INTRODUCTION

Forward

This Shop Manual describes the construction and Function of the '86 Honda Accord.

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How To Use This Manual

This manual is divided into 7 sections. The first page of each section is marked with a black tab that lines up with one of the thumb index tabs on this page. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of right pages can also be used as a quick reference system.

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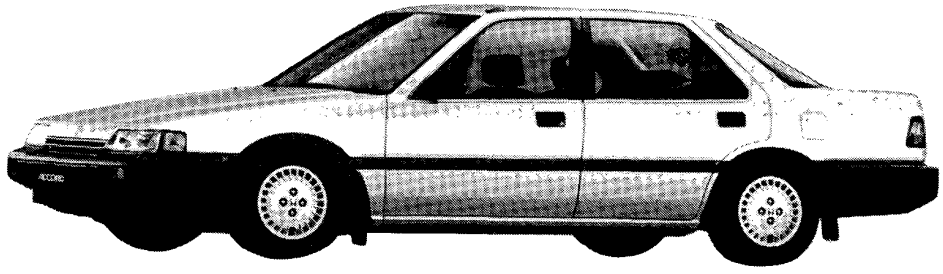
General Information

General Information

Development Aims

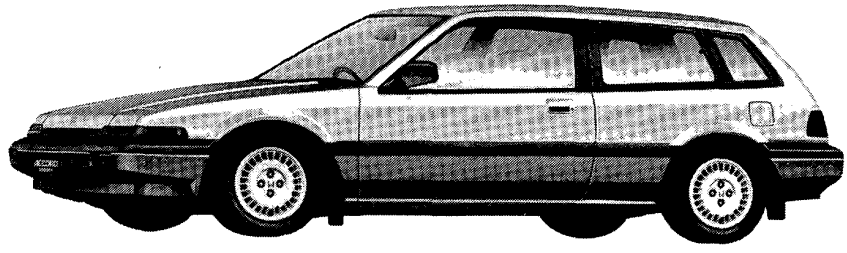
- **4 DOOR SEDAN**

Since the introduction of the original 1600cc Accord Hatchback in 1976, the refined image and superb driveability combined with economy made it immenesly popular in the market. Next year, Accord 4 door sedan was released as a high quality speciality car with powerful 1800cc engine.
Next came the second generation Accord 4-door sedan and 3-door Hatchback with a long list of new features and extra equipment which transform the vehicles into a truly luxuriously appointed car. In 1984, the Accord got an important attire — PGM-F1 and 4W-ALB — making it the top-of-the-line product and has enjoyed extraordinary success in many world markets. And here comes the New Generation Accord — an excitement to all who know well what a speciality personal sedan should offer !



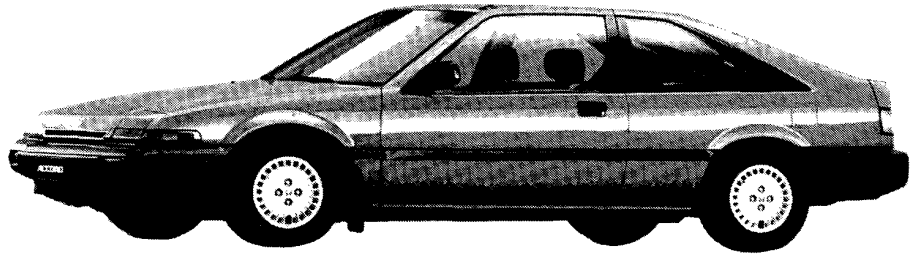
- **AERODECK**

AERODECK is a Honda's answer to the question of what a car should be and do. Featuring a long roof and large gal-wing tailgate, the owner has all the comforts of large luxurious sedans with lots of wagon extras.
The new, robust 2000cc, 3-valve, 4-cycle engine means ample power in every speed range the driver needs it.
The front and rear wheels use a double wishborn independent suspension which contributes to the car's perfectly predictable, safe handling and comfortable ride over rough, unpaved roads.
Retractable headlights and semi-concealed windshield wipers are few of examples built into this vehicle.



- **GLASS-BACK**

To add to this, the semi-concealed windshield wipers provides an amazingly wide forward visiblity. The water-cooled, 4-stroke, 3-valve 2,000cc engine and independent double wishbone suspension for the front and rear wheels combine to offer excellent roadholding, smooth ride and powerful output at all rpm levels.
The 3-door model comes into two types, each featuring refined external styling and beautiful interior with a large luggage space.



Engine-Frame

KC		4 DOOR		3 DOOR
		LX	EXi	S
PH4	2.0ℓ SOHC CARB.	○		○
PJO	2.0ℓ SOHC PGM-FI		○	

EC		4 DOOR										3 DOOR	
		KF		KB, KG, KW			KG	KS, KX			KE	KB, KE, KF KG, KS, KW	
		EX	EX2.0i	LX	EX	EX2.0i	EXC	LX	EX	EX2.0i	EX	EX	EX2.0i
PH1	1.6ℓ SOHC CARB.	○		○									
PH4	2.0ℓ SOHC CARB.	○		○	○			○	○		○	○	
PJO	2.0ℓ SOHC PGM-FI		○			○				○		○	○
PH4	2.0ℓ SOHC CAB. USA E/M						○						

KQ, KY, GENERAL		4 DOOR							3 DOOR			
		KT		KY			KQ, KP, KU		KQ, KP, KT, KU		KY	
		STD	EX	GL	EX	EXR	STD	EX	STD	EX	EX	EXR
PH1	1.6ℓ SOHC CARB.	○	○									
PH4	2.0ℓ SOHC CARB.		○	○	○	○	○	○	○	○	○	○

Major Equipment

4 Door	KC	KF	KG/KB	KS	KW/KR	KX	KY	KP	KQ	KE	KT	KU
TYPE	LX EXi	EX 2.0i	LX EX EX C EX 2.0i	LX EX EX 2.0i	LX EX EX C EX 2.0i	LX EX EX 2.0i	GL EX EX R	STD EX	STD EX	EX EX 2.0i	STD EX	STD EX
[GENERAL]												
Tilt steering	O O	*1 O O	O O O	O O	O O	O O	O O	O	O	O O	*1 O	O
Power steering	O O	O O	O O O	O O	O O	O O	O O O	O	O	O O	O	O
Front/Rear stabilizer	O	O O	O O O O	O O O	O O O	O O O			O O	O O		
Front ventilated disc brake (13")	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Rear disc brake (13")		/O O	/O O	/O O	/O O	/O O				/O O		
4 wheels double wishbone suspension	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Progresive rate spring (Rear)	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Electric sunroof	O	*1 F F	F F F	F F	F F F	F F	F O	F	F	F F	F	F
Air conditioner (Manual)		F F	F F F F	F F F	F F F	F F F	O O O	F F	F F	F F	F F	F F
Hydraulic engine mount	O O	*1 O O	*1 O O O O	O O O	*1 O O O	O O O			O O	O O		
Auto cruise control	*2 O O					O O	O			O		
4 wheel Anti-Lock Brake System		*1 /O /O	/O /O	/O /O	/O /O	/O /O				/O /O		
[EXTERIOR]												
Elec. remote control door mirror	O	O O	O O O	O O	O O	O O	O O O	O	O	O O	O	O
5 miles bumper	O O						O O O					
Alloy wheels	O	F F	F F F F	F F F	F F F	F F F	F F F	F F	F F	F F	F F	F F
Mudguard (Front)	O O	O O	O O O O	O O O	*3 O *3 O *3 O	O O O	O O O	O O	O O	O O	O O	O O
(Rear)					*3 O *3 O *3 O	O O	O O O	O O	O O	O O	O O	O O
Inner fender	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Engine under cover	O O	O O	O O O O	O O O	O O O	O O O	O O O	F F	O O	O O	F F	F F
Side sill chaping primary	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Wheel cap	O	O	O	O O	O O	O	O O	O	O	O	O	O
[INTERIOR]												
Door pocket (L: Large, S: Small)	L L	L L	S L L L	S L L	S L L	S L L	S L L	S L	S L	L L	S L	S L
Seat (M: Moquet, S: Soft weave)	M M	M M	S M M M	S M M	S M M	S M M	S M M	S M	S M	M M	S M	S M
Seat lifter		O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Folding down rear seatback	O			O O	O O	O O			O			
Swing headrest		O O	O O O	O O	O O	O O	O O O	O		O O	O	O
Seat belt: Front ELR	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Variable anchor		O O	O O O O	O O O	O O O	O O O		O O	O O	O O	O O	O O
Rear ELR 3P + MNL 2P	O O	O O	O O O O	O O O	*4 O *4 O *4 O	O O O	O O O		O O	O O		
Heated seat				*5 F *5 F *5 F	F F F	F F F						
Half shade window	O O	O O	O O O	O O	O O	O O	O O O	O		O O	O	O
Sunvisor (with vanity mirror)	*6 O	O O	O O O	O O	O O	O O	O *6 O	O	O	O O	O	O
Inside reaview mirror (Day/Night change)	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Rear seat center armrest	O	O O	O O O	O O	O O	O O	O O	O	O	O O	O	O
Front seatback pocket	O	O O	O O O	O O	O O	O O	O O	O	O	O O	O	O
Childproof rear door locks	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Trunk opener (K: with key)	K K	K K	K K K K	K K K	K K K	K K K	K K K	O K	O K	K K	O K	O K
Fuel lid opener	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O

(cont'd)

General Information

Major Equipment (cont'd)

4 Door	KC	KF	KG/KB	KS	KW/KR	KX	KY	KP	KQ	KE	KT	KU
TYPE	LX EX I	EX EX 2.0i	LX EX EX EX C 2.0i	LX EX EX 2.0i	LXXX EE X C 2.0i	LX EX EX 2.0i	GL EX EX R	STD EX	STD EX	EX EX 2.0i	STD EX	STD EX
[INTERIOR]												
Power window	*7 O	O O	O	O O	O O	O O	O O	O	O	O O	O	O
Power door lock	*8 O	O O	O O O	O O	O O	O O	*8 *8 O O	O	O	O O	O	O
[INSTRUMENTATION]												
Tachometer	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Automatic transmission position indicator	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Safety indicator	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Illumination control (Non cut-off type)	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Heater control (L: Lever, B: Button)	L L	B B	L B B B	L B B	L B B	L B B	B B B	L B	L B	B B	L B	L B
Face cool control		O O	O O O	O O	O O	O O	O O O	O	O	O O	O	O
Rear heater duct	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Glove box with key	O O	O O	O O O O	O O O	O O O	O O O	O O O	O	O O	O O	O	O
Speaker (2: 2 speakers, 4: 4 speakers)	4 4	2 4	2 2 2 4	2 2 4	2 2 4	2 2 4	2 4 4		2 2	2 4		
Antenna (A: Auto, M: Manual)	M A	A A	M A A A	M A A	M A A	M A A	M A A	M A	M A	A A	M A	M A
Digital clock	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
[ELECTRICAL SYSTEM]												
Special Design headlight		O O	O O O O	O O O	O O O	O O O		O O		O O	O O	O O
Halogen headlights	O O	O O	O O O O	O O O	O O O	O O O	O O O	O O	O O	O O	O O	O O
Headlight-on alarm (C: Chaim, B: Buzzer)	B B	C C	C C C C		C C C	C C C	C C C	C C	C C	C C	C C	C C
Day-light system				O O O	*9 *9 *9 O O O							
Headlight wiper				O O O	*10 *10 *10 O O O	O O				O		
Courtesy lights	O O	O O	O O O	O O	O O	O O	O O	O	O	O O	O	O
Rear fog light		O O	O O O O	O O O	O O O	O O O				O O		
Ignition switch illumination	O	O O	O O O	O O	O O	O O	O	O	O	O O	O	O

F: Factory option
*1: Except 1.6ℓ engine model
*2: Except 5M/T model
*3: Except KR
*4: Only KW (Finland, Norway and Austria), Other area; ELR-3P
*5: Driver's and assistant seats
*6: With illumination
*7: Lever type switch
*8: 4 actuators type
*9: Norway and Finland model only
*10: Norway, Finland and Turkey model only

3 Door

	GLASS-BACK												AERO-DECK											
	KC	KQ		KP		KT/KU		KY		KF		KG/KB		KS		KW		KX		KE	
TYPE	S	STD	EX	STD	EX	STD	EX	EX	EXR	EX	EX 2.0i	EX	EX 2.0i	EX	EX 2.0i	EX	EX 2.0i	EX	EX 2.0i	EX	EX 2.0i
[GENERAL]																					
Tilt steering	O		O		O		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Power steering	O *1		O		O		O	O	O	/O	O	/O	O	O	O	/O	O	O	O	O	O
Front/Rear stabilizer	O	O	O							O	O	O	O	O	O	O	O	O	O	O	O
Front ventilated disc brake (13")	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
4-wheels double wishbone suspension	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Progresive rate spring (Rear)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Electric sunroof										F	F	F	F	F	F	F	F	F	F	F	F
Air conditioner (Manual)		F	F	F	F	F	F	O	O	F	F	F	F	F	F	F	F	F	F	F	F
Hydraulic engine mount	O	O	O							O	O	O	O	O	O	O	O	O	O	O	O
4-wheel Anti-Lock Brake System											/O		/O		/O		/O		/O		/O
[EXTERIOR]																					
Elec. remote control door mirror			O		O		O	O	O		O		O		O		O	O	O		O
Front spoiler											O		O		O		O		O		O
Alloy wheels		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Front mudguard	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Rear mudguard		O	O													O	O	O	O	O	O
Inner fender	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Engine under cover	O	O	O	F	F	F	F	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Side sill chipping primary	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Wheel cap	O		O		O		O	O	O		O		O		O		O		O		O
5 miles bumper	O							O	O												
[INTERIOR]																					
Door pocket (L: Large, S: Small)	S	S	L	S	L	S	L	L	L	S	L	S	L	S	L	S	L	L	L	S	L
Seat (M: Moquet, S: Soft weave, T: Tricot)	T	T	M	T	M	T	M	M	M	S	M	S	M	S	M	S	M	S	M	S	M
Seat lifter		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Rear pillow										O	O	O	O	O	O	O	O	O	O	O	O
Swing headrest											O		O		O		O		O		O
Heated seat														*2 F	*2 F	F	F	F	F		
Walk-in seat	O	O	O		O		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Seat belt: Front ELR	*3 O	*4 O	*4 O	O	O	O	O	*3 O	*3 O	O	O	O	O	O	O	O	O	O	O	O	O
Feeder system (Driver side)											O		O		O		O		O		O
Rear ELR 3P + MNL2P	O	O	O					O	O	O	O	O	O	O	O	*5 O	*5 O	O	O	O	O
Half shade window					O		O	O	O		O		O		O		O	O	O		O
Sun visor (P: PCV, T: Tricot)	P	P	T	P	T	P	T	T	T	P	T	P	T	P	T	P	T	P	T	P	T
Inside rearview mirror (Day/Night change)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Rear shelf	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Tailgate opener	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Fuel lid opener	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Power window			O		O		O	O	O		O		O		O		O	O	O		O

(cont'd)

General Information

–Major Equipment (cont'd)

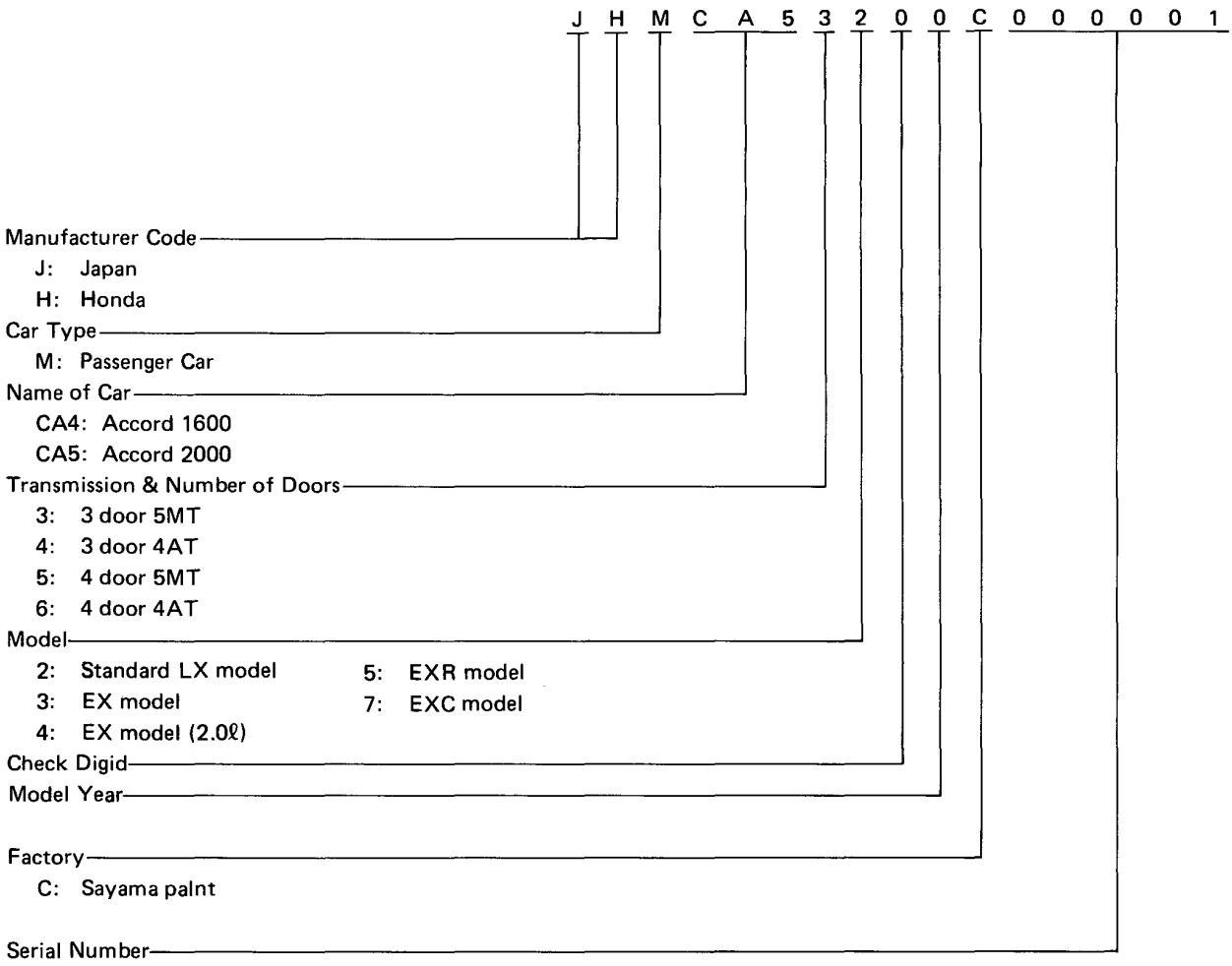
3 Door

	GLASS-BACK					AERO-DECK					
	KC	KQ	KP	KT/KU	KY	KF	KG/KB	KS	KW	KX	KE
TYPE	S	STD EX	STD EX	STD EX	EX EX R	EX EX 2.0i	EX EX 2.0i	EX EX 2.0i	EX EX 2.0i	EX EX 2.0i	EX EX 2.0i
[INSTRUMENTATION]											
Tachometer	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
Automatic transmission position indicator	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
Safety indicator	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
Illumination control (Cut-off type)	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
Heater control (L: Lever, B: Button)	L	L B	L B	L B	B B	B B	B B	B B	B B	B B	B B
Face cool control		O	O	O	O O	O O	O O	O O	O O	O O	O O
Rear Heater duct	O					O	O	O	O	O	O
Speaker (2: 2 speakers, 4: 4 speakers)	2	2 2			4 4	2 4	2 4	2 4	2 4	2 4	2 4
Antenna (A: Auto, M: Manual)	M	M A	M A	M A	A A	M A	M A	M A	M A	M A	M A
Digital clock	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
[ELECTRIC SYSTEM]											
Retractable headlight hold passing system		O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
Retractable headlight (Halogen)	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O
Headlight-on alarm (C: Chaim, B: Buzzer)	B	C C	C C	C C	C C	C C	C C		C C	C C	C C
Day-light system								O O	O *6 O *6		
Headlight washer								O O	O *6 O *6		
Courtesy Light		O	O	O	O O	O	O	O	O	O O	O
Rear fog light						O O	O O	O O	O O	O O	O O
Ignition switch illumination		O	O	O	O	O O	O O	O O	O O	O O	O O
Rear wiper	O	O O	O O	O O	O O	O O	O O	O O	O O	O O	O O

F: Factory option.
*1: Except 5M/T model
*2: Driver's and assistant seats
*3: Two axles with anchor return spring
*4: Without anchor outer slider bar
*5: Only Norway, Finland and Austria, other area: ELR-3P
*6: Only Norway and Finland

Chassis Number

EUROPE, GENERAL



General Information

Engine Number

PH4	2.0ℓ, SOHC, CARB.	—	KC	5MT / 4AT	BS1	1900001 ~
PHO	2.0ℓ, SOHC PGM-FI	—	KC (HAM)	4AT	BT1	1700001 ~
			KC			1900001 ~
PH1	1.6ℓ, SOHC CARB.	—	KB, KF KG, KR, KW	5MT	A16A1	1000001 ~
				4AT		1500001 ~
PH4	2.0ℓ, SOHC CARB.	CAT.	KG	5MT	A20A1	1700001 ~
				4AT		1500001 ~
		—	KB, KE, KF KG, KR, KS, KW	5MT	A20A2	1000001 ~
				4AT		1500001 ~
		CAT.	KX	5MT		1300001 ~
				4AT		1800001 ~
PJO	2.0ℓ, SOHC PGM-FI	—	KB, KE, KF KG, KR, KS, KW	5MT	A20A4	1000001 ~
				4AT		1500001 ~
		CAT.	KX	5MT		1300001 ~
				4AT		1800001 ~
PH4	2.0ℓ, SOHC CARB.	CAT.	KQ	5MT	A20A2	1300001 ~
				4AT		1800001 ~
PH1	1.6ℓ, SOHC CARB.	—	KT	5MT	A16A1	1000001 ~
				4AT		1500001 ~
PH4	2.0ℓ, SOHC CARB.	—	KY, KP, KT, KU	5MT	A20A2	1000001 ~
				4AT		1500001 ~

Transmission Number

TYPE	CODE	AREA		
PC8	M5	EUROPE	A1M5	1000001 ~
	A5		A2A5	1000001 ~
	K5		A2K5	1000001 ~
	Q6		A2Q6	1000001 ~
PF5	K5		B2K5	1000001 ~

TYPE	CODE	AREA		
PC8	M5	GENERAL	A1M5	1000001 ~
	A5		A2A5	1000001 ~
	K5		A2K5	1000001 ~
PF5	K5		B2K5	1000001 ~

〈Canadian Model〉

	ITEMS			METRIC	ENGLISH	NOTE
DIMENSION	Overall Length	3D		4,440 mm	174.8 in.	
		4D		4,535 mm	178.5 in.	
	Overall Width	3D/4D		1,695 mm	66.7 in.	
	Overall Height	3D		1,335 mm	52.6 in.	
		4D		1,325 mm	52.2 in.	
	Wheelbase	3D/4D		2,600 mm	102.3 in.	
	Tread F/R	3D/4D		1,480/1,475 mm	58.3/58.1 in.	
	Ground Clearance	3D/4D		160 mm	6.3 in.	
	Seating Capacity	3D/4D		5	———	
	Overhang F/R	3D		875/860 mm	34.4/33.8 in.	
		4D		875/1,060 mm	34.4/41.7 in.	
WEIGHT	Curb weight	3D	4–AT	1,105 kg	2,436 lb.	
			5–MT	1,075 kg	2,370 lb.	
		4D	4–AT	1,115 kg (1,155 kg)	2,458 kg (2,546 lb.)	( ): 2.0ℓ PGMF-1
			5–MT	1,095 kg	2,414 lb.	
	Weight Distribution (F/R)					
		3D	4–AT	685/415 kg	1,510/915 lb.	
			5–MT	655/420 kg	1,444/926 lb.	
		4D	4–AT	685/430 kg	1,510/948 lb.	
			5–MT	665/430 kg	1,466/948 lb.	
	Gross Vehicle Weight Rating (MVSS)			1,574 kg	3,470 lb.	Curb weight +A/C: 22.5 kg (49.6 lb.) +Cargo: 45 kg (100 lb.) +Passengers: 68 kg x 5 (150 lb. x 5)
	Max. permissible weight	4D		1,660 kg	3,660 lb.	
ENGINE	Type			Water cooled, gasoline fueled, 4-cycle O.H.C.		
	Cylinder arrangement			4-cyclinders in-line transverse		
	Bore and Stroke			82.7 x 91.0 mm		
	Displacement			1,995 cm^3 (cc)	119 cu. in.	
	Compression ratio	3D		9.1 : 1		
		4D		LX 9.1:1 EX 8.8:1		
	Valve Train			Timing belt driven, single overhead camshaft		
	Lubrication System			Trochoid pump		
	Fuel required			Regular gasoline with 91 RON (Research Octane Number) or higher, or Super/Premium gasoline with 97 RON (Research Octane Number) or higher.		

(cont'd)

Design Specifications (cont'd)

	ITEMS		METRIC	ENGLISH	NOTE
TRANS-MISSION	Clutch	4–AT	Three element, one stage, two phase		
		5–MT	Single dry plate, diaphragm spring		
	Transmission	4–AT	Torque converter with lock up clutch		
		5–MT	Synchromesh 5 forward speeds, 1 reverse		
	Gear Ratio < >: 4AT	I	3.181 <2.529>		
		II	1.842 <1.481>		
		III	1.208 <1.030>		
		IV	0.878 <0.700>		
		V	0.694 ———		
		Reverse	3.000 <1.904>		
	Final Reduction		3.866 <4.066>		
	Clutch Facing Area		176 cm^3	(27.3 sq. in.)	
STEERING SYSTEM	Type	Manual Steering	Rack and Pinion Integral		
		Power Steering	Power Assisted Pack and Pinion Integral		
	Overall Ratio	Manual Steering	19.4		
		Power Steering	16.0		
	Turns, lock-to-lock	Manual Steering	3.78		
		Power Steering	3.11		
	Steering Wheel Dia.		375 mm	14.76 in.	
	Power Steering Oil Capacity		1.4ℓ	1.21 Imp. qt., 1.5 US qt.	
	Power Steering Oil		HONDA Genuine Power Steering Fluid		
SUSPENSION SYSTEM	Type, F		Double Wishbome		
	Type, R		Double Wishbome		
	Shock Absorber F/R		Telescopic, hydraulic		
WHEEL ALIGNMENT	Wheel Alignment				
		Camber Front	0°		
		Rear	0°		
		Caster Front	30′		
		Toe Front	0 mm	0.0 in.	
		Rear	0 mm	0.0 in.	
BRAKE SYSTEM	Type, F		Self-adjusting power assisted disc brake		
	Type, R		Power assisted leading-training shoe and drum		
	Lining Surface Area F/R		43.3/67.2 mm	1.70/2.64 in.	
	Effective Disc Dia.		242 mm	9.5 in.	
	Effective Brake Drum I.D.		200 mm	7.9 in.	
	Parking Brake Type		Mechanical expanding, Rear two wheel brakes		
TIRES	F/R		P185/70R13		
	Spare		T105/80D13		
ELECTRICAL SYSTEM	Battery		12V–50AH (Cold cranking current −17.7°C [0°F] 410A)		
	Starting Motor		12–1.0/1.4KW		
	Generator		12–65A		
	Fuses		7.5A, 10A, 15A, 20A, 30A		
	Main Fuse		70A, 40A		
	Headlights	Low/High	12V–35/65W (SAE H6052)		
	Illumination lights		12V–1.4W		
	Front Turn Signal Lights/Position Lights (combination)		12V–32 cp/32 cp (SAE 1157)		
	Gauge lights		12V–3.4W/1.4W		
	Side Marker Lights (front and rear)		12V–5W, 12V–3 cp (SAE 168)		

	ITEMS	METRIC	ENGLISH	NOTE
ELECTRICAL SYSTEM (cont'd)	Warning/Indicator Lights	12V–1.2W		
	Interior Light	12V–8W		
	Rear Turn/Stop/Taillights	12V–32 cp/32 cp/2 cp (SAE1156, SAE2057)		
	Turn Signal Indicator Lights	12V–1.2W		
	Turn or Hatch Lights	12V–5W		
	Back-up Lights	12V–32 cp (SAE1156)		
	Licence Plate Lights	12V–8W		
	Glove Box Light	12V–3.4W		
	Door Courtesy Lights	12V–3.4W		
	Heater Illumination Lights	12V–1.4W		
	Fuse Box Lights	12V–2W		
SERVICE DATA (Engine)	Ignition Timing	15° ± 2° BTDC at idle		
	Valve Timing IN open	10°ATDC		
	IN close	35°ABDC		
	EX open	40°BBDC		
	EX close	15°BTDC		
	Spark Plug	NGK: BPR6EY-11, BPR5EY-11 ND: W16EXR-U11, W20EXR-U11		
	Spark Plug Gap	1.0–1.1 mm	0.039–0.043 in.	
	Idling Speed (with headlights off and cooling fan off.) 4–AT	800 ± 50 min^{-1} (rpm)		
	5–MT	750 ± 50 min^{-1} (rpm)		
	Fuel Tank Capacity/Remaining Gasoline Capacity	60ℓ	13.2 Imp. gal., 15.9 US gal.	
	Coolant Capacity 4–AT	6.2ℓ	5.4 Imp. qt., 6.5 US qt.	
	5–MT	5.6ℓ	4.9 Imp. qt., 5.9 US qt.	
	Alternator Belt Tension (Applied load)	6–9 mm (998 N, 10 kg)	0.2–0.4 in. (22 lb.)	
	Valve Clearance Intake/Exhaust Cold IN	0.12–0.17 mm	0.005–0.007 in.	
	EX	0.25–0.30 mm	0.010–0.012 in.	
	Compression Ratio	12.5 : 1	———	
	Engine Oil Capacity	3.5ℓ	3.1 Imp. qt, 3.7 US qt.	Including oil in filter
	Transmission Oil Capacity 5–MT	2.5ℓ	2.2 Imp. qt, 2.6 US qt.	
	4–AT	2.6ℓ	2.3 Imp. qt., 2.7 US qt.	
	Automatic Transmission Fluid	DEXRON®	———	
(Chassis)	Tire Pressure F/R	180 kPa	1.8 kg/cm^2, 26 psi	
	Spare	420 kPa	4.2 kg/cm^2, 60 psi	
	Brake Fluid	DOT 3 or 4 Type SAE J1703		
	Brake Pedal Free Play	1–5 mm	0.04–0.20 in.	
	Brake Pedal-to-Floor clearance	205 mm	0.04–0.20 in.	
	Brake Pad Wearing Limit	3.0 mm	8.1 in.	
	Brake Shoe Wearing Limit	2.0 mm	0.12 in.	
	Clutch Pedal Free Play	15–25 mm	0.59–0.98 in.	

< European Model >

	ITEMS			METRIC	ENGLISH	NOTE
DIMENSION	Overall length		3D	4,335 mm	170.6 in.	KW: 4,365 mm
			4D	4,535 mm	178.5 in.	KW: 4,565 mm
	Overall width			1,695 mm	66.7 in.	
	Overall height		3D	1,335 mm	52.6 in.	
			4D	1,335 mm	53.3 in.	
	Wheel base			2,600 mm	102.4 in.	
	Tread	Front		1,480 mm	58.3 in.	
		Rear		1,475 mm	58.1 in.	
	Ground clearance			160 mm	6.3 in.	
	Seating Capacity	(F/R)		5(2/3)	———	
	Overhang F/R	Front		875 mm	34.4 in.	KW: 905 mm
		Rear	3D	860 mm	33.9 in.	
			4D	1,060 mm	41.7 in.	
WEIGHT	Curb weight (F, R)					
	(5–MT)	3D	EX (2.0ℓ) CARB	1,065 kg	2,348 lb.	KF, KG, KB, KW
				1,030 kg	2,271 lb.	Holland
				1,085 kg	2,392 lb.	KX
				1,070 kg	2,359 lb.	SF
				1,095 kg	2,414 lb.	KS
				1,075 kg	2,370 lb.	KE
		3D	EX (2.0ℓ) PGM-FI	1,100 kg	2,425 lb.	KF, KG, KB, KX, KW
				1,050 kg	2,315 lb.	Holland
				1,110 kg	2,447 lb.	SF
				1,120 kg	2,469 lb.	KS
				1,105 kg	2,436 lb.	KE
		4D	LX (1.6ℓ)	1,050 kg	2,315 lb.	KG, KB, KW, SF
				1,020 kg	2,249 lb.	Holland
		4D	LX (2.0ℓ) CARB	1,060 kg	2,337 lb.	KG, KB, KW, SF
				1,030 kg	2,271 lb.	Holland
				1,065 kg	2,348 lb.	KX
				1,075 kg	2,370 lb.	KS
		4D	EX (2.0ℓ) CARB	1,085 kg	2,392 lb.	KF, KG, KB, KE
				1,095 kg	2,414 lb.	KG, KW
				1,050 kg	2,315 lb.	Holland
				1,100 kg	2,425 lb.	KX, SF
				1,105 kg	2,436 lb.	Swiss, Austria
				1,120 kg	2,469 lb.	KS
		4D	EX (2.0ℓ) PGM-FI	1,105 kg	2,436 lb.	KF, KG, KB
				1,070 kg	2,205 lb.	Holland
				1,120 kg	2,469 lb.	KX, SF, KS
				1,115 kg	2,458 lb.	KW, KE
	(4–AT)	3D	EX (2.0ℓ) CARB	1,085 kg	2,392 lb.	KF, KG, KB, KW
				1,040 kg	2,293 lb.	Holland
				1,105 kg	2,436 lb.	KX
				1,090 kg	2,403 lb.	SF
				1,115 kg	2,458 lb.	KS
				1,095 kg	2,414 lb.	KE

	ITEMS		METRIC	ENGLISH	NOTE
WEIGHT (cont'd)	Curb Weight (F, R) (4–AT)				
		3D EX (2.0ℓ) PGM-FI	1,120 kg	2,469 lb.	KF, KG, KB, KX, KW
			1,130 kg	2,491 lb.	SF
			1,140 kg	2,513 lb.	KS
			1,125 kg	2,480 lb.	KE
		4D LX (1.6ℓ) CARB	1,060 kg	2,337 lb.	KG, KB, KW, SF
		4D LX (2.0ℓ) CARB	1,080 kg	2,381 lb.	KG, KB, KW, SF
			1,045 kg	2,304 lb.	Holland
			1,085 kg	2,392 lb.	KX
			1,095 kg	2,414 lb.	KS
		4D EX (2.0ℓ) CARB	1,105 kg	2,436 lb.	KF, KG, KB, KE
			1,115 kg	2,458 lb.	KG, KW
			1,065 kg	2,348 lb.	Holland
			1,120 kg	2,469 lb.	KX, SF
			1,125 kg	2,480 lb.	Swiss, Austria
			1,140 kg	2,513 lb.	KS
		4D EX (2.0ℓ) CARB	1,125 kg	2,480 lb.	KF, KG, KB
			1,140 kg	2,513 lb.	KX, SF, KS
			1,135 kg	2,502 lb.	KW, KE
	Weight Distribution (F/R) (5–MT)				
		3D EX (2.0ℓ) CARB	645/420 kg	1,422/926 lb.	KF, KG, KB, KW
			665/420 kg	1,466/926 lb.	KX
			650/420 kg	1,433/926 lb.	SF
			670/425 kg	1,477/937 lb.	KS
			655/420 kg	1,444/926 lb.	KE
		3D EX (2.0ℓ) PGM-FI	665/435 kg	1,466/959 lb.	KF, KG, KB, KX
			675/435 kg	1,488/959 lb.	SF
			680/440 kg	1,499/970 lb.	KS
			670/435 kg	1,447/959 lb.	KE
		4D LX (1.6ℓ) CARB	625/425 kg	1,378/937 lb.	KG, KB, KW, SF
		4D LX (2.0ℓ) CARB	635/425 kg	1,400/937 lb.	KG, KB, KW, SF
			655/440 kg	1,444/970 lb.	KW
			640/425 kg	1,411/937 lb.	KX
			640/435 kg	1,441/959 lb.	KS
		4D EX (2.0ℓ) CARB	650/435 kg	1,433/959 lb.	KF, KG, KB, KE
			665/440 kg	1,444/970 lb.	KW
			660/435 kg	1,455/959 lb.	KG
			660/440 kg	1,455/970 lb.	KX, SF
			665/440 kg	1,466/970 lb.	SWISS, AUSTRIA
			680/440 kg	1,499/970 lb.	KS
		4D EX (2.0ℓ) PGM-FI	660/445 kg	1,455/981 lb.	KF, KG, KB
			670/450 kg	1,477/992 lb.	KX, SF, KS
			665/450 kg	1,466/992 lb.	KW, KE

(cont'd)

Design Specifications (cont'd)

	ITEMS		METRIC	ENGLISH	NOTE
WEIGHT (cont'd)	Weight Distribution (F/R)				
	(4–AT) 3D	EX (2.0ℓ) CARB	665/420 kg	1,466/926 lb.	KF, KG, KB, KW
			685/420 kg	1,510/926 lb.	KX
			670/420 kg	1,477/926 lb.	SF
			690/425 kg	1,521/937 lb.	KS
			675/420 kg	1,466/926 lb.	KE
	3D	EX (2.0ℓ) PGM-FI	685/435 kg	1,510/959 lb.	KF, KG, KB, KX, KW
			695/435 kg	1,532/959 lb.	SF
			700/440 kg	1,543/970 lb.	SF
			690/435 kg	1,521/959 lb.	KE
	4D	LX (1.6ℓ) CARB	635/425 kg	1,400/937 lb.	KG, KB, KW, SF
	4D	LX (2.0ℓ) CARB	655/425 kg	1,446/937 lb.	KG, KB, KW, SF
			660/425 kg	1,455/937 lb.	KX
			675/440 kg	1,466/970 lb.	KW
			660/435 kg	1,455/959 lb.	KS
	4D	EX (2.0ℓ) CARB	670/435 kg	1,477/959 lb.	KF, KG, KB, KE
			680/435 kg	1,499/959 lb.	KG
			675/440 kg	1,466/970 lb.	KW
			680/440 kg	1,499/970 lb.	KX, SF
			685/440 kg	1,510/970 lb.	SWISS, AUSTRIA
			700/440 kg	1,543/970 lb.	KS
	4D	EX (2.0ℓ) PGM-FI	680/445 kg	1,499/981 lb.	KF, KG, KB
			690/450 kg	1,521/992 lb.	KX, SF, KS
			685/450 kg	1,510/992 lb.	KW, KE
	Max. Loaded Vehicle Weight (ADR)				
	5–MT		1,570 kg	3,462 lb.	
	4–AT		1,585 kg	3,495 lb.	
	Max. Permissible Weight (EC)	2.0ℓ	1,660 kg	3,660 lb.	
		1.6ℓ	1,580 kg	3,484 lb.	
ENGINE	Type		Water cooled, gasoline fueled, 4-cycle OHC		
	Cylinder arrangement		4-cylinder in-line transverse		
	Bore and Stroke	1.6ℓ	80.0 x 79.5 mm	3.15 x 3.13 in.	
		2.0ℓ	82.7 x 91.0 mm	3.25 x 3.58 in.	
	Displacement	1.6ℓ	1,598 cm^3 (cc)	97.8 cu. in.	
		2.0ℓ	1,955 cm^3 (cc)	119 cu. in.	
	Compression Ratio		1.6ℓ: 9.0		
			2.0ℓ CARB: 9.2, KX: 9.1		
			2.0ℓ PGM-FI: 9.4, KS: 8.9, KX and KG: 8.8		
	Valve Train		Timing belt driven, single overhead camshaft		
	Fuel Required		Regular gasoline with 91 RON (Research Octane Number) or higher, or Super/Premium gasoline with 97 RON (Research Octane Number) or higher.		

	ITEMS		METRIC		ENGLISH		NOTE
TRANS-MISSION	Clutch	4–AT	Three element, one strage, two phase				
		5–MT	Single dry plate, diaphragm spring				
	Transmission	4–AT	Torque converter with lock up clutch				
		5–MT	Synchromesh 5 forward speeds, 1 reverse				
	Primary Reduction			1.6ℓ KW	KB,KE,KF KG, KW	KS, KX	
	Gear Ratio	I	3.181	<2.421>	<2.529>	<2.529>	
	< > : 4–AT	II	1.842	<1.560>	<1.481>	<1.481>	
		III	1.250	<0.969>	<1.060>	<1.030>	
		IV	0.937	<0.729>	<0.743>	<0.700>	
		V	0.771	–	–	–	
		Reverse	3.000	<1.954>	<1.904>	<1.904>	
	Final Reduction	5–MT	4.066	<3.933>	<4.066>	<4.066>	
	Clutch Facing Area	(2.0ℓ)	160 cm^2 (176 cm^2)		24.8 sq. in. (27.3 sq. in.)		
STEERING SYSTEM	Type	Manual Steering	Rack and Pinion Integral				
		Power Steering	Power assisted Rack and Pinion integral				
	Overall Ratio	Manual Steering	19.4				
		Power Steering	16.0				
	Turns, lock-to-lock	Manual Steering	3.78				
		Power Steering	3.11				
	Steering Wheel Dia.		375 mm		14.76 in.		
	Power Steering Oil Tank Capacity		1.4ℓ		1.2 Imp. pt., 1.5 US pt.		
	Power Steering Oil		Honda Genuine power steering fluid				
SUSPENSION SYSTEM	Type, F		Double Wishbone				
	Type, R		Double Wishbone				
	Shock Absorber F/R		Telescopic hydraulic				
WHEEL ALIGNMENT	Wheel Alignment						
	Camber	Front	0°				
		Rear	0°				
	Caster	Front	0°30'				
	Toe	Front	0 mm		0.0 in.		
		Rear	0 mm		0.0 in.		
BRAKE SYSTEM	Type, F		Self-adjusting power assisted disc brake type				
	Type, R		Drum *1				*1 Disc for EX 2.0ℓ and cans equipped with Anti-Lock Brake.
	Lining Surface Area F/R		43.3/21 (disc) 67.2 (drum) cm^2				
	Effective Disc Dia.		208 mm		8.2 in.		
	Effective Brake Drum I.D.		200 mm		7.9 in		
	Parking Brake Type		Mechanical expanding, Rear two wheel brakes*2				*2 Machanical to rear disc for equipped with Disc Brake.
TIRES	F/R		165R13 82S, 165SR13 185/70R13 86H, 185/70R13 86T, 185/70HR13, 195/60R14 85H				
		Spare	T105/80D13, T105/80R13, (T135/70D15)				For cars equipped with Anti-Lock Brake <Except for KE>
ELECTRICAL *SYSTEM*	Battery		12V–50AH (Cold cranking current –17.7°C [0°F] 410A)				
	Starting Motor		12V–1.0/1.4KW				
	Generator		12–65A				
	Fuses		7.5A, 10A, 15A, 20A, 30A				

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Design Specifications (cont'd)

	ITEMS		METRIC	ENGLISH	NOTE
ELECTRICAL SYSTEM (cont'd)	Main Fuse		70A, 40A		
	Headlights		12V–60/55W		
	Turn signal lights	Front	12V–21W		
		Rear	12V–21W		
		Side	12V–5W		
	License Plate Lights		12V–5W		
	Back-up Lights		12V–21W		
	Stop Lights		12V–21W		
	Tail Lights		12V–5W		
	Rear Fog Light		12V–21W		
SERVICE DATA (Engine)	Ignition Timing (at idle)	4–AT	20° BTDC 1.6ℓ 2.0ℓ Carb; 10° BTDC 2.0ℓ Carb. KX; 10° BTDC 2.0ℓ Carb. KS; 15° BTDC 2.0ℓ EFI KX		
		5–MT	20° BTDC 1.6ℓ 2.0ℓ Carb; 5° BTDC 2.0ℓ Carb. KX; 10° BTDC 2.0ℓ Carb. KS; 15° BTDC 2.0ℓ EFI KX; 10° BTDC 2.0ℓ EFI KS; 10° BTDC 2.0ℓ EFI KS		
	Valve Timing	IN open	10° ATDC 1.6ℓ Carb; 10° ATDC 2.0ℓ Carb; 10° ATDC 2.0ℓ Carb KX,5–MT		
		IN close	30° ABDC 1.6ℓ Carb; 35° ABDC 2.0ℓ Carb; 35° ATDC 2.0ℓ Carb KX,5–MT		
		EX open	35° BBDC 1.6ℓ Carb; 40° BBDC 2.0ℓ Carb; 40° BBDC 2.0ℓ Carb KX,5–MT		
		EX close	10° BTDC 1.6ℓ Carb; 5° BTDC 2.0ℓ Carb; 10° BTDC 2.0ℓ Carb KX,5–MT		
		IN open	10° ATDC 2.0ℓ EFI; (10° ATDC (No.1), 20° ATDC (No.2)) 2.0ℓ EFI KX; 5° ATDC 2.0ℓ Carb. KS, 4AT		
		IN close	35° ABDC 2.0ℓ EFI; 35° ABDC 2.0ℓ EFI KX; 35° ABDC 2.0ℓ Carb. KS, 4AT		
		EX open	40° BBDC 2.0ℓ EFI; 40° BBDC 2.0ℓ EFI KX; 40° BBDC 2.0ℓ Carb. KS, 4AT		
		EX close	10° BTDC 2.0ℓ EFI; 10° BTDC 2.0ℓ EFI KX; 5° BTDC 2.0ℓ Carb. KS, 4AT		
	Spark plug		NGK: BPR6ES-11, BPR6EY-11; BPR5ES-11, BPR5EY-11; BPR7ES-11, BPR7EY-11	ND: W20EPR-U11, W20EXR-U11; W16EPR-U11, W16EXR-U11; W22EPR-U11, W22EXR-U11	
	Spark Plug Gap		1.0–1.1 mm	0.039–0.043 in.	
	Idling Speed (with headlights off and cooling fan off.)	4–AT	700 ± 50 min^{-1} (rpm)		1.6ℓ, 2.0ℓ Carb. EC, KX 2.0ℓ Carb. KS, 2.0ℓ PGM-FI
			750 ± 50 min^{-1} (rpm)		2.0ℓ PGM-FI EC, KS
		5–MT	750 ± 50 min^{-1} (rpm)		
			800 ± 50 min^{-1} (rpm)		2.0ℓ PGM-FI EC, KS
	Fuel Tank Capacity/Remaining Gasoline Capacity		60ℓ	13.2 Imp. gal. 15.9 US gal.	
	Coolant Capacity/Adding Coolant				
		4–AT 1.6ℓ Engine	5.5ℓ	4.8 Imp. qt., 5.8 US qt.	
		4–AT 2.0ℓ Carb.	6.2ℓ	5.5 Imp. qt., 6.6 US qt.	
		4–AT 2.0ℓ EFI	6.3ℓ	5.5 Imp. qt., 6.7 US qt.	
		5–MT 1.6ℓ Engine	5.6ℓ	4.9 Imp. qt., 5.9 US qt.	
		5–MT 2.0ℓ Carb.	5.6ℓ	4.9 Imp. qt., 5.9 US qt.	
		5–MT 2.0ℓ EFI	5.7ℓ	5.0 Imp. qt., 6.0 US qt.	

	ITEMS		METRIC	ENGLISH	NOTE
SERVICE DATA (Engine) (cont'd)	Alternator Belt Tension (Applied load)		6–9 mm (98N, 10 kg)	0.2–0.4 in. (22 lb.)	
	Valve Clearance Intake/Exhaust (Cold)		0.15/0.28 mm	0.005–0.011 in.	
	Comprewsion Pressure	2.0ℓ PGM-FI	1,177 kPa (12.0 kg/cm², 170 psi) at 250 min⁻¹ (rpm)		
		Other	1,225 kPa (12.5 kg/cm², 178 psi) at 250 min⁻¹ (rpm)		
	Engine Oil Capacity		4.0ℓ	3.5 Imp. qt., 4.2 US qt.	
	Transmission Oil Capacity	5–MT	2.6ℓ	2.28 Imp. qt., 2.7 US qt.	
	Automatic Oil Capacity	4–AT (1.6ℓ)	5.4ℓ	4.8 Imp. qt., 5.7 US qt.	
		(2.0ℓ)	5.5ℓ	4.8 Imp. qt., 5.8 US qt.	
	Automatic Transmission Fluid		DEXRON®	———	
(Chassis)	Tire Pressures F/R		180 kPa	1.8 kg/cm², 26 psi	
		Spare	420 kPa	4.2 kg/cm², 60 psi	
	Brake Fluid		DOT 3 or 4 Type SAE J1703		
	Brake Pedal Free Play		1–5 mm	0.04–0.20 in.	
	Brake Pedal-to-Floor Clearance		205 mm	8.1 in.	
	Brake Pad Wearing Limit		3.0 mm	0.12 in.	
	Brake Shoe Wearing Limit		2.0 mm	0.08 in.	
	Clutch Pedal Free Play		15–25 mm	0.59–0.98 in.	

< General Export Model >

ITEMS				METRIC	ENGLISH	NOTE
DIMENSION	Ground Clearance	4D		170 mm	6.7 in.	KY
WEIGHT	Curb weight (F, R)					
	(5–MT)	3D (2.0ℓ) CARB	STD	1,060 kg	2,337 lb.	KP,KT KU
			EX	1,080 kg	2,381 lb.	with P/S,P/W
			EX	1,130 kg	2,491 lb.	with P/S,P/W,HAC
			EX	1,140 kg	2,513 lb.	with P/S,P/W,A/C HAC → KY
		4D (1.6ℓ) CARB	STD	1,048 kg	2,310 lb.	
			EX	1,068 kg	2,354 lb.	with P/S,P/W → KT
			EX	1,086 kg	2,394 lb.	with P/S,P/W,S/R → KT
		4D (2.0ℓ) CARB	STD	1,060 kg	2,337 lb.	
			EX	1,085 kg	2,392 lb.	with P/S,P/W → KP, KT, KU
			EX	1,103 kg	2,432 lb.	with P/S,P/W,S/R → KP, KT, KU
			GL	1,130 kg	2,491 lb.	with P/S,HAC
			EX	1,140 kg	2,513 lb.	with P/S,P/W,HAC
			EX	1,160 kg	2,557 lb.	with P/S,P/W,S/R, HAC → KY
			EXR	1,170 kg	2,579 lb.	with P/S,P/W,S/R, A/C,HAC → KY
	(4–AT)	3D (2.0ℓ) CARB	STD	1,075 kg	2,370 lb.	
			EX	1,095 kg	2,414 lb.	with P/S,P/W → KP,KT, KU
			EX	1,150 kg	2,535 lb.	with P/S,P/W,HAC
			EXR	1,160 kg	2,557 lb.	with P/S,P/W.S/R, HAC → KY
		4D (1.6ℓ) CARB	STD	1,058 kg	2,332 lb.	
			EX	1,078 kg	2,376 lb.	with P/S,P/W → KT
			EX	1,096 kg	2,416 lb.	with P/S,P/W,S/R → KT
		4D (2.0ℓ) CARB	STD	1,080 kg	2,381 lb.	
			EX	1,105 kg	2,436 lb.	with P/S,P/W → KP KT KU
			EX	1,123 kg	2,476 lb.	with P/S,P/W,S/R → KP KT KU
		4D (2.0ℓ) CARB	GL	1,150 kg	2,535 lb.	with P/S,HAC
			EX	1,160 kg	2,557 lb.	with P/S,P/W,HAC
			EX	1,180 kg	2,601 lb.	with P/S,P/W,S/R, HAC → KY
			EXR	1,190 kg	2,623 lb.	with P/S,P/W,S/R, A/C,HAC → KY
	Weight Distribution (F/R)					
	(5–MT)	3D (2.0ℓ) CARB	STD	645/415 kg	1,422/915 lb.	
			EX	660/420 kg	1,455/926 lb.	with P/S,P/W → KP KT KU
			EX	690/440 kg	1,521/970 lb.	with P/S,P/W → KP KT KU
			EXR	695/445 kg	1,532/981 lb.	with P/S,P/W,A/C → KP KT KU
		4D (1.6ℓ) CARB	STD	625/324 kg	1,378/932 lb.	
			EX	640/428 kg	1,411/943 lb.	with P/S,P/W
			EX	649/437 kg	1,431/963 lb.	with P/S,P/W,S/R

	ITEMS			METRIC	ENGLISH	NOTE
WEIGHT (cont'd)	Weight Distribution (F/R)					
	(5–MT)	4D (2.0ℓ) CARB	STD	635/425 kg	1,400/937 lb.	
			EX	650/435 kg	1,433/959 lb.	with P/S,P/W } KP, KT, KU
			EX	659/444 kg	1,453/979 lb.	with P/S,P/W,S/R } KP, KT, KU
			GL	690/440 kg	1,521/970 lb.	with P/S,HAC
			EX	695/445 kg	1,532/981 lb.	with P/S,P/W,HAC
			EX	705/455 kg	1,554/1,003 lb.	with P/S,P/N,S/R, HAC } KY
			EXR	710/460 kg	1,565/1,014 lb.	with P/S,P/W,S/R, A/C,HAC } KY
	(4–AT)	3D (2.0ℓ) CARB	STD	660/415 kg	1,445/915 lb.	
			EX	675/420 kg	1,488/926 lb.	with P/S,P/W } KP,KT, KU
			EX	710/440 kg	1,565/970 lb.	with P/S,P/W,HAC
			EXR	715/445 kg	1,576/981 lb.	with P/S,P/W,A/C
		4D (1.6ℓ) CARB	STD	635/423 kg	1,400/932 lb.	
			EX	650/428 kg	1,433/943 lb.	with P/S,P/W } KT
			EX	659/437 kg	1,453/963 lb.	with P/S,P/W,S/R } KT
		4D (2.0ℓ) CARB	STD	655/425 kg	1,444/937 lb.	
			EX	670/435 kg	1,477/959 lb.	with P/S,P/W } KP, KT, KU
			EX	679/444 kg	1,497/979 lb.	with P/S,P/W,S/R } KP, KT, KU
		(2.0ℓ) CARB	GL	710/440 kg	1,565/970 lb.	with P/S,HAC
			EX	715/445 kg	1,576/981 lb.	with P/S,P/W,HAC
			EX	725/455 kg	1,598/1,003 lb.	with P/S,P/W,S/R, HAC } KY
			EXR	730/460 kg	1,609/1,014 lb.	with P/S,P/W,S/R, A/C } KY
TIRES	Tire Size F/R Sedan			165R13 82S, 185/70SR13, 185/70R13 86H, 195/60R14 84H, 165SR13, 185/70R13 86H, 185/70HR13		
ELECTRICAL SYSTEM	Battery			12V–40AH		
	Starting Motor			12V–1.0KW		

< Australian Model >

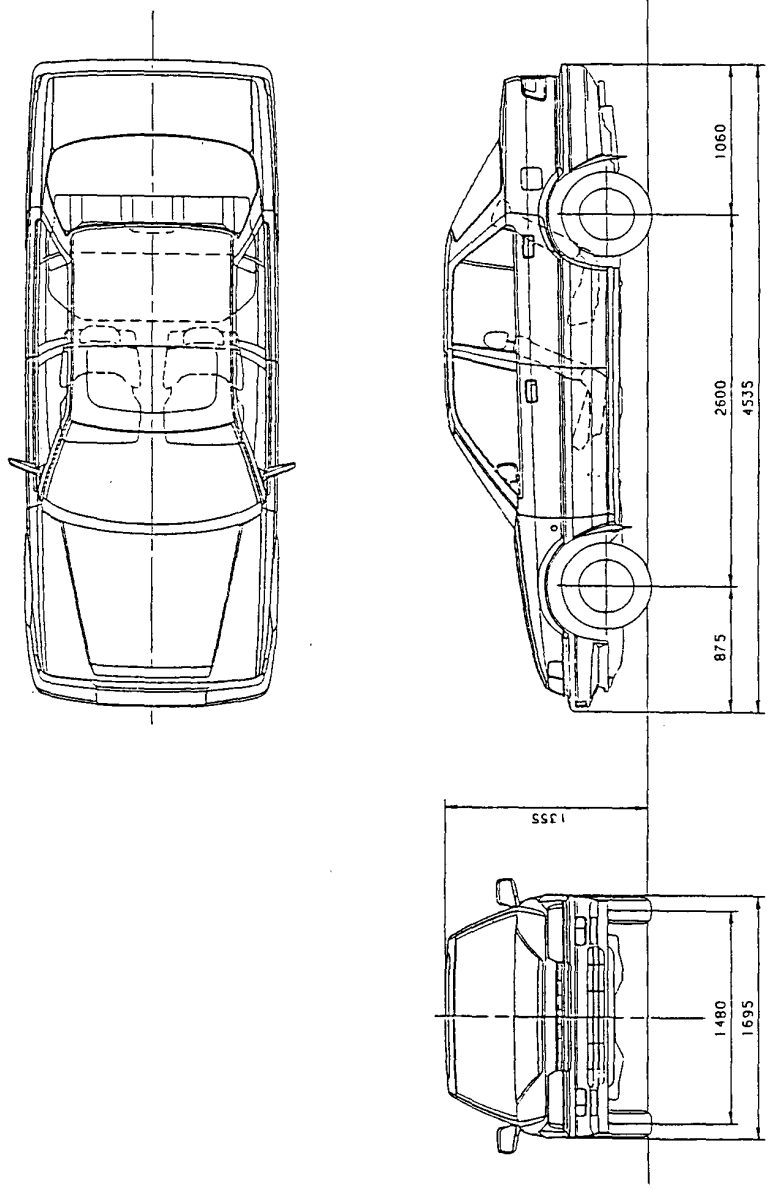
NOTE: Only the design specifications for models below different from those of the European model are listed. For the other items not given here, refer to the European Model design specification.

	ITEMS		METRIC	ENGLISH	NOTE
WEIGHT	Curb Weight	3D 5–MT STD	1,070 kg	2,359 lb.	
		EX	1,090 kg	2,403 lb.	
		4D STD	1,105 kg	2,436 lb.	
		EX	1,120 kg	2,469 lb.	
		EX(SR)	1,140 kg	2,513 lb.	
		3D 4–AT STD	1,085 kg	2,392 lb.	
		EX	1,105 kg	2,486 lb.	
		4D STD	1,120 kg	2,469 lb.	
		EX	1,135 kg	2,502 lb.	
		EX(SR)	1,155 kg	2,546 lb.	
	Weight Distribution (F/R)				
		3D 5–MT STD	655/415 kg	1,444/915 lb.	
		EX	670/420 kg	1,477/926 lb.	
		4D STD	665/440 kg	1,466/970 lb.	
		EX	675/445 kg	1,488/981 lb.	
		EX(SR)	685/455 kg	1,510/1,003 lb.	
		3D 4–AT STD	670/415 kg	1,477/915 lb.	
		EX	685/420 kg	1,510/926 lb.	
		4D STD	680/440 kg	1,499/970 lb.	
		EX	690/445 kg	1,521/981 lb.	
		EX(SR)	700/455 kg	1,543/1,003 lb.	
ELECTRICAL SYSTEM	Starting Motor		12V–1.0KW		
SERVICE DATA (Engine)	Compression ratio (2.0ℓ, CARB)		9.2 : 1		
	Alternator Belt Tension (Applied load)		6–9 mm (98N, 10kg)	0.2–0.4 in. (22 lb.)	
	Idling Speed (with headlight on and cooling fan off)		750 ± 50 min^{-1} (rpm)		

Body Specifications

< **4 Door Sedan** >

Unit: mm

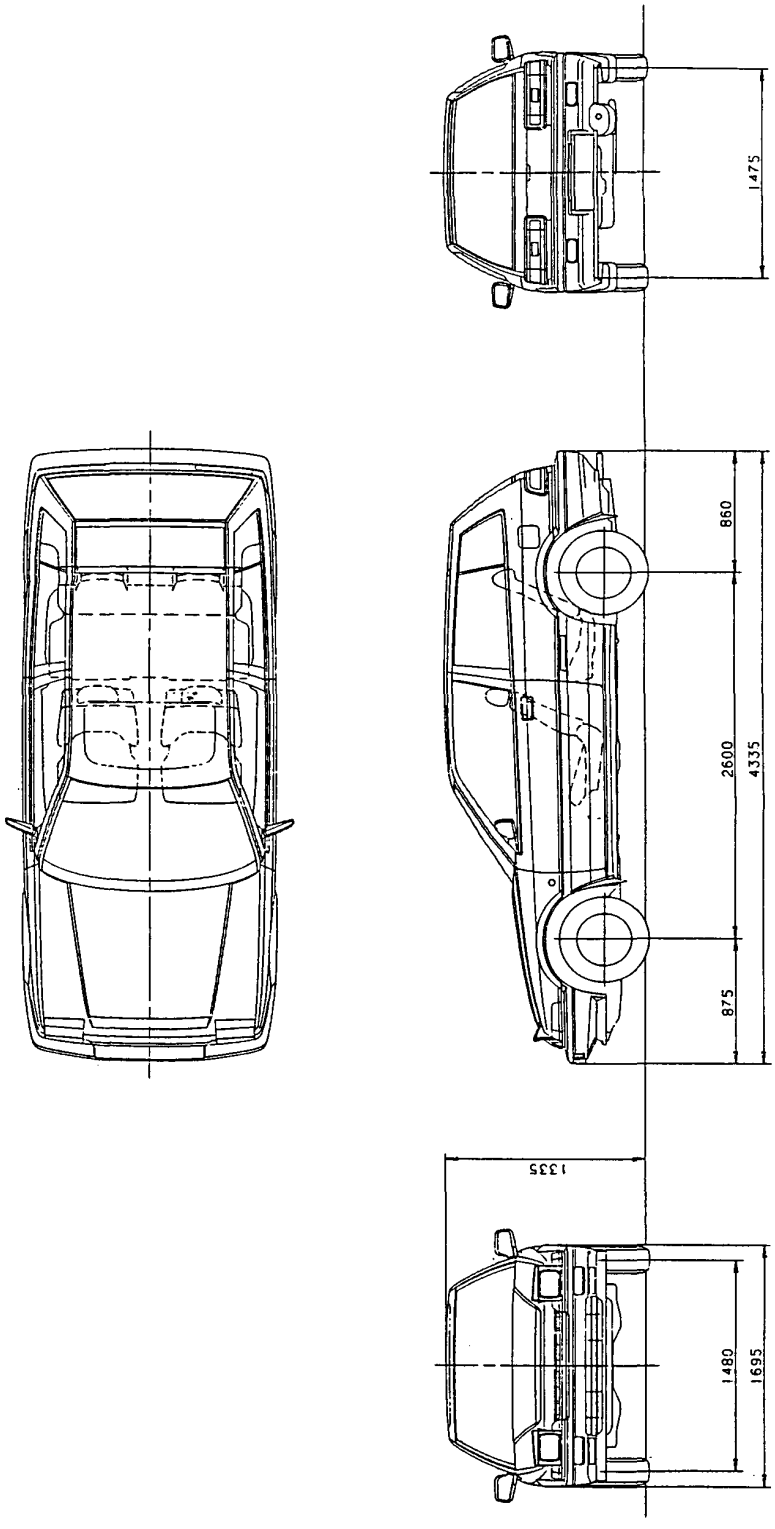


(cont'd)

Body Specification (cont'd)

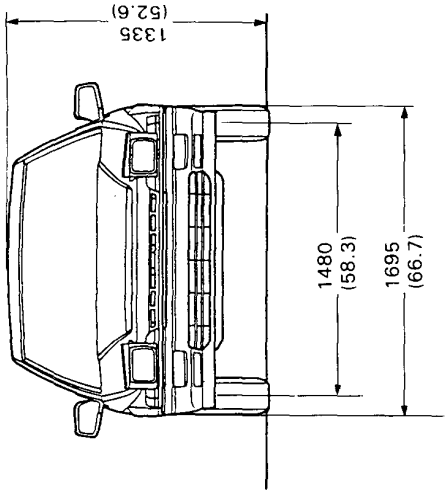
< **Aerodeck** >

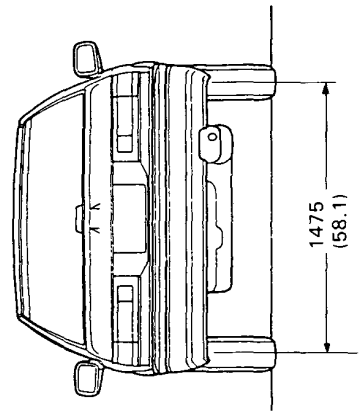
Unit: mm

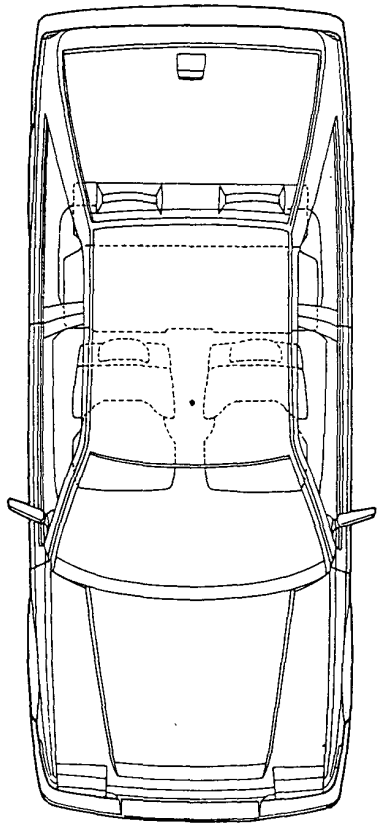


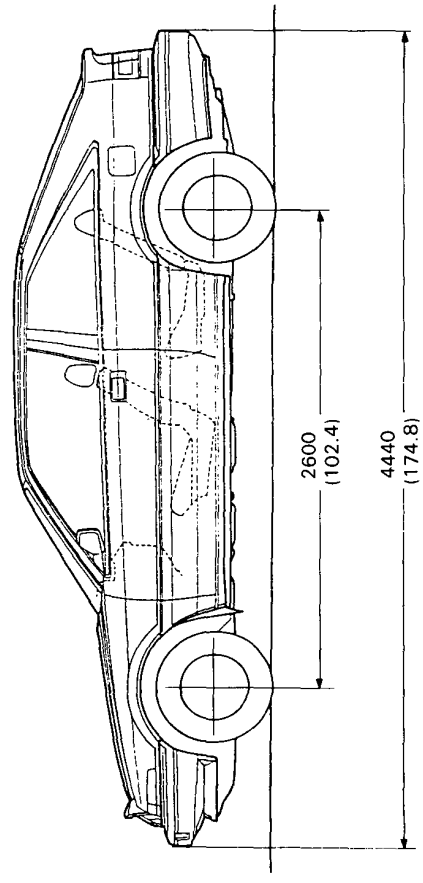
< **Glass Back** >

Unit: mm (in.)







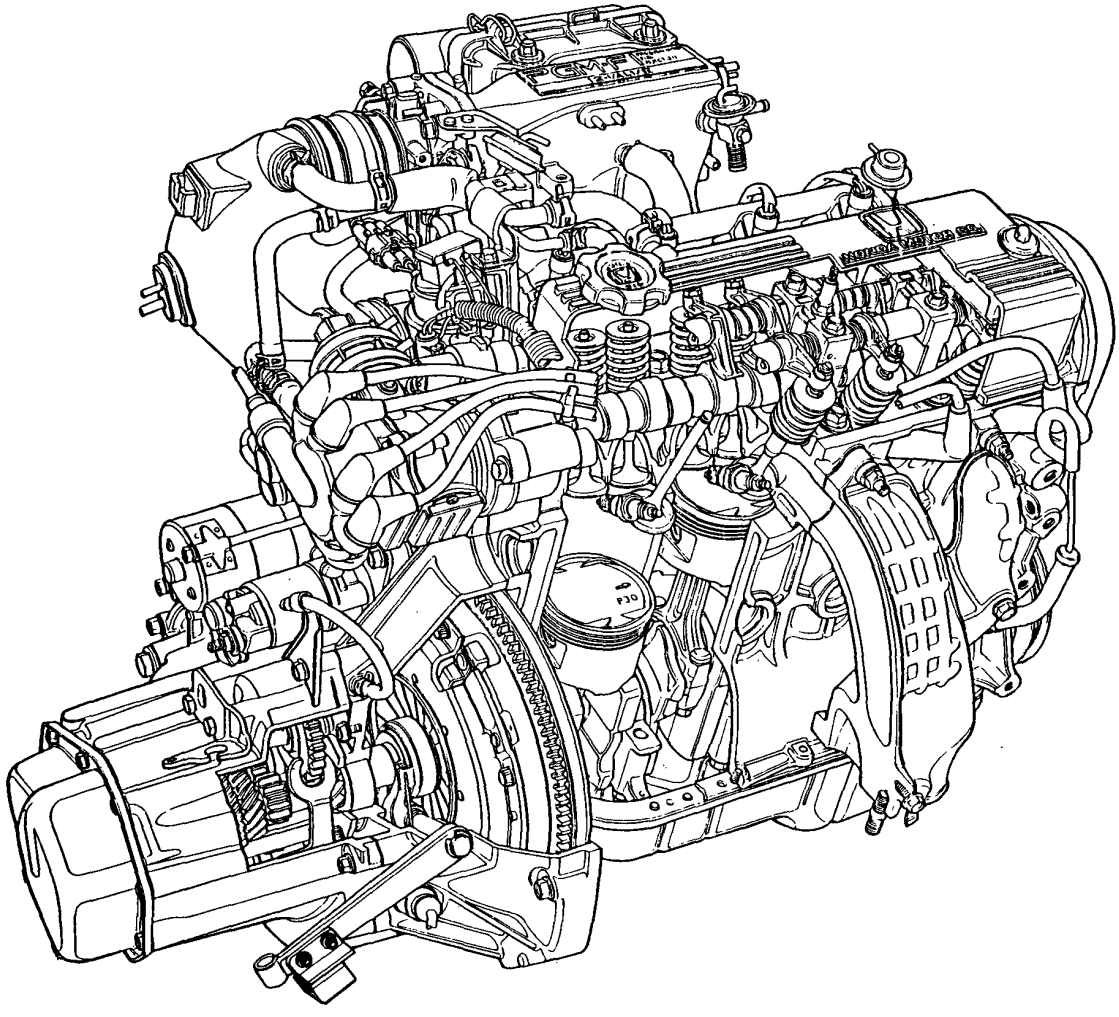


Engine

Engine

Description

The engine is a water cooled 4-cylinder SOHC engine with a piston displacement of 1,958 cm^3 (119.5 cu. in.).



Engine

Cylinder Block

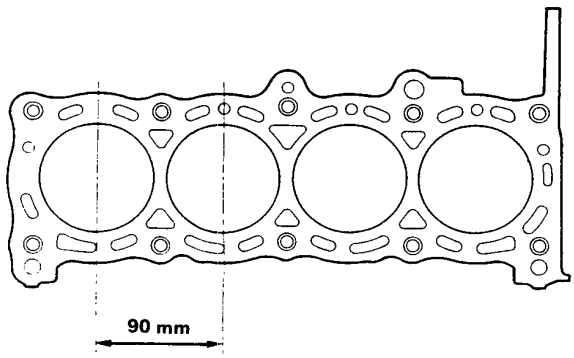
Lightweight and Compact 2.0 liter FC Block

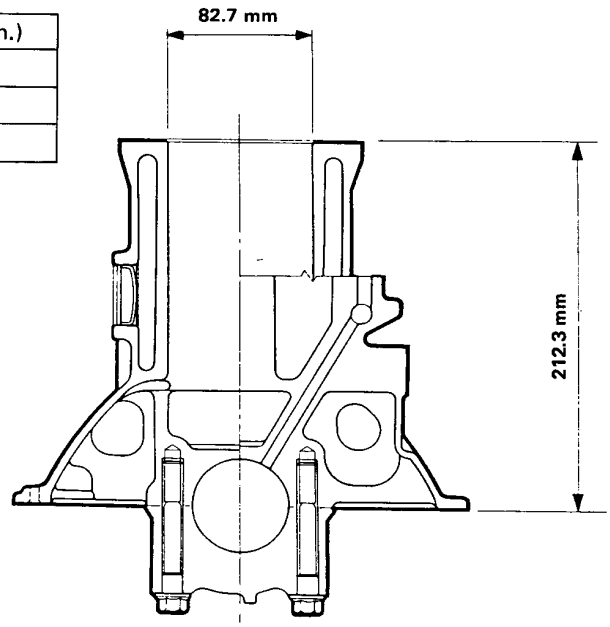
The 2.0 liter cylinder block is a bore-up version of the 1.8 liter block so the size is not incleased but the weight is reduced by improvements in the precision casting method to equalize the housing thickness while assuring sufficient rigidity for the incleased power.

About 1 kg (3 %) in weight reduction has been achieved compared to the previous 1.8 liter cylinder block.

Cylinder Block Specifications

Bore x Stroke	82.7 x 91.0 mm (3.255 x 3.583 in.)
Bore Pitch	90 mm (3.554 in.)
Block Height	212.3 mm (8.358 in.)
Displacement	1,955 cm^3 (119.303 cu. in.)



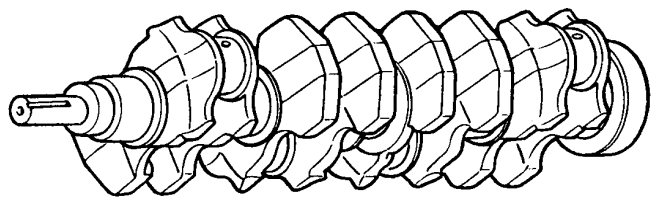


Crankshaft

The crankshaft used in all export 2.0 liter engine is newly provided. Although it is quite similar to the previous 1.8 liter crankshaft.

Crankshaft Specifications

Overall Length	452 mm (17.795 in.)
Journal Diameter	50 mm (1.968 in.)
Crankpin Diameter	45 mm (1.772 in.)
Crank Radius	45.5 mm (1.791 in.)



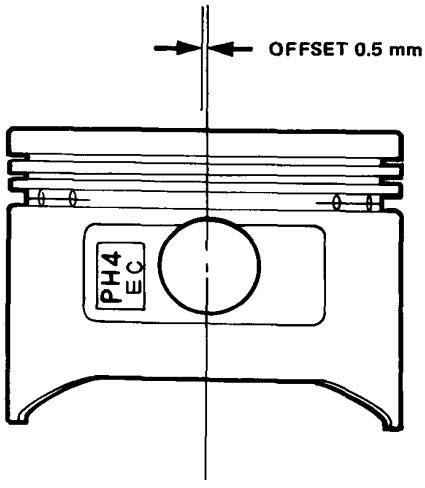
NOTE:
The bearing selection mark indicated for the #1 journal is one rank smaller than for other journals as the expansion in the #1 journal is greater.

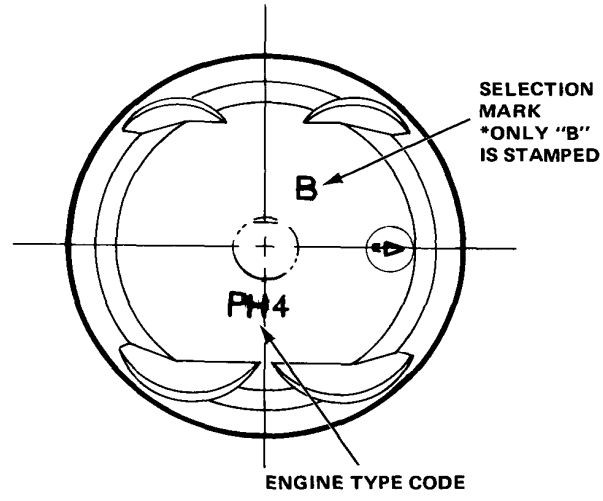
Piston

The design of the oil return passage at the oil ring groove has been changed from a slit type to a drilled type to assure rigidity of the piston skirt. The oil return passages drilled in the piston just below the last ring land (oil ring) have been abolished. Heat transmission from the piston head to skirt is also improved.

Piston Specifications

MODEL TYPE	CORD	AREA
2ℓ CARBURETOR	PH4	ALL EXPORT AREAS
2ℓ PGM-FI	PJO	KC, KS and KX KC and KQ
2ℓ PGM-FI (EC)	OEC	KY, KF, KG, KW and KE





A new aluminum alloy is employed for the Accord PGM-FI KE, KG, KF, KW and KY type piston. It features high strength at high temperature, small heat expansion and improved abrasion resistance. Oil consumption is reduced as a result of diminished wear at the ring grooves and diminished creep at the skirt area.

- **Oversized Piston**

For the above engines, only one range of oversized piston — 0.3 mm (0.0118 in.) oversize — is available.

Engine

Flywheel (Drive Plate)

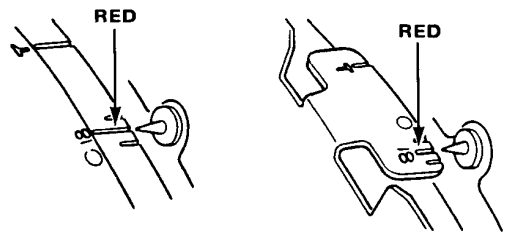
Timing marks are indicated on the flywheel (drive plate) as shown below.

TYPE	KC	KQ	KP	KT	KY
2ℓ CARB. MT	20°/700	20°/750	20°/750	20°/750	20°/750
2ℓ CARB. AT	15°/700	15°/700	20°/700	20°/700	20°/700
2ℓ FC-FI MT					
2ℓ FC-FI AT	15°/750				

TYPE	KF	KG	KW	KS	KX	KE
2ℓ CARB. MT	20°/750	20°/750	20°/750	10°/750	15°/750	20°/750
2ℓ CARB. AT						
2ℓ CARB. AT	20°/700	20°/700	20°/700	10°/750	10°/700	20°/700
2ℓ FC-FI MT	15°/800	15°/800	15°/800	10°/800	15°/800	15°/800
2ℓ FC-FI AT	15°/750D	15°/750D	15°/750D	10°/750D	15°/750	15°/750D

NOTE: The D mark indicates idle speed in the D-range.

Manual transmission **Automatic transmission**

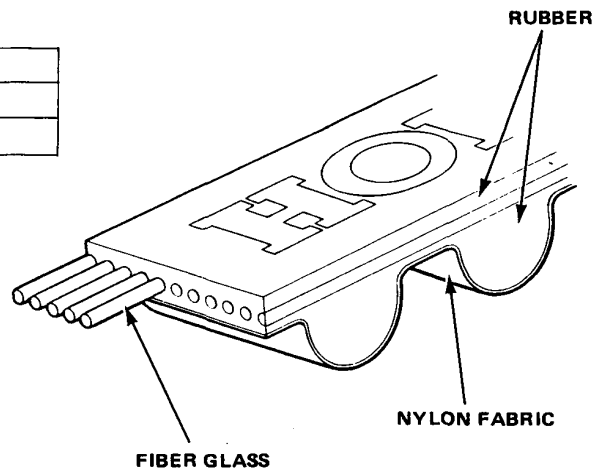


Timing Belt

A high strength super heat resistant belt is employed.

Timing Belt Specifications

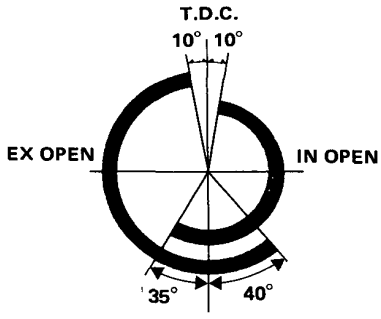
Belt Width	24 mm (0.945 in.)
Pitch	9.525 mm (0.375 in.)
Number of Teeth	108



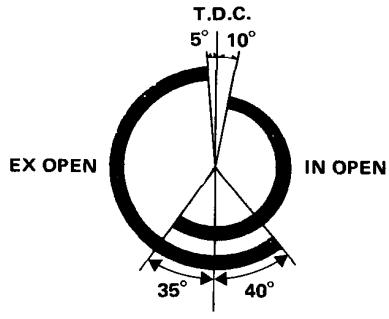
Valve Timing (At 1 mm lift)

[2.0ℓ Carburetor Engine]

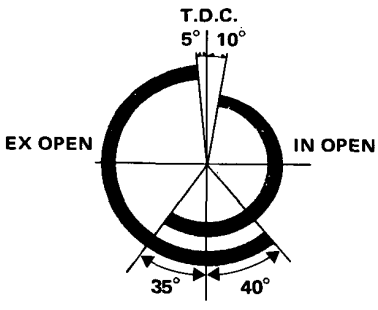
KC, KY and KQ
Manual Transmission



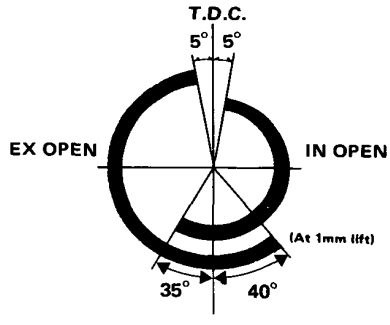
KF, KG, KW, KS, KE, KP, KT and KY
Manual Transmission



KC, KF, KG, KW, KX, KE, KP, KT
and KY Hondamatic Transmission

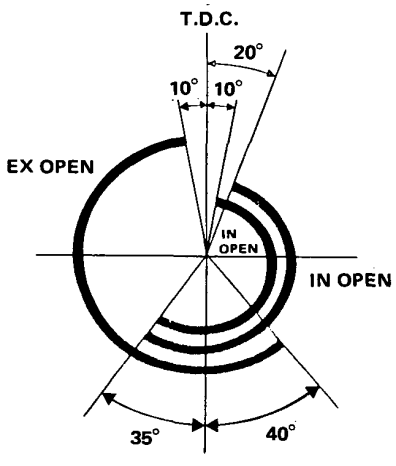


KS
Hondamatic Transmission

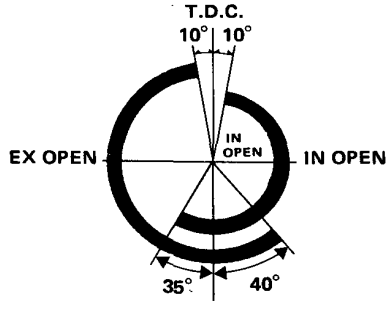


[2ℓ PGM-FI Engine]

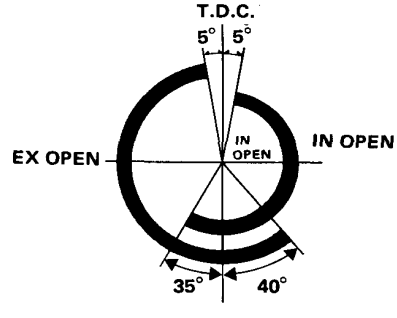
KL, KC, KX and KQ
Manual and Hondamatic



KF, KG, KW, KB, KE and KS (except AT)
Manual and Hondamatic



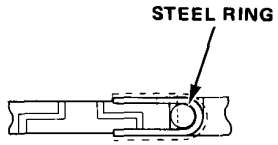
KS
Hondamatic Transmission



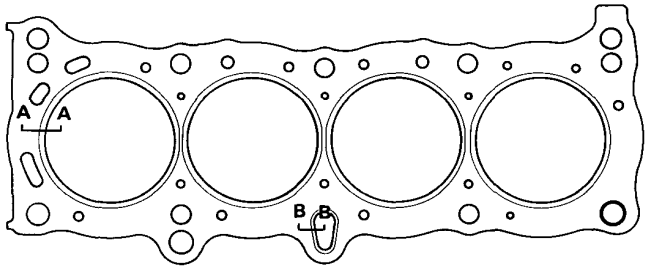
Cylinder Head Gasket

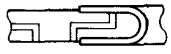
STEEL RING	2.0ℓ ALL EXPORT

A steel ring is newly provided in every bore grommet to prevent grommet cracking and to assure reliability against gasket blowout.



SECTION A–A

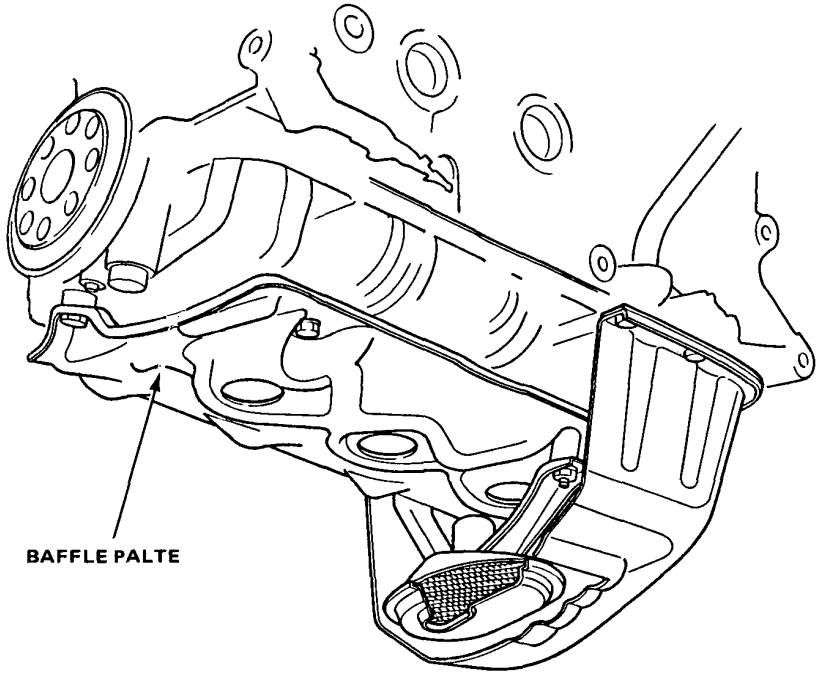




SECTION B–B

Bearing Cap Baffle Plate

The baffle plate, which used be welded in the oil pan, is now secured on the bearing cap by bolts. It contributes to lower engine oil temperature and prevents engine oil airation by completely separating the oil surface from the crankshaft locus. Improvement of power loss at the upper oil level results.

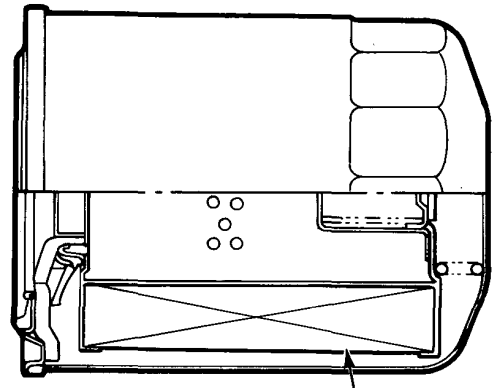


Oil Filter

An improved engine oil filter cartridge is newly employed. It features high filtration performance by aligning the filter paper fiber direction with the direction of oil flow.

Oil Filter Specifications

Filter type	Full flow paper filter
Overall length	100 mm (3.936 in.)
Color	Dark blue



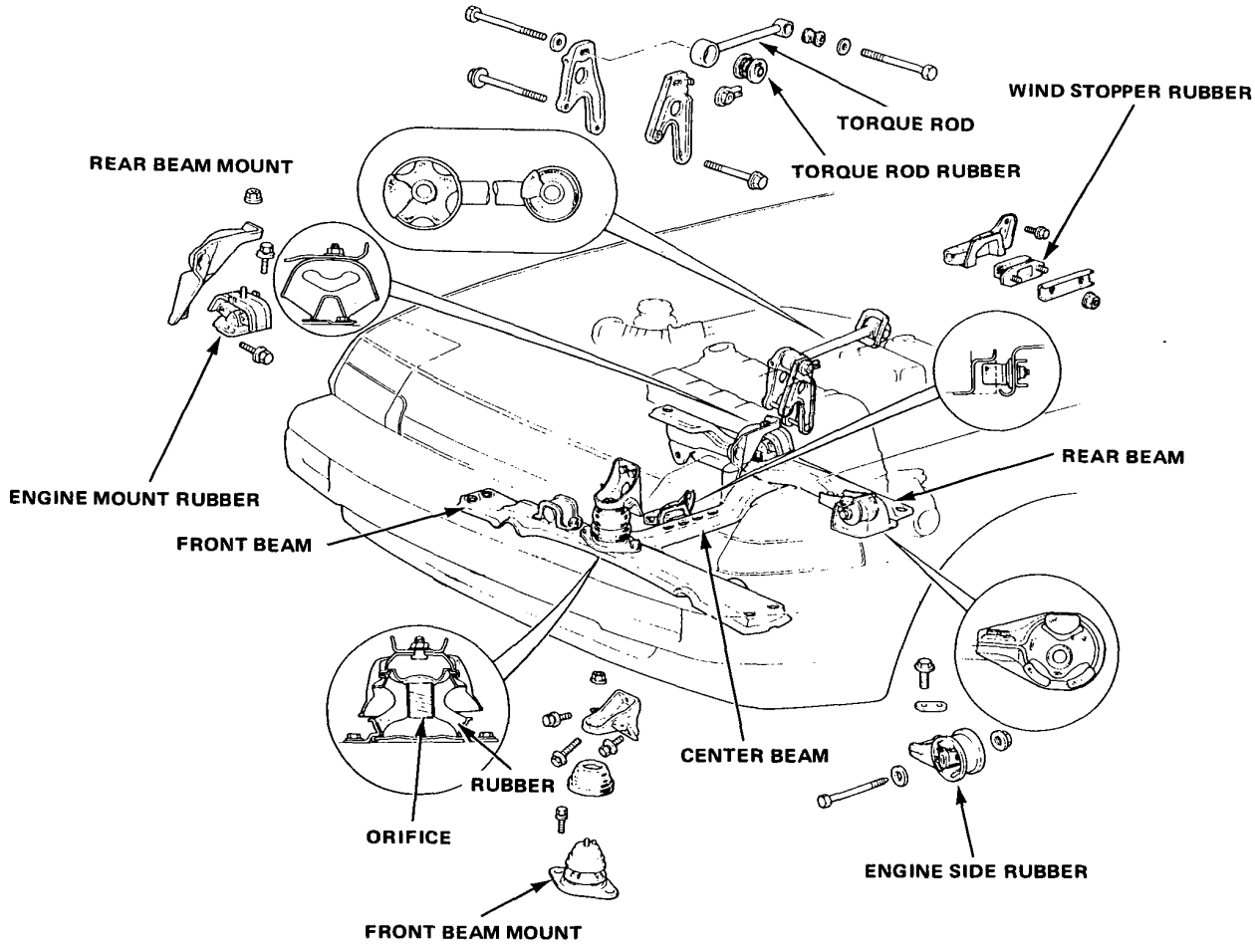
The oil cooler is installed on PGM-FI model.

Engine

Engine Mounting

Five engine mounts are provided, three for supporting the engine weight, and two functioning as stopper rubbers to maintain engine attitude against drive torque reaction and inertial force acting on the engine when driving. Front beam dampers are also provided to reduce humming noise in the cabin. The first three mounts represent the front and rear *mount rubbers installed on the front and rear beams and the engine side rubber installed on the left side of the cylinder* block. The latter two mounts are the torque rod, which extends horizontally from the rear of the engine, and the wind stopper rubber installed right under the engine.

A complex type mount is newly employed for the front beam mount.
There are two chambers located in the upper and lower part of the mount and filled with liquid. An orifice is provided to connect the chambers so that damping force takes place when large amplitude is applied. Driving comfort is further improved while insulating the cabin from engine noise and vibration.



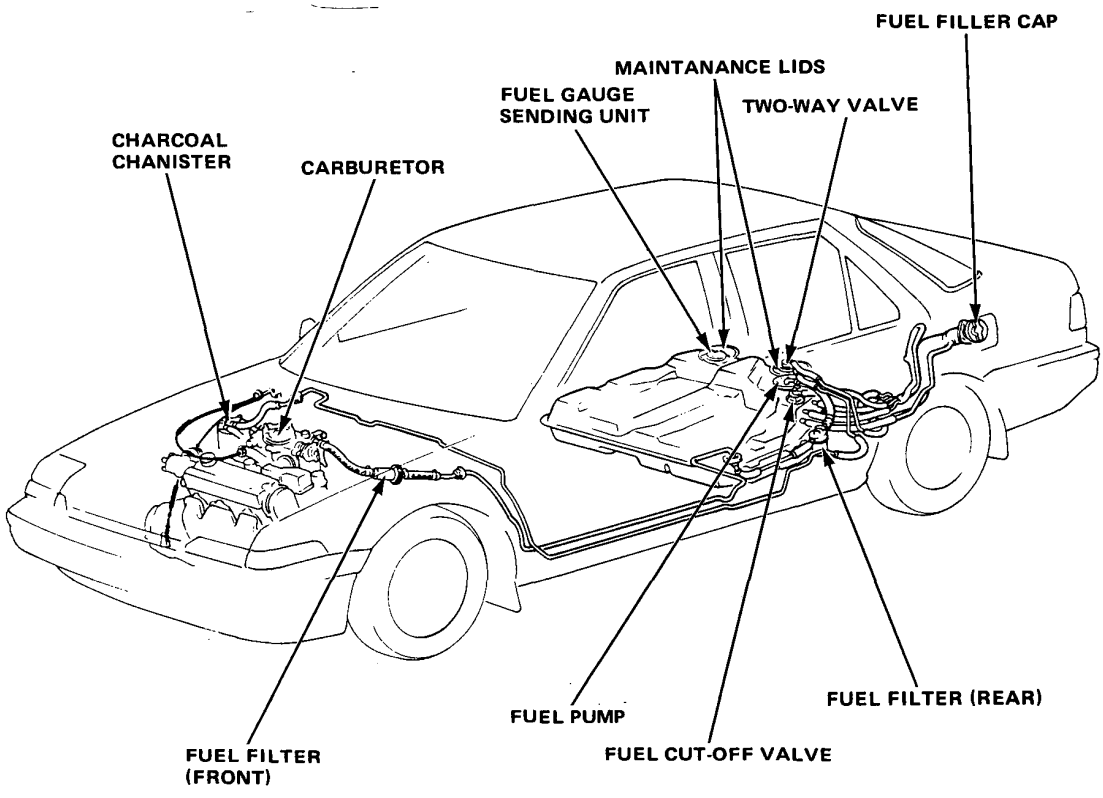
Fuel

Fuel

Description

The fuel system consists of a fuel tank, fuel pump, fuel filter, fuel lines, carburetor, etc.

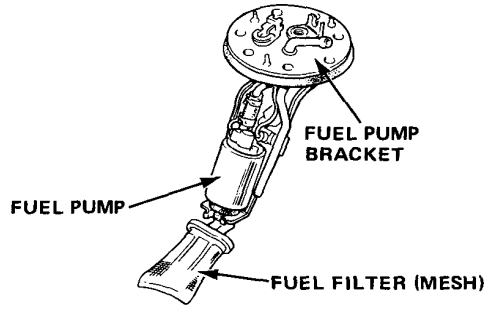
- The newly designed carburetor is a down draft, two barrel type.
- The newly designed fuel pump is an in-tank type mounted inside the fuel tank so that pump noise is decreased and fuel lines are simplified.
- The maintenance lids are newly designed to make it easy to replace the fuel pump and the fuel gauge sending unit without removing the fuel tank.

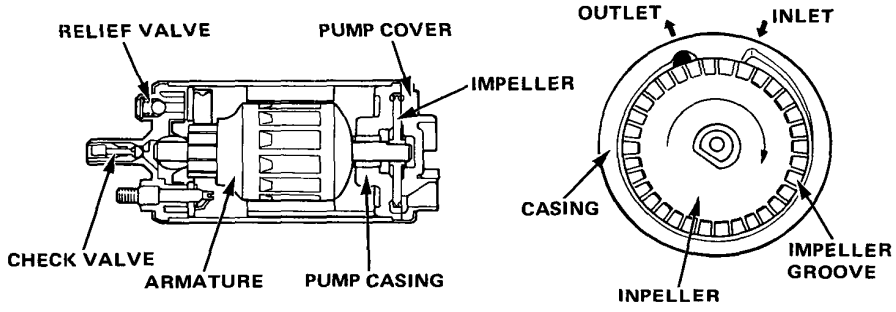


Fuel

Fuel Pump

The fuel pump is an in-tank type. Pumping action is provided by a small electric motor driving the pump impeller. The impeller blades force that fuel through the outlet pipe as the impeller spins.
The fuel pump is sufficiently small and light that can be mounted inside the fuel tank.
A relief valve is provided to prevent pressure over-load in the fuel line. It opens when there is a blockage in the discharge side of the fuel line.
A check valve is provided to maintain fuel pressure in the fuel line after the pump is stopped in order to make re-starting of the engine easy.





Specifications (EFI)

Item	Old (16700–PE7–743)	New (16700–PH3–003)	Remarks
Pump type	Roller	Impeller	
Location	In-line	In-tank	
Outer dia. x Length (mm)	55 x 212.5	50.7 x 123.6	Miniaturization ratio: 47%
Weight (kg)	1.18	0.585	Weight reduction ratio: 51%
Pulsation pressure (kg/cm^2)	0.13	0.05	Pulsation reduction ratio: 62%
Motor speed (rpm)	2,000	4,300	
Motor torque (kg/cm)	1.1	0.6	
Delivery pressure (kg/cm^2)	2.55	2.55	
Displacement (ℓ/Hr)	Min. 85	Min. 85	
Relief valve opening pressure (kg/cm^2)	4.6–6.0	4.5–6.0	

WARNING

The fuel pump is assembled by crimping and cannot be disassembled. Extremely strict product control for the wire harness layout and assembly is taken at the factory to prevent fuel in the tank from igniting. When repair is necessary, the fuel pump and bracket must be replaced with a new assembly.

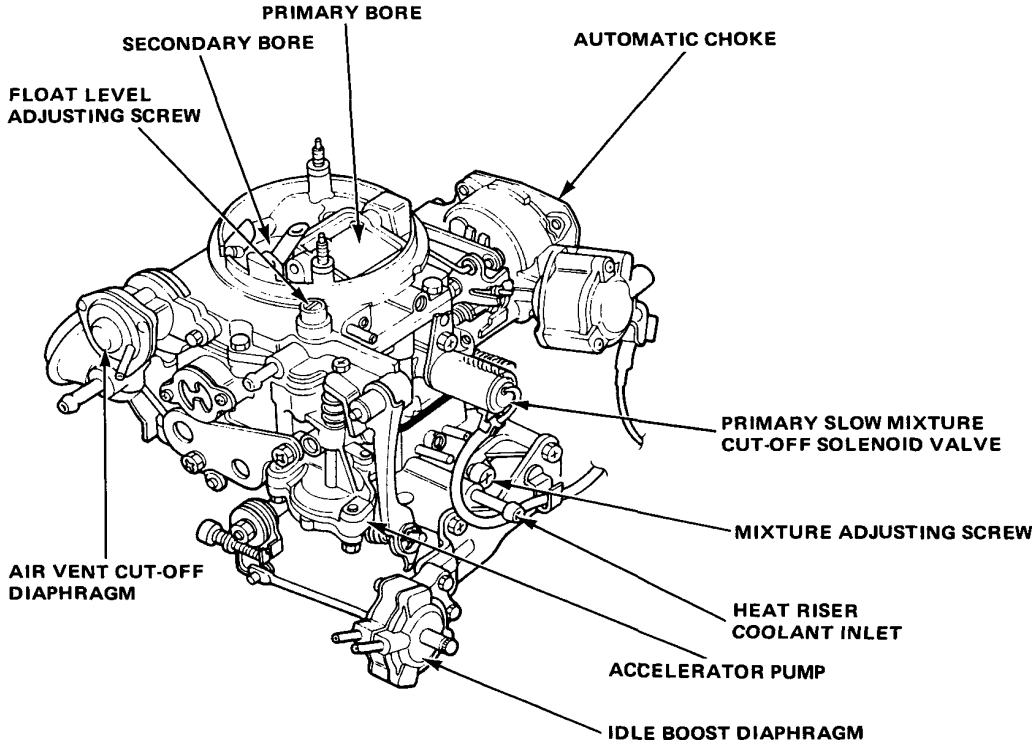
Carburetor

Description

The carburetor is a down draft, two barrel, fixed venturi type. The basic construction is essentially the same as that of current Civic carburetors.

Features

1. The primary and secondary throttle bore diameters are enlarged from the 28/32 mm (Prim./Sec.) of the Civic carburetor to 32/38 mm.
2. An automatic choke system, heat riser and accelerator pump bypass valve are newly adapted on the 2.0ℓ engine carburetor for European and General export model vehicles.
3. An air vent cut-off diaphragm is newly adapted on the 2.0ℓ engine for KC, and KQ types to prevent fuel vapor in the float chamber from escaping to the atmosphere.



Carburetor

Automatic Choke

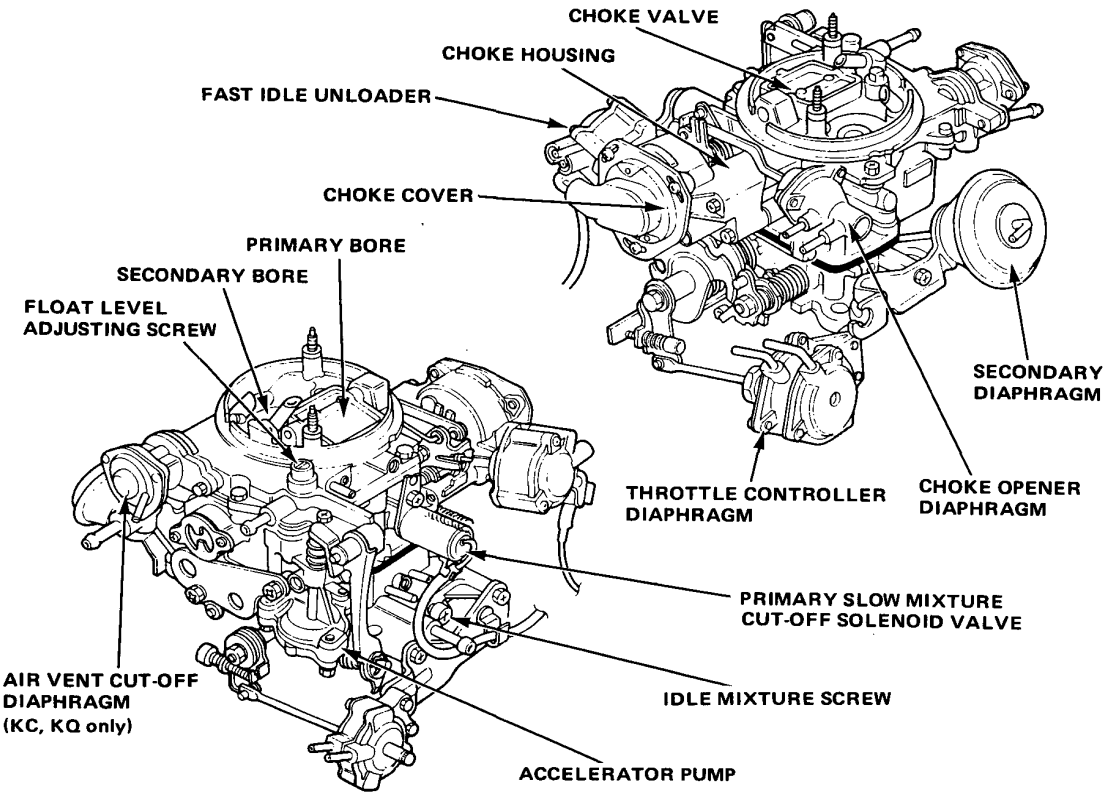
This system provides easy engine starting under a wide range of air temperatures.

The system consists of the following:

a) The choke valve and its linkage system
b) The choke heater electrical circuit
c) The choke opener
d) The fast idle and fast idle unloader system

The choke valve is located in the primary throttle bore of the carburetor. When the engine is not running, the choke valve angle is determined by the bimetallic coil spring acting against the choke return spring. When the engine is running, the choke opener also affects the choke valve angle.

When the engine is started, electric current supplied to the main choke heater causes the bimetallic coil spring to open the choke valve. As the air temperature in the choke cap rises, the thermal switch turns on and electric current is also directed to the secondary choke heater. This speeds the opening of the choke valve during its final stages. The combination of heater and thermistor keeps the bimetallic coil spring at a constant high temperature.



The choke opener adjusts the choke valve for increased air flow once the engine begins to fire. It operates in two steps according to coolant temperature and operates independently of the fast idle setting.

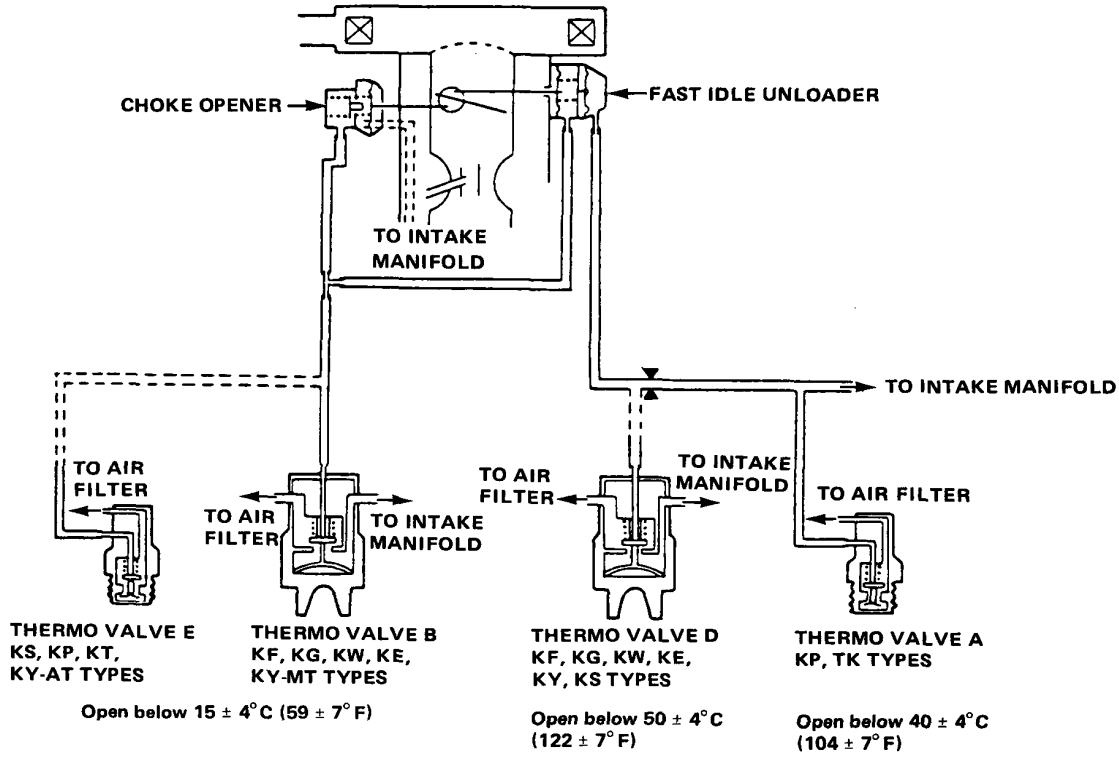
The fast idle unloader operates in two steps according to the characteristics of thermovalves A and B, which sense the engine coolant temperature differently.

Choke Opener System

2.0ℓ	EXCEPT KX, KQ

The fast idle cam is engaged and disengaged by depressing the accelerator pedal, and is also disengaged by the fast idle unloading mechanism.

The unloading mechanism consists of a fast idle unloader, and thermovalves A or D and B or E. The unloader has two diaphragms to release the throttle valve in two steps. When the coolant temperature reaches the set temperature of thermovalve B or E, it closes to shut off the vacuum bleed. This allows the inside diaphragm of the unloader to retract to the first step by manifold vacuum. Then, as the coolant temperature rises further and reaches the set temperature of thermovalve A or D, it closes and manifold vacuum is applied to the outside diaphragm of the unloader. This allows the unloader to operate on the second step.



Choke Opener

This system is designed to promote easy starting. When starting the engine, manifold vacuum is transmitted to the choke opener; thus the choke valve is opened a fixed amount.

Thermovalve B or E works to open the choke valve in response to engine coolant temperature. When the engine coolant temperature is below the set temperature of thermovalve B or E, it opens and manifold vacuum is bled from the valve. In this situation the choke opener diaphragm is retracted to an intermediate position because of the balance between the vacuum and the spring force of the choke opener.

When the engine coolant temperature exceeds the set temperature of thermovalve B or E, it closes to shut off the vacuum bleed and this allows the choke opener to retract fully and pull the choke valve open.

(cont'd)

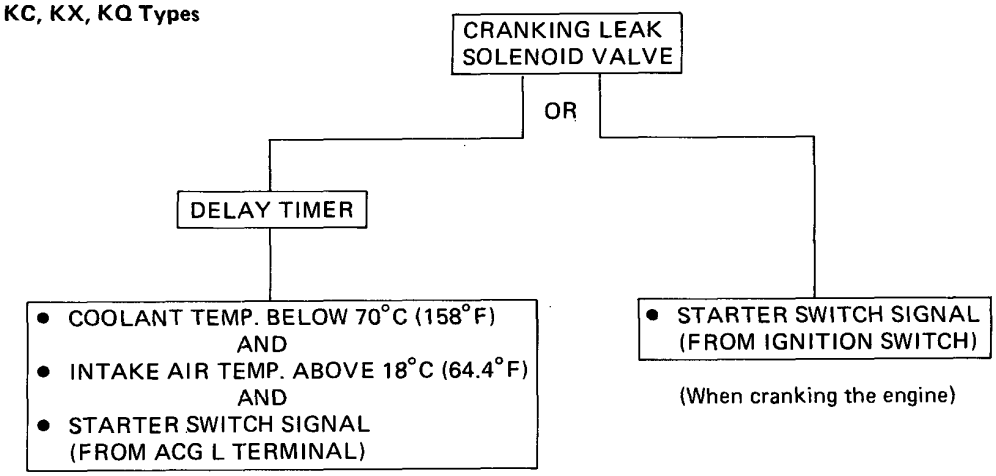
Choke Opener System (cont'd)

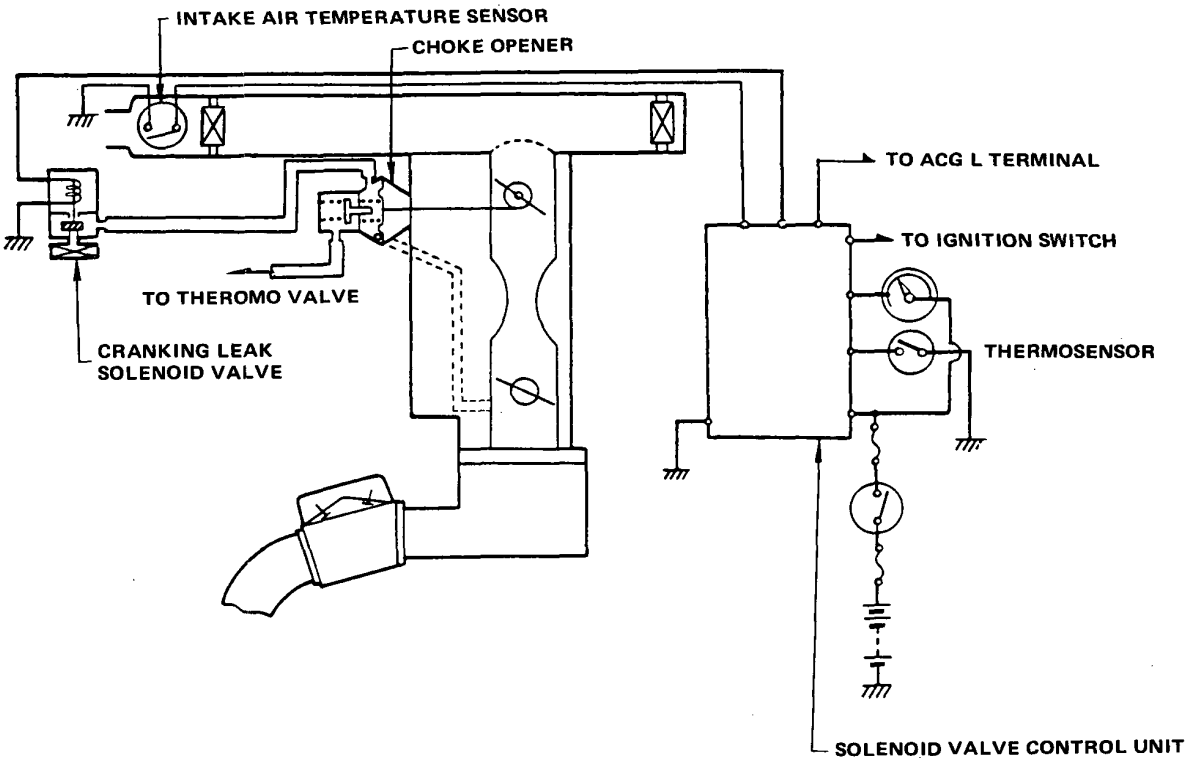
2.0ℓ	KX, KQ Only

Choke Opener

When cranking the engine to start, the cranking leak solenoid valve is activated and manifold vacuum is released from the valve so that the choke opener does not operate.
In addition, when cranking the engine or after starting, activation of the solenoid valve is delayed for several seconds by the solenoid valve control unit in order to improve cold engine driveability.

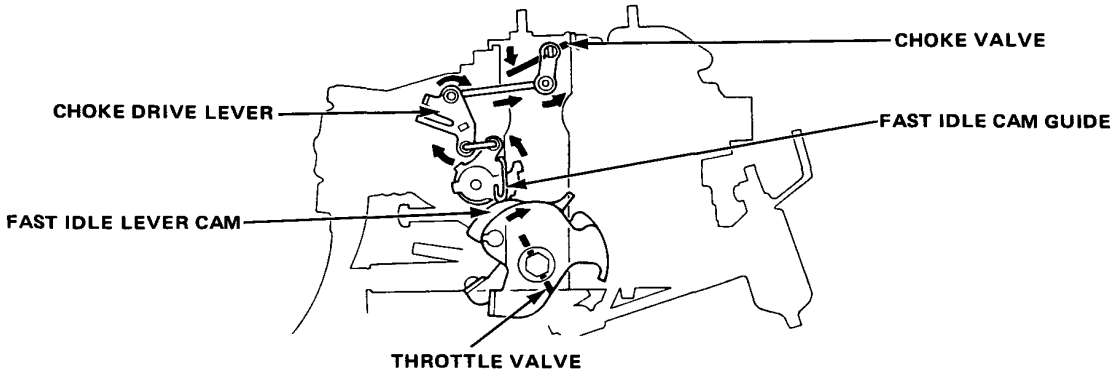
KC, KX, KQ Types





Unloader mechanism

When a cold engine is started, the closed choke valve is opened a fixed amount by the linkage whenever the accelerator pedal is depressed beyond a certain point. This mechanism prevents the air fuel mixture from becoming excessively rich when additional acceleration is required.



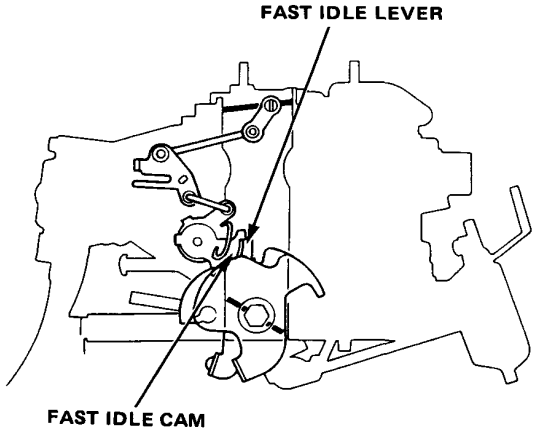
Fast idle mechanism

Before starting the cold engine, it is necessary to depress the accelerator pedal once in order to disengage the fast idle cam from the fast idle lever. When the accelerator pedal is released slowly, the fast idle cam is initially positioned by the bimetallic coil spring according to the ambient temperature.

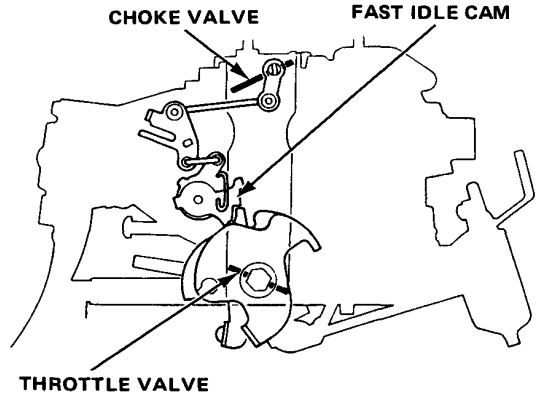
As the choke heater warms the bimetallic coil spring, the lever rotates clockwise, opening the choke valve. The fast idle cam and lever will remain where originally set unless the throttle is depressed to wide open.

When the engine runs smoothly, the idle speed can be reduced by slowly depressing the accelerator pedal.

Before Starting



During Warming up



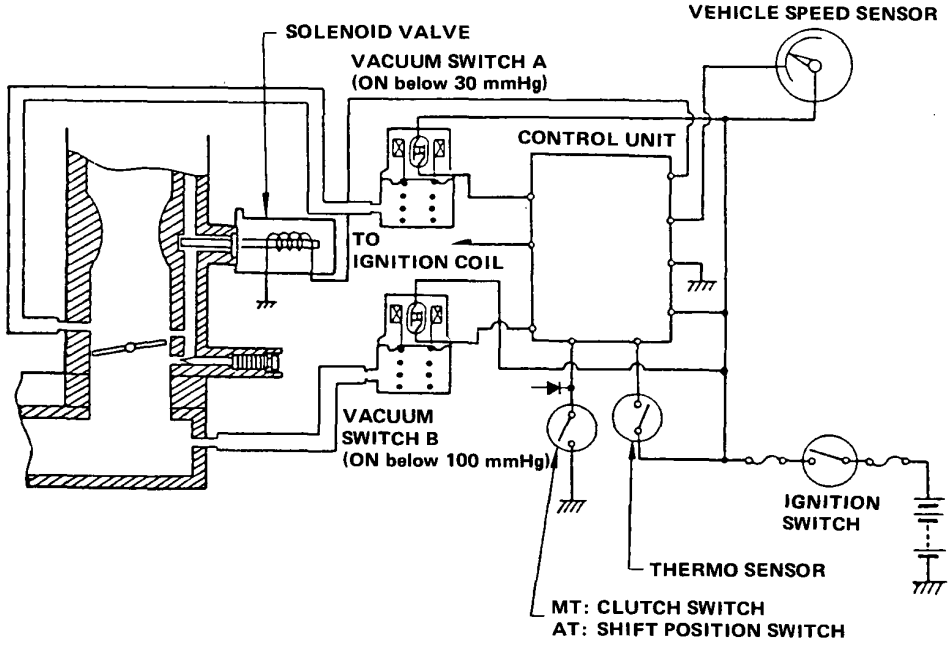
Fuel Cut-off System

KX, KQ Only

This system is designed for fuel economy and to prevent the catalytic converter from over-heating caused by unburned fuel when decelerating the vehicle.
When the primary slow mixture cut-off solenoid valve is deactivated by the solenoid valve control unit under certain conditions, the solenoid valve closes the carburetor primary slow fuel passage.

VACUUM SWITCH A ON
AND
VACUUM SWITCH B ON
AND
COOLANT TEMP. ABOVE 70°C (156.2°F)
AND
VEHICLE SPEED ABOVE 15.0 MPH
AND
ENGINE SPEED ABOVE 1,500 rpm
AND
MT: CLUTCH SWITCH OFF
(Clutch pedal is not depressed.)
AT: SHIFT POSITION SWITCH OFF
(Any position other than "N".)

→ PRIMARY SLOW MIXTURE CUT-OFF SOLENOID VALVE OFF



Power Valve

KS Only

This system is provided to supply supplementary fuel into the priamry main fuel passage when the vehicle is operated in the power mode.

In normal driving modes other than acceleration, manifold vacuum is applied on the diaphragm of the power valve and the valve is closed. When the throttle valve is suddenly opened to accelerate the vehicle, the power valve opens because of the decreased manifold vacuum and supplies additional fuel to the primary main fuel passage through the power jet, providing smooth acceleration performance.

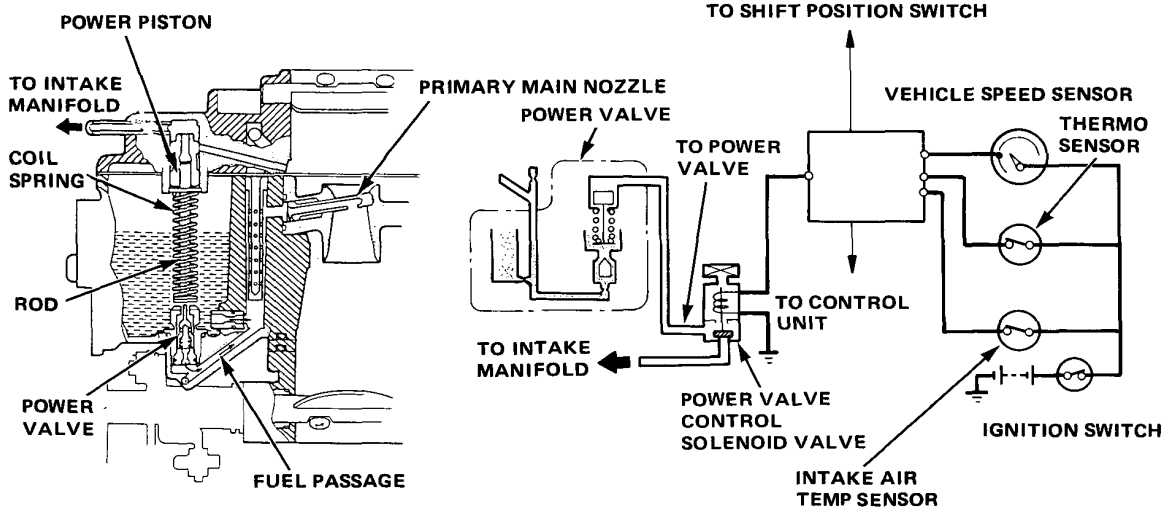
When the power valve control solenoid valve is activated by the solenoid valve control unit, the power valve is opened because the solenoid valve does not allow vacuum to act on the power valve.

POWER VALVE CONTROL SOLENOID VALVE OFF

OR

INTAKE AIR TEMP. BELOW 18°C (64.4°F)
AND
ENGINE SPEED BELOW 3,000 rpm
AND
AT: SHIFT POSITION SWITCH OFF
(Any position other than "P" or "N".)

VEHICLE SPEED BELOW 15 MPH
AND
COOLANT TEMP. BELOW 50°C (122°F)
AND
AT: SHIFT POSITION SWITCH OFF
(Any position other than "P" or "N".)



Carburetor

Accelerator Pump

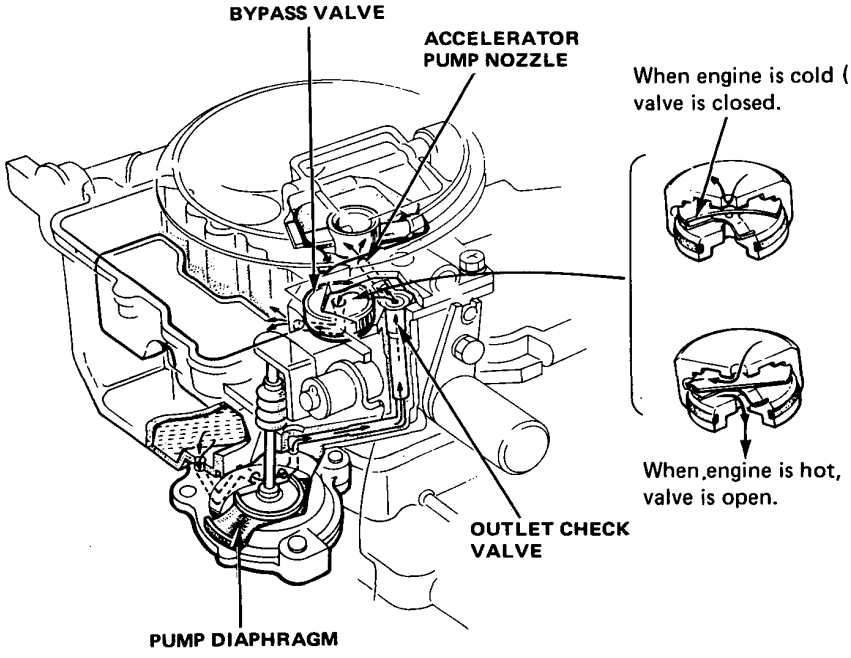
2.0ℓ TYPE

The accelerator pump supplies the extra fuel necessary to maintain the ideal air/fuel mixture when the accelerator pedal is depressed suddenly at low engine speeds.

When the accelerator pedal is depressed, the pump rod, which is connected to the throttle lever, pushes down on the accelerator pump diaphragm. This opens the outlet check valve and allows fuel to be pumped up to the accelerator pump nozzle, where it is sprayed into the carburetor's primary throat.

When the accelerator pedal is released, the accelerator pump diaphragm is pushed up by its spring and this closes the outlet check valve. Fuel, from the float chamber, flows into the acclerator pump chamber through the inlet check valve so that the pump will be ready when the accelerator pedal is again depressed suddenly.

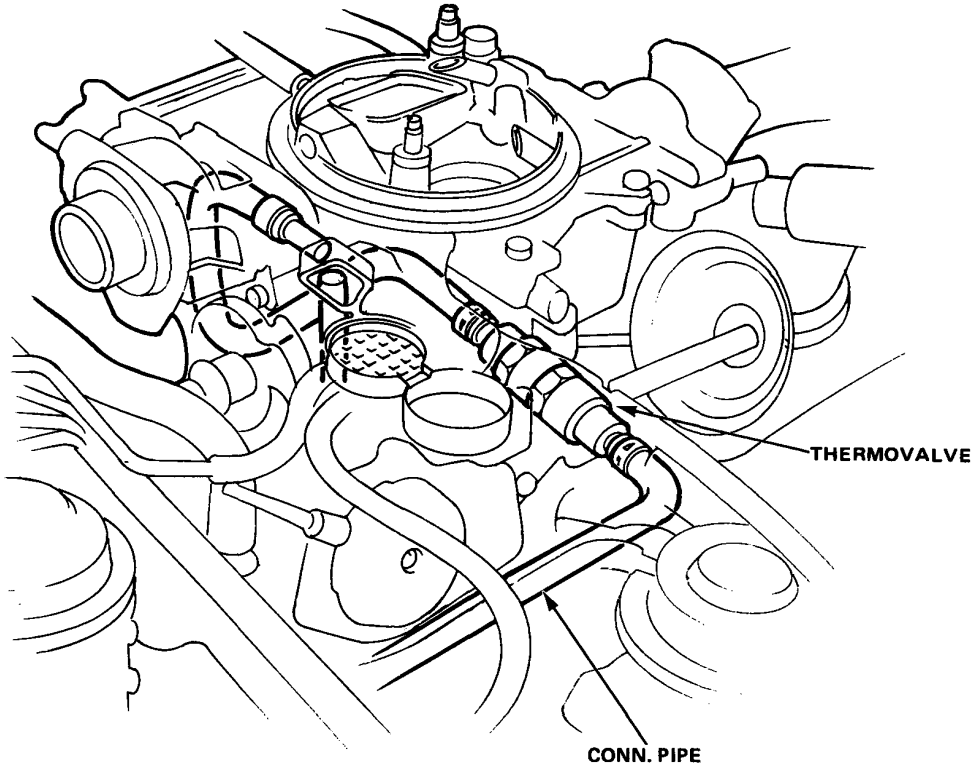
The fuel flow from the accelerator pump is further regulated by the temperature-sensitive bypass valve in the carburetor. When the engine is cold, the bypass portion of the valve is closed so that the accelerator pump nozzle will get the maximum of fuel available. When the engine warms up to its normal operating temperature, the bypass valve opens and this allows some of the fuel, which would ordinarily be routed to the nozzle, to be bled back into the float chamber of the carburetor.



Carburetor Heat Riser

2.0ℓ TYPE

A thermovalve, utilizing engine coolant, is built into the intake manifold to prevent carburetor icing and to improve cold driveability. This improves air-fuel mixture atomization. Since excessive heat can cause fuel percolation, a bypass valve with a thermostat shuts off coolant flow, at normal operating temperatures.

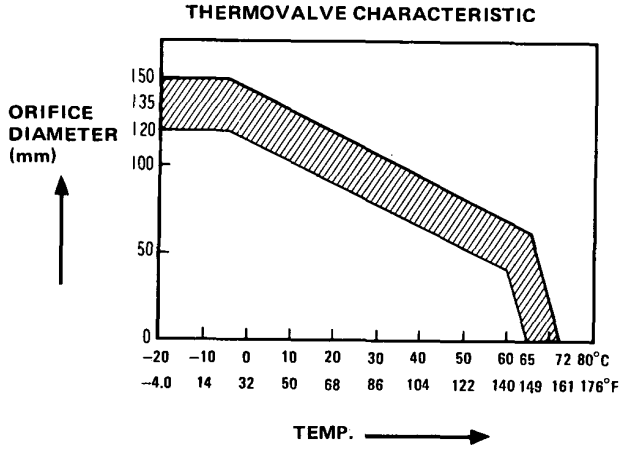


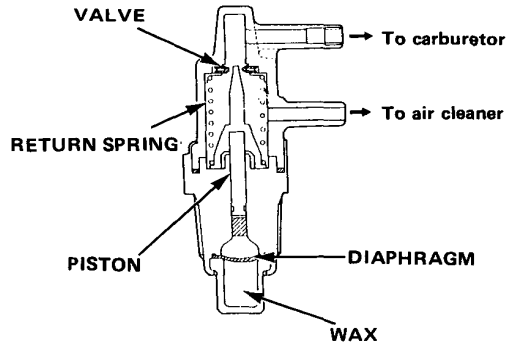
Carburetor

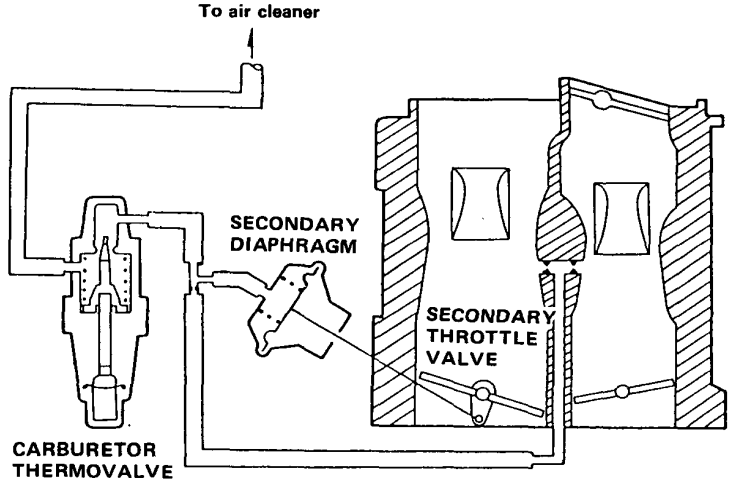
Secondary Diaphragm Vacuum Bypass System

2.0ℓ TYPE

This system is designed to control vacuum bypass into the air cleaner to keep the secondary throttle valve closed in order to improve drivability when the engine is cold.
The carburetor thermovalve is controlled by a thermowax plunger. When the thermowax is cold, the valve is open. When the thermowax melts, the valve closes. With the engine cold and the thermowax consequently cold, venturi vacuum bleeds off into the air cleaner so that the secondary throttle valve remains closed. When the engine reaches operating temperature, the valve is closed, allowing vacuum to act on the secondary diaphragm.
The carburetor thermovalve is located on the thermo case assembly.







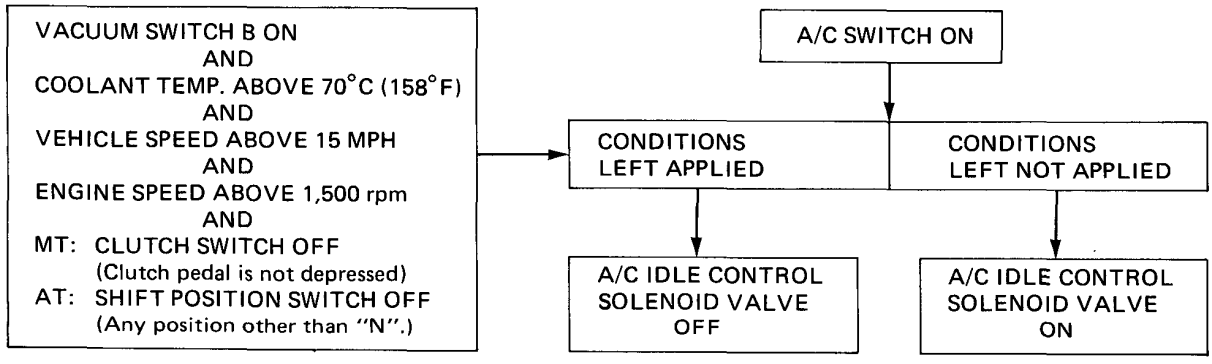
Idle Boost Control (A/C)

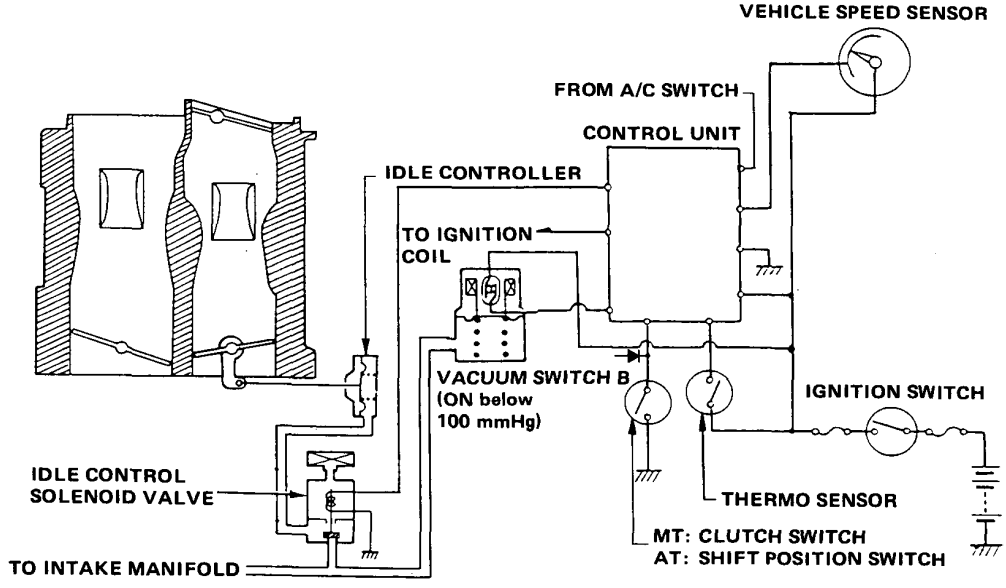
KX, KQ Only

This system prevents the idle speed from dropping when the A/C compressor switch is turned on.

When the compressor switch is on, manifold vacuum is introduced into the diaphragm chamber of the idle controller through the idle control solenoid valve which is activated by the compressor switch and the diaphragm rod is retracted to open the throttle valve by a certain amount. The amount of this throttle valve opening is adjusted with the idle control screw on the idle controller to maintain the original idle speed when the air conditioner compressor switch is turned on.

When the compressor is off, or engine coolant temperature, vehicle speed, and engine speed are above the set value the idle control solenoid valve is deactivated to close the vacuum passage and the vacuum stored in the controller is released by the air entering through the filter on the solenoid valve.

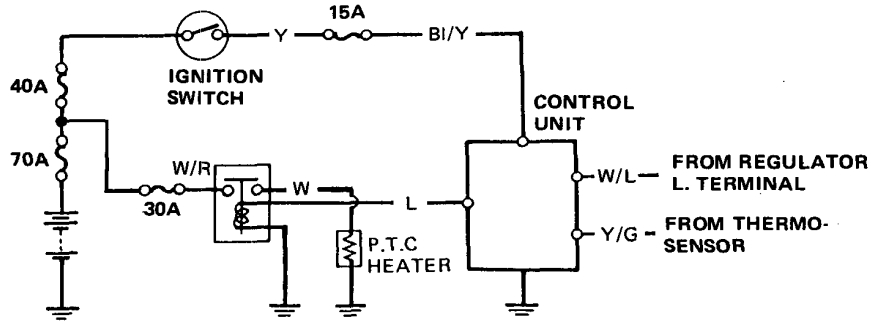




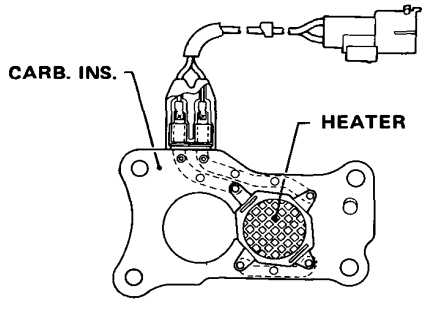
PTC Heater

KX, KQ Only

During cold-engine operation, just after starting, vaporization of the fuel is poor. To improve fuel vaporization and therefore cold engine driveability, a PTC Heater is provided to heat the air/fuel mixture when it passes through the carburetor insulator. In addition, fuel distribution to each cylinder is equalized by the honey comb shaped heater. A PTC Heater control unit is located under the left side front seat. A PCT control relay is located on the right side of the engine room near the relay box.



PTC Heater Activation Temp:
Below 70°C (158°F)

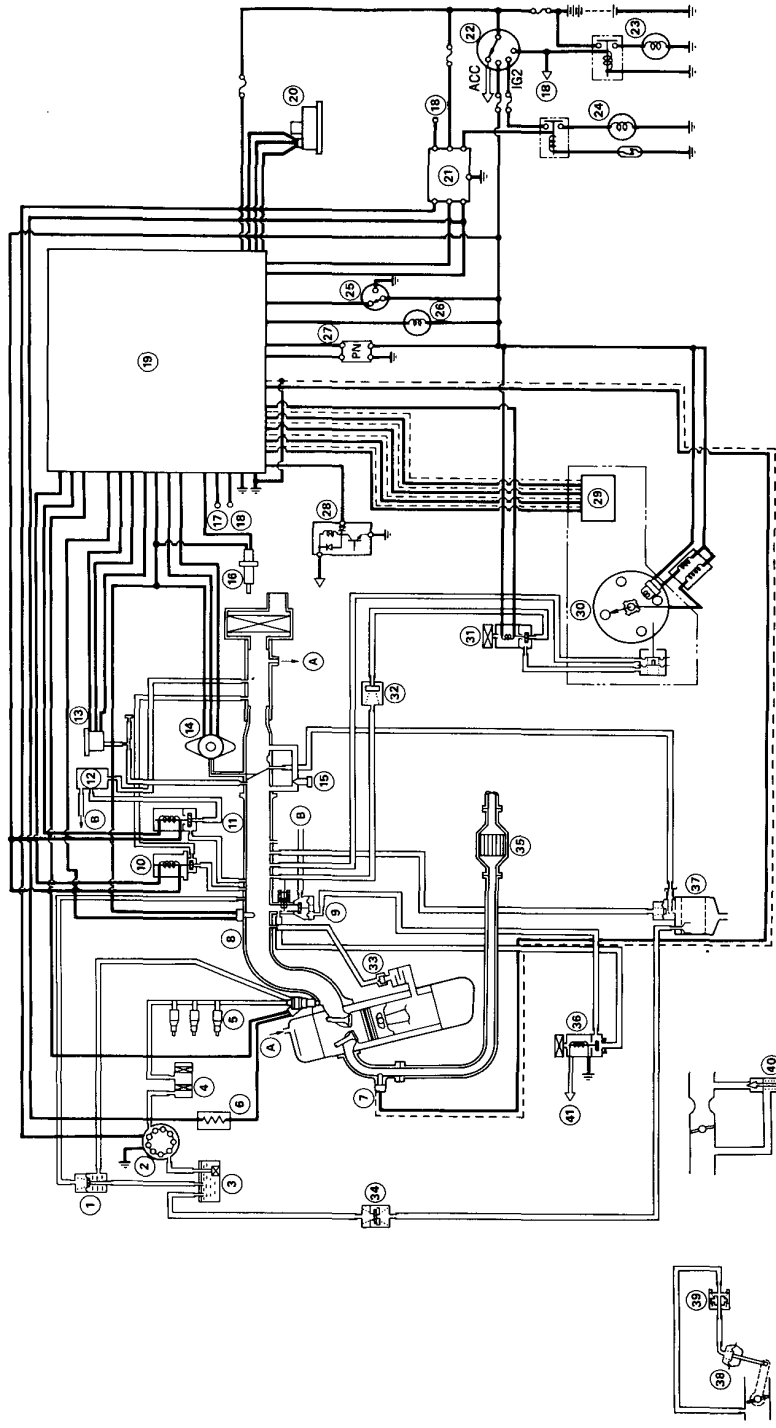


CAUTION:

1. **Be careful not to damage the insulator when servicing the carburetor.**
2. **Make sure that there is no foreign matter on the insulator after installing.**
3. **Make sure that the O-ring and seal are properly installed.**

Vacuum and Electrical Connections

[KC]

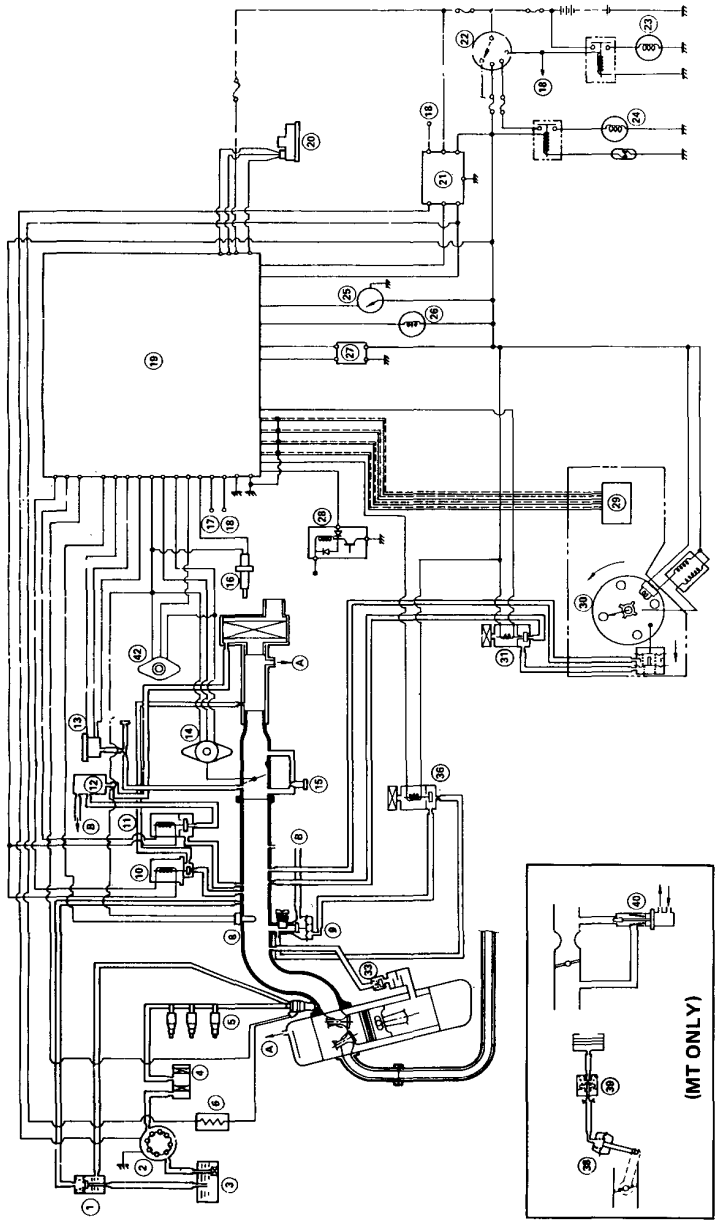


1. PRESSURE REGULATOR
2. FUEL PUMP
3. FUEL TANK
4. FUEL FILTER
5. INJECTOR
6. RESISTOR
7. OXYGEN SENSOR
8. INTAKE AIR TEMPERATURE SENSOR
9. IDLE CONTROL VALVE (A/C ONLY)
10. A/T IDLE CONTROL SOLENOID VALVE
11. IDLE CONTROL SOLENOID VALVE
12. AIR CHAMBER
13. MANIFOLD ABSOLUTE PRESSURE SENSOR
14. THROTTLE ANGLE SENSOR
15. IDLE ADJUSTING SCREW
16. COOLANT TEMPERATURE SENSOR
17. FROM A/C SWITCH
18. STARTER SIGNAL
19. ELECTRONIC CONTROL UNIT
20. ATMOSPHERIC PRESSURE SENSOR
21. MAIN RELAY
22. IGNITION SWITCH
23. STARTER MOTOR
24. RADIATOR FAN
25. VEHICLE SPEED SENSOR
26. PGM-FI WARNING LIGHT
27. A/T SHIFT POSITION SWITCH
28. ALTERNATOR
29. CRANK ANGLE SENSOR
30. DISTRIBUTOR
31. COLD ADVANCE SOLENOID VALVE OR VACUUM CONTROLER CONTROL SOLENOID VALVE
32. CHECK VALVE
33. PCV VALVE
34. 2 WAY VALVE
35. CATALYTIC CONVERTER
36. A/C IDLE CONTROL SOLENOID VALVE
37. CANISTER
38. DASHPOT
39. DASHPOT CHECK VALVE
40. FAST IDLE VALVE
41. FROM CONTROL UNIT

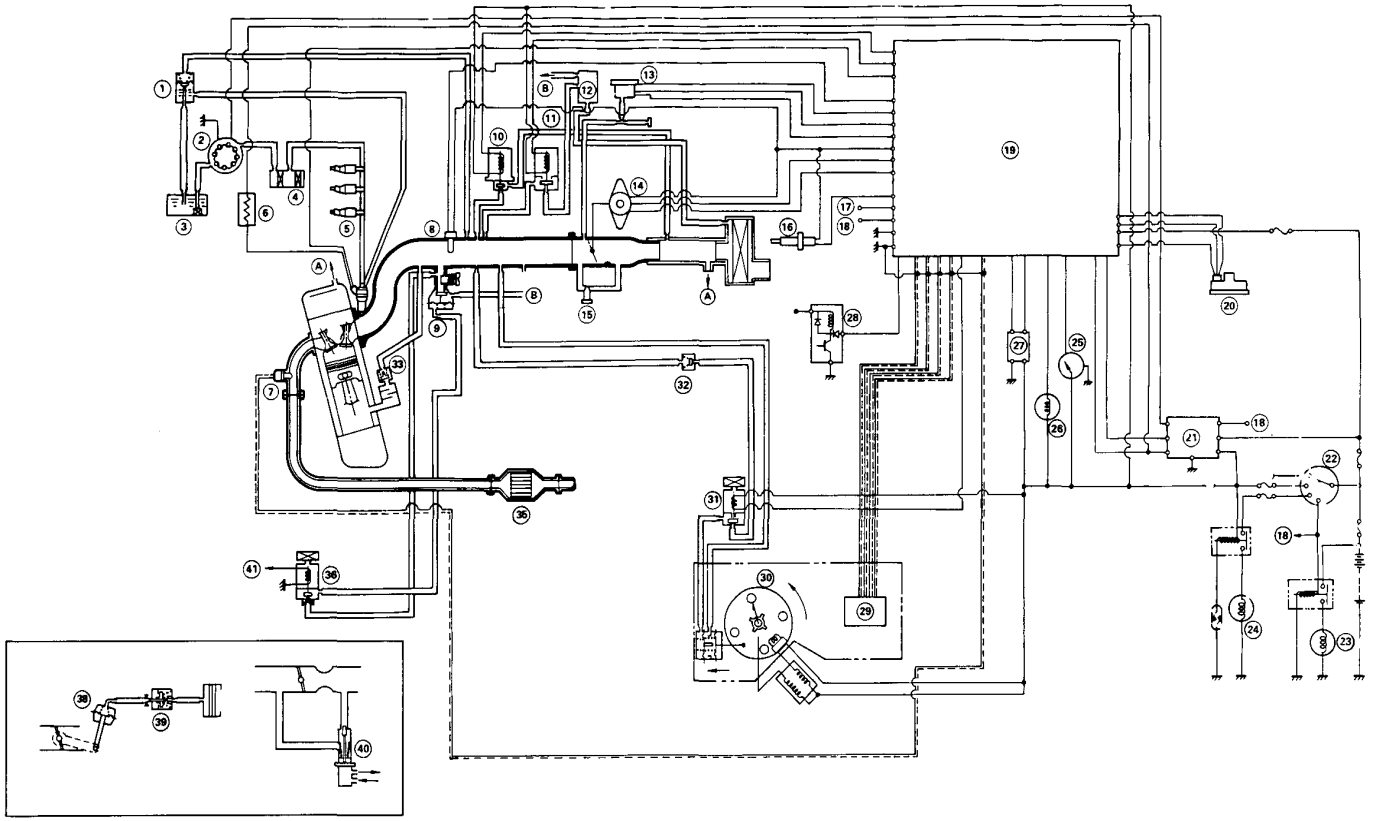
(cont'd)

Vacuum and Electrical Connections (cont'd)

[KF, KG, KW, KE–MT/AT]



1. PRESSURE REGULATOR
2. FUEL PUMP
3. FUEL TANK
4. FUEL FILTER
5. INJECTOR
6. RESISTOR
8. INTAKE AIR TEMPERATURE SENSOR
9. IDLE CONTROL VALVE (A/C ONLY)
10. A/T IDLE CONTROL SOLENOID VALVE
11. IDLE CONTROL SOLENOID VALVE
12. AIR CHAMBER
13. MANIFOLD ABSOLUTE PRESSURE SENSOR
14. THROTTLE ANGLE SENSOR
15. IDLE ADJUSTING SCREW
16. COOLANT TEMPERATURE SENSOR
17. FROM A/C SWITCH
18. STARTER SIGNAL
19. ELECTRONIC CONTROL UNIT
20. ATMOSPHERIC PRESSURE SENSOR
21. MAIN RELAY
22. IGNITION SWITCH
23. STARTER MOTOR
24. RADIATOR FAN
25. VEHICLE SPEED SENSOR
26. PGM-FI WARNING LIGHT
27. A/T SHIFT POSITION SWITCH
28. ALTERNATOR
29. CRANK ANGLE SENSOR
30. DISTRIBUTOR
31. COLD ADVANCE SOLENOID VALVE
33. PCV VALVE
36. A/C IDLE CONTROL SOLENOID VALVE (A/C ONLY)
38. DASHPOT
39. DASHPOT CHECK VALVE
40. FAST IDLE VALVE
42. IMA SENSOR



1. PRESSURE REGULATOR
2. FUEL PUMP
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4. FUEL FILTER
5. INJECTOR
6. RESISTOR
7. OXYGEN SENSOR
8. INTAKE AIR TEMPERATURE SENSOR
9. IDLE CONTROL VALVE (A/C ONLY)
10. A/T IDLE CONTROL SOLENOID VALVE
11. IDLE CONTROL SOLENOID VALVE
12. AIR CHAMBER
13. MANIFOLD ABSOLUTE PRESSURE SENSOR
14. THROTTLE ANGLE SENSOR
15. IDLE ADJUSTING SCREW
16. COOLANT TEMPERATURE SENSOR
17. FROM A/C SWITCH
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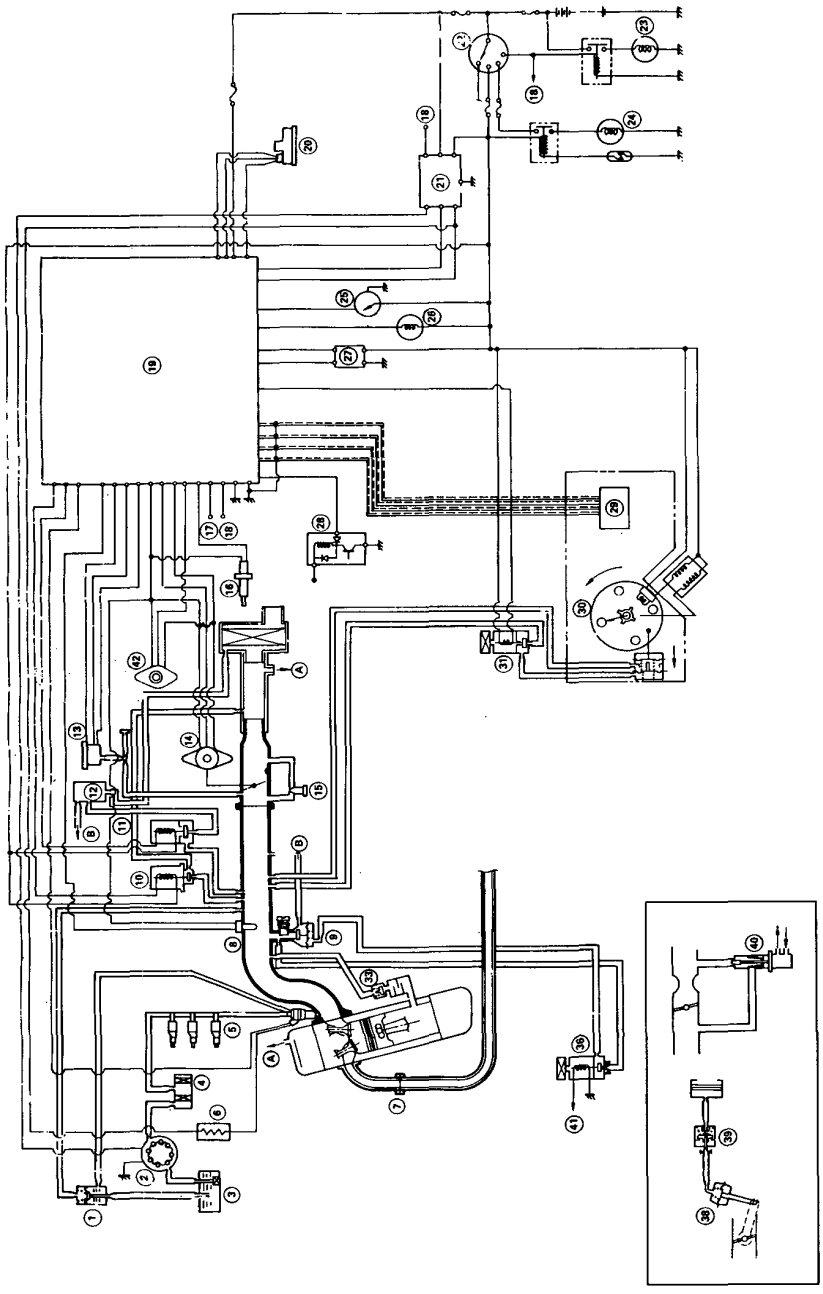
32. CHECK VALVE
33. PCV VALVE
35. CATALYTIC CONVERTER
36. A/C IDLE CONTROL SOLENOID VALVE
38. DASHPOT
39. DASHPOT CHECK VALVE
40. FAST IDLE VALVE

(cont'd)

Vacuum and Electrical Connections (cont'd)

[KS–MT/AT]



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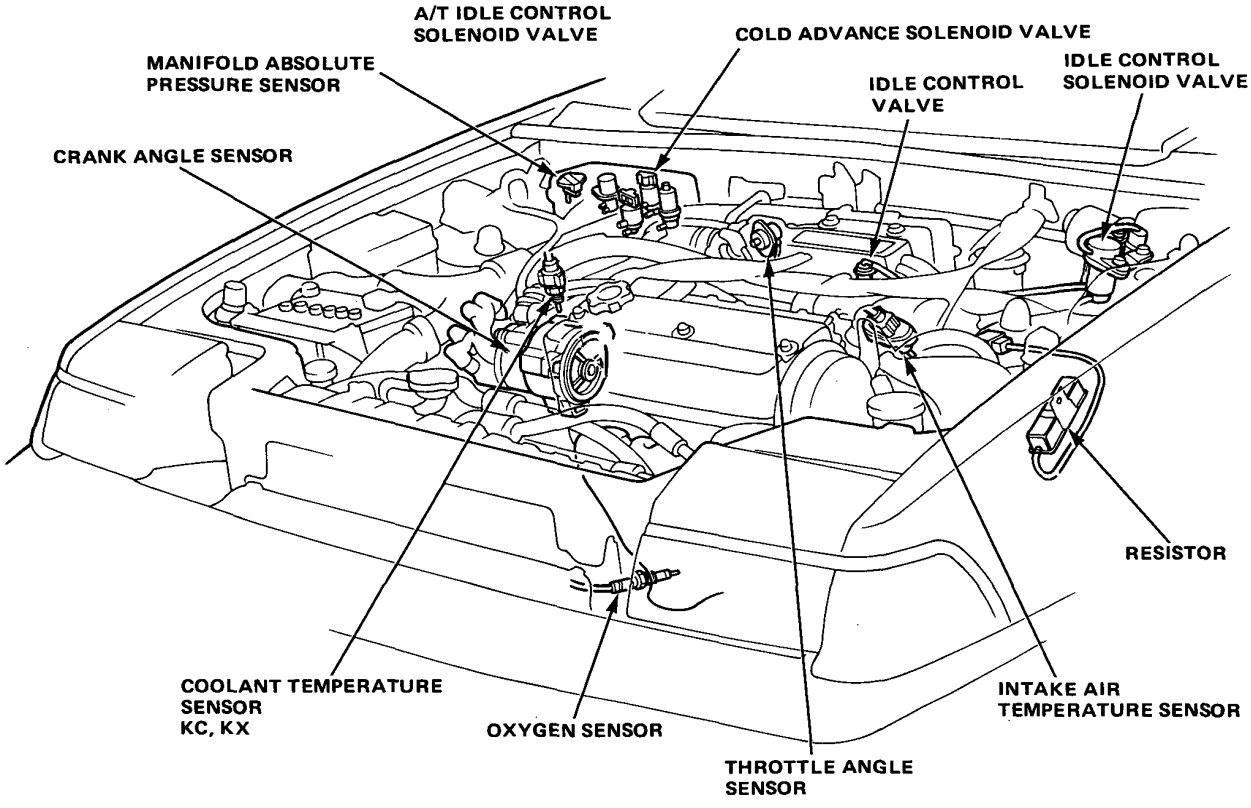
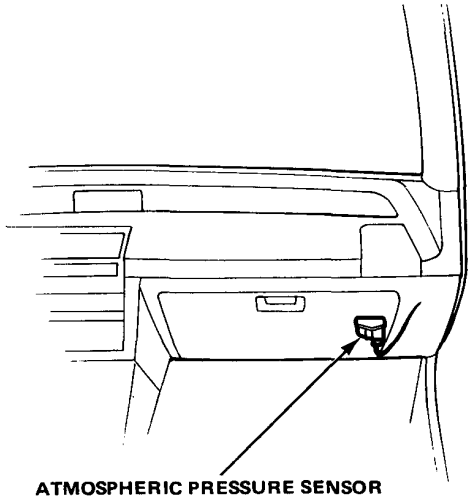
8. INTAKE AIR TEMPERATURE SENSOR
9. IDLE CONTROL VALVE (A/C ONLY)
10. A/T IDLE CONTROL SOLENOID VALVE
11. IDLE CONTROL SOLENOID VALVE
12. AIR CHAMBER
13. MANIFOLD ABSOLUTE PRESSURE SENSOR
14. THROTTLE ANGLE SENSOR
15. IDLE ADJUSTING SCREW
16. COOLANT TEMPERATURE SENSOR
17. FROM A/C SWITCH
18. STARTER SIGNAL
19. ELECTRONIC CONTROL UNIT
20. ATMOSPHERIC PRESSURE SENSOR
21. MAIN RELAY
22. IGNITION SWITCH
23. STARTER MOTOR
24. RADIATOR FAN
25. VEHICLE SPEED SENSOR
26. PGM-FI WARNING LIGHT
27. A/T SHIFT POSITION SWITCH
28. ALTERNATOR
29. CRANK ANGLE SENSOR
30. DISTRIBUTOR
31. COLD ADVANCE SOLENOID VALVE
33. PCV VALVE
36. A/C IDLE CONTROL SOLENOID VALVE
38. DASHPOT
39. DASHPOT CHECK VALVE
40. FAST IDLE VALVE
42. IMA SENSOR

Description





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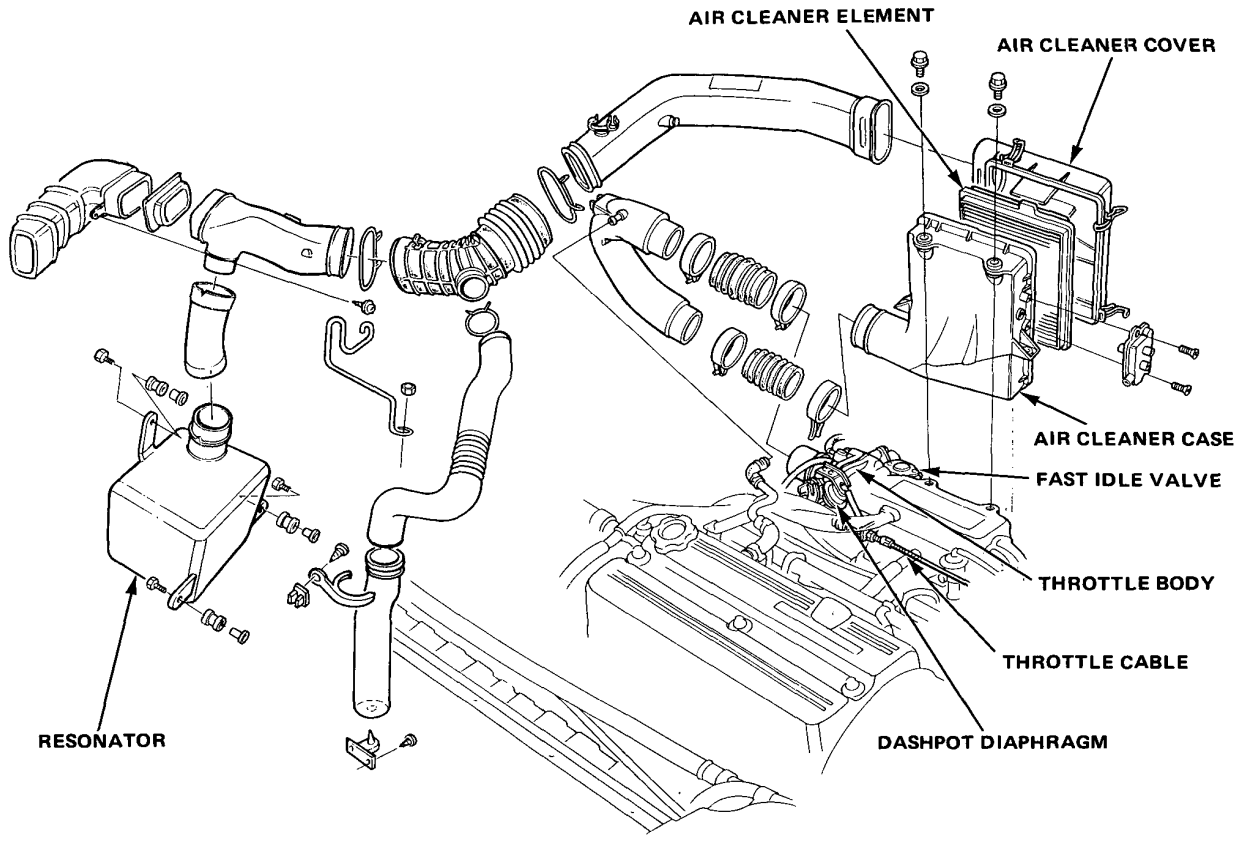
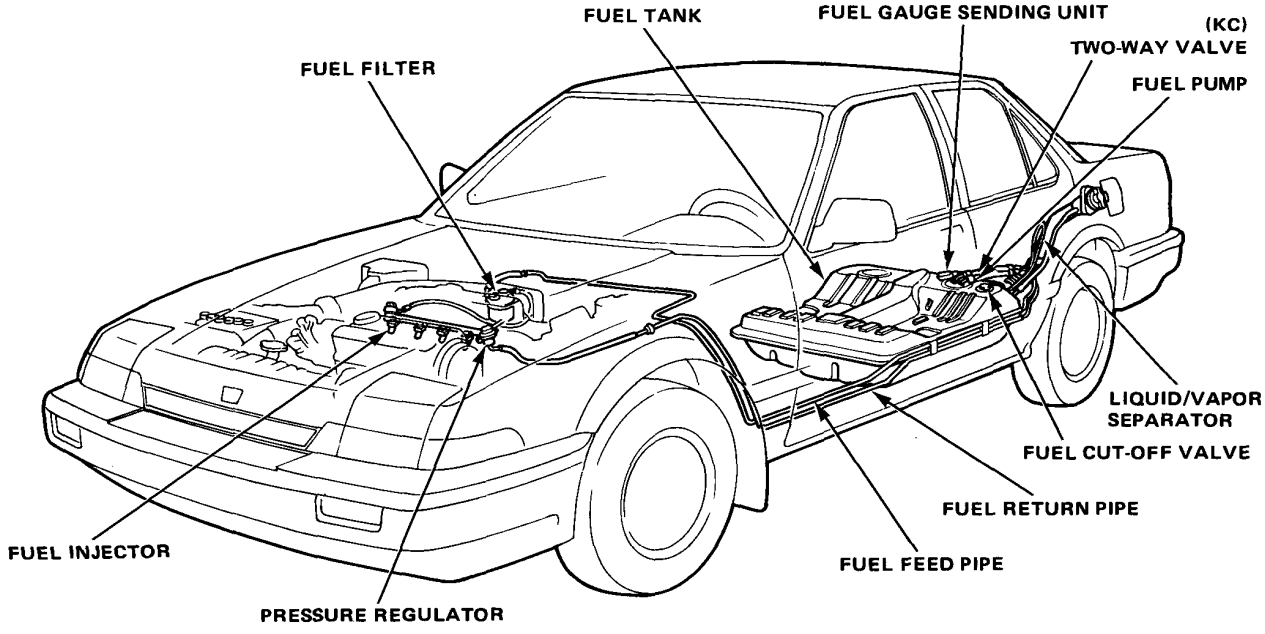
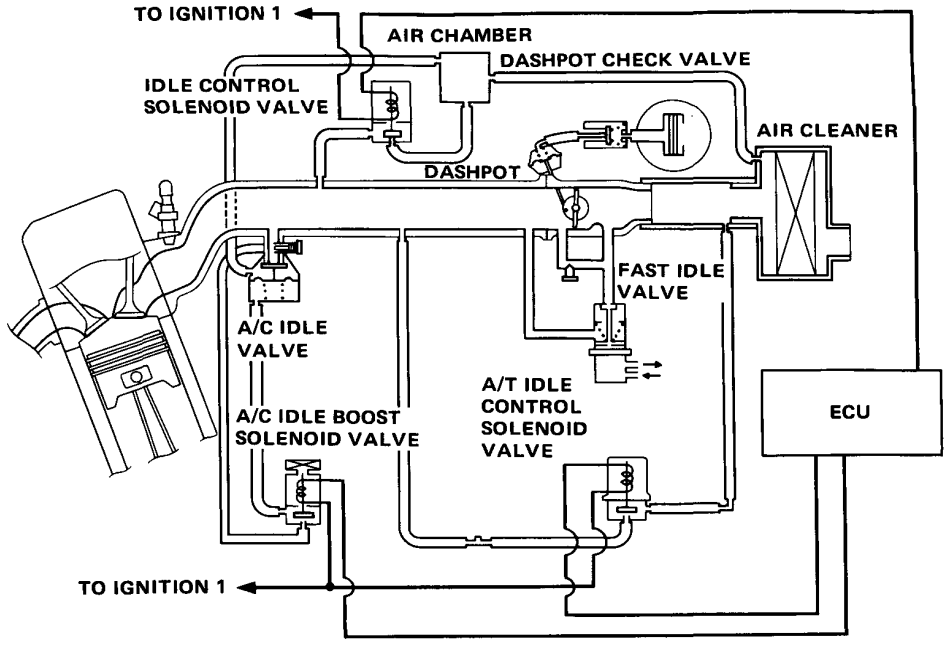
Description (cont'd)





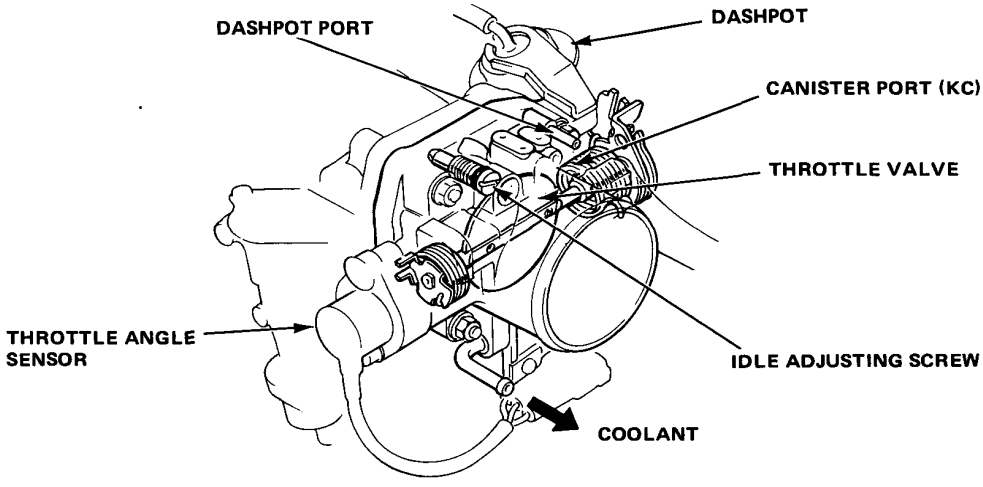
Air Intake System

The system supplies air for all engine needs. It consists of the air cleaner, air intake pipe, throttle body, idle control system, fast idle mechanism, and intake manifold. A resonator in the air intake pipe provides additional silencing as air is drawn into the system.



Throttle Body

The throttle body is a single-barrel side-draft type. To prevent icing of the throttle valve, lower portion of the throttle valve is heated by engine coolant which is led from the cylinder head. The idle adjusting screw which increases/decreases by-pass air is located on the top of the throttle body. A throttle sensor is attached to the throttle valve short to input the fuel injection control by sensing and sending a signal to the control unit. A dashpot is used to slow the throttle as it approaches the closed position. When the throttle is in the closed position, the throttle valve contacts the throttle stop screw.

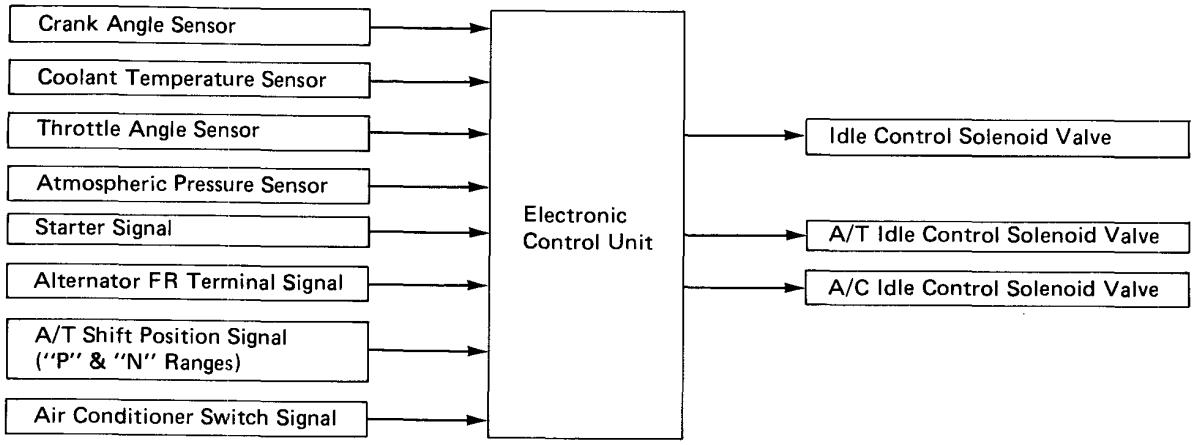


Throttle Control System

The dashpot is employed to slow the closing of the throttle valve during gear shifting or deceleration to prevent the formation of incombustible mixtures.
When the throttle valve begins to close suddenly during gear shifting or deceleration, the throttle valve closes when the vacuum in the dashpot diaphragm overcomes the diaphragm spring. This vacuum from the throttle body increases gradually because of the orifice in the dashpot check valve. Thus, the diaphragm slowly pulls the diaphragm rod against the force of the spring, and the throttle valve is closed gradually.

Idle Control System

The idle speed is controlled by the electronic control unit and various solenoid valves such as idle control, A/T idle control, and A/C idle boost solenoid valves. These change the amount of air bypassing into the air intake manifold. The A/C idle boost solenoid valve opens the A/C idle boost valve to increase the air flow when the air conditioner is turned on.



Idle Control Solenoid Valve

When the idle speed is reduced due to electrical, or other, loads on the engine, the valve opens to bypass additional air into the intake manifold. This additional air will allow the idle speed to increase to its normal speed (750 ± 50 rpm). The operation depends upon changes in the voltage at the FR terminal of the alternator for quick response. The valve also lowers the fast idle speed during warm-up, after the coolant temperature has reached 40°C (104°F). To prevent erratic running after the engine first fires, the valve is opened during cranking and immediately after starting to provide additional air into the intake manifold.

A/T Idle Control Solenoid Valve

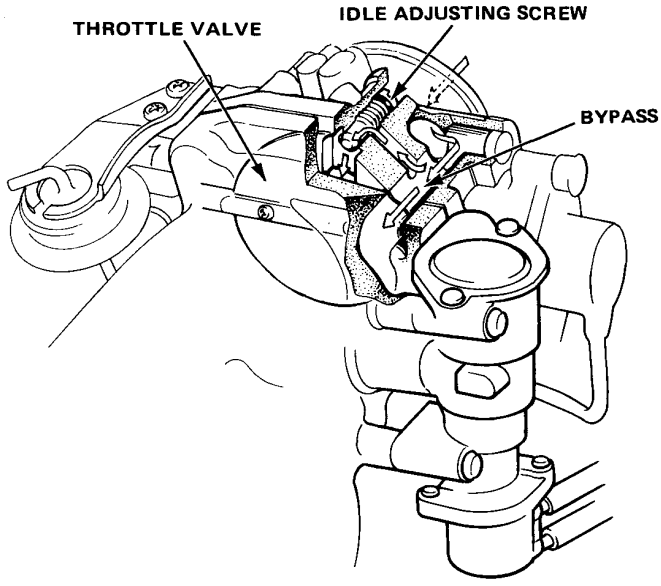
With the A/T shift lever is in gear, the idle speed will tend to lower. To compensate for this, the valve opens to maintain the specified idle speed (750 ± 50 rpm).

A/C Idle Solenoid Valve

When the air conditioner is turned on, the A/C idle solenoid valve is energized, the A/C idle boost valve opens to increase the air flow, and the idle speed is maintained at 750 ± 50 rpm. Adjust idle rpm with the A/C idle valve adjusting bolt. When the engine rpm is low, the idle control solenoid valve also functions to maintain specified idle.

Idle Adjuster (Bypass Circuit)

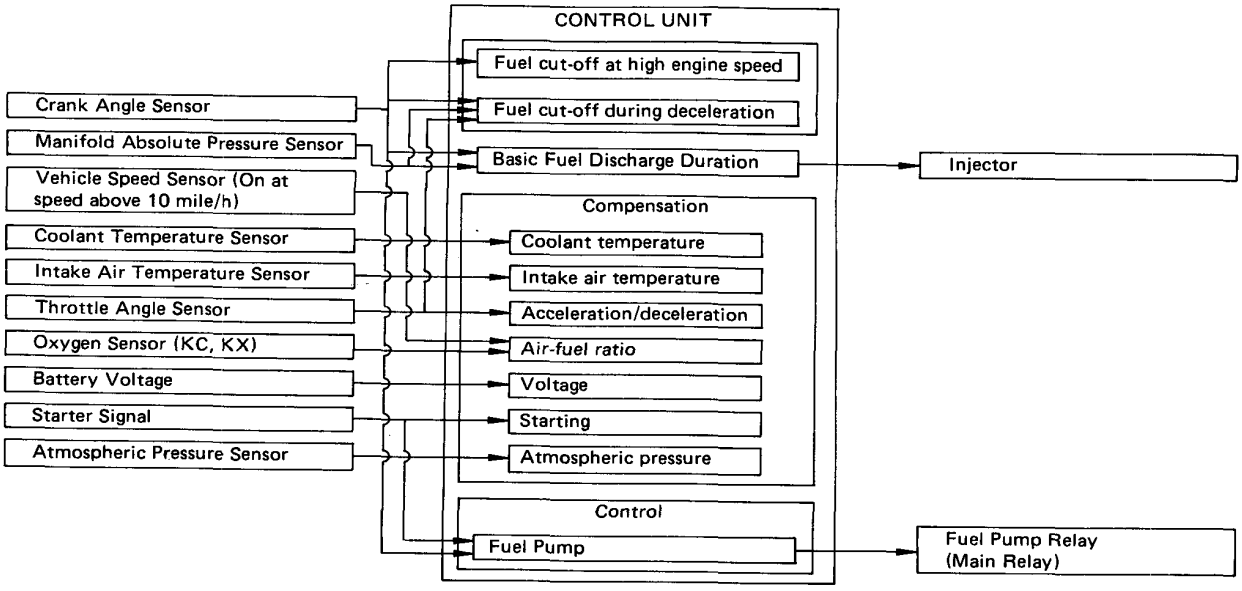
The throttle body contains an adjustable bypass circuit. This circuits is designed to control the amount of air bypassing into the intake manifold without changing the position of the throttle valve.
Usually it is necessary to adjust the speed by the idle adjusting screw since idle speed is adjusted automatically by the idle control system. Idle speed does not change by turning the idle adjusting screw while idle control system is in operation.



PGM-FI

Electronic Control System

In order to get fuel into the cylinders at the correct instant and in the correct amount, the control system must perform various separate functions. The ECU (Electronic Control Unit), the heart of the PGM-FI, uses an eight-bit microcomputer and consists of a CPU (Central Processing Unit), memories, and I/O (Input/Output) ports. Basic data stored in the memories are compensated by the signals sent from the various sensors to provide the correct air-fuel mixture for all engine needs.



Compensation	Sensor and Input	Description
Engine speed	Crank angle sensor Starter switch signal	Adjust amount of fuel injected according to engine speed.
Battery voltage	Battery voltage signal	Compensate for delay in injector operation due to drop in battery voltage.
Engine coolant temperature	Coolant temperture sensor	Increase amount of fuel injected according to manifold pressure when temperature is low.
Intake air temperature	Intake air temperature sensor	Adjust amount of fuel injected according to intake air temperature
Compensation immediately after starting	Starter switch signal	Gradually decrease amount of fuel added after starting
Compensation during acceleration	Throttle angle sensor	Increase amount of fuel injected according to angular velocity of throttle valve during acceleration.
Compensation during deceleration	Throttle angle sensor	Decrease amount of fuel injected according to angular velocity of throttle valve during deceleration particularly when throttle valve is close to fully closed position.
Compensation after fuel-cut	Crank angle sensor	Increase amount of fuel injected after fuel-cut off at low speeds.
Compensation under heavy load	Manifold abolute pressure sensor	Increase amount of fuel injected when inlet manifold pressure exceeds prescribed value.
Compensation for O_2 feed-back	Oxygen sensor	Increase or decrease amount of fuel injected to provide correct air-fuel ratio.
Atmospheric pressure	Atmospheric pressure sensor	Compensate for changes in atmospheric pressure.

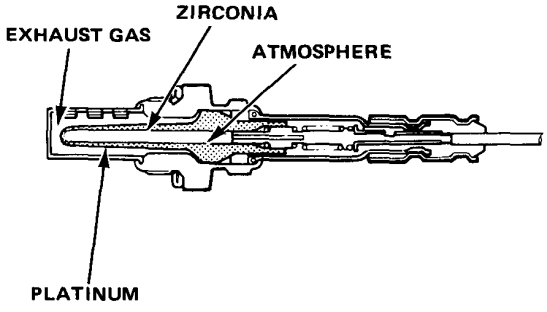
Oxygen Sensor (KC, KX)

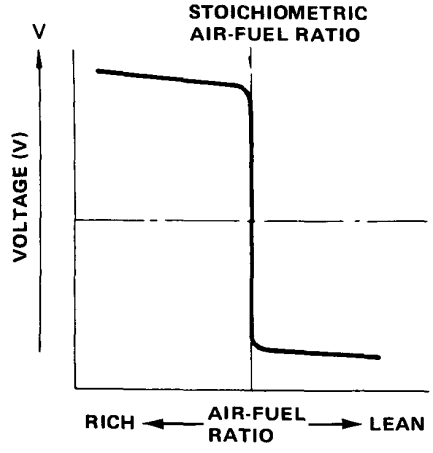
The Oxygen sensor detects the oxygen content in the exthaust gas, and inputs the ECU. In operation, the ECU receives the signals from the sensor and varies the duration during which fuel is injected. The oxygen sensor is located in the exhaust manifold.

The sensor is a hollow shaft of zirconia with a closed end. The inner and outer surfaces are plated with platinum, thus forming a platinum electrode. The inner surface or chamber is open to the atmosphere whereas the outer surface is exposed to the exhaust gas flow through the manifold.

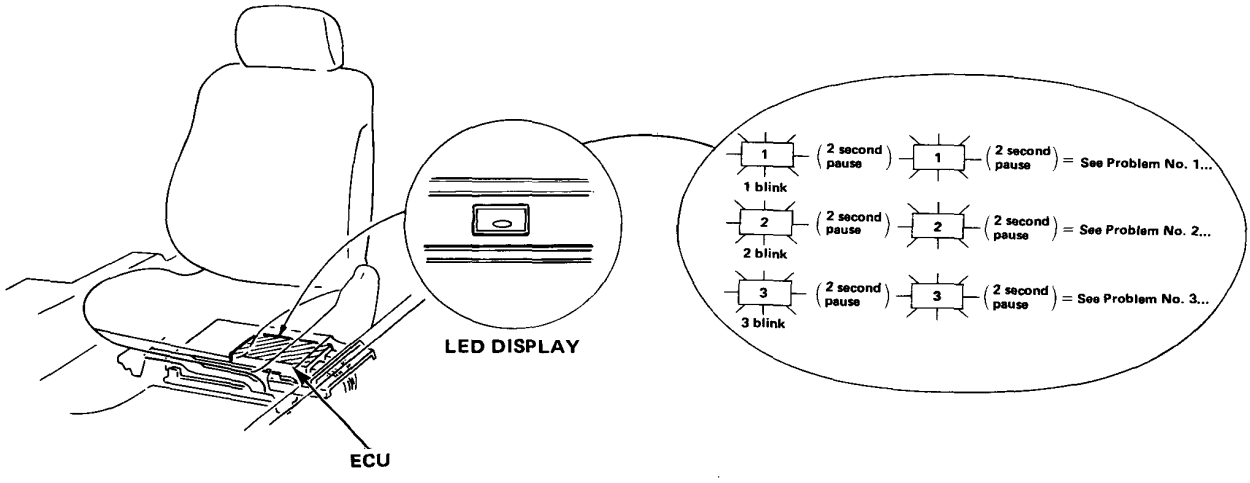
CAUTION: Keep all clearning materials away from the sensor; they could contaminate it and make it stop working.

Voltage is induced at the platinum electrode when there is any difference in oxygen concentration between the two layers of air over the surfaces. Operation of the device is dependent upon the fact the voltage induced changes sharply as the stoichiometric air-fuel ratio is exceeded when the electrode is heated above a certain temperature.





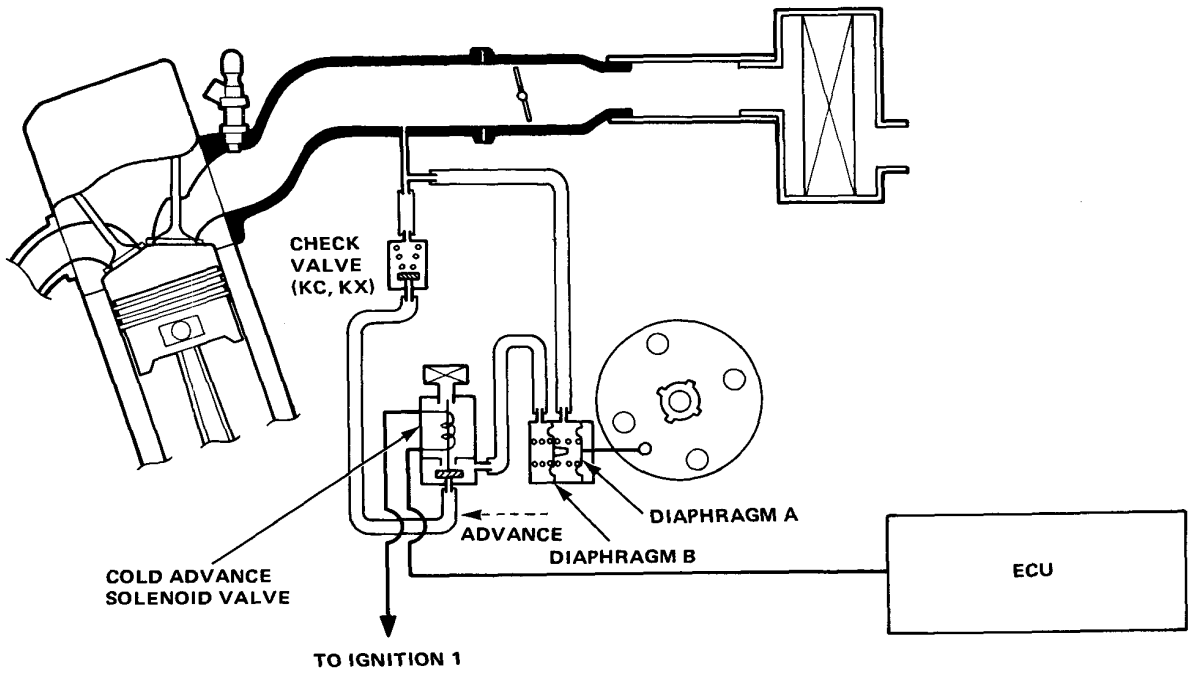
The PGM-FI system's ECU is equipped with self-diagnosis function. When an abnormality is detected, the PGM-FI dash warning light comes on, and the LED display on the ECU blinks. The location of the PGM-FI control system's trouble can be diagnosed from the frequency of the LED display.



Ignition Timing Controls

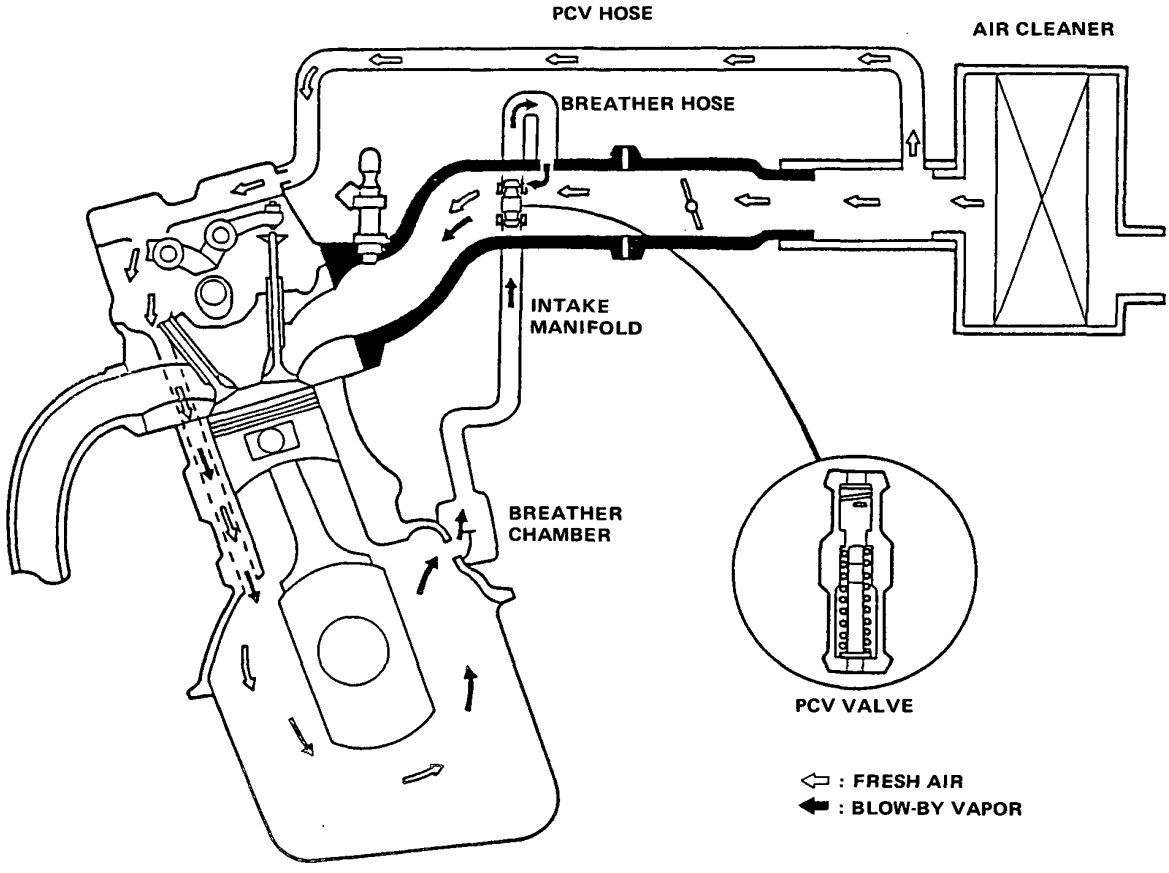
Ignition timing control, combined with the internal distributor control (centrifugal advance), affects the time at which each spark plug ignites the air-fuel mixture, in accordance with engine speed, load and coolant temperature.
This control system gives vacuum advance in response to the manifold vacuum and coolant temperature. This optimizes ignition timing during and after engine warm-up to control emission levels while maximizing fuel economy and engine performance.

The distributor has two separate vacuum advance diaphragms which operate on manifold vacuum. Diaphragm B also has a solenoid valve (cold advance solenoid valve) in the line. It is operated by the control unit which receives signals from the engine coolant temperature, engine speed and manifold vacuum. When the solenoid valve is open, it sends vacuum to Diaphragm B to improve cold engine performance.



Positive Crankcase Ventilation System

The Positive Crankcase Ventilation (PCV) system is designed to prevent blow-by gas from escaping to the atmosphere. The PCV valve contains a spring loaded plunger. When the engine starts, the plunger in the PCV valve is lifted in proportion to intake manifold vacuum and the blow-by gas is drawn directly into the intake manifold.



Evaporative Controls (KC)

The system consists of the vapor purge control system and fuel tank vapor control system.

a. Vapor purge control system.

The purge control diaphragm valve in the canister is opened by intake manifold vacuum. When the valve is open, vaports stored in the canister is purged to the throttle body bore by the vacuum generated at the purge purt.

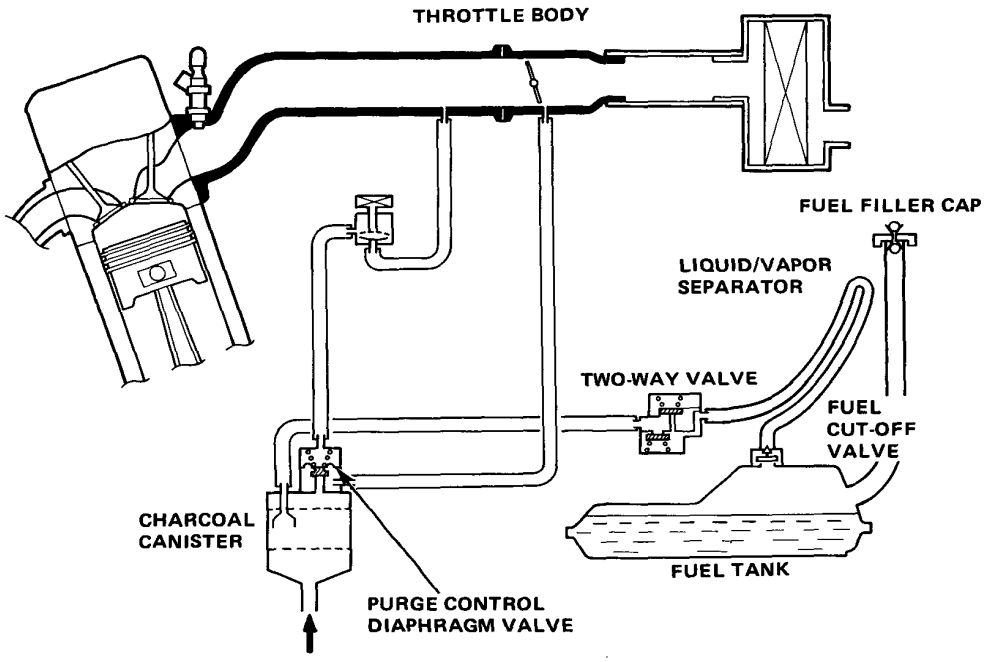
b. Fuel tank vapor control system

When fuel vapor pressure in the fuel tank is too high the two-way valve opens and fuel vapor is collected in the charcoal canister. When the vacuum in the fuel tank is too high, the two-way valve opens and air with fuel vapor is drawin into the fuel tank through the canister.

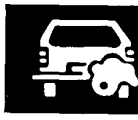
c. Fuel Filler Cap

The fuel filler cap seals the fuel filler neck under normal conditions and contains valves for the relief of excessive pressure or vacuum in the fuel tank.

In the event that the two-way valve in the evaporative emission control system fails to function properly, causing excessive pressure or vacuum build-up in the fuel tank, the valve incorporated in the fuel filler cap will open to relieve the pressure or vacuum.



Emission Controls



Emission Controls

Emission Systems

Purpose	System name	Related parts name	PH4				PH1	
			KC, KQ, KX		Others			
			MT	AT	MT	AT	MT	AT
Air-fuel ratio control	1. Power valve control	• Power valve	O	O	O	O	O	O
		• Power valve control solenoid valve			KS	KS		
		• Intake air temp. sensor			KS	KS		
		• Vehicle speed sensor			KS	KS		
		• Engine speed sensor			KS	KS		
		• Thermo sensor			KS	KS		
		• A/T shift position switch				KS		
		• Solenoid valve control unit			KS	KS		
	2. Atmospheric, pressure compensator	• Air jet controller						

(cont'd)

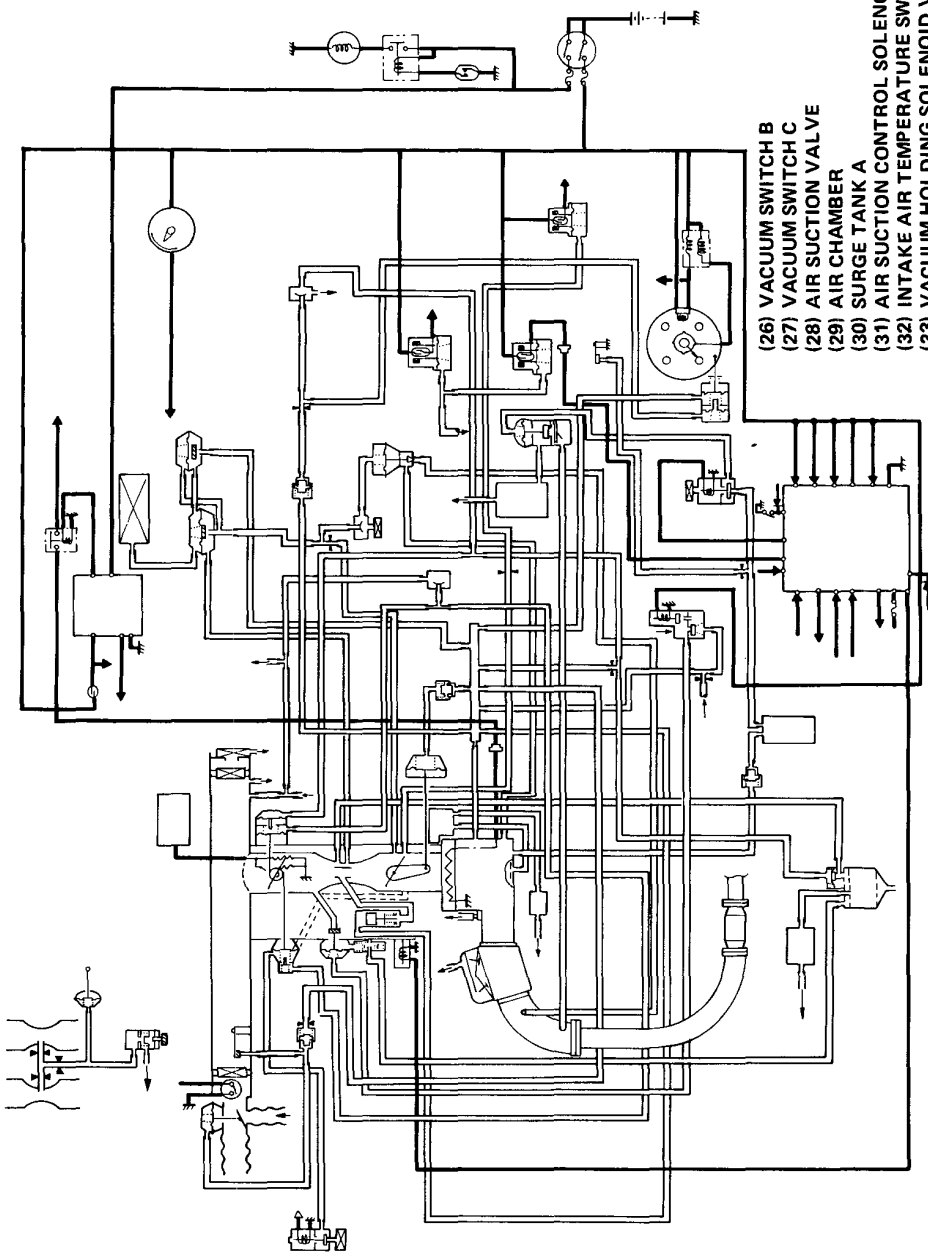
Emission Systems (cont'd)

Purpose	System name	Related parts name	PH4				PH1	
			KC, KQ, KX		Others			
			MT	AT	MT	AT	MT	AT
Starting and driveability control when engine is cold	1. Choke system	• Automatic choke	O	O	O	O		
		• Manual choke					O	O
	2. Fast idle control	• Fast idle unloader	O	O	O	O		
		• Thermovalve A and B	O	O	O	O		
	3. Secondary diaphragm vacuum bypass system	• Carburetor thermovalve	O	O	O	O		
	4. Ignition timing control	• Distributor vacuum advance diaphragm	O	O	O	O		
		• Check valve	O	O	O	O		
		• Thermovalve	O	O	O	O		
	5. Choke opener	• Choke opener	O	O				
		• Cranking leak solenoid valve	O	O				
		• Intake air temp. sensor	O	O				
		• Thermo sensor	O	O				
		• Starter switch	O	O				
		• ACG L terminal	O	O				
		• Solenoid valve control unit	O	O				
	6. Throttle controller	• Throttle controller			O		O	
		• Cranking opener solenoid valve			O		O	
		• Check valve			O		O	
		• Starter switch			O		O	
					O		O	
	7. PTC. heater	• PTC. heater	O	O				
		• Thermo sensor	O	O				
		• Control relay	O	O				
		• Control unit	O	O				
	8. Honeycomb shaped carbu. insulator	• Carburetor insulator			O	O	O	O
	9. Carburetor heat riser	• Thermostat	O	O	O	O		

Purpose	System name	Related parts name	PH4		PH1			
			KC, KQ, KX		Others			
			MT	AT	MT	AT	MT	AT
Emission control	1. Secondary air supply system	• Air suction valve	O	O				
		• Air suction control solenoid valve	O	O				
		• Check valve	O	O				
		• Vacuum switch A and B	O	O				
		• Intake air temp. sensor	O	O				
		• Vehicle speed sensor						
		• Engine speed sensor	O	O				
		• Thermo sensor	O	O				
		• Solenoid valve control unit	O	O				
	2. EGR system	• EGR valve.	O	O				
		• EGR control valve A and B	O	O				
		• Thermovalve	O	O				
		• Check valve	O	O				
	3. Dashpot system	• Throttle controller						
		• Dashpot check valve	O	O		O		O
	4. Fuel cut-off control	• Primary main fuel cut-off solenoid valve	O	O				
		• Vacuum switch A and B	O	O				
		• Vehicle speed sensor	O	O				
		• Engine speed sensor	O	O				
		• Thermo sensor	O	O				
		• Clutch switch	O					
		• A/T shift position switch		O				
		• Solenoid valve control unit	O	O				
Emission control	5. Throttle opener	• Throttle controller			O		O	
		• Throttle opener control valve			O		O	
		• Throttle opener solenoid valve			KS			
		• Vehicle speed sensor			KS			
		• Thermovalve			KS			
		• Check valve			KS			
	6. Evaporative control	• Charcoal canister	KC,KQ	KC,KQ	KY	KY		
		• Purge control diaphragm valve	KC,KQ	KC,KQ				
		• Two-way valve	KC,KQ	KC,KQ	KY	KY		
		• Shed valve	KC,KQ	KC,KQ				
		• Thermowax switching valve						
		• Thermovalve	KC,KQ	KC,KQ				

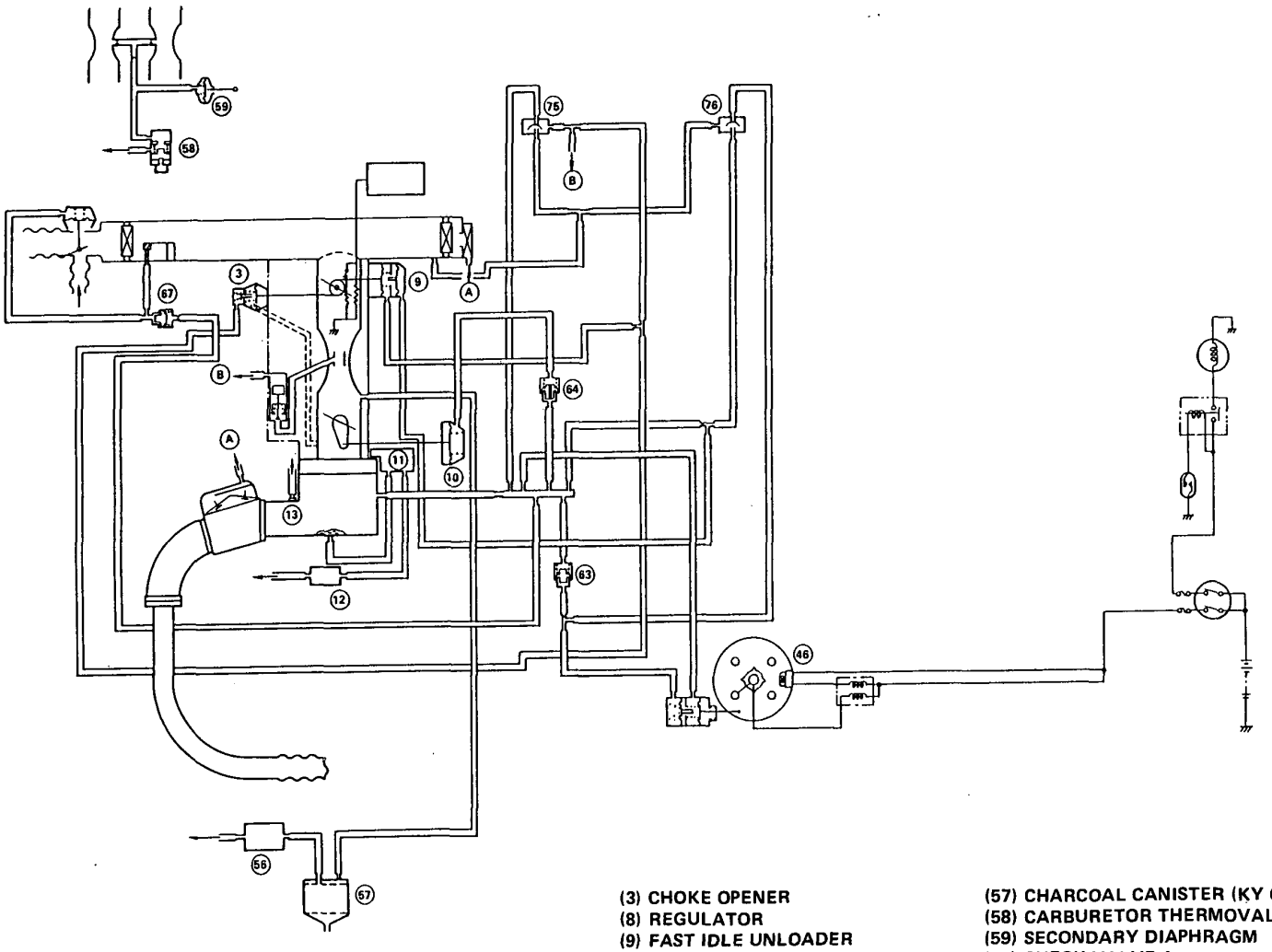
(cont'd)

< KC, KQ >



(1) SECONDARY DIAPHRAGM
(2) CARBURETOR THERMOVALVE
(3) INTAKE AIR TEMPERATURE SENSOR
(4) CRANKING LEAK SOLENOID VALVE
(5) CHOKE OPENER
(6) AIR VENT CUT-OFF DIAPHRAGM
(7) SHED VALVE
(8) PRIMARY SLOW MIXTURE CUT-OFF SOLENOID VALVE
(9) REGULATOR
(10) FAST IDLE UNLOADER
(11) THROTTLE CONTROLLER
(12) DASHPOT CHECK VALVE
(13) HEAT RISER
(14) HEAT RISER THERMOSTAT
(15) PCV VALVE
(16) PTC HEATER
(17) PTC HEATER CONTROL UNIT
(18) PTC HEATER CONTROL RELAY
(19) EGR CONTROL VALVES A AND B
(20) EGR VALVE
(21) THERMOVALVE B
(22) THERMOVALVE C
(23) THERMOVALVE D
(24) VEHICLE SPEED SENSOR
(25) VACUUM SWITCH A
(26) VACUUM SWITCH B
(27) VACUUM SWITCH C
(28) AIR SUCTION VALVE
(29) AIR CHAMBER
(30) SURGE TANK A
(31) AIR SUCTION CONTROL SOLENOID VALVE
(32) INTAKE AIR TEMPERATURE SWITCH
(33) VACUUM HOLDING SOLENOID VALVE
(34) CHECK VALVE A
(35) CHECK VALVE B
(36) TWO-WAY VALVE
(37) CHARCOAL CANISTER
(38) CONTROL UNIT
(39) DISTRIBUTOR
(40) RADIATOR FAN
(41) RADIATOR FAN RELAY
(42) SHIFT POSITION SWITCH (AT)
(43) CLUTCH SWITCH (MT)
(44) THERMO SENSOR
(45) TO A/C IDLE CONTROL SOLENOID VALVE
(46) FROM AIR CONDITIONER SWITCH
(47) FROM IGNITION COIL

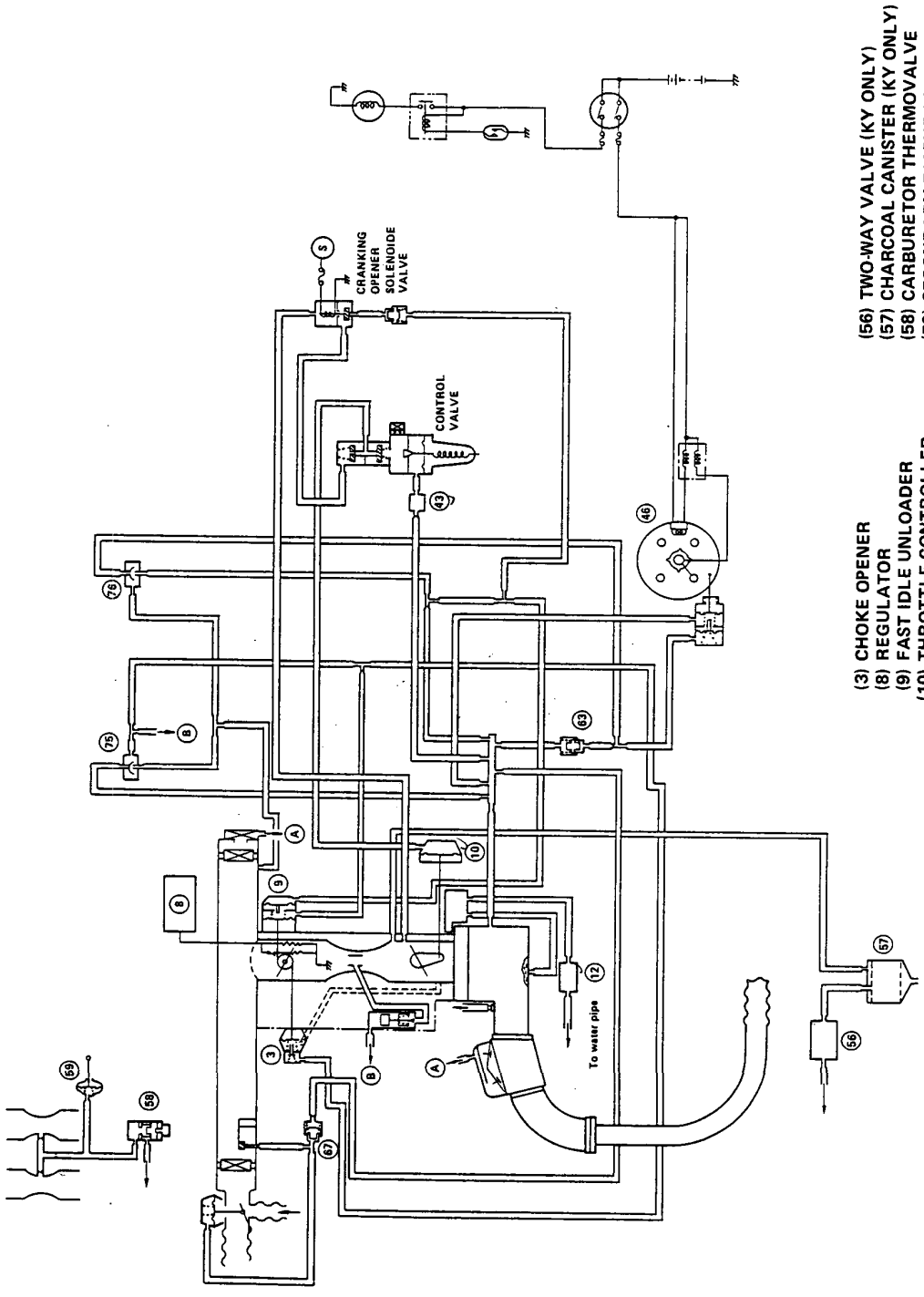
< KF, KG, KW, KE, KY–AT >



(3) CHOKE OPENER
(8) REGULATOR
(9) FAST IDLE UNLOADER
(10) THROTTLE CONTROLLER
(11) HEAT RISER
(12) HEAT RISER THERMOSTAT
(13) PCV VALVE
(46) DISTRIBUTOR
(56) TWO-WAY VALVE (KY ONLY)
(57) CHARCOAL CANISTER (KY ONLY)
(58) CARBURETOR THERMOVALVE
(59) SECONDARY DIAPHRAGM
(63) CHECK VALVE A
(64) CHECK VALVE B
(67) CHECK VALVE E
(75) THERMOVALVE B
(76) THERMOVALVE D

(cont'd)

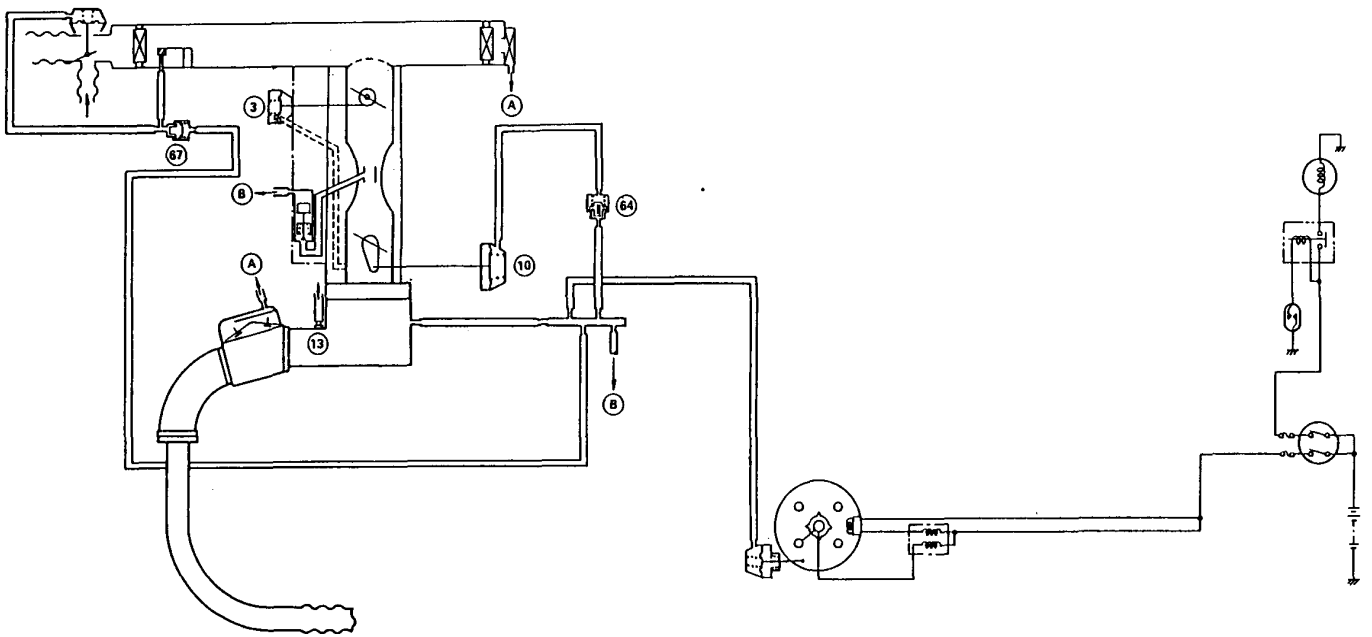
< KF, KG, KW, KE, KY–MT >



(3) CHOKE OPENER
(8) REGULATOR
(9) FAST IDLE UNLOADER
(10) THROTTLE CONTROLLER
(11) HEAT RISER
(12) HEAT RISER THERMOSTAT
(13) PCV VALVE
(43) AIR CHAMBER
(46) DISTRIBUTOR

(56) TWO-WAY VALVE (KY ONLY)
(57) CHARCOAL CANISTER (KY ONLY)
(58) CARBURETOR THERMOVALVE
(59) SECONDARY DIAPHRAGM
(63) CHECK VALVE A
(67) CHECK VALVE E
(75) THERMOVALVE B
(76) THERMOVALVE D

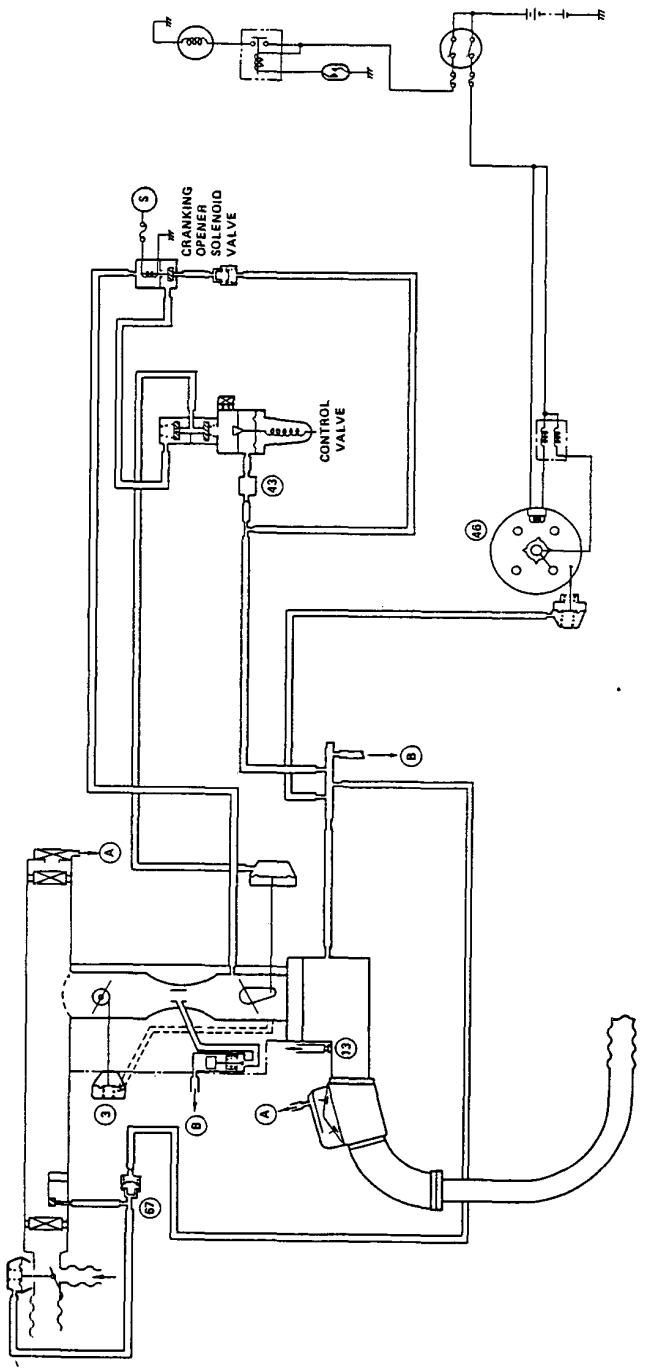
< 1.6ℓ KG, KW, KF, Singapore–AT >



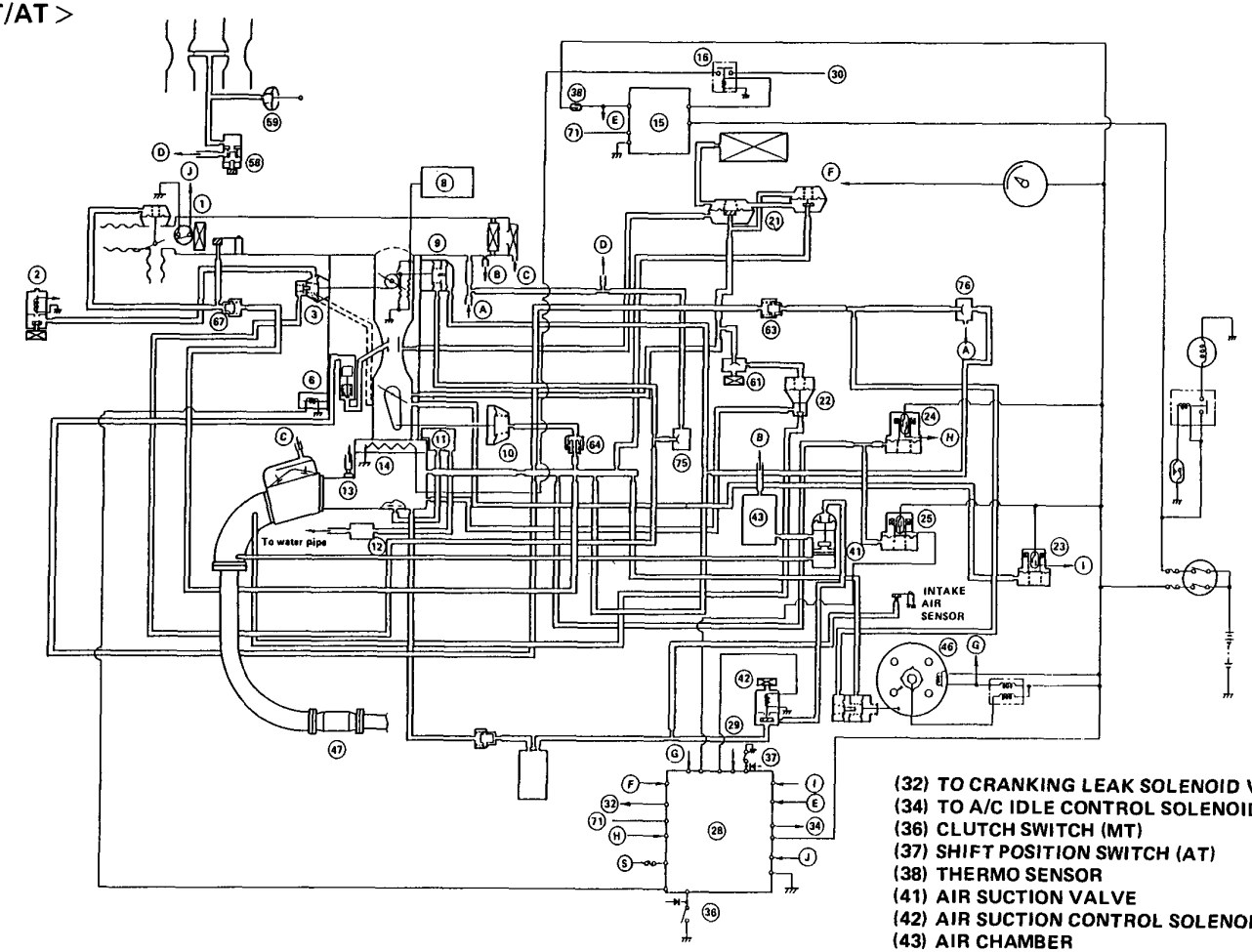
(3) CHOKE OPENER
(10) THROTTLE CONTROLLER
(13) PCV VALVE
(64) CHECK VALVE B
(67) CHECK VALVE E

Emission Systems (cont'd)

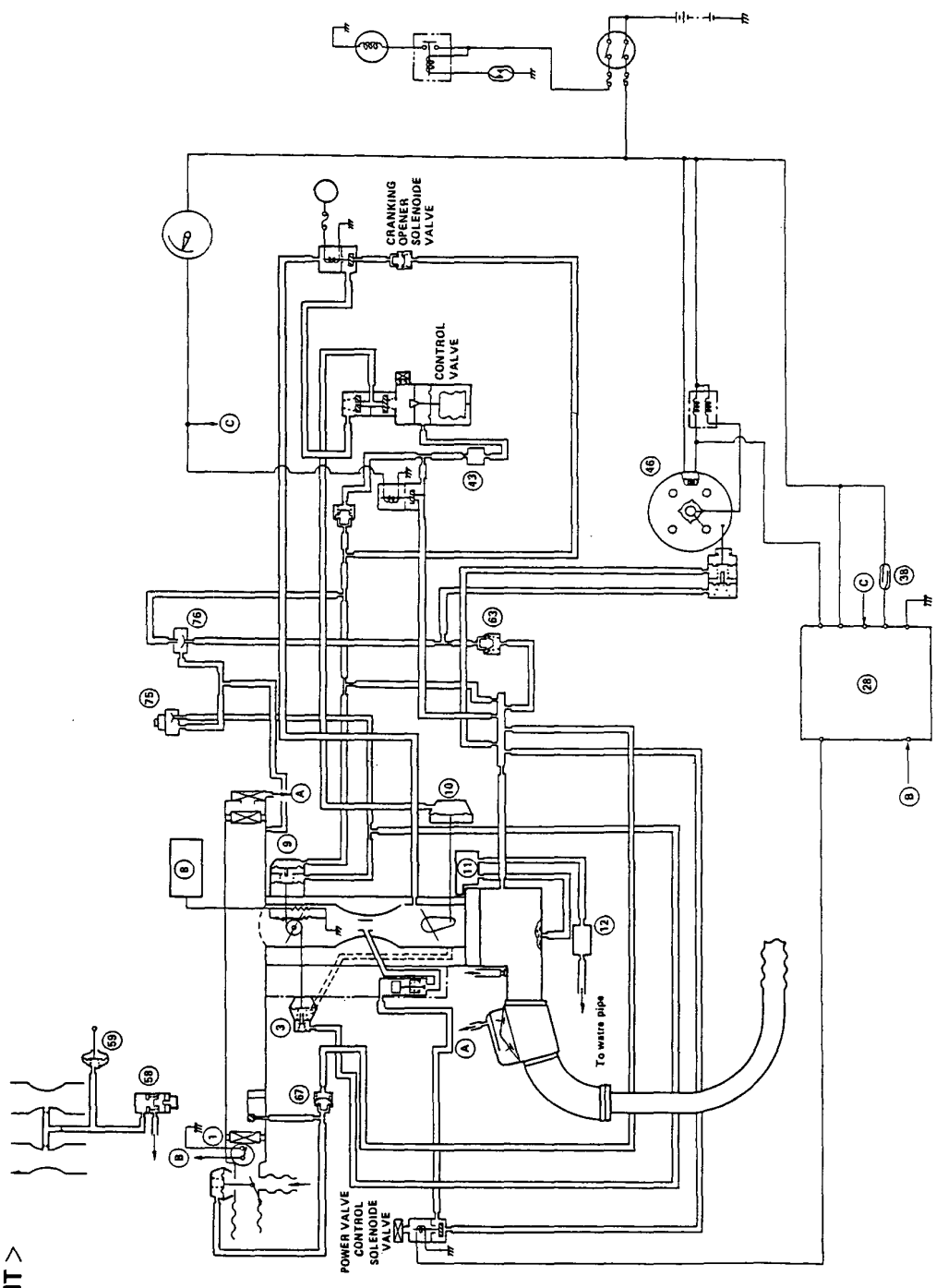
< 1.6ℓ KG, KF, KW, Singapore—MT >



< KX–MT/AT >

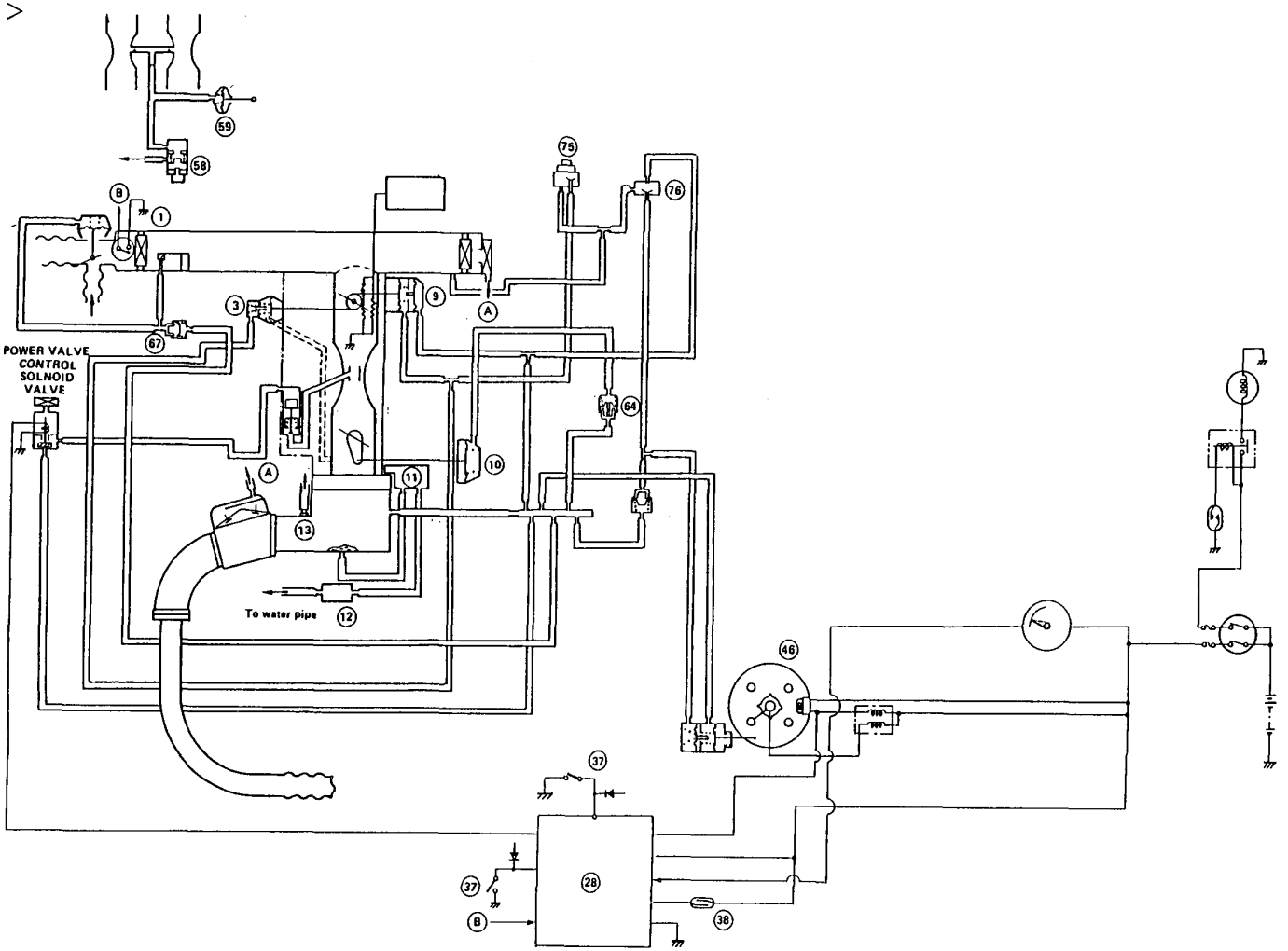


(1) INTAKE AIR TEMPERATURE SWITCH
(2) CRANKING LEAK SOLENOID VALVE
(3) CHOKE OPENER
(6) PRIMARY SLOW MIXTURE CUT-OFF SOLENOID VALVE
(8) REGULATOR
(9) FAST IDLE UNLOADER
(10) THROTTLE CONTROLLER
(11) HEAT RISER
(12) HEAT RISER THERMOSTAT
(13) PCV VALVE
(14) PTC HEATER
(15) PTC HEATER CONTROL UNIT
(16) PTC HEATER CONTROL RELAY
(21) EGR CONTROL VALVES A AND B
(22) EGR VALVE
(23) VACUUM SWITCH A
(24) VACUUM SWITCH B
(25) VACUUM SWITCH C
(28) CONTROL UNIT
(29) FROM AIR CONDITIONER SWITCH
(30) FROM BATTERY
(32) TO CRANKING LEAK SOLENOID VALVE
(34) TO A/C IDLE CONTROL SOLENOID VALVE
(36) CLUTCH SWITCH (MT)
(37) SHIFT POSITION SWITCH (AT)
(38) THERMO SENSOR
(41) AIR SUCTION VALVE
(42) AIR SUCTION CONTROL SOLENOID VALVE
(43) AIR CHAMBER
(46) DISTRIBUTOR
(47) CATALYTIC CONVERTER
(58) CARBURETOR THERMOVALVE
(59) SECONDARY DIAPHRAGM
(63) THERMOVALVE E
(63) CHECK VALVE A
(63) CHECK VALVE B
(67) CHECK VALVE E
(71) FROM "L" TERMINAL OF REGULATOR
(74) TO BATTERY
(75) THERMOVALVE B
(76) THERMOVALVE D


CRANKING OPENER SOLENOIDE VALVE
CONTROL VALVE
POWER VALVE CONTROL SOLENOIDE VALVE
To waste pipe
(1) INTAKE AIR TEMPERATURE SWITCH
(3) CHOKE OPENER
(8) REGULATOR
(9) FAST IDLE UNLOADER
(10) THROTTLE CONTROLLER
(11) HEAT RISER
(12) HEAT RISER THERMOSTAT
(13) PCV VALVE
(28) CONTROL UNIT
(38) THERMO SENSOR
(43) AIR CHAMBER
(46) DISTRIBUTOR
(58) CARBURETOR THERMOVALVE
(59) SECONDARY DIAPHRAGM
(63) CHECK VALVE A
(67) CHECK VALVE E
(75) THERMOVALVE B
(76) THERMOVALVE D

< KS–MT >

< KS–AT >



(1) INTAKE AIR TEMPERATURE SWITCH
(3) CHOKE OPENER
(8) REGULATOR
(9) FAST IDLE UNLOADER
(10) THROTTLE CONTROLLER
(11) HEAT RISER
(12) HEAT RISER THERMOSTAT
(13) PCV VALVE
(28) CONTROL UNIT
(37) SHIFT POSITION SWITCH (AT)
(38) THERMO SENSOR
(46) DISTRIBUTOR
(58) CARBURETOR THERMOVALVE
(59) SECONDARY DIAPHRAGM
(64) CHECK VALVE B
(67) CHECK VALVE E
(75) THERMOVALVE B
(76) THERMOVALVE D

Emission Controls

Evaporative Controls

Fuel Tank Venting

A two-way valve regulates the pressure or vacuum caused by changes in temperature and fuel level inside the tank.

(1) Pressure relief — fuel vapor is allowed to escape as vapor pressure increases with temperature.

(2) Vacuum relief — fuel tank vacuum is relieved when temperature decrease or fuel is pumped to the carburetor.

A fuel cut valve is installed in the vapor line at the fuel tank. This valve prevents liquid fuel from entering the line when the fuel surges in the tank.

Air Vent Cut-Off Diaphragm

When the engine is not running, the air vent passage in the float chamber is cut-off by the valve attached to the diaphragm so that fuel vapor in the float chamber can be vented into the charcoal canister. When the engine is running, manifold vacuum holds the cut-off diaphragm open. The vacuum holding solenoid valve stabilizes the manifold vacuum at the diaphragm.

Shed Valve

The shad valve is controlled by a thermowax plunger. When the carburetor body temperature is below the set temperature (91.4 ± 3.5°F) of the shed valve, the outer air vent passage is cut-off by the shed valve to prevent fuel vapor in the fuel tank from flowing back through the charcoal canister to the float chamber.

Thermovalve

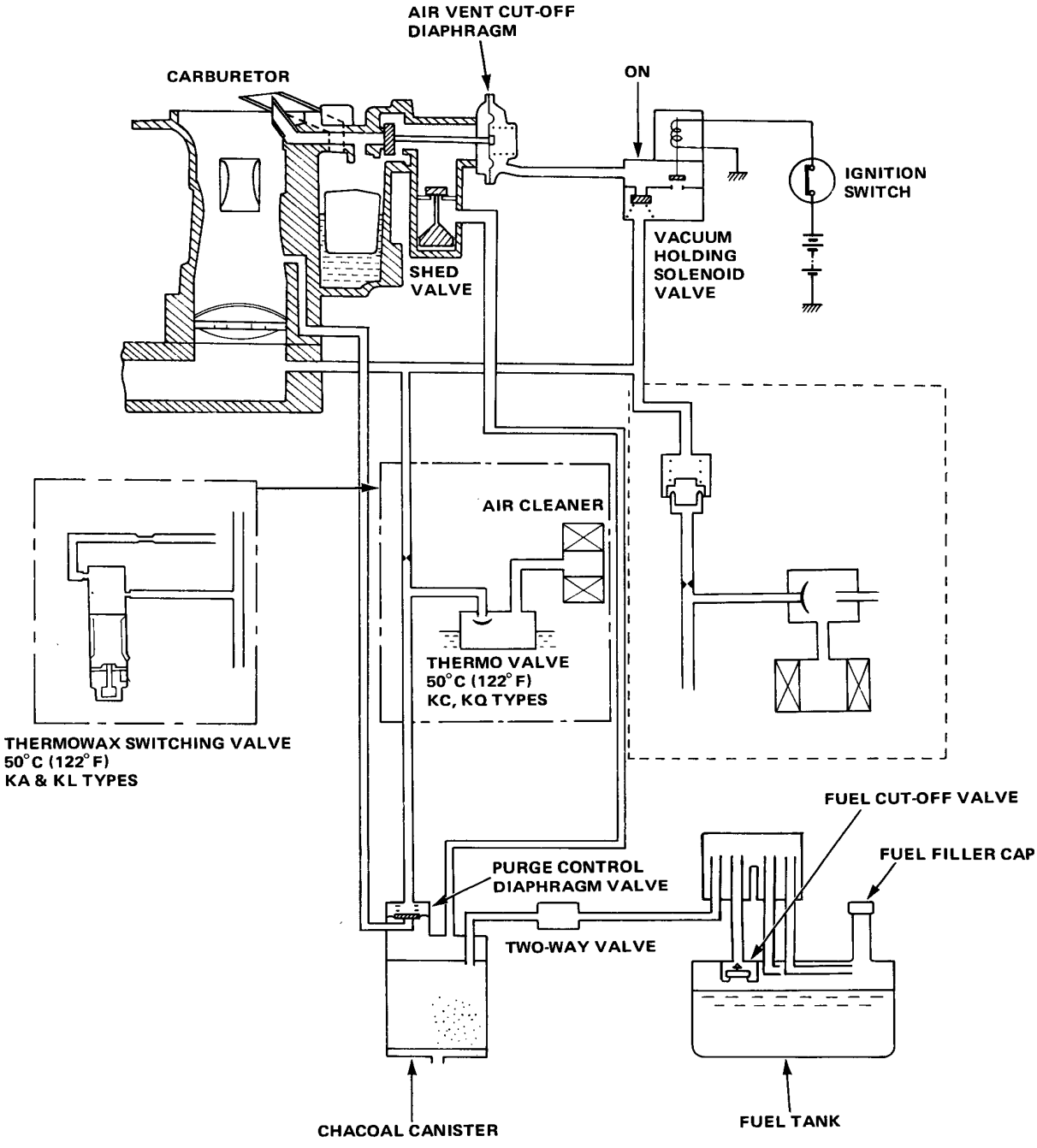
When the engine coolant temperature is above the set temperature 122°F, of the thermovalve, it closes and the purge control diaphragm valve in the canister is opened by intake manifold vacuum. Fuel vapor is purged from the charcoal canister through the purge control diaphragm valve by venturi vacuum.

Fuel Filler Cap

A two-way valve in the fuel filler cap acts as a safety device if the evaporative control system malfunctions.

Carburetor Fuel Cut-Off

When the engine is not running, the fuel passages for the slow primary fuel metering system are cut-off by a solenoid valve so that fuel in the float chamber cannot enter the carburetor bore.


AIR VENT CUT-OFF DIAPHRAGM
CARBURETOR
ON
IGNITION SWITCH
VACUUM HOLDING SOLENOID VALVE
SHED VALVE
AIR CLEANER
THERMO VALVE 50°C (122°F) KC, KQ TYPES
THERMOWAX SWITCHING VALVE 50°C (122°F) KA & KL TYPES
FUEL CUT-OFF VALVE
FUEL FILLER CAP
PURGE CONTROL DIAPHRAGM VALVE
TWO-WAY VALVE
CHACOAL CANISTER
FUEL TANK

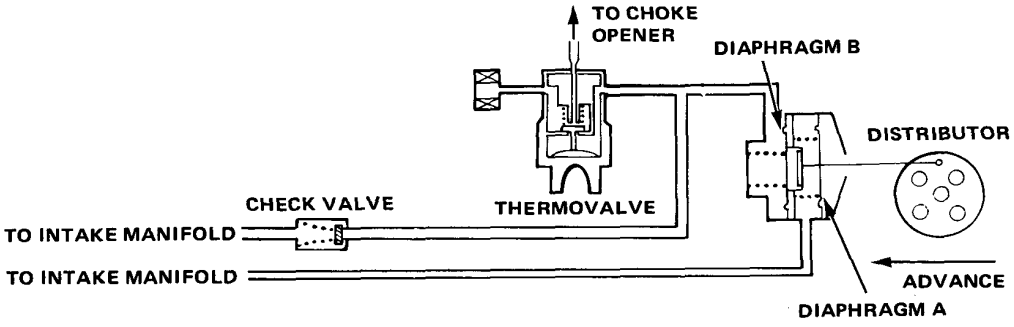
Emission Controls

Ignition Timing Controls

Ignition timing control, combined with the internal distributor control (centrifugal advance), affects the time at which each spark plug ignites the air/fuel mixture, in accordance with engine speed, load the coolant temperature.
This control system gives vacuum advance in response to the manifold vacuum and coolant temperature. This optiimizes ignition timing during and after engine warm-up to control emission levels while maximizing fuel economy and engine performance.

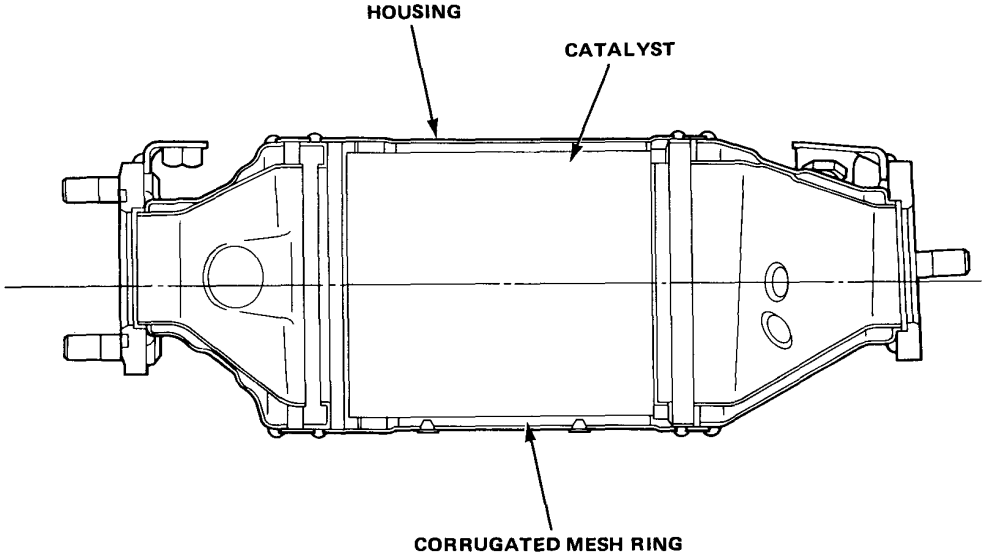
The distributor has two separate vacuum advance diaphragms. Diaphragm A operates on manifold vacuum. Diaphragm B also operates on manifold vacuum but has a control device in the line.

When the engine coolant temperature is below the set temperature of thermovalve B (50°C), thermovalve sends manifold vacuum to Diaphragm B through check valve to improve cold engine performance.



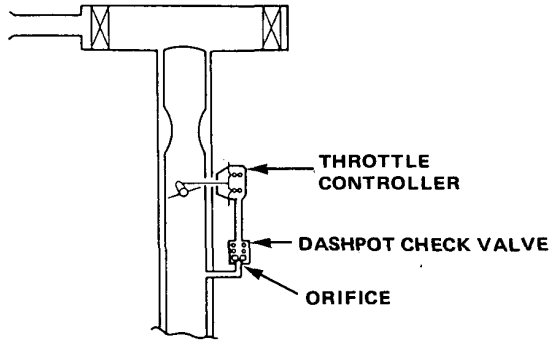
Catalytic Converter

The catalytic converter is used to convert hydrocarbons (HC), carbon monoxide (CO) and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO_2), dinitrogen (N_2) and water vapor.



Dashpot System (Standard for some types)

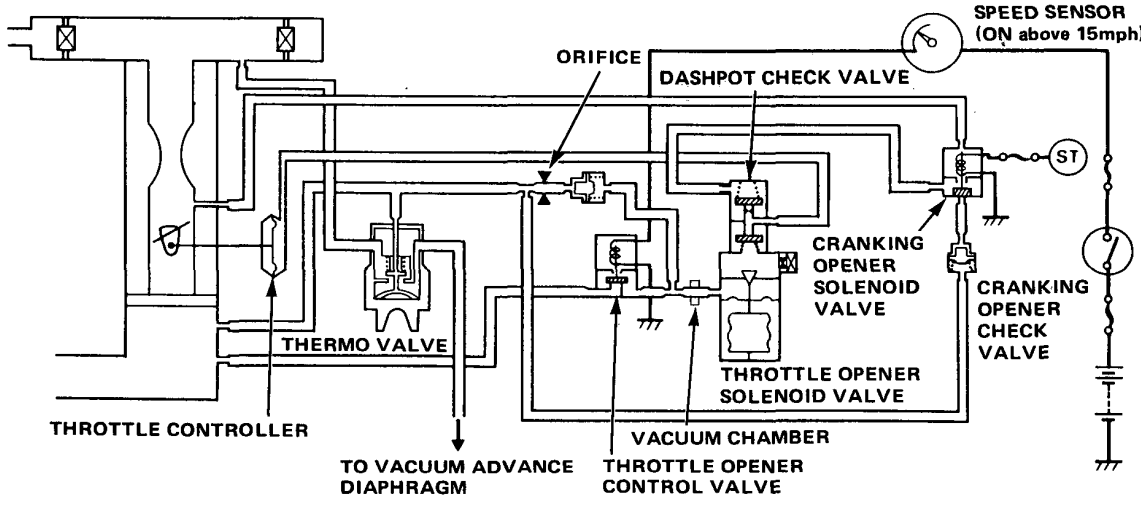
To improve combustion, a throttle controller holds the throttle open slightly to admit additional air during periods of gear shifting and deceleration. When the engine is running above idle, manifold vacuum is applied to the throttle controller through a dashpot check valve. On deceleration, the vacuum bleeds off through the orifice in the dashpot check valve, gradually decreasing unitl the throttle closes completely. Throttle closing speed is determined by the size of the dashport check valve orifice, tension of the throttle return spring, and the amount of vacuum available at the manifold port.



Throttle Opener (KS-MT)

The Dashpot System (ported vacuum) is combined with a solenoid valve, and control valve that operates on manifold vacuum to make up the Throttle Opener System. Above approximately 15 mph, the speed sensor in the speedometer causes the solenoid valve to open, allowing manifold vacuum to enter the control valve. When vacuum in the control valve exceeds a pre-set value (during deceleration) the valve opens and the throttle controller diaphragm opens the throttle a fixed amount to improve combustion. When vehicle speed drops below approximately 10 mph, the speed sensor close the solenoid valve, allowing control valve vacuum to drop below the pre-set value. Residual vacuum in the system is relieved through an orifice in the control valve and the throttle controller closes.

In addition, when the engine coolant temperature is below the set temperature (50°C, 122°F) of the thermovalve, it opens and manifold vacuum is bled from the valve through the orifice. This orifice produce the high manifold vacuum applied to the control valve.



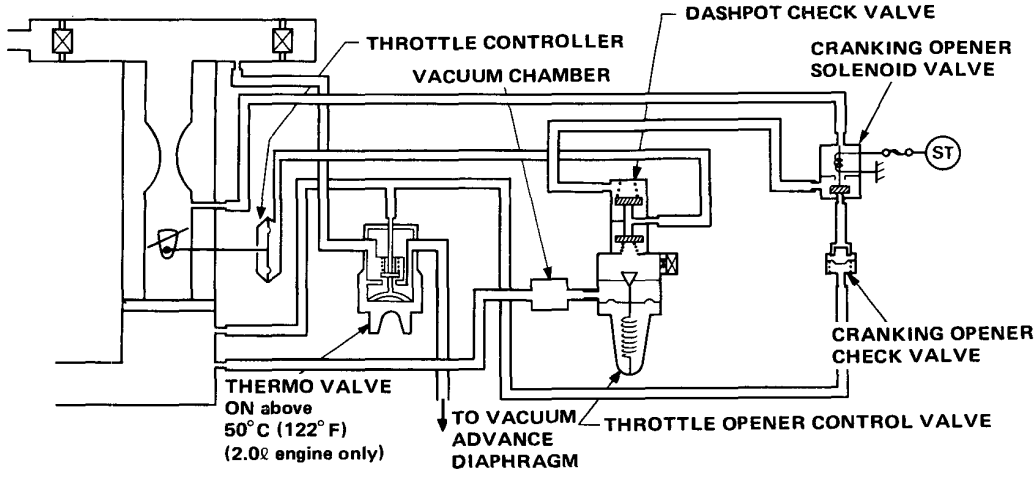
(cont'd)

Emission Controls

Throttle Controls (cont'd)

Throttle Controller (Standard for some types)

This system is provided for easy starting of the engine.
When cranking the engine to start, the cranking opener solenoid valve is activated through the starter switch to allow intake manifold vacuum into the diaphragm so that appropriate throttle opening angle is obtained.



Secondary Air Supply System

This system makes use of vacuum pulses in the exhaust manifold to draw air from the cleaner to the exhaust manifold to promote oxidation of hydrocarbons.
The control unit energizes the air suction control solenoid valve to apply manifold vacuum to the air suction cut-off diaphragm valve, which opens the secondary air passage. When negative pressure, created by exhaust pulses, opens the air suction reed valve, fresh air pours into the exhaust manifold.

The air chambers act as silencers to reduce exhaust noise and the delay valve maintains the proper air/fuel mixture after shifting gears or during deceleration.

KC, KX, KQ types

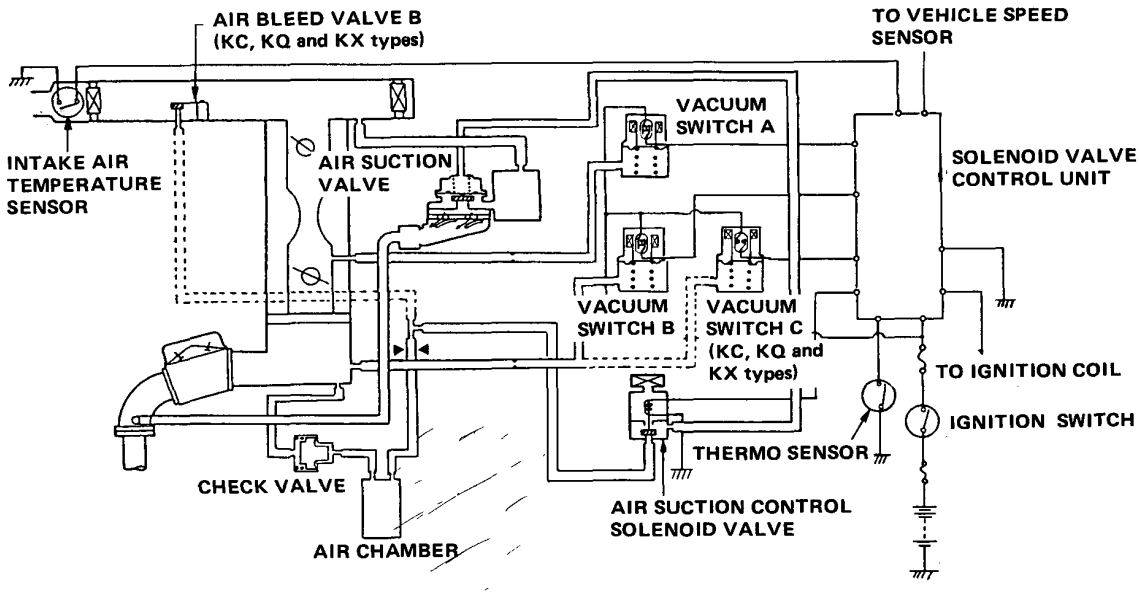
AIR SUCTION CONTROL SOLENOID VALVE ON

OR OR

		DELAY TIMER
INTAKE AIR TEMP. ABOVE 18°C (64°F) AND COOLANT TEMP. BELOW 70°C (158°F) AND VACUUM SWITCH B ON AND ENGINE SPEED BELOW AT: 3,400 rpm	INTAKE AIR TEMP. BELOW 50°C (122°F) AND COOLANT TEMP. ABOVE 70°C (158°F) AND VACUUM SWITCH C ON AND ENGINE SPEED BELOW AT: 3,400 rpm	INTAKE AIR TEMP. BELOW 50°C (122°F). AND COOLANT TEMP. ABOVE 70°C (158°F) AND VACUUM SWITCH C ON AND ENGINE SPEED BELOW AT: 3,400 rpm

This system does not work with the intake air temperature below 18°C (64°F) and the carburetor vacuum above 300mmHg.

(cont'd)


AIR BLEED VALVE B
(KC, KQ and KX types)
TO VEHICLE SPEED
SENSOR
VACUUM
SWITCH A
INTAKE AIR
TEMPERATURE
SENSOR
AIR SUCTION
VALVE
SOLENOID VALVE
CONTROL UNIT
VACUUM
SWITCH B
VACUUM
SWITCH C
(KC, KQ and
KX types)
TO IGNITION COIL
IGNITION SWITCH
THERMO SENSOR
CHECK VALVE
AIR SUCTION CONTROL
SOLENOID VALVE
AIR CHAMBER

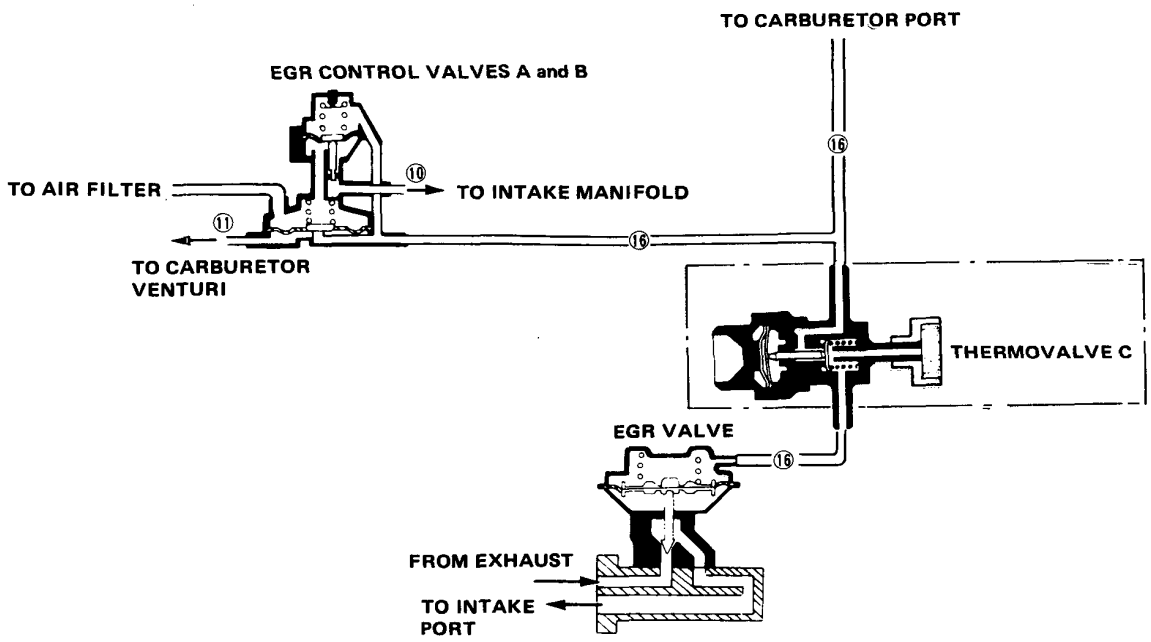
Emission Controls

EGR

The EGR System is designed to reduce oxides of nitrogen emission (NOx), by recirculating exhaust gas through the EGR valve and the intake manifold into the combustion chambers. It is composed of the EGR valve, EGR control valves A and B, and thermovalve C.

The EGR valve is operated by vacuum from the carburetor port and provides EGR volume proportional to engine loads (intake air volume) by the operation of the EGR control valves A and B.

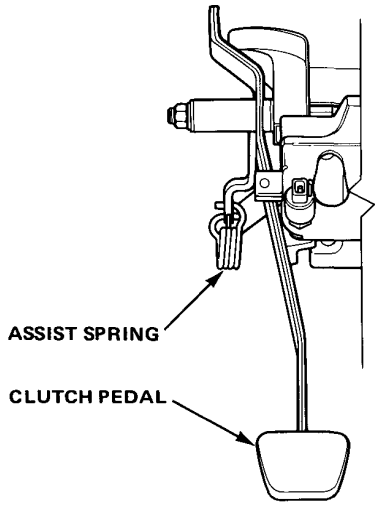
- The vacuum signal is ported above the idle throttle valve position to eliminate EGR at idle.
- In cold engine operation, the thermovalve is open so ported vacuum is bled from the thermovalve keeping the EGR valve closed for EGR cut-off.
- When the engine coolant temperature exceeds the set temperature of thermovalve C, the thermovalve is closed and ported vacuum is applied to the EGR valve and EGR control valve A. This opens the EGR valve allowing exhaust gas into the intake manifold.



Chassis

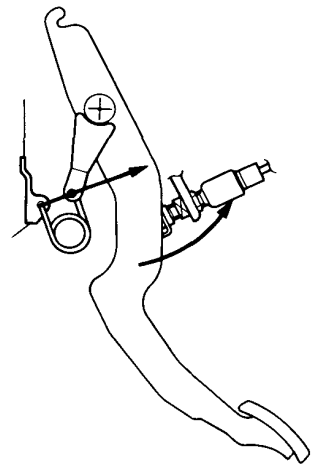
Clutch Assist Mechanism

In order to reduce clutch pedal operating force, a clutch assist mechanism using a coil spring is provided only 2.0ℓ cars on the clutch pedal bracket.

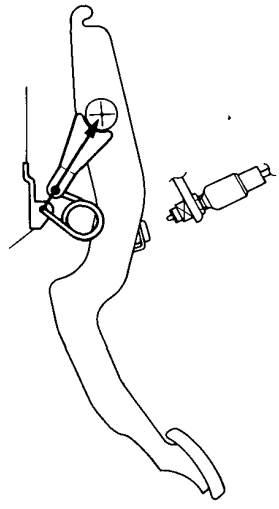


Function:

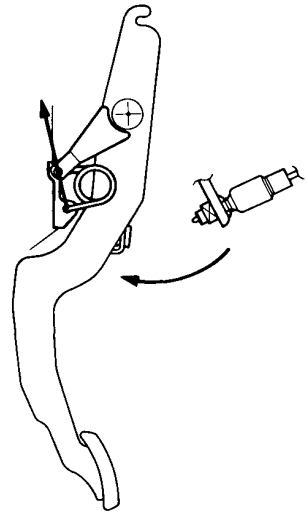
a. The clutch pedal is slightly depressed. The assist spring acts against the depressing force.



b. The clutch pedal is half way through the stroke (approx. 65 mm). The assist spring is at maximum depression but the reaction force is directed toward the pedal pivot so the reaction force of the assist spring does not act on the pedal.



c. The clutch pedal is over the half way point. The depressing force of the clutch pedal is assisted by the reaction force of the assist spring.



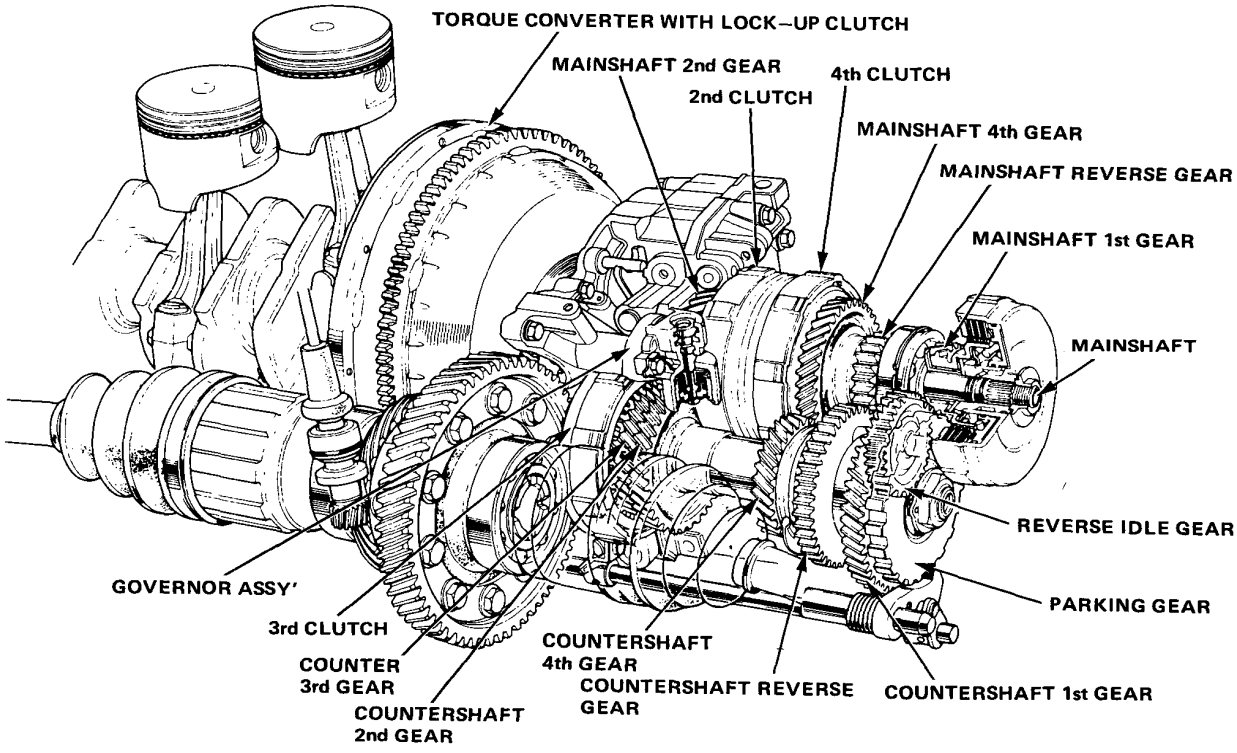
Automatic Transmission

Description

Several refinements have been made to the 4AT transmission written in the Shop Manual "Construction and Function" (No. 62SA511), as described below.

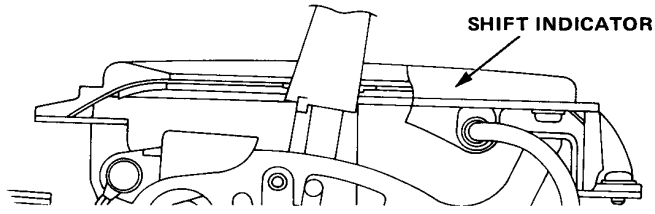
- A flat design shift indicator to improve the visibility of the indicator and give a roomier impression.
- A simplified control wire linkage which provides accurate response to throttle operation.
- The hidraulic pressure circuit has been modified to further reduce shift shock.
- The lock-up region has been expanded to the 2nd and 3rd speed ranges to improve fuel economy.

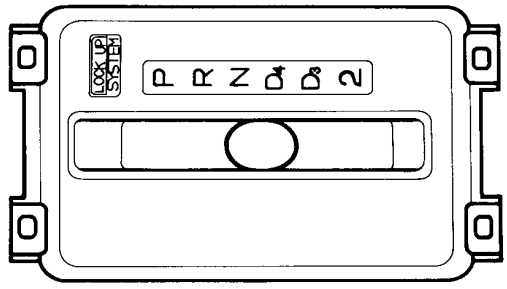
Construction



Flat Design Shift Indicator

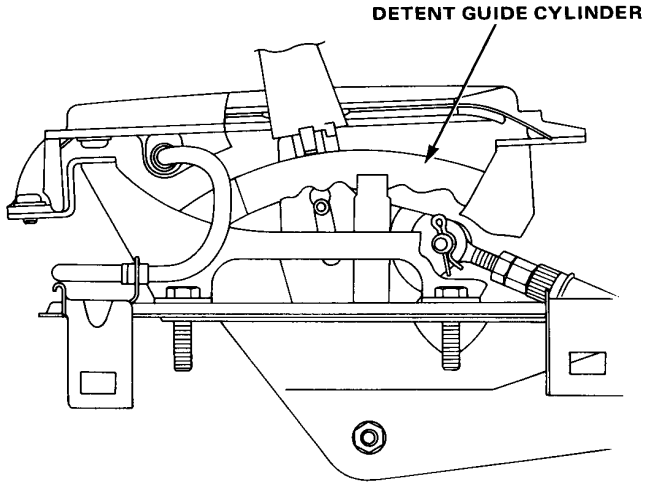
A flat shift indicator is newly provided. It is lower to the floor and allows improved visibility.

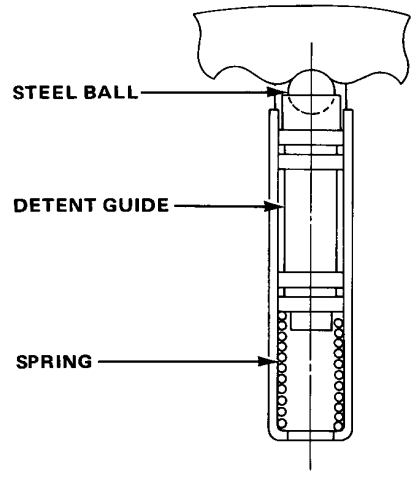




Selector Lever Detent

The detent system has been changed from a steel roller type to a steel ball type to reduce noise during shifting.

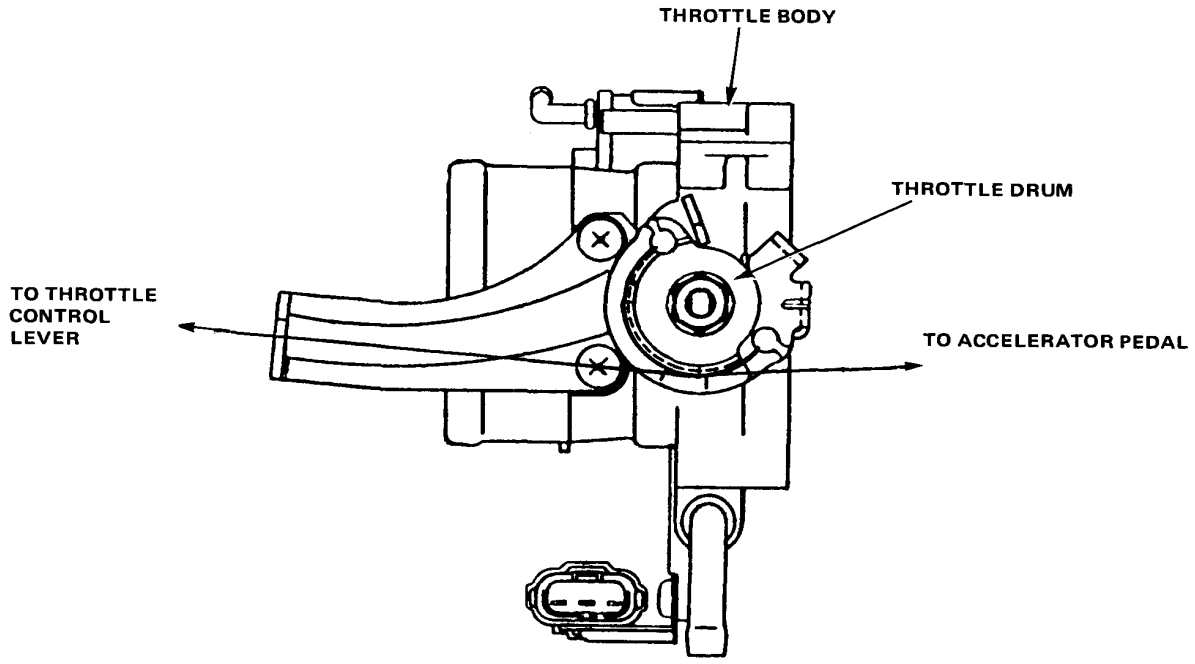




Throttle Control Cable Linkage

PGM-FI only

The throttle control cable is now connected in series to the throttle cable at the throttle drum. Movement of the throttle valve is directly transmitted to throttle valves A and B in the transmission, thus improving lock-up point accuracy and simplifying the engine room layout.



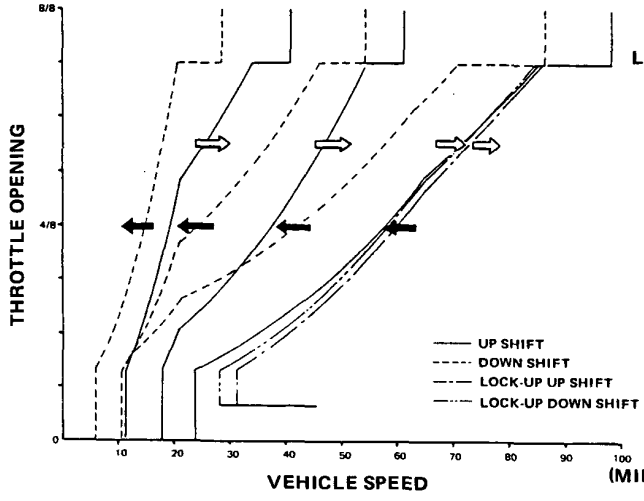
Broad Range Lock-up System

Compare to the '85 YM transmission, the lock-up area is expanded so that the lock-up clutch operates from the 2nd speed range.

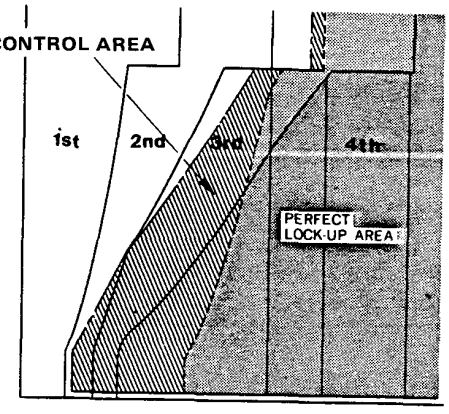
The lock-up area is divided into two parts; one is a lock-up control region and the other a perfect lock-up region. The torque transmitting capacity of the lock-up clutch is controlled in the lock-up control region. Unpleasant vibration caused by change of engine torque is absorbed in this region.

Lock-up Arrangement

'85 YM

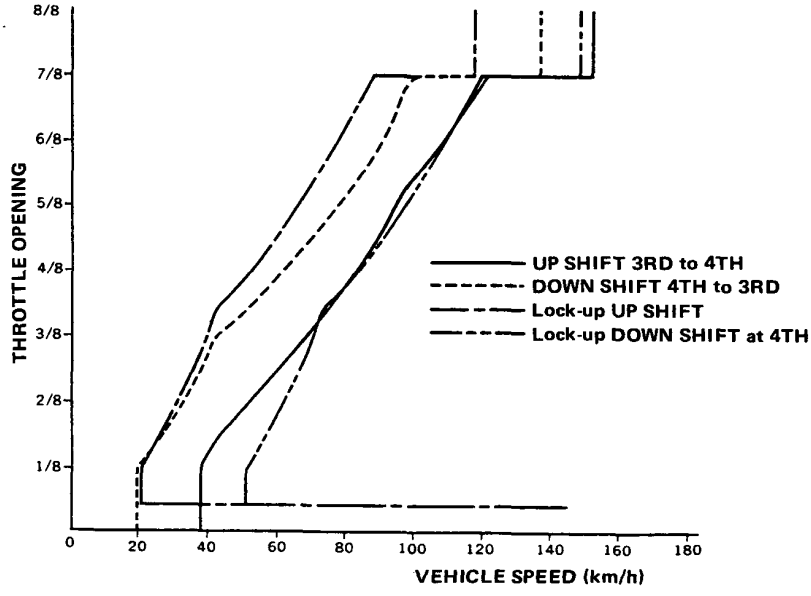


'86 YM



Lock-up Release in 4th Speed Range

A lock-up release mechanism in the 4th speed range is newly provided. Lock-up release point in this speed range is approx.30 km/h higher than the lock-up point. At the kick down from the 4th speed range the lock-up is released and the torque converter effect, which multiplies engine torque, is utilized. Quick acceleration at kick down from the 4th speed range is thereby maintained in this broad range lock-up system.



Automatic Transmission

Hydraulic Pressure Control Components

- **Points of modifications of '86 YM**

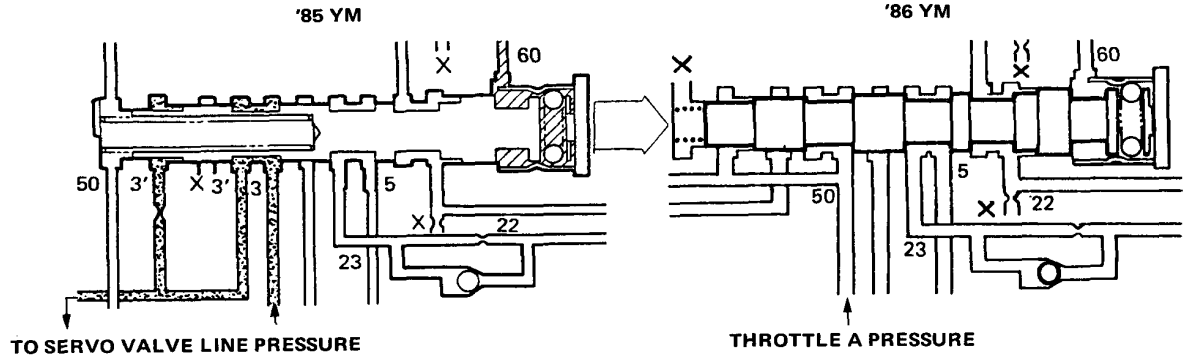
Ref.No.	Components	'85 YM	'86 YM	Ref.No.	Components	'85 YM	'86 YM
1.	Manual Valve	○	○	14.	Oriffice Control Valve (2nd)	○	●–4
2.	1-2 Shift Valve	○	○	15.	Oriffice Control Valve (3rd)	○	○
3.	2-3 Shift Valve	○	●–1	16.	LC Cut Valve	○	●–5
4.	3-4 Shift Valve	○	○	17.	LC Shift Valve	○	●–6
5.	Servo Valve	○	○	18.	LC Control Valve	○	●–7
6.	Governor Valve	○	○	19.	LC Timing Valve	○	–
7.	Throttle Valve A	○	○	20.	LC Timing Valve A	–	○–1
8.	Throttle Valve B	○	●–2	21.	LC Timing valve B	–	○–2
9.	Regulator Valve	○	○	22.	Shift Timing Valve	–	○–3
10.	Relief Valve	○	○	23.	Timing Accumulator Piston	–	○–4
11.	T.C. Check Valve	○	○	24.	3-2 Timing Valve	–	○–5
12.	Modulator Valve	○	○	25.	Kick Down Valve	–	○–6
13.	C.P.C. (Clutch Pressure Control) Valve	○	●–3	26.	Reverse Control Valve	–	○–7

NOTE: ●–1 ~ 7 indicate modified components, ○–1~7 indicate newly provided components.

1. Modified Components

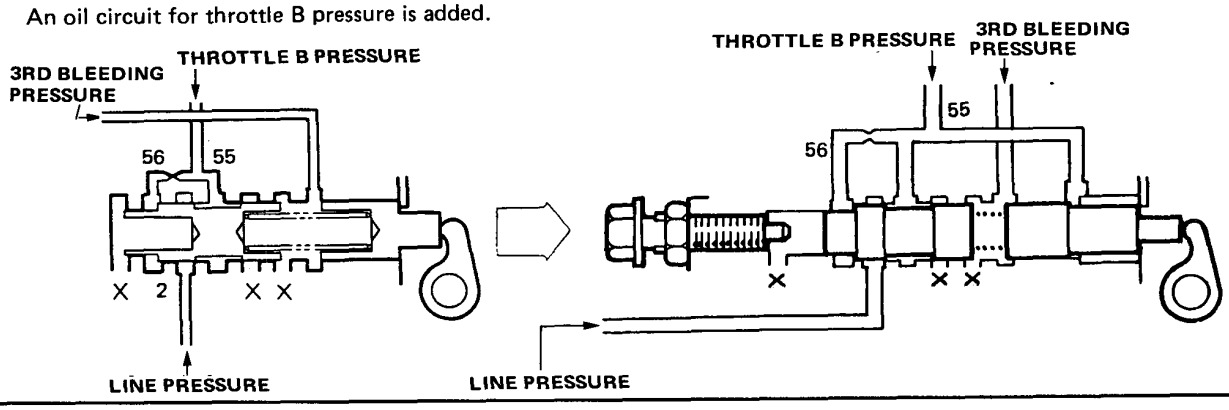
●–1. 2-3 Shift Vale

The reverse control function ('85 YM) has been separated from the 2-3 shift valve and a reverse control valve (○–7) is newly provided.



●–2 Throttle Valve B

An oil circuit for throttle B pressure is added.

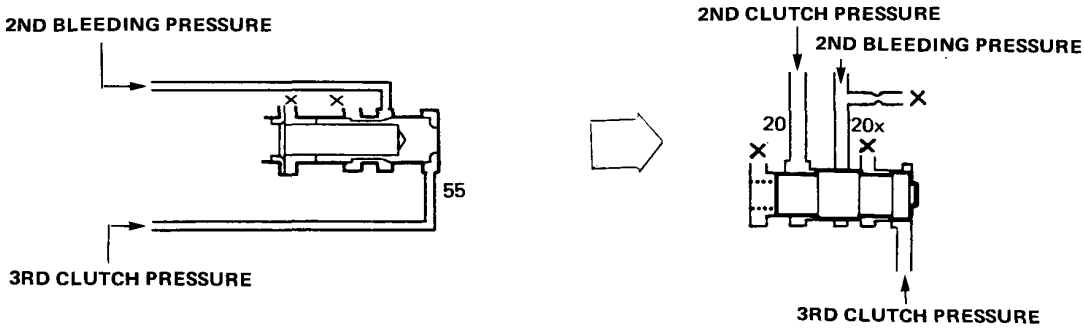


●—3 C.P.C. (Clutch Pressure Control) Valve

The signal pressure is changed from throttle A pressure to throttle B Pressure. The control of clutch pressures above 2nd in the D_3 and D_4 ranges in the small throttle opening area is improved.

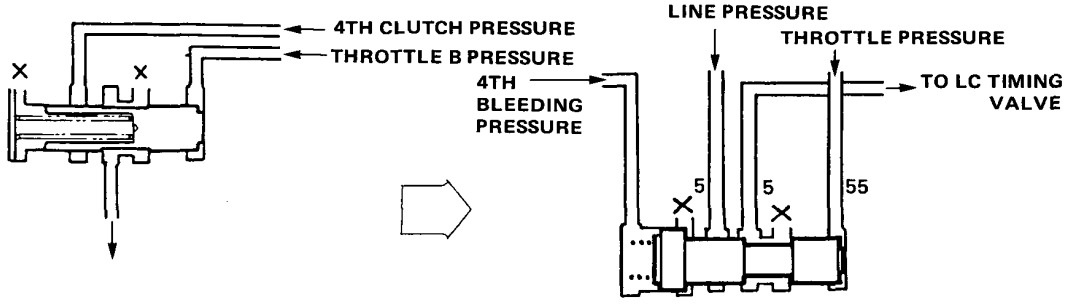
●—4 Oriffice Control Valve (2nd)

An oil pressure circuit (2nd clutch pressure) is newly provided to act against the 3rd clutch pressure so that shift shock between 2nd and 3rd is reduced.



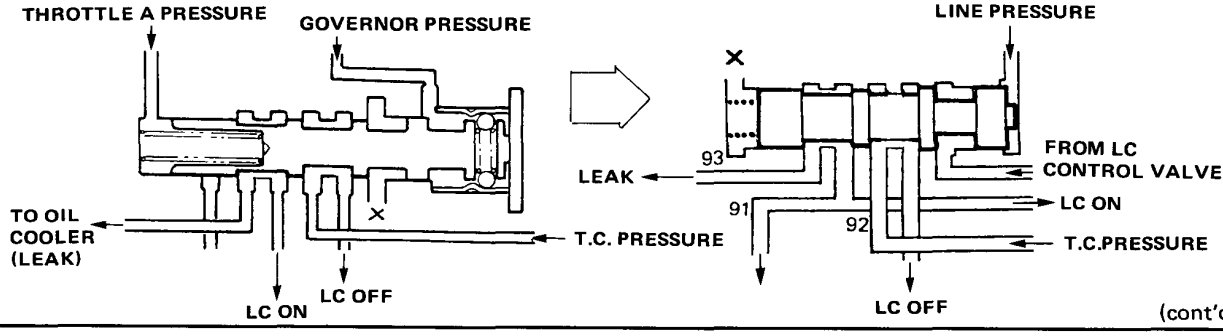
●—5 LC Cut Valve

The controlled pressure is changed from 4th clutch pressure to line pressure as a result of expansion of the lock-up range to 2nd and 3rd speeds. The 4th bleeding pressure circuit is connected to the LC cut valve opposing throttle B pressure. At kick down from 4th to 3rd or 2nd, the lock-up clutch is released by the pressure released from the 4th accumulator until 3rd or 2nd clutch pressure reaches a predetermind value. Kick down shock from the 4th is thus reduced. (Refer to kick down valve) The lock-up is released by this valve below approx. 1/24 throttle opening.



●—6 LC Shift Valve

Governor pressure is replaced by the line pressure to engage the lock-up. The throttle A pressure line used as a counter pressure to the governor pressure has been eliminated. When line pressure is applied to the LC shift valve, the plunger moves toward the spring. The T.C. pressure passage feeding the torque converter is then changed so that the lock-up clutch engages. The passage to the torque converter is changed to disengage the lock-up clutch by the return spring in the LC shift valve whenever line pressure is released by LC timing valve A.

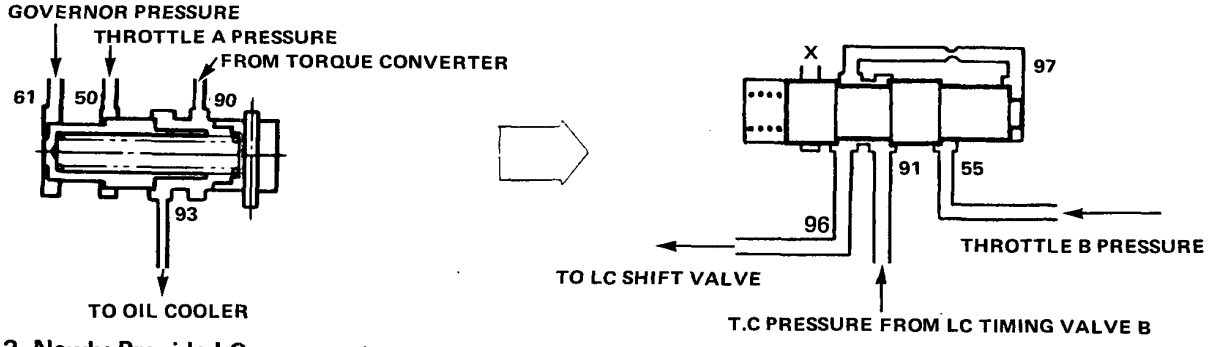


(cont'd)

Hydraulic Pressure Control Components (Cont'd)

•–7 LC Control Valve

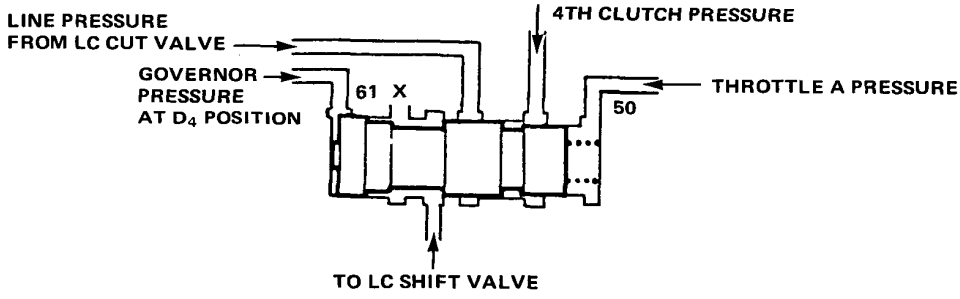
The LC control valve in '86 YM transmission controls the release pressure of the lock-up clutch unlike that of the '85 YM which controlled torque converter pressure. The modification contributes to creation of a wider lock-up control region.



2. Newly Provided Components

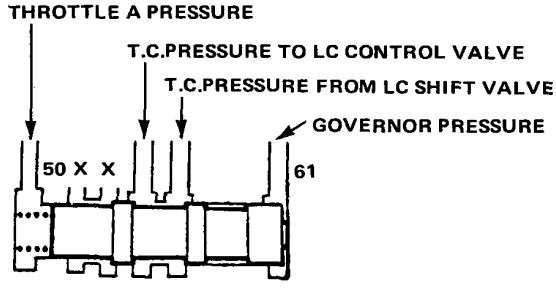
○-1 LC Timing Valve A

The LC timing valve A controls line pressure flow to the LC shift valve by opening and closing a plunger type valve. *The lock-up region appropriate to vehicle speed is determined by this valve. When governor pressure applied to the* plunger end is greater than throttle A pressure and spring tension on the other end of the valve line pressure is allowed to flow to the LC shift valve. The LC shift valve is thus shifted to the lock-up position. The lock-up release point in the 4th speed range is raised approx. 30 km/h by the 4th clutch pressure acting against governor pressure. After the valve closes the line pressure passage, the X orifice releases the remaining pressure between the LC shift valve and LC timing valve A.



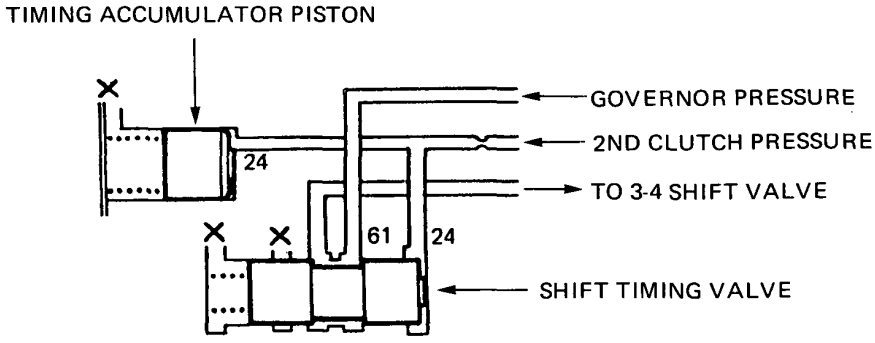
○–2 LCTiming Valve B

The lock-up control region is decided by this valve. When the LC shift valve is in the lock-up position T.C. pressure is transmitted to this valve. If the plunger is in the position shown below, T.C. pressure is transmitted to the LC control valve and lock-up capacity is controlled. On the other hand, when the plunger moves toward the spring by governor pressure, the passage of the T.C. pressure is closed and perfect lock-up is achieved.



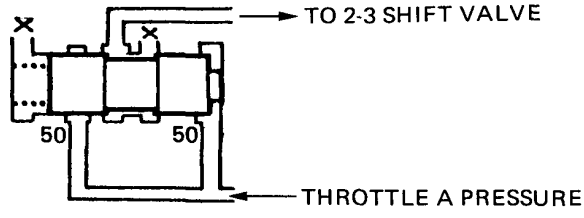
○—3. Shift Timing Valve and ○—4. Timing Accumulator Piston

In the 2nd speed range the shift timing valve closes the governor pressure passage to the 3-4 shift valve by 2nd clutch pressure applied against spring tension. At this time the timing accumulator piston is charged with 2nd clutch pressure. In such a case, shifting directly from 2nd to 4th speed range, the accumulated pressure in the timing accumulator piston maintains the shift timing valve to prevent the governor pressure from being transmitted to the 3-4 shift valve for the required amount of time. In the meantime, the 3rd clutch pressure is raised sufficiently to engage the 3rd clutch. Shift up is thus achieved and shift shock is moderated.



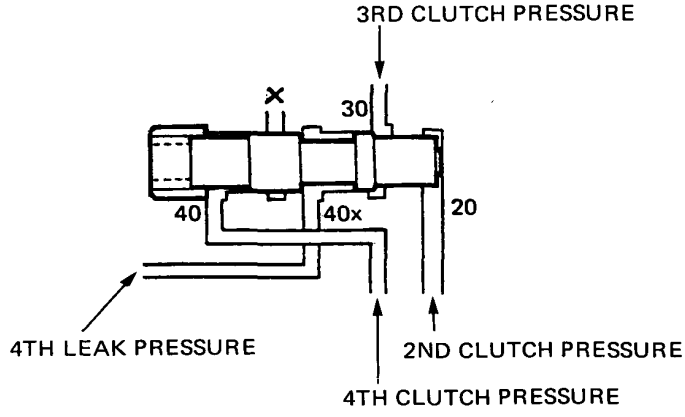
○—5 3-2 Timing Valve

The 3-2 timing valve prevents kick down from the 3rd to the 2nd speed range with a small throttle opening by reducing the throttle A pressure inversely proportionate to the throttle opening. Shock during the kick down from 3rd to 2nd is reduced as the kick down at a wider throttle opening follows a smaller shock.



○—6 Kick Down Valve

The kick down valve controls the opening and closing of the X exhaust port for the 4th bleeding pressure. During kick down from the 4th speed range, the remaining pressure of the 4th accumulator is applied to this valve, keeping the 4th exhaust port closed. It continues until the 3rd or 2nd clutch pressure load against 4th clutch pressure develops. Kick down is thus made to the speed range where the clutch is firmly engaged and kick down shock is reduced.

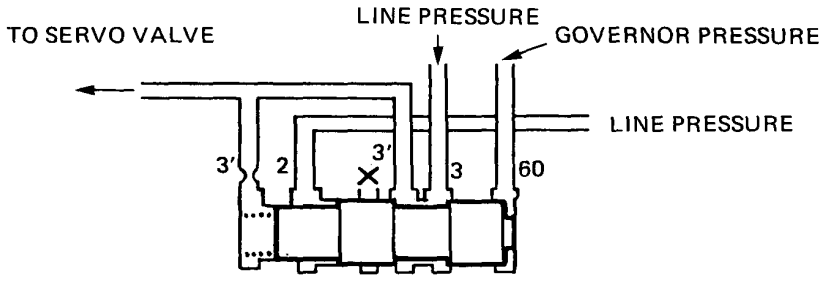


(cont'd)

Hydraulic Pressure Control Components (Cont'd)

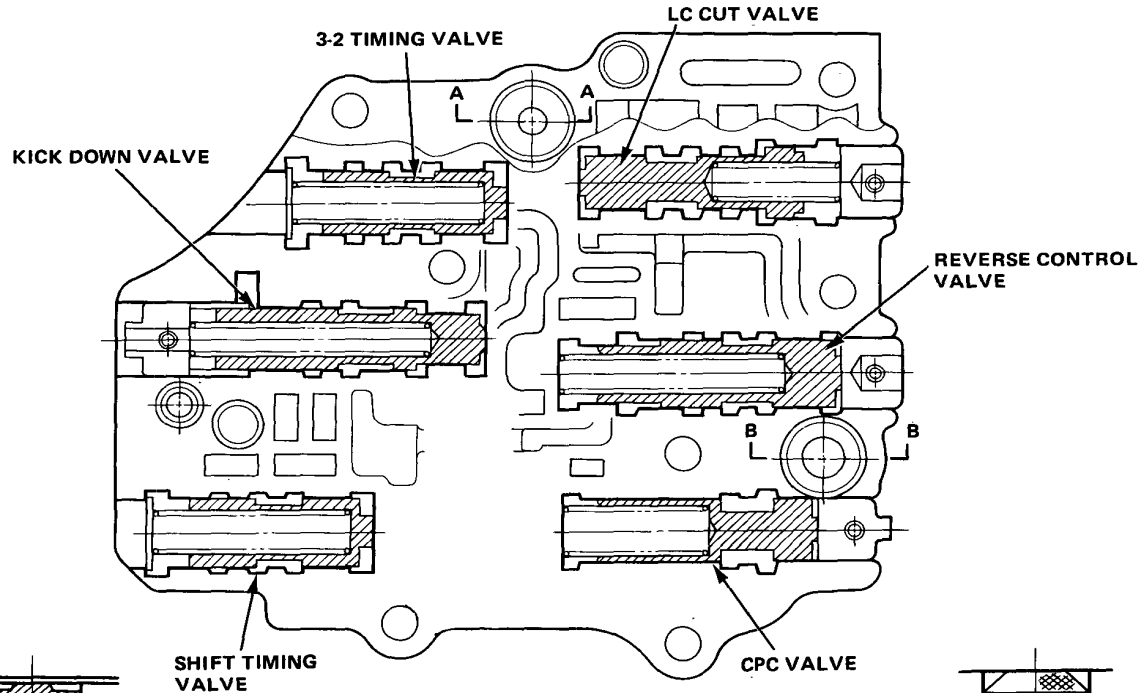
○–7. **Reverse Control Valve**

The reverse control function operated by the 2-3 shift valve has been replaced by this reverse control valve. Governor pressure closes the line pressure passage to the servo valve when vehicle speed reaches approx. 30km/h. Protection against accidental shifting into reverse is thereby achieved.



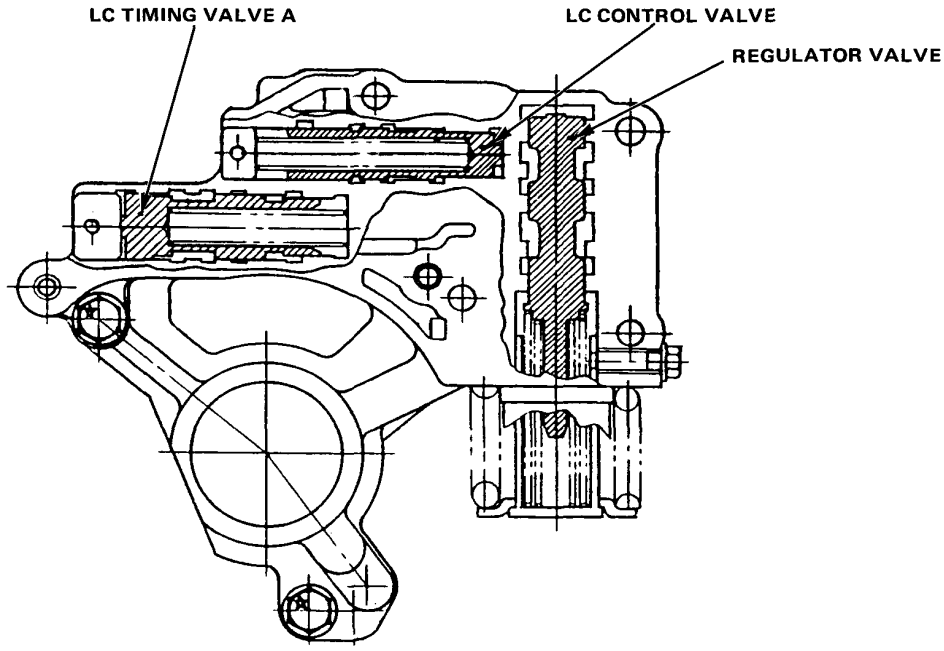
Secondary Valve Body

In order to provide for the increased number of valves, a secondary valve body is newly mounted between the main valve body and the servo valve body. The LC cut valve, reverse control valve, CPC valve, shift timing valve, kick down valve, 3-2 timing valve and timing accumulator piston are located in this body as shown below.



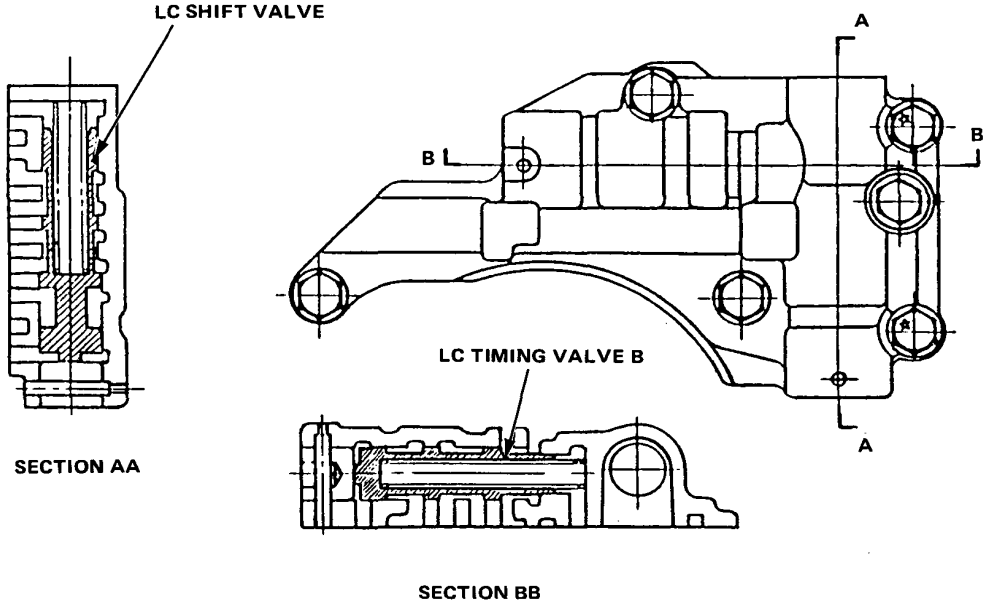
Regulator Valve Body

Modification has been made to the regulator valve body to permit inclusion of the LC timing valve A, as shown below.



Lock-up Valve Body

The lock-up valve body, which is located on the regulator valve body, has also been modified to contain the LC timing valve B and LC shift valve.;



Automatic Transmission

Explanation of Schematic Diagram of Hydraulic System

NOTE: Explanations on this page cover the Schematic Diagrams on the following pages. Refer to the appropriate diagram.

[N] (Neutral): See page 5-14.

With the manual valve in Neutral, oil from the oil pump just flows around the oil port (1); i.e. all clutches are off since no oil is transmitted to the shift valves. The regulator valve serves to maintain the line pressure at a constant level. The torque converter check valve prevents oil pressure within the torque converter from falling below a predetermined limit.

[2] : See page 5-15.

Oil from te oil pump travels through the manual valve to the second clutch; the second clutch is on. It also flows through the governor valve to the 1-2 and 2-3 shift valves. The modulator and throttle valves also receive oil from the pump.

[D_3] (In 3rd Speed Range): See page 5-16.

With a further increase in vehicle speed, the governor pressure (60) is sufficient to overcome the throttle pressure (50) working on the end of the 2-3 shift valve. This moves the shift valve to cut off line pressure (5) from the 2nd clutch. As the 2-3 shift valve so moves, it transmits line pressure (5) to the 3rd clutch through an accumulator and causes the transmission to up shift from second to third. As in the 2nd speed range, no power is transmitted through the first clutch because it is freewheeling on the one-way clutch.

[D_4] (In 1st Speed Range): See page 5-17.

The manual valve directs oil to the first clutch through the port (4) and inlet (10). Line pressure is applied to the governor valve, modulator valve and throttle valve. In this transmission, two pressures from throttle valve A and the governor valve oppose each other in attempting to move the shift valves. In the 1st speed range, the 1-2 shift valve is moved to the right since the pressure (60) from the governor valve is lower than the pressure (50) from throttle valve A. With the 1-2 shift valve moved to the right, no oil is directed to the 2nd, 3rd and 4th clutches; that is, only the first clutch is on.

[D_4] (In 2nd Speed Range with Lock-up Clutch Released): See page 5-18.

As the vehicle picks up speed, this inclease oil pressure from the governor valve. This pressure is applied to one end of the 1-2 shift valve. When governor pressure (60) exceeds throttle pressure (50), the 1-2 shift valve is moved to the left. This causes the transmission to upshift from first to second by admitting line pressure (5) to the 2nd clutch through the 2-3 shift valve. The accumulator reduces shock during shifting. The first clutch remains on during this series of operations but no power is transmitted through this clutch since it is freewheeling on the one-way clutch. At this time the line pressure (5) from the LC shift valve through the LC timing valve A is cut by the LC cut valve or LC timing valve A so the lock-up clutch remains released.

[D_4] (In 2nd Speed Range Lock-up Control Mode): See page 5-19.

When the throttle opeining and the vehicle speed are within a predetermined band, line pressure (5) is transmitted to the LC shift valve to change the TC pressure passage from (92)—(94) to (92)—(91). TC pressure (91) is then divided in two, one directly feeding the torque converter to engage the lock-up clutch from port (91) of the torque converter, and the other feeding the torque converter from port (94), passing through the LC timing valve, LC control valve (91)—(96) and LC shift valve (96)—(94) to release the lock-up clutch. In the latter case, the TC pressure (94) is maintained at a lower lever than the TC pressure (91) by the LC control valve as it chokes the (91)—(96) passage by TC pressure (97) and throttle B pressure. As a result, the torque transmitting capacity of the lock-up clutch is controlled.
In the 2nd speed range the 2nd clutch pressure (24) to the shift timing valve cuts governor pressure (61) flow to the 3-4 shift valve and the timing accumulator piston is charged with 2nd clutch pressure. Both the shift timing valve and the timing accumulator piston work together to prevent direct up shifting from the 2nd to the 4th speed range.

D4 (In 3rd Speed Range with Lock-up Clutch Released): See page 5-20.

When throttle A pressure (50) is greater than the governor pressure (61) applied on the end of LC timing valve A, the valve closes the line pressure passage (5) to the LC shift valve. The LC shift valve then changes the feed line of the torque converter from (91) to (94) and the lock-up clutch is released.

D4 (In 3rd Speed Range Lock-up Control Mode): See page 5-21.

The operation of the shift valves is identical to D3 in the 3rd speed range but governor pressure (60) is connected to passage (61) at the manual valve and it opens the line pressure passage (5) at the LC timing valve A allowing line pressure to flow to the LC shift valve. Governor pressure (61) is also applied to LC timing valve B but it is not enough to overcome the opposing spring tension and throttle A pressure to close the torque converter pressure passage (91). Lock-up control is thus achieved.

D4 (In 3rd Speed Range Full Lock-up Mode): See page 5-22.

With a further inclease in vehicle speed, governor pressure (61) reaches a high enough value to overcome throttle A pressure (50) applied on the end of LC timing valve B. This moves LC timing valve B to cut off TC pressure (91) from the LC shift valve and open the X exhaust port to release pressure applied to the torque converter at port (94). By releasing the pressure opposing to TC pressure (91) in the torque converter, the lock-up clutch is firmly engaged. Full lock-up is thus achieved.

D4 (In 4th Speed Range): See page 5-23 and 5-24.

As the governor pressure increases with vehicle speed, it exceeds the throttle A pressure applied on the other end of the 3-4 shift valve. The line pressure passage to the 3rd clutch (30) is closed and the passage to the 4th clutch (42) is opened by the movement of 3-4 shift valve. The 4th clutch pressure line is then pressurized to engage the 4th clutch. At the same time remaining 3rd clutch pressure is released by the movement of the 3rd orifice control valve as it opens the X exhaust port for the remaining pressure of the 3rd clutch. The 4th clutch pressure is also applied on LC timing valve A to raise the lock-up release point approx. 30 km/h so that quick acceleration at kick down from the 4th speed range remains possible. The other 4th clutch pressure is transmitted to the kick down valve to hold the remaining 4th clutch pressure high during kick down from the 4th speed range in order to reduce kick down shock. This remaining 4th clutch pressure acts to release the lock-up clutch by cutting line pressure (5) at the LC cut valve.

R (Reverse): See page 5-25.

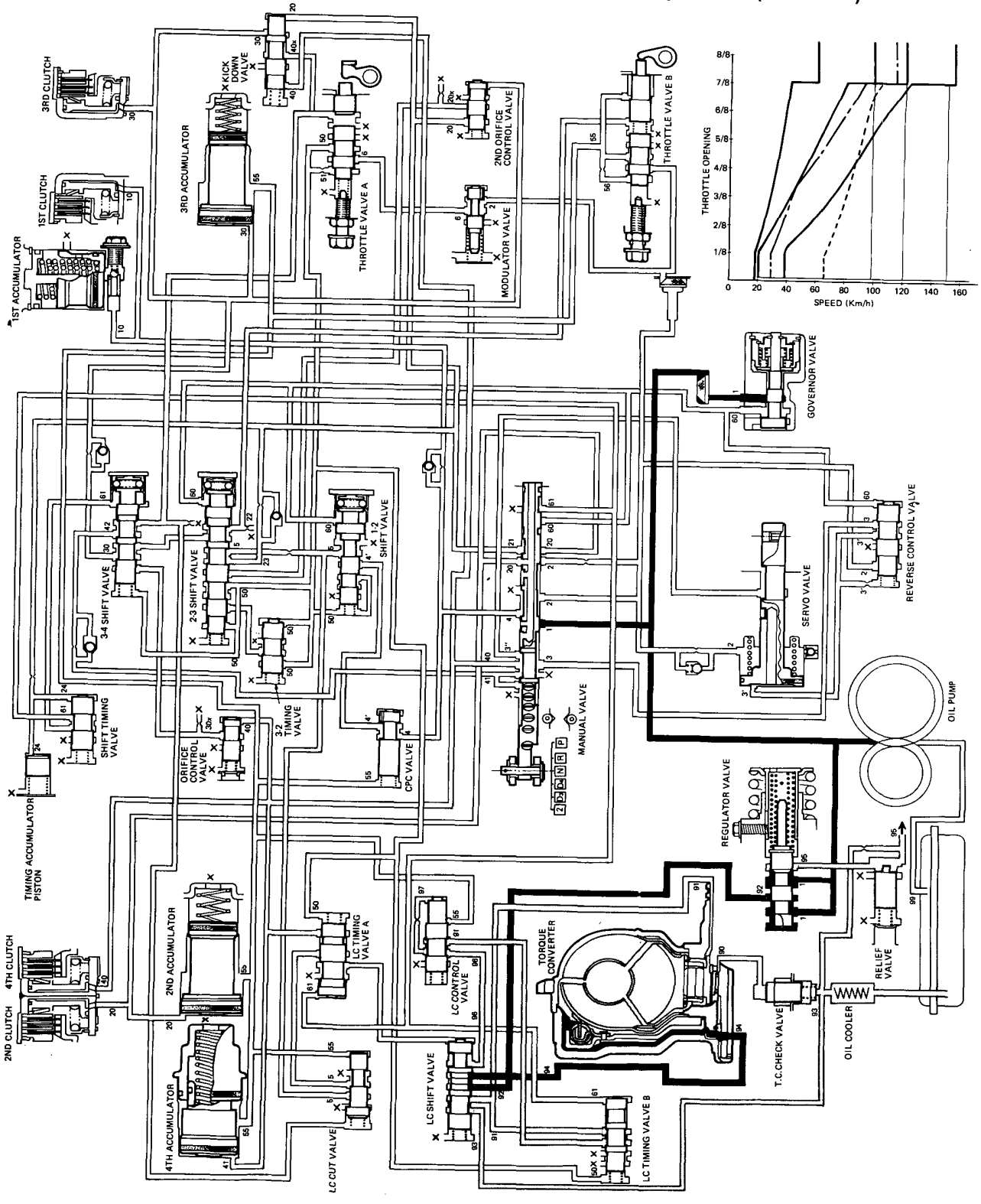
When the select level is placed in Reverse, this moves the manual valve, allowing line pressure (3) to travel to the servo valve through the reverse control valve. The reverse shift fork, which is installed on the servo valve, moves the selector into reverse gear. At the end of the servo valve stroke, the line pressure passage (3') opens and the 4th clutch pressure line is pressurized. Provision are made to guard against accidental shifting into reverse while the vehicle is in motion. When vehicle speed reaches a certain level (approx. 30 km/h), line pressure is cut by the governor pressure (60) which activates the reverse control valve.

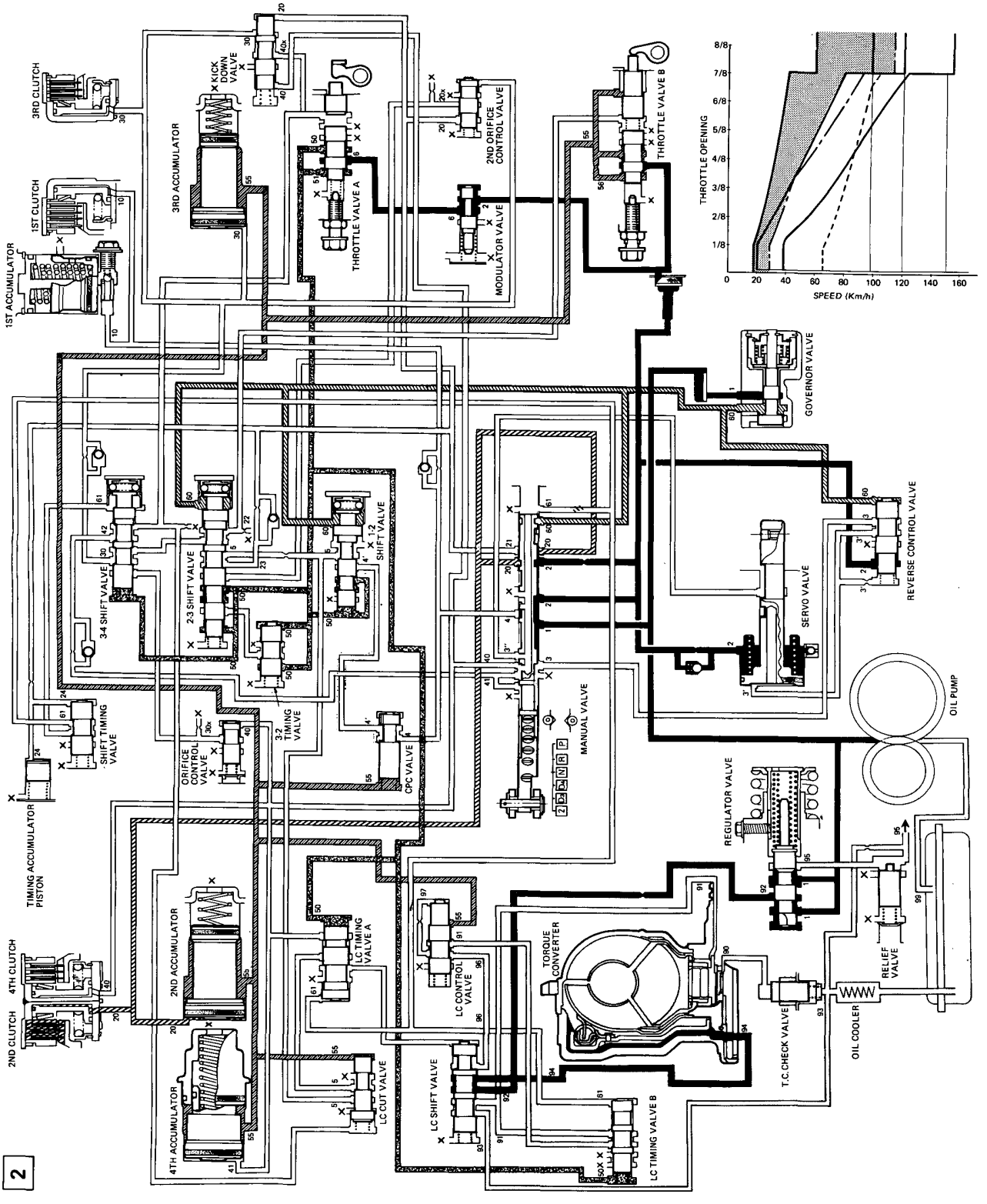
P (Park): See page 5-26.

In Park, all clutches are off since oil from the oil pump flows around the manual valve port as shown.

(cont'd)

Explanation of Schematic Diagram of Hydraulic System (Cont'd)

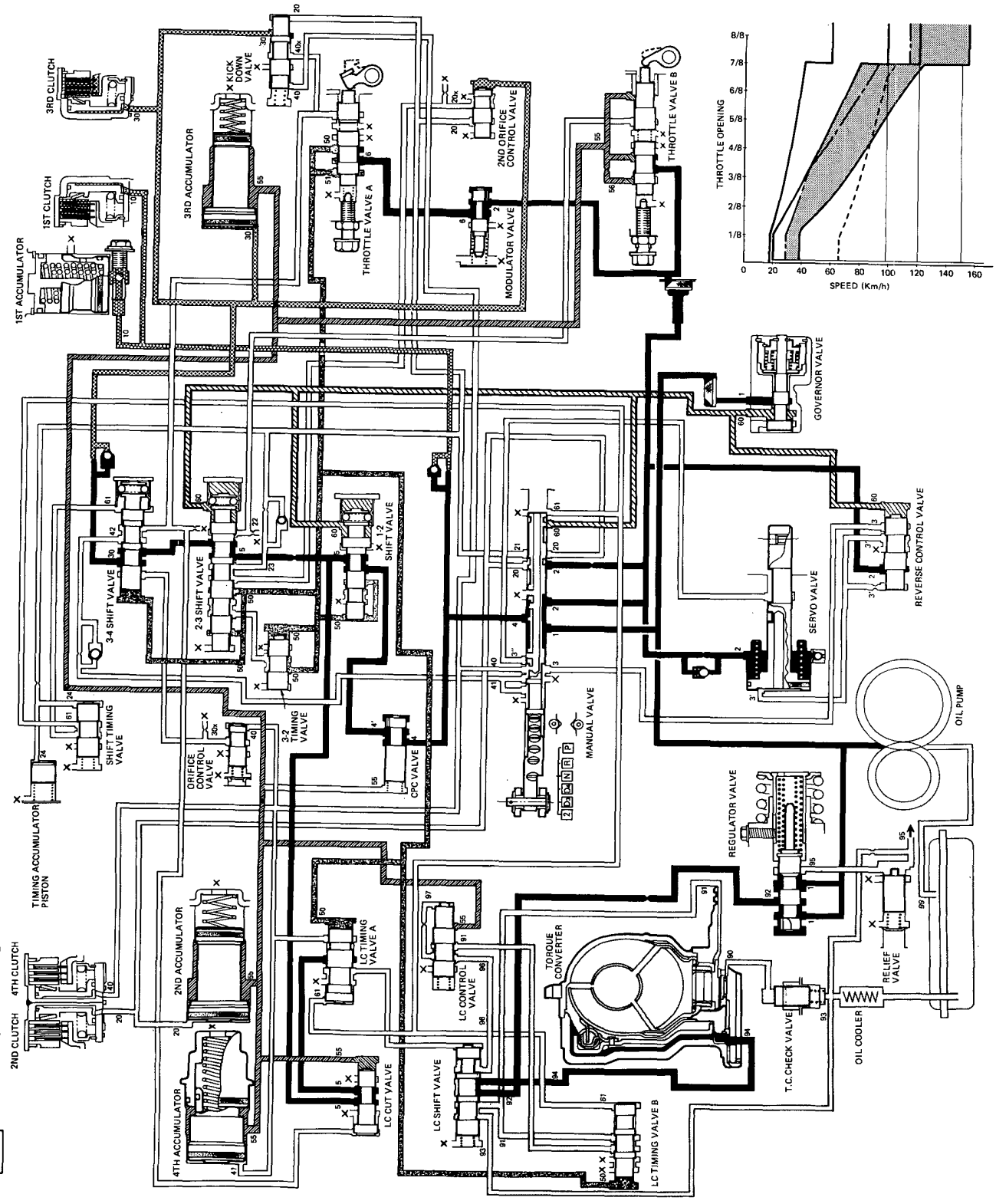



2
3RD CLUTCH
1ST CLUTCH
1ST ACCUMULATOR
3RD ACCUMULATOR
KICK DOWN VALVE
THROTTLE VALVE A
2ND ORIFICE CONTROL VALVE
MODULATOR VALVE
THROTTLE VALVE B
THROTTLE OPENING
SPEED (Km/h)
GOVERNOR VALVE
REVERSE CONTROL VALVE
SERVO VALVE
3-4 SHIFT VALVE
2-3 SHIFT VALVE
1-2 SHIFT VALVE
SHIFT TIMING VALVE
ORIFICE CONTROL VALVE
3-2 TIMING VALVE
CPC VALVE
MANUAL VALVE
OIL PUMP
REGULATOR VALVE
RELIEF VALVE
OIL COOLER
T.C. CHECK VALVE
TORQUE CONVERTER
LC CONTROL VALVE
LC TIMING VALVE A
LC SHIFT VALVE
LC CUT VALVE
LC TIMING VALVE B
TIMING ACCUMULATOR PISTON
2ND CLUTCH
4TH CLUTCH
2ND ACCUMULATOR
4TH ACCUMULATOR

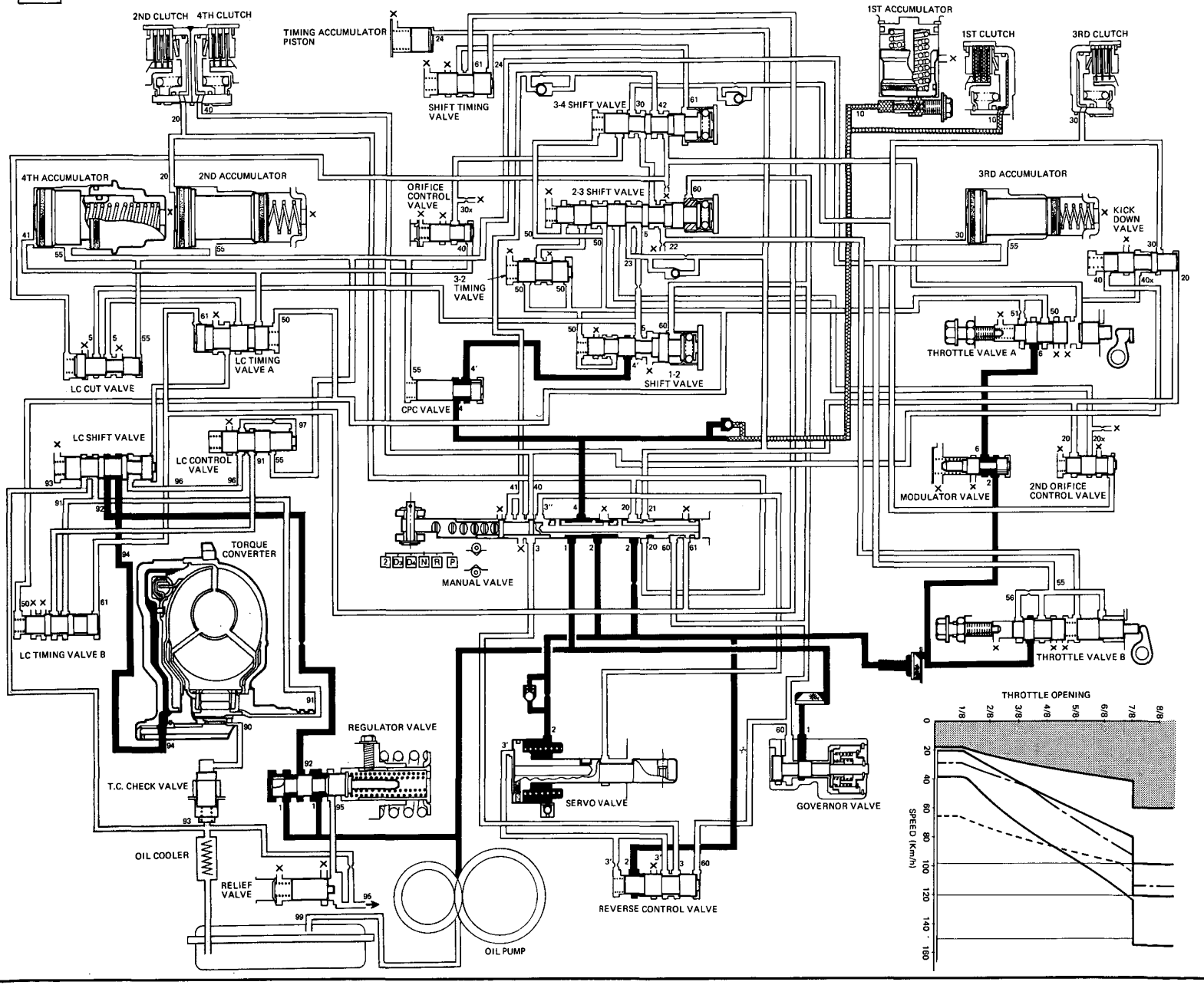
(cont'd)

Automatic Transmission

Explanation of Schematic Diagram of Hydraulic System (cont'd)



D4 (In 1st Speed Range)



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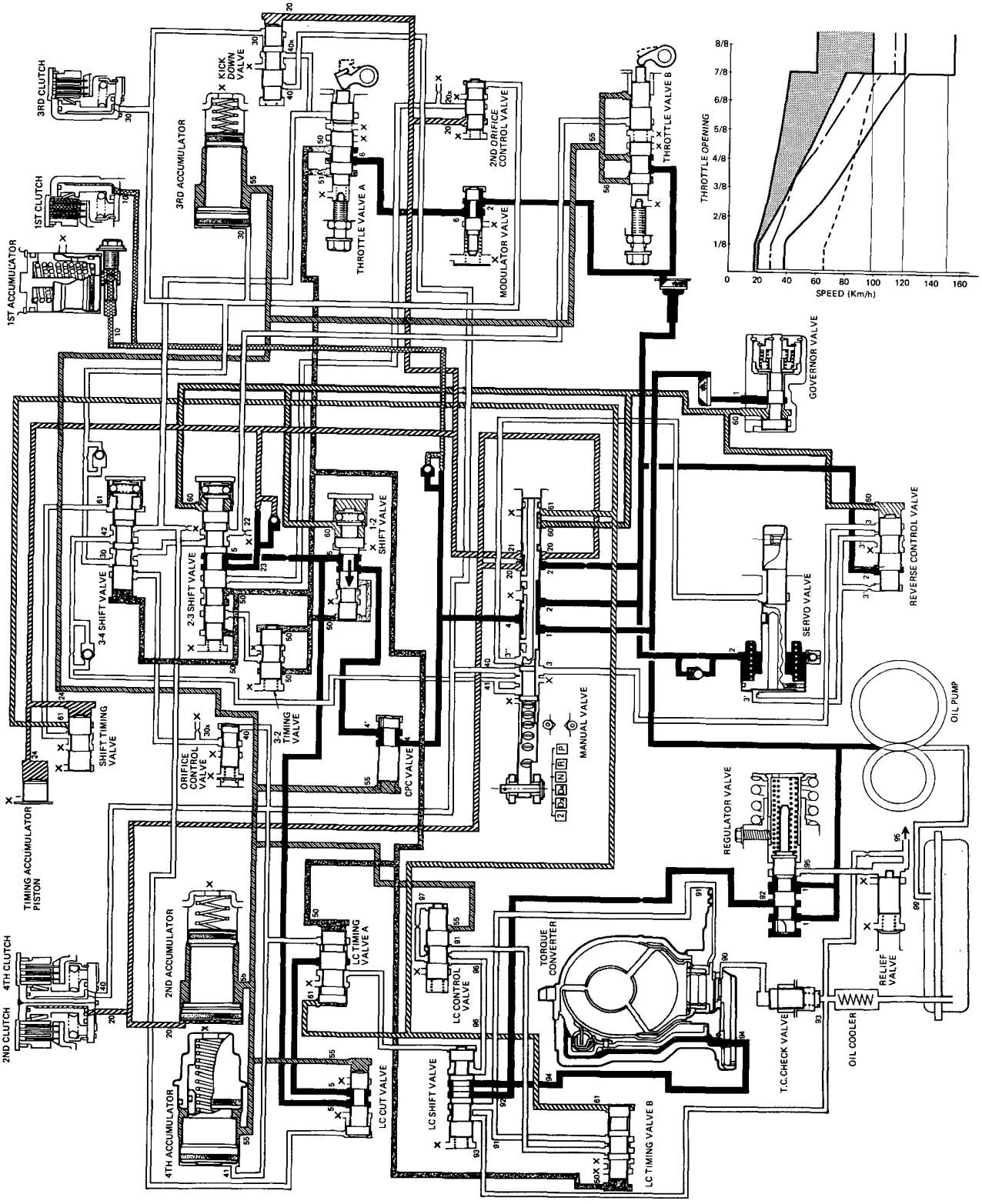
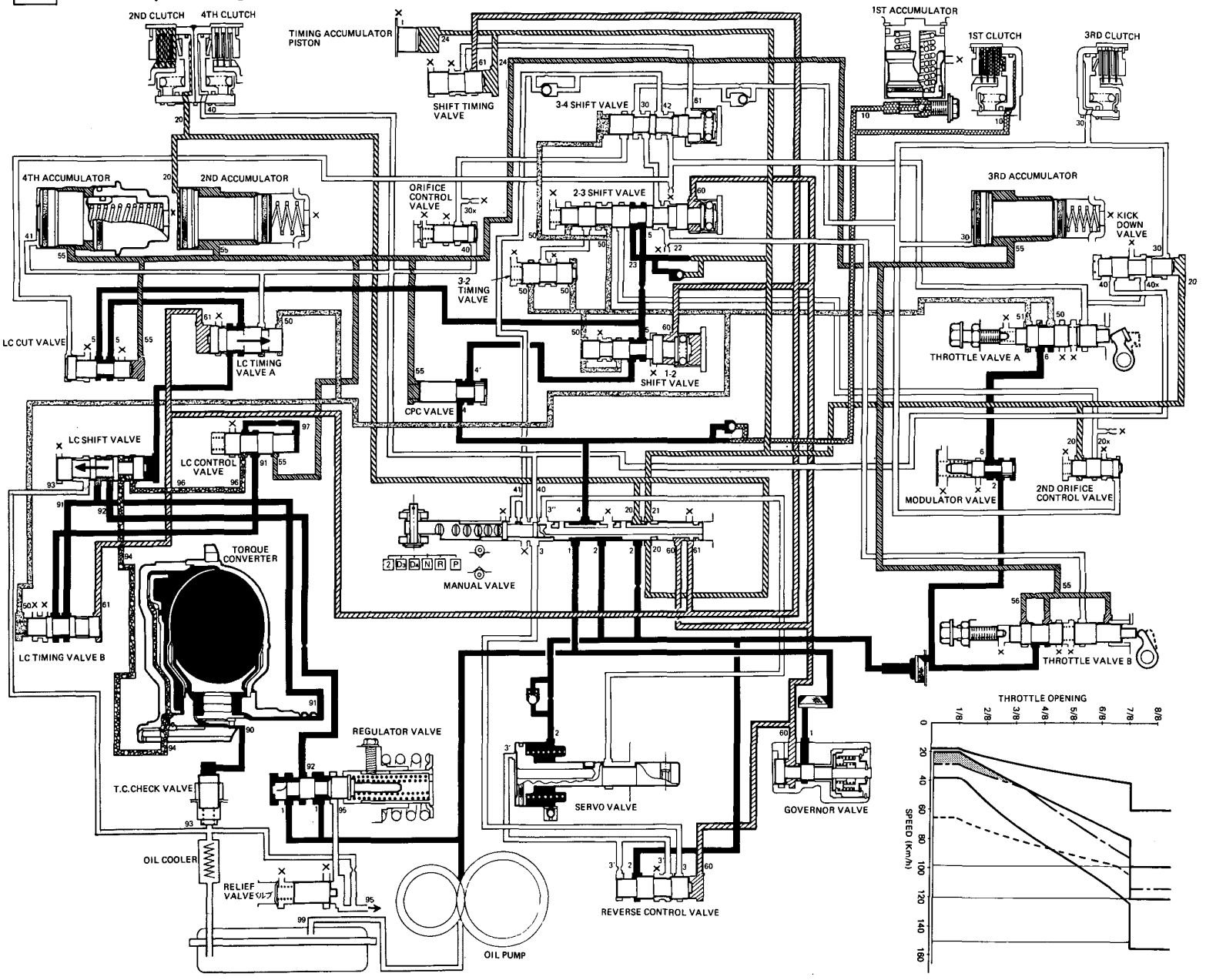
Automatic Transmission

Explanation of Schematic Diagram of Hydraulic System (cont'd)

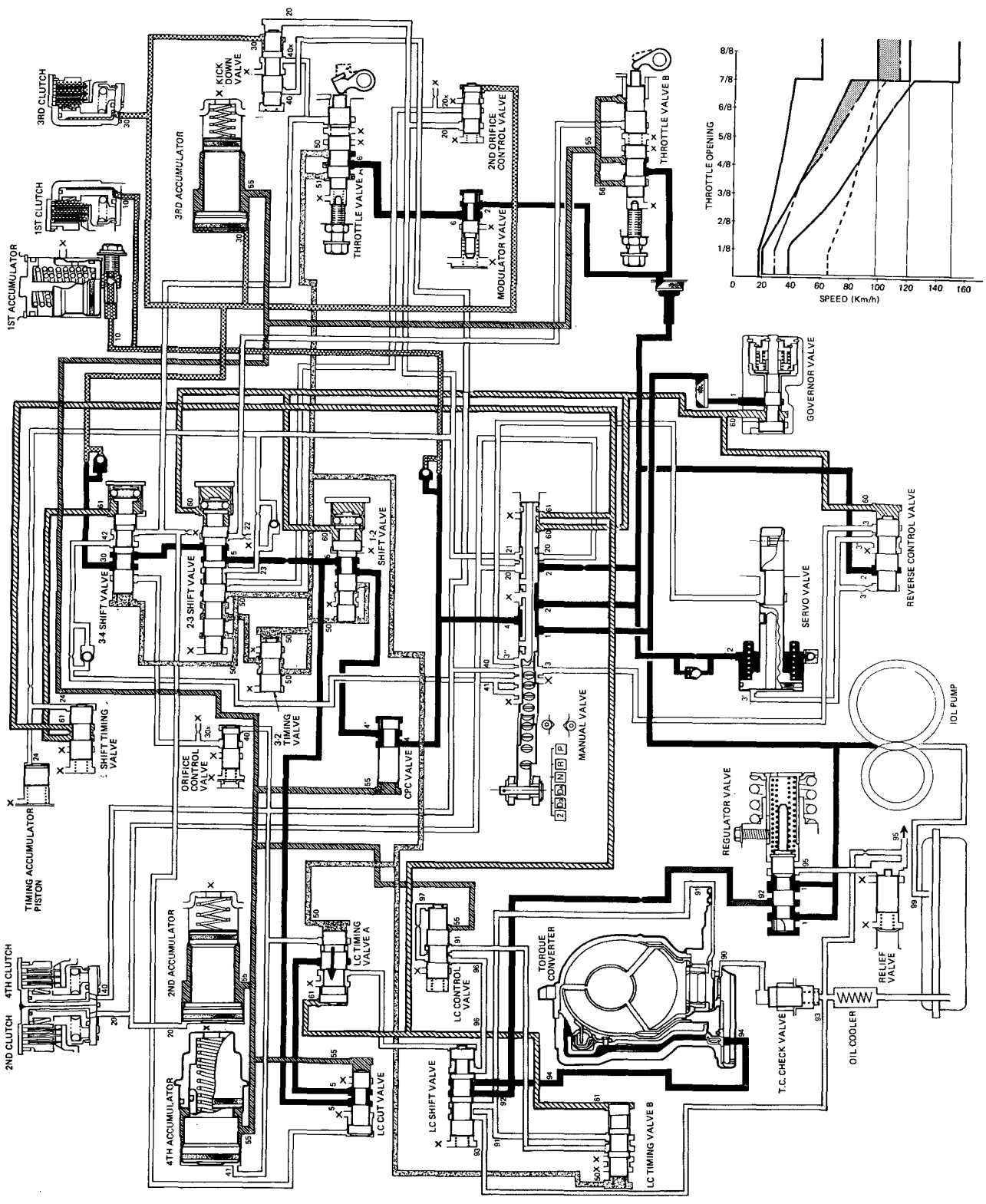


D_4 (In 2nd Speed Range Lock-up Control Mode)

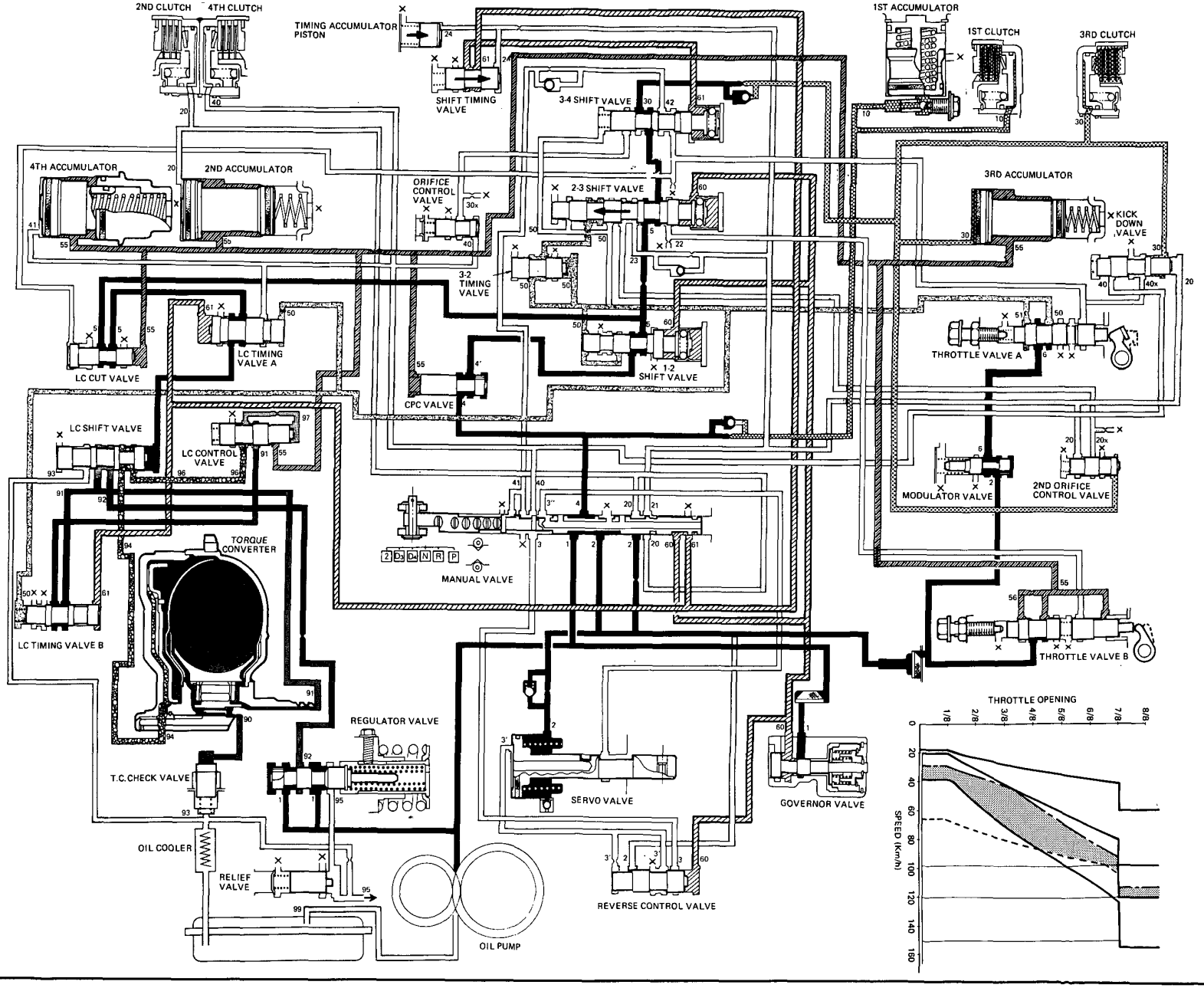


Automatic Transmission

Explanation of Schematic Diagram of Hydraulic System (cont'd)

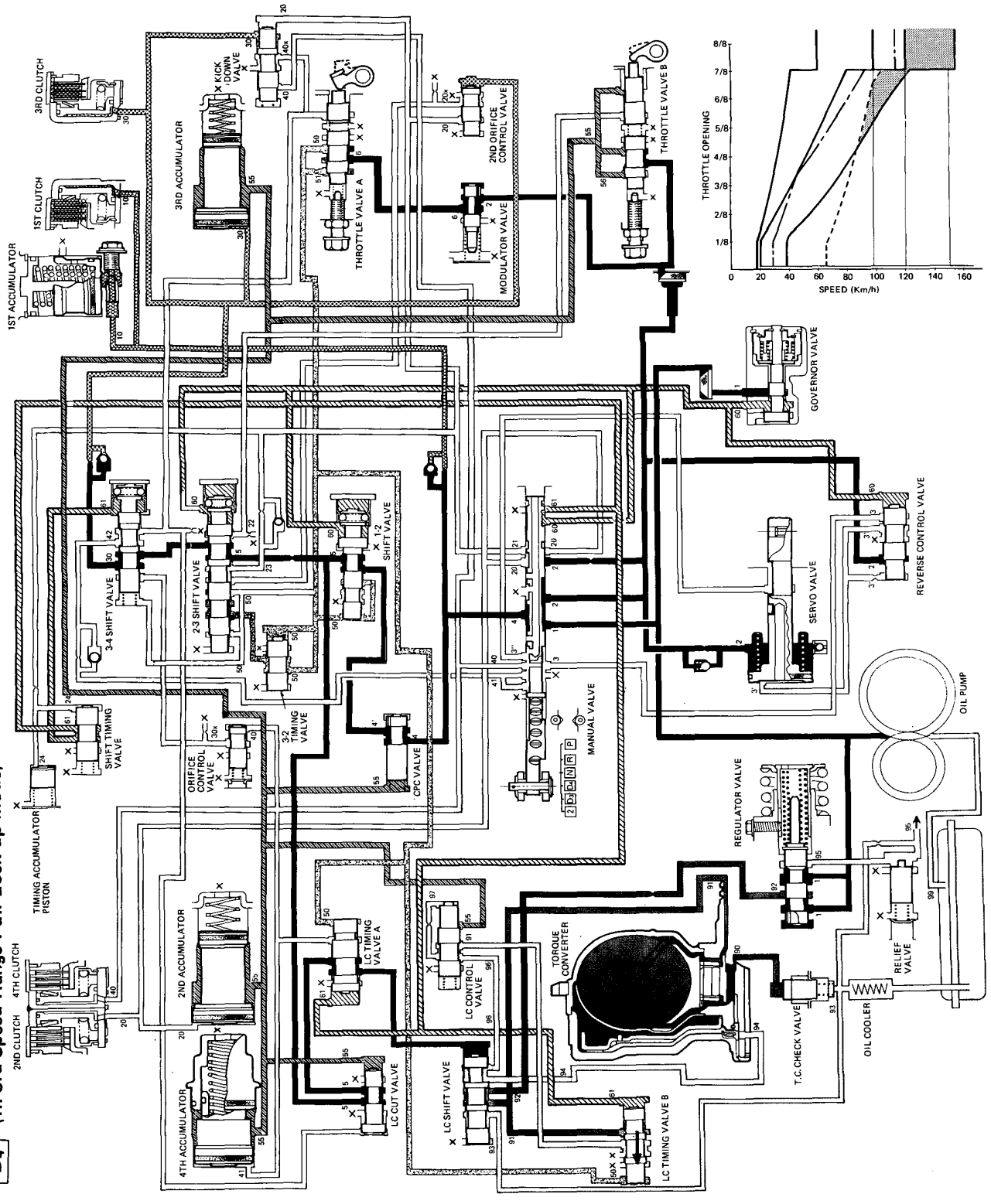


D_4 (In 3rd Speed Range Lock-up Control Mode)

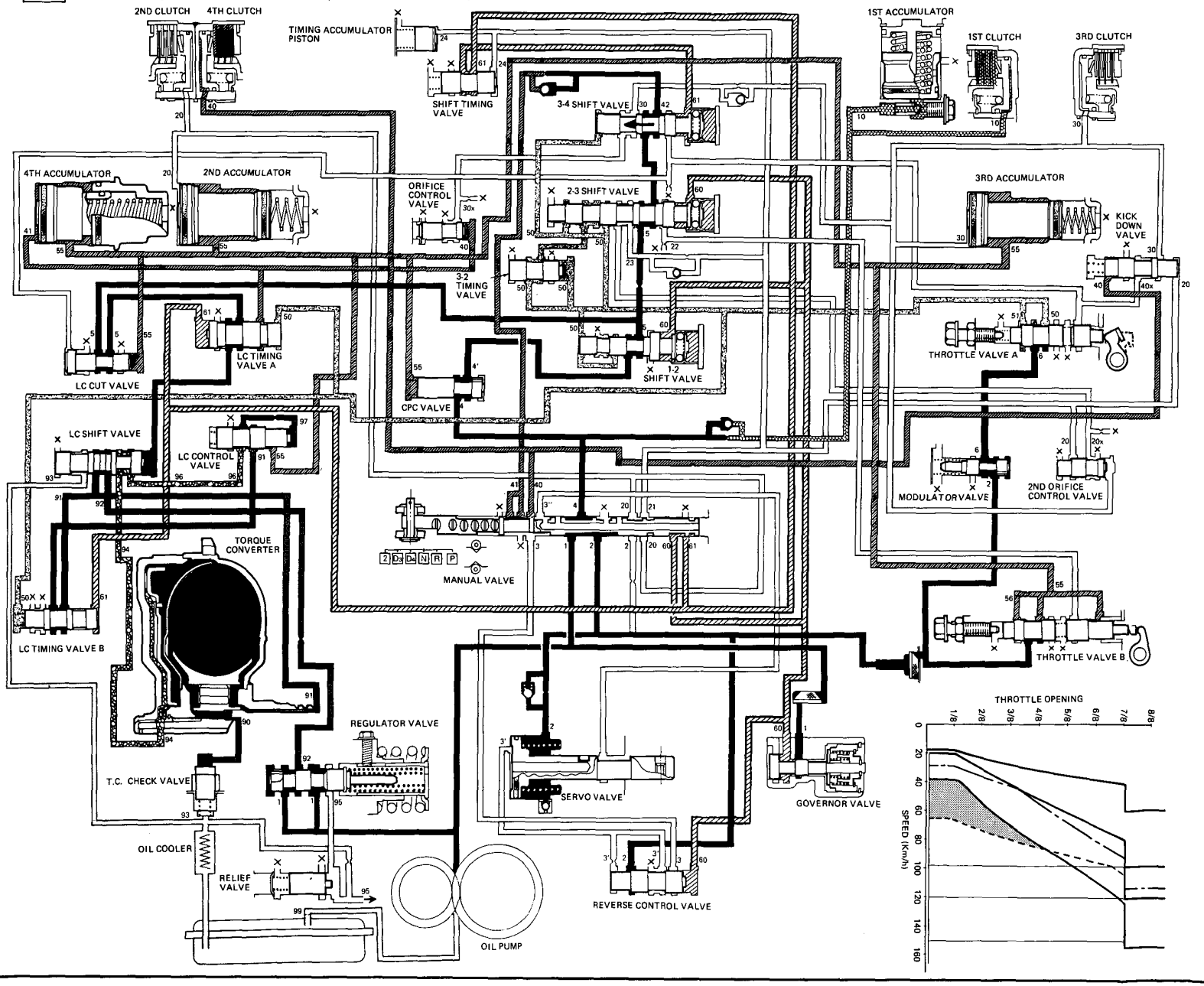


Automatic Transmission

Explanation of Schematic Diagram of Hydraulic System (cont'd)

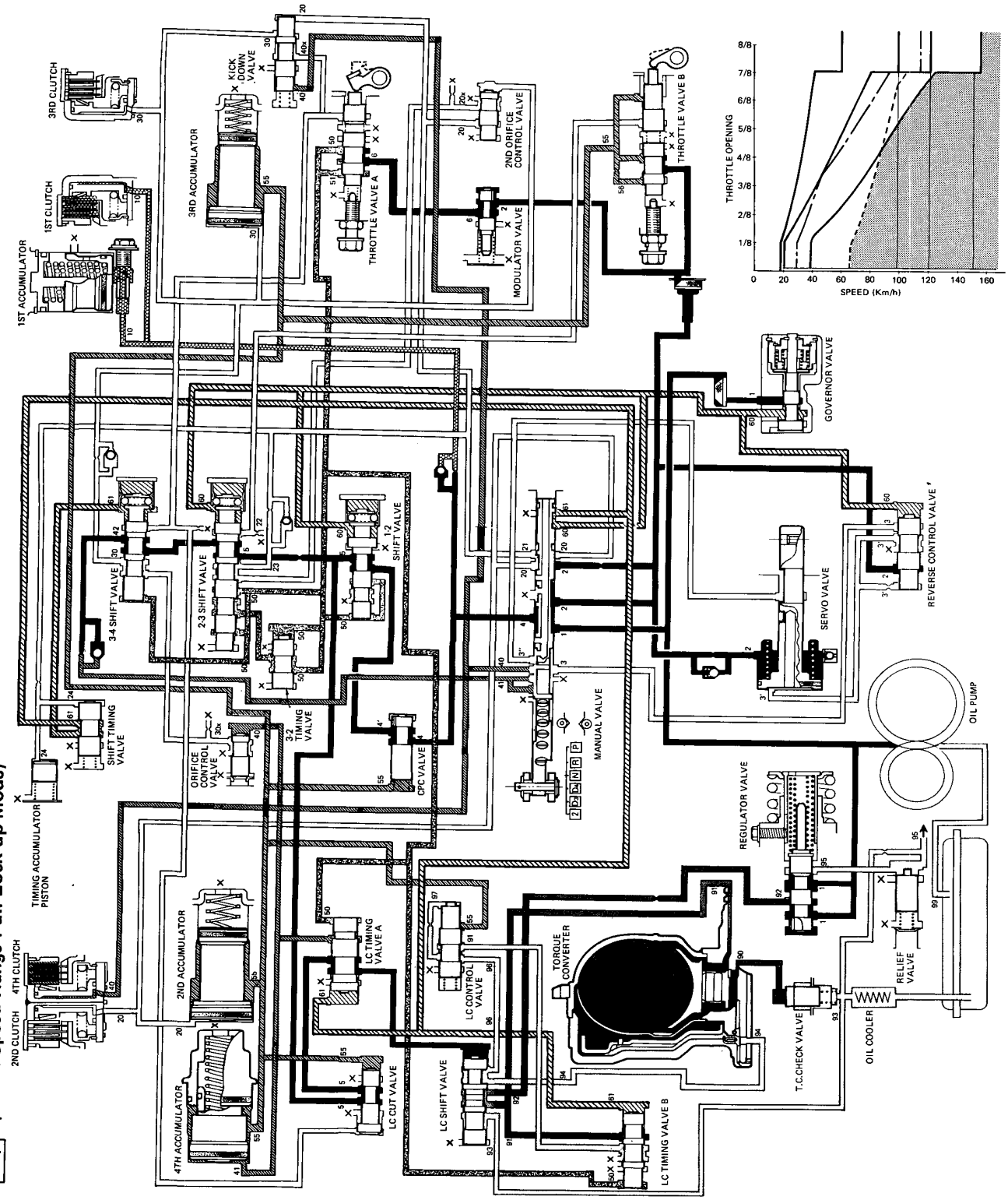


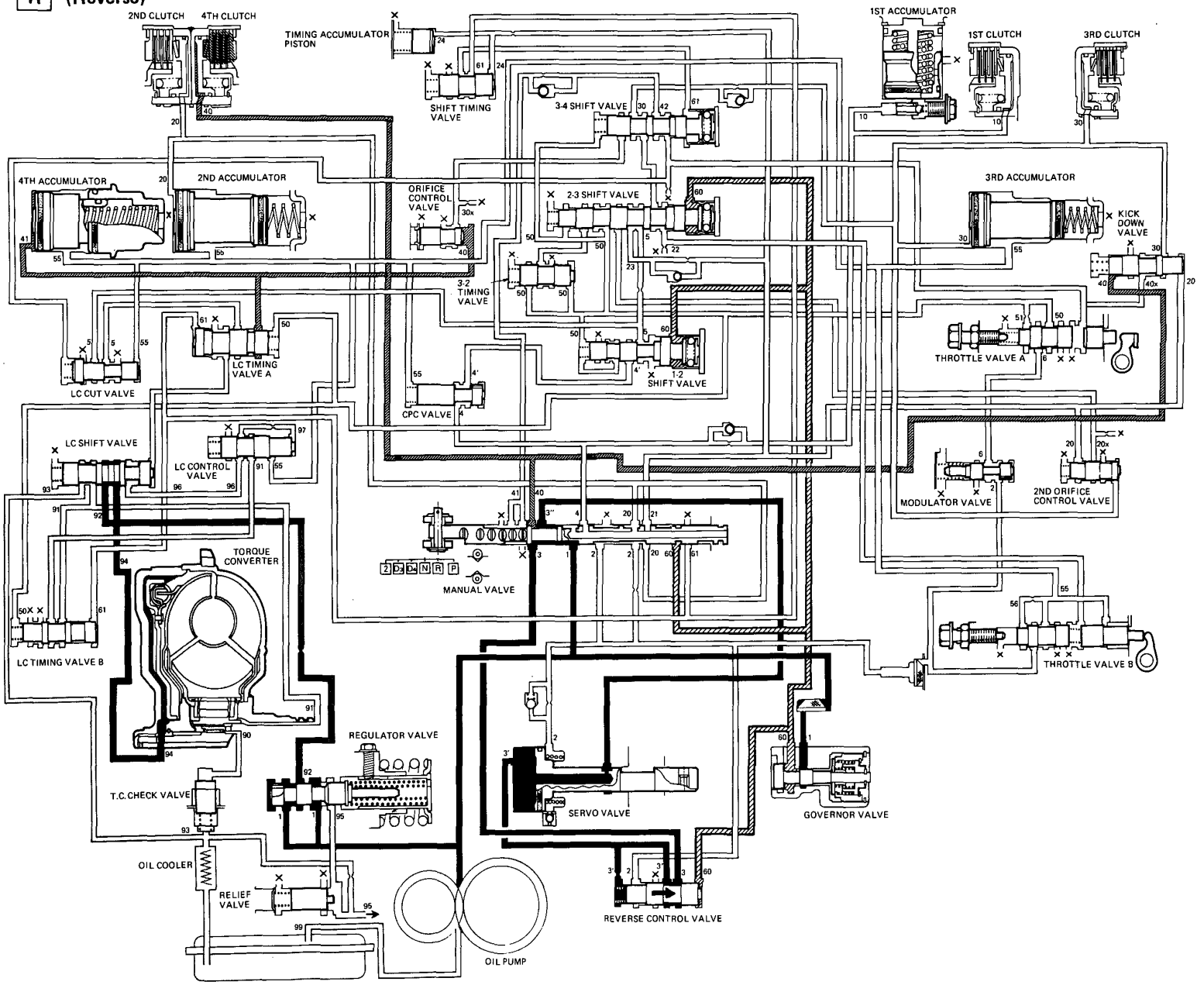
D_4 (In 4th Speed Range Lock-up Control Mode)



Explanation of Schematic Diagram of Hydraulic System (cont'd)

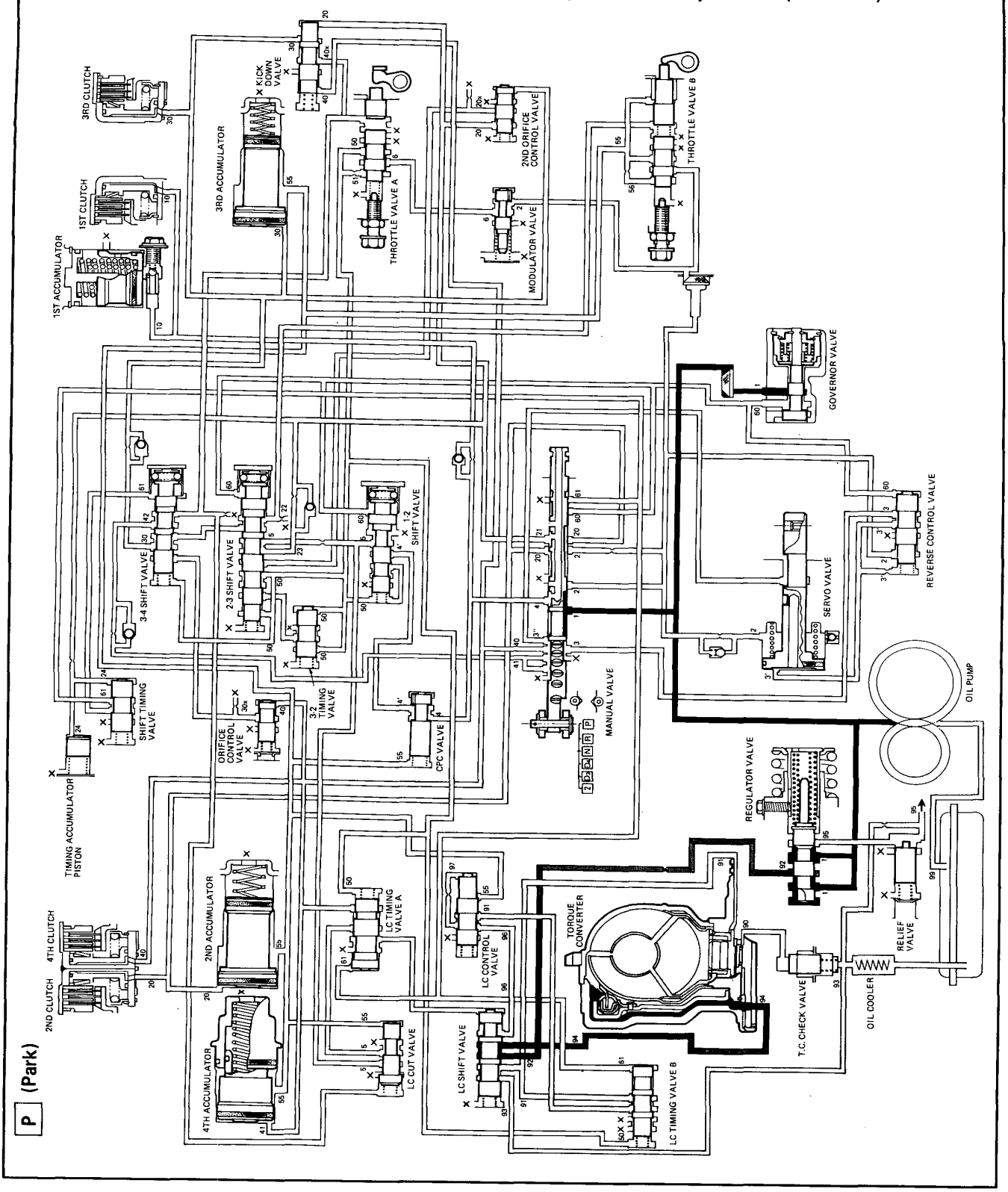
D4 (In 4th Speed Range Full Lock-up Mode)




R (Reverse)
2ND CLUTCH
4TH CLUTCH
TIMING ACCUMULATOR PISTON
SHIFT TIMING VALVE
3-4 SHIFT VALVE
1ST ACCUMULATOR
1ST CLUTCH
3RD CLUTCH
4TH ACCUMULATOR
2ND ACCUMULATOR
ORIFICE CONTROL VALVE
2-3 SHIFT VALVE
3RD ACCUMULATOR
KICK DOWN VALVE
3-2 TIMING VALVE
LC TIMING VALVE A
LC CUT VALVE
CPC VALVE
1-2 SHIFT VALVE
THROTTLE VALVE A
LC SHIFT VALVE
LC CONTROL VALVE
MODULATOR VALVE
2ND ORIFICE CONTROL VALVE
TORQUE CONVERTER
MANUAL VALVE
LC TIMING VALVE B
THROTTLE VALVE B
REGULATOR VALVE
T.C. CHECK VALVE
SERVO VALVE
GOVERNOR VALVE
OIL COOLER
RELIEF VALVE
REVERSE CONTROL VALVE
OIL PUMP

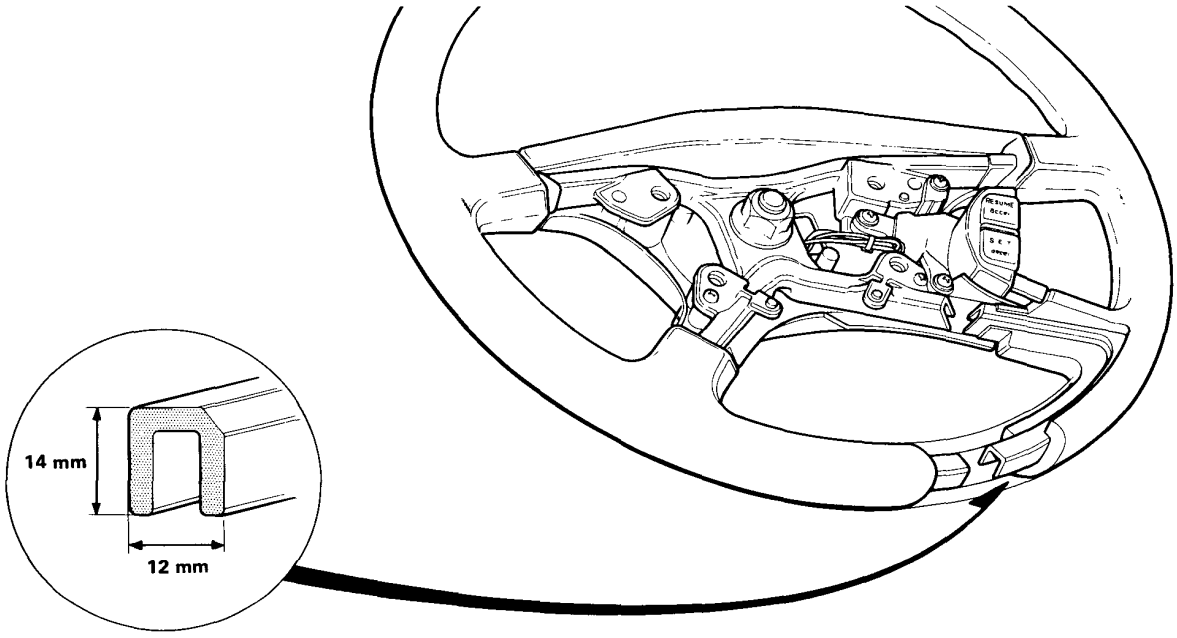
Automatic Transmission

Explanation of Schematic Diagram of Hydraulic System (cont'd)



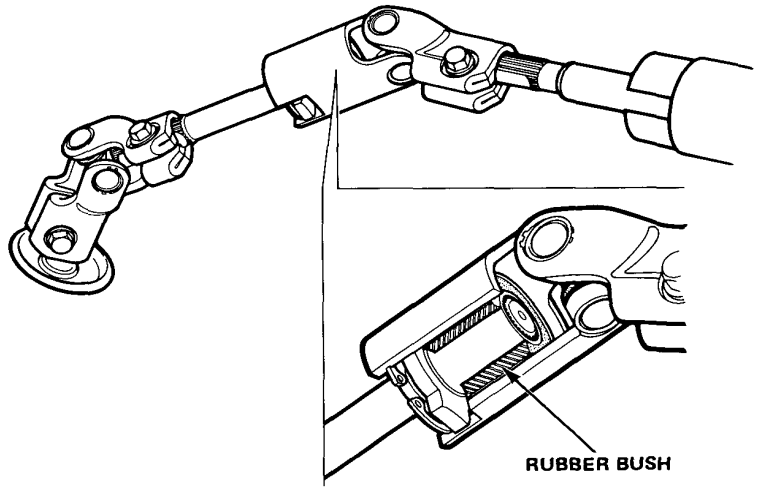
Steering Wheel

The steering wheel is in a configuration allowing excellent view of the instruments, and facilitates operating the horn from any position.



Steering Yoke Joint

A rubber bushing is provided within the steering shaft yoke in order to suppress the transmission of vibrations from the wheels. The space between the steering shaft pinions is connected by a cross joint containing two sets of needle bearings.

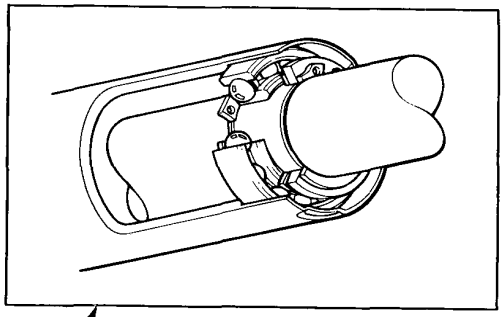


Energy-Absorbing Steering Column

General

The lower portion of the steering column is held in a bracket, allowing it to slide in the axial direction, while at the upper section, a claw welded to the center of the column catches on the bending plate (energy-absorbing plate). When force is exerted on the steering wheel side at time of impace, the bracket at the lower section of the column slides in the axial direction, so that the upper claw deforms the bending plate, and slides toward the front while absorbing the applied energy, thus softening the force of the impact.
A bearing joint is used in the steering shaft bearing to allow improved handling feel.

Steering wheel	Outer diameter (mm)	375
	Maximum number	3.7, 3.1 (P/S)
	Energy-absorbing method	Bending plate
Gear	Type	Rack and pinion
Steering angle	Inside	40°
	Outside	31°

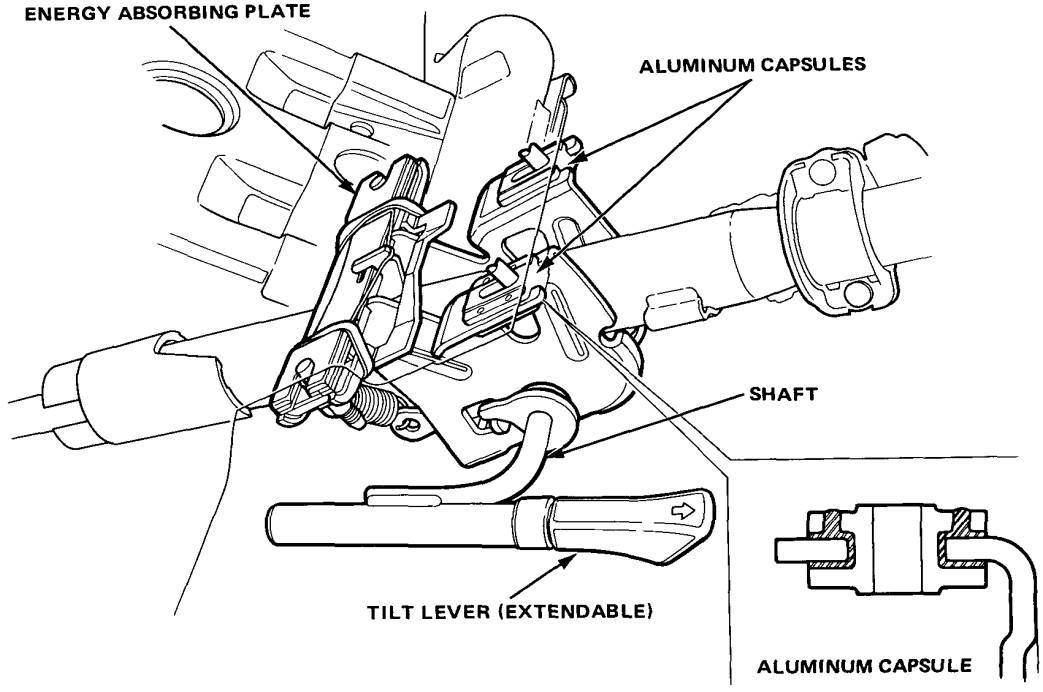


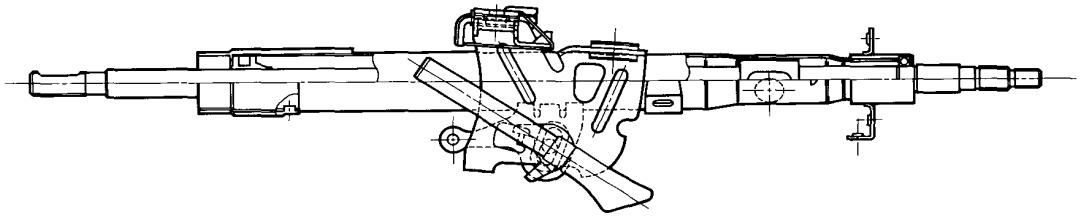
Tilt Steering

A tilt steering wheel is equipped on some types, thus allowing stepless adjustment of the height of the steering wheel in accordance with desired driving position.

Construction and operation

At the base of the steering wheel column is a pivot allowing the handle to move up and down, and a bracket with a slot is welded to the center of the column. The shaft linking the tilt operation moves within the slot.
The extendable tilt lever is attached to one end of the shaft, while screw threads are provided at the other end of the shaft to allow connection of the fixing nut.
The upper part of the steering column is connected to the underside of the dashbaord through the medium of this shaft, by means of four sluminum capsules and energy absorbing plates. When the tilt lever is pressed down (loosen), the steering column assembly is allowed to move up or down the extent of the length of the slot, thus allowing selection of the desired angle; the tilt lever is pressed upwards (tighten) to fix the position of the wheel. The aluminum capsules are provided on both manual and tilt steering models, and are injected with resin. In this way, when a strong shock is exterted on the column, the resin breaks, thus allowing thn column to move in the axial direction.
Built into the valve boby unit, and the two reactionchambers arranged around the 4-way valve.
The cutoff valve is located between the oil pump and the speed sensor passage, and functions to control the oil pressure to the reaction chambers. A direct passage to the oil tank is provided so that oil prssure is not applied on the spring chamber (rear chamber) of the cutoff valve.



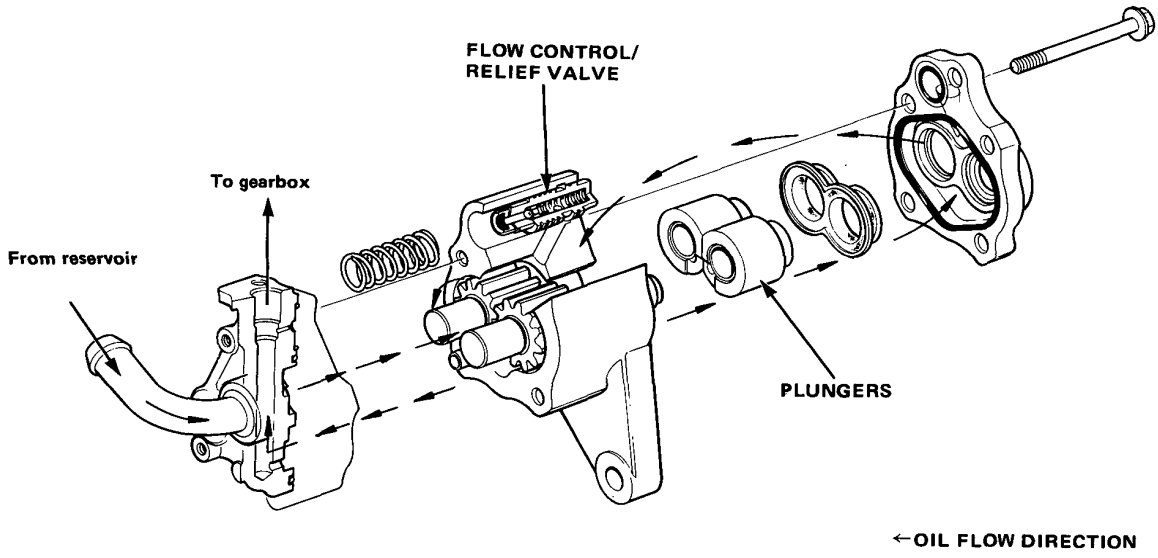


Power Steering

Pump

The location of the control valve is changed from the port housing to the pump housing to decrease the width of the pump.

The power steering pump is mounted at the left front corner of the engine and is driven by a V-belt from the crankshaft pulley. It uses a combination flow-control/relief valve to keep output pressure between 7839–8825 kPa (80–90 kg/cm^2, 1135–1280 psi). The pump is made of aluminum to reduce its weight and help it run cooler. It uses the a pressure balance system which allows fluid pressurized by the pump to flow behind two "floating" plungers, automatically maintaining the correct clearance between the other ends of the plungers, and the pump gears. This not only increases pump efficiency, but also improves durability, since the plungers can move to compensate for the expansion caused by high temperatures; otherwise the clearance would decrease, allowing more rapid pump wear.



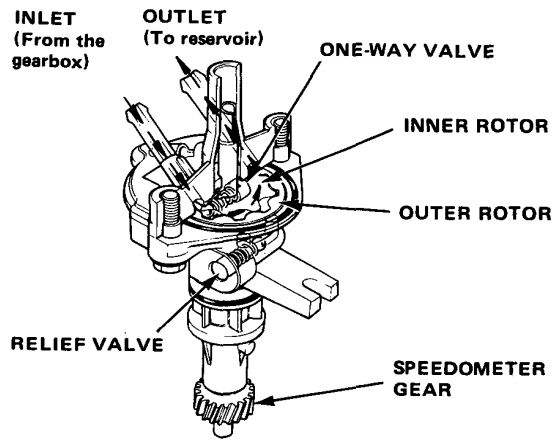
Speed Sensor

The speed sensor is a trochoid-rotor, hydraulic pump combined with a relief valve and a one-way valve. It is driven by the speedometer gear shaft which in turn is driven by a helical gear on the differential.

It turns only when the car is moving, controlling the cut-off valve by regulating fluid pressure in the control unit according to the speed of the car.

With the engine running in a parked car, fluid flow through the sensor rotors is blocked because the rotors are not turning.

As the car is driven away, the rotors start turning and pump fluid back to the reservoir, reducing pressure at the cut-off valve. The cut-off valve beings cycling, staying open for longer and longer intervals as the car accelerates and the sensor reduces the pressure further. This allows pressure in the reaction chambers to rise, restricting control valve movement more and more, and gradually reducing the assist as speed increases.



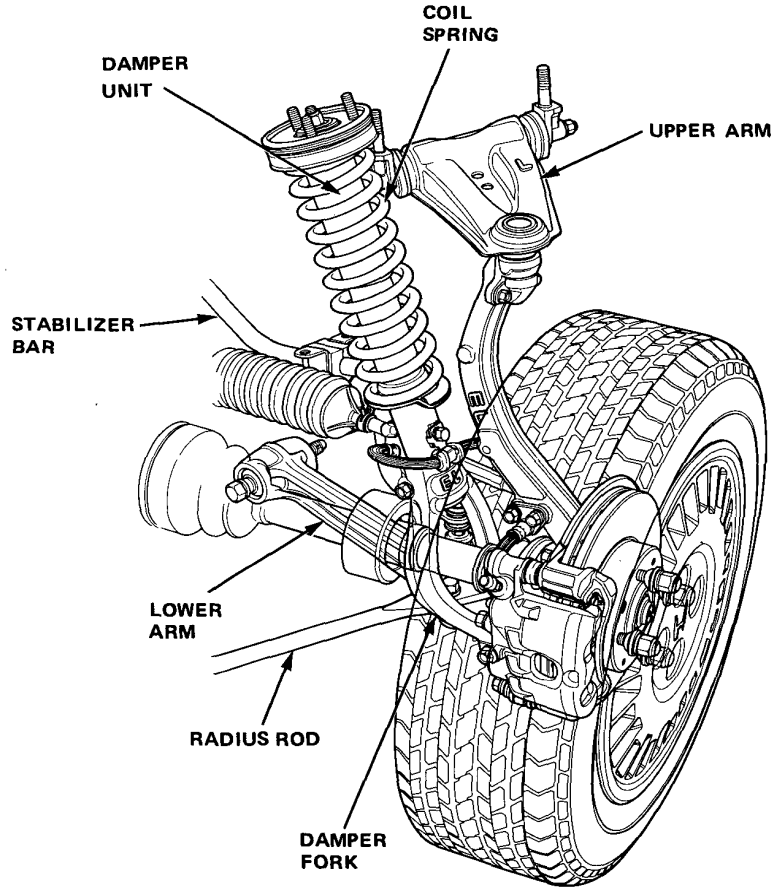
Front Suspension

General

A double wishbone independent suspension is used. It consists of a damper, coil spring, damper fork (connected to the lower arm), upper and lower arms, radius rod and stabilizer bar. With this suspension, there is less twisting motion imposed on the frame, or frame is less susceptible to changes in the road surface. When the wheel hits a bump, it is driven up and down, compressing and releasing the coil spring. The upper and lower ball joints allows the steering knuckle to pivot from side to side with reduced resistance. The arms are also so arranged so tio minimize "nose dive" by relieving impacts at braking toward the upper rear of the vehicle. The stabilizer bar provides better steering and controls body roll. The caster angle can be adjustedby simply changing the length of the radius rod.

Features

1. The upper arm is considerably shorter than the lower arm, contributing much to the large engine compartment. A large span between both arms increases rigidity and offers sufficient compliance forward and backward.
2. The damper fork straddles the drive shaft to reduce the height of the engine room.
3. The upper arm is twisted forward to increase the caster angle when the wheel hits a bump or hole in the rod.



(cont'd)

Damper

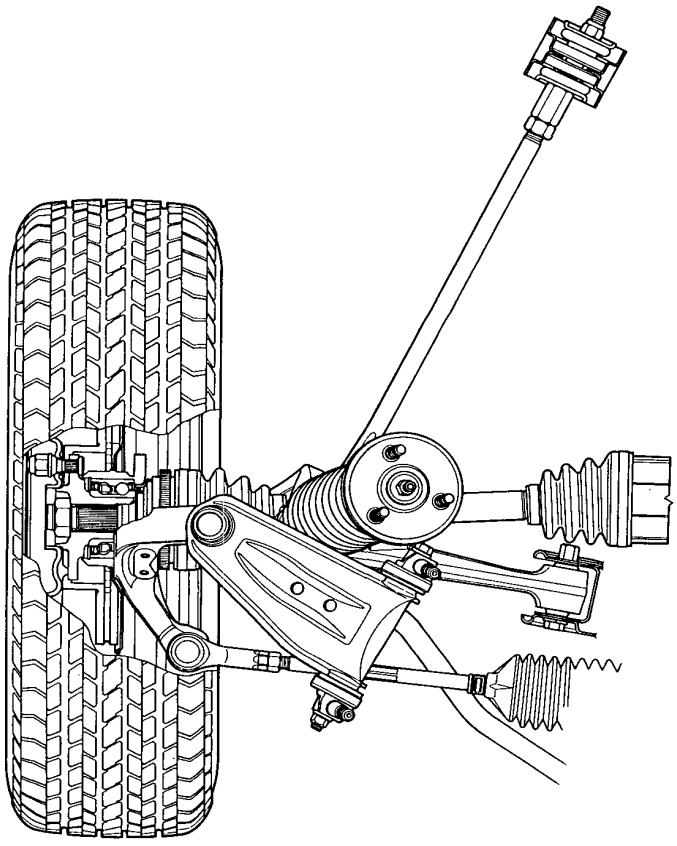
A telescopic hydraulic damper, mounted between the lower arm and front fender, cushions the violence of the damper spring when the wheel hits a bump. The sliding surfaces between the damper rod and guide use special materials which offer reduced resistance. The rubber bushing at the bottom and spring mount rubber at the top combine to insulate the damper from the frame to prevent transmission of noise and vibration between the two. The spring mount rubber also serves to absorb vibrations in the damper spring.

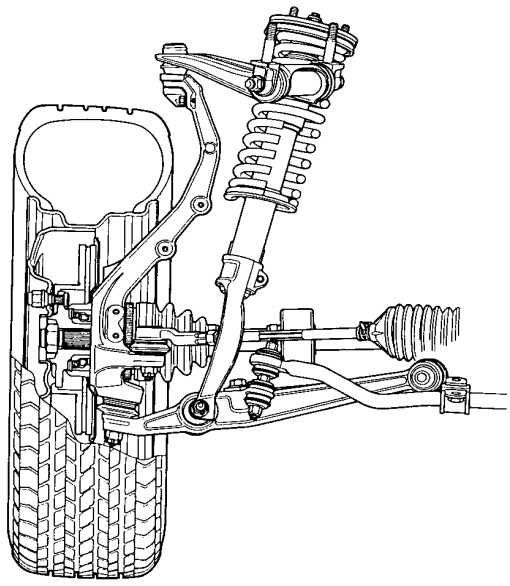
Steering knuckle

The steering knuckle is sturdy steel casting with extra margin of capacity against twisting. The top of the knuckle is attached to the upper arm ball joint with nuts. The bottom is attached to the lower arm also with nuts.

Upper and Lower Arms

The upper arm is a pressed steel plate and is carried by a bolt through a rubber bushing.
The lower arm is an I-shaped steel forging; the damper fork and redius rod are attached to this arm. The inner end is carried at its mount through a rubber bushing which allows the arm to pivot when it travels up and down.





Rear Suspension

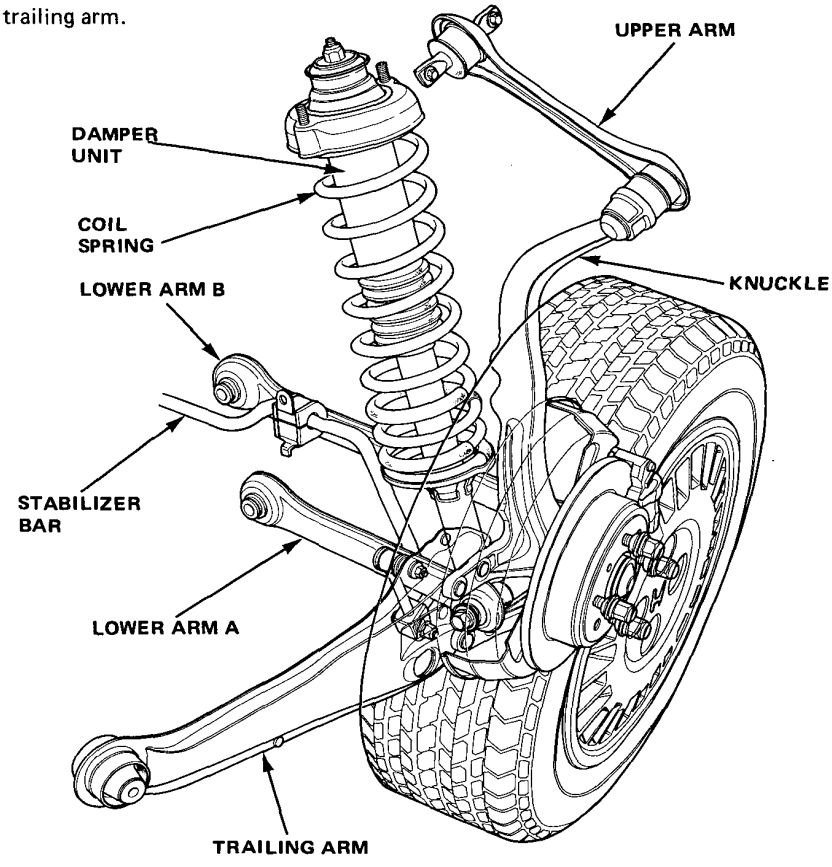
The rear wheels also use a double wishbone independent suspension without sacrificing the size of the internal space. It is similar to that used for the front wheels, ensuring greater stability and improved performance at high speed or on winding mountain roads.

General

The knuckle carries a trailing arm, upper arm, damper with coil spring, and set of two lower arms. The trailing arm is a pressed steel plate construction. The front end of the trailing arm is attached to the frame through a bracket and a rubber bushing by bolt. The rear end is fastened to the knuckle with four bolts and nuts. Thus, as the knuckle moves up and down, the arm twists the rubber bushing at its pivot. This plus some degree of laterial deflection in the arm as it encounters strees during operation permit smoother up-and-down knuckle movement. This also minimizes "lifting" as braking and offers desirable compliance. The top of the knuckle is attached to the upper arm through a ball joint above the rear tire. The upper arm is again a pressed steel plate construction and is attached to the frame through a rubber bushing. This arm and set to two lower arms control camber and minimize changes in tread to take advantage from the tires and front suspension to the fullest extent. The two lower arms have different lengths. Thus, as the knuckle moves up and down, they draw different arcs. This reduces changes in toe to virtually zero (0), providing excellent performance at high speed in straight-ahead. The right and left lower arms are interchangeable with each other. The damper, together with a progressive-rate coil spring, is mounted between the frame and bottom of the knuckle such that frictional resistance caused by side forces is minimized.

Features

1. Extended upper arm over the tire to produce ample rear space.
2. Better rear-end geometry through use of a double wishbone independent suspension.
3. Increased rigidity through a broad space between upper and lower arms as well as improved compliance forward and backward.
4. Anti-lift effect by trailing arm.



(cont'd)

Rear Suspension (cont'd)

Damper

The damper, mounted between the bottom of the knuckle and rear wheel house, cushions the violence of the damper spring. The rubber bushing at the bottom and spring mount rubber at the top insulate the damper from the frame to prevent transmission of noise and vibration between the two. The upper spring rubber also serves to absorb vibrations in the damper spring.

Knuckle

The knuckle is a sturdy steel casting with an extra margine of capacity against twisting.
The top of the knuckle is attached to the ball joint on the upper arm with a nut. The bottom is fastened to the two lower arms through bushings. Directly attached to the front end is the trailing arm.

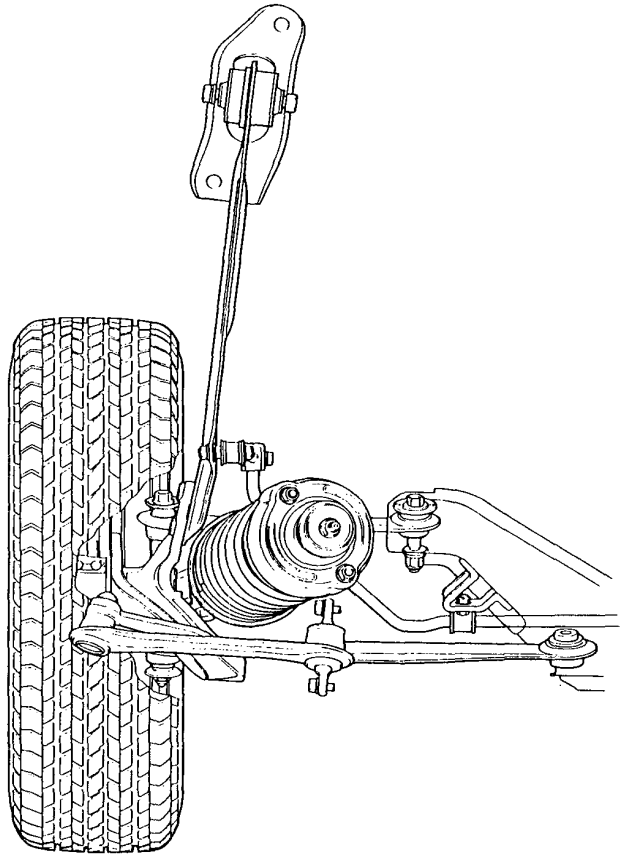
Upper Arm

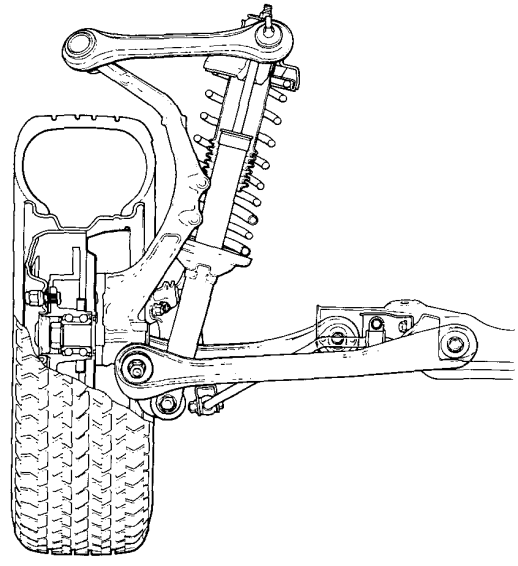
The upper arm is a husky pressed steel plate; it is attached to the rear wheel house through a bushing and to the knuckle through a ball joint.

Lower Arm

The lower arms are also a steel plate consturction and have different lengths. They are arranged side by side in parallel with each other. They are attached on one end to the rear cross beam through bushings and on the other to the knuckle through bushings.

CAUTION: Tighten the arms with the wheels under vehicle load.

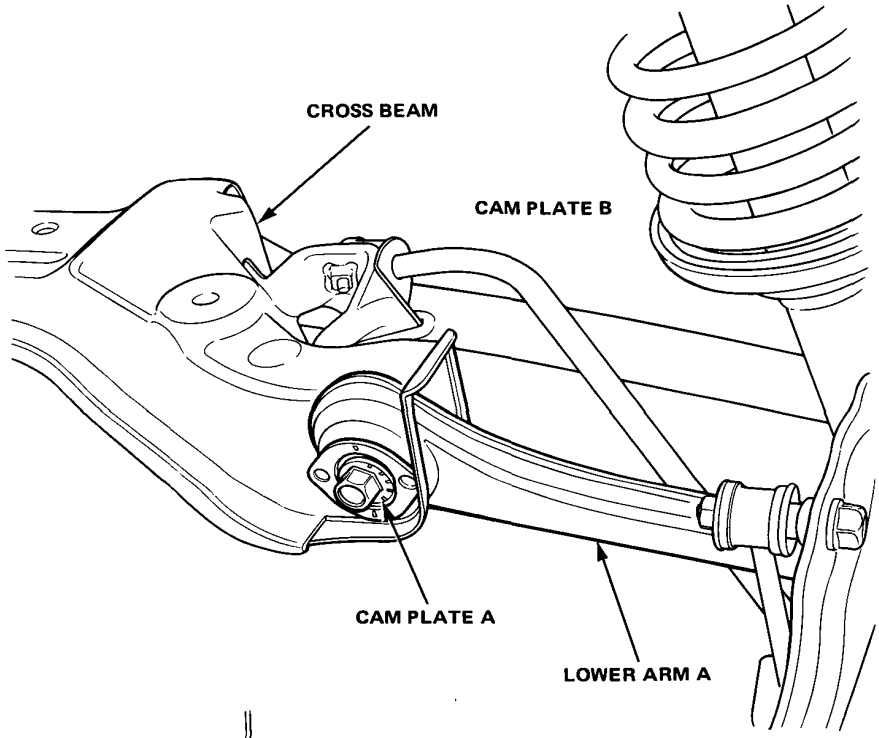


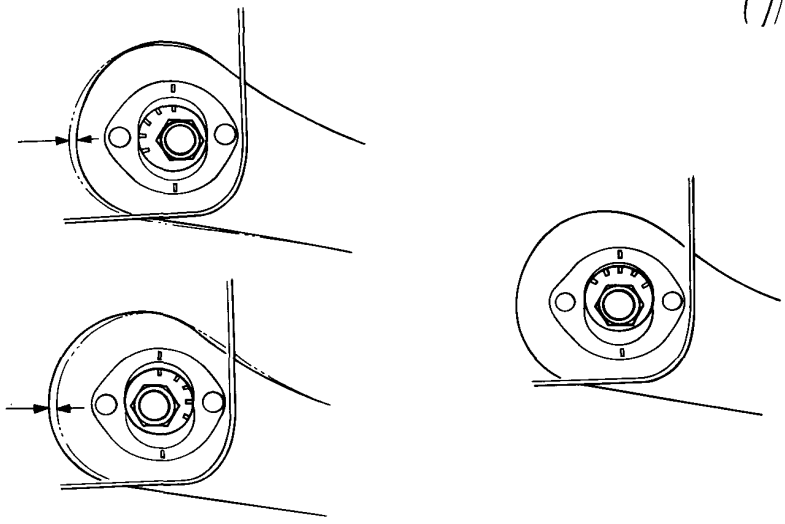


Rear Wheel Aligmment

Rear wheel alignment adjustment mechanism

Adjustment of rear wheel alignment is performed by an eccentric cam mechanism. An eccentric cam plate is unified with the bolt joining the rear suspension crossbeam and the lower arm A. A notch is provided on the end of the bolt, and this notch fits into the eccentric cam plate B. Also, the rear beam's attachment hole is in the form of a right-left slot. As a result, when the nut is loosened and the adjustment bolt is rotated, th lower arm A moves in the right-left direction, thus allowing adjustment of the toe (each rotation scale marking moves the bolt about 1.3 mm, resulting in a toe change on the respective wheel of about 4.1 mm).

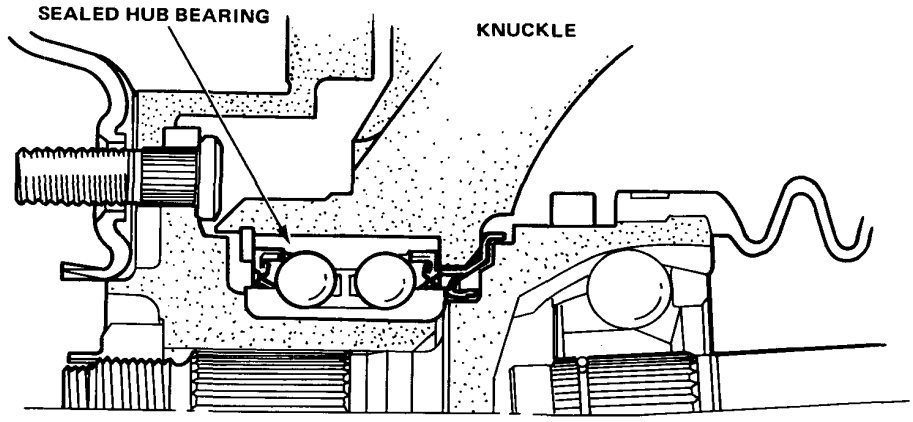




Axle

Front axle

A dust protected ball bearing, mounted between the steering knuckle, drive shaft outboard joint and hub, is used to support the front axle. The sealed end serves as an inner race whereas the press-on end acts as an outer race, making the bearing less susceptible to eccentricity and other strains, as well as entry of dust and mud. The extended bearing outer and inner races allow use of a recessed dust seal which permits easier installation and offers a greater effect of labyrinth.



Rear axle

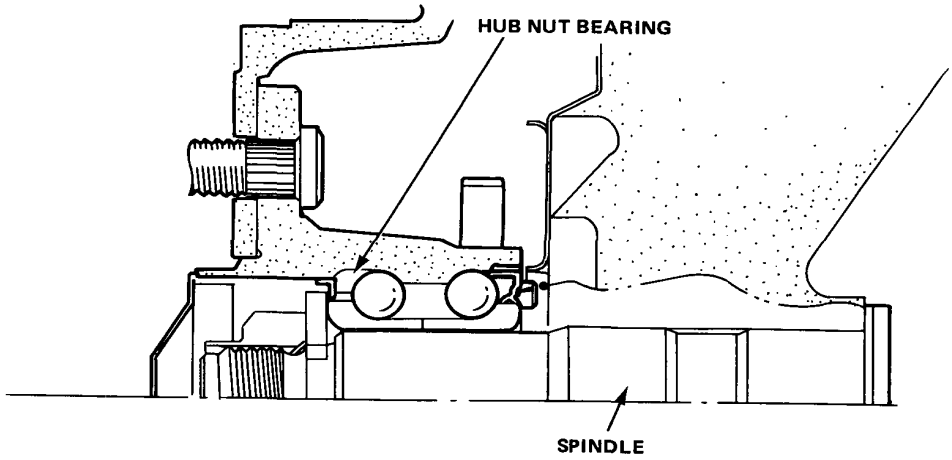
An angular contact bearing is integrated with the wheel hub in that the wheel hub serves as an outer race of the bearing.

Features:

- Lightweight
- Improved sealing
- Reduced rolling resistance
- Easier installation
- Life-time lubricated

Other features include:

1. Shorter spindle through use of an angular ball bearing.
2. Less susceptible to eccentricity and other strains.
3. Dust protected with a dust guard.
4. Less wear, less resistance to rolling.
5. Elimination of press-fitting outer race.
6. Elimination of preload adjustment.
7. Easier shoe replacement (drum brake type)



Front Disc Brake

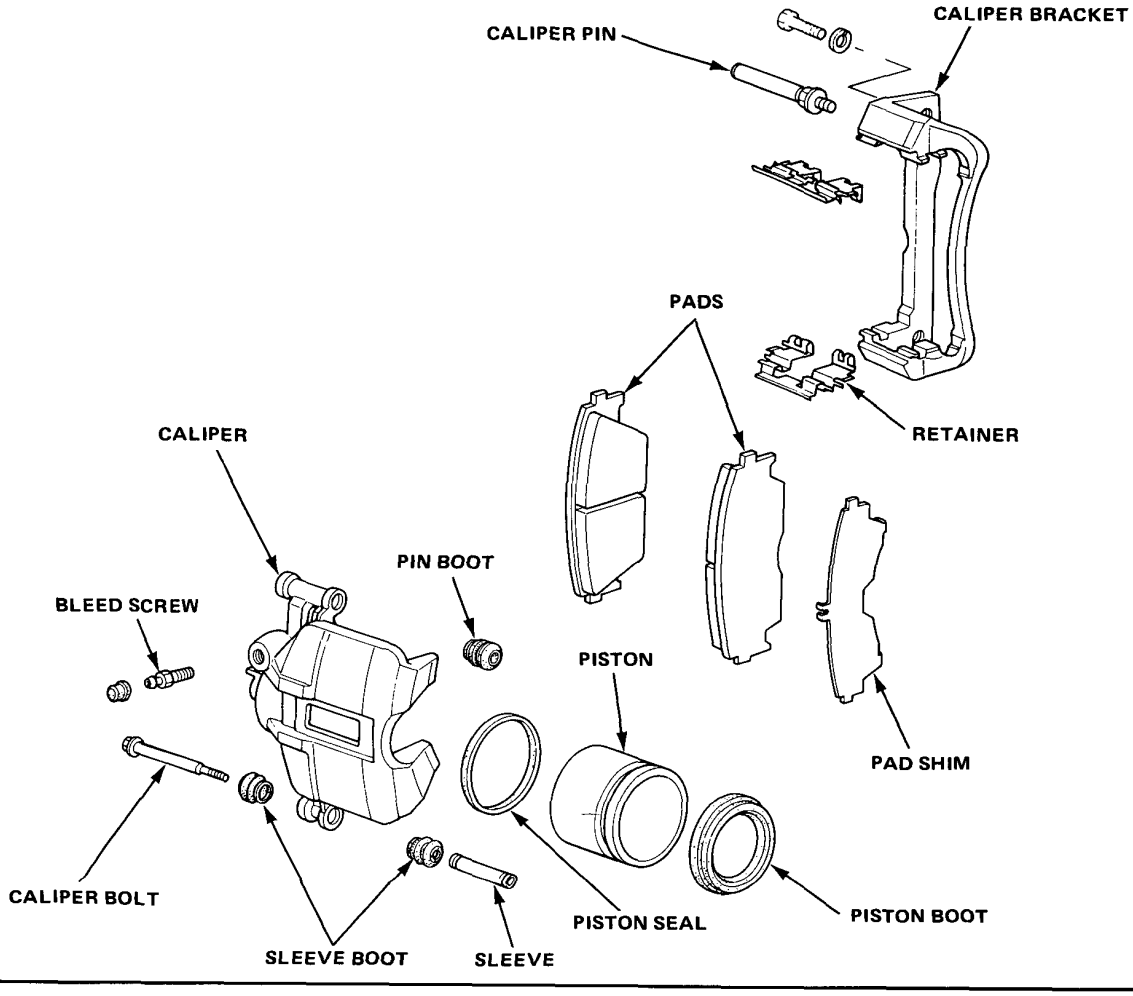
The front disc brakes is of a single piston design:

Front brake specifications

Item \ Type		ADR54
Cylinder	(mm)	53.97
Cylinder cross section area	(mm)	22.88
Effective brake radius	(mm)	97.0
Outer disc diameter	(mm)	242.0
Disc thickness	(mm)	19.0
Pad area, excluding slits	(mm)	43.3
Pad thickness	(mm)	10.0

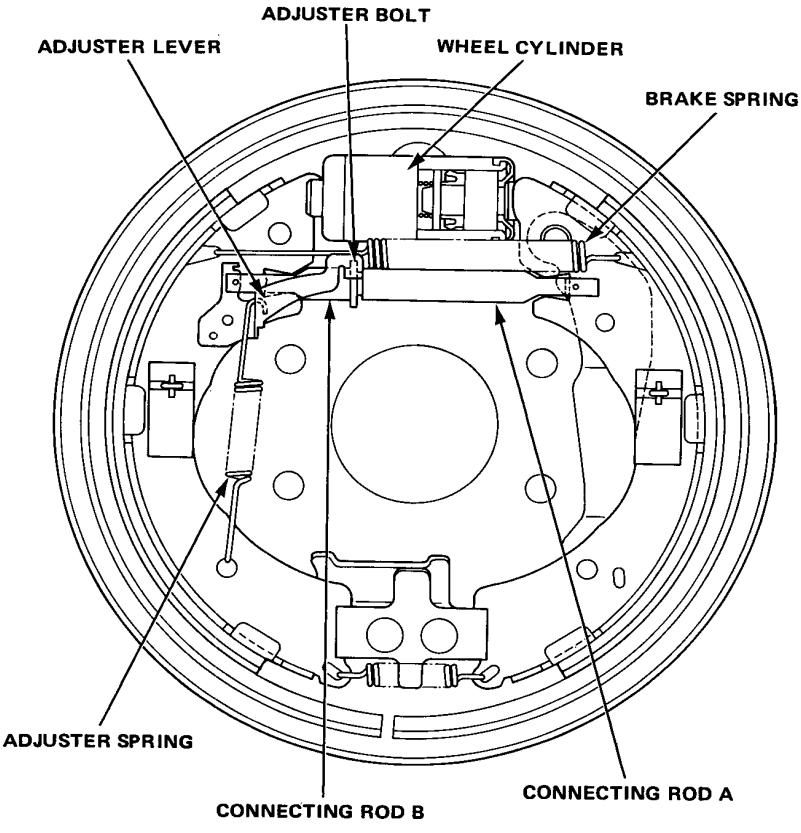
Construction

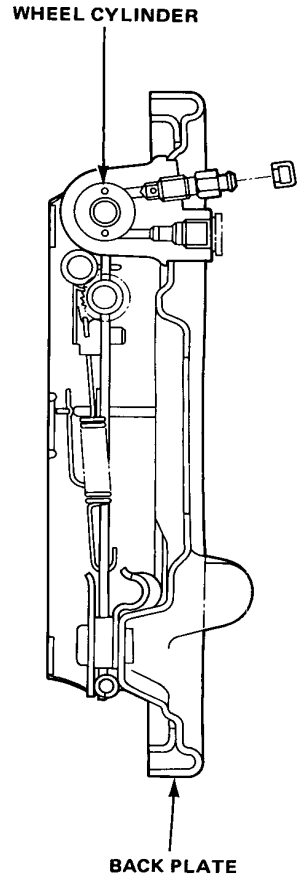
In this reverse type brake, a pin is fixed to the caliper bracket, and slides with respect to the bracket which is fixed to the knuckle. The sliding section is completely protected from dust by a bushing. The piston fits into the caliper body cylinder, and is sealed by a dust seal and piston seal. On the other hand, the pads fit into grooves in the bracket and slide in those grooves.

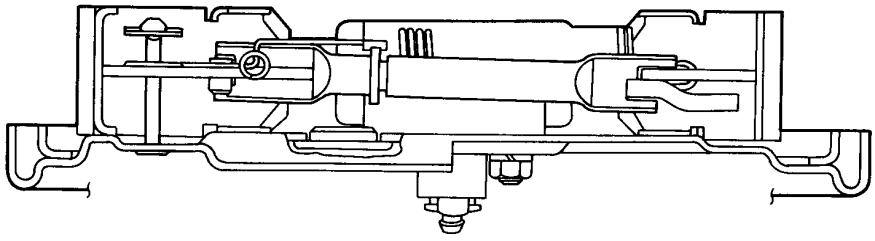


Rear Brake (Drum Type)

The rear drum brake is a leading-trailing type, and is equipped with an automatic self-adjustment mechanism.







Rear drum brake specifications

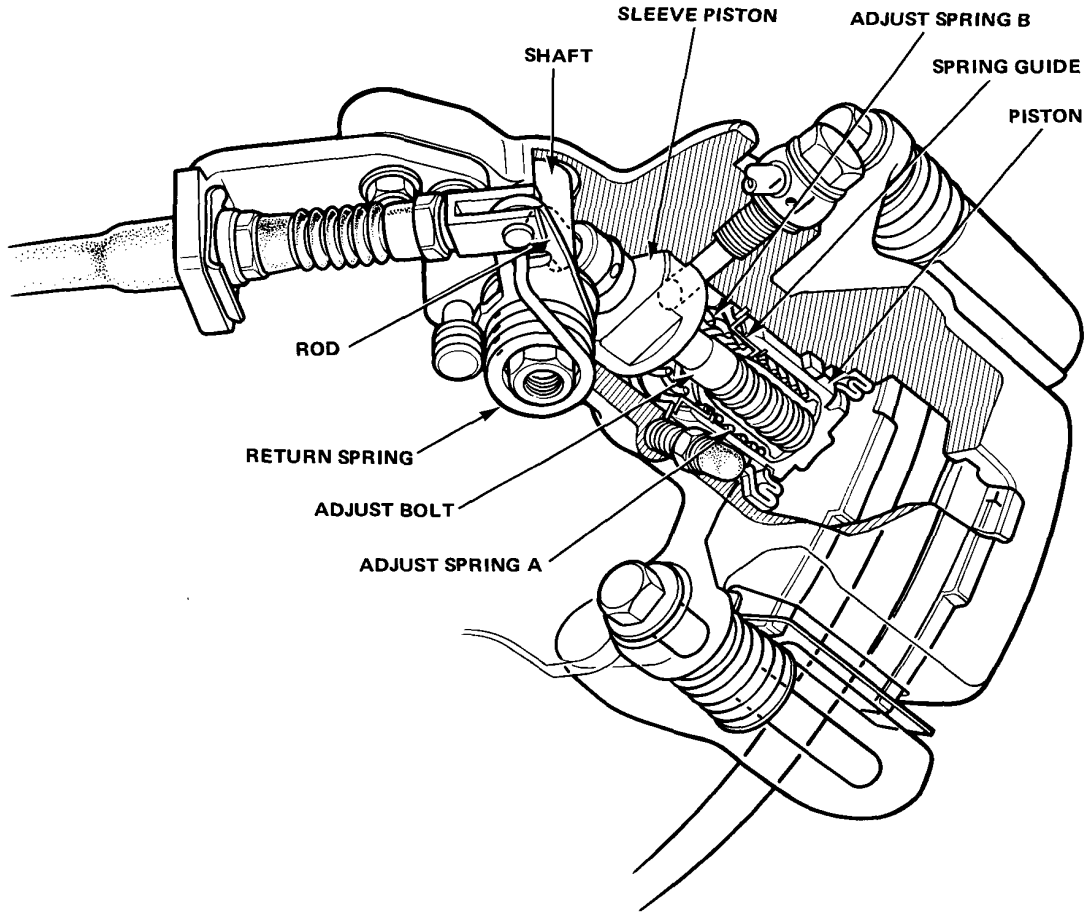
Type		Hydraulic servo assisted leading trailing shoe drum brake
Lining dimensions (width x thickness x length)	(mm)	35 x 4.5 x 192
Lining surface orea	(cm^2)	67
Brake drum diameter	(mm)	200
Wheel cylinder bore	(mm)	20.64

Rear Disc Brake

The Rear disc brake is equipped for some types:

Construction

The rear disc brake used is a collet type floating disc brake, differing somewhat from the reverse type front brake. Of particular difference is the face that the rear disc brakes are equipped with an automatic self-adjustment mechanism that maintains the parking brake stroke at a constant value.
Component parts include the adjustment springs A, B, piston spring guide, sleeve piston, shaft, rod, return spring, and adjustment bolt.



Rear disc brake specifications

Cylinder size	(mm)	30.23
Cylinder area	(cm^2)	7.18
Effective brake radius	(mm)	104
Outer disc diameter	(mm)	239
Disc thickness	(mm)	10
Pad area	(mm)	21
Pad thickness	(mm)	8

(cont'd)

Rear Disc Brake (cont'd)

Automatic Self-Adjustment Mechanism

Operation (1) (normal brake operation)

Hydraulic pressure produced when the brake pedal is depressed is exerted on piston (1). This operates to exert pressure on the pad side through the union of the piston (1) and the adjustment nut (2).

The adjustment nut (2) and the adjustment bolt (3) are joined by a four-thread interlock as shown in the upper right of the illustration below, with a clearance provided between them. Accordingly, the piston (1) and adjustment nut (2) move toward the pad side (4) only the amount of the clearance, thus performing the braking action.

Operation (2) (excessive adjustment prevention operation)

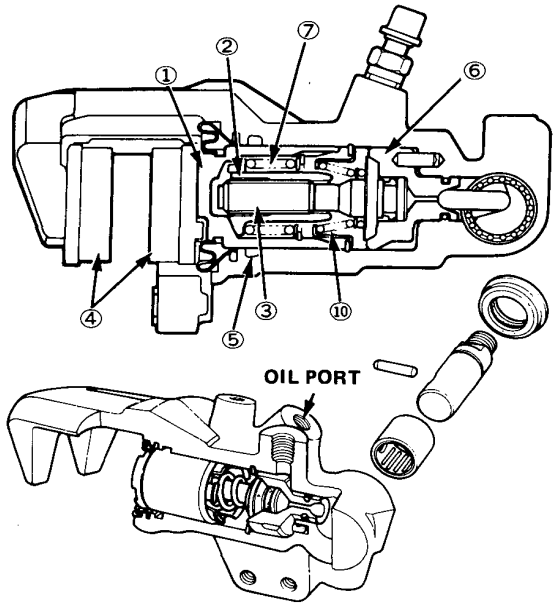
If high hydraulic pressure causes the brake to operate more than the clearance distance, the clearance of the four-thread interlock of the adjustment bolt (3) becomes as shown in the lower right illustration. In this case, the adjustment nut (2) and adjustment bolt (3) form a single unit, and the piston (1) alone contracts the adjustment spring A (7), thus moving toward the pad side (4), and performing the braking action.

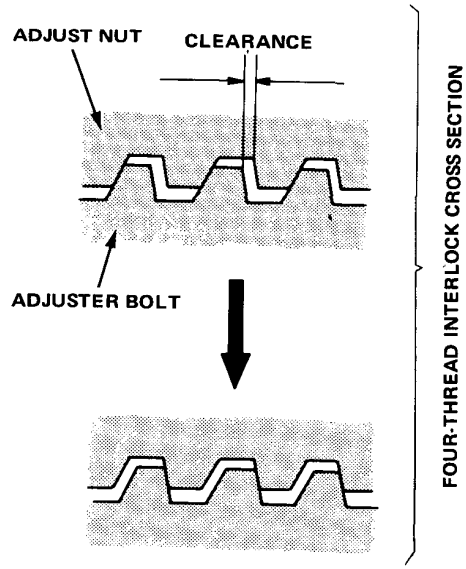
Operation (3) (adjustment mechanism operation)

When the pads are worn and hydraulic pressure is applied, the adjustment nut (2) moves together with the piston (1) to fill in the thread clearance. When there is more pad clearance than the thread clearance, the adjustment spring B (10) is contracted as the piston (1), adjustment nut (2), and adjustment bolt (3) continue to move together a small additional distance.

A clearance will be temporarily created between the adjustment bolt (3) and sleeve piston (6), but since hydraulic pressure is exerted on the adjustment bolt (3) as well, the adjustment bolt (3) moves back the distance necessary to fill in the clearance between the adjustment bolt (3) and sleeve piston (6).

In this way, the adjustment bolt (3) operates just the amount of pad wear, thus performing automatic self-adjustment. Piston (1) is returned in the same way as the front disc brake, as the piston seal (5) returns, thus creating a force causing th episton to return.





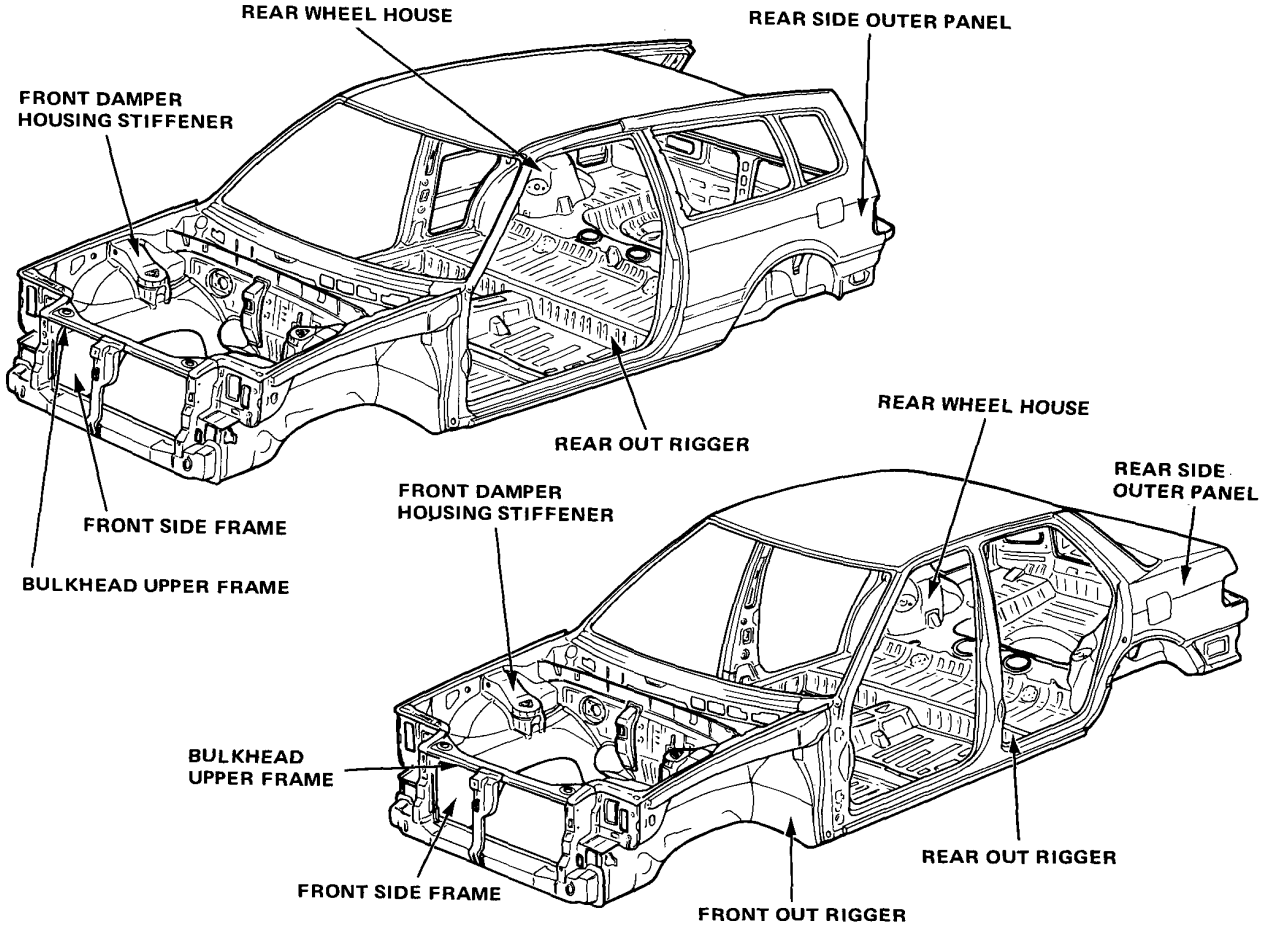
Body

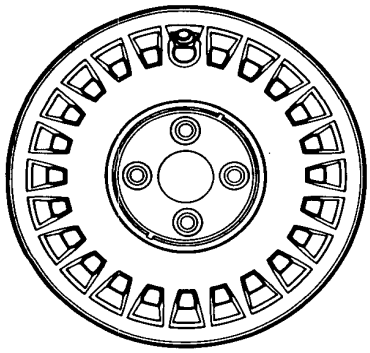
Body

Construction

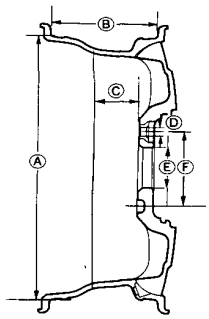
The body is of welded steel plate monocoque construction.
The side panel outers, which serve the roof side as well, from closed-section side rails, giving the body exeptional rigidity together with the side sills.
In regard to safety, collision test findings have been applied in construction and in the pillars, side sills and roof rails surrounding the cabin have increased rigidity. In case of collision, the safety of the driver and passenger is maintained by collision energy absorption in the front by deformation of the front side frame and in the rear by the spare tire in the rear trunk.
The front side frame is built-in to form a light, strong, closed-section, the front part of which is connected to the front bulkhead, and to the rear part to the front floor, thus providing strength and rigidity in regard to vibration from the engine and front suspention as well as in regard to external forces. As the strong closed-sections have been extended from the front side frames through the front floor, vibration noise from the engine and suspension is dispersed and absorbed.

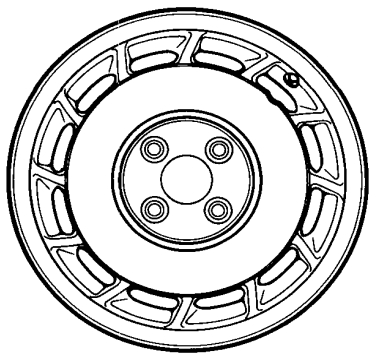
The 3-door model, which is based on the 4-door model, is also of sturdy steel monocoque construction. Wheelbase and tread are identical to the 4-door model but the rear portion of the rear trunk is approx.200 mm shorter in than the 4-door model.



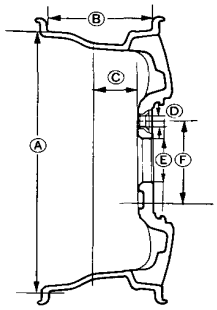


5–JX13

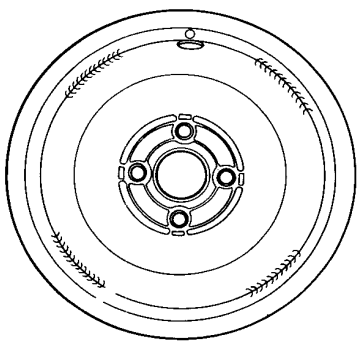


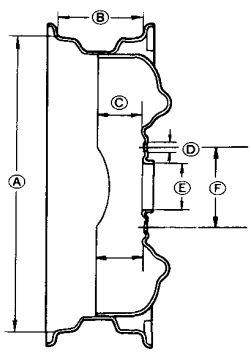


5–½–JJX14



	(A) <mm>	(B) <mm>	(C) <mm>	(D) <mm>	(E) <mm>	(F) <mm>
5–JX13	329.4	127.0	45.0	14.0	56.0	100.0
5½–JJX14	354.8	140.0	↑	↑	↑	↑

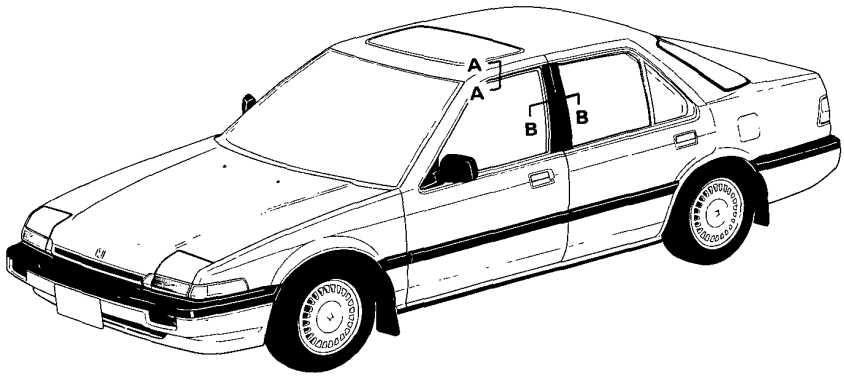


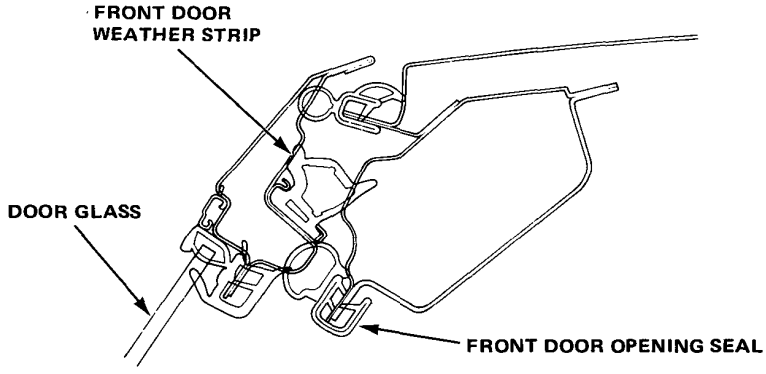


	(A) <mm>	(B) <mm>	(C) <mm>	(D) <mm>	(E) <mm>	(F) <mm>
4–TX13	329.4	102.0	50.0	15.0	56.0	100.0
4–TX15	380.2	↑	45.0	↑	↑	↑

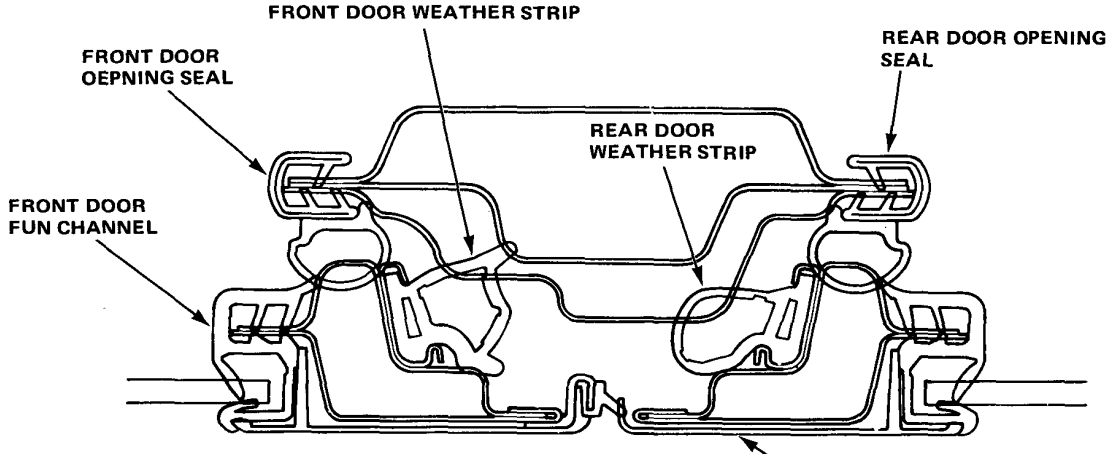
Flush Surface Exterior

In order to reduce air resistance, a flush surface design has been pursued.
An incredible CD value of 0.32 (4-door model) is achieved by reducing height differences between the body and the window glass.





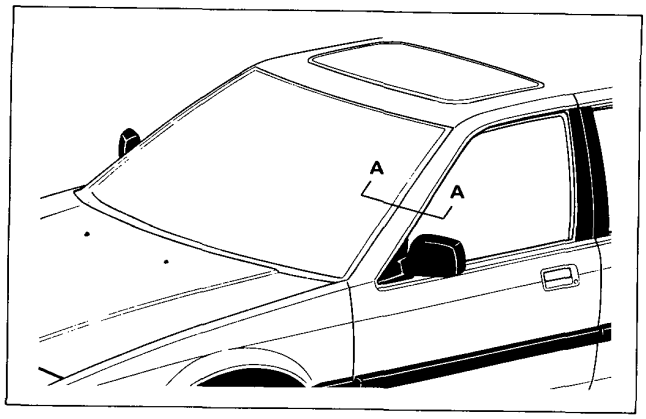
[SECTION A–A]

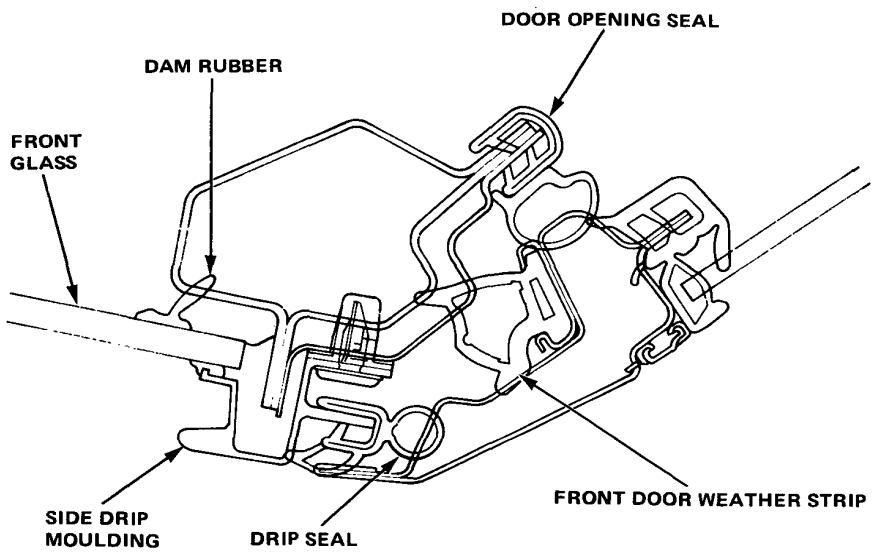


[SECTION B–B]

Front Window Side Drip

Front window side drips are newly provided to prevent the rain water and windshield washer liquid from flowing around to the side windows. The side drip also reduce noise and chipping of the front door edge.

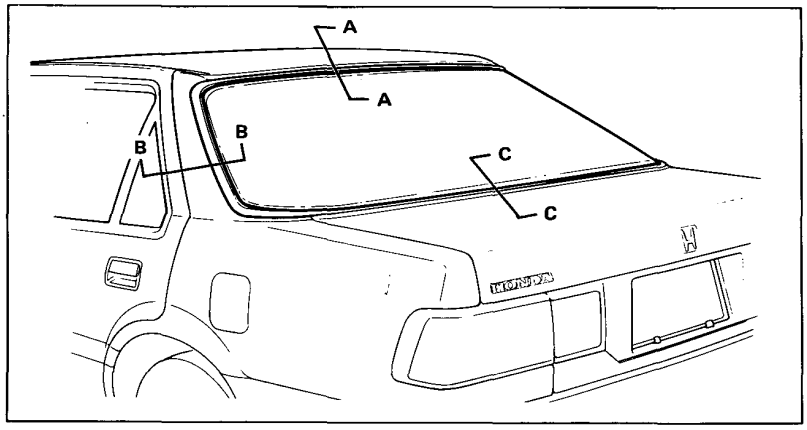


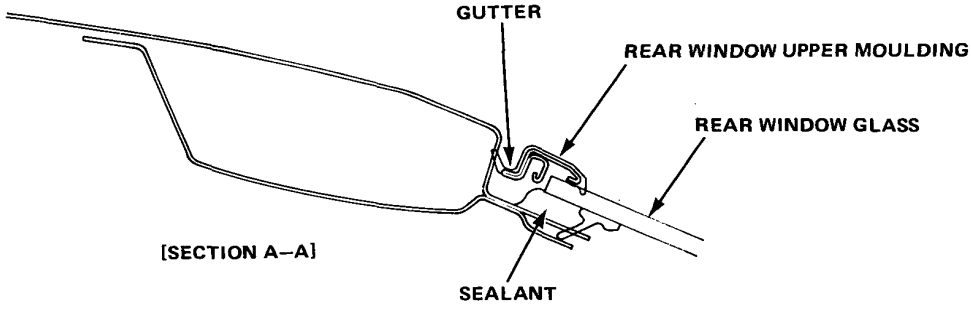


[SECTION A–A]

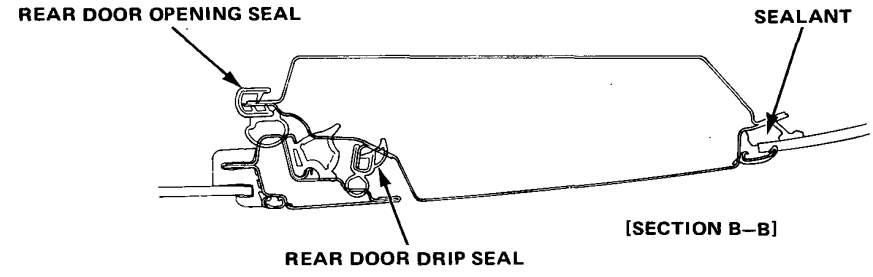
Rear Window (4-door Model)

Flush surface design is also applied to the rear pillars and rear window to reduce air resistance. A gutter is newly provided on the rear window upper moulding. The gutter prevents water from dripping from the roof on to the window and obscuring rear view.

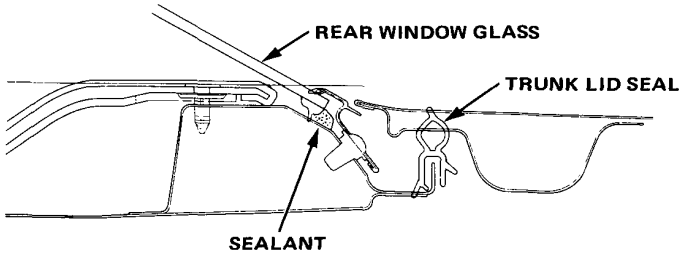




[SECTION A–A]



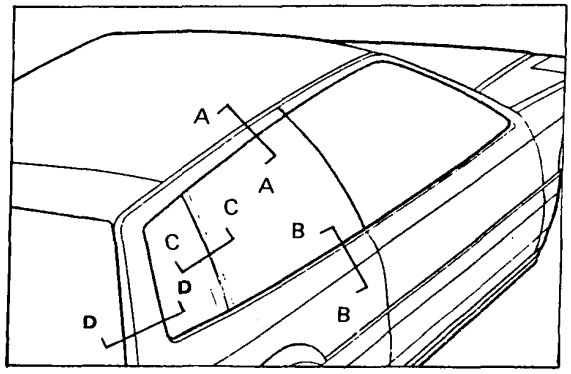
[SECTION B–B]

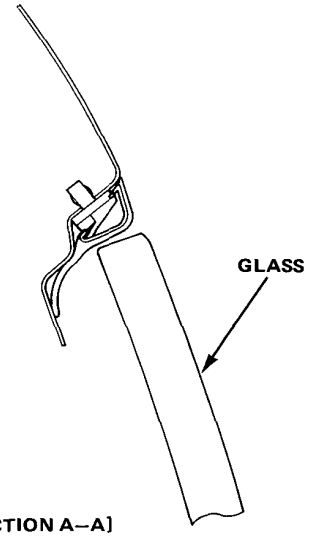


[SECTION C–C]

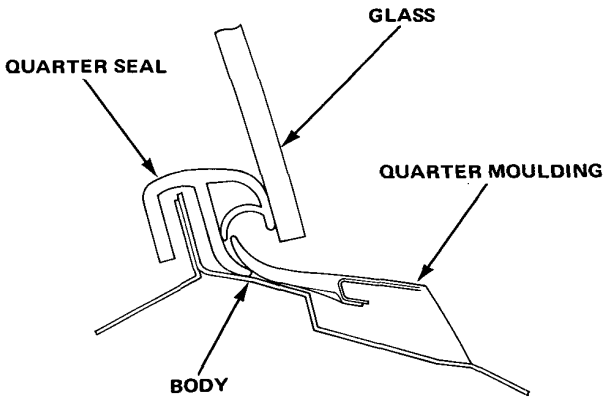
Quarter Windows (3-door Model)

The quarter windows provide an extra-wide glass section for the cabin and the quarter pillars are covered with glass to reduce air resistance, further contributing to the clean lines and flush surface design.

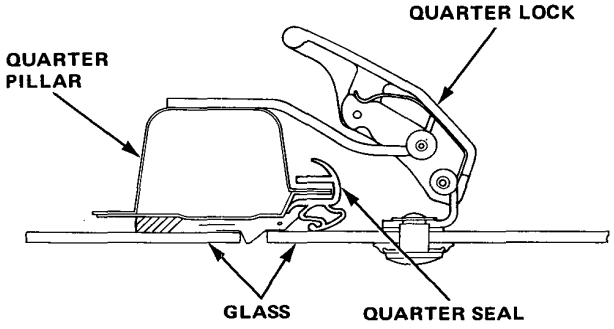




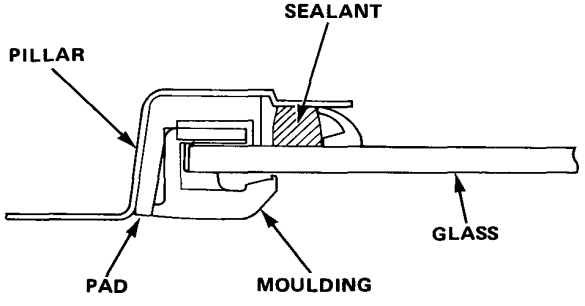
[SECTION A–A]



[SECTION B–B]



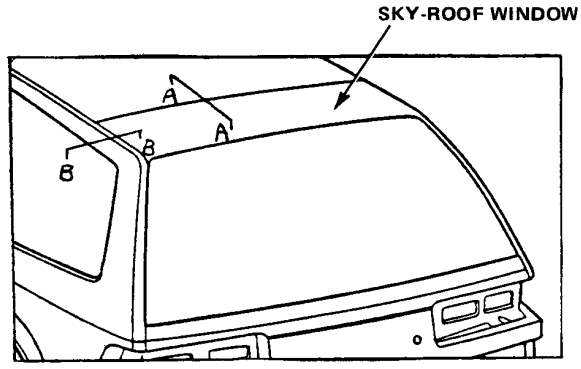
[SECTION C–C]

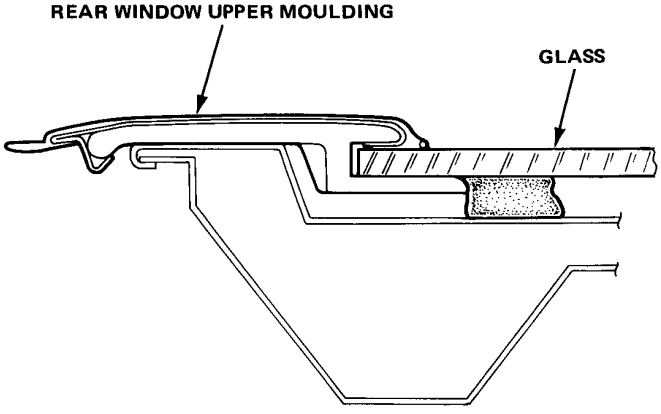


[SECTION D–D]

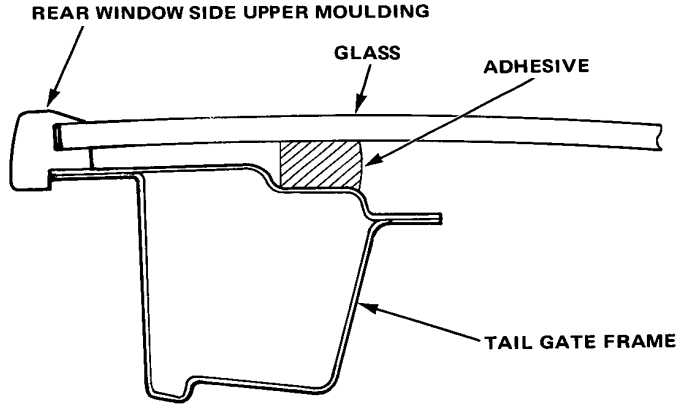
Sky-roof Window (3-door Model)

The progressive Sky-Roof window provides an open, airy and bright cabin. It also contributes to the flush surface design concept.





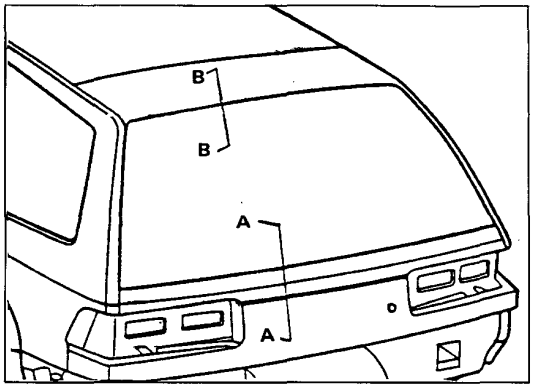
[SECTION A–A]

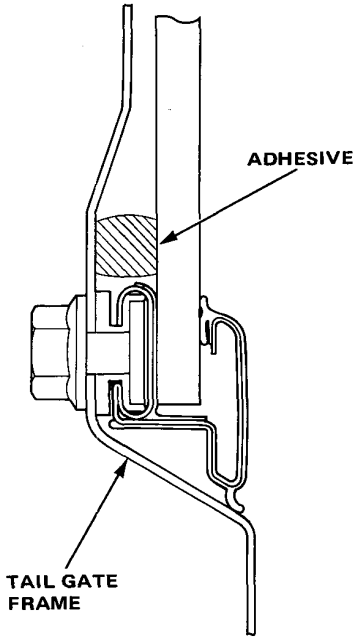


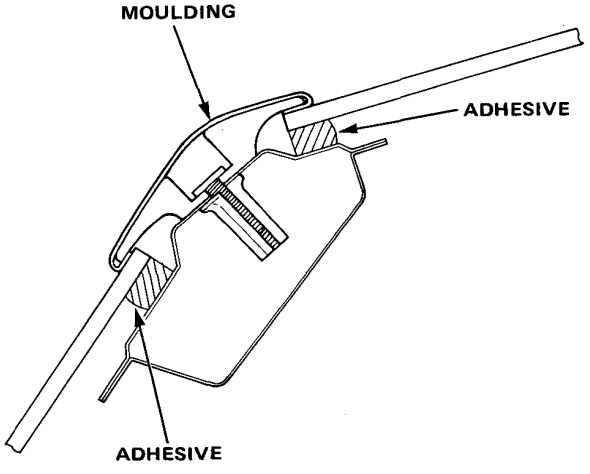
[SECTION B–B]

Tail Gate Window (3-door Model)

A fresh and simple window design tail gate which covers the frame part of the tail gate. The window glass is fitted to the frame with adhesive to increase the rigidity of the tail gate. The tail gate opens wide from the recessed roof end, facilitating luggage loading and unloading.

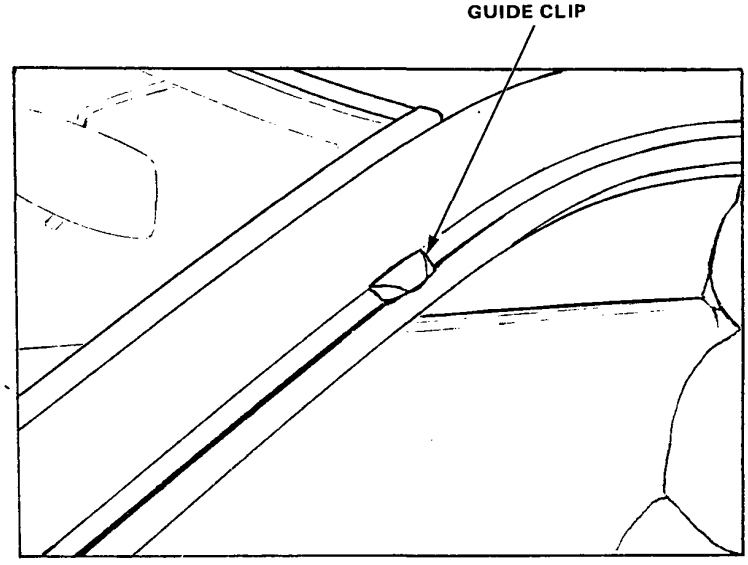






Guide Clip

Guide clips are newly employed on the front door sash mouldings to prevent the glass from warping due to the air pressure difference between the inside and outside of the cabin at high speed. They help reduce air noise.



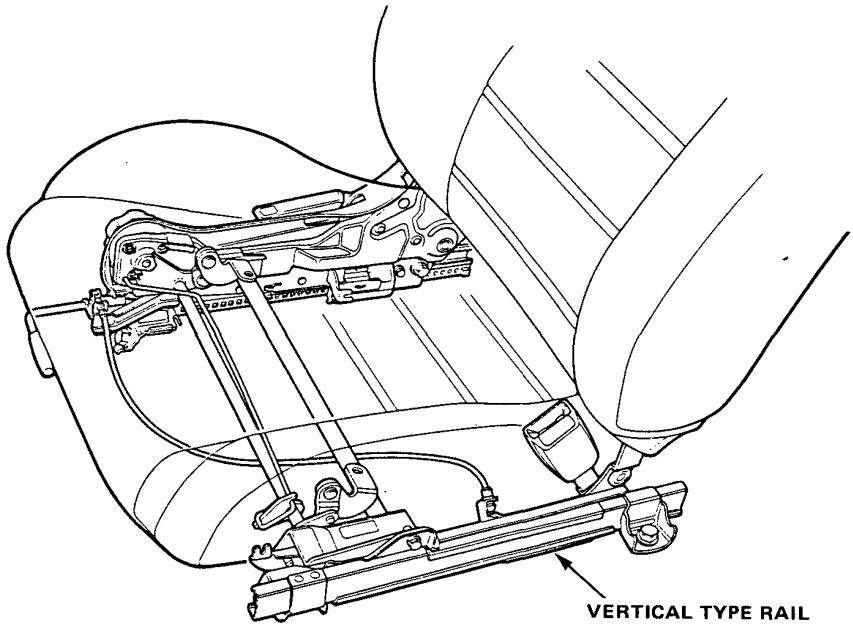
Seat Belt Buckle & Side Adjuster

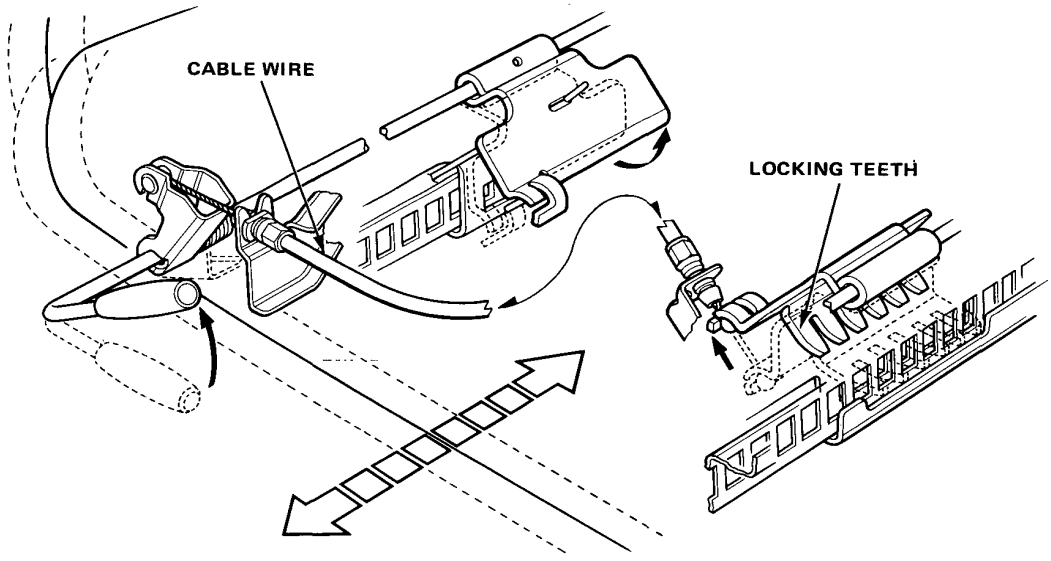
3-DOOR
EXCEPT KC

A slide-type seat belt buckle is newly employed. It slides on the seat rail together with the seat, providing the best position while assuring maximum passenger safety.

Features

- Verticle type rail providing sufficient strength for the seat belt anchor.
- Multiple locking teeth provided to maintain seat position against load.





Belt Feeder System (3-door Model)

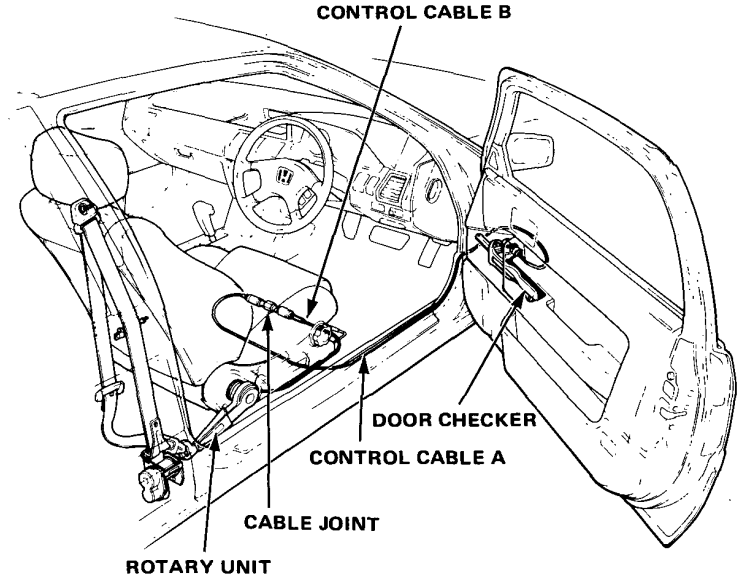
EC ONLY

Purpose

In case of the 3-door model, seat belts for the front are located far behind the seats because of the wide doors. In order to facilitate use of the seat belts, a belt feeder system is newly provided.

Construction

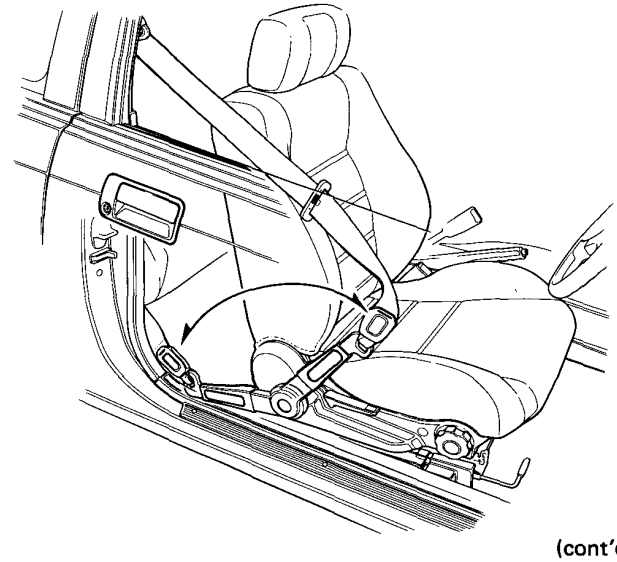
The belt feeder consists of a door checker, control cable A, control cable B, a cable joint, belt feeder arm and rotary unit, as shown below.



Operation

- As the door closes, the belt feeder arm is raised by the rotary unit as the door checker pulls the control cable A and B linked to the rotary unit. The set belt is thus neatly positioned at hand.
- When the door is opened, the belt feeder arm is folded down on the floor as the door checker loosens the control cable to the rotary unit.

Movement of the belt feeder arm occurs only when the door opening angle is between 0° and 20°.

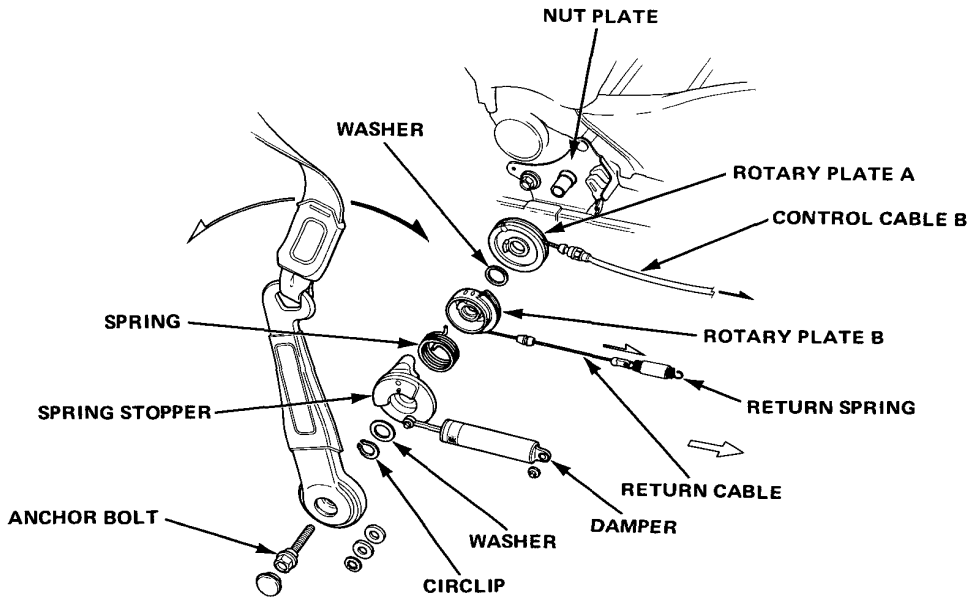


(cont'd)

Belt Feeder System (cont'd)

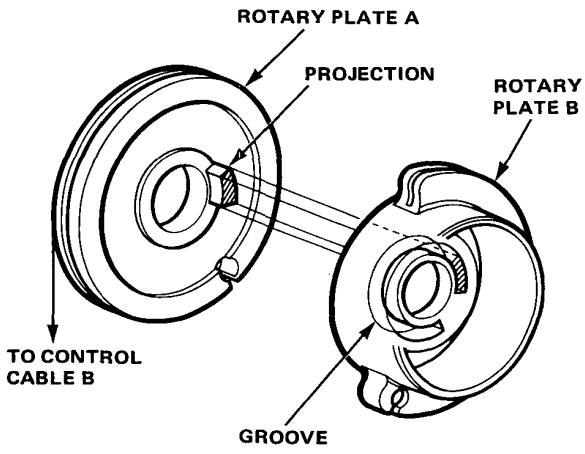
< Rotary Unit >

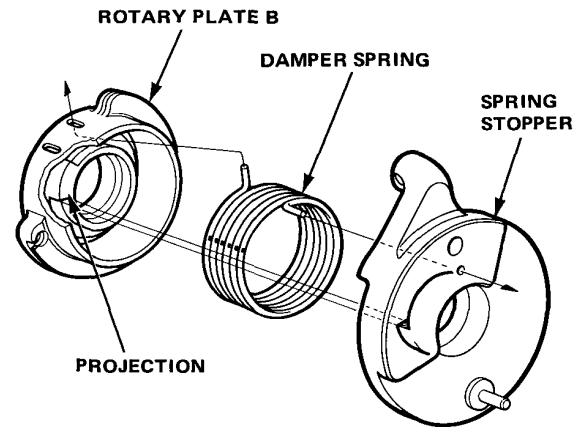
The rotary unit is the main component of the belt-feeder system. It is composed of the following parts as shown below.



Construction

Rotary plate A works as a wire reel for control cable B and the projection of rotary plate A engages a groove in rotary plate B.
Rotary plate B is connected to the spring stopper via a damper spring and pre-load is applied on this spring.

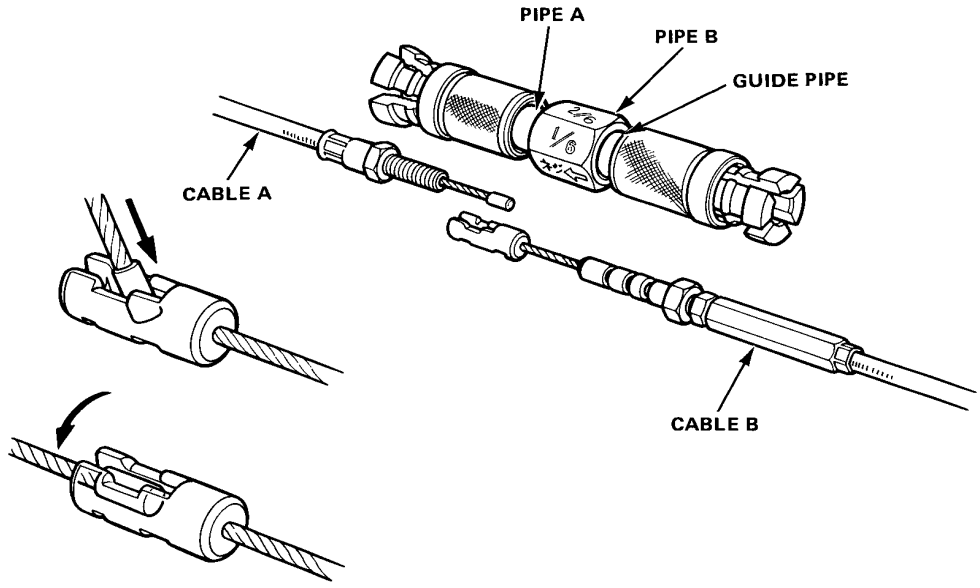




The return cable is wound on rotary plate B opposite to control cable B winding and tension is applied via the return spring. The damper rod is connected to the spring stopper which the belt feeder arm is engaged.
Protection is thus assured against handling the belt feeder arm manually when the control cables are locked.

< Cable Joint >

The cable joint connecting control cables A and B is located under the driver's seat.
Connection and disconnection can be easily done at this cable joint.

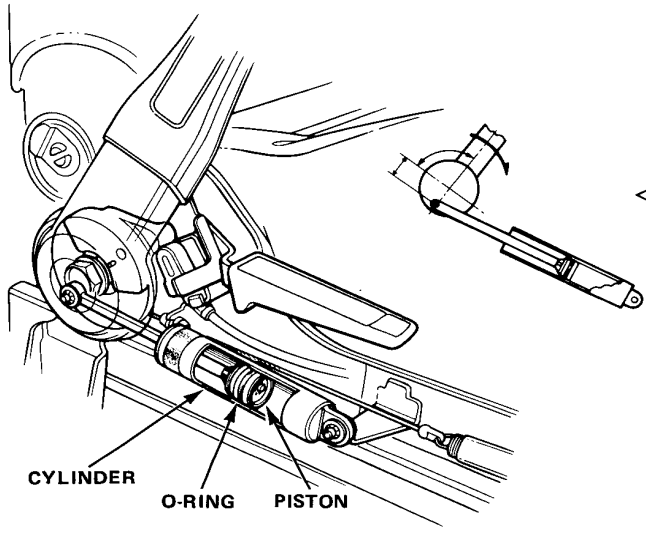


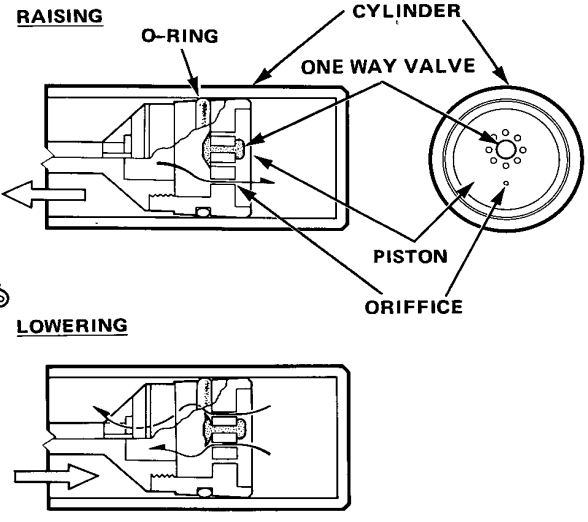
< Damper >

A damper is provided to control the speed of the belt feeder arm up and down movement.

When raising; As the one-way valve is closed, air is forced through the orifice into a low pressure cylinder chamber as the piston moves to expand the cylinder chamber volume.

When lowering; The piston compresses the air in the cylinder chamber but the one-way valve opens to allow large air leakage. Movement is thereby speeded up.





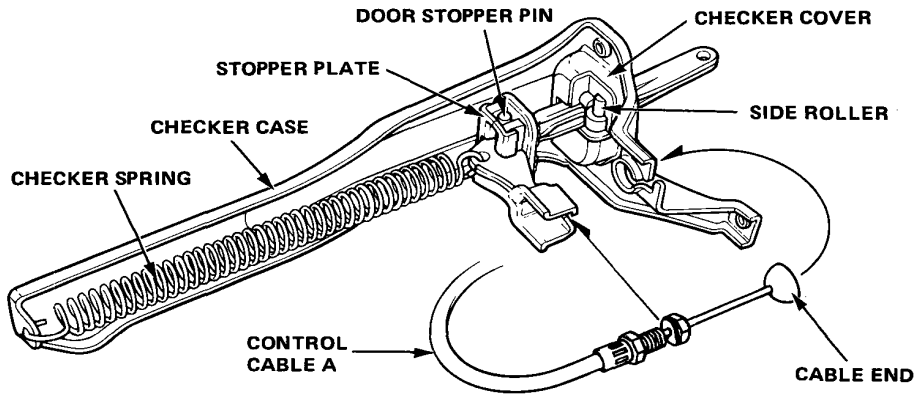
(cont'd)

Belt Feeder System (cont'd)

< Door Checker >

Components

The door checker is composed of the parts shown below.

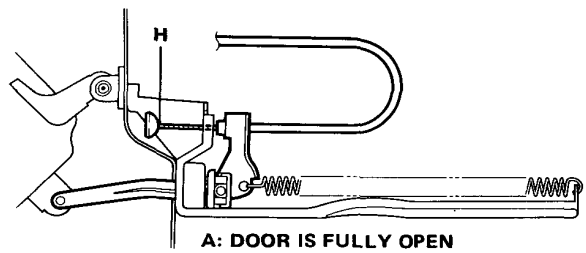


Operation

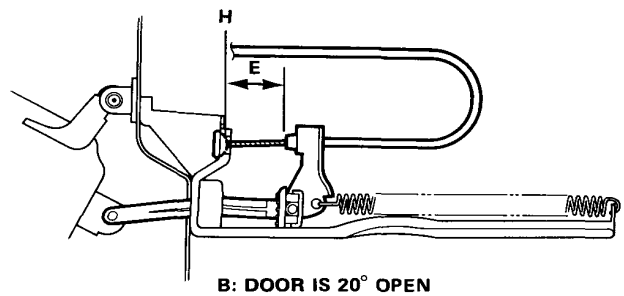
A: Sufficient slack is provided to the control cable when the stopper plate is in the full stroke position.

B: The stopper plate comes in contact with the cable end when the door is open 20°.
The stopper plate pulls the cable as the door is closed further.

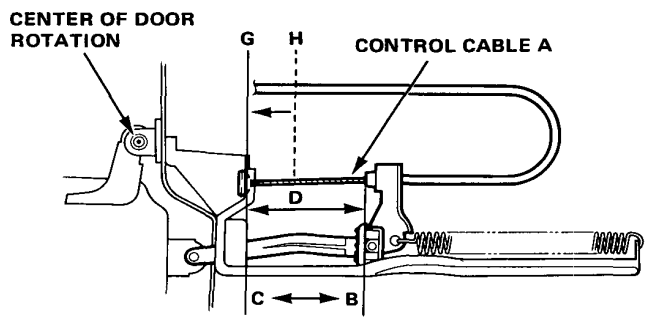
C: The control cable is pulled all the way out when the door is fully closed.



A: DOOR IS FULLY OPEN



B: DOOR IS 20° OPEN



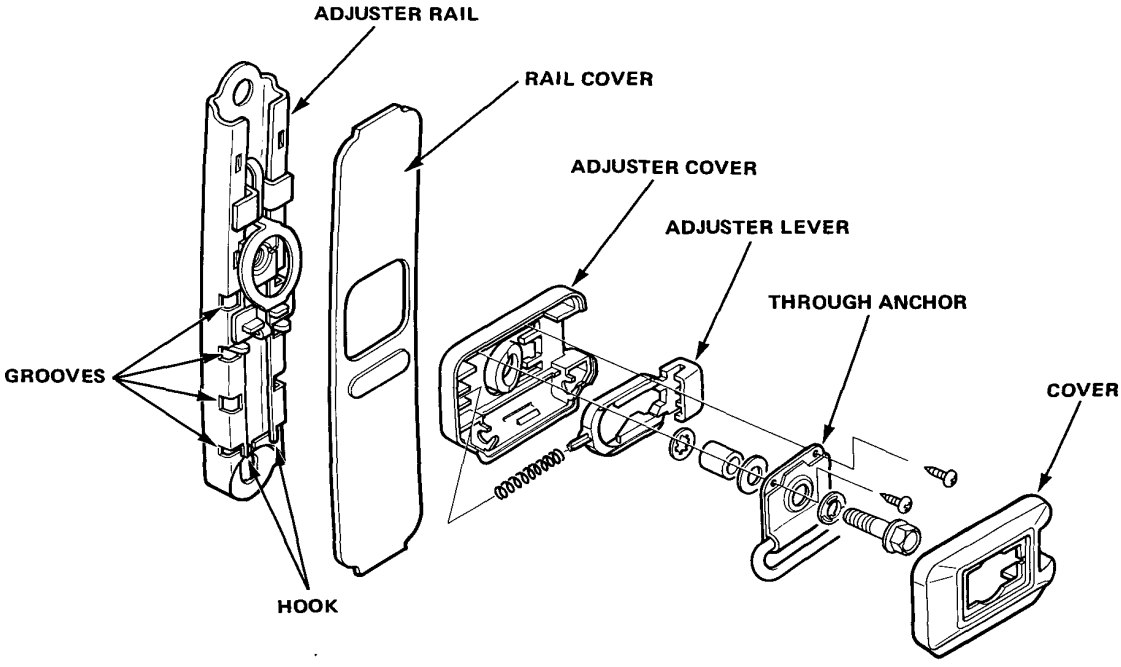
C: DOOR IS FULLY CLOSED

Shoulder Anchor Adjuster (4-door Model)

Adjustable seat belt shoulder anchors are newly employed. The height of the seat belt shoulder anchor can be adjusted between four positions to provide the best fit for the passenger.

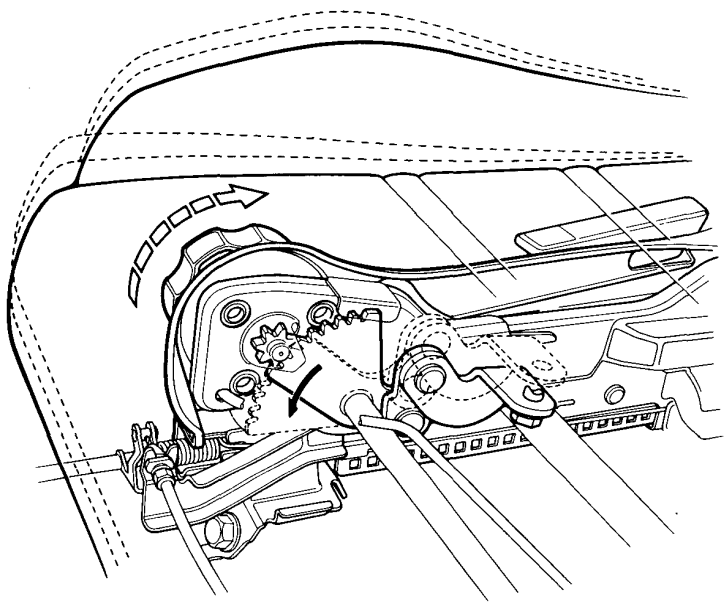
Operation

When the adjust lever is pushed in, the hooks installed in the adjuster rail are released from the adjuster groove and the anchor can be slid up and down between four pairs of grooves on the adjuster rail.



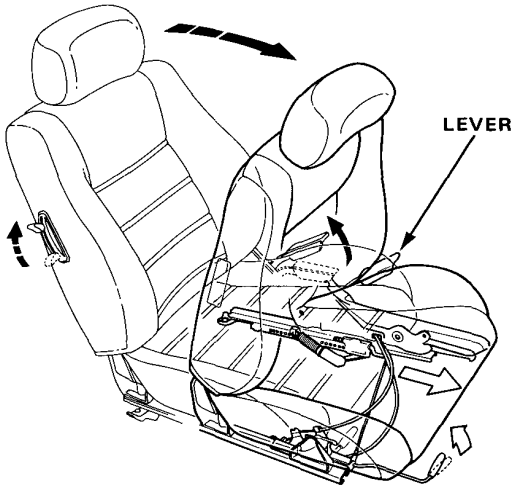
Stepless Adjustment Seat Lifter

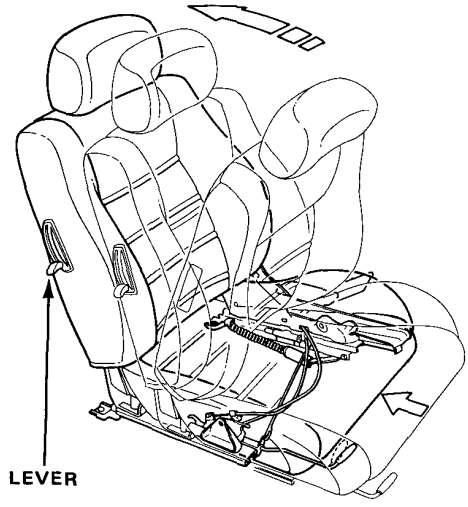
A stepless adjustment seat lifter is provided on some types. This allows the front part of the seat cushion to be adjusted to provide optimum leg support, thus reducing fatigue and improving posture. The range of adjustment is a stepless 28mm in the up-down direction.

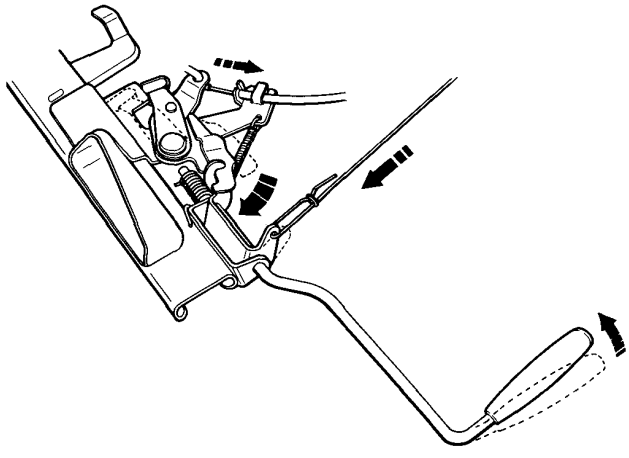


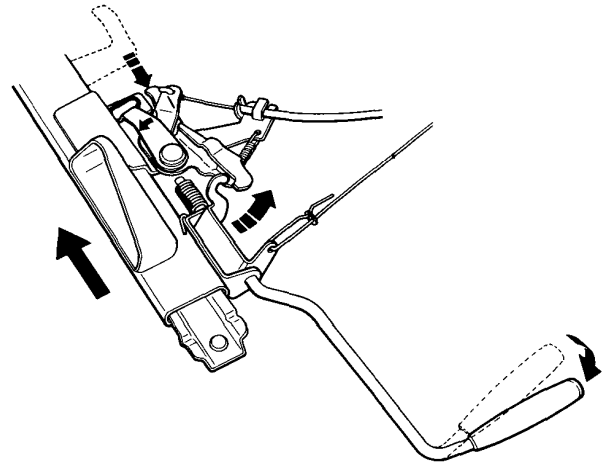
Walk-in Seat

In order to allow rear passengers to get in and out of the car more easily, some three-door types are provided with a walk-in seat. When the lever on the passenger-side seat is raised, the seat back folds forward, and the entire seat slides to the front. A lever is also provided on the inner side of the passenger-side seat, thus allowing the driver to operate the passenger-side seat easily. When the seat back is returned to the upright position, it is locked into place at the standard set position.





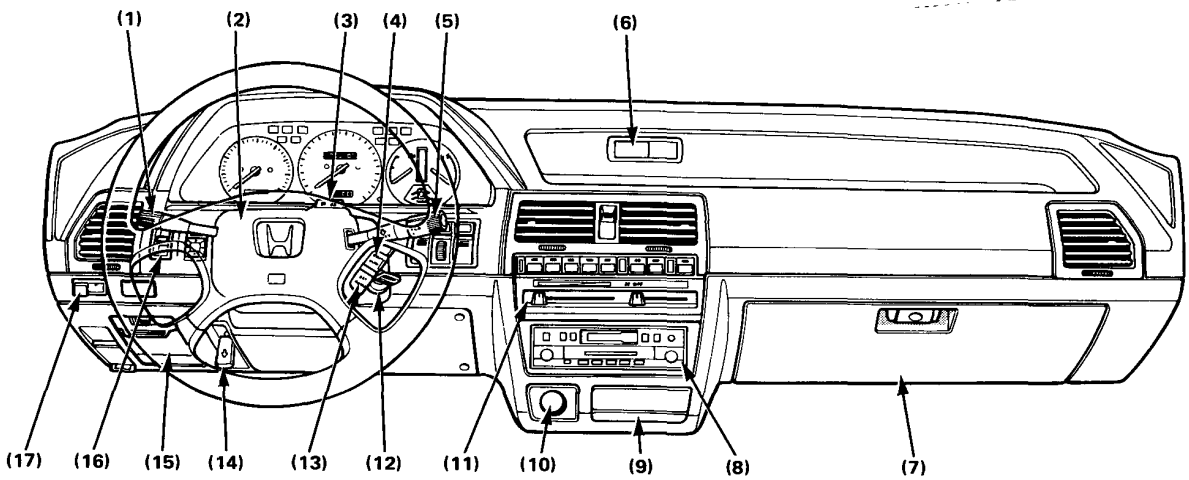




Body

Instrument Panel

The instrument panel has been designed to match with the low slant nose and wide front windshield to allow an wide unobstructed view to the front.
The surface of the panel has the texture of grain leather, and is constructed of ABS plastic and PVC, together with padded backing of foam urethane (polypropylene) over a base of ABS plastic. This structure results in excellent energy absorbing characteristics and a high level of safety.
Two air vents are located at the center and one at each side, while defogger vents are located toward the front of the right and left doors and beneath the front windshield. By operating the ram pressure vent knob at the right side of the driver's position, outside air will be supplied to the vent on the driver's side of the car.

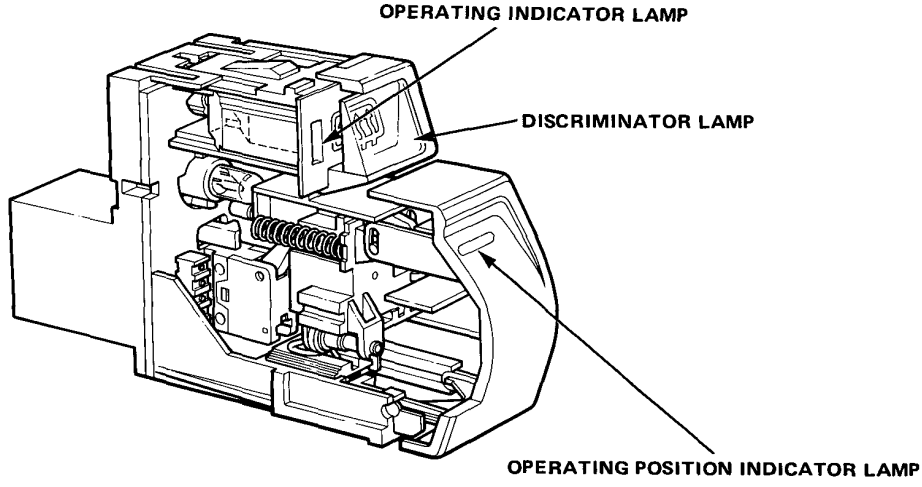


(1) WINDSHIELD WIPER/WASHER SWITCH
(2) HORN
(3) HAZARD WARNING SWITCH
(4) CRUISE CONTROL RESUME SWITCH
(5) LIGHT SWITCH/TURN SIGNAL/DIMMER SWITCH
(6) CLOCK
(7) GLOVE BOX
(8) RADIO
(9) ASHTRAY
(10) CIGARETTE LIGHTER
(11) HEATER CONTROL PANEL
(12) IGNITION SWITCH
(13) CRUISE CONTROL SET SWITCH
(14) TILT STEERING ADJUSTMENT LEVER
(15) FUSE BOX
(16) CRUISE CONTROL MAIN SWITCH
(17) SUNROOF SWITCH

Piano-touch Switches

General

To improve operation, piano-touch switches requiring low switch pressure have been provided in a configuration well matching the design of the instrument panel. In addition, each switch is equipped with a white discriminator lamp. a yellow operating indicator lamp, and a white operating position indicator lamp, thus improving the visibility of switches during nighttime driving.



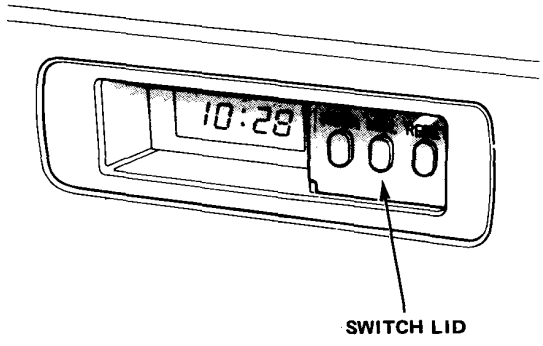
Digital Clock

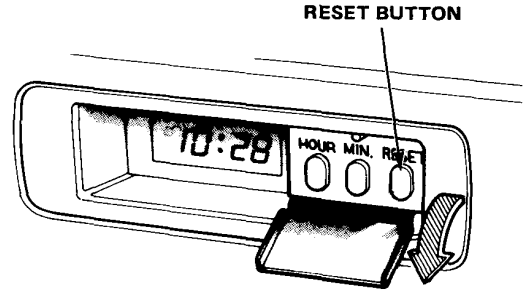
General

All cars are equipped with digital clocks featuring luminous indicator tubes for good visibility. Whenever the small or headlights are switched on, the clock's luminance level is reduced to 1/16, thus preventing excessive brightness and giving the optimum luminance level.

A time signal setting fuction is also provided; by pressing the RESET button at the sound of the radio time signal, the time can be set to the time signal.

The clock display lights when the ignition switch is turned ON. When the ignition switch is in the LOCK or ACC position, the switch lid can be pressed to illuminate the display.

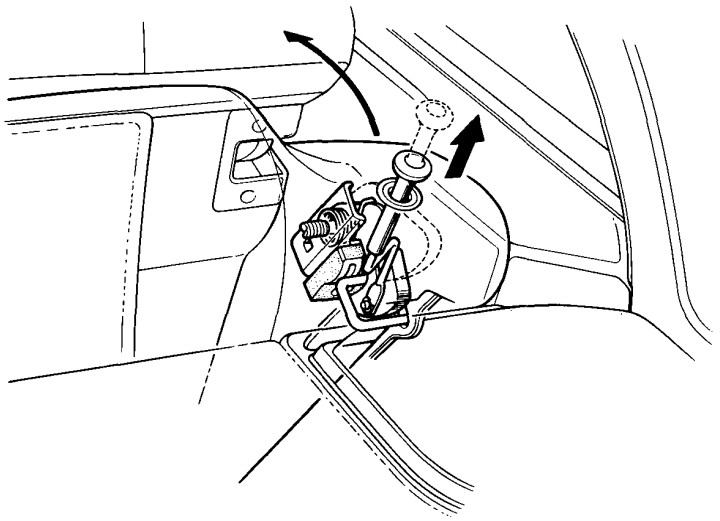




Rear Seat

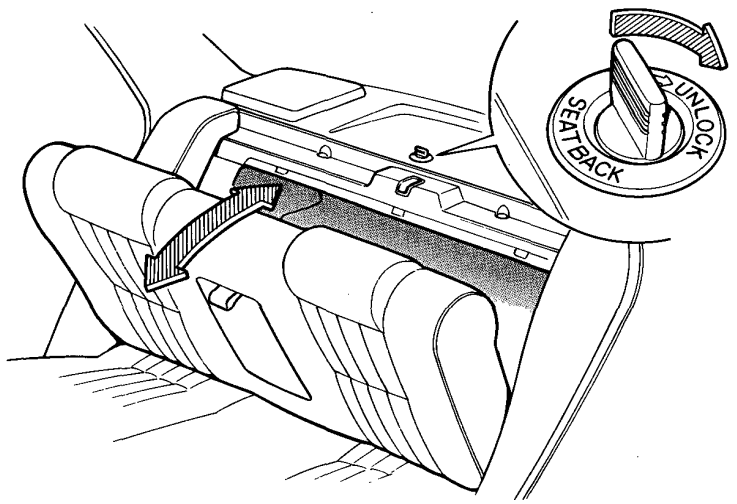
< Separate seat back type (3D) >

The rear seat backs are provided with neck rests to improve safety and comfort. By operating the knob, the seat backs can be inclined toward the front and folded down.



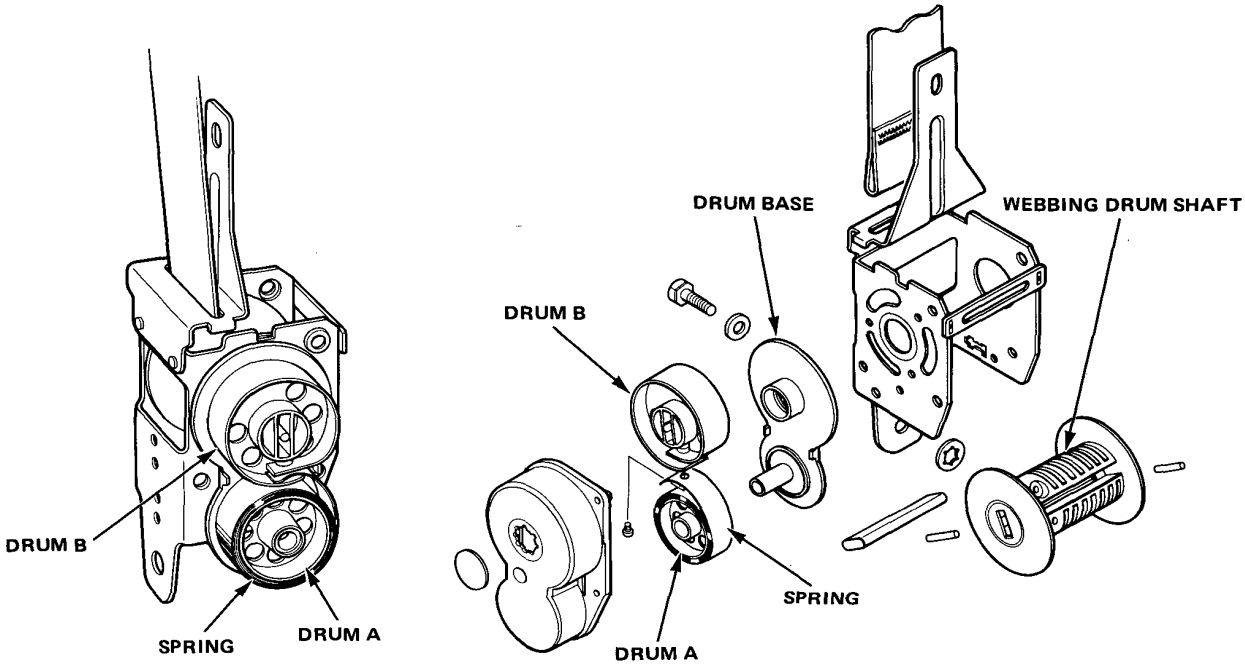
< Single seat back (4D) >

Depending on type, some cars are provided with seat backs which can be operated simply by the lock on the rear tray, thus allowing access to the trunk space.

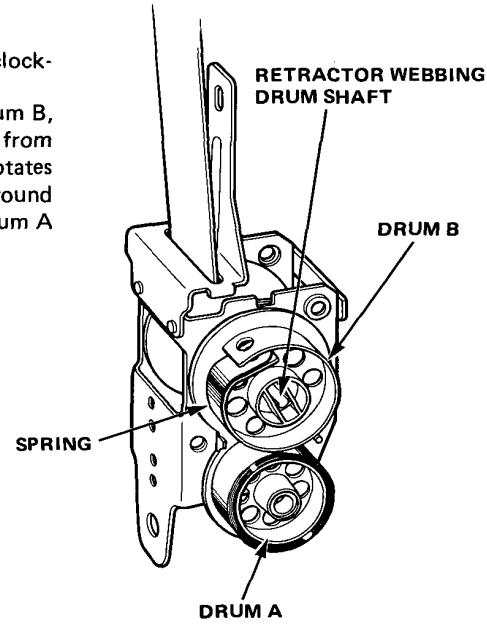


Seat Belt

The front seat belts use a double-shaft retractor spring providing excellent fastening operating. This results in reduced spring torque at the time of seat belt retraction and improved winding action. In addition, the weight of the belt on the shoulder at time of fastening is lessened, thus allowing the driver to operate the steering wheel comfortably.



The retractor spring is wound clockwise on drum A, and its end is fixed clockwise on drum B, thus forming an S-shaped configuration.
As shown in the illustration at right, when the seat belt is pulled out, drum B, which is fixed on the retractor webbing drum shaft, pulls out the spring from drum A, and winds the spring clockwise onto drum B. Drum A thus rotates to the left. When the seat belt is released, the tension of the spring wound onto drum B rotates drum B counterclockwise, while at the same time drum A rotates clockwise, thus taking up the spring from drum B.



(cont'd)

Seat Belt (cont'd)

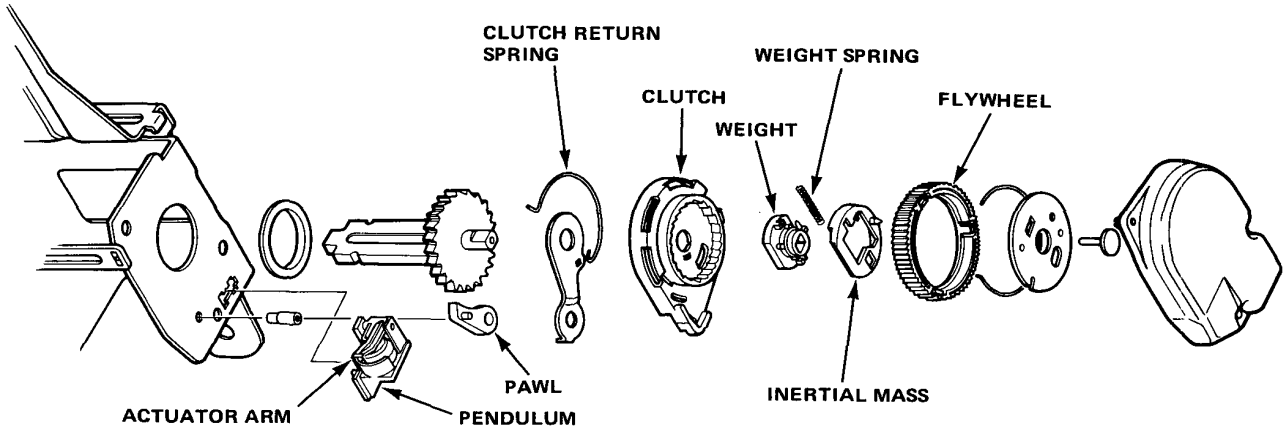
< Double-sensing lock mechanism >

General

The double-sensing lock mechanism uses a pendulum for G-Sensing, and an inertial mass (weight) for webbing sensing.

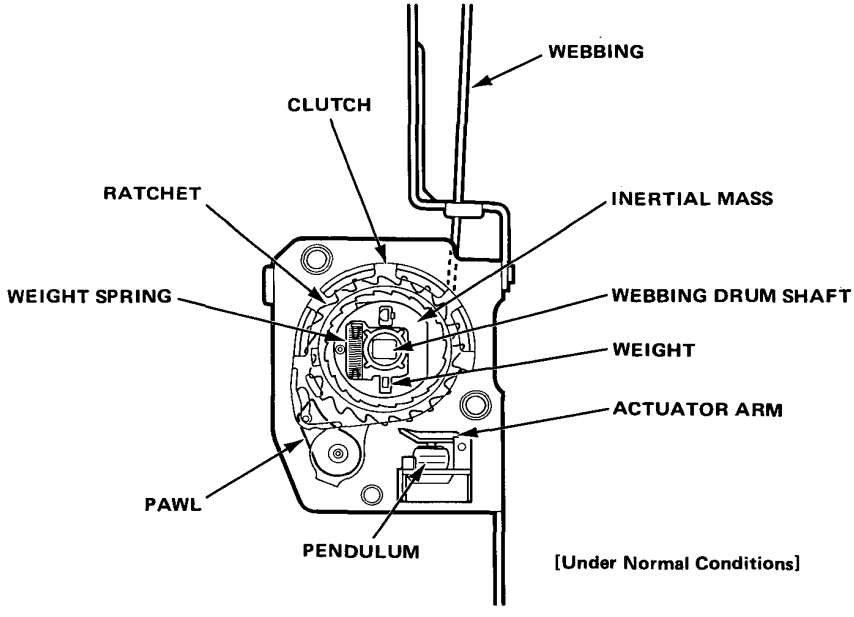
Construction

The system is composed of ratchet, pawl, clutch return spring, weight spring, inertial weight, flywheel pendulum, and actuator arm.



G-Sensing

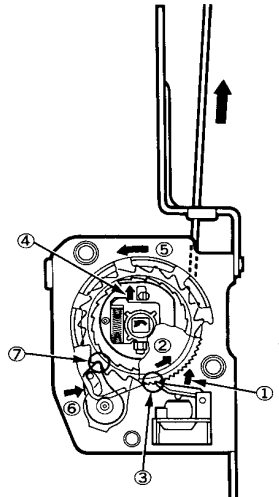
1. When G forces are applied on the car, the webbing is pulled out, and the flywheel rotates (1). Simultaneously, the pendulum is caused to incline due to inertia, and the actuator arm is forced upwards (2). The arm's lever catches in the gear teeth on the flywheel's outer periphery (3), thus stopping the movement of the flywheel.



[Under Normal Conditions]

2. When the flywheel stops, the inertial mass attached inside the flywheel receives reverse torque from the stopping of the flywheel, thus meshing with the gear on the inner surface of the clutch, and causing the clutch to rotate ④ ⑤.

3. When the clutch rotates to the left, the pawl is lifted up ⑥, catching the ratchet ⑦, and locking the seat belt securely.

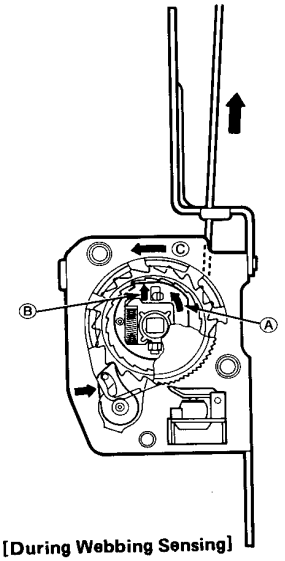


[During G-Sensing]

Webbing Sensing Operation

1. When the car experiences a sudden impact, the webbing is pulled out, and the drum shaft rotates counterclockwise, thus also rotating the weight holder Ⓐ. Since the inertial mass is not fixed with respect to the webbing drum shaft, it is caused to move to the outside around the pivot of the flywheel Ⓑ.

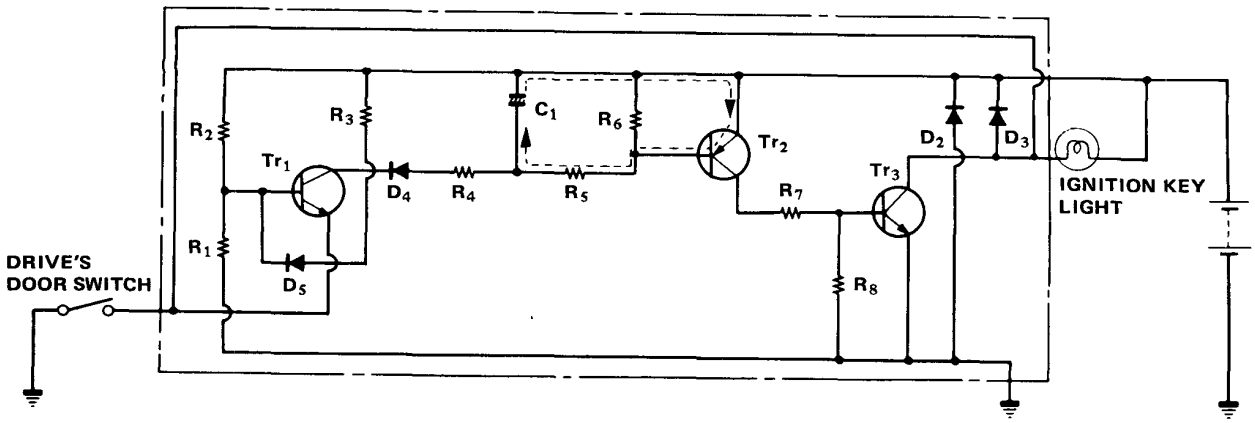
2. When the inertial mass moves to the outside, it meshes with the gear on the inner surface of the clutch, thus causing the clutch to rotate Ⓒ, and performing the same operation as in G-Sensing, (step 3).

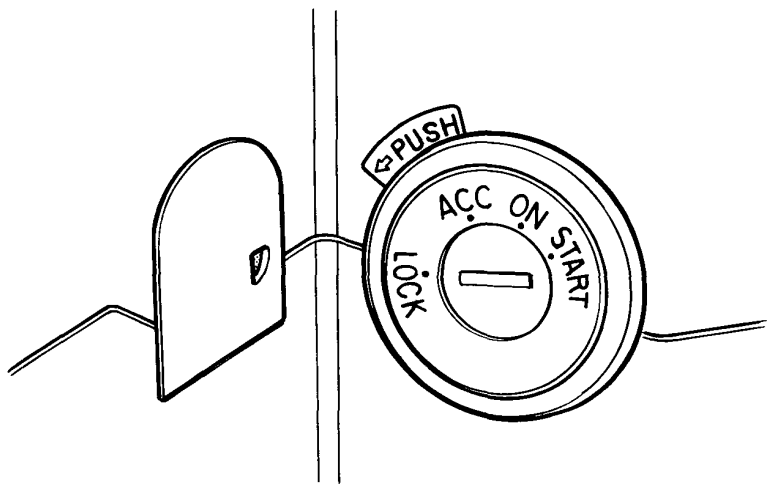


[During Webbing Sensing]

Ignition Key Light

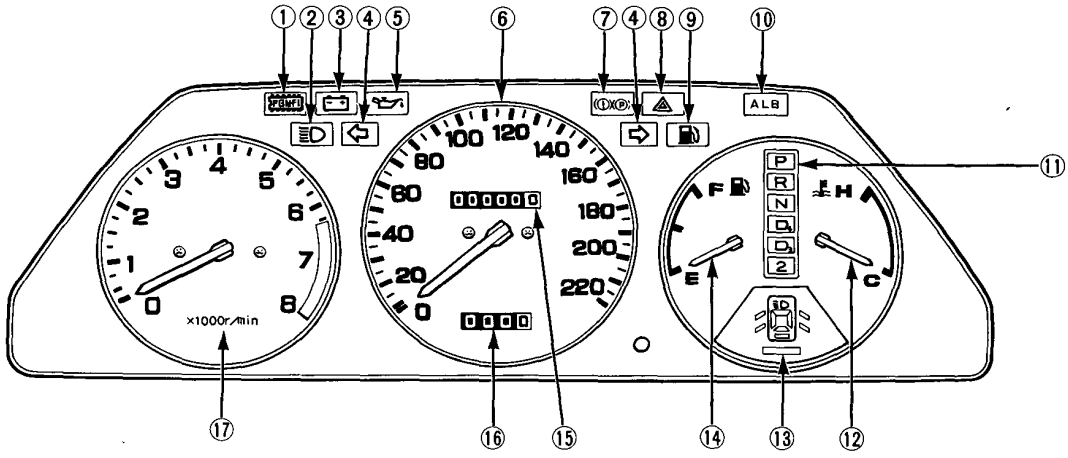
The light will go on for approximately 8 seconds after the driver's door is closed in order to insert the ignition key into the ignition switch easily at night.



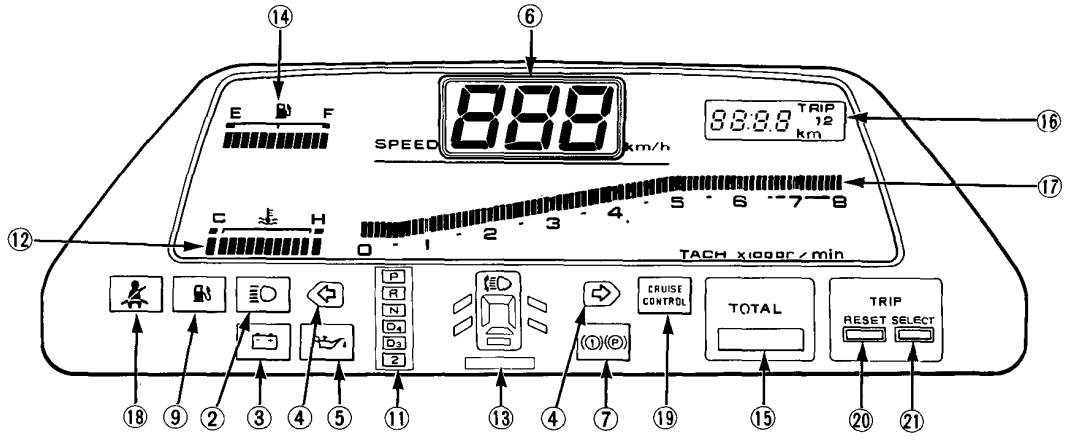


Combination Meters

< Analog Meter >



< Digital Meter >



(1) PGM-FI WARNING LIGHT
(2) HEADLIGHT HIGH BEAM INDICATOR LIGHT
(3) DISCHARGE WARNING LIGHT
(4) TURN SIGNAL INDICATOR LIGHT
(5) OIL PRESSURE WARNING LIGHT
(6) SPEEDOMETER
(7) BRAKE WARNING LIGHT
(8) HAZARD WARNING LIGHT
(9) FUEL RESERVE WARNING LIGHT
(10) ANTI-LOCK BRAKE (ALB) WARNING LIGHT
(11) SHIFT LEVER POSITION INDICATOR (FOR HM MODELS)
(12) WATER TEMPERATURE GAUGE SEGMENTED DISPLAY (FOR DIGITAL METER MODELS)
(13) SAFETY INDICATOR
(14) FUEL GAUGE SEGMENTED DISPLAY (FOR DIGITAL METER MODELS)
(15) ODOMETER
(16) TRIP METER
(17) TACHOMETER SEGMENTED DISPLAY (FOR DIGITAL METER MODELS)
(18) SEAT BELT REMINDER LIGHT
(19) CRUISE CONTROL INDICATOR
(20) TRIP METER RESET BUTTON
(21) TRIP METER SELECT BUTTON

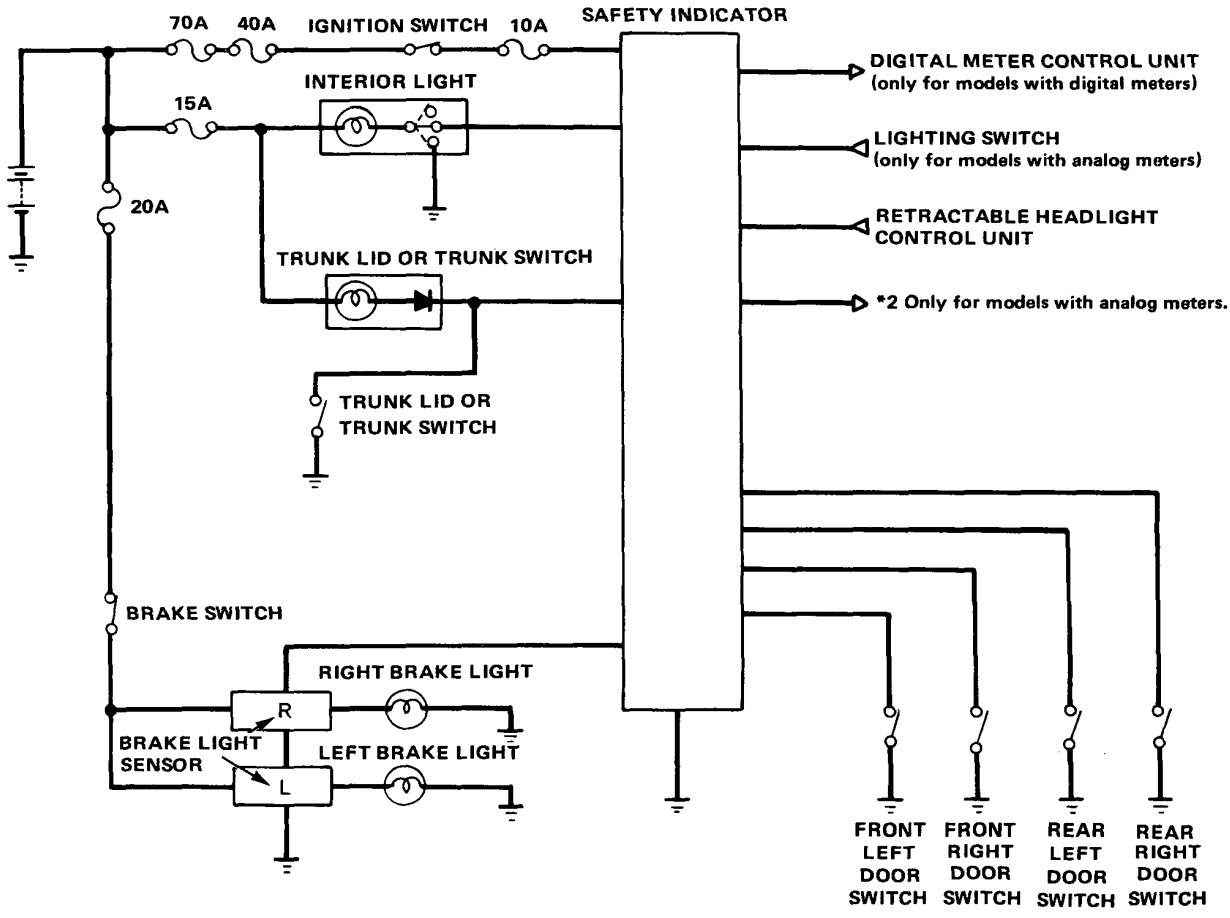
(cont'd)

Combination Meter (cont'd)

< Safety Indicator >

General

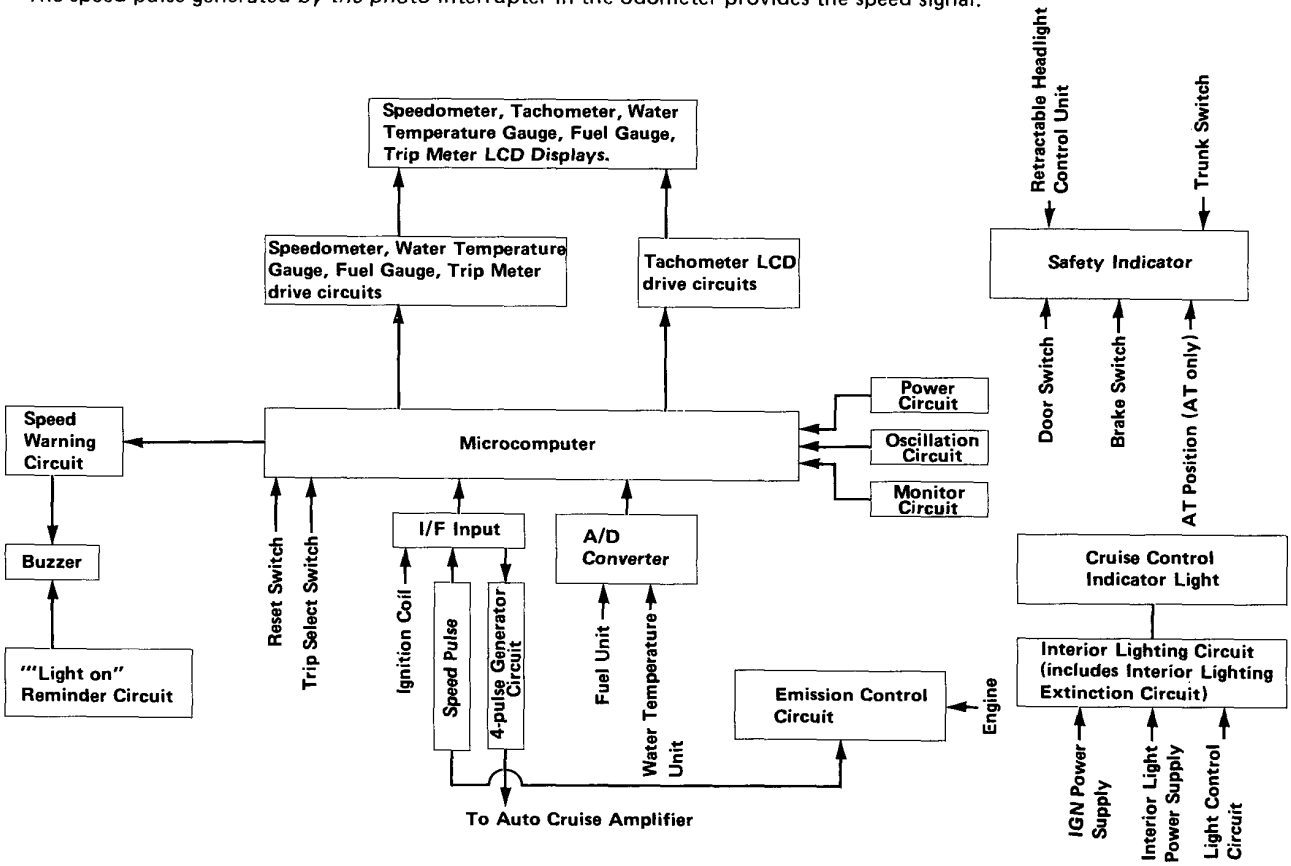
If any of the doors of the trunk lid is open, the brake lights are defective, a circuit is open or the retractable headlight system is closed, and the matching light in the panel will go on. The light will stay on until the problem has been corrected. There is also a special circuit to check for defective warning lights (*1 LED). All warning lights should go on for two seconds when the ignition switch is turned on.



*1: LED: Light Emiting Diode.
*2: For models with illumination control, connect this lead to the illumination control unit, otherwise connect to earth.

< Liquid Crystal Digital Meters >

These meters indicate vehicle and engine speed, fuel gauge and water temperature gauge readings in digits or colored segments. They are easy to read and consist of 2 layers of microcomputer controlled guest host type *1 LCD's.
The speed pulse generated by the photo interrupter in the odometer provides the speed signal.



(Block Diagram)

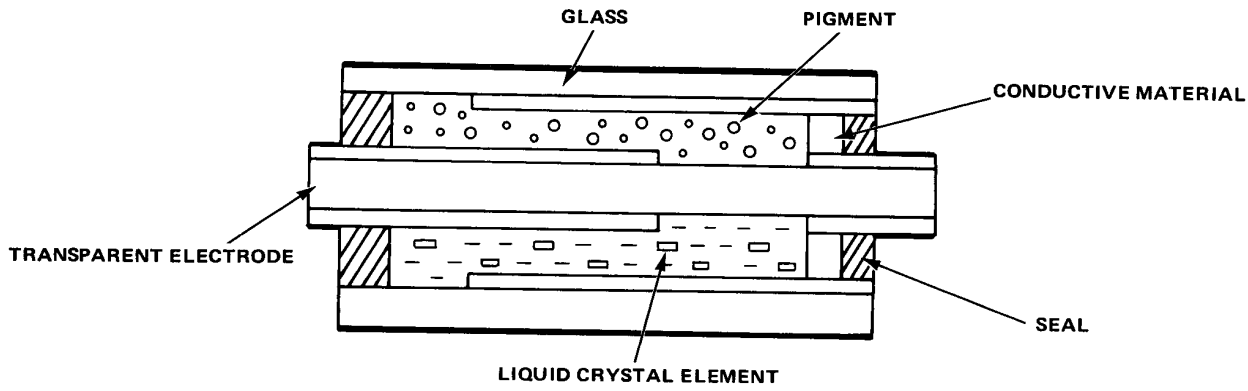
- Input Interface (I/F)
  This circuit converts speed pulse signal level to microcomputer input level.
- Oscillation Circuit
  Produces the reference signal required for microcomputer operation.
- Monitor Circuit (Watch Dog)
  Monitors microcomputer operation. In case of microcomputer malfunctioning, it transmits a reset signal to the microcomputer to return it to normal operation.
- Microcomputer
  An *2 LSI with a control unit, a memory and a processing unit for processing signal inputs.
- LCD Drive Circuit
  An LSI which controls the liquid crystal display elements.
- A/D Converter
  Converts analog data into digital data for the microcomputer.

*1 LCD (Liquid Crystal Display)
Crystals used for display purposes which become transparent or reflective when exposed to an electric current. The LCD does not produce any light of its own, it only reflects an external light source.
*2 LSI (Large Scale Intergration)
AN LSI circuit includes a great number of components, is fast, compact and extremely reliable.

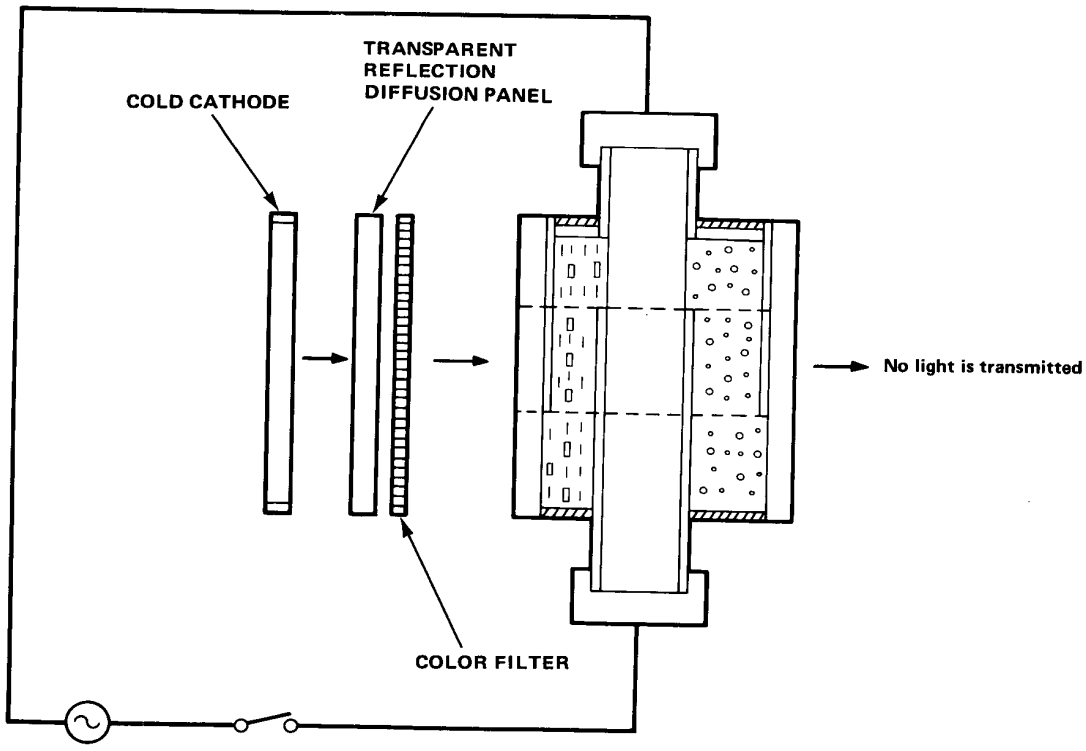
(cont'd)

Combination Meter (cont'd)

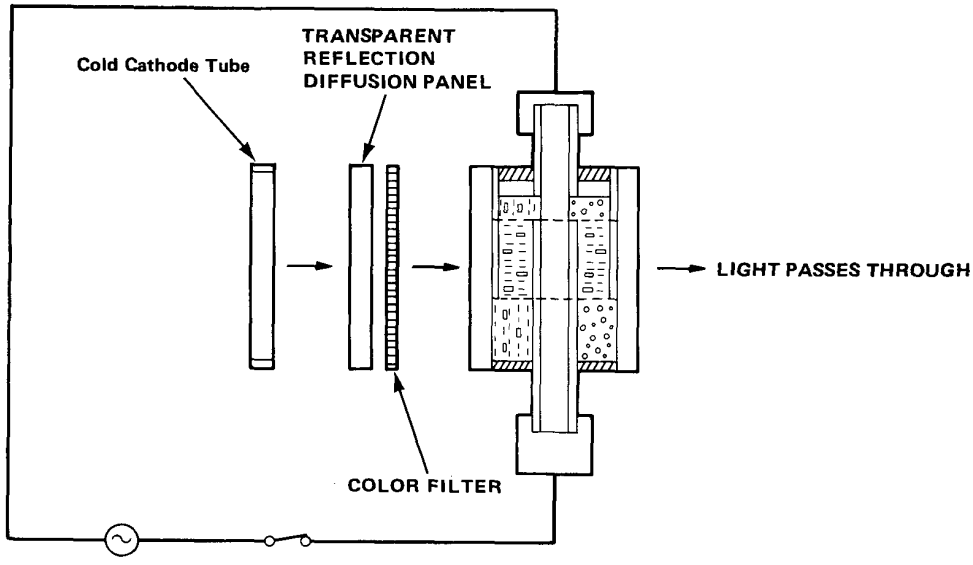
- **Liquid Crystal Panel Construction (Guest Host Type)**
  A liquid crystal panel consists of 3 layers of glass sheets and 2 layers of liquid crystal elements. The liquid crystal elements contain a pigment. The two layers of liquid crystal elements and the pigment are arranged in an orthogonal pattern.



- **Liquid Crystal Elements**
  1. This light from the cold cathode enters the liquid crystal panel after passing through the transparent reflection diffusion panel and the semi-transparent color filter. When the pigment cells are not exposed to a voltage they are arranged in such a way that they absorb the light (they become prependicular to incoming light).



2. When an electric current passes through the transparent electrode an electrical field builds up around the liquid crystal elements. The pigment cells change direction (they become parallel to incoming light) and the light from the cold cathode tube passes through the liquid crystal panel.



Electronic Navigator

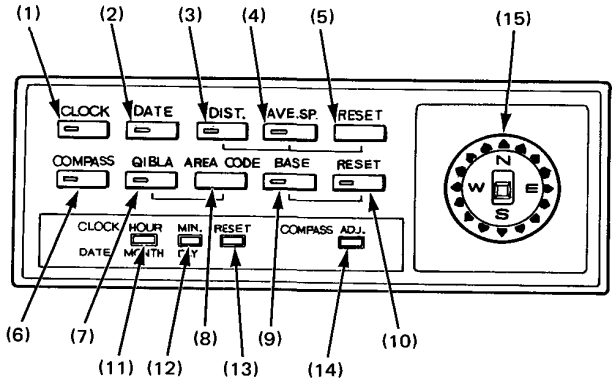
How to Operate Controls

1. QIBLA: By making an input of your position area code with a special map, this device will show the direction, to say Al-Kaaba (Mecca).
2. BASE: Indicates the direction and distance to point of destination. When the distance to point of destination after resetting is less than 3%, the direction indicator arrow (LCD) and the reset key LED starts to flicker.
3. CLOCK: Digital clock has a display that makes it easy to distinguish between AM and PM time readings.
4. DATE: Indicates solar calendar dates. It shares display space with the digital clock.
5. DIST: Indicates distance travelled after resetting and can also be used as a trip meter. It shares display space with the digital clock.
6. AV. SP.: Indicates average vehicle speed after resetting. It shares display space with the digital clock.
7. COMPASS: Indicates an absolute direction as distinguished from vehicle direction. An instruction manual explaning the way of the Quibla function can be found in the center console compartment.

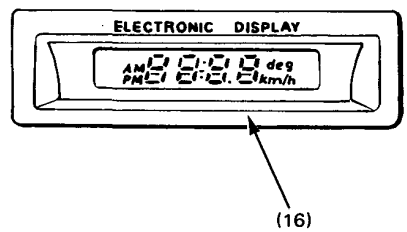
General

The navigator feature both digital and symbol displayes. The digital display panel is located at top center of the dash-board and the symbol display panel is part of the control section in the center console.

Control Section



Digital Display Panel



(1) CLOCK SWITCH
(2) DATE SWITCH
(3) DIST SWITCH
(4) AVE. SP. SWITCH
(5) RESET SWITCH
(6) COMPASS SWITCH
(7) QIBLA SWITCH
(8) AREA CODE SWITCH
(9) BASE SWITCH
(10) RESET SWITCH
(11) HOUR/MOUNTH SWITCH
(12) MIN/DAY SWITCH
(13) RESET SWITCH
(14) COMPASS ADJ SWITCH
(15) SYMBOL DISPLAY SECTION
(16) DIGITAL DISPLAY SECTION

Semi-Concealed Front Wipers

General

All models have been fitted with semi-concealed wipers to improve aerodynamic characteristics. As the wiper arms are less exposed to the wind, there is no build up of rain water on the windshield and the wiper blades do not come free during high-speed driving. All of which provides for better visibility.

Since the wipers are concealed when they are not being used, the driver gets a better overall view, which means improved safety, too.

Some models are equipped with wipers that are interconnected with the washer function. With such wipers the wiper relay is activated if the washer switch is pressed for longer than 1 second when the ignition switch is on and the wiper switch is either set to "OFF" or "INT". After a short time the wipers start operating and continue to operate until 3 seconds after the washer switch has been turned off. Other models are equipped with washer interconnected wipers featuring intermittent operation that can be varied from 2–12 seconds.

To prevent the wiper blades from freezing onto the windshield during the winter season and to facilitate window cleaning, the wiper arms are of an independent construction that makes it possible to lift them off the windshield and to leave them like that.

Construction

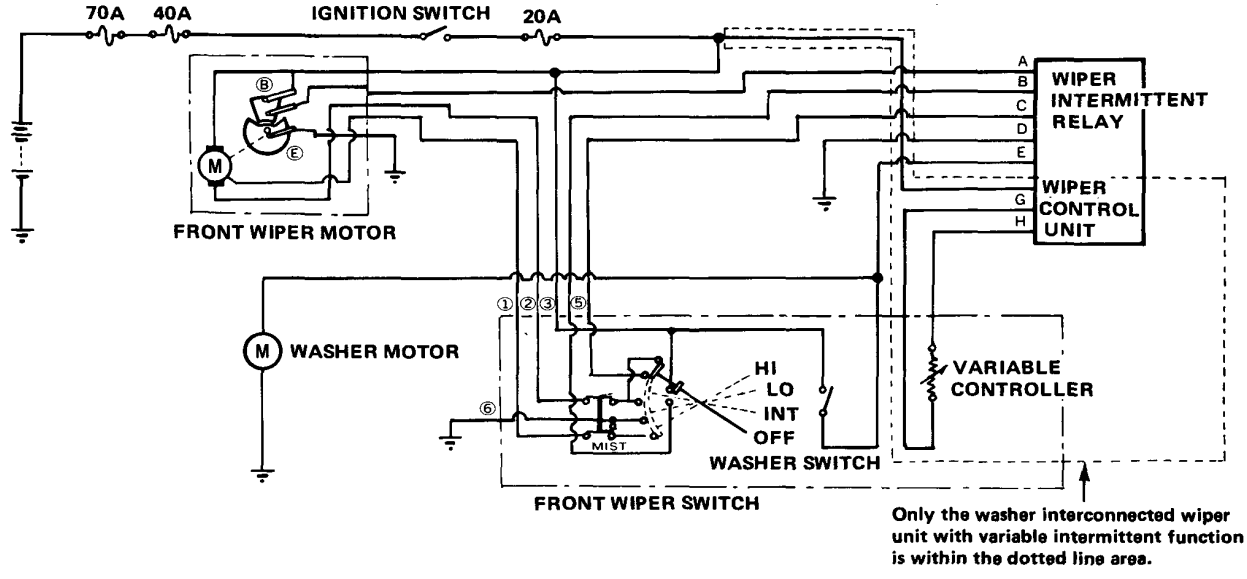
Washer interconnected wipers consist of a wiper intermittent relay, a wiper motor and a wiper switch. Washer interconnected wipers with variable intermittent function have a wiper control unit instead of a wiper intermittent relay and the variable function is build into the wiper switch.

Operation

< Washer Interconnected Wipers >

When the washer switch is turned on, battery current starts to flow through the ignition switch towards the wiper intermittent relay (or wiper control unit). This current charges the condenser in the relay or the control unit. At the same time the circuit in the relay is turned on, C and D are connected and the wiper motor beings to turn. When the washer switch is turned off, the condenser is discharged resulting in the relay being turned off after about 3 seconds.

The auto stop circuit turns off the wiper motor by switching the auto stop switch from position E to position B when the wiper arm reaches a predetermined position.

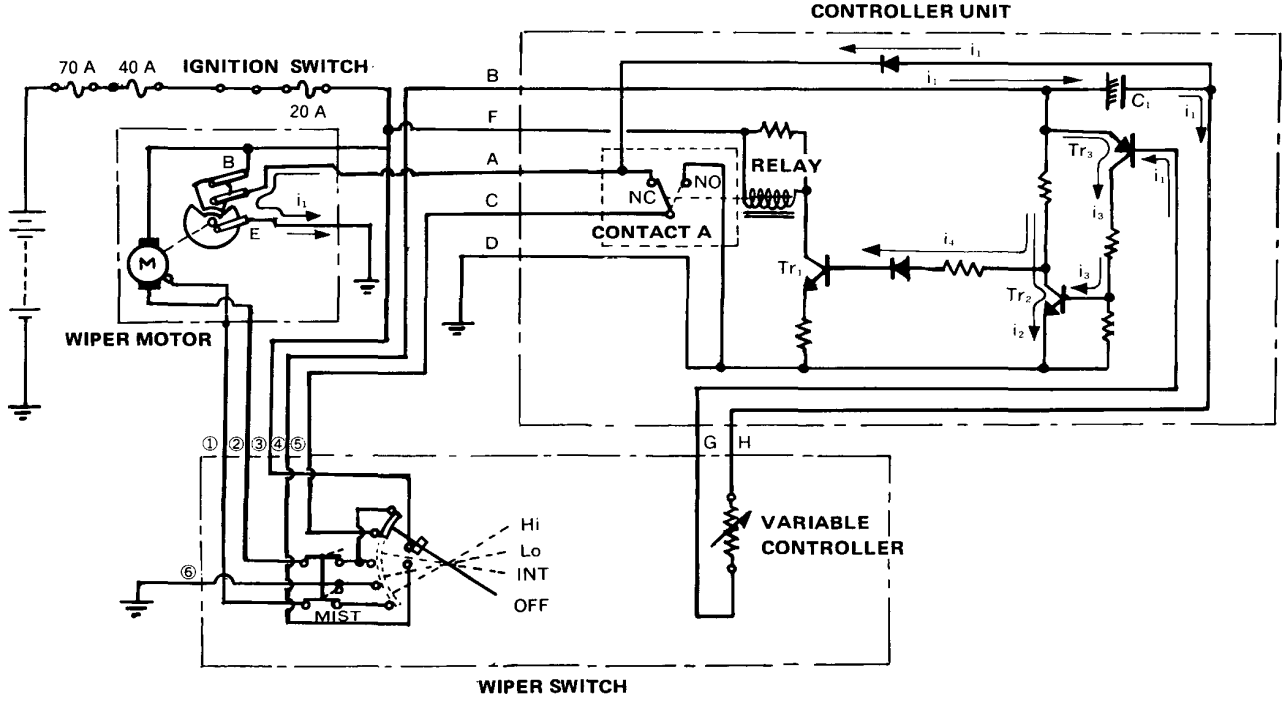


(cont'd)

Wiper (cont'd)

<Washer Interconnnected Wiper Unit with Variable Intermittent>

1. When the wiper switch is set to position "INT", battery current flows from 3 to 4 in the direction of B in the control unit. This current (i4) turns on control unit Tr1 and the relay starts to operate.
2. Relay operation connects contact A to No which causes C and D in the control unit to connect and the wiper motor starts to rotate. Since the auto stop switch in the motor is then set to E, A is connected to earth and current i1 starts to flow, C1 becomes charged.
3. At the same time i1 turns on Tr3 and i3 flow turns on Tr2 with the result that Tr1 and the relay are turned off causing switch A to return to Nc. As the wiper motor auto stop switch is at point E at this time, the motor continues to turn. However, when the wiper arm reaches a predetermined position (when it has completed one full cycle) the auto stop switch is set to B and the motor stops.
4. When the auto stop is at B, i1 is cut off and condenser C1 starts to discharge. After the discharge, which takes from between 2–12 seconds (depending on the setting of the variable controller resistor), Tr3 is turned off, i2 is cut off and Tr2 is also turned off. When Tr2 is turned off, i4 starts to flow in the direction of Tr1, contact A returns to position No and the wiper motor starts to rotate again.
5. Intermittent operation after this is a repetition of steps 2–4.

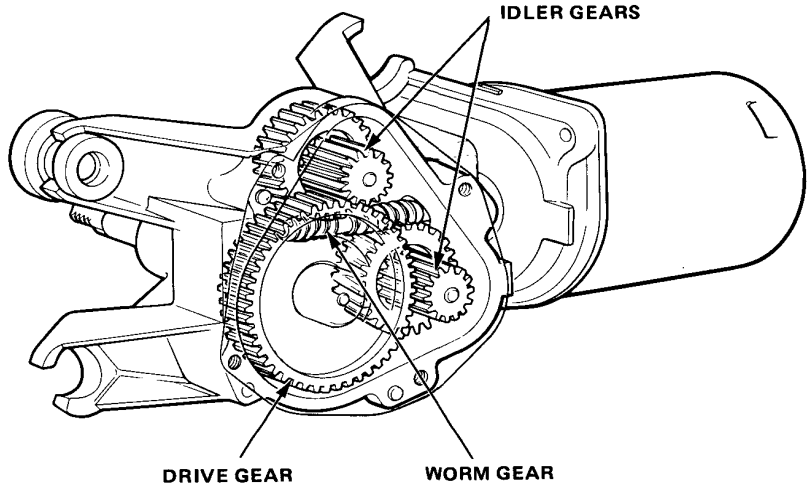


< **Front Wiper Motor** >

The wiper motor is installed in the engine bay (below the right section of the window shield) to ensure easy maintenance. Its location in the engine bay prevents motor noise from entering the cabin.

Construction

The front wiper motor is a magneto system DC motor, which can provide both low and high speeds. Furthermore the idler gears and the driver gear are made of resin to lower noise.



[FRONT WIPER MOTOR]

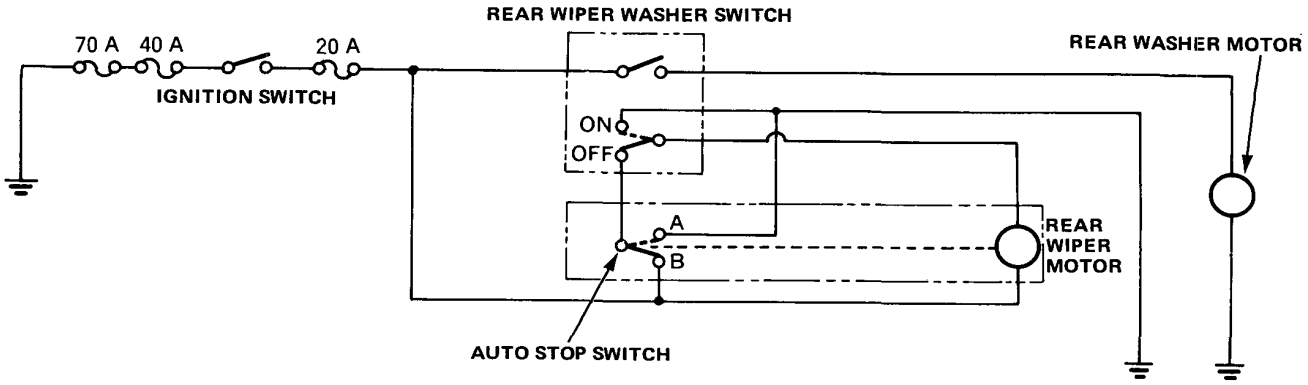
(cont'd)

Wiper (cont'd)

< Rear Wiper >

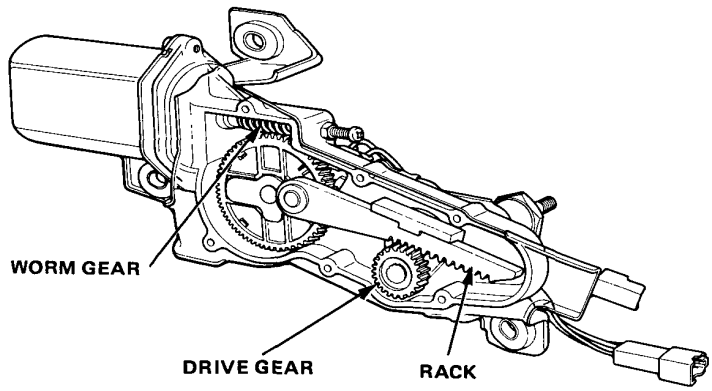
General

The large rear wiper provides an unequalled rear view even in rainy weather. Its location near the front wiper switch guarantees ease of operation.



Operation

1. When the rear wiper switch is turned on and the ignition switch is on, battery current flows through the ignition switch, the rear wiper motor and the rear wiper switch to turn on the wiper motor.
2. Motor rotation sets the built-in auto stop switch to position A.
3. As the auto stop switch is at position A, the motor continues to turn even when the wiper switch is turned off. It continues to turn until the wiper arm reaches a predetermined position, when the auto stop switch is switched over the position B and the motor stops.



[REAR WIPER MOTOR]

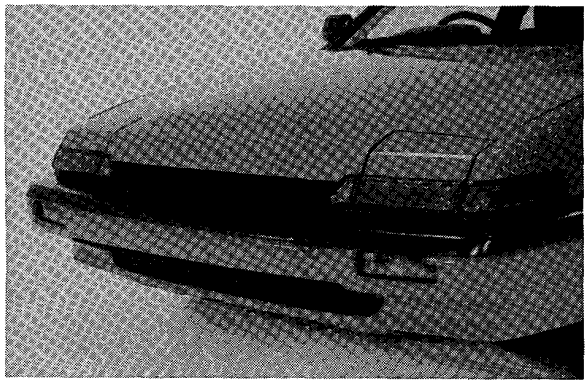
Retractable Headlight

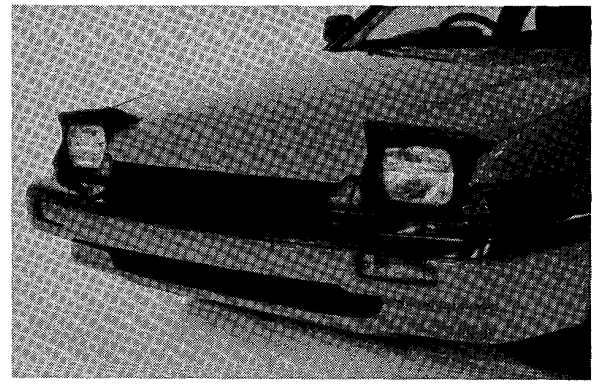
General

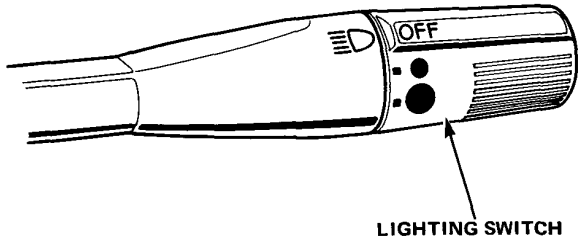
Same cars are equipped with retractable headlights, thus forming a slant-nose bodyline with optimum aerodynamic characteristics.

Features

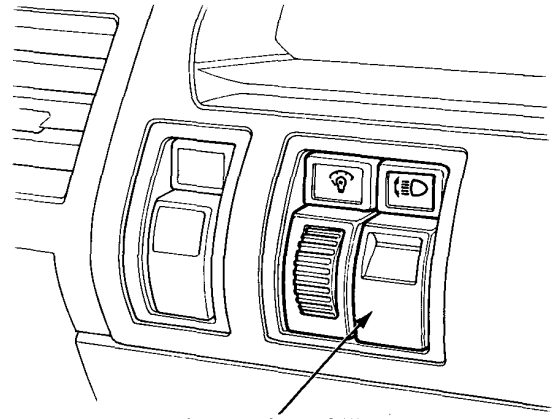
1. Retractors driven by independant right-left motors.
2. Retractors can be independantly raised or lowered without regard for the lighting switch.
3. Even if the drive mechanism is damaged, the retractors can be raised or lowered manually.
4. One-motion passing signals can be given by the linked raising and lowering of the retractors.







LIGHTING SWITCH



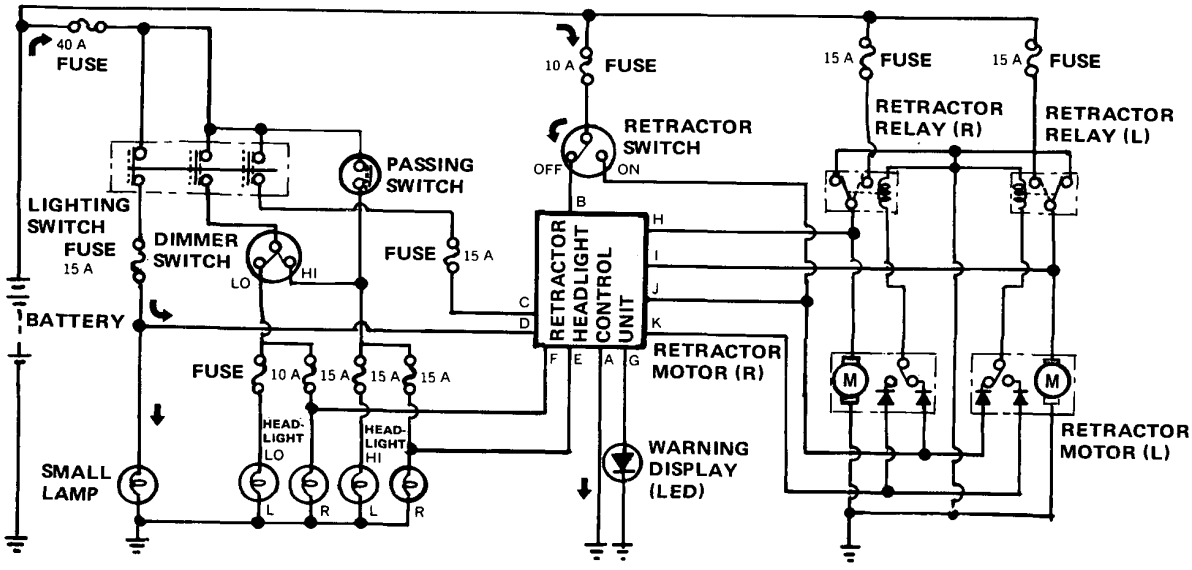
RETRACTABLE SWITCH

(cont'd)

< Retractor circuit condition and various lighting switch positions >

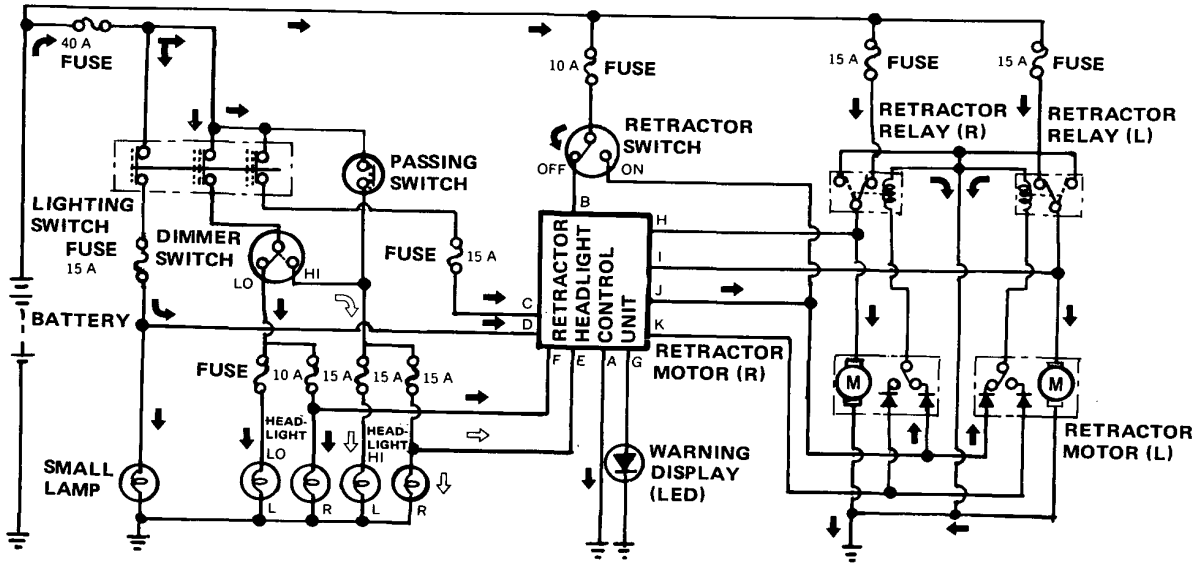
(1) OFF → (•) SMALL

When the lighting switch is moved from the OFF to the (•) small lamp position, the small lamps light. A part of the small lamp current is supplied to the retractor control unit [D], but in this condition the retractors do not operate.



(2) (•) SMALL → (●) HEADLIGHT

When the lighting switch is moved from the (•) small lamp position to the (●) headlight position, the headlights light and current flows to [B], [C], and [F] of the control unit, turning the switch inside the unit ON. As a result, current flows from the control unt [J], thus switching on the retractor relays, and opening the motor circuits, thus causing the motors to operate. When the retractors have opened fully, the switch inside the motor turns OFF, and simultaneously the motor circuits are switched to the lowering side.

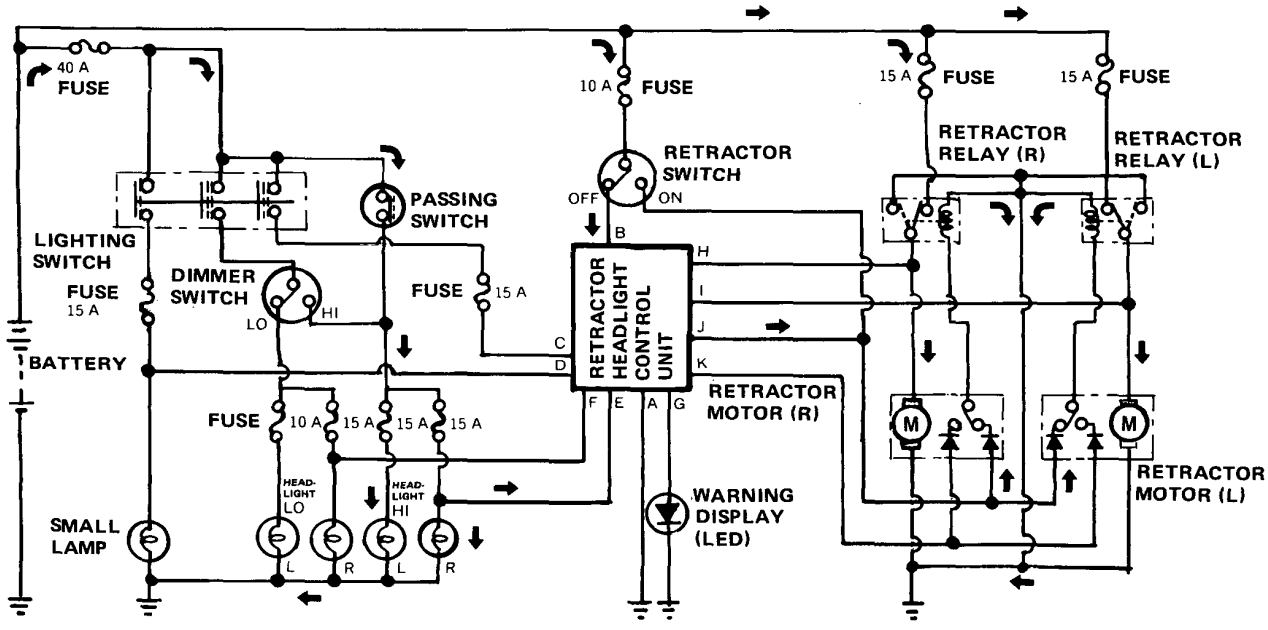


(3) (●) HEADLIGHTS → (•) SMALL LAMPS

When the lighting switch is switched from the (●) headlight position to the (•) small lamp position, the headlights are extinguished, and current to the control unit [C] and [F] is cut off, but the operation of the retractor hold circuit inside the control unit causes the retractor motors not to operate. Accordingly, the headlights are turned off, but the retractors are not lowered.

(4) (•) SMALL LAMPS → OFF [excluding OFF → (•) SMALL LAMPS → OFF]

When the lighting switch is switched from (•) small lamps position to the OFF position, the small lamps are extinguished and the current to the control unit [D] is disconnected. As a result, the hold circuit within the control unit is released, and current flows from [K] to the motor's lowering side, thus causing the retractors to be lowered. When the lighting switch is operated, the OFF time delay function within the control unit causes the retractors to remain up for a set time after the small lamps are extinguished, after which time the retractors are lowered.

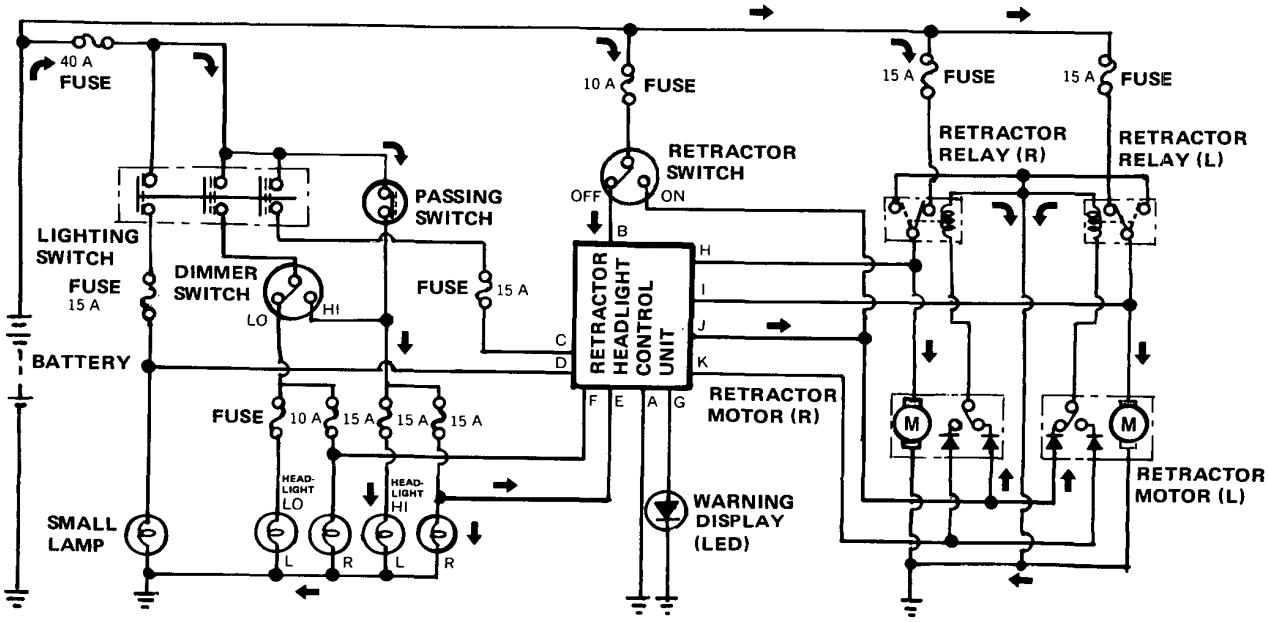


(cont'd)

Retractable Headlight (cont'd)

< One-motion passing mechanism >

The retractable headlights are equipped with a one-motion passing mechanism that allows the headlights to be used easily as a passing signal. When the passing switch is operated, the headlights light, while at the same time, the retractors rise automatically. Also, even if the passing switch is operated repeatedly, the passing hold circuit within the control unit operates to maintain the retractors at their up position for a set length of time, thus eliminating any troublesome "blinking" phenomenon. When the passing switch is set to ON, current flows to the headlight's [HI] side, while at the same time, a portion of the current to the right side light is provided to the control unit [E]. The current entering [E] turns the control unit ON, thus operating the retractors.



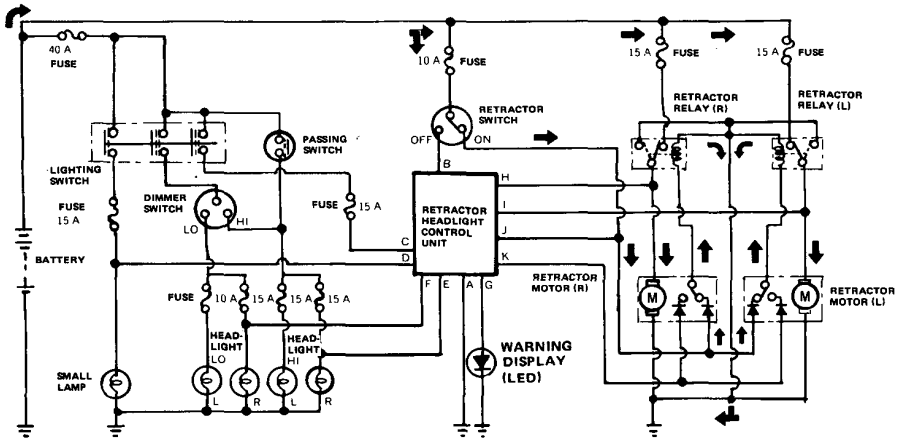
< Operation by retractor switch >

General

A retractor switch is provided to allow independent raising or lowering of the retractors without regard for the lighting switch (except when the headlights are turned on). In this way, the headlights can be raised whenever desired as a precaution to prevent possible malfunction due to freezing, etc.

Operation

When the retractor switch is turned ON, current is disconnected to the control unit [B], thus delivering battery current directly to the retractor relay, and operating the retractor motor.



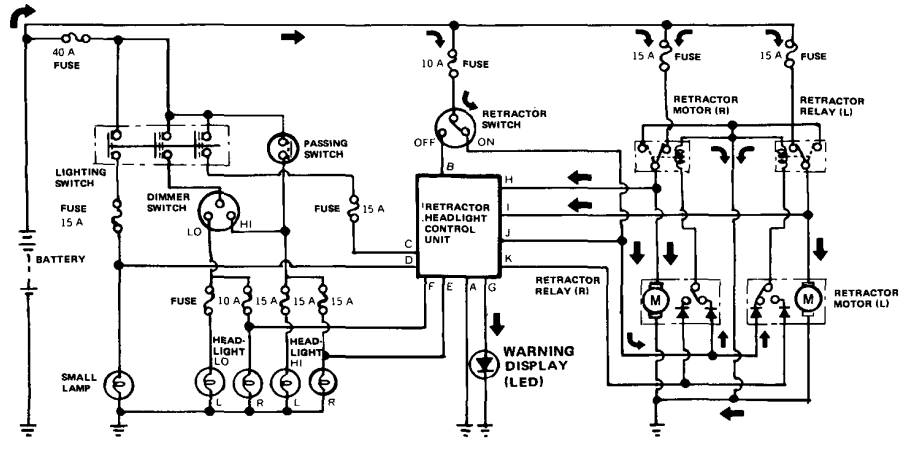
< Warning lamp mechanism >

General

In the event of system lockup, the warning display (LED) within the safety indicator lights, thus notifying the driver of a system malfunction.

Operation

During normal operation of the retractor motor, current flows to the control unit [H] and [I], and when the operation is completed, the current flow stops. However, in the event of system lockup, current continues to flow to [H] and [I]; when the current has flowed longer than a specified time, the control unit judges that an abnormality has occured, thus lighting the warning lamp.



(cont'd)

Retractable Headlight (cont'd)

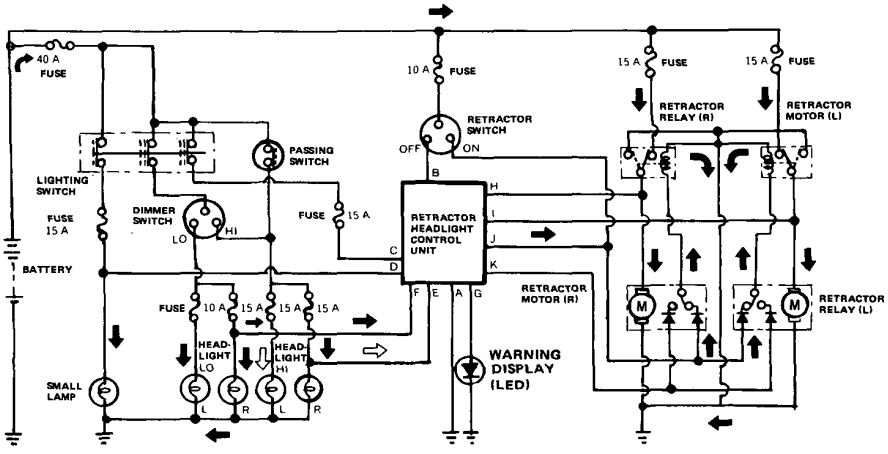
< Failsafe mechanism >

General

Even in the event of damage to the retractable control unit, a failsafe mechanism is provided to raise the rectractors when the lights are turned on, thus improving safety during nightime driving.

Operation

When the headlights are turned on, a part of the right side low-beam current flows to the control unit [F]. Since [F] and [J] are connected within the control unit, the current which enters [F] also flows to [J], thus operating the retractor relay, and raising the retractors. When the headlights are turned off, the current to [F] is interrupted, thus lowering the retractors.



< Emergency knob >

General

In the event that the rectractors do not operate by means of the lighting switch or retractor switch due to damage to the retractors or a burned fuse, etc., an emergency knob has been provided to allow manual rotation of the retractor motor.

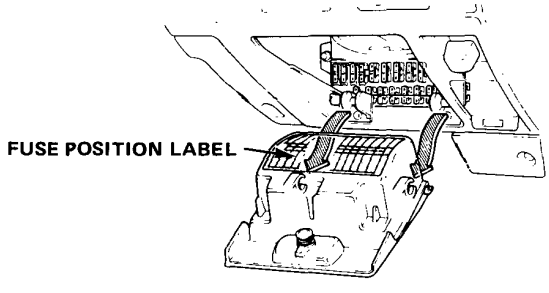
In the event that the retractors do not operate by means of the lighting switch or retractor switch due to damage to the retractors or a burned fuse, etc., an emergency knob has been provided to allow manual rotation of the retractor motor.

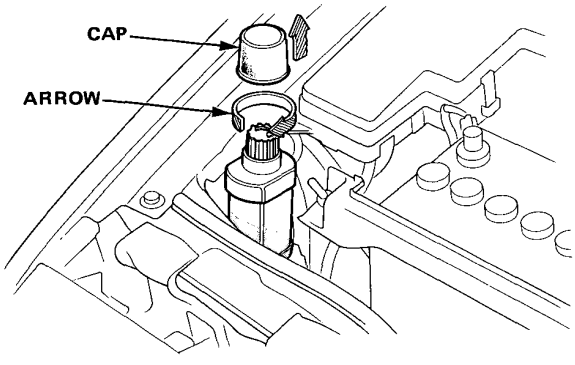
Construction

The shaft of the retractor motor is extended from the motor case, and the motor shaft is manually rotated.

Operation

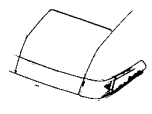
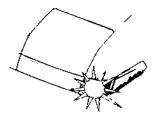
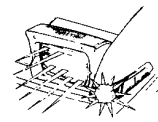
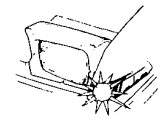
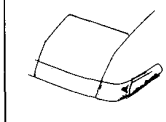
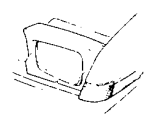
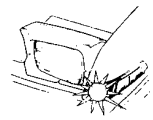
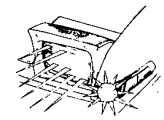
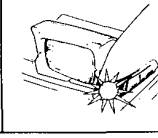
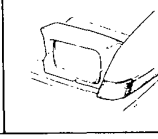
1. The retractor fuse on the undamaged side is removed from the passenger compartment fuse box.
2. Inside the engine compartment, the retractor motor shaft is removed, and the knob is rotated in the arrow direction (clockwise) indicated on the upper surface of the knob, thus moving the headlights to the fixed position (highest position or lowest position).



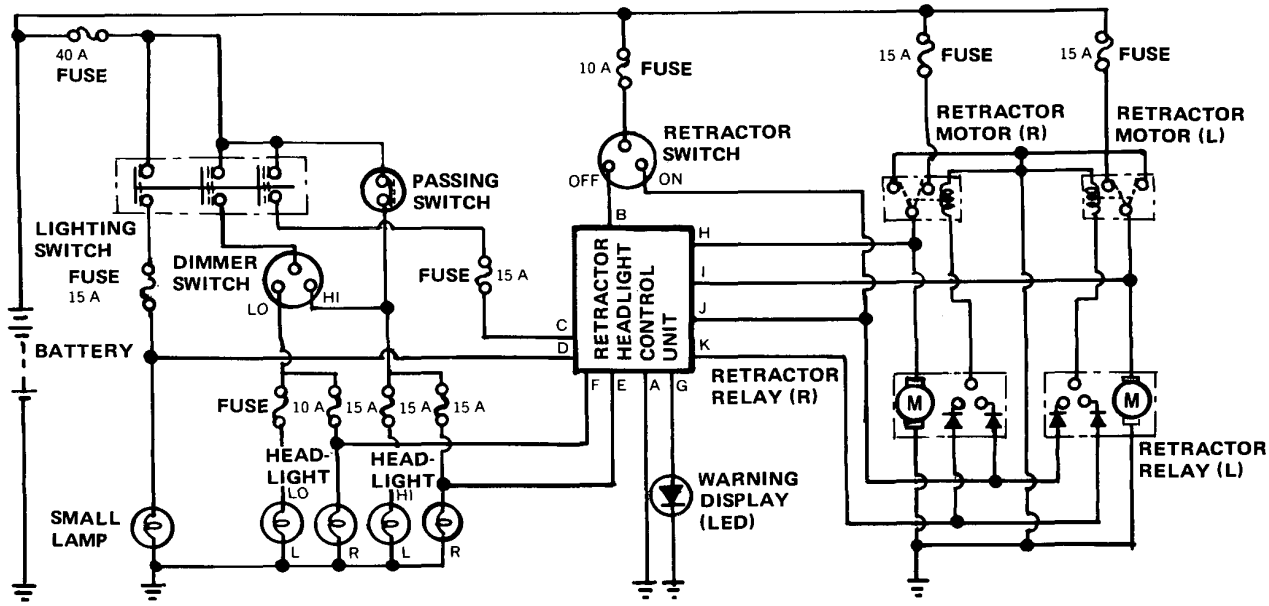


< Operation by retractor switch >

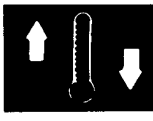
When the lighting switch is operated, the retractor control unit operates to automatically raise or lower the headlights. Lighting conditions produced by operation of the lighting switch are shown in the following table:

Switch Position		OFF ⟷ • ➡ ● ⟷ • ➡ OFF				
Name of lamps	Headlights	OFF	OFF	ON	OFF	OFF
	Side Lamp Tail Lamp Licence Lamp Instrument Panel Lamp	ON	ON	ON	ON	OFF
Light operation	Retractorable switch OFF					
	Retractorable switch ON					

Retractable Circuit Diagram



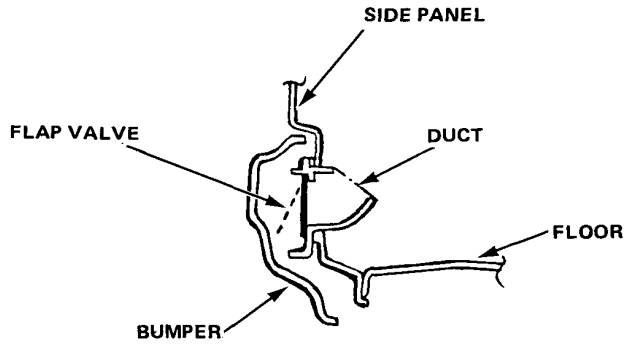
Heating and Air Conditioning

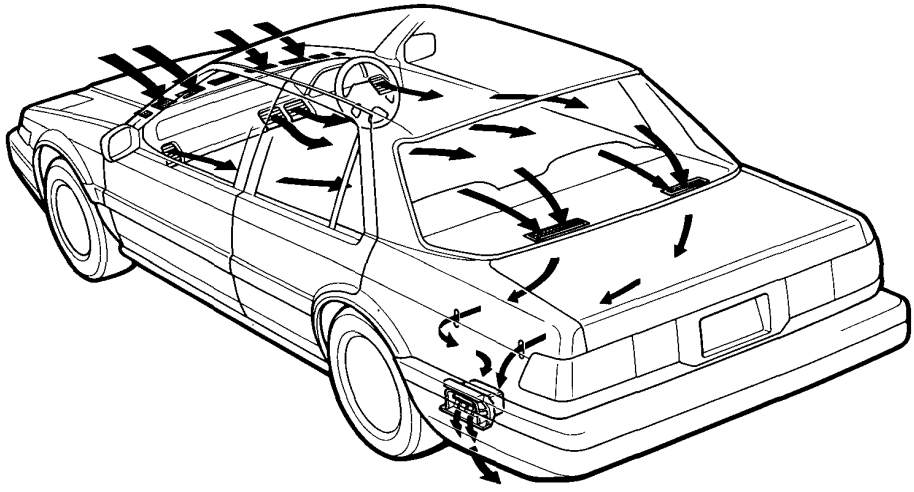


Heating and Air Conditioning

Ventilation Outlet (4D)

An outlet duct with a large discharge outlet is located on the left side of the trunk room behind the rear bumper for more complete discharge of stale air. The design also permits easy escape of the room air which is compressed when the door is closed. A flap valve in the duct prevents entry of dust, water and exhaust gases into the cabin. Virtually no wind noise can enter through the outlet because it is strategically located behind the rear bumper.





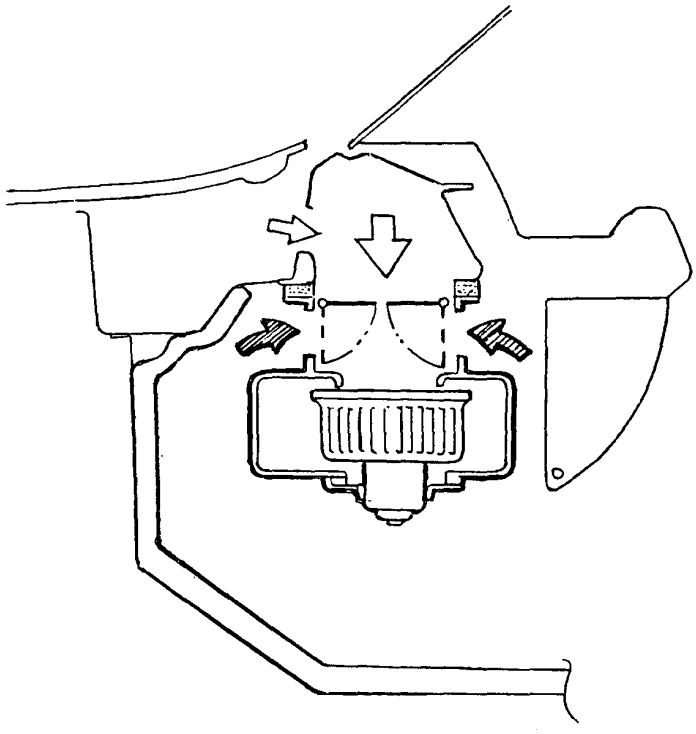
Heating and Air Conditioning

Heater Blower

The outside air door so far used has been replaced with a set of two air doors. Concurrently with this improvement, the blower motor has also been changed to a smaller unit.

Features

1. The new blower is capable of blowing more air through the larger discharge outlet.
2. One of the air door is open to the lower dashboard to reduce intake noise in recirculation.
3. As the overall height of the blower unit has been decreased, the leg room has increased accordingly.

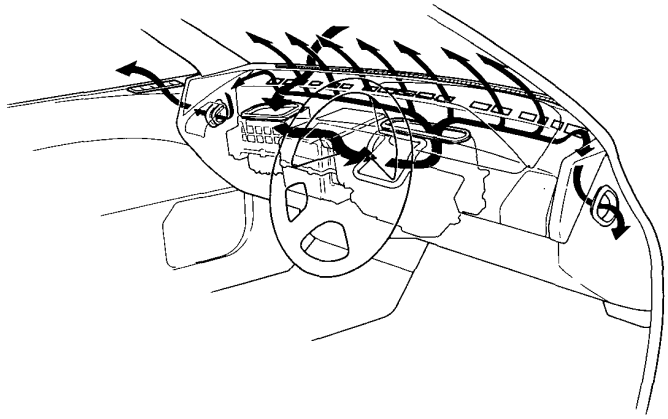


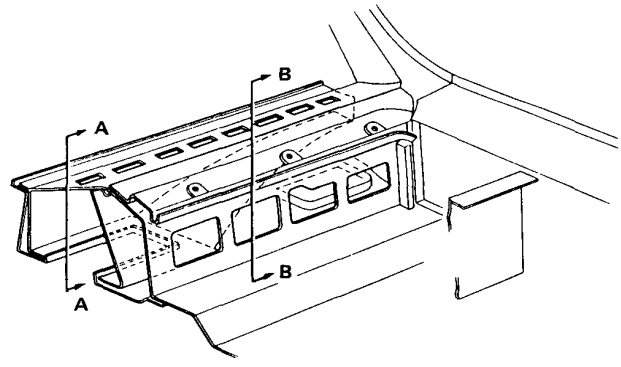
Upper Dashboard

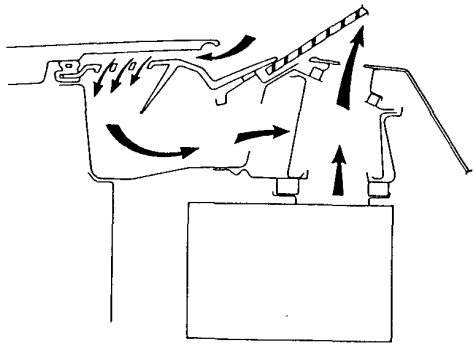
The ventilation duct is located in the instrument panel; the defroster duct serves as a cross member of the dashboard.

Features

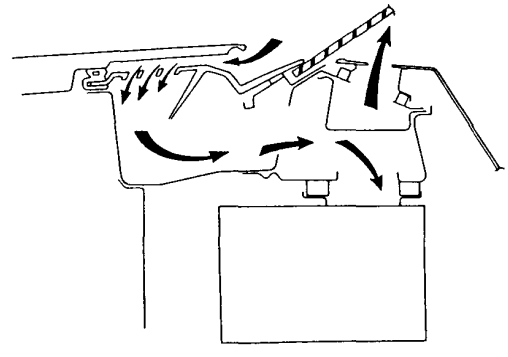
1. Shorter and lower front nose.
2. More cooled or hot air through larger discharge outlet.
3. Reinforced upper instrument panel.







(A–A SECTION)



(B–B SECTION)

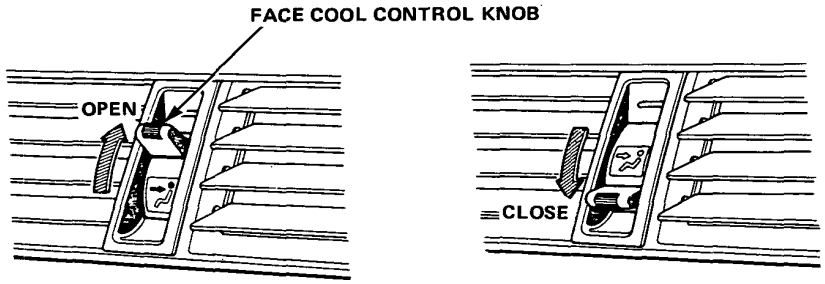
Heating and Air Conditioning

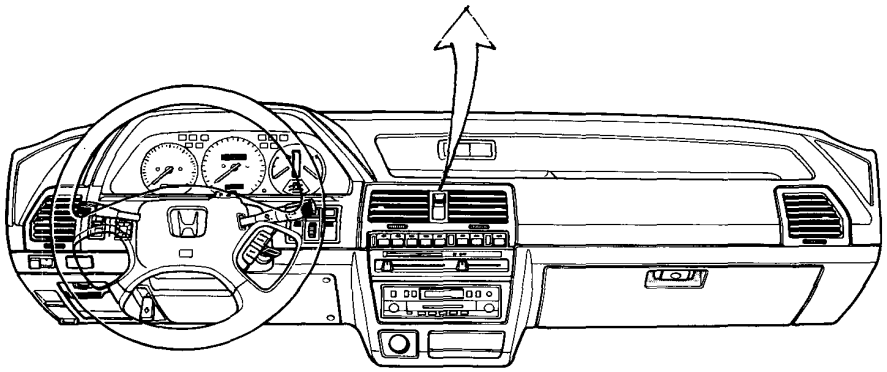
Face Cool Control

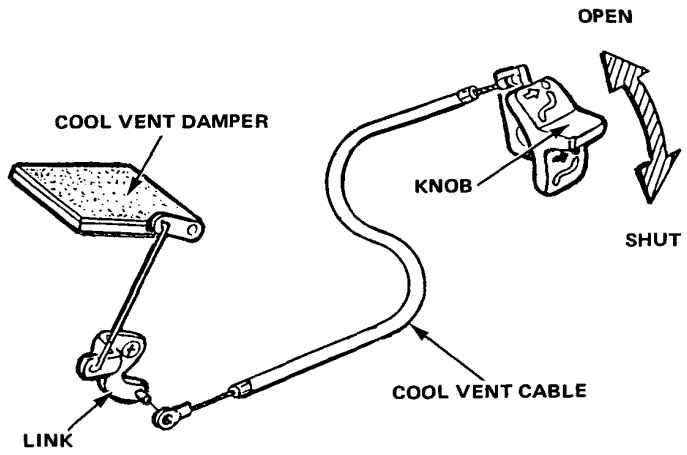
The "Mild Flow" ventilation system now features an independent temperature control for air blown through the upper vent in "BI-LEVEL" by adding a bypass duct and air damper.

Features

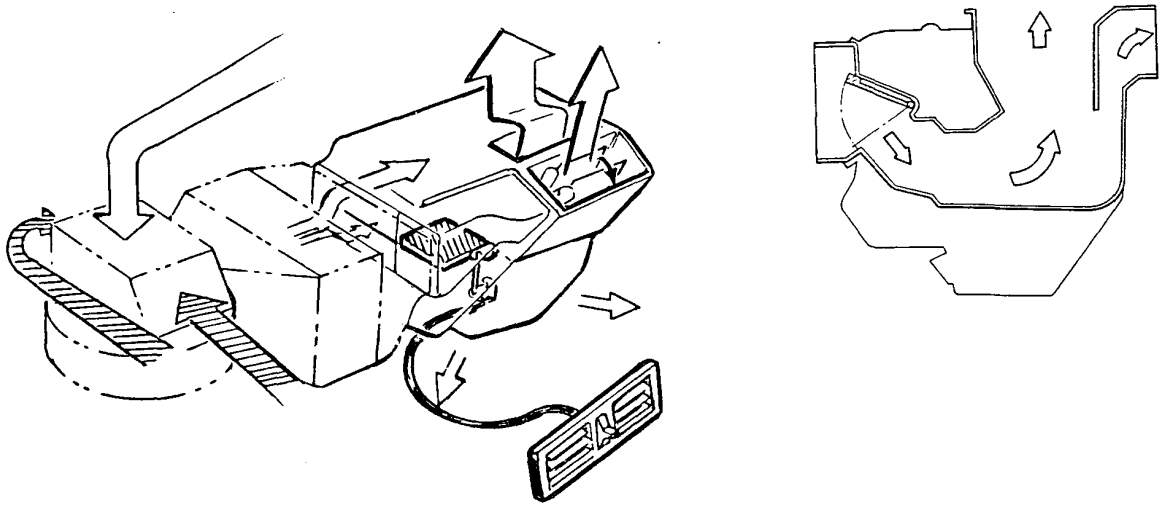
1. In BI-LEVEL, the temperatures of the airs blown through the upper and lower vents can be controlled separately.
2. In HEAT, cool air is obtained through the upper vent without lowering the temperature of the air blown through the lower vents.

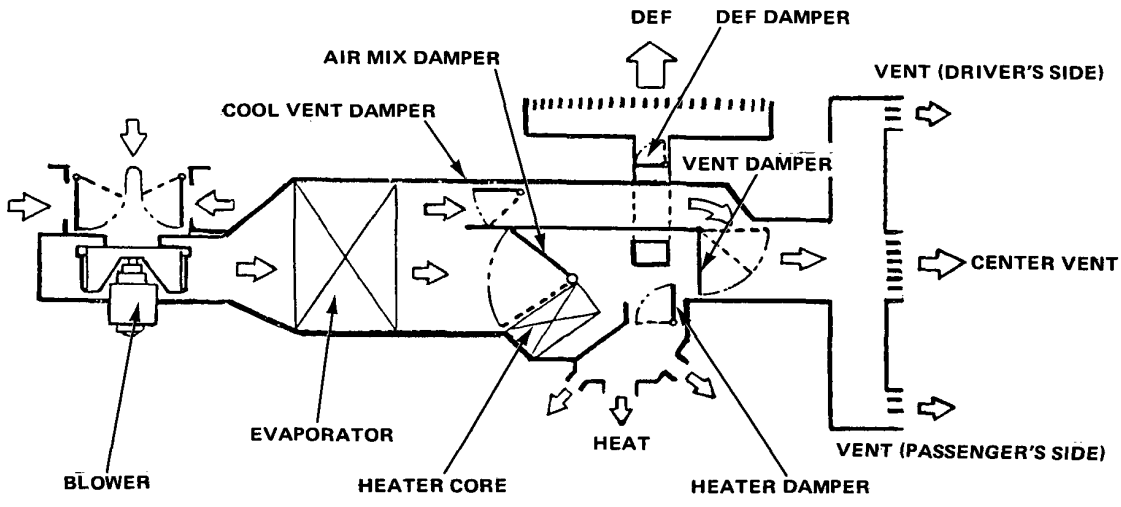






Construction

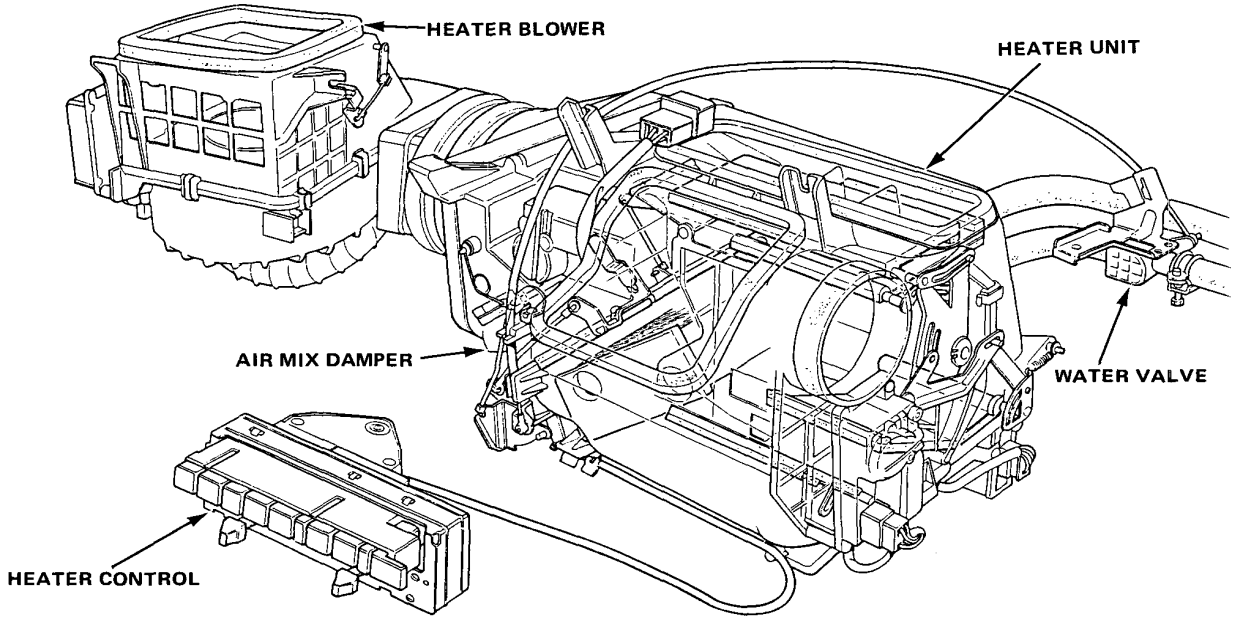


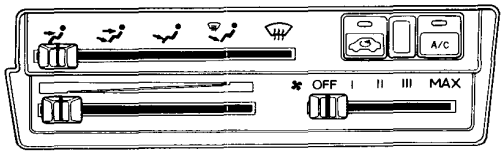


Heating and Air Conditioning

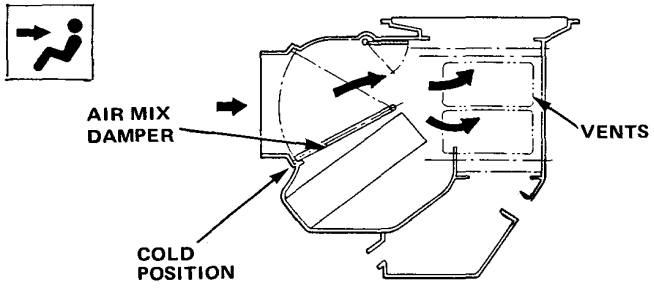
Heater Unit

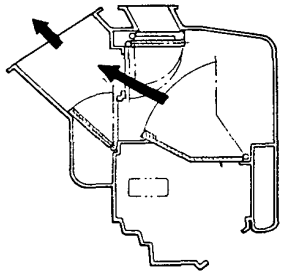
To change the modes, all air dampers except the air mix damper are activated. A lever control is used for 1.6ℓ Model, where as a push button type control is used for 2.0ℓ Model.



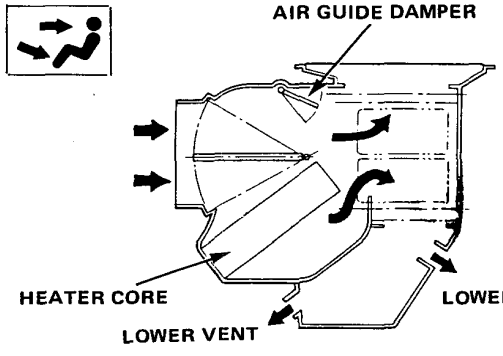


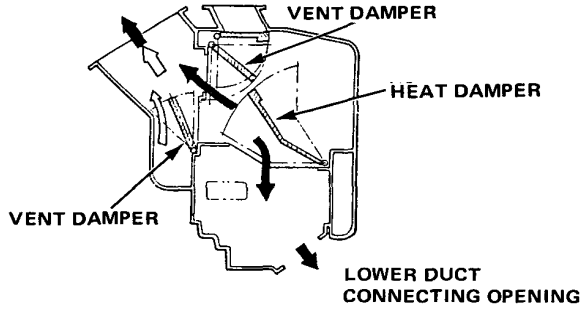
VENT IN INSTRUMENT PANEL

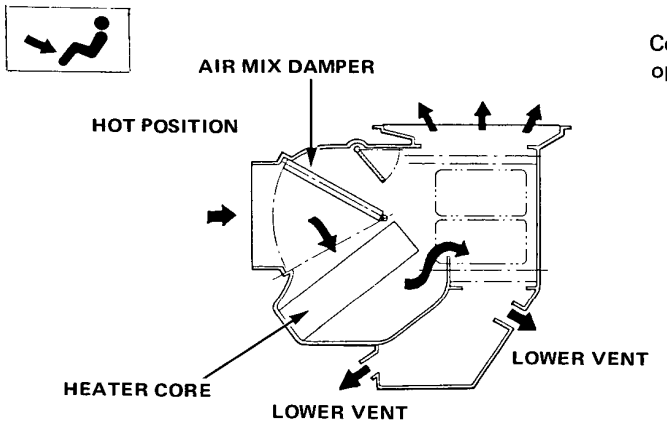




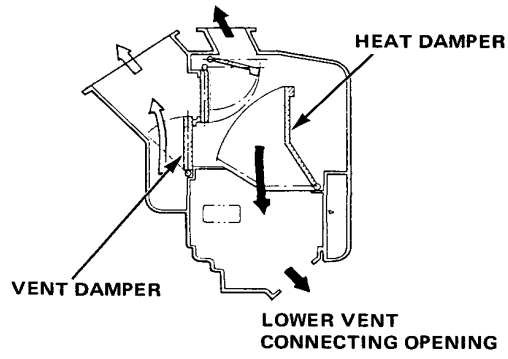
With Cool Vent open, hot air temperature is lowered.

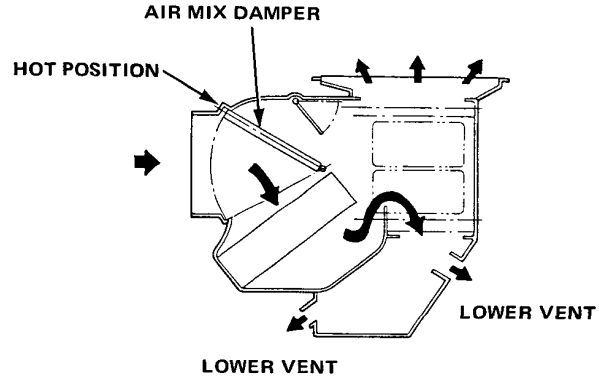


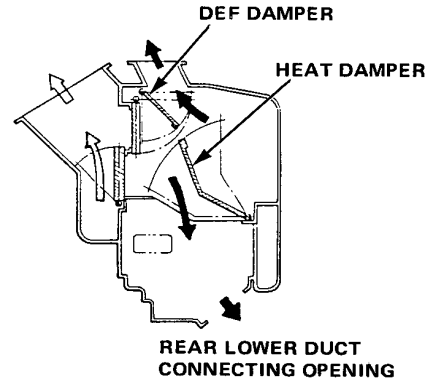


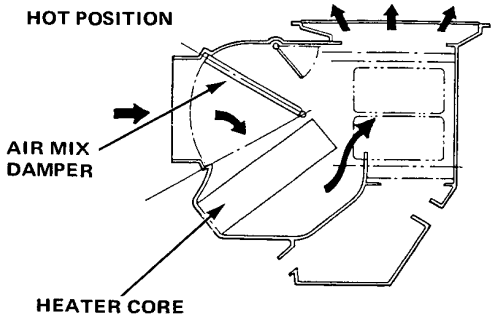


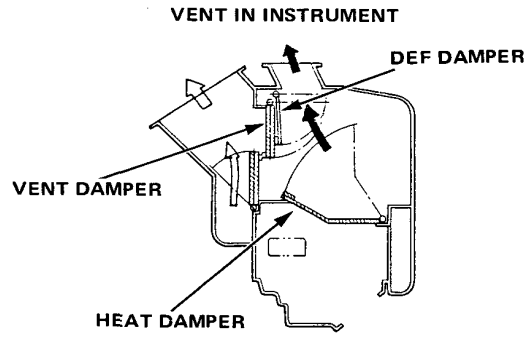
Cool air blown with cool vent open











Specification

ITEM		SPECIFICATION
Compressor	Maker	Nippon Denso
	Type	Swash plate type, 10 pistons
	Piston displacement	153 cm^3 (cc)/rev
Condenser	Maker	Modine
	Type	Corrugated fin type
	Size	649 (W) x 328 (H) x 23.8 (t)
Evaporator	Maker	Modine
	Type	Corrugated fin type
	Size	278 (W) x 188 (H) x 102 (t)
Blower	Type	Sirocco fan
	Speed control	Infinitely variable
	Max. capacity	420 m^3/h
Compressor Belt	Type	Poli-V delt drive
Cooling Capacity		3,250 kcal/h

Air Conditioner with Mode Control