

UNIFORM INSPECTION & COMMUNICATION STANDARDS 2010 - 2011

Heating, Ventilation And Air Conditioning Systems

HEATING, VENTILATION & AIR CONDITIONING SYSTEMS

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The Automotive Maintenance and Repair Association (AMRA) and MAP do not warrant these materials or guarantee their accuracy, and AMRA and MAP assume no liability for errors.

MAP STANDARDS OF SERVICE

MAP developed standards of service for shops to follow in working with customers. Written from the point of view of customers, and for the use of maintenance and repair shops, the standards expand on the ideas and promises established in MAP's Pledge to Customer

I. Our recommendations are based upon the following definitions.

System Failure - Parts/system indicated are out of manufacturers' specifications, have failed or are unable to perform their normal function as intended or designed by the manufacturers. Service/replacement is required.

Preventive/Scheduled Maintenance - Parts/system are scheduled for service/ replacement per industry standards or are near the end of their useful life and repair/ replacement is recommended in advance of parts/system failure. Service/replacement is suggested.

Improved System Performance - Parts/ system indicated are recommended for repair/ replacement to enhance/improve the vehicle's ability to perform as intended or designed by the manufacturer, or as requested by the customer. Service/replacement is suggested.

II. Training/Criteria Our personnel have acquired auto repair expertise through formal education or work experience. Where appropriate, personnel are moving toward certification (e.g. vehicle manufacturer, ASE, etc.) for the services performed. Continuing education will be supported by all MAP participants.

III. Appropriate Company Approved Inspection

We will perform an appropriate inspection based on MAP Uniform Inspection & Communication Standards.

IV. Written Estimates

Written estimates based on our inspection, in compliance with state and local regulations, will include parts (dollar amount), labor (dollar amount), and the total estimate.

V. Work Authorization

No work will be performed without the customer's prior approval.

VI. Limited Warranty

A minimum limited warranty will be offered of 90 days or 4,000 miles, whichever comes first, covering parts and labor.

VII. Returned Parts

All customers will be entitled to the return of old parts, or if they choose, they may examine the parts prior to leaving the store. Where failed parts are required to be returned to the manufacturer in order to

honor the warranty, the customer will be allowed to examine the parts.

VIII. Classification of Parts

Replaced parts will be identified as new, remanufactured, rebuilt or used. MAP participants will inform the customer and indicate on the estimate and invoice whether a part is new, remanufactured, rebuilt or used.

THE MAP PROCESS - OVERVIEW

Repair Association, Inc. (AMRA). Participation in the Motorist Assurance Program comes from retailers, suppliers, independent repair facilities, vehicle manufacturers and industry associations.

Our organization's mission is to strengthen the relationship between the consumer and the auto repair industry. We produce materials that give motorists the information and encouragement to take greater responsibility for their vehicles-through proper, manufacturer / recommended maintenance. We encourage participating service and repair shops (including franchisees and dealers) to adopt (1) a Pledge of Assurance to their Customers and (2) the Motorist Assurance Program Standards of Service. All participating service providers have agreed to subscribe to this Pledge and to adhere to the promulgated Standards of Service demonstrating to their customers that they are serious about customer satisfaction.

These Standards of Service require that an inspection of the vehicle's (problem) system be made and the results communicated to the customer according to industry standards. Given that the industry did not have such standards, the Motorist Assurance Program successfully promulgated industry inspection communication standards in 1994-95 for the following systems: Exhaust, Brakes, ABS, Steering and Suspension, Engine Maintenance and Performance, HVAC, Electrical Systems, and Drive Train and Transmissions. Further, revisions to all of these inspection communication standards are continually re-published. Participating shops utilize these Uniform Inspection & Communication Standards as part of the inspection process and for communicating their findings to their customers.

The Motorist Assurance Program continues to work cooperatively and proactively with government agencies and consumer groups toward solutions that both benefit the customer and are mutually acceptable to both regulators and industry. We maintain the belief that industry must retain control over how we conduct our business, and we must be viewed as part of the solution and not part of the problem. Meetings with state and other government officials (and their representatives), concerned with auto repair and/or consumer protection, are conducted. Feedback from these sessions is brought back to the association, and the program adjusted as needed.

We welcome you to join us as we continue our outreach... with your support, both the automotive repair industry and your customers will reap the benefits. Please visit MAP at our Internet site www.motorist.org or contact us at:

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THE MAP PROCESS - OVERVIEW OF SERVICE REQUIREMENTS AND SUGGESTIONS

It is MAP policy that all exhaust, brake, steering, suspension, wheel alignment, drive-train, engine performance and maintenance, and heating, ventilation and air conditioning, and electrical services be offered and performed under the standards and procedures specified in these sections.

Before any service is performed on a vehicle, an inspection of the appropriate system must be performed. The results of this inspection must be explained to the customer and documented on an inspection form. The condition of the vehicle and its components will indicate what services/part replacements may be "Required" or "Suggested". In addition, suggestions may be made to satisfy the requests expressed by the customer.

When a component is suggested or required to be repaired or replaced, the decision to repair or replace must be made in the customer's best interest, and at his or her choice given the options available.

This section lists the various parts and conditions that indicate a required or suggested service or part replacement. Although this list is extensive, it is not fully inclusive. In addition to this list, a technician may make a suggestion. However, any suggestions must be based on substantial and informed experience or the vehicle manufacturer's recommended service interval and must be documented. However, any suggestions must be documented and must be based on substantial and informed experience or the vehicle manufacturer's recommended service interval. NOTE: Vehicle manufacturer service intervals are often categorized as either Normal or Severe. Frequently, motorists are unaware that their driving patterns and habits meet the criteria for following Severe Service schedules. Severe Service is generally defined as, but not limited to one or more of the following conditions: Driving in stop-and-go traffic; frequent short trips; high-speed driving; extreme temperatures; towing or hauling.

Some conditions indicate that service or part replacement is required because the part in question is no longer providing the function for which it is intended, does not meet a vehicle manufacturer's design specification or is missing.

- **Example:** An exhaust pipe has corroded severely and has a hole in it through which exhaust gases are leaking. Replacement of the exhaust pipe in this case is required due to functional failure.
- **Example:** A brake rotor has been worn to the point where it measures less than the vehicle manufacturer's discard specifications. Replacement of the rotor is required because it does not meet design specifications.

Some conditions indicate that a service or part replacement is suggested because the part is close to the end of its useful life or addresses a customer's need, convenience or request. If a customer's vehicle has one of these conditions, the procedure may be only to suggest service.

- **Example:** An exhaust pipe is rusted, corroded or weak, but no leaks are present. In this case, the exhaust pipe has not failed. However, there is evidence that the pipe may need replacement in the near future. Replacement of the pipe may be suggested for the customer's convenience in avoiding a future problem.
- **Example:** The customer desires improved ride and/or handling, but the vehicle's shocks or struts have not failed. In this case, replacement may be suggested to satisfy the customer's wishes. In this case, replacement of the shocks or struts may not be sold as a requirement.

A customer, of course, has the choice of whether or not a shop will service his or her vehicle. He or she may decide not to follow some of your suggestions. When a repair is required, a MAP shop must refuse partial service on that system if, in the judgment of the service provider, proceeding with the work could create or continue an unsafe condition. When a procedure states that required or suggested repair or replacement is recommended, the customer must be informed of the generally acceptable repair/replacement options whether or not performed by the shop.

The following reasons may be used for required and suggested services. These codes are shown in the "Code" column of the MAP Uniform Inspection & Communications Standards that follow:

Reasons to Require Repair or Replacement	Reasons to Suggest Repair or Replacement
A. Part no longer performs intended purpose B. Part does not meet a design specification (regardless of performance) C. Part is missing	1. Part is close to the end of its useful life B - Part does not meet a design specification (regardless of performance) (just above discard specifications, or weak; failure likely to occur soon, etc.) 2. To address a customer need, convenience, or request (to stiffen ride, enhance performance, eliminate noise, etc.) 3. To comply with maintenance recommended by the vehicle's Original Equipment Manufacturer (OEM) 4. Technician's recommendation based on substantial and informed experience 5. To comply with maintenance recommended by AMRA / MAP

NOTE:

When a repair is required, the shop must refuse partial service to the system in question, if the repair creates or continues an unsafe condition.

NOTE:

Suggested services are *always* optional. When presenting suggested repairs to the customer, you must present the facts, allowing the customer to draw their own conclusions and make an informed decision about how to proceed.

HEATING, VENTILATION & AIR CONDITIONING SYSTEM CHECKSHEET

Click to show one page at a time



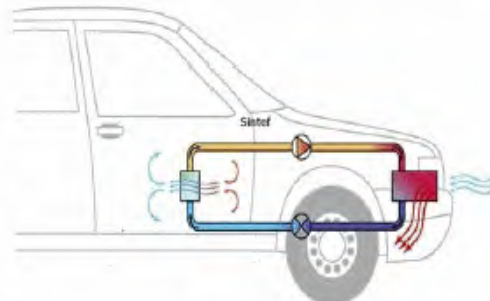
HEATING, VENTILATION & AIR CONDITIONING SYSTEM CHECKSHEET

Date: _____
 Name: _____
 Address: _____
 City: _____ State: _____ Zip Code: _____
 Year: _____ Make: _____ Model: _____
 Mileage: _____ License: _____ VIN: _____ Eng Code: _____

Customer Interview:

Reason Code Explanation

- | Code | Reason |
|---------------------------|---|
| <u>Services</u> | |
| A | Part No Longer Performs Intended Purpose |
| B | Part Does Not Meet A Design Specification (Regardless Of Performance) |
| C | Part Is Missing |
| <u>Suggested/Optional</u> | |
| 1 | Part Is Close To The End Of Its Useful Life |
| 2 | To Address A Customer Need, Convenience Or Request |
| 3 | To Comply With Maintenance Recommended By The Vehicle's Original Equipment Manufacturer |
| 4 | Technician's Recommendation Based On Substantial And Informed Experience |
| 5 | To Comply With Maintenance Recommended By AMRA/MAP |



Your vehicle has been inspected following the Uniform Inspection and Communication Standards developed by the Motorist Assurance Program. MAP produces materials that give motorists the information and encouragement to take greater responsibility for their vehicles—through proper maintenance. We encourage participating service and repair shops to adopt the MAP Pledge of Assurance to their Customers and the Motorist Assurance Program Standards of Service. All participating service providers have agreed to subscribe to this Pledge and to adhere to the promulgated Standards of Service demonstrating to their customers that they are serious about customer satisfaction. For more information visit: www.motorist.org

DISCLAIMER: This document may be used as a guide when performing vehicle inspection. This form is not to be used as an estimate form and may not comply with Local or State Laws. The Motorist Assurance Program is not responsible for the performance and accuracy of the motor vehicle inspection performed using this document.

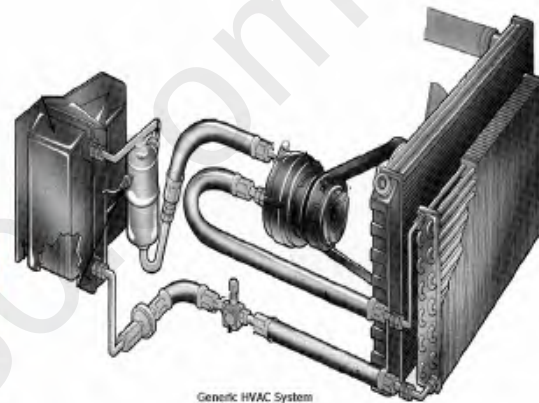
Fig. 1: Heating, Ventilation & Air Conditioning System Checksheet (1 Of 2)

HEATING, VENTILATION & AIR CONDITIONING SYSTEM CHECKSHEET

Underhood				
	OK	S	R	Condition
Drive Belts				
Clutch				
Seals / Connections				
Electrical Connections				
Compressor				
Compressor High Side Pressure				Spec _____ Actual _____
Compressor Low Side Pressure				Spec _____ Actual _____
Expansion Device				
In-line Filters				
Pulleys / Tensioners				
Service Ports				
Refrigerant Type				Spec _____ Actual _____
Refrigerant Oil Type				
Condenser				
Accumulator				
Receiver / Drier				
High Pressure Hoses				
Low Pressure Hoses				
Metal Lines				

Cooling System				
	OK	S	R	Condition
Belts				
Coolant Protection				Spec _____ Actual _____
pH / Concentration / Reserve Alkalinity				
Radiator Cap				Spec _____ Actual _____
Radiator				
Coolant Reservoir				
Upper Radiator Hose				
Lower Radiator Hose				
Heater Hoses				
Heater Core				
Cooling Fan/ Fan Clutch				

Interior Components				
	OK	S	R	Condition
Vents / Ducts				
Controls				
Blower Motor				
Center Outlet Temp				Spec _____ Actual _____
Evaporator				
Evaporator Drain Hose				
Actuators				
Fuses / Circuit Breakers				
Cabin Air Filter				



OK
Suggested
1, 2, 3, 4, 5
Required
A, B, C

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Fig. 2: Heating, Ventilation & Air Conditioning System Checksheet (2 Of 2)

HEATING, VENTILATION & AIR CONDITIONING SYSTEMS

NOTE: AIR CONDITIONING SYSTEM FLUSHING utilizes chemicals or refrigerant to remove oil, debris and contaminants from the evaporator, condenser, hoses or metal lines.

NOTE: An INLINE FILTER, both high and low side, protects a/c components from residual debris in the system. An inline filter or suction screen is suggested when a condenser, evaporator, compressor, expansion valve, accumulator/drier, hoses or metal lines is replaced, or if debris is found in the system during an a/c repair. An inline filter is suggested to help prevent future component damage and increase system longevity.

ACCUMULATORS

Condition	Code	Procedure
NOTE: When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component damage (see Code 5).		
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Beyond vehicle manufacturer's service interval	3	Suggest replacement
Desiccant at the end of its useful life (saturated with moisture)	1	Suggest repair or replacement
Desiccant bag deteriorated	A	Require replacement. Further inspection required
NOTE: Inspect system to determine effects of desiccant bag deterioration.		
Leaking	A	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Tubing connection leaking	A	Require repair or replacement

ACTUATORS (ELECTRICAL)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Missing	C	Require replacement
Noisy	2	Suggest repair or replacement
Out of adjustment	B	Require repair or replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		

Condition	Code	Procedure
Terminal burned, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

ACTUATORS (VACUUM)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Leaking (vacuum)	A	Require repair or replacement
Linkage bent, affecting performance	A	Require repair or replacement of linkage
Linkage bent, not affecting performance	2	Suggest repair or replacement of linkage
Linkage binding, affecting performance	A	Require repair or replacement of linkage
Linkage binding, not affecting performance	1	Suggest repair or replacement of linkage
Linkage broken	A	Require repair or replacement of linkage
Linkage loose, affecting performance	A	Require repair or replacement of linkage
Linkage loose, not affecting performance	1	Suggest repair or replacement of linkage
Linkage missing	C	Require replacement
Linkage noisy	2	Suggest repair or replacement
Missing	C	Require replacement
Noisy	2	Suggest repair or replacement
Out of adjustment	B	Require repair or replacement

AIR CONDITIONING FITTINGS

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Clamp corroded, not reusable	1	Suggest replacement
Connected incorrectly	A	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Cracked	A	Require repair or replacement
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement
Leaking	A	Require repair or replacement
Melted	1	Suggest repair or replacement
Missing	C	Require replacement
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement
Protective sleeves damaged	2	Suggest replacement of sleeves
Protective sleeves missing	C	Require replacement of sleeves
Restricted, affecting performance	A	Require repair or replacement
Routed incorrectly	B	Require repair
Swollen	1	Suggest replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Type incorrect	2	Suggest repair or replacement

AIR CONDITIONING HOSES

NOTE: When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component damage (see Code 5).

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Clamp corroded, not reusable	1	Suggest replacement
Connected incorrectly	A	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Cracked	A	Require repair or replacement
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement

Condition	Code	Procedure
Leaking	A	Require repair or replacement
Melted	1	Suggest repair or replacement
Missing	C	Require replacement
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement
Protective sleeves damaged	2	Suggest replacement of sleeves
Protective sleeves missing	C	Require replacement of sleeves
Restricted, affecting performance	A	Require repair or replacement
Routed incorrectly	B	Require repair
Swollen	1	Suggest replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Type incorrect	2	Suggest repair or replacement

AIR CONDITIONING METAL LINES

NOTE: When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component damage (see Code 5).

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Clamp corroded, not reusable	1	Suggest replacement
Connected incorrectly	A	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Cracked	A	Require repair or replacement
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement
Leaking	A	Require repair or replacement
Melted	1	Suggest repair or replacement
Missing	C	Require replacement
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement
Protective sleeves damaged	2	Suggest replacement of sleeves
Protective sleeves missing	C	Require replacement of sleeves
Restricted, affecting performance	A	Require repair or replacement
Routed incorrectly	B	Require repair
Swollen	1	Suggest replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Type incorrect	2	Suggest repair or replacement

AIR CONTROL DOORS

Condition	Code	Procedure
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Condition	Code	Procedure
Air control door binding	A	Require repair or replacement
Air control door broken	A	Require repair or replacement
Air control door leaking	A	Require repair or replacement
Air control door seized	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	2	Suggest repair or replacement
Drain hole restricted	A	Require repair
Drain plugged	A	Require repair
Duct disconnected	A	Require repair or replacement
Duct leaking	A	Require repair or replacement
Duct missing	C	Require replacement
Duct restricted	A	Require repair or replacement
Leaking	B	Require repair or replacement
Noisy	2	Suggest cleaning or repair
Odor	2	Suggest cleaning or repair
Restricted	A	Require cleaning, repair, or replacement

AIR DAMS (EXTERNAL)

Condition	Code	Procedure
Application incorrect, affecting air conditioning system performance	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bent, affecting air conditioning system performance	A	Require repair or replacement
Blocked, affecting air conditioning system performance	A	Require repair or replacement
Broken, affecting air conditioning system performance	A	Require repair or replacement
Cracked, affecting air conditioning system performance	A	Require repair or replacement
Loose, affecting air conditioning system performance	A	Require repair
Loose, not affecting air conditioning system performance	2	Suggest repair
Missing, affecting air conditioning system performance	C	Require replacement

AIR DISTRIBUTION SYSTEM

Condition	Code	Procedure
Air control door binding	A	Require repair or replacement
Air control door broken	A	Require repair or replacement
Air control door leaking	A	Require repair or replacement
Air control door seized	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	2	Suggest repair or replacement
Drain hole restricted	A	Require repair
Drain plugged	A	Require repair
Duct disconnected	A	Require repair or replacement
Duct leaking	A	Require repair or replacement
Duct missing	C	Require replacement
Duct restricted	A	Require repair or replacement
Leaking	B	Require repair or replacement
Noisy	2	Suggest cleaning or repair
Odor	2	Suggest cleaning or repair
Restricted	A	Require cleaning, repair, or replacement

BELTS

Condition	Code	Procedure
Alignment incorrect	B	Further inspection required
NOTE: Determine cause of incorrect alignment and require repair.		
Cracked	1	Suggest replacement
Frayed	1	Suggest replacement
Missing	C	Require replacement
Noisy	2	Further inspection required
NOTE: Determine cause of noise and suggest repair.		
Plies separated	A	Require replacement
Serpentine belt routed incorrectly	B	Require repair
Tension out of specification	B	Require adjustment or replacement
Worn beyond adjustment range	B	Require replacement
Worn so it contacts bottom of pulley	A	Require replacement

BLEND DOORS

Condition	Code	Procedure
Air control door binding	A	Require repair or replacement
Air control door broken	A	Require repair or replacement
Air control door leaking	A	Require repair or replacement
Air control door seized	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	2	Suggest repair or replacement
Drain hole restricted	A	Require repair
Drain plugged	A	Require repair
Duct disconnected	A	Require repair or replacement
Duct leaking	A	Require repair or replacement

Condition	Code	Procedure
Duct missing	C	Require replacement
Duct restricted	A	Require repair or replacement
Leaking	B	Require repair or replacement
Noisy	2	Suggest cleaning or repair
Odor	2	Suggest cleaning or repair
Restricted	A	Require cleaning, repair, or replacement

BLOWER FANS (BLOWER WHEEL OR SQUIRREL CAGE)

Condition	Code	Procedure
Application incorrect	B	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Broken	A	Require replacement
Cracked	B	Require replacement
Distorted	A	Require replacement
Fins missing	C	Require replacement
Hub separated	A	Require replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Mounting loose	A	Require repair or replacement
Noisy	2	Suggest replacement
Out of balance	A	Require repair or replacement

BLOWER MOTORS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Current draw out of specification	B	Require repair or replacement
Inoperative	A	Require replacement

Condition	Code	Procedure
NOTE: Check fan motor/controls. Inoperative includes intermittent operation.		
Missing	C	Require replacement
Motor speed insufficient	2	Suggest repair or replacement
Noisy	2	Suggest replacement
Rotation incorrect for application	B	Require repair or replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Vibration	1	Suggest replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead corroded	A	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

BLOWER RESISTORS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware,
Attaching hardware not functioning	A	Require repair or replacement of hardware
Conductor exposed	A	Require replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	1	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Insulation overheated	A	Require replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		

Condition	Code	Procedure
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

BLOWER SWITCHES

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Binding, affecting performance	A	Require repair or replacement
Binding, not affecting performance	2	Suggest repair or replacement
Broken	A	Require repair or replacement
Burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Burned, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Cracked, affecting performance	A	Require repair or replacement
Cracked, not affecting performance	1	Suggest repair or replacement
Malfunctioning	A	Require repair or replacement
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Missing	C	Require replacement
NOTE: Missing includes high pressure cut-off switches not installed during a retrofit from R12 to 134a.		
Out of adjustment	B	Require repair or replacement
Pressure switch leaking	A	Require repair or replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement

Condition	Code	Procedure
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Won't return	A	Require repair or replacement
Worn	1	Suggest replacement

CABIN AIR FILTERS

Condition	Code	Procedure
Air flow obstruction	A	Require cleaning or replacement
At or beyond service interval	3	Suggest replacement
Microbial growth causing odor	A	Require replacement of filter
Missing	C	Require replacement

CIRCUIT BREAKERS

Condition	Code	Procedure
Application incorrect	B	Require replacement
Blown	A	Require replacement
NOTE: Determine cause and correct prior to replacement of part.		
Corroded, affecting performance	A	Require repair or replacement
Corroded, not affecting performance	2	Suggest repair or replacement
Cracked, affecting performance	A	Require repair or replacement
Cracked, not affecting performance	1	Suggest repair or replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Insulation damaged, conductors exposed	A	Suggest repair or replacement
Missing	C	Require replacement
Routed incorrectly	B	Require repair
Secured incorrectly	B	Require repair
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

COMPRESSOR CLUTCH ASSEMBLIES

Condition	Code	Procedure
Air gap incorrect	B	Require repair or replacement

Condition	Code	Procedure
Bearing seized	A	Require replacement of bearing or assembly
Bearing worn, affecting performance	A	Require replacement of bearing or assembly
Coil shows signs of overheating	1	Suggest replacement of coil
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to replacement of part.		
Connector missing	C	Require replacement
Hub broken	A	Require replacement
Hub cracked	B	Require replacement
Hub loose on shaft	A	Require replacement
Hub scored, affecting performance	A	Require replacement
Hub warped, affecting performance	A	Require replacement
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Noisy	2	Suggest repair or replacement
Slips	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Will not disengage	A	Require repair or replacement
Wire lead burned	A	Require repair or replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

COMPRESSORS

NOTE: When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component damage (see Code 5).

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware

Condition	Code	Procedure
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bracket bent, affecting performance	A	Require repair or replacement
Bracket bent, not affecting performance	Â	No service suggested or required
Bracket broken, affecting performance	A	Require replacement
Bracket broken, not affecting performance	Â	No service suggested or required
Bracket corroded, affecting performance	A	Require repair or replacement
Bracket corroded, not affecting performance	2	Suggest repair or replacement
Bracket cracked, affecting performance	A	Require repair or replacement
Bracket cracked, not affecting performance	1	Suggest repair or replacement
Bracket holes elongated, affecting performance	A	Require repair or replacement
Bracket holes elongated, not affecting performance	Â	No service suggested or required
Bracket loose, affecting performance	A	Require repair or replacement
Bracket loose, not affecting performance	1	Suggest repair or replacement
Bracket missing	C	Require replacement
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Housing broken, affecting performance	A	Require repair or replacement
Housing broken, not affecting performance	Â	No service suggested or required
Housing cracked, affecting performance	A	Require repair or replacement
Housing cracked, not affecting performance	1	Suggest repair or replacement
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Require repair or replacement
Missing	C	Require replacement
Noisy	2	Suggest repair or replacement
NOTE: Compressor noise can also be caused by low oil level, state of charge, air contamination, or type of refrigerant.		
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Threads damaged	A	Require repair or replacement

Condition	Code	Procedure
Threads stripped (threads missing)	A	Require replacement
Tubing connection leaking	A	Require repair or replacement
Vibration	1	Suggest replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead corroded	A	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

CONDENSER AIR SEALS

Condition	Code	Procedure
Leaking	A	Require repair or replacement
Missing	C	Require replacement

CONDENSER FAN MOTORS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Hydraulic fan motor leaking	A	Require repair or replacement
Inoperative	A	Require replacement
NOTE: Check fan motor/controls. Inoperative includes intermittent operation.		
Missing	C	Require replacement
Noisy	2	Suggest replacement
Rotation incorrect for application	B	Require repair or replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Vibration	1	Suggest replacement
Wire lead conductors exposed	B	Require repair or replacement

Condition	Code	Procedure
Wire lead corroded	A	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

CONDENSERS

NOTE: When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component damage (see Code 5).

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Air flow obstruction, affecting performance	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bent, affecting performance	A	Require repair or replacement
Bent, not affecting performance	Â	No service suggested or required
Bracket bent, affecting performance	A	Require repair or replacement
Bracket bent, not affecting performance	Â	No service suggested or required
Bracket broken, affecting performance	A	Require replacement
Bracket broken, not affecting performance	Â	No service suggested or required
Bracket corroded, affecting performance	A	Require repair or replacement
Bracket corroded, not affecting performance	2	Suggest repair or replacement
Bracket cracked, affecting performance	A	Require repair or replacement
Bracket cracked, not affecting performance	1	Suggest repair or replacement
Bracket holes elongated, affecting performance	A	Require repair or replacement
Bracket holes elongated, not affecting performance	Â	No service suggested or required
Bracket loose, affecting performance	A	Require repair or replacement
Bracket loose, not affecting performance	1	Suggest repair or replacement
Bracket missing	C	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Leaking	A	Require repair or replacement
Restricted internally	A	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

CONNECTORS

Condition	Code	Procedure
Application incorrect	B	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Circuit open	A	Require repair or replacement
Circuit resistance (voltage drop) out of specification	A	Require repair or replacement

Condition	Code	Procedure
Circuit shorted	A	Require repair or replacement
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Diode open	A	Require repair or replacement
Diode shorted	A	Require repair or replacement
Insulation damaged, conductors exposed	A	Require repair or replacement
Insulation damaged, conductors not exposed	1	Suggest replacement
Protective shield (conduit) melted	2	Require replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Protective shield (conduit) missing	C	Require replacement
Routed incorrectly	B	Require repair
Secured incorrectly	B	Require repair
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Voltage drop out of specification	A	Require repair or replacement

CONTROL CABLES

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Binding	A	Require repair or replacement
Bracket bent, affecting performance	A	Require repair or replacement
Bracket bent, not affecting performance	Â	No service suggested or required
Bracket broken, affecting performance	A	Require replacement
Bracket broken, not affecting performance	Â	No service suggested or required
Bracket Corroded, affecting performance	A	Require repair or replacement
Bracket corroded, not affecting performance	2	Suggest repair or replacement
Bracket cracked, affecting performance	A	Require repair or replacement
Bracket cracked, not affecting performance	1	Suggest repair or replacement

Condition	Code	Procedure
Bracket holes elongated, affecting performance	A	Require repair or replacement
Bracket holes elongated, not affecting performance	Â	No service suggested or required
Bracket loose, affecting performance	A	Require repair or replacement
Bracket loose, not affecting performance	1	Suggest repair or replacement
Bracket missing	C	Require replacement
Broken	A	Require repair or replacement
Cracked	2	Suggest repair or replacement
Disconnected	A	Require repair or replacement
Kinked	2	Suggest repair or replacement
Melted	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Out of adjustment	B	Require repair or replacement
NOTE: Follow OEM recommended adjustment procedures. Require repair or replacement if out of specification.		
Routed incorrectly	B	Suggest repair
Seized	A	Require repair or replacement

CONTROL HEADS (FUNCTION SELECTORS)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Contaminated	2	Suggest require replacement
Leaking	B	Require repair or replacement
Malfunctioning	A	Require repair or replacement
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Melted, affecting performance	A	Require repair or replacement
Melted, not affecting performance	Â	No service suggested or required
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement

Condition	Code	Procedure
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Wire lead burned	A	Require repair or replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead open	A	Require repair or replacement

CONTROL LINKAGES

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bent, affecting performance	A	Require repair or replacement
Binding	A	Require repair or replacement
Bracket bent, affecting performance	A	Require repair or replacement
Bracket bent, not affecting performance	Â	No service suggested or required
Bracket broken, affecting performance	A	Require replacement
Bracket broken, not affecting performance	Â	No service suggested or required
Bracket corroded, affecting performance	A	Require repair or replacement
Bracket corroded, not affecting performance	2	Suggest repair or replacement
Bracket cracked, affecting performance	A	Require repair or replacement
Bracket cracked, not affecting performance	1	Suggest repair or replacement
Bracket holes elongated, affecting performance	A	Require repair or replacement
Bracket holes elongated, not affecting performance	Â	No service suggested or required
Bracket loose, affecting performance	A	Require repair or replacement
Bracket loose, not affecting performance	1	Suggest repair or replacement
Bracket missing	C	Require replacement
Broken	A	Require replacement
Cracked	B	Require repair or replacement
Disconnected	A	Require repair or replacement
Missing	C	Require replacement
Noisy	2	Suggest repair or replacement
Out of adjustment	B	Require repair or replacement
NOTE: Follow OEM recommended adjustment procedures. Require repair or replacement if out of specification.		
Seized	A	Require repair or replacement

CONTROL MODULES

NOTE: Includes, but not limited to: IRCM, Coolant Fan Control Module (CFCM), AC Controller, Amplifier, Programmers, Control Heads, Power Modules, etc.

Condition	Code	Procedure
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Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware threads damaged	A	Require repair or replacement of hardware
Attaching hardware threads stripped (threads missing)	A	Require repair or replacement of hardware
Code set (if applicable)	A	Further inspection required
NOTE: Refer to manufacturer's diagnostic trouble code procedure and require repair or replacement of affected component(s).		
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require repair
Contaminated	A	Require repair or replacement
NOTE: Determine source of contamination, such as engine coolant, fuel, metal particles, or water. Require repair or replacement. Check for accepted cleaning procedure.		
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation. Some components may be serviceable.		
Leaking	B	Require repair or replacement
Missing	C	Require replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead corroded	A	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

COOLANT

Condition	Code	Procedure
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Condition	Code	Procedure
Acidity (pH) incorrect	1	Suggest correction or replacement
At or beyond service interval	3	Suggest replacement
Contaminated	B	Require replacement or recycling. Further inspection required
NOTE: Determine source of contamination and require correction prior to coolant replacement.		
Fluid discolored	A	No service suggested or required
NOTE: Further testing necessary to determine condition of fluid.		
Level incorrect	B	Require filling to proper level
NOTE: Determine source of incorrect level and suggest repair.		
Mixture incorrect	B	Require correction or replacement
Type incorrect	B	Require replacement

COOLING FAN BLADES

Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bent	A	Require replacement
Broken	A	Require replacement
Cracked	B	Require replacement
Loose	A	Require repair or replacement
Missing	C	Require replacement

COOLING FAN CLUTCHES

NOTE: Some lateral movement, measured at the fan blade tip, may be normal.

Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bearing noisy	A	Require replacement
Bearing worn	A	Require replacement
Fastener loose	A	Require repair or replacement of fastener
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Suggest replacement

Condition	Code	Procedure
Seized	A	Require replacement
Slips (insufficient fan speed)	A	Require replacement
Thermal control incorrect	B	Require repair or replacement

COOLING FAN MOTORS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Hydraulic fan motor leaking	A	Require repair or replacement
Inoperative	A	Require replacement
NOTE: Check fan motor/controls. Inoperative includes intermittent operation.		
Missing	C	Require replacement
Noisy	2	Suggest replacement
Rotation incorrect for application	B	Require repair or replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Vibration	1	Suggest replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead corroded	A	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

EVAPORATOR DRAIN TUBES

Condition	Code	Procedure
Disconnected	A	Require repair
Leaking	A	Require replacement
Missing	C	Require replacement

Condition	Code	Procedure
Restricted	A	Require repair or replacement
Routed incorrectly	B	Require repair

EVAPORATOR FILTERS

Condition	Code	Procedure
Air flow obstruction	A	Require cleaning or replacement
At or beyond service interval	3	Suggest replacement
Microbial growth causing odor	A	Require replacement of filter
Missing	C	Require replacement

EVAPORATOR PRESSURE REGULATORS (EPRS)

Condition	Code	Procedure
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		

EVAPORATORS

NOTE: When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component damage (see Code 5).

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Air flow obstruction, affecting performance	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bracket bent, affecting performance	A	Require repair or replacement
Bracket bent, not affecting performance	Â	No service suggested or required
Bracket broken, affecting performance	A	Require replacement
Bracket broken, not affecting performance	Â	No service suggested or required
Bracket corroded, affecting performance	A	Require repair or replacement
Bracket corroded, not affecting performance	2	Suggest repair or replacement
Bracket cracked, affecting performance	A	Require repair or replacement
Bracket cracked, not affecting performance	1	Suggest repair or replacement
Bracket holes elongated, affecting performance	A	Require repair or replacement
Bracket holes elongated, not affecting performance	Â	No service suggested or required
Bracket loose, affecting performance	A	Require repair or replacement
Bracket loose, not affecting performance	1	Suggest repair or replacement
Bracket missing	C	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Evaporator foam seal leaking	A	Require replacement
Evaporator foam seal missing	C	Require replacement
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Leaking	B	Require repair or replacement

Condition	Code	Procedure
Microbial growth causing odor	2	Suggest microbial odor removal
NOTE: If the evaporator case is contaminated with debris, it may be necessary to remove the debris before applying microbial odor treatment.		
Restricted internally	A	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

EXPANSION VALVES

NOTE: Expansion valves indicated for use on R134a systems are acceptable for R12 systems.

Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Corroded internally	1	Suggest replacement
Filter screen torn	A	Require replacement of screen
Inoperative	A	Require repair or replacement
NOTE: Expansion valve operation may be affected by capillary tube location, corrosion, and insulation tape. Inoperative includes intermittent operation.		
Leaking	B	Require replacement
Restricted	A	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

FUNCTION SELECTORS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Contaminated	2	Suggest require replacement
Leaking	B	Require repair or replacement

Condition	Code	Procedure
Malfunctioning	A	Require repair or replacement
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Melted, not affecting performance	A	No service suggested or required
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Wire lead burned	A	Require repair or replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

FUSES, FUSIBLE LINKS AND CIRCUIT BREAKERS

Condition	Code	Procedure
Application incorrect	B	Require replacement
Blown	A	Require replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Corroded, affecting performance	A	Require repair or replacement
Corroded, not affecting performance	2	Suggest repair or replacement
Cracked, affecting performance	A	Require repair or replacement
Cracked, not affecting performance	1	Suggest repair or replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Insulation damaged, conductors exposed	A	Suggest repair or replacement
Missing	C	Require replacement
Routed incorrectly	B	Require repair
Secured incorrectly	B	Require repair
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement

Condition	Code	Procedure
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

FUSIBLE LINKS

Condition	Code	Procedure
Application incorrect	B	Require replacement
Blown	A	Require replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Corroded, affecting performance	A	Require repair or replacement
Corroded, not affecting performance	2	Suggest repair or replacement
Cracked, affecting performance	A	Require repair or replacement
Cracked, not affecting performance	1	Suggest repair or replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Insulation damaged, conductors exposed	A	Suggest repair or replacement
Missing	C	Require replacement
Routed incorrectly	B	Require repair
Secured incorrectly	B	Require repair
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

GASKETS

Condition	Code	Procedure
Leaking	A	Require repair or replacement
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

HEATER CASES

Condition	Code	Procedure
Air control door binding	A	Require repair or replacement
Air control door broken	A	Require repair or replacement
Air control door leaking	A	Require repair or replacement
Air control door seized	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware

Condition	Code	Procedure
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	2	Suggest repair or replacement
Drain hole restricted	A	Require repair
Drain plugged	A	Require repair
Duct disconnected	A	Require repair or replacement
Duct leaking	A	Require repair or replacement
Duct missing	C	Require replacement
Duct restricted	A	Require repair or replacement
Leaking	B	Require repair or replacement
Microbial growth causing odor	2	Suggest microbial odor removal
NOTE: If the heater case is contaminated with debris, it may be necessary to remove the debris before applying microbial odor treatment.		
Noisy	2	Suggest cleaning or repair
Restricted	A	Require cleaning, repair, or replacement

HEATER CONTROL VALVES

Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Binding	2	Suggest repair or replacement
Coolant leak	A	Require repair or replacement
Disconnected	A	Require repair or replacement
Malfunctioning	A	Require repair or replacement
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Missing	C	Require replacement
Restricted	A	Require repair or replacement
Seized	A	Require repair or replacement
Vacuum leak	A	Require repair or replacement

HEATER CORES

Condition	Code	Procedure
Air flow obstruction	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connection leaking	A	Require repair or replacement
Corroded	1	Suggest repair or replacement
Disconnected	A	Require repair or replacement
Fins damaged, affecting performance	A	Require repair or replacement
Fins damaged, not affecting performance	A	No service suggested or required

Condition	Code	Procedure
Internal restrictions, affecting performance	A	Require repair or replacement
Leaking	B	Require repair or replacement
Missing	C	Require replacement

HEATER HOSES

Condition	Code	Procedure
Application incorrect	B	Require replacement
At or beyond service interval	3	Suggest replacement
Connected incorrectly	A	Require repair
Corroded, not reusable	1	Suggest replacement
Cracked	B	Require repair or replacement
Hard (brittle)	1	Suggest repair or replacement
Inner fabric (webbing) damaged	A	Require replacement
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement
Leaking	A	Require repair or replacement
Melted	1	Suggest repair or replacement
Missing	C	Require replacement
Outer covering damaged	1	Suggest replacement
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement
Protective sleeves damaged	2	Suggest replacement of sleeves
Protective sleeves missing	C	Suggest replacement of sleeves
Restricted, affecting performance	A	Require repair or replacement
Restricted, not affecting performance	2	Suggest repair or replacement
Routed incorrectly	B	Suggest repair
Safety clip missing	C	Require replacement
Spongy	1	Suggest repair or replacement
Stripped	A	Require replacement
Surface cracks (dry-rotted)	1	Suggest repair or replacement
Swollen	B	Require replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Type incorrect	2	Suggest repair or replacement

HIGH PRESSURE RELIEF VALVES (HPRV)

Condition	Code	Procedure
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	A	Require repair or replacement
Missing	C	Require replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

IDLERS

Condition	Code	Procedure
Alignment incorrect	B	Require repair or replacement
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware

Condition	Code	Procedure
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bearing worn	1	Suggest replacement
Belt tension incorrect	B	Require adjustment or repair
Bracket cracked	A	Require repair or replacement
Housing cracked	A	Require repair or replacement
Missing	C	Require replacement
Noisy	2	Suggest replacement
Pulley damaged, affecting belt life	A	Require replacement
Seized	A	Require repair or replacement

IN-LINE FILTERS

Condition	Code	Procedure
Connection leaking	A	Require repair or replacement
Leaking	B	Require repair or replacement
Restricted	A	Require replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

METAL FITTINGS

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Clamp corroded, not reusable	1	Suggest replacement
Connected incorrectly	A	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Cracked	B	Require repair or replacement
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement
Leaking	B	Require repair or replacement
Melted	1	Suggest repair or replacement
Missing	C	Require replacement
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement
Protective sleeves damaged	2	Suggest replacement of sleeves
Protective sleeves missing	C	Require replacement of sleeves
Restricted, affecting performance	A	Require repair or replacement
Routed incorrectly	B	Require repair
Swollen	1	Suggest replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Type incorrect	2	Suggest repair or replacement

METAL LINES

Condition	Code	Procedure
Abrasion damage, affecting structural integrity	A	Require repair or replacement
Abrasion damage, not affecting structural integrity	Â	No service suggested or required
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Clamp corroded, not reusable	1	Suggest replacement
Connected incorrectly	A	Require replacement
Corroded, affecting structural integrity	A	Require replacement
Corroded, not affecting structural integrity	Â	No service suggested or required
Cracked	B	Require repair or replacement
Fitting type incorrect (such as compression fitting)	B	Require replacement
Flange leaking	A	Require repair or replacement
Insufficient clamping force, allowing hose to leak	A	Require repair or replacement
Leaking	A	Require repair or replacement
Melted	1	Suggest repair or replacement
Missing	C	Require replacement
Outer covering damaged to the extent that the inner fabric is visible	A	Require replacement
Protective sleeves damaged	2	Suggest replacement of sleeves
Protective sleeves missing	C	Require replacement of sleeves
Restricted, affecting performance	A	Require repair or replacement
Swollen	1	Suggest replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Type incorrect	2	Suggest repair or replacement

MIX AND AIR CONTROL DOORS (BLEND DOORS)

Condition	Code	Procedure
Air control door binding	A	Require repair or replacement
Air control door broken	A	Require repair or replacement
Air control door leaking	A	Require repair or replacement
Air control door seized	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	2	Suggest repair or replacement
Drain hole restricted	A	Require repair
Drain plugged	A	Require repair
Duct disconnected	A	Require repair or replacement
Duct leaking	A	Require repair or replacement
Duct missing	C	Require replacement
Duct restricted	A	Require repair or replacement
Leaking	B	Require repair or replacement
Noisy	2	Suggest cleaning or repair
Odor	2	Suggest cleaning or repair

Condition	Code	Procedure
Restricted	A	Require cleaning, repair, or replacement

ORIFACE TUBES

Condition	Code	Procedure
Application incorrect	B	Require replacement
Bypassing internally	A	Require repair or replacement
Filter screen torn	A	Require replacement
Installation incorrect	B	Require repair
Restricted	A	Require repair or replacement

O-RINGS

Condition	Code	Procedure
Leaking	A	Require repair or replacement
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

PILOT-OPERATED ABSOLUTES (POAS)

Condition	Code	Procedure
Connection damaged	B	Require repair or replacement
Fitting damaged	B	Require repair or replacement
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Threads stripped (threads missing)	A	Require replacement

PLENUMS

Condition	Code	Procedure
Air control door binding	A	Require repair or replacement
Air control door broken	A	Require repair or replacement
Air control door leaking	A	Require repair or replacement
Air control door seized	A	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	2	Suggest repair or replacement
Drain hole restricted	A	Require repair
Drain plugged	A	Require repair
Duct disconnected	A	Require repair or replacement
Duct leaking	A	Require repair or replacement
Duct missing	C	Require replacement
Duct restricted	A	Require repair or replacement

Condition	Code	Procedure
Leaking	B	Require repair or replacement
Noisy	2	Suggest cleaning or repair
Odor	2	Suggest cleaning or repair
Restricted	A	Require cleaning, repair, or replacement

PRESSURE CONTROL VALVES

Condition	Code	Procedure
Connection damaged	B	Require repair or replacement
Fitting damaged	B	Require repair or replacement
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

PRESSURE SENSORS

NOTE: Includes, but not limited to, In-Car Temperature, Ambient Air Temperature, Sun Load Sensor, etc.

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Calibration incorrect	B	Require repair or replacement
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Missing	C	Require replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement

Condition	Code	Procedure
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Wire lead burned	A	Require repair or replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

PULLEYS

Condition	Code	Procedure
Alignment incorrect	B	Require repair or replacement
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bearing noisy	2	Suggest replacement
Bearing seized	A	Require repair or replacement
Bearing worn	1	Suggest replacement
Cracked	B	Require replacement
Loose	B	Require repair or replacement
Missing	C	Require replacement
Pulley damaged, affecting belt life	A	Require replacement

RADIATORS

Condition	Code	Procedure
Air flow obstruction	A	Require repair
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connection leaking	A	Require repair or replacement
Corroded	1	Suggest repair or replacement
Drain inoperative	A	Require repair or replacement
Fins damaged, affecting performance	A	Require repair or replacement
Fins damaged, not affecting performance	Â	No service suggested or required
Internal oil cooler leaking	A	Require repair or replacement
Internal restrictions	B	Require repair or replacement
Leaking	B	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require repair or replacement
Tubes damaged, affecting performance	A	Require repair or replacement
Tubes damaged, not affecting performance	Â	No service suggested or required

RECEIVER-DRIERS

NOTE:

For VIRs, see Valves in Receiver (VIRs). When replacing this component it is suggested to install or replace high and low side inline filters to prevent future component

Condition	Code	Procedure
damage (see Code 5).	À	À
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Contaminated, affecting performance	A	Require replacement
Desiccant at the end of its useful life (saturated with moisture)	1	Suggest repair or replacement
Desiccant bag deteriorated	A	Require replacement. Further inspection required
NOTE: Inspect system to determine effects of desiccant bag deterioration.		
Fusible plug leaking	A	Require replacement of plug
Leaking	B	Require replacement
Pressure relief device leaking	A	Require replacement of pressure relief device
Restricted	A	Require repair or replacement
Sight glass no longer transparent	2	Suggest replacement of drier
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Tubing connection leaking	A	Require repair or replacement

REFRIGERANT OIL

Condition	Code	Procedure
Contaminated	A	Require repair or replacement
Overfilled	B	Require repair
Underfilled	B	Require repair

REFRIGERANT

NOTE: Refrigerants include any SNAP (Significant New Alternative Policy)-approved blends.

Condition	Code	Procedure
Contaminated (other than refrigerant blends)	B	Require service to remove contamination
Different types of refrigerants in the same system (other than refrigerant blends)	B	Require repair
Overcharged	B	Require repair
Refrigerant type does not match fittings and label	B	Require repair
Undercharged	B	Require repair

RELAYS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Housing broken	A	Require replacement
Housing cracked	2	Suggest replacement

Condition	Code	Procedure
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Missing	C	Require replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

SEALS

Condition	Code	Procedure
Leaking	A	Require repair or replacement
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

SERVICE PORTS

Condition	Code	Procedure
Application does not match refrigerant type	B	Require replacement
Leaking	A	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Valve cap leaking	A	Require repair or replacement of cap
Valve cap missing	C	Require replacement of valve cap
Valve core sticking	B	Require repair or replacement

SPRING LOCK COUPLINGS

Condition	Code	Procedure
Leaking	A	Require repair or replacement
NOTE: Require inspection of mating and sealing surface and repair or replace as necessary.		

SUCTION THROTTLING VALVES (STVS)

Condition	Code	Procedure
Connection damaged	B	Require repair or replacement
Fitting damaged	B	Require repair or replacement
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Require repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement

SWITCHES (ELECTRICAL)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Binding, affecting performance	A	Require repair or replacement
Binding, not affecting performance	2	Suggest repair or replacement
Broken	A	Require repair or replacement
Burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Burned, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Cracked, affecting performance	A	Require repair or replacement
Cracked, not affecting performance	1	Suggest repair or replacement
Malfunctioning	A	Require repair or replacement
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Missing	C	Require replacement
NOTE: Missing includes high pressure cut-off switches not installed during a retrofit from R12 to 134a.		
Out of adjustment	B	Require repair or replacement
Pressure switch leaking	A	Require repair or replacement

Condition	Code	Procedure
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Won't return	A	Require repair or replacement
Worn	1	Suggest replacement

TENSIONERS

Condition	Code	Procedure
Alignment incorrect	B	Require repair or replacement
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bearing worn	1	Suggest replacement
Belt tension incorrect	B	Require adjustment or repair
Bracket cracked	A	Require repair or replacement
Housing cracked	B	Require repair or replacement
Missing	C	Require replacement
Noisy	2	Suggest replacement
Pulley damaged, affecting belt life	A	Require replacement
Seized	A	Require repair or replacement

THERMISTORS AND PRESSURE SENSORS

NOTE: Includes, but not limited to, In-Car Temperature, Ambient Air Temperature, Sun Load Sensor, etc.

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Calibration incorrect	B	Require repair or replacement
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement

NOTE:

Determine cause and correct prior to repair or replacement of part.

Connector melted, not affecting performance	2	Suggest repair or replacement
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Condition	Code	Procedure
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Inoperative	A	Require repair or replacement
NOTE: Includes inoperative, intermittent operation, or failure to perform all functions.		
Missing	C	Require replacement
Terminal burned, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Wire lead burned	A	Require repair or replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

THERMOSTATS AND HOUSINGS

Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware corroded	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Cracked	B	Require replacement
Housing corroded	1	Suggest replacement of housing
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Installation incorrect	B	Require repair or replacement
Leaking	A	Require repair or replacement
Thermostat missing	C	Require replacement of thermostat
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require repair or replacement

VACUUM HOSES AND TUBES

Condition	Code	Procedure
Disconnected	A	Require repair
Leaking	A	Require repair or replacement
Leaking	A	Require repair or replacement
Melted	A	Require repair or replacement

Condition	Code	Procedure
Missing	C	Require replacement
Oil-soaked (spongy)	1	Suggest replacement
Restricted	A	Require repair or replacement
Routing incorrect	B	Require repair
Surface cracks (dry-rotted)	1	Suggest replacement

VACUUM RESERVOIRS

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Check valve leaking internally	A	Require replacement
Leaking	A	Require repair or replacement
Missing	C	Require replacement
Restricted	A	Require repair or replacement

VACUUM TUBES

Condition	Code	Procedure
Disconnected	A	Require repair
Melted	A	Require repair or replacement
Missing	C	Require replacement
Oil-soaked (spongy)	1	Suggest replacement
Restricted	A	Require repair or replacement
Routing incorrect	B	Require repair
Surface cracks (dry-rotted)	1	Suggest replacement

VALVES IN RECEIVER (VIRS)

Condition	Code	Procedure
Application incorrect	B	Require replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Bracket bent, affecting performance	A	Require repair or replacement
Bracket bent, not affecting performance	Â	No service suggested or required
Bracket broken, affecting performance	A	Require replacement
Bracket broken, not affecting performance	Â	No service suggested or required
Bracket corroded, affecting performance	A	Require repair or replacement
Bracket corroded, not affecting performance	2	Suggest repair or replacement
Bracket cracked, affecting performance	A	Require repair or replacement
Bracket cracked, not affecting performance	1	Suggest repair or replacement
Bracket holes elongated, affecting performance	A	Require repair or replacement
Bracket holes elongated, not affecting performance	Â	No service suggested or required
Bracket loose, affecting performance	A	Require repair or replacement
Bracket loose, not affecting performance	1	Suggest repair or replacement
Bracket missing	C	Require replacement
Connection damaged	B	Require repair or replacement
Contaminated, affecting performance	A	Require replacement

Condition	Code	Procedure
Corroded internally	1	Suggest replacement
Desiccant at the end of its useful life (saturated with moisture)	1	Suggest repair or replacement
Desiccant bag deteriorated	A	Require replacement. Further inspection required
NOTE: Inspect system to determine effects of desiccant bag deterioration.		
Filter screen torn	A	Require replacement of screen
Fitting damaged	B	Require repair or replacement
Fusible plug leaking	A	Require replacement of plug
Inoperative	A	Require repair or replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Require repair or replacement
Pressure relief device leaking	A	Require replacement of pressure relief device
Restricted	A	Require repair or replacement
Sight glass no longer transparent	2	Suggest replacement of drier
Threads damaged	A	Require repair or replacement
Threads stripped (threads missing)	A	Require replacement
Tubing connection leaking	A	Require repair or replacement

WATER PUMPS (ELECTRIC AUXILIARY)

Condition	Code	Procedure
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Inoperative	A	Require replacement
NOTE: Inoperative includes intermittent operation.		
Leaking	B	Require repair or replacement
Missing	C	Require replacement
Noisy	2	Suggest replacement
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement

Condition	Code	Procedure
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement
Vibration	1	Suggest replacement
Wire lead conductors exposed	B	Require repair or replacement
Wire lead corroded	A	Require repair or replacement
Wire lead open	A	Require repair or replacement
Wire lead shorted	A	Require repair or replacement

WIRING HARNESSES AND CONNECTORS

Condition	Code	Procedure
Application incorrect	B	Require repair or replacement
Attaching hardware broken	A	Require repair or replacement of hardware
Attaching hardware missing	C	Require replacement of hardware
Attaching hardware not functioning	A	Require repair or replacement of hardware
Circuit open	A	Require repair or replacement
Circuit resistance (voltage drop) out of specification	A	Require repair or replacement
Circuit shorted	A	Require repair or replacement
Connector (Weatherpack type) leaking	A	Require repair or replacement
Connector broken	A	Require repair or replacement
Connector melted, affecting performance	A	Require repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector melted, not affecting performance	2	Suggest repair or replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Connector missing	C	Require replacement
Diode open	A	Require repair or replacement
Diode shorted	A	Require repair or replacement
Insulation damaged, conductors exposed	A	Require repair or replacement
Insulation damaged, conductors not exposed	1	Suggest replacement
Protective shield (conduit) melted	2	Require replacement
NOTE: Determine cause and correct prior to repair or replacement of part.		
Protective shield (conduit) missing	C	Require replacement
Routed incorrectly	B	Require repair
Secured incorrectly	B	Require repair
Terminal broken	A	Require repair or replacement
Terminal burned, affecting performance	A	Require repair or replacement

Condition	Code	Procedure
NOTE: Determine cause and correct prior to repair or replacement of part.		
Terminal burned, not affecting performance	2	Suggest repair or replacement
Terminal corroded, affecting performance	A	Require repair or replacement
Terminal corroded, not affecting performance	2	Suggest repair or replacement
Terminal loose, affecting performance	B	Require repair or replacement
Terminal loose, not affecting performance	1	Suggest repair or replacement

REASON CODE EXPLANATION

Code	Reason
Required	
A	Part No Longer Performs Intended Purpose
B	Part Does Not Meet A Design Specification (Regardless Of Performance)
C	Part Is Missing
Suggested/Optional	
1	Part Is Close To The End Of Its Useful Life
2	To Address A Customer Need, Convenience Or Request
3	To Comply With Maintenance Recommended By The Vehicle's Original Equipment Manufacturer
4	Technician's Recommendation Based On Substantial And Informed Experience
5	To Comply With Maintenance Recommended By AMRA/MAP

AUTOMOTIVE TERMINOLOGY & DEFINITIONS

ACCUMULATOR

a servo action device in an automatic transmission that cushions the motion of a clutch; in an air conditioning system, a device that combines the suction throttling valve and POA valves as well as the receiver/dryer; a component used to store or hold liquid refrigerant in an air conditioning system that also contains a jessicant; in a non-integral ABS system, a chamber that temporarily stores fluid during the pressure decrease phase of ABS operation; in an integral ABS system , a sealed vessel containing a thick flexible diaphragm that separates brake fluid from high-pressure nitrogen gas.

ACTUATOR

a control device that delivers mechanical action in response to a vacuum or electrical signal; anything that the engine control computer uses to do something, such as trigger fuel injection or fire a spark plug. Most actuators on a computercontrolled engine system are activated by grounding their circuits rather than by actively powering them, since that protects the computer from short circuits.

AERATION

to expose to the air or mix with air, as with a liquid; to charge a liquid with gas.

AIR CONDITIONING (A/C)

a system that cools and dehumidifies the air entering the passenger compartment of a vehicle.

AIR DUCT

a tube, channel or other tubular structure used to carry air to a specific location.

AMBIENT TEMPERATURE SWITCH

a switch that prevents air conditioner operation below a certain ambient temperature.

AMBIENT TEMPERATURE

the temperature of the air surrounding an object.

ATMOSPHERIC PRESSURE

the pressure exerted on an object by the weight of the earth's atmosphere. At sea level, 14.7 psi, less at higher altitudes.

ATOMIZATION

the breaking down of a fluid into a fine mist that can be suspended in air.

AUTOMATIC TEMPERATURE CONTROL SYSTEM

a climate control system that uses the heating and air conditioning systems to maintain the interior temperature selected by the vehicle's passengers.

AUXILIARY CLIMATE CONTROL DEVICES

specialized add-on heating units, or combination heating/cooling units, that operate with the truck engine turned off. They eliminate the need to leave engines idling solely to heat or cool the cab and sleeper compartment.

BIMETALLIC

two kinds of metal, with different thermal expansion rates, that when attached to one another, the resulting assembly will bend in the direction of the metal that expands the least.

BLEND DOOR

a door in the heating and air conditioning system that controls the temperature of the air going into the passenger compartment.

BLOWER MOTOR.

the electric motor which drives the fan that circulates air inside the vehicle passenger compartment.

BOILING POINT

the temperature at which a liquid turns to vapor.

CAPILLARY TUBE

a thin, gas-filled tube that senses the temperature of the evaporator and relays this information to the thermostat and/or expansion valve.

CARBON DIOXIDE (CO₂)

a colorless, odorless, noncombustible gas, heavier than air; can be compressed into a super-cold solid known as dry ice; changes from solid to vapor at - 78.5°C.

CELSIUS

the basis of the metric system of temperature measurement in which water's boiling point is 100°C and its freezing point is 0 C.

CHARGE

the electrical current that passes through the battery to restore it to full power; to fill, or bring up to the specific level, an A/C system with refrigerant; the required amount of refrigerant for an A/C system.

CHECK VALVE

a gate or valve that allows passage of a gas or liquid in one direction only.

CHLOROFLUOROCARBON (CFC)

any organic chemical compounds made up of carbon, chlorine and fluorine atoms, usually used in refrigeration. R12 is a CFC.

CLUTCH CYCLING SWITCH

a device that opens and closes the circuit that engages the air conditioning compressor clutch based on pressure or temperature.

COMPRESSOR

an engine driven device that compresses refrigerant gas and pumps it through the air conditioning system.

CONDENSATION

the process of a vapor becoming a liquid; the opposite of evaporation.

CONDENSE

to cool a vapor to below its boiling point, where it then condenses into a liquid.

CONDENSER

a device, similar to a radiator, in which the refrigerant loses heat and changes state from a high-pressure gas to a high pressure liquid as it dissipates heat to the surrounding air.

CORE PLUGS.

plugs that fill holes in a block or head left from the casting process. Also called freeze, welsh or expansion plugs.

CYCLING CLUTCH SYSTEM

an A/C system that controls temperature by switching the compressor clutch on and off.

DEGREE

used to designate temperature readings or 1 degree as a 1/360 part of a circle.

DEHUMIDIFY

to remove moisture (humidity) from the air.

DESICCANT

any hygroscopic material that removes and traps moisture, usually found in a bag in the accumulator or receiver/drier in air conditioning systems.

DIAPHRAGM

flexible, impermeable membrane on which pressure acts to produce mechanical movement; in automotive terminology, any disc-shaped device; can be as diverse as thin membranes that separate two chambers in a component, and large metal discs that activate clutch pressure plates.

DOWNFLOW RADIATOR

a radiator in which coolant enters the top of the radiator and is drawn downward by gravity (see crossflow radiator).

DUAL-ZONE CLIMATE CONTROL

allows individualized control of heating and air conditioning. Most systems are adjustable for the driver and front passenger; others feature a third adjustment for rear passengers.

EVACUATE

the process of applying vacuum to a closed refrigeration system to remove air and moisture.

EVAPORATION

the process through which a liquid is turned into vapor.

EVAPORATOR

a heat exchanger, in which low-pressure refrigerant flows and changes state, absorbing heat from the surrounding air.

EXPANSION TUBE

used in some air conditioning systems, a component with a fixed opening through which refrigerant passes as it is metered into the evaporator core. Also called an orifice tube.

EXPANSION VALVE

used on some air conditioning systems, a temperature sensitive device that meters the flow of refrigerant into the evaporator core. Also called a thermostatic expansion valve (TXV).

FAHRENHEIT

a scale of temperature measurement with the boiling point of water at 212°F. In the metric system, water's boiling point is 100°C.

FAIL-SAFE COOLING SYSTEM

a fail-safe cooling system allows a vehicle to be driven under limited power in the event that engine coolant is lost. In case of a ruptured hose, the engine operates in an emergency mode with limited power for driving a short distance (10-50 miles depending on the system). This eliminates the cost and inconvenience of having the vehicle towed to a service station and does not leave the customer stranded.

FAN CLUTCH

a device attached to a mechanically driven cooling fan that allows the fan to freewheel when the engine is cold or the vehicle is driven at speed.

FAN SHROUD

an enclosure that routes air through the radiator cooling fins.

FAN

a mechanically or electrically driven propeller that draws or pushes air through the radiator, condenser, heater core or evaporator core.

FIXED ORIFICE TUBE

a method of controlling refrigerant flow in an air conditioning system whereby the rate of flow is determined by the pressure difference across an orifice.

FREON

DuPont registered trade name for R-12 (dichlorodifluoromethane).

GREENHOUSE GASES

gases, such as carbon dioxide, Nox, methane, and water vapor, that help capture heat from the sun in the lower atmosphere of the earth. As the amount of greenhouse gases in the atmosphere increases, more heat is captured, which can lead to global warming (the greenhouse effect).

HEAD PRESSURE

the pressure of the refrigerant at the compressor outlet.

HEAT EXCHANGER

device (e.g., a radiator) that is designed to transfer heat from the hot coolant that flows through it to the air blown through it by the fan.

HEATER CORE

a radiator-like device used to heat the inside of a vehicle. Hot coolant is pumped through it by the water pump, and heat from the coolant moves from the heater core to the passenger compartment as the blower fan forces air through it.

HIGH SIDE

the high-pressure half of an A/C system, usually refers to all components between the compressor outlet and the expansion valve or expansion tube. In this part of the A/C system, the refrigerant is in a liquid form.

HUMIDITY

moisture in air, usually referred to as relative humidity since the amount of moisture air can hold increases as temperature increases.

HVAC

acronym for Heating, Ventilation and Air Conditioning.

LATENT HEAT OF CONDENSATION

the amount of heat given off as a vapor changes state from a gas to a liquid without the temperature changing.

LATENT HEAT OF EVAPORATION

the amount of heat needed for a liquid to change state to a vapor without the temperature changing.

LEAK DETECTOR

a tool used to locate refrigerant leaks.

LOW SIDE

the suction side of an A/C system between the evaporator core inlet (after the expansion valve or expansion tube) and the compressor. In this part of the A/C system, the refrigerant is in a gas form.

MANIFOLD GAUGE SET

the set of gauges that attaches to the high and low side of the A/C system and used for diagnosis.

ORIFICE TUBE

used in some air conditioning systems, a component with a fixed opening through which refrigerant passes as it is metered into the evaporator core. Also called an expansion tube.

ORIFICE

a precisely sized hole that controls the flow of fluid.

O-RING SEAL

a sealing ring, usually made of rubber and installed in a groove; a type of valve seal that fits into a valve stem groove under the valve keepers.

PAG

polyalkylene glycol oil (lubricant) used with A/C systems containing R- 134a refrigerant.

PHOSGENE GAS

a poisonous gas produced when R- 12 refrigerant is burned.

POROSITY

the condition of having pores through which fluids, gases or light can pass; tiny holes in casting caused by air bubbles.

POUNDS PER SQUARE INCH (PSI)

a unit of measure for pressure.

PRESSURE

the exertion of force upon a body, measured in pounds per square inch on a gauge.

PSI

measurement of pressure in pounds per square inch.

R12

the generic term for CFC refrigerant used in older A/C systems. Also called Freon.

R134A

generic term for a modern refrigerant that does not contain CFCs and does not harm the ozone layer.

RECEIVER/DRIER

an A/C system component into which high-pressure liquid refrigerant flows and is temporarily stored and dehydrated, usually located between the condenser outlet and expansion valve.

RECLAIM

to send refrigerant to an off-site facility where it is restored to its original purity so that it may be reused.

RECOVER

to remove refrigerant from a system and store it temporarily.

RECYCLE

to remove contaminants such as moisture, particulates, etc, from refrigerant and re-introduce it into the A/C system.

REFRIGERANT CYCLE

the complete loop or circuit that refrigerant passes through as it changes state from a vapor, to a liquid, then back to a vapor.

REFRIGERANT OIL

either a mineral or synthetic oil designed specifically for A/C systems.

REFRIGERANT

a chemical compound used in an A/C system to remove heat from the evaporator and transfer it to the condenser.

SCHRADER VALVE

a spring operated valve used to open and close the service outlets in an A/C system. They are the service valves used to attach manifold gauges and to charge or evacuate the system.

SERVICE PORT

any of the various designs of fittings that allow service tools such as manifold gauges to be attached to an A/C system. See also Schrader valve.

SUCTION LINE

the low side tube and/or hose leading from the evaporator core outlet to the compressor inlet.

SUCTION

exists in a vessel when the pressure is lower than the atmospheric pressure.

SUPERHEAT SWITCH

a switch, usually mounted on the compressor on certain A/C systems that completes the circuit to the thermal limiter switch.

SUPERHEAT

the addition of more heat to a gas after it has already vaporized; the heat added to vaporized refrigerant after it has changed state from a liquid to a gas controlled by the expansion valve.

TENSIONER

a device used with a timing chain or belt to maintain its tension.

THERMOSTAT

a device installed in the cooling system that allows the engine to come to operating temperature quickly and then maintain a minimum operating temperature.

THERMOSTATIC EXPANSION VALVE (TXV)

used on some air conditioning systems, a temperature sensitive device that meters the flow of refrigerant into the evaporator core. Also called an expansion valve.

VACUUM

a pressure lower than atmospheric.

VAPOR

a substance in a gaseous state. Liquid becomes vapor when brought above the boiling point.

WATER PUMP

a device used to circulate coolant through the engine.

WATER VALVE

a device used to control the flow of hot coolant to the heater core, usually operated by cable or vacuum.

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