

KICE

FILTER/COLLECTOR

(With PneuJet Valves)



*"Skilled Air
for Industry"*

M
Series
Erection
Manual

MODULAR FILTER ERECTION INSTRUCTIONS

Before starting the actual process of assembling the filter read the complete manual. This will familiarize you with all the phases of erection. Also refer to the general arrangement drawing prepared for each Kice Modular Filter.



THINGS TO NOTE

(1) Be sure to place strip caulking on all mating bolted surfaces to insure an air tight housing.

(2) Check to see if an airlock discharge hopper or a screw conveyor discharge hopper has been supplied.

(A) Use PHASE II-A for an airlock discharge only.

(B) Use PHASE II-B for a screw conveyor discharge only.

(3) If an internal divider is supplied refer to PHASE III-B.

PHASE I

- 1 Corner Legs
- 2 Center Legs
- 3 Corner Angle for Support Channels
- 4 Support Channels
- 5 Hopper Spacer
- 6 Corner Belly Sheets
- 7 Belly Sheets

PHASE II-A

- 8 Typical Hopper with Airlock Discharge
- 9 Internal Hopper "C" Clip

PHASE II-B

- 10 Typical Hopper with Screw Conveyor Discharge
- 11 Horizontal Side Screw Conveyor "C" Clips
- 12 Horizontal End Screw Conveyor "C" Clips
- 13 Vertical External Hopper "C" Clips
- 14 Screw Conveyor Housing with Outlet
- 15 Screw Conveyor Housing End

PHASE III-A

- 16 Vertical Side Panel "C" Clips
- 17 Side Panels
- 18 Side Panel with Access Door
- 19 Tube Sheets
- 20 Tube Sheet "C" Clips
- 21 Internal Walkway
- 22 Filter Media and Wire Cage Retainers Assembly
- 23 Corner Angles for Side Panels

PHASE III-B

- 24 Left Internal Divider
- 25 Right Internal Divider
- 26 Center Internal Divider
- 27 Tube Sheets for Internal Dividers (Special)
- 28 Internal Divider for Clean Air Chamber

PHASE IV

- 29 Laterals
- 30 PneuJet Valves
- 31 Morris Couplings
- 32 Air Tank
- 33 Horizontal Air Tank Support "C" Clips
- 34 Clean Air Chamber Valve Side Top Panels
- 35 Clean Air Chamber End Top Panels
- 36 Clean Air Chamber Back Side Top Panel
- 37 Clean Air Chamber Roof Panels
- 38 Horizontal Clean Air Chamber Top Panel "C" Clips
- 39 Vertical Clean Air Chamber Top Panel "C" Clips
- 40 Horizontal Clean Air Chamber Roof Panel Side "C" Clips
- 41 Horizontal Clean Air Chamber Roof Panel Top "C" Clips

PHASE V

- 42 $\frac{1}{4}$ x $\frac{1}{4}$ tube x $\frac{1}{8}$ pipe Brass Fitting Elbow
- 43 Manifold Block
- 44 Conduit elbow with removable back
- 45 $\frac{3}{8}$ O.D. Operating Pressure Line to Controller
- 46 Strip Caulking
- 47 Minihelic
- 48 $\frac{1}{4}$ " O.D. Tubing Signal Supply Line

PHASE I

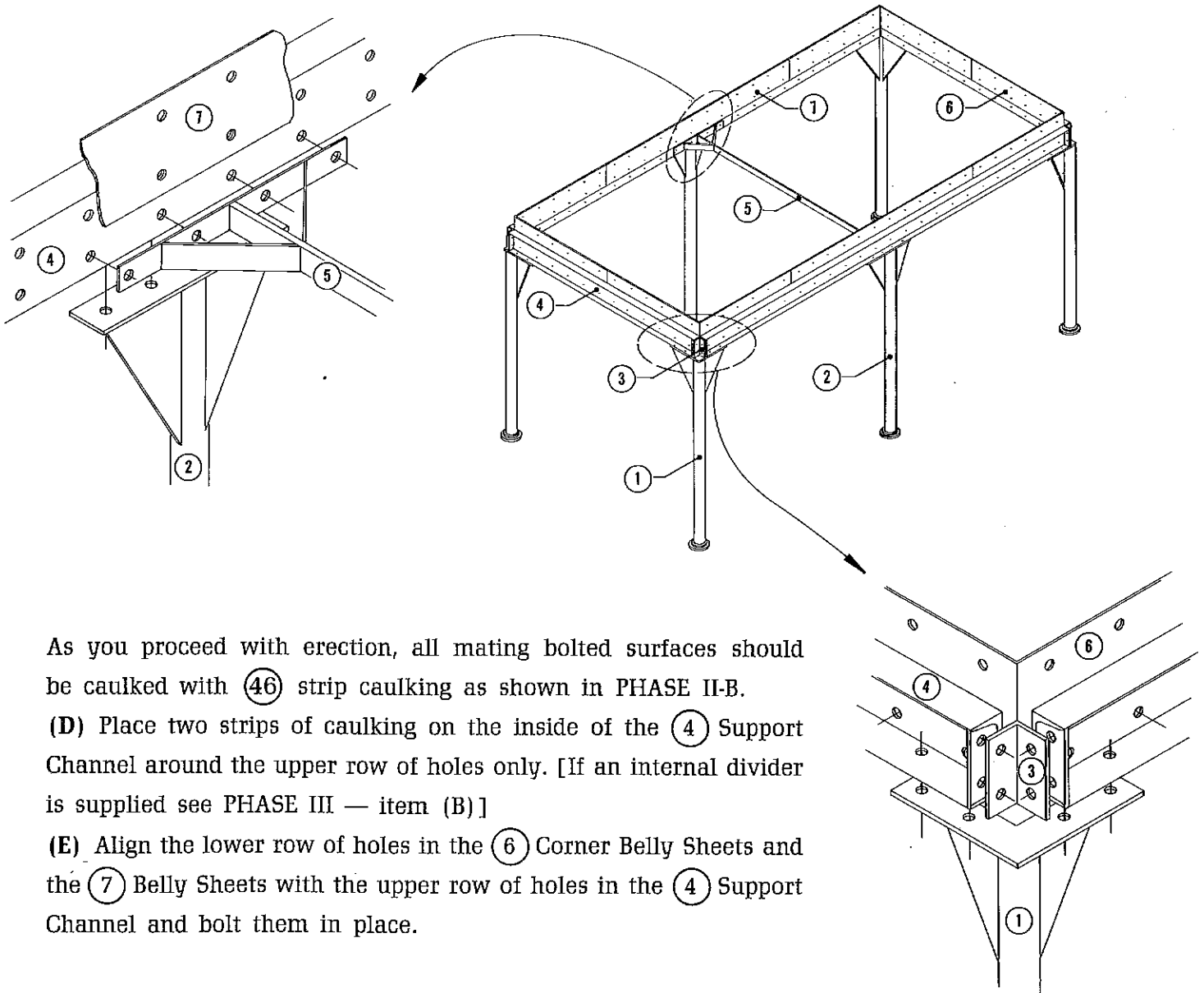
SUPPORTING STRUCTURE ASSEMBLY

(A) Locate the (4) Support Channels, (3) Corner Angles for the Support Channels, (1) Corner Legs and (2) Center Legs if legs are furnished.

(B) Start at a corner by bolting a (3) Corner Angle and Two (4) Support Channels together. Bolt all channels and legs together but **do not** tighten bolts. If a (5) Hopper Spacer is supplied install it at this time to assist in squaring or leveling.

(C) Level the (4) Support Channels and square each corner. [If an internal divider is supplied see PHASE III-B item (A)]

NOTE: Do not tighten any bolts until specified to do so.



As you proceed with erection, all mating bolted surfaces should be caulked with (46) strip caulking as shown in PHASE II-B.

(D) Place two strips of caulking on the inside of the (4) Support Channel around the upper row of holes only. [If an internal divider is supplied see PHASE III — item (B)]

(E) Align the lower row of holes in the (6) Corner Belly Sheets and the (7) Belly Sheets with the upper row of holes in the (4) Support Channel and bolt them in place.

PHASE IIa

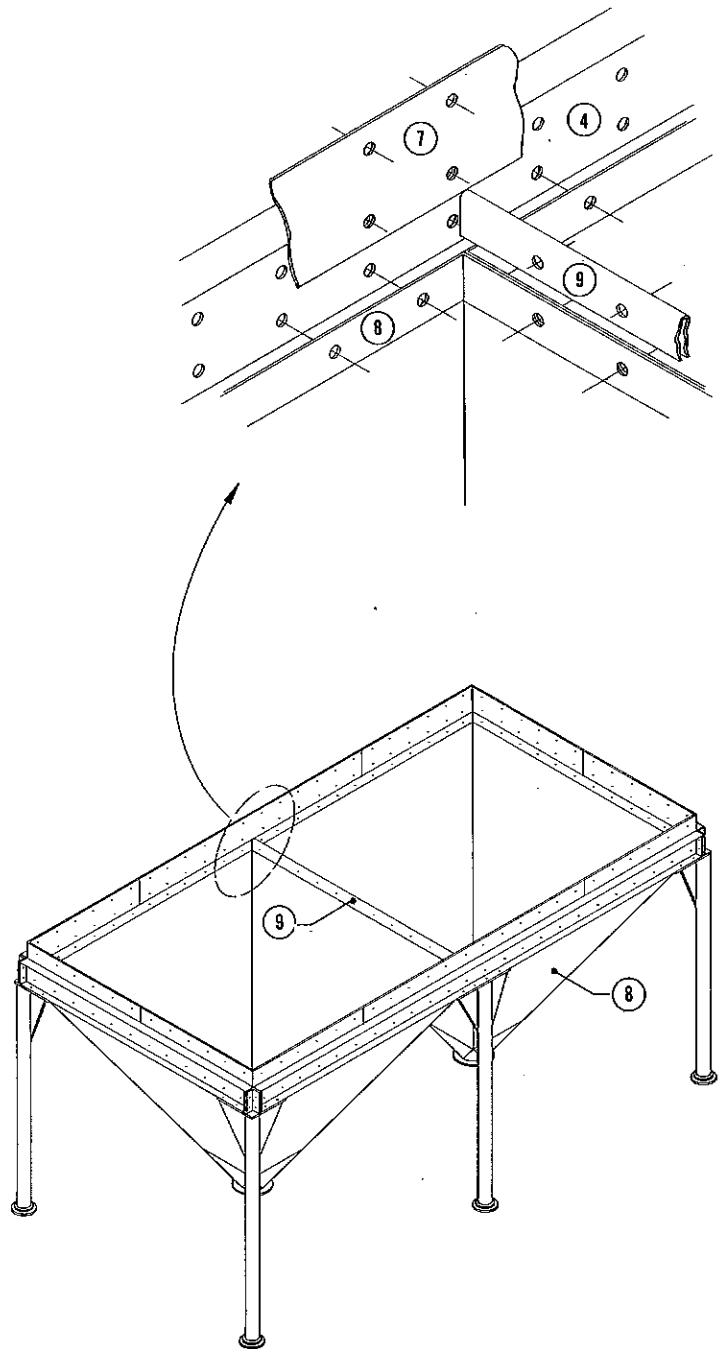
AIRLOCK HOPPER ASSEMBLY

(A) Place two strips of caulking on the lower portion of the (4) Support Channel around the lower row of holes.

(B) Move the (8) Hopper with Airlock Discharge into place. Align the row of holes in the hopper with the lower row of holes in the Support Channels.

(C) If a double hopper is supplied place caulking on the outside of the mating hopper flanges and place an (9) Internal Hopper "C" Clip over the raw edges. **Tighten all hopper bolts.**

(D) **Do not** install the airlock until after the filter is completely erected. Foreign material can be harmful to the operation of an airlock.



PHASE IIb

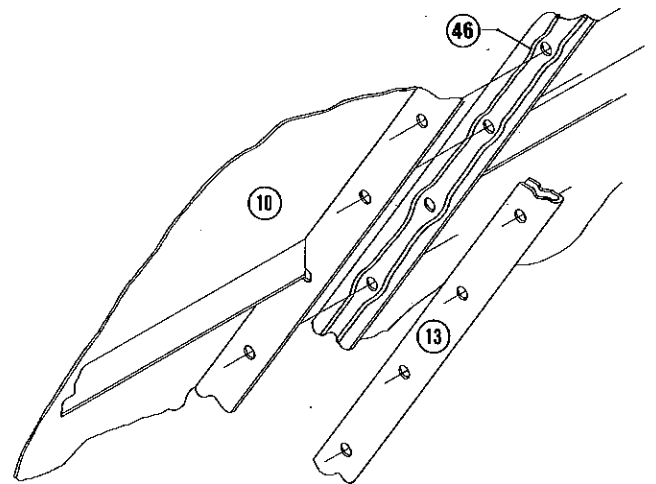
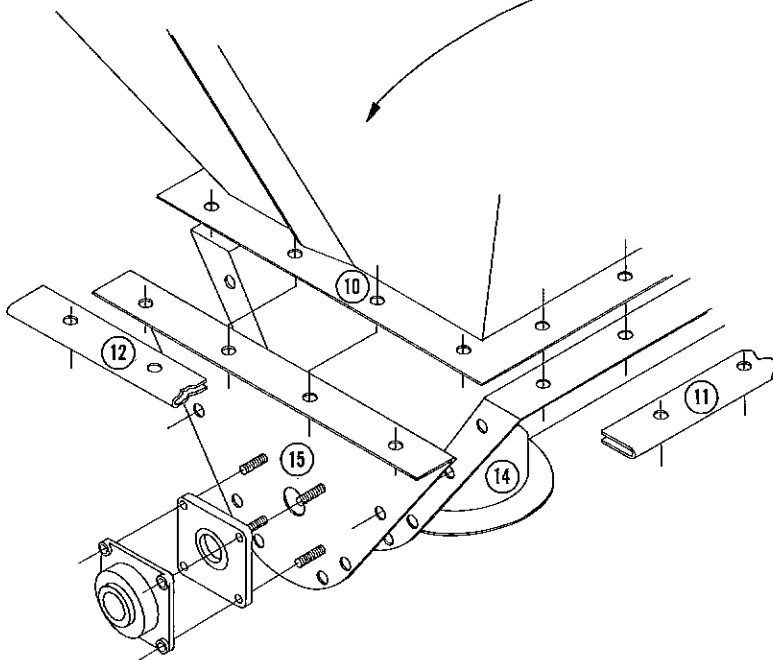
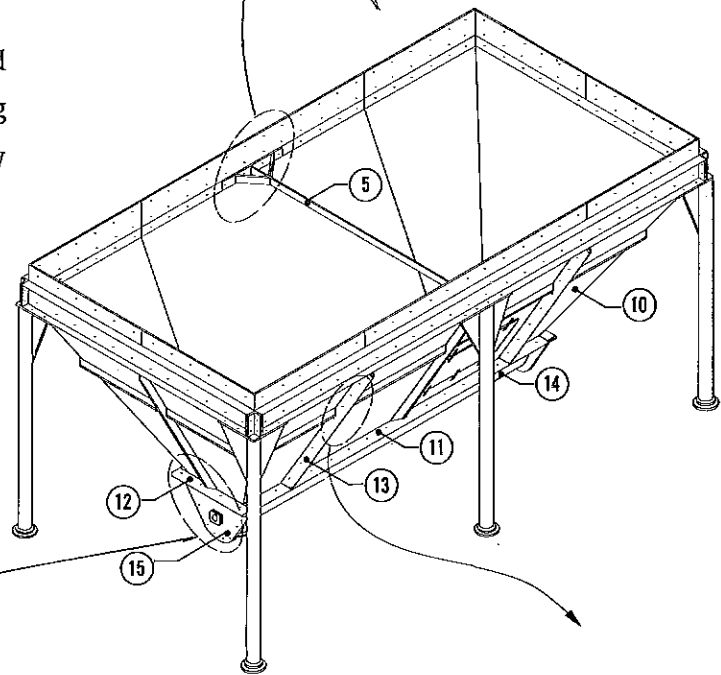
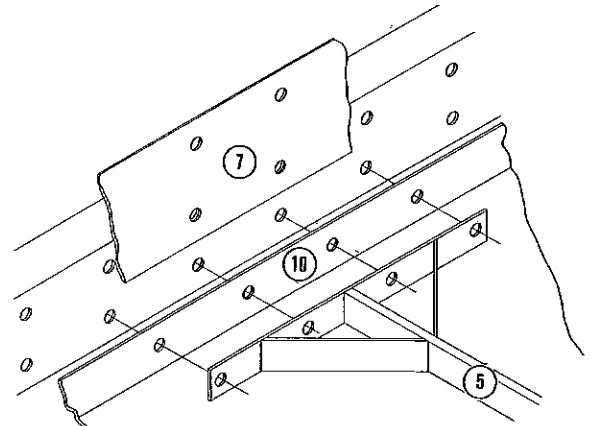
SCREW CONVEYOR HOPPER ASSEMBLY

(A) If the hopper has been shipped in sections for the screw conveyor arrangement, place (46) caulking strip on the mating surfaces before bolting the hopper end section and the side sections into place. After bolting all panels to the (4) Support Channels place (13) Vertical External Hopper "C" Clips over the mating surfaces before bolting them together.

(B) If the screw conveyor is shipped knocked down, install the (15) Screw Conveyor Housing End, and then install the seals, bearings and screw conveyor.

Tighten all hopper bolts.

(C) Do not attach the assembled screw conveyor until after the filter is completely erected. (PHASE IV)



PHASE IIIa

BAG HOUSE ASSEMBLY

(A) Place caulking on the upper portion of the (7) Belly Sheet and (6) Corner Belly Sheets to seal the joint with the (17) Side Panels.

[If an internal divider is supplied see PHASE III-B, item (C).]

(B) Before each (17) Side Panel is bolted into place, put caulking on the side flanges.

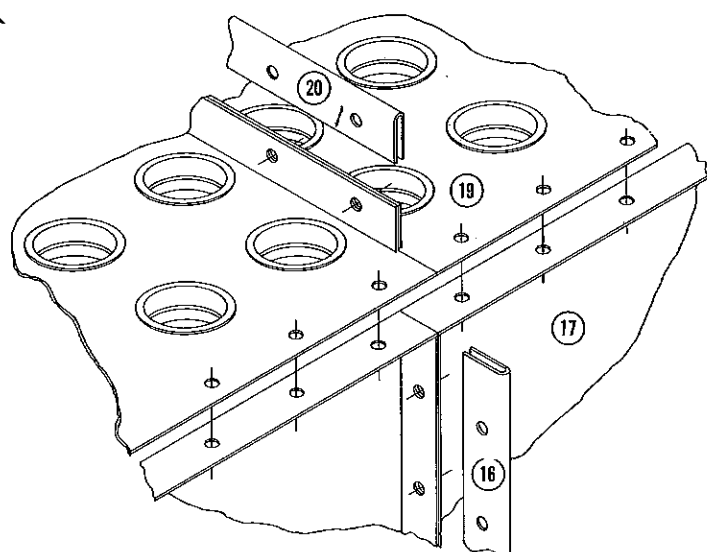
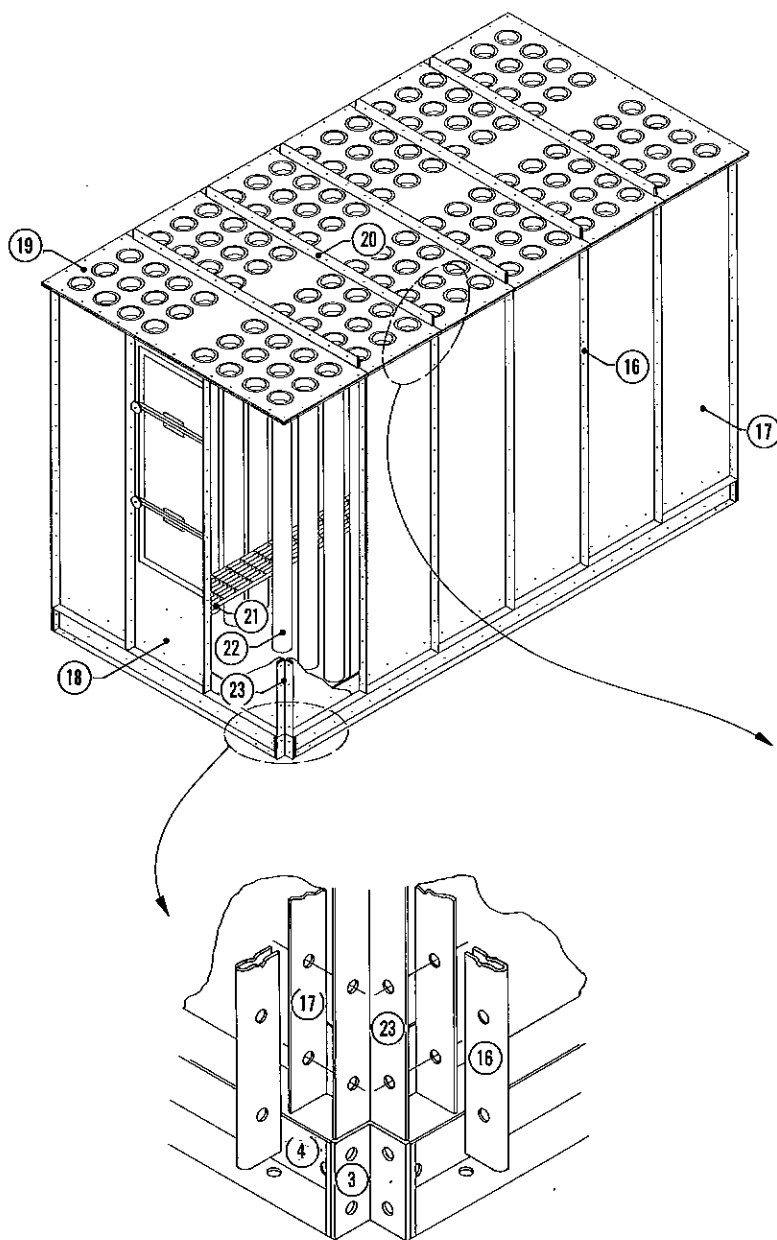
(C) Starting at a corner, Bolt two (17) Side Panels to a (23) Corner angle. Be sure to place a (16) "C" Clip over all mating bolted surfaces. By starting at a corner, the side panels will have some support during erection of the rest of the lower housing.

(D) As the (17) Side Panels are bolted together, be sure to bolt them to the (6) Corner Belly Sheets and the (7) Belly Sheets. Locate (18) Door Panels and any special air inlet panels in accordance to the general arrangement drawings.

(E) Place Strip Caulking on the top side of the flange on the (17) Side Panels and the mating bolted surfaces of the (19) Tube Sheets. Start at one end and temporarily insert about 4 or 5 bolts thru each (19) Tube Sheet and the (17) Side Panels after placing strip caulking on the vertical flanges on (19) Tube Sheet. Place a (20) Tube Sheet "C" Clip over each mating bolted surface of the Tube Sheets.

Tighten all bolts in the tube sheet "C" clips only.

[If an internal divider is supplied see PHASE III-B item (H)]

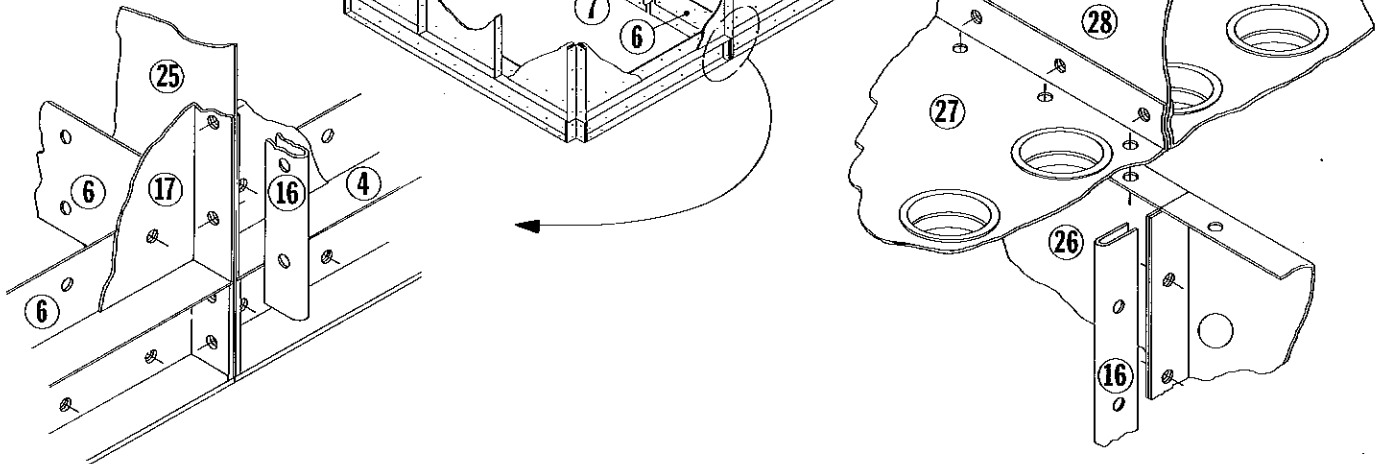


PHASE IIIb

INTERNAL DIVIDER INSTALLATION

(A) Place a .102 (12 GA.) spacer between the mating bolted surfaces on the two (4) Support Channels that will hold the (24) Left Internal Divider and (25) Right Internal Divider.

[REFER BACK TO PHASE I item (C)]



(B) When bolting the (7) Belly Sheets to the (4) Support Channel do not place the (7) Belly Sheets over the joint in the (4) Support Channel where the internal dividers will be installed. [REFER BACK TO PHASE I item (E)]

(C) Loosen the bolts in the (4) Support Channels that are holding the spacers and remove them. Place the (24) Left Internal Divider and (25) Right Internal Divider between the (4) Support Channels and bolt them in place.

(D) Bolt the (26) Center Internal Divider between the (24) Left Internal Divider and the (25) Right Internal Divider. Be sure to place strip caulking on the mating bolted surfaces. Place a (16) Vertical Side Panel "C" Clips on each mating bolted surface.

(E) Place caulking on the remainder of the belly sheets, install them to the support channels and the internal divider assembly.

(F) Locate 4 (four) of the (17) Side Panels, one for each side of the internal divider. After caulking the joints and bolting it in place, be sure to bolt a (16) "C" Clip over the mating surfaces. This will support the internal divider while

assembling the rest of the filter [REFER BACK TO PHASE III-A item (D)]

(G) Install Hoppers in accordance with PHASE II-A or PHASE II-B, making sure the hoppers are caulked and bolted to the internal dividers.

(H) After all side panels are installed be sure the (27) Tube Sheet for Internal Dividers (this tube sheet is special and has an extra set of holes) is caulked and bolted to the internal dividers. [REFER BACK TO PHASE IV item (A)]

(I) Locate the (28) Internal Divider for Clean Air Chamber. Place strip caulking on it and bolt it between the (27) Special Tube Sheet and a (19) Tube Sheet (Standard). [REFER TO PHASE IV item (B)]

(J) When installing the (36) Clean Air Chamber Back Side Top Panel and the (34) Clean Air Chamber Valve Side Top Panels start at the (28) Internal Divider for Clean Air Chamber. [REFER TO PHASE IV DRAWING]

(K) When installing the (37) Clean Air Chamber Roof Panels start at the (28) Internal Divider for Clean Air Chamber. [REFER TO PHASE IV item (J)]

PHASE IV

CLEAN AIR CHAMBER ASSEMBLY

(A) Starting at one end of the filter, place caulking on the top portion of the tube sheet. Locate the (35) Clean Air Chamber End Top Panels and place (38) Horizontal Clean Air Chamber Top Panel "C" Clips over the mating bolted surfaces. [If an Internal Divider is supplied see PHASE III-B item (I)] Bolt (39) Vertical Clean Air Chamber Top Panel "C" Clips in place.

(B) Then start bolting the (36) Clean Air Chamber Back Side Top Panels in place (Side away from the air tank.).

(C) Bolt the other (35) Clean Air Chamber End Top Panels in place.

(D) Locate the (29) Laterals and place the blast tubes thru the holes in the (19) Tube Sheets (Open end toward the tank side.).

(E) Locate the stud on the closed end of the (29) Lateral and put it thru the hole in the (36) Clean Air Chamber Back

Side Top Panel and start the nut.

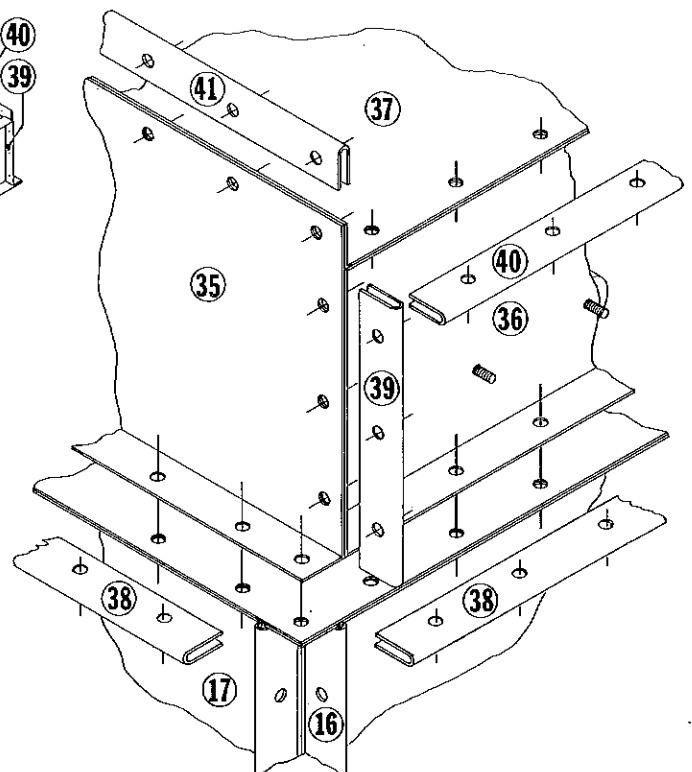
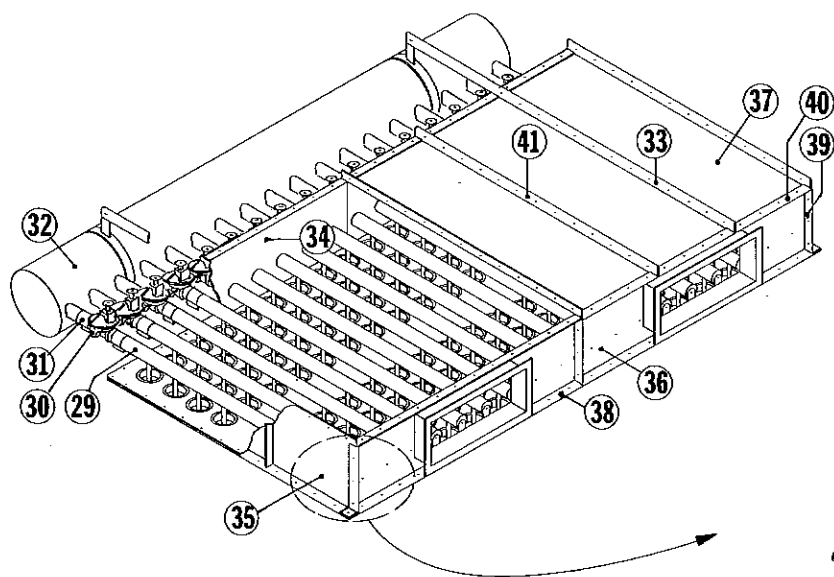
(F) Start at one end and insert the lateral thru the (34) Clean Air Chamber Valve Side Top Panels.

(G) Tighten the nut and be sure the blast tubes from the laterals are in the center of the holes in the tube sheets.

(H) Bolt the (34) Clean Air Chamber Valve Side Top Panels to (19) Tube Sheet with (38) Horizontal Clean Air Chamber Top Panel "C" Clips. Bolt (39) Vertical Clean Air Chamber Top Panel "C" Clips in place.

(I) Start at one side and install the (37) Clean Air Chamber Roof Panels. Be sure to place the (33) Horizontal Air Tank Support "C" Clips in the proper location and place (41) Horizontal Clean Air Chamber Roof Panel Top "C" Clips and (40) Horizontal Clean Air Chamber Roof Panel Side "C" Clips on the remainder of the mating bolted surfaces.

[If an internal divider is supplied see PHASE III B item (K)]



NOTE: Tighten all bolts now that the housing is assembled.

(J) If supplied, bolt the external walkway 74½" down or in the 13th bolt from the tube sheet. (For 8 ft. or 10 ft. units) For a 6 ft. filter the walkway will be mounted on the bracket provided 74½" below the tube sheet.

(K) Bolt on all braces and tighten all bolts.

(L) Bolt on all hand rails.

(M) Standing on the walkway wrap (2) two rounds of strip caulking around the portion of the laterals protruding out of the (34) Clean Air Chamber Valve Side Top Panels.

(N) Slip the collars over the ends of the laterals and place them firmly against the clean air chamber. Tighten the screw in the contraction joint.

(O) Move the (32) Air Tank into place. **Do not** tighten the bolts that go thru the (33) Air Tank Supports at this time.

(P) Slip a (31) Morris Coupling over the lateral at each end of the (32) Air Tank and over the end two (29) Laterals.

(Q) Bolt the two end (30) PneuJet Valves into place on the portion of the laterals protruding thru the clean air chamber. Adjust the (32) Air Tank to mate the two (30) PneuJet Valves. Tighten the bolts that go thru the (33) Horizontal Air Tank Support "C" Clips and slide the other two (31) Morris Couplings over the PneuJet Valve and tighten them.

(S) Slip (31) Morris Couplings over the remainder of the laterals and the tank outlets. Bolt the remainder of the PneuJets into place. **Be sure all the Morris Couplings are tight.**

(T) Locate the internal walkway (8½" wide) and the internal walkway supports and bolt it to the (5) Hopper Spacer or the (9) Hopper Internal "C" Clip.

(U) Lay the internal walkway into place and bolt them together if more than one section is supplied. Bolt the walkway to the internal walkway supports and the center end side panels.

(V) Locate the filter media, wire cage retainers, and the 4½" diameter stainless steel screw clamps.

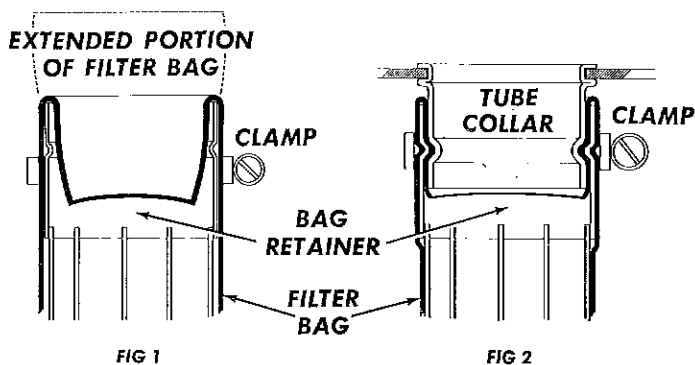


FIG 1

FIG 2

(W) Slip filter bag over wire cage retainers — bottom of bag in contact with bottom of retainer. Filter seam located 180° from gap in retainer sleeve.

(X) Tuck overextended portion of the filter media inside the retainer sleeve. Fig 1

(Y) Place clamp over bag and locate clamp approximately in the middle of retainer sleeve.

(Z) Slip the retainer-bag-clamp assembly over a collar in the tube sheet. Fig 2

(AA) Clamp is then tightened with a screw driver. It is important to tighten the clamp very firmly so as to prevent the assembly from leaking or slipping off.

(BB) Shake the bag and cage assembly by hand, and again tighten the clamp.

IMPORTANT

Matching grooves in the retainer sleeve and collar in the tube sheet have to mate to prevent assembly from slipping off.

(CC) Install the CycleJet Controller in a location that it can be serviced from the external walkway. Locate the two control box mounting brackets and move to the approximate mid-point of the group of PneuJet Valves to be tubed to the CycleJet Controller. The controller can be located at some other point, but the tubing runs should **not** exceed 50 feet.

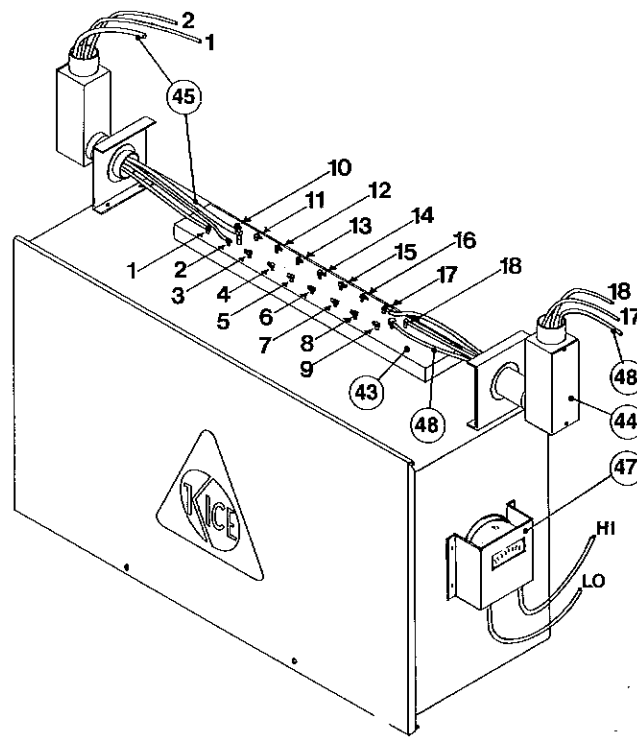
(DD) Remove a bolt from each of two "C" clips at approximately half way between the tube sheet and the external walkway. Move down to the second bolt below the one already removed and remove a second bolt from each "C" clip. Bolt the brackets into place and bolt the CycleJet controller to the brackets.

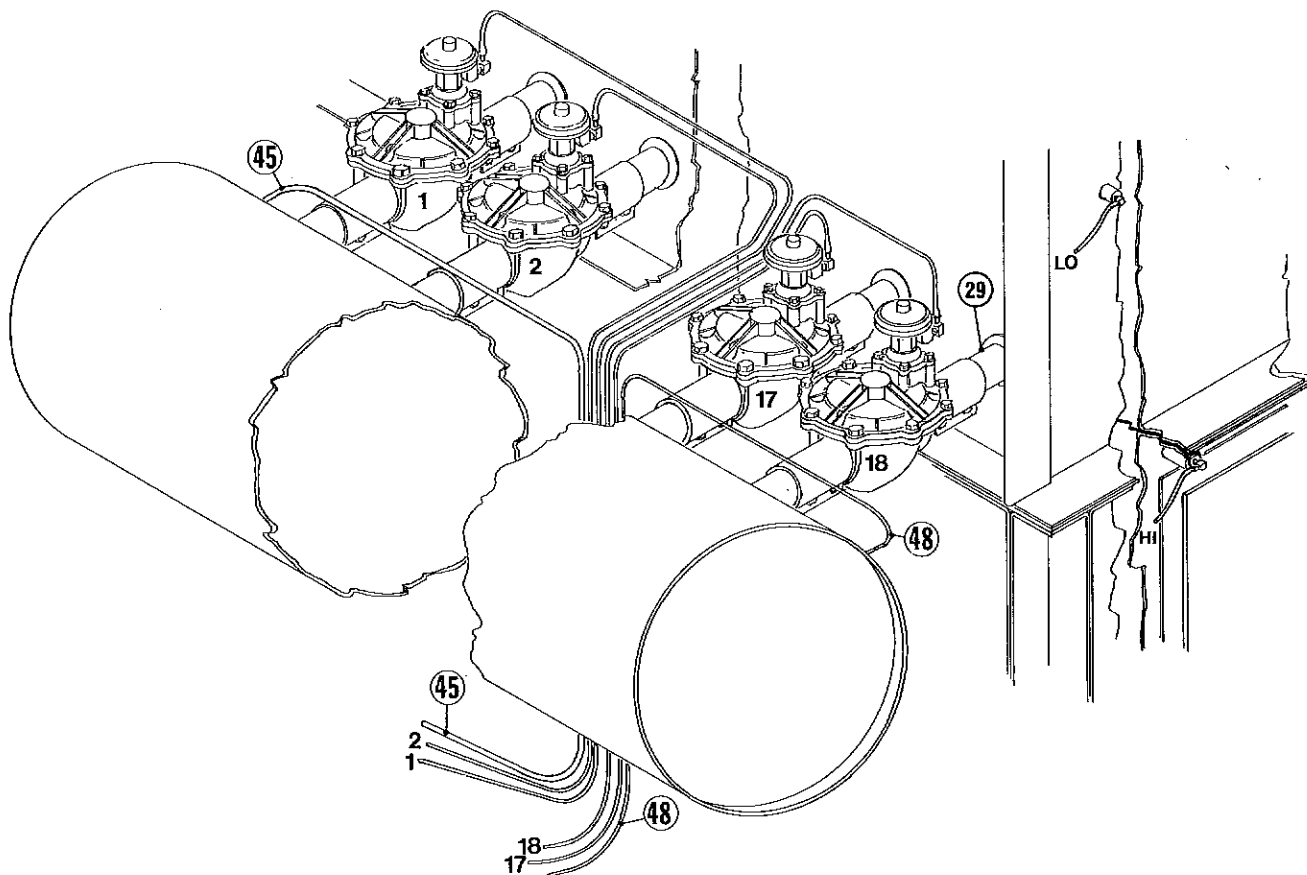
PHASE V

CYCLEJET CONTROLLER INSTALLATION

(A) Remove the four-inch wide manifold cover on the top of the CycleJet Controller control box. This cover simply slips on and off to allow the connections to be covered or to be accessible. Look at the manifold under this cover and locate the stamped numbers. (NOTE — KICE PNEUJET VALVES ARE NUMBERED FROM LEFT TO RIGHT AS SHOWN.)

(B) Remove the two screws in the back of the (44) Conduit Elbow and remove the back. If you choose to place a vertical run of PVC conduit from the (44) Elbow up to the PneuJet valves, do so at this time.





(C) Thread five or six feet of $\frac{1}{4}$ " O.D. tubing from the manifold side of the elbow out thru the opening in the back of the elbow. This will be used for slack while installing tubing only. From the side of the control box thread the $\frac{1}{4}$ " O.D. tubing up thru the elbow and conduit maintaining looped slack. Run the tubing up between the (29) laterals and place it over the top as shown in the drawing. Start at the far left valve. Slip the $\frac{1}{4}$ " O.D. tube on the (42) elbow fitting, approximate the appropriate length, cut the tubing, and connect it to the numbered fitting in the (43) Manifold Block on the top of the CycleJet Controller. Continue to connect each valve to the control box in this manner.

(D) Locate the one inch relief valve and mount it in a 1" coupling on the air tank.

(E) Connect the (47) Minihelic to the fittings provided in the (35) Clean Air Chamber End Top Panel and (18) Door Panel.

(F) Connect (45) $\frac{3}{8}$ " O.D. Operating Pressure Line and (48) $\frac{1}{4}$ " O.D. Signal Supply Line to fittings provided on air tank.

PHASE VI

SCREW CONVEYOR OR AIRLOCK INSTALLATION

- (A) Place two strips of caulking on the lower flange of the hopper outlet.
- (B) If a screw conveyor has been furnished move it into place and put the (11) Horizontal Side Screw Conveyor "C" Clip and (12) Horizontal End Screw Conveyor "C" Clips on the mating bolted surfaces and bolt them together.
- (C) If an airlock is supplied, install using a gasket between the airlock and the mating flange.
- (D) Check the direction of rotation of the screw conveyor, airlock, and the air pump.

PHASE VII

SEE OPERATING INSTRUCTIONS FOR A KICE PNEUJET FILTER/COLLECTOR FOR START-UP AND TROUBLE SHOOTING.

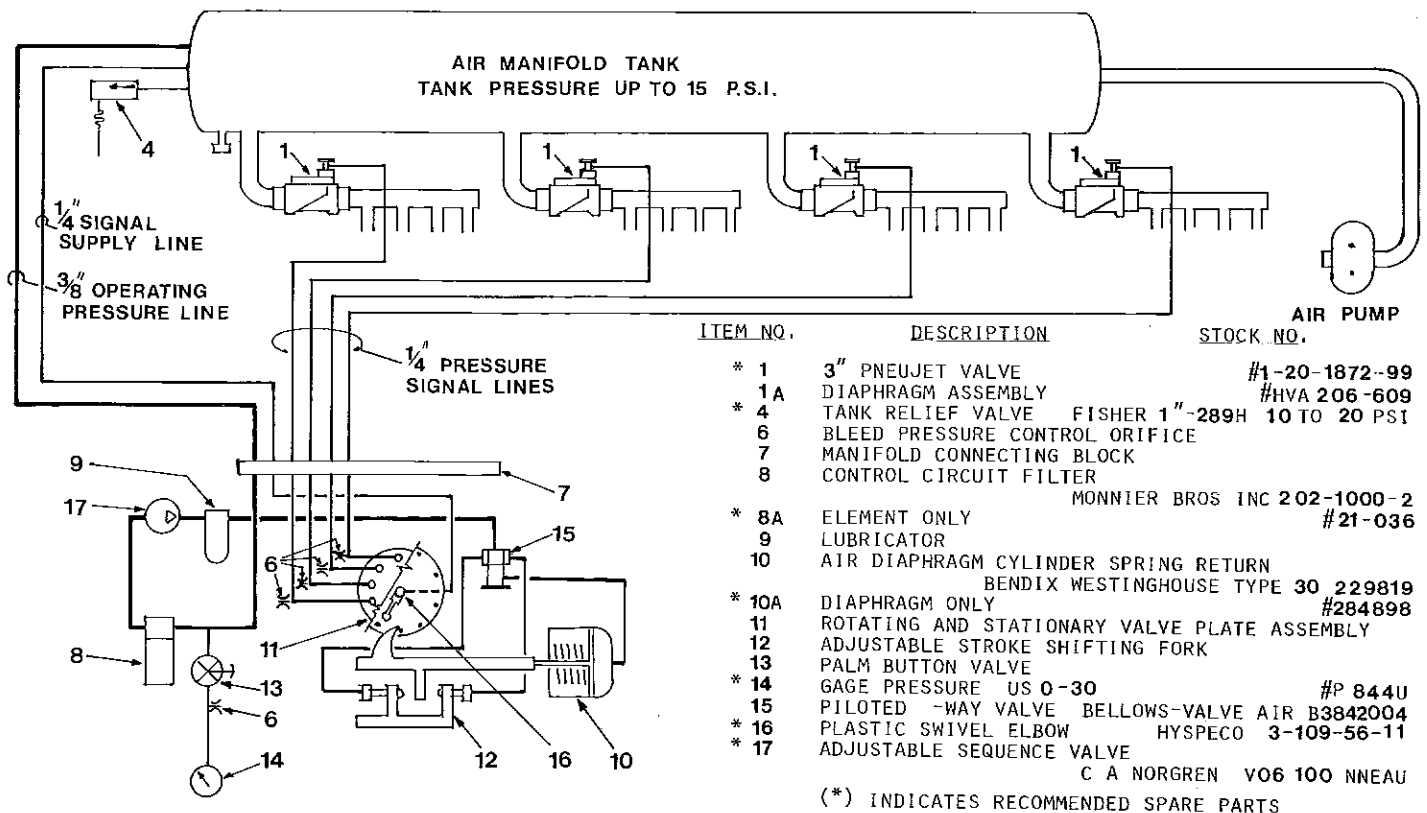


DIAGRAM-TYPICAL POSITIVE PNEUMATIC CONTROL CIRCUIT

SKILLED AIR FOR INDUSTRY

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