

MAINTENANCE

MA-2

MAINTENANCE – (5S-FE)

(5S-FE)

MAINTENANCE SCHEDULE

SCHEDULE A

MA-2-01

CONDITIONS:

Towing a trailer, using a camper or car top carrier.

Repeated short trips of less than 8 km (5 miles) with outside temperature remaining below freezing.

Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use.

Operating on dusty, rough, muddy or salt spread roads.

Maintenance operation: A = Check and adjust if necessary.

R = Replace, change or lubricate.

I = Inspect and correct or replace if necessary.

System	Maintenance Interval (Use odometer reading or months, whichever comes first)	Maintenance services beyond 96,000 km (60,000 miles) should continue to be performed at the same intervals shown for each maintenance schedule.																		See page (item No.)
		1,000 km	5	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	Months	
	Maintenance items	1,000 miles	3.75	7.5	11.25	15	18.75	22.5	26.25	30	33.75	37.5	41.25	45	48.75	52.5	56.25	60		
ENGINE	Timing belt (1)																		R	MA-6 (item 1)
	Valve clearance																		A	A: Every 72 months MA-10 (item 12)
	Drive belts																			MA-6 (item 2)
	Engine oil and oil filter*		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R: Every 6 months MA-8 (item 6)
	Engine coolant																			R: First period 72,000 km (46,000 miles) or 36 months. R: After that every 48,000 km (30,000 miles) or 24 months. MA-8 (item 7)
	Exhaust pipes and mountings																		I	I: Every 24 months MA-10 (item 11)
FUEL	Air filter (2)*		I	I	I	I	I	I	I	R	I	I	I	I	I	I	I	I	I	I: Every 6 months A: Every 36 months MA-7 (item 3, 4)
	Fuel lines end connections (3)																		I	I: Every 36 months MA-9 (item 10)
	Fuel tank cap gasket																		R	R: Every 72 months MA-9 (item 9)
IGNITION	Spark plugs (Platinum tipped type)																		R	R: Every 72 months MA-7 (item 5)
EVA P	Charcoal canister (4)																		I	I: Every 72 months MA-9 (item 8)
BRAKES	Brake linings and drums (6)			I		I		I		I		I		I		I		I	I	I: Every 12 months MA-11 (item 15)
	Brake pads and discs (Front and rear)			I		I		I		I		I		I		I		I	I	I: Every 12 months MA-10 (item 14)
	Brake line pipes and hoses					I				I				I					I	I: Every 24 months MA-10 (item 13)

V03641

MAINTENANCE – (5S-FE)

System	Service Interval (Use odometer reading or recorder, whichever comes first)	Maintenance services beyond 96,000 km (60,000 miles) should continue to be performed at the same intervals shown for each maintenance schedule.																		See page (Item No.)	
		1,000 km	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	Months		
		Maintenance items	1,000 miles	3.75	7.5	11.25	15	18.75	22.5	26.25	30	33.75	37.5	41.25	45	48.75	52.5	56.25			60
CHASSIS	Steering linkage			I		I			I			I		I		I		I	I: Every 12 months	MA-12 (item 16)	
	SRS airbag		I: First period 10 years. I: After that every 2 years.																		MA-12 (item 17)
	Drive shaft boots			I		I			I			I		I		I		I	I: Every 12 months	MA-13 (item 19)	
	ball joints and dust covers			I		I			I			I		I		I		I	I: Every 12 month:	MA-13 (item 20)	
	Manual or axle, automatic transaxle and differential (6)					R					R							R	R: Every 24 months	MA-14 (item 21, 22)	
	Steering gear housing oil (7)					I					I				I			I	I: Every 24 months	MA-13 (item 18)	
	Bolts and nuts on chassis and body (8)			I		I			I			I		I		I		I	I: Every 12 months	MA-15 (item 23)	

* marks indicates maintenance which is part of the warranty conditions for the Emission Control Systems. The warranty period is in accordance with the owner's guide or the warranty booklet.

*: California and New York specification vehicles

(1) Applicable to vehicles operated under conditions of extensive idling and/or low speed driving for long distances such as police, taxi or door-to-door delivery use.

(2) Applicable when operating mainly on dusty roads.

(3) Includes inspection of fuel tank band and vapor vent system.

(4) Non –maintenance item except for California and New York.

(5) Also applicable to drum lining for parking brake. For other usage conditions, refer to SCHEDULE B.

(6) Check for leakage.

(7) Check for oil leaks from steering gear housing.

(8) Applicable only when operating mainly on rough, muddy roads. The applicable parts are listed below. For other usage conditions, refer to SCHEDULE B.

Front and rear suspension member to cross body.

Strut bar bracket to body bolts.

Bolts for seat installation.

MA-4

MAINTENANCE – (5S-FE)

SCHEDULE B

MAJEN-04

CONDITIONS:

Conditions others than those listed for SCHEDULE A.

Maintenance operation: A = Check and adjust if necessary.

R = Replace, change or lubricate.

I = Inspect and correct or replace if necessary.

system	Service interval (Use odometer reading or months, whichever comes first)	Maintenance services beyond 96,000 km (60,000 miles) should continue to be performed at the same Intervals shown for each maintenance schedule.										See page (item No.)
		1,000 km	12	24	36	48	60	72	84	96	Months	
	Maintenance items	1,000 miles	7.6	15	22.5	30	37.5	45	52.5	60		
ENGINE	Volvo clearance										A: Every 72 months	MA-10 (item 12)
	Drive belt										I: First period 96,000 km (60,000 miles) or 72 months. I: After that every 12,000 km (7,500 miles) or 12 months.	MA-6 (item 2)
	Engine oil and oil filter*										R: Every 12 months	MA-8 (item 6)
	Engine coolant										R: First period 72,000 km (45,000 miles) or 36 months. R: After that every 48,000 km (30,000 miles) or 24 months.	MA-8 (item 7)
	Exhaust pipes and mountings										I: Every 36 months	MA-10 (item 11)
FUEL	Air filter*										R: Every 36 months	MA-7 (item 3, 4)
	Fuel line* and connections (1)										I: Every 36 months	MA-9 (item 10)
	Fuel tank cap gasket										R: Every 72 months	MA-9 (item 9)
IGNITION	Spark plug (Platinum tipped type)										R: Every 72 months	MA-7 (item 5)
EVAP	Charcoal canister (2)										I: Every 72 months	MA-9 (item 8)
BRAKES	Brake linings and drums (3)										I: Every 24 months	MA-11 (item 15)
	Brake pads and discs										I: Every 24 months	MA-10 (item 14)
	Brake line pipes and hoses (Front and rear)										I: Every 24 months	MA-10 (item 13)
CHASSIS	Steering linkage										I: Every 24 months	MA-12 (item 16)
	SRS airbag										I: First period 10 years. I: After that every 2 years.	MA-12 (item 17)
	Drive shaft boots										I: Every 24 months	MA-13 (item 19)
	*all joints and dust covers										I: Every 24 months	MA-13 (item 20)
	Man*al transaxle, automatic transaxle and differential (4)										I: Every 24 months	MA-14 (item 21, 22)
	Steering gear housing oil (5)										I: Every 24 months	MA-13 (item 18)
	Bolts and nuts on chassis and body (6y)										I: Every 24 months	MA-15 (item 23)

V01643

* marks indicates maintenance which is part of the warranty conditions for the Emission Control Systems. The warranty period is in accordance with the owner's guide or the warranty booklet,

*; California and New York specification vehicles

- (1) Includes inspection of fuel tank band and vapor vent system.
- (2) Non-maintenance item except for California and New York.
- (3) Also applicable to drum lining for parking brake.
- (4) Check for leakage.
- (5) Check for oil leaks from steering gear housing.
- (6) The applicable parts are listed below.

- Front and rear suspension member to cross body.
- Strut bar bracket to body bolt.
- Bolts for seat installation.

PREPARATION EQUIPMENT

MAINT-01

Belt tension gauge	
Dial indicator or dial indicator with magnetic base	
Micrometer	
Mirror	Brake hose
Steel square	
Tachometer	
Torque wrench	
Vernier calipers	

COOLANT

MAINT-01

Item	Capacity	Classification
Engine coolant (w/ Heater)	6.3 liters (6.7 US qts, 5.5 Imp. qts)	Ethylene-glycol base

LUBRICANT

MAINT-02

Item	Capacity	Classification
Engine oil (M/T) Dry fill Drain and refill w/ Oil filter change w/o Oil filter change Engine oil (A/T) Dry fill Drain and refill w/ Oil filter change w/o Oil filter change	4.2 liters (4.4 US qts, 3.7 Imp. qts) 3.6 liters (3.8 US qts, 3.2 Imp. qts) 3.4 liters (3.6 US qts, 3.0 Imp. qts) 4.3 liters (4.5 US qts, 3.8 Imp. qts) 3.18 liters (3.8 US qts, 3.2 Imp. qts) 3.4 liters (3.6 US qts, 3.0 Imp. qts)	API grade SG or SH, Energy –Conserving II multigrade engine oil or ILSAC multigrade engine oil and recommended viscosity oil
Manual transaxle oil (w/ Differential oil)	2.6 liters (2.7 US qts, 2.3 Imp. qts)	AN GL-3 SAE 75W-90 In case the above is unavailable API GL-4 or GL-5 SAE 75w-90
Automatic transaxle fluid Dry fill Drain and refill	5.18 liters (5.9 US qts, 4.9 Imp. qts) 2.5 liters (2.6 US qts, 2.2 Imp. qts)	ATF DEXRON II
Differential oil	1.6 liters (1.7 US qts, 1.4 Imp. qts)	ATF DEXRON II

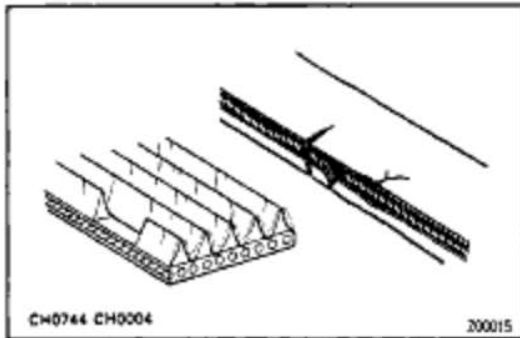
MAINTENANCE OPERATIONS

MAINT-01

Cold Engine Operations

1. REPLACE TIMING BELT

- (a) Remove the timing belt.
(See page EG-26)
- (b) Install the timing belt.
(See page EG-33)

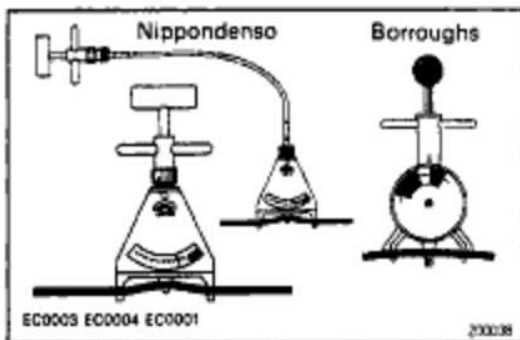


2. INSPECT DRIVE BELTS

- (a) Visually check the belt for excessive wear, frayed cords etc.

If necessary, replace the drive belt.

HINT: Cracks on the rib side of a belt are considered acceptable. If the belt has chunks missing from the ribs, it should be replaced.



- (b) Using a belt tension gauge, measure the drive belt tension.

Belt tension gauge:

Nippondenso BTG-20 (95506-00020)

Borroughs No.BT - 33 - 73F

Drive belt tension:

Generator (w/ A/C)

New belt

175 ± 5 lbf

Used belt

130 ± 10 lbf

Generator (w/o A/C)

New belt

125 ± 25 lbf

Used belt

95 ± 20 lbf

PS pump

New belt

125 ± 25 lbf

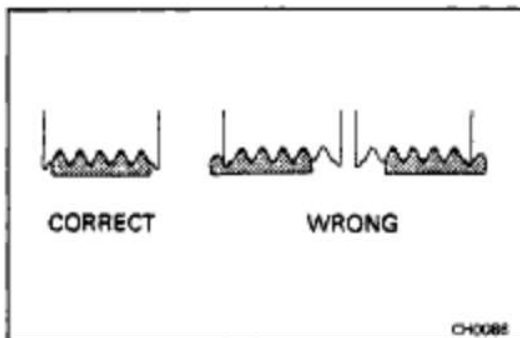
Used belt

80 ± 20 lbf

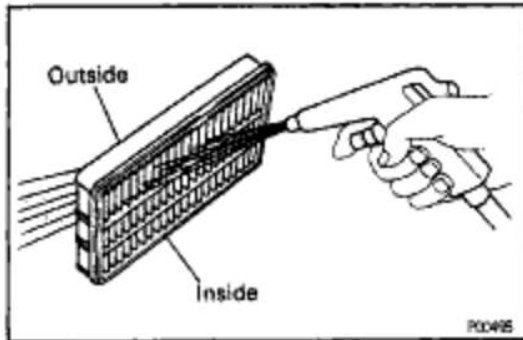
If necessary, adjust the drive belt tension.

HINT:

- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing the belt, check that it fits properly in the ribbed grooves.



- Check by hand to confirm that the belt has not slipped out of the groove on the bottom of the pulley.
- After installing a new belt, run the engine for about 5 minutes and recheck the belt tension.



3. INSPECT AIR FILTER

(a) Visually check that the air filter is not damaged or excessively oily.

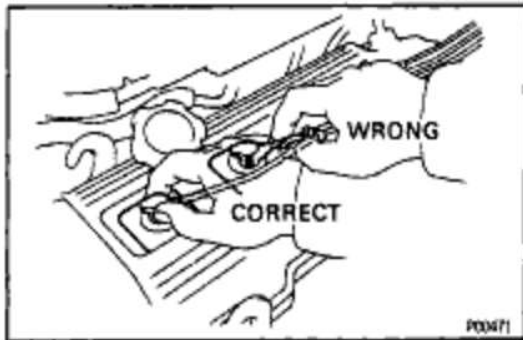
If necessary, replace the air filter element.

(b) Clean the air filter with compressed air.

First blow from the inside thoroughly, then blow off the outside of the air filter.

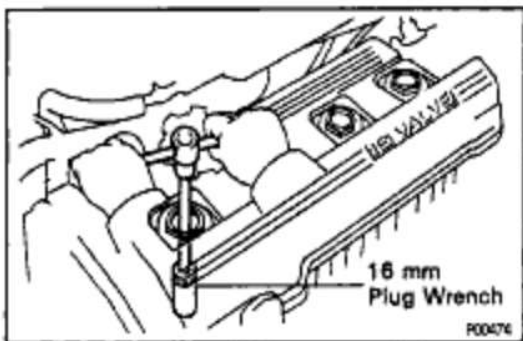
4. REPLACE AIR FILTER

Replace the air filter with a new one.

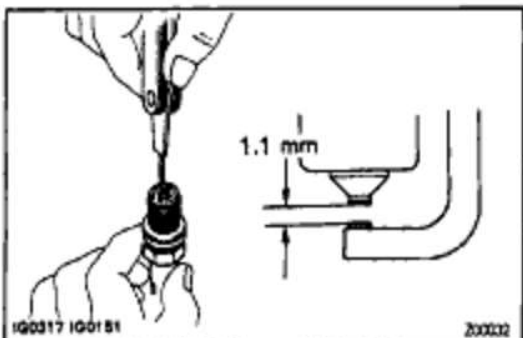


5. REPLACE SPARK PLUGS

(a) Disconnect the spark plug cords at the rubber boot. DO NOT pull on the cords.



(b) Using a 16 mm plug wrench, remove the spark plugs.



(c) Check the electrode gap of new spark plugs.

Correct electrode gap:

1.1 mm (0.043 in.)

Recommended spark plugs:

PK20R11 for ND

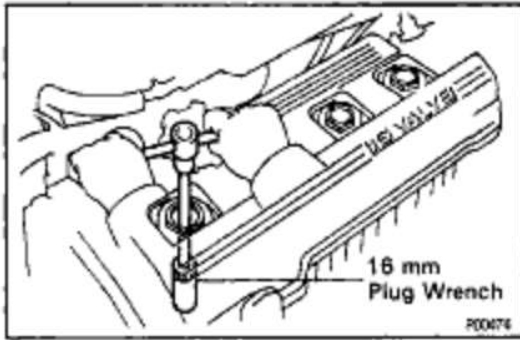
BKR6EP11 for NGK

NOTICE: If adjusting the gap of a new plug, bend only the base of the ground electrode. Do NOT touch the tip.

Never attempt to adjust the gap on a used plug.

MA-8

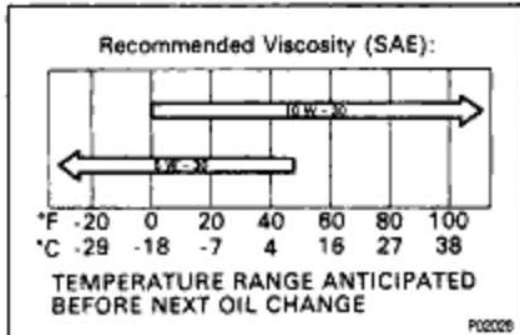
MAINTENANCE - (5S-FE)



(d) Using a 16 mm plug wrench, reinstall the spark plugs.

Torque: 18 N-m (180 kgf-cm, 13 ft-lbf)

(e) Reconnect the spark plug cords.



6. REPLACE ENGINE OIL AND OIL FILTER

(See page [EG-274](#))

Oil grade:

API grade SG or SH, Energy-Conserving II multi-grade engine oil or ILSAC multigrade engine oil. Recommended viscosity is as shown in the illustration.

Drain and refill capacity:

M/T

w/ Oil filter change

3.6 liters (3.8 US qts, 3.2 Imp. qts)

w/o Oil filter change

3.4 liters (3.6 US qts, 3.0 Imp. qts)

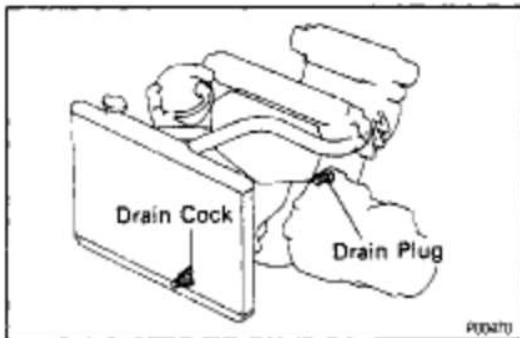
A/T

w/ Oil filter change

3.6 liters (3.8 US qts, 3.2 Imp. qts)

w/o Oil filter change

3.4 liters (3.6 US qts, 3.0 Imp. qts)



7. REPLACE ENGINE COOLANT

(See page [EG-241](#))

HINT:

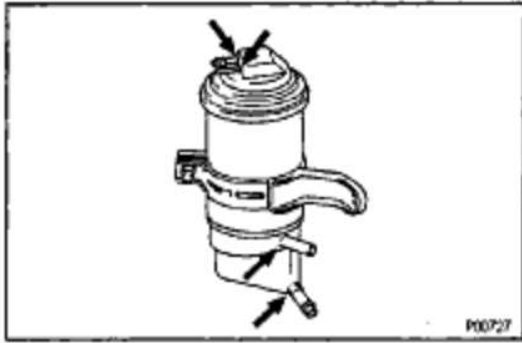
- Use a good brand of ethylene-glycol base engine coolant and mix it according to the manufacturer's instructions.
- Using engine coolant which includes more than 50% ethylene-glycol (but not more than 70%) is recommended.

NOTICE:

- Do not use alcohol type coolant.
- The engine coolant should be mixed with demineralized water or distilled water.

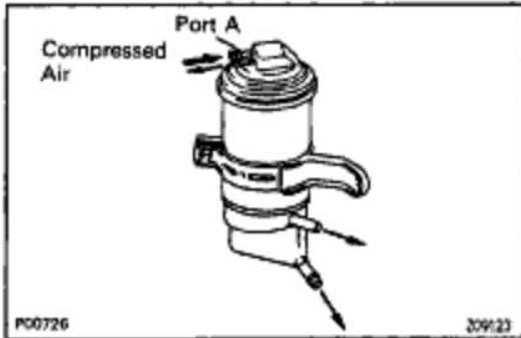
Capacity (w/ Heater):

6.3 liters (6.7 US qts, 5.5 Imp. qts)



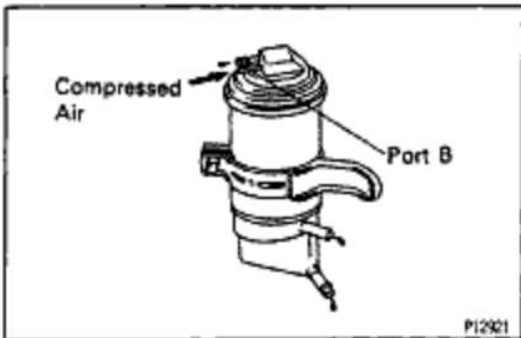
8. INSPECT CHACOAL CANISTER

(a) Visually inspect the canister case.



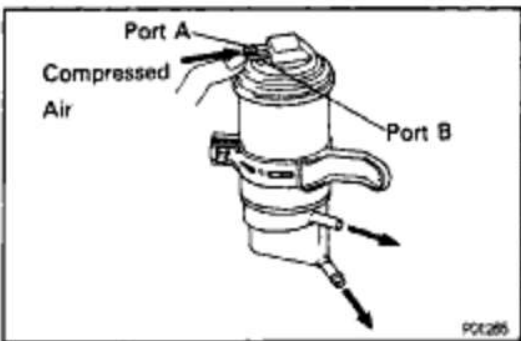
(b) Check for clogged filter and stuck check valve.

- Using low pressure compressed air (4.71 kPa, 48 gf/cmT, 0.68 psi), blow into port A and check that air flows without resistance from the other ports.



- Blow low pressure compressed air (4.71 kPa, 48 gf/cm2, 0.68 psi) into port B and check that air does not flow from the other ports.

If a problem is found, replace the charcoal canister.

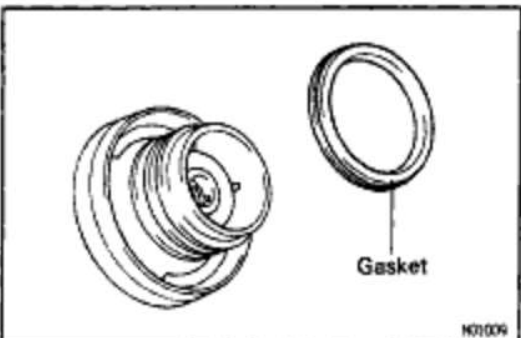


(c) Clean filter in canister.

- Clean the filter by blowing 294 kPa (3 kgf/cm², 43 psi) of compressed air into port A while holding port B closed.

NOTICE:

- Do not attempt to wash the canister.
- No activated carbon should come out.



9. REPLACE GASKET IN FUEL TANK CAP

(a) Remove the old gasket from the tank cap.

NOTICE: Do not damage the tank cap.

(b) Install a new gasket by hand.

(c) Check the cap for damage or cracks.

(d) Reinstall the cap and check the torque limiter.

10. INSPECT FUEL LINES AND CONNECTIONS

Visually check the fuel lines for cracks, leakage, loose connections, deformation or tank band looseness.

MA-10

MAINTENANCE – (5S-FE)

11. INSPECT EXHAUST PIPES AND MOUNTINGS

Visually check the pipes, hangers and connections for severe corrosion, leaks or damage.

12. ADJUST VALVE CLEARANCE

(See page EG -12)

Valve clearance (Cold):

Intake

0.19 – 0.29 mm (0.007 – 0.011 in.)

Exhaust

0.28 – 0.38 mm (0.011 – 0.015 in.)

BRAKES**13. INSPECT BRAKE LINE PIPES AND HOSES**

HINT: Check in a well lighted area. Check the entire circumference and length of the brake hoses using a mirror as required. Turn the front wheels fully right or left before checking the front brake.

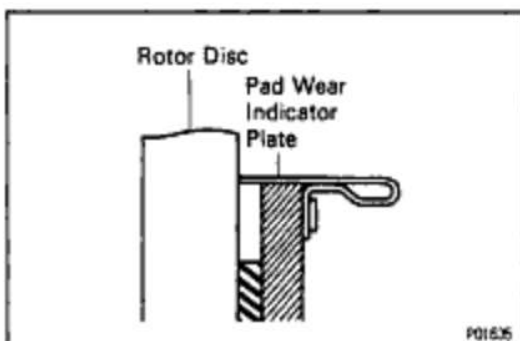
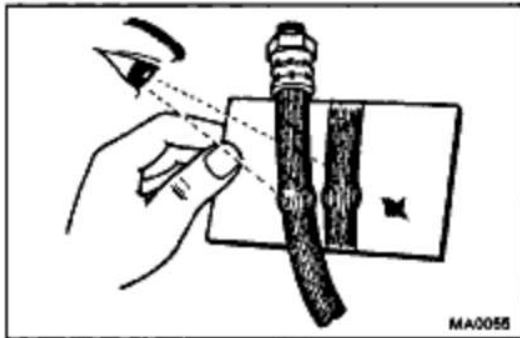
(a) Check all brake lines and hoses for:

- Damage
- Wear
- Deformation
- Cracks
- Corrosion
- Leaks
- Bends
- Twists

(b) Check all clamps for tightness and connections for leakage.

(c) Check that the hoses and lines are clear of sharp edges, moving parts and the exhaust system.

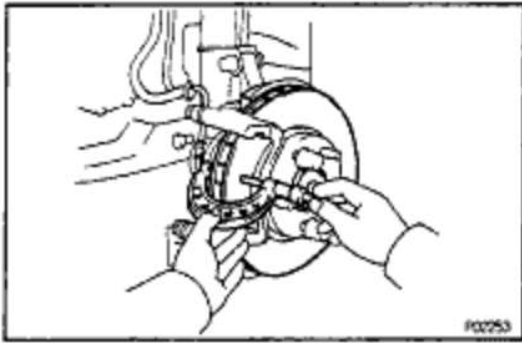
(d) Check that the lines installed in grommets pass through the center of the grommets.

**14. INSPECT FRONT AND REAR BRAKE PADS AND DISCS**

(a) Check the thickness of the disc brake pads and check for irregular wear.

Minimum pad thickness:

1.0 mm (0.039 in.)



HINT: If a squealing or scraping noise comes from the brake during driving, check the pad wear indicator to see if it is contacting the disc rotor. If so, the disc pad should be replaced.

(b) Check the disc for wear or runout.

Minimum disc thickness:

Front

26.0 mm (1.024 in.)

Rear

9.0 mm (0.354 in.)

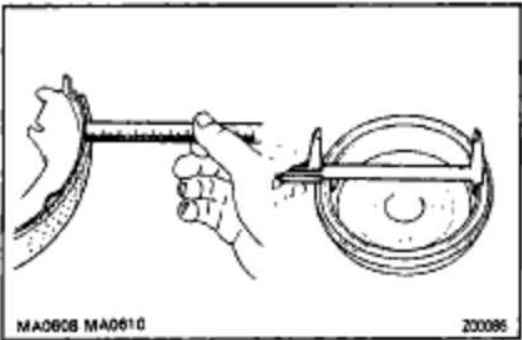
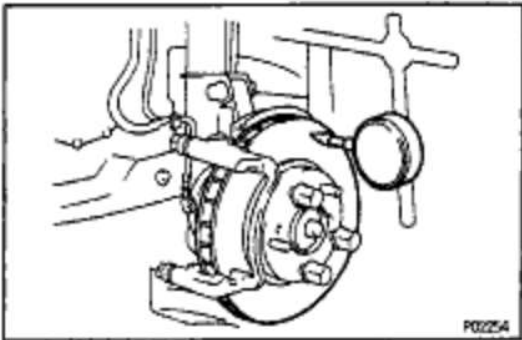
Maximum disc runout:

Front

0.05 mm (0.0020 in.)

Rear

0.15 mm (0.0059 in.)



15. INSPECT BRAKE LININGS AND DRUMS

(a) Check the lining – to – drum contact condition and lining wear.

Minimum lining thickness:

1.0 mm (0.0039 in.)

(b) Check the brake drums for scoring or wear.

Maximum drum inside diameter:

Drum brake

230.6 mm (9.079 in.)

Disc brake

171.0 mm (6.732 in.)

(c) Clean the brake parts with a damp cloth.

NOTICE: Do not use compressed air to clean the brake parts.

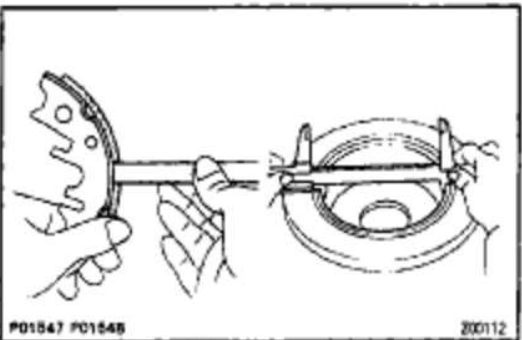
(d) Disc brake:

Settle the parking brake shoes and drum. When performing the road test in item 25, do the following:

- Drive the vehicle at approx. 50 km/h (30 mph) on a safe, level and dry road.
- With the parking brake release knob pushed in, pull on the lever with 88 N (9 kgf, 20 lbf) of force.
- Drive the vehicle for approx. 400 m (1 /4 mile) in this condition.
- Repeat this procedure 2 or 3 times.

Check parking lever travel.

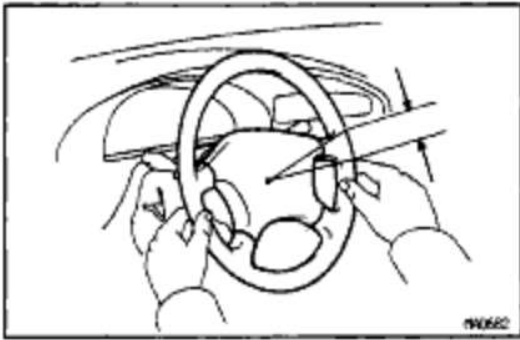
If necessary, adjust the parking brake.



MA-12

MAINTENANCE – (5S-FE)

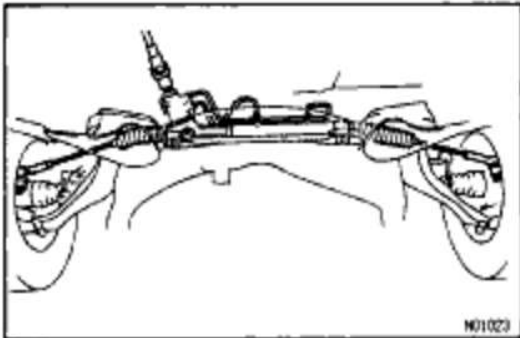
MA645-81

**CHASSIS****16. INSPECT STEERING LINKAGE**

(a) Check the steering wheel freeplay.

Maximum steering wheel freeplay:**30 mm (1.18 in.)**

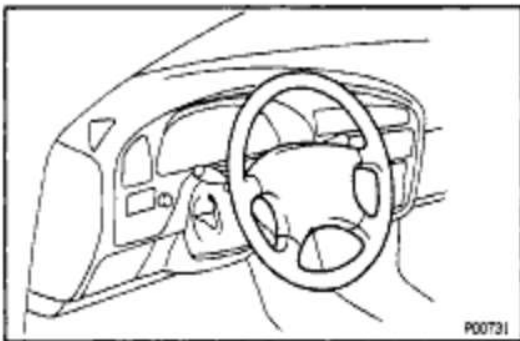
With the vehicle stopped and the front wheels pointing straight ahead, rock the steering wheel gently back and forth with light finger pressure.



(b) Check the steering linkage for looseness or damage.

Check that:

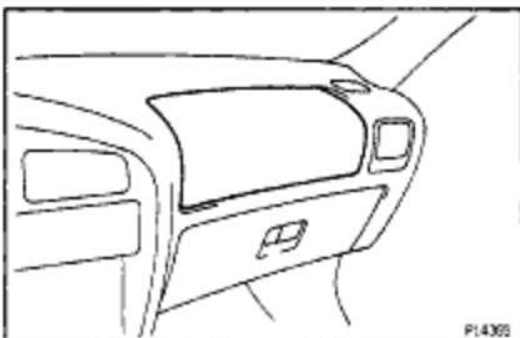
- Tie rod ends do not have excessive play.
- Dust seals and boots are not damaged.
- Boot clamps are not loose.

**17. INSPECT SRS AIRBAG****Driver Airbag:**

Visually inspect the steering wheel pad (airbag and inflator).

- Use the diagnosis check to check if there are abnormalities.
- Check that there are no cuts, cracks or noticeable color changes on the surface of the steering wheel pad or in the center groove of the pad.
- Remove the steering wheel pad from the vehicle and check the wiring and steering wheel for damage and corrosion due to rusting, etc.

If necessary, replace the steering wheel pad.

**Front Passenger Airbag:**

Visually inspect the front passenger airbag assembly (airbag and inflator).

- Use the diagnosis check to check if there are abnormalities.
- Check that there are no cuts, cracks or noticeable color changes in the front passenger airbag door.

- Remove the front passenger airbag assembly from the vehicle and check the wiring and front passenger airbag door for damage and corrosion due to rusting, etc.

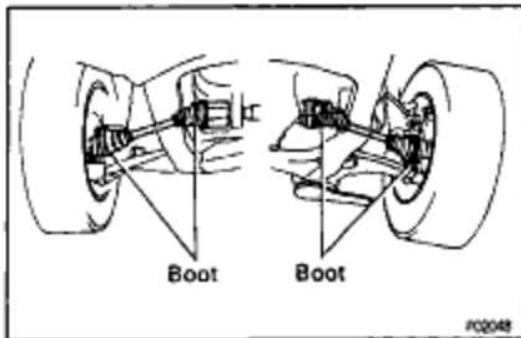
If necessary, replace the front passenger airbag assembly.

CAUTION:

- For removal and replacement of the steering wheel pad or front passenger airbag assembly, see page [RS-19](#) or 31 and be sure to perform the operation in the correct order.
- Before disposing of the steering wheel pad or front passenger airbag assembly, it must first be deployed by using SST (See page [RS-22](#) or 35).

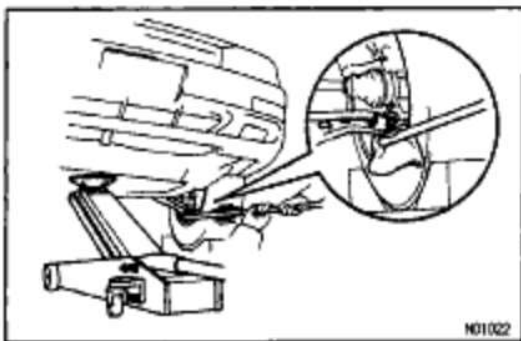
18. INSPECT STEERING GEAR HOUSING OIL

Check the steering gear housing for oil leakage.



19. INSPECT DRIVE SHAFT BOOTS

Check the drive shaft boots for clamp looseness, leakage or damage.



20. INSPECT BALL JOINTS AND DUST COVERS

(a) Inspect the ball joints for excessive looseness.

- Jack up the front of the vehicle and place wooden blocks with a height of 180–200 mm (7.09–7.87 in.) under the front tires.
- Lower the jack until there is about half a load on the front coil spring. Place stands under the vehicle for safety.
- Check that the front wheels are in a straight forward position, and block them with chocks.

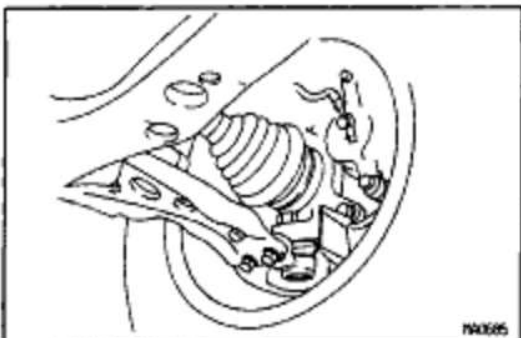
Using a lever, pry up the end of the lower arm, and check the amount of play.

Maximum ball joint vertical play:

0 mm (0 in.)

If there is play, replace the ball joint.

(b) Check the dust cover for damage.

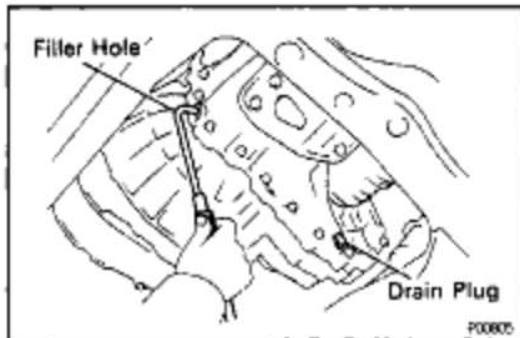


MA-14

MAINTENANCE – (5S-FE)

21. CHECK TRANSAXLE OIL (FLUID)

- (a) Visually check the transaxle for oil (fluid) leakage.
If leakage is found, check for the cause and repair.

**22. REPLACE TRANSAXLE OIL (FLUID)****A. M/T:****Replace transaxle oil**

- (a) Remove the filler and drain plugs, and drain the oil.
- (b) Reinstall the drain plug securely.
- (c) Add new oil until it begins to run out of the filler hole.

Recommended transaxle oil:**Oil grade API GL-3****Viscosity SAE 75W-90****Capacity:****2.6 liters (2.7 US qts, 2.3 Imp. qts)**

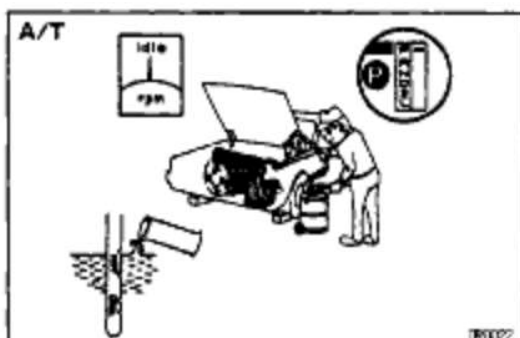
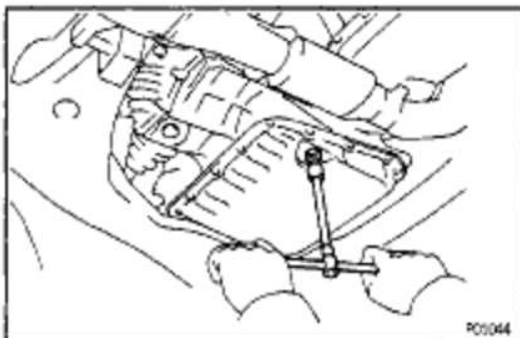
In case the above oil grade is unavailable, use type A or B.

Type A:**Oil grade API GL-4****Viscosity SAE 75W-90****Type B:****Oil grade API GL-5****Viscosity SAE 75W-90**

- (d) Reinstall the filler plug securely.

B. A/T:**Replace transaxle fluid****Transmission:**

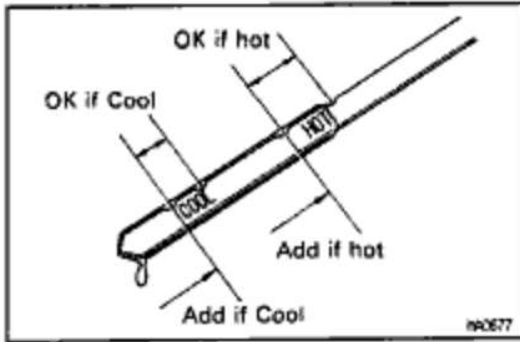
- (a) Using a 10 mm hexagon wrench, remove the drain plug and drain the fluid.
- (b) Reinstall the drain plug securely.



- (c) With the engine OFF, add new fluid through the dipstick tube.

Transmission fluid:**ATF DEXRON II****Drain and refill capacity:****2.5 liters (2.6 US qts, 2.2 Imp. qts)**

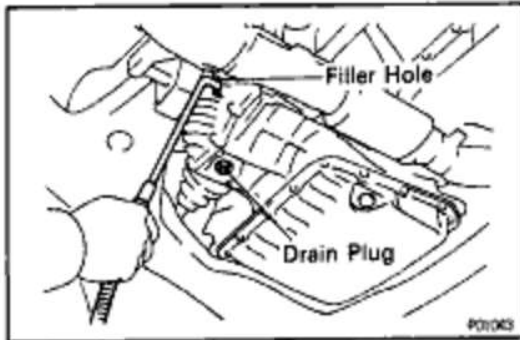
- (d) Start the engine and shift the selector into all positions from "P" through "L", and then shift into "P".



- (e) With the engine idling, check the fluid level. Add fluid up to the "COOL" level on the dipstick.

NOTICE: Do not overfill. The transmission and differential are separate units.

- (f) Recheck the fluid level at the normal operating temperature (70 – 80° C (158 – 176° F)) and add as necessary.



Differential:

- Remove the filler plug.
- Using a 10 mm hexagon wrench, remove the drain plug and drain the fluid.
- Reinstall the drain plug securely.
- Add new fluid until it begins to run out of the filler hole.

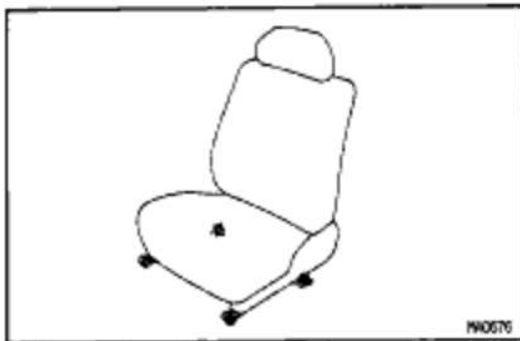
Differential fluid:

ATF DEXRON II

Capacity:

1.6 liters (1.7 US qts, 1.4 Imp. qts)

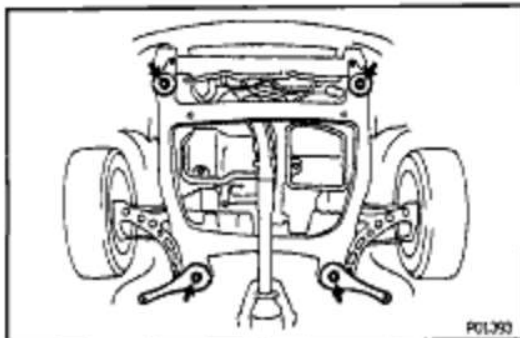
- (e) Reinstall the filler plug securely.



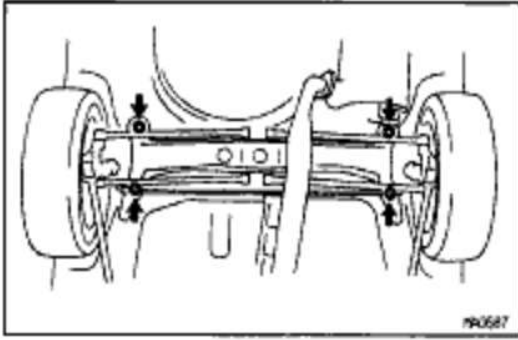
23. TIGHTEN BOLTS AND NUTS ON CHASSIS AND BODY

Tighten the following parts:

- Front seat mount bolts
Torque: 37 N-m (375 kgf-cm, 27 ft-lbf)



- Front suspension member-to-body mounting bolts
Torque: 181 N-m (1,850 kgf-cm, 134 ft-lbf)

MA-16**MAINTENANCE – (5S-FE)**

- Rear suspension member – to – body mounting nuts

Torque: 51 N·m (520 kgf·cm, 38 ft·lbf)

24. BODY INSPECTION

- (a) Check the body exterior for dents, scratches and rust.
- (b) Check the underbody for rust and damage.
If necessary, replace or repair.

25. ROAD TEST

- (a) Check the engine and chassis for abnormal noises.
- (b) Check that the vehicle does not wander or pull to one side.
- (c) Check that the brakes work properly and do not drag.

26. FINAL INSPECTION

- (a) Check the operation of the body parts:

Hood:

Auxiliary catch operates properly

Hood locks securely when closed

- Front and rear doors:

Door lock operates properly

Doors close properly

- Luggage compartment door and back door:

Door lock operates properly

Seats:

Seat adjusts easily and locks securely in any position

Front seat back locks securely in any position

Folding-down rear seat backs lock securely

- (b) Be sure to deliver a clean car. Especially check:

- Steering wheel
- Shift lever knob
- All switch knobs
- Door handles
- Seats

GENERAL MAINTENANCE

These are some maintenance and inspection items which are considered to be the owner's responsibility. They can be performed by the owner or he can have them done at a service shop. These items include those which should be checked on a daily basis, those which, in most cases, do not require (special) tools and those which are considered to be reasonable for the owner to perform. Items and procedures for general maintenance are as follows:

OUTSIDE VEHICLE

1. TIRES

- (a) Check the pressure with a gauge. Adjust if necessary.
- (b) Check for cuts, damage or excessive wear.

2. WHEEL NUTS

When checking the tires, check the nuts for looseness or for missing nuts. If necessary, tighten them.

3. TIRE ROTATION

It is recommended that tires be rotated every 12,000 km (7,500 miles).

4. WINDSHIELD WIPER BLADES

Check for wear or cracks whenever they do not wipe clean. Replace if necessary.

6. FLUID LEAKS

- (a) Check underneath for leaking fuel, oil, water or other fluid.
- (b) If you smell gasoline fumes or notice any leak, have the cause found and corrected.

6. DOORS AND ENGINE HOOD

- (a) Check that all doors including the trunk lid and back door operate smoothly, and that all latches lock securely.
- (b) Check that the engine hood secondary latch secures the hood from opening when the primary latch is released.

INSIDE VEHICLE

7. LIGHTS

- (a) Check that the headlights, stop lights, taillights, turn signal lights, and other lights are all working.
- (b) Check the headlight aim.

6. WARNING LIGHTS AND BUZZERS

Check that all warning lights and buzzers function properly.

9. HORN

Check that it is working.

10. WINDSHIELD GLASS

Check for scratches, pits or abrasions.

11. WINDSHIELD WIPER AND WASHER

- (a) Check operation of the wipers and washer.
- (b) Check that the wipers do not streak.

12. WINDSHIELD DEFROSTER

Check that the air comes out from the defroster outlet when operating the heater or air conditioner at defroster mode.

13. REAR VIEW MIRROR

Check that it is mounted securely.

14. SUN VISORS

Check that they more freely and mounted securely.

15. STEERING WHEEL

Check that it has the specified freeplay. Be alert for changes in steering condition, such as hard steering, excessive freeplay or strange noise.

16. SEATS

- (a) Check that all front seat controls such as seat adjusters, seatback recliner, etc. operate smoothly.
- (b) Check that all latches lock securely in any position.
- (c) Check that the locks hold securely in any latches position.
- (d) Check that the head restraints move up and down smoothly and that the locks hold securely in any latched position.
- (e) For folding-down rear seat backs, check that the latches lock securely.

17. SEAT BELTS

- (a) Check that the seat belt system such as buckles, retractors and anchors operate properly and smoothly.
- (b) Check that the belt webbing is not cut, frayed, worn or damaged.

18. ACCELERATOR PEDAL

Check the pedal for smooth operation and uneven pedal effort or catching.

19. CLUTCH PEDAL (See page CL-6)

Check the pedal for smooth operation. Check that the pedal has the proper freeplay.

MA-18**MAINTENANCE – (5S-FE)****20. BRAKE PEDAL (See page BR-8)**

- (a) Check the pedal for smooth operation.
- (b) Check that the pedal has the proper reserve distance and freeplay.
- (c) Check the brake booster function.

21. BRAKES

At a safe place, check that the brakes do not pull to one side when applied.

22. PARKING BRAKE (See page BR-10)

- (a) Check that the lever has the proper travel.
- (b) On a safe incline, check that the vehicle is held securely with only the parking brake applied.

23. AUTOMATIC TRANSMISSION PARK MECHANISM

- (a) Check that lock release button of the selector lever for proper and smooth operation.
- (b) On a safe incline, check that the vehicle is held securely with the selector lever in the "P" position and all brakes released.

29. ENGINE DRIVE BELTS

Check all drive belts for fraying, cracks, wear or oiliness.

30. ENGINE OIL LEVEL

Check the level on the dipstick with the engine turned off.

31. POWER STEERING FLUID LEVEL

Check the level.

The level should be in the "HOT" or "COLD" range depending on the fluid temperature.

32. AUTOMATIC TRANSMISSION FLUID LEVEL

- (a) Park the vehicle on a level surface.
- (b) With the engine idling and the parking brake applied, shift the selector into all positions from "P" to "L" and then shift into "P".
- (c) Pull out the dipstick and wipe off the fluid with a clean rag. Re-insert the dipstick and check that the fluid level is in the HOT range.
- (d) Perform this check with the fluid at normal driving temperature (70 – 80°C or 158 – 176°F).

NOTE: Wait about 30 minutes before checking the fluid level after extended driving at high speeds in hot weather, driving in heavy traffic or with a trailer.

33. EXHAUST SYSTEM

Visually inspect for cracks, holes or loose supports.

If any change in the sound of the exhaust or smell of the exhaust fumes is noticed, have the cause located and corrected.

UNDER HOOD**24. WINDSHIELD WASHER FLUID**

Check that there is sufficient fluid in the tank.

25. ENGINE COOLANT LEVEL

Check that the coolant level is between the "FULL" and "LOW" lines on the see-through reservoir.

28. RADIATOR AND HOSES

- (a) Check that the front of the radiator is clean and not blocked with leaves, dirt or bugs.
- (b) Check the hoses for cracks, kinks, rot or loose connections.

27. BATTERY ELECTROLYTE LEVEL

Check that the electrolyte level of all battery cells is between the upper and lower level lines on the case. If level low, add distilled water only.

28. BRAKE AND CLUTCH FLUID LEVELS

- (a) Check that the brake fluid level is near the upper level line on the see-through reservoir.
- (b) Check that the clutch fluid level is within ± 5 mm (0.20 in.) of the reservoir filling line.

SERVICE SPECIFICATIONS

MAINT-92

SERVICE DATA

Drive belt tension			
Generator (w/ A/C)	New belt		175 ± 5 lbf
Generator (w/ A/C)	Used belt		130 ± 10 lbf
Generator (w/o A/C)	New belt		125 ± 25 lbf
Generator (w/o A/C)	Use belt		95 ± 20 lbf
PS pump	New belt		125 ± 25 lbf
PS pump	Used belt		80 ± 20 lbf
Spark plug	Recommended spark plug	ND	PK20R11
Spark plug	Recommended spark plug	NGK	BKR6EP11
Spark plug	Correct electrode gap		1.1 mm (0.043 in.)
Firing order			1 - 3 - 4 - 2
Valve clearance	Intake		0.19 - 0.29 mm (0.007 - 0.011 in.)
Valve clearance	Exhaust		0.28 - 0.38 mm (0.011 - 0.015 in.)
Front and rear brake			
Pad thickness			Minimum 1.0 mm (0.039 in.)
Disc thickness	Front	Minimum	26.0 mm (1.024 in.)
Disc thickness	Rear	Minimum	9.0 mm (0.354 in.)
Disc runout	Front	Maximum	0.05 mm (0.0020 in.)
Disc runout	Rear	Maximum	0.15 mm (0.0059 in.)
Parking brake			
Lining thickness			Minimum 1.0 mm (0.039 in.)
Drum inside diameter	Drum brake	Maximum	230.6 mm (9.079 in.)
Drum inside diameter	Disc brake	Maximum	171.0 mm (6.732 in.)
Front axle and suspension			
Ball joint vertical play	Maximum		0 mm (0 in.)
Steering wheel freeplay	Maximum		30 mm (1.18 in.) or less

MAINT-92

TORQUE SPECIFICATIONS

Part tightened	N-m	kgf-cm	ft-lbf
Front seat mounting bolts	37	375	27
Front suspension member x Body	181	1,850	134
Rear suspension member x Body	51	520	38

MA-20

MAINTENANCE - (5S-FE)

(1MZ-FE)

MAINTENANCE SCHEDULE

MA001-02

SCHEDULE A

CONDITIONS:

- Towing a trailer, using a camper or car top carrier.
- Repeated short trips of less than 8 km (5 miles) with outside temperature remaining below freezing.
- Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use.
- Operating on dusty, rough, muddy or salt spread roads.

Maintenance operation: A = Check and adjust if necessary.

R = Replace, change or lubricate.

I = Inspect and correct or replace if necessary.

System	Maintenance items	Maintenance services beyond 98,000 km (60,000 miles) should continue to be performed at the same intervals shown for each maintenance schedule.																Month=	See page (item No.)
		x 1,000 km	0	12	18	24	30	36	42	48	54	60	66	72	78	84	90		
		x 1,000 miles	3.75	7.5	11.25	15	18.75	22.5	26.25	30	33.75	37.5	41.25	45	48.75	52.5	56.25		
ENGINE	Timing belt (1)																	R	MA-24 (item 1)
	valve clearance																	A	A: Even 72 month: MA-29 (item 12)
	Drive belt																		MA-24 (item 2)
	Engine oil and oil filter*		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R: Every 6 months MA-27 (item 6)
	Engine coolant																		MA-27 (item 7)
	Exhaust pipe* and mountings				I													I	1: Every 24 months MA-29 (item 11)
FUEL	Air filter ^ty*		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	1: Every 6 months MA-25 (item 3, 4) R: Every 36 month: MA-29 (item 10)
	Fuel lines and connections (3)																		I: Every 36 months MA-29 (item 10)
	Fuel tank cap gasket																	R	R: Even 72 months MA-28 (item 9)
IGNITION	Spark plugs (Platinum tipped type)																	R	R: Every 72 month: MA-25 (item 5)
EVAP	Charcoal canister (4)																	I	I: Every 72 month: MA-28 (item 8)
BRAKES	Brake linings and drums (6)		I		I		I		I		I		I		I		I	I	I: Every 12 months MA-30 (item 15)
	Brake pads and discs (Front and rev)		I		I		I		I		I		I		I		I	I	I: Even 12 months MA-30 (item 14)
	Brake line pipes and hoses				I				I				I					I	I: Every 24 month: MA-29 (item 13)
CHASSIS	Steering linkage		I		I		I		I		I		I		I		I	I	I: Every 12 months MA-31 (item 16)
	SRS ahbap																		I: First period 10 years. I: After that every 2 years. MA-22 (item 17)
	BaII joints and dust covtr:		I		I		I		I		I		I		I		I	I	I: Every 12 months MA-33 (item 20)
	Drive shaft boots		I		I		I		I		I		I		I		I	I	I: Ev.y 12 months MA-32 (item 19)
	Automatic transmission and differential oil				R				R				R				R	R	R: Every 24 months MA-33 (item 22)
	Steering gear housing oil (6)				I				I				I				I	I	I: Even 24 month: MA-32 (item 18)
	Bob and nuts on chassis and body (7)		I		I		I		I		I		I		I		I	I	I: Every 12 months MA-34 (item 23)

V00014

MAINTENANCE – (1MZ-FE)

2 .mark indicates maintenance which is part of the warranty conditions for the Emission Control Systems. The warranty period is in accordance with the owner's guide or the warranty booklet.

(2 : California and New York specification vehicles)

(1) Applicable to vehicles operated under conditions of extensive idling and/or low speed driving for long distances such as police, taxi or door-to-door delivery use.

(2) Applicable when operating mainly on dusty roads. If not, apply SCHEDULE B.

(3) Includes inspection of fuel tank band and vapor vent system.

(4) Non –maintenance item except for California and New York.

(5) Also applicable to drum lining for parking brake. For other usage conditions, refer to SCHEDULE B.

(6) Check for oil leaks from steering gear housing.

(7) Applicable only when operating mainly on rough, muddy roads. The applicable parts are listed below. For other usage conditions, refer to SCHEDULE B.

- Front and rear suspension member to cross body.
- Strut bar bracket to body.
- Bolts for seat installation.

MA-22

MAINTENANCE - (1MZ-FE)

MAINT-22

SCHEDULE B

CONDITIONS:

Conditions others than those listed for SCHEDULE A.

Maintenance operation: A = Check and adjust if necessary.

R = Replace, change or lubricate.

I = Inspect and correct or replace if necessary.

system	Service interval (Use odometer reading or months, whichever comes first)	Maintenance services beyond 98,000 km (84,000 mile:) should continue to be performed at the same intervals shown for each maintenance schedule.										See page (item No.)
		1,000 km	12	24	36	48	60	72	84	96	Months	
	Maintenance Items	1,000 miles	7.5	15	22.6	30	37.5	45	52.5	60		
ENGINE	Valve clearance									A	A: Every 72 months	MA-29 (item 12)
	Drive belt										I: First period 98,000 km (60,000 miles) or 72 months. I: After that every 12,000 km (7,600 miles) or 12 months.	MA-24 (item 2)
	Engine oil and oil filter*										R: Every 12 months	MA-27 (item 6)
	Engine coolant										R: First period 72,000 km (46,000 miles) or 36 months. R: After that every 48,000 km (30,000 miles) or 24 months.	MA-27 (item 7)
	Exhaust pipes and mountings					I				I	I: Every 36 months.	MA-24 (item 11)
FUEL	nk filter*										R: Every 36 months	MA-25 (item 4)
	Fuel lines and connections (1)										I: Every 36 months	MA-29 (item 10)
	Fuel tank cap gasket										R: Every 72 months	MA-28 (item 9)
IGNITION	spark plugs (Platinum tipped type)										R: Every 72 months	MA-25 (item 5)
EVAP	Charcoal canister (2)										I: Every 72 months	MA-28 (item 8)
BRAKES	Brake linings and drums (3)			I		I		I		I	I: Every 24 months	MA-30 (item 15)
	Brake pads and disc (Front and rear)			I		I		I		I	I: Every 24 months	MA-30 (item 14)
	Stake line pipes and hoses			I		I		I		I	I: Every 24 months	MA-29 (item 13)
CHASSIS	Steering linkage			I		I		I		I	I: Every 24 months	MA-31 (item 16)
											I: First period 10 years. I: After that every 2 years.	MA-31 (item 17)
	Ball Joint and dust covers			I		I		I		I	I: Every 24 month:	MA-33 (item 20)
	Drive shaft boots			I		I		I		I	I: Every 24 months	MA-32 (item 19)
	Automatic transmission and differential oil (4)			I		I		I		I	I: Every 24 months	MA-33 (item 22)
	Steering gear housing oil (6)			I		I		I		I	I: Every 24 months	MA-32 (item 18)
	Bolts and nuts on chassis end body (6)										I: Every 24 months	MA-34 (item 23)

V046

* mark indicates maintenance which is part of the warranty conditions for the Emission Control Systems. The warranty period is in accordance with the owner's guide or the warranty booklet.
(*: California and New York specification vehicles)

- (1) Includes inspection of fuel tank band and vapor vent system.
- (2) Non-maintenance item except for California and New York.
- (3) Also applicable to drum lining for parking brake.
- (4) Check for leakage.
- (5) Check for oil leaks from steering gear housing.
- (6) The applicable parts are listed below.

Front and rear suspension member to cross body.

Strut bar bracket to body.

Bolts for seat installation.

PREPARATION EQUIPMENT

MAINT-91

Belt tension gauge	
Dial indicator with magnetic base	
Micrometer	
Mirror	Brake hose
Steel square	
Thermometer	
Torque wrench	
Vernier calipers	

COOLANT

MAINT-94

Item	Capacity	Classification
Engine coolant	8.7 liters (9.2 US qts. 7.7 Imp. qts)	Ethylene-glycol base

MAINT-95

LUBRICANT

Item	Capacity	Classification
Engine oil Drain and refill w/ Oil filter change w/o Oil filter change	4.7 liters (5.0 US qts, 4.1 Imp. qts) 4.5 liters (4.8 US qts, 4.0 Imp. qts)	API grade SG or SH, Energy –Conserving II or ILSAC multigrade and recommended viscosity oil with SAE bW-30 being the preferred engine oil
Automatic transaxle fluid Drain and refill	3.5 liters (3.7 US qts, 3.1 Imp. qts)	ATF DEXRON II
Differential fluid	0.95 liters (1.0 US qts, 0.8 Imp. qts)	ATF DEXRON II

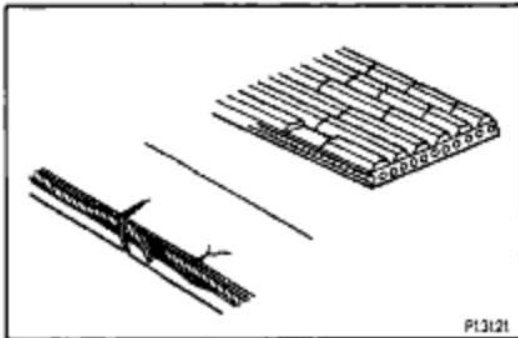
MAINTENANCE OPERATIONS

MAINT-01

Cold Engine Operations

1. REPLACE TIMING BELT

- (a) Remove the timing belt.
(See page [EG-41](#))
- (b) Install the timing belt.
(See page [EG-49](#))

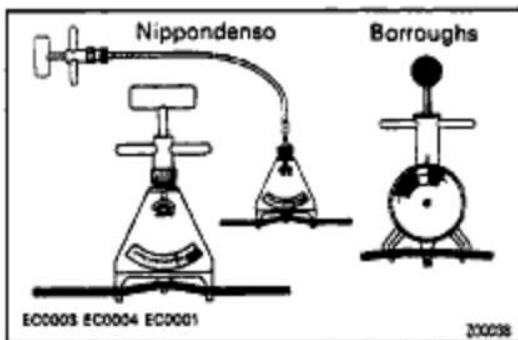


2. INSPECT DRIVE BELT

- (a) Visually check the belt for excessive wear, frayed cords etc.

If necessary, replace the drive belt.

HINT: Cracks on the rib side of a belt are considered acceptable. If the belt has chunks missing from the ribs, it should be replaced.



- (b) Using a belt tension gauge, measure the drive belt tension.

Belt tension gauge:

Nippondenso BTG-20 (95508-00020)

Borroughs No. BT-33-73F

Drive belt tension:

Generator

New belt

175 ± 5 lbf

Used belt

115 ± 20 lbf

PS pump

New belt

150 – 185 lbf

Used belt

115 ± 20 lbf

If necessary, adjust the drive belt tension.

HINT:

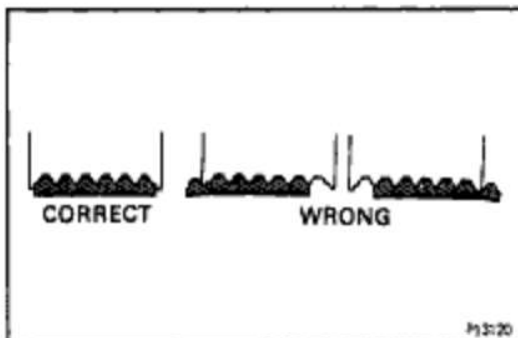
“New belt” refers to a belt which has been used 5 minutes or less on a running engine.

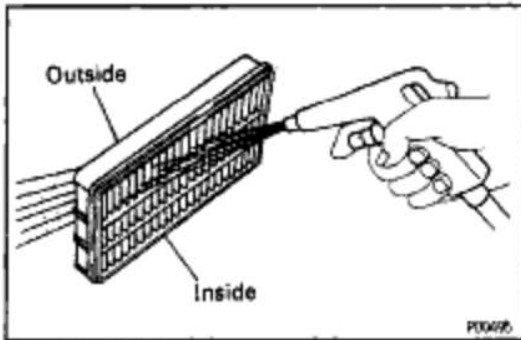
“Used belt” refers to a belt which has been used on a running engine for 5 minutes or more.

After installing the belt, check that it fits properly in the ribbed grooves.

Check by hand to confirm that the belt has not slipped out of the groove on the bottom of the pulley.

After installing a new belt, run the engine for about 5 minutes and recheck the belt tension.

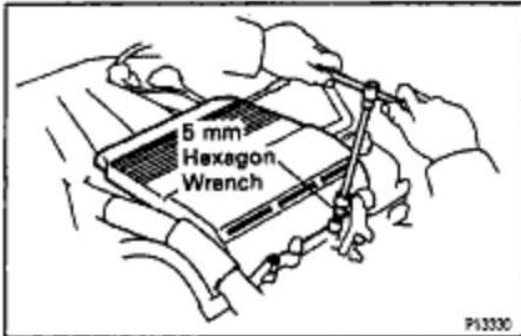


**3. INSPECT AIR FILTER**

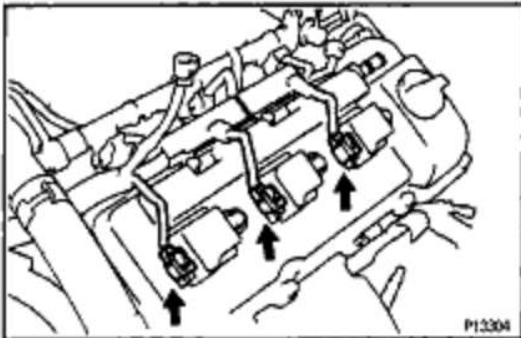
- (a) Visually check that the air filter is not excessively damaged or oily.
- (b) Clean the element with compressed air.
First blow from the inside thoroughly, then blow off the outside of the air filter.

4. REPLACE AIR FILTER

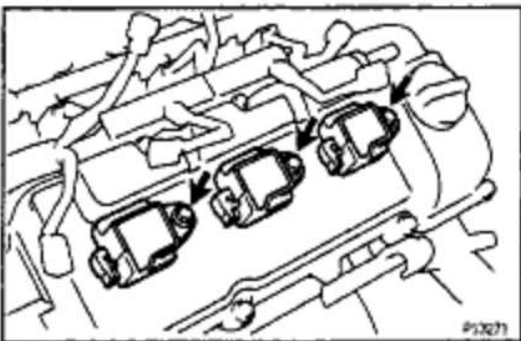
Replace the air filter with a new one.

**5. REPLACE SPARK PLUGS**

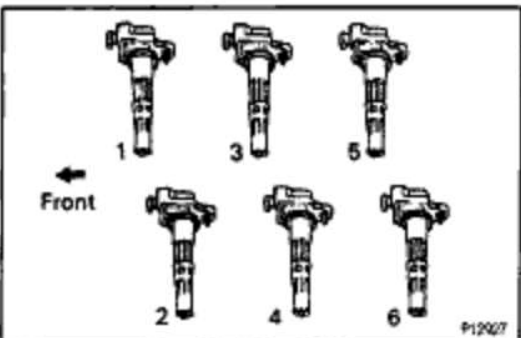
- (a) Using a 5 mm hexagon wrench, remove the 2 nuts and V-bank cover.



- (b) Disconnect the 6 ignition coil connectors from the RH and LH cylinder heads.



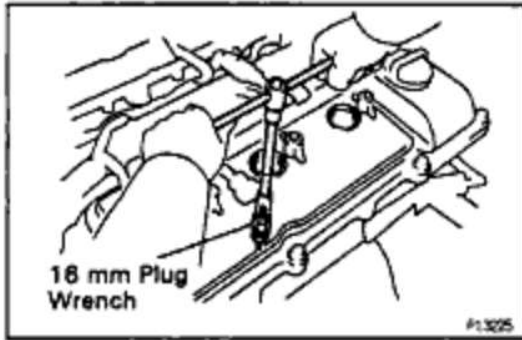
- (c) Remove the 6 bolts and 6 ignition coils from the RH and LH cylinder heads.



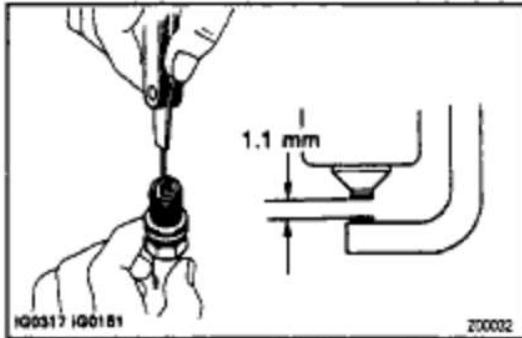
HINT: Arrange the ignition coils in the correct order.

MA-26

MAINTENANCE – (1MZ-FE)



- (e) Using a 16 mm plug wrench, remove the 6 spark plugs from the RH and LH cylinder heads.



- (f) Check the electrode gap of new spark plugs.

Correct electrode gap:

1.1 mm (0.043 in.)

Recommended spark plugs:

PKZOR11 for ND

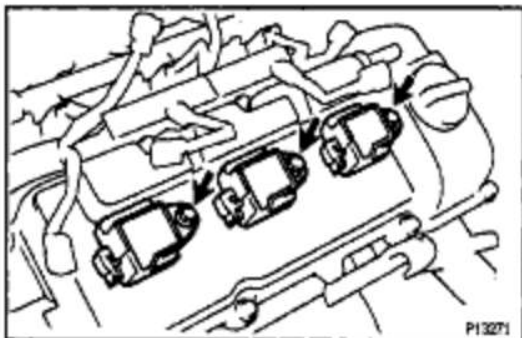
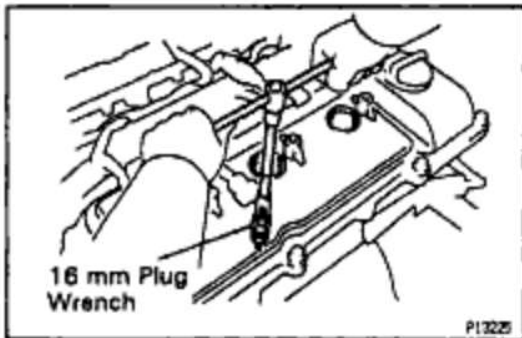
BKR6EP-11 for NGK

NOTICE: If adjusting the gap of a new plug, bend only the base of the ground electrode. **DO NOT** touch the tip.

Never attempt to adjust the gap on a used plug.

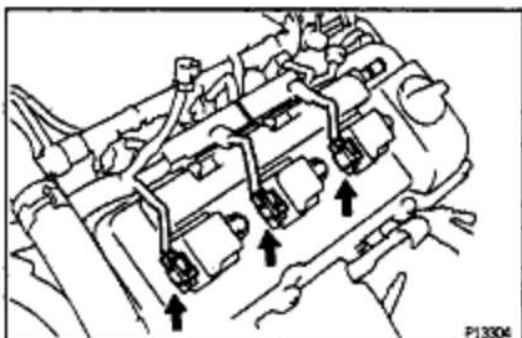
- (g) Using a 16 mm plug wrench, reinstall the 6 spark plugs.

Torque: 18 N-m (180 kgf.cm, 13 ft-lbf)

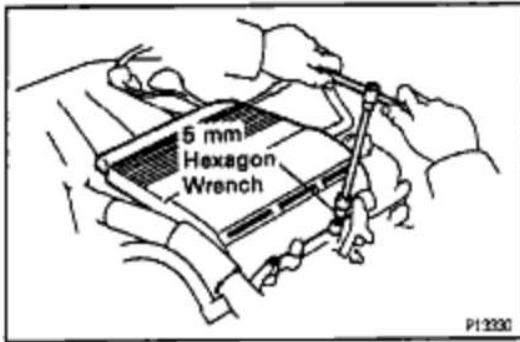


- (h) Reinstall the 6 ignition coil with the 6 bolts.

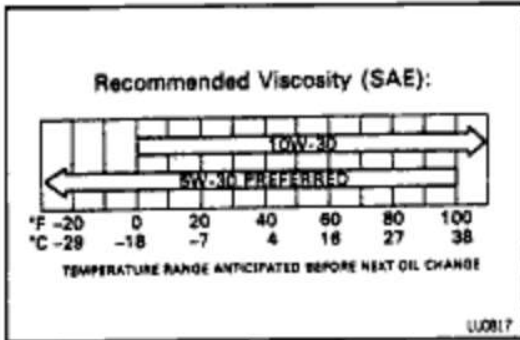
Torque: 8 N-m (80 kgf-cm, 89 in.-lbf)



- (i) Reconnect the 6 ignition coil connectors.



- (j) Using a 5 mm hexagon wrench, reinstall the V-bank cover with the 2 nuts.



6. REPLACE ENGINE OIL AND OIL FILTER

(See page [EG-372](#))

Oil grade:

API grade SG or SH, Energy-Conserving II or ILSAC multigrade engine oil. Recommended viscosity is as shown in the Illustration with SAE 5W-30 being the preferred engine oil.

Capacity:

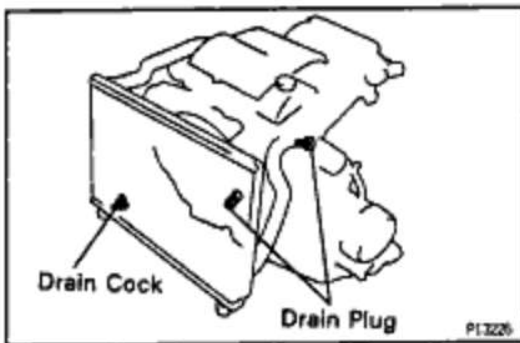
Drain and refill

w/ Oil filter change

4.7 liters (5.0 US qts, 4.1 Imp. qts)

w/o Oil filter change

4.5 liters (4.8 US qts, 4.0 Imp. qts)



7. REPLACE ENGINE COOLANT

(See page [EG-319](#))

HINT:

- Use a good brand of ethylene-glycol base engine coolant and mix it according to the manufacturer's instructions.
- Using engine coolant which includes more than 5096 ethylene-glycol (but not more than 7096) is recommended.

NOTICE:

Do not use alcohol type coolant.

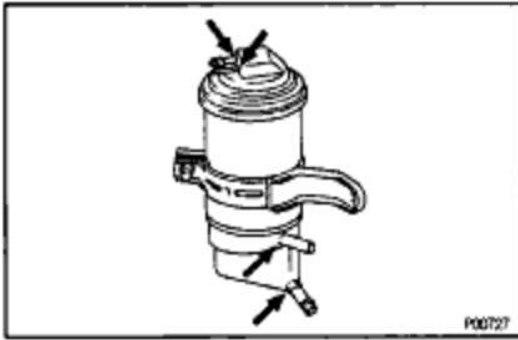
The engine coolant should be mixed with demineralized water or distilled water.

Capacity:

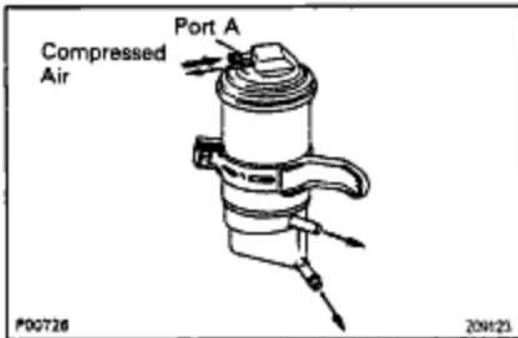
8.7 liters (9.2 US qts, 7.7 Imp. qts)

MA-28

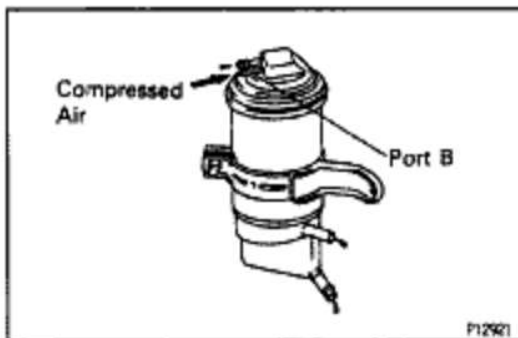
MAINTENANCE – (1MZ-FE)

**8. INSPECT CHARCOAL CANISTER**

(a) Visually inspect the canister case.

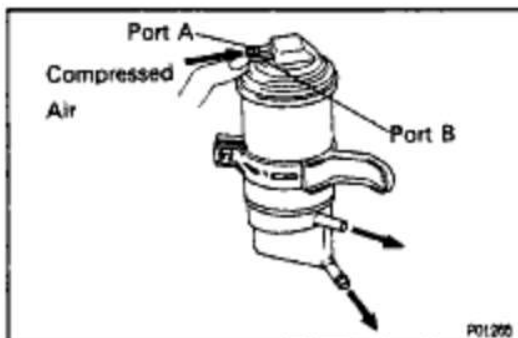


(b) Check for clogged filter and stuck check valve.
Blow low pressure compressed air (4.71 kPa, 48 gf/cm², 0.68 psi) into port A and check that air flows without resistance from the other ports.



- Blow low pressure compressed air (4.71 kPa, 48 gf/cm², 0.68 psi) into port B and check that air does not flow from the other ports.

If a problem is found, replace the charcoal canister.

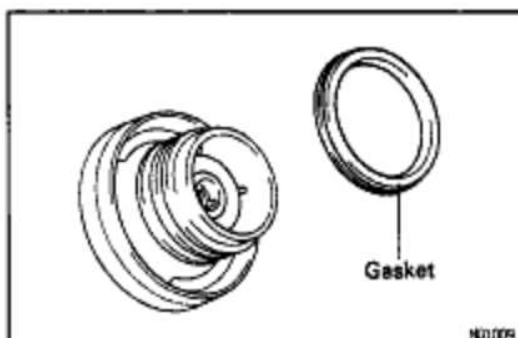


(c) Clean filter in canister.

Clean the filter by blowing 294 kPa (3 kgf/cm², 43 psi) of compressed air into port A while holding port B closed.

NOTICE:

- **Do not attempt to wash the canister.**
- **No activated carbon should come out.**

**9. REPLACE GASKET IN FUEL TANK CAP**

(a) Remove the old gasket from the tank cap. Do not damage the cap.

(b) Install a new gasket by hand.

(c) Check the cap for damage or cracks.

(d) Install the cap and check the torque limiter.

10. INSPECT FUEL LINES AND CONNECTIONS

Visually check the fuel lines for cracks, leakage, loose connections, deformation or tank band looseness.

11. INSPECT EXHAUST PIPES AND MOUNTINGS

Visually check the pipes, hangers and connections for severe corrosion, leaks or damage.

12. ADJUST VALVE CLEARANCE

(See page EG -13)

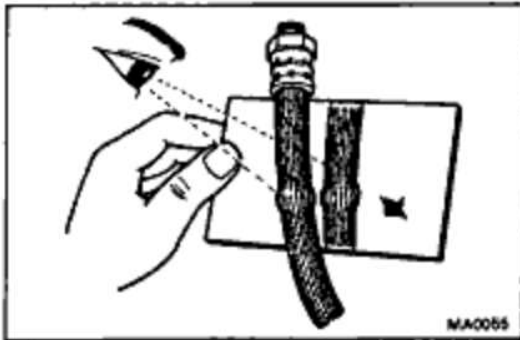
Valve clearance (Cold):

Intake

0.15 – 0.25 mm (0.006 – 0.010 in.)

Exhaust

0.25 – 0.35 mm (0.010 – 0.014 in.)

**BRAKES****13. INSPECT BRAKE LINE PIPES AND HOSES**

MA0056

HINT: Check in a well lighted area. Check the entire circumference and length of the brake hoses using a mirror as required. Turn the front wheels fully right or left before checking the front brake.

(a) Check all brake lines and hoses for:

- Damage
- Wear
- Deformation
- Cracks
- Corrosion
- Leaks
- Bends
- Twists

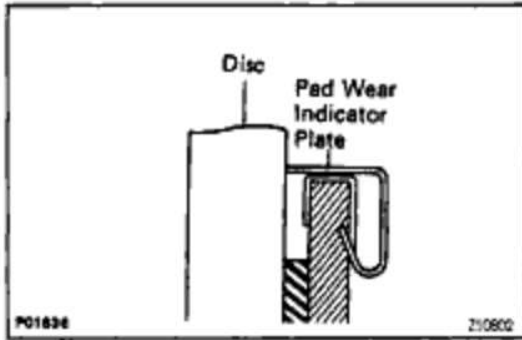
- (b) Check all clamps for tightness and connections for leakage.

(c) Check that the hoses and lines are clear of sharp edges, moving parts and the exhaust system.

(d) Check that the lines installed in grommets pass through the center of the grommets.

MA-30

MAINTENANCE – (1MZ-FE)



14. INSPECT FRONT AND REAR BRAKE PADS AND DISCS

(See BR section)

- (a) Check the thickness of the disc brake pads and check for irregular wear.

Minimum pad thickness:
1.0 mm (0.039 in.)

HINT: If a squealing or scraping noise comes from the brake during driving, check the pad wear indicator to see if it is contacting the disc. If so, the disc pad should be replaced.

- (b) Check the disc for wear or runout.

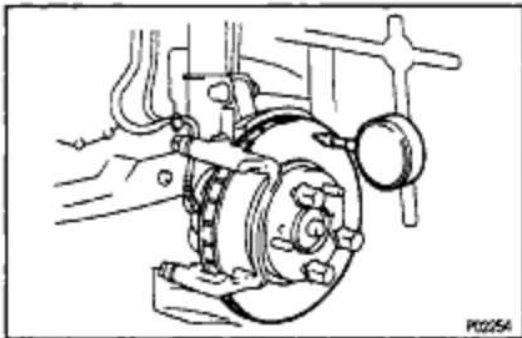
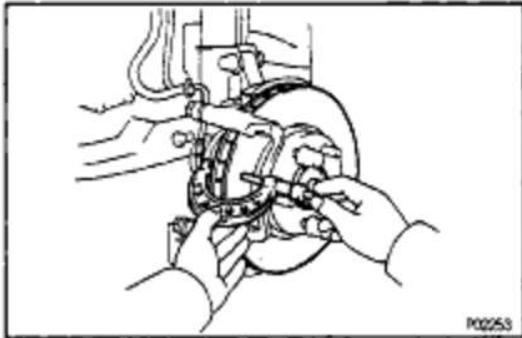
Minimum disc thickness:

Front

26.0 mm (1.024 in.)

Rear

9.0 mm (0.354 in.)



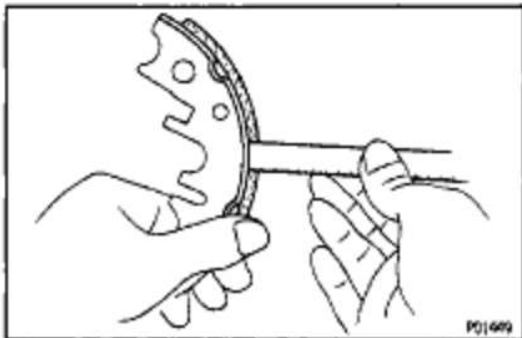
Maximum disc runout:

Front

0.05 mm (0.0020 in.)

Rear

0.15 mm (0.0059 in.)

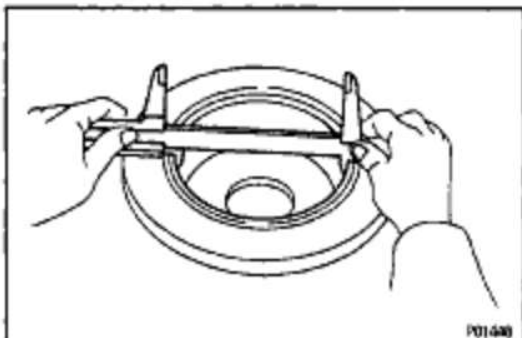


15. INSPECT PARKING BRAKE LININGS AND DRUMS

(See BR section)

- (a) Check the lining – to – drum contact condition and lining wear.

Minimum lining thickness:
1.0 mm (0.0039 in.)



- (b) Check the brake drums for scoring or wear.

Maximum drum inside diameter:

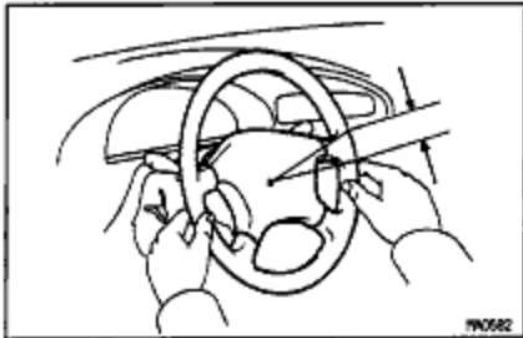
171.0 mm (8.732 in.)

- (c) Clean the brake parts with a damp cloth.

NOTICE: Do not use compressed air to clean the brake parts.

(d) Settle the parking brake shoes and drum. When performing the road test in item 24, do the following:

- Drive the vehicle at approx. 50 km/h (30 mph) on a safe, level and dry road.
- Center lever type parking brake:
With the parking brake release knob pushed in, pull on the lever with 88 N (9 kgf, 20 lbf) of force.
- Pedal type parking brake:
Depress the pedal with 147 N (15 kgf, 33 lbf) of force.
- Drive the vehicle for approx. 400 m (1 /4 mile) in this condition.
- Repeat this procedure 2 or 3 times.
Check parking lever travel.



CHASSIS

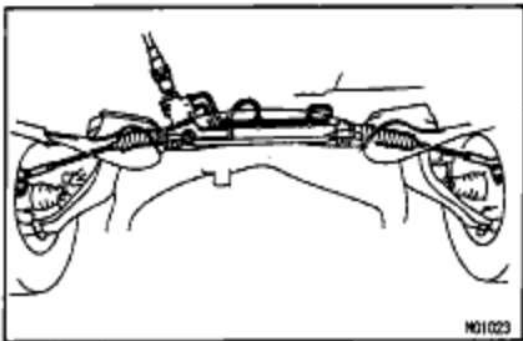
16. INSPECT STEERING LINKAGE

(a) Check the steering wheel freeplay.

Maximum steering wheel freeplay:

30 mm (1.18 in.)

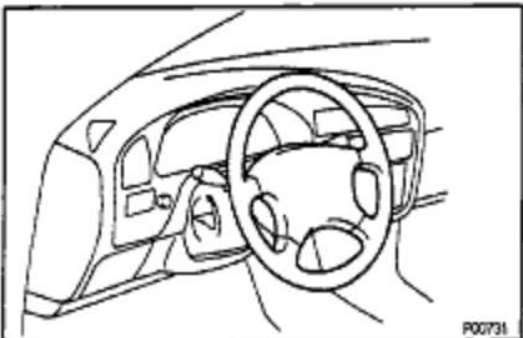
With the vehicle stopped and pointed straight ahead, rock the steering wheel gently back and forth with light finger pressure.



(b) Check the steering linkage for looseness or damage.

Check that:

- Tie rod ends do not have excessive play.
- Dust seals and boots are not damaged.
- Boot clamps are not loose.



17. INSPECT SRS AIRBAG

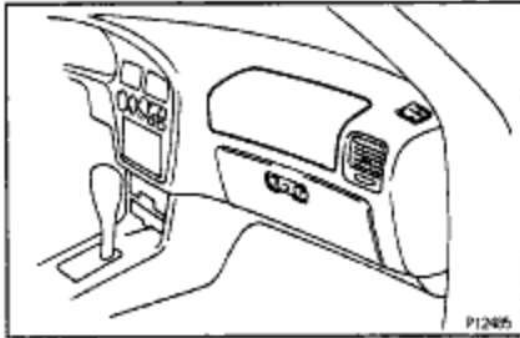
Driver Airbag:

Visually inspect the steering wheel pad (airbag and inflator).

- Use the diagnosis check to check if there are abnormalities.
- Check that there are no cuts, cracks or noticeable color changes on the surface of the steering wheel pad or in the center groove of the pad.

MA-32**MAINTENANCE – (1MZ-FE)**

Remove the steering wheel pad from the vehicle and check the wiring and steering wheel for damage and corrosion due to rusting, etc. If necessary, replace the steering wheel pad.

**Front Passenger Airbag:**

Visually inspect the front passenger airbag assembly (airbag and inflator).

- Use the diagnosis check to check if there are abnormalities.
- Check that there are no cuts, cracks or noticeable color changes in the front passenger airbag door.
- Remove the front passenger airbag assembly from the vehicle and check the wiring and front passenger airbag door for damage and corrosion due to rusting, etc.

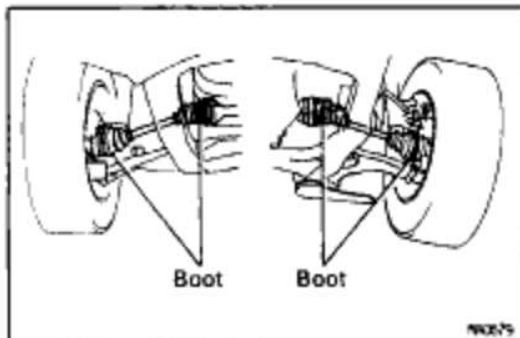
If necessary, replace the front passenger airbag assembly.

CAUTION:

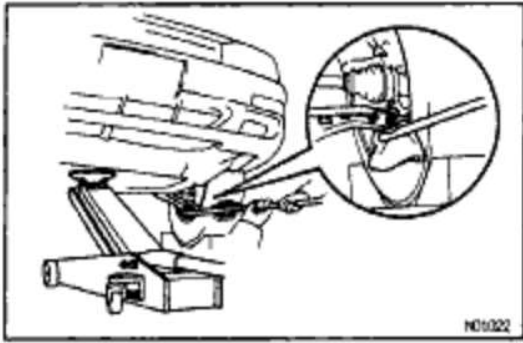
- For removal and replacement of the steering wheel pad or front passenger airbag assembly, see page RS section and be sure to perform the operation in the correct order.
- Before disposing of the steering wheel pad or front passenger airbag assembly the airbag must first be deployed by using SST (See page RS section).

18. INSPECT STEERING GEAR HOUSING OIL

Check the steering gear housing for oil leakage.

**19. INSPECT DRIVE SHAFT BOOTS**

Check the drive shaft boots for clamp looseness, grease leakage or damage.



20. INSPECT BALL JOINTS AND DUST COVERS

(a) Inspect the ball joints for excessive looseness.

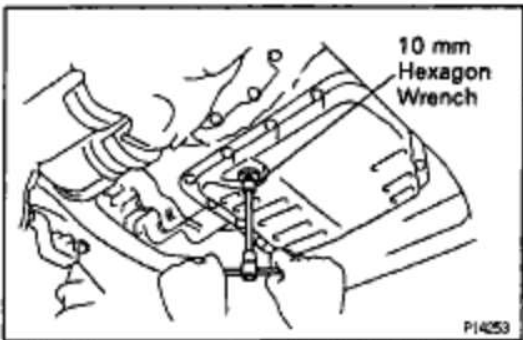
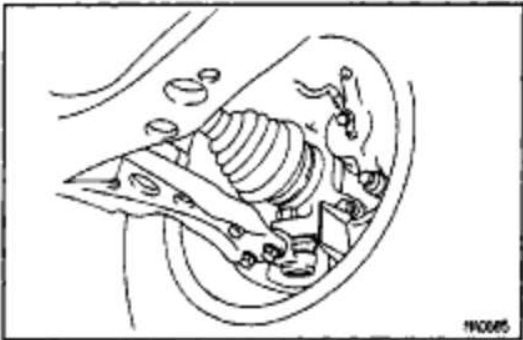
- Jack up the front of the vehicle and place wooden blocks with a height of 180–200 mm (7.09–7.87 in.) under the front tires.
- Lower the jack until there is about half a load on the front coil springs. Place stands under the vehicle for safety.
- Check that the front wheels are in a straight forward position, and block them with chocks.
- Using a lever, pry up the end of the lower arm, and check the amount of play.

Maximum ball joint vertical play:

0 mm (0 in.)

If there is play, replace the ball joint.

(b) Check the dust cover for damage.



21. CHECK TRANSAXLE FLUID

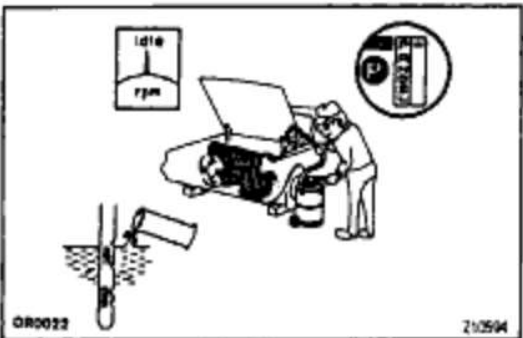
Visually check the transaxle for fluid leakage.

If leakage is found, check for cause and repair.

22. REPLACE TRANSAXLE FLUID

A. Replace transaxle (transmission) fluid

- Using a 10 mm hexagon wrench, remove the drain plug and drain the fluid.
- Reinstall the drain plug securely.



- With the engine OFF, add new fluid through the dipstick tube.

Transaxle fluid:

ATF DEXRON II

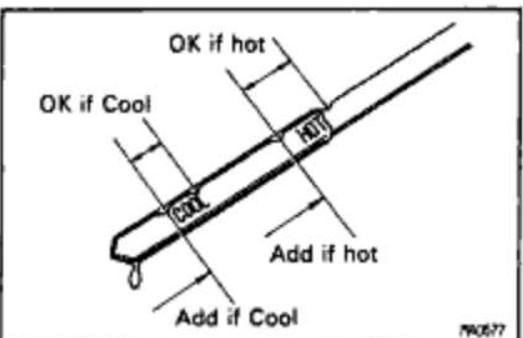
Drain and refill capacity:

3.5 liters (3.7 US qts, 3.1 Imp. qts)

- Start the engine and shift the selector into all positions from "P" through "L", and then shift into "P".
- With the engine idling, check the fluid level. Add fluid up to the "COOL" level on the dipstick.

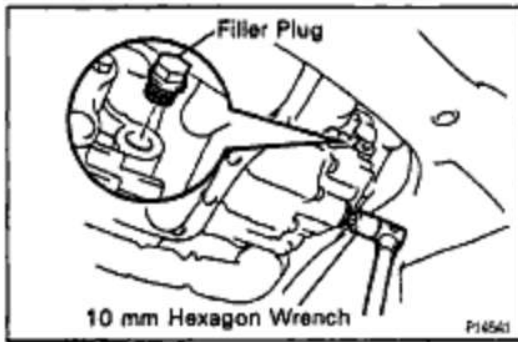
NOTICE: Do not overfill. The transmission and differential are separate units.

- Recheck the fluid level at the normal operating temperature (70 – 80°C (158 – 176°F)) and add as necessary.

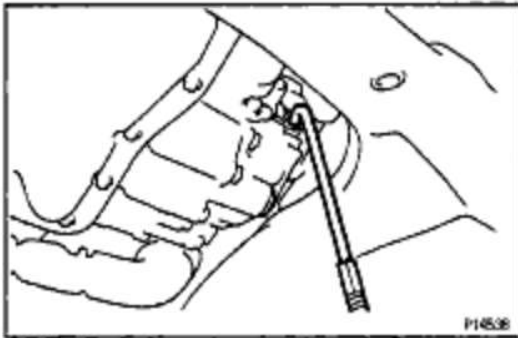


MA-34

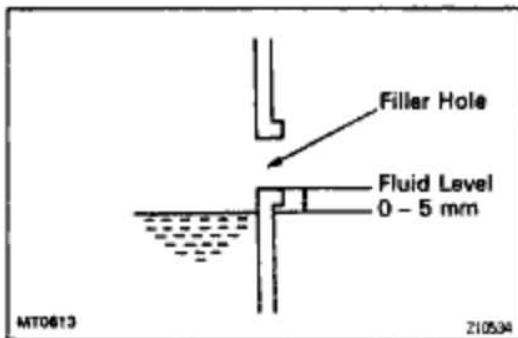
MAINTENANCE – (1MZ-FE)

**B. Replace differential fluid**

- (a) Remove the filler plug.
- (b) Using a 10 mm hexagon wrench, remove the drain plug and drain the fluid.
- (c) Using a 10 mm hexagon wrench, install the drain plug securely.



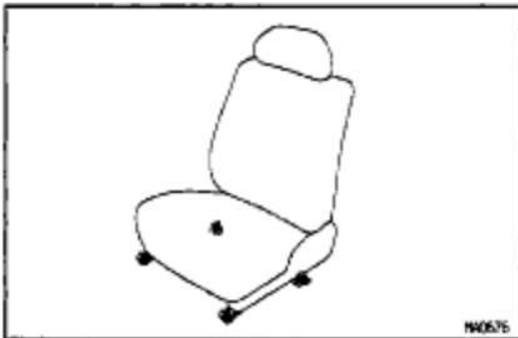
- (d) Add new fluid until it begins to run out of the filler hole.



- (e) Check that the fluid comes to within 5 mm (0.20 in.) of the bottom edge of the filler hole.

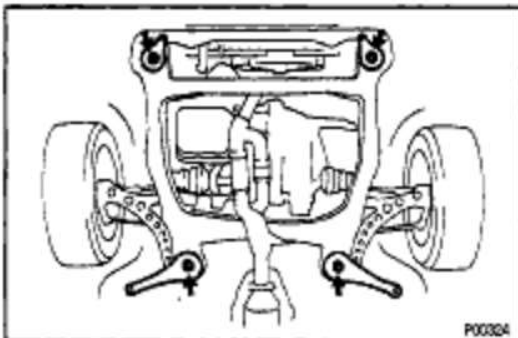
Fluid type:**ATF DEXRON II****Capacity:****0.95 liters (1.0 US qts, 0.8 Imp. qts)**

- (f) Reinstall the filler plug securely.

**23. TIGHTEN BOLTS AND NUTS ON CHASSIS AND BODY**

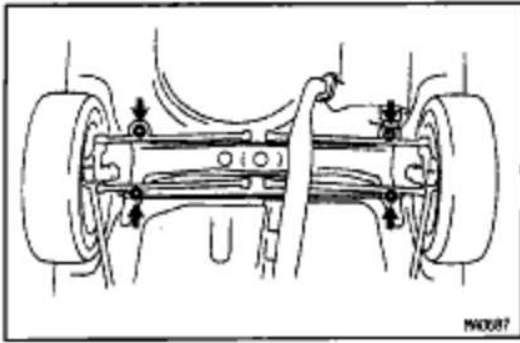
Tighten the following parts:

- Front seat mount bolts

Torque: 37 N-m (375 kgf-cm, 27 ft-lbf)

- Front suspension member –to body mounting bolts

Torque: 181 N-m (1,850 kgf-cm, 134 ft-lbf)



- Rear suspension member-to-body mounting nuts
Torque: 51 N-m (520 kgf-cm. 38 ft-lbf)

24. FINAL INSPECTION

(a) Check the operation of the body parts:

- Hood

Auxiliary catch operates properly

Hood locks securely when closed

- Front and rear doors
Door lock operates properly
Doors close properly
- Luggage compartment door or back door
Door lock operates properly
- Seats
Seat adjusts easily and locks securely in any position
Front seat back locks securely in any position
Folding-down rear seat backs lock securely

(b) Road test:

- Check the engine and chassis for abnormal noises.
Check that the vehicle does not wander or pull to one side.
- Check that the brakes work properly and do not drag.
- Perform bedding down of the parking brake shoes and drum. (See page [MA-31](#))

(c) Be sure to deliver a clean car and especially check:

- Steering wheel
- Shift lever knob
- All switch knobs
- Door handles
- Seats

MA-36**MAINTENANCE – (1MZ-FE)****GENERAL MAINTENANCE**

These are the maintenance and inspection items which are considered to be the owner's responsibility. They can be performed by the owner or they can have them done at a service shop. These items include those which should be checked on a daily basis, those which, in most cases, do not require (special) tools and those which are considered to be reasonable for the owner to perform. Items and procedures for general maintenance are as follows:

OUTSIDE VEHICLE**1. TIRES**

- (a) Check the pressure with a gauge. Adjust if necessary.
- (b) Check for cuts, damage or excessive wear.

2. WHEEL NUTS

When checking the tires, check the nuts for looseness or for missing nuts. If necessary, tighten them.

3. TIRE ROTATION

It is recommended that tires be rotated every 12,000 km (7,500 miles).

4. WINDSHIELD WIPER BLADES

Check for wear or cracks whenever they do not wipe clean. Replace if necessary.

5. FLUID LEAKS

- (a) Check underneath for leaking fuel, oil, water or other fluid.
- (b) If you smell gasoline fumes or notice any leak, have the cause found and corrected.

6. DOORS AND ENGINE HOOD

- (a) Check that all doors including the trunk lid operate smoothly, and that all latches lock securely.
- (b) Check that the engine hood secondary latch secures the hood from opening when the primary latch is released.

INSIDE VEHICLE**7. LIGHTS**

- (a) Check that the headlights, stop lights, taillights, turn signal lights, and other lights are all working.
- (b) Check the headlight aiming.

8. WARMING LIGHT AND BUZZERS

Check that all warning lights and buzzers function properly.

9. HORN

Check that it is working.

10. WINDSHIELD GLASS

Check for scratches, pits or abrasions.

11. WINDSHIELD WIPER AND WASHER

- (a) Check operation of the wipers and washer.
- (b) Check that the wipers do not streak.

12. WINDSHIELD DEFROSTER

Check that air comes out from the defroster outlet when operating the heater air conditioner at defroster mode.

13. REAR VIEW MIRROR

Check that it is mounted securely.

14. SUN VISORS

Check that they move freely and are mounted securely.

15. STEERING WHEEL

Check that it has the specified freeplay. Be alert for changes in steering condition, such as hard steering, excessive freeplay or strange noises.

16. SEATS

- (a) Check that all front seat controls such as seat adjusters, seatback recliner, etc. operate smoothly.
- (b) Check that all latches lock securely in any position.
- (c) Check that the locks hold securely in any latched position.
- (d) Check that the head restraints move up and down smoothly and that the locks hold securely in any latched position.
- (e) For folding-down rear seat backs, check that the latches lock securely.

17. SEAT BELTS

- (a) Check that the seat belt system such as buckles, retractors and anchors operate properly and smoothly.
- (b) Check that the belt webbing is not cut, frayed, worn or damaged.

18. ACCELERATOR PEDAL

Check the pedal for smooth operation and uneven pedal effort or catching.

19. BRAKE PEDAL (See BR section)

- (a) Check the pedal for smooth operation.
- (b) Check that the pedal has the proper reserve distance and freeplay.
- (c) Check the brake booster function.

20. BRAKES

At a safe place, check that the brakes do not pull to one side when applied.

21. PARKING BRAKE (See BR section)

- (a) Check that the lever has the proper travel.
- (b) On a safe incline, check that the vehicle is held securely with only the parking brake applied.

22. AUTOMATIC TRANSMISSION "PARK" MECHANISM

- (a) Check the lock release button of the selector lever for proper and smooth operation.
- (b) On a safe incline, check that the vehicle is held securely with the selector lever in the "P" position and all brakes released.

UNDER HOOD**23. WINDSHIELD WASHER FLUID**

Check that there is sufficient fluid in the tank.

24. ENGINE COOLANT LEVEL

Check that the coolant level is between the "FULL" and "LOW" lines on the see-through reservoir.

25. RADIATOR AND HOSES

- (a) Check that the front of the radiator is clean and not blocked with leaves, dirt or bugs.
- (b) Check the hoses for cracks, kinks, rot or loose connections.

26. BATTERY ELECTROLYTE LEVEL

Check that the electrolyte level of all battery cells is between the upper and lower level lines on the case.

27. BRAKE FLUID LEVEL

Check that the brake fluid level is near the upper level line on the see-through reservoir.

28. ENGINE DRIVE BELTS

Check all drive belts for fraying, cracks, wear or oiliness.

29. ENGINE OIL LEVEL

Check that level on the dipstick with the

engine turned off.

30. POWER STEERING FLUID LEVEL

Check the level.

The level should be in the "HOT" or "COLD" range depending on the fluid temperature.

31. AUTOMATIC TRANSMISSION FLUID LEVEL

- (a) Park the vehicle on a level surface.
- (b) With the engine idling and the parking brake applied, shift the selector into all positions from "P" to "L" and then shift into "P" position.
- (c) Pull out the dipstick and wipe off the fluid with a clean rag.
Re-insert the dipstick and check that the fluid level is in the "HOT" range.
- (d) Perform this check with the fluid at normal driving temperature (70–80°C, 158 – 176°F).

HINT: Wait about 30 minutes before checking the fluid level after extended driving at high speeds in hot weather, driving in heavy traffic or with a trailer.

32. EXHAUST SYSTEM

Visually inspect for cracks, holes or loose supports.

If any change in the sound of the exhaust or smell of the exhaust fumes is noticed, have the cause located and corrected.

MAINT-94

MA-38

MAINTENANCE - (1MZ-FE)

SERVICE SPECIFICATIONS

MAINT-07

SERVICE DATA

Drive belt tension			
Generator		New belt	175 ± 5 lbf
Generator		Used belt	115 ± 20 lbf
PS pump		New belt	150 - 185 lbf
PS pump		Used belt	115 ± 20 lbf
Spark plug	Recommended spark plug	ND	PK20R11
Spark plug	Recommended spark plug	NGK	BKR6EP-11
Spark plug	Correct electrode gap		1.1 mm (0.043 in.)
Firing order			1 - 2 - 3 - 4 - 5 - 6
Valve clearance		Intake	0.15 - 0.25 mm (0.006 - 0.010 in.)
Valve clearance		Exhaust	0.25 - 0.35 mm (0.010 - 0.014 in.)
Front and rear brake			
Pad thickness		Minimum	1.0 mm (0.039 in.)
Disc thickness	Front	Minimum	26.0 mm (1.024 in.)
Disc thickness	Rear	Minimum	9.0 mm (0.354 in.)
Disc runout	Front	Maximum	0.05 mm (0.0020 in.)
Disc runout	Rear	Maximum	0.15 mm (0.0059 in.)
Parking brake			
Lining thickness		Minimum	1.0 mm (0.039 in.)
Drum inside diameter		Maximum	171.0 mm (6.732 in.)
Front axle and suspension			
Ball joint vertical play		Maximum	0 mm (0 in.)
Steering wheel freeplay		Maximum	30 mm (1.18 in.) or less

TORQUE SPECIFICATIONS

MAINT-07

Pert tightened	N·m	kgf·cm	ft·lbf
Front seat mount bolts	37	375	27
Front suspension member x Body	181	1,850	134
Rear suspension member x Body	51	520	38