When engine is still warm

Without pulling the choke button, operate the starter to start.
For easy starting, apply foot pressure lightly on to the accelerator pedal.

When engine starting is difficult

1. When starter is continuously used for a length of time, the battery will be greatly impaired. Therefore take intervals in starting to relieve the battery of load.
2. If engine refuses to start, depress the accelerator pedal all way in and operate the starter. If accelerator pedal is repeatedly depressed, it will result in the suction of raw gas, making it further difficult to start.
3. If engine still refuses to start, check the engine to establish the cause of trouble.

CAUTIONS TO BE OBSERVED BEFORE STARTING

1. If the oil pressure warning lamp is lighted with engine held idling, engine should be stopped immediately to examine cause of trouble. Failure to observe such precaution leads to serious engine trouble.

2. Until the engine warms up, raise the idling speed slightly to facilitate temperature increase. When driven while cold, engine life will be considerably shortened with increase in fuel consumption.
Choke control knob should be pressed all way in when engine reaches normal operating temperature.

3. Refrain from racing the engine. When engine is cold, the moving parts are not sufficiently lubricated because of high viscosity in oil. Engine operation at high speeds under such condition accelerate wear of the parts.

TRAVELLING

1. Even after the running-in period (initial 1,600km, or 1,000miles of travel), the automobile should be operated according to the reference speeds figures given below to prevent over-revving the engine.

Model		1st gear	2nd gear	3rd gear	4th gear
PR20	Max. speed km/H (mile/H)	30 (20)	50 (30)	80 (50)	130* or 140 (80 or 85)
	Min. speed km/H (mile/H)	—	—	15 (10)	25 (15)
TR50 PR91	Max. speed km/H (mile/H)	40 (25)	70 (45)	110 (70)	160 (100)
	Min. speed km/H (mile/H)	—	—	25 (15)	35 (20)

* : Final gear ratio, 4.100

2. Fuel consumption differs greatly according to manner in which the automobile is operated.

- High speed driving increases fuel consumption.
- Refrain from sudden acceleration and perform controlled speed driving.
- Driving the automobile at speeds lower than the minimum speed limits with respect to individual gear will result in over-loading the engine and increase in fuel consumption.

3. Pay close attention to meters and warning lamp while driving.

4. Be sure to stop the car completely before shifting gear into reverse.

HIGH SPEED OPERATION

(For model PR50 & PR91 especially)

1. Tire pressure should be increased by 0.5kg/cm² or 7psi before the automobile is subjected to continuous high-speed operation.

2. Oil pressure should also be carefully noted. It is normal at 3~4kg/cm² or 42~57 psi.

3. Engine speeds should be allowed to decrease as low as to 3500~4000 rpm before the gear is shifted down.

PARKING

When leaving the car be sure always to turn-off the switch and apply the hand brake firmly. In case of hilly road, hold the gear control lever shifted into 1st gear or in reverse for additional safety.

DRIVING IN WINTER SEASON

1. Cooling water freezing is liable to cause damages to cylinder body and head, therefore when stoping the car, drain the cooling water completely. The use of anti-freeze eliminates such troubles, but since there are anti-freeze solution with inferior quality sold on market, it is advisable to use recommended solution to prevent possible corrosion of the cooling system.

2. Because of frequent use of lighting system and heater, battery is more liable to discharge. Also, efficiency of the battery tends to decline with fall in ambient temperature. Therefore always keep the battery completely charged.

3. Operation of engine in over-cooled condition accelerates the parts wear. In case if the cooling water fails to reach normal temperature during operation, check the thermostat for failure. In extremely cold weather, prevent engine from over-cooling by using radiator cover (curtain).
Suitable temperature 70°C~85°C (158°F~185°F).

CHECKS AND SIMPLE ADJUSTMENTS PRIOR TO DRIVING

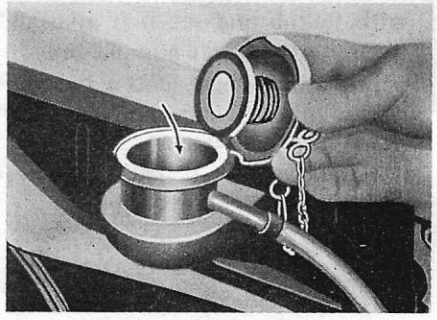
For safety of operation and driving comfort, it is recommended that the following check-ups be made regularly.
Items with asterisk ※ should be checked prior to driving.

In order to lengthen the life of car and maintain the car in the best of conditions and to enjoy the ultimate in motoring satisfaction, periodical lubrication, check-ups and adjustment are essential.

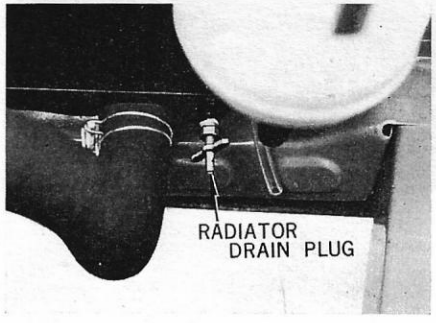
Refering to lubrication chart, and checking and adjustment chart, perform work as indicated. It is recommended that lubrication, checking and adjustments be done at your nearest distributor's or dealer's service shop.

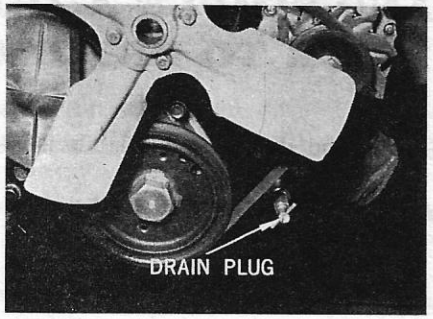
Cooling water ※

Cooling water checks and replenishing are performed by removing the radiator cap.
When removing cap with engine in overheated condition, place cloth over the filler cap and turn it a half-turn and allow pressure to be fully released before completely removing it.

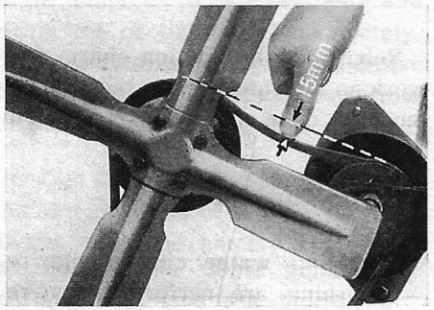


It is standard to change cooling water after **every 18,000 km** (12,000 miles) traveling.
To drain the cooling water, open the drain cocks on the lower part of the radiator and on the engine block.





Fan belt tension ※



Check the belt tension prior to driving and adjust it if necessary.

Push the mid-section of fan belt between water pump and generator with thumb and see if it gives deflection of about **15 mm (0.6 in)**.

For adjustment, loosen the generator bracket bolts and pivot the generator as required.

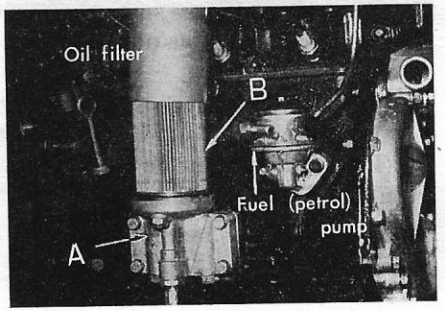
Faults occur if belt tension is either too loose or too tight.

Engine oil ※

Before starting the engine, check oil level with dipstick.

Oil level is normal if it comes within the two notched marks. Oil changing should be done after the initial **1,000km** (1,000 mile) of running-in period and thereafter it is standard to change **every 3,000km** (2,000 miles) travelling.

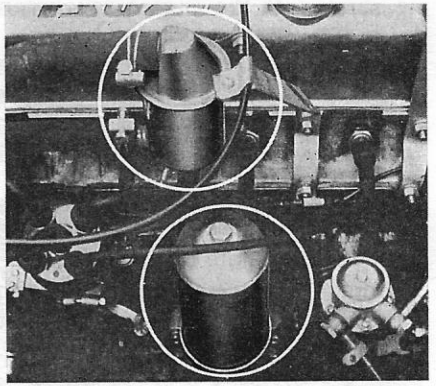
Oil filter



When changing engine oil (after every 3,000km (2,000 miles)) drain oil also from drain plug (A).

After **every 9,000 km** (6,000 miles) travelling, replace oil filter element (B).

Oil separator



After every 18,000km (12,000 miles) interval, take out the separator and clean the internal part with gasoline or detergent oil.

AIR CLEANER MAINTENANCE

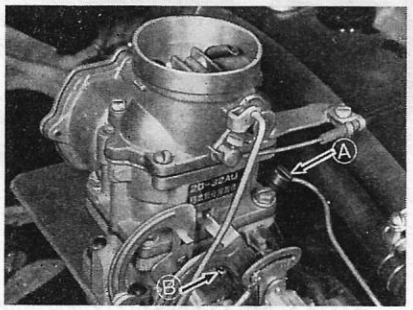
1. **Every 2,000 miles remove filter element and clean by vibrating or blowing air from inside.**
2. **Every 12,000 miles replace filter element with new one.**
3. **When element is found damaged or stained with oil or grease replace immediately with new one.**
4. **Under extremely dusty conditions, clean and replace more frequently.**

Carburettor

Maladjusted carburettor gives direct influence upon the engine performance. Hence, such check and adjustment of carburettor particularly those in the model PR 91 & PR 50 should be relied upon your closest distributor or dealer. Procedures for adjusting carburettor for model PR 20 are given below for your reference.

Idle adjustment is performed by screwing-in full the adjusting screw (A), then return $1^1/_4 \sim {}^1/_2$ turns and while manipulating the idling speed screw (B) set the engine revolution to about 550~600 rpm.

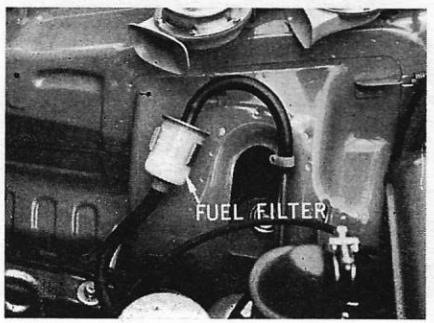
Next, while manipulating the adjusting screw (A), seek the spot at which the engine holds the fastest idle, and once again while manipulating the idling speed screw, set the engine revolution to 550~600 rpm.



for PR20

Fuel filter

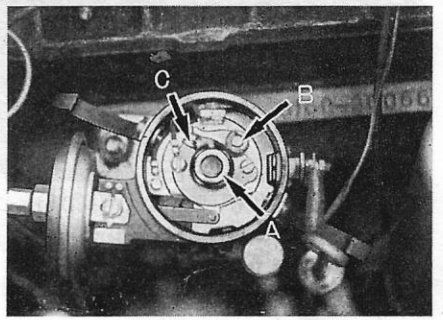
Cartridge type filter element is used to eliminate the need for servicing. Replace the element with the Isuzu Genuine filter element at every 20,000 km (12,000 mile) interval



Distributor

After every 3,000 km (2,000 miles) travelling, lubricate the rotor camshaft (A) and the arm sheft (B) by applying few drops of engine oil.

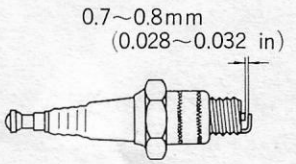
After every 3,000 km (2,000 miles) travelling, grease thinly the external surface of cam and at the same time check the gap (C) of contact point. **Adjusting value is 0.45~0.55 mm (0.018~0.021 in).** Loosen lock screw and while moving the contact point, adjust the gap. After adjustment, be sure to tighten securely the lock screw. If point is contaminated, wipe it off with clean cloth soaked with gasoline.



Sparking plug

After every 3,000km (2,000 miles) travelling, clean and check and adjust if necessary.

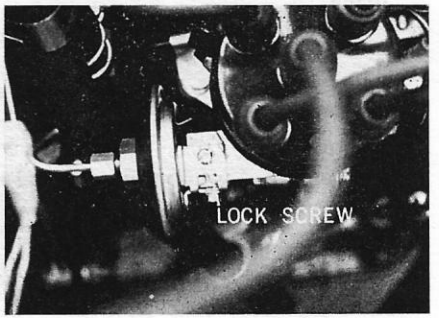
Adjusting value is 0.7~0.8 mm (0.027~0.032 in). Adjust the spark gap by bending ground electrode.



Ignition timing

After every 3,000km (2,000miles) travelling, check the timing and make adjustment if necessary. The standard ignition timing is 14° before T.D.C. at 550-600rpm. However, it is necessary to have the Isuzu Distributor or dealer reset the ignition timing to 8° before T.D.C at 550-600 if regular grade gasoline is used. The micro-adjuster on the distributor is used to make micro adjustment on the ignition timing.

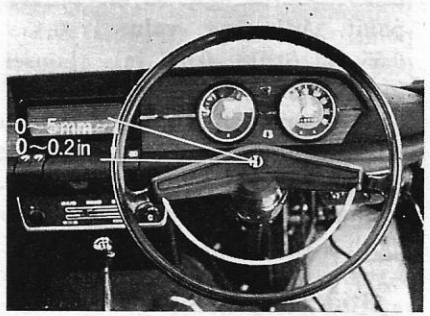
The ignition timing is correct if a sudden acceleration from 25km/h (16 miles/h) or so with the transmission in the top gear is accompanied by a slight engine knocking which gradually diminishes with increase in the engine speed.



To obtain micro-adjustment, proceed as follows:

If the engine knocking is excessive, turn loose the lock screw and turn the micro adjuster toward "R" and if the engine does not evidence knocking, turn the adjuster toward "A". After adjustment, securely tighten the lock screw.

Steering ※



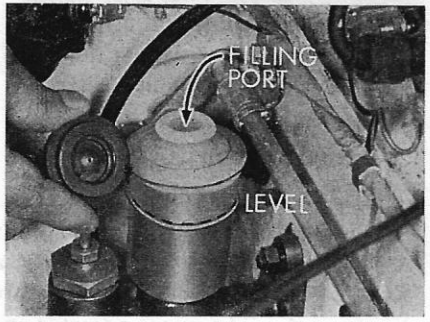
Wheel play on the periphery is standard at 0~5 mm (0~0.2 in).

Check whether looseness has developed in the steering system.

For safety precaution, check the steering wheel for smooth operation. If faults should occur refer the matter immediately to the nearest "Isuzu Service shop".

Brake system ※

Brake fluid level

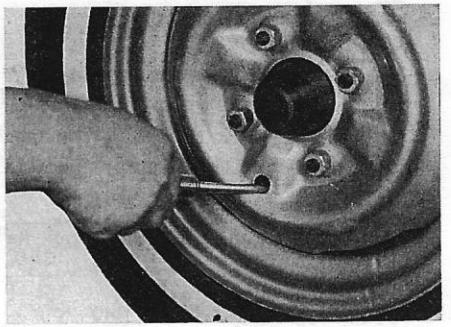


Check after **every 3,000 km** (2,000 miles) of travel distance. It is proper if brake fluid is up to the level of fluid reservoir. If insufficient, replenish with "Recommended Brake Fluid". If fluid falls considerably, be sure to check the cause and make necessary correction before starting to drive.

Inspect pedal play and stroke

Standard of play (free pedal travel) is about 35 mm (1.4 in). When fully depressed, if gap between pedal and floor board is less than 60 mm (2.4 in), adjustment is necessary.

Brake adjustments

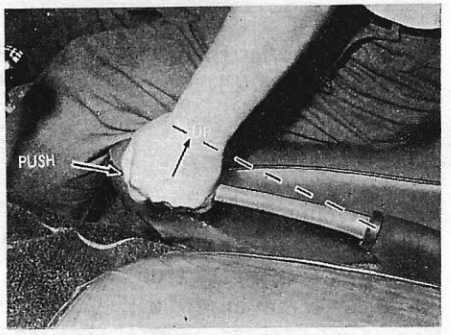


Lower the hand brake lever, remove wheel cap and insert screwdriver into the adjusting hole for adjustment.

For front wheels, return the adjuster 6~8 notches from the fully dragged position. For rear wheels, turn the adjusting cam all the way to the right until wheels are dragged and return the adjuster 2 notches back.

Model PR 91 & PR 50 is equipped with self-adjusting front disk brakes which require no adjustment.

Hand brake

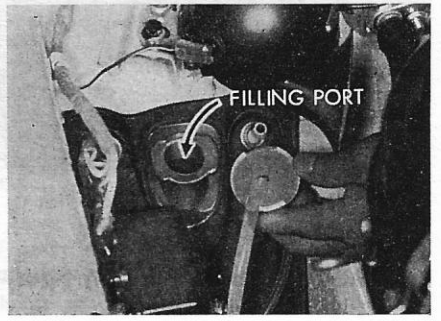


Hand brake lever travel allowance is standard at 4~5 notches.

If rear brake is adjusted, the brake lever travel is automatically adjusted, but when the hand brake's lever travel is excessive, adjust the cable length until the slack of hand brake cable is eliminated.

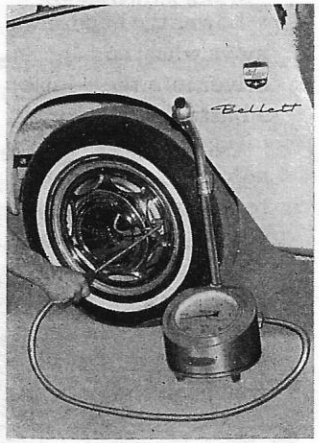
Note: Faulty adjustments of brake system are liable to cause major accidents, therefore, if service brakes or parking brakes fail to function properly, or trouble such as over-heating is noted, contact the Isuzu Service Station immediately to get proper maintenance attention.

Windshield washer tank



Replenish with tap water or neutralized soap water.

Tire air pressure ※



Check tire pressure **every day.** Tire pressure influences greatly riding comfort and tire life, therefore be sure to check the pressure with gauge and keep the tires properly inflated.

Standard air pressure

Tire size	Front, kg/cm² (psi)	Rear, kg/cm² (psi)
For PR 20		
5.60—13—4PR	1.40	1.40
*6.00—13—4PR	(20)	(20)
*(5.60—14—4PR)	1.55 (22)	1.70 (24)
For PR91 & PR50		
5.60—13—4PR	1.55 (22)	1.70 (24)

* optional

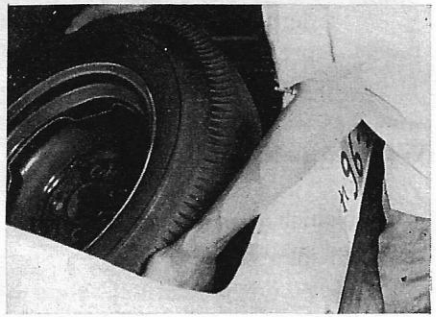
It is essential that pressure be raised by 0.5kg/cm² or by 7PSI when the model PR 91 & PR 50 is subjected to continuous high speed cruising.

Tire changing

To change tire due to puncture, perform according to the following. Bring the car where the ground is hard and flat. Then take out the spare tire, jack, tools from the trunk.

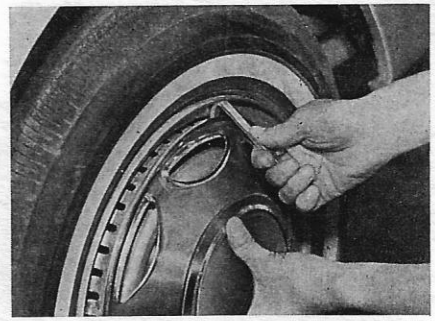
When removing front tire, apply hand brake fully and when removing rear tire, **block left and right front tires.**

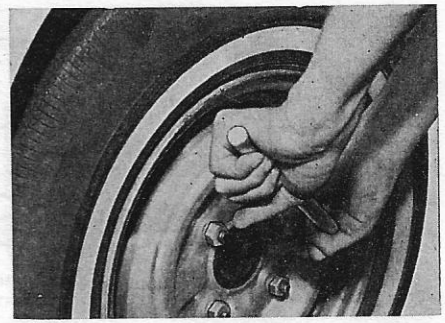
Remove the bolt of spare tire with wheel brace



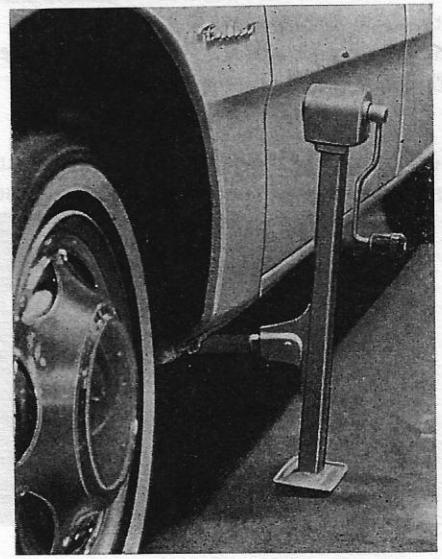
Take out the spare tire

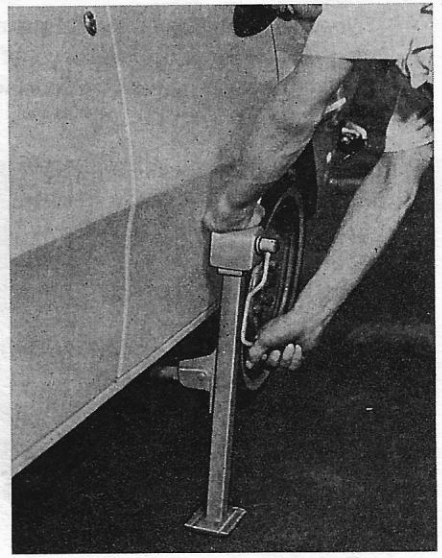
Wheel nuts can be securely tightened by applying strong force to push up or bring down the wheel brace by hand. Tighten the nuts evenly.





When fitting tires, **be sure to match the brake adjusting hole in the disc wheel** with that in the brake drum.



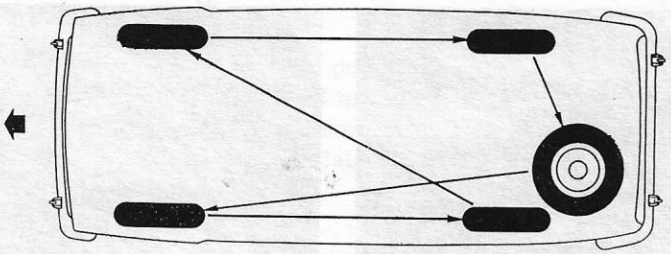


Fit the jack into one of the round socket located below the individual door. Then turn the handle clockwise to raise the jack.

Rotation of tire

Subsequent tire interchanging should be made including one reserved for spare. Absence of valve cap permits admission of dust into the tire during air filling.

Check the tire tread very carefully. Upon detection of any abnormal wear, contact Isuzu Service Station immediately for establishment of cause and proper means of rectification.



It is recommended that tires should be interchanged after every 9000 km (6000miles) of road service.

Electrical system

Meter and switch ※

Does each meter and switch function properly ?

Inspection and adjustments of meters and switches, should be carried out by the Isuzu Service Station with their precise instrumentation.

Battery

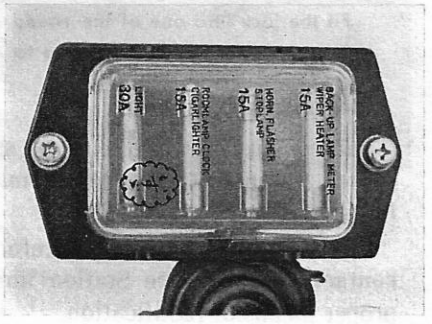
Every week, check electrolyte level and leakage of battery. When replenishing electrolyte, only distilled water should be used. In summertime, quantity of electrolyte is liable to become insufficient, therefore check-up should be made appropriately.

After every 3,000 km (2,000 miles), of travelling, check terminal for looseness, and electrolyte specific gravity. Do not forget to apply grease to terminals after they are cleaned.

Fuse box

Fuse box is located on the right side of dash panel inside the engine room. 4 fuses are used and 2 spare fuses are inserted.

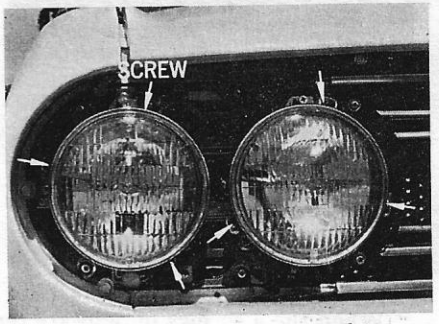
When fuse burns out, check the cause and after repairing, fit spare fuse of the specified ampere capacity.



Bulb replacement

Head lamp

Remove the 4 screws to remove the rim.



Turn loose set screws and turn the lens frame counter-clockwise so that the frame releases, giving access to the light bulb.

Since head lamp is sealed beam type, replace lens and reflectors as an unit.

Outer lamp is 12V-50W/37.5W

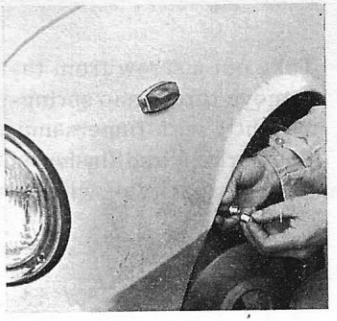
Note : dipping beam
RHD—left dip 50W,
LHD—right dip 50W.

Inner lamp is 12V-37.5W

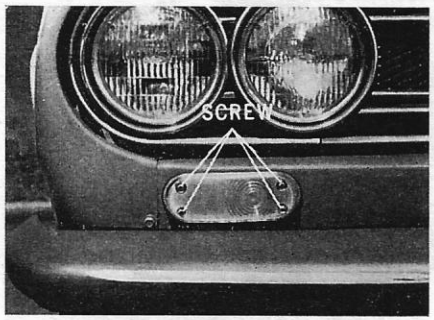
Side Flasher (sub) lamp

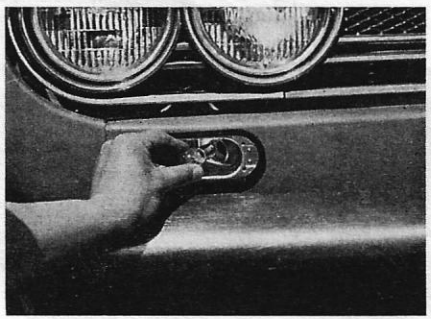
From the inner side of fender, pull out the dust cover and socket in one unit and then remove.

The bulb 12V-3.4W.



Parking and flasher lamp (PR 20 & PR 50)

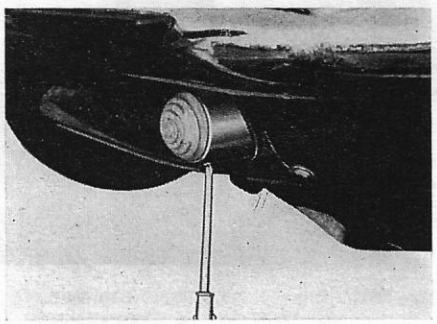


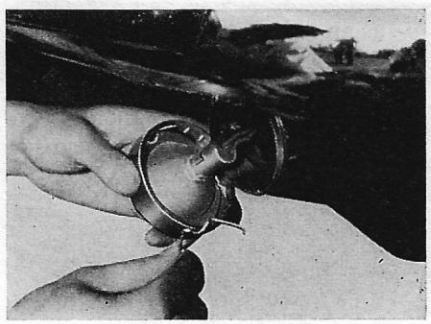


When the 4 screws of lens are removed, lens is removable. By pushing in slightly and turning counter-clockwise, the bulb can be removed.

The bulb is 12V-7W/23W.

Parking and flasher lamp (PR 91)





Take out a screw from the lens frame and remove the frame.

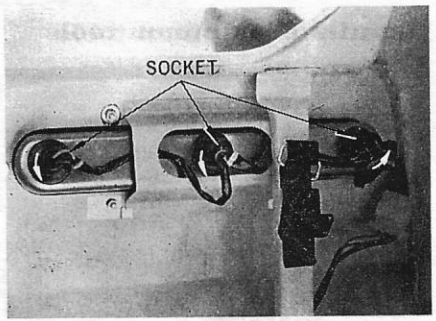
Remove three snap springs from the frame. For removing the bulb, push it in lightly with fingers and turn it counter-clockwise.

The parking and flasher lamp has two filaments incorporated in the same bulb, the capacity of which are 21 W and 6 W respectively.

Stop/flasher lamp, tail and reverse lamp.

The light bulb is accessible with the luggage compartment lid opened.

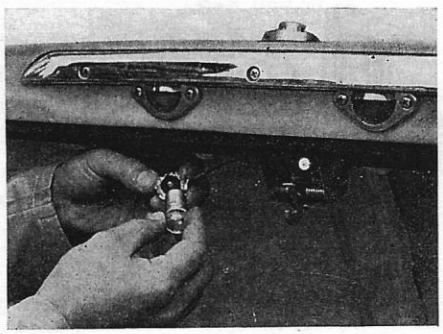
Turn the socket counter-clockwise so that light bulb can be removed together with the socket. The light bulb can be taken out from the socket by turning the bulb counter-clockwise.



License Plate lamp

By removing the rubber gasket in the rear side of lens, the bulb can be removed.

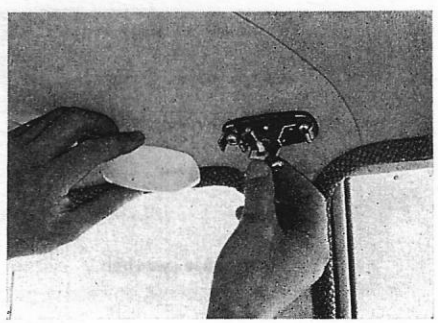
The bulb is 12V-6 W.



Room lamp

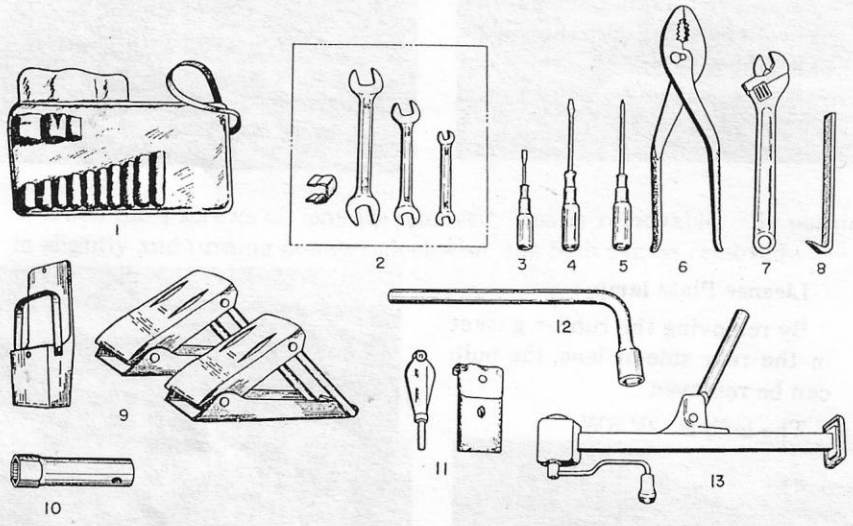
When lamp cover is removed, the bulb is removable.

The bulb is 12V-6 W.



EQUIPPED TOOLS

Details of common tools



1. Tool bag
2. Open ends spanner set
3. Screw driver, small
4. Screw driver, large
5. Screw driver, ⊕ head
6. Plier
7. Adjustable wrench
8. Wheel cap remover
9. Wheel skid
10. Spark plug wrench
11. Tire gauge
12. Wheel brace
13. Jack

LUBRICATION

Basic selectivity of lubricants

Lubrication Point	Lubricants	
Engine	Engine oil, API service MS class	
	Outside temperature	SAE groups
	Above 27°C (80°F)	SAE 40
	0°C~32°C (32°F~90°F)	SAE 30
	−12°C~16°C (10°F~60°F)	SAE 20W or 20
	Above −12°C (10°F)	SAE 20W-40
	Below 32°C (90°F)	SAE 10W-30
	Below 7°C (20°F)	SAE 10W
	Below −12°C (10°F)	SAE 5W-20
	All seasons	
Transmission	Engine oil or Multi-purpose gear lubricant	
	Outside temperature	SAE groups
	Above 4°C (40°F)	SAE 40
	7°C~21°C (20°F~70°F)	SAE 30
	Below 16°C (60°F)	SAE 10W-30 or 20W-20
	Below 0°C (32°F)	SAE 5W-20
Differential gear box	Multi-purpose gear lubricant	
	Outside temperature	SAE groups
	Above 10°C (50°F)	SAE 140
	12°C~27°C (10°F~80°F)	SAE 90
	Below 10°C (50°F)	SAE 80
Steering gear box Rack & pinion housing	Chassis lubricants or Multipurpose lubricant NLGI No.1 or No.3	
Wheel hub bearing	Wheel bearing grease or Multi-purpose lubricant NLGI No.2 or No.3	
Chassis Front suspension Steering track rod joint bolt	Molybdenum disulfide grease NLGI No.1 or No.2	

Chassis Propeller shaft universal joint Rear swing axle universal joint	Molybdenum disulfide grease NDGI No.1 or No.2
Water pump bearing unit & clutch release bearing unit	
Brake & clutch (LHD) Master cylinder tank	Hydraulic Brake Fluid Heavy Duty type SAE 70R1 or SAE 70R3

Chassis-lubrication chart

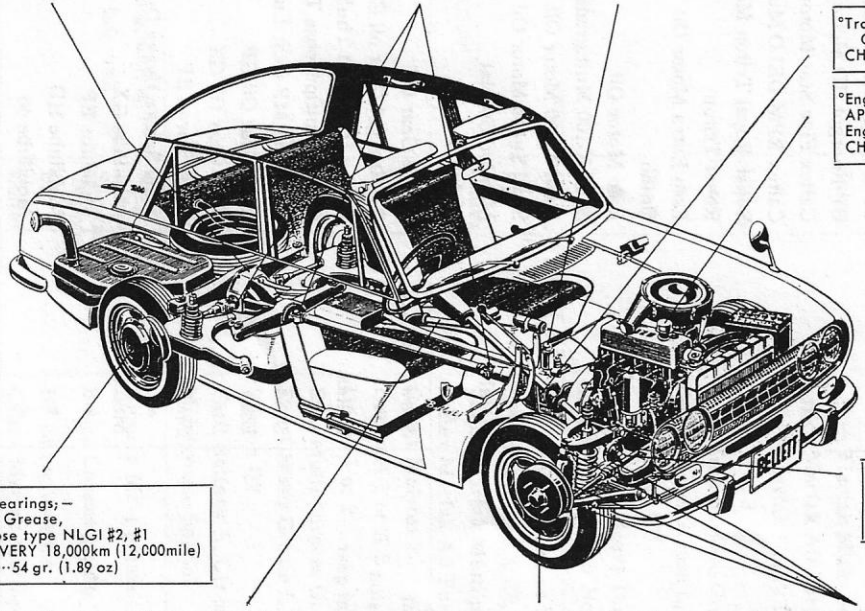
Differential Gear Box;—
API-MP class
Hypoid gear oil
CHANGE EVERY 18,000km (12,000mile)
Capacity·····0.7ℓ (0.19 US gal)

Universal Joints;—
※Molybdenum-Disulfide Grease
NLGI #2 or #1
LUBRICATE EVERY 18,000km (12,000mile)
Capacity·····16.5 gr (0.58 oz)

Brake Master Cylinder Tank;—
Clutch (LHD) Master Cylinder Tank;— &
SAE70R 1 or 3 Brake Fluid
SUPPLY EVERY 3,000km (2,000mile)
Capacity·····0.175ℓ (0.046 US gal)

°Transmission;—Same as Engine oil
Gear box (SAE #30)·····2.0ℓ (0.53 US gal)
CHANGE EVERY 18,000km (12,000mile)

°Engine; Oil pan
API-MS class } ····· Capacity
Engine oil } ····· 3ℓ (0.8 US gal)
CHANGE EVERY 3,000km (2,000mile)



Steering Rack & Pinion Housing;—
Chassis Grease NLGI #1 or #2
LUBRICATE EVERY 9,000km (6,000mile)
Capacity·····30 gr. (1.06 oz)

Rear Hub Bearings;—
Wheel Brg. Grease,
Multi-purpose type NLGI #2, #1
CHANGE EVERY 18,000km (12,000mile)
Capacity·····54 gr. (1.89 oz)

Hand Brake Cable;—
Graphite Grease NLGI #2, #1
LUBRICATE EVERY 9,000km (6,000mile)
Capacity 10 gr. (0.35 oz)

Front Hub Bearings;—
Wheel Brg. Grease,
Multi-purpose type NLGI #2, #1
CHANGE EVERY 18,000km (12,000mile)
Capacity·····60 gr. (2.10 oz)

Joint Balls;—
Suspension & Steering Track Rod, etc.
※Molybdenum-Disulfide Grease
NLGI #2 or #1
LUBRICATE EVERY 18,000km (12,000mile)
Capacity·····64 gr. (2.26 oz)
70 gr. (2.47 oz)

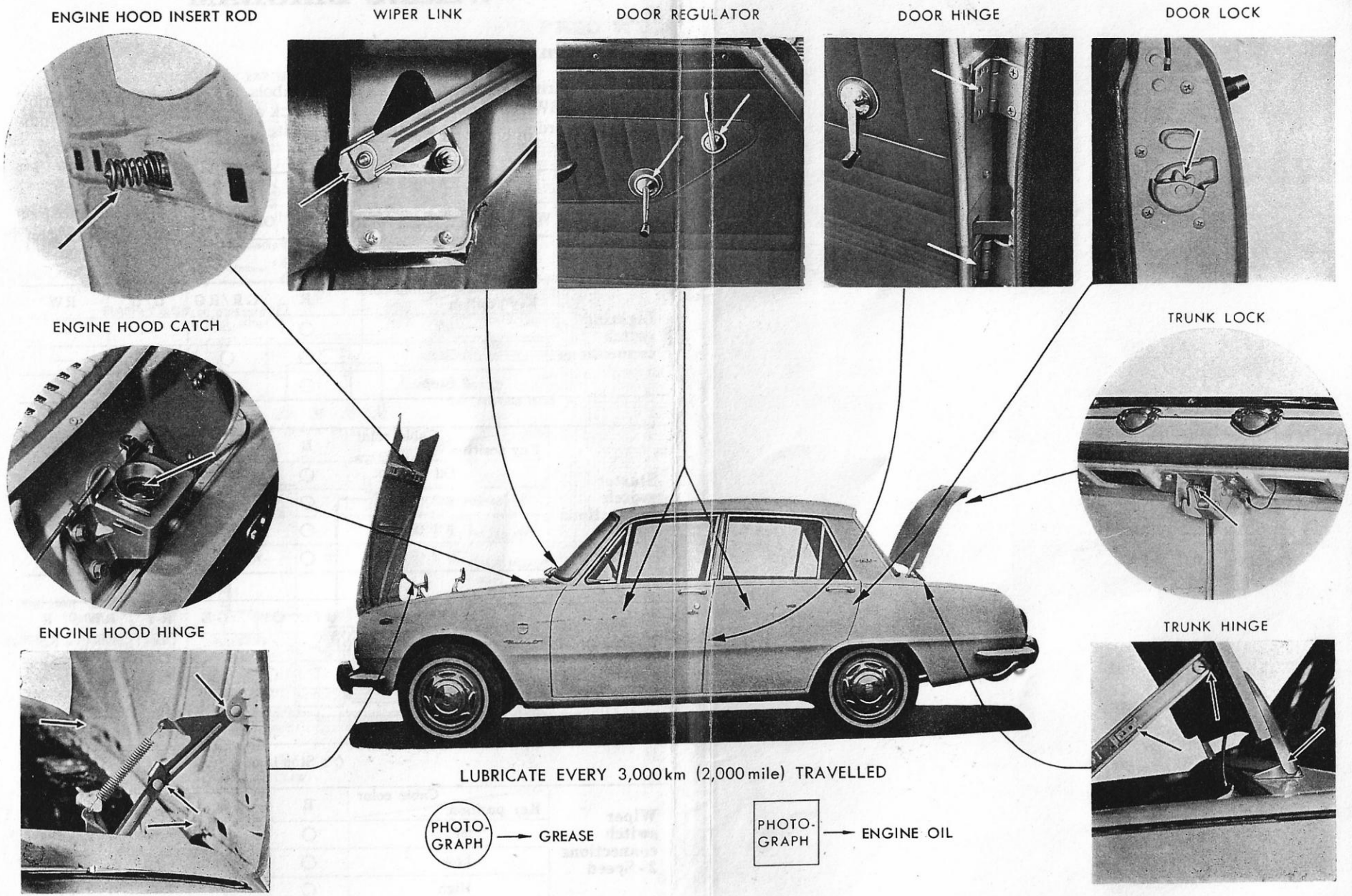
Recommended Lubricants and Coolants

Lubricant & coolant	Product	Brand name
Engine oil	Showa-Oil K. K.	High Bellpa Engine Oil
Engine	〃	Golden Parrot
Transmission	BP	BP Visco-Static Long Life
	〃	BP Energol Visco-Static
	〃	BP Energol HD Motor Oil
	Caltex	Caltex Five Star Motor Oil
	〃	Caltex RPM DELO Multi-Service oil
	Union	Super-Royal Triton Motor Oil
	〃	Royal Triton
	Esso	Esso Extra Motor Oil
	〃	Uniflo
	〃	Esso Motor Oil
	Shell	Shell X-100 Multigrade
	〃	Shell X-100 Motor Oil
	〃	Shell Super Motor Oil
	Mobil	Mobiloil Special
	〃	Mobiloil
Gear Lubricant	Showa-Oil K.K.	Bellpa Gear Oil
Transmission	BP	BP Energol Gear oil EP
Differential gear	Caltex	Caltex Universal Thuban
	〃	Caltex Multipurpose Thuban EP
	Union	Red Line MP Gear Lubricant
	Esso	Esso Gear Oil GP
	〃	Esso Gear Oil GX
	Shell	Shell Spirax EP
	〃	Shell Spirax Heavy Duty
	Mobil	Mobilube GX
	〃	Mobilube EP
	〃	Mobilube HD
	〃	Mobilube 46
Steering gear	Showa-Oil K.K.	Bellpa chassis grease
	〃	Bellpa L grease NLGI No.2
	BP	BP Energrease C2 or L2
	Caltex	Caltex Marfak Multi-purpose 2

Steering gear	Caltex	Caltex Marfak All Purpose
	Union	Unoba A-1 or A2
	Esso	Esso Multipurpose Grease
	〃	Esso Chassis Grease L, H or XX
	Shell	Shell Retinax A or CD
	Mobil	Mobilube GX, EP, HD, or 46
Wheel hub bearing	Showa Oil K.K.	Bellpa L grease
	BP	BP Energrease L2 or N2
	Caltex	Caltex Marfak Multi-purpose 2
	〃	Caltex Marfak All Purpose
	〃	Caltex Marfak Heavy Duty 2 or 3
	Union	Unoba 2 or 3
	Esso	Esso Multi-purpose Grease
	〃	Esso Chassis Grease L, H or XX
	Shell	Shell Spirax EP
	〃	Shell Spirax Heavy Duty
	Mobil	Mobilgrease MP or No.2
Chassis	Kyodo-Yushi K.K. -Nippon	ONE-LUBER No.1 or No.2
	BP	BP Energrease L2, C2, or Ao
	Caltex	Caltex Marfak Multi-purpose 2
	〃	Caltex Marfak All Purpose
	〃	Caltex Molytex 2
	Union	Unoba A-1 or A-2
	〃	Unoba 1 or 2
	Esso	Esso Multi-purpose Grease
	〃	Esso Chassis Grease L, H or XX
	〃	Beacon Q2
	Shell	Shell Retinax A, CD or AM
	Mobil	Mobilgrease Special
Water pump brg. unit & clutch release brg. unit	Nippon Koyu K.K. -Nippon	Nippeco MP-1 grease
	Showa-oil K.K. -Nippon	Bellpa Chassis grease
	BP	BP Energrease L2
	Caltex	Caltex Marfak Multi-purpose 2
	〃	Caltex Marfak All Purpose
	〃	Caltex Water Pump Grease
	Union	Unoba 2 or 3
	〃	Unoba A-2

Water pump brg. unit & clutch release brg. unit	Esso	Esso Multi-purpose
	〃	Beacon EPI
	Shell	Shell Retinax A
	Mobil	Mobilgrease MP
Brake & Clutch (LHD) fluid	Fujikura-Kasei K.K. -Nippon	ISUZU Genuine Brake Fluid HD or Super HG (Cold district)
	BP	BP Brake Fluid
	Caltex	Caltex Heavy Duty Brake Fluid
	Esso	Esso Brake Fluid HD 400
	Shell	Shell Donax B
	Mobil	Mobil Hydraulic Brake Fluid
Coolant		ISUZU Long Life Coolant

BODY LUBRICATION CHART



WIRING DIAGRAM

Description of wiring diagrm

In the wiring diagram, alphabetical symbols are used for identification purpose. BW represents the initials of black and white, which in turn indicates the cord in black background with white traces.

Symbol	B	W	R	G	Y	L	O
Color	Black	White	Red	Green	Yellow	Blue	Orange

G R
- R: Color of trace (red)
- G: Cable background color (green)

Lighting switch connections

Key position \ Cable color	R	GR/RG	G/G	RW
0ff	○	—	—	—
1 Step	○	○	○	—
2 Step	○	○	—	○

Starter switch connections

Key position \ Cable color	B	L	BY	BW
Off	○	—	—	—
# 3 (Left)	○	○	—	—
# 1 (Right)	○	○	○	—
# 2 (Right)	○	—	○	○

Flasher & dimmer switch connections

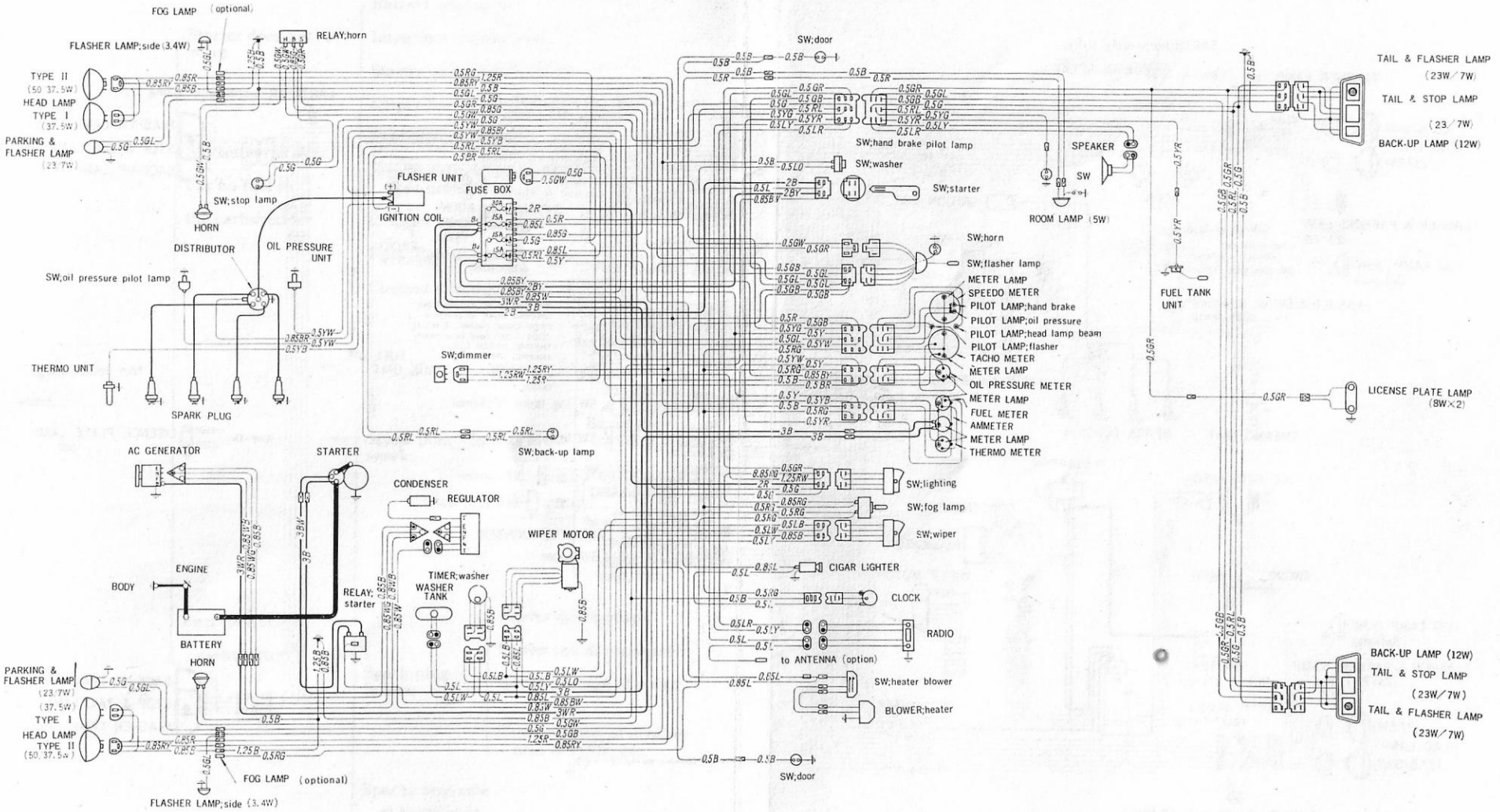
Lever \ Cable color	GL	GW	GB	RY	RW	R
Right	○	○				
Left		○	○			
Main beam				○	○	
Sub beam					○	○

◇ : Stop lamp circuit

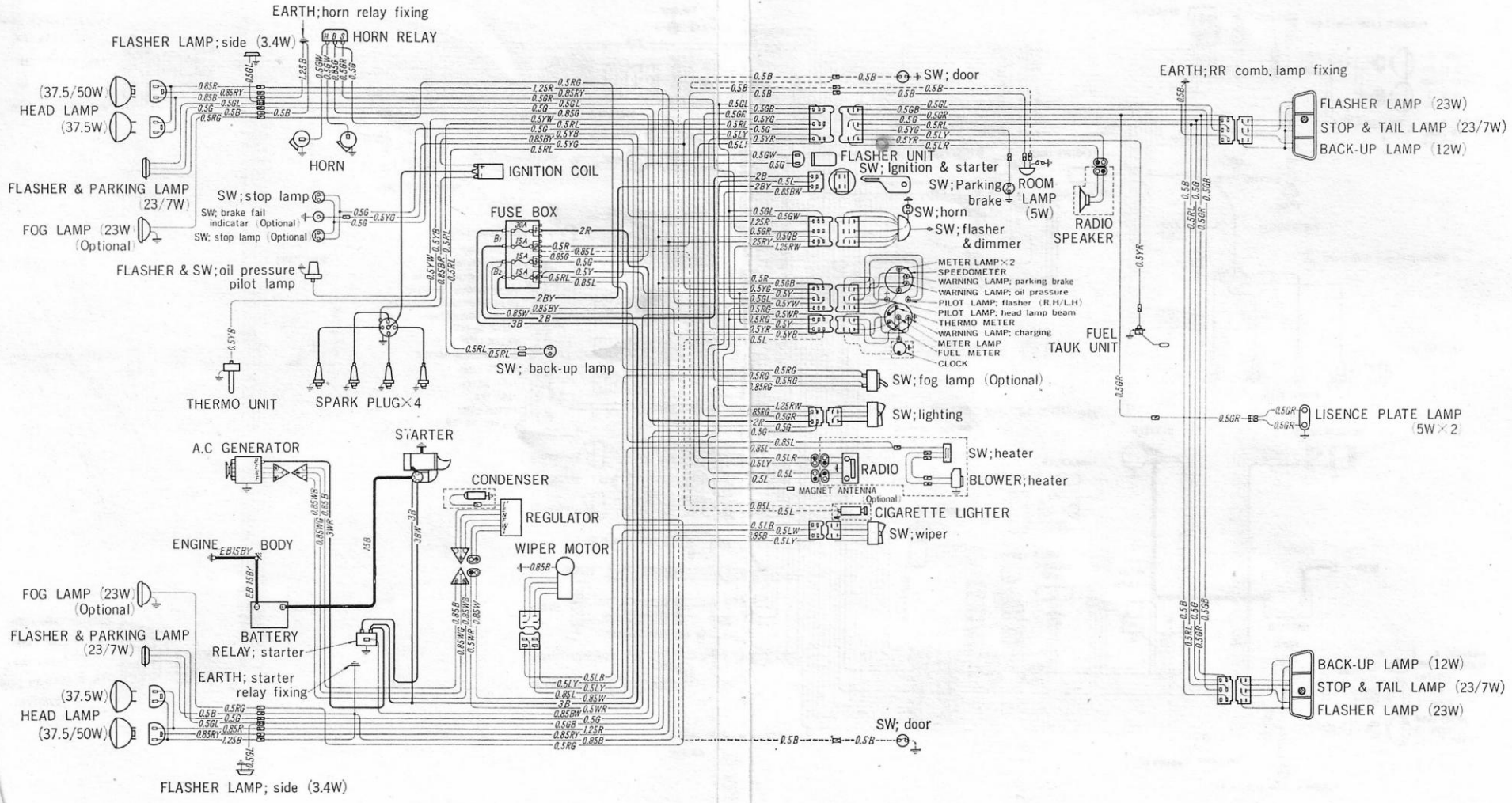
Wiper switch connections 2 - Speed

Key position \ Cable color	B	LB	LW	LY
0ff	○	—	○	—
Low	○	○	○	—
High	○	○	—	○

PR50 & PR91 WIRING DIAGRAM



PR20 WIRING DIAGRAM



TROUBLE SHOOTING AND ITS TREATMENT

Engine does not start

- Starter does not revolve
  - Battery discharged
  - Imperfect connections
  - Starter or switch troubles
- Starter turns over but no fuel in the carburettor
  - Empty fuel (petrol) tank
  - Fuel pipe is clogged
  - Needle valve of carburettor does not open
  - Clogged breather of tank
  - Fuel (Petrol) pump troubles
  - Clogged strainer
- Fuel (petrol) in carburettor
  - Spark plug sparks
    - Sparks are weak
      - Variance ignition timing
      - Faulty coil & condenser
      - Burnt damage of point surface
      - Faulty contact of point
      - Short-circuits of breaker arm, rotor & dist. cap, etc.
    - Spark plug failure
      - Faulty spark plugs
      - Faulty coil & condenser
      - Burnt damage of point
      - Short-circuits of breaker arm & rotor, etc.
    - Sparks originate at tip of cord after removed from tip of plug — Faulty spark plug
    - Too rich gas mixture — Over choking

- **Poor conditions of engine**
  - Powerless
    - Powerless continuosuly
      - Improper tappet adjustment
      - Valve spring fatigue
      - Bent valve
      - Clogged silencer
      - Retarded ignition timing
      - Improper caburettor adjustment
      - Sparkings are weak
      - Improper gas mixture
      - Poor quality gasoline (petrol)
      - Clutch slips
      - Brake drags
    - Occationally becomes powerless
      - Faulty carburettor
      - Sticky valves
  - Misfire
    - Irregular sparks
      - Dirty spark plugs
      - Faulty contact points
      - Intermittent short-circuits
    - Sparks are ordinary
      - Too rich gas mixture
      - Gasoline unbrought enough to carburettor
      - Water in gasoline
      - Clogged jet of carburettor
  - Over-heat
    - Insufficient cooling water amount
    - Improper ignition timing
    - Loosened or slipping fan belt
    - Faulty thermostat
    - Clogged radiator
    - Insufficient or faulty lube oil

- **Engine suddenly stops while driving**
  - Empty fuel (petrol) tank
  - Unarrival of gasoline—Check fuel systems
  - Fuel present in carburettor
    - Clogged jet or pipe
    - Overflows
      - Sunken or stucked float
      - Engine overheating
  - Troubles of electrical system
    - Sparks at tip of cord after removing from tip of plug—Damaged spark plug
    - Unsparks
      - Loosened wiring
      - Faulty coil & condenser
      - Faulty contact point
      - Shorts in between
  - Suddenly stop following unusual noise—Mechanical troubles
- **Fuel consumption is unusual**
  - Unnecessary high revolution of engine
  - Improper adjustment of carburettor
  - Faulty ignition timing
  - Poor return of choke
  - Poor quality gasoline (petrol)
  - Slipping clutch driven plate
  - Brake drags
  - Insufficient tire pressure
  - Frequent operation in low gear
- **Braking effect becomes poor**
  - Buoyant feeling when brake pedal is depressed—Air in brake system—Air bleed
  - Only slight distance to floor when brake pedal is depressed
    - Worn lining—Adjust brake
    - Insufficient brake fluid—Check leaks & replenish brake fluid
  - Brake pedal action is ordinary
    - Water penetrates into brake drum
    - Slipping of brake linings, excessively worn lining

- **Over heating**
  - Imperfect cooling system
    - Insufficient cooling water
    - Fan belt slippage & looseness
    - Faulty function of thermostat
    - Imperfect pressurized cooling device—radiator cap
    - Dirty inside the cooling system
    - Clogged radiator core
  - Improper handling of car —— Over-running the engine, over loaded
  - Faulty adjustment or engine troubles

- **Unsmooth operation of steering wheel**
  - Heavy steering wheel during travelling
    - Insufficient air pressure of tires
    - Poorly lubricated of ball joints
    - Faulty wheel alignment
    - Defects inside the gear box
  - Steering wheel swings during travelling
    - Unbalanced wheels
    - Worn ball joints
    - Faulty wheel alignments
  - Steering wheel takes to one side while travelling
    - Uneven air pressure of tires
    - Uneven outer diameter of tires
    - Brake effective on one side
    - Faulty wheel alignments
  - Steering wheel forced to one side when brake is applied
    - Uneven air pressure of tires
    - Uneven outer diameter of tires
    - Brake effective on one side
    - Damaged hub bearings

- **Unsmooth operation of gear (shift) control lever**
  - Gear does not mesh
    - Clutch does not engage
    - Faulty adjustment of selector link
    - Faulty adjustment of shifter link
    - Stucked bush of control shaft
    - Defective the transmission
  - Gear is unreleased
    - Clutch does not engage
    - Faulty adjustment of selector link
    - Faulty adjustment of shifter link
    - Stucked bush of control shaft
    - Defective the transmission

PERIODIC CHECKS AND LUBRICATION TABLE OF BELLETT

※ Initial service only
● 3% Mo-No_2 Grease
△ Ordinary Grease
◎ Every 20,000km (12,000mile)

	Where to inspect \ Inspection periods	Inspection prior to driving	1,000 km (1,000 mile)	Every 3,000 km (2,000 mile)	Every 9,000 km (6,000 mile)	Every 18,000 km (12,000 mile)	Every 36,000 km (24,000 mile)
Engine	Radiator and hose joints and inspect water leaks and water level	○					
	Inspect fan belt tension and condition	○	※				
	Change cooling water (◎: In case of Long Life coolant)					○	◎
	Check engine oil amount and replenish	○					
	Change engine oil		※	○			
	Drain from engine oil filter		※	○			
	Replace engine oil filter element				○		
	Clean oil separator					○	
	Replace air cleaner element						○
	Check leaks of fuel system	○	※	○			
	Check for oil leaks from joints of lubrication system	○	※	○			
	Air breather washing			○			
	Replace fuel filter element					◎	
	Check functions of fuel pump						○
	Further tightening of head bolts and manifold bolts		※		○		
	Further tightening of engine mounting		※		○		
	Check and adjust control link and wire			○			
	Lubricate engine control link and wire			○			
	Oil pan & strainer cleaning						○
	Drain from fuel tank drain plug					○	
	Fuel tank cleaning						○

	Where to inspect \ Inspection periods	Inspection prior to driving	1,000 km (1,000 mile)	Every 3,000 km (2,000 mile)	Every 9,000 km (6,000 mile)	Every 18,000 km (12,000 mile)	Every 36,000 km (24,000 mile)
Engine	Check valve gaps (tappet clearance)		※		○		
	Check intake air line		※	○			
	Check & further tightening of exhaust manifold		※	○			
	Idling adjustment (low & acceleration)			○			
	Whether exhaust color is proper (check)	○		○			
Clutch	Check fitting conditions of pedal					○	
	Check clutch functions (LHD oil control)		※	○			
	Check play and allowance of pedal		※	○			
	Supply oil to pedal shaft link			○			
Transmission	Check connection of control link					○	
	Check operational conditions of controls		※		○		
	Check oil leaks of gear box			○			
	Check gear oil and replenish			○			
	Change gear oil		※			○	
	Supply oil to control links			○			
Propeller shaft	Check connection tightening of propeller shaft		※		○		
	Check universal joints of prop. shaft & R-axle					○	
	Grease universal joints			△		●	
	Check vibration of propeller shaft					○	
	Check splain					○	
Brake	Check foot brake effectiveness condition	○	※	○			
	Check pedal play, depressing allowance, gap with floor board and air mixture	○	※	○			
	Check fitting conditions of pedal and master cylinder					○	
	Check the functions of master cylinder and wheel cylinder					○	
	Check for pipe and hose damages, twists and contacts with other portion			○			
	Check for brake oil leaks from the brake system			○			

Where to inspect / Inspection periods		Inspection prior to driving	1,000 km (1,000 mile)	Every 3,000 km (2,000 mile)	Every 9,000 km (6,000 mile)	Every 18,000 km (12,000 mile)	Every 36,000 km (24,000 mile)
Brake	Check brake lining and brake drum (clearance), wears and also the contact				○	○	
	Supply oil to pedal shaft and push rod			○			
	Check brake oil amount			○			
Hand brake	Check hand brake effectiveness and pulling allowance (Damage to wearing section of ratchet)	○	※	○			
	Check joints of hand brake links and contacts with other parts			○		○	
	Grease hand brake links and cable					○	
Steering	Check toe-in (Side slip testing)			○			
	F-rock to rock check & adjustment					○	
	Play, looseness and wear of wheels	○		○			
	Operation conditions (swing, pulling and heaviness)	○		○			
	Check fixing conditions and damages of flexible coupling and track rod				○		
	Check wears of knuckle joints and damages				○		
	Check fitting conditions of steering rack pinion housing		※			○	
	Check wheel alignment					○	
	Lubricate steering rack pinion case					○	
	Grease joint ball connections			△		●	
	Grease link end portion			△		●	
	Check joint ball, rod & arms connections		※	○			
Axle · Suspension	Check rear axle shaft connected	※			○		
	Grease rear axle shaft & univ. joint			△		●	
	Looseness of front hub bearing		※		○		
	Check wheel bearings					○	
	Grease front hub					○	
	Grease rear hub					○	
	Check differential oil leaks			○			

Where to inspect / Inspection periods		Inspection prior to driving	1,000 km (1,000 mile)	Every 3,000 km (2,000 mile)	Every 9,000 km (6,000 mile)	Every 18,000 km (12,000 mile)	Every 36,000 km (24,000 mile)
Axle · Suspension	Check differential gear oil and replenish				○		
	Change differential gear oil		※			○	
	Check fitting conditions of shock absorbers & stabilizer				○		
	Check spring damages looseness fitting bracket	○	※		○	○	
	Looseness and damage of fitting portion		※		○		
Wheel · Tire	Further tightening of wheel pin nut		※	○			
	Changing tire position				○		
	Check tire pressure and unusual wear (Spare inclusive)	○	※				
	Change fitting positions of tire				○		
	Check disk wheel damages			○			
Body	Check door lock and opening, closing conditions of door		※	○			
	Lubricate door hinge, door lock, trunk hinge, trunk lock, bonnet hinge, bonnet catch, etc.		※	○			
Electrical system	Check battery liquid amount	○			○		
	Check battery liquid gravity				○		
	Check battery fitting conditions. check conditions of battery terminals		※	○			
	Check charging conditions of generator			○			
	Check conditions of starter pinion					○	
	Clean starter commutator and check brush wears					○	
	Clean AC generator, check brush wears and lubricate (check functions)					○	
	Lubricate starter F-bearing						○
	Check functional operations of security assisting devices (Light, meter, wiper horn, flasher, each switches)	○		○			
Others	Check supports for piping, wirings and links and contact with other connections			○			

	Where to inspect \ Inspection periods	Inspection prior to driving	1,000 km (1,000 mile)	Every 3,000 km (2,000 mile)	Every 9,000 km (6,000 mile)	Every 18,000 km (12,000 mile)	Every 36,000 km (24,000 mile)
Engine for gasoline-car	Starting condition & noise	○	※	○			
	Grease distributor cam			○			
	Lubricate distributor shaft & arm shaft			○			
	Clearance between contact point & arm			○			
	Dirtiness & clearance of spark plugs			○			
	Inspect function of vacuum & centrifugal advancers			○			
	Inspect ignition timing			○			
	Clean & inspect carburettor					○	
	Measuring compression pressure						○

HD-1306

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Issued by

ISUZU MOTORS LIMITED

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Printed in Japan S-E-1-20 ⓓ