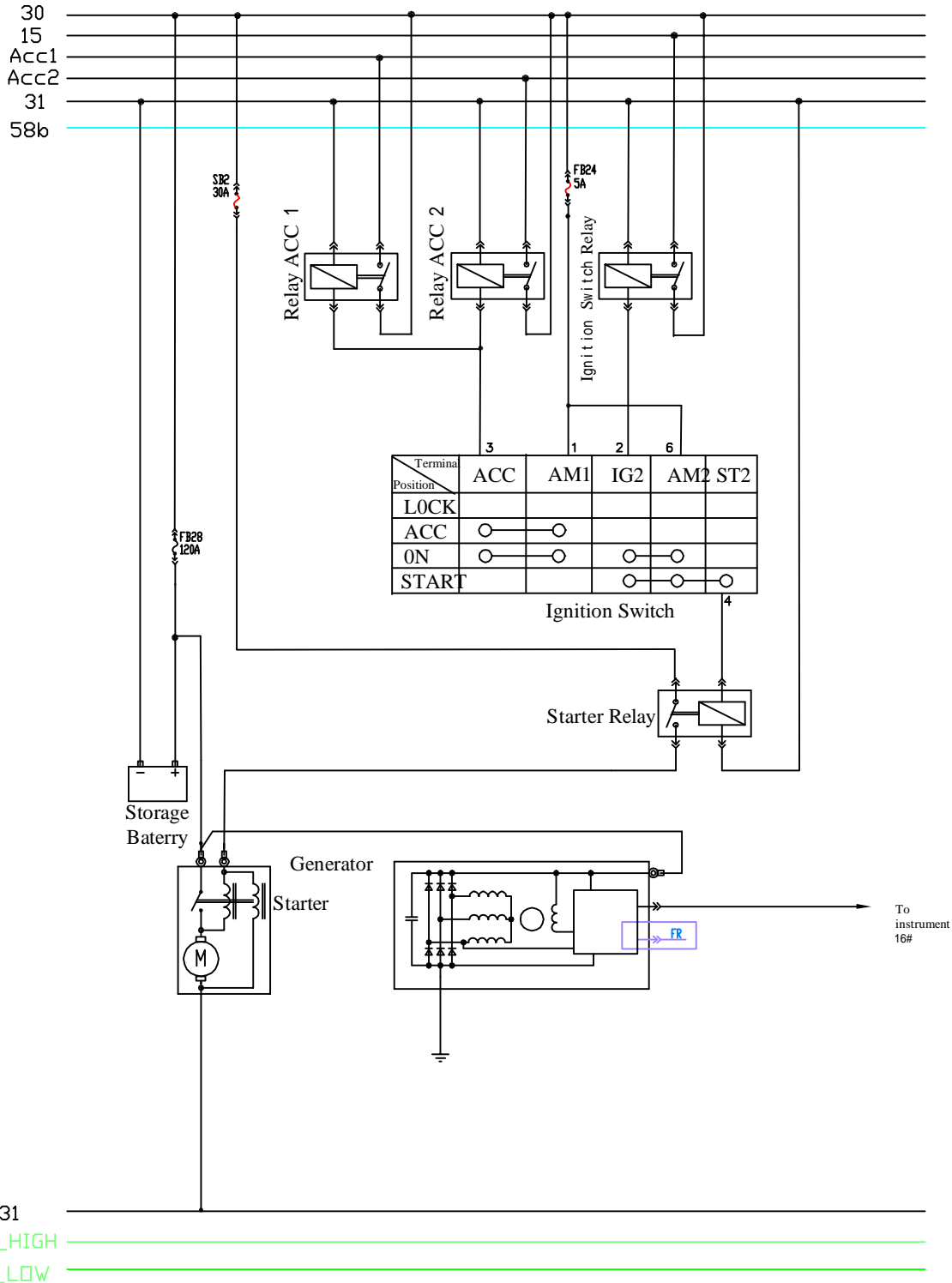


START AND CHARGE SYSTEM



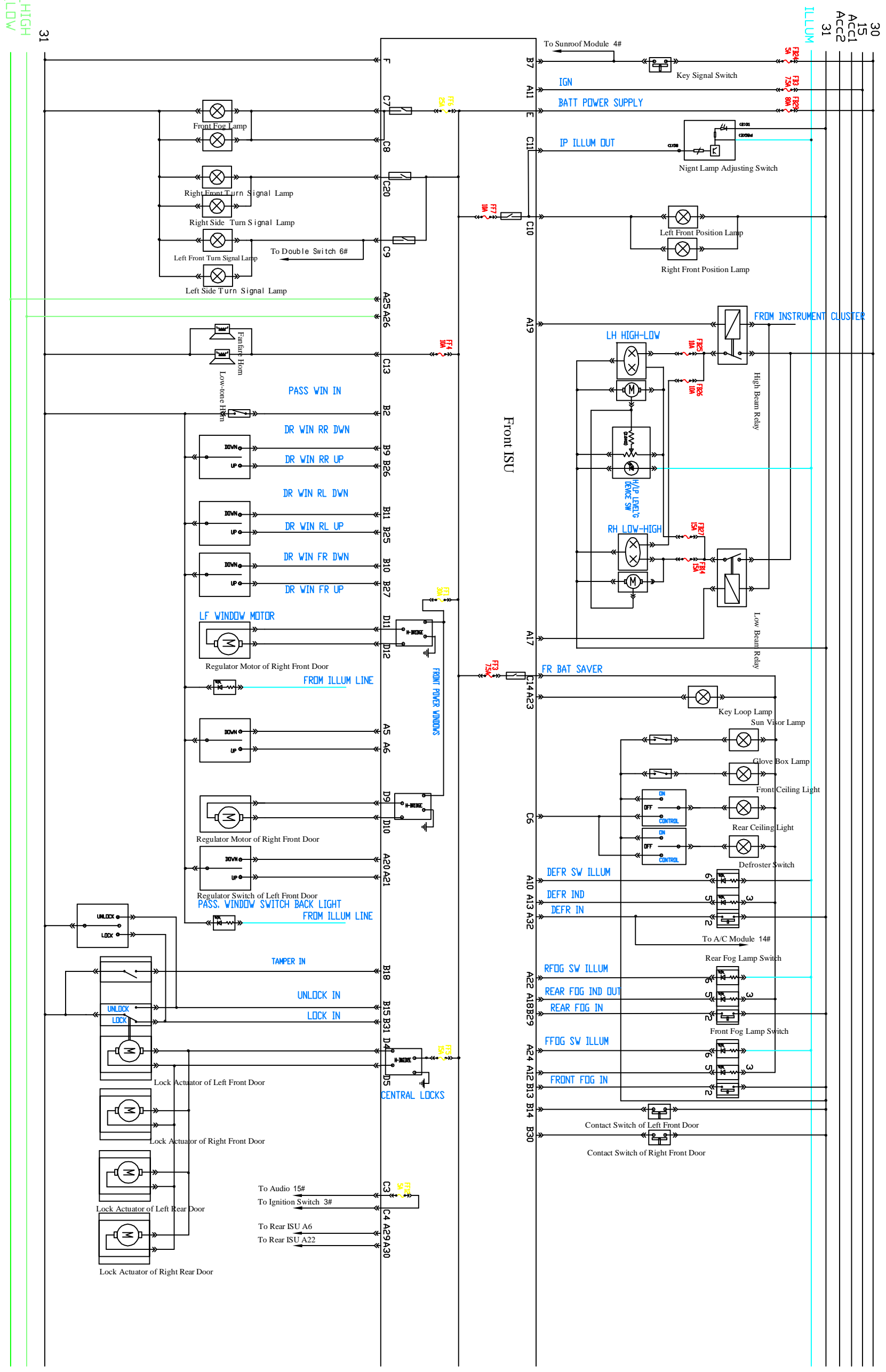


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CIRCUIT DIAGRAM

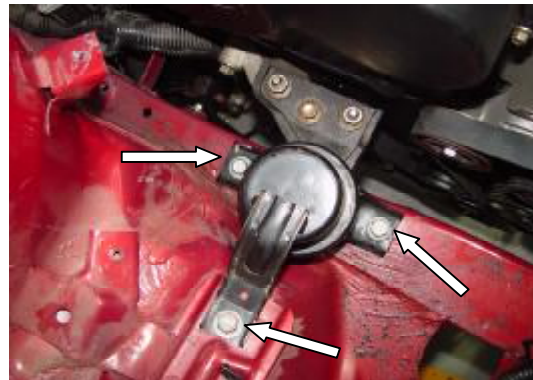
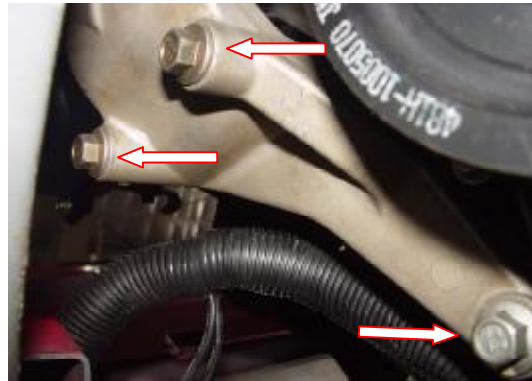
FRONT ISU



CAN_HIGH
CAN_LOW

2. Dismantle the right engine mounting bracket

Use small crane to hoist the engine, dismantle the bolts of right suspension and lift down the right mounting bracket.



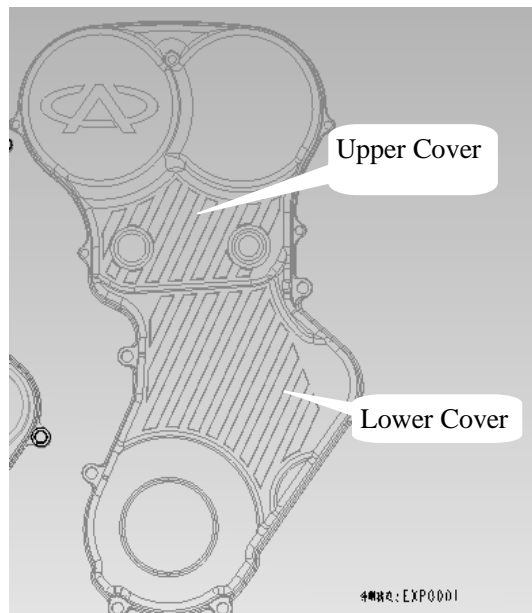
3. Dismantle crankshaft pulley

Shift the car into the 5th gear, step on the brake, and dismantle the fixed bolt of crankshaft pulley.



4. Dismantle the timing belt cover

Dismantle the upper cover and lower cover of timing belt respectively.



4.3 Installation steps

The installing steps are reverse to those for removal.

5 Replacement of Idler

5.1 Needed tools and auxiliary materials

Ratchet wheel wrench, 13# ,15# sleeves

5.2 Process of removal

- 1) Dismantle the dynamo belt. Detailed sequences are shown in the “removal of dynamo belt”.
- 2) Dismantle the bolts connecting the idler and engine/, and undo the idler wheel.

5.3 Installation steps

Installation steps is opposite to the Process of removal.



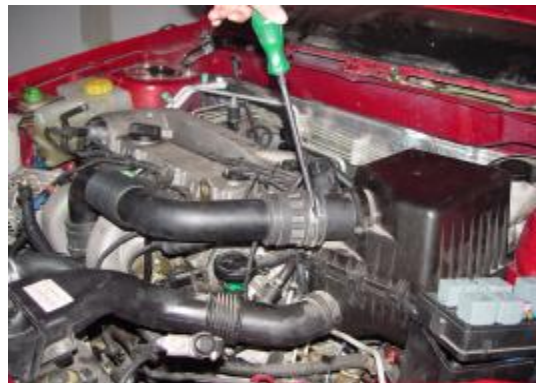
6 Replacement of Air Intake Flow Sensor

6.1 Needed tools

Ratchet wheel, ratchet rod, 10# sleeve, and slot head screwdriver.

6.2 Process of removal

- 1) Pull out the plugs connecting the sensor and wire harness, and use slot head screwdriver to loosen the clamp at the connection point of air intake hose and air cleaner.
- 2) Screw off the bolts connecting the sensor and air cleaner, and then dismantle the sensor.



clockwise.

- c: Fasten the bolt up to specified torque from the central part to both sides clockwise. (As the figure illustrated) .

Torque: $15 \pm 3 \text{NM}$

- 3) Fill engine oil up to specified volume.

2 Replacement of Oil Strainer

2.1 Needed tools and auxiliary materials

10#open end wrench, 10#, 15#, 17# sleeves, ratchet wheel, ratchet rod Le Tai 5901 Glue,engine oil.

2.2 Process of replacement

2.2.1 Process of removal

- 1) Dismantle oil pan (removal method is shown in the “replacement of oil pan”).
- 2) Use 10# sleeve wrench to dismantle the bolts (8 pieces) connecting the oil strainer and engine frame.



- 3) Pull out the oil strainer carefully.

2.2.2 Installation

- 1) Spin the nozzle of engine oil strainer into the frame carefully.
- 2) Mount the 8 bolts for the strainer and fasten them.

Note: All bolts should be pasted with Le Tai 243 Glue.

Torque: $8 \pm 3 \text{Nm}$

- 3) Installation of oil pan (detailed methods are shown in the installation of oil pan).

7 Replacement of Crankshaft and Thrust Washer

7.1 Needed tools and auxiliary materials

A set of open end wrenches, a set of sleeve tools, one small crane, Le Tai glue, engine oil, feeler gauge and micrometer guage.

7.2 Process of removal

- 1) Lift down the engine (detailed methods are shown in the “lifting and installation of engine”).
- 2) Discharge the engine oil.
- 3) Dismantle the engine timing belt (detailed methods are shown in the “replacement of timing belt”).
- 4) Dismantle the engine accessories such as engine A/C compressor, power steering pump and bracket.(detailed methods are shown in the “replacement of engine accessories”).
- 5) Dismantle the engine cylinder head assembly (detailed methods are shown in the “replacement of cylinder head”).
- 6) Dismantle the clutch pressure plate, flywheel and timing belt pulley.
- 7) Dismantle the oil pan and oil strainer.(detailed methods are shown in the “ replacement of oil span and strainer”).
- 8) Dismantle the piston connecting rod assemblies of four cylinders, place them well in order.
- 9) Dismantle the oil pump assembly
- 10) Dismantle the lower frame of cylinder block, and then you can take out the crankshaft and thrust washer.

INSTALLING THE FRONT WIND SHIELD

1. Cut away the rough parts on the body with a knife and clean the cut surface of the bonding agent with a rag soaked with washer fluid;

Tip: Even if the entire bonding agent has been cleared, you should also clean the body surface and do not touch the glass surface after cleaning.

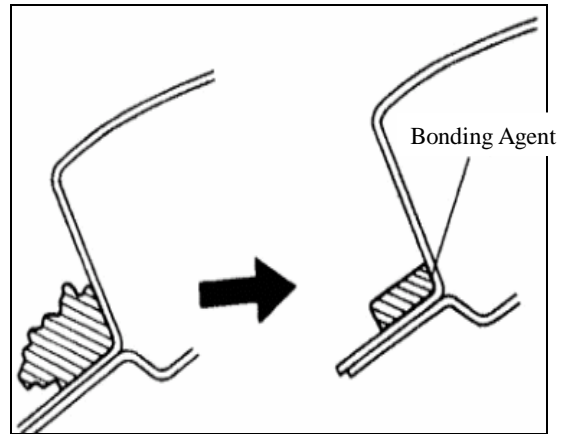


Figure 150

2. Remove the stopper with a knife;

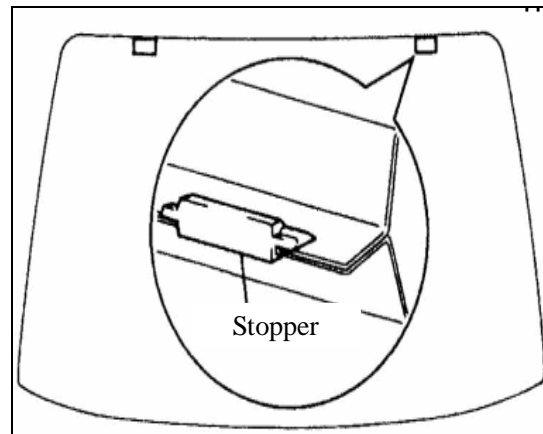


Figure 151

3. Clear the bonding agent adhered to the glass with a scraper and clean the glass with washer fluid;

Note: Do not touch the glass after cleaning.

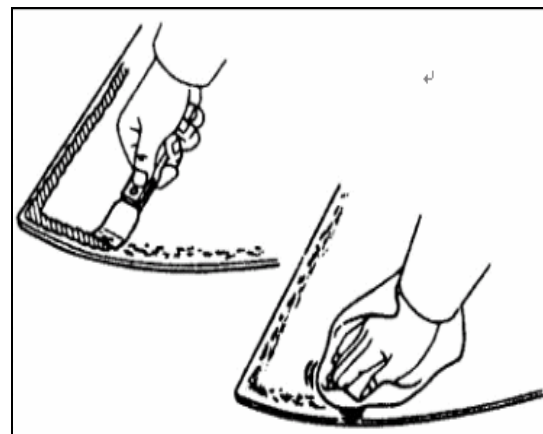
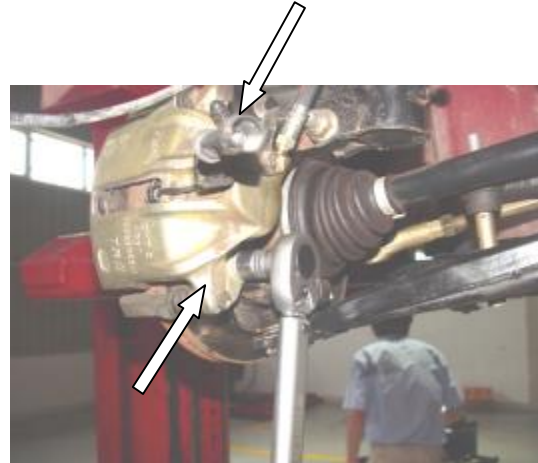


Figure 152

- 2) Use torque wrench and 17# sleeve to loosen the bolts connecting brake assembly and steering knuckle.

Torque: $85\pm 5\text{N.m}$



- 3) Use box end wrench to loosen the bolts connecting the brake hose and brake caliper. (If only friction disc needs to be replaced during maintenance, there is no need to dismantle the brake pipeline).

Note: Since brake fluid is poisonous, you should prevent the brake fluid from splashing onto your clothes or skin when dismantling the brake hose.



Torque:

- 4) Screw off the nuts and bolts mentioned in the 2nd and 3rd steps, remove the brake caliper from the steering knuckle, and isolate the brake caliper from the brake hose.

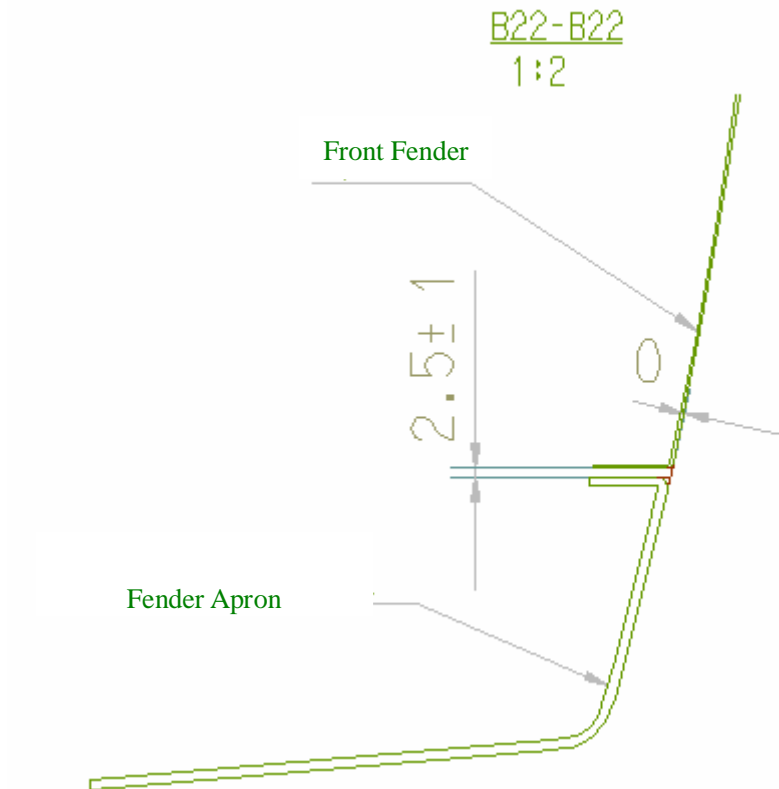
Note: Since brake fluid is poisonous, you should prevent the brake fluid from splashing onto your clothes or skin when dismantling the brake hose.

- 5) Use punch to rectify the notch as illustrated in the figure, and use 30# sleeve and torque wrench to dismount the clamp nut.

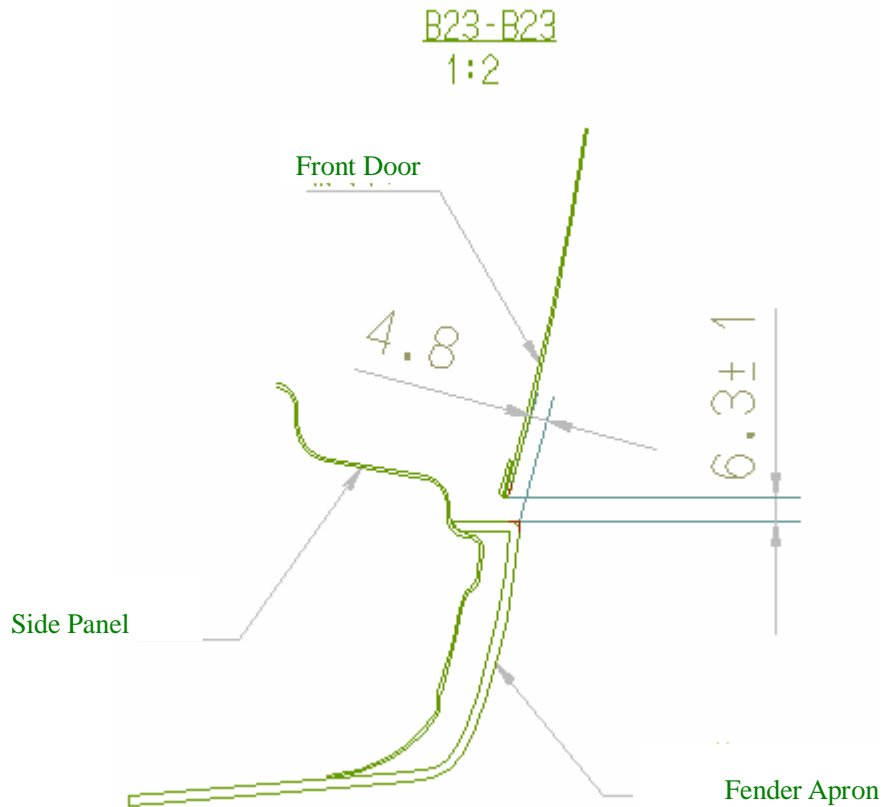
Torque: $78\pm 5\text{N.m}$



The clearance between the front fender and the fender apron at B22-B22: 2.5 ± 1



The clearance between the front door and the fender apron at B23-B23: 6.3 ± 1



16. Remove the fastening screws and bolts as shown;



Figure 132



Figure 133

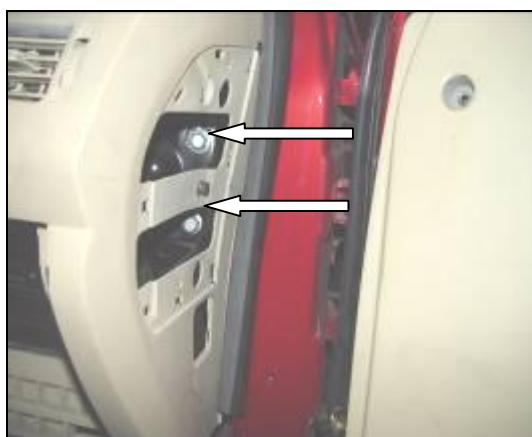
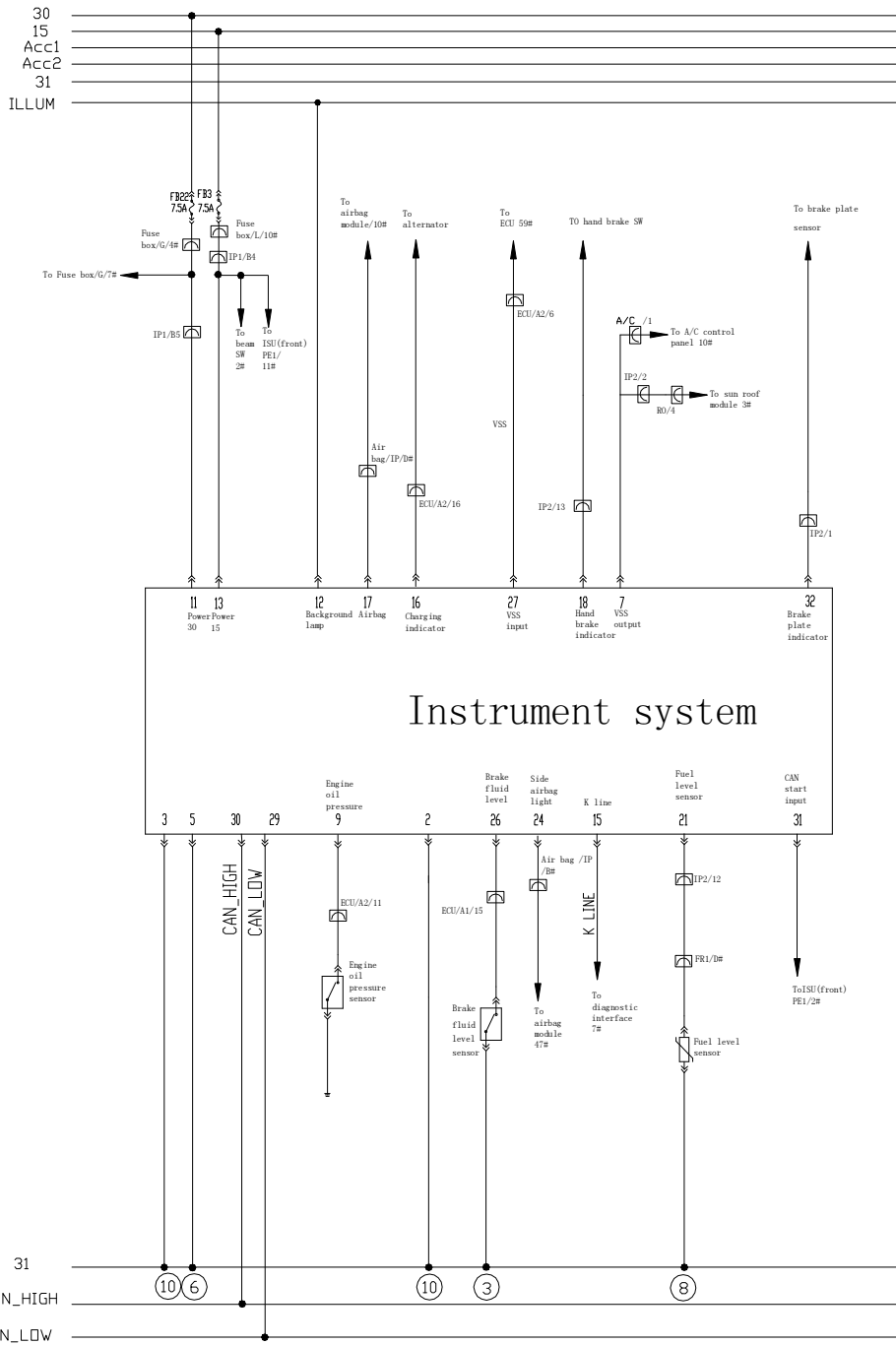


Figure 134

Instrument system



EFI SERVICE MANUAL

A21 car is equipped with ME7.9.7 EFI system which developed by UAES. This manual will introduce the general service and the operational principle and character of sensor elements of EFI system in detail. At last there will be some diagnostic method and flow for the typical problems.

1. NOTICE TO THE EFI SYSTEM SERVICE

1.1. GENERAL SERVICE

- Digital multimeter is the only permitted instrument to inspect the EFI system.
- Please use the quality spare parts for service, otherwise can not make sure the EFI work properly.
- Please use lead free gasoline during service.
- Please be obedient to the service and diagnose flow.
- It is forbidden to disassembly the EFI part during service.
- It should be careful to take the electronic component (ECU, sensor, etc.) for preventing from dropping to the ground.
- Please protect the environment, deal with the rejectamenta carefully and effectively.

1.2. NOTICE DURING THE SERVICE

- Do not disassemble any part or inserts of the EFI system from its original position at random to prevent from damaging parts or that moisture and dirt oil come into the inserts. And that will keep the system from working properly.
- Please leave the ignition switch at shut off position when you disconnect and connect the inserts otherwise it will damage the electric element.
- It is must keep the ECU under 80°C, when you do the work of hot status simulation and other works which may cause the temperature increase.
- The supplying oil pressure is high(around 300kPa), all the fuel pipe is made up of anti high pressure pipe. There is high pressure in fuel pipe even the engine does not run. So do not disassemble the fuel pump at random when carrying out service for fuel system. Before disassemble the fuel pipe please carry out discharge pressure procedure. The method is as below: Disassemble the fuel pump relay (or disconnect the connector plug), start engine at its idle running and it dies out by itself. After the service supply fuel to engine fuel pipe at first, the method is: turn ignition key to ON position and wait a while, repeat this four or five times. Disassembly of fuel pipe and fuel filter should be carried out at a place with good ventilation and done by professional maintainer.
- Do not give electricity to fuel pump when the electrical pump is taken out of fuel tank in order to prevent from electrical spark and cause fire.
- Fuel pump is not allowed to carry out running test at dry or water situation, which will

3.11 CARBON CANISTER SOLENOID VALVE

1) Exterior drawing and pin definition

Canister control valve only has two pins; one is connect to No.87 pin of main relay output end; and another pin connected to No. 5 pin of ECU.

2)Installation position: Canister vacuum pipe of intake manifold

3)Purpose: Control the quantity of the cleaning flow from canister to air intake chief pipe. The absorption of the canister is limited so if the gasoline vapor adhesive to canister can not be consumed the gasoline vapor will volatility to outside and pollute the air.

4)Working principle

Canister is made up of electromagnetic coil, armature and valve etc.. There is strainer on the intake. The flow quantity passes canister valve is correlate not only to electrical impulse duty ratio of canister control valve output by ECU, but also to the pressure difference between canister valve intake and outlet. When there is no electronic impulse, the canister control valve will shut down.

5)Working voltage:9—16V

Working temperature:-30--120°C

6)Malfunction and diagnosis method

- I Malfunction: Function invalidation.
- I Reason: some particle coming to inside of valve causes erosion or poor sealing.
- I Service notice: 1, let the airflow direction be accord with the regulation; 2, when there are black particle inside of valve and causes the control valve invalidation, the valve need to be changed, please check the canister working conditions; 3, avoid the water, fuel and other liquid into valve during the service; 4, hang the valve on the tube to avoid the transferring of solid sound.
- I Simple measurement method: (disassemble the

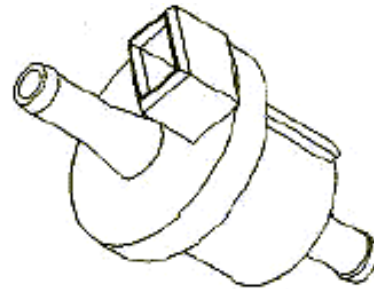


Chart 3-20 Exterior Drawing of Canister Solenoid

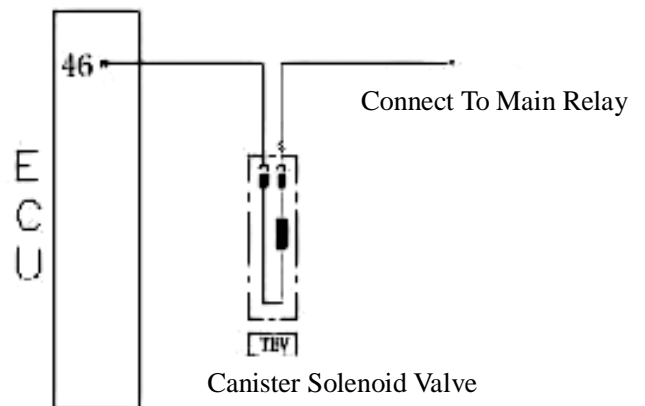


Chart 3-21 Circuit Diagram of Canister Solenoid



TECHNOLOGY DATA INSTRUCTION

Item			Standard Value
Camshaft	Cam Height	Intake cam	37.15
		Exhaust cam	37.05
	Camshaft Diameter	Intake cam	24 ^{-0.040} _{-0.053}
		Exhaust cam	24 ^{-0.040} _{-0.053}
	Axial clearance of Camshaft	Intake cam	0.15--0.20
		Exhaust cam	0.15--0.20
Cylinder Head	Plane Degree of Lower Surface		0.04
	Whole Height		140±0.41
	Surface Grind Limit* Total Grinding Quantity of Cylinder Block and Head		
Valve	Fringe Thickness on Top of Valve	Intake Valve	0.3±0.15
		Exhaust Valve	0.3±0.15
	Valve Stem Diameter	Intake Valve	5.98±0.008
		Exhaust Valve	5.96±0.008
	Seal Bandwidth	Intake Valve	
		Exhaust Valve	
	Gap Between Valve Stem And Guide	Intake Valve	0.02
		Exhaust Valve	0.04
	Tilt Angle	Intake Valve	65°
		Exhaust Valve	68°
	Height	Intake Valve	107.998
		Exhaust Valve	106.318
Valve Spring	Free Height		47.7
	Working Tension in Advance/ Working Height Kg /mm		620N/32mm
	Vertical Degree		
Valve Guide	Valve Guide Length		38±0.25
	Inside Diameter		5.4±0.1