

MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

METRIC (U.S. Customary)

1991

Manufacturer ISUZU MOTORS LIMITED	Vehicle Line IMPULSE	
Mailing Address 22-10 Minami-oi 6-chome Shinagawa-ku, Tokyo, Japan	Issued May 1990	Revised

Direct questions concerning these specifications to the manufacturer listed above.

The information contained herein is prepared, distributed by, and is solely the responsibility of the vehicle manufacturing company to whose products it relates. This suggested specification form was developed by the vehicle manufacturing companies under the auspices of the Motor Vehicle Manufacturers Association of the United States, Inc.

The General Specifications herein are those in effect at date of compilation and are subject to change without notice or incurring obligation by the manufacturer.



Motor Vehicle Manufacturers Association
of the United States, Inc.

Forms Provided by Technical Affairs Division

MVMA Specifications

METRIC (U.S. Customary)

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NOTE:

1. This form uses both SI metric units and U.S. Customary units. The metric unit of measure is presented first, and the U.S. Customary unit follows in parentheses.
2. UNLESS OTHERWISE INDICATED:
 - a. Specifications apply to standard models without optional equipment. Significant deviations are noted.
 - b. Nominal design dimensions are used throughout these specifications.
 - c. All linear dimensions are in millimeters (inches), and all mass (weight) specifications are in kilograms (pounds).
3. The General Specifications herein are those in effect at date of compilation and are subject to change without notice or incurring obligation by the manufacturer.
4. Additional Vehicle Dimensions (based in part on SAE J1100 "Motor Vehicle Dimensions") may be available from the manufacturer.

MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (-) _____

Vehicle Origin

Design & development (company)	ISUZU MOTORS LIMITED
Where built (country)	JAPAN
Authorized U.S. sales marketing representative	AMERICAN ISUZU

☒ Vehicle Models

Model Description & Drive (FWD / RWD / AWD / 4WD)*	Introduction Date	Make, Vehicle Models, Series, Body Type (Mfr's Model Code)	No. of Designated Seating Positions (Front/Rear)	Max. Trunk/Cargo Load-Kilograms (Pounds)	EPA Fuel Economy (City/Hwy)
2-Door Coupe (FWD)		JT191F-CWU	2 / 2	30.0 (66)	
2-Door Coupe (4WD)		JT191S-CJU	2 / 2	30.0 (66)	
2-Door Hatch Back (FWD)		JT191F-FWU	2 / 2	30.0 (66)	

* FWD - Front Wheel Drive RWD - Rear Wheel Drive AWD - All Wheel Drive 4WD - Four Wheel Drive

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Vehicle Line IMPULSE
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Power Teams

SAE J1349 Net bhp (brake horsepower) and Net Torque corrected to 77°F/25°C and 29.61 in. Hg/100 kPa atmospheric pressure.

			A	B	C	D
E N G I N E	Engine Code		4XE1-UW	4XE1-UW	4XE1-UWT	
	Displacement Liters (in ³)		1.588 (97)	1.588 (97)	1.588 (97)	
	Induction system (FI, Carb, etc.)		FI	FI	FI	
	Compression ratio		9.8	9.8	8.5	
	SAE Net at RPM	Power kW (bhp)	96.9 (130)	96.9 (130)	119.3 (160)	
		Torque N·m (lb. ft.)	138.3 (102)	138.3 (102)	204.2 (150)	
	Exhaust single, dual		Dual	Dual	Dual	
T R A N S	Transmission/ Transaxle		Manual 5-spd.	Auto. 4-spd.	Manual 5-spd.	
	Axle Ratio (std. first)		4.117	4.015	4.117	

[illegible]

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Engine Description
Engine Code

4XE1-UW

ENGINE - GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-camber, etc.)	In-line Front Transverse, DOHC, Pent roof	
Manufacturer	Isuzu Motors Ltd.	
No. of cylinders	4	
Bore	80 (3.15)	
Stroke	79 (3.11)	
Bore spacing (C / L to C / L)	87 (3.4)	
Cylinder block material & mass kg (lbs.) (machined)	Cast iron	
Cylinder block deck height	190 (7.48)	
Cylinder block length	392 (15.4)	
Deck clearance (minimum) (above or below block)	0.7 (0.03)	
Cylinder head material & mass kg (lbs.)	Aluminum alloy	
Cylinder head volume cm ³ (inches ³)		
Cylinder liner material	-	
Head gasket thickness (compressed)	1.20 (0.05)	
Minimum combustion chamber total volume cm ³ (inches ³)	45.1 (2.8)	
Cyl. no. system (front to rear)*	L. Bank	1-2-3-4
	R. Bank	-
Firing order	1-3-4-2	
Intake manifold material & mass kg (lbs.)**	Aluminum alloy	
Exhaust manifold material & mass kg (lbs.)**	Vermicular cast iron (FCD)	
Knock sensor (yes / no)	No	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) + 2	87	
Engine mounts	Quantity	4
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.	Elastomeric
	Added isolation (sub-frame, crossmember, etc.)	-
Total dressed engine mass (wt) dry***		125 (276), M/T / 120 (264), A/T

Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum alloy
--	----------------

Engine - Camshaft

Location		Over cylinder head
Material & mass kg (weight, lbs.)		Cast iron
Drive type	Chain / belt	Belt
	Width / pitch	25.4(1.0) / 8.0(0.3)

* Rear of engine - drive takeoff. View from drive takeoff end to determine left & right side of engine.

** Finished state.

*** Dressed engine mass (weight) includes the following:

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Engine Description
Engine Code

4XE1-UWT

ENGINE - GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-camber, etc.)	In-line Front Transverse, DOHC, Pent roof
Manufacturer	Isuzu Motors Ltd.
No. of cylinders	4
Bore	80 (3.15)
Stroke	79 (3.11)
Bore spacing (C/L to C/L)	87 (3.4)
Cylinder block material & mass kg (lbs.) (machined)	Cast iron
Cylinder block deck height	190 (7.48)
Cylinder block length	392 (15.4)
Deck clearance (minimum) (above or below block)	0.7 (0.03)
Cylinder head material & mass kg (lbs.)	Aluminum alloy
Cylinder head volume cm ³ (inches ³)	
Cylinder liner material	-
Head gasket thickness (compressed)	1.20 (0.05)
Minimum combustion chamber total volume cm ³ (inches ³)	3.2 (52.9)
Cyl. no. system (front to rear)*	L. Bank 1-2-3-4 R. Bank -
Firing order	1-3-4-2
Intake manifold material & mass kg (lbs.)**	Aluminum alloy
Exhaust manifold material & mass kg (lbs.)**	Vermicular Cast iron (FCD)
Knock sensor (yes / no)	
Fuel required unleaded, diesel, etc.	Unleaded
Fuel antiknock index (R + M) + 2	91
Engine mounts	Quantity 4
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.) Elastomeric
	Added isolation (sub-frame, crossmember, etc.) -
Total dressed engine mass (wt) dry***	145 (320), M/T

Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum alloy
--	----------------

Engine - Camshaft

Location	Over cylinder head
Material & mass kg (weight, lbs.)	Cast iron
Drive type	Chain / belt Belt
	Width / pitch 25.4 (1.0) / 8.0 (0.3)

* Rear of engine - drive takeoff. View from drive takeoff end to determine left & right side of engine.

** Finished state.

*** Dressed engine mass (weight) includes the following:

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Engine - Valve System

Hydraulic lifters (std., opt., n.a.)	N.A.
Valves	Number intake / exhaust
	8 / 8
	Head O.D. intake / exhaust
	31 (1.22) / 28 (1.10)

Engine - Connecting Rods

Material & mass kg., (weight, lbs.)*	Forged steel
Length (axes C/L to C/L)	122 (4.8)

Engine - Crankshaft

Material & mass kg., (weight, lbs.)*	Cast iron
End thrust taken by bearing (no.)	No. 2
Length & number of main bearings	17, 5
Seal (material, one, two piece design, etc.)	Front
	Rear
	Acryl Rubber, one piece design
	Fluorine Rubber, one piece design

Engine - Lubrication System

Normal oil pressure kPa (psi) at engine rpm	490/5200
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full flow
Capacity of c/case, less filter-refill-L (qt.)	3.8 (4.0)

Engine - Diesel Information

Diesel engine manufacturer	N.A.
Glow plug, current drain at 0°F	-
Injector nozzle	Type
	Opening pressure kPa (psi)
Pre-chamber design	-
Fuel in-jection pump	Manufacturer
	Type
Fuel injection pump drive (belt, chain, gear)	-
Supplementary vacuum source (type)	-
Fuel heater (yes/no)	-
Water separator, description (std., opt.)	-
Turbo manufacturer	-
Oil cooler-type (oil to engine coolant; oil to ambient air)	-
Oil filter	-

Engine - Intake System

Turbo charger - manufacturer	N.A.
Super charger - manufacturer	N.A.
Intercooler	N.A.

* Finished State

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Engine Description
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Engine - Valve System

Hydraulic lifters (std., opt., n.a.)	N.A.
Valves	Number intake / exhaust
	8 / 8
	Head O.D. intake / exhaust
	31 (1.22) / 28 (1.10)

Engine - Connecting Rods

Material & mass kg., (weight, lbs.)*	Forged steel
Length (axes C/L to C/L)	122 (4.8)

Engine - Crankshaft

Material & mass kg., (weight, lbs.)*	Cast iron
End thrust taken by bearing (no.)	No. 2
Length & number of main bearings	17, 5
Seal (material, one, two piece design, etc.)	Front
	Acryl Rubber, one piece design
	Rear
	Fluorine Rubber, one piece design

Engine - Lubrication System

Normal oil pressure kPa (psi) at engine rpm	490/5200
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full flow
Capacity of c/case, less filter-refill-L (qt.)	5.0 (5.3)

Engine - Diesel Information

Diesel engine manufacturer	N.A.
Glow plug, current drain at 0°F	-
Injector nozzle	Type
	Opening pressure kPa (psi)
Pre-chamber design	-
Fuel injection pump	Manufacturer
	Type
Fuel injection pump drive (belt, chain, gear)	-
Supplementary vacuum source (type)	-
Fuel heater (yes/no)	-
Water separator, description (std., opt.)	-
Turbo manufacturer	-
Oil cooler-type (oil to engine coolant; oil to ambient air)	-
Oil filter	-

Engine - Intake System

Turbo charger - manufacturer	Ishikawajima-Harima Heavy Industries Co., Ltd.
Super charger - manufacturer	N.A.
Intercooler	Air Couled Type

* Finished State

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Engine - Cooling System

Coolant recovery system (std., opt., n.a.)		Std.
Coolant fill location (rad., bottle)		Bottle
Radiator cap relief valve pressure kPa (psi)		103
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open at °C (°F)	82 (180)
Water pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	26 liter/minute at 1000 rpm
	Number of pumps	1
	Drive (V-belt, other)	Timing Belt
	Bearing type	Sealed type ball bearing
	Impeller material	Steel
	Housing material	Aluminum alloy
By-pass recirculation type (inter., ext.)		External
Cooling system capacity	With heater - L(qt.)	6.9(7.3), M/T / 7.4(7.8), A/T
	With air conditioner - L(qt.)	6.9(7.3), M/T / 7.4(7.8), A/T
	Opt. equipment specify - L(qt.)	N.A.
Water jackets full length of cyl. (yes, no)		Yes
Water all around cylinder (yes, no)		Yes
Water jackets open at head face (yes, no)		No
Radiator core	Std., A/C, HD	Standard
	Type (cross-flow, etc.)	Down-flow
	Construction (fin & tube mechanical, braze, etc.)	Tube & corrugated fin
	Material, mass kg (wgt., lbs.)	Brass & copper
	Width	668 (26.3)
	Height	350 (13.8)
	Thickness	16(0.63), M/T / 32(1.26), A/T
Fins per inch		11, M/T / 10, A/T
Radiator end tank material		Nylon
Fan	Std., elec., opt.	Std. Elec.
	Number of blades & type (flex, solid, material)	4, PP, M/T / 7, PP, A/T 4, PP
	Diameter & projected width	300 (11.8)
	Ratio (fan to crankshaft rev.)	N.A.
	Fan cutout type	-
	Drive type (direct, remote)	-
	RPM at idle (elec.)	2150, M/T / 2050, A/T 2150
	Motor rating (wattage/elec.)	80, M/T / 160, A/T 160
	Motor switch (type & location/elec.)	Water temperature
	Switch point (temp./pressure/elec.)	85°C (185°F)
	Fan shroud (material)	Polypropylene

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Engine - Fuel System (See supplemental page for details of Fuel Injection, Supercharger, Turbocharger, etc. if used)

Induction type: carburetor, fuel injection system, etc.		Fuel Injection	
Manufacturer		AC ROCHESTER DIVISION	
Carburetor no. of barrels		-	
Idle A/F mix.		Present at Mfr.	
Fuel injection	Point of injection (no.)	4	
	Constant, pulse, flow	Pulse	
	Control (electronic, mech.)	Electronic	
	System pressure kPa (psi)	300	
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	850	900
	Automatic	850 (neutral)	
Intake manifold heat control (exhaust or water thermostatic or fixed)		-	
Air cleaner type		Dry: 1 element	
Fuel filter (type/location)		Paper element / Engine Room	
Fuel pump	Type (elec. or mech.)	Electric	
	Location (eng., tank)	Fuel Tank	
	Pressure range kPa (psi)		
	Flow rate at regulated pressure L (gal)/hr @ kPa (psi)		

Fuel Tank

Capacity refill L (gallons)		47 (12.4)	
Location (describe)		Under rear seat floor	
Attachment		Bolted	
Material & Mass kg (weight lbs.)		Lead-tin plating steel 9.8 (21.6)	
Filler pipe	Location & material	Rear-left wheel house, painted steel pipe	
	Connection to tank	Rubber hose	
Fuel line (material)		Copper plating steel pipe	
Fuel hose (material)		Rubber hose with intermediate blade	
Return line (material)		Copper plating steel pipe	
Vapor line (material)		Copper plating steel pipe	
Extended range tank	Opt., n.a.	N.A.	
	Capacity L (gallons)	-	
	Location & material	-	
	Attachment	-	
Auxiliary tank	Opt., n.a.	N.A.	
	Capacity L (gallons)	-	
	Location & material	-	
	Attachment	-	
	Selector switch or valve	-	
	Separate fill	-	

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Engine Description

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Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		EGR + O ₂ S + TWC (UFC)
	Air Injection	Pump or pulse	-
		Driven by	-
		Air distribution (head, manifold, etc.)	-
		Point of entry	-
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source Point of exhaust injection (spacer, carburetor, manifold, other)	The No.4 port of Exh. Mfd. Intake manifold
	Catalytic Converter	Type	TWC
		Number of	1
		Location(s)	Under floor
		Volume L (in ³)	1.7 (104)
		Substrate type	Monolith
		Noble metal type	Pt/Rh
		Noble metal concentration (g/cm ³)	
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Closed
	Energy source (manifold vacuum, carburetor, other)		Manifold vacuum Crankcase pressure
	Discharges to (intake manifold, other)		Intake manifold
	Air inlet (breather cap, other)		Air cleaner
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	Fuel tank	Canister
		Carburetor	-
	Vapor storage provision		Canister
Electronic system	Closed loop (yes/no)		Yes
	Open loop (yes/no)		No

Engine - Exhaust System

Type (single, single with cross-over, dual, other)		Single
Muffler no. & type (reverse flow, straight thru, separate resonator) Material & Mass kg (weight lbs)		2. Ft: Straight thru, Stainless Steel, 4.0 (8.8) Rr: Reverse flow, Stainless Steel, 6.7 (14.7)
Resonator no. & type		-
Exhaust pipe	Branch o.d., wall thickness	42.7 - 1.5 (1.7 - 0.06)
	Main o.d., wall thickness	50.8 - 1.5 (2.0 - 0.06)
	Material & Mass kg (weight lbs)	Stainless Steel
Inter-mediate pipe	o.d. & wall thickness	50.8 - 1.5 (2.0 - 0.06)
	Material & Mass kg (weight lbs)	Stainless Steel, 9.8 (21.6)
Tail pipe	o.d. & wall thickness	Ft half: 50.8-1.5, Rr half: 38.1-1.2, 54-0.6
	Material & Mass kg (weight lbs)	Aluminized Steel, Stainless Steel 9.6 (21.1)

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Engine Description
 Engine Code

4XE1-UWT

Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		EGR + O ₂ S + TWC (MFC) + TWC (VFC)
	Air Injection	Pump or pulse	-
		Driven by	-
		Air distribution (head, manifold, etc.)	-
		Point of entry	-
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source Point of exhaust injection (spacer, carburetor, manifold, other)	The No.4 port of Exh. Mfd. Intake manifold
	Catalytic Converter	Type	TWC
		Number of	2
		Location(s)	Exh. Manifold / Under floor
		Volume L (in ³)	0.6(37) / 1.7(104)
		Substrate type	Monolith / Monolith
		Noble metal type	Pt/Rh / Pt/Rh
		Noble metal concentration (g/cm ³)	-
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Closed
	Energy source (manifold vacuum, carburetor, other)		Manifold vacuum Crankcase pressure
	Discharges to (intake manifold, other)		Intake manifold
	Air inlet (breather cap, other)		Air cleaner
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	Fuel tank	Canister
		Carburetor	-
	Vapor storage provision		Canister
Electronic system	Closed loop (yes/no)		Yes
	Open loop (yes/no)		No

Engine - Exhaust System

Type (single, single with cross-over, dual, other)		Single
Muffler no. & type (reverse flow, straight thru, separate resonator) Material & Mass kg (weight lbs)		1. Ft: Straight thru, Stainless Steel, 4.0 (8.8) Rr: Reverse flow, Stainless Steel, 6.7 (14.7)
Resonator no. & type		-
Exhaust pipe	Branch o.d., wall thickness	-
	Main o.d., wall thickness	50.8 - 1.5 (2.0 - 0.06)
	Material & Mass kg (weight lbs)	Stainless Steel
Intermediate pipe	o.d. & wall thickness	50.8 - 1.5 (2.0 - 0.06)
	Material & Mass kg (weight lbs)	Stainless Steel, 5.7 (12.6)
Tail pipe	o.d. & wall thickness	Ft half: 50.8-1.5, Rr half: 38.1-1.2, 54-0.6
	Material & Mass kg (weight lbs)	Stainless Steel 9.6 (21.1)

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Engine Description
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Transmissions/Transaxle (Std., Opt., N.A.)

Manual 3-speed (manufacturer/country)	N.A.
Manual 4-speed (manufacturer/country)	N.A.
Manual 5-speed (manufacturer/country)	Standard, Isuzu Motors Ltd./Japan
Automatic (manufacturer/country)	Optional, JATOCO Co./Japan N.A.
Automatic overdrive (manufacturer/country)	Optional, JATOCO Co./Japan N.A.

Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.909
	2nd	2.150
	3rd	1.448
	4th	1.027
	5th	0.829
	Reverse	3.583
Synchronous meshing (specify gears)		All forward gears (1st, 2nd, 3rd, 4th, 5th)
Shift lever location		Floor
Trans. case mat'l. & mass kg (lbs)*		Aluminum, 37.5 (82.7)
Lubricant	Capacity L (pt.)	1.9 (4.0)
	Type recommended	SAE 5W-30 SF (Engine oil)

Clutch (Manual Transmission)

Clutch manufacturer	DAIKIN	
Clutch type (dry, wet; single, multiple disc)	Dry single	
Linkage (hydraulic, cable, rod, lever, other)	Cable	
Max. pedal effort (nom. spring load) N (lbs)	Depressed	108 (24)
	Released	59 (13)
Assist (spring, power/percent, nominal)	Spring	
Type pressure plate springs	Diaphragm	
Total spring load (nominal) N (lbs)	4312 (970)	4900 (1102)
Clutch facing	Facing mfg. & material coding	ASUKU NC80A ASUKU JD8
	Facing material & construction	Organic semi-mold
	Rivets per facing	16 18
	Outside x inside dia. (nominal)	200 x 130 (7.9 x 5.1) 225 x 154 (8.9 x 6.1)
	Total eff. area cm ² (in. ²)	181 (28.1)
	Thickness (pressure plate side/fly wheel side)	3.5(0.14) / 3.2(0.13)
	Rivet depth (pressure plate side/fly wheel side)	1.3-1.9(0.051-0.075) / 1.2-1.8(0.047-0.070)
	Engagement cushion method	Cushion spring
Release bearing type & method lub.	Self centering single row ball bearing sealed grea	
Torsional damping method, springs, hysteresis	Coil Spring	

* Includes shift linkage, lubricant, and clutch housing. If other specify.

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Engine Description
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Automatic Transmission/Transaxle

Trade Name		FA	-
Type and special features (describe)		Torque converter with automatically operated planetary gear	-
Gear selector	Location (column, floor, other)	Floor	-
	Ltr./No. designation (e.g. PRND21)	P-R-N-D4-D3-2-1	-
	Shift interlock (yes, no, describe)	Yes	-
Gear ratios	1st	3.027	-
	2nd	1.619	-
	3rd	1.000	-
	4th	0.694	-
	Reverse	2.727	-
Max. upshift speed - drive range km/h (mph)		57 (35) [1-2], 105 (65) [2-3], 169 (105) [3-4]	-
Max. kickdown speed - drive range km/h (mph)		46 (29) [2-1], 89 (56) [3-2], 156 (97) [4-3]	-
Min. overdrive speed km/h (mph)		55 (34)	-
Torque converter	Number of elements	3	-
	Max. ratio at stall	2.3	-
	Type of cooling (air, liquid)	Water	-
	Nominal diameter	236 (9.3)	-
	Capacity factor "K"		-
Lubricant	Capacity refill L (pt.)	6.6	-
	Type recommended	ATF DEXRON-II	-
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Std., External, water	-
Transmission mass kg (lbs) & case material**		75 (165)	-

All Wheel / 4 Wheel Drive

Description & type (part-time, full-time, 2/4 shift while moving, mechanical, elect., chain/gear, etc.)		-	Full time
Transfer case	Manufacturer and model	-	Tochigi Fuji Sangyo, MW
	Type and location	-	Aluminum Alloy Case, Engine Room
Low-range gear ratio		-	-
System disconnect (describe)		-	N.A.
Center differential	Type (bevel, planetary, w or w/o viscous bias, torsen, etc.)	-	Planetary gear W/Viscou. Bias
	Torque split (% front/rear)	-	43 : 57

* Input speed + $\sqrt{\text{Torque}}$

** Dry weight including torque converter. If other, specify.

MVMA Specifications

Vehicle Line **IMPULSE**
Model Year **1991** Issued **5-90** Revised (-) _____

METRIC (U.S. Customary)

Engine Description
Engine Code

4XE1-UW

Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage)

Effective final drive ratio (or overall top gear ratio)		4.117 (M/T)	4.015 (A/T)
Transfer ratio and method (chain, gear, etc.)		-	
Front drive unit	Ring gear o.d.	208.6 (8.2)	214.4 (8.4)
	No. of teeth	17	17
	Pinion	70	76

Front Drive Unit

Description (integral to trans., etc.)		Helical Gear
Limited slip differential (type)		N.A.
Drive pinion	Type	-
	Offset	Helical Gear
No. of differential pinions		2
Pinion / differential	Adjustment (shim, etc.)	Shim adjustment
	Bearing adjustment	Shim adjustment
Driving wheel bearing (type)		Double row, angular ball bearing
Lubricant	Capacity L (pt.)	N.A. Part of transmission assembly
	Type recommended	Transmission lub.

Axle Shafts - Front Wheel Drive

Manufacturer and number used			NTN, NSK
Type (straight, solid bar, tubular, etc.)		Left	Straight Solid Bar
		Right	Straight Solid Bar
Outer diam. x length* x wall thickness	Manual transaxle	Left	ø32 x 386.6
		Right	ø32 x 386.6
	Automatic transaxle	Left	ø26 x 386.6
		Right	ø26 x 658.1
	Optional transaxle	Left	-
		Right	-
Slip yoke	Type		N.A.
	Number of teeth		-
	Spline o.d.		-
Universal joints	Make and mfg. no.	Inner	NTN DOJ TRI: NSK TRI PORT
		Outer	B/J
	Number used		4
	Type, size, plunge	Inner	DOJ, 87 / TRI PORT, 87
		Outer	B/J, 87 fixed
	Attach (u-bolt, clamp, etc)		Snap Ring
	Bearing	Type (plain, anti-friction)	N.A.
		Lubrication (fitting, prepack)	-
Drive taken through (torque tube, arms or springs)			-
Torque taken through (torque tube, arms or springs)			-

* Centerline to centerline of universal joints, or to centerline of attachment.

MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (-) _____

METRIC (U.S. Customary)

Engine Description
Engine Code

4XE1-UWT

Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage)

Axle ratio (or overall top gear ratio)		3.909
Ring gear o.d.		167
No. of teeth	Pinion	11
	Ring gear	43

Rear Axle Unit

Description		Hypoid Gear
Limited slip differential (type)		VISCOUS
Drive pinion	Type	Hypoid
	Offset	25
No. of differential pinions		4
Pinion / differential	Adjustment (shim, etc.)	Shim
	Bearing adjustment	Collapsible Spacer
Driving wheel bearing (type)		
Lubricant	Capacity L (pt.)	0.65L
	Type recommended	API GL-5
SAE Summer		90
Viscosity Winter		90
Number Extreme Cold		80

Propeller Shaft - Rear Wheel Drive

Manufacturer Type (straight tube, tube-in-tube, internal-external damper, etc.)			Straight tube		
Outer diam. x length* x wall thickness	Manual 3-speed transmission		N.A.		
	Manual 4-speed transmission		N.A.		
	Manual 5-speed transmission		1st: 75 x 598 x 1.6 mm 2nd: 63.5 x 416 x 1.6 mm 3rd: 63.5 x 889.6 x 1.6 mm		
	Overdrive		N.A.		
	Automatic transmission		N.A.		
Inter- mediate bearing	Type (plain, anti-friction)		Ball bearing		
	Lubrication (fitting, prepack)		Sealed grease		
Slip yoke	Type		Sprine		
	Number of teeth		14		
	Spline o.d.		40		
Universal joints	Make and mfg. no.	Front	-		
		Rear	Jidosha Buhin Kogyo Co., Ltd.		
	Number used		4		
	Type (ball and trunnion, cross)		Cross		
	Rear attach (u-bolt, clamp, etc)		M8 bolt		
	Bearing	Type (plain, anti-friction)	Needle bearing		
		Lubrication (fitting, prepack)	Pre-packed		
Drive taken through (torque tube, arms or springs)			-		
Torque taken through (torque tube, arms or springs)			-		

MVMA Specifications

Vehicle Line **IMPULSE**
 Model Year **1991** Issued **5-90** Revised (*)

METRIC (U.S. Customary)

Body Type And/Or
 Engine Displacement

JT191F

JT191S

Suspension - General Including Electronic Controls

Car leveling	Standard/optional/not avail.	N.A.
	Manual/automatic control	-
	Type (air/hydraulic)	-
	Primary/assist spring	-
	Rear only/4 wheel leveling	-
	Single/dual rate spring	-
	Single/dual ride heights	-
	Provision for jacking	-
Shock absorber damping controls	Standard/option/not avail.	N.A.
	Manual/automatic control	-
	Number of damping rates	-
	Type of actuation (manual/ electric motor/air, etc.)	-
	s e n s o r s	-
	Lateral acceleration	-
Shock absorber (front & rear)	Deceleration	-
	Acceleration	-
	Road surface	-
	Type	Double acting hydraulic telescopic
	Make	KAYABA
	Piston diameter	Ft: 30 (1.18), Rr: 25 (0.98)
	Rod diameter	Ft: 20 (0.79), Rr: 18 (0.71)

Suspension - Front

Type and description		MacPherson strut	
Travel*	Full jounce	89 (3.5)	
	Full rebound	73 (2.9)	
Spring	Type (coil, leaf, other & material)	Coil, SUP 7 or SAE 9254	
	Insulators (type & material)	Seat rubbers (top & bottom)	
	Size (coil design height & i.d.)	348.5x115 (13.7)x(4.5)	354x115 (13.9)x(4.5)
	Spring rate N/mm (lb./in.)	22.5 (128.7)	24.5 (139.9)
	Rate at wheel N/mm (lb./in.)	20.5 (117.0)	22.3 (127.2)
Stabilizer	Type (link, linkless, frameless)	With link	
	Material & bar diameter	SUP 6 or SUP 9, ϕ 18	ϕ 19

Suspension - Rear

Type and description		MacPherson strut with two parallel transverse links and one trailing link	
Travel*	Full jounce	110 (4.33)	
	Full rebound	85 (3.35)	
Spring	Type (coil, leaf, other & material)	Coil, SUP 7 or SAE 9254	
	Size (length x width, coil design height & i.d.)	307.5x115 (12.1)x(4.5)	316x114 (12.4)x(4.5)
	Spring rate N/mm (lb./in.)	21.6 (123.1)	23.5 (134.3)
	Rate at wheel N/mm (lb./in.)	15.4 (88)	20.7 (118.3)
	Insulators (type & material)	Seat rubbers (top)	
	If leaf	No. of leaves	N.A.
		Shackle (comp. or tens.)	N.A.
Stabilizer	Type (link, linkless, frameless)	With link	
	Material & bar diameter	SUP 6 or SUP 9, ϕ 16	ϕ 18
Track bar (type)		N.A.	

* Define load condition:

MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (+) _____

METRIC (U.S. Customary)

Body Type And/Or
Engine Displacement

JT191F

JT191S

Brakes - Service

Description			Hydraulic, front disc, rear leading trailing Self-adjusting		
Manufacturer and brake type (std., opt., n.a.)		Front (disc or drum)	Disc		
		Rear (disc or drum)	Disc		
Valving type (proportion, delay, metering, other)			Proportion		
Power brake (std., opt., n.a.)			Standard		
Booster type (remote, integral, vac., hyd., etc.)			Integral vacuum servo		
Vacuum	Source (inline, pump, etc.)		Inline		
	Reservoir (volume in. ³)		N.A.		
	Pump-type (elec, gear driven, belt driven)		N.A.		
Traction control	Operational speed range		-		
	Type engine intervention (electronic, mech.)		-		
Anti-lock device	Front / rear (std., opt., n.a.)		N.A.	OPT	
	Manufacturer		-	NIPPON ABS	
	Type (electronic, mech.)		-	Electronic	
	Number sensors or circuits		-	4	
	Number anti-lock hydraulic circuits		-	2	
	Integral or add-on system		-	Add-on	
	Yaw control (yes, no)		-	Yes	
	Hydraulic power source (elec., vac. mtr., pwr. stg.)		-		
Effective area cm ² (in. ²)*			Ft: 145.6 (22.6), Rr: 120 (4.72)		
Gross Lining area cm ² (in. ²)*(F/R)			Ft: 145.6 (22.6), Rr: 120 (4.72)		
Swept area cm ² (in. ²)*(F/R)			Ft: 1069 (165.7), Rr: 1020 (158.2)		
Rotor	Outerworking diameter	F/R	246 (9.69) / 256 (10.08)		
	Inner working diameter	F/R	162.8 (6.41) / 177.6 (6.99)		
	Thickness	F/R	22.0 (0.87) / 9 (0.35)		
	Material & type (vented/solid)	F/R	Cast iron, vented / Cast iron, Solid		
Drum	Diameter & width	F/R	- / -		
	Type and material	F/R	- / -		
Wheel cylinder bore			Ft: 51.1 (2.0), Rr: 30.2 (1.19)		
Master cylinder	Bore/stroke	F/R	22.2 (0.87) / 31.0 (1.22)		
Pedal arc ratio			3.9 : 1		
Line pressure at 445 N(100 lb.) pedal load kPa (psi) 1			9218 kPa at 66.7 kPa vacuum		
Lining clearance		F/R	Self-adjusting		
Brake lining	Front wheel	Bonded or riveted (rivets/seg.)		Bonded	
		Rivet size		-	
		Manufacturer		SUMITOMO	
		Lining code*****		M9218HFF	
		Material		Resin molded (Asbestos Free)	
		****	Primary or out-board	101.0(4.0) x 43.0(1.7) x 9.8(0.38)	
		Size	Secondary or in-board	101.0(4.0) x 43.0(1.7) x 9.8(0.38)	
		Shoe thickness (no lining)		4.5 (0.18)	
	Rear wheel	Bonded or riveted (rivets/seg.)		Bonded	
		Manufacturer		AKEBONO	
		Lining code*****		NS507EE	
		Material		Resin molded (Asbestos Free)	
		****	Primary or out-board	97.4(3.83) x 36(1.42) x 9(0.35)	
		Size	Secondary or in-board	97.4(3.83) x 36(1.42) x 9(0.35)	
		Shoe thickness (no lining)		6.0 (0.24)	

* Excludes rivet holes, grooves, chamfers, etc. ** Includes rivet holes, grooves, chamfers, etc.

*** Total swept area for four brakes. (Drum brake: Widest lining contact width for each brake x its contact circumference.)
(Disc brake: Square of Outer Working Dia. minus Square of inner Working Dia. multiplied by $\pi/2$ for each brake.)

**** Size for drum brakes includes length x width x thickness. ***** Manufacturer I.D., catalog for formulation designation and coefficient of friction classification.

MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (+) _____

METRIC (U.S. Customary)

Body Type And/Or
Engine Displacement

JT191F

JT191S

Tires And Wheels (Standard)

Tires	Size (load range, ply)		P185/60R14 82H	P205/50R15 84V
	Type (bias, radial, steel, nylon, etc.)		Radial	
	Inflation pressure (cold) for recommended max. vehicle load	Front kPa (psi)	32 (220)	30 (210)
		Rear kPa (psi)	32 (220)	30 (210)
	Rev./mile-at 70 km/h (45 mph)		925	908
Wheels	Type & material		Wide rim with deep bottom	
	Rim (size & flange type)		14x5.5JJ, Steel or Aluminium	15x6JJ, Aluminium
	Wheel offset		40 (1.57)	
	Attachment	Type (bolt or stud)	Nut	
		Circle diameter	100 (3.94)	
		Number & size	4, M12 x 1.5	
Spare	Tire and wheel		Tire : T115/70D14 Wheel: 14 x 4T	Tire : T115/70D16 Wheel: 16 x 4T
	Storage position & location (describe)		Flat under rear load floor	

Tires And Wheels (Optional)

Tire size (load range, ply)	-
Type (bias, radial, steel, nylon, etc.)	-
Wheel (type & material)	-
Rim (size, flange type and offset)	-
Tire size (load range, ply)	-
Type (bias, radial, steel, nylon, etc.)	-
Wheel (type & material)	-
Rim (size, flange type and offset)	-
Tire size (load range, ply)	-
Type (bias, radial, steel, nylon, etc.)	-
Wheel (type & material)	-
Rim (size, flange type and offset)	-
Tire size (load range, ply)	-
Type (bias, radial, steel, nylon, etc.)	-
Wheel (type & material)	-
Rim (size, flange type and offset)	-
Spare tire and wheel size (if configuration is different than road tire or wheel, describe optional spare tire and/or wheel location & storage position)	-

Brakes - Parking

Type of control		Grip handle
Location of control		In console between front seats
Operates on		Rear service brakes
If separate from service brakes	Type (internal or external)	N.A.
	Drum diameter	-
	Lining size (length x width x thickness)	-

MVMA Specifications

Vehicle Line IMPULSE
 Model Year 1991 Issued 5-90 Revised (•) _____

METRIC (U.S. Customary)

Body Type And/Or
 Engine Displacement

JT191F

JT191S

Steering

Manual (std., opt., n.a.)			N.A.		
Power (std., opt., n.a.)			Standard		
Adjustable steering wheel/column (tilt, telescope, other)	Type		-		
	Manufacturer		-		
	(std., opt., n.a.)		N.A.		
Wheel diameter** (W9) SAE J1100			Manual	382 (15.0)	
			Power	382 (15.0)	
Turning diameter m (ft.)	Outside front	Wall to wall (l. & r.)	11.2 (36.7)	11.8 (38.7)	
		Curb to curb (l. & r.)	9.8 (32.2)	10.4 (34.1)	
	Inside rear	Wall to wall (l. & r.)	4.9 (16.1)		
		Curb to curb (l. & r.)	5.1 (16.7)		
Scrub Radius*			-5.0 (-0.20)		
Manual	Gear	Type	-		
		Manufacturer		-	
		Ratios	Gear	-	
			Overall	-	
	No. wheel turns (stop to stop)		-		
Power	Type (coaxial, elec., hyd., etc.)		Coaxial		
	Manufacturer		JIDOSHA KIKI and NIPPON POWER STEERING		
	Gear	Type	Rack and Pinion		
		Ratios	Gear	∞	
			Overall	16.1	
	Pump (drive)		Belt		
	No. wheel turns (stop to stop)		2.96 2.77		
Linkage	Type		Accar man		
	Location (front or rear of wheels, other)		Rear of wheels		
	Tie rods (one or two)		Two		
Steering axis	Inclination at camber (deg.)		10°10'		
	Bearings (type)	Upper	Ball bearing		
		Lower	Ball bearing		
		Thrust	N.A.		
Steering spindle/knuckle & joint type			N.A.		

* The horizontal distance in the front elevation between wheel centerline and kingpin (ball joint) axis at ground.

** See Page 22.

☒ MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (•) _____

METRIC (U.S. Customary)

Body Type And/Or
Engine Displacement

JT191F

Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	$3^{\circ} \pm 30'$
		Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in outside track-mm (in.)	0 ± 2
	Service reset*	Caster (deg.)	$3^{\circ} \pm 30'$
		Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	0 ± 2
	Periodic M.V. inspection	Caster (deg.)	$3^{\circ} \pm 30'$
		Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	0 ± 2
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in outside track-mm (in.)	4 ± 2
	Service reset*	Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	4 ± 2
	Periodic M.V. inspection	Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	4 ± 2

* Indicates pre-set, adjustable, trend set or other.

☒ Electrical – Instruments and Equipment

Speedometer	Type (analog, digital, std., opt.)		Analogue, round Standard
	Trip odometer (std., opt., n.a.)		Standard
Head-up display	Standard, optional, not available		N.A.
	Type	Secondary, opto-electronic	—
	Speedometer	Digital	—
	Status / warning indicators	Turn signals, high beam, low fuel, check gauges	—
	Brightness control	Day / night mode, adjustable	—
EGR maintenance indicator			N.A.
Charge indicator	Type	Tell-Tale Warning light & Electrical gauge with point	
	Warning device (light, audible)	Light	
Temperature indicator	Type	Electrical gauge with pointer	
	Warning device (light, audible)	—	
Oil pressure indicator	Type	Electrical gauge with pointer	
	Warning device (light, audible)	Light	
Fuel indicator	Type	Electrical gauge with pointer	
	Warning device (light, audible)	—	
Wind-shield wiper	Type (standard)	Electric 2-speed	
	Type (optional)	—	
	Blade length	550 (21.7)	
	Swept area cm ² (in. ²)	7390 (1145)	
Wind-shield washer	Type (standard)	Electric	
	Type (optional)	N.A.	
	Fluid level indicator (light, audible)	N.A.	
Rear window wiper, wiper/washer (std., opt., n.a.)			Standard
Horn	Type	Vibrator	
	Number used	2	
Other			

Ø MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (-) _____

METRIC (U.S. Customary)

Body Type And/Or
Engine Displacement

JT191S-CJU

Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	$3^{\circ} \pm 30'$
		Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in outside track-mm (in.)	0 ± 2
	Service reset*	Caster (deg.)	$3^{\circ} \pm 30'$
		Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	0 ± 2
	Periodic M.V. inspection	Caster (deg.)	$3^{\circ} \pm 1^{\circ}$
		Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	0 ± 2
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in outside track-mm (in.)	4 ± 2
	Service reset*	Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	4 ± 2
	Periodic M.V. inspection	Camber (deg.)	$-30' \pm 1^{\circ}$
		Toe-in - mm (in.)	4 ± 2

* Indicates pre-set, adjustable, trend set or other.

Ø Electrical - Instruments and Equipment

Speedometer	Type (analog, digital, std., opt.)	Analog, round Standard
	Trip odometer (std., opt., n.a.)	Standard
Head-up display	Standard, optional, not available	
	Type	Secondary, opto-electronic
	Speedometer	Digital
	Status / warning indicators	Turn signals, high beam, low fuel, check gauges
	Brightness control	Day / night mode, adjustable
	EGR maintenance indicator	
Charge indicator	Type	Tell-Tale Warning Light & Electrical gauge with pointer
	Warning device (light, audible)	Light
Temperature indicator	Type	Electrical gauge with pointer
	Warning device (light, audible)	-
Oil pressure indicator	Type	Electrical gauge with pointer
	Warning device (light, audible)	-
Fuel indicator	Type	Electrical gauge with pointer
	Warning device (light, audible)	Light
Windshield wiper	Type (standard)	Electric 2-speed
	Type (optional)	Intermittent windshield wiper system
	Blade length	550 (21.7)
	Swept area cm ² (in. ²)	7390 (1145)
Windshield washer	Type (standard)	Electric
	Type (optional)	N.A.
	Fluid level indicator (light, audible)	N.A.
Rear window wiper, wiper/washer (std., opt., n.a.)		Standard
Horn	Type	Vibrator
	Number used	2
Boost Indicator	Type	Electrical gauge with pointer
	Warning device (light, audible)	-

MVMA Specifications

Vehicle Line IMPULSE
 Model Year 1991 Issued 5-90 Revised (+) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

4XE1-UW

Electrical – Supply System

Battery	Manufacturer	FURUKAWA, NIHONDENCHI, MATSUSHITA
	Model, std., (opt.)	55D23L
	Voltage	12
	Amps at 0°F cold crank	356
	Minutes-reserve capacity	99
	Amps/hrs.-20 hr. rate	60
	Location	Engine compartment left front
Alternator	Manufacturer	NIPPON DENSO
	Rating (idle/max. rpm)	Alternating current 12V-75A
	Ratio (alt. crank/rev.)	133/50
	Output at idle (rpm, park)	—
	Optional (type & rating)	N.A.
Regulator	Type	Non-contact voltage control relay

Electrical – Starting System

Motor	Manufacturer	NIPPON DENSO
	Current drain _____ °C(°F)	—
	Power rating kw (hp)	1.0 (M/T), 1.4 (A/T)
Motor drive	Engagement type	Solenoid
	Pinion engages from (front, rear)	Front

Electrical – Ignition System

Type	Electronic (std., opt., n.a.)		Standard	
	Other (specify)		N.A.	
Coil	Manufacturer		DELCO REMY	
	Model			
	Current	Engine stopped – A		
		Engine Idling – A		
Spark plug	Manufacturer		NIPPON DENSO	NGK
	Model		KZOPR-U11	BPR6ES-11
	Thread (mm)		14 (0.55)	14 (0.55)
	Tightening torque N-m (lb. ft)		18.6 ± 4.9	18.6 ± 4.9
	Gap		1.05 (0.04)	1.05 (0.04)
	Number per cylinder		1	
Distributor	Manufacturer		DELCO REMY	
	Model			

Electrical – Suppression

Locations & type	Resistive cord Resistive spark plug
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MVMA Specifications

Vehicle Line **IMPULSE**Model Year **1991** Issued **5-90** Revised (•) _____

METRIC (U.S. Customary)

Engine Description
Engine Code**4XE1-WT**

Electrical – Supply System

Battery	Manufacturer	FURUKAWA, NIHONDENCHI, MATSUSHITA
	Model, std., (opt.)	55D23L
	Voltage	12
	Amps at 0°F cold crank	356
	Minutes-reserve capacity	99
	Amps/hrs.-20 hr. rate	60
	Location	Engine compartment left front
Alternator	Manufacturer	NIPPON DENSO
	Rating (idle/max. rpm)	Alternating current 12V-75A
	Ratio (alt. crank/rev.)	133/50
	Output at idle (rpm, park)	-
Regulator	Optional (type & rating)	N.A.
	Type	Non-contact voltage control relay

Electrical – Starting System

Motor	Manufacturer	NIPPON DENSO
	Current drain _____ °C(°F)	-
	Power rating kw (hp)	1.2
Motor drive	Engagement type	Solenoid
	Pinion engages from (front, rear)	Front

Electrical – Ignition System

Type	Electronic (std., opt., n.a.)		Standard	
	Other (specify)		Direct Ignition Type	
Coil	Manufacturer		Delco Remy	
	Model			
	Current	Engine stopped – A		
		Engine Idling – A		
Spark plug	Manufacturer		NIPPON DENSO	NGK
	Model		K20PR-U11	BKR6E-11
	Thread (mm)		14 (0.55)	14 (0.55)
	Tightening torque N·m (lb. ft)		18.6 ± 4.9	18.6 ± 4.9
	Gap		0.75 (0.03)	0.75 (0.03)
	Number per cylinder		1	
Distributor	Manufacturer		Delco Remy (Cam angle sensor)	
	Model			

Electrical – Suppression

Locations & type	Resistive cord Resistive spark plug
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MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (•) _____

Body Type

JT191F-CWU

JT191F-FWU

JT191S-CJU

Body

Structure

Monocoque body

Bumper system
front - rear

Large plastic type

Anti-corrosion treatment

Various sealer, wax coat,
under coat, galvanized steel

Body - Miscellaneous Information

Type of finish (lacquer, enamel, other)		Enamel	
Hood	Material & mass	Steel 11.9 (26.2)	
	Hinge location (front, rear)	Rear	
	Type (counterbalance, prop)	Prop	
	Release control (internal, external)	Internal	
Trunk lid	Material & mass	-	
	Type (counterbalance, other)	-	
	Internal release control (elec., mech., n.a.)	-	
Hatch-back lid	Material & mass	Steel, Glass 29 (64)	Steel Glass 17 (38)
	Type (counterbalance, other)	Counter balance	
	Internal release control (elec., mech., n.a.)	Mechanical	
Tailgate	Material & mass	-	
	Type (drop, lift, door)	-	
	Internal release control (elec., mech., n.a.)	-	
Vent window control (crank, friction, pivot, power)	Front	Crank	
	Rear	N.A.	
Window regulator type (cable, tape, flex drive, etc.)	Front	X-Arm Type	
	Rear	-	
Seat cushion type (e.g., 60/40 bucket, bench, wire, foam, etc.)	Front	Spring + Foam pad	
	Rear	Wire frame + Foam pad	
	3rd seat	-	
Seat back type (e.g., 60/40, bucket, bench, wire, foam, etc.)	Front	Spring + Foam pad	
	Rear	Panel frame + Foam pad	
	3rd seat	-	

MVMA Specifications

Vehicle Line IMPULSE
 Model Year 1991 Issued 5-90 Revised (v) _____

METRIC (U.S. Customary)

Body Type

JT191F-CWU
 JT191S-CJU

JT191F-FWU

Restraint System

Seating Position			Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.)	First seat	3-Pt. SEAT BELT WITH E.L.R. - STANDARD	-	3-pt. SEAT BELT WITH E.L.R. - STANDARD
	Standard / optional	Second seat	3-Pt. SEAT BELT WITH E.L.R. - STANDARD	-	3-pt. SEAT BELT WITH E.L.R. - STANDARD
		Third seat	-	-	-
Passive	Type & description (air bag, motorized - 2-point belt, fixed belt, knee bolster, manual - lap belt)	First seat	AIR BAG WITH KNEE BOLSTER - STANDARD	-	N.A.
	Standard / optional	Second seat	N.A.	-	N.A.
		Third seat	-	-	-

Glass	SAE Ref. No.	
Windshield glass exposed surface area cm ² (in. ²)	S1	10642 (1650)
Side glass exposed surface area cm ² (in. ²) - total 2-sides	S2	9058 (1404) 15212 (2358)
Backlight glass exposed surface area cm ² (in. ²)	S3	14293 (2215) 6690 (1037)
Total glass exposed surface area cm ² (in. ²)	S4	33993 (5269) 32544 (5045)
Windshield glass (type)		Laminated glass
Side glass (type)		Temperated glass
Backlight glass (type)		Temperated glass

Headlamps

Description (sealed beam, halogen, replaceable bulb, etc.)	Sealed beam, Halogen
Shape	Circle
Lo-beam type (2A1, 2B1, 2C1, etc.)	ZC1
Quantity	2
Hi-beam type (1A1, 2A1, 1C1, 2C1, etc.)	ICI
Quantity	2

Frame

Type and description (separate frame, unitized frame, partially-unitized frame)	Partially unitized
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MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (-) _____

METRIC (U.S. Customary)

Body Type

JT191F

JT191S

Convenience Equipment (standard, optional, n.a.)

Air conditioning (manual, auto, temp control)		Optional, manual
Clock (digital, analog)		Standard, digital (in meter)
Compass / thermometer		N.A.
Console (floor, overhead)		Standard, floor
Defroster, elec. backlight		Standard, rear electrical defogger
Electronic	Diagnostic monitor (integrated, individual)	Standard, Tell-Tale Warning light in instrument cluster
	Instrument cluster (list instruments)	N.A.
	Keyless entry	N.A.
	Tripminder (avg. spd., fuel)	N.A.
	Voice alert (list items)	N.A.
	Other	-
Fuel door lock (remote, key, electric)		Remote
Lamps	Auto head on / off delay, dimming	N.A.
	Cornering	N.A.
	Courtesy (map, reading)	N.A. Standard
	Door lock, ignition	N.A.
	Engine compartment	N.A.
	Fog	Optional
	Glove compartment	N.A.
	Trunk	Standard (luggage)
	Illuminated entry system (list lamps, activation)	N.A.
	Other	Dome lamp-standard
Mirrors	Map reading	Standard
	Day / night (auto, man.)	standard, manual
	L.H. (remote, power, heated)	Standard, power
	R.H. (convex, remote, power, heated)	standard, conver power
	Visor vanity (RH / LH, illuminated)	Standard, RH
Navigation system (describe)		N.A.
Parking brake-auto release (warning light)		N.A.

MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (-) _____

METRIC (U.S. Customary)

Body Type

JT191F-CSU

JT191F-CWU

JT191F-FWU

Convenience Equipment (standard, optional, n.a.)

Power equipment	Deck lid (release, pull down)		N.A.
	Door locks (manual, automatic, describe system)		N.A.
	Seats	2 - 4 - 6 way, etc.	N.A.
		Reclining (R.H., L.H.)	N.A.
		Memory (R.H., L.H., preset recline)	N.A.
		Support (lumbar, hip, thigh, etc.)	N.A.
		Heated (R.H., L.H., other)	N.A.
	Side windows		N.A.
	Vent windows		N.A.
	Rear windows		N.A.
Radio systems	Antenna (location, whip, w / shield, power)		Standard, on roof front-left, non-power
	Standard	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	-
	Optional		AM/FM stereo AM/FM stereo, W/Casstte Tape COMP ASM: (AM/FM stereo, Cassette, Graphic equalizer)
	Speaker (number, location)		Optional Ft 2 speakers Rr 2 speakers
	Roof: open air or fixed (flip-up, sliding, "T")		Optional tilt up and slide
Speed control device		Optional	
Speed warning device (light, buzzer, etc.)		N.A.	
Tachometer (rpm)		Standard	
Telephone system (describe)		N.A.	
Theft deterrent system		Lock mounted on steering column: Lock steering wheel automatic transmission shift lever and ignition	

Trailer Towing

Towing capable	Yes / No	No
Engine / transmission / axle	Std / Opt	-
Tow class (I, II, III)*	Std / Opt	-
Max. gross trailer wgt. (lbs.)	Std / Opt	-
Max. trailer tongue load (lbs.)	Std / Opt	-
Towing package available	Yes / No	-

* Class I - 2,000 lbs. Class II - 3,500 lbs. Class III - 5,000 lbs.

MVMA Specifications

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (-) _____

METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

All dimensions to ground are for comparative purposes only. Dimensions are to be shown for all base body models of each vehicle line. SAE Ref. no. refers to the definition published in SAE Recommended Practice J1100 "Motor Vehicle Dimensions," unless otherwise specified.

Body Type	SAE Ref. No.	JT191F-CWU	JT191S-CJU	JT191F-FWU
Width				
Tread (front)	W101	1430 (56.3)		
Tread (rear)	W102	1405 (55.3)		
Vehicle width	W103	1694 (66.69)		
Body width at Sg RP (front)	W117	1683 (66.26)		
Vehicle width (front doors open)	W120	3883 (152.9)		
Vehicle width (rear doors open)	W121	-		
Tumble-home (degrees)	W122	26.7°		
Outside mirror width	W410	1886 (74.3)		

Length

Wheelbase	L101	2450 (96.5)		
Vehicle length	L103	4215 (166.0)		4168 (164.1)
Overhang (front)	L104	980 (38.6)		
Overhang (rear)	L105	785 (30.9)		738 (29.0)
Upper structure length	L123	2712 (106.8)		
Rear wheel C/L "X" coordinate	L127	2251.5 (88.6)		

Height **

Passenger distribution (front/rear)	PD1.2.3	2/0		**
Trunk/cargo load		30.0 (66)		**
Vehicle height	H101	1298 (51.1)		1312 (51.7)
Cowl point to ground	H114	904 (35.6)		
Deck point to ground	H138	946 (37.2)		876 (34.5)
Rocker panel-front to ground	H112	202 (8.0)		
Rocker panel-rear to ground	H111	202 (8.0)		
Windshield slope angle (degrees)	H122	64.1°		
Backlight slope angle (degrees)	H121	72.0°		48.8°

Ground Clearance **

Front bumper to ground	H102	225.4 (8.8)		
Rear bumper to ground	H104	268.1 (10.5)		232 (9.1)
Bumper to ground front at curb mass (wt.)	H103	244.7 (9.5)		
Bumper to ground rear at curb mass (wt.)	H105	290.0 (11.3)		254 (10.0)
Angle of approach (degrees)	H106	15.9°		
Angle of departure (degrees)	H107	21.3°		
Ramp breakover angle (degrees)	H147	12.9°	12.7°	12.9°
Axle differential to ground (front/rear)	H153	-	144.3 (5.6)	-
Min. running ground clearance	H156	131 (5.2)		
Location of min. run. grd. clear.		Under Floor Converter		

** All Vehicle Height And Ground Clearance Are Made Using EPA Loaded Vehicle Weight, Loading Conditions.

EPA Loaded Vehicle Weight is the Base Vehicle Weight Plus All Coolant And Fluids Necessary For Operation Plus 100% Of The Fuel Capacity, Plus The Weight Of All Options And Accessories Which Weigh Three Pounds Or More And Which Are Sold On At Least 33% Of The Car Line, Plus Two Occupants.

MVMA Specifications

METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

Vehicle Line **IMPULSE**
Model Year **1991** Issued **5-90** Revised (*)

Body Type

JT191F-CWU
JT191S-CJU

JT191F-FWU

SAE
Ref.
No.

Front Compartment

SgRP front, "X" coordinate	L31	1149 (45.2)	
Effective head room	H61	952 (37.5)	
Max. eff. leg room (accelerator)	L34	1113 (43.8)	
SgRP to heel point	H30	177 (7.0)	
SgRP to heel point	L53	940 (37.0)	
Back angle (degrees)	L40	25°	
Hip angle (degrees)	L42	98°	
Knee angle (degrees)	L44	140°	
Foot angle (degrees)	L46	87°	
Design H-point front travel	L17	230 (9.1)	
Normal driving & riding seat track trvl.	L23	230 (9.1)	
Shoulder room	W3	1354 (53.3)	
Hip room	W5	1292 (50.9)	
*** Upper body opening to ground	H50	1161 (45.7)	
Steering wheel maximum diameter*	W9	382 (15.0)	
Steering wheel angle (degrees)	H18	20.1°	
Accel. heel pt. to steer. whl. cntr	L11	554 (21.8)	
Accel. heel pt. to steer. whl. cntr	H17	564 (22.2)	
Undepressed floor covering thickness	H67	25 (1.0)	

Front Compartment Interior Dimensions Are Measured With The Seating Reference Point (SgRP) _____ mm Forward And _____ mm Upward of Rearmost Position.

Rear Compartment

SgRP point couple distance	L50	679 (26.7)	
Effective head room	H63	810 (31.9)	
Min. effective leg room	L51	771 (30.4)	920 (36.2)
SgRP (second to heel)	H31	283 (11.0)	
Knee clearance	L48	-23 (-0.91)	
Shoulder room	W4	1301 (51.2)	
Hip room	W6	1084 (42.7)	1330 (52.4)
*** Upper body opening to ground	H51	-	
Back angle (degrees)	L41	28°	30°
Hip angle (degrees)	L43	87.8°	
Knee angle (degrees)	L45	88.6°	
Foot angle (degrees)	L47	141.1°	
Depressed floor covering thickness	H73	10 (0.4)	

Luggage Compartment

Usable luggage capacity L (cu. ft.)	V1	-	
*** Litter height	H195	931 (36.7)	728 (28.7)

Interior Volumes (EPA Classification)

Vehicle class		Subcompact cars	
Interior volume index (cu. ft.)**		2.566 m ³ (90.568)	2.672 m ³ (94.314)
Trunk / cargo index (cu. ft.)		0.313 m ³ (10.968)	

* See page 14.

** Includes passenger and trunk / cargo index - see definition page 32.

All linear dimensions are in millimeters (inches).

*** EPA Loaded Vehicle Weight, Loading Conditions

MVMA Specifications

METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (+): _____

Body Type

JT191F-CWU
JT191S-CJU

JT191F-FWU

SAE
Ref.
No.

Station Wagon - Thrd Seat

Seat facing direction	SD1	-
SgRP couple distance	L85	-
Shoulder room	W85	-
Hip room	W86	-
Effective leg room	L86	-
Effective head room	H86	-
SgRP to heel point	H87	-
Knee clearance	L87	-
Back angle (degrees)	L88	-
Hip angle (degrees)	L89	-
Knee angle (degrees)	L90	-
Foot angle (degrees)	L91	-

Station Wagon - Cargo Space

Cargo length (open front)	L200	-
Cargo length (open second)	L201	-
Cargo length (closed front)	L202	-
Cargo length (closed second)	L203	-
Cargo length at belt (front)	L204	-
Cargo length at belt (second)	L205	-
Cargo width (wheelhouse)	W201	-
Rear opening width at floor	W203	-
Opening width at belt	W204	-
Min. rear opening width above belt	W205	-
Cargo height	H201	-
Rear opening height	H202	-
* Tailgate to ground height	H250	-
Front seat back to load floor height	H197	-
Cargo volume index m ³ (ft. ³)	V2	-
Hidden cargo volume index m ³ (ft. ³)	V4	-
Cargo volume index-rear of 2-seat	V10	-

Hatchback - Cargo Space

Cargo length at front seatback height	L208	1153 (45.4)	1141 (44.9)
Cargo length at floor (front)	L209	1394 (54.9)	
Cargo length at second seatback height	L210	433 (17.0)	410 (16.1)
Cargo length at floor (second)	L211	728 (28.7)	706 (27.8)
Front seatback to load floor height	H197	373 (14.7)	
Second seatback to load floor height	H198	441 (16.2)	450 (17.7)
Cargo volume index m ³ (ft. ³)	V3	0.619 (21.843)	0.629 (22.4)
Hidden cargo volume index m ³ (ft. ³)	V4	-	
Cargo volume index-rear of 2-seat	V11	0.313 (10.968)	0.334 (11.7)

* EPA Loaded Vehicle Weight, Loading Conditions

MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (+) _____

Body Type

ALL MODELS

Vehicle Fiducial Marks

Fiducial Mark
Number*

Define Coordinate Location

Front

The center of the hole (Ø16) on the front side member.

Rear

The center of the hole (Ø13) on the rear side member.
(Note: The rearmost one of the drain holes.)

Fiducial
Mark
Number

Front	W21*	403	(15.9)
	L54*	250	(9.8)
	H81*	336.5	(13.2)
	H161*	177	(7.0)
**	H163*	157	(6.2)

Rear	W22*	460.5	(18.1)
	L55*	2594	(102.1)
	H82*	563	(22.2)
	H162*	405	(15.9)
**	H164*	384	(15.1)

* Reference - SAE Recommended Practice, J182, Motor Vehicle Fiducial Marks.

All Linear dimensions are in millimeters (inches).

** EPA Loaded Vehicle Weight, Loading Conditions

METRIC (U.S. Customary).

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (•) _____

[illegible]

** ETWC – Equivalent Test Weight Class – basis for U.S. Environmental Protection Agency emission certifications. Refer to ETWC code legend below for test weight class.

** ETWC – Equivalent Test Weight Class ~ basis for U.S. Environmental Protection Agency emission certifications.
Refer to ETWC code legend below for test weight class.

ETWC LEGEND

A	= 1000	I	= 2000	Q	= 3000	Y	= 4000
B	= 1125	J	= 2125	R	= 3125	Z	= 4250
C	= 1250	K	= 2250	S	= 3250	AA	= 4500
D	= 1375	L	= 2375	T	= 3375	BB	= 4750
E	= 1500	M	= 2500	U	= 3500	CC	= 5000
F	= 1625	N	= 2625	V	= 3625	DD	= 5250
G	= 1750	O	= 2750	W	= 3750	EE	= 5500
H	= 1875	P	= 2875	X	= 3875	FF	= 5750

*** Shipping Mass (weight) = Curb Weight Less:

METRIC (U.S. Customary)

Vehicle Line IMPULSE
Model Year 1991 Issued 5-90 Revised (•) _____

[illegible]

* Also see Engine - General Section for dressed engine mass (weight).