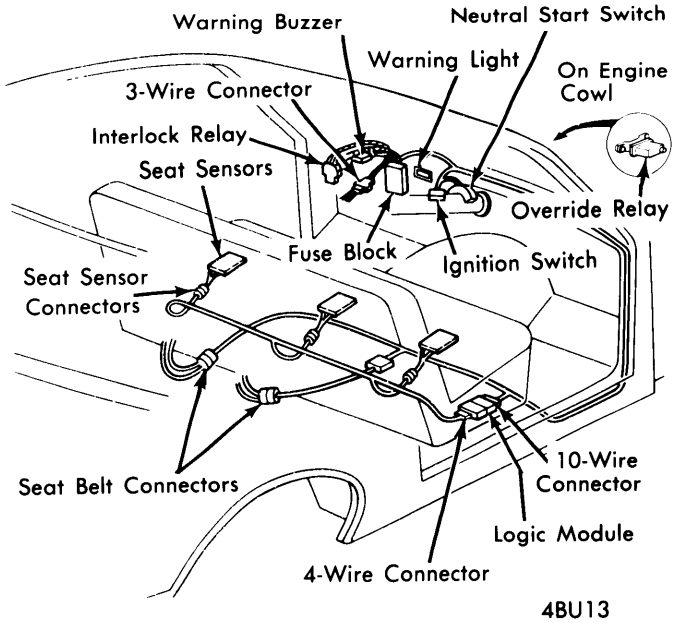
1974 GENERAL MOTORS SEAT BELT-STARTER INTERLOCK SYSTEM

DESCRIPTION

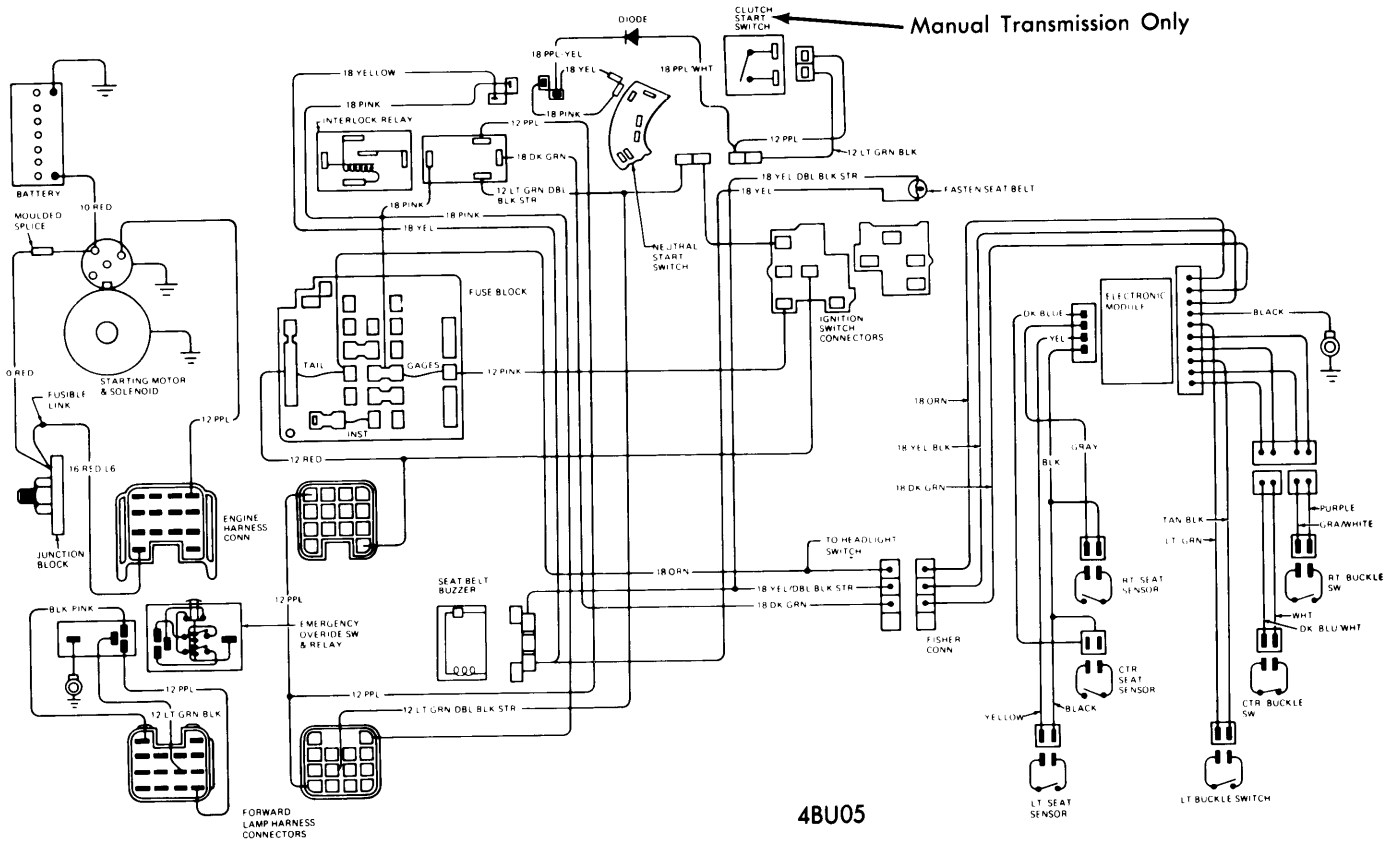
Starter interlock is designed to prevent engine start when front seat belts, except center belt, are not fastened after occupying seat. A seat belt warning light and buzzer are also activated if belts are unfastened when vehicle is in forward drive mode. Components consist of three seat sensors and buckle switches, logic module, warning buzzer and light, interlock relay, override switch and related wiring. Logic modules are either mechanical relay or electronic design. Seat sensors are either beam type located under seat cushion or pressure sensitive type under trim cover.

OPERATION

Interlock logic module is always connected to battery power. When a seat sensor is actuated, module senses this and sends power to interlock relay coil opening the normally closed contacts. This opens circuit to starter solenoid preventing engine start. When seat belts are fastened, the module senses a circuit change and power to interlock relay is stopped and contacts close permitting engine start. Logic module prevents interlock relay from closing if buckle is activated before seat sensor.



STARTER INTERLOCK COMPONENT LOCATIONS (TYPICAL)



APOLLO STARTER INTERLOCK WIRING

1974 GENERAL MOTORS SEAT BELT-STARTER INTERLOCK SYSTEM (Cont.)

Bounce Feature – Logic module has a bounce feature that keeps the interlock system from preventing a start when a buckled-in occupant momentarily lifts off seat activating seat sensor. The module would sense belt being fastened before sitting and prevent start. Delay time ranges 5 to 20 seconds before recording sequence violation.

Start Procedure – Sit on seat, fasten belts at occupied front seat positions, place automatic transmission in "P", or fully depress clutch pedal with manual transmission and set park brake. Then turn ignition switch to start engine. *NOTE – Objects laying on front seat may prevent start.*

Technician's Start – Engine can be started with ignition switch providing seat and belt switches are not activated. With automatic transmission in "P" or manual transmission clutch pedal depressed, engine may be started without sitting on seat or fastening belts.

Override Relay – Permits engine start by-passing interlock relay in the event of system failure. To activate relay, turn ignition "ON" and press and release relay button in engine compartment. *CAUTION – Press and release button, do not hold or tape button in depressed position.* Engine may be started and restarted as necessary; relay remains activated until ignition key is turned "OFF".

TESTING STARTER INTERLOCK

NOTE – Correct starting procedure must be used.

STARTER WILL NOT CRANK

1) Turn ignition to "START" and listen for click from starter solenoid. If solenoid clicks, problem is in starter circuit. See *Delco Remy Starters in ELECTRICAL Section.*

2) Check battery and cables, service as required. With ignition "ON", press and release override relay button in engine compartment. Then turn ignition to "START" while seated. If starter does not crank, go to step **7**); if starter cranks, continue to step **3**).

3) Set park brake and transmission in "P" or "N". With manual transmission, depress clutch pedal. Turn ignition to "START" without sitting on seat and belts unfastened. If starter fails, go to step **4**); if not, go to Seat and Belt System Testing.

4) With ignition "OFF", disconnect 3-wire connector YELLOW, ORANGE and GREEN wires near fuse block. Turn ignition to "START", if starter fails see step **5**); if not, go to Seat and Belt System Testing.

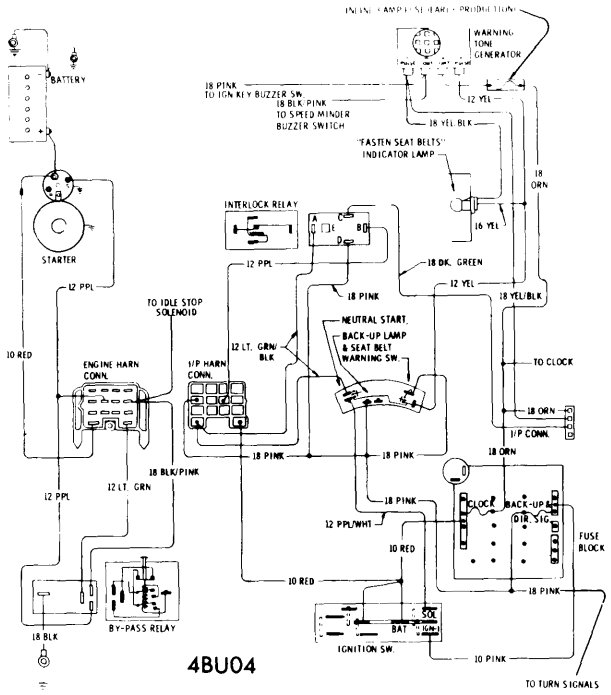
5) With ignition "OFF", disconnect interlock relay's two screws and connect test light to GREEN-BLACK wire (exc. LT. GREEN on Pontiac, PURPLE-WHITE on Cadillac) at relay and ground. Turn ignition to "START", if test light comes on, see step **6**); if light fails, repair open in PURPLE wire between ignition switch and neutral start switch, and/or LT. GREEN wire to interlock relay. If starter still does not crank, check neutral start switch adjustment or with manual transmission, check clutch switch. Stop test if starter cranks normally.

6) Turn ignition "ON", with engine stopped, check for shorts in DK. GREEN wire from interlock relay connector to 3-wire connector. Turn ignition off and disconnect connector from interlock relay. Temporarily connect a jumper wire to 12 volts and touch to PURPLE wire in relay. If starter cranks, replace interlock relay and stop tests. If starter fails, repair open circuit in PURPLE wire between relay and starter; stop tests.

7) Check adjustment of neutral start switch or clutch switch. With ignition "ON", disconnect override relay (push retaining tab down and pull relay out). Temporarily connect a jumper wire to 12 volts and to PURPLE wire "C" terminal on relay connector. If starter cranks, see step **8**); if not, check starter circuit.

8) Leave ignition "ON" and check for voltage at PINK wire ("D" terminal) on override relay connector. If satisfactory, see next step. If not, repair open circuit in PINK wire between override relay and ignition switch. Stop test.

9) With ignition "OFF", connect test light to GREEN-BLACK wire at "B" terminal on override relay connector and ground (Pontiac, LT. GREEN wire and Cadillac, PURPLE-WHITE wire). Turn ignition to "START", if light fails, turn ignition off and repair open circuit in wire just tested from override relay connector to neutral start switch. Connect override relay and stop test if starter cranks. If light is on, check BLACK ground wire connection. If ground is good, replace override relay; if starter cranks, stop tests. *NOTE – If starter fails to crank, go back to step* **2**) *and retest.*



BUICK STARTER INTERLOCK WIRING (EXC. APOLLO)

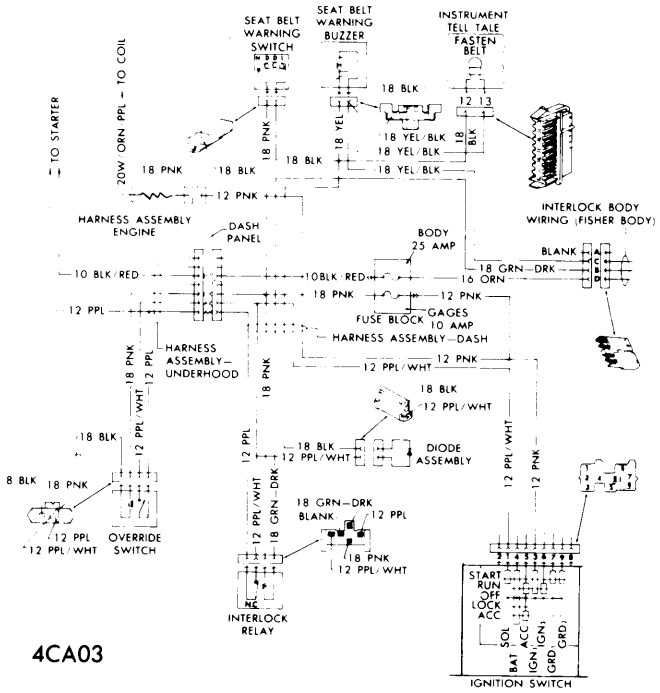
STARTER CRANKS WITH SEAT BELT UNFASTENED

1) Test clock, gauge, turn signal fuses and service as required. Turn ignition to "START" while sitting on seat with belt unfastened. If starter does not crank, problem is corrected. If starter cranks, check 3-wire connection near fuse block and repair if necessary. If starter still cranks, go to step **2**); if not, problem is corrected.

1974 GENERAL MOTORS SEAT BELT-STARTER INTERLOCK SYSTEM (Cont.)

2) Disconnect override relay, turn ignition to "START" while sitting with belt unfastened; if starter fails to crank, replace override relay. If starter cranks, turn ignition off and ground DK. GREEN wire, then turn ignition to "START". If starter cranks, go to step **3**); if not, go to Seat and Belt Testing.

3) With ignition "ON", connect test light to ground and PINK wire (Oldsmobile 88, 98 & Toronado, GREEN-DOUBLE WHITE STRIPE) on interlock relay near fuse block. Test light should be on; if not, repair open from interlock relay to ignition switch. Test continuity of DK. GREEN wire from interlock relay to 3-wire connector and repair if necessary. If starter does not crank with belt unfastened, system is satisfactory. If starter still cranks with belt unfastened, and PINK and DK. GREEN wires are satisfactory, replace interlock relay.



4CA03

CADILLAC STARTER INTERLOCK WIRING

SEAT & BELT SYSTEM TESTING

NOTE — Engine cranks when 3-wire connector near fuse block is disconnected or when turning ignition to "START" with seat belts unfastened and no one sitting on seats.

1) With ignition "ON", belts unfastened, 3-wire connector connected, press and release driver and passenger seat cushion. Interlock relay should click twice at each seat position. With two clicks at both positions, go to step **2**); two clicks at one position only, go to step **5**); and only one click or no click at both positions, go to step **7**).

2) Sit on seat, hold seat belt release button in and connect belt. Relay should click when belt is fastened. *NOTE — Holding release button prevents snap lock from making more noise than relay.* Perform same test on opposite front seat position to determine which belt does not click relay when fastened. If relay clicks for one belt only, go to step **3**). If relay does not click when belts are fastened, remove module from under seat and disconnect multiple connectors. Connect a self-powered test light to ground and BLACK wire in 10-pin connector. If light comes on, replace module; if not, repair ground wire.

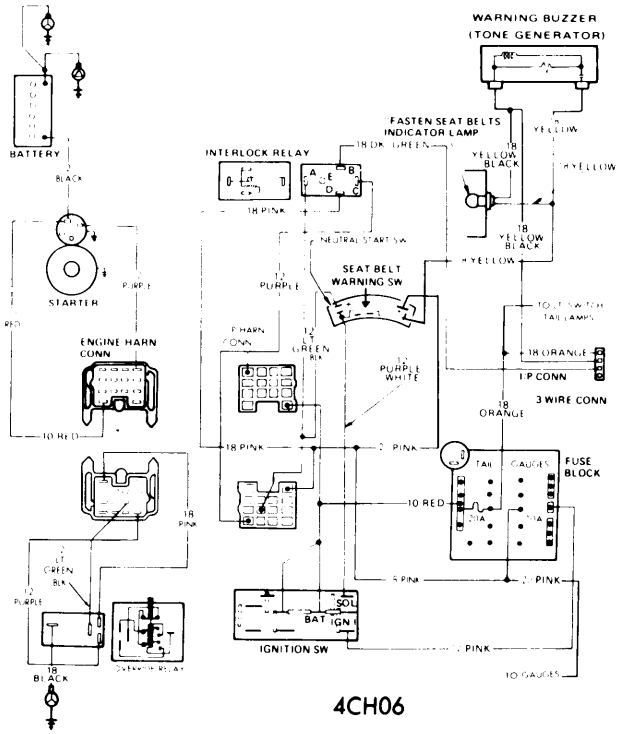
3) Turn ignition "OFF", move seat forward and disconnect seat belt wire connector at position where there was no click. Connect a self-powered test light to both terminals in belt side of wire connector and connect belt buckle. If light fails; on vehicles with electronic module, or light comes on; vehicles with mechanical relay module, replace defective seat belt and stop test if problem is corrected.

4) Reconnect seat belt wire connector, remove module and disconnect both multiple connectors. Connect a self-powered test light to the two wires in 10-pin connector for seat belt in question. If test light fails, repair open circuit in one or both wires leading from belt connector to 10-pin connector. If light comes on, connect tester to ground and BLACK wire in 10-pin connector. If light comes on, replace module; if light fails, repair ground connection BLACK wire to body. *CAUTION — To prevent replacement module failure, be certain interlock relay or reminder buzzer is not shorted internally.*

5) Disconnect seat sensor connector at seat position where two clicks cannot be heard. Connect self-powered test light to terminals in sensor side of connector. Press on seat position and replace seat sensor if light fails. If light comes on, go to step **6**).

6) Reconnect seat sensor. Remove module from under seat and disconnect both module connectors. Connect self-powered test light to BLACK wire in 4-wire connector and to wire leading to seat sensor in question. Press and release seat cushion. If test light comes on, replace module; if not, repair open circuit in one or both wires from 4-wire connector to seat sensor. Stop tests if problem is corrected.

7) Disconnect 3-wire connector near fuse block. Remove module from under seat and disconnect module connectors. Connect self-powered test light to DK. GREEN wire in 10-pin connector and ground. Light on, repair short in wire between connectors. Light off, go to step **8**).

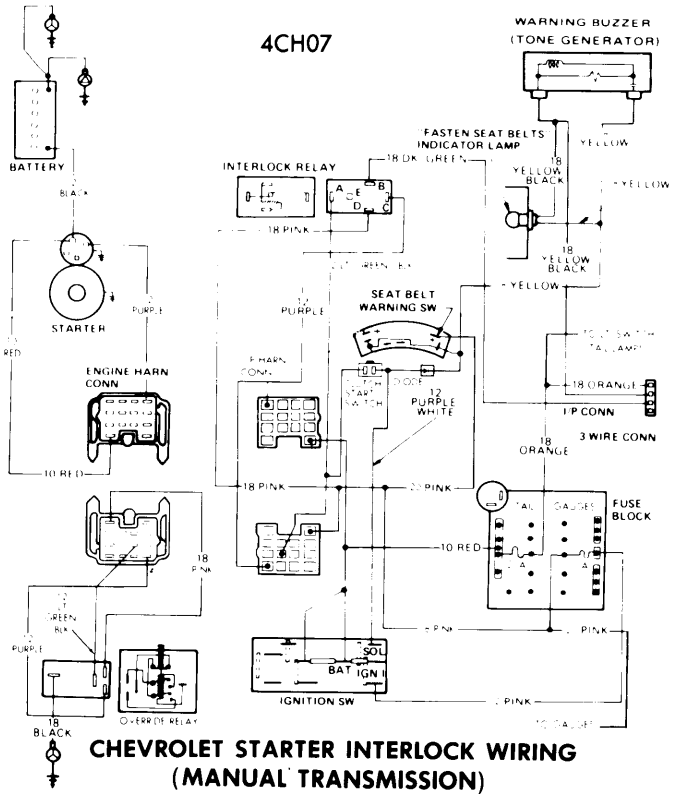


4CH06

CHEVROLET STARTER INTERLOCK WIRING (AUTOMATIC TRANSMISSION)

1974 GENERAL MOTORS SEAT BELT-STARTER INTERLOCK SYSTEM (Cont.)

8) Connect self-powered test light to body ground and to each wire in 4-wire connector. Light on with any wire, repair short in wire to seat sensor. Light off for all wires, connect same test light to body ground and to black wire in 10-pin connector. Light on, replace module; light off, repair ground connection.



CHEVROLET STARTER INTERLOCK WIRING (MANUAL TRANSMISSION)

SEAT BELT BUZZER & LIGHT WILL NOT OPERATE

NOTE — In the following test, the procedure varies depending on transmission type, shift lever design and vehicle model. In each case with seat belt unfastened, light and buzzer should operate; if not, continue to step **1**).

With Automatic Transmission — Turn ignition "ON", leave belt unfastened and shift transmission to "D".

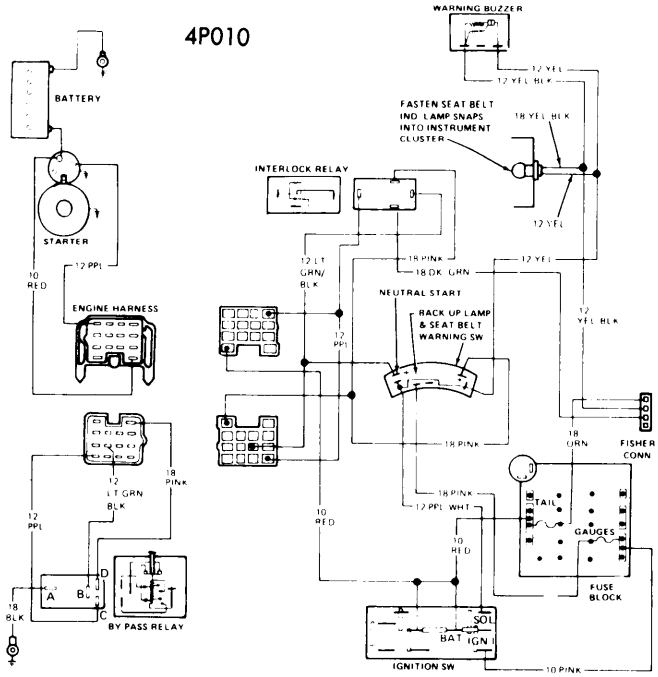
With Floor Or Column Shift Man. Trans. (Pontiac LeMans, Grand AM, & Firebird Only) — Park brake released and ignition switch to "START". *NOTE — Clutch switch does not affect buzzer or light.*

With Column Shift Manual Transmission — Set shift lever out of neutral and/or clutch depressed with ignition switch to "START".

With Floor Shift Manual Transmission — Shift lever in any position, park brake "OFF" and ignition switch "ON" with clutch depressed.

1) Check the following fuses and service as required; Gauge, body (Cadillac); clock, turn signal (Buick); tail lights, clock, gauge and radio (Oldsmobile); tail light, gauge (Chevrolet). If original problem still exists, continue to step **2**).

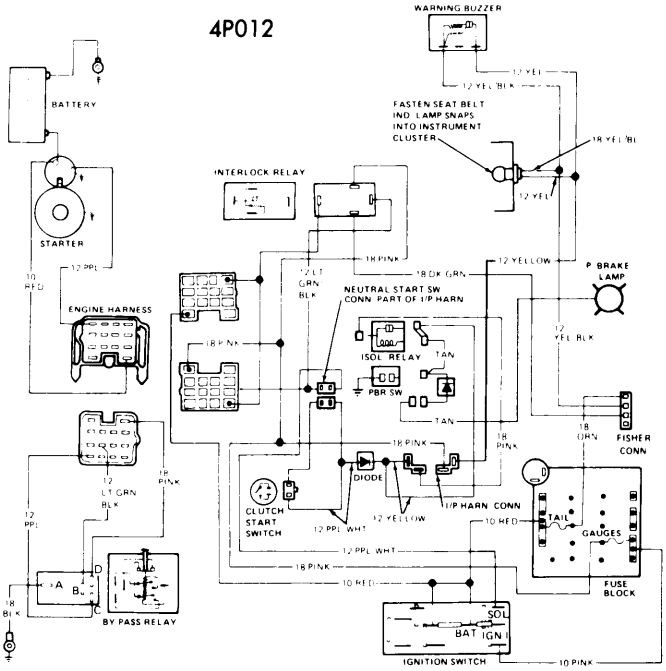
2) Without disconnecting 3-wire connector near fuse block, ground the YELLOW wire. Buzzer and light off, see next test; if not, see step **4**).



FIREBIRD STARTER INTERLOCK WIRING (AUTOMATIC TRANSMISSION)

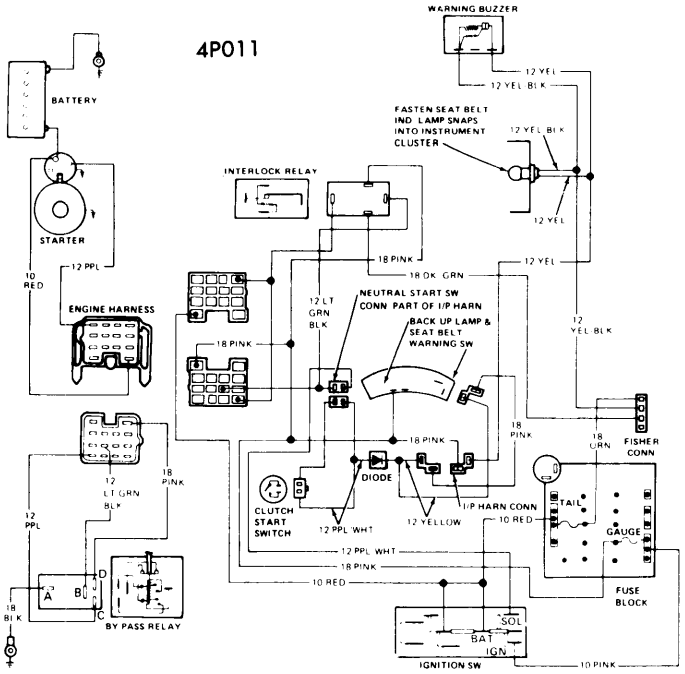
3) Connect a test light to ground and check PINK wire at neutral safety switch. Test light off, repair open in PINK wire circuit from fuse block to neutral safety switch. Test light on, unplug warning buzzer and check YELLOW wire to buzzer with test light. Test light remains on, replace buzzer or warning light as required. Light off, repair open in YELLOW wire from buzzer to neutral safety switch.

4) Ground YELLOW-BLACK wire at 10-wire connector on module without removing connector. If buzzer and light remain on, replace module. If buzzer and light go off, repair open circuit in same wire between module and 3-wire connector.

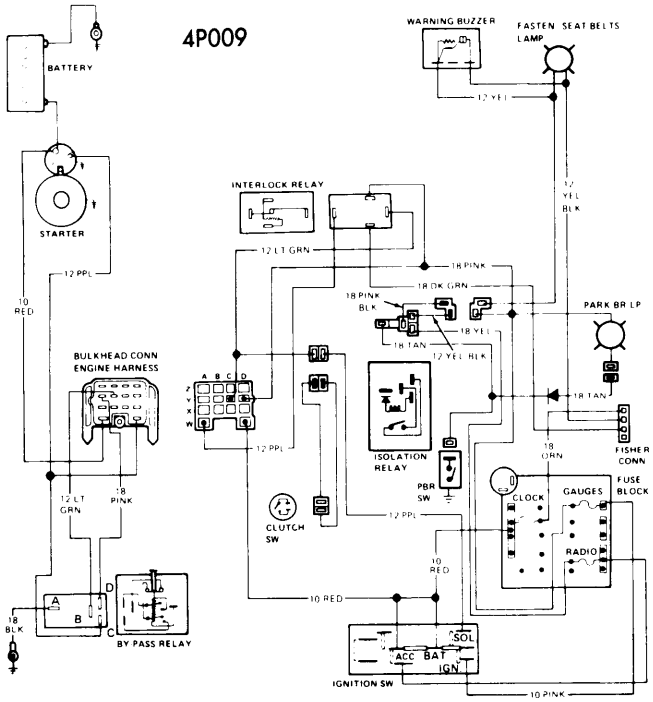


FIREBIRD STARTER INTERLOCK FLOOR SHIFT (MANUAL TRANSMISSION)

1974 GENERAL MOTORS SEAT BELT-STARTER INTERLOCK SYSTEM (Cont.)



FIREBIRD STARTER INTERLOCK COLUMN SHIFT (MANUAL TRANSMISSION)



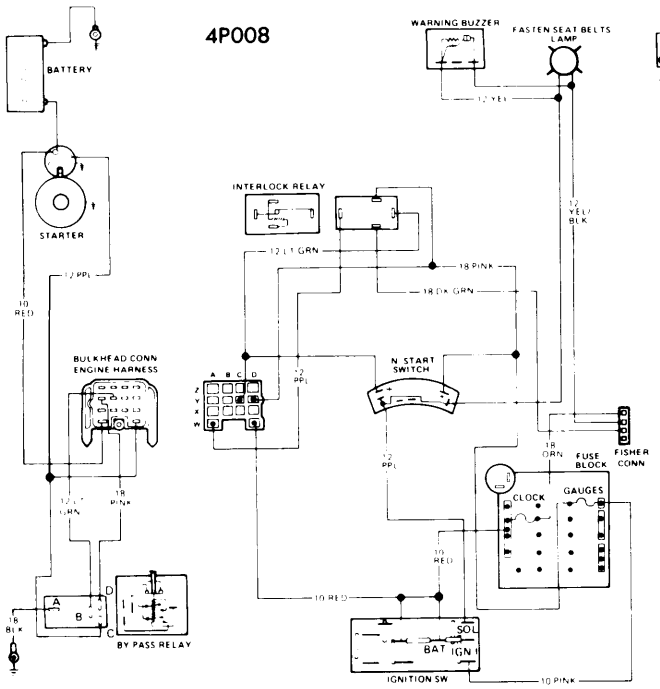
PONTIAC STARTER INTERLOCK WIRING MANUAL TRANSMISSION (EXC. FIREBIRD)

SEAT BELT BUZZER & LIGHT REMAIN ON

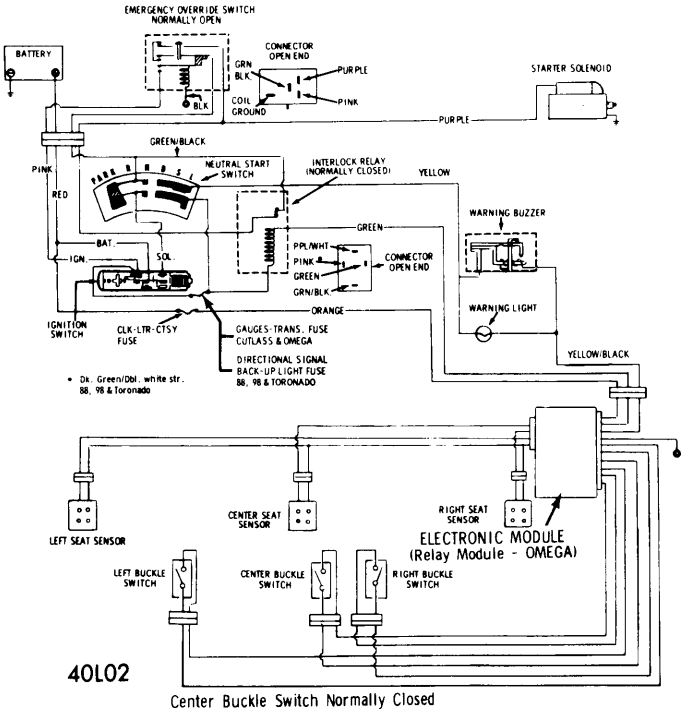
NOTE — Seat belts fastened in sequence and engine starts normally. With manual transmission, release park brake.

1) Turn ignition "ON", step out of car, if buzzer and light come on, go to step **2**); if not, go to Seat & Belt System Testing.

2) Disconnect 3-wire connector and repeat tests as in step **1**). If buzzer and light remain on, check YELLOW-BLACK wire circuit leading from 3-wire connector to warning buzzer and belt warning light. If buzzer and light go off with 3-wire connector disconnected, remove module and disconnect 10-wire connector. Reconnect 3-wire connector; if buzzer and light stay on, repair YELLOW wire between 3-wire and 10-pin connector. If



PONTIAC STARTER INTERLOCK WIRING AUTOMATIC TRANSMISSION (EXC. FIREBIRD)



Center Buckle Switch Normally Closed

NOTE: On OMEGA all three buckle switches normally closed.

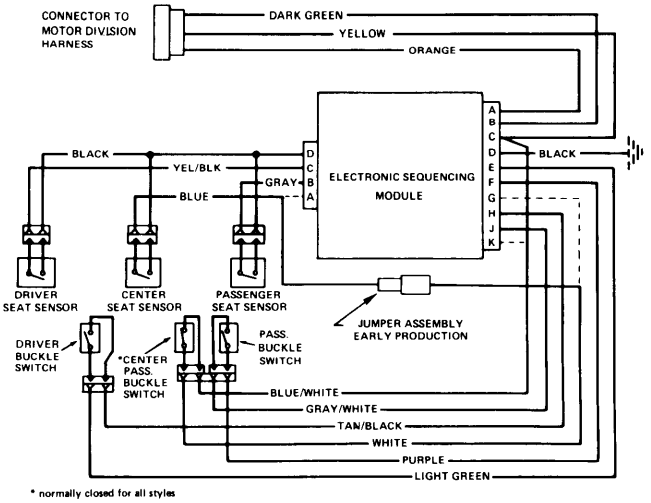
OLDSMOBILE STARTER INTERLOCK WIRING

1974 GENERAL MOTORS SEAT BELT – STARTER INTERLOCK SYSTEM

buzzer and light go off after reconnecting 3-wire connector, replace module. *NOTE – With Pontiac models, test center seat switch before replacing module as follows:* Reconnect 10-wire connector and disconnect center seat switch. If buzzer and light go off, replace seat switch; if not, replace module.

STARTER DOES NOT CRANK & SEAT BELT LIGHT & BUZZER DO NOT OPERATE (CADILLAC ONLY)

Disconnect interlock diode connection near fuse block. Using a self-powered test light, test diode continuity in both directions. If tester lights both ways, replaced diode. If diode lights only in one way, check BLACK wire leading from diode harness connector for an open circuit.



4CH01

G.M. STARTER INTERLOCK SEAT SYSTEM COMPONENTS (TYPICAL)

REMOVAL & INSTALLATION

LOGIC MODULE

NOTE – The relay logic module is not interchangeable with the two variations of electronic modules used. Both electronic modules use slightly different wiring harnesses designed to by-pass the operation of center seat sensor. This allows engine start without center occupant buckling seat belt. One harness by-passes module to center seat sensor with a jumper wire and the other harness by-pass is through module. The module with built-in by-pass can be used with either harness. Module without built-in by-pass can only be used with harness incorporating jumper wire (see illustration).

Logic Module Location (All Models) – Vega, Camaro and Nova module is under front seat, driver's side. Corvette module is near left rear quarter panel inside vehicle under carpet. For all other models, module is under front seat, passenger side.

Removal & Installation – Raise power operated seat to full up limit, or on other seats if necessary, detach seat at floor pan and tilt seat rearward. Disconnect module from retainer with a small screwdriver from under front seat bottom frame. Remove deflector from 4-wire connector. Disconnect 4-wire and 10-wire connectors from module using suitable tool (J-24388 or BT-7402-A). To install module, reverse removal procedure. *CAUTION – To prevent replacement module failure, be certain interlock relay or reminder buzzer are not shorted internally.*

SEAT SENSORS

Beam Type (All Bucket Seats) – Disconnect sensor feed wire connector under passenger seat. Disconnect seat assembly from floor pan or seat adjusters and tilt seat rearward. Disconnect sensor feed wire clip from seat frame and both ends of sensor from spring wire unit. To install sensor, reverse removal procedure making certain sensor is attached to top and at offset of third wire on spring and wire units.

Pressure Sensitive Type (All Full Width, 40-40, 60-40, and 50-50 Seats) – Where present, remove seat cushion side panel and control switch. Remove seat adjuster-to-floor pan attaching bolts (driver's side only on Cadillac 60-40 seat) and tilt seat rearward (passenger seat only on 40-40, 60-40, and 50-50 seats). On all split seats, remove outboard adjuster from seat frame. On bench seats, remove adjuster adjacent to affected sensor. Detach trim cover from side of seat cushion sufficently to gain access to sensor. Disconnect sensor wire at connector under seat. Carefully break cement bond securing sensor to foam pad; then pull sensor wire up through hole in foam pad and remove sensor. To install sensor, reverse removal procedure. Prior to installing a new sensor, remove adhesive protective paper from bottom surface of sensor. *NOTE – If repositioning used sensor, apply a small amount of trim cement to cushion and bottom of sensor. Then apply a strip of waterproof body tape over sensor to secure during trim reinstallation. Do not apply tape too tightly over switch.*