



**CFC/HCFC
MANIFOLD GAUGE SET**

OWNER'S MANUAL

**Covers Gauge Set Models:
ACT9500, ACT9575 and ACT9600**

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INTRODUCTION

Congratulations on your decision to purchase a new Manifold Gauge Set. Your gauge set has been carefully designed and manufactured to meet the highest attainable quality standards.

The gauge sets covered by this manual are only intended for use on systems containing CFC or HCFC refrigerants or that are lubricated by mineral based oils. Please refer to the "PRECAUTIONS" section on page 10 of this manual for clarification.

For best results please read this manual carefully before attempting to operate the unit.

FEATURES

ACT9500, ACT9575 and ACT9600 Features:

- Optical Sight Glass allows visual contact with refrigerant as it flows through the gauges.
- Piston-type valve network keeps "O" rings from rotating and eventually leaking.
- Easy to use color coded valve handles.
- Hoses are equipped with anti-blowback fittings to prevent refrigerant loss and comply with current regulations.
- Hanging hook and holes for easy wall mounting.

Additional ACT9500 Features:

- High and Low side dry calibratable pressure gauges.
- Durable, 2-way, extruded aluminum manifold block.
- Comes with three, color coded, environmentally safe "Sure-Seal" low permeation refrigerant hoses.

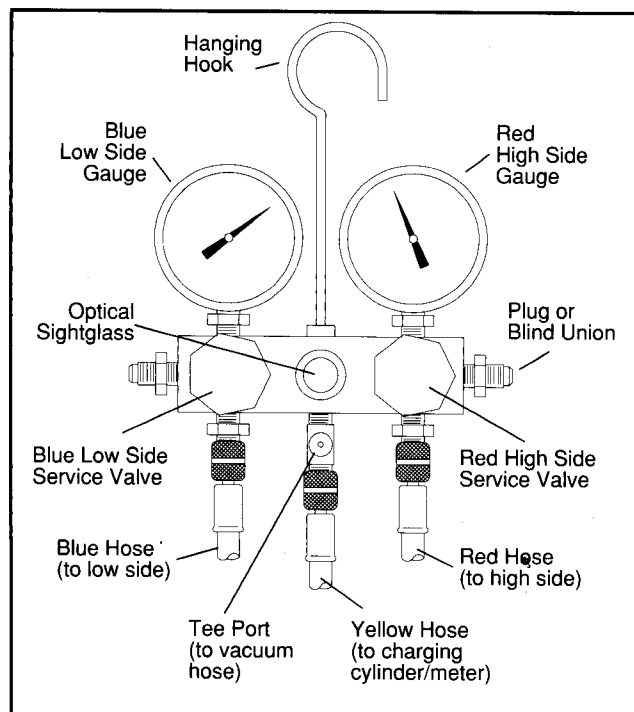
Additional ACT9575 Features:

- Glycerine filled calibratable pressure gauges.
- Durable, 2-way, extruded aluminum manifold block.
- Comes with three, color coded, environmentally safe "Sure-Seal" low permeation refrigerant hoses.

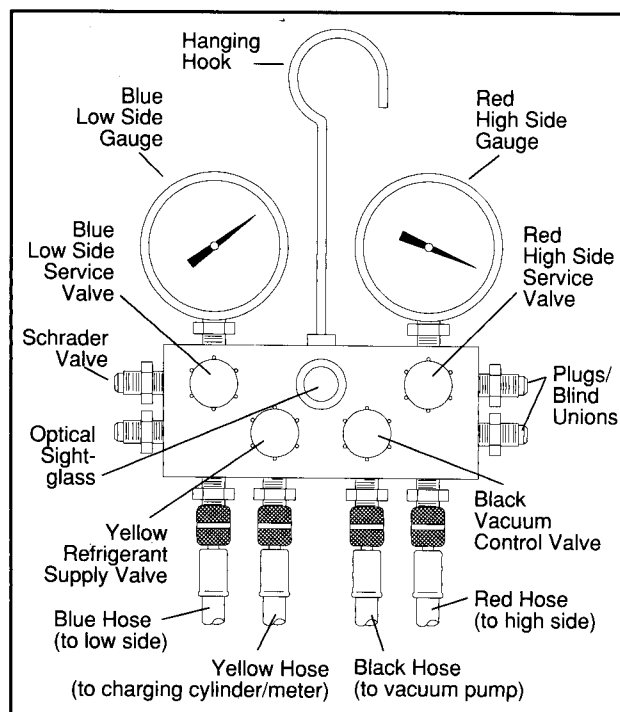
Additional ACT9600 Features:

- Glycerine filled calibratable pressure gauges.
- Durable, 4-Way, extruded aluminum manifold block.
- Comes with three, color coded, environmentally safe "Sure-Seal" low permeation refrigerant hoses and one evacuation hose.

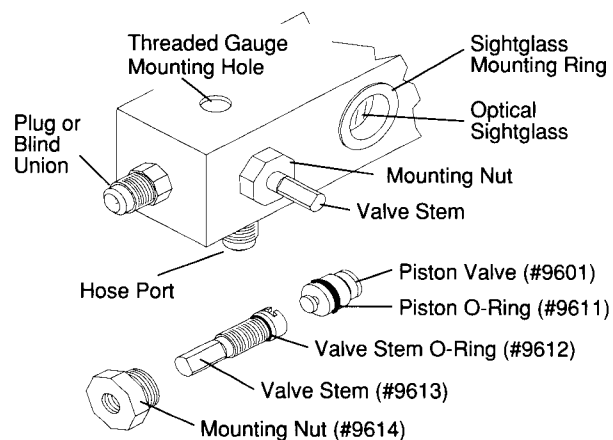
2-WAY GAUGE SET



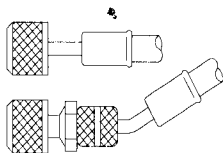
4-WAY GAUGE SET



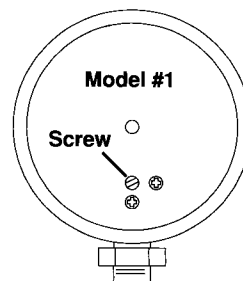
MANIFOLD & HOSE PARTS



A shut-off valve (anti-blowback) is supplied on all Red, Blue and Yellow refrigerant hoses. This valve will open automatically when connected and close automatically when disconnected to prevent any loss of refrigerant. Your set is equipped with one of the two types of valves shown. Both types comply with all applicable Federal EPA, State DOE, SAE and UL requirements and/or standards.

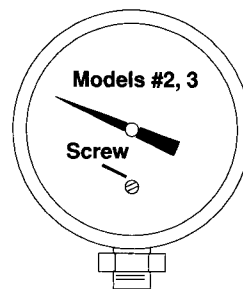


GAUGE CALIBRATION



All manifold gauges discussed in this manual are calibratable. To re-calibrate slowly turn the calibration screw with a small screwdriver until needle rests in the zero position.

The exact location of the calibration screw will vary from model to model as described below.



Model #1: Screw is located on the back of the gauge.

Model #2: Screw is located on the front of the gauge, inset into the glass.

Model #3: Screw is located on the front of the gauge, under the lens cover. To access the screw the lens cover must be removed.

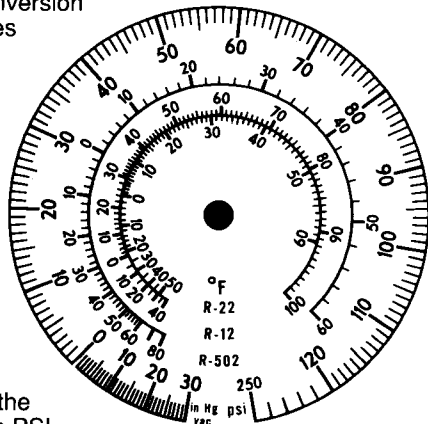
GAUGE READINGS

Diagram of Low Side Gauge

The two inner rings are Temperature Conversion Scales (in degrees fahrenheit) for R22, R12 and R502 refrigerants.

Vacuum Scale in inHg (Inches of Mercury) is only reflected on the Low Side Gauge.

The outer ring is the Pressure Scale in PSI (pounds per square inch).



NOTE: Metric Gauges are slightly different from the diagram above; Metric pressure is stated in either BAR, KG/Cm2 or KPA scales and temperature is stated in centigrade.

GAUGE READINGS

Pressure Scale

The outermost ring shown in the faceplate diagram is the pressure scale; it is calibrated in Pounds per Square Inch and is commonly abbreviated as PSI. The low side, or compound, gauge also has a vacuum scale which indicates pressure below atmospheric; called negative pressure or vacuum. Therefore the scale reads from -30inHg to 120psi, 250psi retard. The high side gauge does not have a vacuum or negative pressure scale and reads only from 0-500psi.

Temperature Scale

In addition to the pressure and vacuum scales the gauge faceplate contains temperature conversion charts for the most common refrigerants. This temperature information is located in the center of the faceplate, as shown in the diagram on the facing page, and is essential for some calculations, such as superheat, and useful if understood. The inner rings reflect the temperature scales for R22, R12 and R502 refrigerants. All three of the scales shown in the diagram are calibrated in degrees Fahrenheit. It is a characteristic of refrigerant that its temperature changes as the pressure does; the higher the pressure the higher the temperature, or vice versa. The graduations on each scale show the temperature for that refrigerant at the corresponding pressure on the outer ring. For example, as shown in the diagram, at a pressure of 60 psi, R22 is at 34 degrees fahrenheit.

PRECAUTIONS

- The ACT9500, ACT9575 and ACT9600 Gauge Sets are designed and intended for use **ONLY** on **CFC** or **HCFC** refrigerant systems lubricated by mineral based oils. Please refer to the chart below.

GAS IDENTIFICATION CHART

CFC	R12, R11, R13, R113, R114, R500, R503
HCFC	R22, R123, R124, R502

- **DO NOT USE** this manifold gauge set on **HFC** based refrigerant systems containing **PAG** or **POE** lubricants. Contamination of service tools and system may result.
- Proposed ternary blends, intended as drop-in replacements for CFC refrigerants, may be compatible for use with this manifold set (contact the factory for more information).
- Because different refrigerant systems will be serviced by the same manifold, always follow the operating instructions closely and completely in order to avoid cross mixing of refrigerants.
- This manifold should **NOT** be used during a recovery procedure since dirty and/or contaminated refrigerant would pass through the manifold set; and could potentially contaminate future recharges.

WARNINGS

The manifold gauge sets covered by this manual are intended for use **ONLY** by professionals who are properly trained and certified in air conditioning and refrigeration procedures.

Environmental Regulations

The 1990 amendments to the United States Clean Air Act mandate that all personnel who service refrigerant systems must be properly trained and certified (many states have even stricter requirements which should be understood and followed by those residents). Fines are in force for violations and compliance is now being monitored by the U.S. EPA.

Safety Procedures

Always wear protective eyewear when servicing pressurized refrigerant systems.

Charging Guidelines

We recommend **ONLY** low side (suction) vapor charging; such is the only method described in this manual. Always monitor pressure readings while charging so that manufacturer's specs are not exceeded.

OPERATING INSTRUCTIONS

Pressure Readings

For diagnostic purposes it is often necessary to connect a manifold gauge set to an A/C or refrigeration system in order to take pressure readings.

Set Up

Before using your new manifold gauge set it is necessary to remove the air and moisture from the hoses by either evacuation, or by purging them with refrigerant into, or through, a recovery machine. This should be done **after** connecting hoses to gauge set (steps 1 and 2 below).

1. Connect hoses to manifold gauge set as shown in the appropriate diagram.

2-Way: See the diagram on page 4.

4-Way: See the diagram on page 5.

2. Make certain that gauges are calibrated to "zero" before use (refer to page 7 for complete instructions).
3. Clean system service ports prior to connection, to ensure tight seals and prevent contamination.

Connection To System

1. Make certain that **ALL** valves are closed.
2. **2-Way:** Connect the free end of the Blue hose to the low side service port of the system and the free end of the Red hose to the high side service port of the system. It may be necessary to use adapters (not included). Store the yellow hose by loosely attaching to the Tee branch port.

OPERATING INSTRUCTIONS

4-Way: Connect Blue Hose to the low side service port and Red hose to the high side service port. Store the Black and Yellow hoses by loosely attaching them to the blind ports on either side of the manifold block. Do not tighten fittings onto ports.

3. Start system and observe pressure readings.

DO NOT OPEN MANIFOLD VALVES.

4. Compare readings with manufacturer's specifications.
5. On completion of diagnosis, switch off system.
6. Disconnect Blue and Red hoses. Keep in mind that the shut-off valves will prevent refrigerant from being released into the atmosphere; refrigerant will remain in hoses and pressure will remain on the gauges.
7. It is recommended that the used refrigerant which remains in the manifold be reclaimed with an approved recovery unit as instructed below.
 - a. Connect Blue and Red hoses to the low and high inlet ports on the recovery unit.
 - b. Start recovery unit and open **ALL** manifold valves.
 - c. When recovery is complete shut off recovery unit, close **ALL** manifold valves and disconnect the Red and Blue hoses.
8. Before storing manifold, connect hoses to blind ports to keep the hoses secure and the fittings clean.

OPERATING INSTRUCTIONS

Evacuation And Recharge

NOTE: Only evacuate an empty or new system. **DO NOT** run used refrigerant through the manifold or vacuum pump.

1. **2-Way:** Connect Blue hose to low side service port, Red hose to high side service port and Yellow hose to a refrigerant cylinder or charging meter. A black vacuum hose must be used to connect the vacuum pump to the side of the "Tee" fitting.

4-Way: Connect Blue hose to low side service port, Red hose to high side service fitting, Yellow hose to the refrigerant cylinder or charging meter and Black hose to vacuum pump. If desired an auxiliary vacuum gauge may be connected to the upper left side port (the one with the schrader valve).

Caution: Make certain refrigerant cylinder valve remains closed, or that charging meter remains off.

2. Open **ALL** manifold valves.
3. Switch on vacuum pump and evacuate system.
4. When evacuation is complete close **ALL** manifold valves and switch off vacuum pump.
5. Perform vacuum leak check by watching low side gauge for several minutes to see if needle rises off 30 inches/hg.
 - a. If a rise **DOES NOT** occur; evacuation is complete.

OPERATING INSTRUCTIONS

b. If a rise occurs, even as minute as one or two graduations, moisture remains in the system and evacuation should continue. Open **ALL** valves and repeat steps 3-5 until the needle no longer rises.

c. If a rise continues toward zero; a leak is present. Find and repair the leak and then repeat procedure from the beginning.

NOTE: If using an auxiliary vacuum gauge, use it rather than the low side gauge for leak checking. Upon completion of leak checking make sure to remove vacuum gauge from manifold.

6. When evacuation is complete, as described in section 5a, above, charging may begin.

2-Way Only: Disconnect Black vacuum hose from the Tee fitting.

7. Open refrigerant cylinder, and if applicable, start the charging meter.

CAUTION: Only low side vapor charging is recommended and described in this manual. Always weigh the amount of refrigerant to be charged into the system by using a charging meter or similar device.

8. **2-Way:** Slowly open Blue valve to begin refrigerant flow into system.

4-Way: Open Yellow valve, then slowly open Blue valve to begin refrigerant flow into system.

OPERATING INSTRUCTIONS

9. If necessary, use a heater blanket or start system when possible to develop the pressure differential needed to charge full amount.

CAUTION: Always watch pressure gauges to ensure that readings stay within the system manufacturer's recommended specifications.

10. When charging is complete; close **ALL** manifold valves. If applicable, disconnect heater blanket and/or switch off system.
11. Close refrigerant cylinder valve and/or switch off the charging meter.
12. Disconnect hoses from system and accessories; the shut-off valves on the Blue, Red and Yellow hoses will prevent refrigerant, contained in hoses, from being released into the atmosphere.
13. It is recommended that the remaining refrigerant in the manifold set be reclaimed with an approved recovery unit. (Please refer to steps 7a, 7b & 7c on pages 13 and 14 for detailed recovery instructions).
14. Upon completion, store manifold for future use by loosely attaching the free end of the hoses to the blind ports to prevent dirt and/or moisture from entering the hoses and/or fittings.

UNIT MAINTENANCE

Your manifold gauge set requires very little routine maintenance. If used and stored carefully this unit will provide you with many years of reliable quality service.

- Avoid extreme mechanical shock to the gauges.
- Always store your manifold set with the hoses attached loosely to the blind ports to prevent dirt or moisture from entering hoses and fittings.
- Check hoses for wear, cracks or cuts and replace on an as needed basis. See replacement part information.
- As with all valves it may be necessary to eventually replace the "O" rings and/or valve seats; which will wear out due to regular use. When this occurs please proceed as per the replacement instructions below (see manifold and manifold parts diagram on page 6 for clarification).
 1. Open valve fully and remove knobs by firmly pulling up and off.
 2. Loosen mounting nut by turning counter-clockwise with an open ended wrench.
 3. Remove mounting nut and valve stem assembly.
 4. Examine the "O" rings and valve seat for wear and replace as necessary.
 5. Keep valve assembly lightly back-seated when reinstalling to prevent damage to seat.

UNIT MAINTENANCE

NOTE: For best results use a small amount of silicone type lubricant when replacing "O" rings and/or seals.

- Occasionally it may be necessary to replace one of the gauges due to breakage or malfunction. When this occurs please proceed as instructed below.
 1. Firmly hold manifold block in a flat jawed vice or another similar fashion.
 2. Place an open ended wrench on the gauge stem nut or flats and turn counter-clockwise to remove. Unscrew and lift off manifold.
 3. Remove manifold from vice and carefully clean out the pipe threads and hole. Make certain that no residual thread sealant remains.
 4. Prepare threads of replacement gauge by coating with tape dope or other similar sealant.
 5. Carefully screw gauge into manifold by hand, rotating in a clockwise direction. When gauge is finger tight, place wrench on hex or flats and tighten until gauge is facing toward the front of manifold block.

REPLACEMENT PARTS

Standard Equipment

Your manifold gauge set comes equipped with a set of color coded "environmentally safe" refrigerant hoses.

To purchase replacement parts please contact your local distributor. To ensure that you obtain the correct parts it is best to refer to the part number when placing your order.

Replacement Parts

Model	Part Description	Part #
9500	High Side Dry Gauge	ACT9503
9500	Low Side Dry Gauge	ACT9504
9575/9600	High Side Glycerine Gauge	9632R
9575/9600	Low Side Glycerine Gauge	9622B
All Models	72" Refrigerant Hoses	9372R,Y,B
9600	72" Evacuation Hose	9572BL
9500/9575	Valve Handles	9509R,B
9600	Valve Handles	9608R,Y,B,BL
All Models	Hanging Hook	9513
All Models	Piston Repair Kit	9620
	(9601, 9611, 9612, 9613)	

NOTE: "All models" refers only to the units covered by this owner's manual. Special manifold fittings (see diagram on page 6) can also be obtained from your local distributor.

Snap-on Tools
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