

INSTALLATION & START-UP INSTRUCTIONS

GENERAL

1. Inspect compressor for shipping damage and file claim with shipping company if damaged or incomplete.
2. Check compressor nameplate for correct model and voltage designation.
3. The Carlyle Compound Cooling™ (C³) compressor is a unique design that offers higher capacities and efficiencies than are possible in single stage compressors. Carlyle's C³ Application Guidelines (Lit. No. 570-869) should be carefully reviewed by the personnel responsible for the design of the units that these compressors will be installed in. It is important that these guidelines are carefully followed to ensure safe and reliable operation.

SAFETY INSTRUCTIONS

WARNING: Failure to follow these instructions could result in serious personal injury.

1. Follow recognized safety procedures and practices.
2. Do not remove any compressor bolts or fittings until factory supplied holding charge has been relieved. Exhaust holding charge pressure through mid stage pressure connection (shown in Fig. 2A) by removing the connection cap and depressing the internal disc.
3. Do not apply any power to the compressor unless suction and discharge service valves are installed and opened.
4. Do not operate or provide any electrical power to the compressor unless the terminal box cover is in place and secured. Measurement of amps and volts during running conditions must be taken at other points in the power supply.
5. Do not remove terminal box cover until all electrical sources have been disconnected.
6. Follow recommended safety precautions listed on the terminal box cover label before attempting any service work on the compressor.

GENERAL INSTALLATION PROCEDURES

Holding Charge

Compressor is factory supplied with a 5- to 15-pound charge of dry air. This internal pressure must be relieved before attempting to remove any compressor fitting or part.

Relieve holding charge by removing the cap on the mid stage pressure connection fitting and depressing the internal disc. See Fig. 2A for applicable low-pressure connection fitting location.

Service Valves

Remove valve pads and attach factory supplied suction and discharge gaskets and service valves to the compressor. Torque 5/16"-18 mounting bolts 20 to 25 lb-ft and 1/2"-13 mounting bolts 80 to 90 lb-ft. When brazing piping to valve, disassemble valve or wrap in a wet cloth to prevent heat damage.

Oil

1. Check to see that oil level is 1/3 to 2/3 way up on compressor sightglass before starting compressor and after 15 to 20 minutes of operation.
2. To add oil: Relieve internal crankcase pressure, isolate crankcase, and add oil through the oil fill connection (see Figures 2A and 2B).

To remove excess oil: Reduce internal crankcase pressure to 2 psig, isolate crankcase, then loosen the oil drain plug allowing oil to seep out past the threads of the plug.

CAUTION: With the compressor crankcase under slight pressure, do not remove the oil drain plug; the entire oil charge could be lost. Do not reuse drained oil or oil that has been exposed to the atmosphere.

3. When additional oil or a complete oil charge is required, use only the listed Carlyle approved oils:

IGI Petroleum Ind.	CRYOL-150
Totaline	150
Witco	Suniso 3GS

Use of oil additives is not allowed without written approval from Carlyle Engineering Department.

Do not reuse drained oil or oil that has been exposed to atmosphere.

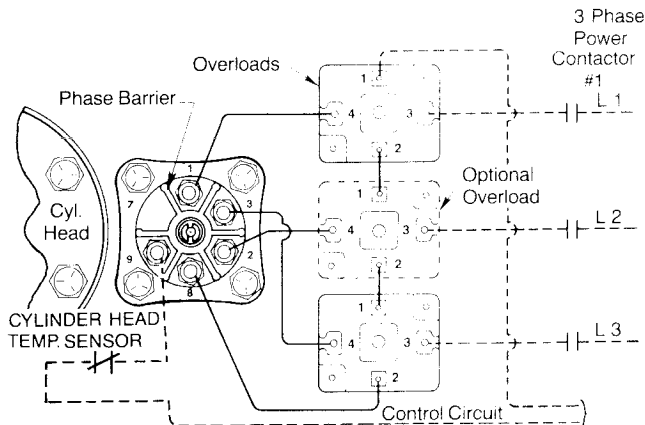
Electrical

GENERAL

Consult the wiring diagram located inside the compressor terminal box cover and Fig. 1 diagram shown below for wiring connection locations.

OVERLOAD WIRING

1. Connect (1) control circuit lead to the empty side tab (#1 terminal location of the top overload as shown in Fig. 1 below) of the overload using a push-on quick-connect wire terminal.



(Customer wiring shown dotted)

Fig. 1 — Three Phase Across-the-Line Start Internal Thermostat

06CC COMPRESSOR (16 THRU 37 CFM)

FIGURE 2A

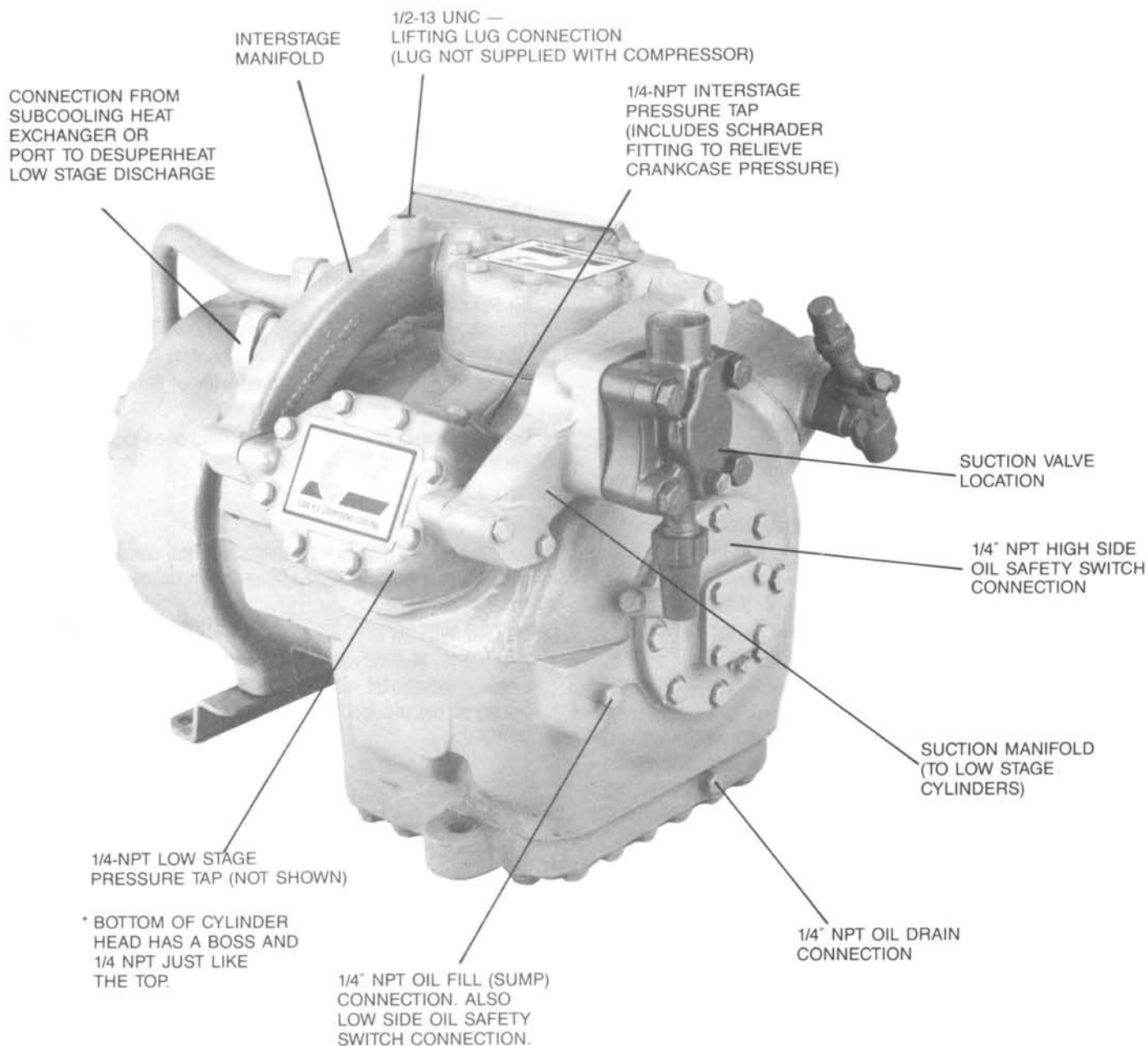
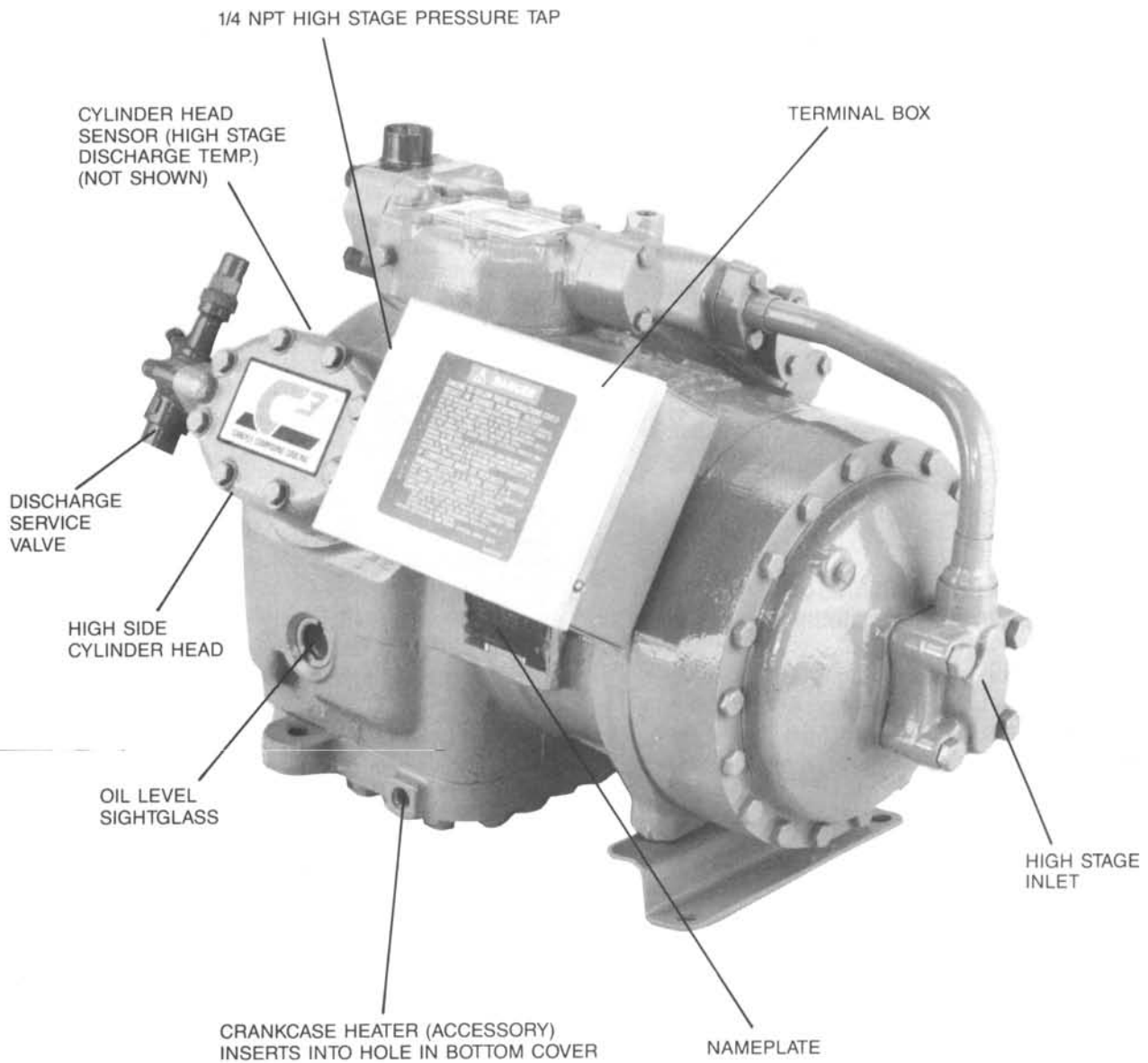


FIGURE 2B



2. Connect (2) power leads (from L1 and L3) to the #3 terminal location of the overloads as shown in Fig. 1. Connections are made using push-on quick-connect flag terminals. Be sure that these power leads with the quick-connect flag terminals are securely and firmly fastened to the overload terminal tabs.

When using compressor models with applicable voltage as listed below, ring terminals are required on the power leads to the overloads.

COMPRESSOR	VOLTAGE	NO. OF OVERLOADS
06CC124	208/230	2
06CC228	208/230	2
*06CC337	208/230	3
06CC337	460/400	2

*Models supplied with (3) overloads. L2 is also to be connected to the overloads.

3. When attaching power leads to the overloads requiring ring terminals as noted above, use the hardware in the parts bag supplied with the compressor and located inside the terminal box.

Use (1) screw, (1) wavy washer, and (1) external-tooth lockwasher per connection. Assemble the parts in the order as shown in Fig. 3.

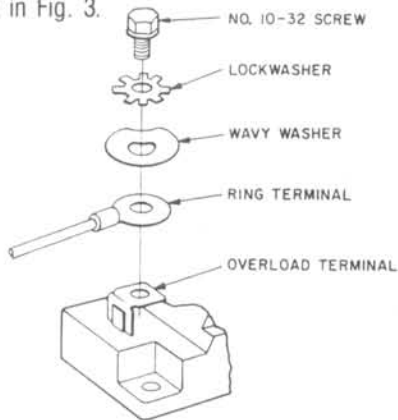


Fig. 3 — Torque Terminal Screws to 20 In. Lbs Maximum

TERMINAL PLATE WIRING

1. Customer wiring to the terminal plate must be provided with ring terminals to accommodate the 1/4"-28 terminal studs.

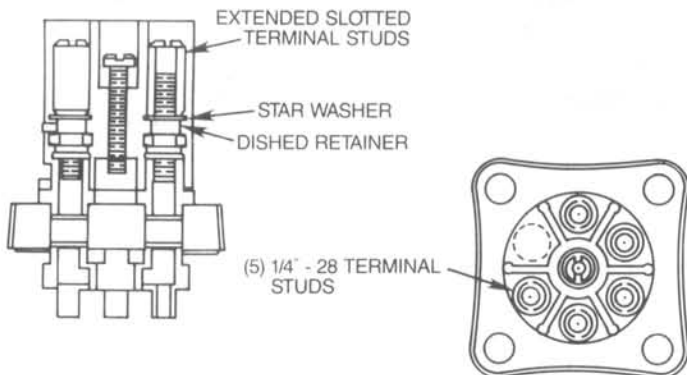


Fig. 4 — Section thru Terminal Plate



2. With screwdriver, remove the extended slotted terminal nut and star washer only on terminal studs #2 and #9. On compressors with 3 overloads, the power lead wire to terminal #2 is factory connected.
3. Apply control circuit lead wire to terminal stud #9 and power lead from L2 to terminal stud #2. The ring terminals are to rest on top of the dishd retainers. Reassemble first the start washer and then the extended terminal nut for each stud.
4. Tighten extended terminal nuts to 30 lb-in. maximum.

OIL PRESSURE SAFETY SWITCH

1. All Carlyle refrigeration-duty 06CC compressors are provided with connections for an oil-safety switch. The use of an oil-safety switch can help prevent compressor failures when loss of lubrication or loss of compressor oil charge occur. The use of an oil-safety switch is required as a condition of warranty for 06CC compressors. (See Fig. 2A for OPSS Connections.)
2. Normal oil pressure for 06CC compressors is 12 to 22 PSI above interstage pressure. Select a switch to close the control circuit (at start up) at a maximum of 12 PSI and open the control circuit at a minimum of 5 PSI. A time delay of not less than 30 seconds nor more than 60 seconds is required for start-up purposes. The switch must also be manually reset when it trips.
3. The following oil-safety switches have been specifically approved by Carlyle:

Carlyle & Carrier Part No.	Danfoss Part No.	Time Delay	Connections	Pressure Diff. (psi)		Volts	Reset	Remote Alarm Circuit Capability
				Cut-In	Cut-Out			
634-2008 OR P529-2130	60B2101	45 sec.	1/4" Male Flares	8-11	4-8	115/230	Manual	Yes
634-2050 OR P529-2110	60B2151		3/16" Lg. Cap. Tube 1/4" SAE Nuts					
06DA660015 Electronic Oil Switch	N/A	45 sec.	Electrical Switch w/o Ext. Tubing	8-11	4-6	115/230	Manual	Yes

OVER TEMPERATURE PROTECTION — Factory Supplied

A discharge gas thermal sensor is factory installed in the cylinder head on all new 06CC compressors. The temperature of the discharge gas in the high stage cylinder head is monitored by the thermal sensor. If the discharge gas temperature at the sensor exceeds 295°F, the sensor will open the control circuit and shut off the compressor. The (2) sensor wire leads (#16 AWG, stripped back 1/2"), located in the compressor terminal box are to be connected in series in the unit control circuit wiring. The discharge temperature sensor operates as an automatic re-set device; however, Carlyle recommends that it be wired in the control circuit in a manual re-set mode. Since the cylinder head sensor would help prevent many of the failures caused by overheating, the best control method would be to determine the cause and correct the reason for overheating when the initial sensor trip occurs.

MOTOR PROTECTION

All 06CC compressors are supplied with overcurrent and overtemperature devices. The overcurrent protection is with overload relays located in the compressor terminal box. The overtemperature is a thermostat buried in the motor windings and connected thru terminals 8 & 9 (See Fig. 1) at the terminal plate.