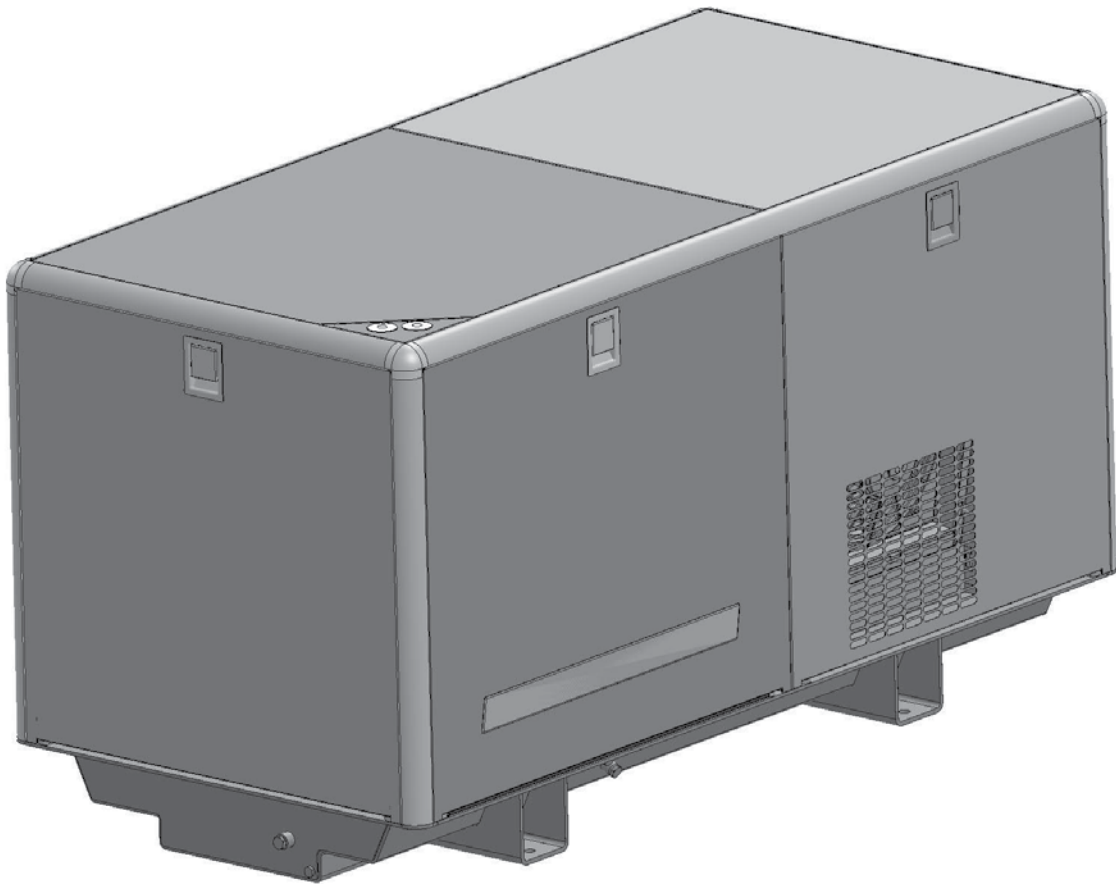




**NORTHERN LIGHTS**

# M944T/T3

## Soundshield Assembly Instructions



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## M944T/T3 Soundshield

| ITEM # | DESCRIPTION                            | ADE P/N  | QTY | NOTES |
|--------|--|----------|-----|-------|
| 1.     | Extrusion, vertical                    | 05-71234 | 4   |       |
| 2.     | Extrusion, horizontal, sides           | 05-71237 | 2   |       |
| 3.     | Extrusion, horizontal, ends            | 05-71236 | 2   |       |
| 4.     | Center bar, top                        | 05-71297 | 1   |       |
| 5.     | Center bar, vertical                   | 05-71296 | 2   |       |
| 6.     | Corner casting                         | 05-70001 | 4   |       |
| 7.     | Bolting assembly - short               | 00-75714 | 24  |       |
| 8.     | Bracket, center bar connector          | 23-01206 | 4   |       |
| 9.     | Rear panel assembly                    | 05-01246 | 1   |       |
| 10.    | Front panel assembly                   | 05-01243 | 1   |       |
| 11.    | LH side panel forward assembly         | 05-71298 | 1   |       |
| 12.    | LH side panel aft blower assembly      | 05-01231 | 1   |       |
| 13.    | RH side panel forward assembly         | 05-01237 | 1   |       |
| 14.    | RH side panel aft assembly             | 05-01241 | 1   |       |
| 15.    | Top panel forward assembly             | 05-01249 | 1   |       |
| 16.    | Top panel aft assembly                 | 05-01252 | 1   |       |
| 17.    | Penetration panel assembly             | 05-78022 | 1   |       |
| 18.    | #10 screw s/s x 1/2" long              | 12-00000 | 12  |       |
| 19.    | Flatwasher #10 s/s USS                 | 15-70002 | 12  |       |
| 20.    | Hex nut, nylock #10-32 s/s             | 14-00032 | 12  |       |
| 21.    | Toe bracket                            | 21-71206 | 4   |       |
| 22.    | Mach. screw pan head 1/4-20 x 1/2" S/S | 12-45102 | 8   |       |
| 23.    | Starwasher, USS 1/4" S/S               | 15-09103 | 8   |       |
| 24.    | Lower intake spacer block              | 55-71248 | 1   |       |
| 25.    | Foam intake duct                       | 55-71242 | 1   |       |
| 26.    | Bolting assembly - long                | 05-72003 | 8   |       |
| 27.    | Nylon keeper block                     | 23-78016 | 8   |       |
| 28.    | Penetration panel retainers            | 23-78006 | 2   |       |
| 29.    | Rear panel retainer clips              | 23-78003 | 2   |       |
| 30.    | Blower fan plate assembly              | 05-31222 | 1   |       |
| 31.    | Sheet metal screws #14 x 3/4           | 12-72000 | 6   |       |
| 32.    | Sound foam, base foot plug             | 55-01231 | 4   |       |

### OPTIONAL PARTS INCLUDED

|     |                               |          |   |  |
|-----|-------------------------------|----------|---|--|
| 33. | Penetration panel grommets    | 00-70083 | 2 |  |
| 34. | Sound room, penetration plate | 55-78066 | 1 |  |

### SPECIFICATIONS

#### Enclosure:

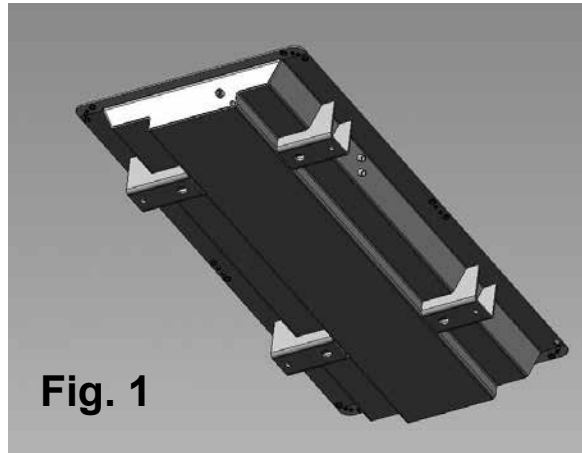
|  |                 |
|--|-----------------|
| Length (OA)                            | 60 in (1524 mm) |
| Width                                  | 29 in (737 mm)  |
| Height                                 | 32 in (813 mm)  |
| Assembled height (on sub-base):        | 32 in (813 mm)  |
| Assembled weight (est) (w/o sub-base): | 169 lbs (77 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 M944T/T3 Generator set has an integrated genset mounting skid and sound shield base. The sub base mounting is accessed externally, inside of the four pockets. See figure 1.

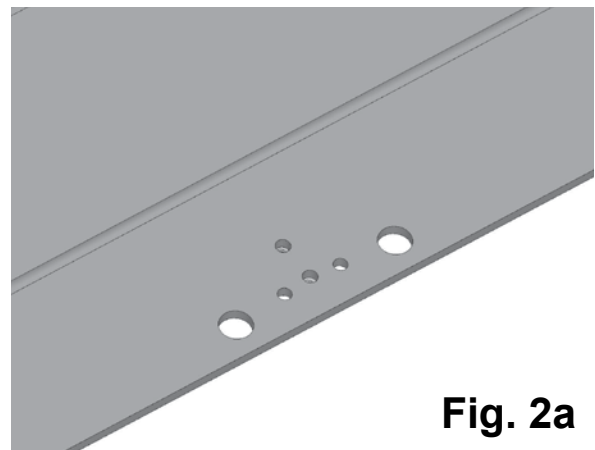
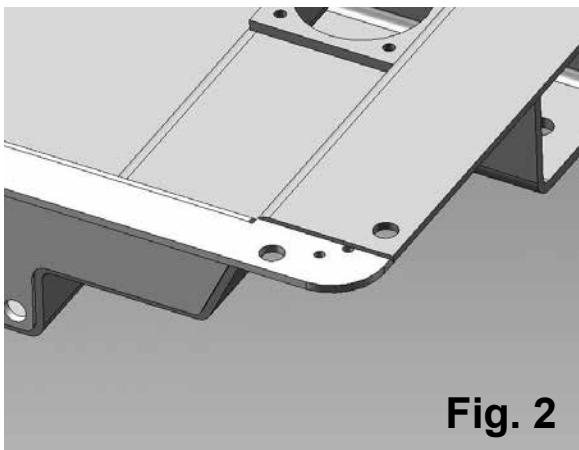


Note that the generator set is designed for single side service. When viewed from the rear, the left hand side is the service side and should be exposed for easy access for maintenance.

**Important:** Your sound shield requires ventilation space for proper operation! Ensure your M944T 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

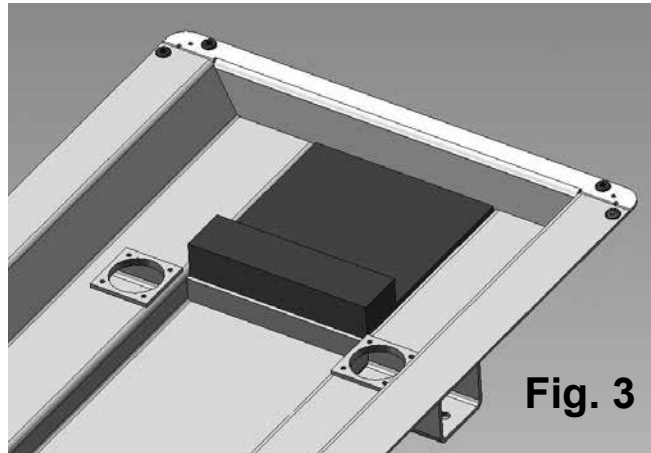
Observe on the Genset's sub-base perimeter, a series of large and small holes. See figure 2 and 2a.



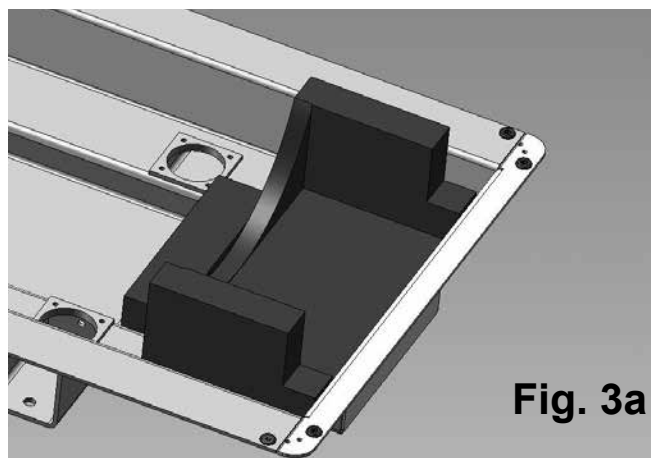
These are the sound shield panel retention holes, and enclosure frame anchoring holes, respectively.

**4**

Next, install the lower intake spacer block (Item 24) into the pan below the generator, pushing it firmly into place with the high end towards the front of the unit. See figure 3, (generator omitted for clarity)



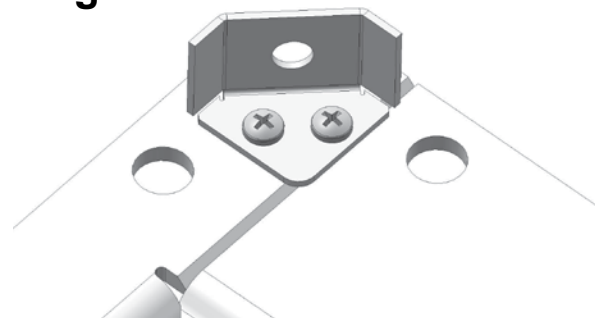
Then add the foam intake duct (Item 25) so that the open end faces the rear of the shield. See figure 3a.



Push the foam intake box back against the rear of the sub base wall to complete its installation.

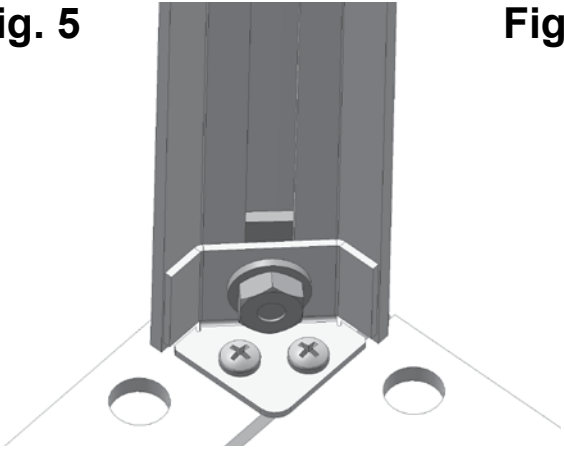
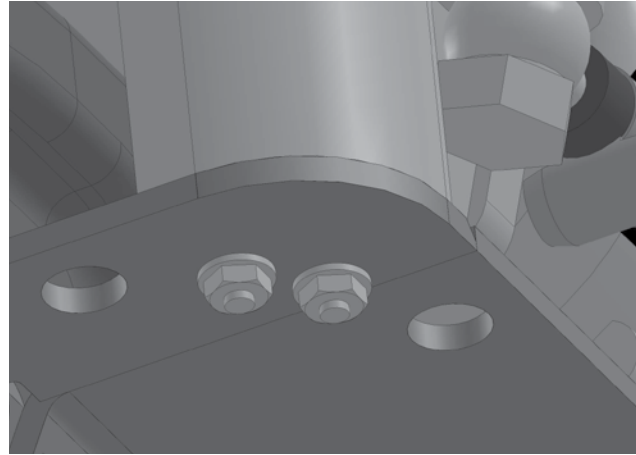
**5**

Now install toe brackets (Item 21) to all four corners using machine screws (Item 18), along with flatwashers (Item 19) and hex nylocks (Item 20) underneath the sub base perimeter flange. Engage firmly but do not fully tighten at this time. See figure 4.

**Fig. 4**

**6**

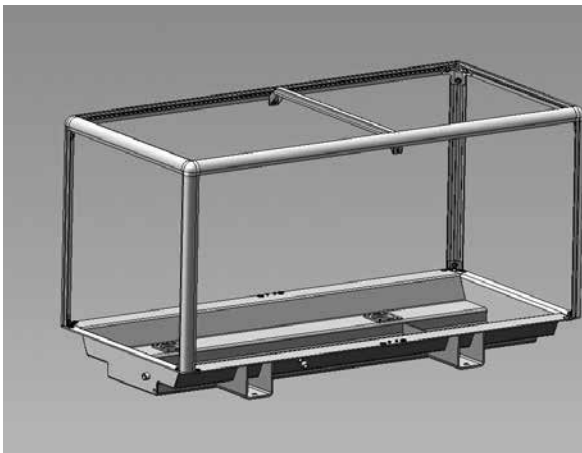
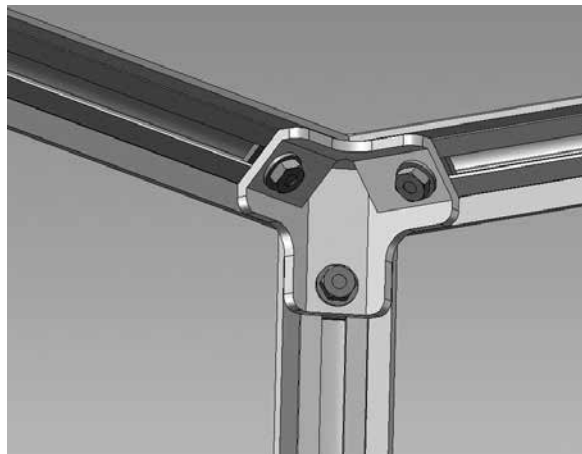
Using bolting assemblies (Item 7) install the four vertical corner extrusions (Item 1) to the toe brackets (Item 21). Tighten bolting assemblies just enough to check movement. See figure 5.

**Fig. 5****Fig. 5a****7**

Take the pre-assembled enclosure frame top (Items 2, 3, 4, 6, 7, 8, 15, 16, 17, 22, 23, 26, 27, 28 and 29) and note the available lower leg on each of the corner castings (Item 6).

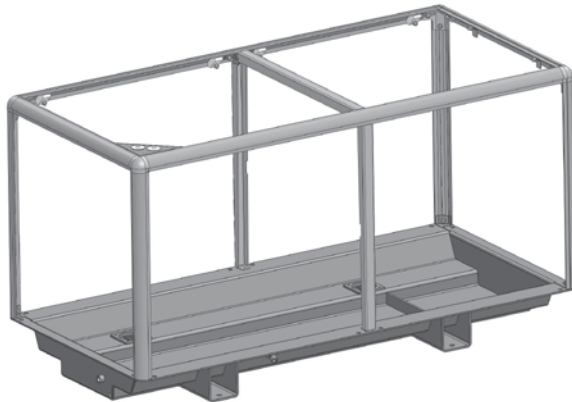
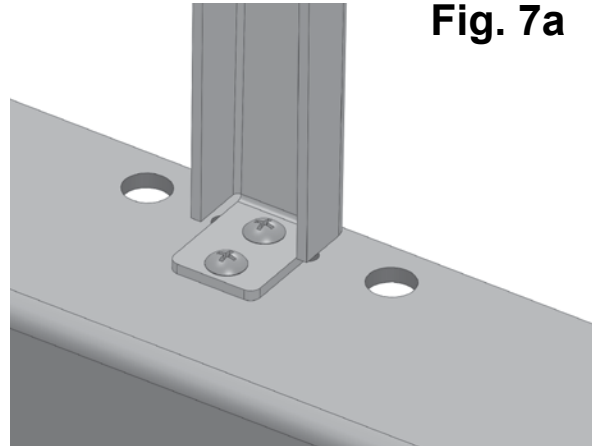
*Temporarily remove the top panel assemblies (Item 15 and 16) at this time to facilitate installation of top frame.*

Install a bolting assembly (Item 7) to each of these legs. With assistance, raise and position the top frame assembly over the four vertical extrusions (Item 1) inserting the square head of the bolting assembly (Item 7) into the top of each vertical extrusion. Ensure the small triangular panel (Item 17) is at the left hand side forward position. See figure 6 and 6a.

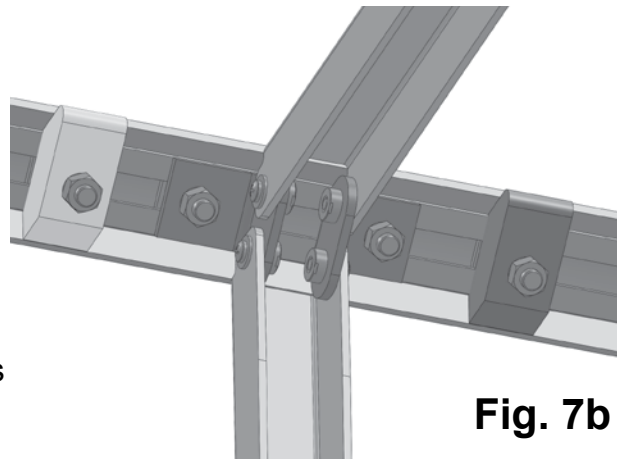
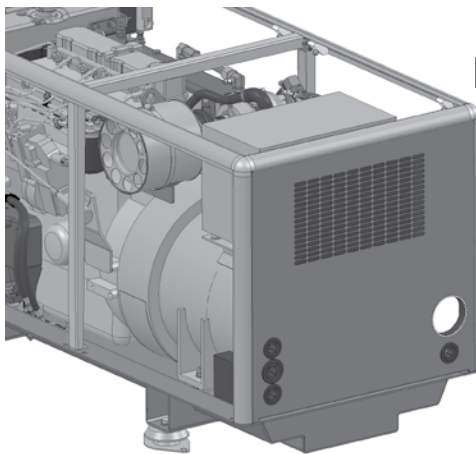
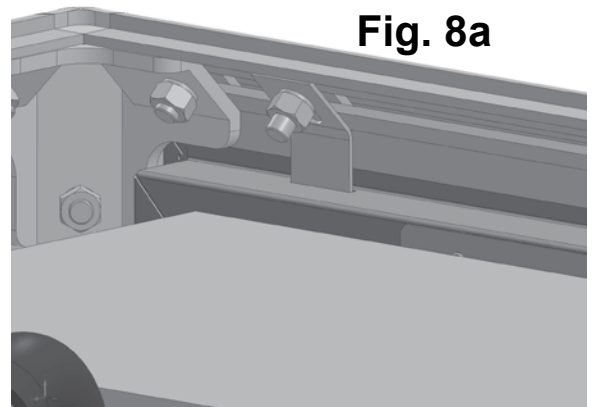
**Fig. 6****Fig. 6a**

**8**

Once all four corners of the enclosure top frame assembly have been secured, now you can mount the side vertical center bar (Item 5) to the sub-base using machine screws, flatwashers, and nylock nuts (Items 18, 19, and 20). See figure 7 and 7a.

**Fig. 7****Fig. 7a**

Note that the pre-assembled top frame has connector brackets (item 8) intended to anchor the top of the two vertical center bars (item 5) using 4 ea. Stainless machine screws (item 22) and starwashers (item 23). See figure 7b. 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.

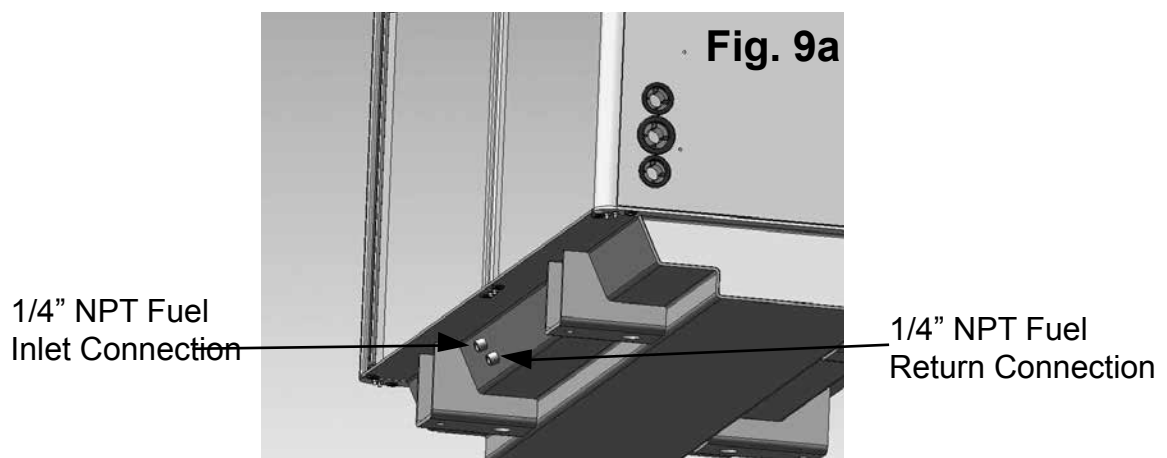
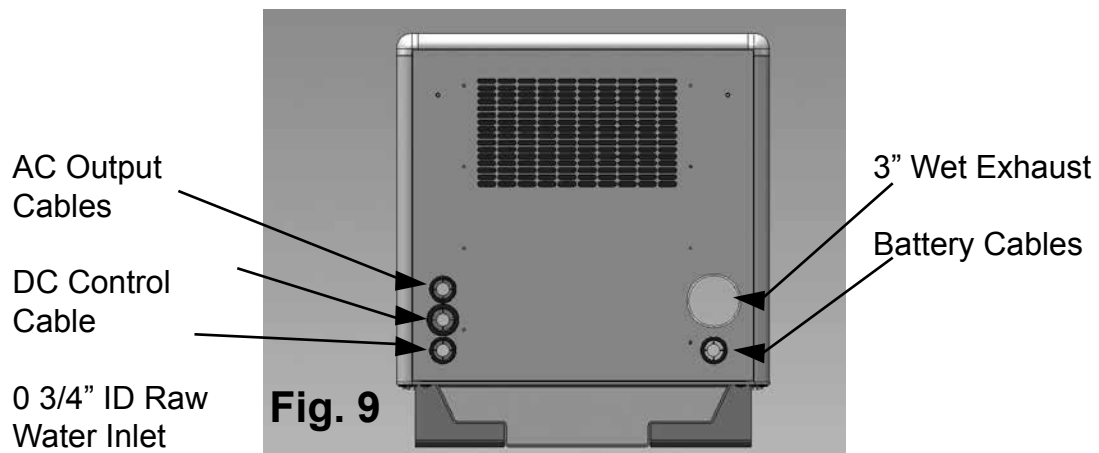
**Fig. 7b****9****Fig. 8****Fig. 8a**

Now you are ready to install the rear panel assembly (item 9). The rear panel has two nylon locator pins at the bottom of the panel. Insert these into the holes in the base pan lip and push down. 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 figures 8 and 8a. These clips (item 29) should be loose enough to rotate out of the way to allow the rear panel to be positioned in place.

If the rear panel assembly is properly seated, it should be flush with the rear extrusions and back of the base pan. The attached rear panel gasket should be firmly pressed against the perimeter face of the generator end for a good air seal.

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 9 and 9a) 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 left 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 9a.
- d. Connect the DC control harness to the engine harness plug. Pass the harness and plug through the middle hole on the left 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 bottom left side of the rear panel.

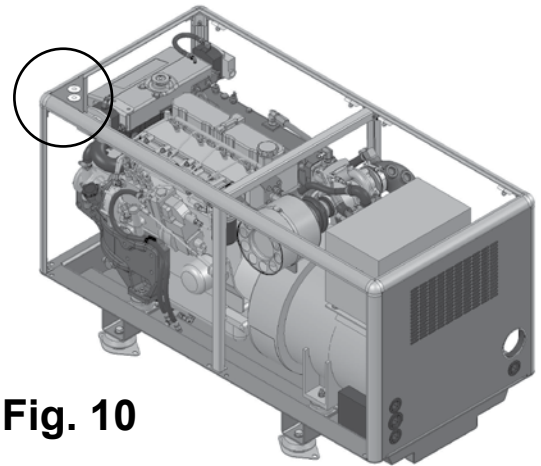




**11**

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.



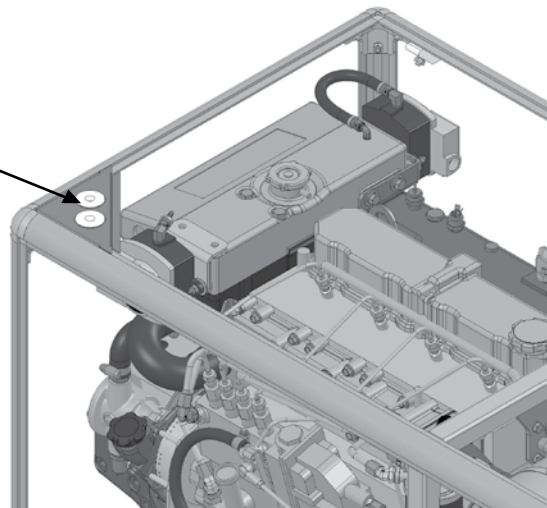
**Fig. 10**

**12**

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 plugs must be removed before you can make the hose connections. See Figure 10a. Install the grommets (Item 28) to the opened slot.
- 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.

Remove Plugs for  
Siphon Break



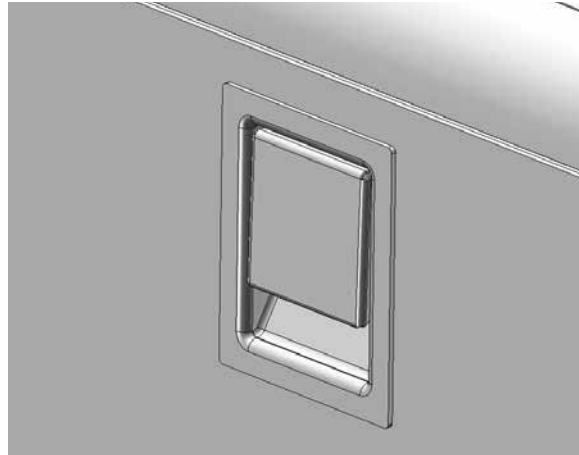
**Fig. 10a**

**13**

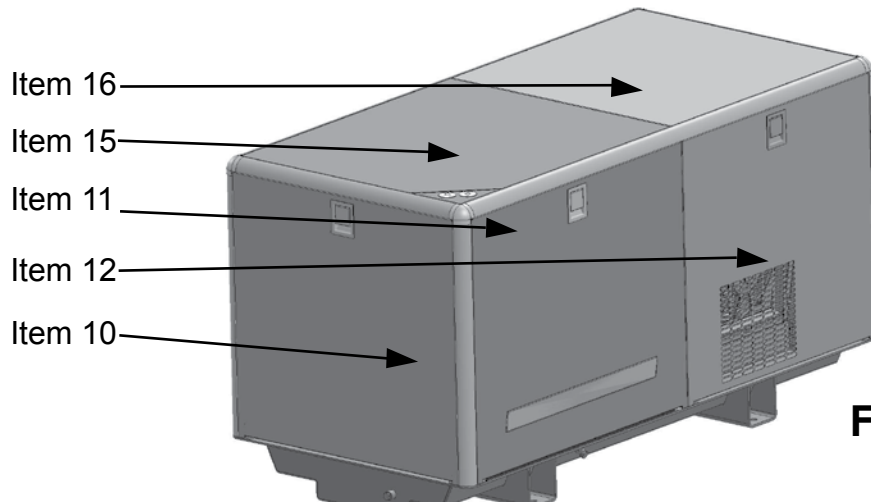
Start the generator set and run under load to check for leaks of fuel, water, or exhaust gas.

You may now install the remaining cover panels. Note that the side and front panels are externally actuated by means of a paddle latch. The panels are fully engaged when the paddle portion of the latch is firmly set. If you can feel a little play in the paddle, push firmly to slide the latch pawl into the slot. A loose panel will rattle and possibly fall out.

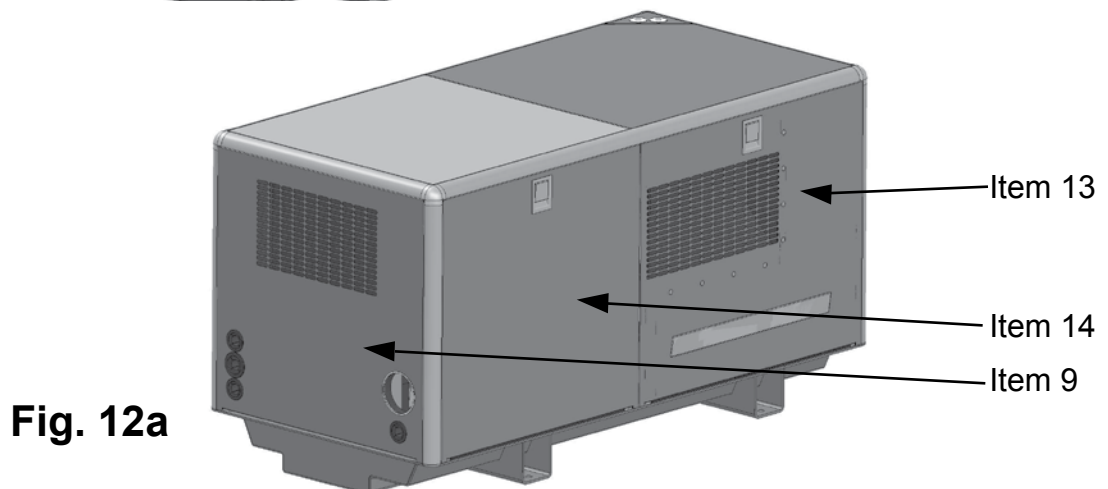
See figure 11.



**Fig. 11**



**Fig. 12**



**Fig. 12a**

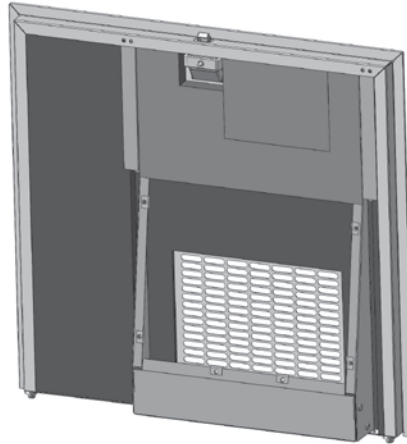
As you install the panels, observe that there should be a minimum clearance of approximately .03"-.06" around the panel perimeter (except at the bottom of the side panels). You may adjust for this by loosening any number of corner bolting assemblies until fit is satisfactory. Tighten all connections when done.

## Blower Panel Assembly

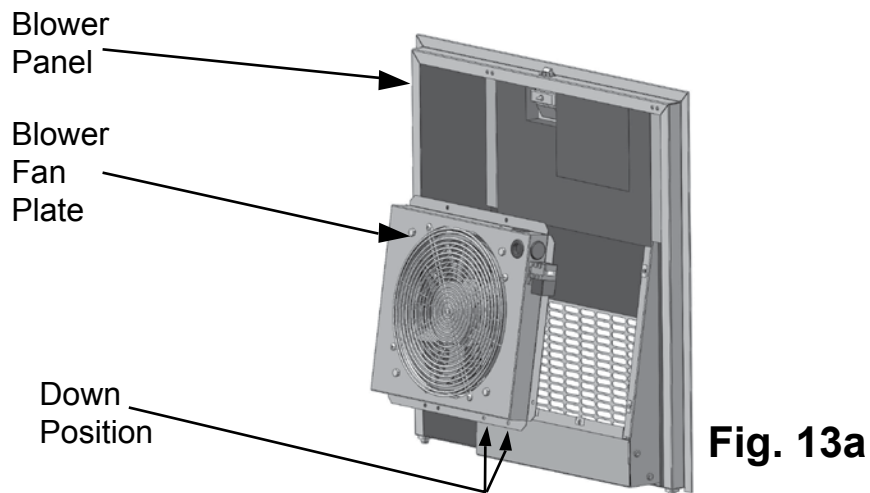
The left side aft panel is also a blower fan assembly. This fan is shipped loose and must be installed at the final assembly. The fan plate is stored within the air intake duct of the rear panel.

Taking the left side aft panel (item 12), note the interior face has a duct structure within. This is where the fan plate assembly mounts to. (See Figure 13.)

**Fig. 13**



Now take the blower fan plate (item 30) and position it on to the blower panel duct. Note the lower flange will have 4 holes. The mounted fan relay should also be at the upper right corner orientation. (See Figure 13a)

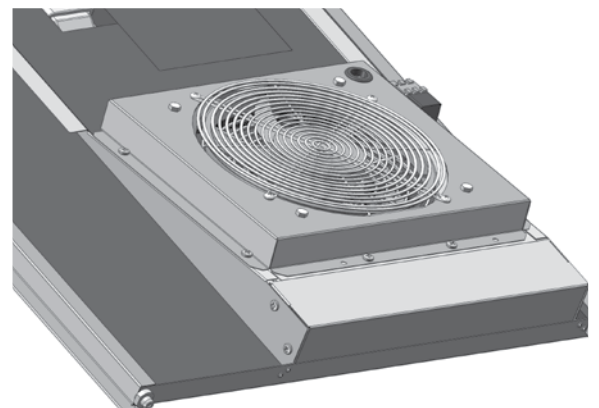


**Fig. 13a**

Take the provided sheet metal screws (item 31) and secure the fan plate to the duct. (See Figure 13b)

The top flange of the blower fan plate will seal itself against the panel sound foam.

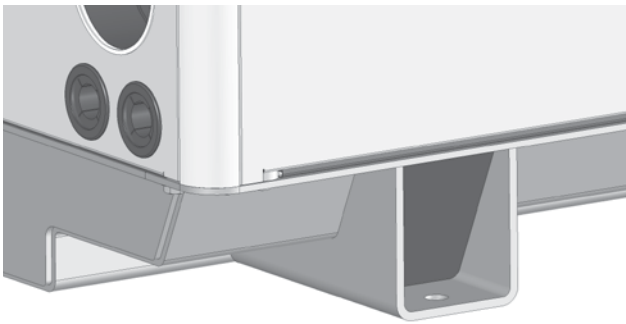
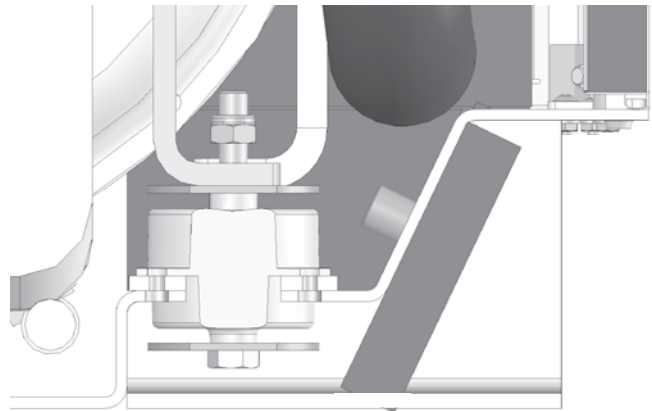
The fan harness connects directly to an available connector on the engine wire harness.



**Fig. 13b**

**16**

Finally, note the Genset base pan has four mounting feet 'pockets'. Take foam block (item 32) but do not remove the backing paper at this time, and insert it into each mounting foot pocket as shown in FIG 14. 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 14a.

**Fig. 14****Fig. 14a**



# M944T/T3 Soundshield Packing List

| ITEM # | DESCRIPTION   | ADE P/N  | QTY | NOTES          | PACKED                   |
|--------|---|----------|-----|----------------|--------------------------|
| 1      | Extrusion, vertical   | 05-71234 | 4   | loose          | <input type="checkbox"/> |
| 5      | Center bar, vertical  | 05-71296 | 2   | loose          | <input type="checkbox"/> |
| 9      | Rear panel assembly   | 05-01246 | 1   | assembled      | <input type="checkbox"/> |
|        | Enclosure top, assembled.<br>Consists of the following parts: |          | 1   |                | <input type="checkbox"/> |
| 2      | Extrusion, horizontal, sides                                  | 05-71237 | 2   | assembled      | –                        |
| 3      | Extrusion, horizontal, ends                                   | 05-71236 | 2   | assembled      | –                        |
| 4      | Center bar, top   | 05-71297 | 1   | assembled      | –                        |
| 6      | Corner casting  | 05-70001 | 4   | installed      | –                        |
| 7      | Bolting assembly - short                                      | 00-75714 | 24  | installed      | –                        |
| 17     | Penetration panel assembly                                    | 05-78022 | 1   | installed      | –                        |
| 23     | 1/4" Flatwasher   | 15-00101 | 2   | installed      | –                        |
| 22     | Hex nut, nylock 1/4-20  | 14-00113 | 2   | installed      | –                        |
| 15     | Top panel forward assembly                                    | 05-01249 | 1   | assembled      | –                        |
| 16     | Top panel aft assembly  | 05-01252 | 1   | assembled      | –                        |
| 28     | Penetration panel retainers                                   | 23-78006 | 2   | installed      | –                        |
| 29     | Rear panel retainer clips                                     | 23-78003 | 2   | installed      | –                        |
| 8      | Bracket, center bar connector                                 | 23-01206 | 4   | installed      | –                        |
| 27     | Nylon keeper block  | 23-78016 | 8   | installed      | –                        |
| 26     | Bolting assembly - long                                       | 05-72003 | 8   | installed      | –                        |
| 30     | Blower fan plate, assembly                                    | 05-31222 | 1   | assembled      | <input type="checkbox"/> |
| 10     | Front panel assembly  | 05-01243 | 1   | assembled      | <input type="checkbox"/> |
| 11     | LH side panel forward assembly                                | 05-71298 | 1   | assembled      | <input type="checkbox"/> |
| 12     | LH side panel aft blower assembly                             | 05-01231 | 1   | assembled      | <input type="checkbox"/> |
| 13     | RH side panel forward assembly                                | 05-01237 | 1   | assembled      | <input type="checkbox"/> |
| 14     | RH side panel aft assembly                                    | 05-01241 | 1   | assembled      | <input type="checkbox"/> |
| 7      | Bolting assembly - short                                      | 00-75714 | 8   | loose (bagged) | <input type="checkbox"/> |
| 18     | #10 screws s/s x 1/2" long                                    | 12-00000 | 12  | loose (bagged) | <input type="checkbox"/> |
| 21     | Toe bracket   | 23-71206 | 4   | loose (bagged) | <input type="checkbox"/> |
| 22     | Mach. screw pan head 1/4-20 x 1/2 S/S                         | 12-45102 | 8   | loose(bagged)  | <input type="checkbox"/> |
| 20     | #10-32 Nylock   | 14-00032 | 12  | loose(bagged)  | <input type="checkbox"/> |
| 19     | #10 Flatwasher  | 15-70002 | 12  | loose(bagged)  | <input type="checkbox"/> |
| 24     | Lower intake spacer block                                     | 55-71242 | 1   | loose          | <input type="checkbox"/> |
| 25     | Lower intake duct   | 55-71248 | 1   | loose          | <input type="checkbox"/> |
| 23     | 1/4" Starwasher S/S   | 15-09103 | 8   | loose(bagged)  | <input type="checkbox"/> |
| 32     | Base Foot Plug  | 55-01231 | 4   | loose          | <input type="checkbox"/> |
| 31     | Sheet metal screws #14 x 3/4 S/S                              | 12-72000 | 6   | loose(bagged)  | <input type="checkbox"/> |
| 33     | Penetration plate grommets                                    | 00-70083 | 2   | loose(bagged)  | <input type="checkbox"/> |
| 34     | Sound foam, penetration plate                                 | 55-78066 | 1   | loose(bagged)  | <input type="checkbox"/> |

Packed By :

Date :