# A/C INSTALLATION INSTRUCTIONS FOR

# MAZDA MX-5 Miata

REVISED DATE: 11-27-89

PRIOR TO INSTALLING THE A/C UNIT, CONFIRM THAT YOU HAVE ORDERED THE CORRECT A/C AND SUB-KIT ACCORDING TO THE CHART BELOW.

#### A/C KIT REFERENCE CHART

MODEL	A/C KIT NO.			
FOR POWER STEERING MODEL	NA01 YV 410			

IMPORTANT: VEHICLES WITH STANDARD STEERING

REQUIRE SUB-KIT PART NO.

NA01 YV SK1

#### THE INSTALLER MUST BE AWARE OF THE FOLLOWING IMPORTANT POINTS.

 SYMBOL MARK — The following symbols are used to indicate the type of service operation to be performed.



· Steps within a block group.



 Lubricate all fittings and O-rings with new refrigerant oil before connecting them.



When tightening or loosening line fittings, use two wrenches for equalized support.

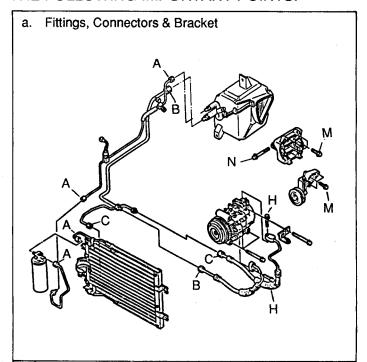


All fittings and connectors must be tightened to the correct torque specification. See torque specification charts.

- O. E. M. Original equipment from manufacturer.
- All wires and hoses must be routed properly in order to avoid interference with surrounding parts.
- Do not remove the protective caps from the fittings until they are to be connected.
  - Follow the refrigerant manufacturer's recommendation for handling R-12 containers.
  - b. Bolt Torque

BOLT DIAMETER	ft-lb TORQUE	(kg-m)
6 mm Bolt/Nut	4.9 - 7.2	0.7 - 1.0
8 mm Bolt/Nut	10.5 -15.4	1.5 - 2.2
10 mm Bolt/Nut	21.0 - 28.0	3.0 - 4.0

130 120 110



	TORQUE WRENCH SIZE			E (m/m)	
	ft-lb	(kg-m)	NUT	UNION	SOCKET
Α	7.2 - 14.4	(1.0 - 2.0)	19	17	_
В	14.4 - 21.6	(2.0 - 3.0)	27	24	_
C	10.8 - 18.0	(1.5 - 2.5)	24	22	
Н	10.8 - 15.8	(1.5 - 2.2)			12
М	27.0 - 38.0	(3.8 - 5.3)			14
N	14.0 - 19.0	(1.9 - 2.6)	_		12

30

20

10

#### WARNING:

When working with refrigerant R-12, extreme caution must be exercised. Always wear eye and skin protection. Make sure all safety procedures have been carried out. Failure to do so could result in serious injury.

90

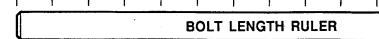
100











70

60

#### **STEPS 1-3**

#### **VEHICLE PREPARATION**

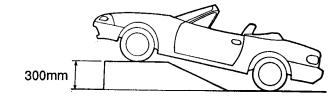
#### **X** CAUTION:

THE AUDIO ANTI-THEFT SYSTEM WILL BE ACTIVATED BY DISCONNECTING THE BATTERY POWER IF CUSTOMER HAS INPUT HIS/HER SECRET CODE IN THE AUDIO SYSTEM. ONCE THE AUDIO ANTI-THEFT SYSTEM ACTIVATES, THE AUDIO SYSTEM WILL NOT OPERATE UNLESS THE PROPER RECOVERY PROCEDURE IS APPLIED. BEFORE DISCONNECTING BATTERY TERMINAL CLAMP. OBTAIN THE CUSTOMER'S SECRET CODE NUMBER AND DEACTIVATE THE ANTI-THEFT SYSTEM. WHEN YOU RETURN THE VEHICLE TO CUSTOMER, EXPLAIN THE OPERATION OF THE ANTI-THEFT SYSTEM.

REFER TO OWNER'S MANUAL FOR DETAILS ON HOW THE AUDIO ANTI-THEFT SYSTEM WORKS AND HOW TO DEACTIVATE THIS SYSTEM.



RAISE THE FRONT OF THE VEHICLE AT LEAST 300 mm AND PULL THE EMER-GENCY BRAKE.



2

INSTALL FENDER COVERS.

7:40/3/N

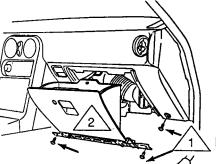
DISCONNECT THE NEGATIVE TERMINAL CLAMP FROM BATTERY. 

\*\* SEE CAUTION.

### **BLOCK 2**

### **STEPS 1-6**

## PASSENGER COMPARTMENT PREPARATION



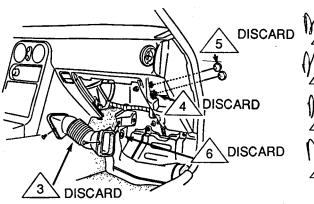
VI

REMOVE (3) SCREWS SECURING GLOVE BOX BRACE.



REMOVE GLOVE BOX AND LAY ASIDE.

**REMOVE & RETAIN** 





DISCARD PINS AND AIR DUCT.



REMOVE (2) BLIND PLUGS FROM FIREWALL INSULATION.



DISCARD (2) RUBBER BLIND PLUGS IN FIREWALL.

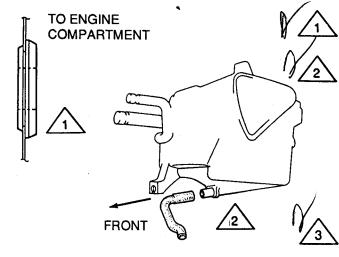


DISCARD (1) RUBBER BLIND PLUG IN TRANSMISSION TUNNEL UNDER CARPET.



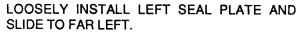
#### **STEPS 1-9**

#### **COOLING UNIT** INSTALLATION



INSTALL COOLING UNIT PIPE GROMMETS FROM ENGINE COMPARTMENT.

INSTALL DRAIN HOSE ONTO COOLING UNIT IN THE POSITION SHOWN.





NOTE: CLAMP MUST BE AT UPRIGHT POSITION.

LOOSELY INSTALL PRE-ASSEMBLED RIGHT SEAL PLATE AND SLIDE TO FAR RIGHT.



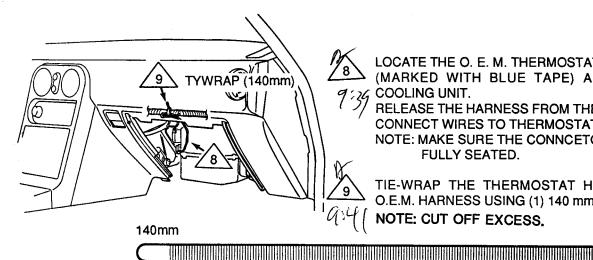
SLIDE COOLING UNIT INTO POSITION AND LOOSELY INSTALL (2) 6mm FLANGE NUTS. POSITION DRAIN HOSE INTO THE HOLE AT THE TRANSMISSION TUNNEL.



SLIDE BOTH SEAL PLATES TOWARDS COOLING UNIT UNTIL THEY CONTACT WITH STOPS AND CLAMP THE BANDS.



TIGHTEN BOTH NUTS PREVIOUSLY **INSTALLED IN STEP 5.** 



LOCATE THE O. E. M. THERMOSTAT HARNESS (MARKED WITH BLUE TAPE) ABOVE THE 9:24 COOLING UNIT.

RELEASE THE HARNESS FROM THE TAPE AND CONNECT WIRES TO THERMOSTAT. NOTE: MAKE SURE THE CONNCETORS ARE

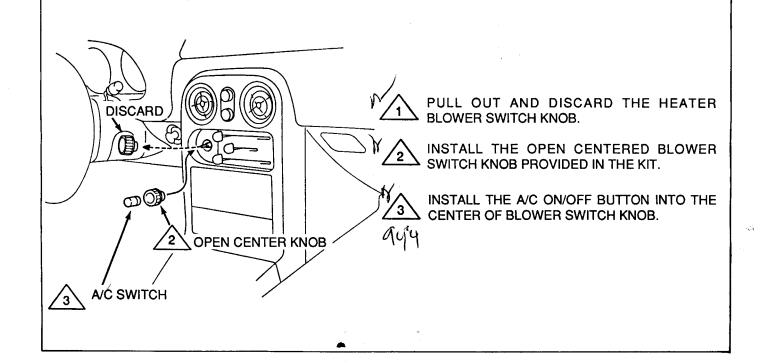
**FULLY SEATED.** 

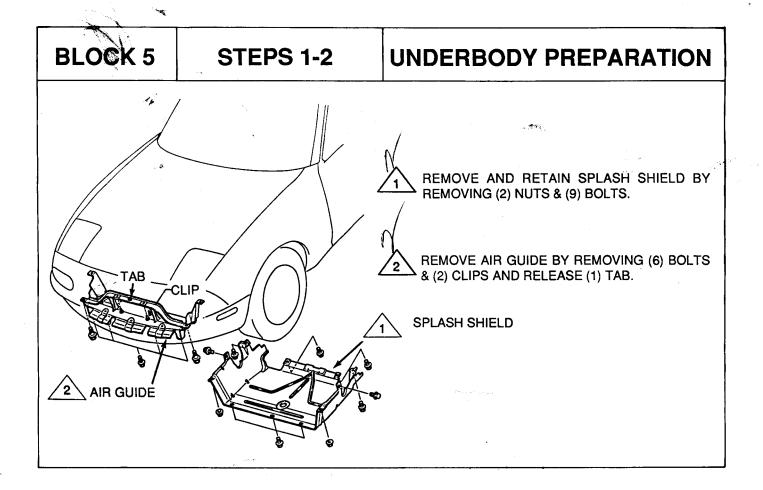
TIE-WRAP THE THERMOSTAT HARNES TO O.E.M. HARNESS USING (1) 140 mm BAND. NOTE: CUT OFF EXCESS.

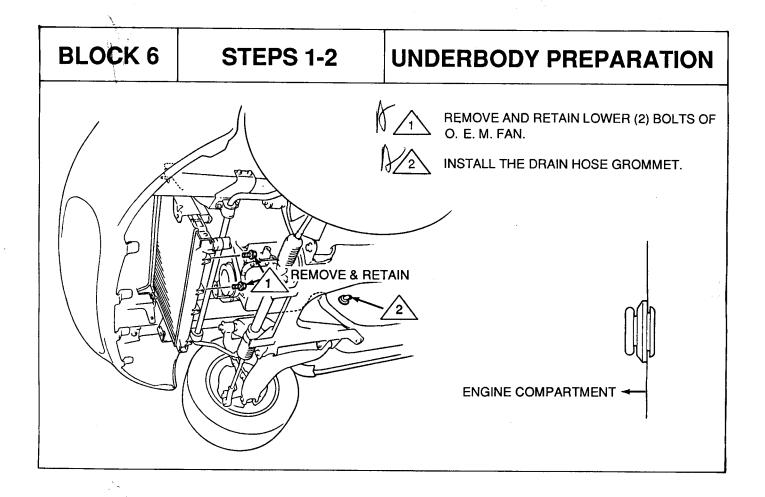


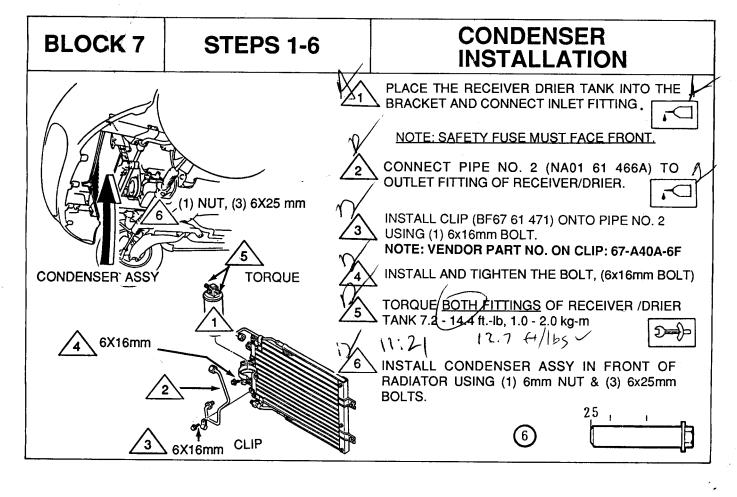
#### **STEPS 1-3**

## A/C SWITCH INSTALLATION



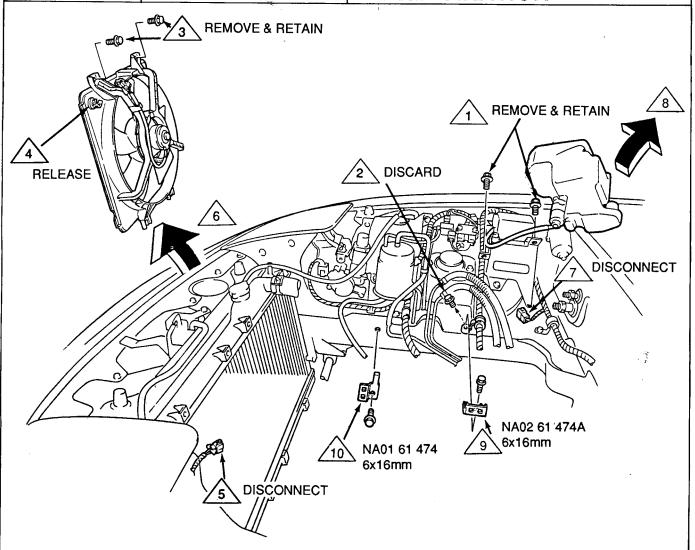






**STEPS 1-10** 

## ENGINE COMPARTMENT PREPARATION





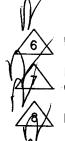
REMOVE AND RETAIN (2) BOLTS WHICH SECURE WASHER FLUID TANK.

REMOVE AND DISCARD BOLT WHICH SECURES BRACKET.

REMOVE AND RETAIN (2) BOLTS OF O.E.M. FAN.

RELEASE FAN HARNESS FROM CLIP.

DISCONNECT O.E.M. FAN CONNECTOR.



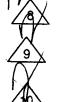
LAY ASIDE FAN.

DISCONNECT WASHER FLUID PUMP CONNECTOR.

LAY ASIDE WASHER FLUID TANK.

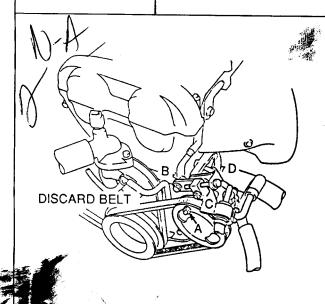
INSTALL BRACKET (NA02 61 474A) USING (1) 6x16mm BOLT.

INSTALL BRACKET (NA01 61 474) USING (1) 6x6mm BOLT.



**STEPS 1 - 2** 

#### **BELT REMOVAL** FOR P/S MODEL ONLY



TURN THE CRANKSHAFT SO THAT THERE IS ACCESS TO NUT A.



LOOSEN A B C D BOLTS & NUTS. REMOVE AND DISCARD POWER STEERING BELT.

NOTE: IF VEHICLE IS STANDARD STEERING MODEL, GO TO BLOCK 10.

**BLOCK 10** 

**STEPS 1 - 3** 

### COMPRESSOR & BRACKET INSTALLATION

REMOVE AND DISCARD (1) FRONT COVER BOLT. **DISCARD** 

8x75mm

INSTALL COMPRESSOR BRACKET USING (4) 10 x 20mm BOLTS AND 8 x 75mm BOLT. NOTE: (4) 10 x 20mm BOLTS MUST BE TOR-QUED FIRST. THEN TORQUE (1) 8 x 75mm

**BOLT TO SPECIFICATION.** 

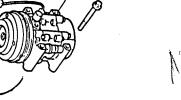
L'ATORQUE SPECIFICATIONS) 10 x 20mm BOLT: 27-38 ft-lb., 3.8 - 5.3 kg-m 1 8/x 75mm BOLT: 14-19 ft-lb., 1.9 - 2.6 kg-m

**INSTALL COMPRESSOR & BRACKET (NAO2 61** 472A) USING (4) 8 X85mm BOLTS. NOTE: INSTALL BRACKET TOGETHER WITH UPPER REAR MOUNTING BOLT. TORQUE T/O 14-19 ft-lb 1.9-2.6 kg-m

10x20mm TORQUE

NA02 61 472/

8x85mm



12:15 11/15/14/L

Resume 12:55

BLOCK 11

**STEPS 1 - 3** 

**BELT INSTALLATION** 

#### VEHICLES WITH POWER STEERING

#### **VEHICLES WITH STANDARD STEERING**



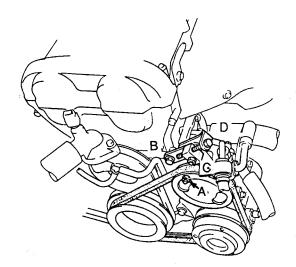
INSTALL DRIVE BELT OVER PULLEYS (CRANKSHAFT, A/C COMP., P/PUMP)



APPLY BELT TENSION BY TURNING ADJUSTING BOLT D CLOCKWISE UNTIL BELT TENSION IS WITHIN SPECIFICATION.



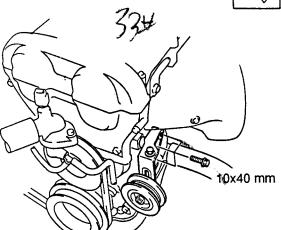
TIGHTEN BOLT & NUTS A B C.



<u>\</u>

INSTALL IDLE PULLEY BRACKET ASSY USING (3) 10x40mm BOLTS.

TORQUE TO 27-38 ft-lb, 3.8-5.3 kg-m

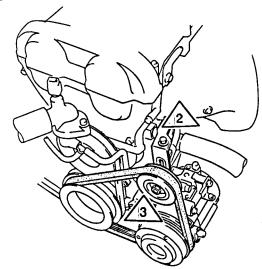


<u>\_2</u>

APPLY BELT TENSION BY TURNING ADJUSTING BOLT CLOCKWISE UNTIL BELT TENSION IS WITHIN SPECIFICATION.



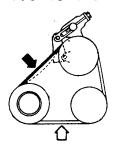
TIGHTEN LOCK NUT.

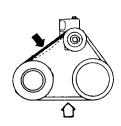


**BELT MEASURING LOCATION** 

P/S MODEL:

S/S MODEL:



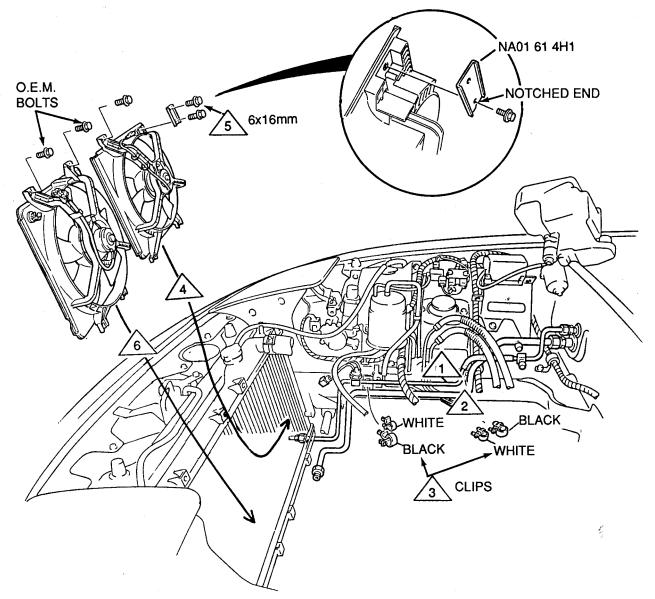


BELT TENSION SPECIFICATION.

	TENSION (KG)	DEFLECTION (mm at 10kg)
WHEN NEW	50-60	8-9

**STEPS 1-6** 

#### PIPE & FAN **INSTALLATION**





**ROUTE H. PIPE BETWEEN BODY & CANISTER** HOSE FROM UNDERNEATH THE VEHICLE AND CONNECT TO EVAPORATOR & PIPE NO. 2 FITTINGS BY HAND AS MUCH AS POSSIBLE.





**ROUTE L. PIPE BETWEEN BODY & CANISTER** HOSE FROM UNDERNEATH THE VEHICLE AND CONNECT TO EVAPORATOR FITTING BY HAND AS MUCH AS POSSIBLE.





INSTALL (4) CLIPS.



INSTALL ADDITIONAL FAN BY INSTALLING IT ON THE O.E.M. FAN SIDE THEN SLIDE IT TO RIGHT.



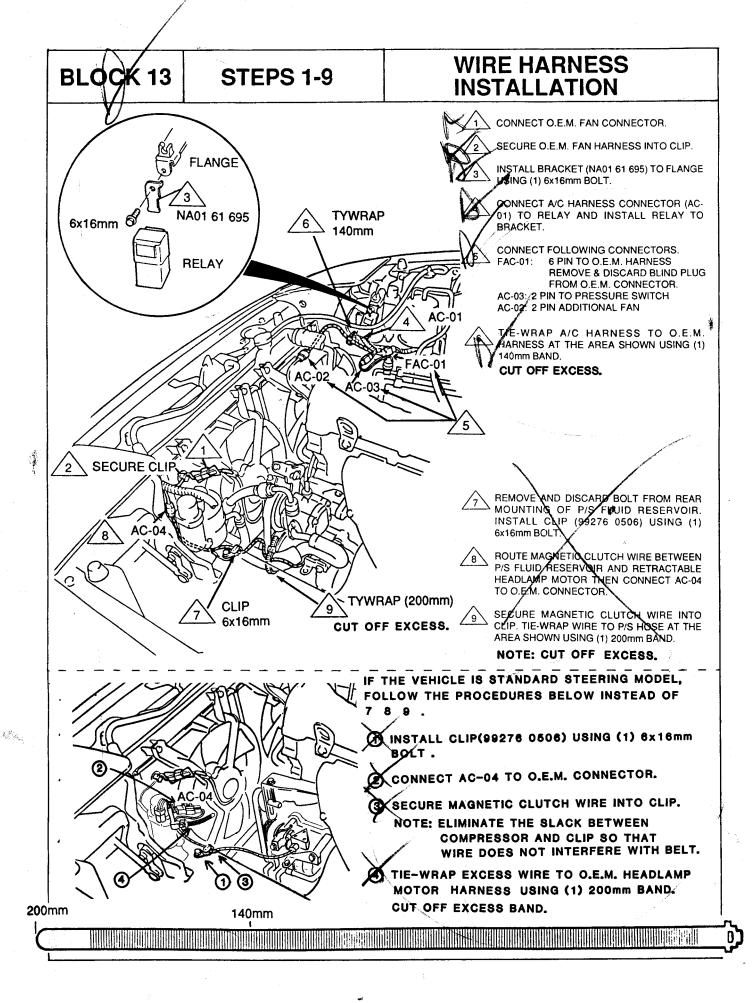
SECURE THE ADDITIONAL FAN TO RADIATOR USING BRACKET (NA01 61 4H1) & (3) 6x16mm BOLTS. (UPPER SIDE ONLY AT THIS TIME.)

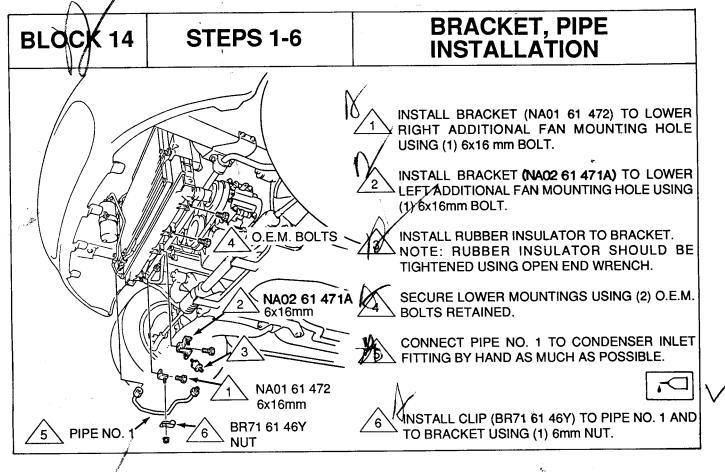
NOTE: MAKE SURE THE NOTCHED END OF BRACKET IS TO THE ADDITIONAL FAN.

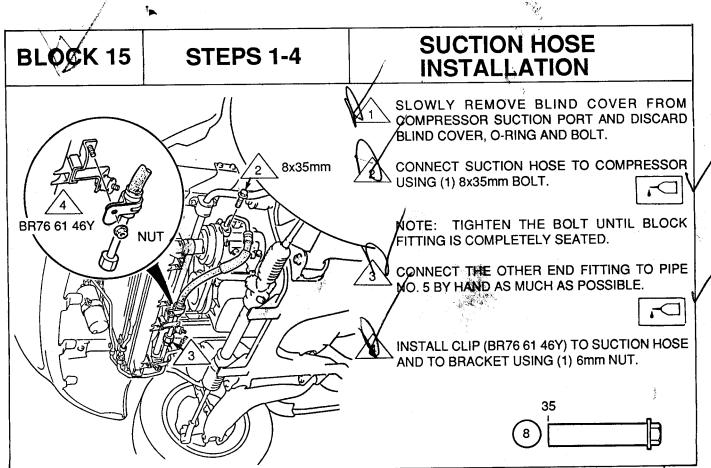


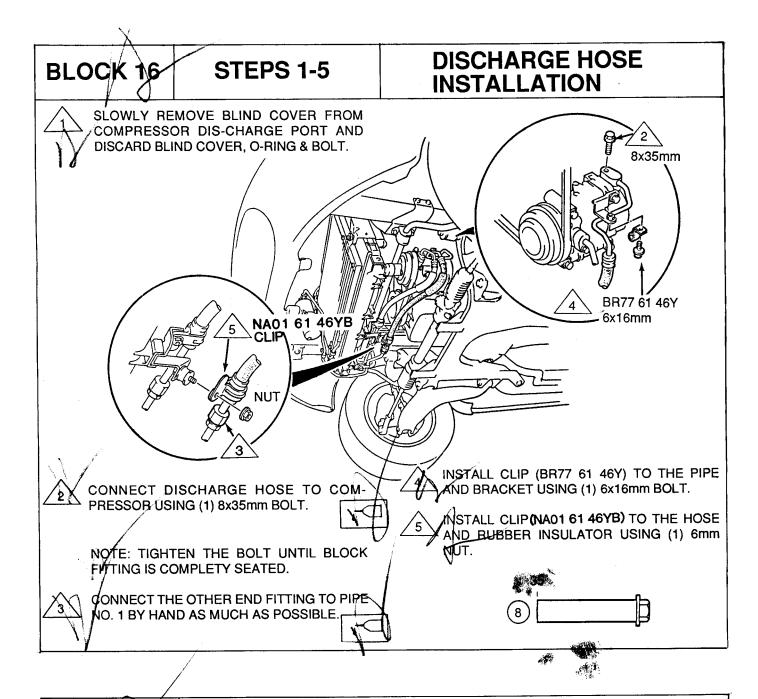
RE-INSTALL THE O.E.M. COOLING FAN AND SECURE UPPER MOUNTINGS USING (2) O.E.M. BOLTS RETAINED.

product

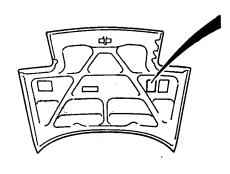








#### INSTALLING CAUTION LABEL



## CAUTION

AIR CONDITIONER
BAXIMUM DEFEATING CHARGE
6.5 to [10-12.2 ex.] OF R-12
COMPLES WITH SAE JOSS
CAUTION: R-12 fluid under high
pressure. System to be serviced by
qualified personnel only, improper
service methods may cause injury.
Consult shop manual.

#### MISE EN GARDE

CLIMATISEUR

CHARGE MAXI DE

FORMACTIONNAMEMEN

8. Bx (1 1b. -1.2, 2 sz.) DE R-12 COMFORME

A LA MORMAL SAZ LESS

MISE EN GARDE: La Ruide R-12 ast sous

borts pression. Ne confiel rimetale at la

réparation du clim. qu s' un personel

qualitié. L' emploi de mauvaitas

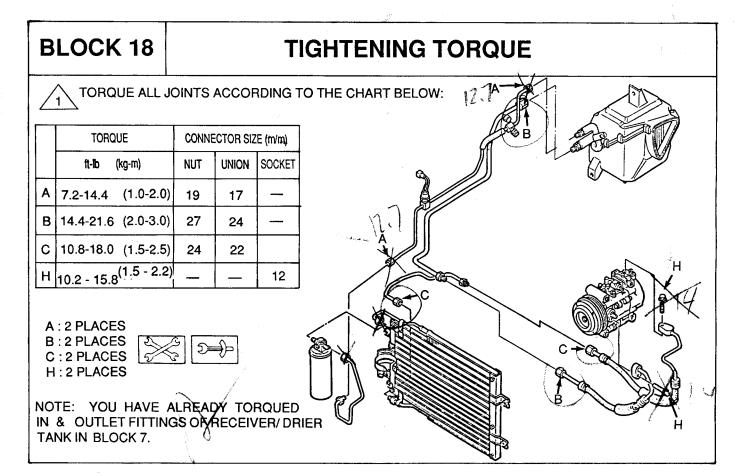
méthodas peut causair des blessures

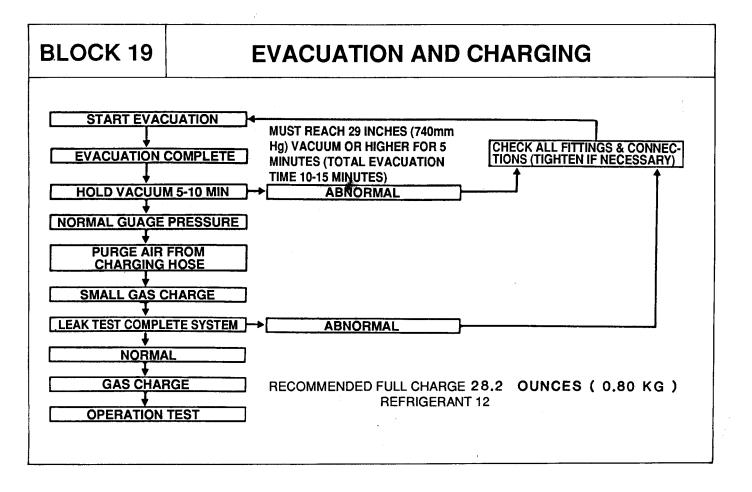
méthodas peut causair des blessures.



PEEL BACKING FROM LABEL AND APPLY TO UNDERHOOD AS SHOWN.

NOTE: MAKE SURE THE AREA IS FREE FROM DUST, WAX AND OIL.





#### READJUSTING BELT TENSION



START ENGINE AND RUN FOR (5) MINUTES WHILE OBSERVING FOLLOWING TEST CONDITION.

- TURN A/C ON AND BLOWER TO LOW
- POSITION
  - MOVE TEMPERATURE CONTROL LEVER TO
- THE FULL LEFT POSITION.
  TURN ON HEAD LIGHT.



TURN OFF ENGINE.



CONFIRM THAT THE BELT TENSION IS WITHIN THE SPECIFIED AMOUNT. IF NOT, ADJUST IT ACCORDING TO SPECIFICATION CHART BELOW.

	TENSION (KG)	DEFLECTION mm at 10kg
WHEN USED	43-50	9-10

## BLOCK 22

## INSPECTION & REGISTRATION FORM



MAKE SURE THERE IS NO TRASH LEFT IN THE VEHICLE. WIPE OFF ANY SURFACE THAT MIGHT HAVE BEEN MADE DIRTY OR OILY. REMOVE AND DISCARD ANY PLASTIC HOSE FITTING PROTECTIVE CAP THAT MIGHT HAVE FALLEN IN ENGINE COMPARTMENT OR ANY FOREIGN MATERIAL THAT MIGHT HINDER THE QUALITY OR PERFORMANCE OF VEHICLE.



FILL IN QUALITY CHECK SHEET AND REGIST-RATION FORM WHICH IS LOCATED IN THE VEHICLE WARRANTY INFORMATION BOOKLET. CONFIRM EVAPORATOR SERIAL NO. HAS BEEN RECORDED ONTO REGISTRATION FORM.



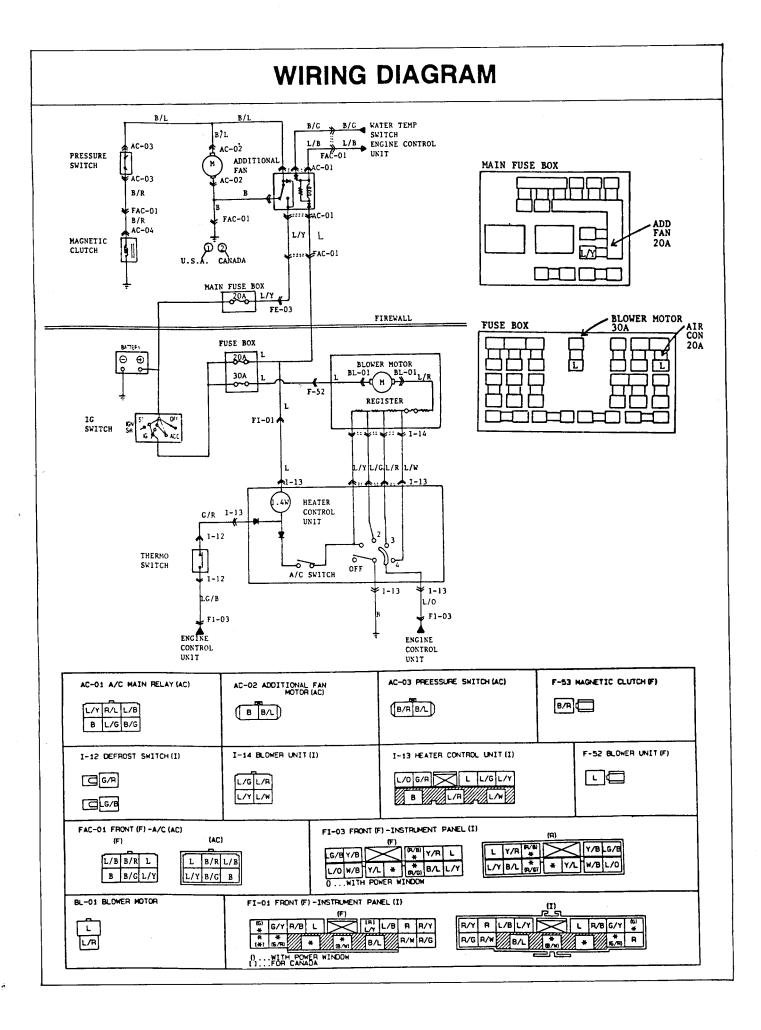


#### **BLOCK 21**

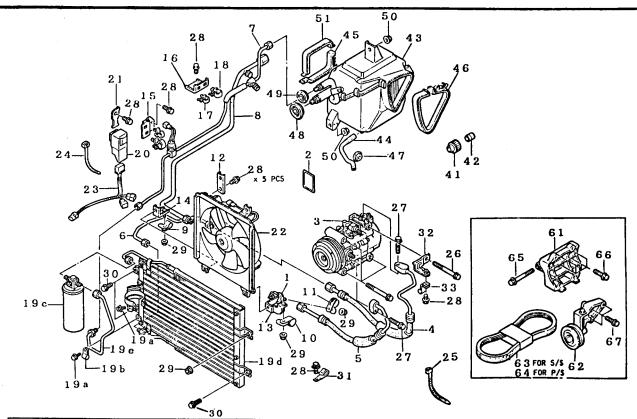
#### REINSTALLATION AND INSPECTION

#### BLOCK REFERENCE NO.

7	REINSTALLATION ITEM	INSPECTION						
1	NEGATIVE TERMINAL CLAMP TO BATTERY	TURN IGNITION SWITCH TO "ON" POSITION AND SET BLOWER CONTROL SWITCH TO HIGH. CHECK FOR AIR LEAKS AROUND SEAL PLATES. ADJUST IF NECESSARY. AFTER INSPECTION, TURN OFF IGNITION.						
2	GLOVE BOX	CONFIRM OPERATION						
5	AIR GUIDE SPLASH SHIELD	AIR GUIDE  SPLASH SHIELD  REAR  STRAP  NUT						
8	WASHER FLUID TANK	CONFIRM OPERATION NOTE: CONNECTOR MUST BE FASTENED.						



#### AIR CONDITIONER PARTS IDENTIFICATION (FOR DESCRIPTION ONLY)



	NO	PART NO.		DESCRIPTION	A Q	ГҮ.
Ì	1	NA01 61 48	7	RUBBER INSU.	1	
ı	2	NA01 61 43	9	LABEL, CAUTION	1	-
1	3	NA02 61 45	0 A	COMPRESSOR	1	_
1	4	NA01 61 46	1 B	H. HOSE-FLEX	1	-
١	5	NA01 61 46	2 C	L. HOSE-FLEX	1	-
١	6	NA02 61 46	6C	PIPE NO. 1	1	_
1	7	NA01 61 46	7 A	PIPE NO. 4 (H)	1	-
1	8	NA01 61 46	8 A	PIPE NO. 5 (L)	1	-
1	9	BR71 61 46	Y	CLIP ASSY	1	-
1	10	BR76 61 46	Y	CLIP ASSY	1	-
1	11	NA01 61 46	YВ	CLIP ASSY	1	-
1	12	NA01 61 4H	1	BRACKET	1	-
١	13	NA02 61 47	1 A	BRACKET-HOSE	1	-
۱	14	NA01 61 47	2	BRACKET	1	-
ı	15	NA01 61 47	4	BRACKET	1	-
١	16	NA02 61 4.7	4 A	BRACKET	1	-
1	17	NA02 61 47	6	CLIP	2	-
١	18	UB39 61 48	6 A	CLIP	2	-
1	19a	99796 0616		BOLT	2	-
1	19ъ	BF67 61 47	1	CLIP	1	-
	19с	NA01 61 50	0	TANK RECEIVER	1	~
1	194	NA01 61 48	0	CONDENSER	1	-
Į	19e	NA01 61 46	6	PIPE NO. 2	1	-
l	20	B462 67 74	0	RELAY TR20A	1	-
-	21	NA01 61 69	5	BRACKET RELAY	1	~
1	22	NA01 61 71	0	FAN, CONDENSER	1	-
١	23	NA01 61 54	6 B	HARNESS	1	- [
١	24	99709 3140		BAND	2	-
L	25	99709 3200		BAND	1	

NO	PART NO.	DESCRIPTION	AQT	Y.B
26	B111 61 731	BOLT	4	-
27	90781 6835	BOLT (8mm X 35)	2	~
28	99796 0616	BOLT (6mmX16)	10	-
29	99940 0600	NUT, FLANGE	4	-
30	90786 0625	BOLT	3	-
3 1	99276 0506	CLIP	1	- [
32	NA02 61 472A	BRACKET	1	- 1
33	BR77 61 46Y	CLIP ASSY	1	-
4 1	NA01 61 193	KNOB FAN SWITCH	1	-
4 2	NA01 61 197	KNOB AIR CON	1	-
4 3	NA01 61 520B	COOLING UNIT	1	-
44	NA01 61 526	HOSE-DRAIN	1	- 1
45	NA01 61 52YA	PLATE ASSY, SEAL	1	-
46	NA01 61 52Z	PLATE ASSY, SEAL	1	-
47	FB04 61 557	GROMMET	1	-
48	BF67 61 558	GROMMET L	1	-
49	BF67 61 559	GROMMET H	1	-
50	99940 0603	NUT FLANGE	2	
5 1	NAO1 61 529	PLATE SEAL	1	-
61	B61P 15 810A	BRACKET COMP	1	-
62	BP01 15 930	IDLE PULLEY SET	-	1
63	в63н 15 908	BELT V-RIB	-	1
64	в63н 15 909	BELT V-RIB	1	-
65	99796 0875	BOLT	1	-
66	99796 1020	BOLT	4	-
67	99796 1040	BOLT	_	3
[A]	COOLER SET SUB-KIT FOR	FOR P/S NAO1 YV S/S NAO1 YV	410 SK1	