

SERVICE MANUAL

SUPPLEMENT 1

MODEL 330 SERIES CHASSIS AND BODY

SECTION : WHEEL AND TIRE (WT)

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WHEEL AND TIRE

Radial tires have been changed to a tubeless type. Due to employment of the aluminum wheel, general handling instructions have been added.

DESCRIPTION

The 330 series models are equipped

with 5J-14 and 4½J-14 steel wheels with a 40 mm (1.57 in) offset and

5½J-14 aluminum wheel with a 35 mm (1.38 in) offset.

TIRE USAGE

Destination	Model	Tire		Wheel
		Size	Construction	
All areas except Europe and Australia	Sedan (Except Diesel), Hardtop	6.95S-14-4PR	Bias, tubeless	5J-14 (Steel) 5½J-14 (Aluminum) *2
		6.95S-14-4PR *1	Bias, tubed	
		195/70HR14 *1	Steel radial, tubeless	
	Station Wagon	7.35S-14-4PR	Bias, tubeless	5J-14 (Steel)
		7.35S-14-4PR *1	Bias, tubed	
		195/70HR14 *1	Steel radial, tubeless	
	Diesel	6.40-14-4PR	Bias, tubed	4½J-14 (Steel)
		6.95-14-4PR *1	Bias, tubed	5J-14 (Steel)
		6.95-14-4PR *1	Bias, tubeless	
		175SR14 *1	Steel radial, tubeless	
Europe	Sedan (Except Diesel), Hardtop	195/70HR14	Steel radial, tubeless	5J-14 (Steel) 5½J-14 (Aluminum) *2
	Van	195/70HR14	Steel radial, tubeless	5J-14 (Steel)
	Diesel	175SR14	Steel radial, tubeless	
Australia	Sedan, Hardtop	6.95S-14-4PR	Bias, tubeless	5J-14 (Steel) 5½J-14 (Aluminum) *2
		195/70HR14 *1	Steel radial, tubeless	
	Station Wagon	7.35S-14-4PR	Bias, tubeless	5J-14 (Steel)

*1 : Optional

*2 : Optional for Sedan Custom Deluxe and Hardtop

Wheel and Tire

RECOMMENDED COLD TIRE INFLATION PRESSURE

The tire caution label has been revised.

All models (Except Australia)

Car model	Tire size		Car speed			
			Under 110 km/h (70 MPH)		Over 110 km/h (70 MPH)	
			Up to 3 occupants	Up to 5 or 6 occupants	Up to 3 occupants	Up to 5 or 6 occupants
Sedan (Except Diesel) and Hardtop	6.95S-14-4PR 195/70HR14		1.7 (24)	1.9 (27)	2.0 (28)	2.2 (31)
Diesel	6.95-14-4PR 6.40-14-4PR		1.8 (26)	2.0 (29)	2.1 (30)	2.3 (33)
	175SR14		1.9 (27)	2.0 (29)	2.2 (31)	2.3 (33)
Station Wagon and Van	7.35S-14-4PR	Front	1.5 (21)		1.8 (26)	
		Rear	2.1 (30)		2.4 (34)	
	195/70HR14	Front	1.7 (24)		2.0 (28)	
		Rear	2.1 (30)		2.4 (34)	

For Australia

Unit: psi (kPa, kg/cm²)

Car model	Tire size		FOR NORMAL LOAD 1 to 5 passengers or 1 to 2 passengers + 450 lbs (204 kg) luggage or less		FOR MAXIMUM LOAD 5 passengers + 150 lbs (68 kg) luggage or 2 passengers + 600 lbs (272 kg) luggage	
			Under 70 MPH (110 km/h)	Over 70 MPH (110 km/h)	Under 70 MPH (110 km/h)	Over 70 MPH (110 km/h)
			Sedan and Hardtop	6.95S-14-4PR, 195/70HR14		26 (179, 1.8)	30 (207, 2.1)	26 (179, 1.8)	30 (207, 2.1)
Station Wagon	7.35S-14-4PR	Front	22 (152, 1.5)	26 (179, 1.8)	22 (152, 1.5)	26 (179, 1.8)
		Rear	30 (207, 2.1)	32 (221, 2.2)	30 (207, 2.1)	32 (221, 2.2)

MAINTENANCE AND SERVICE

WHEEL REPAIR

Inspect wheel rim flange for bend or dents. If the above deterioration is detected, repair should be made to secure complete sealing. The flange should be cleaned by a wire brush when rust is found on the flange. Furthermore, if excessive pitting occurs on the rim, eliminate it with a file.

Note: Aluminum wheel

Do not wash the wheel with a wire brush. Always use a neutral cleaner.

TIRE ROTATION

Tires wear unevenly and become unbalanced in accordance with running distance. This may cause tire noise which is attributed to rear axle gears, bearing, etc. Meanwhile, the front tires tend to wear unevenly because of improperly aligned front wheel.

Accordingly, to equalize tire wear, it is necessary to rotate tires periodically as recommended in the "Periodic Maintenance". See Figures WT-1 through WT-4.

Bias and bias belted tires

1. All the tires including the spare tire are of the same type.

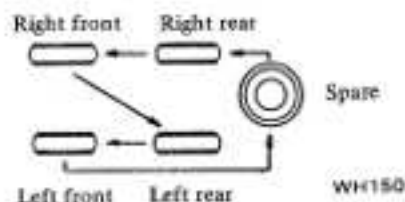
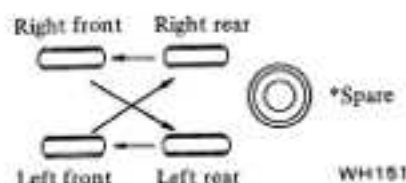


Fig. WT-1 Tire rotation (1)

2. The spare tire has a different brand from 4 tires on the car.



* The spare tire should be used in an emergency only.

Fig. WT-2 Tire rotation (2)

Radial ply tires

1. All the tires including the spare tire are of the same type.

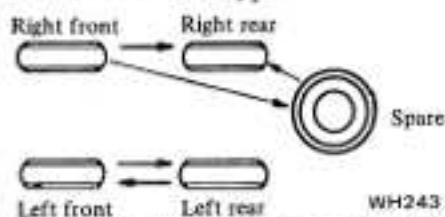
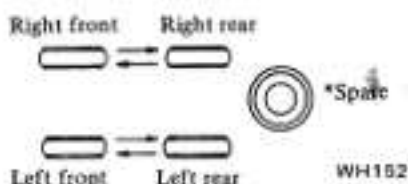


Fig. WT-3 Tire rotation (3)

2. The spare tire has a different brand from 4 tires on the car.



* Regardless of tire brand the spare tire should be used in an emergency only.

Fig. WT-4 Tire rotation (4)

TIRE REPLACEMENT

To change a tire and wheel with a jack in a safe manner, observe the following procedures:

- Engage parking brake and block front wheels when rear wheel is being changed.
- Remove wheel cover and loosen wheel nuts.
- Place jack at jacking point as described in Section G1 and raise car until wheel clears ground.
- Remove wheel nuts and wheel from drum.
- To install wheel, reverse the above steps. Tighten wheel nuts in criss-cross fashion.

Tire wheel	Tightening torque
Steel wheel	8 to 9 kg-m (58 to 65 ft-lb)
Aluminum wheel	8 to 10 kg-m (58 to 72 ft-lb)

Note: Never get under car while it is supported only by jack. Always use safety stands to support side member of body construction when you must get beneath car.

Care of aluminum wheel

1. Use the wheel nut for exclusive use in aluminum wheels.



For aluminum wheels only

For steel wheels only

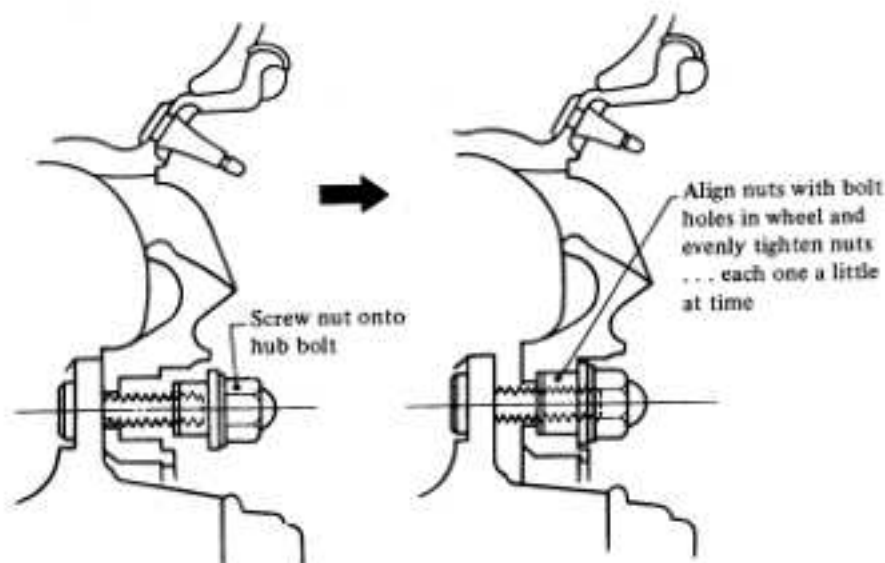
WH178

Fig. WT-5 Wheel nut

2. To install an aluminum wheel, proceed as follows:

- Snugly tighten the four nuts after the wheel is positioned. See Figure WT-6.
- Slightly pull the wheel back to properly align the nuts with bolt holes in the wheel, and tighten the nuts as much as possible with your fingers.
- Tighten the four nuts evenly with a wheel wrench in criss-cross fashion.

Note: Be sure to check the wheel nut torque, after the wheel has been run for the first 1,000 km (600 miles) (also in cases of repairing flat tires, tire rotation, etc.) and every 10,000 km (6,000 miles) thereafter. Retighten if necessary.



WT016

Fig. WT-6 Installing aluminum wheel

INSPECTION

WHEEL BALANCE

The wheel and tire assembly should be kept balanced statically and dynamically.

Proper tire balance is necessary when driving the car at high speeds. Consequently, the wheel and tire assembly should be properly rebalanced whenever puncture is repaired.

The wheel and tire assembly becomes out of balance according to uneven tire wear. Severe acceleration and braking, or fast cornering is the cause of wear on tire, resulting in unbalance of tire and wheel assembly.

The symptom of unbalance appears as tramp, car shake and steering malfunction.

To correct unbalance, use proper wheel balancer.

Maximum allowable unbalance:

177 gr-cm (2.46 in-oz)

At rim flange:

10 gr (0.35 oz)

Balance weight:

10 to 60 gr

(0.35 to 2.13 oz) at

10 gr (0.35 oz) interval

Notes:

- Be sure to place correct balance weights on inner edge of rim as shown in Figure WT-7. Do not put more than two weights on each side.
- Aluminum wheel
Use balance weights for exclusive use in aluminum wheel.

WHEEL AND TIRE

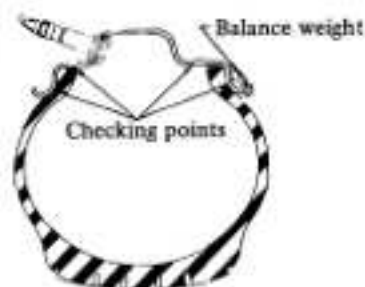
In order to ensure satisfactory steering condition as well as maximum tire life, proceed as follows:

- Check wheel rim, especially, rim flange and bead seat for rust, distortion, cracks or other faults which might cause air leaks. Function of tubeless tire depends on a good seal between tire bead and wheel rim. Thoroughly remove rust, dust, oxidized rubber or sand from wheel rim with wire brush, emery cloth or paper. Use dial gauge to examine wheel rim for lateral and diametral runout. See Figure WT-7.

Lateral runout limit:
Less than 1.0 mm (0.039 in)
total indicator reading

Note: Aluminum wheel

Remove fragments of rubber, dust or sand from rim flange with cloth. Do not use sandpaper or wire brush.



WT005

Fig. WT-7 Wheel rim runout check points

- Discard when any of the following conditions occur;

- (1) Broken or damaged bead wire.
- (2) Ply or tread separation.
- (3) Worn fabric injuries on tubeless tire.
- (4) Cracked or damaged sidewall, etc.

Note: In replacing tire, take extra care not to damage tire bead, rim-flange and bead seat.

Do not use tire irons to force beads away from wheel rim-flange; that is, always use tire replacement device whenever tire is removed.

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SERVICE MANUAL

SUPPLEMENT 1

MODEL 330 SERIES CHASSIS AND BODY

SECTION : STEERING SYSTEM (ST)

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Steering System

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POWER STEERING

- To improve the durability of the power steering system, the relief pressure setting of the oil pump has been revised.
- Along with the adoption of the power steering gear sealing parts, replacement procedures have been given.
- The method of adjusting backlash has also been revised.

DESCRIPTION

The integral power steering unit, developed under technical cooperation with ZF company in West Germany, is a gear box into which a control valve and power cylinder are built compactly. The major components are an oil pump, power steering gear and oil piping to connect these parts. Only the sealing parts of the gear assembly can

be replaced individually. The remaining parts must be replaced as an assembly.

Servicing procedures for all steering systems except the power steering unit are the same as for the manual steering model and are covered in the manual steering section.

MAINTENANCE AND ADJUSTMENT

FLUID LEVEL

1. Check oil level in reservoir by checking dip stick on "HOT" side at normal operating temperature or "COLD" side when oil is cold.

Note: Normal operating temperature is 60 to 80°C (140 to 176°F).

2. Check fluid level and leakage at the recommended interval.

Recommended oil is Automatic Transmission Fluid "Dexron Type". See Section GI "Recommended Lubricant".

PUMP BELT ADJUSTMENT

Adjust oil pump belt tension. It is correct if deflection is 8 to 12 mm (0.31 to 0.47 in) when thumb pressure of 10 kg (22 lb) is applied midway between idler pulley and oil pump pulley.

Oil pump belt deflection:
8 to 12 mm
(0.31 to 0.47 in)
at 10 kg (22 lb)

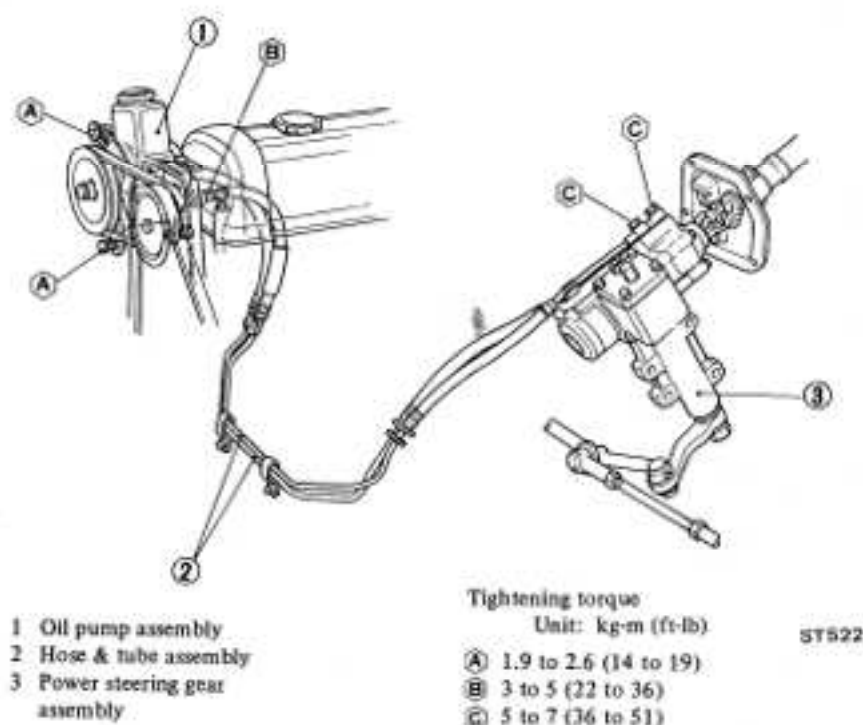
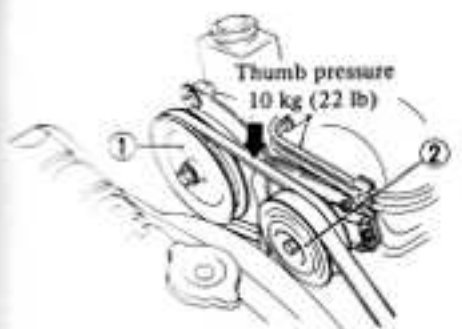


Fig. ST-1 Power steering system



1 Oil pump pulley
2 Idler pulley ST62B
Fig. ST-2 Oil pump belt tension

STEERING WHEEL TURNING TORQUE CHECK

1. Park car on a level, dry surface and set parking brake firmly.
2. Bring power steering oil up to adequate operating temperature. [Approximately 40 to 60°C (104 to 140°F)].

Note: It is easy to bring power steering oil up to adequate operating temperature by idling engine and at the same time turning steering wheel from left to right for about two minutes. Alternatively, drive car several miles.

3. Check steering wheel turning torque when steering wheel has been turned 360° from straight-ahead position.

Steering wheel turning torque:
about 3.0 kg (6.6 lb) at
circumference of steering
wheel

Note: Tires must be inflated to normal pressure.

HYDRAULIC SYSTEM CHECK

A fluid pressure test will show if pump or steering gear is causing problems.

Before conducting hydraulic system test, carefully check belt tension and condition of driving pulley.

1. Disconnect pressure line hose at oil pump output port, and install Pressure Gauge ST27091000 calibrated to 100 kg/cm² (1,422 psi), and shut-off valve as shown in Figure

ST-3. Gauge must be between shut-off valve and oil pump.

Tightening torque:
3 to 5 kg-m
(22 to 36 ft-lb)

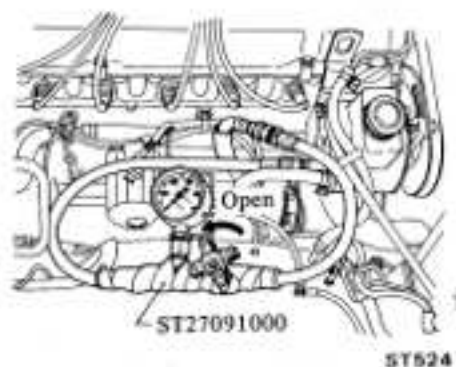


Fig. ST-3 Installing pressure gauge

2. Check oil level, adding oil if necessary.
3. Open shut-off valve.
4. Run engine for 3 to 5 seconds, and then stop it.
5. Check oil level in oil pump reservoir tank and, if necessary, replenish.
6. Run engine and check oil level again.
7. Continue running engine at idle until oil reaches operating temperature; turn steering wheel fully in both directions for approximately two minutes.

Note: Be sure that all connections are tight.

8. Move steering wheel from right to left several times to expel any air from system at idling.
9. Slowly close shut-off valve.

With valve fully closed, pump pressure should be at maximum.

Normal pressure:
67 to 79 kg/cm²
(953 to 1,123 psi) at idling

Note: Do not close shut-off valve for more than fifteen seconds, as this would abnormally increase lubricant temperature and cause undue pump wear.

10. If pressure increases beyond upper limit, pressure relief valve of oil pump is not functioning properly. Replace as an assembly.

11. If, with shut-off valve fully closed, pressure drops below lower limit, the problem is in pump. Replace as an assembly.

Note: After checking hydraulic system, add fluid as necessary, then completely bleed air out of system.

BLEEDING HYDRAULIC SYSTEM

1. Fill oil reservoir to proper level and let oil remain undistributed for at least two minutes.
2. Raise front end of car until wheels clear ground.
3. With engine off, quickly turn steering wheel all the way to right and left several times, lightly touch wheel stoppers.
4. Add oil if necessary.
5. Start engine and operate it at idling speed.

Repeat above procedure until pump will bleed at reservoir tank.

6. With steering wheel fully turned to left, open bleeder screw to expel air.

Close bleeder screw when oil flows out.

Do not use bleeder screw if not necessary.

Bleeder screw tightening torque:
0.7 to 0.9 kg-m
(5.1 to 6.5 ft-lb)

7. Stop engine and, lower car until it just touches ground. Restart engine at idling speed, and turn steering wheel to the right and left several times.

Check oil leakage at or around pressure line hose connectors. Retighten or replace if necessary.

8. Check oil level and refill as required.

9. If air bleeding is insufficient, following problems will occur.

- Oil reservoir will be extremely foamy.
- Pump will be noisy.

Steering System

10. If above problems arise, allow car to stand a few minutes with engine off and repeat above procedure.

- Check belt tightness and check for a bent or loose pulley.
- Check to make sure hoses are not touching any other parts of car, particularly sheet metal.
- Check oil level, filling to proper level if necessary. This step is extremely important as low oil level and/or air in the oil are the most frequent causes of pump noise.
- Check for presence of air in oil. If air is present, attempt to bleed system as described in steps 1 through 8. If it becomes obvious that pump will not bleed after a few trials, proceed as outlined under "HYDRAULIC SYSTEM CHECK".

DRAINING OIL

- With engine off, disconnect pressure line hoses at connector. Drain oil.
- Raise front end of car until front wheels clear ground.
- Turn steering wheel slowly to the right and left until all oil is totally drained. Do not reuse oil.

BACKLASH ADJUSTMENT (Over-center adjustment)

This adjustment should always be checked and corrected, if necessary, and the car should be road tested before removing the steering gear for replacement.

- Disconnect gear arm from steering gear with Steering Gear Arm Puller ST29020001, and remove steering wheel horn pad.

Note: Do not hammer steering gear arm or sector shaft. This could cause gear assembly damage.

- Count number of steering wheel turns through full travel and locate wheel at its center of travel. Punch mark on upper end of column shaft should be upward.

3. Turn steering wheel one complete turn from its center, and attach socket to steering wheel nut. With Drive Pinion Preload Gauge ST3127S000, slowly turn steering wheel nut less than 20 degrees to determine torque required for column shaft rotation.

4. Also read required turning torque when steering wheel is in center position.

5. Turn steering wheel 360 degrees in both directions, and read required turning torque at two points.

6. Torque readings should be as follows:

When steering wheel is in its center position, required turning torque should be 1 to 2 kg-cm (0.9 to 1.7 in-lb) higher than at 360 degrees.

7. If readings are within specified values, backlash adjustment is not necessary.

8. If readings are not within above specified values, remove column assembly and adjust backlash on steering gear unit alone.

9. To adjust, loosen lock nut and turn adjusting screw until worm shaft turning torque is within specified values described below. After adjustment has been made, tighten lock nut.

1) When steering wheel is turned 360 degrees in either direction from its center position, turning torque should be less than 12 kg-cm (10 in-lb).

2) When steering wheel is in its center position, required turning torque should be 1 to 2 kg-cm (0.9 to 1.7 in-lb) higher than at 360 degrees.

Note: When steering wheel is turned 360 degrees or more, turning torque should be less than 12 kg-cm (10 in-lb).

Tightening torque:

Lock nut
2.9 to 3.5 kg-m
(21 to 25 ft-lb)

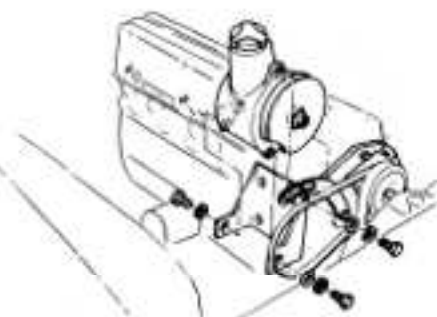
OIL PUMP

When removing and installing, pay attention to the following:

- When hoses are disconnected, cap or tape their ends to prevent entrance of dirt.
- Check hydraulic circuit pressure and turning force of steering wheel after replacing oil pump, hoses or steering gear assembly.
- In installing hoses, be careful to leave sufficient clearance between hoses and surrounding parts.

REMOVAL AND INSTALLATION

- Disconnect hoses at pump. Install caps at hose fittings to prevent drainage of oil from pump.
- Disconnect oil pump fixing bolts and remove pump belt. Pump belt can be removed after removal of air conditioning compressor drive belt.
- Remove pump from engine.



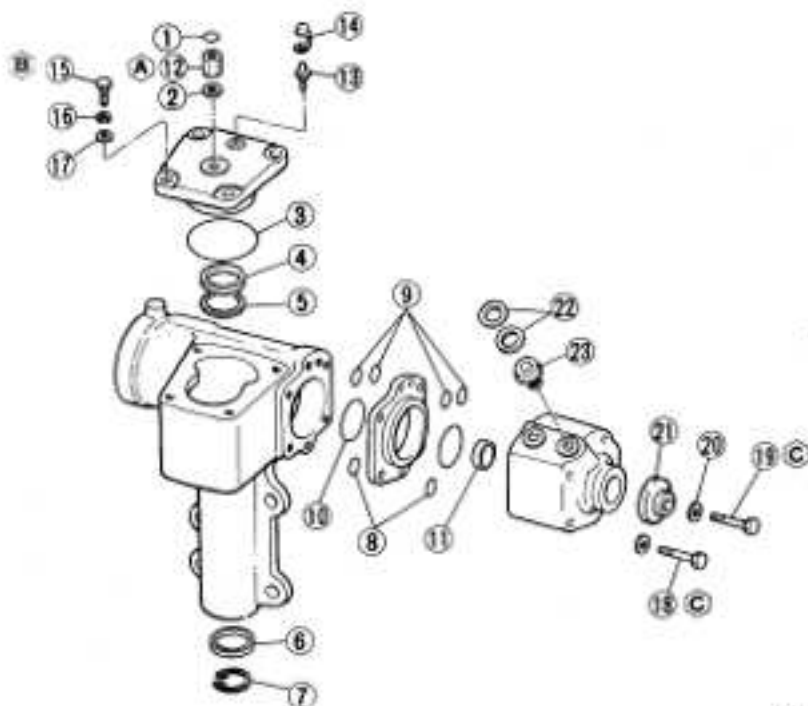
ST625

Fig. ST-4 Oil pump mounting

- Remove drive pulley attaching nut.
- Remove pulley from shaft with a suitable universal puller.

Note: Do not hammer pulley or shaft as this will damage pump.

- To install oil pump, reverse order of removal.

POWER STEERING GEAR**DESCRIPTION**

- 1 O-ring
- 2 Gasket
- 3 O-ring
- 4 Oil seal
- 5 Stopper
- 6 Oil seal
- 7 Snap ring
- 8 O-ring
- 9 O-ring
- 10 O-ring
- 11 Oil seal
- 12 Lock nut
- 13 Breather screw
- 14 Breather cap
- 15 Bolt sector cover
- 16 Spring washer
- 17 Plane washer
- 18 Bolt rear housing-A
- 19 Bolt rear housing-B
- 20 Spring washer
- 21 Cap rear housing
- 22 Copper washer
- 23 Blind plug

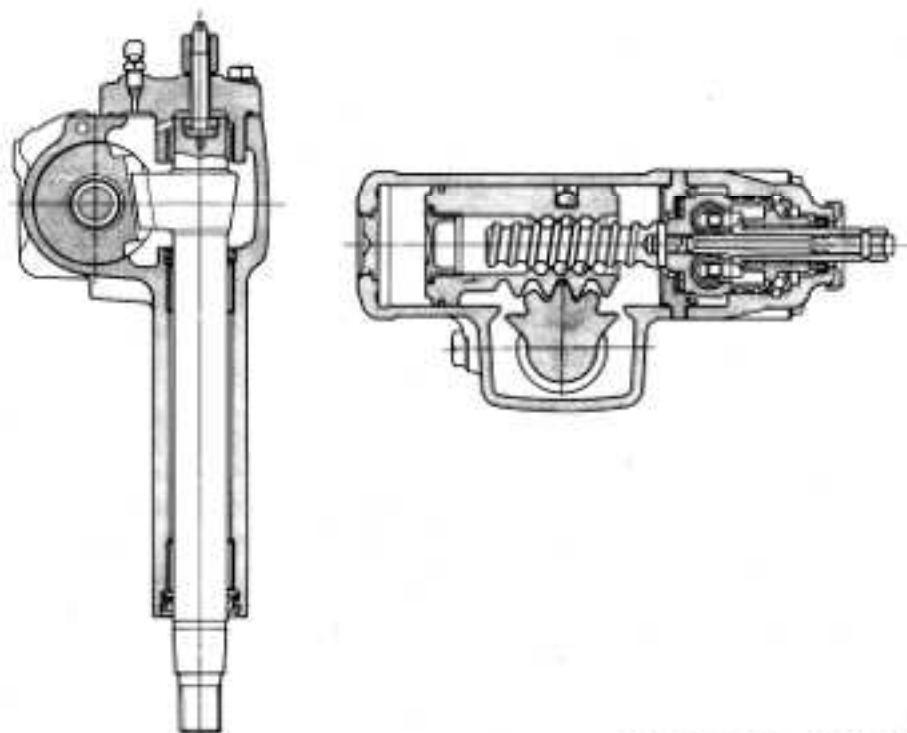
Tightening torque kg-m (ft-lb)

Ⓐ : 2.9 to 3.5 (21 to 25)

Ⓑ : 2.7 to 3.3 (20 to 24)

Ⓒ : 2.7 to 3.3 (20 to 24)

Note: No. 1 to 11, once removed, must not be used again.



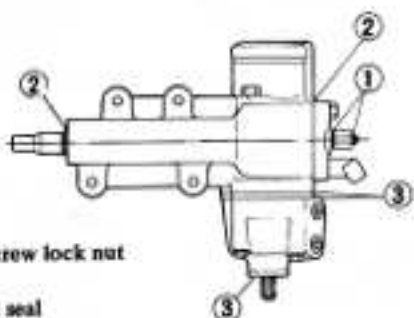
ST682

Fig. ST-5 Integral power steering

Steering System

For the integral power steering gear, replacement parts shown in Figure ST-5 are available to repair oil leaks.

According to the position of the oil leak shown in Figure ST-6, disassembly is divided into the three categories below:



- 1 Refer to "Adjusting screw lock nut seal replacement".
- 2 Refer to "Sector shaft seal replacement".
- 3 Refer to "Rear housing seal replacement".

The integral power steering gear is an accurate oil pressure mechanism. In disassembling it, be careful to keep dust, iron powder and other foreign particles out of the gear housing.

Notes:

- The parts which can be disassembled are strongly restricted, and never disassemble other parts than the specified ones. If parts not indicated in the manual are also disassembled, replace the assembly instead of reassembling those parts.
- Disassembly of integral power steering gear should be performed in a place as clean as possible, although a dust preventing device is not required.
- Should disassembly of integral power steering gear remain unfinished for any reason, indicate it as "Half Disassembled" and cover parts with a clean cover.
- Hands should be cleaned immediately before disassembly.
- Do not use a rag. Be sure to use nylon or paper cloth.
- Be sure to follow procedures and cautions indicated in the service manual.

- 1) For a leak in position ①, refer to "Adjusting screw lock nut seal replacement".
- 2) For a leak in position ②, refer to "Sector shaft seal replacement".
- 3) For a leak in position ③, refer to "Rear housing seal replacement".

6. Remove bolts securing steering gear housing to body side member, and withdraw steering gear assembly.

Note: Be careful not to damage serrated areas during removal or strike it against brake tube and master cylinder.

INSPECTION AND ADJUSTMENT

Turning torque measurement

1. Install gear assembly on Steering Gear Housing Attachment KV48100300 and anchor it with a vise.
2. Using Preload Gauge ST3127S000, measure turning torque of stub shaft at 360° from neutral to right in alternating directions.

Note: Stub shaft can be turned by wrapping vinyl tape around serration area of stub shaft and fitting hexagonal wrench socket.

Turning torque at 360°:
Less than
12 kg-cm (10 in-lb)

Note: If it is beyond specification, gear must be replaced as an assembly.

REMOVAL

1. In disassembling integral power steering gear, clean any portion of gear left on car and surrounding area with steam, and dry with compressed air.
2. Remove air cleaner.
3. Remove bolt securing universal joint to worm shaft.
4. Disconnect hoses at steering gear. Install caps at hose fittings and open hose ends to prevent drainage of oil from hoses and gear unit.

Note:

- To prevent oil from flowing out of hose, end of hose on gear side should be anchored higher than pump.
- Copper washer must not be used again once it has been removed.

5. Remove nut and lock washer securing steering gear arm to sector shaft. Using Steering Gear Arm Puller ST29020001, remove steering gear arm from sector shaft.

Note: Do not hammer steering gear arm or sector shaft. This could cause gear assembly damage.

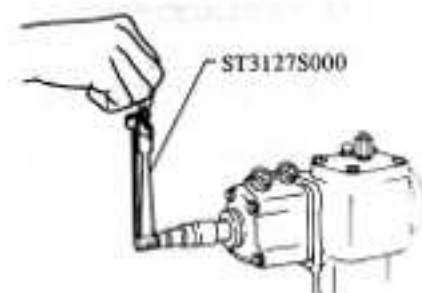
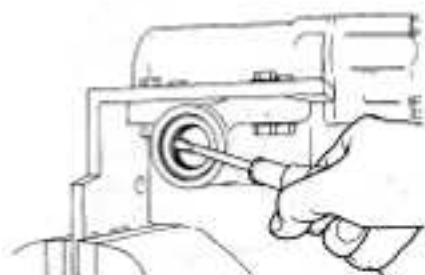


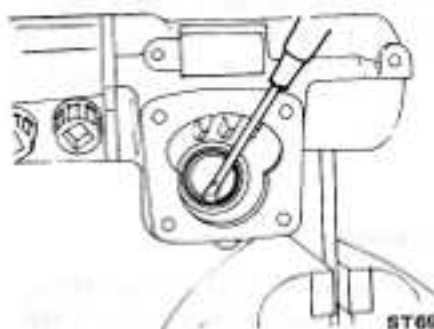
Fig. ST-7 Measuring turning torque



ST691

Fig. ST-14 Removing oil seal

10. With an offset screwdriver, remove oil seal (on high pressure side) along with stopper.



ST692

Fig. ST-15 Removing oil seal

Note: Snap ring, oil seal and stopper, once removed, must not be used again.

Assembly

1. Fit oil seals in by using Oil Seal Drift KV481009S0.

Notes:

- When installing, be sure to use new oil seals and stopper.
- Apply MP grease to oil seal lips.



ST693

Fig. ST-16 Installing oil seal



KV481009S0

ST694

Fig. ST-17 Installing oil seal

2. Install a new snap ring.

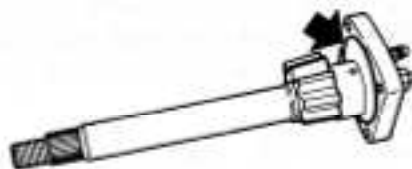
Notes:

- Turn new snap ring and make sure that it is completely in groove.
- Be sure to install snap ring so that its rounded side is on oil seal side.

3. Replace O-ring of sector cover with a new one.

Notes:

- Apply a thin coat of vaseline to O-ring before its installation.
- Make certain that O-ring is installed properly, and not damaged by sector shaft.

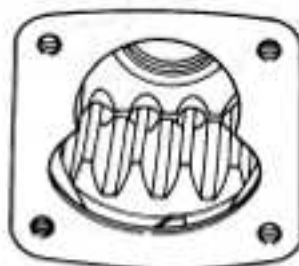


ST695

Fig. ST-18 Replacing O-ring

4. Set piston rack at center and tilt it toward yourself with your finger about 10° to 15° .

Note: This is for smooth insertion of sector gear.



ST696

Fig. ST-19 Adjusting rack

5. Wrap vinyl tape around serration area of sector shaft.

Note: The reason is that vinyl tape prevents oil seal lip from being damaged during insertion.

- Connect sector shaft to a roll of plastic film.
- In order for rack and sector gear to be correctly in mesh at center, guide sector gear and insert it into gear housing.

Note: Insert sector shaft into gear housing gently; be careful not to damage oil seal.

- Push sector cover in by hand.
- Remove a roll of plastic film.
- Tighten sector cover bolts.

Tightening torque:

2.7 to 3.3 kg-m
(20 to 24 ft-lb)

11. Check turning torque of stub shaft, referring to Inspection and Adjustment for Measurement.

Turning torque:

Less than 12 kg-cm (10 in-lb)

Note: If there is a great difference between values of turning torque before and after disassembly, it must be assumed that some new problem has occurred. It will be necessary to replace the entire assembly.

12. By measuring stub shaft turning torque, check backlash, and adjust it as required (Refer to Inspection and Adjustment for backlash adjustment).

REAR HOUSING SEAL REPLACEMENT

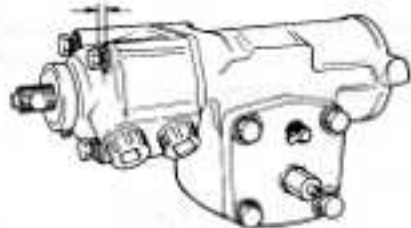
Disassembly

- Install gear assembly on ment, and anchor it with a vise.
- Measure turning torque of stub shaft, referring to Inspection and Adjustment for measurement.
- Loosen four rear cover bolts about 5 mm (0.20 in).

Note: Do not remove rear cover.

Steering System

5 mm (0.20 in)



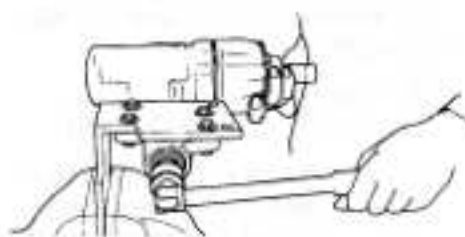
ST697

Fig. ST-20 Loosening rear cover bolts

4. By turning stub shaft counterclockwise bring piston completely to rear side.

5. Install gear arm lock nut on sector shaft.

Turn sector shaft counterclockwise slightly to raise intermediate cover through piston.



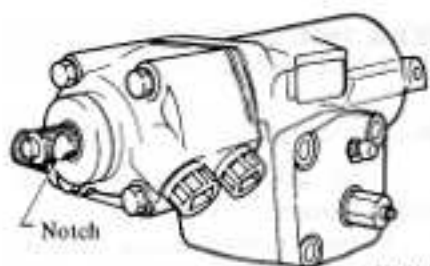
ST698

Fig. ST-21 Disconnecting intermediate cover

6. Remove gear arm lock nut.

7. Turn stub shaft clockwise and place piston in its neutral position.

Note: Piston neutral position is at two turns 45° , from lock position, and notch of stub shaft is located on adjusting screw side.



ST699

Fig. ST-22 Neutral position

8. Remove sector shaft (Refer to Sector Shaft Seal Replacement for removal).

9. Move piston again completely to rear side.

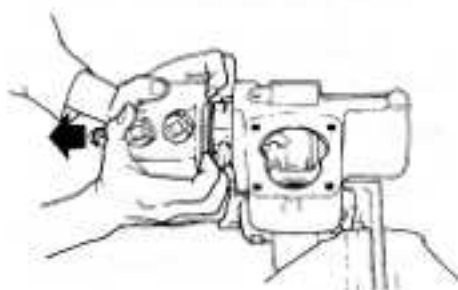
10. Pull out worm assembly.

Notes:

a. When worm assembly is removed, piston may turn and come off under its own weight. Hold piston to prevent it from turning.

If piston-to-intermediate cover clearance exceeds 45 mm (1.77 in) by loosening, recirculating ball will be out of groove of worm; do not reinstall piston but replace the entire assembly.

b. Take care not to damage teflon ring at piston end when removing.



ST700

Fig. ST-23 Removing worm assembly

11. Turn worm assembly upside down, and lightly tap stub shaft end on top of workbench, removing rear housing.

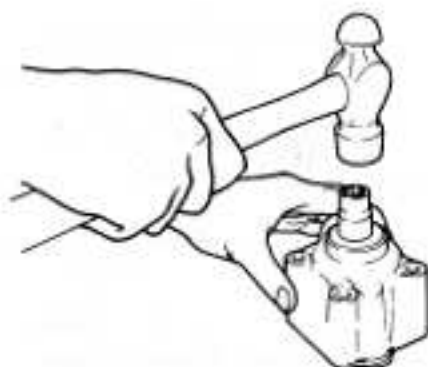
Note: Do not strike shaft with a hammer or pry it with a screwdriver.



ST701

Fig. ST-24 Removing rear housing

12. With an appropriate wrench socket, remove rear housing oil seal.



ST702

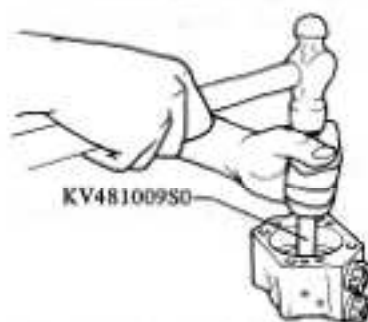
Fig. ST-25 Removing rear housing oil seal

13. Remove oil seal for sector shaft (Refer to Sector Shaft Seal Replacement for removal).

14. Remove all O-rings in service kit.

Assembly

1. With Oil Seal Drift KV481009S0, install rear housing oil seal. Apply MP grease to lips.



KV481009S0

ST703

Fig. ST-26 Installing oil seal

2. Install oil seal for sector shaft (Refer to Sector Shaft Seal Replacement for installation).

3. Replace O-ring on both sides of intermediate cover with new ones.

Notes:

a. Apply a thin coat of vaseline to new O-rings prior to their installation.

b. Be careful not to install wrong O-rings as some of them resemble in size.



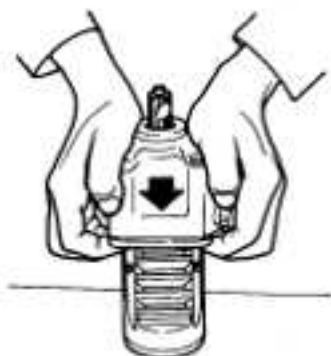
ST704

Fig. ST-27 Installing O-rings

4. Place worm assembly on a workbench, and manually push rear housing straight into it.

Notes:

- a. Do not tilt ball bearing.
- b. Make sure that O-rings are not protruding or extruding.



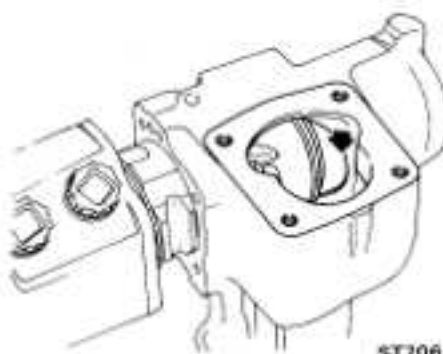
ST705

Fig. ST-28 Installing rear housing

5. Insert worm assembly into gear housing.

Notes:

- a. Take care that teflon ring at piston end is not damaged during insertion of gear housing.
- b. When worm assembly is halfway inserted, teflon ring is deflected. Insert remaining part of worm assembly paying particular attention. Take care not to damage teflon ring on corner of sector hole. Be sure that teflon ring settles in its correct position.



ST706

Fig. ST-29 Installing worm assembly

6. Gradually tighten rear housing bolts in a criss-cross fashion.

Notes:

- a. If bolts are tightened while worm assembly is tilted, inner seals will be damaged. Tighten bolts while worm assembly is level. If worm assembly is tilted, stub shaft's turning torque will be increased.
- b. Check O-rings to ensure that they do not protrude or extrude.

Tightening torque:

2.7 to 3.3 kg-m
(20 to 24 ft-lb)

- 7. Install sector shaft (Refer to Sector Shaft Seal Replacement for installation).
- 8. Check stub shaft's turning torque (Refer to Sector Shaft Seal Replacement for checking).
- 9. Check and adjust backlash (Refer to Sector Shaft Seal Replacement for checking and adjustment).

INSTALLATION

Install steering gear in reverse order of removal. Observe following instructions.

- 1. Position steering gear and universal joint in place; then install and tighten bolts securing steering gear housing to body side member.
- 2. Tighten bolt securing universal joint worm shaft.

Tightening torque:

3.3 to 3.9 kg-m
(24 to 28 ft-lb)

Notes:

- a. Align groove in worm shaft with bolt hole in universal joint yoke, and pass bolt through undercut section of worm shaft.
- b. Align four grooves of gear arm serrations with four projections of sector shaft serrations and install and tighten lock washer and nut to a torque of 14 to 18 kg-m (101 to 130 ft-lb).

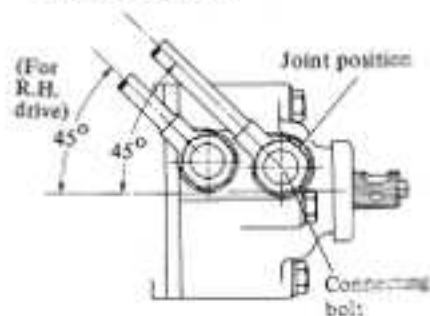
3. Install hoses.

Tightening torque:

5 to 7 kg-m
(36 to 51 ft-lb)

Notes:

- a. When tightening connector bolt during installation of hoses on gear assembly, be careful not to turn eye joint in tightening direction.
- b. Be sure to place two copper washers on top and bottom of eye joint when tightening connector bolt.
- c. Use new copper washers.
- d. Install joint at 45 degrees to center of gear assembly.



ST708

Fig. ST-30 Installing joint

Steering System

4. Replenish oil and bleed air, referring to Maintenance and Adjustment.

5. Check oil leakage as follows:

- Keep engine rotations at 1,000 to 1,500 rpm.
- Turn steering wheel lock to lock in both directions five to ten times, and hold it in the lock position for five seconds.

Note: Do not hold wheel in the lock position for more than fifteen seconds.

- Carefully check the following locations for oil leakage:
 - Stub shaft oil seal
 - Intermediate cover O-ring
 - Sector shaft oil seal

Sector cover O-ring
Adjusting screw lock nut
Hydraulic pressure piping

6. Check steering wheel for turning torque, referring to Maintenance and Adjustment.

7. Check steering wheel play.

Play: 0 to 35 mm (0 to 1.38 in)

SERVICE DATA AND SPECIFICATIONS

SPECIFICATIONS

Steering column type		Collapsible column
Steering gear type		
Manual steering		Recirculating ball type
Power steering		Integral type
Oil pump		
Type		Vane type
Maximum revolution	rpm	6,000
Maximum pressure	kg/cm ² (psi)	70 (995)
Steering wheel turns (Lock to lock)		
Vehicle		
Manual steering		4.7
Power steering		3.8
Turning angle of front wheel		
- inside	degrees	37°30' to 38°30'
- outside	degrees	29°30' to 30°30'
Steering gear ratio		
Manual steering		19.0 to 22.5
Power steering		17.0
Oil capacity		
Manual steering	liters (US pt, Imp. pt)	0.33 (¾, ¾)
Power steering	liters (US qt, Imp. qt)	
R.H. drive		1.3 (1¾, 1¾)
L.H. drive		1.5 (1¾, 1¾)
		Automatic transmission fluid "Dexron type"

SERVICE DATA

Steering wheel play	mm (in)	Less than 35 (1.38)
Steering column		
Steering wheel axial play	mm (in)	0 (0)
Manual steering gear		
Worm shaft turning torque		
Steering gear assembly (at neutral position)		
kg-cm (in-lb)		8.5 to 12.5 (7.4 to 10.9)
Worm bearing preload	kg-cm (in-lb)	4.0 to 6.0 (3.5 to 5.2)

Steering System

Worm bearing shim			
Standard total thickness	mm (in)	.....	1.5 (0.059)
Adjusting shim thickness	mm (in)	.....	0.762 (0.0300)
			0.254 (0.0100)
			0.127 (0.0050)
			0.050 (0.0020)
Sector shaft shim			
End play between sector shaft and adjusting screw	mm (in)	.....	0.01 to 0.03 (0.0004 to 0.0012)
Adjusting shim thickness	mm (in)	.....	1.575 (0.0620)
			1.550 (0.0610)
			1.525 (0.0600)
			1.500 (0.0591)
			1.475 (0.0581)
		1.450 (0.0571)	
Gear backlash at gear arm top end			
	mm (in)	.....	Less than 0.1 (0.004)
Steering linkage			
Ball joint stud			
Swing torque	kg-m (ft-lb)	.....	Less than 0.5 (3.6)
Power steering			
Oil pump belt tension	mm (in)	.....	8 to 12 (0.31 to 0.47) at 10 kg (22 lb)
Steering wheel turning torque (at circumference of steering wheel)	kg (lb)	.....	About 3.0 (6.6)
Oil pump pressure	kg/cm ² (psi)	.....	67 to 79 (953 to 1,123) at an engine speed of 1,000 rpm
Backlash adjustment			
Turning torque	kg-cm (in-lb)		
o (As compared with steering wheel turned 360°)			
Center		.....	1 to 2 (0.9 to 1.7)
o 360° (When steering gear assembly alone is turned)		.....	Less than 12 (10)

Tightening torque

Column shaft

Steering wheel nut	kg-m (ft-lb)	.....	4.0 to 5.0 (29 to 36)
Column clamp bolts	kg-m (ft-lb)	.....	0.9 to 1.2 (6.5 to 8.7)
Jacket tube bracket to dash panel	kg-m (ft-lb)	.....	0.3 to 0.4 (2.2 to 2.9)
Universal joint to worm shaft	kg-m (ft-lb)	.....	3.3 to 3.9 (24 to 28)

Steering System

Manual steering gear

Gear arm nut	kg-m (ft-lb)	14 to 18 (101 to 130)
Steering housing to body	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Rear cover bolts	kg-m (ft-lb)	1.5 to 1.8 (11 to 13)
Sector shaft cover bolts	kg-m (ft-lb)	1.5 to 1.8 (11 to 13)
Sector shaft adjusting screw lock nut	kg-m (ft-lb)	3.2 to 3.7 (23 to 27)

Steering linkage

Idler body to frame	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Ball stud nuts	kg-m (ft-lb)	5.5 to 10 (40 to 72)
Side rod bar lock nuts	kg-m (ft-lb)	7.7 to 10.5 (56 to 76)
Idler arm (idler shaft) nut	kg-m (ft-lb)	8 to 12 (58 to 87)

Power steering

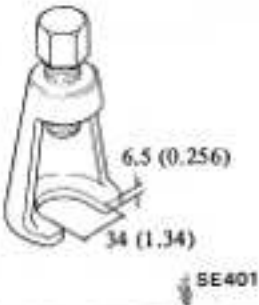
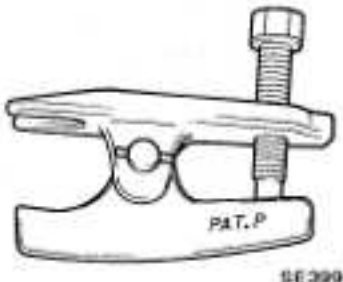
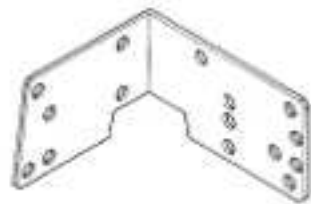
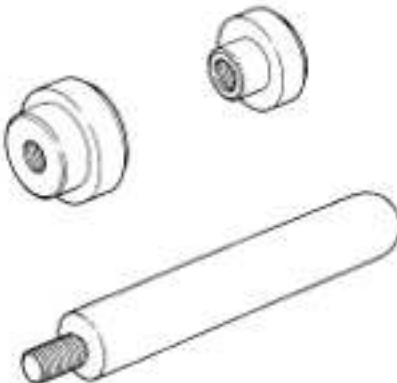
Oil pump installing bolts	kg-m (ft-lb)	1.9 to 2.6 (14 to 19)
Gear arm nut	kg-m (ft-lb)	14 to 18 (101 to 130)
Steering housing to body	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Sector shaft adjusting screw lock nut	kg-m (ft-lb)	2.9 to 3.5 (21 to 25)

Hose to oil pump

High pressure (Outlet) side	kg-m (ft-lb)	3.0 to 5.0 (22 to 36)
Low pressure (Inlet) side	kg-m (ft-lb)	0.3 to 0.6 (2.2 to 4.3)
Hose to gear housing	kg-m (ft-lb)	5.0 to 7.0 (36 to 51)
Sector cover bolt	kg-m (ft-lb)	2.7 to 3.3 (20 to 24)
Rear housing bolt	kg-m (ft-lb)	2.7 to 3.3 (20 to 24)
Bleeder screw	kg-m (ft-lb)	0.7 to 0.9 (5.1 to 6.5)

Z·ONE·DATSUN

SPECIAL SERVICE TOOL CHANGES

No.	Tool number & tool name		Figure Unit: mm (in)	Interchangeability	Remarks
	New	Former			
1.	ST29020001 Gear arm puller	ST27200001 Gear arm puller		YES	*1
2.	HT72520000 Ball joint puller	KV48100200 Ball joint puller		YES	*2
3.	KV48100300	—			*3
4.	KV481009S0 Oil seal drift set KV48100910 KV48100920 KV48100930	—			*4

*1 : Standardized with other tools

*2 : Replaced by a general-purpose tool

*3 : Modified Specifications, Changed working method, Addition of unstated item

*4 : Added

SERVICE MANUAL

SUPPLEMENT 1

MODEL 330 SERIES CHASSIS AND BODY

SECTION : ENGINE CONTROL, FUEL & EXHAUST SYSTEMS (FE)

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FUEL SYSTEM	FE-5
ELECTRIC FUEL PUMP	FE-5
REMOVAL AND INSTALLATION	FE-5
Sedan and Hardtop	FE-5
FUEL FILTER	FE-5

ENGINE CONTROL SYSTEM

ACCELERATOR CONTROL SYSTEM

On models equipped with a diesel engine, a hybrid design has replaced the former full link type. The new hybrid control unit partly employs wire in it. There is no need to adjust the wire.

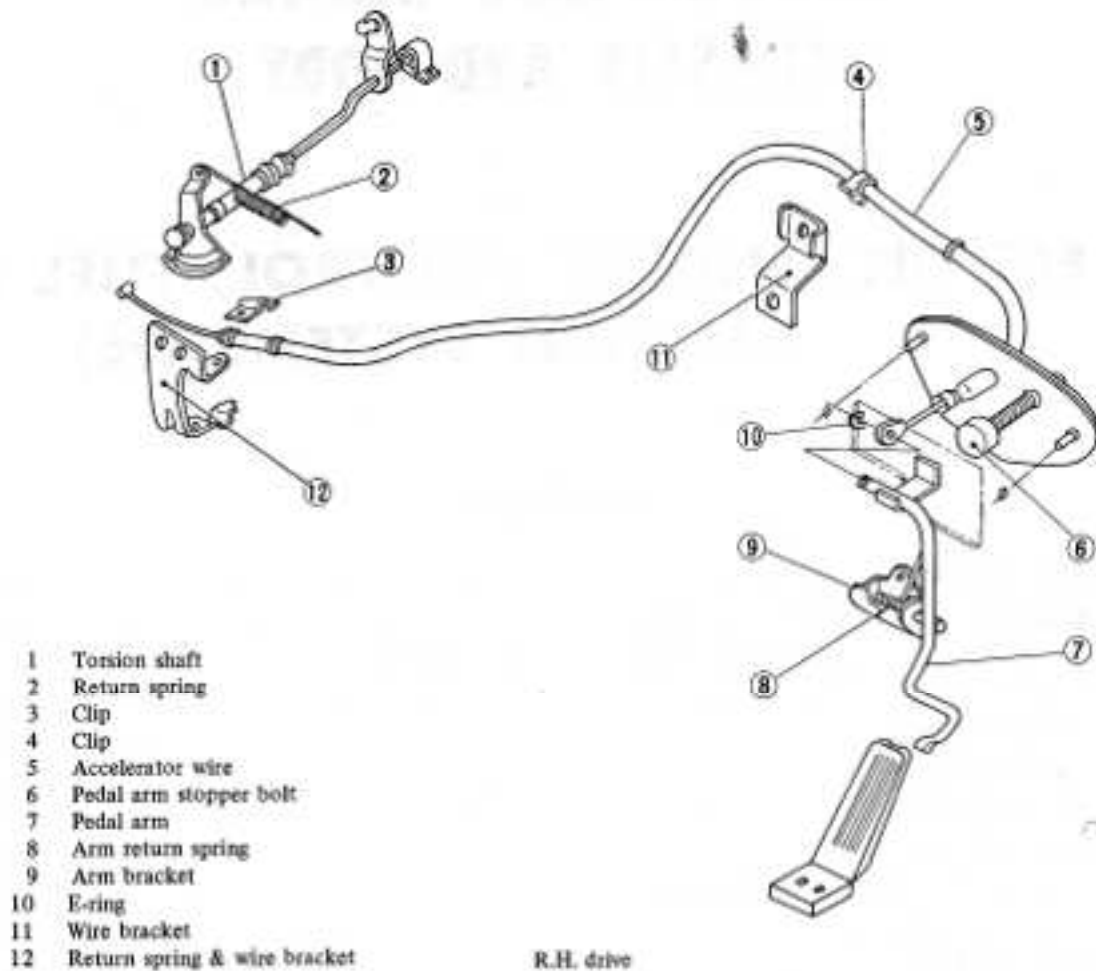


Fig. FE-1 Accelerator control system-Diesel engine

DIESEL ENGINE AUTOMATIC COLD STARTING DEVICE (FOR FRANCE AND BELGIUM)

In order to comply with Diesel Smoke Regulation 72/306/EEC, an automatic cold starting device has been installed on diesel engine models destined for France and Belgium.

For this reason, the fuel control knob located on the instrument panel is used only when the engine must be stopped.

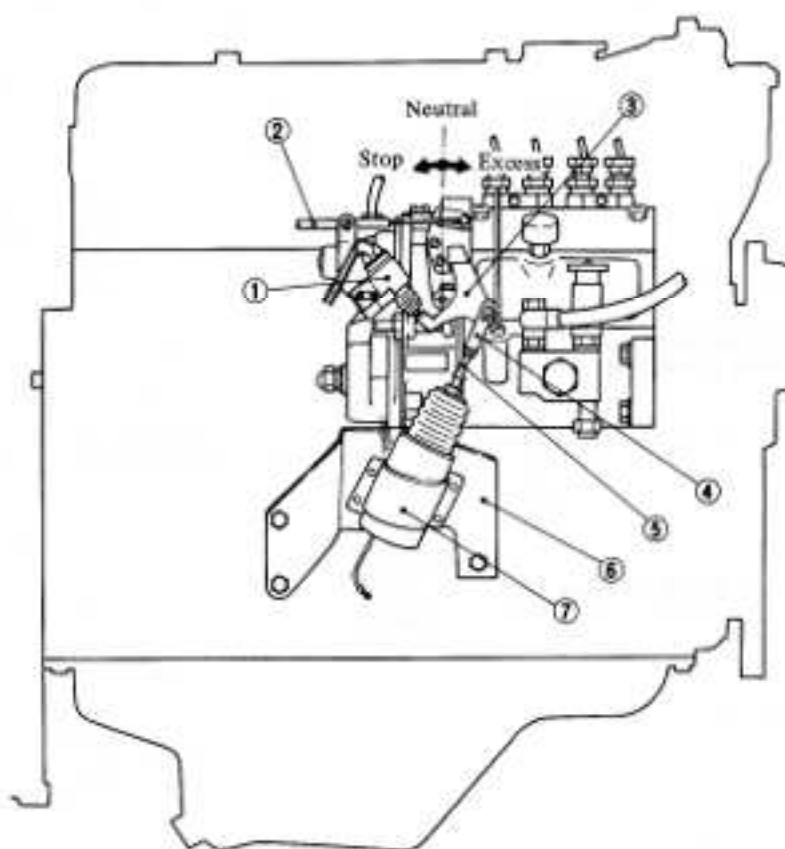
DESCRIPTION

When the ignition is in the START position, current flows through the solenoid, pulling the rod attached to it. As the rod is pulled, the injection pump lever is automatically moved toward the "excess fuel" side. At the same time, the turn switch attached to the pump is turned on. Current then flows through the starter motor, caus-

ing the engine to start.

After the engine has started and the ignition switch has returned to the ON position, current will stop flowing to the solenoid, returning the fuel control lever to the normal position. At the same time, the turn switch is turned off and current stops flowing to the starter motor.

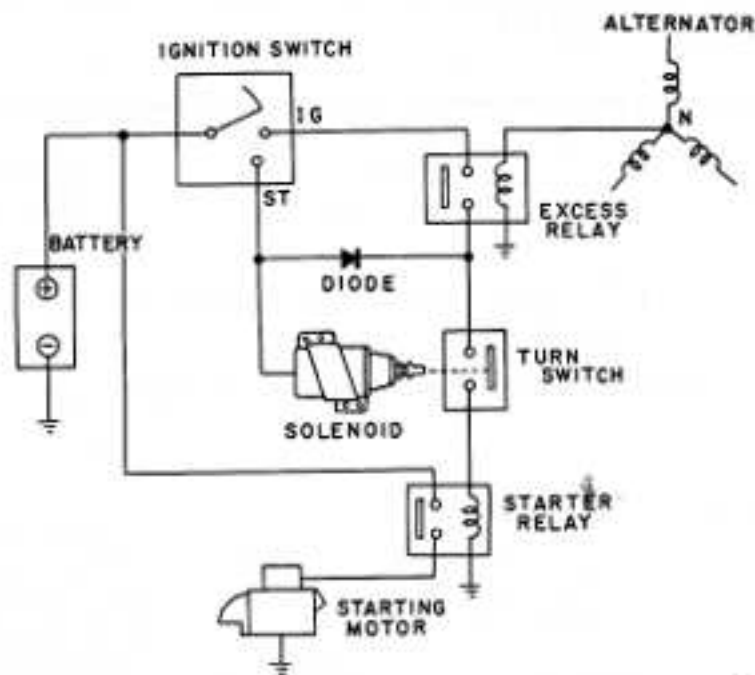
During engine operation, if the fuel control lever is moved to the "excess fuel" side, the turn switch will move to the ON position. At this point, the excess relay closes, completing the starter motor circuit causing the starter motor to run and preventing the injection of excess fuel.



- 1 Turn switch
- 2 Engine stop wire
- 3 Fuel control lever
- 4 Clevis
- 5 Connecting rod
- 6 Solenoid bracket
- 7 Excess solenoid

FE533

Fig. FE-2 Automatic cold starting device



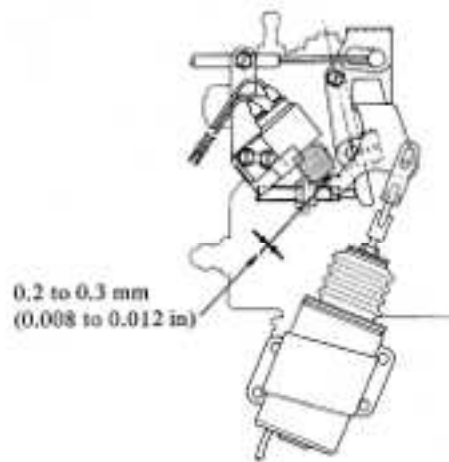
FE934

Fig. FE-3 Circuit diagram for automatic cold starting device

ADJUSTMENT

When adjusting the following items, always insure that the fuel injection pump lever is in the normal position.

1. Adjust the clearance between the turn switch and injection pump lever to 0.2 to 0.3 mm (0.008 to 0.012 in). See Figure FE-4.
2. When adjusting the relative position of the injection pump lever pin and clevis hole, move the connecting rod all the way up, so that all the play is taken out. Then, insure that the pin rests at the lower end of the clevis hole. See Figure FE-4.
3. Adjust the engine stop wire pin so that it is brought to the forward end of the hole on the lever. See Figure FE-4.



FE936

Fig. FE-4 Adjusting cold starting device

FUEL SYSTEM

ELECTRIC FUEL PUMP

On the Sedan and Hardtop, the electric fuel pump has been relocated under the floor. On the Station Wagon and Van, the location remains unchanged.

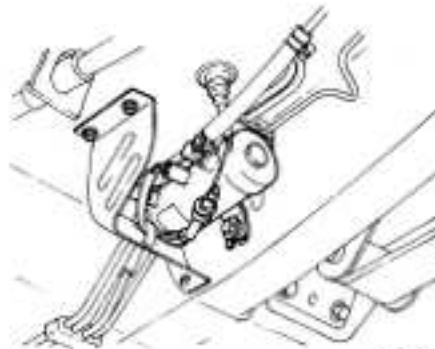
REMOVAL AND INSTALLATION

Sedan and Hardtop

1. Disconnect battery ground cable.
2. Remove protector cover.
3. Disconnect wiring harness connector.
4. Loosen clamps and disconnect fuel hoses at suction and discharge ports.

Plug fuel hoses to prevent fuel from leaking out.

5. Installation is in the reverse order of removal.

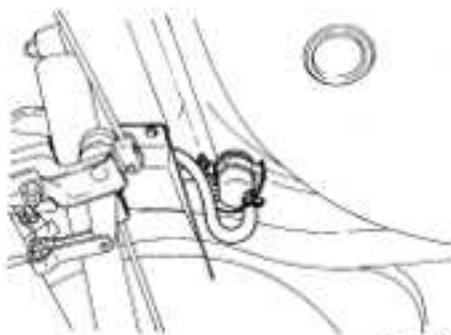


FE52B

Fig. FE-5 Electric fuel pump (Sedan and Hardtop)

FUEL FILTER

On the Sedan and Hardtop, the fuel filter also has been installed under the floor to accommodate the relocated electric fuel pump.



FE52A

Fig. FE-6 Fuel filter (Sedan and Hardtop)

CONFIDENTIAL

MEMORANDUM FOR THE DIRECTOR, FBI

DATE: 10/15/64

TO: SAC, NEW YORK

FROM: SAC, NEW YORK

SUBJECT: [Illegible]

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SERVICE MANUAL

SUPPLEMENT 1

MODEL 330 SERIES CHASSIS AND BODY

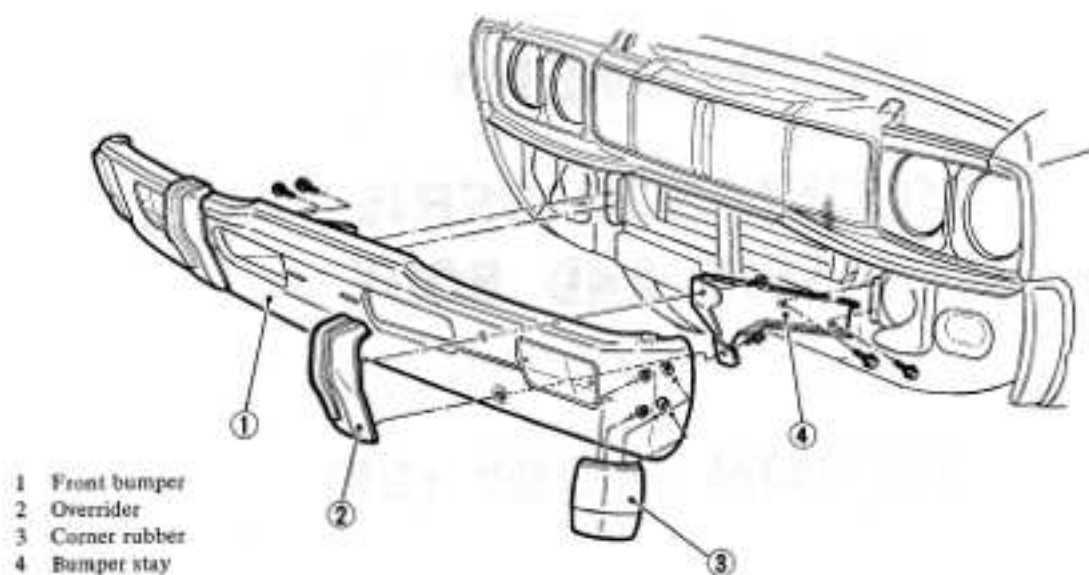
SECTION : BODY (BF)

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RADIATOR GRILLE AND HEADLAMP FINISHER	BF-3
INSTRUMENT UNDER COVER	BF-4

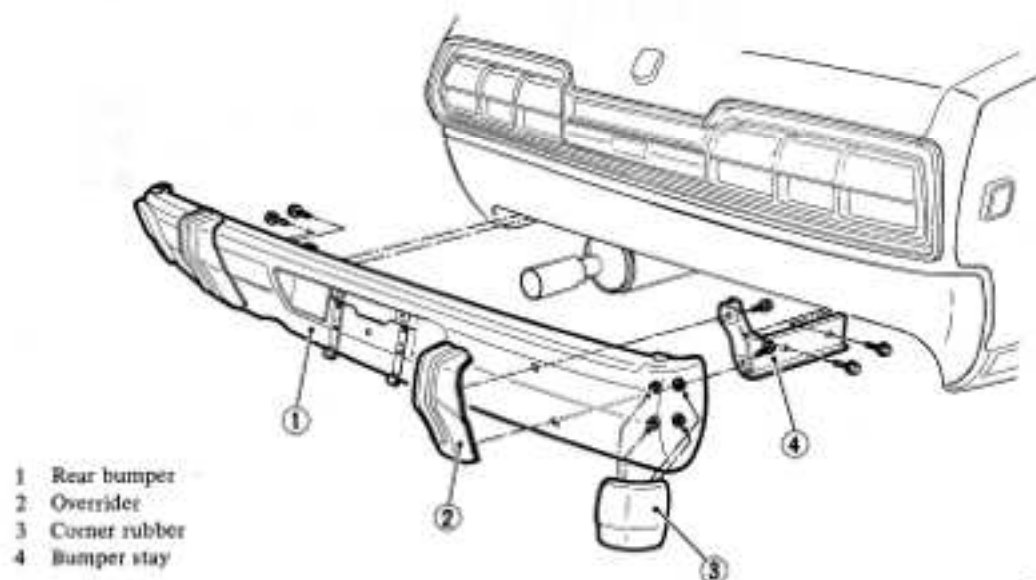
BUMPER

The bumper corner rubber has been enlarged and the number of attaching nuts has been changed to four.



BF401B

Fig. BF-1 Front bumper

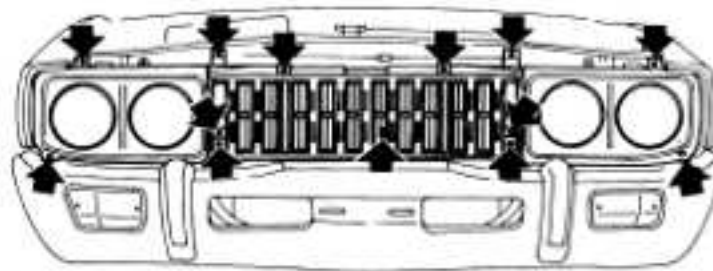


BF402B

Fig. BF-2 Rear bumper

RADIATOR GRILLE AND HEADLAMP FINISHER

The radiator grille and headlamp finisher have been redesigned and the number of retaining screws has been reduced.

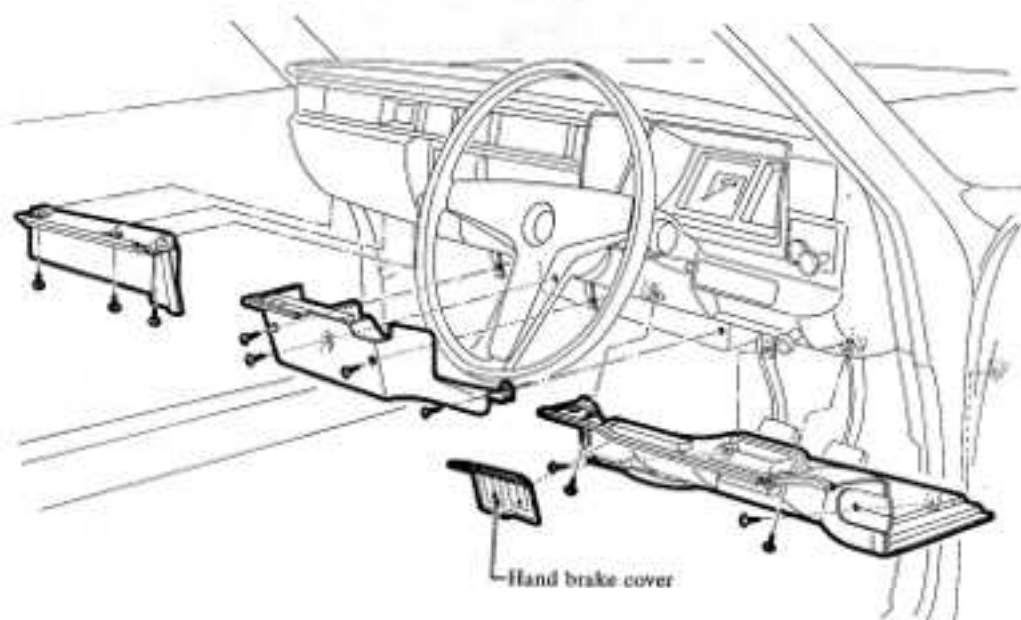


M159B

Fig. BF-3 Radiator grille and headlamp finisher

INSTRUMENT UNDER COVER

On models equipped with a diesel engine, a cover has been installed under the instrument panel and a noise absorbing material has been attached to the inner side of the cover for noise reduction considerations. This cover consists of three pieces; one on the driver's side, one on the passenger's side and one in the middle. When the heater is not installed, the one in the middle is not attached.



BF403B

Fig. BF-4 Instrument under cover (R.H. drive)

SERVICE MANUAL

SUPPLEMENT 1

MODEL 330 SERIES CHASSIS AND BODY

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LIGHTING SYSTEM

A console box lamp has been adopted. It will come on when the console box lid is opened with the light switch turned on.

DESCRIPTION

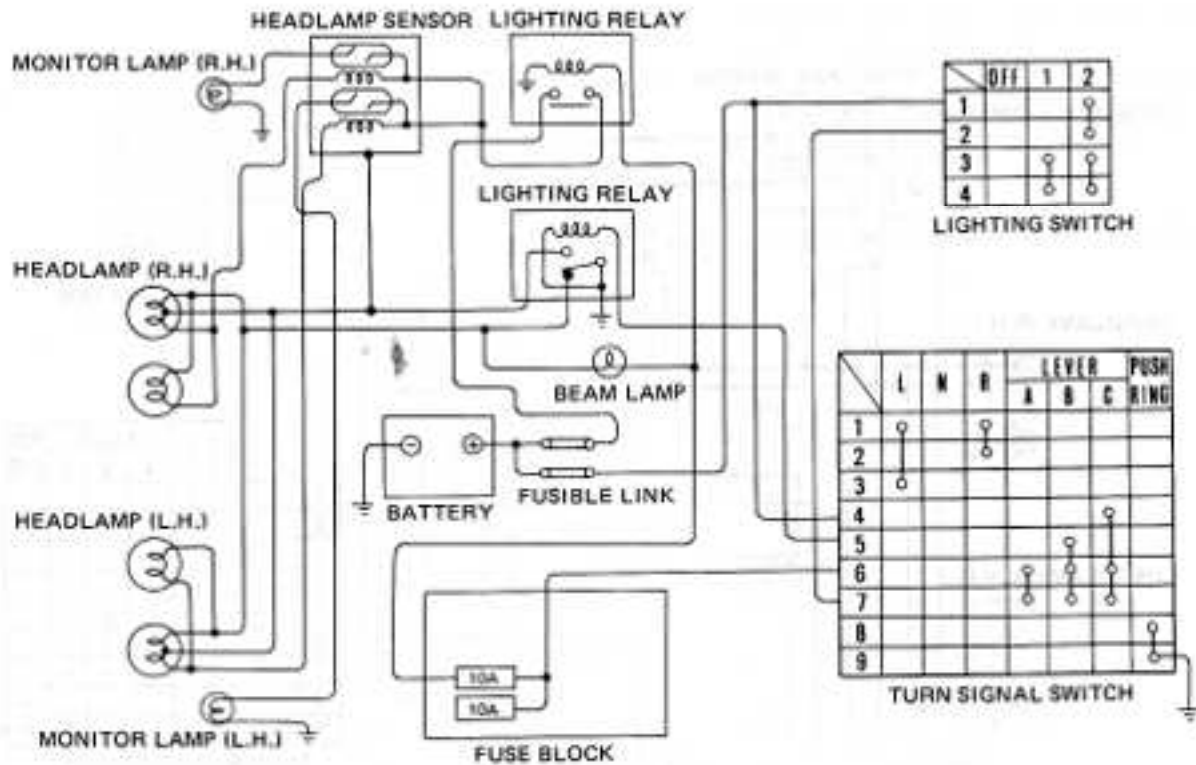
The lighting system includes the following lamps, switches and their respective components.

- Headlamps
- Front combination lamps
- Turn signal and hazard warning lamps
- Meter and switch knob illumination lamps
- Glove box lamp
- Console box lamp
- Interior lamp
- Step lamps
- Personal lamps
- Luggage compartment lamp
- Engine compartment inspection lamp
- Trunk compartment lamp
- Rear combination lamps
- License plate lamps
- Various switches

LIGHTING SYSTEM CIRCUIT DIAGRAM

Headlamp system

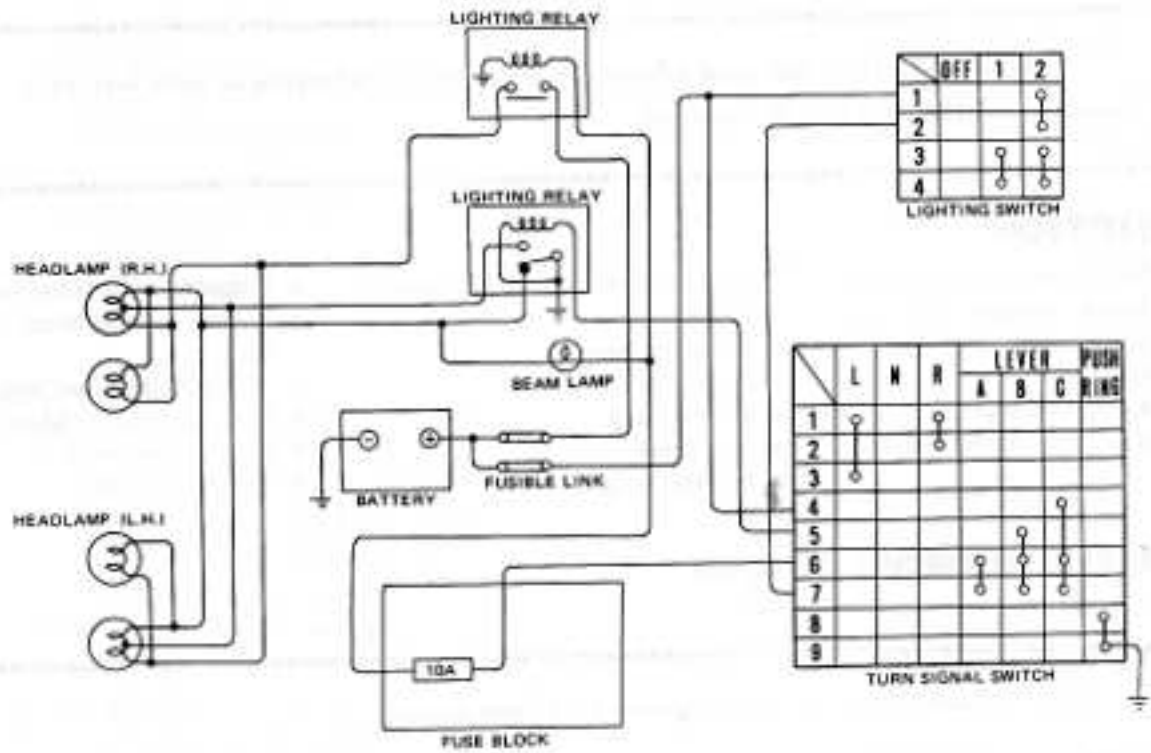
The headlamp sensor circuit diagrams have been revised.



BE482C

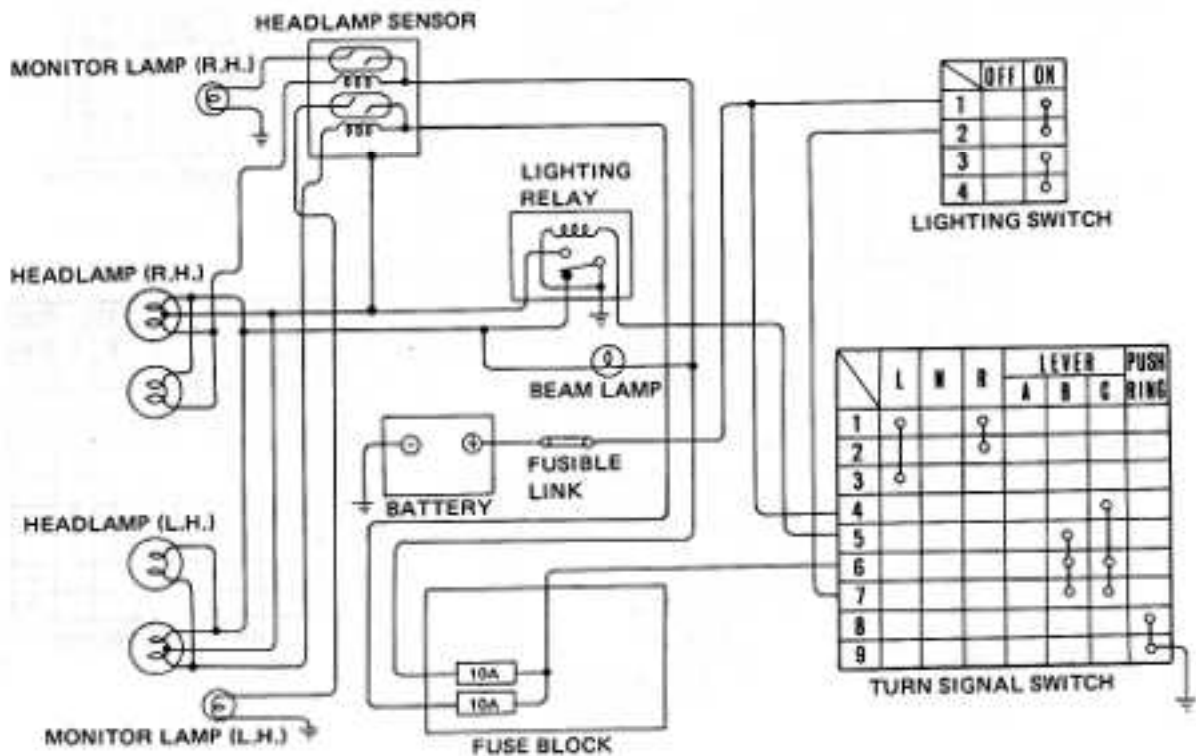
Fig. BE-1 Headlamp circuit diagram (L.H. drive model with headlamp monitor)

Body Electrical System



BE483C

Fig. BE-2 Headlamp circuit diagram (L.H. drive model without headlamp monitor)



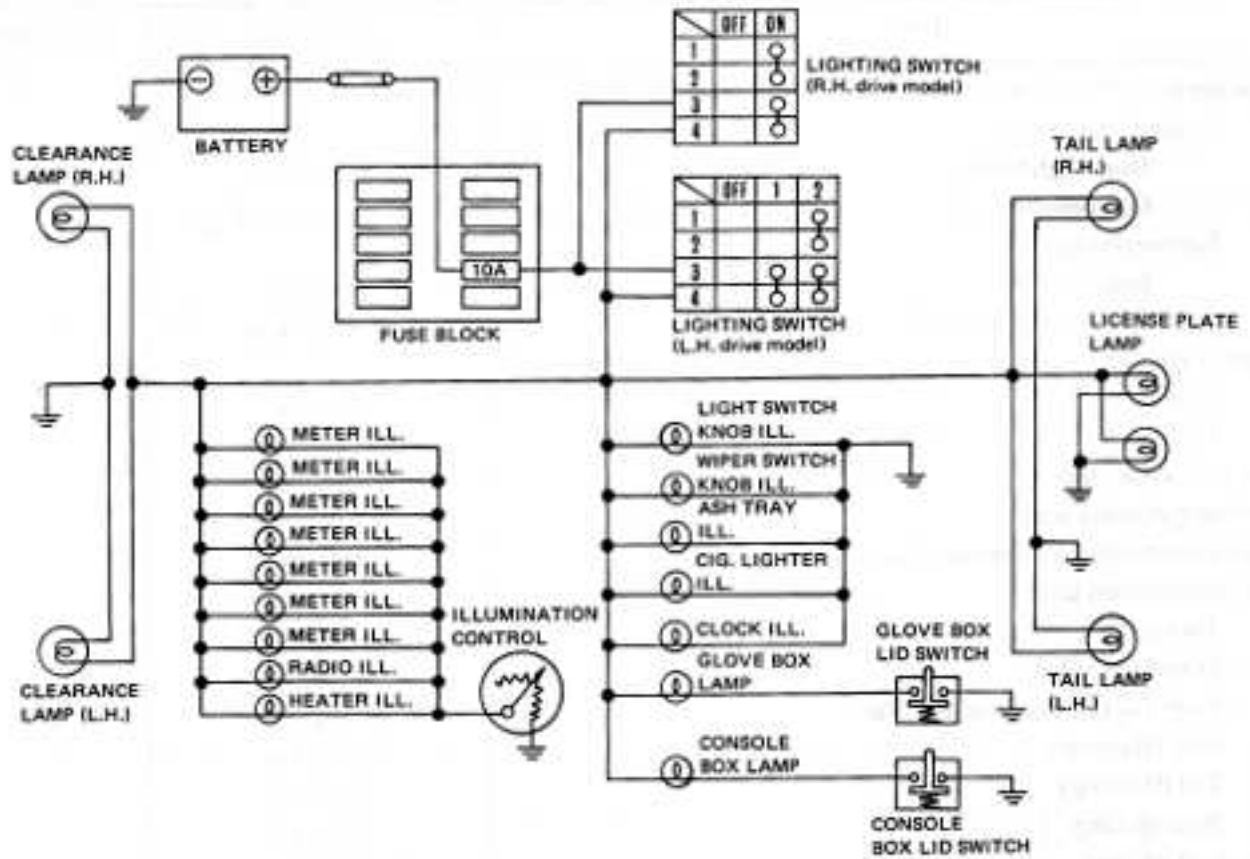
BE484C

Fig. BE-3 Headlamp circuit diagram (R.H. drive model)

Body Electrical System

Clearance, tail, license plate and illumination lamp system

Z·ONE·DATSUN

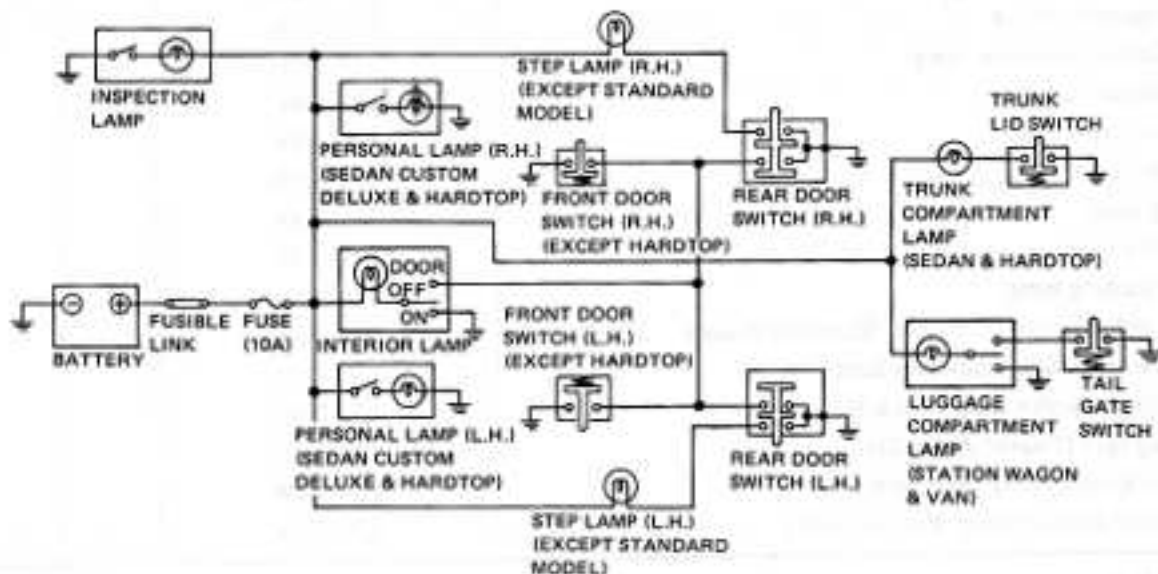


BE485C

Fig. BE-4 Circuit diagram for clearance, tail, license plate and illumination lamps

Interior, personal, step, trunk compartment and engine compartment inspection lamp system

On the Sedan and Station Wagon, the interior lamp circuit diagram has been revised so that interior lamp can come on also when the rear door is opened.



BE486C

Fig. BE-5 Circuit diagram for interior, personal, step, trunk compartment, luggage compartment and inspection lamps

Body Electrical System

BULB SPECIFICATIONS

Item	Capacity	Quantity
Headlamp		
Sealed beam		
Inner-High beam	12V-37.5W	2
Outer-High/Low beam	12V-37.5/50W	2
Semi-sealed beam		
Inner-High beam	12V-45W	2
Outer-High/Low beam	12V-45/40W	2
Front combination lamp		
Turn signal	12V-5W	2
Clearance	12V-5W	2
Side turn signal lamp	12V-5W	2
Headlamp monitor lamp	12V-1.5W	2
Engine compartment inspection lamp	12V-8W	1
Rear combination lamp		
Turn signal	12V-21W	2
Stop/Tail (Sedan)	12V-21/5W	4
Stop/Tail (Station Wagon & Van)	12V-21/5W	2
Stop (Hardtop)	12V-21W	2
Tail (Hardtop)	12V-10W	2
Back-up lamp	12V-21W	2
License plate lamp	12V-5W	2
Trunk compartment lamp	12V-5W	1
Interior lamp	12V-10W	1
Luggage compartment lamp	12V-10W	1
Step lamp	12V-5W	2
Personal lamp	12V-10W	2
Glove box lamp	12V-3.4W	1
Console box lamp	12V-3.4W	1
Meter illumination lamp	12V-3.4W	7, 6*
Switch knob illumination lamp	12V-3.4W	2
Ash tray illumination lamp	12V-3.4W	1
Cigarette lighter illumination lamp	12V-3.4W	1
Clock illumination lamp	12V-3.4W	1
High beam indicator lamp	12V-1.5W	1
Turn signal indicator lamp	12V-3.4W	2
Fuel warning lamp	12V-3.4W	1
Charge warning lamp	12V-3.4W	1
Oil pressure warning lamp	12V-3.4W	1
Heater/Air conditioner control panel illumination lamp	12V-3.4W	1
A/T selector lever position indicator lamp	12V-3.4W	6
Hazard warning indicator lamp (For L.H. drive models)	12V-1.4W	1
Brake warning light (Except Australia)	12V-3.4W	1
Parking brake warning lamp (For Australia)	12V-3.4W	1
Brake fluid level warning lamp (For Australia)	12V-3.4W	1

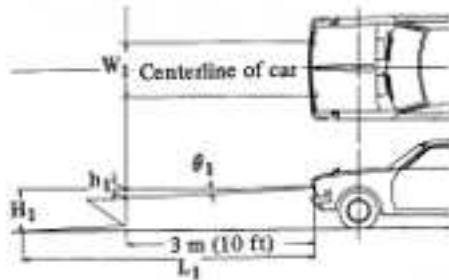
* Hardtop

HEADLAMP

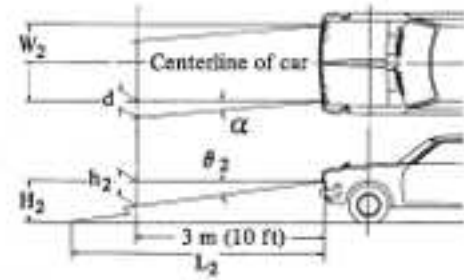
AIMING ADJUSTMENT

Despite the change in the model variation, aiming adjustment remains unchanged.

High beam



Low beam



BE813A

Item	High beam					Low beam					d mm (in)	alpha degree
	H ₁ mm (in)	W ₁ mm (in)	theta ₁	h ₁ mm (in)	L ₁ m (ft)	H ₂ mm (in)	W ₂ mm (in)	theta ₂	h ₂ mm (in)	L ₂ m (ft)		
Sedan (Except Diesel)	706 (27.80)	1,012 (39.84)	28°	24.5 (0.965)	86.6 (284.1)	706 (27.80)	1,340 (52.76)	1°04'	55.9 (2.201)	37.9 (124.3)	104.8 (4.13)	2°
Sedan (Diesel)	708 (27.87)	1,012 (39.84)	28°	24.5 (0.965)	86.9 (285.1)	708 (27.87)	1,340 (52.76)	1°03'	54.9 (2.161)	38.7 (127.0)	104.8 (4.13)	2°
Hardtop	685 (26.97)	1,012 (39.84)	30°	26.1 (1.028)	78.7 (258.2)	685 (26.97)	1,340 (52.76)	1°05'	56.7 (2.232)	36.2 (118.8)	104.8 (4.13)	2°
Station Wagon and Van	699.3 (27.53)	1,012 (39.84)	47°	41.0 (1.614)	51.2 (168.0)	699.3 (27.53)	1,340 (52.76)	1°22'	71.6 (2.819)	29.3 (96.1)	104.8 (4.13)	2°

Fig. BE-6 Headlamp aiming adjustment

SIDE TURN SIGNAL LAMP REMOVAL AND INSTALLATION

To facilitate removal and installation, the installation method for the side turn signal lamp has been changed.

1. Disconnect battery ground cable.
2. Remove side turn signal lamp retaining screw.



BE487C

Fig. BE-7 Removing side turn signal lamp

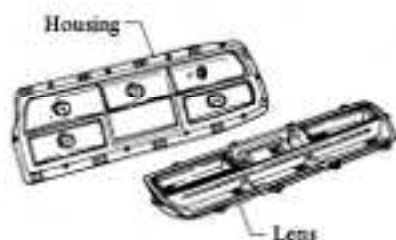
3. Remove side turn signal lamp and disconnect lamp harness connector.
4. Install side turn signal lamp in the reverse order of removal.

REAR COMBINATION LAMP (Sedan)

The rear combination lamp housing has been redesigned on the Sedan only. It is now possible to replace the lens.

REMOVAL AND INSTALLATION

1. Disconnect battery ground cable.
2. Remove rear finisher of trunk compartment. Refer to Section BF.
3. Disconnect combination lamp harness connector.
4. Remove nuts retaining combination lamp, working from the inside of trunk compartment.
5. Remove combination lamp housing with rim facing to the rear.
6. Remove lens by removing screws.



BE488C

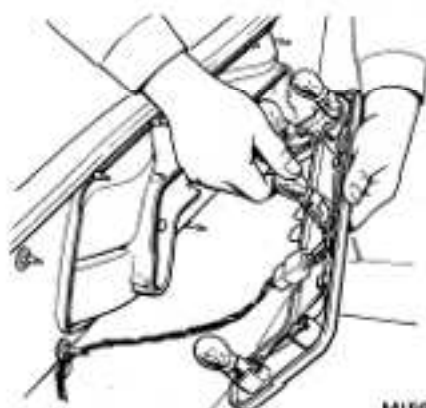
Fig. BE-8 Removing lens

7. Install rear combination lamp in the reverse order of removal.

BULB REPLACEMENT

1. Remove rear finisher of trunk compartment.
2. Remove lamp back cover by removing screws.
3. Push in on bulb, turn it counterclockwise and remove it from socket.

4. Install new bulb in the reverse order of removal.



M1159

Fig. BE-9 Removing bulb

CONSOLE BOX LAMP

BULB REPLACEMENT

1. Remove console rim by removing screws.
2. Turn bulb socket counterclockwise and remove it from console rim.

CONSOLE BOX LID SWITCH

REMOVAL AND INSTALLATION

1. Disconnect battery ground cable.
2. Remove console box.
3. Remove ash tray assembly by removing screws.

4. Remove screws retaining console box lamp switch to console box and disconnect switch harness connectors.

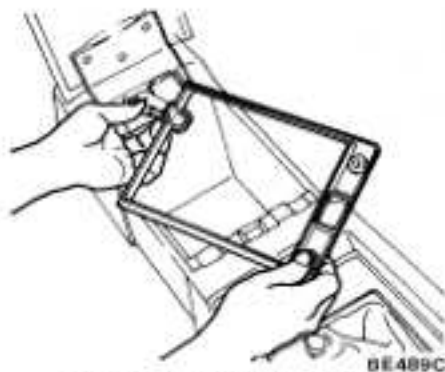


Fig. BE-10 Removing bulb socket

3. Pull out bulb from socket.
4. Install new bulb in the reverse order of removal.

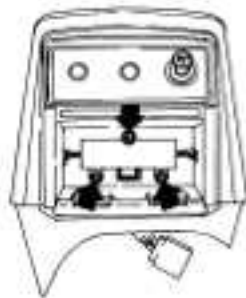


Fig. BE-11 Removing ash tray



Fig. BE-12 Removing console box lamp switch

5. Remove switch from bracket.
6. Install console box lamp switch in the reverse order of removal.

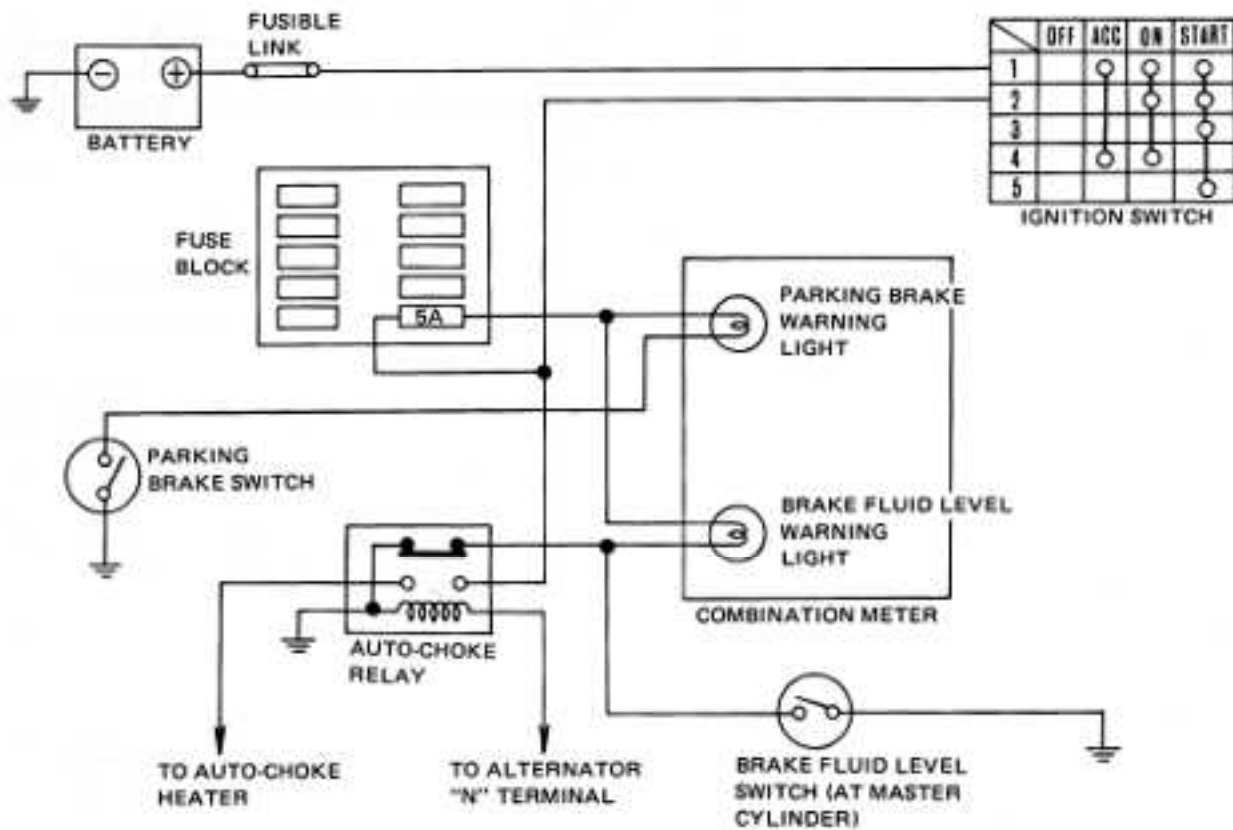
METERS AND GAUGES

To meet the requirements of Item 31 of A. D. R., the brake warning light has been divided into the parking brake warning light and the brake fluid level warning light on models bound for Australia.

DESCRIPTION

CIRCUIT DIAGRAM OF METERS AND GAUGES

Brake warning system (For Australia)

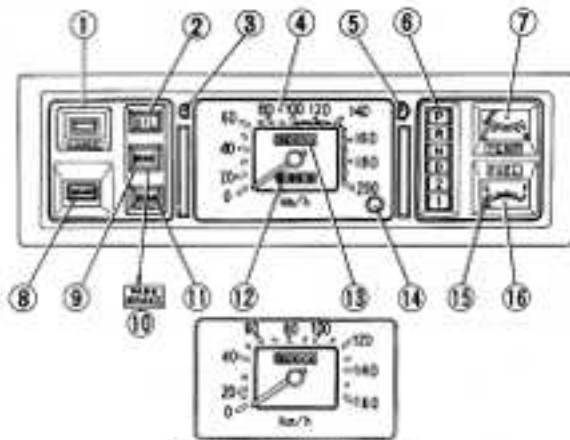


BE492C

Fig. BE-13 Brake warning system (For Australia)

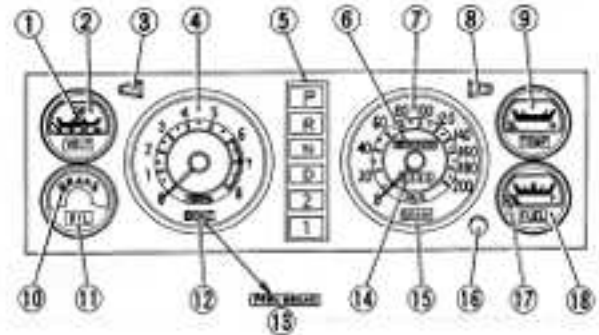
CLUSTER LID A COMBINATION METER

Arrangement of combination meter

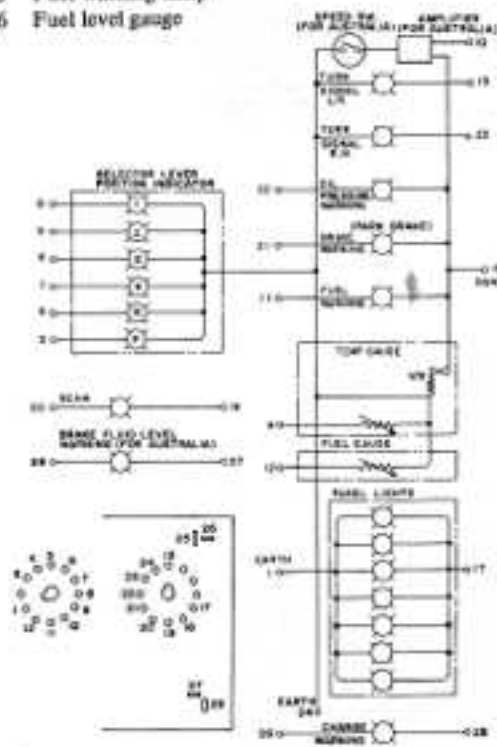


Diesel engine models only

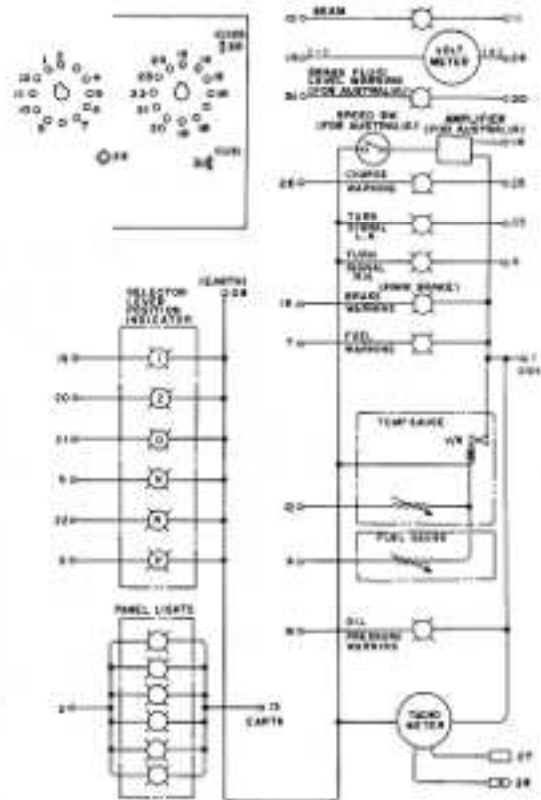
- 1 Charge warning lamp
- 2 Oil pressure warning lamp
- 3 Turn signal pilot lamp (L.H.)
- 4 Speedometer
- 5 Turn signal pilot lamp (R.H.)
- 6 Selector lever position indicator (A/T models only)
- 7 Water temperature gauge
- 8 Brake fluid level warning lamp (For Australia)
- 9 Brake warning lamp (Except Australia)
- 10 Parking brake warning lamp (For Australia)
- 11 High beam pilot lamp
- 12 Tripmeter
- 13 Odometer
- 14 Tripmeter reset knob
- 15 Fuel warning lamp
- 16 Fuel level gauge



- 1 Charge warning lamp
- 2 Voltmeter
- 3 Turn signal pilot lamp
- 4 Tachometer
- 5 Torque converter indicator (A/T models only)
- 6 Odometer
- 7 Speedometer
- 8 Turn signal pilot lamp (R.H.)
- 9 Water temperature gauge
- 10 Brake fluid level warning lamp (For Australia)
- 11 Oil pressure warning lamp
- 12 Brake warning lamp
- 13 Parking brake warning lamp
- 14 Tripmeter
- 15 High beam pilot lamp
- 16 Tripmeter reset knob
- 17 Fuel warning lamp
- 18 Fuel level gauge



Square meter



Circular meter

Fig. BE-14 Combination meter

BE493C

BRAKE WARNING SYSTEM

DESCRIPTION

For Australia

The brake warning system consists of a parking brake warning system and a brake fluid level warning system.

The parking brake warning system consists of a warning lamp and a parking brake switch. The warning lamp will come on when the parking brake is applied with the ignition switch turned on.

The brake fluid level warning system consists of a warning lamp, an auto-choke relay and a brake fluid level switch. The warning lamp comes on when the ignition switch is turned

to the "ON" or "START" position, regardless of the brake fluid level switch. As the engine starts, the auto-choke relay is actuated to interrupt current flow to the warning lamp check circuit. The fluid level switch will then be actuated to cause the warning lamp to come on. When a problem occurs on the brake line, the warning lamp glows through the brake fluid level switch.

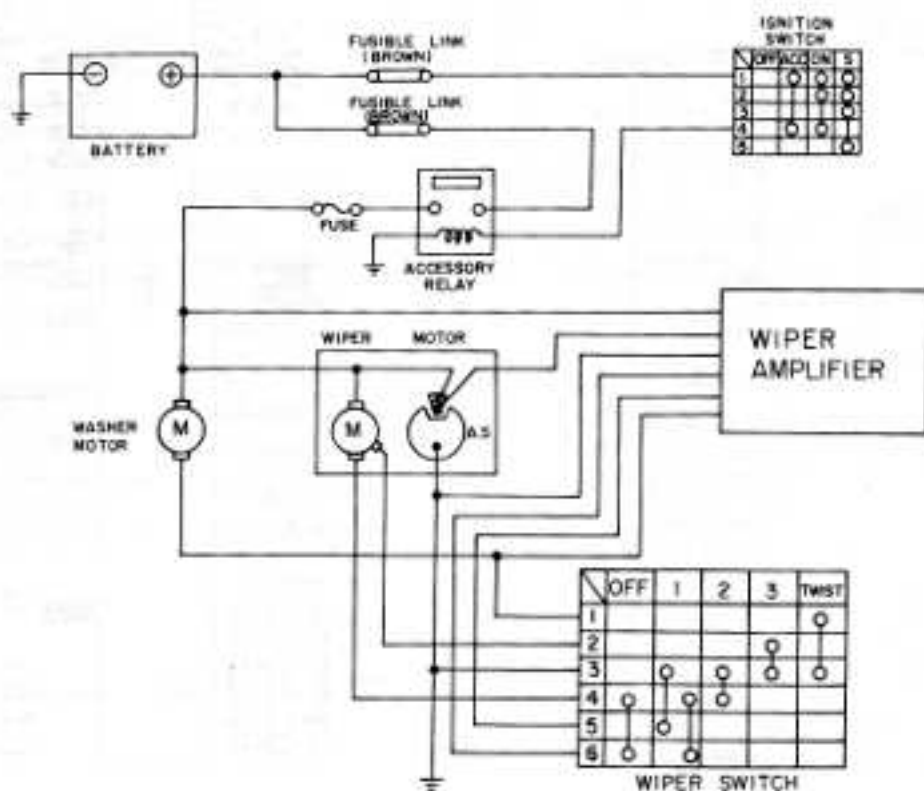
ELECTRICAL ACCESSORIES

- For improved operation, the intermittent wiper and washer system circuit diagram has been revised.
- The location of the wiper amplifier has been changed from the rear side of the instrument panel to the right side hoodledge panel in the engine compartment.
- A rear window wiper has been installed on the Station Wagon bound for Australia and the Van bound for England.

DESCRIPTION

CIRCUIT DIAGRAM OF ELECTRICAL ACCESSORIES

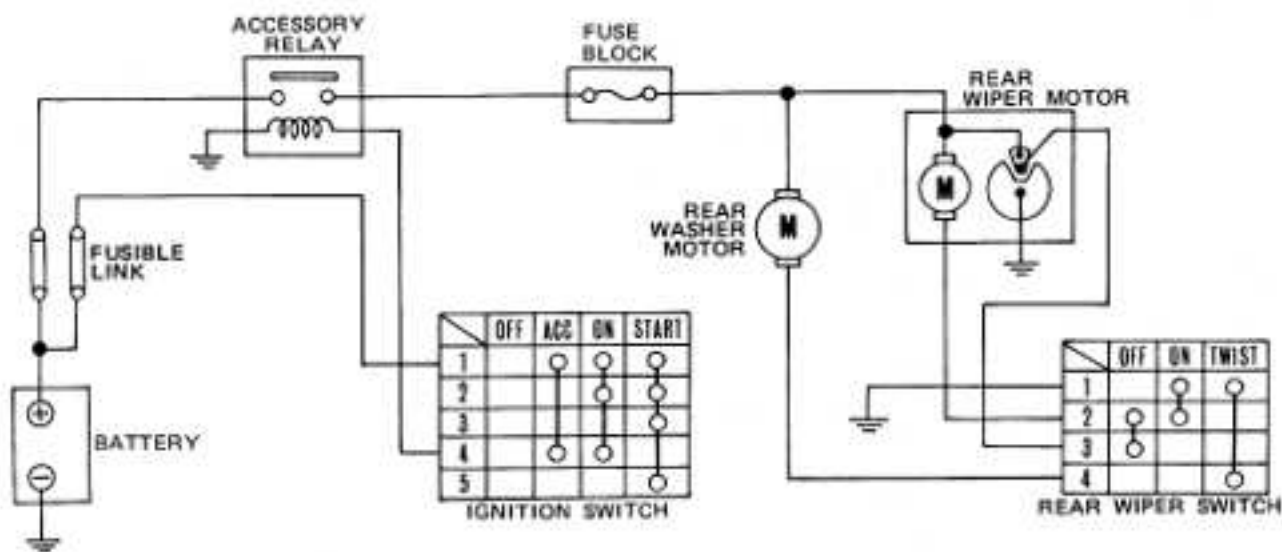
Windshield wiper and washer system (with intermittent wiper amplifier)



BE494C

Fig. BE-15 Circuit diagram for intermittent wiper and washer system

Rear window wiper and washer system



BE405C

Fig. BE-16 Circuit diagram for rear window wiper and washer

WINDSHIELD WIPER AND WASHER

DESCRIPTION

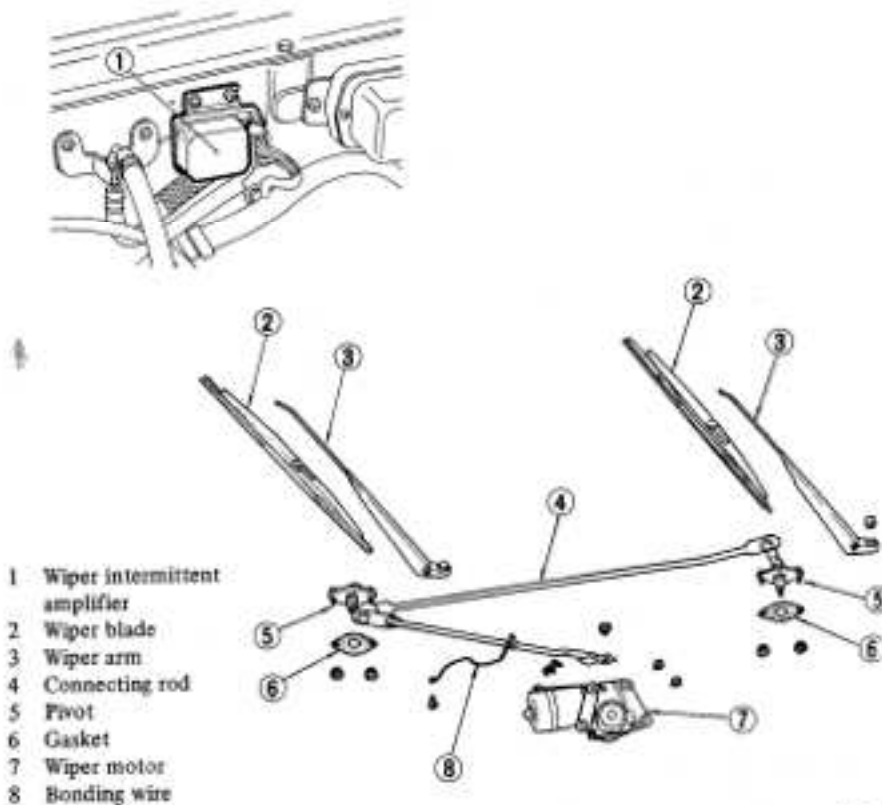
The windshield wiper consists of a wiper motor, a link mechanism, wiper arms, blades, and an intermittent amplifier. The wiper motor unit, consisting of a motor and an auto-stop mechanism, operates wipers at three different speeds; intermittent, low-speed, and high-speed. On Sedan Deluxe and Standard models, the wiper is a two-speed type: low and high.

The wiper motor unit is located on the cowl top panel in the engine compartment and link mechanism is located under the cowl top grille.

The wiper intermittent amplifier is installed on the R.H. hoodledge panel in the engine compartment.

The electrically operated windshield washer consists of a washing fluid tank (with motor and pump), washer nozzles, and a vinyl tube connecting those components.

The windshield washer switch is combined with the windshield wiper switch into a single unit. To operate the washer, twist the switch knob.

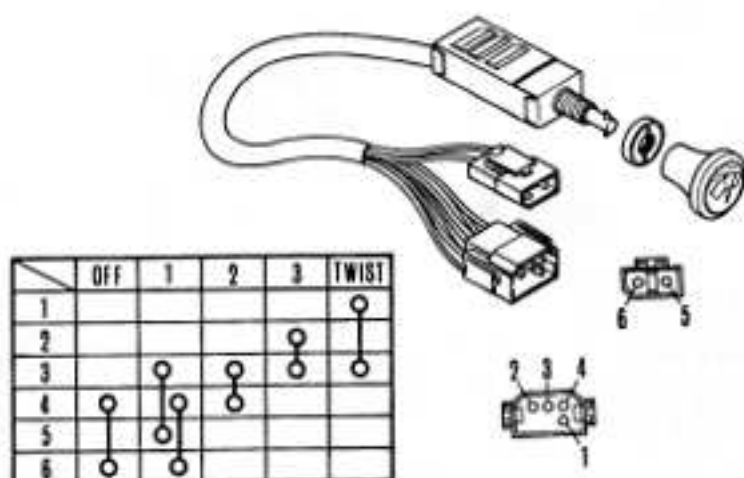


BE496C

Fig. BE-17 Wiper motor, linkage and intermittent amplifier

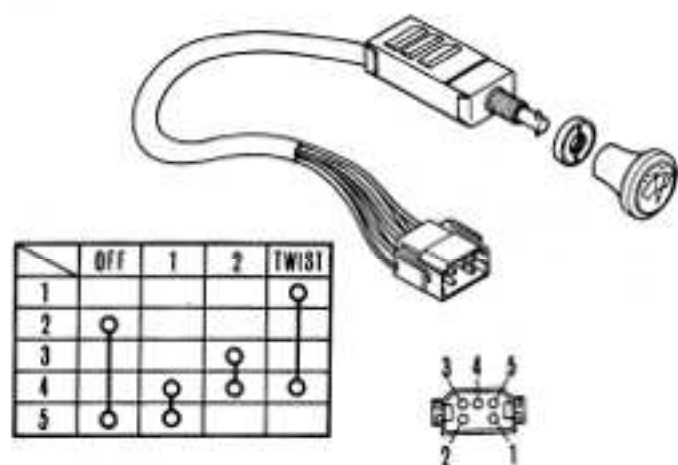
INSPECTION

Wiper and washer switch



BE497C

Fig. BE-18 Wiper switch (3-speed type)



BE498C

Fig. BE-19 Wiper switch (2-speed type)

Intermittent amplifier

To check intermittent amplifier for proper operation, fabricate adapters shown in the Figure BE-20, and utilize

the following procedures in the order enumerated. Failure to observe the order of these test procedures may

lead to improper test results.

1. Disconnect harness connector from intermittent amplifier.

2. Perform "Test A" in the following procedures, referring to Test A in the Figure BE-20.

(1) Connect lead wire (a) to amplifier terminal (1) and test lamp lead wire (b) to (5), and connect the other ends of these wires to positive terminal of 12-volt D-C power supply.

(2) Connect lead wires (d) to amplifier terminal (6) at one end, and to negative terminal of the power supply at the other end.

(3) Connect test lead wire (c) to amplifier terminal (4) at one end and to negative terminal of the supply at the other end.

With this test setup, if test lamp repeatedly comes on for approximately one second and goes out for approximately six seconds, it indicates that intermittent amplifier is functioning properly.

3. Perform "Test B" in the following procedures, referring to Test B in the Figure BE-20.

(1) Connect lead wires (a), (b) and (d) in the same way as in Test A.

(2) Connect test lead wire (c) to amplifier terminal (2) at one end and to negative terminal of the power supply at the other end.

If test lamp comes on approximately 0.7 second after connection, intermittent amplifier is functioning properly.

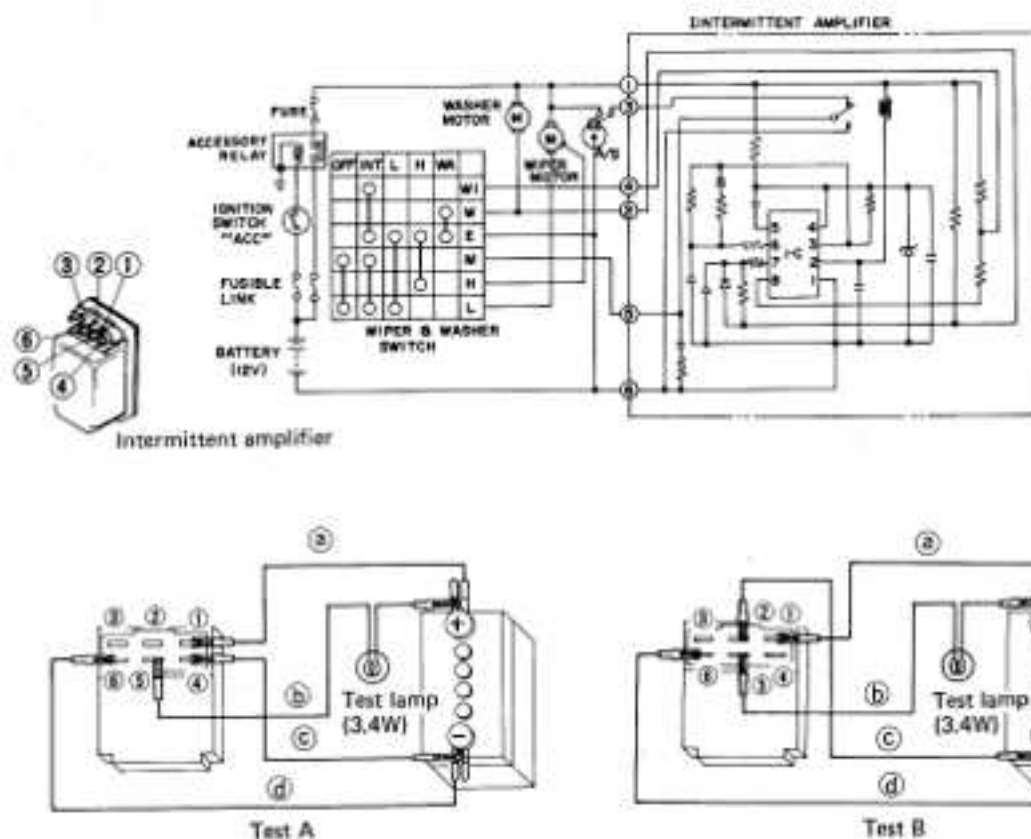
(3) Connect test lead wire (c) to amplifier terminal (2) for approximately two seconds or more, and disconnect it. If lamp comes on for approximately 2.7 seconds, after disconnection, intermittent amplifier is functioning properly.

4. Tests A and B may be reversed.

Caution:

Be careful not to connect lead wires to incorrect terminals as this will damage transistors.

If both test results are satisfactory indicated above, intermittent amplifier is functioning properly.



BE499C

Fig. BE-20 Intermittent amplifier

CLOCK

REMOVAL AND INSTALLATION

Floor shift model

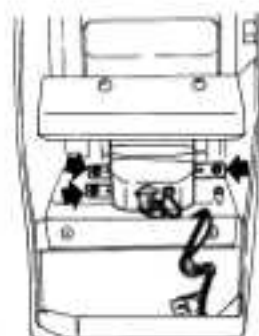
On the floor shift model, the clock has been relocated to the console box.

1. Disconnect battery ground cable.
2. Remove console box.
3. Remove attaching screws from behind console box and remove clock.

4. Install clock in the reverse order of removal. Adjust time and date.

motor and auto-stop mechanism. When operating the wiper, pull out the switch knob. The wiper motor unit and the link mechanism are located inside of the tail gate.

The electrically operated rear window washer consists of a washer fluid reservoir, motor and pump assembly, washer nozzle, and vinyl tube used to connect those components. The rear window washer switch is combined with the wiper switch into a single unit. When operating the washer, twist the switch knob.



BE500C

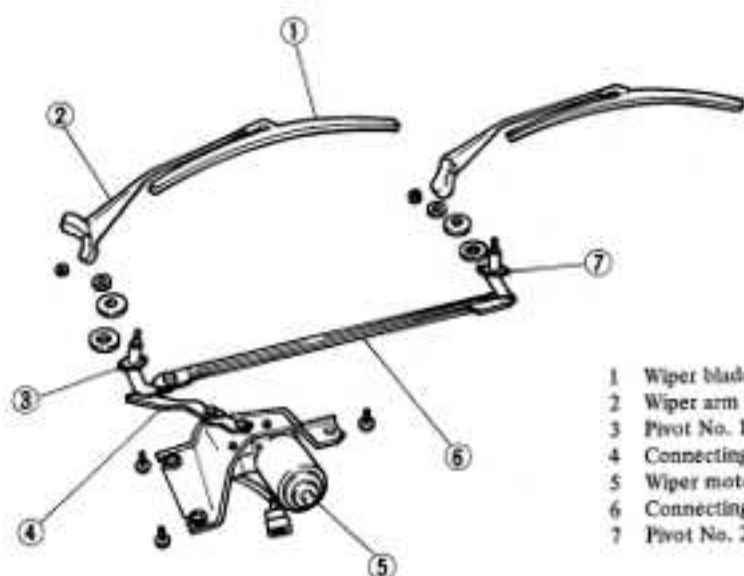
Fig. BE-21 Removing clock

REAR WINDOW WIPER AND WASHER (Station Wagon and Van)

DESCRIPTION

The rear window wiper consists of a wiper motor unit, link mechanism, wiper arms and blades.

The motor unit is made up of a



- 1 Wiper blade
- 2 Wiper arm
- 3 Pivot No. 1
- 4 Connecting rod No. 1
- 5 Wiper motor
- 6 Connecting rod No. 2
- 7 Pivot No. 2

BE501C

Fig. BE-22 Rear window wiper

REMOVAL AND INSTALLATION

Wiper arm

Raise cover and remove nut. Then remove wiper arm.



BE502C

Fig. BE-23 Removing wiper blade

Wiper motor and linkage

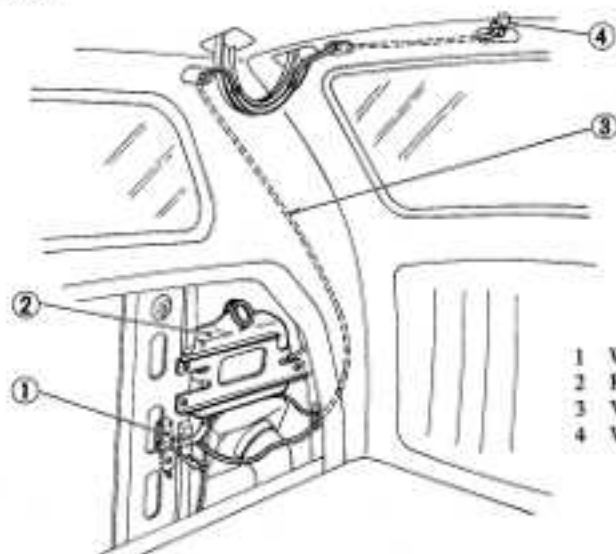
1. Disconnect battery ground cable.
2. Remove wiper arms from pivots.
3. Remove tail gate inside handle escutcheon and then remove tail gate trim.



BE503C

Fig. BE-24 Removing tail gate trim

Washer nozzle



- 1 Washer motor
- 2 Reservoir
- 3 Vinyl tube
- 4 Washer nozzle

BE506C

Fig. BE-27 Rear window washer



- 1 Connecting rod No. 1

- 2 Pivot No. 1

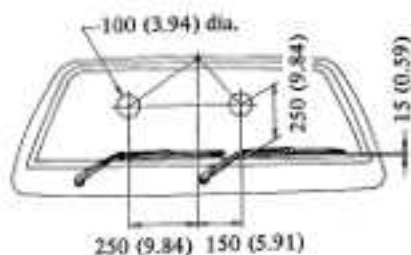
BE504C

Fig. BE-25 Disconnecting wiper motor unit

6. Remove nuts attaching pivot to tail gate outer panel and remove link assembly.

7. Install wiper linkage, wiper motor and wiper arm in the reverse order of removal.

Install wiper arm in correct installation angle to obtain correct sweeping zones.



Unit: mm (in)

BE506C

Fig. BE-26 Wiper arm installation

1. Remove rubber plug from behind washer nozzle.
2. Remove vinyl tube from nozzle.
3. Remove washer nozzle by loosening nut.
4. Install washer nozzle in the reverse order of removal.
5. Adjust nozzle direction so that fluid can be sprayed in proper range as shown in Figure BE-26.

Washer reservoir and washer motor

1. Disconnect battery ground cable.
2. Remove luggage compartment R.H. side trim.
3. Remove washer reservoir by loosening screws.
4. Disconnect vinyl tube from reservoir.
5. Remove washer motor by loosening screw.

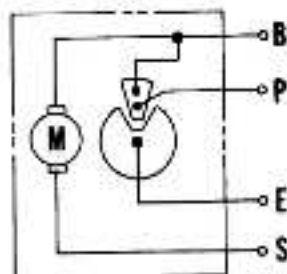
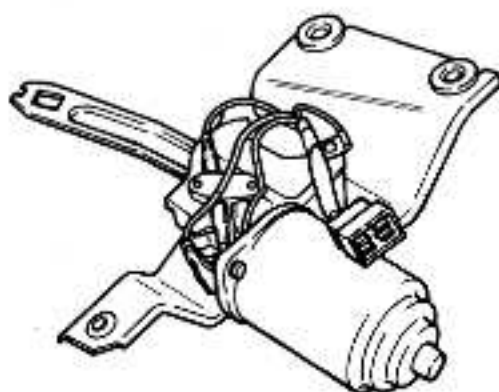
Wiper switch

1. Disconnect battery ground cable.
2. Remove switch knob.
3. Remove ring nut retaining switch to cluster lid.
4. Remove relay bracket from behind instrument panel.
5. Take out switch body from behind cluster lid and disconnect lead wire connector.
6. Install wiper switch in the reverse order of removal.

INSPECTION

Wiper motor

1. There should be continuity between the following terminals:
Between (B) and (S), (B) and (P).
2. Securely connect positive terminal of a 12-volt DC power supply to terminal (B) and ground terminal (S). The motor should run.
3. Ground terminal (S) to keep motor running. Check continuity between terminals (B) and (P).
Continuity should repeat "ON" and "OFF" periodically.

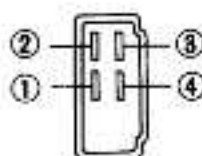


BE507C
Fig. BE-28 Rear window wiper motor

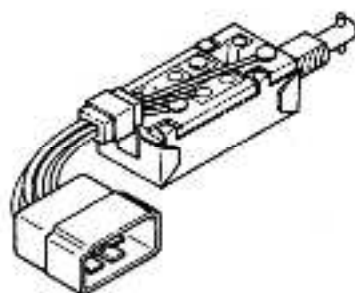
Wiper and washer switch

Test continuity through wiper and washer switch at each position with ohmmeter.

Refer to continuity diagram of wiper and washer switch.



	OFF	ON	TWI
1		○	○
2	○	○	
3	○		○
4			○



BE523B
Fig. BE-29 Rear window wiper switch

Z·ONE·DATSUN



1. A body of mass m is projected vertically upwards with an initial velocity u . Find the maximum height reached by the body.

2. A particle starts from rest and moves with a constant acceleration a . Find the distance travelled in time t .

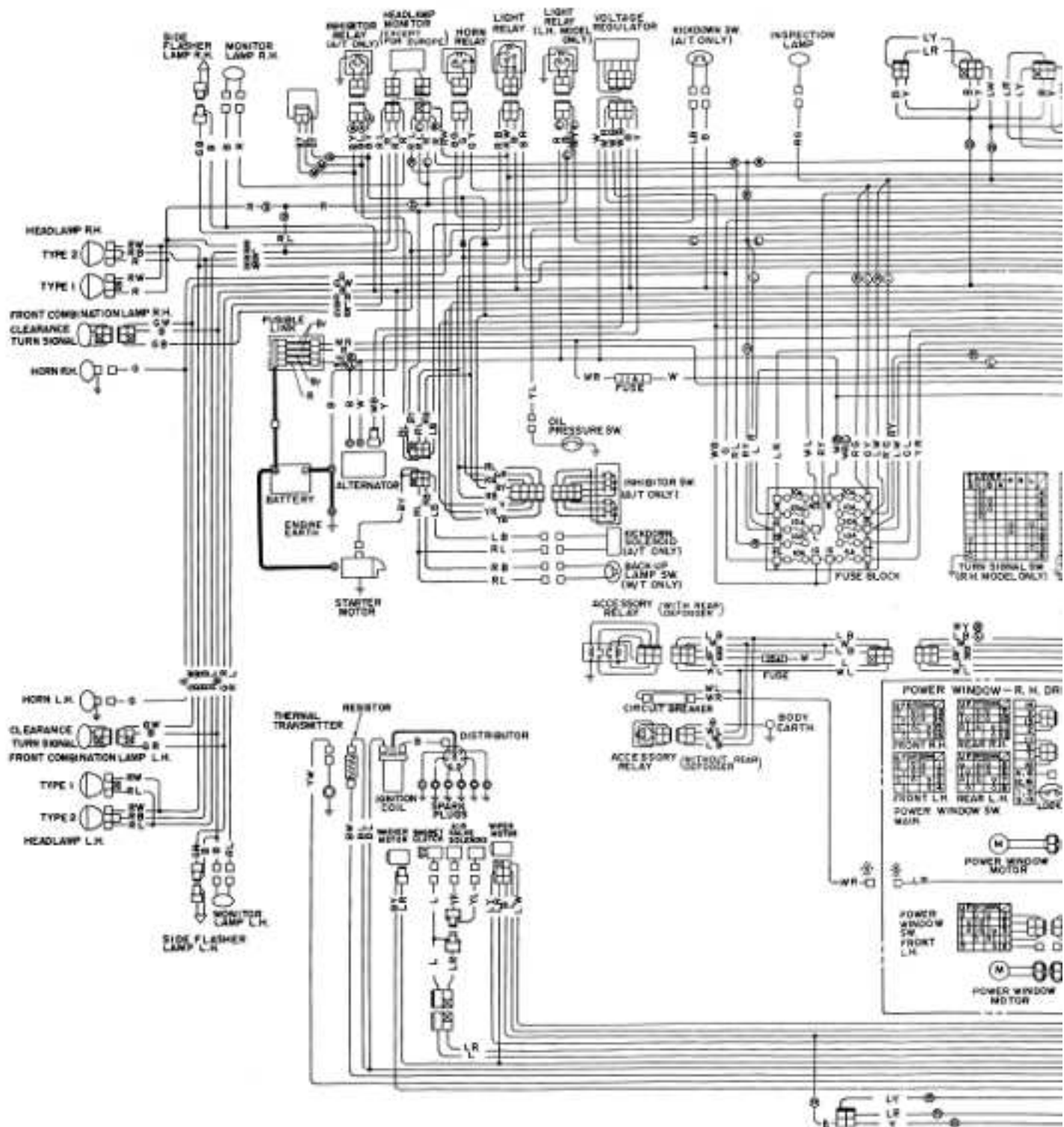
3. A body of mass m is projected vertically upwards with an initial velocity u . Find the time taken to reach the maximum height.

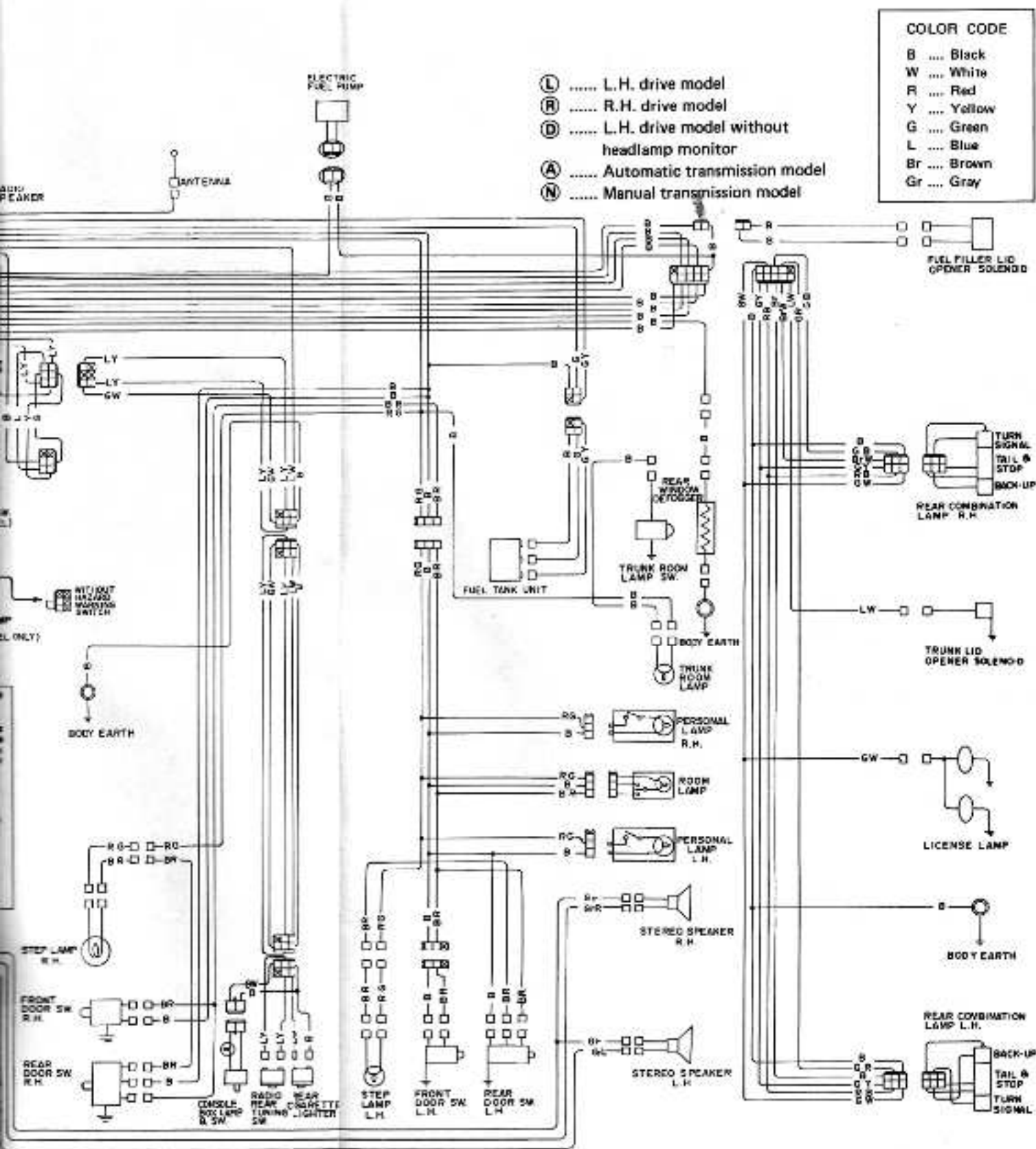
4. A particle starts from rest and moves with a constant acceleration a . Find the time taken to travel a distance s .



5. A particle of mass m is projected vertically upwards with an initial velocity u . Find the time taken to reach the maximum height.

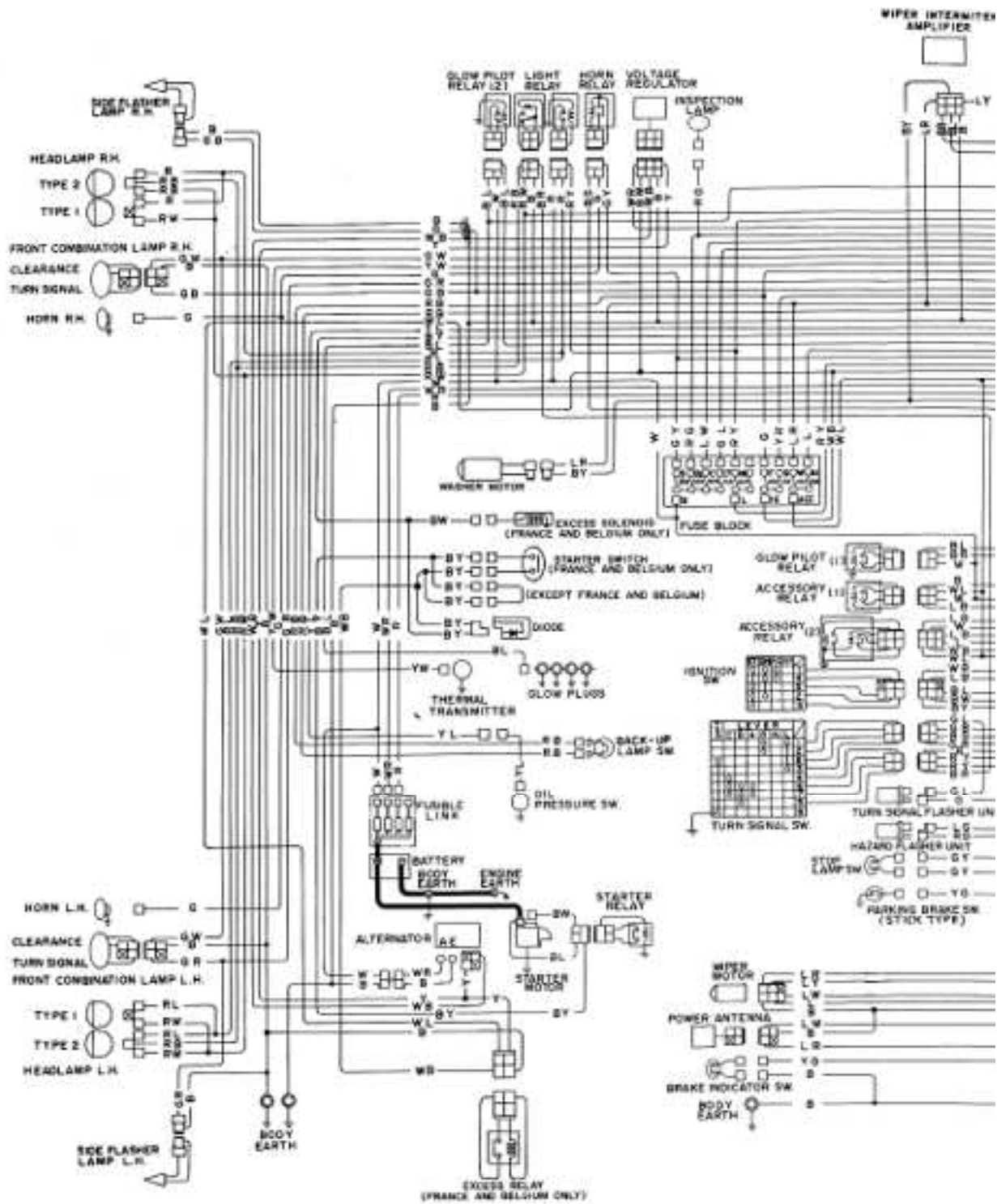
SEDAN (Gasoline engine)

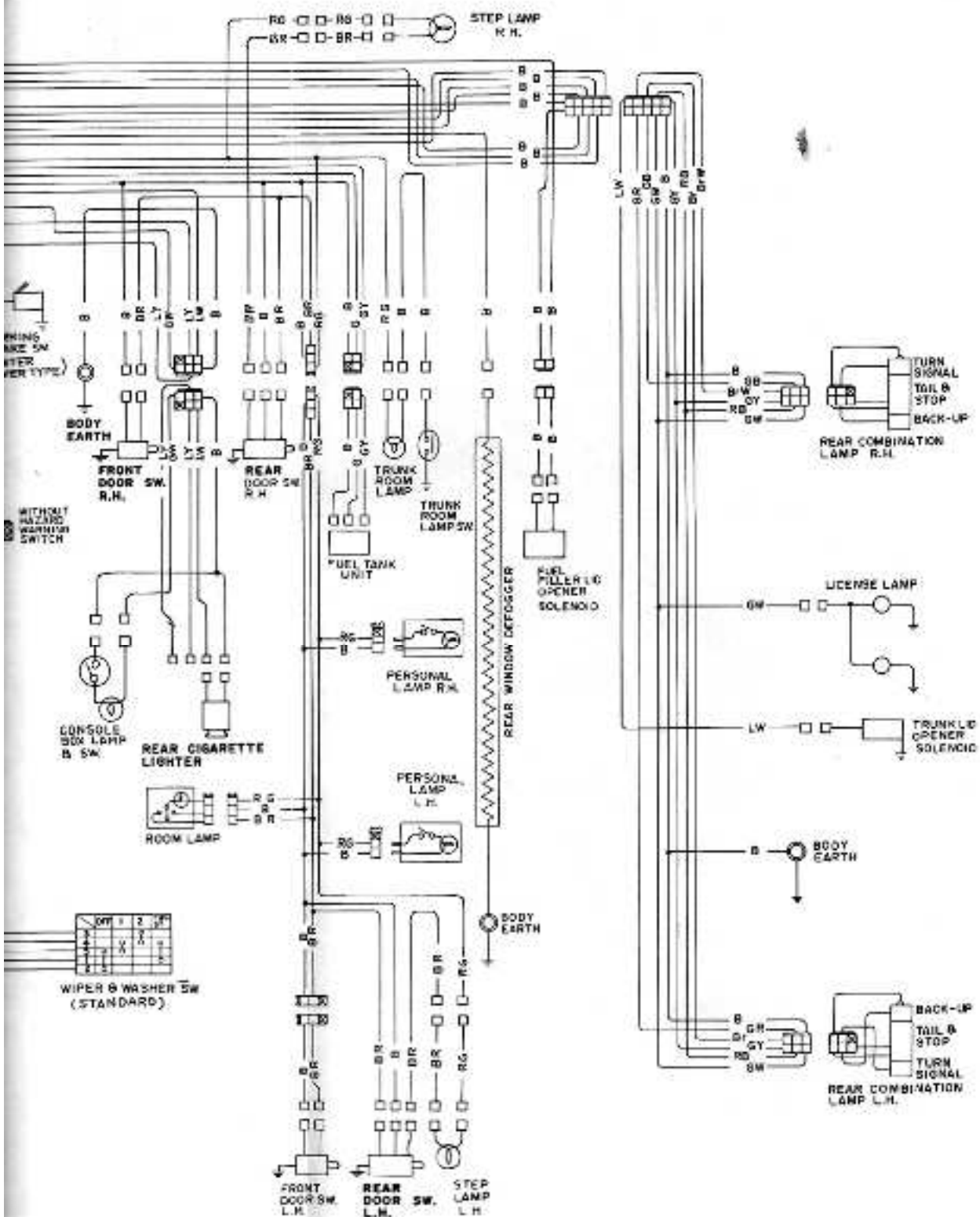




Z·ONE·DATSUN

SEDAN (Diesel engine L.H. drive)

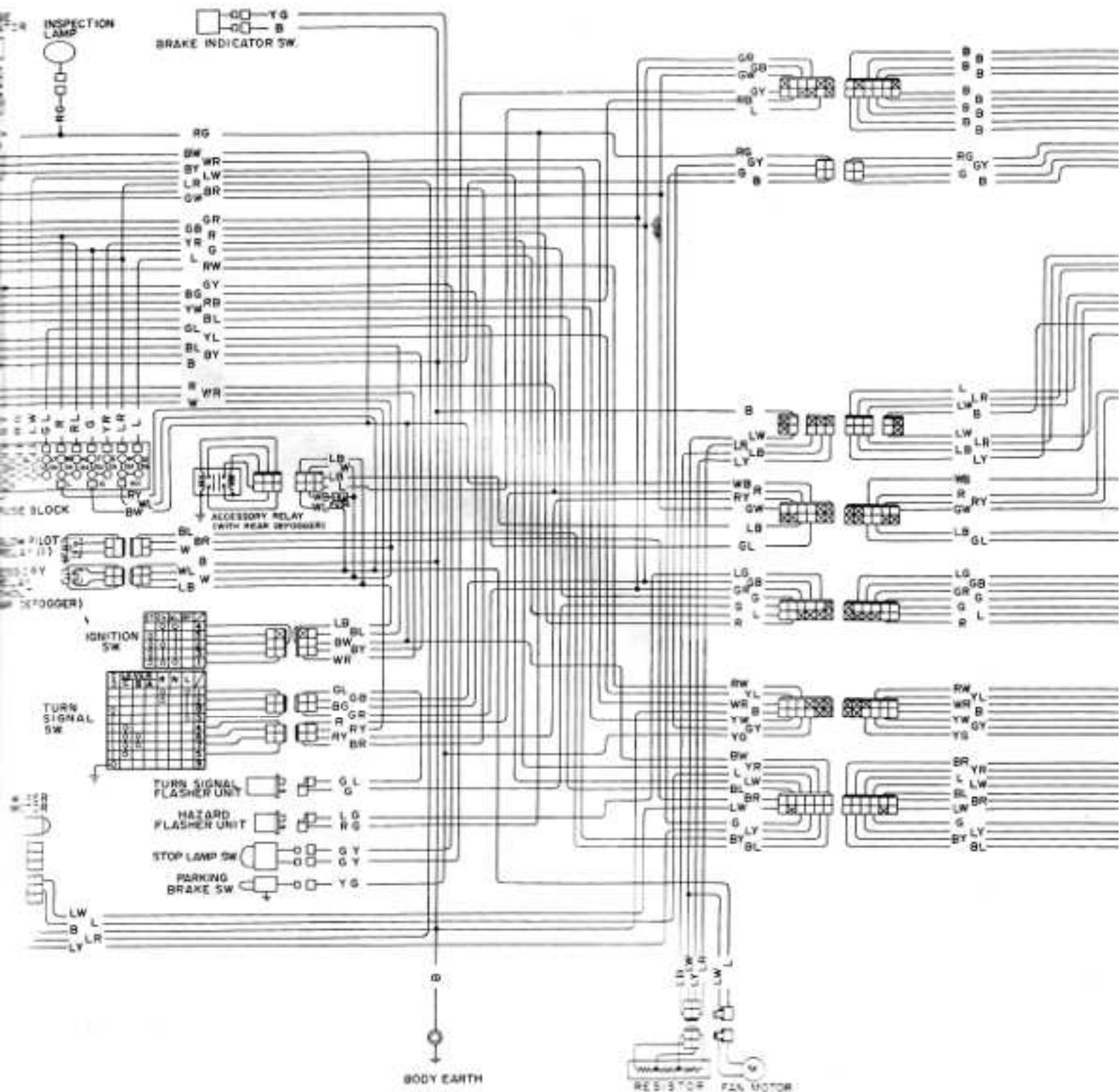


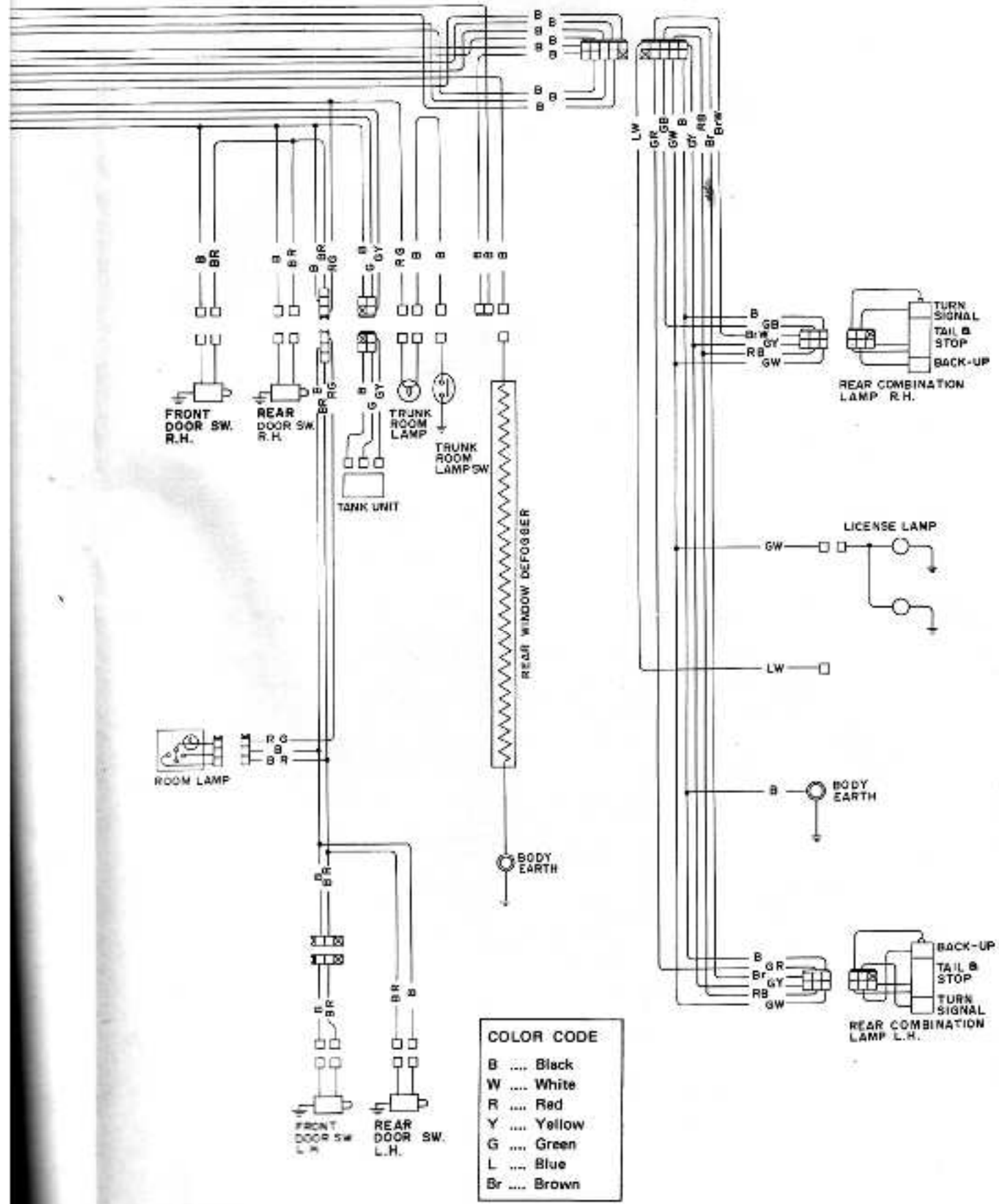


COLOR CODE	
B	Black
W	White
R	Red
Y	Yellow
G	Green
L	Blue
Br	Brown

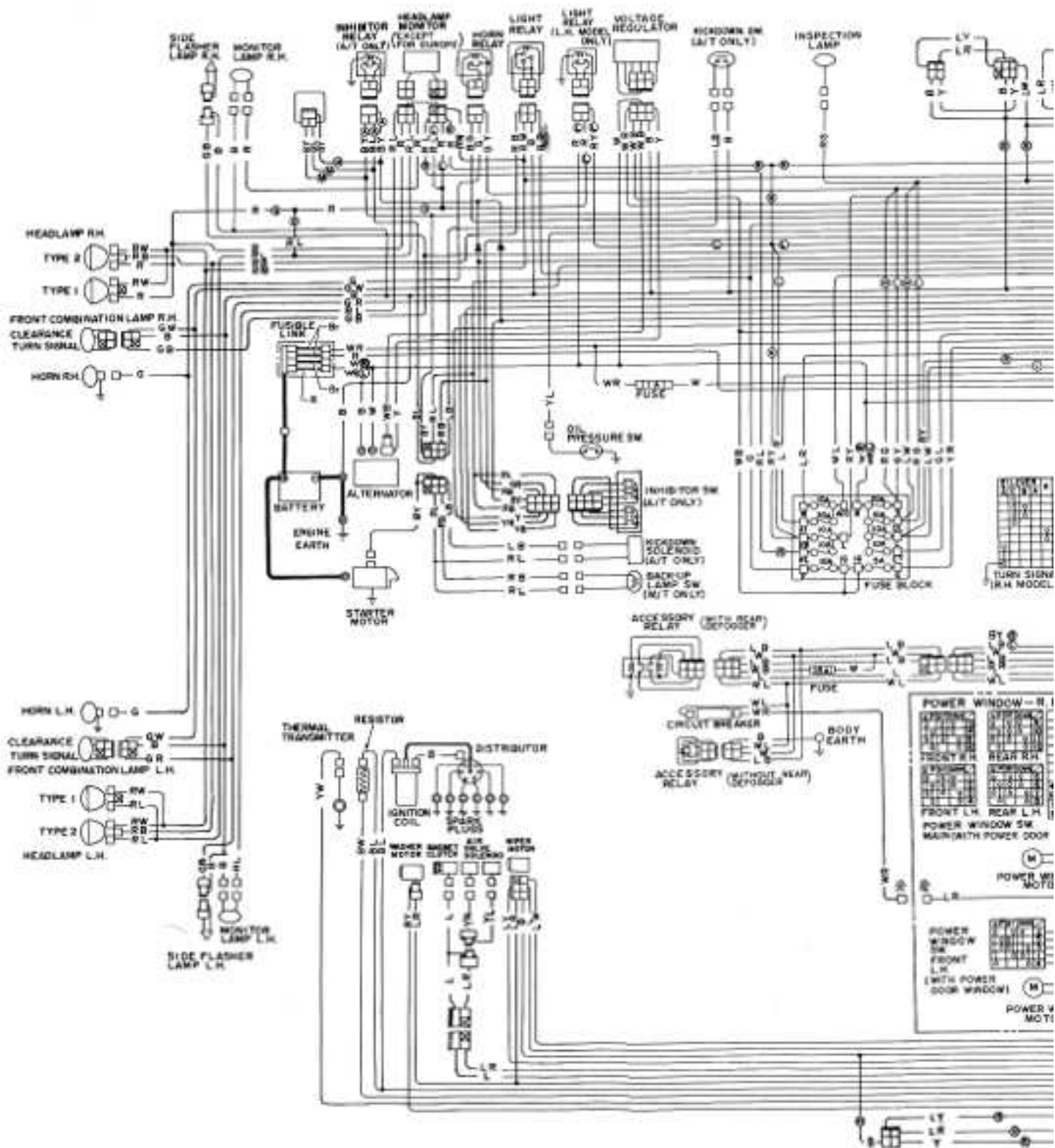
Z·ONE·DATSUN

WIRING DIAGRAM

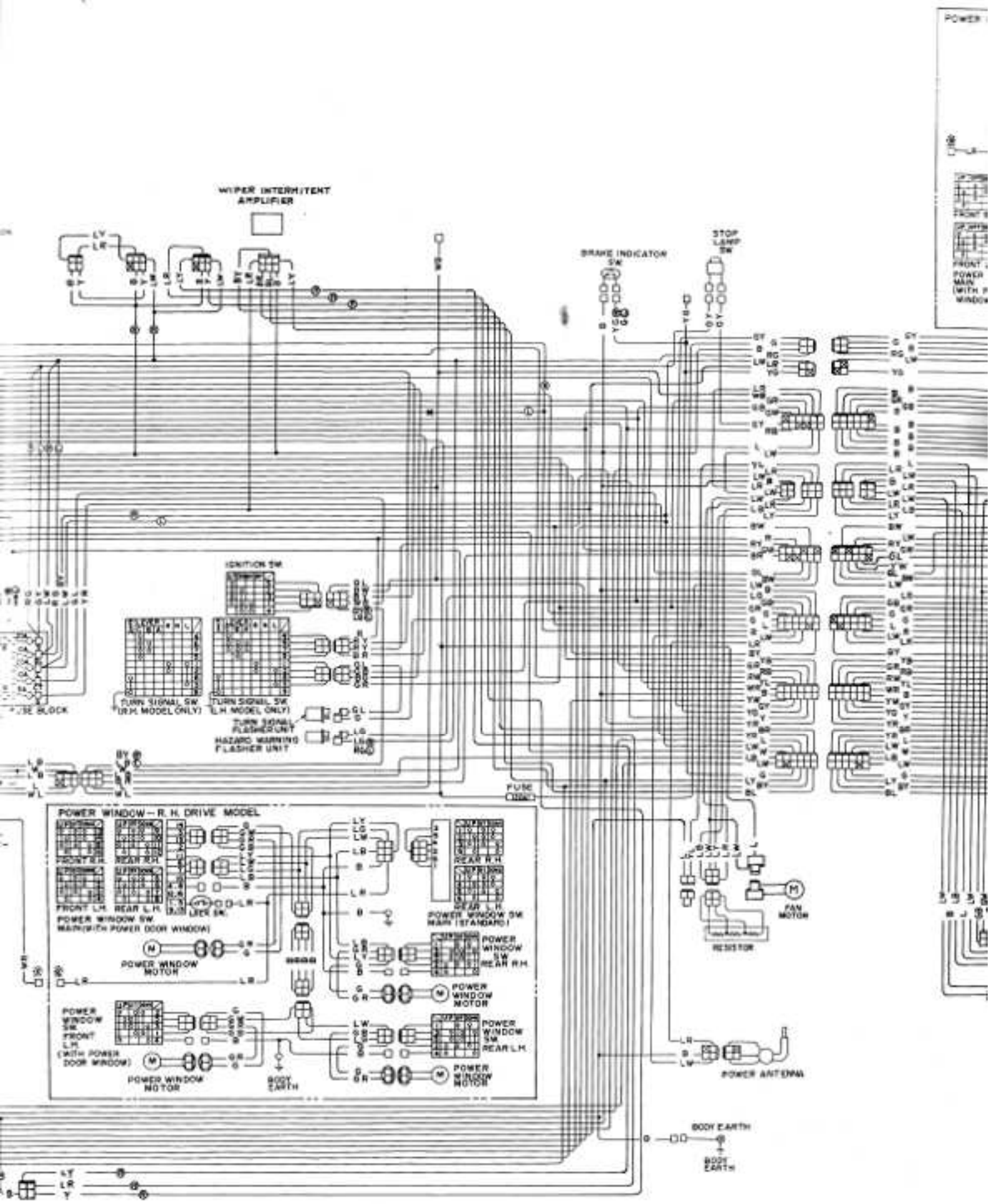




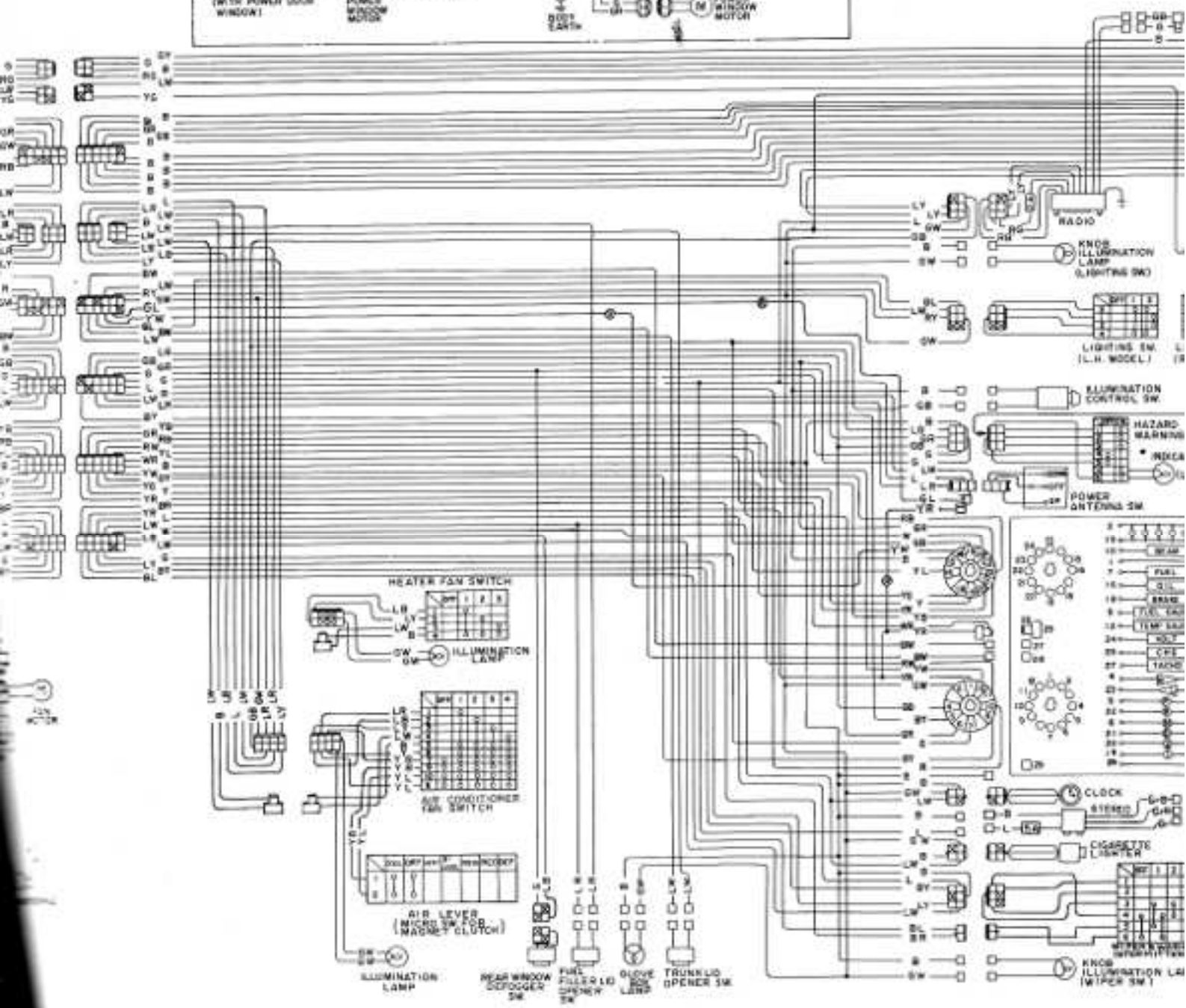
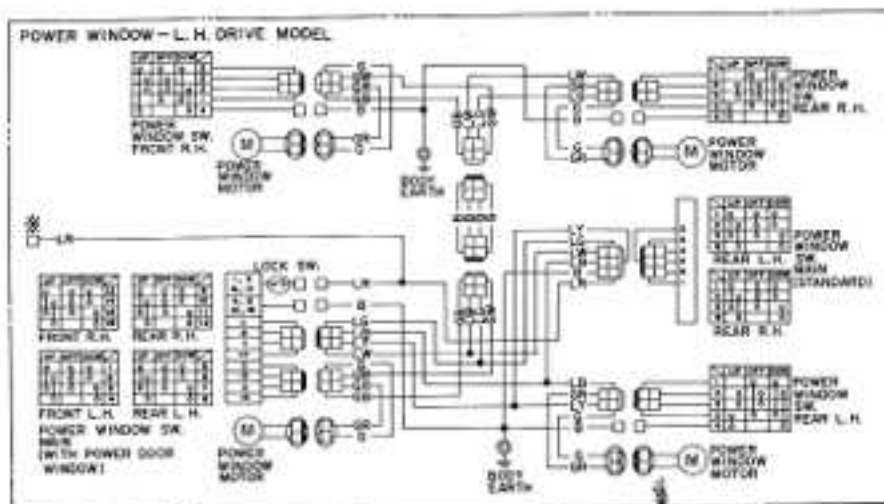
HARDTOP



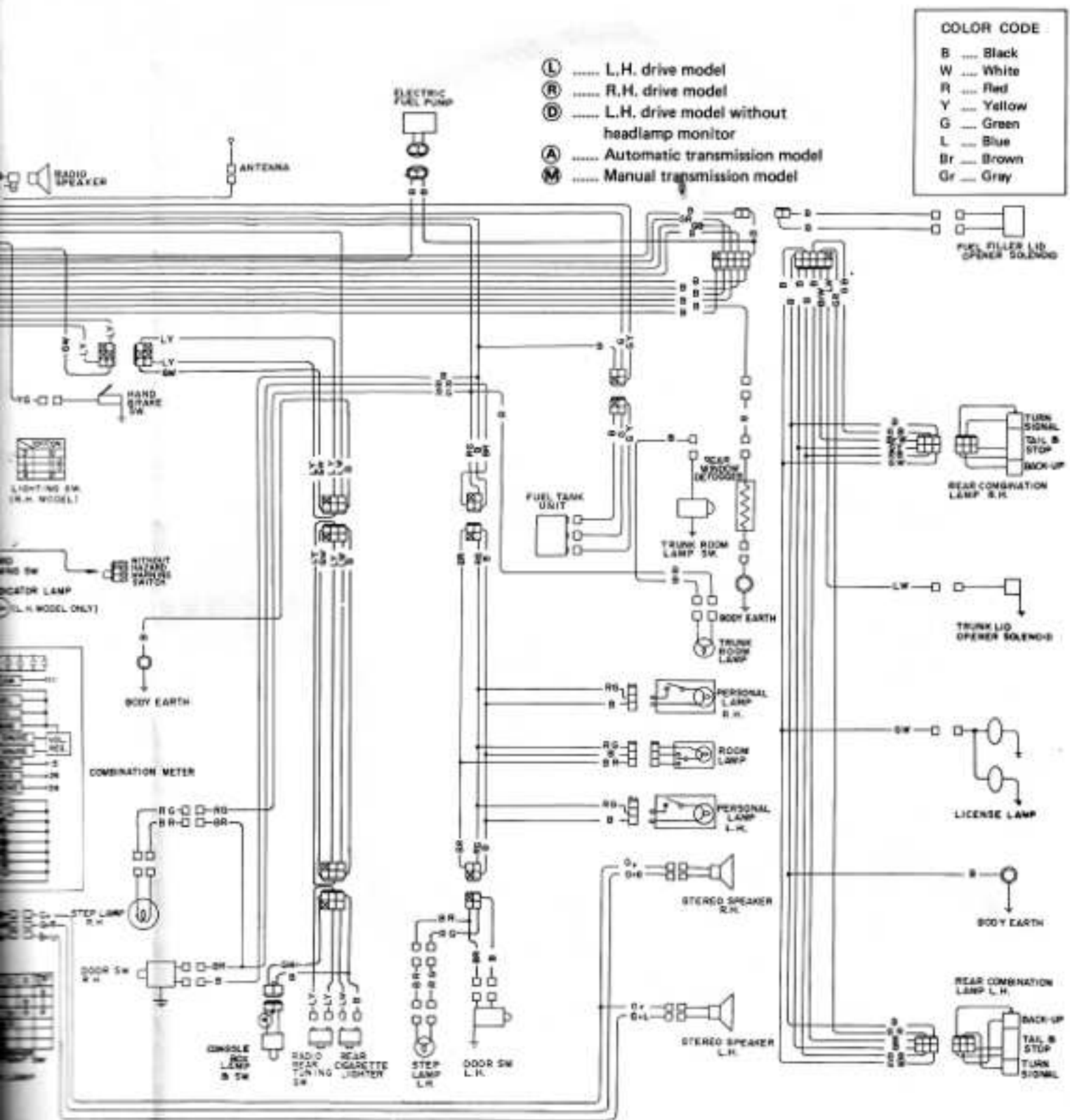
WIRING



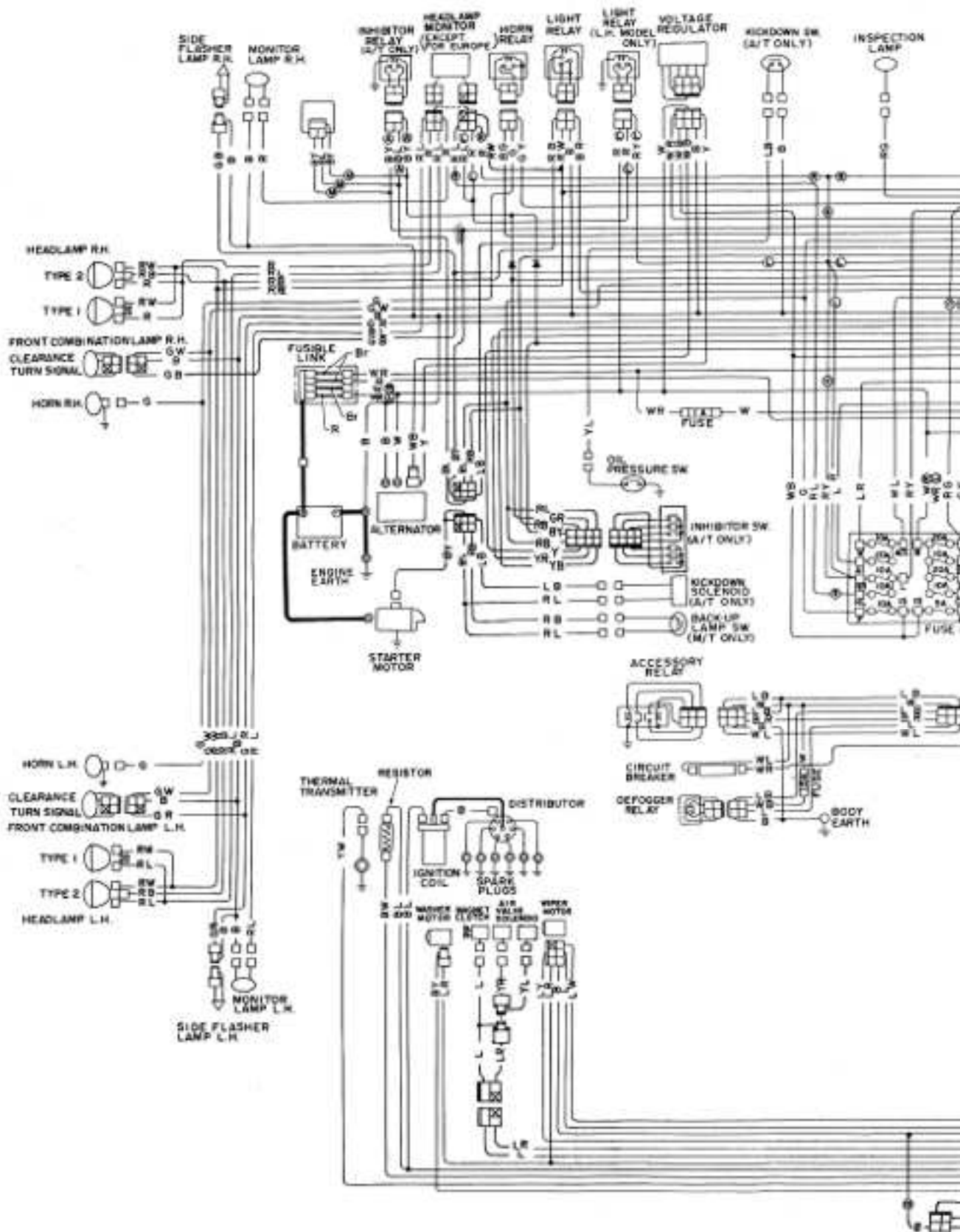
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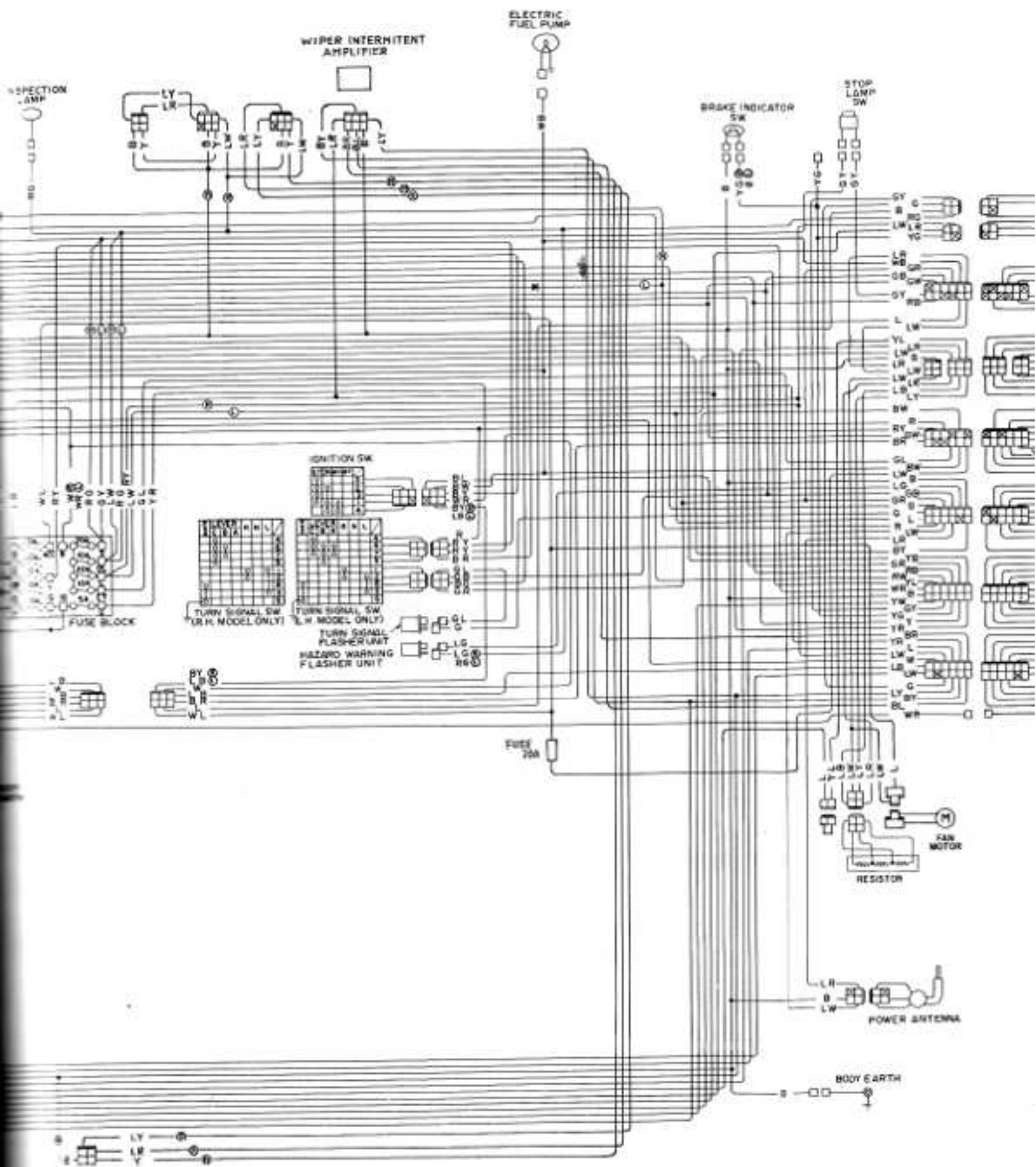


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STATION WAGON AND VAN

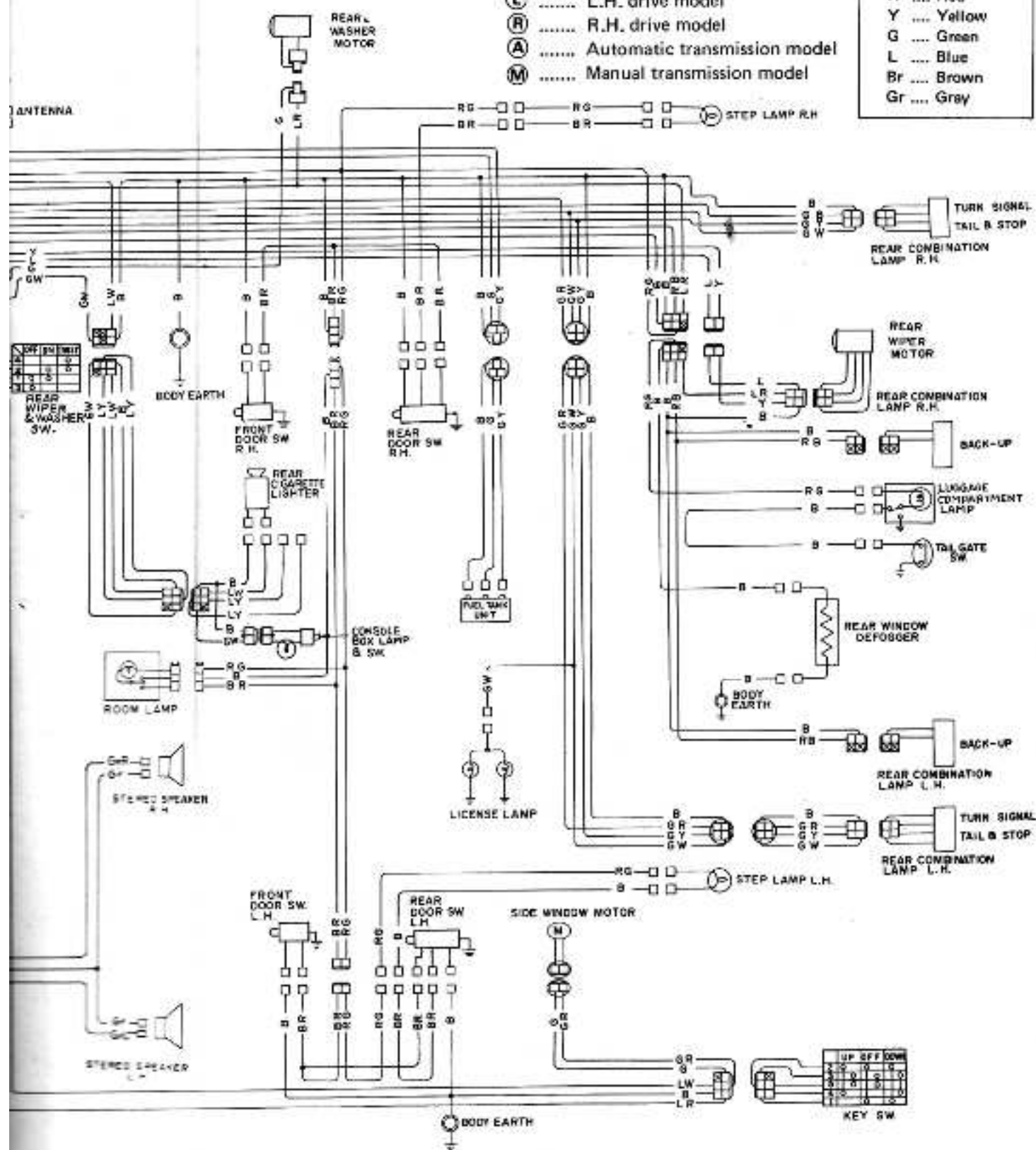




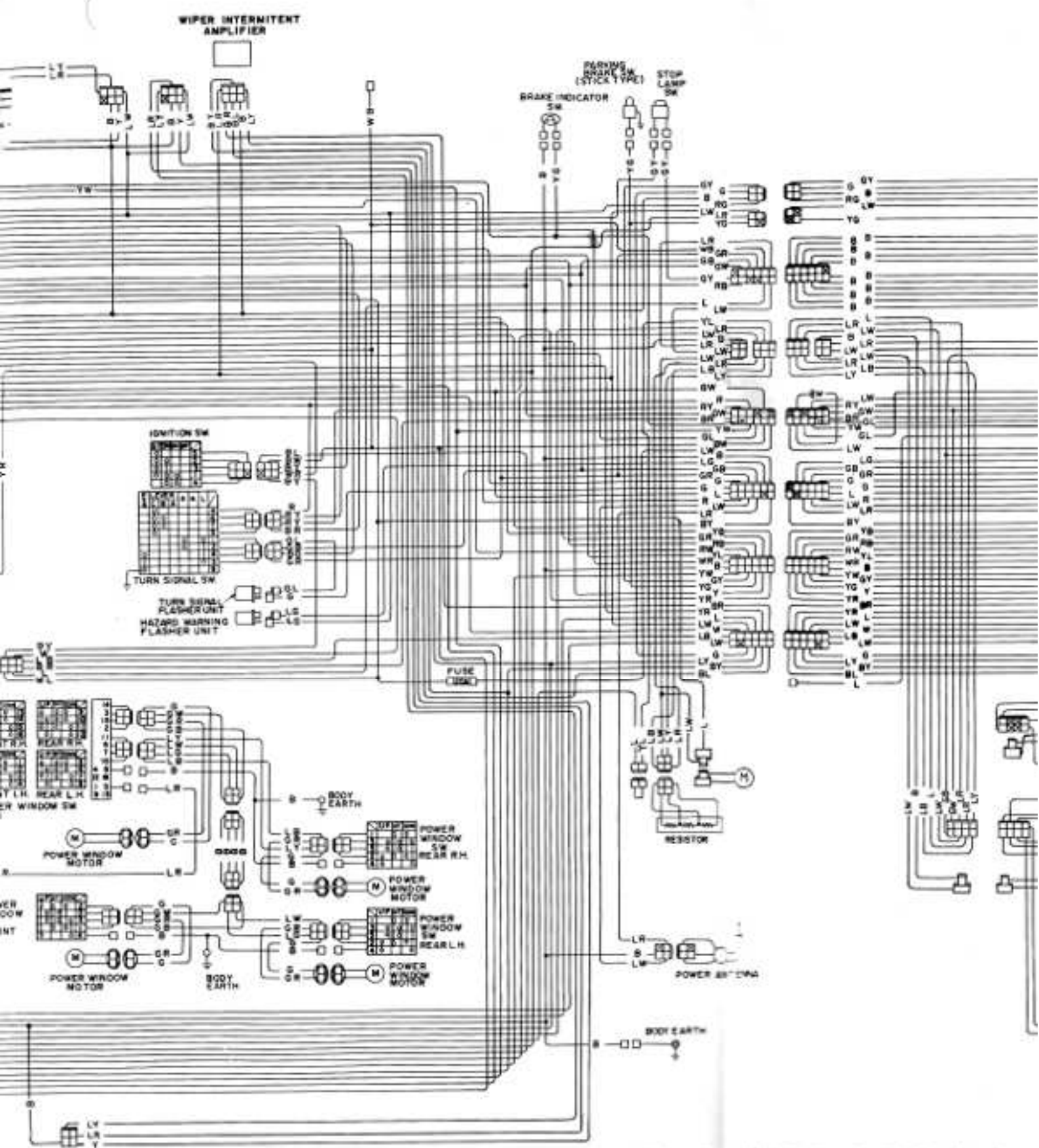
COLOR CODE

B Black
 W White
 R Red
 Y Yellow
 G Green
 L Blue
 Br Brown
 Gr Gray

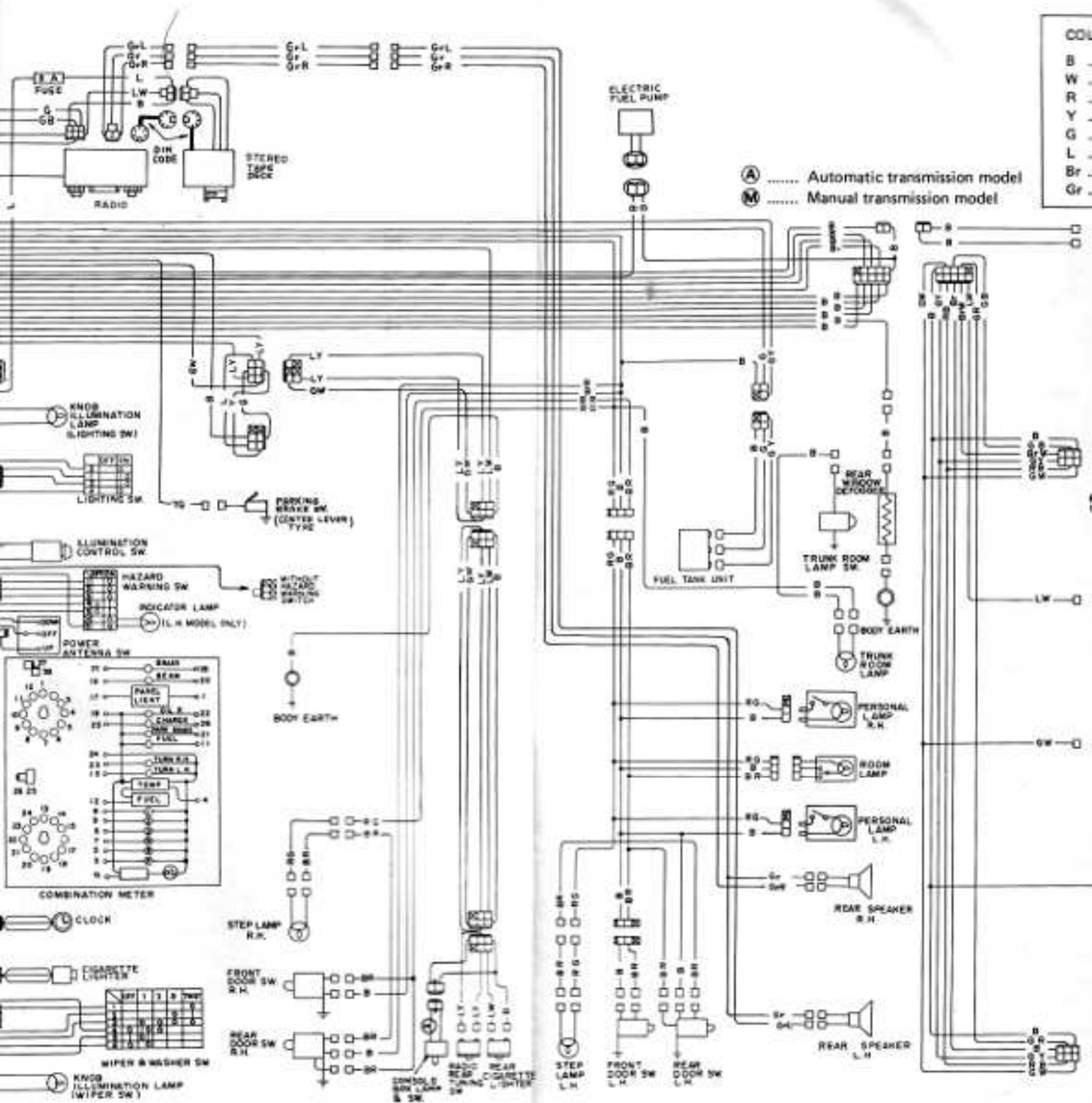
(L) L.H. drive model
 (R) R.H. drive model
 (A) Automatic transmission model
 (M) Manual transmission model



WIRING DIAGRAM



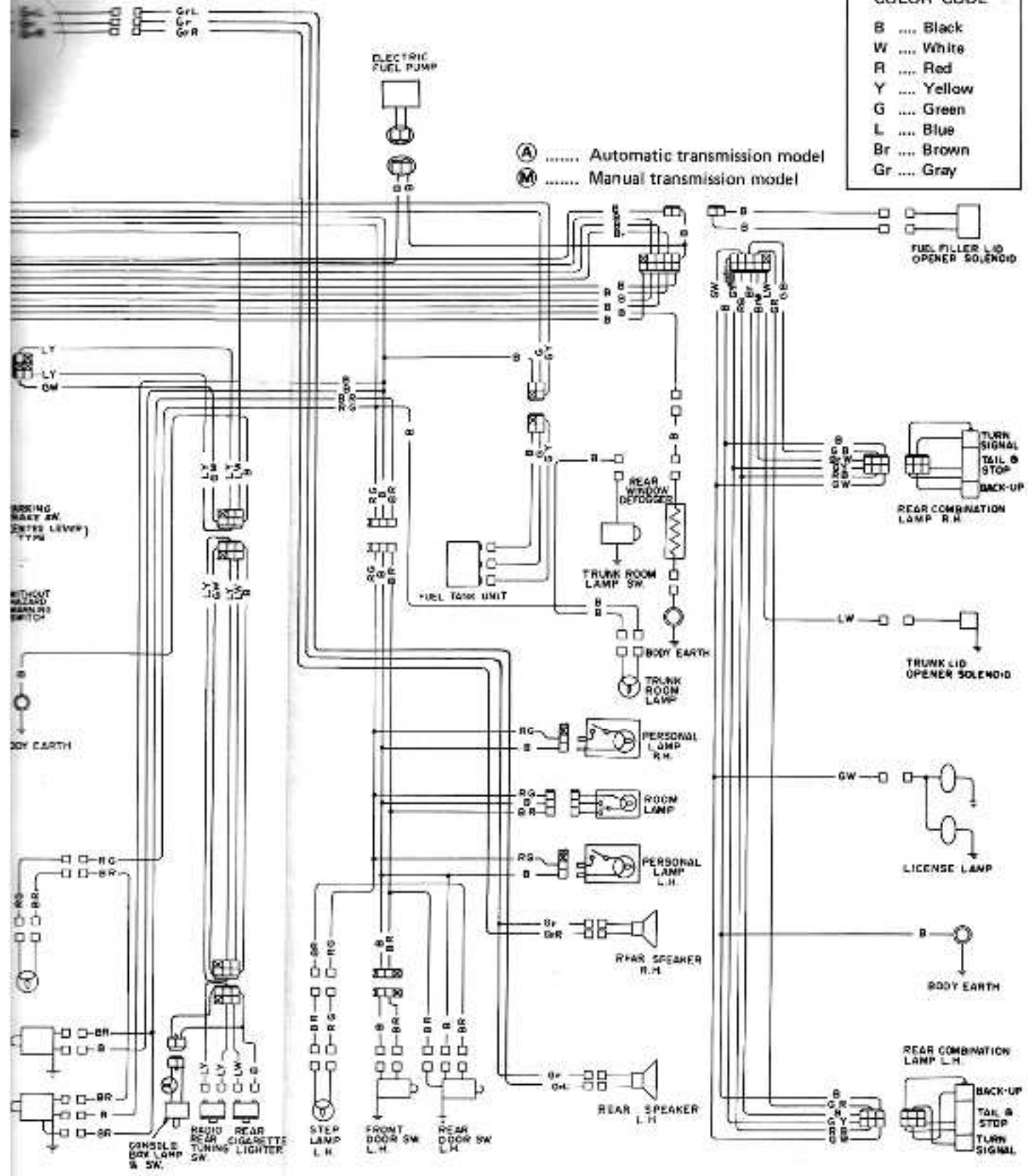
Z·ONE·DATSUN



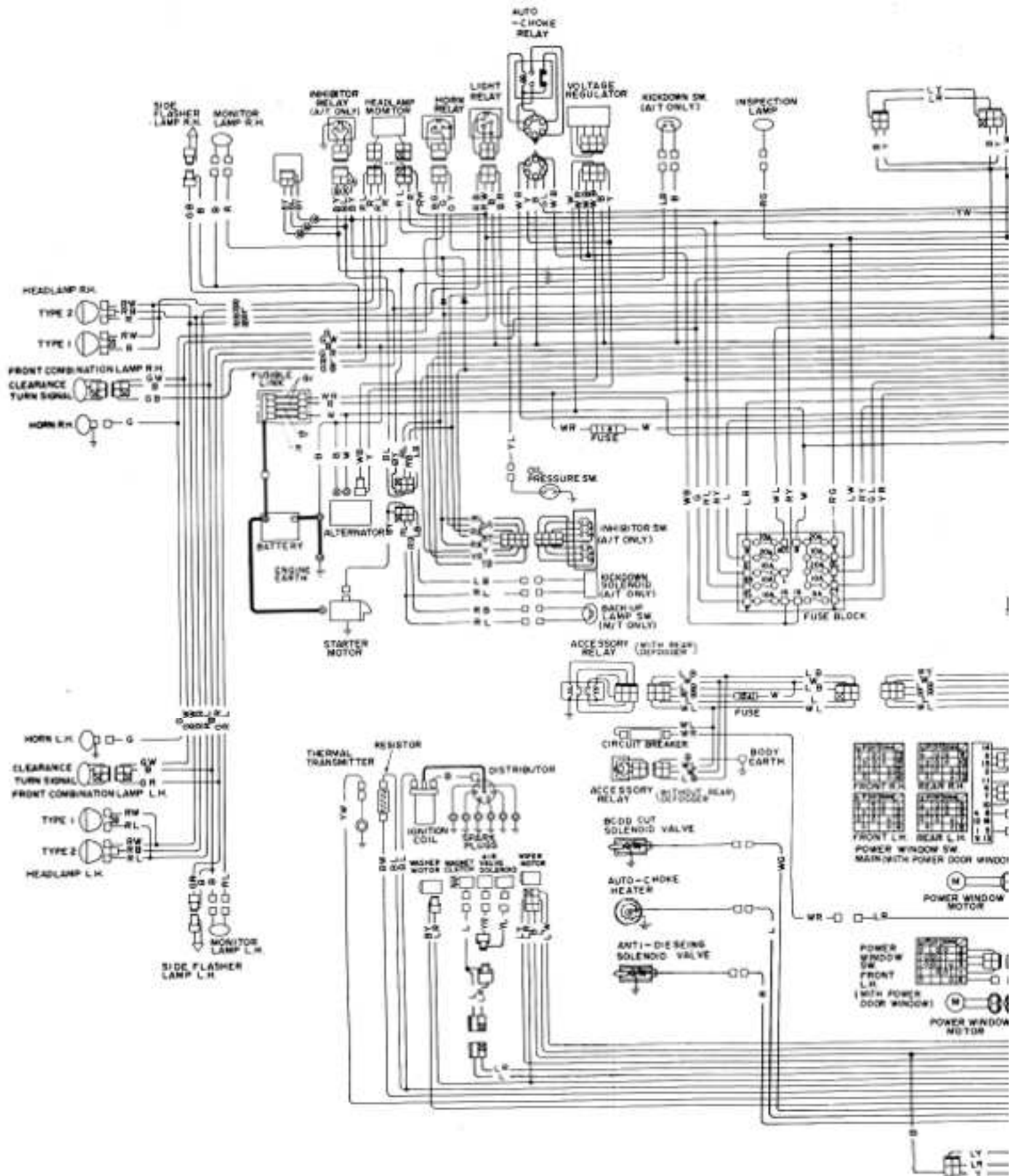
COLOR CODE

- B ... Black
- W ... White
- R ... Red
- Y ... Yellow
- G ... Green
- L ... Blue
- Br ... Brown
- Gr ... Gray

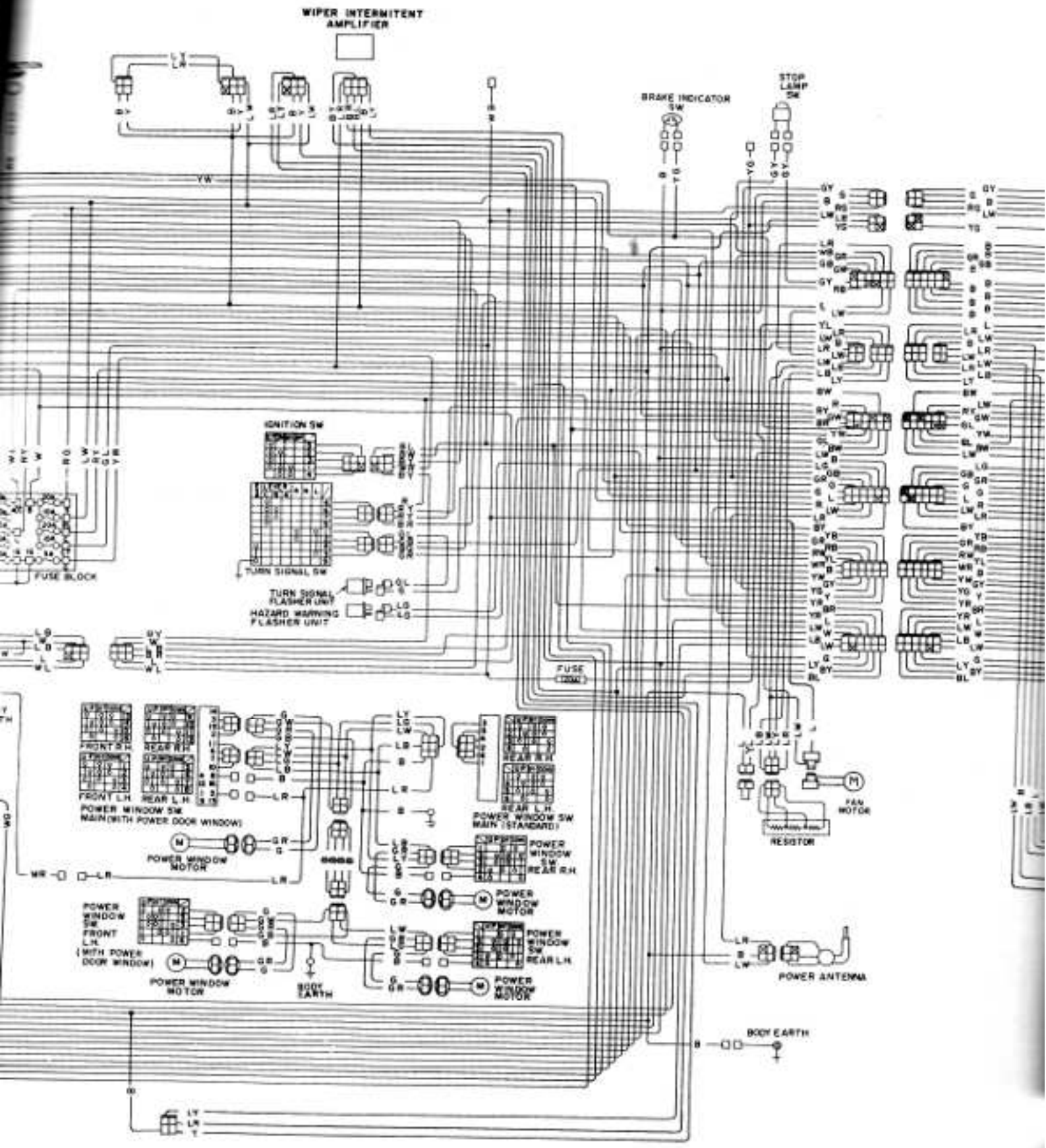
- (A) Automatic transmission model
- (M) Manual transmission model



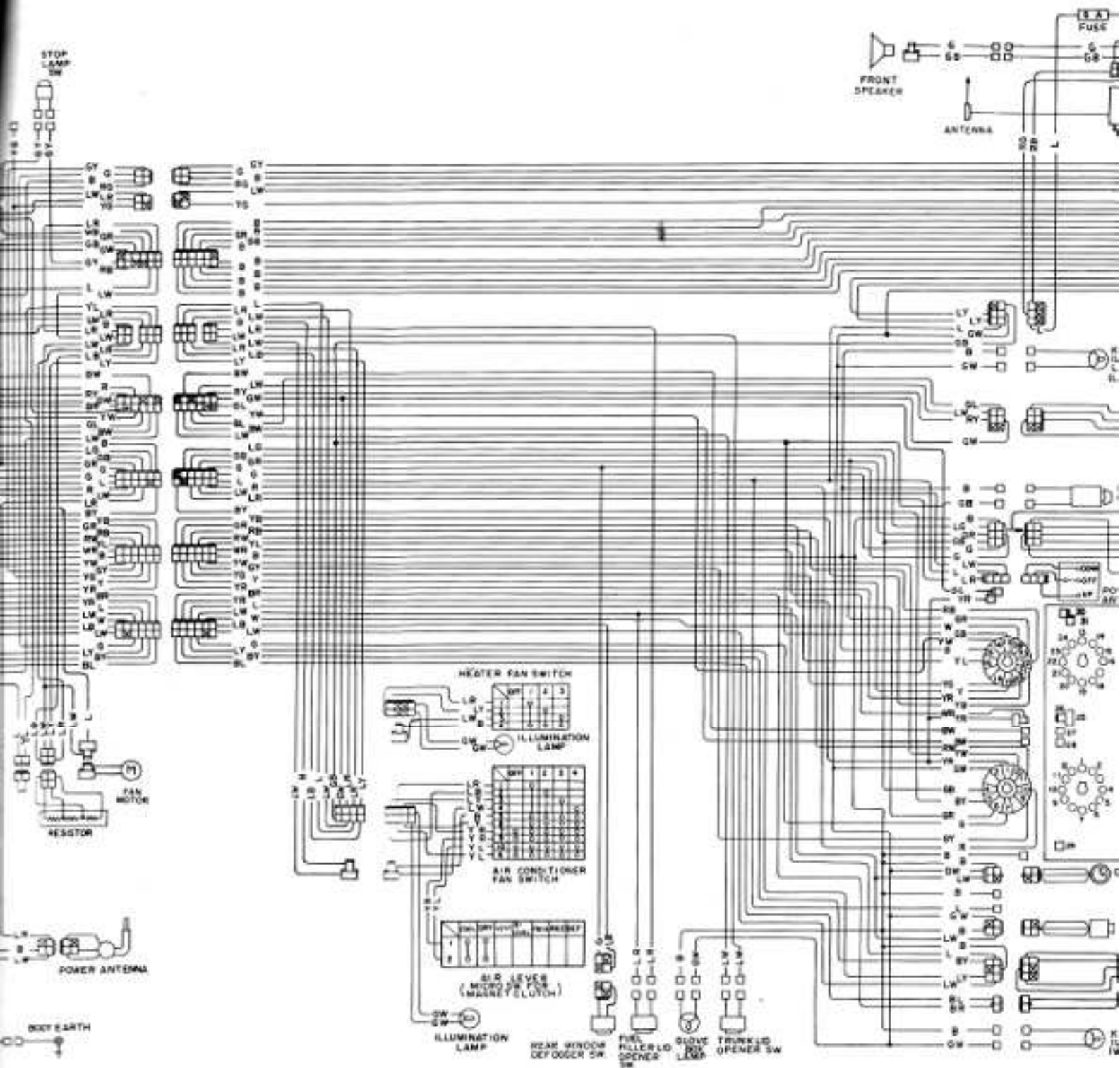
HARDTOP (For Australia)

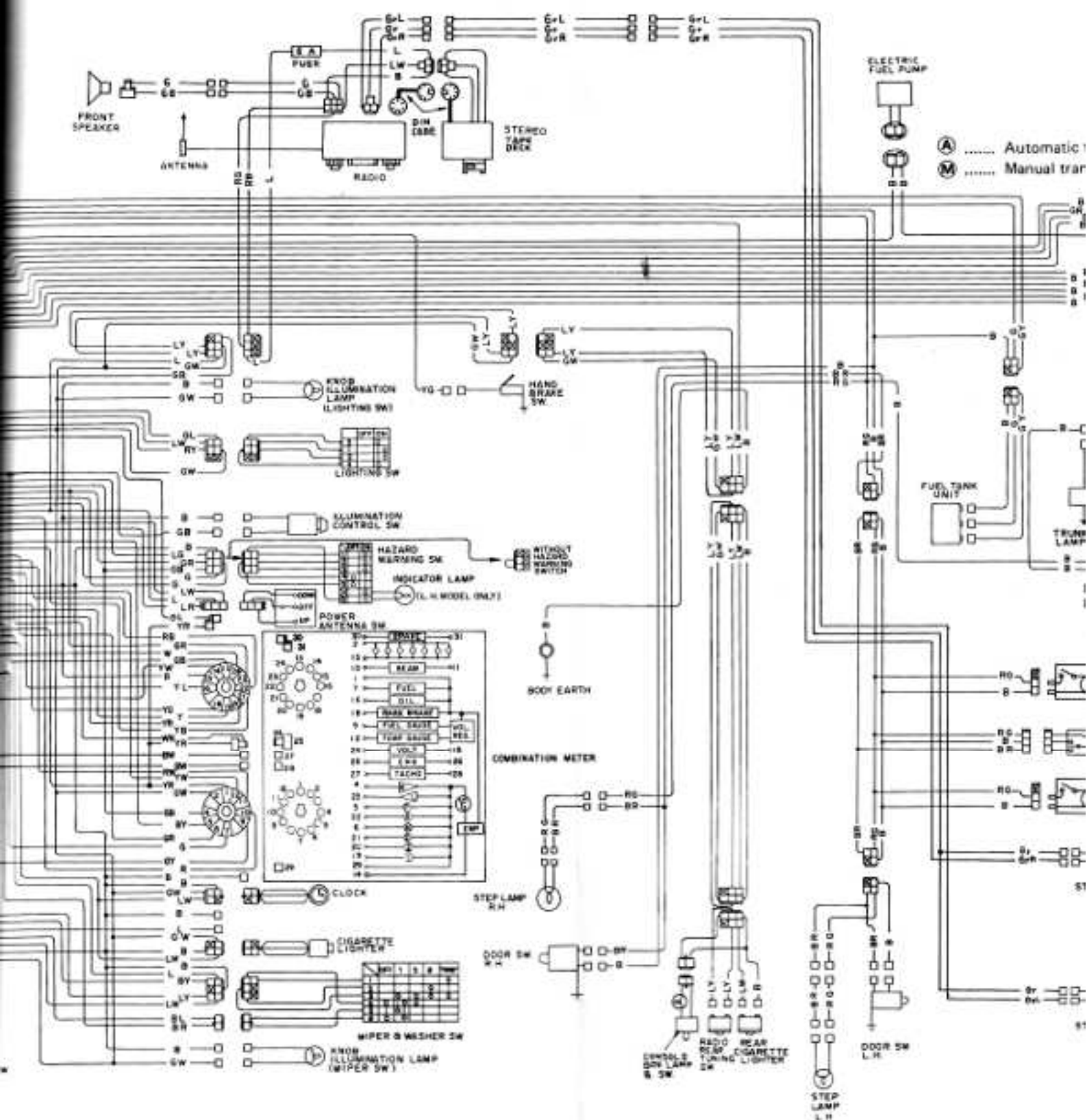


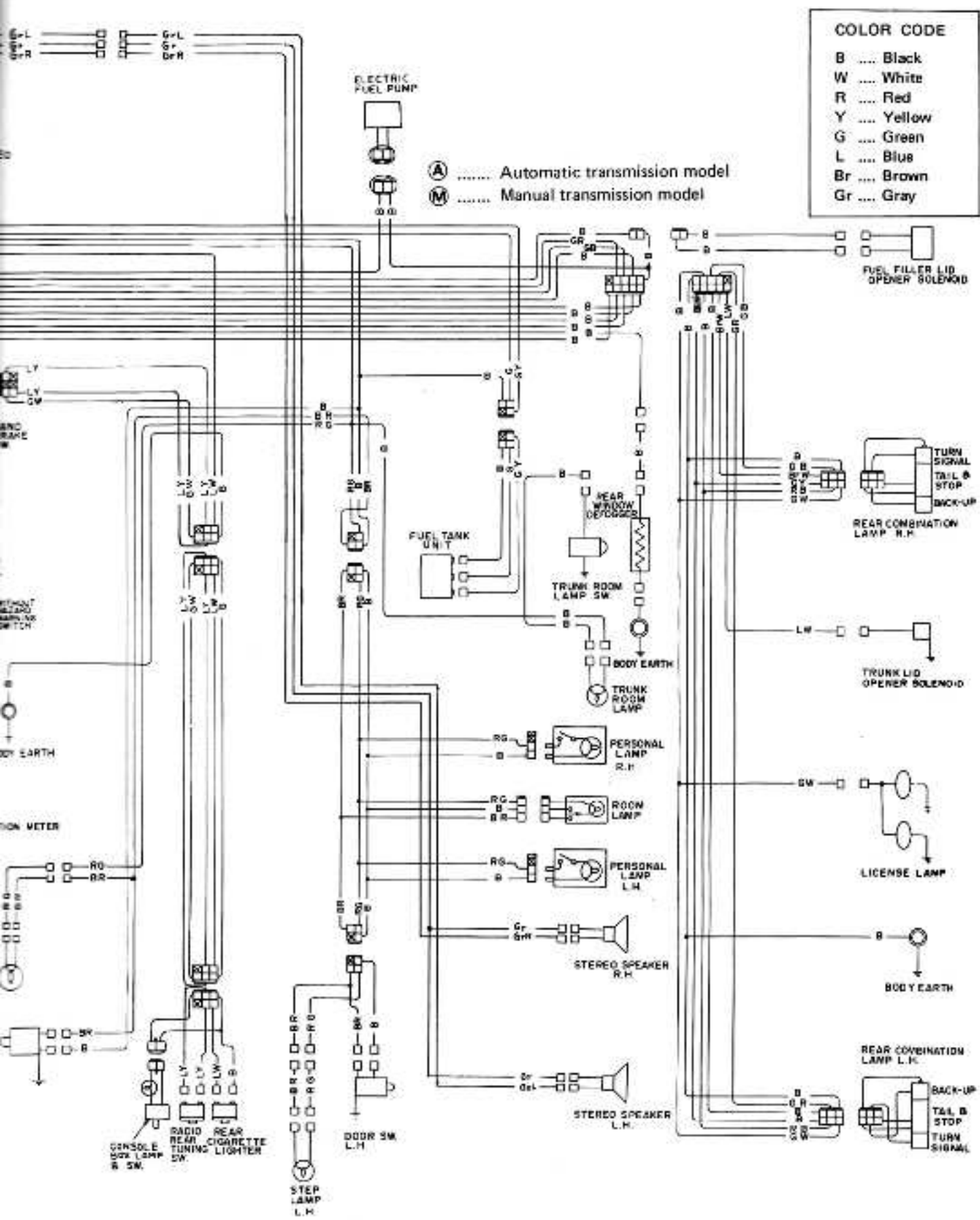
Z·ONE·DATSUN



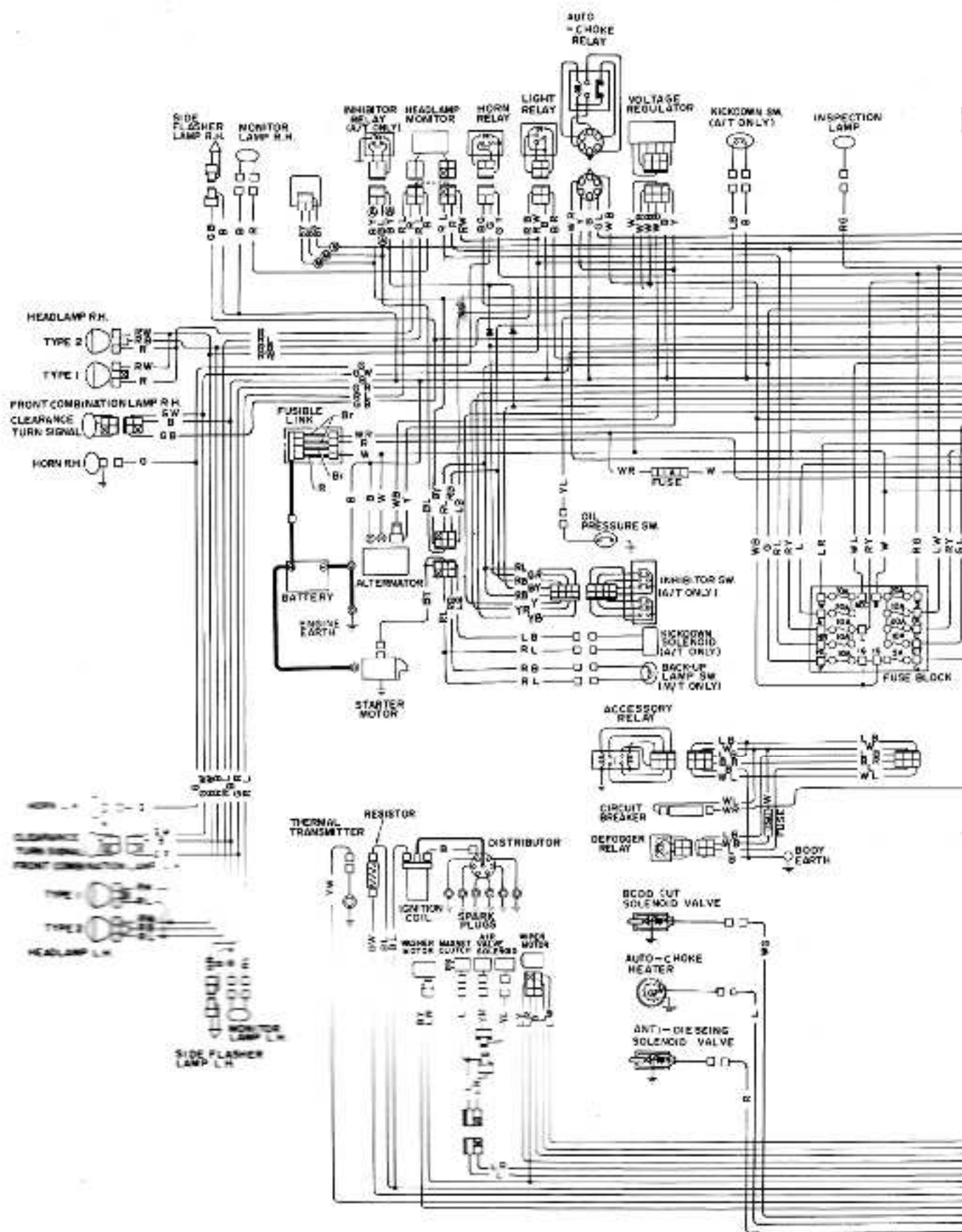
WIRING DIAGRAM



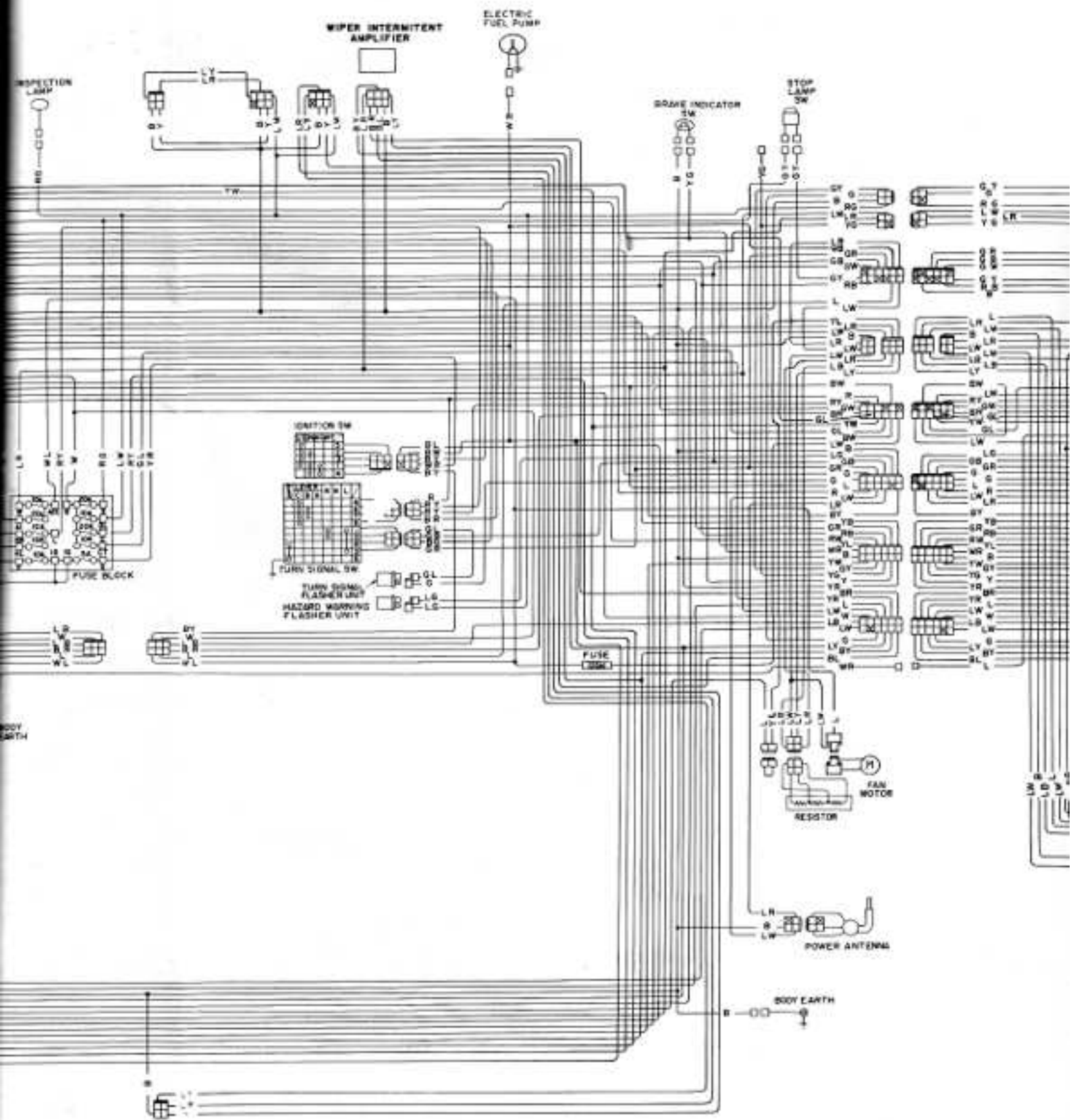


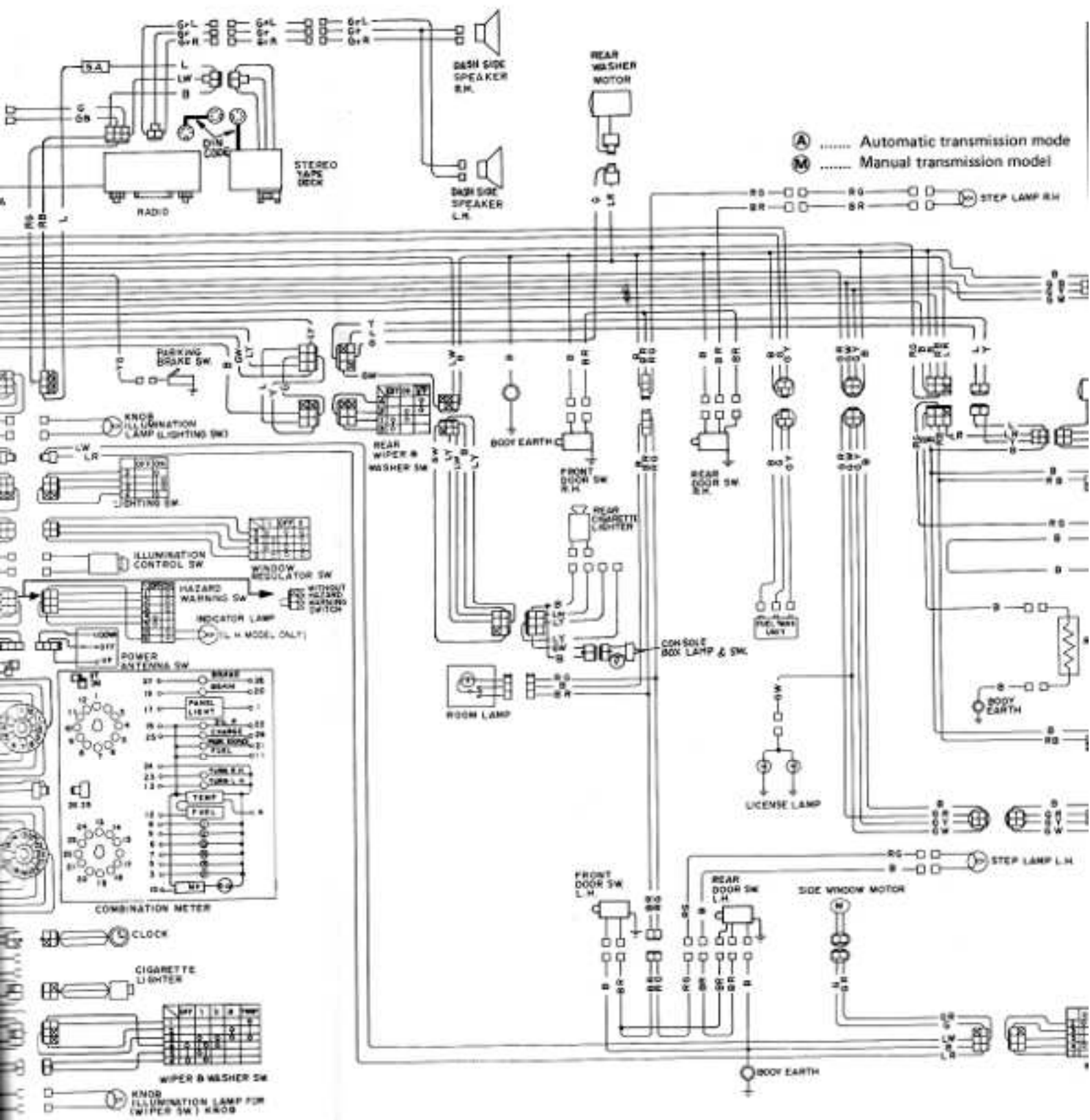


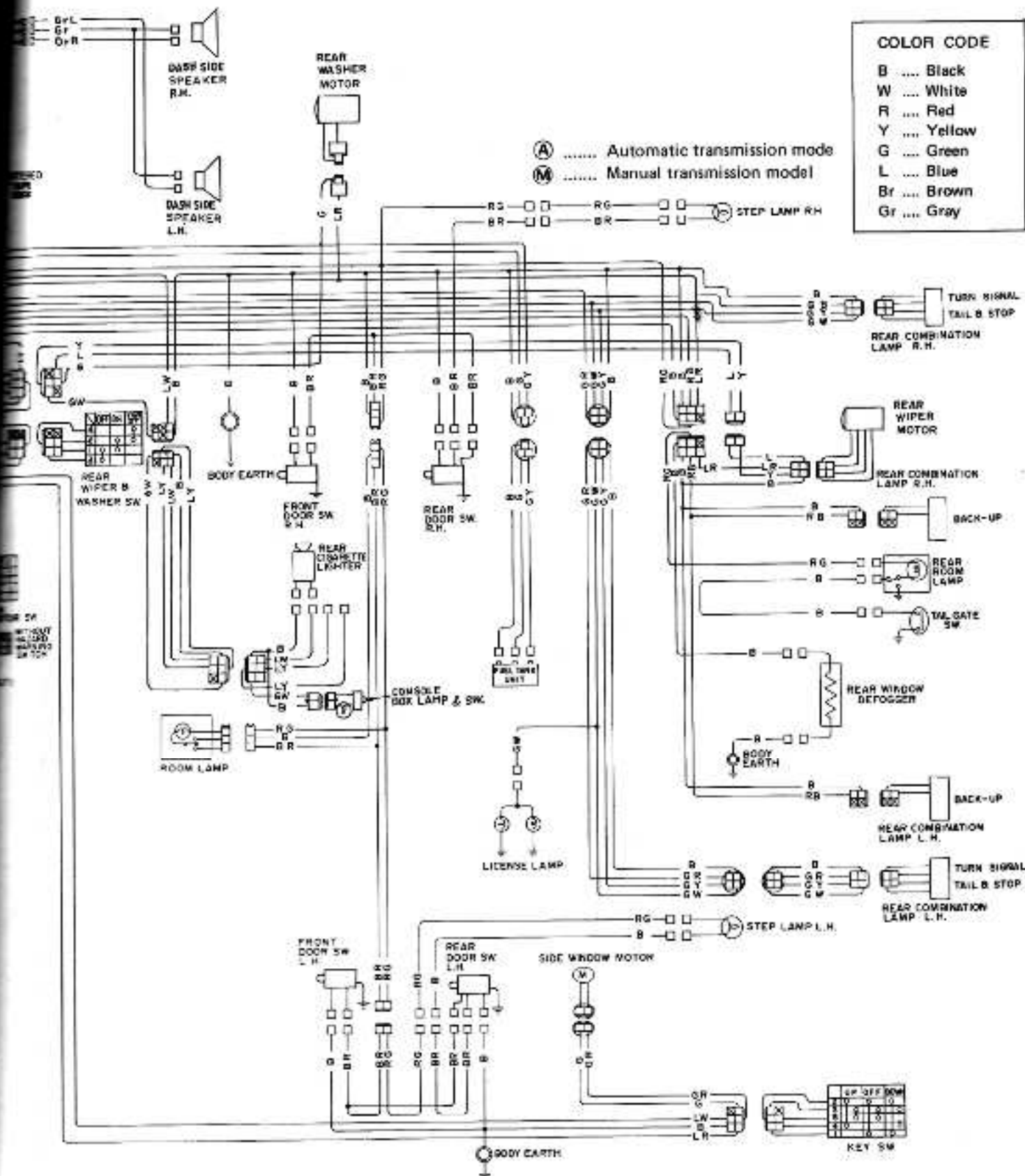
STATION WAGON (For Australia)



WIRING DI



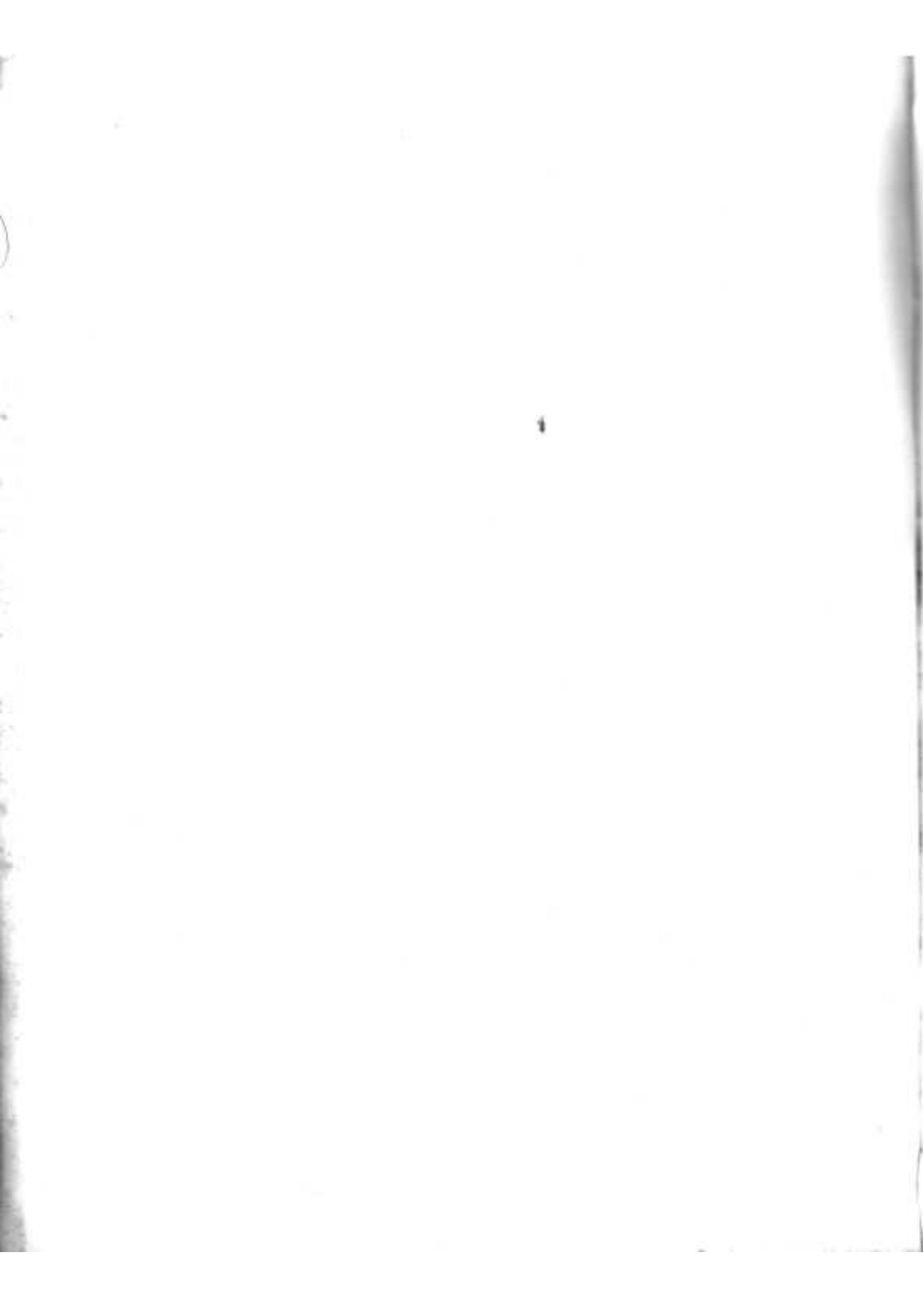




COLOR CODE

- B Black
- W White
- R Red
- Y Yellow
- G Green
- L Blue
- Br Brown
- Gr Gray

(A) Automatic transmission mode
 (M) Manual transmission model





Z·ONE·DATSUN