

LIQUID FEED

Liquid should not be fed onto the active tray area (portion of tray where valve action occurs), nor should it be fed directly into the downcomer area. The latter could cause gasification of the downcomer and restrict liquid flow. Liquid feeds should be directed to the entrance side of the feed tray. Even liquid distribution onto the feed tray is desirable. Many mechanical methods can be employed to convey the liquid to the desired locations, some of which are shown on the attached sketches. Care should be taken to prevent restriction of liquid area when the attached methods are used.

VAPOR FEED

A vapor feed should be baffled or located so as not to concentrate its energy on a small portion of the active tray area. The attached sketches show the limiting elevation dimension of the vapor nozzle and the baffling arrangement which we use most frequently.

DRAW-OFF PANS AND TRAYS

In all cases a liquid seal, on the downcomer delivering liquid to the draw-off tray, is required. This can be accomplished either by a pan or weir, the lip of which extends 1" above bottom tip of downcomer, if any portion of the draw-off opening is even with or lower than the bottom tip of the downcomer; or by locating the lowermost edge of draw-off opening 1" above bottom tip of downcomer. Sometimes draw-off trays must be leak proof and, in such cases, if bottom edge of draw-off is not tangent with tray floor so tray can be completely drained for service by draw-off, then, a drain connection should be provided at draw-off tray floor.

If liquid is pumped from draw-off tray, a 24" head of liquid should be held over uppermost edge of draw-off opening. A vortex breaker directly above or within draw-off opening should be provided. In the case of a gravity draw-off (thermo-syphon, etc.) no extra head of liquid over draw-off opening or the use of a vortex breaker is required. In the case of gravity draw-off systems, there must be sufficient difference in head between the draw-off location and the return point to cause the desired volume of liquid flow through intermediate piping exchangers, etc.

"APPROVED" FOR LAYOUT ONLY
CATALYTIC CONSTRUCTION CO.

Date: 3-11-70

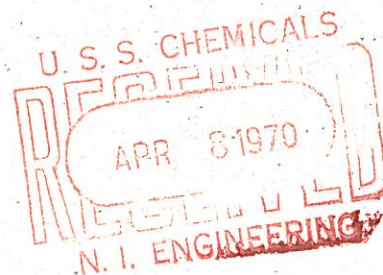
Signed: S. L. Lee - J. D. H.

Engineering Department

All details and dimensions are the responsibility of the vendor. Proceed with fabrication. This approval does not relieve vendor of the obligation to meet specifications and all other terms and conditions of the subcontract or purchase order.

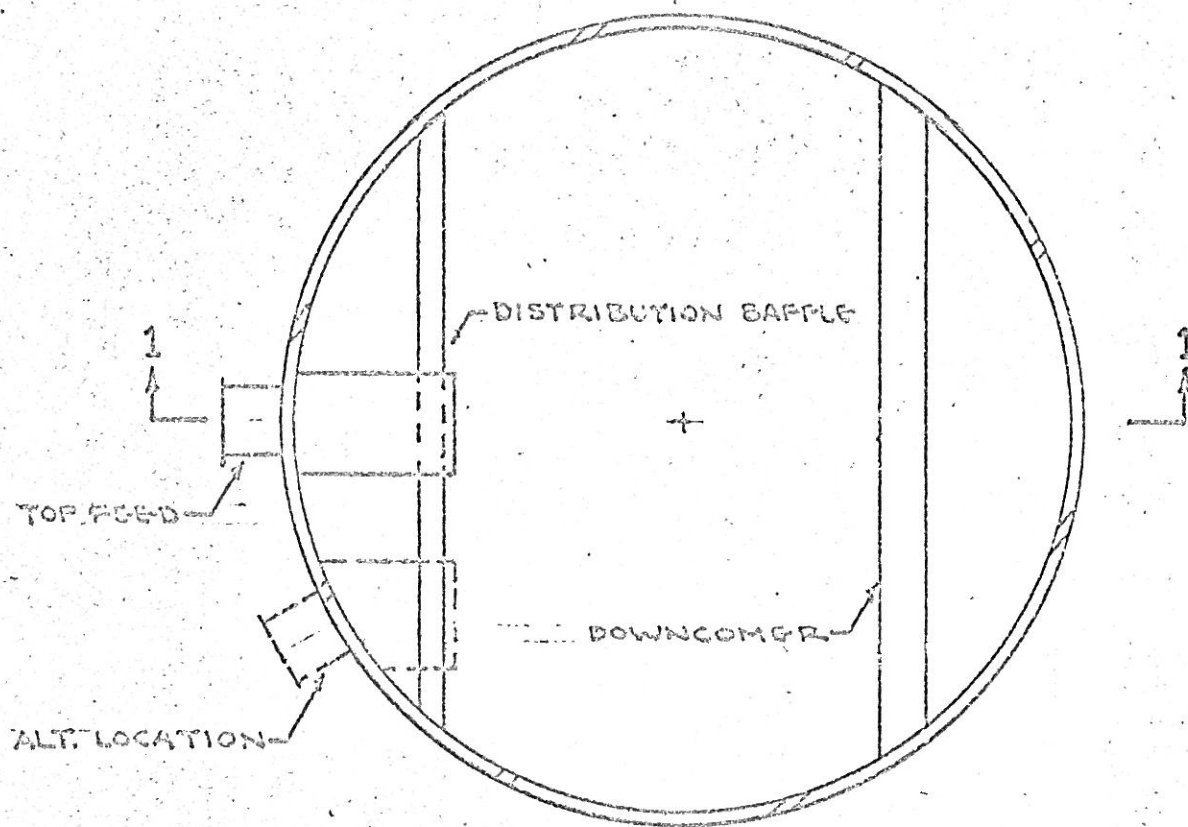
U. S. STEEL JOB 535-0138

V. P. 38030-0501-108-721



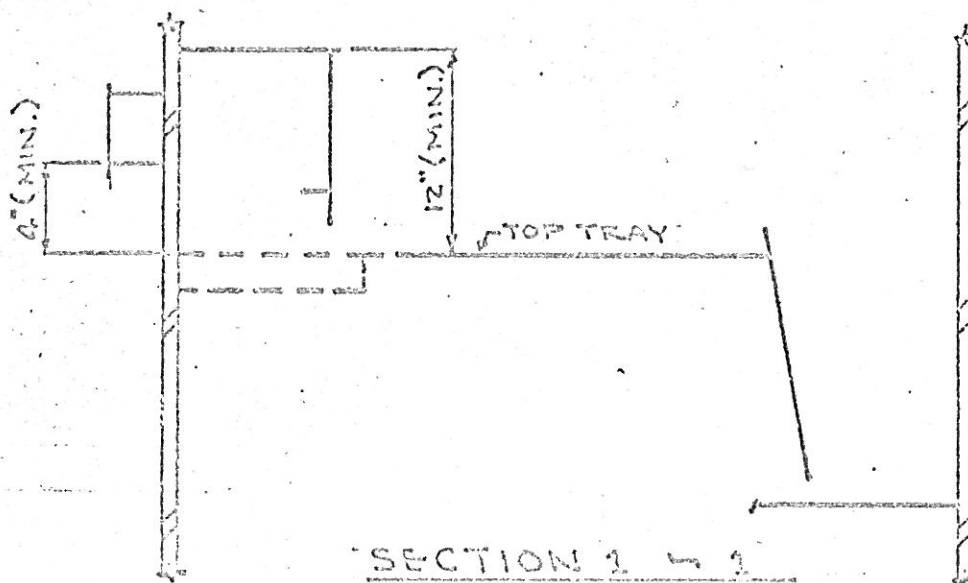
SUBJECT:

NUTTER'S RECOMMENDED TOP FEED NOZZLE
LOCATIONS AND DISTRIBUTION BAFFLE FOR
ONE PASS TRAYS.



ALT. LOCATION

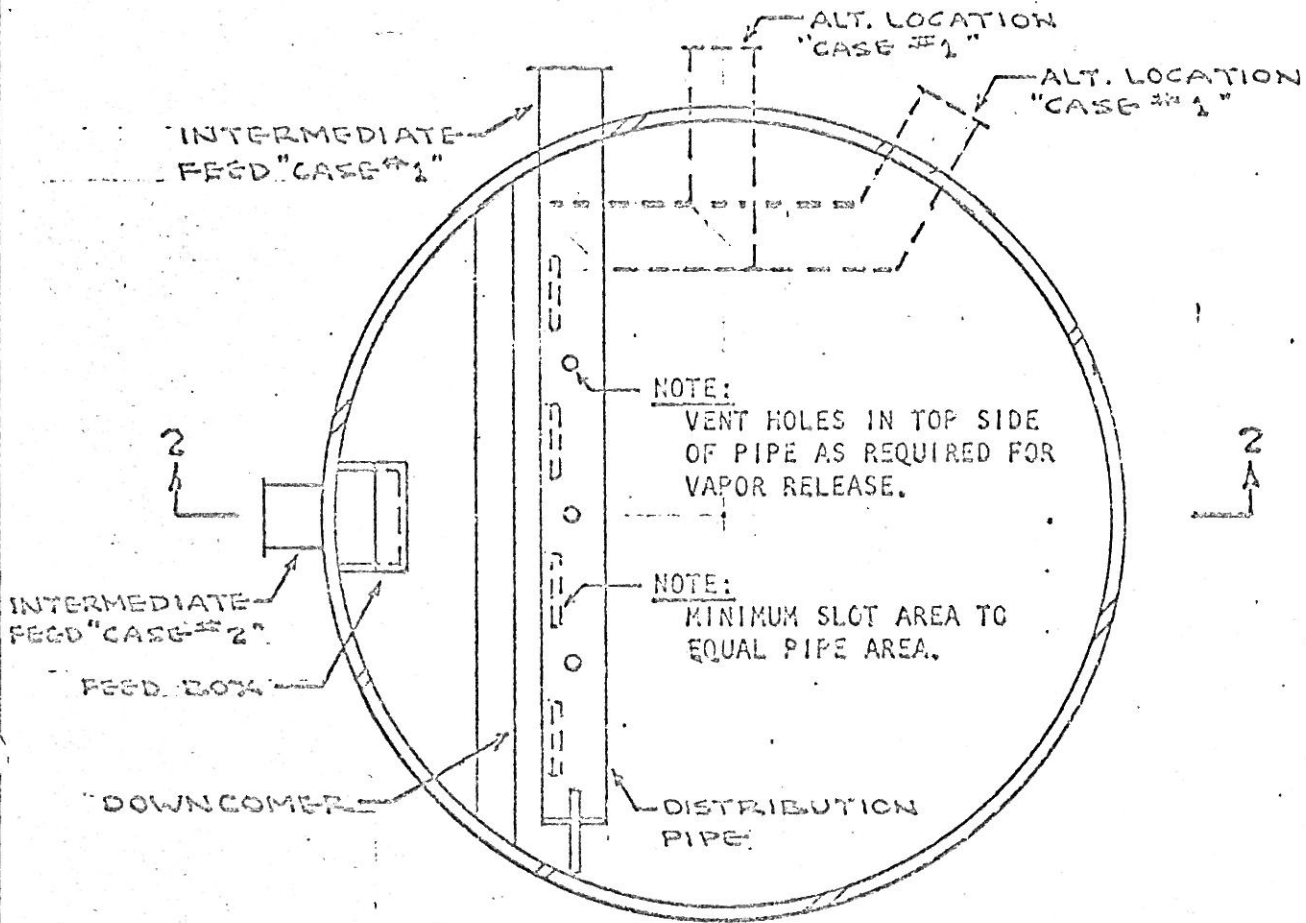
ORIENTATION



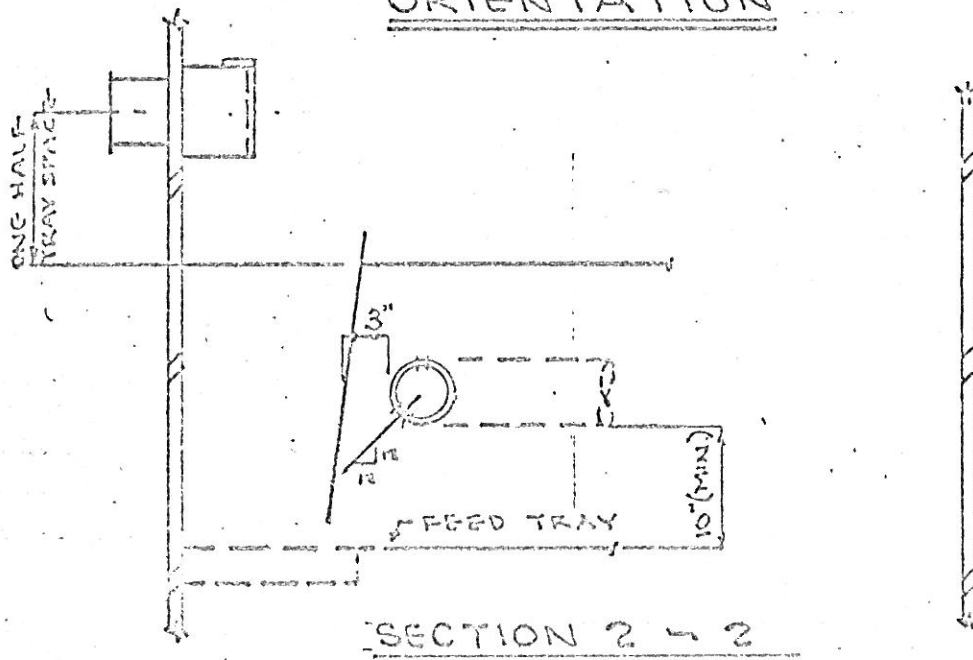
SECTION 1 - 1

SUBJECT:

NUTTER'S RECOMMENDED INTERMEDIATE FEED NOZZLE
 LOCATIONS WITH DISTRIBUTION PIPE OR FEED BOX
 FOR ONE PASS TRAYS.

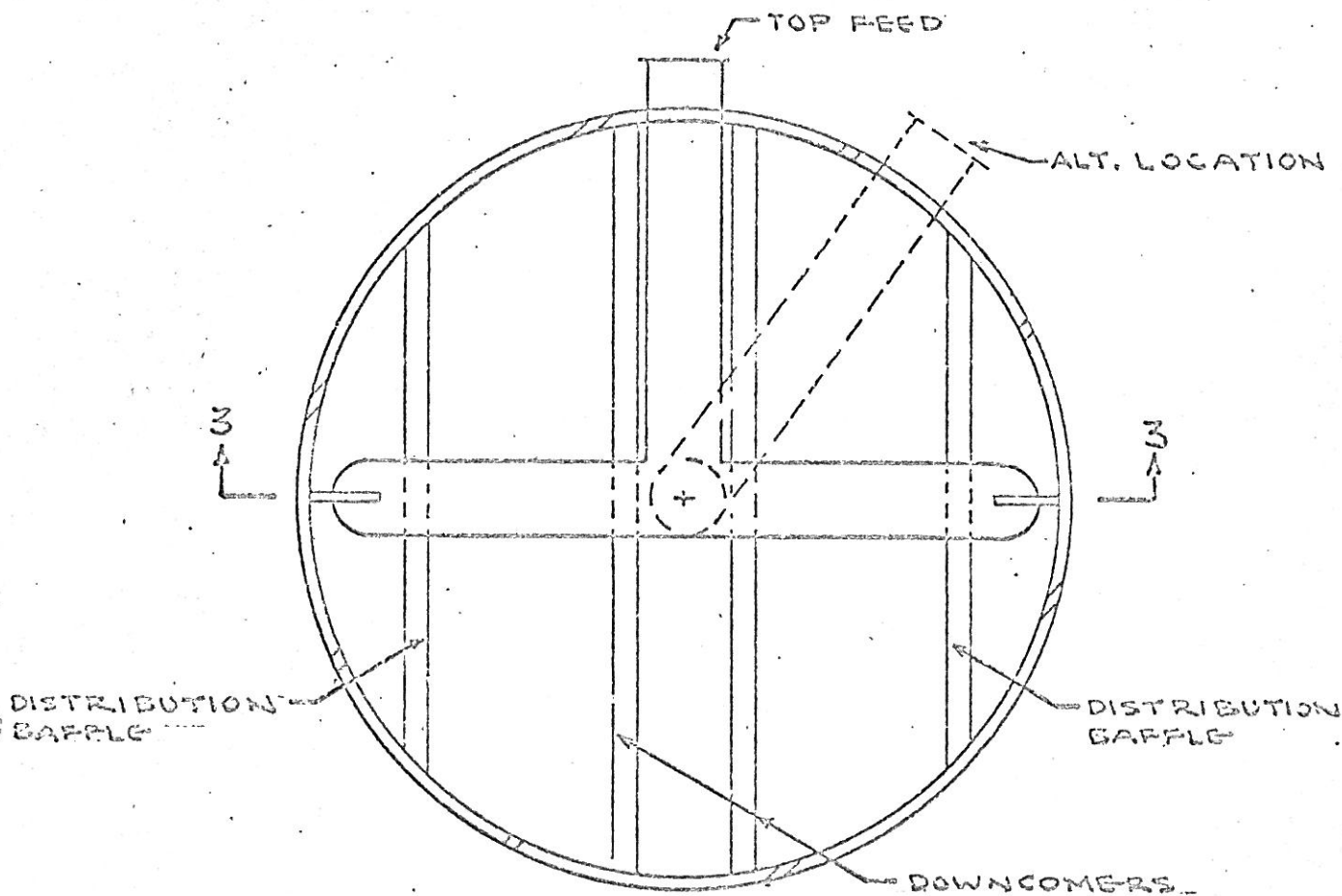


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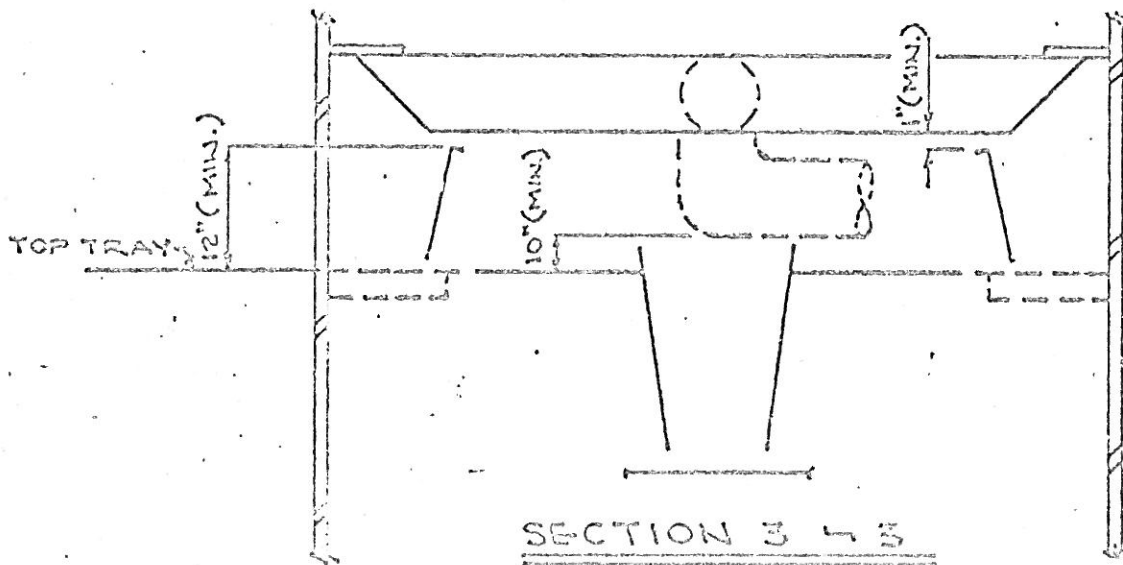


SUBJECT:

NUTTER'S RECOMMENDED TOP FEED NOZZLE LOCATIONS
AND DISTRIBUTION BAFFLES FOR TWO PASS (MIDDLE
DOWNCOMER) TRAYS.



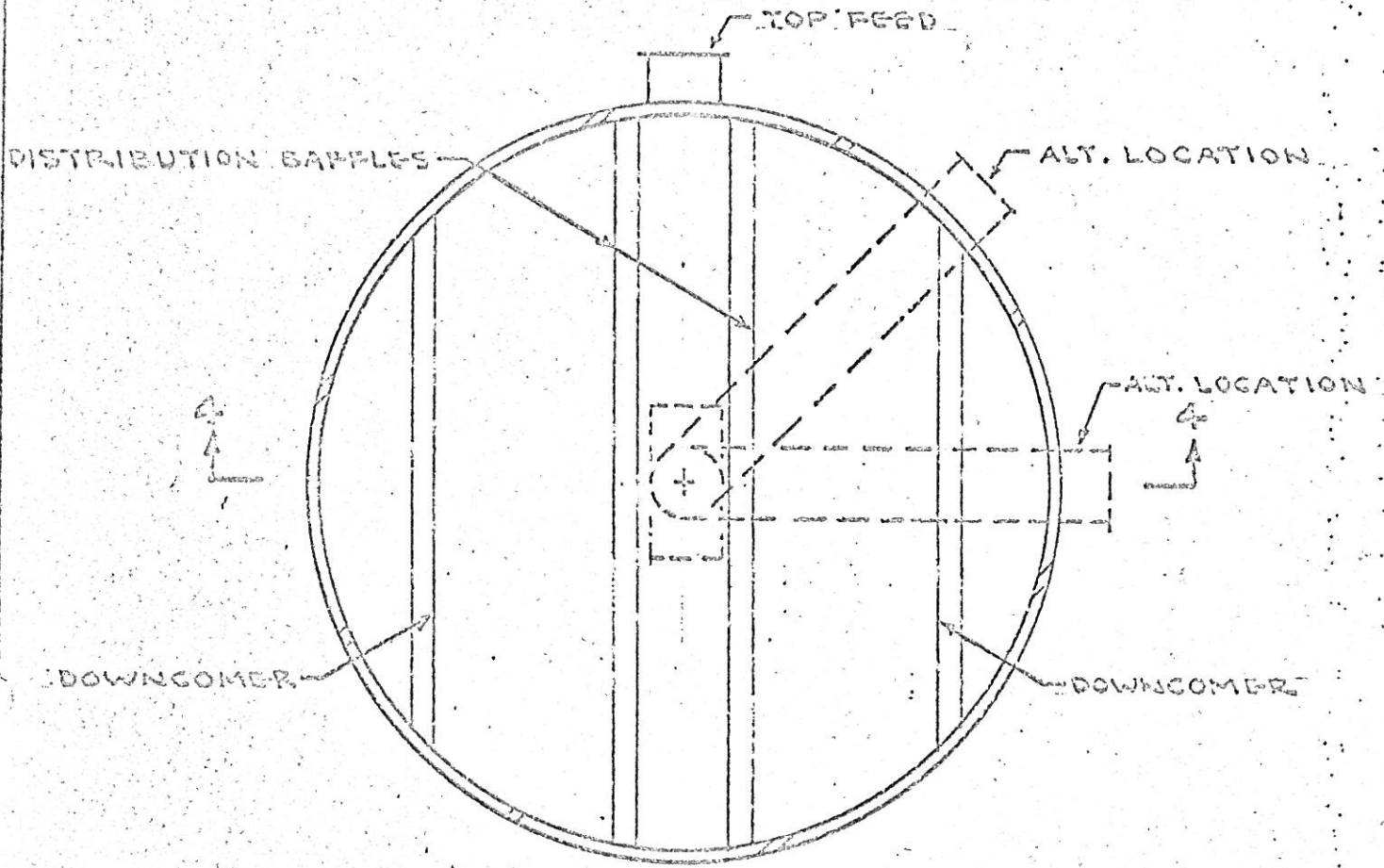
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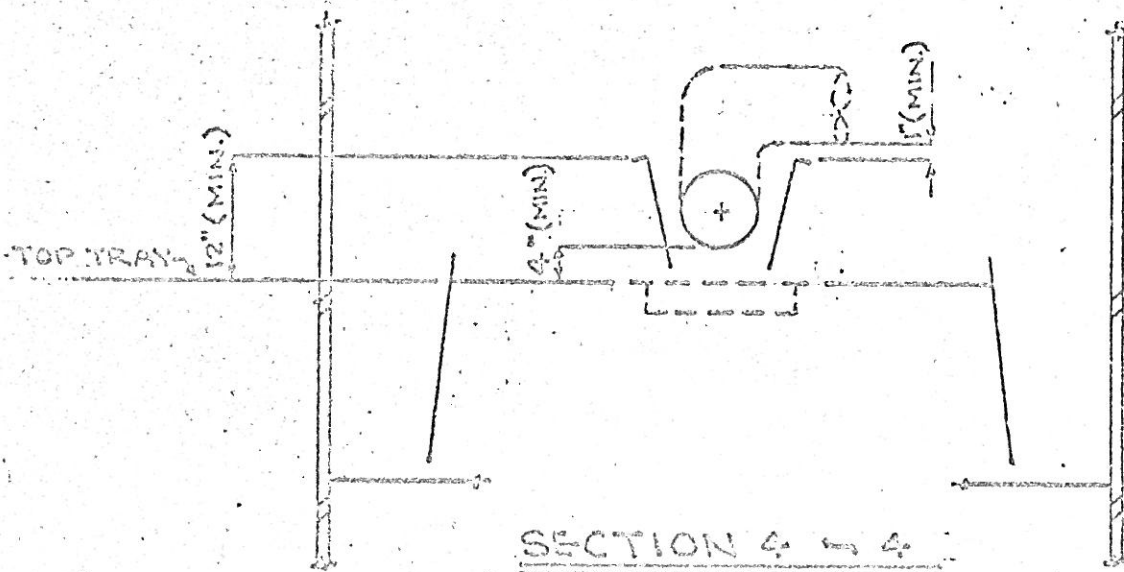
SECTION 3-4-3

SUBJECT:

NUTTER'S RECOMMENDED TOP FEED NOZZLE LOCATIONS AND DISTRIBUTION BAFFLES FOR TWO PASS (SIDE DOWNCOMER) TRAYS.

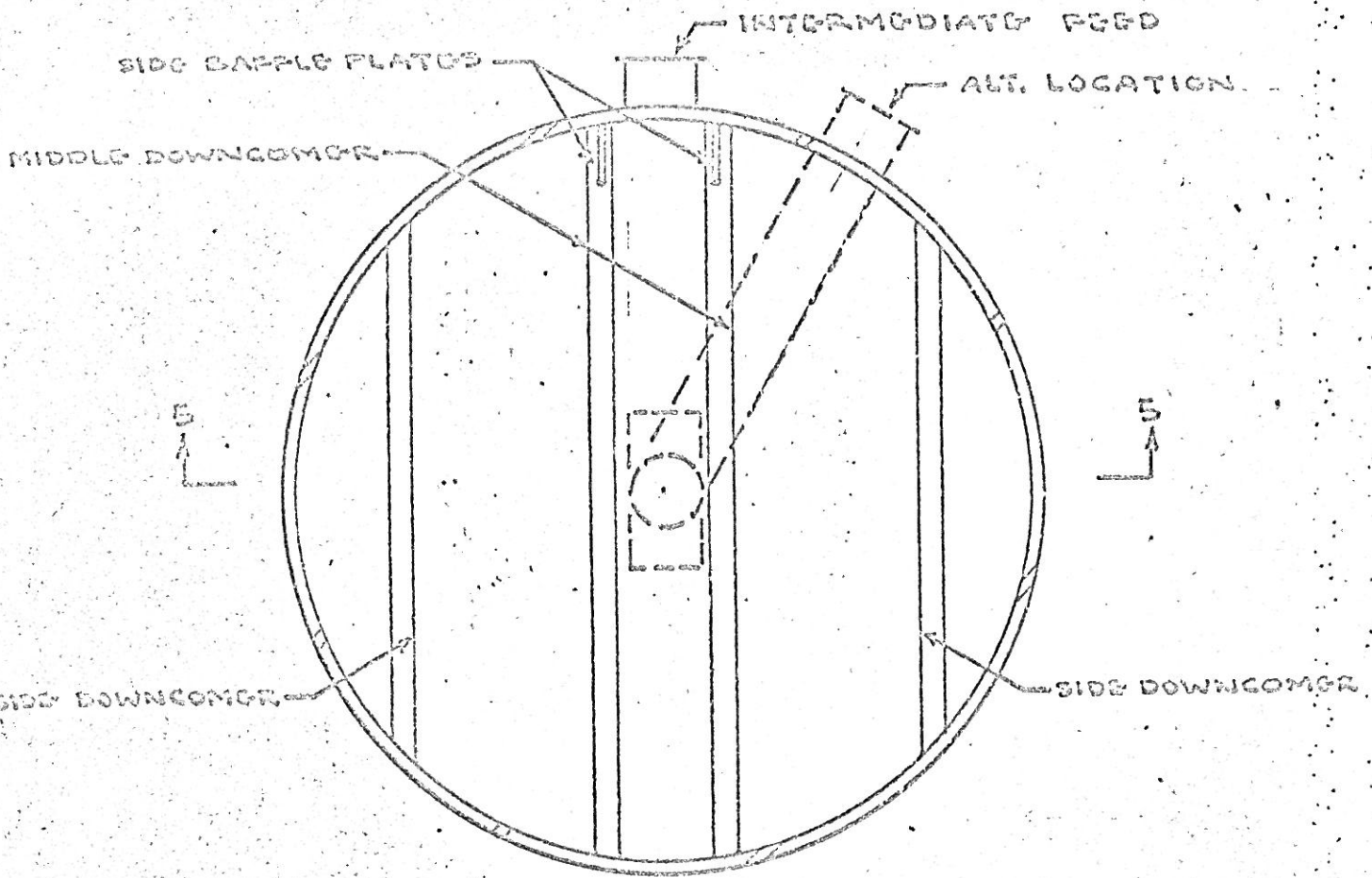


ORIENTATION

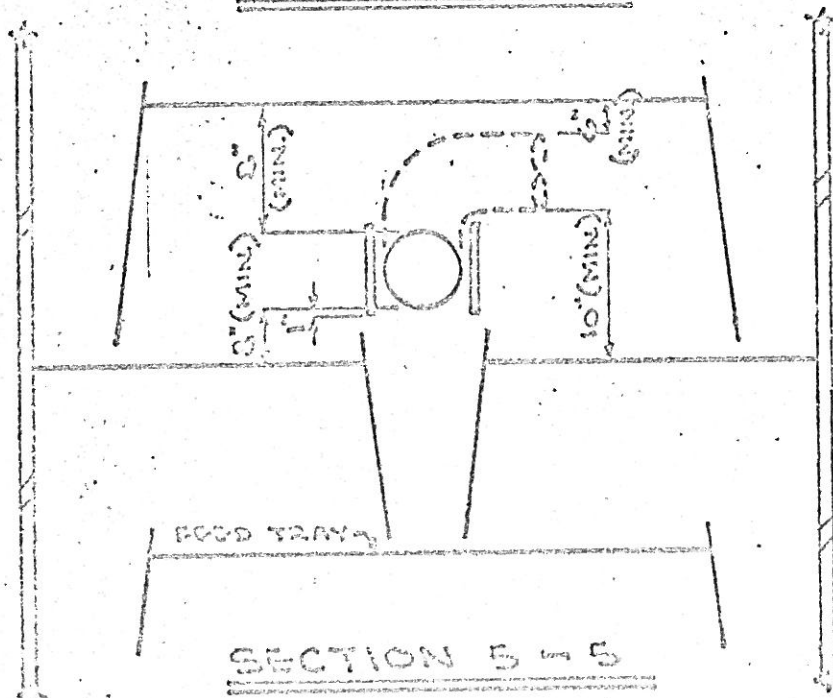


SUBJECT:

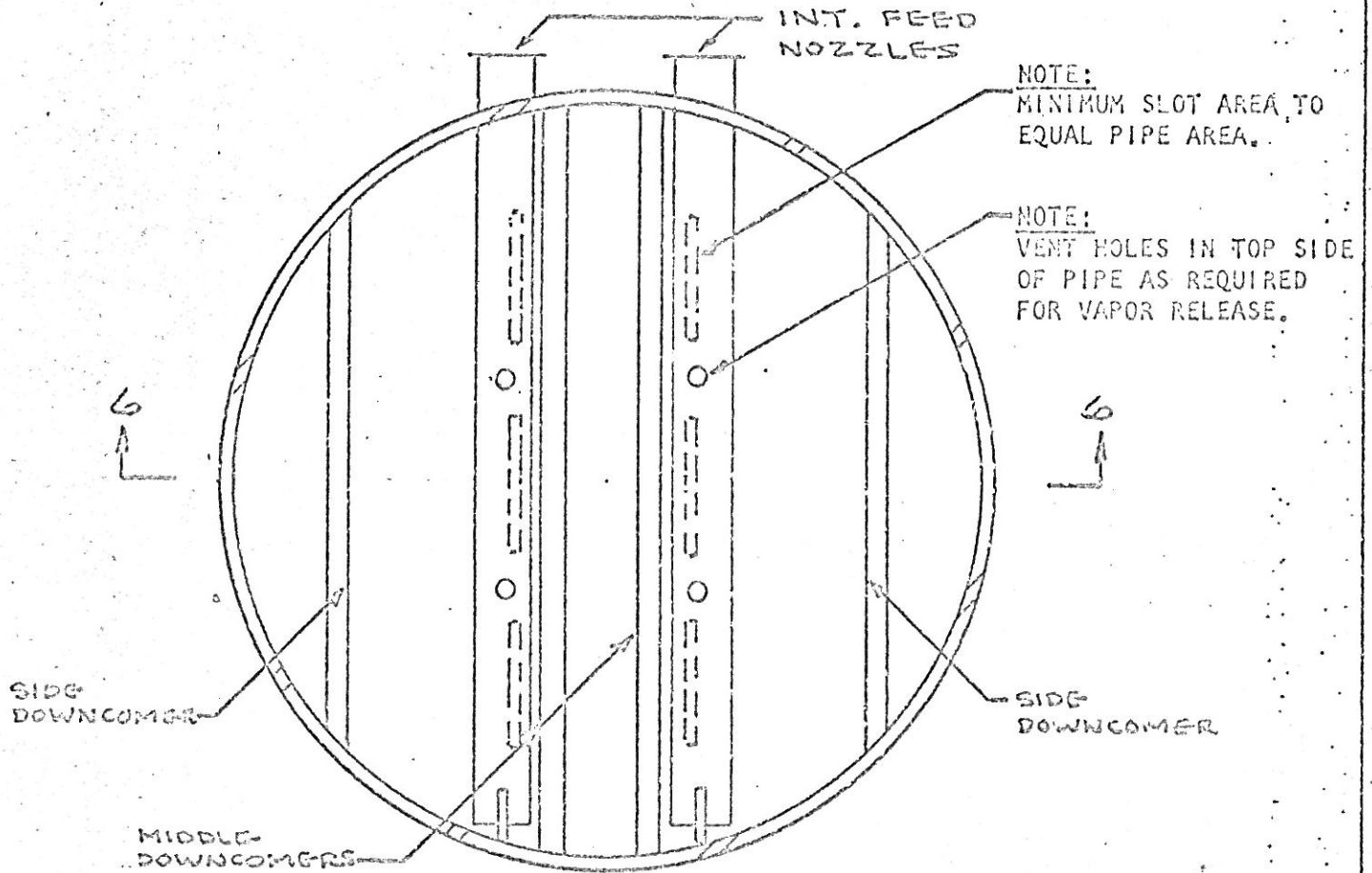
NUTTER'S RECOMMENDED INTERMEDIATE FEED NOZZLE LOCATIONS AND BAFFLE PLATES FOR TWO PASS SIDE DOWNCOMER FEED TRAY.



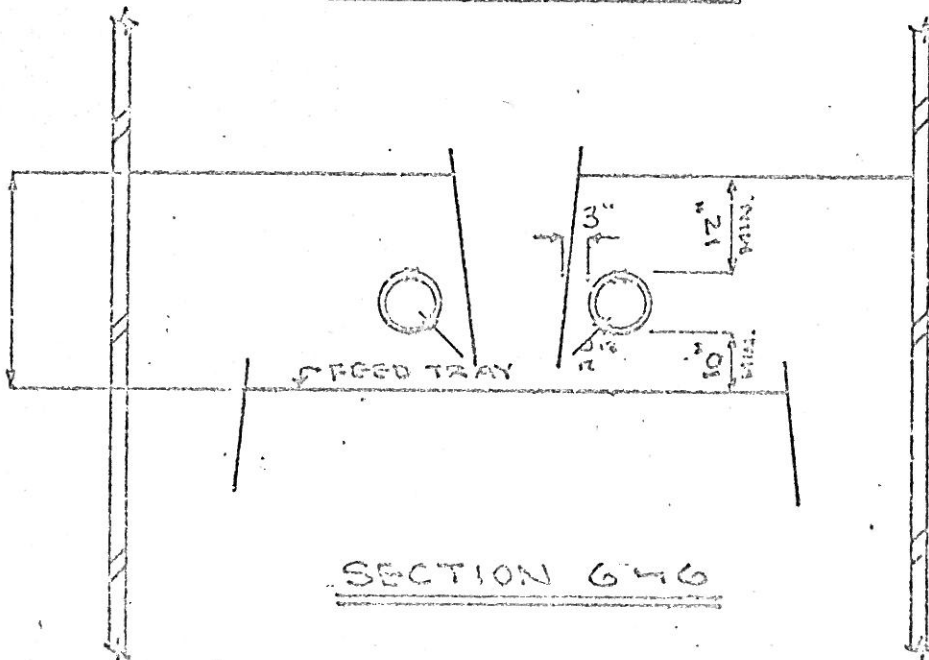
ORIENTATION



SUBJECT:
 NUTTER'S RECOMMENDED INTERMEDIATE FEED NOZZLE LOCATION.
 (FOR TWO PASS CENTER DOWNCOMER FEED TRAY)



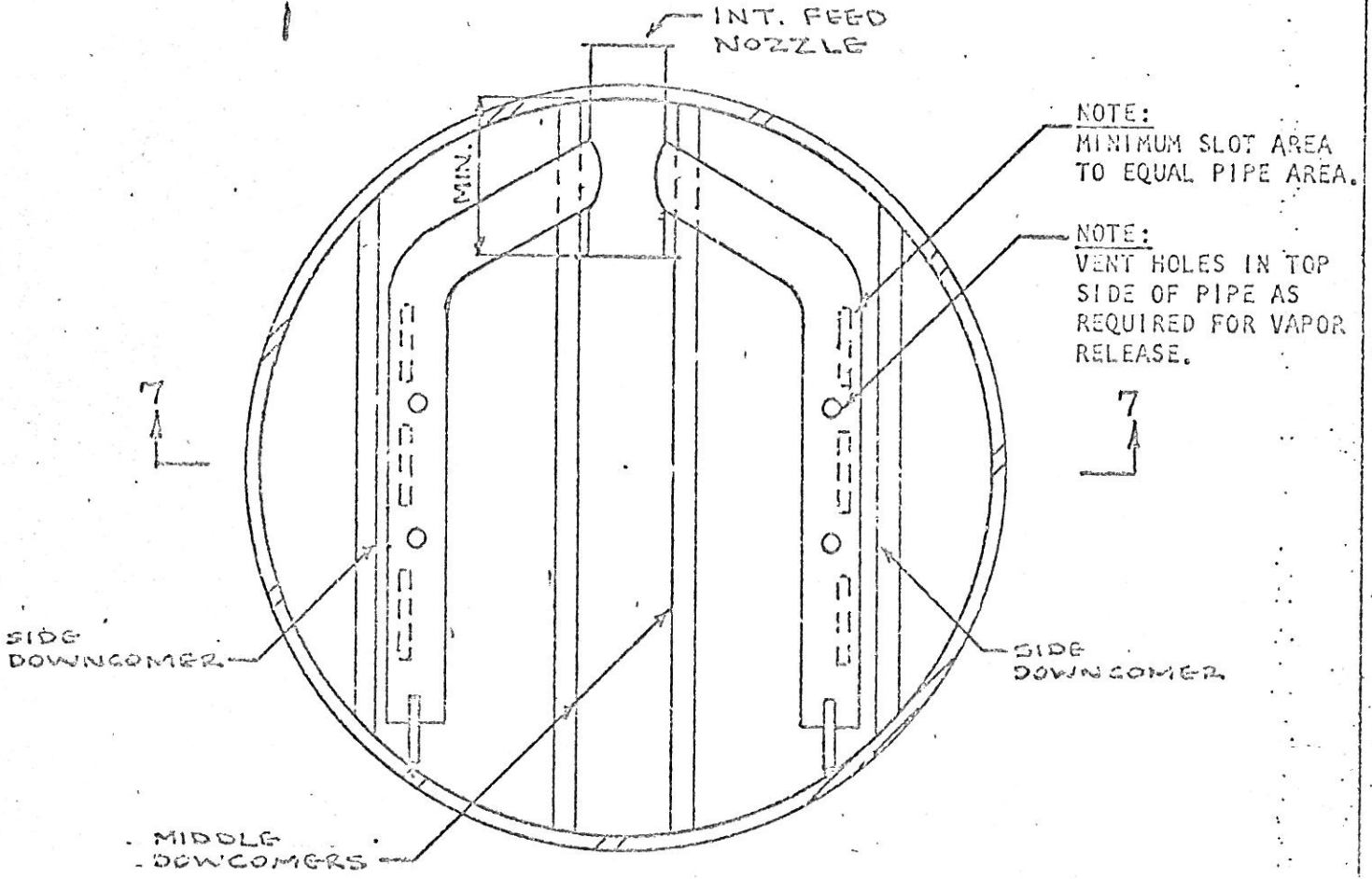
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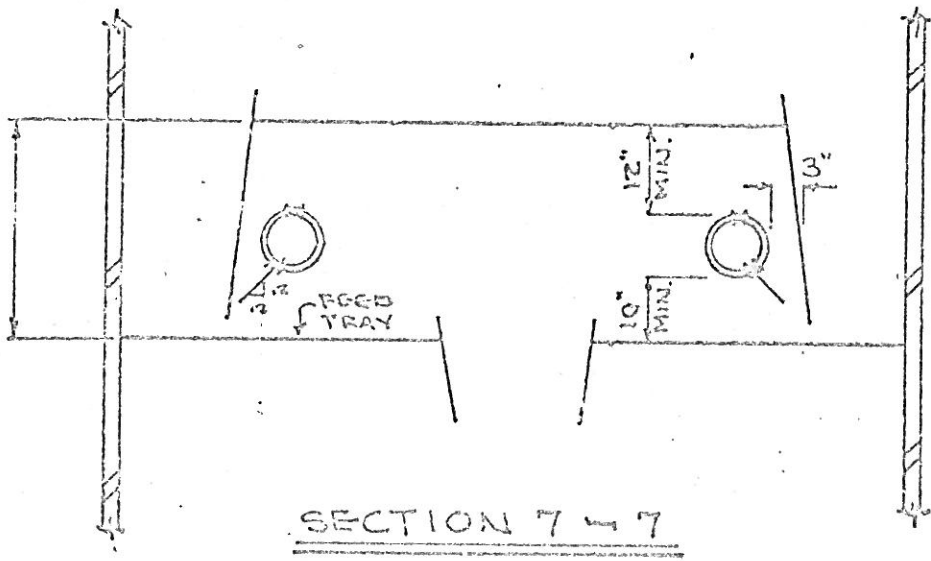
SECTION 646

SUBJECT:

NUTTER'S RECOMMENDED INTERMEDIATE FEED NOZZLE LOCATION
(FOR TWO PASS (SIDE DOWNCOMER) TRAYS)

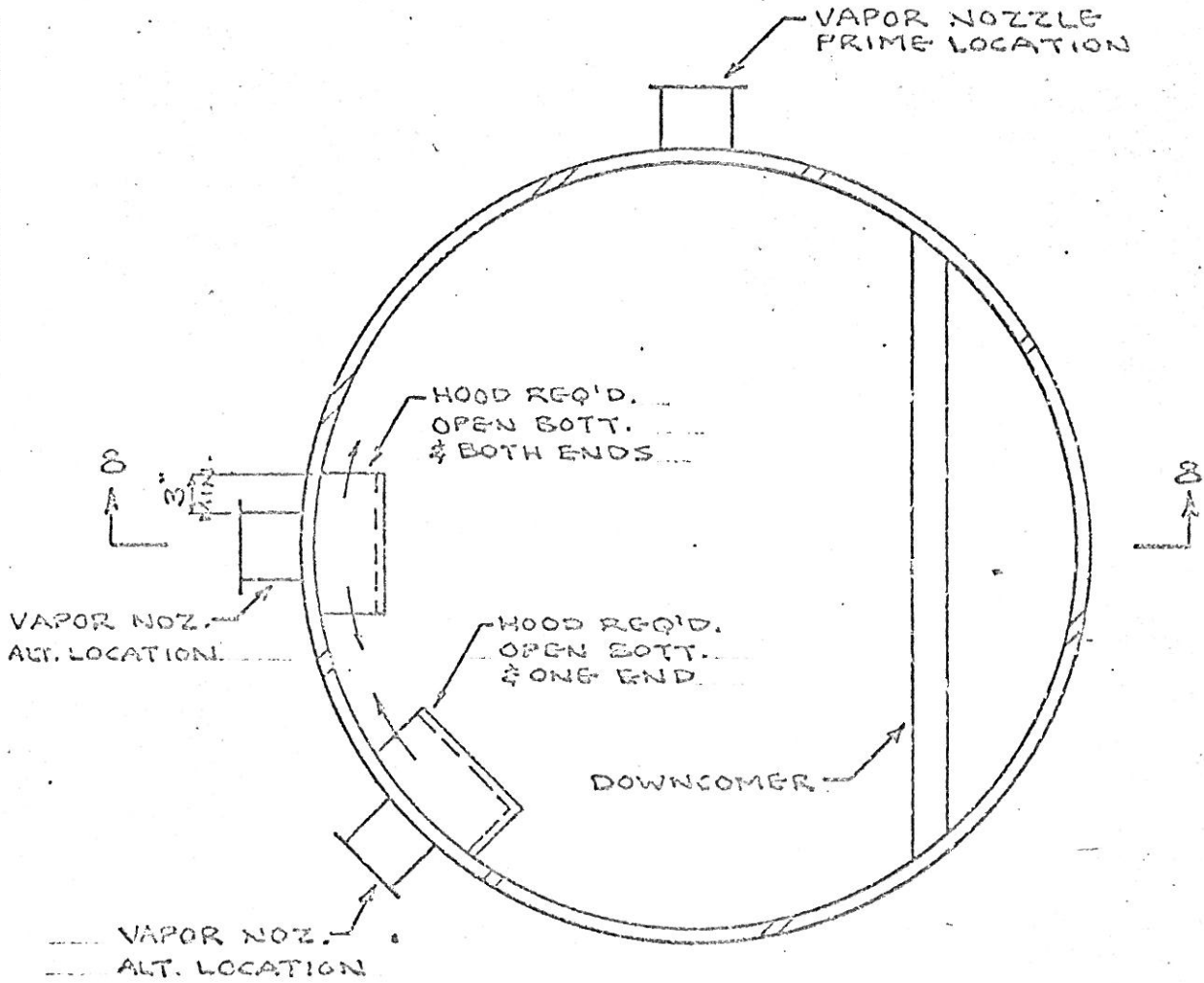


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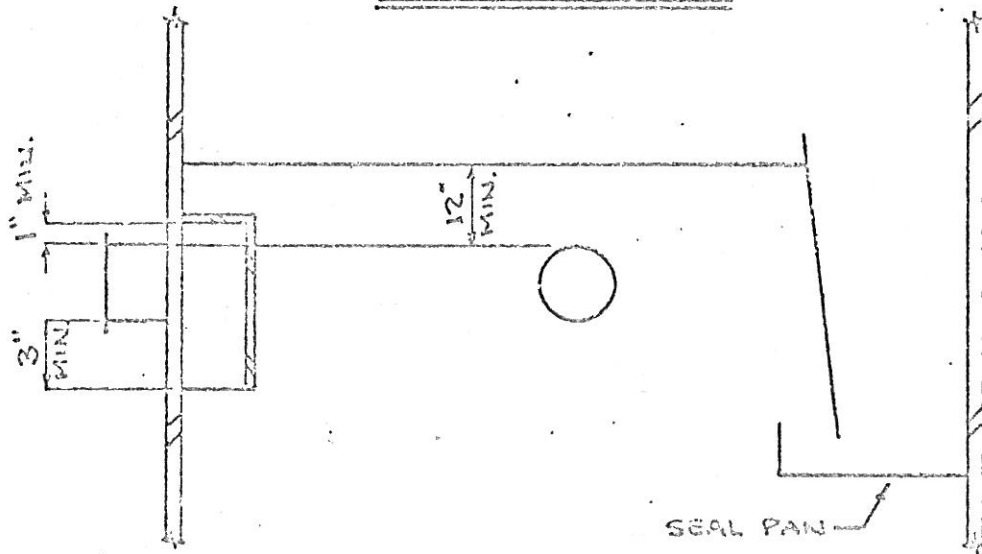


SECTION 7-7

SUBJECT:
BOTTOM VAPOR NOZZLE LOCATIONS FOR
ONE-PASS TRAYS

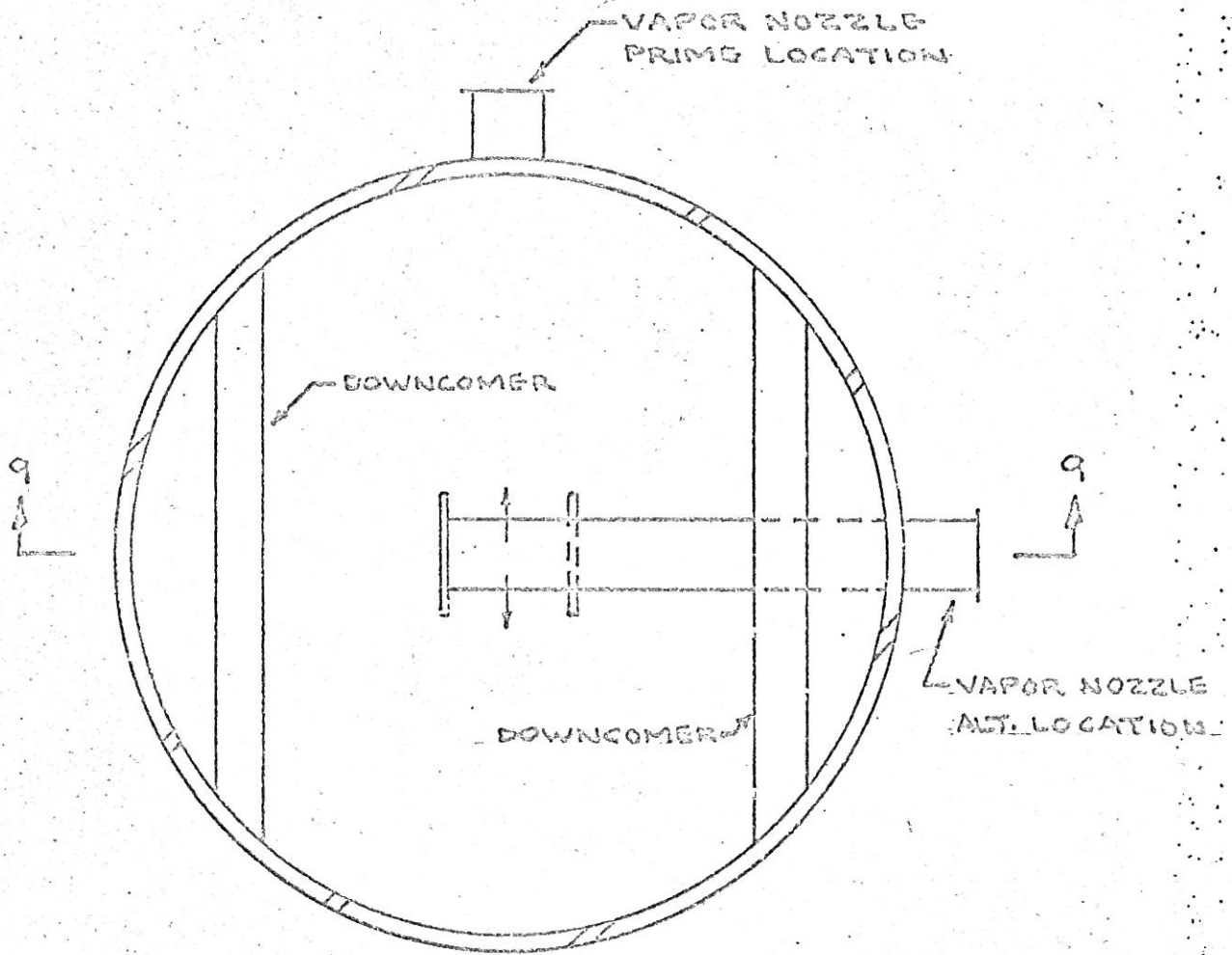


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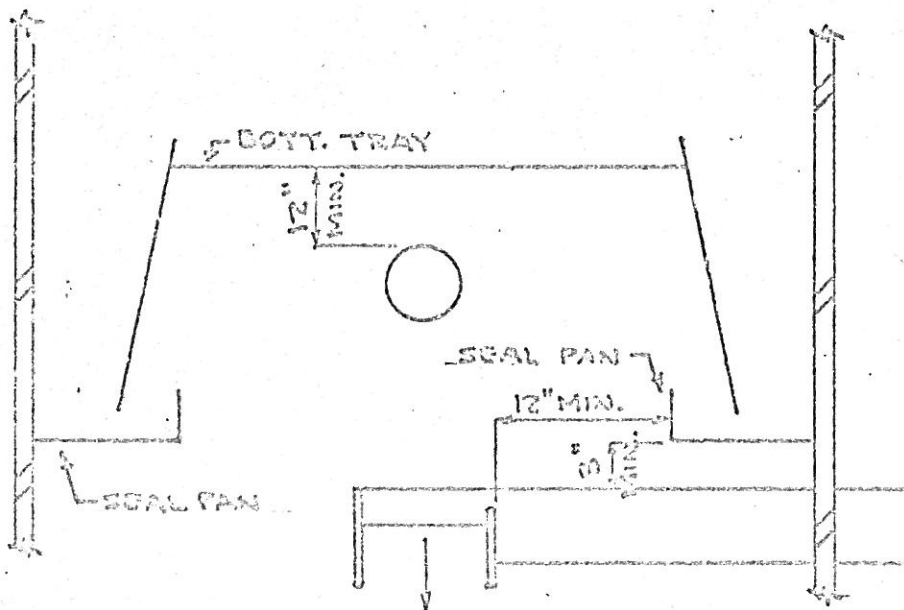


SECTION 8 - 3

SUBJECT:
BOTTOM VAPOR NOZZLE LOCATIONS FOR
TWO-PASS (SIDE DOWNCOMER) TRAYS

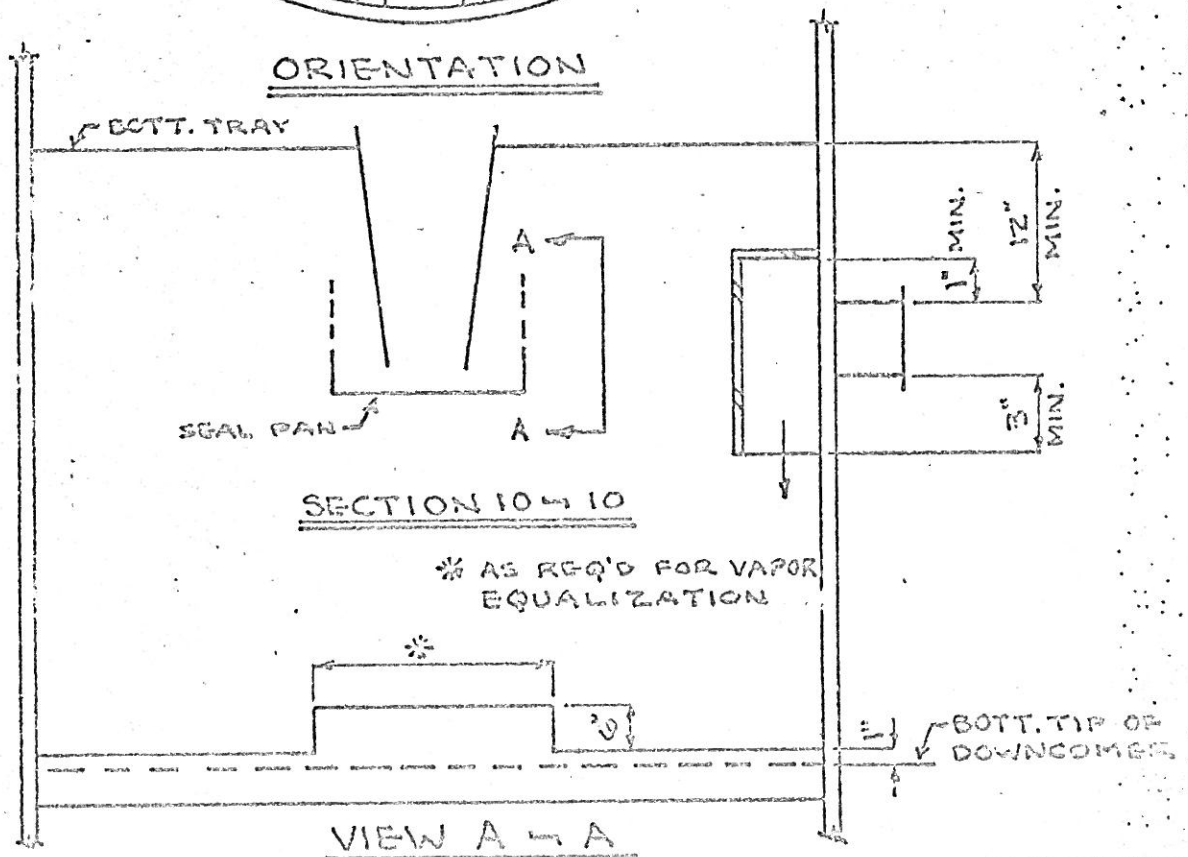
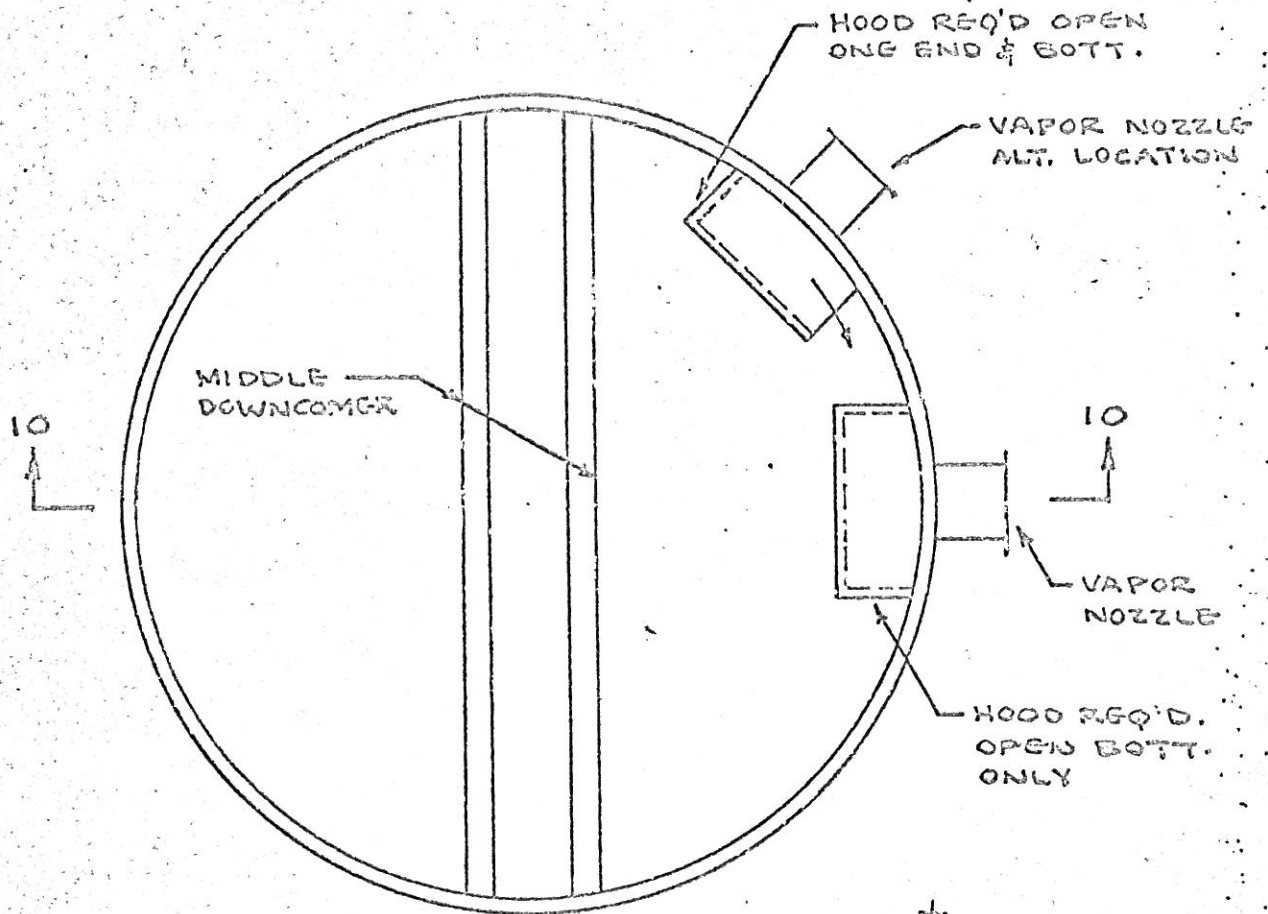


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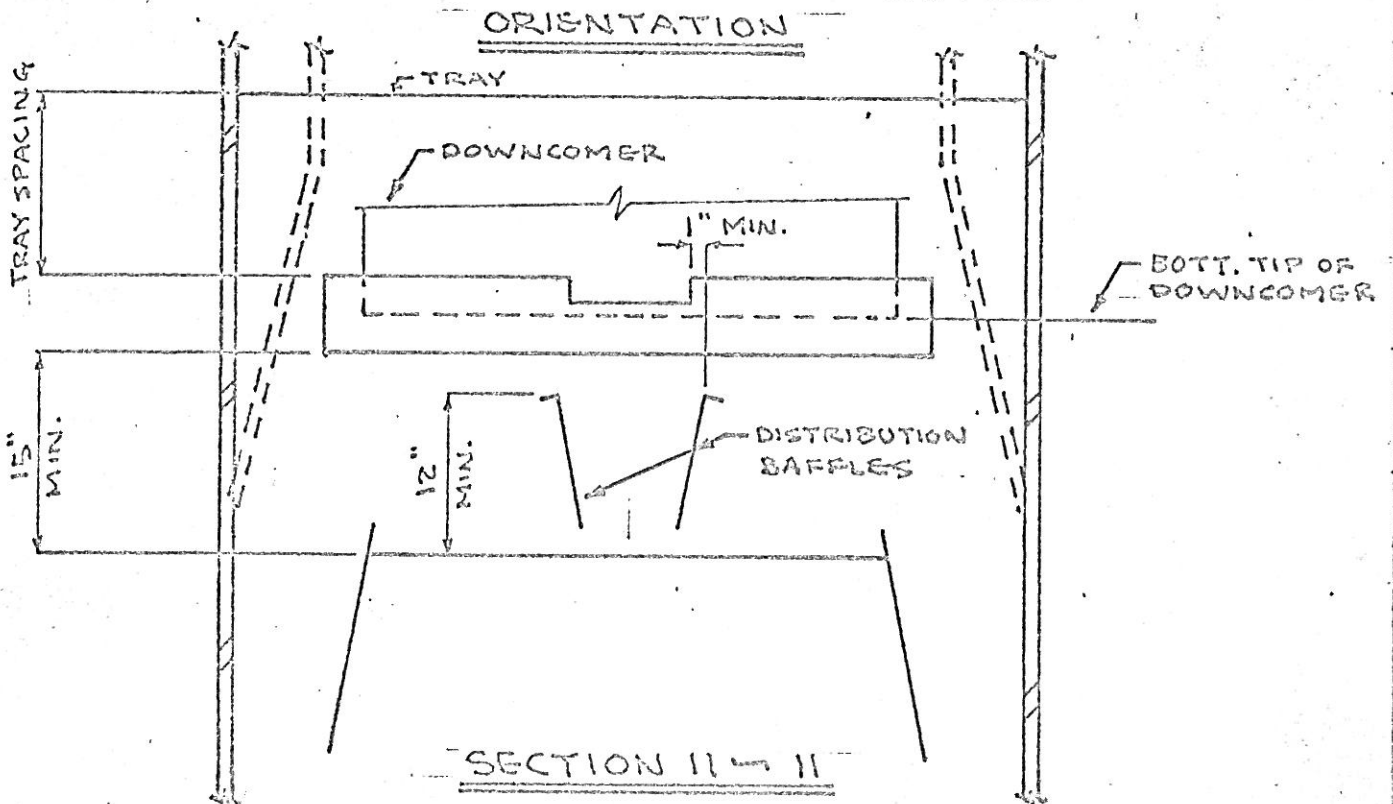
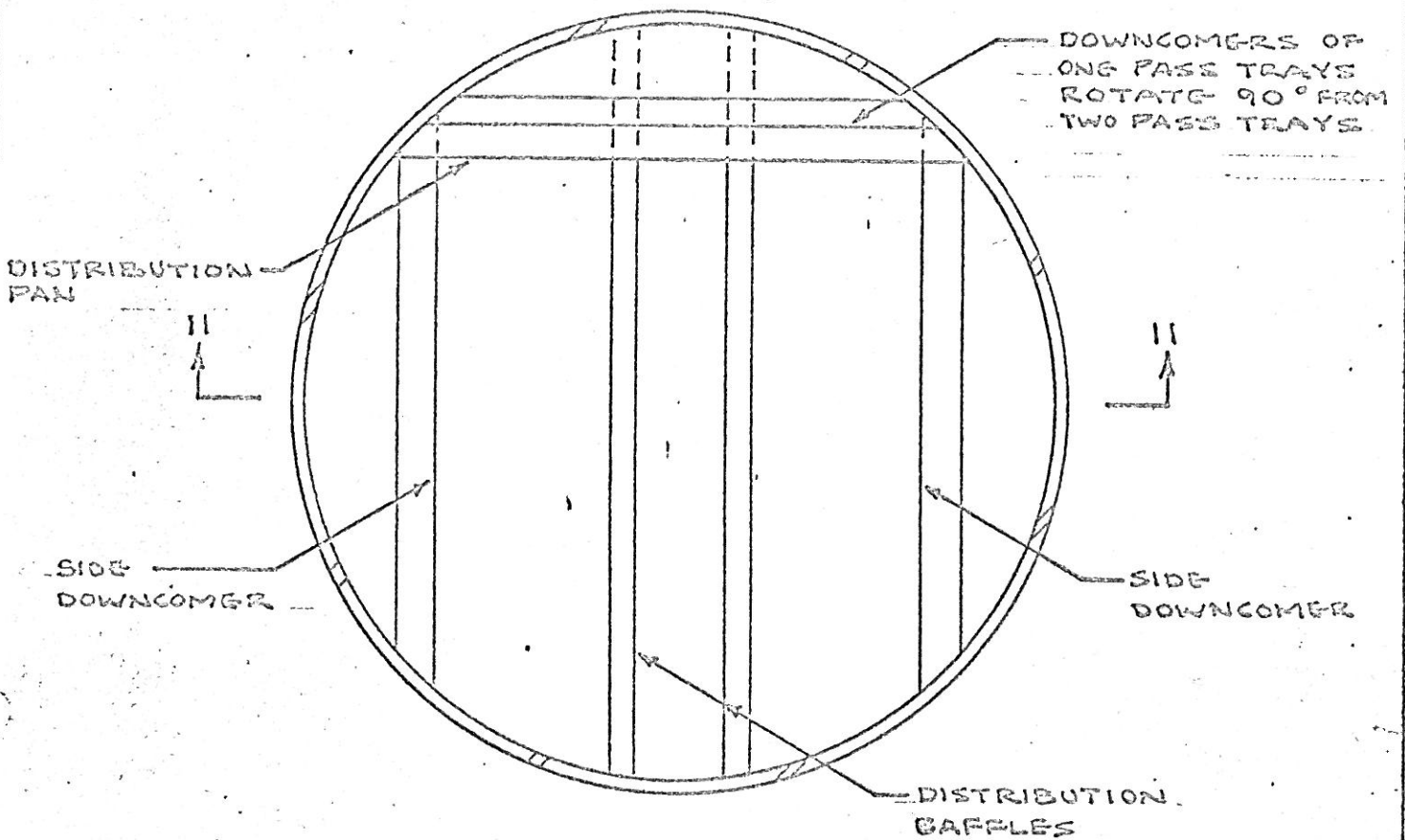
SECTION 9 - 9

SUBJECT:
BOTTOM VAPOR NOZZLE LOCATIONS FOR
TWO-PASS (MIDDLE DOWNCOMER) TRAYS



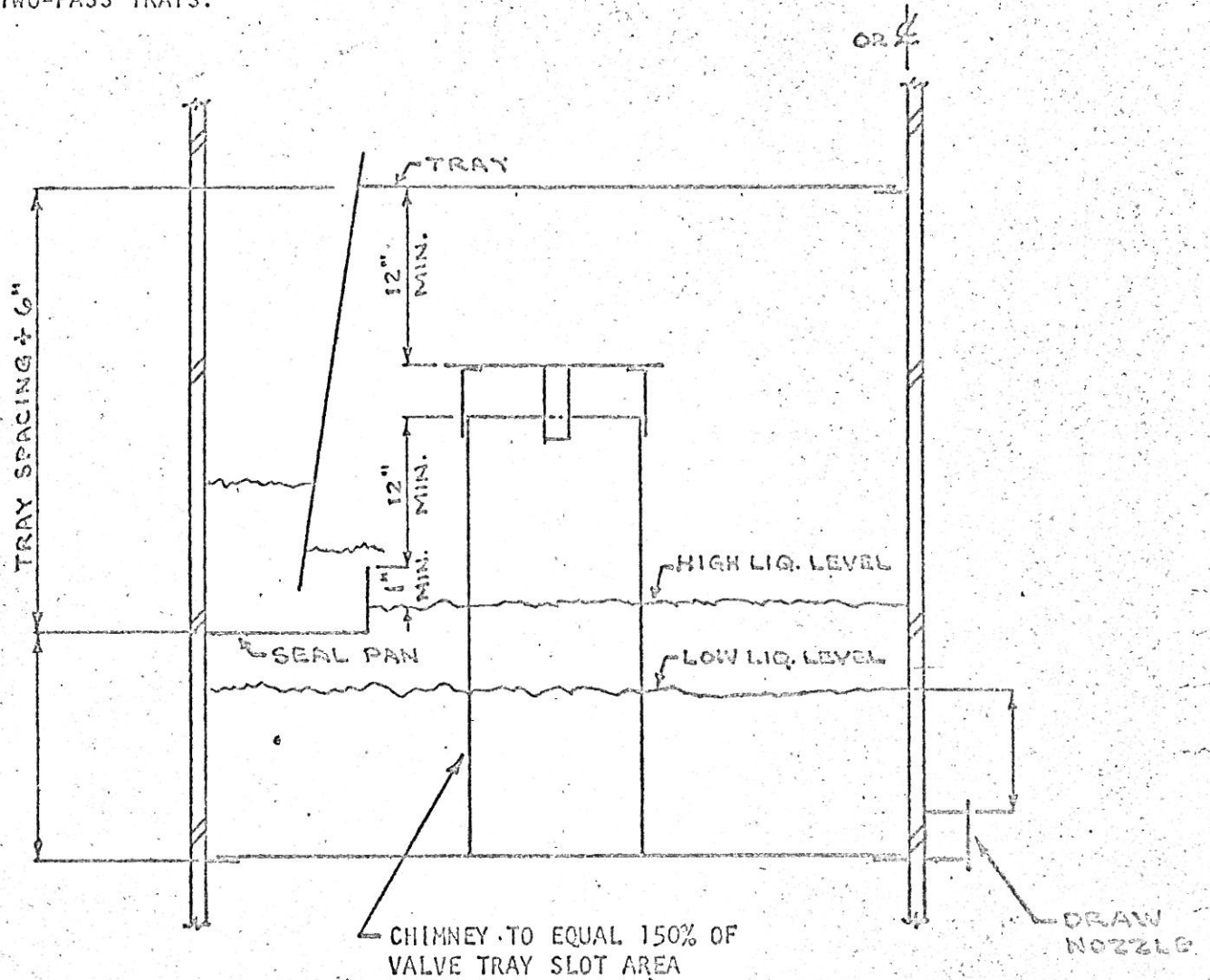
SUBJECT:

NUTTER'S RECOMMENDED CONVERSION FROM ONE-PASS TO TWO-PASS TRAYS IN SWAGE TOWERS OR NON-SWAGE TOWERS.



SUBJECT:

NUTTER'S RECOMMENDED TOTAL DRAW
CHIMNEY TRAY FOR ONE-PASS OR
TWO-PASS TRAYS.



NOTE: TOTAL DRAW CHIMNEY TRAYS SHOULD BE SEAL WELDED.
IF ACCESS THRU TRAY IS REQ'D IT SHOULD BE OBTAINED
THRU CHIMNEY WHERE POSSIBLE OR GASKETED MANWAY
PANEL AS ALT.