

MAINTENANCE

SECTION MA

MA

CONTENTS

PRE-DELIVERY INSPECTION ITEMS	MA- 2
MAINTENANCE SCHEDULE (Except for Sweden, Switzerland and Australia)	MA- 3
MAINTENANCE SCHEDULE (For Sweden and Switzerland)	MA- 4
MAINTENANCE SCHEDULE (For Australia)	MA- 5
LUBRICATION CHART	MA- 6
ENGINE MAINTENANCE	MA- 7
CHASSIS AND BODY MAINTENANCE	MA-26
SERVICE DATA AND SPECIFICATIONS	MA-45
SPECIAL SERVICE TOOLS	MA-48

PRE-DELIVERY INSPECTION ITEMS

Shown below are Pre-delivery Inspection Items required for the new vehicle. It is recommended that necessary items other than those listed here be added, paying due regard to the conditions in each country.

UNDERHOOD-engine off

- Radiator coolant level and coolant hose connections for leaks
- Battery fluid level, specific gravity and conditions of battery terminals
- Drive belts tension
- Fuel filter for water or dusts, and fuel lines and connections for leaks
- Engine oil level and oil leaks
- Brake and clutch reservoir fluid level and fluid lines for leaks
- Windshield and rear window washer reservoir fluid level
- Power steering reservoir fluid level and hose connections for leaks

ON INSIDE AND OUTSIDE

- Operation of all instruments, gauges, lights and accessories
- Operation of horn(s), wiper and washer
- Steering lock for operation
- Check air conditioner for gas leaks
- Front and rear seats, and seat belts for operation
- All mouldings, trims and fittings for fit and alignment
- All windows for operation and alignment
- Hood, trunk lid, door panels for fit and alignment
- Latches, keys and locks for operation
- Weatherstrips for adhesion and fit
- Headlight aiming
- Tighten wheel nuts
- Tire pressures
- Check front wheels for toe-in
- Install room lamp fuse

UNDERBODY

- Manual transmission and differential fluid level
- Manual transmission, automatic transmission and differential gear fluid for leaks
- Brake and fuel lines for leaks
- Tighten bolts and nuts of steering gear and linkage
- Tighten suspension bolts and nuts
- Remove front strut spacer

ROAD TEST

- Clutch operation
- Parking brake operation
- Service brake operation
- Automatic transmission shift timing and kickdown
- Steering control and returnability
- Engine performance
- Squeaks and rattles

ENGINE OPERATING AND HOT

- Adjust idle mixture, speed and ignition timing
- Automatic transmission fluid level

FINAL INSPECTION

- Install necessary parts (outside mirror, wheel covers, seat belts, mat or carpet)
- Inspect for interior and exterior metal and paint damage
- Check for spare tire, jack, tools (wheel chock), and literature
- Wash, clean interior and exterior

MAINTENANCE SCHEDULE

(Except for Sweden, Switzerland and Australia)

The following tables list the periodic maintenance servicing required to ensure quality engine and emission control system performance and good mechanical conditions of NISSAN vehicles.

The first 1,000 km (600 miles) of service is one of the most important service periods and is vital to ensure the optimum condition.

MAINTENANCE OPERATION	MAINTENANCE INTERVAL										Reference page
	1	10	20	30	40	50	60	70	80		
	(0.6)	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)		
	—	6	12	18	24	30	36	42	48		
Periodic maintenance should be performed either at number of kilometers (miles) or months, whichever comes first	Number of kilometers in thousands (Number of miles in thousands) Number of months										

UNDERHOOD MAINTENANCE

Check drive belts for cracks, fraying, wear & tension		X		X		X		X		X	MA-7
Change engine oil (Use recommended oil)	Non-turbo models (1)		X	X	X	X	X	X	X	X	MA-8
	Turbo models (1)		Every 5,000 km (3,000 miles) or 6 months								MA-8
Change oil filter	(1)		X	X	X	X	X	X	X	X	MA-8
Change engine anti-freeze coolant (Ethylene glycol base)						X				X	MA-9
Change engine coolant (Soft water)			X	X	X	X	X	X	X	X	MA-9
Check cooling system				X		X		X		X	MA-10
Check & adjust idle rpm & mixture ratio (Check mixture ratio only on models bound for areas affected by emission regulations)		X	X	X	X	X	X	X	X	X	MA-16
Replace fuel filter						X				X	MA-11
Check fuel system						X				X	MA-11
Replace air cleaner filter (Viscous paper type)	(2)					X				X	MA-7
Clean & replace air cleaner filter (Dry paper type) (Saudi Arabia only)	Clean (2)		X	X	X		X	X	X		MA-7
	Replace (2)					X				X	MA-16
Adjust ignition timing			X	X	X	X	X	X	X	X	MA-12, 13
Check & replace spark plugs	Check		X		X		X		X		MA-12, 13
	Replace			X		X		X		X	MA-13
Check ignition wires						X				X	MA-13
Check positive crankcase ventilation (P.C.V.) system				X		X		X		X	MA-14
Check vacuum fitting hoses & connections				X		X		X		X	MA-14
Check vapor lines (Hoses, connections, etc.) (Saudi Arabia only)						X				X	MA-15
Replace carbon canister filter (Saudi Arabia only)						X				X	MA-26, 28, 35
Check brake, clutch & automatic transmission fluid level & leaks			X	X	X	X	X	X	X	X	MA-35
Change brake fluid	(3)					X				X	MA-35
Check brake booster vacuum hoses, connections & check valve						X				X	MA-43
Check power steering fluid & lines			X	X	X	X	X	X	X	X	

UNDER VEHICLE MAINTENANCE

Check brake, clutch, fuel & exhaust systems for proper attachment, leaks, cracks, chafing, abrasion, deterioration, etc.			X	X	X	X	X	X	X	X	MA-26, 27, 35
Check oil level in manual transmission & differential gear	(4)		X	X	X	X	X	X	X	X	MA-27, 29
Check steering gear & linkage, suspension parts, propeller shaft & rear, drive shaft for damaged, loose & missing parts & lubrication	(5)	X		X		X		X		X	MA-29, 30, 31, 32, 43

OUTSIDE AND INSIDE MAINTENANCE

Check tire condition		X									MA-37
Check wheel alignment. If necessary, rotate & balance wheels				X		X		X		X	MA-32, 34
Check disc brake pads & other brake components for wear, deterioration & leaks	(6)		X	X	X	X	X	X	X	X	MA-36
Check front wheel bearing grease						X				X	MA-31
Lubricate locks, hinges & hood latch	(6)		X	X	X	X	X	X	X	X	MA-44
Check seat belts, buckles, retractors, anchors & adjuster				X		X		X		X	MA-44
Check foot brake, parking brake & clutch for free play, stroke & operation		X	X	X	X	X	X	X	X	X	MA-26, 36

- NOTE:**
- Under severe driving conditions such as driving mainly short distance, city driving and driving under dusty conditions, change the following:
 - Engine oil (Non-turbo models) and filter: Every 5,000 km (3,000 miles) or 3 months, whichever comes first.
 - Engine oil (Turbo models): More frequently.
 - Under dusty driving conditions, replace element every 20,000 km (12,000 miles) or 12 months, whichever comes first.
 - When driving in high humidity areas or in mountainous areas, change every 20,000 km (12,000 miles) or 12 months, whichever comes first.
 - When towing a trailer, change oil in transaxle every 40,000 km (24,000 miles) or 24 months, whenever comes first.
 - Under the following driving conditions, check either every 10,000 km (6,000 miles) or 6 months, whichever comes first.
 - Driving in areas using salt or other corrosive materials
 - Driving on muddy roads
 - Driving in the desert
 - When driving in areas using salt or other corrosive materials, check or lubricate every 5,000 km (3,000 miles) or 3 months, whichever comes first.

Check: Check, correct and replace if necessary.

The above chart shows the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

MAINTENANCE SCHEDULE (For Sweden and Switzerland)

The following tables list the periodic maintenance servicing required to ensure quality engine and emission control system performance and good mechanical conditions of NISSAN vehicles.

The first 1,000 km (600 miles) of service is one of the most important service periods and is vital to ensure the optimum condition.

MAINTENANCE OPERATION	Periodic maintenance should be performed either at number of kilometers (miles) or months, whichever comes first	MAINTENANCE INTERVAL												Reference page
		Number of kilometers in thousands	1	10	20	30	40	50	60	70	80	90	100	
		(Number of miles in thousands)	(0.6)	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)	(54)	(60)	
		Number of months	—	6	12	18	24	30	36	42	48	54	60	

EMISSION CONTROL MAINTENANCE

(1) Check drive belts for cracks, fraying, wear & tension				X		X		X		X		X		MA-7
(2) Replace engine oil & engine oil filter	(1)		X	X	X	X	X	X	X	X	X	X	X	MA-8
(3) Change engine coolant (Ethylene glycol base)							X			X				MA-9
(4) Check cooling system hoses & connections				X		X		X		X		X		MA-10
(5) Check vacuum fitting hoses & connections				X		X		X		X		X		MA-14
(6) Check & adjust idle rpm & mixture ratio				X		X		X		X		X		MA-16
(7) Check air regulator hoses				X		X		X		X		X		MA-14
(8) Replace fuel filter	(2)					X				X				MA-11
(9) Check fuel lines (Hoses, piping, connections, etc.)						X				X				MA-11
(10) Replace air cleaner filter (Viscous paper type)	(2)							X						MA-7
(11) Adjust ignition timing				X		X		X		X		X		MA-16
(12) Replace spark plugs				X		X		X		X		X		MA-12, 13
(13) Check ignition wiring						X				X				MA-13
(14) Check P.C.V. valve (For Switzerland only)						X				X				MA-13
(15) Check ventilation hoses						X				X				MA-15
(16) Check EGR control system				X		X		X		X		X		MA-15
(17) Replace air induction valve filter	(2)					X				X				MA-15

UNDERHOOD MAINTENANCE

Check brake, clutch & automatic transmission fluid level & leaks			X	X	X	X	X	X	X	X	X	X	X	MA-26, 28, 35
Change brake fluid	(3)					X				X				MA-35
Check brake booster vacuum hoses, connections & check valve						X				X				MA-35
Check power steering fluid & lines				X		X		X		X		X		MA-43

UNDER VEHICLE MAINTENANCE

Check brake, clutch, fuel & exhaust systems for proper attachment, leaks, chafing, abrasion, deterioration, etc.			X	X	X	X	X	X	X	X	X	X	X	MA-26, 27, 35
Check oil level in manual transmission & differential gear	(4)			X		X		X		X		X		MA-27, 29
Check steering gear & linkage, suspension parts, propeller shaft & rear drive shaft for damaged, loose & missing parts & lubrication	(5)	X		X		X		X		X		X		MA-29, 30, 31, 32, 43

OUTSIDE AND INSIDE MAINTENANCE

Check tire condition		X												MA-37
Check wheel alignment. If necessary, rotate & balance wheels				X		X		X		X		X		MA-32, 34
Check disc brake pads & other brake components for wear, deterioration & leaks	(6)		X	X	X	X	X	X	X	X	X	X	X	MA-36
Check front wheel bearing grease						X				X				MA-31
Lubricate locks, hinges & hood latch	(7)		X	X	X	X	X	X	X	X	X	X	X	MA-44
Check seat belts, buckles, retractors, anchors & adjuster				X		X		X		X		X		MA-44
Check foot brake, parking brake & clutch for free play, stroke & operation				X		X		X		X		X		MA-26, 36

NOTE: (1) If vehicle is operated under severe conditions: short distance driving, extensive idling or driving in dusty conditions, change engine oil every 5,000 km (3,000 miles) or 3 months, whichever comes first.

(2) More frequent maintenance if under dusty driving conditions

(3) When driving in high humidity areas or in mountainous areas, change every 20,000 km (12,000 miles) or 12 months, whichever comes first.

(4) When towing a trailer, change oil in differential gear every 40,000 km (24,000 miles) or 24 months, whichever comes first.

(5) Under the following driving conditions, check every 10,000 km (6,000 miles) or 6 months, whichever comes first.

• Driving in areas using salt or other corrosive materials

• Driving on muddy roads

• Driving in the desert

(6) When driving in areas using salt or other corrosive materials, check every 5,000 km (3,000 miles) or 3 months, whichever comes first.

(7) When driving in areas using salt or other corrosive materials, check or lubricate every 10,000 km (6,000 miles) or 6 months, whichever comes first.

Check: Check, correct-replace if necessary.

The above charts show the normal maintenance schedule.

Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

MAINTENANCE SCHEDULE (For Australia)

The following tables list the periodic maintenance servicing required to ensure quality engine and emission control system performance and good mechanical conditions of NISSAN vehicles.

The first 1,000 km (600 miles) of service is one of the most important service periods and is vital to ensure the optimum condition.

MAINTENANCE OPERATION Periodic maintenance should be performed either at number of kilometers (miles) or months, whichever comes first		MAINTENANCE INTERVAL												Reference page
		Number of kilometers in thousands	1	10	20	30	40	50	60	70	80	90	100	
		(Number of miles in thousands)	(0.6)	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)	(54)	(60)	
		Number of months	—	6	12	18	24	30	36	42	48	54	60	
EMISSION CONTROL MAINTENANCE														
(1) Check drive belts for cracks, fraying, wear & tension				X		X		X		X		X	MA-7	
(2) Replace engine oil & engine oil filter	(1)		X	X	X	X	X	X	X	X	X	X	MA-8	
(3) Change engine coolant (L.L.C.)						X				X			MA-9	
(4) Check cooling system hoses & connections				X		X		X		X		X	MA-10	
(5) Check vacuum fitting hoses & connections				X		X		X		X		X	MA-14	
(6) Check & adjust idle rpm & mixture ratio				X		X		X		X		X	MA-16	
(7) Check air regulator hoses				X		X		X		X		X	MA-14	
(8) Replace fuel filter	(2)					X				X			MA-11	
(9) Check fuel lines (Hoses, piping, connections, etc.)						X				X			MA-11	
(10) Replace air cleaner filter (Viscous paper type)	(2)					X				X			MA-7	
(11) Adjust ignition timing				X		X		X		X		X	MA-16	
(12) Replace spark plugs				X		X		X		X		X	MA-12, 13	
(13) Check ignition wiring						X				X			MA-13	
(14) Check ventilation hoses						X				X			MA-13	
(15) Check EGR control system				X		X		X		X		X	MA-15	
(16) Check vapor lines (Hoses, connections, etc.)						X				X			MA-14	
(17) Replace air induction valve filter	(2)					X				X			MA-15	
UNDERHOOD MAINTENANCE														
Check brake, clutch & automatic transmission fluid level & leaks			X	X	X	X	X	X	X	X	X	X	MA-26, 28, 35	
Change brake fluid	(3)					X				X			MA-35	
Check brake booster vacuum hoses, connections & check valve						X				X			MA-35	
Check power steering fluid & lines				X		X		X		X		X	MA-43	
UNDER VEHICLE MAINTENANCE														
Check brake, clutch, fuel & exhaust systems for proper attachment, leaks, chafing, abrasion, deterioration, etc.			X	X	X	X	X	X	X	X	X	X	MA-26, 27, 35	
Check oil level in manual transmission & differential gear	(4)			X		X		X		X		X	MA-27, 29	
Check steering gear & linkage, suspension parts, propeller shaft & rear drive shaft for damaged, loose & missing parts & lubrication	(5)	X		X		X		X		X		X	MA-29, 30, 31, 32, 43	
OUTSIDE AND INSIDE MAINTENANCE														
Check tire condition		X											MA-37	
Check wheel alignment. If necessary, rotate & balance wheels				X		X		X		X		X	MA-32, 34	
Check disc brake pads & other brake components for wear, deterioration & leaks	(6)		X	X	X	X	X	X	X	X	X	X	MA-36	
Check front wheel bearing grease						X				X			MA-31	
Lubricate locks, hinges & hood latch	(7)			X		X		X		X		X	MA-44	
Check seat belts, buckles, retractors, anchors & adjuster				X		X		X		X		X	MA-44	
Check foot brake, parking brake & clutch for free play, stroke & operation				X		X		X		X		X	MA-26, 36	

NOTE: (1) If vehicle is operated under severe conditions: short distance driving, extensive idling or driving in dusty conditions, change engine oil every 5,000 km (3,000 miles) or 3 months, whichever comes first.

(2) More frequent maintenance if under dusty driving conditions

(3) When driving in high humidity areas or in mountainous areas, change every 20,000 km (12,000 miles) or 12 months, whichever comes first.

(4) When towing a trailer, change oil in differential gear every 40,000 km (24,000 miles) or 24 months, whichever comes first.

(5) Under the following driving conditions, check every 10,000 km (6,000 miles) or 6 months, whichever comes first.

- Driving in areas using salt or other corrosive materials
- Driving on muddy roads
- Driving in the desert

(6) When driving in areas using salt or other corrosive materials, check every 5,000 km (3,000 miles) or 3 months, whichever comes first.

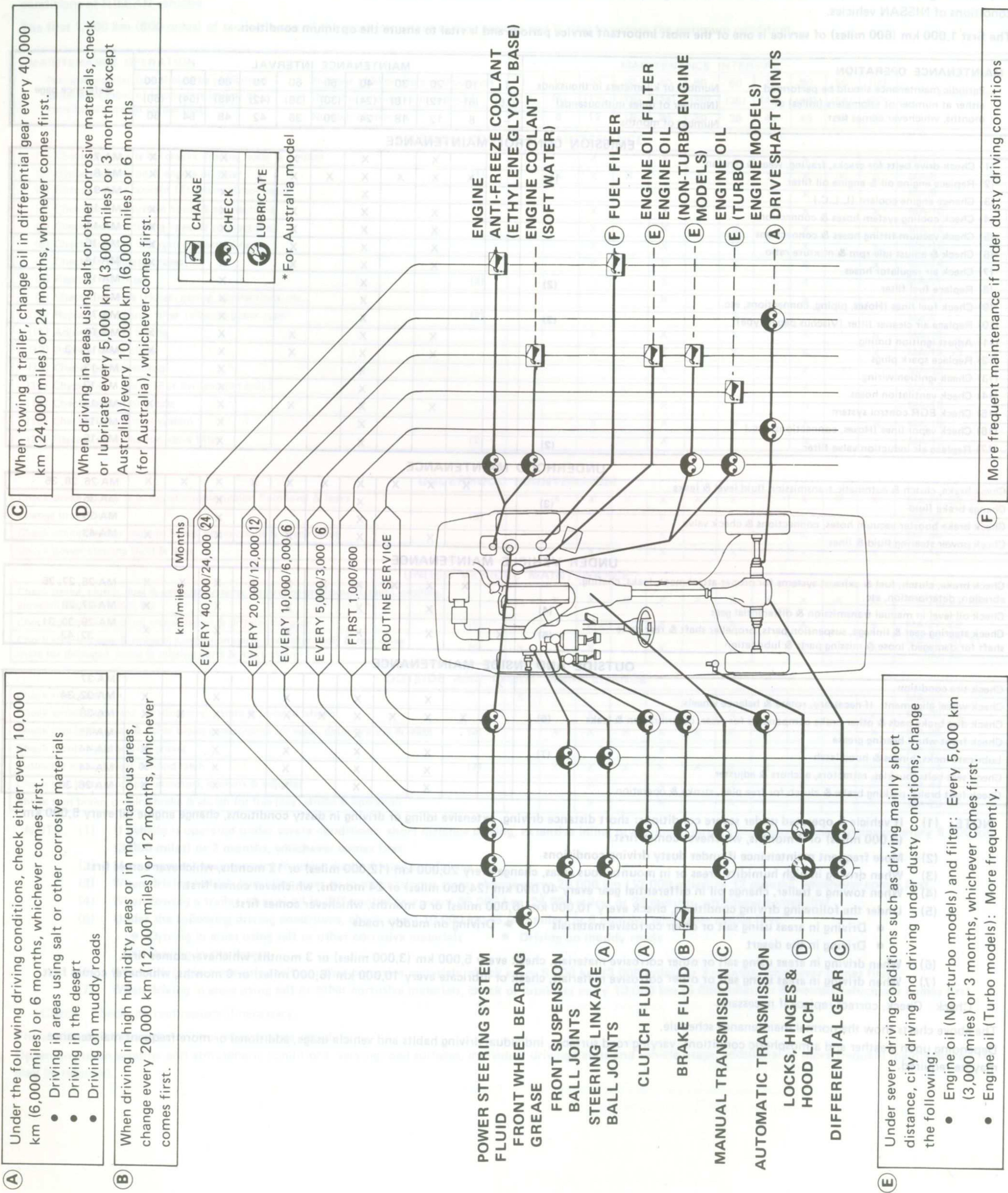
(7) When driving in areas using salt or other corrosive materials, check or lubricate every 10,000 km (6,000 miles) or 6 months, whichever comes first.

Check: Check, correct-replace if necessary.

The above charts show the normal maintenance schedule.

Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

LUBRICATION CHART



ENGINE MAINTENANCE

Checking Drive Belts

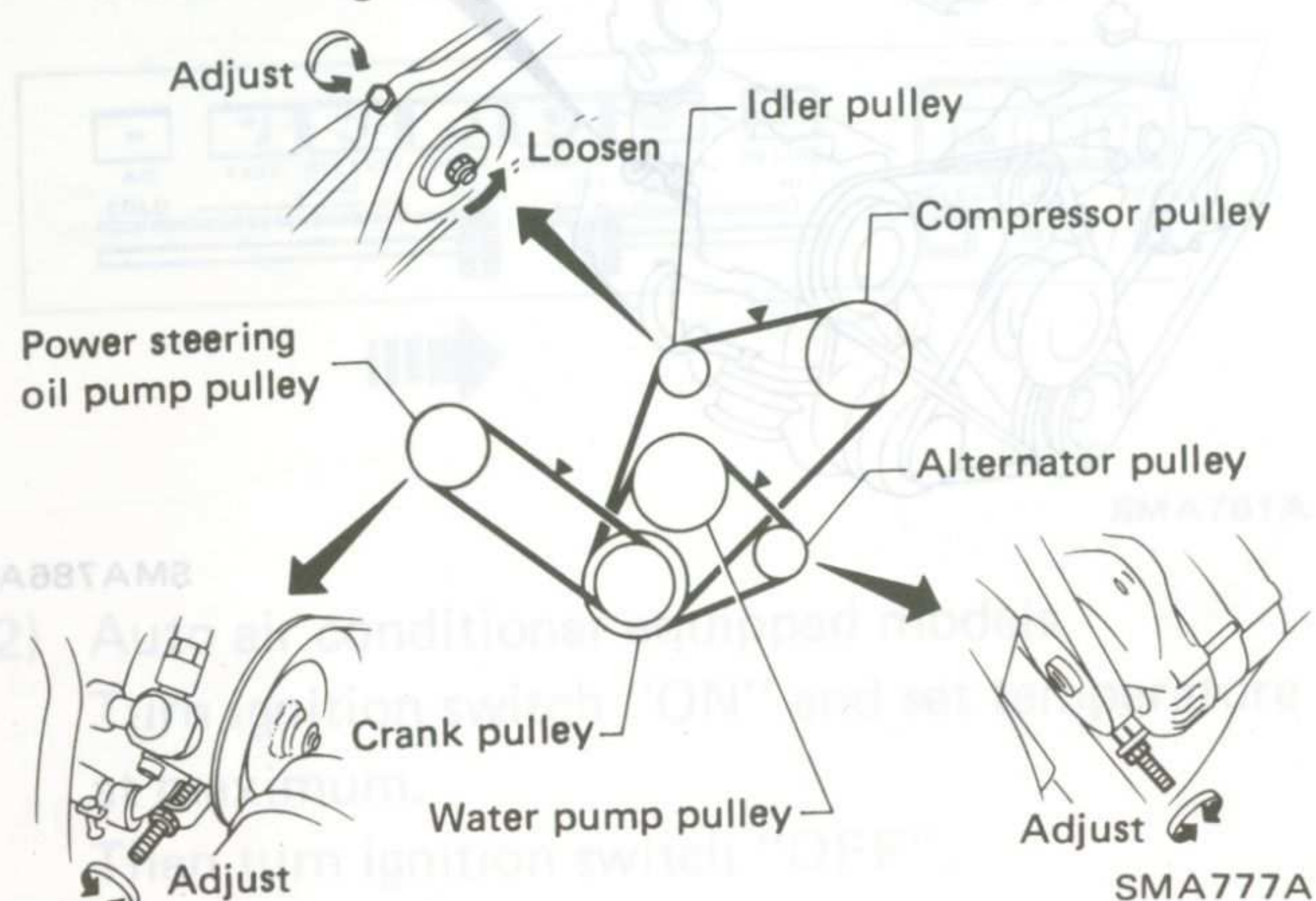
1. Inspect for cracks, fraying, wear or oil adhesion. Replace if necessary.

The belts should not touch the bottom of the pulley groove.

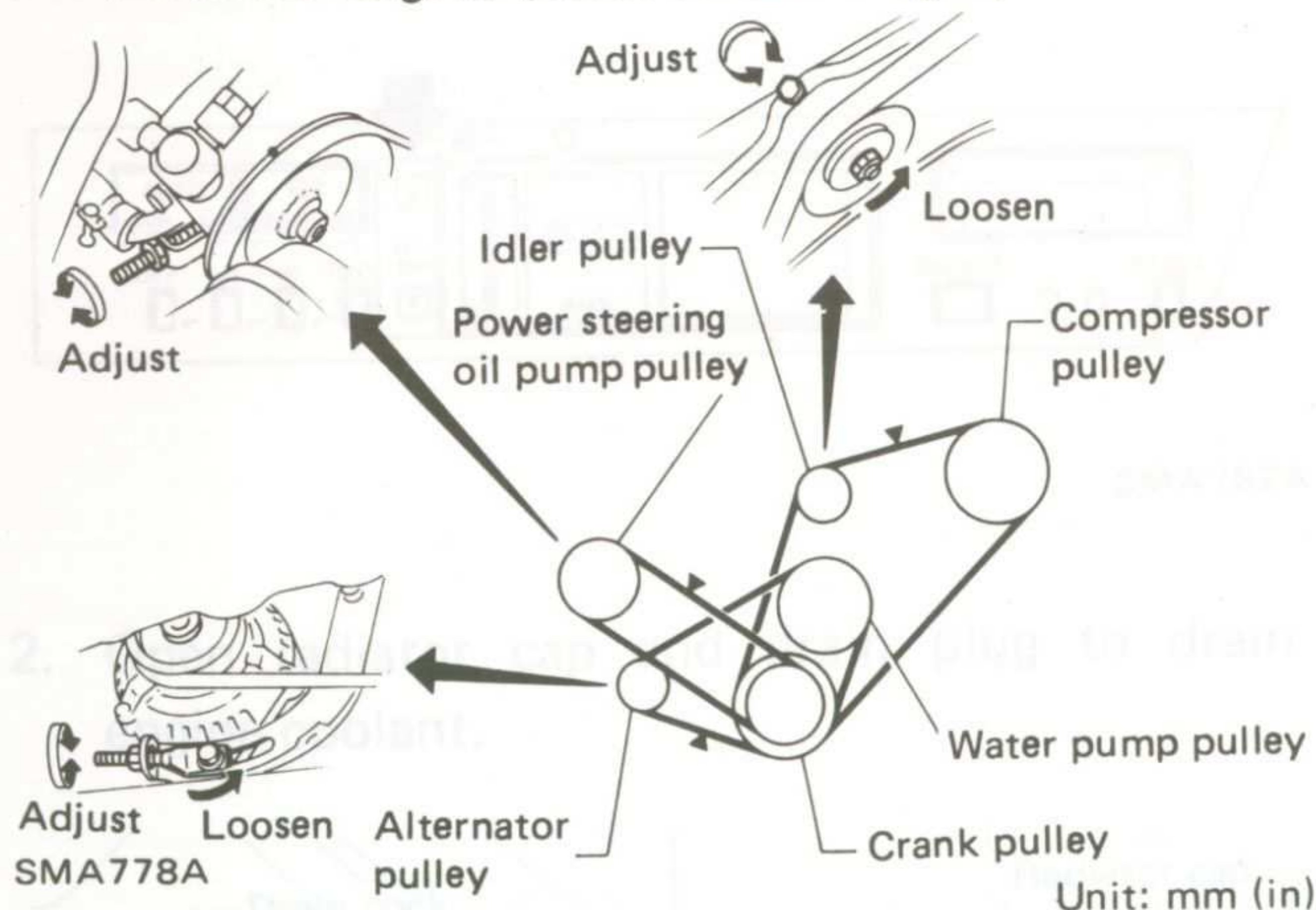
2. Check drive belt deflections by pushing midway between pulleys.

Adjust if belt deflections exceed the limit.

• VG30E engine (without turbocharger)



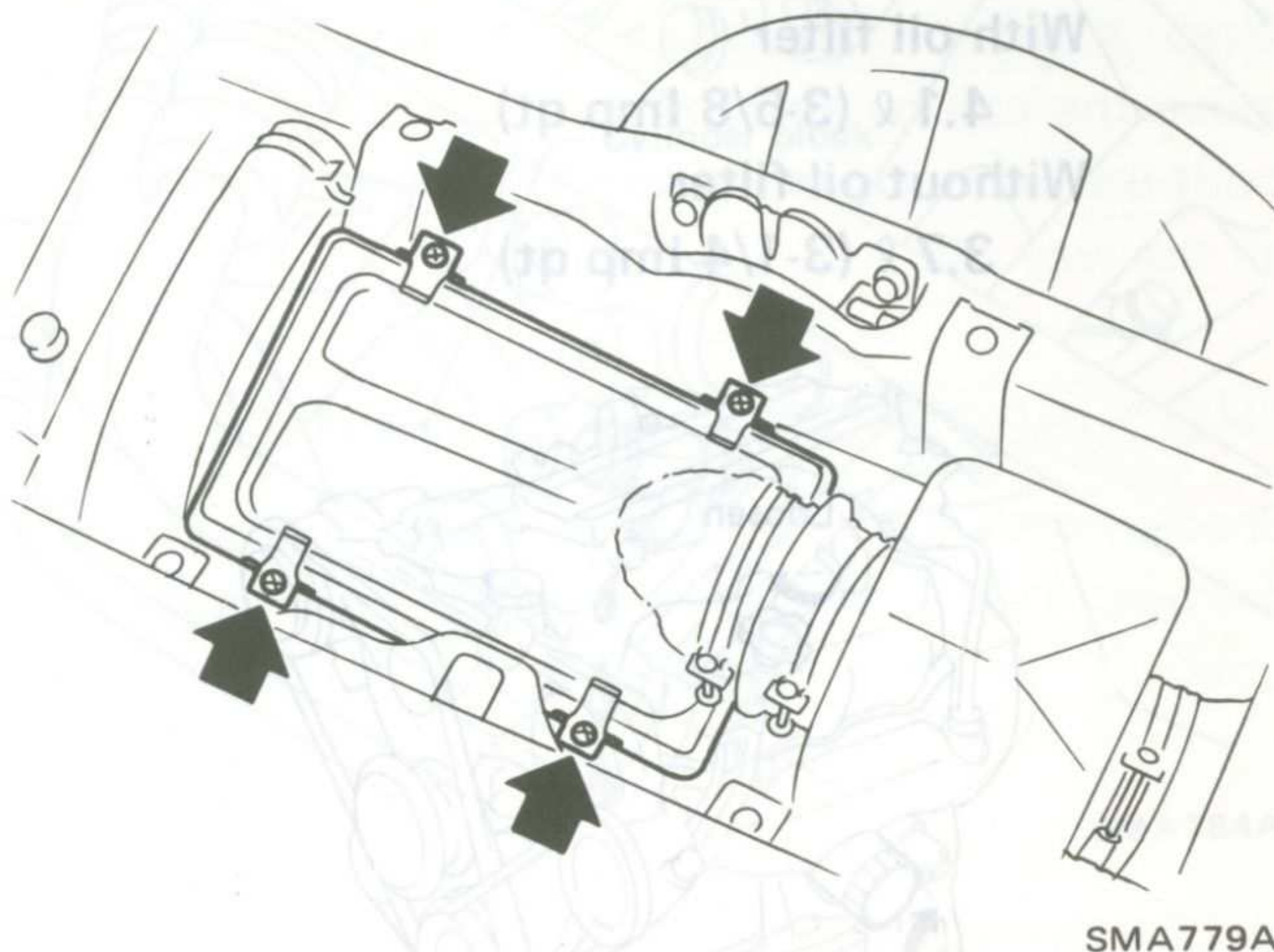
• VG30ET engine (with turbocharger)



		Used belt deflection		Set deflection of new belt
		Limit	Adjusted deflection	
Alternator	VG30E	12 (0.47)	6 - 8 (0.24 - 0.31)	5 - 7 (0.20 - 0.28)
	VG30ET	11 (0.43)	6 - 9 (0.24 - 0.35)	5 - 8 (0.20 - 0.31)
Air conditioner compressor		16 (0.63)	9 - 11 (0.35 - 0.43)	7 - 9 (0.28 - 0.35)
Power steering oil pump		21 (0.83)	13 - 16 (0.51 - 0.63)	10 - 13 (0.39 - 0.51)
Applied pushing force		98 N (10 kg, 22 lb)		

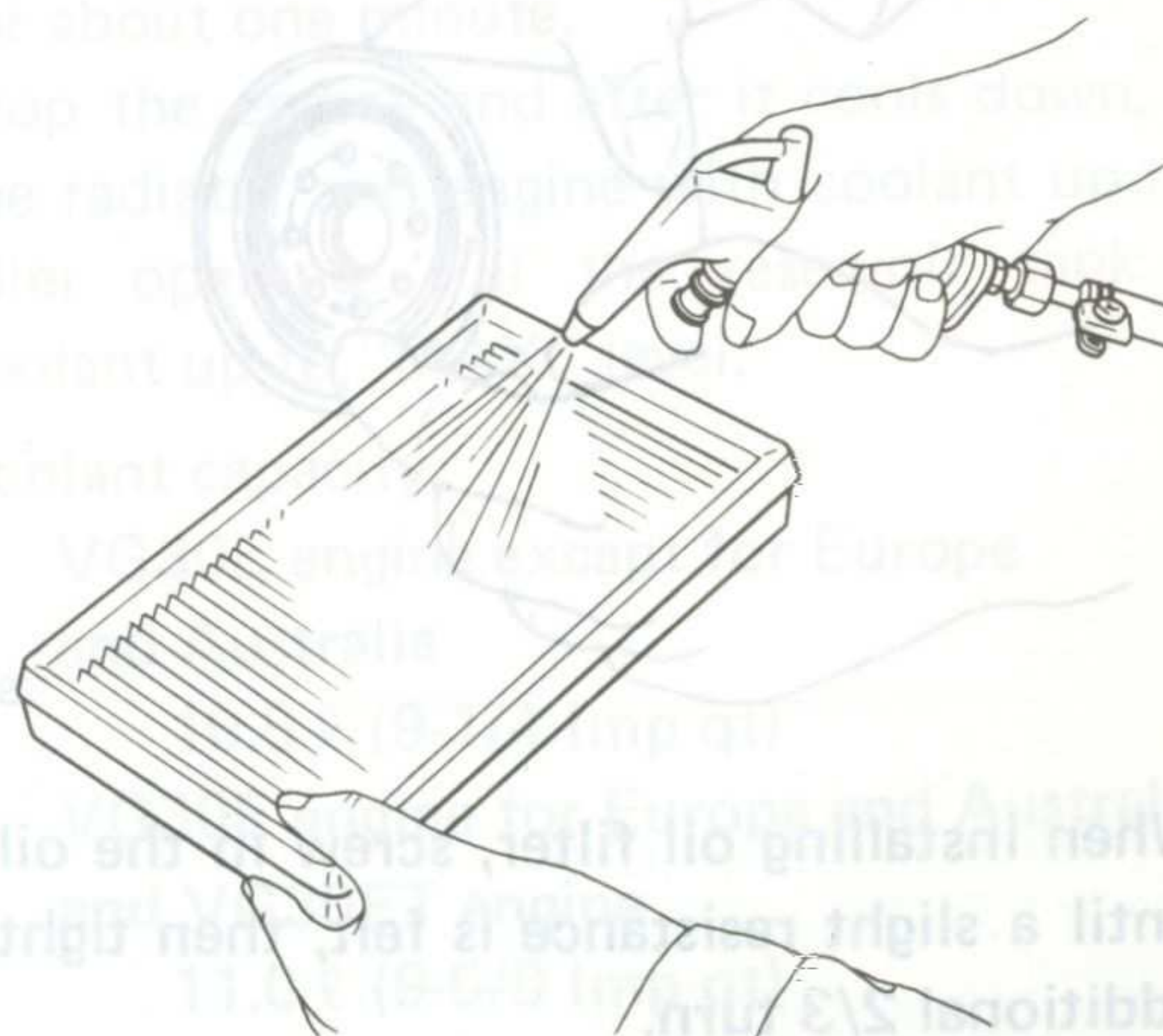
Replacing Air Cleaner Filter (Viscous paper type)

The viscous paper type air cleaner filter does not require any cleaning operation between renewals.



—Cleaning or Replacing Air Cleaner— Filter (Dry paper type)

It is necessary to clean or replace the air cleaner filter at the recommended interval. Under dusty driving conditions, more frequent maintenance is necessary.



ENGINE MAINTENANCE

Changing Engine Oil and Oil Filter

1. Warm up engine, and check for oil leakage from engine components.
2. Change engine oil and oil filter.

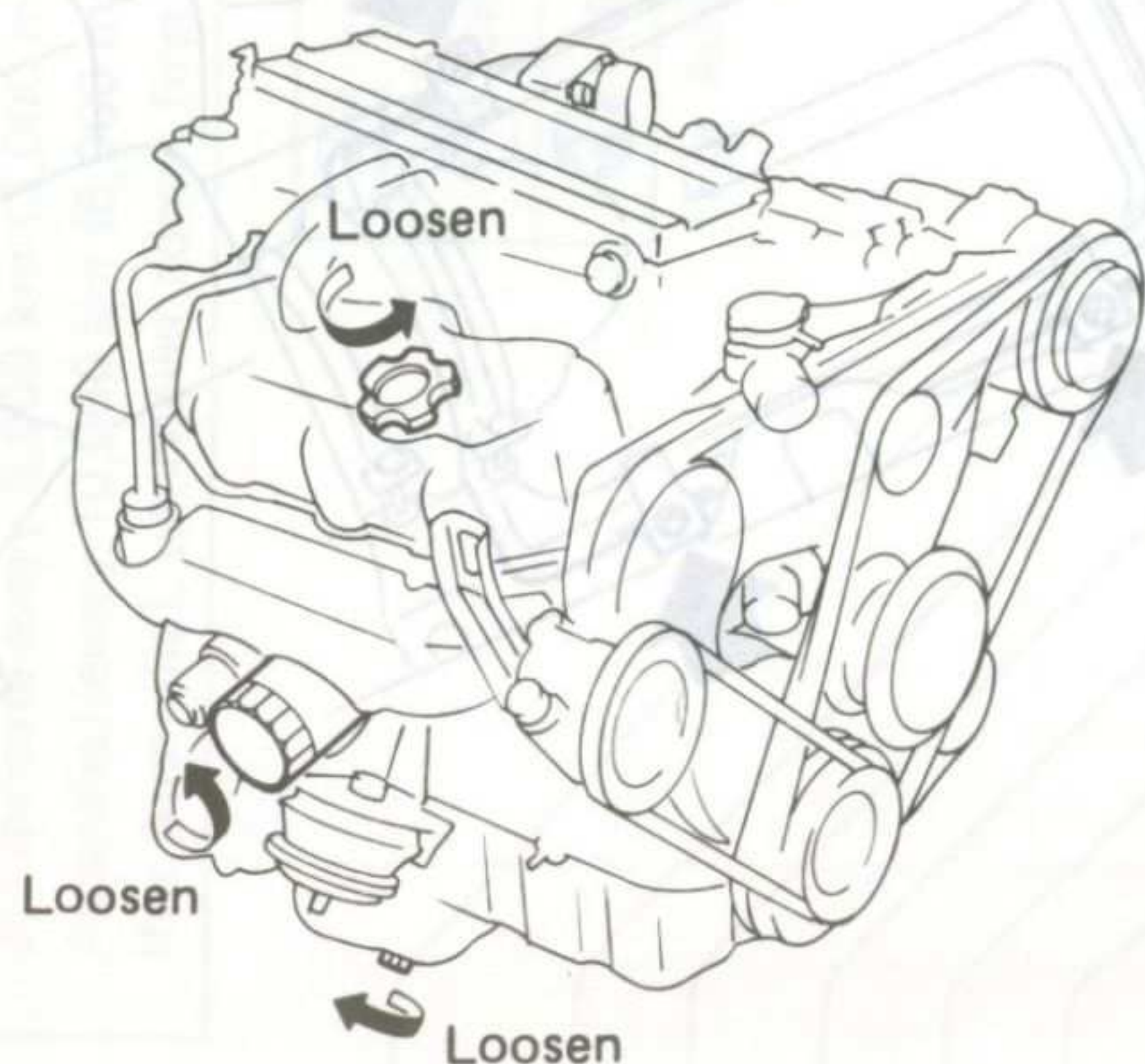
Oil capacity:

With oil filter

4.1 ℓ (3-5/8 Imp qt)

Without oil filter

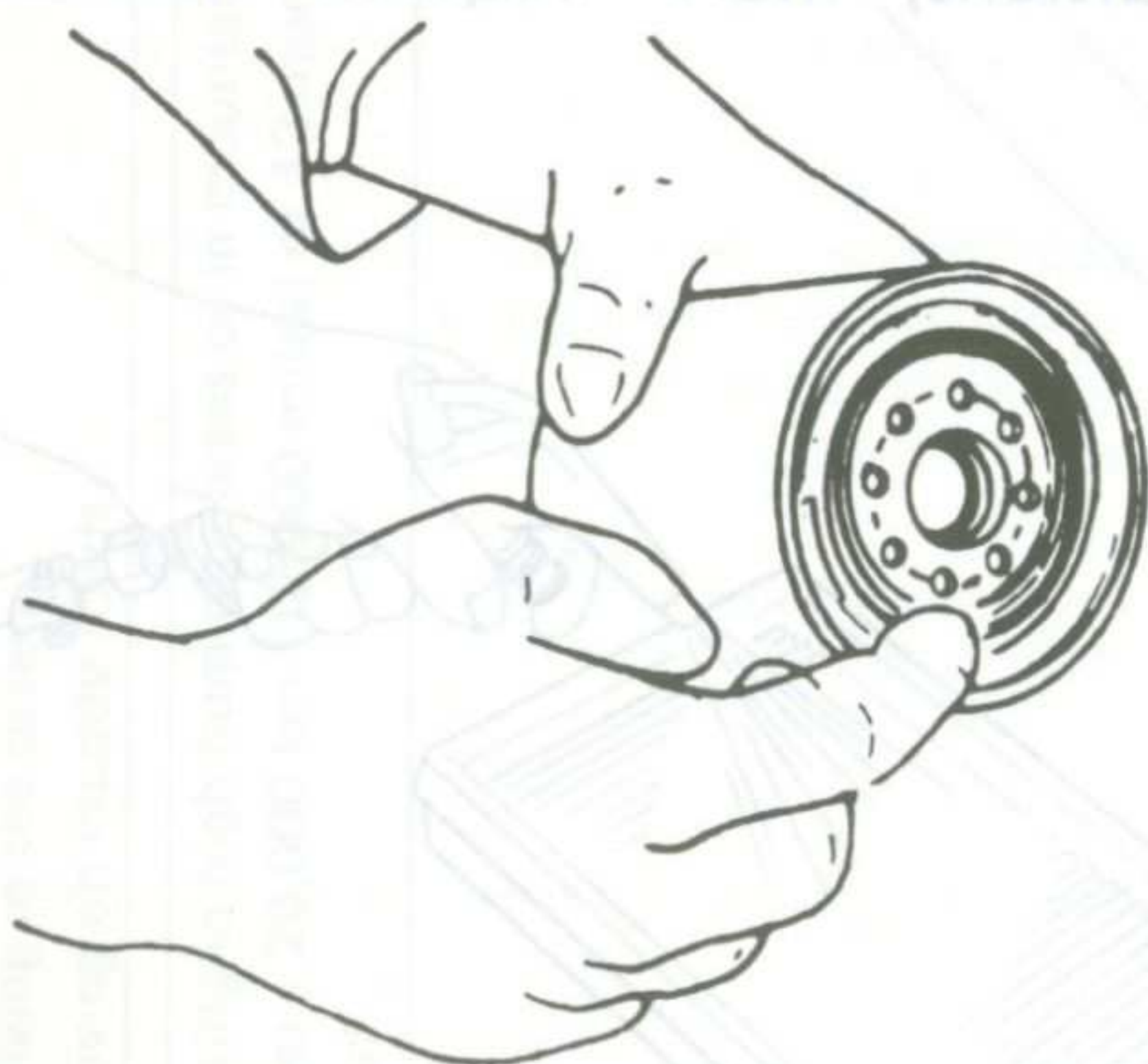
3.7 ℓ (3-1/4 Imp qt)



29 - 39 N·m
(3.0 - 4.0 kg-m, 22 - 29 ft-lb)

SMA785A

- a. Be careful not to burn yourself as engine oil is hot.
- b. Be sure to clean drain plug and install with washer.
- c. Before installing new oil filter, wipe oil filter mounting surface on cylinder block, and smear a little engine oil on rubber seal of oil filter.



SMA010

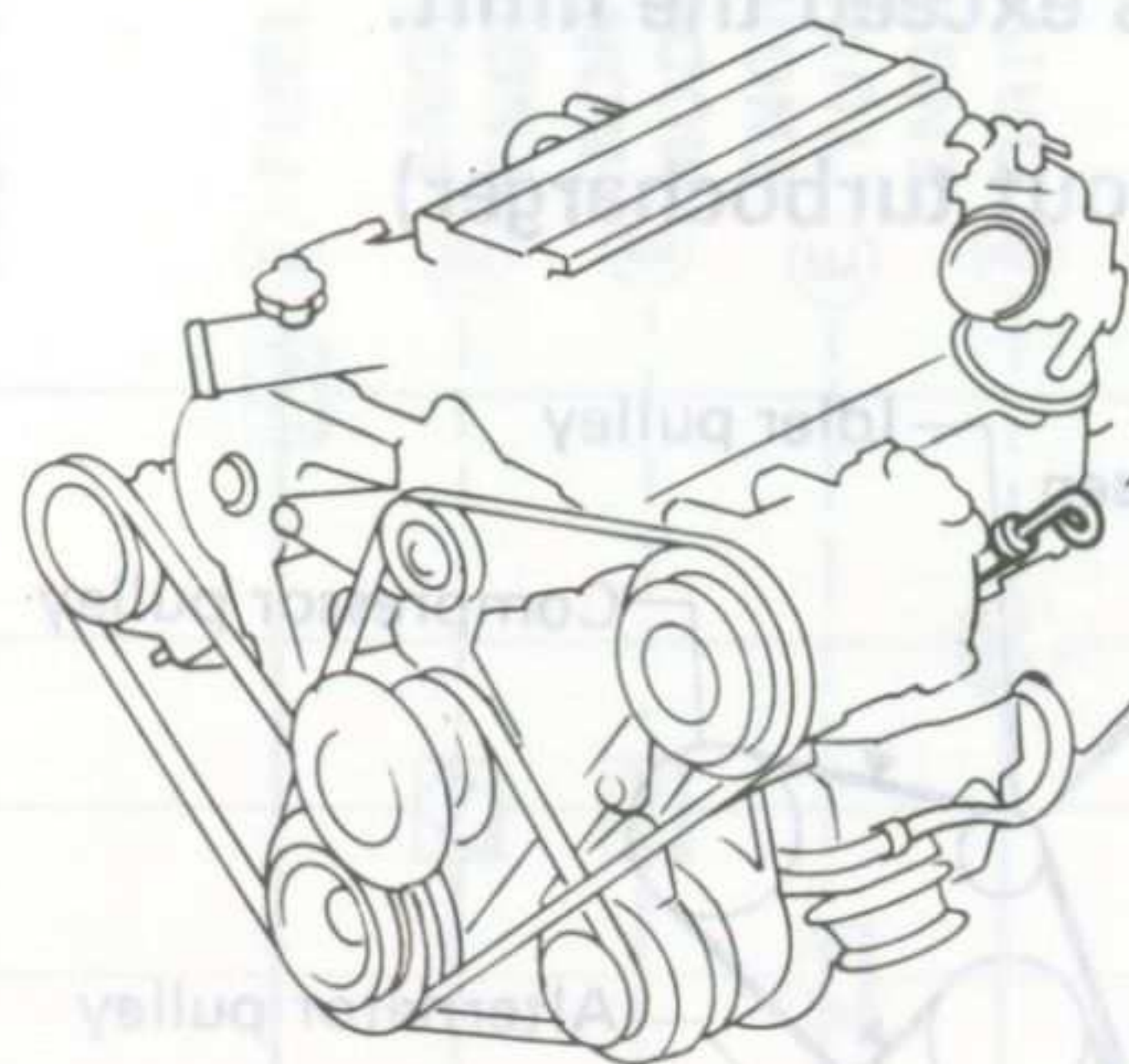
- d. When installing oil filter, screw in the oil filter until a slight resistance is felt, then tighten an additional 2/3 turn.
- e. Use recommended engine oil.

Start engine. Check area around drain plug and oil filter for any sign of oil leakage.

Run engine for a few minutes, then turn it off. After several minutes, check oil level.



Oil level should be maintained within this range.



SMA786A

Applied pushing force	Oil pump	Power steering	Compressor	Air conditioner	Alternator	VG30ET	VG30E	Used belt deflection		Set deflection of new belt
								Limit	Adjusted deflection	
28 N (10 kg, 22 lb)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	(0.83)	12	8-8	5-7
								(0.43)	(0.34-0.37)	(0.20-0.28)
								11	6-8	5-7
								(0.43)	(0.34-0.38)	(0.20-0.31)
								10	9-11	5-7
								(0.63)	(0.38-0.43)	(0.28-0.38)
								27	13-18	10-13
								(0.83)	(0.61-0.83)	(0.39-0.61)

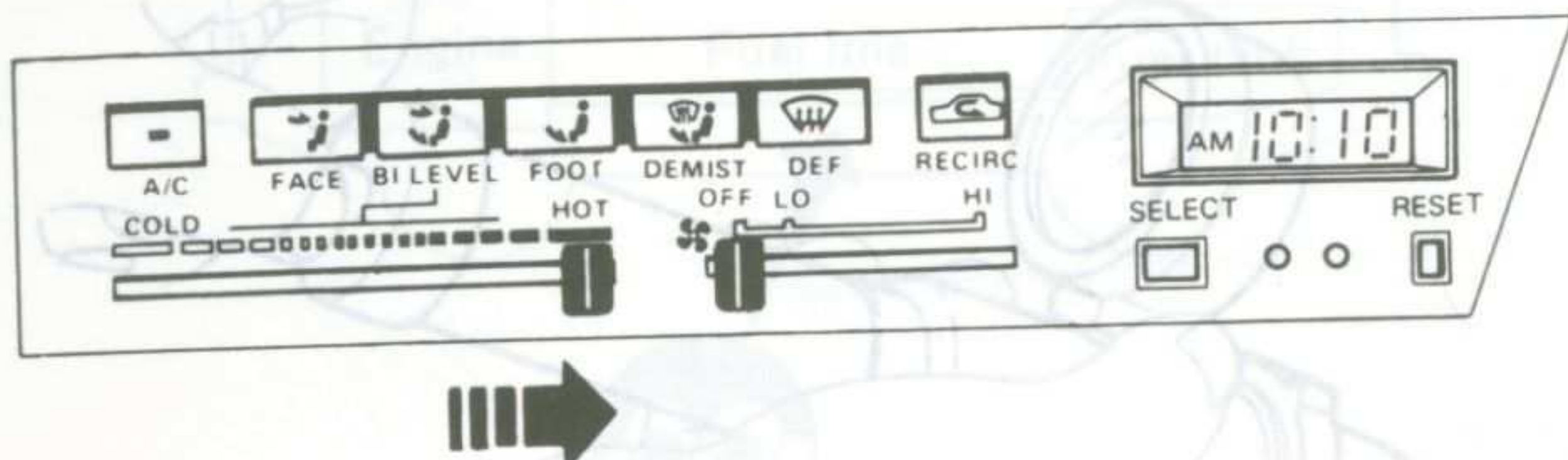
ENGINE MAINTENANCE

Changing Engine Coolant

WARNING:

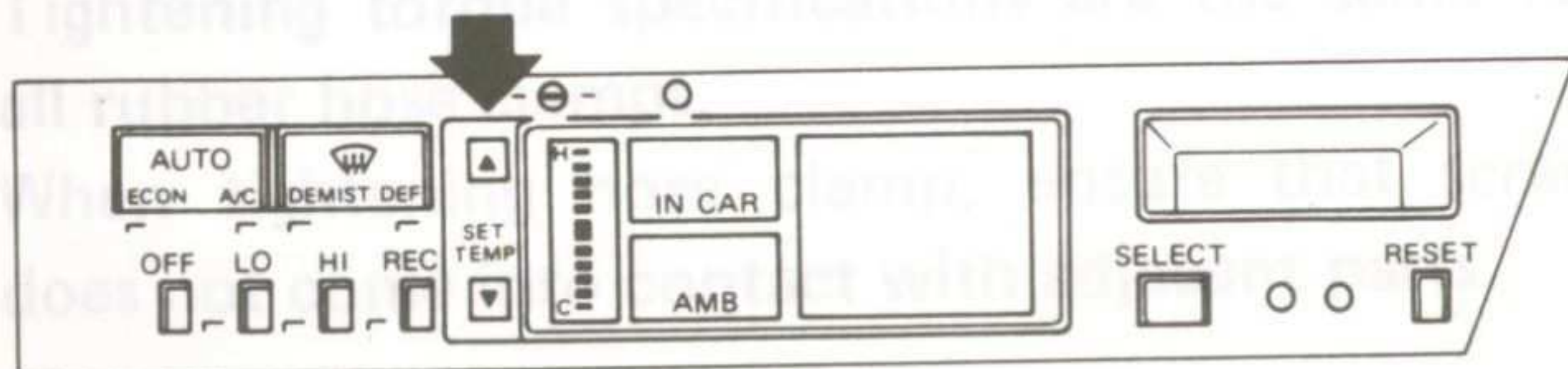
To avoid the danger of being scalded, never attempt to change the coolant when the engine is hot.

1. Before draining engine coolant:
 - 1) Except auto air conditioner equipped models
Slide temperature control lever to "HOT" position.



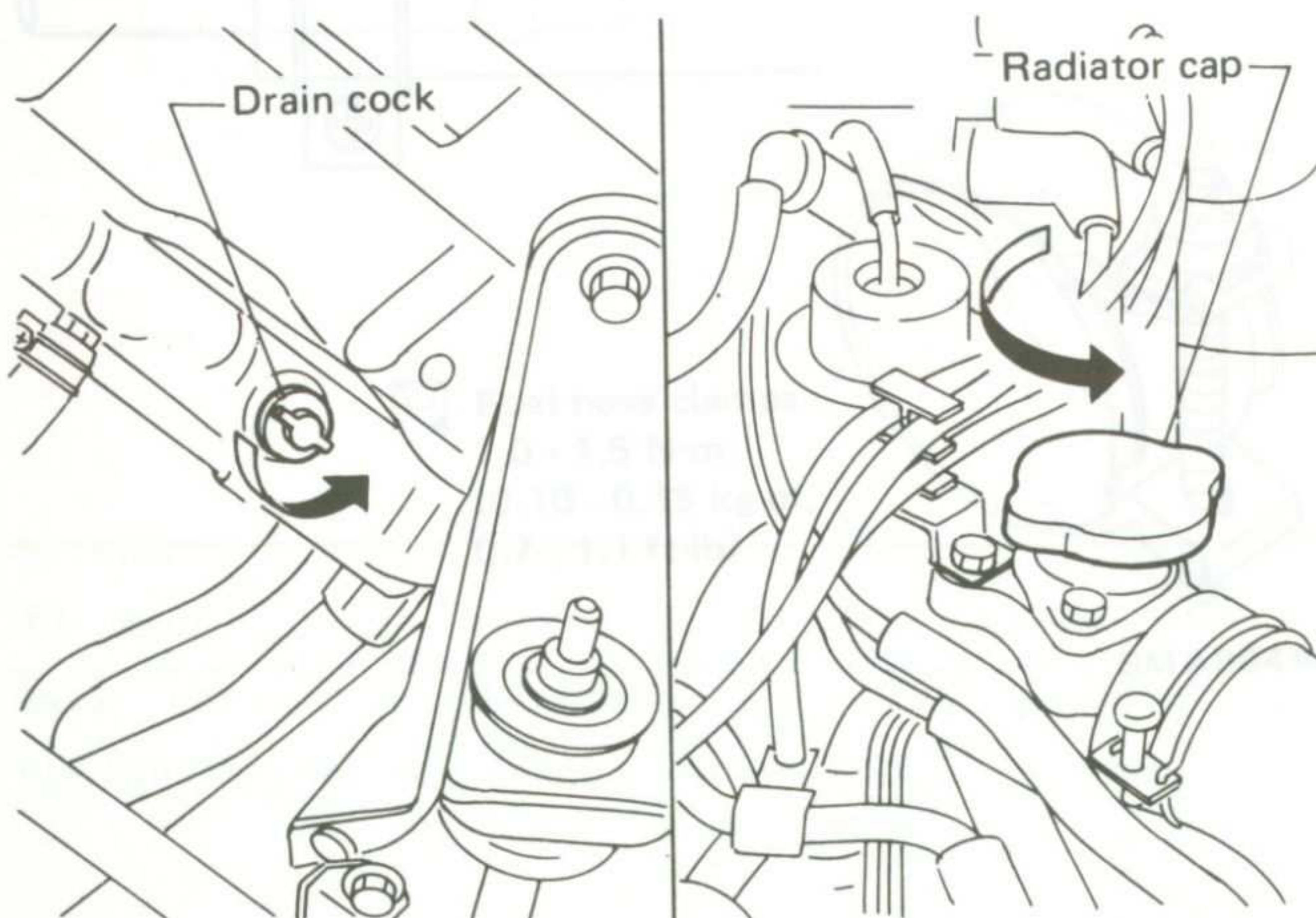
SMA781A

- 2) Auto air conditioner equipped models
Turn ignition switch "ON" and set temperature at maximum.
Then turn ignition switch "OFF".



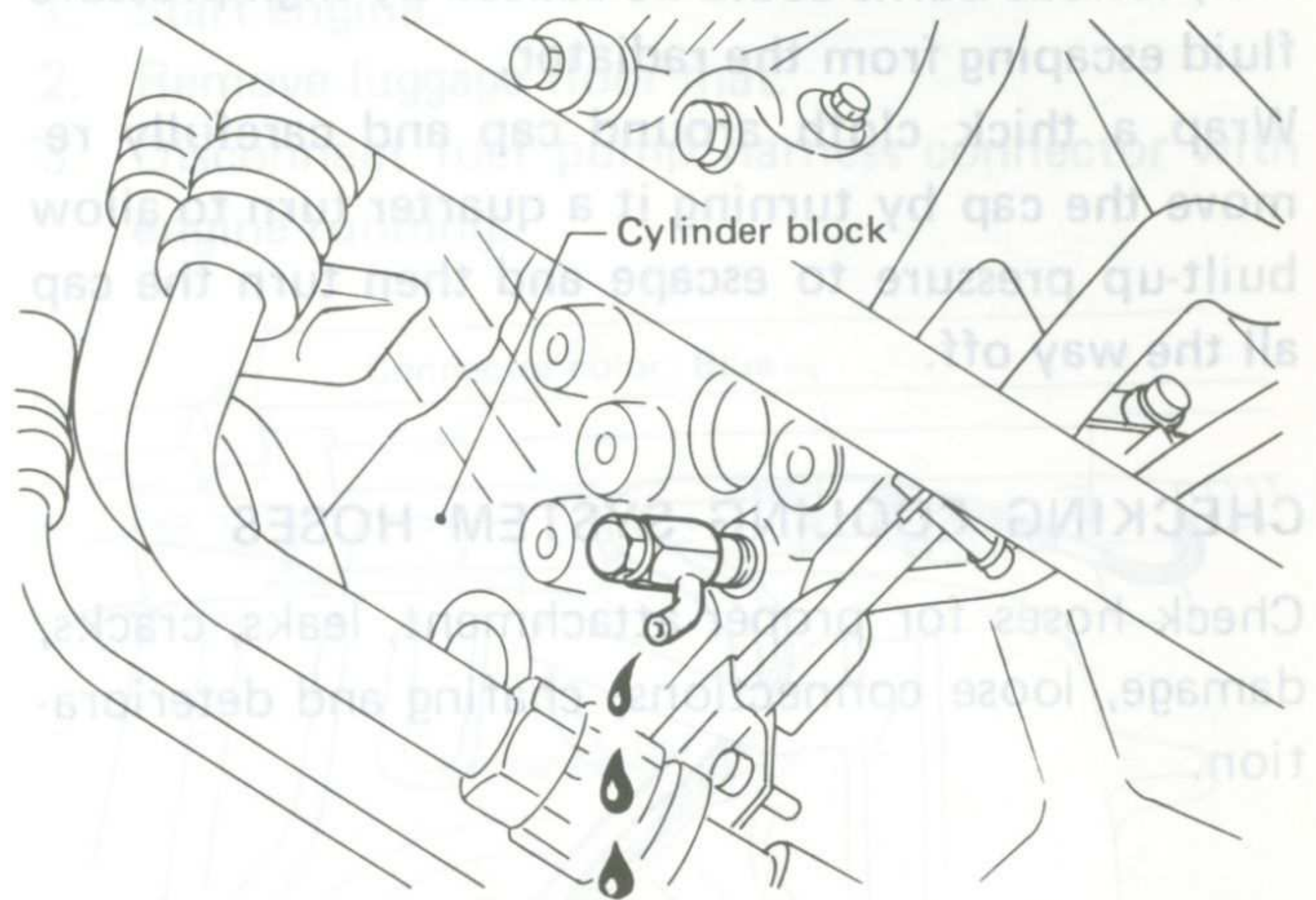
SMA782A

2. Open radiator cap and drain plug to drain engine coolant.



SMA783A

3. Open drain plug on right side of cylinder block to drain coolant from cylinder block.



SMA784A

4. Close drain plug and drain cock securely. Then, fill radiator with water and warm up engine.
5. Stop engine and wait until it cools down.
6. Repeat procedure from step 2 through step 5 two or three times.
7. Drain water and fill radiator and engine with new coolant up to filler opening. Follow instructions attached to anti-freeze container for mixing ratio of anti-freeze to water.

Slowly pour coolant through coolant filler neck to allow air in system to escape.

8. Fill reservoir tank up to "MAX" level. Then close radiator cap.
9. Run the engine at approximately 2,000 rpm for about one minute.
10. Stop the engine and after it cools down, refill the radiator and engine with coolant up to the filler opening. Fill the reservoir tank with coolant up to "MAX" level.

Coolant capacity:

VG30E engine except for Europe and Australia

10.5 l (9-1/4 Imp qt)

VG30E engine for Europe and Australia and VG30ET engine

11.0 l (9-5/8 Imp qt)

ENGINE MAINTENANCE

Checking Cooling System

WARNING:

Never remove the radiator cap when the engine is hot; serious burns could be caused by high pressure fluid escaping from the radiator.

Wrap a thick cloth around cap and carefully remove the cap by turning it a quarter turn to allow built-up pressure to escape and then turn the cap all the way off.

CHECKING COOLING SYSTEM HOSES

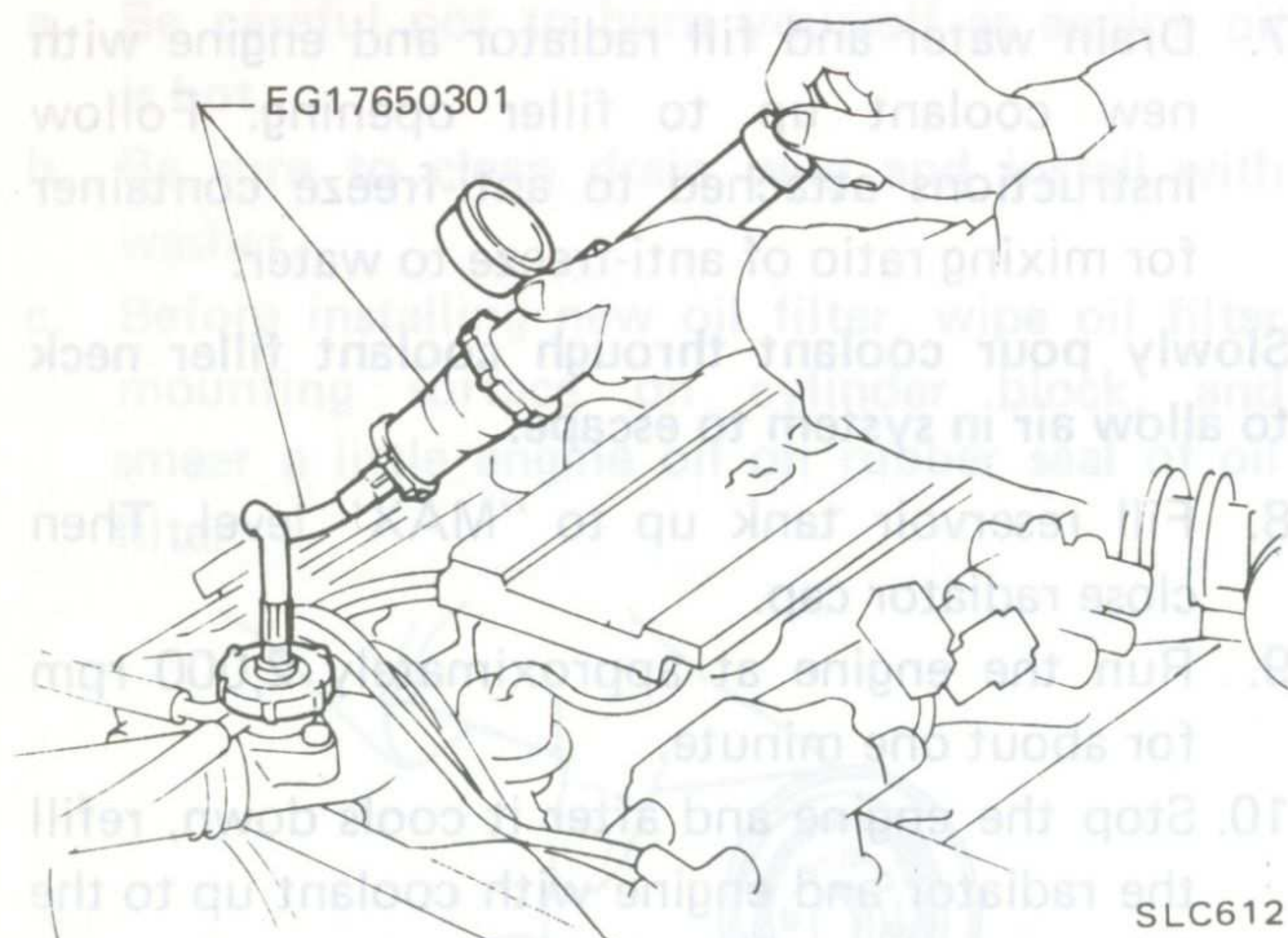
Check hoses for proper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.

CHECKING COOLING SYSTEM FOR LEAKS

Apply pressure to the cooling system by means of a tester to check for leakage.

Testing pressure:

157 kPa (1.57 bar, 1.6 kg/cm², 23 psi)



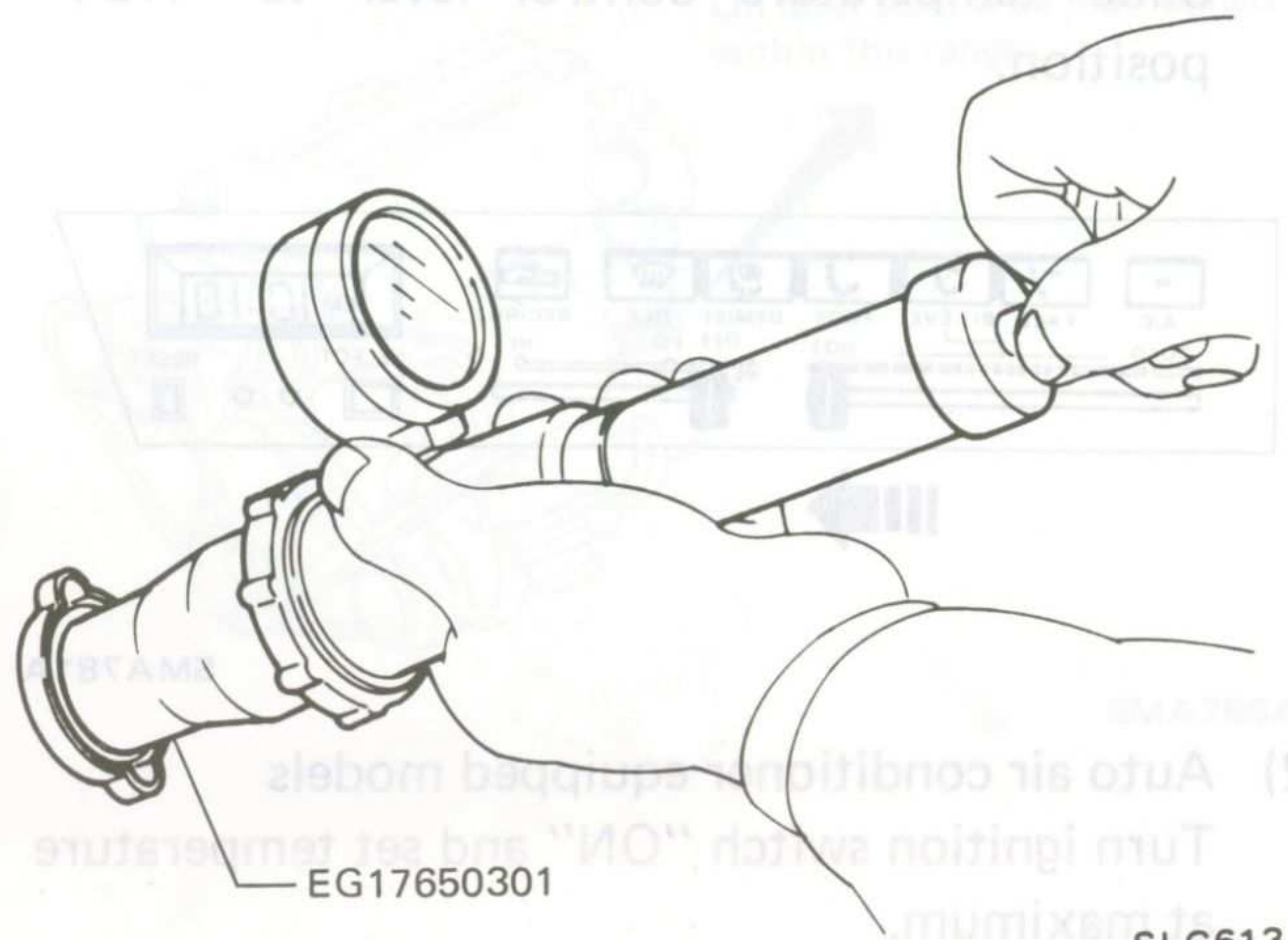
CHECKING RADIATOR CAP

Apply pressure to radiator cap by means of a cap tester to see if it is satisfactory.

Radiator cap relief pressure:

59 - 98 kPa (0.59 - 0.98 bar,

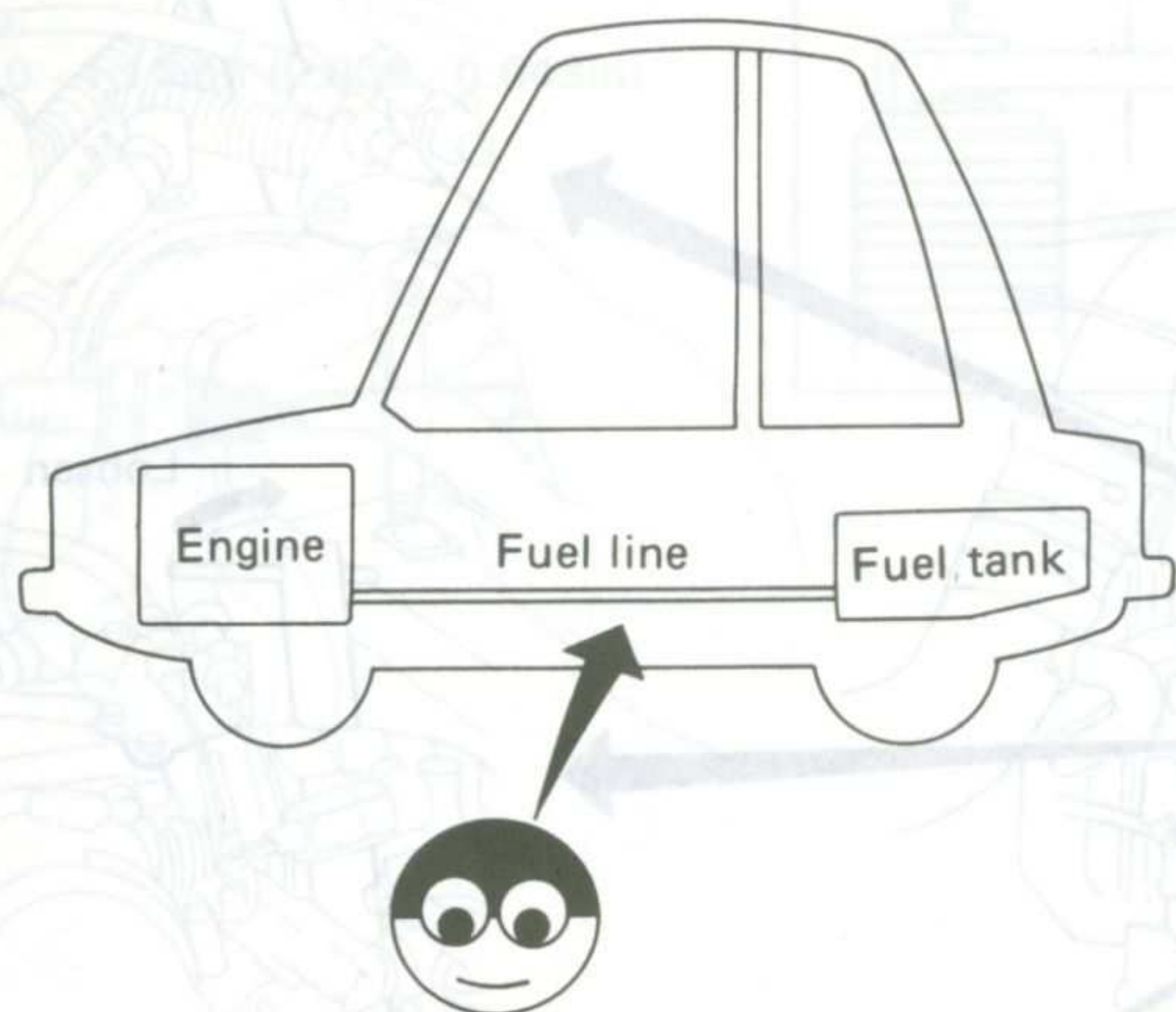
0.6 - 1.0 kg/cm², 9 - 14 psi)



ENGINE MAINTENANCE

Checking Fuel System

Check fuel lines and tank for proper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.



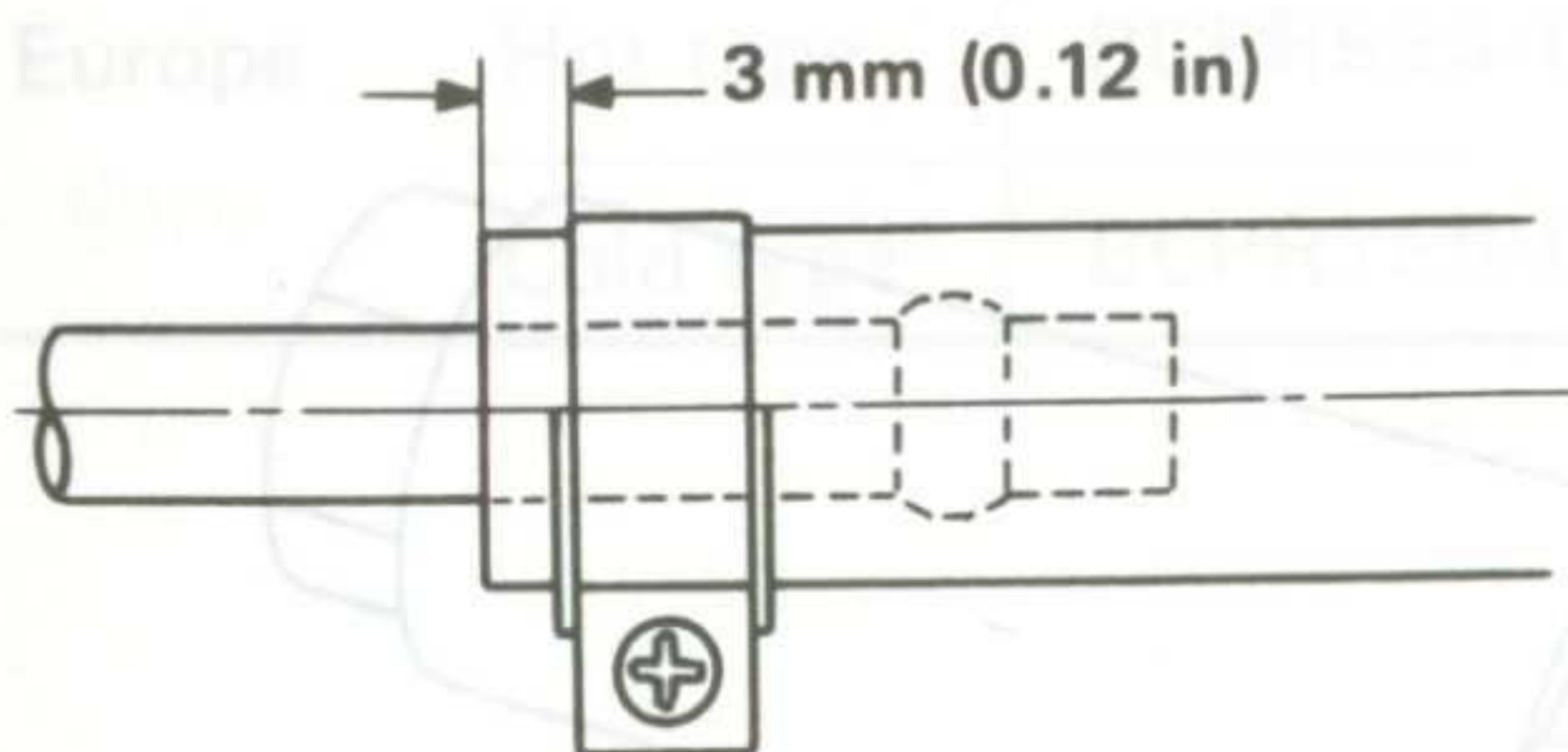
SMA803A

CAUTION:

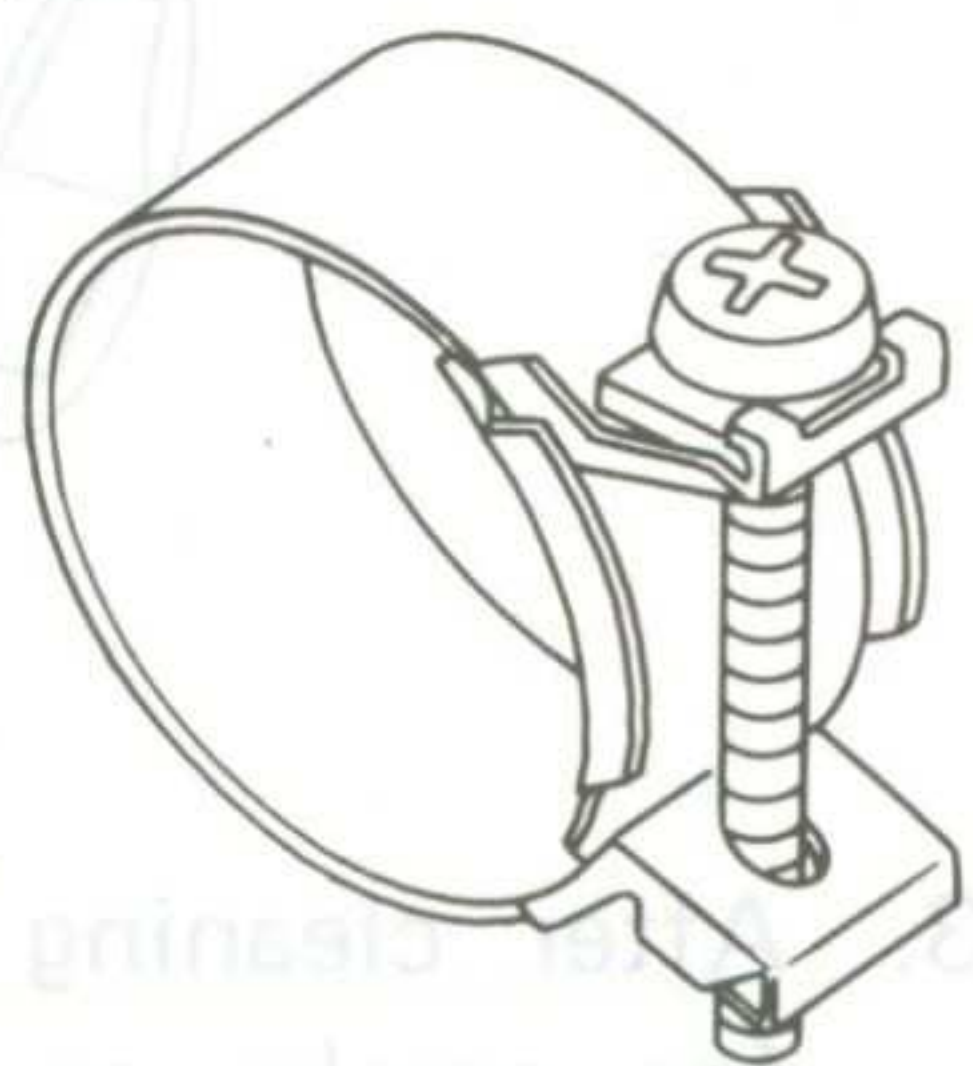
Tighten high pressure rubber hose clamp so that clamp end is 3 mm (0.12 in) from hose end or screw position (wider than other portions of clamp) is flush with hose end.

Tightening torque specifications are the same for all rubber hose clamps.

When tightening hose clamp, ensure that screw does not come into contact with adjacent parts.



 Fuel hose clamps
1.0 - 1.5 N·m
(0.10 - 0.15 kg-m,
0.7 - 1.1 ft-lb)

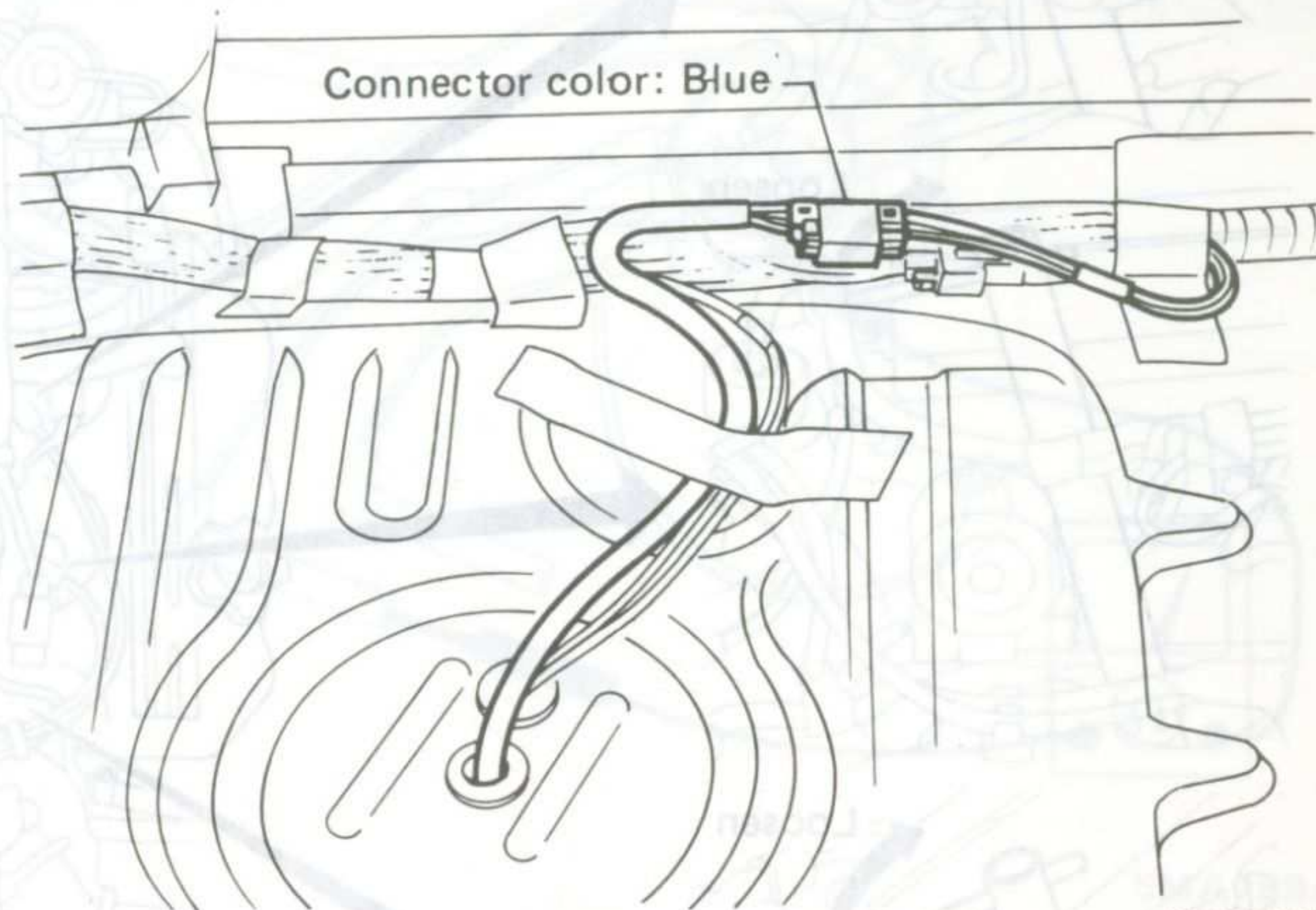


SMA804A

Replacing Fuel Filter

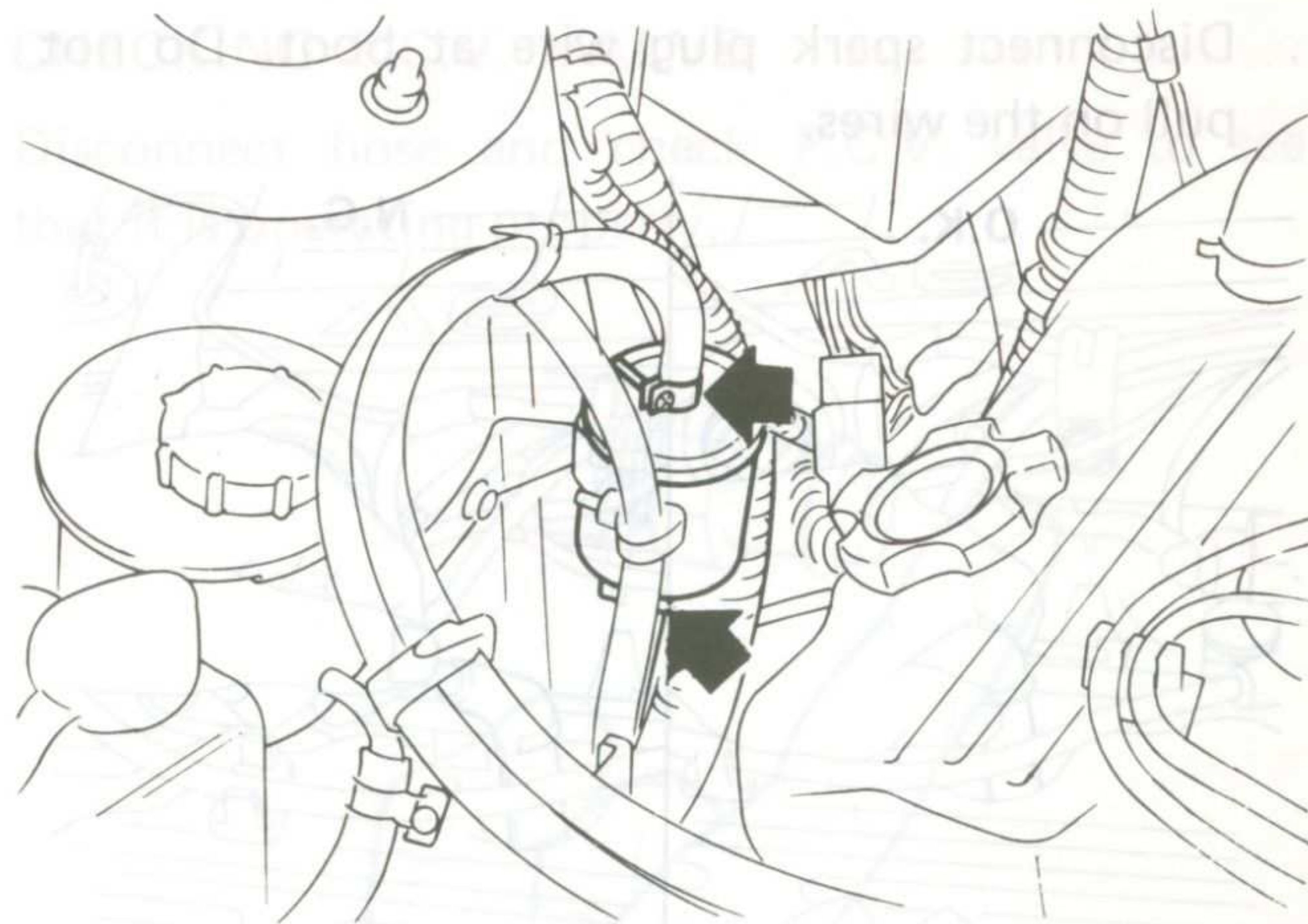
Before removing fuel filter, release fuel pressure from fuel line to eliminate danger.

1. Start engine.
2. Remove luggage floor mat.
3. Disconnect fuel pump harness connector with engine running.



SEF714B

4. After engine stalls, crank engine two or three times to make sure that pressure is released.
5. Turn ignition switch off and connect fuel pump harness connector.
6. Loosen fuel hose clamps.



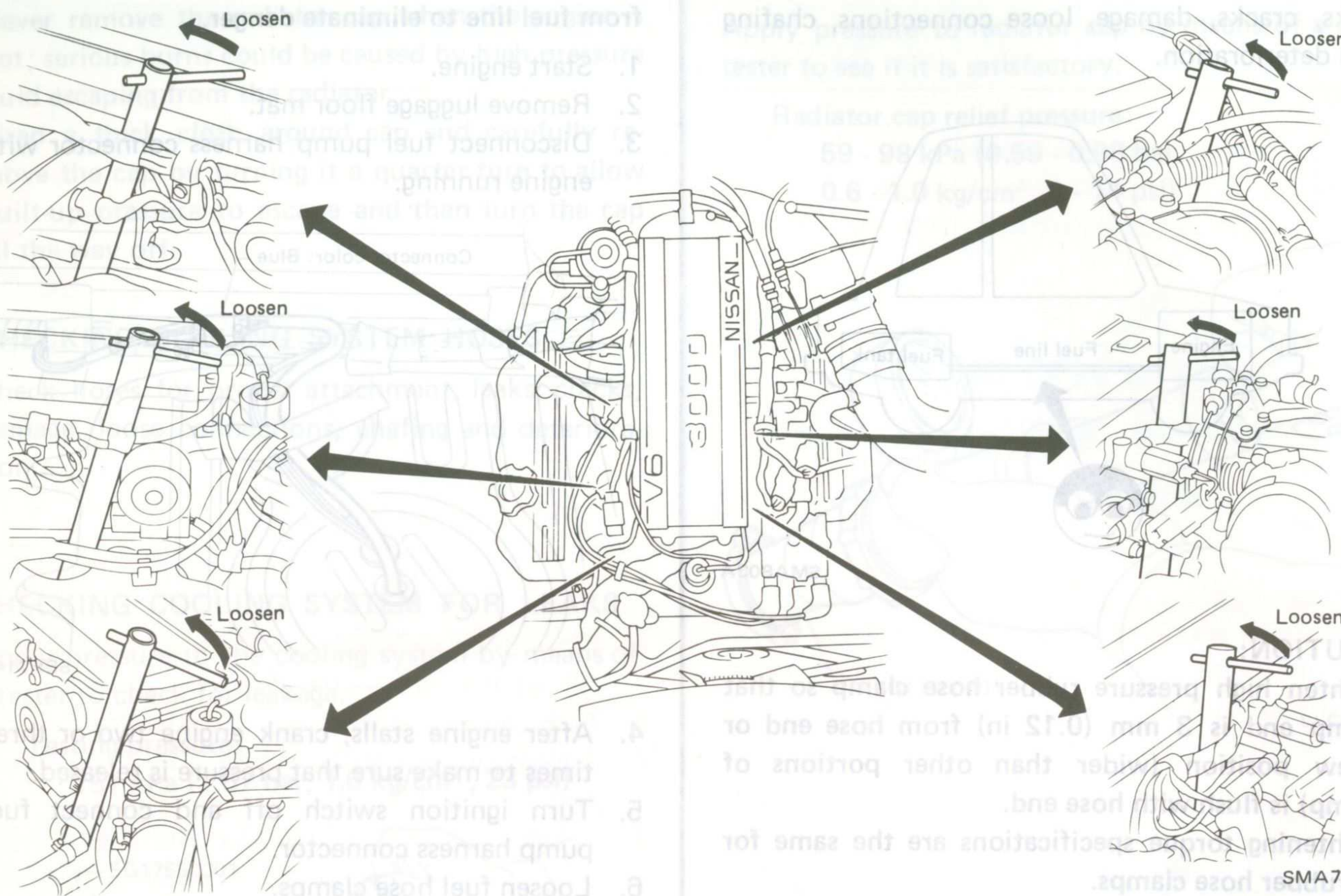
SMA780A

7. Replace fuel filter.
 - Do not reuse fuel hose clamps.
 - Be careful not to spill fuel over engine compartment. Place a rag to absorb fuel.
 - Use high pressure type fuel filter. Do not use a synthetic resinous fuel filter.

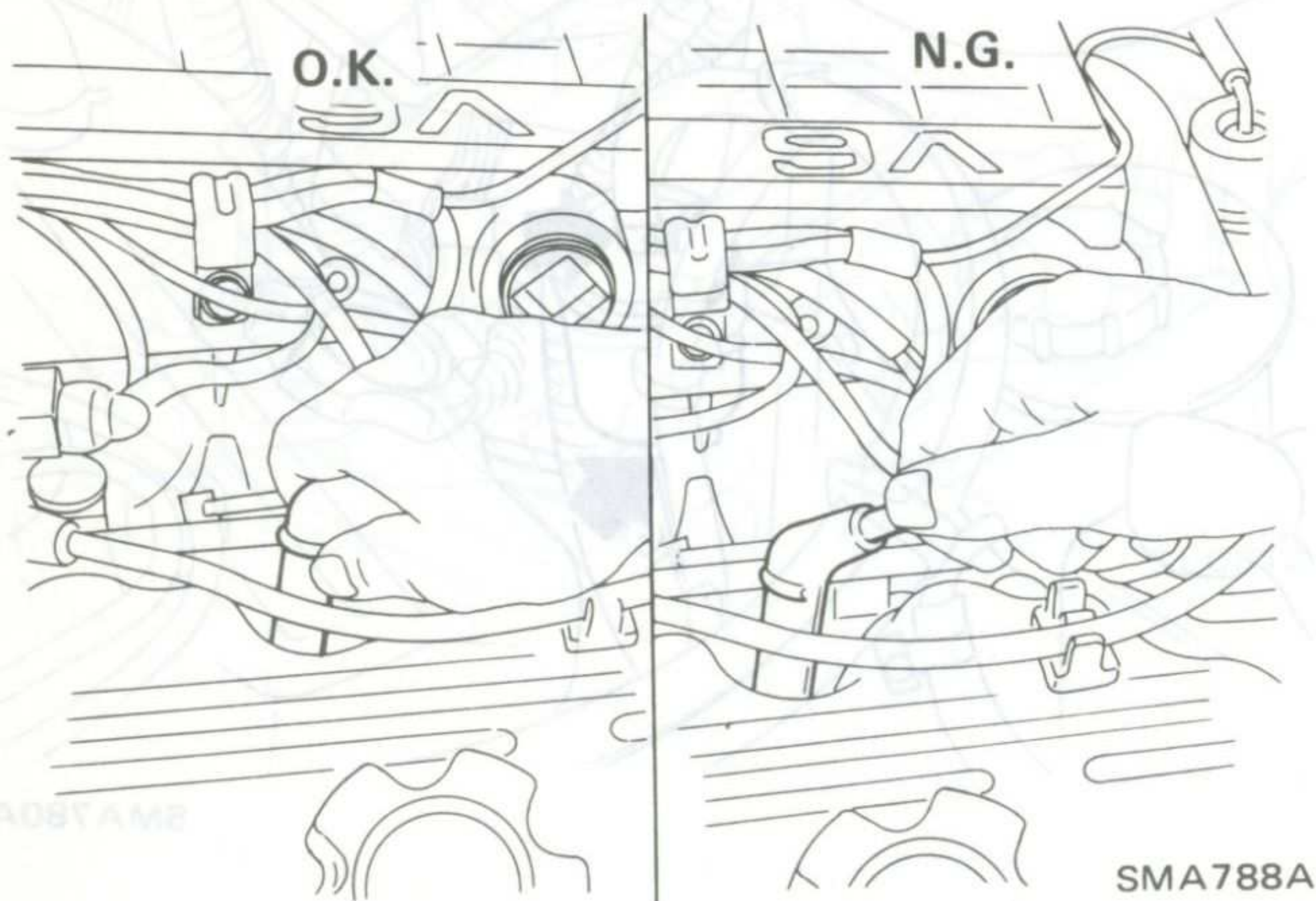
ENGINE MAINTENANCE

Checking and Replacing Spark Plugs

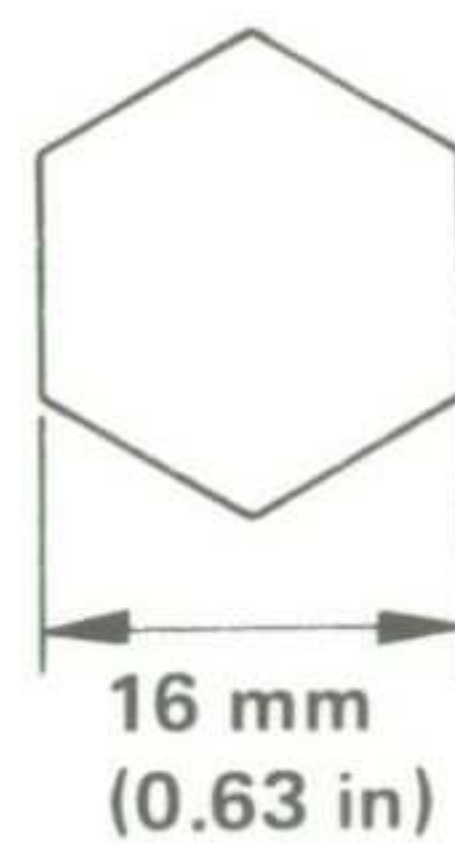
CHECKING AND REPLACING SPARK PLUGS



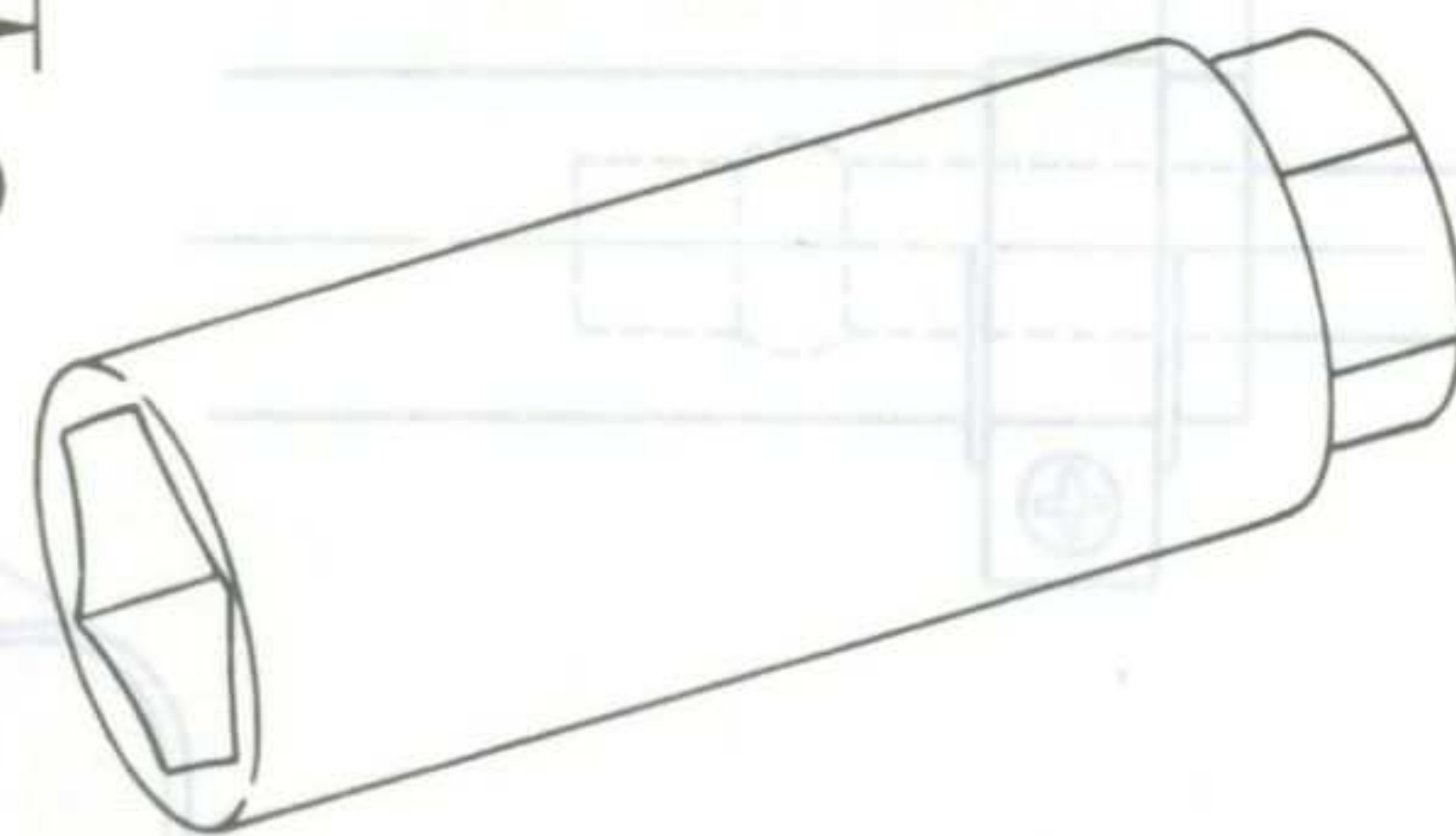
1. Disconnect spark plug wire at boot. Do not pull on the wires.



2. Remove spark plugs with spark plug wrench.



Wrench with a magnet to hold spark plug



SEM294A

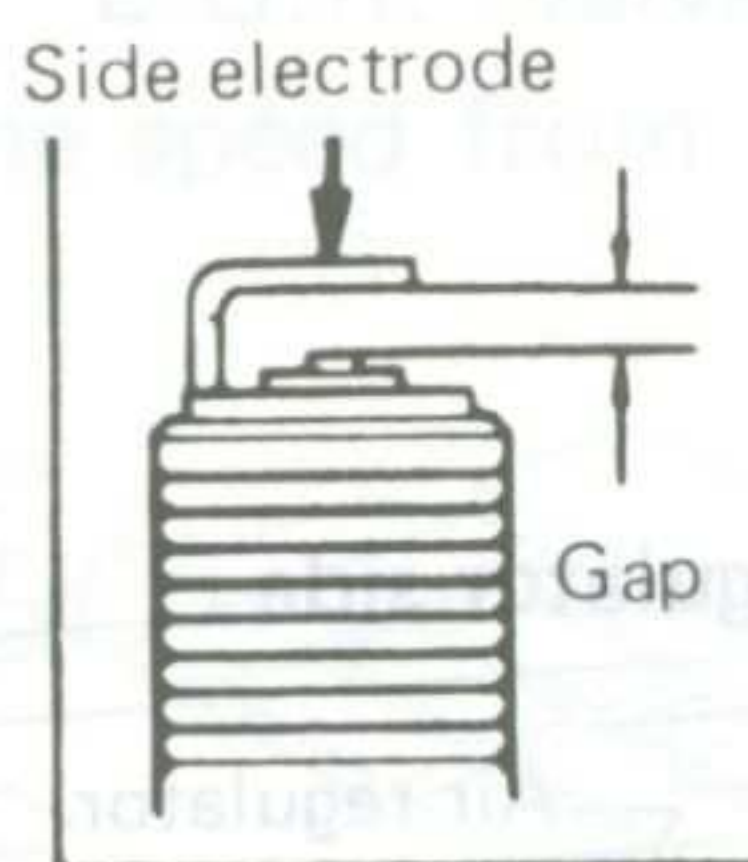
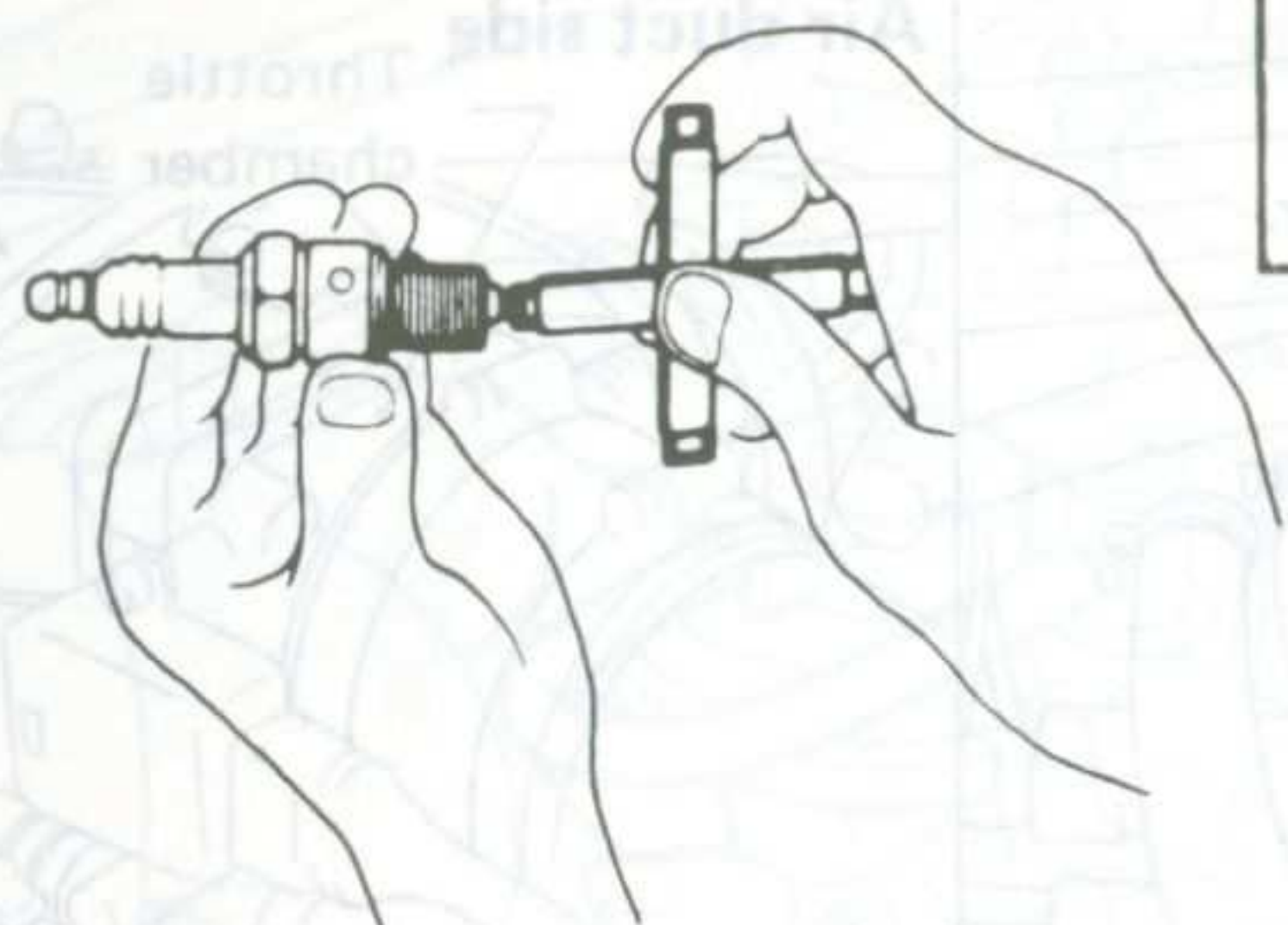
3. After cleaning spark plugs, inspect insulator for cracks or chips, gasket for damage or deterioration and electrode for wear and burning. If they are excessively worn, replace with new spark plugs.

ENGINE MAINTENANCE

Checking and Replacing Spark Plugs (Cont'd)

4. Check spark plug gap.

Gap:
1.0 - 1.1 mm (0.039 - 0.043in)



SMA476

5. Install spark plugs. Reconnect high tension cables according to Nos. indicated on them.

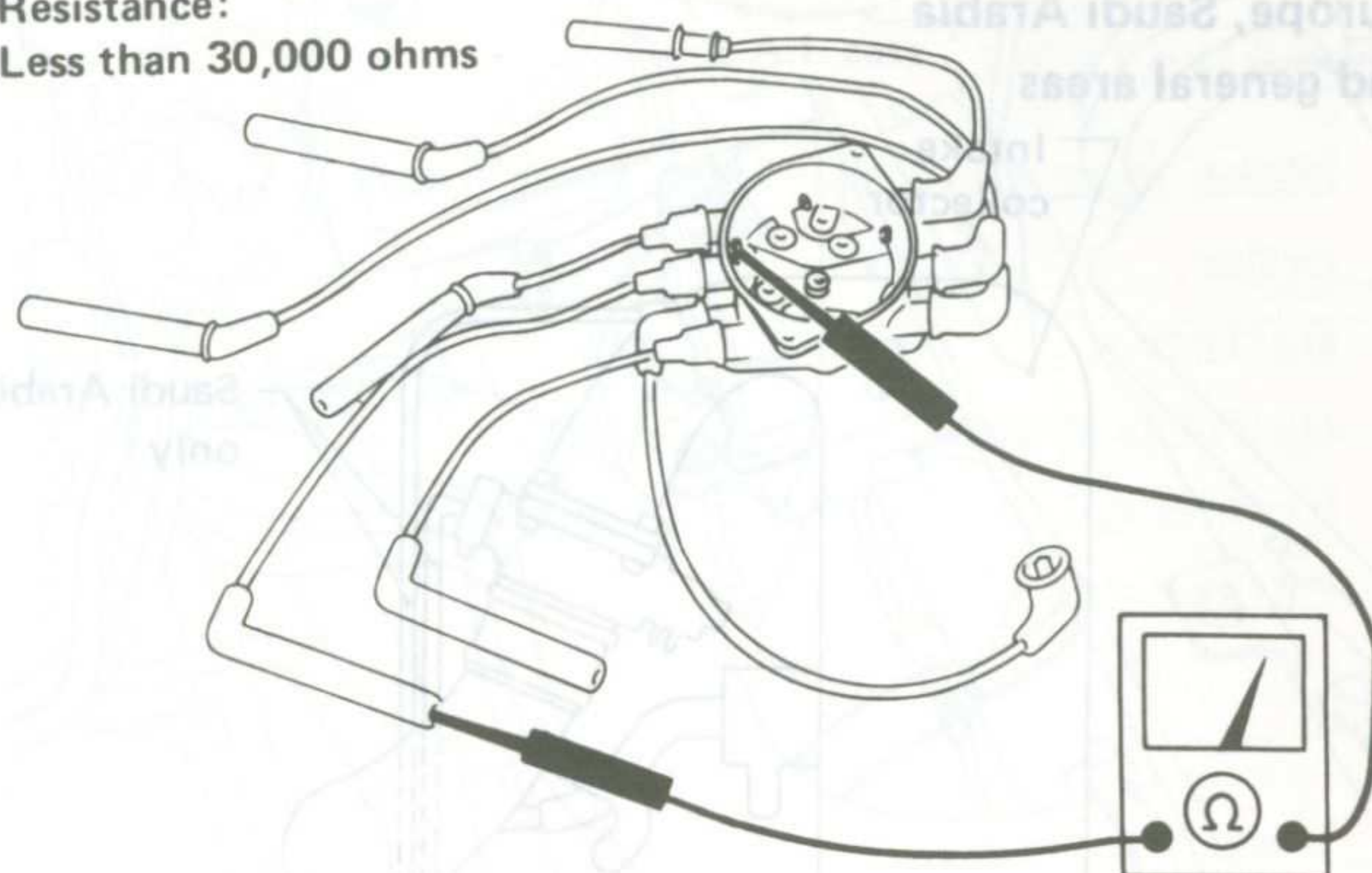
 : Spark plug
20 - 29 N·m
(2.0 - 3.0 kg-m, 14 - 22 ft-lb)

		VG30E	VG30ET
Except Europe	Standard	BCP6ES-11	BCP6E-11
	Hot type	BCP5ES-11	BCP5E-11
	Cold type	BCP7ES-11	BCP7E-11
Europe	Standard	BCPR6ES-11	BCPR6E-11
	Hot type	BCPR5ES-11	BCPR5E-11
	Cold type	BCPR7ES-11	BCPR7E-11

Checking Ignition Wires

1. Check the high tension wires for cracks, damage, burned terminals and proper fit.
2. Measure the resistance of the high tension wires, by shaking it and checking for intermittent breaks.

Resistance:
Less than 30,000 ohms

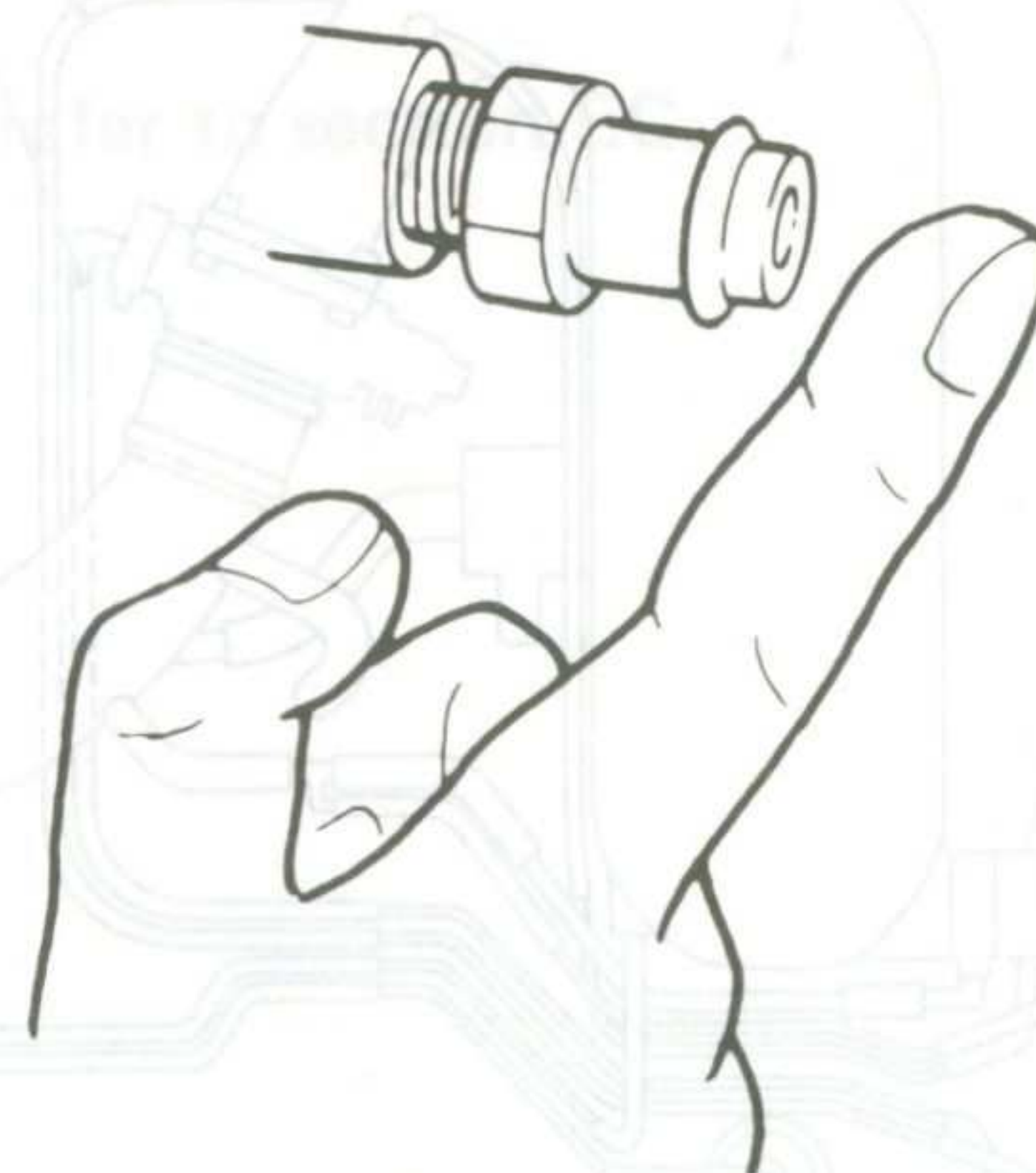


SMA789A

Checking Positive Crankcase Ventilation (P.C.V.) System

CHECKING P.C.V. VALVE

Disconnect hose and check P.C.V. valve to see that it is operating properly.



SMA048

CHECKING VENTILATION HOSES

Check ventilation hoses for proper connection, cracks and damage.

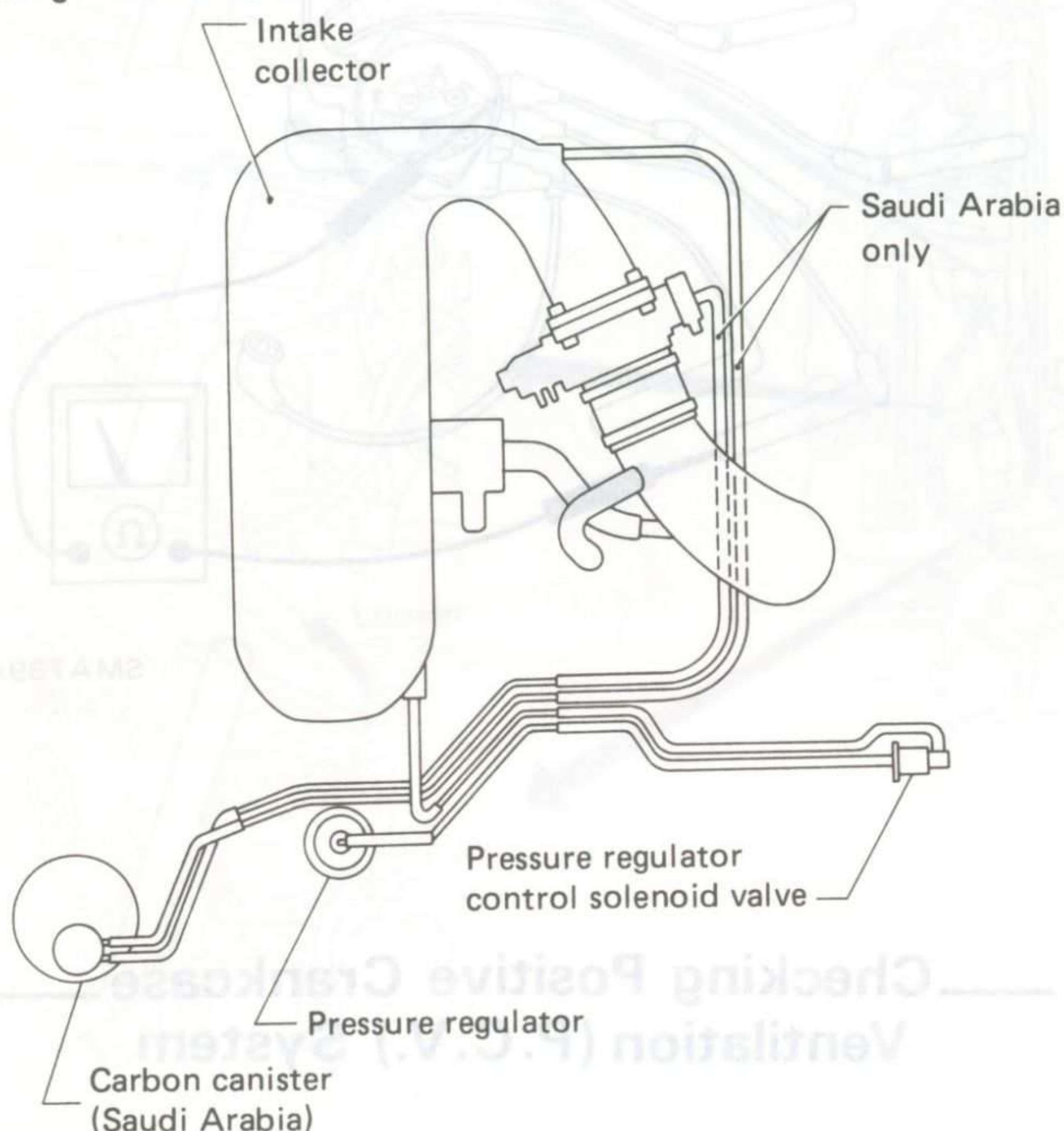
ENGINE MAINTENANCE

Checking Vacuum Fitting Hoses and Connections

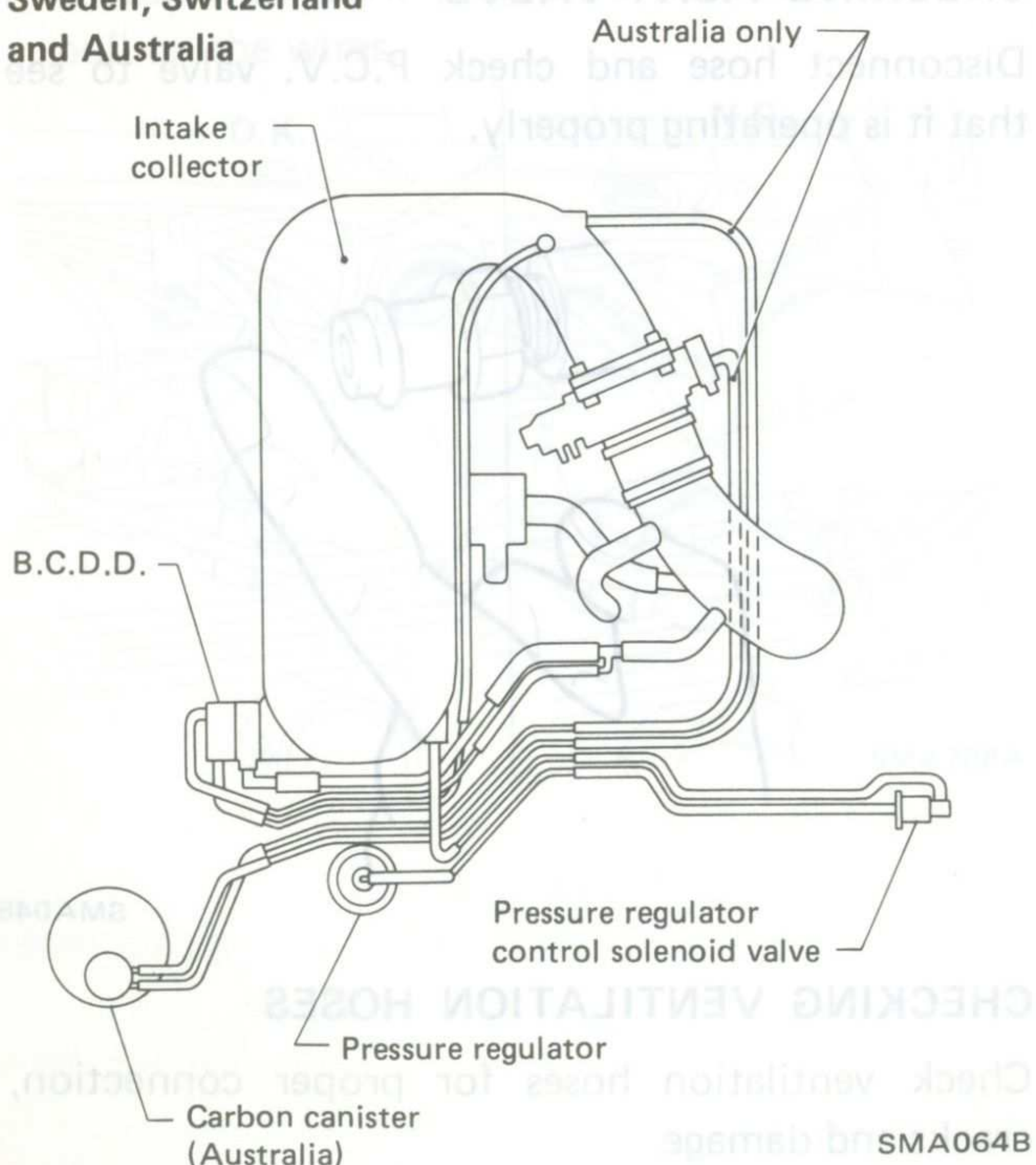
Check vacuum hoses for proper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.

For details, refer to section EC.

Europe, Saudi Arabia and general areas



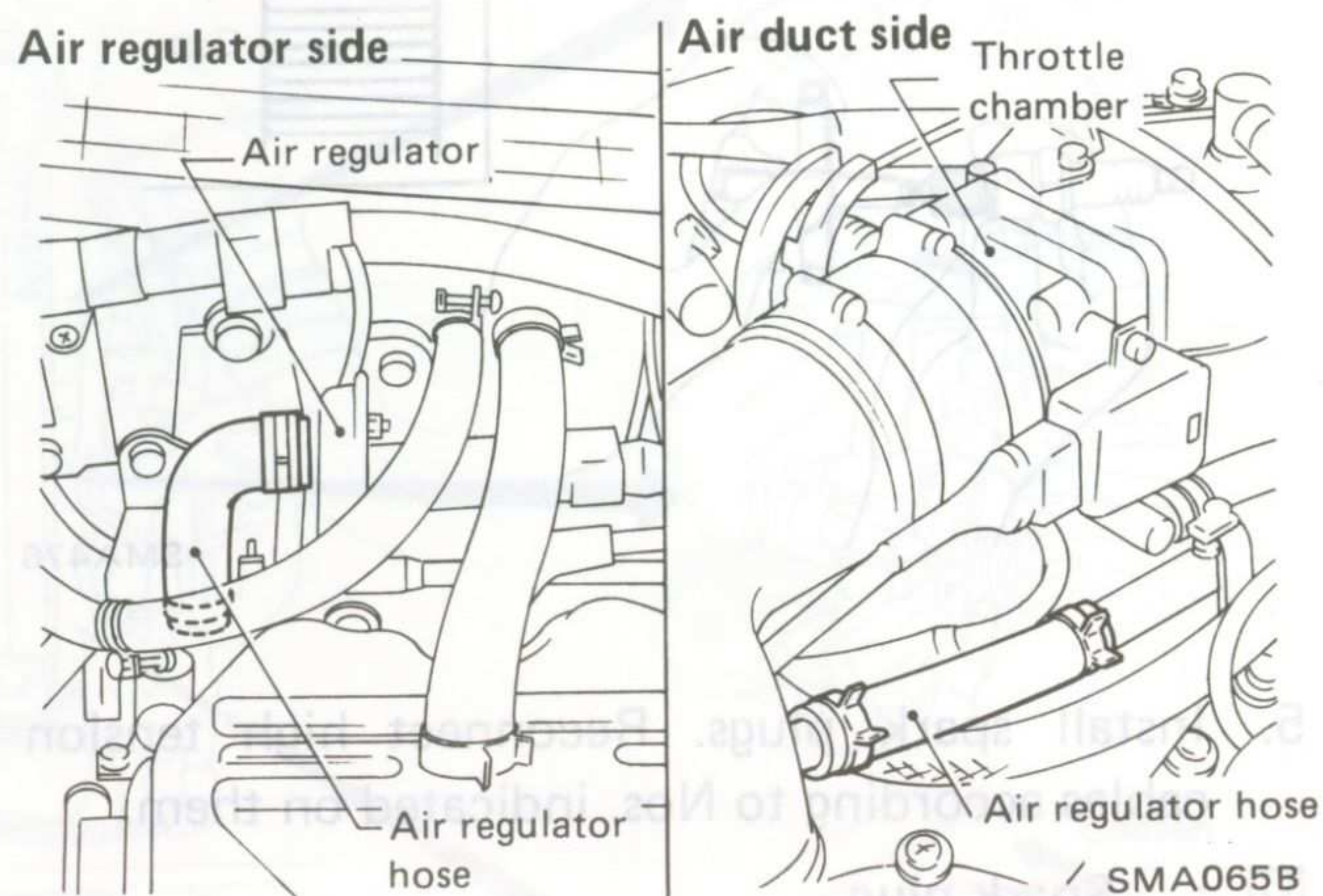
Sweden, Switzerland and Australia



SMA064B

Checking Air Regulator Hoses

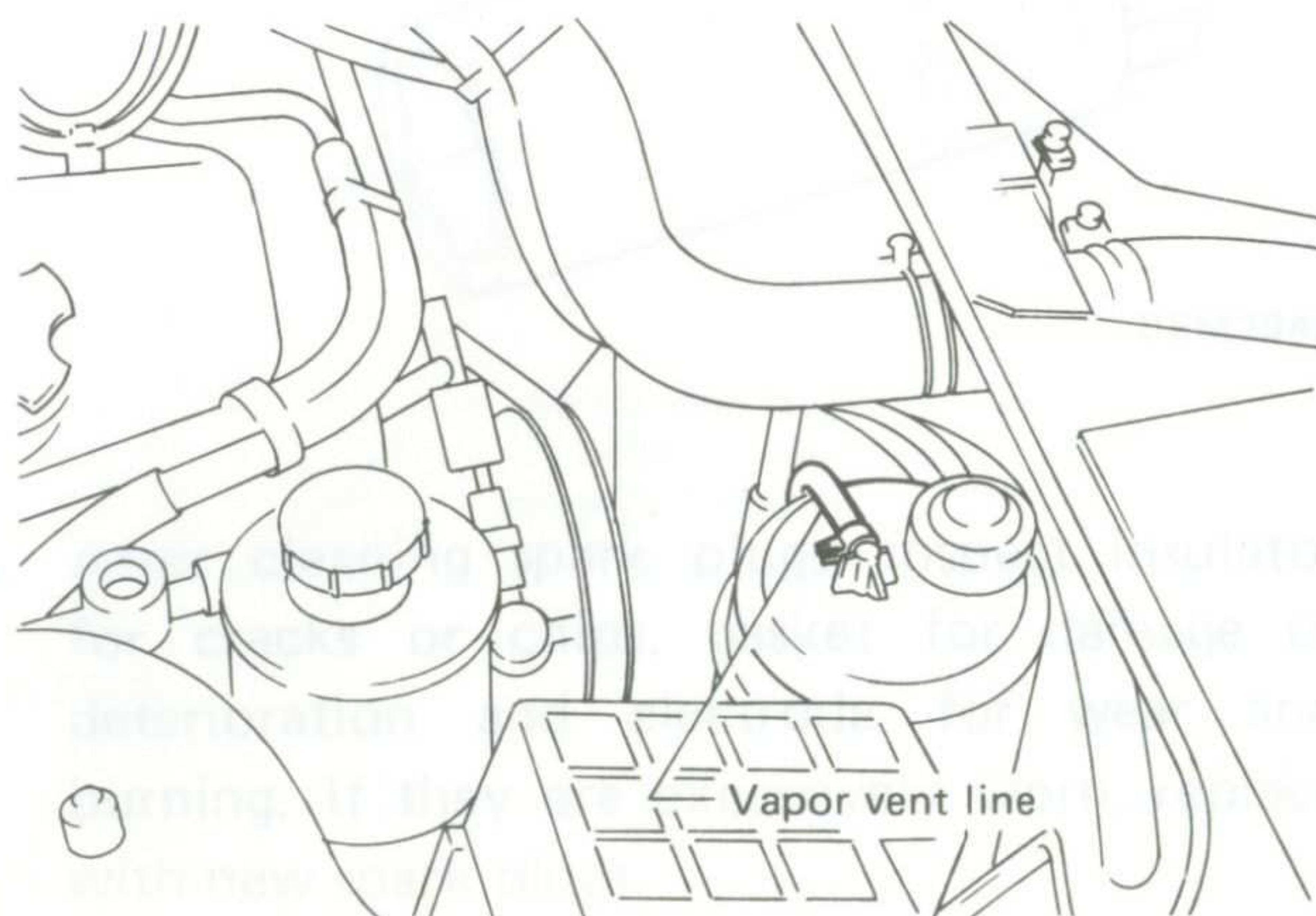
Check air regulator hoses for loose connections, leaks, cracks, damage, chafing and deterioration.



SMA065B

Checking Vapor Lines

1. Visually inspect vapor lines for proper attachment, cracks, damage, loose connections, chafing and deterioration.
2. Check vacuum relief valve for clogging, sticking, etc.

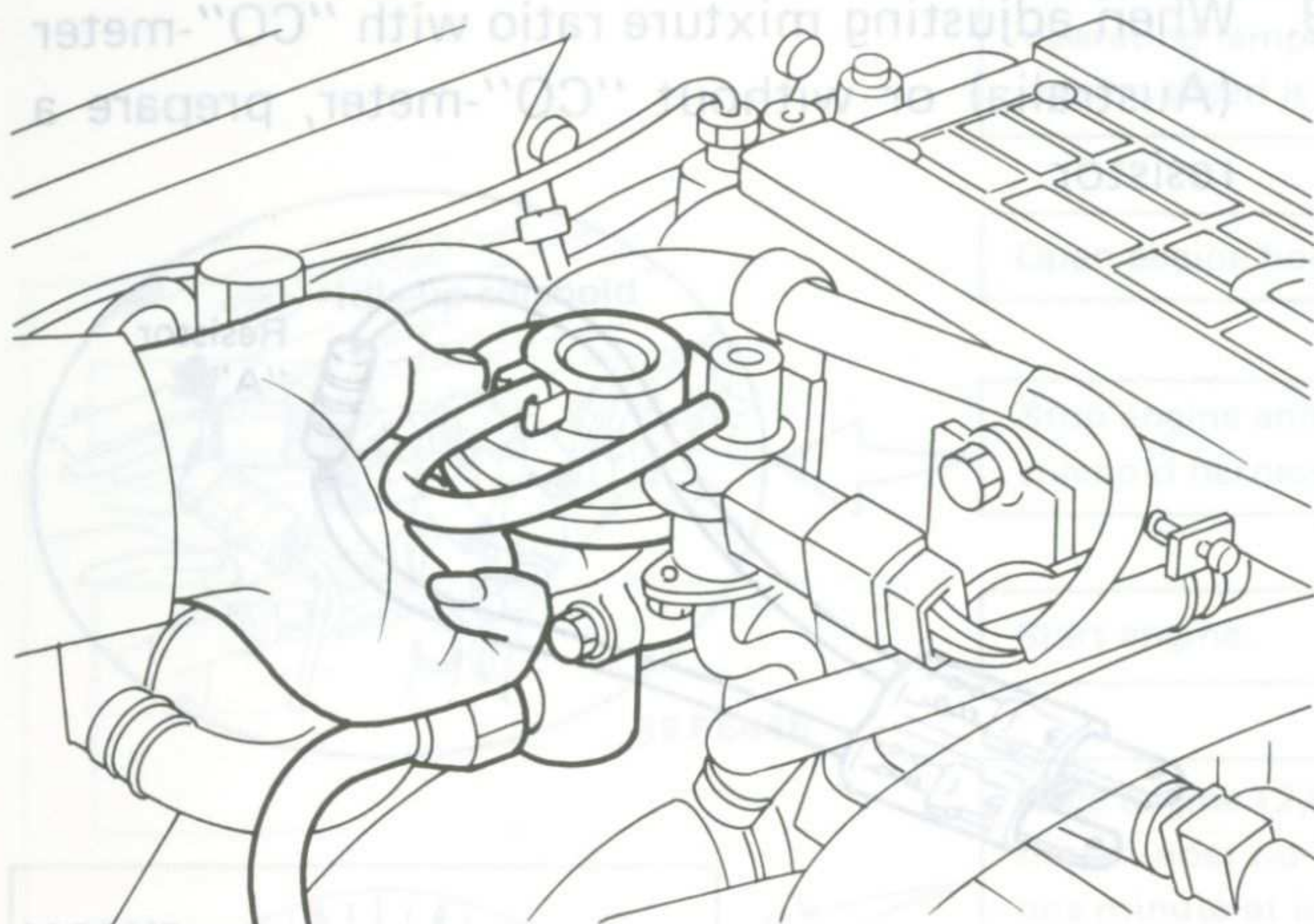


SMA066B

ENGINE MAINTENANCE

Checking Exhaust Gas Recirculation System

1. Visually check entire E.G.R. control system.
2. Check the movement of E.G.R. valve diaphragm by increasing engine speed from idling to 3,000 rpm.



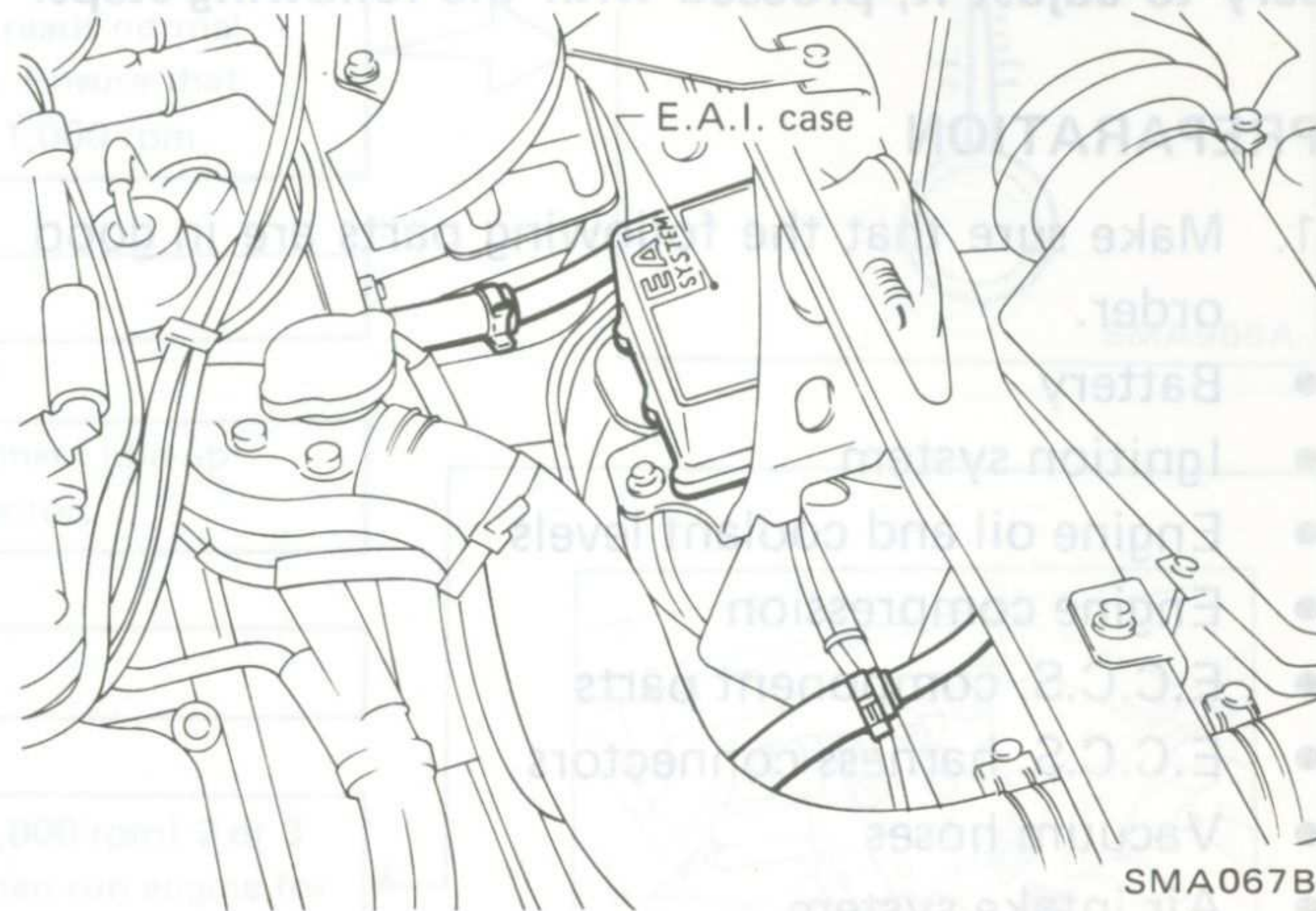
SMA954A

- 1) While engine is cold, diaphragm should not move.
- 2) While engine is hot, diaphragm should move upwards.

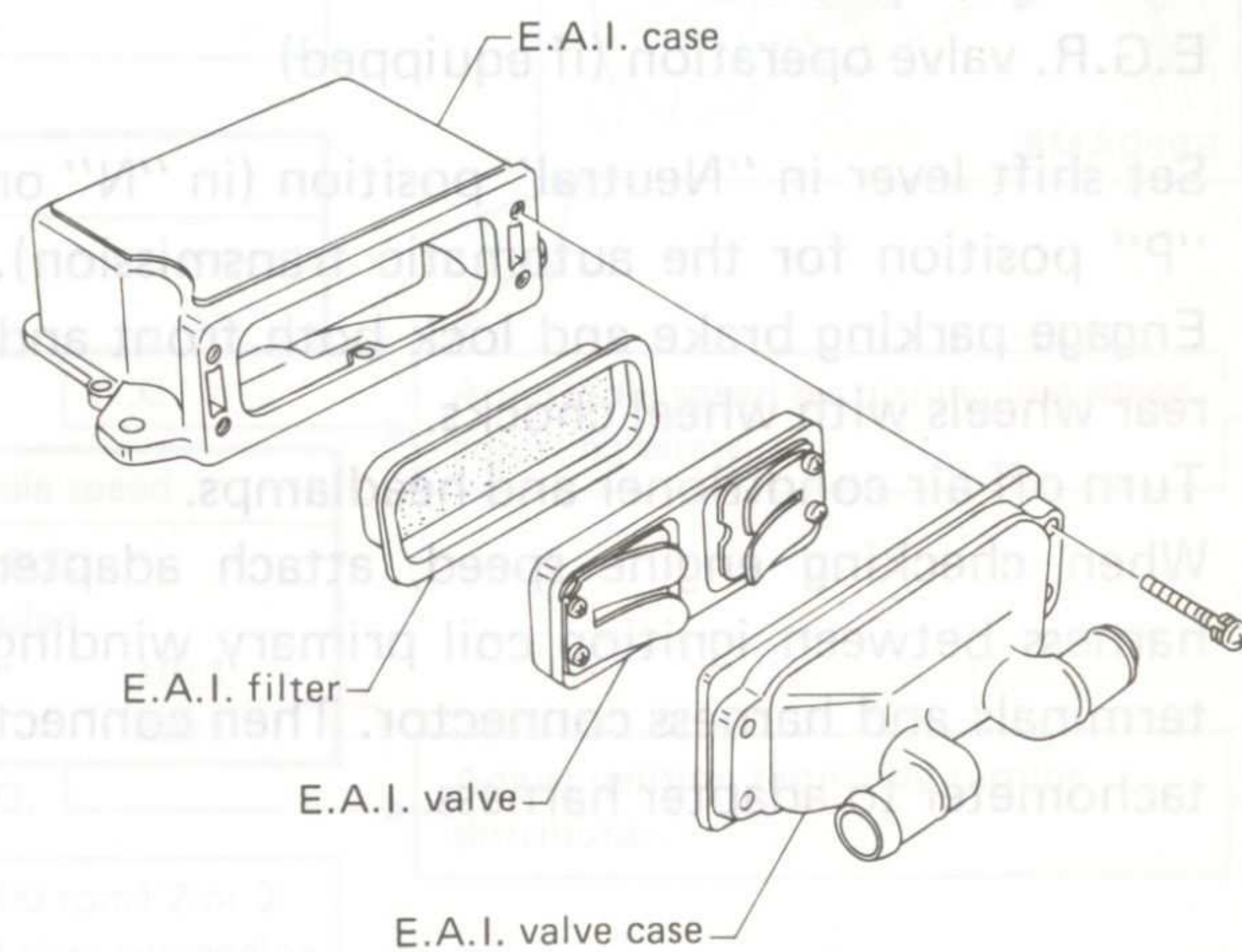
For details, refer to section EC.

Replacing Air Induction Valve Filter

Remove air induction valve case from E.A.I. box, and take out air induction valve filter. Then install new filter.



SMA067B



SMA068B

For details, refer to section EC.

ENGINE MAINTENANCE

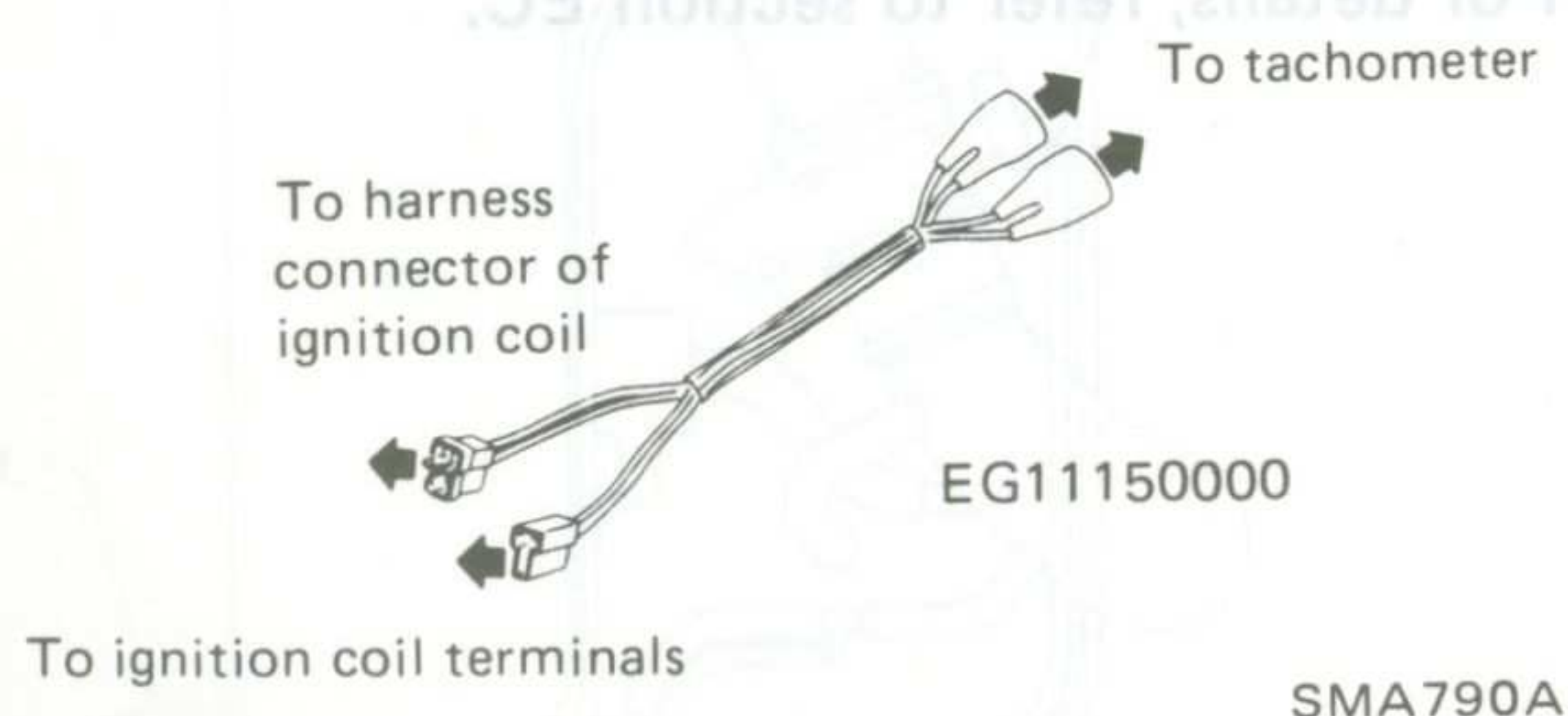
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio

CAUTION:

Idle mixture ratio is adjusted at factory and requires no further adjustment. If it becomes necessary to adjust it, proceed with the following steps.

PREPARATION

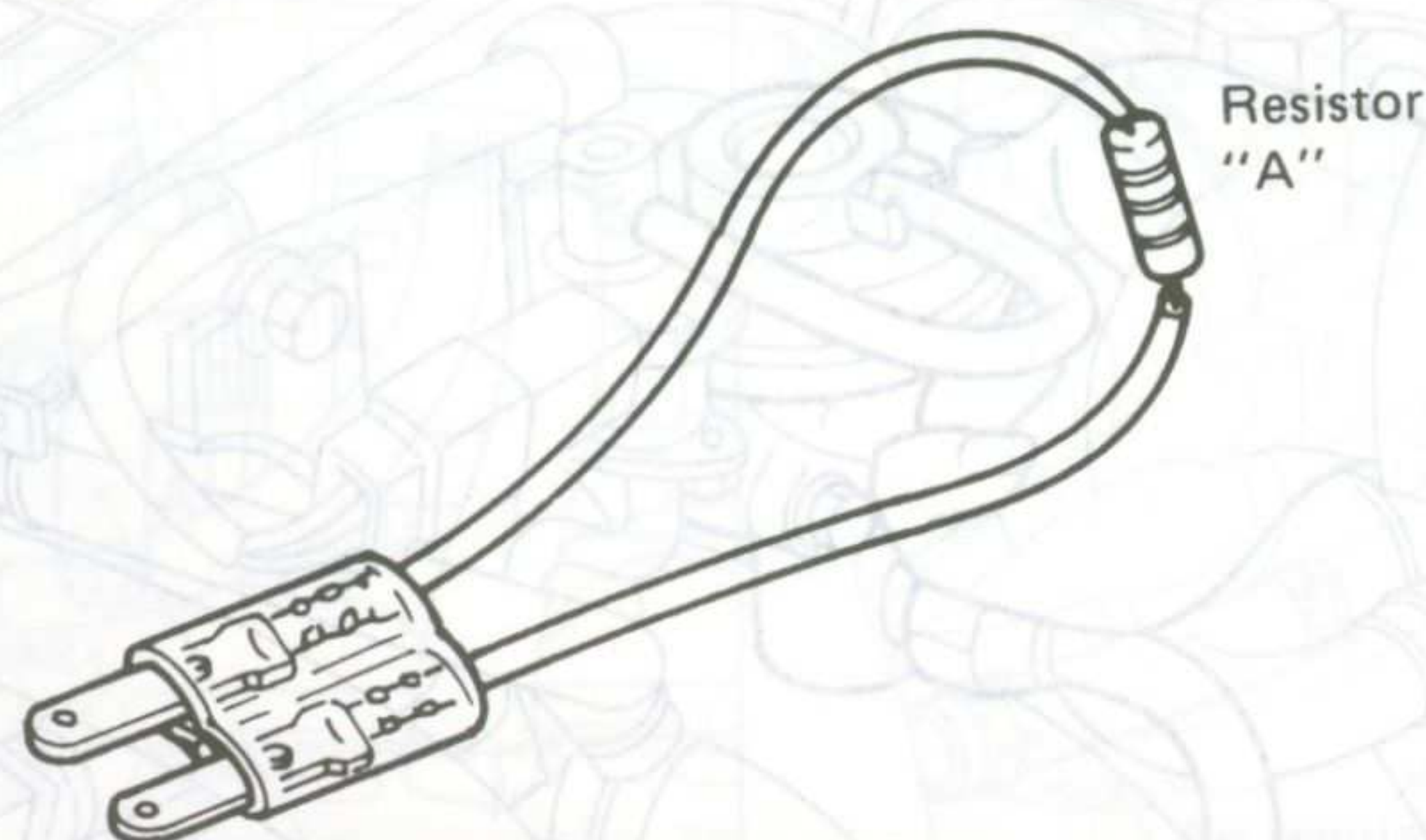
1. Make sure that the following parts are in good order.
 - Battery
 - Ignition system
 - Engine oil and coolant levels
 - Engine compression
 - E.C.C.S. component parts
 - E.C.C.S. harness connectors
 - Vacuum hoses
 - Air intake system
 - E.G.R. valve operation (if equipped)
2. Set shift lever in "Neutral" position (in "N" or "P" position for the automatic transmission). Engage parking brake and lock both front and rear wheels with wheel chocks.
3. Turn off air conditioner and headlamps.
4. When checking engine speed, attach adapter harness between ignition coil primary winding terminals and harness connector. Then connect tachometer to adapter harness.



SMA790A

5. Make the check after the radiator cooling fan has stopped.
6. Before disconnecting and connecting E.C.C.S. component parts harness connectors, ensure that ignition switch is in "OFF" position.

7. Use "CO"-meter after it is fully warmed up, and insert "CO"-meter probe into tail pipe more than 0.4 m (1.3 ft).
8. Measure "CO"% with air cleaner installed.
9. When adjusting mixture ratio with "CO"-meter (Australia) or without "CO"-meter, prepare a resistor.



SMA211

Make lead wire as follows:

- 1) Use flat plate terminals 3 mm (0.12 in) wide, 0.8 mm (0.031 in) thick as male terminals. Place flat plate terminals parallel with each other and keep distance between inside faces 2 mm (0.08 in).
- 2) Solder lead wire to terminals.
- 3) Solder resistor to side opposite to terminal and wrap insulation tape around soldered portion.

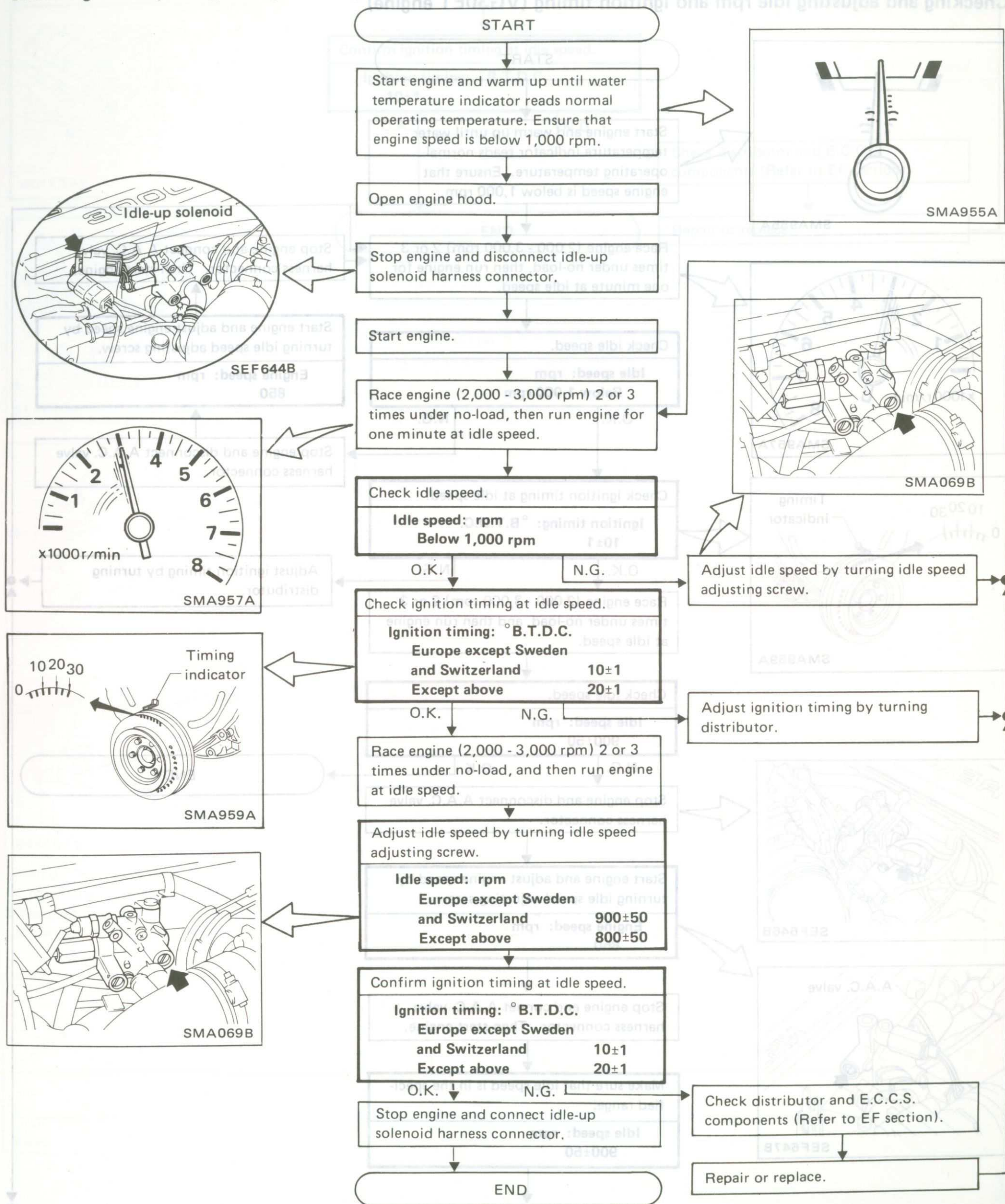
Resistance "A"

Adjusting method	Altitude m (ft)	Resistance Ω
With "CO"-meter (Australia)	All	900
With "CO"-meter (Except Australia)	All	—
Without "CO"-meter	All	2,500

ENGINE MAINTENANCE

Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)

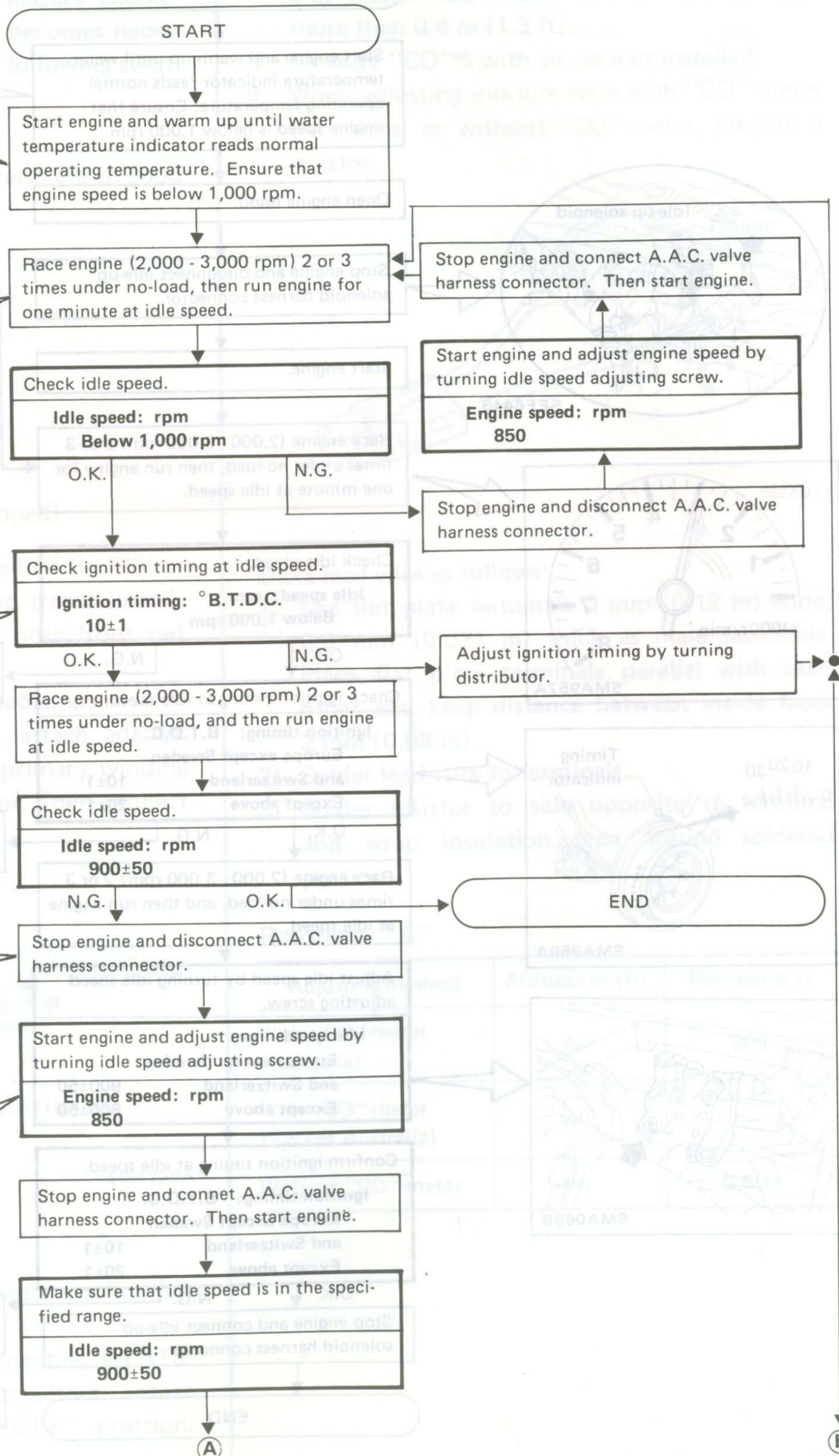
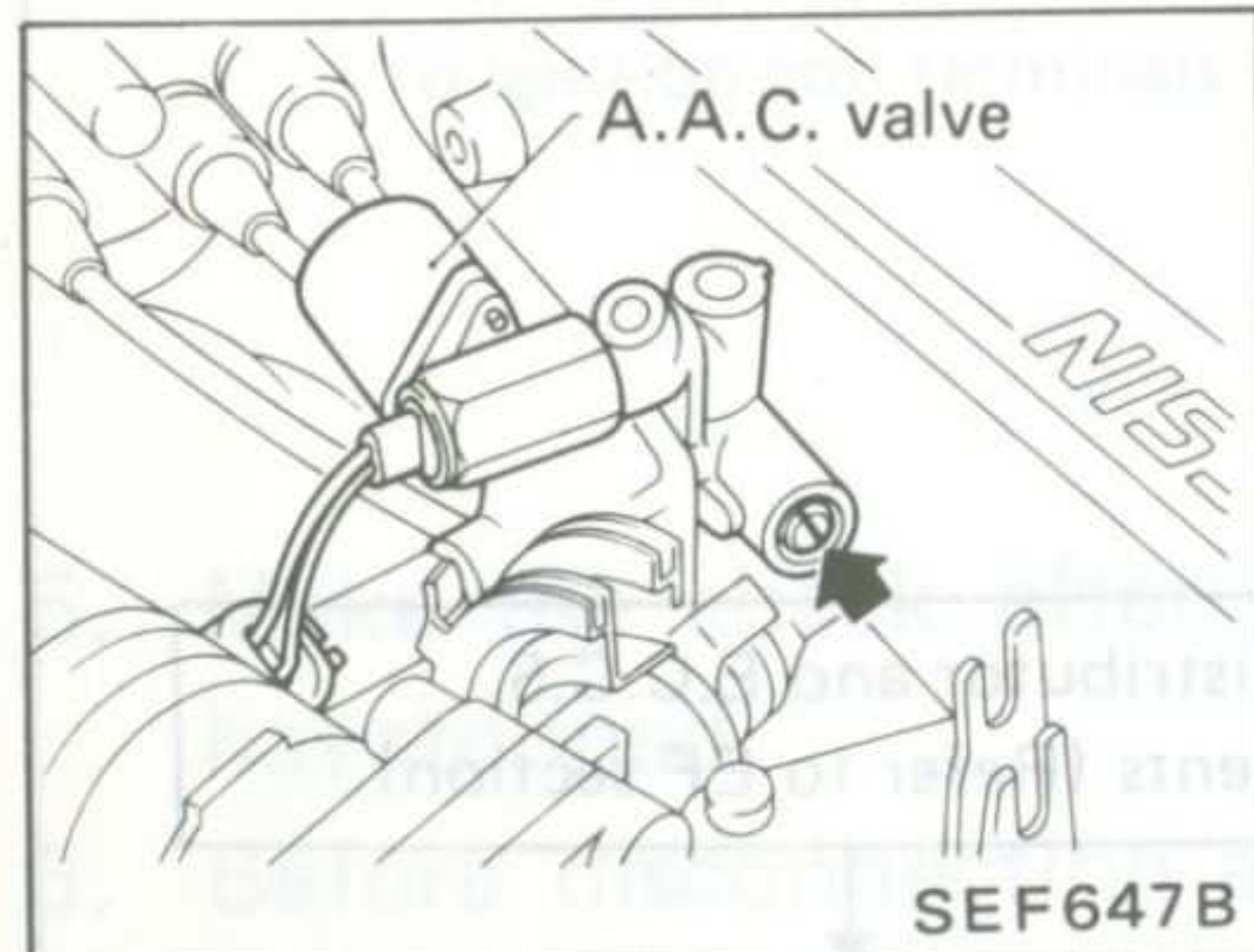
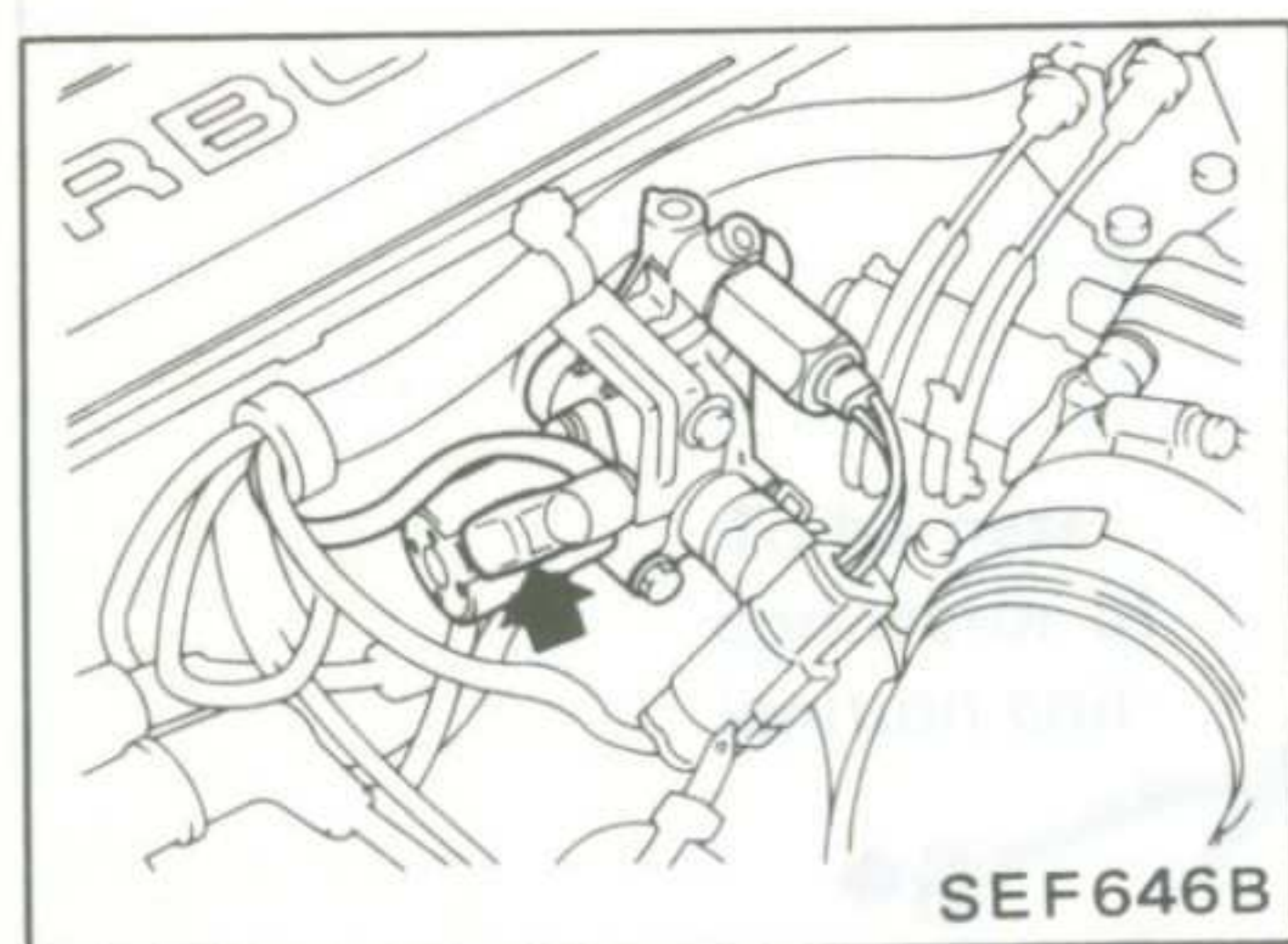
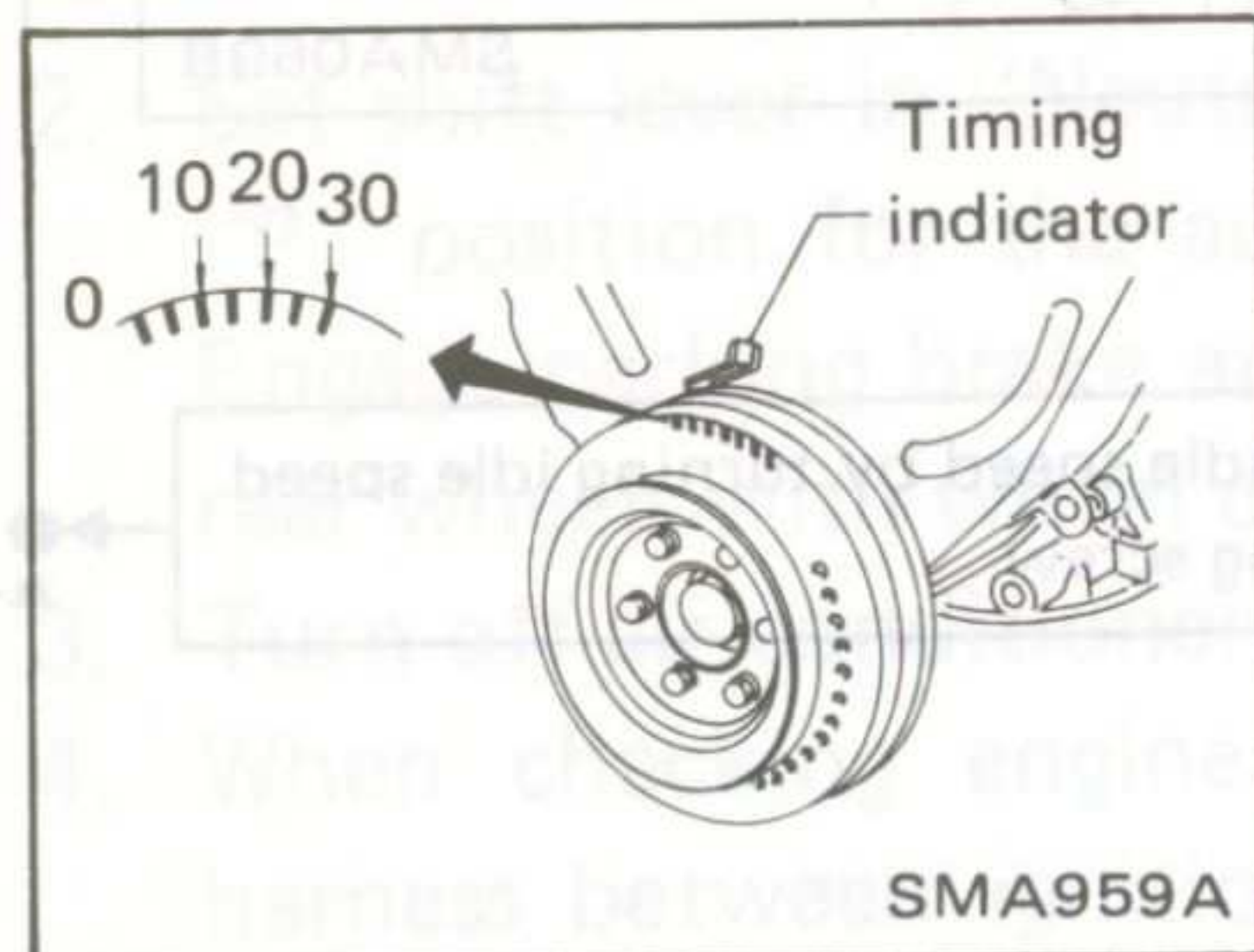
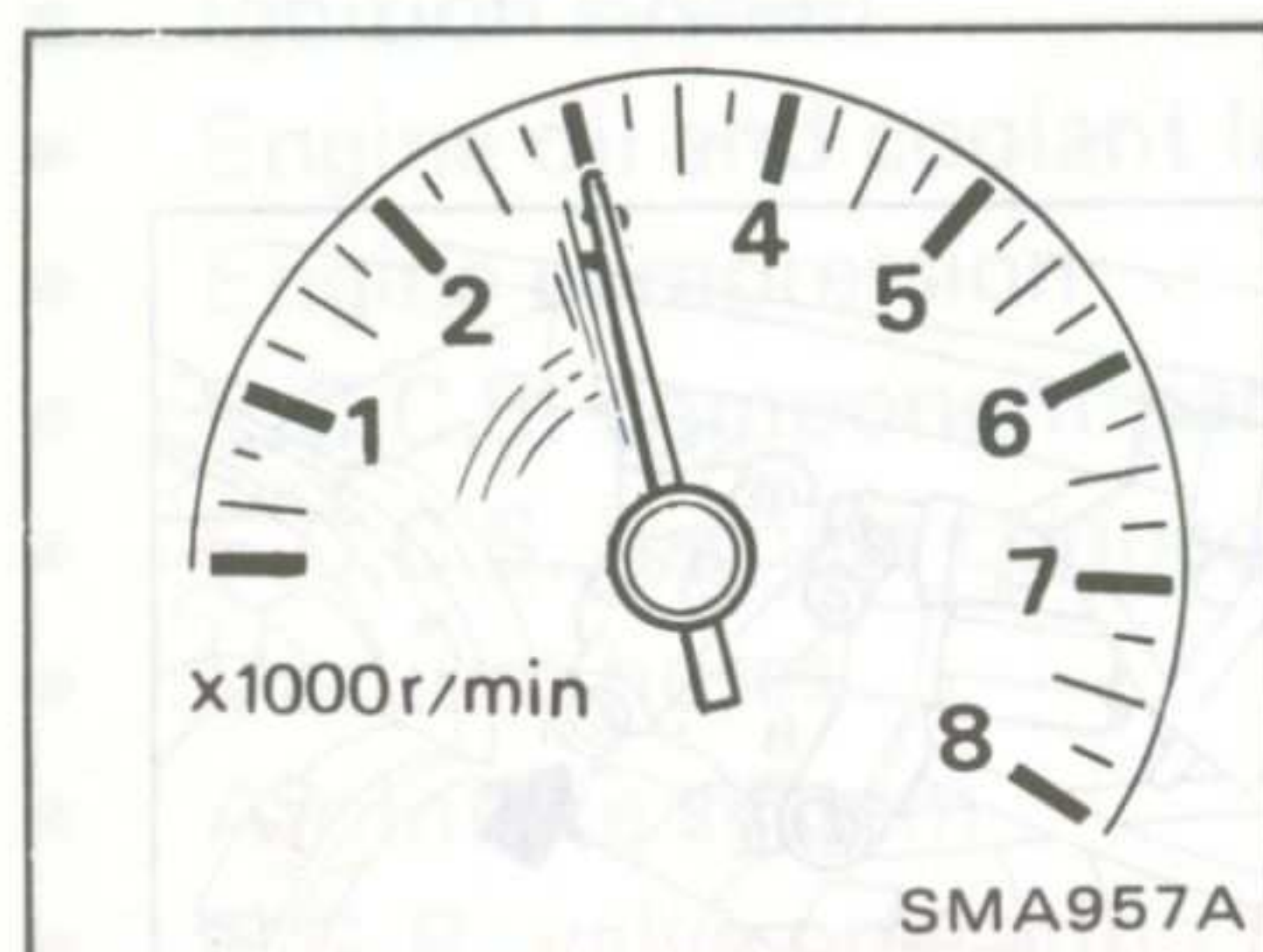
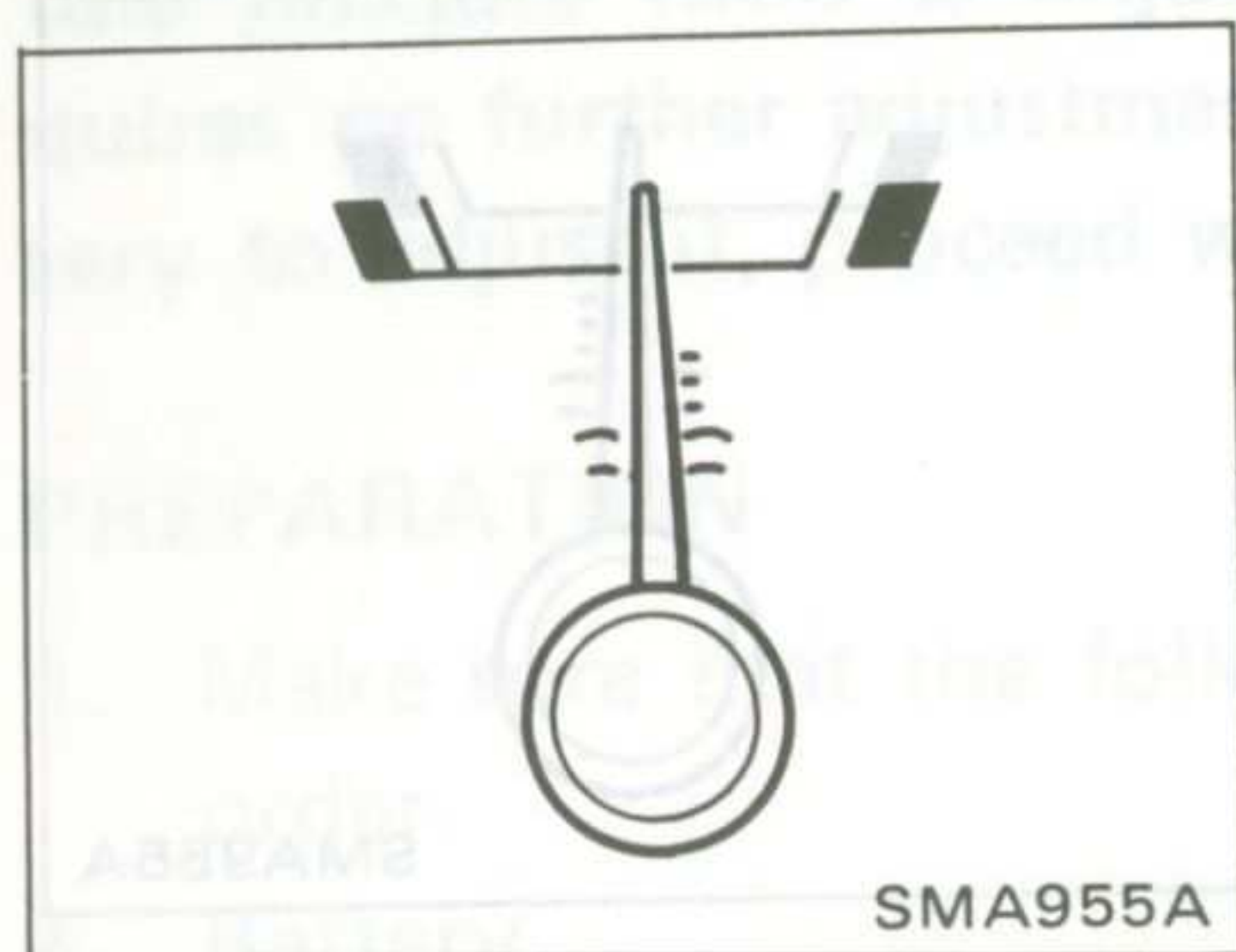
Checking and adjusting idle rpm and ignition timing (VG30E engine)



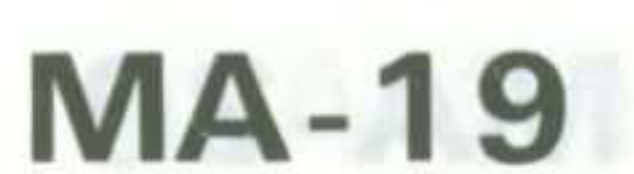
ENGINE MAINTENANCE

Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)

Checking and adjusting idle rpm and ignition timing (VG30ET engine)



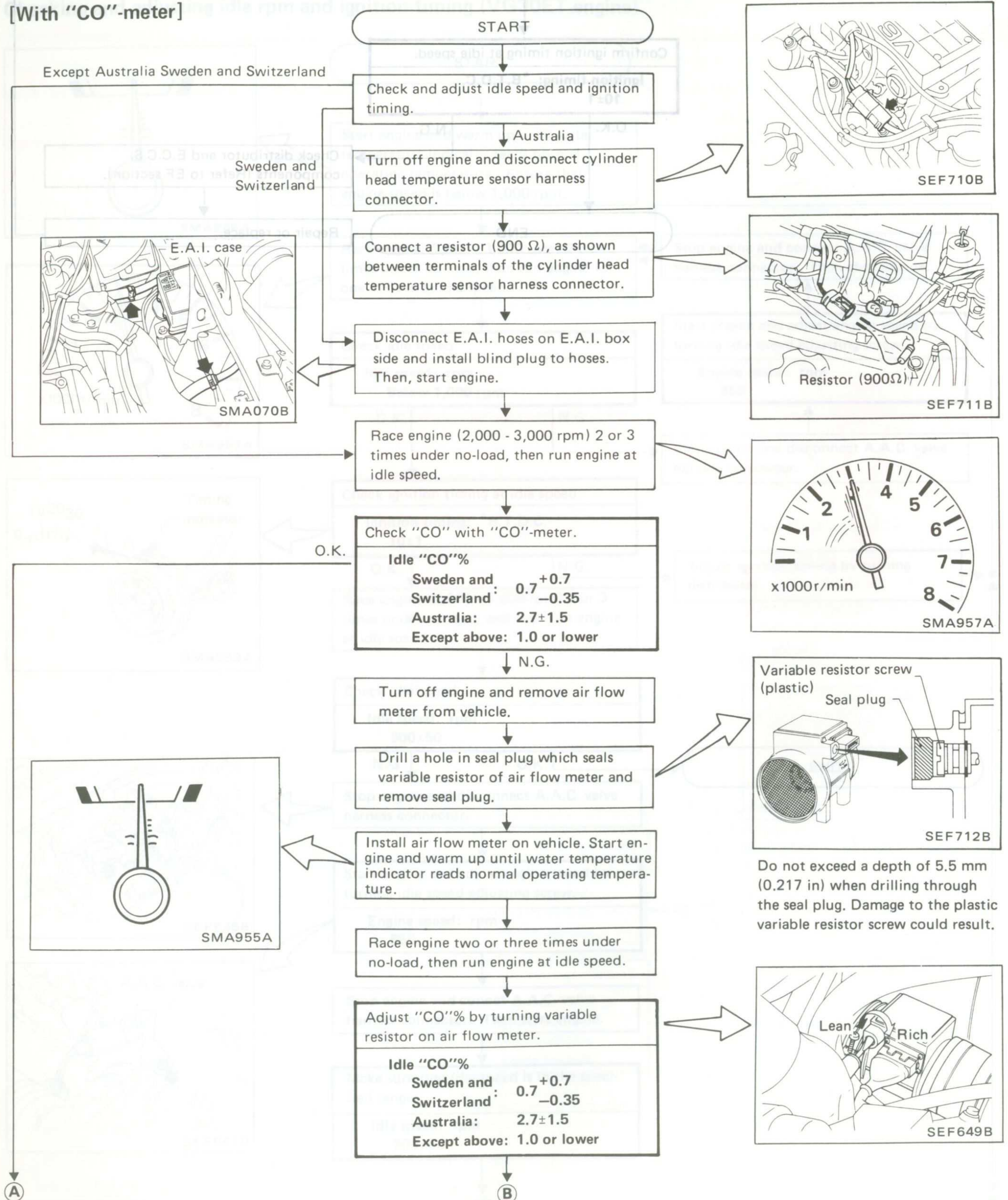
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)



ENGINE MAINTENANCE

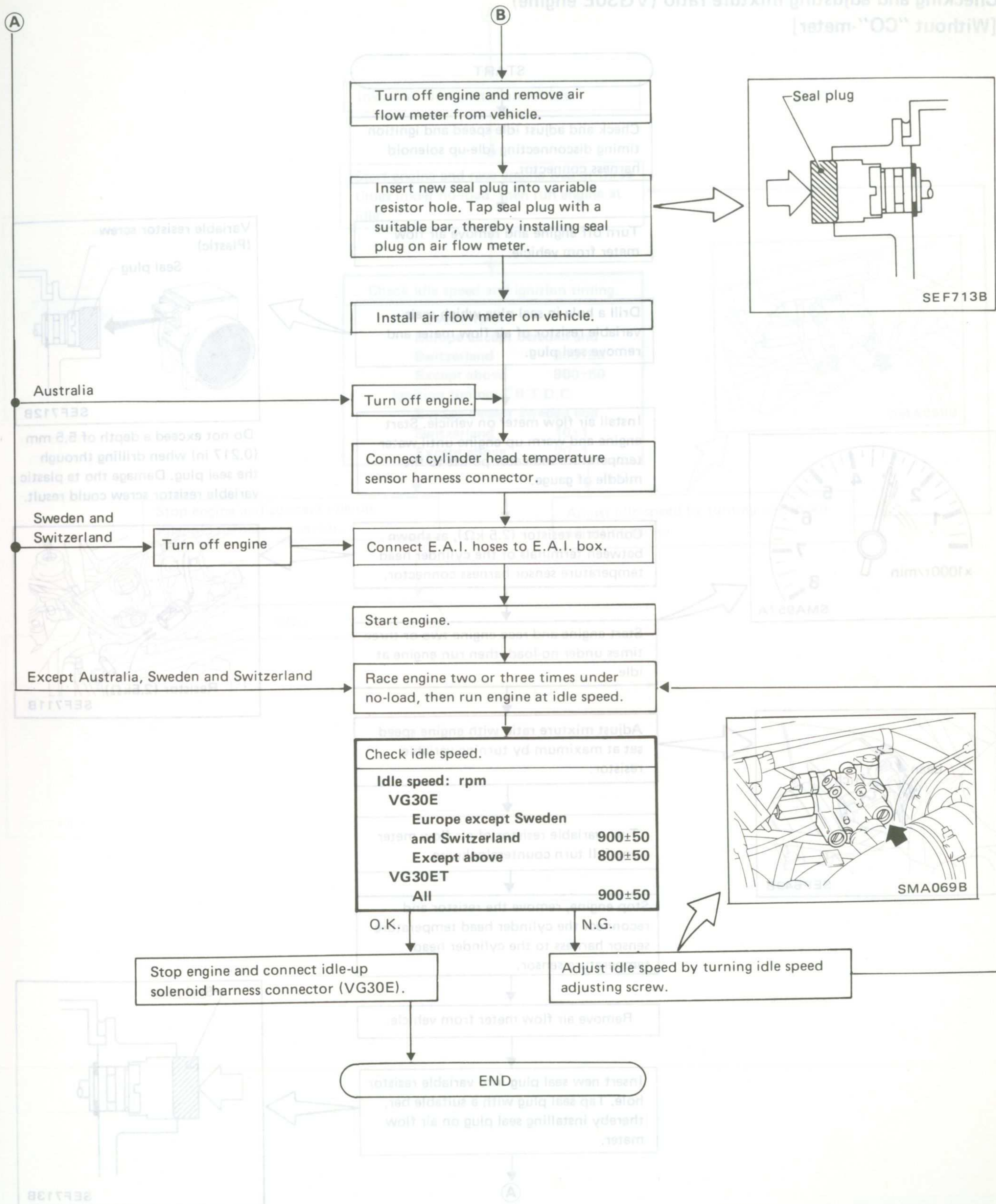
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)

Checking and adjusting mixture ratio (VG30E and VG30ET engines)
[With "CO"-meter]



ENGINE MAINTENANCE

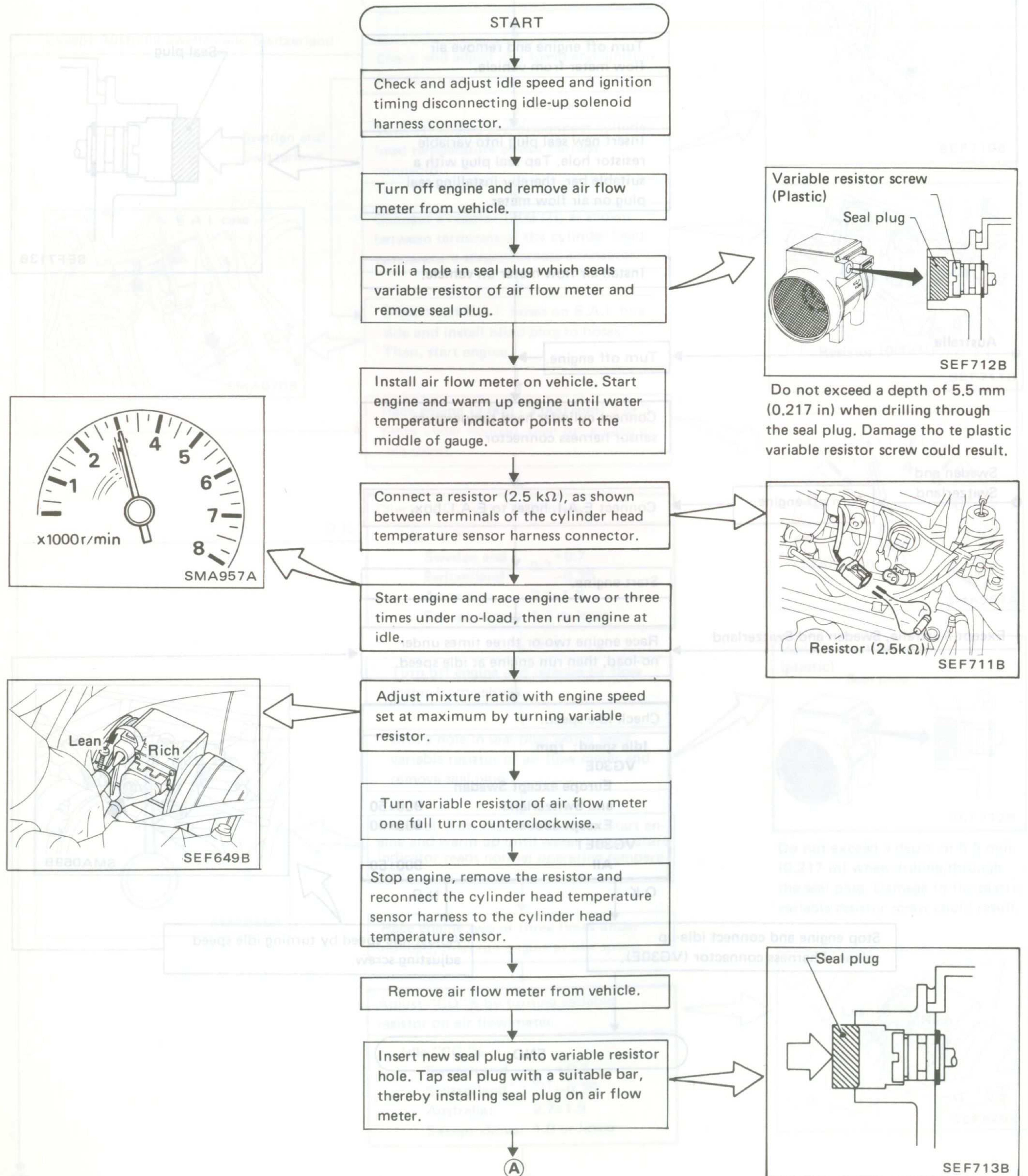
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)



ENGINE MAINTENANCE

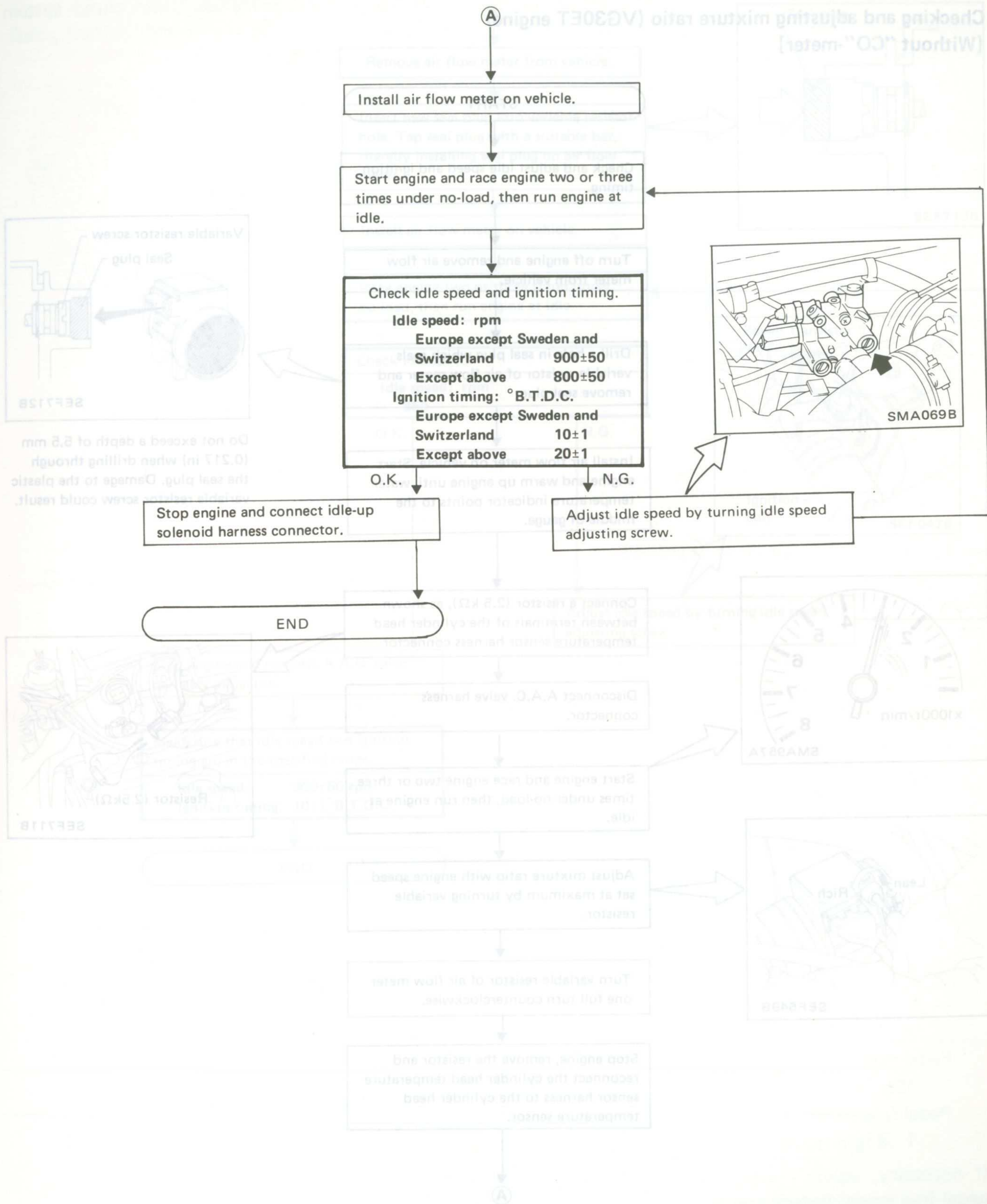
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)

Checking and adjusting mixture ratio (VG30E engine)
[Without "CO"-meter]



ENGINE MAINTENANCE

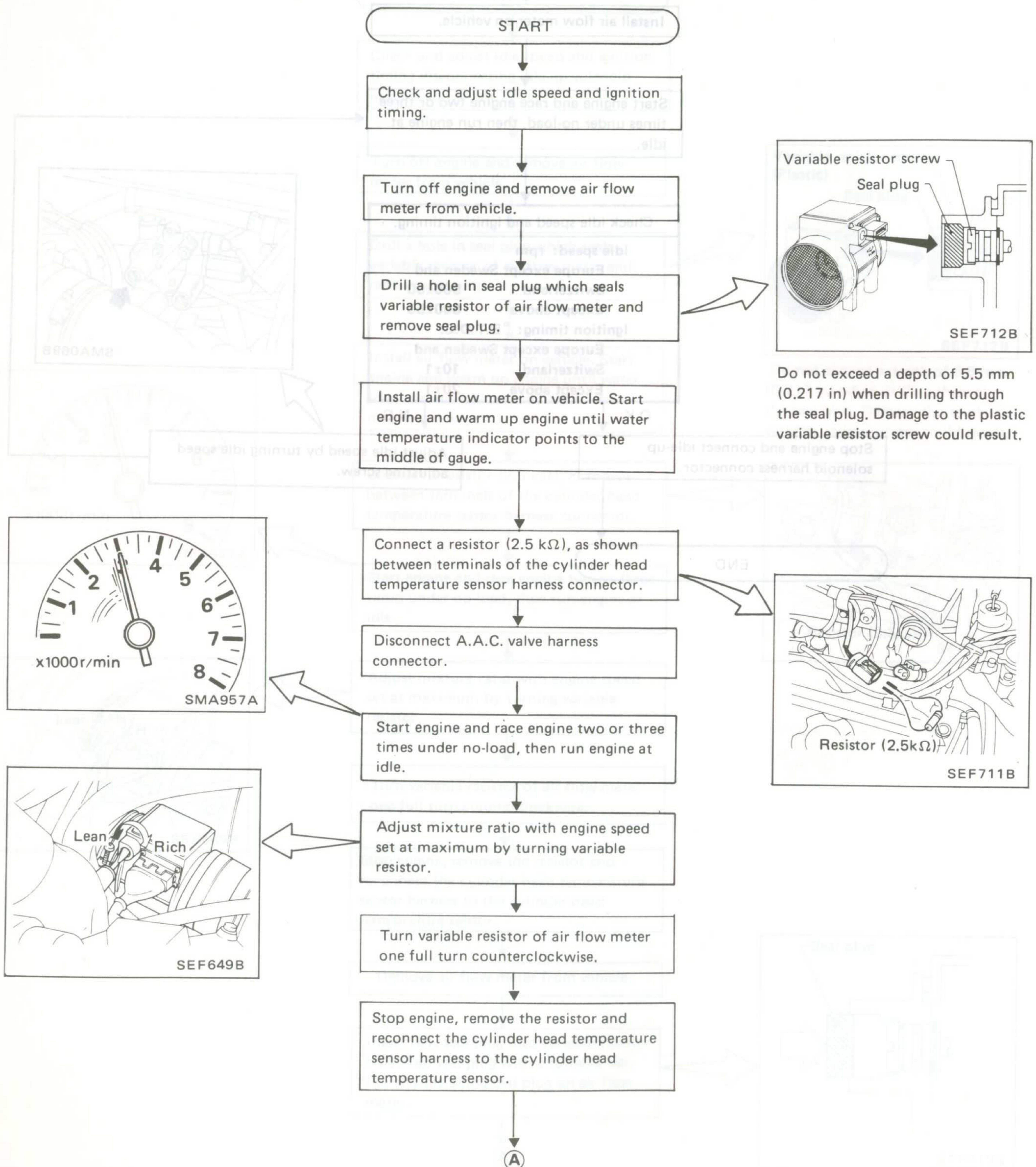
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)



ENGINE MAINTENANCE

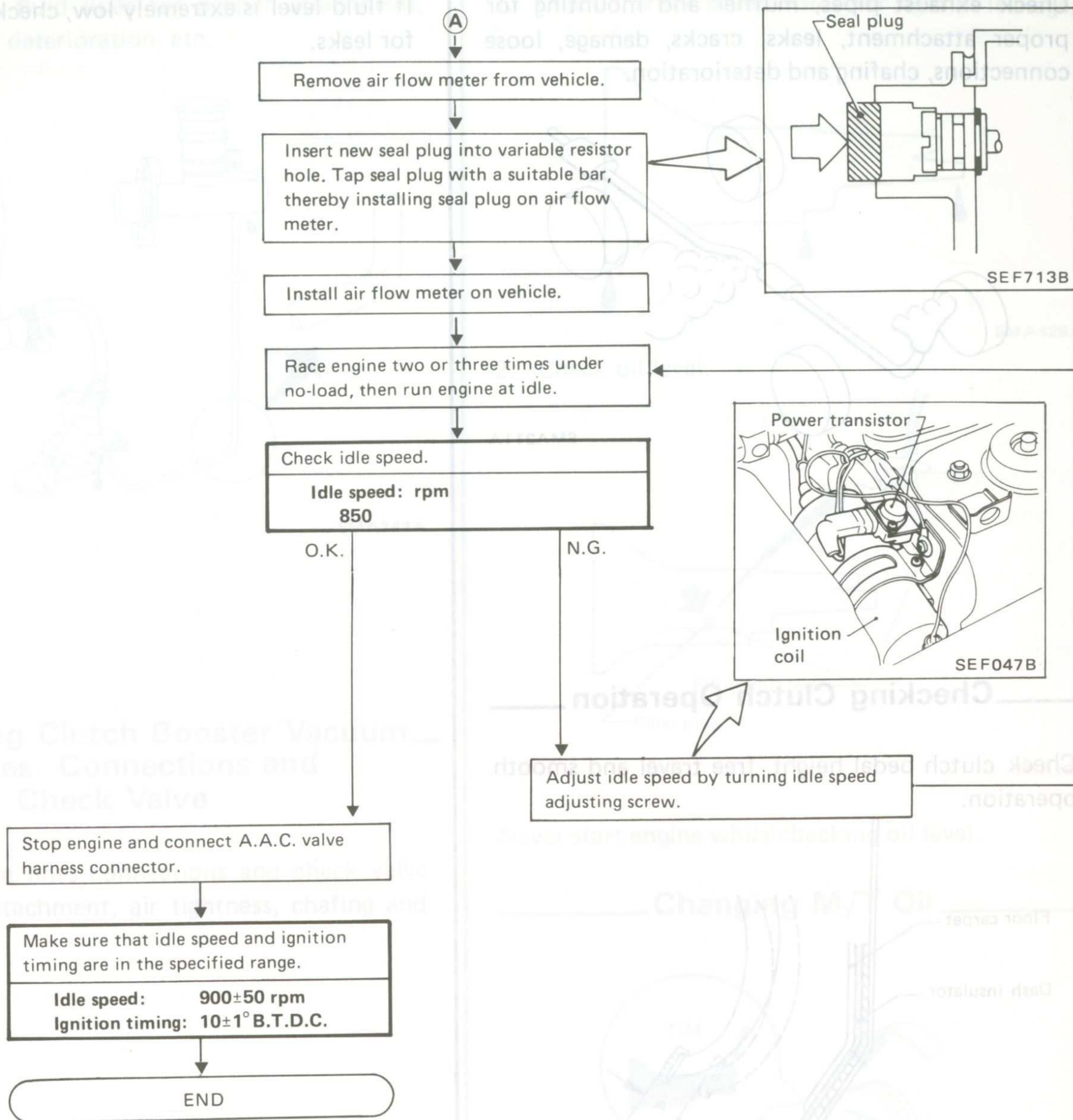
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)

Checking and adjusting mixture ratio (VG30ET engine)
[Without "CO"-meter]



ENGINE MAINTENANCE

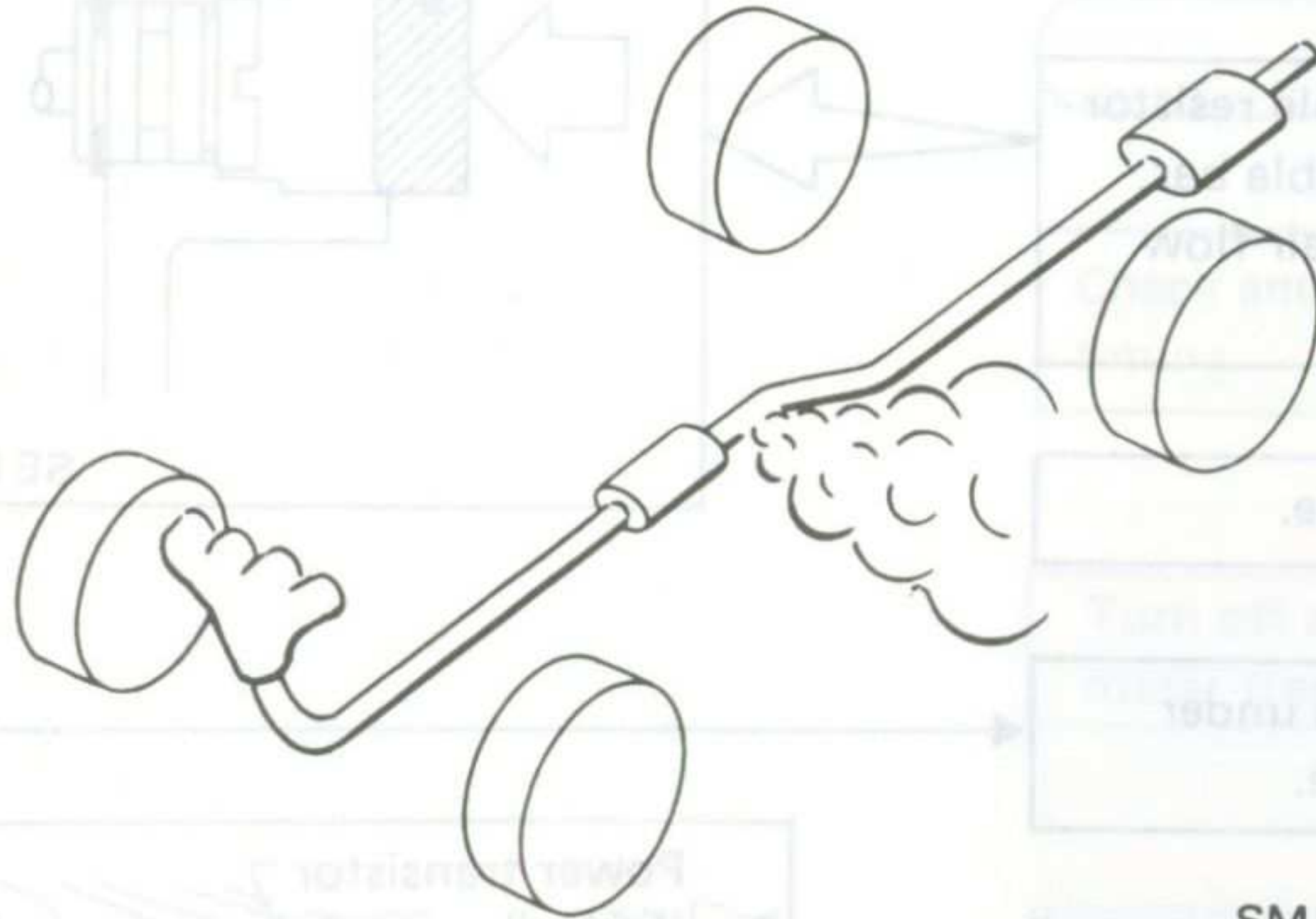
Checking and Adjusting Idle-rpm, Ignition Timing and Mixture Ratio (Cont'd)



CHASSIS AND BODY MAINTENANCE

Checking Exhaust System

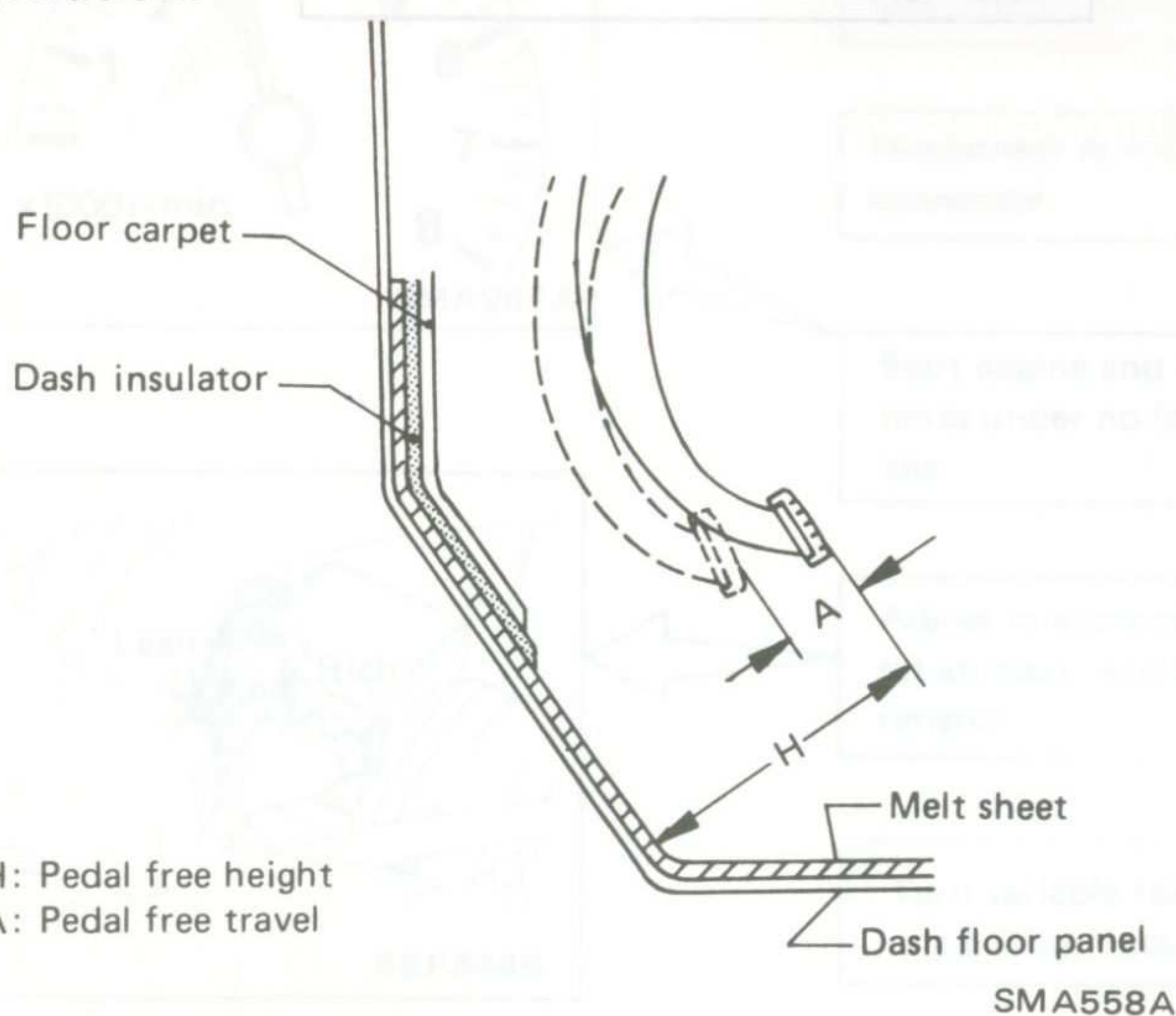
Check exhaust pipes, muffler and mounting for proper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.



SMA211A

Checking Clutch Operation

Check clutch pedal height, free travel and smooth operation.



H: Pedal free height
A: Pedal free travel

SMA558A

Pedal free height "H":

195 - 205 mm (7.68 - 8.07 in)

Pedal free travel "A":

1 - 3 mm (0.04 - 0.12 in)

If necessary, adjust clutch pedal free height and pedal free travel. Refer to section CL.

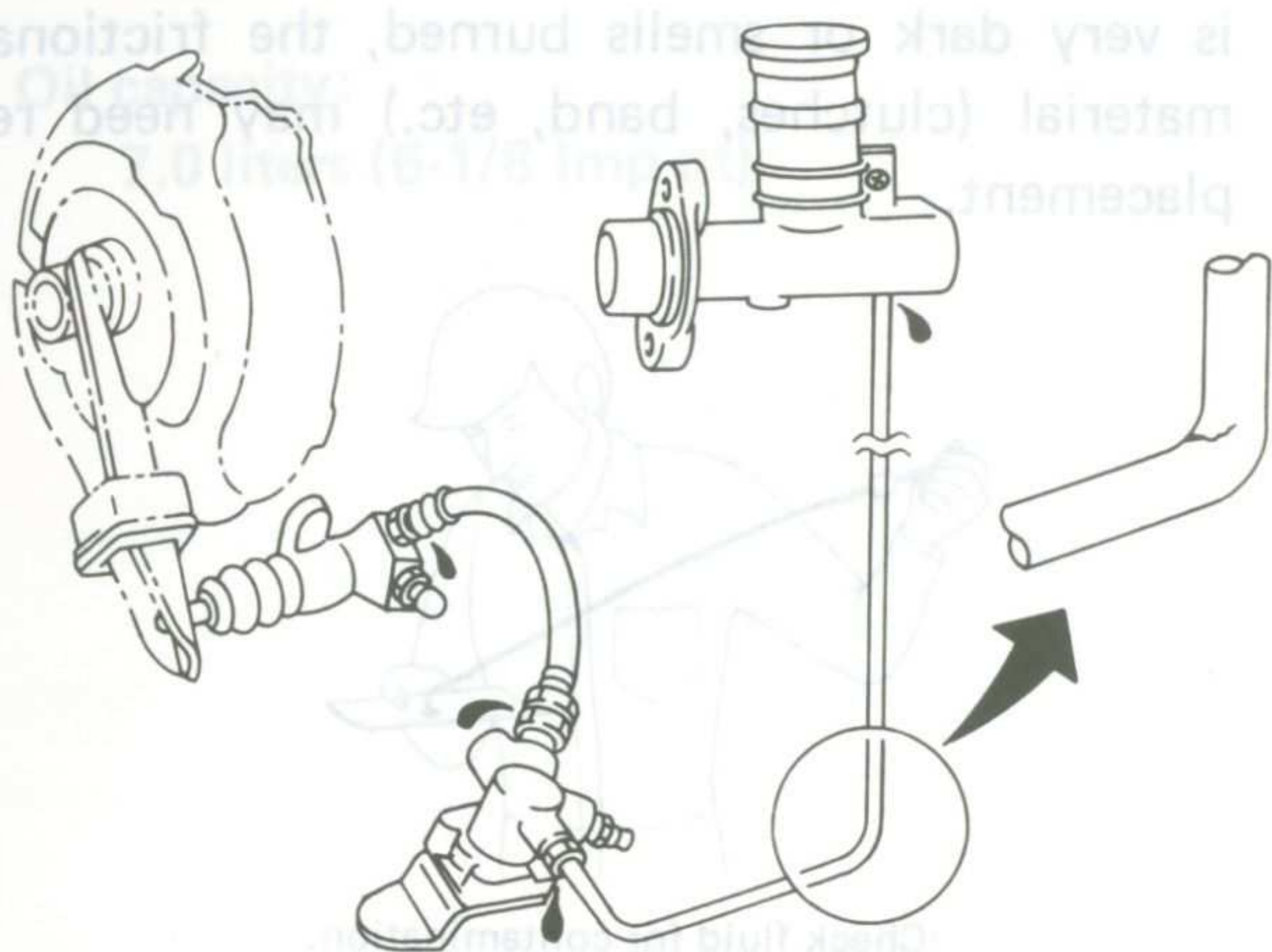
Checking Clutch Fluid Level

If fluid level is extremely low, check clutch system for leaks.

CHASSIS AND BODY MAINTENANCE

Checking Clutch System

Check clutch fluid lines for proper attachment, leaks, chafing, deterioration, etc.



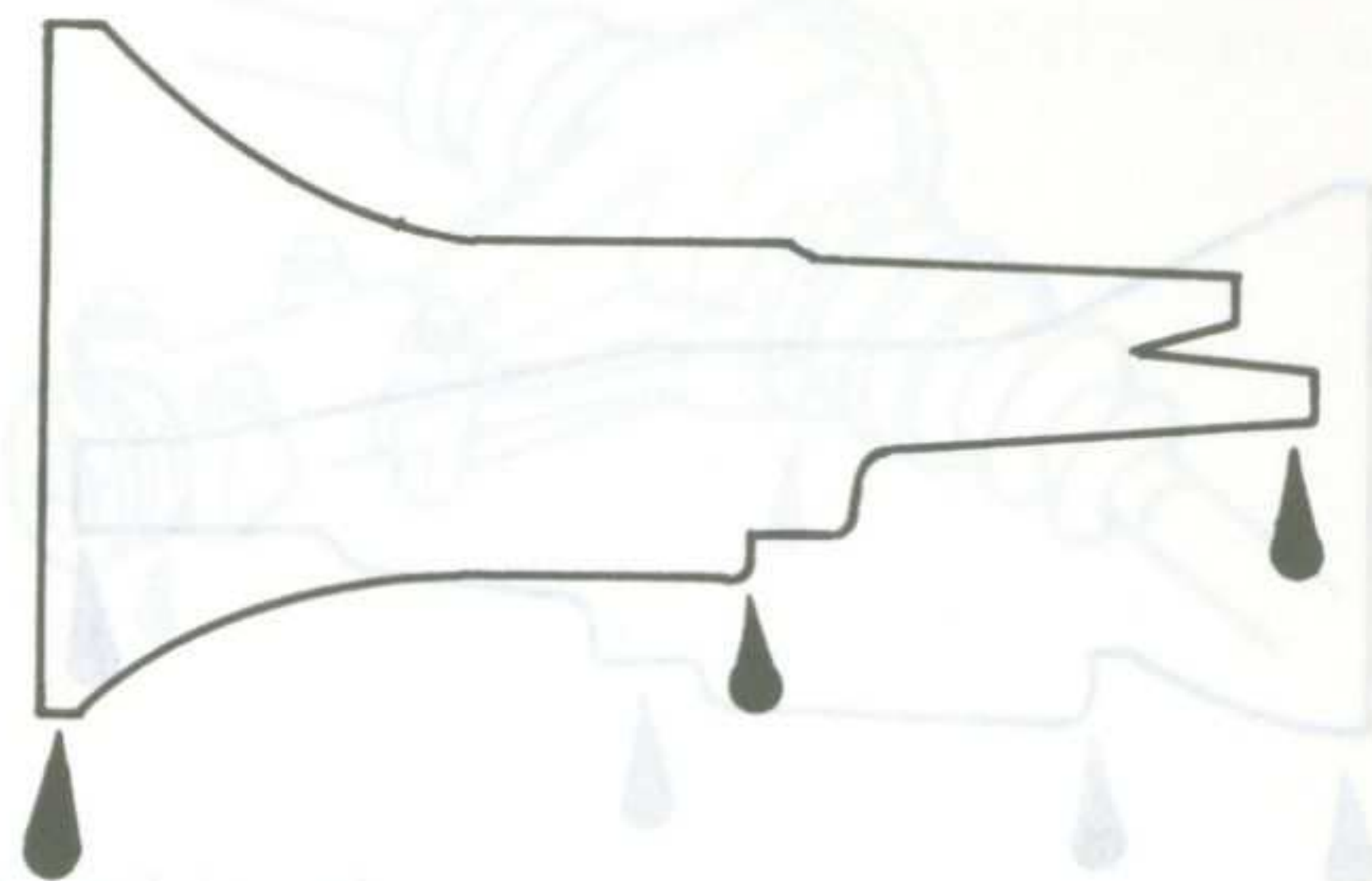
SMA741A

Checking Clutch Booster Vacuum Hoses, Connections and Check Valve

Check vacuum lines connections and check valve for proper attachment, air tightness, chafing and deterioration.

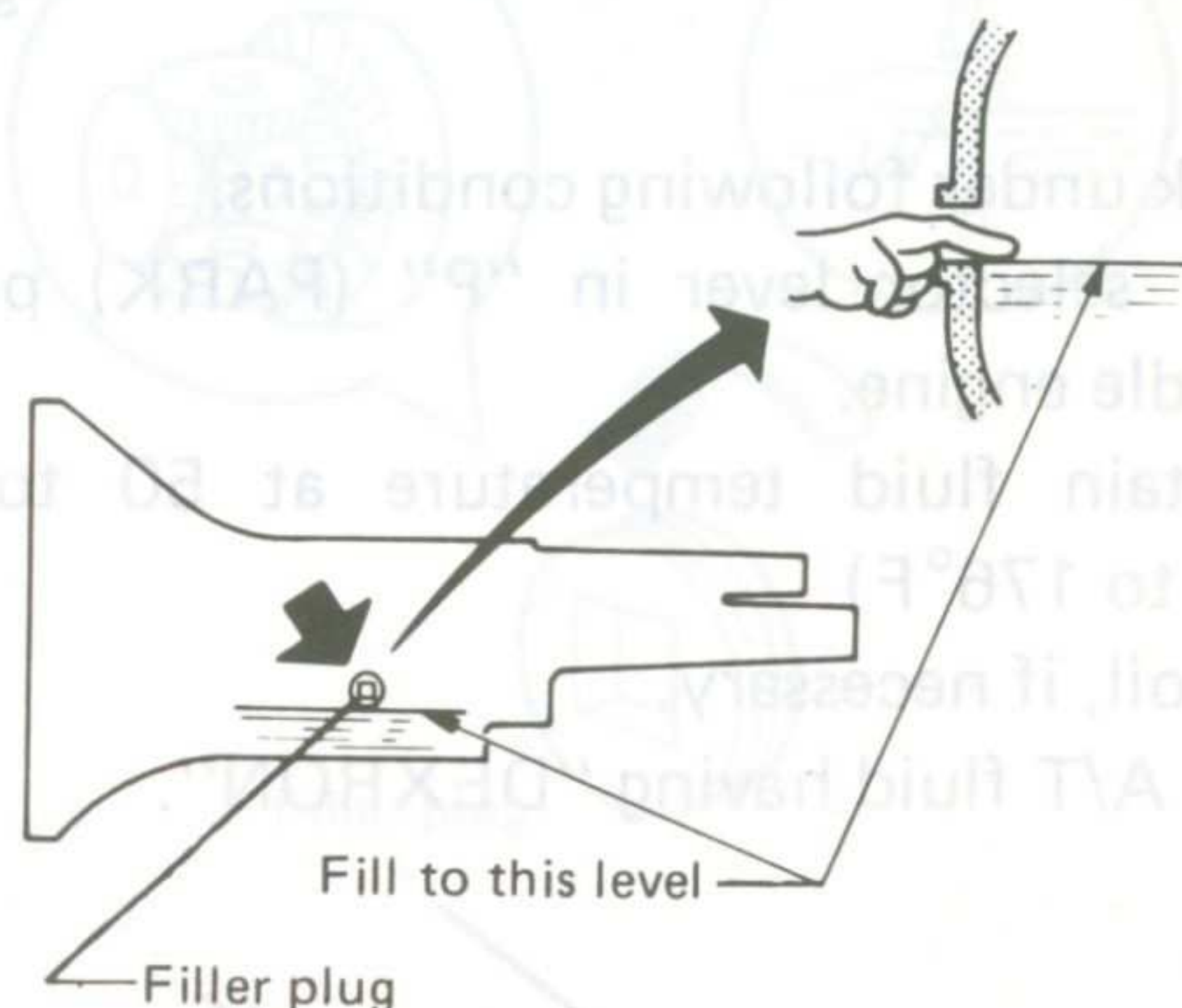
Checking M/T Oil

1. Check manual transmission for signs of leakage.



SMA429A

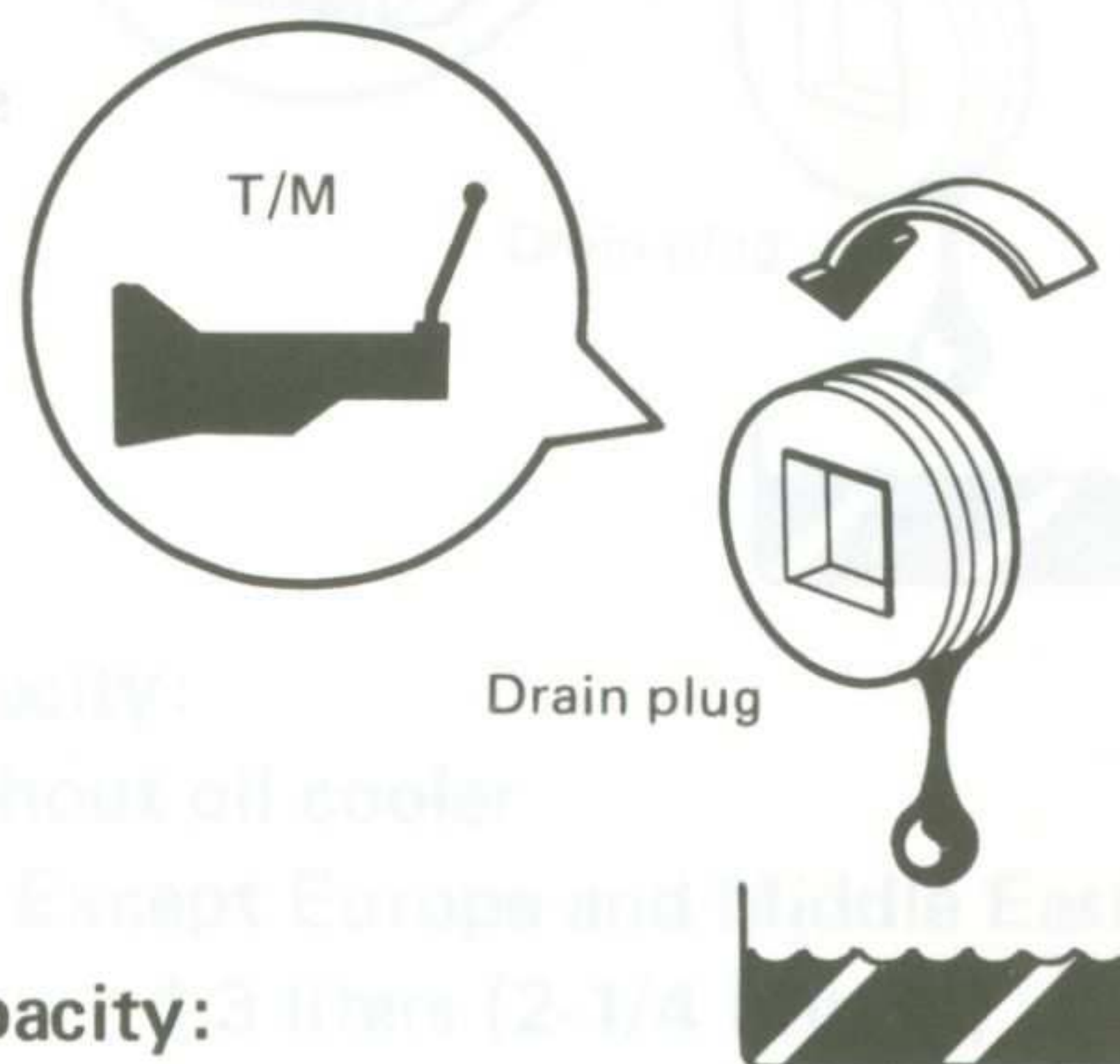
2. Check oil level.



SMA103

Never start engine while checking oil level.

Changing M/T Oil



SMA255A

Oil capacity:

FS5W71C

1.9 liters (3-3/8 Imp pt)

BWT-5 (FS5R90A)

With oil cooler

2.1 liters (3-3/4 Imp pt)

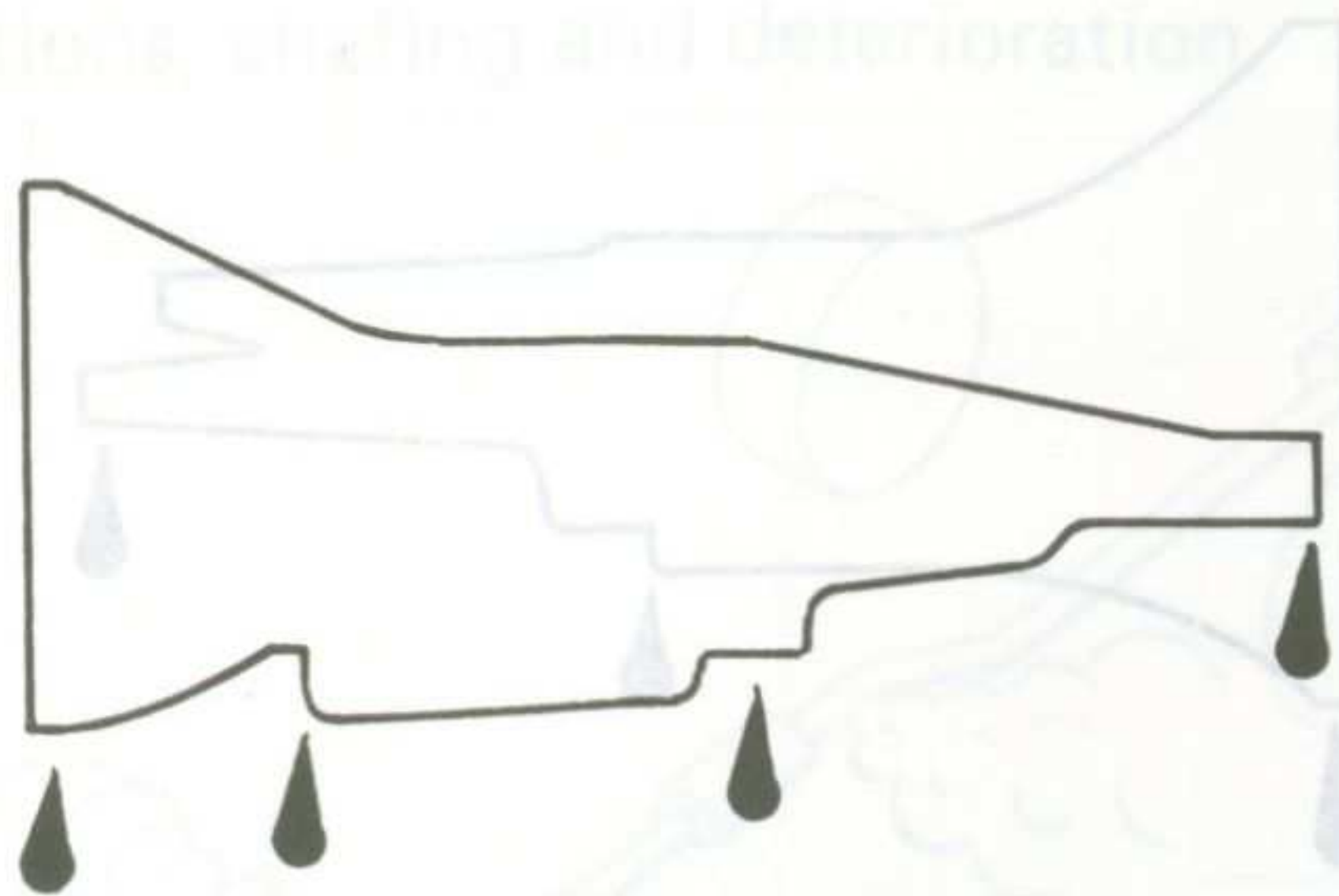
Without oil cooler

1.9 liters (3-3/8 Imp pt)

CHASSIS AND BODY MAINTENANCE

Checking A/T Fluid

1. Check automatic transmission for signs of leakage.

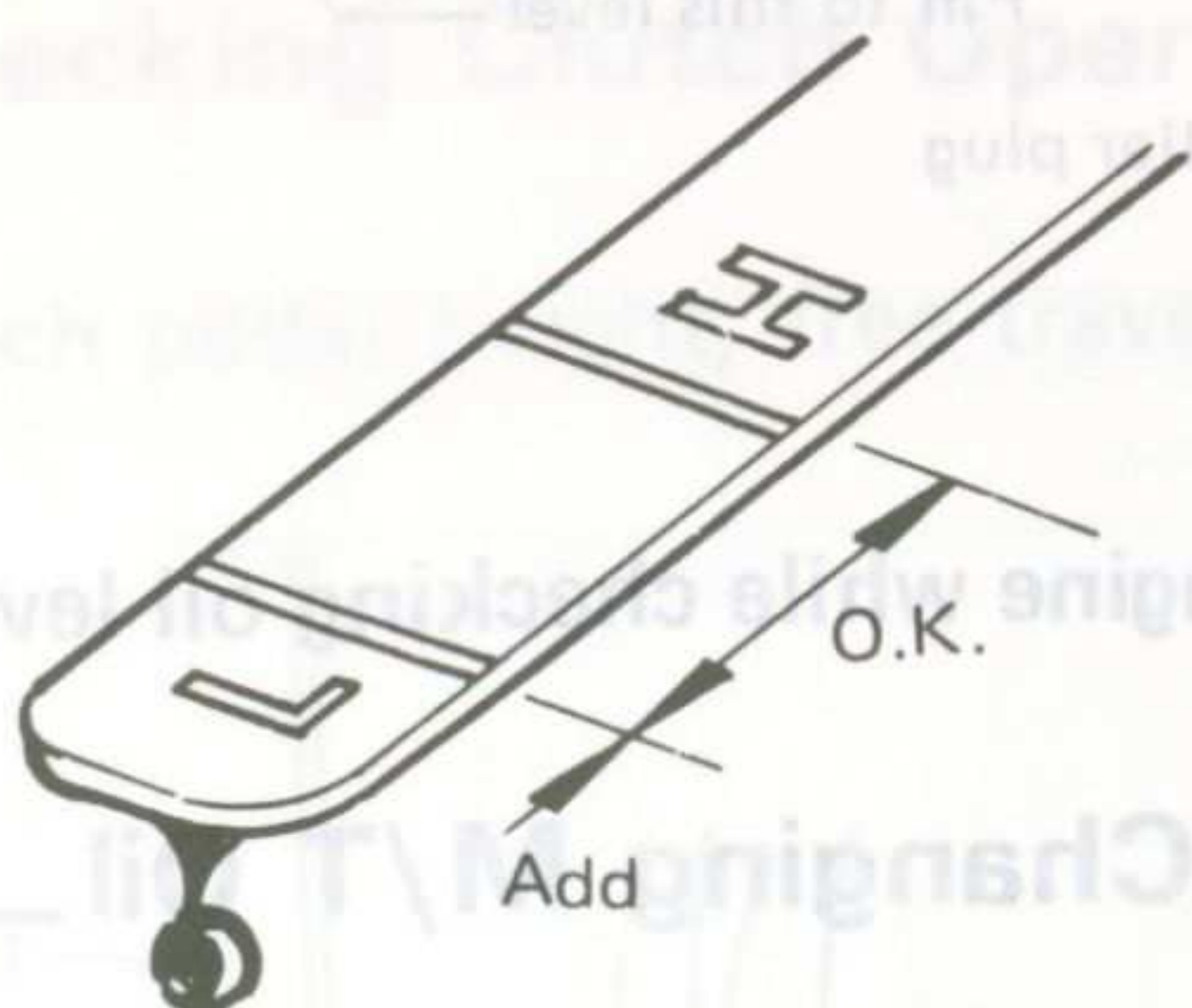


SMA430A

2. Check under following conditions.

- (1) Place selector lever in "P" (PARK) position and idle engine.
- (2) Maintain fluid temperature at 50 to 80°C (122 to 176°F).
- (3) Add oil, if necessary.

Use only A/T fluid having "DEXRON".

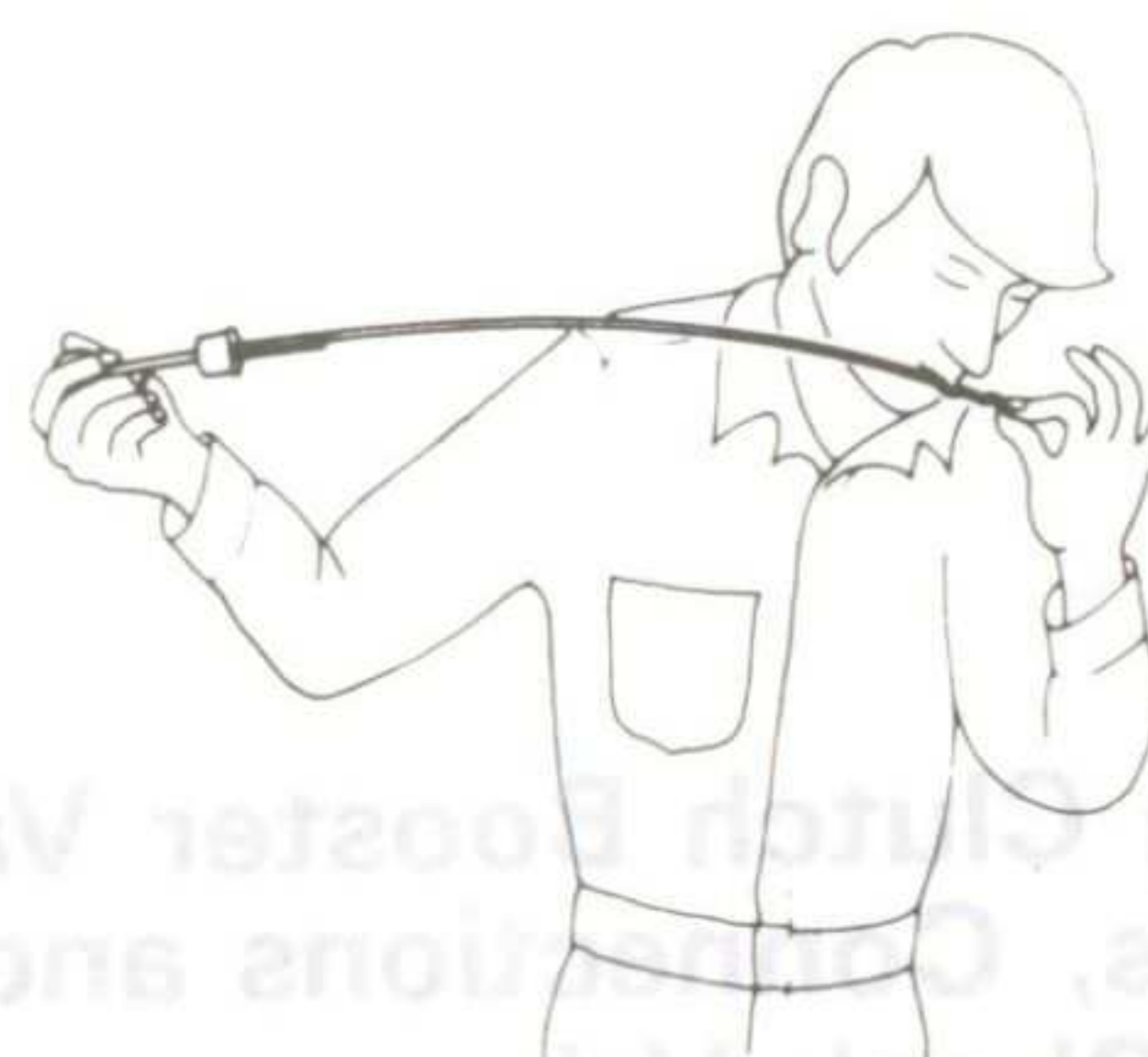


SMA559A

3. Check automatic fluid condition. Check fluid for contamination to determine condition of automatic transmission. If fluid is very dark or smells burned, the frictional material (clutches, band, etc.) may need replacement.



Check fluid for contamination.



Check fluid for smell.

SMA107

CHASSIS AND BODY MAINTENANCE

Changing A/T Fluid

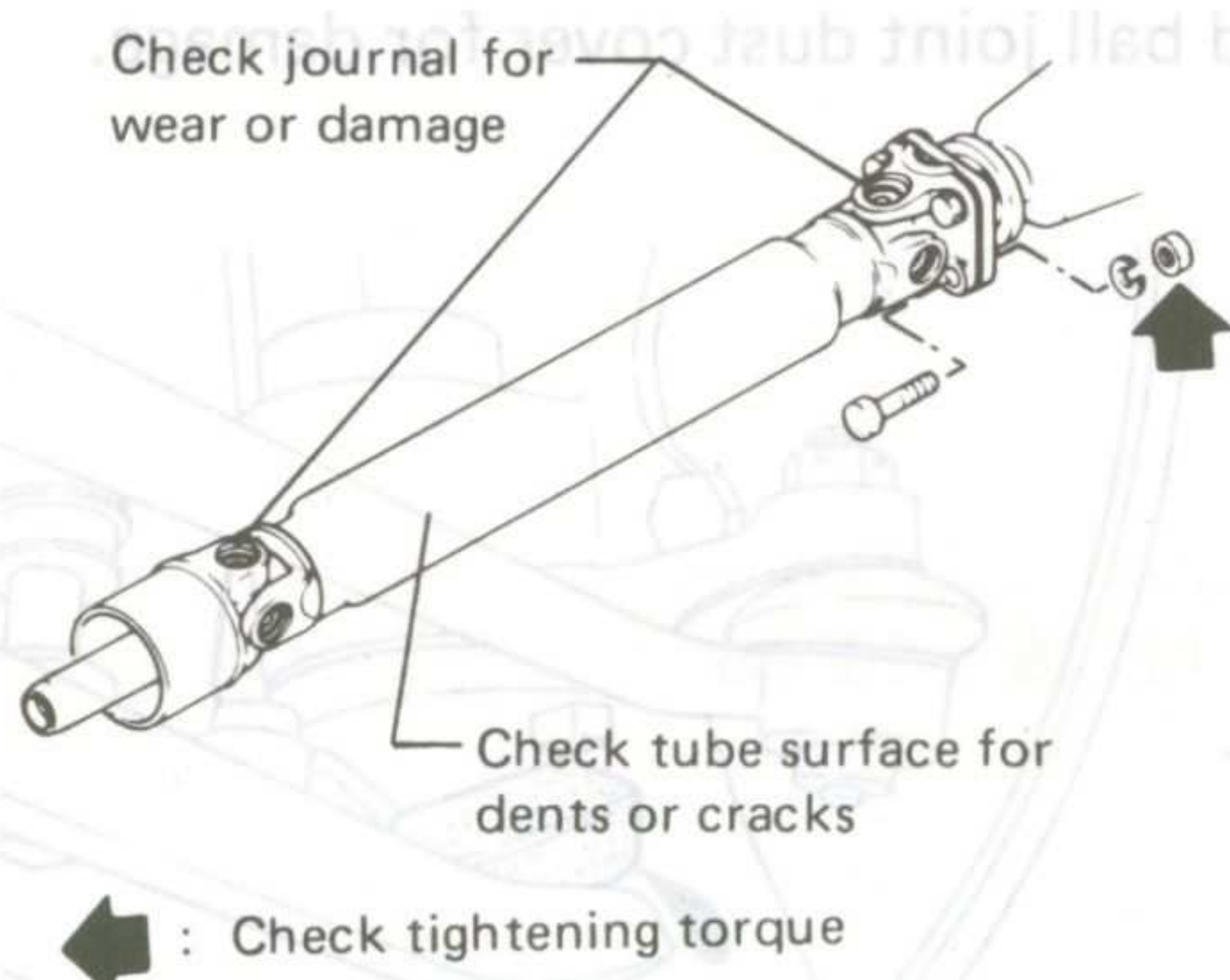
1. Drain fluid by removing oil pan.
2. Replace gasket with new one.
3. Refill with fluid and then check fluid level.

Oil capacity:

7.0 liters (6-1/8 Imp qt)

Checking Propeller Shaft

Check propeller shaft for damage, looseness or grease leakage.



SMA269

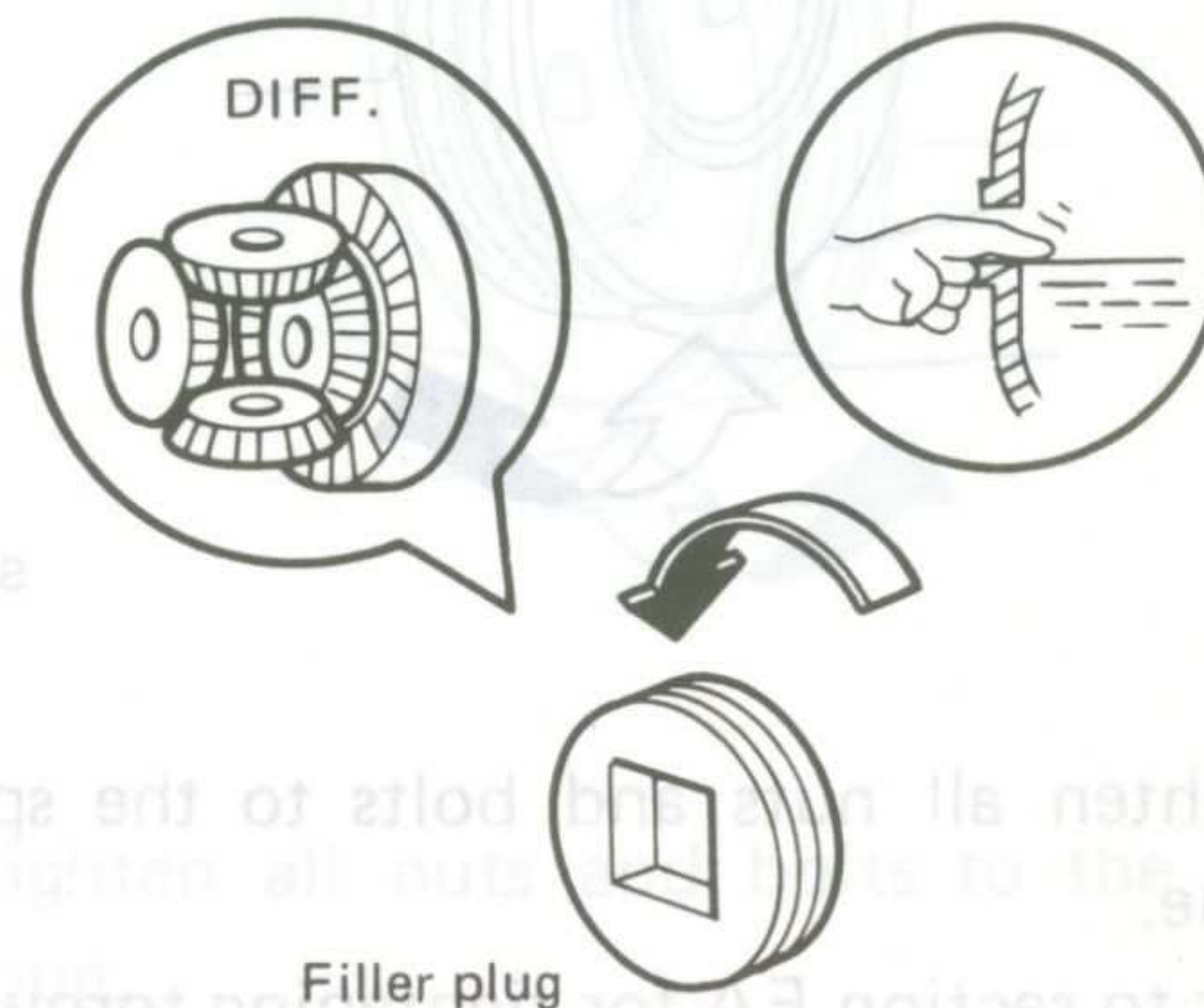
Checking Differential Gear Oil

1. Check differential carrier for signs of oil leakage.



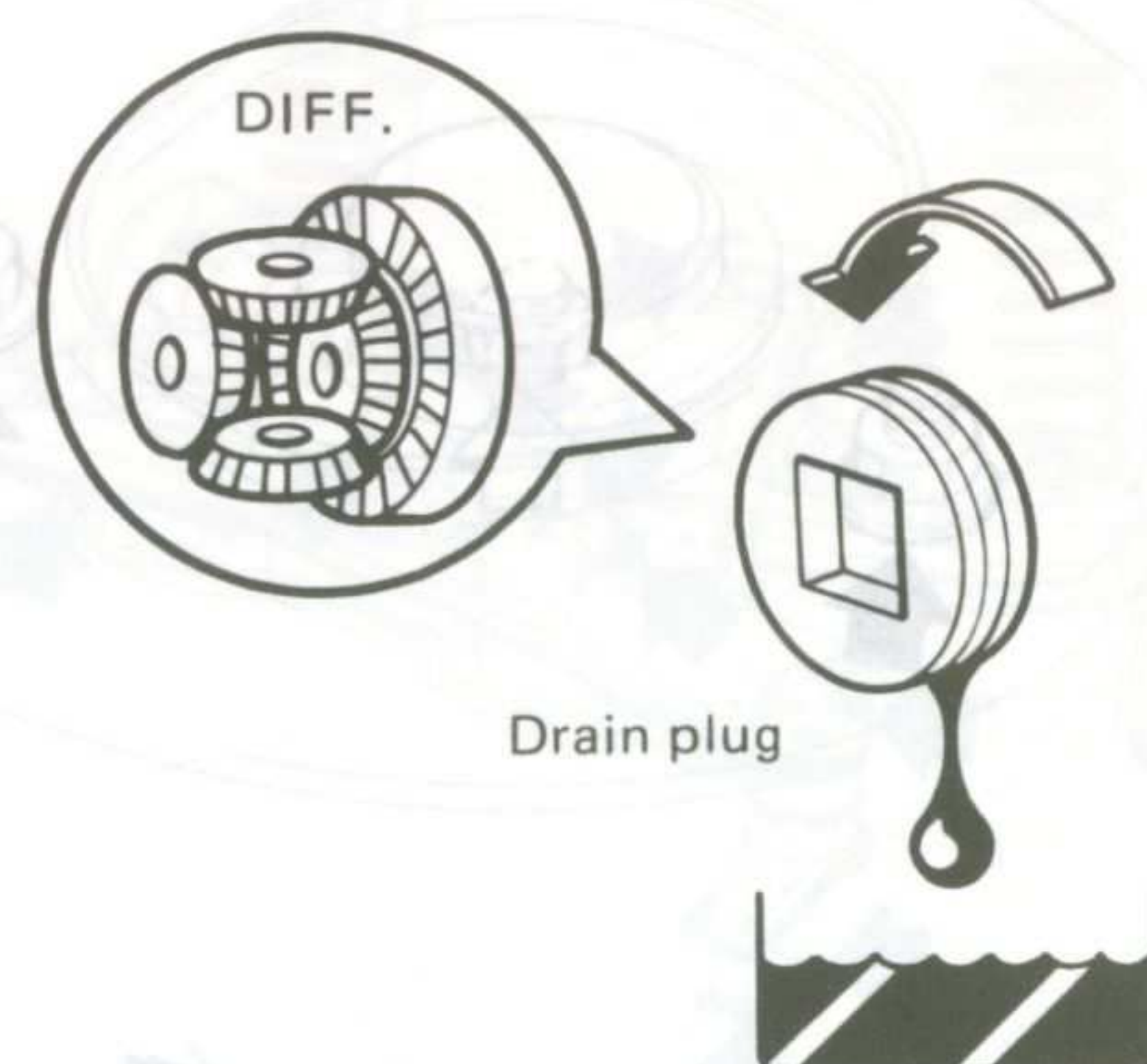
SMA432A

2. Check oil level.



SMA257A

Changing Differential Gear Oil



Oil capacity:

Without oil cooler

Except Europe and Middle East

1.3 liters (2-1/4 Imp pt)

For Middle East

1.8 liters (3-1/8 Imp pt)

For Europe

With oil cooler

2.0 liters (3-1/2 Imp pt)

Without oil cooler

1.8 liters (3-1/2 Imp pt)

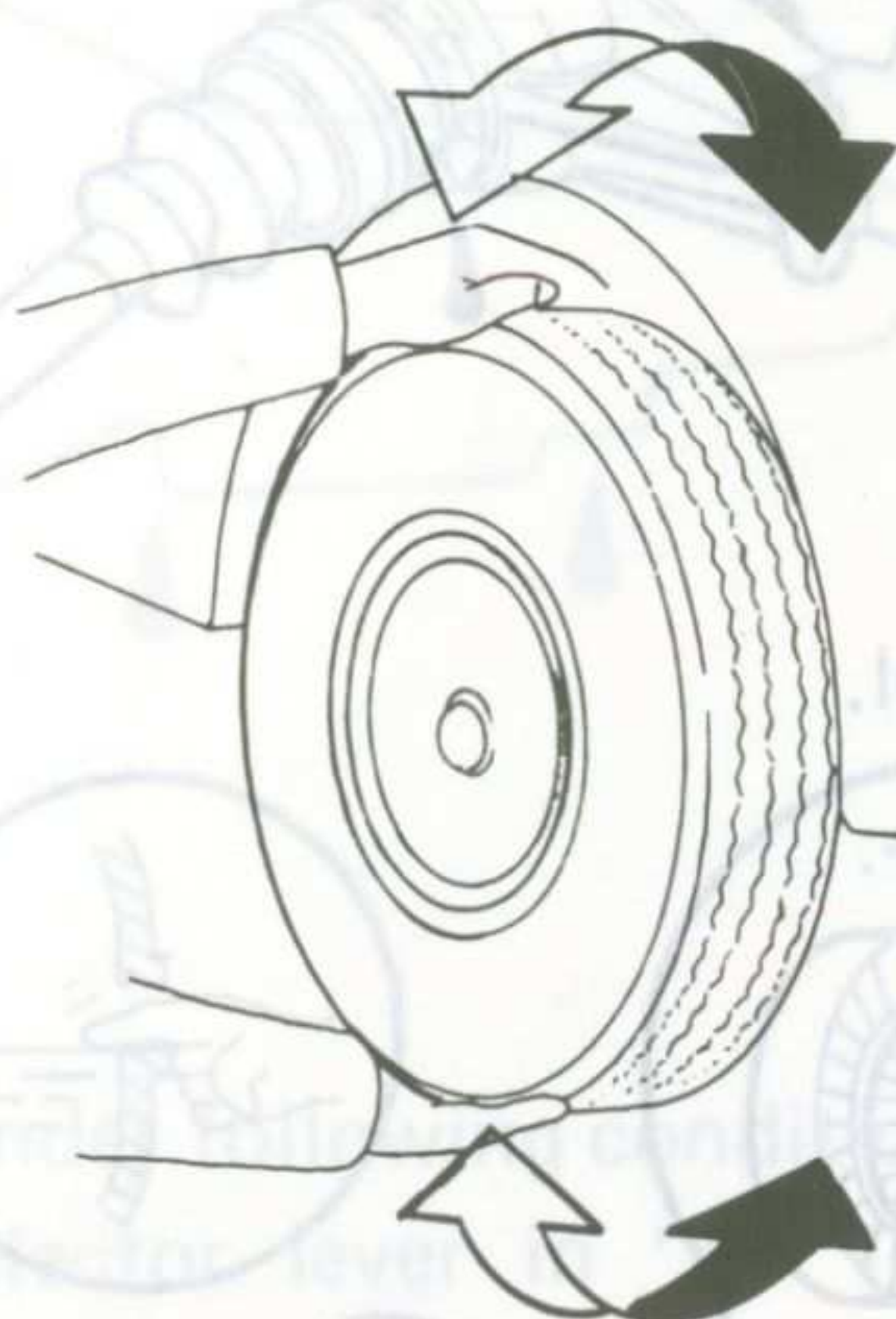
SMA363A

CHASSIS AND BODY MAINTENANCE

Checking Front Axle and Front Suspension Parts

- Check axle and suspension parts for looseness, wear or damage.

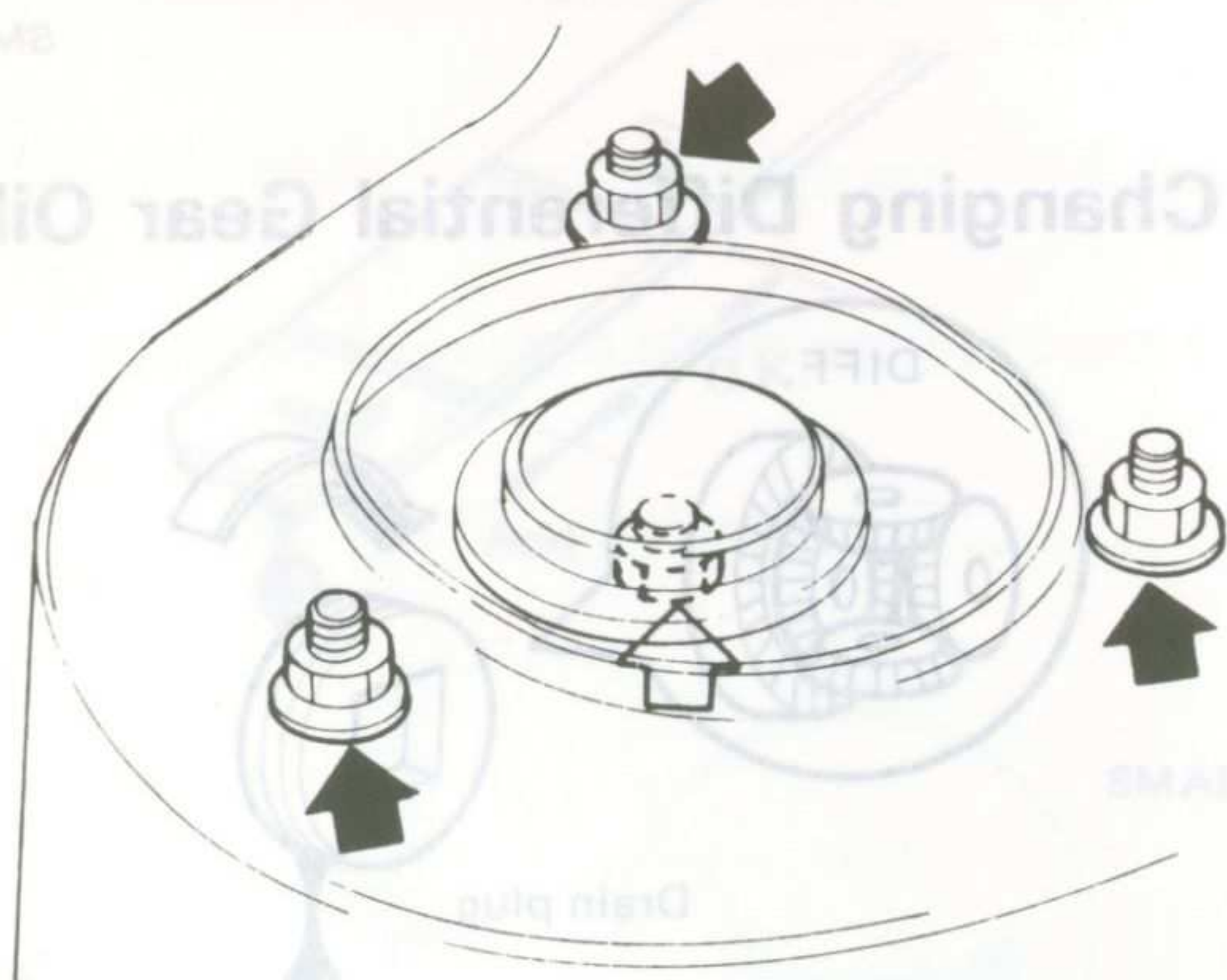
(1) Shake each front wheel.



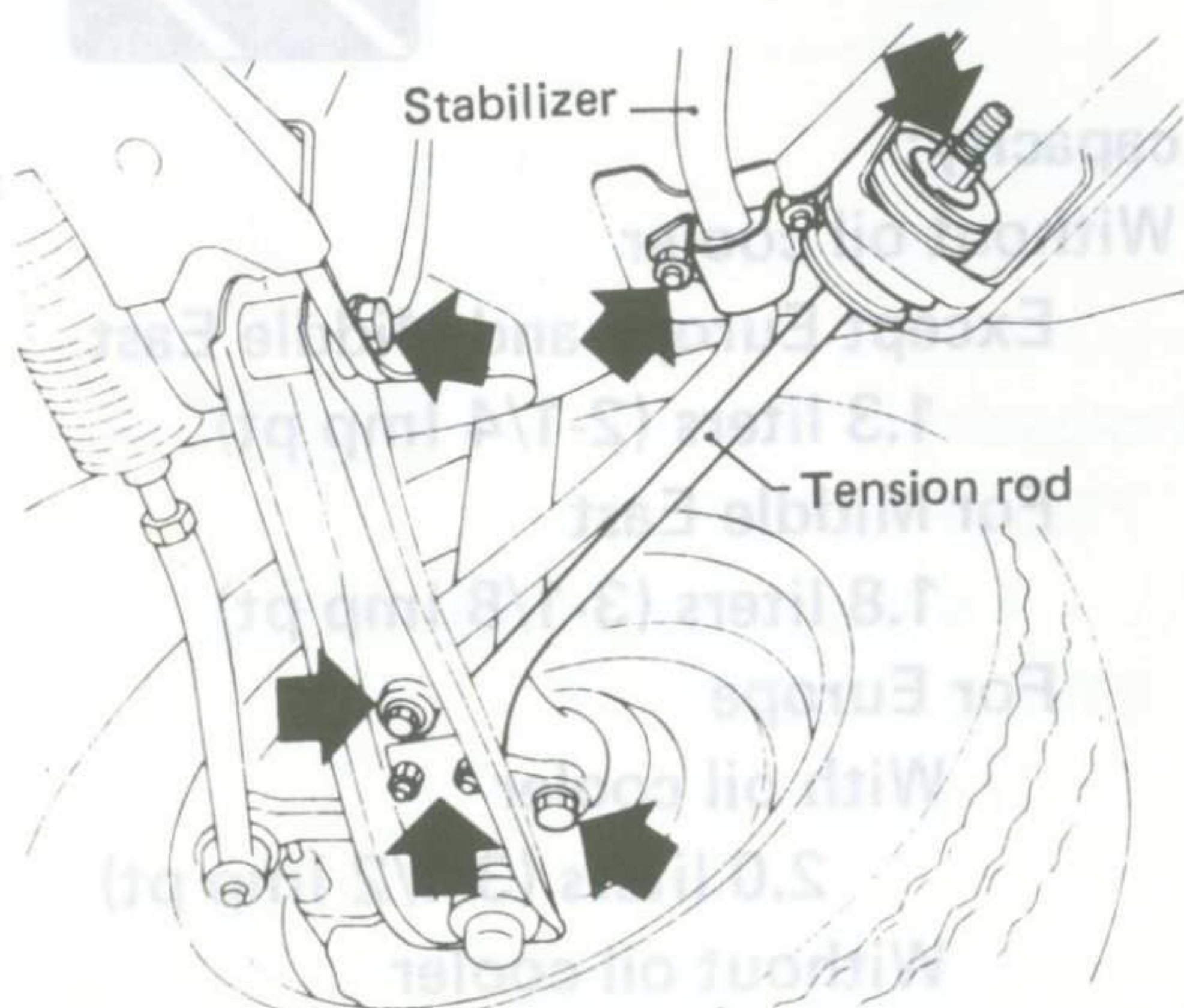
SMA525A

(2) Retighten all nuts and bolts to the specified torque.

Refer to section FA for tightening torque.



SMA614



SMA615

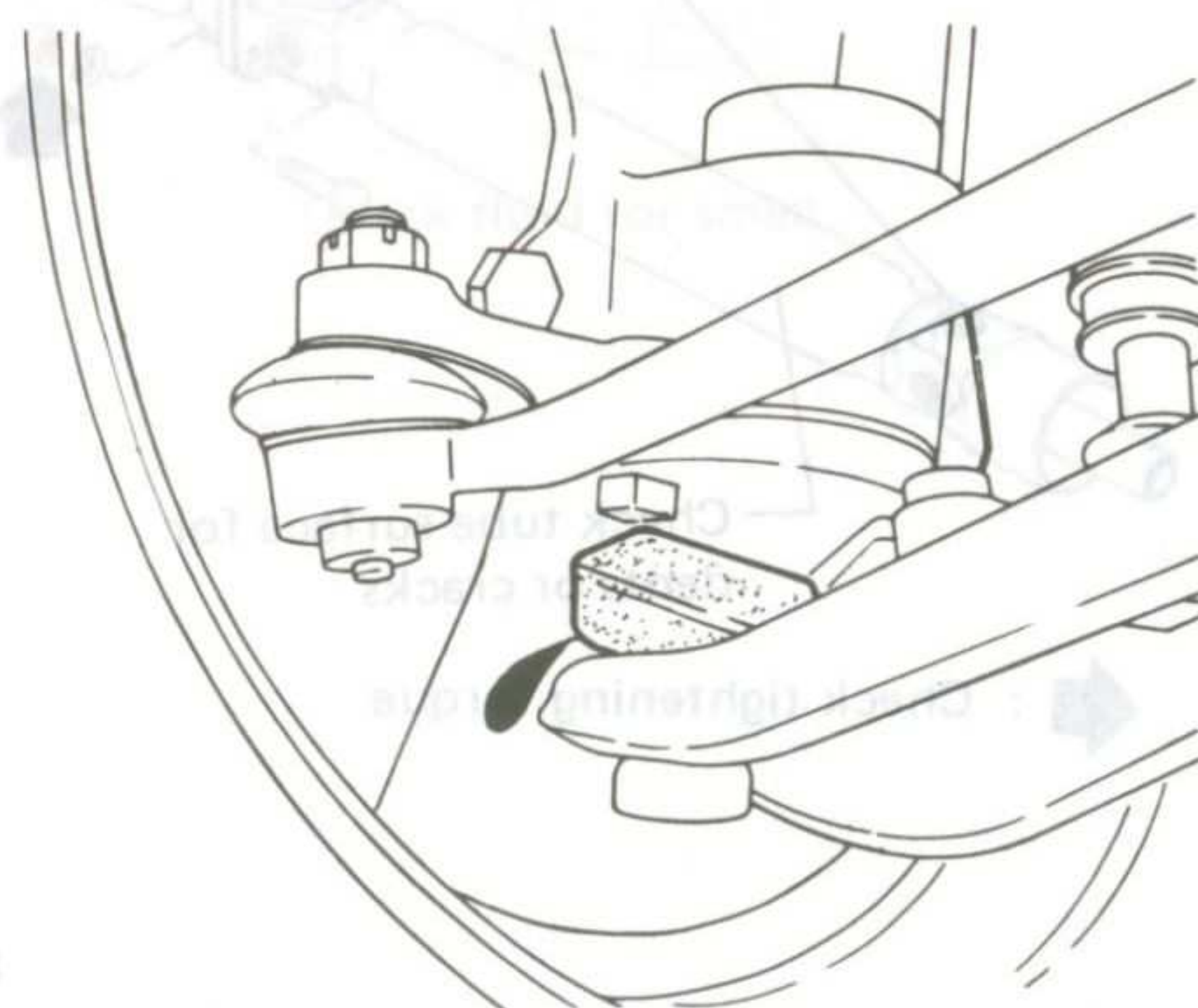
(3) Check axle and suspension parts for wear, cracks or damage.

- Check strut (Shock absorber) for oil leakage or damage.



SMA113

- Check suspension ball joint for grease leakage and ball joint dust cover for damage.

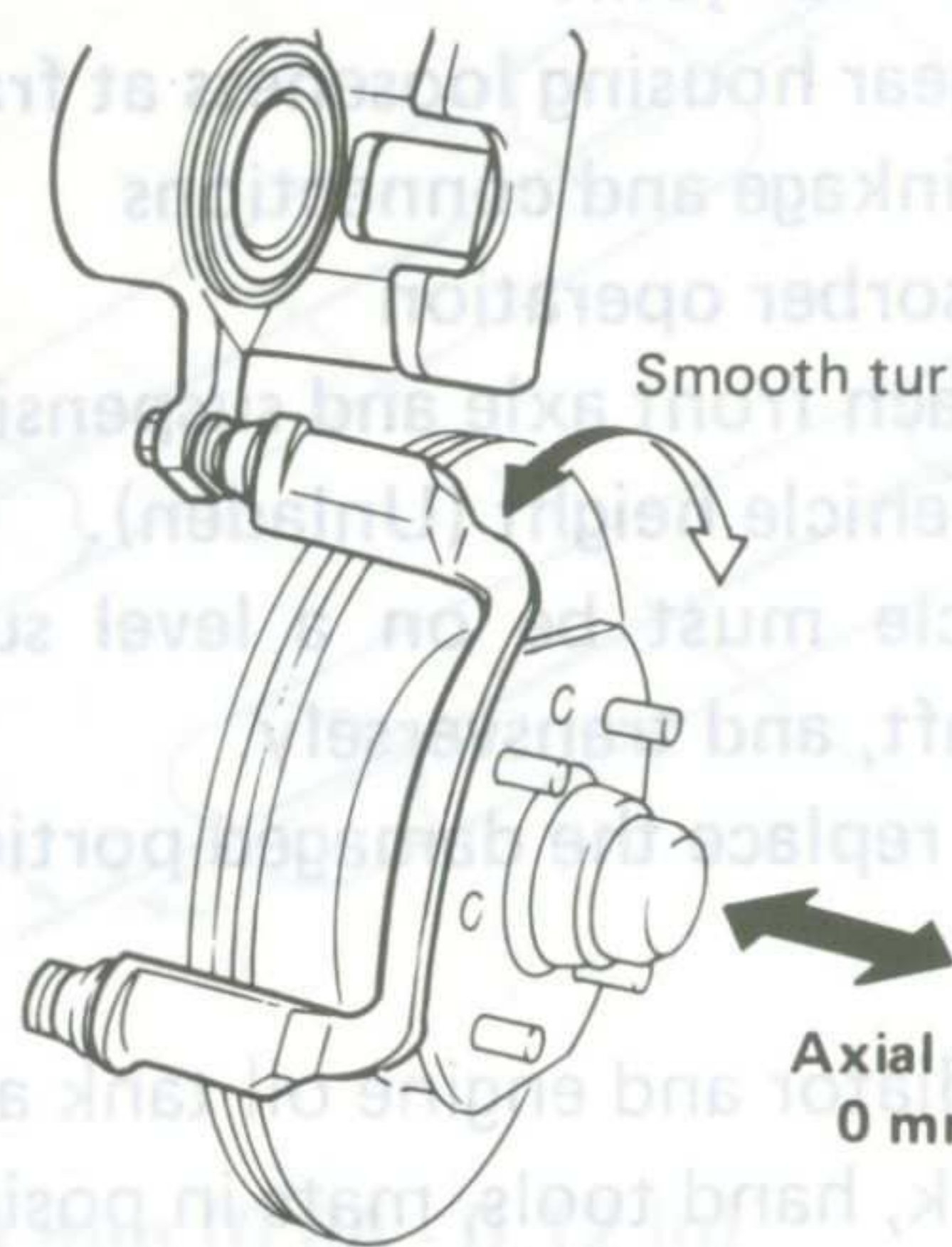


SMA723A

CHASSIS AND BODY MAINTENANCE

Checking Front Wheel Bearing Grease

- Check that wheel bearings operate smoothly, as well as axial end play and grease leakage.

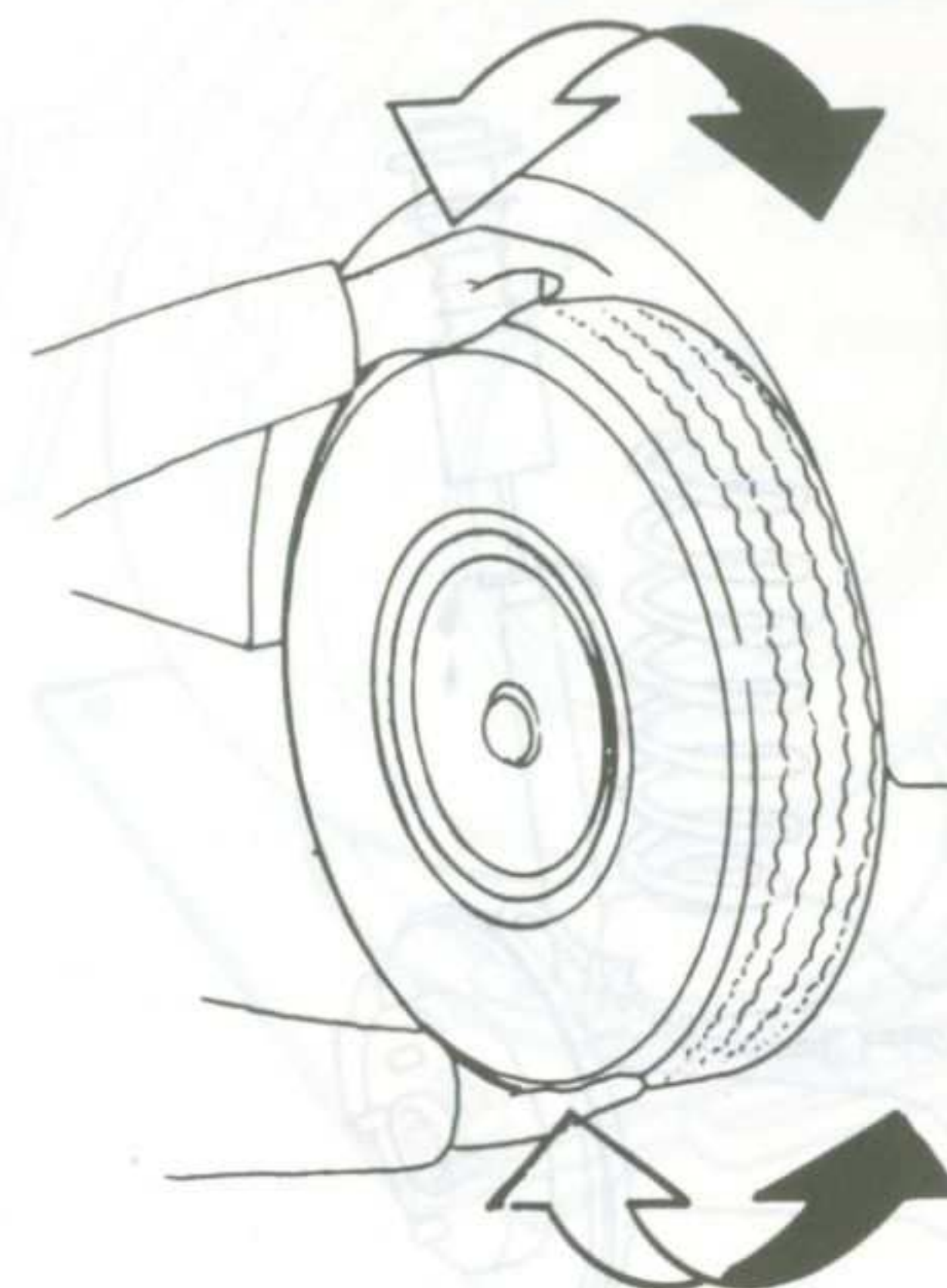


SMA724A

If necessary, adjust wheel bearing preload. Refer to section FA.

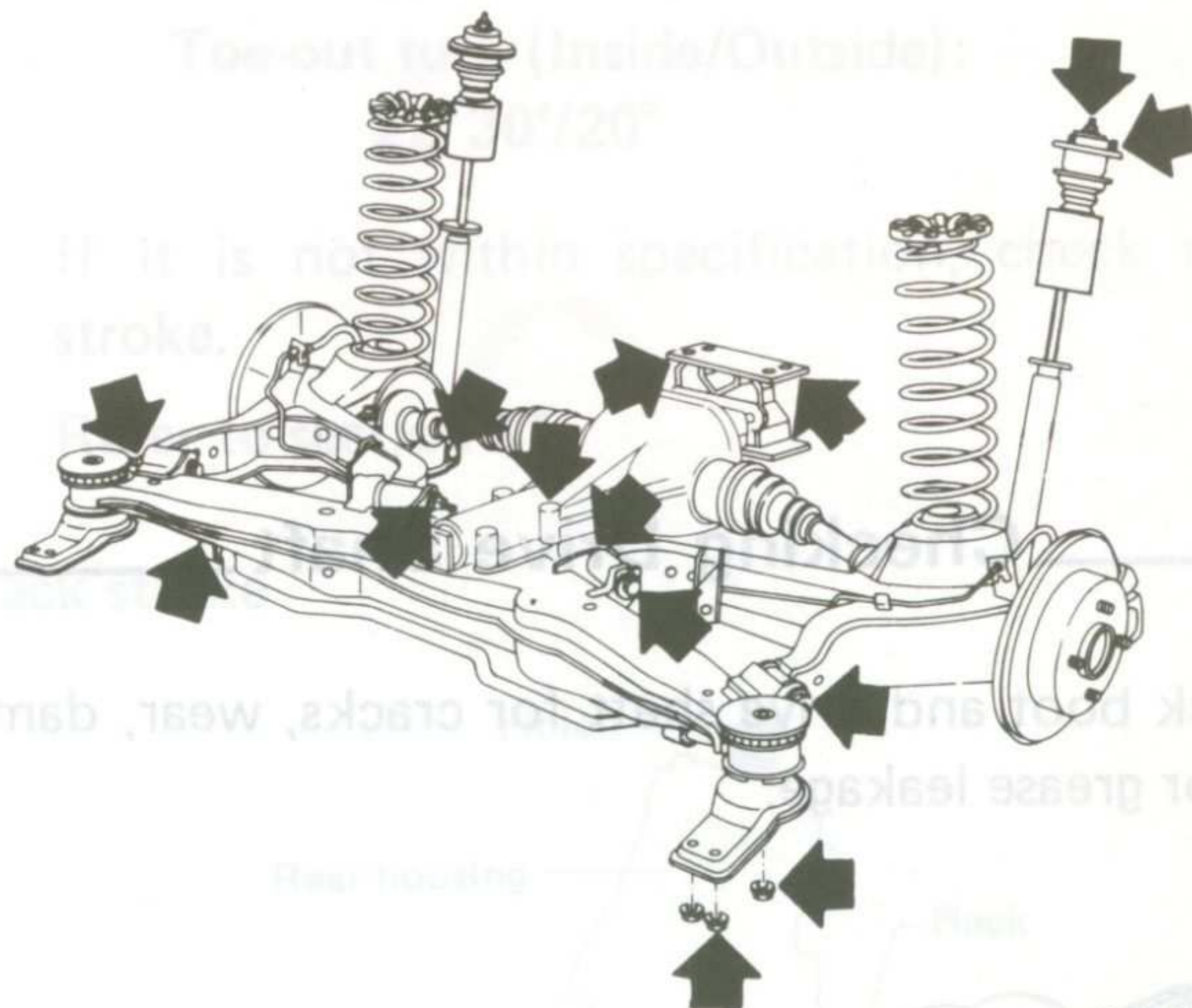
Checking Rear Axle and Rear Suspension Parts

- Check axle and suspension parts for looseness, wear or damage.
- (1) Shake each rear wheel.



SMA525A

- (2) Retighten all nuts and bolts to the specified torque. Refer to section RA for tightening torque.

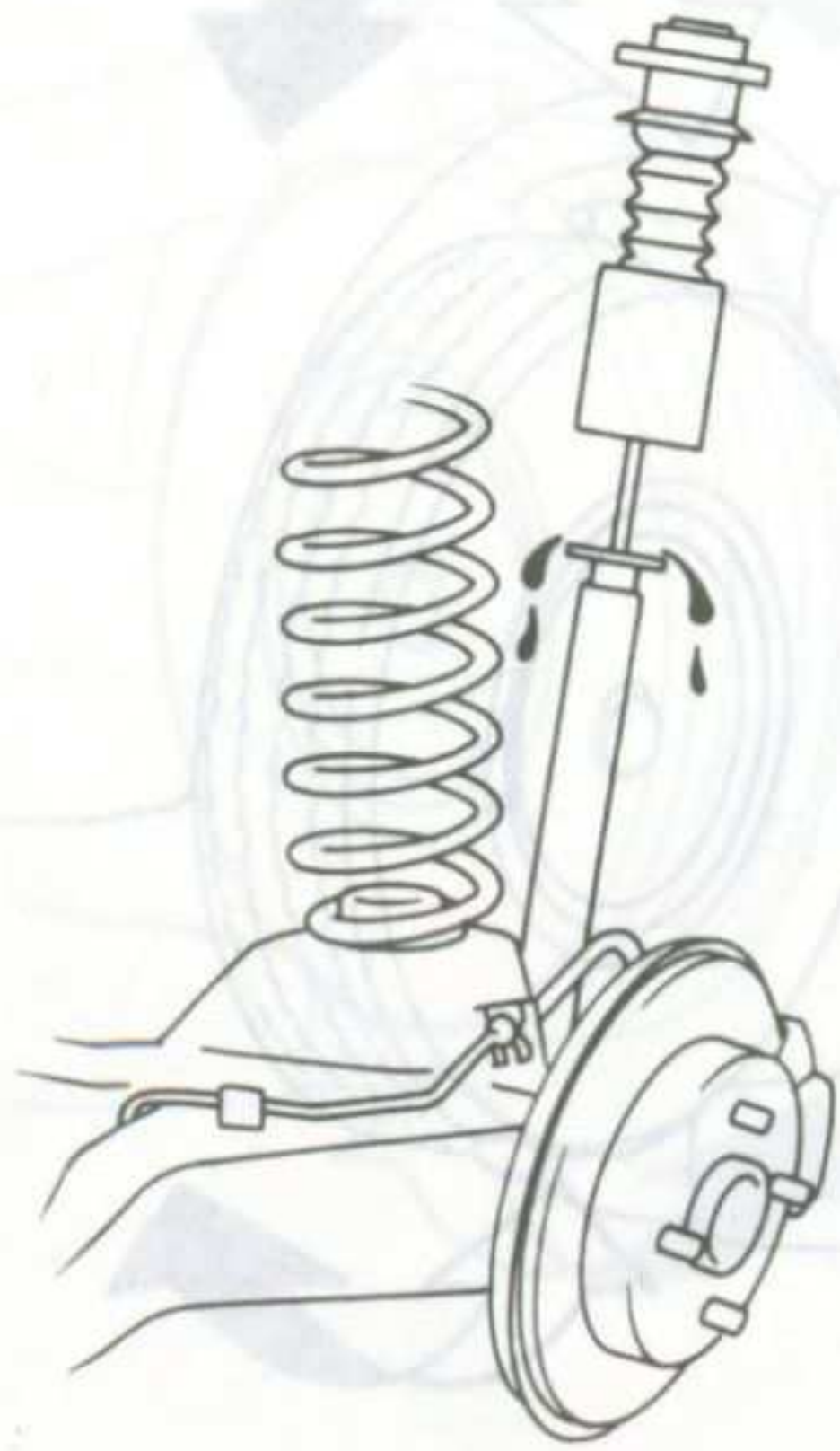


SMA725A

CHASSIS AND BODY MAINTENANCE

Checking Rear Axle and Rear Suspension Parts (Cont'd)

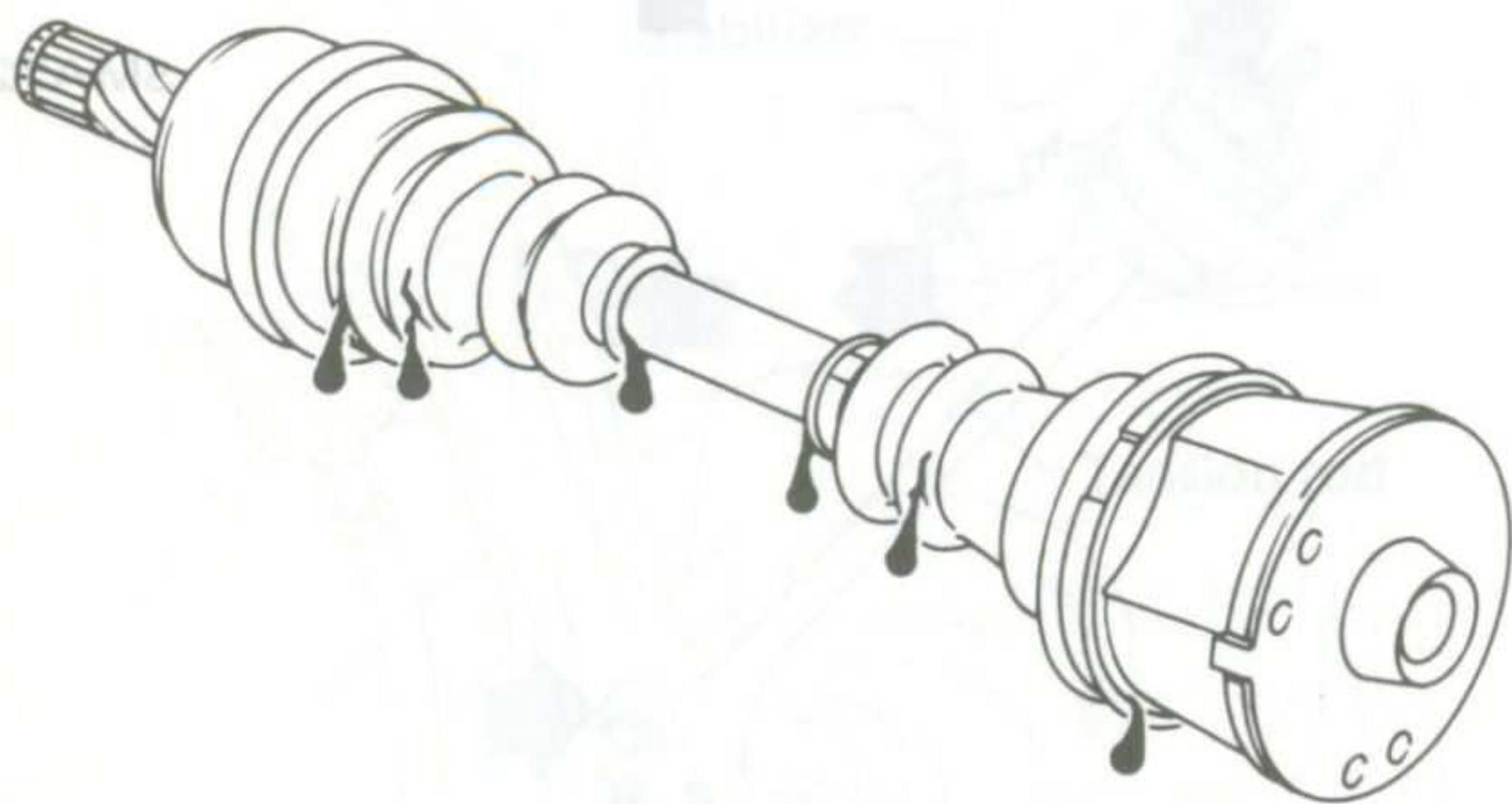
- (3) Check axle and suspension parts for wear, cracks or damage.
- Check shock absorber for oil leakage or damage.



SMA726A

Checking Drive Shaft

Check boot and drive shaft for cracks, wear, damage or grease leakage.



SMA743A

Checking Front Wheel Alignment

PRELIMINARY INSPECTION

- Tire pressure
 - Wheel bearing axial play
 - Suspension ball joint
 - Steering gear housing looseness at frame
 - Steering linkage and connections
 - Shock absorber operation
 - Tighten each front axle and suspension parts.
 - Measure vehicle height (Unladen).
- The vehicle must be on a level surface both fore and aft, and transversely.
- Repair or replace the damaged portion or parts.

"Unladen"

Fuel tank, radiator and engine oil tank all full.
Spare tire, jack, hand tools, mats in position.

CAMBER, CASTER AND KINGPIN INCLINATION

Camber, caster and kingpin inclination are preset at factory and cannot be adjusted.

Camber:

-35' to 55'

Caster:

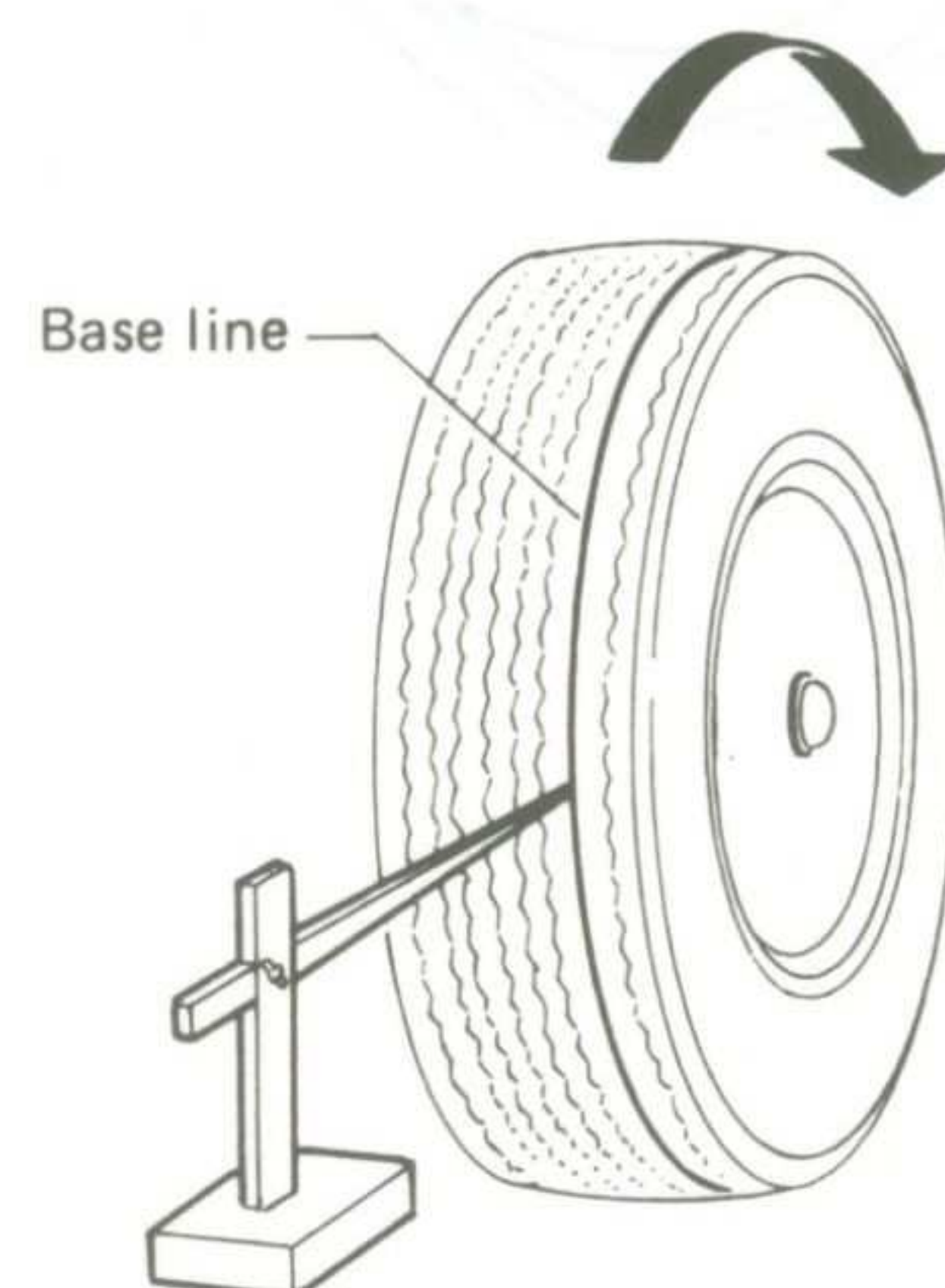
5° 50' - 7° 20'

Kingpin inclination:

12° 15' - 13° 45'

TOE-IN

1. Mark a base line across the tread.



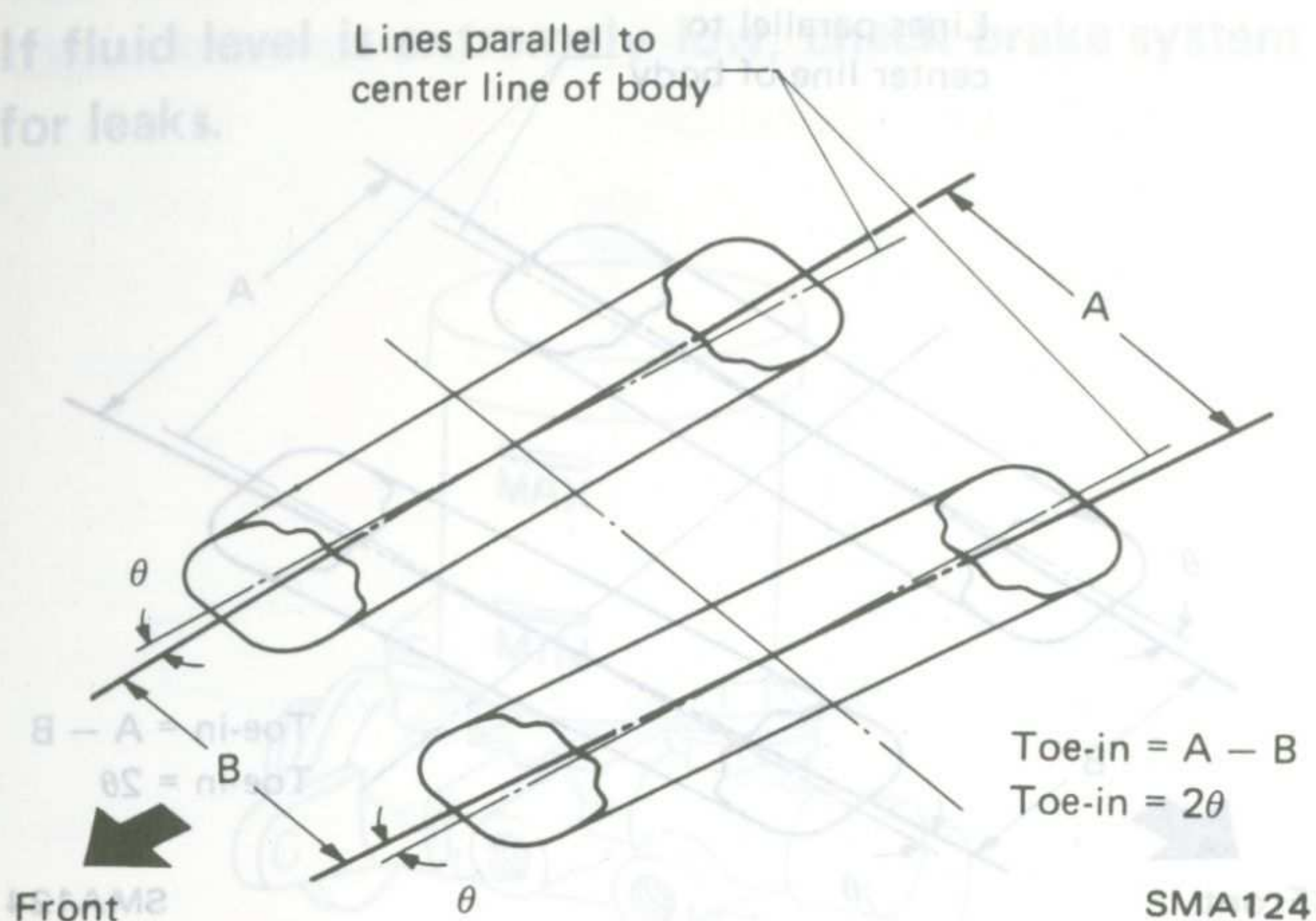
SMA123

After lowering front of vehicle, move it up and down to eliminate friction.

CHASSIS AND BODY MAINTENANCE

Checking Front Wheel Alignment (Cont'd)

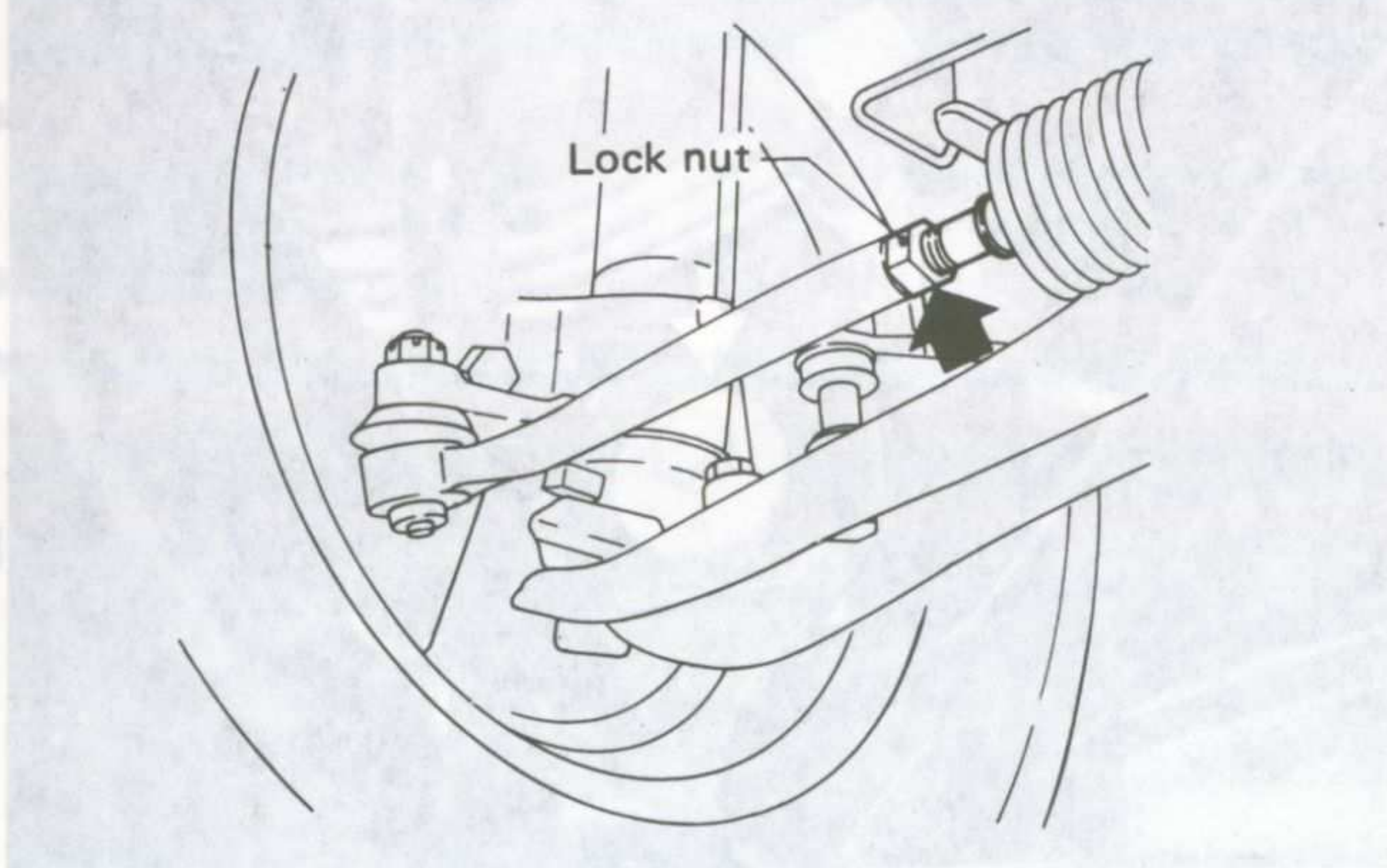
2. Measure toe-in.



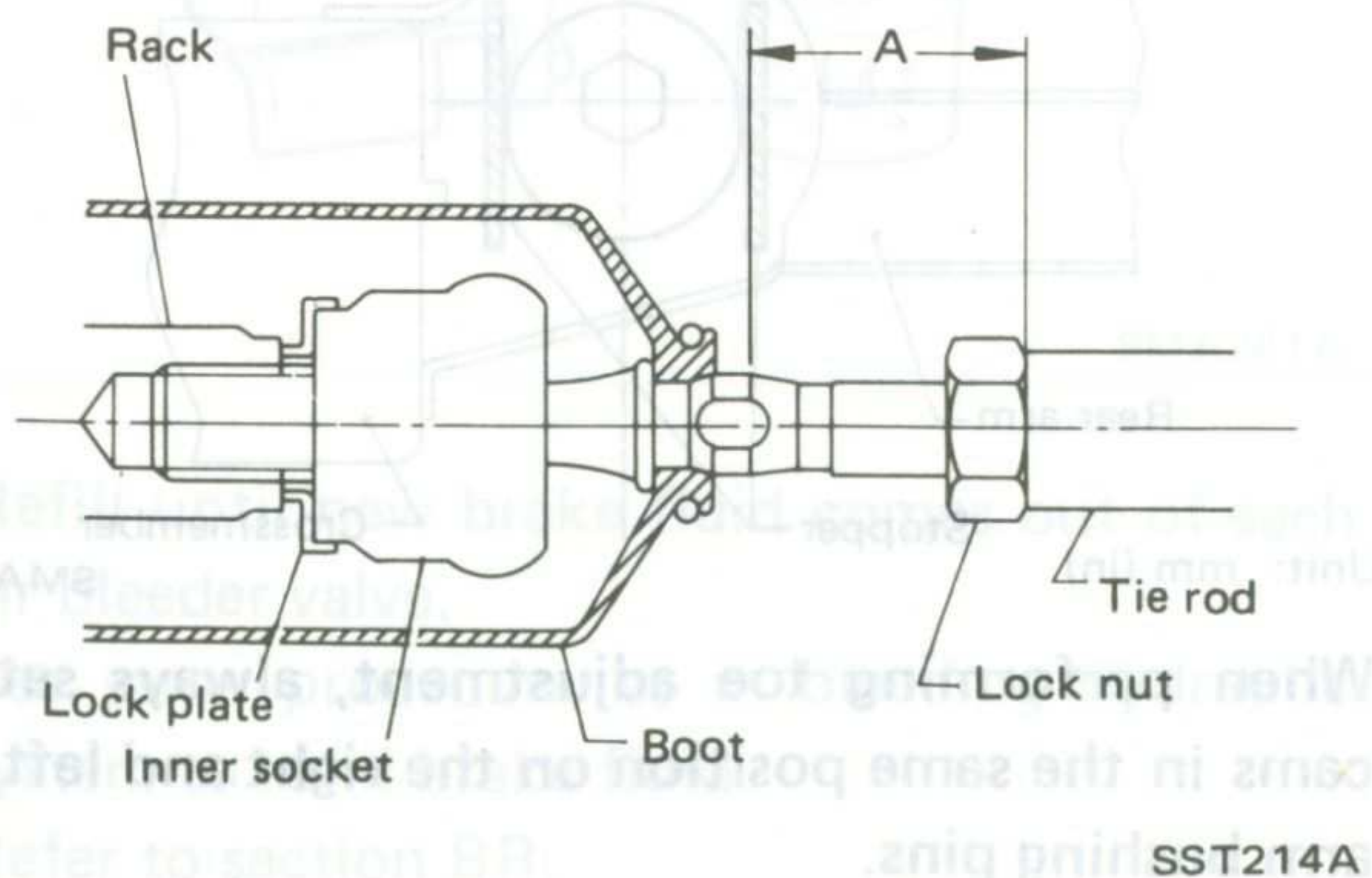
Toe-in:

1 - 3 mm (0.04 - 0.12 in)
6' - 17'

3. Toe-in can be adjusted by varying the length of steering side rods.

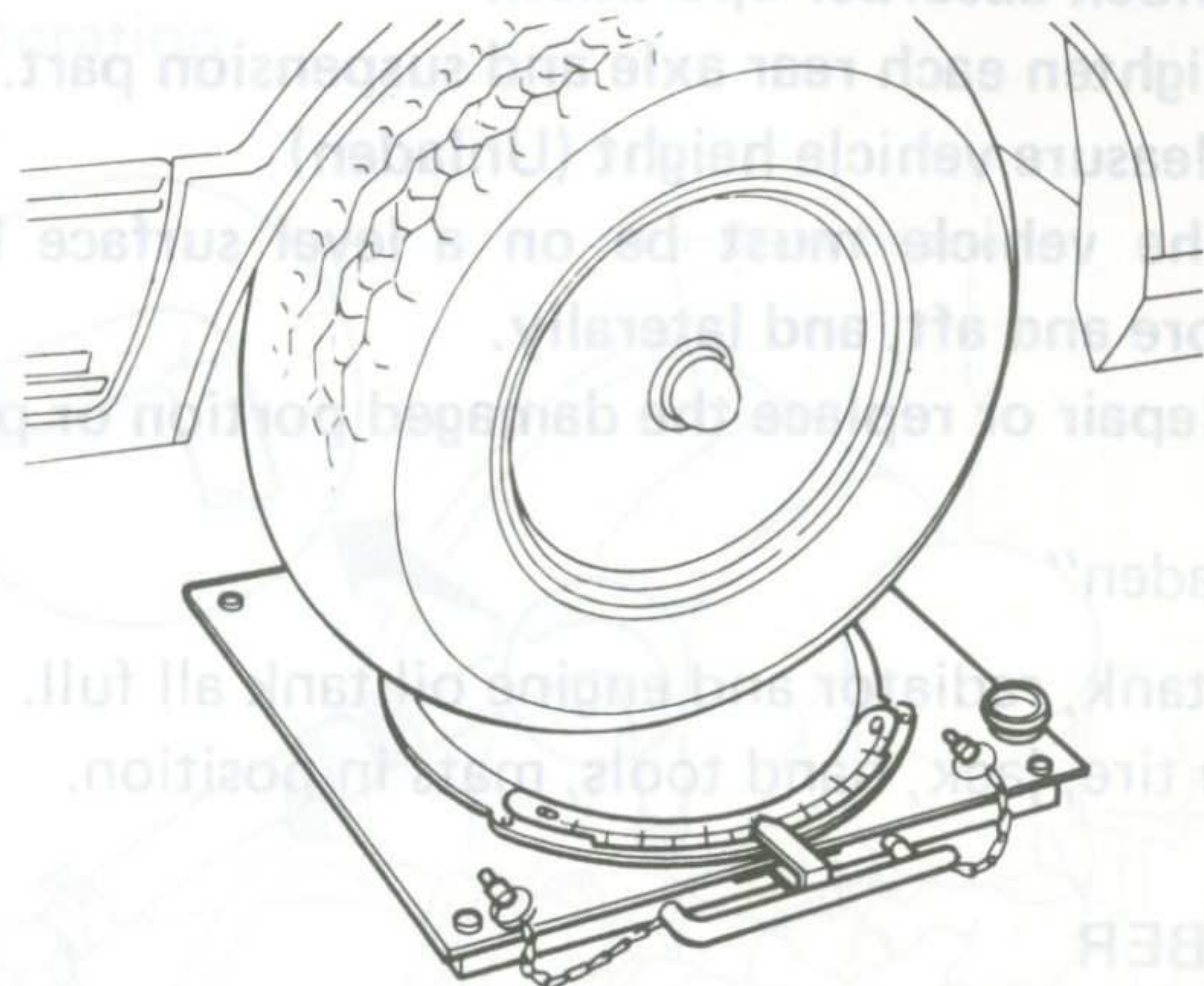


"A" standard dimension:
37.5 mm (1.476 in)



FRONT WHEEL TURNING ANGLE

- Rotate steering wheel all the way right and left; measure turning angle on inner wheel.



Turning angle:

Full turns

Inside

35° - 39°

Outside

27° - 31°

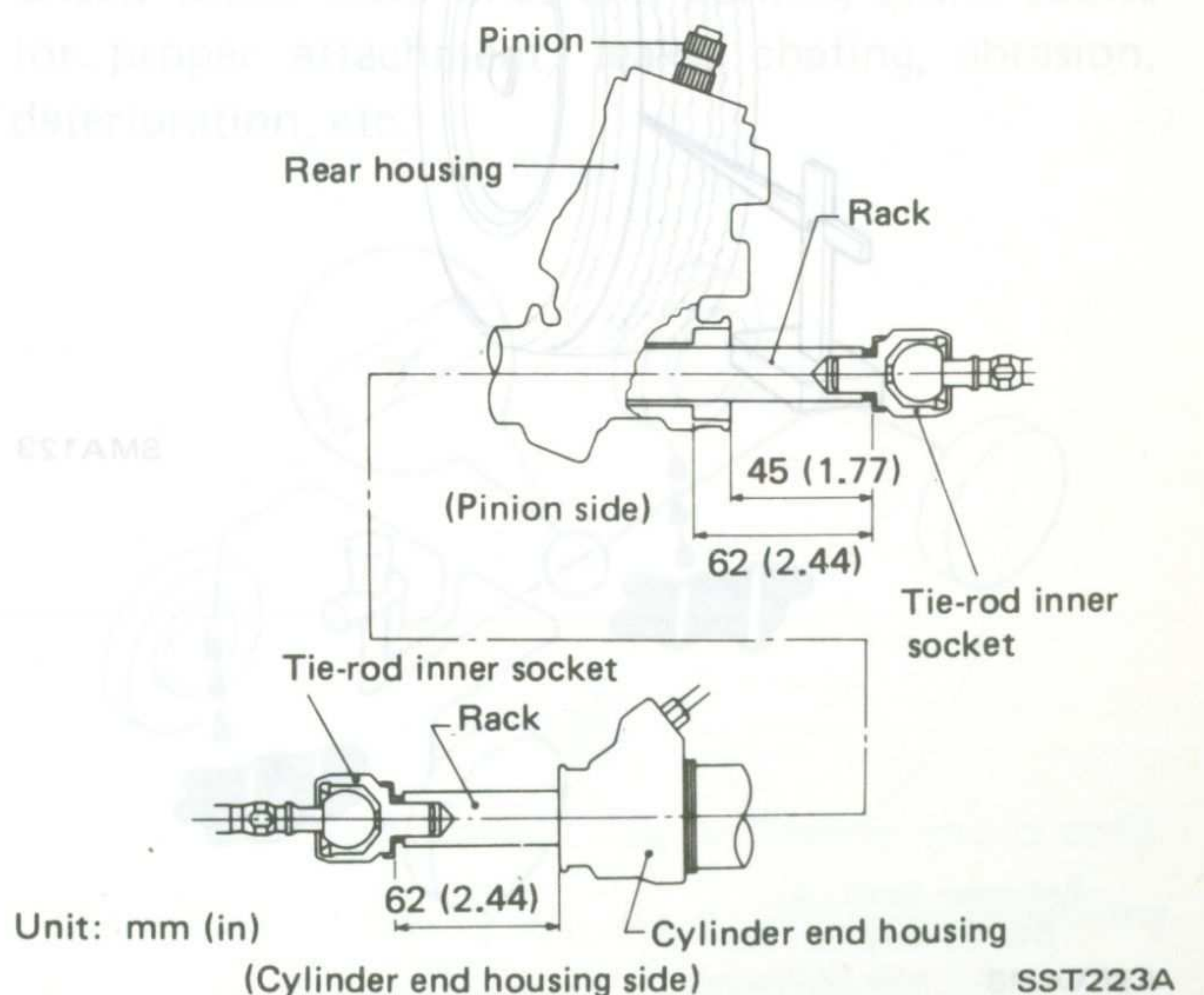
Toe-out turn (Inside/Outside):

22°30'/20°

- If it is not within specification, check rack stroke.

Refer to section ST.

Rack stroke



CHASSIS AND BODY MAINTENANCE

Checking Rear Wheel Alignment

PRELIMINARY INSPECTION

- Tire pressure.
- Wheel bearing axial play.
- Shock absorber operation.
- Tighten each rear axle and suspension part.
- Measure vehicle height (Unladen)
The vehicle must be on a level surface both fore and aft, and laterally.
- Repair or replace the damaged portion or parts.

"Unladen"

Fuel tank, radiator and engine oil tank all full.
Spare tire, jack, hand tools, mats in position.

CAMBER

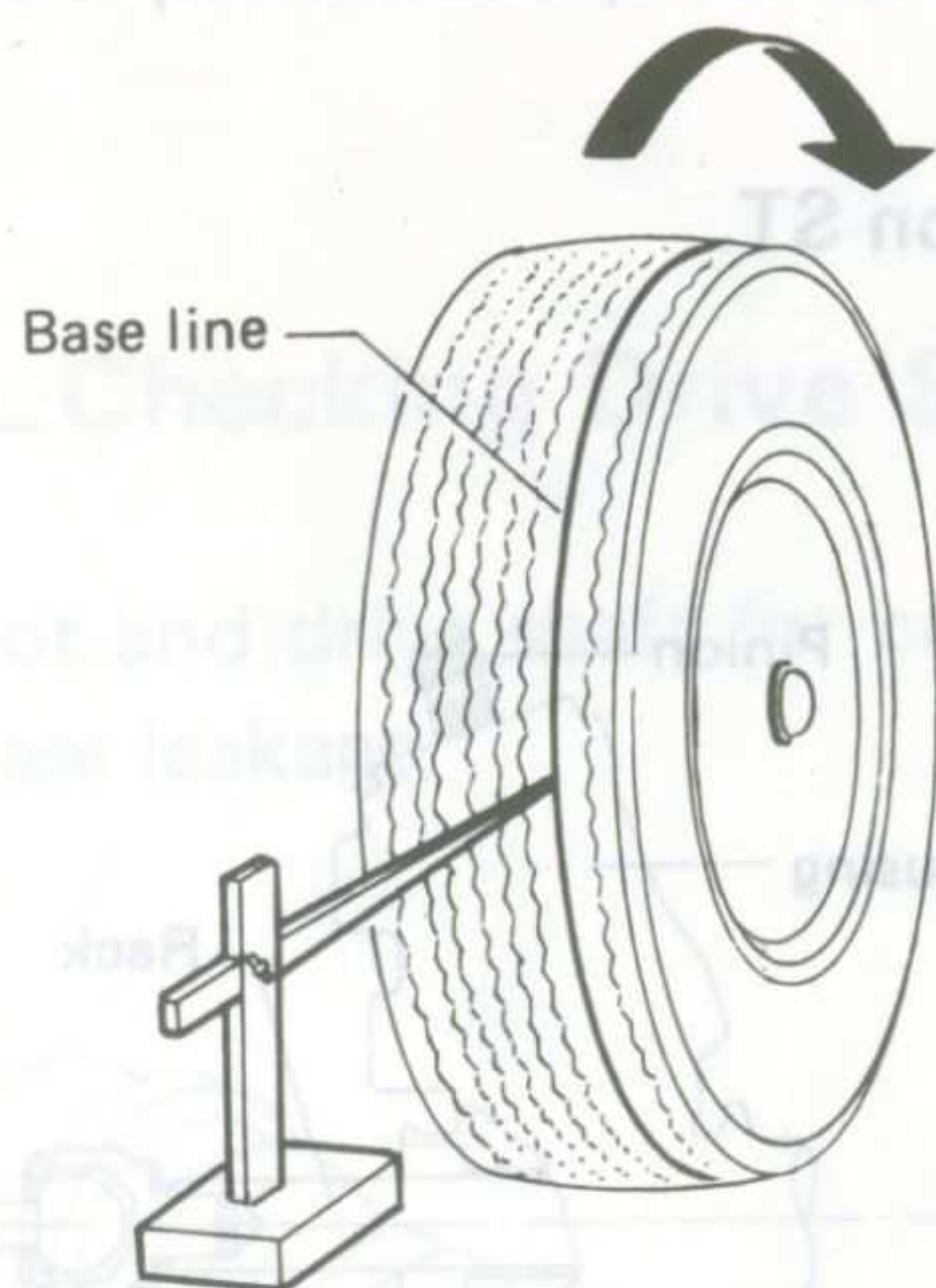
Camber is preset at factory and cannot be adjusted.

Camber:

$-1^{\circ}55'$ to $-25'$

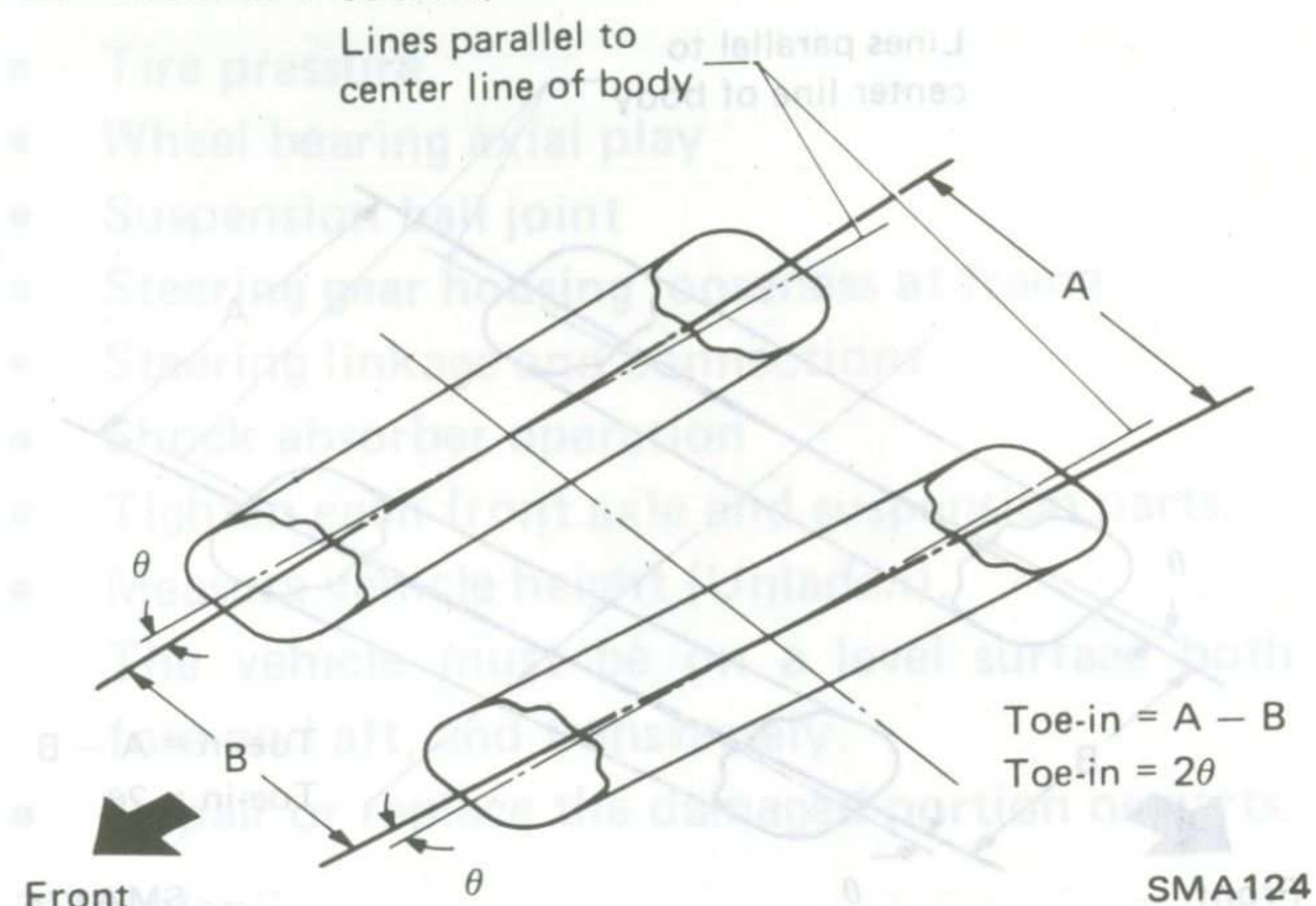
TOE-IN

1. Mark a base line across the tread.



SMA123

2. Measure toe-in.

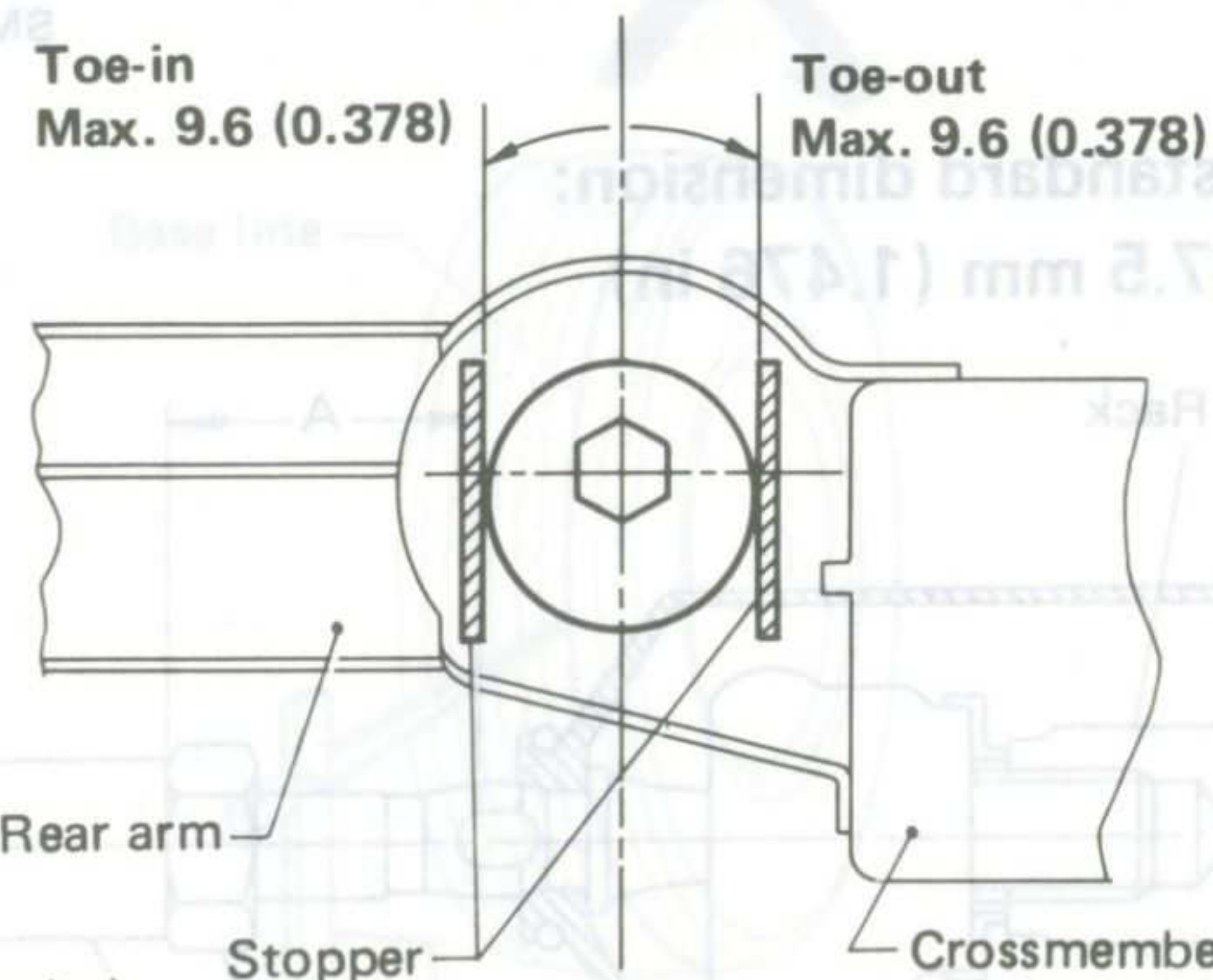
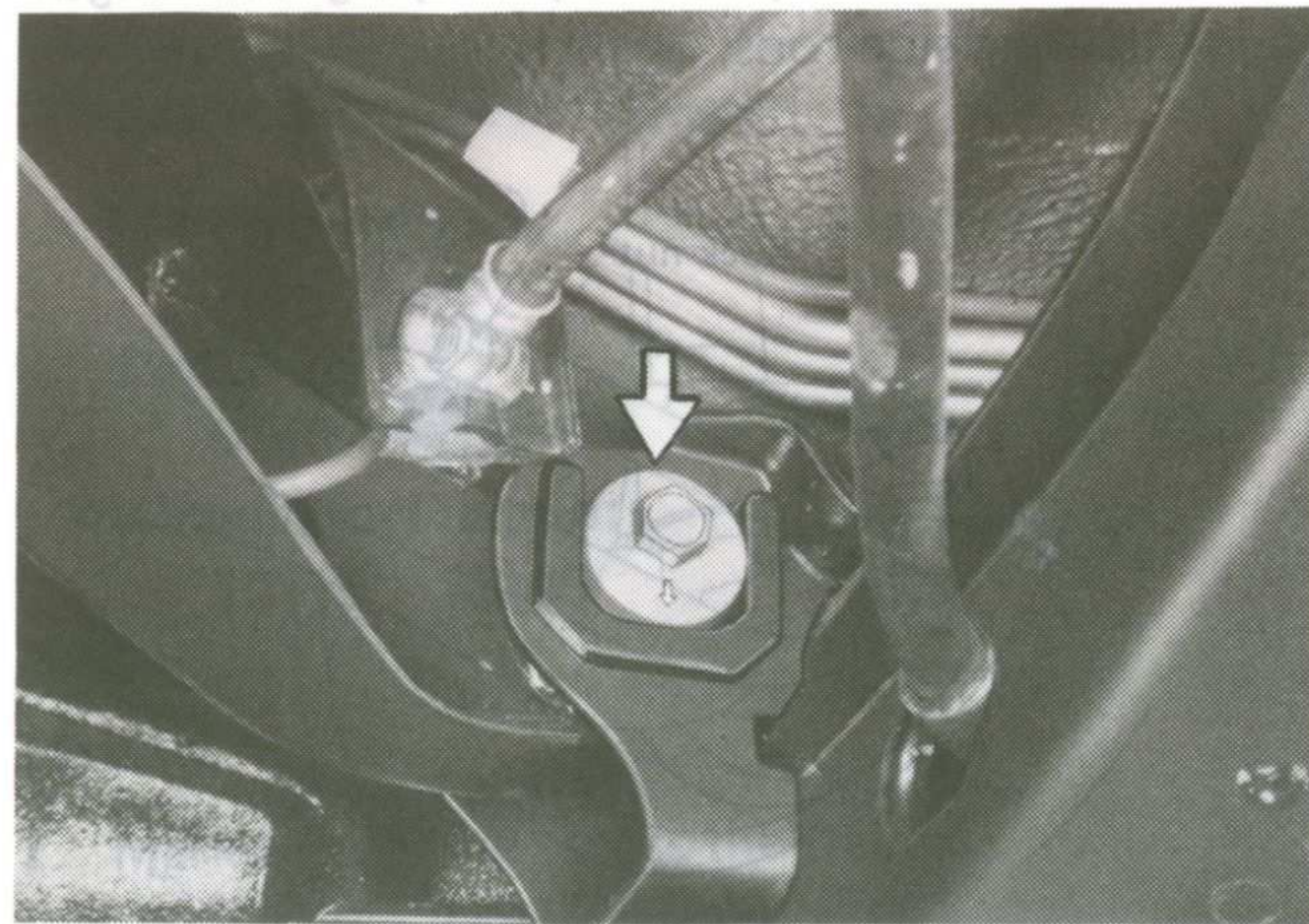


SMA124

Toe-in:

-1.5 to 2.5 mm (-0.059 to 0.098 in)
 $-8'$ to $14'$

3. Toe-in can be adjusted by inside of rear arm bushing pins.



Unit: mm (in)

SMA745A

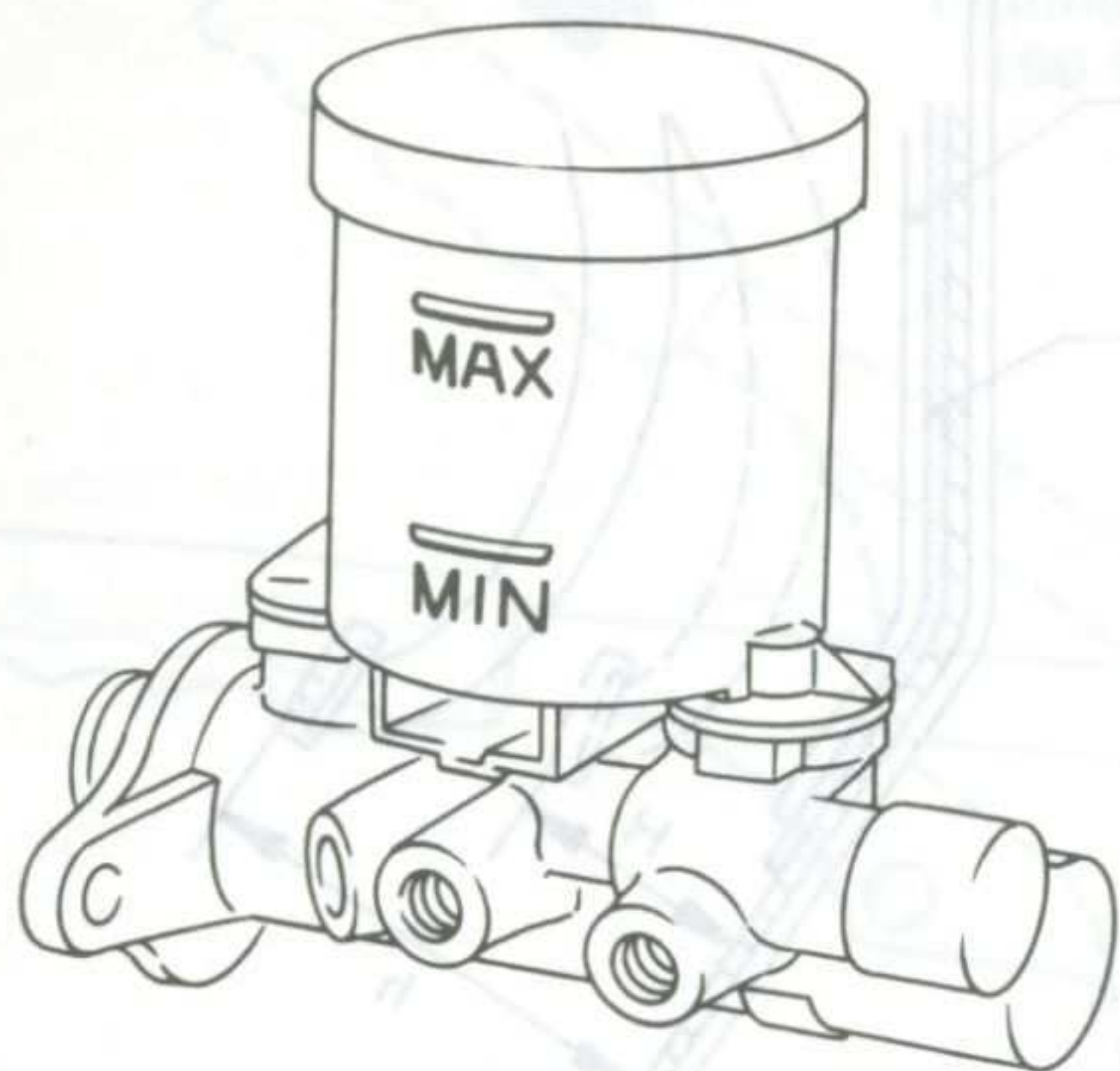
When performing toe adjustment, always set the cams in the same position on the right and left rear arm bushing pins.

CHASSIS AND BODY MAINTENANCE

Checking Brake Fluid Level

and Leaks

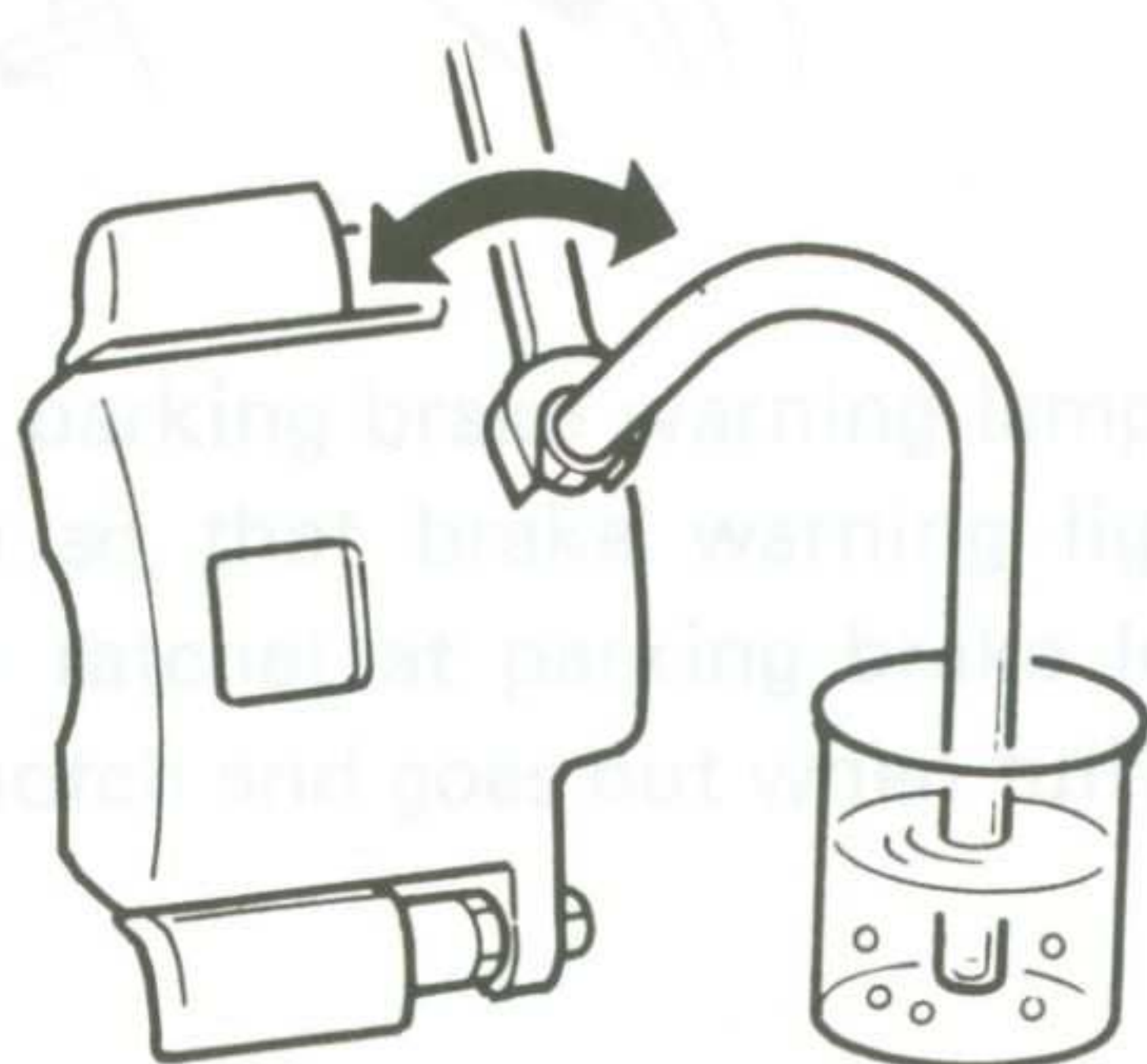
If fluid level is extremely low, check brake system for leaks.



SMA730A

Changing Brake Fluid

- Refill with recommended brake fluid "DOT 3".
 - Do not reuse drained brake fluid.
 - Be careful not to splash brake fluid on painted areas.
1. Drain brake fluid in each air bleeder valve.



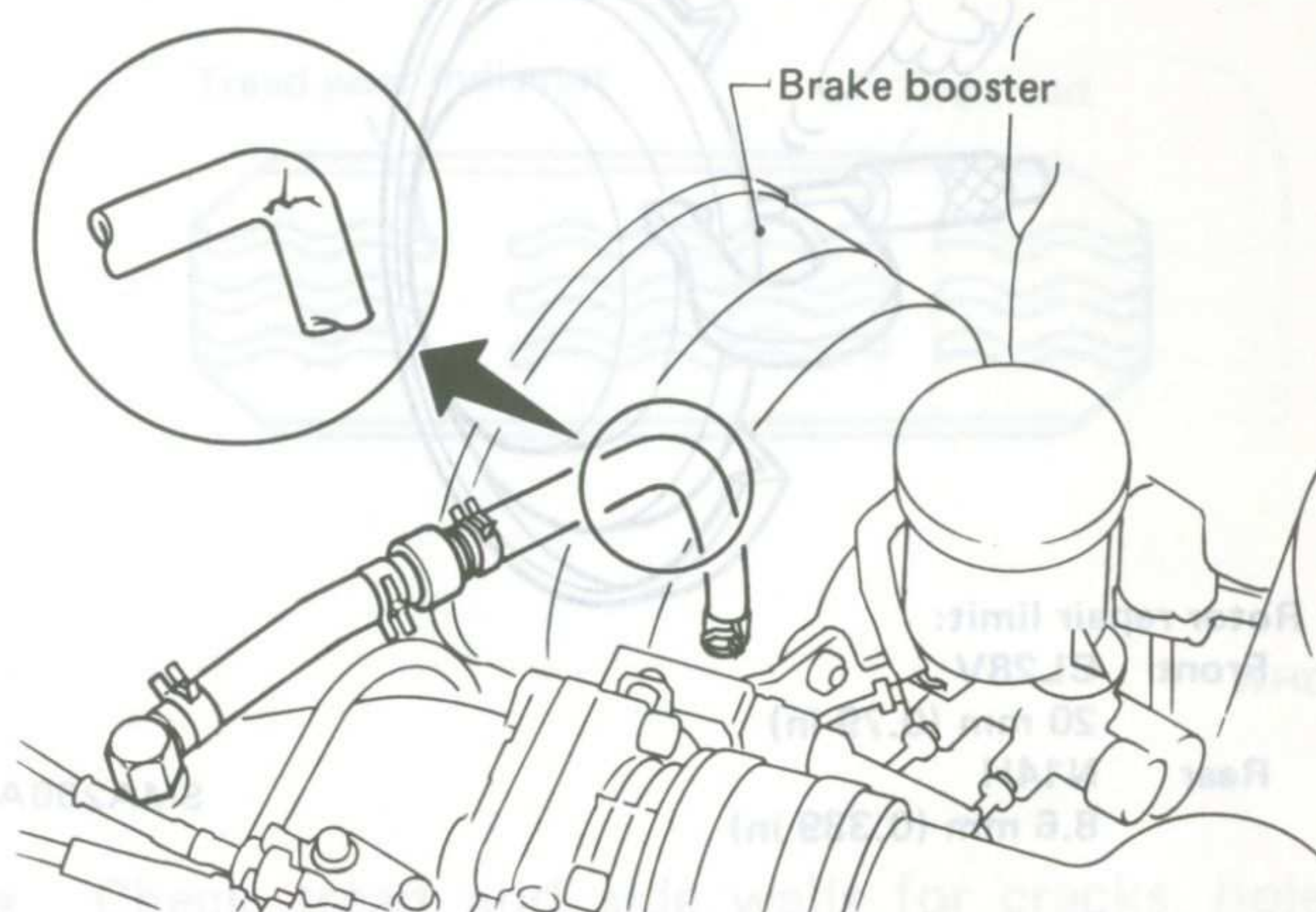
SMA261A

2. Refill until new brake fluid comes out of each air bleeder valve.
Use same procedure as in bleeding hydraulic system to refill brake fluid.
Refer to section BR.

Checking Brake Booster

Vacuum Hoses, Connections and Check Valve

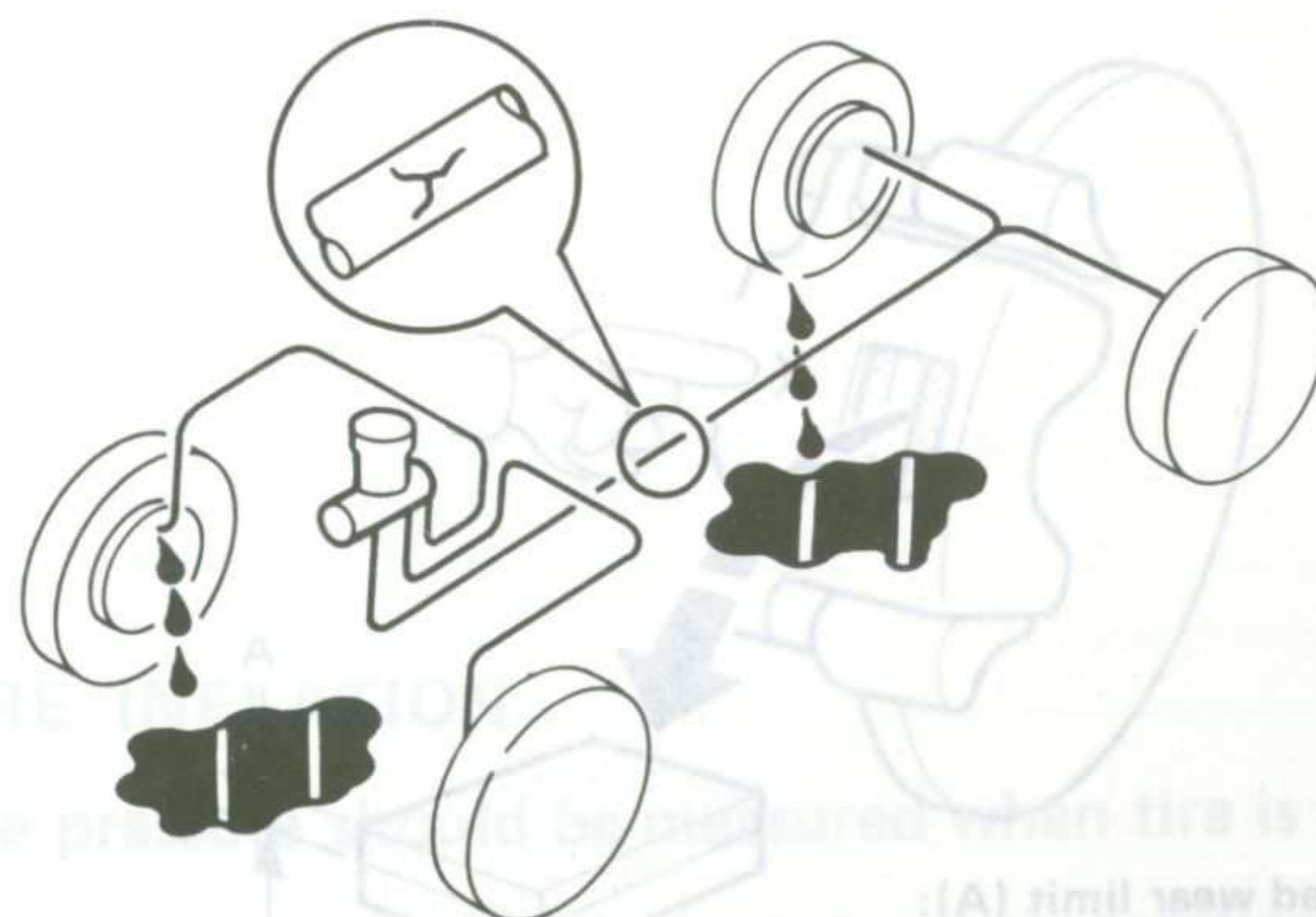
Check vacuum lines connections and check valve for proper attachment, air tightness, chafing and deterioration.



SMA731A

Checking Brake System

Check brake fluid lines and parking brake cables for proper attachment, leaks, chafing, abrasion, deterioration, etc.



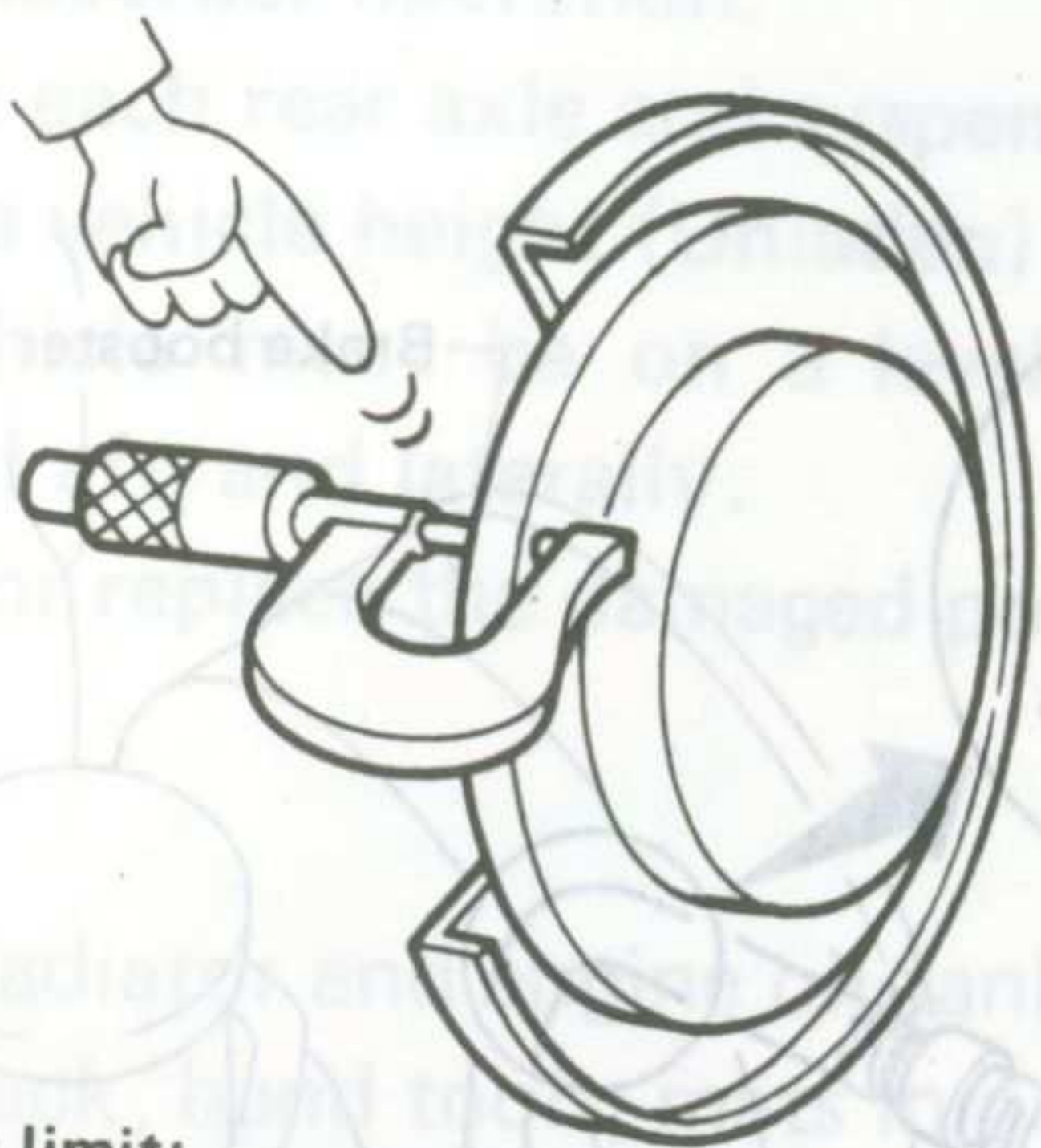
SMA732A

CHASSIS AND BODY MAINTENANCE

Checking Disc Brake

Check condition of disc brake components.

Rotor: Condition and thickness

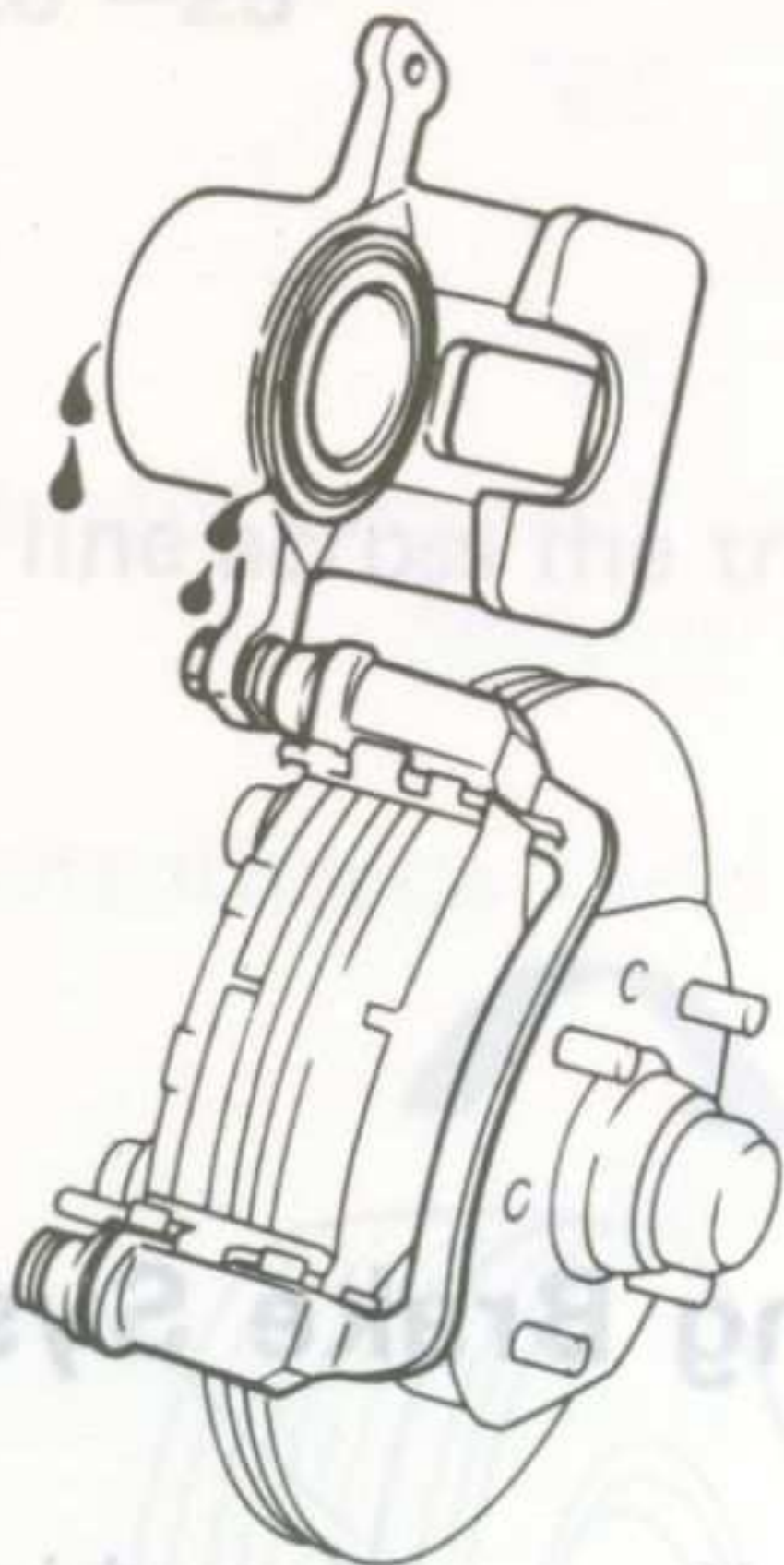


Rotor repair limit:

Front	CL28V
	20 mm (0.79 in)
Rear	N14H
	8.6 mm (0.339 in)

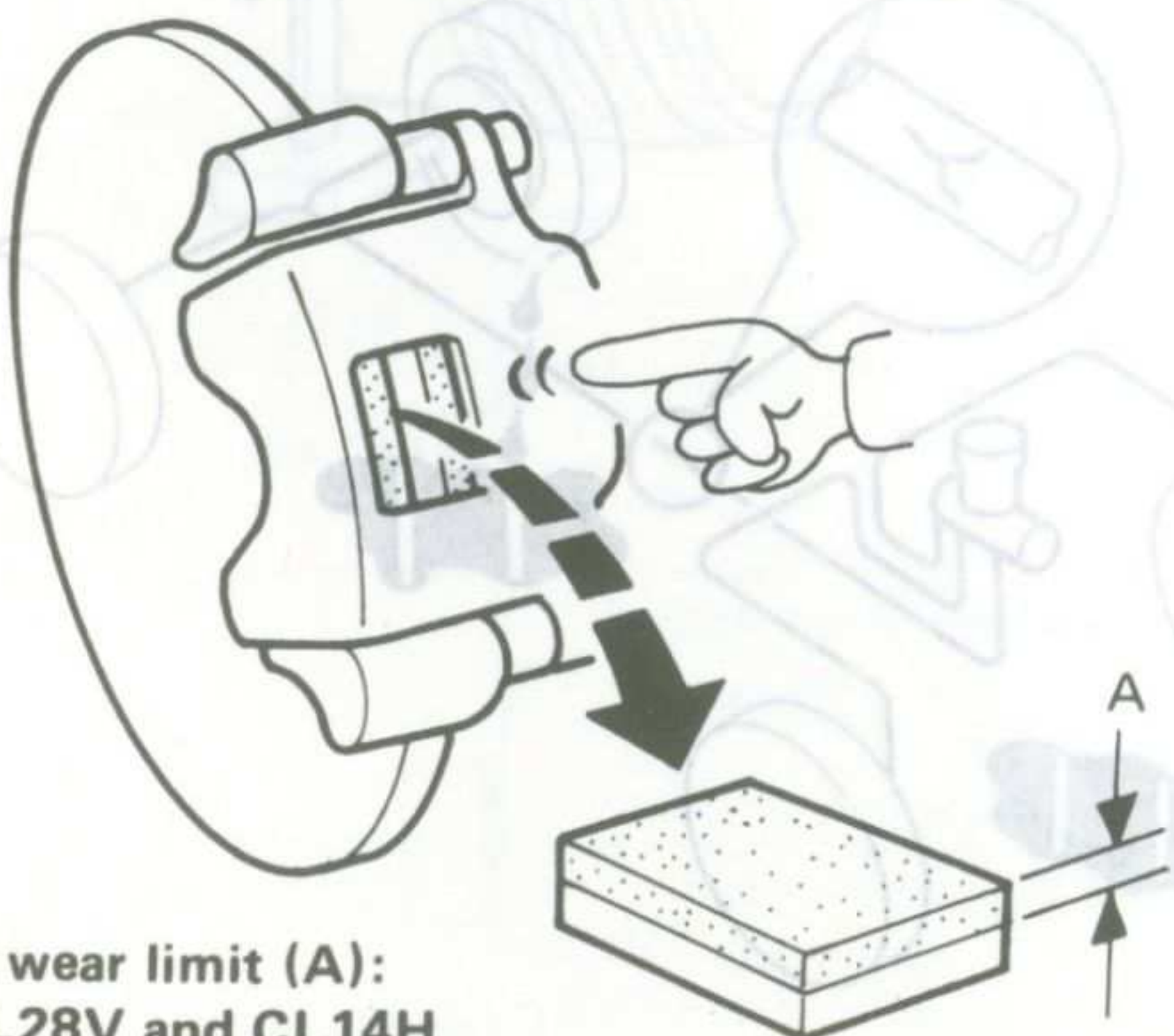
SMA260A

Caliper: Operation and leakage



SMA734A

Pad: Wear or damage

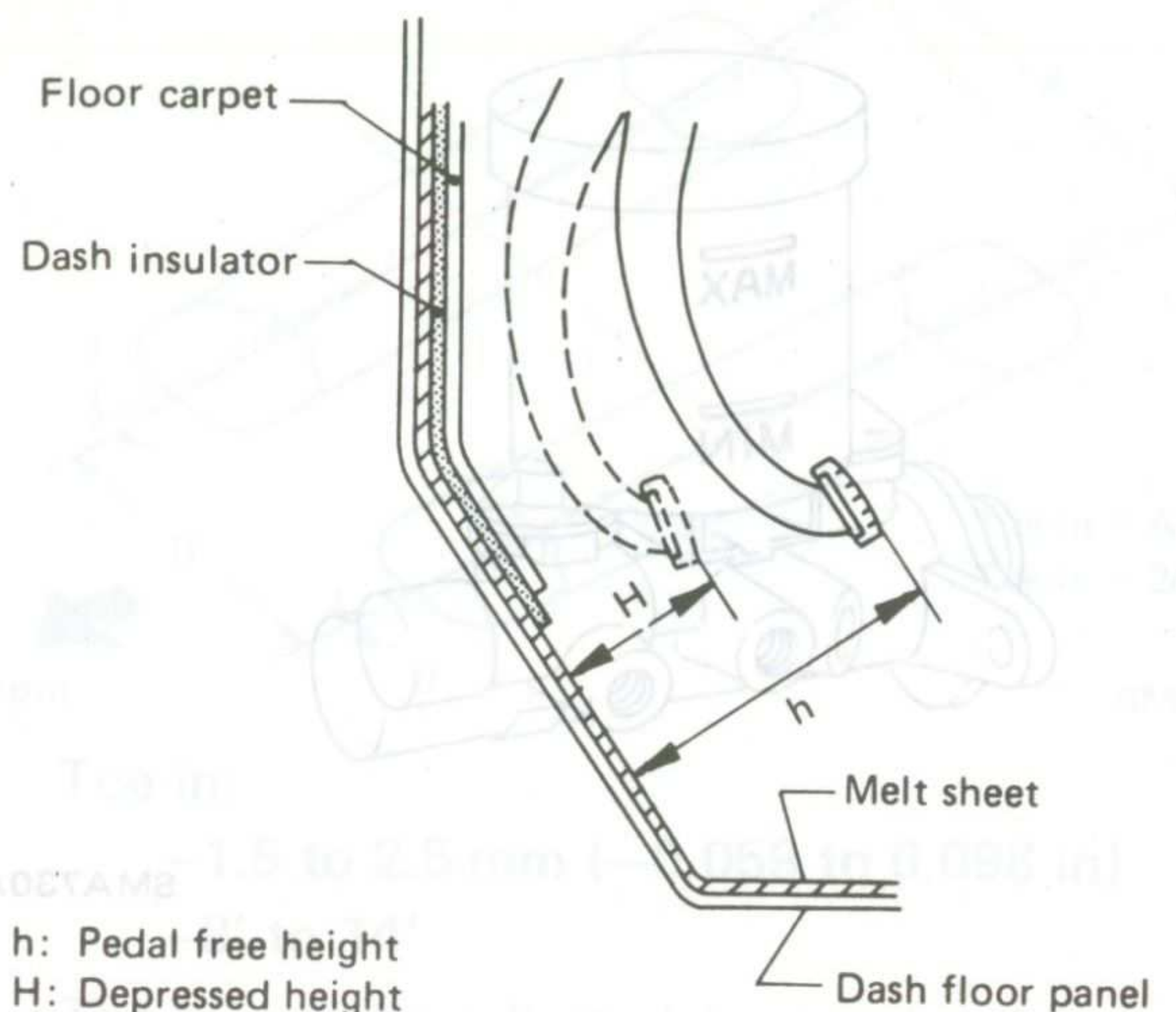


Pad wear limit (A):
CL28V and CL14H
2.0 mm (0.079 in)

SMA364A

Checking Foot Brake Pedal Operation

- Check brake pedal free height, depressed height and smooth operation.



h: Pedal free height
H: Depressed height

SMA537A

Pedal free height "h":

M/T model 182 - 192 mm (7.17 - 7.56 in)

A/T model 184 - 194 mm (7.24 - 7.64 in)

Depressed height "H":

More than 90 mm (3.54 in)

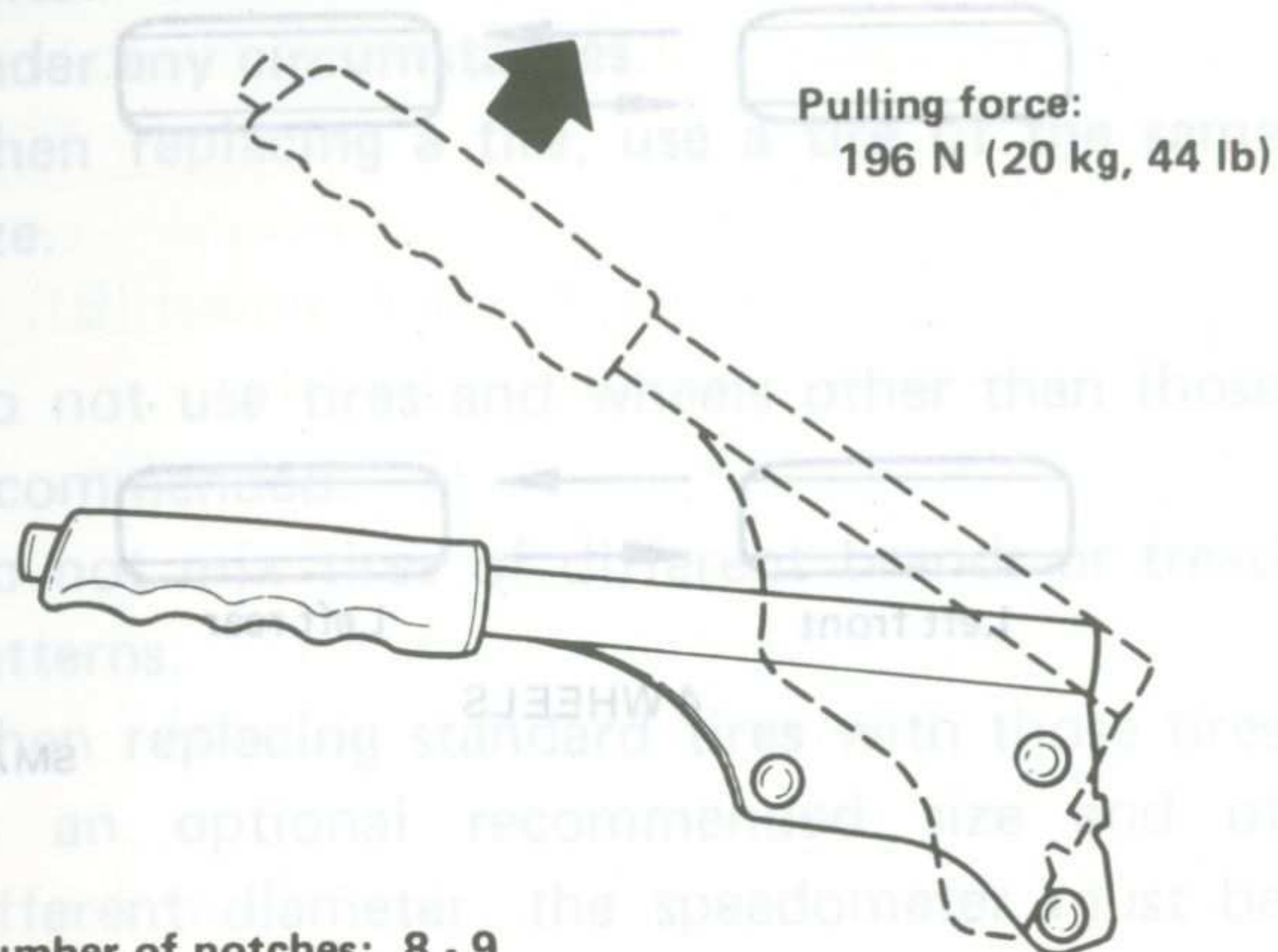
If necessary, adjust pedal heights.

Refer to section BR.

CHASSIS AND BODY MAINTENANCE

Checking Parking Brake

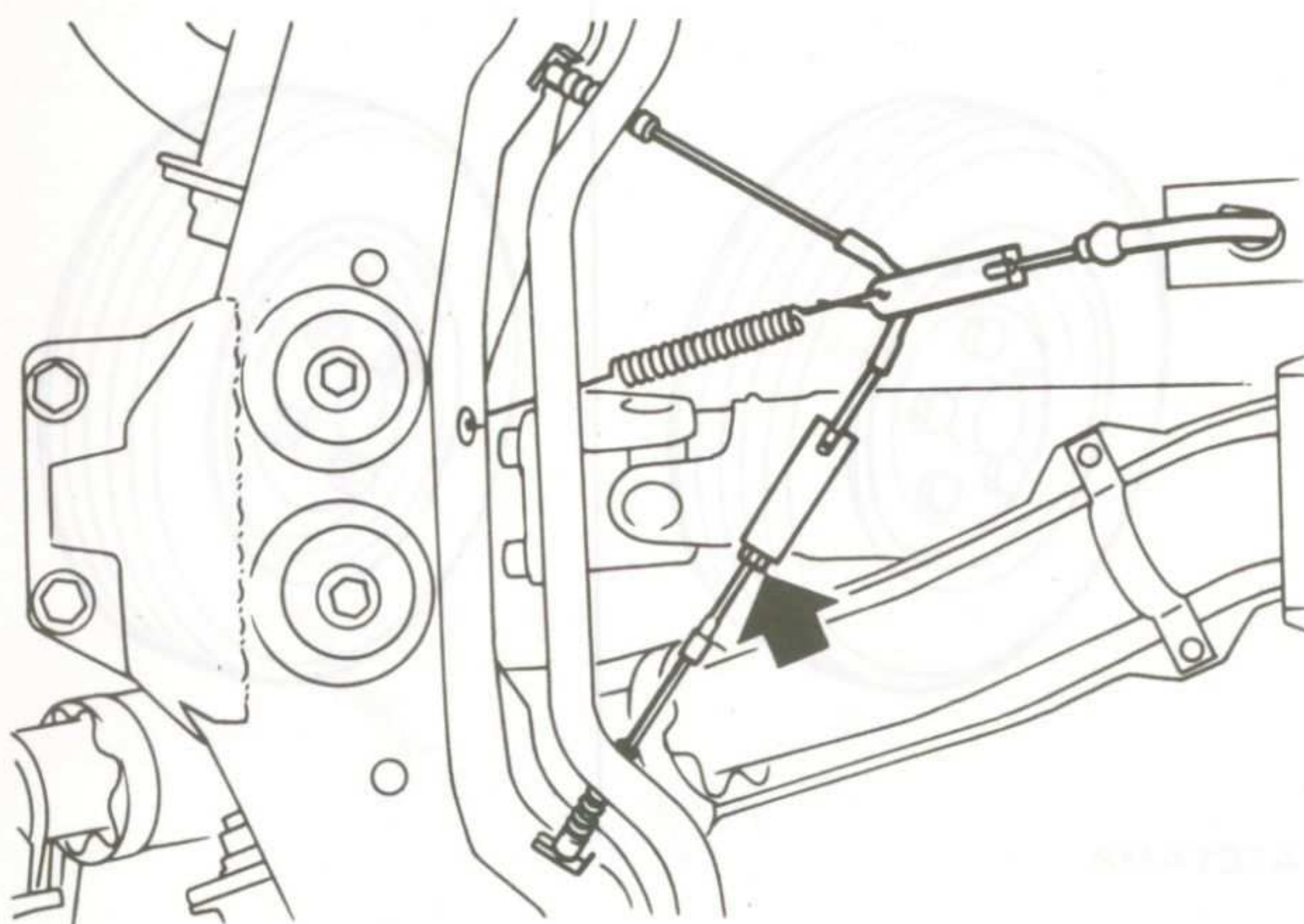
- Pull lever with specified amount of force.
- Check lever stroke and smooth operation.



Number of notches: 8 - 9

SMA436

- Use adjuster to adjust lever stroke.



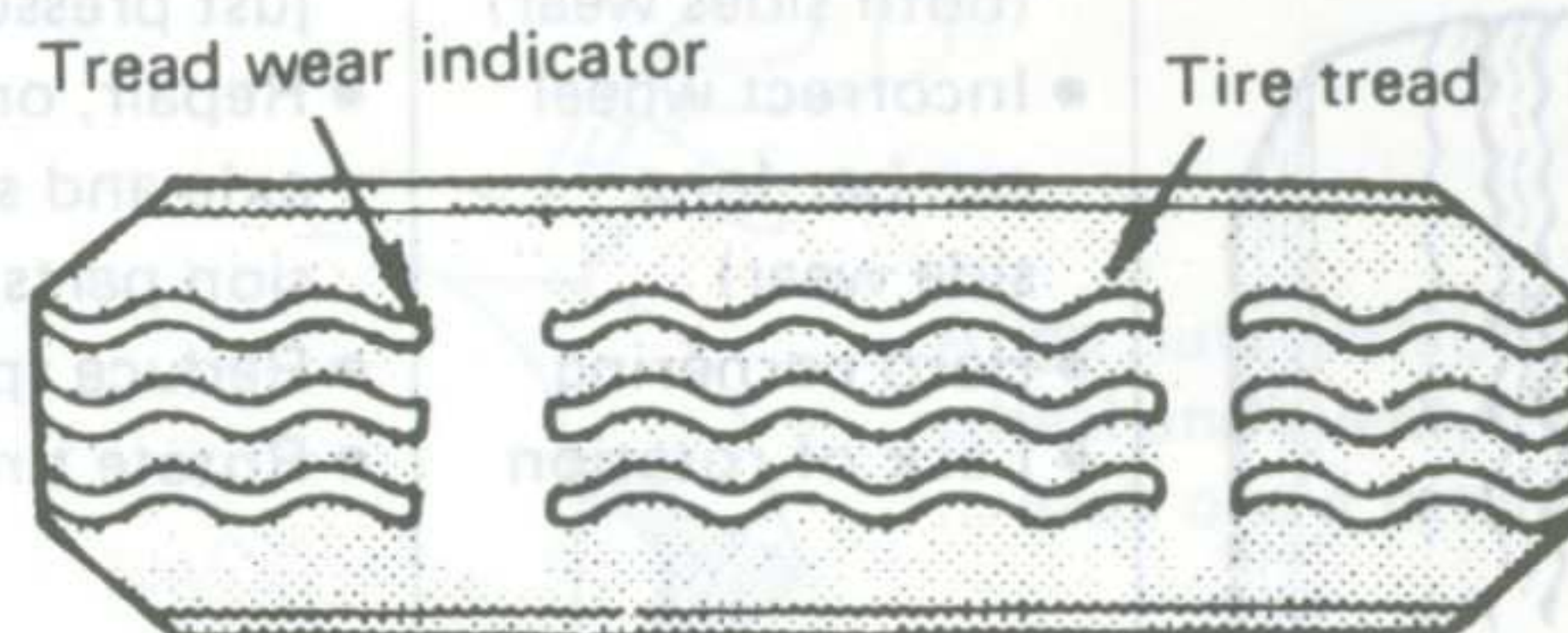
SMA735A

- Bend parking brake warning lamp switch plate down so that brake warning light comes on when ratchet at parking brake lever is pulled one notch and goes out when fully released.

Checking Tire Condition

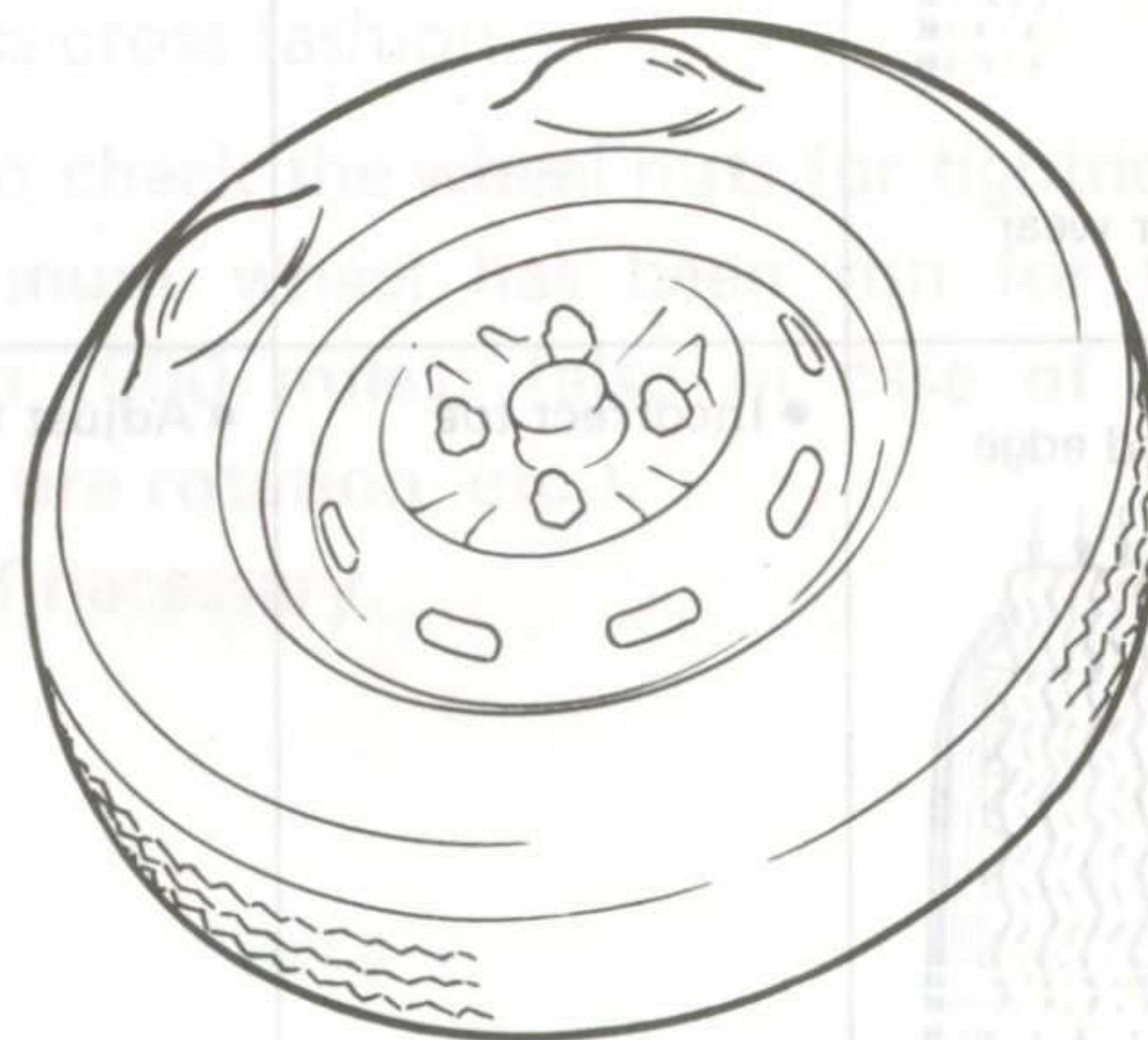
TIRE CONDITION

- When tires wear and tread wear indicators appear, replace them with new ones.



WH024

- Check tread and side walls for cracks, holes, separation or damage.



SMA539A

- Tire valves for air leakage.

TIRE INFLATION

Tire pressure should be measured when tire is cold.

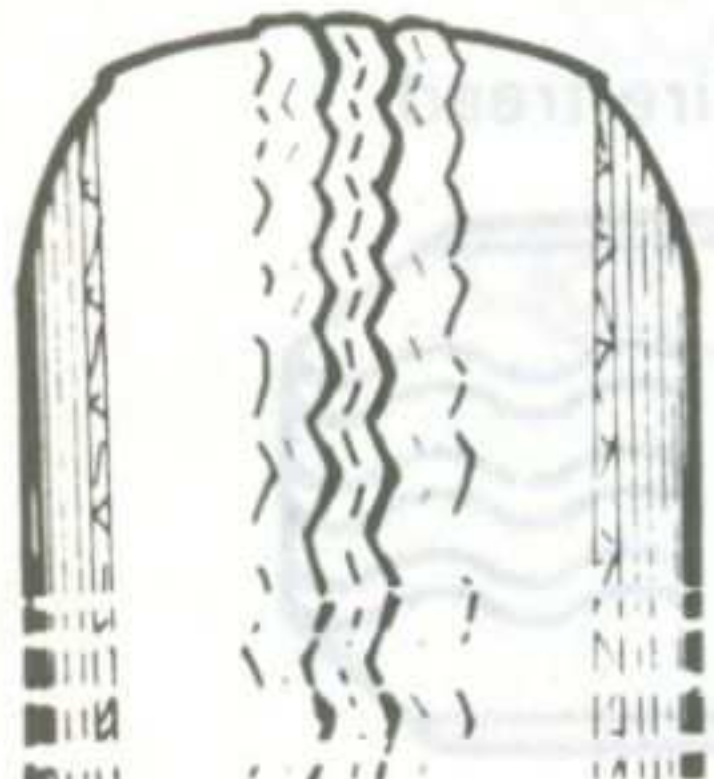
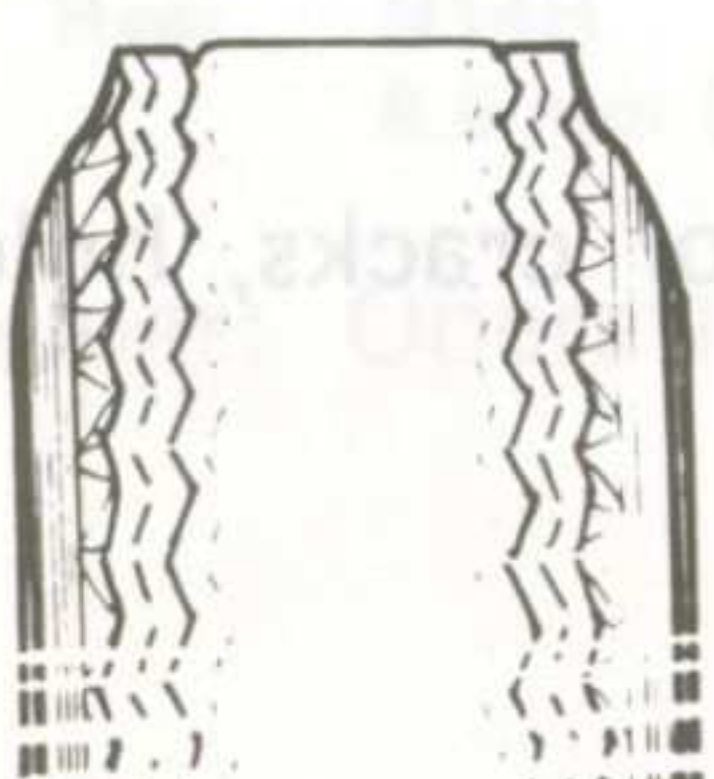
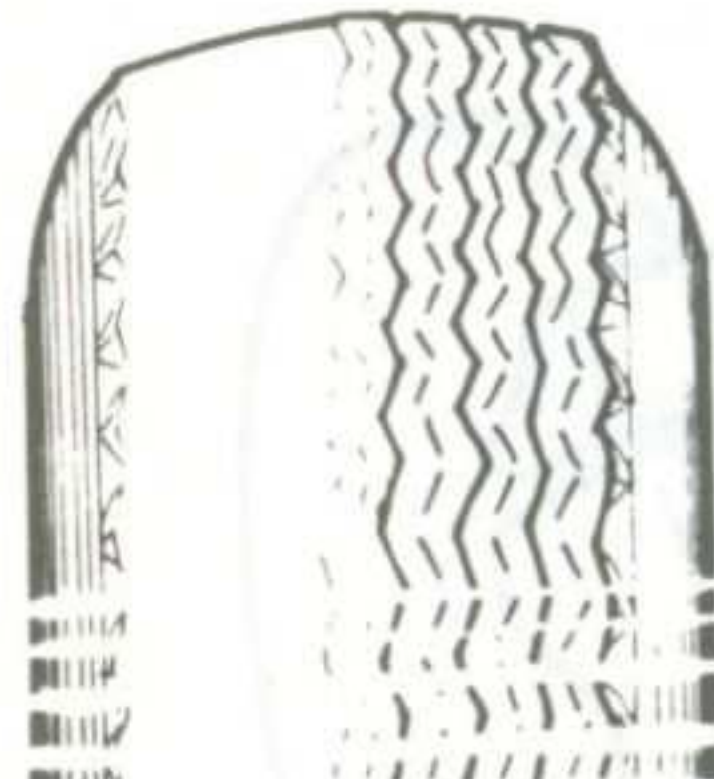
Tire pressure should be set to the specifications on the tire placard located in the vehicle.

CHASSIS AND BODY MAINTENANCE

Checking Tire Condition (Cont'd)

Abnormal tire wear

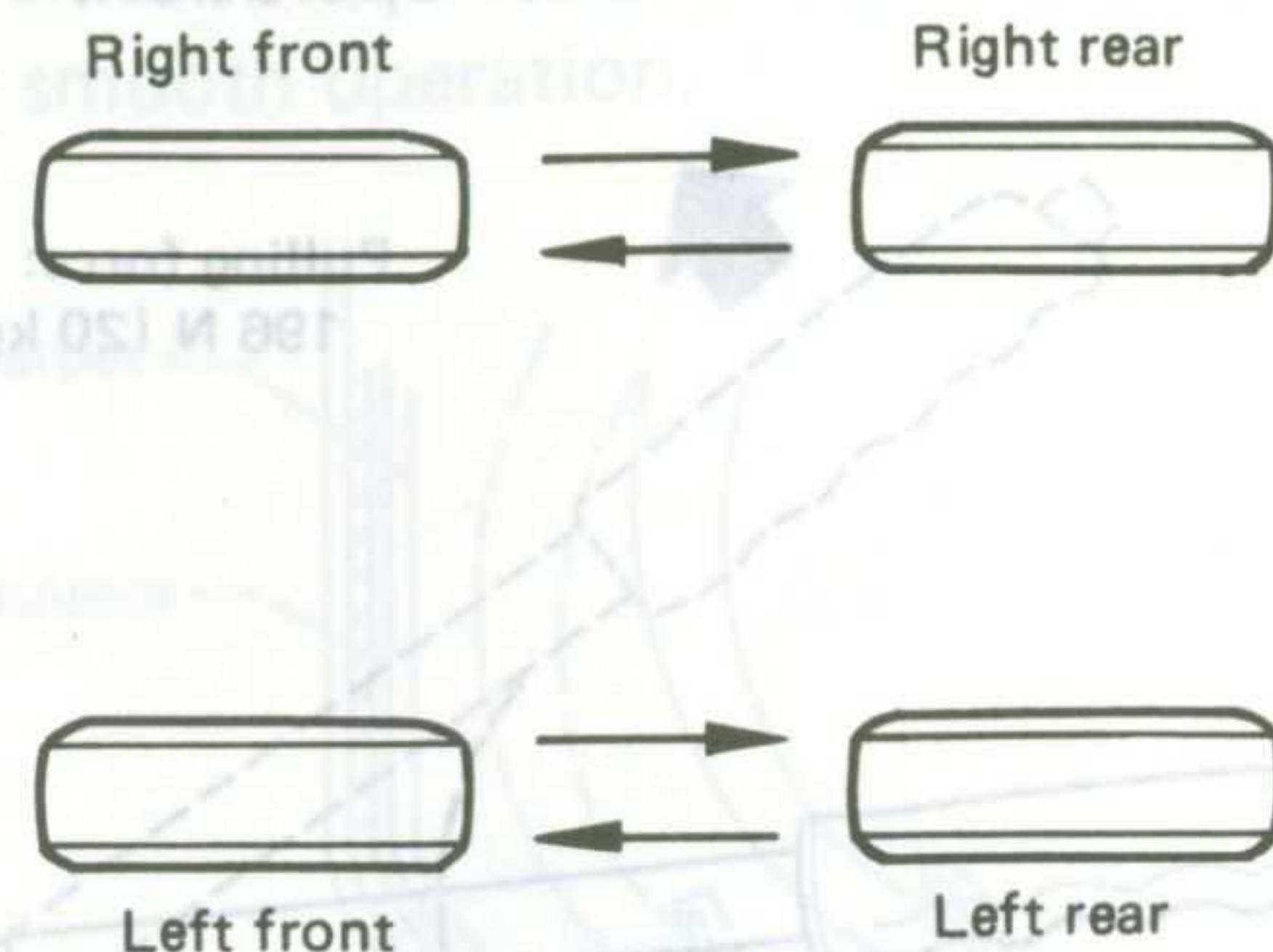
Correct abnormal tire wear according to the chart shown below.

Condition	Probable cause	Corrective action
 Shoulder wear	- Underinflation (both sides wear) - Incorrect wheel camber (one side wear) - Hard cornering - Lack of rotation	- Measure and adjust pressure. - Repair, or replace axle and suspension parts. - Reduce speed - Rotate tires.
 Center wear	- Overinflation - Lack of rotation	- Measure and adjust pressure. - Rotate tires.
 Toe-in or toe-out wear	Incorrect toe	Adjust toe-in.
 Uneven wear	- Incorrect camber or caster - Malfunctioning suspension - Unbalanced wheel - Out-of-round brake drum - Other mechanical conditions - Lack of rotation	- Repair, or replace axle and suspension parts. - Repair, replace or, if necessary, reinstall. - Balance or replace. - Correct or replace. - Correct or replace. - Rotate tires.

SMA068

Tire Rotation

Radial Tire



4 WHEELS

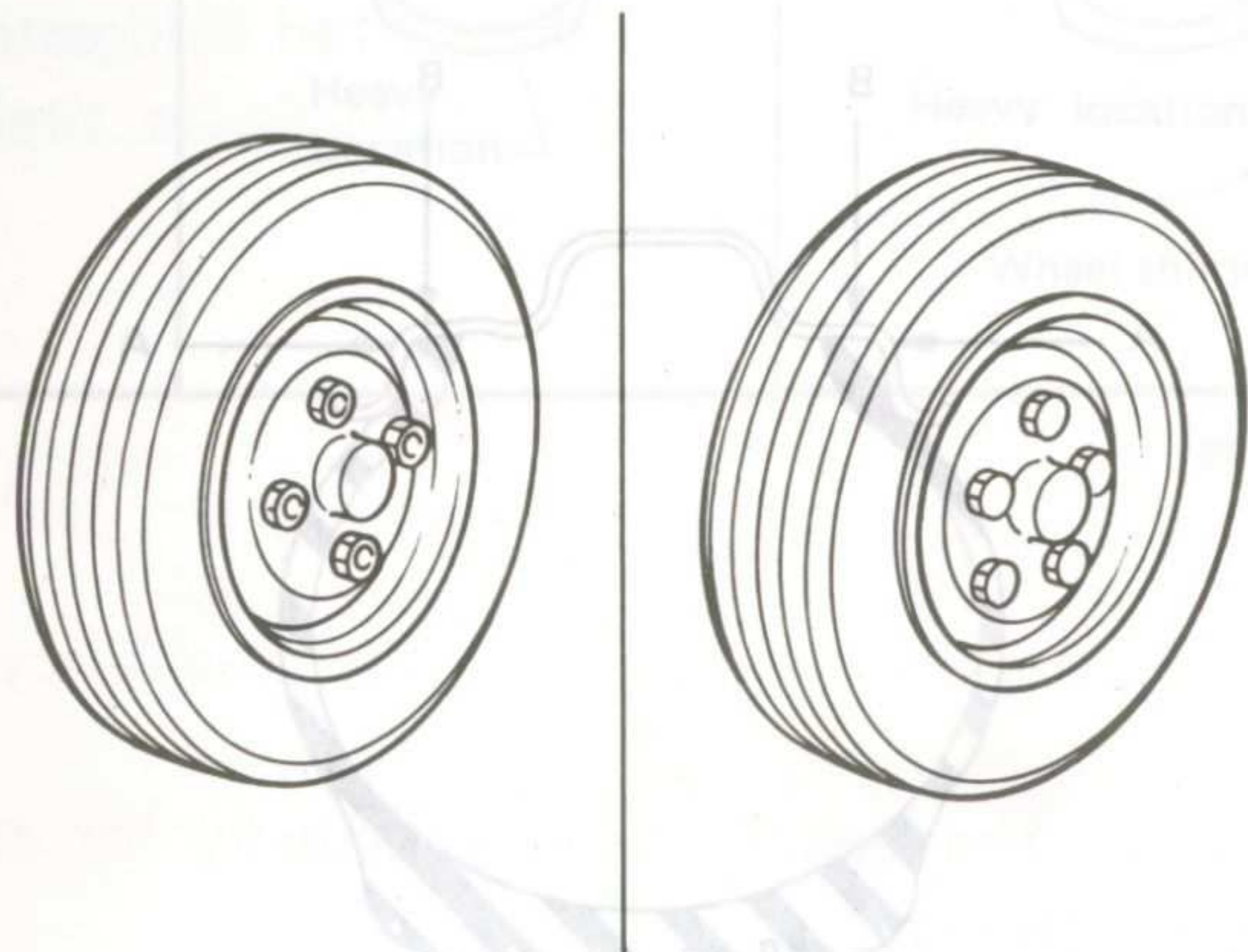
SMA736A

CHASSIS AND BODY MAINTENANCE

Tire Replacement

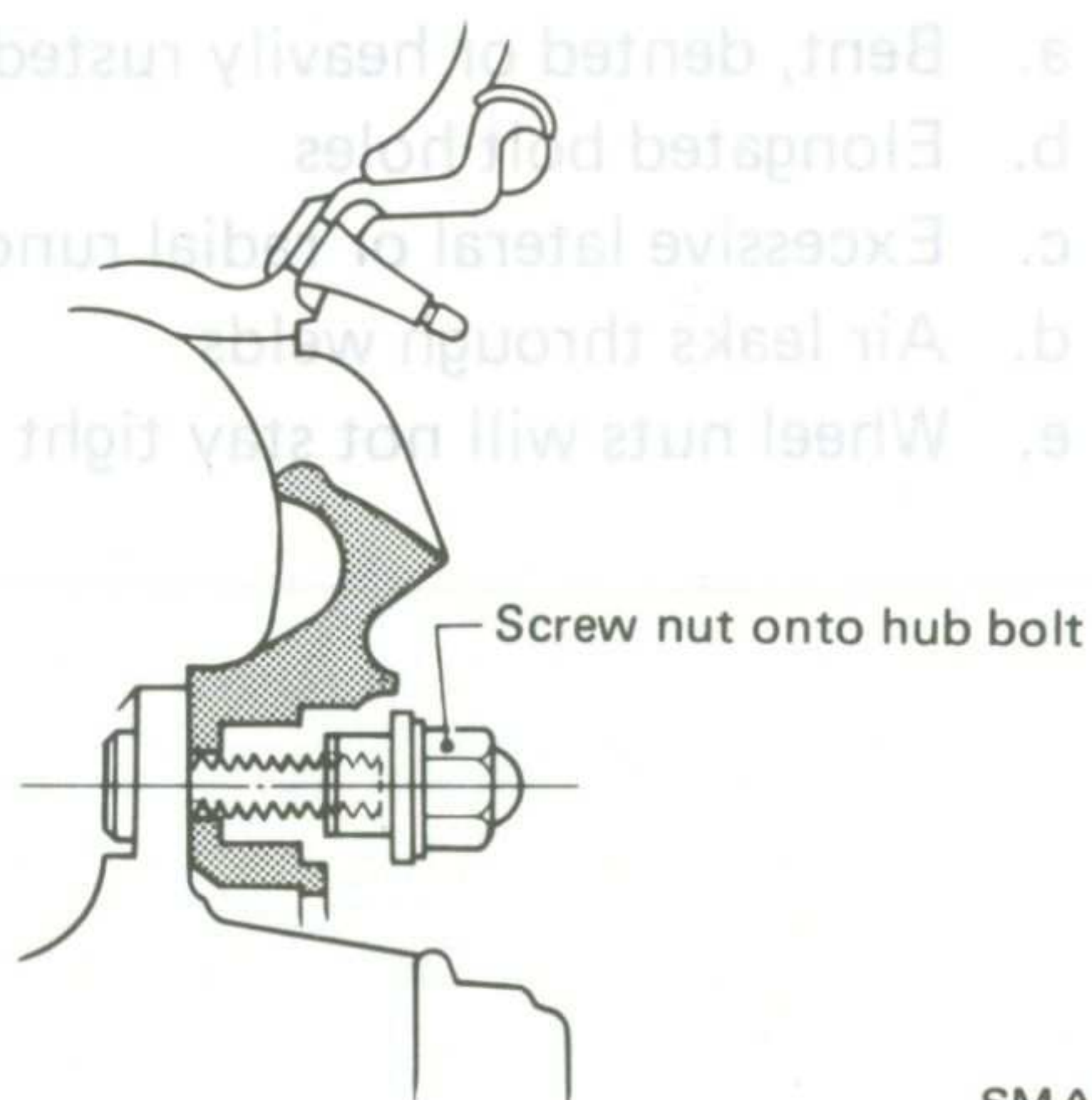
CAUTION:

- Different types of tires, such as bias, bias belted and radial tires, must not be mixed under any circumstances.
- When replacing a tire, use a tire of the same size.
- Do not use tires and wheels other than those recommended.
- Do not mix tires of different brands or tread patterns.
- When replacing standard tires with those tires of an optional recommended size and of different diameter, the speedometer must be recalibrated.
- To install wheel, tighten wheel nuts in criss-cross fashion.



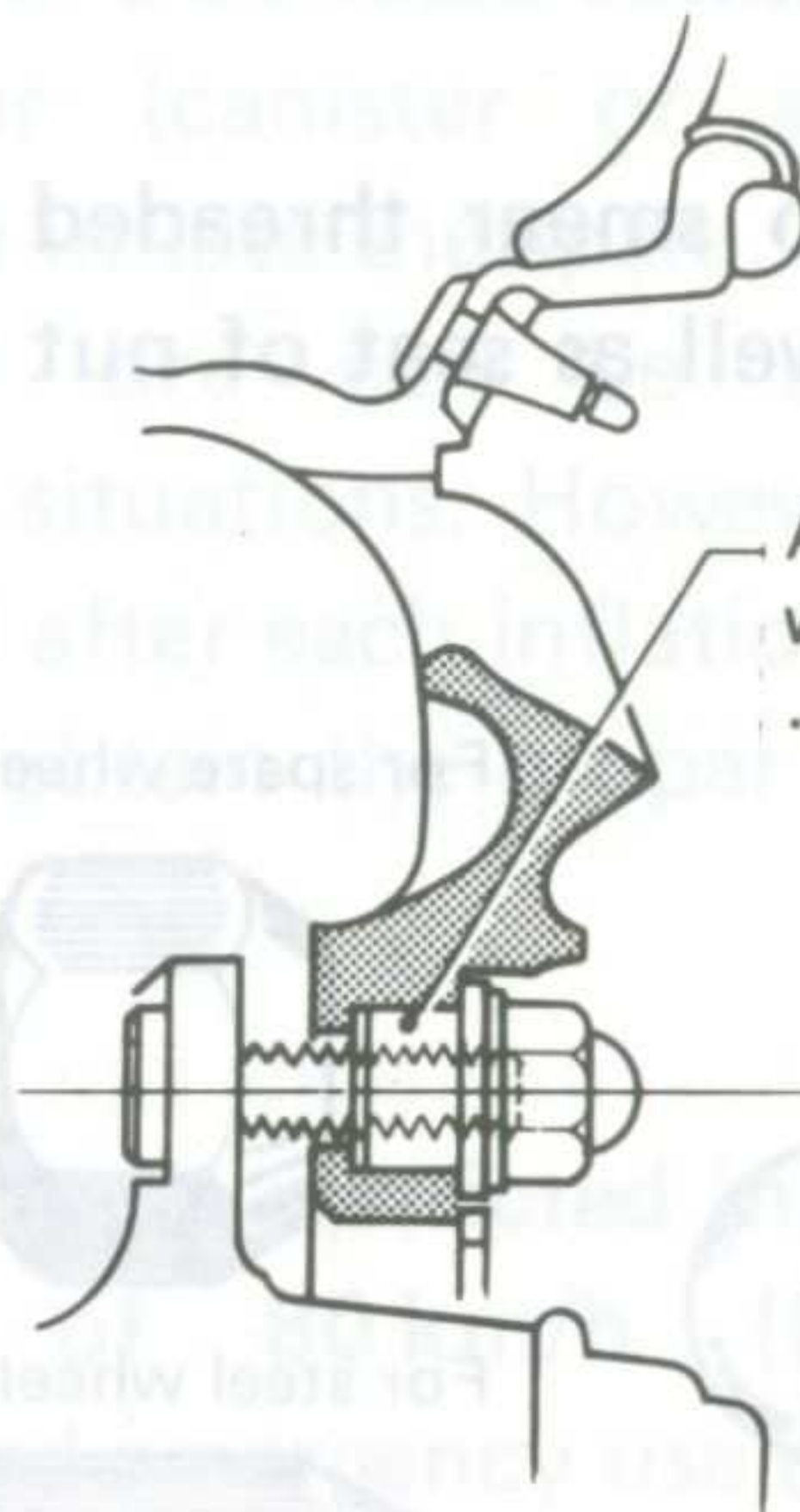
SMA737A

- To install an aluminum wheel, proceed as follows:
- (1) Snugly tighten all nuts after the wheel is positioned.



SMA070

- (2) Slightly pull the wheel back to properly align the nuts with bolt holes in the wheel, and tighten the nuts as much as possible with your fingers.



SMA071

- (3) Tighten wheel nuts evenly with a wheel wrench in criss-cross fashion.

Be sure to check the wheel nuts for tightness, after the aluminum wheel has been run for the first 1,000 km (600 miles) (also in case of repairing flat tires, tire rotation, etc.).

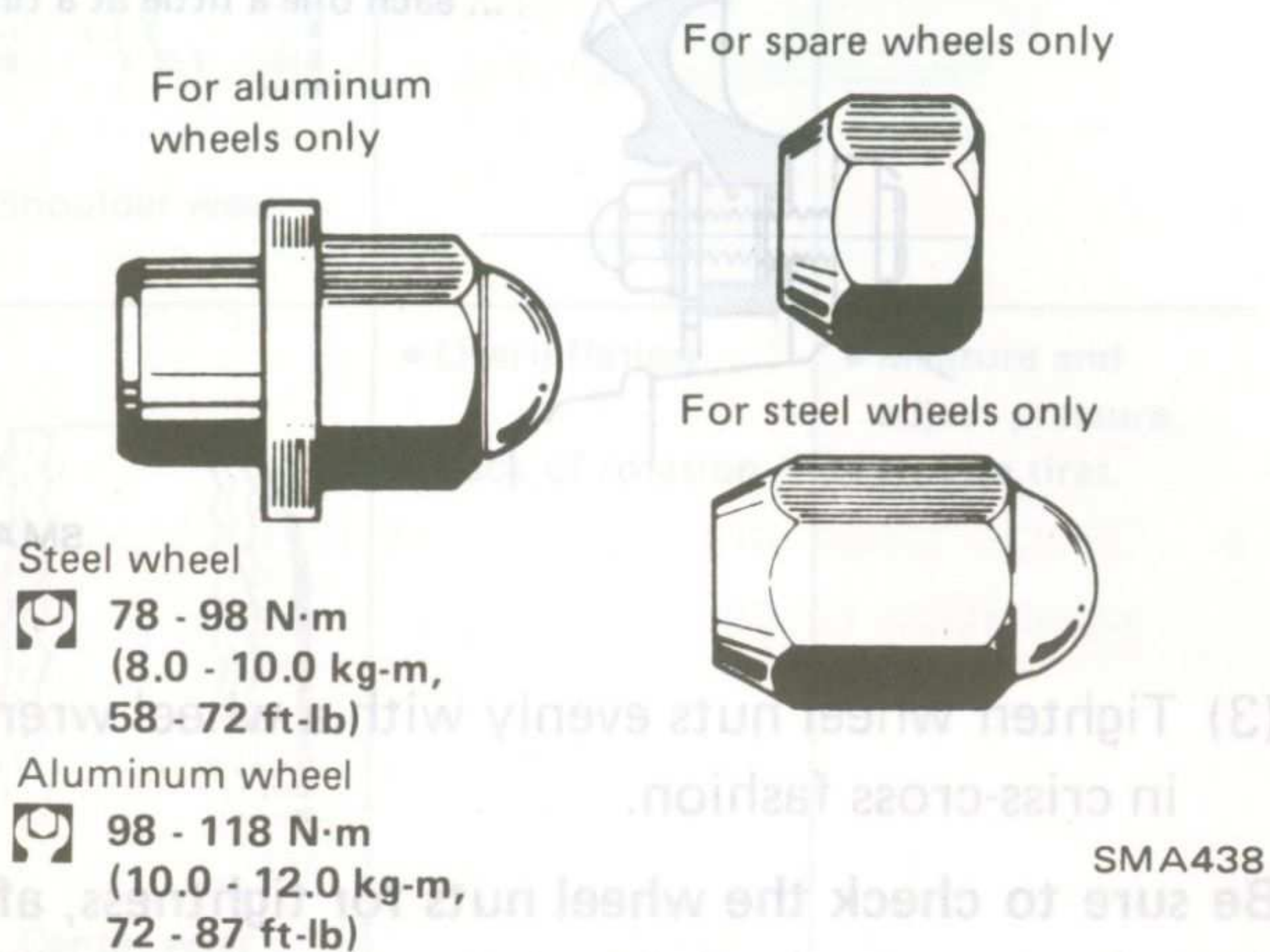
Replace if necessary.

CHASSIS AND BODY MAINTENANCE

Wheel Nut

CAUTION:

- Three types of wheel nuts are used; one is designed for use with steel wheels, one for use with aluminum wheels, and one for use with spare wheels. Do not mix different types of wheel nuts.
- Be careful not to smear threaded portion of bolt and nut as well as seat of nut with oil or grease.



Tire Repair

CAUTION:

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

Install tire, noting the following items:

- Install valve core and inflate to proper pressure. Check the locating rings of the tire to be sure they show around the rim flanges on both sides.
- Check valves for leakage after inflating tires.
- Be sure to tighten valve caps firmly by hand.

WARNING:

When, while tire is being inflated, bead snaps over safety hump, it might break. Thus, to avoid serious personal injury, never stand over tire when inflating it. Never inflate to a pressure greater than 2.8 kg/cm² (275 kPa, 2.75 bar, 40 psi). If beads fail to seat at that pressure, deflate the tire, lubricate it again, and then reinflate it. If the tire is overinflated, the bead might break, possibly resulting in serious personal injury.

Wheel Inspection

- Check wheel rim (especially rim flange and bead seat) for rust, distortion, cracks or other damage.
- Examine wheel rim for lateral and radial runout, using dial gauge.

Lateral runout (A) and radial runout (B):

Less than 0.5 mm (0.020 in)

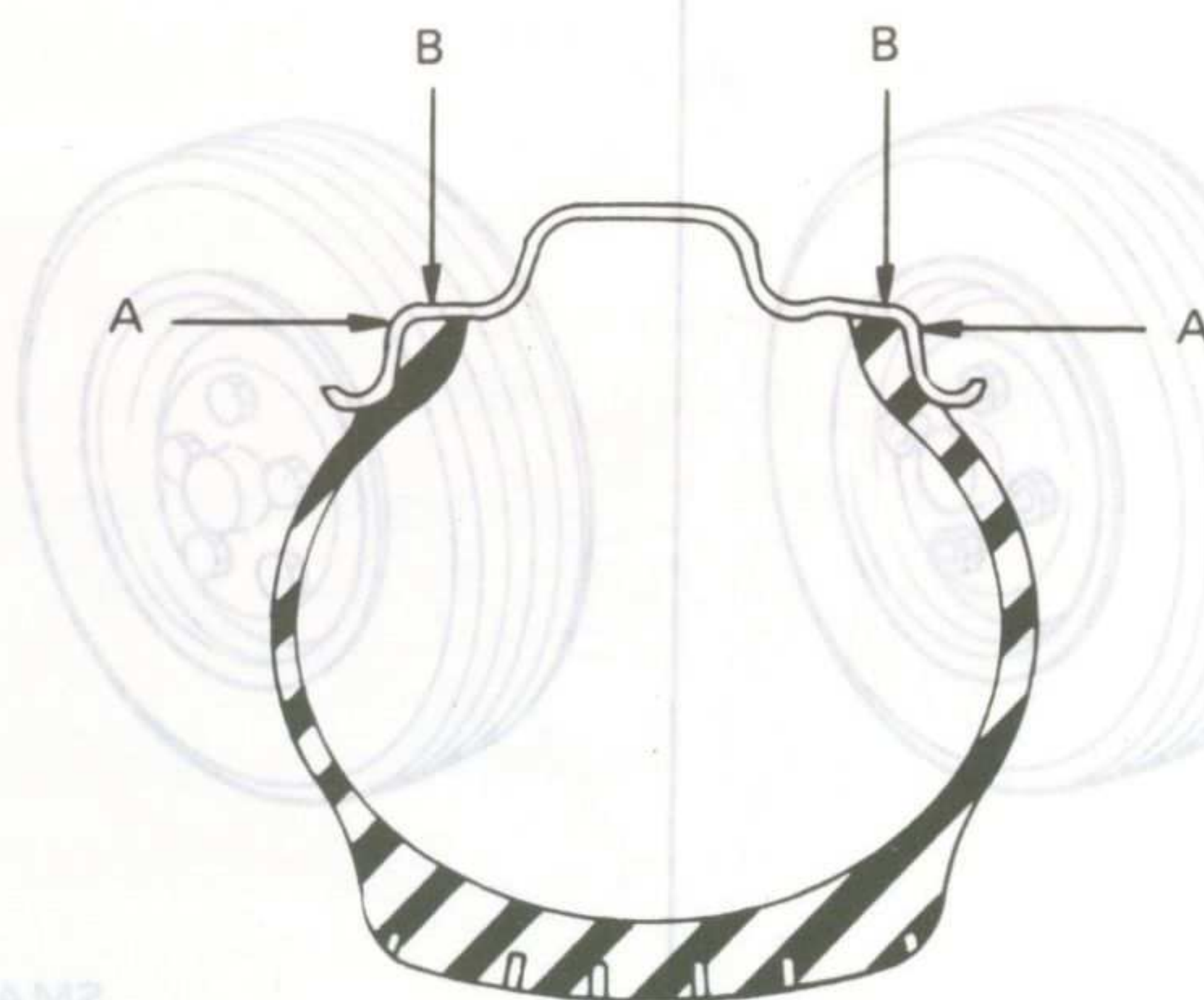
Difference between right and left radial runout:

Steel wheel

Less than 0.5 mm (0.020 in)

Aluminum wheel

Less than 0.2 mm (0.008 in)



SMA074

- Replace wheel when any of the following problems occurs.
 - Bent, dented or heavily rusted
 - Elongated bolt holes
 - Excessive lateral or radial runout
 - Air leaks through welds
 - Wheel nuts will not stay tight

CHASSIS AND BODY MAINTENANCE

Balancing Wheels

Spare Tire

Cause	Wheel static unbalance	Wheel dynamic unbalance
Symptom of unbalance	Wheel tramp Wheel shimmy	Wheel shimmy
Corrective action	Balance statically Place balance weights here Wheel tramp Heavy Location	Balance dynamically Wheel shimmy Place balance weights here Heavy location Wheel shimmy

SMA075

SPACE SAVER SPARE TIRE

This model is equipped with the Space Saver Spare tire or the Foldable Spare tire.

The spare tire is designed for emergency use only. It is stored in a deflated condition.

An inflator (canister or air pump) has been provided to inflate the spare.

The spare tire can be used repeatedly for emergency situations. However, the canister must be replaced after each inflation.

Be sure to obtain the proper size canister for spare tire size.

CAUTION:

The spare tire is restricted in driving speed up to a maximum of 80 km/h (50 MPH) for short distances and emergency use only.

INFLATION WITH APPROVED INFLATOR

- Before changing tire, carefully read the caution and directions affixed on both the inflator and the spare tire.
- Remove the uninflated spare tire and the inflator from rear compartment.

WARNING:

Do not inflate at this point.

- Jack up front or rear of vehicle as required and remove the damaged tire. Then mount the uninflated spare tire to the axle. (Tighten wheel nuts slightly.)

On aluminum wheels equipped vehicles be sure to use spare wheel nuts in the tool bag.

The wheel nuts for aluminum wheels must not be used on the spare tire wheel to avoid the wheel coming off the axle and causing personal injury.

4. Using Canister

- With tire valve at 6 o'clock position, inflate the spare tire with the canister. Place tire canister on the tire inflation valve and push squarely until gas can be heard entering the tire. It takes about 3 minutes.

CHASSIS AND BODY MAINTENANCE

Spare Tire (Cont'd)

WARNING:

The metal parts of the canister become extremely cold during inflation and can cause frost bite. Therefore, avoid contact with the metal, use a glove or other means of protection.

- (2) To ensure complete emptying of the canister, hold the canister in position for one minute after sound stops.
- a. If temperature is below -10°C (14°F), the canister must be warmed on the windshield defroster for five to ten minutes to provide tire inflation.
- b. In cold weather, the tire may not look fully inflated. Therefore, drive slowly for the first mile, as the tire temperature rises the pressure will increase.

Using Air Compressor

- (1) Remove the valve cap from the spare tire and securely connect the air pump hose in its place.
- (2) Connect the power cord plug of the air pump to the cigarette lighter socket. The spare tire may be inflated to the recommended pressure 2.0 kg/cm^2 (200 kPa, 2.0 bar, 28 psi) in about 5 minutes. Adjust the tire pressure per the tire placard with tire pressure gauge.

If the air pump operation is slow, run the engine while the air pump is operating. In this case, remove jack with the spare tire attached to the axle.

WARNING:

- Do not run the engine in a closed space or with the vehicle jacked up.
- Do not touch the air pump with the bare hands while it is operating for it may become quite hot.
- (3) Disconnect the power cord plug from socket. Check the tire for air leakage, and then securely install and tighten the valve cap.
- 5. Lower car and fully tighten wheel nuts.

Do not install the wheel cover on the spare tire.

DEFLATION

1. Deflate tire by depressing button on tire inflation valve or by removing valve core.

WARNING:

To avoid personal injury, do not inhale the gas which is vented while the tire is deflating.

- 2 Flatten tire. The spare tire becomes folded gradually while deflating.
3. Store tire in rear compartment.

Repair

Only qualified tire experts are authorized to dismount the spare tire from its rim or repair it in any way. Improper service can result in serious personal injury.

Contact authorized B.F. Goodrich dealers (for Space Saver Spare tire) or authorized Bridgestone or DATSUN dealers (for Foldable Spare tire) if service is required.

T-TYPE SPARE TIRE

The T-type spare tire is designed for emergency use only.

The spare tire can be used repeatedly for emergency situations.

Precautions when using T-type spare tire

- Periodically check tire inflation pressure, and always keep it at 4.2 kg/cm^2 (412 kPa, 4.12 bar, 60 psi).
- Do not drive vehicle at speed faster than 80 km/h (50 MPH).
- The T-type spare tire is designed only for temporary use as a spare. Dismount it and keep it as a spare as soon as the standard tire repair has been completed.
- Do not attach a tire chain.
- Do not use the T-type spare tire on other cars.
- Do not make a sharp turn, or apply the brake suddenly while driving.
- As soon as the tread wear indicator becomes visible, replace the tire with a new one.

CHASSIS AND BODY MAINTENANCE

Spare Tire (Cont'd)

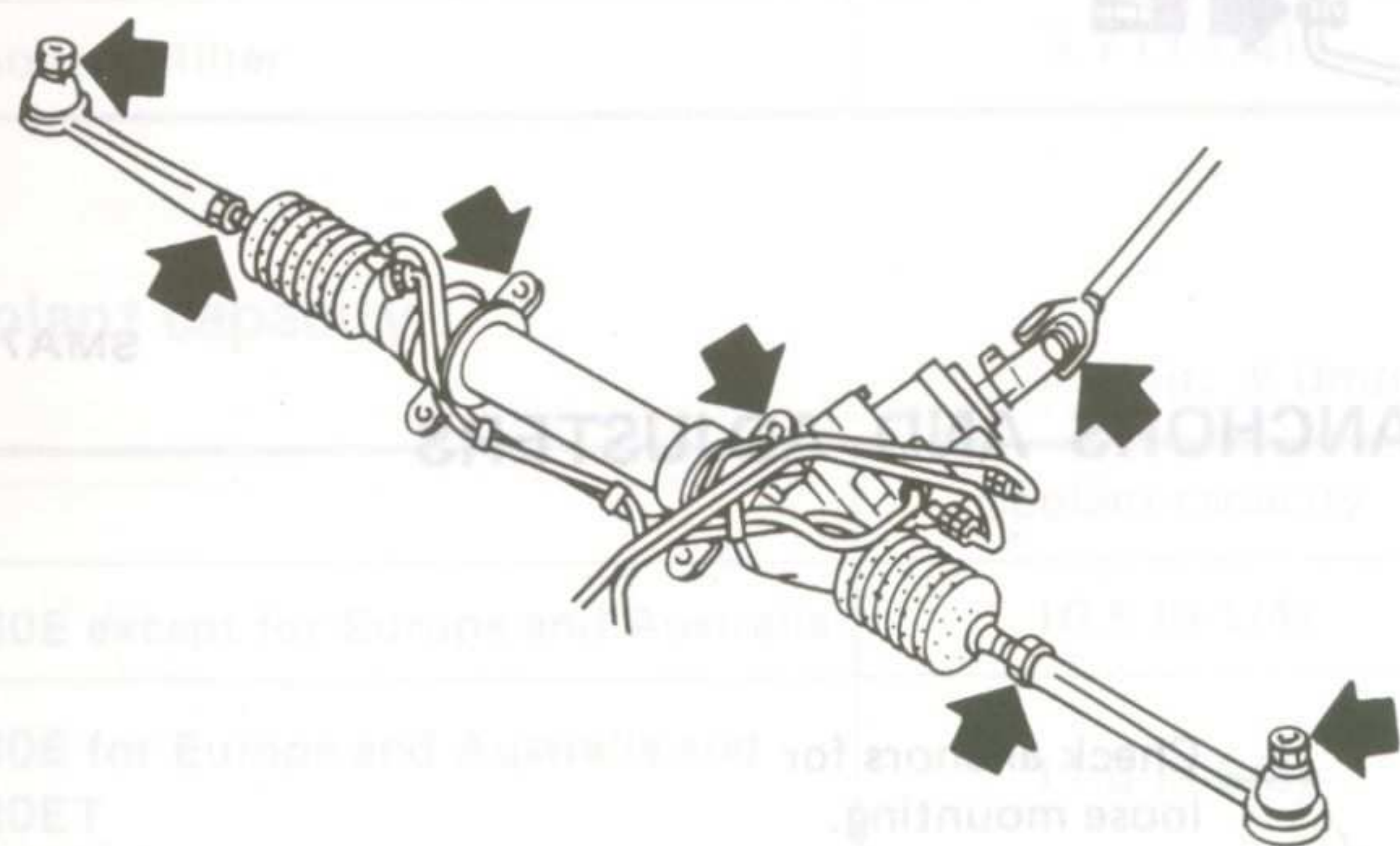
- Mounting and dismounting to and from the road wheel can be carried out in the same manner as any ordinary tire.
- Use of wheel balance is unnecessary.

CAUTION:

If the car is equipped with aluminum wheels, be sure to use the wheel nuts for steel wheel on the T-type spare tire wheel. Never use the wheel nuts for aluminum wheel on the spare tire wheel.

The spare tire wheel may come off the axle and cause personal injury if the wheel nuts for aluminum wheels are used on the spare tire wheel.

Checking Steering Gear and Linkage

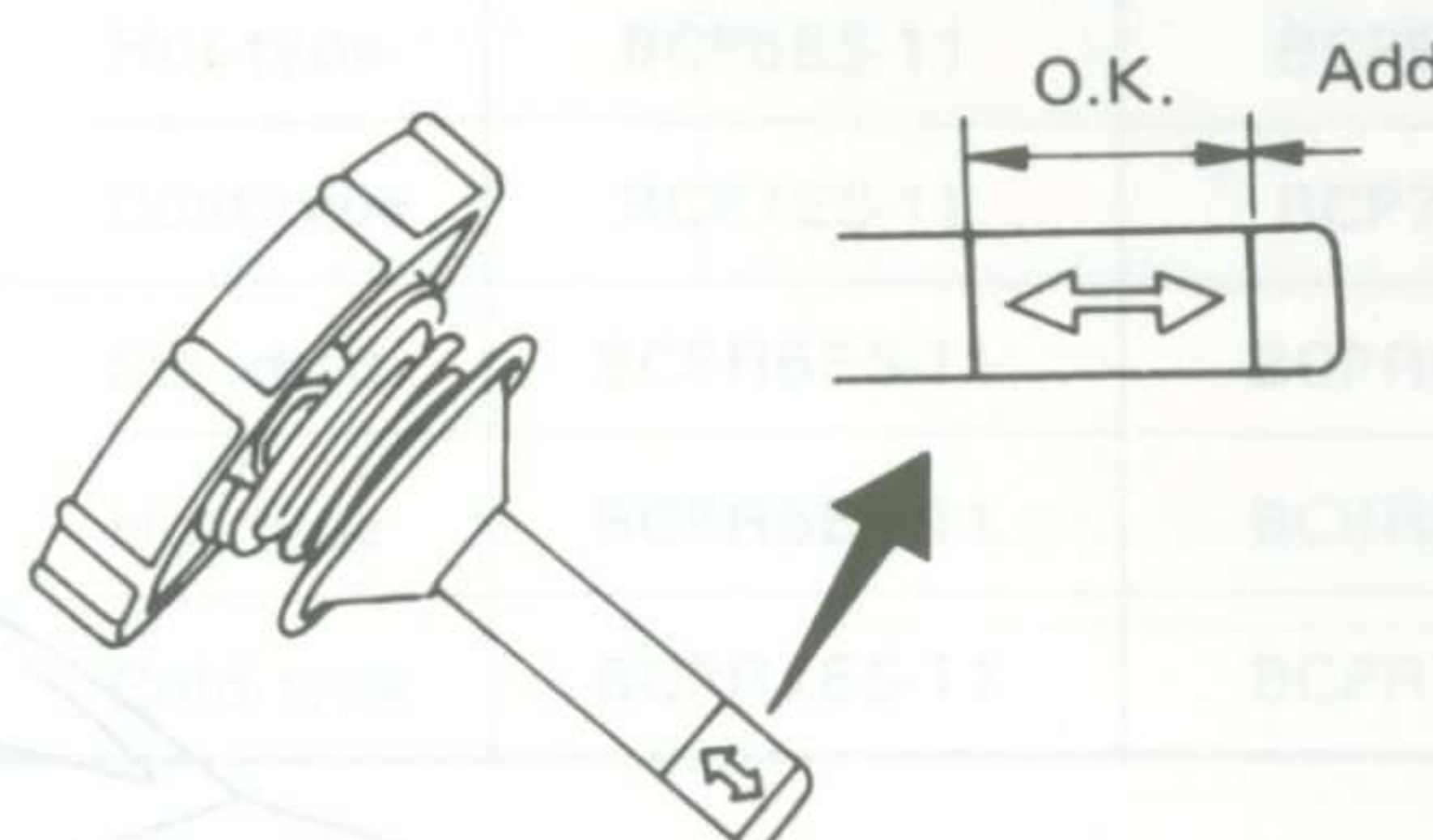


SMA738A

- Steering gear:
 - (1) Check gear housing and boots for looseness, damage or grease leakage.
 - (2) Check connection with steering column for looseness.
- Steering linkage:
 - (1) Check ball joint, dust cover and other component parts for looseness, wear, damage or grease leakage.
 - (2) Check any missing parts (cotter pins, washer, etc.).

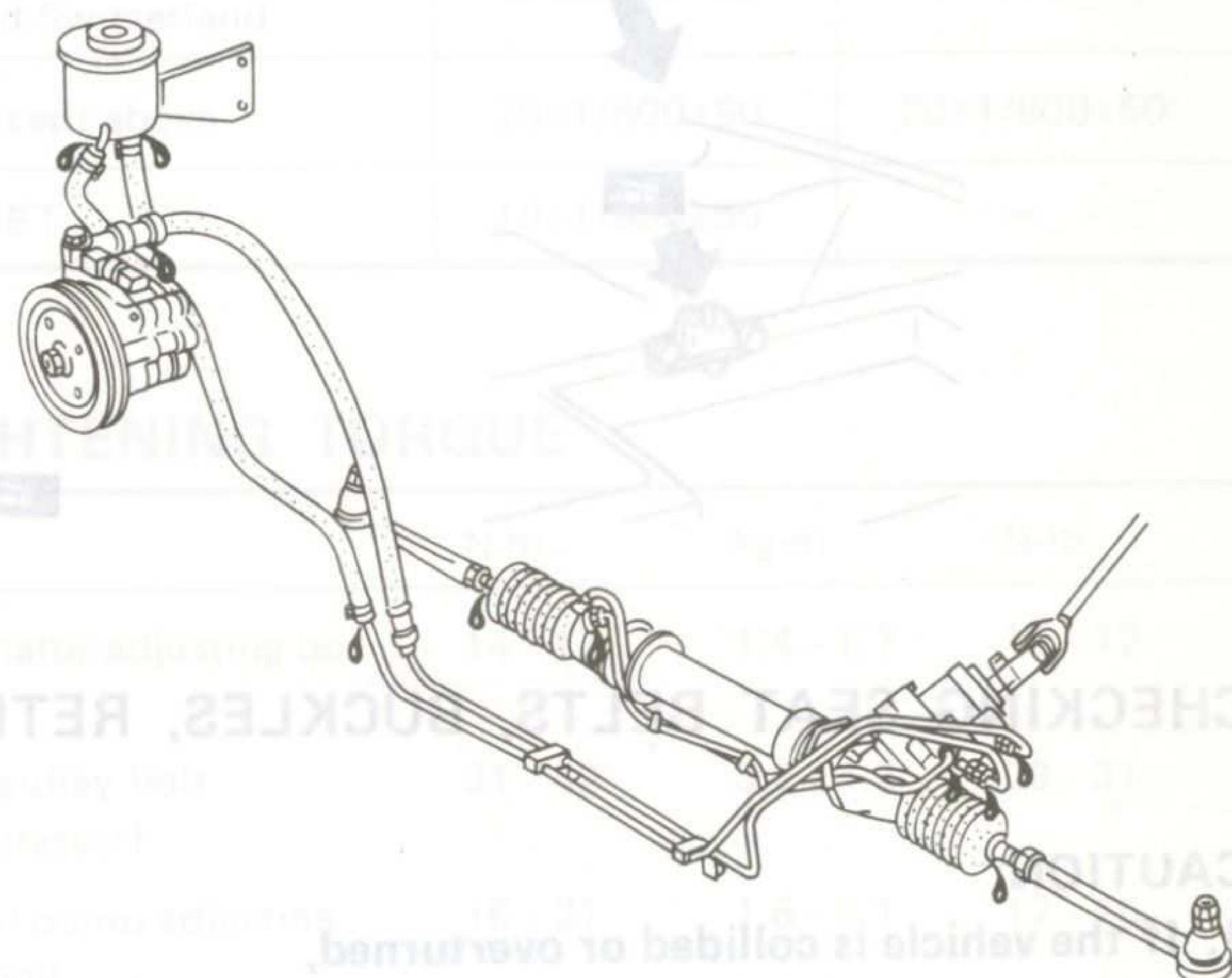
Checking Power Steering System Fluid and Lines

- Check fluid level, when the fluid is cold.



SMA750A

- Check lines for proper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.

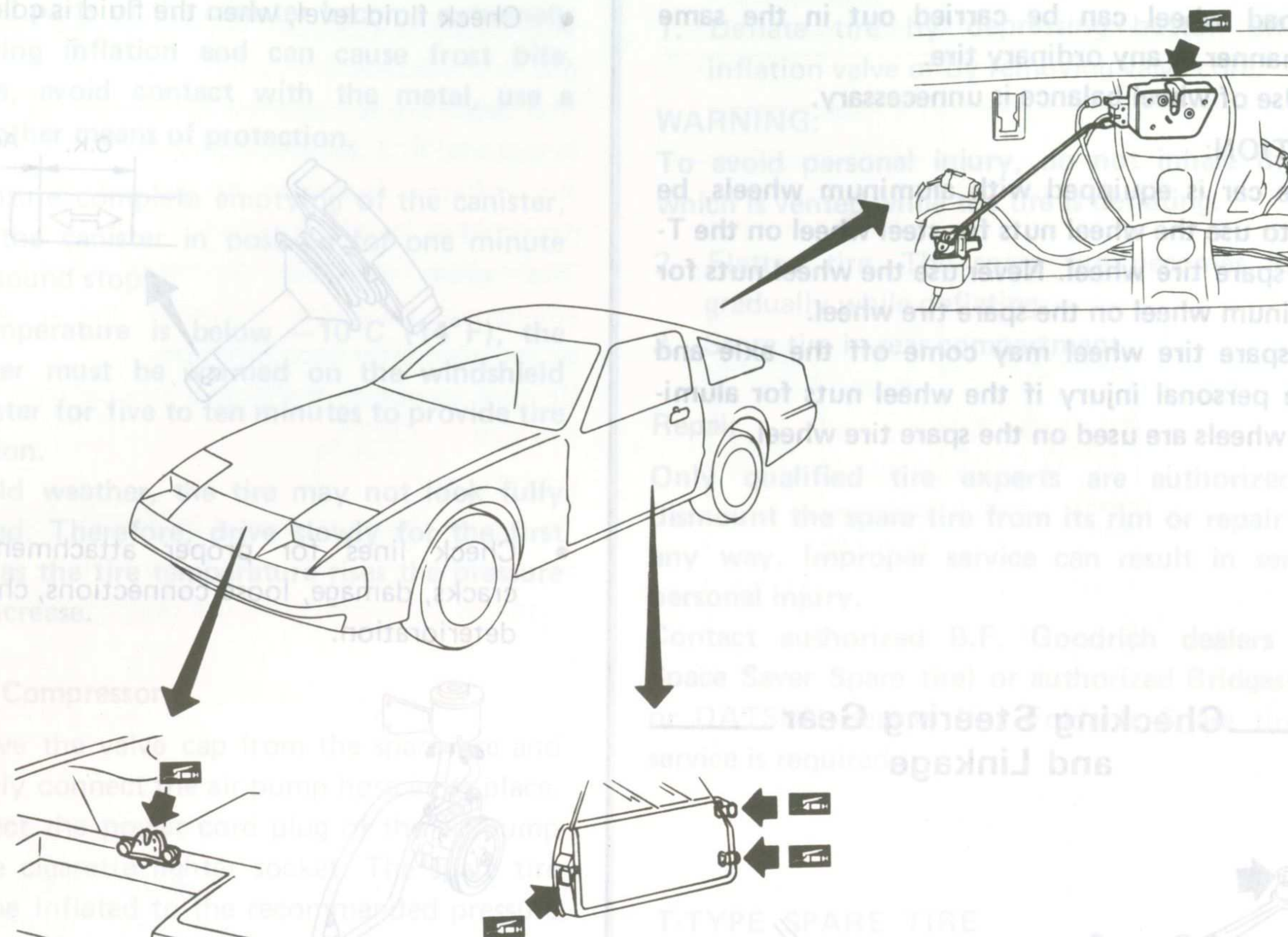


SMA739A

CHASSIS AND BODY MAINTENANCE

Body

LUBRICATING LOCKS, HINGES AND HOOD LATCHES



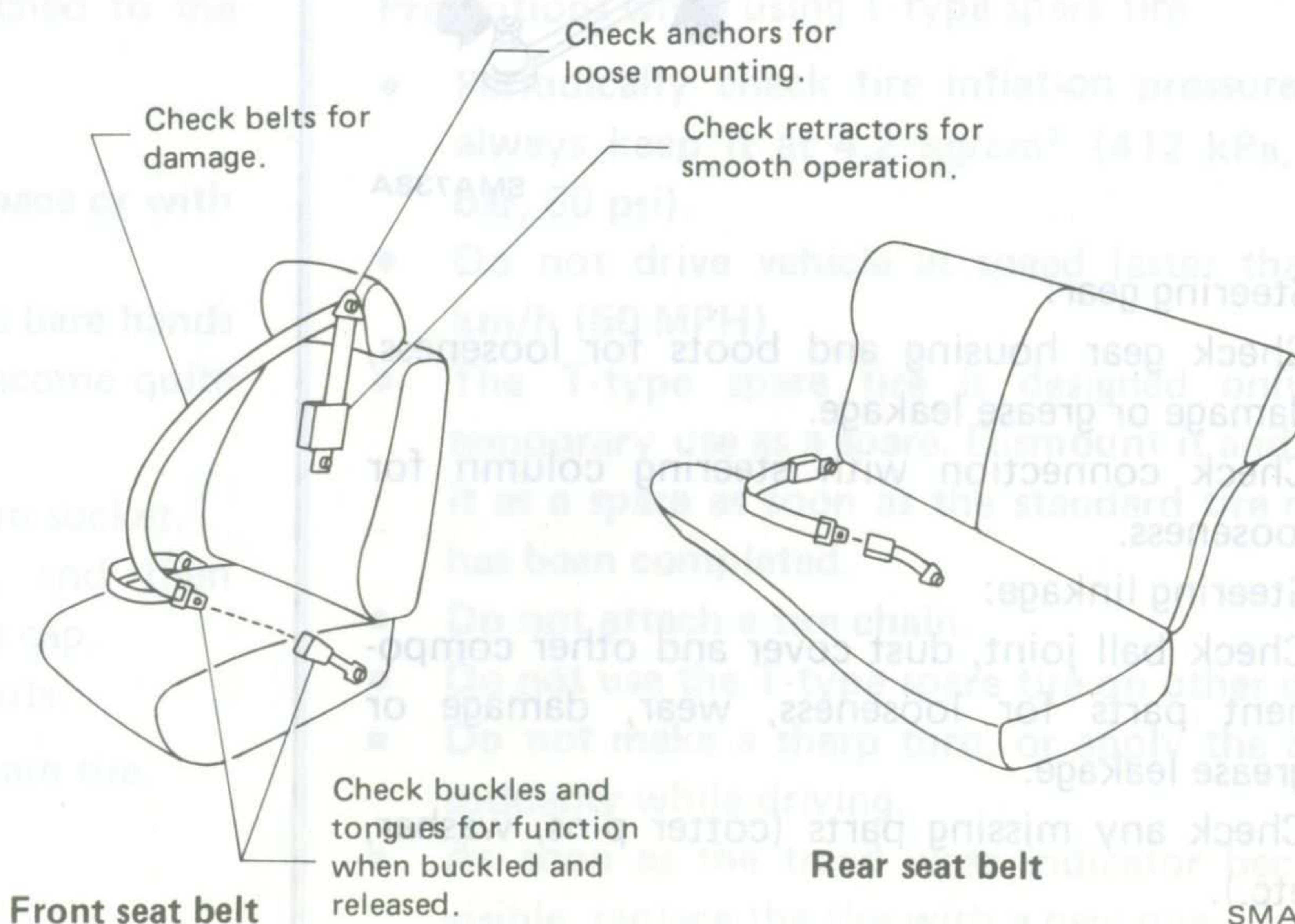
SMA707A

CHECKING SEAT BELTS, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS

CAUTION:

1. If the vehicle is collided or overturned, replace the entire belt assembly, regardless of nature of accident.
2. If the condition of any component of a seat belt is questionable, do not have seat belt repaired, but replaced as a belt assembly.
3. If webbing is cut, frayed, or damaged, replace belt assembly.
4. Do not spill drinks, oil, etc. on inner lap belt buckle. Never oil tongue and buckle.
5. Use a NISSAN genuine seat belt assembly.

Anchor bolt
24 - 31 N·m
(2.4 - 3.2 kg-m, 17 - 23 ft-lb)



SMA077B

SERVICE DATA AND SPECIFICATIONS

Engine Maintenance

INSPECTION AND ADJUSTMENT

Drive belt deflection

	Unit: mm (in)		
	Limit	Adjusted deflection	Set deflection of New belt
VG30E	12 (0.47)	6 - 8 (0.24 - 0.31)	5 - 7 (0.20 - 0.28)
Alternator			
VG30ET	11 (0.43)	6 - 9 (0.24 - 0.35)	5 - 8 (0.20 - 0.31)
Air conditioner compressor	16 (0.63)	9 - 11 (0.35 - 0.43)	7 - 9 (0.28 - 0.35)
Power steering oil pump	21 (0.83)	13 - 16 (0.51 - 0.63)	10 - 13 (0.39 - 0.51)
Applied pushing force	98 N (10 kg, 22 lb)		

Oil capacity

Unit: ℓ (Imp qt)	
VG30E & VG30ET	
With oil filter	4.1 (3-5/8)
Without oil filter	3.7 (3-1/4)

Coolant capacity

Unit: ℓ (Imp qt)	
Coolant capacity	
VG30E except for Europe and Australia	10.5 (9-1/4)
VG30E for Europe and Australia and VG30ET	11.0 (9-5/8)

Spark plug

	VG30E	VG30ET
Standard	BCP6ES-11	BCP6E-11
Except Europe	Hot type	BCP5ES-11
	Cold type	BCP7ES-11
Europe	Standard	BCPR6ES-11
	Hot type	BCPR5ES-11
	Cold type	BCPR7ES-11

Ignition timing and idle speed

Unit: B.T.D.C. degree/rpm

	M/T	A/T (in "N" position)
VG30E		
Europe except Sweden and Switzerland	10±1/900±50	10±1/900±50
Except above	20±1/800±50	20±1/800±50
VG30ET	10±1/900±50	—

TIGHTENING TORQUE

Unit	N·m	kg·m	ft·lb
Alternator adjusting bar bolt	14 - 17	1.4 - 1.7	10 - 12
Idler pulley bolt (compressor)	31 - 42	3.2 - 4.3	23 - 31
P/S oil pump adjusting lock bolt	16 - 21	1.6 - 2.1	12 - 15
Oil pan drain plug	29 - 39	3.0 - 4.0	22 - 29
Spark plug	20 - 29	2.0 - 3.0	14 - 22
Fuel hose clamps	1.0 - 1.5	0.10 - 0.15	0.7 - 1.1

SERVICE DATA AND SPECIFICATIONS

Chassis and Body Maintenance

INSPECTION AND ADJUSTMENT

Clutch

	Unit: mm (in)
Pedal height "H"	195 - 205 (7.68 - 8.07)
Pedal free play "A"	1 - 3 (0.04 - 0.12)

Front axle and front suspension

Axial play	mm (in)	0 (0)
Wheel bearing preload (As measured at wheel hub bolt)		6.86 - 14.61
With new parts	N (kg, lb)	(0.7 - 1.49, 1.54 - 3.29)
With used parts	N (kg, lb)	1.67 - 7.75 (0.17 - 0.79, 0.37 - 1.74)
Wheel alignment (Unladen)		
Camber	degree	-35' to 55'
Caster	degree	5° 50' - 7° 20'
Kingpin inclination	degree	12° 15' - 13° 45'
Toe-in	mm (in)	1 - 3 (0.04 - 0.12)
	degree	6' - 17'
Side lip (Reference data)	mm/m (in/ft)	Out 3 (0.036) - In 3 (0.036)
Standard side rod length "A"	mm (in)	37.5 (1.476)
Front wheel turning angle		
Toe-out turns		
Inner wheel/Outer wheel	degree	22° 30' / 20°
Full turns		
Inner wheel	degree	35° - 39°
Outer wheel	degree	27° - 31°

* On power steering models, wheel turning force (at circumference of steering wheel) of 98 - 147 N (10 - 15 kg, 22 - 33 lb) with engine at idle.

Rear axle and rear suspension

Camber	degree	-1° 55' to -25'
Toe-in	mm (in)	-1.5 to 2.5 (-0.059 to 0.098)
	degree	-8' to 14'

Brake

Unit: mm (in)

Pad wear limit	CL28V	2.0 (0.079)
	CL14H	2.0 (0.079)
Rotor repair limit	CL28V	20 (0.79)
	CL14H	9.0 (0.354)
Pedal free height "h"		
M/T model		182 - 192 (7.17 - 7.56)
A/T model		184 - 194 (7.24 - 7.64)
Pedal depressed height [Under force of 490 N (50 kg, 110 lb) with engine running]		More than 90 (3.54)
Parking brake [at pulling force: 196 N (20 kg, 44 lb)]		
Number of notches		8 - 9

Wheel and tire

Tire inflation

Tire pressure should be checked when tires are COLD.

Proper tire pressures are shown on the tire placard affixed to the inside of the center console box lid.

Spare tire		Do not use in excess of 80 km/h (50 MPH).
165-15		4.2 kg/cm ² (412 kPa, 4.12 bar, 60 psi)
C78-14		Do not use in excess of 80 km/h (50 MPH).
		2.0 kg/cm ² (200 kPa, 2.0 bar, 28 psi)
Wheel rim lateral and radial runout	mm (in)	Less than 0.5 (0.020)
Difference between right and left radial runout	mm (in)	Less than 0.5 (0.020)*1 0.2 (0.008)*2
Wheel balance (Maximum allowable unbalance at rim flange)	gr (oz)	10 (0.35)
Tire balancing weight	gr (oz)	5 - 60 (0.18 - 2.12) Spacing 5 (0.18)

*1: Steel wheel *2: Aluminum wheel

SERVICE DATA AND SPECIFICATIONS

Chassis and Body Maintenance

(Cont'd)

TIGHTENING TORQUE

Unit	N·m	kg-m	ft-lb
Clutch			
Pedal stopper lock nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Clutch switch lock nut	12 - 15	1.2 - 1.5	9 - 11
Master cylinder push rod lock nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Manual transmission			
Drain and filter plugs			
FS5W71C	25 - 34	2.5 - 3.5	18 - 25
FS5R90A	20 - 34	2.0 - 3.5	14 - 25
Differential carrier			
Drain and filler plugs	59 - 98	6 - 10	43 - 72
Front axle and front suspension			
Side rod lock nut	78 - 98	8.0 - 10.0	58 - 72
Brake			
Air bleeder valve	7 - 9	0.7 - 0.9	5.1 - 6.5
Stop lamp switch lock nut	12 - 15	1.2 - 1.5	9 - 11
Brake booster input rod lock nut	16 - 22	1.6 - 2.2	12 - 16
Wheel and tire			
Wheel nut			
Steel wheel	78 - 98	8.0 - 10.0	58 - 72
Aluminum wheel	98 - 118	10.0 - 12.0	72 - 87

SPECIAL SERVICE TOOLS

(Cont'd)

Tool number	Tool name	TIGHTENING TORQUE	
		N.m.	ft.-lb.
EG17650301	Radiator cap tester adapter		
EG11150000	Ignition coil adapter harness		