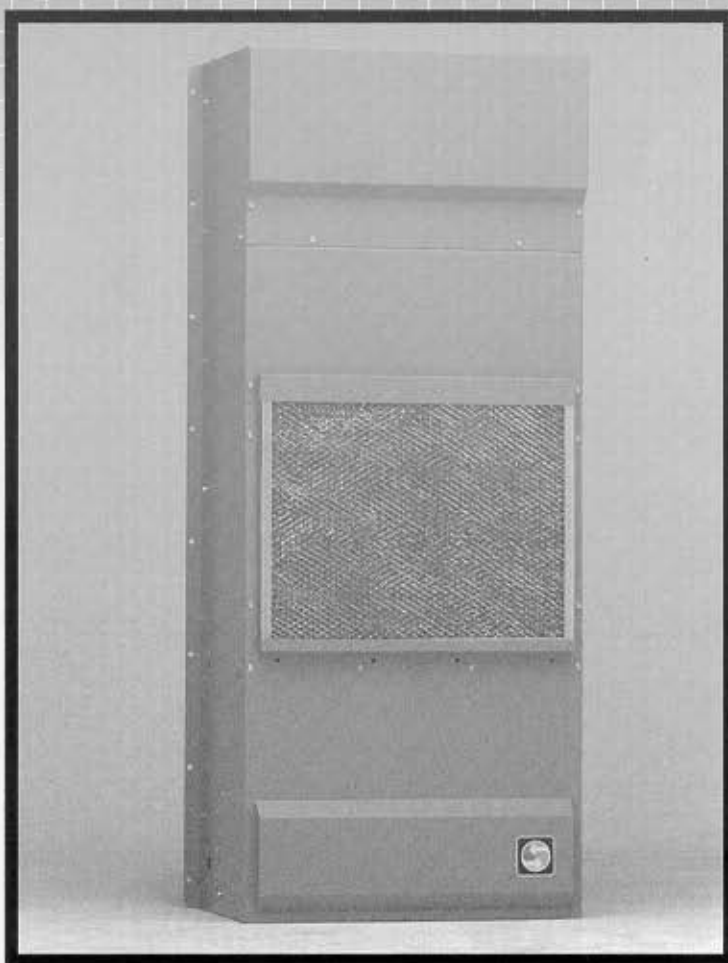


FOR REFERENCE ONLY



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Part No. 10-1008-41 Rev. 8

SLIMBOY® 52

Instruction Manual



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.....	

! WARNING !

Read this manual thoroughly before you attempt to install or test the SLIMBOY® air conditioner.

UNPACKING AND INSPECTION

Inspect the SLIMBOY® Air Conditioner. Check for concealed damage that may have occurred during shipment. Look for dents, scratches, loose assemblies, evidence of oil, etc. Any damage evident upon receipt should be noted on the freight bill. Damages should be brought to the attention of the delivering carrier within 15 days of delivery.

Save the carton and packing material and request an inspection. Then file a claim with the delivering carrier. MAI cannot accept responsibility for freight damages; however, we are ready to assist you in any way possible.

Some of the information contained in this manual may not apply if a special unit was ordered. Additional drawings which would apply were inserted. Contact Midwest if further information is required.

McLean

HANDLING

To avoid possible shipping damage and facilitate transportation and storage, the **SLIMBOY®** air conditioner may have been shipped in a horizontal position. If it is necessary to place the air conditioner in a horizontal position after **uncartoning**, be certain it is placed in an upright (vertical) or mounting position for a minimum of five (5) minutes before operating, in order to allow the compressor oil to drain to the compressor sump area.

CAUTION

NEVER attempt to operate the air conditioner while it is in a horizontal position, on its side, back, or front. The refrigeration compressor is filled with lubricating oil. Running the compressor without oil in the lower part of the housing will cause permanent damage to the unit. This also voids the warranty.

When ordering service parts, specify these numbers.

Before installing, make certain these parameters are met. Lower higher ambient temperatures may cause permanent damage or malfunction of the unit.

Read this manual thoroughly before you attempt to install or test the

SUM BOY® air conditioner. Before operating, make certain the power source match these requirements.

HOW TO IDENTIFY YOUR SLIMBOY® AIR CONDITIONER

Leak test pressures.


For installation and maintenance as outlined in this manual, first refer to the nameplate on your unit. The nameplate will provide important data regarding capacity of the unit, minimum and maximum ambient operating temperatures, type and amount of refrigerant required for re-charging, and most important - electrical power characteristics when making electrical hook-ups or connections.

ELECTRONIC ENCLOSURE

AIR CONDITIONER

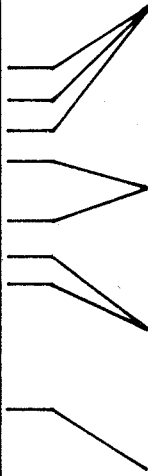
CUST. P/N	_____		
MODEL NO.	_____		
SERIAL NO.	_____		
COOLING:	_____ BTU	_____ W	
HEATING:	_____ BTU	_____ W	
AMB. TEMP. MIN/MAX	_____ °F	_____ °C	
PHASE	_____ HERTZ	_____ FLA	
VOLT	_____		
REFRIGERANT	_____ OZ.	_____ GRAMS	
DESIGN PRESSURES P.S.I.G.	HIGH _____	LOW _____	

USE A TIME DELAY FUSE OR CIRCUIT BREAKER



FOREIGN PATENTS PENDING

10-1002-05G MADE IN U.S.A.



DESIGN DATA

Model	Voltage	Hz	Full Load Amps	Ph.	BTU/Hr @ Max. Amb.Temp.	Max °F Amb.Temp	Shipping Weight
52-1425-XXX	230	50	14.0	1	14,000	125	240 lbs.
52-1426-xxx	230	60	14.0	1	14,000	125	220 lbs.
52-1625-xxx	230	50	16.0	1	16,000	125	255 lbs.
52-1616-xxx	230	60	17.0	1	16,000	125	225 lbs.
52-1926-xxx	230	50/60	18.8	1	17,500/20,000	125	235 lbs.

Note: -xxx will be replaced with three digits designating all options desired. Consult factory for specific model numbers.

BENCH TESTING

CAUTION

To avoid possible damage to the air conditioner, it must be in an upright (vertical) position for a minimum of five (5) minutes before functional testing is started.

When "bench testing" the SLIMBOY® air conditioner before mounting to the electronic enclosure, follow the procedures outlined in the following paragraphs

- Refer to nameplate for proper electrical current requirements, then connect the power cord to a properly grounded electrical outlet.

NOTE

Minimum circuit ampacity should be at least 125% of the amperage shown in the DESIGN DATA section. To prevent overloading, no other equipment should be connected to this circuit.

- Make sure the unit has been standing upright for five (5) minutes
- Operate the air conditioner for five (5) or (10) minutes. No excessive noise or vibration should be evident during this run period. The condenser blower on top, the evaporator or cool air blower located in the lower portion of the unit and the compressor should be running. To check cool air output, use a reliable air temperature measuring device. The cool air output should be between 50° to 60° F. when room temperature is between 70° to 80° F.
- You may remove the air inlet filter to check further on the operation. The discharge line from the compressor (the uninsulated line) should become very warm. **Care should be taken to avoid possible burns.** Touch carefully! Condenser air temperatures should be warmer than normal room temperatures within a few minutes.

- Mounted along side the compressor is the suction accumulator which is insulated to help avoid sweating or condensation buildup.
- The compressor is provided with automatic reset thermal overload protection. This thermo switch is located and mounted inside the plastic enclosure clipped to the compressor. The only time this switch should operate is when the compressor overheats due to clogged or dirty inlet air filter, if ambient air temperatures exceed nameplate rating or if enclosure dissipated heat loads exceed the rated capacity of the air conditioner. The thermal overload switch will actuate and stop compressor operation. Blowers will continue to operate, however, and the compressor will not restart until the compressor has cooled to within the thermal overload cut-in temperature setting.

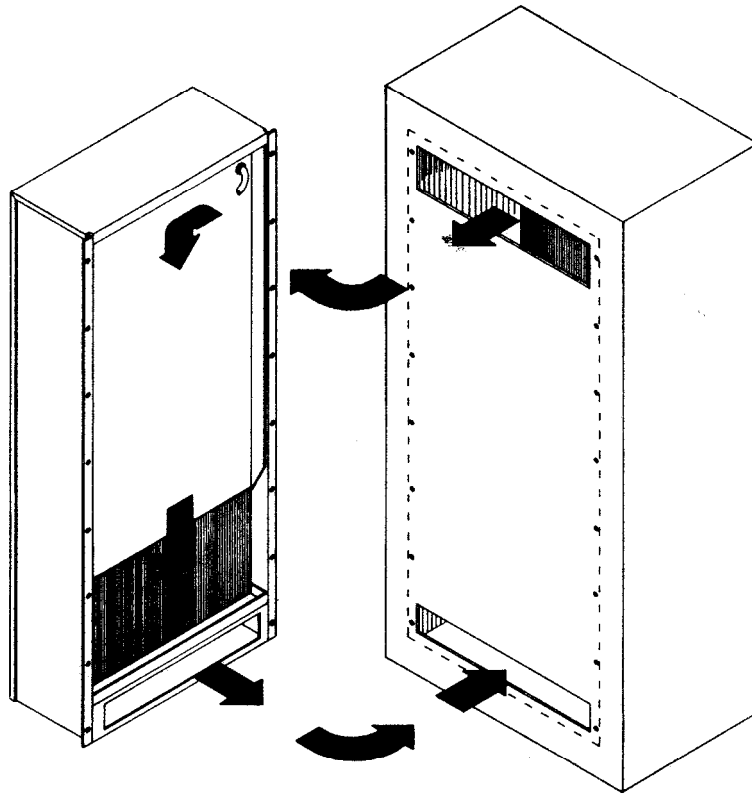
INSTALLATION

When mounting the SLIMBOY® air conditioner to the electronic cabinet or enclosure, the following procedures should be referred to:

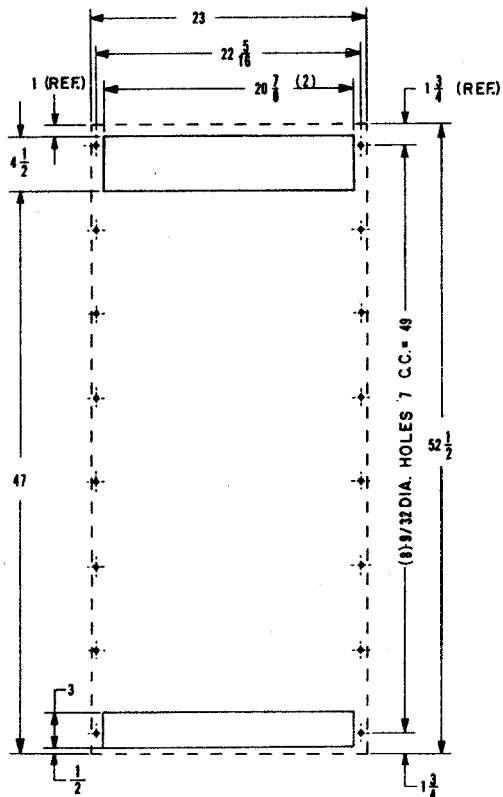
WARNING

TO AVOID POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE WHEN THE AIR CONDITIONER IS TO BE MOUNTED ON DOOR OF CABINET, BE SURE THAT HINGES WILL SUPPORT THE ADDED WEIGHT OF AIR CONDITIONER. ALSO BE CERTAIN AIR CONDITIONER DOES NOT OVER-BALANCE THE ELECTRONIC CABINET CAUSING IT TO TIP OVER WHEN THE DOOR IS OPENED. WEIGHT OF THE UNIT CAN BE FOUND IN THE DESIGN DATA SECTION. USE ALL MOUNTING HOLES TO INSURE STABILITY AND EFFICIENT SEAL.

- When mounting to a NEMA 12 type enclosure, interfacing air "in" & "out" openings must be provided as shown in Fig. 1. Refer to layout in Fig. 2.
- To protect the integrity of the "closed loop" design (see Principles of Operation), adhesive backed gasket tape is provided (shipped loose) for sealing around the enclosure's air conditioner mounting opening. The gasket kit contains pre-cut lengths that are to be adhered to the air conditioner as shown in Fig. 3.
- Remove and discard the plastic plug from the condensate drain tube. A condensate drain tube "trap" inside the air conditioner is provided to ensure proper drainage. When connecting the external tubing to the condensate drain tube, do not form a "trap" in the external tubing, nor should any portion of the external drain tube be elevated above the exit point from the air conditioner. The external drain tube outlet must not be submerged at any time.
- The use of an extension cord is not recommended.

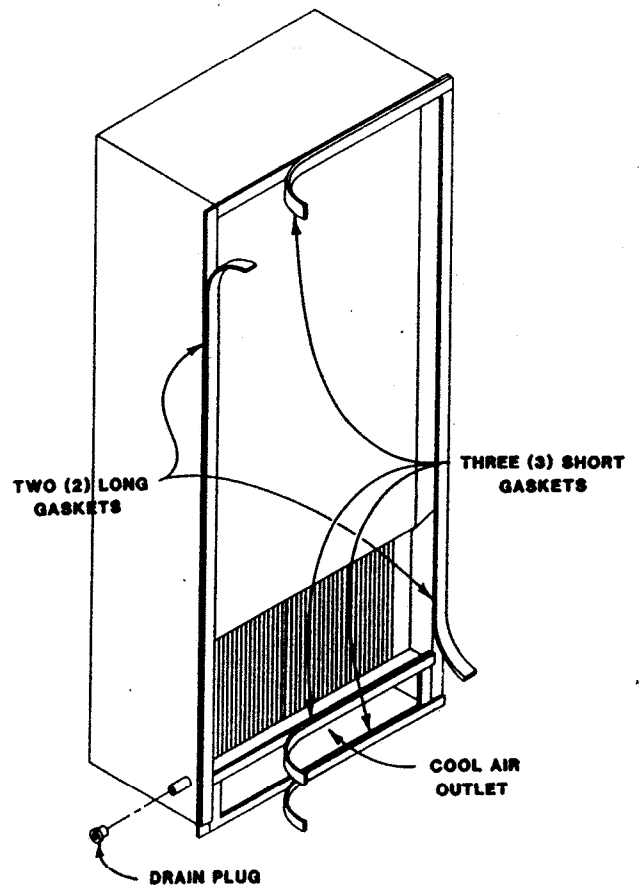


MOUNTING TO NEMA 12 ENCLOSURE
FIG. 1



NOTE
1. DASH LINES REPRESENT AIR CONDITIONER.

CUT-OUT DIMENSIONS FOR NEMA 12 ENCLOSURES
FIG. 2



GASKET INSTALLATION
FIG. 3

PRINCIPLES OF OPERATION

SLIMBOY@air conditioners are designed specifically to cool and dehumidify the internal environments of cabinets and enclosures which are used to package electronic components, thus assuring a cool, clean atmosphere for reasons of optimum performance and longevity.

Hot air inside the electronic cabinet or enclosure is drawn into the return air plenum area of the air conditioner by means of the evaporator duplex blower located in the lower section of the air conditioner. This air is drawn through the evaporator coil, cooled and discharged back through the two (2) cold air outlets into the cabinet or enclosure. Any moisture in this air condenses on the evaporator coil and ultimately collects in the condensate tray where it is then discharged to the outside of the air conditioner by the condensate drain tube which projects out of the right hand side panel.

The "closed loop" design of the air conditioner assures that this clean cooled air never mixes with the hot, dirty ambient air that is used only for cooling the compressor and accomplish the heat exchange through the condenser coil. Generally, the cabinet or enclosure air which is being cooled and recirculated over and over again does not require any filtering media.

Room, or ambient air drawn into the air conditioner through the inlet filter, across the compressor and through the condenser coil is usually dirty, dusty and/or humid air, depending upon the specific environment in which the air conditioner is required to operate. This ambient air is discharged by the condenser duplex blower back to the ambient environment. The temperature of this discharged air will be quite warm or actually hot, depending on the ambient temperature and the work load imposed on the air conditioner.

Providing the inlet filter is properly maintained by frequent cleaning and/or replacement, the inlet filter will assure relatively clean air to pass through the condenser coil. Dirty filters will hamper the optimum operating efficiency of the air conditioner.

NOTE

The condenser filter will require periodic maintenance as explained on Pages 7 through 9.

If the SLIMBOY@air conditioner is to be mounted on the door of the cabinet or enclosure, it is recommended that an electrical lock-out or safety switch be installed in the enclosure to stop the operation of the unit while the door is open.

If electrical power is momentarily interrupted to the air conditioner and reapplied immediately, (within 3 to 5 seconds), the compressor may not restart due to the high back pressure of the compressor.

DO NOT ATTEMPT TO RE-START THE AIR CONDITIONER FOR AT LEAST ONE (1) MINUTE AFTER THE UNIT HAS BEEN SHUT OFF EITHER ACCIDENTALLY OR INTENTIONALLY.

It takes at least one (1) minute after shut-down for the compressor suction and discharge pressures to equalize in order to restart the air conditioner.

OPERATING THE SLIMBOY@AIR CONDITIONER AT AMBIENT TEMPERATURES BELOW MINIMUM OR ABOVE MAXIMUM TEMPERATURES INDICATED ON THE NAMEPLATE WILL VOID ALL WARRANTIES.

IT IS RECOMMENDED THAT THE WARRANTY SECTION OF THIS MANUAL BE READ IN ORDER TO FAMILIARIZE YOURSELF WITH PARAMETERS OF RESTRICTED OPERATION.

It is very important to make sure that the plastic plug installed in the outlet of the condensate drain tube be removed prior to operation of the air conditioner. By not removing this plug, you will cause the collected condensate or water to back up the drain tube and flood the condensate tray. This flooding or overflowing water could then be transmitted into the electronic cabinet or enclosure by the air exhausted from the evaporator blower, thus causing damage to expensive electronic components (See Figure 3)

The moisture that the enclosure air can contain is limited. If moisture flows from the drain tube continuously this can only mean that ambient air is entering the enclosure. Remember that frequent opening of the enclosure's door admits humid air which the air conditioner must then dehumidify.

MAINTENANCE

COMPRESSOR

The compressor requires no maintenance. It is hermetically sealed, properly lubricated at the factory and should provide years of satisfactory operating service.

Should the freon charge be lost, recharging ports (access fittings) on the suction and discharge sides of the compressor are provided for recharging and/or checking suction and discharge pressures.

UNDER NO CIRCUMSTANCE SHOULD THE ACCESS FITTING COVERS BE LOOSENED, REMOVED OR TAMPERED WITH.

Recharging ports are provided for the ease and convenience of reputable refrigeration repair service personnel for recharging the air conditioner. (See Page 9)

INLET FILTER

Proper maintenance of the inlet filter will assure normal operation of your SLIMBOY@air conditioner. If filter maintenance is delayed or ignored, the maximum ambient temperatures under which the unit is designed to operate will be decreased.

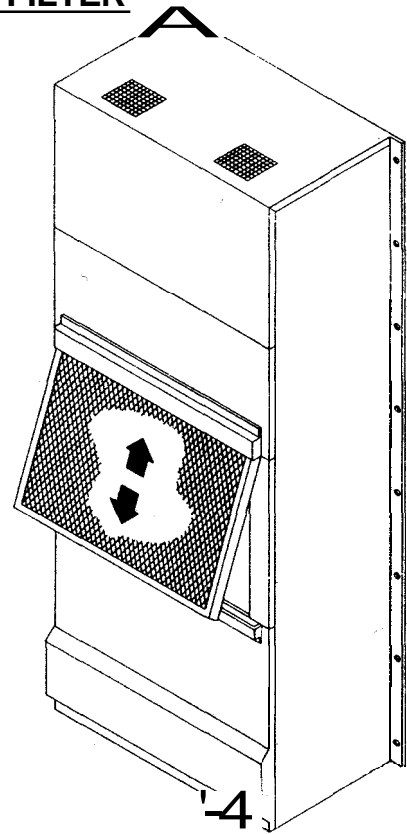
As the compressor operating temperature increases above normal due to dirty or clogged inlet filter (or plugged condenser coil), the air conditioner's compressor will stop operating due to actuation of the thermal overload cut-out switch located on the compressor housing. As soon as the compressor temperature has dropped to within the switch's cut-in setting, the compressor will restart automatically. However the above condition will continue to take place until the inlet filter has been cleaned or replaced.

It is recommended that power to the air conditioner be interrupted intentionally when abnormally high compressor operating temperatures cause automatic shut-down of the unit. The above described shut-down is symptomatic of clogged or dirty filters, thus causing a reduction in cooling air flow across the surface of the compressor and condenser coil.

CONTINUED OPERATION UNDER THE ABOVE CONDITIONS CAN AND WILL DAMAGE AND SHORTEN COMPRESSOR LIFE. THE AIR CONDITIONER FEATURES AN EASILY REMOVABLE INLET FILTER TO FACILITATE NECESSARY CLEANING. THERE SHOULD BE NO REASON TO NEGLECT THIS NECESSARY MAINTENANCE.

HOW TO REMOVE, CLEAN OR INSTALL A NEW FILTER

1. Lift filter high enough for bottom to clear the lower filter retainer.
2. Pull bottom of filter toward you, pressing downward until the top of the filter clears the upper filter retainer. Remove CAREFULLY if unit is operating in order to assure that no dirt from the filter enters the air intake opening.
3. Follow cleaning instructions below.
4. Re-install cleaned or install new filter by sliding filter top into upper retainer; push filter against unit, and slide filter bottom into lower retainer.
5. Re-install filters according to AIR FLOW arrow on filter.

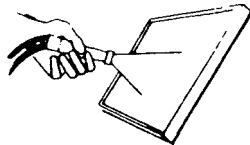


For replacement filters, disposable filters, and filter adhesive see illustrated parts lists page 11.

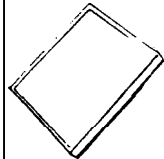
SERVICING AND CLEANING INSTRUCTIONS FOR AIR FILTERS

RP aluminum washable air filters are designed to provide excellent filtering efficiency with a high dust holding capacity and a minimum amount of resistance to air flow. Because they are constructed entirely of aluminum they are light weight and easy to service. Optimum filter performance is maintained by recoating the filters after washing with RP Super Filter Coat adhesive. To achieve maximum performance from your air handling equipment, air filters should be cleaned on a regular basis.

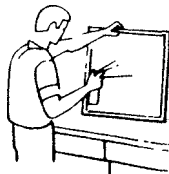
CLEANING INSTRUCTIONS



1. Flush the filter with warm water from the exhaust side to the intake side. DO NOT USE CAUSTICS.



2. After flushing allow filter to drain. Placing it with a corner down will assure complete drainage.



3. Recoat the filters with RP Super Filter Coat adhesive by dipping or spraying. If filter is sprayed do so from both sides for maximum concentration of adhesive.

It is impossible to recommend a filter cleaning interval due to the wide variety of air quality conditions, as well as not knowing the particular operating duty cycles of the air conditioner. Amounts of air-borne dust/dirt particles are different in every location. It is recommended that when a fine layer of dust or lint is visible on the surface of the filter, that it be removed and inverted so as to use the entire effective filter surface area before it is flushed, drained, coated with proper coating and re-installed.

Do not run the SLIM BOY[®] conditioner for extended periods of time with the inlet filter removed. Particles of dust, lint, etc. can plug the fins of the condenser coil which will give the same reaction as a plugged filter. The condenser coil is not visible through the filter opening, so protect it with a clean filter!

CONDENSER AND EVAPORATOR BLOWERS

... Blower motors require no maintenance. All bearings, shafts, etc. are lubricated during manufacturing for the life of the motor.

CAUTION

Operation of the SLIMBOY[®] air conditioners in areas containing airborne caustics or chemicals can rapidly deteriorate filters, condenser coils, blowers and motors, etc. Contact MAI for special recommendations.

If the condenser blower motor (Top blower) should fail, it is not necessary to remove the air conditioner from the cabinet or enclosure to replace the blower. The condenser blower is mounted on its own bulkhead and is easily accessible by removing the front access panel.

REFRIGERANT LOSS

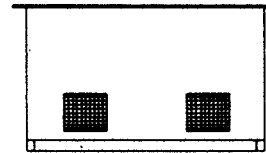
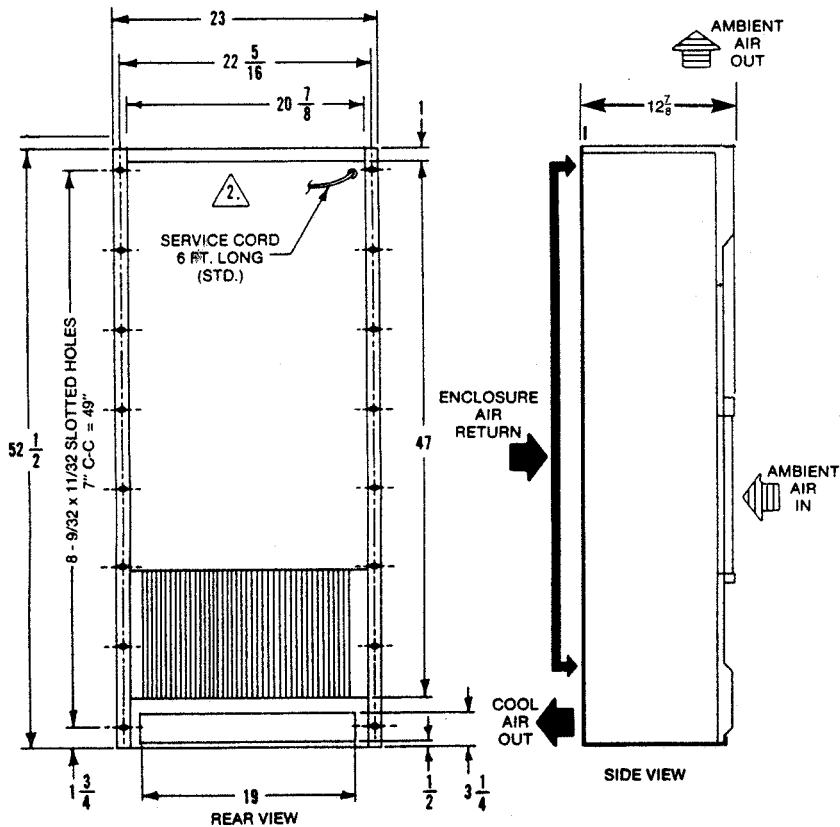
Your SLIM BOY[®] conditioner was thoroughly tested before leaving the factory to insure against refrigeration leaks. Shipping damage or microscopic leaks not found with sensitive electronic freon leak detection equipment during manufacture may require repair and recharging of the system. This work should be performed by qualified professionals only, generally available in any reputable air conditioning repair or service company in your local area.

Refer to the data on your nameplate which specifies the type of freon and the charge size in ounces.

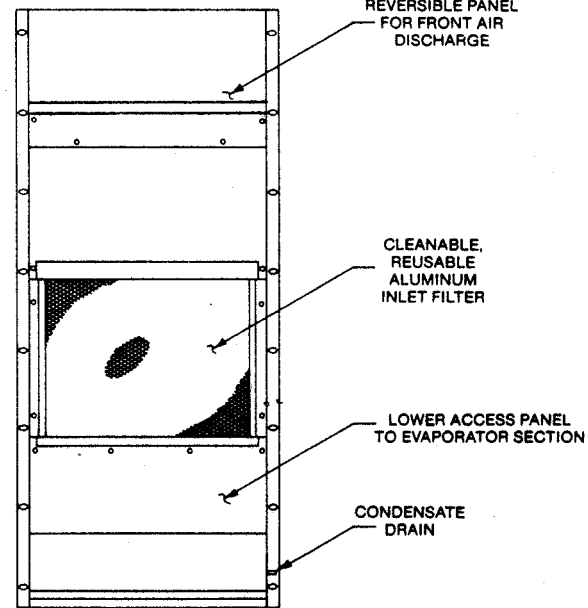
Before recharging, make sure there are no leaks and that the system has been properly evacuated by deep vacuum.

NOTE:

1. GASKET KIT FOR MOUNTING TO ENCLOSURE INCLUDED.
2. THIS 47" x 20-7/8" AREA IS RECESSED 1-11/16" FROM THE REAR SURFACE OF THE UNIT (REFERRED TO AS THE "PLENUM").
3. SERVICE CORD TERMINATED WITH APPROPRIATE PLUG CAP.



TOP VIEW



FRONT VIEW

DESIGN DATA

Model No.	Voltage	Hz	Full Load Ampe	Ph.	BTU/Hr @ Max. Amb. Temp.	Max. °F Amb. Temp.	Shipping Weight
52-1425-xxx	230	50	14.0	1	14,000	125	240 lbs.
52-1426-xxx	230	60	14.0	1	14,000	125	220 lbs.
52-1625-xxx	230	50	16.0	1	16,000	125	255 lbs.
52-1626-xxx	230	60	17.0	1	16,000	125	225 lbs.
52-1926-xxx	230	60	18.5	1	19,000	125	235 lbs.

Note: -xxx will be replaced with three digits designating all options desired. Consult factory for specific model numbers

REVISIONS			APW-McLean		
NO.	DATE	BY	HIGH CAPACITY 52 SERIES AIR CONDITIONER		
3	1-31-88	TPB			
4	8-7-90	JAM			
5	10-22-90	JAM	DRAWN BY TPB	SCALE APPROX. 1/10	MATERIAL
6			CHK'D	DATE 1-31-88	DRAWING NO.
7					52-H001

Illustrated Parts List

Specify Model and Serial Numbers when orders Parts

Item No.	Part No.	Qty.	Description
1	10-1000-04	1	Inlet Filter, Reusable Aluminum
8	52-6025-00	1	Blower, Evaporator
22	SEE TABLE	1	Coil, Evaporator
37	52-9001-00	1	Coil, Condenser
38	SEE TABLE	1	Compressor
43	52-6028-02	1	Filter/Dryer, Refrigerant
45	52-6027-00	1	Hot Gas By-Pass Valve
	52-6027-04	1	Hot Gas By-Pass Valve (19,000 BTUIHr)
46	52-6058-05	1	Accumulator
48	52-6032-01	1	Capacitor, Compressor Run
	52-6032-05	1	capacitor; compressor Run (19,000 BTUIHr)
55	SEE TABLE	1	Service Cord
62	52-9028-02	1	Blower, Condenser

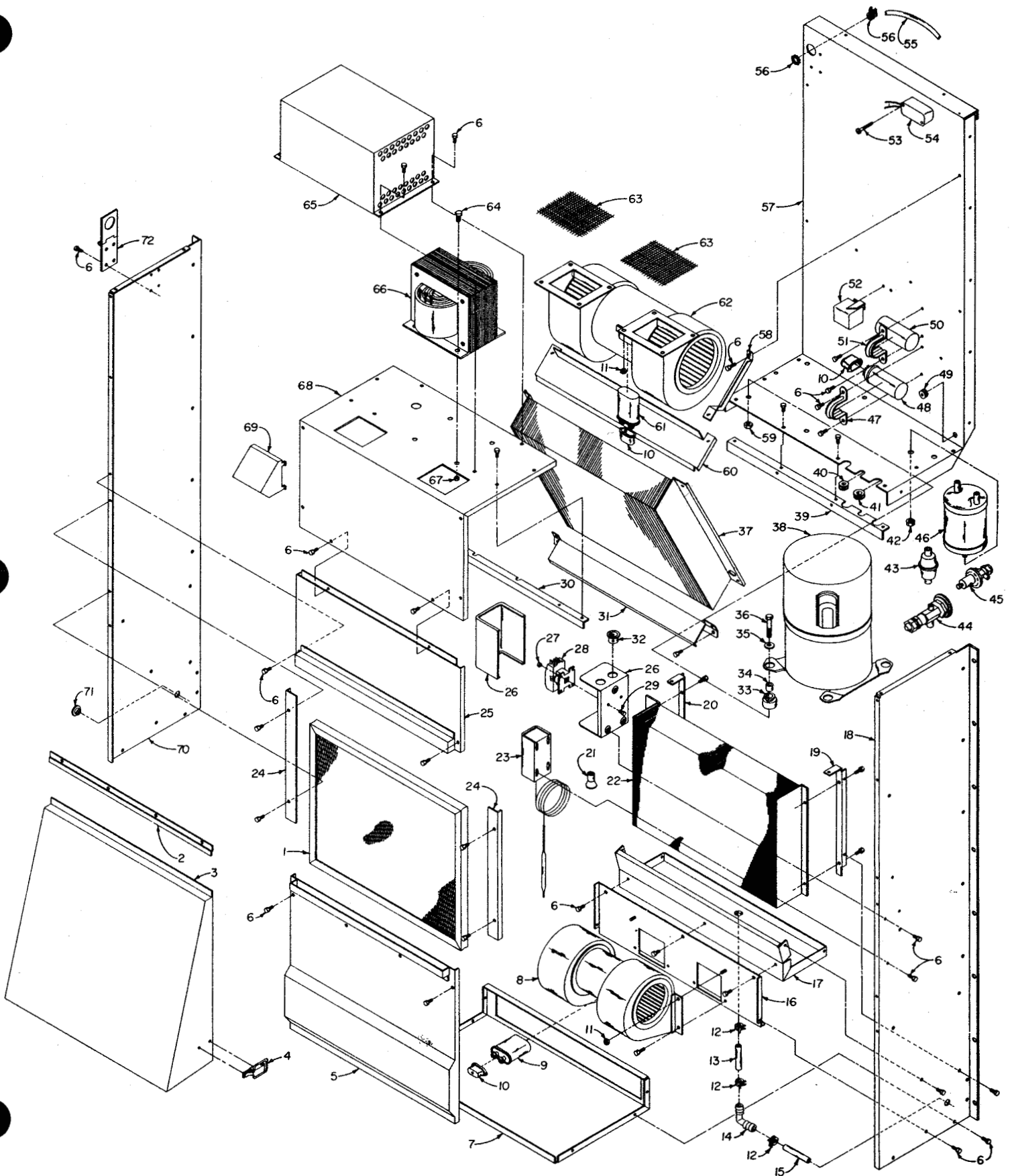
Accessories		
Description	Part No.	
Thermostatic Kit (Customer Installed)	52-9000-04	
Disposable Inlet Air Filter	10-1000-11	
Filter Coat - 1 pt. Spray Dispenser	52-6064-03	
Touch-Up Paint, Gray - 12.5 oz. Aerosol	10-1018-00	

TABLE

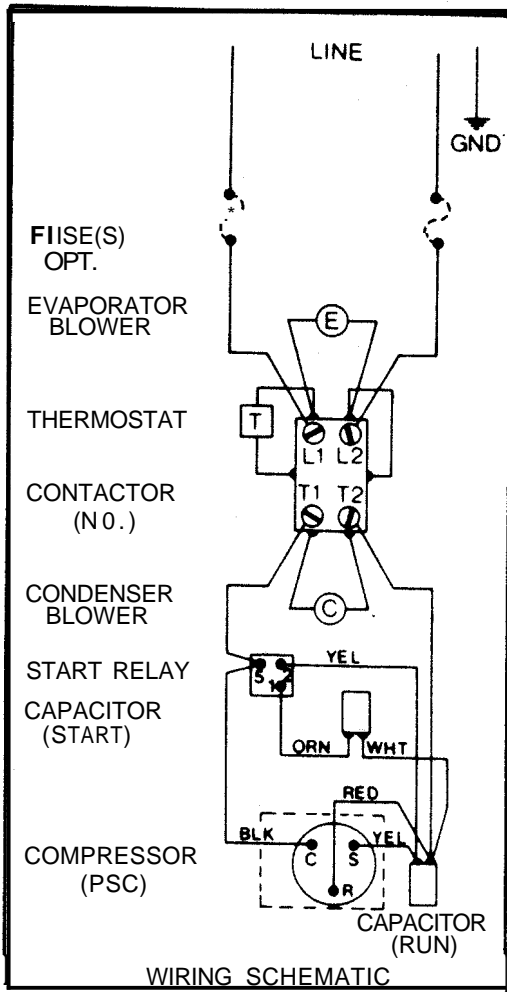
Model No.	Item #22 Evaporator Coil	Item #38 Compressor	Item #44 Expansion Valve	Item #50 Start Capacitor	Item #52 Start Relay	Item #56 Service Cord Cord
52-1425-xxx	52-9002-03	10-1025-19	10-1040-02	10-1032-02	10-1042-09	52-6035-13
52-1426-xxx	52-9002-03	10-1026-17	10-1040-02	10-1032-07	10-1042-06	52-6035-32
52-1625-xxx	52-9002-03	10-1025-20	10-1040-01	10-1032-08	10-1042-10	52-6035-34
52-1626-xxx	52-9002-03	10-1026-20	10-1040-01	10-1032-02	10-1042-00	52-6035-14
52-1926-xxx	52-9002-02	10-1026-33	10-1040-01	10-1032-02	10-1042-06	52-6035-14

NOTE: For items shown but not listed, contact the MAI.

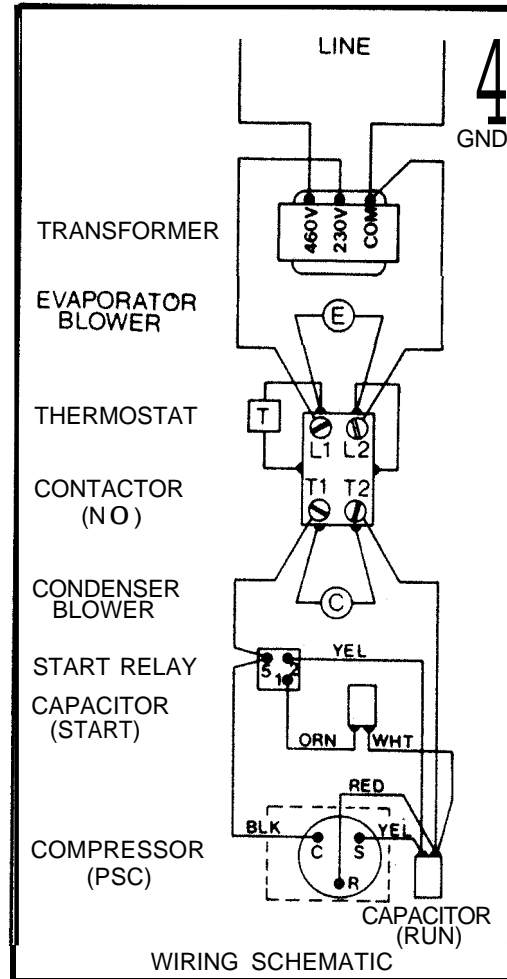
EXPLODED VIEW



WIRING SCHEMATICS



WITH THERMOSTAT



460V WITH THERMOSTAT