## AUTOMATIC TRANSMISSION (A442F) SERVICE DATA

SS0Z5-0

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Line pressure (Wheel locked) 1FZ-FE, 1HD-T	
Engine idling	
D range	430 – 510 kPa (4.4 – 5.2 kgf/cm <sup>2</sup> , 63 – 74 psi)
R range	640- 840 kPa (6.5 - 8.6 kgf/cm <sup>2</sup> , 92 - 122 psi)
AT stall (Throttle valve fully opened)	070 4 000 UD- (0.0 40.5 limf/sm² 444 470 ms))
D range	970 – 1,230 kPa (9.9 – 12.5 kgf/cm <sup>2</sup> , 141 – 178 psi) 1,610 – 1,850 kPa (16.4 – 18.9 kgf/cm <sup>2</sup> , 233 – 269 psi)
R range	1,010 - 1,030 KFa (10.4 - 10.9 kg//ciii-, 255 - 209 psi)
Line pressure (Wheel locked) 2UZ-FE, 1HD-FTE	
Engine idling	
D range	578 - 666 kPa (5.9 - 6.8 kgf/cm <sup>2</sup> , 84 - 97 psi)
R range	784- 760 kPa (8.0 - 9.8 kgf/cm <sup>2</sup> , 114 - 139 psi)
AT stall (Throttle valve fully opened)	1,127 - 1,303 kPa (11.5 - 13.3 kgf/cm <sup>2</sup> , 164 - 189 psi)
D range R range	1,610 – 1,850 kPa (11.5 – 13.5 kgf/cm², 164 – 169 psi)
	1,010 - 1,030 ki a (10.0 - 19.2 kg)/oiii , 200 - 210 psi)
Line pressure (Wheel locked)	
Engine idling	1000 400 LPs (0.7 4.0 Leffers 2.50 04 cs.)
D range	360 – 420 kPa (3.7 – 4.3 kgf/cm², 53 – 61 psi)
R range AT stall ( Throttle valve fully opened)	440- 540 kPa (4.5 - 5.5 kgf/cm <sup>2</sup> , 64 - 78 psi)
D range	1,088 - 1,333 kPa (11.1 - 13.6 kgf/cm <sup>2</sup> , 158 - 193 psi)
R range	1,370 – 1,670 kPa (14.0 – 17.0 kgf/cm², 199 – 242 psi)
	$650 \pm 50 \text{ rpm}$ $750 \pm 50 \text{ rpm}$
	710 ± 50 rpm
1HD-T	800 ± 50 rpm
1HD-FTE	600 ± 50 rpm
Engine stall revolution D and R ranges	'
	2,200 ± 150 rpm
	2,250 ± 150 rpm
1HZ	1,950 ± 150 rpm
1HD- 1HD-FT	2,050 ± 150 rpm
	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	$13.5 \pm 0.3  \text{mm}  (0.531 \pm 0.012  \text{in.})$
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.)

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Shift point (Engine: 1FZ-FE, Tire size: 275/70R16)
*1 D range
(Throttle valve fully opened)
                                                           1 \rightarrow 2 50 – 55 km/h (31 – 34 mph)
                                                           2 \rightarrow 3 | 102 – 112 km/h (63 – 70 mph)
                                                        3 \rightarrow O/D 145 – 155 km/h (90 – 96 mph)
                                                        O/D \rightarrow 3 | 138 – 149 km/h (88 – 93 mph)
                                                           3 \rightarrow 2 \mid 94 - 100 \text{ km/h} (58 - 62 \text{ mph})
                                                           2 \rightarrow 1 40 – 45 km/h (25 – 28 mph)
*1 2 range
(Throttle valve fully opened)
                                                                     111 - 121 km/h (69 - 75 mph)
                                                           3 \rightarrow 2
L range
(Throttle valve fully opened)
                                                           2 \rightarrow 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 \rightarrow 2 | 51 – 56 km/h (32 – 35 mph)
                                                           2 \rightarrow 3 104 – 114 km/h (65 – 71 mph)
                                                        3 \rightarrow O/D 148 – 159 km/h (92 – 99 mph)
                                                        O/D \rightarrow 3 141 – 152 km/h (88 – 94 mph)
                                                           3 \rightarrow 2 \mid 96 - 102 \text{ km/h } (96 - 63 \text{ mph})
                                                           2 \rightarrow 1
                                                                     41 - 46 km/h (25 - 29 mph)
*1 2 range
(Throttle valve fully opened)
                                                           3 \rightarrow 2 113 – 124 km/h (70 – 77 mph)
L range
(Throttle valve fully opened)
                                                                     58 - 63 km/h (36 - 39 mph)
                                                           2 \rightarrow 1
Shift point (Engine: 2UZ-FE, Tire size: 275/70R16)
*1 D range
(Throttle valve fully opened)
                                                            1 \rightarrow 2 46 – 51 km/h (29 – 32 mph)
                                                           2 \rightarrow 3 | 102 – 111 km/h (63 – 69 mph)
                                                        3 → O/D 159 – 170 km/h (99 – 106 mph)
                                                        O/D \rightarrow 3
                                                                     152 - 163 km/h (94 - 101 mph)
                                                           3 \rightarrow 2
                                                                     94 - 100 km/h (58 - 62 mph)
                                                           2 \rightarrow 1 40 – 45 km/h (25 – 28 mph)
*1 2 range
(Throttle valve fully opened)
                                                           3 \rightarrow 2 111 – 121 km/h (69 – 75 mph)
L range
(Throttle valve fully opened)
                                                           2 \rightarrow 1
                                                                     57 - 62 km/h (35 - 39 mph)
Shift point (Engine: 2UZ-FE, Tire size: 235/85R16)
*1 D range
                                                            1 \rightarrow 2 \mid 47 - 52 \text{ km/h} (29 - 32 \text{ mph})
(Throttle valve fully opened)
                                                           2 \rightarrow 3
                                                                     103 - 114 km/h (64 - 71 mph)
                                                        3 \rightarrow O/D
                                                                     162 - 174 km/h (101 - 108 mph)
                                                        O/D \rightarrow 3
                                                                     156 - 167 km/h (97 - 104 mph)
                                                           3 \rightarrow 2 96 – 102 km/h (60 – 63 mph)
                                                           2 \rightarrow 1 41 – 46 km/h (25 – 29 mph)
*1 2 range
(Throttle valve fully opened)
                                                           3 \rightarrow 2 113 – 124 km/h (70 – 77 mph)
L range
                                                           2 \rightarrow 1 58 - 63 km/h (36 - 39 mph)
(Throttle valve fully opened)
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Shift point (Engine: 1HZ, Tire size: 275/70R16)
*1 D range
(Throttle valve fully opened)
                                                             1 \rightarrow 2 38 – 43 km/h (24 – 27 mph)
                                                             2 \rightarrow 3 \mid 80 - 86 \text{ km/h} (50 - 53 \text{ mph})
                                                          3 \rightarrow O/D 115 – 125 km/h (109 – 118 mph)
                                                          O/D \rightarrow 3 109 – 118 km/h (68 – 73 mph)
                                                             3 \rightarrow 2 71 – 76 km/h (44 – 47 mph)
                                                             2 \rightarrow 1 28 – 33 km/h (17 – 21 mph)
*1 2 range
(Throttle valve fully opened)
                                                             3 \rightarrow 2 84 – 90 km/h (52 – 56 mph)
L range
(Throttle valve fully opened)
                                                             2 \rightarrow 1
                                                                       36 - 41 km/h (22 - 25 mph)
Shift point (Engine: 1HZ, Tire size: 235/85R16)
*1 D range
(Throttle valve fully opened)
                                                             1 \rightarrow 2 38 – 44 km/h (24 – 27 mph)
                                                             2 \rightarrow 3 81 – 87 km/h (50 – 54 mph)
                                                          3 \rightarrow O/D 118 – 128 km/h (73 – 80 mph)
                                                          O/D \rightarrow 3 111 – 121 km/h (69 – 75 mph)
                                                             3 \rightarrow 2 72 – 78 km/h (45 – 48 mph)
                                                             2 \rightarrow 1
                                                                       29 - 34 km/h (18 - 21 mph)
*1 2 range
(Throttle valve fully opened)
                                                             3 \rightarrow 2 \mid 86 - 92 \text{ km/h} (53 - 57 \text{ mph})
L range
(Throttle valve fully opened)
                                                             2 \rightarrow 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 \rightarrow 2 38 – 43 km/h (24 – 27 mph)
                                                             2 \rightarrow 3 76 – 82 km/h (47 – 51 mph)
                                                          3 \rightarrow O/D 115 – 125 km/h (71 – 78 mph)
                                                          O/D \rightarrow 3
                                                                       109 - 118 km/h (68 - 73 mph)
                                                             3 \rightarrow 2
                                                                       67 - 73 km/h (42 - 45 mph)
                                                             2 \rightarrow 1 31 – 36 km/h (19 – 22 mph)
*1 2 range
(Throttle valve fully opened)
                                                             3 \rightarrow 2 \mid 84 - 90 \text{ km/h} (53 - 57 \text{ mph})
L range
(Throttle valve fully opened)
                                                             2 \rightarrow 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 \rightarrow 2 39 – 44 km/h (24 – 27 mph)
                                                             2 \rightarrow 3 | 78 – 84 km/h (48 – 52 mph)
                                                          3 \rightarrow O/D
                                                                       118 - 128 km/h (73 - 80 mph)
                                                          O/D \rightarrow 3
                                                                       111 - 121 km/h (69 - 121 mph)
                                                             3 \rightarrow 2 \mid 69 - 75 \text{ km/h} (43 - 47 \text{ mph})
                                                             2 \rightarrow 1 | 32 – 37 km/h (20 – 23 mph)
*1 2 range
(Throttle valve fully opened)
                                                             3 \rightarrow 2 \mid 86 - 92 \text{ km/h} (53 - 57 \text{ mph})
L range
                                                             2 \rightarrow 1 37 – 42 km/h (23 – 26 mph)
(Throttle valve fully opened)
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Shift point (1HD-FTE)		
* <sup>1</sup> D range		
(Throttle valve fully opened)		41 – 46 km/h (25 – 29 mph)
		78 – 84 km/h (48 – 52 mph)
		122 – 133 km/h (76 – 83 mph)
		114 – 124 km/h (71 – 77 mph)
		66 – 72 km/h (41 – 45 mph)
#1 o	2 → 1	28 – 33 km/h (17 – 21 mph)
*1 2 range	0 0	00 04   11 / 15 50 11
(Throttle valve fully opened)	3 → 2	88 – 94 km/h (55 – 58 mph)
L range (Throttle valve fully opened)	0 - 1	29 42 km/h /04 97 mph)
	2 → 1	38 – 43 km/h (24 – 27 mph)
Lock-up point		
Engine: 1FZ-FE, Tire size: 27	75/70R16	
(NORM, 2nd Start Mode)		
	(Throttle valve opening 5 %)	[57
		57 – 63 km/h (35 – 39 mph)
(DMD Mode)	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 Of 1	00 - 71 Kilijil (41 - 44 liipil)
Lock-up point		
Engine: 1FZ-FE, Tire size: 23	85/85R16	
(NORM, 2nd Start Mode)		
	(Throttle valve opening 5 %)	
		59 – 64 km/h (37 – 40 mph)
(DIA/D M - d-)	Lock-up OFF	54 – 59 km/h (34 – 37 mph)
(PWR Mode)	(Thurstella	
	(Throttle valve opening 5 %)	86 – 92 km/h (53 – 57 mph)
	Lock-up OFF	67 – 73 km/h (42 – 45 mph)
	Lock-up Of 1	07 - 73 Kilijii (42 - 43 liipii)
Lock-up point		
Engine: 2UZ-FE, Tire size: 275/70R16		
(NORM, 2nd Start Mode)	(Thurstella	
	(Throttle valve opening 5 %)	C4
	Lock-up ON	61 – 66 km/h (38 – 41 mph) 54 – 59 km/h (34 – 37 mph)
(PWR Mode)	Lock-up OFF	04 - 08 km/H (04 - 07 mpm)
(1 VVI LIVIOUE)	(Throttle valve opening 5 %)	
	Lock-up ON	61 – 66 km/h (38 – 41 mph)
	Lock-up OFF	54 – 59 km/h (34 – 37 mph)
Lagle con a stat	200K up 011	5. 55 may (6.1 6.1 mpn)
Lock-up point	DE/0ED16	
Engine: 2UZ-FE, Tire size: 235/85R16		
(NORM, 2nd Start Mode)	(Throttle valve opening 5 %)	
	(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)	Lock-up OFF	00 - 01 κπηπ (04 - 00 πρπ)
(1 VVI LIVIOUE)	(Throttle valve opening 5 %)	
	Lock-up ON	62 – 68 km/h (39 – 42 mph)
	Lock-up OFF	55 – 61 km/h (34 – 38 mph)
	Lock-up OFF	100 - 01 KIII/II (04 - 00 III/III)

	T
Lock-up point	
Engine: 1HZ, 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	74 – 80 km/h (46 – 50 mph)
Lock-up OFF	61 – 66 km/h (38 – 41 mph)
Lock-up point	
Engine: 1HZ, Tire size: 235/85R16	
(NORM, 2nd Start Mode)	
(Throttle valve opening 5 %)	
	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	75 – 81 km/h (47 – 50 mph)
Lock-up OFF	62 – 68 km/h (39 – 42 mph)
	, , , , , , , , , , , , , , , , , , , ,
Lock-up point	
Engine: 1HD-T, Tire size: 275/70R16	
(NORM, 2nd Start Mode)	
(Throttle valve opening 5 %)	EQ
	53 – 59 km/h (33 – 37 mph)
Lock-up OFF	47 – 53 km/h (29 – 33 mph)
(PWR Mode)	
(Throttle valve opening 5 %)	74 00 km/h (46 50 mph)
Lock-up ON Lock-up OFF	74 – 80 km/h (46 – 50 mph)
,	67 – 73 km/h (42 – 45 mph)
Lock-up point	
Engine: 1HD-T, Tire size: 235/85R16	
(NORM, 2nd Start Mode)	
(Throttle valve opening 5 %)	
•	54 – 60 km/h (34 – 37 mph)
Lock-up OFF	48 – 54 km/h (30 – 34 mph)
(PWR Mode)	
(Throttle valve opening 5 %)	
Lock-up ON	75 – 81 km/h (47 – 50 mph)
Lock-up OFF	69 – 75 km/h (43 – 47 mph)
Lock-up point	
Engine: 1HD-FTE	
(NORM, 2nd Start Mode)	
(Throttle valve opening 5 %)	
Lock-up ON	56 – 61 km/h (35 – 38 mph)
Lock-up OFF	50 – 55 km/h (31 – 34 mph)
(PWR Mode)	
(Throttle valve opening 5 %)	
Lock-up ON	64 – 70 km/h (40 – 43 mph)
Lock-up OFF	58 – 64 km/h (36 – 40 mph)
1. there is no 1 $\rightarrow$ 2 up—shift and 2 $\rightarrow$ 1 dow	•

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