

# ASSEMBLY INSTRUCTIONS

## FOR ACE 6472 ( 10L, 30L AND 50L)

### PILOT PLANT ASSEMBLIES

Tools needed:Screw Driver, Adjustable Wrench or Pliers and Allen Wrench Set

- 1) Unpack all parts. Check items received against packing list for possible missing items. Frame should have been shipped assembled.
- 2) Before starting to assemble, check frame for proper alignment and tighten any set screws that might have loosened during shipment.
- 3) Aluminum base platform should already be in position on frame. If not, set platform on second set of horizontal bars and secure under three of the diagonal brace clamps (see Fig 1). Platform is adjustable vertically by repositioning second set of horizontal bars.
- 4) Find Catalog No. 13370-10 Air Motor or 13647-12 Electronic Motor or 13554-10 Dayton Motor, whichever was supplied with your order.

Mount stirring motor at top of frame on motor mount attached to top horizontal bars.  
Note: Motor mounts are different for each motor. Holes in mount should match to those in motor for easy mounting with screws supplied.

The 13370-10 and 13554-40 face mount directly to aluminum motor mount by threading screws from underside thru mount, directly into face of motor.

The 13647-12 has a mounting flange that bolts to motor mount. With the 13647, it's important that the motor mount be off center so motor shaft aligns at center of flask.

Now attach 8124 Chuck to motor shaft by securing allen screw.  
Do NOT disassemble chuck at this time.

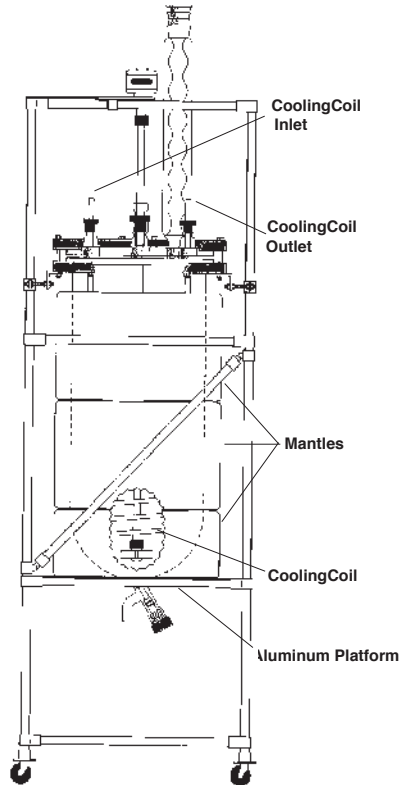


Figure 1

**IMPORTANT! Complete Step #4 before proceeding thereby reducing chance of motor dropping on flask.**

- 5) Place aluminum housed heating mantle, #12053, over hole in platform between adjustable mantle brackets and position flask in mantle.  
Note: Adjustable brackets need not be secured until assembly is completed since minor adjustments may be necessary later.
- 6) Locate three 3/8" threaded rod with four nuts and washers and three "L" shaped brackets. Find three eyelet brackets on vertical rods of frame. Remove one nut and washer from threaded rod and insert thru eyelet bracket with extended portion toward flask. Replace washer and nut, do not tighten. At other end of threaded rod, in similar manner, attach one leg of "L" bracket with other leg extending toward flask. Repeat with two additional threaded rods and "L" brackets.
- 7) Locate two piece (black) Coupling, twelve 5" hex head bolts, washers and nuts (eight for 10L Assembly), Teflon Gasket and one or two space inserts depending whether your assembly has flat (one) or domed (two) head. Slip one side of coupling over flange of flask, flat side up, and let it rest on "L" bracket assembled in Step #6. Slide bolt thru top of coupling down thru "L" bracket. Do not use nut yet, this alone will stabilize flask for now.
- 8) If your reactor was ordered with either a flat glass or Stainless Steel head, locate head and seven Teflon joint inserts, #6472-09, 10, and 14. For 10L size reactor, you should have three \$24/40, three \$29/42 and one \$45/50; for 30L and 50L, you should have been shipped two \$29/42 and five \$45/50. Insert should have been shipped assembled, i.e., top black cap with split ring threaded to body, O-Ring under cap and nut threaded at bottom. Remove bottom nut and drop insert into proper hole in head. Thread bottom nut from under side of head so that O-Ring is compressed to top. (See assembly sketch). Continue until all holes are filled. Set aside for later use.  
If reactor was shipped with domed head, locate and set aside.
- 9) Gently, lower 12067 Cooling Coil inside flask.
- 10) Locate 8076 Stirring Shaft, 8091 and 8093 Agitators. From 8091 Agitator, remove securing nut and spacer. Slide both over top, i.e., end without buttons, of stirring shaft, spacer first. Slip agitator thread over other end of shaft and secure with spacer and securing nut. Next, remove securing nut and spacer from 8093 and slide agitator over top of stirring shaft, slide spacer, then securing nut over same end. Position agitator on shaft at a satisfactory distance from bottom agitator and tighten. This distance is determined by eyeballing shaft against flask so 8093 Agitator is functional with liquid in flask. Set stirring rod with agitators attached inside flask and cooling coil.
- 11) Find Teflon Gasket. Slip over stirrer over stirring shaft and both inlet and outlet of cooling coil and lay on flange of flask, either side up.

- 12) Now, carefully, place flat or domed head on top of flask flange as follows: Extend stirring shaft thru  $\text{F45/32}$  ( $\text{F45/50}$ ) center joint and cooling coil extensions thru  $\text{F24/32}$  ( $\text{F24/40}$ ) joints on 10L size;  $\text{F29/32}$  ( $\text{F29/42}$ ) joints on 30L & 50L sizes.
- 13) Locate 8067-30 Bearing, consisting of Codes -05, 08, -11, -13 and -18.
  - (a) Slide threaded adapter, code -18, over stirring shaft into  $\text{F45/32}$  ( $\text{F45/50}$ ) joint on head.
  - (b) Slide Teflon Bearing, code -05, over shaft, with FETFE O-Ring under lip of bearing, into threaded adapter.
  - (c) Slide Saddle O-Ring, code -13, over shaft.
  - (d) Attach Nylon Nut, code -11, to Nylon Bushing, code -18, and slide over shaft. Do NOT tighten.
- 14) Locate 8127-10 Collar with Teflon Gasket. Slip gasket first, then collar over shaft.  
Do NOT Tighten.
- 15) Carefully, slip remaining half of (black) coupling over shaft and cooling coil extensions, flat side down.

#### 16) COUPLING ASSEMBLY

##### (A) On Flat Head:

- (a) Use only one set of spacers.
- (b) Get 5" hex head bolts, washers and nuts ready.
- (c) Remove previously placed bolts from lower half of coupling.
- (d) Place set of spacers in cavity of coupling next to flask. The trick is to pull the coupling toward you so the back half is against the flask. Lay the spacers around cavity so they don't fall through. Gently, push coupling so spacers fall in the cavity circumference completely.
- (e) Raise bottom coupling to top half, drop 5" hex bolt thru top half into bottom half and secure with washer and nut. Adjust "L" brackets and secure as well. **NOTE: "L" Bracket must be secured between top and bottom coupling when using flat head; with domed head it can be located either between or below bottom half.** Assemble all twelve using torque wrench.

##### (B) On Domed Head:

- (a) Use two sets of spacers, one for bottom half and one for top half.
- (b) Assemble as per A-(b) thru (e) above.

- 17) Remove compression nut and donut insert from 8124 Chuck mounted on motor shaft and slide over stirring shaft, in same order as removed. Remove rubber insert from inside chuck and force over end of stirring shaft so end of shaft is completely through. Insert rubber insert on shaft into chuck, raise donut insert and compression nut and tighten so shaft is secure.

Note: Height of bottom agitator with relation to bottom of flask is determined by position of aluminum base platform discussed in Step #3. OR stirring shaft can be cut to size.

- 18) Tighten nut on 8067 Bearing into Threaded Adapter so Saddle O-Ring seals against shaft. Lower 8127 Collar to a position slightly above top of bearing and tighten using screw driver. Do NOT force collar on top of bearing since it may bind and restrict turning of shaft. This is a safety device in the event the shaft comes loose of the chuck, the shaft will not drop and damage bottom of flask.
- 19) Locate two 5028-30 Adapters ( \$24/40) for 10L or two 5028-42 Adapters ( \$29/42) for 30L & 50L. These are used to secure cooling coil to head. Insert threaded adapter, joint first, over coil extension into joint on head. Slide O-Ring first, then bushing over coil extension and tighten into bushing. If extension is not vertical inside adapter, gently straighten by hand to allow tightening of bushing.
- 20) For 10L Reactor, additional condenser, adapters, etc. are inserted into proper joint for your specific purpose.  
For 30L & 50L Reactors, locate 8042-21 Adapter, 5945-76 and 6470-130 Condensers. Assemble 6470-130 inside 8042-21 Adapter via compression O-Ring seal and insert unit into top of 5945-76 for additional condensing capacity. Additional adapters, thermowells, etc. are positioned to suit.
- 21) If you have any problems assembling or operating your reactor, or if it does not perform to your satisfaction, contact your ACE Salesperson or call our toll free number: 800/223-4524 for assistance.



**ACE GLASS INCORPORATED**

---

P.O. Box 688 • Vineland, NJ 08362-0688 • 856-692-3333 • Fax: 1-800-543-6752

**TOLL-FREE: 1-800-223-4524**