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REFER TO FOLLOWING REPAIR MANUALS:

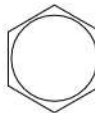
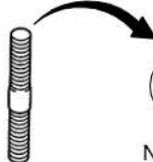
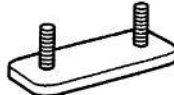
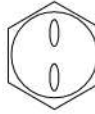
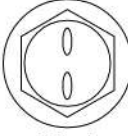
Manual Name	Pub. No.
AVENSIS/CORONA Chassis and Body Repair Manual	RM599E
AVENSIS/CORONA Chassis and Body Repair Manual Supplement (Aug., 1999)	RM698E

NOTE: The above pages contain only the points which differ from the above listed manuals.

STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

SS02S-01

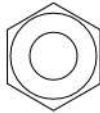
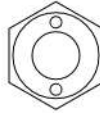
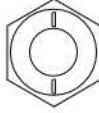
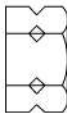
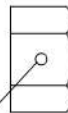
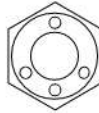
Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
4  No Mark	 No Mark	 No Mark		4T
5 				5T
6  w/ Washer	 w/ Washer			6T
7 	 			7T
8		 		8T
9				9T
10	 			10T
11	 			11T

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SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N-m	kgf-cm	ft-lbf	N-m	kgf-cm	ft-lbf
4T	6	1	5	55	48 in.-lbf	6	60	52 in.-lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	–	–	–
5T	6	1	6.5	65	56 in.-lbf	7.5	75	65 in.-lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	–	–	–
6T	6	1	8	80	69 in.-lbf	9	90	78 in.-lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	–	–	–
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	–	–	–
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

HOW TO DETERMINE NUT STRENGTH

Nut Type			Class
Present Standard Hexagon Nut	Old Standard Hexagon Nut		
	Cold Forging Nut	Cutting Processed Nut	
 No Mark			4N
 No Mark (w/ Washer)	 No Mark (w/ Washer)	 No Mark	5N (4T)
  			6N
	 	 	7N (5T)
 			8N
 	 	 No Mark	10N (7T)
 			11N
 			12N

*: Nut with 1 or more marks on one side surface of the nut.

B06432

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

AVENSIS/CORONA SUP (RM781E)

CLUTCH

SERVICE DATA

SS02L-03

Pedal height from asphalt sheet	3ZZ-FE LHD	139.7 – 149.7 mm (5.500 – 5.894 in.)
	RHD	144.3 – 154.3 mm (5.681 – 6.075 in.)
	1ZZ-FE Engine LHD	139.7 – 149.7 mm (5.500 – 5.894 in.)
	RHD	144.3 – 154.3 mm (5.681 – 6.075 in.)
	1AZ-FSE Engine LHD	148.3 – 158.3 mm (5.893 – 6.232 in.)
	RHD	152.9 – 162.9 mm (6.020 – 6.413 in.)
Pedal freeplay		1.0 – 5.0 mm (0.039 – 0.197 in.)
Push rod play at pedal top		5.0 – 15.0 mm (0.197 – 0.591 in.)
Clutch release point from pedal full stroke end position		25 mm (0.98 in.) or more
Disc rivet head depth	Min.	0.3 mm (0.012 in.)
Disc runout	Max.	0.8 mm (0.031 in.)
Flywheel runout	Max	0.1 mm (0.004 in.)
Diaphragm spring finger wear	Max. depth	0.5 mm (0.020 in.)
Diaphragm spring finger wear	Max. width	6.0 mm (0.236 in.)
Diaphragm spring tip non-alignment	Max.	0.5 mm (0.020 in.)

TORQUE SPECIFICATION

Parttightened	N·m	kgf·cm	ft·lbf
Clutch line union	15	155	11
Master cylinder installation nut	12	120	9
Master cylinder x Clutch accumulator 1CD-FTV Engine RHD	32 (44)	330 (450)	24 (33)
Clutch cover x Flywheel	19	195	14
Release fork support 1ZZ-FE, 3ZZ-FE Engine	37	375	27
Others Engine	39	400	29

(): For use without SST

MANUAL TRANSAXLE (C50, C250)

SS02P-06

SERVICE DATA

Input shaft roller bearing journal diameter	Min.	24.985 mm (0.9834 in.)
Input shaft 3rd gear journal diameter	Min.	30.985 mm (1.2199 in.)
Input shaft 4th gear journal diameter	Min.	28.985 mm (1.1411 in.)
Input shaft 5th gear journal diameter	Min.	24.885 mm (0.9797 in.)
Input shaft runout	Max.	0.03 mm (0.0012 in.)
Output shaft roller bearing journal diameter	Min.	32.985 mm (1.2986 in.)
Output shaft 1st gear journal diameter	Min.	37.985 mm (1.4955 in.)
Output shaft 2nd gear journal diameter	Min.	31.985 mm (1.2592 in.)
Output shaft runout	Max.	0.03 mm (0.0012 in.)
Gear thrust clearance 1st	STD	0.10 – 0.40 mm (0.0039 – 0.0157 in.)
	Max.	0.40 mm (0.0157 in.)
Gear thrust clearance 2nd	STD	0.10 – 0.45 mm (0.0039 – 0.0177 in.)
	Max.	0.45 mm (0.0177 in.)
Gear thrust clearance 3rd	STD	0.10 – 0.35 mm (0.0039 – 0.0138 in.)
	Max.	0.35 mm (0.0138 in.)
Gear thrust clearance 4th	STD	0.10 – 0.55 mm (0.0039 – 0.0217 in.)
	Max.	0.55 mm (0.0222 in.)
Gear thrust clearance 5th	STD	0.10 – 0.57 mm (0.0039 – 0.0244 in.)
	Max.	0.57 mm (0.0224 in.)
Gear radial clearance 1st, 2nd, 3rd, 4th, and 5th (KOYO made)	STD	0.015 – 0.058 mm (0.0006 – 0.0023 in.)
	Max.	0.058 mm (0.0023 in.)
Gear radial clearance 1st, 2nd, 3rd, 4th, and 5th (NSK made)	STD	0.015 – 0.056 mm (0.0006 – 0.0022 in.)
	Max.	0.056 mm (0.0022 in.)
No. 3 gear shift fork to No. 3 hub sleeve clearance	Max.	0.5 mm (0.020 in.)
No. 2 gear shift fork to No. 2 hub sleeve clearance	Max.	0.35 mm (0.014 in.)
No. 1 gear shift fork to reverse gear clearance	Max.	0.35 mm (0.014 in.)
Synchronizer ring to gear clearance 1st, 4th and 5th	Min.	0.75 mm (0.0295 in.)
Synchronizer ring to gear clearance 3rd	Min.	0.65 mm (0.0256 in.)
Synchronizer ring to gear clearance 2nd	Min.	0.70 mm (0.0276 in.)
Drive in depth		
Control shaft cover oil seal		1.0 – 2.0 mm (0.039 – 0.079 in.)
Transmission case oil seal		9.9 ± 0.3 mm (0.390 ± 0.012 in.)
Transaxle case oil seal		1.9 ± 0.3 mm (0.075 ± 0.012 in.)
Select inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
No.1 shift inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
No.2 shift inner lever slotted spring pin		3.5 ± 0.5 mm (0.138 ± 0.020 in.)

SERVICE SPECIFICATIONS – MANUAL TRANSAXLE (C50, C250)

Input shaft snap ring thickness		
No.2 clutch hub	Mark 0	2.30 mm (0.0906 in.)
	Mark 1	2.36 mm (0.0929 in.)
	Mark 2	2.42 mm (0.0953 in.)
	Mark 3	2.48 mm (0.0976 in.)
	Mark 4	2.54 mm (0.1000 in.)
	Mark 5	2.60 mm (0.1024 in.)
Rear bearing	Mark A	2.29 mm (0.0902 in.)
	Mark B	2.35 mm (0.0925 in.)
	Mark C	2.41 mm (0.0949 in.)
	Mark D	2.47 mm (0.0972 in.)
	Mark E	2.53 mm (0.0996 in.)
	Mark F	2.59 mm (0.1020 in.)
Output shaft snap ring thickness		
No.1 clutch hub	Mark A	2.50 mm (0.0984 in.)
	Mark B	2.56 mm (0.1008 in.)
	Mark C	2.62 mm (0.1031 in.)
	Mark D	2.68 mm (0.1055 in.)
	Mark E	2.74 mm (0.1079 in.)
	Mark F	2.80 mm (0.1102 in.)
No.3 clutch hub	Mark A	2.25 mm (0.0886 in.)
	Mark B	2.31 mm (0.0909 in.)
	Mark C	2.37 mm (0.0933 in.)
	Mark D	2.43 mm (0.0957 in.)
	Mark E	2.49 mm (0.0980 in.)
	Mark F	2.55 mm (0.1004 in.)
Differential side bearing preload (at starting)(For use with SST)		
New bearing		0.8 – 1.6 N·m (8 – 16 kgf·cm, 6.9 – 13.9 in.-lbf)
Reused bearing		0.5 – 1.0 N·m (5 – 10 kgf·cm, 4.3 – 8.7 in.-lbf)
Differential pinion to side gear backlash		0.05 mm – 0.20 mm (0.0020 – 0.0079 in.)
Differential 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.)

Differential side bearing adjusting shim thickness	Mark A	2.10 mm (0.0827 in.)
	Mark B	2.15 mm (0.0846 in.)
	Mark C	2.20 mm (0.0866 in.)
	Mark D	2.25 mm (0.0886 in.)
	Mark E	2.30 mm (0.0906 in.)
	Mark F	2.35 mm (0.0925 in.)
	Mark G	2.40 mm (0.0945 in.)
	Mark H	2.45 mm (0.0965 in.)
	Mark J	2.50 mm (0.0984 in.)
	Mark K	2.55 mm (0.1004 in.)
	Mark L	2.60 mm (0.1024 in.)
	Mark M	2.65 mm (0.1043 in.)
	Mark N	2.70 mm (0.1063 in.)
	Mark P	2.75 mm (0.1083 in.)
	Mark Q	2.80 mm (0.1102 in.)
	Mark R	2.85 mm (0.1122 in.)
	Mark S	2.90 mm (0.1142 in.)
	Mark T	2.95 mm (0.1161 in.)
	Mark U	3.00 mm (0.1181 in.)

TORQUE SPECIFICATION

Parttightened		N·m	kgf·cm	ft·lbf
Clutch release cylinder x Transaxle		12	120	9
Starter x Transaxle		39	400	29
Transaxle x Engine		64	650	47
Stiffener plate set bolt (See page MX-3)	Bolt B	47	480	35
	Bolt A	23	230	17
Engine left mounting bracket x Transaxle	Bolt A	52	530	38
	Nut B	87	890	64
Front wheel		216	2,200	159
Filler and Drain plugs		39	400	29
Front exhaust pipe x Exhaust manifold		62	630	46
Center exhaust pipe x Tail exhaust pipe		43	440	32
Front transport hook x Engine mounting center member		39	400	29
Engine mounting center member (See page MX-3)	Bolt A	73	740	54
	Bolt B	72	730	53
Engine rear mounting bracket x Insulator		87	890	64
Transmission case x Transaxle case		29	300	22
Transmission case x Transmission case cover		18	185	13
Straight screw plug (Reverse restrict pin)		13	130	9
Straight screw plug		25	250	18
Transaxle case receiver x Transaxle case		11	115	8
Differential case x Ring gear		77	790	57
Transaxle case x Differential case		29	300	22
Reverse shift arm bracket set bolt		17	175	13
No.1, No.2, No.3 shift forks and shift head set bolt		16	160	12
Lock ball assembly (Reverse shift fork side)		39	400	29
Lock ball assembly (Shift and select lever shaft side)		29	300	22
Reverse idler gear shaft lock bolt		29	300	22
Rear bearing retainer x Transmission case		27	280	20
5th driven gear lock nut		118	1,200	87
Control shaft cover x Transmission case		20	200	14
Control shift lever x Dust boot		12	120	9
Selecting bellcrank assembly x Transaxle case		25	250	18
Control shaft assembly x Transaxle case		12	120	9
Oil receiver pipe set bolt		17	175	13
Control cable bracket x Transmission case		25	250	18
Back-up light switch		40	410	30
Speed sensor lock plate set bolt		11	115	8
Clutch release fork support		37	375	27

MANUAL TRANSAXLE (E351)

SS0G6-06

SERVICE DATA

Input shaft		
3rd & 4th gear journal diameter	Min.	35.984 mm (1.4167 in.)
5th gear journal diameter	Min.	27.957 mm (1.1007 in.)
Runout	Max.	0.03 mm (0.0012 in.)
Output shaft		
1st gear journal diameter	Min.	37.610 mm (1.4807 in.)
2nd gear journal diameter	Min.	34.502 mm (1.3583 in.)
Runout	Max.	0.03 mm (0.0012 in.)
Gear thrust clearance		
1st	Max.	0.40 mm (0.0157 in.)
	Min.	0.25 mm (0.0098 in.)
2nd & 3rd	Max.	0.35 mm (0.0138 in.)
	Min.	0.10 mm (0.0039 in.)
4th	Max.	0.57 mm (0.0224 in.)
	Min.	0.10 mm (0.0039 in.)
5th	Max.	0.65 mm (0.0256 in.)
	Min.	0.10 mm (0.0039 in.)
Gear radial clearance		
1st, 2nd & 3rd	MAX.	0.053 mm (0.0021 in.)
4th	MAX.	0.051 mm (0.0020 in.)
5th	MAX.	0.050 mm (0.0020 in.)
No.3 shift fork to hub sleeve clearance	Max.	0.35 mm (0.014 in.)
No.2 shift fork to hub sleeve clearance	Max.	0.69 mm (0.027 in.)
No.1 shift fork to hub sleeve clearance	Max.	0.35 mm (0.014 in.)
Synchronizer ring to gear clearance		
1st & 2nd	Min.	0.70 mm (0.028 in.)
3rd	Min.	0.65 mm (0.026 in.)
4th	Min.	0.75 mm (0.030 in.)
5th	Min.	1.25 mm (0.049 in.)
Drive in depth		
Control shaft cover oil seal		0 – 1.0 mm (0 – 0.039 in.)
Transmission case oil seal		3.5 ± 0.5 mm (0.138 ± 0.020 in.)
Transaxle case oil seal		0 ± 0.5 mm (0 ± 0.020 in.)
Select inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
No.1 shift inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
No.2 shift inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
Input shaft snap ring thickness	Mark	
No.2 clutch hub	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.)

SERVICE SPECIFICATIONS – MANUAL TRANSAXLE (E351)

Input shaft snap ring thickness No.3 clutch hub	Mark	
	a	1.75 mm (0.0689 in.)
	b	1.80 mm (0.0709 in.)
	c	1.85 mm (0.0729 in.)
	d	1.90 mm (0.0748 in.)
	e	1.95 mm (0.0768 in.)
	f	2.00 mm (0.0787 in.)
	g	2.05 mm (0.0807 in.)
	h	2.10 mm (0.0827 in.)
	j	2.15 mm (0.0847 in.)
	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.)
Differential pinion to side gear backlash		STD 0.05 – 0.20 mm (0.0020 – 0.0079 in.)
Differential side gear thrust washer thickness		1.00 mm (0.0394 in.) 1.10 mm (0.0433 in.) 1.20 mm (0.0472 in.) 1.30 mm (0.0512 in.)
Differential case side bearing preload (at starting)		
New bearing (Output shaft preload plus)		0.8 – 1.6 N·m (8 – 16 kgf·cm, 6.9 – 13.9 in.-lbf)
Reused bearing (Output shaft preload plus)		0.5 – 1.0 N·m (5 – 10 kgf·cm, 4.3 – 8.7 in.-lbf)
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.)

Output shaft bearing preload (at starting)		
New bearing		0.8 – 1.6 N·m (8 – 16 kgf·cm, 6.9 – 13.9 in.-lbf)
Reused bearing		0.5 – 1.0 N·m (5 – 10 kgf·cm, 4.3 – 8.7 in.-lbf)
Output shaft rear bearing adjusting shim thickness	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.)
	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.)

TORQUE SPECIFICATION

Parttightened		N·m	kgf·cm	ft·lbf
Transaxle upper side x Engine	Bolt A	64	650	47
	Bolt B	25	296	21
Transaxle lower side x Engine	Bolt A	40	408	30
	Bolt B	40	408	30
	Bolt C	8	82	71 in.·lbf
	Bolt D	20	204	15
	Bolt E	46	470	34
Diesel throttle body x Engine unit		21	214	15
No.1 air tube assembly x Engine unit		25	255	18
Diesel throttle body with No.2 air tube assembly x Engine unit		25	255	18
Engine front mounting x Engine front mounting bracket		87	890	64
Engine front mounting x Transaxle		64	650	47
Engine rear mounting x Engine rear mounting bracket		98	1,000	72
Engine rear mounting x Transaxle		64	650	47
Starter x Starter wire		15	153	11
Starter x Transaxle		39	400	29
Transmission case protector x Transmission		18	185	13
Clutch release cylinder x Clutch housing		12	120	9
Clutch line bracket x Transaxle (See page MX-4)	Bolt A	12	120	9
	Bolt B	4.9	50	43 in.·lbf
Engine left mounting x Bracket		87	890	64
Engine left mounting Bracket x Transaxle		52	530	38
Front wheel		103	1,050	76
Front exhaust pipe x Exhaust manifold		62	630	46
Front exhaust pipe x Center exhaust pipe		43	440	32
Engine rear mounting x Center member		73	740	54
Engine rear mounting bracket x Body		64	650	47
Engine rear mounting bracket x Engine rear mounting		87	890	64
Engine front mounting x Center member		52	540	38
Engine front mounting bracket x Transaxle		64	650	47
Engine front mounting bracket x Engine front mounting		87	890	64
Front transport hook x Center member		39	400	29
Engine mounting center member x Body		73	740	54
No.2 selecting bellcrank with selecting bellcrank support		20	200	14
Lock ball assembly		29	300	22
Shift and select lever shaft assembly x Transmission case		20	200	14
Transmission case cover x Transmission case		29	300	22
Breather plug		49	500	36
Output shaft lock nut		123	1,250	90
Shift fork and shift head set bolt		24	240	17
Rear bearing retainer x Transmission case		42	430	31
Straight screw plug		25	250	18
Straight screw plug (Reverse restrict pin)		13	130	9
Reverse idler gear shaft lock bolt		29	300	22
Transmission case x Transaxle case		29	300	22

Reverse shift arm bracket assembly x Transaxle case	17	175	13
Transaxle case receiver x Transaxle case	7.4	75	65 in..lbf
Clutch release fork support	39	400	29
Control cable bracket x Transaxle case	17	175	13
Vehicle speed sensor	17	175	13
Clutch release line bracket x Transaxle case	17	175	13
Back-up light switch	40	410	30
Filler and drain plugs	49	500	36
No.1 and No.2 oil receiver pipes x Transmission case	17	175	13
Ring gear set bolt	106	1,080	78
Shift lever assembly x Body	12	120	9
Retainer x Body	4.9	50	43 in..lbf
Grommet retainer x Body	4.9	50	43 in..lbf

MANUAL TRANSAXLE (S54, S55)

SERVICE DATA

SS09M-04

Input shaft roller bearing journal diameter	Min.	29.987 mm (1.181 in.)
Input shaft 3rd gear journal diameter	Min.	33.100 mm (1.3031 in.)
Input shaft 4th gear journal diameter	Min.	32.484 mm (1.2789 in.)
Input shaft 5th gear journal diameter	Min.	26.987 mm (1.0625 in.)
Input shaft runout	Max.	0.03 mm (0.0012 in.)
Output shaft roller bearing journal diameter	Min.	31.984 mm (1.2592 in.)
Output shaft 1st gear journal diameter	Min.	37.987 mm (1.4956 in.)
Output shaft 2nd gear journal diameter	Min.	32.002 mm (1.2599 in.)
Output shaft runout	Max.	0.05 mm (0.0020 in.)
Gear thrust clearance 1st	Max. Min.	0.29 mm (0.0114 in.) 0.10 mm (0.0039 in.)
Gear thrust clearance 2nd	Max. Min.	0.34 mm (0.0134 in.) 0.10 mm (0.0039 in.)
Gear thrust clearance 3rd	Max. Min.	0.35 mm (0.0138 in.) 0.10 mm (0.0039 in.)
Gear thrust clearance 4th	Max. Min.	0.45 mm (0.0177 in.) 0.10 mm (0.0039 in.)
Gear thrust clearance 5th	Max. Min.	0.57 mm (0.0224 in.) 0.10 mm (0.0039 in.)
Gear radial clearance 1st, 2nd, 3rd and 4th	Max. Min.	0.051 mm (0.0020 in.) 0.009 mm (0.0004 in.)
Gear radial clearance 5th	Max. Min.	0.048 mm (0.0019 in.) 0.009 mm (0.0004 in.)
Shift fork to hub sleeve clearance	Max.	0.4 mm (0.016 in.)
Synchronizer ring to gear clearance 1st and 4th	Min.	0.75 mm (0.030 in.)
Synchronizer ring to gear clearance 2nd	Min.	0.7 mm (0.028 in.)
Synchronizer ring to gear clearance 3rd	Min.	0.65 mm (0.026 in.)
Differential case side bearing preload (at starting)(For use with SST)		1.0 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.-lbf)
Differential pinion to side gear backlash		0.05 – 0.20 mm (0.0020 – 0.0079 in.)
Drive in depth Input shaft front oil seal Slotted spring pin for reverse restrict pin Shift and select lever shaft slotted spring pin		0 – 0.5 mm (0 – 0.020 in.) 13.5 ± 0.5 mm (0.531 ± 0.020 in.) 23.5 ± 1.0 mm (0.925 ± 0.039 in.)
Differential 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.)

Input shaft snap ring thickness		
No.2 clutch hub	Mark 1	1.95 – 2.00 mm (0.0768 – 0.0787 in.)
	Mark 2	2.00 – 2.05 mm (0.0787 – 0.0807 in.)
	Mark 3	2.05 – 2.10 mm (0.0807 – 0.0827 in.)
	Mark 4	2.10 – 2.15 mm (0.0827 – 0.0846 in.)
	Mark 5	2.15 – 2.20 mm (0.0846 – 0.0866 in.)
	Mark 6	2.20 – 2.25 mm (0.0866 – 0.0886 in.)
No.3 clutch hub	Mark 13	2.20 – 2.25 mm (0.0866 – 0.0886 in.)
	Mark 14	2.25 – 2.30 mm (0.0886 – 0.0906 in.)
	Mark 15	2.30 – 2.35 mm (0.0906 – 0.0925 in.)
	Mark 16	2.35 – 2.40 mm (0.0925 – 0.0945 in.)
	Mark 17	2.40 – 2.45 mm (0.0945 – 0.0965 in.)
	Mark 18	2.45 – 2.50 mm (0.0965 – 0.0984 in.)
	Mark 19	2.50 – 2.55 mm (0.0984 – 0.01004 in.)
	Mark 20	2.55 – 2.60 mm (0.1004 – 0.01024 in.)
	Mark 21	2.60 – 2.65 mm (0.1024 – 0.01043 in.)
	Mark 22	2.65 – 2.70 mm (0.1043 – 0.01063 in.)
	Mark 23	2.70 – 2.75 mm (0.1063 – 0.01083 in.)
	Mark 24	2.75 – 2.80 mm (0.1083 – 0.01102 in.)
	Mark 25	2.80 – 2.85 mm (0.1102 – 0.01122 in.)
	Mark 26	2.85 – 2.90 mm (0.1122 – 0.01142 in.)
Rear bearing	Mark 27	2.90 – 2.95 mm (0.1142 – 0.01161 in.)
	Mark A	2.15 – 2.20 mm (0.0846 – 0.0866 in.)
	Mark B	2.20 – 2.25 mm (0.0866 – 0.0886 in.)
	Mark C	2.25 – 2.30 mm (0.0886 – 0.0906 in.)
	Mark D	2.30 – 2.35 mm (0.0906 – 0.0925 in.)
	Mark E	2.35 – 2.40 mm (0.0925 – 0.0945 in.)

Differential side bearing adjusting shim thickness	
Mark 1	1.90 mm (0.0748 in.)
Mark 2	1.95 mm (0.0768 in.)
Mark 3	2.00 mm (0.0787 in.)
Mark 4	2.05 mm (0.0807 in.)
Mark 5	2.10 mm (0.0827 in.)
Mark 6	2.15 mm (0.0846 in.)
Mark 7	2.20 mm (0.0866 in.)
Mark 8	2.25 mm (0.0886 in.)
Mark 9	2.30 mm (0.0906 in.)
Mark 10	2.35 mm (0.0925 in.)
Mark 11	2.40 mm (0.0945 in.)
Mark 12	2.45 mm (0.0965 in.)
Mark 13	2.50 mm (0.0984 in.)
Mark 14	2.55 mm (0.1004 in.)
Mark 15	2.60 mm (0.1024 in.)
Mark 16	2.65 mm (0.1043 in.)
Mark 17	2.70 mm (0.1063 in.)
Mark 18	2.75 mm (0.1083 in.)
Mark 19	2.80 mm (0.1102 in.)

TORQUE SPECIFICATION

Parttightened		N·m	kgf·cm	ft·lbf
Starter x Transaxle		39	400	29
Clutch release cylinder x Transaxle		12	120	9
Clutch line bracket x Transaxle (See page MX-3)	Bolt A	12	120	9
	Bolt B	4.9	50	43 in.·lbf
Engine left mounting bracket x Transaxle		52	530	38
Engine left mounting bracket x Insulator		87	890	64
Transaxle x Engine (See page MX-3)	Upper bolt	64	650	47
		25	250	18
Stiffener plate x Transaxle (See page MX-3)	Bolt A	43	440	32
	Bolt B	21	210	15
Front wheel		216	2,200	159
Filler and Drain plugs		49	500	36
Front exhaust pipe x Exhaust manifold		62	630	46
Front exhaust pipe x Center exhaust pipe		43	440	32
Front transport hook x Engine Mounting Center Member		39	400	29
Engine Mounting Center Member (See page MX-3)	Bolt A	73	740	54
	Bolt B	72	730	53
Engine rear mounting bracket x Insulator		87	890	64
Engine rear mounting bracket x Transaxle		64	650	47
Intake manifold stay		44	450	33
Shift lever assembly x Body		12	120	9
Shift cable grommet retainer x Body		4.9	50	43 in.·lbf
Transmission control cable bracket x Body		4.9	50	43 in.·lbf
Transmission case x Transaxle case		29	300	22
Transmission case x Case cover		29	300	22
Transmission case protector		18	185	13
Rear bearing retainer		42	430	31
Output shaft front bearing lock plate		18	185	13
Transaxle case receiver set bolt		7.4	75	65 in.·lbf
5th driven gear lock nut		123	1,250	90
No.3 shift fork x No.1 shift fork shaft		18	185	13
Reverse idler shaft lock bolt		29	300	22
Shift and select lever aseembly		37	375	27
Control shift lever x Lever shaft		6.4	65	56 in.·lbf
Ring gear x Differential case		83	850	61
Selecting bellcrank x Transmission case		37	380	27
Reverse shift arm bracket		18	185	13
No.3 shift fork x Shift fork shaft		18	185	13
Lock ball assembly		29	300	22
Back-up light switch		44	450	33
Differential side bearing retainer		18	185	13
Release bearing retainer		7.4	75	65 in.·lbf
Straight screw plug		13	130	9

Speed sensor lock plate set bolt	5.4	55	48 in.-lbf
Clutch release fork support	47	480	35

AUTOMATIC TRANSAXLE (A246E)

SS0YH-02

SERVICE DATA

Line pressure (Wheel locked)	Engine idling	
	D range	372 – 441 kPa (3.8 – 4.5 kgf/cm ² , 54 – 64 psi)
	R range	598 – 716 kPa (6.1 – 7.3 kgf/cm ² , 87 – 104 psi)
	at stall (Throttle valve fully opened)	
	D range	981 – 1,138 kPa (10.0 – 11.6 kgf/cm ² , 142 – 165 psi)
	R range	1,392 – 1,726 kPa (14.2 – 17.6 kgf/cm ² , 202 – 250 psi)
Engine stall revolution		
	D and R range	2,500 ± 150 rpm
Time lag		
	N → D range	Less than 1.2 seconds
	N → R range	Less than 1.5 seconds
Engine idle speed (A/C OFF)		
	N range	700 ± 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Torque converter correct distance		More than 15.5 mm (0.610 in.)
Differential oil seal drive in depth		
	LH side	5.3 ± 0.5 mm (0.209 ± 0.020 in.)
	RH side	3.1 ± 0.5 mm (0.122 ± 0.020 in.)
LHD		
Shift schedule (NORM mode)		
D range		
(Throttle valve fully opened)		
	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	120 – 132 km/h (75 – 82 mph)
	3 → 2	64 – 71 km/h (40 – 44 mph)
	2 → 1	20 – 25 km/h (12 – 16 mph)
(Kick-down Switch ON)		
	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
(Throttle valve fully closed)		
	3 → 4	32 – 38 km/h (20 – 24 mph)
	4 → 3	14 – 20 km/h (9 – 12 mph)
2 range		
(Throttle valve fully opened)		
	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 1	38 – 44 km/h (24 – 27 mph)
(Kick-down Switch ON)		
	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
L range		
(Throttle valve fully opened)		
	2 → 1	45 – 51 km/h (28 – 32 mph)

Shift schedule (PWR mode)		
D range		
(Throttle valve fully opened)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	142 – 155 km/h (88 – 96 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
	2 → 1	38 – 44 km/h (24 – 27 mph)
(Kick-down Switch ON)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
(Throttle valve fully closed)	3 → 4	32 – 38 km/h (20 – 24 mph)
	4 → 3	14 – 20 km/h (9 – 12 mph)
2 range		
(Throttle valve fully opened)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 1	38 – 44 km/h (24 – 27 mph)
(Kick-down Switch ON)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
L range		
(Throttle valve fully opened)	2 → 1	45 – 51 km/h (28 – 32 mph)
Shift schedule (SNOW mode)		
D range		
(Throttle valve fully opened)	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	120 – 132 km/h (75 – 82 mph)
	3 → 2	64 – 71 km/h (40 – 44 mph)
(Kick-down Switch ON)	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
(Throttle valve fully closed)	3 → 4	32 – 38 km/h (20 – 24 mph)
	4 → 3	14 – 20 km/h (9 – 12 mph)
Lock-up point (NORM mode) (Throttle valve opening 5%)		
3rd Gear (O/D main switch OFF)	Lock-up ON	52 – 59 km/h (32 – 37 mph)
	Lock-up OFF	49 – 56 km/h (30 – 35 mph)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 68 km/h (38 – 42 mph)
Lock-up point (PWR mode) (Throttle valve opening 5%)		
3rd Gear (O/D main switch OFF)	Lock-up ON	55 – 62 km/h (34 – 39 mph)
	Lock-up OFF	52 – 59 km/h (32 – 37 mph)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 68 km/h (38 – 42 mph)
Lock-up point (SNOW mode) (Throttle valve opening 5%)		
3rd Gear (O/D main switch OFF)	Lock-up ON	52 – 59 km/h (32 – 37 mph)
	Lock-up OFF	49 – 56 km/h (30 – 35 mph)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 68 km/h (38 – 42 mph)

SERVICE SPECIFICATIONS – AUTOMATIC TRANSAXLE (A246E)

RHD		
Shift schedule (NORM mode)		
D range		
(Throttle valve fully opened)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
(Throttle valve fully closed)	3 → 4	32 – 38 km/h (20 – 24 mph)
	4 → 3	14 – 20 km/h (9 – 12 mph)
2 range		
(Throttle valve fully opened)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
L range		
(Throttle valve fully opened)	2 → 1	45 – 51 km/h (28 – 32 mph)
Shift schedule (PWR mode)		
D range		
(Throttle valve fully opened)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
(Throttle valve fully closed)	3 → 4	32 – 38 km/h (20 – 24 mph)
	4 → 3	14 – 20 km/h (9 – 12 mph)
2 range		
(Throttle valve fully opened)	1 → 2	50 – 58 km/h (31 – 36 mph)
	2 → 1	42 – 48 km/h (26 – 30 mph)
L range		
(Throttle valve fully opened)	2 → 1	45 – 51 km/h (28 – 32 mph)
Shift schedule (SNOW mode)		
D range		
(Throttle valve fully opened)	2 → 3	95 – 103 km/h (59 – 64 mph)
	3 → 4	151 – 164 km/h (94 – 102 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	85 – 93 km/h (53 – 58 mph)
(Throttle valve fully closed)	3 → 4	32 – 38 km/h (20 – 24 mph)
	4 → 3	14 – 20 km/h (9 – 12 mph)
Lock-up point (NORM mode) (Throttle valve opening 5%)		
3rd Gear (O/D main switch OFF)	Lock-up ON	52 – 59 km/h (32 – 37 mph)
	Lock-up OFF	49 – 56 km/h (30 – 35 mph)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 68 km/h (38 – 42 mph)
Lock-up point (PWR mode) (Throttle valve opening 5%)		
3rd Gear (O/D main switch OFF)	Lock-up ON	55 – 62 km/h (34 – 39 mph)
	Lock-up OFF	52 – 59 km/h (32 – 37 mph)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 68 km/h (38 – 42 mph)
Lock-up point (SNOW mode) (Throttle valve opening 5%)		
3rd Gear (O/D main switch OFF)	Lock-up ON	52 – 59 km/h (32 – 37 mph)
	Lock-up OFF	49 – 56 km/h (30 – 35 mph)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 68 km/h (38 – 42 mph)

TORQUE SPECIFICATION

Parttightened	N·m	kgf·cm	ft·lbf	
Drain plug x Transaxle case	17	175	13	
Oil pan set bolt	5.3	55	48 in·lbf	
Oil strainer set bolt	10	100	7	
Valve body set bolt	10	100	7	
Detent spring	10	100	7	
Neutral start switch x Transaxle case	5.4	55	48 in·lbf	
Neutral start switch lock nut	6.9	70	61 in·lbf	
Control cable x Control shift lever	12	120	9	
Air cleaner assembly set bolt	5.0	50	43 in·lbf	
Engine mounting bracket LH	Through bolt : Set bolt :	87 52	890 530	64 38
Starter	39	400	29	
Transaxle x Engine	64	650	47	
Exhaust front pipe x Exhaust manifold	43	440	32	
Center member protector set bolt	39	400	29	
Center member set bolt	A bolt : B bolt :	73 35	740 360	54 26
Starter connector set bolt	10	100	7	
Control cable bracket x Transaxle	12	120	9	
Engine rear mounting bracket	Through bolt : Set bolt :	87 64	890 650	64 48
Torque converter x Drive plate	28	290	21	
Engine x Transaxle	Lower side : A bolt : B bolt :	 46 23	 470 230	 34 17
Ground cable x Transaxle	18	185	13	
Suction hose (RHD) x Center member	35	360	26	

AUTOMATIC TRANSAXLE (U240E)

SERVICE DATA

SS16S-02

Line pressure (Wheel locked)	Engine idling	
	D range	372 – 412 kPa (3.8 – 4.2 kgf/cm ² , 54 – 59 psi)
	R range	640 – 742 kPa (6.5 – 7.6 kgf/cm ² , 93 – 107 psi)
	at stall (Throttle valve fully opened)	
	D range	931 – 1,031 kPa (9.5 – 10.5 kgf/cm ² , 134 – 149 psi)
	R range	1,768 – 1,968 kPa (18.0 – 20.1 kgf/cm ² , 255 – 286 psi)
Engine stall revolution	D and R range	2,550 ± 150 rpm
Time lag	N → D range	Less than 1.2 seconds
	N → R range	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N range	700 ± 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Torque converter installation distance		More than 13.4 mm (0.528 in.)
Differential oil seal drive in depth	LH side	2.7 ± 0.5 mm (0.106 ± 0.020 in.)
	RH side	0 ± 0.5 mm (0 ± 0.020 in.)
LHD		
Shift schedule (NORM mode)		
D range (Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	116 – 128 km/h (72 – 80 mph)
	3 → 2	67 – 74 km/h (42 – 46 mph)
	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	92 – 99 km/h (57 – 62 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
	3 → 4	35 – 41 km/h (22 – 25 mph)
(Kick-down Switch ON)	4 → 3	16 – 21 km/h (10 – 13 mph)
	1 → 2	53 – 60 km/h (33 – 37 mph)
	3 → 2	99 – 106 km/h (62 – 66 mph)
	1 → 2	53 – 60 km/h (33 – 37 mph)
(Throttle valve fully closed)	2 → 1	46 – 52 km/h (29 – 32 mph)
	3 → 2	99 – 106 km/h (62 – 66 mph)
2 range (Throttle valve fully opened)	3 → 2	99 – 106 km/h (62 – 66 mph)
	2 → 1	48 – 54 km/h (30 – 34 mph)
(Kick-down Switch ON)	3 → 2	99 – 106 km/h (62 – 66 mph)
	2 → 1	48 – 54 km/h (30 – 34 mph)
L range (Throttle valve fully opened)	3 → 2	99 – 106 km/h (62 – 66 mph)
	2 → 1	48 – 54 km/h (30 – 34 mph)

Shift schedule (PWR mode)		
D range		
(Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	81 – 88 km/h (50 – 55 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
(Kick-down Switch ON)	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	92 – 99 km/h (57 – 62 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
(Throttle valve fully closed)	3 → 4	35 – 41 km/h (22 – 25 mph)
	4 → 3	17 – 23 km/h (11 – 14 mph)
2 range		
(Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	3 → 2	99 – 106 km/h (62 – 66 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
(Kick-down Switch ON)	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
L range		
(Throttle valve fully opened)	3 → 2	99 – 106 km/h (62 – 66 mph)
	2 → 1	48 – 54 km/h (30 – 34 mph)
Shift schedule (SNOW mode)		
D range		
(Throttle valve fully opened)	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	116 – 128 km/h (72 – 80 mph)
	3 → 2	67 – 74 km/h (42 – 46 mph)
(Kick-down Switch ON)	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	92 – 99 km/h (57 – 62 mph)
(Throttle valve fully closed)	3 → 4	35 – 41 km/h (22 – 25 mph)
	4 → 3	16 – 21 km/h (10 – 13 mph)
Lock-up point (NORM mode)		(Throttle valve opening 5%)
O/D gear	Lock-up ON	58 – 64 km/h (36 – 40 mph)
	Lock-up OFF	54 – 60 km/h (34 – 37 mph)
Lock-up point (PWR mode)		(Throttle valve opening 5%)
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 67 km/h (38 – 42 mph)

SERVICE SPECIFICATIONS – AUTOMATIC TRANSAXLE (U240E)

RHD		
Shift schedule (NORM mode)		
D range		
(Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	92 – 99 km/h (57 – 62 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
(Throttle valve fully closed)	3 → 4	35 – 41 km/h (22 – 25 mph)
	4 → 3	16 – 21 km/h (10 – 13 mph)
2 range		
(Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	3 → 2	99 – 10 km/h (62 – 66 mph)
L range		
(Throttle valve fully opened)	3 → 2	99 – 107 km/h (62 – 66 mph)
	2 → 1	48 – 54 km/h (30 – 34 mph)
Shift schedule (PWR mode)		
D range		
(Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	92 – 99 km/h (57 – 62 mph)
	2 → 1	46 – 52 km/h (29 – 32 mph)
(Throttle valve fully closed)	3 → 4	35 – 41 km/h (22 – 25 mph)
	4 → 3	17 – 23 km/h (11 – 14 mph)
2 range		
(Throttle valve fully opened)	1 → 2	53 – 60 km/h (33 – 37 mph)
	3 → 2	99 – 107 km/h (62 – 66 mph)
L range		
(Throttle valve fully opened)	3 → 2	99 – 107 km/h (62 – 66 mph)
	2 → 1	48 – 54 km/h (30 – 34 mph)
Shift schedule (SNOW mode)		
D range		
(Throttle valve fully opened)	2 → 3	99 – 107 km/h (62 – 66 mph)
	3 → 4	154 – 166 km/h (96 – 103 mph)
	4 → 3	146 – 159 km/h (91 – 99 mph)
	3 → 2	92 – 99 km/h (57 – 62 mph)
(Throttle valve fully closed)	3 → 4	35 – 41 km/h (22 – 25 mph)
	4 → 3	16 – 21 km/h (10 – 13 mph)
Lock-up point (NORM mode) (Throttle valve opening 5%)		
O/D gear	Lock-up ON	58 – 64 km/h (36 – 40 mph)
	Lock-up OFF	54 – 60 km/h (34 – 37 mph)
Lock-up point (PWR mode) (Throttle valve opening 5%)		
O/D gear	Lock-up ON	64 – 71 km/h (40 – 44 mph)
	Lock-up OFF	61 – 67 km/h (38 – 42 mph)

TORQUE SPECIFICATION

Parttightened		N·m	kgf·cm	ft·lbf
Input turbine speed sensor x Transaxle case		11.3	115	8
Counter gear speed sensor x Transaxle case		11.3	115	8
ATF Temperature sensor x Valve body		6.6	67	58 in.·lbf
Oil strainer x Valve body		10.8	110	8
Oil pan x Transaxle case		7.8	80	69 in.·lbf
Drain plug		49	500	36
Neutral start switch x Transaxle	Bolt:	5.4	55	48 in.·lbf
	Nut:	6.9	70	61 in.·lbf
Shaft lever x Body		12	120	9
Shift control cable x Control shaft lever		13	130	9
Solenoid valve x Valve body (See page AX-8)	Bolt A:	6.6	67	58 in.·lbf
	Bolt B:	10.8	110	8
Valve body x Transaxle case		10.8	110	8
Air cleaner assembly set bolt		5.0	50	43 in.·lbf
Engine mounting bracket LH	Through bolt :	87	890	64
	Set bolt :	52	530	38
Starter		39	400	29
Transaxle x Engine	Upper side :	64	650	47
Exhaust front pipe x Exhaust manifold		62	630	46
Center member protector set bolt		39	400	29
Center member set bolt	A bolt :	73	740	54
	B bolt :	35	360	26
Starter connector set bolt		10	100	7
Control cable bracket x Transaxle		12	120	9
Engine rear mounting bracket	Through bolt :	87	890	64
	Set bolt :	64	650	48
Torque converter x Drive plate		41	420	30
Engine x Transaxle	Lower side :	46	470	34
Solenoid valve x Valve body	A bolt :	6.6	67	58 in.·lbf
	B bolt :	11	110	8
Ground cable x Transaxle		18	185	13
Suction hose (RHD) x Center member		35	360	26

SUSPENSION AND AXLE

SS01Y-03

SERVICE DATA

Front drive shaft	Drive shaft standard length 1ZZ-FE engine (M/T)	RH	943.60 ± 1.0 mm (37.15 ± 0.039 in.)
		LH	657.90 ± 0.8 mm (25.90 ± 0.032 in.)
	1ZZ-FE engine (A/T)	RH	943.60 ± 1.0 mm (37.15 ± 0.039 in.)
		LH	653.20 ± 0.8 mm (25.72 ± 0.032 in.)
	3ZZ-FE engine	RH	944.70 ± 0.8 mm (37.19 ± 0.032 in.)
		LH	655.70 ± 0.8 mm (25.82 ± 0.032 in.)
	1AZ-FSE engine	RH	922.65 ± 1.0 mm (36.32 ± 0.039 in.)
		LH	650.85 ± 0.7 mm (25.62 ± 0.028 in.)

TORQUE SPECIFICATION

Parttightened	N·m	kgf·cm	ft·lbf
FRONT:			
Steering knuckle x Shock absorber	255	2,600	188
Suspension support x Body	80	820	59
Suspension support x Piston rod	47	475	34
ABS speed sensor set bolt	8.0	82	71 in.·lbf
ABS speed sensor wire harness clamp x Shock absorber	5.5	55	48 in.·lbf
Flexible hose x Shock absorber bracket	29	300	22

BRAKE

SERVICE DATA

SS0FS-06

Brake pedal height (from asphalt sheet)	LHD	147.0 – 157.0 mm (5.787 – 6.181 in.)
	RHD	149.5 – 159.5 mm (5.886 – 6.280 in.)
Brake pedal freeplay		1 – 6 mm (0.04 – 0.24 in.)
Brake pedal reserve distance at 490 N (50 kgf, 110.2 lbf)		
	LHD Gasoline engine (w/o ABS)	More than 70 mm (2.76 in.)
	LHD Others	More than 55 mm (2.17 in.)
	RHD Gasoline engine (w/o ABS)	More than 90 mm (3.54 in.)
	RHD Others	More than 75 mm (2.95 in.)

STEERING

SERVICE DATA

SS01F-03

POWER STEERING FLUID		
Oil level rise	Maximum	5 mm (0.20 in.)
1ZZ-FE, 3ZZ-FE Engines:		
Oil pressure at idle speed with valve closed	Minimum	8,300 kPa (85 kgf/cm ² , 1,209 psi)
1AZ-FSE Engine:		
Oil pressure at idle speed with valve closed	Minimum	8,800 kPa (90 kgf/cm ² , 1,280 psi)
POWER STEERING VANE PUMP (1ZZ-FE, 3ZZ-FE)		
Vane pump rotating torque		0.27 N·m (2.8 kgf·cm, 2.4 in.-lbf) or less
Vane pump shaft and front housing bushing oil clearance	STD	0.021 – 0.043 mm (0.0008 – 0.0017 in.)
	Maximum	0.07 mm (0.0028 in.)
Vane plate height	Minimum	7.6 mm (0.299 in.)
Vane plate thickness	Minimum	1.405 mm (0.0553 in.)
Vane plate length	Minimum	11.993 mm (0.4722 in.)
Vane plate and vane pump rotor groove clearance	Maximum	0.03 mm (0.0012 in.)
Vane plate length	pump rotor and cam ring mark	
	0	12.001 – 12.003 mm (0.47248 – 0.47256 in.)
	1	11.999 – 12.001 mm (0.47240 – 0.47248 in.)
	2	11.997 – 11.999 mm (0.47232 – 0.47240 in.)
	3	11.995 – 11.997 mm (0.47224 – 0.47232 in.)
	4	11.993 – 11.995 mm (0.47216 – 0.47224 in.)
Spring free length	Minimum	35.8 mm (1.409 in.)
POWER STEERING VANE PUMP (1AZ-FSE)		
Vane pump rotating torque		0.27 N·m (2.8 kgf·cm, 2.4 in.-lbf) or less
Vane pump shaft and front housing bushing oil clearance	STD	0.021 – 0.043 mm (0.0008 – 0.0017 in.)
	Maximum	0.07 mm (0.0028 in.)
Vane plate height	Minimum	7.6 mm (0.299 in.)
Vane plate thickness	Minimum	1.405 mm (0.0553 in.)
Vane plate length	Minimum	11.993 mm (0.4722 in.)
Vane plate and vane pump rotor groove clearance	Maximum	0.03 mm (0.0012 in.)
Vane plate length	pump rotor and cam ring mark	
	0	12.001 – 12.003 mm (0.47248 – 0.47256 in.)
	1	11.999 – 12.001 mm (0.47240 – 0.47248 in.)
	2	11.997 – 11.999 mm (0.47232 – 0.47240 in.)
	3	11.995 – 11.997 mm (0.47224 – 0.47232 in.)
	4	11.993 – 11.995 mm (0.47216 – 0.47224 in.)
Spring free length	Minimum	35.8 mm (1.409 in.)

*: For use with belt tension gauge

TORQUE SPECIFICATION

Parttightened	N·m	kgf·cm	ft·lbf
TILT STEERING COLUMN			
Steering column assembly set bolt and nut	25.5	260	19
Control valve shaft x Yoke	35	360	26
Steering wheel set nut	50	510	37
Steering wheel pad set screw (Torx screw)	8.8	90	78 in.·lbf
POWER STEERING VANE PUMP (1ZZ-FE, 3ZZ-FE)			
Rear housing set bolt	22	220	16
Pressure port union x Front housing	69	700	51
Suction port union set bolt	12	120	9
Oil pressure switch	21	210	15
PS vane pump assembly set nut	37	370	27
Pressure feed tube x PS vane pump assembly	37(44)	375(450)	27(33)
Pressure feed tube x Rear bracket	7.8	80	69 in.·lbf
POWER STEERING VANE PUMP (1AZ-FSE)			
Rear housing set bolt	22	220	16
Pressure port union x Front housing	69	700	51
Suction port union set bolt	12	120	9
Oil pressure switch	21	210	15
PS vane pump assembly set bolt	50	510	37
Pressure feed tube x PS vane pump assembly	52	530	38

(): For use without SST

BODY
TORQUE SPECIFICATION

SS06N-02

Parttightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER			
Bumper reinforcement x Body	20	205	15

AIR CONDITIONING

SERVICE DATA

SS038-06

Refrigerant volume	460 ± 20 g (16.23 $\pm$ 0.71 oz.)
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TORQUE SPECIFICATION

Parttightened	N·m	kgf·cm	ft·lbf
Compressor x Compressor bracket	25	250	18
Compressor x Discharge hose	10	100	7
Compressor x Suction hose	10	100	7
Condenser x Liquid tube	5.5	55	48 in.·lbf
Condenser x Discharge hose	5.5	55	48 in.·lbf