

SERVICE MANUAL

DATSUN PICK-UP

MODEL 521 SERIES

CHASSIS AND BODY



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NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

DATSUN PICK-UP

SERVICE MANUAL

MODEL
521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
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FOREWORD

This service manual has been prepared for the purpose of assisting service personnels of our distributors and dealers in providing effective service and maintenance of DATSUN PICK-PU (model 521) series.

Since proper maintenance and service are absolutely essential satisfying our customers, this manual should be read carefully. The following matters should be noted for effective utilization of this manual.

- 1. Explanations in this manual are mainly concerning the model (G)(N)521U (right hand drive) but will easily be referred also to the left hand drive models.*
- 2. Please, refer to both this and J13 & J15 ENGINE SERVICE MANUAL or L13, L16 and L20 ENGINE SERVICE MANUAL (for PL521 series) for complete details of the car, because this manual describes information concerning the chassis and body only.*
- 3. All part names in this manual conform to the DATSUN 521 PARTS CATALOG, and only the genuine service parts listed in this PARTS CATALOG must be used for replacements.*
- 4. All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication approval.*
- 5. It should be emphasized that those who use this manual are responsible for revising the contents according to the SERVICE JOURNAL and SERVICE DATA AND SPECIFICATIONS issued by the factory, which carry the latest factory approved servicing methods.*
- 6. Rights for alteration of specifications and methods at any time are reserved.*

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SECTION GI

GI

GENERAL INFORMATION

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GENERAL INFORMATION

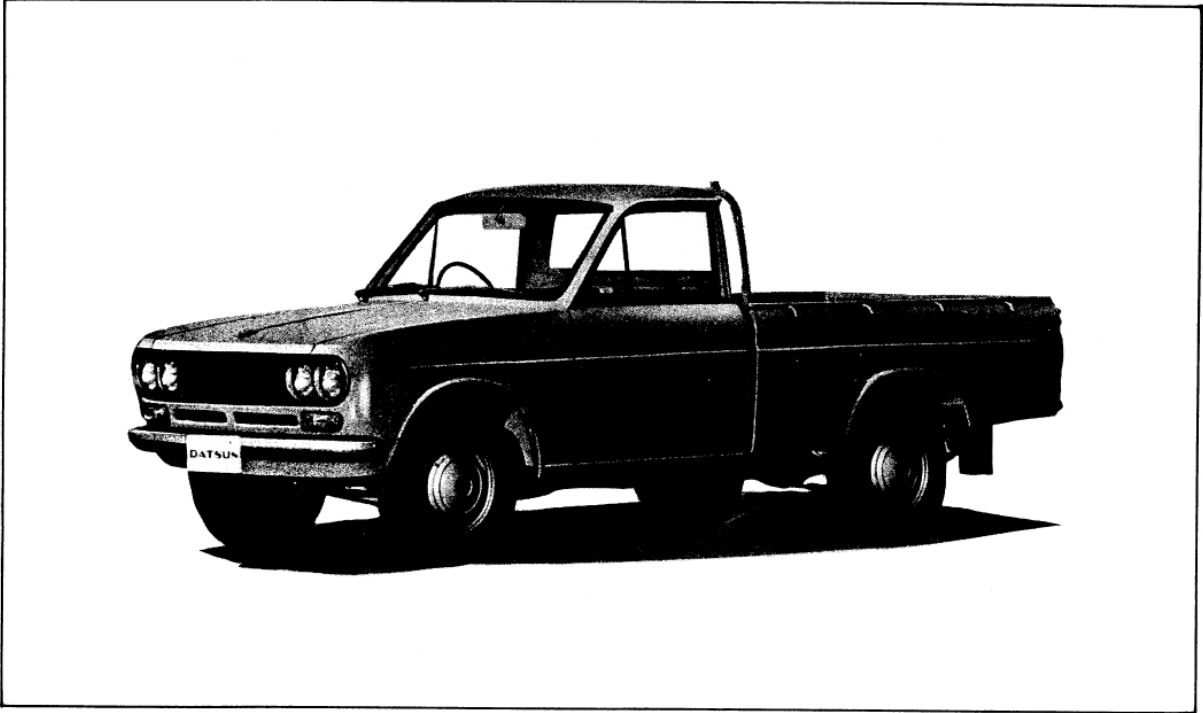


Fig. GI-1 Short body pick-up



Fig. GI-2 Long body pick-up

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Fig. GI-3 Double pick-up



Fig. GI-4 Van

GI-2

GENERAL INFORMATION

MODEL VARIATION

	Vehicle model		Engine model	Seating capacity—payload kg (lb)	T/M—speed	Remarks
	R.H. drive	L.H. drive				
Short body	Pick-up	521U ————	L521 L521T	J13	2—1,000 (2,204.6)	R4W63—4 F4W63—4
	Double Pick-up	U521U	UL521			5—400 (881.8)	R4W63—4
	Van	V521U	VL521	J15	2—500 (1,102.3) 5—300 (661.4)	R4W63—4
	Pick-up	N521U ————	NL521 NL521T			2—1,000 (2,204.6)	R4W63—4 F4W63—4
	Double Pick-up	————	UNL521	5—400 (881.8)	R4W63—4	
	Van	VN521U	VNL521	L16	2—500 (1,102.3) 5—300 (661.4)	R4W63—4
	Pick-up	————	PL521TU PL521TN			2—454 (1,000)	F4W63—4
Long body	Pick-up	G521U ————	LG521 LG521T	J13	2—1,000 (2,204.6)	R4W63—4 F4W63—4
		GNS21U ————	GNL521 GNL521T	J15	2—1,000 (2,204.6)	R4W63—4 F4W63—4

IDENTIFICATION NUMBER

The body number plate identifies the type of car, engine capacity, maximum horse power (SAE), wheel base, engine number and car number. The body number plate is attached to the center of cowl top panel.

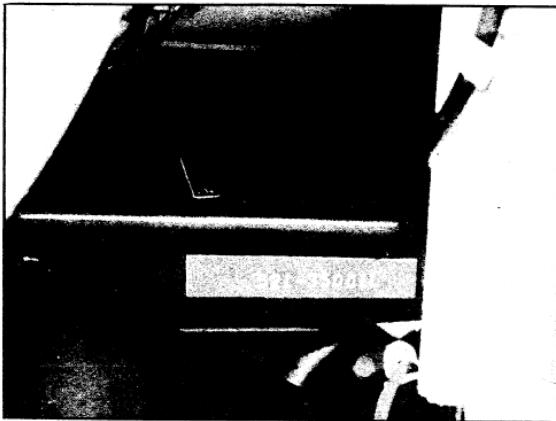


Fig. GI-5 Chassis number plate

Upper face of left side frame, near front suspension member

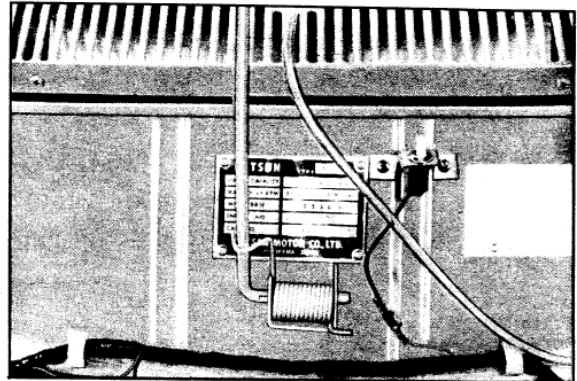


Fig. GI-6 Body number plate

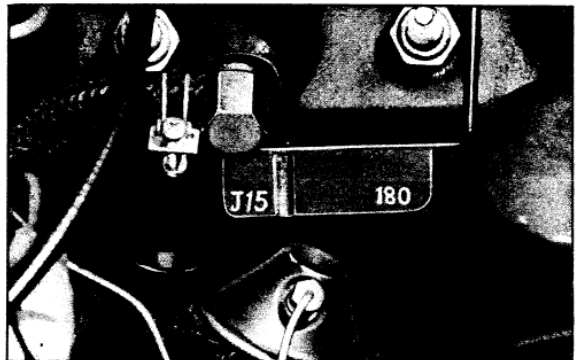
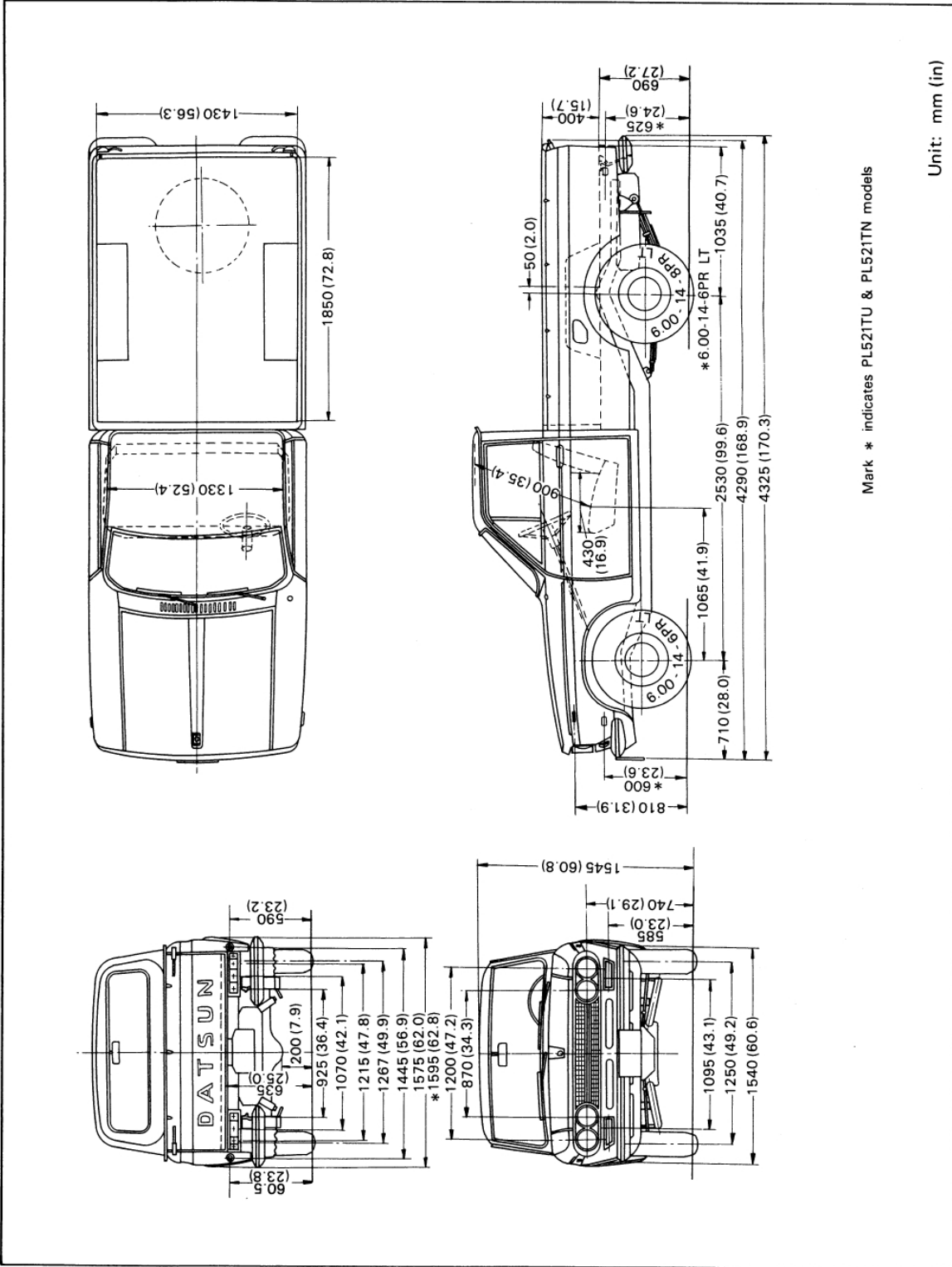


Fig. GI-7 Engine number

CHASSIS

GENERAL VIEWS

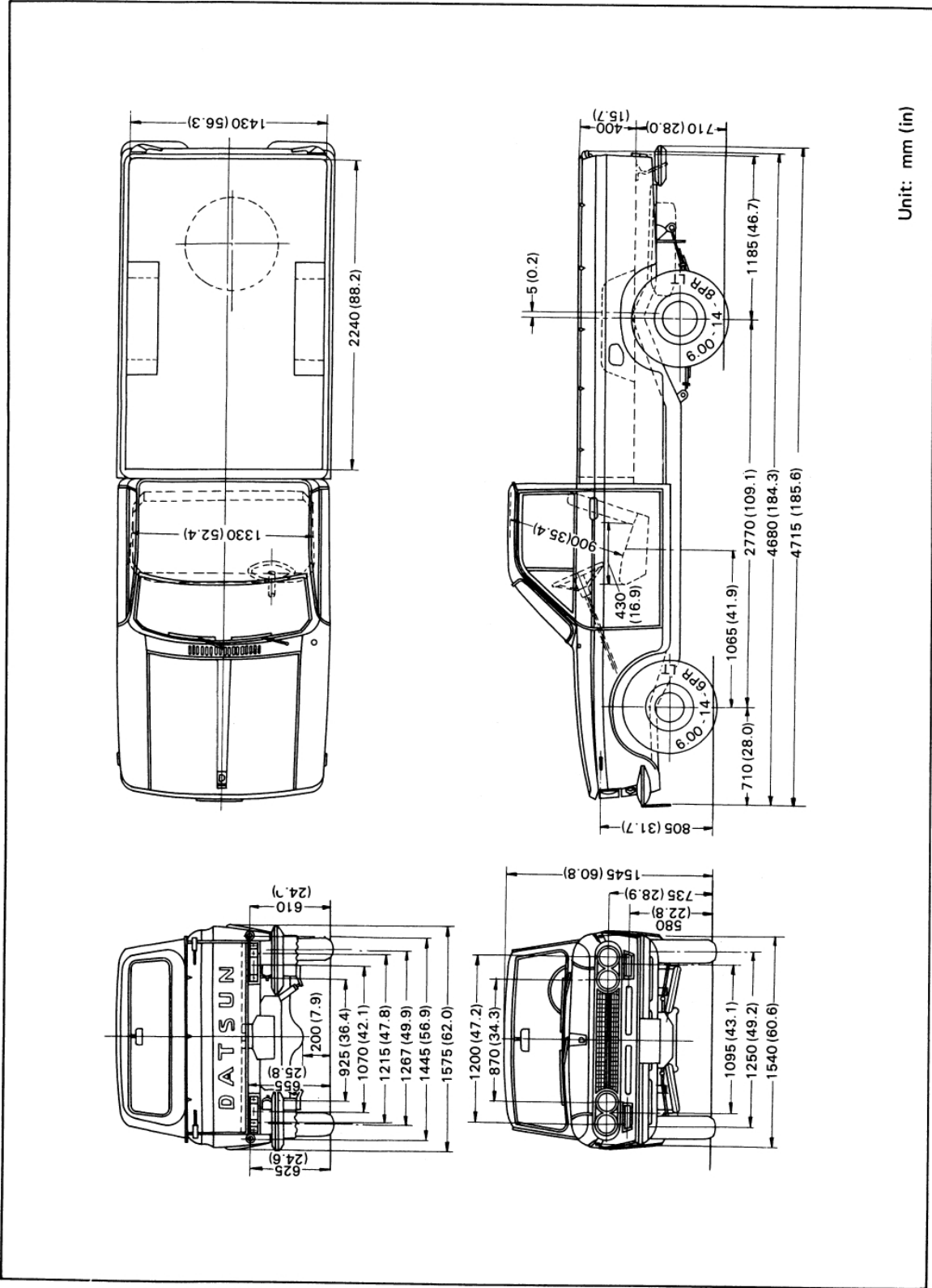


Mark * indicates PL521TU & PL521TN models

Unit: mm (in)

Fig. G1-8 Short body pick-up

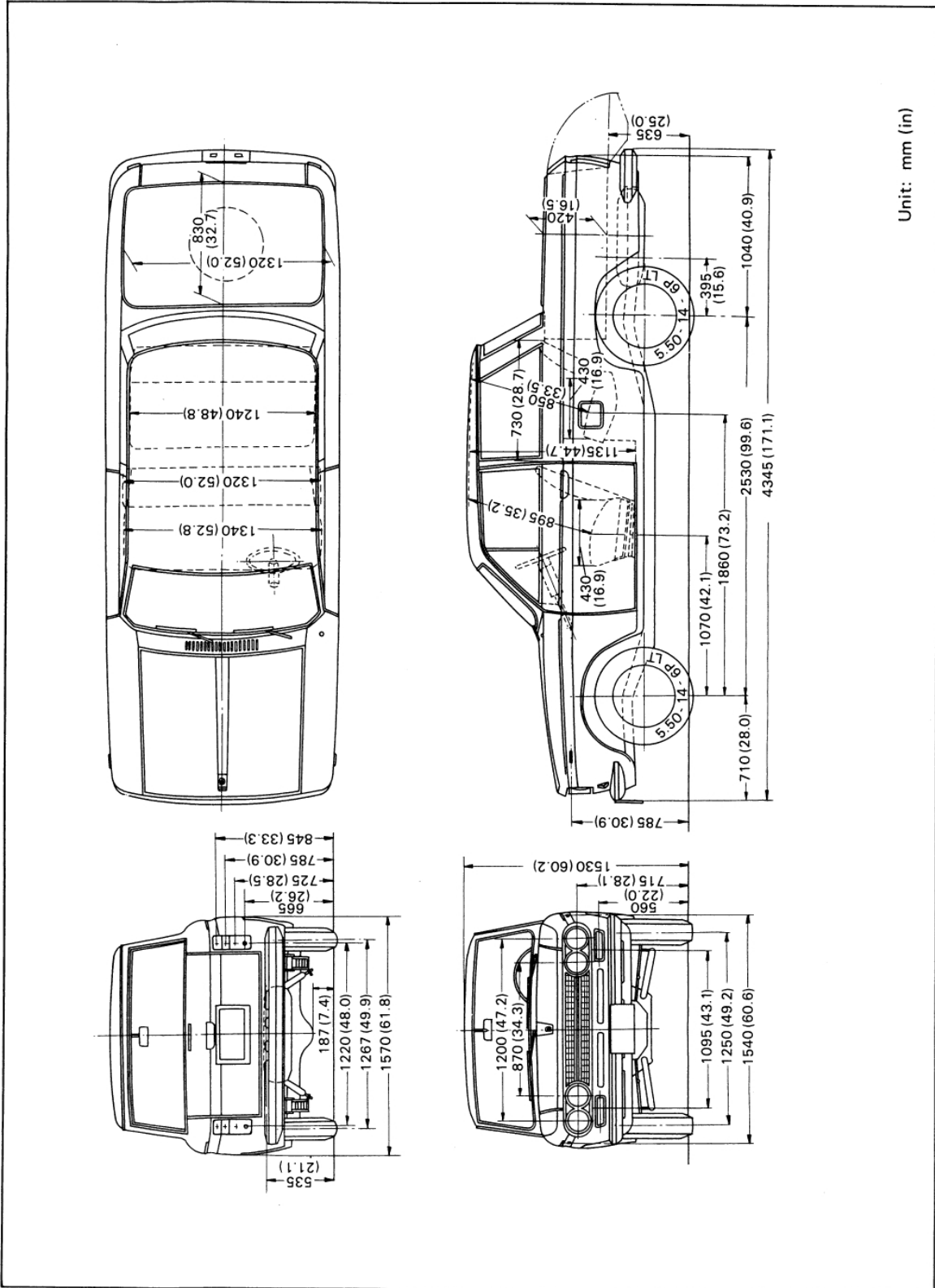
GENERAL INFORMATION



Unit: mm (in)

Fig. GI-9 Long body pick-up

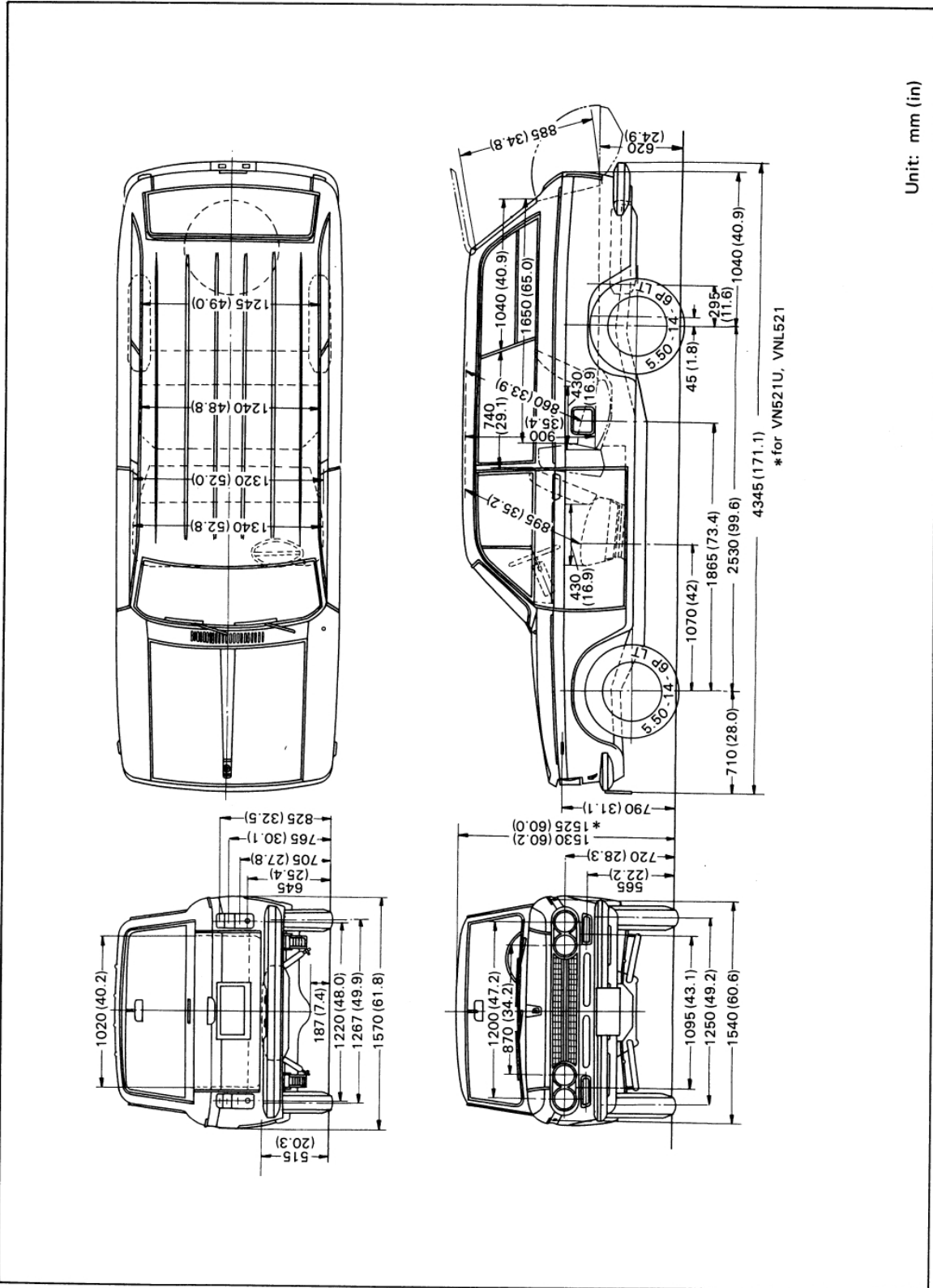
CHASSIS



Unit: mm (in)

Fig. G1-10 Double pick-up

GENERAL INFORMATION



Unit: mm (in)

Fig. GI-11 Van

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GENERAL SPECIFICATIONS

Item		Model	J13 ENGINE				
			521U L521	L521T	U521U UL521	V521U VL521	
Dimension	Overall length	mm (in)	4,325 (170.3)		4,345 (171.1)		
	Overall width	mm (in)	1,575 (62.0)		1,570 (61.8)		
	Overall height	mm (in)	1,545 (60.8)		1,530 (60.2)		
	Wheel base	mm (in)	2,530 (99.6)		2,530 (99.6)		
	Rear body interior	Length	mm (in)	1,850 (72.8)		*1 830 (32.7) 1,650 (65.0)	*2 1,040 (40.9)
		Width	mm (in)	1,430 (56.3)		*1 1,320 (52.0) 1,245 (49.0)	*2 1,240 (48.8)
		Height	mm (in)	400 (15.7)		420 (16.5)	900 (35.4)
	Tread	Front	mm (in)	1,250 (49.2)		1,250 (49.2)	
		Rear	mm (in)	1,267 (49.9)		1,267 (49.9)	
	Minimum road clearance	mm (in)	200 (7.87)		187 (7.36)		
Vehicle weight	kg (lb)	960 (2,116.4)		1,035 (2281.8)	1,055 (2325.9)		
Pay load	kg (lb)	1,000 (2,204.6)		400 (881.8)	500 (1,102.3)	300 (661.4)	
Performance	Maximum speed	km/h (MPH)	125 (78.1)		125 (78.1)		
	Maximum grade ability	(sin θ)	0.308	0.221	0.362	*1 0.382	*2 0.380
	Minimum turning radius	m (ft)	5.2 (17.1)		5.2 (17.1)		
Seating capacity		2		5	*1 2	*2 5	
Engine model		J13		J13			
Battery volt capacity	V - AH	12 - 40		12 - 40			
Clutch type		Dry single disc, Diaphragm spring		Dry single disc, Diaphragm spring			
Trans- mission	Model	R4W63	F4W63		R4W63		
	Synchro type	Warner			Warner		
Final gear type		Hypoid		Hypoid			
Steering gear type		Re circulating ball		Re circulating ball			
Brake system	Service	Front	Uni - Servo		Uni - Servo		
		Rear	Duo - Servo		Duo - Servo		
	Parking	Mechanically operated on rear wheels		Mechanically operated on rear wheels			
Suspension	Front	Independent torsion bar		Independent torsion bar			
	Rear	Semi - elliptic leaf spring		Semi - elliptic leaf spring			
Tire	Front	6.00-14-6 PR LT		5.50-14-6 PR LT			
	Rear	6.00-14-8 PR LT		5.50-14-6 PR LT			

*1 loaded 500 kg (1,102.3 lb)

*2 loaded 300 kg (661.4 lb)

GENERAL INFORMATION

J15 ENGINE				L16 ENGINE		J13 ENGINE		J15 ENGINE		
NS21U NLS21	NLS21T	UNLS21	VN521U VNL521	PL521TU	PL521TN	G521U LG521	LG521T	GN521U GNLS21	GNLS21T	
4,325 (170.3)		4,345 (171.1)		4,290 (168.9)		4,715 (185.6)				
1,575 (62.0)		1,570 (61.8)		1,595 (62.8)		1,575 (62.0)				
1,545 (60.8)		1,530 (60.2)	1,525 (60.0)	1,545 (60.8)		1,545 (60.8)				
2,530 (99.6)		2,530 (99.6)		2,530 (99.6)		2,770 (109.1)				
1,850 (72.8)		830 (32.7)	*1 1,650 (65.0)	*2 1,040 (40.9)	1,850 (72.8)		2,240 (88.2)			
1,430 (56.3)		1,320 (52.0)	*1 1,245 (49.0)	*2 1,240 (48.8)	1,430 (56.3)		1,430 (56.3)			
400 (15.7)		420 (16.5)	900 (35.4)		400 (15.7)		400 (15.7)			
1,250 (49.2)		1,250 (49.2)		1,250 (49.2)		1,250 (49.2)				
1,267 (49.9)		1,267 (49.9)		1,267 (49.9)		1,267 (49.9)				
200 (7.87)		187 (7.36)		200 (7.87)		200 (7.87)				
960 (2,116.4)		1,035 (2,281.8)	1,055 (2,325.9)		965 (2,127.4)		1,010 (2,226.6)			
1,000 (2,204.6)		400 (881.8)	500 (1,102.3)	300 (661.4)	454 (1,000)		1,000 (2,204.6)			
135 (84.4)		140 (87.5)		140 (87.5)		125 (78.1)		135 (84.4)		
0.296	0.253	0.348	*1 0.368	*2 0.366	0.351		0.301	0.215	0.289	0.247
5.2 (17.1)		5.2 (17.1)		5.2 (17.1)		5.6 (18.4)				
2		5	*1 2	*2 5	2		2			
J15		J15		L16		J13		J15		
12 - 40		12 - 40		12 - 40	12 - 60	12 - 40				
Dry single disc, Diaphragm spring		Dry single disc, Diaphragm spgng		Dry single disc, Diaphragm spring		Dry single disc, Diaphragm spring				
R4W63	F4W63	R4W63		F4W63		R4W63	F4W63	R4W63	F4W63	
Warner		Warner		Warner		Warner				
Hypoid		Hypoid		Hypoid		Hypoid				
Re circulating ball		Re circulating ball		Re circulating ball		Re circulating ball				
Uni - Servo		Uni - Servo		Uni - Servo		Uni - Servo				
Duo - Servo		Duo - Servo		Duo - Servo		Duo - Servo				
Mechanically operated on rear wheels		Mechanically operated on rear wheels		Mechanically operated on rear wheels		Mechanically operated on rear wheels				
Independent torsion bar		Independent torsion bar		Independent torsion bar		Independent torsion bar				
Semi - elliptic leaf spring		Semi - elliptic leaf spring		Semi - elliptic leaf spring		Semi - elliptic leaf spring				
6.00-14-6 PR LT		5.50-14-6 PR LT		6.00-14-6 PR LT		6.00-14-6 PR LT				
6.00-14-8 PR LT		5.50-14-6 PR LT		6.00-14-6 PR LT		6.00-14-8 PR LT				

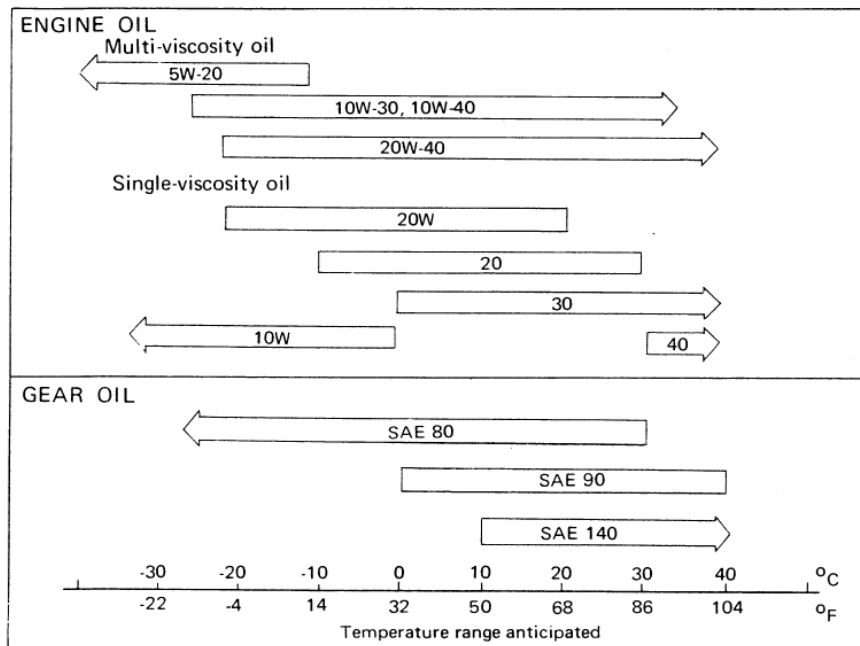
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FINAL, TRANSMISSION AND SPEEDOMETER RATIO

Item \ Model		LS21T LG521T	NL521T GNL521T	PL521TU PL521TN	N521U NL521 GN521U GNL521	UNL521 VN521U UNL521	521U L521 G521U LG521	U521 UL521 V521U VL521	
Final gear ratio		4.875	4.625	4.375	4.625	4.375	4.875	4.625	
Transmission	Type	F4W63			R4W63		R4W63		
	Control system	Floor shift			Column shift		Column shift		
	Gear ratio	1st	3.657			4.243		5.000	
		2nd	2.177			2.558		3.014	
		3rd	1.419			1.589		1.685	
		4th	1.000			1.000		1.000	
Reverse		3.638			4.367		5.146		
Speedometer gear ratio		19/5	18/5	17/5	18/5	17/5	19/5	18/5	

RECOMMENDED LUBRICANTS AND PERIODICAL MAINTENANCE

RECOMMENDED SAE VISCOSITY NUMBER



GENERAL INFORMATION

RECOMMENDED LUBRICANTS

MANUFACTURE	TEXACO	CHEVRON	CALTEX	CASTROL	BP	ESSO (ENCO)	MOBILE	SHELL
ENGINE OIL Gasoline	Multi-grade MIL-L-2104B API MS	RPM Supreme Motor Oil 10W-30 20W-40	Custom Five Star Motor Oil 10W-30 20W-40	Castrolite 10W-30 Castrol XL20W-40 Castrol GTX20W-50*	BP Super V viscostatic 5W-20 10W-30 20W-50*	Esso (Enco) Uniflo 5W-20 10W-30 20W-40* Esso (Enco) Extra Motor Oil 10W-30 20W-40	Mobile Oil Special 10W-30 Mobile Oil Super 10W-40*	Shell X 100 10W-30 20W-40
	Regular MIL-L-2104B API MS	RPM Special Motor Oil 10W 20W-20 30 40	Five Star Motor Oil 10W 20W-20 30 40	Castrol HD 5W 10W 20W-20 30 40 50	BP Energel HD 10W 20W 30 40 50	ESSO (Enco) Motor Oil 10W 20W-20 30 40 50	Mobile Oil 10W 20W-20 30 40 50	Shell X 100 10W 20W 30 40 50
GEAR OIL T/M Gear	MIL-L2105 API GL-4	RPM Multi-Service Gear Lubricant 80 90 140	Universal Thuban 80 90	Castrol Hypoey 80 90	BP Gear Oil 80EP 90EP 140EP	Esso (Enco) Gear Oil GP 80 90 140	Mobile Lube GX or EP 80 80 90 90 140EP	Shell Spirax 80EP 90EP 140EP
	MIL-L-2105B API GL-5	RPM Universal Gear Lubricant 80 90 140	Multipurpose Thuban EP 80 90 140	Castrol Hypoey B 80 90	BP Hypogear Oil 80EP 90EP 140EP	Esso (Enco) Gear Oil GX 80 90 140	Mobile Lube HD 80 90 140	Shell Spirax HD 80 90 140
BRAKE FLUID 70R3	Multi-purpose Grease MIL-G-2108, MIL-G-10924	RPM Multi-motive Grease*	Marfak Multi-purpose* Marfak All Purpose*	Castrol LM*	BP Energearse L2*	Esso (Enco) Multi-purpose grease H*	Mobile grease MP*	Shell Retinax A
	Brake & Clutch 70R3	Atlas Extra HD Brake Fluid 400	Brake Fluid HD	Castrol Giring Brake & Clutch Fluid Crimson	BP Brake Fluid	Esso (Enco) Hydraulic Brake Fluid HD400	Mobile Super HD Brake Fluid	Shell Donax B
ANTI-FREEZE COOLANT	Anti-Freeze Coolant*	Atlas Perma Guard* Anti-freeze and Coolant	Anti-freeze Coolant	Castrol Anti-freeze	BP Anti-frost	Atlas Perma Guard*	Mobile Freezone*	Shellzone

* In case the above brand oils are not available, it is permissible to use oils marked *

CHASSIS

MAINTENANCE CHART

All models except PL521TU & PL521TN

LUBRICATING POINTS	MAINTENANCE INTERVAL													
	1	3	6	9	12	15	18	21	24	27	30	33	36	72
Number of thousand of kilometers		39	42	45	48	51	54	57	60	63	66	69	72	
Number of thousand of miles	0.6	2	4	6	8	10	12	14	16	18	20	22	24	48
Change engine oil	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Change or check transmission & differential gear oil level, top up if necessary	R	X	X	X	X	X	X	X	X	X	X	X	R	
Refill brake fluid reservoir														X
Change cooling water				X			X			X				X
Grease distributor shaft & cam heel				X			X			X				X
Lubricate accelerator linkage				X			X			X				X
Lubricate foot operated pedal bushings				X			X			X				X
Grease hand brake linkage				X			X			X				X
Check steering gear box oil level, top up if necessary				X			X			X				X
Grease steering linkage ball joints							X			X				X
Grease transmission control linkage				X			X			X				X
Grease all nipples of suspension parts except ball joints		X	X	X	X	X	X	X	X	X	X	X	X	X
Repack wheel bearing grease							X							X
Grease propeller shaft joint														X
Grease propeller shaft spline		X	X	X	X	X	X	X	X	X	X	X	X	X

R; Replacement

GENERAL INFORMATION

All models except PL521TU & PL521TN

ENGINE SERVICE POINTS	MAINTENANCE INTERVAL													
	1	3	6	9	12	15	18	21	24	27	30	33	36	
		39 75	42 78	45 81	48 84	51 87	54 90	57	60	63	66	69	72	
Number of thousand of kilometers														
Number of thousand of miles	0.6	2	4	6	8	10	12	14	16	18	20	22	24	
Replace air cleaner element (Viscous type)													X	
Check or replace spark plugs				X			R			X			R	
Check or replace distributor breaker points		X	X	X	X	X	X	X	X	X	X	X	X	
Replace oil filter (Cartridge type)		X		X			X			X			X	
Replace cartridge type fuel strainer													X	
Retighten cylinder head bolts and manifold nuts	X													
Adjust valve clearance	X			X						X			X	
Check and adjust ignition timing	X			X			X			X			X	
Check fan belt tension	X			X			X			X			X	
Adjust engine idling		X		X			X			X			X	
Check fuel line (Hoses, pipings, connections, etc.) for leaks	X	X	X	X	X	X	X	X	X	X	X	X	X	
Check engine for oil and water leaks	X			X			X			X			X	
Check battery specific gravity	X						X						X	

R: Replacement

CHASSIS

All models except PL521TU & PL521TN

CHASSIS & BODY SERVICE POINTS	MAINTENANCE INTERVAL													
	1	3	6	9	12	15	18	21	24	27	30	33	36	
		39	42	45	48	51	54	57	60	63	66	69	72	
Number of thousand of kilometers	0.6	2	4	6	8	10	12	14	16	18	20	22	24	
Number of thousand of miles		26	28	30	32	34	36	38	40	42	44	46	48	
Check clutch & brake pedal free play	X			X			X			X			X	
Check clutch & brake system (cylinders, hoses, pipings, connections etc.) for leaks or defects	X	X	X	X	X	X	X	X	X	X	X	X	X	
Check foot & hand brake operation		X		X			X			X			X	
Check brake linings and liners for wear							X						X	
Overhaul brake cylinder assembly													X	
Check hydraulic shock absorber							X						X	
Check and retighten suspension parts	X			X			X			X			X	
Check and retighten steering gear box and linkage	X			X			X						X	
Adjust front wheel bearing pre-load							X						X	
Check wheel discs for damage				X			X			X			X	
Check wheel balance and rotate wheel position				X			X			X			X	
Check front wheel alignment and turning angle							X						X	
Retighten propeller shaft universal joint flange bolts	X						X						X	
Check head light aiming							X						X	
Retighten body mountings	X			X			X			X			X	
Check frame for cracks							X						X	
Road test	X			X			X			X			X	

GENERAL INFORMATION

For PL521TU & PL521TN

LUBRICATING POINTS Number of months or thousands of miles, whichever comes first	MAINTENANCE INTERVAL											
	0.6	3	6	9 33	12 36	15 39	18 42	21 45	24 48	27 52	30	60
Change engine oil	X	X	X	X	X	X	X	X	X	X	X	X
Change or check transmission & differential gear oil level, top if necessary	R	X	X	X	X	X	X	X	X	X	R	R
Refill brake fluid reservoir (drum brake)									X			
Change cooling water			X		X		X		X		X	X
Change cooling water (L.L.C.)									X			
Grease distributor shaft & cam heel			X		X		X		X		X	X
Lubricate accelerator linkage			X		X		X		X		X	X
Lubricate foot operated pedal bushings				X	X		X		X		X	X
Grease hand brake linkage									X			
Check steering gear box oil level, top up if necessary			X		X		X		X		X	X
Grease steering linkage ball joints				X	X		X		X		X	X
Grease all nipples of suspension parts			X	X	X		X		X		X	X
Repack wheel bearing grease				X					X			X
Grease propeller shaft joint												X

R: Replacement

CHASSIS

For PL521TU & PL521TN

ENGINE SERVICE POINTS	MAINTENANCE INTERVAL											
	0.6	3	6	9 33	12 36	15 39	18 42	21 45	24 48	27 51	30	60
Replace carburetor air cleaner element								X				
Check or replace spark plugs		X	X	X	R	X	X	X	R	X	X	R
Check or replace distributor breaker points		X	X	X	R	X	X	X	R	X	X	R
Replace oil filter		X	X		X		X		X		X	X
Replace cartridge type fuel strainer									X			
Retighten cylinder head bolts and manifold nuts	X											
Adjust valve clearance	X		X		X		X		X		X	X
Check and adjust ignition timing	X	X	X	X	X	X	X	X	X	X	X	X
Check high tension cables				X					X			X
Check fan belt tension	X		X		X		X		X		X	X
Adjust engine idling	X	X	X	X	X	X	X	X	X	X	X	X
Engine tune-up				X					X			X
Check fuel line (hoses, pipings, connections, etc.) for leaks	X	X	X	X	X	X	X	X	X	X	X	X
Check engine for oil and water leaks	X		X		X		X		X		X	X
Check battery specific gravity	X				X				X			X
Check air pump belt tension	X	X	X	X	X	X	X	X	X	X	X	X
Check hose & piping connections for loose (A.I.S. & P.C.V.)				X					X			X
Check air pump for operation									X			X
Check emission control valves for operation				X					X			X
Check for operation of electrical switches of emission control system				X					X			X

R; Replacement

GENERAL INFORMATION

For PL521TU & PL521TN

CHASSIS & BODY SERVICE POINTS	MAINTENANCE INTERVAL											
	0.6	3	6	9 33	12 36	15 39	18 42	21 45	24 48	27 51	30	60
Check clutch & brake pedal free play	X		X		X		X		X		X	
Check clutch & brake system (cylinders, hoses, pipings, connections, etc.) for leaks or defects	X	X	X	X	X	X	X	X	X	X	X	X
Check foot & hand brake operation		X	X		X		X		X		X	X
Check brake linings and liners (drums) for wear					X				X			X
Overhaul brake cylinders & caliper assembly											X	X
Check hydraulic shock absorber					X				X			X
Check and retighten suspension parts	X		X		X		X		X		X	X
Check and retighten steering box and linkage	X		X		X		X		X		X	X
Adjust front wheel bearing pre-load					X				X			X
Check wheel discs for damage			X		X		X		X		X	X
Check wheel balance and rotate wheel position			X		X		X		X		X	X
Check front wheel alignment and turning angle					X				X			X
Retighten propeller shaft universal joint flange bolts	X											X
Retighten body mountings	X											
Check head light aiming											X	X
Road test	X		X				X		X		X	X

CHASSIS

LUBRICANTS CAPACITY

		Liter	U.S.A measure gallon	Imp. measure gallon
Fuel tank		41	10.8	9.0
Coolant	J13 & J15 Engine	Without heater	6.0	1.58
		With heater	6.6	1.74
	L16 Engine	Without heater	6.4	1.69
		With heater	6.8	1.80
Oil pan	J13 & J15 Engine	3.0	0.79	0.66
	L16 Engine	4.0	1.06	0.88
Oil filter	J13 & J15 Engine	0.63	0.17	0.14
	L16 Engine	0.7	0.19	0.15
Transmission case		2.0	0.53	0.44
Steering gear box		0.33	0.087	0.073
Differential case		0.83	0.22	0.18

JACKING UP AND TOWING THE CAR

JACK UP

Screw jack

When jacking up the front side, apply screw jack to the front jacking point beneath lower link.

When jacking up the rear side, apply screw jack to the rear jacking point beneath rear spring.

In no event should screw jack be applied to other points.

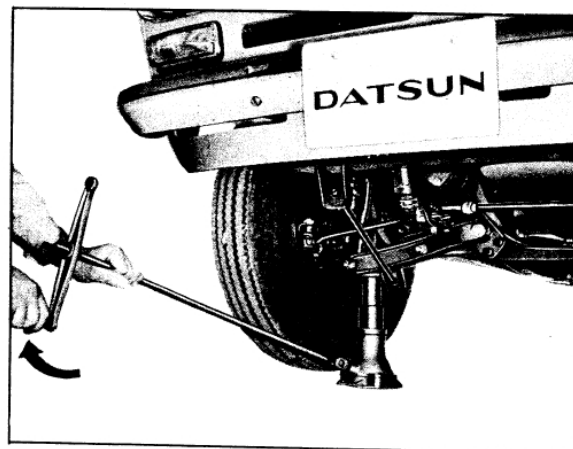


Fig. GI-12 Front jacking point

GENERAL INFORMATION

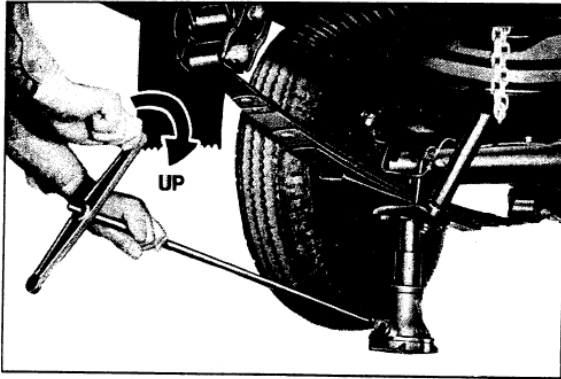


Fig. GI-13 Rear jacking point

Garage jack

Note: When carrying out operations with the car jacked up, be sure to support the car with stands.

When jacking up the front side, apply garage jack to front cross member or center portion of suspension member.

When jacking up the rear side, apply the jack to rear axle housing.

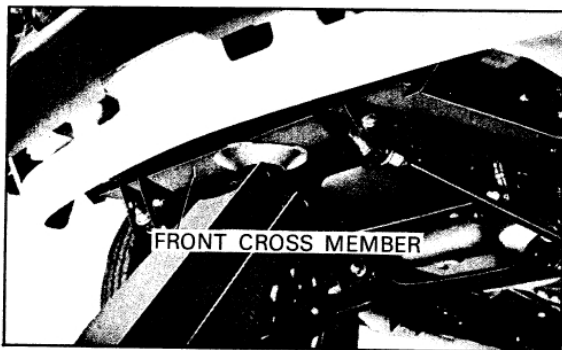


Fig. GI-14 Front jacking point

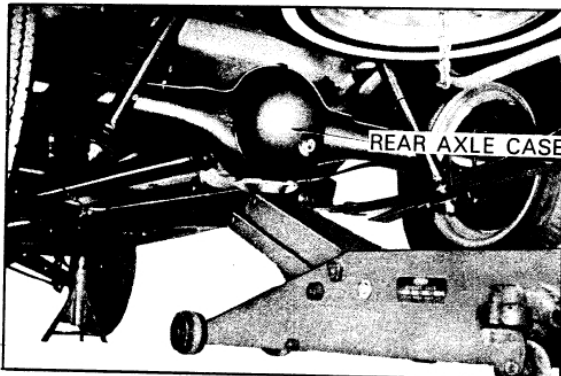


Fig. GI-15 Rear jacking point

Supportable point

The front supportable points are two places in frame side member.

The rear supportable points are in front of the leaf spring of frame side member.

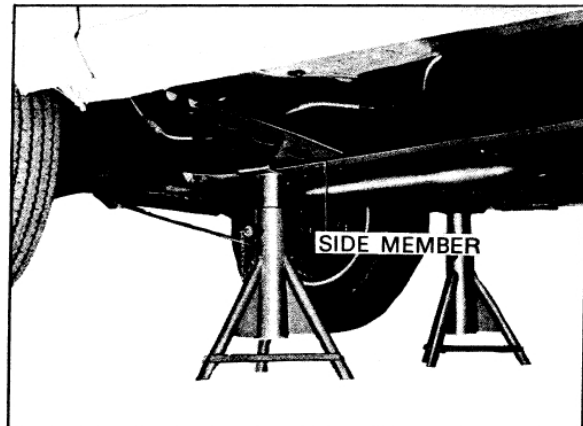


Fig. GI-16 Front supportable point

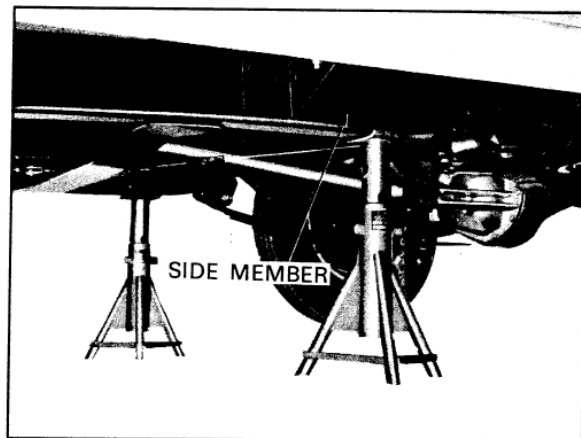


Fig. GI-17 Rear supportable point

TOWING

When towing forward, apply a rope to tension rod bracket.

When towing rearward, apply a rope to leaf spring shackle.

Note: When towing, be careful not to apply load rapidly.

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION ER

ENGINE REMOVAL
& INSTALLATION

ER

ENGINE REMOVAL AND
INSTALLATIONER- 1

ENGINE REMOVAL & INSTALLATION

ENGINE REMOVAL AND INSTALLATION

CONTENTS

Removal	ER- 2	FRONT ENGINE MOUNTING	ER- 3
Installation	ER- 3	REAR ENGINE MOUNTING	ER- 4

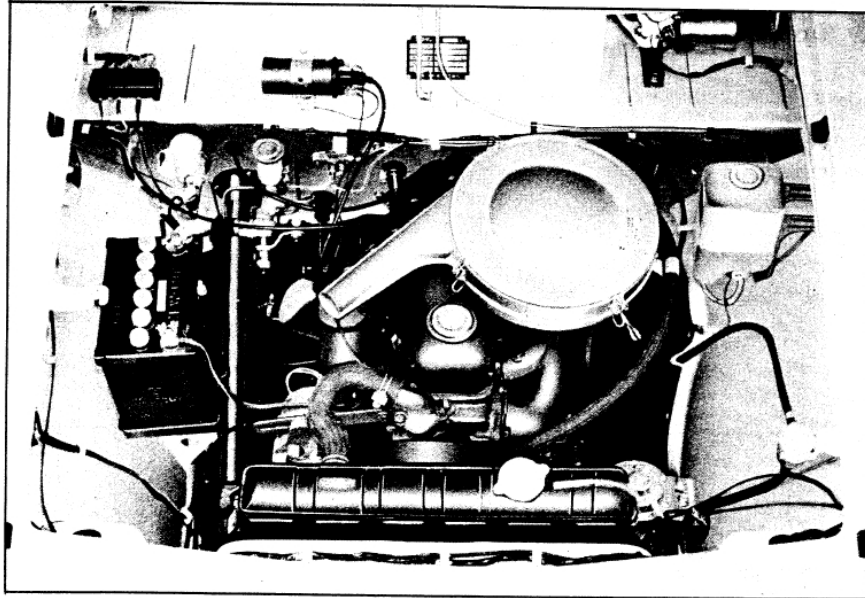


Fig. ER-1 Engine compartment (for the J13 and J15 engines)

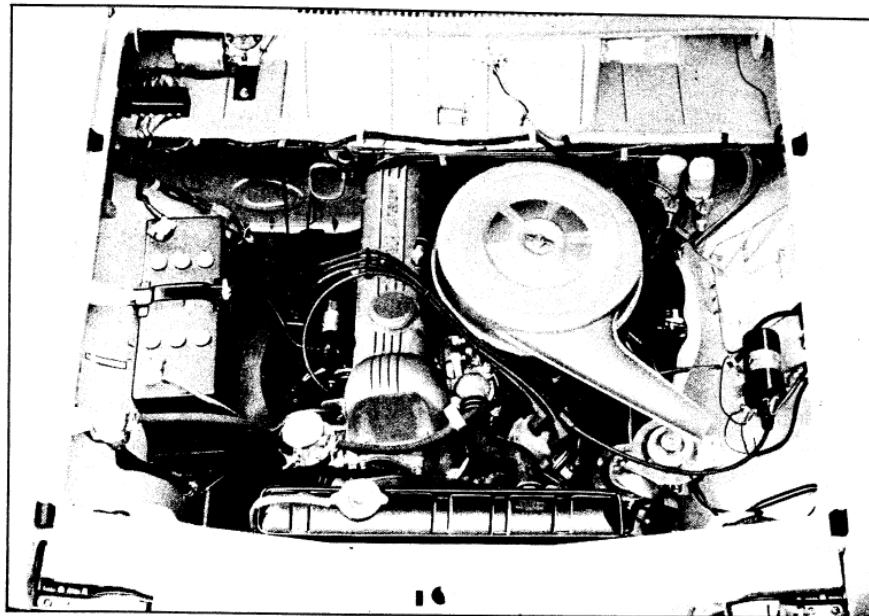


Fig. ER-2 Engine compartment (for the L16 engine)

CHASSIS

Removal

1. Scribe alignment marks on hood around hinges and remove hood from hinges.
2. Completely drain coolant, engine and transmission lubricant.
3. Remove blow-by hose from rocker cover and air cleaner.
4. Remove radiator grille.
5. Disconnect battery cable and remove battery off the car.
6. Take off both upper and lower radiator hoses. Then loosen fixing bolts of radiator, and take it out in sequence.
7. Disconnect fuel tube from fuel pump.
8. If equipped with heater, remove its hoses at engine attachment.
9. Disconnect accelerator control linkage and choke wire at the carburetor side.
10. Disconnect wirings for starter, alternator, ignition coil, oil pressure switch and thermal transmitter.
11. Remove clutch operating cylinder and its return spring.
12. Disconnect speedometer cable.
Disconnect flat-attaching plug connector from reverse lamp switch.
13. Disconnect shift rod and select rod, and then remove cross shaft assembly by removing cross shaft bracket from side member.
14. Disconnect front exhaust tube from exhaust manifold.
15. Disconnect propeller shaft by disconnecting it from companion flange of gear carrier.
16. Jack up transmission a little and then remove rear engine mounting cross member by removing fixing bolts of engine mounting insulator, mounting cross member and hand brake cable clamp.
17. Remove bolts securing front engine mounting insulators to cross member.
18. Hook with cable or chain to stringers (hooks) which are installed on engine cylinder head, one at the front and the other at the rear.



Fig. ER-3 Removing clutch operating cylinder

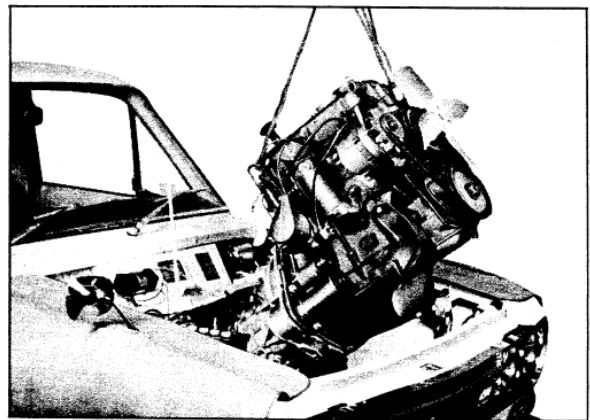


Fig. ER-4 Lifting engine (for the J13 and J15 engines)

ENGINE REMOVAL & INSTALLATION

At this lifting, lower jack placed under the transmission gradually (draw off jack at adequate stage) hoist up engine observing the tension of wire and adjusting the position of chain block so that engine tilts in order to make it cleared off body. At this stage, take care that accessories installed on the body side do not touch engine and transmission.

check disconnecting parts for positions before actually disconnecting.

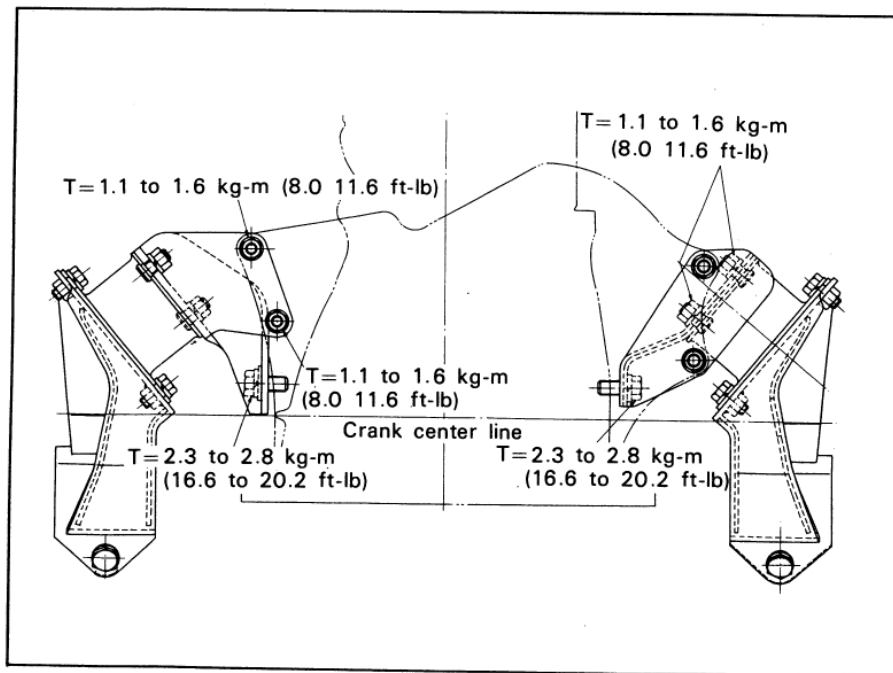
- Note:**
- a. Use fender protecting cover to protect body from damaging.
 - b. When hoisting or jacking up engine, carry out operation carefully so that component parts are not damaged.
 - c. It should be noted that long body series vehicles adopt flange to join propeller shaft and transmission and others adopt spline.
 - d. When disconnecting remote control linkages,

Installation

Reverse the removal procedure but do not connect any parts to the engine steadily until engine mounting insulators have been replaced since the power unit weight is supported by them.

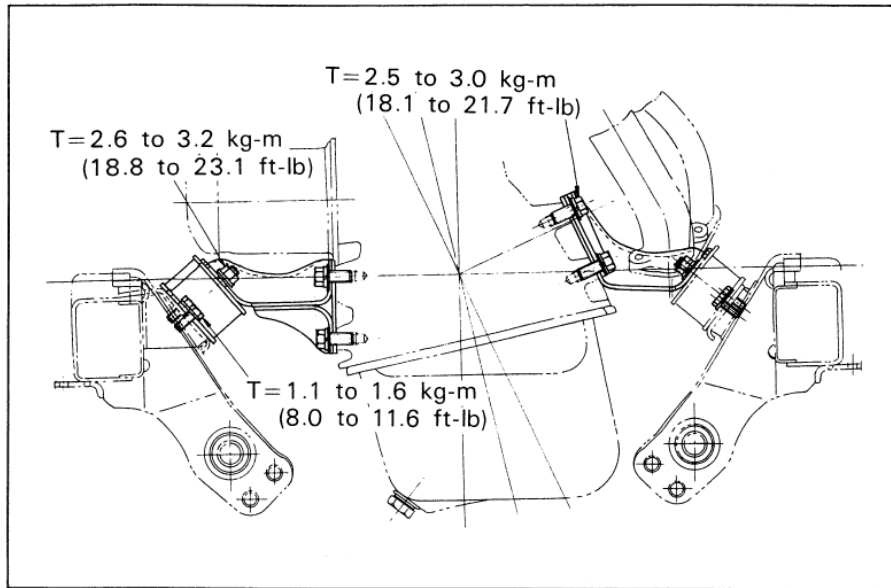
FRONT ENGINE MOUNTING

The same insulators are used for both left and right sides. It should be noted, however, that bracket and support for left side differ from those for right side. When dismantling or remounting engine, support and cross member installation bolts are removed or reinstalled.



*Fig. ER-5 Sectional view of front engine mounting
(for the J13 and J15 engines)*

CHASSIS

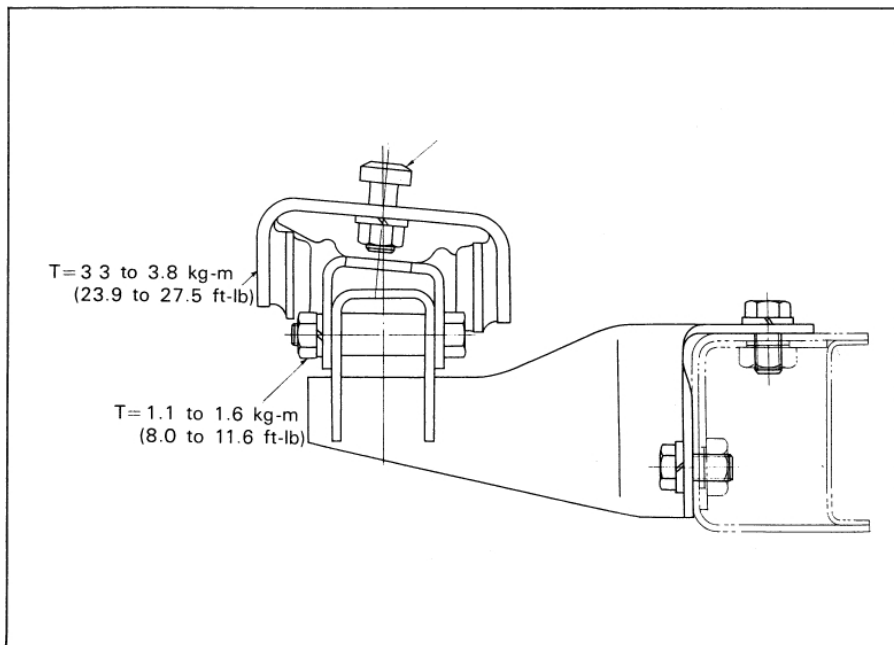


*Fig. ER-6 Sectional view of front engine mounting
(for the L16 engine)*

REAR ENGINE MOUNTING

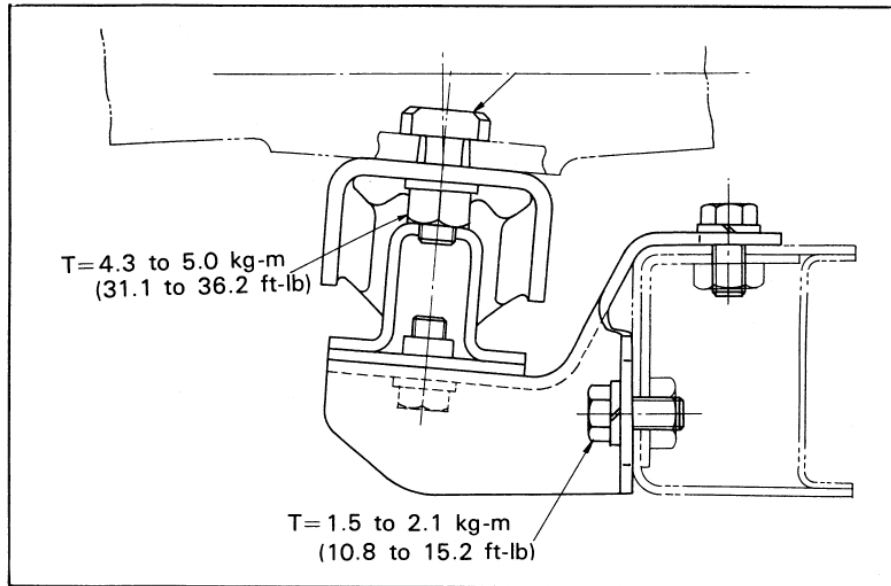
One type of rear engine mounting is used for engine with long extension. For engines with short extension,

two types of rear engine mounting (for the J series engines and L series engines) are used.

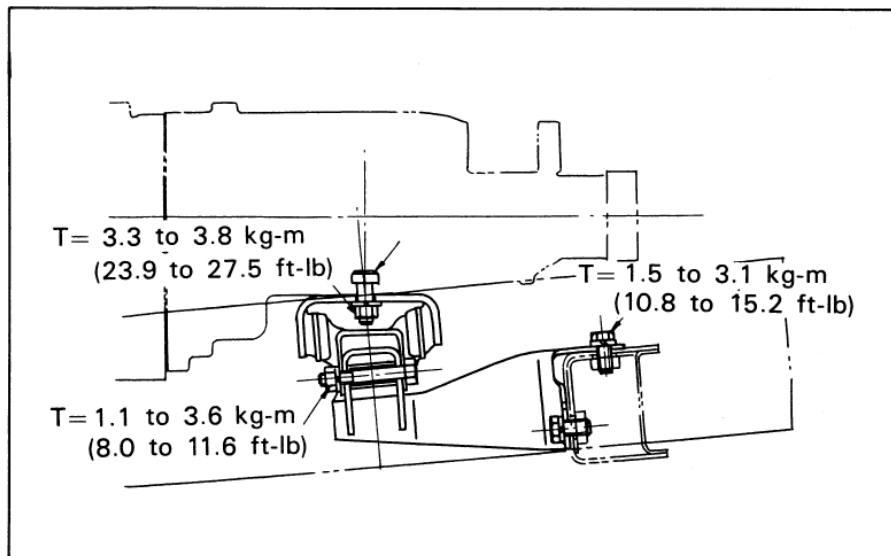


*Fig. ER-7 Sectional view of rear engine mounting
(for the GN521 model)*

ENGINE REMOVAL & INSTALLATION



*Fig. ER-8 Sectional view of rear engine mounting
(for the U.V.N521 models)*



*Fig. ER-9 Sectional view of rear engine mounting
(for the PL521 model)*

Note: Arrow marks means that engine removal carries out at this place.

CHASSIS

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION CL

CLUTCH

CL

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CLUTCH

CLUTCH

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REMOVAL	CL-2	Release bearing and sleeve	CL-4
DISASSEMBLY	CL-2	REASSEMBLY	CL-4
INSPECTION AND ADJUSTMENT	CL-2	Release mechanism	CL-4
Clutch assembly	CL-3	REINSTALLATION	CL-5

DESCRIPTION

The clutch is of a single dry disc diaphragm spring type. The major components are clutch cover, pressure plate, diaphragm spring, and wire rings. The clutch disc is provided with riveted plates on both surfaces and coil springs arranged in a link. The coil springs absorb shock while engaging the clutch, softening and smoothing clutch

engagement.

Release bearing, sleeve, and withdrawal lever are used to control clutch engagement and disengagement.

Each part of the clutch assembly is secured with rivets. Therefore, when a trouble is uncorrectable, replace the clutch assembly with a new assembly.

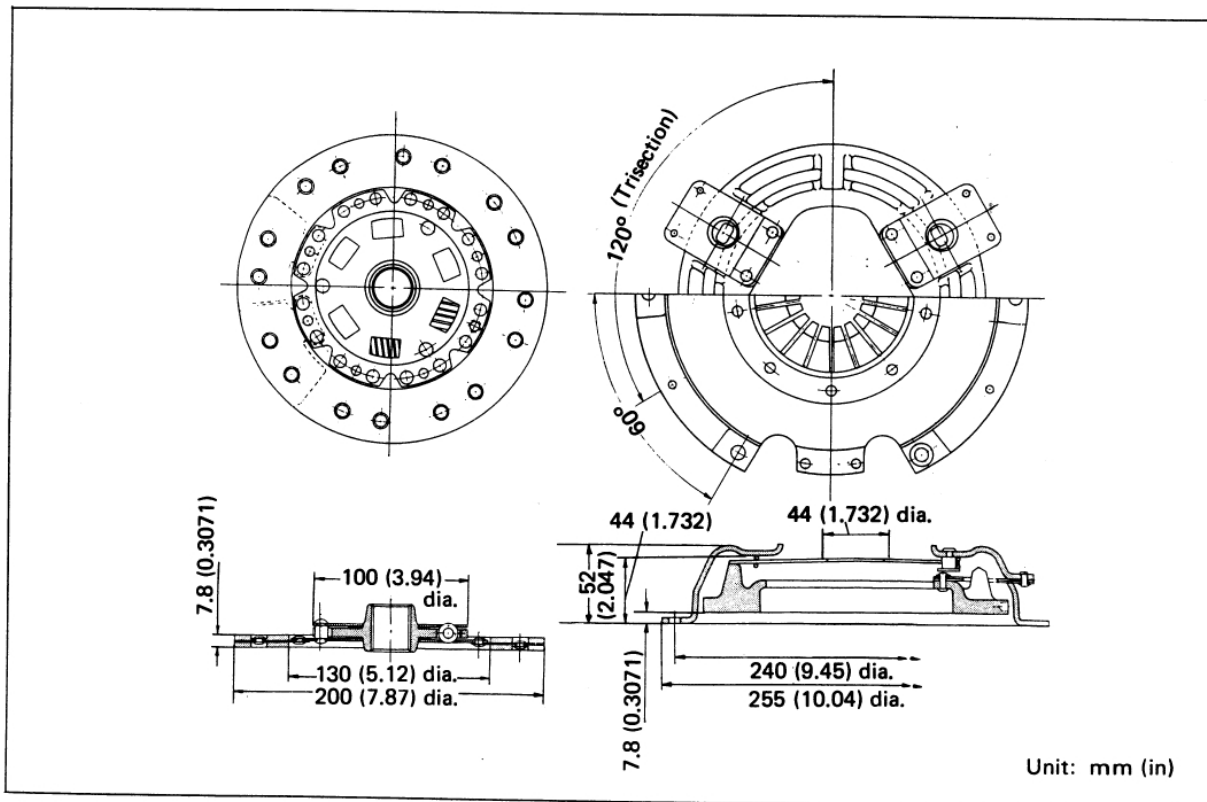


Fig. CL-1 Construction of clutch

CHASSIS

REMOVAL

The clutch assembly is dismantled primarily in the same manner as the engine assembly. Thus, when dismantling the clutch assembly, refer to the Section TM (Transmission) and other relative sections.

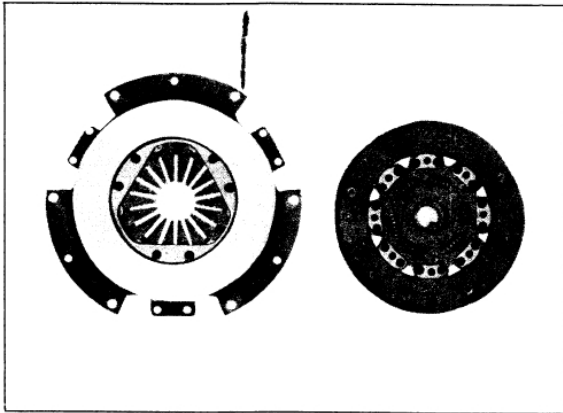


Fig. CL-2 Clutch assembly

DISASSEMBLY

1. When separating clutch assembly from flywheel, loosen and remove installation bolts diagonally and gradually.

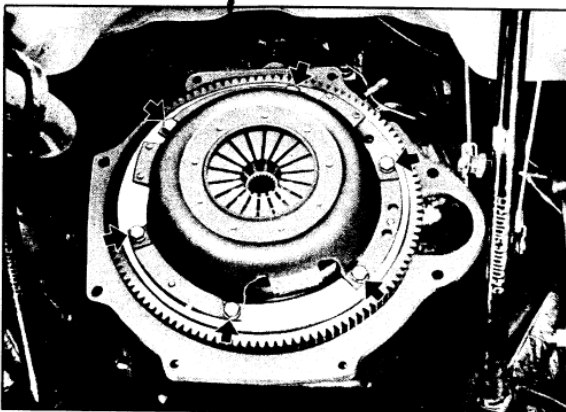


Fig. CL-3 Removing clutch assembly

Note: When separating clutch assembly from flywheel, support clutch cover sufficiently and loosen installation bolts gradually and carefully because diaphragm spring tension is always applied.

2. Removing release mechanism

- (1) Remove dust cover from clutch housing.
- (2) Remove return spring from bearing sleeve, and separate the withdrawal lever from bearing sleeve.
- (3) Remove release bearing and bearing sleeve from front cover, and remove withdrawal lever from withdrawal lever ball pin.

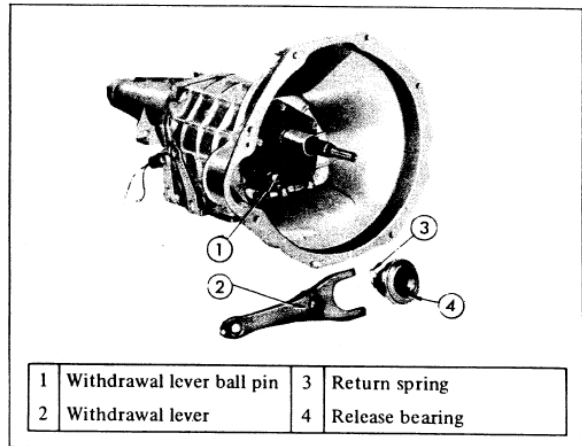


Fig. CL-4 Removing release bearing and withdrawal lever

3. Withdraw release bearing from bearing sleeve by the use of a bearing puller.

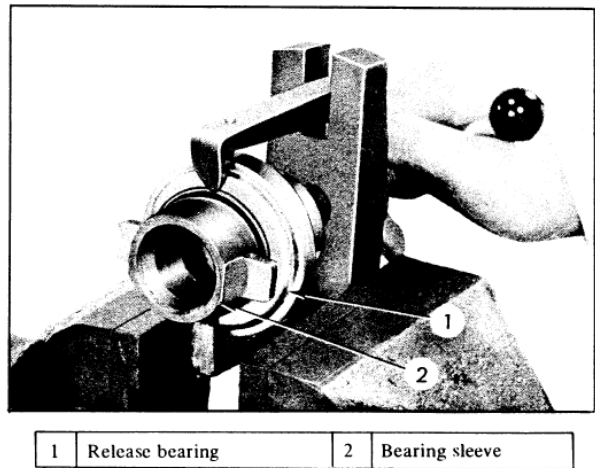


Fig. CL-5 Withdrawing release bearing

INSPECTION AND ADJUSTMENT

Thoroughly clean all disassembled parts, except for the disc assembly and release bearing, and check them for wear, crack, and other defective conditions.

CLUTCH

Clutch assembly

1. Check clutch cover, diaphragm spring, pressure plate, etc. for excessive wear, crack and damage. When noise occurs on clutch assembly, replace.
2. Measuring and adjusting height of diaphragm spring

(1) Line up distance piece (special tool ST20058001) on clutch assembly base plate (special tool ST20051000).

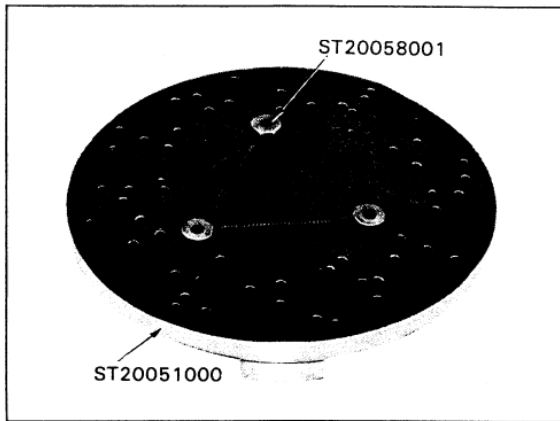


Fig. CL-6 Base plate and distance piece

(2) Place clutch assembly on distance piece, and set clutch assembly on base plate stationary. (Under this condition, distance piece is placed beneath pressure plate.)

(3) Measure the diaphragm spring height from the upper surface of base plate with vernier caliper depth gauge.

Height of diaphragm spring end: 43 to 45 mm (1.693 to 1.772 in) at diameter 44 mm (1.733 in).

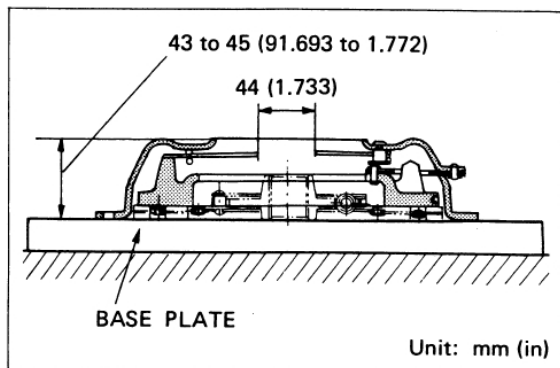


Fig. CL-7 Measuring height of diaphragm spring

3. Press the master gauge plate down exactly 7.8 mm (0.307 in) from clutch cover mounting face to measure pressure with clutch cover installed on flywheel. To do this, first gauge the height "H" from clutch cover mounting face to pressure plate contacting end with cover fully loosened. Then, subtract the value "H" from 7.8 mm (0.307 in). The result indicates the distance by which pressure plate is pressed against flywheel when clutch cover is mounted. That is, the initial pressure of diaphragm spring is indicated by a gauge when pressure plate is depressed by that distance with a press to which the pressure gauge is attached. If the pressure is less than 360 kg (793.7 lb), replace clutch cover as an assembly.

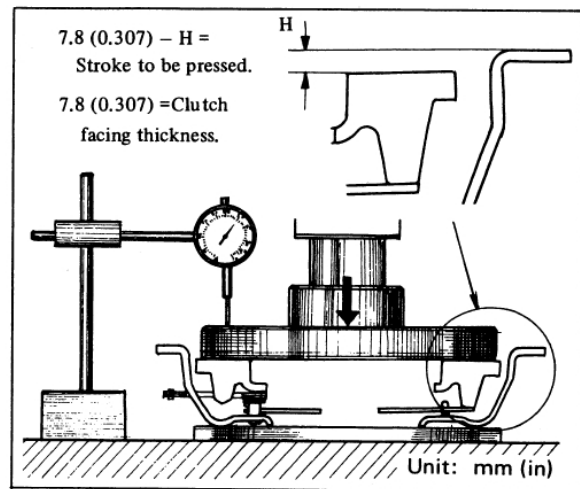


Fig. CL-8 Measuring pressure of diaphragm spring

4. Adjust height of diaphragm spring by the use of diaphragm spring adjusting wrench (special tool ST20500000), if required.

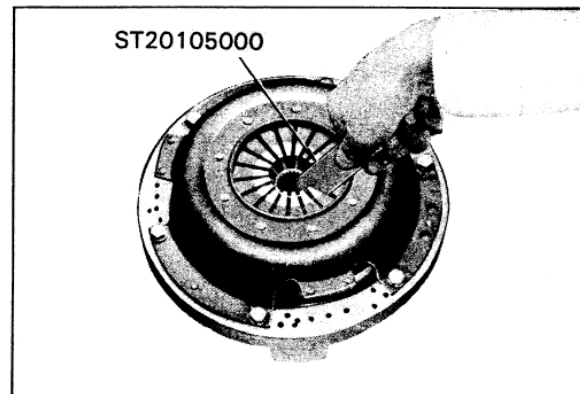


Fig. CL-9 Adjusting diaphragm spring height

CHASSIS

Disc assembly

1. If facing is soiled with grease or oil, clean off with kerosene and dress facing with a wire brush. Replace facing, if required.
2. Check disc for deflection, and repair or replace if the deflection at the outer circumference of facing exceeds the following value:

Upper limit of the deflection:

0.5 mm (0.0197 in) at
85 mm (3.346 in) radius

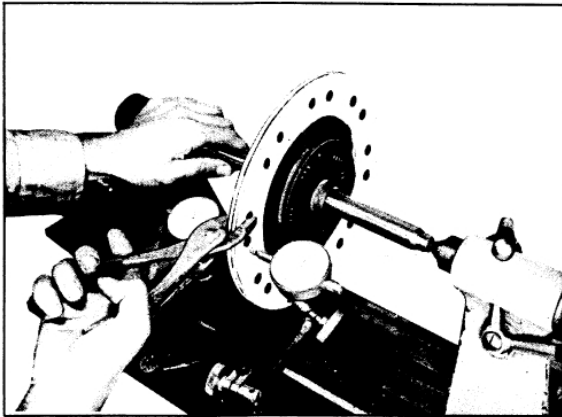


Fig. CL-10 Checking disc for deflection

3. Replace disc assembly if facing is worn to such an extent that the facing height above rivet is less than 0.3 mm (0.0118 in), facing is worn unevenly, or rivets are loose.

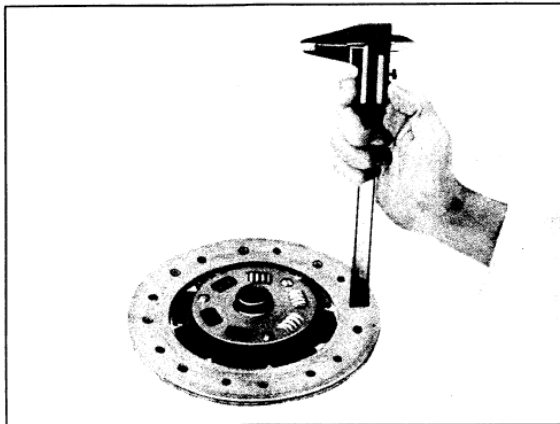


Fig. CL-11 Checking clutch facing for wear

Release bearing and sleeve

1. When withdrawal lever and bearing sleeve contact point is worn in step, replace sleeve.
2. When grease leaks from release bearing, or noise occurs on release bearing, replace release bearing.

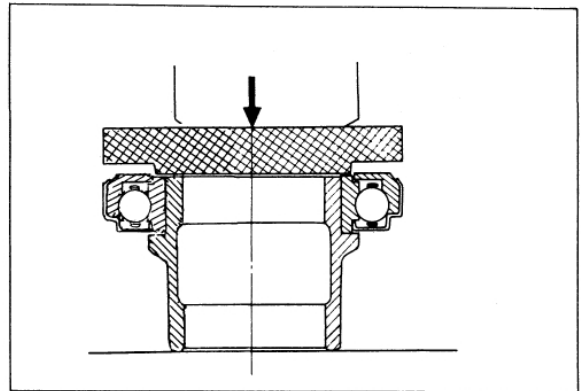


Fig. CL-12 Fitting release bearing

REASSEMBLY

Release mechanism

1. Tightly fit release bearing to the place on bearing sleeve as shown in Figure CL-12. When bearing is installed completely, turn bearing with a finger, and make sure that bearing operates smoothly.
2. Apply multi-purpose grease to the following places.
 - Bearing sleeve inside groove

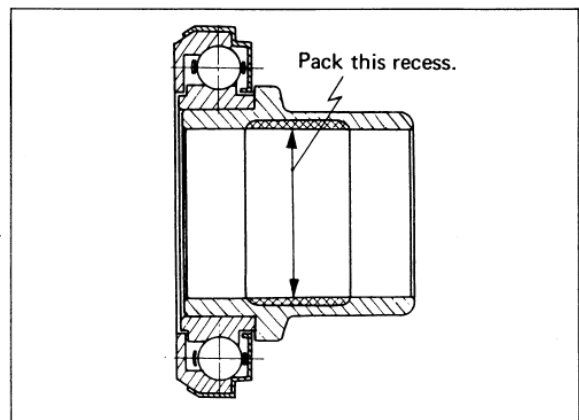


Fig. CL-13 Lubricated position on the bearing sleeve

CLUTCH

- Withdrawal lever and bearing sleeve contact point
- Withdrawal lever ball pin and withdrawal lever contact surface.

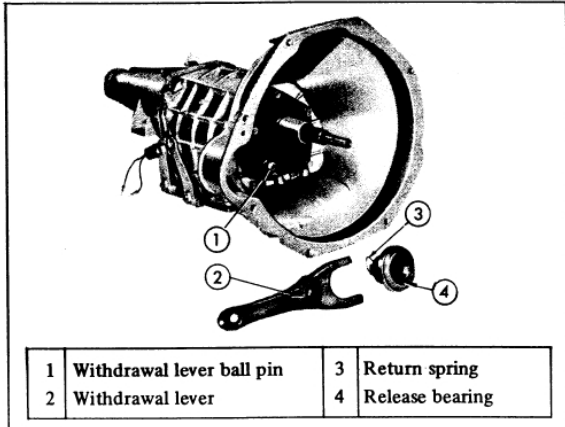


Fig. CL-14 Position on the withdrawal lever to which grease is applied.

3. When grease is applied to the necessary places, install withdrawal lever, release bearing, and bearing sleeve on clutch housing, connect them with return spring, and install dust cover on clutch housing.

Note: Apply grease compounded with molybdenum disulfide to lubricate main drive shaft splines.

REINSTALLATION

1. Clean clutch pilot bushing, and fill it with multi-purpose grease.
2. Install disc assembly and clutch assembly on flywheel by the use of a clutch aligning bar (special tool ST20630000).

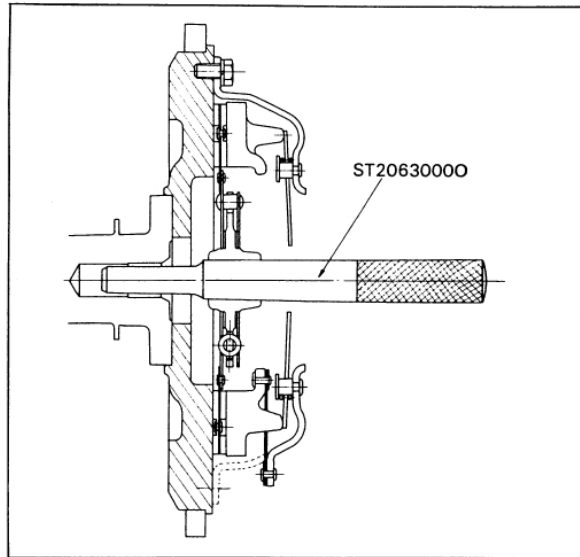


Fig. CL-15 Installing disc and clutch assembly

CLUTCH CONTROL

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Inspection	CL-8	BLEEDING CLUTCH SYSTEM	CL-9

DESCRIPTION

The 521 series vehicles adopt hydraulic type clutch control system.

The hydraulic type clutch control system consists of a

pendent clutch pedal, master cylinder, operating cylinder and withdrawal lever. The withdrawal lever is of an inner fulcrum type.

CHASSIS

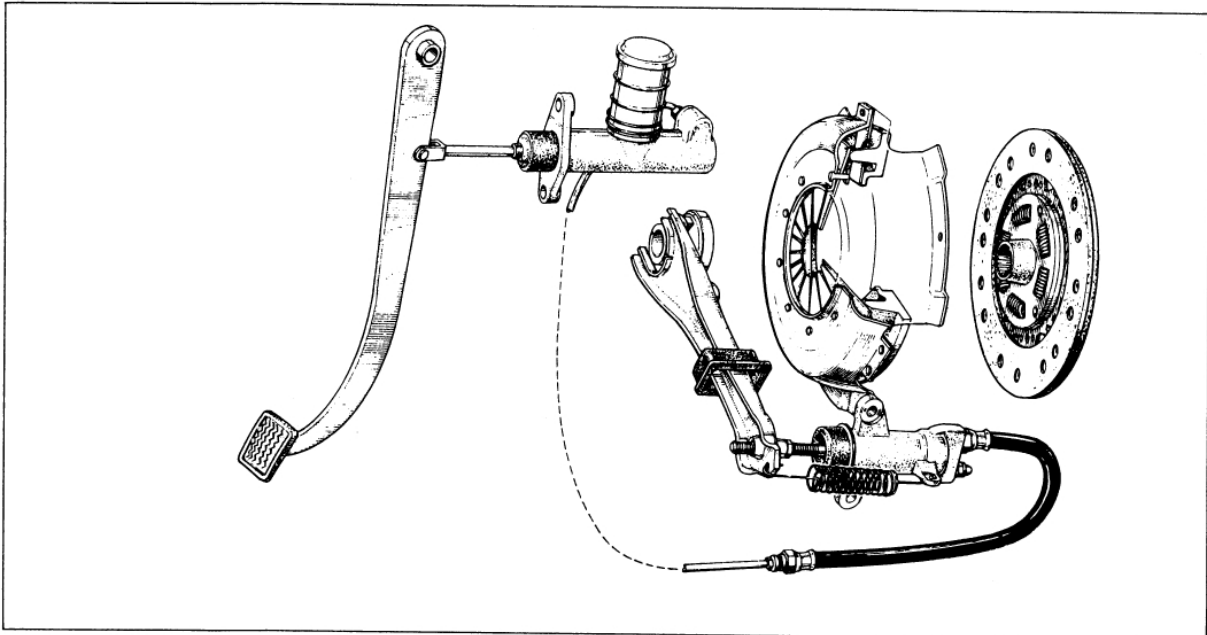


Fig. CL-16 Clutch control

CLUTCH PEDAL

Removal

1. Remove return spring.
2. Loosen lock nut of master cylinder push rod and disconnect push rod end.
3. Remove lock nut and washer of pedal shaft and remove pedal lever.

Inspection

Thoroughly clean all disassembled parts (indicated below) and carefully check them for wear, damage and other abnormal conditions. Repair or replace them with new ones, if required.

1. Pedal head rubber
2. Return spring
3. Pedal lever bush
4. Fulcrum pedal pin, etc.

Reinstallation

Reinstall clutch pedal in reverse sequence of removal.

Adjustment

1. Adjust pedal pad height to *138.5 mm [(5.45 in) for R.H. drive] without stopper. The adjustment is made by selecting and applying shim(s) having adequate thickness. Be sure to use shims having same thickness for both upper and lower.

* 153 mm [(6.02 in) for L.H. drive]

2. Next, adjust pedal stopper properly so that the pedal pad height is *135.5 mm [(5.33 in) for R.H. drive], and secure the position with lock nut.

* 150 mm [(5.91 in) for L.H. drive]

Note: a. Make sure that chassis grease has been applied to the (MG) marked portions (two places). Grease if required.

b. When adjust the pedal height by pedal stopper. Do not screw in it more than 3 mm (0.1181 in), because it may clog the return port of master cylinder.

CLUTCH

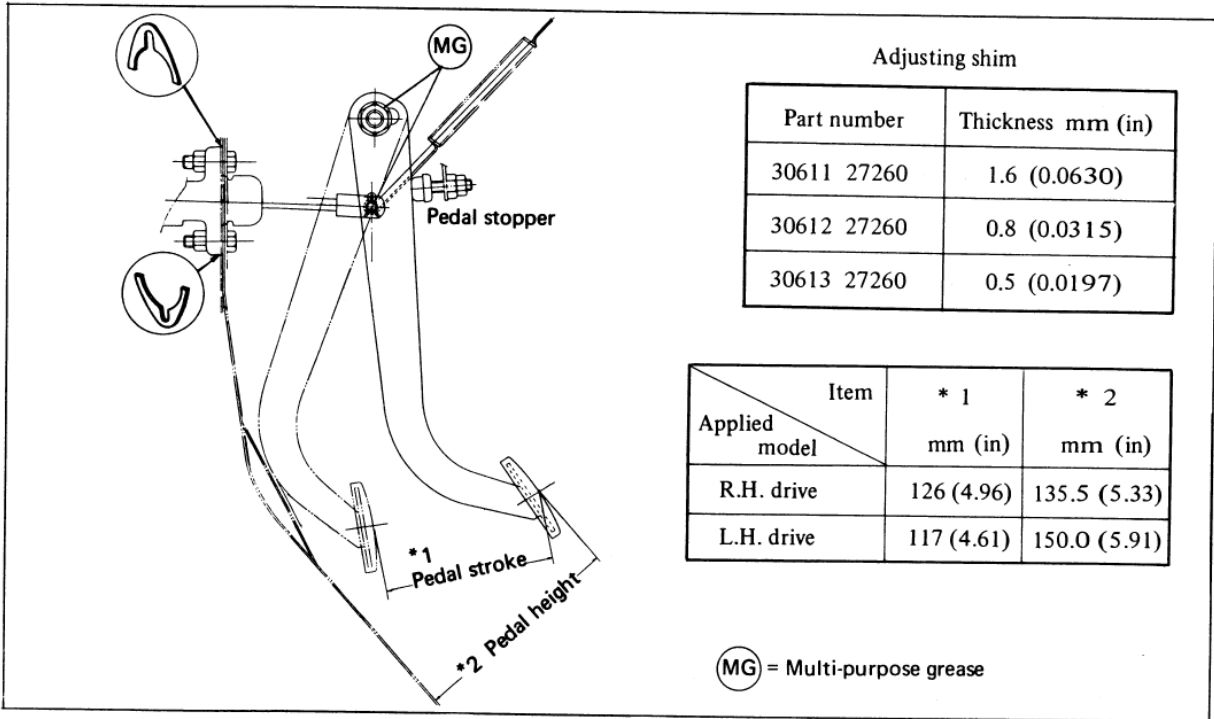


Fig. CL-17 Pedal height adjustment

CLUTCH MASTER CYLINDER

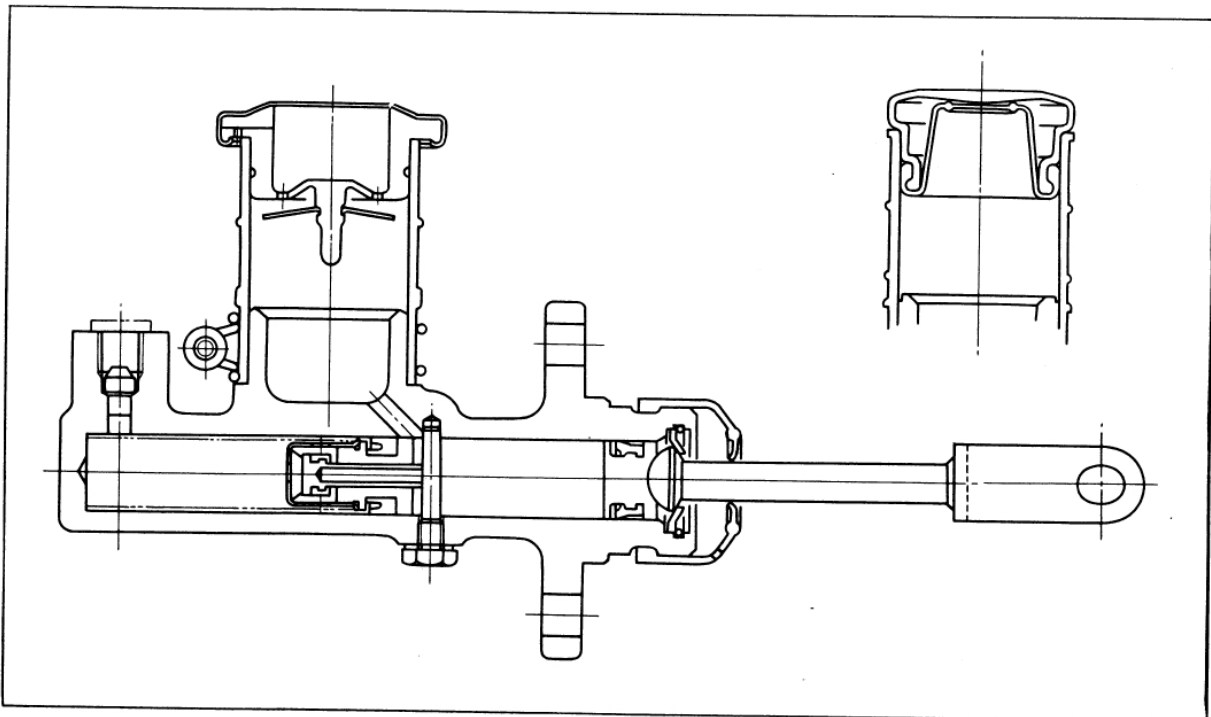


Fig. CL-18 Sectional view of clutch master cylinder

CHASSIS

Removal

1. Disconnect push rod from clutch pedal.
2. Disconnect clutch line from master cylinder, and drain fluid.
3. Remove securing bolts and remove master cylinder assembly from vehicle.

Disassembly

1. Remove filler cap and drain fluid.
2. Pull back dust cover and remove snap ring. Stopper, push rod, piston assembly, primary cup and return spring assembly can be removed.

Inspection

Thoroughly clean all parts with brake fluid before inspection.

1. Check cylinder and piston for uneven wear or damage. Replace if required.
2. Replace piston cup, primarily, whenever master cylinder is disassembled. It must also be replaced when wear or deformation due to fatigue or damage is found.
3. Check dust cover, oil reservoir, filler cap, and clutch line for damage or deformation. If abnormal condition is found, replace with new one.

Reassembly

Reassemble the master cylinder assembly in reverse sequence of disassembly noting the following matters.

1. The piston cup should be soaked in brake fluid before reassembly. Install piston cup carefully so that it is correctly faced.
2. Apply brake fluid sufficiently to cylinder and piston, and assemble them.

Reinstallation

Reinstall the master cylinder assembly in reverse sequence of removal, and adjust as follows:

1. Adjust pedal height by changing push rod length.
2. Bleed air out of the hydraulic system.

OPERATING CYLINDER

Removal

1. Remove return spring.
2. Disconnect clutch line from operating cylinder.
3. Disconnect push rod from withdrawal lever.
4. Release two bolts used to mount operating cylinder to clutch housing.

Disassembly

1. Remove dust cover.
2. Remove snap ring. All other parts can be disassembled.

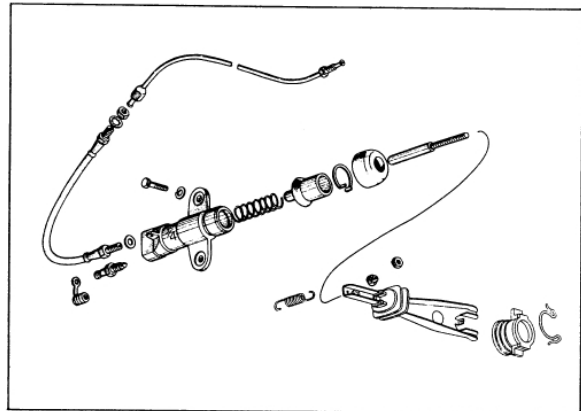


Fig. CL-19 Operating cylinder disassembled

Inspection

Check all parts (especially piston cup), and replace if worn or damaged.

CLUTCH

Reassembly

Reassemble operating cylinder in reverse sequence of disassembly noting the following matters.

1. Soak piston cup in fluid before reassembly. Install piston cup carefully so that it is faced correctly.
2. Apply brake fluid sufficiently to cylinder and piston, and assemble them.

Reinstallation

Reinstall the operating cylinder in reverse sequence of removal.

1. Bleed air out of the hydraulic system.
2. Adjust push rod so that withdrawal lever end play is 2.0 to 3.0 mm (0.0787 to 0.1181 in) in accordance with the following instructions.

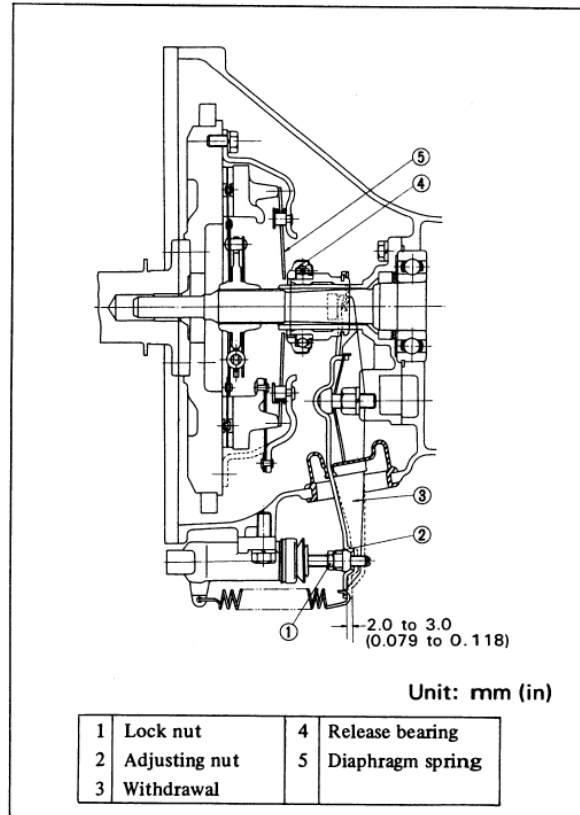


Fig. CL-20 Adjusting withdrawal lever play

ADJUSTING WITHDRAWAL LEVER

Correct adjustment of the clutch withdrawal lever is essential. Insufficient free travel between the release bearing and the diaphragm spring fingers causes the clutch to slip, while excessive free travel affects full disengagement of the clutch.

The clearance between the release bearing and the diaphragm spring fingers can be adjusted at the withdrawal lever end as follows:

1. Loosen lock nut, tighten adjusting nut and eliminate clearance between the top of withdrawal lever and release bearing.
2. Return adjusting nut 1 3/4 turns from that position and set adjusting nut stationarily with lock nut.

When adjusting nut is returned 1 3/4 turns, withdrawal lever end is returned to 2.0 to 3.0 mm (0.0787 to 0.1181 in), and clearance between release bearing and diaphragm spring fingers is 1.2 to 1.5 mm (0.0472 to 0.0591 in).

BLEEDING CLUTCH SYSTEM

1. Remove bleed screw dust cap from operating cylinder.
2. Open bleed screw approximately three-quarters of a turn. Attach a tube immersing the open end into a clean container which contains a small amount of brake fluid.
3. Fill master cylinder reservoir with recommended fluid.
4. Depress clutch pedal quickly while keeping it down retighten bleed screw, and allow it to return slowly. Repeat this pumping action until the fluid entering the container is free from air bubbles.
5. Screw up bleed screw on a down stroke of pedal, remove bleed tube and replace dust cap.

CHASSIS

SERVICE DATA AND SPECIFICATIONS

		All 521 series
Clutch cover type		Diaphragm (MF200K)
Clutch release lever		
Withdrawal lever end play	mm (in)	2.0 to 3.0 (0.0787 to 0.1181)
Diaphragm spring to flywheel height	mm (in)	43 to 45 (1.693 to 1.772)
Clutch disc		
Type		Single dry disc (200CBL)
Facing size		
Outer dia. × Inside dia. × Thickness	mm (in)	200 × 130 × 3.5 (7.87 × 5.12 × 0.1378)
Total friction area	cm ² (sq in)	362 (56.1)
Thickness of disc assembly		
Free	mm (in)	8.6 to 9.0 (0.3386 to 0.3543)
Compressed	mm (in)	7.6 to 8.0 (0.2992 to 0.3150)
Number of torsion spring		6
Allowable minimum depth of rivet head from facing surface		
mm (in)		0.3 (0.0118)
Allowable facing run-out	mm (in)	0.5 (0.0197) at radius 85 (3.346)
Allowable free play of spline	mm (in)	0.4 (0.0157)
Clutch pedal		
Pedal height when not depressed	mm (in)	135.5 (5.33) for RH drive 150.0 (5.91) for LH drive
Free travel of pedal head	mm (in)	9 to 14 (0.3543 to 0.5512)
Pressing strength at full stroke	kg (lb)	13.2 (29.1) for RH drive 14.1 (31.1) for LH drive
Master cylinder - Clutch		
Master cylinder diameter	mm (in)	15.87 (5/8)
Capacity of clutch reservoir	cc (Imp pts/US pts)	25 (44.0/52.8)
Operating cylinder – clutch		
Operating cylinder diameter	mm (in)	19.05 (0.750)
Tightening torque		
Clutch assembly securing bolt	kg-m (ft-lb)	1.5 to 2.2 (10.8 to 15.9)

CLUTCH

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
<p>Noises audible on pedal depression</p>	<p>Excessively worn, damaged or poorly lubricated release bearing</p> <p>Seized release bearing and diaphragm spring fingers</p> <p>Insufficient pedal free travel</p> <p>Weakened, unhooked or broken clutch pedal return and control springs</p> <p>Weakened broken or unhooked clutch withdrawal lever return spring</p> <p>Excessive play between clutch disc hub and drive shaft spline</p>	<p>Replace the bearing which, being cased, cannot be greased inside</p> <p>Replace the release bearing. Clean diaphragm spring fingers with metal brush and smooth out bearing contact faces with felt polishers</p> <p>Readjust pedal free travel correctly</p> <p>Set springs in position or replace them, if weakened or snapped</p> <p>Replace the spring or hook it up, as required</p> <p>Replace the clutch disc and ensure that clearance between hub of new clutch and drive shaft is within 0.50 mm (0.0197 in) endwise and 0.20 mm (0.0079 in) crosswise. When clearances exceed above limits, replace the drive shaft also</p>
<p>Noises audible on pedal release</p>	<p>Misalignment of clutch disc to flywheel causes slight movement of disc hub in respect of facings This noise is especially audible with engine idling or at low speed.</p> <p>Broken or weakened clutch disc cushion springs</p> <p>Insufficient pedal free travel</p> <p>Weakened, unhooked or broken clutch control and pedal return springs</p> <p>Weakened, broken or unhooked clutch withdrawal lever return spring</p> <p>Distorted or worn drive shaft</p> <p>Excessive play of release bearing on slip sleeve</p>	<p>Set level of clutch disc with clutch disc in place on drive shaft, set it under slight rotation and check for no run-out, using a scribe</p> <p>Replace the clutch disc</p> <p>Set pedal free travel correctly</p> <p>Check the springs for correct position, and replace them, if necessary</p> <p>Replace the spring or hook it up, as required</p> <p>Replace the drive shaft and clutch disc if necessary</p> <p>Replace the worn parts</p>

CHASSIS

Condition	Probable cause	Corrective action
Clutch drags	Insufficient push rod length	Adjust the push rod length correctly
	Excessive pedal free travel	Adjust free travel correctly
	Warped clutch disc	Set level of clutch disc, if possible Maximum plate run-out; 0.5 mm (0.0197 in)
	Roughened linings	Repolish linings with a metal brush or replace them, if necessary
	Improperly fitted, loose or broken lining	Replace linings. Lining rivets should be clenched with no protrusion, to avoid damaging pressure plate and flywheel
	Incorrect release bearing-to-diaphragm spring finger clearance	Adjust correctly
	Clutch disc hub forcing on drive shaft	Locate cause of trouble and remove it, if possible, otherwise replace the clutch disc
	Damaged drive shaft splines prevent the clutch disc from sliding	Replace the drive shaft; also the clutch disc, if required
	Oil or grease on linings	Locate the cause of oil or grease leakage and correct it as required Clean or replace linings
	Warped or damaged pressure plate or clutch cover	Replace defective parts
	Air pockets in the hydraulic system (not bled correctly)	Bleed out completely
	Dirt or foreign matter on sealing faces of master cylinder piston cup	Clean, replace piston cup, if damaged, and bleed the system
	Air pockets in master cylinder due to loose piston	Replace piston cup and bleed the system
	Fluid leakage from cylinder	Replace piston cup, if damaged; bleed the system
Low fluid level in reservoir	Top up with brake fluid and bleed the system, if necessary	
Clogged vent hole in reservoir cap promotes vacuum in master cylinder allowing air to infiltrate past the seal	Clean reservoir cap, unplug the vent hole and bleed the system	

CLUTCH

Condition	Probable cause	Corrective action
Abnormal lining wear	<p>Insufficient pedal free travel</p> <p>Driver steps unnecessarily on pedal; this causes lining wear and damage to release bearing</p> <p>Weakened or snapped pressure springs</p> <p>Incorrectly installed linings</p>	<p>Adjust clutch pedal free travel correctly</p> <p>Advise driver to discontinue wrong practice and step on clutch pedal only when necessary</p> <p>Check pressure springs for tension as specified, and replace springs, if they are un-serviceable</p> <p>Replace linings with new ones and install them correctly. Check clutch disc for center alignment</p>
Clutch drags	<p>Oil or grease on flywheel, pressure plate and linings</p> <p>Loose disc linings due to poor rivet tightness</p> <p>Clutch disc hub does not slide freely on drive shaft spline</p> <p>Warped or cracked pressure plate</p> <p>Misalignment</p> <p>Stiffened hydraulic control mechanism</p> <p>Worn out lining</p>	<p>Remove cause of leakage, clean flywheel and pressure plate thoroughly, and replace linings</p> <p>If linings are not worn, replace defective rivets. Otherwise, replace linings and clutch rivets securely</p> <p>Remove any foreign matter or dirt deposits from shaft splines. When trouble is still present, replace damaged parts</p> <p>Replace pressure plate</p> <p>Locate the defective point, and if possible, adjust alignment or replace distorted parts</p> <p>Check spring tension: If necessary, take down pedal and lubricate components</p> <p>Install new linings and make sure that the clutch disc, pressure plate and flywheel are not damaged</p>
Clutch slips	<p>Insufficient clutch pedal return travel, due to the control and pedal return springs being weak or misadjusted</p> <p>Weakened or broken diaphragm spring</p> <p>Oil or grease on linings</p>	<p>Locate cause of failure and replace defective springs</p> <p>Overhaul clutch and replace springs</p> <p>Remove cause of leakage and replace linings if cleaning is ineffective</p>

CHASSIS

Condition	Probable cause	Corrective action
	Worn or burned disc linings Overloaded master cylinder due to a restricted transfer port	Replace linings Overhaul the master cylinder, replace the piston cup if swollen or damaged, and clean the transfer port; bleed the system

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION TM

TRANSMISSION

TM

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TYPE F4W63 TRANSMISSION	TM-12
TRANSMISSION GEAR CONTROL - COLUMN	TM-15
SHIFT CONTROL SYSTEM	
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TRANSMISSION

TRANSMISSION

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DESCRIPTION

Datsun 521 series vehicles adopt type R4W63 (4-forward 1-reverse – column shift) transmission and F4W63 (4-forward 1-reverse – floor shift) transmission. Both the type R4W63 and type F4W63 transmission consist of transmission case, rear extension housing, and gear assembly. The transmission case and rear extension housing are made of aluminum alloy metal. The clutch

housing and transmission case are combined to a single unit. The transmission case is provided with a bottom cover. With this construction, maintenance service can be made easily.

This chapter mainly describes about the type R4W63 transmission.

SPECIFICATIONS

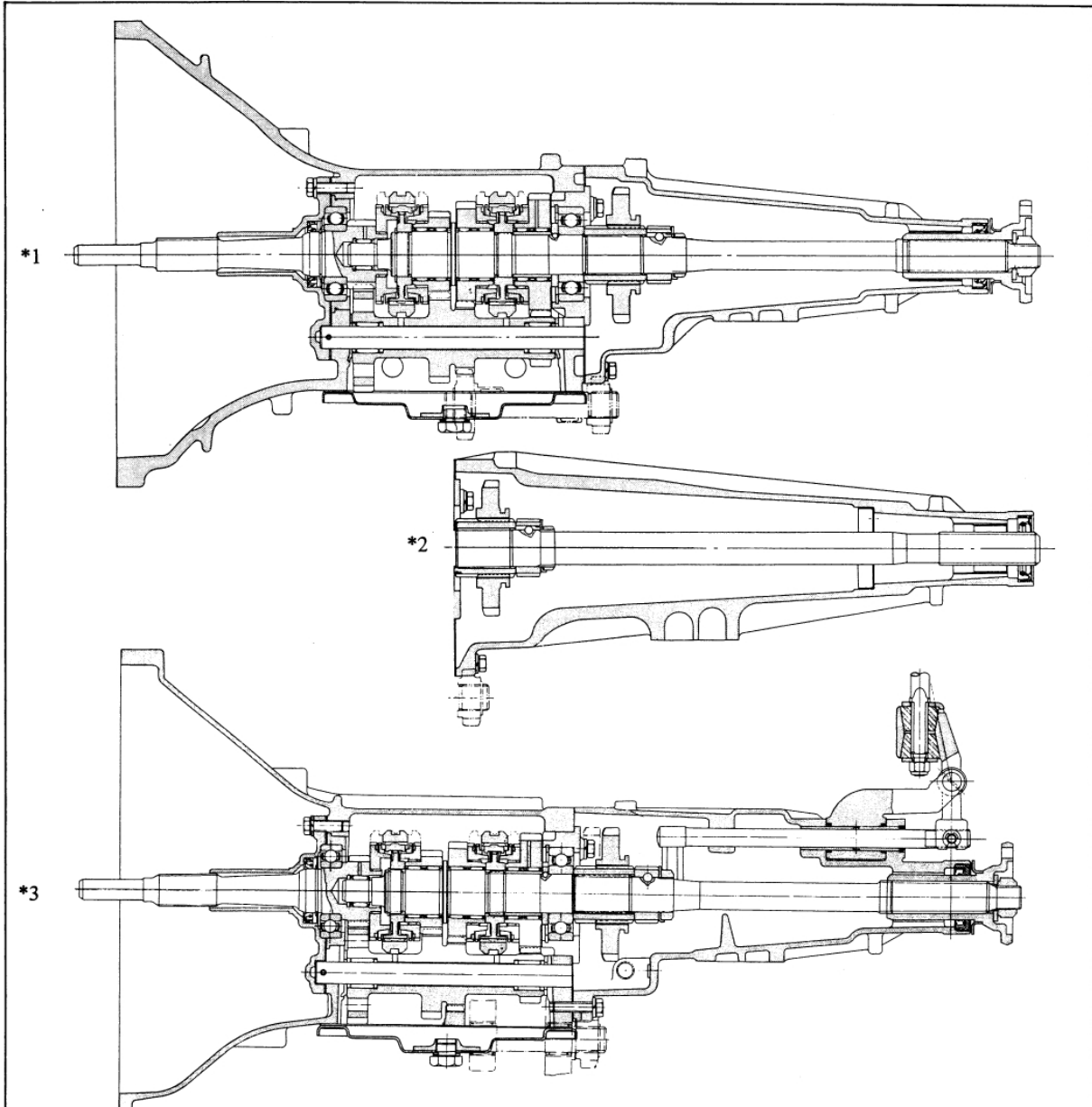
Item		Model									
		L521T LG521T	NL521T GNL521T	PL521TU PL521TN	N521U NL521	GN521U GNL521	UNL521 VN521U VNL521	521U L521	G521U LG521	U521U UL521 V521U VL521	
Final gear ratio		4.875	4.625	4.375	4.625		4.375	4.875		4.625	
Transmission	Type	F4W63			R4W63			R4W63			
	Control system	Floor shift			Column shift			Column shift			
	Gear ratio	1st	3.657			4.243			5.000		
		2nd	2.177			2.558			3.014		
		3rd	1.419			1.589			1.685		
		4th	1.000			1.000			1.000		
Reverse		3.638			4.367			5.146			
Speedometer gear ratio		19/5	18/5	17/5	18/5		17/5	19/5		18/5	
*Oil capacity		1.7 <i>ℓ</i>			2.0	1.7 <i>ℓ</i>	2.0 <i>ℓ</i>	2.0 <i>ℓ</i>	1.7 <i>ℓ</i>	2.0 <i>ℓ</i>	

Note: a. *: See Figure TM-1

b. 1.7 *ℓ* (3.6 US pts, 3.0 Imp pts)

2.0 *ℓ* (4.2 US pts, 3.5 Imp pts)

CHASSIS



Extension housing type	Applied model
*1 short	GN521U, GN521, G521U, LG521
*2 long	N521U, NL521, UNL521, VN521U, VNL521, 521U, L521, U521U, UL521, V521U, VL521
*3 short	L521T, LG521T, NL521T, GNL521T, PL521TU, PL521TN

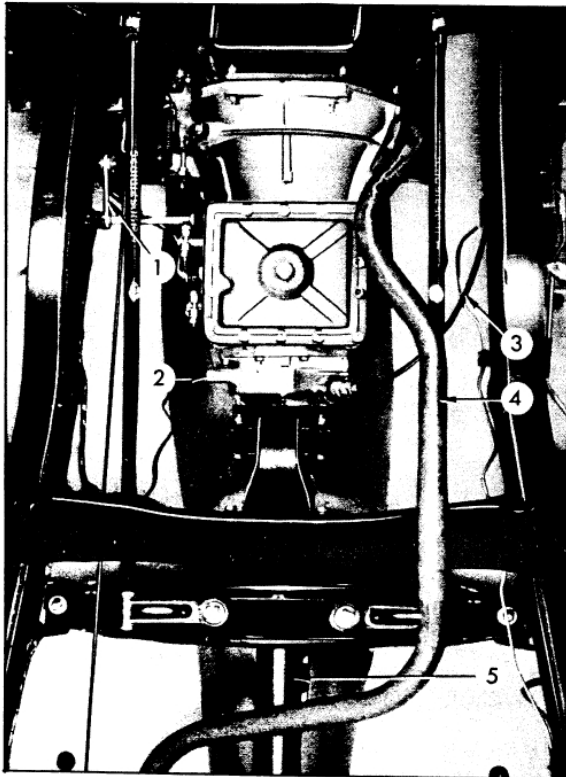
Fig. TM-1 R4W56 and F4W56 transmissions

TRANSMISSION

REMOVAL

For transmission dismounting, the following procedure applies. Refer to Section "ER" (Engine Removal) of this Manual.

1. Disconnect battery cable from terminal.
2. Remove starting motor and bolts used to attach clutch housing to engine.
3. Jack up vehicle and support it with four stands. Recommend a hydraulic hoist or open pit be utilized, if available.
4. Disconnect front exhaust tube from exhaust manifold.



1	Cross shaft	4	Exhaust manifold
2	Back-up lamp switch cable	5	Propeller shaft
3	Speedometer drive cable		

Fig. TM-2 Bottom view of vehicle

5. Remove four bolts from companion flange of gear carrier, and detach propeller shaft. Seal the end of rear extension housing to prevent oil leakage (except equipped with floor shift vehicle).

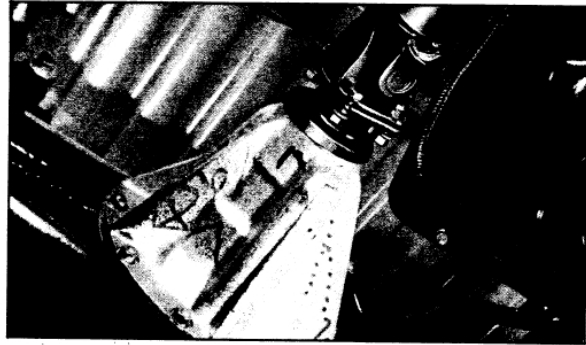
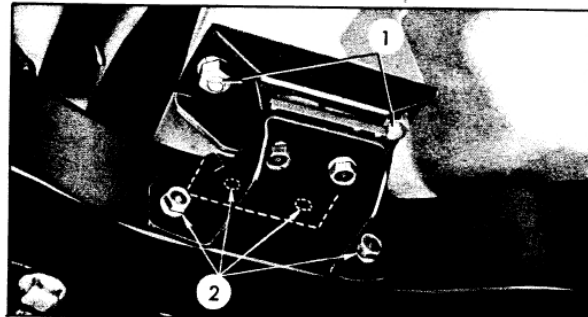


Fig. TM-3 Detaching propeller shaft

6. Disconnect speedometer drive cable and back-up lamp switch cable from transmission extension housing.
7. Remove cotter pin and disconnect shift rods from shift levers. Remove cross shaft assembly from transmission case.
8. Remove clutch operating cylinder from clutch housing.
9. Apply a jack beneath oil pan and support engine. Be careful not to apply jack to oil pan drain plug. When applying jack, apply a wooden block between oil pan and jack to protect oil pan from damaging.
10. Remove rear engine mount from transmission and cross member.



1	Rear extension mounting bolts	2	Rear engine mounting bolts
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Fig. TM-4 Removing rear engine mount

11. Pull out transmission to rear once, place rear portion of extension on cross member, and pull it down toward front.

Note: When dismounting transmission, be careful not to damage clutch diaphragm spring hub spline.

CHASSIS

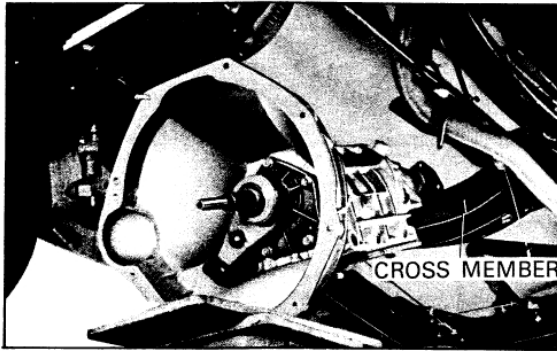
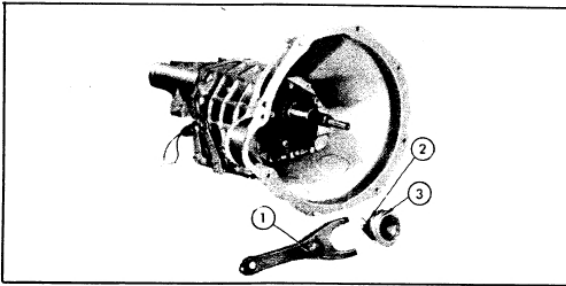


Fig. TM-5 Dismounting transmission

DISASSEMBLY

For transmission disassembly, the following procedure applies. The casings are made of aluminum alloy metal. Be careful not to damage it.

1. Drain gear oil from transmission.
2. Remove dust cover, release withdrawal lever return spring, and remove withdrawal lever and release bearing from clutch housing.



1	Withdrawal lever	2	Return spring	3	Release bearing
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Fig. TM-6 Removing release bearing and withdrawal lever

3. Remove five front cover securing bolts, and remove front cover.

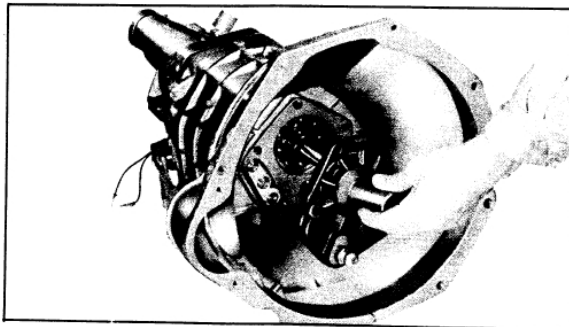


Fig. TM-7 Removing front cover

4. Remove 14 bottom cover securing bolts, and remove bottom cover from transmission.

5. Remove speedometer pinion, and remove rear extension.

Note: When rear extension cannot be removed easily, lightly tap it with a plastic or wooden mallet.

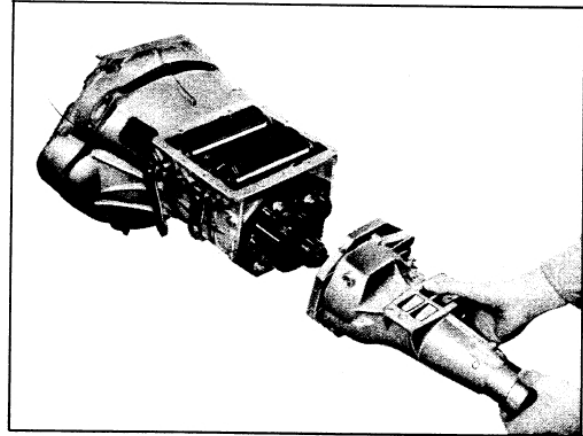


Fig. TM-8 Removing rear extension

6. Remove lock pins ① (used to fix cross shaft and select link), snap rings ② and thrust washers, and withdraw cross shaft together with outer lever. When withdrawing cross shaft, be careful not to damage oil seal lip with groove for snap ring.

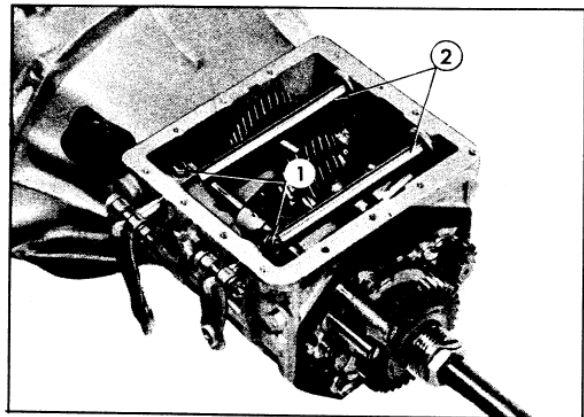


Fig. TM-9 Removing cross shaft

7. Double-intermesh counter gear and reverse idler gear, and loosen main shaft lock nut.

Note: Loosen interlock plug previously.

TRANSMISSION

8. Push out counter shaft from rear to front with a drift or other proper tool, and take out counter gear.

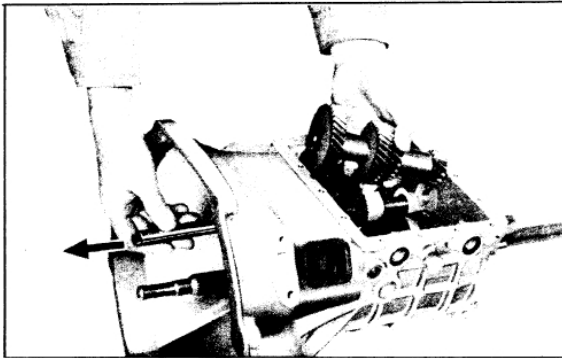
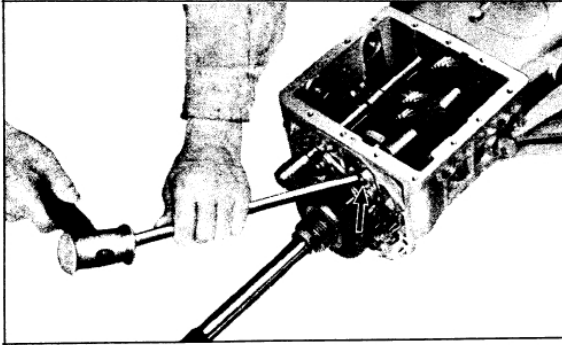


Fig. TM-10 Removing counter gear

9. Remove front and rear snap rings, and withdraw reverse idler gear and shaft.

10. Remove plug from interlock hole, and take out spring and ball.

Note: Be careful not to lose spring and check ball.

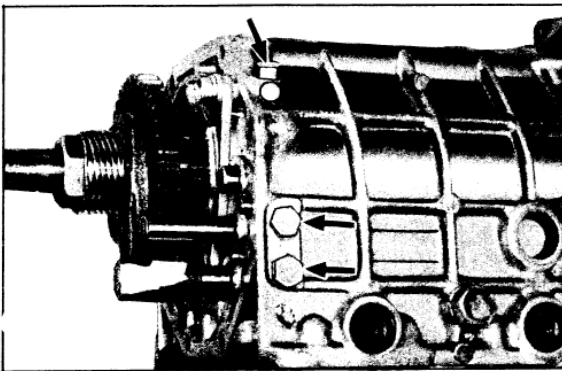


Fig. TM-11 Removing interlock hole plug

11. Drive out retaining pin (used to fix fork and rod) by

using a fork rod pin punch (special tool ST23510000). Removing fork, pull out rod.

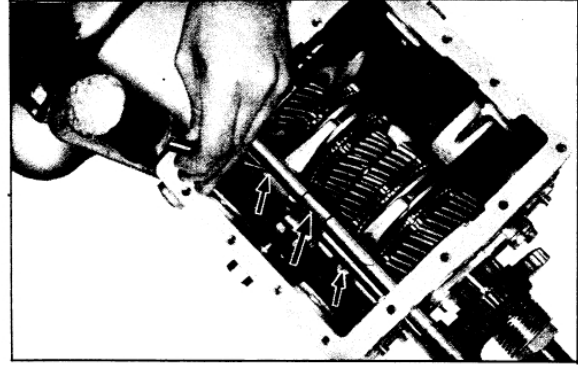
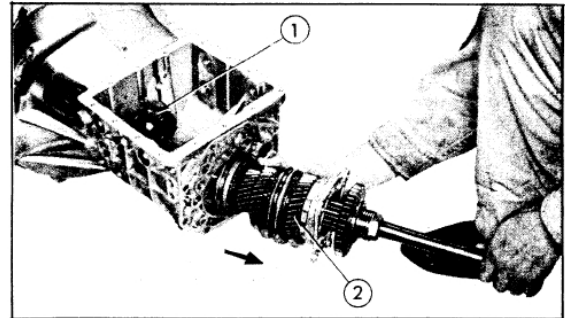


Fig. TM-12 Driving out retaining pin

12. Remove main shaft assembly from rear side and main drive gear from front side.

Note: When main shaft assembly and/or main drive gear cannot be removed easily, lightly tap transmission case with asticor wood mallet.



1	Main drive gear	2	Main shaft assembly
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Fig. TM-13 Removing main shaft assembly

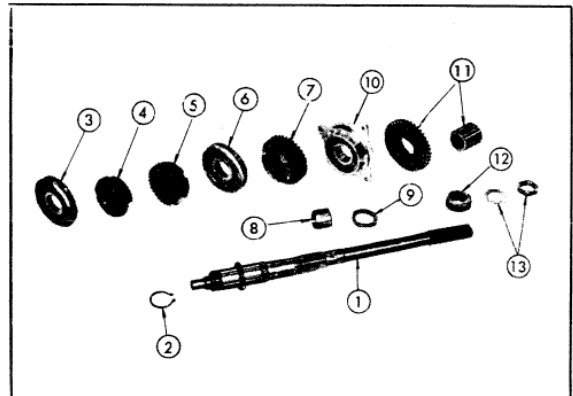


Fig. TM-14 Main shaft gear disassembled

CHASSIS

13. Remove snap ring ② from main shaft front side, and remove 3rd-4th synchro-assembly ③ and 3rd gear ④. See Figure TM-14 for part identification numbers.

14. Remove main shaft lock nut ⑬ (loosened previously), and remove reverse gear and sleeve.

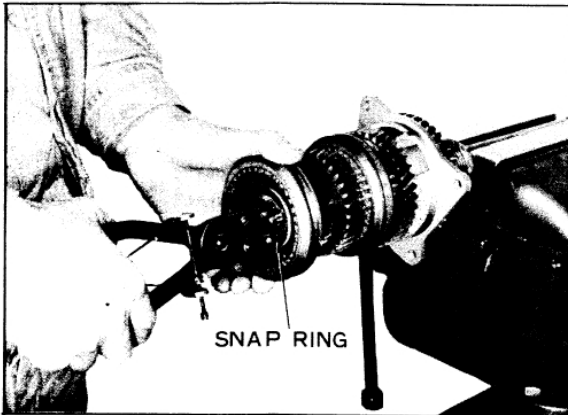


Fig. TM-15 Removing snap ring

15. When removing main shaft gear, apply the front end of 1st gear to bearing puller (special tool ST22130000), and withdraw bearing retainer ⑩, 1st gear ⑦ and thrust washer ⑨ simultaneously by using a press. See Figure TM-18.

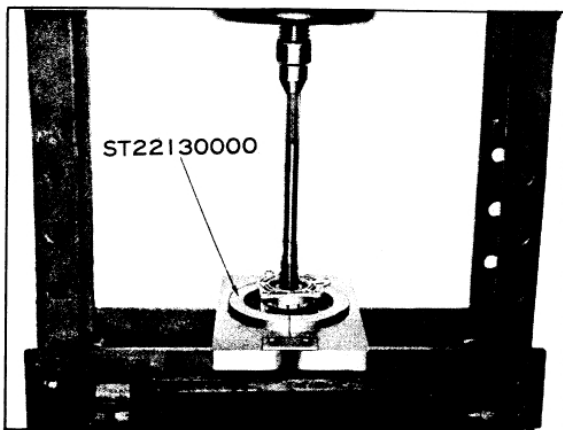


Fig. TM-16 Removing bearing

16. Bushing ⑧ is tightly fitted to main shaft. Support the front end of 2nd gear ⑤, and withdraw 1st-2nd synchro-assembly ⑥, 2nd gear ⑤ and bushing ⑧ all together by using a press.

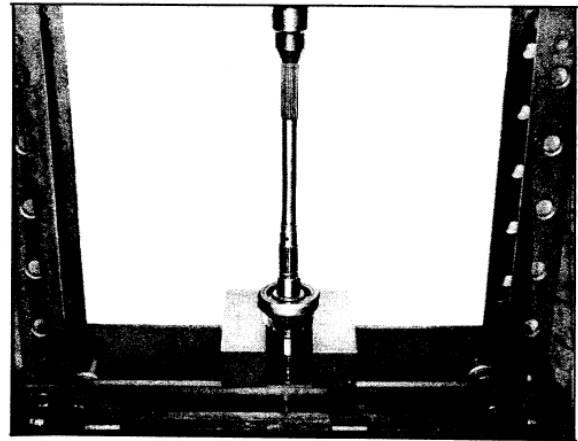


Fig. TM-17 Removing bushing

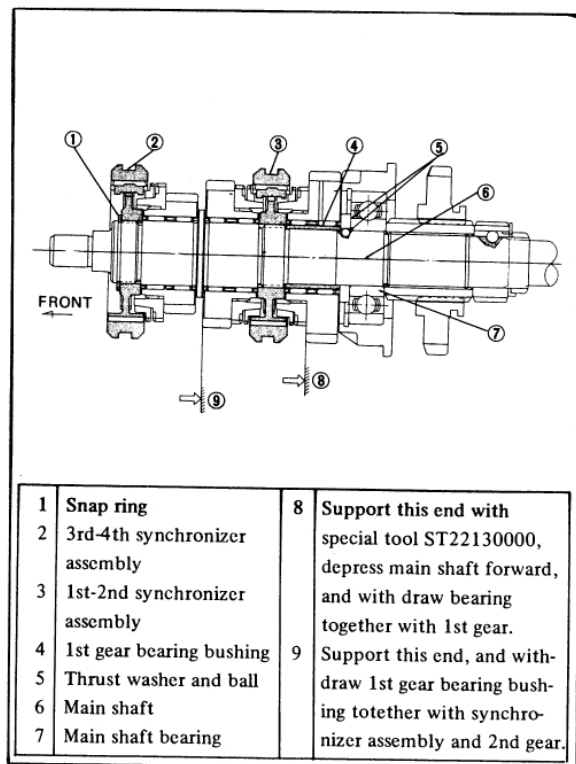


Fig. TM-18 Cross-sectional view of main shaft gear

17. To disassemble synchronizer assembly, remove spread springs from both ends.

TRANSMISSION

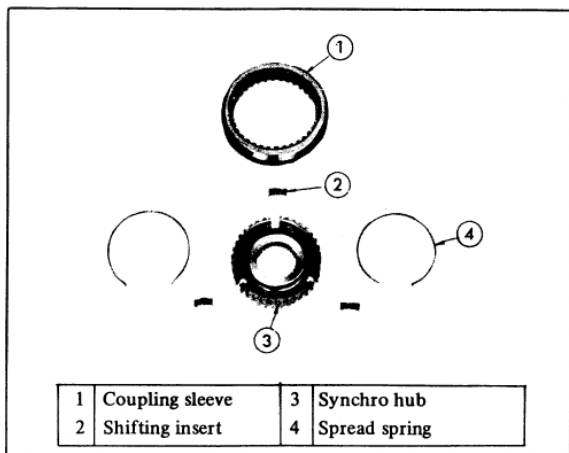


Fig. TM-19 Synchronizer disassembled

18. To disassemble main drive gear, remove snap ring from front side by using snap ring pliers.

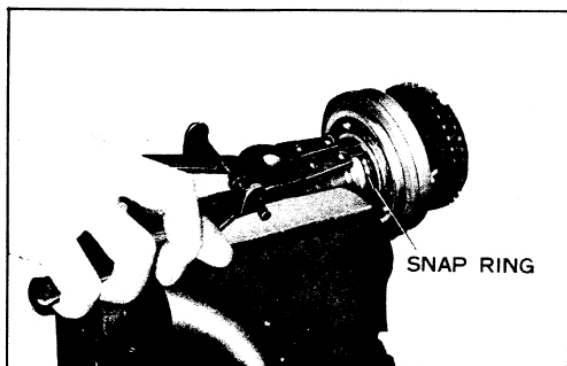


Fig. TM-20 Removing snap ring

19. Remove main drive gear bearing with bearing puller (special tool ST30030000) and press.

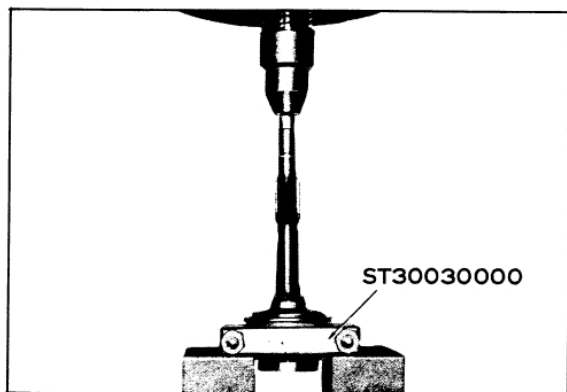


Fig. TM-21 Removing main drive gear bearing

INSPECTION

Thoroughly clean all disassembled parts with solvent, and check them for wear, damage, and other defective conditions.

Transmission case and rear extension

Clean them with solvent thoroughly, and check for crack which may cause oil leaking and other defective conditions.

1. When bur, pitting, and/or other damage exists on joint, repair or replace.
2. Remove adhesive from installing surface completely.
3. Repair or replace dowel pin (knock pin) if damaged, bent or warped.
4. Replace rear extension bushing if interior is worn unevenly.

Bearing

1. Thoroughly clean bearing, dry, and remove dust with compressed air.
2. When ball bearing inner race and center race ball sliding surfaces are worn unevenly, unsmooth due to crack, or out-of-round of ball is excessive due to wear or rough surface, replace bearing with a new one.
3. Replace needle bearing, if worn or damaged.
4. Replace rear extension bushing, if worn or cracked.



Fig. TM-22 Inspecting ball bearing

CHASSIS

Gear and shaft

1. Check gear for wear, damage and/or crack, and replace as required.
2. Check shaft for crack, wear, and worn spline. Replace if required.
3. Check main shaft for straightness.

Replace main shaft with a new one if run-out at rear end exceeds maximum limit.

Maximum run-out: 0.15 mm (0.0059 in)

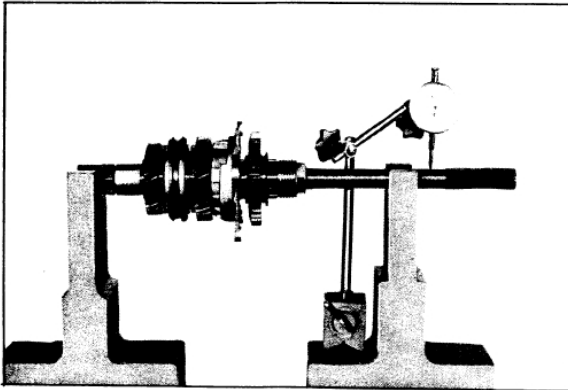


Fig. TM-23 Checking main shaft for straightness

4. Measure backlash of each gear. When gear is worn excessively beyond limit, recommend both drive and driven gears are replaced as a set.

Standard (all gears): 0.05 to 0.10 mm
(0.0020 to 0.0039 in)
Wear limit (all gears): 0.20 mm (0.0079 in)

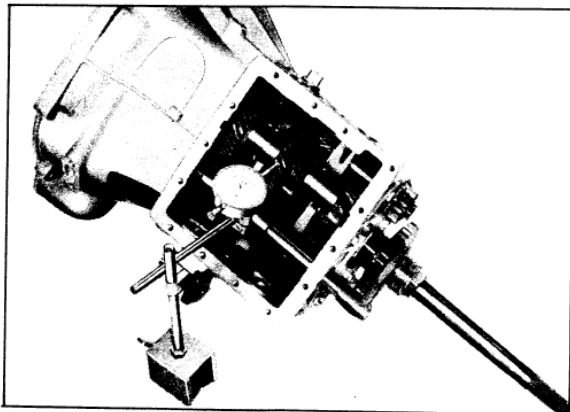


Fig. TM-24 Measuring gear backlash

5. End plays of 1st, 2nd, and 3rd gears should be in range from 0.05 to 0.15 mm (0.0020 to 0.0059 in). When the end play is deviated from this range, select proper snap ring again.

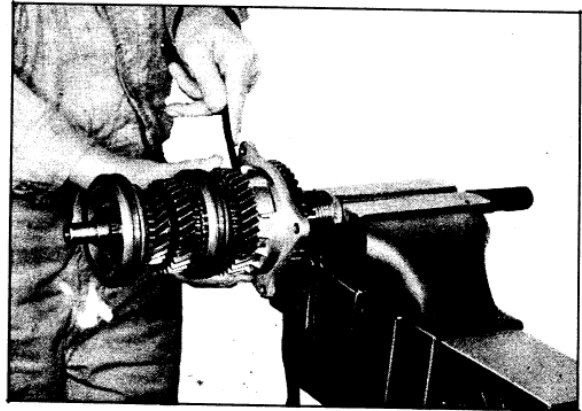


Fig. TM-25 Measuring gear end play

Balk ring

1. Check balk rings for wear, pitting, chip and/or bur. Replace as required.
2. Place balk ring in position on cone of each gear. Push ring to gear and check gap between balk ring end face and clutch tooth front face. This gap should be within 1.2 to 1.6 mm (0.047 to 0.063 in). When gap is less than 0.8 mm (0.031 in), replace balk ring with a new one. It is worn excessively.

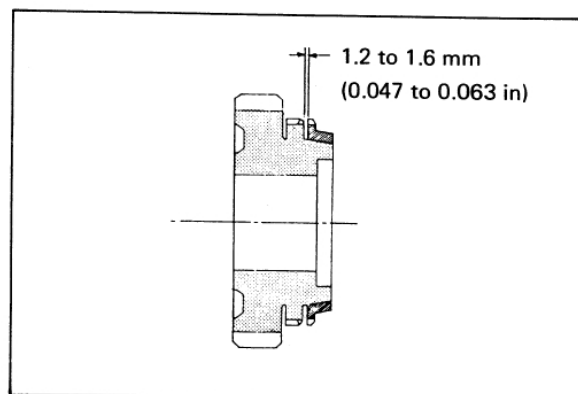


Fig. TM-26 Balk ring-to-cone installing dimension

Shifting insert

Replace, if worn excessively or unevenly, deformed, or damaged.

TRANSMISSION

Oil seal

Replace, if lip is deformed, worn or cracked, or when snap ring is dropped off.

Rear engine mounting insulator

Replace, if weakened, deteriorated, or cracked.

REASSEMBLY ADJUSTMENT

Reassemble transmission in reverse sequence of disassembly. When reassembling, note the following matters:

Main shaft and gear

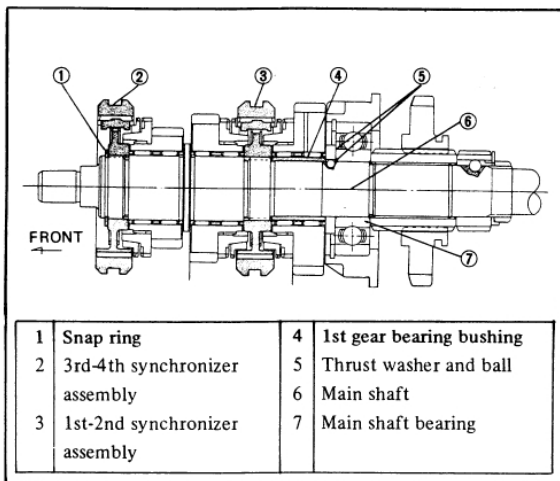


Fig. TM-27 Main shaft assembly

1. For both 1st-2nd and 3rd-4th synchronizer assemblies, install synchronizer hubs toward correct direction.

2. When fitting 1st gear needle bearing collar to shaft, use a brass drift.

Note: a. If end of collar is damaged, 1st gear end play is deviated. Recommend a piece of mild metal be applied while tapping.

b. Do not use wooden mallet.

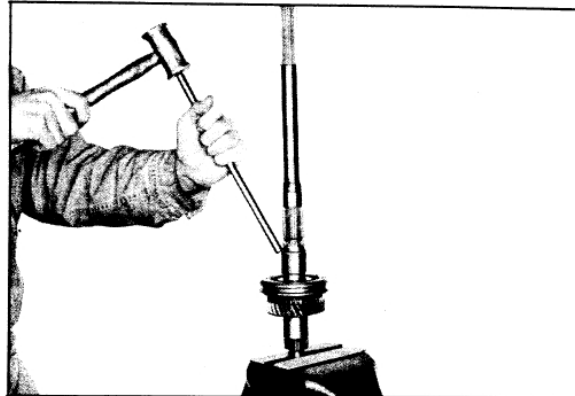


Fig. TM-28 Driving bearing bushing

3. When fitting main shaft ball bearing, use a hollow drift - transmission adapter (special tool ST23800000) to depress bearing inner race firmly.

Note: Be sure to install thrust washer and ball.

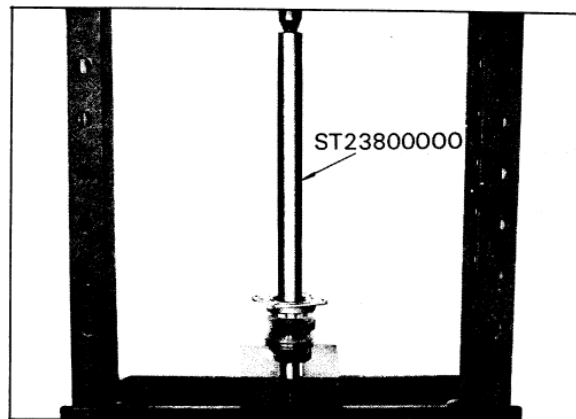


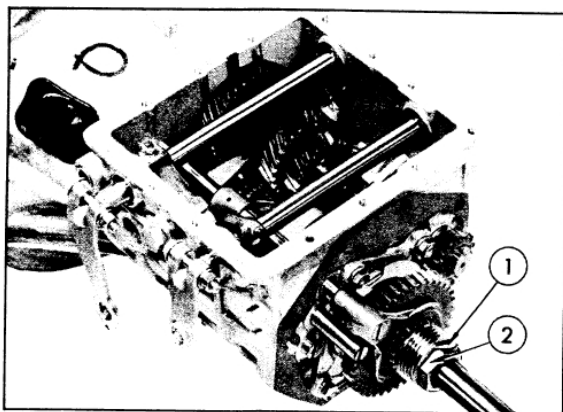
Fig. TM-29 Fitting main shaft bearing

4. For 3rd-4th synchronizer hub snap ring, select proper snap ring from those listed below so that synchronizer hub end play is minimum:

Part number	Thickness mm (in)
32263 14600	1.40 to 1.45 (0.0551 to 0.0571)
32263 14601	1.45 to 1.50 (0.0571 to 0.0591)
32263 14602	1.50 to 1.55 (0.0591 to 0.0610)
32263 14603	1.55 to 1.60 (0.0610 to 0.0630)
32263 14604	1.60 to 1.65 (0.0630 to 0.0650)

CHASSIS

5. To lock main shaft, install main shaft in transmission case, double- intermesh gears, tighten lock nut with the rated tightening torque 8.0 to 11.0 kg-m (57.8 to 79.5 ft-lb), and firmly bend lock washer.



1 Lock washer	2 Lock nut
---------------	------------

Fig. TM-30 Tightening lock nut

6. Main drive gear

Reassemble main drive gear in reverse sequence of disassembly. For snap ring, select proper one from those listed below so that drive gear end play is minimum.

Part number	Thickness mm (in)
32204 08000	1.49 to 1.55 (0.0587 to 0.0610)
32204 08001	1.56 to 1.62 (0.0614 to 0.0638)
32204 08002	1.62 to 1.68 (1.0638 to 0.0661)
32204 08003	1.68 to 1.74 (0.0661 to 0.0685)
32204 08004	1.74 to 1.80 (0.0685 to 0.0709)
32204 16500	1.80 to 1.86 (0.0709 to 0.0732)
32204 16501	1.86 to 1.92 (0.0732 to 0.0756)

7. Counter gear

Counter gear is reassembled in reverse sequence of

disassembly. For rear side thrust washer, five types as shown in the following table are available. Select a proper thrust washer so that counter gear end play is 0.05 to 0.15 mm (0.0020 to 0.0059 in) when assembled.

Note: Install thrust washer (32225 A0900) in front side.

Part number	Thickness mm (in)
32225 A0900	2.35 to 2.40 (0.0925 to 0.0945)
32225 A0901	2.40 to 2.45 (0.0945 to 0.0965)
32225 A0902	2.45 to 2.50 (0.0965 to 0.0984)
32225 A0903	2.50 to 2.55 (0.0984 to 0.1004)
32225 A0904	2.55 to 2.60 (0.1004 to 0.1024)

Reverse idler gear

Reverse idler gear is reassembled in reverse sequence of disassembly. For snap ring, five types as shown in the following table are available.

Select a proper snap ring so that reverse idler gear end play is 0.05 to 0.15 mm (0.0020 to 0.0059 in) when assembled.

Note: Install snap ring (32285 14600) in front side.

Part number	Thickness mm (in)
32285 14600	1.15 to 1.25 (0.0453 to 0.0492)
32285 14601	1.35 to 1.45 (0.0531 to 0.0571)
32285 14602	1.25 to 1.35 (0.0492 to 0.0531)
32285 14603	1.45 to 1.55 (0.0571 to 0.0610)
22285 14604	1.05 to 1.15 (0.0413 to 0.0453)

TRANSMISSION

Shift fork and operating lever

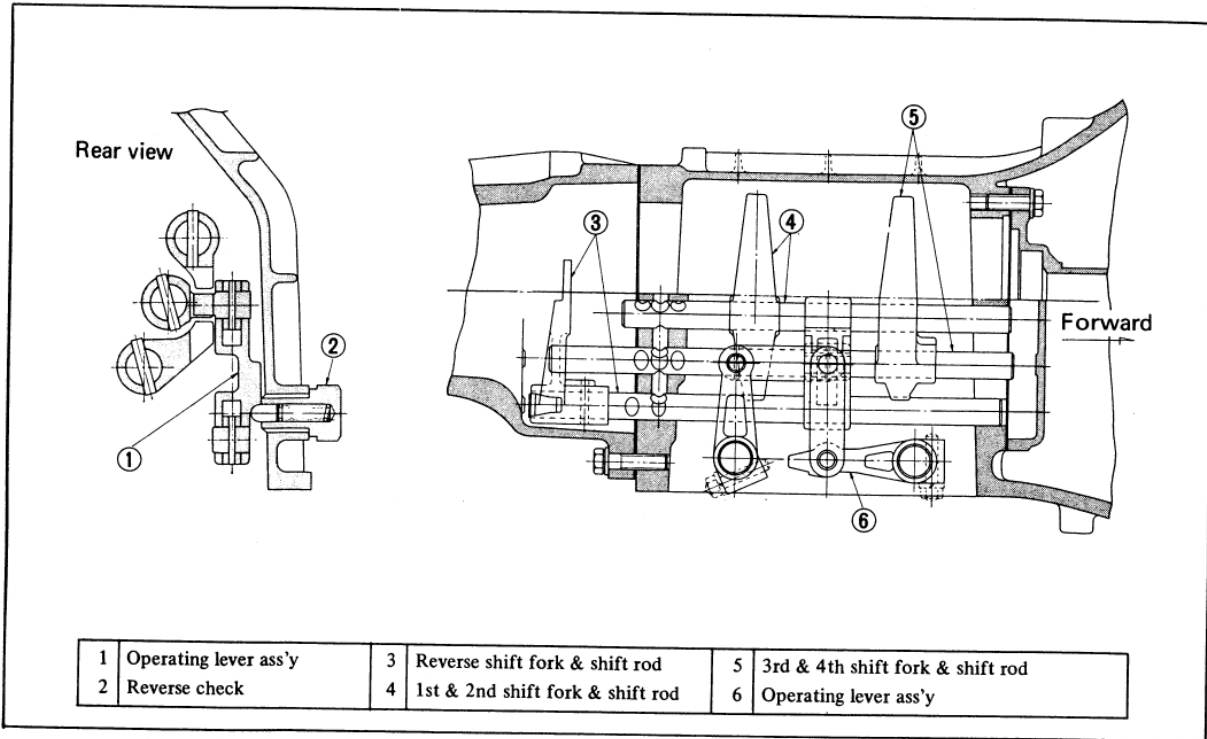


Fig. TM-31 Layout of shift fork and operating lever

1. Install each fork rod and shift fork.

Note: a. Pay attention to shift fork installing direction.

b. Be sure that there is no gap between fork rod and shift fork.

2. Install each fork rod together with check ball plug, check ball, check ball spring, and interlock plunger by using a fork rod guide (special tool ST23620000).

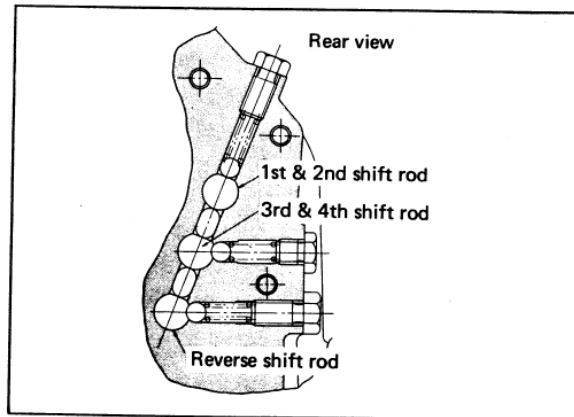


Fig. TM-32 Layout of check ball

Note: a. Install fork rod in a position where fork rod check ball groove is coincided with ball.

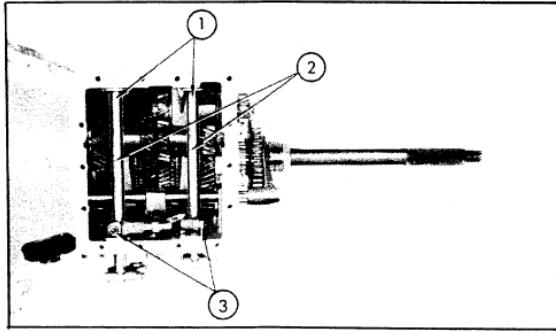
b. In standard position, upper surface of plug is flush with upper surface of adapter.

c. When installing plug, be sure to apply thread locking agent.

3. Set up operating lever to the correct direction. Insert cross shaft into case. Assemble thrust washer, snap ring and operating lever in case, and set operating lever stationarily with lock pin. See Figure TM-31.

Lock pin tightening torque: 0.3 to 0.4 kg-cm
(0.2 to 0.3 in-lb)

CHASSIS



1	Washer	2	Cross shaft	3	Lock pin
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Fig. TM-33 Installing cross shaft

REINSTALLATION

Remount transmission in reverse sequence of dismounting.

TYPE F4W63 TRANSMISSION

CONTENTS

DESCRIPTION	TM-12	INSPECTION AND REPAIR	TM-14
REMOVAL AND INSTALLATION	TM-13	ASSEMBLY	TM-14
DISASSEMBLY	TM-13	Shift fork	TM-14

DESCRIPTION

The type F4W63 transmission is used especially for floor shift type vehicle. Generally, however, the construc-

tion is the same as that of the type R4W63 transmission. Thus, in this chapter, description is made only for the control system and relative matters.

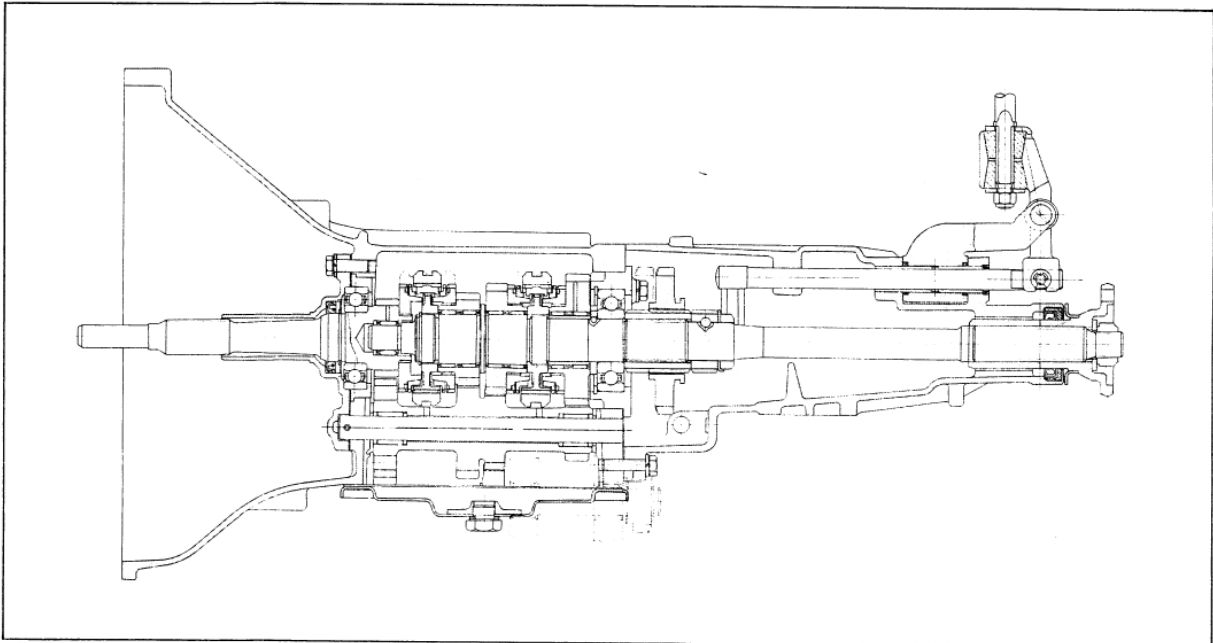


Fig. TM-34 Type F4W63 transmission

TRANSMISSION

REMOVAL AND INSTALLATION

Primarily, procedures for removal and installation of the F4W63 transmission are the same as R4W63 transmission. For the F4W63 transmission, however, removal and installation of shift lever are required.

DISASSEMBLY

1. Drain transmission gear oil.
2. Remove dust cover, release withdrawal lever return spring, remove withdrawal lever, and release bearing from clutch housing.
3. Remove five front cover securing bolts and remove front cover.
4. Remove 14 bottom cover securing bolts, and remove bottom cover from transmission case.

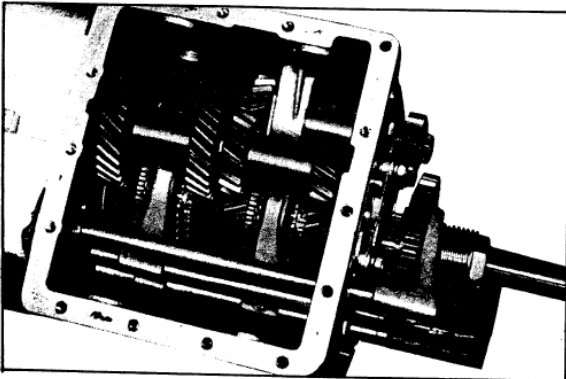


Fig. TM-35 Removing bottom cover

5. Remove clevis pin used to secure striking rod to control lever.

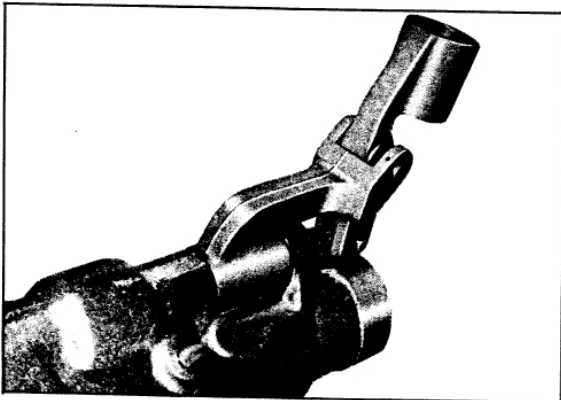


Fig. TM-36 Control arm

6. Remove speedometer drive pinion assembly.
7. Remove eight rear extension housing securing bolts, and remove rear extension housing. Disengage striking rod from fork rod gates.

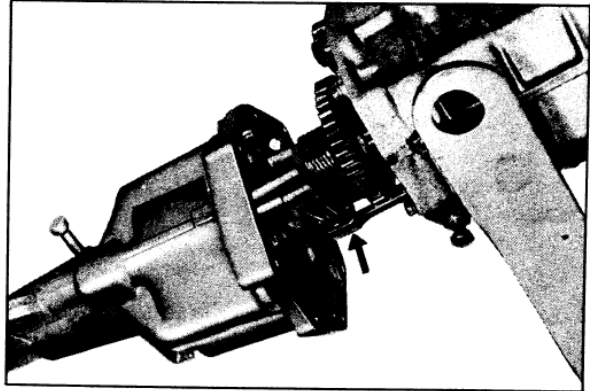


Fig. TM-37 Removing rear extension

8. Unscrew three check ball plugs, and remove springs and balls.
9. Drive out retaining pins used to secure forks to fork rods, and remove rods and forks.
10. Move 1st-2nd and 3rd-4th coupling sleeves into gear, and at the same time, lock main shaft. Release main shaft nut.
11. Withdraw counter shaft and remove counter gear together with needle roller bearings and spacers.
12. Release reverse idler gear securing snap ring, and remove reverse idler gears and shaft.

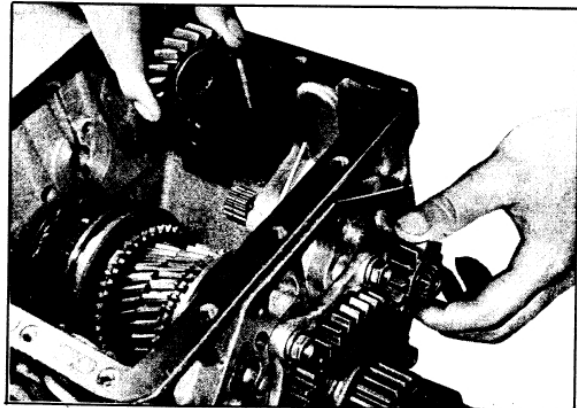


Fig. TM-38 Removing reverse idler gear

CHASSIS

13. Remove four bolts used to secure main shaft bearing retainer to transmission case.

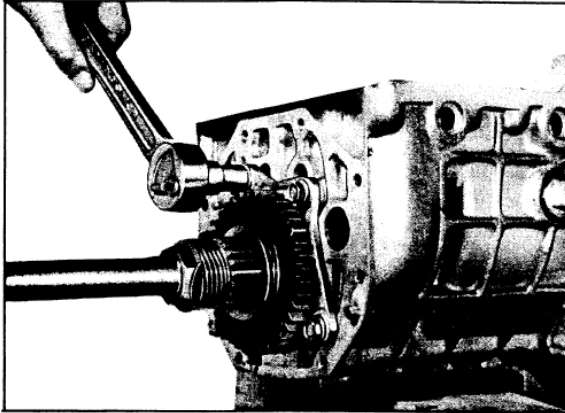


Fig. TM-39 Removing main shaft bearing retainer

14. Draw out main shaft assembly from transmission case.

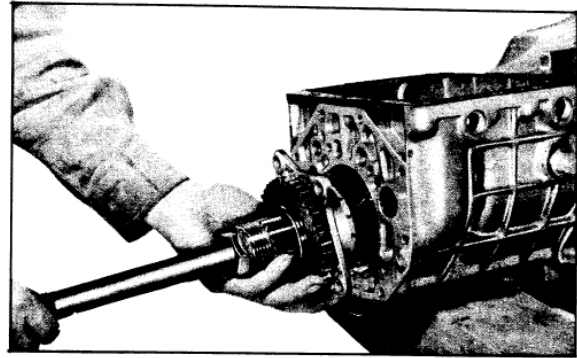


Fig. TM-40 Drawing out main shaft assembly

15. Draw out main drive shaft.

INSPECTION AND REPAIR

For detailed procedure for inspection and repair, refer to the section covering the type R4W63 transmission.

Service data and specifications are shown in page TM-18.

ASSEMBLY

The transmission is assembled in reverse sequence to disassembly. Refer to the instructions and notes described in the section covering the type R4W63 transmission.

Shift fork

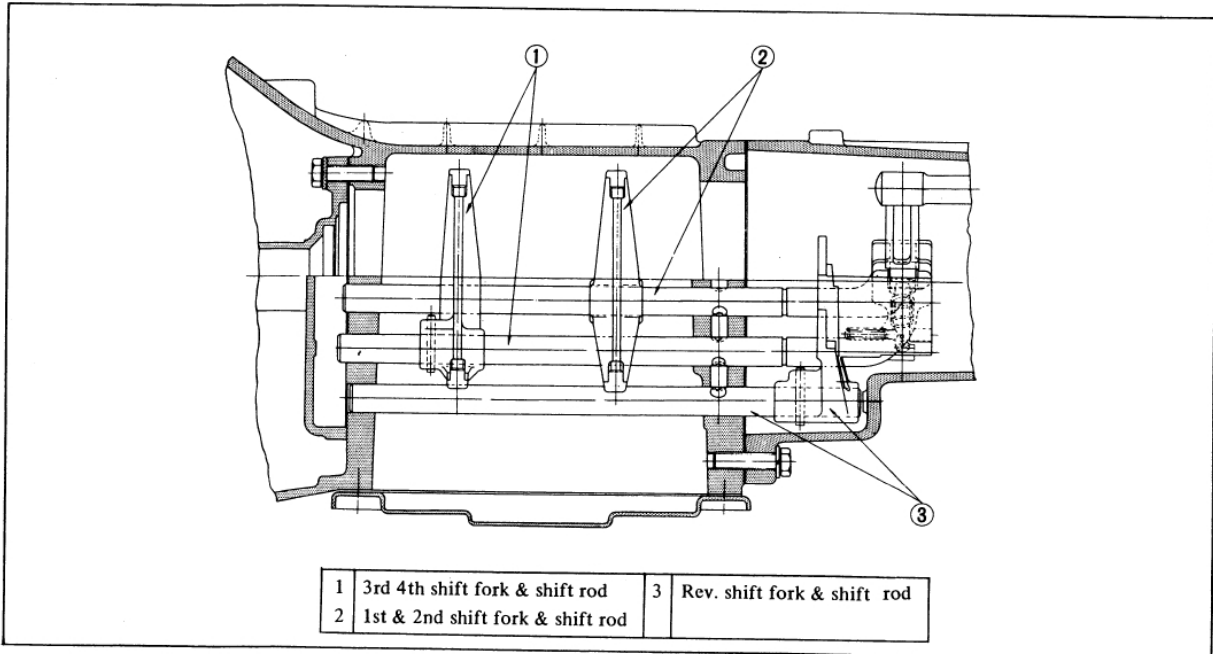


Fig. TM-41 Layout of shift fork and operating lever

TRANSMISSION

1. Install shift forks (1st-2nd and 3rd-4th) on coupling sleeves and apply 1st-2nd fork rod.
2. Place interlock plunger in the position, and fit 3rd-4th fork rod.
3. Place interlock plunger in the position, and assemble reverse shift fork and fork rod.
4. Secure each fork to fork rod with retaining pin.

TRANSMISSION GEAR CONTROL-COLUMN SHIFT CONTROL SYSTEM

CONTENTS

REMOVAL	TM-16	ADJUSTMENT	TM-17
INSPECTION AND REPAIR	TM-17	Shift linkage	TM-17
INSTALLATION	TM-17	Select linkage	TM-17

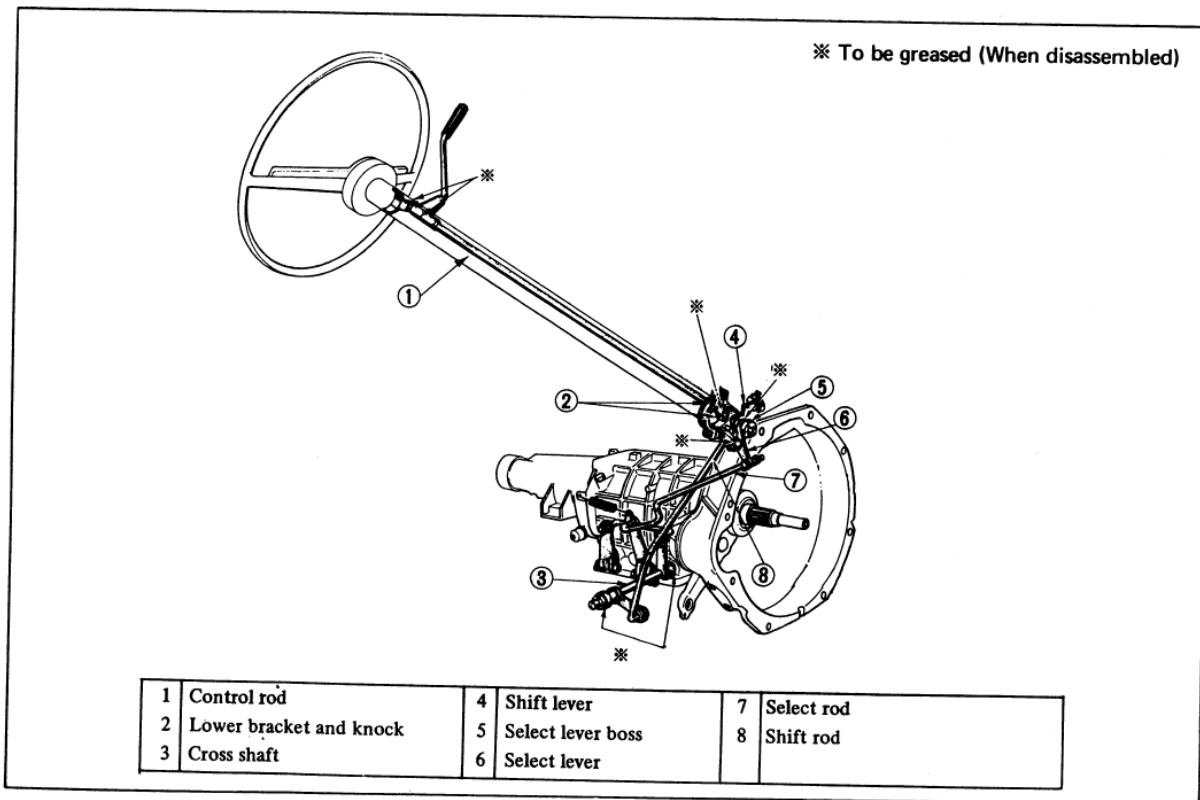


Fig. TM-42 Control system - 4-forward speed transmission

CHASSIS

REMOVAL

1. Remove steering wheel assembly.

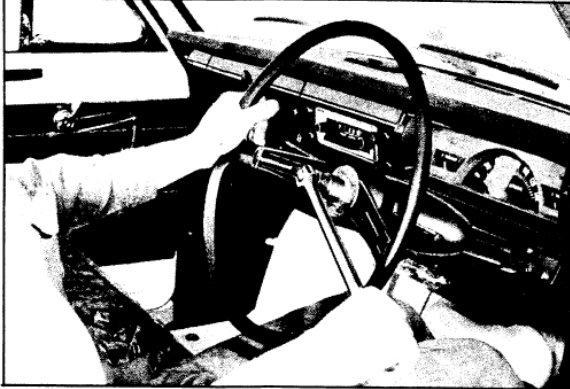


Fig. TM-43 Removing steering wheel

2. Remove steering column shell cover, turn signal and lighting switch.

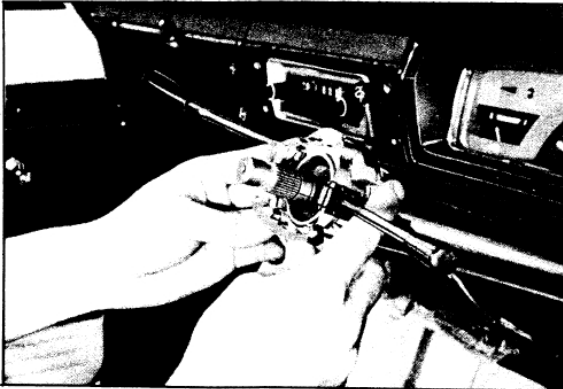
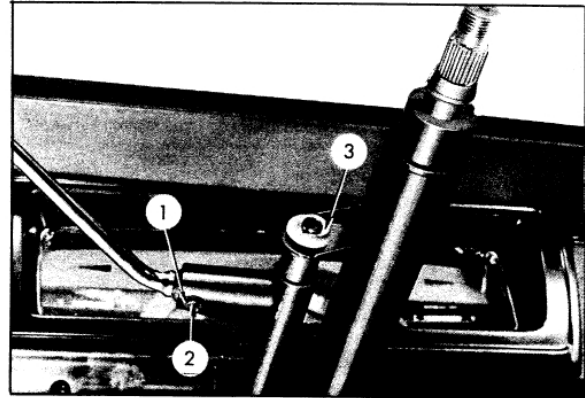


Fig. TM-44 Removing steering column shell cover



Fig. TM-45 Removing turn signal and lighting switch

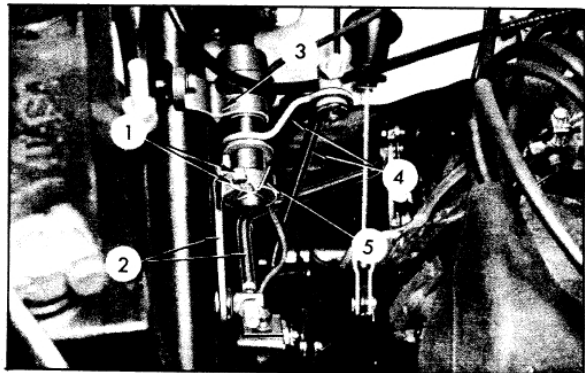
3. Remove snap ring and control lever pivot pin, and withdraw hand lever.



1	Snap ring	2	Control lever pivot pin	3	C-washer
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Fig. TM-46 Withdrawing hand lever

4. Remove C-washer.



1	Lock pin and lock wire	4	Shift lever and shift rod
2	Select lever and select rod	5	Select lever boss
3	Lower bracket		

Fig. TM-47 Separating lever and rod

5. Separate shift lever from shift rod.
6. Separate select lever from select rod.
7. Remove lock pin and select lever pivot bolt.
8. Withdraw select lever boss, select lever, and shift lever.
9. Loosen lower bracket up to such an extent that positioning knock pin can be removed.
10. Depress control rod downward, remove it from upper support, turn lower bracket to change direction of control rod, and remove it toward driver's compartment.

TRANSMISSION

Note: The individual joints use small washers and snap rings. Before removing, check them for reinstalling sequence and direction.

INSPECTION AND REPAIR

Check all sliding parts and other components for wear and other defective conditions. Replace as required.

INSTALLATION

Install control system in reverse sequence of removal.

ADJUSTMENT

When installing, apply chassis grease to the following parts:

- (1) Select lever pivot bolt bushing
- (2) Select lever boss select lever guide unit
- (3) Reverse check unit
- (4) Insert and change lever units in upper portion of control shaft
- (5) Cross shaft (both frame and transmission sides)

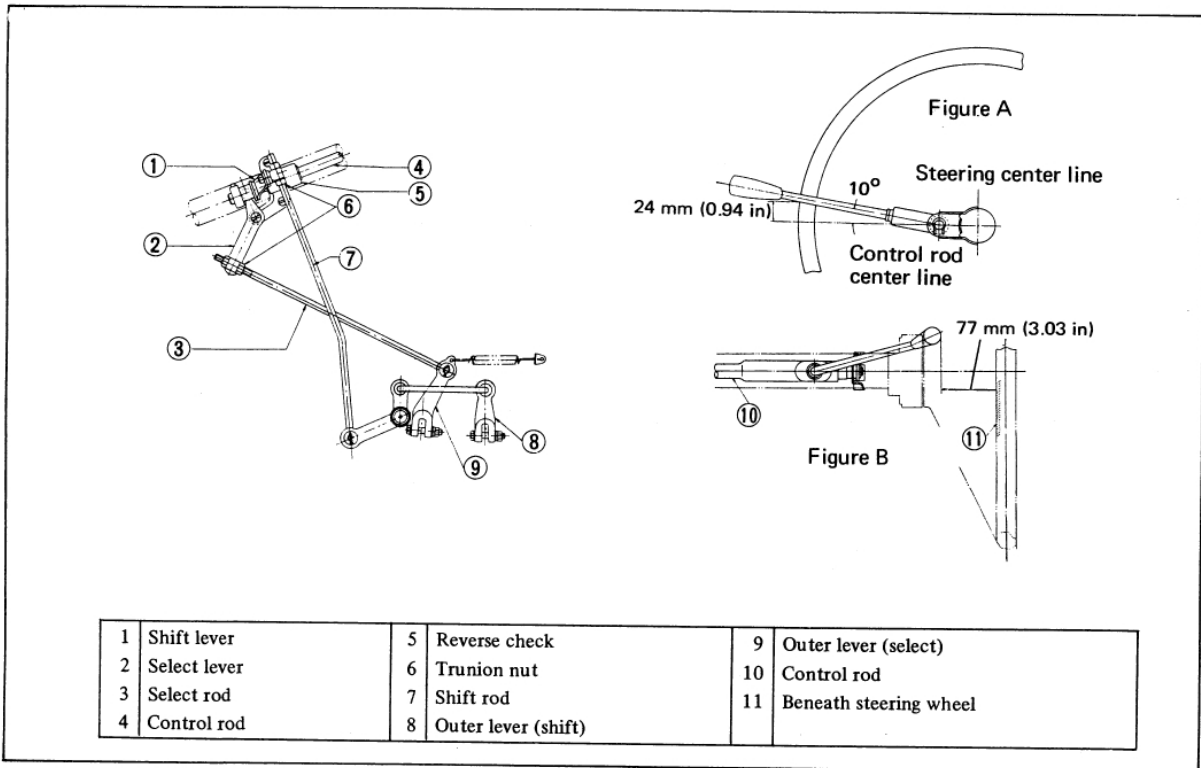


Fig. TM-48 Transmission control linkage assembly

Shift linkage

1. Set transmission outer lever to "neutral" position.
2. Adjust trunion nut, and tighten it when change lever arrives "A" position.

Select linkage

1. Arrange component parts so that reverse check

return spring seat on lower bracket comes into contact with control rod ring.

Note: In this arrangement, change lever is in "B" position.

2. Set transmission outer lever to "neutral" position.
3. Tighten trunion nut at a position where no unreasonable force is applied to select rod.

CHASSIS

SERVICE DATA AND SPECIFICATIONS

CONTENTS

General specifications	TM-18	TIGHTENING TORQUE	TM-20
Specifications	TM-18		

General specifications

Type	F4W63			R4W63			R4W63		
Control system	Floor shift			Column shift			Column shift		
Synchromesh type	Warner			Warner			Warner		
Gear ratio									
1st	3.657			4.243			5.000		
2nd	2.177			2.558			3.014		
3rd	1.419			1.587			1.685		
4th	1.000			1.000			1.000		
Rev.	3.638			4.367			5.146		
Speedometer gear ratio	19/5	18/5	17/5	18/5	17/5	19/5	18/5		
Final gear ratio	4.875	4.625	4.375	4.625	4.375	4.875	4.625		
*Extension housing	short			long	short	long	long	short	long
Oil capacity	1.7 ℓ			2.0 ℓ	1.7 ℓ	2.0 ℓ	2.0 ℓ	1.7 ℓ	2.0 ℓ

Note: a) *: See page TM-2 "Extension housing".

b) 1.7 ℓ (3.6 US pts, 3.0 Imp pts)

2.0 ℓ (4.2 US pts, 3.5 Imp pts)

Specifications

	Model	F4W63, R4W63
Each gear backlash (For all gears)		
Standard backlash	mm (in)	0.05 to 0.10 (0.0020 to 0.0039)
Replacement standard	mm (in)	0.20 (0.0079)

TRANSMISSION

Item	Model	F4W63, R4W63																
Each gear standard end play (For all gears)	mm (in)	0.05 to 0.15 (0.0020 to 0.0059)																
Balk ring/cone clearance Standard clearance	mm (in)	1.2 to 1.6 (0.0472 to 0.0630)																
Replacement standard	mm (in)	0.8 (0.0315)																
3rd-4th adjusting shim		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Part number</th> <th style="width: 50%;">Thickness mm (in)</th> </tr> </thead> <tbody> <tr> <td>32263 14600</td> <td>1.40 to 1.45 (0.0551 to 0.0571)</td> </tr> <tr> <td>32263 14601</td> <td>1.45 to 1.50 (0.0571 to 0.0591)</td> </tr> <tr> <td>32263 14602</td> <td>1.50 to 1.55 (0.0591 to 0.0610)</td> </tr> <tr> <td>32263 14603</td> <td>1.55 to 1.60 (0.0610 to 0.0630)</td> </tr> <tr> <td>32263 14604</td> <td>1.60 to 1.65 (0.0630 to 0.0650)</td> </tr> </tbody> </table>	Part number	Thickness mm (in)	32263 14600	1.40 to 1.45 (0.0551 to 0.0571)	32263 14601	1.45 to 1.50 (0.0571 to 0.0591)	32263 14602	1.50 to 1.55 (0.0591 to 0.0610)	32263 14603	1.55 to 1.60 (0.0610 to 0.0630)	32263 14604	1.60 to 1.65 (0.0630 to 0.0650)				
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Main drive gear adjusting shim		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Part number</th> <th style="width: 50%;">Thickness mm (in)</th> </tr> </thead> <tbody> <tr> <td>32204 08000</td> <td>1.49 to 1.55 (0.0587 to 0.0610)</td> </tr> <tr> <td>32204 08001</td> <td>1.56 to 1.62 (0.0614 to 0.0638)</td> </tr> <tr> <td>32204 08002</td> <td>1.62 to 1.68 (0.0638 to 0.0661)</td> </tr> <tr> <td>32204 08003</td> <td>1.68 to 1.74 (0.0661 to 0.0685)</td> </tr> <tr> <td>32204 08004</td> <td>1.74 to 1.80 (0.0685 to 0.0709)</td> </tr> <tr> <td>32204 16500</td> <td>1.80 to 1.86 (0.0709 to 0.0732)</td> </tr> <tr> <td>32204 16501</td> <td>1.86 to 1.92 (0.0732 to 0.0756)</td> </tr> </tbody> </table>	Part number	Thickness mm (in)	32204 08000	1.49 to 1.55 (0.0587 to 0.0610)	32204 08001	1.56 to 1.62 (0.0614 to 0.0638)	32204 08002	1.62 to 1.68 (0.0638 to 0.0661)	32204 08003	1.68 to 1.74 (0.0661 to 0.0685)	32204 08004	1.74 to 1.80 (0.0685 to 0.0709)	32204 16500	1.80 to 1.86 (0.0709 to 0.0732)	32204 16501	1.86 to 1.92 (0.0732 to 0.0756)
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Reverse idler gear adjusting shim		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Part number</th> <th style="width: 50%;">Thickness mm (in)</th> </tr> </thead> <tbody> <tr> <td>32285 14600</td> <td>1.15 to 1.25 (0.0453 to 0.0492)</td> </tr> <tr> <td>32285 14601</td> <td>1.35 to 1.45 (0.0531 to 0.0571)</td> </tr> <tr> <td>32285 14602</td> <td>1.25 to 1.35 (0.0492 to 0.0531)</td> </tr> <tr> <td>32285 14603</td> <td>1.45 to 1.55 (0.0571 to 0.0610)</td> </tr> <tr> <td>22285 14604</td> <td>1.05 to 1.15 (0.0413 to 0.0453)</td> </tr> </tbody> </table>	Part number	Thickness mm (in)	32285 14600	1.15 to 1.25 (0.0453 to 0.0492)	32285 14601	1.35 to 1.45 (0.0531 to 0.0571)	32285 14602	1.25 to 1.35 (0.0492 to 0.0531)	32285 14603	1.45 to 1.55 (0.0571 to 0.0610)	22285 14604	1.05 to 1.15 (0.0413 to 0.0453)				
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CHASSIS

Item \ Model	F4W63, R4W63												
Counter gear thrust washer	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Part number</th> <th style="width: 70%;">Thickness mm (in)</th> </tr> </thead> <tbody> <tr> <td>32225 A0900</td> <td>2.35 to 2.40 (0.0925 to 0.0945)</td> </tr> <tr> <td>32225 A0901</td> <td>2.40 to 2.45 (0.0945 to 0.0965)</td> </tr> <tr> <td>32225 A0902</td> <td>2.45 to 2.50 (0.0965 to 0.0984)</td> </tr> <tr> <td>32225 A0903</td> <td>2.50 to 2.55 (0.0984 to 0.1004)</td> </tr> <tr> <td>32225 A0904</td> <td>2.55 to 2.60 (0.1004 to 0.1024)</td> </tr> </tbody> </table>	Part number	Thickness mm (in)	32225 A0900	2.35 to 2.40 (0.0925 to 0.0945)	32225 A0901	2.40 to 2.45 (0.0945 to 0.0965)	32225 A0902	2.45 to 2.50 (0.0965 to 0.0984)	32225 A0903	2.50 to 2.55 (0.0984 to 0.1004)	32225 A0904	2.55 to 2.60 (0.1004 to 0.1024)
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32225 A0903	2.50 to 2.55 (0.0984 to 0.1004)												
32225 A0904	2.55 to 2.60 (0.1004 to 0.1024)												

Tightening torque

	kg-m (ft-lb)
Transmission proper	
Engine/transmission installation bolt	2.4 to 2.8 (17.4 to 20.2)
Front cover/transmission installation bolt	0.8 to 1.0 (5.8 to 7.2)
Rear extension/transmission installation bolt	1.4 to 1.8 (10.1 to 13.0)
Main shaft tightening nut	8 to 11 (57.8 to 79.5)
Companion flange tightening nut	10 to 14 (72.3 to 101.2)
Rear engine mount installation bolt	3.3 to 3.8 (23.9 to 27.5)
Filler plug	2.5 to 3.5 (18.1 to 25.3)
Drain plug	2.0 to 3.0 (14.5 to 21.7)
Back-up lamp switch	2.0 to 3.0 (14.5 to 21.7)
Bottom cover installation bolt	0.8 to 1.0 (5.8 to 7.2)
Speedometer pinion installation bolt	0.3 to 0.4 (2.2 to 2.9)
Interlock plug	1.7 to 2.1 (12.3 to 15.2)
Operating lever (for both shift and select)	0.3 to 0.4 (2.2 to 2.9)
Reverse check	2.0 to 3.0 (14.5 to 21.7)
Transmission gear control (column shift)	
Transmission outer lever	0.8 to 1.0 (5.8 to 7.2)
Trunion nut (for both shift and select)	2.0 to 2.8 (14.5 to 20.2)

TRANSMISSION

Select lever pivot bolt	0.5 to 0.8 (3.6 to 5.8)
Lower support bracket	0.6 to 1.0 (4.3 to 7.2)
Steering wheel tightening nut	7.0 to 7.5 (50.6 to 54.2)
Transmission gear control (floor shift)	
Control lever installation bolt	1.9 to 2.2 (13.7 to 15.9)

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Difficult to intermesh gears	Causes for difficult gear shifting are classified to troubles concerning the control system and transmission When the gear shift lever is heavy and it is difficult to shift gears, clutch disengagement may also be unsmooth First, make sure that the clutch operates correctly, and inspect the transmission	
	Worn gears, shaft, and/or bearing	Replace
	Insufficient operating stroke due to worn or loose sliding part	Repair or replace
	Defective or damaged synchronizer	Replace
Gear slips out of mesh	In the most case, this trouble occurs when the interlock plunger, check ball, and/or spring is worn or weakened, or when the control system is defective In this case, the trouble cannot be corrected by replacing gears, and therefore, trouble shooting must be carried out carefully It should also be noted that gear slips out of mesh due to vibration generated by weakened front and rear engine mounts	
	Worn interlock plunger	Replace
	Worn check ball and/or weakened or broken spring	Replace
	Worn fork rod ball groove	Replace
	Worn damaged bearing	Replace
	Worn or damaged gear	Replace

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION PD

PROPELLER SHAFT & DIFFERENTIAL CARRIER

PD

PROPELLER SHAFT AND UNIVERSAL JOINT	PD- 1
DIFFERENTIAL CARRIER	PD- 5

PROPELLER SHAFT & DIFFERENTIAL CARRIER

PROPELLER SHAFT AND UNIVERSAL JOINT

CONTENTS

DESCRIPTION	PD-1	ASSEMBLY	PD-4
REMOVAL	PD-3	SERVICE DATA AND SPECIFICATIONS	PD-4
DISASSEMBLY	PD-3	TROUBLE DIAGNOSES AND	
INSPECTION	PD-3	CORRECTIONS	PD-5

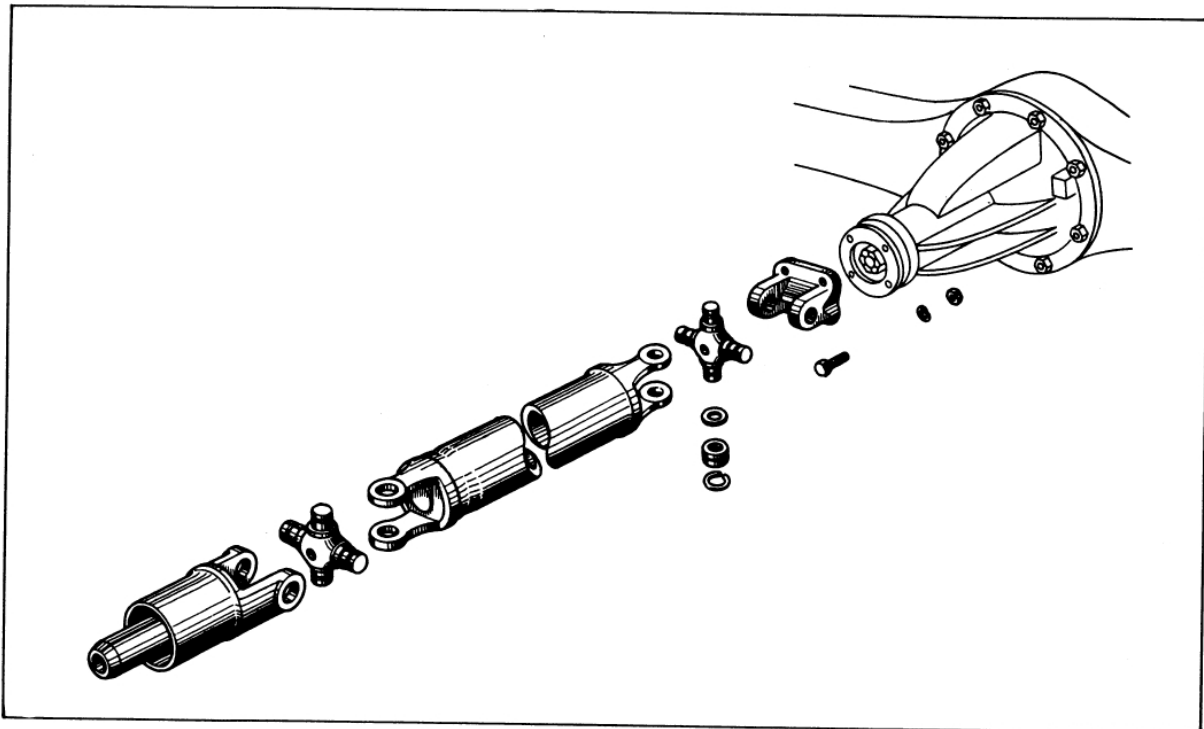


Fig. PD-1 Propeller shaft for UV(N)521 and except Floor Shift vehicles

DESCRIPTION

Three types of propeller shafts; for UV(N)521, G(N)521, and 521T (Floor shift vehicles except GN521T) series vehicles; are used.

These propeller shafts adopt solid tubular steel construction.

A correct balance of propeller shaft is very important for a good riding comfort at high speed. Therefore, the propeller shafts in service parts and ones assembled in the

vehicle are counter balanced within an unbalance of 15 gr-cm (0.2 in-oz) at 4,000 rpm at the factory with the best care.

The propeller shaft may be unbalanced if erroneously tapped with a hammer while servicing or flying rocks or bottoming occurs during off-road driving.

Check propeller shaft joint and center bearing every 36,000 km (24,000 miles) and propeller shaft spline every 9,000 km (6,000 miles) for grease.

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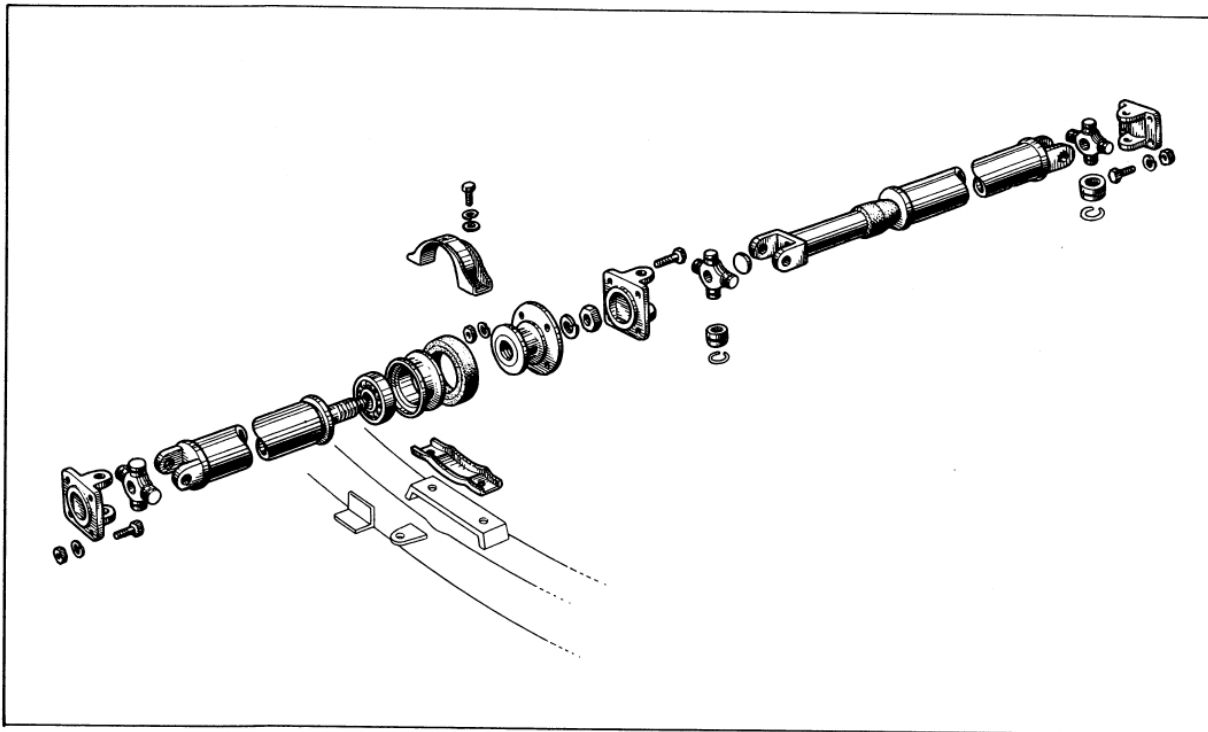


Fig. PD-2 Propeller shaft for G(N)521 series vehicles

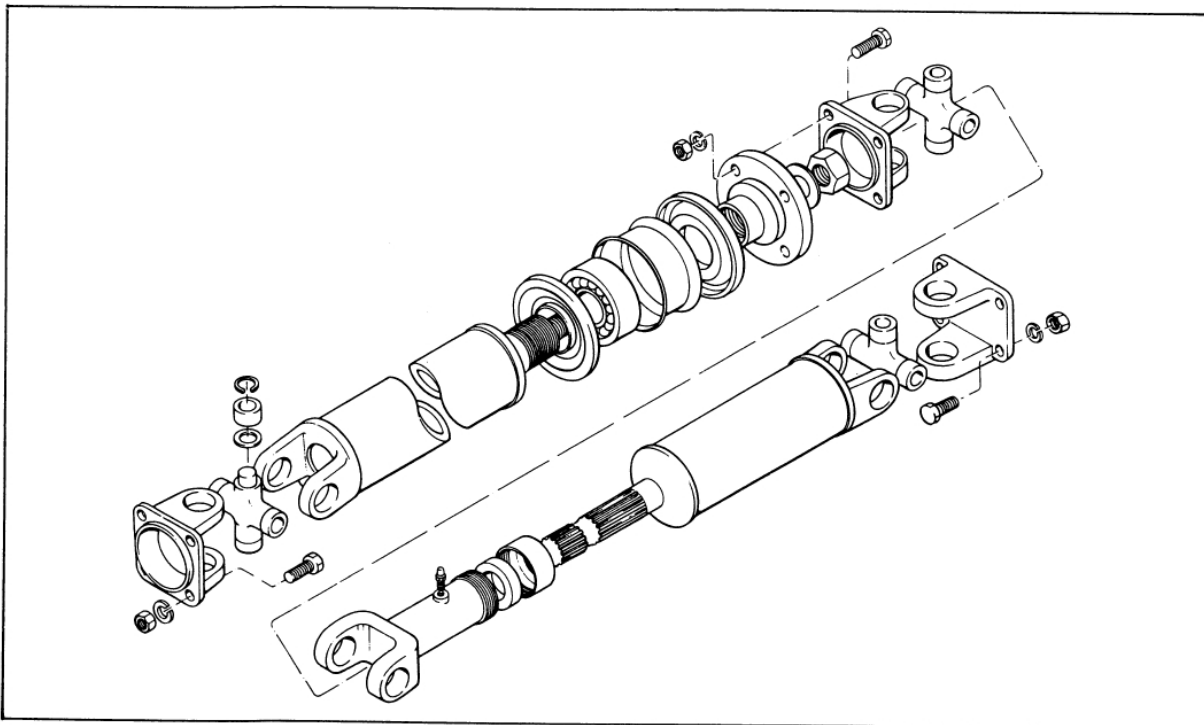


Fig. PD-3 Propeller shaft for Floor shift vehicles

PROPELLER SHAFT & DIFFERENTIAL CARRIER

REMOVAL

UV(N)521 except, Floor shift vehicles

Remove propeller shaft carefully so as not to damage transmission side spline and rear oil seal.

G(N)521 and Floor shift vehicles – 3-joint

Remove mounting bolts from both transmission and differential gear case, and remove bearing mounting brackets.

DISASSEMBLY

Primarily, do not disassemble propeller shaft because it is balanced as an assembly. When disassembly and repair are required, however, the following procedures apply:

1. With journal installed on propeller shaft, check it for movement. When journal does not move smoothly, disassemble.
2. Put match marks on sleeve yoke, flange yoke, propeller shaft, and other parts as required so that they can be reassembled to the original condition.
3. Remove snap ring with an ordinary screw driver.

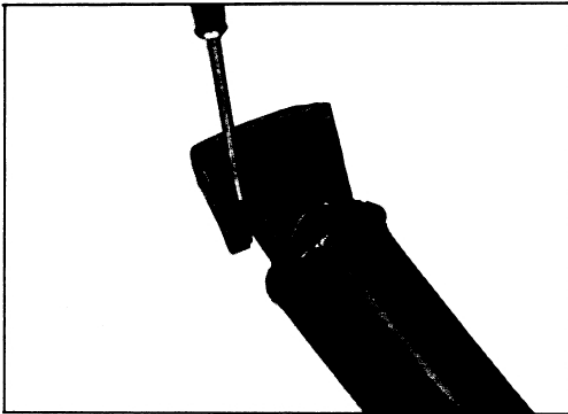


Fig. PD-4 Removing snap ring

4. Remove bearing.

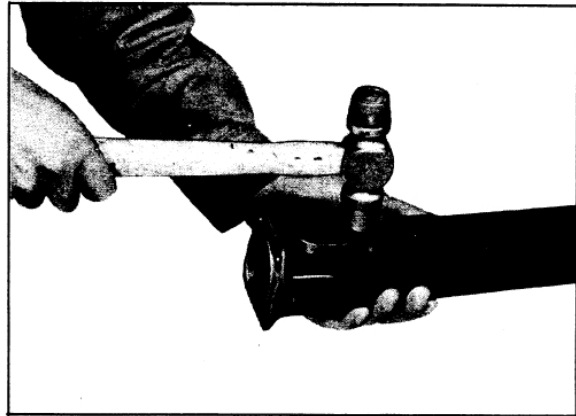


Fig. PD-5 Removing bearing

5. Lightly tap base of yoke with a hammer, and withdraw bearing race.

Note: When removing journal from yoke, be careful not to damage journal.

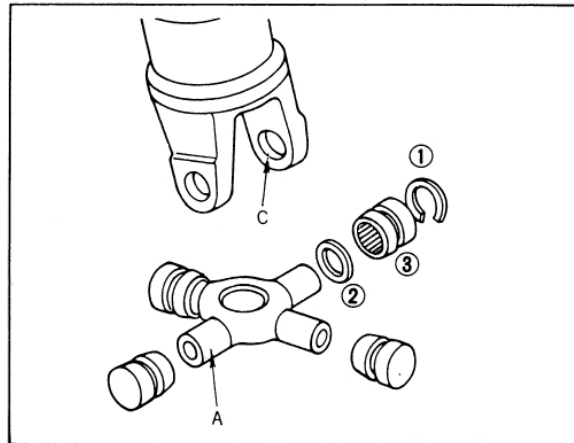


Fig. PD-6 Exploded view

INSPECTION

1. Check each part, and repair or replace if defective. When replacing journal unit, replace as an assembly.
2. When journal pin exterior "A" is pitted or cruised, replace.
3. When yoke hole "C" is worn or damaged, replace.

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4. When snap ring ① is damaged or deformed, replace.
5. When bearing oil seal, ring ② and/or needle roller ③ is damaged or worn, replace.
6. When sleeve yoke and main shaft splined portions are damaged or worn, replace sleeve yoke and main shaft.
7. When propeller shaft tube surface is dented or cracked, replace.
8. When center bearing is worn or damaged, replace.

Propeller shaft installation bolt
2.5 to 3.0 kg-m (18.5 to 22 ft-lb)

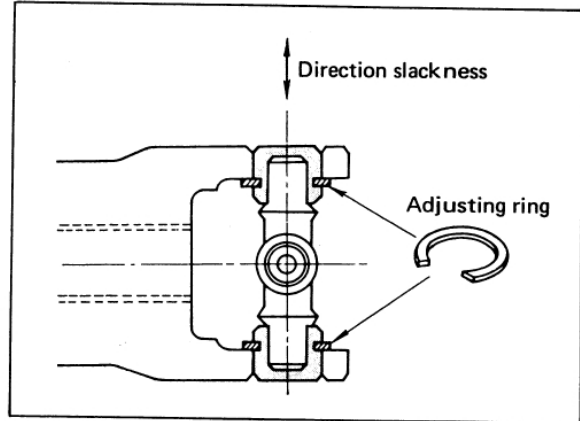


Fig. PD-7 Selection of snap ring

ASSEMBLY

Assemble propeller shaft in reverse sequence to disassembly.

Grease is sealed in joint so that no greasing is required. Fill joint with wheel bearing grease whenever propeller shaft is overhauled.

Snap ring functions also as a shim to adjust gap. Select a proper snap ring so that slackness is 0 to 0.02 mm (0 to 0.0008 in). Moreover, when a snap ring is selected, be sure to select another snap ring having the same thickness for opposite side. Install and assemble components correctly so that joint moves under bending friction resistance of less than 10 kg/cm (56 lb/in).

Tightening torque:

Companion flange (center bearing unit) installation nut (G521 and GN521) . . . 10 to 15 kg-m (74 to 111 ft-lb)

Bearing mounting bracket installation bolt (G521 and GN521) . . . 2.4 to 2.7 kg-m (18 to 20 ft-lb)

Snap ring over size:

Part number	Thickness mm (in)	Color identification
37146 14600	2.00 (0.0788)	White
37147 14600	2.02 (0.0795)	Yellow
37148 14600	2.04 (0.0803)	Red
37149 14600	2.06 (0.0811)	Green
37150 14600	2.08 (0.0819)	Blue
37151 14600	2.10 (0.0827)	Brown
37152 14600	2.12 (0.0834)	No paint

SERVICE DATA AND SPECIFICATIONS

	Vehicle			
	U.V.N521	521T Floor shift (Except GN521T)	GN521	
Distance between joints	mm (in)	1,233 (48.5)	1st 615 (24.2) 2nd 743 (29.3)	1st 615 (24.2) 2nd 983 (38.7)
Tube outer diameter x thickness	mm (in)	68.9 x 1.6 (2.713 x 0.063)	63.5 x 1.6 (2.500 x 0.063)	63.5 x 1.6 (2.500 x 0.063)
Spline model		Involute spline	Involute spline	Involute spline
Permissible unbalance	gr-cm/rpm	15/4,000	15/4,000	15/4,000

PROPELLER SHAFT & DIFFERENTIAL CARRIER

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Vibration (Vibration occurs on propeller shaft during at medium or high speed and the vibration is transmitted to body.)	Worn or damaged universal joint needle bearing	Replace
	Unbalance due to bent or dented propeller shaft	Repair or replace
	Loose propeller shaft installation	Retighten
	Worn transmission rear extension bushing	Replace
	Damaged center bearing	Replace
Knocking sound during starting or noise during coasting on propeller shaft	Worn or damaged universal joint	Replace
	Worn sleeve yoke and main shaft spline	Replace
	Loose propeller shaft installation	Retighten
	Loose joint installation	Adjust snap ring
	Damaged center bearing	Replace

DIFFERENTIAL CARRIER

CONTENTS

DESCRIPTION	PD- 5	Adjusting drive pinion preload	PD-10
REMOVAL	PD- 6	Adjusting side bearing shim	PD-11
DIASSEMBLY	PD- 7	Inspecting and repairing drive gear tooth contact	PD-13
Inspection before disassembly	PD- 7	INSTALLATION	PD-14
INSPECTION AND REPAIR	PD- 8	SERVICE DATA AND SPECIFICATIONS	PD-14
ASSEMBLY AND ADJUSTMENT	PD- 8	TROUBLE DIAGNOSES AND CORRECTIONS	PD-15
Assembling differential gear case	PD- 8		
Adjusting pinion height	PD- 9		

DESCRIPTION

The differential gear carrier is made of light and strong aluminum alloy, and uses hypoid bevel gear.

Shims and washers are used for adjustments of tooth contact, preload and backlash of the gear.

Differential gear oil should be replaced at initial 1,000 km (600 miles), checked every 3,000 km (2,000 miles), and replaced every 36,000 km (24,000 miles).

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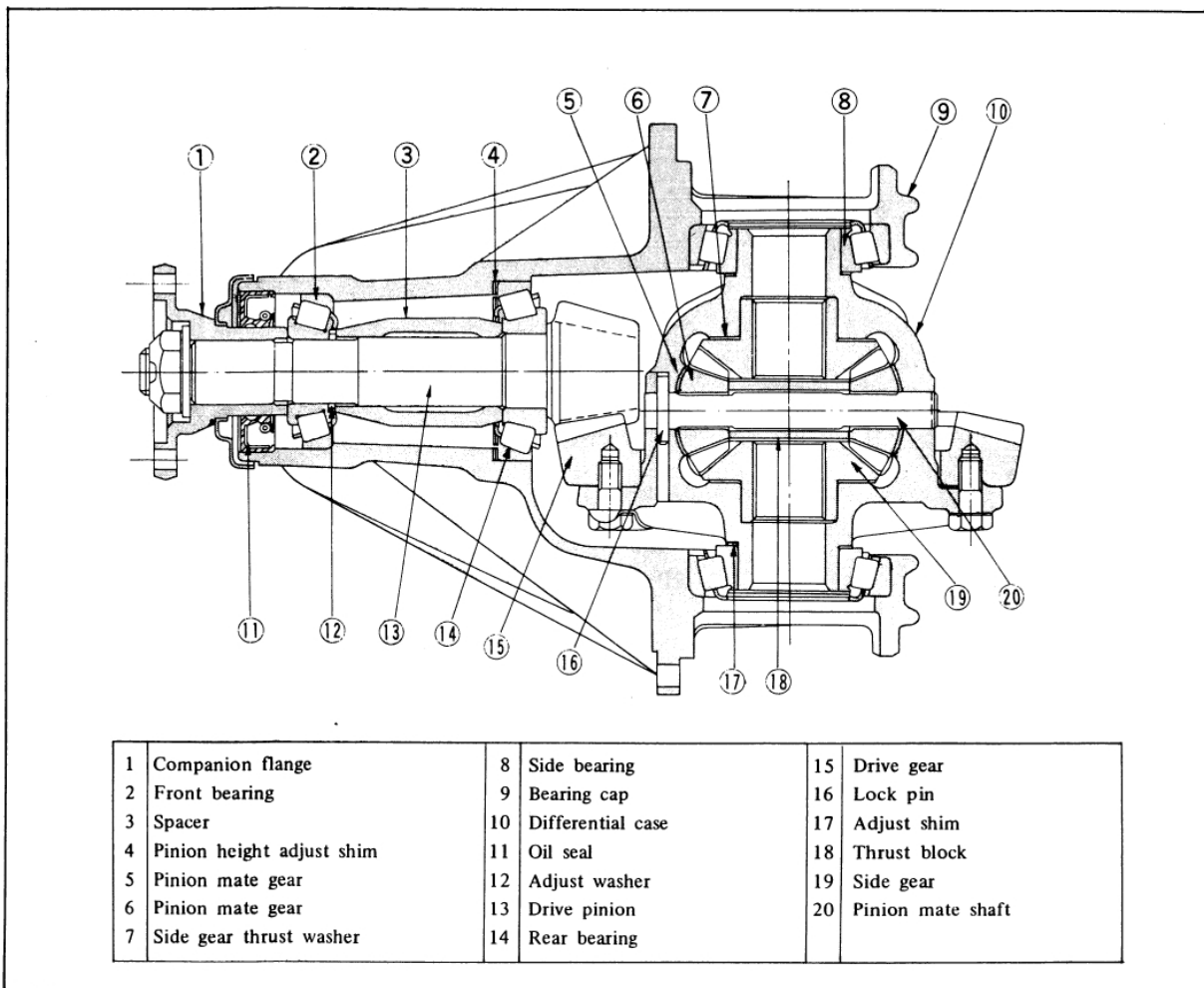


Fig. PD-8 Cross-sectional view of differential carrier

REMOVAL

When removing gear carrier assembly, disconnect drive pinion companion flange-to-flange yoke connection, and remove two rear axle shafts. Refer to "REAR AXLE" for removal of rear axle.

1. Jack up rear axle, support it with a stand, and drain gear oil.
2. Remove rear axle shaft.
3. Remove companion flange and propeller shaft installation bolts ① and housing installation nuts ②, and remove differential gear carrier assembly.

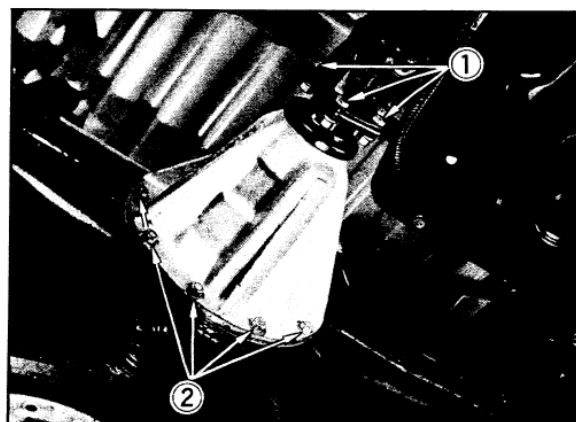


Fig. PD-9 Removing differential gear carrier

PROPELLER SHAFT & DIFFERENTIAL CARRIER

DISASSEMBLY

Inspection before disassembly

In order to obtain the cause of trouble correctly, check assembly for oil leakage, and measure drive gear and pinion tooth contact, backlash, and torque of drive pinion. When tooth contact and backlash are incorrect, measure drive gear back tilting also.

1. Secure differential gear carrier assembly on a stand (special tool ST07320000), and remove side bearing tightening nut and side bearing cap.
2. Remove differential case assembly, and segregate left and right side bearing outer races.

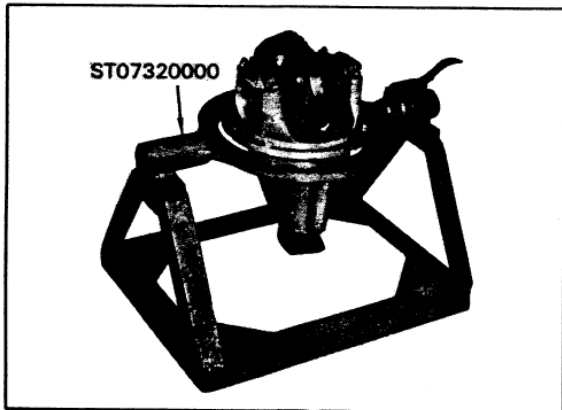


Fig. PD-10 Removing differential case

3. Withdraw side bearing with puller (special tool ST33010000).

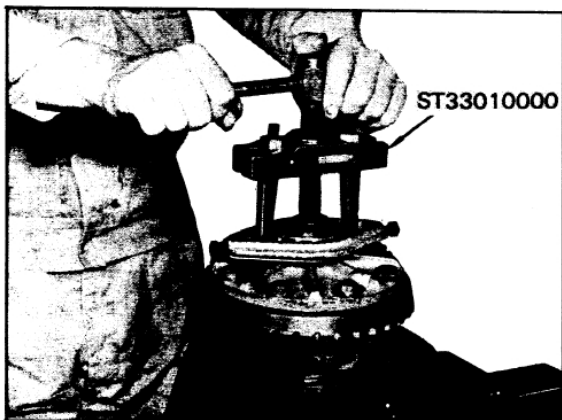


Fig. PD-11 Removing side bearing

Note: Be sure to segregate left and right side bearings together with shims.

4. Unbend lock washer, loosen installation bolts in diagonal sequence, and separate drive gear.
5. Pull out lock pin, and turn and remove pinion mate shaft, pinion mate gear, side gear, thrust block, and thrust washer.

Note: Segregate left and right gears and thrust washers.

6. Hold companion flange with a flange wrench (special tool ST31530000), remove pinion nut, withdraw flange, and remove drive pinion.

Note: Be careful not to lose preload adjusting shim.

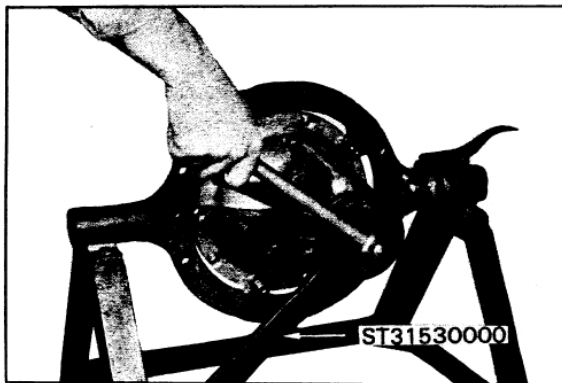


Fig. PD-12 Removing pinion nut

7. Remove rear bearing inner race by the use of a represser (special tool ST30030000).

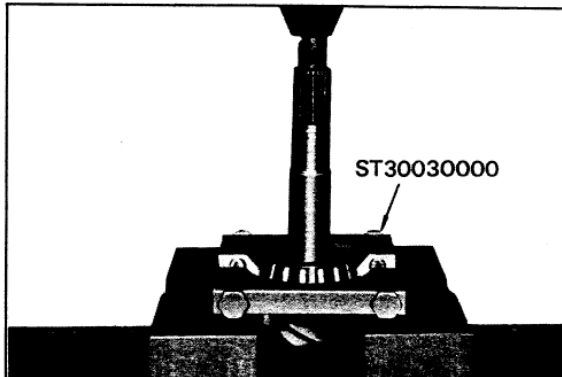


Fig. PD-13 Removing bearing inner race

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8. Remove oil seal from differential gear carrier.

Note: Be sure to replace it with new one when re-installing.

9. Apply an adapter to race side surface, and withdraw bearing outer race.

Put removed pinion height adjust shims in order.

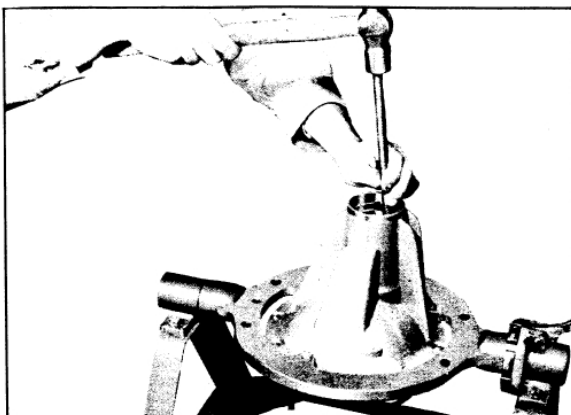


Fig. PD-14 Removing outer race

INSPECTION AND REPAIR

Thoroughly clean all disassembled parts, and repair or replace if worn, damaged, or defective.

1. Drive gear and drive pinion
 - (1) When tooth contact is incorrect, check them for cause and adjust correctly at the time of reassembly.

When wear is excessive or tooth contact cannot be adjusted correctly, replace gears as a set.
 - (2) When tooth surface is cracked, or damaged or seized, replace gears as a set.
2. Side gear and pinion mate gear
 - (1) When tooth surface is cracked or damaged, replace.
 - (2) When thrust washer surface is worn or seized, replace. Repair with an oil stone when wear or seizure is minor.
3. Bearing

When bearing is seized, exfoliated, worn, rusted, or

drags during rotation, or noise occurs, replace.

4. When side gear and pinion mate gear thrust washers are seized, damaged or worn excessively, replace.
5. Oil seal

When oil seal is weakened or damaged, replace. Primarily, replace oil seal whenever disassembled.
6. Gear carrier

When sliding part is worn or cracked, replace.
7. Differential case

When sliding part is worn or cracked, replace.
8. Flange

When oil seal lip contact surface is damaged, replace.

ASSEMBLY AND ADJUSTMENT

Assemble differential carrier in reverse sequence to disassembly by noting the following matters:

1. Put shims and washers in order and install them on the correct positions.
2. Clean shim, washer and bearing contact surfaces.
3. When installing bearing, put gear oil. When fitting bearing, however, clean off oil from fitting part.
4. When installing oil seal, fill space between lips with multi-purpose grease (MIL-G-2108 or G-10924) and install carefully so as not to damage oil seal lip.

Assembling differential gear case

1. Install pinion mate gear, thrust block and side gear on differential case. Coincide pinion mate shaft with lock pin hole on case, and install it.
2. Measure side gear back clearance.

When adjustment is required, select a proper side gear thrust washer so that clearance is within the standard value.

PROPELLER SHAFT & DIFFERENTIAL CARRIER

Side gear thrust washer	
Part number	Thickness mm (in)
38424 25660	0.76 to 0.81 (0.0299 to 0.0319)
38424 32200	0.81 to 0.86 (0.0319 to 0.0339)
38424 32201	0.86 to 0.91 (0.0339 to 0.0358)
38424 32202	1.01 to 1.06 (0.0398 to 0.0417)
38424 32203	1.06 to 1.11 (0.0417 to 0.0437)

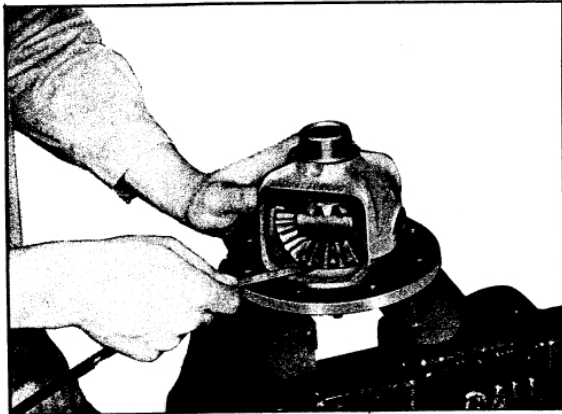


Fig. PD-15 Measuring side gear back clearance

Standard side gear back clearance:
0.02 to 0.08 mm (0.0008 to 0.0031 in)

3. Fit lock pin, caulk circumference of lock pin hole and lock it.
4. Install drive gear on differential case. Tapping bolt head with a hammer, tighten bolts in diagonal sequence, bend lock washer to lock bolts.

Tightening torque:
4.8 to 5.5 kg-m (35.6 to 40.7 ft-lb)

5. Fit side bearing together with adjust shim to differential case by the use of a drift (special tool ST33210000).

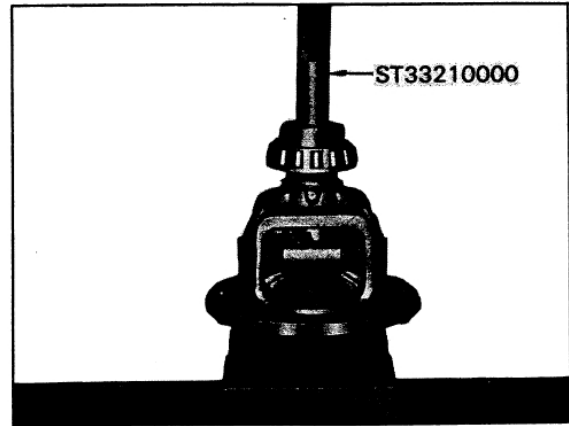


Fig. PD-16 Installing side bearing

Adjusting pinion height

Install pinion on differential carrier temporarily, apply specified preload [7 to 10 kg-cm (6.2 to 8.9 in-lb)], and measure pinion height.

When installing pinion on differential carrier, do not install oil seal.

Note: Do not tighten pinion nut excessively because spacer and shim are not installed.

When adjustment is required, adjust thickness of shim applied to back of rear bearing cup.

1. Fit rear bearing cone to drive pinion.
(Special tool ST30030000)

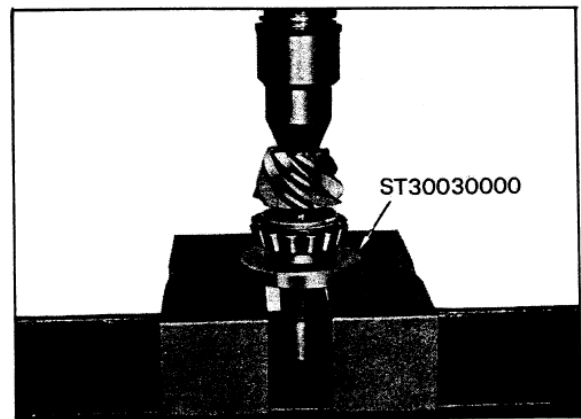


Fig. PD-17 Installing pinion bearing

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2. Apply drive pinion to carrier, and install front bearing cone.
3. Install companion flange, and tighten nut so that specified preload 7 to 10 kg-cm (6.2 to 8.9 in-lb) can be obtained.
4. Install gauge (special tool ST31100000) on differential carrier, and measure clearance between gauge end and drive pinion end surface with a thickness gauge.

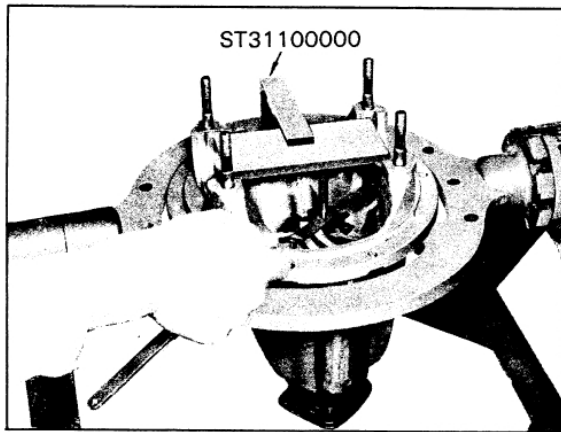


Fig. PD-18 Measuring clearance

5. Thickness of drive pinion height adjust shim can be obtained by the following equation:

$$T = N - (H \times 0.01) - 0.2$$

Where, T: Thickness of shim
 N: Value measured by thickness gauge
 H: Number on drive pinion head

Calculation example:

When N is 0.5 and H is +2;
 $T = 0.5 - (+2 \times 0.01) - 0.2 = 0.28$

Pinion height adjust shim	
Part number	Thickness mm (in)
38153 10601	0.050 (0.0020)
38154 10601	0.075 (0.0030)
38155 10601	0.125 (0.0049)
38156 10601	0.250 (0.0098)
38157 10601	0.500 (0.0197)

6. Remove drive pinion from differential carrier, and install shim on the back of rear bearing cup. When adjusting preload, check pinion height again.

Adjusting drive pinion preload

1. Spacer and washer to be applied between front and rear bearing cones are used for adjustment of preload. When adjusting, oil seal is not installed.
2. Install spacer, adjust washer, front bearing cone, and flange on pinion, and tighten pinion nut with prescribed tightening torque.

Note: Turn pinion by hand so that nut is not tightened excessively, and increase thickness of spacer and washer when pinion does not rotate.

3. Measure preload of drive pinion, and select proper spacer and washer to obtain the prescribed preload.
 (Special tool ST31200000)

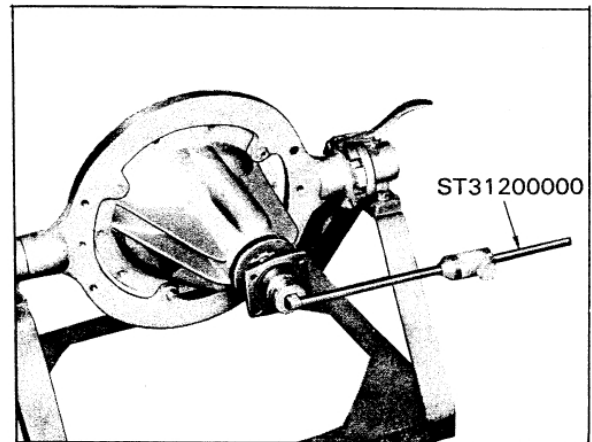


Fig. PD-19 Measuring preload

Bearing spacer	
Part number	Length mm (in)
38165 32202	67.56 (2.6598)
38166 32202	67.75 (2.6673)
38167 32202	68.00 (2.6772)

PROPELLER SHAFT & DIFFERENTIAL CARRIER

Pinion bearing adjust washer			
Part number	Thickness mm (in)	Part number	Thickness mm (in)
38127 09400	2.59 (0.1020)	38135 09400	2.43 (0.0957)
38128 09400	2.57 (0.1012)	38136 09400	2.41 (0.0949)
38129 09400	2.55 (0.1004)	38137 09400	2.39 (0.0941)
38130 09400	2.53 (0.0996)	38139 09400	2.37 (0.0933)
38131 09400	2.51 (0.0988)	38140 09400	2.35 (0.0925)
38132 09400	2.49 (0.0980)	38140 09400	2.33 (0.0917)
38133 09400	2.47 (0.0972)	38141 09400	2.31 (0.0909)
38134 09400	2.45 (0.0965)		

4. Remove flange and install oil seal. Be sure to replace oil seal with a new one whenever differential carrier is disassembled.

5. Install flange and washer, and tighten pinion nut with prescribed tightening torque 14 to 17 kg-cm (104 to 129 in-lb).

6. Turn flange to let pinion bearing breaking-in, and make sure that preload of pinion is correct again.

Adjusting side bearing shim

1. Use the same shim again unless differential case, side bearing and/or carrier is replaced or preload of bearing is abnormal.

2. When replacing side bearing, use weight block of approximately 2.5 kg (5.5 lb) and measure bearing width before installing new bearing.

Standard width: 20.00 mm (0.7874 in)

Left side shim thickness

$$T_1 = (A - C + D + F) \times 0.01 + 0.175 \text{ (mm)}$$

Right side shim thickness

$$T_2 = (B - D + F) \times 0.01 + 0.150 \text{ (mm)}$$

Where, A, B: Mark on gear carrier

C, D: Mark on differential case

E, F: Tolerance of left or right side assembled width against standard size 20 mm (0.7874 in) is expressed in unit of 0.01, and 0.01 mm (0.0004 in) is expressed as one.

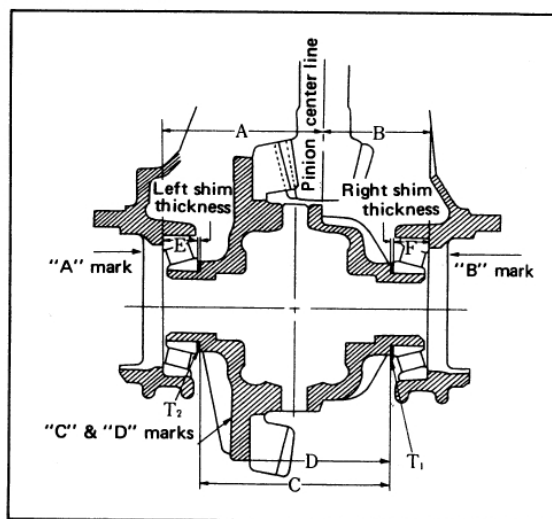


Fig. PD-20 Adjusting side bearing shim

3. Apply selected shim to differential case, and fit side bearing cone.

4. Tap differential case assembly lightly with a rubber mallet, and install it on gear carrier.

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Side bearing shim	
Part number	Thickness mm (in)
38453 61200	0.05 (0.0020)
38454 61200	0.07 (0.0028)
38455 61200	0.12 (0.0047)
38456 61200	0.25 (0.0098)
38457 61200	0.50 (0.0197)

5. Coincide marks on bearing cap and bearing housing, and install bearing cap on bearing housing.

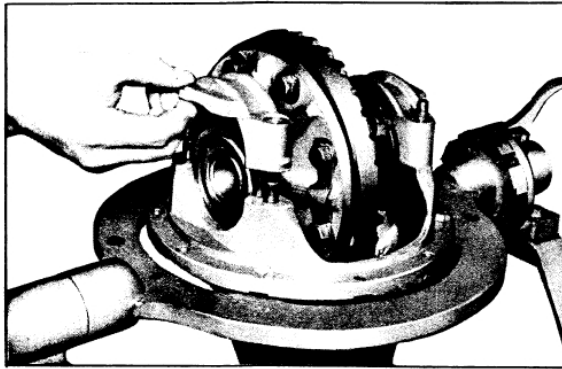


Fig. PD-21 Installing bearing cap

6. Tighten bolts in diagonal sequence with prescribed tightening torque 4.2 to 4.8 kg-m (31 to 35 ft-lb).

7. Measure dimension between left and right bearing cap edges by the use of a cap gauge (special tool ST32110000)

Standard dimension:

198.40 to 198.55 mm (7.811 to 7.817 in)

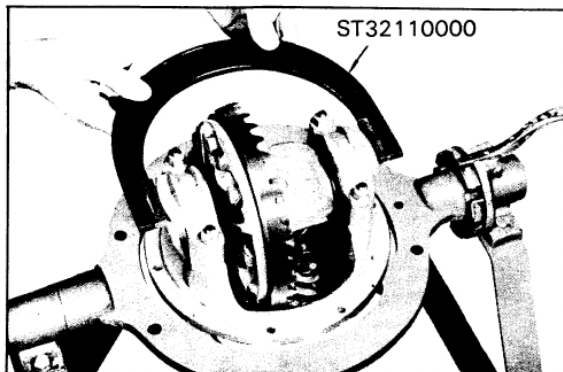


Fig. PD-22 Measuring width

8. When the width is insufficient, add shim.

9. Measure drive gear and drive pinion backlash. When backlash is less than standard value, move it from left to right. Move from right to left when excessive.

Standard backlash: 0.13 to 0.18 mm
(0.0051 to 0.0071 in)

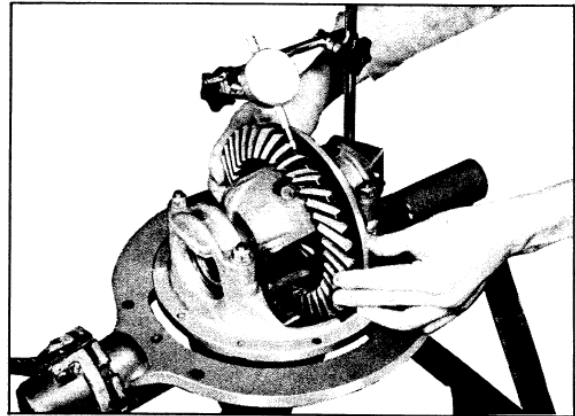


Fig. PD-23 Measuring backlash

10. When fluctuation of backlash is excessive, measure drive gear back deflection. A foreign material may be bit between drive gear and differential case.

Deflection limit: 0.05 mm (0.002 in)

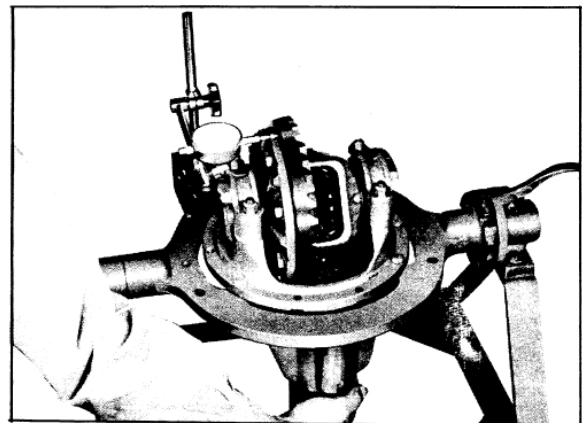


Fig. PD-24 Measuring runout of drive gear

11. When drive gear deflection is satisfactory but backlash fluctuation is excessive, replace gears as a set.

PROPELLER SHAFT & DIFFERENTIAL CARRIER

Inspecting and repairing drive gear tooth contact

1. Put red lead (Minium) evenly on both surfaces of three to four teeth of drive gear, turn drive gear to both directions several times by hand, and check drive gear for tooth contact.

2. When tooth contact is incorrect, readjust thickness of adjust shim. Be sure to wipe off red lead completely upon completion of adjustment.

a. Heel contact

When contact surface is insufficient, heel may be damaged. Adjust by reducing thickness of shim in right side of side bearing and increase thickness of shim in left side.

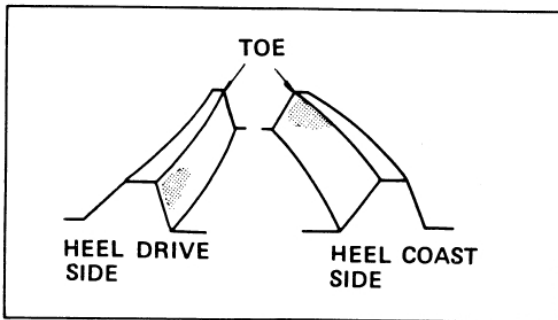


Fig. PD-25 Heel contact

b. Toe contact

When contact surface is insufficient, toe may be damaged. Adjust by reducing thickness of shim in left side of side bearing, and increase thickness of shim in right side.

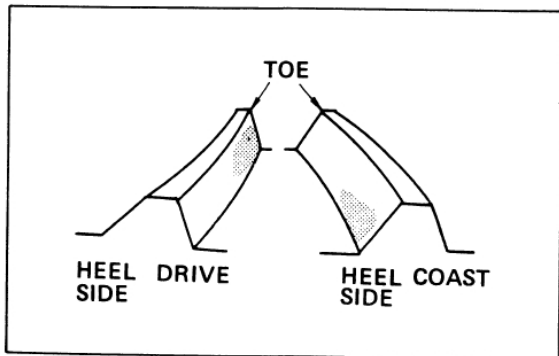


Fig. PD-26 Toe contact

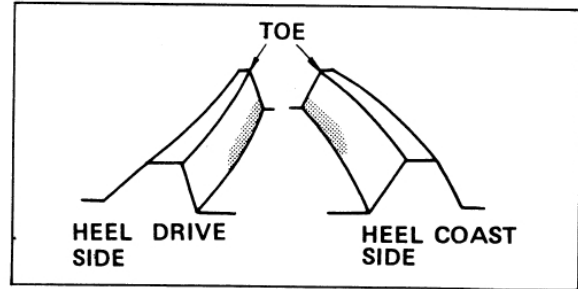


Fig. PD-27 Flank contact

c. Flank contact

When backlash is too tight, flank contact occurs. Noise increases, and tooth edge is easily worn in step. Replace drive pinion adjusting washer with a thinner one so that drive pinion is moved away from drive gear.

d. Face contact

In the most case, this trouble occurs when backlash is excessive. Noise increases and tooth edge is easily damaged. In order to obtain correct tooth contact, replace drive pinion adjusting washer with a thicker one so that drive pinion is moved to drive gear.

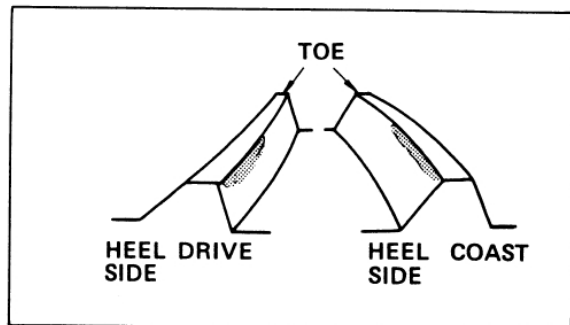


Fig. PD-28 Face contact

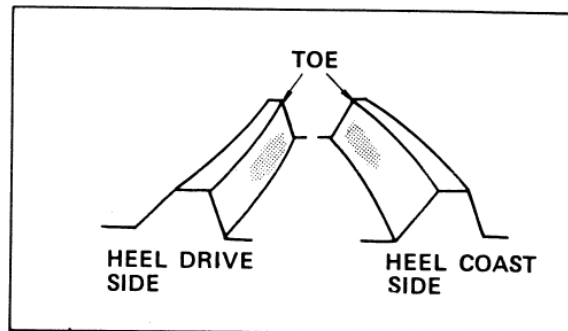


Fig. PD-29 Correct contact

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e. Correct contact

When proper tooth contact is obtained, wipe off red lead from gear face. A correct contact pattern means that it lies in the range of 2/3 to 3/4 from tip of tooth when no load is applied.

shim is accompanied by change in backlash. Check it when installing gear.

INSTALLATION

Install differential carrier in reverse sequence to removal. Lubricate gears with gear oil upon completion of installation.

Note: Change in the thickness of adjusting washer or

SERVICE DATA AND SPECIFICATIONS

Final gear type	Hypoid
Final gear ratio (number of teeth)	521, G521 36/7 : 5.143 V521 37/8 : 4.625 N521, GN512 39/8 : 4.875 VN521, UN521 35/8 : 4.375 PL521 35/8 : 4.375
Drive pinion	
Preload when using new bearings (without oil seal)	kg-m (ft-lb) 7 to 10 (50.6 to 72.3)
Standard distance between drive gear center and top face of drive pinion	mm (in) 61 (2.402)
Thickness of drive pinion adjusting washers	mm (in) 2.31 to 2.59 (0.0909 to 0.1020) Spacing 0.02 (0.0079)
Length of drive pinion bearing spacer	mm (in) 67.56 to 68.00 (2.6598 to 2.6772)
Drive gear	
Backlash between drive gear and pinion	mm (in) 0.13 to 0.18 (0.0051 to 0.0071)
Runout of rear side of drive gear	mm (in) Less than 0.05 (0.0020)
Side gear and pinion mate	
Thickness of side gear thrust washers	mm (in) 0.76 to 1.11 (0.0299 to 0.0437)
Clearance between side gear and thrust washer	mm (in) 0.02 to 0.08 (0.0008 to 0.0031)
Side bearing	
Standard width	mm (in) 20.00 (0.7874)
Thickness of side bearing adjusting shims	mm (in) 0.05 (0.0020), 0.07 (0.0028), 0.12 (0.0047), 0.25 (0.0098), 0.50 (0.0197)

PROPELLER SHAFT & DIFFERENTIAL CARRIER

Tightening torque

Drive pinion nut	kg-m (ft-lb)	14 to 17 (101.2 to 122.9)
Drive gear bolts	kg-m (ft-lb)	4.8 to 5.5 (34.7 to 39.8)
Side bearing cap bolts	kg-m (ft-lb)	4.2 to 4.8 (30.4 to 34.7)
Differential carrier to axle housing fix nuts	kg-m (ft-lb)	1.6 to 2.4 (11.6 to 17.4)
Companion flange to propeller shaft fix nuts	kg-m (ft-lb)	2.5 to 3.0 (18.1 to 21.7)

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Noise on drive	Shortage of oil	Supply gear oil
	Incorrect tooth contact between drive gear and drive pinion	Adjust tooth contact
	Damaged differential side bearing or improper adjustment	Replace or adjust
	Damaged gear	Replace defective parts
Noise on coast	Incorrect backlash between drive gear and drive pinion	Adjust backlash
	Incorrect adjustment of drive pinion bearing	Adjust correctly
Noise on drive and coast	Worn or damaged drive pinion bearings	Rebuild differential and replace as required
	Incorrect tooth contact pattern	Adjust backlash or replace hypoid gear set
	Damaged side gear drive gear, drive pinion teeth surface	Replace as required
	Seized drive gear and drive pinion	Replace hypoid gear set
	Pinion bearing under inadequate preload	Adjust preload
	Seized damaged or broken pinion bearing	Replace bearing
	Seized damaged or broken side bearing	Replace side bearing
Swinging differential case	Replace differential case	

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Condition	Probable cause	Corrective action
	Loosen clamp bolts and nuts holding drive gear, side bearing, etc.	Retighten them to the designated tightening torque
Noise on turn	Side gear jammed in differential case Pinion gears too tight on their shaft Worn or damaged side gear thrust washer and pinion thrust washer	Replace defective parts Replace as required Replace
Excessive backlash	Incorrect backlash between drive gear and drive pinion Worn differential gear or case	Adjust backlash Replace worn parts
Breakage of differential	Shortage of oil or use of improper oil Severe service due to an excessive loading Incorrect adjustment of drive gear and drive pinion Excessive backlash due to defacement of side gear and thrust washer Loosened bolts and nuts such as drive gear bolts	Rebuild differential and replace as required After adjusting preload of bearings, backlash and engaging condition of gears, fasten parts and apply specified volume of genuine gear oil Avoid abusing of the car

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION FA

FRONT AXLE & FRONT SUSPENSION

FA

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FRONT AXLE & FRONT SUSPENSION

FRONT AXLE

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FRONT AXLE	FA-2	Reinstallation	FA-7
Removal	FA-2	Wheel bearing adjustment	FA-8

DESCRIPTION

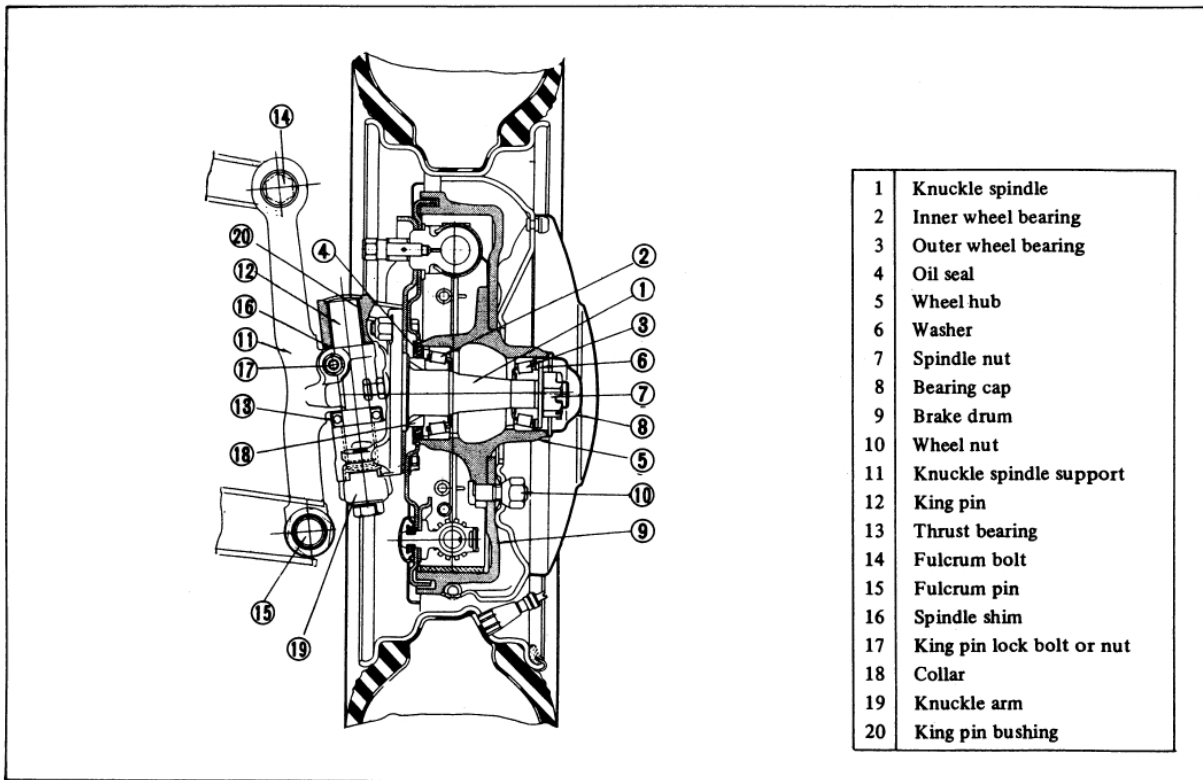


Fig. FA-1 Cross-sectional view of front axle

The knuckle spindle is installed on the knuckle spindle support through the king pin. The king pin bushing is placed between the knuckle spindle and king pin sliding

parts, and the thrust bearing is inserted between the knuckle spindle and knuckle spindle support. The knuckle arm is set stationarily on the knuckle spindle, and when

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the knuckle arm moves, the knuckle spindle is lightly operated round king pin axis.

The wheel hub is supported with two wheel bearings on the knuckle spindle, and brake drum and wheel are secured on the wheel hub with hub bolts. With this construction, wheels lightly rotate round the knuckle spindle axis.

FRONT AXLE

Removal

1. Jack up vehicle and support it with stands.
2. Remove hub nuts and wheel.
3. Remove brake hose from wheel cylinder.
4. Remove brake drum.
5. Remove hub cap.
6. Remove cotter pin and spindle nut from knuckle spindle.
7. Remove wheel hub, wheel bearings, oil seal and collar from knuckle spindle.
8. Remove brake disc assembly from the flange of knuckle spindle.
9. Remove knuckle arm from knuckle spindle.

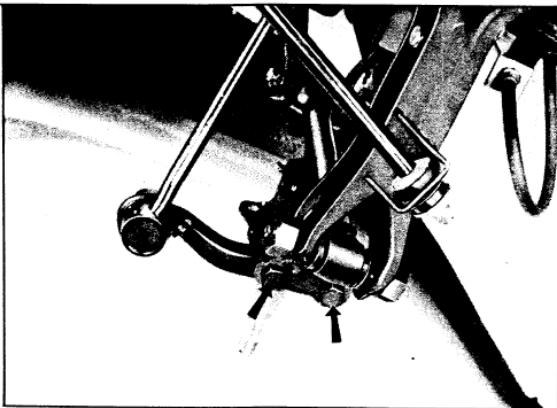


Fig. FA-2 Removing knuckle arm

10. Remove king pin lock bolt.

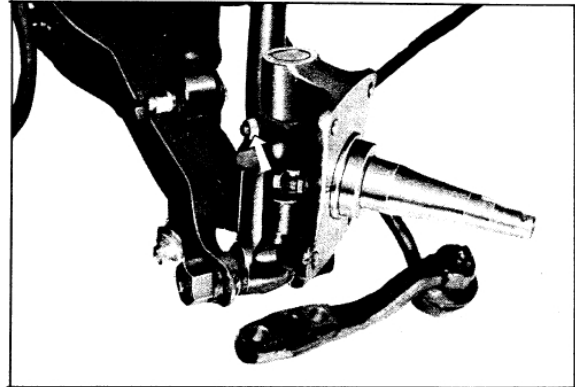


Fig. FA-3 Removing king pin lock nut

11. Remove plug from the top of king pin with a rod or other proper mean. Plug may be removed by drilling a hole 6.5 mm (0.256 in) dia. on upper plug, threading hole with a tap (M8), screwing a bolt into threaded hole and by pulling bolt.

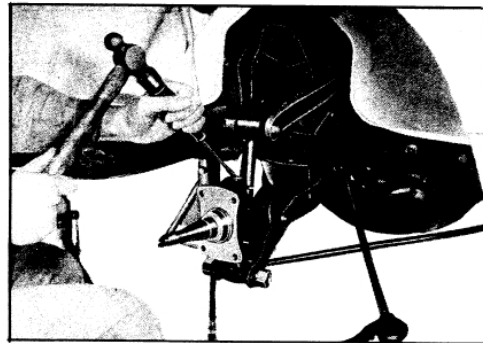


Fig. FA-4 Removing king pin plug

12. Apply drift to the top of king pin, and drive out king pin together with lower plug.

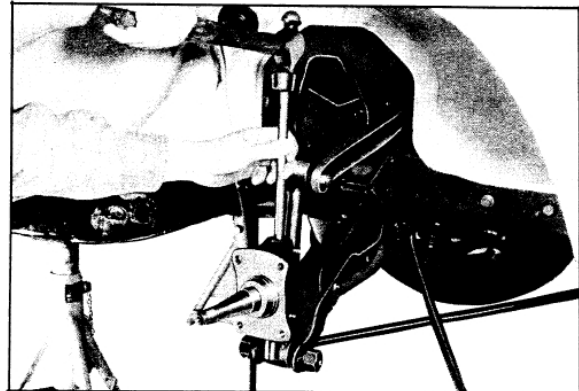


Fig. FA-5 Removing king pin

FRONT AXLE & FRONT SUSPENSION

13. Tap spindle lightly with a copper or lead hammer, and detach it from knuckle spindle support. Be careful not to drop thrust bearing.

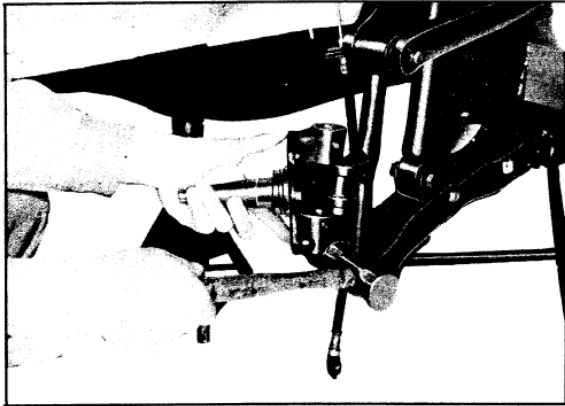


Fig. FA-6 Removing spindle support

14. Lightly tap outer race circumference with a hammer by applying a brass bar, and remove wheel bearing outer race from wheel hub. When tapping outer race circumference, tap evenly.

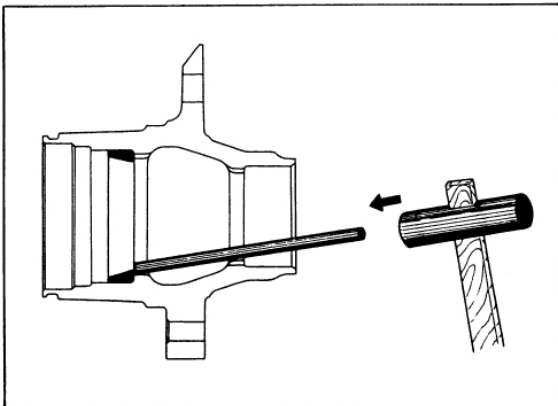


Fig. FA-7 Exploded view of bushing

Inspection

1. King pin and bushing

Replace, when damaged, seized, rusted or excessively worn and clearance between king pin and bushing toward diameter direction exceeds limit listed below.

Clearance limit: 0.15 mm (0.0059 in)

Standard dimensions

King pin outer diameter:

19.979 to 20.000 mm (0.7866 to 0.7874 in)

Bushing inner diameter (when fitted)

20.010 to 20.035 mm (0.7878 to 0.7888 in)

2. Oil seal

(1) When grease leakage is detected during disassembly, replace.

(2) When worn or cracked, replace.

3. Wheel bearing

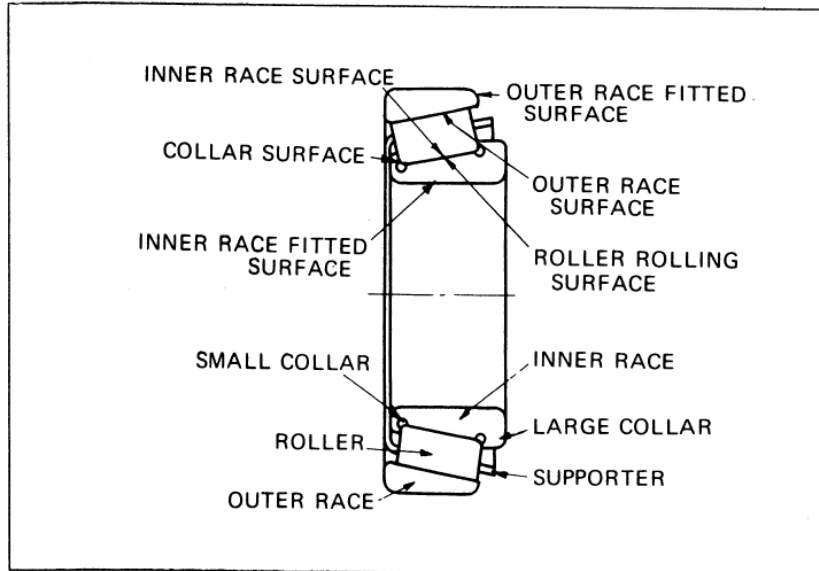
Remove grease from wheel bearing with solvent, and check bearing for condition. Check it for rotating smoothness, operating sound, and appearance. Rolling surface can be checked with bearing outer race installed on wheel hub. Visual serviceability standard for wheel bearing are indicated as follows:

Standard dimensions

	Outer bearing	Inner bearing
Inner diameter mm(in)	19.990 to 20.000 (0.7870 to 0.7874)	31.988 to 32.000 (1.2594 to 1.2598)
Outer diameter mm(in)	51.987 to 52.000 (2.0467 to 2.0472)	64.987 to 65.000 (2.5585 to 2.5591)

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Visual Serviceability Standard for Wheel Bearing

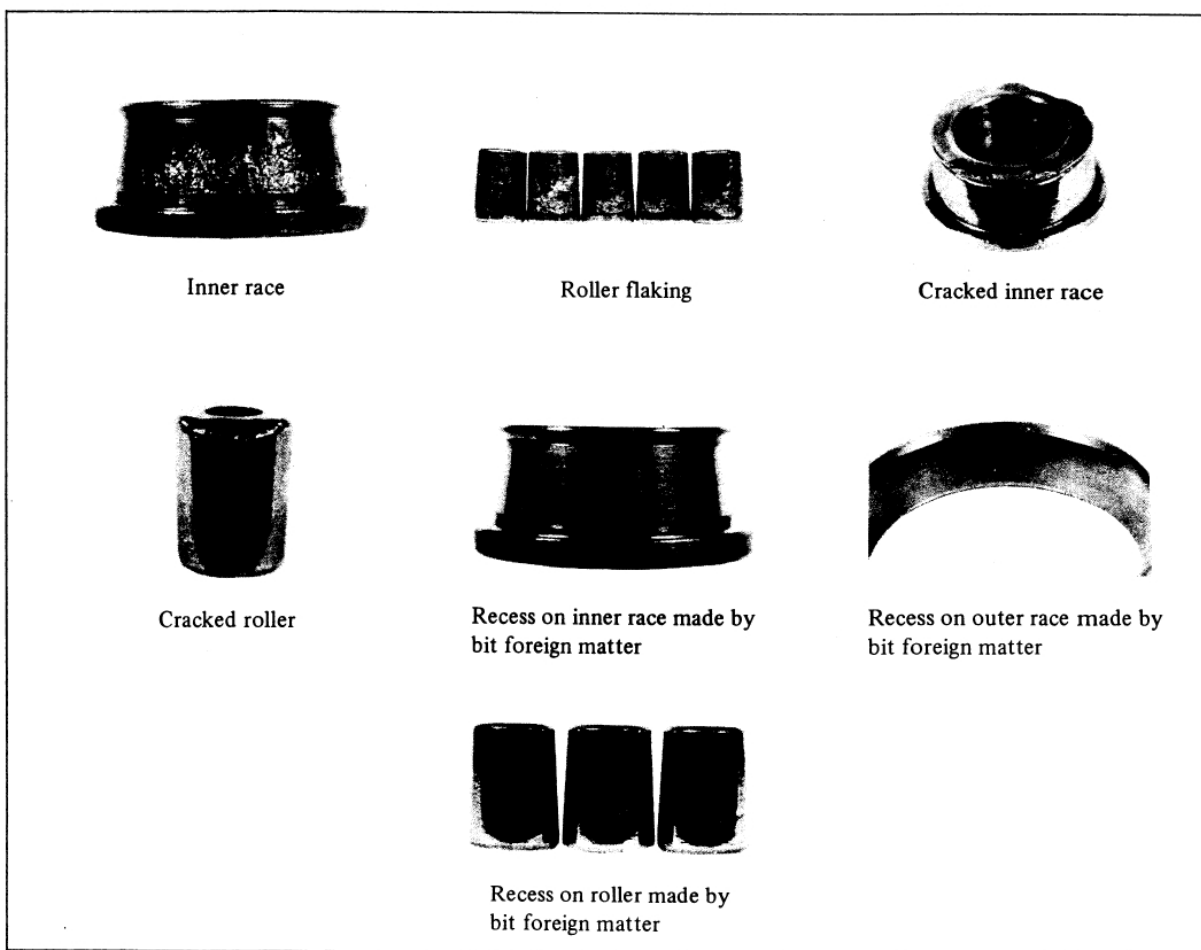


Judgement	× : Unserviceable △ : May be used when minor. * : Rust should be removed with #0 emery paper.			Cause
	Race and roller		Supporter	
	Race surface roller and collar surface	Fitted surface		
Flaking	×			Service life due to rolling fatigue. However, this symptom occurs before the service life. The following causes are considered. <ul style="list-style-type: none"> . Abnormal load (overload) . Improper handling or improper installation
Crack	×	×	×	<ul style="list-style-type: none"> . Excessive tightening . Gap is excessive and a considerable shock is received from the outside. . Rapid heat generation on the race due to creep . Rollers bite the supporter due to seizure . Abnormal thrust load . Tapped with a hammer while removing

FRONT AXLE & FRONT SUSPENSION

	Race and roller		Supporter	Cause
	Race surface roller and collar surface	Fitted surface		
Seizure	x	x	x	In the most cases, seizure occurs as the result of grown discoloring or flaking
Scratch	△	△	△	<ul style="list-style-type: none"> . Shock is given carelessly during installation . Bit foreign matter
Recess or wear made by pressing or striking	△	△	△	<ul style="list-style-type: none"> . Careless installation, removal, or other handling (scar due to striking) . Recess made by bit foreign matter
Wear	△	△	△	<ul style="list-style-type: none"> . Poor lubricant quality or deteriorated lubricant . Intrusion of dust. Fitted surface is worn remarkably . Wear due to excessive preliminary pressure
Biting	△	△	△	<ul style="list-style-type: none"> . Excessive preliminary pressure or faulty lubrication
Fretting	△ *	△ *	△ *	<ul style="list-style-type: none"> . The fitted part is discolored to brown or black . Fretting corrosion (rust on fitted part) means fine relative slip on metal) contact surface
Rust	△ *	△ *	△ *	<ul style="list-style-type: none"> . Temperature increased during operation lowers when the bearing stops, moisture inside the bearing is condensed, becoming fine drips, and the grease is moistened . The bearing has been placed in a highly moistened place for a long period of time . Intrusion of moisture, chemicals, etc., or the bearing is touched with bare hand and no rustproof action has been taken
Discoloring	The wheel bearing is serviceable if discoloring can be removed with solvent or by polishing			<ul style="list-style-type: none"> . Slight discoloring may become like oxidized oil stain due to grease . In the most cases, this occurs when preliminary pressure is too high

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4. Spindle

Check spindle for crack by means of a magnetic exploration or dyeing test, and replace if cracked.

When bearing inner race slips against spindle, replace spindle with a new one. When thread is damaged, repair or replace.

Standard dimensions

	Outer bearing	Inner bearing
Spindle diameter mm(in)	19.972 to 19.985 (0.7863 to 0.7868)	31.967 to 31.983 (1.2585 to 1.2592)

5. Front hub

Check front hub for crack by means of a magnetic exploration or dyeing test, and replace if cracked.

Standard dimensions

	Outer bearing	Inner bearing
Wheel hub bore mm(in)	51.955 to 51.974 (2.0455 to 2.0462)	64.955 to 64.974 (2.5573 to 2.5580)

6. Thrust bearing

Check thrust bearing, and replace if damaged, rusted,

FRONT AXLE & FRONT SUSPENSION

or it does not rotate smoothly or noise occurs.

7. Spindle nut

Repair or replace, when thread is damaged.

Reinstallation

Reinstall front axle in reverse sequence to removal by noting the following matters. Moreover, when installing front axle, lightly apply multi-purpose grease (MIL G2108 or 10924) to sliding parts.

1. When replacing king pin and bushing:

(1) Install bushing carefully by the use of a special tool (ST35380000) so that grease groove toward circumferential direction is in upper side and bushing joint is faced rearward.

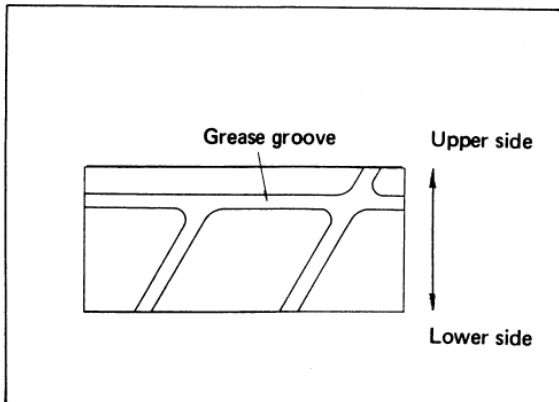


Fig. FA-8 King pin bushing

(2) Remove grease nipple, and drill grease hole on bushing through threaded grease nipple hole. (Drilling diameter: Approximately 3 mm (0.1181 in)) When grease hole is drilled, thoroughly remove metal particles and bur.

(3) Ream the inside of bushing to standard value by the use of king pin bushing reamer (special tool HT56802000).

Note: Perform reaming from both upper and lower bushings. When reaming upper side, utilize lower side as reaming guide, and when reaming lower side, utilize upper side as reaming guide to align the center line correctly.

Bushing inner diameter (when fitted):

20.010 to 20.035 mm (0.7878 to 0.7888 in)

2. When installing spindle on spindle support, be sure to install thrust bearing to face covered side upward.

3. Selecting spindle shim

(1) Jack up the bottom of spindle slightly, measure clearance by means of a filler gauge, and select proper spindle shims to obtain the correct clearance.

Standard clearance: 0.04 mm (0.0016 in) or less

Spindle shim

Part number	Thickness mm (in)
40032 25660	0.075 (0.0030)
40033 25660	0.25 (0.0098)
40034 25660	0.75 (0.0295)

(2) When king pin is fitted, make sure to operate smoothly. When turning resistance exceeds standard value, readjust shim, and check bushing and king pin if necessary.

King pin turning resistance: 1.5 kg-cm (1.3 in-lb)

4. Install plug after applying sealer on its circumference, and caulk three positions around spindle by punch.

5. Install bearing outer race.

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6. Fill wheel hub and hub cap with multi-purpose grease (MIL G2108 or 10924) up to the described level. See Figure FA-9.

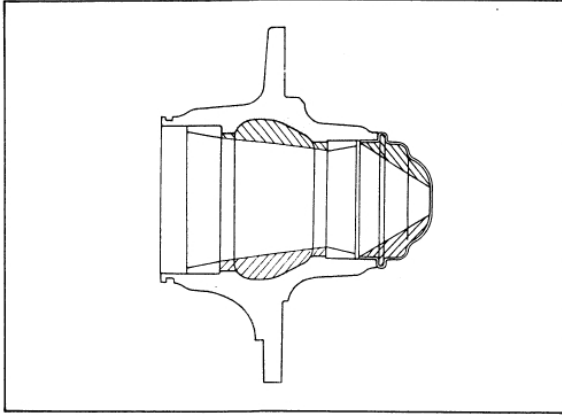


Fig. FA-9 Filling space between wheel bearing

7. Fill space between wheel bearing rollers and grease seal lip pocket with multi-purpose grease (MIL G2108 or 10924) completely.

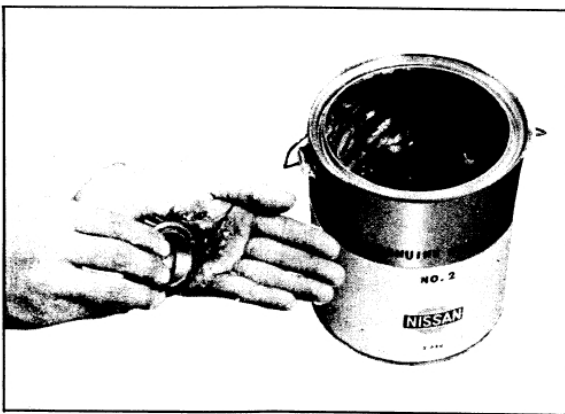


Fig. FA-10 Filling space between wheel bearing rollers with grease

8. Apply multi-purpose grease mentioned to spindle shaft, threaded portion, wheel bearing washer and wheel bearing lock nut exterior lightly.

Note: In order to provide bearing with a proper pressure and to extend service life of bearing, install wheel bearing, grease seal, washer, collar and lock nut carefully so that no dust and foreign material stick on grease applied to them.

Wheel bearing adjustment

1. Tighten spindle nut to the specified tightening torque.

Tightening torque: 3.2 to 3.4 kg-m
(23.1 to 24.6 ft-lb)

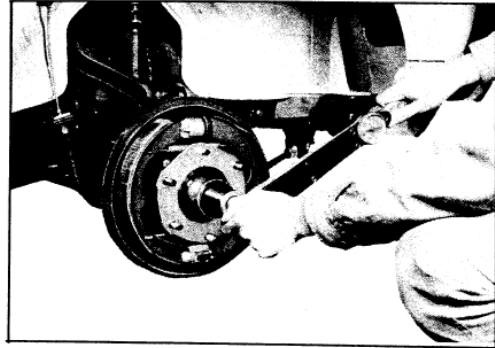


Fig. FA-11 Tightening wheel bearing lock nut

2. Turn wheel hub a few turns toward both clockwise and counterclockwise to settle down bearing, and re-tighten spindle nut to the same tightening torque.
3. Return spindle nut in range from 40° to 70° and coincide it with cotter pin hole on spindle.
4. Turn wheel hub a few turns toward both clockwise and counterclockwise again to allow bearing breaking-in, and measure bearing rotation starting torque. If measured starting torque is deviated from the specified value, readjust.

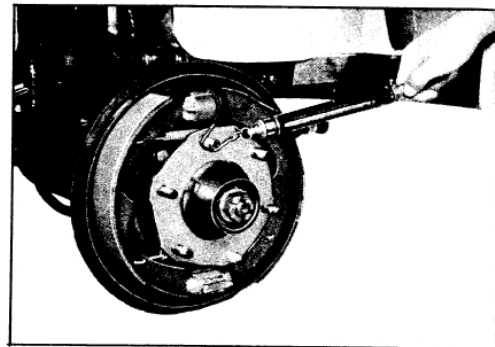


Fig. FA-12 Measuring wheel bearing rotation starting torque

FRONT AXLE & FRONT SUSPENSION

Wheel bearing rotation starting torque:

New bearing and seal: 15 kg-cm (13.0 in-lb) or less

Used bearing and seal: 7 kg-cm (6.1 in-lb) or less

Spring balance indication at hub bolt:

New bearing and seal: 2.1 kg (4.6 lb) or less

Used bearing and seal: 1.0 kg (2.2 lb) or less

Note: a. Correctly measure starting force toward tangential direction against hub bolt.

b. No slackness should exist toward axial direction.

5. Apply cotter pin to secure spindle nut, and install hub cap.

FRONT SUSPENSION

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Removal	FA-10	Vehicle posture	FA-17
Inspection	FA-12	Wheel alignment	FA-17

DESCRIPTION

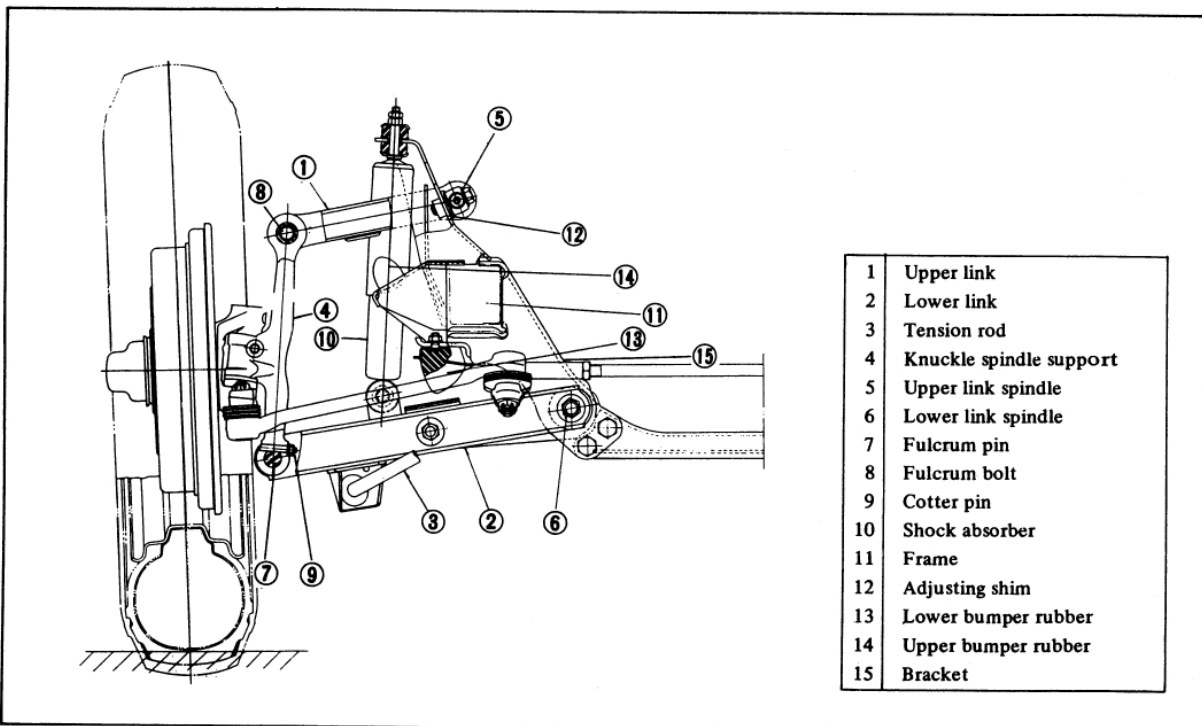


Fig. FA-13 Cross-sectional view of front suspension

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The front suspension is a double-wishbone type independent suspension which uses torsion bar spring.

Both the upper and lower links are installed on the bracket secured on the frame by means of welding. The upper and lower links swing through screw bushing and rubber bushing respectively.

Top and bottom of the knuckle spindle support are installed respectively through rubber bushing on upper link and screw bushing on lower link.

The tension rod is installed on the lower link. The tension rod receives a force applied to the front and rear directions.

The front end of the torsion bar spring is installed on the torque arm by means of serration, and the torque arm is installed on the lower link. The rear end is connected to the spring anchor by means of serration and is set stationarily on the anchor arm member.

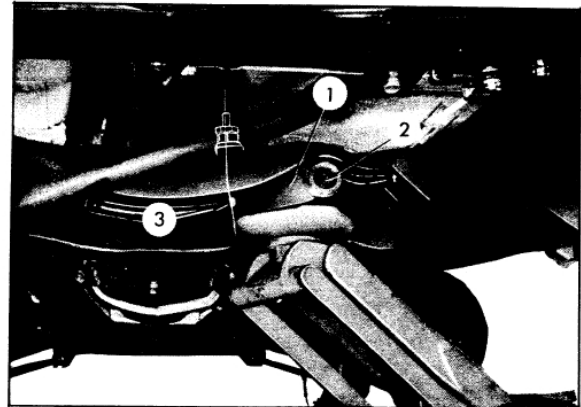
The shock absorber is of a hydraulic double acting type. The shock absorber installed between the lower link and the bracket to absorb vertical vibration. In addition, two bumper rubbers are installed on the frame through the bracket, limiting link operating ranges.

In relation to the above described standard parts, a stabilizer is also available as an optional part.

FRONT SUSPENSION

Removal

1. Jack up vehicle and support it with stands.
2. Remove hub nuts and wheel.
3. Remove front axle. See Section FA-Front Axle.
4. Remove brake hose from wheel cylinder.
5. Remove anchor bolt after loosening lock and adjust nuts, using a jack under spring anchor.



1	Spring anchor	3	Anchor bolt
2	Torsion bar spring		

Fig. FA-14 Removing anchor bolt

6. Spring anchor, torsion bar spring, and stabilizer

(1) Jack down slowly, and remove spring anchor and torsion bar spring toward rear.

(2) When stabilizer is used, remove bolt securing stabilizer bracket to frame. Then, remove stabilizer from lower link.

7. Detach shock absorber by removing upper and lower nuts.

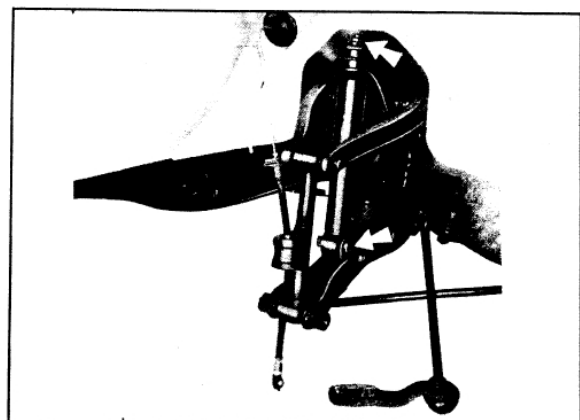


Fig. FA-15 Shock absorber

FRONT AXLE & FRONT SUSPENSION

8. Remove nuts ① from the front and rear ends of tension rod. Remove bracket bolts ② from the front end of tension rod, and then detach tension rod together with bracket.

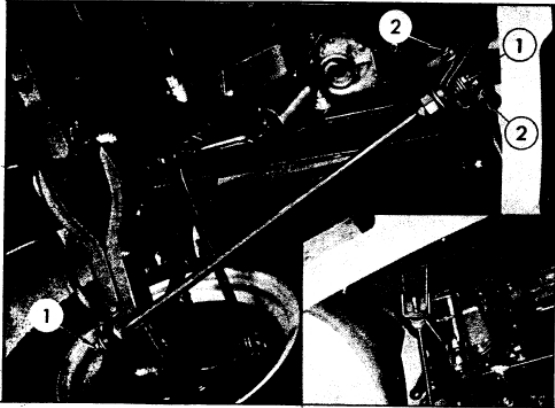
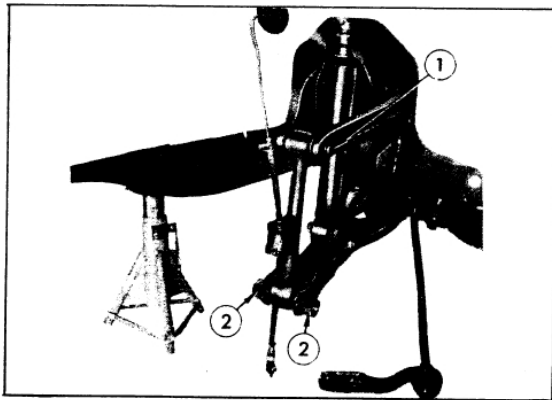


Fig. FA-16 Tension rod

9. Remove fulcrum bolt after loosening its nut, and detach knuckle spindle support from upper link.



1 Fulcrum bolt	2 Screw bushing
----------------	-----------------

Fig. FA-17 Fulcrum bolt

10. Remove screw bushings from both sides of fulcrum pin.

11. Remove tightening nut from lower rear side of knuckle spindle support and drive out cotter pin.

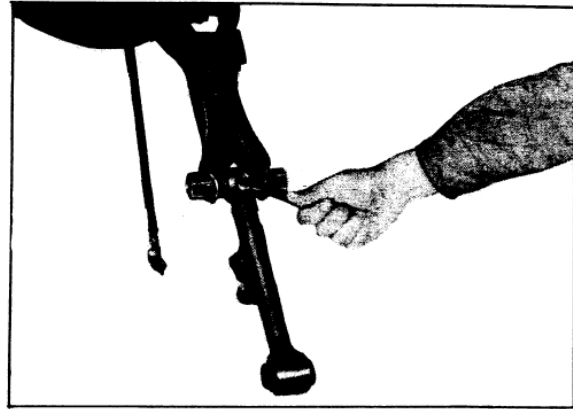


Fig. FA-18 Removing cotter pin

12. Drive out fulcrum pin with a drift, and detach knuckle spindle support from lower link. Remove dust cover.

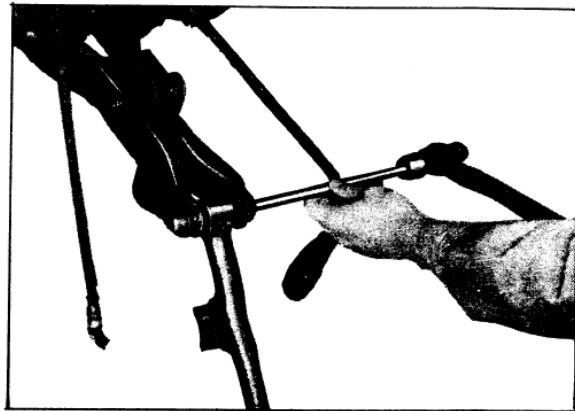


Fig. FA-19 Removing fulcrum pin

13. Remove upper link bushing from knuckle spindle support.

14. Remove upper link spindle installation bolt, and detach upper link spindle from mounting bracket with camber adjusting shim.

CHASSIS

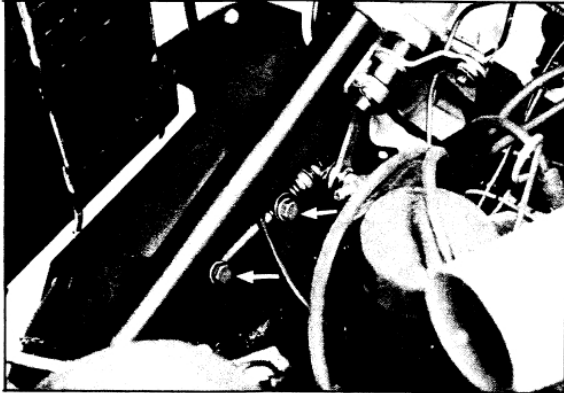


Fig. FA-20 Upper link spindle

15. Twist and separate upper link from upper link spindle, and remove dust cover and dust seal. Secure separated upper link on a vise, and remove screw bushings.

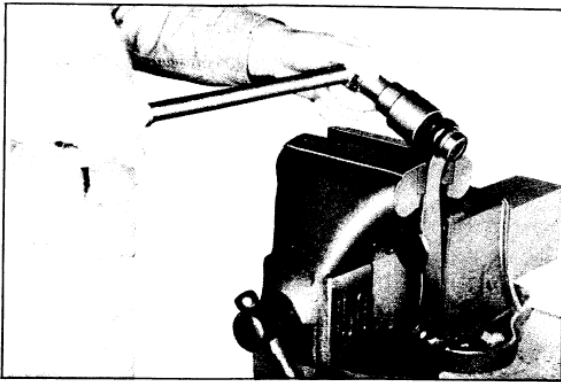


Fig. FA-21 Removing screw bushing

16. Loosen lower link spindle nut, and remove lower link spindle. Remove lower link with torque arm installed on lower link, from lower link mounting bracket.

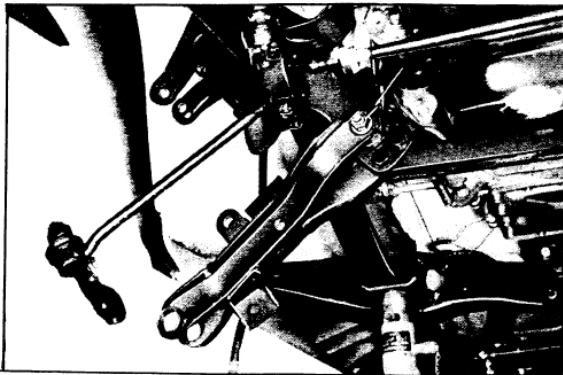


Fig. FA-22 Removing lower link

17. Remove lower link ①, torque arm ②, and torque arm bolt, and separate torque arm from lower link.

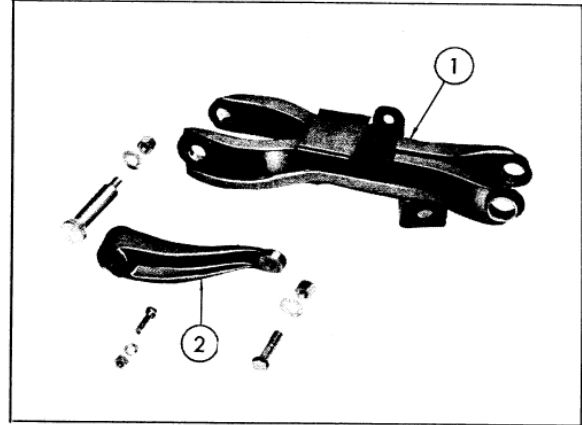


Fig. FA-23 Lower link and torque arm

18. Using a special tool (ST36070000) to lower link bushing, tap it with a hammer, and drive out lower link bushing from bracket.

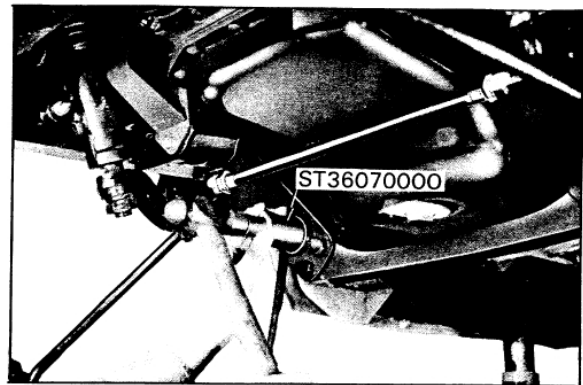


Fig. FA-24 Removing lower link bushing

Inspection

1. Shock absorber

When oil leaking is excessive, damping force is reduced, or noise occurs, replace shock absorber with a new one.

Check upper and lower rubber bushings for condition and replace if necessary.

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Specifications for Shock Absorber

Max. length:	315 mm (12.4 in)
Min. length:	205 mm (8.1 in)
Stroke:	110 mm (4.3 in)
Damping force	
Rebound:	110 kg (242.5 lb)
Compression:	55 kg (121.3 lb)
	[0.3m/sec.(0.98 ft/sec.)]

2. Upper link spindle, fulcrum pin, and screw bushing

Apply screw bushing to upper link spindle and fulcrum pin, and measure end play toward axial direction.

When end play exceeds 0.35 mm (0.0138 in), replace upper link spindle or fulcrum pin together with screw bushing.

Check dust cover for weakness and damage, and

Specifications for Torsion Bar Spring

	Part number L/R	Diameter x length mm (in)	Torsional rigidity kg-m/deg (ft-lb/deg)
Short	54009/10 15200	20.7 x 830 (0.815 x 32.7)	2.99 (21.6)
Long	54009/10 14900	21.9 x 830 (0.862 x 32.7)	3.74 (27.0)
Van	54009/10 15200	20.7 x 830 (0.815 x 32.7)	2.99 (21.6)
Double cabin	54009/10 15200	20.7 x 830 (0.815 x 32.7)	2.99 (21.6)
Option	54009/10 14900	21.9 x 830 (0.862 x 32.7)	3.74 (27.0)

replace if necessary.

Check dust seal for wear and damage, and replace as required.

Check threaded part of upper link spindle, fulcrum pin and screw bushing and repair or replace if necessary.

3. Lower link bushing, upper link bushing

Check rubber bushing for condition, and replace as necessary.

4. Torsion bar

Check torsion bar for distortion and weakness. When posture of vehicle is adjusted and specified vehicle height cannot be obtained, replace torsion bar with a new one.

See "Adjustment of vehicle posture".

5. Tension rod

When tension rod is distorted and/or threaded part is damaged, repair or replace.

When cushion rubber is weakened or damaged, replace.

6. Bumper rubber

Replace, when weakened or damaged.

7. Upper link and lower link

When distorted, cracked or damaged, or when thread is damaged, repair or replace.

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Reinstallation

1. Lower link bushing

(1) When collar interior of lower link mounting bracket (along which lower link bushing is inserted) and bushing exterior are rusted, remove rust with emery paper.

(2) Apply a special tool (ST36070000) (used for disassembly) to lower link bushing, tap it evenly with a hammer, and fit lower link bushing to lower link mounting bracket.

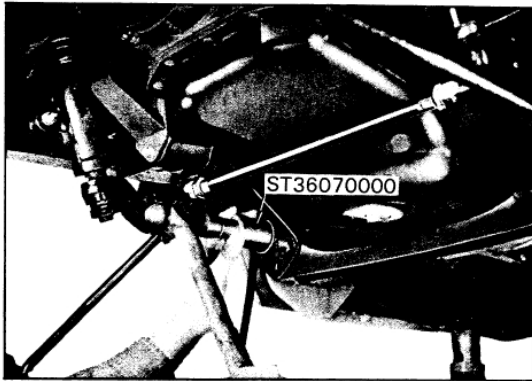


Fig. FA-25 Fitting lower link bushing

2. Lower link

(1) Install torque arm on lower link

Tightening torque

Arm head: 2.5 to 3.1 kg-m (18.1 to 22.4 lb-ft)

Serration boss: 0.8 to 1.2 kg-m (5.8 to 8.7 lb-ft)

(2) Install lower link on lower link mounting bracket, and tighten lower link spindle nut at the position of lower link shown in Fig. FA-26.

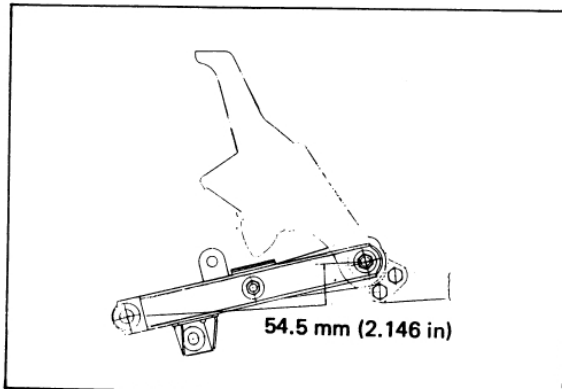


Fig. FA-26 Installing lower link

Tightening torque: 8.5 to 9.5 kg-m (61.5 to 68.7 lb-ft)

3. Upper link

(1) Tighten screw bushing on upper link. Install grease seal and dust cover.

Tightening torque: 24 to 25 kg-m
(173.5 to 180.8 lb-ft)

(2) Fill screw bushing (indicated by asterisk (*) in Fig. FA-27) fitted to upper link with multi-purpose grease (MIL G2108 or 10924). Apply grease to thread on bushing interior and thread on upper link spindle sufficiently.

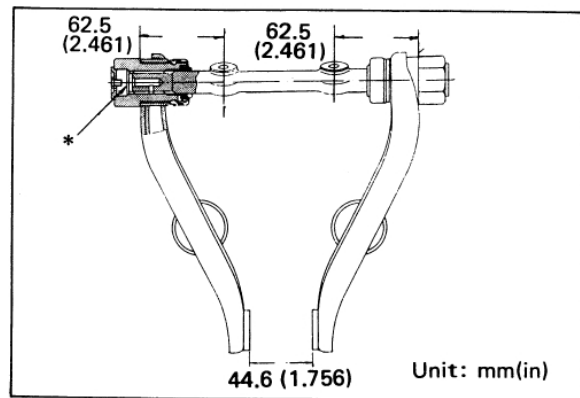


Fig. FA-27 Upper link and upper link spindle

(3) Screw front and rear links against upper link spindle in the same length so that opening width "A" is 44.6 mm (1.756 in) (standard dimension). When screwing recommend filler plug be removed.

(4) Upon installation, make sure to operate upper link spindle smoothly.

Operating resistance: Less than 0.5 kg-m (3.6 ft-lb)

(5) Remove filler plug, install grease nipple, and inject grease until grease comes out from dust cover. Reinstall filler plug.

(6) Install upper link spindle on upper link mounting bracket. Be sure to use the same camber shims which were used before disassembly.

4. Knuckle spindle support

(1) Apply multi-purpose grease to thread on fulcrum pin and thread on screw bushing interior sufficiently. Grease screw bushing sufficiently.

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- (2) Install dust seal on knuckle spindle support.
- (3) Coincide direction of notch for cotter pin on fulcrum pin with direction of pin hole of knuckle spindle support, and drive fulcrum pin into knuckle spindle support with a copper or lead hammer. Insert cotter pin into hole, tighten lock nut.

Tightening torque: 0.4 to 0.6 kg-m
(2.9 to 4.3 ft-lb)

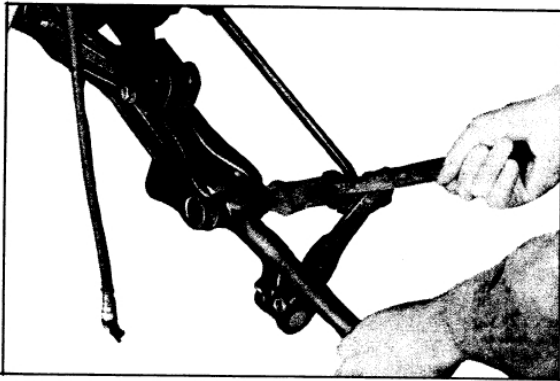


Fig. FA-28 Installing fulcrum pin

- (4) Screw bushings in both sides manually and temporarily so that knuckle spindle support is in the center of lower link, and retighten them to the specified tightening torque. Make sure that knuckle spindle and lower link angle is 76.5° . Make sure again that knuckle spindle support is in the center of lower link. This operation can be performed easily by removing filler plug.

Tightening torque: 24 to 25 kg-m (173.5 to 180.8 ft-lb)

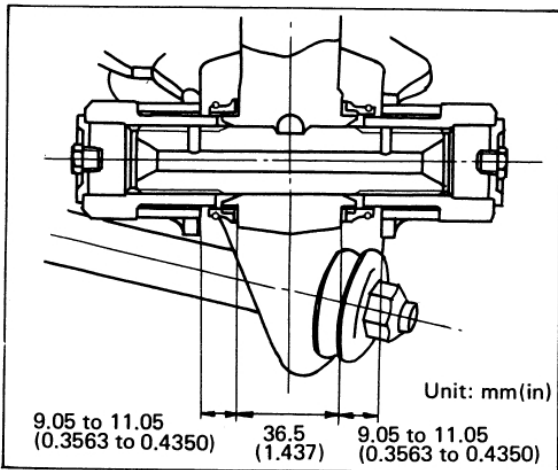


Fig. FA-29 Installing screw bushing

- (5) Remove filler plug, install grease nipple, and inject grease until grease comes out from dust cover. Reinstall filler plug.

- (6) Upon installation, make sure that fulcrum pin operates smoothly.

Operating resistance: Less than 0.5 kg-m (3.6 ft-lb)

- (7) Install upper link bushing on the upper end of knuckle spindle support.

- (8) Install the upper end of knuckle spindle support on upper link, arrange them to condition shown in Figure FA-30, and tighten fulcrum bolt.

Tightening torque: 4.7 to 5.2 kg-m
(34.0 to 37.6 ft-lb)

Note: Be sure to install fulcrum bolt from rear side of vehicle.

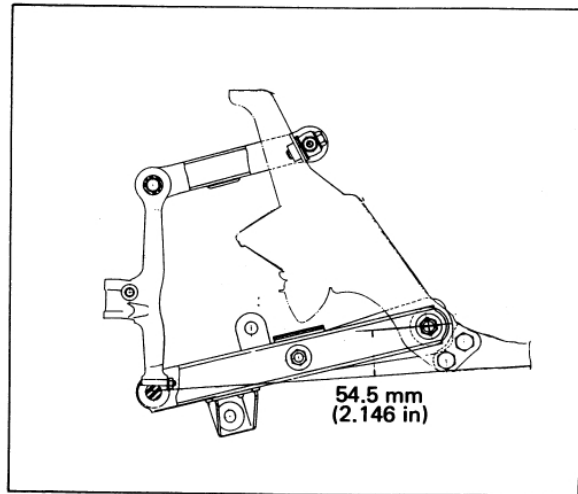


Fig. FA-30 Assembled posture of knuckle spindle and upper link

5. Tension rod

- (1) Tighten nut on the rear end of tension rod to obtain an extent that rubber bushings are compressed into 33.4 mm (1.315 in) as shown in Figure FA-31, and tighten lock nut.

- (2) Install tension rod bracket on frame bracket.

CHASSIS

(3) Make the distance of rubber bushings to be 36.6 mm (1.441 in) by tightening nut on the front end of tension rod.

When rubber bushings are compressed unequally, adjust the position of adjusting nut.

Lock nut tightening torque: 1.5 to 2.1 kg-m
(10.8 to 15.2 ft-lb)

Bracket bolt tightening torque: 1.5 to 2.1 kg-m
(10.8 to 15.2 ft-lb)

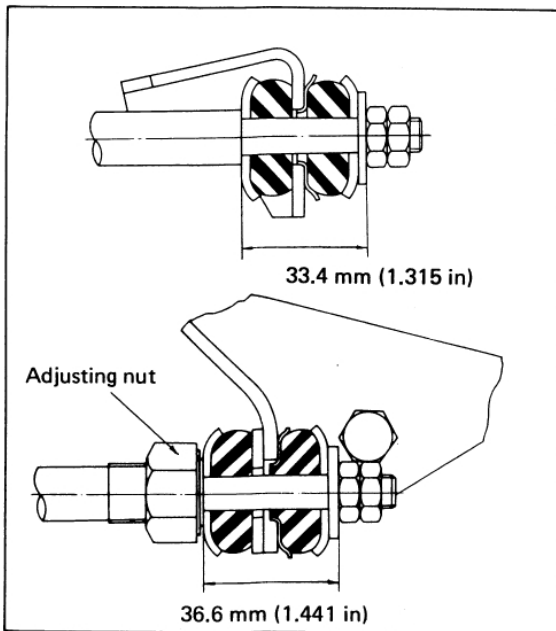


Fig. FA-31 Tension rod installation

6. Shock absorber

Turn nut fully against the threaded upper end of shock absorber, and tighten lock nut with specified tightening torque.

Note: Be sure to position suspension as shown in Figure FA-30.

Upper lock nut tightening torque: 1.5 to 2.1 kg-m
(10.8 to 15.2 ft-lb)

Lower bolt tightening torque: 3.6 to 4.3 kg-m
(26.0 to 31.1 ft-lb)

7. Stabilizer

Tighten nut to arrange the height between lower link and stabilizer as shown in Figure FA-32.

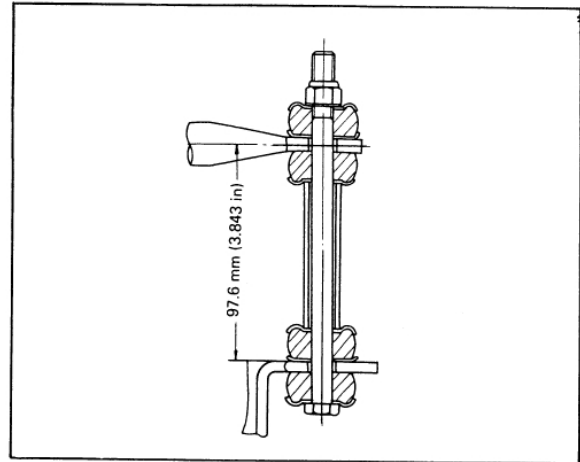


Fig. FA-32 Stabilizer installation

Bracket bolt tightening torque:
1.5 to 2.1 kg-m (10.8 to 15.2 ft-lb)

8. Torsion bar spring

(1) Grease serrations on both ends of torsion bar sufficiently, and install it on torque arm.

Note: Be careful to select left and right torsion bar springs correctly. They can be identified with "R" (Right) and "L" (Left) marked on the end surface.

(2) Position lower link so that no clearance is between lower link and bumper rubber, and install spring anchor on torsion bar to obtain "A" dimension shown in Figure FA-33.

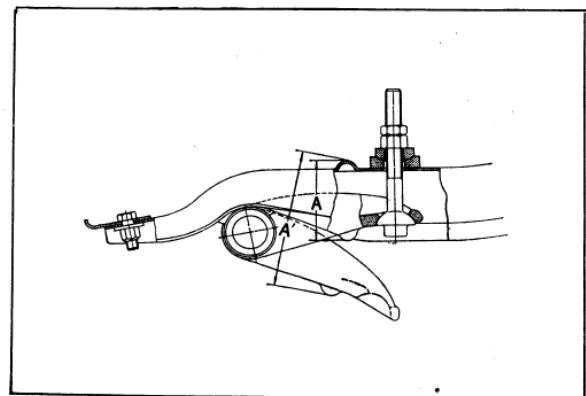


Fig. FA-33 Anchor arm installation

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(3) Jack up spring anchor (to which anchor bolt is applied), tighten nut so that "A" dimension shown in Figure FA-33 meets the standard dimension, and secure lock nut.

"A" dimension: 68.5 mm (2.697 in)

"A" dimension mm (in)

Short body	98 (3.86)
Long body	92 (3.62)
Van	75 (2.95)
Double cabin	75 (2.95)
Option	90 (3.54)

Lock nut tightening torque:

4 to 5 kg-m (28.9 to 36.2 ft-lb)

(4) Check vehicle for posture, and adjust if necessary. See "Adjustment of Vehicle Posture" as outlined below.

ADJUSTMENT

Vehicle posture

Vehicle posture may be incorrect due to weakened spring or other defective condition. The following instructions apply when adjustment is required.

"H" dimension mm (in)	Short/Long	Van/Double cabin	Option
Without load	79 to 84 (3.11 to 3.31)	73 to 77 (2.87 to 3.03)	76 to 81 (2.99 to 3.19)
With standard load *	54.5 (2.15)	54.5 (2.15)	54.5 (2.15)

*Standard load indicates the following condition:

Short/long body:	3 passengers and 1,000 kg (2,204.6 lb)
Van:	3 passengers and 300 kg (661.4 lb)
Double cabin:	2 passengers in front, 1 passenger in rear, and 250 kg (551.2 lb)

Wheel alignment

1. Carry out wheel alignment on a flat surface with tire air pressure adjusted to the normal pressure.

1. Jack up vehicle and support it with stands.

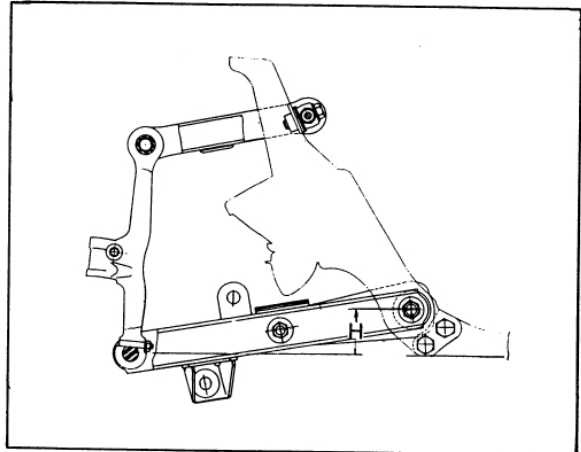


Fig. FA-34 Dimension for standard vehicle posture

2. Jack up a part near anchor bolt of spring anchor so as to release nuts from spring force.
3. Adjust "H" dimension with anchor bolt adjust nut. "H" dimension changes approximately 3.5 mm (25.3 in) vertically when adjust nut is turned one complete turn. See Figure FA-34.
4. When "H" dimension is in the following range, posture of vehicle is correct.

CHASSIS

2. Thoroughly check all component parts of steering and suspension systems, and repair or replace defective parts before starting wheel alignment.

		Short/Long	Van	D/Cabin
Toe-in	mm (in)	2 to 3 (0.0787 to 0.1181)	2 to 3 (0.0787 to 0.1181)	2 to 3 (0.0787 to 0.1181)
Camber		1°15'	1°15'	1°20'
Caster		1°50'	2°15'	1°55'
King pin inclination		6°15'	6°15'	6°10'
Steering angle	Inner wheel	36°	36°	36°
	Outer wheel	31°	31°	31°

(1) Toe-in

Measure toe-in, and adjust as necessary. For adjustment, the following instructions apply.

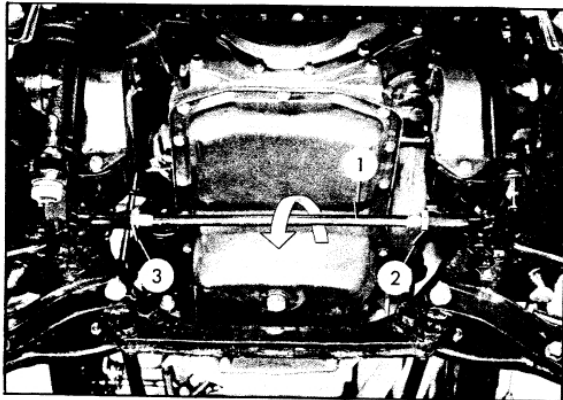


Fig. FA-35 Adjusting toe-in

Change the length of cross rod (1) to adjust toe-in. Loosen lock nuts (2) (left hand thread) and (3) (right hand thread), and turn cross rod to forward direction (arrow direction). Toe-in is reduced. When cross rod is turned to opposite side, toe-in is increased.

Standard length of cross rod (distance between the centers of left and right ball joints) is indicated below:

Standard cross rod length: 516 mm (20.3 in)

Tightening torque: 9 to 12 kg-m (65.1 to 86.8 ft-lb)

(2) Steering angle

Loosen stopper bolt lock nut, adjust stopper bolt to obtain the standard steering angle.

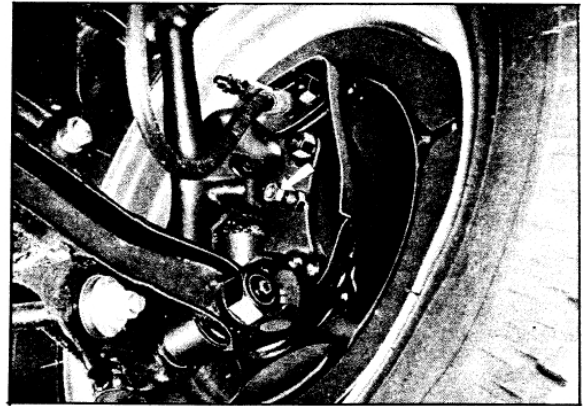


Fig. FA-36 Adjusting steering angle

(3) Camber and caster

Measure camber and caster, and adjust if necessary, in accordance with the following instruction:

Both camber and caster are adjusted by increasing or decreasing thickness of adjust shim inserted between upper link spindle and upper link mounting bracket.

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Adjusting shim

Part number	Thickness mm (in)
54542 04101	1 (0.0394)
54543 04101 (Standard thickness)	2 (0.0787)
54544 04101	4 (0.1575)

To adjust caster, make a difference between thickness of front shim and that of rear shim. When front shim thickness increases, caster reduces. Caster changes approximately 33' per 1 mm (0.0394 in) of shim thickness.

To adjust camber, change front and rear shims in the same valve. When thickness of shim increases, camber reduces. Camber changes approximately 13' per 1 mm (0.0394 in) of shim thickness.

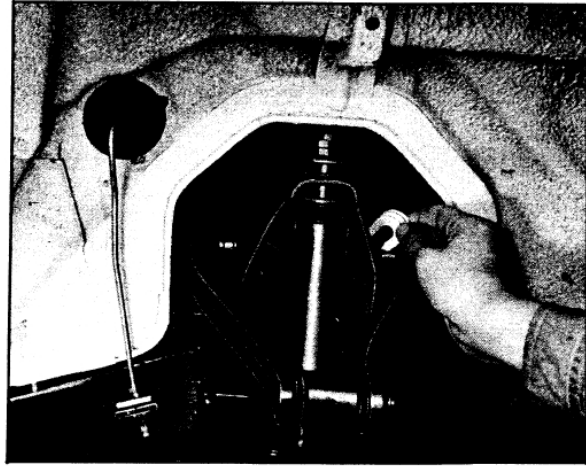


Fig. FA-37 Adjusting camber and caster

Note: a. Caster does not change although camber is adjusted. It should be noted, however, that camber changes when caster is adjusted.

b. Do not adjust caster with difference between front and rear shim thicknesses beyond 2 mm (0.0787 in).

SERVICE DATA AND SPECIFICATIONS

King pin

Clearance limit between the king pin and bushing	mm (in)	.....	0.15 (0.0059)
Bushing inner diameter (when fitted)	mm (in)	.....	20.010 to 20.035 (0.7878 to 0.7888)
Clearance between the knuckle spindle support and spindle	mm (in)	.....	0.04 (0.0016)
King pin turning resistance	kg-cm (in-lb)	.....	1.5 (1.3)

Wheel bearing

Tightening torque	kg-m (ft-lb)	.....	3.2 to 3.4 (23.1 to 24.6)
Spindle nut returning angle	.....	.....	40 to 70°
Wheel bearing rotation starting torque			
When both bearing and seal are new	kg-cm (in-lb)	less than 15 (13.0)

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When readjusted at the hub bolt	kg-cm (in-lb)	less than 7 (6.1)
When both bearing and seal are new	kg (lb)	less than 2.1 (4.6)
When readjusted	kg (lb)	less than 1.0 (2.2)
Upper link sliding resistance	kg-m (ft-lb)	less than 0.5 (3.6)
Lower link sliding resistance	kg-m (ft-lb)	less than 0.5 (3.6)
Tightening torque		
Brake hose connecting nut	kg-m (ft-lb)	1.7 to 2.0 (12.3 to 14.5)
Wheel bearing lock nut	kg-m (ft-lb)	3.2 to 3.4 (23.1 to 24.6)
Brake disc fixing bolt	kg-m (ft-lb)	4.0 to 5.4 (28.9 to 39.0)
Knuckle arm fixing bolt	kg-m (ft-lb)	11.2 to 13.2 (81.0 to 95.4)
King pin lock bolt	kg-m (ft-lb)	2.1 to 2.5 (15.2 to 18.1)
Torque arm		
Arm end	kg-m (ft-lb)	2.5 to 3.1 (18.1 to 22.4)
Serration boss	kg-m (ft-lb)	0.8 to 1.2 (5.7 to 8.7)
Lower link spindle nut	kg-m (ft-lb)	8.5 to 9.5 (61.5 to 68.7)
Upper link screw bushing	kg-m (ft-lb)	24 to 25 (173.5 to 180.8)
Upper link spindle bolt fixing to bracket	kg-m (ft-lb)	5.5 to 6.2 (39.8 to 44.8)
Cotter pin lock nut	kg-m (ft-lb)	0.4 to 0.6 (2.9 to 4.3)
Lower link screw bushing	kg-m (ft-lb)	24 to 25 (173.5 to 180.8)
Falcrum bolt	kg-m (ft-lb)	4.7 to 5.2 (34.0 to 37.6)
Tension rod		
Lock nut	kg-m (ft-lb)	1.5 to 2.1 (10.8 to 15.2)
Bracket bolt	kg-m (ft-lb)	1.5 to 2.1 (10.8 to 15.2)
Shock absorber		
Lock nut of the upper end	kg-m (ft-lb)	1.5 to 2.1 (10.8 to 15.2)
Lower end	kg-m (ft-lb)	3.6 to 4.3 (26.0 to 31.1)
Stabilizer		
Bracket bolt	kg-m (ft-lb)	1.5 to 2.1 (10.8 to 15.2)
Lock nut of the anchor bolt	kg-m (ft-lb)	4 to 5 (28.9 to 36.2)
Bumper rubber bolt	kg-m (ft-lb)	1.1 to 1.6 (8.0 to 11.6)

FRONT AXLE & FRONT SUSPENSION

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
<p>Vibration, shock and shimmying of steering wheel</p> <p>Vibration: Too much backlash of steering gear, abrasion of each part of linkage and vibration of front wheels are, in many cases, transmitted to the steering wheel. This is very much noticeable when travelling over bad roads and at higher speeds.</p>	<p>Improper air pressure of tire</p> <p>Unbalance and deformation of road-wheel</p> <p>Unevenly worn tire or insufficient tightening</p> <p>Improperly adjusted or worn front wheel bearing</p> <p>Faulty wheel alignment</p>	<p>Adjust</p> <p>Correct the unbalance or replace</p> <p>Replace or tighten</p> <p>Adjust or replace</p> <p>Adjust</p>
<p>Shock: When the front wheels are travelling over bumpy roads, the play of the steering linkage is transmitted to the steering wheel. This is especially noticeable when travelling rough road.</p> <p>Shimmying: Abnormal vibrations of the front suspension group and the whole steering linkage, which occur when a specific speed is attained</p>	<p>Worn or loose suspension link screw bushing</p> <p>Damaged idler arm</p> <p>Insufficiently tightened steering gear housing</p> <p>Worn steering linkage</p> <p>Improper steering gear adjustment (insufficient backlash)</p> <p>Defective shock absorber or loose installation</p> <p>Unbalanced vehicle posture</p>	<p>Replace</p> <p>Replace</p> <p>Tighten</p> <p>Replace ball joint</p> <p>Adjust</p> <p>Replace or tighten</p> <p>Adjust</p>
<p>Vehicle pulls to right or left</p> <p>When driving with hands off the steering wheel on a flat road, the vehicle gently swerves to right or left</p> <p>Note: A defective rear suspension may also be the cause of this trouble and, therefore, see also the chapter dealing with the rear suspension.</p>	<p>Improper air-pressure of tire or insufficient tightening of wheel nuts</p> <p>Difference in height of right and left tire treads</p> <p>Incorrect adjustment or abrasion of front wheel bearing</p> <p>Weakened front torsion spring or deviation from standard specification</p>	<p>Adjust or tighten</p> <p>Replace tires</p> <p>Adjust or replace</p> <p>Replace</p>

CHASSIS

Condition	Probable cause	Corrective action
	Worn or loose suspension link screw bushing	Replace
	Deformed of steering linkage and suspension link	Replace
	Unbalanced vehicle level	Correct the unbalance
Instability of vehicle	Improper air pressure of tire	Adjust
	Worn or loose suspension link screw bushing	Replace
	Incorrect wheel alignment	Adjust
	Worn or deformed steering linkage and suspension link	Replace
	Incorrect adjustment of steering gear	Adjust
	Deformed unbalanced wheel	Correct or replace
Stiff steering wheel (checking up procedure) Jack up front wheels, detach the steering gear and operate the steering wheel, and: If it is light, check steering linkage, and suspension groups If it is heavy, check steering gear and steering column groups	Improper air pressure of tire Insufficient lubricants or mixing impurities in steering linkage or excessively worn steering linkage Insufficient lubricant in gear box or contaminated lubricant Unsmooth king pin, damaged part, or insufficient lubrication Worn or incorrectly adjusted wheel bearing Worn damaged steering gear and bearing Incorrectly adjusted steering gear Deformed steering linkage Incorrect wheel alignment Interference of steering column with turn signal switch	Adjust Replenish grease or replace the part Add or replace gear oil Replace Replace or adjust Replace Adjust Replace Adjust Adjust

FRONT AXLE & FRONT SUSPENSION

Condition	Probable cause	Corrective action
Excessive steering wheel play	<p>Incorrectly adjusted steering gear housing</p> <p>Worn steering linkage idler arm</p> <p>Improperly fitted of gear box</p> <p>Incorrectly adjusted wheel bearing</p> <p>Worn or loose suspension link screw bushing</p>	<p>Adjust</p> <p>Replace</p> <p>Retighten</p> <p>Adjust</p> <p>Replace</p>
Noise	<p>Improper air pressure of tire</p> <p>Insufficient lubricating oil and grease for suspension ball joint and steering linkage, or their breakage</p> <p>Loose steering gear bolts, linkage and suspension groups</p> <p>Defective shock absorber</p> <p>Defective wheel bearing</p> <p>Worn steering linkage and steering gear</p> <p>Worn of loose suspension link screw bushing</p>	<p>Adjust</p> <p>Replenish lubricating oil and grease, or replace</p> <p>Retighten</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p>
Grating tire noise	<p>Improper air pressure of tire</p> <p>Incorrect wheel alignment</p> <p>Deformed knuckle spindle and suspension linkage</p>	<p>Adjust</p> <p>Adjust</p> <p>Replace</p>
Jumping of disc wheel	<p>Improper air pressure of tire</p> <p>Unbalanced wheels</p> <p>Defective shock absorber</p> <p>Defective tire</p> <p>Deformed wheel rim</p>	<p>Adjust</p> <p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Replace</p>

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION RA

REAR AXLE & REAR SUSPENSION

RA

REAR AXLE RA- 1
REAR SUSPENSION RA- 4

REAR AXLE

REAR AXLE

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REMOVAL	RA-1	INSTALLATION	RA-3

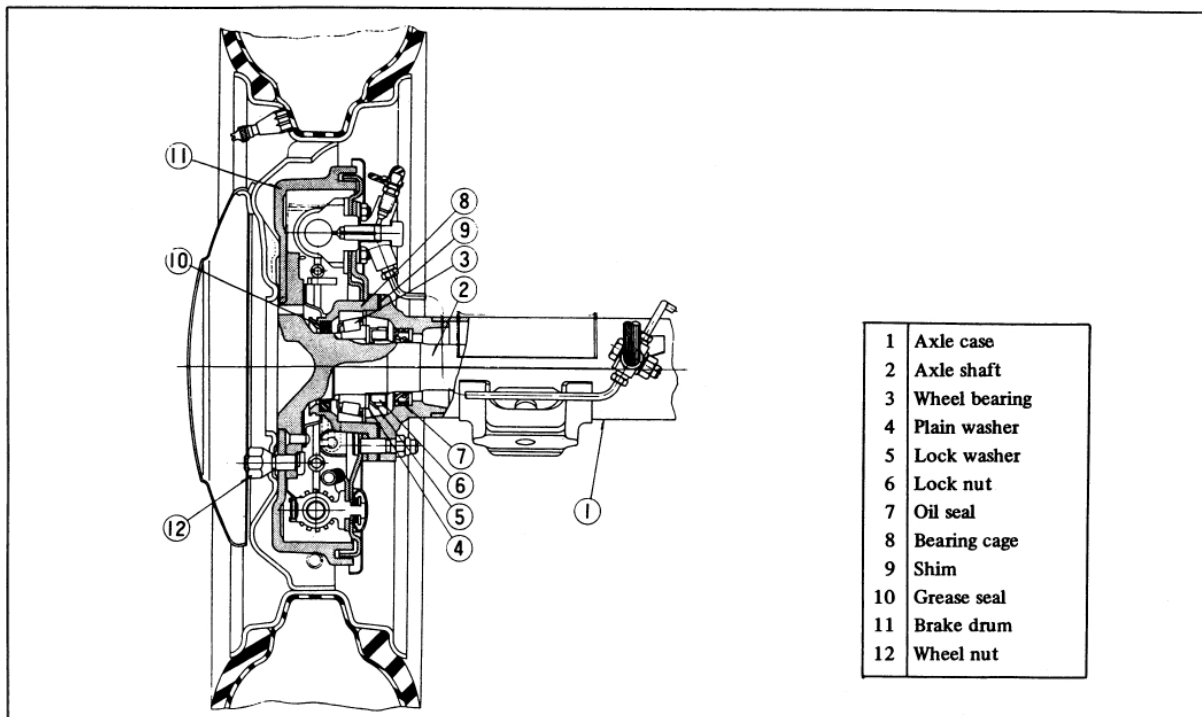


Fig. RA-1 Cross-sectional view of rear axle

DESCRIPTION

The rear axle is of a semi-floating type. The axle housing is a pressed steel "Banjo" type housing. It is light in weight and is sufficiently strong to withstand against any torsional and bending loads.

The rear wheel bearings are tapered-roller bearings. With those bearings, the rear axle supports heavy load and withstands against severe use. The rear axle receives thrust force through thrust block in the differential housing.

REMOVAL

1. Jack up vehicle and support it with stands.
2. Remove road wheel and brake drum.

3. Remove brake shoe and disconnect hand brake wire.

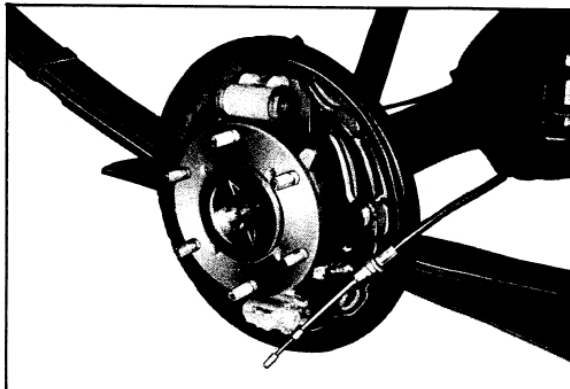


Fig. RA-2 Removing brake

CHASSIS

4. Remove four nuts used to install brake end to axle, and disconnect brake line.

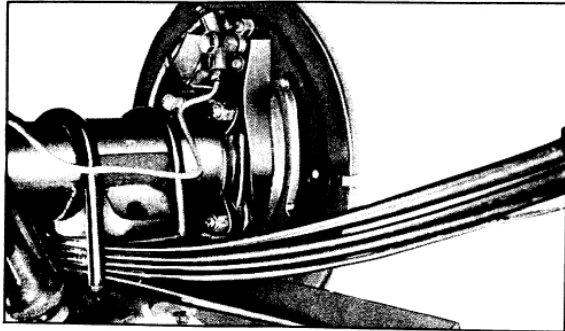


Fig. RA-3 Removing rear axle

5. Withdraw axle shaft.

Note: Be careful not to damage oil seal in axle case side.

6. Use axle stand (special tool ST07630000), and secure axle on vise.

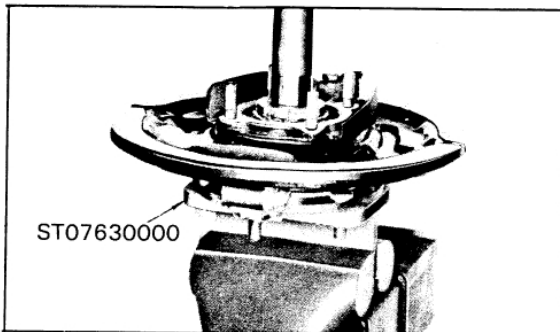


Fig. RA-4 Securing axle in vise

7. Unbend lock washer with a screw driver. Do not use unbent lock washer again.

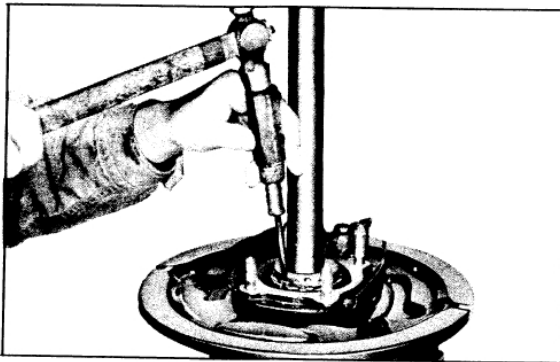


Fig. RA-5 Unbending lock washer

8. Remove lock nut by wrench (special tool ST38020000).

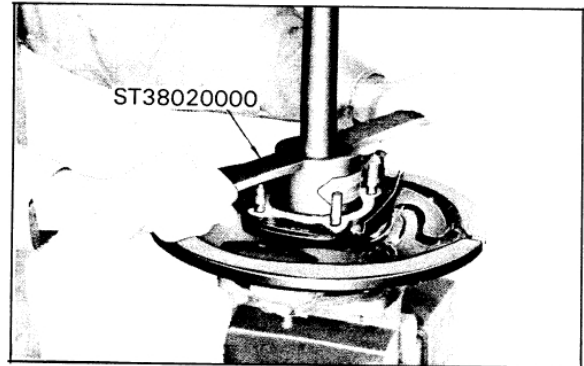


Fig. RA-6 Removing lock nut

9. Withdraw axle bearing together with brake disc and bearing cage by using a puller (special tool ST37140000).

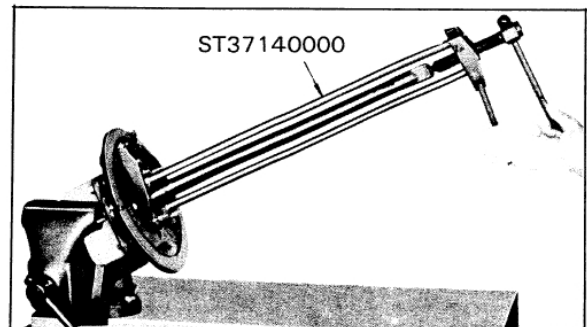


Fig. RA-7 Removing bearing

Remove oil seal as required. Do not use removed oil seal again because lip is damaged. When removing bearing cup from bearing cage, remove seal, apply brass bar, and tap it evenly with a hammer.

INSPECTION

1. When axle is cracked, replace. Repair or replace when bent.

Bending limit: 1.0 mm (0.039 in) on reading of indicator placed in center when axle is supported at both end center holes.

2. Repair or replace when seal surface and/or thrust block side end surface is roughened.

3. Replace when bearing is defective. (Rough rolling

REAR AXLE

surface, rust on roller, or other defective condition).

4. Be sure to replace removed oil seal and lock washer with new ones.

INSTALLATION

1. Fit bearing cup and grease seal (rubber) to cage. Tap with a brass hammer evenly while fitting. Fill lip with grease (MIL G2108 or G10924) after fitting seal.
2. Install brake disc and bearing cage on axle, and fit bearing cone with a special tool (ST38220000).

Note: Cone may be fitted by using a brass bar.

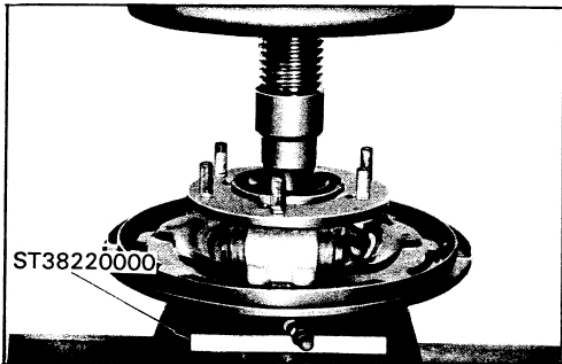


Fig. RA-8 Installing bearing

3. Tighten lock nut with a special tool (ST38020000). Be careful to place the faced side of nut to washer side so that washer is not damaged.

Tightening torque: 15 to 20 kg-m
(108 to 145 ft-lb)

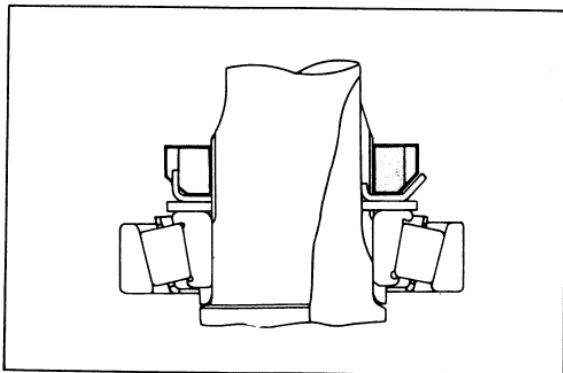


Fig. RA-9 Tightening lock nut

4. Coincide washer lip with nut groove correctly by tightening nut, and bend washer carefully so that lip is not damaged.

Note: When no plain washer is used beneath lock washer, replace lock washer by adding plain washer as a set.

5. Fit oil seal to tube end evenly by applying a brass bar. When fitted, apply grease to lip. (Multi-purpose grease MIL G2108 or G10924).

Note: Be careful not to deform seal or damage lip.

6. Fill bearing with grease (Multi-purpose grease MIL G2108 or G10924) completely.
7. Install left or right shaft, and adjust clearance toward axial direction by applying shim (indicated by arrow mark).

Clearance toward axial direction:
0.3 to 0.9 mm (0.012 to 0.035 in)

Standard shim thickness:
1.5 mm (0.059 in)

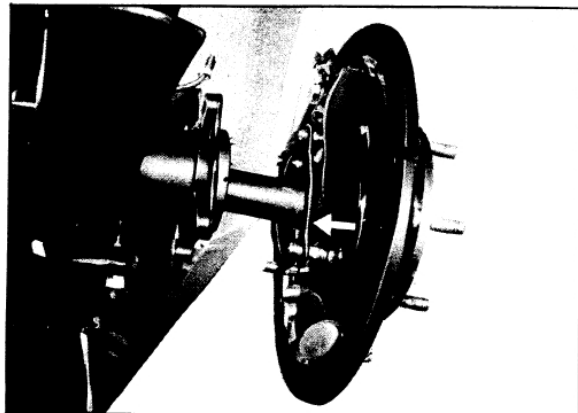


Fig. RA-10 Adjust shim

8. Install shaft in opposite side, and adjust clearance toward axial direction by applying shim.

Clearance toward axial direction:
0.02 to 0.15 mm (0.0008 to 0.0059 in)

Tightening torque:
3.6 to 4.7 kg-m (26.0 to 34.0 ft-lb)

CHASSIS

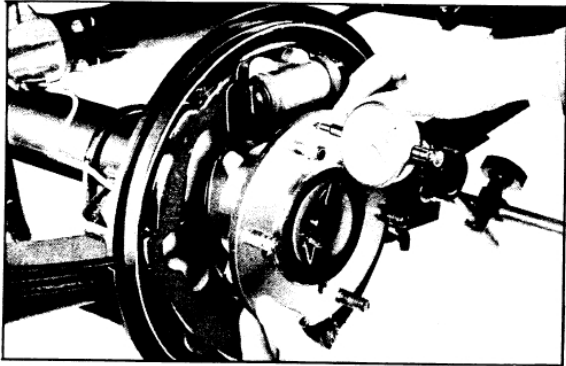


Fig. RA-11 Measuring clearance toward axial direction

Install other parts in reverse sequence to removal.

REAR SUSPENSION

CONTENTS

DESCRIPTION	RA-5	AXLE CASE	RA-5
SUSPENSION ASSEMBLY	RA-5	Removal	RA-5
Removal	RA-5	INSPECTION AND REPAIR	RA-6
SPRING	RA-5	ASSEMBLY	RA-6
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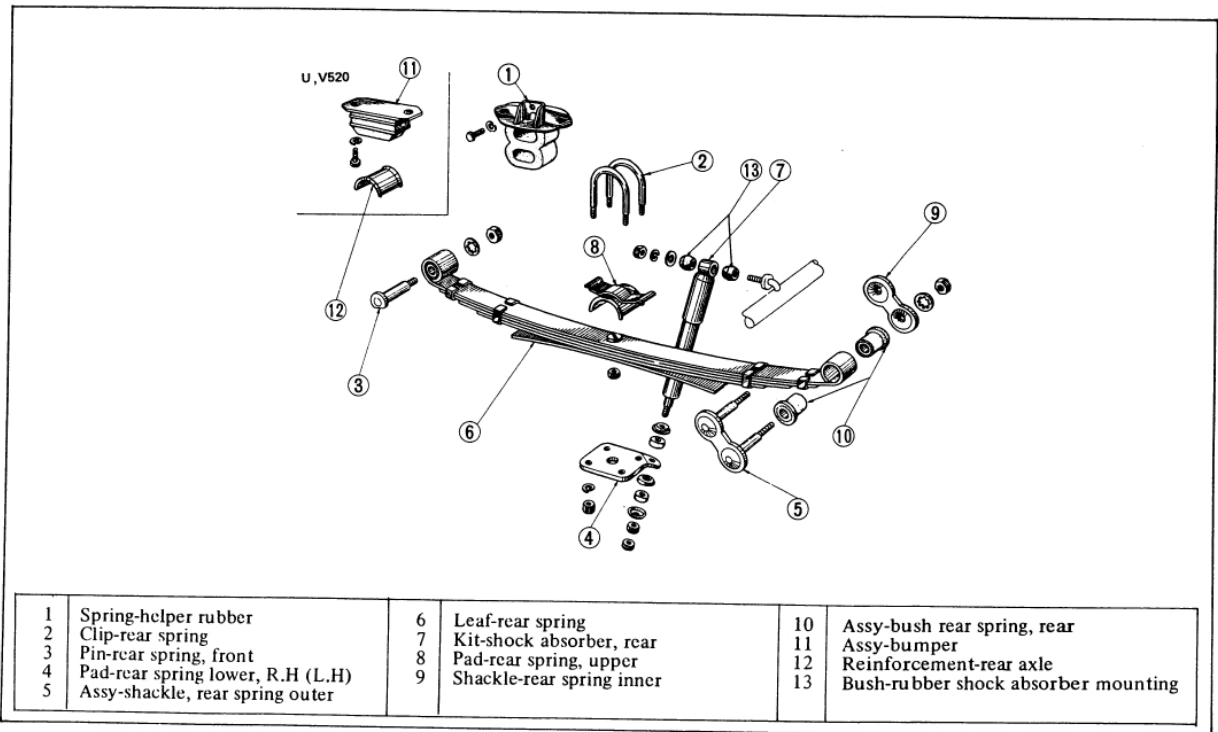


Fig. RA-12 Rear suspension

REAR AXLE

DESCRIPTION

The rear suspension is a "Banjo" type rigid suspension which uses a parallel semi-elliptic leaf spring. Both front and rear ends of the spring are secured on the frame with rubber bushings, and the shock absorber is installed on the cross member from the spring lower pad. The suspension type is an under-slung type.

SUSPENSION ASSEMBLY

Removal

1. Jack up vehicle and support it with stands. Remove road wheel.
2. Disconnect hand brake wire at equalizer unit, and separate bracket ①.
3. Remove brake tube ②, shock absorber ③, and propeller shaft ④.
4. Support axle case with a jack at the center, and remove spring pin ⑤ and shackle assembly ⑥.

Note: It is not necessary to remove spring seat from shock absorber unless otherwise required.

5. Lower jack slowly, and remove suspension assembly.

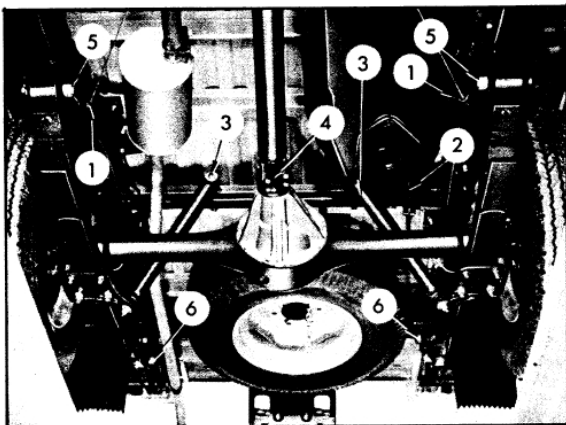


Fig. RA-13 Removing rear suspension

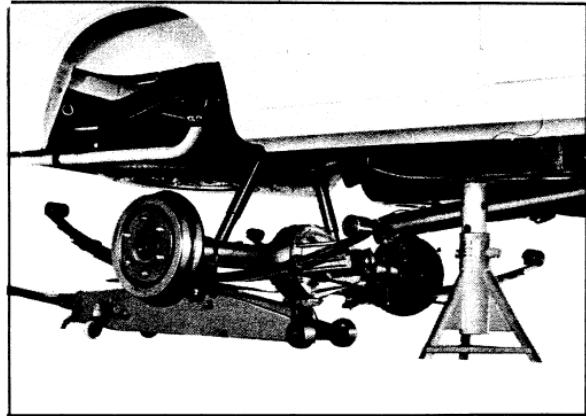


Fig. RA-14 Removing suspension assembly

SPRING

Removal

1. Jack up vehicle, support it with stands, and remove road wheel.
2. Support axle case with jack or stand.
3. Remove U-bolts and separate spring from axle case.

Note: It is not necessary to remove spring seat from shock absorber unless otherwise required.

4. Remove spring pin and shackle assembly in the manner identical with removal of suspension assembly, and remove leaf spring.

AXLE CASE

Removal

1. Jack up vehicle, support it with stands, and remove road wheel.
2. Remove hand brake wire, brake tube, shock absorber and propeller shaft.

Remove U-bolts, and separate axle case from spring.

3. Pass axle case through space above spring, and take it out to the side.

CHASSIS

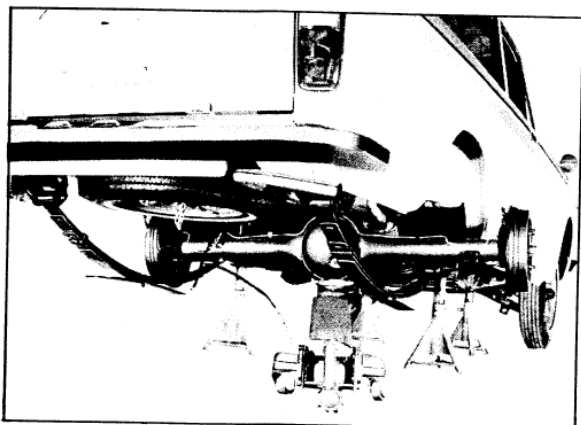


Fig. RA-15 Removing axle case

INSPECTION AND REPAIR

1. Spring

When spring is cracked, broken or weakened excessively, replace.

Note: When spring in one side is replaced, recommend spring in the other side be also replaced.

2. U-bolt

When U-bolt is bent, bruised, cracked or broken, or when threaded part is damaged, replace.

3. Rubber and bushings

When crack, wear, damage or deterioration exists in

rubber and bushings, replace.

4. Shock absorber

If leaking, noise or reduced damping force is detected, replace.

ASSEMBLY

Rear suspension assembling is carried out in reverse sequence to disassembly by noting the following items.

1. When installing rubber bushings, coat soap water on them slightly.

2. Tighten the following rubber bushing under no load conditions after jacked down.

Shackle pin 11.5 to 13 kg-m (83.2 to 94.0 ft-lb)
Spring pin 11.5 to 13 kg-m (83.2 to 94.0 ft-lb)

Tightening torque

U-bolt securing nut 8.5 to 10.0 kg-m
(61.5 to 72.3 ft-lb)

Shock absorber installing nut

Upper 3.6 to 4.3 kg-m (26.0 to 31.1 ft-lb)
Lower 1.4 to 1.6 kg-m (10.1 to 11.6 ft-lb)

Propeller shaft

Securing bolt 2.5 to 3.0 kg-m (18.1 to 21.7 ft-lb)
Securing bolt 2.3 to 2.8 kg-m (16.6 to 20.2 ft-lb)

SPECIFICATIONS

	(N)521, PL521	G(N)521	V(N)521	U(N)521 & U(N)521 Option
Rear spring	55020 20400	55020 20500	55020 20800	55020 20801
Length x width x thickness -	7-2	7-2	6-3	6-3
No. of leaves mm (in)	1,200 x 60 x 6-2	1,200 x 60 x 6-1	1,200 x 60 x 5-1	1,200 x 60 x 5-1
	12-1	12-2	12-1	12-2
	0.2756-2	0.2756-2	0.2362-3	0.2362-3
	(47.2 x 2.36 x 0.2362-2)	(47.2 x 2.36 x 0.2362-1)	(47.2 x 2.36 x 0.1969-1)	(47.2 x 2.36 x 0.1969-1)
	0.4724-1	0.4724-2	0.4724-1	0.4724-2

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION BR

BRAKE

BR

BRAKEBR- 1

BRAKE

BRAKE

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DESCRIPTION

The Datsun 521 series vehicles adopt a hydraulic brake. The front brake is of a uni-servo type, and rear brake is of a duo-servo type. The master cylinder is of a single type. The hand brake is of a mechanical type, which operates the rear wheels.

BRAKE PEDAL

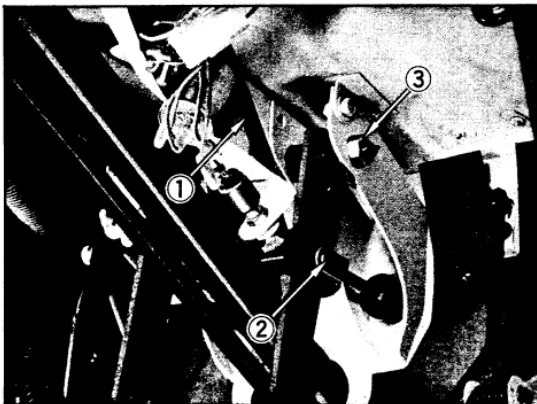


Fig. BR-1 Brake pedal (right hand)

Removal

1. Unhook return spring ① .
2. Remove spring pin and clevis pin ② and separate push rod from pedal arm.
3. Remove fulcrum pin ③ and remove brake pedal arm.

Inspection

1. Check sliding parts for wear and return spring for weakness.
2. Check brake pedal for bending, warping and crack.
3. Check other parts for condition.

Reinstallation

1. Reinstall brake pedal in reverse sequence of removal.
2. Slightly and evenly coat multi-purpose grease (MIL G2108 or G10924) to sliding parts of fulcrum pin and clevis pin and hook portion of return spring.

CHASSIS

3. Tightening torque

Fulcrum pin

steering wheels)

(For vehicles with both left and right hand

3.5 to 4.0 kg-m (25.3 to 28.9 ft-lb)

MASTER CYLINDER

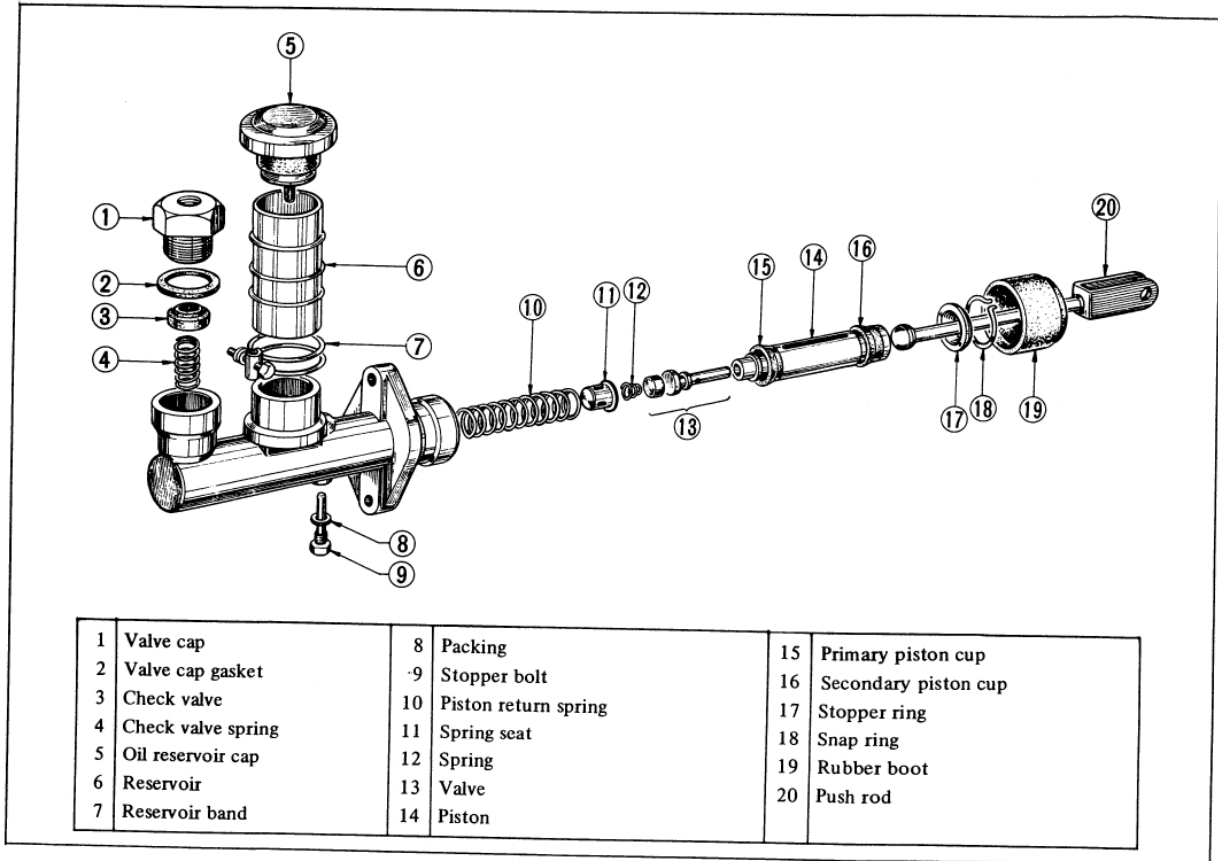


Fig. BR-2 Master cylinder

Removal

1. Disconnect brake pedal return spring.
2. Remove clevis pin, and separate brake pedal from master cylinder push rod.
3. Disconnect brake tube ① from master cylinder.
4. Remove two bolts ② retaining master cylinder assembly to front dash panel, and remove shims and master cylinder assembly.

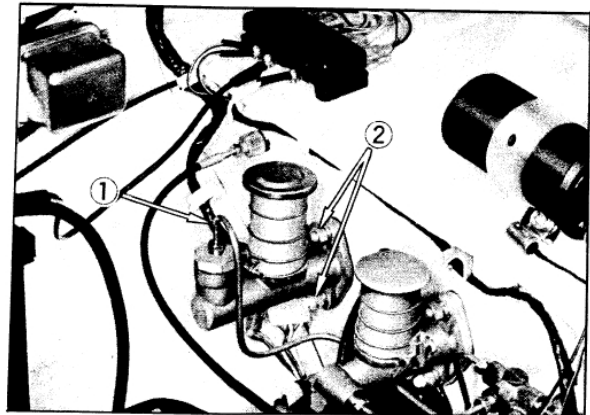


Fig. BR-3 Master cylinder

BRAKE

Disassembly

1. Drain brake fluid.
2. Remove stopper bolt.
3. Remove rubber boot, snap ring and stopper ring, and remove push rod.
4. Take out piston and other related parts from cylinder.
5. Remove valve cap, and then remove gasket, check valve and check valve spring.

Note: Disassemble master cylinder carefully so that the sliding surfaces of piston and piston cup are not damaged. Do not remove fluid reservoir unless absolutely necessary. Moreover, do not remove piston cup unless piston is replaced.

Inspection

1. Thoroughly wash all disassembled parts in brake fluid or alcohol.

Note: Do not wash rubber parts with mineral oil since they are deteriorated.

When alcohol is used, however, do not immerse rubber parts in alcohol longer than 30 seconds.

After parts are cleaned, dry them with compressed air.

2. Check cylinder and piston for damage and uneven wear on the sliding surface and for other defective conditions. Replace as required.
3. Replace, if the cylinder and piston clearance is more than 0.15 mm (0.0059 in).
Master cylinder inner diameter: 19.05 mm ($\frac{3}{4}$ in)
4. Replace piston cup, packing and valves if damaged, worn, weakened or expanded.

In principle, replace piston cup, gasket and valves with new ones whenever master cylinder is disassembled.

5. Check piston return springs for damage, wear and other defective conditions and replace as necessary.
6. Replace others, if deformed, damaged or defective.

Reassembly

1. Assemble master cylinder in reverse sequence to disassembly.
2. Apply rubber grease to piston cup and other rubber parts slightly. Apply brake fluid to other component parts and carry out the operations carefully so that component parts are not damaged or no dust and other foreign materials enter cylinder and brake fluid reservoir.
3. Tightening torque
Valve cap 6 to 9 kg-m (43.4 to 65.1 ft-lb)

Reinstallation

1. Reinstall master cylinder in reverse sequence to removal.
2. Fill reservoir with brake fluid. Bleed master cylinder and wheel cylinder which is located nearest master cylinder. Make sure that no brake fluid leaks.

Note: Do not use brake fluid other than specified.

3. For pedal height adjustment, refer to the paragraph covering pedal adjustment.
4. Tightening torque
Master cylinder 2.1 to 2.5 kg-m
(15.2 to 18.1 ft-lb)

CHASSIS

BRAKE LINES

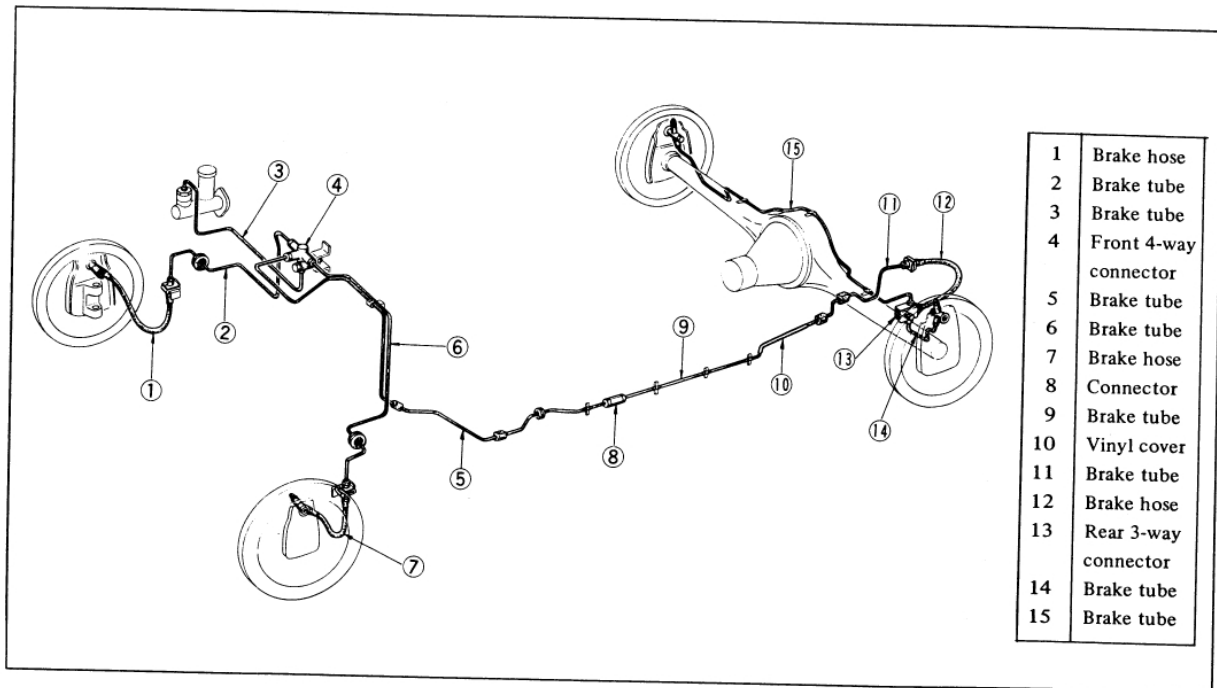


Fig. BR-4 Brake lines

Removal

1. Disconnect brake tube by turning flare nuts on the both ends, and remove clips used to secure brake tube on the panel.

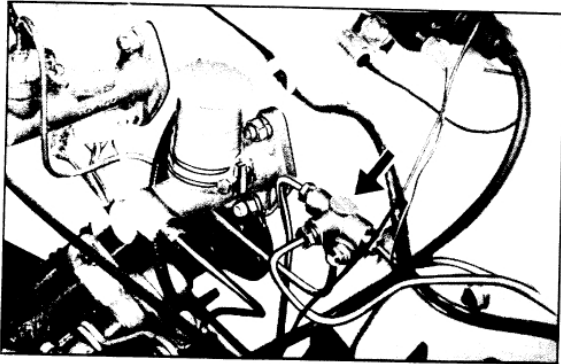


Fig. BR-5 Front 4-way connector

2. Disconnect rear brake hose from brake tube at 3-way connector by loosening flare nut.
3. Disconnect front brake hose by turning flare nuts on the both ends.

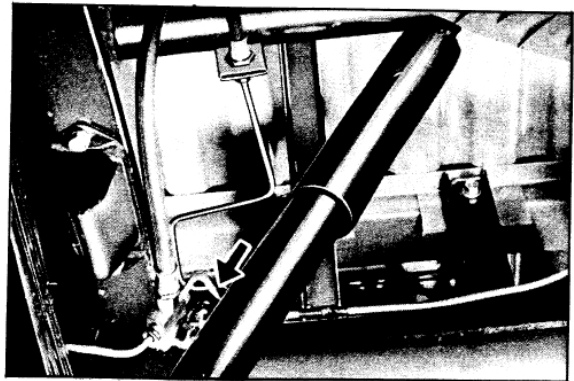


Fig. BR-6 Rear 3-way connector

Inspection

Thoroughly clean brake tube and brake hose. Check them for collapsing, crack, scar and rust (brake tube), and for weakness, expansion, scar, and crack (brake hose).

Replace, if defective.

Reinstallation

1. Provide a sufficient space between brake lines and

BRAKE

other parts so that brake lines do not interfere with other parts due to vibration during driving.

2. Apply brake fluid to threaded part of brake tube flare nut, correctly engage threads, and tighten flare nut.

3. Install brake hose, being sure not to twist hose. Install front brake hose particularly carefully so that hose is not twisted when vehicle is in posture with standard load and wheel is set to straight driving position. Turn steering wheel from lock to lock, and make sure that tires and suspension components do not interfere with brake hose. In addition, be sure that hose is not twisted when wheels are completely unloaded.

4. When brake hose is disconnected from 3-way connector on rear axle housing once, be sure to replace copper packing with a new one.

5. Tightening torque

	kg-m (ft-lb)
4-way connector	1.0 to 1.5 (7.2 to 10.9)
3-way connector	1.0 to 1.5 (7.2 to 10.9)
Master cylinder to brake tube	1.7 to 2.0 (12.3 to 14.5)

4-way connector to brake tube	1.7 to 2.0 (12.3 to 14.5)
Connector to brake tube	1.7 to 2.0 (12.3 to 14.5)
Wheel cylinder to brake hose	1.7 to 2.0 (12.3 to 14.5)
Wheel cylinder to brake tube	1.7 to 2.0 (12.3 to 14.5)
3-way connector to brake hose	1.7 to 2.0 (12.3 to 14.5)
3-way connector to brake tube	1.7 to 2.0 (12.3 to 14.5)
Brake hose to brake tube	1.7 to 2.0 (12.3 to 14.5)

6. Fill master cylinder reservoir with brake fluid, and perform air-bleeding completely.

7. Upon completion of air-bleeding, make sure that brake operates correctly and no brake fluid leaks from brake tube and hose connectors.

Fully depress brake pedal, continue to depress brake pedal for several seconds, and check brake line for fluid leakage. If fluid leaks from connector, tighten connector or replace if necessary.

Note: Do not use brake fluid other than specified.

FRONT BRAKE

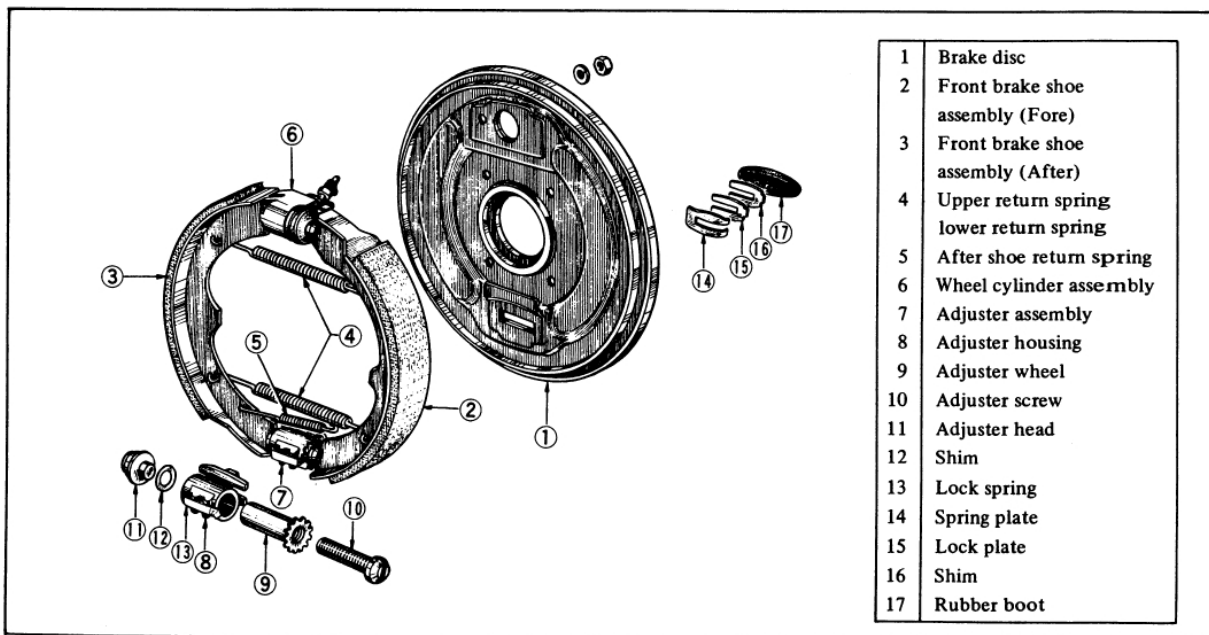


Fig. BR-7 Front brake

CHASSIS

Removal and disassembly

1. Jack up vehicle and support it with stands.
2. Remove wheel and brake drum. When brake drum cannot be removed easily, return brake adjuster.
3. In order to ease operation, remove hub assembly from front spindle.
4. Unhook upper, lower, and after shoe return springs, and then remove brake shoe assemblies.
5. Disconnect brake hose from wheel cylinder.
6. Loosen securing nut and remove wheel cylinder.
7. Remove rubber boot, spring plate, lock plate and shim, and then remove adjuster assembly from brake disc.

Inner diameter: 254 mm (10.00 in)
 Out-of-round: Less than 0.02 mm (0.0008 in)
 Limit of rebored drum I.D.: 255 mm (10.04 in)

2. Brake shoe lining

When brake shoe linings are cracked, incompletely seated, unevenly worn, and/or deteriorated due to excessive heating or soiled with grease, repair or replace. When thickness of brake shoe lining is less than 1.0 mm (0.0394 in), replace.

Note: a. If oil or grease is found on brake shoe linings, clean thoroughly with solvent.

b. When brake shoe lining is installed, grind brake shoe lining face to diameter equal to that of brake drum.

Lining dimension

Width × Thickness × Length

45 × 4.5 × 244 mm (1.8 × 0.2 × 9.6 in)

Total friction area: 440 cm² (68.2 sq in)

Inspection

1. Brake drum

Thoroughly clean and inspect brake drum. Replace, if cracked or excessively damaged. When brake drum interior is excessively worn or scratched or out-of-round is excessive, correct by means of reboring. When minor, polish with fine emery cloth.

3. Check adjuster for smooth operation.

4. Return springs

If they are considerably weakened, replace them.

Return spring dimension

	Upper return spring	Lower return spring	After shoe return spring
Wire diameter mm (in) × free length mm (in) - turns	2.0 × 136.5 - 37 (0.079 × 5.37 - 37)	2.3 × 134.5 - 35 (0.091 × 5.30 - 35)	1.4 × 83.2 - 27.5 (0.055 × 3.28 - 27.5)
Load kg (lb) × length mm (in)	15 × 159.5 (0.591 × 6.28)	22 × 159.5 (0.866 × 6.28)	4.5 × 99 (0.177 × 3.90)

BRAKE

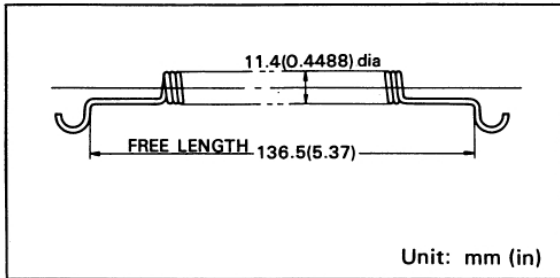


Fig. BR-8 Upper return spring

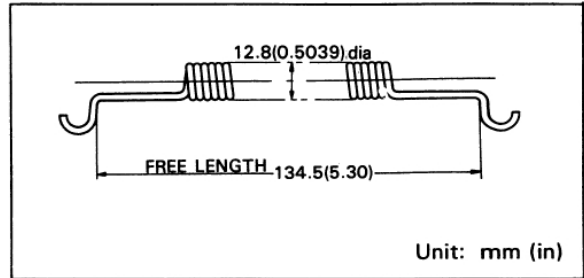


Fig. BR-9 Lower return spring

5. Check brake disc for distortion.
6. Wheel cylinder

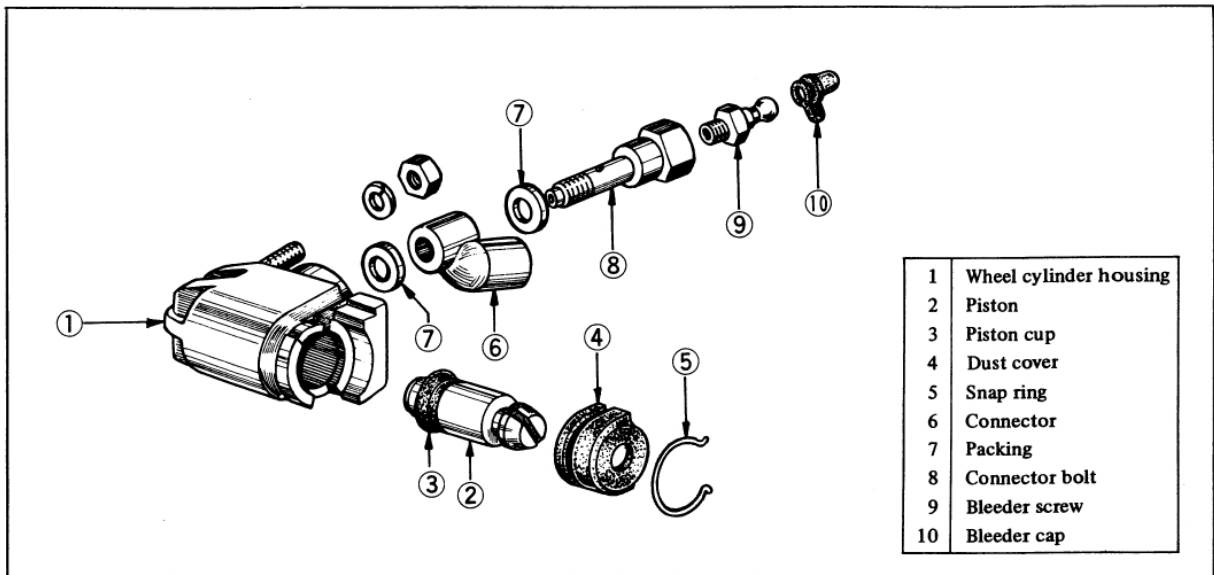


Fig. BR-10 Front wheel cylinder

Wheel cylinder can be disassembled simply by the following procedure described below:

Remove snap ring and dust cover, and take out piston from wheel cylinder. Be careful not to damage sliding part of piston and piston cup.

Thoroughly wash all disassembled parts in brake fluid or alcohol.

Note: Do not wash rubber parts with mineral oil since they are deteriorated.

When alcohol is used, however, do not immerse rubber parts in alcohol longer than 30 seconds. After parts are cleaned, dry them with compressed air.

Check the bore of wheel cylinder for scratches and corrosion.

If clearance between cylinder and piston exceeds 0.15 mm (0.0059 in), replace them.

Wheel cylinder inner diameter 20.64 mm (13/16 in).

Cup must be replaced if deformed due to damage, crack, corrosion, and/or aging. It is recommended that piston cup be replaced even if they are apparently in satisfactory condition.

Assemble wheel cylinder in reverse sequence to disassembly. Carry out operations carefully so that component parts are not damaged or no dust and other foreign materials enter cylinder.

CHASSIS

Apply rubber grease to piston cup and other rubber parts slightly, and brake fluid to piston and cylinder bore.

Reassembly and reinstallation

Reassemble and reinstall front brake in reverse sequence to disassembly and removal. Note the following matters.

1. When assembling adjuster assembly, apply brake grease to adjuster housing bore, adjuster wheel and adjuster screw.

When installing adjuster assembly to brake disc, apply brake grease to disc, adjuster and spring plate sliding surfaces to slide adjuster smoothly.

Measure adjuster sliding resistance. Adjust by shim, when sliding resistance is incorrect.

Adjuster sliding resistance
5 to 12 kg (11.0 to 26.5lb)

2. Before installing brake shoe assemblies, apply brake grease to wheel cylinder and adjuster brake shoe installing grooves, and brake disc and brake shoe assembly contact faces (two places). Be careful not to allow brake grease to stick on brake shoe surface.

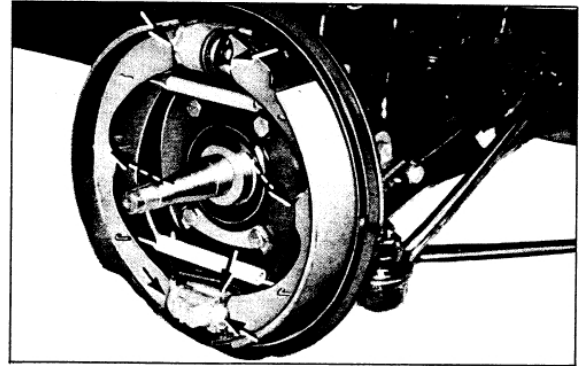


Fig. BR-11 Greasing points on front brake

3. Tightening torque:

Wheel cylinder	4.2 to 5.2 kg-m (30.4 to 37.6 ft-lb)
Connector bolt	1.7 to 2.0 kg-m (12.3 to 14.5 ft-lb)
Brake disc	4.0 to 5.4 kg-m (28.9 to 39.0 ft-lb)

4. Adjust brake shoe clearance and bleed brake system. Upon completion of the above adjustments, make sure that brake operates correctly and no brake fluid leaks.

REAR BRAKE

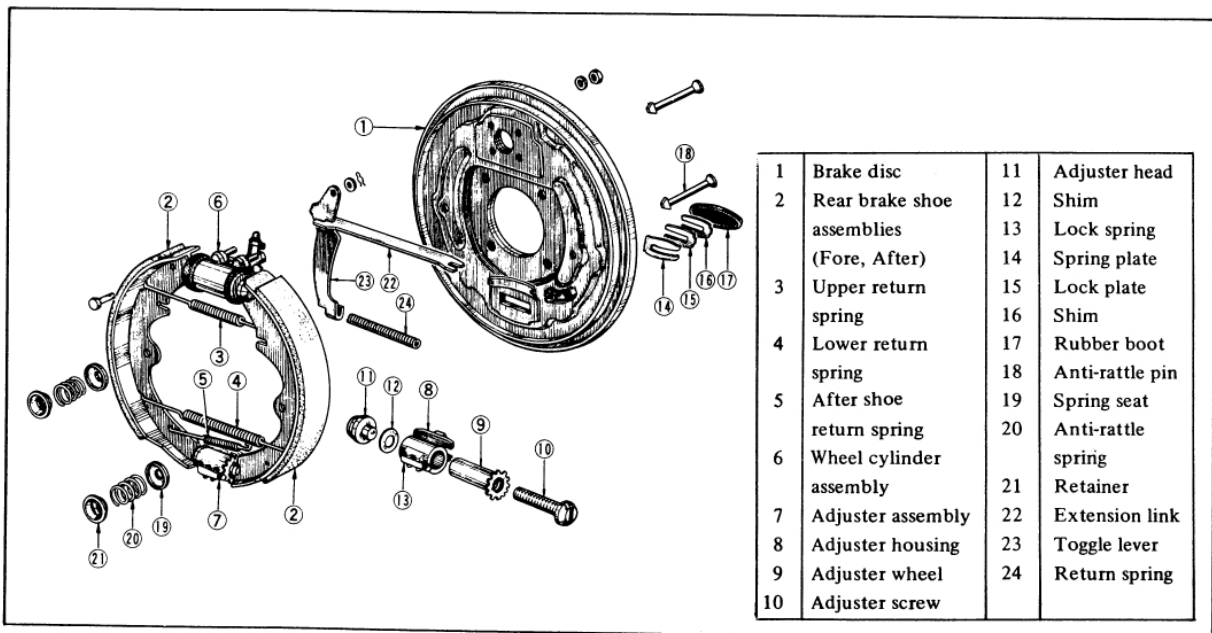


Fig. BR-12 Rear brake

BRAKE

Removal and disassembly

1. Jack up vehicle and support with stands.
2. Remove wheel and brake drum.

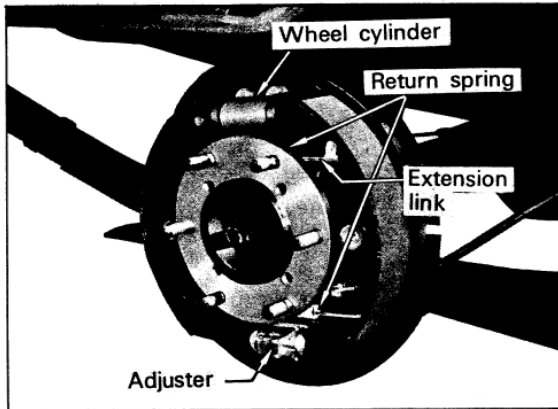


Fig. BR-13 Rear brake

3. Remove anti-rattle pin.
4. Open brake shoe assemblies outward against return spring, and remove extension link.
5. Remove return springs.
6. Remove brake shoe assemblies. Note that after brake shoe assembly must be separated from toggle lever. When separating after brake shoe assembly from toggle lever, withdraw clevis pin.
7. Disconnect toggle lever from hand brake rear cable.

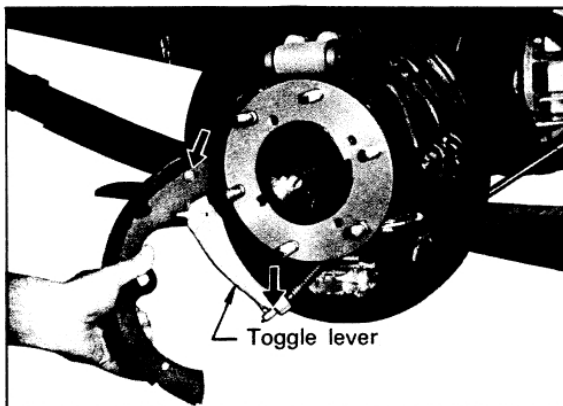


Fig. BR-14 Removing toggle lever

8. Disconnect brake tube at wheel cylinder by loosening flare nut.
9. Remove wheel cylinder from brake disc by loosening installation nuts.
10. Remove rubber boot, spring plate, lock plate and shim and remove adjuster assembly from brake disc.

Inspection

For the rear brake inspection, refer to the instructions for front brake.

1. Brake drum

Refer to the paragraph covering brake drum of front brake.

Inner diameter:	254 mm (10.00 in)
Out-of-round:	0.02 mm (0.0008 in)
Limit of rebored drum I.D.:	255 mm (10.04 in)

2. Lining

Refer to the paragraph covering front brake shoe lining.

Lining dimension

Width x Thickness x Length

45 x 4.5 x 244 mm (1.8 x 0.2 x 9.6 in)

Total friction area: 440 cm² (68.2 sq in)

3. Check adjuster for smooth operation.
4. Return springs
If they are considerably weakened, replace them.

CHASSIS

	Upper return spring	Lower return spring	After shoe return spring
Wire diameter mm (in) × free length mm (in) - turns	2.0 × 175 - 32.5 (0.079 × 6.89 - 32.5)	2.3 × 158 - 30 (0.091 × 6.22 - 30)	1.4 × 83.2 - 27.5 (0.055 × 3.28 - 27.5)
Load kg (lb) × length mm (in)	12 × 184 (0.473 × 7.24)	19 × 176 (0.748 × 6.93)	4.5 × 99 (0.188 × 3.90)

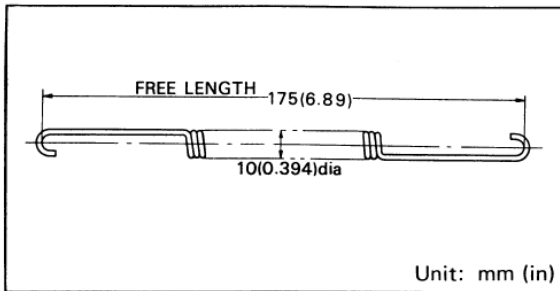


Fig. BR-15 Upper return spring

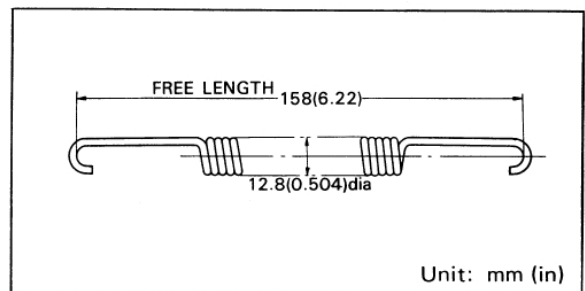


Fig. BR-16 Lower return spring

5. Check brake disc for distortion.
6. Wheel cylinder

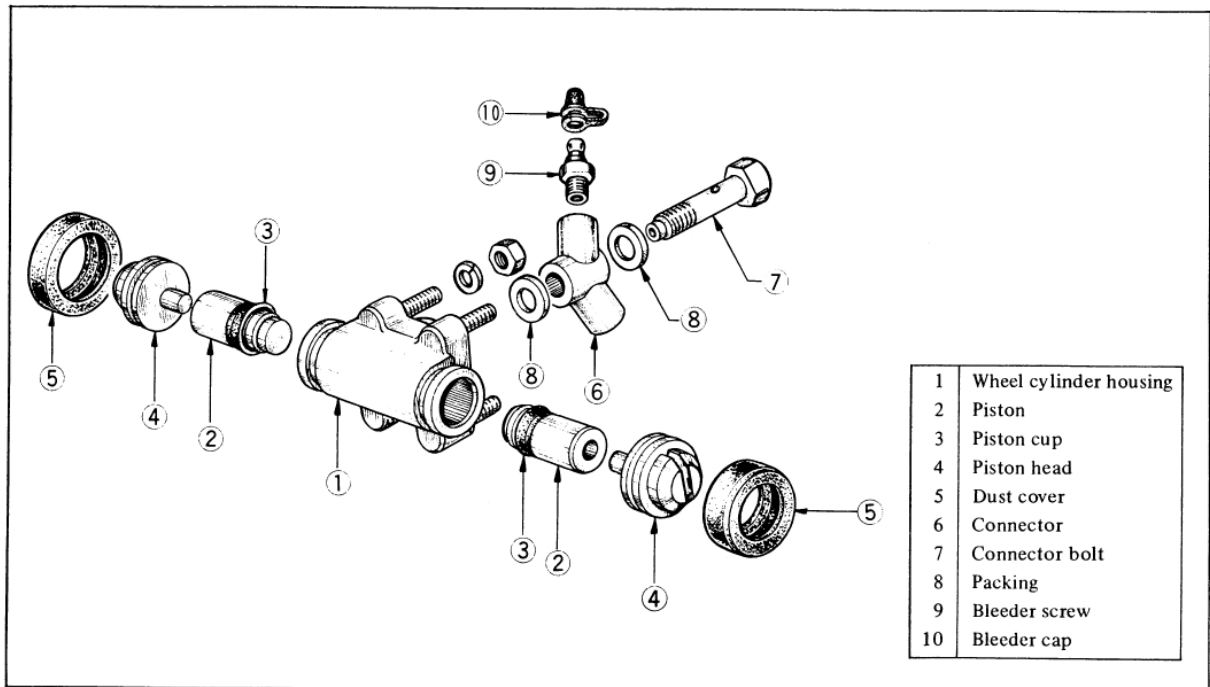


Fig. BR-17 Rear wheel cylinder

BRAKE

Wheel cylinder inner diameter
20.64 mm (13/16 in)

Remove dust cover, and pull out piston head and piston assembly. For inspection and reassembly, refer to "Wheel cylinder of front brake."

Reassembly and reinstallation

Reassemble and reinstall rear brake in reverse sequence of disassembly and removal, noting the following matters. Refer to the notes for front brake.

1. Rear adjuster assembly is the same as front. Refer to the paragraph covering front adjuster assembly.

Adjuster sliding resistance
5 to 12 kg (11.0 to 26.5 lb)

2. When assembling toggle lever and after brake shoe assembly, adjust clearance between toggle lever and after brake shoe assembly to 0 to 0.3 mm (0 to 0.0118 in) with a properly selected toggle pin washer.

Part No.	Thickness mm (in)
44034 32200	2.0 (0.079)
44034 14800	2.3 (0.091)
44034 14801	2.6 (0.102)
44034 14802	2.9 (0.114)
44034 14803	3.2 (0.126)

3. Before installing brake shoe assemblies, apply brake grease to the following places:

- (1) Brake shoe installing grooves of adjuster and wheel cylinder
- (2) Extension link installing grooves
- (3) Lower surface of spring seat
- (4) Contact surfaces between brake disc and brake shoe assembly (Six places)

At this time, be sure not to coat brake grease to the surface of brake shoe.

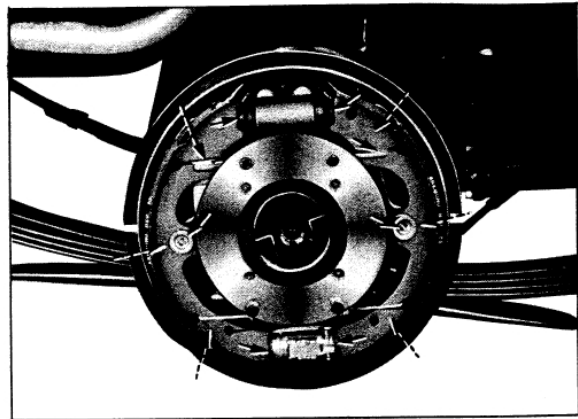


Fig. BR-18 Greasing points on rear brake

4. Tightening torque

Wheel cylinder 1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb)
Connector bolt 1.7 to 2.0 kg-m (12.3 to 14.5 ft-lb)
Brake disc 4.0 to 5.4 kg-m (28.9 to 39.0 ft-lb)

5. Adjust brake shoe clearance and bleed brake system. Upon completion of the above adjustments, make sure that brake operates correctly and no brake fluid leaks.

CHASSIS

HAND BRAKE

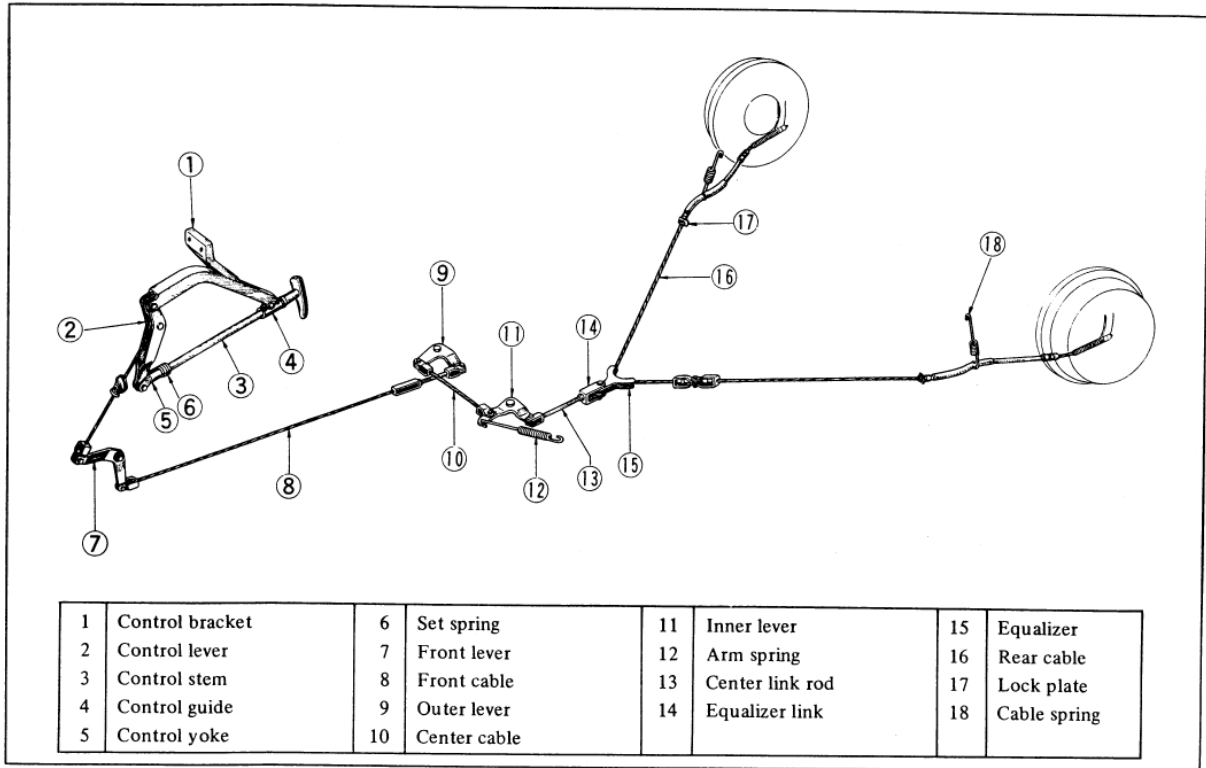


Fig. BR-19 Hand brake construction

Removal

Control stem

1. Completely loosen hand brake.
2. Remove clevis pins ① and ②, and separate control stem.

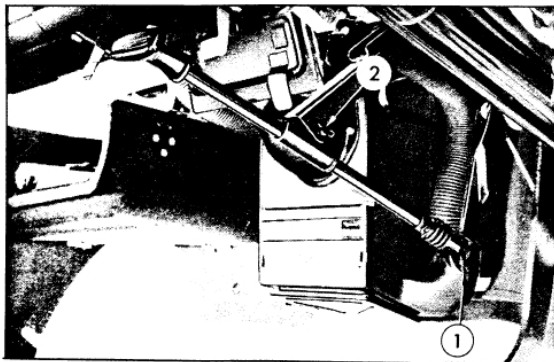


Fig. BR-20 Control stem

Front cable, center cable

1. Completely loosen hand brake.
2. Remove clevis pin and separate cable from lever.

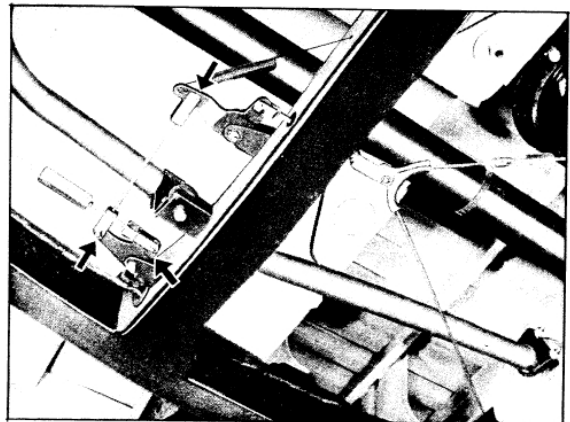


Fig. BR-21 Cable and lever

BRAKE

Rear cable

1. Completely loosen hand brake.
2. Remove clevis pin and disconnect equalizer from equalizer link.
3. Remove lock plate ① and cable spring ②.

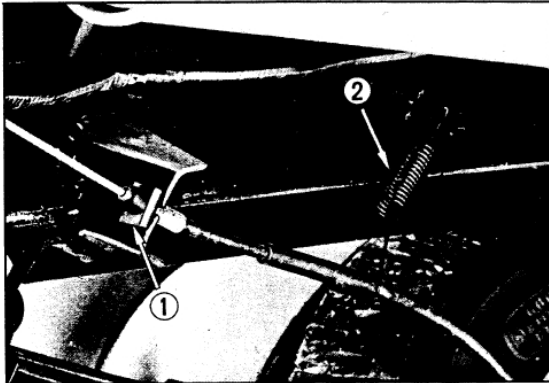


Fig. BR-22 Lock plate and cable spring

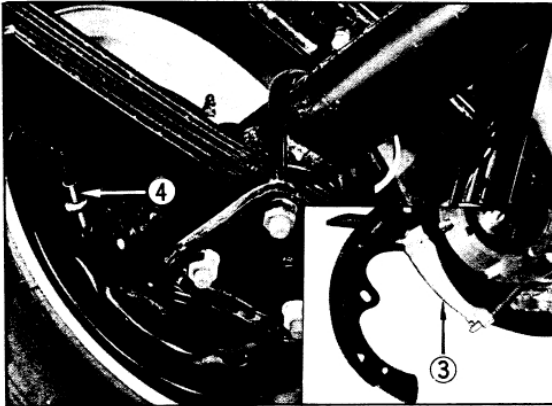


Fig. BR-23 Rear cable

4. Remove both side rear brake drums, and disconnect rear cable from toggle lever ③.
5. Separate cable connecting flange ④ from brake disc.

Inspection

1. Check cable for damage, excessive elongation and other defective conditions, and replace if required.

2. Replace, if ratchet pawl and teeth are worn excessively or unusually or damaged.

3. Check springs for weakness, and replace if required.

Installation

Reinstall hand brake in reverse sequence of removal.

Grease sliding parts with multi-purpose grease (MIL G2108 or G10924).

ADJUSTMENT

Brake pedal height

1. Loosen stopper up to such an extent that stopper is separated from pedal arm.

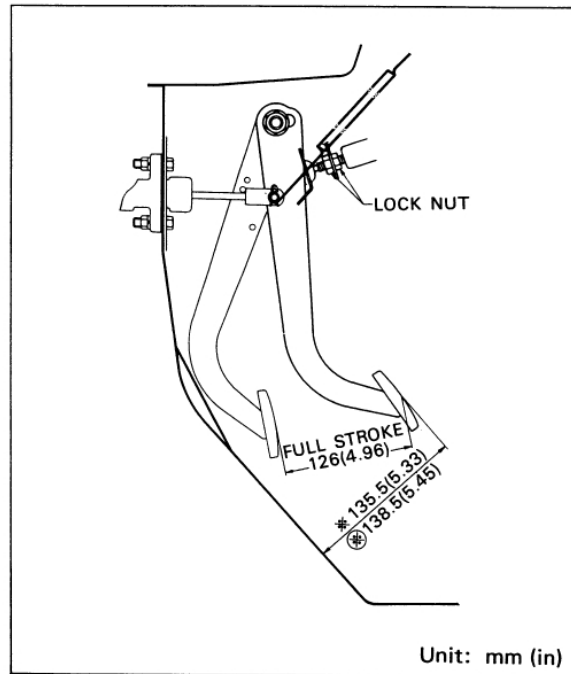


Fig. BR-24 Brake pedal adjustment

2. With master cylinder push rod fully pulled out, adjust thickness of adjusting shim so that height of brake pedal head is 138.5 mm (5.45 in) from dash panel.

Standard shim thickness: 1.6 mm (0.0630 in)

CHASSIS

Part No.	Thickness mm (in)
30611 27260	1.6 (0.0630)
30612 27260	0.8 (0.0315)
30613 27260	0.5 (0.0197)

Note: When adjusting, be sure to use adjusting shims having the same thickness for upper and lower master cylinder installation bolts.

- Screw in stopper so that height of brake pedal head is 135.5 mm (5.33 in) from dash panel, and tighten lock nut.

Brake shoe clearance

Front drum brake

- Jack up vehicle to lift up wheel.
- Remove rubber boot from brake disc.
- Lightly tap adjuster housing and move it forward. Turn adjuster wheel with a screwdriver, and spread brake shoes. Stop turning adjuster wheel when a considerable drag is felt on brake drum.

Note: For both left and right brakes, brake shoes spread when adjuster wheel is turned downward.

- Return adjuster wheel 12 ratches to obtain correct clearance between brake drum and brake shoes. Turn brake drum, and make sure that brake drum turns without dragging when brake shoes interfere with brake drum, readjust clearance.
- Install rubber boot.

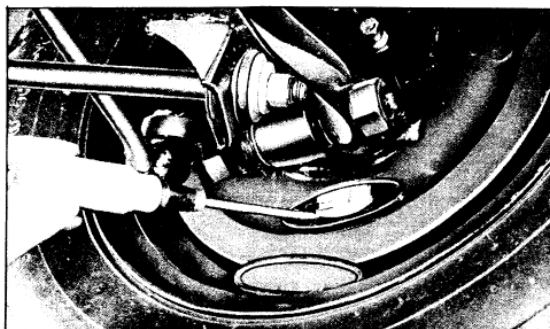


Fig. BR-25 Adjusting front brake

Rear drum brake

With hand brake fully released, adjust rear brake shoe clearance. For the procedure, refer to "Front drum brake".

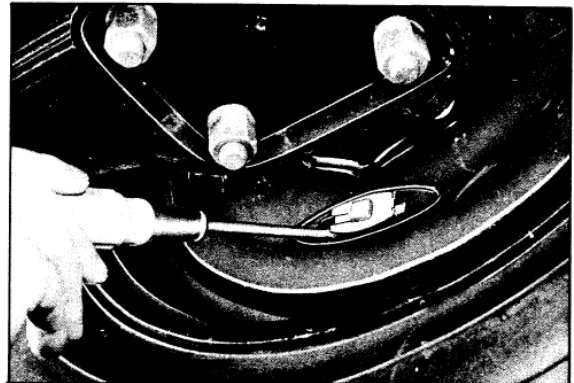


Fig. BR-26 Adjusting rear brake

Hand brake

With rear cable stretched, adjust equalizer link with adjust screw (A portion), so that "L" dimension (shown in Figure BR-27) is standard dimension. Lock adjust screw with lock nut.

Equalizer link "L" dimension:

29.5 mm (1.161 in)

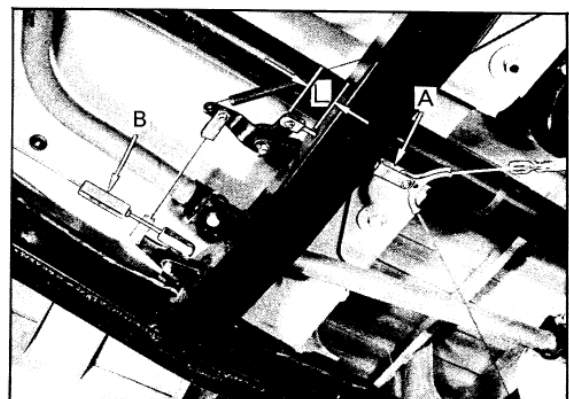


Fig. BR-27 Hand brake adjustment

Adjust front cable adjust screw (B portion) so that control stem stroke is 80 to 100 mm (3.15 to 3.94 in)

BRAKE

when control stem is pulled with a force of 20 to 30 kg (44.1 to 66.1 lb). Lock adjust screw with lock nut.

Normal stroke:

80 to 100 mm (3.15 to 3.94 in)

Limited stroke:

Less than 144 mm (5.67 in)

Note: Hand brake must operate smoothly while being pulled and released. Make sure that no abnormal noise, dragging, twisting or other faulty condition occurs.

Readjust when stroke exceeds limit.

Bleeding hydraulic system

Bleeding hydraulic system deserves much attention as it is an essential factor for regular service brake operation.

As a matter of fact, during the brake service, air is likely to creep into the circuit with the result that the fluid action is altered and brake pedal becomes spongy at the travel end.

1. Clean any dirt around master cylinder reservoir and reservoir cap, and top up reservoir with the recommended brake fluid.
2. Thoroughly clean any mud or dust from bleeder screw so that the outlet hole is free from foreign materials, then attach a vinyl hose to bleeder. Dip the

other end of hose in a container containing some brake fluid.

3. Depress brake pedal two or three times, and keep pedal fully depressed.
4. With brake pedal fully depressed, open the bleeder screw to exhaust air.
5. Close bleed screw quickly as brake pedal is on down stroke.
6. Allow brake pedal to return slowly with bleeder screw closed.
7. Repeat these operations until no air bubbles emerge in hose.
8. Conduct air bleeding on remaining wheel cylinders in the same manner.

Note: a. Check reservoir for fluid level during bleeding operation.

b. Fluid drained during the bleeding operation should not be used again for refilling.

c. Ordinarily air bleeding is performed in the following sequence:

Rear left – Rear right – Front left – Front right.

d. When master cylinder is disassembled or replaced, conduct air bleeding on wheel cylinder which is located most near to master cylinder.

SERVICE DATA AND SPECIFICATIONS

Specifications

Brake type

Front Uni-servo

Rear Duo-servo

Hand brake Mechanical, operating on rear wheels

Brake drum

Front mm (in) 254 (10.00)

Rear mm (in) 254 (10.00)

CHASSIS

Brake lining

Dimension (front, rear) width x thickness x length	mm (in)	45 x 4.5 x 244 (1.8 x 0.2 x 9.6)
Total friction area	cm ² (sq in)	440 (68.2)

Wheel cylinder

Front	mm (in)	20.64 (13/16)
Rear	mm (in)	20.64 (13/16)
Master cylinder diameter	mm (in)	19.05 (3/4)

Service data

Master cylinder push rod

At brake pedal height	mm (in)	138.5 (5.45)
-----------------------	---------------	--------------

Brake pedal

Brake pedal height	mm (in)	135.5 (5.33)
--------------------	---------------	--------------

Wheel cylinder

Allowable maximum clearance between cylinder and piston	mm (in)	0.15 (0.0059)
--	---------------	---------------

Master cylinder

Allowable maximum clearance between cylinder and piston	mm (in)	0.15 (0.0059)
--	---------------	---------------

Brake drum

Allowable maximum out-of-round	mm (in)	0.02 (0.0008)
--------------------------------	---------------	---------------

Allowable maximum inner diameter of rebored drum	mm (in)	255 (10.04)
---	---------------	-------------

Brake lining

Allowable minimum thickness	mm (in)	1.0 (0.0394)
-----------------------------	---------------	--------------

Hand brake

Equalizer link "L" dimension	mm (in)	29.5 (1.161)
Normal stroke	mm (in)	80 to 100 (3.15 to 3.94)
Allowable maximum stroke	mm (in)	144 (5.67)

BRAKE

Tightening torque

Fulcrum pin	kg-m (ft-lb)	3.5 to 4.0	(25.3 to 28.9)
Master cylinder	kg-m (ft-lb)	2.1 to 2.5	(15.2 to 18.1)
Master cylinder valve cap	kg-m (ft-lb)	6 to 9	(43.4 to 65.1)
4-way connector	kg-m (ft-lb)	1.0 to 1.5	(7.23 to 10.85)
3-way connector	kg-m (ft-lb)	1.0 to 1.5	(7.23 to 10.85)
Front brake			
Wheel cylinder	kg-m (ft-lb)	4.2 to 5.2	(30.4 to 37.6)
Connector bolt	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
Brake disc	kg-m (ft-lb)	4.0 to 5.4	(28.9 to 39.0)
Rear brake			
Wheel cylinder	kg-m (ft-lb)	1.5 to 1.8	(10.8 to 13.0)
Connector bolt	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
Brake disc	kg-m (ft-lb)	4.0 to 5.4	(28.9 to 39.0)
Brake lines			
Master cylinder to brake tube	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
4-way connector to brake tube	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
Connector to brake tube	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
Wheel cylinder to brake hose	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
Wheel cylinder to brake tube	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
3-way connector to brake hose	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
Brake hose to brake tube	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)
3-way connector to brake tube	kg-m (ft-lb)	1.7 to 2.0	(12.3 to 14.5)

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Lack of braking power Excessive pedal pressure required, poor brakes	Grease, mud or water on brake shoe linings	Remove drums Clean and dry brake shoe linings or replace
	Full area of linings does not contact	Replace brake shoes
	Scored brake drums	Reface drums and install new brake shoe linings

CHASSIS

Condition	Probable cause	Corrective action
Spongy pedal	Deteriorated brake shoe lining face	Replace
	Worn brake shoe lining	Replace
Pedal yields under slight pressure	Clogged brake line	Inspect and clean
	Air in brake lines	Bleed thoroughly
	Swollen hose due to deterioration or use of poor quality brake fluid	Replace hose and bleed system Use prescribed brake fluid
	Use of a brake fluid boiling point of which is too low	Change with prescribed brake fluid and bleed system
Pedal yields under slight pressure	Clogged reservoir filler cap vent hole This promotes a vacuum in master cylinder that sucks in air through rear seal	Clean reservoir filler cap and bleed system
	Deteriorated check valve	Fit a new check valve and bleed system
	External leaks	Check master cylinder, piping and wheel cylinder for leaks and make necessary repair
	Leakage from master cylinder through primary cap	Overhaul master cylinder
Unbalanced brakes	Insufficient brake fluid level	Check and add
	Tires improperly inflated	Inflate tires to correct pressure
	Improper brake adjustment	Readjust
	Water or oil on brake shoe linings	Clean or replace
	Mud or sand on brake drum	Clean
	Deteriorated brake shoe lining face	Repair by means of polishing or replace
	Improper brake shoe lining contact	Repair by means of polishing
	Improper brake shoe lining angle	Rearrange or replace
	Worn brake shoe linings	Replace
Deformed brake shoe	Replace	

BRAKE

Condition	Probable cause	Corrective action
	<p>Worn or damaged (other than rust) brake drum</p> <p>Defective wheel cylinder operation</p> <p>Faulty brake shoe sliding</p> <p>Faulty adjuster sliding</p> <p>Loose back plate installation bolt</p> <p>Deformed back plate</p> <p>Improperly adjusted wheel bearing</p> <p>Improper wheel alignment</p> <p>Clogged brake lines</p> <p>Loose leaf spring U-bolt</p>	<p>Repair or replace</p> <p>Repair or replace</p> <p>Adjust and apply brake grease</p> <p>Apply brake grease</p> <p>Retighten or replace</p> <p>Replace</p> <p>Readjust or replace</p> <p>Readjust</p> <p>Inspect and clean</p> <p>Retighten or replace</p>
<p>Brake drags</p>	<p>Insufficient brake shoe/drum clearance</p> <p>Clogged master cylinder return port (No play on brake pedal)</p> <p>Faulty brake shoe sliding</p> <p>Faulty adjuster sliding</p> <p>Defective wheel cylinder operation</p> <p>Expanded piston cap</p> <p>Weakened or broken return spring</p> <p>Defective hand brake return</p> <p>Clogged brake lines</p> <p>Improper wheel bearing adjustment</p>	<p>Adjust</p> <p>Clean and adjust brake pedal height</p> <p>Adjust and apply brake grease</p> <p>Adjust and apply brake grease</p> <p>Repair or replace</p> <p>Replace</p> <p>Replace</p> <p>Inspect and correct</p> <p>Inspect and clean</p> <p>Readjust or replace</p>
<p>Squeak</p>	<p>Dragging</p> <p>Worn brake shoe lining</p>	<p>See "Brake drags" above</p> <p>Replace</p>

CHASSIS

Condition	Probable cause	Corrective action
	Deteriorated brake shoe lining face	Correct by means of polishing or replace
Squeal	Deteriorated brake shoe lining face	Correct by means of polishing or replace
	Worn brake shoe lining	Replace
	Improper brake shoe and lining contact	Replace
	Excessive friction between brake shoe and brake disc	Clean and apply brake grease
	Foreign matter on brake drum sliding surface	Clean
	Damaged or deflection of drum sliding surface	Rebore or replace
	Deformed or improperly installed brake shoe	Correct or replace
	Loose back plate installation bolt	Retighten
	Worn anchor contact part	Replace
	Improper brake shoe lining contact	Correct or replace
Chatter	Roughened brake drum sliding surface	Rebore or replace
	Excessively distorted or deviated drum out-of-round	Rebore or replace
	Roughened brake shoe lining surface	Correct by means of polishing or replace
Excessive pedal travel	Improperly adjusted brake	Readjust
	Air intrusion into hydraulic system	Bleed system
	Brake fluid leakage from hydraulic system or insufficient fluid level	Check, repair or add brake fluid
	Worn brake shoe lining	Replace
	Tilted brake shoe or faulty return	Correct

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



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TOKYO, JAPAN

SECTION WT

WHEEL AND TIRE

WT

WHEEL AND TIRE WT- 1
TROUBLE DIAGNOSES AND WT- 5
CORRECTIONS

WHEEL AND TIRE

WHEEL AND TIRE

CONTENTS

DESCRIPTION	WT-2	INSPECTION	WT-2
Inflation of tires	WT-2	Wheel	WT-2
Tire rotation	WT-2	CHECKING WHEELS AND JACKING UP ...	WT-3

TIRE SIZE (in).

PL521	Front	6.00-14-6PR LT
	Rear	6.00-14-6PR LT
(G)(N)521 Series	Front	6.00-14-6PR LT
	Rear	6.00-14-8PR LT
		6.00-14-6PR LT (L521-TU Only)
U.V(N)521	Front	5.50-14-6PR LT
	Rear	5.50-14-6PR LT

TIRE INFLATION PRESSURE (To be measured when tires are cold)

Unit: kg/cm²(lb/in²)

	Under 100 km/h (60 MPH)		Over 100 km/h (60 MPH)		Tire size
	Front	Rear	Front	Rear	
PL521	1.5 (21) 1.5 (21)	1.75 (25) 3.0 (42)	1.8 (26) 1.8 (26)	2.05 (29) 3.3 (46)	for both Front and Rear 6.00-14-6PR LT
(G)(N)521 Series	1.5 (21) 1.5 (21)	2.75 (39) 4.25 (60)	1.8 (26) 1.8 (26)	3.05 (43) 4.55 (64)	Front 6.00-14-6PR LT Rear 6.00-14-8PR LT
L521TU	1.5 (21) 1.5 (21)	1.75 (25) 3.0 (42)	1.8 (26) 1.8 (26)	2.05 (29) 3.3 (46)	Rear 6.00-14-6PR LT
U.V(N)521 Series	1.5 (21) 1.5 (21)	1.75 (25) 3.25 (46)	1.8 (26) 1.8 (26)	2.05 (29) 3.55 (50)	for both Front and Rear 5.50-14-6PR LT

The upper column indicates moderate load and the lower column indicates heavy load.

CHASSIS

DESCRIPTION

Inflation of tires

Tires with proper pressure improve riding comfort and steering stability, reduce driving sound and extend the service life.

The tires should be checked for proper pressure on monthly basis or more frequently depending on driving conditions, while the tires are cold. Ordinarily, tire pressure rises 0.5 kg/cm^2 (7 lb/in^2) of that when tire is cold during continuous driving under a constant speed due to the tire temperature rise. When measuring tire pressure accurately, first, find out whether the tire is hot or cold.

When tire valve caps are removed, be sure to reinstall them on the valves with out fail. The valve caps assist in keeping air in the tire in case of a valve leak, and keep dust and water out of the valves.

When inflation pressure is too high, the following troubles will result.

1. Hard ride
2. Bruised tire or damaged carcass immediately inside the tread
3. Poor traction at rear wheel resulting in uneven wear
4. Rapid tread wear at center of tire

When inflation pressure is too low, the following troubles will result

1. Tires squeal on turns
2. Hard steering
3. Rapid and uneven wear on tire tread edges
4. Bruised tire rim and various type of rupture
5. Tie cord fatigue or breakage
6. Tramp and shimmy troubles
7. Unusual tire temperature rise
8. Car roll while turning a corner or making a sharp swerve in traffic

Tighten wheel nuts to a torque of 8.5 to 10.0 kg-m (61.5 to 72.3 ft-lb).

Tire rotation

To equalize the wear, tires should be rotated as shown in the diagram.

PL521	:	10,000 km (6,000 miles)
(G) (N)521	:	9,000 km (5,500 miles)
U.V(N)521	:	9,000 km (5,500 miles)

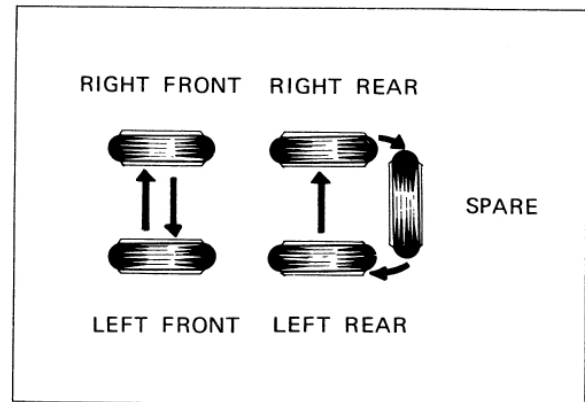


Fig. WT-1 Tire rotation [G(N)521, U.V.(N)521]

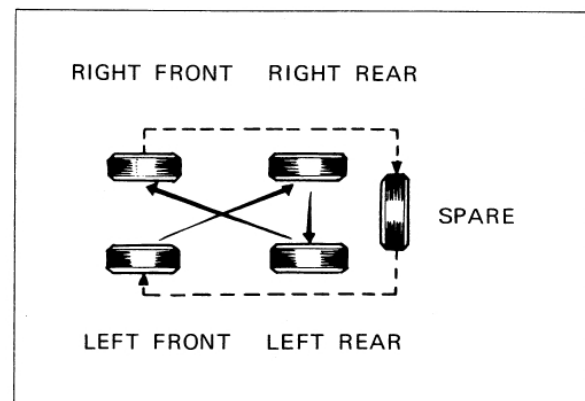


Fig. WT-2 Tire rotation (PL521U)

INSPECTION

Wheel

1. When wheel deflections toward vertical and hor-

WHEEL AND TIRE

horizontal axes at the points indicated by the asterisk in Figure WT-3 are 1.5 mm (0.06 in) or more, replace wheel.

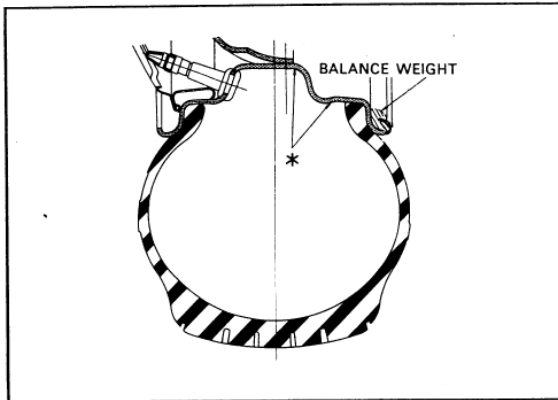


Fig. WT-3 Wheel rim run out check points

2. Check the flange of rim for deformation, crack damage, tear of welded unit, and other defective condition, deformed and damaged rim will cause air leakage.

3. Thoroughly remove rust, rubber particles mud, sand and other foreign matters from the flange of rim, if any, with a wire brush, emery paper and for cloth.

4. Remove small pieces of gravel, glass, nail, and other foreign matters from tire tread.

5. When the tire side wall is cracked noticeably or tread wear indicator is exposed, replace the tire with a new one.

CHECKING WHEELS AND JACKING UP

1. Remove the spare tire

Insert jack rod to guide and then turn it counterclockwise.

When installing, tighten a little strong after lifting up and lock.

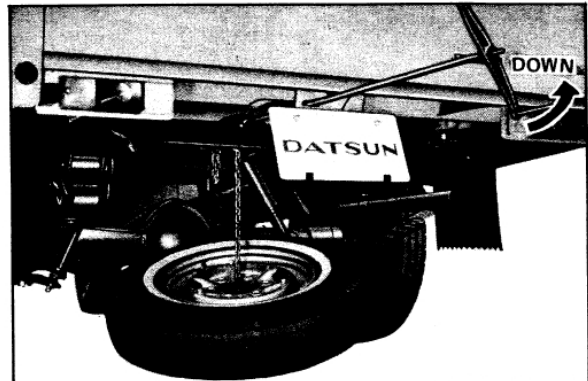


Fig. WT-4 Removing spare tire

2. Jacking up

Place jack under lower link (Front).

Place jack under rear spring seat (Rear).

Before car is jacked up, apply parking brakes, and as an added precaution against moving place a large stone or block under the front and rear of one wheel.

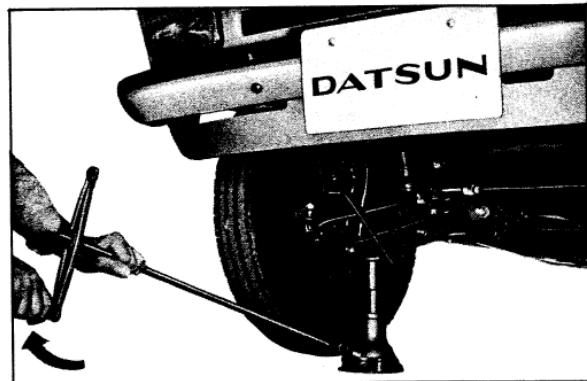


Fig. WT-5 Jacking up front side

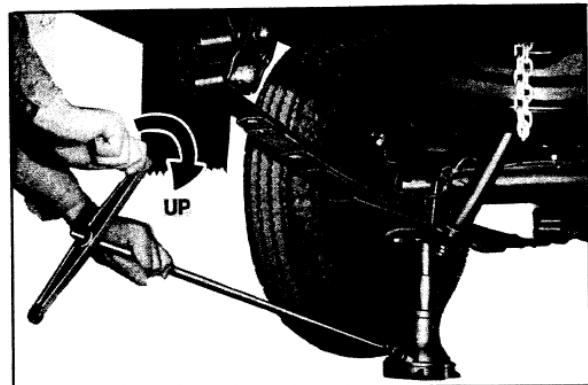


Fig. WT-6 Jacking up rear side

CHASSIS

3. Remove wheel cap.

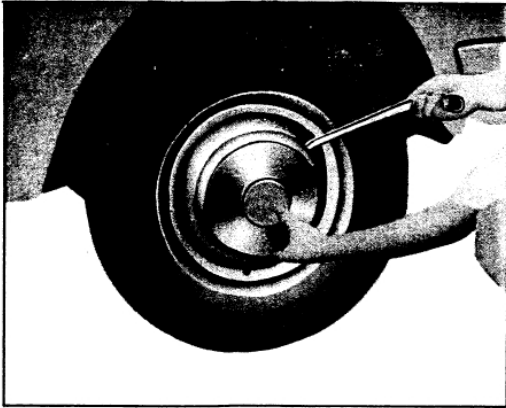


Fig. WT-7 Removing wheel cap

5. Change tire, and tighten wheel, nuts temporarily when tightening, be sure to follow the order shown in figure.

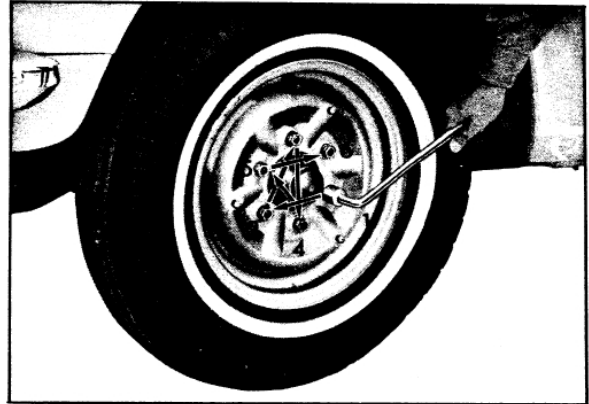


Fig. WT-9 Tightening order of wheel nut

4. Loosen wheel nuts.

When loosening, turn nuts counterclockwise by wheel nut wrench.

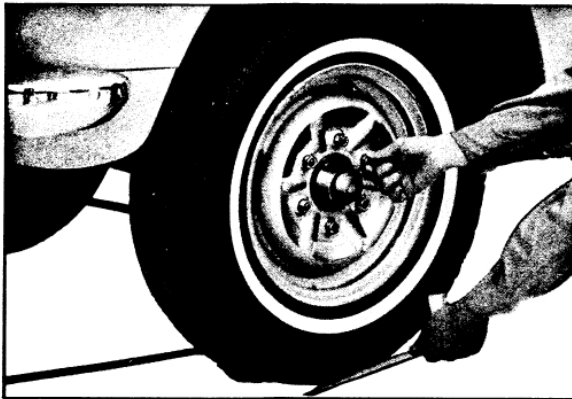


Fig. WT-8 Loosening wheel nuts

6. Remove jack, and tightening wheel nut properly following the above mentioned order.

WHEEL AND TIRE

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Possible causes	Corrective actions
Wheel wobbles	Improper tire pressure	Measure and adjust correctly
	Damaged tire or distorted wheel rim	Repair or replace
	Unbalanced wheel	Balance correctly
	Loosen wheel nuts	Retighten
	Worn or damaged wheel bearing, or excessive play of wheel bearing	Correct play or replace
	Improper front wheel alignment	Adjust
	Worn or damaged steering ball joint and link bushing	Replace
	Excessive steering linkage play or worn steering linkage	Adjust or replace
	Loosen steering linkage connection	Retighten nuts with the rated tightening torque or replace worn parts if any
	Broken suspension spring	Replace
Unevenly excessively worn tire	Defective shock absorber	Replace
	Improper tire rotation	Conduct tire rotation periodically in standard every 10,000 km (6,000 miles)
	Unbalanced wheel	Balance or replace
	Improperly adjusted brake	Readjust correctly
	Improper wheel alignment	Realign
	Excessively distorted or improperly installed suspension link	Repair correctly or replace if necessary or reinstall correctly
	High speed on curves	Reduce speed
	Sudden start and improper speeding due to rapid acceleration or improper brake application	Follow correct and proper driving manner

SERVICE MANUAL

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MODEL 521 SERIES
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SECTION ST

STEERING

ST

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STEERING

STEERING

CONTENTS

DESCRIPTION	ST-1	INSPECTION AND REPAIR	ST-4
REMOVAL	ST-2	ASSEMBLY AND ADJUSTMENT	ST-4
DISASSEMBLY	ST-3	INSTALLATION	ST-6

DESCRIPTION

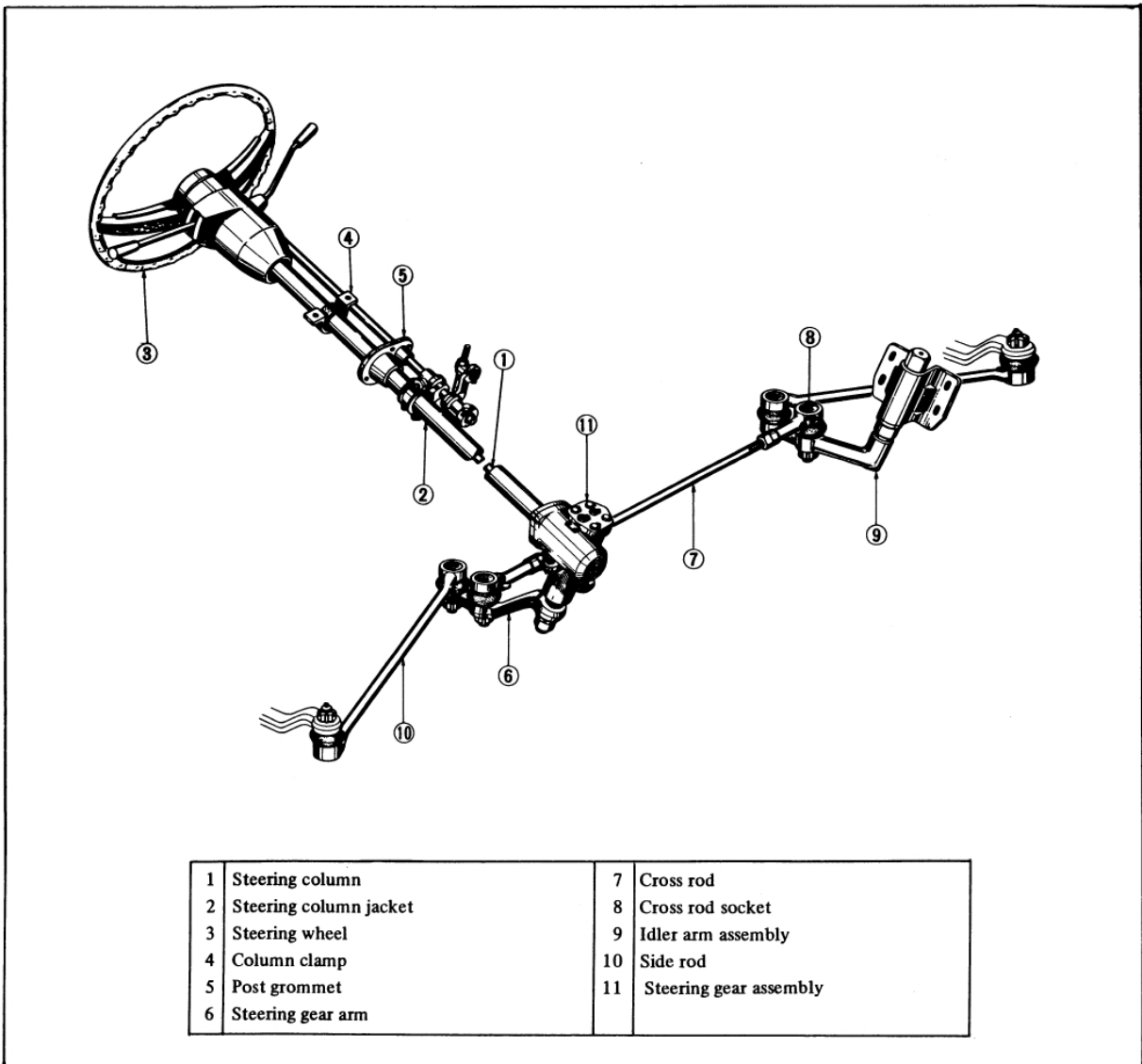


Fig. ST-1 Structural view of steering mechanism

CHASSIS

The steering gear is of a recirculating ball type, and gear ratio is 19.8 : 1. The steering linkage has two side rods (tie-rods), one on each side of the cross rod (drag link) as the front suspension is of an independent wishbone type. These side rods are connected through ball joints to both the knuckle arms (steering arms), gear arm (pitman arm) and idler arm. With this construction, even if the left and/or right wheel moves vertically and independently, steering can be safely maintained.

Steering wheel rotation is converted to gear arm motion in proportion to the gear ratio by the steering gear. The gear arm motion operates the side rod on the same side. At the same time, the idler arm is moved through the cross rod, and the opposite side rod is also moved.

REMOVAL

1. Remove horn ring by depressing and turning it counterclockwise.
2. Remove steering wheel nut.
3. Remove steering wheel.
4. Remove steering column shell.
5. Remove turn signal and dimmer combination switch assembly.
6. Unscrew two fixing bolts and remove column clamp.

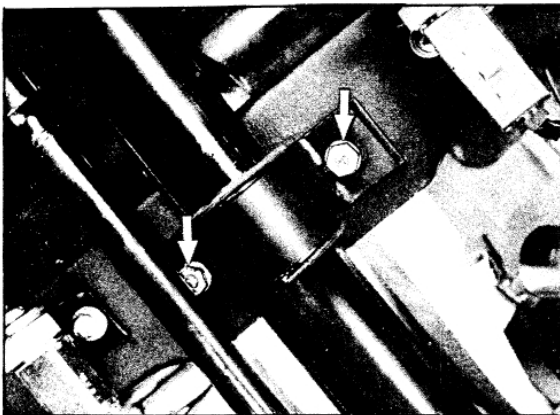


Fig. ST-2 Column clamp

7. Unscrew fixing bolts, and remove steering post grommet.

8. When transmission control is attached to steering column jacket:

- (1) Detach gear lever.
- (2) Disconnect shift lever from shift rod and select lever from select rod at the steering column base.



Fig. ST-3 Transmission control

9. Remove nut (used to secure gear arm to sector shaft), and withdraw gear arm by the use of a gear arm puller (special tool ST27140000).

Note: Mark gear arm installing position before removal.

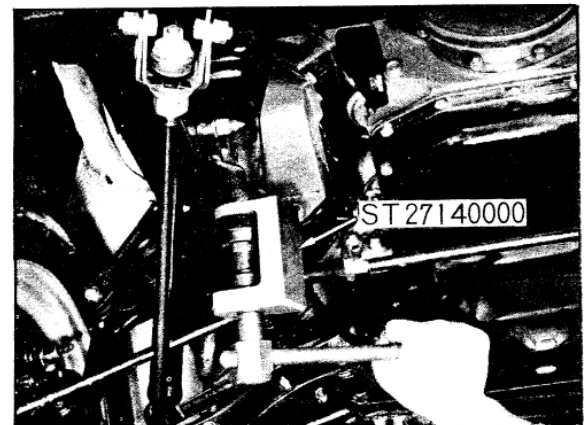


Fig. ST-4 Removing gear arm

STEERING

10. Remove steering gear housing installation bolts.
11. Remove steering gear assembly toward engine compartment.
12. Detach transmission control parts from steering column jacket.

DISASSEMBLY

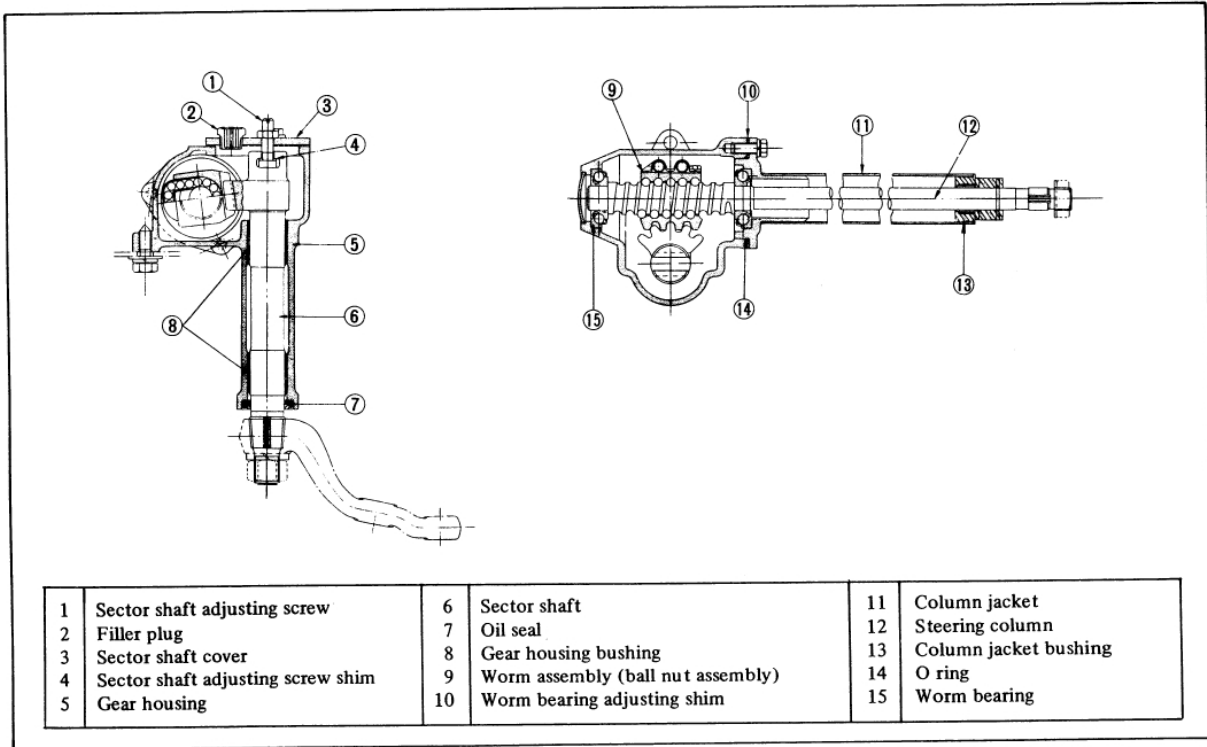


Fig. ST-5 Cross-sectional view of steering gear

1. Drain steering gear oil.
2. Loosen lock nut and turn sector shaft adjusting screw a few turns counterclockwise. Remove sector shaft cover fixing bolts.

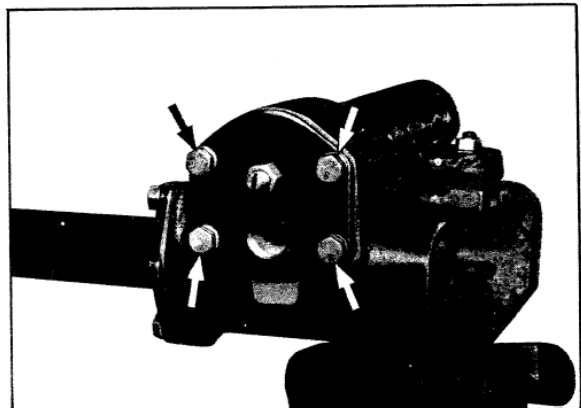


Fig. ST-6 Sector shaft cover

CHASSIS

3. Pull sector shaft cover together with sector shaft from gear housing. Disassemble sector shaft, adjusting screw and shims, from the cover.

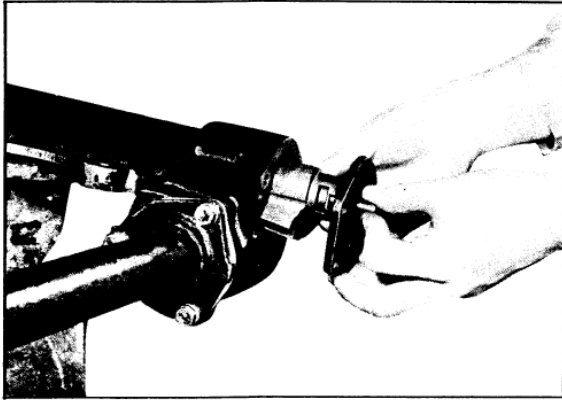
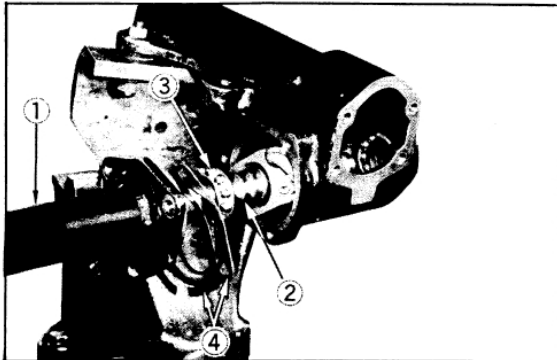


Fig. ST-7 Pulling out sector shaft

4. Remove fixing bolts (used to secure column jacket to gear housing), and pull out column jacket.



1	Column jacket	3	Worm bearing
2	Steering worm assembly	4	Worm bearing adjusting shim

Fig. ST-8 Removing column jacket

5. Remove steering worm assembly from gear housing, and detach worm bearings, worm bearing adjusting shims, and O-ring.

Note: Be careful not to allow ball nut to run down to the worm end. If ball nut rotates suddenly to the worm end, ends of ball guides may be damaged.

6. Pry out sector shaft oil seal from gear housing and discard it.

7. Remove column jacket bushing.

INSPECTION AND REPAIR

Wash all parts in clean solvent and dry them thoroughly.

1. Sector shaft

Check sector shaft tooth surface for pitting, exfoliation or other damage, and replace as necessary.

When gear housing bushing contact surface is damaged, replace sector shaft and/or bushing as necessary. Check sector shaft and sector shaft bushing for bushing and shaft fitting. Replace them together when excessively worn.

2. Steering worm assembly

It is not necessary to disassemble ball nut when it rotates smoothly on column worm. Raise steering worm assembly vertically and observe ball nut. When ball nut rotates and comes down by its own weight, condition is satisfactory. In this test, if ball nut is turned until it reaches the end of worm thread, ball guide may be damaged. Do not allow ball nut to turn down to the end of worm thread. When steering worm assembly is defective, be sure to replace as an assembly.

3. Worm bearing

Check worm bearing for pitting, wear or other damage, and replace as necessary.

ASSEMBLY AND ADJUSTMENT

Apply genuine gear oil (MP-90) to all disassembled parts.

1. Fit column jacket bushing to column jacket.

Note: When fitting, apply adhesive to bushing exterior and grease to interior.

2. Fill space between sector shaft oil seal lips with grease, and fit it to gear housing.

3. Place steering worm assembly in the position in gear housing together with worm bearings, and install column jacket on gear housing together with worm bearing shims and O-ring.

STEERING

Tightening torque: 1.6 to 1.8 kg-m
(11.6 to 13.0 ft-lb)

Standard worm bearing shim thickness:

1.5 mm (0.0591 in)

Worm bearing adjusting shim

Part No.	Thickness mm (in)
48029 71200	0.762 (0.0300)
48030 71200	0.254 (0.0100)
48031 71200	0.127 (0.0050)
48032 71200	0.050 (0.0020)

4. Adjust preload of worm bearing by selecting worm bearing shims to obtain steering column initial turning torque of 4.0 to 6.0 kg-m (28.9 to 43.4 ft-lb).

Initial turning torque of steering column:

New worm bearing:

4.0 to 6.0 kg-cm (3.5 to 5.2 in-lb)

Used worm bearing:

2.4 to 4.4 kg-cm (2.1 to 3.8 in-lb)

At steering wheel:

New: 0.2 to 0.3 kg (0.4 to 0.7 lb)

Used: 0.12 to 0.22 kg (0.3 to 0.5 lb)



Fig. ST-9 Measuring initial turning torque

5. Install sector shaft adjusting screw and selected shim, in the slot of sector shaft.

Measure end clearance, and select a proper sector shaft adjusting screw shim so that end clearance is 0.01 to 0.03 mm (0.0004 to 0.0012 in).



Fig. ST-10 Measuring end clearance

Sector shaft adjusting screw shim

Part No.	Thickness mm (in)
48213 B0100	1.575 (0.0620)
48214 B0100	1.550 (0.0610)
48215 B0100	1.525 (0.0600)
48216 B0100	1.500 (0.0591)
48217 B0100	1.475 (0.0580)
48218 B0100	1.450 (0.0571)

6. Install sector shaft in gear housing.

(1) Turn steering column by hand until ball nut is in its travel center, so that sector shaft center tooth enters ball nut center tooth space.

(2) Install sector shaft cover and turn sector shaft adjusting screw to raise sector shaft to sector shaft cover side so that 2 to 3 mm (0.0787 to 0.1181 in) lash is made between sector shaft teeth and ball nut. Make sure that ball nut and sector shaft intermeshing position is not deviated from center.

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Sector shaft cover tightening torque:

1.6 to 1.8 kg-m (11.6 to 13.0 ft-lb)

Note: Be sure to use new gasket and apply oil leak preventing agent on the sector shaft cover installing surface of steering gear housing and the upper surface of gasket.

(3) Turn sector shaft adjusting screw slowly to lower sector shaft, and tighten sector shaft adjusting screw with lock nut temporarily when sector shaft comes into contact with ball nut.

7. Connect gear arm to sector shaft, move sector shaft several times to ensure it turns smoothly.

8. Set gear arm to neutral position, and with ball nut and sector shaft intermeshed at center, measure backlash at the end of gear arm. When backlash is deviated from range of 0 to 0.1 mm (0 to 0.004 in), further tighten sector shaft adjusting screw and adjust backlash to the prescribed value.

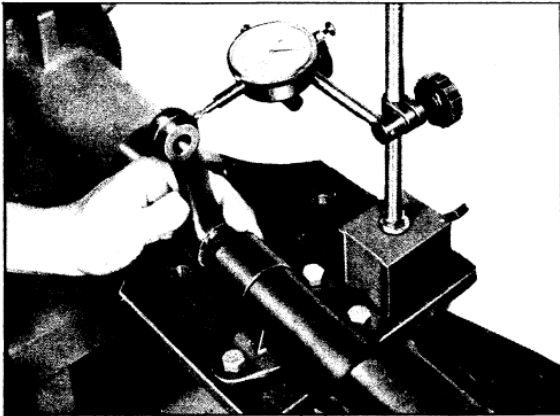


Fig. ST-11 Measuring backlash

9. Operate gear arm several times, retighten sector shaft adjusting screw 1/8 to 1/6 of one full turn, and tighten lock nut finally.

Lock nut tightening torque: 3.2 to 3.7 kg-m
(23.1 to 26.8 ft-lb)

10. Pour gear oil (MP-90) into gear assembly upto level of filler plug hole, and install filler plug.

Volume of oil: Approximately
0.33 liter (0.70 US pts/0.58 UK pts)

INSTALLATION

Installation may be accomplished in reverse sequence of removal. Pay attention to the following matters:

1. Tightening torque

Steering gear housing: 3.2 to 3.7 kg-m
(23.1 to 26.8 ft-lb)

Gear arm: 14 kg-m (101.2 ft-lb)

Steering wheel: 7 to 7.5 kg-m (50.6 to 54.2 ft-lb)

2. With front wheels directed correctly to forward, make sure to punch mark on the top end of steering column.

3. When installing steering wheel, apply grease to sliding part lightly.

4. Check steering wheel for smooth operation.

STEERING LINKAGE

CONTENTS

REMOVAL AND DISASSEMBLY ST-7
INSPECTION AND REPAIR ST-7

ASSEMBLY AND INSTALLATION ST-7
Idler arm assembly ST-8

STEERING

REMOVAL AND DISASSEMBLY

1. Jack up the front of vehicle and support it with stands.
2. Remove cotter pins and nuts, and detach side rod ball studs from knuckle arms in both sides.

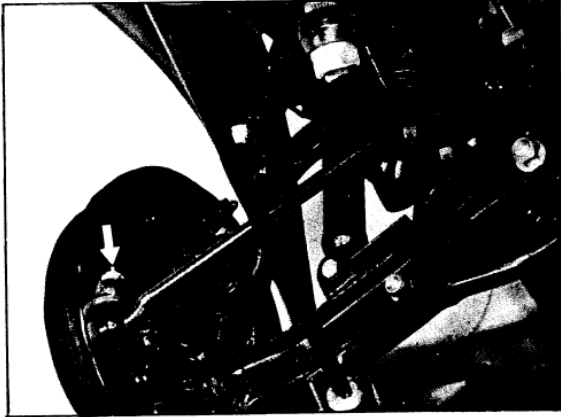


Fig. ST-12 Side rod and gear arm

3. Remove nut (used to secure gear arm on sector shaft), and remove gear arm by the use of a gear arm puller (special tool ST27140000).
4. Remove idler arm assembly from frame.

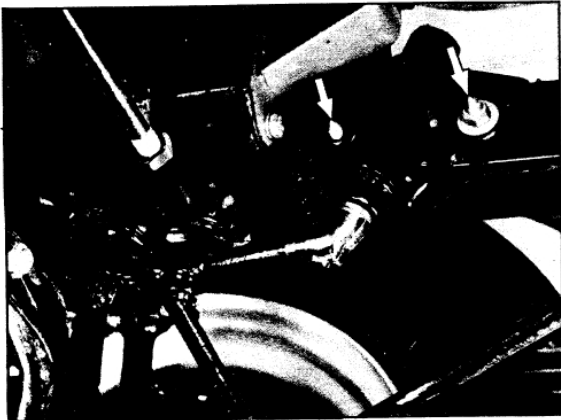


Fig. ST-13 Idler arm

5. Remove side rod, cross rod, idler arm assembly and gear arm as an assembly.
6. Remove cotter pin and nut from side rod ball stud, and separate side rod from gear arm or idler arm.

7. Remove cotter pins and nuts from ball studs in both ends of cross rod, and separate cross rod from gear arm and idler arm.

INSPECTION AND REPAIR

1. Side rod ball joint and cross rod socket

When ball stud is worn and clearance toward axial direction is excessive, replace cross rod socket or side rod with a new one. When dust cover is damaged, replace.

Clearance toward ball joint axial direction:

0.1 to 0.5 mm (0.004 to 0.020 in)

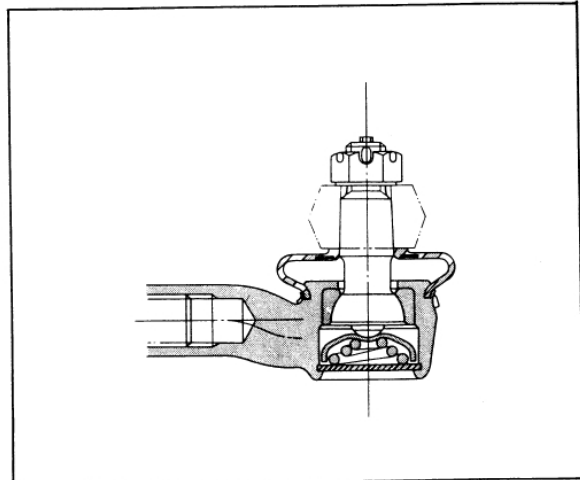


Fig. ST-14 Cross-sectional view of ball joint

2. Idler arm assembly

Remove old grease and dirt, and check idler arm assembly for wear, deformation and damage.

3. Cross rod, side rod and gear arm

Check them for bending, damage, and crack, and replace if necessary.

ASSEMBLY AND INSTALLATION

Assemble steering linkage in reverse sequence of disassembly by noting the following matters:

1. Tightening torque

Cross rod ball stud: 6 to 7 kg-m (43.4 to 50.6 ft-lb)

CHASSIS

Side rod ball stud:

Knuckle arm side: 6 to 7 kg-m (43.4 to 50.6 ft-lb)

Gear arm or idler arm side: 6 to 7 kg-m
(43.4 to 50.6 ft-lb)

Idler arm assembly: 3.2 to 3.7 kg-m
(23.1 to 26.8 ft-lb)

Cross rod lock nut: 9 to 12 kg-m
(65.1 to 86.8 ft-lb)

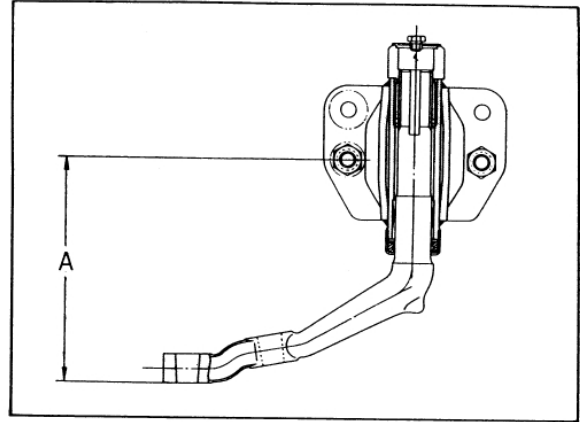


Fig. ST-15 Cross-sectional view of idler arm assembly

2. When cross rod socket and cross rod are separated, adjust cross rod length correctly.

Standard cross rod length: 516 mm (20.3 in)

3. Adjust toe-in and steering angle.

The procedure of toe-in and steering angle adjustments are outlined in section "FRONT AXLE AND SUSPENSION".

Toe-in: 2 to 3 mm (0.0787 to 0.1181 in)

Steering angle: Inner wheel: 36°
 Outer wheel: 31°

- (1) Apply multi-purpose grease (MIL G2108 or 10924) to threaded bushing interior, plain bushing interior, dust seal inside, and threaded part and bushing sliding surface of idler arm.

- (2) Threaded bushing tightening torque is 12 kg-m (86.8 ft-lb)

- (3) When idler arm assembly is installed, install grease nipple on grease filler plug hole, and inject multi-purpose grease (MIL G2108 or 10924) until grease comes out from lower end dust seal lip. Remove grease nipple and reinstall filler plug.

- (4) When idler arm assembly is installed, make sure that the standard dimension "A" is adjusted correctly.

Idler arm assembly

Install idler arm assembly in reverse sequence of removal by noting the following matters:

Standard dimension "A":

137.8 to 139.8 mm (5.425 to 5.504 in)

SERVICE DATA AND SPECIFICATIONS

SPECIFICATIONS

Gear type	Recirculating ball type
Gear ratio	19.8 : 1
Steering wheel diameter mm (in)	400 (15.7)

STEERING

SERVICE DATA

Standard thickness of worm bearing adjusting shims		
mm (in)	1.5 (0.059)	
Initial turning torque of steering column:		
New worm bearing	kg-cm (in-lb)	4.0 to 6.0 (3.5 to 5.2)
Used worm bearing	kg-cm (in-lb)	2.4 to 4.4 (2.1 to 3.8)
End clearance of sector shaft adjusting screw		
mm (in)	0.01 to 0.03 (0.0004 to 0.0012)	
Backlash at the gear arm top end		
mm (in)	0 to 0.1 (0 to 0.004)	
Oil capacity		
ℓ (US pts/UK pts)	0.33 (0.70/0.58)	
Ball joint axial end play		
mm (in)	0.1 to 0.5 (0.004 to 0.020)	
Idler arm "A" dimension (Refer to page ST-8)		
mm (in)	137.8 to 139.8 (5.425 to 5.504)	
Standard cross rod length		
mm (in)	516 (20.3)	
Toe-in		
mm (in)	2 to 3 mm (0.0787 to 0.1181 in)	
Steering angle:		
Inner wheel	36°	
Outer wheel	31°	
Tightening torque		
Steering column jacket to gear housing		
kg-m (ft-lb)	1.6 to 1.8 (11.6 to 13.0)	
Sector shaft cover		
kg-m (ft-lb)	1.6 to 1.8 (11.6 to 13.0)	
Sector shaft lock nut		
kg-m (ft-lb)	3.2 to 3.7 (23.1 to 26.8)	
Gear housing		
kg-m (ft-lb)	3.2 to 3.7 (23.1 to 26.8)	
Gear arm		
kg-m (ft-lb)	14 (101.2)	
Steering wheel		
kg-m (ft-lb)	7 to 7.5 (50.6 to 54.2)	
Ball studs of cross rod		
kg-m (ft-lb)	6 to 7 (43.4 to 50.6)	
Ball stud of side rod:		
Knuckle arm side	kg-m (ft-lb)	6 to 7 (43.4 to 50.6)
Gear or idler arm side	kg-m (ft-lb)	6 to 7 (43.4 to 50.6)

TROUBLE DIAGNOSES AND CORRECTIONS

In regard of this matter, refer to the same subject described in the section "FRONT AXLE AND SUSPENSION".

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION FE

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

FE

ENGINE CONTROL SYSTEM..... FE- 1
FUEL AND EXHAUST PIPINGS FE- 5

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

ENGINE CONTROL SYSTEM

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DESCRIPTION	FE-3	Play of accelerator wire	FE-3
ADJUSTMENT	FE-3	Pedal stopper height	FE-4

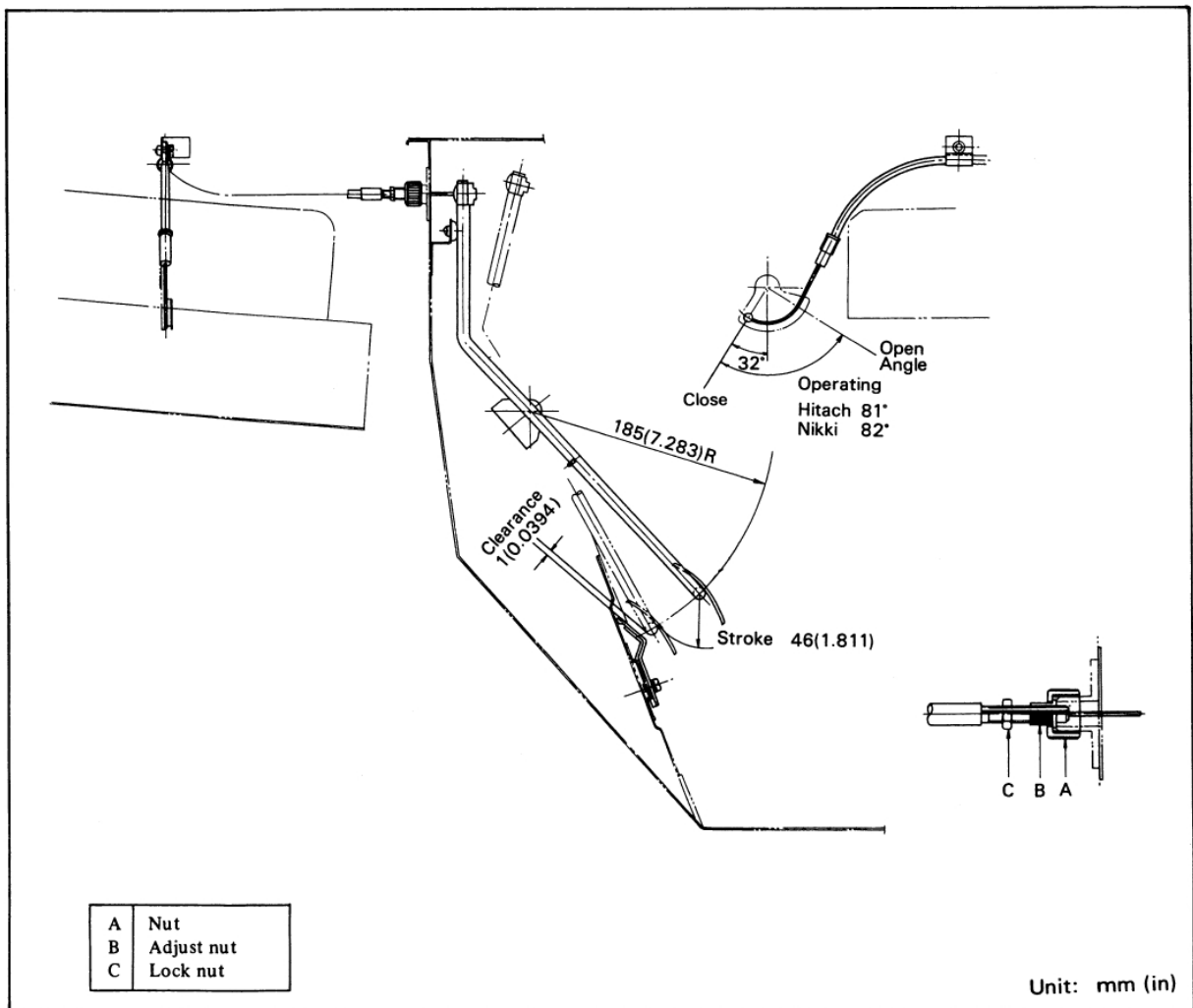


Fig. FE-1 Accelerator control system for RH drive

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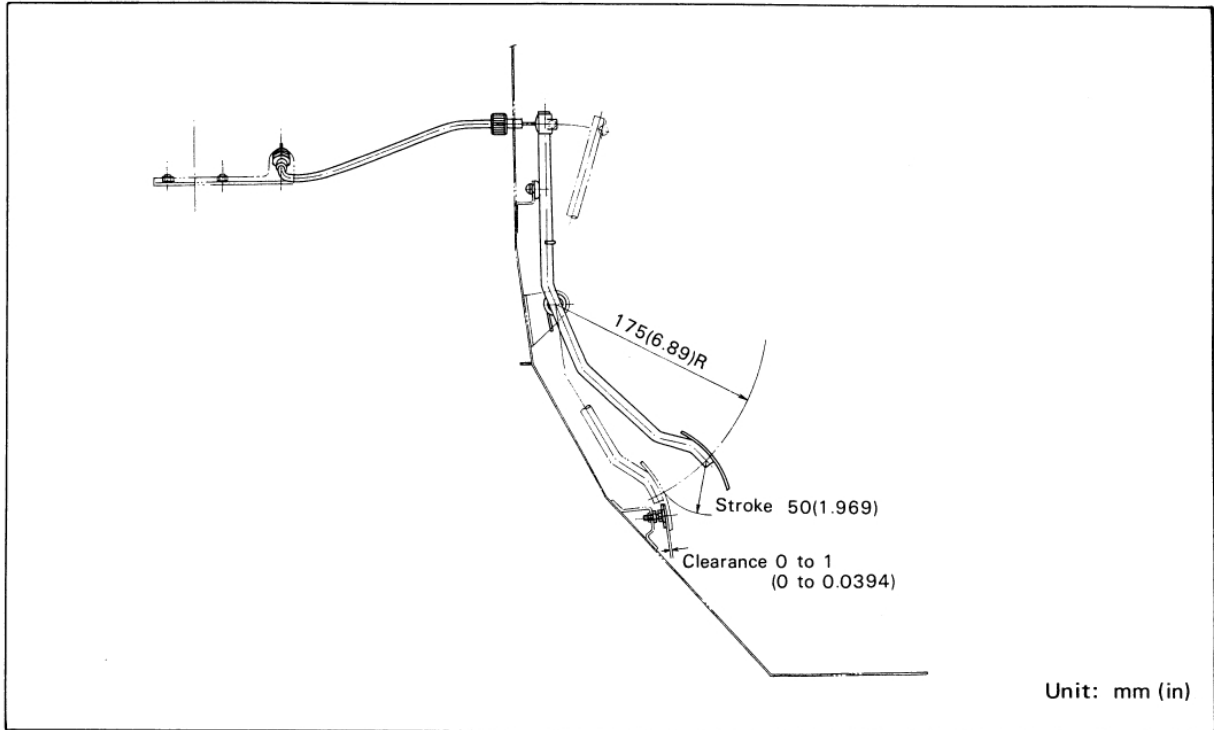


Fig. FE-2 Accelerator control system for LH drive (except model PL521)

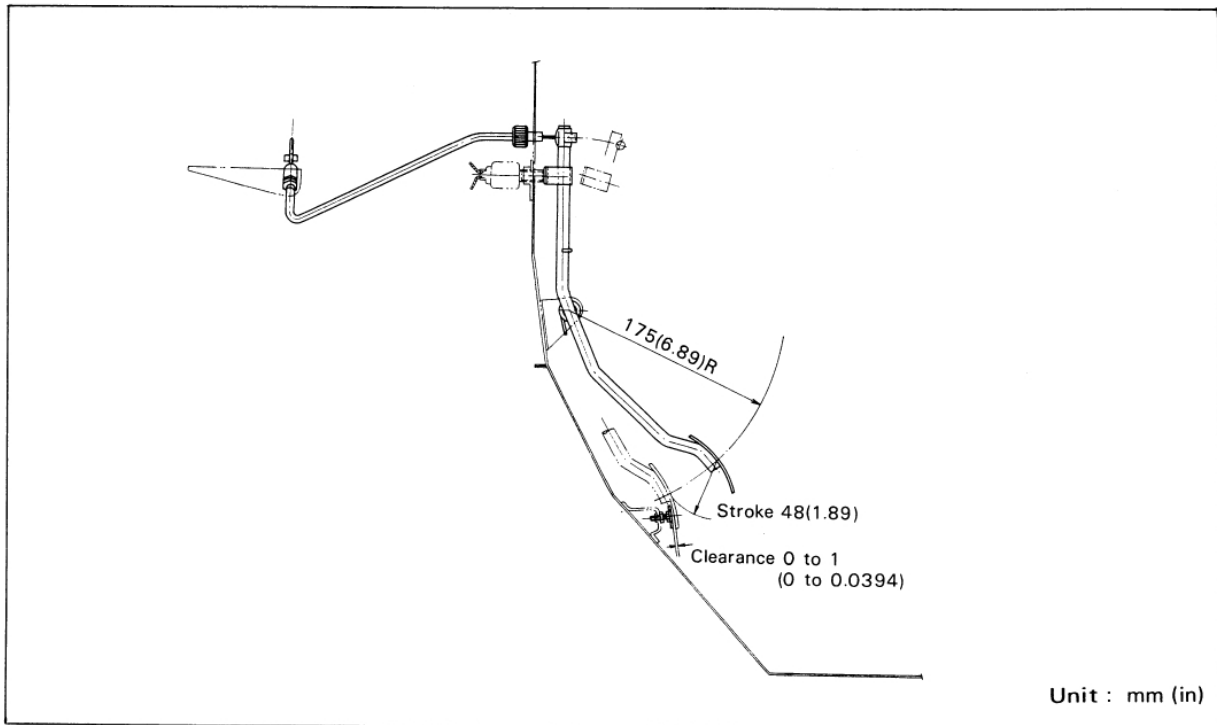


Fig. FE-3 Accelerator control system for LH drive (PL521 model)

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

DESCRIPTION

The accelerator linkage is light. The accelerator control system is so constructed that the linkage operates smoothly and the system is not affected by engine vibration.

ADJUSTMENT

Play of accelerator wire

1. RH drive

(1) Assemble accelerator control system as shown in Figure FE-1. Fully screw nut "A" against accelerator wire bracket, and unscrew one complete turn. Make sure that adjust nut "B" can be turned freely and lock nut "C" is loose.

(2) With wire provided with sufficient slackness, turn adjust nut "B" clockwise, and tighten it up to such an extent that throttle lever is about to move. (Play is zero at this time.)

(3) Unscrew adjust nut "B" one to two complete turns. Play will be 1 to 2 mm (0.04 to 0.08 in). Now, completely tighten nuts "A" and "C" to secure nut "B"

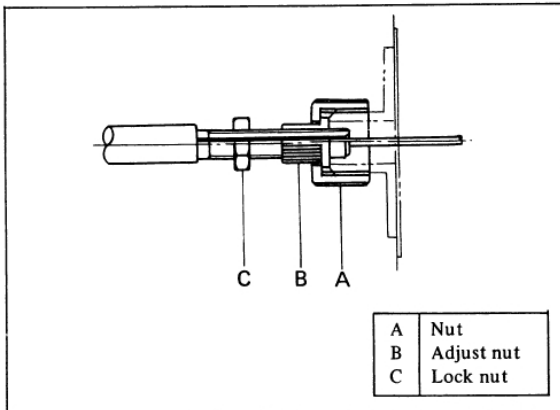


Fig. FE-4 Adjusting play of accelerator wire
(for RH drive)

2. LH drive

Install accelerator wire as shown in Figure FE-2. Set throttle valve to completely closed position, and with wire sufficiently slackened, tighten nut "B" in part "A" up to such an extent that throttle lever is about to move. (Play is zero at this time.) Unscrew nut "B" one to one and a

half turns so that accelerator wire play is 1 to 2 mm (0.04 to 0.08 in). Tighten nut "C" to lock nut "B". Nut "B" is in part "A" of carburetor side outer case.

Throttle Valve Operating Angle

θ	MODEL
83° (Nikki)	RH
83° (Nikki)	LH (except PL521)
79° (Hitachi)	PL521

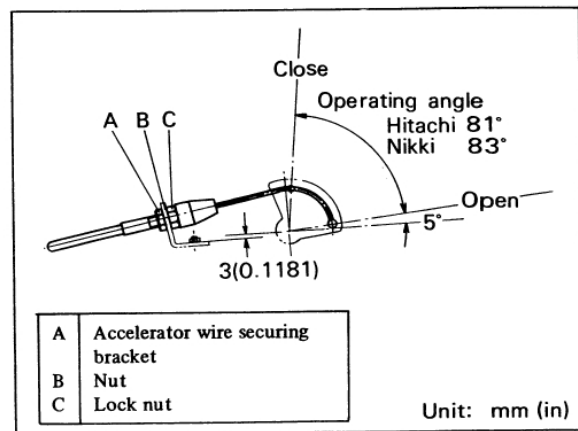


Fig. FE-5 Adjusting play of accelerator wire
(for LH drive)

3. PL521U vehicles mounted with L16 engine

Adjusting method is the exactly same as for LH drive. Note that throttle valve completely closed position differs.

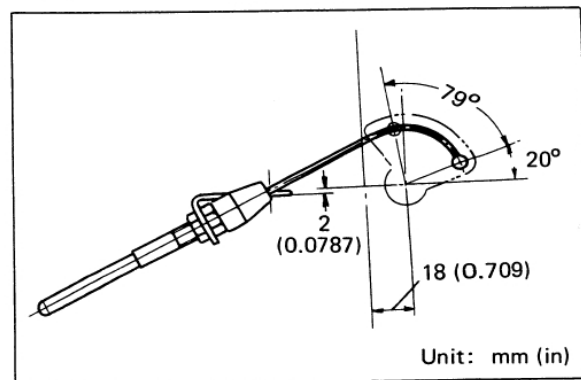


Fig. FE-6 Adjusting play of accelerator wire
(for PL521 vehicles mounted with
L16 engine)

CHASSIS

Pedal stopper height

1. RH drive

Upon completion of accelerator wire play, depress accelerator pedal and adjust stopper plate so that clearance between pedal arm and stopper plate is approximately 1 mm (0.04 in) when throttle valve is fully opened. Secure stopper plate with a lock screw.

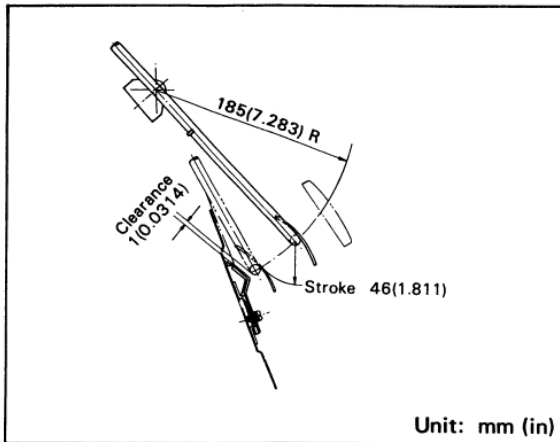


Fig. FE-7 Adjusting pedal stopper height (for RH drive)

2. LH drive

Depress accelerator pedal, and adjust stopper bolt height so that clearance "T" between pedal and stopper bolt head is 0 to 1 mm (0 to 0.04 in) when throttle valve is fully opened. Secure stopper bolt with a lock nut.

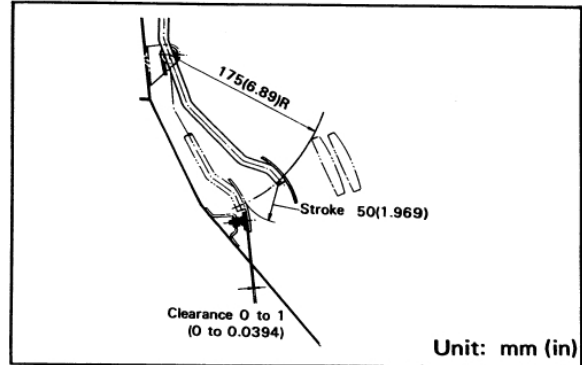


Fig. FE-8 Adjusting pedal stopper height (for LH drive)

3. PL521U

Adjusting method is the same as for LH drive. However, pedal stroke differs.

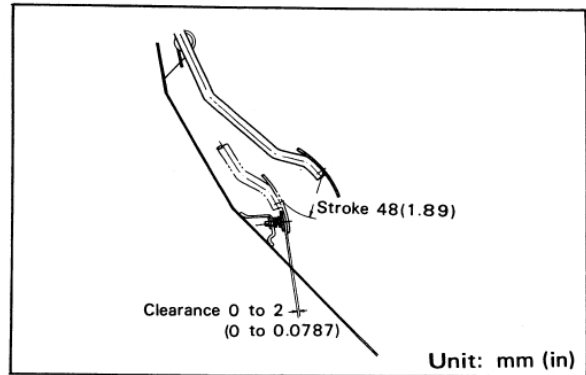


Fig. FE-9 Adjusting pedal stopper sheight (for PL521U)

Note: Deviation in center alignment of accelerator pedal pad should be less than 2 mm (0.08 in) against center of stopper bolt. (LH drive only)

		RH drive	LH drive	PL521
Pedal free play	mm (in)	1.0 to 2.0 (0.0394 to 0.0787)	1.0 to 2.0 (0.0394 to 0.0787)	1.0 to 2.0 (0.0394 to 0.0787)
Pedal stroke	mm (in)	46 (1.811)	50 (1.969)	48 (1.890)
Pedal depressing force when fully open	kg (lb)	3.7 (8.2)	3.7 (8.2)	3.7 (8.2)

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

FUEL AND EXHAUST PIPINGS

CONTENTS

EXHAUST PIPE AND MUFFLER	FE- 5	FUEL TANK AND PIPINGS	FE- 9
Description	FE- 7	Description	FE- 9
Difference of part by model	FE- 7	Removal	FE-11
Precautions for removal and installation	FE- 9	Inspection and repair	FE-11

EXHAUST PIPE AND MUFFLER

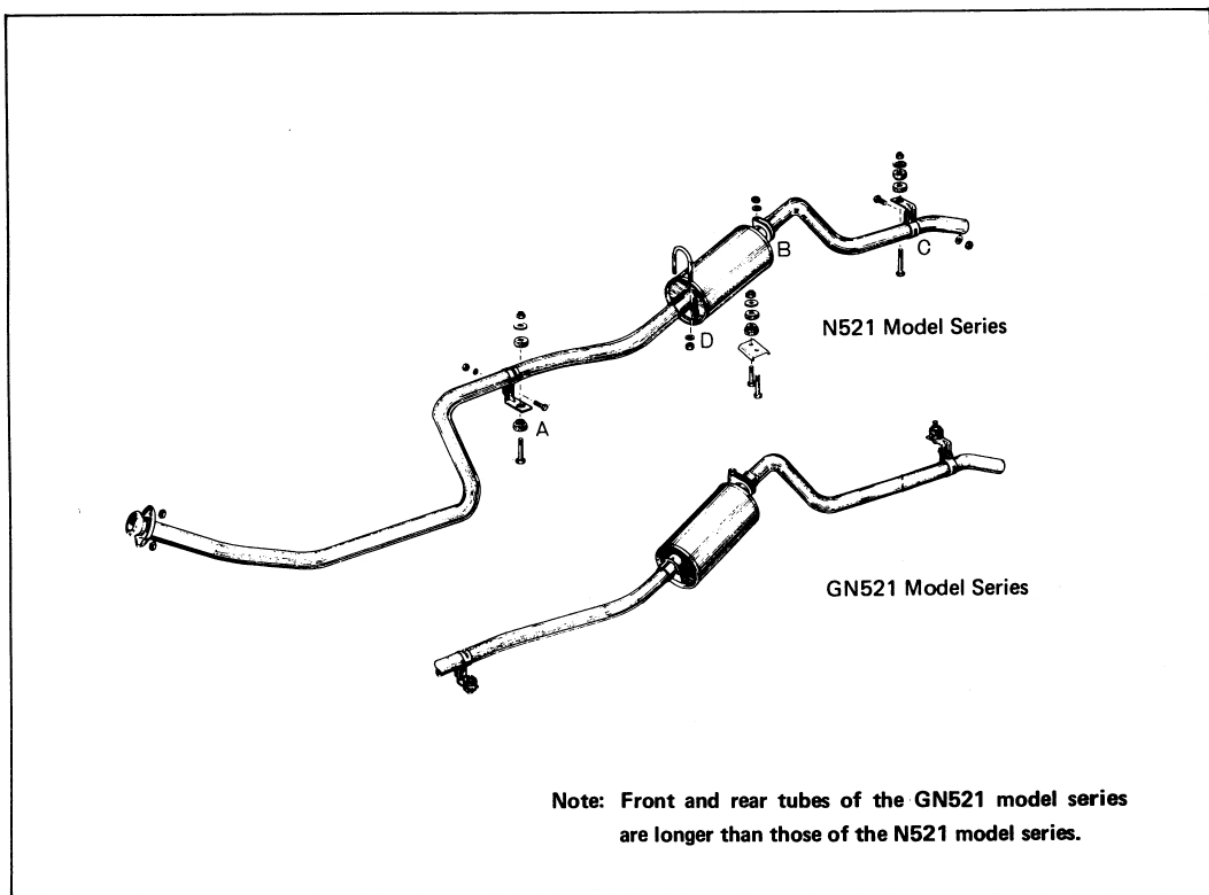


Fig. FE-10 Exhaust construction for N521 and GN521 models

CHASSIS

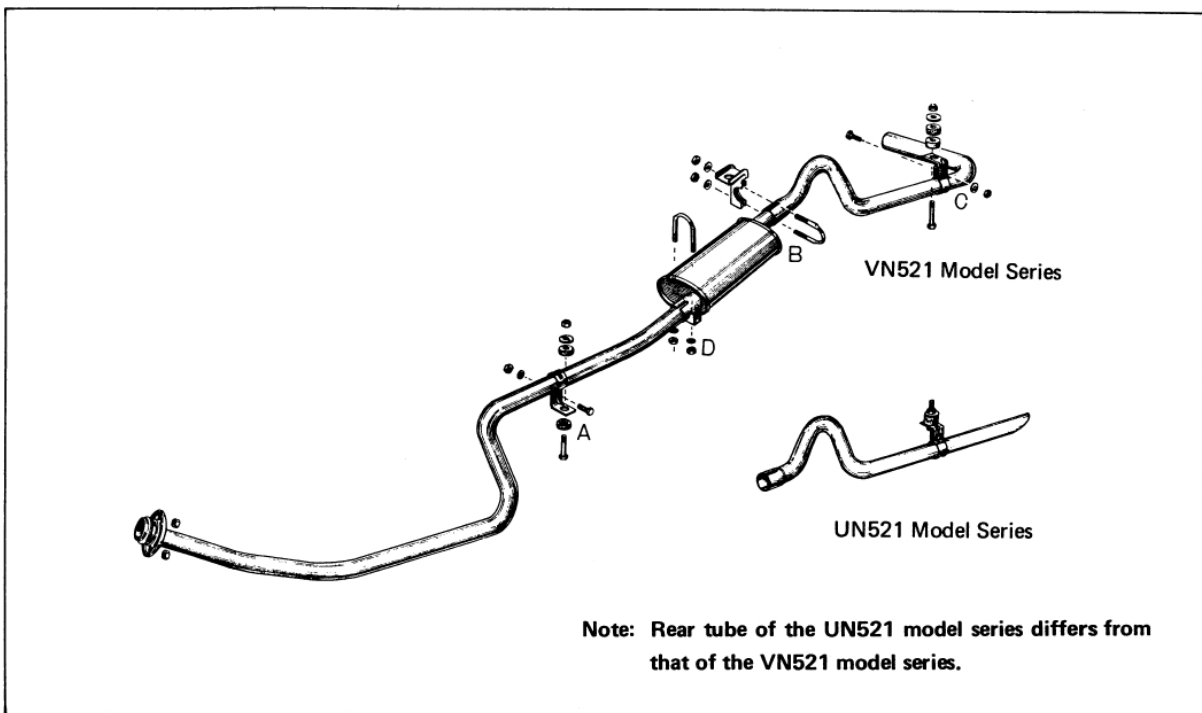


Fig. FE-11 Exhaust construction for VN521 and UN521 models

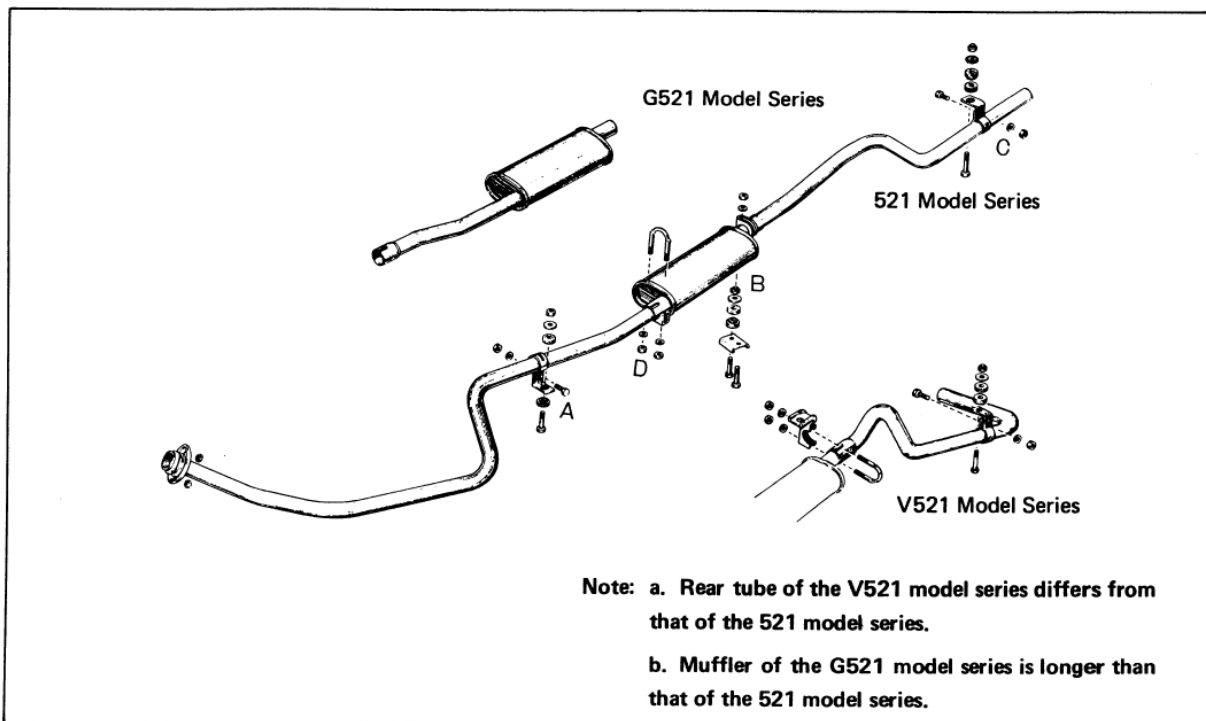


Fig. FE-12 Exhaust construction for 521 and V521 models

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

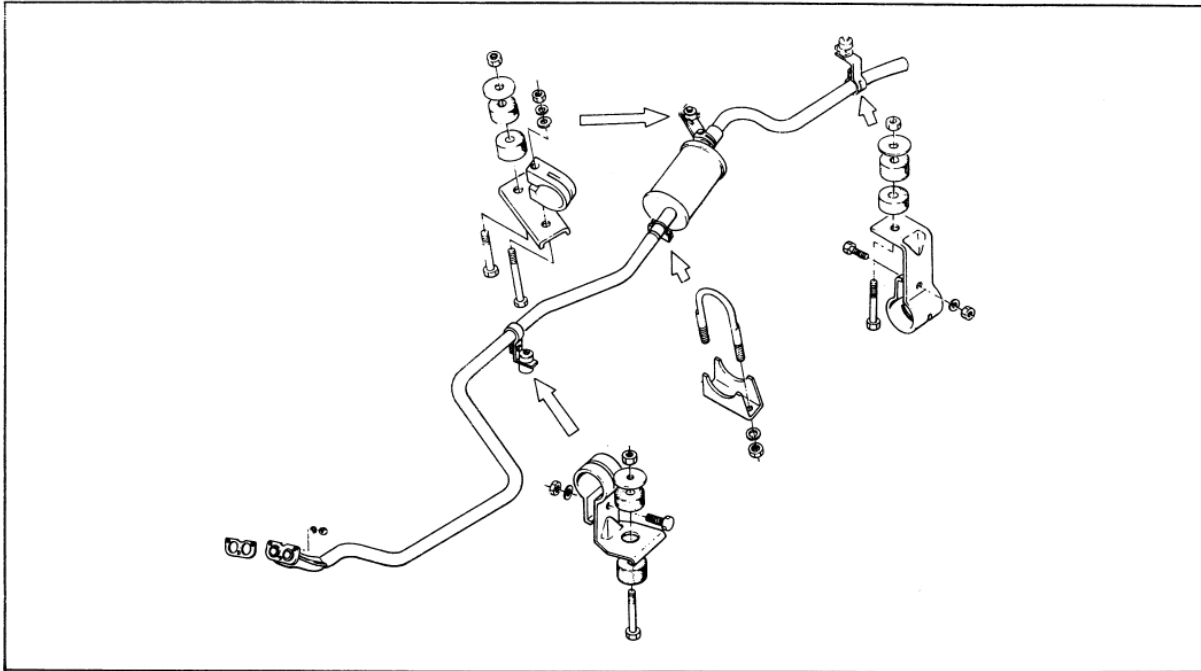


Fig. FE-13 Exhaust construction for PL521 model

Description

Exhaust piping consists of front tube, muffler, and rear

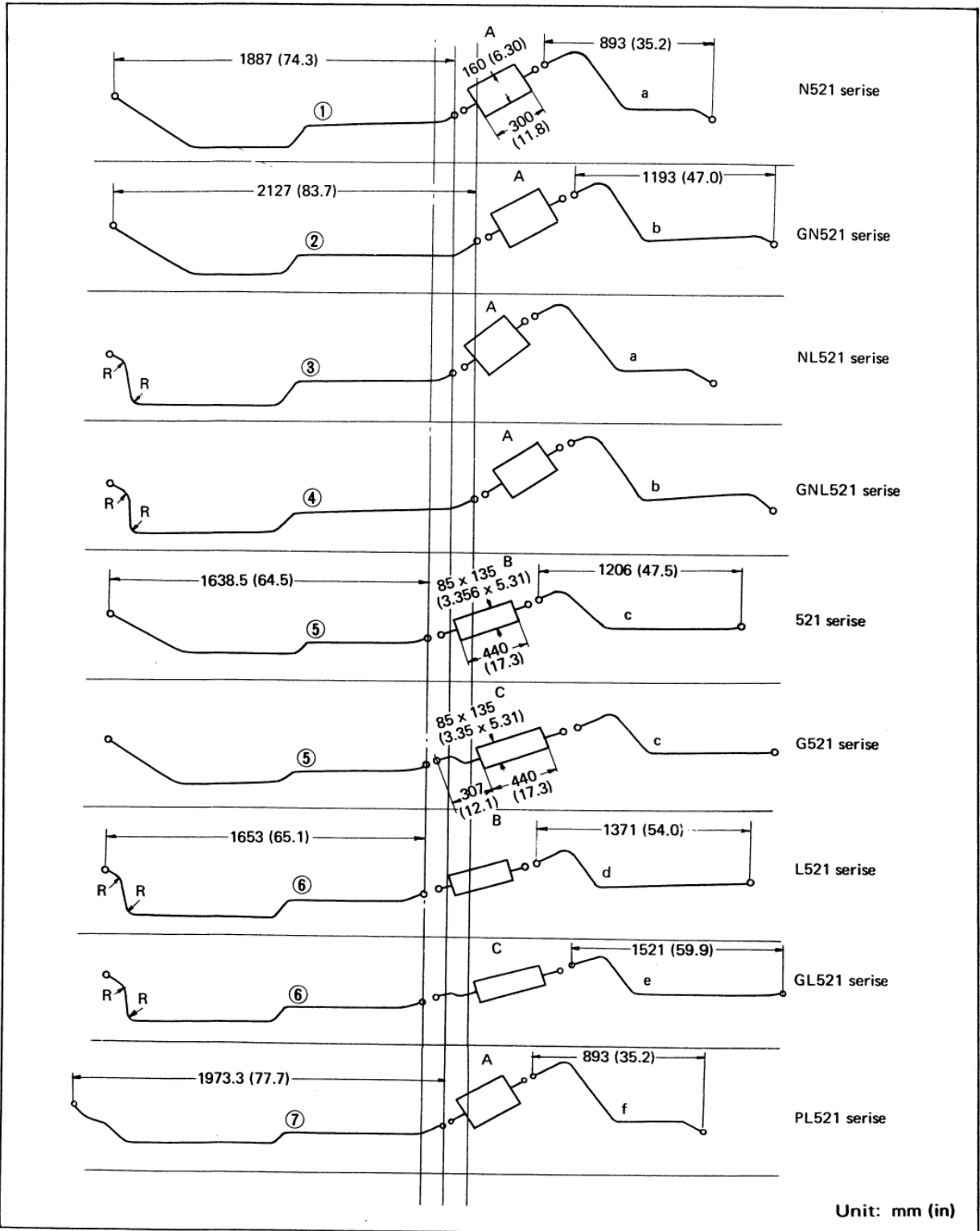
tube. These components are clamped with U-bolts or clips.

Difference of part by model

	Front tube	Muffler	Rear tube
S21U	20010 14800	20100 B0100	20401 14800
N521U	20010 B3000	20100 B2000	20401 B2000
L521	20010 20600	20100 B0100	20401 B0301
L521T	20010 14800	20100 B0100	20401 14800
NLS21	20010 B3600	20100 B2000	20401 B2000
NLS21T	20010 B3000	20100 B2000	20401 B2000
PL521TU	20010 B2000	20100 B2000	20401 B2000
PL521TN	20010 B2000	20100 B2000	20401 B2000
G521U	20010 14800	20100 B0200	20401 14800
GN521U	20010 B3200	20100 B2000	20401 B3200
LG521	20010 20600	20100 B0200	20401 14800
LG521T	20010 14800	20100 B0200	20401 14800
GNL521	20010 B3700	20100 B2000	20401 B3200
GNL521T	20010 B3200	20100 B2000	20401 B3200
V521U	20010 14800	20100 B0100	20401 15200
VN521	20010 14800	20100 B3000	20401 15200
VL521	20010 20600	20100 B0100	20401 15200
VNL521	20010 20600	20100 B3000	20401 15200
U521U	20010 14800	20100 B0100	20401 28300
UL521	20010 20600	20100 B0100	20401 28300
UNL521	20010 20600	20100 B3000	20401 28300

CHASSIS

PL521, N521, 521 SERISE EXHAUST PIPINGS



Unit: mm (in)

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

Precaution for removal and installation

1. Remove mount bolts A, B, and C. See Figures FE-10 through FE-13.
2. Remove clamps B and D.
3. Remove installation bolts used to secure exhaust tube on manifold, and disconnect exhaust tube from manifold.

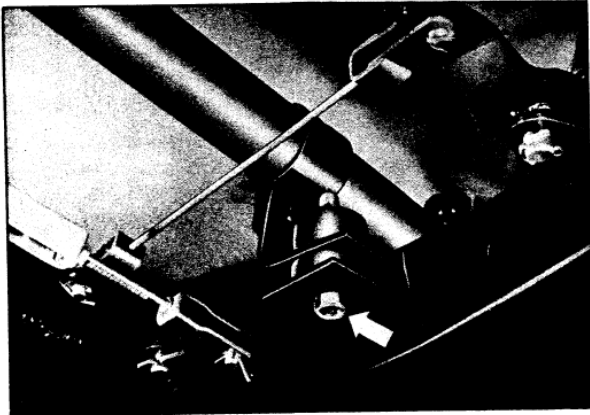


Fig. FE-14 Removing mount A

Note: a. When connecting muffler to front tube or rear tube to muffler, be sure to apply it completely to center of embossed portion. See Figure FE-15.

Muffler side of front tube and rear tube side of muffler are embossed.

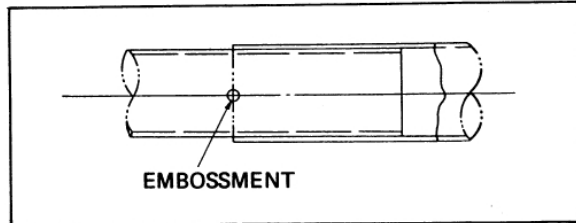


Fig. FE-15 Muffler and tube connection

b. Clearance between side frame and muffler should be 55 mm (2.165 in). See Figure FE-16.

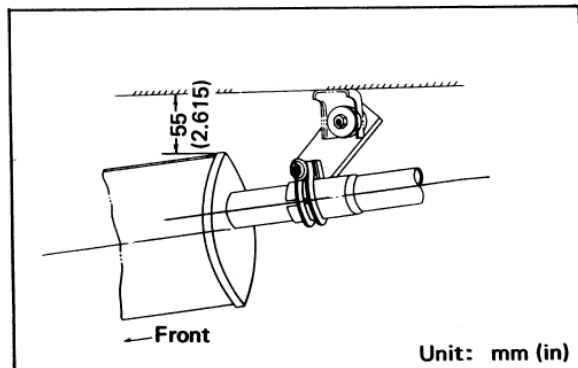


Fig. FE-16 Clearance between side frame and muffler

FUEL TANK AND PIPINGS

Description

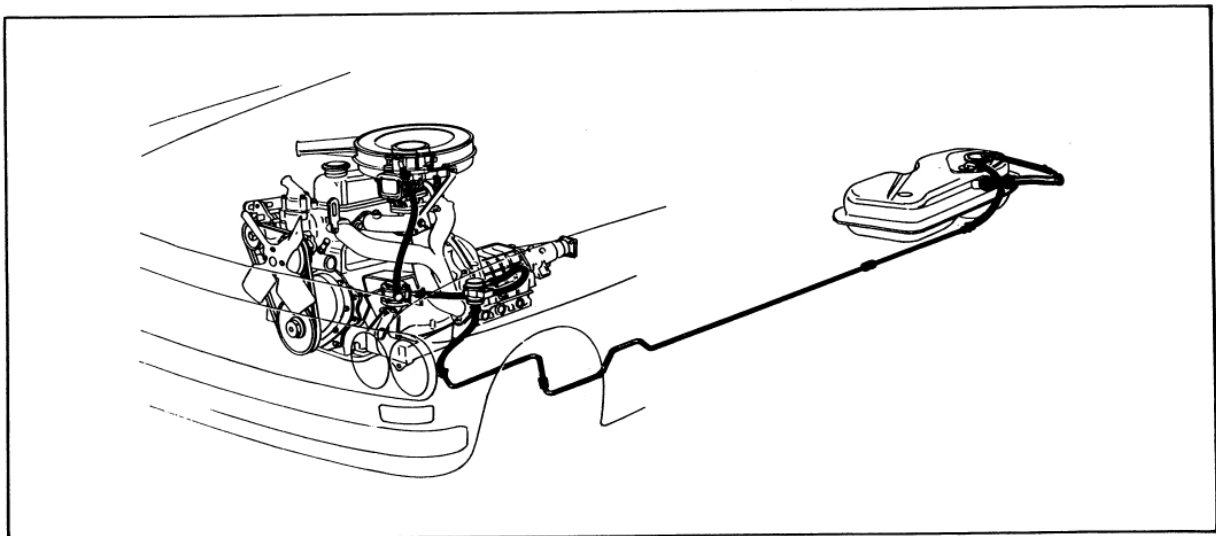


Fig. FE-17 Fuel system (for the J13 and J15 Engine models)

CHASSIS

Three types of fuel tank; fuel tank for the 521, G521, N521 and GN521; fuel tank for the V521, VN521 and UN521; and fuel tank for the PL521U are available.

Tank capacity is 41 liters (10.8 US gal, 9.0 Imp gal) for all fuel tanks.

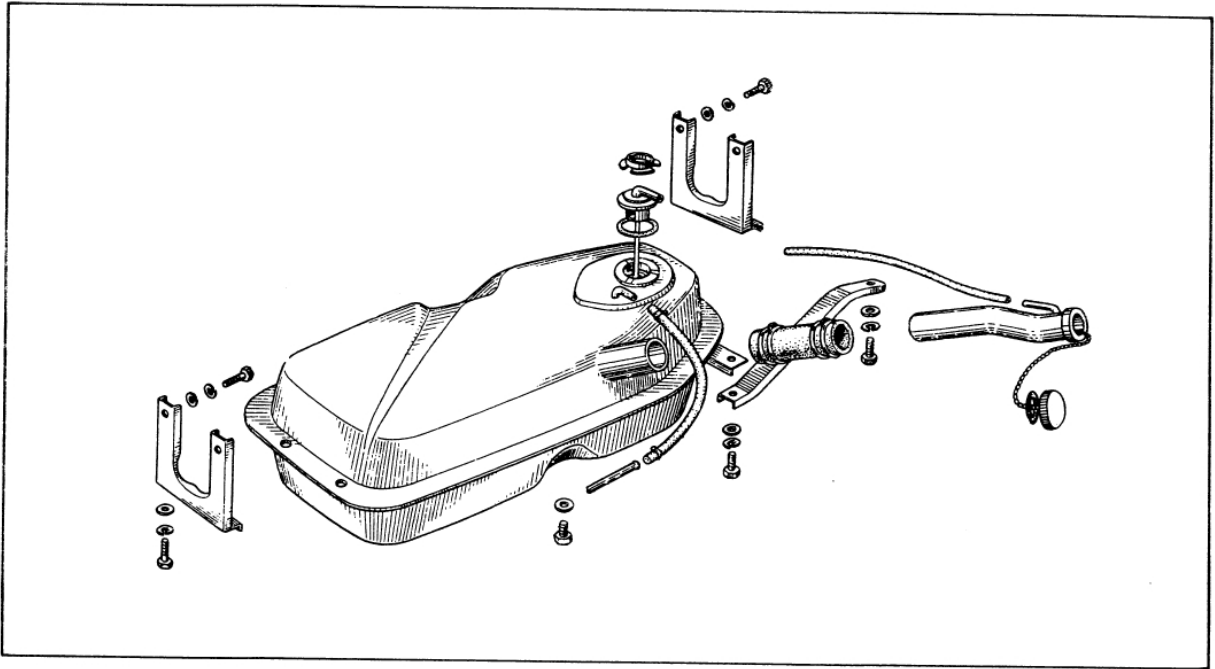


Fig. FE-18 Fuel tank (for VN521, V521 and UN521)

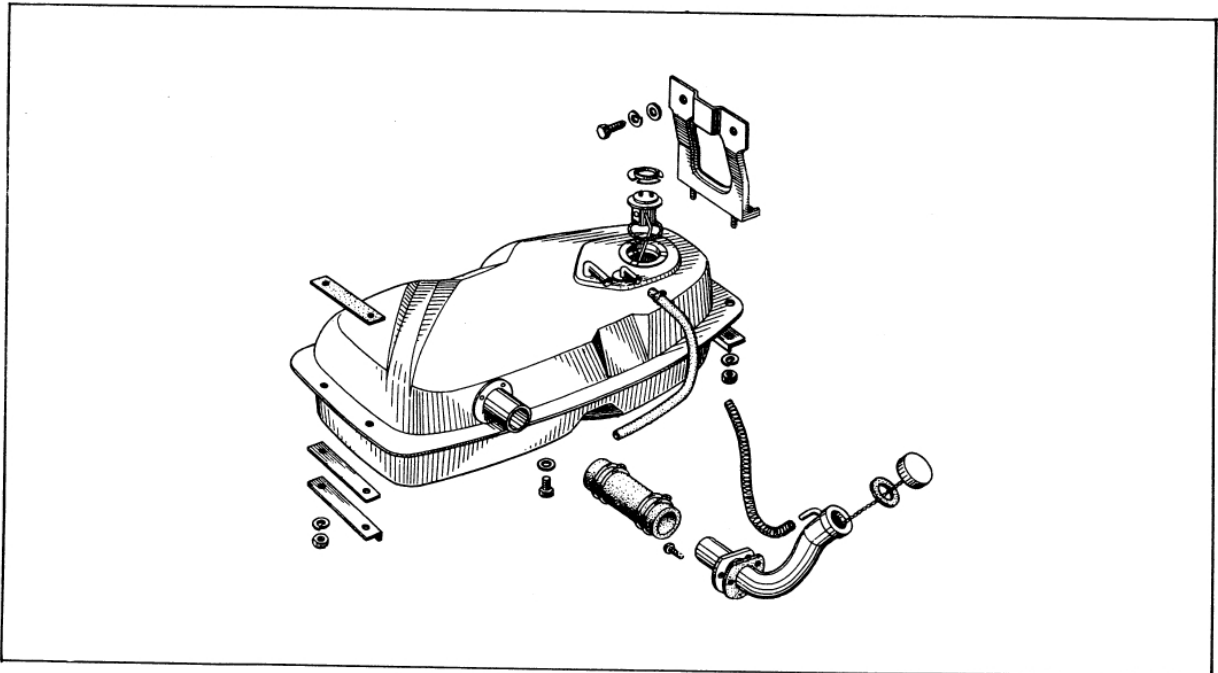


Fig. FE-19 Fuel tank (for 521, G521, G521 and GN521)

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

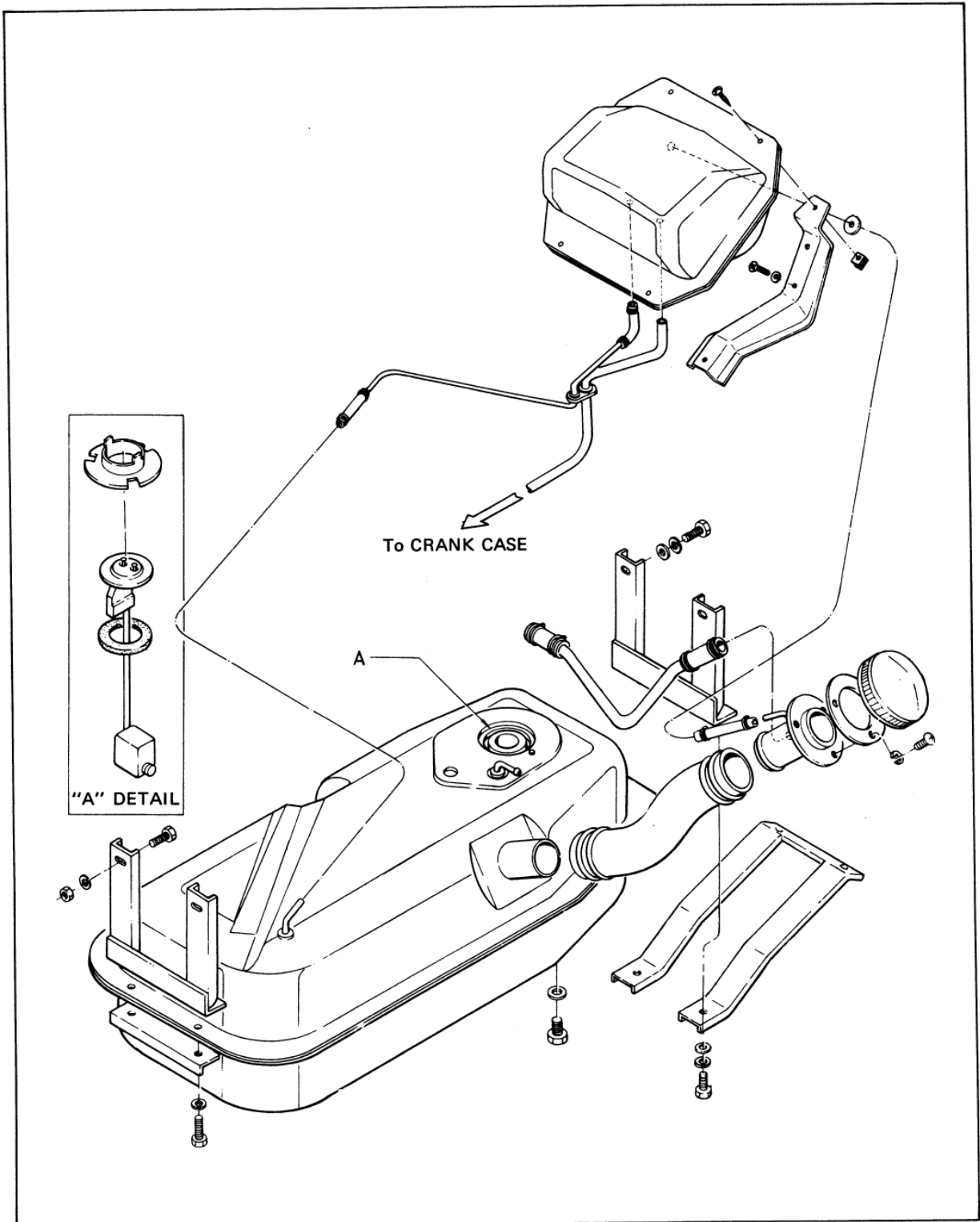


Fig. FE-20 Fuel tank (for PL521U)

CHASSIS

Removal

1. 521 and GN521 models
 - (1) Remove drain plug and drain fuel completely.
 - (2) Loosen hand brake.
 - (3) Remove inspection hole cover from rear body. Through inspection hole, disconnect unit gauge wiring and disconnect outlet tube and breather tube clips.
 - (4) Loosen filler hose clip.
 - (5) Remove front and rear tank support bracket bolts, and then remove fuel tank.

2. UVN521 model

Procedures for the 521 and GN521 models apply. However, note that breather tube position and support bracket differ.

3. PL521 model

Fuel tank is installed along with the vapor-liquid separator.

A cover has been provided just in front of left rear wheel to protect vapor-liquid separator against damage. Photograph below shows an exploded view of vapor-liquid separator.

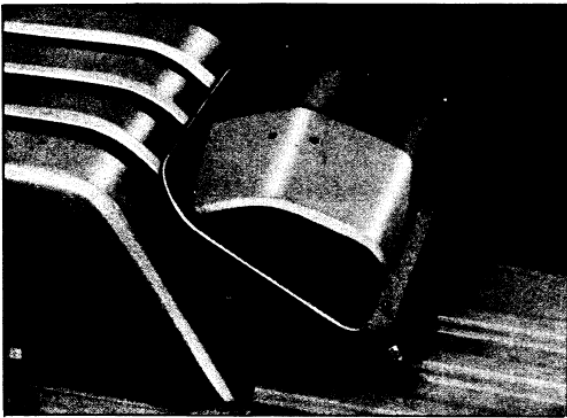


Fig. FE-21 Vapor-liquid separator

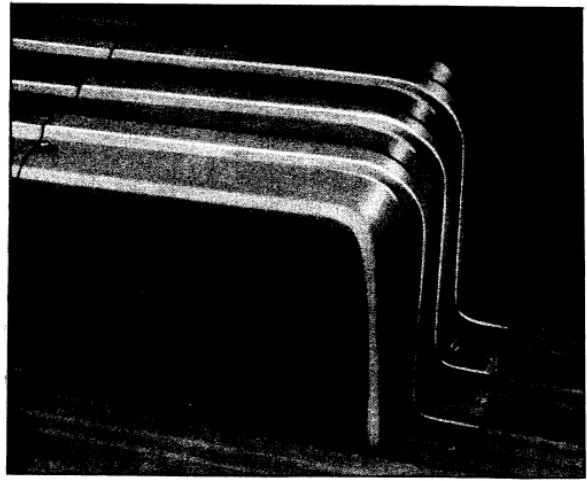


Fig. FE-22 Vapor-liquid separator cover

Inspection and repair

1. Inspect fuel tank and piping for leakage and other damages. Repair or replace as required. Check rubber hose and fuel line joint particularly carefully for crack and leakage.

Note: a. When soldering, make sure that no gasoline is remained.

b. When cleaning inside of tank, use gasoline. Do not use water.

2. Unit gauge adopts bayonet system for installation, and therefore, it can be removed and installed simply with a screw driver.

SERVICE MANUAL

DATSUN PICK-UP MODEL 521 SERIES CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

FRAME	BF- 1
BODY	BF- 3
HOOD	BF- 7
FRONT END AND FRONT FENDER	BF- 8
DOOR	BF-13
DOUBLE PICK-UP AND VAN	BF-18
WINDSHIELD AND REAR WINDOW	BF-21
INSTRUMENT PANEL	BF-23
SEAT	BF-25
ROOM TRIM	BF-26

BF

BODY

FRAME

DESCRIPTION

The ladder shape frame consists of left and right side members and six cross members. This frame with increased bending stress and torsional strength sufficiently withstands against heavy load and severe use.

The engine, cab body, rear body, shock absorbers and springs are mounted on this frame.

REPAIR

The frame is rigid and normally no trouble occurs on

the frame as long as the vehicle is used under the standard condition. When the vehicle comes into a hard collision or is driven with an excessive load on a rough road under a high speed, however, the frame may be bent, cracked, broken, and/or twisted.

When the vehicle is driven hard, thoroughly inspect the frame for damage and damaged parts. Remove the frame partially or entirely depending on the condition of damage, and repair.

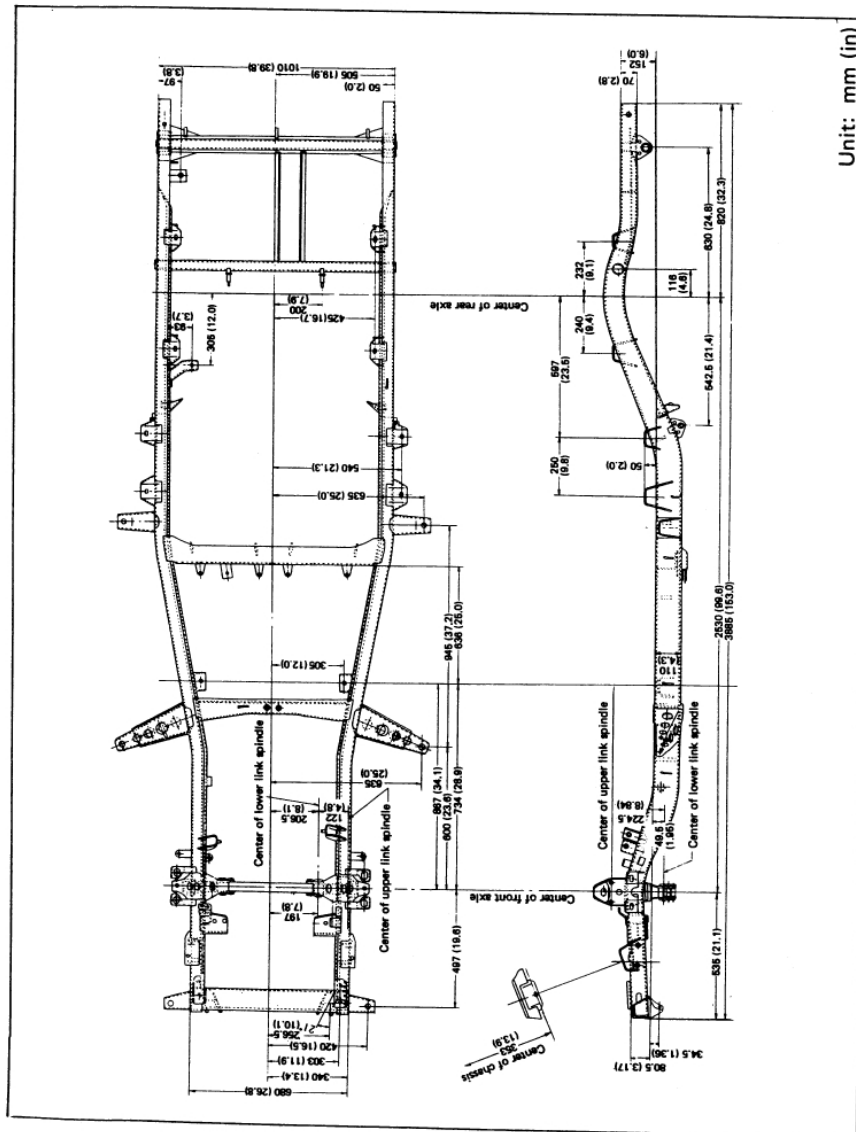


Fig. BF-1 Frame dimension of 521

BODY

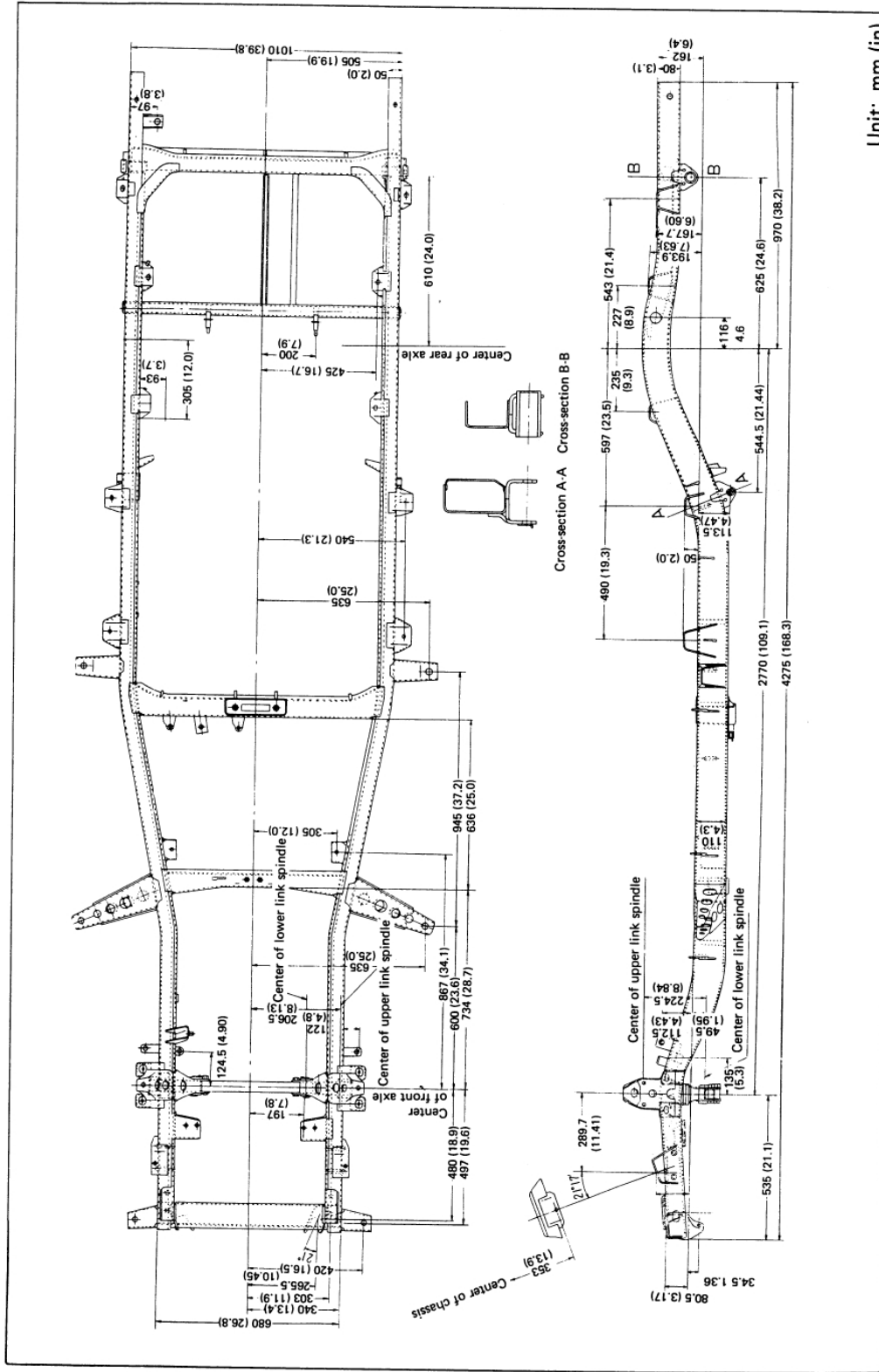


Fig. BF-2 Frame dimension of G521

Unit: mm (in)

BODY

BODY

CONTENTS

MAIN CROSS-SECTIONS OF CAB BODY	BF-3	DETACHING CAB BODY	BF-5
CAB BODY MOUNTING	BF-4	DETACHING REAR BODY	BF-6
REAR BODY MOUNTING	BF-4		

MAIN CROSS-SECTIONS OF CAB BODY

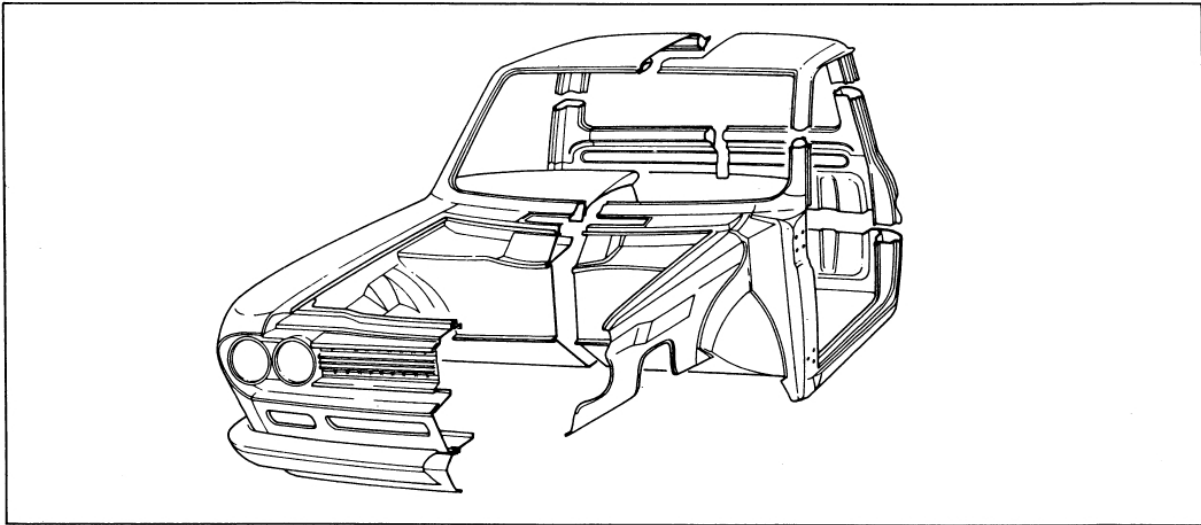


Fig. BF-3 Cross section of cab body (1)

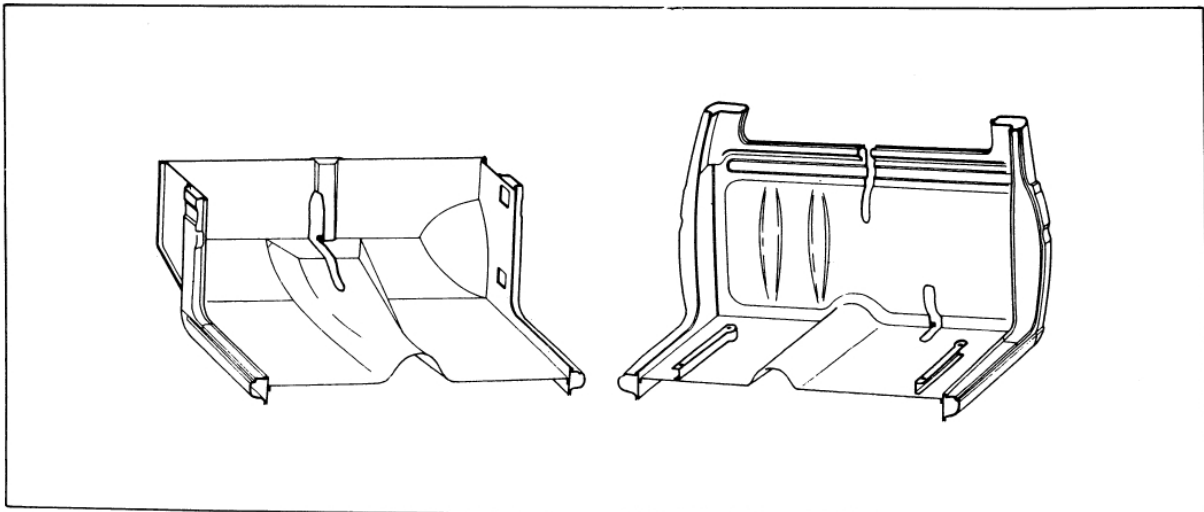


Fig. BF-4 Cross section of cab body (2)

BODY

CAB BODY MOUNTING

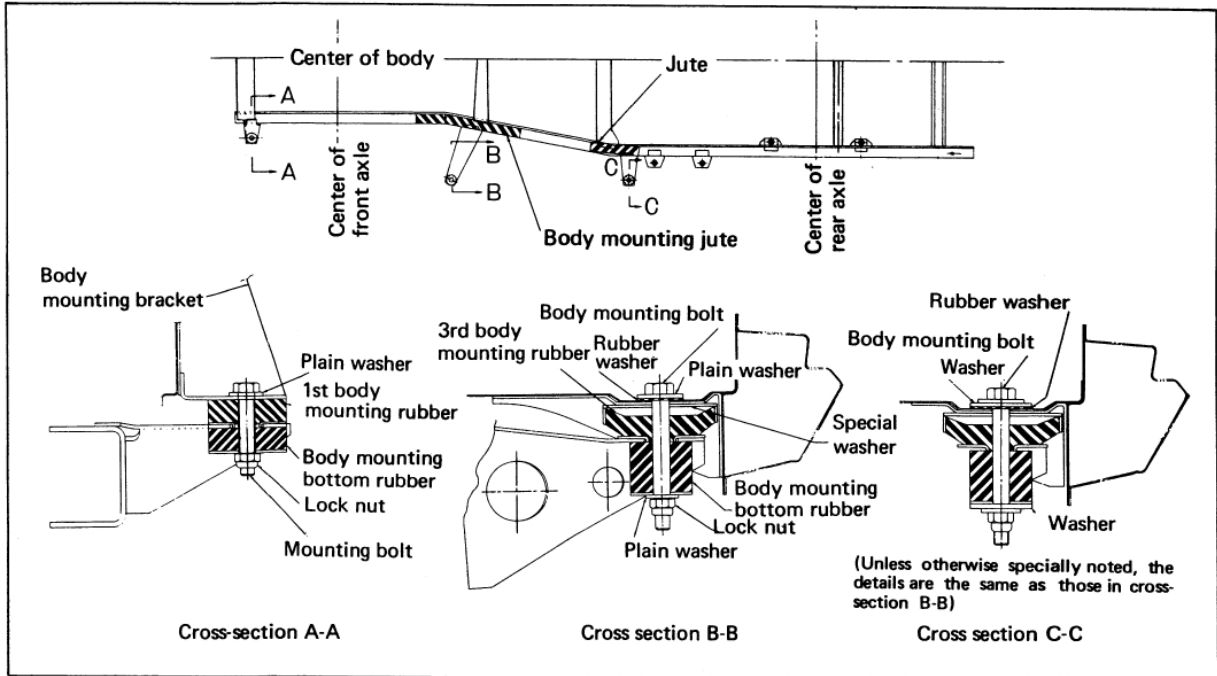


Fig. BF-5 Cab body mounting

REAR BODY MOUNTING

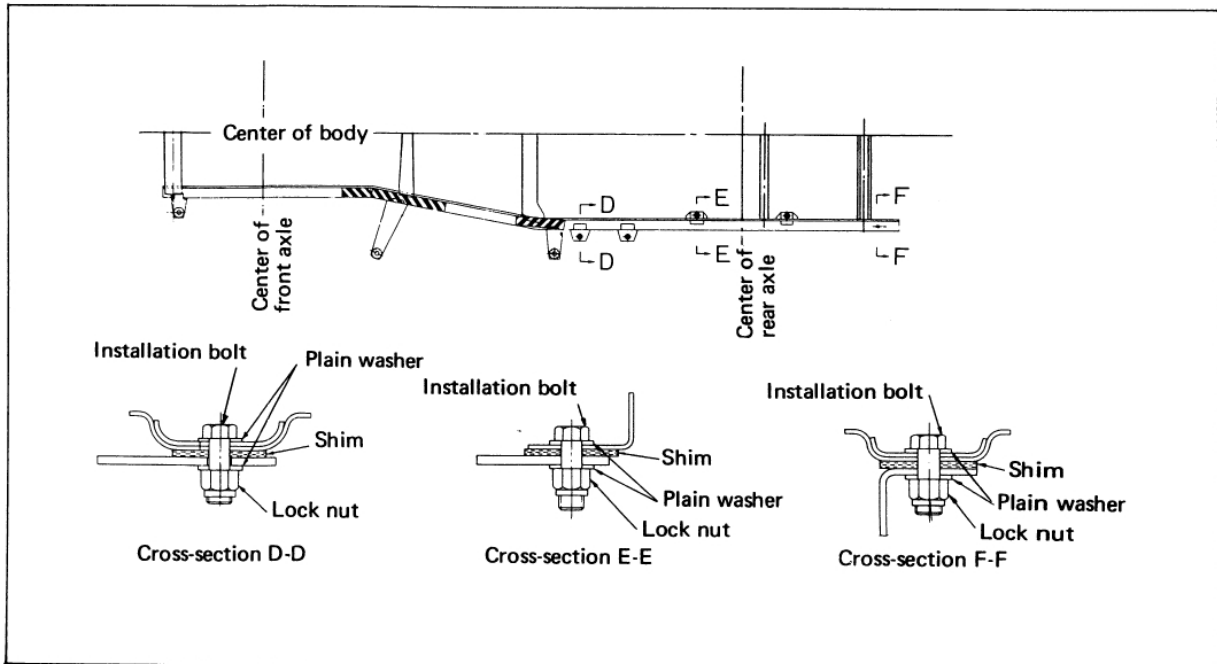


Fig. BF-6 Rear body mounting

BODY

DETACHING CAB BODY

1. Disconnect battery terminal from battery.
2. Disconnect speedometer cable.
3. Remove steering mechanism (steering wheel, steering post assembly, and remote control system.)

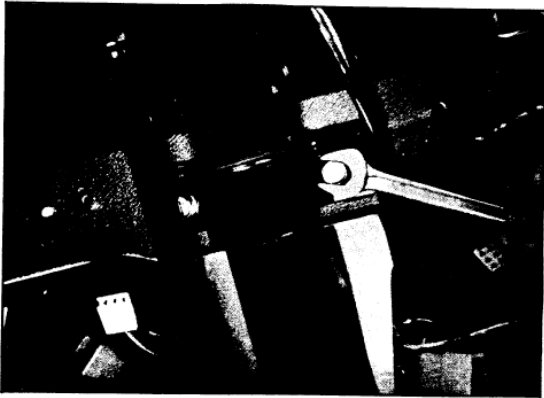


Fig. BF-7 Removing steering post clamp bolts

4. Disconnect front brake tube at hose and brake tube joint and rear brake tube at 4-way connector.

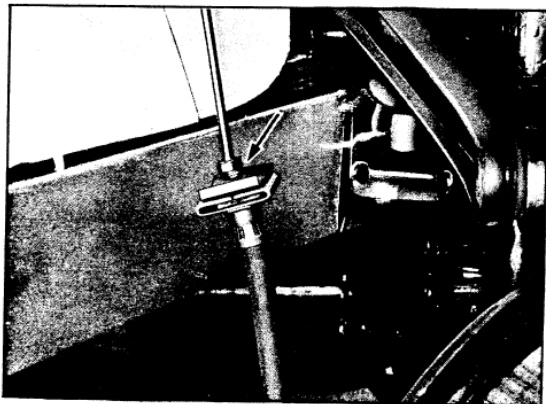


Fig. BF-8 Disconnect brake tube (front)

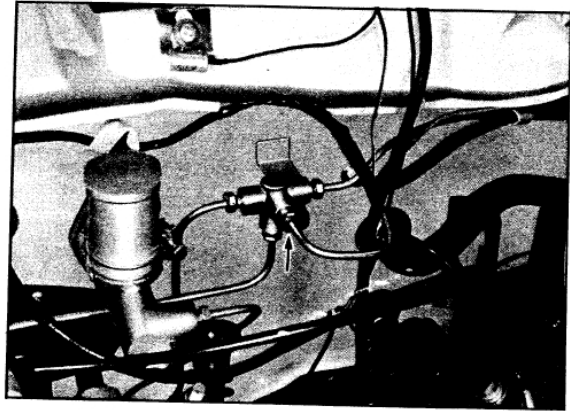


Fig. BF-9 Disconnect brake tube (rear)

5. Disconnect hand brake at front lever and cable joint.
6. Disconnect engine controls (such as choke wire, accelerator linkage, etc.), heater hose, engine compartment harness, instrument harness, and others between body and engine or chassis.
7. Remove six cab body mounting bolts.

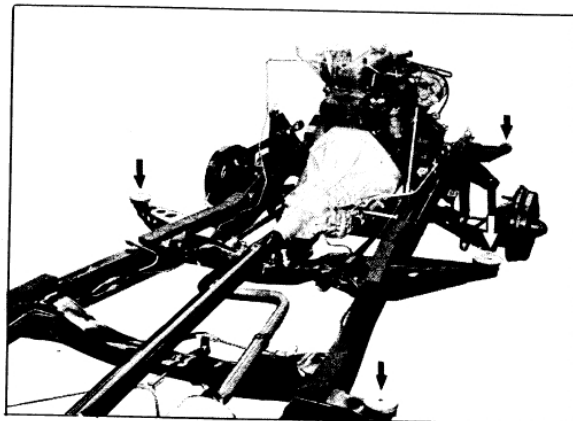


Fig. BF-10 Cab body mounting

8. Apply rope, wire or hanger to cab body, lift up cab body by the use of a hoist or chain block, and dismount cab body.

BODY

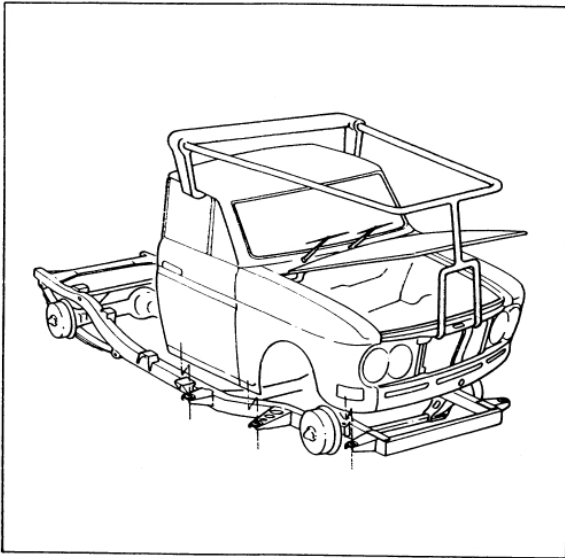


Fig. BF-11 Taking up cab body (Lifting)

9. Be sure to detach radiator grille before lifting cab body since radiator core support or rear portion is suspended.

Note: Carefully balance cab body while lifting, and dismount carefully so that cab body is not scarred or scratched.

Cab body weight (standard model): Approximately 200 kg (441 lb).

DETACHING REAR BODY

1. Disconnect battery terminal from battery.
2. Disconnect rear combination lamp wiring.
3. Remove rear body mounting bolts.

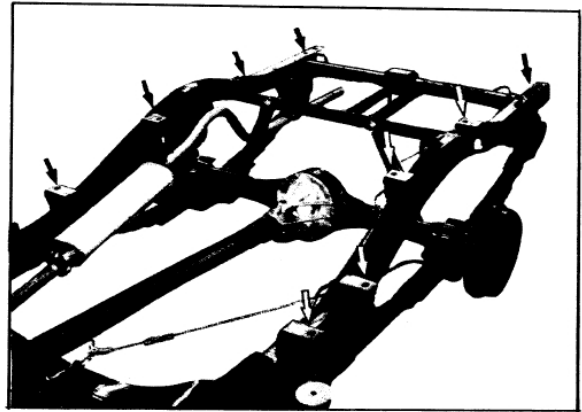


Fig. BF-12 Rear body mounting

4. Apply rope, wire or hanger to rear body, lift up rear body by the use of a hoist or chain block, and dismount rear body.

Note: Carefully balance rear body while lifting, and be careful not to scar or scratch cab body. Slightly pull rear body rearward while lifting.

Rear body weight (long body): Approximately 140 kg (309 lb).

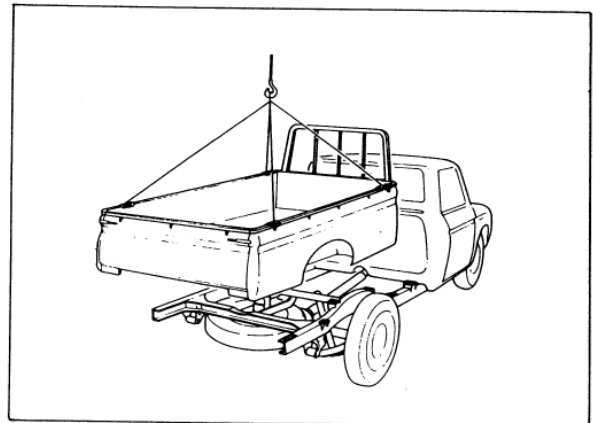


Fig. BF-13 Lifting rear body (Taking up)

Note: a. Rear body mountings No. 1 through 5 use shims. Be careful to select correct shim.

b. Clearance between rear body and cab body is 15 to 30 mm (0.591 to 1.181 in). Deviation toward the left or right should be within 5 mm (0.1969 in) at the center line.

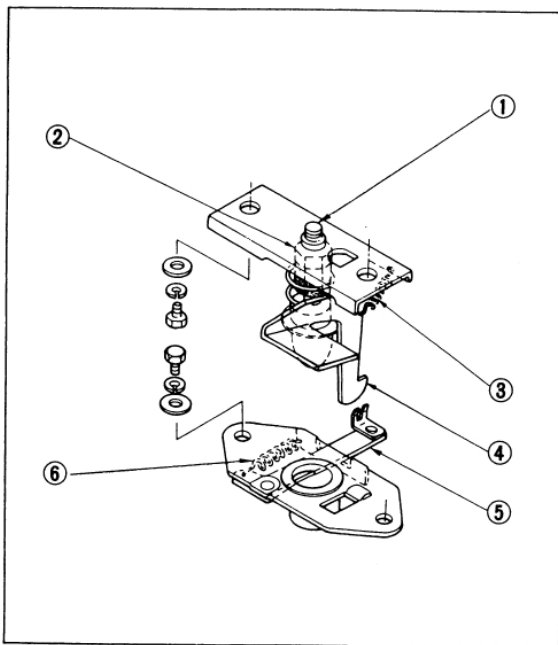
BODY

HOOD

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ADJUSTMENT	BF-7	Adjusting hood tightness	BF-8
Centering hood lock	BF-7	REMOVAL AND INSTALLATION	BF-8
Adjusting hood lock control lever operating force	BF-8	Removal	BF-8
		Installation	BF-8

ADJUSTMENT



1 Dove-tail bolt	4 Safety catch lever
2 Dove-tail bolt retaining nut	5 Female lever
3 Spring	6 Spring

Fig. BF-14 Male and female hood locks

Centering hood lock

The male hood lock is provided with a 3 mm (0.118 in) adjusting stroke toward the left or right side of the vehicle.

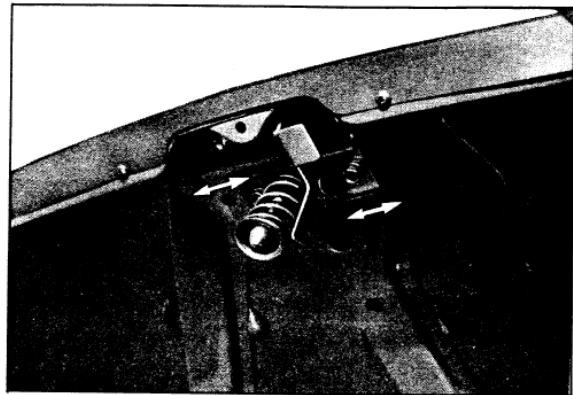


Fig. BF-15 Adjusting male hood locks

The female hood lock is provided with a 3 mm (0.118 in) adjusting stroke toward the front or rear side of the vehicle.



Fig. BF-16 Adjusting female hood locks

BODY

Loosen installation bolts and align the center correctly.

Adjusting hood lock control lever operating force

When the hood lock control lever cannot be operated lightly, loosen dove-tail bolt retaining nut, increase dove-tail bolt installation length, and reduce securing force of spring.

Adjusting hood tightness

When the hood is closed and is slack (cannot be closed tightly), reduce installation length of the dove-tail bolt and increase securing force of the spring.

Note: When inspecting the hood lock, note the following matters:

a. Safety catch lever

Check caulked portion of the safety catch lever for wear and the spring for weakness and breakdown. If the spring is broken, the hood may be unlocked and rapidly open during driving.

b. Female lever

Check the female lever for smooth and correct operation and the spring for weakness and breakdown. If the female lever does not move smoothly, engaging stroke with the dove-tail bolt will be reduced, and it may disengage.

REMOVAL AND INSTALLATION

Removal

1. Open hood and prop it in the open position.

2. Disconnect windshield washer hose at nozzle.
3. Cover cowl area with cloth or other proper material to protect them from damaging.

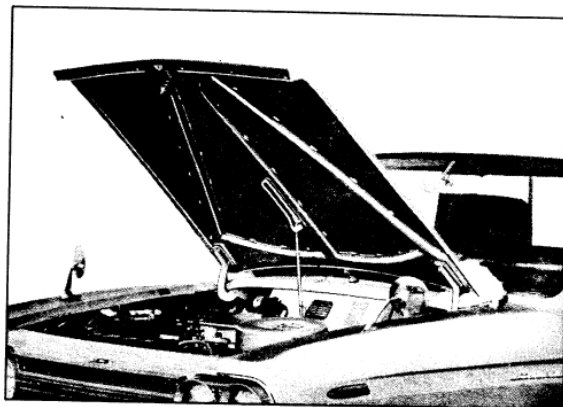


Fig. BF-17 Covering cowl area

4. Remove hinge bolts and detach it from hinges, with aid of a helper, upward.

Installation

1. Position hood to hood hinges and install attaching screws.
2. Adjust hood position and tighten attaching screws.
3. Install hood latch striker on hood and adjust hood latch.

FRONT END AND FRONT FENDER

CONTENTS

BUMPER	BF- 9	FRONT APRON	BF-11
Removal	BF- 9	Removal	BF-11
Installation	BF-10	FRONT FENDERS	BF-11
RADIATOR GRILLE, GRILLE SURROUNDINGS, AND HEADLAMP RIM	BF-10	Removal	BF-11
Removal	BF-10	Installation	BF-12

BODY

BUMPER

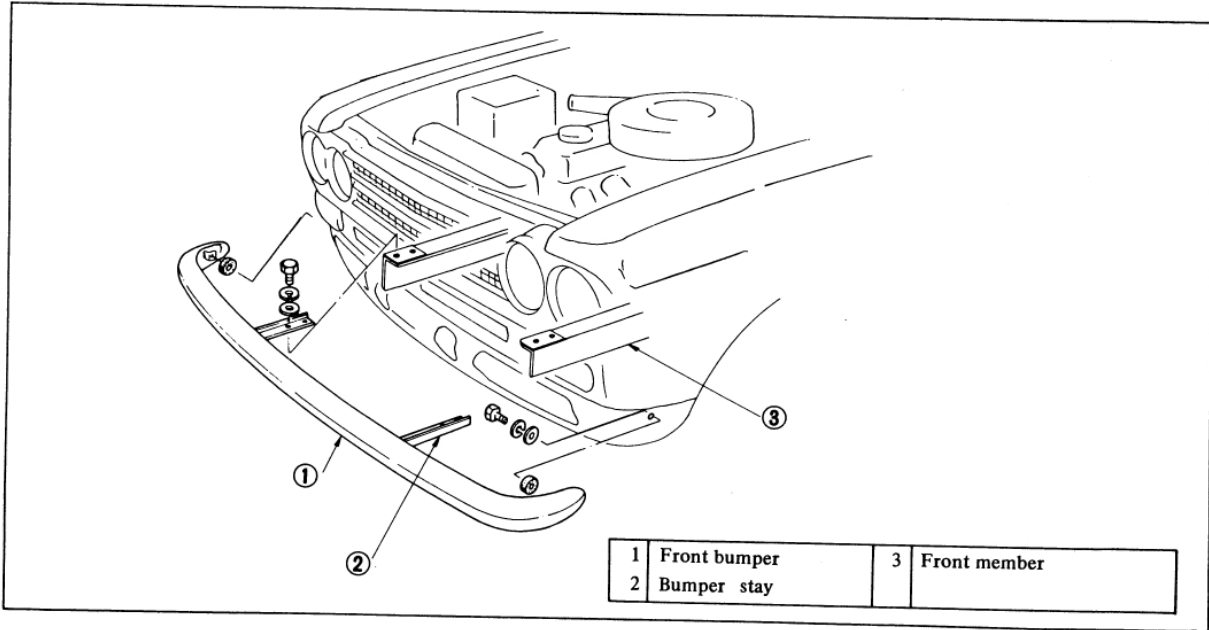


Fig. BF-18 Front bumper

Removal

1. Remove installation bolts from both ends of bumper (both ends of front apron).

2. Detach bumper stays at engine compartment side. Bumper stays are installed on frame with four bolts.

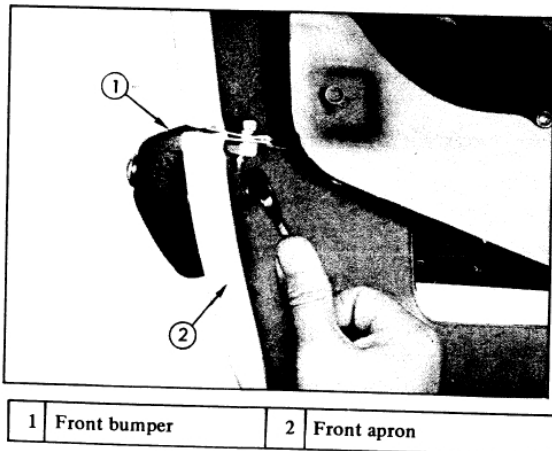


Fig. BF-19 Removing bumper bolt

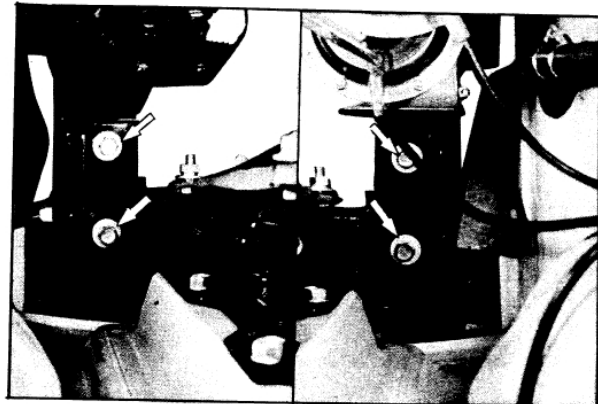


Fig. BF-20 Removing bumper bolt

BODY

3. Pull forward and remove bumper together with bumper stays.
4. Remove four installation bolts, and separate bumper stays from bumper.

Installation

Install front bumper in reverse sequence of removal. When installing, align position carefully and correctly so that bumper height and clearance between bumper and front apron are uniform.

RADIATOR GRILLE, GRILLE SURROUNDINGS, AND HEADLAMP RIM

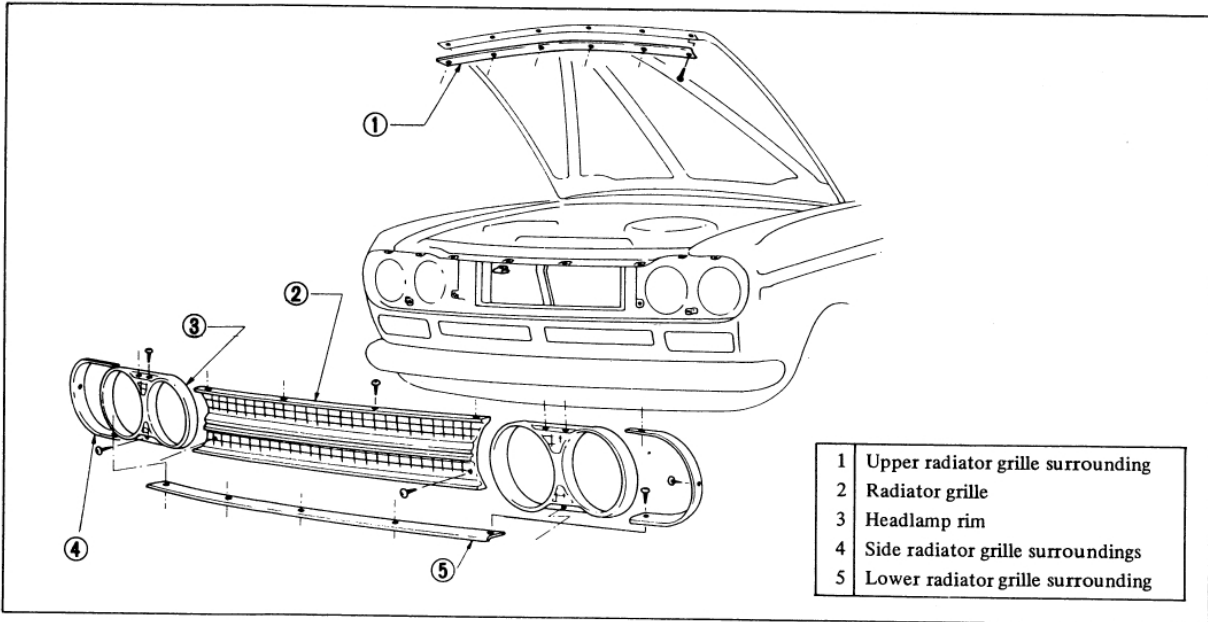


Fig. BF-21 Radiator grille, grille surroundings and headlamp rim

Removal

1. Unscrew upper (four) and front (two) installation screws, and remove radiator grille toward front.
2. First, detach lower radiator grille surroundings, and next, remove both side radiator grille surroundings.

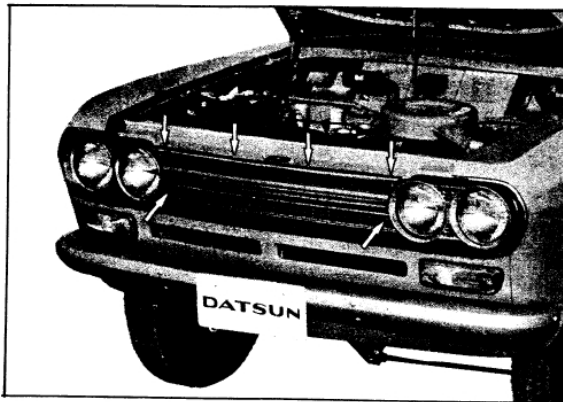


Fig. BF-22 Removing radiator grille

Note: Both ends of lower surroundings are overlapped on side surroundings, and therefore, the above described removing sequence must be regarded. (Out of five lower surrounding installation screws, two screws in both ends are used to secure both side surrounding bottoms also. In other words, out of three side (left or right) radiator grille surrounding installation screws, one in the bottom is used to secure either left or right end of lower surroundings also.)

3. Unscrew three self-tapping screws (two on top and one in front), and detach head lamp rim.

BODY

FRONT APRON

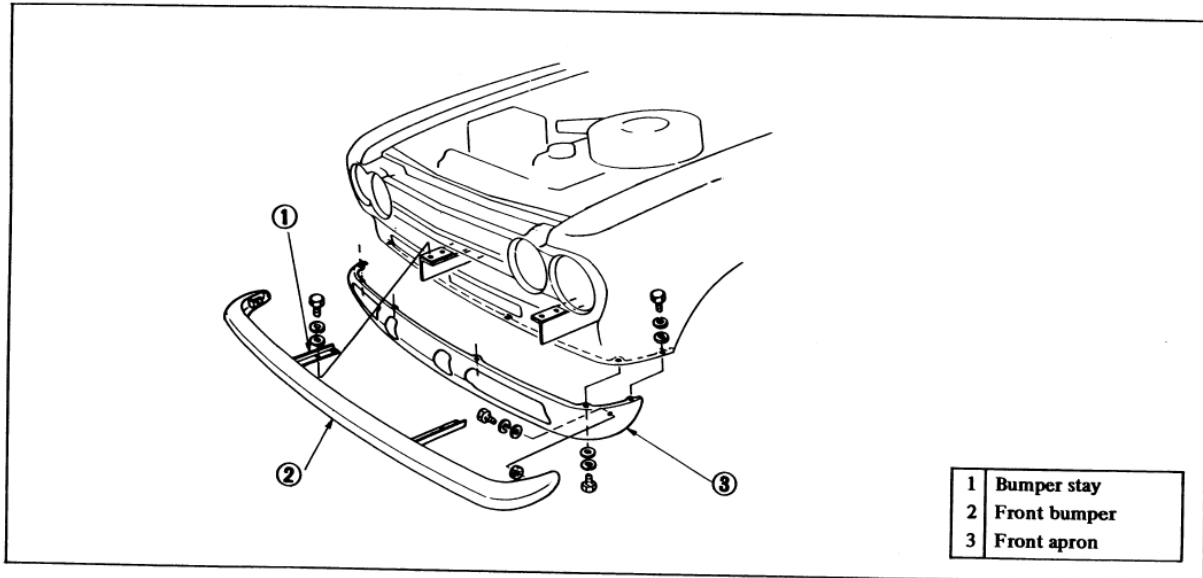


Fig. BF-23 Front apron

Removal

Detach front bumper. See Figure BF-18

Remove apron to fender attaching bolts, and remove apron downward.

Removal

1. Clean fender attaching screws, bolts and nuts by removing dirt from them.
2. Disconnect wirings for headlamp and side flasher (side marker) lamp at their connecting terminals.
3. Remove radiator grille, grille surroundings and headlamp assemblies from the vehicle.

FRONT FENDERS

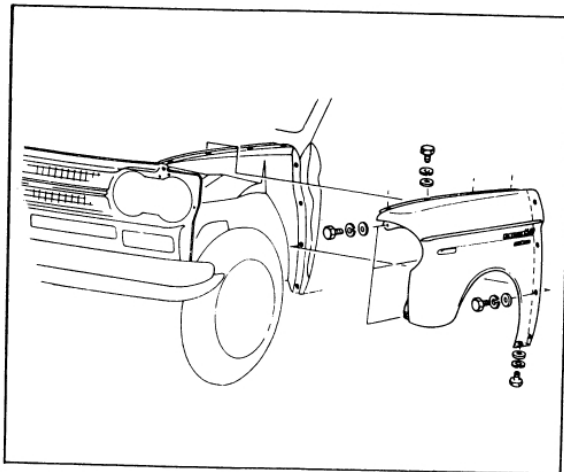


Fig. BF-24 Front fender



Fig. BF-25 Headlamp assembly

BODY

4. Remove front side attaching bolts from headlamp installing part.

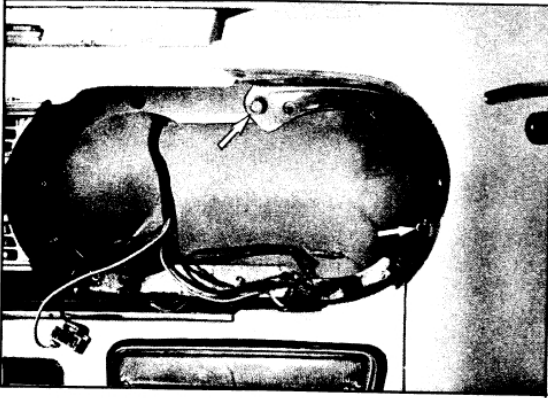


Fig. BF-26 Front attaching bolts

5. Remove apron to fender attaching bolts from both sides.

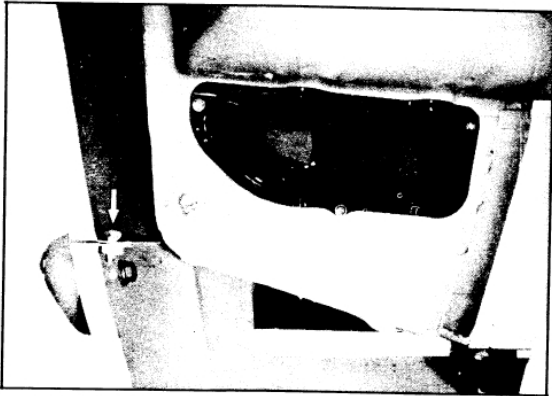


Fig. BF-27 Apron to fender attaching bolt

6. Remove front fender top attaching bolts.

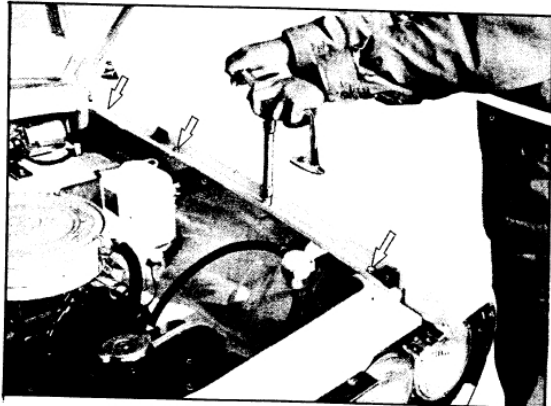


Fig. BF-28 Fender top attaching bolts

7. Remove front fender rear side attaching bolts.

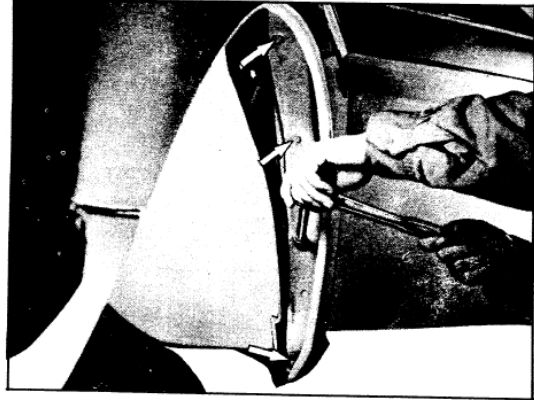


Fig. BF-29 Fender rear side attaching bolts

8. Remove attaching bolt from rear bottom of front fender.

9. Pull left (or right) front fender toward front left (or right) direction, and detach it.



Fig. BF-30 Detaching front fender

Installation

Install front fender in reverse sequence of removal.

Note: Replace fender-rubber used in rear side of fender with a new one when reinstalling fender.

BODY

DOOR

CONTENTS

ADJUSTMENT	BF-13	DOOR LOCK MECHANISM	BF-15
Door lock striker	BF-13	Removal	BF-15
Door hinge	BF-14	Installation	BF-16
REMOVAL	BF-14	DOOR GLASS AND REGULATOR	BF-16

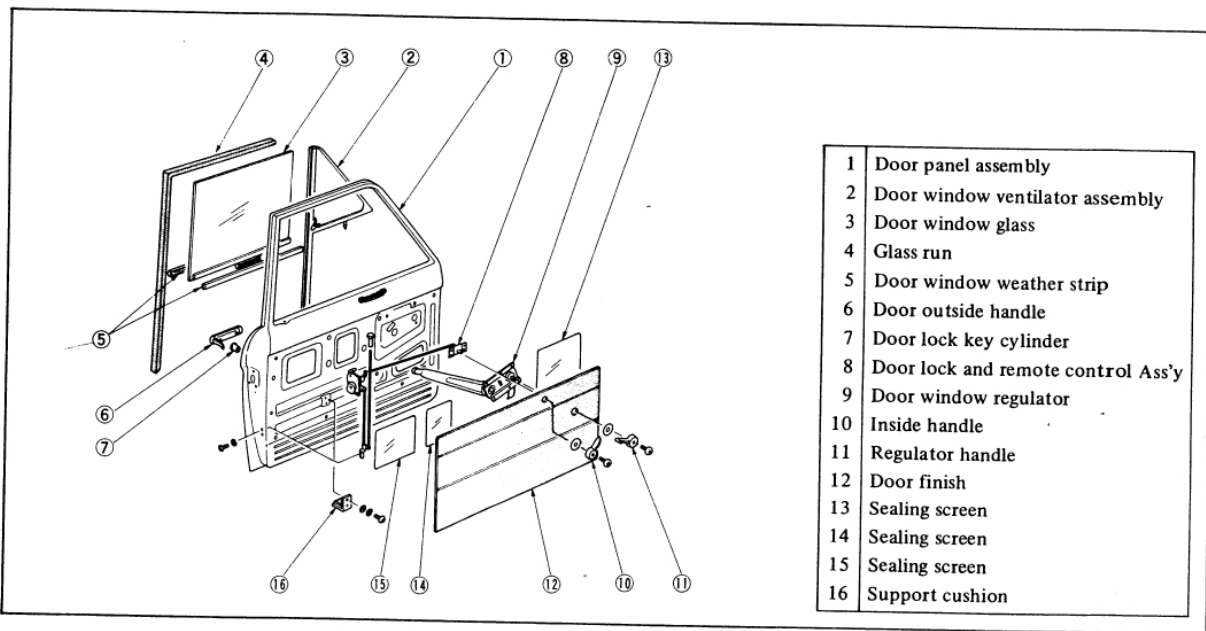


Fig. BF-31 Door construction

ADJUSTMENT

Door lock striker

Door lock striker can be adjusted freely toward any direction as required.

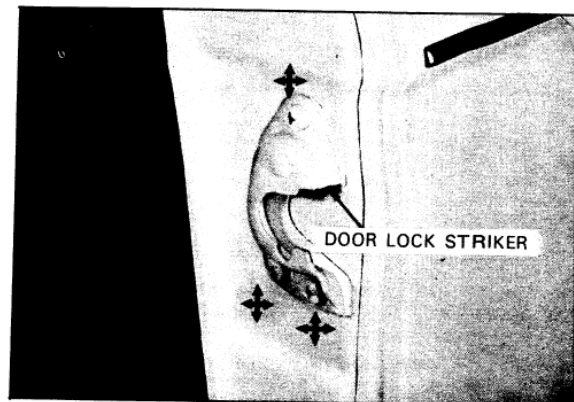


Fig. BF-32 Adjusting door striker

BODY

1. Align door position correctly before adjusting door striker. It should be noted, however, that door sag cannot be corrected by adjusting door striker.
2. Loosen striker attaching screws, and close door gently to align striker against latch mechanism.
3. Open door and tighten striker attaching screws.

Door hinge

Door hinges are adjusted toward, top, bottom, front, rear, right and/or left to place door in the position.

1. Visually inspect door from outside, and make sure that accent stripe is positioned straight with front fender and door exterior is flush with body exterior.
2. When door is not placed in the position correctly, detach dash side trim.
3. When adjusting door position toward top, bottom, front or rear, adjust body side hinge, and when adjusting door position toward left or right, adjust door side hinge.
4. When door position is adjusted at hinge side, make sure that door can be closed and opened smoothly and that door lock operates correctly.

REMOVAL

1. Remove package tray, and remove dash side trim.



Fig. BF-33 Removing dash trim

2. Fully open door, and apply a jack or rigid rack beneath door to support it.

Note: When applying a jack or rigid rack, apply piece of cloth between door and jack or rack to protect door from scratching.

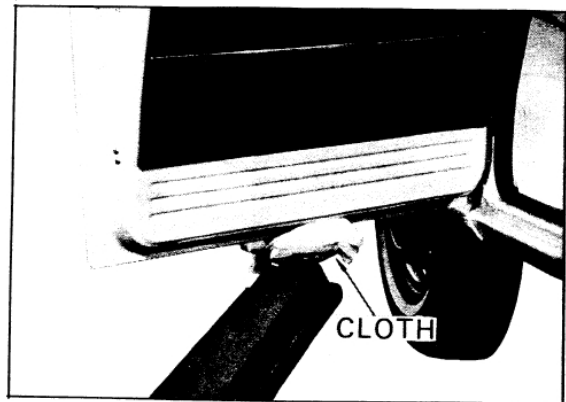


Fig. BF-34 Supporting door

3. Remove upper and lower hinges at the body side, and separate door from body.

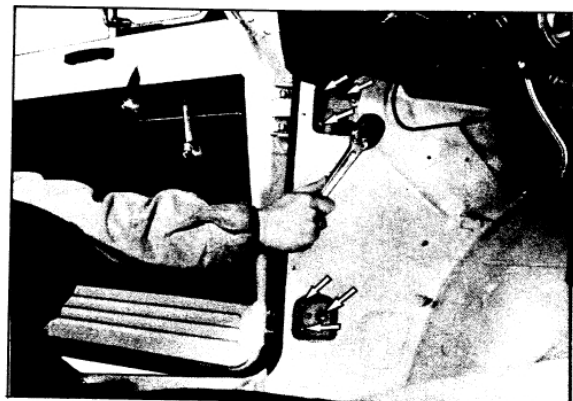


Fig. BF-35 Separating door from body

Note: When reinstalling door, position it correctly so that clearance between door and body is even. Adjust door position with hinge installation bolts (body side). Adjust door lock engagement at door lock striker side.

BODY

DOOR LOCK MECHANISM

Door lock is provided with a lock knob and is of an unlock type in which lock knob does not lower while door is open.

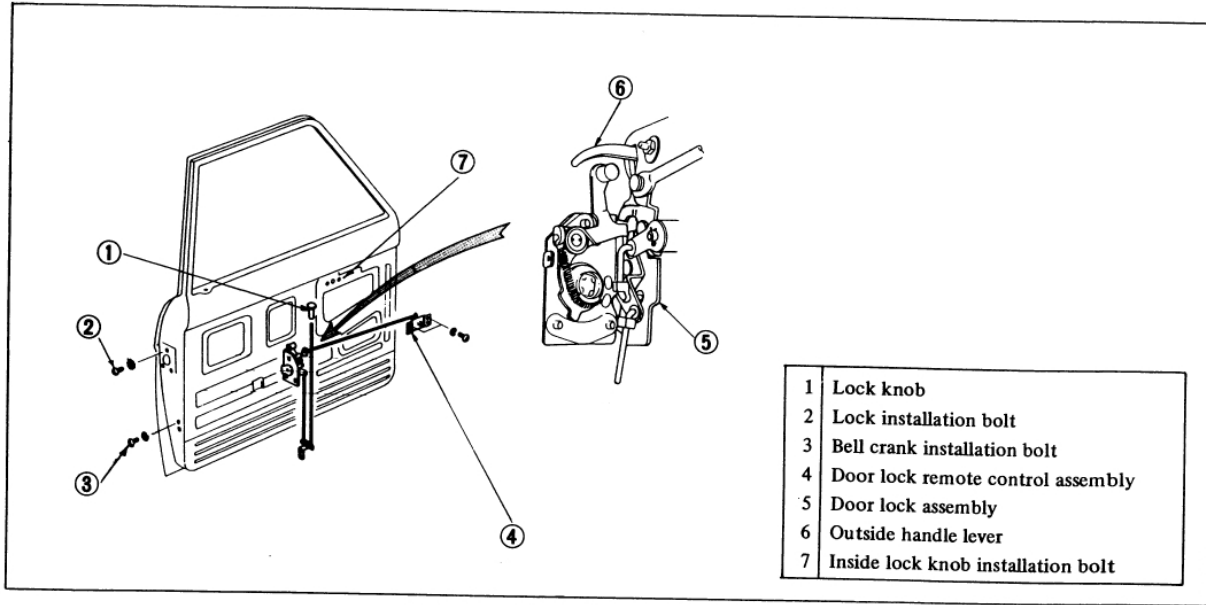
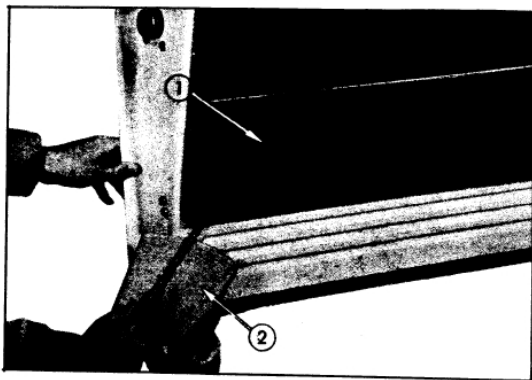


Fig. BF-36 Door lock mechanism

Removal

1. Detach inside handle and regulator handle, remove door finish installation clips with an ordinary screw driver, and separate door finish from door.

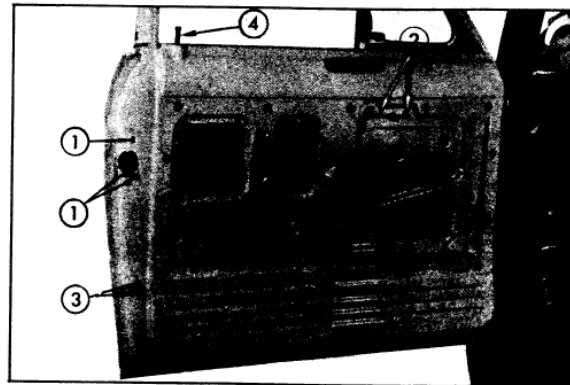
Note: Be careful not to scar or scratch panel and sealing screen.



1	Door finish	2	Cloth
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Fig. BF-37 Detaching door finish

2. Detach sealing screen carefully so that it is not damaged, remove lock installation bolts, lock knob bell crank installation bolts, and inside lock knob installation bolts, and remove lock knob.



1	Lock installation bolts	4	Knob lock
2	Inside lock knob installation bolts	5	Glass run installation bolts
3	Bell crank installation bolts		

Fig. BF-38 Removing lock assembly

3. Separate key cylinder and lock joint.

BODY

4. Remove door lock together with remote control assembly through work opening.



Fig. BF-39 Removing door lock

Installation

1. Install door lock mechanism in reverse sequence of removal.
2. Upon completion of installation, make sure that play (A) - between outside handle lever and lock side locking lever end - is 1 to 3 mm (0.0394 to 0.1181 in).

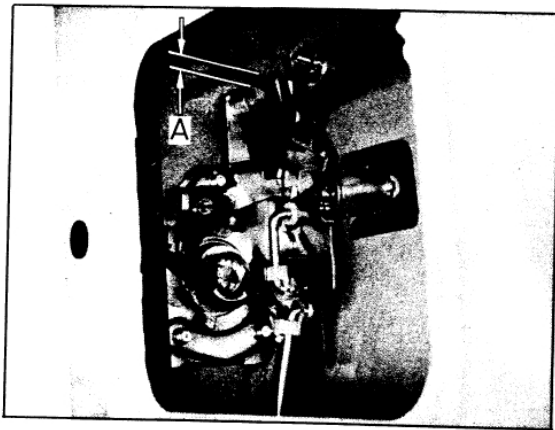


Fig. BF-40 Adjusting door lock

3. When play (A) is insufficient, adjust outside handle installing position.

When door panel is deformed (e.g., hollow, etc.), repair panel.

DOOR GLASS AND REGULATOR

1. Detach door lock assembly, door finish, and sealing screen.
2. Remove installation bolts, and remove door window support cushion.

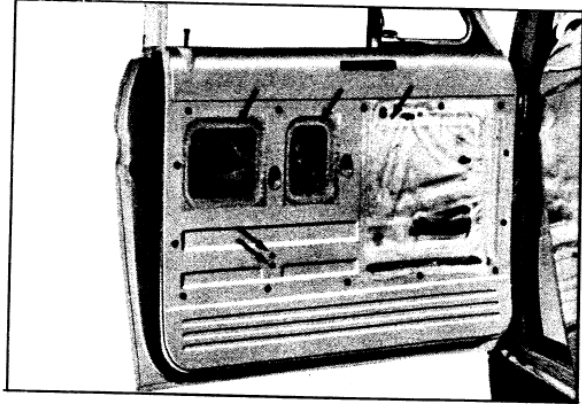


Fig. BF-41 Sealing screen and bolts.

3. Remove roller on end of regulator arm from glass channel, and lower window glass to the bottom.

Note: Recommend that glass be suspended with a piece of string beforehand so that glass can be taken out easily.



Fig. BF-42 Take out glass

BODY

4. Remove four installation screws from upper portion of door sash.

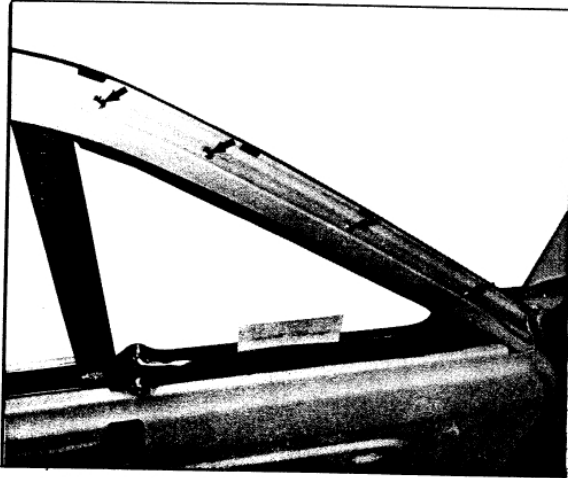


Fig. BF-43 Removing four installation screws

5. Detach side window weather strip with an ordinary screw driver carefully so as not to damage it.

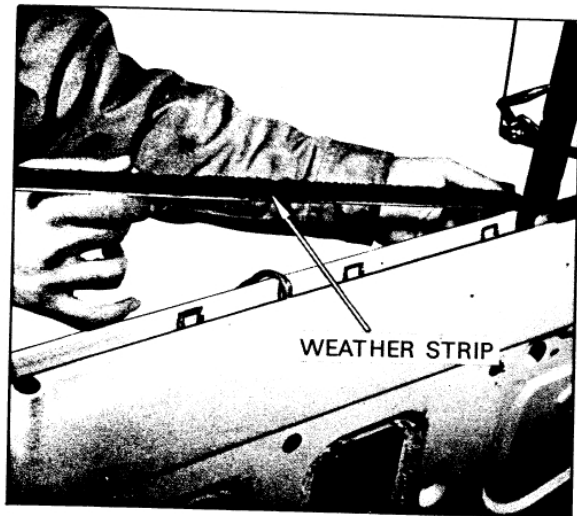


Fig. BF-44 Detach weatherstrip

6. Remove two door window ventilator center side sash installation screws.
7. Pull door window ventilator toward upper rear direction, and separate it from door.

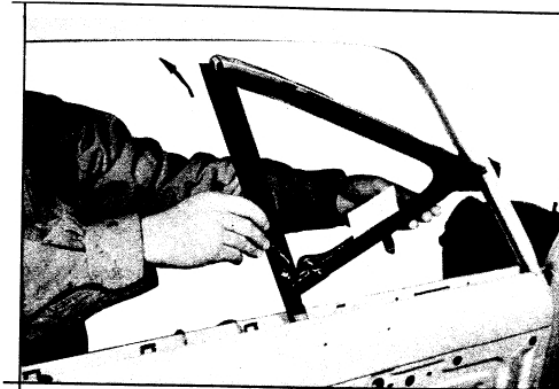


Fig. BF-45 Removing door ventilator

8. Pull door glass upward, and remove it.
9. Remove four door window regulator assembly installation screws.

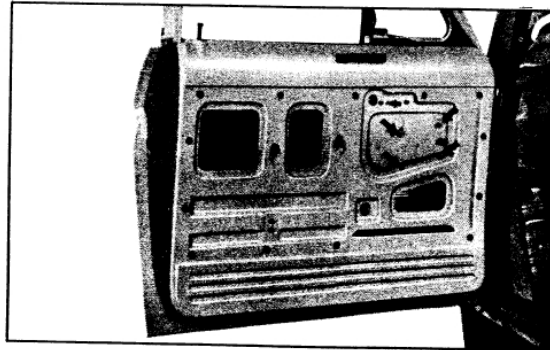


Fig. BF-46 Door window regulator installation screws

10. Remove door window regulator assembly through service opening.

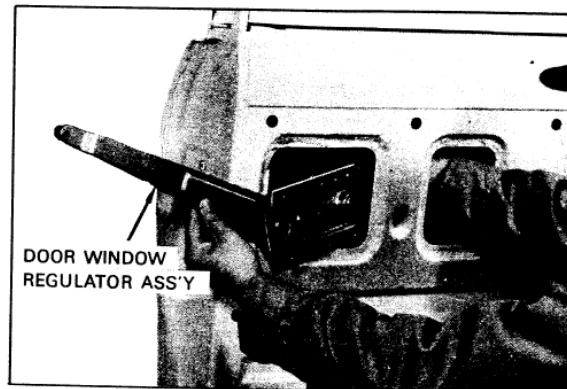


Fig. BF-47 Removing window regulator assembly

BODY

DOUBLE PICK-UP AND VAN

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Double pick-up	BF-18	Double pick-up	BF-19
Van	BF-18	Van	BF-20

SIDE WINDOW

Double pick-up

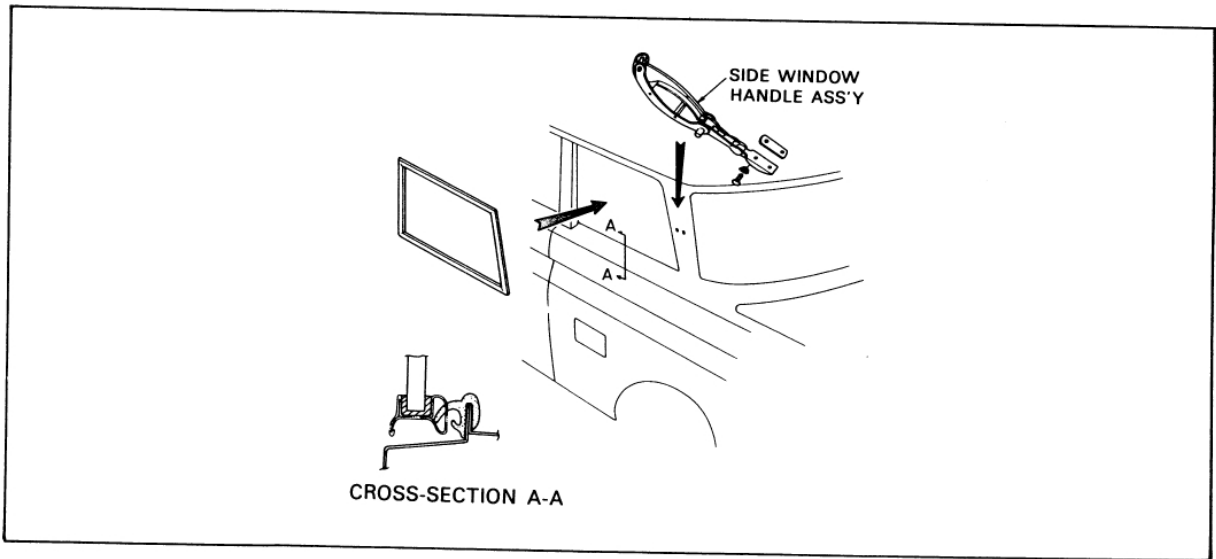


Fig. BF-48 Side window (double pick-up)

When installing, be sure to apply sealing agent between body panel and weather strip.

Van

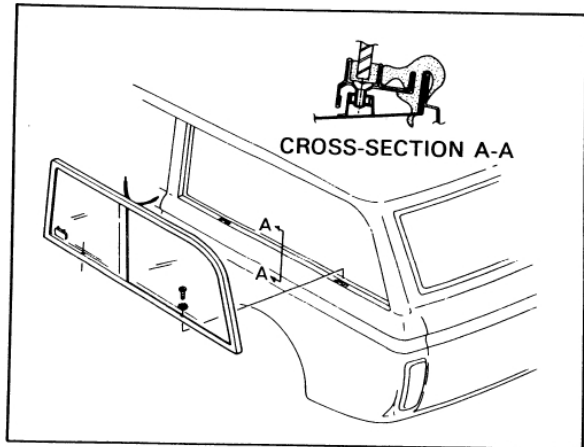
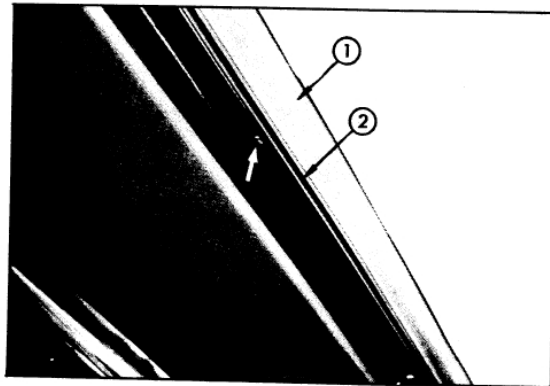


Fig. BF-49 Side window (van)

BODY

Remove set screws from side window sash, detach weather strip toward luggage compartment side, and remove side window assembly toward outside.

When installing, be sure to apply sealing agent between weather strip and panel.



1	Roof	2	Side window sash
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Fig. BF-50 Removing side window

TAIL GATE AND LIFT GATE

Double pick-up

Tail gate lock

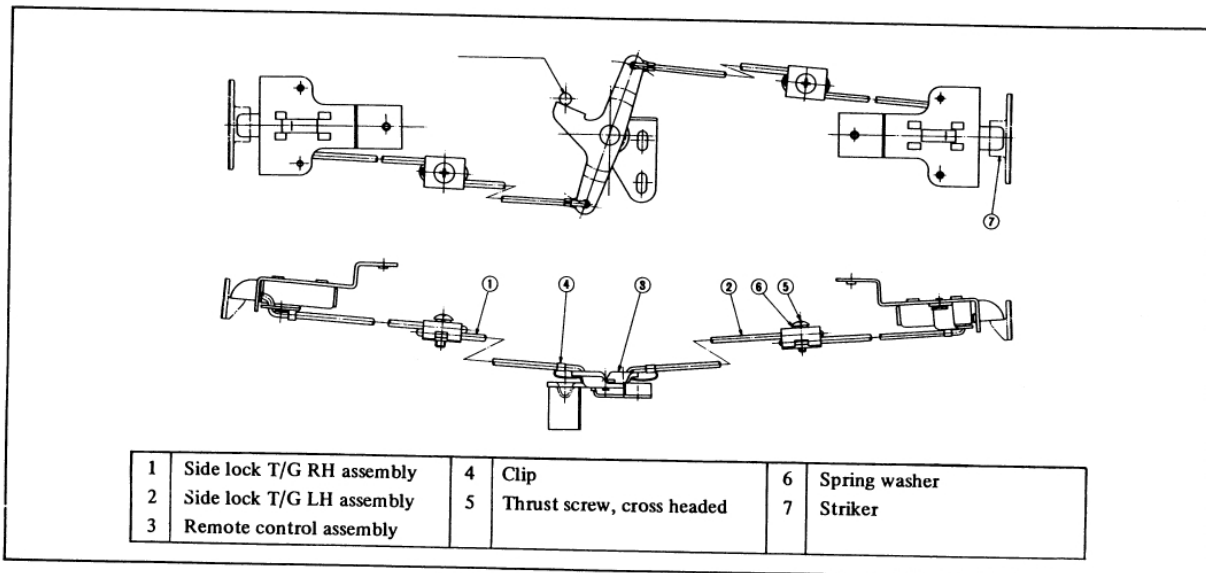


Fig. BF-51 Tail gate lock (double pick-up)

Remove tail gate inside cover, and remove tail gate side lock installation screws from both sides.

Remove tail gate remote control installation bolts.

Remove tail gate lock assembly through service opening.

Upon completion of reinstallation;

1. Make sure that both left and right locks operate

correctly.

2. When strokes of claws in both sides are unbalanced, adjust at remote control adjuster so that both side locks are balanced.

3. Apply grease to sliding parts.

BODY

Van

Tail gate lock

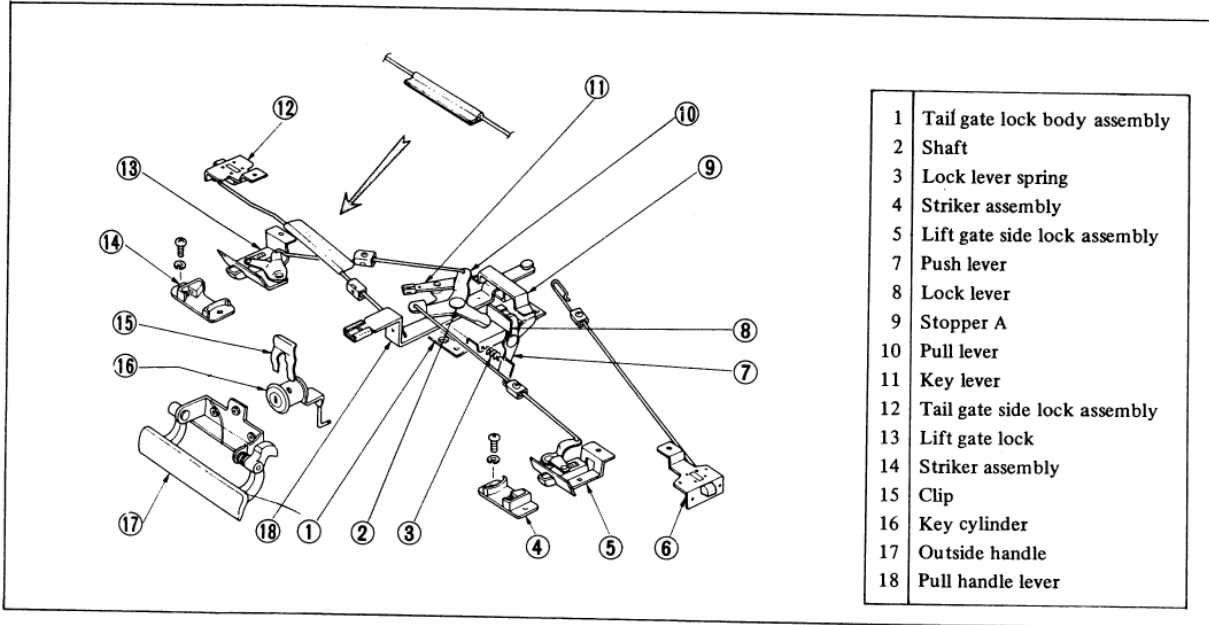
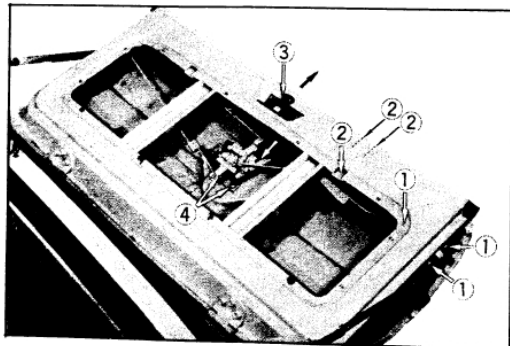


Fig. BF-52 Tail gate lock (van)

Detach tail gate inside cover, and remove both left and right tail gate side lock installation screws ① through ③.



1	Side lock installation screws	3	Knob installation screws
2	Lift gate lock installation screws	4	Lock body installation screws

Fig. BF-53 Removing tail gate installation bolts

Disconnect key cylinder and lock joint [key cylinder rod ①].

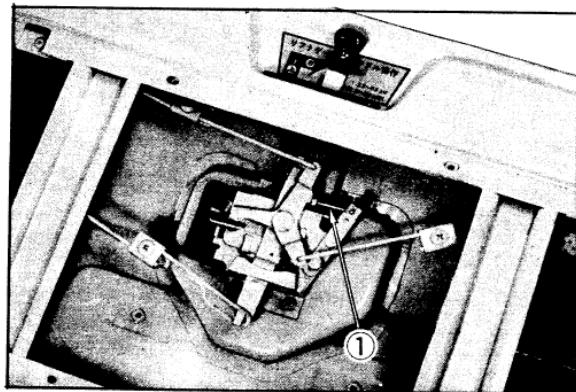


Fig. BF-54 Removing key cylinder rod.

Remove lock installation screws, and remove lock assembly from service opening.

BODY

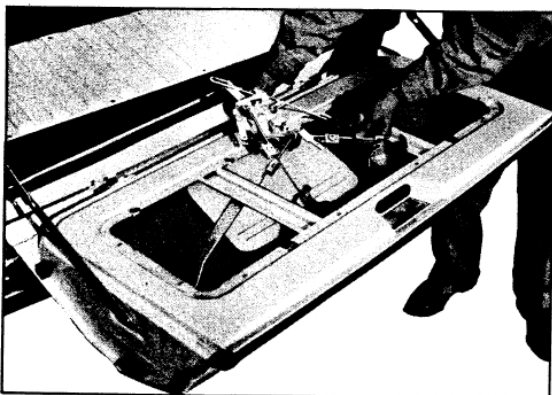


Fig. BF-55 Removing lock

Upon completion of reinstallation;

1. Make sure that both side locks and two locks on tail gate top operate correctly.
2. When both side claw strokes are unbalanced, adjust at remote control adjuster so that both claws engage evenly.

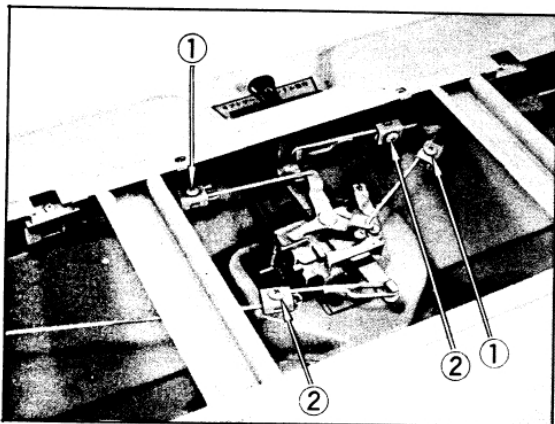
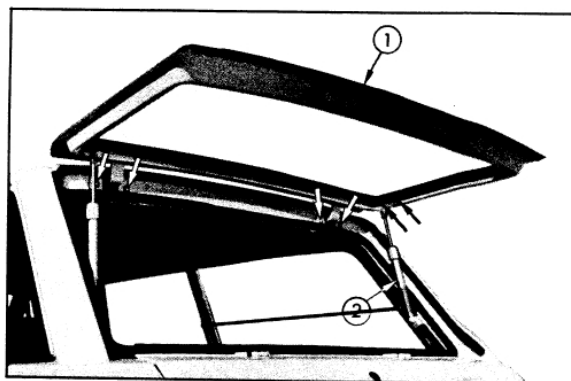


Fig. BF-56 Adjusting lock stroke

3. When lock does not operate lightly and smoothly, check lever sliding parts for lubrication, and apply grease as required.

Lift gate

Remove lift gate support installation screws.



1 Lift gate	2 Lift gate support
-------------	---------------------

Fig. BF-57 Lift gate

Apply a piece of cloth between roof and lift gate to protect body from scratching.

Remove hinge installation bolts, and separate lift gate from body.

Lift gate is installed in reverse sequence of removal.

When installing lift gate, position correctly so that both sides are aligned evenly.

Upon completion of installation, make sure that lock operates correctly and smoothly. When adjustment is required, move striker side.

WINDSHIELD AND REAR WINDOW

CONTENTS

REMOVAL	BF-22	WATERLEAK CORRECTION	BF-23
INSTALLATION	BF-22		

BODY

REMOVAL

1. Place a protective cover over hood, front fenders, instrument panel and front seat.
2. Remove rear view mirror support.
3. Remove windshield wiper arm assembly.
4. On inside of body, loosen the lip of rubber channel from spot welded flange along the top and sides of windshield opening. With the palm of the hand, apply pressure to glass near edge. At the same time, use a blunt putty knife or other suitable tool and carefully assist rubber channel over spot welded flange.
5. After windshield rubber channel is free from spot welded flange, with aid of helper, carefully lift windshield assembly from body opening and place it on a protected bench.
6. Clean glass and/or weatherstrip of all old sealer if either is to be re-used.

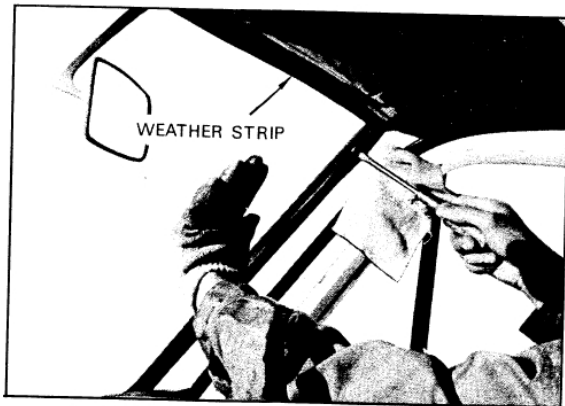


Fig. BF-58 Removing windshield

Note: The windshield chrome moldings are installed in the rubber channel and should be removed prior to removing rubber channel from the glass.

INSTALLATION

It is important that the body windshield opening be checked thoroughly before installation of the replacement

windshield glass. The procedure below outlines the method which may be used to check the windshield opening.

1. Check windshield rubber channel for any irregularities.
2. Clean off old sealer around windshield opening and check entire body opening flange for any irregularities.
3. With the aid of a helper, carefully position replacement glass on windshield opening.

Note: Care should be exercised to make certain glass does not strike body metal during installation. Edge chips can lead to future breaks.

4. With windshield glass supported and centered in body opening, check relationship of glass to body opening around entire perimeter of glass.

- (1) Inside surface of glass should completely contact spot welded flange.

- (2) Curvature of glass should be uniform to that of body opening.

5. Mark any sections of body to be reformed. Remove glass, and reform opening as required.

6. Install windshield.

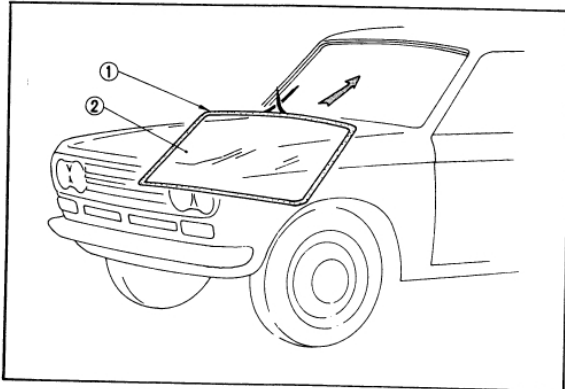
- (1) Clean out old sealer in glass cavity of windshield rubber channel and around base of rubber channel.

- (2) Install rubber channel to glass.

- (3) Insert a strong cord in the groove of rubber channel where spot welded flange fits.

Tie ends of cord and tape to inside surface of glass at upper center of glass.

BODY



1	Weather strip	2	Glass
---	---------------	---	-------

Fig. BF-59 Draw cord installed

(4) With the aid of a helper, carefully position and center windshield assembly in body opening.

Note: Do not position glass by tapping or hammering at any time.

(5) When glass and channel are properly positioned in opening, slowly pull ends of cord, starting at upper center of windshield to seat lip of rubber channel over spot welded flange. Cord should be pulled first across top of windshield, then up each side and finally across windshield bottom.

(6) Using a pressure type applicator, seal inner and outer lips of rubber channel to glass with an approved weatherstrip adhesive as indicated in Figure BF-60 Seal completely around rubber channel.

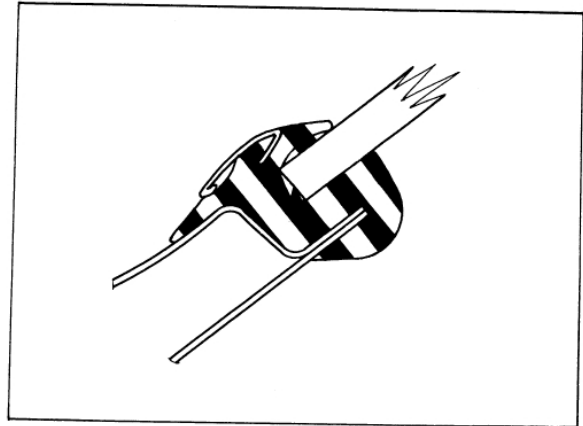


Fig. BF-60 Sectional view of rubber channel

(7) Reinstall all previously removed parts and remove protective coverings.

WATERLEAK CORRECTION

In many instances, minor waterleaks around the windshield may be corrected by performing the following operations.

1. Leak between rubber channel and glass

Using a pressure applicator (corking gun) with a narrow tip, apply an approved weatherstrip adhesive (black) between glass and rubber channel on the outside of glass completely around perimeter of glass.

2. Leak between rubber channel and body

Use a pressure applicator with a narrow tip. Working from outside of body, apply a sealer under outer lip of rubber channel around entire perimeter of body opening.

INSTRUMENT PANEL

CONTENTS

REMOVAL BF-24

BODY

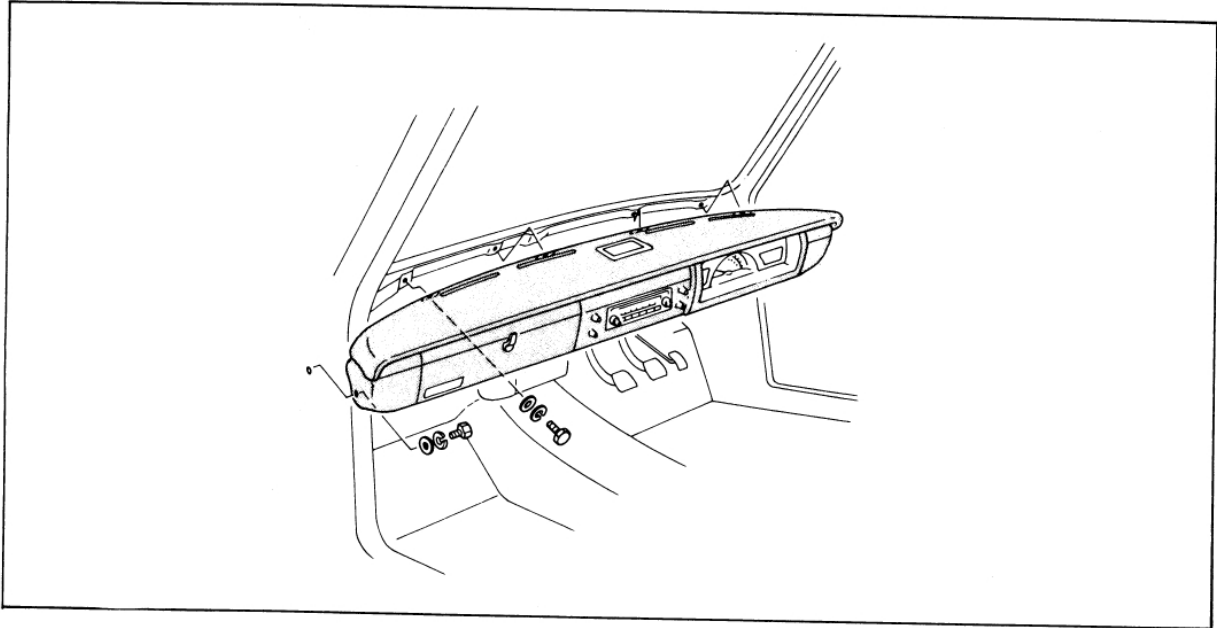


Fig. BF-61 Removing instrument panel

REMOVAL

1. Disconnect battery terminal
2. Disconnect heater control wire from lever, instrument harness/engine compartment harness connector, wirings for windshield wiper, etc.
3. Remove steering post clamp installation bolts.
4. Remove four set screws from the top of instrument panel and two from both sides.
5. Pull instrument panel rearward, and separate it from body toward left.

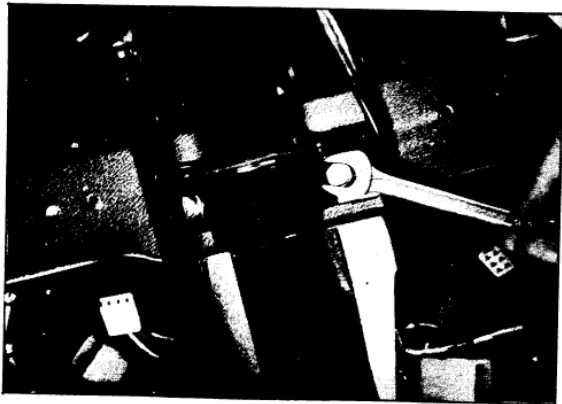


Fig. BF-62 Removing steering post clamp bolts



Fig. BF-63 Removing instrument panel

BODY

SEAT

Seat uses steel pipe frame and S-shape and square-shape springs, and urethane and vinyl leather are used for seat cover.

REMOVAL

Front seat (pick-up, double pick-up, and van)

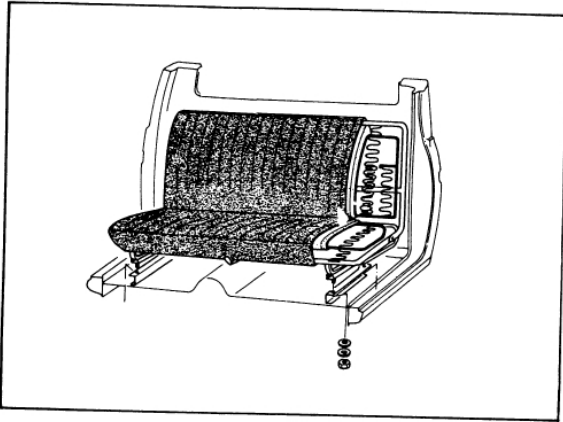


Fig. BF-64 Front seat

Remove four installation nuts screwed against seat riser. Seat can be separated.

Rear seat (double pick-up)

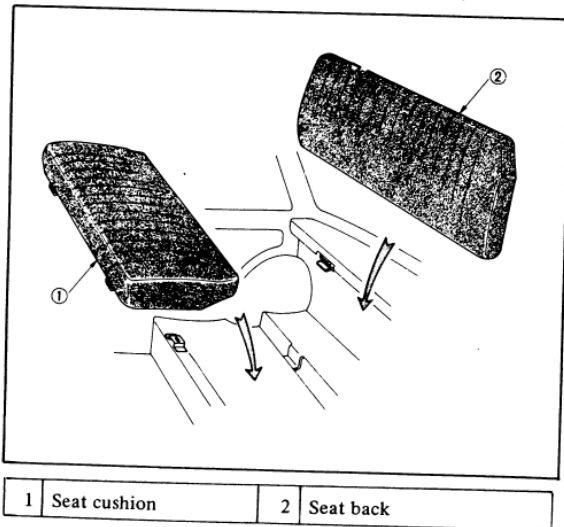


Fig. BF-65 Rear seat (double pick-up)

Rear seat (van)

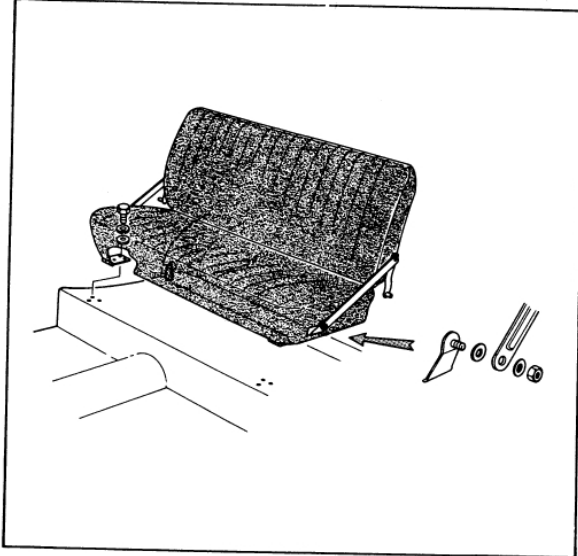


Fig. BF-66 Rear seat (van)

Remove front side hinge installation screws, separate seat back from brackets in both side wheel housing units, and remove rear seat as an assembly.

SEAT BELT (OPTION)

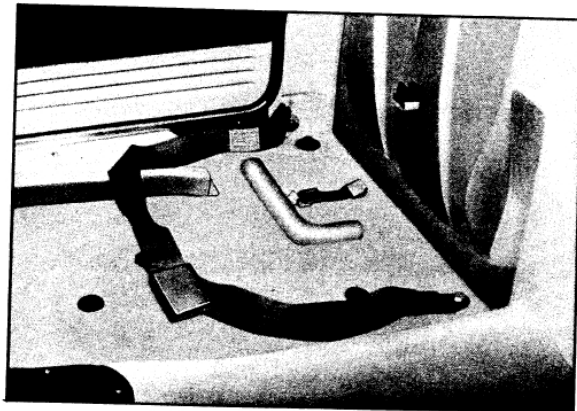


Fig. BF-67 Seat belt installing positions

BODY

ROOM TRIM

OVERHEAD LINING

Removal

- o Insert a spatula between roof panel and roof rail, and withdraw one end of overhead lining.
- o Peel off overhead lining from roof panel from the withdrawn end to the other end.

Installation

- o Thoroughly remove old adhesive, pieces of overhead lining remained on roof panel, dust, and other foreign matter, and apply adhesive to roof panel.
- o Adhere overhead lining from front side to rear side carefully so that it is completely stretched.
- o Providing circumference with a sufficient space so that it is folded into roof rail, cut off unnecessary extra space with a knife or other proper tool, and fold circumference into roof rail.

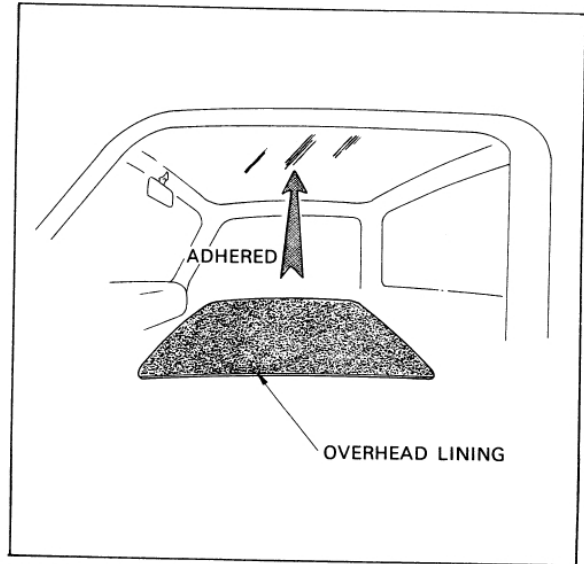


Fig. BF-68 Overhead lining

SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION BE

BODY ELECTRICAL

WIRING	BE- 1
FUSE	BE- 7
LIGHTING SYSTEM	BE- 8
HORN	BE-15
METER AND GAUGES	BE-18
WINDSHIELD WIPER AND WASHER	BE-26
IGNITION SWITCH AND STEERING LOCK	BE-30
RADIO	BE-32
CLOCK	BE-35
HEATER	BE-36

BE

BODY ELECTRICAL

WIRING

CONTENTS

WIRING HARNESS	BE-1	Body harness	BE-2
Engine compartment harness	BE-1	WIRING DIAGRAM	BE-4
Instrument harness	BE-2	INSPECTION	BE-7

WIRING HARNESS

Engine compartment harness

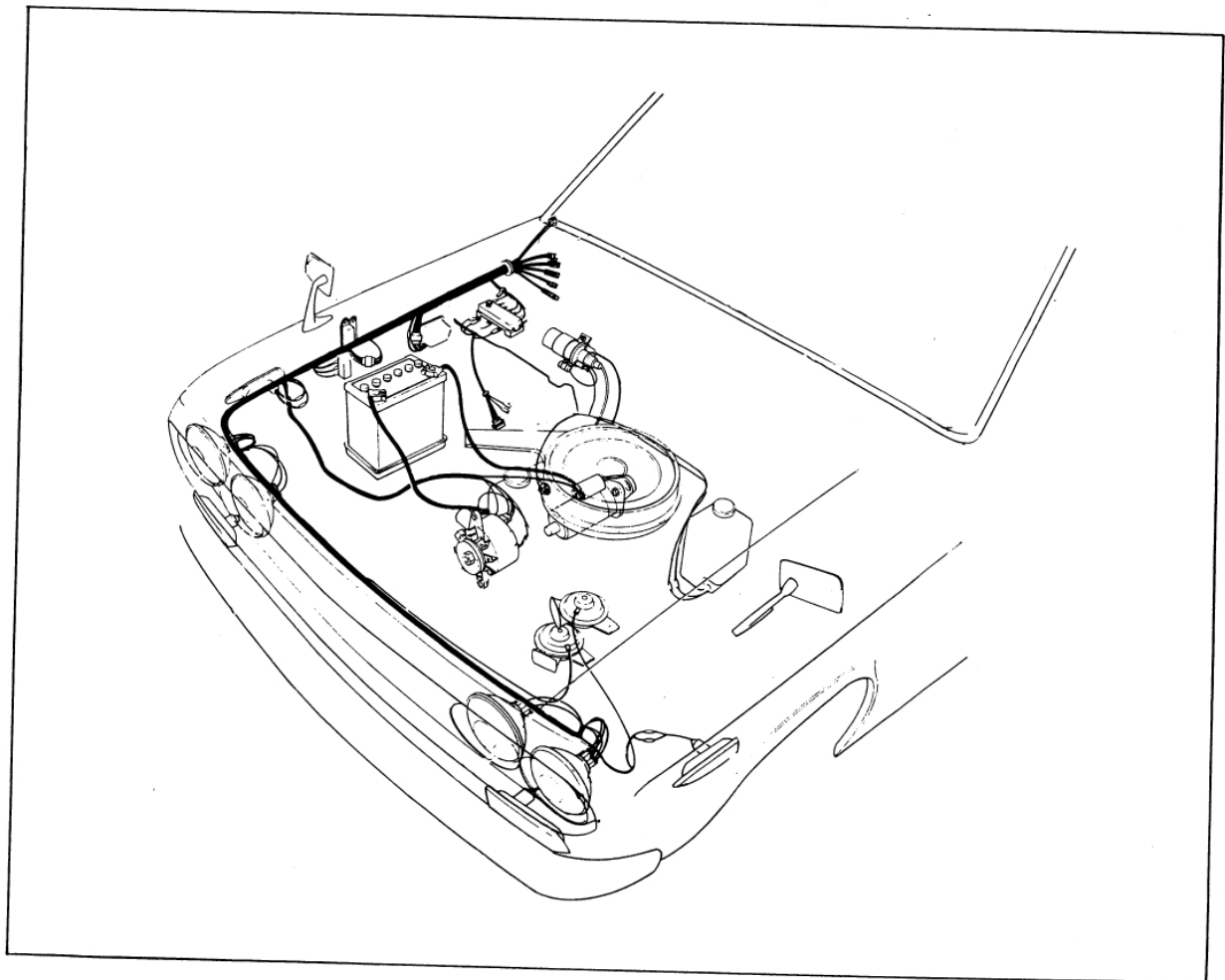


Fig. BE-1 Engine compartment harness

BODY

Instrument harness

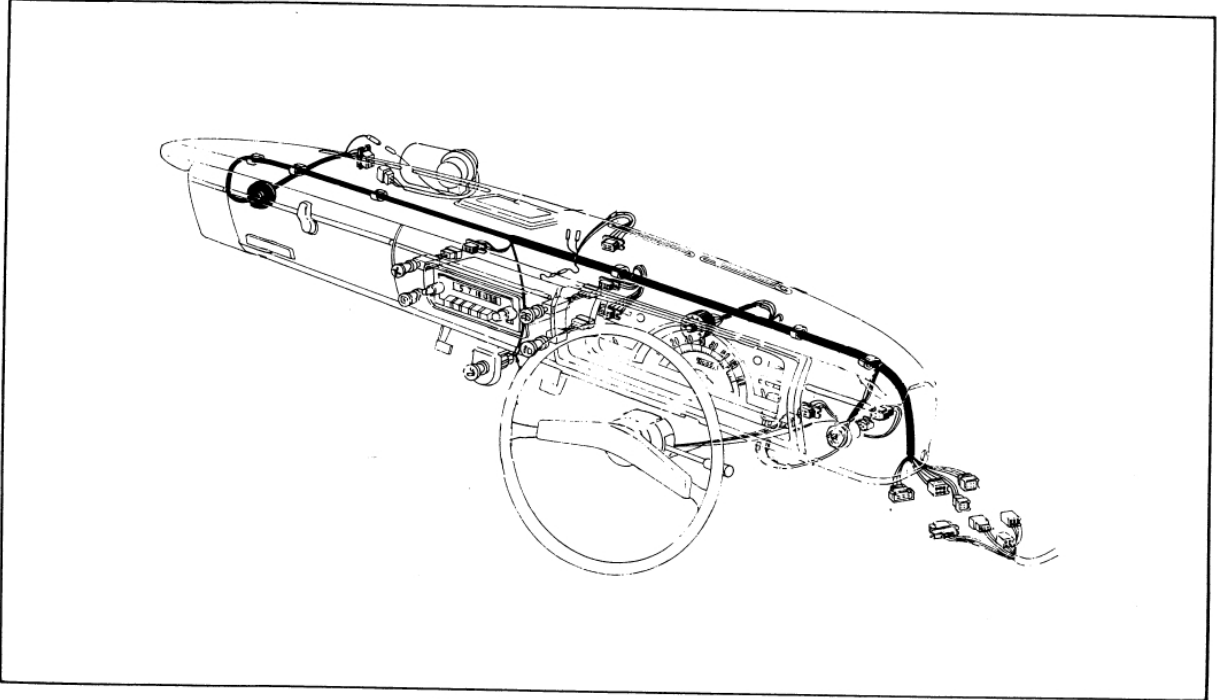


Fig. BE-2 Instrument harness

Body harness

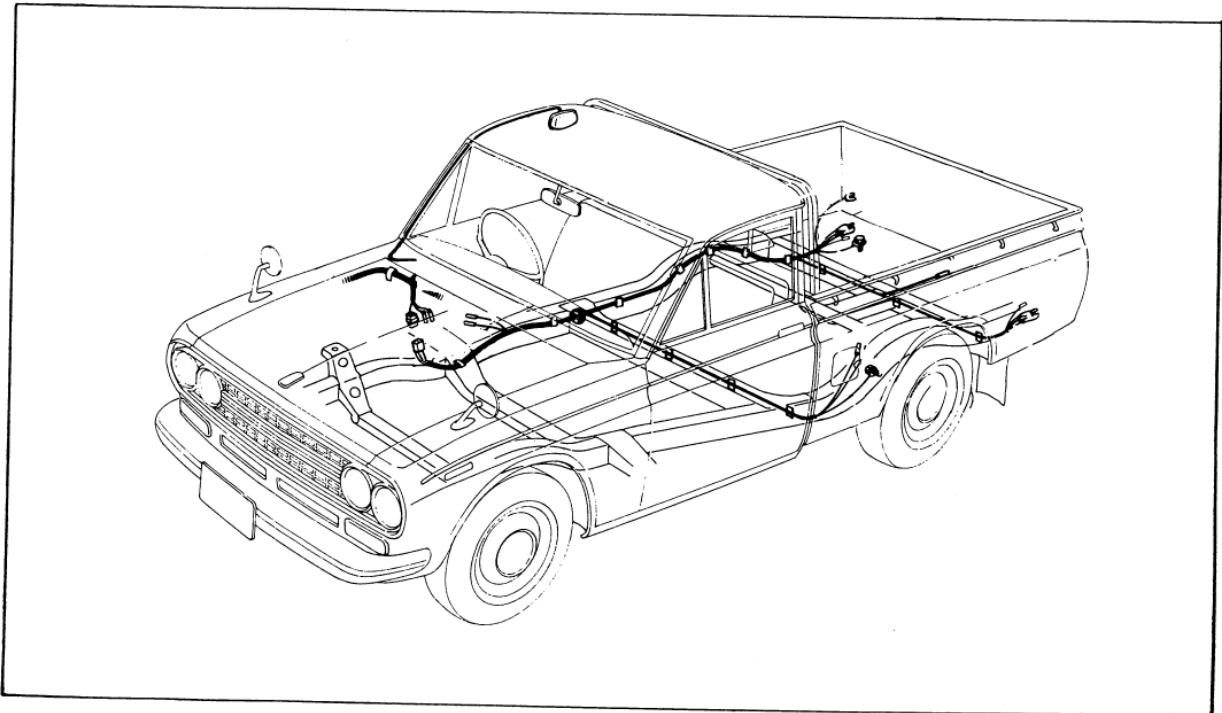


Fig. BE-3 Body harness 521

BODY ELECTRICAL

Body harness

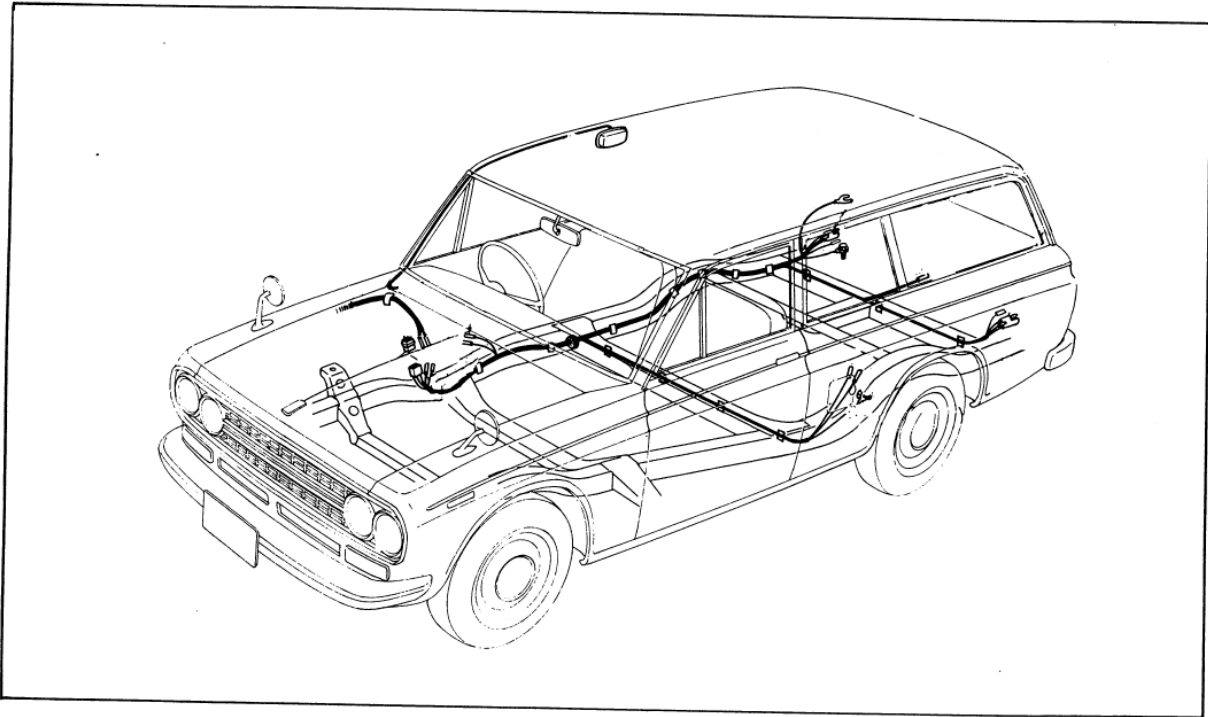


Fig. BE-4 Body harness V521

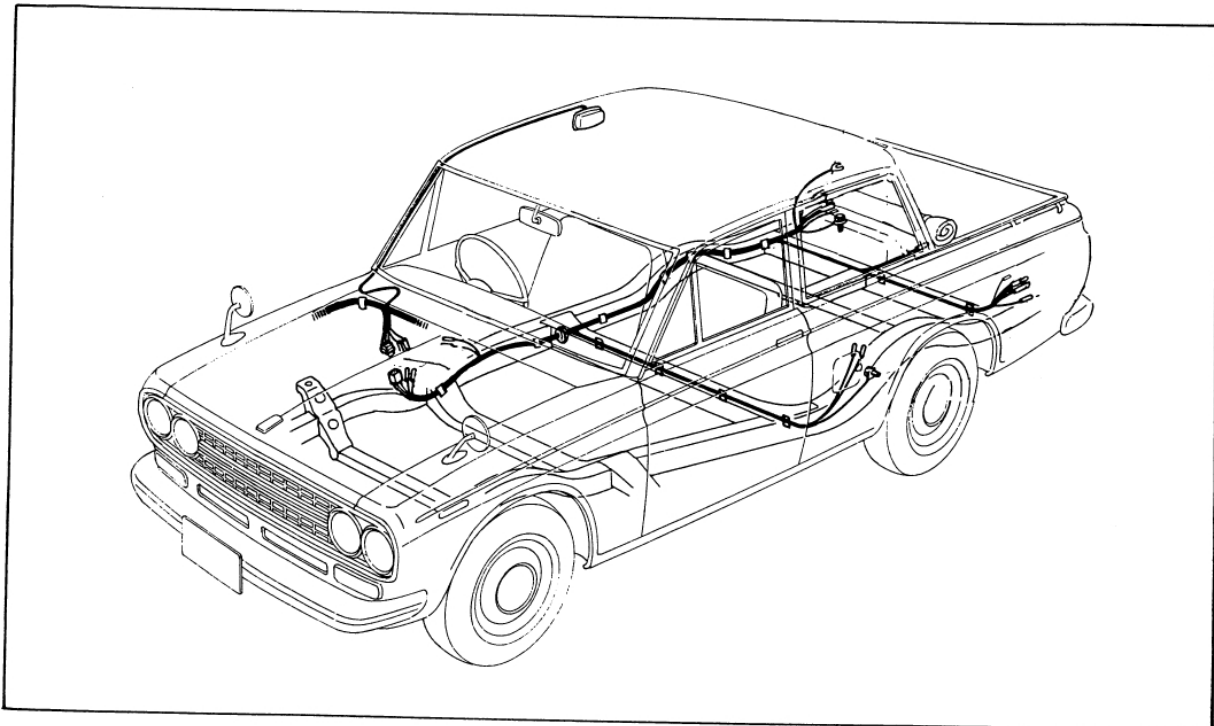


Fig. BE-5 Body harness U521

BODY

WIRING DIAGRAM

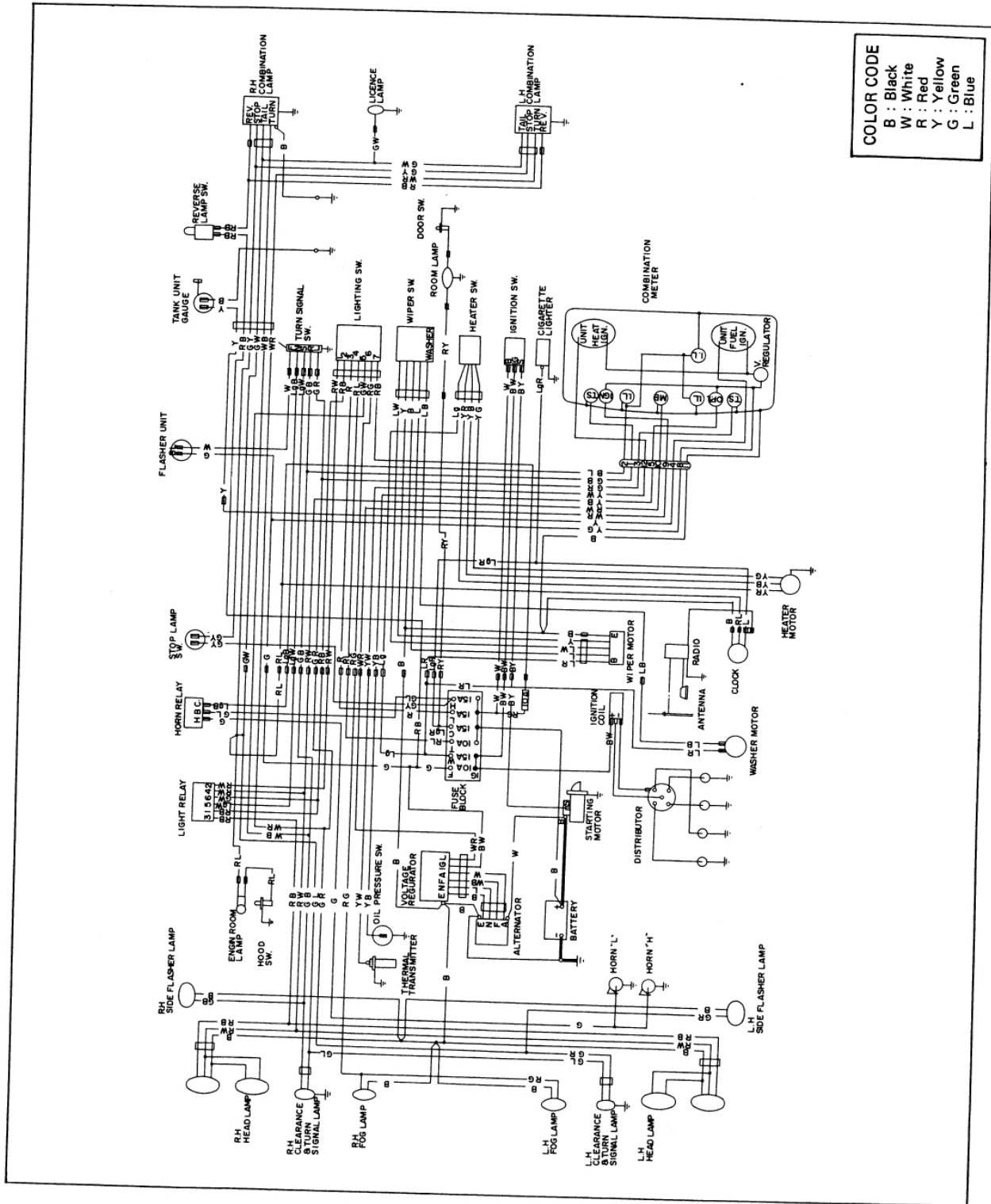
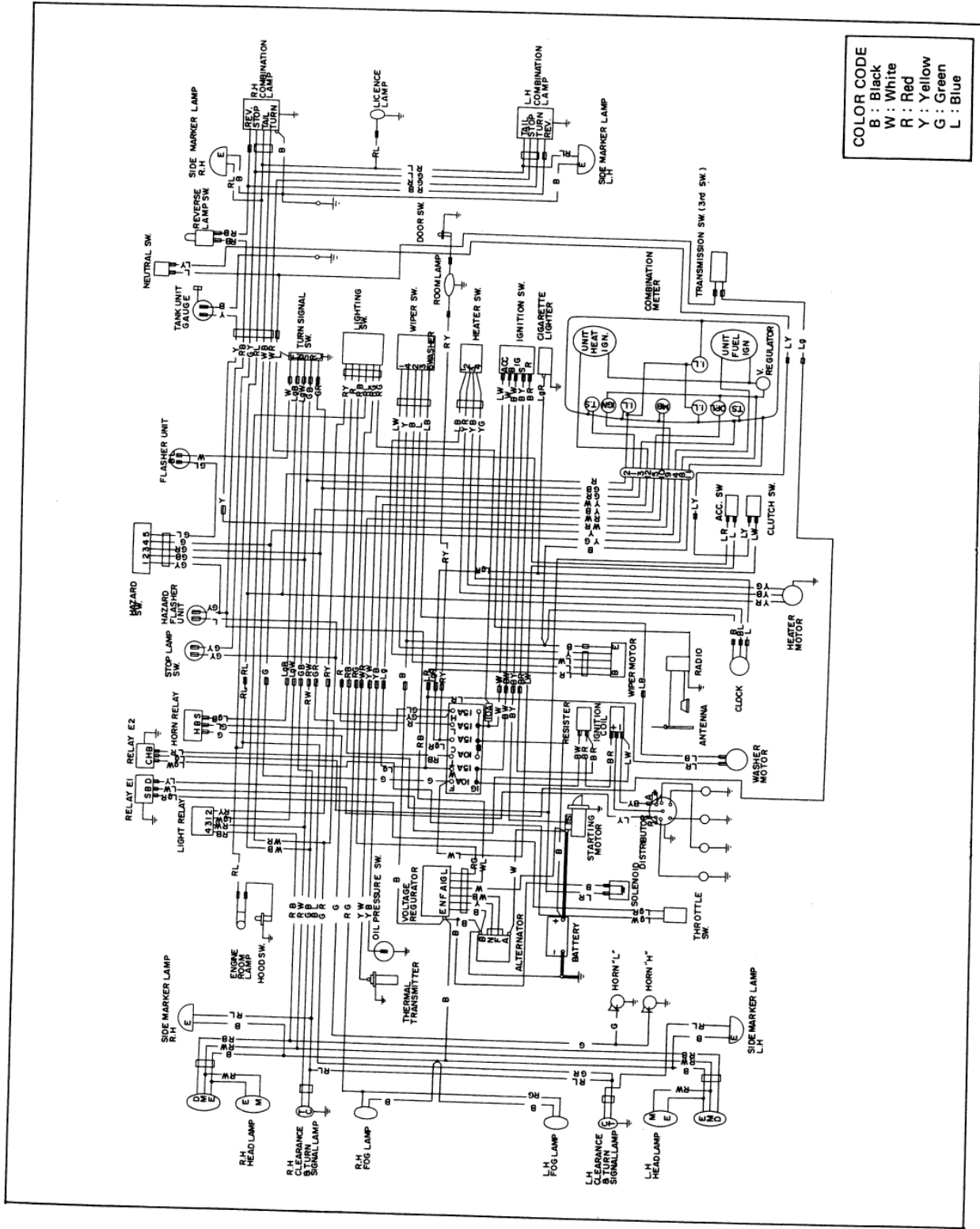


Fig. BE-6 Wiring diagram (common countries)

BODY ELECTRICAL



COLOR CODE
 B : Black
 W : White
 R : Red
 Y : Yellow
 G : Green
 L : Blue

Fig. BE-7 Wiring diagram (U.S.A., Canada)

BODY

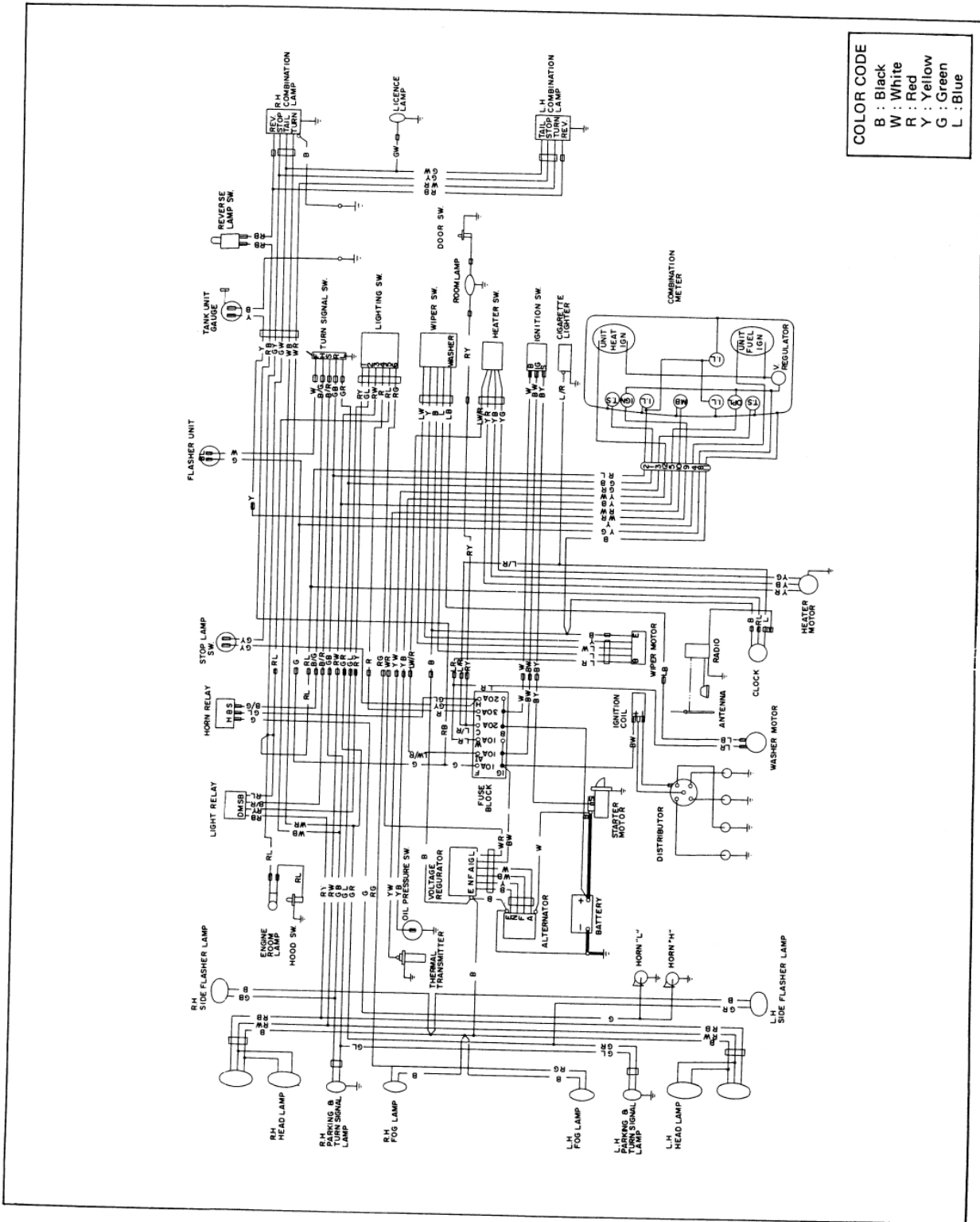


Fig. BE-8 Wiring diagram (Van, Double cabin)

BODY ELECTRICAL

INSPECTION

Referring to wiring diagram, check wiring harness for connection with electrical equipment and connector for connection and installation. When checking wiring harness, note the following matters:

1. Connected unit should not be loose, rusted, or contaminated.
2. Cable insulator cover should not be damaged, cracked, or insulating material should not be deteriorated.
3. For those parts which are grounded through installation bolts, bolts should be in contact with body completely so that continuity is provided in between body and bolts.
4. Terminals of unit through which current flows should not come into contact with other metal parts.
5. No erroneous connection should be present.

6. Cables should be clamped so that they do not come into contact with sharp corner or part temperature of which rises highly.

7. Cables should be securely clamped in positions sufficiently separated from rotating parts such as fan, pulley, fan-belt, etc.

8. Cables should be provided with an optimum extra length at sections stationarily on body or at sections where vibration occurs due to engine operation and others.

Note: a. When inspecting or performing other maintenance service without power supply from battery or when it is anticipated that a part may be short-circuited, disconnect battery (-) terminal.

b. In no event should an unloaded circuit be directly connected with ground. Be sure to use a test lamp or circuit tester.

FUSE

DESCRIPTION

When overcurrent exceeding the rated amperage flows to a circuit, the fuse is heated and melted, the circuit is interrupted, and thus, cables and electrical equipment are protected from damage due to burning or damage is limited to the minimum.

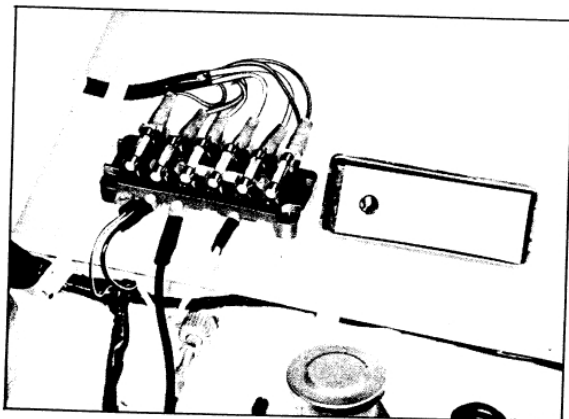


Fig. BE-9 Fuse box

INSPECTION

In the most cases, fuse can be checked visually. However, when it is difficult to check visually, a circuit tester may be used.

Note: a. When fuse is blown off, be sure to correct the cause before installing new fuse.

b. Be sure to use fuse having the specified capacity. Do not use fuse having larger capacity (i.e., 20A, 30A, etc.)

c. When the contact surface is dirty or rusts or the contact is loose, voltage drops resulting in heated fuses and abnormally operated electrical equipment. Remove dust or polish with a fine emery paper to improve the contact.

BODY

LIGHTING SYSTEM

CONTENTS

HEADLAMP	BE- 8	TURN SIGNAL AND DIMMER	
Sealed beam unit replacement	BE- 8	COMBINATION SWITCH	BE-11
Headlamp adjustment	BE- 8	Removal	BE-11
FRONT PARKING AND TURN		LIGHTING SWITCH	BE-11
SIGNAL LAMP	BE- 9	Removal	BE-11
REAR COMBINATION LAMPS	BE-10	TRUBLE DIAGNOSES AND	
SIDE FLASHER (MARKER) LAMPS	BE-10	CORRECTIONS	BE-12
LICENSE PLATE ILLUMINATION		Headlamp	BE-12
LAMP	BE-10	Turn signal lamps	BE-13
BULB SPECIFICATIONS	BE-10	Tail lamp, stop lamp, license lamp,	
		backup lamp	BE-15

HEADLAMP

Sealed beam unit replacement

1. Remove wiring socket from the back of sealed beam unit.
2. Remove head lamp finisher.
3. Remove retaining ring by unscrewing three screws.

Note: Do not disturb two aiming adjusting screws.

4. Remove sealed beam unit.
5. Reinstall sealed beam unit in reverse sequence to removal.

Headlamp adjustment

For correct aiming adjustment, place vehicle to level floor, correct pressures of all tires, and remove all loads such as luggages and passengers except for standard equipment (spare tire and tools).

Adjust vertical and horizontal directions of head lamp respectively with adjusting screws located at the upper and side portions of headlight mounting ring.

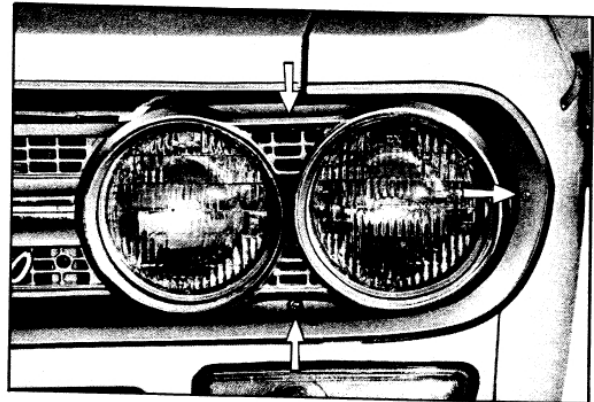


Fig. BE-10 Removing head lamp finisher

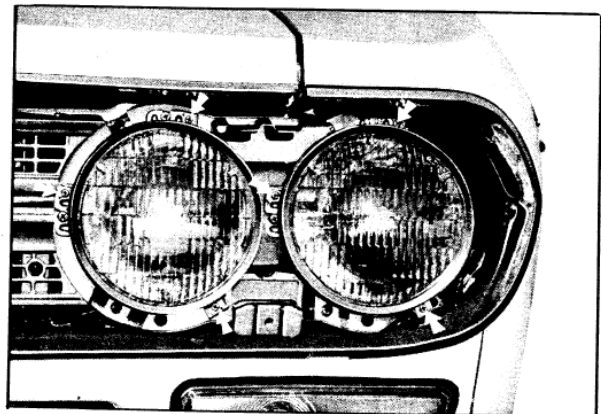


Fig. BE-11 Removing head lamp

BODY ELECTRICAL

When adjusting low beam, adjust aiming of low beam head lamps at the outside.

When adjusting high beam, cover low beam head lamps at the outside with covers, and then adjust aiming of high beam head lamps at the inside.

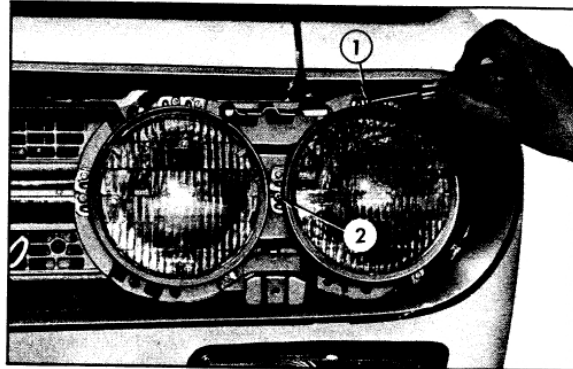


Fig. BE-12 Aiming head lamp

1	Vertical adjusting screw	2	Horizontal adjusting screw
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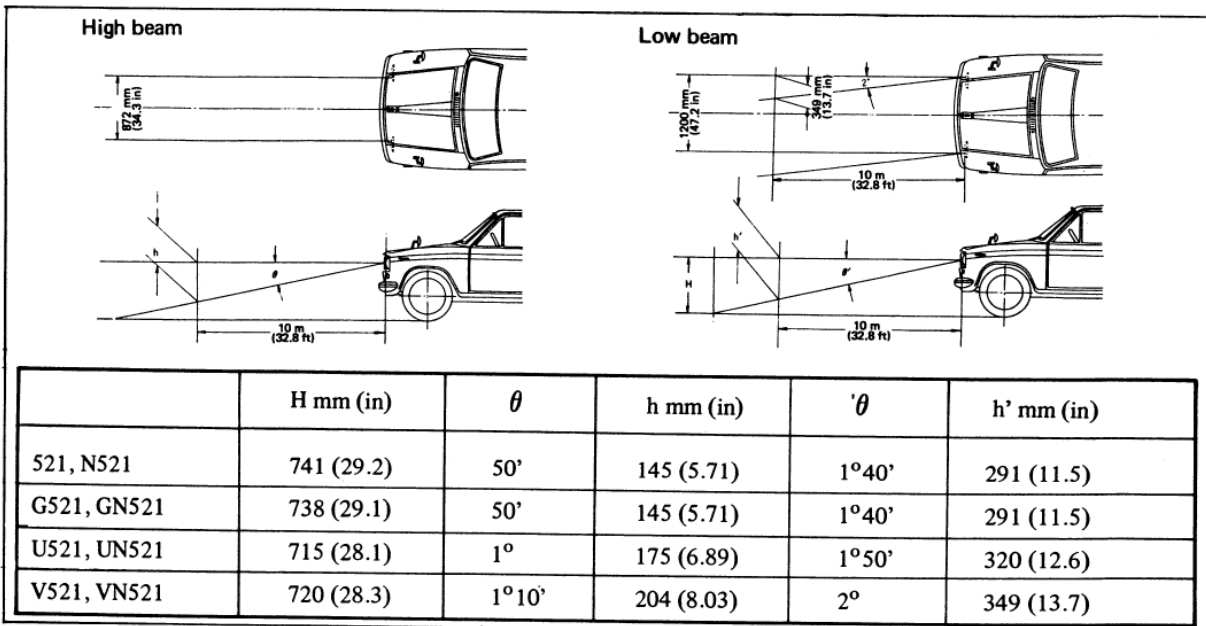


Fig. BE-13 Head lamp aiming adjustment data

FRONT PARKING AND TURN SIGNAL LAMP

1. When removing bulb, with lens removed, push bulb toward socket, turn bulb counterclockwise, and withdraw bulb.

2. When removing lamp housing:

(1) Remove mud cover (used to cover lamp) from the inside of wheel house.

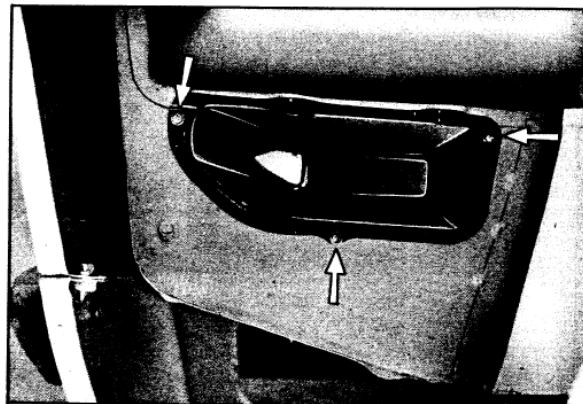


Fig. BE-14 Mud cover

BODY

- (2) Remove connector from wire harness.
- (3) Remove lamp housing installation nuts, and remove lamp assembly.

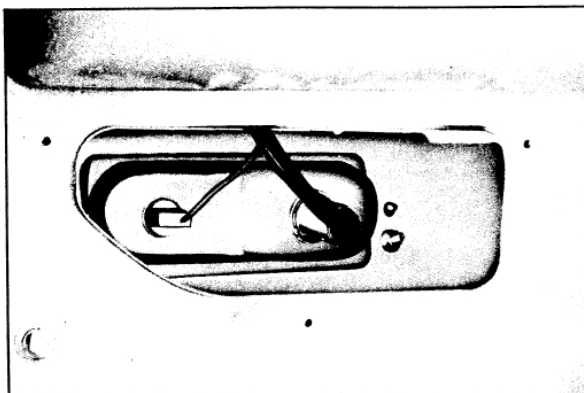


Fig. BE-15 Front parking and turn signal lamp

REAR COMBINATION LAMP

1. When removing bulb, with lens removed, push bulb toward socket, turn bulb counterclockwise, and withdraw bulb.

2. When removing lamp housing:

- (1) Remove connector from wire harness.
- (2) Loosen lamp installation nuts, and remove lamp assembly.

SIDE FLASHER (MARKER) LAMP

Remove side flasher lamp installation nut from the inside of fender, and remove lens, packing and bulb. Lens and lamp housing can be separated from body.

LICENSE PLATE ILLUMINATION LAMP

When removing bulb, remove lens and then remove bulb.

BULB SPECIFICATIONS

Item		All countries except for U.S.A. and Canada		For U.S.A. and Canada	
		Wattage (Candela power)	SAE trade number	Wattage (Candela power)	SAE trade number
Head lamp	High beam unit	37.5	4001	37.5	4001
	Lowbeam unit	37.5/50	4002	37.5/50	4002
Front parking & turn signal lamp		23 (32 cp) 8 (4 cp)	1073 67	23/8 (32/33 cp)	1034
Side flasher lamp		6 (4.5 cp)	—	—	—
Side maker lamp		—	—	8 (4 cp)	6 67
License plate illumination lamp		7.5 (6 cp)	89	7.5 (6 cp)	89
Rear combination lamp	Stop & tail	23/8 (32/33 cp)	1034	23/8 (32/33 cp)	1034
	Turn signal	23 (32 cp)	1073	23 (32 cp)	1073
	Back up	23 (32 cp)	1073	23 (32 cp)	1073
Passenger compartment		6 (4.5 cp)	—	6 (4.5 cp)	—
Engine compartment lamp		6 (4.5 cp)	—	6 (4.5 cp)	—

BODY ELECTRICAL

TURN SIGNAL AND DIMMER COMBINATION SWITCH

Removal

1. Disconnect combination switch from wire harness at connector plug.

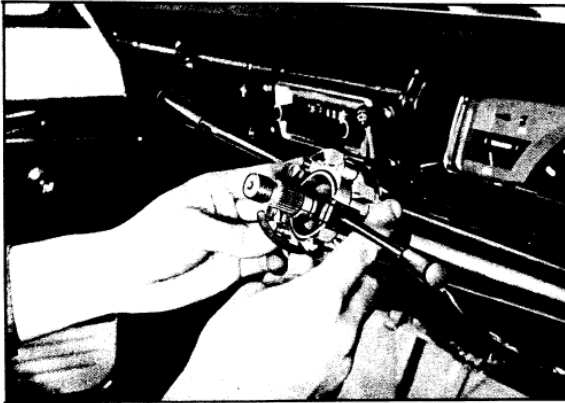


Fig. BE-16 Removing turn signal and diameter combination switch

2. Remove horn ring and steering wheel.
3. Remove shell cover.
4. Unscrew two screws used to secure switch on steering column jacket, and remove switch from locating hole on steering column jacket. Now, remove switch completely.

LIGHTING SWITCH

Removal

1. Remove connector from the back of lighting switch.
2. Remove screw and knob.
3. Remove nut, plain washer and spacer.
4. Remove lighting switch.

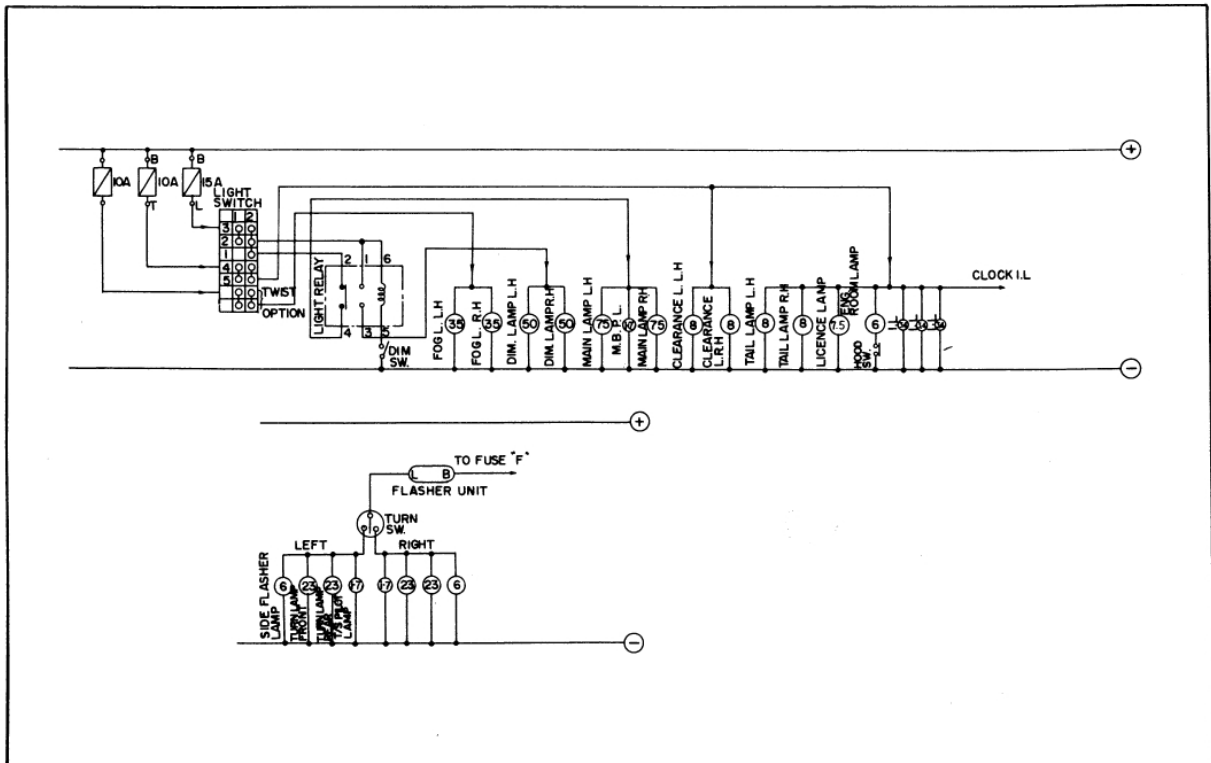


Fig. BE-17 Circuit diagram for lighting system

BODY

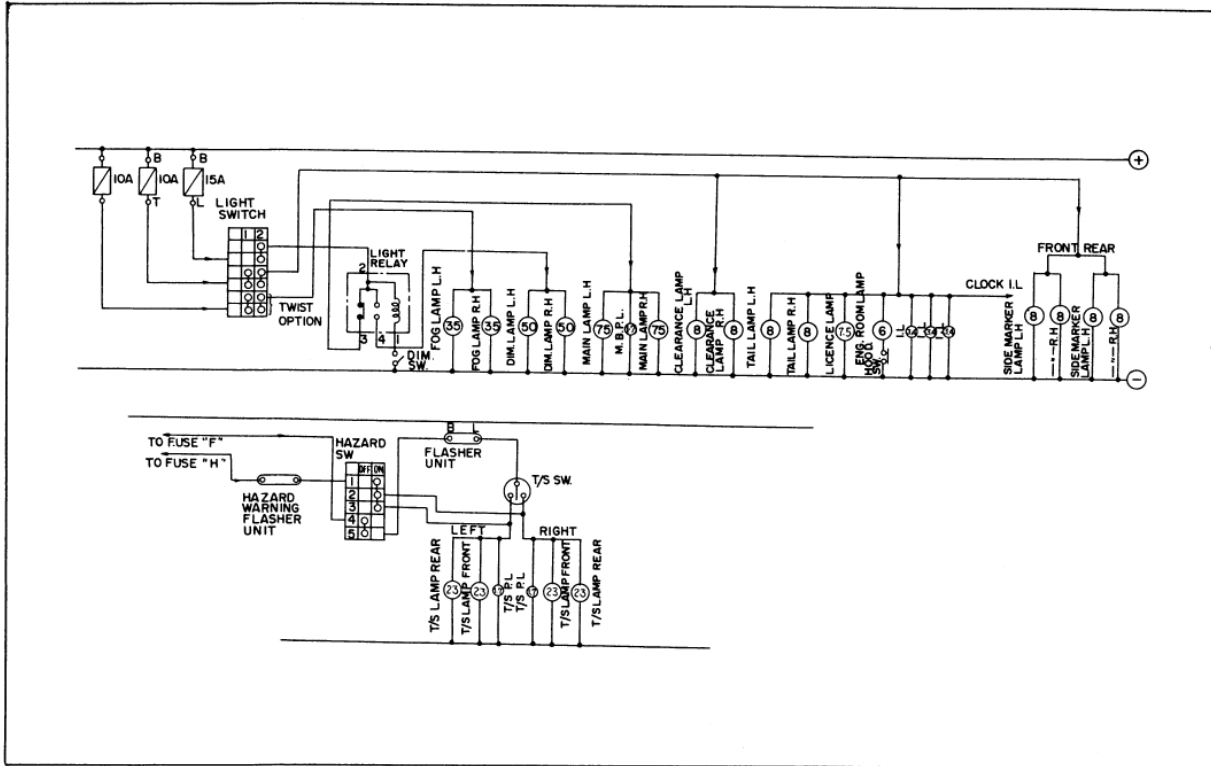


Fig. BE-18 Circuit diagram for lighting system
(Canada, U.S.A)

TROUBLE DIAGNOSES AND CORRECTIONS

Headlamp

Condition	Probable cause	Corrective action
The headlamp does not light for both upper and lower beams	Blown off fuse or faulty contact	Check fuse for fusing and faulty contact When fused, detect and repair cause, then replace fuse
	Faulty lighting switch or light relay	Check continuity test, and if the switch or relay is defective, replace
Upper beam cannot be switched to lower beam or vice versa	Defective dimmer switch	Conduct continuity test, and if dimmer switch is defective, replace
	Defective light relay	Check the operation if dimmer switch is defective, replace

BODY ELECTRICAL

Condition	Probable cause	Corrective action
Headlamps dim	Defective light circuit	Check the headlight circuit for cable being about to break and faulty contact, or check fuse for faulty contact Repair, or replace if required
Headlamps dim when the engine is stopped or operated under idling speed	Partly discharged battery	Measure specific gravity of electrolyte Charge battery if required
Headlamps still dim with engine run above idling speed	Defective battery	Replace battery
	Faulty sealed beam unit	Voltage between headlamp red/white cable or red/black and black cable terminals is 12.8V or higher Replace sealed beam units
	Faulty charging system	Voltage is less than 12.8V through above test Check generator regulator and light circuit
Headlamp in only one side lights	Faulty headlamp terminal contact	Repair as required
	Defective lamp	Replace lamp

Turn signal lamps

Condition	Probable cause	Corrective action
All turn signal lamps do not light	Blown off fuse or faulty contact	Check fuse for fusing and faulty contact When fuse is fused, detect and repair the cause, and replace fuse
	Faulty flasher unit terminal contact or defective flasher unit	When two lead wires of flasher unit are connected with turn signal switch turned on, and individual turn signal lamps light, flasher unit is defective Repair connector terminal if necessary Replace flasher unit
	Defective turn signal switch	Conduct continuity test If the turn signal switch is defective, replace

BODY

Condition	Probable causes	Corrective actions
All turn signal lamps do not go out	Defective flasher unit	Replace the flasher unit
Flashing cycle is to low	A lamp having wattage more than the specified wattage is used Defective flasher unit	Replace with the specified one Replace flasher unit
Turn signal lamp flashing cycle is too high	Faulty contact in circuit A lamp having wattage less than the specified wattage is used Defective flasher unit There is a lamp which does not flash	Repair as necessary Replace with the specified one Replace flasher unit Replace
Flashing cycle of left (or right) side turn signal lamp differs from that of right (or left) side turn signal lamp Only left or right side turn signal operates	Burnt out lamp bulb filament Faulty connector contact A lamp other than specified is used	Check all lamps for operation Check lamp which does not light for burnt out filament and defective socket Replace if necessary Check both side lamps for difference in brightness Repair as necessary Replace with the specified one
When windshield wiper (which uses ignition for power supply) is operated, flashing cycle and brightness change	Partly discharged battery Faulty contact of power supply circuit	Measure specific gravity of electrolyte Charge battery if necessary Improper contact of power supply circuit

BODY ELECTRICAL

Tail lamp, stop lamp, license lamp, back up lamp

Condition	Probable cause	Corrective action
Both left and right lamps do not light	Blown off fuse or faulty contact Defective stop lamp switch or backup lamp switch, or faulty contact (Stop lamps and backup lamp only)	Check fuse for fusing and faulty contact When fuse is blown off, detect and correct cause, and replace fuse When two lead wires of switch are connected and the lamp lights, lamp and circuit are normal Replace switch or repair connector terminal
Only one side lamp lights	Faulty grounding Burnt out lamp bulb filament Faulty contact of connector terminal and/or socket	Repair grounding cable contact Replace lamp with a new one Repair
Brightness of one side lamp differs from the other	Faulty contact of connector terminal and/or socket	Repair if required

HORN

CONTENTS

REPLACEMENT	BE-15	TROUBLE DIAGNOSES AND	
ADJUSTMENT	BE-16	CORRECTIONS	BE-17

REPLACEMENT

1. Disconnect wire from horn.
2. Remove bolts retaining horn to bracket.
3. Install horn in reverse sequence to removal. Test horn operation when installed. Low and high tone horns are located in upper and lower sides respectively.

BODY

ADJUSTMENT

1. Secure horn in a vise, and connect horn cables to power supply. See Figure BE-19.
2. Set power supply switch to "ON", and make sure that voltmeter indicates 12 to 12.5V.

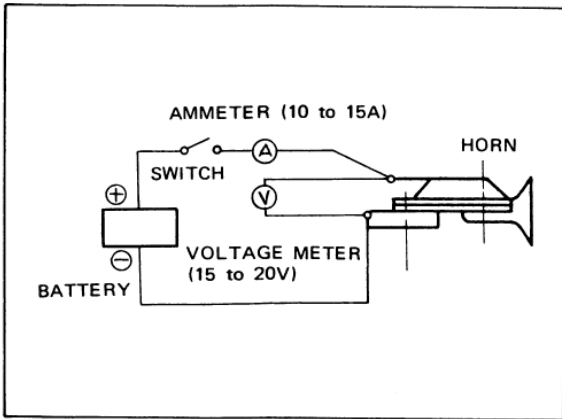


Fig. BE-19 Circuit for horn adjustment

3. Listen horn sound for level, volume, and tone. Adjust sound as required to obtain specified amperage by ammeter. When adjustment is required, loosen lock nut and turn adjust screw adequately.

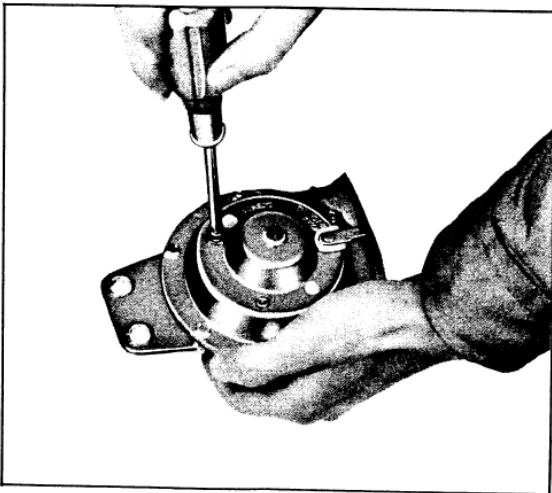


Fig. BE-20 Adjusting horn

Note: When adjust screw is turned;

Clockwise: Current decreases

Counterclockwise: Current increases.

4. Upon completion of above adjustment, make sure that horn sounds correctly with 14 to 15V generated by alternator.

Sound	Consumed current adjusting value A
High	5 (440)
Low	5 (350)

Figure encircled in parenthesis are basic frequencies (Hz)

5. Secure lock nut of adjust screw.

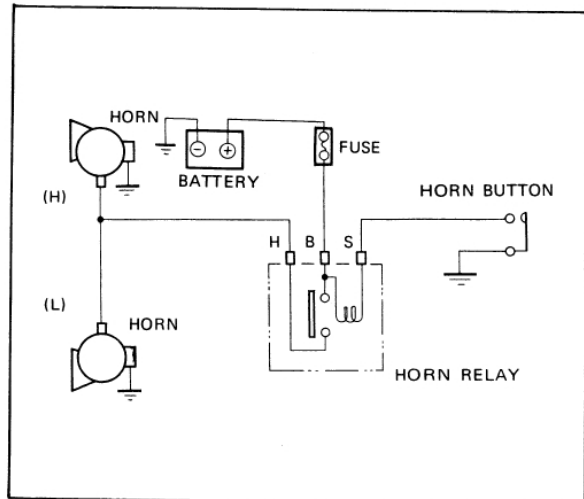


Fig. BE-21 Circuit diagram for horn system

BODY ELECTRICAL

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Horn does not operate	<p>Excessively discharged battery</p> <p>Blown off fuse</p> <p>Improper horn button contact</p> <p>Defective horn relay</p> <p>Defective horn</p>	<p>Measure specific gravity of electrolyte Charge if required</p> <p>Check fuse for fusing and improper contact Replace or repair if required</p> <p>In this case the horn sounds though horn relay terminal (S) is grounded Check and repair horn button</p> <p>Horn sounds though the horn relay terminals (B) and (H) are short-circuited Replace horn relay</p> <p>Horn does not sound though horn relay terminals (B) and (H) are short-circuited, and horn still does not sound though battery (+) terminal is connected to horn terminal directly Replace horn</p>
Horn sound continuously	<p>Defective horn relay</p> <p>Short-circuited horn button and horn relay terminal (S).</p>	<p>Horn does not stop though horn relay (S) terminal is disconnected Replace horn relay</p> <p>When horn stops through above disconnection, check horn button unit particularly carefully Repair horn relay terminal (S) Replace horn button</p>
Reduced volume and/or tone quality	<p>Improper fuse wire contact</p> <p>Broken cable</p> <p>Improper horn button contact</p>	<p>Correct</p> <p>Repair or replace if required</p> <p>Repair</p>

BODY

METERS AND GAUGES

CONTENTS

<p>COMBINATION METER BE-18</p> <p style="padding-left: 20px;">Description BE-18</p> <p style="padding-left: 20px;">Replacement BE-19</p> <p>SPEEDOMETER BE-19</p> <p style="padding-left: 20px;">Replacement BE-19</p> <p>FUEL METER AND THERMOMETER BE-19</p> <p style="padding-left: 20px;">Description BE-19</p> <p style="padding-left: 20px;">Replacement BE-20</p>	<p>OIL PRESSURE WARNING LAMP BE-21</p> <p>IGNITION WARNING LAMP BE-21</p> <p>BULB SPECIFICATION BE-21</p> <p>TROUBLE DIAGNOSES AND CORRECTIONS BE-22</p> <p style="padding-left: 20px;">Speedometer BE-22</p> <p style="padding-left: 20px;">Thermometer and fuel meter BE-23</p> <p style="padding-left: 20px;">Oil pressure and ignition warning lamps BE-25</p>
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COMBINATION METER

Description

The combination meter consists of three meters; speedometer, fuel meter, and thermometer; and five indicator lamps; oil pressure indicator lamp, ignition warning lamp, head lamp high beam pilot lamp, and turn signal pilot lamps (left and right). For illumination of the combination meter, four lamps are used. The combination meter uses a printed circuit board located behind the meter for wiring. With this construction, the combination meter can be simply connected to power supply through the 12-pole connector. See Figure BE-22.

1 Speedometer	6 Oil pressure warning lamp
2 Meter illumination lamp	7 Ignition warning lamp
3 Fuel meter	8 Head lamp upper beam pilot lamp
4 Thermometer	9 Regulator
5 Turn signal pilot lamp	10 12-pole connector

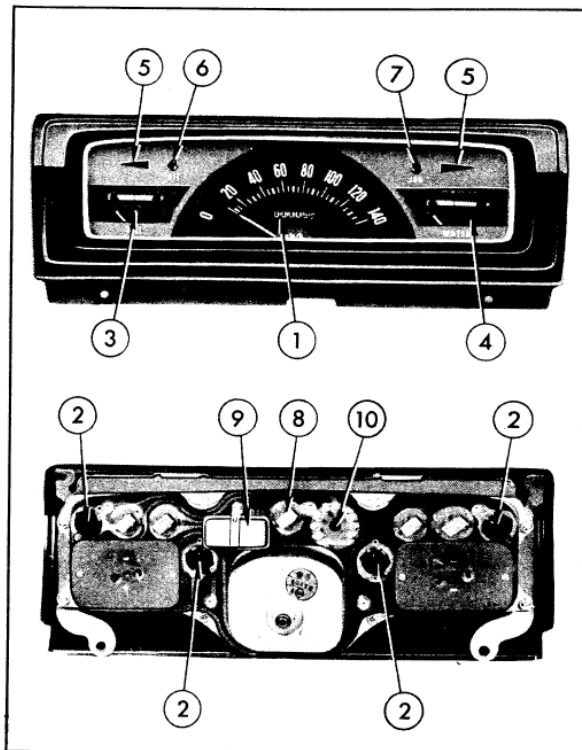


Fig. BE-22 Combination meter

BODY ELECTRICAL

The illumination lamp sockets are secured on the back board with clips, they can be removed and reinstallation easily.

The fuel meter and thermometer use meter regulator. The regulator minimize indication error due to voltage fluctuation, and therefore, the meters are very reliable.

Replacement

1. Disconnect negative battery cable.
2. Unscrew two set screws from lower part of combination meter.

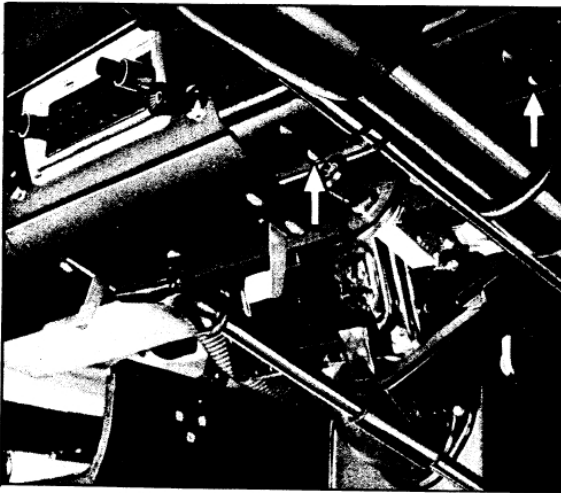


Fig. BE-23 Removing combination meter

3. Pull out 12-pole connector from the back of combination meter.

4. Loosen speedometer cable union nut and remove speedometer cable from speedometer head.

5. Install combination meter in reverse sequence to removal.

SPEEDOMETER

Replacement

1. With combination meter removed, loosen attaching screws, and separate combination meter from meter cover.
2. Loosen two screws (used to secure speedometer on combination meter housing), and detach speedometer from combination meter.
3. Install speedometer in reverse sequence to removal.

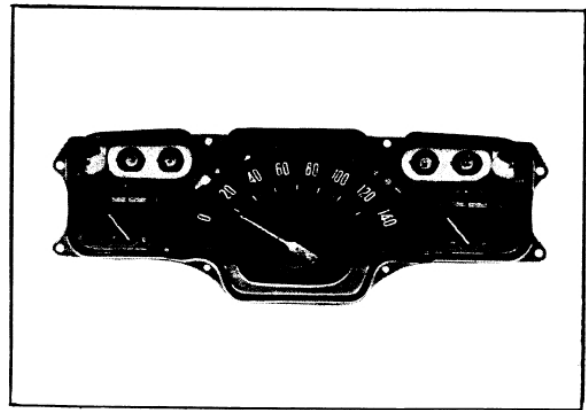


Fig. BE-24 Removing speedometer

FUEL METER AND THERMOMETER

Description

The fuel meter consists of a tank unit located in the fuel tank and fuel meter. The tank unit detects fuel level with its float, converts fuel level variation to a resistance of slide resistor installed on the float base, and thus, controls current flowing to the fuel meter.

BODY

The thermometer consists of a thermometer and thermaltransmitter located in the engine block. The thermaltransmitter is equipped with a thermistor element which converts cooling water temperature variation to a resistance, and thus, the thermaltransmitter controls current flowing to the thermometer.

The fuel meter and thermometer are provided with bimetal arm and heater coil. When the ignition switch is set to "ON", current flows to the heat coil, and the heat coil is heated. With this heat, the bimetal arm is bent, and thus, the pointer connected to the bimetal arm is operated. The characteristics of both meters are same.

A tolerance may occur on the thermometer of fuel

meter due to source voltage fluctuation. The voltage regulator is used to supply a constant voltage so that the thermometer and fuel meter operate correctly.

The operating part of the regulator consists of a bimetal arm and a heater coil. When the ignition switch is turned on, the bimetal arm is heated and bent by the coil, opening the contact. Consequently, current to the coil is interrupted. As the bimetal cools, the contact closes. The repetition of this operation produces a pulsating voltage of 8V which is applied to the temperature and fuel gauges.

If both the thermometer and fuel meter become defective at the same time, this may be attributable to trouble in the voltage regulator.

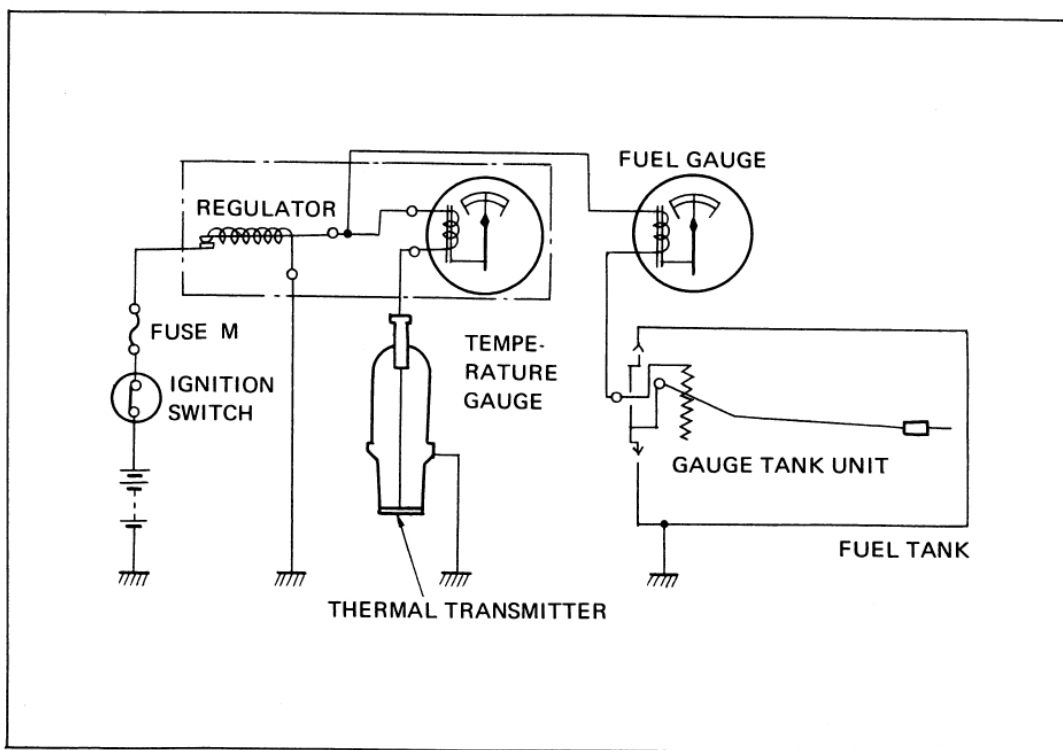


Fig. BE-25 Circuit diagram for fuel meter temperature meter and voltage regulator

Replacement

1. With combination meter removed, remove two set screws (used to secure fuel meter or thermometer on combination meter housing), and remove fuel meter or thermometer from combination meter.
2. Install fuel meter or thermometer in reverse sequence to removal.

BODY ELECTRICAL

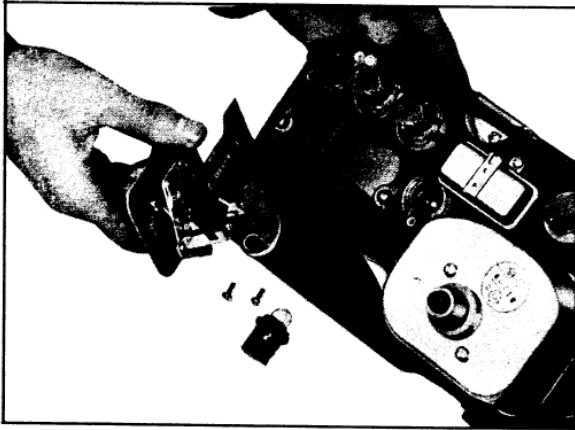


Fig. BE-26 Removing thermometer

OIL PRESSURE WARNING LAMP

The engine lubricating system incorporates an oil pressure warning lamp which glows whenever engine oil pressure falls below 0.4 kg/cm² to 0.6 kg/cm² (5.7 to 8.5 lb/sq in). Under normal operation, when the engine is stationary, the light glows with the ignition switch turned on. When the engine is running and oil pressure reaches the above range, the circuit opens and the light goes out.

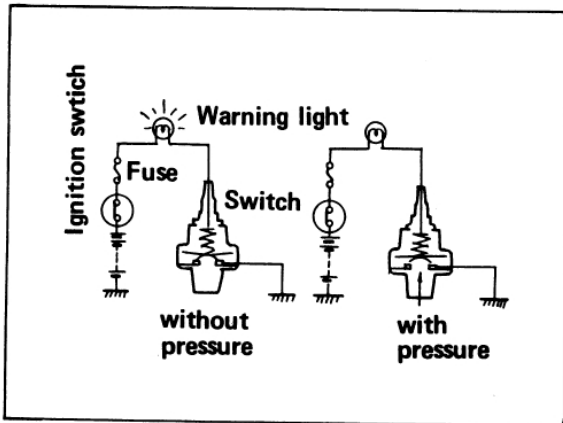


Fig. BE-27 Circuit of oil pressure warning system

IGNITION WARNING LAMP

Ignition warning lamp glows when the ignition switch is set to "ON" and the engine is not operated, or when the generator fails to charge with the engine operated.

When the ignition switch is set to "ON", the ignition warning circuit is closed and current flows from the ignition switch to the warning lamp bulb and ground through the regulator. When the engine is started and the generator comes into operation, the generator output current opposes the current flowing from the warning lamp; in effect it breaks the warning circuit ground connection, and the lamp goes out.

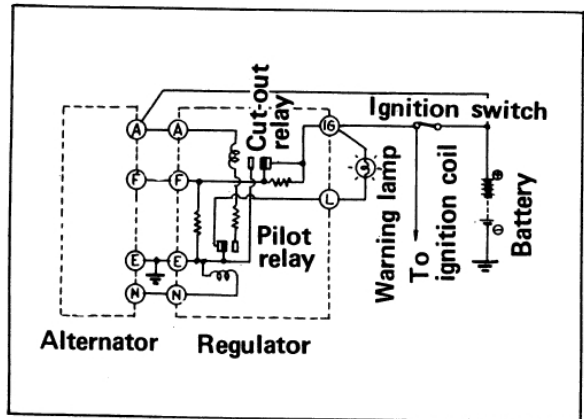


Fig. BE-28 Circuit of ignition warning system

BULB SPECIFICATIONS

Item	Wattage (Candela power)	SAE trade number
Meter illumination lamp	3.4 (2 cp)	158
Turn signal indicator lamp	1.7 (1 cp)	161
High beam indicator lamp	1.7 (1 cp)	161
Ignition warning lamp	1.7 (1 cp)	161
Oil pressure warning lamp	1.7 (1 cp)	161

BODY

TROUBLE DIAGNOSES AND CORRECTIONS

Speedometer

Condition	Probable cause	Corrective action
Speedometer pointer and odometer do not operate	Improperly tightened speedometer cable union nut	Retighten union nut correctly
	Broken speedometer cable	Replace
	Damaged speedometer drive pinion gear	Replace drive pinion gear
	Defective speedometer	Replace
Speedometer pointer deflects widely	Rapidly bent speedometer cable	Correct or replace
	Damaged speedometer drive pinion gear	Replace pinion gear
	Defective speedometer	Replace
Unstable speedometer pointer	Improperly tightened speedometer cable union nut	Retighten union nut correctly
	Defective speedometer cable	Replace cable
	Defective speedometer	Replace
Unusual sound occurs in response to increase of driving speed	Excessively bent or twisted speedometer cable inner wire or lack of lubrication	Replace meter cable or lubricate
	Defective speedometer	Replace
Inaccurate speedometer indication	Defective speedometer	Replace
Inaccurate odometer operation	Improperly meshed second and third gear worm gears	Replace speedometer
	Faulty feeding due to deformed odometer and pinion carrier	Replace speedometer

BODY ELECTRICAL

Thermometer and fuel meter

Condition	Probable cause	Corrective action
Both thermometer and fuel meter do not operate	Blown off fuse, or improper connection	Check fuse for fusing and improper contact Replace after correcting cause, if fused Correct contact
	Defective voltage regulator (Damaged, fused, or open contact)	Replace
Both thermometer and fuel meter indicate inaccurately	Defective voltage regulator (Broken heat wire, seized contact and/or improper grounding)	In this case meter operates excessively Replace
	Improper cable contact	In this case, meter operates slightly Check cable for improper contact, and repair if required
Thermometer Thermometer does not operate	Defective thermaltransmitter	Replace thermaltransmitter if pointer deflects when thermaltransmitter yellow/white cable is grounded
	Defective thermometer	Replace thermometer if pointer does not deflect when thermaltransmitter yellow/white cable is grounded
Pointer indicates maximum temperature	Defective thermaltransmitter	Pointer moves to low limit when ignition switch is turned off In this case, replace thermaltransmitter
	Defective thermometer	Pointer indicates maximum temperature even after ignition switch is turned off In this case, replace thermometer
Thermometer does not operate accurately	Defective thermometer	Thermometer is serviceable when a 40 Ω resistance is applied to thermal-transmitter yellow/wihite cable, cable is grounded, and thermometer indicates approximately 80°C (176°F)
	Defective thermaltransmitter	If thermometer is normal through the above inspection Replace thermaltransmitter

BODY

Condition	Probable cause	Corrective action
	Improper cable contact	If thermometer indicates a temperature slightly lower than the actual temperature, check cable from thermometer to thermal-transmitter for cable being about to break, poor contact, and faulty grounding, and repair if necessary
Fuel meter Fuel meter does not operate	Defective tank unit Defective fuel meter	Replace tank unit if pointer deflects when tank unit yellow cable is grounded Replace fuel meter with a new one if pointer does not deflect through the above inspection
Pointer indicates "F" position	Defective tank unit Defective fuel meter	Replace tank unit if pointer lowers below empty limit when ignition switch is turned off Replace fuel meter if pointer still indicates "F" position through the above inspection
Fuel meter functions improperly	Defective tank unit Defective fuel meter Improper cable contact	Replace tank unit if pointer indicates a half level when a 35 Ω resistance is applied to tank unit yellow cable and then cable is grounded Replace fuel meter if pointer does not indicate a half level through the above inspection If fuel meter indicates a level slightly lower than actual level, check cable from fuel meter to tank unit for cable being about to break, poor contact, and faulty grounding, and repair as necessary

BODY ELECTRICAL

Oil pressure and ignition warning lamps

Condition	Probable cause	Corrective action
Oil pressure warning lamp Lamp does not light when ignition switch is set to "ON"	Blown off fuse or faulty contact	Check fuse for fusing and faulty contact Replace after correcting cause or repair as necessary
	Broken lamp bulb filament or faulty cable contact	If oil pressure switch yellow/black cable is grounded and warning lamp does not light check bulb for burnt out filament, and replace as necessary
	Defective oil pressure switch	If warning lamp lights through the above inspection, replace oil pressure switch
Lamp does not go out while engine is being operated	Lack of engine oil	Check oil level and add oil as required
	Oil pressure is too low	Inspect engine oil pressure system
	Defective oil pressure switch	Continuity exists on oil pressure switch when engine is being operated Replace oil pressure switch
Ignition warning lamp Lamp does not light when ignition switch is set to "ON"	Blown off fuse or faulty contact	Check fuse for fusing and faulty contact Repair or replace if necessary
	Burnt out lamp bulb filament or faulty cable contact	Pilot lamp does not light when voltage regulator connector is disconnected, white/red cable is grounded and ignition switch is set to "NO" Check bulb for burnt out filament, and replace if necessary
Lamp does not go out when engine is started	Faulty charging system	Inspect charging system

WINDSHIELD WIPER AND WASHER

CONTENTS

DESCRIPTION	BE-26	Wiper switch	BE-27
REMOVAL AND INSTALLATION	BE-27	Washer nozzle adjustment	BE-28
Wiper motor linkage	BE-27	Caution for windshield washer operation	BE-28
Wiper motor	BE-27	Specifications	BE-28

DESCRIPTION

The windshield wiper consists of wiper motor, link mechanism, wiper arms and blades. The wiper motor unit consists of a motor and auto-stop mechanism. The wiper motor is of a 2-speed type.

The wiper motor unit is located on the cowl dash in the engine compartment, and the link mechanism is located behind the instrument panel.

The electrically operated windshield washer consists of washing fluid tank, pump, washer nozzles, and vinyl tube used to connect those components.

The windshield washer switch is combined with the windshield wiper switch to a single unit. When operating the washer, twist the switch knob.

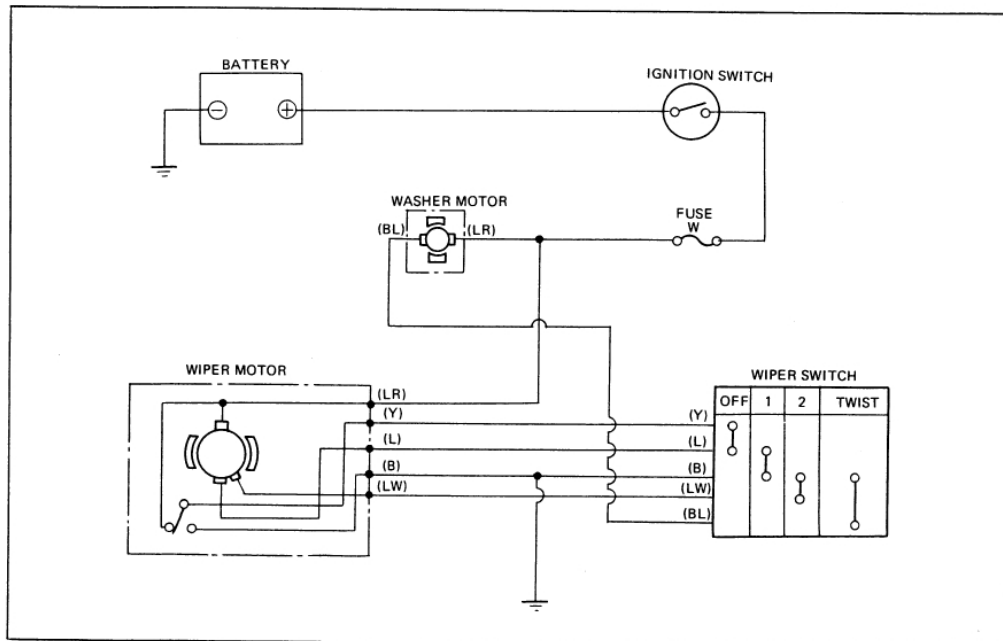


Fig. BE-29 Circuit diagram for windshield wiper-washer system

BODY ELECTRICAL

REMOVAL AND INSTALLATION

Wiper motor linkage

1. Removing wiper arm from pivot shaft.

Raise wiper blade from windshield glass, raise the base of wiper arm, and remove wiper arm from pivot shaft.

2. Separate wiper motor drive shaft arm from connecting rod.

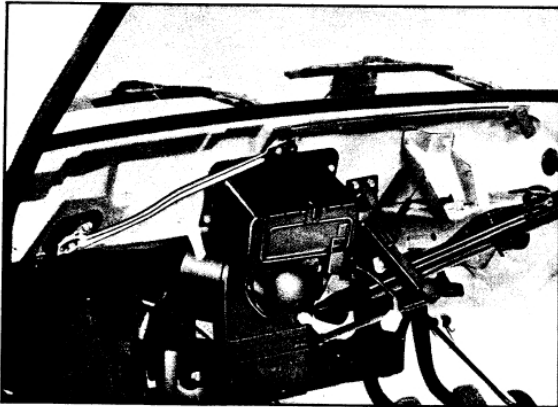


Fig. BE-30 Wiper motor linkage

3. Loosen set screws (used to secure both pivot shafts), and remove pivot shaft/connecting rod assembly.
4. Reinstall windshield wiper motor linkage in reverse sequence of removal, noting the following matter:

Note: Install windshield wiper arm in correct installation angle to obtain correct sweeping angle. See Figure BE-31 for correct installing dimensions.

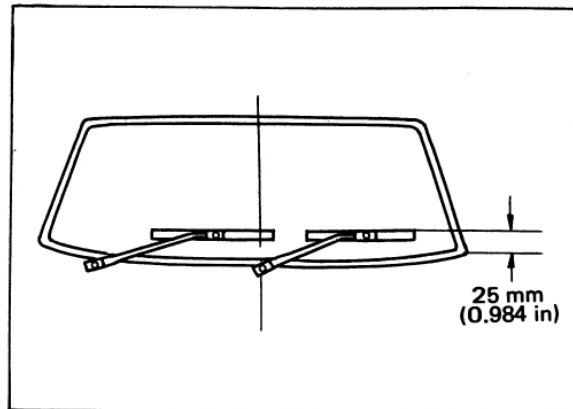


Fig. BE-31 Wiper arm installation

Wiper motor

1. Disconnect connector from wire harness.
2. Separate wiper motor drive shaft arm from connecting rod.

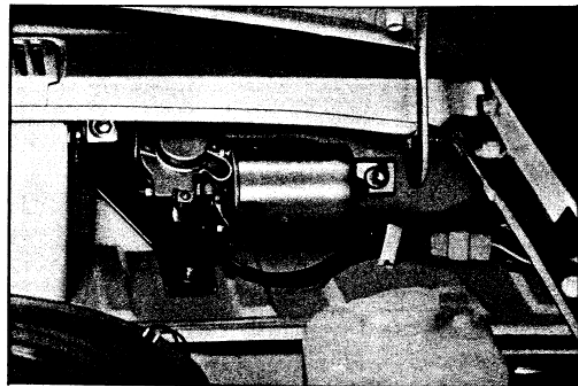


Fig. BE-32 Wiper motor

3. Loosen three bolts, and remove motor.
4. Reinstall wiper motor in reverse sequence of removal.

Wiper switch

1. Disconnect connector from the back of wiper switch.
2. Loosen switch knob set screw, and remove switch knob.

BODY

3. Remove installation nut, plain washer and spacer.
4. Remove wiper switch from the back of instrument panel.

Washer nozzle adjustment

When washer nozzle is installed or when washer fluid is not sprayed properly, adjust nozzle direction so that fluid is sprayed in proper range. See Figure BE-33.

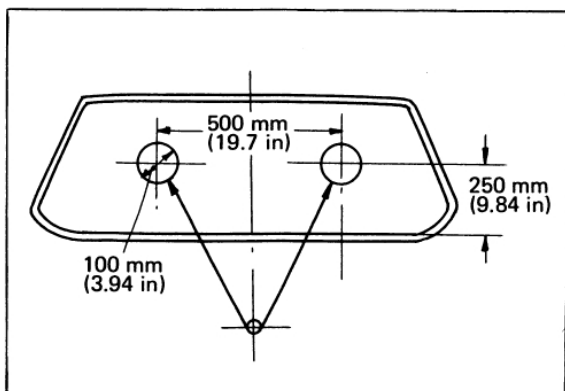


Fig. BE-33 Washer nozzle adjustment

Caution for windshield washer operation

Do not operate windshield washer continuously more than 30 seconds or without applying washer fluid. This often causes improper windshield washer operation. Normally, windshield washer should be operated 10 seconds or less at one time.

Specifications

Type	Interlocked parallel type
Angle	87 to 93° (Driver side) 96 to 102° (Assistant side)
Operating speed	High: 59 to 73 rpm Low: 41 to 51 rpm

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause		Corrective action
Windshield wiper does not operate	Motor	No current flows to motor due to Broken armature	Replace motor or armature
		Worn motor brush	Replace motor brush
		Motor is overheated when 4 to 5 minutes are elapsed due to Seized motor shaft	Replace motor
		Windshield wiper circuit fuse (15A) is easily fused due to Short-circuit, rare short-circuit, or burning of motor inside component	Replace motor or repair short-circuited part

BODY ELECTRICAL

Condition	Probable cause		Corrective action
	Power supply and cable	Blown off fuse due to trouble of other part in windshield wiper circuit Loose, open or broken wiring Erroneous wiring Improper grounding	Check other part for operation and correct trouble Check wiring near motor and terminal (connector) for connection Correct if necessary Check each connecting cord for cord color, and correct as necessary Correct
	Switch	Improper switch contact	Connect L(Blue) or LW(Blue-white) to B(Black), and see if motor operates. If motor operates, replace switch
	Link	Wire harness of other part is hooked on link Disconnected link rod Seized or rusted arm shaft	Correct Correct Lubricate, or replace arm shaft
Windshield wiper operating speed is too slow	Motor	With arm raised, still excessive current flows (3 to 5A) due to Rare short-circuit of motor armature Windshield wiper stops only by lightly holding with hand due to Worn motor brush With arm raised, still excessive current flows (3 to 5A) due to Seized motor shaft	Replace motor armature Replace brush Replace motor or lubricate bearing with engine oil
	Power supply and cable	Dropped source voltage	Measure voltage, check other electrical parts for operation, and take corrective action for power supply if necessary
	Link	Humming occurs on motor in arm operating cycle due to Seized arm shaft	Lubricate (grease) or replace
	Switch	Improper switch contact	Conduct continuity test, and replace if necessary

BODY

Condition		Probable causes		Corrective action
	Windshield wiper blade	Windshield wiper blade sticks on windshield glass		Raise arm and operate windshield wiper without applying load Clean windshield glass and/or replace wiper blade
Windshield wiper speed cannot be changed correctly	Motor	Low/high speed ratio considerably differs from 1 : 1.4 (Windshield wiper is operated under the same speed at both low and high speeds or windshield wiper does not operate at either low or high speed) due to Motor brush for either low or high speed is worn		Replace brush
Windshield wiper does not stop correctly	Stops at anywhere	Motor	Contaminated auto-stop relay contact or improper contact due to foreign matter	Remove auto-stop device cover, and clean contact carefully so as not to deform relay plate
		Cable and switch	Improper connection between 1st and 2nd switch steps	Remove switch, and make sure that 1st and 2nd steps are not connected at OFF position If connected, replace switch
	Does not stop	Motor	Contaminated auto-stop relay contact or improper contact due to foreign matter Incomplete auto-stop operation (Contact is not interrupted)	Remove auto-stop device cover, and clean contact carefully so as not to deform relay plate Remove auto-stop device cover, and correct relay plate bending

IGNITION SWITCH AND STEERING LOCK

CONTENTS

IGNITION SWITCH	BE-31	IGNITION SWITCH WITH STEERING	
Description	BE-31	LOCK	BE-31
Removal	BE-31	Description	BE-31
		Steering lock replacement	BE-31

BODY ELECTRICAL

IGNITION SWITCH

Description

The ignition switch controls the engine ignition system and most of electrical equipment.

The terminal "1" is for power supply from the battery.

Terminal "2" is connected upto the fuse block. When the ignition switch is set to "ON", power supply is prepared for electrical equipment and ignition circuit.

The terminal "3" is connected to "S" terminal of the magnetic switch on the stater motor. When the ignition switch is set to "START", current flows to the magnetic switch, and the magnetic switch operates to start the starter motor.

The terminal "4" is for radio only.

The terminal "5" is used for vehicle equipped with ignition coil with resistor. In order to increase ignition voltage while cranking engine, this terminal forms a by-pass line so that current does not flow through the resistor of ignition coil.

Removal

1. Remove ring nut from ignition switch, and remove plain washer and spacer.
2. Remove ignition switch from the back of instrument panel, and disconnect connector.

IGNITION SWITCH WITH STEERING LOCK

Description

The steering lock is built-in the ignition switch. When the key is set to "Lock" and removed, the steering system is locked automatically. The locking mechanism is installed on the steering column jacket tube. When the key is set to "Lock" and removed, the steering lock spindle is inserted in a notch in the collar which is stationarily set on the steering column to lock the steering wheel.

The ignition switch is installed on the back of key cylinder with a attaching screw and interchangeable.

Terminal	Key position		
	Off	On	Start
1		○	○
2		○	○
3			○

IGNITION SWITCH (I)

Terminal	Key position			
	Acc	Off	On	Start
1	○		○	○
2	○		○	○
3			○	○
4	○		○	○
5				○

IGNITION SWITCH (II)

Terminal	Key position				
	Lock	Garage	Acc	On	Start
B			○	○	○
IG			○	○	○
S			○	○	○
A			○	○	○
R					○

Steering lock replacement

For the purpose of tamper-proof, the self-shear type screws are used, and their heads are sheared off when installed so that the steering lock system cannot be removed easily. Replace the steering lock proper in accordance with the following instructions when required.

1. Loosen two attaching screws, and break remaining two self-shear type screws with a drill or other proper tool.

BODY

2. Now, remove steering lock proper from steering jacket tube.

3. When installing a new steering lock proper, be sure to tighten two new self-shear type screws to shear off their heads.

1	Ignition switch part	5	Lock spindle
2	Key cylinder part	6	Steering shaft
3	Steering jacket tube	7	Self-shear type screw
4	Lock collar	8	Attaching screw

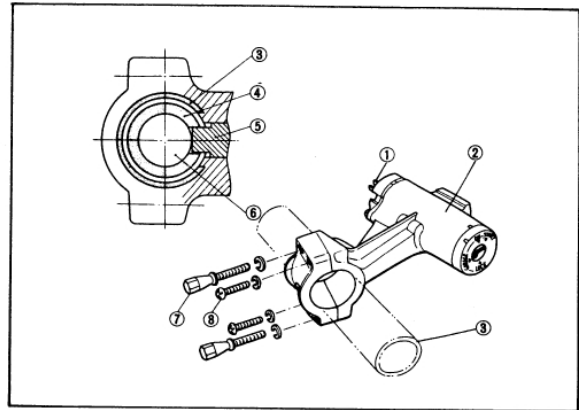


Fig. BE-34 Steering lock

RADIO

CONTENTS

INSTALLATION BE-32
 ADJUSTING ANTENNA TRIMMER BE-33

Noise prevention chart BE-34

INSTALLATION

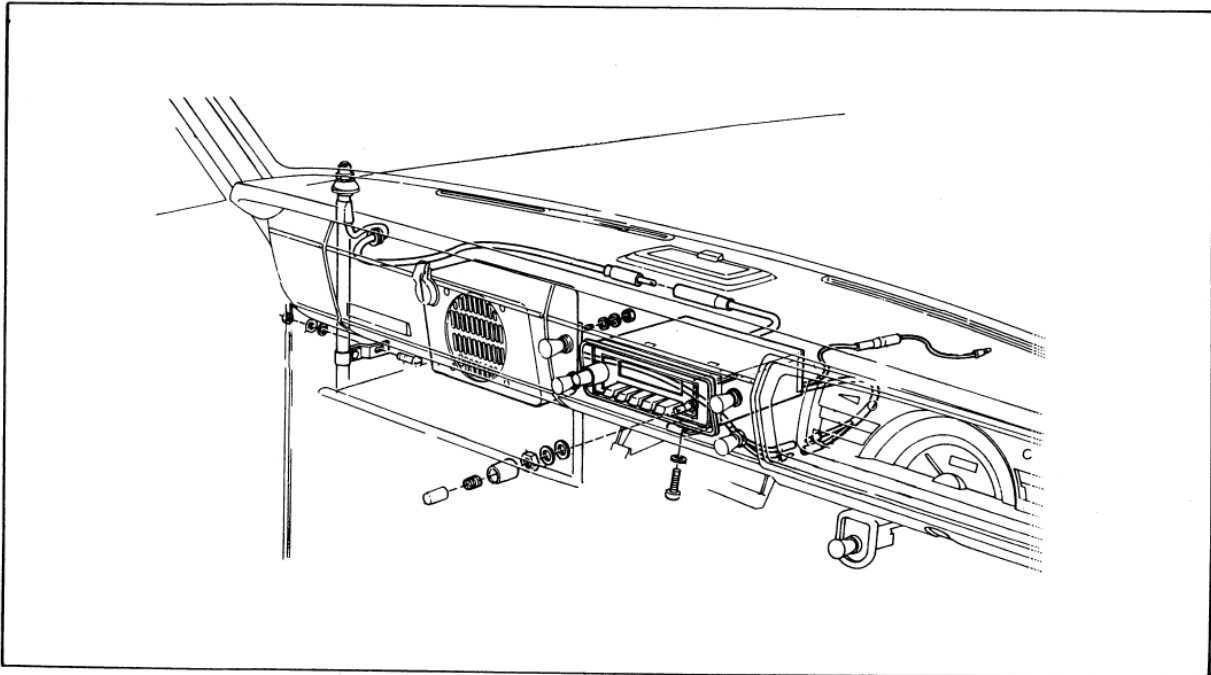


Fig. BE-35 Installing radio

BODY ELECTRICAL

1. Install mounting bracket on radio proper.
2. Remove mask for radio from instrument panel.
3. Fit radio into instrument panel by applying it from the back of instrument panel.
4. Tighten plain washer, spring washer and nut on adjust shaft.
5. Tighten screw securing bracket of radio to instrument panel.

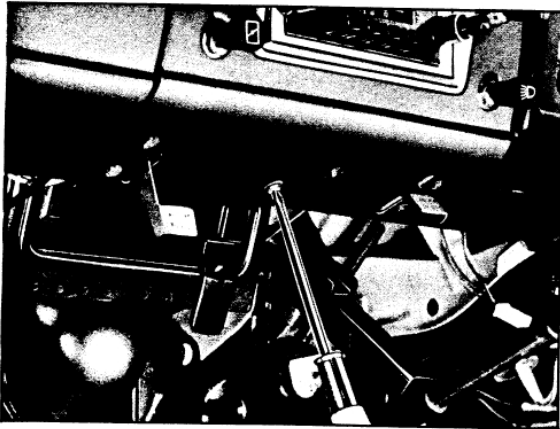


Fig. BE-36 Installing radio

6. Install speaker. See Figure BE-37

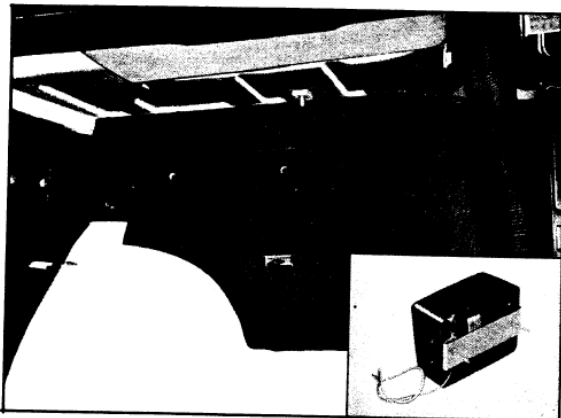


Fig. BE-37 Installing speaker

7. Install antenna, and lead antenna cable to the back of instrument panel.
8. Connect antenna cable and speaker cable to lead cables from radio. Connect radio power source cable to blue cable of instrument harness.

Note: Blue cable of instrument harness is used not only for radio but also for clock.

ADJUSTING ANTENNA TRIMMER

When radio is installed newly or when antenna is replaced, adjust antenna trimmer adjust screw on the bottom of radio in accordance with the following instruction:

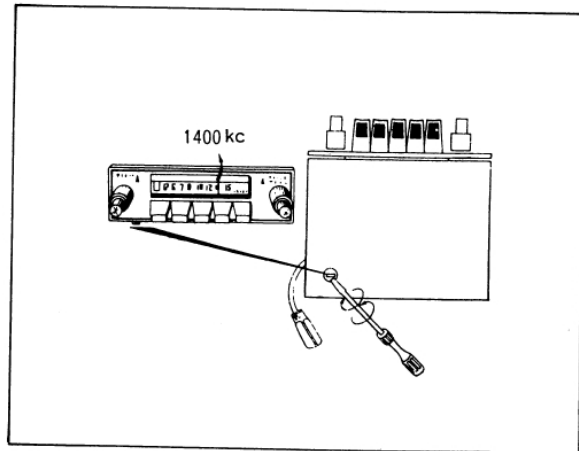


Fig. BE-38 Adjusting antenna trimmer

1. Extend antenna completely.
2. Set frequency to 1,400 KC. Noise may be generated but disregard it.
3. Turn antenna trimmer to left and right slowly, and set it at a position where receiving sensitivity is highest.

BODY

Noise prevention chart

Run engine, raise antenna, set volume to maximum and set dial at a medium point without catching broad-casting wave.

Condition	Probable cause	Corrective action
Ignition system Noise occurs when engine is operated	High tension code	High tension code may be disregarded, because noise suppressor is used
	Ignition coil	Apart choke wire from ignition coil as far as possible Install a 0.5 μ F capacitor in primary side + terminal of ignition coil Note: Be careful not to install capacitor in secondary or primary breaker side, otherwise engine becomes improper Connect wire between engine and ignition coil locating area of body with adhesive Secure ground of ignition coil
	Distributor	Secure contact of carbon electric pole and rotor Eliminate excessive tip on rotor pole or cap pole by scrubbing with a screwdriver Check stagger between rotor and stator
Charging system Sound of alternating current presents When accelerator pedal is depressed or released, noise presents	Alternator	Install a 0.5 μ F capacitor on charging terminal A Note: Do not use capacitor excessively If capacity is used excessively, alternator coil will be broken
	Regulator	Install a 0.5 μ F capacitor on "A" terminal of voltage regulator
Supplement equipment When engine starts, noise presents Noise still presents even after stopping engine	Operative noise of thermometer and fuel gauge	Install 0.1 μ F capacitor between terminal and ground wire Note: If a capacitor having excessive capacity is used, indication of meter will be deviated

BODY ELECTRICAL

Condition	Probable cause	Corrective action
Noise presents when horn is blown	Horn	Install a $0.5 \mu F$ capacitor on horn relay terminal or horn switch
Noise presents when turn signal lamps are operated	Flasher unit	Install a $0.5 \mu F$ capacitor

Note: a. Be sure to locate capacitor most near position of noise source and connect in parallel.

b. Cut lead wire as short as possible.

c. Ground wire should be placed on the body

completely.

d. Make installation and connection securely.

e. Carefully identify "+", "-", "IN" or "OUT" marks.

CLOCK

Installation

1. Apply rubber seat and stand to installation screw of clock, and install them into located hole at the center of instrument panel.
2. Tighten installation screw with nut.
3. Connect lead cables of clock to instrument harness. Black cable is for grounding, red/blue cable is for illumination lamp, and blue cable is for clock power supply.

Note: Blue cable of instrument harness is used not only for clock but also for radio.

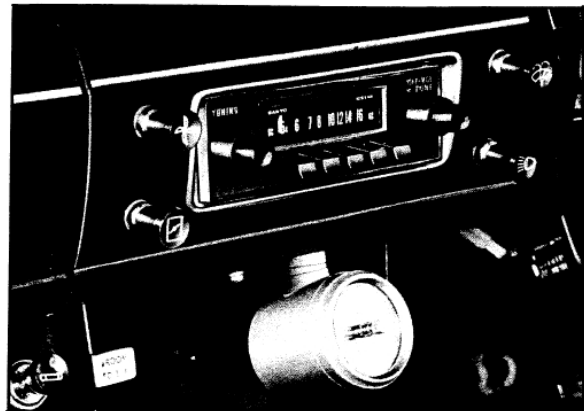


Fig. BE-39 Installing clock

BODY

HEATER

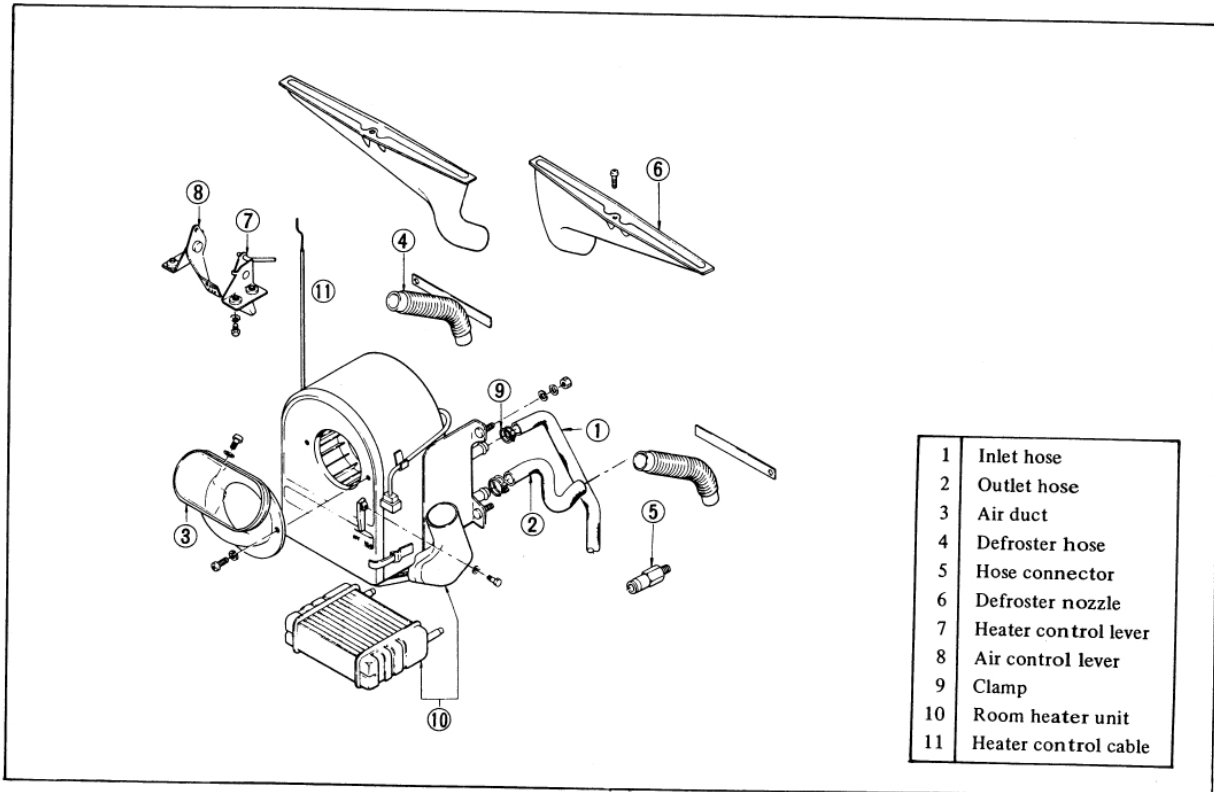


Fig. BE-40 Heater unit

Installation

1. Remove instrument panel.
2. Install heater unit proper on dash panel. Connect blue cable (from motor) to blue cable (wire harness of heater unit). Secure black cable on heater unit with screw to ground.
3. Fit heater hoses to hot water inlet and outlet of heater unit, and secure them with clamps.
Connect the other ends of heater hoses to engine side.
When connecting, use connector as required.

1	Inlet hose	3	Connector
2	Outlet hose	4	Connector

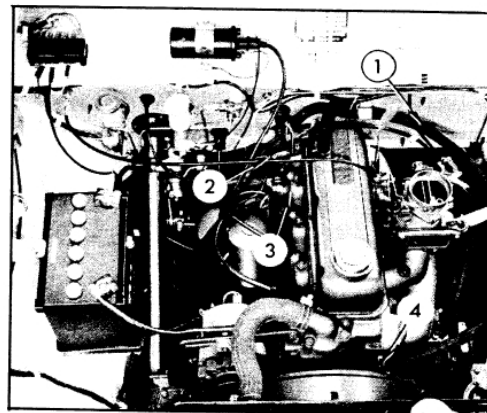
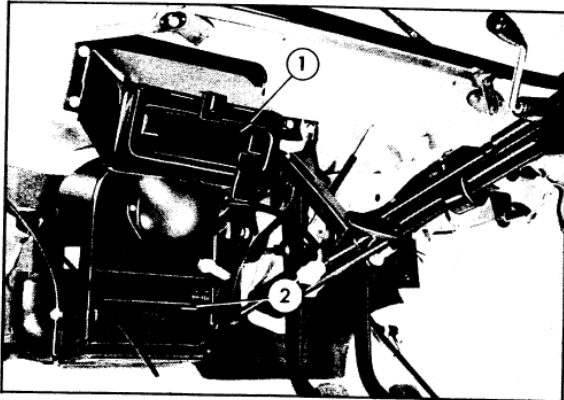


Fig. BE-41 Installing heater hose

BODY ELECTRICAL

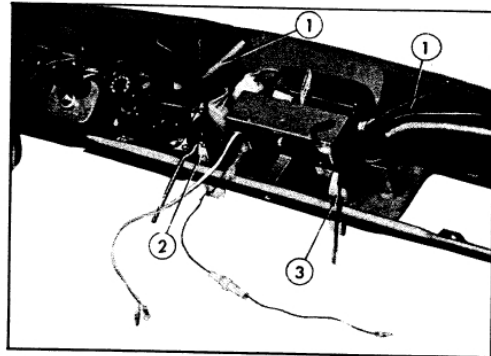
4. Install air intake duct on dash panel and heater unit.



1 Air intake duct	2 Heater unit
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Fig. BE-42 Installing heater unit

5. Install defroster nozzle on the back of instrument panel.
 6. Install heater switch on instrument panel.
 7. Install heater control lever and air control lever on instrument panel.
 8. Reinstall instrument panel.



1 Defroster nozzle	3 Air control lever
2 Heater control lever	

Fig. BE-43 Defroster nozzle, and heater and air control levers

9. Connect heater control cable to heater control lever.
 10. Install rod of air control lever on air intake duct adjust lever.
 11. Connect defroster hoses.
 12. Connect heater switch to instrument harness, and heater unit to instrument harness.

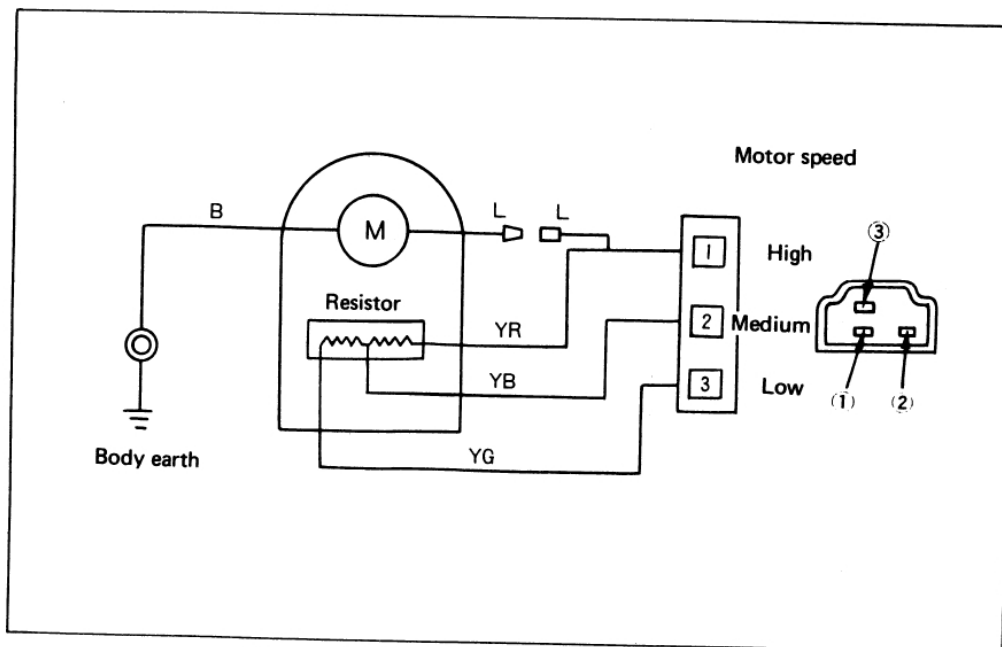


Fig. BE-44 Circuit diagram for heater

BODY

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Hot air does not come out Motor does not operate	Open or short circuit of feed harness Defective switch Defective motor	Check and repair wiring harness Conduct continuity test and replace switch if necessary Replace motor
Fan cannot be rotated smoothly by hand	Motor journal is out of lubricant or stick	Lubricate journal Replace motor
Hot air does not come out nevertheless fan is rotating	Slow rotation of fan Loose fan installation	Replace motor Repair
Air temperature is low Hot water does not circulate	Defective water pump Bent or clogged of connecting hose Defective hot water cock Air is left in hose	Repair water pump Repair or clean piping Repair Purge air out of hose
Water temperature is too low	Defective thermostat	Replace thermostat
Water leakage from heater	Defective water hose Loose clipping of water hose Improper soldering of heater core	Replace water hose Retighten clip Solder leaking position
Defective defroster	Disconnected defroster hose Bent or broken defroster hose	Correct connection Correct or replace
Vibrating noise	Loose heater support Loose fixing screw	Tighten completely Retighten

SERVICE MANUAL

DATSUN PICK-UP
MODEL 521 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION SE

SERVICE EQUIPMENT

SPECIAL SERVICE TOOLSE- 1

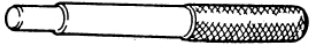
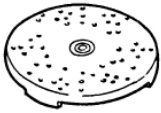
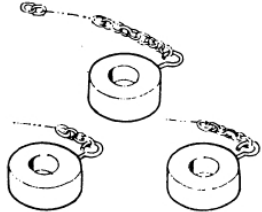

SE

SERVICE EQUIPMENT

SPECIAL SERVICE TOOL

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
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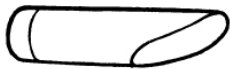
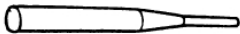
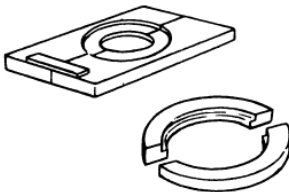
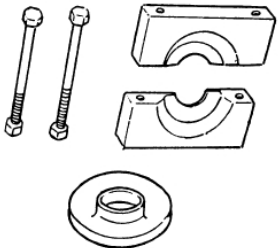
Clutch tool

ST20630000 Clutch aligning bar		For centering the clutch disc	521 130 PA30 S30	Fig. CL-15
ST20051000 Clutch assembly base plate		For measuring the diaphragm spring height (Use with the distance piece ST20058001)	521 130 C30 S30 510 41 C24 C80	Fig. CL-6
ST20058001 Clutch assembly distance piece		For measuring the diaphragm spring height (Use with the base plate ST20051000)	521 130 C30 S30 510 B110	Fig. CL-6
ST2050000 Diaphragm adjust wrench		For adjusting the diaphragm spring height	521 130 C30 S30 510 B110	Page CL-3

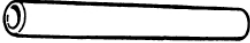
CHASSIS

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
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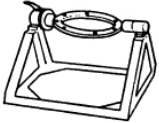
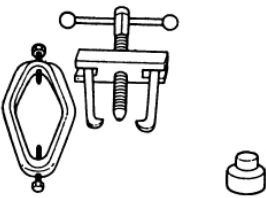

Transmission tool

<p>ST23620000</p> <p>Fork rod guide</p>		<p>For supporting the inter lock ball when installing the fork rod</p>	<p>All</p>	<p>page TM-11</p>
<p>ST23510000</p> <p>Fork rod pin punch</p>		<p>For removing the fork rod retaining pins</p>	<p>521 C10 510 C30</p>	<p>Page TM-5</p>
<p>ST22130000</p> <p>Bearing replacer</p>		<p>For removing the main shaft bearing</p>	<p>521 780</p>	<p>Fig. TM-16</p>
<p>ST30030000</p> <p>Bearing puller</p>		<p>For removing the drive shaft bearing</p>	<p>521 C30 S30</p>	<p>Fig. TM-21</p>

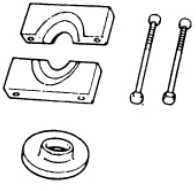
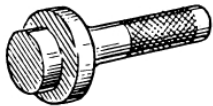
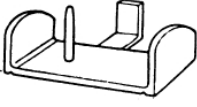
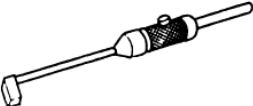
SERVICE EQUIPMENT

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
ST23800000 Transmission adapter		For installing the main shaft bearing	521 130	Fig. TM-29

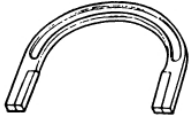
Differential carrier tool

ST07320000 Differential carrier stand		Setting tool of the gear carrier	521 130	Fig. PD-10
ST33010000 Differential side bearing puller		For removing the differential side bearing	All	Fig. PD-11
ST31530000 Drive pinion flange wrench		For removing the drive pinion nut	521 130 A30 C30 S30 C10 510	Fig. PD-12



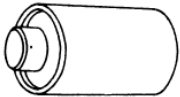
CHASSIS

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
ST30030000 Drive pinion rear bearing inner race replacer		For removing the drive pinion rear bearing inner race	521 S30 C30 C10 510	Fig. PD-16 PD-17
ST33210000 Differential side bearing drift		For assembling the side bearing	521 C10 V510	Fig. PD-16
ST3110000 Drive pinion arrangement gauge		For height adjustment of the drive pinion	521 130 V510	Fig. PD-18
ST31200000 Drive pinion preload gauge		For measuring the drive pinion preload	All	Fig. PD-19

SERVICE EQUIPMENT

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
ST32110000 Differential side bearing cap gauge		For measuring the distance between side bearing caps	521 130 V510	Fig. PD-22

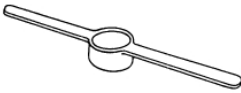
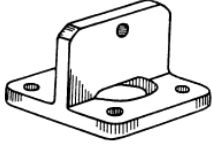
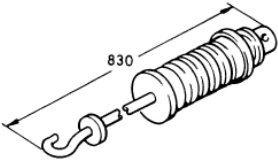
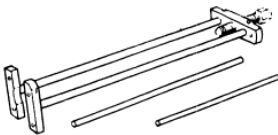
Front axle and suspension tool

ST35380000 King pin bush drift		For removing the king pin bush	New 521	Page FA-7
HT56802000 King pin bush reamer		For correcting the king pin bush	521	Page FA-7
ST36070000 Lower link bush drift		For removing the lower link bush	New 521	Fig. FA-24

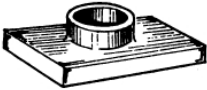
CHASSIS

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
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Rear axle and suspension tool

<p>ST38020000</p> <p>Rear axle bearing lock nut wrench</p>		<p>For loosening and tightening the rear axle bearing lock nut</p>	521	Fig. RA-6
<p>ST07630000</p> <p>Rear axle stand</p>		<p>For removing the rear axle shaft (Use with sliding hammer ST36230000)</p>		Fig. RA-4
<p>ST36230000</p> <p>Sliding hammer</p>		<p>Use as hammer by sliding the weight</p>	All	Fig. RA-4
<p>ST37140000</p> <p>Rear axle shaft bearing puller</p>		<p>For removing the rear axle shaft bearing</p>	521 130	Fig. RA-7

SERVICE EQUIPMENT

Tool number Tool name	Figure mm (in)	Description	Applied model	S.M. reference page (See Fig. No.)
ST38220000 Rear axle shaft bearing collar insert		For installing the rear axle shaft bearing and collar	521 130	Fig. RA-8

Steering tool

ST27140000 Steering gear arm puller		For removing the steering gear arm	521 130 510 B110	Fig. ST-4
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SERVICE JOURNAL OR BULLETIN REFERENCE

DATE	JOURNAL or BULLETIN No.	PAGE No.	SUBJECT

