

# Electronic Control System

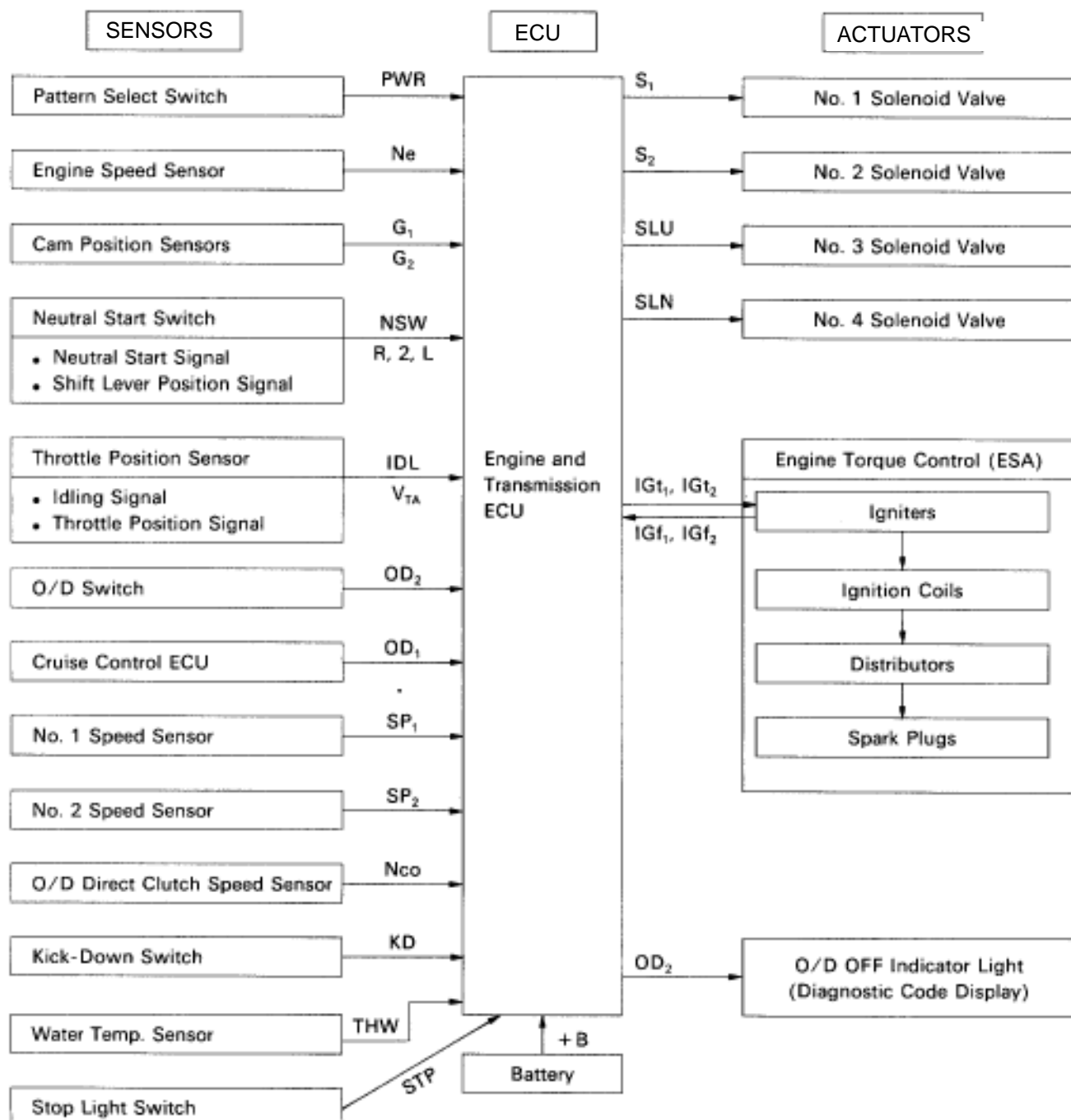
## GENERAL

The electronic control system for the A340E automatic transmission provides extremely precise control of the gear shift timing and lock-up timing in response to driving conditions as sensed by various sensors located throughout the vehicle and in response to the engine's running condition.

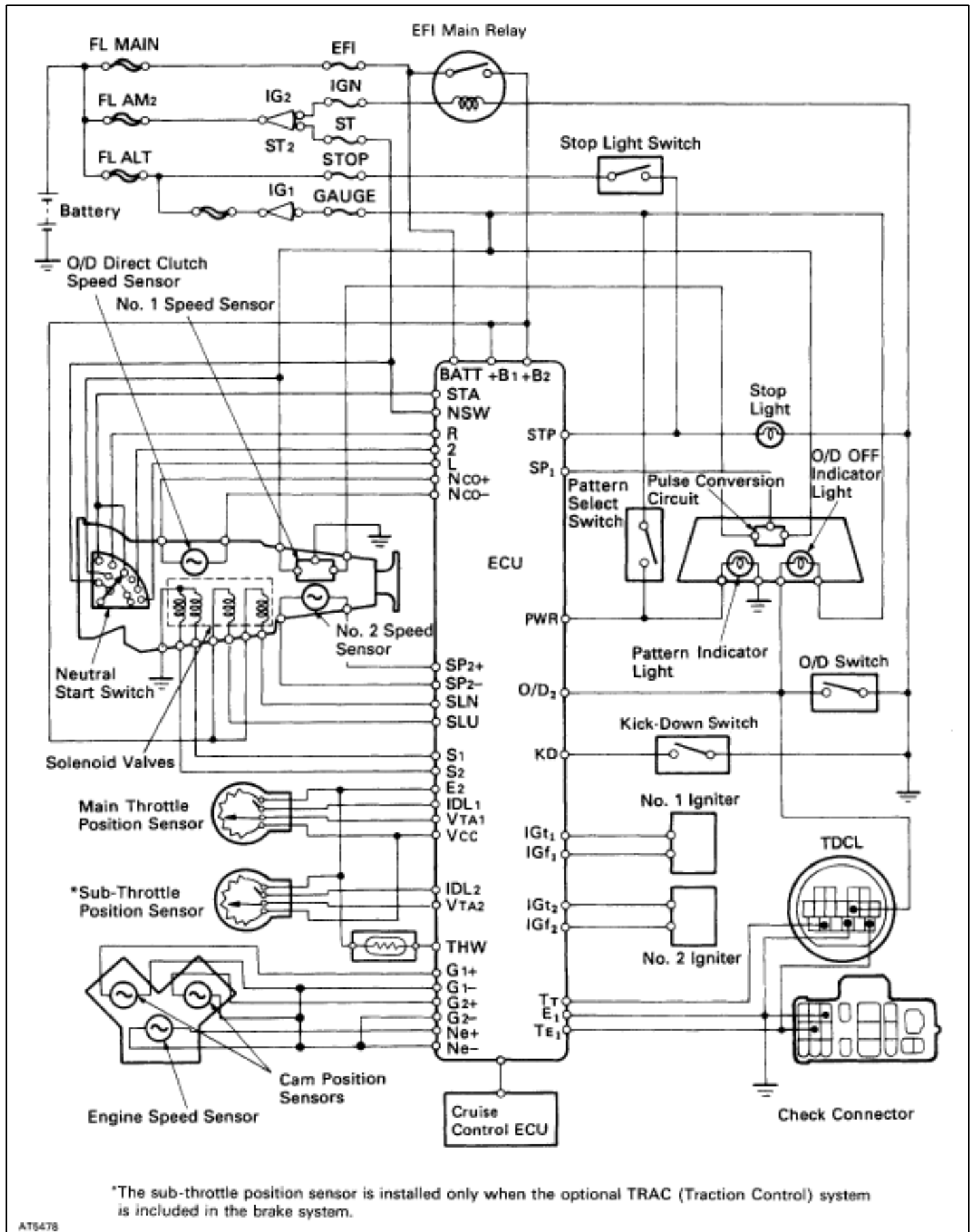
At the same time, the ECU control reduces vehicle squat when the vehicle starts out and gear shift shock. The electronic control system is also equipped with a self diagnosis system which diagnoses malfunctions of electronically controlled components and warns the driver, and a fail-safe system which makes it possible for the vehicle to continue functioning when a malfunction occurs.

## CONSTRUCTION

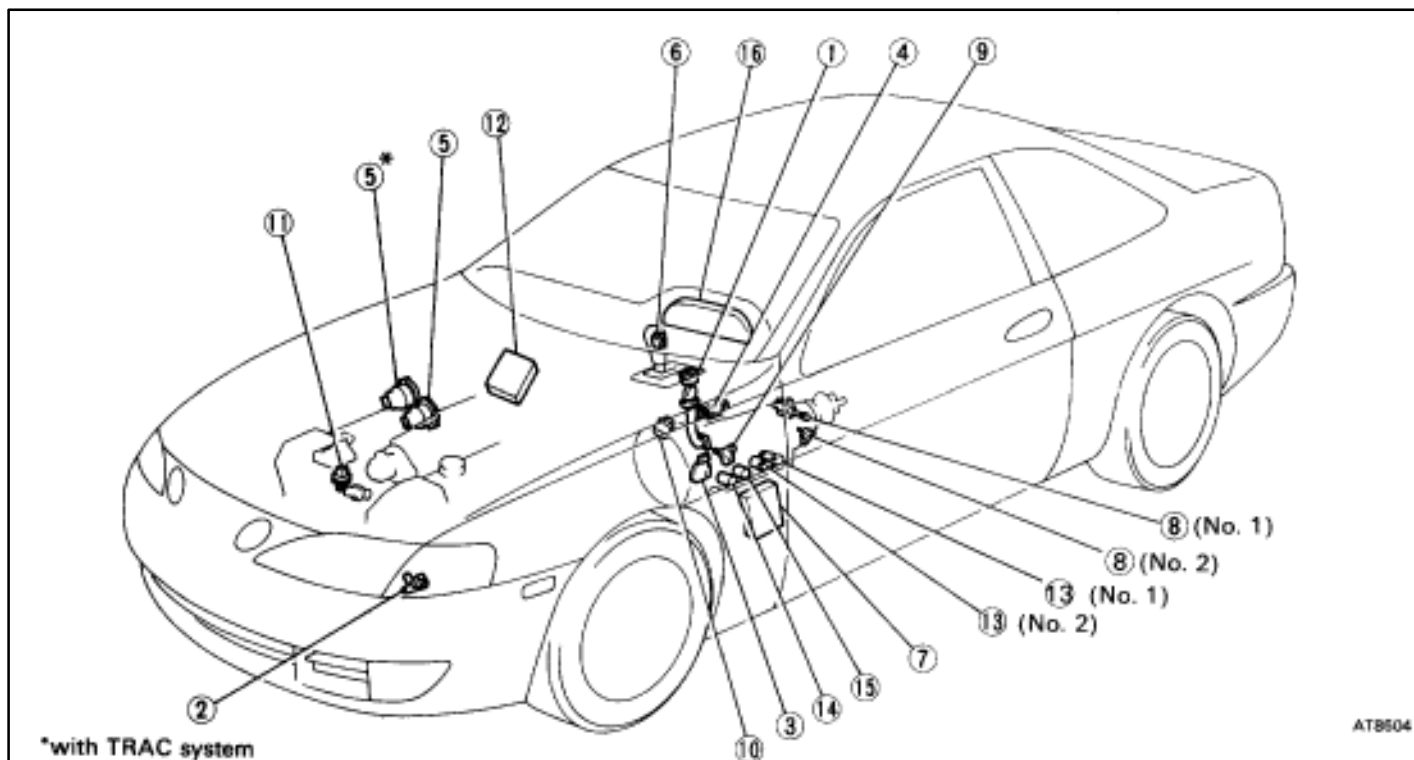
The electronic control system can be broadly divided into three groups; the sensors, ECU and actuators.



## SYSTEM DIAGRAM



## ARRANGEMENT OF COMPONENTS



No.	Components	Functions
1	Pattern Select Switch	Selects the Power mode of the Normal mode for shift and lock-up timing.
2	Engine Speed Sensor	Detects the engine speed.
3	Neutral Start Switch	Detects the shift lever position.
4	Stop Light Switch	Detects if the brake pedal is depressed.
5	Throttle Position Sensor	Detects the throttle valve opening angle.
6	O/D Switch	Prevents up shift to the O/D dear if the O/D switch is off.
7	Cruise Control ECU	This ECU prevents the transmission from shifting into overdrive and prohibits lock-up control when the vehicle's speed drops below the cruise control set speed parameter.
8	No.1 and No. 2 Speed Sensors	Detect the vehicle speed. Ordinarily, ECT control uses signals from the No. 2 speed sensor, and the No.1 Speed sensor is used as a back-up.
9	O/D Direct Clutch Speed Sensor	Detects the input shaft speed from 1st gear to 3rd gear.
10	Kick-Down Switch	Detects if the accelerator pedal is depressed beyond the full throttle valve opening position.
11	Water Temp. Sensor	Detects the engine coolant temperature.
12	Engine and Transmission ECU	Controls the engine and transmission actuators based on signals from each sensor.
13	No. 1 and No. 2 Solenoid Valves	Control the hydraulic pressure applied to each shift valve, and control the gear shaft position and timing.
14	No. 4 Solenoid For accumulator back pressure modulation	Controls the hydraulic pressure applied to the back chamber of the accumulator and smoothes the engagement of clutches and brakes during shifting.
15	No. 3 Solenoid For lock-up control pressure modulation	Controls the hydraulic pressure applied to the lock-up clutch and controls lock-up timing.
16	O/D OFF Indicator Light	Blinks and warns the driver, while the /D main switch is pushed in, when the electronic control circuit is malfunctioning.