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## S SPECIFICATIONS

## I-DOOR SEDAN

ITEM	MODEL	FWD			AWD				
		L		LS	L		LS	TURBO	
		5MT*1	4AT*1	4AT*2	5MT*3*5	4AT*4*5	4AT*2	5MT*2	4AT*2

## 1. DIMENSIONS

Overall length	mm (in)	4,545 (178.9)							
Overall width	mm (in)	1,690 (66.5)							
Overall height	mm (in)	1,360 (53.5)							
Compart-ment	Leg room	Front Max.	mm (in)	1,095 (43.1)					
		Rear Min.	mm (in)	885 (34.8)					
	Head room	Front	mm (in)	965 (38.0)	925 (36.4)	965 (38.0)	925 (36.4)	925 (36.4)	965 (38.0)
		Rear	mm (in)	915 (36.0)	910 (35.8)	910 (35.8)	910 (35.8)	910 (35.8)	915 (36.0)
	Shoulder room	Front	mm (in)	1,375 (54.1)					
		Rear	mm (in)	1,365 (53.7)					
Wheelbase	mm (in)	2,580 (101.6)		1,460 (57.5)		1,465 (57.7)			
Tread	Front	mm (in)	1,465 (57.7)		1,460 (57.5)		1,465 (57.7)		
	Rear	mm (in)	1,450 (57.1)						
Minimum road clearance	mm (in)	140 (5.5)			120 (4.7)				

## 2. WEIGHT

Curb weight (C.W.)	Front	kg (lb)	705 (1,555) 695 (1,535)*1	745 (1,640) 735 (1,620)*1	795 (1,745) 785 (1,725)*1	755 (1,665) 715 (1,580)*5	780 (1,725) 745 (1,640)*5	800 (1,775) 795 (1,755)*1	805 (1,780) 800 (1,760)*1	840 (1,855) 830 (1,835)*1
	Rear	kg (lb)	540 (1,185) 530 (1,170)*1	545 (1,200) 540 (1,185)*1	565 (1,250) 560 (1,235)*1	600 (1,320) 595 (1,310)*5	605 (1,330) 600 (1,320)*5	625 (1,380) 620 (1,365)*1	615 (1,360) 610 (1,345)*1	620 (1,365) 615 (1,350)*1
	Total	kg (lb)	1,245 (2,740) 1,225 (2,705)*1	1,290 (2,840) 1,275 (2,805)*1	1,360 (2,995) 1,345 (2,960)*1	1,355 (2,985) 1,310 (2,890)*5	1,385 (3,055) 1,345 (2,960)*5	1,430 (3,155) 1,415 (3,120)*1	1,425 (3,140) 1,410 (3,105)*1	1,460 (3,220) 1,445 (3,185)*1
Gross vehicle weight (G.V.W.)	Front	kg (lb)	940 (2,065)			950 (2,095)				
	Rear	kg (lb)	845 (1,865)			915 (2,015)				
	Total	kg (lb)	1,785 (3,930)			1,865 (4,110)				

\*1: Models for Canada

\*2: The weight of the power door lock, power window, air conditioner, cruise control, ABS, cassette player and sunroof are included in the C.W.

\*3: The weight of the power door lock, power window, air conditioner, cruise control and cassette player are included in the C.W.

\*4: The weight of the power door lock, power window and air conditioner are included in the C.W.

\*5: Models for Canada, the weight of the power door lock and power window are included in the C.W.

NOTE: When optional parts are installed, the weight indicated in the following table is added to Curb weight.

	Power door lock and power window	Air conditioner	Cruise control and cassette player	ABS	Sunroof	AIRBAG	
Front	kg (lb)	0 (0)	25 (55)	5 (10)	14 (30)	9 (20)	5 (10)
Rear	kg (lb)	2 (5)	- 2 (- 5)	0 (0)	0 (0)	14 (30)	2 (5)
Total	kg (lb)	2 (5)	23 (50)	5 (10)	14 (30)	23 (50)	7 (15)

# SPECIFICATIONS

[S0A5] 1-1

MODEL	FWD			AWD				
	L		LS	L		LS	TURBO	
	5MT	4AT	4AT	5MT	4AT	4AT	5MT	4AT

### 3. ENGINE

Engine type	Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine							
Valve arrangement	Overhead camshaft type							
Bore × Stroke	96.9 × 75 (3.815 × 2.95)							
Displacement	2,212 (134.98)							
Compression ratio	9.5						8.0	
Firing order	1—3—2—4							
Idling speed at N or P position	700 ± 100 (No load) 850 ± 50 (Air conditioner ON)							
Maximum output	130 at 5,400						160 at 5,600	
Maximum torque	186 (19.0, 137) at 4,400						245 (25.0, 181) at 2,800	

### 4. ELECTRICAL

Ignition timing at idling speed		20° at 700		15° at 700	
		BTDC/rpm			
Spark plug	Type and manufacturer	NGK: BKR6E-11 NIPPONDENSO: K20EPR-V11 CHAMPION: RC7YC-4			
Alternator		12 V — 70 A			
Battery	Type	5MT: 55D23L-MF/4AT: 75D23L-MF			
	Reserve capacity	min.		5MT: 99/4AT: 111	
	Cold cranking amperes	amp.		5MT: 356/4AT: 490	

### 5. TRANSMISSION

Clutch type		DSPD	TC	TC	DSPD	TC	TC	DSPD	TC
Transmission type		*6	*7	*7	*8	*9	*9	*8	*9
Gear ratio	1st	3.545	2.785	2.785	3.545	3.027	3.027	3.545	2.785
	2nd	1.947	1.545	1.545	1.947	1.619	1.619	1.947	1.545
	3rd	1.366	1.000	1.000	1.366	1.000	1.000	1.366	1.000
	4th	0.972	0.694	0.694	0.972	0.694	0.694	0.972	0.694
	5th	0.738	—	—	0.783	—	—	0.783	—
	Reverse	3.416	2.272	2.272	3.416	2.272	2.272	3.416	2.272
Reduction gear (Front drive)	1st reduction	Type of gear	—		Helical	Helical	—	Helical	Helical
		Gear ratio	—		1.000	1.000	—	1.000	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	3.700	3.700	3.700	4.111	3.900	3.900	3.900
Reduction gear (Rear drive)	Transfer reduction	Type of gear	—		Helical	—	—	Helical	—
		Gear ratio	—		1.000	—	—	1.000	—
	Final reduction	Type of gear	—		Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
		Gear ratio	—		4.111	3.900	3.900	3.900	3.900

DSPD: Dry Single Plate Diaphragm

TC: Torque Converter

\*6: 5-forward speeds with synchromesh and 1-reverse

\*7: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse

\*8: 5-forward speeds with synchromesh and 1-reverse — with center differential and viscous coupling

\*9: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse — with hydraulically controlled transfer clutch

# SPECIFICATIONS

[S0A6]

MODEL	FWD				L		AWD	TURBO	
	L		LS			LS			
	5MT	4AT	4AT	5MT	4AT	4AT	5MT	4AT	

## STEERING

Type	Rack and pinion
Turns, lock to lock	3.3
Minimum turning circle m (ft)	Wall to wall ... 11.0 (36.1) Curb to curb ... 10.2 (33.5)

## SUSPENSION

Front	Macpherson strut type, Independent, Coil spring
Rear	Dual link strut type, Independent, Coil spring

## 8. BRAKE

Service brake system	Dual circuit hydraulic with vacuum suspended power unit	
Front	Ventilated disc brake	Ventilated disc brake
Rear	Disc brake	
Parking brake	Mechanical on rear brakes	

## 9. TIRE

Size	P185/70R14 87H
Type	Steel belted radial, Tubeless

## 10. CAPACITY

Fuel tank	ℓ (US gal, Imp gal)		60 (15.9, 13.2)							
Engine oil	Upper level	ℓ (US qt, Imp qt)		4.5 (4.8, 4.0)						
	Lower level	ℓ (US qt, Imp qt)		3.5 (3.7, 3.1)						
Transmission gear oil	ℓ (US qt, Imp qt)		3.3 (3.5, 2.9)	—	—	3.5 (3.7, 3.1)	—	—	3.5 (3.7, 3.1)	—
Automatic transmission fluid	ℓ (US qt, Imp qt)		—	8.3 (8.8, 7.3)	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)
AT differential gear oil	ℓ (US qt, Imp qt)		—	1.2 (1.3, 1.1)	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
AWD rear differential gear oil	ℓ (US qt, Imp qt)		—			0.8 (0.8, 0.7)				
Power steering fluid	ℓ (US qt, Imp qt)		0.7 (0.7, 0.6)							7.0 (7.4, 6.2)
Engine coolant	ℓ (US qt, Imp qt)		5.9 (6.2, 5.2)							—

**B: STATION WAGON**

ITEM	MODEL	FWD			AWD		
		L		LS	L		LS
		5MT	4AT	4AT*2	5MT	4AT	4AT*2

**1. DIMENSIONS**

Overall length	mm (in)	4,620 (181.9)					
Overall width	mm (in)	1,690 (66.5)					1,430 (56.3)
Overall height	mm (in)	1,390 (54.7)					
Compart-ment	Leg room	Front Max. mm (in)	1,095 (43.1)				
		Rear Min. mm (in)	890 (35.0)				
	Head room	Front mm (in)	975 (38.4)	940 (37.0)	975 (38.4)		940 (37.0)
		Rear mm (in)	960 (37.8)	925 (36.4)	960 (37.8)		925 (36.4)
	Shoulder room	Front mm (in)	1,375 (54.1)				
		Rear mm (in)	1,365 (53.7)				
Cargo space	Length	with 2 seats mm (in)	1,685 (66.3)				
		with 5 seats mm (in)	860 (33.9)				
	Width	with 2 seats mm (in)	1,365 (53.7)				
		with 5 seats mm (in)	1,365 (53.7)				
	Height	mm (in)	875 (34.4)				
	Wheelbase	mm (in)	2,580 (101.6)			1,460 (57.5)	
Tread	Front mm (in)	1,465 (57.7)			1,450 (57.1)		1,455 (57.3)
	Rear mm (in)	1,450 (57.1)			155 (6.1)		165 (6.5)
Minimum road clearance	mm (in)	135 (5.3)			155 (6.1)		165 (6.5)

**2. WEIGHT**

Curb weight (C.W.)	Front kg (lb)	695 (1,535) 690 (1,515)*1	735 (1,620) 725 (1,600)*1	785 (1,725) 775 (1,705)*4	715 (1,580) 690 (1,515)*1	750 (1,650) 740 (1,630)*1	805 (1,770) 795 (1,750)*4
	Rear kg (lb)	600 (1,325) 595 (1,315)*1	610 (1,340) 605 (1,330)*1	620 (1,370) 615 (1,355)*4	665 (1,460) 595 (1,315)*1	665 (1,470) 660 (1,460)*1	680 (1,505) 675 (1,490)*4
	Total kg (lb)	1,295 (2,860) 1,285 (2,830)*1	1,345 (2,960) 1,330 (2,930)*1	1,405 (3,095) 1,390 (3,060)*4	1,380 (3,040) 1,285 (2,830)*1	1,415 (3,120) 1,400 (3,090)*1	1,485 (3,275) 1,470 (3,240)*4
Gross vehicle weight (G.V.W.)	Front kg (lb)	915 (2,015)			935 (2,065)		
	Rear kg (lb)	960 (2,115)			990 (2,180)		
	Total kg (lb)	1,875 (4,130)			1,925 (4,245)		

- \*1: Models for Canada, the weight of the power door lock and power window are included in the C.W.
- \*2: The weight of the power door lock, power window, air conditioner, cruise control, ABS, cassette player and sunroof are included in the C.W.
- \*3: The weight of the power window is included in the C.W.
- \*4: Models for Canada

NOTE: When optional parts are installed, the weight indicated in the following table is added to Curb weight.

	Power door lock and power window	Air conditioner	Cruise control and cassette player	ABS	Sunroof	AIRBAG
Front kg (lb)	0 (0)	25 (55)	5 (10)	14 (30)	9 (20)	5 (10)
Rear kg (lb)	2 (5)	- 2 (- 5)	0 (0)	0 (0)	14 (30)	2 (5)
Total kg (lb)	2 (5)	23 (50)	5 (10)	14 (30)	23 (50)	7 (15)

# SPECIFICATIONS

50B3]

MODEL	FWD			AWD	
	L		LS	L	LS
	5MT	4AT	4AT	5MT	4AT

<b>ENGINE</b>		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
Engine type	Overhead camshaft type		
Cylinder arrangement	96.9 × 75 (3.815 × 2.95)		
Bore × Stroke	mm (in)	2,212 (134.98)	
Displacement	cm <sup>3</sup> (cu in)	9.5	
Compression ratio	1—3—2—4		
Ignition order	700 ± 100 (No load) 850 ± 50 (Air conditioner ON)		
Idle speed at N or P position	rpm	130 at 5,400	
Maximum output	kW (PS)/rpm	186 (19.0, 137) at 4,400	
Maximum torque	N·m (kg-m, ft-lb)/rpm		

<b>ELECTRICAL</b>		20° at 700	
Ignition timing at idling speed	BTDC/rpm	NGK: BKR6E-11 NIPPONDENSO: K20EPR-V11 CHAMPION: RC7YC-4	
Spark plug	Type and manufacturer	12 V — 70 A	
Alternator		5MT: 55D23L-MF/4AT: 75D23L-MF	
Battery	Type	5MT: 99/4AT: 111	
	Reserve capacity	min.	5MT: 356/4AT: 490
	Cold cranking amperes	amp.	

<b>TRANSMISSION</b>			DSPD	TC	TC	DSPD	TC	TC
Clutch type				*5	*6	*7	*8	*8
Transmission type				3.545	2.785	3.545	3.027	3.027
Gear ratio	1st		1.947	1.545	2.785	1.947	1.619	1.619
	2nd		1.366	1.000	1.545	1.366	1.000	1.000
	3rd		0.972	0.694	1.000	0.972	0.694	0.694
	4th		0.738	—	—	0.783	—	—
	5th		3.416	2.272	2.272	3.416	2.272	2.272
	Reverse		—	Helical	Helical	—	Helical	Helical
Reduction gear (Front drive)	1st reduction	Type of gear	—	1.000	1.000	—	1.000	1.000
		Gear ratio	—	Hypoid	Hypoid	Hypoid	Hypoid	Hypoid
	Final reduction	Type of gear	Hypoid	3.700	3.700	4.111	3.900	3.900
		Gear ratio	3.700	—	—	Helical	—	—
Reduction gear (Rear drive)	Transfer reduction	Type of gear	—	—	—	1.000	—	—
		Gear ratio	—	—	—	Hypoid	Hypoid	Hypoid
	Final reduction	Type of gear	—	—	—	4.111	3.900	3.900
		Gear ratio	—	—	—	—	—	—

DSPD: Dry Single Plate Diaphragm  
 TC: Torque Converter  
 \*5: 5-forward speeds with synchromesh and 1-reverse  
 \*6: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse  
 \*7: 5-forward speeds with synchromesh and 1-reverse — with center differential and viscous coupling  
 \*8: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse — with hydraulically controlled transfer clutch

# SPECIFICATIONS

[S0B10] 1-1

ITEM	MODEL	FWD			AWD		
		L		LS	L		LS
		5MT	4AT	4AT	5MT	4AT	4AT

## 6. STEERING

Type	Rack and pinion
Turns, lock to lock	3.3
Minimum turning circle m (ft)	Wall to wall ... 11.0 (36.1) Curb to curb ... 10.2 (33.5)

## 7. SUSPENSION

Front	Macpherson strut type, Independent	
	Coil spring	*9
Rear	Dual link strut type, Independent	
	Coil spring	*9

## 8. BRAKE

Service brake system	Dual circuit hydraulic with vacuum suspended power unit
Front	Ventilated disc brake
Rear	Disc brake
Parking brake	Mechanical on rear brakes

## 9. TIRE

Size	P185/70R14 87H
Type	Steel belted radial, Tubeless

## 10. CAPACITY

Fuel tank	ℓ (US gal, Imp gal)	60 (15.9, 13.2)				
Engine oil	Upper level ℓ (US qt, Imp qt)	4.5 (4.8, 4.0)				
	Lower level ℓ (US qt, Imp qt)	3.5 (3.7, 3.1)				
Transmission gear oil	ℓ (US qt, Imp qt)	3.3" (3.5, 2.9)	—	—	3.5 (3.7, 3.1)	—
Automatic transmission fluid	ℓ (US qt, Imp qt)	—	8.3 (8.8, 7.3)	8.3 (8.8, 7.3)	—	8.3 (8.8, 7.3)
AT differential gear oil	ℓ (US qt, Imp qt)	—	1.2 (1.3, 1.1)	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
AWD rear differential gear oil	ℓ (US qt, Imp qt)	—			0.8 (0.8, 0.7)	
Power steering fluid	ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)				
Engine coolant	ℓ (US qt, Imp qt)	5.9 (6.2, 5.2)				

\*9: Pneumatic suspension with height control

**SUBARU®**  
**1992**  
**SERVICE MANUAL**

**FOREWORD**

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU LEGACY.

This manual includes the procedures for maintenance disassembling, reassembling, inspection and adjustment of components and troubleshooting for guidance of both the fully qualified and the less-experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FUJI HEAVY INDUSTRIES LTD.

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**2 ENGINE SECTION**

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**3 TRANSMISSION AND DIFFERENTIAL SECTION**

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## IMPORTANT SAFETY NOTICE

Providing appropriate service and repair is a matter of great importance in the serviceman's safety maintenance and safe operation, function and performance which the SUBARU vehicle possesses.

In case the replacement of parts or replenishment of consumables is required, genuine SUBARU parts whose parts numbers are designated or their equivalents must be utilized.

It must be made well known that the safety of the serviceman and the safe operation of the vehicle would be jeopardized if he used any service parts, consumables, special tools and work procedure manuals which are not approved or designated by SUBARU.

## How to use this manual

### 1. GENERAL

- This Service Manual is divided into six volumes by section so that it can be used with ease at work. Refer to the Table of Contents, select and use the necessary section.
- Each chapter in the manual is basically made of the following five types of areas.

M : Mechanism and function  
S : Specification and service data  
C : Component parts  
W : Service procedure  
(X : Service procedure)  
(Y : Service procedure)  
T : Troubleshooting

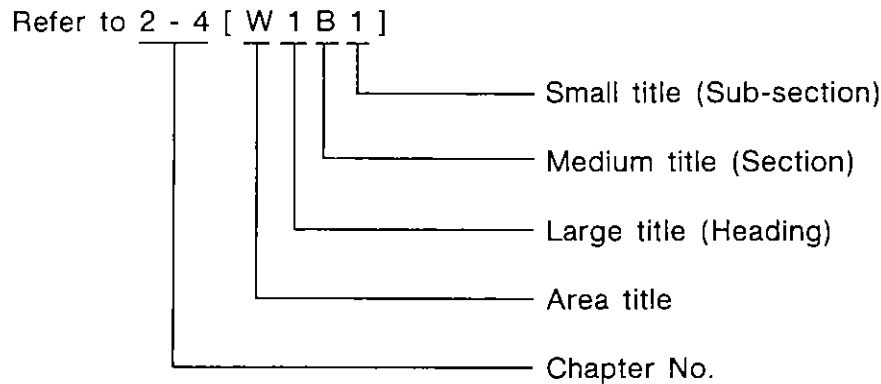
- The description of each area is provided with four types of titles different in size as shown below. The Title No. or Symbol prefixes each title in order that the construction of the article and the flow of explanation can be easily understood.

[Example of each title]

- Area title: W. SERVICE PROCEDURE (one of the five types of areas)
- Large title (Heading): 1. Oil Pump (to denote the main item of explanation)
- Medium title (Section): A. REMOVAL (to denote the type of work in principle)
- Small title (Sub-section): 1. INNER ROTATOR (to denote a derivative item of explanation)

- The Title Index No. is indicated on the top left (or right) side of the page as the book is opened. This is useful for retrieving the necessary portion.

(Example of usage)



Example of title placement

2-10 [W 1 A 0] CLUTCH

---

**W SERVICE PROCEDURE**

**1.General**

**A: PRECAUTION**

When servicing clutch system, pay attention to the following items.

- 1) Check the routing of clutch cable for smoothness.
- 2) Excessive tightness or looseness of clutch cable have a bad influence upon the cable durability.
- 3) Apply grease sufficiently to the connecting portion of clutch pedal.
- 4) Apply grease sufficiently to the release lever portion.
- 5) Position clutch cable through the center of toeboard hole

Adjustment is done by

**2.RELEASE LEVER**

Check lever pivot portion and the point of contact with holder for wear.

**2.Release Bearing and Lever**

**A: REMOVAL**

2) Seal

- In this manual, the following symbols are used.

: Should be lubricated with oil.

: Should be lubricated with grease.

: Sealing point

: Tightening torque

**SUBARU®**

**1992**

**SERVICE  
MANUAL**

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# 1. System Application

There are three emission control systems which are as follows:

- 1) Crankcase emission control system
- 2) Exhaust emission control system

- Three-way catalyst system
  - A/F control system
  - Ignition control system
- 3) Evaporative emission control system

Item		Main components	Function
Crankcase emission control system		PCV valve	Draws blow-by gas into intake manifold from crankcase and burns it together with air-fuel mixture. Amount of blow-by gas to be drawn in is controlled by intake manifold vacuum pressure.
Exhaust emission control system	Catalyst system	Front	Three-way catalyst Oxidizes HC and CO contained in exhaust gases as well as reducing NOx.
		Rear	
	A/F control system	ECU (Electronic Control Unit)	Receives input signals from various sensors, compares these signals with stored data, and emits a signal for optimal control of air-fuel mixture ratio.
		O <sub>2</sub> sensor	Detects density of oxygen contained in exhaust gases.
		Air flow sensor	Detects amount of intake air.
		Throttle sensor	Detects throttle valve position and idle-position signal.
	Ignition control system	ECU	Receives various signals, compares these signals with basic data stored in memory, and emits a signal for optimal control of ignition timing.
		Crank angle sensor	Detects engine's revolution speed.
		Cam angle sensor	Detects reference signal for combustion cylinder discrimination.
		Water temperature sensor	Emits a coolant temperature signal.
		Knock sensor	Detects a knock signal and sends to ECU.
Evaporative emission control system		Canister	Adsorbs evaporative gas which occurs in fuel tank when engine stops, and sends it to combustion chambers for a complete burn when engine is started. This prevents HC from being discharged into atmosphere.
		Purge control solenoid valve	Receives a signal from ECU and controls purge of evaporative gas adsorbed by canister.

## 2. Schematic Drawing

### 1. MPFI Non-TURBO model

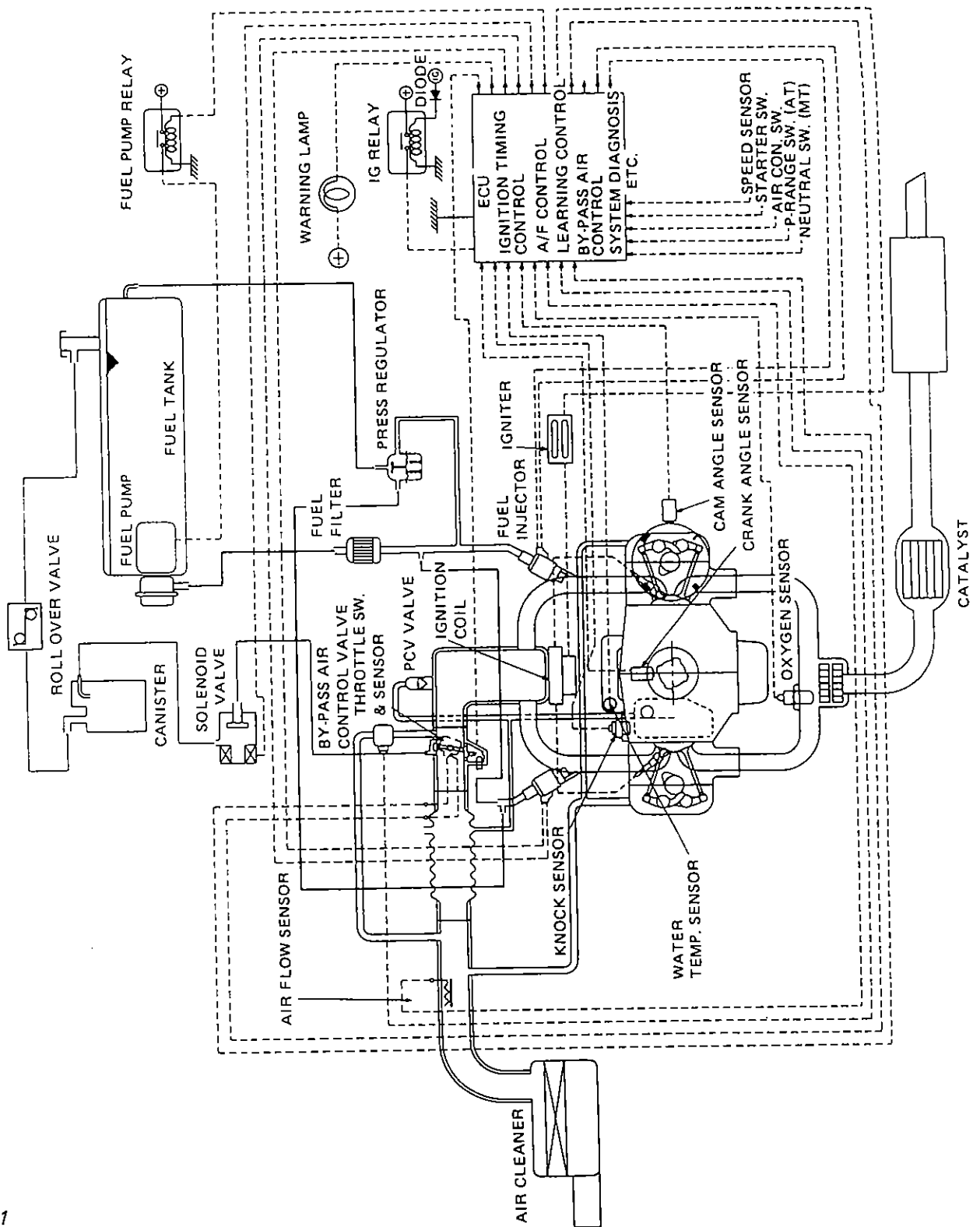


Fig. 1

2. MPFI TURBO model

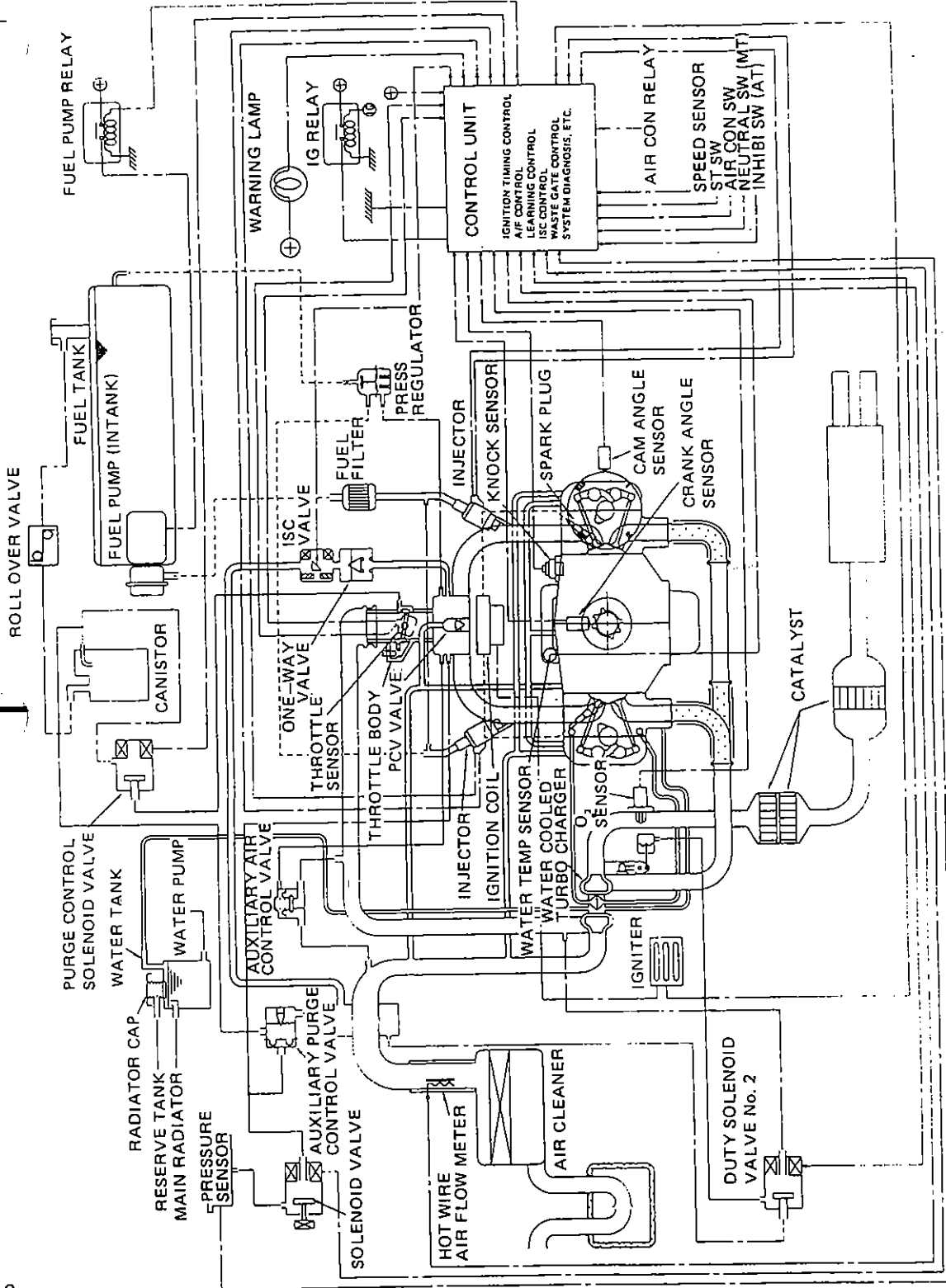


Fig. 2

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### 3. General Precautions

1) Know the importance of periodic maintenance services.

(1) Every service item in the periodic maintenance schedule must be performed.

(2) Failing to do even one item can cause the engine to run poorly and increase exhaust emissions.

2) Determine if you have an engine or emission system problem.

(1) Engine problems are usually not caused by the emission control systems.

(2) When troubleshooting, always check the engine and the MPFI system first.

3) Check hose and wiring connections first.

The most frequent cause of problems is simply a bad connection in the wiring or vacuum hoses. Always make sure that connections are secure and correct.

4) Avoid coasting with the ignition turned off and prolonged engine braking.

5) Do not damage parts.

(1) To disconnect vacuum hoses, pull on the end, not the middle of the hose.

(2) To pull apart electrical connectors, pull on the connector itself, not the wire.

(3) Be careful not to drop electrical parts, such as sensors, or relays.

If they are dropped on a hard floor, they should be replaced and not reused.

(4) When checking continuity at the wire connector, the test bar should be inserted carefully to prevent terminals from bending.

6) Use SUBARU genuine parts.

7) Record how hoses are connected before disconnecting.

(1) When disconnecting vacuum hoses, use tags to identify how they should be reconnected.

(2) After completing a job, double check to see that the vacuum hoses are properly connected. See the "Vacuum connections label" under the hood.

# 4. Crankcase Emission Control System

## A: DESCRIPTION

The positive crankcase ventilation (PCV) system is employed to prevent air pollution which will be caused by blow-by gas being emitted from the crankcase.

The system consists of a sealed oil filler cap, rocker covers with fresh air inlet, connecting hoses, PCV valve and an air intake duct.

At the part throttle, the blow-by gas in the crankcase flows into the intake manifold through the connecting hose of crank case and PCV valve by the strong vacuum of the intake manifold. Under this condition, the fresh air is introduced into the crankcase through connecting hose of rocker cover.

At wide open throttle, a part of blow-by gas flows into the air intake duct through the connecting hose and is drawn to the throttle chamber, because under this condition, the intake manifold vacuum is not so strong as to introduce all blow-by gases increasing with engine speed directly through the PCV valve.

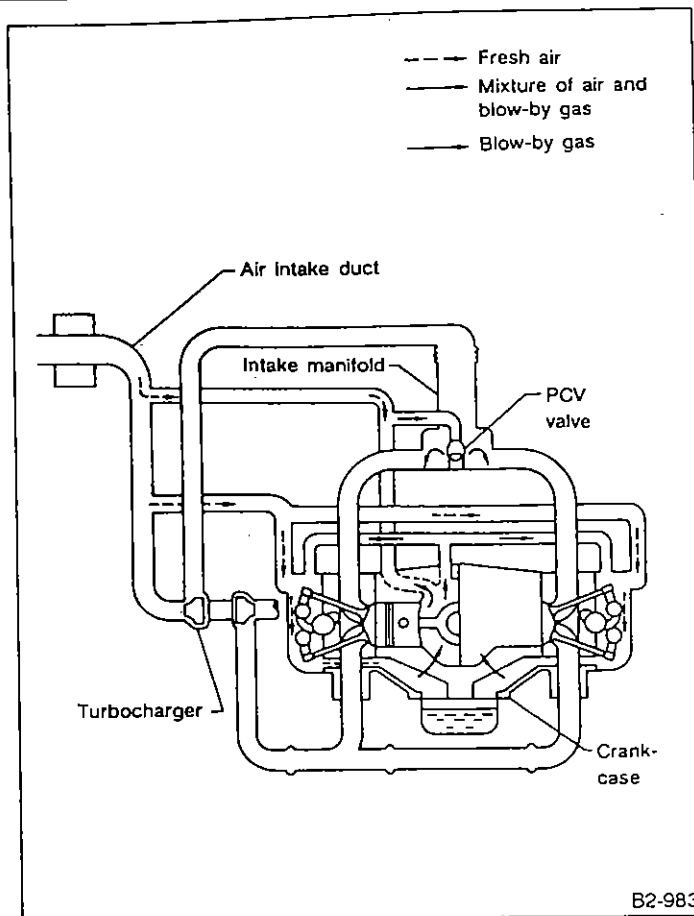


Fig. 4 Turbo model

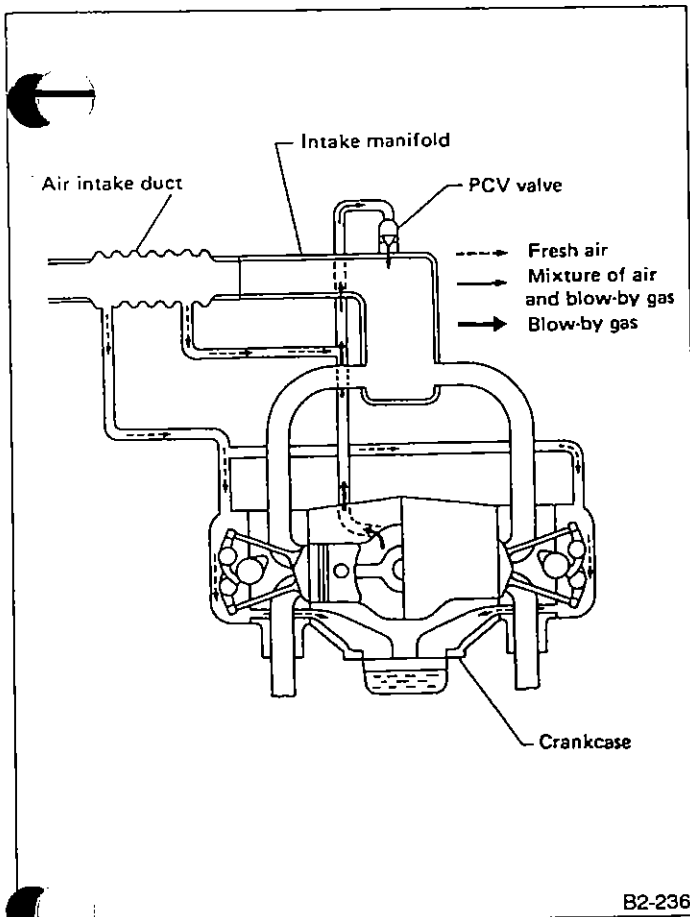


Fig. 3 Non-Turbo model



**B: INSPECTION**

- 1) Check the positive crankcase ventilation hoses and connections for leaks and clogging. The hoses may be cleared with compressed air.
- 2) Check the oil filler cap to insure that the gasket is not damaged and the cap fits firmly on the filler cap end.
- 3) Check the PCV valve as the following procedure.
  - (1) Disconnect the hose from the PCV valve.
  - (2) With a finger attaching top of the valve, then lightly open and close the throttle valve (increase and decrease the engine speed a little).
  - (3) The valve is in good condition if a vacuum is felt by the finger. If not, replace the valve.
  - (4) The valve alone may be checked by shaking it. It is normal when you hear it move. Replace it if it fails to move.

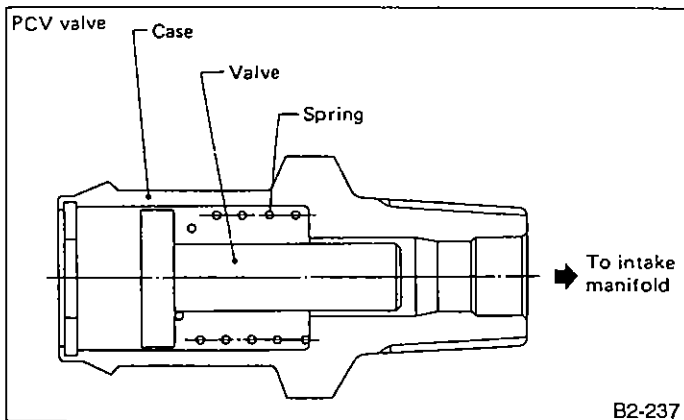


Fig. 5

**5. Three-way Catalyst**

The basic material of three-way catalyst is platinum (Pt) and rhodium (Rh), and a thin film of their mixture is applied onto honeycomb or porous ceramics of an oval shape (carrier). To avoid damaging the catalyst, only unleaded gasoline should be used.

The catalyst is used to reduce HC, CO and NO<sub>x</sub> in exhaust gases, and permits simultaneous oxidation and reduction. To obtain an excellent purification efficiency on all components HC, CO and NO<sub>x</sub>, a balance should be kept among the concentrations of the components. These concentrations vary with the air-fuel ratio.

The air-fuel ratio needs to be controlled to a value within the very narrow range covering around the theoretical (stoichiometric) air-fuel ratio to purify the components efficiently.

**6. A/F Control System**

The air/fuel control system compensates for the basic amount of fuel injection in response to a signal sent from the O<sub>2</sub> sensor to provide proper feedback control of the mixture. Thus, the theoretical air-fuel ratio is maintained to provide effective operation of the three-way catalyst. The basic amount of fuel injection is preset according to engine speed and loads, as well as the amount of intake air.

This system also has a "learning" control function which stores the corrected data in relation to the basic amount of fuel injection in the memory map. A new air-fuel ratio correction is automatically added for quick response to the deviation of the air-fuel ratio. Thus, the air-fuel ratio is optimally maintained under various conditions while stabilizing exhaust gases, improving driving performance and compensating for changes in sensors' performance quality with elapse of time.

Refer to 2-7 "FUEL INJECTION SYSTEM".

## 7. Ignition Control System

The ignition control system is controlled by the ECU. The ECU determines the optimal ignition timing according to signals sent from various sensors (which monitor the operating conditions of the engine), and sends a signal to the igniters.

The ECU has a "learning" control function which provides superb transient characteristics for responsive ignition timing control.

Refer to 2-7 "FUEL INJECTION SYSTEM".

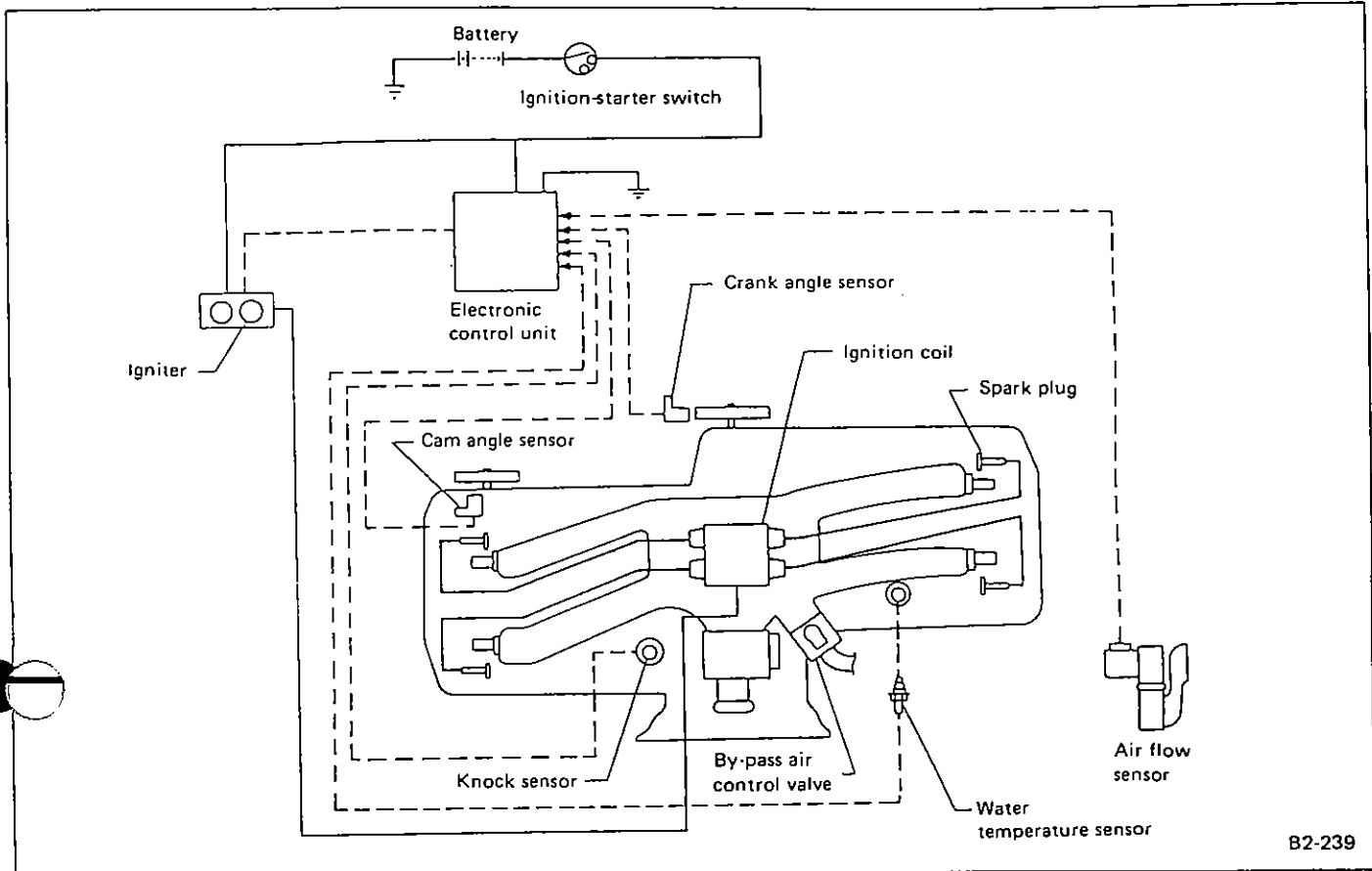


Fig. 6

# 8. Evaporative Emission Control System

## A: DESCRIPTION

### 1. GENERAL

The evaporative emission control system is employed to prevent evaporative fuel from being discharged into ambient atmosphere. This system includes a canister, purge control solenoid valve, a fuel separator, their connecting lines etc.

Gasoline vapor evaporated from the fuel in the fuel tank is introduced into the canister located in the engine compartment through the evaporation line, and is absorbed on activated carbon in it. A fuel separator is also incorporated on the tank fuel line.

The purge control solenoid valve is controlled by the ECU and provides optimal purge control according to the coolant temperature, engine speed and vehicle speed.

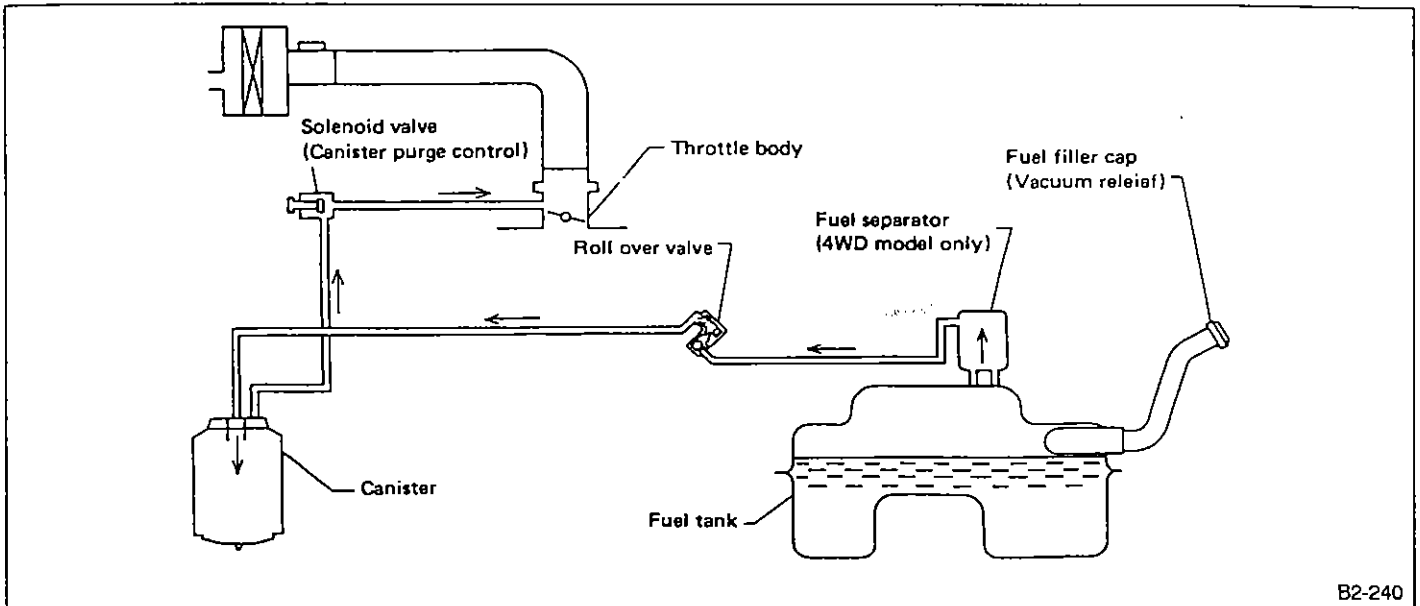


Fig. 7

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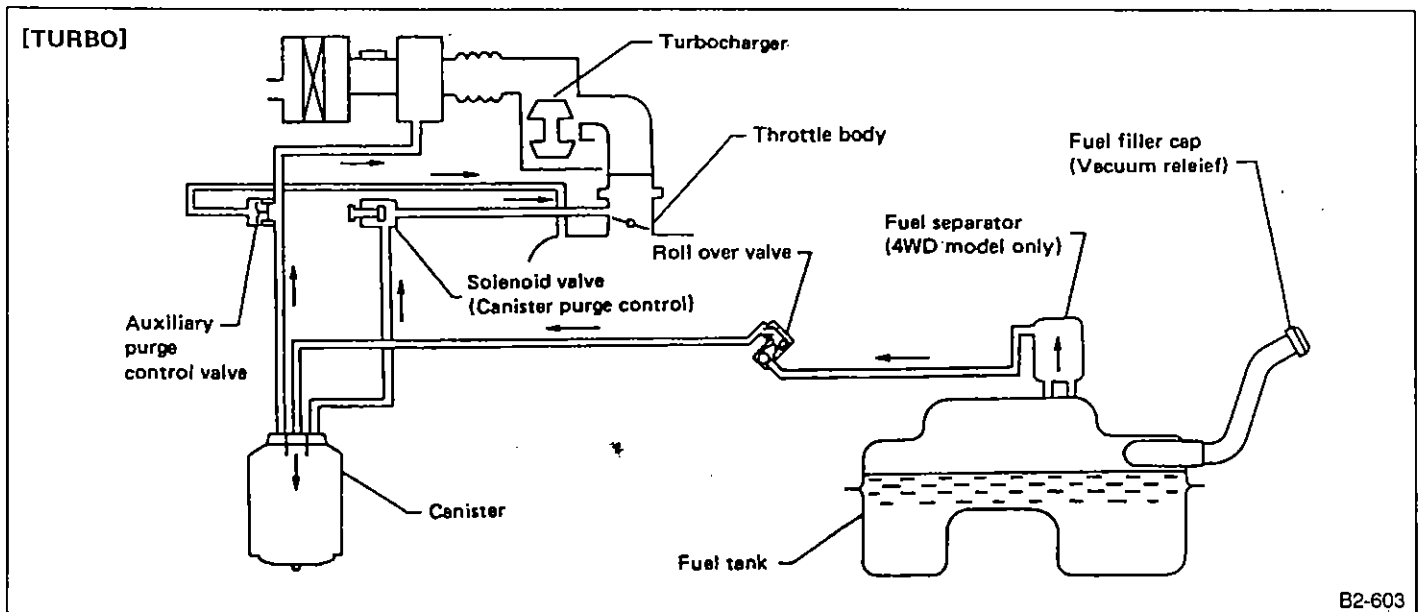


Fig. 8

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## 2. FUEL SEPARATOR

The fuel separator is to prevent liquid fuel from flowing into the canister in case of abrupt cornering, etc.

## 3. FUEL CAP

The relief valve is adopted to prevent the development of vacuum in the fuel tank which may occur in case of trouble in the fuel vapor line.

In normal condition, the filler pipe is sealed at (A) and at the packing pressed against the filler pipe end. As vacuum develops in the fuel tank, atmospheric pressure forces the spring down to open the valve; consequently air is led into the fuel tank controlling the inside pressure.

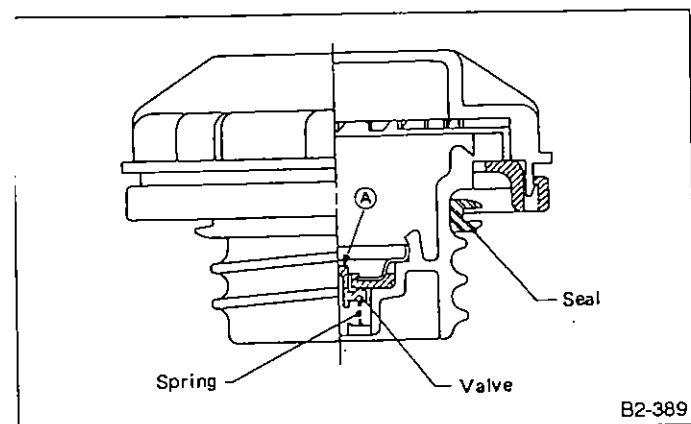


Fig. 9

## B: INSPECTION

- 1) Remove fuel filler cap.
- 2) Disconnect evaporation hose from canister. Check for unobstructed evaporation line by blowing air into hose.
- 3) Disconnect purge hose from canister. Blow air through hose to ensure that air does not leak.  
**Be careful not to suck on the hose as this causes fuel evaporating gas to enter your mouth.**
- 4) Check the exterior of the canister to ensure that it is not cracked or scratched.