

AUTOMATIC TRANSMISSION (A442F)

SS0Z5-01

SERVICE DATA

Line pressure (Wheel locked)	1FZ-FE, 1HD-T	
	Engine idling	
	D range	430– 510 kPa (4.4 – 5.2 kgf/cm ² , 63 – 74 psi)
	R range	640– 840 kPa (6.5 – 8.6 kgf/cm ² , 92 – 122 psi)
AT stall (Throttle valve fully opened)		
	D range	970 – 1,230 kPa (9.9 – 12.5 kgf/cm ² , 141 – 178 psi)
	R range	1,610 – 1,850 kPa (16.4 – 18.9 kgf/cm ² , 233 – 269 psi)
Line pressure (Wheel locked)	2UZ-FE, 1HD-FTE	
	Engine idling	
	D range	578– 666 kPa (5.9 – 6.8 kgf/cm ² , 84 – 97 psi)
	R range	784– 760 kPa (8.0 – 9.8 kgf/cm ² , 114 – 139 psi)
AT stall (Throttle valve fully opened)		
	D range	1,127 – 1,303 kPa (11.5 – 13.3 kgf/cm ² , 164 – 189 psi)
	R range	1,610 – 1,850 kPa (16.6 – 19.2 kgf/cm ² , 236 – 273 psi)
Line pressure (Wheel locked)	1HZ	
	Engine idling	
	D range	360– 420 kPa (3.7 – 4.3 kgf/cm ² , 53 – 61 psi)
	R range	440– 540 kPa (4.5 – 5.5 kgf/cm ² , 64 – 78 psi)
AT stall (Throttle valve fully opened)		
	D range	1,088 – 1,333 kPa (11.1 – 13.6 kgf/cm ² , 158 – 193 psi)
	R range	1,370 – 1,670 kPa (14.0 – 17.0 kgf/cm ² , 199 – 242 psi)
Engine idle speed	1FZ-FE	650 ± 50 rpm
	2UZ-FE	750 ± 50 rpm
	1HZ	710 ± 50 rpm
	1HD-T	800 ± 50 rpm
	1HD-FTE	600 ± 50 rpm
Engine stall revolution	D and R ranges	
	1FZ-FE	2,200 ± 150 rpm
	2UZ-FE	2,250 ± 150 rpm
	1HZ	1,950 ± 150 rpm
	1HD-T	2,050 ± 150 rpm
	1HD-FTE	2,250 ± 150 rpm
Time lag	N → D range	Less than 1.2 seconds
	N → R range	Less than 1.5 seconds
Speedometer driven gear oil seal drive in depth		25 mm (0.98 in.)
Shift lever grooved pin		13.5 ± 0.3 mm (0.531 ± 0.012 in.)
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Torque converter installation distance	1FZ-FE	More than 37.2 mm (1.465 in.)
	2UZ-FE	More than 17.1 mm (0.673 in.)
	1HZ, 1HD-T, 1HD-FTE	More than 43.8 mm (1.724 in.)

Shift point (Engine: 1FZ-FE, Tire size: 275/70R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	50 – 55 km/h (31 – 34 mph)
	2 → 3	102 – 112 km/h (63 – 70 mph)
	3 → O/D	145 – 155 km/h (90 – 96 mph)
	O/D → 3	138 – 149 km/h (88 – 93 mph)
	3 → 2	94 – 100 km/h (58 – 62 mph)
	2 → 1	40 – 45 km/h (25 – 28 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	111 – 121 km/h (69 – 75 mph)
L range		
(Throttle valve fully opened)	2 → 1	57 – 62 km/h (35 – 39 mph)
Shift point (Engine: 1FZ-FE, Tire size: 235/85R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	51 – 56 km/h (32 – 35 mph)
	2 → 3	104 – 114 km/h (65 – 71 mph)
	3 → O/D	148 – 159 km/h (92 – 99 mph)
	O/D → 3	141 – 152 km/h (88 – 94 mph)
	3 → 2	96 – 102 km/h (60 – 63 mph)
	2 → 1	41 – 46 km/h (25 – 29 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	113 – 124 km/h (70 – 77 mph)
L range		
(Throttle valve fully opened)	2 → 1	58 – 63 km/h (36 – 39 mph)
Shift point (Engine: 2UZ-FE, Tire size: 275/70R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	46 – 51 km/h (29 – 32 mph)
	2 → 3	102 – 111 km/h (63 – 69 mph)
	3 → O/D	159 – 170 km/h (99 – 106 mph)
	O/D → 3	152 – 163 km/h (94 – 101 mph)
	3 → 2	94 – 100 km/h (58 – 62 mph)
	2 → 1	40 – 45 km/h (25 – 28 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	111 – 121 km/h (69 – 75 mph)
L range		
(Throttle valve fully opened)	2 → 1	57 – 62 km/h (35 – 39 mph)
Shift point (Engine: 2UZ-FE, Tire size: 235/85R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	47 – 52 km/h (29 – 32 mph)
	2 → 3	103 – 114 km/h (64 – 71 mph)
	3 → O/D	162 – 174 km/h (101 – 108 mph)
	O/D → 3	156 – 167 km/h (97 – 104 mph)
	3 → 2	96 – 102 km/h (60 – 63 mph)
	2 → 1	41 – 46 km/h (25 – 29 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	113 – 124 km/h (70 – 77 mph)
L range		
(Throttle valve fully opened)	2 → 1	58 – 63 km/h (36 – 39 mph)

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Shift point (Engine: 1HZ, Tire size: 275/70R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	38 – 43 km/h (24 – 27 mph)
	2 → 3	80 – 86 km/h (50 – 53 mph)
	3 → O/D	115 – 125 km/h (109 – 118 mph)
	O/D → 3	109 – 118 km/h (68 – 73 mph)
	3 → 2	71 – 76 km/h (44 – 47 mph)
	2 → 1	28 – 33 km/h (17 – 21 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	84 – 90 km/h (52 – 56 mph)
L range		
(Throttle valve fully opened)	2 → 1	36 – 41 km/h (22 – 25 mph)
Shift point (Engine: 1HZ, Tire size: 235/85R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	38 – 44 km/h (24 – 27 mph)
	2 → 3	81 – 87 km/h (50 – 54 mph)
	3 → O/D	118 – 128 km/h (73 – 80 mph)
	O/D → 3	111 – 121 km/h (69 – 75 mph)
	3 → 2	72 – 78 km/h (45 – 48 mph)
	2 → 1	29 – 34 km/h (18 – 21 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	86 – 92 km/h (53 – 57 mph)
L range		
(Throttle valve fully opened)	2 → 1	37 – 42 km/h (23 – 26 mph)
Shift point (Engine: 1HD-T, Tire size: 275/70R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	38 – 43 km/h (24 – 27 mph)
	2 → 3	76 – 82 km/h (47 – 51 mph)
	3 → O/D	115 – 125 km/h (71 – 78 mph)
	O/D → 3	109 – 118 km/h (68 – 73 mph)
	3 → 2	67 – 73 km/h (42 – 45 mph)
	2 → 1	31 – 36 km/h (19 – 22 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	84 – 90 km/h (53 – 57 mph)
L range		
(Throttle valve fully opened)	2 → 1	36 – 41 km/h (22 – 25 mph)
Shift point (Engine: 1HD-T, Tire size: 235/85R16)		
*1 D range		
(Throttle valve fully opened)	1 → 2	39 – 44 km/h (24 – 27 mph)
	2 → 3	78 – 84 km/h (48 – 52 mph)
	3 → O/D	118 – 128 km/h (73 – 80 mph)
	O/D → 3	111 – 121 km/h (69 – 121 mph)
	3 → 2	69 – 75 km/h (43 – 47 mph)
	2 → 1	32 – 37 km/h (20 – 23 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	86 – 92 km/h (53 – 57 mph)
L range		
(Throttle valve fully opened)	2 → 1	37 – 42 km/h (23 – 26 mph)

Shift point (1HD-FTE)		
*1 D range		
(Throttle valve fully opened)	1 → 2	41 – 46 km/h (25 – 29 mph)
	2 → 3	78 – 84 km/h (48 – 52 mph)
	3 → O/D	122 – 133 km/h (76 – 83 mph)
	O/D → 3	114 – 124 km/h (71 – 77 mph)
	3 → 2	66 – 72 km/h (41 – 45 mph)
	2 → 1	28 – 33 km/h (17 – 21 mph)
*1 2 range		
(Throttle valve fully opened)	3 → 2	88 – 94 km/h (55 – 58 mph)
L range		
(Throttle valve fully opened)	2 → 1	38 – 43 km/h (24 – 27 mph)
Lock-up point		
Engine: 1FZ-FE, Tire size: 275/70R16		
(NORM, 2nd Start Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	57 – 63 km/h (35 – 39 mph)
	Lock-up OFF	52 – 58 km/h (32 – 36 mph)
(PWR Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	84 – 90 km/h (52 – 55 mph)
	Lock-up OFF	66 – 71 km/h (41 – 44 mph)
Lock-up point		
Engine: 1FZ-FE, Tire size: 235/85R16		
(NORM, 2nd Start Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	59 – 64 km/h (37 – 40 mph)
	Lock-up OFF	54 – 59 km/h (34 – 37 mph)
(PWR Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	86 – 92 km/h (53 – 57 mph)
	Lock-up OFF	67 – 73 km/h (42 – 45 mph)
Lock-up point		
Engine: 2UZ-FE, Tire size: 275/70R16		
(NORM, 2nd Start Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	61 – 66 km/h (38 – 41 mph)
	Lock-up OFF	54 – 59 km/h (34 – 37 mph)
(PWR Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	61 – 66 km/h (38 – 41 mph)
	Lock-up OFF	54 – 59 km/h (34 – 37 mph)
Lock-up point		
Engine: 2UZ-FE, Tire size: 235/85R16		
(NORM, 2nd Start Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	62 – 68 km/h (39 – 42 mph)
	Lock-up OFF	55 – 61 km/h (34 – 38 mph)
(PWR Mode)		
	(Throttle valve opening 5 %)	
	Lock-up ON	62 – 68 km/h (39 – 42 mph)
	Lock-up OFF	55 – 61 km/h (34 – 38 mph)

*1: there is no $1 \rightarrow 2$ up-shift and $2 \rightarrow 1$ down shift in the 2nd START switch ON.