

# SECTION 1

# ENGINE

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## Engine (4G6)

### General information

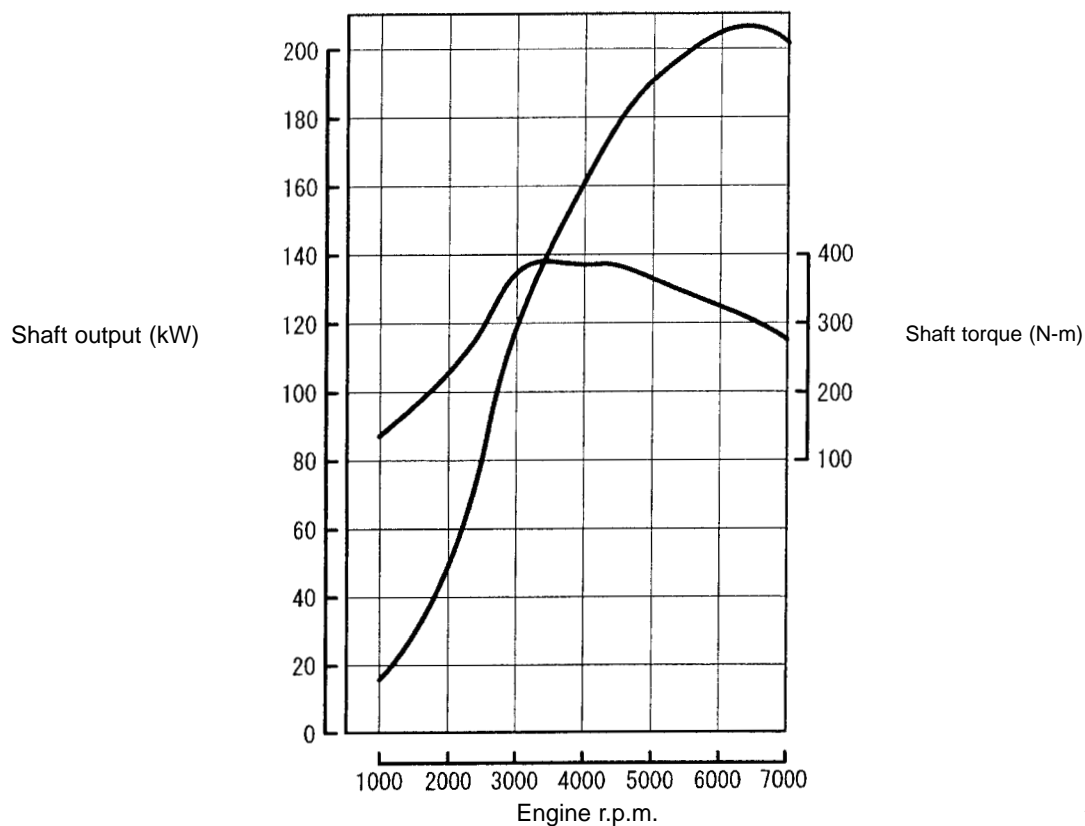
The 4G63-T/C engine of the Lancer Evolution-VIII is basically the same as the 4G63-T/C engine of the Lancer Evolution-VII. The basic structure is the same, but the following improvements and performance upgrades have been implemented.

- Changes from a three section split mold to a two section split mold
- Changes to piston shape and materials
- Beehive-shaped valve springs
- Changes to delivery pipe materials

### 1. Major specifications

Items	Factors
Total displacement cc	1,997
Combustion chamber	Pentroof type
Bore x stroke mm	85.0 x 88.0
Compression ratio	8.8
Camshaft arrangement	DOHC 4-valve
Fuel used	Unleaded premium
Maximum output (kW/rpm)	206/6500
Maximum torque (Nm/rpm)	392/3500
Fuel system	Electronic controlled multipoint fuel injection
Ignition system	Electronic controlled two-coil
Lash adjuster	Equipped

## 2. Engine Performance Curve

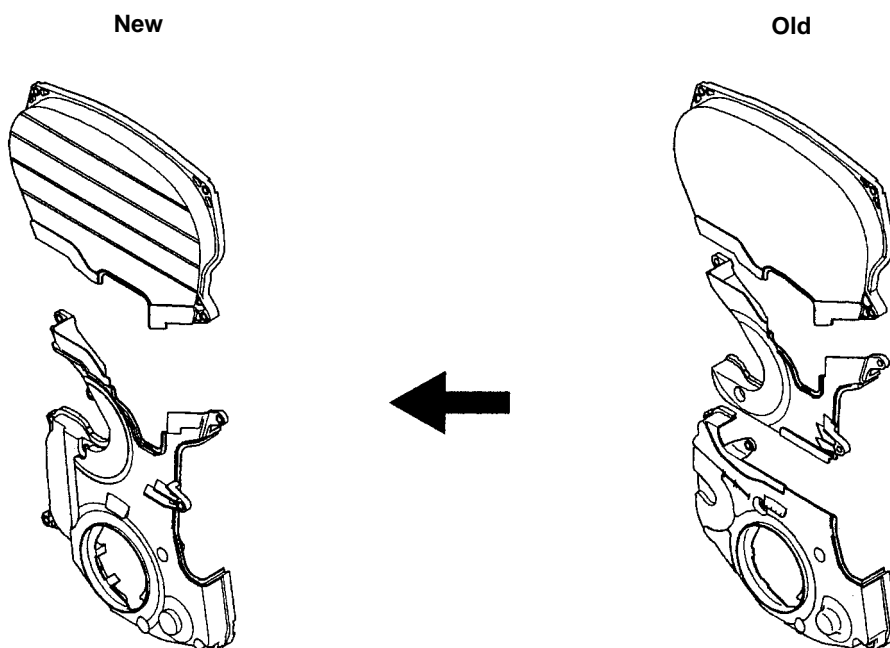


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## Base Engine

### 1. Timing belt cover

The timing belt cover has changed from a three section split mold to a two section split mold. The materials have been changed from aluminium to resin.

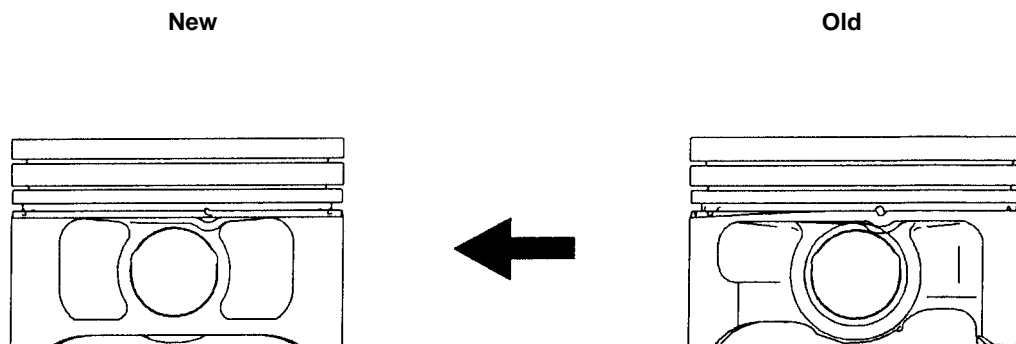


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## 2. Piston

The skirt has been reinforced in order to reduce friction.

A high temperature fatigue resistant alloy has been adopted in order to improve reliability.

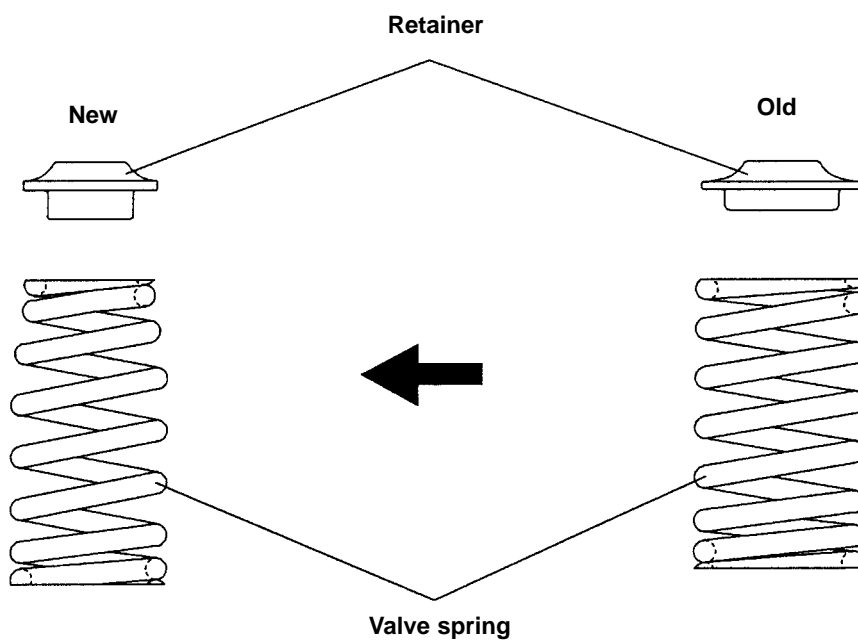


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## 3. Valve spring

Beehive-shaped valve springs already introduced in Japan, have been adopted.

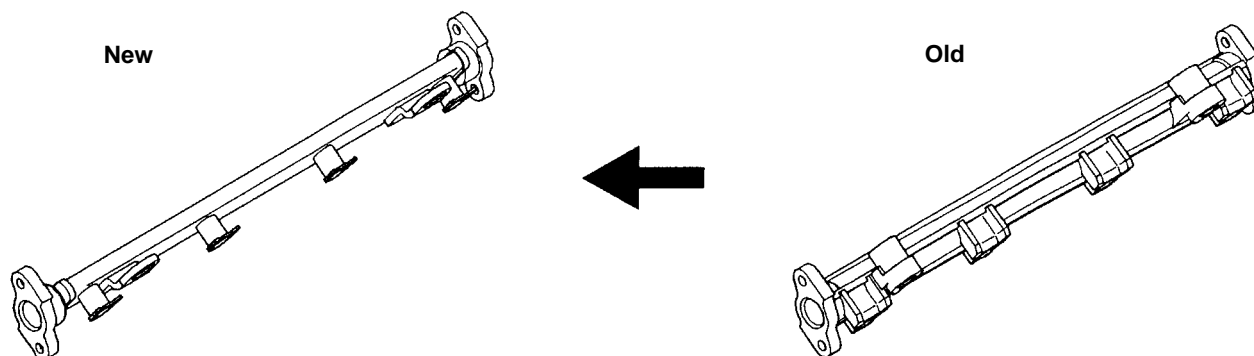
The diameter of the retainer has been reduced and its material has been changed from chrome to abrasion resistant alloy.



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#### 4. Delivery pipe

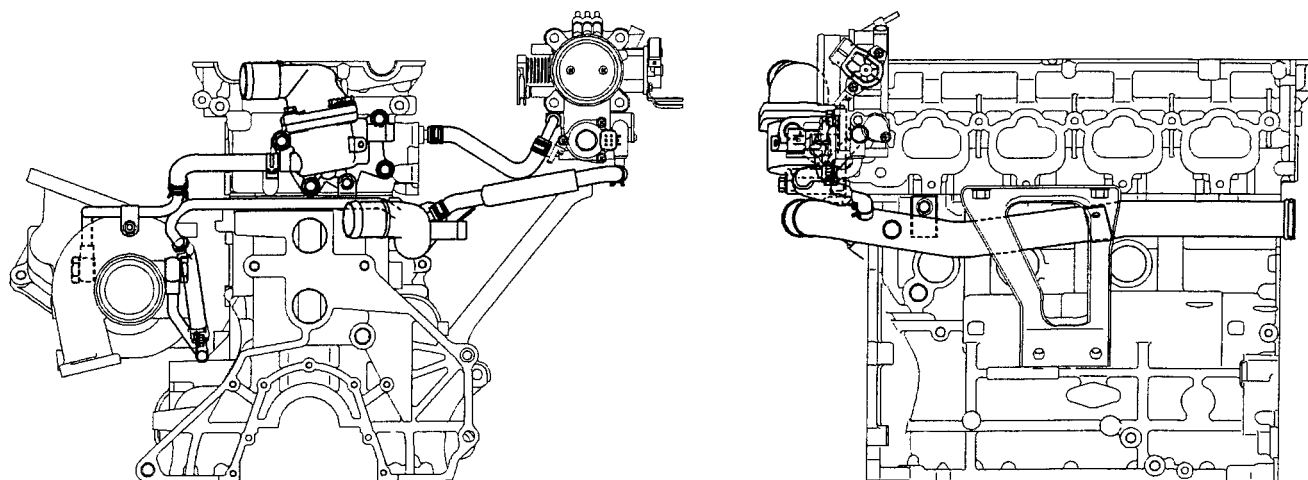
The material of the delivery pipe has changed from alloy to steel plate to reduce vibration noise.



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#### Cooling System

The cooling system has changed as follows.



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## Intake and Exhaust Equipment

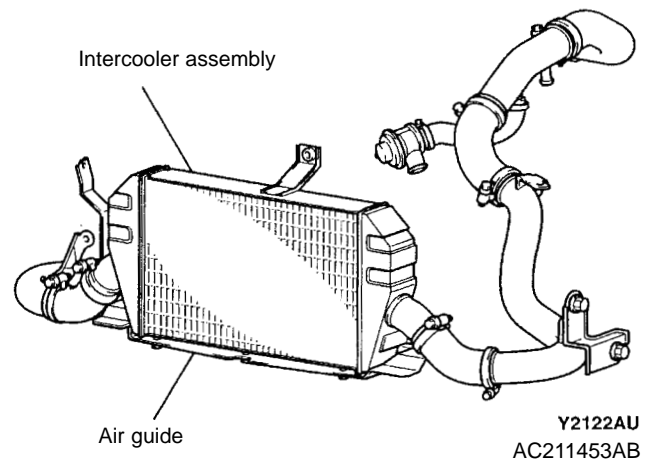
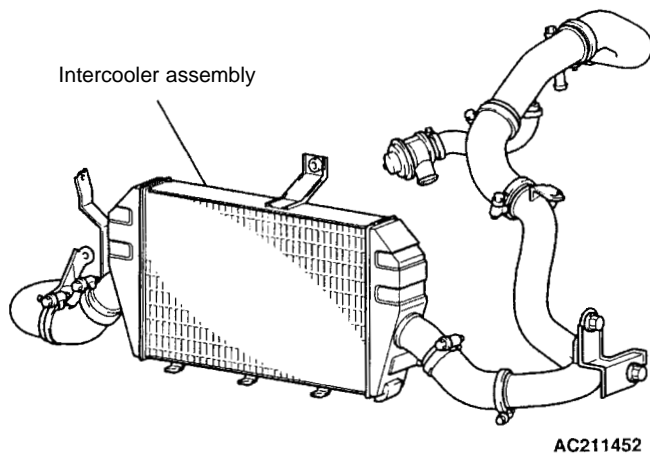
### 1. Air intake system

#### 1-1 Intercooler

It is basically the same as the original Lancer Evolution-VII, but the air guides at the bottom of the intercooler assembly have been discontinued in line with changes to the front bumper.

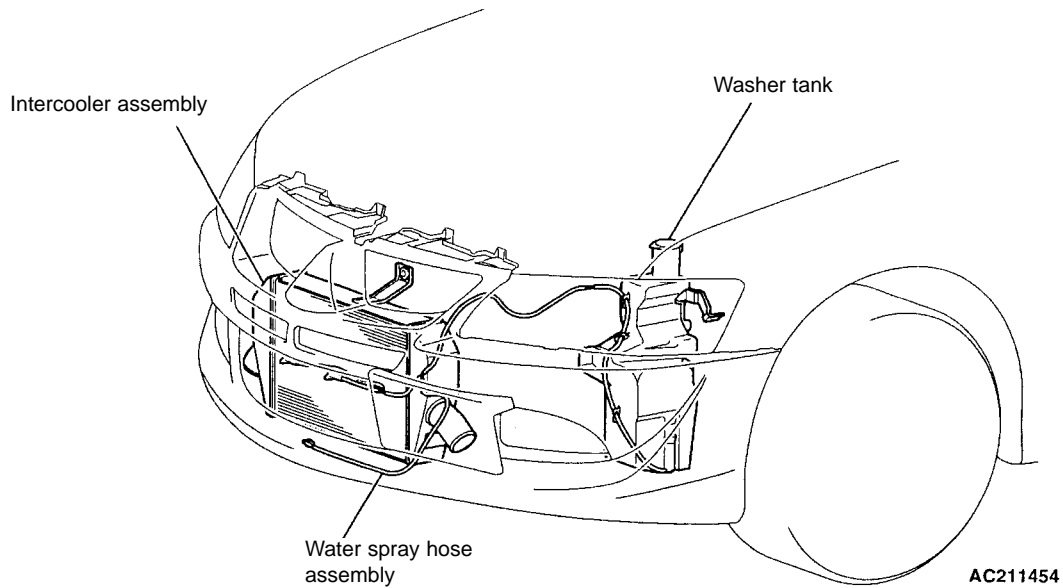
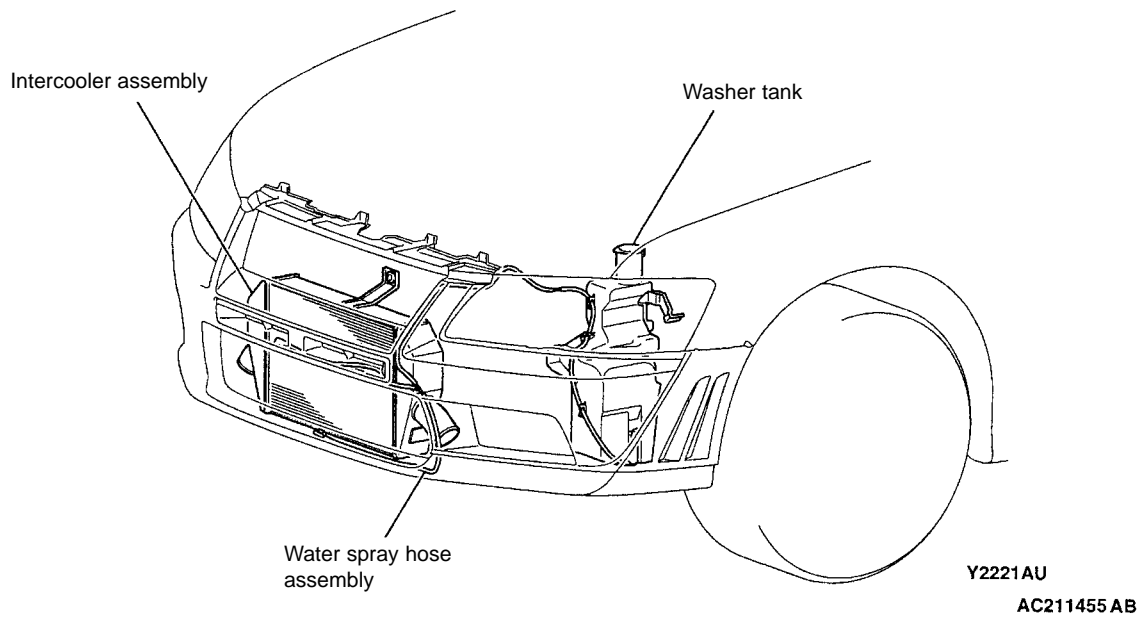
New

Old



**1-2 Intercooler water spray**

It is basically the same as the original Lancer Evolution-VII, but the water spray hose has been changed in line with changes to the front bumper.

**New****Old**

Fuel System

The fuel system is basically the same as that in the original Lancer Evolution-VII, but the following changes have been made:

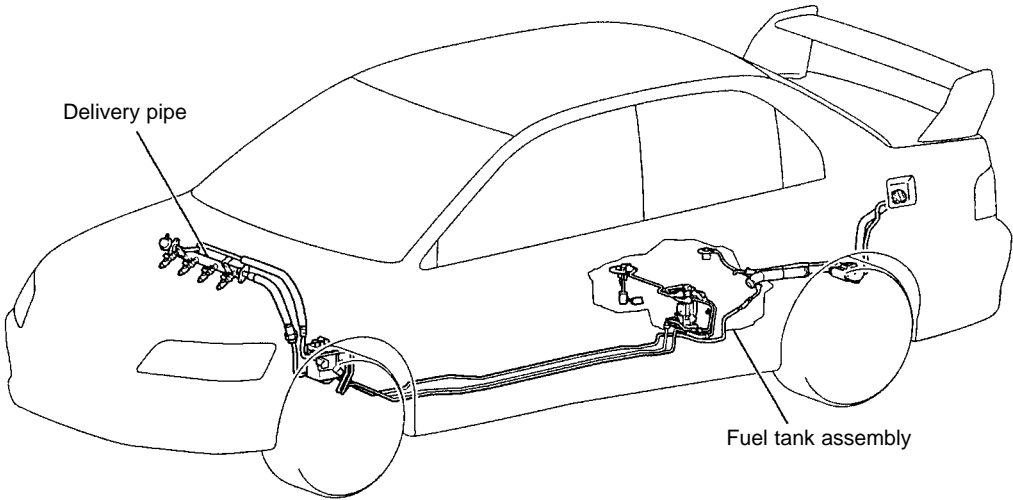
- The fuel tank assembly has been changed and the tank capacity has been increased in order to extend the range.
- A steel plate fuel delivery pipe has been adopted, fuel pulsation has been reduced as have engine vibration and noise.

Specifications

Items		New	Old
Fuel tank capacity L	GSR	55	48
	RS	50	48

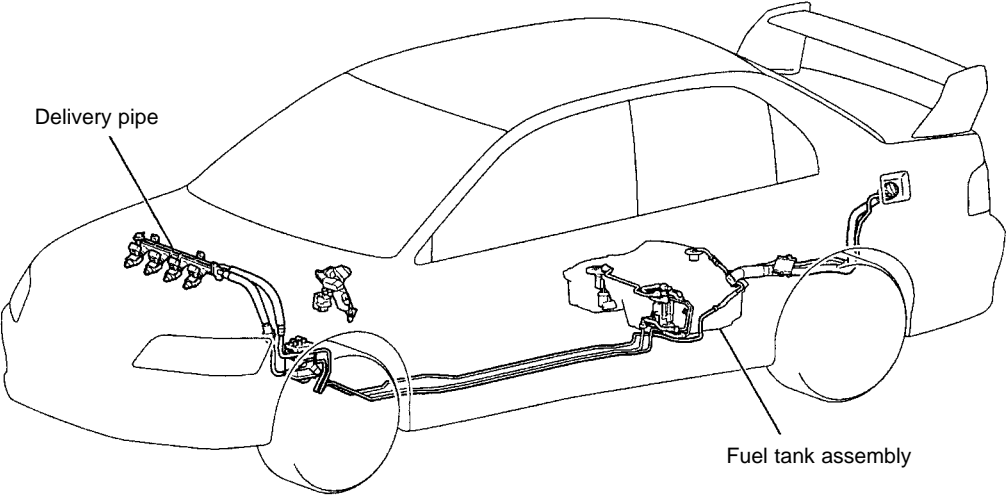
Construction Diagram

New



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Old



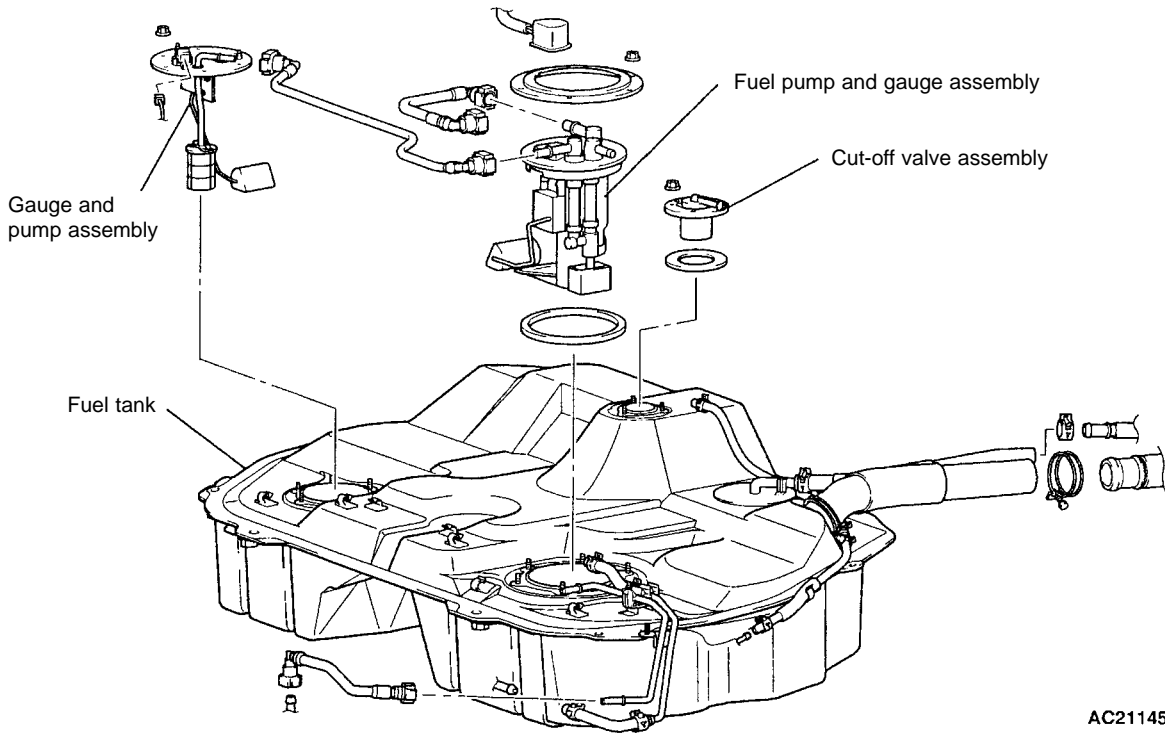
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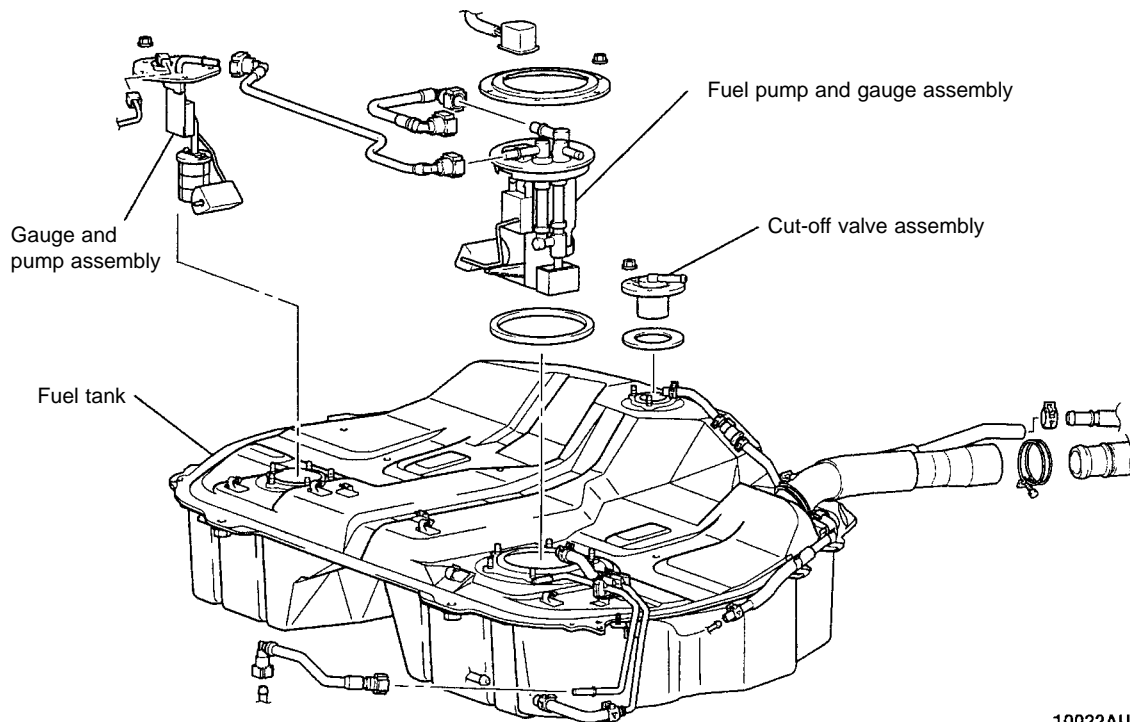
## 1. Fuel tank

The shape of the fuel tank has been changed. In order to extend the range, the tank capacity of the GSR has been increased to 55 litres, and the tank capacity of the RS has been increased to 50 litres taking into consideration the balance between range and the RS's weight, and motor sport requirements.

### New



### Old



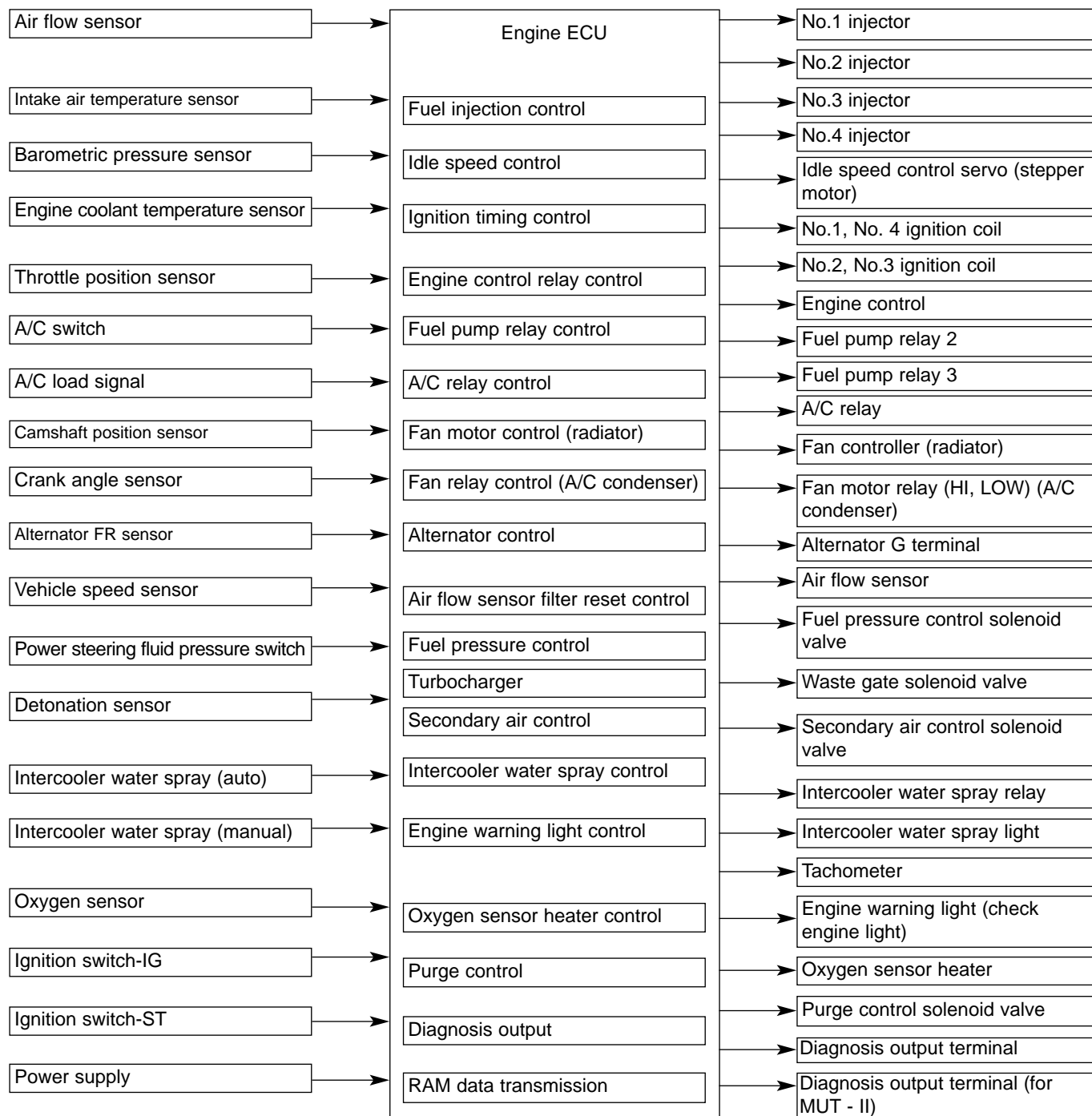


## Control System

The following changes have been made to the controls of the 4G63-DOHC-Turbocharger engine installed in the original Lancer Evolution-VII:

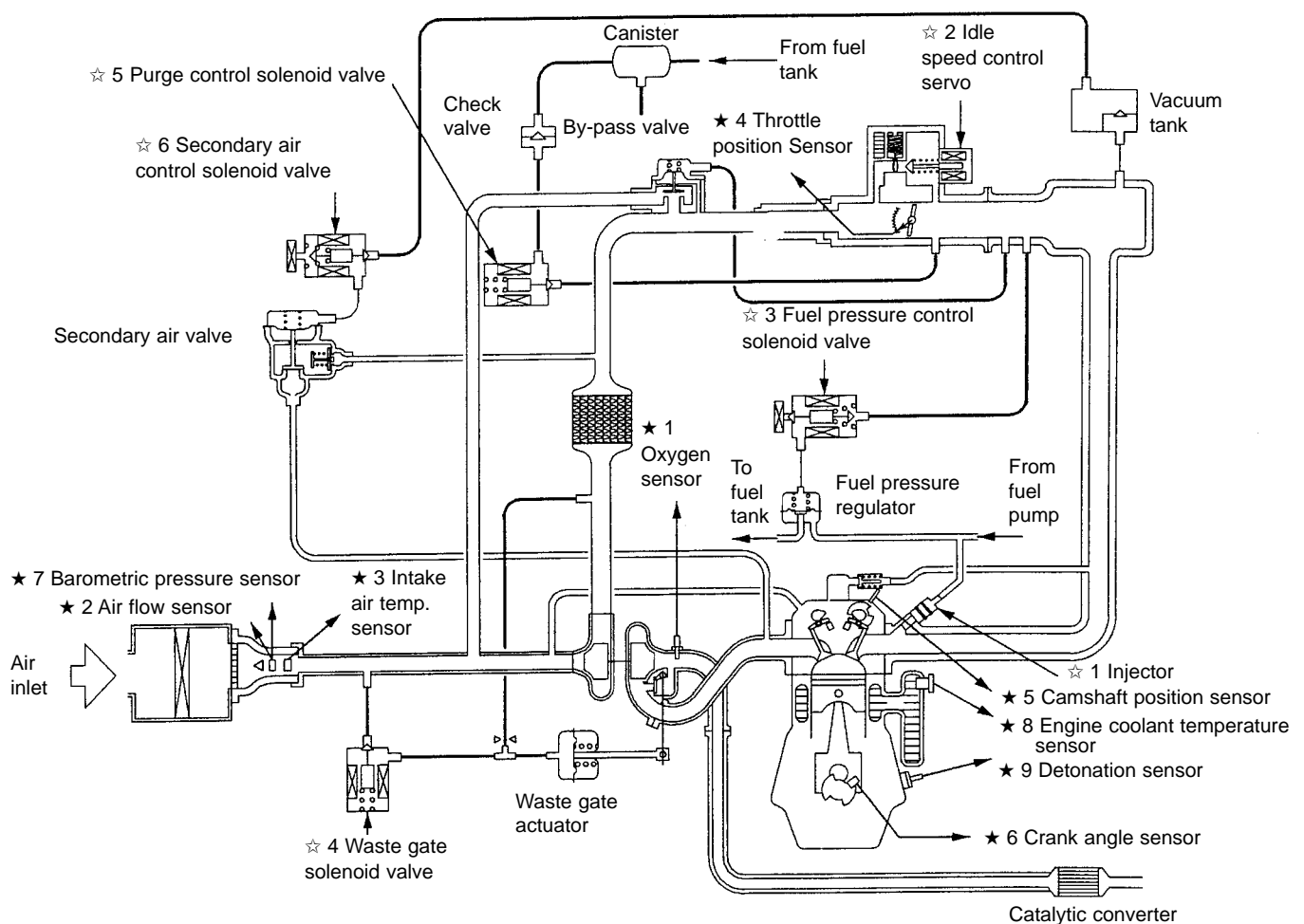
- MDP (Manifold Differential Pressure) sensor has been discontinued.
- EGR control has been discontinued.
- Diagnostic control terminal has been discontinued.

### System block diagram



## Control system diagram

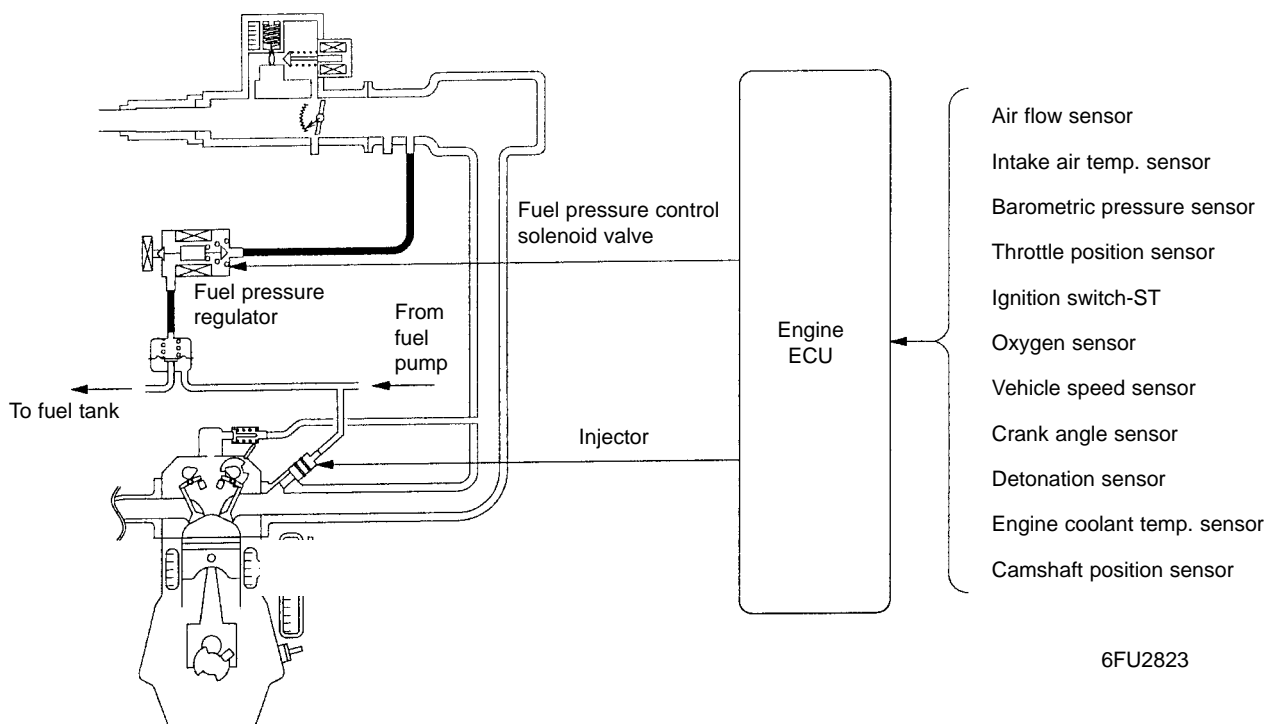
<ul style="list-style-type: none"> <li>★ 1 Oxygen sensor</li> <li>★ 2 Air flow sensor</li> <li>★ 3 Intake air temperature sensor</li> <li>★ 4 Throttle position Sensor</li> <li>★ 5 Camshaft position sensor</li> <li>★ 6 Crank angle sensor</li> <li>★ 7 Barometric pressure sensor</li> <li>★ 8 Engine coolant temperature sensor</li> <li>★ 9 Detonation sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Power supply</li> <li>• Ignition switch-IG</li> <li>• Ignition switch-ST</li> <li>• Vehicle speed sensor</li> <li>• A/C switch</li> <li>• A/C load signal</li> <li>• Power steering fluid pressure switch</li> <li>• Alternator FR terminal</li> <li>• Intercooler water spray switch (Auto)</li> <li>• Intercooler water spray switch (Manual)</li> </ul>	⇒ Engine ⇒ -ECU	<ul style="list-style-type: none"> <li>☆ 1 Injector</li> <li>☆ 2 Idle speed control servo</li> <li>☆ 3 Fuel pressure control solenoid valve</li> <li>☆ 4 Waste gate solenoid valve</li> <li>☆ 5 Purge control solenoid valve</li> <li>☆ 6 Secondary air control solenoid valve</li> </ul>	<ul style="list-style-type: none"> <li>• Engine control relay</li> <li>• Fuel pump relay 2, 3</li> <li>• A/C relay</li> <li>• Ignition control</li> <li>• Fan controller</li> <li>• Condenser fan relay (HI)</li> <li>• Condenser fan relay (LOW)</li> <li>• Engine warning light</li> <li>• Diagnosis output</li> <li>• Alternator G terminal</li> <li>• Intercooler water spray relay</li> <li>• Intercooler water spray light</li> </ul>
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## 1. Fuel injection control

This is basically the same as the control system in the 4G63-DOHC-Turbocharger engine installed in the original Lancer Evolution-VII.

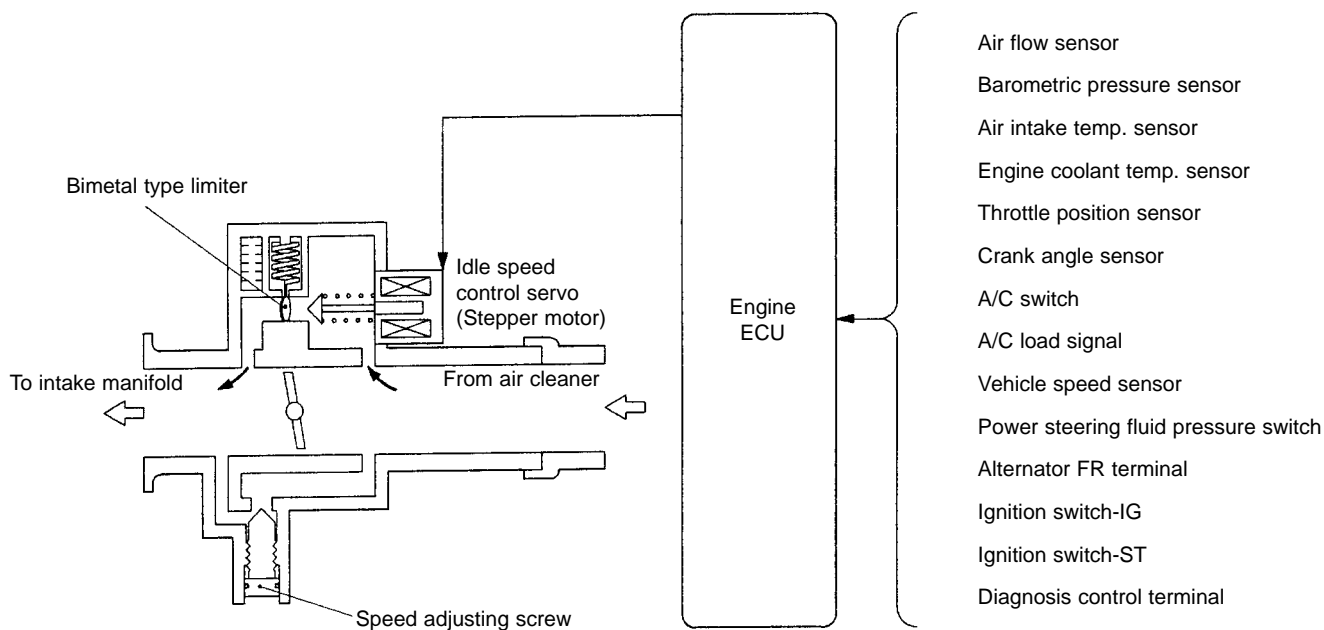
### System configuration diagram



## 2. Idle speed control

This is basically the same as the control system in the 4G63-DOHC-Turbocharger engine installed in the original Lancer Evolution-VII.

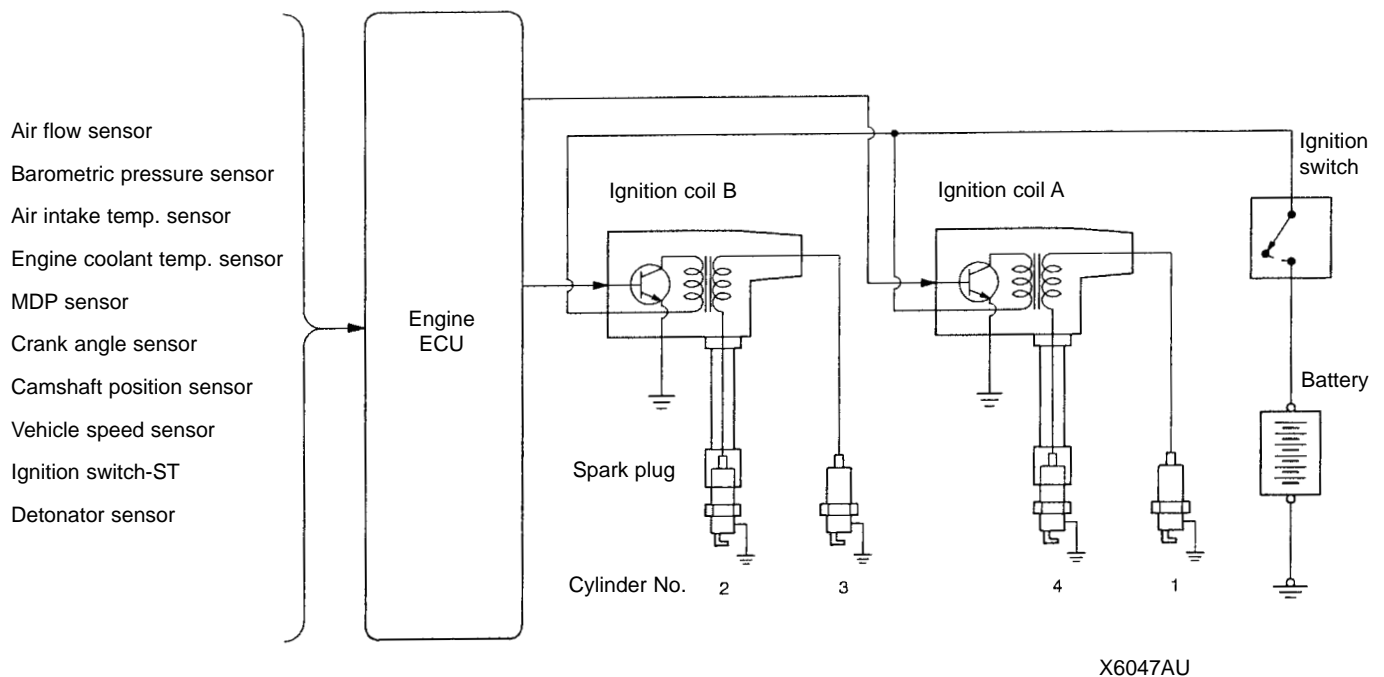
### System configuration diagram



### 3. Ignition timing and distribution control

Basically the same control system has been adopted as in the 4G63-DOHC-Turbocharger engine installed in the original Lancer Evolution-VII.

#### System configuration diagram



### 4. Other controls

The following controls are basically the same as the control systems adopted in the 4G63-DOHC-Turbocharger engine installed in the original Lancer Evolution-VII.

- Radio fan motor relay control
  - Power supply
  - Air flow sensor filter reset control
  - Fuel pressure control
  - Supercharging pressure control
  - Secondary air control
  - Fuel pump control
  - A/C condenser fan relay control
  - Alternator control
  - Oxygen sensor heater control
  - Purge control
- Please refer to Emission Control System.

### 5. Diagnosis system

The engine ECU has the following functions in order to facilitate system checks.

- a. Engine warning light
- b. Diagnosis function
- c. Service data output
- d. Actuator test

#### Note

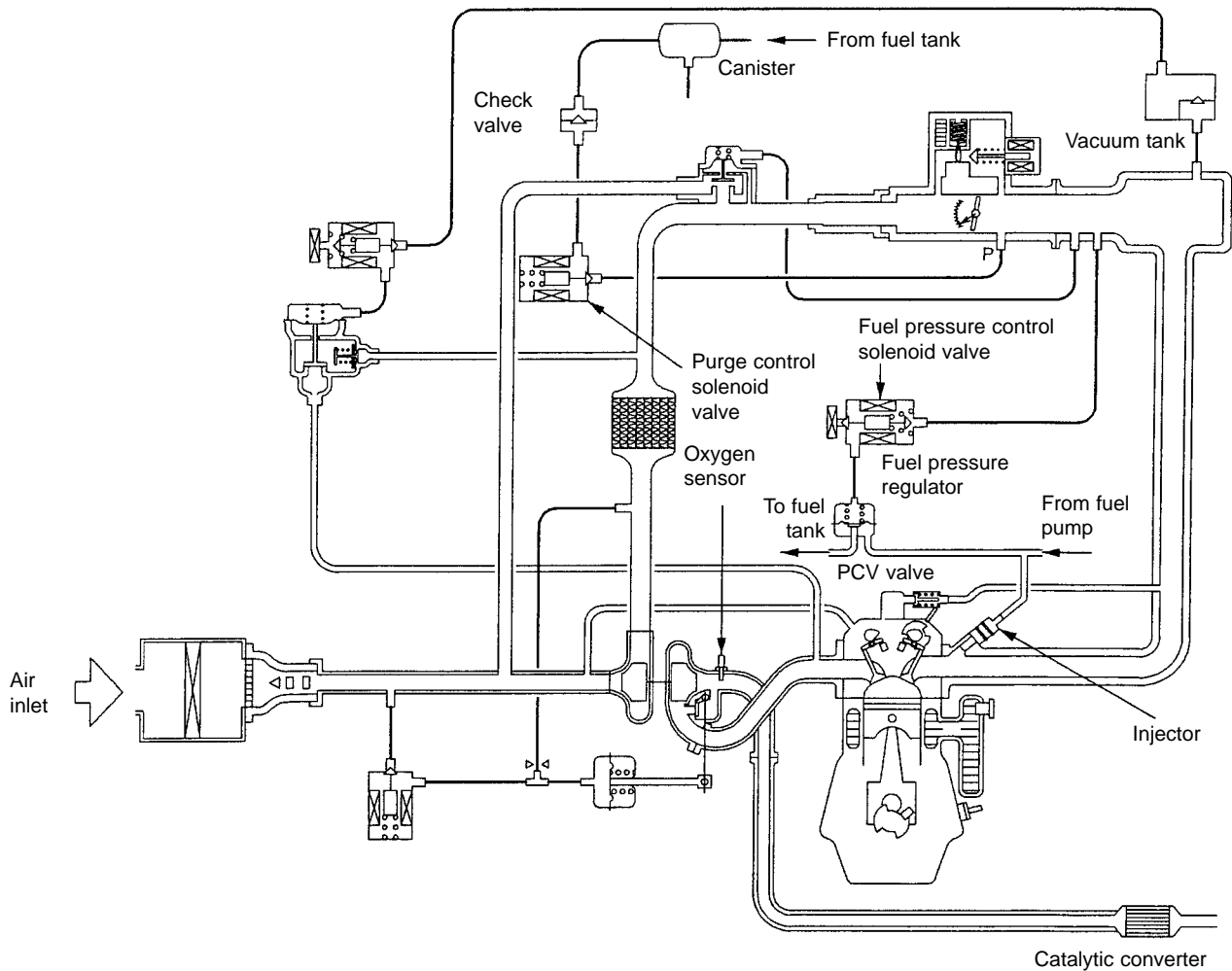
Please refer to the maintenance manual for each item.

## Emission Control System

The following change has been made based on the 4G63-DOHC-Turbocharger engine used in the original Lancer Evolution-VII.

- The EGR system has been discontinued.

### Emission Control System Diagram



## Mounting

The shape of the transmission mounting has been changed for the new 6-speed manual transmission.

### Construction diagram

