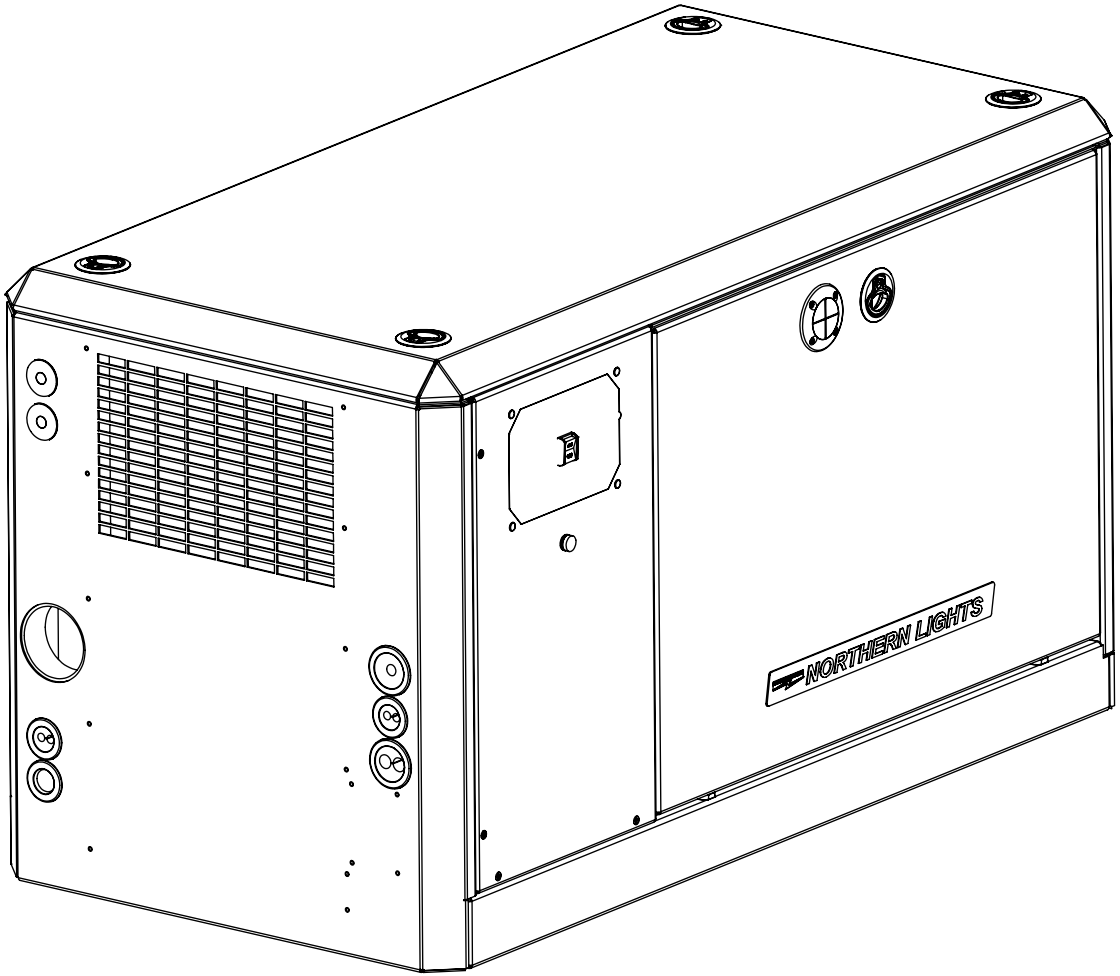
NORTHERN LIGHTS®

M864W3

GEM Series Sound Enclosure
Assembly Instructions



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NORTHERN LIGHTS®

M864W3 GEM Sound Enclosure

ITEM #	DESCRIPTION	NLI P/N	QTY	NOTES
1.	Rear panel assembly	06-78703	1	
2.	M8 flat washer	15-11000	4	loose, bagged
3.	M8 lock washer	15-00705	4	loose, bagged
4.	M8 hex head capscrew	12-00776	4	loose, bagged
5.	Service side lower valence assembly	06-78707	1	
6.	Non-service side lower valence assembly	06-78709	1	
7.	Front lower valence assembly	06-78719	1	
8.	Non-service side panel assembly	06-78715	1	
9.	Service side panel aft assembly	06-78713	1	
10.	Front panel assembly	06-78701	1	
11.	Seal bar assembly	06-78723	1	
12.	Top panel assembly	06-78705	1	
13.	Service side panel, fwd assembly	06-78711	1	
14.	Grommet 1-1/8” x 1-7/8” OD	00-70146	2	loose, bagged
15.	Leak detection alarm light assembly	22-90382	1	loose, bagged
16.	E-stop/leak alarm harness	22-72024	1	loose, bagged

SPECIFICATIONS		
Enclosure (installed on generator base):		
	Length (OA)	48.9 in (1243 mm)
	Width	25.0 in (635 mm)
	Height	28.1 in (713 mm)
Assembled weight - shield only:		55.0 lbs (24.9 kg)
Assembled weight w/ genset:		952.2 lbs (432 kg)

Prior to assembly, inspect all components for damage. Report any damage to the shipping company. Check the packing list in the back of this manual to be sure all parts are included.

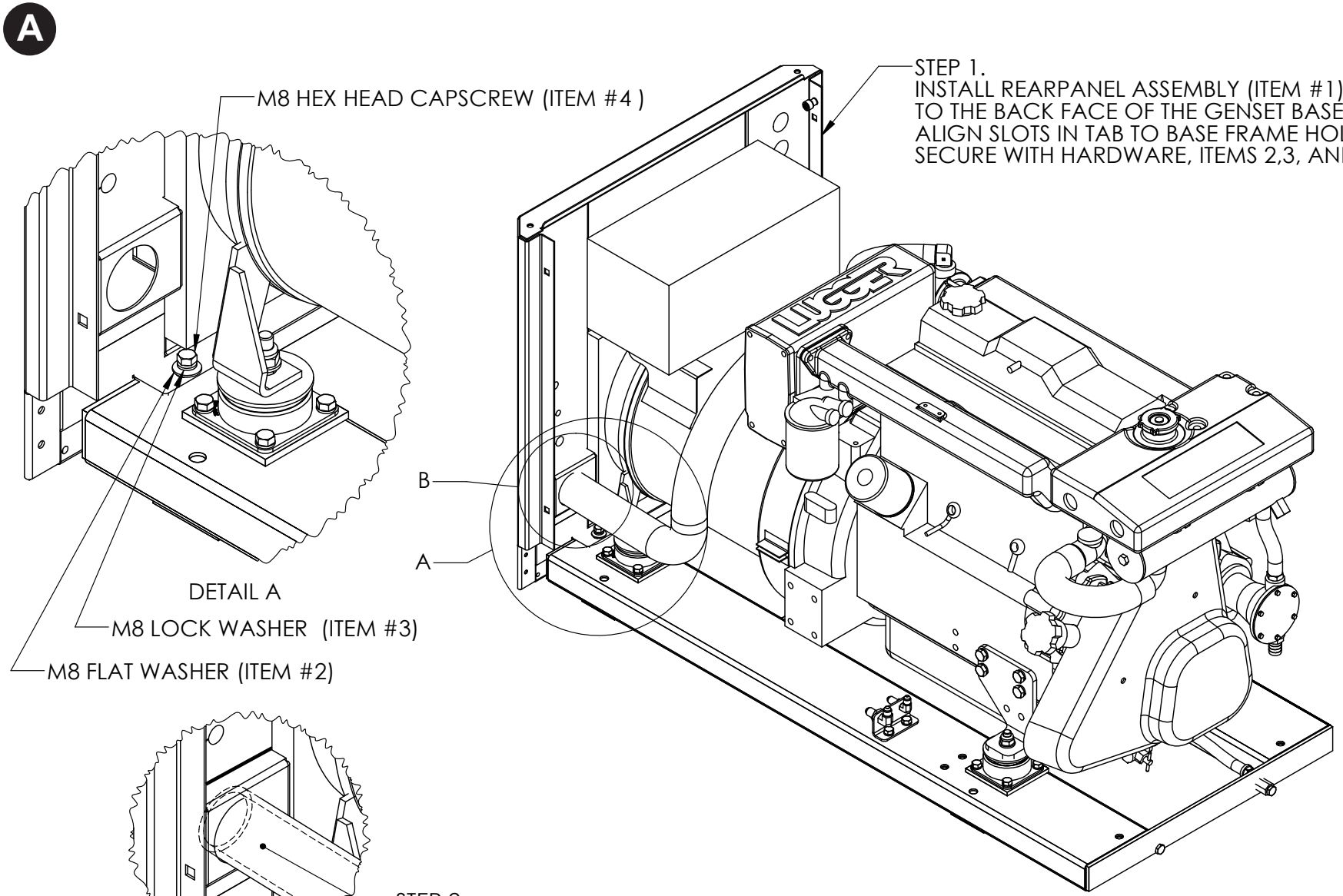
Note: The Generator set may still possess original factory lifting points. These lifting points will need to be loosened and rotated down, below the highest point of the engine. Be sure to tighten these bolts before installing generator set.

Select a mounting location in accordance with the guidelines in the IM1000 Installation Manual. The generator set must typically be mounted on a rigid, flat surface above a strong structure, such as the vessel's stringers, to minimize vibration transference to the hull.

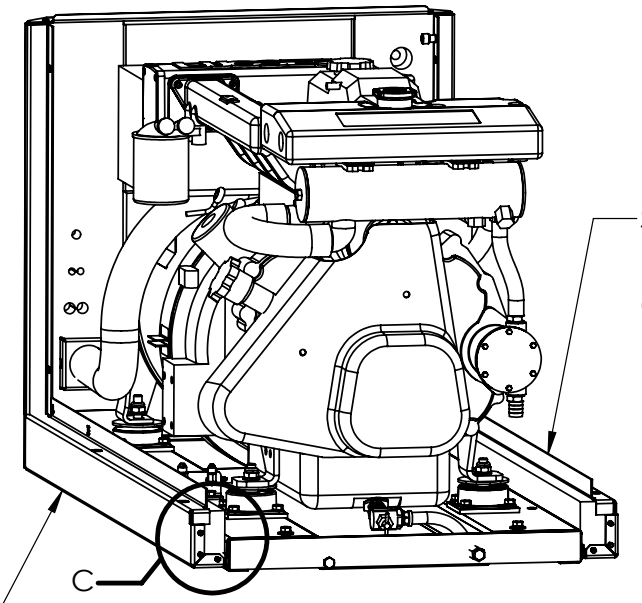
Note that the generator set is designed for single side service. When viewed from the rear, the right hand side is the service side and should be exposed for easy maintenance access.

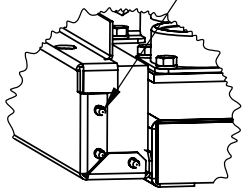
Install the generator set in the vessel as near to a level attitude as possible. Ensure that the enclosure's right hand side and rear are at the recommended distances (6 inch recommended, 4 inch minimum.) from the vessel's bulkheads.

AVOID POSITIONING THE ENCLOSURE INTO CORNERS WITH OVERHEAD BLOCKED TO REDUCE CHANCE OF INTAKE/EXHAUST AIR RECIRCULATION OUTSIDE THE SHIELD.


A
M8 HEX HEAD CAPSCREW (ITEM #4)
STEP 1.
INSTALL REARPANEL ASSEMBLY (ITEM #1)
TO THE BACK FACE OF THE GENSET BASE.
ALIGN SLOTS IN TAB TO BASE FRAME HOLES.
SECURE WITH HARDWARE, ITEMS 2,3, AND 4.
B
A
DETAIL A
M8 LOCK WASHER (ITEM #3)
M8 FLAT WASHER (ITEM #2)
STEP 2.
WHEN THE REAR PANEL ASSEMBLY IS SECURED, INSERT
GENSET AIR INTAKE SNORKEL HOSE INTO THE RECIEVER
AS SHOWN. PUSH INTO HOLE FIRMLY BUT **DO NOT FORCE**
HOSE ALL THE WAY IN. THERE IS A TAB STOP THAT LIMITS THE
HOSE INSERTION. PUSHING THE HOSE TOO FAR INSIDE THE
RECIEVER WILL CAUSE INTAKE AIR BLOCKAGE AND POOR
ENGINE PERFOMANCE.
DETAIL B

B





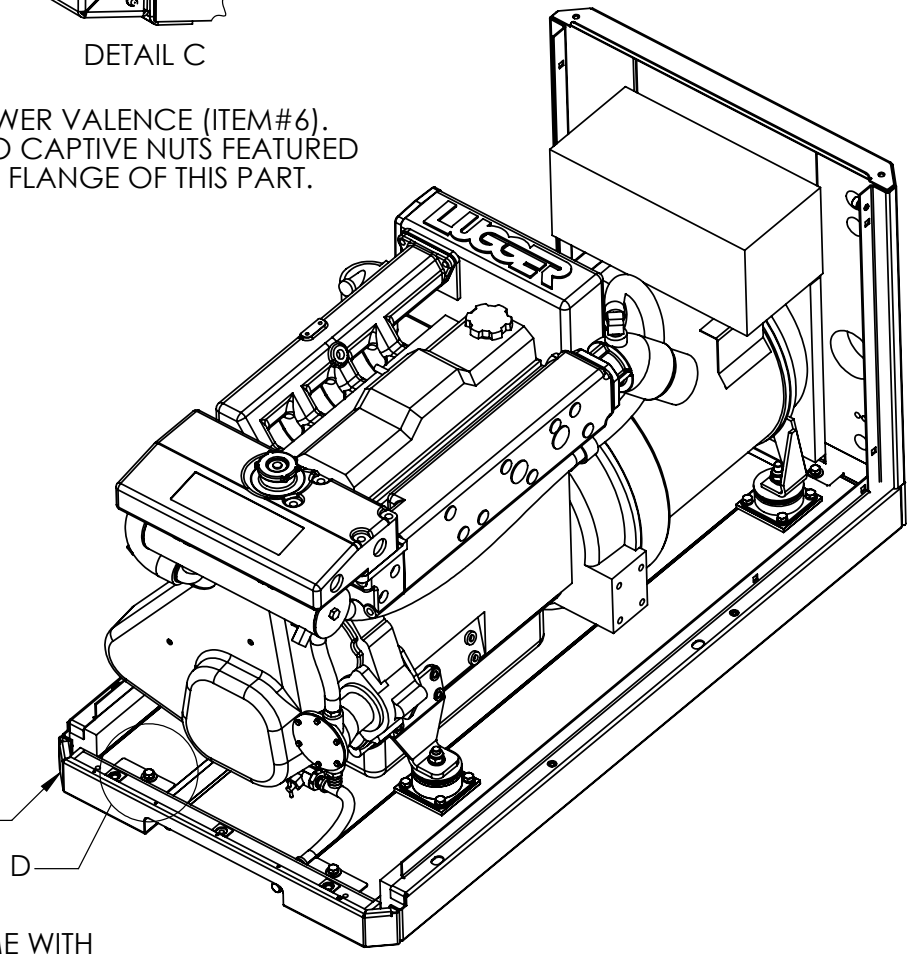
NOTE PRE-INSTALLED PINS.
GUIDE THESE INTO CORRESPONDING HOLES IN REAR PANEL/FRONT LOWER VALENCE PANEL. PUSH FIRMLY TO SNAP INTO PLACE.
DISPLACED PINS MAY BE RE-SEATED USING A LONG TOOL SUCH AS A SCREW DRIVER OR PRY BAR FROM THE INSIDE.
MOVE SOUND FOAM OUT OF THE WAY FOR ACCESS TO PINS.

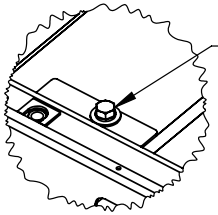
DETAIL C

STEP 4.
INSTALL LEFT SIDE LOWER VALENCE (ITEM#6).
NOTE THERE ARE TWO CAPTIVE NUTS FEATURED ON THE HORIZONTAL FLANGE OF THIS PART.

STEP 3.
INSTALL RIGHT SIDE LOWER VALENCE PANEL (ITEM#5).
NOTE THIS PART HAS TWO CLIP ON NUTS IN VERTICAL FLANGE.

STEP 5.
INSTALL FRONT LOWER VALENCE (ITEM#7).
ALIGN CORRESPONDING HOLES TO PINS ON BOTH LOWER SIDE VALENCE PANELS.
PUSH FIRMLY UNTIL IT SNAPS.
DISPLACED PINS MAY BE RESEATED AS DESCRIBED IN DETAIL "C".



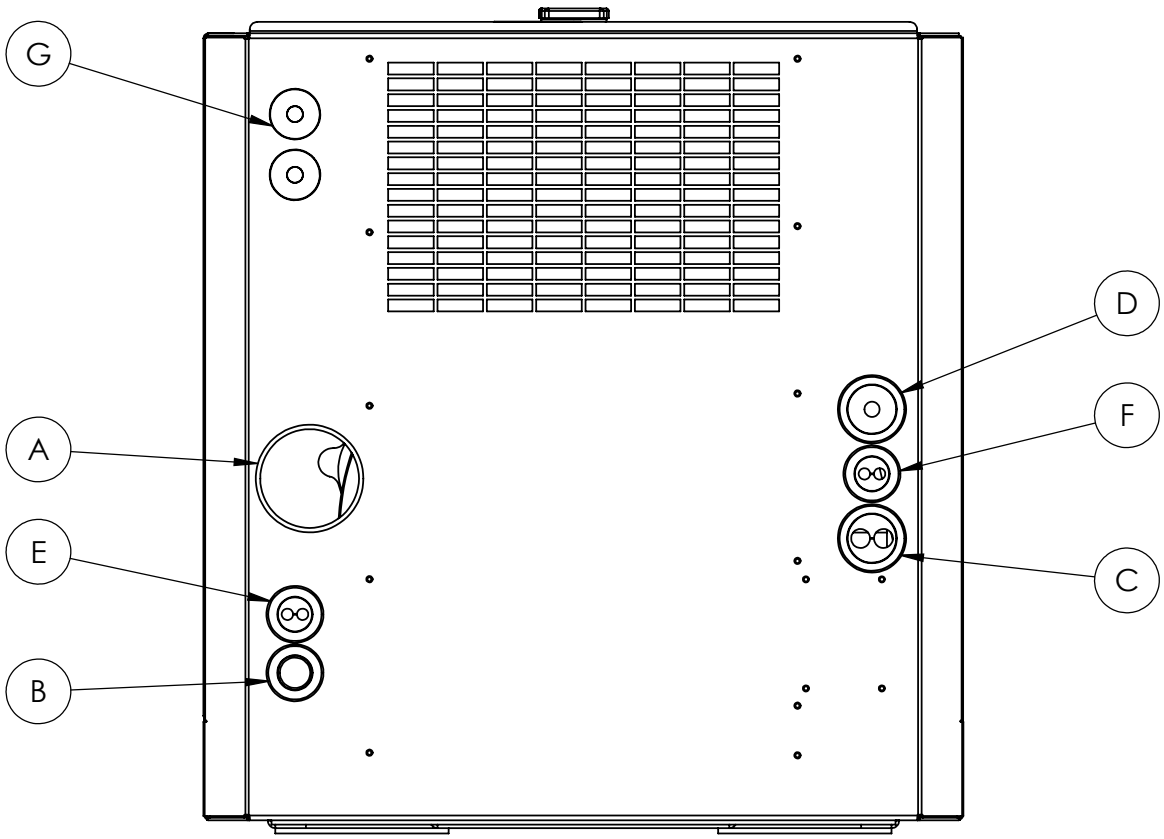


STEP 6.
SECURE FRONT VALENCE TO BASE FRAME WITH TWO EA: M8 FLATWASHER, LOCKWASHER, AND HEX HEAD CAPSCREW (ITEMS 2,3,4).

DETAIL D

C

STEP 7.
CONNECT YOUR GENERATOR TO THE VESSEL



REAR PANEL

Install connections for exhaust, AC power leads, DC control panel leads, battery and water inlet through holes in the rear panel as shown in the drawing and as described below:

a. Connect the exhaust elbow of the diesel engine to the exhaust system of the vessel. Pass the three inch exhaust hose through the opening provided in the left side of the rear panel.

b. Connect the sea water pump to the vessel's water inlet. Pass a 3/4" ID hose from the vessel's sea water strainer, through the bottom hole on the left side of the rear panel to the sea water pump inlet fitting.

c. Connect the vessel's fuel supply and fuel return to the generator set using Coast Guard approved rubber fuel hose. Fuel connections are 5/16-37T JIC inlet and 1/4-37T JIC outlet located at the fuel manifold on the base frame of the generator set's right hand side, through the bottom hole in the right side of the rear panel.

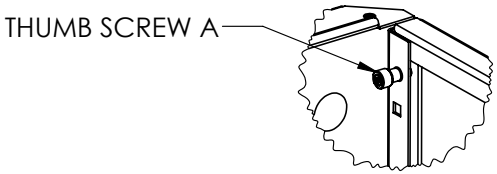
d. Connect the DC control panel harness to the genset engine harness plug through the middle hole on the rear panel's right mid side.

e. Connect the 12 volt battery leads to the generator set using the top hole on the left side of the rear panel.

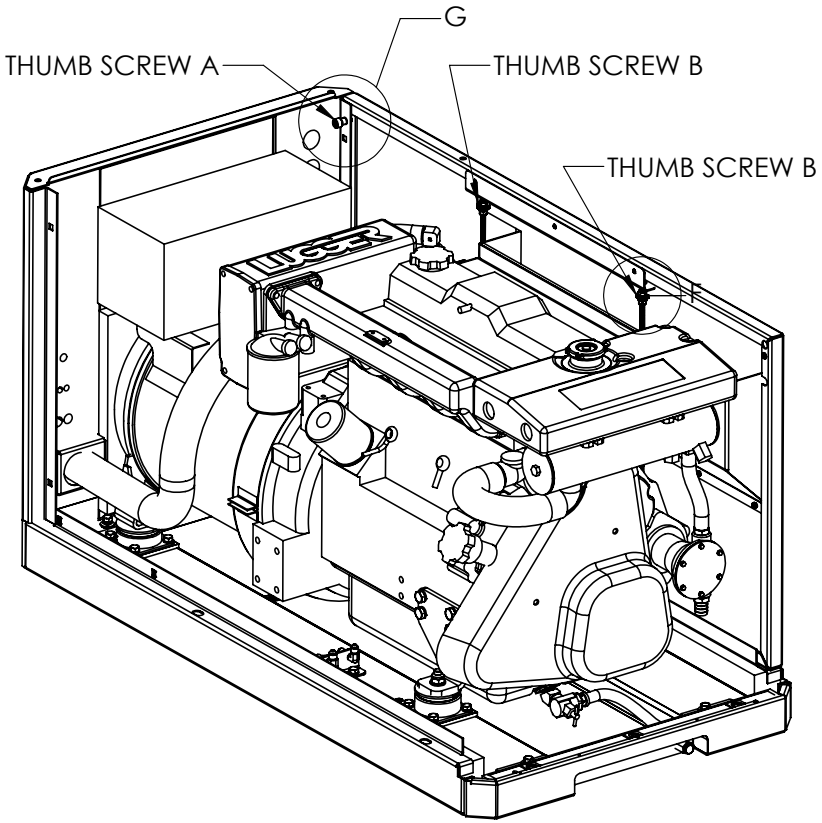
f. Connect the AC output leads from the generator junction box to the vessel's power distribution panel. Pass the two leads through the lower hole on the right side of the panel.

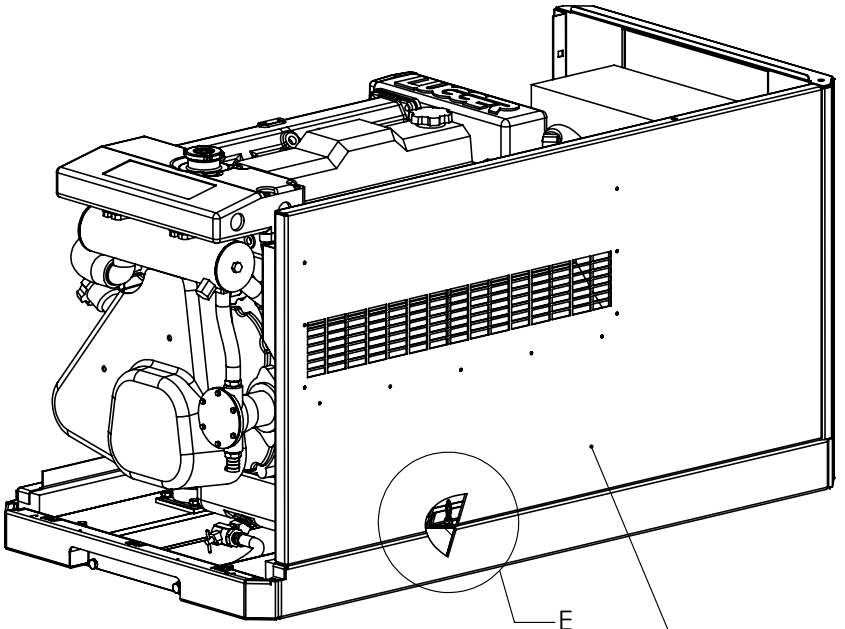
g. *OPTIONAL* These ports are used for siphon break applications.

D



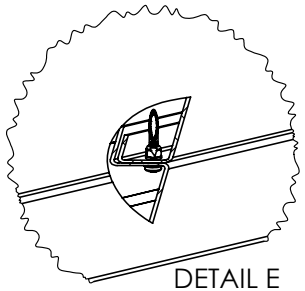
DETAIL G



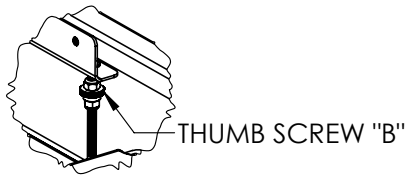


STEP 8.
INSTALL NON-SERVICE SIDE PANEL (ITEM#8).

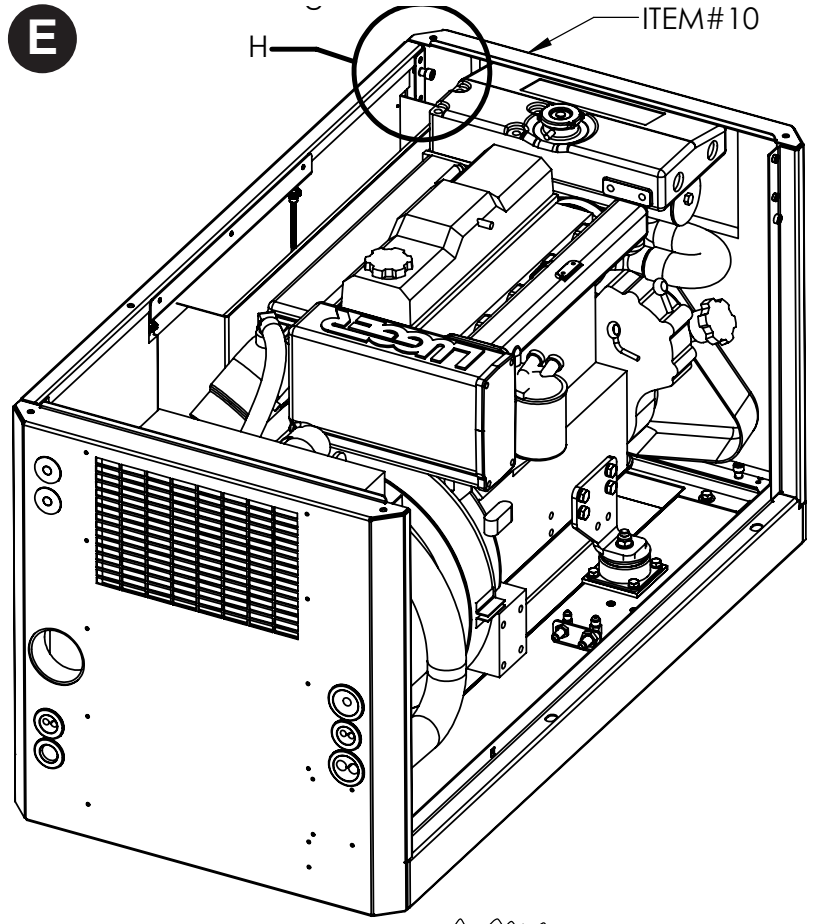
PANEL ATTACHES TO REAR PANEL AND LOWER VALENCE WITH THUMB SCREWS "A" AND "B".
WITH PANEL IN PLACE USE THUMB SCREW "A" TO RETAIN SIDE PANEL, MOVING ON TO THUMB SCREWS "B".
APPLY DOWNWARD PRESSURE AS YOU TURN THUMB SCREW "B" TO ENGAGE THE CAPTIVE NUTS INSIDE THE LOWER VALENCE.
DO THE OPPOSITE TO REMOVE.

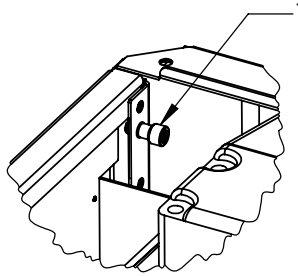


DETAIL E
SHOWING HOW THUMB SCREW "B" ENGAGES LOWER CAPTIVE NUT.



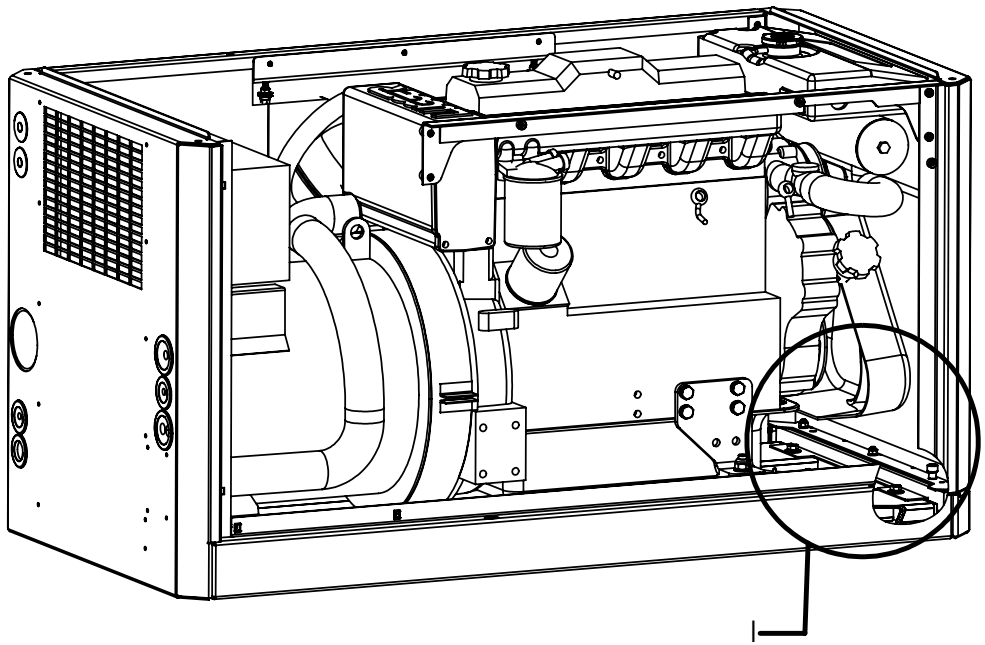
DETAIL F

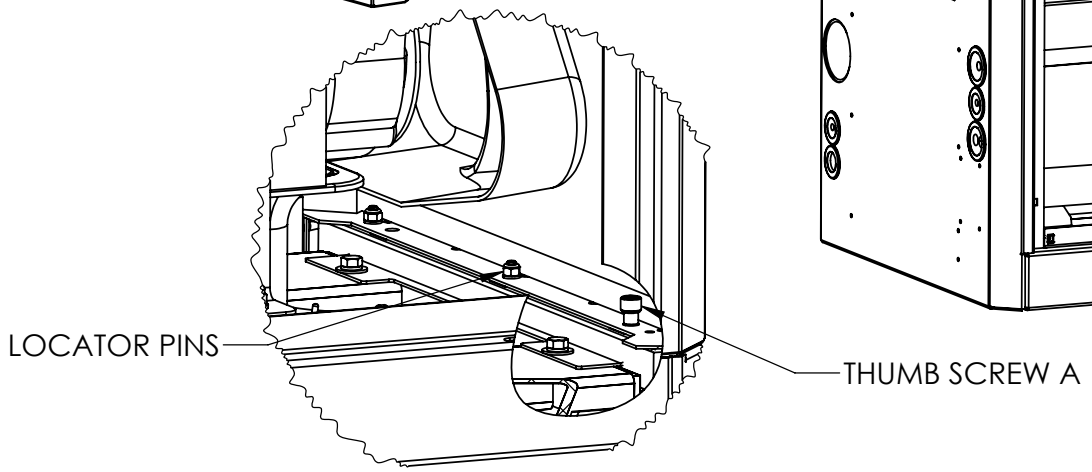




DETAIL H

STEP 9.
INSTALL FRONT PANEL ASSEMBLY (ITEM#10)
POSITION FRONT PANEL ON TOP OF THE FRONT LOWER VALENCE. NOTE THE PINS IN THE BOTTOM OF THE FRONT PANEL ALIGN TO HOLES IN THE LOWER VALENCE. ENGAGE, AND SECURE TO THE SIDE PANEL WITH THUMB SCREW 'A' (DETAIL H) AND THUMB SCREW 'A' IN BOTTOM FLANGE INSIDE THE FRONT PANEL (DETAIL I) .



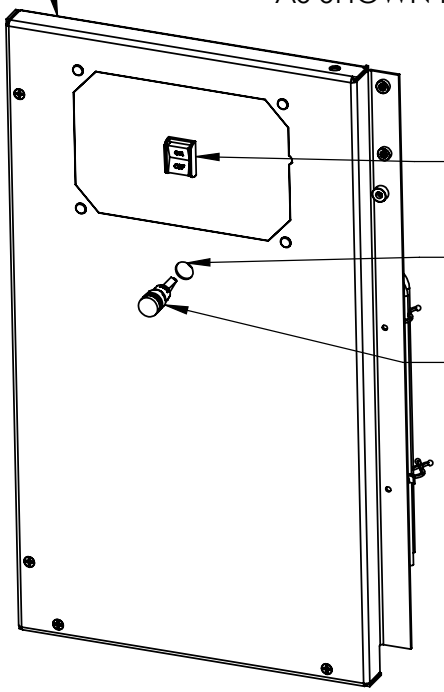


DETAIL I

F

ITEM #9.

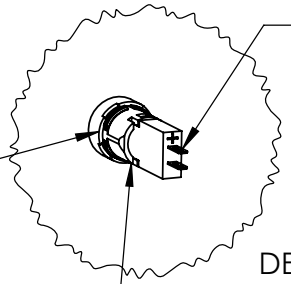
STEP 10
PRIOR TO INSTALLING THE SERVICE SIDE AFT PANEL (ITEM#9) THE LEAK ALARM LIGHT AND CONNECTING HARNESS (ITEM#16) MUST BE INSTALLED. START WITH THE ALARM LIGHT, THEN FOLLOW WITH THE HARNESS AS SHOWN IN THE FOLLOWING ILLUSTRATIONS.



PRE-INSTALLED EMERGENCY STOP SWITCH

LEAK ALARM LIGHT MOUNTING HOLE

LEAK ALARM LIGHT ASSEMBLY (ITEM#15)



NOTE POSITIVE TERMINAL POLARITY, POSITION AT TOP.

SCREW COLLAR

UNSCREW COLLAR RING FROM LIGHT ASSEMBLY TO INSTALL THROUGH PANEL. RE-INSTALL COLLAR TO SECURE.

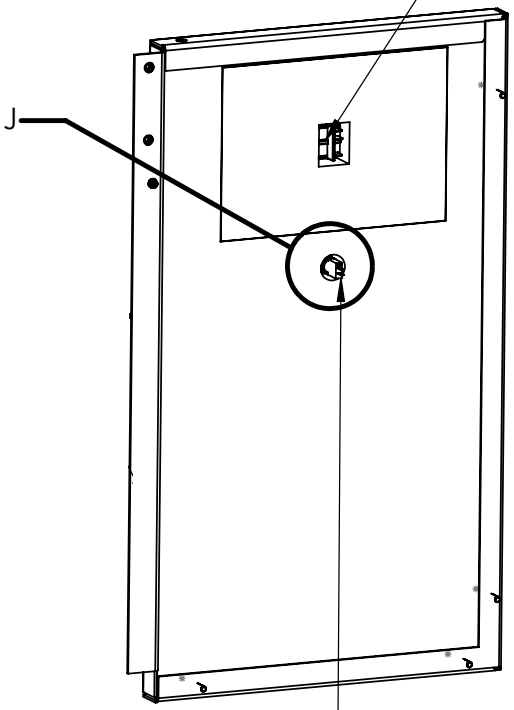
DETAIL J

SOUND FOAM OMITTED FOR VIEW CLARITY.

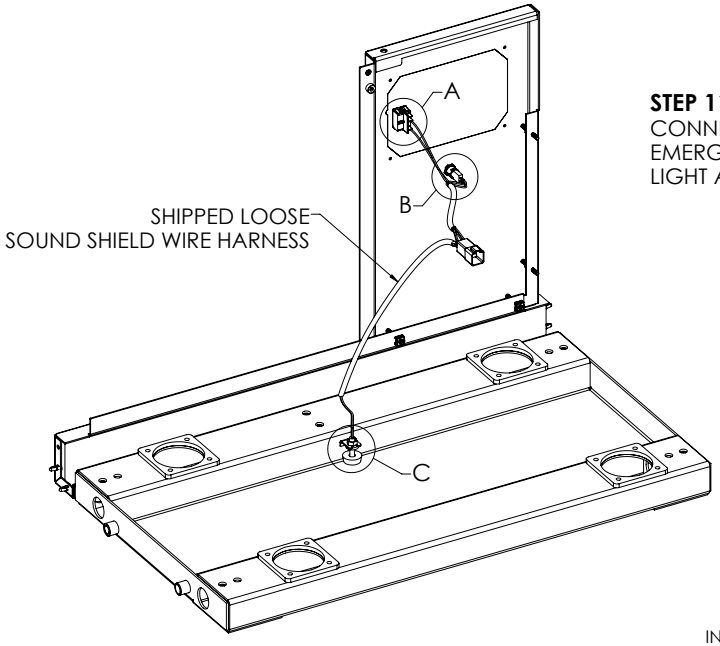
ITEM#15.

EMERGENCY STOP TERMINALS

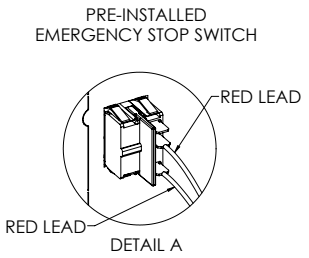
J

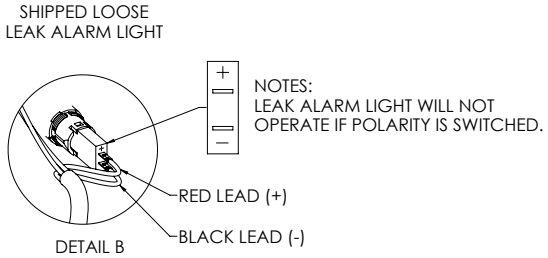


LEAK ALARM LIGHT TERMINALS

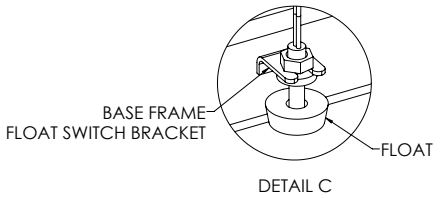


STEP 11
CONNECT SOUND SHIELD WIRE HARNESS TO EMERGENCY STOP SWITCH AND LEAK ALARM LIGHT AS SHOWN IN DETAIL A AND DETAIL B.

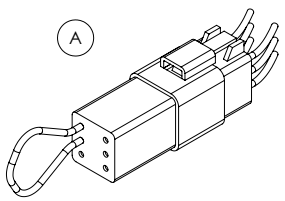




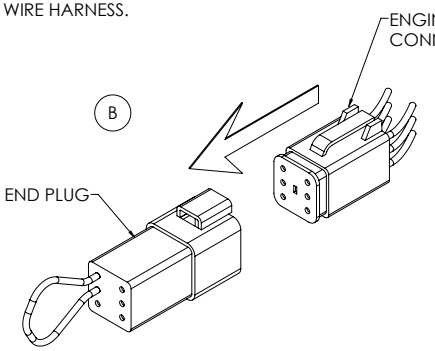
STEP 12
INSTALL FLOAT SWITCH TO THE CORRESPONDING BRACKET ON THE BASE FRAME. BE SURE TO CHECK THE LEAK ALARM LIGHT BY LIFTING UP THE FLOAT AFTER GENERATOR SET IS CONNECTED TO STARTER BATTERY.



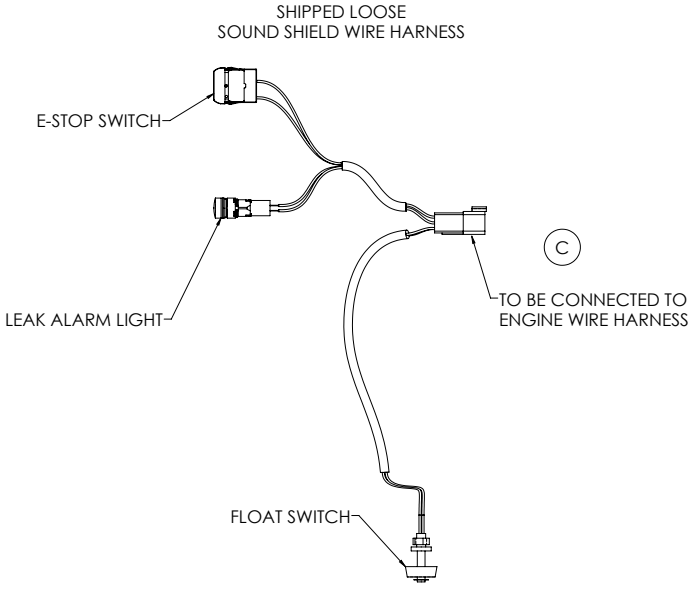
STEP 13
A. LOCATE AND IDENTIFY THE ENGINE WIRE HARNESS.
B. REMOVE THE ENGINE WIRE HARNESS END PLUG.
C. CONNECT SOUND SHIELD WIRE HARNESS TO THE ENGINE WIRE HARNESS.



STANDARD ENGINE HARNESS CONNECTOR
WITH PRE-INSTALLED END PLUG



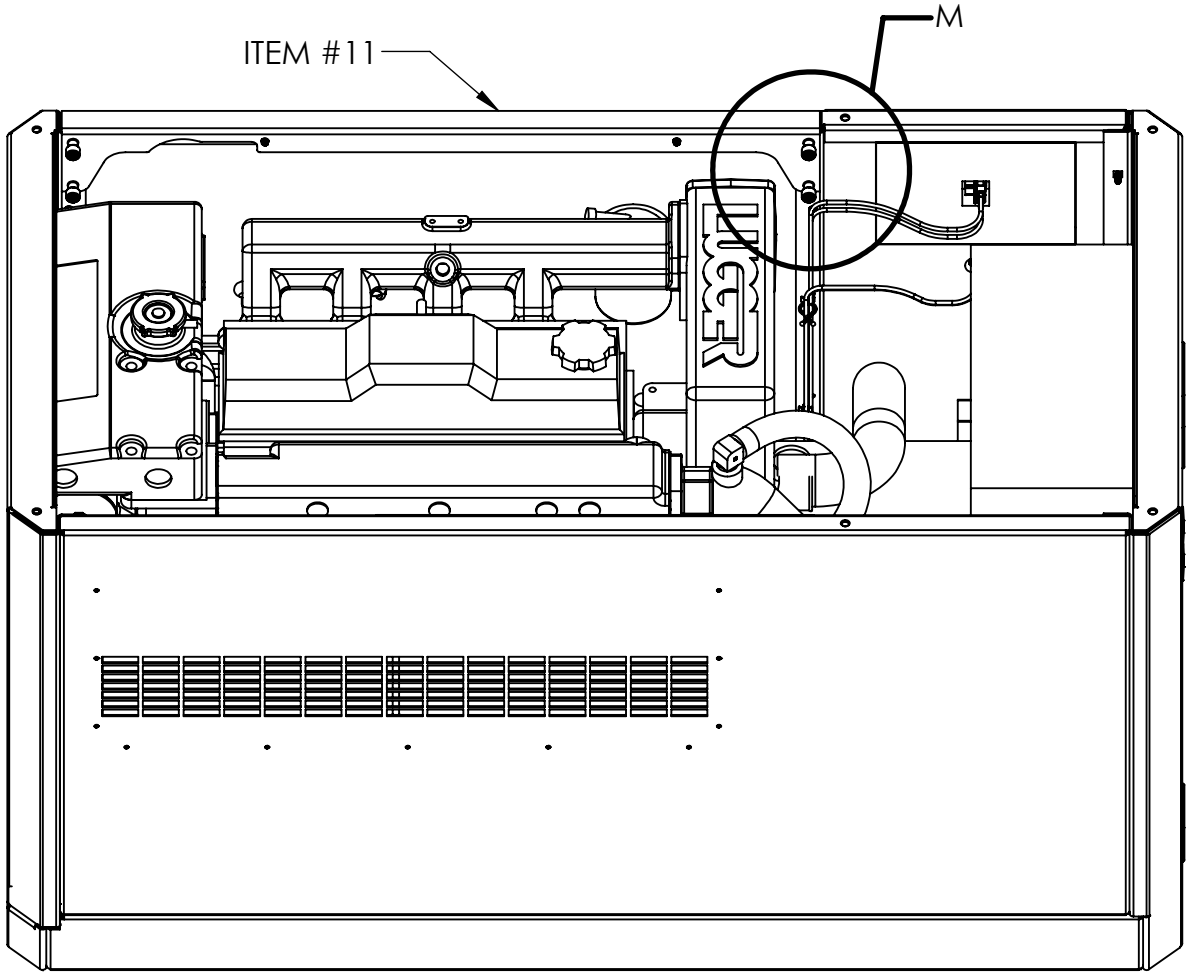
ENGINE HARNESS CONNECTOR
WITH THE END PLUG REMOVED

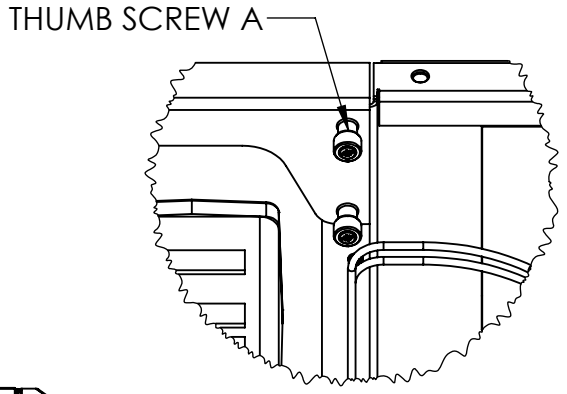


G

STEP 14

INSTALL SEAL BAR ASSEMBLY (ITEM#11).
LOCATE BAR TO CORRESPONDING HOLES AND
SECURE WITH THUMB SCREW 'A', FOUR PLACES.
HAND TIGHTEN FIRM, DO NOT USE TOOLS.



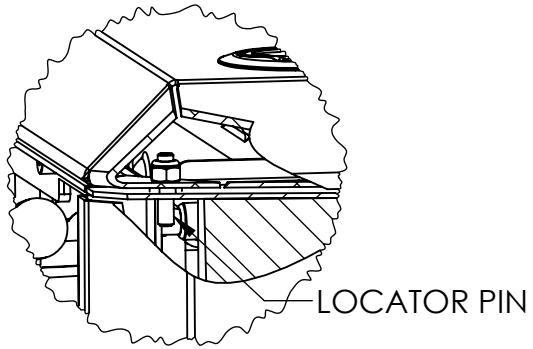


DETAIL M

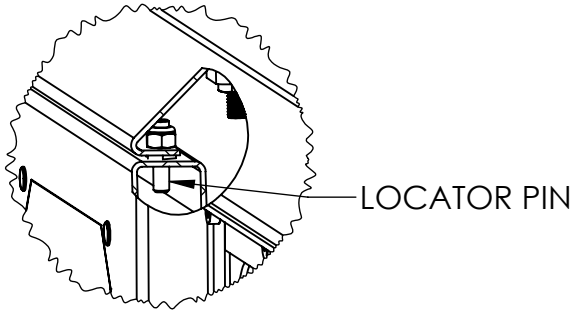
H

STEP 15

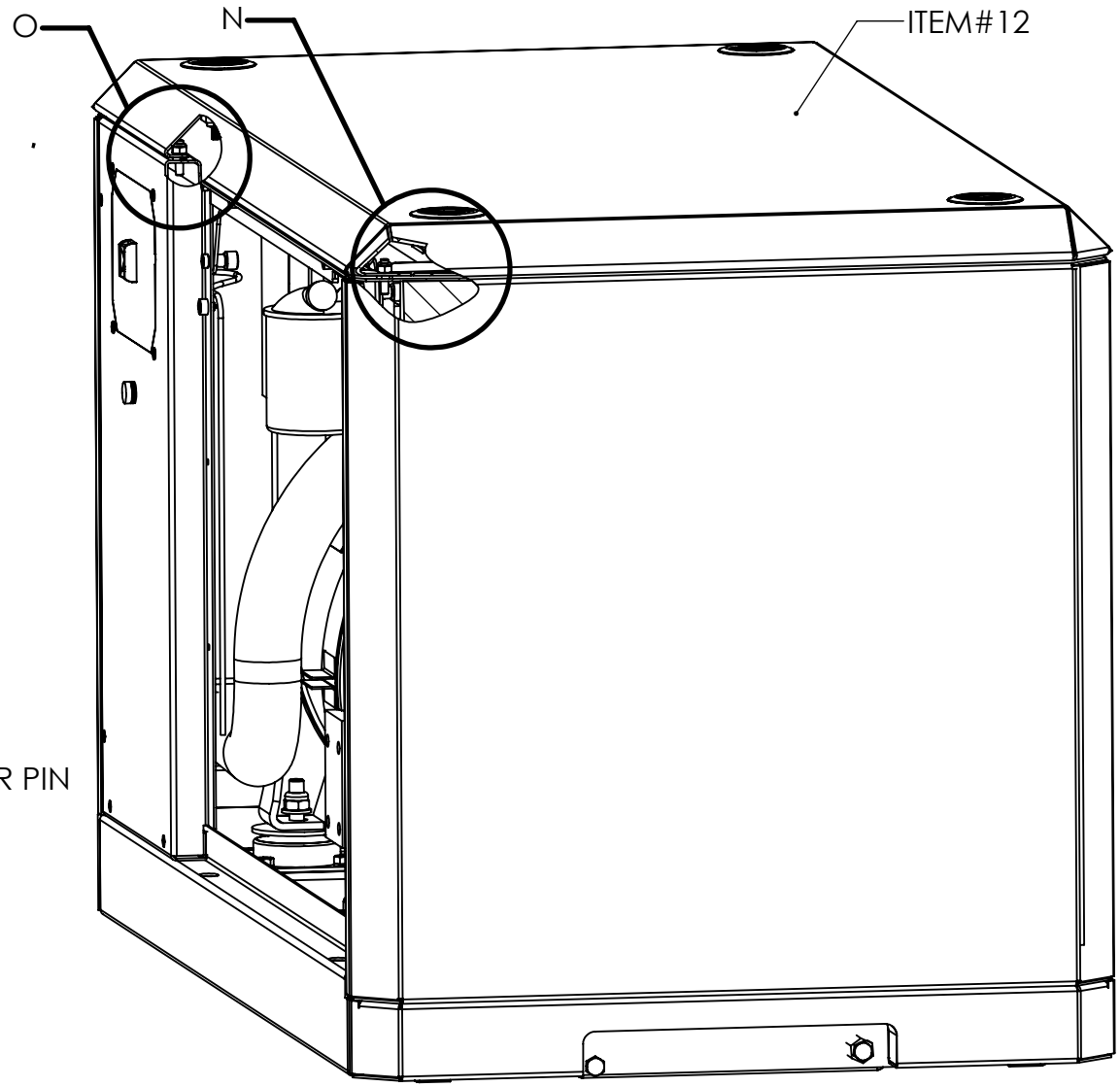
INSTALL THE TOP PANEL ASSEMBLY (ITEM#12). NOTE THAT THE PANEL HAS LOCATING PINS UNDER THE MATING FLANGE (6 TOTAL). ALIGN THESE WITH THE CORRESPONDING HOLES ON THE TOP OF THE FRONT AND REAR PANELS ASSEMBLIES. REFER TO DETAILS 'N' AND 'O'. THE RING LATCHES ARE FACTORY PRESET BUT OCCASIONALLY REQUIRE SOME ADJUSTMENT. SEE THE LATCH ADJUSTMENT SECTION (PAGE 12) OF THESE INSTRUCTIONS.



DETAIL N



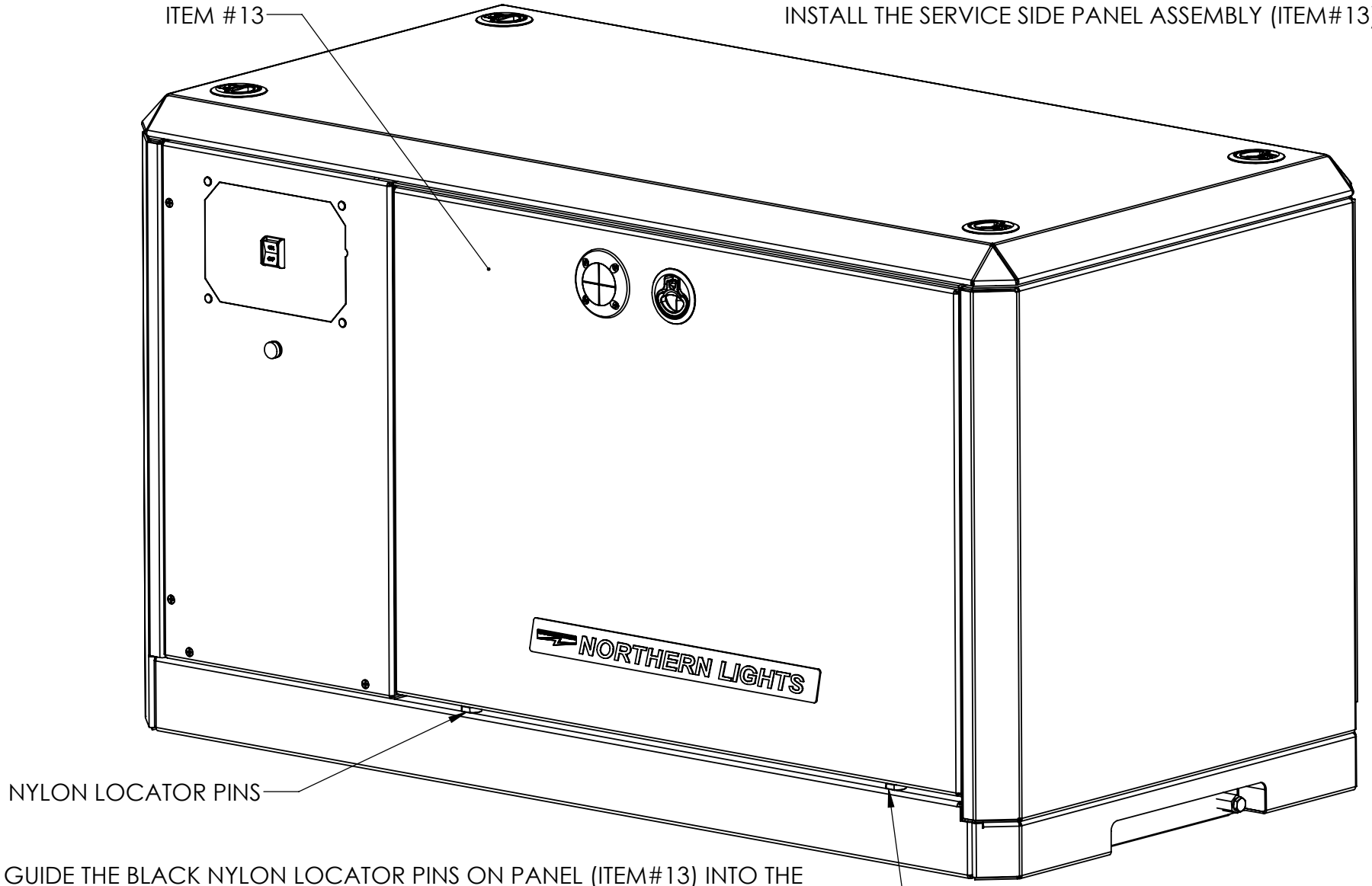
DETAIL O



I

STEP 16

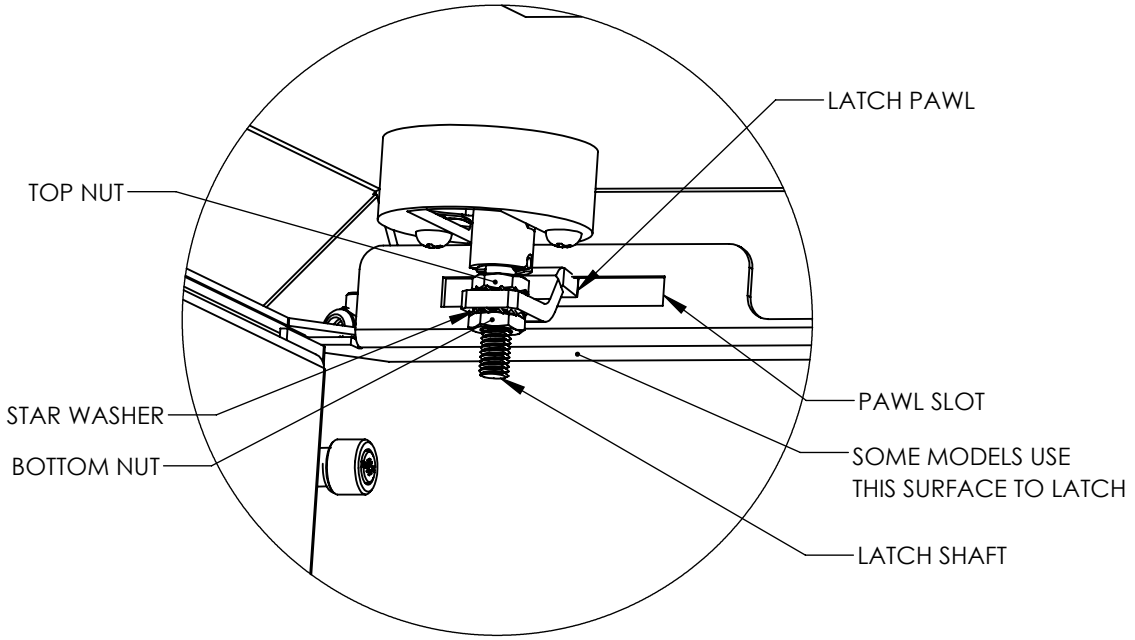
INSTALL THE SERVICE SIDE PANEL ASSEMBLY (ITEM#13).



GUIDE THE BLACK NYLON LOCATOR PINS ON PANEL (ITEM#13) INTO THE CORRESPONDING SLOTS ON THE LOWER VALENCE. TWIST RING LATCH TO CLOSE AND LOCK. THE RING LATCH IS PRESET FROM THE FACTORY BUT MAY OCCASIONALLY REQUIRE SOME ADJUSTMENT. REFER TO THE LATCH ADJUSTMENT SECTION (PAGE 12) OF THE INSTRUCTIONS.

J

RING LATCH GRIP ADJUSTMENT INSTRUCTIONS



SOUND FOAM OMITTED FOR VIEW CLARITY

ALL LATCHES ARE PRE-ADJUSTED FROM FACTORY. IN THE EVENT A LATCH REQUIRES ADJUSTMENT, FOLLOW THESE STEPS:

1. NOTE THE INTERFERENCE, OR REASON WHY THE LATCH PAWL WILL NOT ENGAGE THE PAWL SLOT. IF PAWL HITS SLOT BRACKET OR SHELF IT MUST BE MOVED TO ALLOW PAWL TO ROTATE INSIDE SLOT.

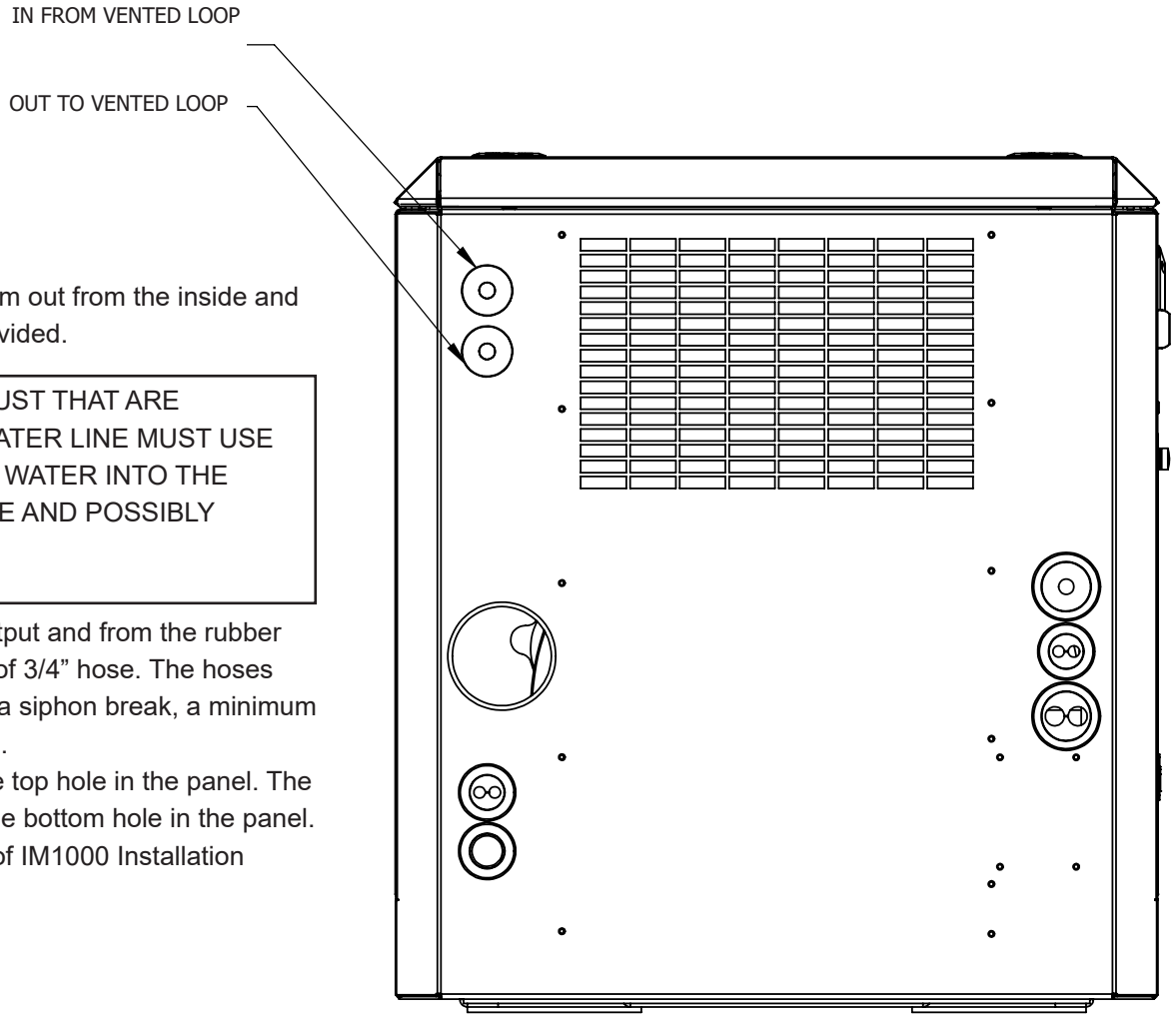
2. LATCH PAWL SHOULD OPERATE WITHIN SLOT FREELY WHEN LATCH HANDLE ROTATES ON REMOVAL.

3. WITH LATCH IN CLOSED POSITION, (LATCH PAWL POINTING TOWARDS SLOT, LOOSEN THE BOTTOM NUT. TURN TOP NUT TO CHANGE POSITION OF PAWL AND THEN RE-TIGHTEN THE BOTTOM NUT. ENSURE THE NUT IS FULLY TIGHT BEFORE OPERATING THE LATCH.

   AN IDEAL LATCH CONDITION IS WHEN THE PAWL SWINGS INTO POSITION ON CLOSING, PULLS UP AND ENGAGES THE TOP OF THE SLOT WITH INCREASING RESISTANCE. WHEN THE LATCH RING IS FULLY DEPRESSED THERE SHOULD BE FIRM COMPRESSION OF PANEL PERIMETER SEAL.

5. IF YOU CAN LIFT UP A CORNER OF THE TOP PANEL AND SEE A SPACE, THE LATCH IS NOT TIGHT ENOUGH.

K



REAR PANEL VIEW

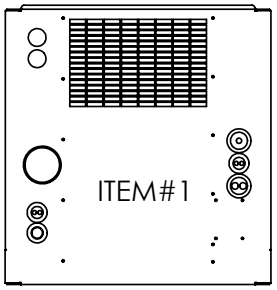
FOR APPLICATIONS USING A SIPHON BREAK:

Remove the white plastic hole plugs by pushing them out from the inside and replace with the two rubber grommets (item 15) provided.

CAUTION: GENERATOR SETS WITH WET EXHAUST THAT ARE INSTALLED NEAR OR BELOW THE VESSEL'S WATER LINE MUST USE A SIPHON BREAK TO PREVENT BACKFLOW OR WATER INTO THE ENGINE. THIS BACKFLOW CAN RUIN AN ENGINE AND POSSIBLY SINK THE VESSEL.

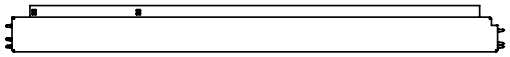
a. Disconnect the hose from the seawater pump output and from the rubber elbow on the expansion tank. Install two lengths of 3/4" hose. The hoses must be of adequate length to allow mounting of a siphon break, a minimum of 12 inches above the vessel's loaded water line.
b. Pass the seawater pump output hose through the top hole in the panel. The hose from the expansion tank must go through the bottom hole in the panel.
c. For more information, see the "Exhaust" section of IM1000 Installation Manual.

PACKING LIST



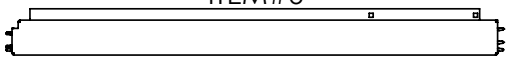
REAR PANEL ASSEMBLY
06-78703 QTY 1. ☐

ITEM#5



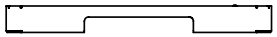
SERVICE SIDE LOWER VALENCE 06-78707
QTY: 1. ☐

ITEM#6



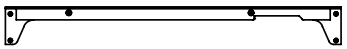
NON-SERVICE SIDE LOWER VALENCE 06-78709
QTY: 1. ☐

ITEM#7

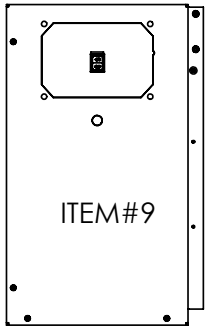


FRONT LOWER VALENCE
ASSEMBLY 06-78719 QTY 1. ☐

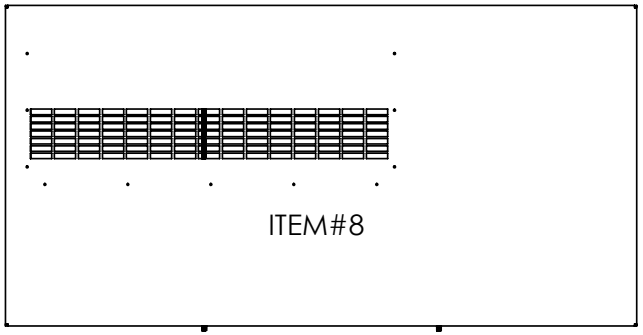
ITEM#11



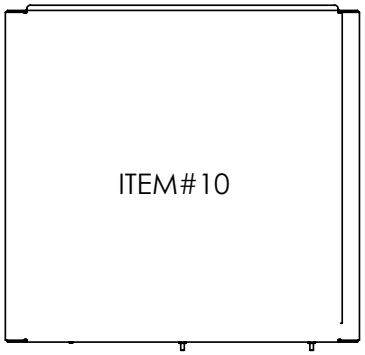
SEAL BAR ASSEMBLY 06-78723
QTY: 1. ☐



SERVICE SIDE AFT
PANEL ASSEMBLY
06-78713 QTY 1. ☐



NON-SERVICE SIDE PANEL ASSEMBLY 06-78715
QTY 1. ☐

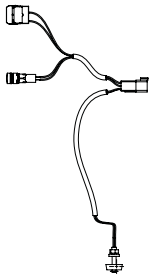


FRONT PANEL ASSEMBLY
06-78701 QTY 1. ☐

TOP PANEL ASSEMBLY 06-78705
QTY 1. ☐

SERVICE SIDE FWD PANEL
ASSEMBLY 06-78711 QTY 1.
☐

ITEM #16



SOUND SHIELD WIRE HARNESS
22-72024 QTY: 1 ☐

ITEMS IN THIS BOX ARE ENLARGED FOR DETAIL

ITEM#2

M8 FLATWASHER
15-11000 QTY4

ITEM#3

M8 LOCK WASHER
15-00705 QTY4

ITEM#4

M8 HEX CAPSCREW
12-00776 QTY 4

ITEM#14

VENTED LOOP GROMMETS
00-70083 QTY 2

ITEM#15

LEAK DETECTION ALARM
LIGHT 22-90382 QTY 1.

Packed By : _____ Date : _____

LIT NO.: L817 8/20