

MANUAL TRANSAXLE (EI 50F)

Specifications

TRANSMISSION ASSEMBLY				
Input shaft				
Roller bearing journal diameter	Limit	32.930 mm	1.2964 in.	
3rd gear journal diameter	Limit	35.950 mm	1.4154 in.	
4th gear journal diameter	Limit	35.950 mm	1.4154 in.	
Runout	Limit	0.060 mm	0.0024 in.	
Output shaft				
1 st gear journal diameter	Limit			
2nd gear journal diameter	Limit	38.950 mm	1.5335 in.	
Runout	Limit	38.950 mm	1.5335 in.	
Gear thrust clearance	1 st	STD	0.060 mm 0.0024 in.	
		Limit	0.10 – 0.35 mm 0.0039 – 0.0138 in.	
	2nd	STD	0.40 mm 0.0157 in.	
		Limit	0.10 – 0.45 mm 0.0039 – 0.0177 in.	
	3rd	STD	0.50 mm 0.0197 in.	
		Limit	0.10 – 0.35 mm 0.0039 – 0.0139 in.	
	4th	STD	0.40 mm 0.0157 in.	
		Limit	0.10 – 0.55 mm 0.0039 – 0.0217 in.	
	5th	STD	0.60 mm 0.0236 in.	
		Limit	0.10 – 0.57 mm 0.0039 – 0.0224 in.	
			0.65 mm 0.0256 in.	
	Gear oil clearance			
	1 st and 4th gear	STD	0.009 – 0.051 mm	0.0004 – 0.0020 in.
		Limit	0.080 mm	0.0031 in.
	2nd and 3rd gear	STD	0.009 – 0.053 mm	0.0004 – 0.0020 in.
Limit		0.080 mm	0.0031 in.	
5th gear	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 1st, 4th 2nd, 3rd	Limit	0.6 m m	0.024 in.	
	Limit	0.7 m m	0.028 in.	
Oil pump assembly		0.10 – 0.16 mm	0.0039 – 0.0063 in.	
Rotor body clearance	STD	0.30 mm	0.0118 in.	
	Limit	0.08 – 0.15 mm	0.0031 – 0.0059 in.	
Rotor tip clearance	STD	0.30 mm	0.0118 in.	
	Limit	0.03 – 0.08 mm	0.0012 – 0.0031 in.	
Side clearance	STD	0.1 5 mm	0.0059 in.	
	Limit			
Oil seal drive in depth				
Control shaft cover		0 – 1.0 mm	0 – 0.039 in.	
Input shaft snap ring thickness				
No.2 clutch hub	Mark			
	H			
	J	2.30 – 2.35 mm	0.0906 – 0.0925 in.	
	K	2.35–2.40 mm	0.0925 – 0.0945 in.	
	L	2.40 – 2.45 mm	0.0945 – 0.0965 in.	
	M	2.45–2.50 mm	0.0965 – 0.0984 in.	
	N	2.50 – 2.55 mm	0.0984 – 0.1004 in.	
P	2.55 – 2.60 mm	0.1004 – 0.1024 in.		
		2.60 – 2.65 mm	0.1024 – 0.1043 in.	

Specifications (Cont'd)

Input shaft snap ring thickness (cont'd) 4th gear and rear bearing	Mark			
	1	2.35-2.40 mm	0.0925 - 0.0945 in.	
	2	2.40 - 2.45 m m	0.0945 - 0.0965 in.	
	3	2.45 - 2.50 mm	0.0965 - 0.0984 in.	
	4	2.50-2.55 mm	0.0984 - 0.1004 in.	
	5	2.55 - 2.60 mm	0.1004 - 0.1024 in.	
	6	2.60 - 2.65 mm	0.1024 - 0.1043 in.	
	7	2.65 - 2.70 mm	0.1043 - 0.1063 in.	
	8	2.70 - 2.75 mm	0.1063 - 0.1083 in.	
	No.3 clutch hub	Mark		
		Q		
		R		
		S		
		T		
		U	2.25 - 2.30 mm	0.0886 - 0.0906 in.
		V	2.30 - 2.35 mm	0.0906 - 0.0925 in.
W		2.35 - 2.40 mm	0.0925 - 0.0945 in.	
X		2.40 - 2.45 mm	0.0945 - 0.0965 in.	
Y		2.45 - 2.50 mm	0.0965 - 0.0984 in.	
Output shaft snap ring thickness No-1 clutch hub	Mark			
	A	2.80-2.85 mm	0.1102 - 0.1122 in.	
	B	2.85 - 2.90 mm	0.1122 - 0.1142 in.	
	C	2.90 - 2.95 mm	0.1142 - 0.1161 in.	
	D	2.95 - 3.00 mm	0.1161 - 0.1181 in.	
	E	3.00 - 3.05 mm	0.1181 - 0.1201 in.	
	F	3.05 - 3.10 mm	0.1201 - 0.1220 in.	
	G	3.10 - 3.15 mm	0.1220 - 0.1240 in.	
	DIFFERENTIAL ASSEMBLY			
	Output shaft preload (at starting)	New bearing	0.78 - 1.57 N-m	8.0 - 16.0 kgf-cm 6.9 - 13.9 in.-lbf
Differential case preload (at starting)	Reused bearing	0.49 - 0.98 N-m	5.0 - 10.0 kgf-cm 4.3 - 8.7 in.-lbf	
	New bearing	0.2 - 0.4 N-m	1.9 - 3.7 kgf-cm 1.6 - 3.2 in.-lbf	
	Reused bearing	0.1 - 0.2 N-m	1.2 - 2.3 kgf-cm 1.0 - 2.0 in.-lbf	
	Left case inner diameter	STD	111.000 - 111.035 mm	4.3701 - 4.3714 in.
Limit		110.060 mm	4.3724 in.	
Right case bushing		STD	90.500 - 90.535 mm	3.5630 - 3.5644 in.
	Limit	90.560 mm	3.5653 in.	
Left case bushing				
No.2 differential case outer diameter Right side	STD			
	Limit			
	STD	110.929 - 110.964 mm	4.3673 - 4.3687 in.	
	Limit	110.850 mm	4.3632 in.	
Left side		90.429 - 90.464 mm	3.5602 - 3.5616 in.	
		90.350 mm	3.5571 in.	
Differential No.2 case inner diameter Side gear bushing	STD			
	Limit	35.000 - 35.025 mm	1.3780 - 1.3789 in.	
		35.030 mm	1.3791 in.	

Specifications (Cont'd)

Conical spring washer height			
Left conical spring washer	STD	2.60 – 2.80 mm	0.1024 – 0.1102 in.
	Limit	2.50 mm	0.0984 in.
Right conical spring washer	STD	1.70 – 1.90 mm	0.0669 – 0.0748 in.
	Limit	1.60 mm	0.0630 in.
Right case backlash		0.05 – 0.20 mm	0.0020 – 0.0079 in.
No-2 differential case backlash		0.05 – 0.20 mm	0.0020 – 0.0079 in.
Intermediate case backlash		0.05 – 0.20 mm	0.0020 – 0.0079 in.
Front differential side gear backlash		0.14 – 0.21 mm	0.0055 – 0.0083 in.
Thrust washer thickness			
For right case side gear		0.80 mm	0.0315 in.
		0.85 mm	0.0335 in.
		0.90 mm	0.0354 in.
		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.
		1.25 mm	0.0492 in.
		1.30 mm	0.0512 in.
		1.35 mm	0.0531 in.
		1.40 mm	0.0551 in.
For intermediate case side gear		0.80 mm	0.0315 in.
		0.85 mm	0.0335 in.
		0.90 mm	0.0354 in.
		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.
		1.25 mm	0.0492 in.
		1.30 mm	0.0512 in.
		1.35 mm	0.0531 in.
		1.40 mm	0.0551 in.
For No.2 differential case side gear	Mark		
	B	1.00 mm	0.0394 in.
	C	1.05 mm	0.0413 in.
	D	1.10 mm	0.0433 in.
	E	1.15 mm	0.0453 in.
	F	1.20 mm	0.0472 in.
	G	1.25 mm	0.0492 in.
For left case side gear	Mark		
	A		
	B		
	C		
	D	0.95 mm	0.0374 in.
	E	1.00 mm	0.0394 in.
		1.05 mm	0.0413 in.
		1.10 mm	0.0433 in.
		1.15 mm	0.0453 in.

Specifications (Cont'd)

Thrust washer thickness (cont'd) For left case side gear (cont'd)	Mark		
	F	1.20 mm	0.0472 in.
	G	1.25 mm	0.0492 in.
	H	1.30 mm	0.0512 in.
	J	1.35 mm	0.0531 in.
	K	1.40 mm	0.0551 in.
Adjusting shim thickness For differential preload	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.	
For output shaft preload	Mark		
	0	0.40 mm	0.0157 in.
	1	0.45 mm	0.0177 in.
	2	0.50 mm	0.0197 in.
	3	0.55 mm	0.0217 in.
	4	0.60 mm	0.0236 in.
	5	0.65 mm	0.0256 in.
	6	0.70 mm	0.0276 in.
	7	0.75 mm	0.0295 in.
	8	0.80 mm	0.0315 in.
	9	0.85 mm	0.0335 in.
	A	0.90 mm	0.0354 in.
	B	0.95 mm	0.0374 in.
	C	1.00 mm	0.0394 in.
D	1.05 mm	0.0413 in.	
E	1.10 mm	0.0433 in.	
F	1.15 mm	0.0453 in.	
G	1.20 mm	0.0472 in.	
H	1.25 mm	0.0492 in.	
J	1.30 mm	0.0512 in.	
K	1.35 mm	0.0531 in.	
L	1.40 mm	0.0551 in.	

Specifications (Cont'd)

Adjusting shim thickness (cont'd) For output shaft preload (cont'd)	Mark M N P Q	1.45 mm 1.50 mm 1.55 mm 1.60 mm	0.0571 in. 0.0591 in. 0.0610 in. 0.0630 in.
TRANSFER ASSEMBLY			
Ring gear backlash	Limit	0.13 – 0.18 mm 0.1 mm	0.0051 – 0.0071 in. 0.004 in.
Ring gear runout	New bearing	17.7 – 28.4 N	1.8 – 2.9 kgf 4.0 – 6.4 lbf
Driven pinion preload (at starting)	Reused bearing	8.8 – 13.7 N	0.9 – 1.4 kgf 2.0 – 3.1 lbf
Transfer total preload (at starting) (Add driven pinion preload)	New bearing		
Right case bushing inner diameter	Reused bearing		
Left case bushing inner diameter	STD	12.7–13.7N	1.3–1.4kgf 2.9–3.1lbf
Control coupling washer thickness	Limit	4.9 – 8.8 N	0.5 – 0.9 kgf 1.1 – 2.0 lbf
	STD	69.000 – 69.035 mm	2.7165 – 2.7179 in.
	Limit	69.060 mm	2.7189 in.
	STD	69.000 – 69.035 mm	2.7165 – 2.7179 in.
	Limit	69.060 mm	2.7189 in.
Oil seal drive in depth		1.49 – 1.51 mm	0.0587 – 0.0594 in.
Extension housing		1.45 mm	0.0571 in.
Differential lock shift lever shaft			
Shift fork shaft			
Adjusting shim thickness			
For ring gear backlash			
		1.1 – 1.9 mm	0.043 – 0.075 in.
		1.0 – 2.0 mm	0.039 – 0.079 in.
		8.5 – 9.5 mm	0.335 – 0.374 in.
	Mark		
	1	2.13 mm	0.0839 in.
	2	2.16 mm	0.0850 in.
	3	2.19 mm	0.0862 in.
	4	2.22 mm	0.0874 in.
	5	2.25 mm	0.0886 in.
	6	2.28 mm	0.0898 in.
	7	2.31 mm	0.0909 in.
	8	2.34 mm	0.0921 in.
	9	2.37 mm	0.0933 in.
	10	2.40 mm	0.0945 in.
	11	2.43 mm	0.0957 in.
	12	2.46 mm	0.0968 in.
	13	2.49 mm	0.0980 in.
	14	2.52 mm	0.0992 in.
	15	2.55 mm	0.1004 in.
	16	2.58 mm	0.1016 in.
	17	2.61 mm	0.1028 in.
	18	2.64 mm	0.1039 in.
	19	2.67 mm	0.1051 in.
	20	2.70 mm	0.1063 in.
	21	2.73 mm	0.1075 in.
	22	2.76 mm	0.1087 in.
	23	2.79 mm	0.1098 in.
	24	2.82 mm	0.1110 in.

Specifications (Cont'd)

Adjusting shim thickness (cont'd) For tooth contact	Mark	0.30 mm 0.0118 in.	
	A	0.33 mm 0.0130 in.	
	B	0.36 mm 0.0142 in.	
	C	0.39 mm 0.0154 in.	
	D	0.42 mm 0.0165 in.	
	E	0.45 mm 0.0177 in.	
	F	0.48 mm 0.0189 in.	
	G	0.51 mm 0.0201 in.	
	H	0.54 mm 0.0213 in.	
	J	0.57 mm 0.0224 in.	
	K	0.49 – 1.47 IV 60 – 150 gf 0.1 – 0.3 lbf	
Shift lever preload Shift lever seat shim thickness	Mark		
	A	0.5 mm	0.020 in.
	B	0.6 mm	0.024 in.
	C	0.7 mm	0.028 in.
	D	0.8 mm	0.031 in.
	E	0.9 mm	0.035 in.
	F	1.0 mm	0.039 in.
	G	1.1 mm	0.043 in.
	H	1.2 mm	0.047 in.
	J	1.3 mm	0.051 in.
	K	1.4 mm	0.055 in.
	L	1.5 mm	0.059 in.
	M	1.6 mm	0.063 in.
	N	1.7 mm	0.067 in.

Torque Specifications

Part tightened	N·m	kgf-cm	ft. lbf
Oil pump x Cover	10	105	8
Oil cooler pipe x Union	34	350	25
Ring gear x Differential case	124	1,2600	91
Union x Transaxle	27	275	20
Rear bearing retainer x Transmission case	42	430	31
Straight screw plug	25	250	18
Transmission case x Transaxle case	29	300	22
Reverse restrict pin holder plug	13	130	9
Oil pump assembly x Transaxle case	17	175	13
Control shaft lock bolt	49	500	36
Shift fork x Fork shaft	24	240	17
Reverse idler gear shaft lock bolt	29	300	22
Oil pipe x Housing	17	175	13
Rear bearing retainer x Transmission case	42	430	31
Transmission case x Transmission case cover	29	300	22
5th driven gear lock nut	123	1,250	90
Shift and select lever assembly x Transmission case	20	200	14

Torque Specifications (Cont'd)

Part tightened		N-m	kgf-cm	ft-lbf
Transaxle case receiver x Transaxle case		7.4 75		65 in.-lbf
Bellcrank x Transmission case		20 200		14
Shift arm bracket bolt x Transaxle case		17 175		13
Back-up light switch x Transmission case		40 410		34
Differential right case x Intermediate case		63 640		46
Driven pinion x Bearing cage		See page MT-194		
Ring gear x Ring gear mounting		97 985		
Driven pinion cage x Transfer case		39 400		71
Transfer case x Transfer right case		44 450		29
Transfer case x Inspection hole cover		16 160		33
Transfer shift lever shaft x Left case		20 200		12
Differential lock sleeve x Shift fork		16 160		14
Transfer right case x Transfer case cover		17 175		12
Transfer oil tube set bolt		13 130		13
Driven pinion cage x Extension housing		25 260		9
Differential lock shift fork shaft lock screw		39 400		19
Extension housing x Dynamic damper		25 260		29
Transaxle assembly x Transfer assembly		69 700		19
Drain plug		39 400		51
Transaxle assembly x Engine	M12 bolt	64 650		29
	M10 bolt	46 470		47
		52 530		34
LH engine mounting bracket x Transaxle		87 890		38
Mounting insulator x Mounting bracket		63 650		64
Mounting bracket x Transaxle bracket		52 530		47
RH mounting insulator x Bracket		73 740		38
RH mounting stay bolt		21 210		54
LH mounting stay bolt		29 300		15
Three-way catalytic converter mounting bolt		59 600		22
Three-way converter stay set bolt		77 790		43
Front mounting bracket x Transaxle		77 790		57
Rear mounting bracket x Transaxle		52 530		57
Center member x Body		73 740		38
Center member x Mounting bracket		27 280		54
A/C compressor x Idler pulley bracket		62 630		20
Exhaust pipe x Three-way catalytic converter		43 440		46
Exhaust pipe x Center exhaust pipe		152 1,500		32
Lower crossmember x Body		29 300		112
Fuel hose union bolt		21 210		22
Suspension upper brace x Body	Bolt	64 650		15
	Nut	12 120		47
Shift lever retainer x Plate		4.9 50		9
Selecting spring cover x Shift lever retainer		12 120		43 in..lbf
Shift lever retainer plate x Body				9