

DAIHATSU F300

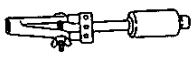
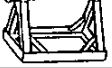
APPENDIX

1. SSTs	A- 2	LUBRICATION SYSTEM	A-29
2. TIGHTENING TORQUE FOR		COOLING SYSTEM	A-30
MAIN COMPONENTS	A-10	IGNITION SYSTEM	A-30
METHOD TO IDENTIFY STRENGTH		EFI SYSTEM (General specifications)	A-31
DIVISION OF BOLTS	A-10	ECU CONNECTORS	A-32
TIGHTENING TORQUE TABLE FOR		VOLTAGES AT ECU WIRING	
GENERAL STANDARD BOLTS & NUTS ..	A-11	CONNECTORS	A-33
3. TIGHTENING TORQUE	A-12	EFI SYSTEM (U.S. specifications)	A-35
ENGINE	A-12	ECU CONNECTORS	A-36
CLUTCH (PART & FULL TIME)	A-14	Table Showing ECU Connections	
TRANSMISSION CASE COVER		(US Specification)	A-36
(PART & FULL TIME)	A-14	VOLTAGES AT ECU CONNECTORS	A-37
TRANSMISSION (PART & FULL TIME)	A-14	STARTING SYSTEM	A-40
TRANSFER (PART TIME)	A-15	CHARGING SYSTEM	A-40
TRANSFER (FULL TIME)	A-15	CLUTCH	A-40
PROPELLER SHAFT	A-15	TRANSMISSION	A-41
FRONT DIFFERENTIAL	A-16	TRANSFER (PART-TIME)	A-42
REAR DIFFERENTIAL	A-16	TRANSFER (FULL-TIME)	A-42
FRONT AXLE & SUSPENSION	A-17	DIFFERENTIAL	A-43
REAR AXLE & SUSPENSION	A-18	FRONT AXLE & SUSPENSION	A-43
BRAKE	A-18	STEERING	A-44
STEERING	A-19	BRAKE	A-44
BODY & OTHERS	A-20	5. BODY COLOR INFORMATION	A-45
4. SPECIFICATIONS	A-21	COLOR CODE	A-45
PRE-DELIVERY INSPECTION		BODY STRIPE INFORMATION	A-45
SPECIFICATIONS	A-21	6. FRAME DIMENSION	A-46
TUNE-UP SPECIFICATIONS	A-22	7. VEHICLE 4-PLANE DIAGRAMS	A-47
ENGINE SPECIFICATIONS	A-24	8. METRIC-ENGLISH CONVERSION	
CHASSIS SPECIFICATIONS	A-25	TABLE	A-51
ENGINE MECHANICALS	A-26	9. DECIMAL AND METRIC	
FUEL SYSTEM	A-29	EQUIVALENTS	A-52

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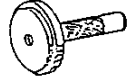
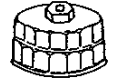
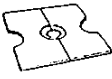
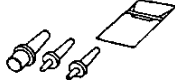
APPENDIX

1. SSTs

Shape	Part No. & Part Name	Section									
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body
	09032-00100-000 Oil pan seal cutter	○									
	09090-04010-000 Engine sling device	○									
	09201-60011-000 Valve guide bush remover & replacer		○								
	09201-87201-000 Valve guide bush remover & replacer			○							
	09201-87704-000 Valve stem oil seal cover replacer	○									
	09201-87705-000 Valve guide bush remover & replacer	○									
	09202-87002-000 Valve cotter remover & replacer	○									
	09210-87701-000 Flywheel holder	○									
	09217-87001-000 Piston replacing guide	○									
	09219-87202-000 Engine overhaul stand	○		○		○					
	09219-87203-000 Engine overhaul attachment			○							
	09219-87701-000 Engine overhaul attachment	○									

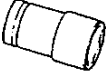
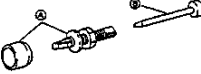
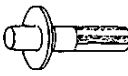
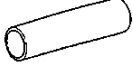
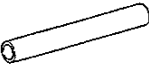
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APPENDIX

Shape	Part No. & Part Name	Section									
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body electrical
	09221-87704-000 Piston pin remover & replacer body	○									
	09221-87705-000 Piston pin remover & replacer guide	○									
	09223-41010-000 Crankshaft rear oil seal replacer	○									
	09226-87201-000 Oil filter wrench	○									
	09240-00014-000 Carburetor adjusting gauge	○									
	09240-00020-000 Wire gauge set	○									
	09243-00020-000 Idle adjust wrench	○									
	09253-87101-000 Water pump bearing anvil					○					
	09258-00030-000 Plug set	○									
	09268-87701-000 EFI fuel pressure gauge	○									
	09268-87702-000 Injection measuring tool set	○									
	09268-87703-000 Plug wrench	○									

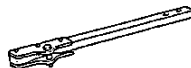
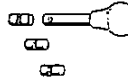
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APPENDIX

Shape	Part No. & Part Name	Section										
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body	Body electrical
	09268-87704-000 Oil cooler set bolt box wrench	○										
	09278-87201-000 Tool timing belt pulley holding	○										
	09283-87703-000 Pressure regulator adopter	○										
	09286-87602-000 Crankshaft rear end bearing remover	○										
	09286-87603-000 Crankshaft rear end bearing replacer	○										
	09301-87601-000 Clutch guide tool		○									
	09302-87702-000 Clutch diaphragm spring height No. 5 gauge		○									
	09304-87601-000 Replacer input shaft bearing			○								
	09306-87601-000 Replacer counter shaft bearing			○								
	09306-87602-000 Puller counter gear front bearing			○								
	09308-00010-000 Oil seal puller					○	○	○				
	09308-10010-000 Oil seal puller					○						

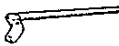
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APPENDIX

Shape	Part No. & Part Name	Section									
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body
	09309-87201-000 Transmission bearing replacer			○							
	09309-87202-000 Transmission bearing replacer					○					
	09309-87301-000 Output shaft bearing replacer			○							
	09310-87102-000 Counter shaft rear bearing replacer	○		○							
	09326-20020-000 Output shaft bearing lock nut wrench			○							
	09330-00021-000 Companion flange holding tool					○					
	09333-00012-000 Clutch diaphragm spring aligner		○								
	09339-87301-000 Shift fork shaft guide			○							
	09388-87702-000 Transfer replacer	○									
	09458-87601-000 Attachment differential overhaul					○					
	09502-10012-000 Differential side bearing puller					○					
	09504-87601-000 Differential side bearing adjust nut wrench					○					

WFE90-A005

APPENDIX

Shape	Part No. & Part Name	Section										
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body	Body electrical
	09511-87202-000 Brake drum stopper						○					
	09517-87601-000 Replacer oil seal			○		○						
	09517-87602-000 Attachment oil seal puller					○						
	09520-00031-000 Rear axle shaft puller						○	○				
	09520-87603-000 Rear wheel bearing puller set							○				
	09520-87604-000 Puller universal joint				○							
	09530-87602-000 Rear differential drive pinion adjust gauge set					○						
	09530-87603-000 Front differential drive pinion adjust gauge set					○						
	09602-87301-000 Counter gear bearing puller			○								
	09607-87602-000 Front axle hearing lock nut wrench						○					
	09607-87603-000 Front axle hub nut wrench						○					
	09608-87302-000 Axle hub & drive pinion bearing tool set			○		○						

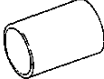
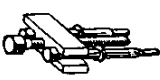
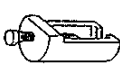
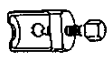
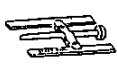
WFE90-A006

APPENDIX

Shape	Part No. & Part Name	Section										
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body	Body electrical
	09608-87602-000 Front axle hub oil seal replacer						○					
	09608-87603-000 Front axle hub outer bearing outer race replacer						○					
	09608-87604-000 Front axle hub inner bearing outer race replacer						○					
	09608-87605-000 Steering knuckle oil seal & dust deflector replacer						○					
	09608-87606-000 Rear axle shaft oil seal replacer							○				
	09608-87607-000 Leaf spring bush No. 1 remover & replacer							○				
	09608-87608-000 Leaf spring bush No. 2 remover & replacer							○				
	09608-87609-000 Upper arm bush remover						○					
	09608-87610-000 Upper arm bush replacer						○					
	09608-87611-000 Lower arm dust cover & tie rod end dust cover replacer						○			○		
	09608-87612-000 Upper arm bush remover & replacer holder						○					
	09608-87613-000 Pitman arm tie rod end dust cover & hub cap replacer						○			○		

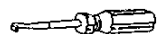
WFE90-A007

APPENDIX

Shape	Part No. & Part Name	Section									
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body
	09608-87614-000 Idler arm dust cover replacer									○	
	09608-87615-000 Lower arm bush remover & replacer						○				
	09609-20011-000 Steering wheel puller	○									
	09610-20012-000 Pitman arm puller						○			○	
	09610-87301-000 Pitman arm puller									○	
	09611-87506-000 Handle						○			○	
	09611-87701-000 Tie rod end puller									○	
	09612-12010-000 Steering gear housing overhaul			○							
	09616-00010-000 Steering pinion bearing adjusting socket									○	
	09636-20010-000 Upper ball joint dust cover replacer	○				○					
	09737-87001-000 Brake booster push rod gauge								○		
	09842-30070-000 EFI inspection wire F	○									

WFE90-A008

APPENDIX

Shape	Part No. & Part Name	Section									
		Engine	Clutch	Transmission & Transfer	Propeller shaft	Differential	Front axle & Suspension	Rear axle & Suspension	Brake	Steering	Body
	09842-87204-000 EFC-II computer check sub harness	○									
	09842-87704-000 EFC computer check sub harness	○									
	09860-11011-000 Carburetor screwdriver set	○									
	009921-00010-000 Spring tension tool			○					○		
	09950-20017-000 Universal puller			○			○				
	09956-00010-000 Tightening piece				○	○		○			
	09990-87702-000 Engine oil pressure gauge	○									
	09991-87702-000 Engine control system inspection sub harness	○									
	09991-87703-000 Tacho pulse pick-up wire	○									

WFE90-A009

APPENDIX

2. TIGHTENING TORQUE FOR MAIN COMPONENTS

1. When you want to find out a suitable tightening torque for a bolt, first determine the strength division of the said bolt, using the table below. Then, locate suitable tightening torque in the tightening torque table described later.
2. As for the tightening torque for a nut, find out suitable tightening torque in the same way as with the paragraph 1 above, based on the mating bolt.
3. Tightening torque posted in the workshop manual is a standard value for steel fasteners. It is, therefore, necessary to modify these tightening torque when you tighten fasteners made of materials other than steel.
This rule also applies to such instances where bolts are undergoing heat or other stress, such as vibratory loads and so forth.

WFE90-A010

METHOD TO IDENTIFY STRENGTH DIVISION OF BOLTS

1. Identification Method by Checking Bolts Themselves

	Configuration and how to determine strength division		Strength division		Configuration and how to determine strength division		Strength division
Hexagon bolt		Bolt having an embossed or stamped figure at its head section	4 = 4T 5 = 5T 6 = 6T 7 = 7T	Welded bolt			4T
		No mark	4T	Stud bolt		No mark	4T
		Bolt having two embossed lines at its head section	5T 6T			Bolt having about 2 mm deep recess at one end or both ends	6T
		Bolt having three embossed lines at its head section	7T				

WFE90-A011

2. Identification Method by Part Numbers

Hexagon Bolt Part number example: 9 1 1 1 1 - 4 0 6 2 0 		Stud Bolt Part number example: 9 1 1 1 1 - 4 0 6 2 0 	
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WFE90-A012

APPENDIX

TIGHTENING TORQUE TABLE FOR GENERAL STANDARD BOLTS & NUTS

NOTE:

The table below indicates the tightening torques for those standard bolts and nuts which are not posted in the tightening torque table.

Category	Nominal diameter mm	Pitch mm	Standard tightening torque					
			Target value			Tightening range		
			N·m	kgf·m	ft·lb	N·m	kgf·m	ft·lb
4T (Bolt having a mark of "4" at its head section) Example of part number (91000 - 40000)	6	1.0	5.39 [5.88]	0.55 [0.60]	3.98 [4.34]	4.31 - 6.47 [4.71 - 7.06]	0.44 - 0.66 [0.48 - 0.72]	3.18 - 4.77 [3.47 - 5.21]
	8	1.25	12.75 [14.22]	1.30 [1.45]	9.40 [10.49]	10.2 - 15.3 [11.38 - 17.06]	1.04 - 1.56 [1.16 - 1.74]	7.52 - 11.28 [8.39 - 12.59]
	10	1.25	25.50 [28.44]	2.6 [2.90]	18.81 [20.98]	20.4 - 30.6 [22.75 - 34.13]	2.08 - 3.12 [2.32 - 3.48]	15.04 - 22.57 [16.78 - 25.17]
	12	1.25	47.07 [52.96]	4.8 [5.4]	34.72 [39.06]	37.66 - 56.49 [42.36 - 63.55]	3.84 - 5.76 [4.32 - 6.48]	27.77 - 41.66 [31.25 - 46.87]
5T (Bolt having a mark of "5" at its head section) Example of part number (91000 - 50000)	6	1.0	6.37 [7.35]	0.65 [0.75]	4.70 [5.42]	5.1 - 7.65 [5.88 - 8.83]	0.52 - 0.78 [0.6 - 0.9]	3.76 - 5.64 [4.34 - 6.51]
	8	1.25	15.69 [17.16]	1.60 [1.75]	11.57 [12.66]	12.55 - 18.83 [13.73 - 184.66]	1.28 - 1.92 [1.40 - 2.10]	9.26 - 13.89 [10.13 - 15.19]
	10	1.25	32.36 [35.30]	3.3 [3.6]	23.87 [26.04]	25.89 - 38.83 [28.24 - 42.36]	2.64 - 3.96 [2.88 - 4.32]	19.1 - 28.64 [20.83 - 31.25]
	12	1.25	58.84 [65.70]	6.0 [6.7]	43.4 [48.46]	47.07 - 70.61 [52.56 - 78.85]	4.80 - 7.20 [5.36 - 8.04]	34.72 - 52.08 [38.77 - 58.15]
6T (Bolt having a mark of "6" at its head section) Example of part number (91000 - 60000)	6	1.0	7.85 [8.83]	0.8 [0.9]	5.79 [6.51]	6.28 - 9.41 [7.06 - 10.59]	0.64 - 0.96 [0.72 - 1.08]	4.63 - 6.94 [5.21 - 7.81]
	8	1.25	19.12 [20.59]	1.95 [2.10]	14.10 [15.19]	15.3 - 22.95 [16.48 - 24.71]	1.56 - 2.34 [1.68 - 2.52]	11.28 - 16.93 [12.15 - 18.23]
	10	1.25	39.23 [43.15]	4.00 [4.40]	28.93 [31.83]	31.38 - 47.07 [34.52 - 51.78]	3.20 - 4.80 [3.52 - 5.28]	23.15 - 34.72 [25.46 - 38.19]
	12	1.25	71.59 [79.43]	7.30 [8.10]	52.80 [58.59]	57.27 - 85.91 [63.55 - 95.32]	5.84 - 8.76 [6.48 - 9.72]	42.24 - 63.36 [46.87 - 70.30]
7T (Bolt having a mark of "7" at its head section) Example of part number (91000 - 70000)	6	1.0	10.79 [11.76]	1.10 [1.20]	7.96 [8.68]	8.63 - 12.94 [9.41 - 14.12]	0.88 - 1.32 [0.96 - 1.44]	6.37 - 9.55 [6.94 - 10.42]
	8	1.25	25.5 [28.44]	2.60 [2.90]	18.81 [20.98]	20.4 - 30.6 [22.75 - 34.13]	2.08 - 3.12 [2.32 - 3.48]	15.04 - 22.57 [16.78 - 25.17]
	10	1.25	51.98 [57.86]	5.30 [5.90]	38.33 [42.67]	41.58 - 62.37 [46.29 - 69.43]	4.24 - 6.36 [4.72 - 7.08]	30.67 - 47.95 [34.14 - 51.21]
	12	12.5	95.12 [109.97]	9.70 [10.50]	70.16 [75.94]	76.1 - 114.15 [82.38 - 123.56]	7.76 - 11.64 [8.40 - 12.60]	56.13 - 84.19 [60.76 - 91.14]
Pipe tapered thread	PT8/1	*0.9071	16.67	1.7	12.3	11.76 - 21.57	1.2 - 2.2	8.67 - 15.91
	PT1/4	*1.3368	24.52	2.5	18.08	19.61 - 29.42	2.0 - 3.0	14.46 - 21.67
	PT3/8	*1.3368	29.42	3.0	21.7	24.52 - 34.32	2.5 - 3.5	18.08 - 25.32
	PT1/2	*1.8143	29.42	3.0	21.7	24.52 - 34.42	2.5 - 3.5	18.08 - 25.32

Numerals in [] denote those for flange bolts.
The asterisk mark (*) represents pitch conversion value.

WFE90-A013

APPENDIX

3. TIGHTENING TORQUE ENGINE

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
Cylinder head x Spark plug	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Cylinder head x Cylinder head cover	2.9 - 4.9	0.3 - 0.5	2.2 - 3.6
Cylinder head x Rocker shaft M10 Bolt	28.4 - 36.3	2.9 - 3.7	21.0 - 26.8
M8 Bolt	12.7 - 16.7	1.3 - 1.7	9.4 - 12.3
Cylinder head x Cylinder block	58.8 - 66.6*	6.0 - 6.8*	43.4 - 49.2*
Cylinder head x Water temperature sensor (HD-E engine only)	24.5 - 34.3	2.5 - 3.5	18.1 - 25.3
Cylinder head x BVSX (HD-C engine only)	24.5 - 34.3	2.5 - 3.5	18.1 - 25.3
Cylinder head x Water temperature sender gauge	11.8 - 19.6	1.2 - 2.0	8.7 - 14.5
Cylinder head x Distributor	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Cylinder head x Exhaust manifold	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Cylinder head x Intake manifold	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Cylinder head x Fuel pump (HD-C engine only)	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Cylinder block x Water inlet	5.9 - 8.8	0.6 - 0.9	4.3 - 6.5
Cylinder block x Crankshaft main bearing cap	29.4 - 53.9*	4.5 - 5.5*	32.5 - 39.8*
Cylinder block x Oil pump	5.9 - 8.8	0.6 - 0.9	4.3 - 6.5
Cylinder block x Rear oil seal retainer	5.9 - 8.8	0.6 - 0.9	4.3 - 6.5
Cylinder block x Water pump	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Cylinder block x Engine mounting bracket	39.2 - 53.9	4.0 - 5.5	28.9 - 39.8
Cylinder block x Transmission	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6
Cylinder block x Oil cooler pipe	24.5 - 34.3	2.5 - 3.5	18.1 - 25.3
Surge tank x Intake air temperature sensor	29.4 - 39.2	3.0 - 4.0	21.7 - 28.9
Surge tank x Gas filter	11.8 - 19.6	1.2 - 2.0	8.7 - 14.5
Surge tank x Throttle body	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Crankshaft x Flywheel	78.4 - 98.0**	8.0 - 10.0**	57.9 - 72.0**
Crankshaft x Crankshaft timing belt pulley	88.2 - 98.0	9.0 - 10.0	65.1 - 72.0
Intake manifold x Delivery pipe (HD-E engine only)	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Intake manifold x Carburetor (HD-C engine only)	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Exhaust manifold x Exhaust pipe	34.3 - 49.0	3.5 - 5.0	25.3 - 36.2
Exhaust pipe clamp	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Engine mounting bracket x Engine mounting (bolt)	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Engine mounting bracket x Engine mounting (nut)	29.4 - 44.1	3.5 - 5.5	25.3 - 39.8

* Wet base

** Non-reusable

WPES0-A014

APPENDIX

Tightening component	Tightening torque		
	N·m	kgf·m	ft·lb
Oil pump body × Oil cooler	24.5 - 34.3	2.5 - 3.5	18.1 - 25.3
Oil pump × Oil pressure switch	11.8 - 19.6	1.2 - 2.0	8.7 - 14.5
Oil pan	6.9 - 11.8	0.7 - 1.2	5.1 - 8.7
Oil pan × Drain plug	19.6 - 29.4	2.0 - 3.0	14.5 - 21.7
Oil pump body × Oil pump cover	7.8 - 12.7	0.8 - 1.3	5.8 - 9.4
Oil level gauge guide	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Surge tank stay No. 1	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Surge tank stay No. 2	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Surge tank stay No. 3	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Camshaft × Camshaft timing belt pulley	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Timing belt cover	2.0 - 3.9	0.2 - 0.4	1.4 - 2.9
Timing belt tensioner	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Crankshaft timing belt pulley × Crankshaft pulley	19.6 - 29.4	2.0 - 3.0	14.5 - 21.5
Fluid coupling × Water pump pulley × Water pump	9.8 - 19.6	1.0 - 1.8	7.2 - 13.0
Cooling fan × Fluid coupling	4.9 - 5.9	0.5 - 0.6	3.6 - 4.3
Fuel filter × Fuel hose No. 1	34.3 - 44.1	3.5 - 4.5	25.3 - 32.5
Fuel filter × Fuel pipe	34.3 - 44.1	3.5 - 4.5	25.3 - 32.5
Fuel hose No. 1 × Delivery pipe	34.3 - 44.1	3.5 - 4.5	25.3 - 32.5
Connecting rod × Connecting rod cap	34.3 - 44.1*	3.5 - 4.5*	25.3 - 32.5*
Clutch cover × Fly wheel	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Transmission × Starter motor	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6
Front pipe × Rear pipe	36.3 - 51.0	3.7 - 5.2	26.8 - 37.6
Fuel pump × Fuel pipe	34.3 - 43.1	3.5 - 4.4	25.3 - 31.8

* Wet base

WFE90-A015

APPENDIX

CLUTCH (PART & FULL TIME)

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
Flywheel x Clutch cover A/y	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Clutch release lever S/A x Clutch release lever yoke	29.4 - 39.2	3.0 - 4.0	21.7 - 28.9

WFE90-A016

TRANSMISSION CASE COVER (PART & FULL TIME)

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
T/M case cover x Transmission case	14.7 - 19.6 6.9 - 9.8	1.5 - 2.0 0.7 - 1.0 (only three bolts)	10.8 - 14.5 5.1 - 7.2
Reverse restrict pin holder x T/M case cover	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Back up lamp switch x T/M case cover	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Set bolt x T/M case cover	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Shift lock plate x T/M case cover	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Union x T/M case cover	12.7 - 15.7	1.3 - 1.6	9.4 - 11.6

WFE90-A017

TRANSMISSION (PART & FULL TIME)

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
Cylinder block x T/M case	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6
Exhaust pipe support bracket x T/M case	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Bolt for 5th shift arm x T/M case	39.2 - 58.8	4.0 - 6.0	28.9 - 43.4
Bolt for reverse shift arm x T/M case	34.3 - 53.9	3.5 - 5.5	25.3 - 39.8
Front bearing retainer x T/M case	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Counter shaft 5th gear x Lock nut	98.0 - 137.0	10.0 - 14.0	72.0 - 101.0

WFE90-A018

APPENDIX

TRANSFER (PART TIME)

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
T/F adapter case x T/M case	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
T/F low speed input gear x Lock nut	177.0 - 216.0	18.0 - 22.0	130.0 - 159.0
T/F front case x T/F adapter case	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Bolt for transfer high & low shift fork shaft x T/F front case	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Bolt for T/F front drive shift fork shaft x T/F front case	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Transposition detect switch x T/F front case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
T/F rear case x T/F front case	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
T/F rear output shaft x Lock nut	137.0 - 196.0	14.0 - 20.0	101.0 - 145.0
Output shaft bearing retainer x T/F rear case	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Speedometer sleeve lock plate x Output shaft bearing retainer	6.9 - 9.8	0.7 - 1.0	5.1 - 7.2
Control shaft lower No. 1 bracket x T/F rear case	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
T/F shift lever retainer x Output shaft bearing retainer	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Control shift lever retainer x Control shaft lower No. 1 bracket	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Control shaft x Shift & select shaft No. 1	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5

WF890-A019

TRANSFER (FULL TIME)

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
T/F oil pump body x T/F adapter case	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
T/F oil strainer tube x T/F oil pump body	6.9 - 9.8	0.7 - 1.0	5.1 - 7.2
T/F oil pump body x Lock nut	177.0 - 216.0	18.0 - 22.0	130.0 - 159.0
T/F oil strainer x T/F adapter case	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
T/F oil pump cover x T/F adapter case	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Bolt for differential lock shift fork shaft x T/F front case	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Bolt for transfer front drive shift fork shaft x T/F front case	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
T/F output rear shaft x Lock nut	137.0 - 196.0	14.0 - 20.0	101.0 - 145.0
T/F front drive shift lock sleeve x Output shaft bearing retainer	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6
Bolt for shift preventive x T/F front drive shift lock sleeve	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5

WF890-A020

PROPELLER SHAFT

Tightening component	Tightening torque		
	N-m	kgf-m	ft-lb
Front differential companion flange x Propeller shaft	58.8 - 78.5	6.0 - 8.0	43.4 - 57.9
Rear differential companion flange x Propeller shaft	58.8 - 78.5	6.0 - 8.0	43.4 - 57.9

WF890-A021

APPENDIX

FRONT DIFFERENTIAL

Tightening component	Tightening torque		
	N·m	kgf·m	ft·lb
Front axle housing cover S/A × Differential carrier	17.7 - 23.5	1.8 - 2.4	13.0 - 17.4
Front axle housing cover S/A × Filler plug	39.2 - 58.8	4.0 - 6.0	28.9 - 43.4
Differential carrier × Drain plug	39.2 - 58.8	4.0 - 6.0	28.9 - 43.4
Differential carrier support bracket × Differential carrier	98.0 - 118.0	10.0 - 12.0	72.0 - 87.0
Chassis frame × Differential carrier support bracket	39.2 - 53.9 39.2 - 49.0	4.0 - 5.5 4.0 - 5.0 (only right side)	28.9 - 39.8 28.9 - 36.2
Bearing cap × Differential carrier	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Differential bearing adjusting nut lock × Bearing cap	3.9 - 9.8	0.4 - 1.0	2.9 - 7.2
Ring gear × Differential case S/A (with wet condition)	78.5 - 88.3	8.0 - 9.0	57.9 - 65.1
Drive pinion × Lock nut	157.0 - 196.0	16.0 - 20.0	116.0 - 145.0

WFE90-A022

REAR DIFFERENTIAL

Tightening component	Tightening torque		
	N·m	kgf·m	ft·lb
Rear axle housing × Differential carrier	53.9 - 78.5	5.5 - 8.0	39.8 - 57.9
Filler plug × Rear axle housing	39.2 - 58.8	4.0 - 6.0	28.9 - 43.4
Drain plug × Rear axle housing	39.2 - 58.8	4.0 - 6.0	28.9 - 43.4
Bearing cap × Differential carrier	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Differential bearing adjusting nut lock × Bearing cap	3.9 - 9.8	0.4 - 1.0	2.9 - 7.2
Ring gear × Differential case S/A (with wet condition)	78.5 - 88.3	8.0 - 9.0	57.9 - 65.1
Drive pinion × Lock nut	186.0 - 226.0	19.0 - 23.0	137.0 - 166.0

WFE90-A023

FRONT AXLE & SUSPENSION

Tightening component	N-m	kgf-m	ft-lb
Wheel hub nuts	89.2 - 118	9.0 - 12.0	65.1 - 87.0
Knuckle stopper bolt lock nut	78.5 - 98.0	8.0 - 10.0	57.9 - 72.0
Tie rod (Lock nut)	118 - 167	12 - 17	87 - 123
Torsion spring lock nut	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Lock nut (Axle hub nut)	98.0 - 147	10 - 15	72 - 109
Steering knuckle x Brake mounting support	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Lock nut (Axle hub nut) x brake drum (Automatic free wheel hub equipped vehicle only)	4.9 - 8.8	0.5 - 0.9	3.6 - 6.5
Axle hub x Hub cover (Free wheel hub body)	58.8 - 68.6	6.0 - 7.0	43.4 - 50.6
Free wheel hub body x Free wheel hub cover (Free wheel hub equipped vehicle only)	7.8 - 11.8	0.8 - 1.2	5.8 - 8.7
Axle hub x Brake disc	53.9 - 73.5	5.5 - 7.5	39.8 - 54.2
Drive shaft x Lock bolt with washer (Automatic locking hub equipped vehicle only)	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Stabilizer link x Stabilizer bracket cover	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Anchor arm stopper x Frame	4.9 - 7.8	0.5 - 0.8	3.6 - 5.8
Torque arm x Lower arm	39.2 - 53.9	4.0 - 5.5	28.9 - 39.8
Anchor bolt x Lock nut	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Shock absorber x Frame	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Shock absorber x Lower arm	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6
Shock absorber x Shock absorber control bracket	25.5 - 38.2	2.6 - 3.9	18.8 - 28.2
Shock absorber control bracket x Three-stage actuator	2.0 - 3.9	0.2 - 0.4	1.4 - 2.9
Suspension upper arm shaft x Frame	102 - 128	10.4 - 13.0	75.2 - 94.0
Suspension upper arm shaft x Upper arm sub assembly	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Upper arm x Front spring bumper	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Upper arm x Upper ball joint	26.5 - 36.3	2.7 - 3.7	19.5 - 26.8
Lower arm x Lower ball joint	55.9 - 76.5	5.7 - 7.8	41.2 - 56.4
Steering knuckle x Tie rod end	68.6 - 137	7.0 - 14	50.6 - 101
Upper ball joint x Steering knuckle	88.3 - 118	9.0 - 12.0	65.1 - 87.0
Lower ball joint x Steering knuckle	88.3 - 118	9.0 - 12.0	65.1 - 87.0
Lower arm x Frame	128 - 177	13 - 18	94 - 130

WPES0-A024

APPENDIX

REAR AXLE & SUSPENSION

Tightening component	N-m	kgf-m	ft-lb
Rear spring shackle	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Leaf spring x Frame	118 - 137	12 - 14	87 - 101
"U"bolt	58.8 - 78.5	6.0 - 8.0	43.4 - 57.9
Rear shock absorber x Frame	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Rear shock absorber x "U" bolt seat	34.3 - 53.9	3.5 - 5.5	25.3 - 39.8
Rear shock absorber x shock absorber control bracket (Three stage damper only)	25.5 - 38.2	2.6 - 3.9	18.8 - 28.2
Rear axle housing x Backing plate	39.2 - 49.0	4.0 - 5.0	28.9 - 36.2
Rear spring bumper x Frame	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Rear shock absorber x Frame (Lock nut)	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Shock absorber x Actuator (Three stage damper only)	2.0 - 3.9	0.2 - 0.4	1.4 - 2.9

WFE90-A025

BRAKE

Tightening component	N-m	kgf-m	ft-lb
Brake tube (Flare nut)	12.7 - 17.7	1.3 - 1.8	9.4 - 13.0
Air bleeder plug	8.8 - 12.7	0.9 - 1.3	6.5 - 9.4
Brake pedal x Brake pedal bracket	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Stop lamp switch lock nut	17.7 - 29.4	1.8 - 3.0	13.0 - 21.7
Brake booster push rod x Clevis	12.7 ± 2.6	1.3 ± 0.2	9.4 ± 1.9
Brake mounting support x Steering knuckle	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Brake mounting support x Stud bolt	39.2 - 49.0	4.0 - 5.0	28.9 - 36.2
Brake mounting support x Caliper body	31.4 - 41.2	3.2 - 4.2	23.1 - 30.4
Brake hose x Caliper body	20.6 - 26.5	2.1 - 2.7	15.2 - 19.5
Wheel cylinder x Brake tube	12.7 - 17.7	1.3 - 1.8	9.4 - 13.0
Backing plate x Wheel cylinder	7.8 - 11.8	0.8 - 1.2	5.8 - 8.7
Shoe x Automatic adjusting lever pin	2.55 - 4.9	0.26 - 0.5	1.88 - 3.62
Parking brake shoe strut (screw)	2.6 - 3.9	0.26 - 0.4	1.88 - 2.9
Wheel hub nut	88.3 - 11.8	9.0 - 12.0	65.1 - 87.0
Master cylinder piston set bolt	6.9 - 10.8	0.7 - 1.1	5.1 - 8.0
Master cylinder reservoir hose band	5.4 - 6.9	0.55 - 0.70	4.5 - 5.1
Master cylinder x Brake booster	10.2 - 15.3	1.04 - 1.56	7.52 - 11.3
Master cylinder x Brake tube	12.7 - 17.7	1.3 - 1.8	9.4 - 13.0
Brake booster lock nut x Adjust nut	20.4 - 30.6	2.08 - 3.12	15.1 - 22.5
Brake booster x Dash panel	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Parking brake control handle x Floor panel	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Parking brake control handle x Lock nut	3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
P&B valve x Floor panel	5.9 - 9.8	0.6 - 1.0	4.3 - 7.2
P&B valve x Brake tube	12.7 - 17.7	1.3 - 1.8	9.4 - 13.0

WFE90-A026

STEERING

Tightening component	N·m	kgf·m	ft·lb
Steering gear housing × Oil filler plug (Except power steering equipped model)	2.0 - 3.9	0.2 - 0.4	1.4 - 2.9
Steering gear box × Pressure tubes (Only power steering equipped model)	39.2 - 49.0	4.0 - 5.0	28.9 - 36.2
Steering wheel × Steering shaft	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Steering shaft × Intermediate shaft	24.5 - 34.3	2.5 - 3.5	18.1 - 25.3
Steering hole cover × Floor panel	3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
Steering column tube × Brace (Instrument panel)	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Steering column tube × Steering hole cover (Tilt steering equipped model only)	3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
Steering support × long nut (Tilt steering equipped model only)	12.7	1.3	9.4
Steering lever × long nut (Tilt steering equipped model only)	29.4 - 49.0 24.5 - 34.3	3.0 - 4.5 2.5 - 3.5	21.7 - 36.2 18.1 - 25.3
Steering relay rod × Tie rod	68.6 - 137	7.0 - 14.0	50.6 - 101
Idler arm support pin × Frame	34.3 - 53.9	3.5 - 5.5	25.4 - 39.8
Idler arm support pin × Idler arm assembly	108 - 167	12.0 - 17.0	87 - 123
Idler arm × Relay rod	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6
Pitman arm × Relay rod	68.6 - 137	7.0 - 14.0	50.6 - 101
Tie rod × Steering knuckles	68.6 - 137	7.0 - 14.0	68.6 - 137
Wheel hub nuts	88.3 - 118	9.0 - 12.0	65.1 - 87.0
Steering gear housing × Frame	73.5 - 103	7.5 - 10.5	54.2 - 75.9
Steering gear housing × Pitman arm	147-196	15.0 - 20.0	109 - 145
Cross shaft adjust screw × Lock nut	19.6 - 34.3	2.0 - 3.5	14.5 - 25.3
Intermediate shaft × Steering gear housing	24.5 - 34.3	2.5 - 3.5	18.1 - 25.3
Idle pulley × Vane pump bracket	34.3 - 49.0	3.5 - 5.0	25.3 - 36.2
Vane pump × Pump front stay	34.3 - 49.0	3.5 - 5.0	25.3 - 36.2
Vane pump × Pulley	34.3 - 53.0	3.5 - 5.4	25.3 - 39.1
Vane pump bracket × Engine M8 M10	9.8 - 15.7 34.3 - 44.1	1.0 - 1.6 3.5 - 4.5	7.2 - 11.6 25.3 - 32.5
Pump front stay × Tube support bracket	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Tube support bracket × Clamp	3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
Vane pump × Union bolt	44.1 - 53.9	4.5 - 5.5	32.5 - 39.8
Tube support bracket × Tube support bracket	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Drive belt tension adjust bolt × Lock nut	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Vane pump front stay × Adjusting strut	34.3 - 44.1	3.5 - 4.5	25.3 - 32.5
Adjusting strut × Adjusting bar	68.6 - 88.3	7.0 - 9.0	50.6 - 65.1
Vane pump × Vane pump bracket	49.0 - 68.6	5.0 - 7.0	36.2 - 50.6

WFE90-A027

APPENDIX

BODY & OTHERS

Tightening component	N-m	kgf-m	ft-lb
Frame × Body	41.2 - 63.7	4.2 - 6.5	30.4 - 47.0
Front bumper × Body	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Front bumper guard bar × Body	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Rear bumper × Body	18.6 - 30.4	1.9 - 3.1	13.7 - 22.4
Front seat × Body	29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Rear seat × Body	19.6 - 29.4	2.0 - 3.0	14.5 - 21.7
Front seat belt × Body	28.4 - 53.0	2.9 - 5.4	21.0 - 39.1
Rear seat belt × Body	28.4 - 53.0	2.9 - 5.4	21.0 - 39.1
Exhaust manifold × Front exhaust pipe	34.3 - 49.0	3.5 - 5.0	25.3 - 36.2
Front exhaust pipe × Tail pipe	36.3 - 51.0	3.7 - 5.2	26.8 - 37.6
Front exhaust pipe × Catalyst converter	36.3 - 51.0	3.7 - 5.2	26.8 - 37.6
Catalyst converter × Tail pipe	36.3 - 51.0	3.7 - 5.2	26.8 - 37.6

WFE90-A028

4. SPECIFICATIONS

PRE-DELIVERY INSPECTION SPECIFICATIONS

Items		Specifications
Tire Inflation Pressure Front/Rear bar	195R15	STD: 1.6/2.1, Full load: 1.6/2.3
	225/70R15	STD: 1.6/2.1, Full load: 1.6/2.3
	195/80R15	STD: 1.6/2.1, Full load: 1.6/2.3
Spare tire inflation pressure		2.3
Wheel nut tightening torque N-m (kgf-m)		88.2 - 117.6 (9 - 12)
Accelerator pedal free play mm		1 - 5
Engine idling speed rpm	HD-C	850 ± 50
	HD-E	850 ± 50
Engine oil	Capacity dm ³	3.8
	Grade	API SE or higher
Transmission oil	Capacity dm ³	1.7
	Grade	API GL-3 or GL-4
	Viscosity	SAE-75W-90
Transfer oil	Capacity dm ³	Part time: 1.4, Full time: 1.7
	Grade	API GL-3 or GL-4
	Viscosity	SAE-75W-90
Differential oil	Capacity dm ³	Front: 0.9
		Rear: 1.95
	Grade	API GL-5
Brake fluid	Viscosity	SAE 90 or 80W-90
	Grade	FMVSS116DOT3 or SAE J1703
Brake pedal (While engine is running)	Free travel mm	1 - 3
	Reserve travel mm	Not less than 80
Clutch pedal free travel mm		18 - 27
Parking brake working travel		Should "set" within 4-6 notches when apply 25 kgf by hand

WFE90-A029

APPENDIX

TUNE-UP SPECIFICATIONS

Drive belt deflection when pressed with a force of 98N (10 kgf)			
Alternator	New belt	4 - 5 mm	
	Used belt	5 - 6 mm	
Coolant capacity w/heater [Excluding 1.0 dm³ for reserve tank]		5.5 dm³ [5.8 dm³ for tropical specifications]	
Engine oil capacity			
Whole amount		3.8 dm³	
When only oil is changed	Full level	3.3 dm³	
	Low level	2.3 dm³	
When oil and filter are changed		3.5 dm³	
		NOTE: For the oil cooler-equipped engine, add 79 cm³ for whole amount.	
Valve clearances (hot)			
	Intake	0.25 ± 0.05 mm	
	Exhaust	0.33 ± 0.05 mm	
[Reference (cold)]			
	Intake	0.18 mm	
	Exhaust	0.25 mm	
Spark plugs			
Manufacturer	NIPPONDENSO	NGK	CHAMPION
Type	K20PR - U11 K22PR - U11	BKR6E - 11 BKR7E - 11	RC9YC4 RC7YC4
Thread	M14 × 1.25		
Spark plug gap	mm	1.0 - 1.1	
Ignition timing		B.T.D.C. 3 ± 2°/100 rpm or less (However, engine revolution must be stable.)	
Idle speed			
Engine type	HD-C	HD-E	
Idle speed	rpm	850 ± 50	850 ± 50
Fast idle speed adjustment (HD-C)		Full position	1300 - 2000 rpm
Throttle positioner touch revolution (rpm)			
HD-C	HD-E (General)	HD-E (US)	
1500 ± 50 rpm	1800 ± 50 rpm	1600 ± 100 rpm	
Throttle positioner operating time		HD-C	0.5 - 5.0 seconds
		HD-E	0.5 - 5.0 seconds
Compression pressure at 3000 rpm		Standard	1373 kPa (14.0 kgf/cm²)
		Minimum	1030 kPa (10.5 kgf/cm²)
		Difference between cylinders	147 kPa (1.5 kgf/cm²)

WFE90-A090

APPENDIX

Item		Engine type		HD-C	HD-E
Fuel System	Fuel tank	Capacity	liter	60	60
		Location		Underneath rear seat floor	Underneath rear seat floor
	Fuel pipe material			Rubber and steel tube	Rubber and steel tube
	Fuel pump type			Diaphragm type	Electromotor type
	Fuel filter type			Filter paper type	Filter paper type
	Carburetor	Manufacturer		Aisan industry	—
		Type		Down draft, 2-barrel type	—
		Venturi diameter	mm	21, 28	—
		Choke valve type		Wax type automatic choke	—
	Fuel injection device			—	Electronic type
	Injection nozzle or injector	Type of nozzle retainer		—	With cushion rubber type
		Nozzle type		—	Electronically-controlled throttle type
		Injection pressure	kPa (kgf/cm ²)	—	250 (2.55)
Engine electrical system	Ignition system	Voltage	V	12 [Negative ground]	12 [Negative ground]
		Type		Battery ignition type	Battery ignition type
		Ignition timing	°/rpm	B.T.D.C. 3 ± 2/850 ± 50	B.T.D.C. 3 ± 2/850 ± 50
		Firing order		1-3-4-2	1-3-4-2
		Distributor	Distributor type	Full-transistorized type	Full-transistorized type
			Breaker type	—	—
			Performance of timing advancing mechanism		
			Centrifugal type	0°/600 rpm 15°/3000 rpm	0°/600 rpm 12°/3000 rpm
			Vacuum type	0°/-13.3 kPa (-100 mmHg) 15°/-53.3 kPa (-400 mmHg)	0°/-20.0 kPa (-150 mmHg) 10°/-56.0 kPa (-420 mmHg)
		Spark plug	Manufacturer	CHAMPION	NIPPONDENSO NGK
			Type	RC9YC4	K20PR-U11 BKR6E-11
			Thread	M14 × 1.25	M14 × 1.25
			Spark plug gap	mm	1.0 - 1.1
	Battery	Type	General specifications	36B20R (*55B24R)	36B20R (*55B24R)
			European specifications	36B20R (*55B24R)	36B20R (*55B24R)
			Australian specifications	36B20R	36B20R
		Capacity	General specifications	28 ("36)	28 ("36)
			European specifications	28 ("36)	28 ("36)
			Australian specifications	28	28

WFE90-A031

APPENDIX

ENGINE SPECIFICATIONS

Item		Engine type		HD-C	HD-E
Engine proper	Type			Petrol, 4-cycle	Petrol, 4-cycle
	Mounting location			Front	Front
	Number of cylinders and arrangement			4-cylinder-in-line, mounted longitudinally	4-cylinder-in-line, mounted longitudinally
	Combustion chamber type			Pent roof type	Pent roof type
	Valve mechanism			Belt-driven, SOHC	Belt-driven, SOHC
	Bore × stroke	mm		76 × 87.6	76 × 87.6
	Compression ratio			9.5 ± 0.3	9.5 ± 0.3
	Compression pressure	kPa (kgf/cm ²) - rpm		1373 (14.0) - 300	1373 (14.0) - 300
	Maximum output	SAE net	kW/rpm	General specifications	63/6000
		EEC	kW/rpm	Australian specifications	—
		EEC DIN	kW/rpm	European specifications	70/5700
	Maximum torque	SAE net	kW/rpm	General specifications	126/3500
		EEC	kW/rpm	Australian specifications	—
		EEC DIN	kW/rpm	European specifications	128/4800
	Engine dimensions [Length × width × height]	mm		*693 × 596 × 685	693 × 537 × 673
	Service engine weight	kg		96	95
	Number of piston rings	Compression ring		2	2
		Oil ring		1	1
	Valve timing	Intake	Open	2° BTDC	2° BTDC
			Close	48° ABDC	48° ABDC
		Exhaust	Open	43° BBDC	43° BBDC
			Close	1° ATDC	1° ATDC
	Valve clearance [HOT]	mm		Intake	0.25
				Exhaust	0.33
	Idling speed	rpm		850 ± 50	850 ± 50
	Blow-by gas recirculating system			Closed type	Closed type
Lubricating System	Lubricating method			Fully-forced feed method	Fully-forced feed method
	Oil Pump type			Trochoid type	Trochoid type
	Oil filter type			Full-flow filter type, filter paper type	Full-flow filter type, filter paper type
	Lubrication oil capacity dm ³	Whole		3.8	3.8
		When only oil is changed		3.3	3.3
		When oil and oil filter are changed		3.5	3.5
Cooling System	Cooling method			V-belt driven type	V-belt driven type
	Radiator type			Corrugation type forced circulation	Corrugation type forced circulation
	Coolant capacity (Vehicle with front heater)	dm ³		5.5 (excluding 1.0 dm ³ in reserve tank)	5.5 (excluding 1.0 dm ³ in reserve tank)
	Water pump type			Centrifugal type, "V" belt-driven tank	Centrifugal type, "V" belt-driven tank
	Thermostat type			Wax pellet type	Wax pellet type
Air cleaner	Type			Filter unwoven fabric type	Filter paper type
	Number			1	1

* For GCC specifications: 693 × 602 × 685

WFE90-A032

CHASSIS SPECIFICATIONS

[]: General specification

Items			Specifications		
TRANSMISSION	Type		5-Speed, synchromesh		
	Gear ratio (tooth number)	1st	3,752 (34/23 × 33/13)		
		2nd	2,182 (34/23 × 31/21)		
		3rd	1,428 [1,529]		
		4th	1,000		
		5th	0,865 (34/23 × 24/41)		
		Reverse	3.942 (34/23 × 23/12 × 32/23)		
TRANSFER	Gear ratio	High	1,000		
		Low	1,754 (32/33 × 38/21) ... part time only		
DIFFERENTIAL	Gear ratio		5,285 (37/7)		
SUSPENSION	Suspension Type	Front	Double wish bone	Toe-in	4 mm
				Camber	1°
				Caster	2°
	Spring	Rear	Rigid		
		Front	Torsion bar		
	Shock absorber	Rear	Leaf spring		
		Front	Double-acting telescopic type		
STEERING	Type		Double-acting telescopic type		
	Over all gear ratio		Ball-nut type		
BRAKES	Type	Front	24.2, 18.4 (With power steering)		
			Disc, (Option: Ventilated rotor)		
	Service brake system		Drum (Leading and Trailing)		
	Emergency brake system		Vacuum booster, Power-assisted		
	Parking brake system		Front/Rear split, hydraulic circuits		
WHEEL & RIM	Tire size		Mechanical hand operation which applies to rear wheels.		
	Inflation pressure bar		195R15, 225/70R15, 195/80R15		
	Rim	Size	Front: 1.6, Rear: 2.3		
		Off-set	15 × 655		
BULB	Headlamp	W	Candescent	19 mm	
			Halogen	45/40	
			Yellow	60/55	
	Front lamp	W	Clearance	45/40	
				5 (White)	
				21 (Amber)	
	Side turn signal lampW			5 (Amber)	
	Rear lamp	W	Stop/tail	21/5 (Red)	
			Turn Signal	23 (21: for European)	
				21 (White)	
	License plate lamp		W	5	
	Rear fog lamp		W	21	
	Interior lamp		W	10	
Luggage room lamp		W	8		

APPENDIX

ENGINE MECHANICALS

Timing belt pulley	Wear limit	Camshaft	119.80 mm
		Crankshaft	59.37 mm
Timing belt tension spring		Free length	46.5 mm
		Installation load	
Camshaft	Oil clearance (cylinder head-to-camshaft)		0.035 - 0.076 mm
	Maximum limit		0.17 mm
	Thrust clearance		0.1 - 0.25 mm
	Maximum limit		0.45 mm
	Journal diameter		
	Fuel pump cam diameter		
	Minimum		42.65 mm
	Fuel pump cam stroke		
	Standard		5.0 mm
	Minimum		4.8 mm
	Valve cam lobe height		
	Intake	Standard	33.08 - 33.28 mm
		Minimum	32.9 mm
	Exhaust	Standard	33.00 - 33.20 mm
		Minimum	32.85 mm
	Maximum circle runout		0.03 mm
Cylinder head	Warpage	Cylinder block side	0.10 mm
		Intake manifold side	0.10 mm
		Exhaust manifold side	0.10 mm
	Valve seat angle	Intake	30 - 45 - 70°
		Exhaust	20 - 45 - 70°
	Valve contacting angle		45°
	Valve seat contacting width		
	Standard		1.4 mm
	Allowance		1.2 - 1.6 mm
	Maximum valve seat recession		0.5 mm
Valves	Valve stem diameter	Intake valve	6.560 - 6.580 mm
		Exhaust valve	6.555 - 6.575 mm
	Valve length	Intake valve	112.8 mm
		Exhaust valve	114.5 mm
	Valve face angle		45.5°
	Valve stock thickness (Minimum)		
	Intake		0.8 mm
	Exhaust		1.0 mm
	Valve stem oil clearance		
	Intake	Standard	0.020 - 0.060 mm
		Maximum	0.080 mm
	Exhaust	Standard	0.025 - 0.065 mm
		Maximum	0.090 mm

WFE90-A034

APPENDIX

Valve springs	Free length	Standard	45.2 - 46.0 mm
		Minimum	44.3 mm
	Installed tension at 38.0 mm		258.9 N (26.4 kgf)
	Maximum out-of-squareness		1.6 mm
Valve rocker arm and valve rocker shaft	Oil clearance	Standard	0.012 - 0.053 mm
		Maximum	0.08 mm
	Valve rocker arm bore diameter		19.500 - 19.521
	Valve rocker shaft outer diameter		19.468 - 19.488 mm
Valve rocker arm spacer	Free width		22.00 mm
Exhaust manifold	Warpage		0.1 mm
Intake manifold	Warpage	Cylinder head side	0.1 mm
Cylinder block	Maximum cylinder head surface warpage		0.1 mm
	Cylinder bore diameter	Standard	76.000 - 76.030 mm
		O/S 0.25	76.250 - 76.280 mm
	Bore honing angle		35 ± 5°
	Coarse degree		1 - 4 Z
Piston, piston pin and piston rings	Piston-to-cylinder bore clearance	Standard	0.025 - 0.045 mm
		Maximum limit	0.11 mm
	Piston ring groove-to-piston ring side clearance		
	Standard	No. 1	0.03 - 0.07 mm
		No. 2	0.02 - 0.06 mm
	Maximum		0.12 mm
	Piston ring thickness		
Piston, piston pin and piston rings	Standard	No. 1	1.17 - 1.19 mm
		No. 2	1.47 - 1.49 mm
	Piston ring end gap	No. 1	0.27 - 0.42 mm
	Standard	No. 2	0.35 - 0.50 mm
		0.1	0.20 - 0.70 mm
	Maximum	No. 1	0.7 mm
		No. 2	0.8 mm
		0.1	1.0 mm
	Piston pin-to-connecting rod interference fit		0.012 - 0.044 mm
	Piston-to-piston pin clearance		0.005 - 0.011 mm
Flywheel	Runout	Maximum	0.1 mm
Connecting rod	Big end thrust clearance	Standard	0.15 - 0.4 mm
		Maximum	0.45 mm
	Maximum bend		0.05 mm
	Maximum twist		0.05 mm

WFE90-A035

APPENDIX

Crankshaft	Crankpin journal oil clearance	0.020 - 0.044 mm
	Main journal oil clearance	0.024 - 0.042 mm
	Crankpin journal diameter	44.976 - 45.000 mm
	Main journal diameter	49.976 - 50.000 mm
	Thrust clearance Standard	0.02 - 0.22 mm
	Maximum limit	0.30 mm
Thermostat valve (HD-C)	RunoutMaximum	0.06 mm
	Operating temperature ON	63°C or more
	OFF	55°C or less

WFE90-A036

APPENDIX

FUEL SYSTEM

Carburetor	Float level	Dimension assumed by its own weight	8 mm
	Lip dimension		1.6 mm
	Throttle valve closed angle		
	Primary		9°
	Secondary		20°
	Throttle valve fully opened angle		
	Primary		90°
	Secondary		80°
	Kick-up angle		23°
	Secondary touch angle		50°
	• Opening degree of throttle valve at a time when it is set to idling state by means of throttle adjust screw		11.4°
	• Opening degree of throttle valve at a time when throttle positioner is operating		16.0°
Fuel pump (HD-C)	Number of backing-off of idle mixture adjusting screw		4 1/2 rev
	Solenoid valve resistance		80 - 100 Ω
	Outer vent resistance		30 - 45 Ω
	Suction force at 300 rpm		13.3 kPa (100 mm Hg) or more
	Push rod length	Standard	87.95 - 88.25 mm
		Minimum	87.000 mm
	Push rod stroke	Standard	5.0 mm
		Minimum	4.8 mm

WFEB0-A037

LUBRICATION SYSTEM

Oil pump	Compression spring free length		57 mm
	Body clearance		0.20 - 0.28 mm
	Tip clearance		0.16 - 0.24 mm
	Side clearance		0.035 - 0.085 mm
	Oil pressure	idling	19.6 kPa (0.2 kgf/cm ²) or more
		3000 rpm	24.5 - 490.4 kPa (0.25 - 5.0 kgf/cm ²)

WFEB0-A038

APPENDIX

COOLING SYSTEM

Radiator cap	Relief valve opening pressure	
	Standard	73.6 - 103.0 kPa (0.75 - 1.05 kgf/cm ²)
	Minimum	58.8 kPa (0.6 kgf/cm ²)
Thermostat	Valve opening temperature	
	General specifications	82 - 86°C
	European specifications	76 - 80°C
	Valve lift	
	General specifications	8.5 mm or more at 98°C
	European specifications	8.5 mm or more at 91°C

WFE90-A039

IGNITION SYSTEM

Ignition timing	No sub vacuum timing advance takes place. Engine revolution must be stable at 1000 rpm or less	BTDC $3 \pm 2^\circ$
High-tension cord	Resistance Maximum	15 k Ω per cord
Distributor	Air gap between signal rotor and signal generator	0.2 - 0.4 mm
Ignition coil	Primary coil	1.35 - 1.65 Ω at 20°C
	Secondary coil	22 - 30 k Ω at 20°C

WFE90-A040

EFI SYSTEM (General specifications)

Fuel pressure regulator	Fuel pressure at No. vacuum	225 - 275 kPa (2.3 - 2.8 kgf/cm ²)
injector	Resistance at 20°C (approx.)	11.0 - 15.0 Ω
	Injection amount (approx.)	152 - 168 cm ³ /60 seconds at 20°C
	Difference between each injector	5 cm ³ or less
	Fuel leakage	Less than one drop of fuel per minute
EFI main relay Injector relay	Between terminals ① - ②	60 - 85 Ω
	③ - ④	Infinity
Fuel pump relay	Between terminals ① - ②	70 - 90 Ω
	③ - ④	Infinity
Idle-up VSV	Resistance	30 - 50 Ω at 20°C
Throttle position sensor	Resistance	
	Between terminals ① - ② Throttle valve closed fully	0.2 Ω or less at 20°C
	Throttle valve opened fully	10 kΩ or more at 20°C
	Between terminals bH - bA Throttle valve closed fully	10 kΩ or more at 20°C
	Throttle valve opened fully	5 Ω or less at 20°C
Fuel pump	Fuel flow amount	235 cm ³ or more/15 seconds
Water temperature sensor Intake air temperature sensor	Cooling water temperature	Resistance
	80°C	0.322 ± 0.1 kΩ
	60°C	0.584 ± 0.2 kΩ
	40°C	1.14 ± 0.3 kΩ
	20°C	2.45 ± 0.5 kΩ
	0°C	5.88 ± 1.5 kΩ
	-20°C	16.2 ± 3.2 kΩ
Pressure sensor Output between SST terminals ⑬ - ⑭ (ground) (When engine is stopped.)		
Measuring point	Atmospheric pressure	Voltage V
Altitude (height above sea level) m	kPa (mm Hg)	
0	101.3 (760)	3.2 - 4.0
500	95.5 (716)	3.1 - 3.8
1000	89.9 (674)	3.0 - 3.6

WFE90-A041

APPENDIX

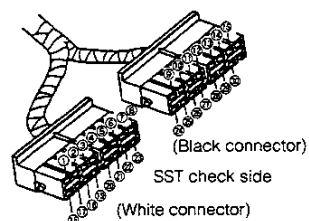
ECU CONNECTORS

(General specifications)

No.	Contents of connection	No.	Contents of connection
1	Power ground	15	Cooling water temperature sensor
2	Injector	16	Power ground
3	Battery +B (Main relay)	17	Injector
4	Battery +B (Back-up)	18	Battery +B (Main relay)
5	Idle-up VSV	19	Check engine lamp
6	Feedback check terminal	20	Fuel pump relay
7	Ignition coil (negative)	21	Engine ground
8	Starter switch	22	Pressure sensor ground
9	Test terminal	23	Air conditioner magnet clutch
10	Idle switch	26	Vehicle speed sensor
11	Electric load signal	28	Power switch
12	Sensor power supply (approx. 5V)	29	Oxygen sensor
13	Pressure sensor	30	Sensor ground
14	Intake air temperature sensor		

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16

ECU side



WFES0-A042

VOLTAGES AT ECU WIRING CONNECTORS

(General specifications)

Terminals	STD voltage or resistance	Conditions	Remedies
(1) - (21)	Less than 1 Ω	Ignition switch OFF.	Proceed to flow chart (2).
(2) - (21)	Less than 1V	Ignition switch OFF (after more than one minute).	Check power supply.
	About battery voltage	Ignition switch ON.	
(3) - (21)	Less than 0.1V	Ignition switch OFF (after more than ten seconds).	Check power supply.
	About battery voltage	Ignition switch ON.	
(4) - (21)	About battery voltage	At all times (Measured voltage is lower than specified voltage only during starting period.)	Check power supply.
(5) - (21)	About battery voltage	Engine fully warmed up. All accessory switches turned OFF.	Check power supply.
	Less than 3V	Idle-up VSV ON.	Check idle-up VSV control.
(6) - (21)	4.5 - 5.5V	Ignition switch ON. T-terminal shorted with ground terminal. Throttle valve fully closed.	Proceed to flow chart (2).
	Less than 1V		Check diagnosis code.
	0 - 4.5 to 5.5V (Measured voltage varies)	Ignition switch ON. T-terminal shorted with ground terminal. Engine revolution speed builds at 3000 rpm after it has fully warmed up.	Oxygen sensor system.
(7) - (21)	Less than 0.1V	Ignition switch OFF.	Check power supply.
	About battery voltage	Ignition switch ON.	
(8) - (21)	Less than 0.1V	Ignition switch OFF.	Check power supply.
	More than 6V	When ignition switch is set to ST position.	
(9) - (21)	Less than 0.1V	Ignition switch OFF.	Check T-terminal wiring.
	About battery voltage	Ignition switch ON.	
(10) - (21)	Less than 0.5V	Ignition switch ON. Throttle valve fully closed.	Throttle position sensor system.
	About battery voltage	Ignition switch ON. Throttle valve fully opened.	
(11) - (21)	Less than 0.1V	Ignition switch ON. Headlamp switch and/or defogger switch OFF.	Check idle-up VSV control.
	More than 9V	Ignition switch ON. Headlamp switch and/or defogger switch ON.	
(12) - (22)	Less than 0.1V	Ignition switch OFF.	Check VCC wiring.
	4.5 - 5.5V	Ignition switch ON.	
(13) - (22)	3.2 - 4.0V	Ignition switch ON. Atmospheric pressure is 101.3 kPa (760 mmHg).	Check pressure sensor.
(14) - (30)	1.5 - 3.0V	Ignition switch ON. Air temperature inside surge tank: 20°C	Check intake air temperature sensor.
(15) - (30)	0.40 - 0.65V	Ignition switch ON. After engine has been warmed up fully. (Cooling water temperature: 80 - 90°C.	Check cooling water temperature sensor.
(16) - (1)	Less than 1 Ω	Ignition switch OFF.	Proceed to flow chart (2).
(17) - (21)	Less than 1V	Ignition switch OFF (after more than one minute).	Check/repair injector power supply.
	About battery voltage	Ignition switch ON.	

APPENDIX

Terminals	STD voltage or resistance	Conditions	Remedies
(18) - (21)	Less than 0.1V	Ignition switch OFF.	Check/repair ECU power supply.
	About battery voltage	Ignition switch ON.	
(19) - (21)	Less than 3V	Ignition switch ON. (Check engine lamp illuminated.)	Check power supply for check engine lamp.
	About battery voltage	Engine is rotating. (Check engine lamp not illuminated).	
(20) - (21)	Less than 1V	Ignition switch ON. Fuel pump is operating.	Check/repair fuel pump power supply.
	About battery voltage	Ignition switch ON. Fuel pump is stopped.	
(21) - Engine ground	Less than 0.2Ω	Ignition switch OFF.	Check ground wiring.
(22) - (21)	Less than 0.5Ω	Ignition switch OFF.	Replace ECU.
(23) - (21)	About battery voltage	Engine is rotating. Air conditioner compressor is rotating. (Genuine air conditioner-equipped vehicle.)	Check air conditioner wiring.
(26) - (21)	0 to Approx battery voltage	Ignition switch ON. When vehicle is moved. (Measured voltage changes 4 times for movement of 1.5 m.)	Check speed sensor
(28) - (21)	About battery voltage	Ignition switch ON. Throttle valve fully closed.	Check throttle position sensor.
	Less than 0.5V	Ignition switch ON. Throttle valve fully opened.	
(29) - (21)	Less than 0.1V	Ignition switch ON (after more than 60 seconds).	Check oxygen sensor.
	Voltage varies within 0 - 1.0V.	After engine has warmed up fully. When engine revolution is held at 3000 rpm for more than two minutes:	Check fuel system.
(30) - (21)	Less than 1Ω	Ignition switch ON.	Proceed to flow chart (2).

WFE90-A043

EFI SYSTEM (U.S. specifications)

Fuel pressure regulator	Fuel pressure at No. vacuum	225 - 275 kPa (2.3 - 2.8 kgf/cm ²)															
Injector	Resistance at 20°C (approx.)	11.0 - 15.0 Ω															
	Injection amount(approx.)	152 - 168 cm ³ /60 seconds at 20°C															
	Difference between each injector	5 cm ³ or less															
	Fuel leakage	Less than one drop of fuel per minute															
EFI main relay injector relay	Between terminals ① - ② ③ - ④	60 - 85 Ω Infinity															
Fuel pump relay	Between terminals ① - ② ③ - ④	70 - 90 Ω Infinity															
Idle-up VSV	Resistance	30 - 50 Ω at 20°C															
Throttle position sensor	Resistance																
	Between terminals ⑫ - ⑬ Throttle valve closed fully	0.2 Ω or less at 20°C															
	Throttle valve opened fully	10 kΩ or more at 20°C															
	Between terminals ⑭ - ⑮ Throttle valve closed fully	10 kΩ or more at 20°C															
	Throttle valve opened fully	5 Ω or less at 20°C															
Fuel pump	Fuel flow amount	235 cm ³ or more/15 seconds															
Water temperature sensor Intake air temperature sensor	Cooling water temperature	Resistance															
	80°C	0.322 ± 0.1 kΩ															
	60°C	0.584 ± 0.2 kΩ															
	40°C	1.14 ± 0.3 kΩ															
	20°C	2.45 ± 0.5 kΩ															
	0°C	5.88 ± 1.5 kΩ															
	-20°C	16.2 ± 3.2 kΩ															
Pressure sensor Output between SST terminals ⑬ - ⑭ (ground) (When engine is stopped.)																	
<table border="1"> <thead> <tr> <th>Measuring point</th><th>Atmospheric pressure kPa (mmHg)</th><th>Voltage V</th></tr> </thead> <tbody> <tr> <td>Altitude (height above sea level) m</td><td></td><td></td></tr> <tr> <td>0</td><td>101.3 (760)</td><td>3.2 - 4.0</td></tr> <tr> <td>500</td><td>95.5 (716)</td><td>3.1 - 3.8</td></tr> <tr> <td>1000</td><td>89.9 (674)</td><td>3.0 - 3.6</td></tr> </tbody> </table>			Measuring point	Atmospheric pressure kPa (mmHg)	Voltage V	Altitude (height above sea level) m			0	101.3 (760)	3.2 - 4.0	500	95.5 (716)	3.1 - 3.8	1000	89.9 (674)	3.0 - 3.6
Measuring point	Atmospheric pressure kPa (mmHg)	Voltage V															
Altitude (height above sea level) m																	
0	101.3 (760)	3.2 - 4.0															
500	95.5 (716)	3.1 - 3.8															
1000	89.9 (674)	3.0 - 3.6															

WFE90-A044

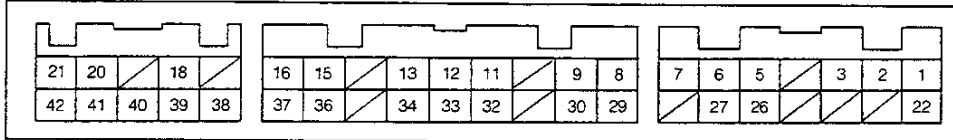
APPENDIX

ECU CONNECTORS

(U.S. specifications)

The figure below shows the arrangement of the ECU connector terminals.

ECU side



SST side

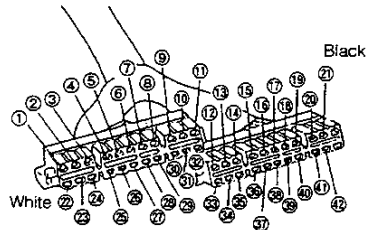


Table Showing ECU Connections (US Specification)

WFE90-A045

Terminal code	Contents of connection	Terminal code	Contents of connection
1	Main relay (Power supply)	22	Main relay (Power supply)
2	Battery (Backup power supply)	23	
3	Ignition coil primary voltage	24	
4		25	
5	Pressure sensor power supply	26	Oxygen sensor
6	Pressure sensor	27	Intake air temperature sensor
7	Cooling water temperature sensor	28	
8	Vehicle speed sensor	29	Operation system ground (Engine)
9	Electrical load (Headlamp and defogger)	30	Electrical load (Blower fan)
10		31	
11	Check connector (Test terminal)	32	Throttle position switch (Power switch)
12	Throttle position switch (Idle switch)	33	Stop lamp
13	Starter	34	Air conditioner magnet switch
14		35	
15	Oxygen sensor feedback check terminal	36	Operation system ground
16	Check engine lamp	37	Fuel pump relay
17		38	Pressure VSV
18	EGR VSV	39	System ground
19		40	Idle speed control VSV
20	Injector	41	Injector
21	Actuator drive ground (Engine)	42	Actuator drive ground (Engine)

WFE90-A046

VOLTAGES AT ECU CONNECTORS

Terminals	STD voltage or resistance	Condition		Remedies
① — ③	About battery voltage	Ignition switch ON		Check power supply.
② — ③	About battery voltage	At all time		Check power supply.
③ — ③	About battery voltage	Ignition switch ON	When engine is stopped:	Check power supply.
⑤ — ③	4.5 - 5.5 V	Ignition switch ON		Check power supply.
⑥ — ③	3.2 - 4.0 V	Ignition switch ON	When atmospheric pressure of 101.3 kPa (760 mmHg) exists.	Check pressure sensor.
⑦ — ③	0.4 - 0.65 V	Ignition switch ON	When cooling water temperature is 80°C:	Check water temperature sensor.
⑦ — ③	0.322 ± 0.1 W	When cooling water temperature is 80°C		
⑧ — ③	0 - About battery voltage	Ignition switch ON	Measured voltage changes when vehicle is moved 1.5 m.	Check speed sensor.
⑨ — ③	Less than 5.0 V	Ignition switch ON	When defogger and headlamp switches are turned OFF:	Check TSC VSV.
	About battery voltage	Ignition switch ON	When defogger and/or headlamp switches are turned ON:	
⑪ — ③	About battery voltage	Ignition switch ON	When test terminal of check connector is not connected with ground terminal:	Check T-terminal wiring.
	Less than 1.0 V	Ignition switch ON	When test terminal of check connector is connected with ground terminal:	
⑫ — ③	Less than 5.0 V	Ignition switch ON	Throttle valve fully closed	Check throttle position system.
	About battery voltage	Ignition switch ON	Throttle valve fully opened	
⑫ — ③	Less than 29 Ω	Throttle valve fully closed		
	More than 1000 Ω	Throttle valve fully opened		
⑬ — ③	0 V	Ignition switch ON		Check power supply.
	More than 6 V	When ignition switch is set to ST position:		
⑮ — ③	Measured voltage changes at a point between 0 - 5.0 V.	After warming up engine completely, connect test terminal of check connector with ground terminal. Hold engine revolution speed at 3000 rpm for two minutes.		Check fuel system.
⑰ — ③	Less than 3.0 V	Ignition switch ON	- Engine is stopped. - When check engine lamp is illuminated:	Check power supply for engine lamp.
	About battery voltage	Ignition switch ON	- After engine starts: - When check engine lamp is extinguished:	

WFE90-A047

APPENDIX

Terminals	STD voltage or resistance	Condition		Remedies
19 --- 29	About battery voltage	Ignition switch ON	- After engine starts: - Cooling water temperature is below 40°C.	Check power supply.
	Less than 3.0 V	Ignition switch ON	- After engine starts: - Cooling water temperature is above 41°C.	Check ESV wiring.
20 --- 29	Less than 1.0 V	At least 30 seconds have elapsed after turning OFF ignition switch.		Check power supply.
	About battery voltage	Ignition switch ON	Engine is stopped.	
21 — 29	Less than 0.01 V	Ignition switch ON		Proceed to flow chart (2).
22 — 29	About battery voltage	Ignition switch ON		Check power supply.
25 — 29	Change in output voltage	Ignition switch ON	After warming up engine completely, hold engine revolution speed at 3000 rpm for two minutes.	Check fuel system.
27 — 29	1.5 - 3.0 V	Ignition switch ON	Air temperature inside intake manifold is 20°C:	Check intake air temperature sensor.
27 — 29	2.45 ± 0.5 Ω	When air temperature inside intake manifold is 20°C:		
28 — 29	Less than 0.1 V	Ignition switch ON		Check ground wiring.
30 — 39	About battery voltage	Ignition switch ON	Blower fan switch turned OFF	Check ISC.
	Less than 2.0 V	Ignition switch ON	When blower fan switch turned ON:	
32 — 39	About battery voltage	Ignition switch ON	Throttle valve fully closed	Check throttle system.
	Less than 5.0 V	Ignition switch ON	Throttle valve fully opened	
32 — 39	More than 1000 Ω	Throttle valve fully closed		
	Less than 29 Ω	Throttle valve fully opened		
33 — 39	Less than 1 V	Ignition switch ON	When brake pedal is not depressed:	Check brake wiring.
	About battery voltage	At all time	When brake pedal is depressed:	

WFE90-A048

APPENDIX

Terminals	STD Voltage or resistance	Condition		Remedies
②④ — ②⑤	Less than 1 V	Ignition switch ON	When compressor magnet switch of air conditioner is turned OFF:	Check air conditioner idle-up VSV.
	About battery voltage	Ignition switch ON	When compressor magnet switch of air conditioner is turned ON:	
②⑥ — ②⑤	Less than 0.1 V	Ignition switch ON		Check ground wiring.
②⑦ — ②⑤	About battery voltage	Ignition switch ON	When fuel pump is stopped:	Check or repair pump power supply.
	Less than 2.0 V	Ignition switch ON	When fuel pump is operating:	
②⑧ — ②⑤	About battery voltage	Ignition switch ON	When pressure VSV is turned OFF:	Check pressure VSV.
	Less than 3.0 V	Ignition switch ON	For 0.5 second immediately after engine starts	
②⑨ — Engine ground	Less than 0.1 V	Ignition switch ON		Check ground wiring.
④⑩ — ②⑤	Less than 3.0 V	Ignition switch ON	Engine is stopped.	Check ISC VSV.
	About battery voltage	Ignition switch ON	When test terminal of check connector is connected with ground terminal:	
④⑪ — ②⑤	Less than 1.0 V	At least 30 seconds have elapsed after turning OFF ignition switch.		Check power supply.
	About battery voltage	Ignition switch ON	Engine is stopped.	
④⑫ — ②⑤	Less than 0.1 V	Ignition switch ON		Check ground wiring.

WFE90-A049

APPENDIX

STARTING SYSTEM

Reduction type starter motor	Rating voltage and output power		12V	0.8 kW (STD) 1.0 kW (COLD. SPEC)
	No-load characteristic at 11.5V Amperage		Less than 90A	
	Brush length	Standard	12V 0.8 kW 14.0 mm (0.55 inch)	12V 1.0 kW 13.0 mm (0.51 inch)
		Minimum	9.0 mm (0.35 inch)	8.5 mm (0.33 inch)
	Commutator Outer diameter	Standard	28 mm (1.10 inch)	30 mm (1.18 inch)
		Minimum	27 mm (1.06 inch)	29 mm (1.14 inch)
	Undercut depth	Standard	0.5 - 0.8 mm (0.020 - 0.031 inch)	
		Minimum	0.2 mm (0.0079 inch)	
	Maximum circle runout		0.05 mm (0.0020 inch)	
	Spring installed load		0.8 kW 15.7 N (1.6 kgf)	1.0 kW 17.5 - 23.7 N (1.78 - 2.41 kgf)

WFE90-A050

CHARGING SYSTEM

Battery specific gravity			1.25 - 1.27
Alternator	Rated output	Amperage	45 A (50 A: OPTION)
	Rotor coil resistance		$2.9 \pm 0.2 \Omega$ at 20°C (68°F)
	Slip ring diameter	Standard	14.4 mm (0.57 inch)
		Minimum	14.0 mm (0.55 inch)
	Brush exploded length	Standard	10.5 mm (0.41 inch)
		Minimum	1.5 mm (0.06 inch)

WFE90-A051

CLUTCH

Unit: mm (inch)

Item		Specified value	Allowable limit	Remarks
Clutch disc	Lining wear	—	0.3 (0.0118)	The smallest rivet depth is regarded as the allowable use limit
	Runout	—	1.0 (0.0394)	Longitudinal
			0.7 (0.0276)	Lateral
Clutch cover	Deviation in height	—	0.8 (0.0315)	The deviation can be corrected with the SST
Clutch pedal	Free travel	18 - 27 (0.709 - 1.063)	—	
	Installation height	221^{+5}_{-3} (8.70 ²² _{0.08})	—	The dimension from the body metal section to the pedal. It is, therefore, necessary to roll up the carpet and floor mat prior to the measurement.

WFE90-A052

APPENDIX

TRANSMISSION

Unit: mm (inch)

Item		Specified value	Allowable limit	Remarks
Shift fork groove width	Reverse gear	7.05 - 7.12 (0.278 - 0.280)	7.3 (0.287)	
	T/M Hub sleeve	7.05 - 7.12 (0.278 - 0.280)	7.3 (0.287)	
Synchromesh shifting key groove width	1st gear	9.9 - 10.1 (0.3898 - 0.3976)	—	
	Except 1st gear	11.3 - 11.5 (0.4449 - 0.4528)	—	
Synchronizer ring-to-gear clearance	1st gear	0.85 - 1.45 (0.0335 - 0.0571)	0.5 (0.0197)	
	2nd gear			
	3rd gear			
	4th gear			
	5th gear			
Transmission clutch hub (No. 1, No. 2, No. 3) outer diameter	Class ①	69.68 - 69.74 (2.743 - 2.746)	—	
	Class ②	69.78 - 69.84 (2.747 - 2.750)	—	
	Class ③	69.58 - 69.64 (2.739 - 2.742)	—	
Clutch hub sleeve maximum bore diameter		70 (2.7559)	—	
Clearance between clutch hub and clutch hub sleeve		0.03 - 0.19 (0.0012 - 0.0075)	—	
Height of synchromesh shifting key	1st & 2nd gears	5.0 - 5.2 (0.1969 - 0.2047)	4.7 (0.1850)	
	3rd & 4th gears			
	5th gears			
Runout of output shaft		—	0.05 (0.0020)	
Thickness at tip-end-section of shift fork	1st & 2nd shift fork	6.80 - 7.00 (0.2677 - 0.2756)	6.3 (0.2480)	
	3rd & 4th shift fork	6.80 - 7.00 (0.2677 - 0.2756)	6.3 (0.2480)	
Contact width of reverse shift fork		15.00 - 15.043 (0.5906 - 0.5923)	15.1 (0.5945)	
Contact width of 5th shift arm	Shift inner lever side	16.1 - 16.2 (0.6339 - 0.6378)	16.7 (0.6575)	
	5th shift arm side	12.1 - 12.2 (0.4764 - 0.4803)	12.7 (0.5001)	
Contact width of shift fork and detent sleeve		18.8 - 19.2 (0.7402 - 0.7559)	19.5 (0.7677)	
Backlash of each gear of transmission relative to counter gear	1st gear	0.05 - 0.18 (0.0020 - 0.0071)	—	
	2nd gear	0.05 - 0.16 (0.0020 - 0.0063)	—	
	3rd gear	0.05 - 0.14 (0.0020 - 0.0055)	—	
	5th gear	0.05 - 0.13 (0.0020 - 0.0051)	—	
	Input gear	0.05 - 0.13 (0.0020 - 0.0051)	—	

WFE90-A053

APPENDIX

TRANSFER (PART-TIME)

Unit: mm (inch)

Item		Specified value	Allowable limit	Remarks
Transfer high & low shift fork groove width	Transfer high & low clutch sleeve	7.05 - 7.12 (0.2776 - 0.2803)	7.3 (0.2874)	
Thickness at tip-section of transfer high & low shift fork		6.80 - 7.00 (0.2677 - 0.2756)	6.3 (0.2480)	
Thickness at tip-section of transfer front drive shift fork		6.80 - 6.90 (0.2677 - 0.2717)	6.3 (0.2480)	
Contact width of transfer high & low shift head		16.00 - 16.070 (0.6299 - 0.6327)	16.2 (0.6378)	
Contact width of transfer front drive shift head		16.000 - 16.070 (0.6299 - 0.6327)	16.2 (0.6378)	
Diameter of transfer front drive gear at sleeve fitting side	Class ①	87.18 - 87.24 (3.432 - 3.435)	—	
	Class ②	87.28 - 87.34 (3.436 - 3.439)	—	
	Class ③	87.08 - 87.14 (3.428 - 3.431)	—	
Diameter of low speed input gear installation section of output rear shaft		41.975 (1.653)	41.960 (1.652)	
Clearance between transfer front drive gear and transfer front drive gear sleeve		0.03 - 0.19 (0.0012 - 0.0075)	—	
Front drive gear sleeve contact width of front drive shift fork		6.80 - 6.90 (0.268 - 0.272)	6.30 (0.248)	

WFE90-A054

TRANSFER (FULL-TIME)

Unit: mm (inch)

Item		Specified value	Allowable limit	Remarks
Width of front drive shift fork installation section of differential lock sleeve		7.00 - 7.058 (0.276 - 0.278)	7.30 (0.287)	
Width of differential lock sleeve contact section of front drive shift fork		6.80 - 6.90 (0.268 - 0.272)	6.30 (0.248)	
Width of differential lock shift fork installation section of differential lock sleeve		7.00 - 7.058 (0.276 - 0.278)	7.30 (0.287)	
Width of differential lock sleeve contact section of differential lock shift fork		6.80 - 6.90 (0.268 - 0.272)	6.30 (0.248)	
Diameter of transfer front drive gear at sleeve fitting side	Class ①	87.18 - 87.24 (3.432 - 3.435)	—	
	Class ②	87.28 - 87.34 (3.436 - 3.439)	—	
	Class ③	87.08 - 87.14 (3.428 - 3.431)	—	
Clearance between transfer front drive gear sleeve and transfer front drive gear		0.03 - 0.19 (0.0012 - 0.0075)	—	
Lateral movement of side gear of center differential assembly (only for L.S.D.)		0.07 - 0.37 (0.0028 - 0.0146)	—	

WFE90-A055

APPENDIX

DIFFERENTIAL

Item		Specified value	Allowable limit	Remarks
Ring gear runout mm (inch)	Front	—	0.1 (0.004)	
	Rear			
Ring gear backlash mm (inch)	Front	0.07 - 0.17 (0.0028 - 0.0067)	—	
	Rear			
Side gear backlash mm (inch)	Front	0.03 - 0.15 (0.0020 - 0.0059)	—	Measure the over four teeth.
	Rear			
Drive pinion preload kg-cm (inch-lb)	Front	4 - 25 (3.47 - 21.70)	—	New bearing
		4 - 13 (3.47 - 11.28)	—	Bearing reused
	Rear	5 - 30 (4.34 - 26.04)	—	New bearing
		5 - 17 (4.34 - 14.76)	—	Bearing reused
Total preload kg-cm (inch-lb)	Front	6 - 31 (5.21 - 26.91)	—	
	Rear	6 - 19 (5.21 - 16.50)	—	
Clutch inner plate thickness (L.S.D) mm (inch)		1.6 (0.0630)	1.4 (0.0551)	
Clutch outer plate thickness (L.S.D) mm (inch)		1.6 (0.0630)	1.4 (0.0551)	

WFE90-A056

FRONT AXLE & SUSPENSION

Side slip Toe-in Camber Caster King pin angle	3 mm (0.118 inch) $4 \frac{3}{8}$ mm (0.157 $\frac{3}{12}$ inch) $1^{\circ} - 2^{\circ}$ $2^{\circ} \pm 30'$ $9^{\circ}30'$				
Wheel turning angle	Tyre	Inner turning		Outer turning	
	195/80R15	$31^{\circ}05' - \frac{2}{3}$		$27^{\circ}15'$	
	225/70R15	$27^{\circ}05' - \frac{2}{3}$		$23^{\circ}55'$	
Tire inflation pressure		Front kgf/cm ²		Rear kgf/cm ²	
		Unloaded	Loaded	Unloaded	Loaded
	195 R15 94S	1.6	1.6	2.1	2.3
	225/70 R15 100S	1.6	1.6	2.1	2.3
Wheel runout (maximum) Tyre runout (maximum) Vertical runout Lateral runout	0.1 mm (0.04 inch)				
	1.4 mm (0.0551 inch)				
	2.0 mm (0.0787 inch)				
Front vehicle height	41 ± 10 mm (1.6 ± 0.39 inches) (See page FS-75)				
Front axle bearing starting torque	1.4 - 3.6 kgf (3.1 - 7.9 lb)				

WFE90-A057

APPENDIX

STEERING

Steering wheel free play	0 - 30 mm (0 - 1.18 inch)
Steering gear box oil level (Except power steering equipped model)	13 - 23 mm (0.51 - 0.91 inch) from upper side of steering gear box hole
Drive belt tension	9 - 11 mm (0.35 - 0.43 inch) when 10 kgf (22 lb) applied (Except for A/C equipped vehicle)
Maximum steering torque (Only for power steering equipped model)	7.8 N-m (80 kgf-cm, 5.8 ft-lb)
Vane pump hydraulic pressure Difference of hydraulic pressure	65 kg/cm ² (924.5 psi) or more 5 kg/cm ² (71.1 psi) at 1000 and 3000 rpm

WFE90-A056

BRAKE

Brake pedal height	216 ± 5 mm (0.83 ± 0.2 inch)
Brake pedal free travel	1 - 3 mm (0.039 - 0.12 inch)
Brake pedal reserve travel	80 mm (3.15 inches) or more
Brake pad thickness	New Minimum limit
	9 mm (0.35 inch) 1.5 mm (0.06 inch)
Brake disc thickness	Solid New Minimum limit Ventilation New Minimum limit
	12.5 mm (0.49 inch) 11.5 mm (0.45 inch) 18.0 mm (0.71 inch) 17.00 mm (0.006 inch)
Brake disc runout limit	0.15 mm (0.006 inch)
Brake drum inner diameter	New Minimum limit
	254 mm (10 inches) 256 mm (10.08 inches)
Brake shoe thickness	New Minimum limit
	5 mm (0.2 inch) 1 mm (0.04 inch)
Compression spring free length	57 ± 1.5 mm (2.24 ± 0.06 inches)
Clearance between master cylinder and brake booster	0.3 ± 0.2 mm (0.012 ± 0.008 inch)

WFE90-A059

5. BODY COLOR INFORMATION

Body color	Daihatsu color code	Stripe color		
		A	B	C
Red Gray M. San Remo green/Grey M.	3E7 168 NB1 (G09/168)	Dark Gray Metallic	Silver Metallic	Dark Blue
Green Dark blue M. Black M. Red mica/silver M. Dark blue M./silver M. Black M./silver M. White/silver M. White	G05 8G4 6A5 NA1 (3H1/148) NA2 (8G4/148) NA3 (6A5/148) NA4 (045/148) 045		Gray Metallic	Red

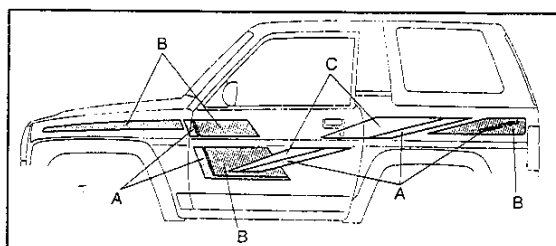
WFE90-A060

COLOR CODE

COLOR		AKZO	DUPONT	I.C.I	SPIES HECKER	STANDOX
WHITE	045	DAH045	L8997	NW-80	16067	045
RED	3E7	DAH3E7	G8690	KK26	38299	3E7
GREEN	G05	DAHG05	G8691	KV77	68470	G05
GRAY. M	168	DAH168	N8832	B936B	97728	168
DARK BLUE. M	8G4	DAH8G4	K9131	C247B	97909	8G4
BLACK. M	6A5	DAH6A5	G8742	A403B	97806	6A5
TWO TONE	NA1	DAHNA1	G8730/N8221	PC86B/0985B	47840	NA1
TWO TONE	NA2	DAHNA2	K9131/N8221	C247B/0985B	48225	NA2
TWO TONE	NA3	DAHNA3	G8742/N8221	A403/0985B	48231	NA3
TWO TONE	NA4	DAHNA4	L8997/N8221	NW80/0985B	48232	NA4
TWO TONE	NB1	DAHNB1	N9305/N8832	XW13/B936B	48480	NB1

WFE90-A061

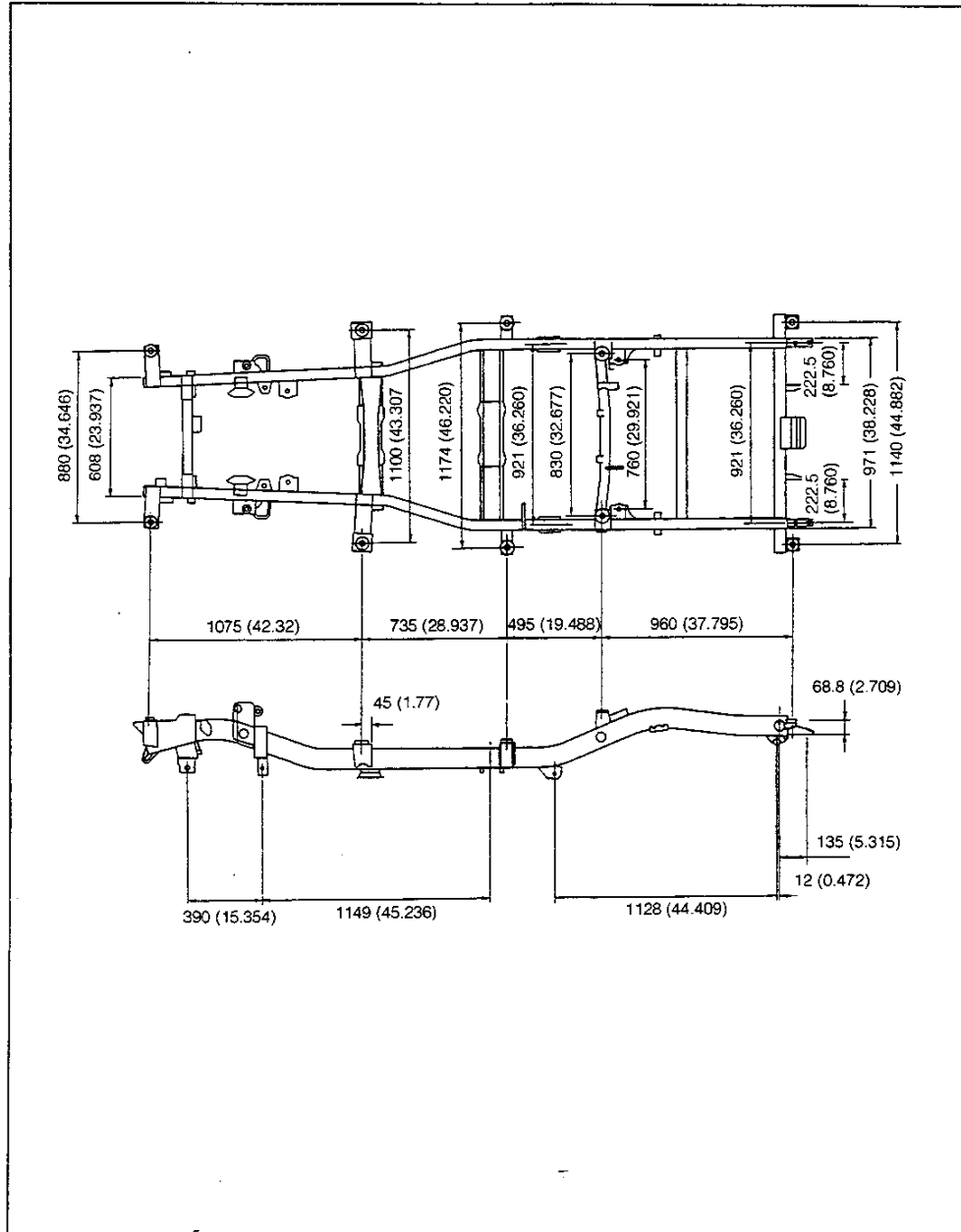
BODY STRIPE INFORMATION



WFE90-A062

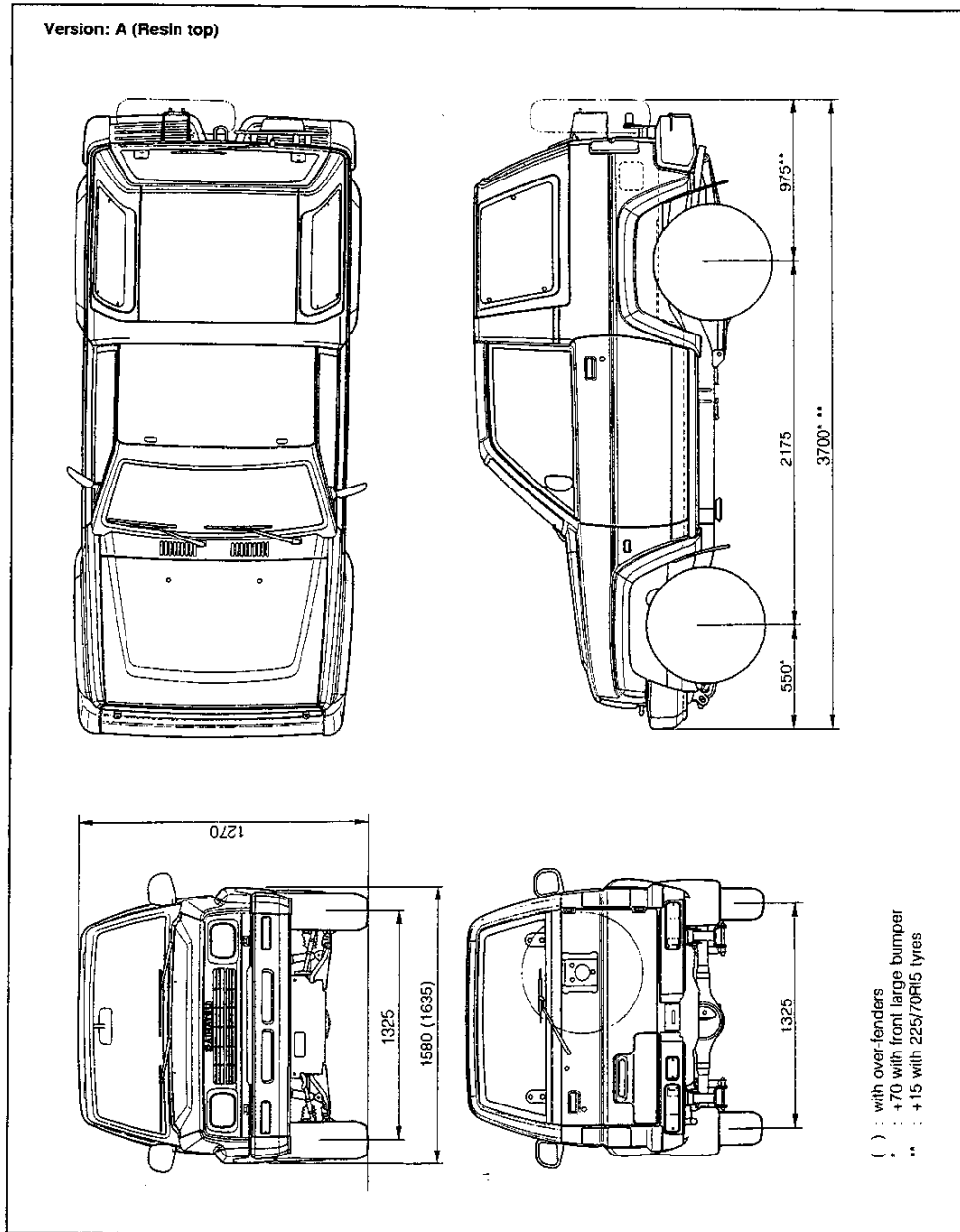
APPENDIX

6. FRAME DIMENSION



WFE90-A063

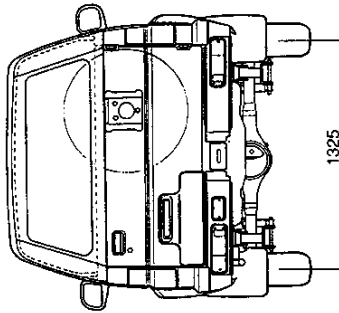
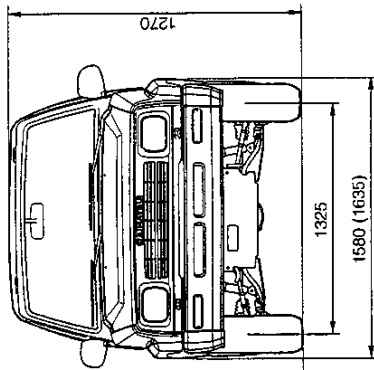
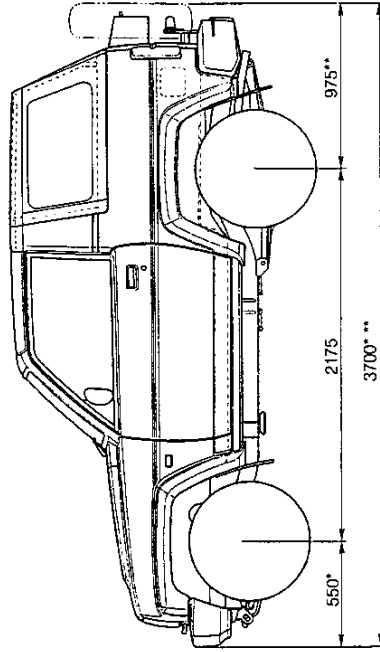
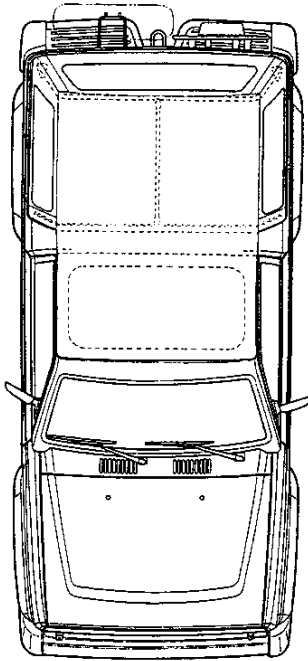
7. VEHICLE 4-PLANE DIAGRAMS



WFE90-A064

APPENDIX

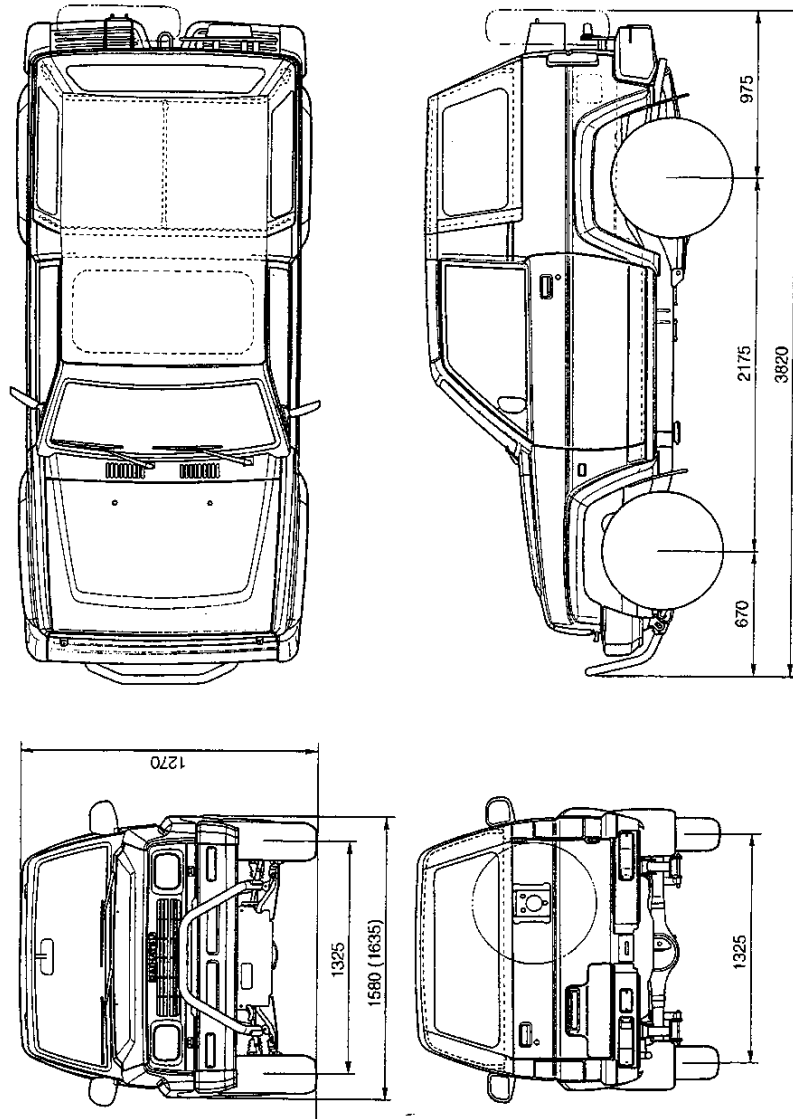
Version: B (Soft top)



() : with over-fenders
 * : +70 with front large bumper
 ** : +15 with 225/70R15 tyres

WPB90-A065

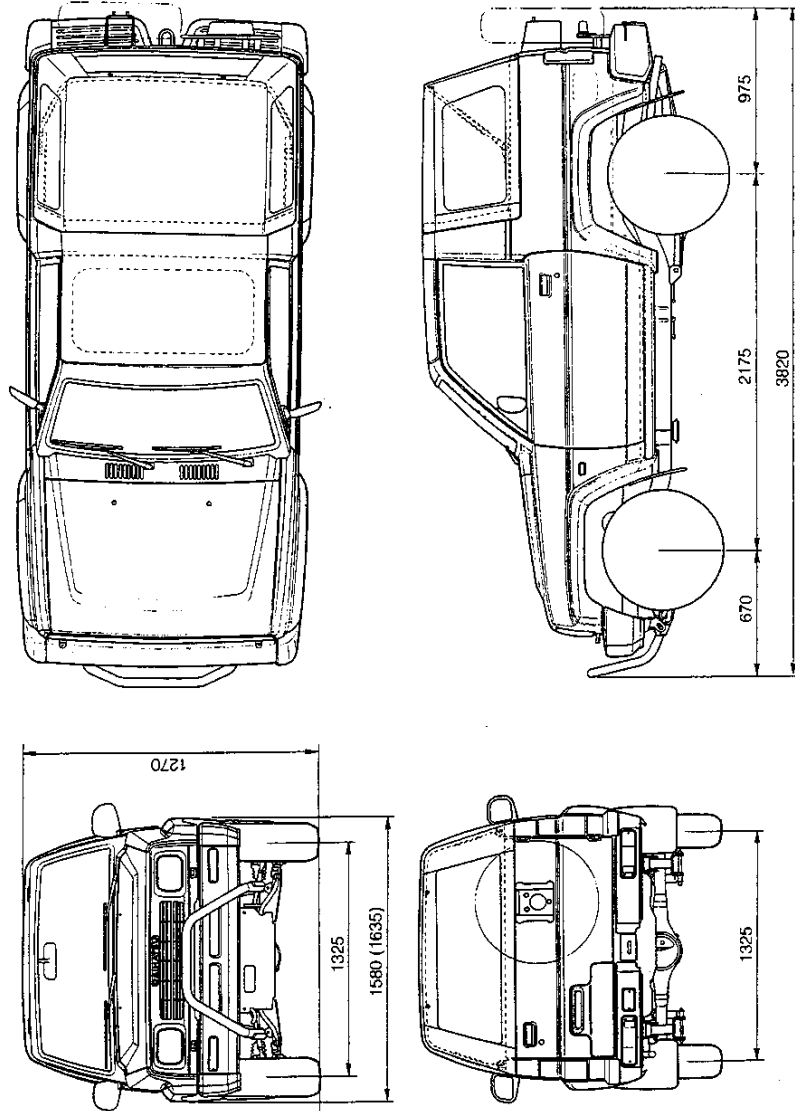
Version: C (Soft top)



WFES0-A066

APPENDIX

Version: D (Soft top)



WFE90-A067

8. METRIC-ENGLISH CONVERSION TABLE

Multiply	by	to get equivalent number of:
LENGTH		
Inch	25.4	millimetres (mm)
Foot	0.304 8	metres (m)
Yard	0.914 4	metres
Mile	1.609 3	kilometres (km)
AREA		
Inch ²	645.2	millimetres ² (mm ²)
	6.45	centimetres ² (cm ²)
Foot ²	0.092 9	metres ² (m ²)
Yard ²	0.836 1	metres ²
VOLUME		
Inch ³	16 387.	mm ³
	16.387 2	cm ³
	0.016 4	litres (l)
Quart	0.946 4	litres
Gallon	3.785 4	litres
Yard ³	0.764 6	metres ³ (m ³)
MASS		
Pound	0.453 6	kilograms (kg)
Ton	907.18	kilograms
Ton	0.907	tonne (t)
FORCE		
Kilogram	9.807	newtons (N)
Ounce	0.278 0	newtons
Pound	4.448	newtons
TEMPERATURE		
Degree Fahrenheit	(°F-32) ÷ 1.8	degree Celsius
TORQUE		
Pound-inch	0.112 98	newton-metres (N-m)
Pound-foot	1.355 8	newton-metres
POWER		
Horsepower	0.746	kilowatts (kW)
PRESSURE OR STRESS		
Inches of water	0.249 1	kilopascals (kPa)
Pounds/sq. in.	6.895	kilopascals
ENERGY OR WORK		
BTU	1 055.	joules (J)
Foot-pound	1.355 8	joules
Kilowatt-hour	3 600 000.	joules
	or 3.6×10^6	

WFE20-A068

APPENDIX

9. DECIMAL AND METRIC EQUIVALENTS

Fractions	Decimal In.	Metric mm.	Fractions	Decimal In.	Metric mm.
1/64	.015625	.397	33/64	.515625	13.097
1/32	.03125	.794	17/32	.53125	13.494
3/64	.046875	1.191	35/64	.546875	13.891
1/16	.0625	1.588	9/16	.5625	14.288
5/64	.078125	1.984	36/64	.578125	14.684
3/32	.09375	2.381	19/32	.59375	15.081
7/64	.109375	2.778	39/64	.609375	15.478
1/8	.125	3.175	5/8	.625	15.875
9/64	.140625	3.572	41/64	.640625	16.272
5/32	.15625	3.969	21/32	.65625	16.669
11/64	.171875	4.366	43/64	.671875	17.066
3/16	.1875	4.763	11/16	.6875	17.463
13/64	.203125	5.159	45/64	.703125	17.859
7/32	.21875	5.556	23/32	.71875	18.256
15/64	.234375	5.953	47/64	.734375	18.653
1/4	.250	6.35	3/4	.750	19.05
17/64	.265625	6.747	49/64	.765625	19.447
9/32	.28125	7.144	25/32	.78125	19.844
19/64	.296875	7.54	51/64	.796875	20.241
5/16	.3125	7.938	13/16	.8125	20.638
21/64	.328125	8.334	53/64	.828125	21.034
11/32	.34375	8.731	27/32	.84375	21.431
23/64	.359375	9.128	55/64	.859375	21.828
3/8	.375	9.525	7/8	.875	22.225
25/64	.390625	9.922	57/64	.890625	22.622
13/32	.40625	10.319	29/32	.90625	23.019
27/64	.421875	10.716	59/64	.921875	23.416
7/16	.4375	11.113	15/16	.9375	23.813
29/64	.453125	11.509	61/64	.953125	24.209
15/32	.46875	11.906	31/32	.96875	24.606
31/64	.484375	12.303	63/64	.984375	25.003
1/2	.500	12.7	1	1.00	25.4

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