

# A/C COMPRESSOR OIL CHECKING

## Article Text

1993 Honda Prelude

For Cadi Centre Nsk CA 95051

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### ARTICLE BEGINNING

#### 1993 GENERAL SERVICING

#### Compressor Refrigerant Oil Checking

**\* PLEASE READ THIS FIRST \***

**NOTE:** For compressor applications, see COMPRESSOR APPLICATIONS TABLE below. DO NOT exceed A/C system refrigerant oil capacity, when servicing system. See REFRIGERANT OIL & REFRIGERANT SPECIFICATIONS TABLE.

### COMPRESSOR APPLICATION

**NOTE:** Due to late changes, always refer to underhood A/C specification label in engine compartment or A/C compressor label while servicing A/C system. If A/C Specification label and specifications in this article differ, always use label specifications.

#### COMPRESSOR APPLICATION TABLE

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Application Compressor

Acura ..... Nippondenso 10-Cyl.

Audi

90 ..... Zexel 6-Cyl.

100 ..... Zexel 6-Cyl.

BMW ..... Nippondenso  
Or Seiko-Seiki

Chrysler Motors/Eagle

Colt & Summit ..... Sanden FX105V Scroll

Colt Vista & Summit Wagon ..... Nippondenso 10PA15 10-Cyl.

Stealth ..... Sanden FX105VS Scroll

Ram-50 ..... Sanden FX80 Scroll

Ford Motor Co.

Capri ..... Nippondenso 10-Cyl.

Festiva ..... Nippondenso 6-Cyl.

General Motors & Geo

LeMans ..... Harrison V5 5-Cyl.

Metro & Tracker ..... Nippondenso 10-Cyl.

Prizm ..... Nippondenso 10PA15 10-Cyl.

Storm ..... Diesel Kiki KC-50 Rotary Vane

Honda

Accord ..... Nippondenso 10-Cyl.

Or Hadsys RC-17S 7-Cyl.

Civic ..... Sanden Scroll

Civic Del Sol	.....	Sanden Scroll
Prelude	.....	Sanden Scroll
Hyundai		
Elantra	.....	Sanden TRF-090 Scroll
Excel	.....	Sanden SD-709 7-Cyl.
Scoupe	.....	Nippondenso 10PA15C 10-Cyl.
Sonata	.....	Ford FX-15 10-Cyl.
Infiniti		
G20	.....	Atsugi NVR 140S Rotary Vane
J30	.....	Calsonic V6 6-Cyl.
Q45	.....	Calsonic V5 5-Cyl.
Isuzu (R-12)		
Amigo	.....	Diesel Kiki DKS-13CH 6-Cyl.
Pickup		
4-Cylinder	.....	Diesel Kiki DKS-13CH 6-Cyl.
V6	.....	Harrison R4 4-Cyl. Radial
Stylus	.....	Diesel Kiki DKV-14D Rotary Vane
Rodeo		
4-Cylinder	.....	Diesel Kiki DKS-17CH 6-Cyl.
V6	.....	Diesel Kiki DKV-14D Rotary Vane
Trooper	.....	Diesel Kiki DKV-14D Rotary Vane
Isuzu (R-134a Option) (1)		
Amigo, Pickup, Rodeo & Trooper		
2.3L & 2.6L Engine	.....	Zexel R-134a 6-Cyl.
3.1L Engine	.....	Harrison R-134a R-4 4-Cyl. Radial
3.2L Engine	.....	Zexel R-134a Rotary Vane
Jaguar		
XJS	.....	Sanden SD-709 7-Cyl.
XJ6	.....	Sanden SD-7H15 7-Cyl.
Lexus	.....	Nippondenso 10PA20 10-Cyl.
Mazda		
B2200 & B2600i	.....	Sanden 5-Cyl.
Miata	.....	Nippondenso TV12 Rotary Vane
MPV	.....	Nippondenso 10-Cyl.
MX-6 & 626	.....	Panasonic Rotary Vane
Navajo	.....	Ford FX-15 10-Cyl.
MX-3, Protege & 323	.....	Panasonic Rotary Vane
929	.....	Panasonic Rotary Vane
RX7	.....	Nippondenso TV12 Rotary Vane
Mercedes-Benz		
190E	.....	Nippondenso 10PA15 10-Cyl.
300D/E, 400E & 500E	.....	Nippondenso 10PA17 10-Cyl.
300SE/SD, 400SE & 500SEL	.....	Nippondenso 10PA20 10-Cyl.
Mitsubishi		
Diamante		
R-12	.....	Sanden FX105VS Scroll
R-134a	.....	Sanden MSC105
Diamante Wagon	.....	Nippondenso 10PA17C 10-Cyl.

Galant & Mirage .....	Sanden FX105V Scroll
Eclipse .....	Nippondenso 10PA17 10-Cyl.
Expo/Expo LRV .....	Nippondenso 10PA17C 10-Cyl.
Pickup .....	Sanden FX80 Scroll
Montero .....	Nippondenso 10PA15 10-Cyl.
Precis .....	Sanden SD-709 7-Cyl.
3000GT	
R-12 .....	Sanden FX105VS Scroll
R-134a .....	Sanden MSC105
Nissan	
Altima .....	Zexel DKV-14C Rotary Vane
Maxima & 300ZX .....	Zexel DKS-16H 6-Cyl.
Quest .....	Ford FX-15 10-Cyl.
Pathfinder & Pickup .....	Zexel DKV-14C Rotary Vane
Sentra & NX .....	Zexel DKV-14D Rotary Vane
240SX .....	Calsonic V5 5-Cyl.
Porsche	
911 America Roadster,	
RS America & Carrera 2/4 .....	Nippondenso 10-Cyl.
Saab	
900 .....	Sanden 5-Cyl.
9000 .....	Seiko-Seiki SS121 DN1 Rotary Vane
Subaru	
Impreza .....	Zexel Rotary Vane
Legacy .....	Zexel DKS-15CH 5-Cyl.
	Calsonic V5-15C 5-Cyl.
Loyale .....	Hitachi MJS170-5DP 6-Cyl.
SVX .....	Calsonic V5 5-Cyl.
Suzuki .....	Nippondenso 10-Cyl.
Toyota	
Camry .....	Nippondenso 10PA17C 10-Cyl.
Celica	
4A-FE Engine .....	Nippondenso 10PA15C 10-Cyl.
3S-GTE & 5S-FE Engine .....	Nippondenso 10PA17C/VC 10-Cyl.
Corolla .....	Nippondenso 10PA15 10-Cyl.
Land Cruiser .....	Nippondenso 10PA17 10-Cyl.
MR2 .....	Nippondenso 10P13C 10-Cyl.
Paseo .....	Matsushita Rotary Vane
Pickup & 4Runner .....	Nippondenso 10-Cyl.
Previa .....	Nippondenso 10PA17E 10-Cyl.
Supra .....	Nippondenso 10-Cyl.
Tercel .....	Matsushita TV10B Rotary Vane
T100 .....	Nippondenso 10PA15 10-Cyl.
Volkswagen	
Cabriolet .....	Sanden SD-508 5-Cyl.
	Or SD-709 7-Cyl.
Corrado SLC .....	Sanden SD-709 7-Cyl.
EuroVan .....	Sanden SD7H15 7-Cyl.

Golf, GTI & Jetta .....	Sanden SD7-V16/SD7-V16L 7-Cyl.
Fox .....	Nippondenso 6-Cyl.
Passat .....	Sanden SD7-V16/SD7-V16L 7-Cyl.
Volvo	
240 .....	Seiko-Seiki SS-121DS5
850 .....	Zexel DKS-15CH 6-Cyl.
940 & 960 .....	Sanden SD-510 5-Cyl., Sanden SD-709 7-Cyl. Or Seiko-Seiki SS-121DS5

(1) - Standard equipment on some models built after 5/1/93.

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#### REFRIGERANT OIL & REFRIGERANT CAPACITY

REFRIGERANT OIL & REFRIGERANT CAPACITY (ACURA THROUGH INFINITI)

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Application	(1) Oil Ounces	Refrigerant Ounces
Acura		
Integra .....	(2) 2.0-3.4 .....	32-34
Legend		
Sedan .....	(2) (3) 4.7 ....	(4) 24.7-26.5
Coupe .....	(3) 4.7 .....	24.7-26.5
Vigor .....	(2) 4.7-4.9 .....	26.5-28.0
Audi		
90 .....	7.8-9.2 .....	5) 23.0-24.8
100 .....	7.8-9.2 .....	5) 21.0-22.8
BMW		
318 & 325 Series .....	3.4-4.8 .....	6) 35-36
525i & 535i .....	4.7-6.1 .....	6) 53.0-55.5
740i & 740iL .....	4.7-6.1 .....	6) 53.0-55.5
Chrysler Motors/Eagle		
Colt & Summit .....	(2) 4.4-5.1 .....	26-30
Colt Vista & Summit		
Wagon .....	(2) 2.0-3.4 .....	30
Ram-50 .....	(2) 4.4-5.1 .....	30
Stealth .....	(2) 4.6-6.0 .....	29
Ford Motor Co.		
Capri .....	2.4-3.0 .....	23-27
Festiva .....	10 .....	25
General Motors & Geo		
LeMans .....	8.0 .....	35
Metro .....	2.7 .....	18
Prizm & Prizm LSi .....	6.0 .....	25
Storm .....	5.1 .....	21

Tracker .....	2.7 .....	21
Honda		
Accord		
Nippondenso .....	3.0-4.1 .....	28-30
Hadsys .....	4.1-4.3 .....	28-30
Civic .....	4.0-4.7 .....	21-23
Civic Del Sol .....	4.0-4.7 .....	21-23
Prelude .....	(7) 4.3-5.0 .....	21-23
Hyundai		
Excel .....	8.1 .....	30-32
Scoupe .....	2-3 .....	28-32
Elantra .....	4.0 .....	32
Sonata .....	6.9-7.7 .....	30-32
Infiniti		
G20 .....	6.8 .....	24-29
J30 .....	8.5 .....	8) 24-26
Q45 .....	9.7 .....	38-42

(1) - Total system capacity, unless otherwise noted.

(2) - Compressor refrigerant oil capacity.

(3) - Capacity revised by manufacturer in Acura Service News bulletin number ASN 0793-02.

(4) - Use R-134a refrigerant and ND-Oil 8 (Part No. 38899-PR7-003).

(5) - Use R-134a refrigerant and Polyalkylene Glycol (PAG) oil.

(6) - Use R-134a and Polyalkylene Glycol Oil (Part No. 81-22-9-407-724).

(7) - Use R-134a refrigerant and PAG Refrigerant Oil (Part No. 38899-P13-003).

(8) - Use R-134a refrigerant and Type "S" Oil (Part No. KLH00-PAGS0).

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# REFRIGERANT OIL & REFRIGERANT CAPACITY (ISUZU THROUGH MERCEDES)

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Application	(1) Oil Ounces	Refrigerant Ounces
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## Isuzu (R-12)

Amigo .....	5.0 .....	26
Pickup		
2.3L & 2.6L Engine .....	5.0 .....	26
3.1L Engine .....	6.0 .....	26
Rodeo		
2.6L Engine .....	5.0 .....	26
3.2L Engine .....	5.0 .....	26
Stylus .....	5.0 .....	21
Trooper .....	5.0 .....	30

A/C COMPRESSOR

Isuzu (R-134a Option) (3)

Amigo & Pickup

2.3L & 2.6L Engine	5.0	23
3.1L Engine	7.5-8.5	23
Rodeo	5.0	23
Trooper	5.0	26

Jaguar

XJS	Q) 4.6	40
XJ6	Q) 4.5	(4) 40

Lexus

ES300	Q) 3.5	32-35
GS300	Q) 4.0	(5) 28-32
LS400	Q) 2.8-3.5	(5) 32
SC300 & SC400	Q) 4.0	32-35

Mazda

B2200 & B2600i	Q) 4.5	28
Miata	Q) 2.7-3.3	28
MPV		
Dual Unit	Q) 2.7-3.3	51
Single Unit	Q) 2.7-3.3	37
MX-3	Q) 5.0	28
MX-6 & 626	Q) 4.3	26
Protege & 323	Q) 3.9-4.6	28
Navajo	7.0	28-29
929	3.6	28
RX7	3.4-4.7	21

Mercedes-Benz

190E	Q) 4.0	36
300D/E, 400E & 500E	Q) 5.4	(6) 36
300SE/SD, 400SE		
& 500SEL	Q) 5.4	(7) 43

- (1) - Total system capacity, unless otherwise noted.
- (2) - Compressor refrigerant oil capacity.
- (3) - Standard equipment on some models built after 5/1/93.  
Use R-134a Swash Plate Compressor Oil (Part No. 2-90188-300-0) on 2.3L and 2.6L engine. Use R-134a R-4 Compressor Oil (Part No. 2-90222-320-0) on 3.1L engine. Use R-134a Rotary Vane Compressor Oil (Part No. 2-90188-301-0) on 3.2L engine.
- (4) - Use R-134a refrigerant and PAG SP20 refrigerant oil.
- (5) - Use R-134a refrigerant and ND-Oil 8 (Part No. 38899-PR7-003).
- (6) - Use R-134a refrigerant and Densooil 8 (Part No. A 001 989 08 03).
- (7) - Use R-134a refrigerant and Densooil 8 (Part No. A 001 989 08 03). Use 50 ounces if equipped with rear passenger compartment A/C-heater system.

A/C COMPRESSOR

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REFRIGERANT OIL & REFRIGERANT CAPACITY (MITSUBISHI THRU SUBARU)  
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Application	(1) Oil Ounces	Refrigerant Ounces
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Mitsubishi

Diamante

R-12 .....	5.4-6.0 .....	34-38
R-134a .....	(3) 5.7-6.4 .....	26-28
Diamante Wagon .....	5.4 .....	28
Eclipse .....	(2) 2.0-3.4 .....	33
Expo/Expo LRV		
1.8L .....	(2) 3.4-4.0 .....	30
2.4L .....	(2) 2.0-3.4 .....	30
Galant .....	(2) 5.0-5.7 .....	33
Mirage .....	(2) 4.4-5.1 .....	26-30
Pickup .....	(2) 4.4-5.1 .....	30
Montero .....	(2) 2.0-3.4 .....	28
Precis .....	8.1 .....	30-32
3000GT		

R-12 .....	4.7-6.0 .....	29
R-134a .....	(3) 4.7-6.0 .....	26-28

Nissan

Altima .....	(4) 6.8 .....	25-28
Maxima .....	(5) 6.8 .....	30-33
Pathfinder & Pickup .....	(4) 6.8 .....	26-30
Quest		
Front A/C .....	7.0 .....	36
Front & Rear A/C .....	10 .....	56
Sentra & NX .....	6.8 .....	23-26
240SX .....	8.0 .....	29-32
300ZX .....	6.8 .....	26-30

Porsche

911 America Roadster, RS

America & Carrera 2/4 .....	4.6 .....	(6) 29.5
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Saab

900 .....	5.9 .....	34-36
9000 .....	6.6 .....	(3) 33-34

Subaru

Impreza .....	6.1 .....	23-26
Legacy		
Zexel .....	(2) 2.4 .....	29-32
Calsonic .....	(2) 3.2 .....	29-32
Loyale .....	(2) 2.4 .....	26-28
SVX .....	(2) 2.4 .....	(7) 22-23

- (1) - Total system capacity, unless otherwise noted.
- (2) - Compressor refrigerant oil capacity.
- (3) - Use SUN PAG 56 refrigerant oil.
- (4) - Use R-134a refrigerant and Type "R" Oil (Part No. KLH00-PAGR0).
- (5) - Use R-134a refrigerant and Type "S" Oil (Part No. KLH00-PAGS0).
- (6) - Use R-134a refrigerant and Nippondenso ND8 refrigerant oil.
- (7) - Use R-134a refrigerant and ZXL100 PG (DH-PS) Type "S" Oil (Part No. K0010PS000).

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# REFRIGERANT OIL & REFRIGERANT CAPACITY (SUZUKI THROUGH VOLVO)

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Application	(1) Oil Ounces	Refrigerant Ounces
<b>Suzuki</b>		
Samurai .....	2.0-3.4	18
Sidekick .....	2.0-3.4	21-23
Swift .....	2.0-3.4	18
<b>Toyota</b>		
Camry .....	(2) 3.5	32-35
Celica .....	3.4-4.1	24-27
Corolla .....	3.4-4.1	25-28
Land Cruiser .....	3.4-4.1	30-34
MR2 .....	3.4-4.1	28-32
Paseo .....	3.4-4.1	25-28
Pickup .....	3.4-4.1	24-29
Previa		
Without Rear A/C .....	3.4-4.7	32-35
With Rear A/C .....	3.4-4.7	41-44
Supra .....	(2) 4.1	(3) 23-27
Tercel .....	3.4-4.1	25-28
T100 .....	3.4-4.1	(3) 21-25
4Runner .....	3.4-4.1	27-30
<b>Volkswagen</b>		
Cabriolet .....	4.6	30.0-31.8
Corrado SLC .....	3.9-4.4	35.0-36.8
EuroVan		
Without Rear A/C .....	4.6	(4) 34-35
With Rear A/C .....	8.2	(4) 48-49
Fox .....	5.7	41-42
Golf, GTI & Jetta .....	3.9	(4) 28-30
Passat .....	3.9-4.4	(4) 41.0-42.8
<b>Volvo</b>		
240 .....	7.4	(5) 26



Cold Climates .....	7.0 .....	5) 29
Hot Climates .....	7.0 .....	5) 26
940 & 960		
Sanden SD-510 .....	4.8 .....	6) 32-34
Sanden SD-709 .....	8.5 .....	6) 32-34
Seiko-Seiki .....	7.8 .....	6) 32-34

- (1) - Total system capacity, unless otherwise noted.
  - (2) - Compressor refrigerant oil capacity.
  - (3) - Use R-134a refrigerant and ND-Oil 8 (Part No. 38899-PR7-003).
  - (4) - Use R-134a refrigerant and SP-10 PAG Oil (Part No. G 052 154 A2).
  - (5) - Use R-134a refrigerant and ZXL 100 PG Oil (Part No. 8708581-7).
  - (6) - Use R-134a refrigerant and PAG Oil (Part No. 8708581-9).
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**REFRIGERANT OIL**

Only NEW, moisture-free refrigerant oil should be used in the air conditioning system. This oil is highly refined and dehydrated so moisture content is less than 10 parts per million. The oil container must be tightly closed at all times when not in use, or moisture from the air will be absorbed into the refrigerant oil.

**SERVICING PRECAUTIONS**

**DISCHARGING SYSTEM**

Discharge A/C system using approved refrigerant recovery/recycling equipment. Always follow recovery/recycling equipment manufacturer's instructions. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.

**DISCONNECTING LINES & FITTINGS**

After system is discharged, carefully clean area around all fittings to be opened. Always use 2 wrenches when tightening or loosening fittings. Some refrigerant lines are connected with a coupling. Special tools may be required to disconnect lines. Cap or plug all openings as soon as lines are removed. DO NOT remove caps until connections of lines and fittings are completed.

**CONNECTING LINES & FITTINGS**

NOTE: All R-134a based systems use 1/2-16 ACME threaded fittings. Ensure all replacement parts match the connections of the system being worked on.

Always use a new gasket or "O" ring when connecting lines or fittings. Coat "O" ring with refrigerant oil and ensure it is not twisted during installation. Always use 2 wrenches to prevent damage to lines and fittings.

#### PLACING SYSTEM IN OPERATION

After component service or replacement has been completed and all connections have been made, evacuate system thoroughly with a vacuum pump. Charge system with proper amount of refrigerant and perform leak test. See REFRIGERANT OIL & REFRIGERANT SPECIFICATIONS article in GENERAL SERVICING for system capacities. Check all fittings that have been opened. After system has been leak tested, check system performance.

NOTE: Most compressors are pre-charged with a fixed amount of refrigerant (shipping) oil. Drain compressor oil from new compressor and add refrigerant oil to new compressor according to amount removed from old compressor. Always refer to underhood A/C specification label or A/C compressor label while servicing A/C system.

#### ATSUGI

##### ROTARY VANE

1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain compressor oil through compressor discharge port and measure oil amount.

3) If amount drained is less than 3 ounces, conduct leak tests at system connections. Repair or replace faulty parts as necessary. Check purity of oil and adjust oil level as follows.

4) If amount drained is 3 ounces or more, oil level is okay. Fill with same amount drained, using new oil. If amount drained is less than 3 ounces, pour in 3 ounces of new refrigerant oil.

COMPONENT REFRIGERANT OIL CAPACITIES (ATSUGI ROTARY VANE)  
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Component Ounces

Condenser .....	1.0-1.7
Evaporator .....	1.5-2.5
Receiver-Drier .....	0.5-0.8
Refrigerant Lines (1) .....	1.0-1.7

(1) - Add only if a refrigerant oil leak is indicated.  
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**BOSCH**

**6-CYLINDER**

- 1) Before checking and adjusting oil level, operate compressor at engine idle speed, and set controls at maximum cooling and high blower motor speed for 20-30 minutes to return oil to compressor.
- 2) Stop engine and discharge refrigerant. See SERVICING PRECAUTIONS. Remove refrigerant oil level inspection plug on side of compressor. Oil should be at lower lip of threaded hole. If oil level is low, add new refrigerant oil as necessary. Replace inspection plug and tighten to 10-12 ft. lbs. (14-16 N.m).

**CALSONIC**

**V5 5-CYLINDER & V6 6-CYLINDER**

**Infiniti & Nissan**

- 1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.
- 2) Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Measure the amount of oil drained/discharged into refrigerant recovery/recycling equipment.
- 3) Remove compressor from vehicle. Drain compressor oil from compressor drain plug and measure oil amount. Add this amount to amount drained in step 2), to obtain total amount drained.
- 4) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See appropriate COMPONENT REFRIGERANT OIL CAPACITIES table for specified amount.

COMPONENT REFRIGERANT OIL CAPACITIES (CALSONIC V5)

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Component	Ounces
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Receiver-Drier .....	0.5-0.8
Refrigerant Lines (1) .....	1.0-1.7

(1) - Add only if a refrigerant oil leak is indicated.

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#### COMPONENT REFRIGERANT OIL CAPACITIES (CALSONIC V6)

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Component	Ounces
Condenser .....	2.5
Evaporator .....	2.5
Receiver-Drier .....	0.2
Refrigerant Lines (1) .....	1.0

(1) - Add only if a refrigerant oil leak is indicated.

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#### Subaru

1) Before checking and adjusting oil level, operate engine at 1000-1500 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain compressor oil from compressor drain plug and measure oil amount.

3) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See appropriate SUBARU COMPONENT REFRIGERANT OIL CAPACITIES table for specified amount.

#### SUBARU COMPONENT REFRIGERANT OIL CAPACITIES (LEGACY)

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Component	Ounces
Compressor .....	2.4
Condenser .....	1.7
Evaporator .....	2.4
Refrigerant Lines (1) .....	1.7

(1) - Add only if a refrigerant oil leak is indicated.

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#### SUBARU COMPONENT REFRIGERANT OIL CAPACITIES (SVX)

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Component	Ounces
Compressor .....	2.4
Condenser .....	1.7

A/C COMPRESSOR (

Evaporator .....	2.4
Refrigerant Lines (1) .....	1.7

(1) - Add only if a refrigerant oil leak is indicated.  
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DIESEL KIKI

ROTARY VANE

- 1) Before checking and adjusting oil level, operate engine at 800-1000 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.
- 2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and measure amount of oil drained.
- 3) If amount drained is less than 3 ounces (1.7 ounces on Geo Storm), conduct leak tests at system connections. Repair or replace faulty parts as necessary.
- 4) If amount drained is more 3 ounces (1.7 ounces on Geo Storm), oil level is okay. Fill compressor with same amount drained, using new oil. If amount drained is less than 3 ounces (1.7 ounces on Geo Storm), pour in 3 (1.7) ounces of new refrigerant oil.
- 5) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI ROTARY VANE) table.

COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI ROTARY VANE)

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Component	Ounces
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Condenser .....	1.7
Evaporator .....	1.0
Receiver-Drier .....	1.0
Refrigerant Lines .....	0.3

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5 & 6-CYLINDER

- 1) Before checking and adjusting oil level, operate engine at 800-1000 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.
- 2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and measure amount of oil drained.
- 3) If amount drained is less than 3 ounces, conduct leak tests at system connections. Repair or replace faulty parts as

A/C COMPRESSOR (

necessary.

4) If amount drained is more 3 ounces, oil level is okay. Fill compressor with same amount drained, using new oil.

5) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI 5 & 6-CYLINDER) table.

COMPONENT REFRIGERANT OIL CAPACITIES (DIESEL KIKI 5 & 6-CYLINDER)	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Component	Ounces
Condenser .....	1.0
Evaporator .....	1.7
Receiver-Drier .....	1.0
Refrigerant Lines .....	0.3
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

FORD

FX-15 10-CYLINDER

1) Slowly discharge system. See SERVICING PRECAUTIONS. Remove A/C compressor. Drain compressor oil from suction and discharge ports. Measure amount drained and discard oil.

2) If amount drained from removed (old) compressor is between 3 and 5 ounces, add drained amount of new refrigerant oil into the NEW compressor through suction port.

3) If amount drained is less than 3 ounces, add 3 ounces to the NEW compressor. If amount drained is more than 5 ounces, add 5 ounces. Use new "O" rings on refrigerant lines. Install A/C compressor. Evacuate and recharge system. Perform leak test.

4) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (FX-15 10-CYLINDER) table.

COMPONENT REFRIGERANT OIL CAPACITIES (FX-15 10-CYLINDER)	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Component	Ounces
Condenser .....	1.0
Evaporator .....	3.0
Receiver-Drier .....	1) 2.0
Refrigerant Lines .....	2) 1.0

(1) - On Hyundai Sonata and Mazda Navajo, drain oil from old receiver-drier. Add amount drained to amount specified.

(2) - Add only if a large oil leak is indicated. A/C COMPRESSO

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## HADSYS

### 7-CYLINDER

Honda (Accord)

1) Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain all oil from NEW compressor and fill compressor with 4 ounces of clean refrigerant oil.

2) Add one ounce of refrigerant oil when replacing evaporator. Add 1/2 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

## HARRISON

### R4 4-CYLINDER

1) Before checking and adjusting oil level, operate engine at 800-1000 RPM. Set controls at maximum cooling and high blower motor speed for 20 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and measure amount of oil drained.

3) If amount drained is less than one ounce, conduct leak tests at system connections. Repair or replace faulty parts as necessary. Fill compressor with 2 ounces, using new refrigerant oil.

4) If amount drained is more one ounce, oil level is okay. Fill compressor with same amount drained, using new oil.

5) When replacing other A/C system components, add the following amount(s) of refrigerant oil. See COMPONENT REFRIGERANT OIL CAPACITIES (HARRISON R4 4-CYLINDER) table.

#### COMPONENT REFRIGERANT OIL CAPACITIES (HARRISON R4 4-CYLINDER)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

Component	Ounces
Condenser .....	1.0
Evaporator .....	1.7
Receiver-Drier .....	1.0
Refrigerant Lines .....	0.3

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

### V5 5-CYLINDER

1) If system is operable, run A/C system for several minutes to stabilize system. Turn off engine. Discharge system and remove

A/C COMPRESSOR OIL CHECKING

compressor. See SERVICING PRECAUTIONS. Remove drain plug and measure oil.

2) If one ounce or more is drained, add same amount. If less than one ounce is drained, add 2 ounces of new refrigerant oil to compressor.

3) If condenser is replaced, add one ounce. Add 3.5 ounces if accumulator is replaced. If evaporator is replaced or if a large refrigerant leak occurred, add 3 ounces of new refrigerant oil.

## HITACHI

### 6-CYLINDER

1) Before checking and adjusting oil level, operate compressor at 1000-1500 engine RPM, and set controls at maximum cooling and high blower motor speed for about 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain oil from compressor through suction port. Measure amount of oil drained.

3) If amount drained is 2.4 ounces or more, fill with same amount using new oil. If amount drained is less than 2.4 ounces, fill with 2.4 ounces. Install compressor and recharge.

4) If A/C components are replaced, add refrigerant oil to system. Add 1.7 ounces if condenser is replaced. Add 2.4 ounces if evaporator is replaced. Oil does not need to be added if receiver-drier is replaced. Add 1.7 ounces of refrigerant oil only if a refrigerant oil leak is indicated.

## MATSUSHITA

### ROTARY VANE

#### Geo (Prizm)

1) If system is operable, run A/C system for several minutes to stabilize system. Turn off engine. Discharge system and remove compressor. See SERVICING PRECAUTIONS. Remove drain plug and measure oil.

2) If one ounce or more is drained, add same amount. If less than one ounce is drained, add 2 ounces of new refrigerant oil to compressor.

3) If condenser is replaced, add one ounce. Add 3.5 ounces if receiver-drier is replaced. If evaporator is replaced or if a large refrigerant leak occurred, add 3 ounces of new refrigerant oil.

#### Toyota

Discharge system. See SERVICING PRECAUTIONS. Remove **A/C COMPRESSOR**



compressor from vehicle. Drain oil from compressor through inlet and outlet ports. Fill compressor with 3.4-4.1 ounces of oil through suction port. Add 0.7 ounces if receiver-drier was replaced. When replacing condenser or evaporator, add 1.4-1.7 ounces of refrigerant oil.

## NIPPONDENSO

### ROTARY VANE

1) Before checking and adjusting oil level, operate compressor at engine idle speed, and set controls at maximum cooling and high blower motor speed for 20-30 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Drain compressor oil through compressor intake and discharge ports. Measure amount drained.

3) Fill compressor with same amount as drained, plus one ounce. When replacing condenser, add one ounce. When replacing evaporator, add 1 1/2 ounces. When replacing receiver-drier, add 1/3 ounce of new refrigerant oil.

### 6 & 10-CYLINDER

NOTE: Porsche and Suzuki compressor oil checking procedures are not available from manufacturer.

#### Acura & Honda

1) Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain all oil from NEW compressor and fill compressor with 3-4 ounces of clean refrigerant oil.

2) On Accord, add 5/6 ounce of refrigerant oil when replacing evaporator. Add 1/3 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

3) On Legend, add 2 ounces of refrigerant oil when replacing evaporator. Add one ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

4) On Integra, add one ounce of refrigerant oil when replacing evaporator. When replacing condenser, receiver-drier or hoses, add 1/3 ounce per component replaced.

5) On Vigor, add 1/2 ounce of refrigerant oil when replacing evaporator. Add 2/3 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

#### Chrysler Corp. (Colt Vista/Summit Wagon)

Add 2 ounces of refrigerant oil when replacing evaporator. Add one ounce when replacing condenser. When replacing receiver-drier

A/C COMPRESSOR (

or hoses, add 1/3 ounce per component replaced.

#### Ford Motor Co.

On Capri, add 2-3 ounces when replacing compressor. Add one ounce of refrigerant oil when replacing condenser or evaporator. When replacing receiver-drier, add 1/2 ounce. On Festiva, drain and measure oil from receiver-drier. Add the amount drained plus one ounce. Add one ounce when replacing condenser. Add 3 ounces of refrigerant oil when replacing evaporator.

#### Geo, Hyundai & Mazda

Add one ounce of refrigerant oil when replacing condenser. Add 1-1 1/2 ounce when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

#### Lexus & Toyota

The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system. Add 1 1/2 ounces of refrigerant oil when replacing condenser. Add 1 1/2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/2 ounce per component replaced.

#### Mercedes-Benz

Add 2/3 ounce of refrigerant oil when replacing condenser. Add 1 1/3 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced. If A/C system line has broken (sudden discharge), add 1 1/3 ounces of refrigerant oil.

NOTE: On Mercedes-Benz vehicles with rear A/C, add 2/3 ounce of refrigerant oil when replacing rear condenser. When replacing rear A/C lines, add 1/3 ounce per line replaced.

#### Mitsubishi

1) On Eclipse, add 2/3 ounce of refrigerant oil when replacing condenser. Add one ounce when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

2) On Expo/Expo LRV and Montero, add one ounce of refrigerant oil when replacing condenser. Add 2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

#### Volkswagen (Fox)

1) The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the A/C COM

amount of compressor oil removed must be measured and the same amount added to A/C system.

2) Add 1 1/2 ounce of refrigerant oil when replacing evaporator. When replacing condenser, add 1 1/3 ounce of refrigerant oil. Add one ounce of refrigerant oil when replacing receiver-drier (1 1/2 ounces if relief valve on receiver-drier has burst).

## PANASONIC

### ROTARY VANE

#### Mazda

Add 1 1/3 ounce of refrigerant oil when replacing condenser (1/2 ounce on MX-6 and 626). Add 2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce of refrigerant oil.

## SANDEN

### SCROLL

#### Chrysler/Mitsubishi

1) On Colt, Galant, Mirage, Pickup, Ram-50 and Summit, add 1/2 ounce of refrigerant oil when replacing condenser. Add 1 1/2 ounces when replacing evaporator. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

2) On Stealth and 3000GT, add 1/2 ounce of refrigerant oil when replacing condenser. Add 2 ounces when replacing evaporator. When replacing receiver-drier or low-pressure hose, add 1/3 ounce per component replaced.

#### Honda

1) Discharge system. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain all oil from NEW compressor and fill compressor with 4 ounces of clean refrigerant oil.

2) On Civic and Civic Del Sol, add 1 1/2 ounce of refrigerant oil when replacing evaporator. Add 2/3 ounce when replacing condenser. When replacing receiver-drier or hoses, add 1/3 ounce per component replaced.

3) On Prelude, add one ounce of refrigerant oil when replacing evaporator. When replacing other A/C components, add 1/3 ounce per component replaced (including hoses).

#### Hyundai

Add 1 1/2 ounces of refrigerant oil when replacing evaporator. Add one ounce when replacing condenser. When replacing receiver-drier, add 1/3 ounce of refrigerant oil.

## 5-CYLINDER

### Mazda

Add one ounce of refrigerant oil when replacing condenser. Add 1 2/3 ounce when replacing evaporator. When replacing receiver-drier, add 1/2 ounce of refrigerant oil.

NOTE: Saab and Volvo (Sanden 5 or 7-cylinder) compressor oil checking procedures are not available from manufacturer.

## 7-CYLINDER

### Hyundai & Mitsubishi (Excel & Precis)

1) Before checking and adjusting oil level, operate compressor at engine idle speed, and set controls at maximum cooling and high blower motor speed for 20-30 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant and remove compressor from vehicle. See SERVICING PRECAUTIONS. Remove oil drain plug and drain oil. Measure amount of oil drained. Install drain plug with new "O" ring.

3) If amount drained is 2.3 ounces or more, fill compressor with same amount using new oil. If amount drained is less than 2.3 ounces, fill with 2.3 ounces. Install filler plug. Install compressor and recharge system.

### COMPONENT REFRIGERANT OIL CAPACITIES (SANDEN 7-CYLINDER)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Component	Ounces
Condenser .....	1.0
Evaporator .....	3
Receiver-Drier .....	1
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	

### Jaguar (XJS)

1) Operate engine at idle speed for 10 minutes, to return refrigerant oil to compressor. Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Clean area around compressor filler plug and remove plug slowly.

2) Determine angle at which compressor is mounted. Insert compressor dipstick diagonally until stop on dipstick contacts filler plug surface. See Fig. 1. Remove dipstick and note oil fill level. Each increment on dipstick represents one ounce of oil.

3) Determine amount of oil needed according to mounting angle. See COMPRESSOR OIL CAPACITIES (JAGUAR XJS) table for specified amount.

A/C COMPRESSOR OIL CHECKING

4) If necessary, correct compressor oil level. Install compressor oil plug, and tighten it to 72-108 INCH lbs. (8-12 N.m). Evacuate and recharge A/C system. Perform leak test.

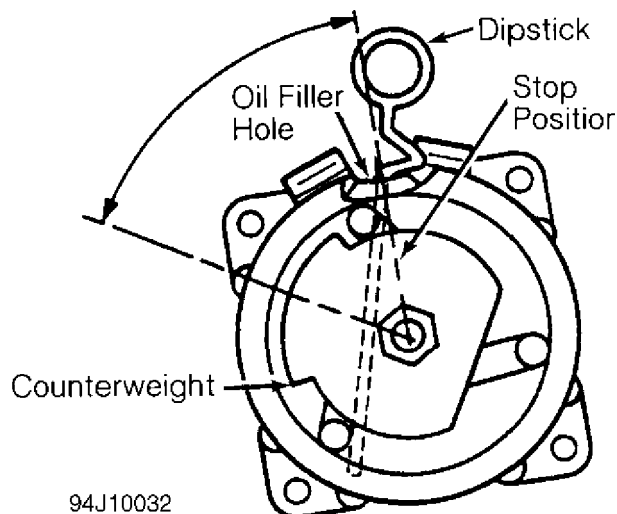


Fig. 1: Checking Jaguar XJS Compressor Oil Level (Sanden 7-Cylinder)  
Courtesy of Jaguar Cars, Inc.

COMPRESSOR OIL CAPACITIES (JAGUAR XJS)		
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		
Mounting Angle (In Degrees)	Oil Level In Increments	
0 .....	3-5	
10 .....	4-6	
20 .....	5-7	
30 .....	6-8	
40 .....	7-9	
50 .....	8-10	
60 .....	9-11	
90 .....	10-12	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		

Volkswagen

- 1) The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.
- 2) On Cabriolet, add 2/3 ounce of refrigerant oil when replacing evaporator. When replacing condenser or receiver-drier, add 1/3 ounce of refrigerant oil per component replaced.
- 3) On Corrado SLC, Golf, GTI, Jetta and Passat, add 2/3 ounce of refrigerant oil when replacing evaporator. When replacing condenser or receiver-drier, add 1/3 ounce of refrigerant oil per component replaced.

4) On EuroVan, add one ounce of refrigerant oil when replacing evaporator. Add 1/2 ounce when replacing condenser (2/3 ounce on vehicles with rear A/C). When replacing receiver-drier, add 1/3 ounce (2/3 ounce on vehicles with rear A/C).

## SEIKO-SEIKI

### ROTARY VANE

Saab (9000)

The A/C system is filled with 6.6 ounces of compressor oil. The compressor must be topped off with the specified amount. See COMPONENT REFRIGERANT OIL CAPACITIES (SEIKO-SEIKI ROTARY VANE) table. Topping off should be carried out on the high pressure side of the compressor.

#### COMPONENT REFRIGERANT OIL CAPACITIES (SEIKO-SEIKI ROTARY VANE)

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
Component Ounces

Compressor	..... 1) 2.3
Condenser	..... 1.3
Expansion Valve	..... 0.6
Evaporator	..... 1.3
Receiver-Drier	..... 1.3
Refrigerant Lines	..... 0.6

(1) - To avoid an excessive amount of oil in the A/C system, oil must be drained from the compressor before it is installed.

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

## ZEXEL

NOTE: Isuzu and Subaru compressor oil checking procedures are not available from manufacturer.

### ROTARY VANE

Nissan

1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Measure the amount of oil drained/discharged into refrigerant recovery/recycling equipment.

3) Remove compressor from vehicle. Drain compressor oil from compressor. A/C COMPRESSOR OIL CHECKING Article Text (p. 22) 1993 Honda Prelude For Cadi Centre N

amount drained in step 2), to obtain total amount drained.

4) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See COMPONENT REFRIGERANT OIL CAPACITIES (ZEXEL ROTARY VANE & 6-CYLINDER) table for specified amount.

COMPONENT REFRIGERANT OIL CAPACITIES (ZEXEL ROTARY VANE & 6-CYLINDER)	
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Component	Ounces
Condenser	
Altima & Maxima .....	2.5
NX, Pickup, Sentra & 300ZX .....	1.0-1.7
Evaporator	
Altima & Maxima .....	2.5
NX, Pickup, Sentra & 300ZX .....	1.5-2.5
Receiver-Drier	
Altima & Maxima .....	0.2
NX, Pickup, Sentra & 300ZX .....	0.5-0.8
Refrigerant Lines (1) .....	1.0

(1) - Add only if a refrigerant oil leak is indicated.

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6-CYLINDER

Audi

1) The use of refrigerant recovery/recycling is recommended by manufacturer. After refrigerant recovery process is completed, the amount of compressor oil removed must be measured and the same amount added to A/C system.

2) Add one ounce of refrigerant oil when replacing accumulator. When replacing condenser, add amount drained from condenser plus 1/3 ounce of refrigerant oil. When replacing evaporator, add amount drained from evaporator plus 2/3 ounce of refrigerant oil.

Nissan

1) Before checking and adjusting oil level, operate engine at 1200 RPM. Set controls at maximum cooling and high blower motor speed for 10 minutes to return oil to compressor.

2) Stop engine. Discharge refrigerant. See SERVICING PRECAUTIONS. Measure the amount of oil drained/discharged into refrigerant recovery/recycling equipment.

3) Remove compressor from vehicle. Drain compressor oil from compressor drain plug and measure oil amount. Add this amount to amount drained in step 2), to obtain total amount drained.

A/C COMPRES:

4) Fill compressor with total amount drained, using new oil. If any major components of the system were also replaced, determine the amount of additional oil needed. See COMPONENT REFRIGERANT OIL CAPACITIES (ZEXEL ROTARY VANE & 6-CYLINDER) table for specified amount.

Volvo (850)

1) Discharge refrigerant. See SERVICING PRECAUTIONS. Remove compressor from vehicle. Drain compressor oil from compressor drain plug and measure oil amount. Add the same amount of oil as was drained from the old compressor.

2) Add 1 2/3 ounce of refrigerant oil when replacing evaporator. When replacing condenser or hoses, add 2/3 ounce of refrigerant oil per component replaced. Add 3 ounce of refrigerant oil when replacing receiver-drier.

END OF ARTICLE