8202 or A2-02 (Annie)

Hermetic Analyzer

Owner's Manual

WARNING: Because of the nature of this instrument it is very important that you read and fully undertand this manual before using the unit!

Congratulations!

You have just purchased a high quality handcrafted test instrument Your new Analyzer has been re-designed for convenience of operation, and is now covered by a full one year warranty.
We strongly suggest you take the time to familiarize yourself with the instrument while completely reading these operating instructions. **Please pay particular attention to the cautions and warnings.**

Cautions In Using:

Electricity can be hazardous when not understood or respected. This instrument is intended for use by qualified service personnel who fully understand the electrical operation of the equipment they are servicing. **Make sure that all power is disconnected from the equipment you are testing and that power to this instrument is not energized until all connections are made in accordance with these instructions.**
Never make a guess as to whether or not a wire is "live." **Any** wire should be checked for voltage between itself and ground before working on it. Never work on wires that are "live." A tool such as a Connectionless Voltage Detector is ideal for quickly identifying energized circuits. Whenever possible, remove the unit's fuses or turn off the main safety switches or circuit breaker before working on the unit's wiring. If power shut off is not in the area you are in, lock it off or tag it with a note to prevent unauthorized restoration of power.
For the chassis of this instrument to be grounded it **must** be plugged into a line voltage receptacle wired according to NEC standards. When using the cord adaptor, its black clip should be connected to the hot (for

120 VAC) or first hot leg (for 220 VAC). The green clip should be connected to the proper ground. Failure to connect the ground clip of the cord adapter, use of the power cord with an ungrounded receptacle, or defeating the ground plug may lead to hazardous voltage on the chassis and will automatically void the warranty. This instrument is protected with a master switch that has an ON/OFF switching capability. After final testing at the factory, this switch is placed in the "OFF" position. Connect the test leads, position the switches and hook up power according to instructions before placing this switch to the "ON" position. It is recomended, for safety, this switch be kept in the "OFF" position whenever the instrument is not in use.

Ratings:

This unit is designed for temporary testing purposes only; the maximum ratings for full load is two minutes at 25 Amps, 110-240 VAC. Exceeding or ignoring this rating could be dangerous and will automatically void the warranty.

Care & Handling of your Instrument:

Unlike any of the mechanical tools you may own or work with, an electical testing instrument must be treated with care and respect in order for it to provide accurate and long service. Dirt, grease and moisture can easily contaminate the switches and controls, making them perform erratically. Common sense will tell you to keep your instrument clean and dry so as to avoid these problems. Periodically check the external condition of the wires.

Applications:

- To check continuity of windings.
- To check for ground shorts in windings.
- To start a compressor without relay, control, or capacitor.
- To free stuck or frozen compressors.
- To check unit capacitors.
- To replace unit's capacitor temporarily until a new one can be secured.
- To check and test all types of appliances.

OPERATION

Note: *This unit contains a neon power indicator lamp that will identify 110 volt power by a low glow, and 220 volt power by a bright glow. Whenever it is connected to any power source, the indicator lamp comes on automatically, and* ***voltage is present on the black test lead.***
To connect the unit to 220 volt power, connect adaptor to power cord and clip onto the power source. If standard 220 volt plug is desired, clips can be removed and plug installed.
Check all bulbs prior to operation as described in section "E."

A. To check a hermetically sealed unit:

1. Remove all external wiring from the terminals of the compressor.
2. With the analyzer unplugged and master switch in OFF position, clip red lead to run binding post, white lead to start post, and green lead solidly to frame. **Do not connect black lead, and keep it clear of frame.**
3. Plug the analyzer into receptacle, use the adaptor cord for non-standard 110v or 220v supplies. **Do not press start button.**
4. Press ground test button located

below amber lamp. If amber lamp lights, unit is externally grounded.

a. If unit is externally grounded, press the winding test buttons (located below white & red lamps) one at a time to check for internal grounds. If any of the winding lamps light, stop test, unit has dead short to ground, **replace unit.**

b. If unit passes above check, connect black lead to common post; if unit is externally grounded, disregard ground check in following step.

5. Press the winding test buttons one at a time. If windings are good, red and white lamps will light respectively. If unit is **not** externally grounded, press ground test button. If windings are grounded, amber lamp will light. If red and white lamps do not light or if amber lamp lights, **replace unit**.

B. To Start a hermetically sealed unit:

1. Remove all external wiring from

2. With the analyzer **unplugged** and master switch **OFF**, clip red lead to run binding post, white lead to start post, and black lead to common post. **Do not connect the green lead and isolate it from frame, faceplate, or other leads.**
3. Put capacitor switch in proper range. (See Section G).
4. Connect analyzer to correct voltage for compressor (use the cord adaptor for 220v or non standard 110v).
5. Press start button and put master switch to the **ON** position. If unit starts, release start button; trouble is in relay, capacitor, control or external wiring. If unit fails to start after 2 seconds, release start button and turn master switch **OFF**. Unit is stuck or field coils have internal shorts.

C. To release a stuck or frozen unit:

1. Remove all external wiring from the terminals of the compressor.
2. Same as section B - 2.
3. Connect analyzer to correct voltage for compressor.
4. Holding the start button in, move the master switch quickly to **ON** and back to **OFF,** then move it quickly to **REV** and back to **OFF**; repeat three times. If unit starts, release the start button and let it run for approximately a minute, then stop unit.
5. Now try to start unit normally as shown in section B. If unit fails to start, **replace**. If circuit breaker trips, wait five minutes and reset.

D. To check capacitor by substitution:

1. Unplug the analyzer and restore compressor wires in original positions. **DO NOT PLUG IN ANALYZER FOR THIS TEST!**
2. Disconnect one lead from capacitor.
3. Connect white and green test leads to leads that would run to capacitor.
4. Put master switch in **ON** position, select capacitor range. (see section G).
5. Try to start unit normally. If unit runs, capacitor is bad, **replace** it. If a replacement capacitor is not immediately available, the analyzer may be left connected until a replacement is found.

E. To check bulbs in the analyzer:

1. Make sure master switch is **OFF**.
2. Clip all 4 test leads together.
3. Plug the analyzer into receptacle.
4. Press the 3 testing buttons, one at a time; their respective lamps should light. If any lamp does not light the unit should be returned for repair. **Do not press start button at any time during bulb check.**

F. Analyzer wiring circuit:

Your analyzer can be used to check

and test all types of electrical appliances by making use of the following circuit information. If the line voltage receptacle is wired according to NEC standard, then:
1. Black lead is hot.
2. Green lead is neutral when start button is pressed.
3. Red lead is neutral when master switch is ON.
4. White lead is neutral when master switch is in REVERSE position.
5. White lead is neutral when master switch is ON, and start button is pressed.
6. Red lead is neutral when master switch is in REVERSE position, and start button is pressed.
7. When any of the leads come in contact with the black lead, their respective lights light when their button is pressed.

G. Capacitor Information:

1. 110 volt units up to 1/4 HP, use 75-155 MFD range.
2. 110 volt units of 1/3 - 1/2 HP, use 160-240 MFD range.
3. 110 volt over 1/2 HP, use 250-380 MFD range.
4. 220 volt units, use rating on compressor.

H. Relay Wiring Information:

G.E. Relay - Lead from post #1 goes to start.
Lead from post #3 goes to run.
Other post is common.

Delco Relay - Lead from post #S goes to start.
Lead from post #M goes to run.
Other post is common.

COMPRESSOR TERMINAL COLOR CHART

UNIT MAKE	START	RUN	COMMON
Analyzer	W	R	B
Admiral	B	R	R
Airtemp	W	R	B
Carrier	W	R or T	B
Coldspot	W	R	B
Copeland	W	R	B
Crosley	B	W	R
Frigidaire	R	B	W
General Electric	W	G	B
Gibson	G	W	B
Grunow	R	W	B
Hotpoint	W	G	B
Kelvinator	W	R	B
Kel-Kold	W	G	B
Leonard	W	R	B
Norge	R	B	W
Philco	W	G or R	B
Servel	W	R	B
Stewart Warner	W	R	B
Tecumseh	W	R	B
Universal Cooler	W	R	B
Westinghouse	R	B	W
Zenith	R	W	B

Limited Warranty and Repair Policy

This instrument is designed and produced to provide unlimited service. Should it become inoperative after the user has performed the recommended maintenance, a no-charge repair or replacement will be made to the original owner within one year of the date of purchase. This applies to all repairable instruments which have not been tampered with or damaged. This warranty does not cover consumable items such as batteries, tips and fuses, nor physical damage and wear to components such as probes, sensors and adaptors. For repair or customer service return the tool to the place of purchase.

Repaired tools will carry a 90-day warranty.