIC TRANSAXLE (A241E)**Specifications**

Line pressure	Engine idling	D range	3.8 – 4.3 kg/cm ²	54 – 61 psi	373 – 422 kPa				
		R range	6.5 – 8.1 kg/cm ²	92 – 115 psi	637 – 794 kPa				
	At stall	D range	7.3 – 8.8 kg/cm ²	104 – 125 psi	716 – 863 kPa				
		R range	13.6 – 16.1 kg/cm ²	193 – 229 psi	1,334 – 1,579 kPa				
Engine stall revolution				2,550 ± 150 rpm					
Time lag				Less than 1.2 seconds					
N range → D range				Less than 1.5 seconds					
N range → R range									
Engine idle speed (A/C OFF, N range)				700 ± 50 rpm					
Throttle cable adjustment (Throttle valve fully closed)				Between boot end face and inner cable stopper					
				0 – 1 mm	0 – 0.04 in.				
Torque converter installation				13.0 mm	0.51 in.				
Torque converter sleeve runout				0.3 mm	0.0118 in.				
Drive plate runout				0.2 mm	0.0079 in.				
Shift schedule		Throttle valve fully open [Fully closed]						km/h (mph)	
		1 → 2	2 → 3	3 → O/D	[3 → O/D]	[O/D → 3]	O/D → 3	3 → 2	2 → 1
	D range	53 – 59 (33 – 37)	102 – 112 (63 – 70)	137 – 149 (85 – 93)	[46 – 52] [(29 – 32)]	[19 – 24] [(12 – 15)]	131 – 143 (81 – 89)	98 – 108 (61 – 67)	44 – 50 (27 – 31)
	2 range	53 – 59 (33 – 37)	—	—	—	—	—	—	44 – 50 (27 – 31)
	L range	—	—	—	—	—	—	—	34 – 40 (21 – 25)
Lock-up point		Throttle valve opening 5%						km/h (mph)	
		Lock-up ON				Lock-up OFF			
		O/D				O/D			
	D range	80 – 87 (50 – 54)				74 – 80 (46 – 50)			
Second coast brake	Piston stroke	1.5 – 3.0 mm			0.059 – 0.118 in.				
	Piston rod length	72.9 mm			2.870 in.				
		71.4 mm			2.811 in.				
Oil pump	Body clearance	STD	0.07 – 0.15 mm			0.0028 – 0.0059 in.			
		Maximum	0.3 mm			0.012 in.			
	Tip clearance	STD	0.11 – 0.14 mm			0.0043 – 0.0055 in.			
		Maximum	0.3 mm			0.012 in.			
	Side clearance	STD	0.02 – 0.05 mm			0.0008 – 0.0020 in.			
		Maximum	0.1 mm			0.004 in.			
	Pump body bushing inside diameter	Maximum	38.18 mm			1.5031 in.			
	Stator shaft bushing inside diameter								
Direct clutch	Piston stroke	1.11 – 1.47 mm			0.0437 – 0.0579 in.				
	Drum bushing inside diameter	47.07 mm			1.8531 in.				
	Flange thickness	2.6 mm			0.102 in.				
		3.0 mm			0.118 in.				
Forward clutch	Piston stroke	1.42 – 1.81 mm			0.0559 – 0.0713 in.				
	Flange thickness	3.00 mm			0.1181 in.				
		3.37 mm			0.1327 in.				

Specifications (Cont'd)

Front planetary gear	Sun gear bushing inside diameter	Standard	22.025 – 22.046 mm	0.8671 – 0.8680 in.
		Maximum	22.096 mm	0.8699 in.
	Ring gear flange bushing inside diameter			
Planetary pinion gear thrust clearance		Standard	19.025 – 19.050 mm	0.7490 – 0.7500 in.
		Maximum	0.5 mm	0.020 in.
Rear planetary gear	Planetary pinion gear thrust clearance	Maximum	0.5 mm	0.020 in.
Counter shaft	Starting torque	with spring tension gauge with torque gauge (hexagon nut side)	1.2 – 2.0 kg	2.6 – 4.4 lb
		New bearing	6 – 10 kg-cm	5.2 – 8.7 in.-lb
		Reused bearing	3 – 5 kg-cm	2.6 – 4.3 in.-lb
	Planetary sun gear bushing inside diameter			
		Standard	29.800 – 29.825 mm	1.1732 – 1.1742 in.
		Maximum	29.870 mm	1.1760 in.
	Underdrive planetary pinion gear thrust clearance			
		Maximum	0.5 mm	0.020 in.
	Height (measure the distance between the tip of the counter shaft and bolt seat of the clutch support.)		33.3 – 35.5 mm	1.311 – 1.398 in.
	End play		0.23 – 0.89 mm	0.0091 – 0.0350 in.
Underdrive clutch and one-way clutch No. 3	Clutch drum bushing inside diameter			
		Standard	46.500 – 46.525 mm	1.8307 – 1.8317 in.
		Front side	55.000 – 55.030 mm	2.1654 – 2.1665 in.
		Rear side	46.570 mm	1.8335 in.
		Maximum	55.080 mm	2.1685 in.
	Underdrive clutch piston stroke		1.22 – 1.54 mm	0.0480 – 0.0606 in.
	Flange thickness		2.30 mm	0.0906 in.
			2.50 mm	0.0984 in.
Intermediate shaft			2.70 mm	0.1063 in.
	Intermediate shaft protrusion length (Reference)		115.8 mm	4.559 in.
Input shaft	Thrust play		0.3 – 0.9 mm	0.012 – 0.035 in.

Specifications (Cont'd)

Valve body spring	Spring	Free length mm (in.)	Coil outer diameter mm (in.)	Total No. of coils	Color
	(Upper valve body)				
	Primary regulator valve	66.7 (2.626)	18.6 (0.732)	12.5	Purple
	Lock-up relay valve	18.8 (0.740)	5.1 (0.201)	14.5	None
	Low coast modulator valve	27.5 (1.083)	8.3 (0.327)	12.5	Yellow
	Down shift plug	30.0 (1.181)	8.7 (0.343)	12.5	Red
	Throttle valve	29.2 (1.150)	9.2 (0.362)	9.5	Light Green
	Throttle modulator valve	29.9 (1.177)	9.0 (0.354)	15.5	Green
	Accumulator control valve	33.2 (1.307)	10.0 (0.394)	11.5	Orange
	(Low valve body)				
	Cooler by-pass valve	18.3 (0.720)	12.0 (0.472)	6.5	Yellow
	Pressure relief valve	11.2 (0.441)	6.4 (0.252)	7.5	None
	2-3 shift valve	30.7 (1.209)	9.7 (0.382)	10.5	Purple
	2nd coast modulator valve	29.6 (1.165)	8.3 (0.327)	12.5	Red
	Lock-up signal valve	30.0 (1.181)	8.2 (0.323)	11.5	Orange
	Secondary regulator valve	27.4 (1.079)	11.0 (0.433)	11.5	Blue
	1-2 shift valve	30.8 (1.213)	9.7 (0.382)	10.5	Purple
	3-4 shift valve	30.8 (1.213)	9.7 (0.382)	10.5	Purple
Valve body retainer	Retainer	Height mm (in.)	Width mm (in.)	Thickness mm (in.)	
	(Upper valve body)				
	Accumulator control valve	15.0 (0.591)	5.0 (0.197)	3.2 (0.126)	
	Cut-back valve	16.0 (0.630)	5.0 (0.197)	3.2 (0.126)	
	Low coast modulator valve	21.2 (0.835)	5.0 (0.197)	3.2 (0.126)	
	(Lower valve body)				
	2-3 shift valve	11.5 (0.453)	5.0 (0.197)	3.2 (0.126)	
	2nd coast modulator valve	11.5 (0.453)	5.0 (0.197)	3.2 (0.126)	
	Lock-up signal valve	11.5 (0.453)	5.0 (0.197)	3.2 (0.126)	
	1-2 shift valve	11.5 (0.453)	5.0 (0.197)	3.2 (0.126)	
	3-4 shift valve	11.5 (0.453)	5.0 (0.197)	3.2 (0.126)	
Secondary regulator valve	9.2 (0.362)	5.0 (0.197)	3.2 (0.126)		
Accumulator spring	Spring	Free length mm (in.)			Color
	C ₁	Outer	74.1 (2.917)		Pink
		Inner	41.0 (1.614)		Pink
	C ₂		62.5 (2.461)		Pink
	C ₃	Outer	65.2 (2.570)		Blue
		Inner	48.0 (1.890)		Orange
B ₂		64.5 (2.539)		Green	
Differential	Side bearing preload (at Starting)				
	New bearing		8 – 14 kg-cm	6.9 – 12.2 in.-lb	0.8 – 1.4 N-m
	Reused bearing		4 – 7 kg-cm	3.5 – 6.1 in.-lb	0.4 – 0.7 N-m
	Pinion to side gear backlash		0.05 – 0.20 mm 0.0020 – 0.0079 in.		
	Side gear thrust washer thickness				
			0.95 mm	0.0374 in.	
			1.00 mm	0.0394 in.	
			1.05 mm	0.0413 in.	
			1.10 mm	0.0433 in.	
		1.15 mm	0.0453 in.		
		1.20 mm	0.0472 in.		

Specifications (Cont'd)

Differential (cont'd)	Side bearing adjusting shim thickness	2.00 mm	0.0787 in.
		2.05 mm	0.0807 in.
		2.10 mm	0.0827 in.
		2.15 mm	0.0846 in.
		2.20 mm	0.0866 in.
		2.25 mm	0.0886 in.
		2.30 mm	0.0906 in.
		2.35 mm	0.0925 in.
		2.40 mm	0.0945 in.
		2.45 mm	0.0965 in.
		2.50 mm	0.0984 in.
		2.55 mm	0.1004 in.
		2.60 mm	0.1024 in.
		2.65 mm	0.1043 in.
		2.70 mm	0.1063 in.
		2.75 mm	0.1083 in.
		2.80 mm	0.1102 in.
		2.85 mm	0.1122 in.
		2.90 mm	0.1142 in.

Torque Specifications

Part tightened	kg-cm	ft-lb	N-m
Neutral start switch x Transaxle case	55	48 in.-lb	5.4
Torque converter x Drive plate	280	20	27
Drive plate x Crank shaft	850	61	83
Oil pump body x Stator shaft	100	7	10
Upper valve body x Lower valve body	65	56 in.-lb	6.4
Solenoid x Lower valve body	100	7	10
Ring gear x Differential case	985	71	97
Transaxle housing x Transmission case	300	22	29
Counter shaft x Driven gear	1,600	116	157
Oil pump x Transaxle case	250	18	25
Accumulator cover x Transaxle case	100	7	10
Valve body x Transaxle case	100	7	10
Manual detent spring x Transaxle case	100	7	10
Oil tube bracket	100	7	10
Oil pan	50	43 in.-lb	4.9
Speed sensor x Transaxle case	100	7	10
Sensor adopter	100	7	10
Sensor cover bracket	130	9	13
Neutral start switch x Manual valve shaft	70	61 in.-lb	6.9
Transaxle housing x Engine	650	47	64
Transaxle rear cover x Transaxle case	300	22	29

SUSPENSION AND AXLE**Specifications**

Cold tire inflation pressure kg/cm ² (psi, kPa)	Tire size			Front		Rear	
	5S-FE Engine	195/60R14 205/60R14	85H 87H	2.0 (29, 200) —		— 23 (33, 225)	
	3S-GTE Engine	195/60R14 205/60R14	85V 87V	2.0 (29, 200) —		— 23 (33, 225)	
Chassis ground clearance mm (in.)	All models			224.0 (8.819)		203.0 (7.992)	
Front wheel alignment				Inspection STD		Adjustment STD	
	Toe-in Left-right error			1 ± 2 mm (0.04 ± 0.08 in.) 1.0 mm (0.039 in.) or less		1 ± 1 mm (0.04 ± 0.04 in.) 1.0 mm (0.039 in.) or less	
	Camber Left-right error			– 0°55' ± 30' 30' or less		— —	
	Caster Left-right error			2°45' ± 45' 30' or less		2°45' ± 30' 30' or less	
	Steering axis inclination Left-right error			13°35' ± 30' 30' or less		— —	
	Wheel angle (Maximum)	Outside wheel		32°			
		Inside wheel		37°30' ± 1°30'			
	Side slip (Reference only)			3.0 mm/m (0.118 in./3.3 ft) or less			
Rear wheel alignment				Inspection STD		Adjustment STD	
	Toe-in Left-right error			5 ± 1 mm (0.20 ± 0.04 in.) 10° or more		1 ± 1 mm (0.04 ± 0.04 in.) 10° or more	
	Camber Left-right error			– 1°20' ± 30' 30' or less		— —	
Wheel lateral runout	Less than 1.0 mm (0.039 in.)						
Front axle and suspension	Hub bearing axial direction			Limit	0.5 mm		
	Ball joint rotation condition				8 – 25 kg-cm (7 – 22 in.-lb, 0.8 – 2.5 N-m)		
	Ball joint vertical play				0 mm		
	Strut bar length				362 mm		
Rear axle and suspension	Hub bearing axial direction			Limit	0.5 mm		
	Ball joint rotation condition				0.5 – 10 kg-cm (0.43 – 8.68 in.-lb, 0.05 – 0.98 N-m)		
	Ball joint vertical play				0 mm		
	Drive shaft grease capacity						
	Outboard joint	5S-FE engine			120 – 130 g		
		3S-GTE engine			120 – 130 g		
	Inboard joint	5S-FE engine			232 – 242 g		
		3S-GTE engine			90 – 100 g		
	Side gear shaft	3S-GTE engine			43 – 53 g		
	Drive shaft standard length						
				5S-FE engine	LH	540.3 ± 5.0 mm	
					RH	831.4 ± 5.0 mm	
				3S-GTE engine	LH	389.7 ± 5.0 mm	
				RH	389.7 ± 5.0 mm		

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
FRONT AXLE AND SUSPENSION			
Disc brake dust cover x Steering knuckle	85	74 in.-lb	8.3
Axle hub lock nut	1,250	90	123
Tie rod end x Steering knuckle	500	36	49
Ball joint x Steering knuckle	820	59	80
ABS speed sensor x Steering knuckle (w./ABS)	80	69 in.-lb	7.8
Steering knuckle x Shock absorber	2,600	188	255
Brake caliper x Steering knuckle	600	43	59
Piston rod x Suspension support	500	36	49
Suspension support x Body	400	29	39
Brake hose x Disc brake caliper	310	22	30
Stabilizer link x Shock absorber	650	47	64
Lower arm x Ball joint	800	58	78
Strut Bar x Lower arm	1,150	83	113
Lower arm x Body	1,200	87	118
Stabilizer bar x Body	195	14	19
Stabilizer bar x Stabilizer link	650	47	64
Strut bar x Body	1,150	83	113
Hub nut	1,050	76	103
REAR AXLE AND SUSPENSION			
Axle carrier x Shock absorber	2,600	188	225
Axle carrier x Tie rod end	1,050	76	103
Axle carrier x Lower arm	1,150	83	113
Stabilizer link x Shock absorber	500	36	49
ABS speed sensor x Axle carrier	80	69 in.-lb	7.8
Disc brake caliper x Axle carrier	600	43	59
Hub bearing lock nut (5S-FE engine)	2,100	152	206
(3S-GTE engine)	3,000	217	294
Axle carrier x Ball joint	1,150	83	113
Bearing bracket stay x Engine	770	56	75
Bearing bracket stay x Bearing bracket	770	56	75
Bearing bracket x Drive shaft center bearing	330	24	32
Bearing bracket x Engine	650	47	64
Drive shaft inboard joint holding hexagon bolts	660	48	65
Piston rod x Suspension support	740	54	73
Suspension support x Body	820	59	80
Brake hose x Disc brake caliper	310	22	30
ABS speed sensor wire harness x	55	48 in.-lb	5.4
Suspension cross member			
Lower arm x Ball joint	930	67	91
Lower arm holding nut	1,350	98	132
Strut rod nut	910	66	89
Strut rod x Body	1,200	87	118
Suspension arm x Body	1,050	76	103
Stabilizer bar x Body	195	14	19
Suspension cross member x Body	1,150	83	113
Engine mount x Suspension cross member	790	57	77
Exhaust pipe x Suspension cross member	210	15	21
Stabilizer bar x Stabilizer link	500	36	49

BRAKE SYSTEM**Specifications**

Brake pedal	Pedal height (from asphalt sheet)		177 – 187 mm	6.968 – 7.362 in.
	Pedal freeplay		3 – 5 mm	0.12 – 0.20 in.
	Pedal reserve distance at 50 kg (110.2 lb, 490 N)		More than 117 mm (4.61 in.)	
Brake booster	Booster push rod to piston clearance	w/ SST	0 mm	0 in.
Front brake	Disc thickness	STD	25.0 mm	0.984 in.
		Limit	24.0 mm	0.945 in.
	Disc runout	Limit	0.07 mm	0.0028 in.
	Pad thickness	STD	10.0 mm	0.394 in.
		Limit	1.0 mm	0.039 in.
Rear brake	Disc thickness	STD	16.0 mm	0.630 in.
		Limit	15.0 mm	0.591 in.
	Disc runout	Limit	0.10 mm	0.039 in.
	Pad thickness	STD	10.0 mm	0.394 in.
		Limit	1.0 mm	0.039 in.
Parking brake	Lever travel	at 20 kg (44.1 lb, 196 N)	5 – 8 clicks	

Torque Specifications

Part tightened	kg-cm	ft-lb	N-m
Master cylinder x Piston stopper bolt	100	7	10
Master cylinder x Reservoir	17.5	15.2 in.-lb	1.7
Master cylinder x Brake booster	130	9	13
Brake tube union nut	155	11	15
Brake booster clevis lock nut	260	19	25
Brake booster x Pedal bracket	130	18	25
Front disc brake cylinder installation bolt (PE36T Disc)	350	25	34
(PD51 Disc)	255	18	25
Front disc brake torque plate x Steering knuckle	900	65	88
Front disc brake cylinder x Flexible hose	310	22	30
Rear disc brake cylinder installation bolt	200	14	20
Rear disc brake torque plate x Rear axle carrier	600	43	59
Rear disc brake cylinder x Flexible hose	310	22	30
ABS actuator x Body	195	14	19
Bleeder plug	85	74 in.-lb	8.3
ABS actuator x Actuator bracket	55	48 in.-lb	5.4
Front speed sensor installation bolt	80	69 in.-lb	7.8
Rear speed sensor installation bolt	80	69 in.-lb	7.8

STEERING**Specifications**

Steering column	Steering wheel freeplay Pawl stopper	Maximum	30 mm	1.18 in.
		Mark		
		1 or A	12.65 – 12.75 mm	0.4980 – 0.5020 in.
		2 or B	12.55 – 12.65 mm	0.4941 – 0.4980 in.
		3 or C	12.45 – 12.55 mm	0.4902 – 0.4941 in.
		4 or D	12.35 – 12.45 mm	0.4862 – 0.4902 in.
		5 or E	12.25 – 12.35 mm	0.4823 – 0.4862 in.
Manual steering gear housing	Steering rack runout	Maximum	0.3 mm	0.012 in.
	Pinion bearing preload	at Turning	2.3 – 3.3 kg-cm	2.0 – 2.9 in.-lb 0.2 – 0.3 N·m
	Total preload	at Turning	6 – 13 kg-cm	5.2 – 11.3 in.-lb 0.6 – 1.3 N·m
Power steering	Maximum rise of oil level	at Idle speed	Below 5 mm (0.20 in.)	
	Oil pressure		50 – 55 kg/cm ²	
			(711 – 782 psi, 4,903 – 5,394 kPa)	
	Steering effort	Maximum	4.5 kg	9.9 lb 44 N
	Steering rack runout		0.3 mm	0.012 in.
	Total preload		9 – 13 kg-cm	7.8 – 11.3 in.-lb 0.9 – 1.3 N·m

Torque Specifications

Steering column	Part tightened	kg-cm	ft-lb	N·m
	Main shaft x Steering wheel	360	26	35
	Steering wheel pad (w/ airbag)	75	65 in.-lb	7.4
	Column tube x Body	260	19	25
	Universal joint bolt	360	26	35
	Tilt lever assembly installation bolt	30	26 in.-lb	2.9
	Tilt pawl set nut	60	52 in.-lb	5.9
	Tilt lever retainer set nut	150	11	15
	Compression spring bushing bolt	80	69 in.-lb	7.8
	Main shaft x Intermediate shaft	360	26	35
Manual steering gear housing	Gear housing bracket x Body	440	32	43
	Tie rod end x Steering knuckle	500	36	49
	Universal joint bolt	360	26	35
	Pinion bearing adjusting screw lock nut	930	67	91
	Rack guide spring cap lock nut	570	41	56
	Rack x Rack end	650	47	64
	Tie rod end lock nut	570	41	56
Power steering (Power steering pump)	PS pump x Crossmember	260	19	25
	Rear pump stay x PS pump	185	13	18
	Rear pump stay x Body	185	13	18
	Pressure tube union nut	370	27	36
(Gear housing)	Gear housing bracket x Body	440	32	43
	Tie rod end x Steering knuckle	500	36	49
	Universal joint bolt	360	26	35
	Pressure tube union bolt	500	36	49
	Return tube	250	18	25

Torque Specifications (Cont'd)

(Gear housing) (cont'd)	Part tightened	kg-cm	ft-lb	N·m
	Rack x Rack end	520	38	51
	Tie rod end lock nut	570	41	56
	Control valve housing x Rack housing	185	13	18
	Control valve shaft-seft-locking nut	250	18	25
	Rack housing cap	600	43	59
	Rack guide spring cap lock nut	340	25	33
	Turn pressure tube x Housing	110	8	11

SRS AIRBAG**Specifications**

Front airbag sensor resistance	Terminal	
	⊕ S – ⊕ A	755 – 885 Ω
	⊕ S – ⊖ S	∞
	⊖ S – ⊖ A	Less than 1 Ω

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Steering wheel	360	26	35
Steering wheel pad	75	65 in.-lb	7.4
Front airbag sensor	260	19	25
Center airbag sensor assembly	130	9	13

BODY**Torque Specifications**

Part tightened	kg-cm	ft-lb	N·m
SEAT			
Seat adjuster x Body	375	27	37
SEAT BELTS			
Adjustable anchor x Body	440	32	43
Shoulder anchor x Adjustable anchor	440	32	43
Anchor x Body	440	32	43
Buckle x Seat	440	32	43
Anchor plate x Body	400	29	39
ELR x Body	440	32	43
	80	69 in.-lb	9.8
Bracket x Seat	195	14	19

LUBRICANT

Item		Capacity			Classification
		Liters	US qts	Imp. qts	
Manual transaxle oil (w/ Differential)	S54	2.6	2.7	2.3	ATF DEXRON®II
	E153	4.2	4.4	3.7	Transaxle oil E50 (08885-80206) or equivalent
Automatic transaxle fluid					ATF DEXRON®II
		8.0	8.5	7.0	
		3.3	3.5	2.9	
Power steering fluid	Total	0.65	0.69	0.75	TOYOTA POWER STEERING FLUID EH (Part No. 08886-01206) or equivalent
Steering gear housing grease		—			Molybdenum disulphide lithium base, NLGI No. 2
Brake fluid		—			SAE J1703 or FMVSS No. 116 DOT 3