1971-73 GENERAL MOTORS MAX-TRAC TRACTION CONTROL SYSTEM

Buick (1971-73)

▶ CHANGES, CAUTIONS, CORRECTIONS

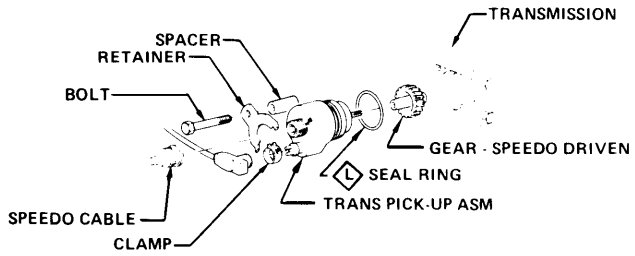
▶ *MAX-TRAC OPERATIONAL NOTE* – System is designed to improve vehicle control during **acceleration**, when road conditions are such that rear wheels may tend to spin while accelerating. This is a separate system and **does not** operate during brake application. On 1973 models, system is designed to operate at ZERO MPH (1971-72 systems did not operate under TWO MPH). It is necessary to switch the system "OFF" when performing any service that requires spinning rear wheels.

▶ *MOBILE RADIO EQUIPMENT NOTE:* If a telephone, citizens band radio or other transmitting device is installed, antenna or antenna lead wire must be at least three feet away from controller (to avoid possibility of signal interference which could cause Max-Trac to operate when not desired).

DESCRIPTION

Purpose of system is to aid driver in maintaining directional stability and maneuverability during acceleration and/or cornering by automatically limiting engine power to value required for maximum acceleration without excessive rear wheel slippage. System uses ignition switch, stop light switch, stop light, ignition circuit, and consists of four major components:

Transmission Speed Sensor – A mechanically driven electromagnetic device mounted in transmission at speedometer cable connection. Produces AC voltage and converts rear wheel speed into an electrical signal frequency for transmission to controller.



◇L LUBRICATE SEAL WITH TRANS OIL BEFORE ASSEMBLY.

ASSEMBLY NOTE: PICK-UP ASSEMBLY & SPEEDO DRIVEN GEAR MUST BE FULLY SEATED IN TRANS BORE PRIOR TO INSTALLATION OF SPACER & RETAINER.

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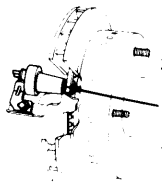
SENSOR INSTALLATION

Front Wheel Speed Sensor and Speed Disc – An electromagnetic device which, in conjunction with rotating speed disc produces AC voltage and converts front wheel speed into an electrical signal frequency for transmission to controller. Speed disc is mounted on hub of left front wheel and sensor mounted at predetermined distance from disc.

NOTE – New sensor must be installed with felt tip against disc. If original sensor is reinstalled (felt tip missing), adjust air gap to .050".



SENSOR ALIGNMENT
POSITION FELT PAD ON TIP OF SENSOR AGAINST DISC WHEN TIGHTENING SCREW.

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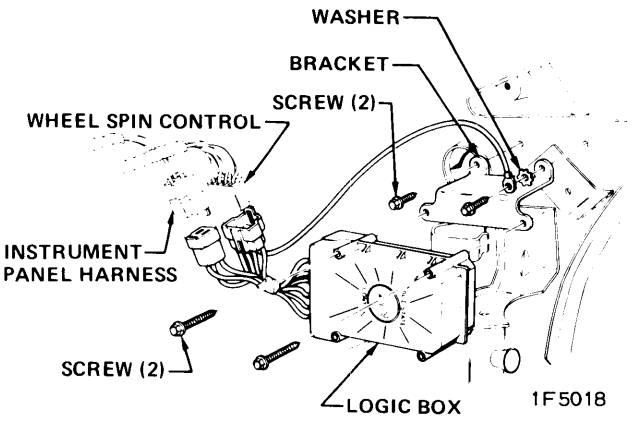
SENSOR ALIGNMENT

Electronic Controller – A solid state electronic computer located in passenger compartment. Receives wheel speed signals from both sensors, compares signals and, when difference exceeds predetermined amount, transmits signal to ignition system.



CONTROLLER INSTALLATION

On-Off Switch – Located on instrument panel and normally "ON". Should malfunction occur in system, vehicle may be driven with switch "OFF" until repairs are made. Also, system should be inoperative under certain driving conditions, i.e., rocking car in snow.

Diverter Valve Solenoid (1973) – In addition to the above components, vehicles equipped with Max-Trac and A.I.R. have a solenoid mounted on A.I.R. pump to prevent engine miss-fire when Max-Trac is operating.

OPERATION

When vehicle is driven normally, no ignition interrupts will occur if slippage does not exceed a predetermined value. If excessive acceleration and/or hard cornering reduces normal load on rear wheel, slippage can exceed predetermined amount. Controller compares sensor speed signals, determines excessive slippage has occured and generates an output signal which interrupts ignition. Result is reduction of engine power to a value required for maximum acceleration without excessive rear wheel slippage. *NOTE– When system is functioning normally, engine may appear to miss or lack power when accelerating on slippery surfaces.*

1971-73 GENERAL MOTORS MAX-TRAC TRACTION CONTROL SYSTEM (Cont.)

DIAGNOSIS & TROUBLE SHOOTING

System Inoperative At All Speeds – On-off switch set at "OFF". No ground connection to controller: unplug #6 terminal connector and check black wire for proper ground. Brake lights dead: check fuse and stop light switch. No signal from transmission speed sensor: unplug #6 terminal connector at controller and check resistance between red and white wires at harness (should be 1600-2400 ohms); if circuit is open, check resistance across sensor terminals (if open, replace sensor; if 1600-2400 ohms, replace harness). Controller faulty.

Engine Will Start, But Will Not Run Until On-Off Switch Is Set At "OFF" – No battery (positive) electrical supply to controller: unplug #3 terminal connector at controller, turn ignition to "ON", and check for available battery voltage between pink wire and ground (if not, replace harness). No connection between controller output and ignition ballast resistor: unplug #3 terminal connector at controller, and check resistance between pink/black wire at harness connector and positive terminal of coil (should be 1.8 ohms). Faulty controller.

System Functions Or Engine Stops During Braking – No positive electrical supply from brake circuit, or no connection from controller to brake switch: unplug #3 terminal connector at controller, with brakes applied, and check for battery voltage between white wire and ground (if not, replace harness). Brake lights dead. Faulty controller.

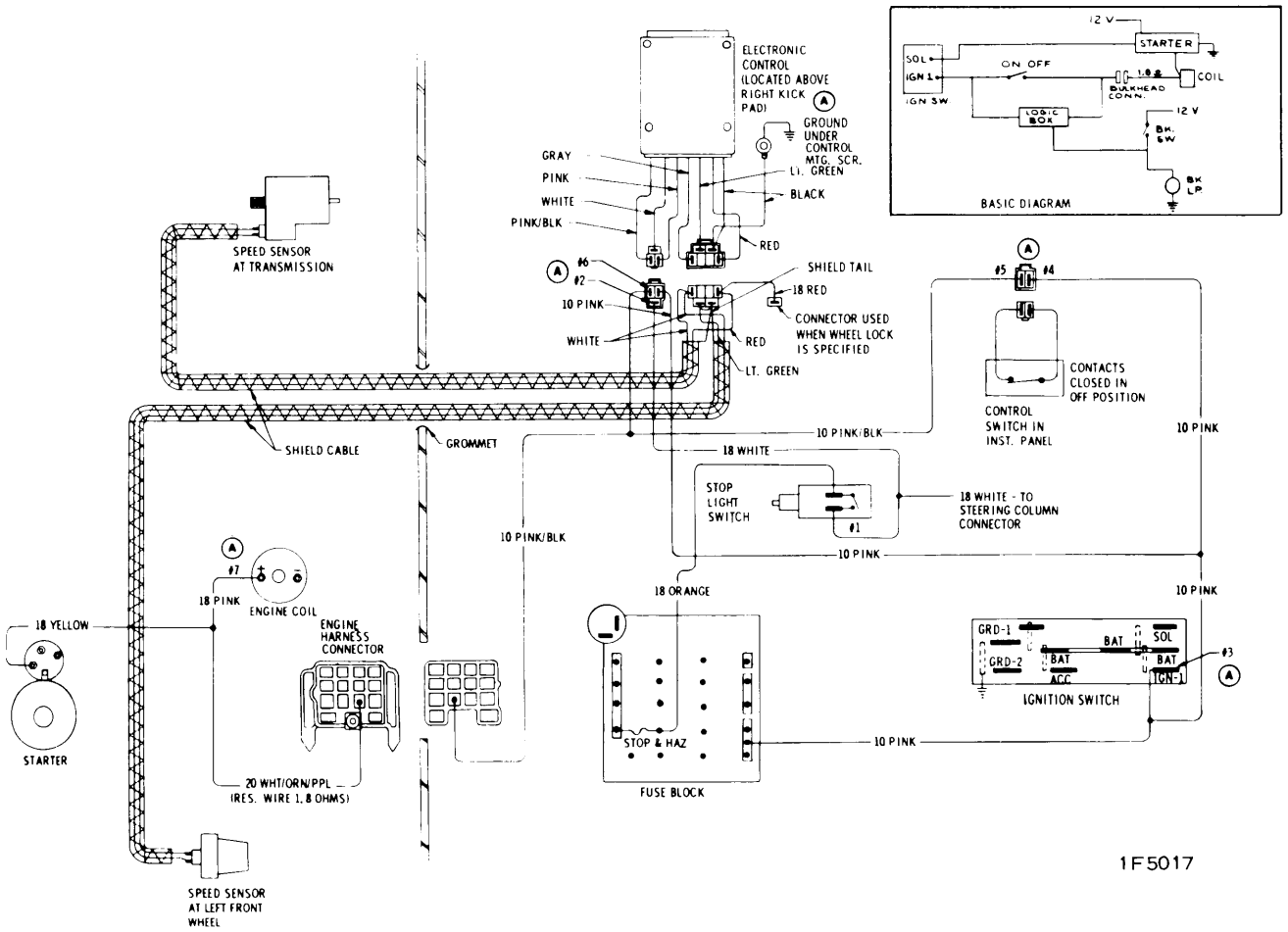
System Functions Properly At High Speeds, But Is Inoperative At Lower Speeds – Low signal from front wheel speed sensor: check for proper gap between sensor and disc. Faulty controller.

System Functions Below Two MPH (1971-72 Only) – Faulty controller.

System Functions At Low Speeds Causing Engine Hesitation – Low signal from front wheel speed sensor: check for proper gap between sensor and disc.

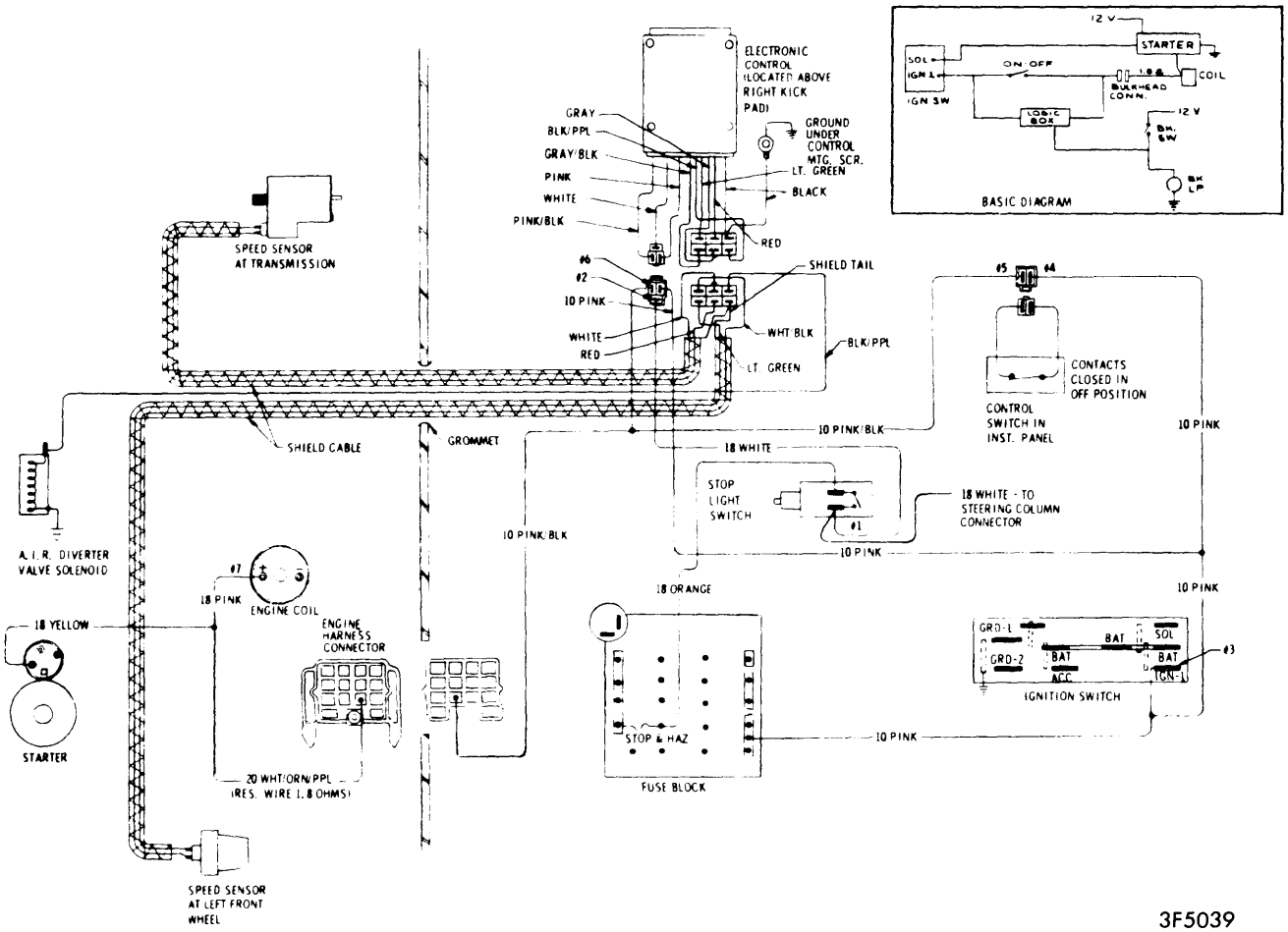
System Operates When Not Necessary – Wrong speedometer gear.

Engine Backfires – A.I.R. by-pass system disconnected. A.I.R. by-pass solenoid not grounded. Front wheel speed sensor improperly positioned.



1971-72 MAX-TRAC WIRING DIAGRAM

1971-73 GENERAL MOTORS MAX-TRAC TRACTION CONTROL SYSTEM (Cont.)



1973 MAX-TRAC WIRING DIAGRAM