STEERING COLUMN SWITCHES

1990 Nissan 240SX

1990 ACCESSORIES & EQUIPMENT
Nissan - Steering Column Switches

Axxess, Maxima, Pathfinder, Pickup,
Pulsar NX, Sentra, Stanza, 240SX, 300ZX

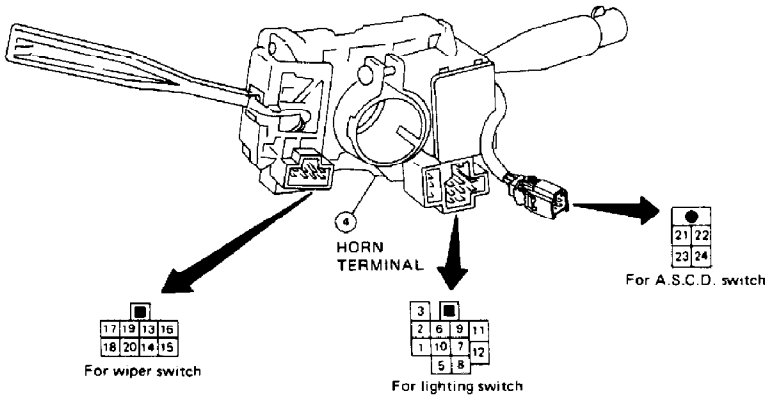
TESTING

* PLEASE READ THIS FIRST *

WARNING: On Pulsar NX, with drivers side air bag, use extreme caution while servicing steering column. Disconnect battery and wait 10 minutes to allow system to electrically discharge before attempting any repair. DO NOT apply electrical power to any component on steering column without disconnecting air bag module. All SRS wiring harnesses are covered with yellow outer insulation, do not use electrical test equipment on these circuits

COMBINATION SWITCH TEST

Remove combination switch. See COMBINATION SWITCH. Use ohmmeter to check continuity at switch terminals as switch is operated. See Figs. 1-5. Most switches (lights, wiper, etc.) can be removed from combination switch assembly.



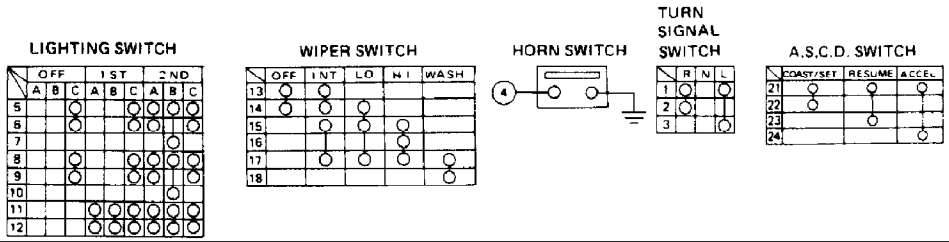


Fig. 1: Checking Continuity of Combination Switches (Axxess, Maxima, Sentra & Stanza)
Courtesy of Nissan Motor Co., U.S.A.

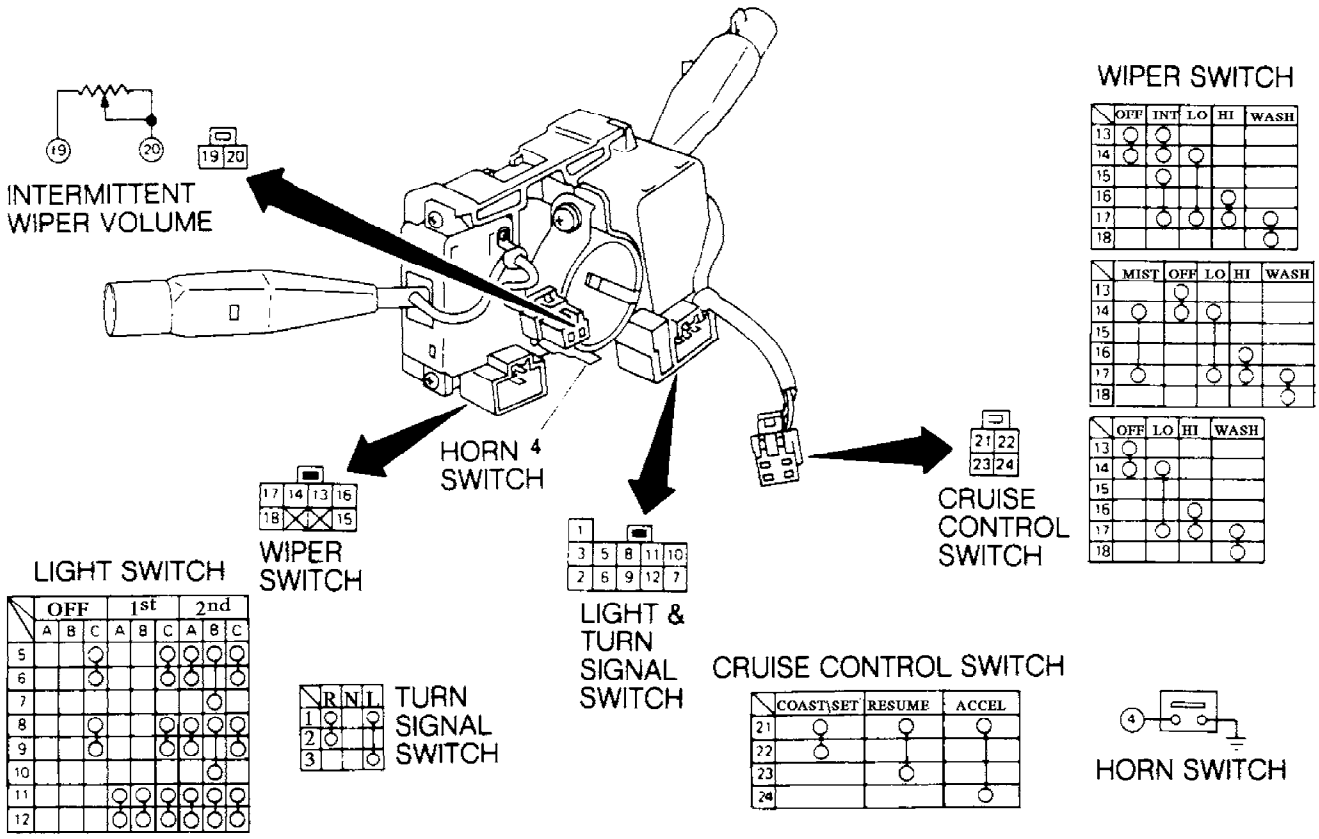


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Fig. 2: Checking Continuity of Combination Switches (Pathfinder & Pickup)
Courtesy of Nissan Motor Co., U.S.A.

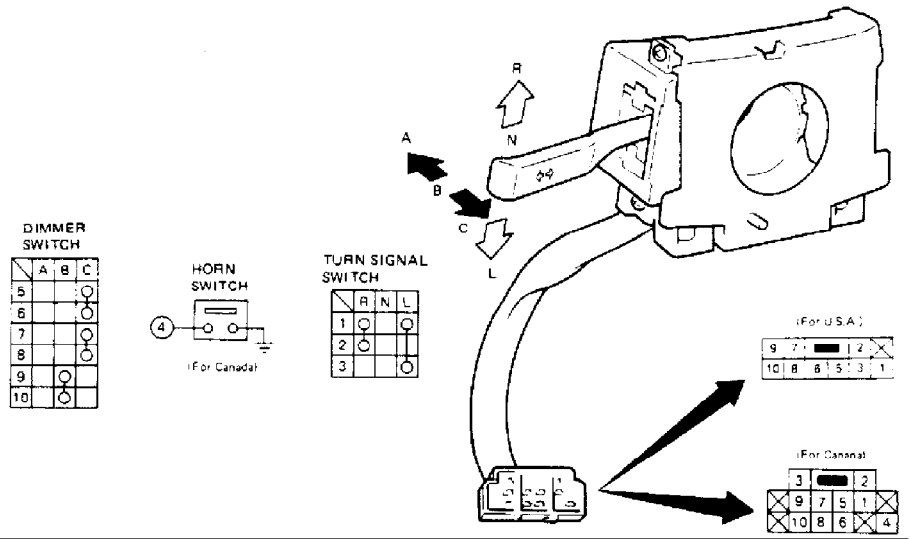

Fig. 3: Checking Continuity of Combination Switch (Pulsar NX)
Courtesy of Nissan Motor Co., U.S.A.

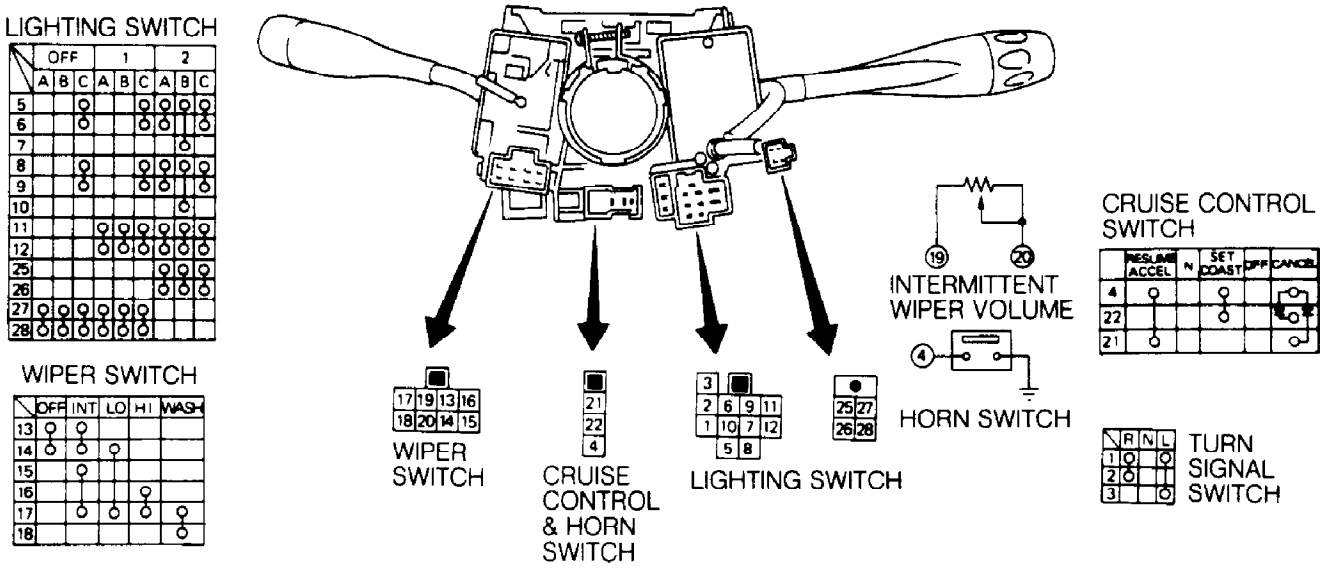

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Fig. 4: Checking Continuity of Combination Switch (240SX)
Courtesy of Nissan Motor Co., U.S.A.

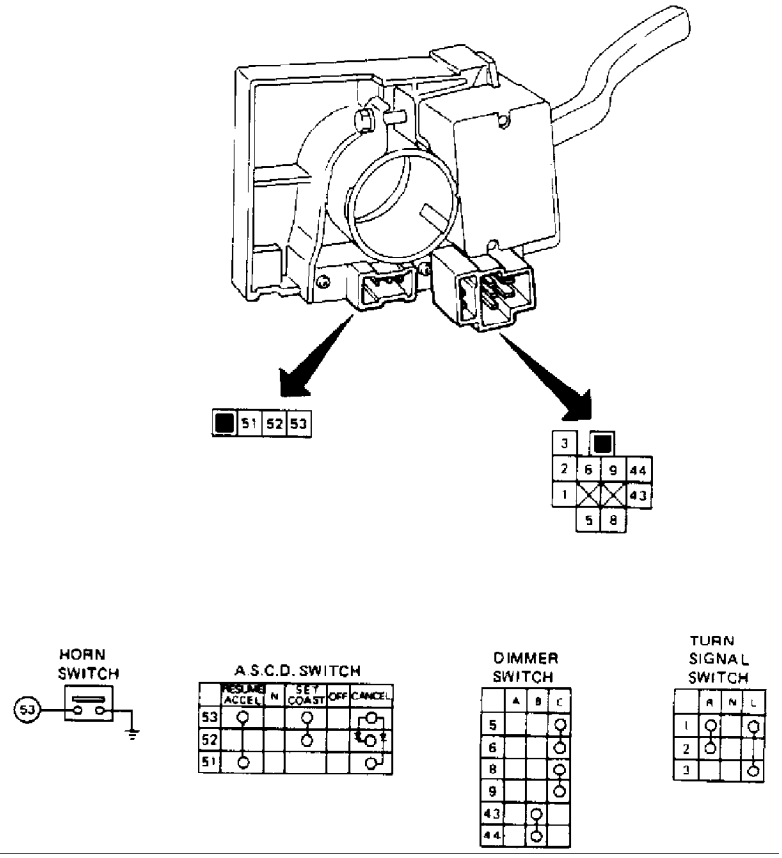

Fig. 5: Checking Continuity of Combination Switch (300ZX)
Courtesy of Nissan Motor Co., U.S.A.

SHIFT LOCK SYSTEM TESTS (STANZA A/T ONLY)

SHIFT LOCK SYSTEM TEST TABLE

Symptom	Diagnostic Procedure
Gear Selector Lever Cannot Be Moved From "P" With Brake Applied	1
Gear Selector Lever Can Be Moved From "P"Without Applying Brakes	1
Gear Selector Lever Can Be Moved From "P"Without Key In Ignition	1
Ignition Key Cannot Be Removed With Gear Selector Lever In "P"	2
Ignition Key Can Be Removed With Gear Selector Lever In Other Than "P"	2

Diagnostic Procedure 1

1) Check power source: Locate shift lock control unit under left side of instrument panel. With ignition OFF, check for battery voltage between control unit connector terminal 2 (Red/Yellow wire) and ground, and between terminal 4 (Red/White wire) and ground. See WIRING DIAGRAMS. If battery voltage is present in both cases, go to next step. If battery voltage is not present in both cases, check for continuity between battery and control unit connector terminals 2 and 4, and inspect fuses "X" and "M".

2) Check ignition signal: With ignition OFF, check for battery voltage between control unit connector terminal 6 (Green/Yellow or Green/Blue wire) and ground. See WIRING DIAGRAMS. Turn ignition ON and recheck. Voltage should be 0 Volts with ignition OFF and battery voltage should be present with ignition ON. If voltage is as specified, go to next step. If voltage is not as specified, inspect fuze "Z", ignition switch, and continuity of green/yellow (or green/blue wire) between battery and control unit.

3) Check control unit ground circuit: Turn ignition OFF and disconnect control unit connector. Check for continuity between control unit connector terminal 9 (Black wire) and ground. See WIRING DIAGRAMS. If continuity is not present, repair open in black wire or control unit connector. If continuity is present, go to next step

4) Check key input signal: Reconnect control unit connector and remove key from ignition. Measure voltage between control unit connector terminal 11 (Yellow/Red wire) and ground. See WIRING DIAGRAMS. Insert key and measure again. Voltmeter should read 0 Volts with key removed, and battery voltage with key inserted. If both voltages are okay, go to next step. If either voltage is not as specified, inspect yellow/red wire for continuity, and inspect fuse "M". If okay, go to step 10).

5) Check shift detention switch input signal: Turn ignition on and set gear selector lever in "P" and release selector lever button. Measure voltage between control unit conector terminal 5 (Yellow/Red wire) and ground. See WIRING DIAGRAMS. Voltage should be 0 Volts. Turn igniton ON, depress brake pedal, push selector lever button and recheck. Voltmeter should read battery voltage. Release brake and move gear selector lever out of "P". Voltmeter should read battery voltage in any position other than "P". If any voltage is not as specified, go to step 11) and 12). If all voltages are as specified, go to next step.

6) Check stoplamp switch input signal: With ignition on, measure voltage between control unit connector terminal 3 (Red/Green wire) and ground. See WIRING DIAGRAMS. With brake pedal released voltmeter should read 0 Volts, and with brake pedal depressed voltmeter should read battery voltage. If both voltages are

asspecified, go to next step. If either voltage is not as specified, go to step 13).

7) Check shift lock solenoid output signal: Place gear selector lever in "P". With ignition on, check voltage between shift lock solenoid connector terminal 1 (Blue/Green wire) and ground. See WIRING DIAGRAMS. With brake pedal released, voltmeter should read 0 Volts. With brake pedal depressed, voltmeter should read battery voltage. Turn ignition off and measure voltage again. Voltmeter should read 0 Volts. If all voltages are as specified, go to next step. If any voltages are not as specified, check continuity in blue green wire between shift lock control unit and shift lock solenoid.

8) Check shift lock solenoid ground circuit: Disconnect shift lock solenoid connector and check continuity between shift lock solenoid connector terminal 9 (Black wire) and ground. See WIRING DIAGRAMS. If continuity exists, go to next step. If continuity does not exist, repair open in black wire or connector.

9) Check shift lock solenoid: Verify operation of solenoid by applying battery voltage to shift lock solenoid terminal 1 (Blue/Green wire) and battery ground to terminal 9 (Black wire). See WIRING DIAGRAMS. Replace as necessary. Reconnect shift lock solenoid connector and turn ignition on. Now check for normal shift lock operation. If shift lock system still does not operate properly, inspect system connectors, and see CONTROL UNIT INSPECTION table.

10) Inspect key switch (located on ignition switch): Disconnect 3-pin key switch connector and check for continuity, on switch side of connector, between terminals 4 (Red/White wire) and 11 (Yellow/Red wire). See WIRING DIAGRAMS. There should be continuity with key inserted, and not continuity with key removed. Replace switch if resistance is not as specified.

11) Inspect shift detent switch (located at base of selector lever): Disconnect shift lock solenoid connector and check for continuity, on switch side of connector, between terminals 5 (Yellow/Red wire) and 11 (Yellow/Red wire). See WIRING DIAGRAMS. There should be continuity with selector lever in "P", or any position except "P" with selector lever button depressed. There should be no continuity when conditions are except as above. Replace switch if resistance is not as specified.

12) Inspect key detent switch (located at base of selector lever): Disconnect shift lock solenoid connector and check for continuity, on switch side of connector, between terminals 12 (Blue/White wire) and 11 (Yellow/Red wire). See WIRING DIAGRAMS. There should be continuity with selector lever in "P", or any position except "P" with selector lever button depressed. There should be no continuity when conditions are except as above. Replace switch if resistance is not as specified.

13) Inspect stoplamp switch: Disconnect stoplamp switch connector and check for continuity between both terminals on switch side of connector. See WIRING DIAGRAMS. There should be continuity with brake pedal depressed, and no continuity with brake pedal released. Replace switch if resistance is not as specified.

CONTROL UNIT INSPECTION TABLE

Voltmeter Positive Term. to:	Voltmeter Negative Term. to:	Condition	Result (Volts)
1	9	Key ON, Selector In "P", Brake Depressed	(1)
		Key OFF, Selector Not In Brake Not Depressed	0
2	9	Key OFF	(1)
3	9	Brake Depressed	(1)

			Brake Not Depressed		0
4		9	Key OFF		(1)
5		9	Key In, Selector Lever In		(1)
			Any Position But "P", Or In "P" With Lever Button Depressed		
			All Conditions Except Above		0
6		9	Key ON		(1)
8		10	Key Turned From OFF, ACC Or LOCK To ON		(2)
10		8	Key Turned From ON To LOCK, OFF, Or ACC		(2)
11		10	Key In		(1)
			Key Out		0
12		10	Key In, Selector Lever In		(1)
			Any Position But "P", Or In "P" With Lever Button Depressed		
			All Conditions Except Above		0

(1) - Battery voltage.
(2) - Battery voltage for approximately 0.1 seconds.

Diagnostic Procedure 2

1) Check power source: Locate shift lock control unit under left side of instrument panel. With ignition OFF, check for battery voltage between control unit connector terminal 2 (Red/Yellow wire) and ground, and between terminal 4 (Red/White wire) and ground. See WIRING DIAGRAMS. If battery voltage is present in both cases, go to next step. If battery voltage is not present in both cases, check for continuity between battery and control unit connector terminals 2 and 4, and inspect fuses "X" and "M".

2) Check ignition signal: With ignition OFF, check for battery voltage between control unit connector terminal 6 (Green/Yellow or Green/Blue wire) and ground. See WIRING DIAGRAMS. Turn ignition ON and recheck. Voltage should be 0 Volts with ignition OFF and battery voltage should be present with ignition ON. If voltage is as specified, go to next step. If voltage is not as specified, inspect fuze "Z", ignition switch, and continuity of green/yellow (or green/blue wire) between battery and control unit.

3) Check control unit ground circuit: Turn ignition OFF and disconnect control unit connector. Check for continuity between control unit connector terminal 9 (Black wire) and ground. See WIRING DIAGRAMS. If continuity is not present, repair open in black wire or control unit connector. If continuity is present, go to next step

4) Check key input signal: Reconnect control unit connector and remove key from ignition. If key cannot be removed for test, use emergency switch. Measure voltage between control unit connector terminal 11 (Yellow/Red wire) and ground. See WIRING DIAGRAMS. Insert key and measure again. Voltmeter should read 0 Volts with key removed, and battery voltage with key inserted. If both voltages are okay, go to next step. If either voltage is not as specified, inspect yellow/red wire for continuity, and inspect fuse "M". If okay, go to step 10).

5) Check key detention switch input signal: Turn ignition OFF and set gear selector lever in "P" and release selector lever button. Measure voltage between control unit conector terminal 12 (Blue/White wire) and ground. See WIRING DIAGRAMS. Voltage should be 0 Volts. Turn ignition ON, depress brake pedal, push selector lever button and recheck. Voltmeter should read battery voltage. Release brake and move gear selector lever out of "P". Voltmeter should read battery voltage in any position other than "P". If any voltage is not as specified, go to step 11). If all voltages are as specified, go to next step.

6) Check key lock output signal: With ignition OFF and selector lever in "P", measure voltage between shift lock solenoid connector terminal 8 (Light Green/Red wire) and ground. See WIRING DIAGRAMS. As ignition switch is turned from OFF to ON, battery voltage should be present for approximately 0.1 seconds. If voltage is as specified, go to next step. If voltage is not as specified, check light green/red wire for continuity between shift lock solenoid and shift lock control unit. Repair as necessary. If wire and connectors are okay, replace control unit.

7) Check key unlock output signal: Place gear selector lever in "P". With ignition OFF, check voltage between key detention switch connector terminal 10 (Light Green/Black wire) and ground. See WIRING DIAGRAMS. As ignition switch is turned from OFF to ON, battery voltage should be present for approximately 0.1 seconds. If voltage is as specified, go to next step. If voltage is not as specified, check light green/black wire for continuity between shift lock solenoid and shift lock control unit. Repair as necessary. If wire and connectors are okay, replace control unit.

8) Check key detention switch unlock output signal: Depress and hold selector lever button and brake pedal while turning ignition OFF. Check voltage between key lock solenoid connector terminal 10 (Light Green/Black wire) and ground. See WIRING DIAGRAMS. As selector lever button is released, battery voltage should be present for approximately 0.1 seconds. If voltage is as specified, go to next step. If voltage is not as specified, replace control unit.

9) Inspect key lock solenoid: Disconnect key lock solenoid connector. Verify operation of solenoid by applying battery voltage to key lock solenoid terminal 10 (Light Green/Black wire) and battery ground to terminal 8 (Light Gree/Red wire). See WIRING DIAGRAMS. Replace solenoid if it cannot be heard operating. Reconnect key lock solenoid connector and turn ignition on. Now check for normal key lock operation. If key lock system still does not operate properly, inspect system connectors, and see CONTROL UNIT INSPECTION table.

10) Inspect key switch (located on ignition switch): Disconnect 3-pin key switch connector and check for continuity, on switch side of connector, between terminals 4 (Red/White wire) and 11 (Yellow/Red wire). See WIRING DIAGRAMS. There should be continuity with key inserted, and not continuity with key removed. Replace switch if resistance is not as specified.

11) Inspect key detent switch (located at base of selector lever): Disconnect shift lock solenoid connector and check for continuity, on switch side of connector, between terminals 12 (Blue/White wire) and 11 (Yellow/Red wire). See WIRING DIAGRAMS. There should be continuity with selector lever in "P", or any position except "P" with selector lever button depressed. There should be no continuity when conditions are except as above. Replace switch if resistance is not as specified.

STEERING WHEEL & AIR BAG MODULE (PULSAR NX)

NOTE: All air bag restraint system components are equipped with warning labels. Read and observe all cautions and instructions contained on labels.

WARNING: Before any components are replaced, turn ignition off, disconnect battery ground cable and wait for AT LEAST 10 minutes to discharge voltage from air bag electronic control unit. After removing any air bag system components, discard old bolts and replace with new ones.

AIR BAG MODULE (PULSAR NX)

CAUTION: Always use care when handling air bag module. Place air bag

module on a flat surface with pad side facing upward. NEVER attempt to disassemble air bag module.

Removal

1) Disconnect battery ground cable and wait for AT LEAST 10 minutes to discharge voltage from air bag electronic control unit. Remove lower steering column panel. Disconnect air bag module connector. See Fig. 6.

2) Remove small side lids covering Torx bolts on sides of steering column. Using Torx screwdriver, remove left and right securing bolts. Pull air bag module forward 1.5" (40 mm) and disconnect connector.

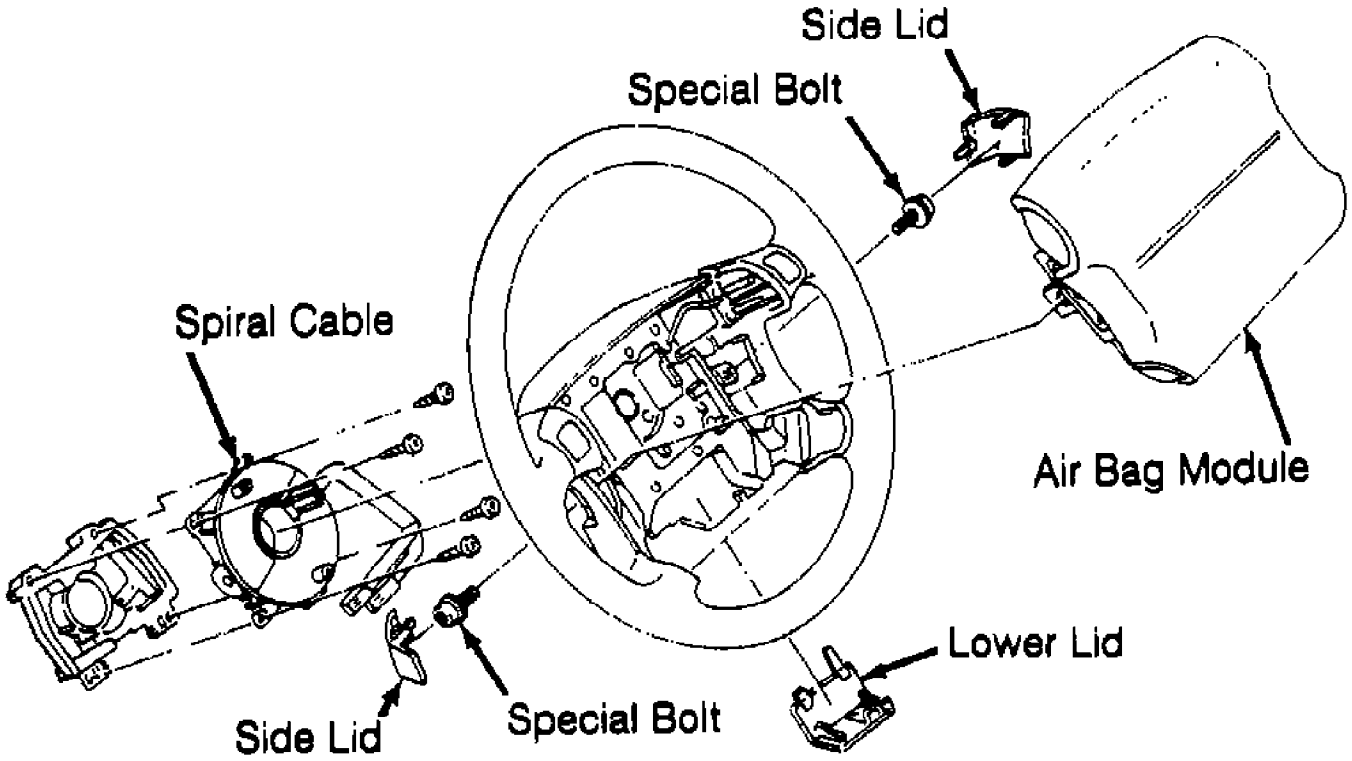

Fig. 6: Exploded View of Steering Column & Air Bag Module
Courtesy of Nissan Motor Co., U.S.A.

Installation

To install air bag module, reverse removal procedure. Use NEW Torx mounting bolts and tighten to 11-18 ft. lbs. (15-25 N.m).

STEERING WHEEL (PULSAR NX)

Removal

Disconnect battery ground cable and wait for AT LEAST 10 minutes to discharge voltage from air bag electronic control unit. Remove air bag module. See AIR BAG MODULE. Center steering wheel. Disconnect horn connector. Remove steering wheel nut. Remove steering wheel using steering wheel puller.

Installation

To install steering wheel, reverse removal procedure. Tighten

steering wheel nut to 22-29 ft. lbs. (29-39 N.m).

SPIRAL CABLE (PULSAR NX)

Removal

Disconnect battery ground cable and wait for at least 10 minutes to discharge voltage from air bag electronic control unit. Remove air bag module and steering wheel. See AIR BAG MODULE and STEERING WHEEL in this article. Remove steering column side covers. Attach spiral cable stopper to spiral cable. If cable stopper is not available, affix spiral cable to its body with adhesive tape. Disconnect spiral cable connector. Remove 4 spiral cable retaining screws. Remove spiral cable.

Installation

To install spiral cable, reverse removal procedure. If spiral cable stopper is not used, align spiral cable. See SPIRAL CABLE CENTERING ADJUST.

SPIRAL CABLE CENTERING ADJUST (PULSAR NX)

Center spiral cable by turning cable clockwise until it caches stopper. Turn cable back approximately 2 turns until Yellow alignment mark appears on left gear. Align arrow mark of spiral cable with Yellow alignment mark on spiral cable body. To complete installation, reverse removal procedure.

STEERING WHEEL & HORN (ALL OTHERS)

Removal

1) Disconnect battery ground cable. Remove screws attaching horn button assembly/center pad to steering wheel from behind steering wheel (if equipped).

2) Pull horn button assembly/center pad from steering wheel. Use a cloth covered screwdriver to pry off horn button assembly/center pad (if necessary). Disassemble horn button assembly (if necessary).

3) Place springs, contacts, horn or cruise control (ASCD) harness connectors and screws in order for reassembly reference. Place wheels in a straight-ahead position.

4) Remove steering wheel retaining nut and washer. Mark steering wheel and shaft for reassembly reference. Using a steering wheel puller, remove steering wheel. See Fig. 7.

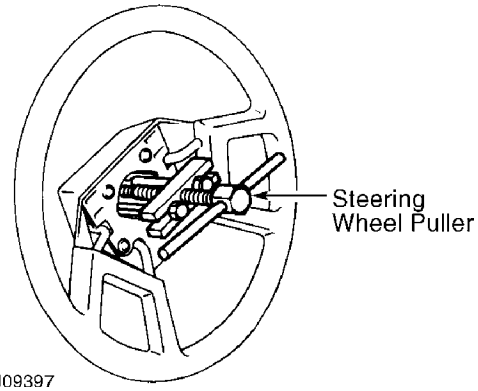

Fig. 7: Removing Steering Wheel
Courtesy of Nissan Motor Co., U.S.A.

5) Place steering wheel, cruise control (ASCD) switch (if equipped), canceling cams, springs and slip rings in order for

reassembly reference.

Installation
1) Coat slip ring contact surfaces with a light electrical grease. Assemble horn button assembly (if necessary). Ensure wheels are in a straight-ahead position.
2) Align marks made during removal. Place slip ring, springs, canceling cams, steering wheel, washer and steering wheel retaining nut on shaft.
3) Tighten nut to specification. See TORQUE SPECIFICATIONS table at the end of this article. To complete reassembly, reverse removal procedure.

COMBINATION SWITCH

NOTE: Light switch, wiper switch, Automatic Speed Control Device (ASCD) switch and turn signal switch are subassemblies which can be removed and replaced individually.

Removal
Remove steering wheel. See STEERING WHEEL & HORN or STEERING WHEEL & AIR BAG MODULE (Pulsar NX) in this article. Remove upper and lower steering column covers. Disconnect combination switch harness connectors. Remove combination switch attaching screws, snap rings and washers, as applicable. Remove combination switch.

Installation
To install, reverse removal procedure. Ensure all electrical connections are tight. Check canceling operation of turn signal switch.

STEERING LOCK & IGNITION SWITCH

Removal
1) Remove steering wheel. See STEERING WHEEL & HORN or STEERING WHEEL & AIR BAG MODULE (Pulsar NX). Remove upper and lower steering column covers and combination switch assembly. Disconnect ignition switch harness connectors.
2) If shear bolt studs are accessible, use a hacksaw to cut a slot into exposed studs. Using a screwdriver, remove studs.
3) If shear bolt studs are recessed or hard to reach with a hacksaw, center punch studs. Using a drill bit and a screw extractor, remove studs. Remove steering lock and ignition switch.

Installation
1) To install, reverse removal procedure. Install new shear bolts. Tighten shear bolts finger tight. Ensure proper operation of steering lock and ignition switch.
2) Tighten shear bolts until heads break off. Install combination switch, upper and lower steering column covers and steering wheel.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Air Bag Module Bolts (Pulsar)	11-18 (15-25)
Steering Wheel Nut (All)	22-29 (30-39)

WIRING DIAGRAMS

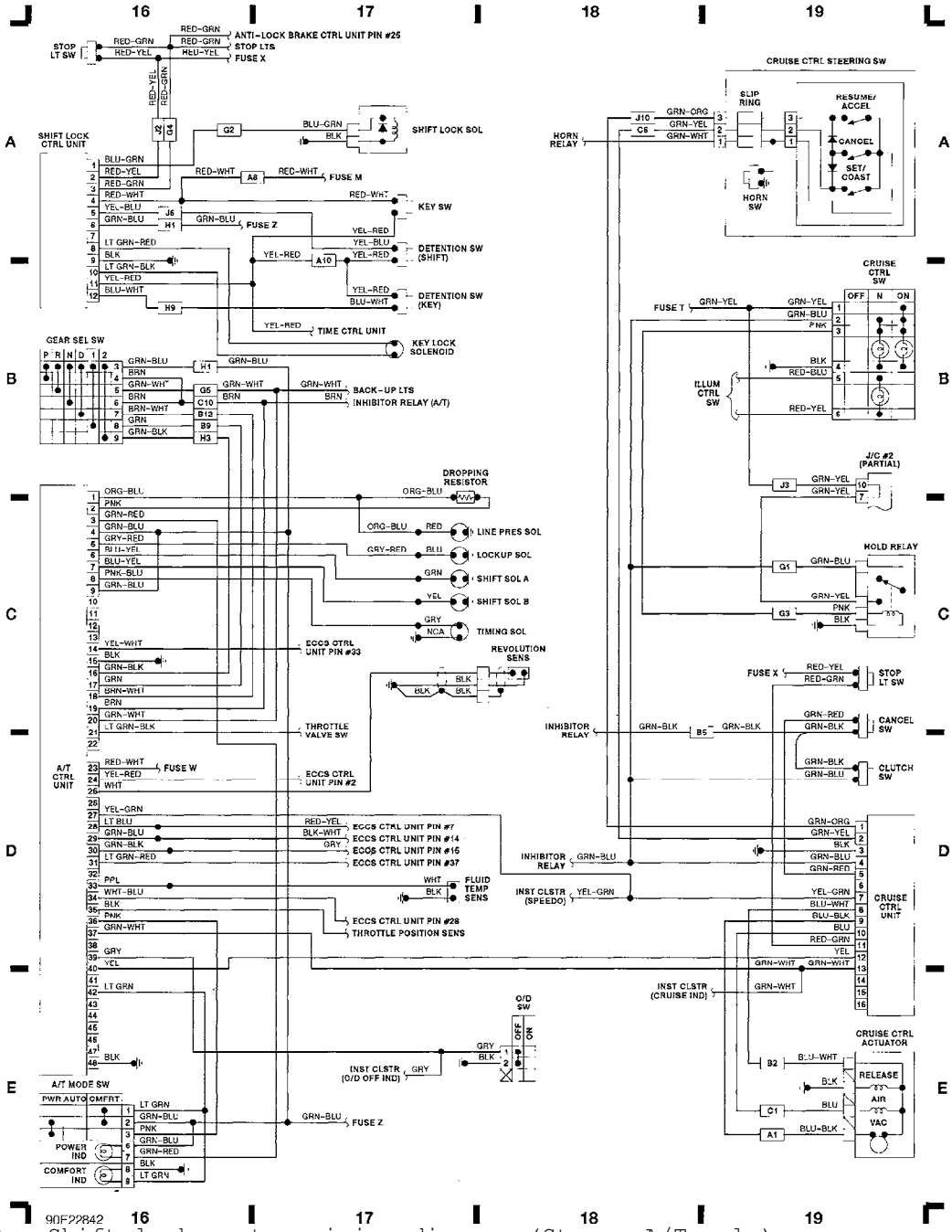

Fig. 8: Shift lock system wiring diagram (Stanza A/T only)