FOREWORD

This repair manual has been prepared to provide information covering general service repairs for the chassis and body of the TOYOTA LAND CRUISER.

Applicable models:
FJ60 series

For service of the TOYOTA LAND CRUISER, refer to the following repair manuals.

LAND CRUISER (Heavy Duty) Repair Manual For Chassis and Body	(Pub. No. 36262E)
2F Engine Repair Manual	(Pub. No. 36104E)

For instructions on how to use this manual, please refer to page IN-2.

All information in this manual is based on the latest product information at the time of publication.

However, specifications and procedures are subject to charge without notice.

TOYOTA MOTOR CORPORATION

INTRODUCTION

HOW TO USE THIS MANUAL

To assist in finding your way through the manual, the Section Title and major heading are given at the top of every page.

An INDEX is provided on the first page of each section to guide you to the item to be repaired.

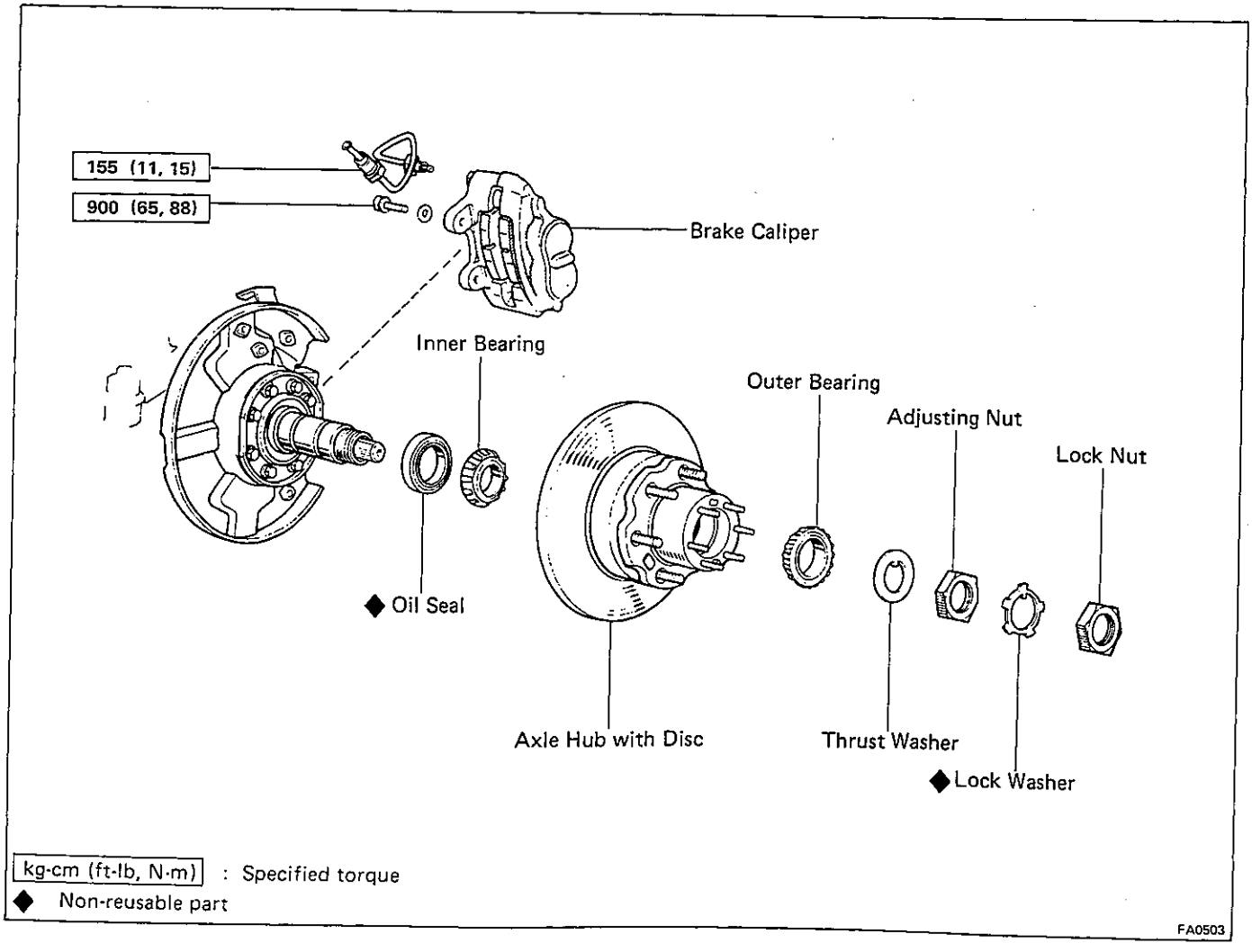
At the beginning of each section, PRECAUTIONS are given that pertain or *all* repair operations contained in that section. *Read these precautions before starting any repair task.*

TROUBLESHOOTING tables are included for each system to help you diagnose the system problem and find the cause. The repair for each possible cause is referenced in the remedy column to quickly lead you to the solution.

REPAIR PROCEDURES

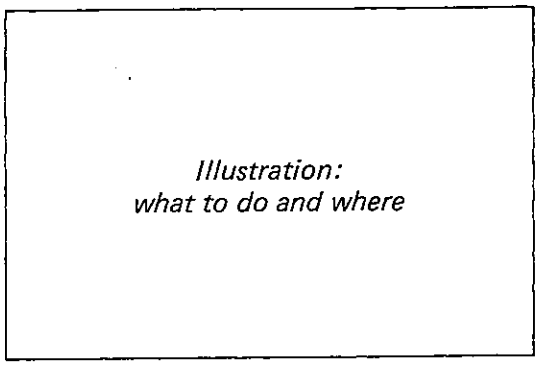
Most repair operations begin with an overview illustration which identifies the components and shows how the parts fit together.

Example:



The procedures are presented in a step-by-step format:

- The illustration shows *what* to do and *where* to do it.
- The task heading tells *what* to do.
- The detailed text tells *how* to perform the task and gives other information, such as specifications and warnings.



Example:

Task heading: what to do

CONNECT PROPELLER SHAFT FLANGE TO COMPANION FLANGE

(a) Align the marks on the flanges and connect the flanges with four bolts and nuts.

(b) Torque four bolts and nuts.

Detail text: how to do it

Torque: 750 kg-cm (54 ft-lb, 74 N·m)

Specification

This format enables the experienced technician to have a FAST TRACK. He can read the task headings and only refer to the detailed text when he needs it. Important specifications and warnings always stand out in bold type.

REFERENCES

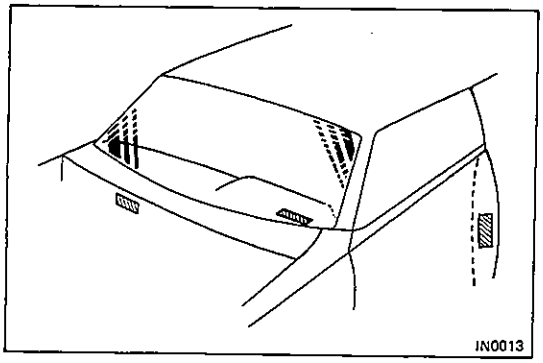
References have been kept to a minimum. However when they are required you are given the *page* to go to.

SPECIFICATIONS

Specifications are presented in bold type throughout the text in the applicable step. You never have to leave the procedure to look up your specs. All specifications are also found in Appendix A, Specifications for quick reference.

WARNINGS, CAUTIONS, NOTES:

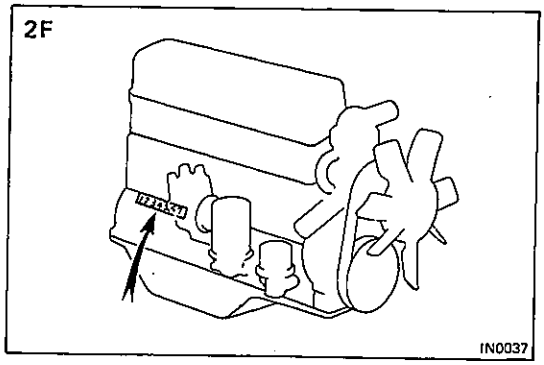
- WARNINGS are presented in bold type, and indicate there is a possibility of injury to you or other people.
- CAUTIONS are also presented in bold type, and indicate the possibility of damage to the components being repaired.
- NOTES are separated from the text but do not appear in bold. They provide additional information to help you efficiently perform the repair.



IDENTIFICATION INFORMATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number is stamped on the cowl panel of the engine compartment. This number is also stamped on top of the instrument panel and the driver's door post.



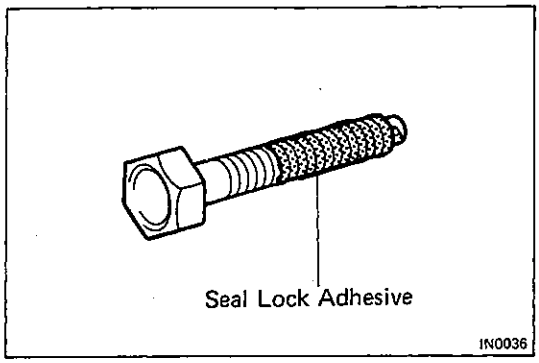
ENGINE SERIAL NUMBER

The engine serial number is stamped on the right side of the cylinder block.

GENERAL REPAIR INSTRUCTIONS

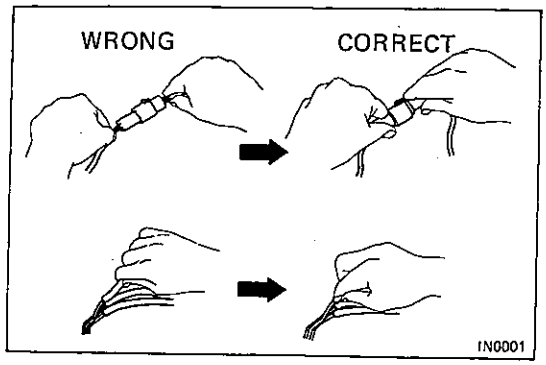
1. Use fender, seat and floor covers to keep the vehicle clean and prevent damage.
2. During disassembly, keep parts in order to facilitate reassembly.
3. Observe the following:
   (a) Before performing electrical work, disconnect the cable from the battery terminal.
   (b) If it is necessary to disconnect the battery for inspection or repair, always disconnect the cable from the negative (–) terminal which is grounded to the vehicle body.
   (c) To prevent damage to the battery terminal post, loosen the terminal nut and raise the cable straight up without twisting it or prying it.
   (d) Clean the battery terminal posts and cable terminals with a shop rag. Do not scrape them with a file or such.
   (e) Install the cable terminal to the battery post with the nut loose, and tighten the nut after installation. Do not use a hammer or such to tap the terminal onto the post.
   (f) Be sure the cover for the positive (+) terminal is properly in place.
4. Check hose and wiring connectors to make sure that they are secure and correct.

5. Non-reusable parts
   (a) Always replace cotter pins, gaskets, O-rings and oil seals etc. with new ones.
   (b) Non-reusable parts are indicated in the component illustrations by the " ◆ " symbol.

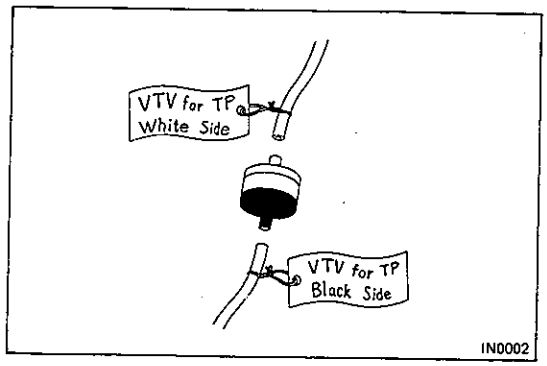


6. Precoated parts

   Precoated parts are the bolts, nuts, etc. which are coated with a seal lock adhesive at the factory.
   (a) If a precoated part is retightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.
   (b) Recoating of precoated parts
      (1) Clean off the old adhesive from the bolt, nut or installation part threads.
      (2) Dry with compressed air.
      (3) Apply the specified seal lock adhesive to the bolt or nut threads.
   (c) Precoated parts are indicated in the component illustrations by the " ★ " symbol.
7. When necessary, use a sealer on gaskets to prevent leaks.
8. Carefully observe all specifications for bolt tightening torques. Always use a torque wrench.
9. Use of special service tools (SST) and special service materials (SSM) may be required, depending on the nature of the repair. Be sure to use SST and SSM where specified and follow the proper work procedure. A list of SST and SSM can be found at the back of this manual.
10. When replacing fuses, be sure the new fuse is the correct amperage rating. DO NOT exceed the fuse amp rating or use one of a lower rating.
11. Care must be taken when jacking up and supporting the vehicle. Be sure to lift and support the vehicle at the proper locations. (See page IN-8)
    (a) If the vehicle is to be jacked up only at the front or rear end, be sure to block the wheels in order to ensure safety.
    (b) After the vehicle is jacked up, be sure to support it on stands. It is extremely dangerous to do any work on the vehicle raised on jack alone, even for a small job that can be finished quickly.



12. Observe the following precautions to avoid damage to the parts:
    (a) To disconnect vacuum hoses, pull on the end, not the middle of the hose.
    (b) To pull apart electrical connectors, pull on the connector itself, not the wires.
    (c) Be careful not to drop electrical components, such as sensors or relays. If they are dropped on a hard floor, they should be replaced and not reused.
    (d) When steam cleaning an engine, protect the distributor, coil, air filter, carburetor intake, air pump and VCV from water.
    (e) Never use an impact wrench to remove or install thermoswitches or thermosensors.
    (f) When checking continuity at the wire connector, insert the tester probe carefully to prevent terminals from bending.
    (g) When using a vacuum gauge, never force the hose onto a connector that is too large. Use a step-down adapter instead. Once the hose has been stretched, it may leak.



13. Tag hoses before disconnecting them:
    (a) When disconnecting vacuum hoses, use tags to identify how they should be reconnected.
    (b) After completing a job, double check that the vacuum hoses are properly connected. A label under the hood shows the proper layout.

PRECAUTIONS FOR VEHICLES EQUIPPED WITH A CATALYTIC CONVERTER

WARNING: If large amounts of unburned gasoline flow into the converter, it may overheat and create a fire hazard. To prevent this, observe the following precautions and explain them to your customer.

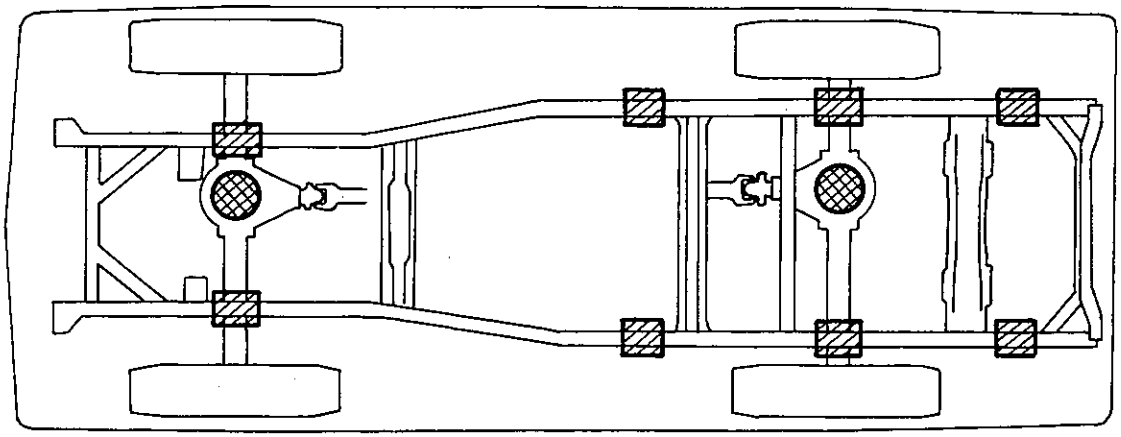
1. **Use only unleaded gasoline.**
2. **Avoid prolonged idling.**

   Avoid running the engine at idle speed for more than 20 minutes.
3. **Avoid spark jump test.**
   (a) Spark jump test only when absolutely necessary. Perform this test as rapidly as possible.
   (b) While testing, never race the engine.
4. **Avoid prolonged engine compression measurement.**

   Engine compression tests must be made as rapidly as possible.
5. **Do not run engine when fuel tank is nearly empty.**

   This may cause the engine to misfire and create an extra load on the converter.
6. **Avoid coasting with ignition turned off and prolonged braking.**
7. **Do not dispose of used catalyst along with parts contaminated with gasoline or oil.**

VEHICLE LIFT AND SUPPORT LOCATIONS



JACK POSITION

Front . . . . . Under the front differential
Rear . . . . . Under the rear differential

SUPPORT POSITION

Safety stand . . . . . .

IN0041

ABBREVIATIONS USED IN THIS MANUAL

A/C	Air Conditioner
Approx.	Approximate
CB	Circuit Breaker
Ex.	Except
Fr	Front
FRP	Fiber Reinforced Plastics
in.	Inch
IG	Ignition
LH	Left-hand
LSPV	Load Sensing Proportioning Valve
Max.	Maximum
Min.	Minimum
MP	Multipurpose
M/T, MTM	Manual Transmission
OPT	Option
PS	Power Steering
RH	Right-hand
Rr	Rear
SSM	Special Service Materials
SST	Special Service Tool
STD	Standard
S/W	Switch
Temp.	Temperature
VSV	Vacuum Switching Valve
w/	With
w/o	Without

FRONT AXLE AND SUSPENSION

REFER TO
LAND CRUISER (Heavy Duty) REPAIR MANUAL FOR CHASSIS AND BODY (Pub. No. 36262E)

NOTE: The following pages contain only the points which differ from the above listed manual.

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Wanders/pulls	Alignment incorrect	Check front end alignment	FA-3
Front wheel shimmy	Tires worn or improperly inflated	Replace tire or inflate tires to proper pressure	
	Wheels out of balance	Balance wheels	
	Alignment incorrect	Check front end alignment	FA-3
Abnormal tire wear	Alignment incorrect	Check toe-in	FA-3

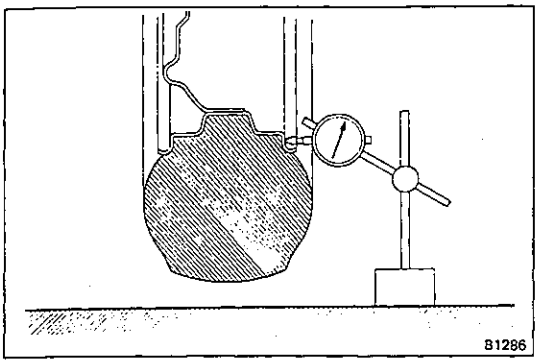
FRONT WHEEL ALIGNMENT

1. MAKE FOLLOWING CHECKS AND CORRECT ANY PROBLEMS

(a) Check the tires for wear and proper inflation.

Cold tire inflation pressure kg/cm² (psi, kPa)

Tire size	Front	Rear
HR78-15	1.7 (24, 167)	2.25 (32, 221)



(b) Check the wheel runout.

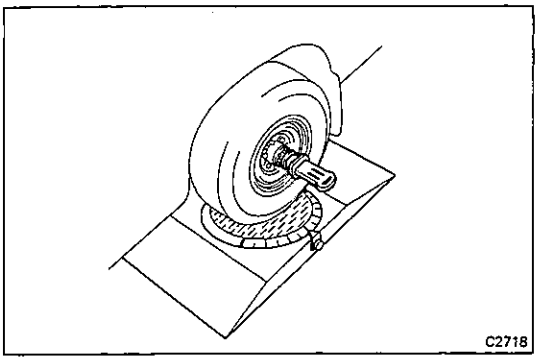
Lateral runout: Less than 1.2 mm (0.047 in.)

(c) Check the front wheel bearings for looseness.

(d) Check the front suspension for looseness.

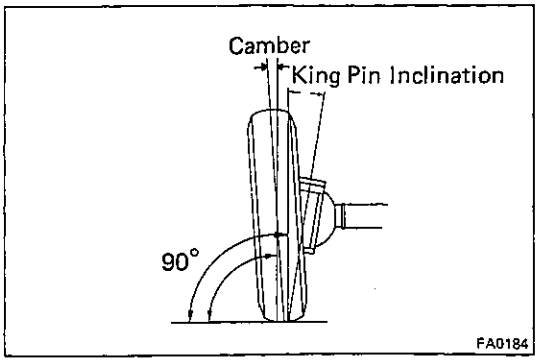
(e) Check the steering linkage for looseness.

(f) Use the standard bounce test to check that the front absorbers work properly.



2. INSTALL WHEEL ALIGNMENT EQUIPMENT

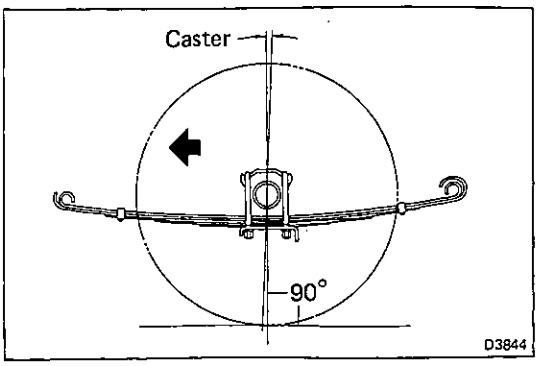
Follow the specific instructions of the equipment manufacturer.



3. CHECK CAMBER AND KING PIN INCLINATION

Camber: 1° ± 45′
King pin inclination: 9°30′ ± 45′

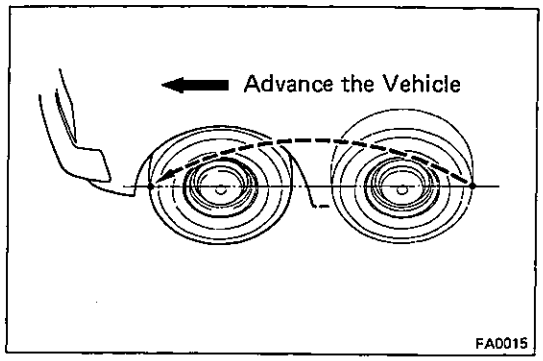
If camber of king pin inclination checks are not within specification, rechecks the steering knuckle parts and the front wheel for bending or looseness.

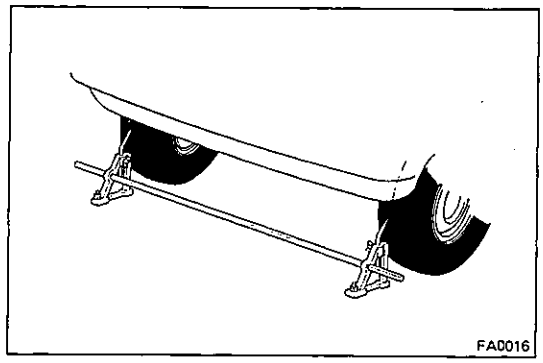


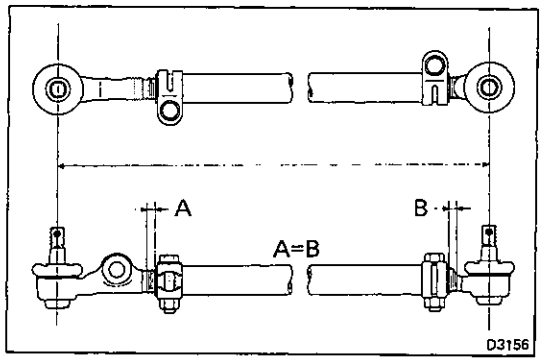
4. CHECK CASTER

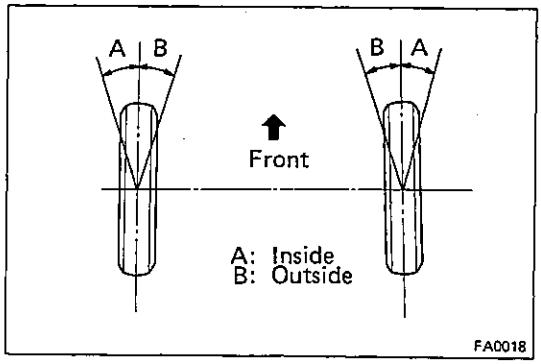
Caster: 1°05′ ± 45′

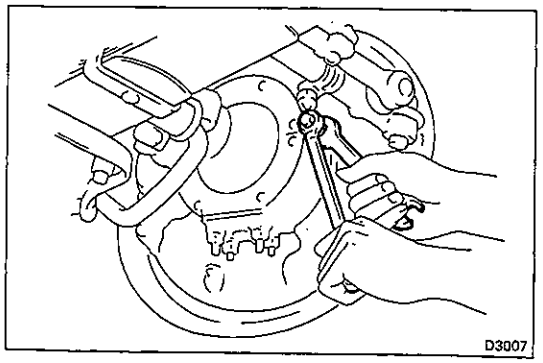
If caster is not as specified, inspect and replace damaged or worn parts.











5. ADJUST TOE-IN

(a) Make sure the wheels are positioned straight ahead.

(b) Mark the center of each rear tread at spindle height and measure the distance between the marks of right and left tires.

(c) Advance the vehicle until the marks on the rear side of the tires come to the front.

NOTE: The toe-in should be measured at the same point on the tire and at the same level.

(d) Measure the distance between the marks on the front side of the tires.

Toe-in mm (in.)	
Inspection STD	Adjustment STD
1 ± 4 (0.04 ± 0.16)	1 ± 1 (0.04 ± 0.04)

(e) Make sure the steering gear is centered.

(f) Loosen the nuts holding the clamps to the tie rod.

(g) Adjust toe-in to the correct value by turning the tie rod.

(h) Torque the nuts holding the clamps.

Torque: 375 kg-cm (27 ft-lb, 37 N·m)

NOTE: Insure that the lengths of the tie rod ends are the same.

6. ADJUST WHEEL ANGLE

Remove the caps of the knuckle stopper bolts and check the steering angles.

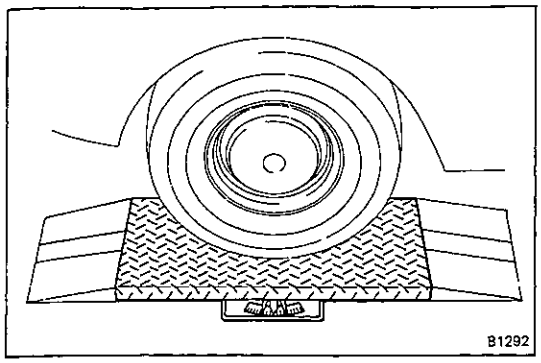
Wheel angle		
Max.	Inside wheel	$32°^{+0°}_{-3°}$
	Outside wheel	30°
at 20° (Outside wheel)	Inside wheel	21°

NOTE: When the steering wheel is fully turned, make sure that the wheel is not touching the body or brake flexible hose.

If maximum steering angles differ from the standard value, adjust the wheel angle with the knuckle stopper bolts.

Torque: 450 kg-cm (33 ft-lb, 44 N·m)

If the wheel angle still cannot be adjusted within limits, inspect and replace damaged or worn steering parts.



7. INSPECT SIDE SLIP WITH SIDE SLIP TESTER

Side slip limit:

Less than 3.0 mm/m (0.118 in./3.3 ft)

If the side slip exceeds the limit, the toe-in or other front wheel alignment may not be correct.

BODY ELECTRICAL SYSTEM

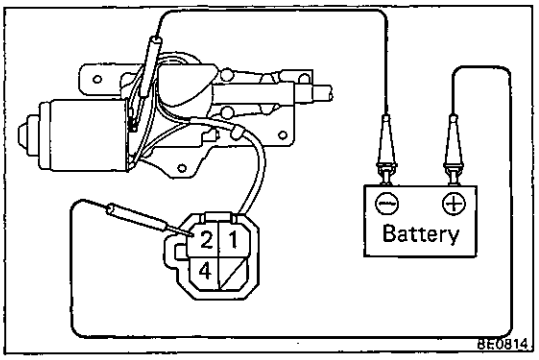
REFER TO
LAND CRUISER (Heavy Duty) REPAIR MANUAL FOR CHASSIS AND BODY (Pub. No. 36262E)

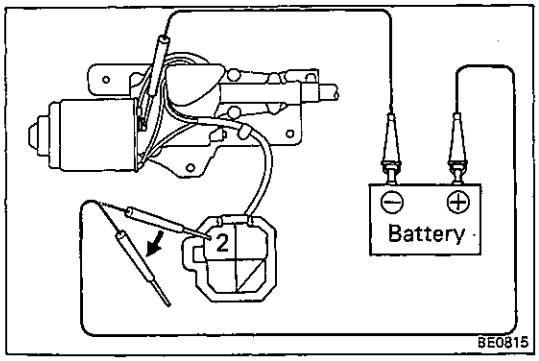
NOTE: The following pages contain only the points which differ from the above listed manual.

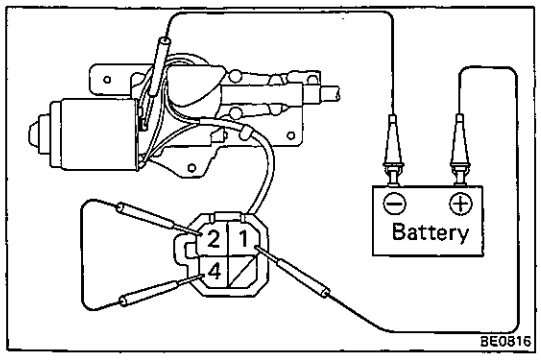
WIPER AND WASHER

Troubleshooting

Problem	Possible cause	Remedy	Page
Wiper does not operate or return to off position	WIPER fuse blown	Replace fuse and check for shorts	BE-2
	Wiper motor faulty	Check motor	
	Wiper switch faulty	Check switch	
	Wiring or ground faulty	Repair as necessary	







Rear Wiper Motor

INSPECTION OF REAR WIPER MOTOR

1. INSPECT THAT MOTOR OPERATES
   (a) Connect the positive (+) lead from the battery t terminal 2. Connect the negative (–) lead to th motor body.
   (b) Check that the motor operates.

2. INSPECT THAT MOTOR OPERATES, STOPPING A STOP POSITION
   (a) Connect the positive (+) lead from the battery t terminal 2. Connect the negative (–) lead to th motor body. Operates the motor.
   (b) Stop motor operation anywhere except stop positio by disconnecting terminal 2.
   (c) Connect terminals 2 and 4.
   (d) Connect the positive (+) lead from the battery t terminal 1.
   (e) Check that the motor stops running at stop positio after the motor operates again.

If operation is not as described, replace the motor.

INSTRUMENTS, GAUGES AND WARNING LIGHTS

Speedometer

ON-VEHICLE INSPECTION OF SPEEDOMETER

(a) Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

NOTE: Tire wear and tire over or under inflation will increase the indicating error.

Standard indication (mph)	Allowable range (mph)
20	19 – 21
40	39 – 41
55	54 – 56

(b) Check the speedometer for pointer vibration and abnormal noises.

NOTE: Pointer vibration can be caused by a loose speedometer cable.

– MEMO –

AIR CONDITIONING SYSTEM

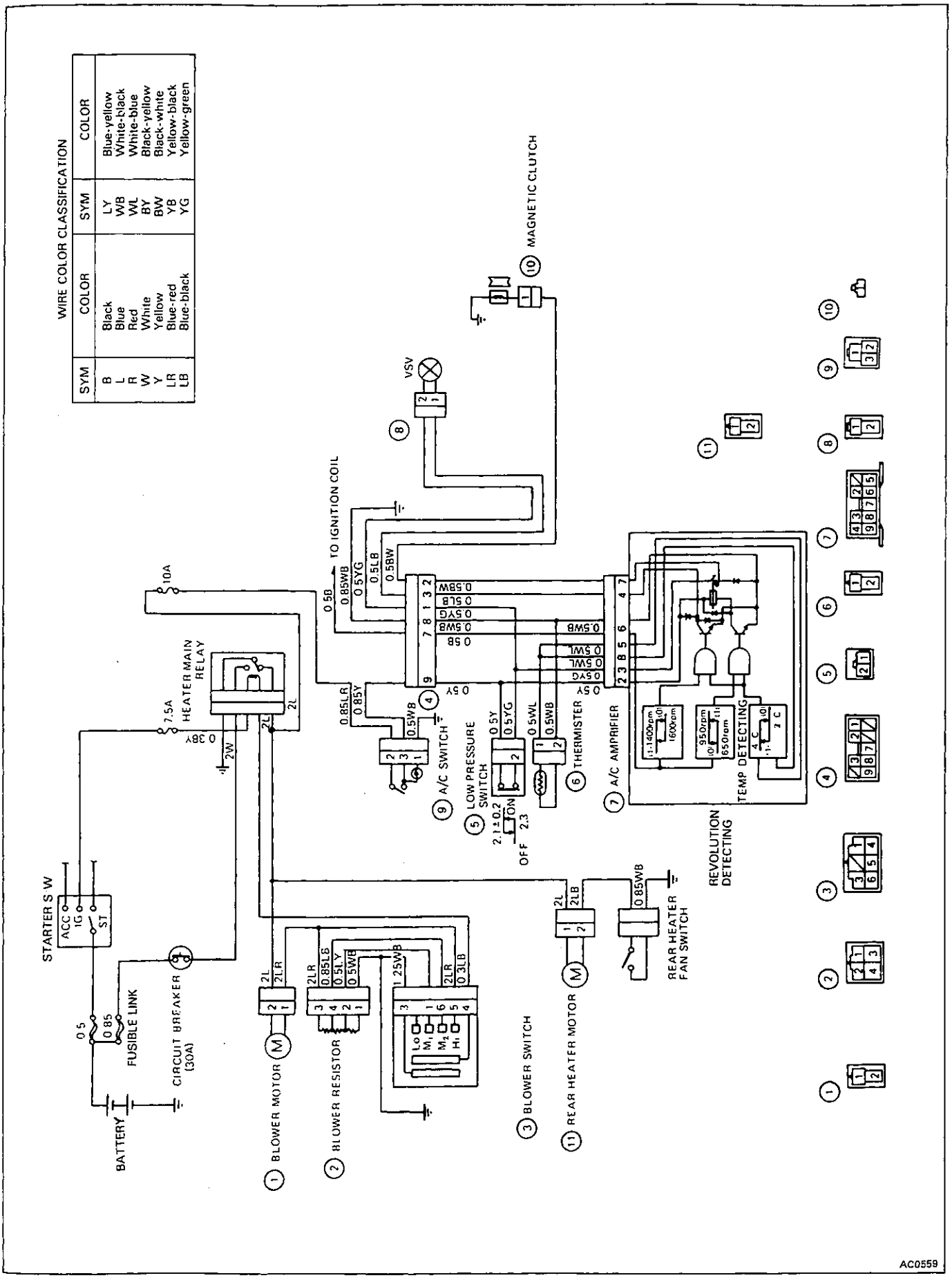
REFER TO
LAND CRUISER (Heavy Duty) REPAIR MANUAL FOR CHASSIS AND BODY (Pub. No. 36262E)

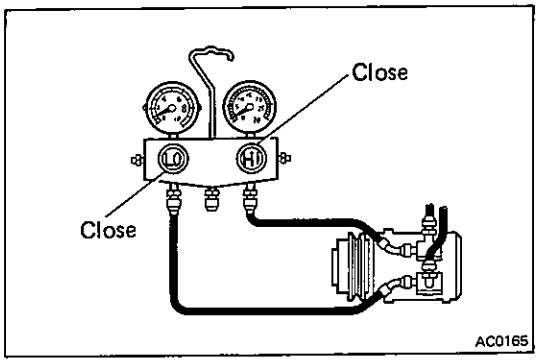
NOTE: The following pages contain only the points which differ from the above listed manual.

SPECIAL TOOLS AND EQUIPMENT

Tool	SST No.	Use
Manifold gauge set	07110-78010	To evacuate and charge system
Ohmmeter		To electrical diagnosis
Magnetic clutch tool set	07110-77011	–
Pressure plate holder	(07112-67010)	To remove shaft not
Bearing assembler	(07112-57010)	To remove and install rotor bearing
Bearing remover	(07112-77010)	To remove rotor bearing
Bearing assembler	(07112-77021)	To remove rotor bearing
Bearing assembler	(07114-57012)	To install rotor bearing
Bearing assembler	(07114-77010)	To install rotor bearing
Pressure plate remover	07112-71010	To remove and install pressure plate
Snap ring pliers	07114-84020	To remove snap ring
Key remover	07112-45021	To remove key
Hexagon wrench set	07110-61050	To remove service valves and front housing
Key press tool	07114-45010	To install key

AIR CONDITIONING SYSTEM CIRCUIT





COMPRESSOR

ON-VEHICLE INSPECTION

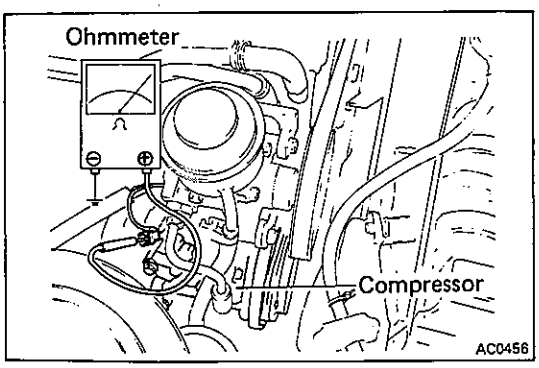
1. INSTALL MANIFOLD GAUGE SET
   (a) Close the HI and LO hand valves.
   (b) Connect the high pressure hose to the discharge se vice valve of the compressor.
   (c) Connect the low pressure hose to the suction servi valve of the compressor.

2. RUN ENGINE AT FAST IDLE

3. CHECK COMPRESSOR
   (a) High pressure gauge reading is not low and low pre sure gauge reading is not higher than normal.
   (b) Metallic sound
   (c) Leakage from shaft seal

   If detects are found, repair the compressor.

4. CHECK MAGNETIC CLUTCH
   (a) Inspect the pressure plate and the rotor for signs oil.
   (b) Check the clutch bearings for noise and grease leakag

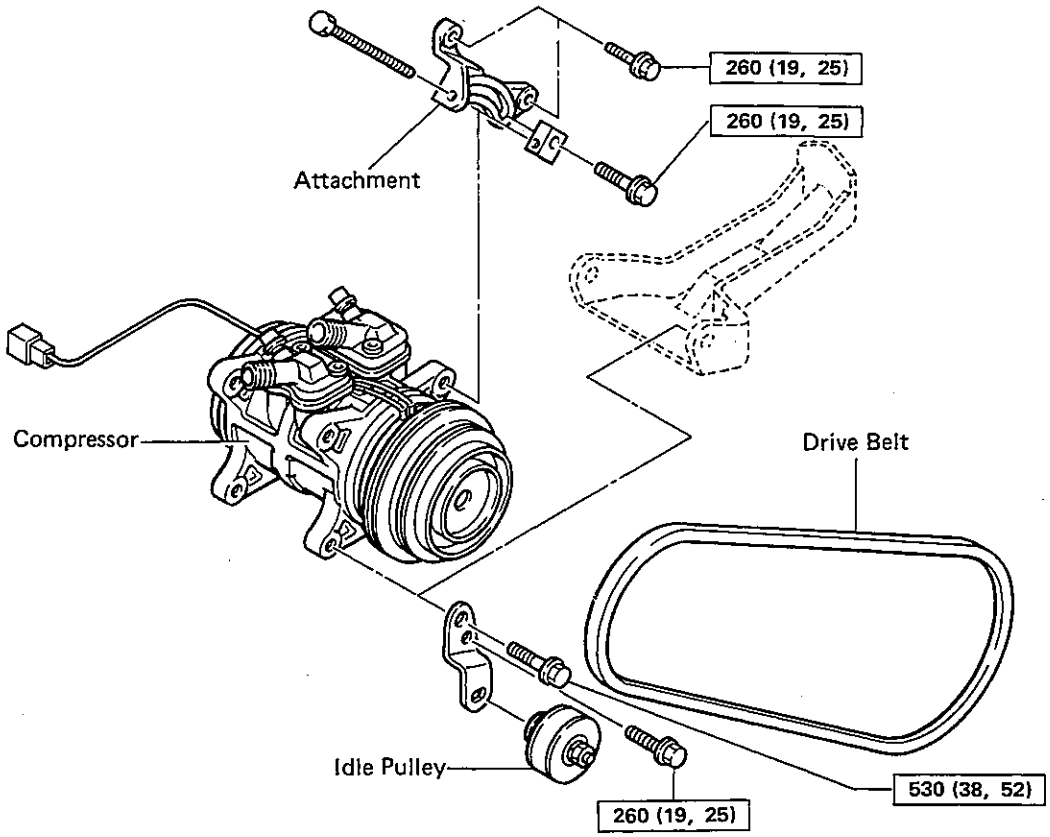


(c) Using an ohmmeter, measure the resistance of t stator coil between the clutch lead wire and groun

If the resistance is not within tolerance, replace the co

Standard resistance: 3.75 ± 0.2Ω at 20°C (68°F)

2F ENGINE SERIES



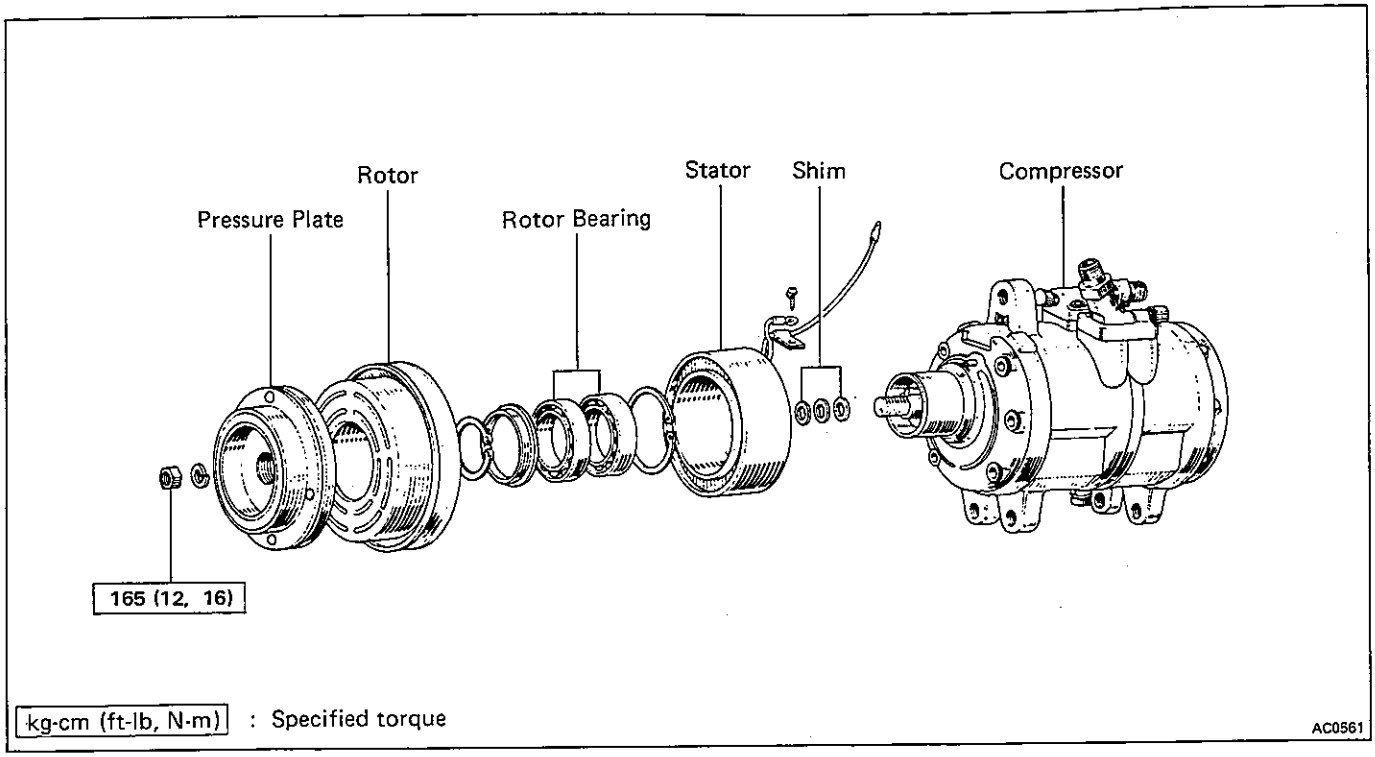
kg-cm (ft-lb, N-m) : Specified torque

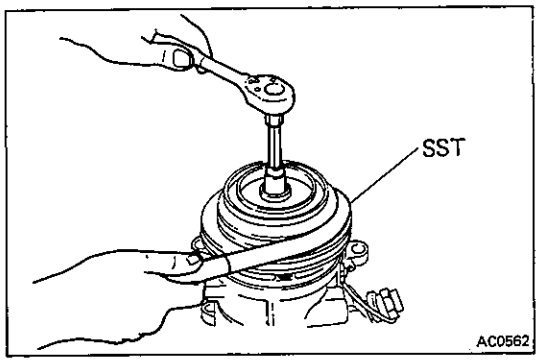
AC0560

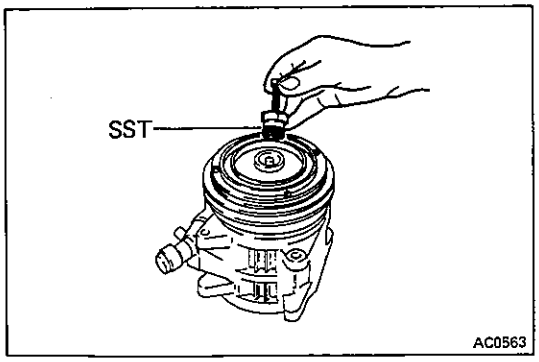
REMOVAL OF COMPRESSOR

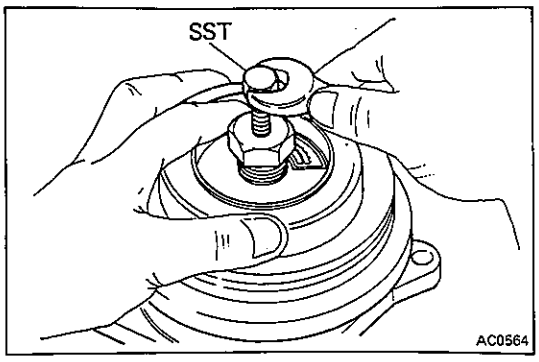
1. RUN ENGINE AT IDLE FOR 10 MINUTES WITH AIR CONDITIONING ON
2. DISCONNECT NEGATIVE CABLE FROM BATTERY
3. DISCONNECT CLUTCH LEAD WIRE FROM WIRING HARNESS
4. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM
5. DISCONNECT TWO FLEXIBLE HOSES FROM COMPRESSOR SERVICE VALVES

   Cap the open fitting immediately to keep moisture out of the system.
6. REMOVE COMPRESSOR
   (a) Loosen the drive belt.
   (b) Remove the compressor mounting bolts and the compressor.









DISASSEMBLY OF MAGNETIC CLUTCH

1. REMOVE PRESSURE PLATE

(a) Using SST and a socket, remove the shaft nut.

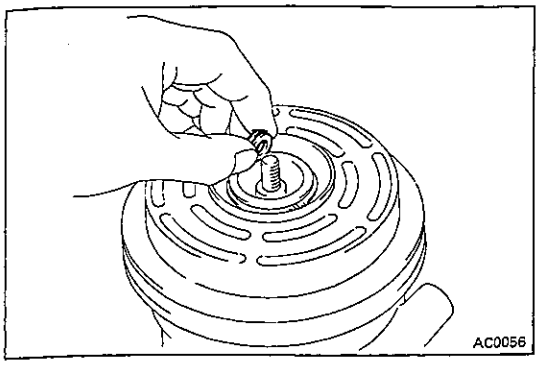
SST 07110-77011 (07112-67010)

(b) Install SST to the pressure plate.

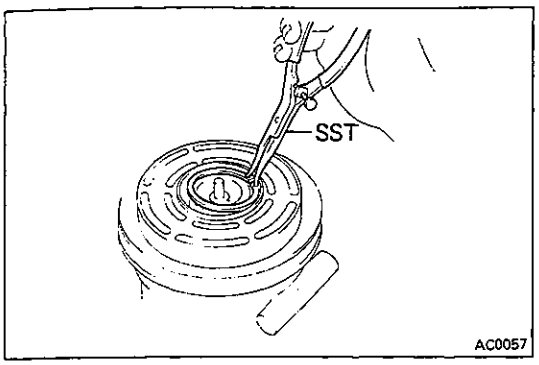
SST 07112-71010

(c) Using SST and a socket, remove the pressure plate.

SST 07112-71010



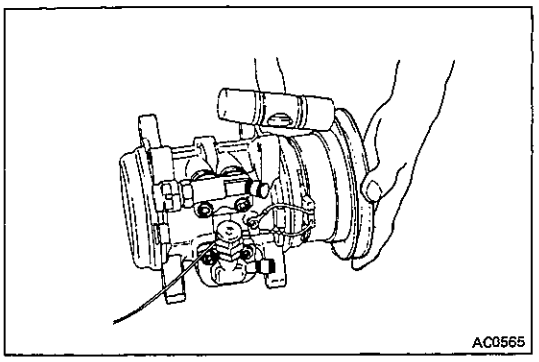
(d) Remove the shims from the shaft.



2. REMOVE ROTOR

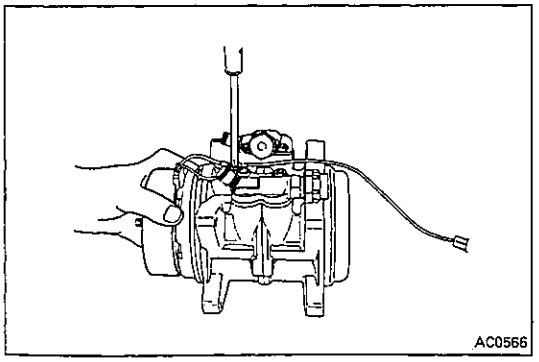
(a) Using SST, remove the snap ring.

SST 07114-84020



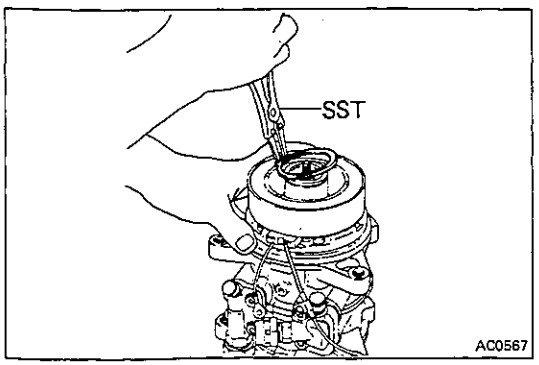
(b) Using a plastic hammer, tap the rotor off the shaft.

CAUTION: Be careful not to damage the pulley when tapping the rotor.



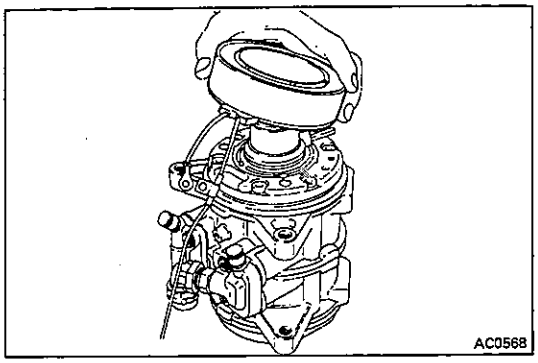
3. REMOVE STATOR

(a) Disconnect the stator lead wires from the compressor housing.

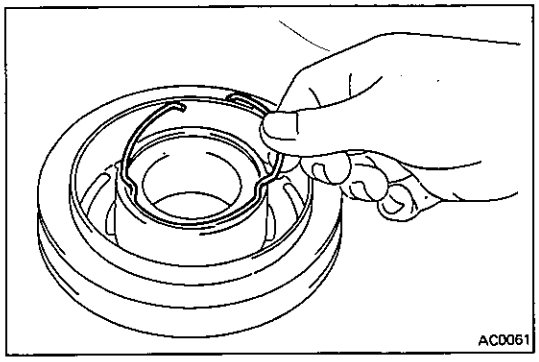


(b) Using SST, remove the snap ring.

SST 07114-84020



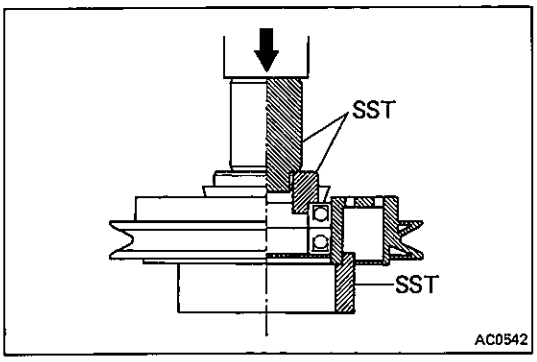
(c) Remove the stator.



4. REMOVE ROTOR BEARINGS

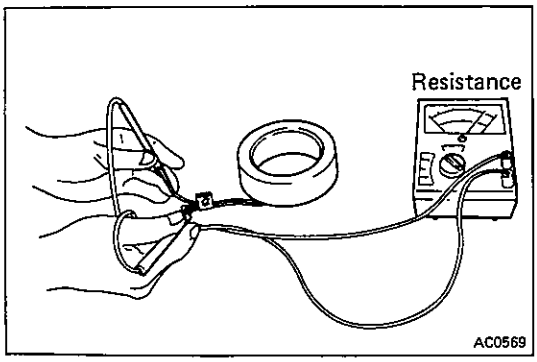
NOTE: Press the bearings out only if they are to b replaced.

(a) Remove the bearing snap ring from the rotor.



(b) Using SST, press out two bearings.

SST 07110-77011
(07112-57010, 07112-77021, 07112-77010)



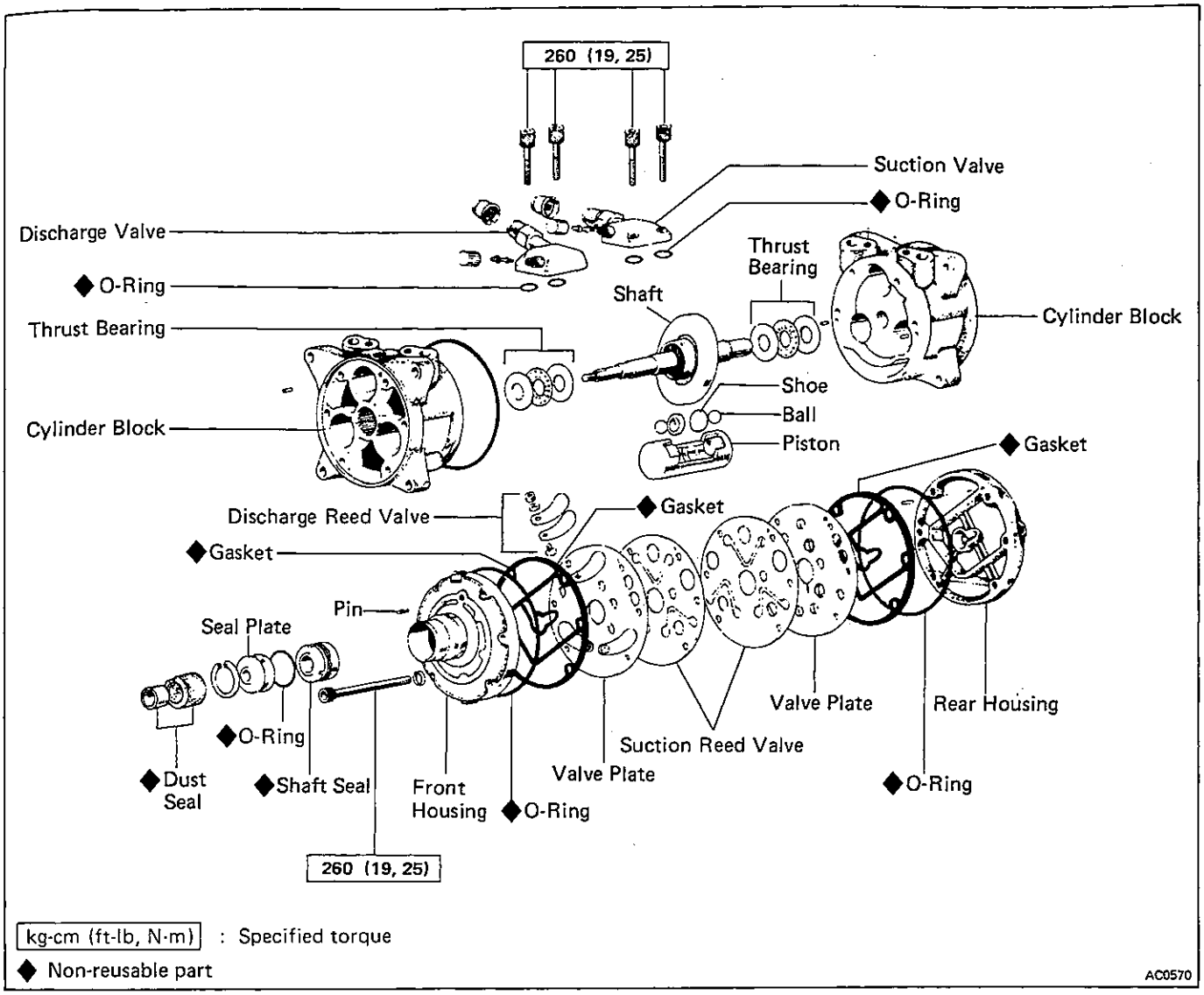
5. INSPECT PRESSURE PLATE AND ROTOR

(a) Inspect the pressure plate and rotor surfaces for wea and scoring. Replace if necessary.

(b) Check the rotor bearings for wear and leakage c grease. Replace if necessary.

(c) Check the stator coil for resistance using circuit teste Replace if necessary.

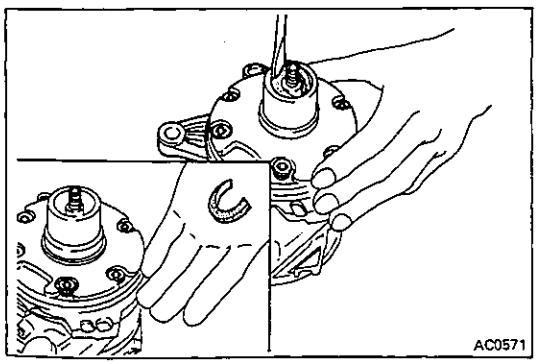
Standard resistance: 3.75 ± 0.2Ω at 20°C (68°F)



kg-cm (ft-lb, N·m) : Specified torque

◆ Non-reusable part

AC0570

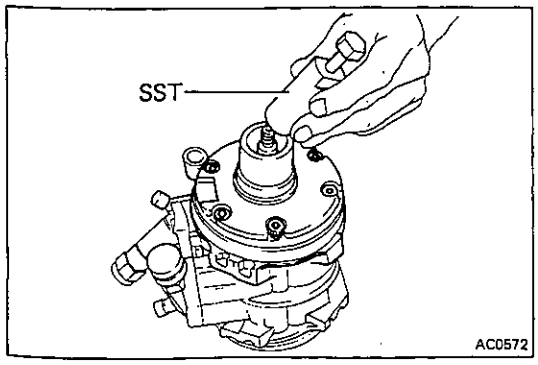


AC0571

DISASSEMBLY OF COMPRESSOR

1. REMOVE DUST SEAL

Using a screwdriver, pry out the dust seal.

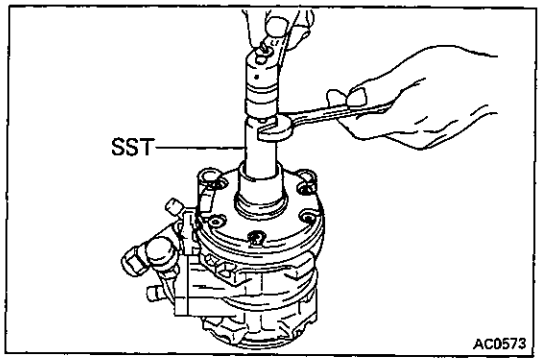


AC0572

2. REMOVE KEY

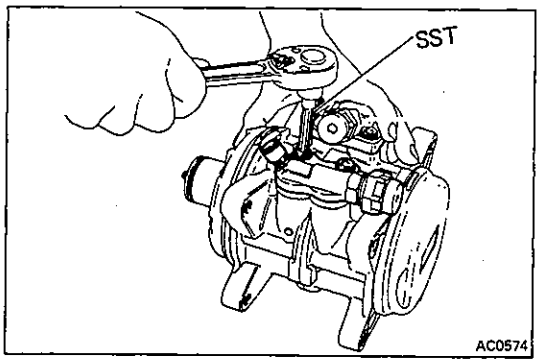
(a) Install SST on the shaft.

SST 07112-45021



(b) Using SST, remove the key from the shaft.

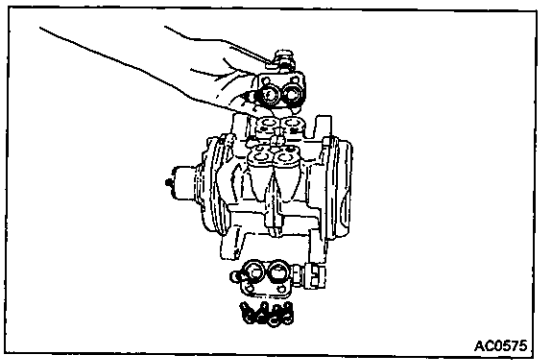
SST 07112-45021



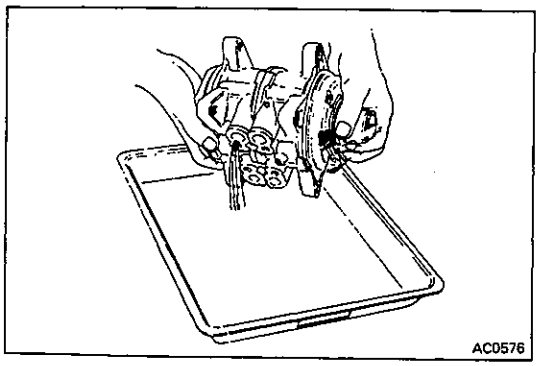
3. REMOVE TWO SERVICE VALVES

(a) Using SST, remove the bolts holding the two servic valves.

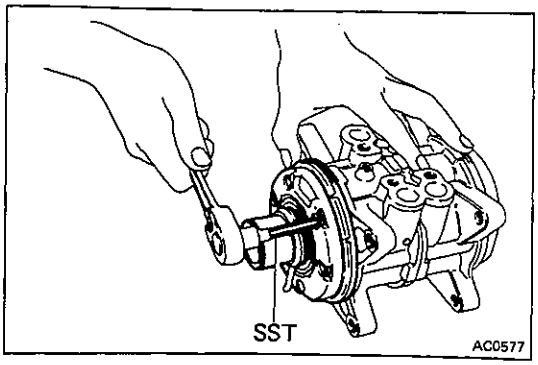
SST 07110-61050



(b) Remove the O-rings from the service valves anc discard them.



4. DRAIN OIL INTO CONTAINER

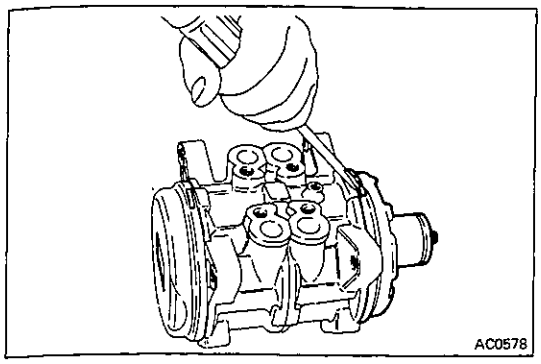


5. REMOVE FRONT HOUSING

(a) Using SST, remove the six through bolts.

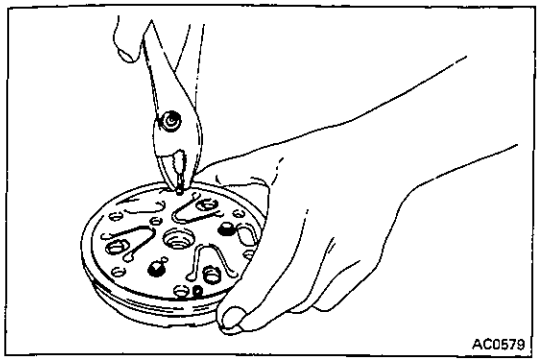
NOTE: Do not reuse the six washers.

SST 07110-61050



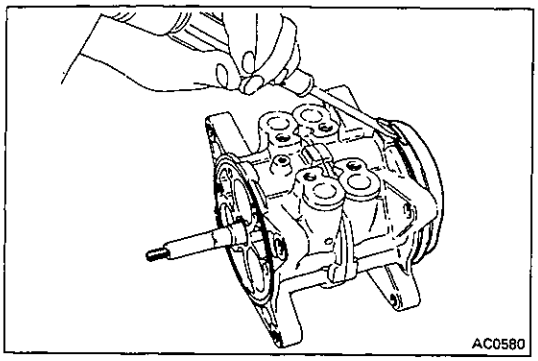
(b) Using a hammer and punch, remove the front housing by tapping on the protrusion on the front housing.

CAUTION: Be careful not to scratch the sealing surface of the front housing.



6. REMOVE FRONT VALVE PLATE

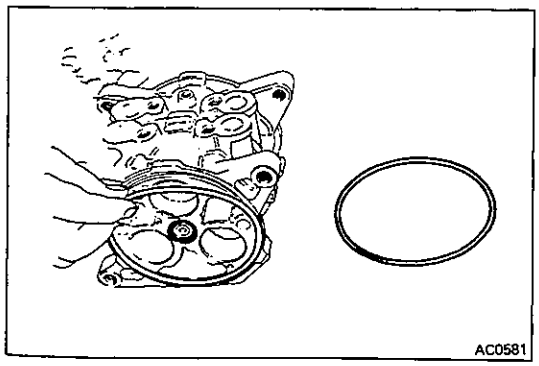
Remove the two pins from the front housing. Discard the pins.



7. REMOVE REAR HOUSING

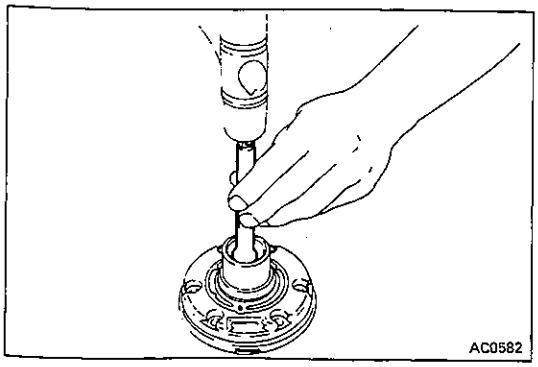
Using a hammer and punch, remove the rear housing by tapping on the protrusion on the rear housing.

CAUTION: Be careful not to scratch the sealing surface of the rear housing.



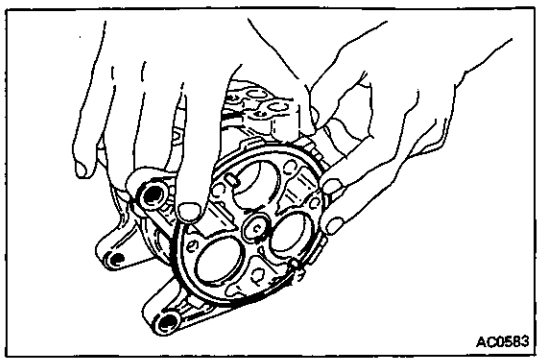
8. REMOVE FRONT AND REAR O-RINGS FROM CYLINDER BLOCK

Discard the O-rings.



9. IF NECESSARY, REMOVE SEAL PLATE

Using a hammer and a 20 mm (0.79 in.) diameter rod, drive out the seal plate.



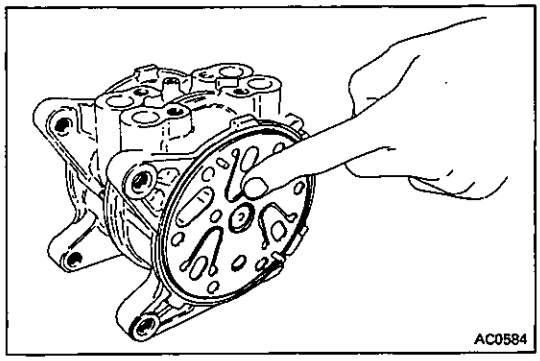
ASSEMBLY OF COMPRESSOR

(See page AC-9)

1. INSTALL REAR VALVE PLATE ON REAR CYLINDER

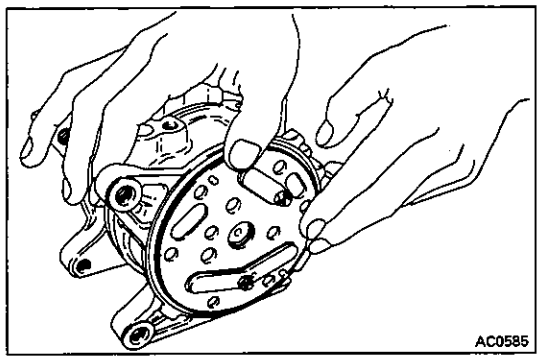
(a) Install the two pins in the rear cylinder.

(b) Lubricate a new O-ring with compressor oil. Instal the O-ring in the rear cylinder.



(c) Install the rear suction valve over the pins on the rea cylinder.

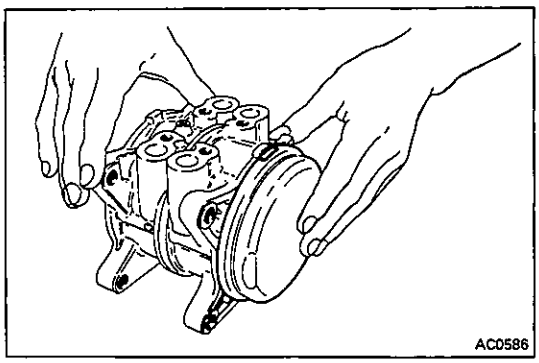
NOTE: The front and rear suction valves are identical



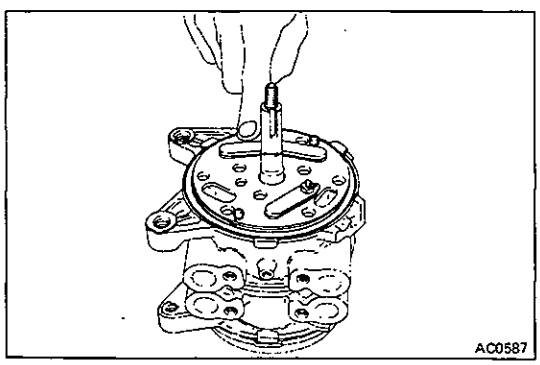
(d) Install the rear valve plate over the pins on rear cy linder.

NOTE: The rear valve plate is marked with an "R."

(e) Lubricate the gasket with compressor oil. Install th gasket on the valve plate.



2. INSTALL REAR HOUSING ON REAR CYLINDER

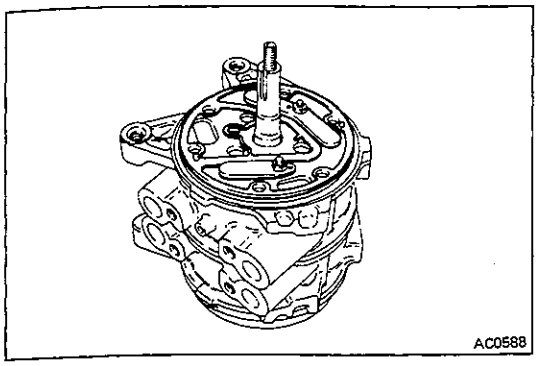


3. INSTALL FRONT VALVE PLATE ON FRONT CYLINDER

(a) Install the two pins in the front cylinder.

(b) Lubricate a new O-ring with compressor oil. Instal the O-ring in the rear housing.

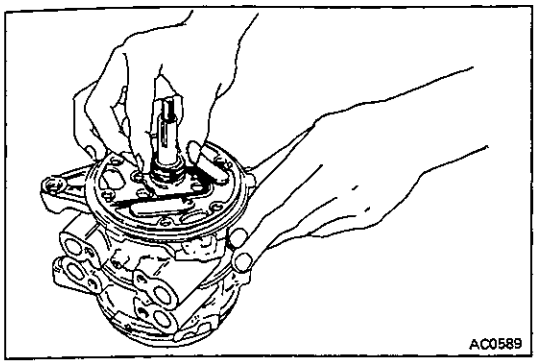
(c) Install the front suction valve over the pins on th front cylinder.



(d) Install the front valve plate over the pins on the front cylinder.

NOTE: The front valve plate is marked with a "F."

(e) Lubricate the gasket with compressor oil. Install the gasket on the valve plate.

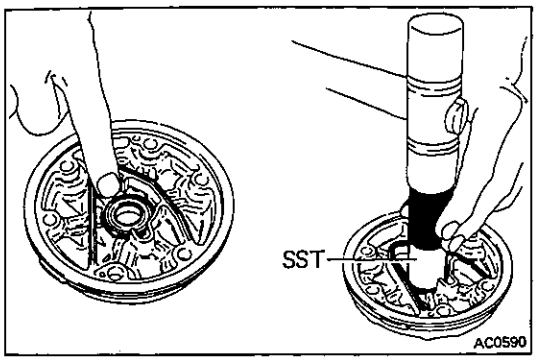


4. INSTALL SHAFT SEAL

(a) Lubricate the shaft seal with compressor oil. Install the shaft seal on the shaft.

(b) Lubricate the carbon ring with compressor oil. Install the carbon ring on the shaft.

NOTE: Do not touch the seal surface of the carbon ring with your fingers.

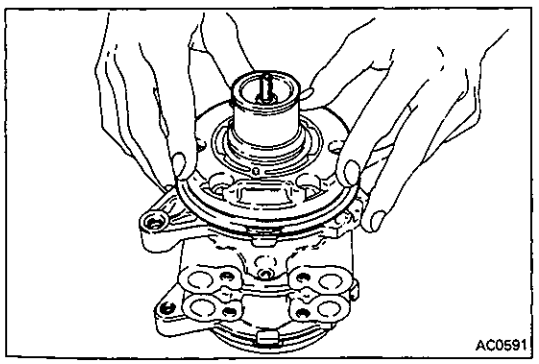


5. IF SEAL PLATE WAS REMOVED, INSTALL NEW SEAL PLATE

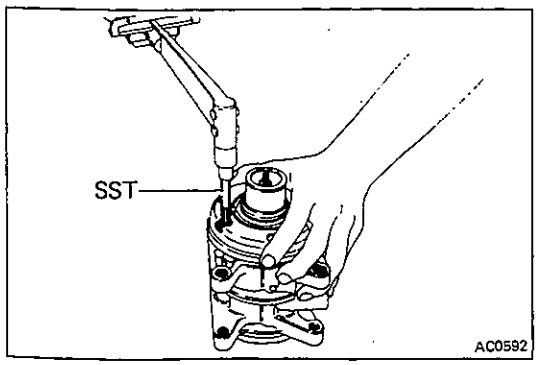
(a) Lubricate the seal plate and new O-ring with compressor oil. Install the seal plate and O-ring in the front housing with your fingers.

(b) Using a plastic hammer and SST, tap in the seal plate.

SST 07114-45010



6. INSTALL FRONT HOUSING ON FRONT CYLINDER

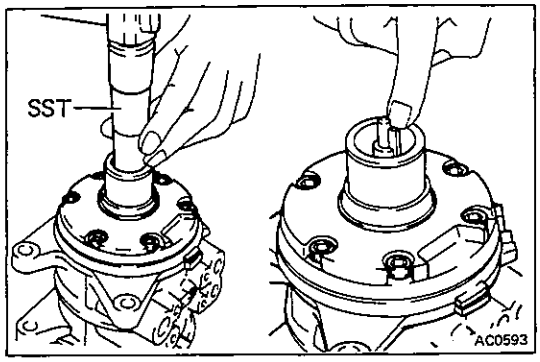


7. INSTALL SIX THROUGH BOLTS

Using a torque wrench and SST, gradually tighten the six through bolts in two or three passes.

SST 07110-61050

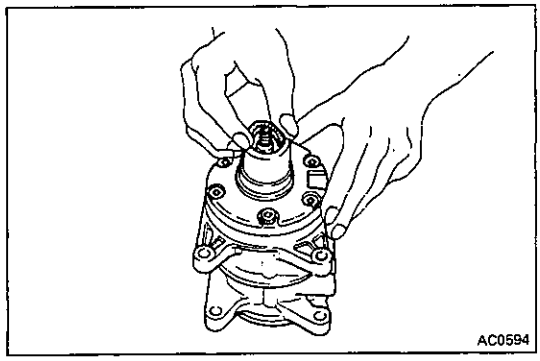
Torque: 260 kg-cm (19 ft-lb, 25 N·m)



8. INSTALL KEY IN SHAFT GROOVE

Using a plastic hammer and SST, tap the key lightly.

SST 07114-45010

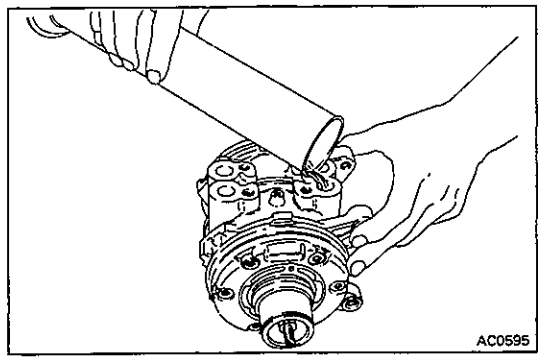


9. INSTALL NEW DUST SEAL INTO FRONT HOUSING

Using SST, push the dust seal into the front housing.

NOTE: Spring is inside of the dust seal.

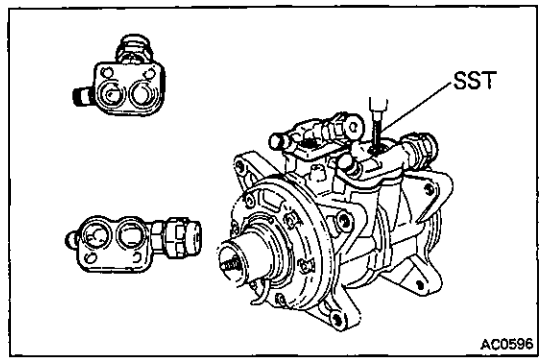
SST 07112-45021



10. POUR COMPRESSOR OIL INTO COMPRESSOR

Compressor oil: DENSOOIL 6, SUNISO No. 5 GS or equivalent

Compressor oil capacity: 155 – 185 cc (5.2 – 6.3 oz)



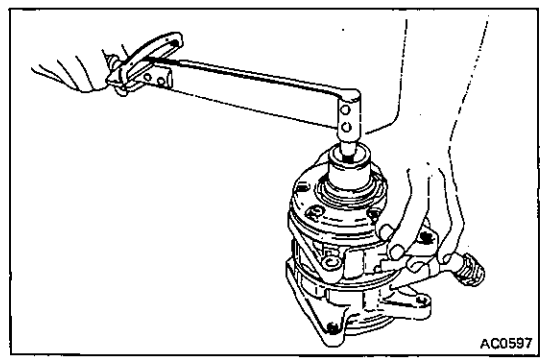
11. INSTALL SERVICE VALVES

(a) Lubricate new O-rings with compressor oil. Install the O-rings in the service valves.

(b) Install the service valves on the compressor. Using a torque wrench and SST, tighten the bolts.

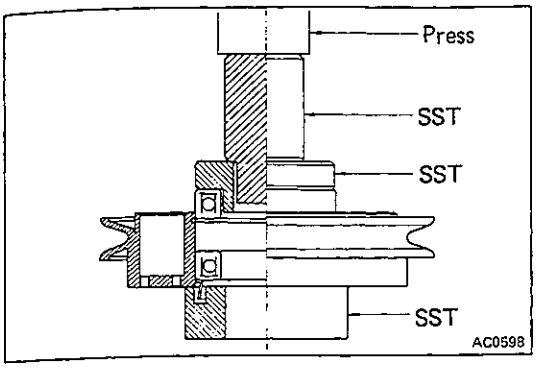
SST 07110-61050

Torque: 260 kg-cm (19 ft-lb, 25 N·m)



12. CHECK SHAFT STARTING TORQUE

Starting torque: 30 kg-cm (26 in.-lb, 2.9 N·m) or less



ASSEMBLY OF MAGNETIC CLUTCH

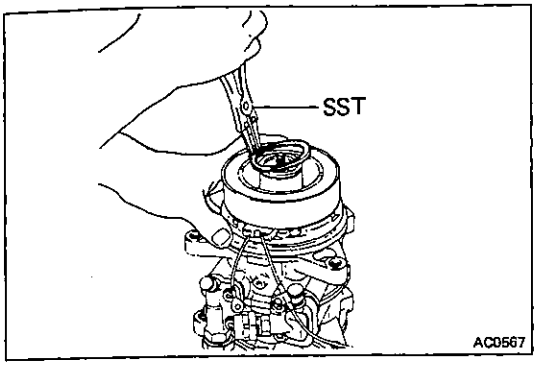
(See page AC-6)

1. INSTALL TWO BEARINGS IN ROTOR

(a) Using SST, press a shield ring and two new bearings into the rotor boss until they are fully seated.

SST 07110-77011
(07112-57010, 07114-57010, 07114-77010)

(b) Install the bearing snap ring into the rotor groove.

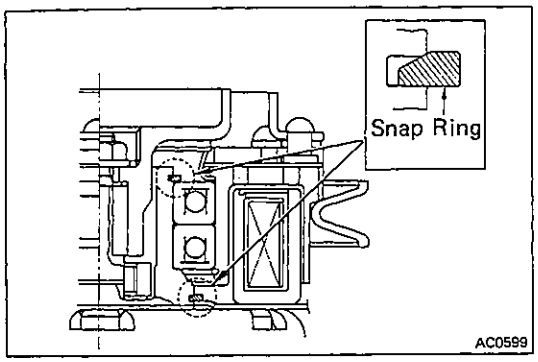


2. INSTALL STATOR

(a) Install the stator on the compressor.

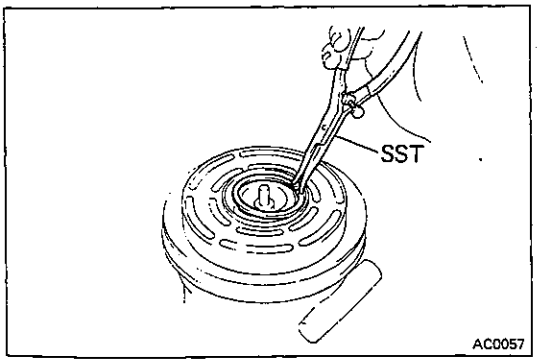
(b) Using SST, install the snap ring.

SST 07114-84020



NOTE: Tappered surface of snap rings must be set upper side.

(c) Connect the stator lead wires to the compressor housing.

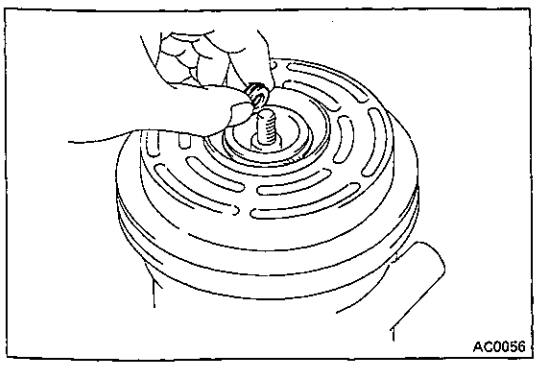


3, INSTALL ROTOR

(a) Install the rotor on the compressor shaft.

(b) Using SST, install the snap ring.

SST 07114-84020

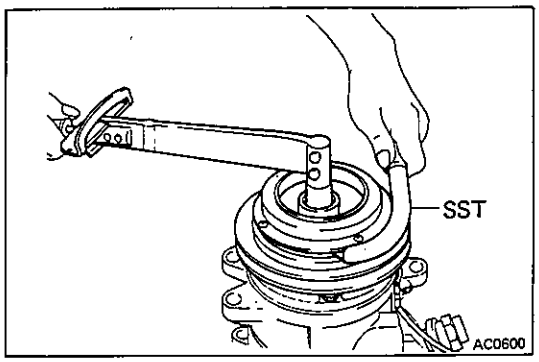


4. INSTALL PRESSURE PLATE

(a) Adjust the clearance between the pressure plate and rotor by putting shims on the compressor shaft.

Standard clearance: 0.4 – 0.7 mm (0.016 – 0.028 in.)

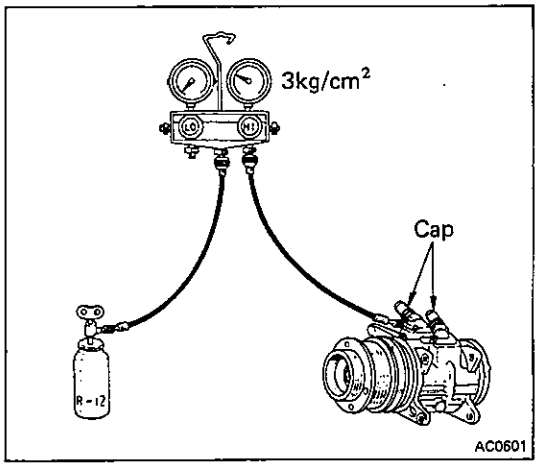
If the clearance is not within tolerance, add or reduce the number of shims to obtain the standard clearance.



(b) Using a torque wrench and SST, install the shaft nut

SST 07110-77011 (07112-67010)

Torque: 165 kg-cm (12 ft-lb, 16 N·m)



PERFORMANCE TEST OF COMPRESSOR

1. PERFORM GAS LEAKAGE TEST

(a) Put cap on service valve.

(b) Charge the compressor with refrigerant through the charge valve until the pressure is 3 kg/cm² (43 psi 294 kPa).

(c) Using gas leak detector, check the compressor for leaks.

If leaks are found, check and replace the gasket, O-ring or shaft seal.

2. FILL COMPRESSOR WITH CLEAN COMPRESSOR OIL

Remove the service valve and drain the compressor oil. Fill with new oil.

Compressor oil: DENSOOIL 6, SUNISO No. 5 GS or equivalent

Compressor capacity: 155 – 185 cc (5.2 – 6.3 oz)

3. EVACUATE COMPRESSOR AND CHARGE WITH REFRIGERANT

Make sure the caps are tight and free from moisture and contamination.

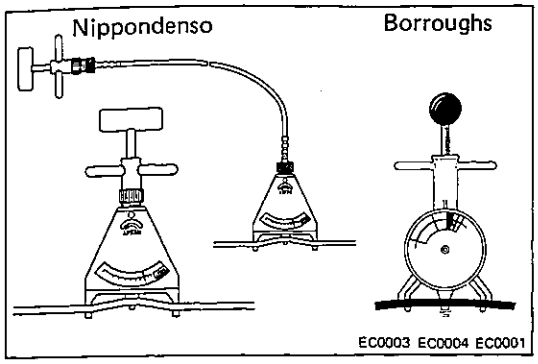
NOTE: When storing a compressor for an extended period, charge the compressor with refrigerant or dry nitrogen gas to prevent corrosion.

INSTALLATION OF COMPRESSOR

(See page AC-5)

1. INSTALL COMPRESSOR WITH THREE MOUNTING BOLTS

2. INSTALL DRIVE BELT
   (a) Install the drive belt to the pulley.
   (b) Tighten the belt with adjusting bolts.



3. CHECK DRIVE BELT TENSION

   Using a belt tension gauge, check the drive belt tension.

   Belt tension gauge:

   Nippondenso BTG-20 (95506-00020) or
   Borroughs No. BT-33-73F

   Drive belt tension:

New belt	**125 ± 25 lb**
Used belt	**80 ± 20 lb**

   NOTE:
   - "New belt" refers to a brand new belt which has never before been used.
   - "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.

4. CONNECT TWO FLEXIBLE HOSES TO COMPRESSOR SERVICE VALVES

   Torque: Discharge line 225 kg-cm (16 ft-lb, 22 N·m)
   Suction line 325 kg-cm (24 ft-lb, 32 N·m)

5. CONNECT CLUTCH LEAD WIRE TO WIRING HARNESS

6. CONNECT NEGATIVE CABLE TO BATTERY

7. EVACUATE AND CHARGE REFRIGERATION SYSTEM

SERVICE SPECIFICATIONS

REFER TO
LAND CRUISER (Heavy Duty) REPAIR MANUAL FOR CHASSIS AND BODY (Pub. No. 36262E)

NOTE: The following pages contain only the points which differ from the above listed manual.

FRONT AXLE AND SUSPENSION

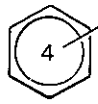
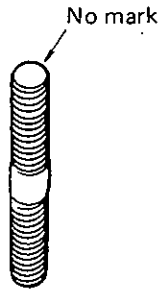
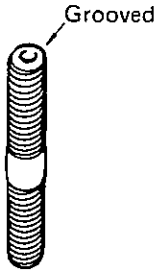
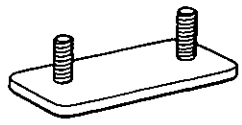
Specifications

Cold tire inflation pressure	Tire size			Inflation pressure kg/cm² (psi, kPa)	
				Front	Rear
	HR78-15			1.7 (24, 167)	2.25 (32, 221)
Front wheel alignment	Camber			1° ± 45′	
	King pin inclination			9°30′ ± 45′	
	Caster			1°05′ ± 1°	
	Toe-in			Inspection STD	Adjustment STD
				1 ± 4 mm (0.04 ± 0.16 in.)	1 ± 1 mm (0.04 ± 0.04 in.)
	Wheel angle	Max.	Inside wheel	32°00′ $^{+0°}_{-3°}$	
			Outside wheel	30°00′	
		at 20° (Outside wheel)	Inside wheel	21°00′	
	Side slip			Less than 3.0 mm/m (0.118 in./3.3 ft)	
Disc wheel lateral runout			Limit	1.2 mm	0.047 in.

STANDARD BOLT TORQUE SPECIFICATIONS

STANDARD BOLT TORQUE SPECIFICATIONS

HOW TO DETERMINE BOLT STRENGTH

	Mark	Class		Mark	Class
Hexagon head bolt	 Bolt head No. 4– 5– 6– 7–	4T 5T 6T 7T	Stud bolt	 No mark	4T
	 No mark	4T			
Hexagon flange bolt w/washer hexagon bolt	 No mark	4T		 Grooved	6T
Hexagon head bolt	 Two protruding lines	5T			
Hexagon flange bolt w/washer hexagon bolt	 Two protruding lines	6T	Welded bolt		4T
Hexagon head bolt	 Three protruding lines	7T			

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Hexagon head bolt			Hexagon flange bolt		
			kg-cm	ft-lb	N·m	kg-cm	ft-lb	N·m
4T	6	1	55	48 in.-lb	5.4	60	52 in.-lb	5.9
	8	1.25	130	9	13	145	10	14
	10	1.25	260	19	25	290	21	28
	12	1.25	480	35	47	540	39	53
	14	1.5	760	55	75	850	61	83
	16	1.5	1,150	83	113		–	
5T	6	1	65	56 in.-lb	6.4		–	
	8	1.25	160	12	16		–	
	10	1.25	330	24	32		–	
	12	1.25	600	43	59		–	
	14	1.5	930	67	91		–	
	16	1.5	1,400	101	137		–	
6T	6	1	80	69 in.-lb	7.8	90	78 in.-lb	8.8
	8	1.25	195	14	19	215	16	21
	10	1.25	400	29	39	440	32	43
	12	1.25	730	53	72	810	59	79
	14	1.5		–		1,250	90	123
7T	6	1	110	8	11	120	9	12
	8	1.25	260	19	25	290	21	28
	10	1.25	530	38	52	590	43	58
	12	1.25	970	70	95	1,050	76	103
	14	1.5	1,500	108	147	1,700	123	167
	16	1.5	2,300	166	226		–	

ELECTRICAL WIRING DIAGRAMS

SYSTEM INDEX

LAND CRUISER FJ 60 Series

1985 Model (Page 1 to Page 3)

LAND CRUISER FJ 60 Series ELECTRICAL WIRING DIAGRAM 1985 Model (Page 1 to Page 3)

Power Source | Starting | Ignition | Engine Compartment Cooling Fan | Charging | Emi

1 | 2 | 3 | 4

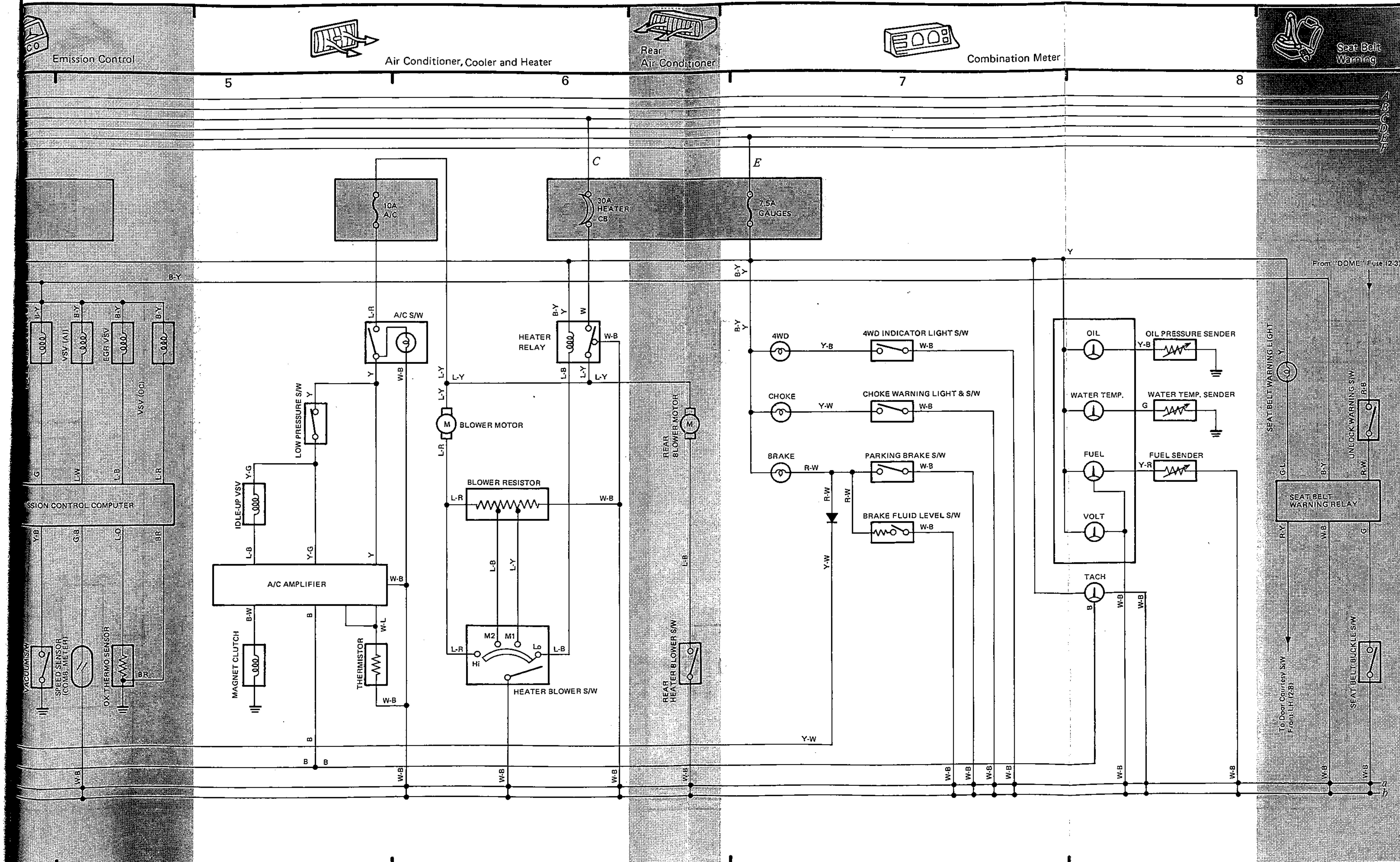
IGNITION S/W
ACC
IG
ST
AM
L-R
B-Y
B-W
FUSIBLE LINK
0.5G
0.85R
0.5G
BATTERY 12V
STARTER
IGNITION COIL
NOISE FILTER
IGNITER
DISTRIBUTOR
From "DOME" Fuse (2-8)
IG-MAIN RELAY
COOLING FAN RELAY NO. 1
COOLING FAN RELAY
COOLING FAN MOTOR
MANIFOLD TEMP. SENSOR
CHARGE WARNING LIGHT (COMB. METER)
CHARGE LIGHT RELAY
ALTERNATOR (W/IC Regulator)
ALTERNATOR
VOLTAGE REGULATOR
NOISE FILTER
7.5A CHARGE
10A ENGINE
(W/O Charge Light Relay)
(W/ Charge Light Relay)
OUTER VENT CONTROL VALVE
FUEL CUT SOLENOID
VSV (A/T)
EMISSION CONT
VACUUM SW
SPEED SENSOR (COMB. METER)

a
b

Ground points

a = Located on instrument panel under side of side fuse block

b = Located on instrument panel left side of side fuse block

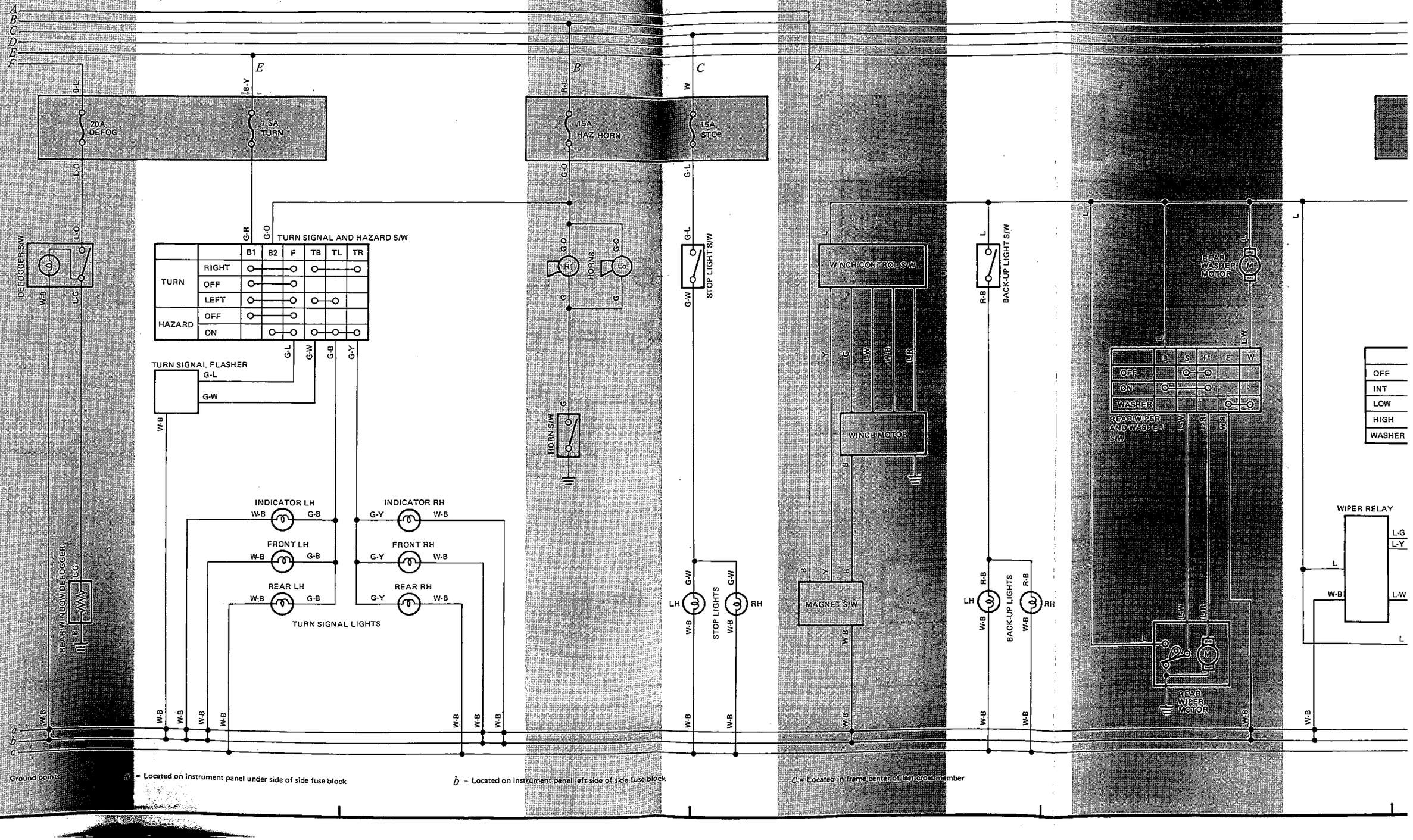


Emission Control
Air Conditioner, Cooler and Heater
Rear Air Conditioner
Combination Meter
Seat Belt Warning
5
6
7
8
10A A/C
30A HEATER CB
7.5A GAUGES
VSV (AI)
EGR VSV
VSV (OO)
EMISSION CONTROL COMPUTER
VACUUM S/W
SPEED SENSOR (COMB. METER)
OX THERMO SENSOR
A/C S/W
LOW PRESSURE S/W
IDLE-UP VSV
A/C AMPLIFIER
MAGNET CLUTCH
THERMISTOR
BLOWER MOTOR
HEATER RELAY
BLOWER RESISTOR
HEATER BLOWER S/W
REAR BLOWER MOTOR
REAR HEATER BLOWER S/W
4WD
4WD INDICATOR LIGHT S/W
CHOKE
CHOKE WARNING LIGHT & S/W
BRAKE
PARKING BRAKE S/W
BRAKE FLUID LEVEL S/W
OIL
OIL PRESSURE SENDER
WATER TEMP.
WATER TEMP. SENDER
FUEL
FUEL SENDER
VOLT
TACH
From "DOME" Fuse (2-3)
SEAT BELT WARNING LIGHT
UNLOCK WARNING S/W
SEAT BELT WARNING RELAY
To Door Courtesy S/W Front LH (2-8)
SEAT BELT BUCKLE S/W

2 LAND CRUISER FJ 60 Series (Cont'd)

Rear Window Defogger | Turn Signal and Hazard | Horns | Stop Lights | Winch | Back-up Lights | Rear Wiper and Washer

1 2 3 4



Ground points

a = Located on instrument panel under side of side fuse block

b = Located on instrument panel left side of side fuse block

c = Located in frame center of left cross member

Front Wiper and Washer

Headlight Cleaner

Taillights and Illumination

Headlights

Interior Lights

5

6

7

8

E

C

B

C

D

20A WIPER

15A TAIL

10A HEAD LH

10A HEAD RH

7.5A DOME

WASHER MOTOR

WIPER AND WASHER S/W

B S +1 +2 C E W

INT

WIPER MOTOR

HEADLIGHT CLEANER MOTOR

HEADLIGHT CLEANER RELAY

CLEARANCE RH

FRONT SIDE MARKER RH

CLEARANCE LH

FRONT SIDE MARKER LH

LICENCE PLATE RH

LICENCE PLATE LH

TAIL RH

REAR SIDE MARKER RH

TAIL LH

REAR SIDE MARKER LH

TAILLIGHT RELAY

GLOVE BOX (GEN)

GLOVE BOX LIGHT S/W

TACHOMETER

HEATER CONTROL

CIGARETTE LIGHTER

SPEEDOMETER

COMB. METER

RHEOSTAT

HEADLIGHT RELAY

HEADLIGHT LH

HEADLIGHT RH

HIGH BEAM INDICATOR LIGHT (COMB. METER)

LIGHT CONTROL S/W

T EL R

OFF

TAIL

HEAD

DIMMER S/W

HF HU HL ED

FLASH

LOW

HIGH

To Cooling Fan Relay (1-2)

To Unlock Warning S/W (1-8)

INTERIOR LIGHT AND S/W

LUGGAGE ROOM LIGHT AND S/W

From Seat Belt Warning Relay (1-8)

INSPECTION LIGHT SOCKET

FRONT LH

FRONT RH

REAR LH

REAR RH

BACK DOOR S/W

DOOR COURTESY S/W

a

b

c

LAND CRUISER FJ 60 Series (Cont'd)