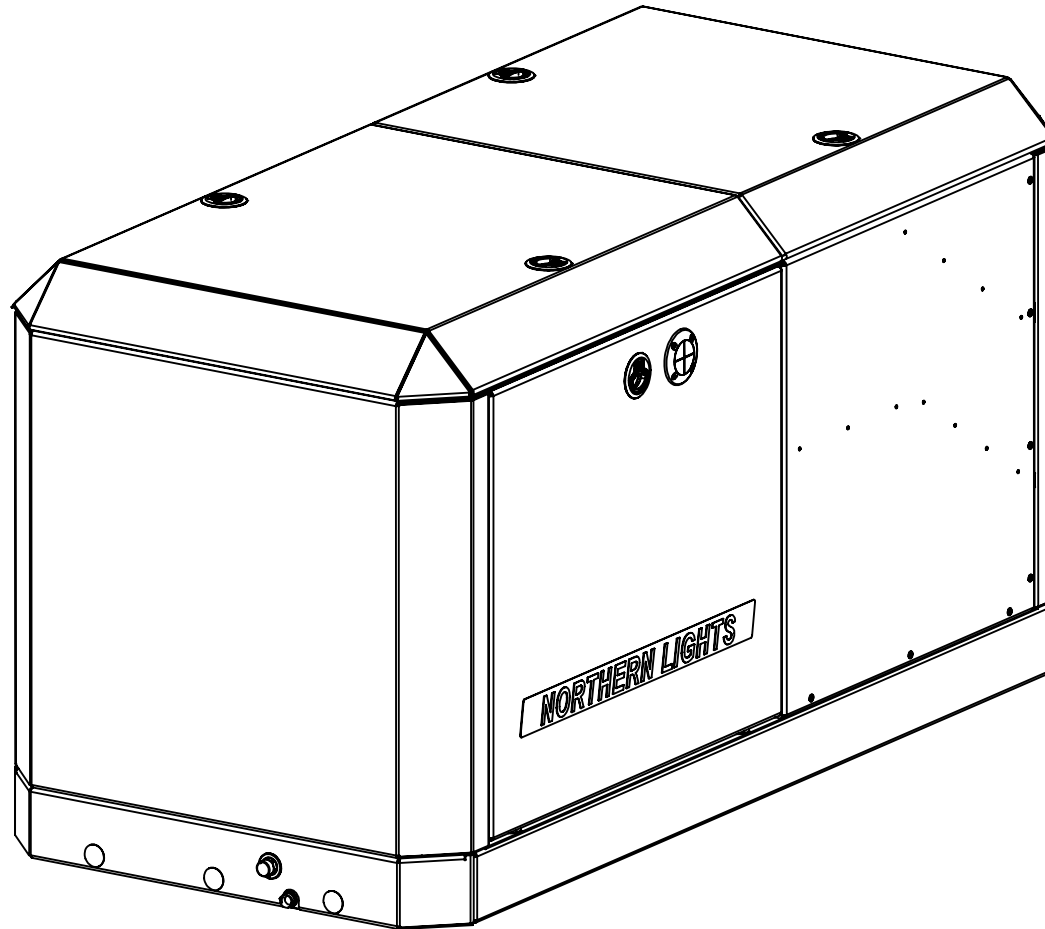




M944T3F

GEM Series Sound Enclosure Assembly Instructions



Northern Lights

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M944T3F GEM Sound Enclosure

ITEM #	DESCRIPTION	ADE P/N	QTY	NOTES
1.	1/4" NPT x 3-1/2" pipe nipple	21-01208	1	
2.	3/8" NPT x 3" pipe nipple	21-01207	1	
3.	1/4" NPT brass pipe cap	21-72241	1	
4.	3/8" NPT brass pipe cap	21-78004	1	
5.	Rear intake duct assembly	06-71272	1	
6.	M8 button head hex screw	12-00118	10	
7.	5/16" ext tooth lockwasher	15-09204	16	
8.	5/16" pan head machine screw	12-00119	6	
9.	Rear panel/valence assembly	06-71202	1	includes 06-71269
10.	Hole plug 1" white	00-78006	6	
11.	1/4"-20 pan head machine screw	12-45102	12	
12.	1/4" ext tooth lockwasher	15-09103	12	
13.	Service side lower valence	06-71206	1	
14.	Non-service side lower valence	06-71207	1	
15.	Sound foam, side valence	55-71261	2	
16.	Front lower valence assembly	06-71213	1	
17.	Service side panel aft	06-71209	1	
18.	Non-service side panel aft	06-71212	1	
19.	Non-service side panel fwd	06-71211	1	
20.	Front panel assembly	06-71201	1	
21.	Seal bar	06-71271	1	
22.	Service side panel fwd assembly	06-71208	1	
23.	Top panel aft assembly	06-71204	1	
24.	Top panel fwd assembly	06-71203	1	
25.	Grommet, vented loop	00-70146	2	optional use

SPECIFICATIONS

Enclosure:

Length (OA)	60.1 in (1527 mm)
Width	29 in (737 mm)
Height	32.1 in (815 mm)
Assembled height on base frame:	32.1 in (815 mm)
Assembled weight w/o sub-base (est):	164 lbs (74 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 left hand side is the service side and should be exposed for easy maintenance access.

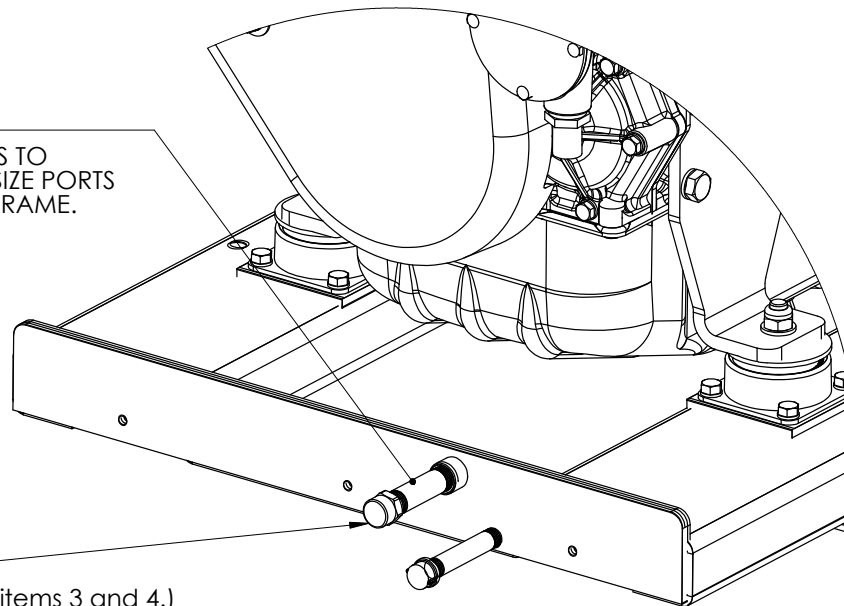
Install the generator set in the vessel as near to a level attitude as possible. Ensure that the enclosure's right hand side and rear are at the recommended distances (6 inch recommended, 4 inch minimum.) from the vessel's bulkheads.

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

A

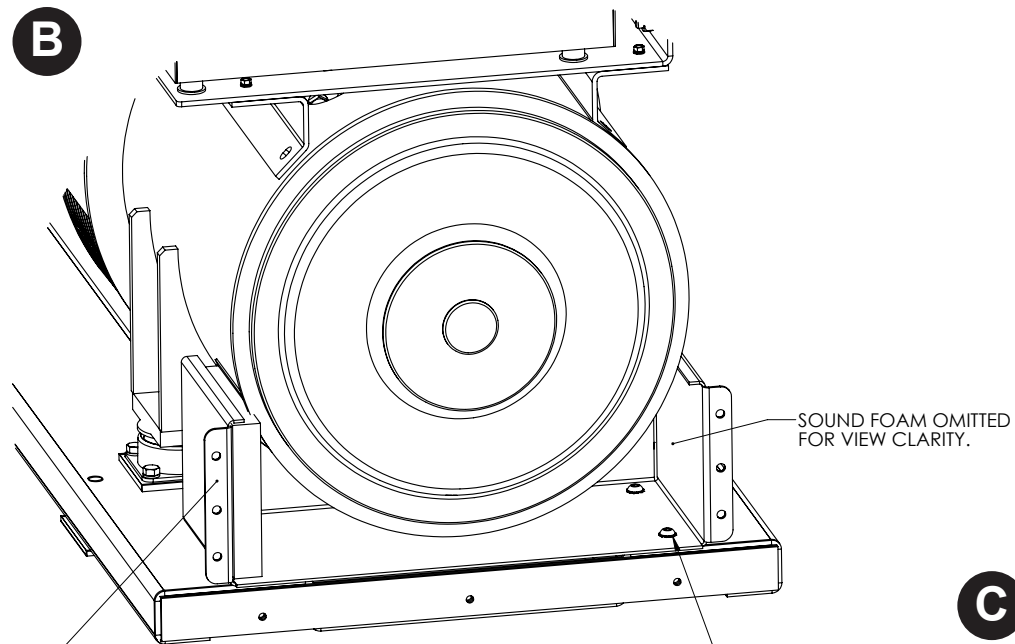
STEP 1.
INSTALL PIPE NIPPLES TO
CORRESPONDING SIZE PORTS
IN FRONT OF BASE FRAME.
(items #1 and 2.)

STEP 2.
INSTALL PIPE CAPS (items 3 and 4.)
TO PIPE NIPPLES.



VIEW: FRONT OF GENSET BASE FRAME

B



VIEW: REAR OF GENSET BASE FRAME.

STEP 3.
LOCATE AND INSTALL REAR LOWER INTAKE DUCT
ASSEMBLY (item 5.) TO TAPPED HOLES AT REAR OF BASE FRAME.

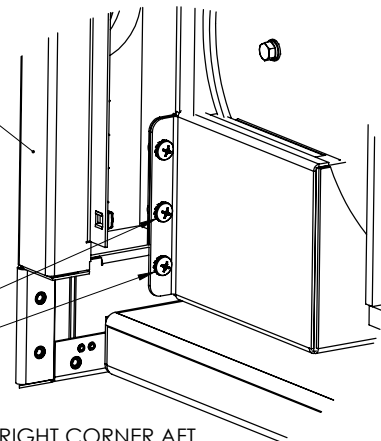
STEP 4.
INSTALL 4x BUTTON HEAD HEX SCREW AND 4x STARWASHER (items 6 AND 7.)
TO SECURE DUCT ASSEMBLY TO BASE FRAME USING 5mm HEX TOOL.

C

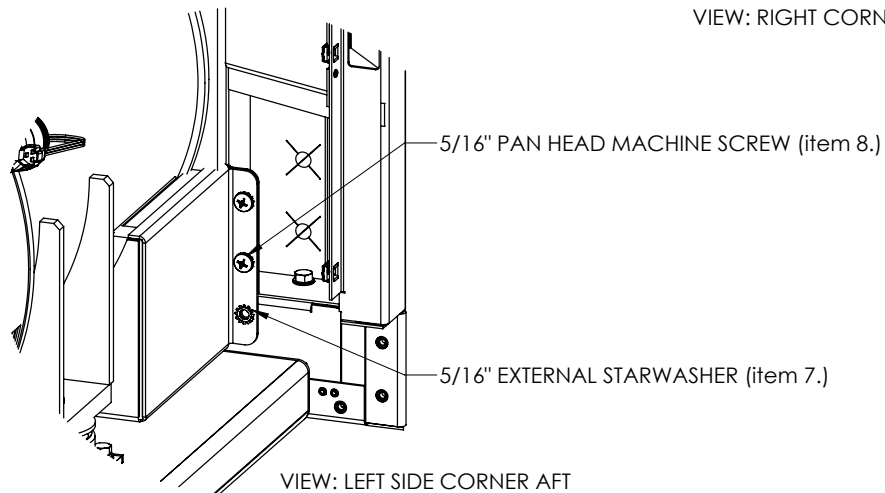
STEP 5.
INSTALL REAR PANEL/LOWER
VALENCE ASSEMBLY (item 9.)
TO REAR OF GENSET/BASE FRAME.

6x 5/16" PAN HEAD MACHINE SCREW (item 8.)

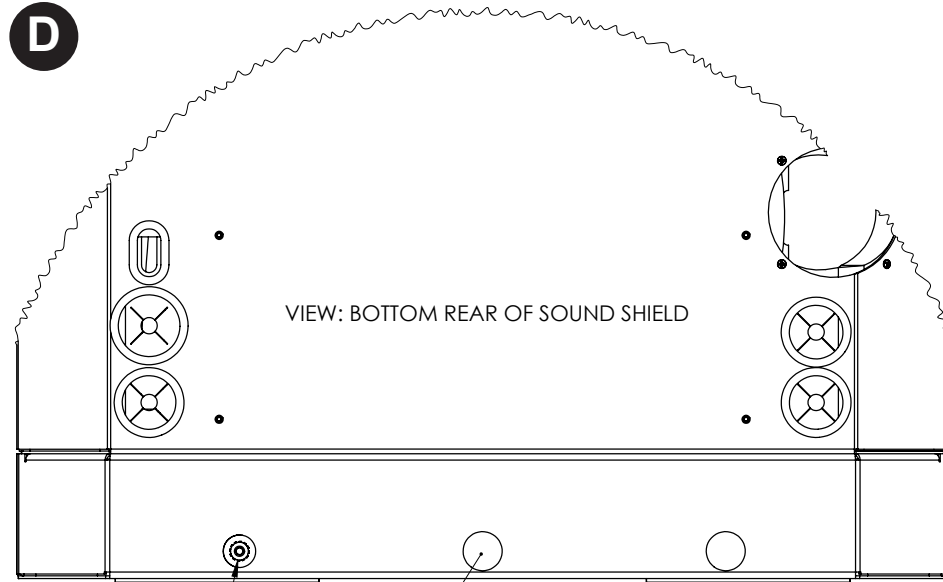
6x 5/16" EXTERNAL STARWASHER (item 7.)



VIEW: RIGHT CORNER AFT



VIEW: LEFT SIDE CORNER AFT

D

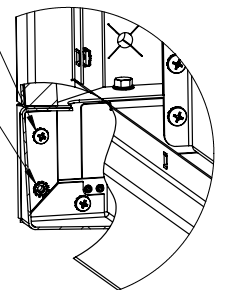
VIEW: BOTTOM REAR OF SOUND SHIELD

STEP 7.
WHEN REAR PANEL/LOWER VALENCE ASSEMBLY IS SECURED
INSERT HOLE PLUGS (item 10.)

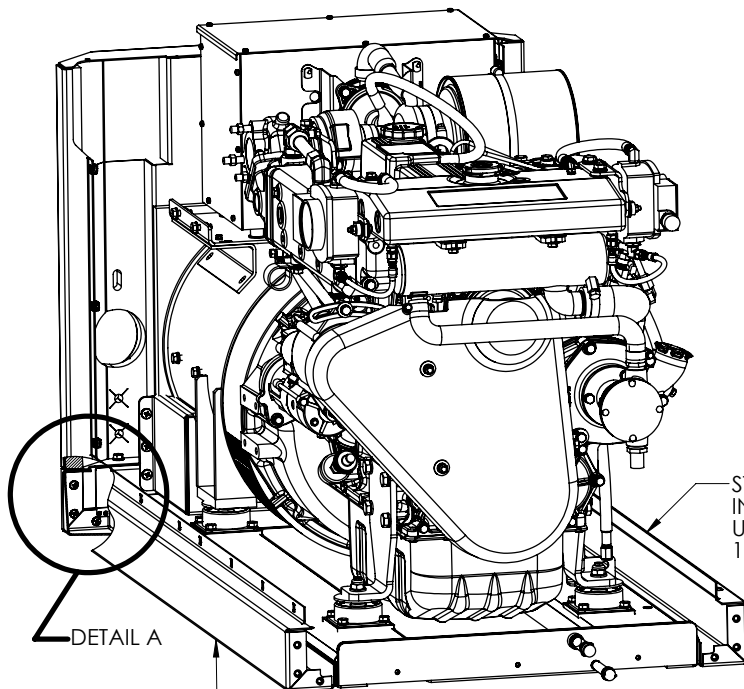
STEP 6.
SECURE REAR LOWER VALENCE PANEL TO REAR OF
BASE FRAME WITH 3x BUTTON HEAD HEX SCREW (item 6.) AND
3x STARWASHER (item 7.) USING 5mm HEX TOOL.

3X 1/4"-20 PAN HEAD MACHINE
SCREW (item 11.) EACH SIDE.

3x 1/4" STARWASHER (item 12.)
EACH SIDE



INSET DETAIL A

E

DETAIL A

STEP 9.
INSTALL SERVICE SIDE LOWER VALENCE (item 13.)
USING 1/4"-20 PAN HEAD MACHINE SCREW AND
1/4" STARWASHER (items 11 and 12.)

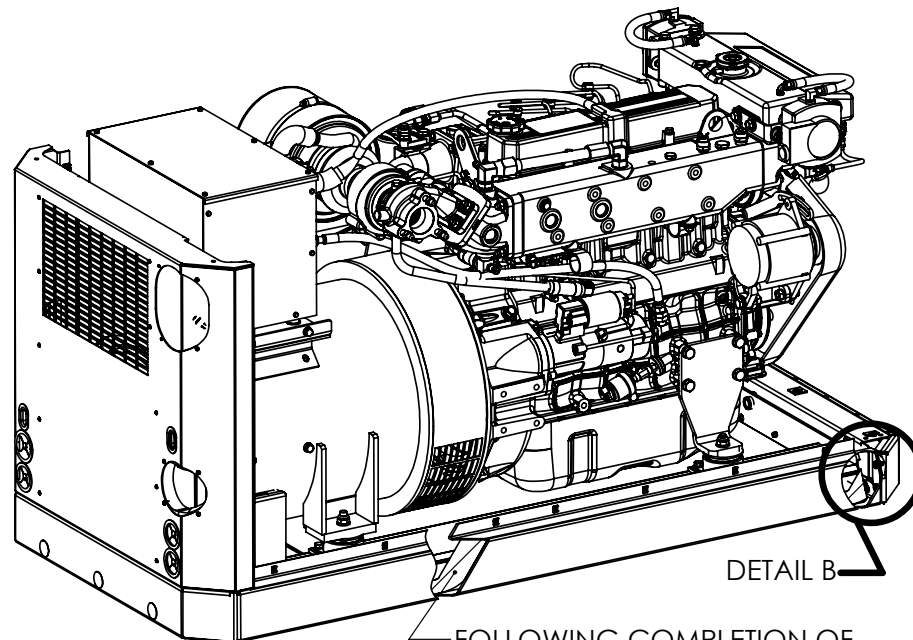
STEP 8.
INSTALL NON-SERVICE SIDE LOWER VALENCE (item 14.)
USING 1/4"-20 PAN HEAD MACHINE SCREW AND 1/4" STARWASHER
(items 11 and 12.) SEE INSET DETAIL, TYPICAL BOTH SIDES.

F

3x 1/4" STARWASHER
(ITEM 12.) EACH SIDE.

3x 1/4"-20 PAN HEAD
MACHINE SCREW
(item 11.) EACH SIDE.

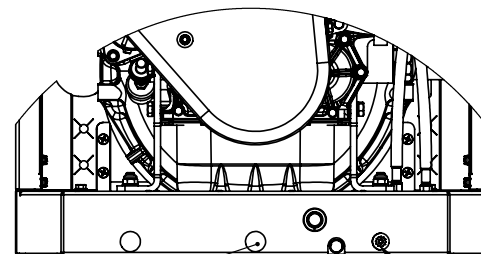
INSET DETAIL B



DETAIL B

FOLLOWING COMPLETION OF
FRONT VALENCE INSTALL SIDE
VALENCE SOUND FOAM (item 15.)
TYPICAL EACH SIDE.

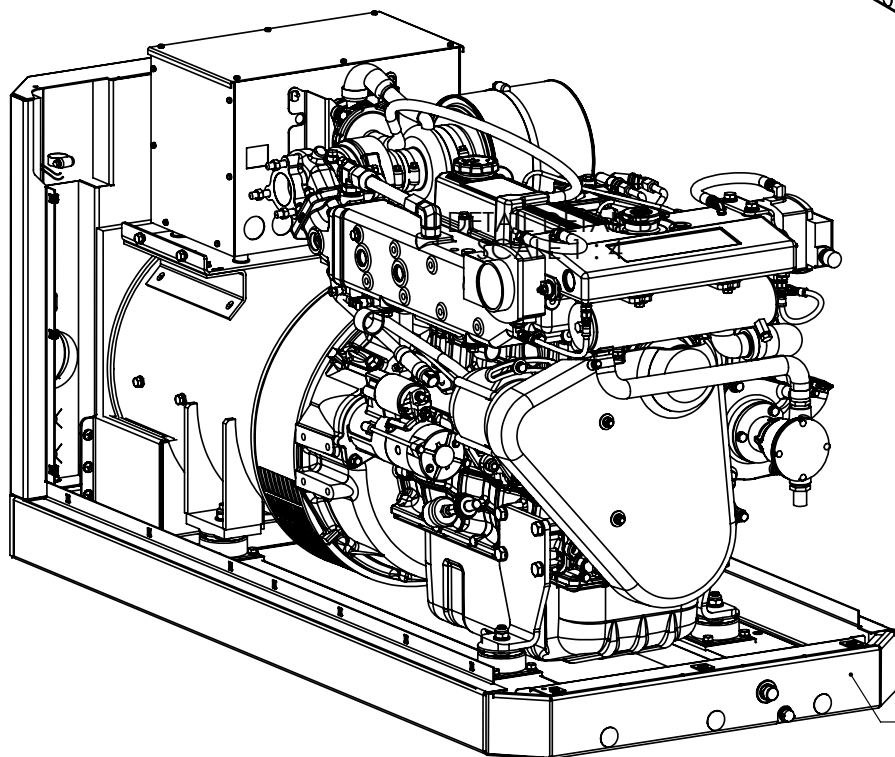
VIEW: FRONT



STEP 11
INSTALL 3x HOLE PLUGS (item 10.) WHEN
FRONT VALENCE (item 16) IS SECURED.

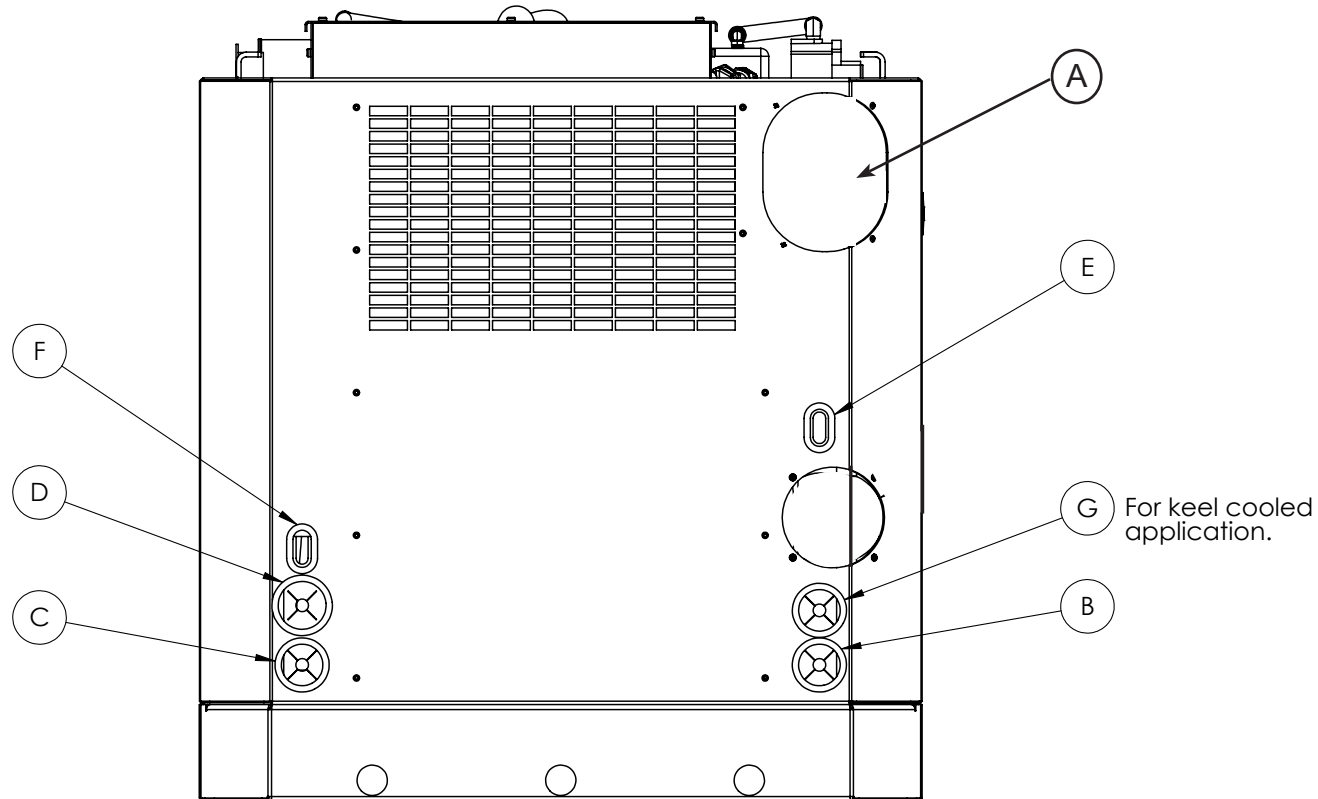
3x BUTTON HEAD HEX SCREW (item 6.)
AND 3x STARWASHER (item 7.)

STEP 10
INSTALL FRONT LOWER VALENCE ASSEMBLY (item 16.)





STEP 12
CONNECT GENERATOR SET TO THE VESSEL. SEE PICTURE BELOW AND LEGEND.



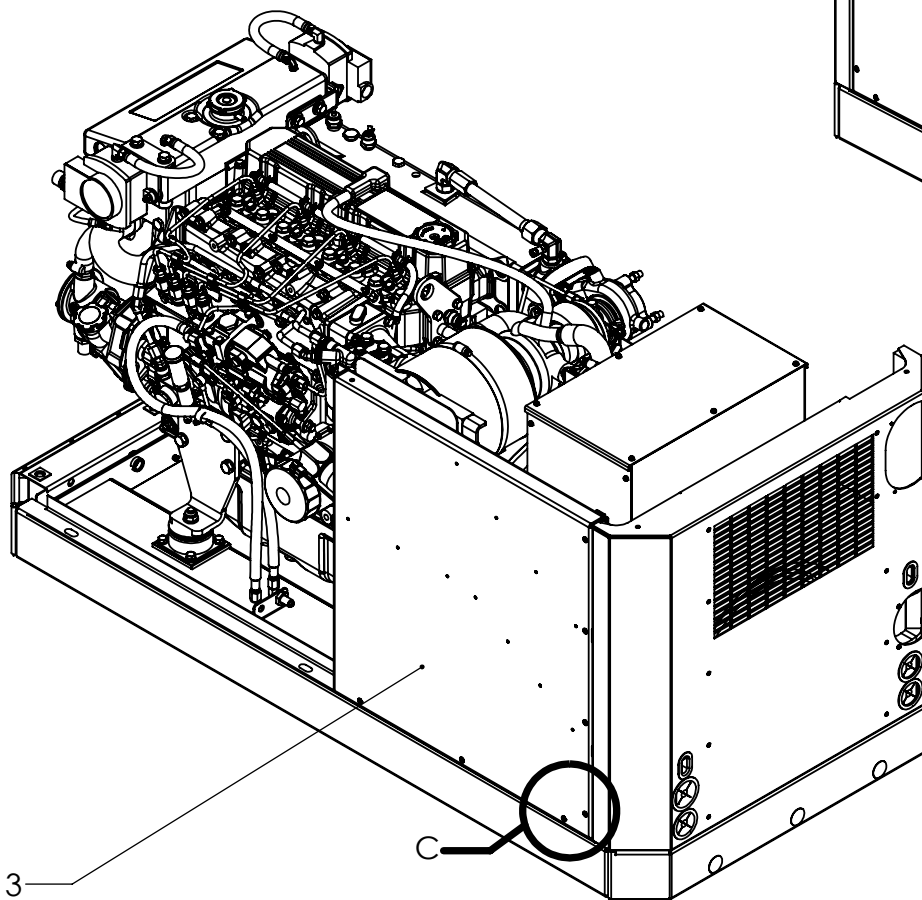
VIEW: REAR

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:

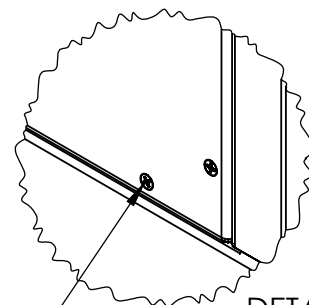
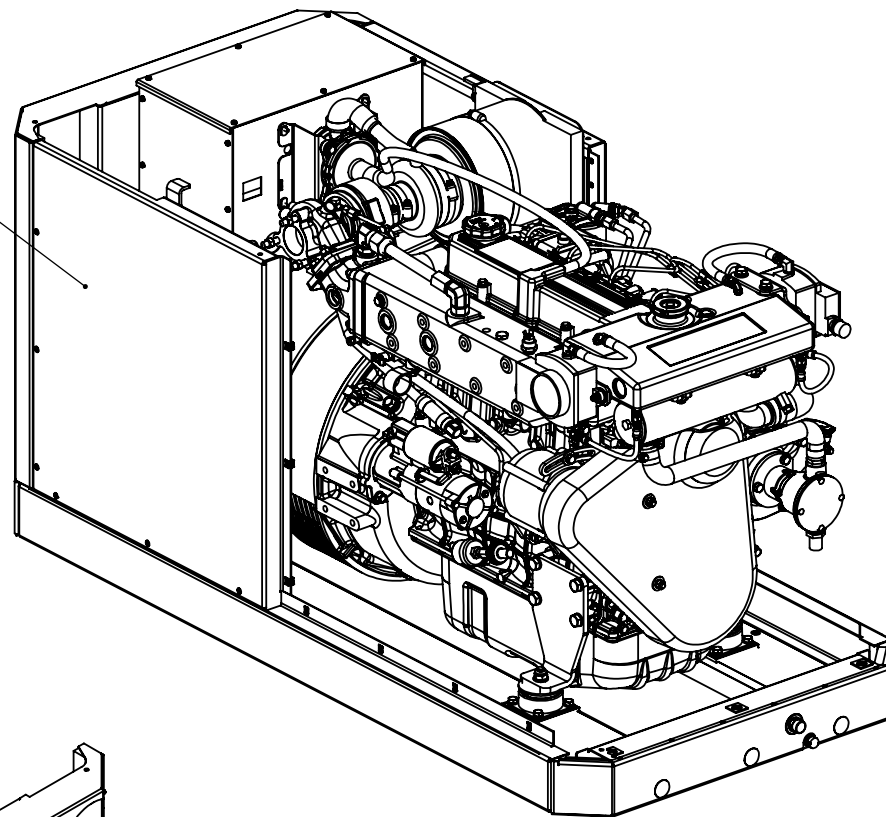
- Connect the exhaust elbow of the diesel engine to the exhaust system of the vessel. Pass the three inch exhaust hose through the opening provided in the right side of the rear panel.
- Connect the sea water pump to the vessel's water inlet. Pass a 3/4" ID hose from the vessel's sea water strainer, through the bottom hole on the right side of the rear panel to the sea water pump inlet fitting.
- 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 left hand side, through the bottom hole in the left side of the rear panel.
- Connect the DC control panel harness to the genset engine harness plug through the middle hole on the rear panel's left lower side.
- Connect the 12 volt battery leads to the generator set using the top slot on the right side of the rear panel.
- Connect the AC output leads from the generator junction box to the vessel's power distribution panel. Pass the two leads through the top slot on the left side of the panel.
- *OPTIONAL*** This port is used for water outlet in Keel Cooled applications.

H

STEP 14
INSTALL NON-SERVICE SIDE PANEL
AFT (item 18.) SEE DETAIL C.



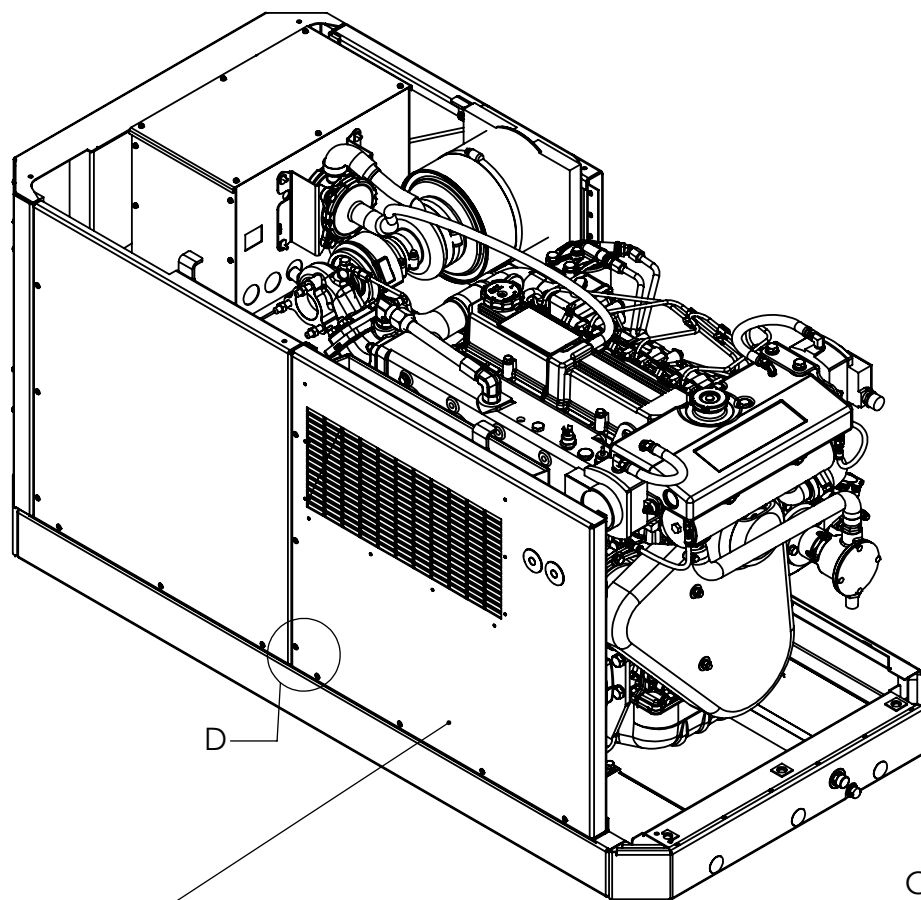
STEP 13
INSTALL SERVICE SIDE PANEL AFT (item 17.)



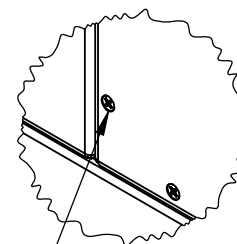
DETAIL C

CAPTIVE SCREWS.
FINGER START AND WITH FINISH LIGHT HAND TIGHT
USING PHILLIPS HEAD SCREW DRIVER.
DO NOT OVER TIGHTEN.

I



STEP 15
INSTALL NON SERVICE SIDE PANEL FWD (item 19.)
SEE DETAIL D.



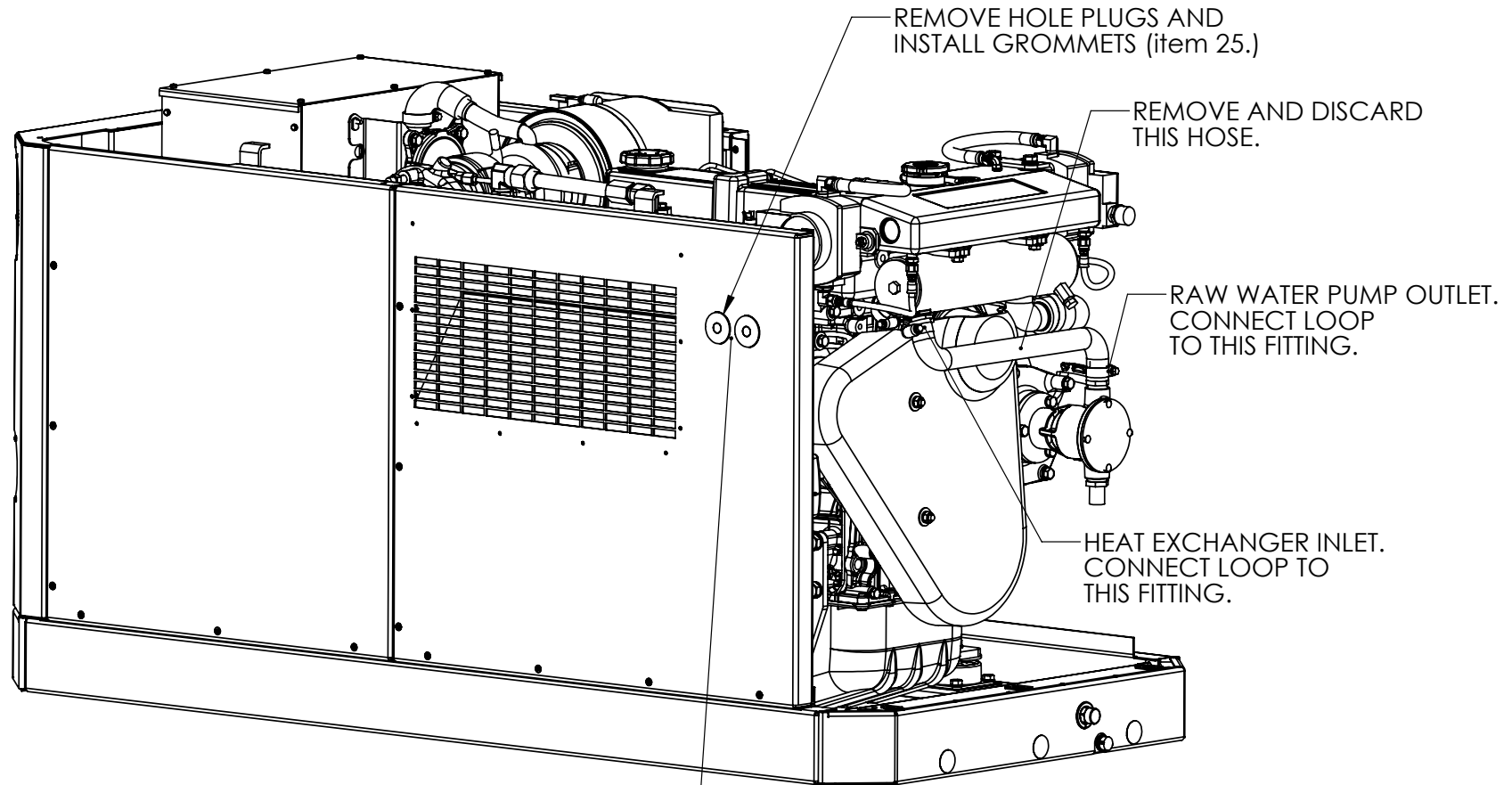
DETAIL D

CAPTIVE SCREWS.
FINGER START AND FINISH LIGHT HAND TIGHT
USING PHILLIPS HEAD SCREW DRIVER.
DO NOT OVER TIGHTEN.

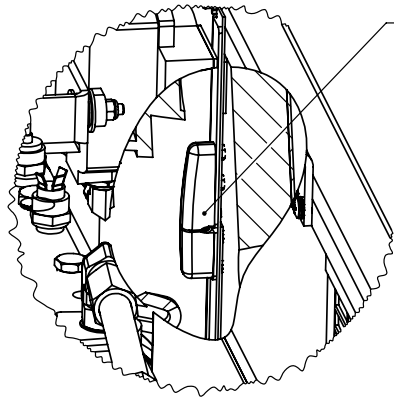
J

STEP 16

VENTED LOOP ROUTING. GENERATOR SETS WITH WET EXHAUST THAT ARE INSTALLED NEAR OR BELOW THE VESSEL'S WATER LINE **MUST** USE A SIPHON BREAK TO PREVENT BACKFLOW OF WATER INTO THE ENGINE. THIS BACK FLOW CAN RUIN AN ENGINE AND, POSSIBLY SINK THE VESSEL. CONNECT ONE SIDE OF THE LOOP FROM THE OUTLET OF THE RAW WATER PUMP, AND THE OTHER TO THE RAW WATER INLET OF THE HEAT EXCHANGER, AS INDICATED ON THE DIAGRAM BELOW. **REFER TO THE IM1000 INSTALLATION MANUAL, IN THE PLUMBING AND EXHAUST SECTION.**



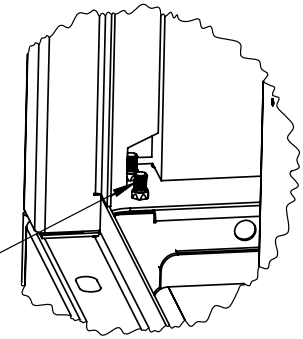
K



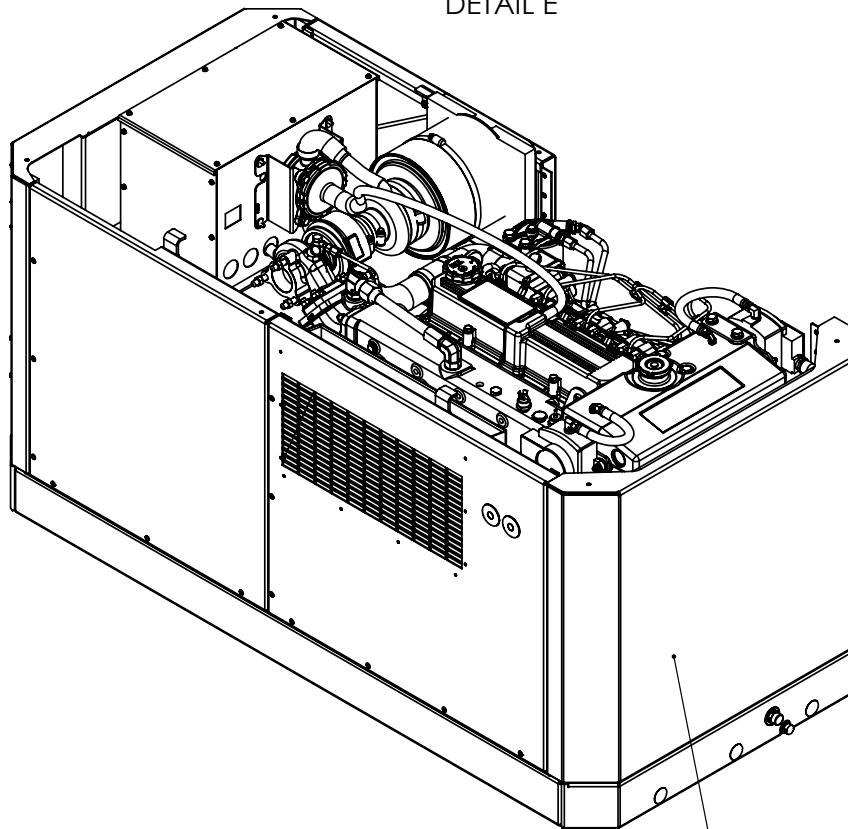
DETAIL E

HINGE LATCH. WHEN POSITIONING FRONT PANEL TO SHIELD ENSURE THE UPPER HINGE RECEPTACLE RECIEVES THE LOWER PIN THAT IS ATTACHED TO THE RIGHT SIDE PANEL.

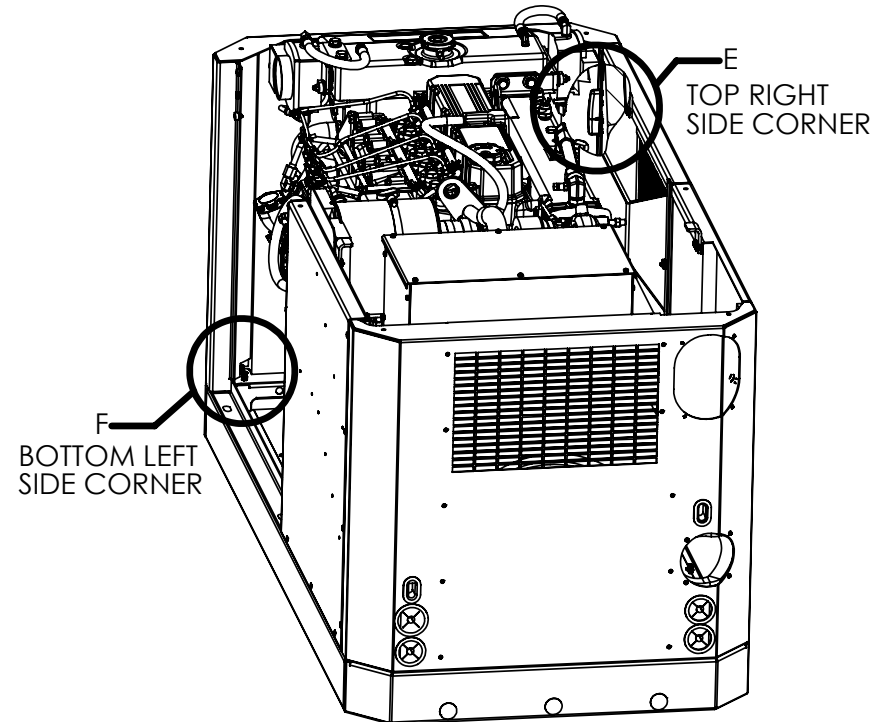
THUMBSCREW LATCH. BEFORE PLACING FRONT PANEL IN POSITION ROTATE KNOBS TO THE LEFT UNTIL STOP. INSTALL PANEL. TO ENGAGE ROTATE KNOB TO RIGHT UNTIL STOP. TWIST WITH FIRM PRESSURE TO SECURE.



DETAIL F

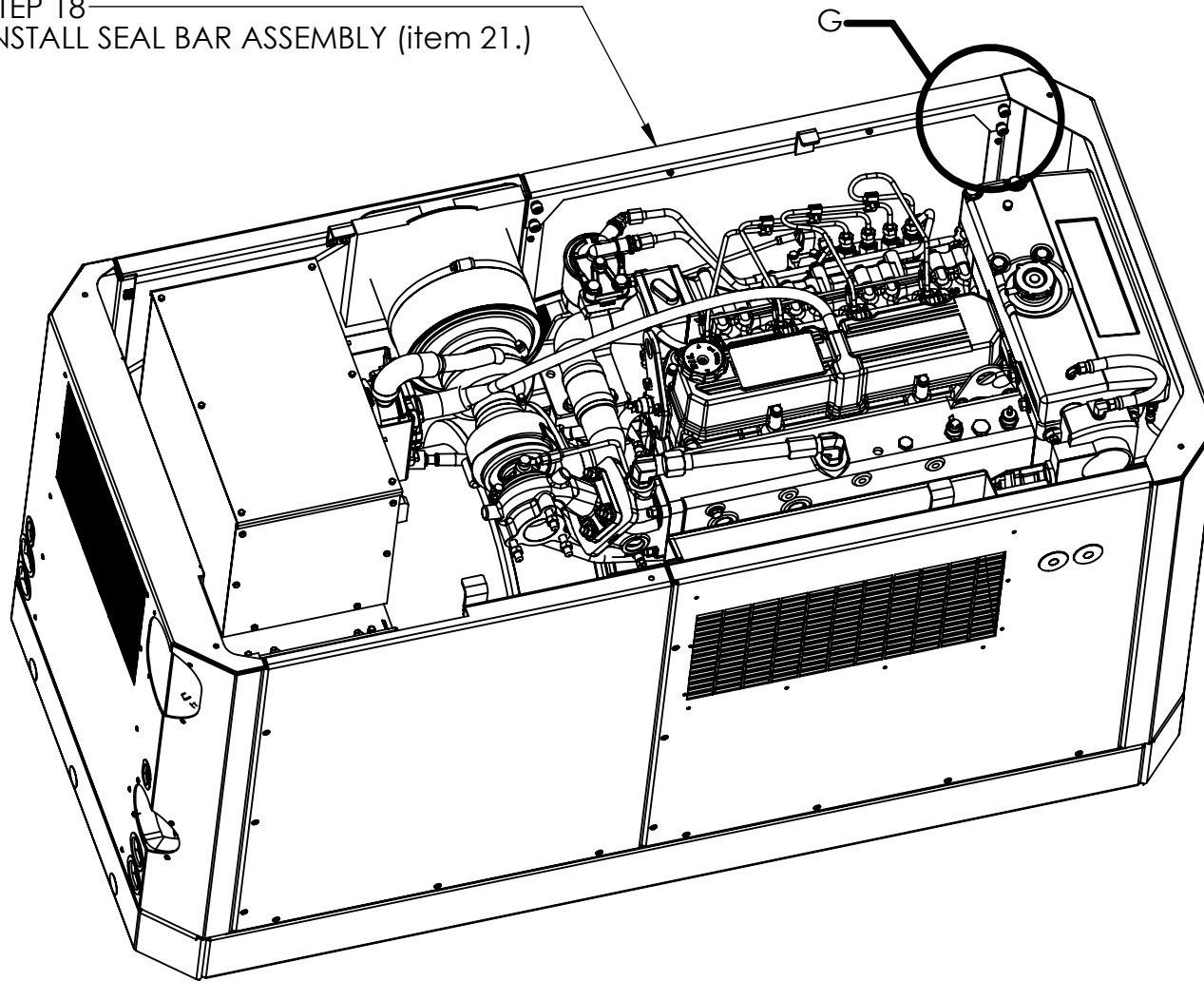


STEP 17
INSTALL FRONT PANEL ASSEMBLY (item 20.)
REFER TO DETAIL VIEWS 'E' AND 'F' FOR CONNECT POINT LOCATIONS.

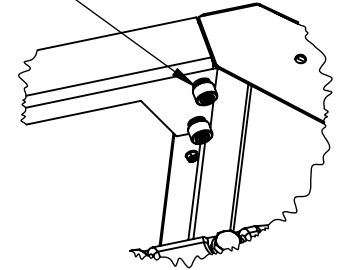


L

STEP 18
INSTALL SEAL BAR ASSEMBLY (item 21.)



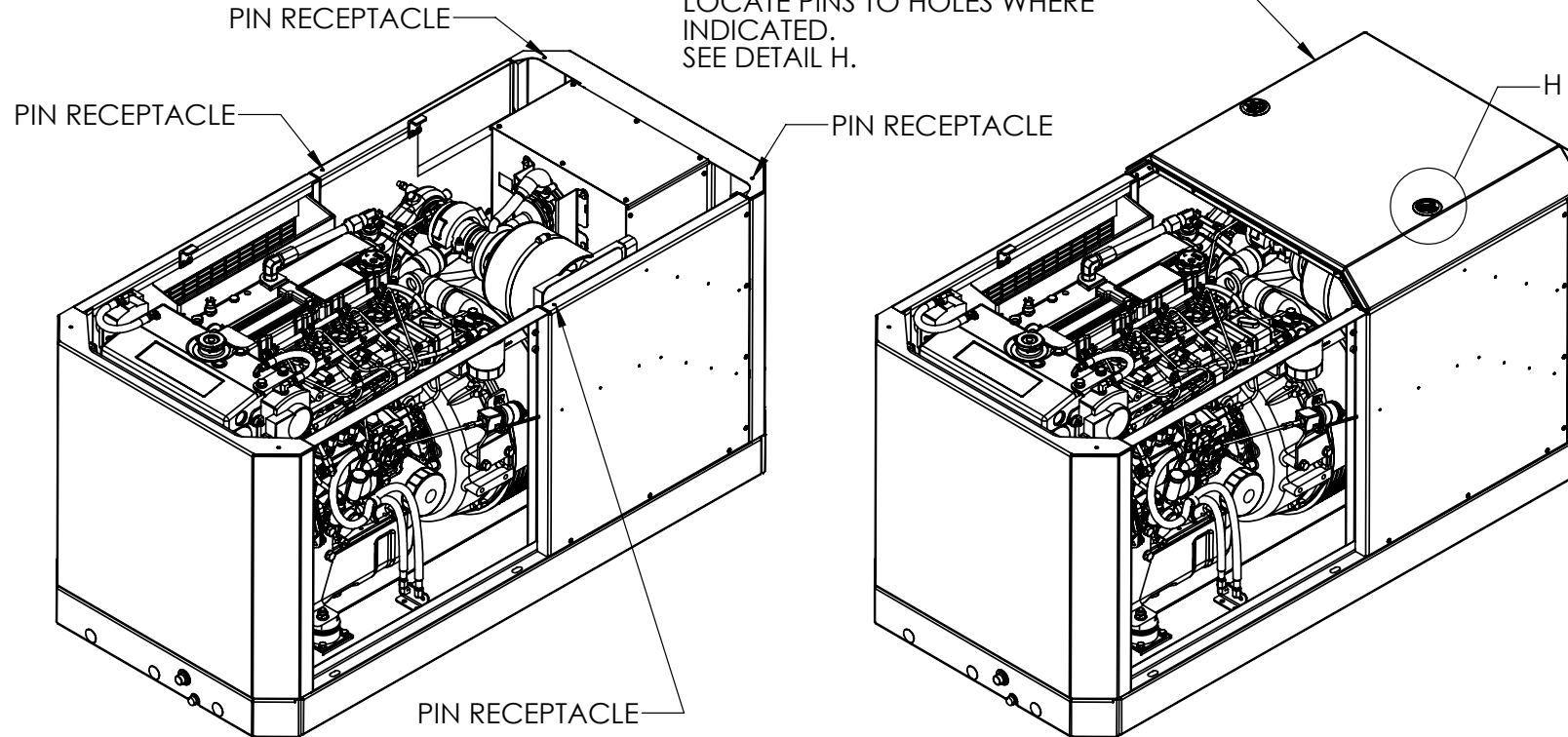
CAPTIVE THUMBSCREWS.
CONNECT FRONT PANEL
(item 20.) TO SERVICE SIDE
AFT PANEL (item 17.)



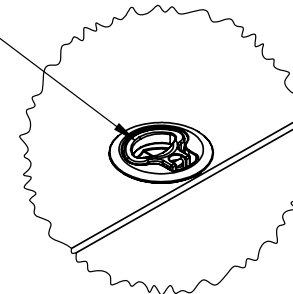
DETAIL G

M

STEP 19
 INSTALL TOP AFT PANEL ASSEMBLY
 (item 23.)
 LOCATE PINS TO HOLES WHERE
 INDICATED.
 SEE DETAIL H.



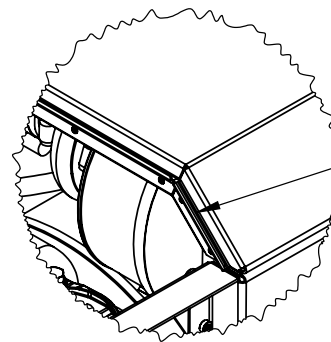
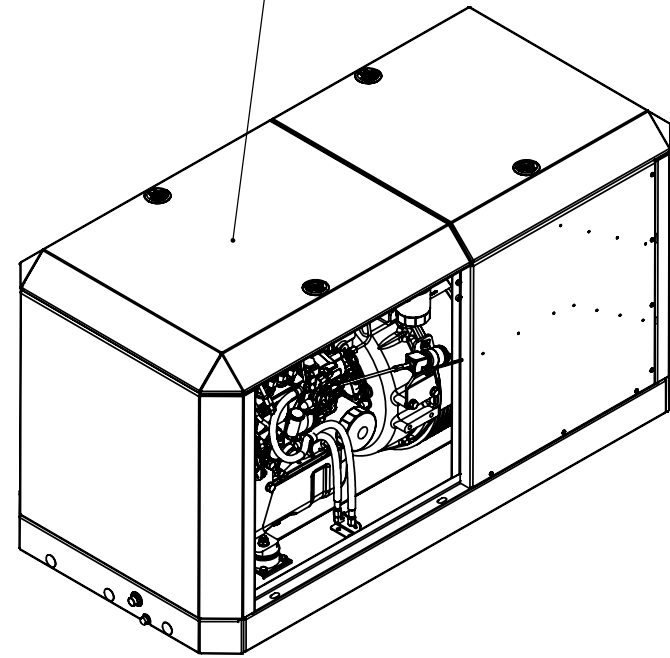
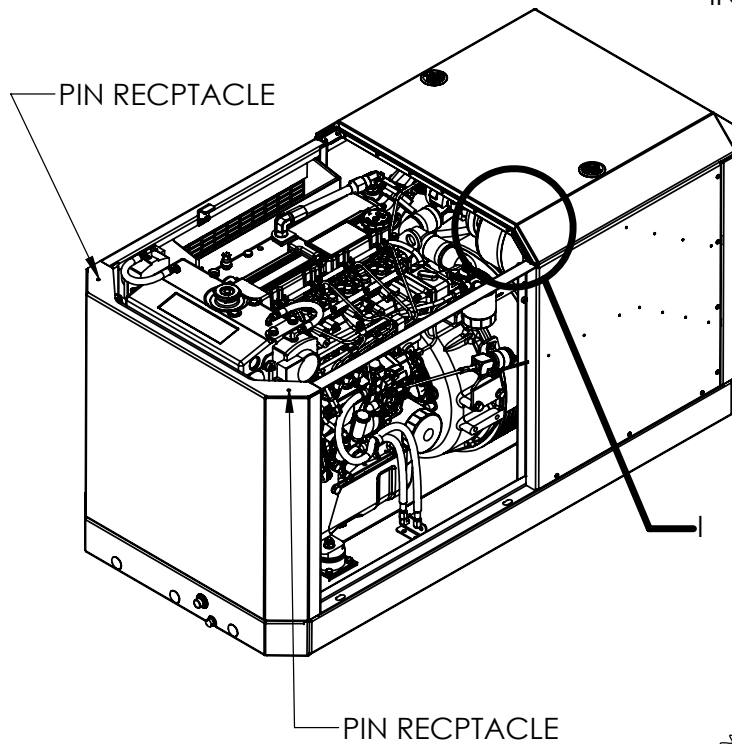
UNIT IS SHIPPED WITH LATCH IN DISENGAGED POSITION.
 WHEN PANEL IS PLACED WITH PINS ALIGNED, PULL RING
 HANDLE UP AND ROTATE 180 DEGREES AND PULL DOWN.
 LATCHES ARE PRE-SET AT FACTORY BUT SOME ADJUSTMENT
 MAY BE REQUIRED FOR FULL PANEL RETENTION.
 (REFER TO LATCH SUPPLEMENT INCLUDED WITH ASSEMBLY
 INSTRUCTIONS.)



DETAIL H

N

STEP 20
INSTALL TOP FWD PANEL ASSEMBLY
(item 24.)
LOCATE PINS TO HOLES WHERE
INDICATED.

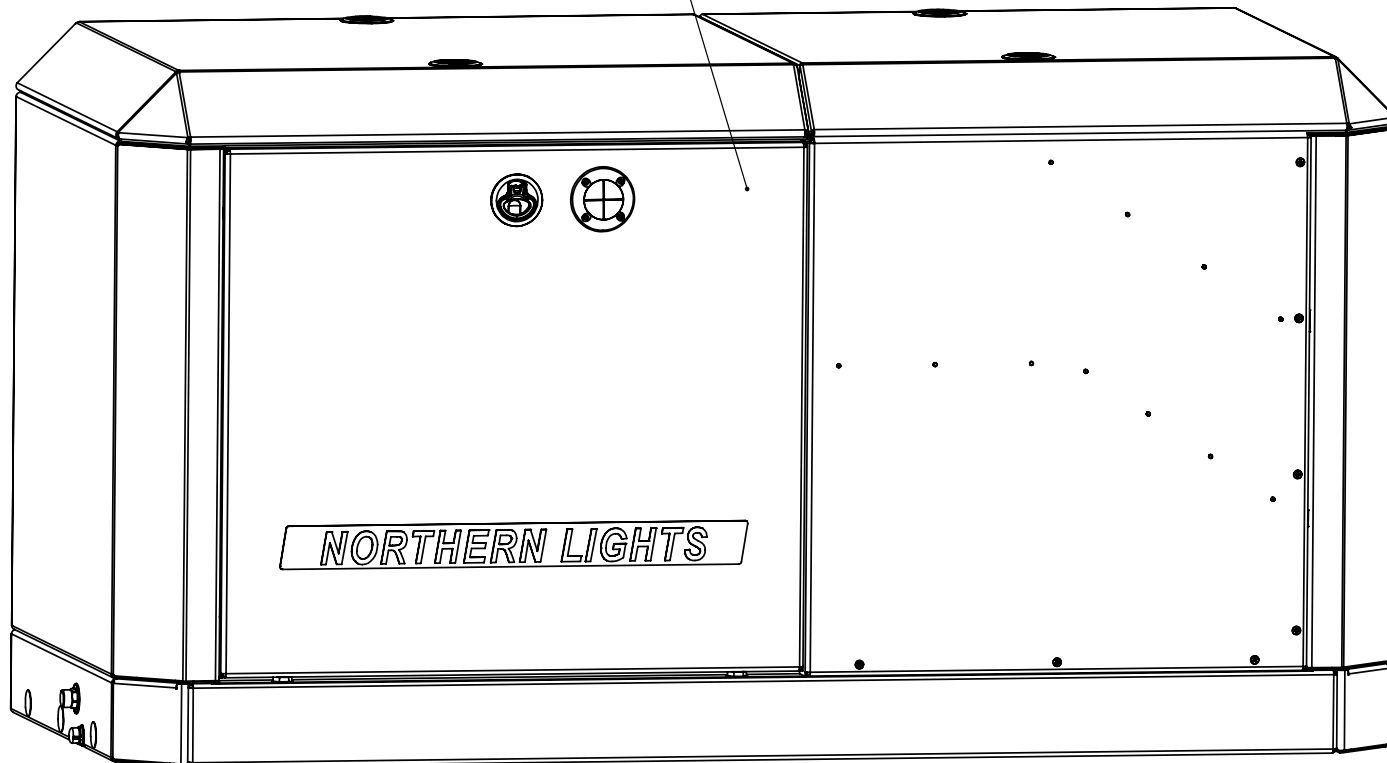


DRIP CHANNEL/SEAT.
TOP FWD PANEL MUST SEAT
INSIDE THIS CHANNEL.

O

STEP 21
INSTALL THE SERVICE SIDE PANEL
(item 22.)

RING LATCH MAY REQUIRE
SOME ADJUSTMENT, SEE LATCH
SUPPLEMENT INCLUDED WITH
ASSEMBLY INSTRUCTIONS.



FROM SEA WATER PUMP OUTLET TO SIPHON BREAK

FROM SIPHON BREAK TO HEAT EXCHANGER INLET

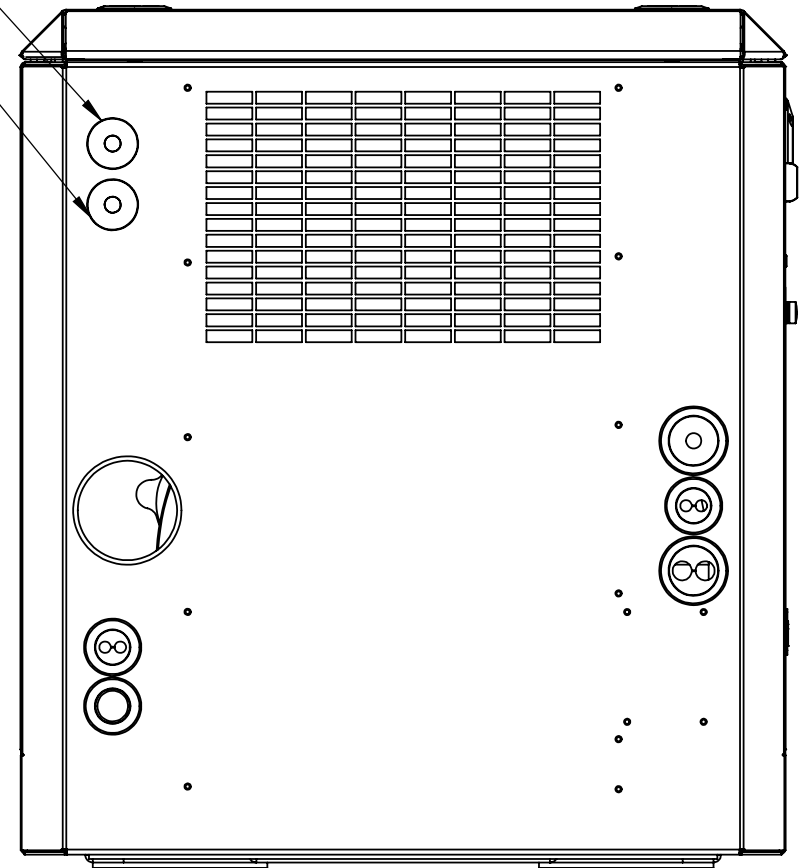
IF YOU HAVE CHOSEN TO INSTALL A SIPHON BREAK:

Note the two plugged penetrations in the top left corner of the rear panel. These are the ports through which the siphon break lines will be routed.
At this time you should refer to the plumbing diagram in the mounting and exhaust sections of the IM1000 Installation manual.

Remove the white plastic hole plugs by pushing them out from the inside and replace with the two rubber grommets (ITEM#14) provided.

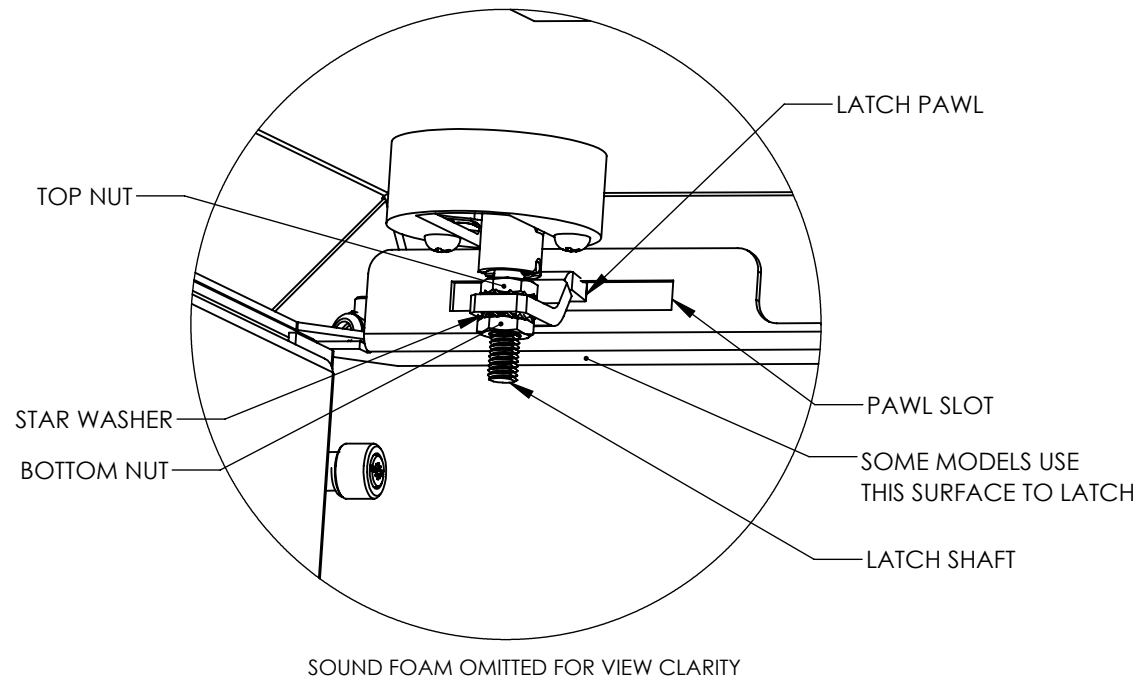
CAUTION. GENERATOR SETS WITH WET EXHAUST THAT ARE INSTALLED NEAR OR BELOW THE VESSEL'S HULL WATER LINE MUST USE A SIPHON BREAK TO PREVENT BACK FLOW OF WATER INTO THE ENGINE. THIS BACKFLOW CAN RUIN AN ENGINE AND POSSIBLY SINK THE VESSEL.

- a. Disconnect the hose from the sea water pump output and the inlet to the heat exchanger. Replace this single hose with two 3/4" ID lines, one from the sea water output and the other to the heat exchanger inlet. These hoses must be of adequate length to mount a siphon break a min of 12 inches above the vessel's loaded water line.
- b. Pass these lines through the two holes in the rear panel, as indicated per the diagram.
- c. For more information, see the "Exhaust" section of the IM 1000 Installation Manual.



REAR PANEL VIEW

RING LATCH GRIP ADJUSTMENT INSTRUCTIONS



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.
4. 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.

M944T3F GEM Sound Enclosure Packing List

ITEM #	DESCRIPTION	NLI P/N	QTY	PACKED
5.	Rear intake duct assembly	06-71272	1	<input type="checkbox"/>
9.	Rear panel/valence assembly	06-71202	1*	<input type="checkbox"/>
13.	Service side lower valence	06-71206	1	<input type="checkbox"/>
14.	Non-service side lower valence	06-71207	1	<input type="checkbox"/>
16.	Front lower valence assembly	06-71213	1	<input type="checkbox"/>
17.	Service side panel aft	06-71209	1	<input type="checkbox"/>
18.	Non-service side panel aft	06-71212	1	<input type="checkbox"/>
19.	Non-service side panel fwd	06-71211	1	<input type="checkbox"/>
20.	Front panel assembly	06-71201	1	<input type="checkbox"/>
21.	Seal bar	06-71271	1	<input type="checkbox"/>
22.	Service side panel fwd assembly	06-71208	1	<input type="checkbox"/>
23.	Top panel aft assembly	06-71204	1	<input type="checkbox"/>
24.	Top panel fwd assembly	06-71203	1	<input type="checkbox"/>

* includes 06-71269

HARDWARE BAG

ITEM #	DESCRIPTION	NLI P/N	QTY	PACKED
1.	1/4" NPT x 3-1/2" pipe nipple	21-01208	1	<input type="checkbox"/>
2.	3/8" NPT x 3" pipe nipple	21-01207	1	<input type="checkbox"/>
3.	1/4" NPT brass pipe cap	21-72241	1	<input type="checkbox"/>
4.	3/8" NPT brass pipe cap	21-78004	1	<input type="checkbox"/>
6.	M8 button head hex screw	12-00118	10	<input type="checkbox"/>
7.	5/16" ext tooth lockwasher	15-09204	16	<input type="checkbox"/>
8.	5/16" pan head machine screw	12-00119	6	<input type="checkbox"/>
10.	Hole plug 1" white	00-78006	6	<input type="checkbox"/>
11.	1/4"-20 pan head machine screw	12-45102	12	<input type="checkbox"/>
12.	1/4" ext tooth lockwasher	15-09103	12	<input type="checkbox"/>
15.	Sound foam, side valence	55-71261	2	<input type="checkbox"/>
25.	Grommet, vented loop	00-70146	2	<input type="checkbox"/>

Packed By : _____ Date : _____