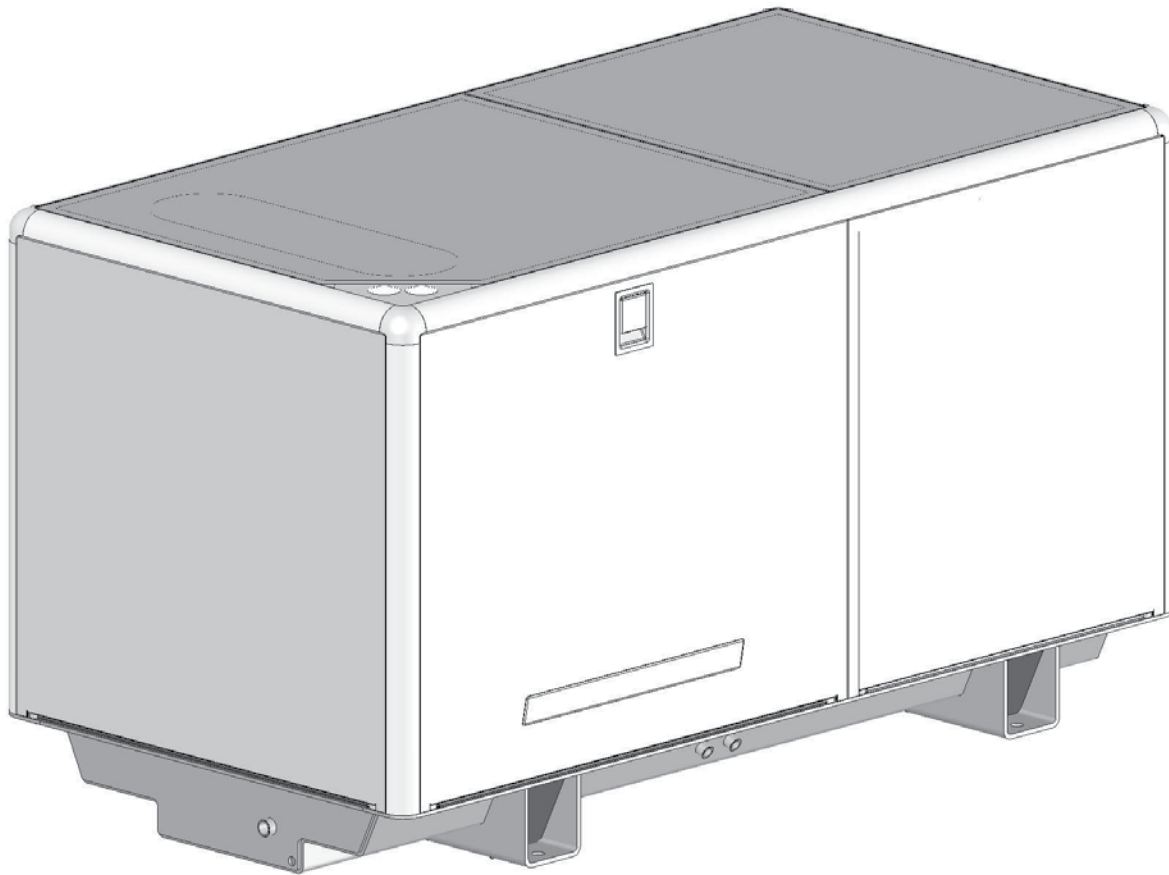




**NORTHERN LIGHTS**

# M944W3

## Soundshield Assembly Instructions



**Corporate Headquarters**

4420 14th Avenue NW  
Seattle, WA 98107  
Tel: (206) 789-3880  
Fax: (206) 782-5455

**Alaska Branch Office**

1200 West International  
Airport Road  
Anchorage, AK 99519  
Tel: (907) 562-2222  
Fax: (907) 563-1921

**Southeastern U.S.A.**

1419 W Newport Center Dr  
Deerfield Beach, FL 33442  
Tel: (954) 421-1717  
Fax: (954) 421-1712

**East Coast Branch**

15 Aegean Dr.  
Suite 4  
Methuen MA 01844  
Tel: (978) 475-7400  
Fax: (978) 475-7745

**Gulf Branch**

19 Veterans Memorial Blvd.  
Kenner, LA 70062  
Tel: (504) 360-2180  
Toll Free: (800) 843-6140



## M944W3 Soundshield

ITEM #	DESCRIPTION	NLI P/N	QTY	NOTES
1	TOE BRACKETS	23-71206	4	
2	BOLTING ASSY – SHORT	05-75714	24	
3	VERTICAL EXTRUSION	05-01211	4	
4	CENTER BAR, VERTICAL	05-01214	2	
5	MACH SCREW, TRUSS HD #10-32x1/2”S/S	12-00000	12	
6	FLATWASHER, USS #10, S/S	15-70002	12	
7	NYLOCK HEX NUT #10-32, S/S	14-00032	12	
8	BOLTING ASSY – LONG	05-72003	16	
9	NYLON KEEPER BLOCKS	23-78016	16	
10	CORNER CASTING	05-70001	4	
11	EXTRUSION, TOP SIDES	05-01212	2	
12	EXTRUSION, TOP ENDS	05-01213	2	
13	CENTER BAR, TOP	05-01216	1	
14	BRACKET, CENTER BAR CONNECTOR	23-01206	4	
15	MACH SCREW, PAN HD ¼-20 x ½” S/S	12-45102	8	
16	FLATWASHER USS ¼” S/S	15-00101	8	
17	PENETRATION PANEL RETAINERS	23-78006	2	
18	PENETRATION PANEL ASSY	05-78022	1	
19	REAR PANEL RETAINER CLIPS	23-78003	2	
20	JUNCTION BOX BRIDGE COVER	05-01229	1	
21	MSCR, RD HD M4 x .7 x 10mm S/S	BY VENDOR	3	
22	HELICAL LOCKWASHER, M4 S/S	BY VENDOR	3	
23	FLATWASHER, M4 S/S	BY VENDOR	3	
24	SOUND FOAM, BASE PAN FILLER	55-01227	1	
25	REAR PANEL ASSY	05-01207	1	
26	RH SIDE PANEL FORWARD ASSY	05-01203	1	
27	RH SIDE PANEL AFT ASSY	05-01204	1	
28	FRONT PANEL ASSY	05-01206	1	
29	TOP PANEL, FORWARD ASSY	05-01208	1	
30	TOP PANEL, AFT ASSY	05-01209	1	
31	LH SIDE PANEL FORWARD ASSY	05-01201	1	
32	LH SIDE PANEL AFT ASSY	05-01202	1	
33	SOUND FOAM, BASE FOOT PLUG	55-01226	4	

### OPTIONAL PARTS INCLUDED:

34	PENETRATION PANEL GROMMETS	00-70083	2	
35	SOUND FOAM, PENETRATION PLATE	55-78066	1	

### SPECIFICATIONS

#### Enclosure:

Length (OA)	26 in (1423 mm)
Width	29 in (800 mm)
Height	31.5 in (800 mm)
Assembled Height (on sub-base):	31.5 in (800 mm)
Assembled Weight (est) (w/o sub-base):	158 lbs (72 kg)
Assembled Weight (est) (incl genset)	1490 lb (676 kg)

1

Prior to assembly, inspect all of the components for damage, and report any damage to shipping company. Check the packing list to be sure all parts have been included in the package.

2

Select a mounting location in accordance with the guideline in the IM1000 Installation Manual (supplied with the generator set). 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. The M944W3 Generator set has an integrated genset mounting skid and sound shield base. The sub base mounting is accessed externally, inside of the four pockets.

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 access for maintenance.

**Important: Your sound shield requires ventilation space for proper operation! Ensure your M944W3 installation has a minimum of 4 inches (102 mm) of clearance between the shield's intake grille (rear panel) and air outlet grille (RH side) to any bulkhead. Allow for at least 4 inches of overhead clearance as well. The space ensures good access for panel removal and prevents overheating conditions.**

3

Observe on the Genset's sub-base perimeter, a series of large and small holes. See figure 1 and 2.

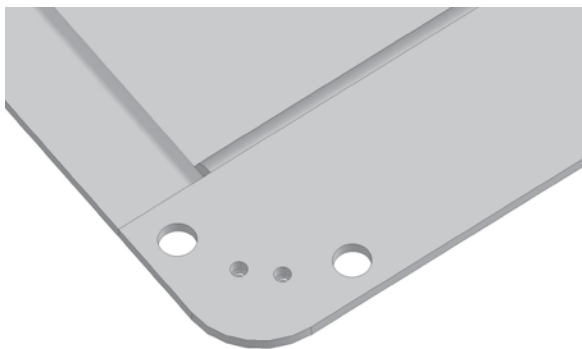


Fig. 1

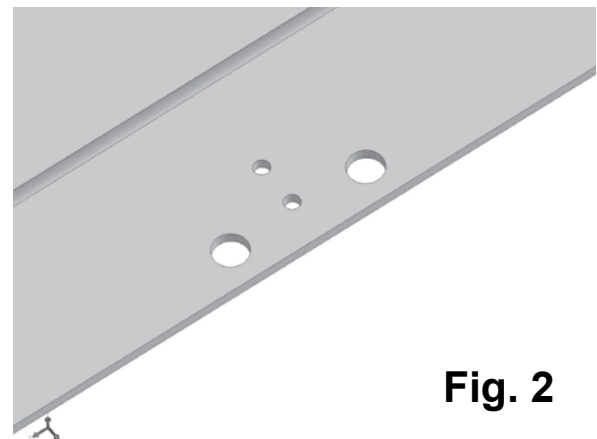
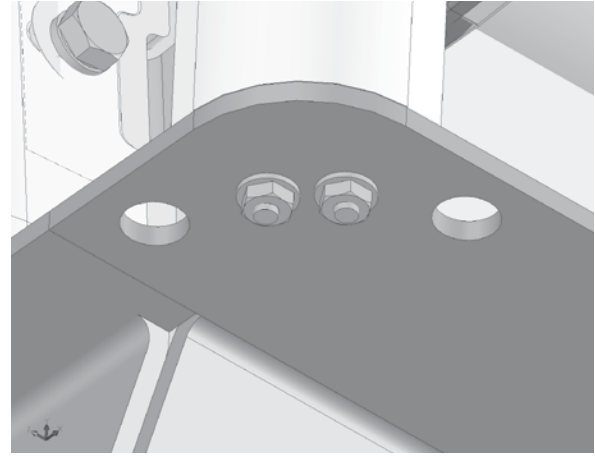
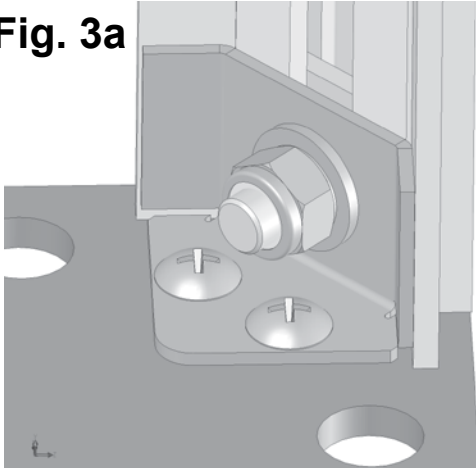


Fig. 2

Now install toe brackets (Item 1) to all four corners using machine screws (Item 5), along with flatwashers (Item 6) and hex nylocks (Item 7) underneath the sub base perimeter flange. Engage firmly but do not fully tighten at this time. See figure 3a and 3b on the next page.

**Fig. 3a**

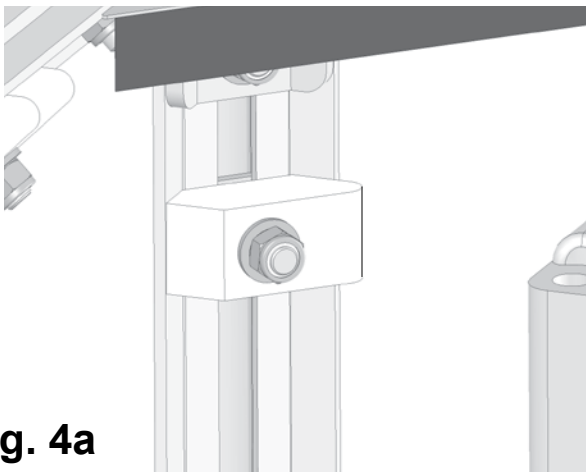


**Fig. 3b**

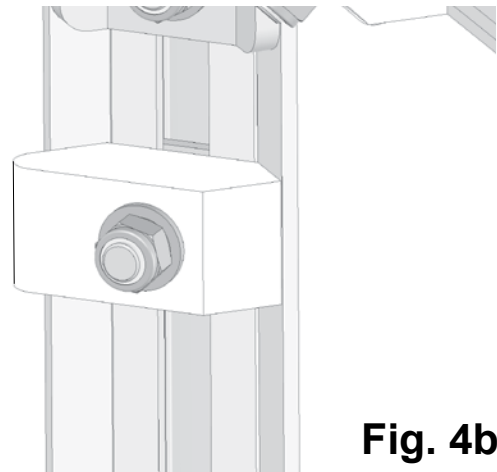
**4**

Using short bolting assemblies (Item 2) install the four vertical corner extrusions (Item 3) to the toe brackets (Item 1). Tighten bolting assemblies just enough to check movement. See figure 3a.

Now take a long bolting assy (item# 8) and slide one (1) into each of the forward vertical extrusions. Install one molded nylon panel keeper block (item #9) to each of these long bolting assys. Note the orientation of the each block as shown in fig 4a (left front corner) and fig 4b (right front corner). Install the bolting assy's washer and nylock to each of these but do not fully tighten at this time. Allow enough slack so these items can slide within the extrusion groove.



**Fig. 4a**

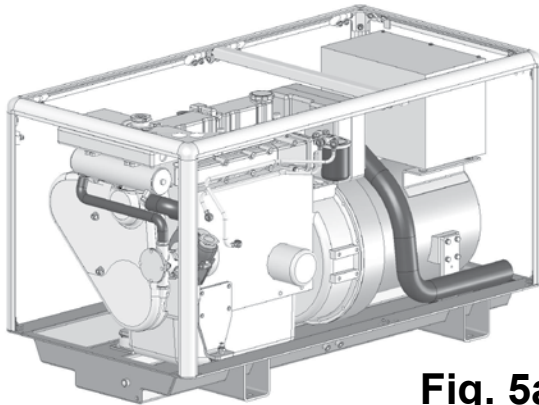
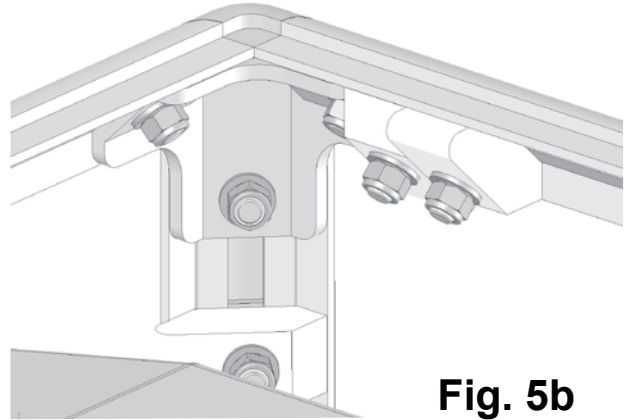


**Fig. 4b**

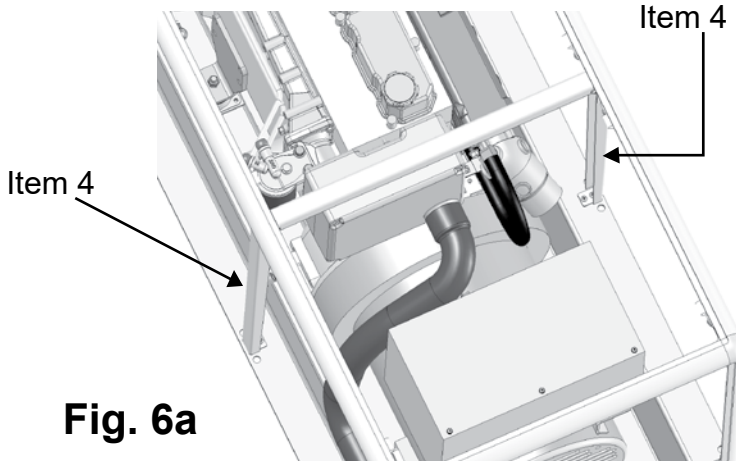
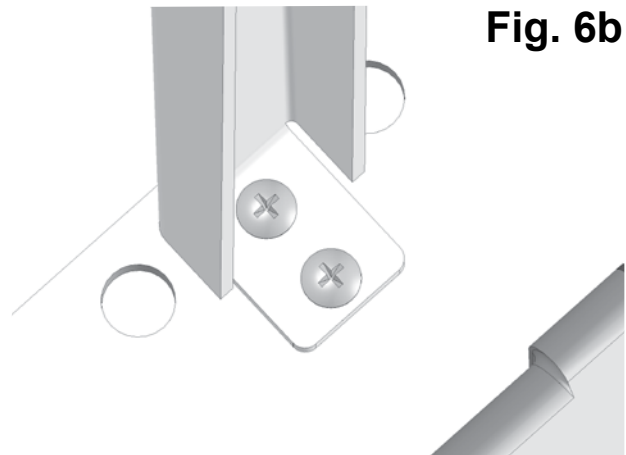
**5**

Take the pre-assembled enclosure frame top (Items 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17) and note the available lower leg on each of the corner castings (Item 10). *Temporarily remove the top panel assemblies (Item 29 and 30) at this time to facilitate installation of top frame.*

Install a short bolting assembly (Item 2) to each of these legs. With assistance, raise and position the top frame assembly over the four vertical extrusions (Item 3) inserting the square head of the bolting assembly (Item 2) into the top of each vertical extrusion. Ensure the small triangular panel (Item 18) is at the left hand side forward position. See figure 5a and 5b.

**Fig. 5a****Fig. 5b****6**

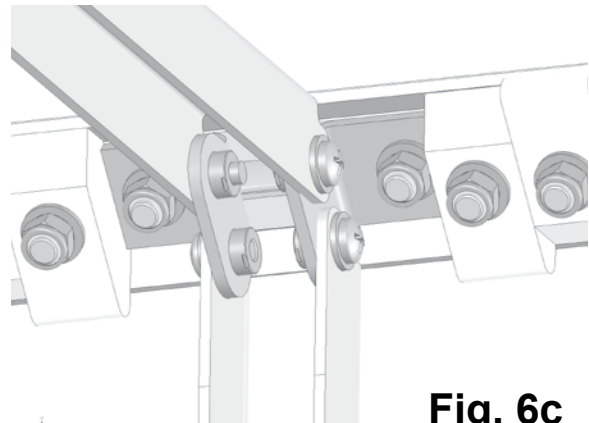
Once all four corners of the enclosure top frame assembly have been secured, now you can mount the side vertical center posts (Item 4) to the sub-base using machine screws, flatwashers, and nylock nuts (Items 5, 6, and 7). See figure 6a and 6b.

**Fig. 6a****Fig. 6b**

Note that the pre-assembled top frame has connector brackets (item 14) intended to anchor the top of the two vertical center bars (item 4) using 4 ea. Stainless machine screws (item 15) and flatwashers (item 16). See fig 6c.

Tighten these machine screws using an extra long phillips type screw driver.

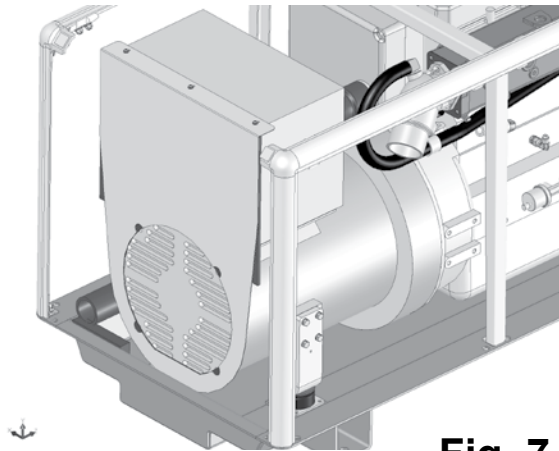
Do not tighten fully until remaining panels can be installed and frame squared.

**Fig. 6c**

**7**

With the enclosure frame completed now install the junction box bridge cover assy (item 20) to the rear end of the generator. (This becomes the interior portion of the intake duct.) Remove the three (3) existing screws on the top lid of the generator junction box. Position the cover assy (item 20) as shown and secure with three (3) M4 stainless machine screws provided. See fig 7.

Properly installed, the cover should be well seated on the perimeter face of the slotted generator intake casting.

**Fig. 7****8**

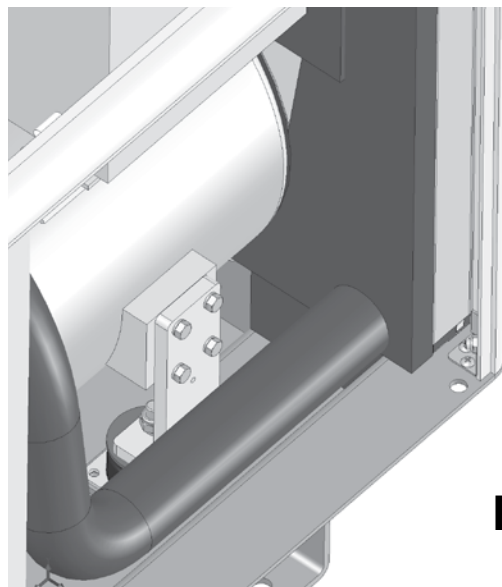
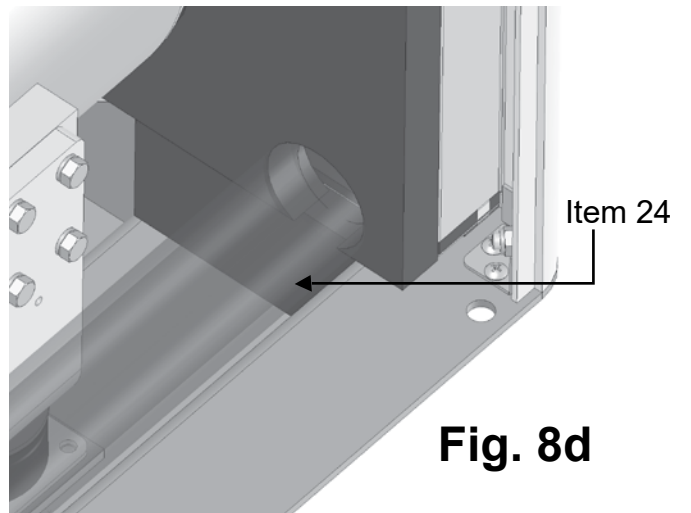
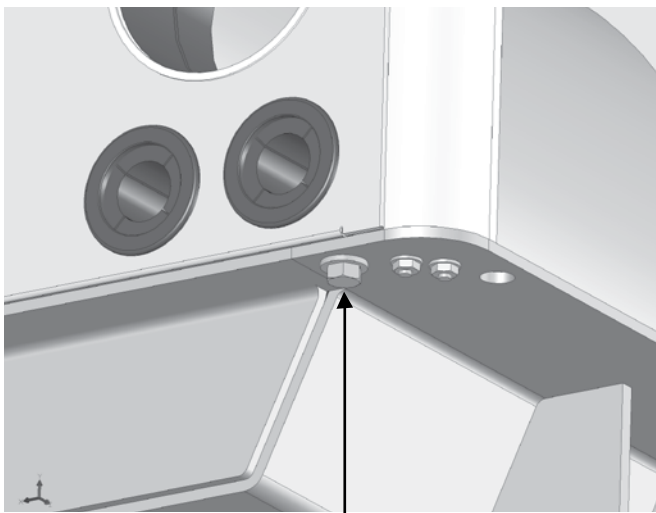
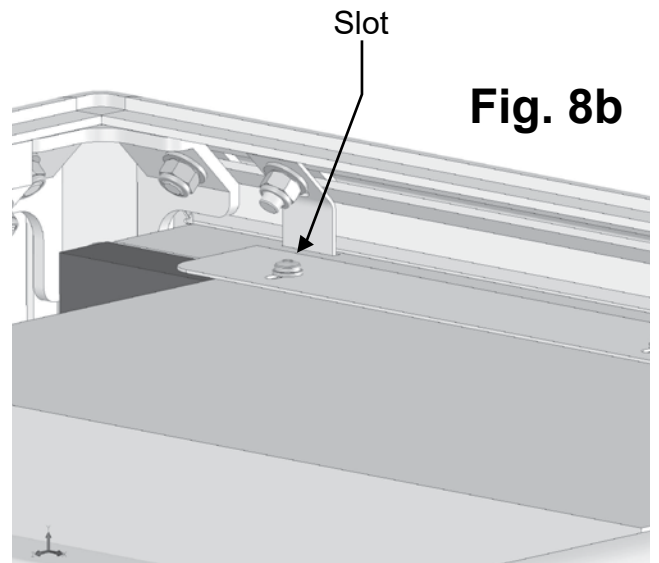
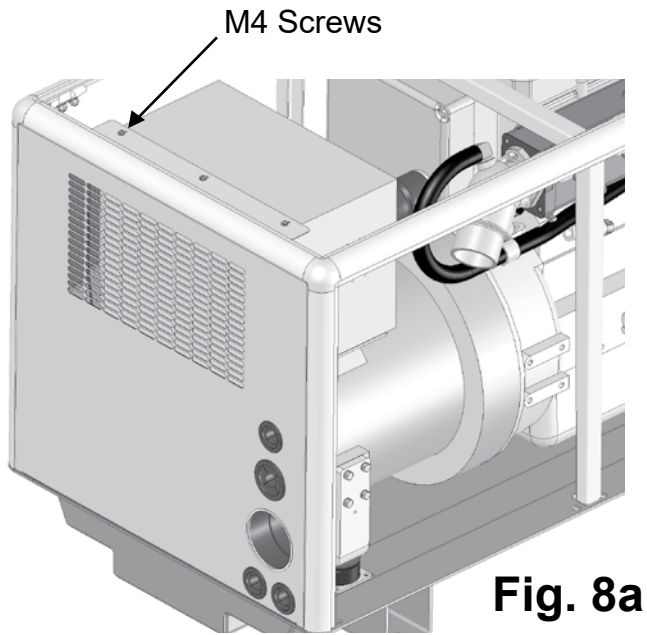
Now you're ready to install the rear panel assy (item 25). Prior to installation, note the pre-installed retainer clips in the top frame. These feed into the slots you see in the top of the rear panel. See figs 8a and 8b. These clips (item 19) should be loose enough to rotate out of the way to allow the rear panel to be positioned in place.

If the rear panel assy is properly seated, it should be flush with the rear extrusions and back of base pan. The attached rear panel gasket should be firmly pressed against the junction box cover plate (item 20) as well as the perimeter face of the generator end for a good air seal. Rotate or slide the retainer clips (item 19) into the corresponding slots of the rear panel frame, and push in to engage and tighten the bolting assy to secure. See fig 8b.

Now secure the bottom of the rear panel using the supplied 5/16" capscrews and flat-washers that come with the rear panel assy, through the holes as shown in fig 8c.

At the genset's rear left side interior, push the genset's air intake hose aside and install the foam base pan filler (item 24). It is a fitted part and self adhesive. Test fit the foam part first before removing the backing paper. Mounts to the back wall of the base pan. See fig 8d.

When the filler is installed re-align and push the open end of the engine air intake hose back into the hole provided in the rear panel assy. (Do not push in all the way until it stops, allow the length as is, as it comes on the genset.) See Fig 8e.

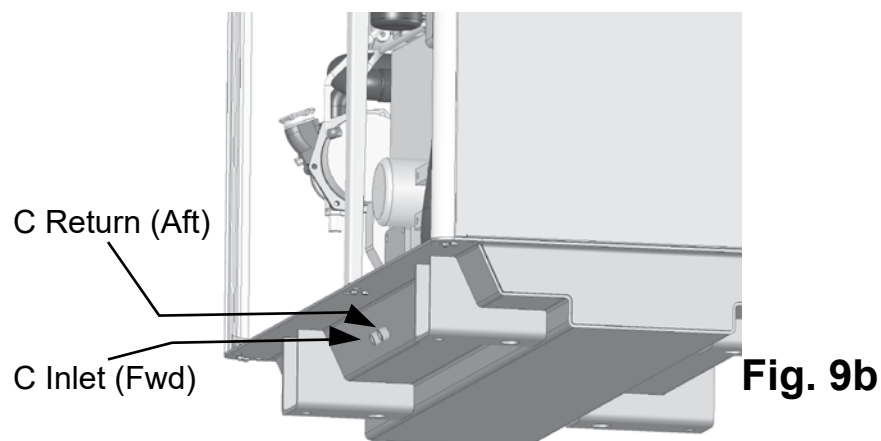
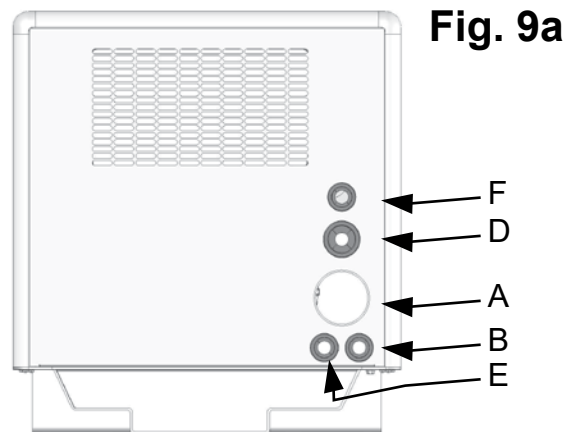




**9**

Install connections for exhaust, AC power leads, DC control panel leads, battery, and water through holes in the rear panel as shown in the drawing (Figure 9a and 9b) and as described below:

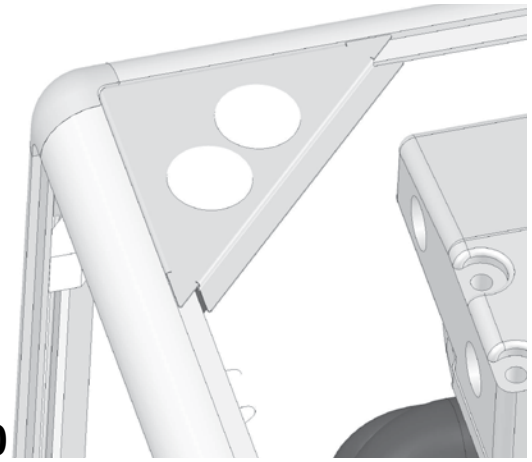
- a. Connect the exhaust elbow of the diesel engine to the exhaust system of the vessel. Pass the three inch exhaust hose through the opening provided in the right lower section of the rear panel.
- b. Connect the sea water pump to the vessel's water inlet. Pass a 3/4" hose from the vessel's sea water strainer, through the lower hole at the bottom right 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 hoses. Fuel connections are 1/4" NPT located under the sub-base flange, LH side of the shield. See figure 9b.
- d. Connect the DC control harness to the engine harness plug. Pass the harness and plug through the middle hole on the right side of the rear panel.
- e. Connect the 12 volt battery leads to the generator set using the second hole at the bottom right side of the rear panel.
- f. Connect the AC output leads from the generator to the vessel's power distribution panel. Pass the two leads through the top hole from the right side of the rear panel.



**10**

Note the pre-installed penetration plate in the top of forward left corner of the enclosure frame top. See figure 10.

Refer to the IM1000 Installation manual for the plumbing diagram in the mounting and exhaust section. Read on to step 11.



**Fig. 10**

**11**

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 backflow can ruin an engine and, possibly, sink the vessel. The penetration plate facilitates the siphon break installation as follows:

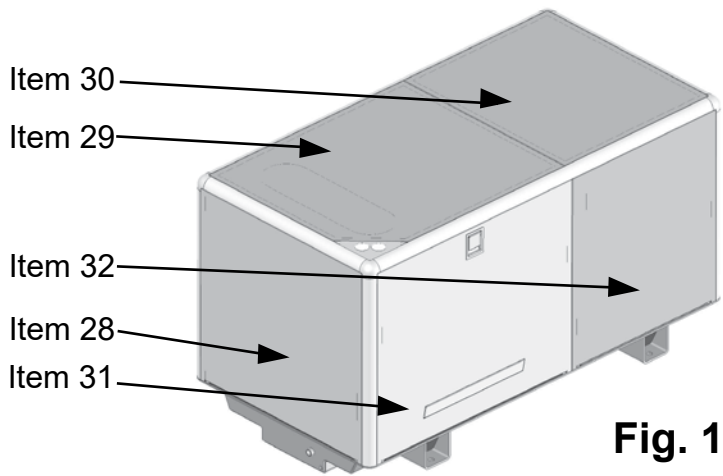
- a. Disconnect the hose from the seawater pump output and from the inlet to the heat exchanger. Replace the single hose with two lengths of 3/4" hose. The siphon break panel has push out plastic plugs that you must remove before you can make the hose connections. See Figure 10. Install the grommet (Item 34) to each hole. Install sound foam (Item 35) prior to making hose connections.
- b. Connect the end of one hose from the outlet on the top of the seawater pump and the other end to one hose barb of the siphon break. Connect the second hose from the other barb of the siphon break and the other end to the sea water inlet hose barb of the heat exchanger. These hoses must be of adequate length to allow you to mount the siphon break a minimum of 12 inches above the vessel's loaded waterline.
- c. For more information, see the "Exhaust" section of the IM-1000 Installation Manual included with the generator set.

**12**

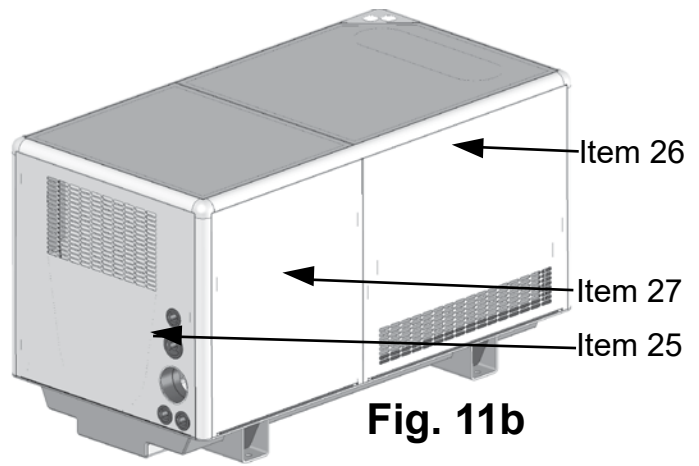
Start the generator set and run under load to check for leaks of fuel, water, or exhaust gas.

**13**

You may now install the remaining cover panels. Note that the left hand forward side (Item 31) is the only panel that is externally actuated by means of a paddle latch. The rest are internally latched by molded nylon keeper blocks.



**Fig. 11a**

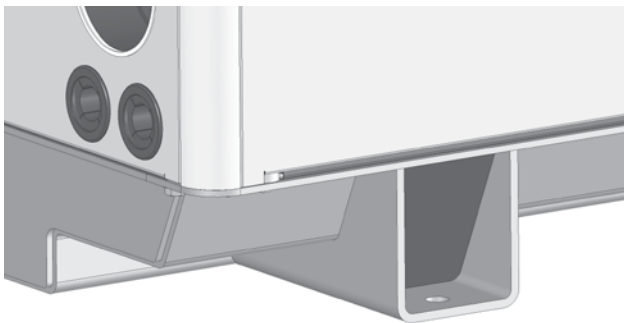


**Fig. 11b**

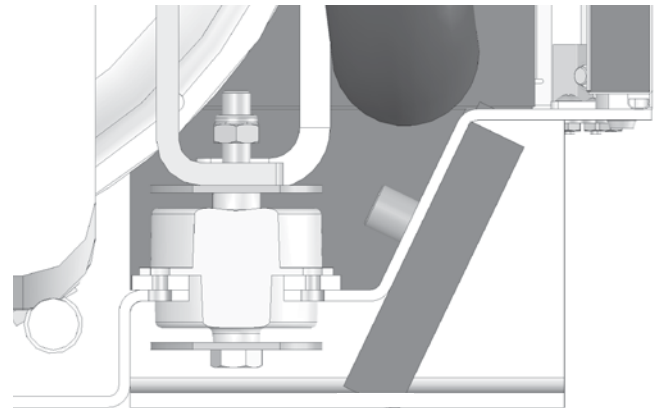
As you install the panels, observe that there should be a minimum clearance of approximately .09" around the panel perimeter (except at the bottom of the side panels). You may adjust for this by loosening any number of corner bolting assemblies until fit is satisfactory. Tighten all connections when done.

**14**

Finally, note the Genset base pan has four mounting feet 'pockets'. Take foam block (item 33) but do not remove the backing paper at this time, and insert it into each mounting foot pocket as shown in FIG 12A. See how the upper portion of the block lays against the angled surface of the base pan. The foam part will compress slightly when inside the foot pocket as it provides a noise seal from the engine mounts. After you note how the foam block is going to fit, withdraw it and remove only the top half of the backing paper to expose the adhesive layer. Then pinching the block at the top outer corner reinstall it and press firmly against the contact area to ensure good adhesion. SEE FIG 12B.



**Fig. 12a**



**Fig. 12b**



# M944W3 Soundshield Packing List

ITEM #	DESCRIPTION	ADE P/N	QTY	NOTES	PACKED
ENCLOSURE TOP, ASSEMBLED (consists of the following parts: )					
2	BOLTING ASSY-SHORT	05-75714	16	assembled	<input type="checkbox"/>
8	BOLTING ASSY-LONG	05-72003	14	assembled	
9	NYLON PANEL KEEPER BLOCKS	23-78016	14	assembled	
10	CORNER CASTING	05-70001	4	assembled	
11	EXTRUSION TOP, SIDES	05-01212	2	assembled	
12	EXTRUSION TOP, ENDS	05-01213	2	assembled	
13	CENTER BAR, TOP	05-01216	1	assembled	
14	BRACKET, CENTER BAR CONNECTOR	23-01206	4	assembled	
15	MACH SCREW, ¼-20 x ½" S/S	12-45102	4	assembled	
16	FLATWASHER, USS ¼ S/S	15-00101	4	assembled	
17	PENETRATION PANEL RETAINERS	23-78006	2	assembled	
18	PENETRATION PANEL ASSY	05-78022	1	installed	
19	REAR PANEL ASSY RETAINER CLIPS	23-78033	2	assembled	
29	TOP PANEL FORWARD ASSY	05-01208	1	installed	
30	TOP PANEL AFT ASSY	05-01209	1	installed	
CONTENTS OF PARTS BOX					
1	TOE BRACKETS	23-71206	4	bagged	<input type="checkbox"/>
2	BOLTING ASSY-SHORT	05-75714	8	bagged	<input type="checkbox"/>
3	VERTICAL EXTRUSION	05-01211	4	loose	<input type="checkbox"/>
4	CENTER BAR, VERTICAL	05-01214	2	loose	<input type="checkbox"/>
5	MACH SCREW TRUSS HD #10-32 x ½"	12-00000	12	bagged	<input type="checkbox"/>
6	FLATWASHER USS #10 S/S	15-70002	12	bagged	<input type="checkbox"/>
7	NYLOCK HEXNUT #10-32 S/S	14-00032	12	bagged	<input type="checkbox"/>
8	BOLTING ASSY-LONG	05-72003	2	bagged	<input type="checkbox"/>
9	NYLON PANEL KEEPER BLOCKS	23-78016	2	bagged	<input type="checkbox"/>
15	MACH SCREW ¼-20 x ½" S/S	12-45102	4	bagged	<input type="checkbox"/>
16	FLATWASHER, USS ¼ S/S	15-00101	4	bagged	<input type="checkbox"/>
20	JUNCTION BOX BRIDGE COVER ASSY	05-01229	1	loose	<input type="checkbox"/>
21	MACH SCREW RD HD M4 x 10mm	vendor	3	bagged	<input type="checkbox"/>
22	HELICAL LOCKWASHER M4 S/S	vendor	3	bagged	<input type="checkbox"/>
23	FLATWASHER M4 S/S	vendor	3	bagged	<input type="checkbox"/>
24	SOUND FOAM, BASE PAN FILLER	55-01227	4	loose	<input type="checkbox"/>
27	RIGHT SIDE PANEL AFT ASSY	05-01204	1	loose	<input type="checkbox"/>
33	SOUND FOAM, BASE FOOT PLUG	55-01226	4	loose	<input type="checkbox"/>
34	PENETRATION PANEL GROMMETS	00-70083	2	loose, optional	<input type="checkbox"/>
35	SOUND FOAM, PENETRATION PLATE	55-78066	1	loose, optional	<input type="checkbox"/>
PANEL ASSEMBLIES:					
25	REAR PANEL ASSY	05-01207	1	assembled	<input type="checkbox"/>
26	RIGHT SIDE PANEL FORWARD ASSY	05-01203	1	assembled	<input type="checkbox"/>
28	FRONT PANEL ASSY	05-01206	1	assembled	<input type="checkbox"/>
31	LEFT SIDE PANEL FORWARD ASSY	05-01201	1	assembled	<input type="checkbox"/>
32	LEFT SIDE PANEL AFT ASSY	05-01202	1	assembled	<input type="checkbox"/>

Packed By : \_\_\_\_\_

Date : \_\_\_\_\_

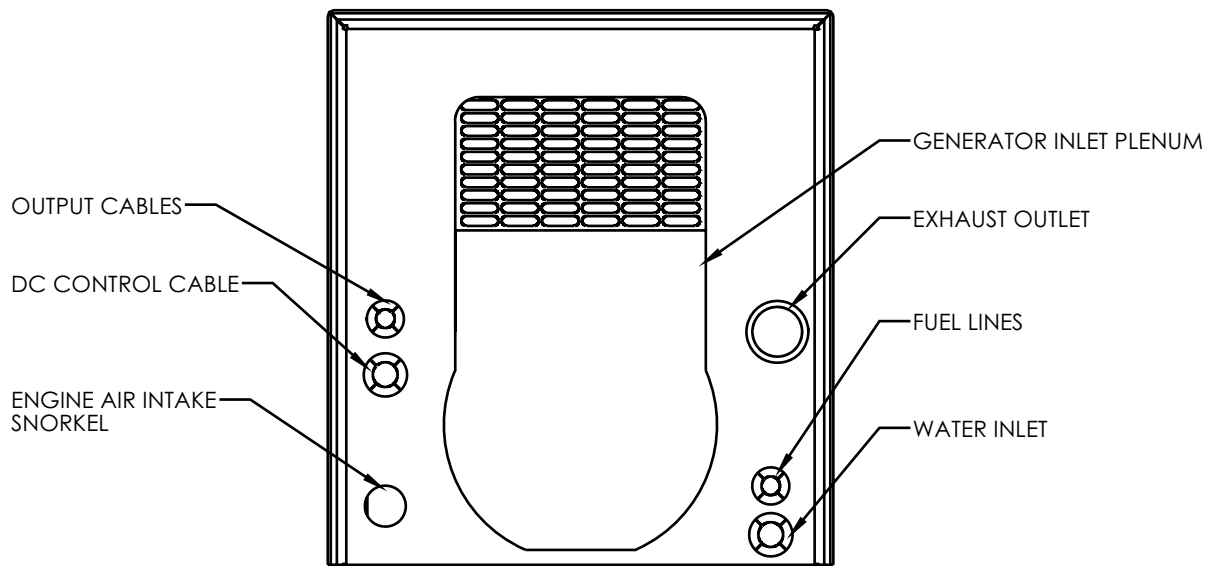
# A NORTHERN LIGHTS SOUND ENCLOSURE ASSEMBLY ADDENDUM PAPER

This affects the following Sound Enclosure Assembly Instructions:

- M673L3 05-78025
- M773L3 05-78625
- M843NW3 05-73120
- M844W/LW3 05-70020
- M864W3 05-78725
- M944W3 05-01205

SHOWN BELOW IS THE INTERIOR VIEW OF A TYPICAL SOUND SHIELD REAR PANEL. APPEARANCE MAY VARY DEPENDING UPON GENSET MODEL.

**REMOVE FOAM PLUGS AT LOCATIONS AS SHOWN BELOW.**



**NOTE: SOME LOCATIONS CONSIST OF TWO LAYERS OF SOUND FOAM. TWO PLUGS MAY BE PRESENT AND MUST BE REMOVED BEFORE PANEL INSTALLATION.**

**Completed By:** \_\_\_\_\_ **Date:** \_\_\_\_\_



**NORTHERN LIGHTS**

Northern Lights, Inc. • 4420 14th Ave. NW., • Seattle WA 98107

Tel: 206-789-3880 • 1-800-762-0165 • Fax: 206-782-5455

Information and dimensions subject to change without notice.

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