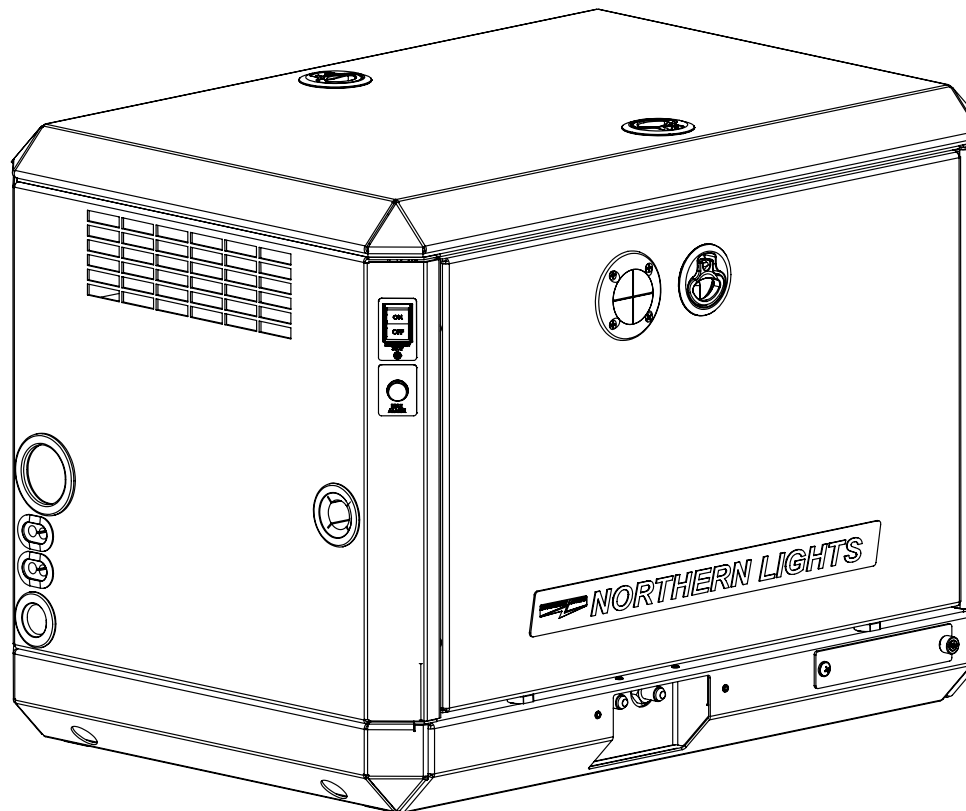




M673LD3 / M673L3

GEM Series Sound Enclosure

Assembly Instructions



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LIT NO.: L813 9/20



M673L3/LD3 GEM Sound Enclosure

| ITEM | DESCRIPTION | NLI P/N | QTY | NOTES |
|------|-----------------------------------------|----------|-----|-------|
| 1 | Junction box bridge cover assembly | 06-78029 | 1 | |
| 2 | Rear panel assembly | 06-78003 | 1 | |
| 3 | 1/4-20 x 3/4" hex head capscrew S/S | 12-30111 | 3 | |
| 4 | 1/4" external star washer, S/S | 15-09103 | 3 | |
| 5 | Rear lower valence assembly | 06-78018 | 1 | |
| 6 | Lower non-service side valence assembly | 06-78008 | 1 | |
| 7 | Lower service side valence assembly | 06-78030 | 1 | |
| 8 | Nylon bumper/rivet | 11-467 | 12 | |
| 9 | Front lower valence assembly | 06-78015 | 1 | |
| 10 | Non-service side panel assembly | 06-78012 | 1 | |
| 11 | Front panel assembly | 06-78002 | 1 | |
| 12 | Seal bar assembly | 06-78020 | 1 | |
| 13 | Top panel assembly | 06-78006 | 1 | |
| 14 | Service side panel assembly | 06-78010 | 1 | |
| 15 | Grommet, 1-1/8" ID x 1-7/8" OD | 00-70146 | 2 | |
| 16 | M8 x 12 18-8, S/S button head screw | 12-70013 | 2 | |
| 17 | M8 x 20 18-8, S/S hex head capscrew | 12-00776 | 2 | |
| 18 | M8 flatwasher, S/S | 15-11000 | 2 | |
| 19 | M8 lockwasher, S/S | 15-00705 | 2 | |
| 20 | Wire harness | 22-72026 | 1 | |

Enclosure:

| | |
|---------------------------------------|------------------|
| Length (OA) | 28.5 in (724 mm) |
| Width | 19.6 in (498 mm) |
| Height | 21.0 in (533 mm) |
| Assembled weight (shield only) | 34 lbs (15.4 kg) |
| Assembled weight (with generator set) | 405 lbs (184 kg) |

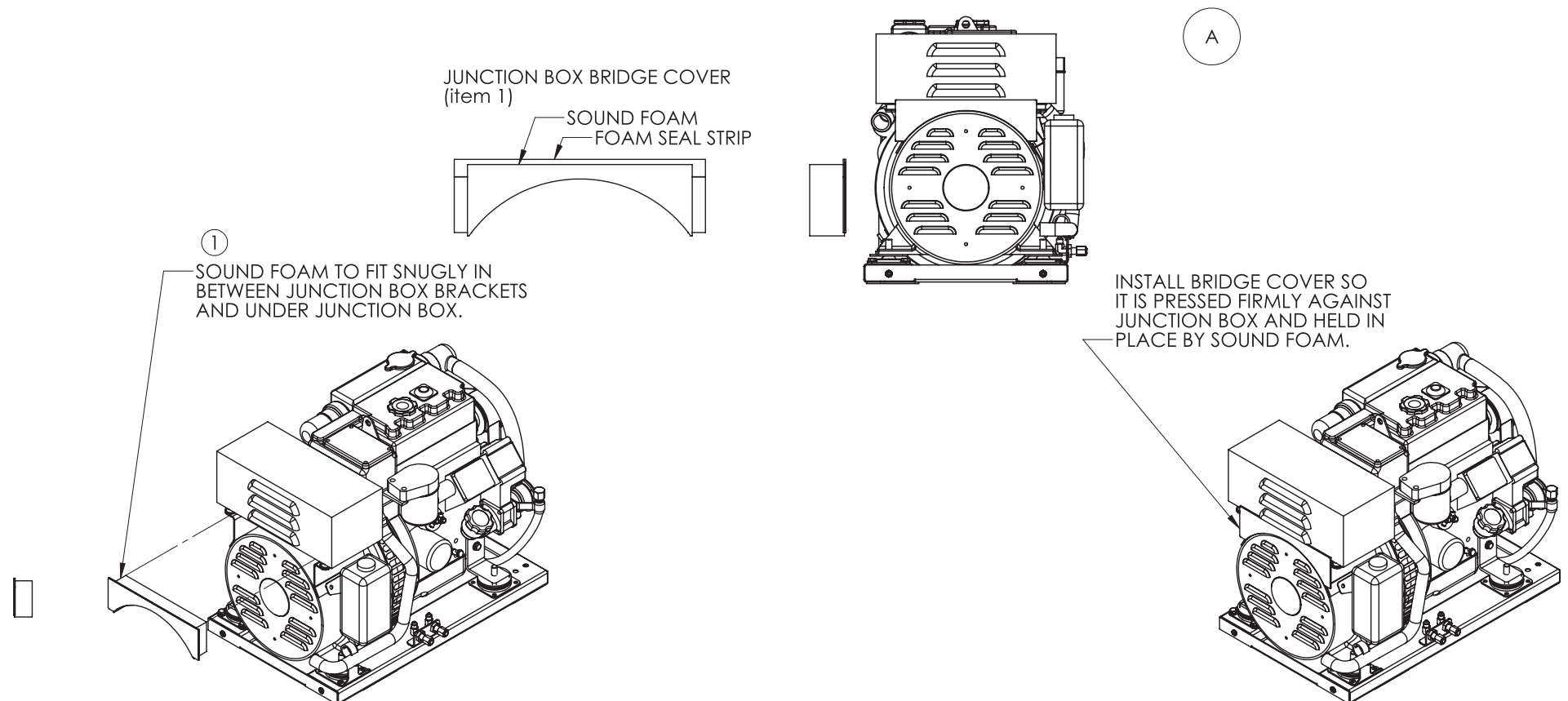
PRIOR TO ASSEMBLY, INSPECT ALL COMPONENTS FOR DAMAGE. REPORT ANY DAMAGE TO THE SHIPPING COMPANY. CHECK THE PACKING LIST AT THE BACK OF THIS MANUAL TO BE SURE THAT ALL PARTS ARE INCLUDED.

NOTE: WHILE THE M673L3/LD3 GENERATOR SET CONTAINS A SINGLE POINT LIFTING EYE, THE GENERATOR MAY STILL BE EQUIPPED WITH ORIGINAL FACTORY LIFTING POINTS. LOOSEN AND ROTATE ANY EXCESS LIFTING POINTS UNTIL THEY ARE BELOW THE HIGHEST POINT ON THE ENGINE. RETIGHTEN BOLTS TO RETAIN.

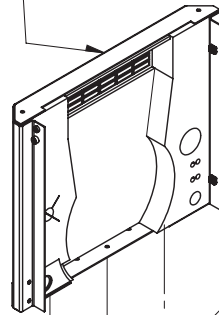
SELECT A MOUNTING LOCATION IN ACCORDANCE WITH THE GUIDELINES IN INSTALLATION MANUAL IM1000 (INCLUDED WITH GENSET, OR AVAILABLE FOR DOWNLOAD AT WWW.NORTHERN-LIGHTS.COM). THE GENERATOR SET MUST TYPICALLY BE MOUNTED ON A RIGID, FLAT SURFACE ABOVE A STRONG SURFACE, SUCH AS THE VESSEL'S STRINGERS, TO MINIMIZE VIBRATION TRANSFERENCE TO THE HULL.

NOTE THAT THE 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 ACCESS TO MAINTENANCE POINTS. INSTALL THE GENERATOR SET IN THE VESSEL AS NEAR TO A LEVEL ATTITUDE AS POSSIBLE. ENSURE THAT THE ENCLOSURE'S LEFT HAND SIDE AND REAR ARE AT RECOMMENDED DISTANCES FROM THE VESSEL'S BULKHEAD (6 INCH RECOMMENDED, 4 INCH MINIMUM.)

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



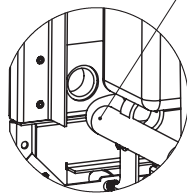
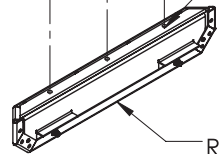
REAR PANEL
(item 2)



②

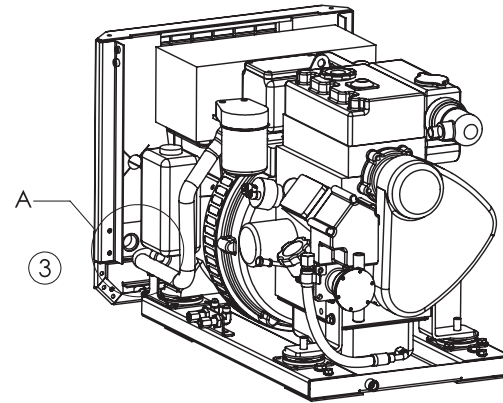
MOUNT REAR PANEL TO
REAR LOWER VALENCE
WITH 1/4-20" HEX HEAD
CAP SCREW (item 3) QTY: 3
1/4" EXTERNAL STAR WASHER
(item 4) QTY: 3

REAR LOWER VALENCE
(item 5)



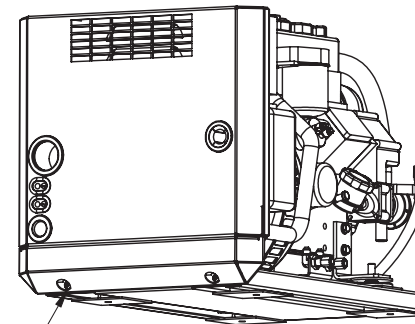
DETAIL A

VERIFY THAT SNORKLE HOSE
ALIGNS WITH SNORKLE PORT.
FEED HOSE UNTIL THE BEND IS
THROUGH THE SNORKLE PORT.



A

③



④

WITH REAR PANEL IN PLACE, MOUNT
REAR LOWER VALENCE TO BASE FRAME
WITH M8 x 12 (item 6). QTY: 2, TIGHTEN
WITH HAND TOOLS ONLY. USE 5mm HEX
WRENCH.

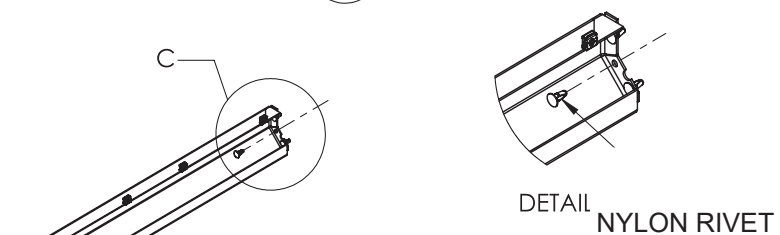
ON THE REAR PANEL, NOTE THE SMALL INTAKE HOLE IN THE VICINITY OF THE INTAKE SNORKEL. GUIDE THE HOSE SO THAT IT IS INSERTED INTO THE PANEL HOLE, ENSURING THAT THE HOSE DOES NOT GO SO FAR INTO THE REAR PANEL THAT THE HOSE END GETS BLOCKED.

MAKE SURE THAT THE HOSE IS NOT KINKED OR BENT IN SUCH A WAY TO RESTRICT THE ENGINE'S INTAKE AIR FLOW. THIS ARRANGEMENT IS DESIGNED TO ALLOW THE HOSE TO FOLLOW ITS NATURAL PATH WHEN PROPERLY INSTALLED INTO THE REAR PANEL. SOME ADJUSTMENT IS POSSIBLE BY LOOSENING EITHER BOLT ON THE SNORKEL HOSE'S SUPPORTING BRACKET.

NOTE: FOR SOUND SHIELD WIRE HARNESS INSTALLATION, SEE PAGE 6

NOTE: FOR GENERATOR CONNECTION TO THE VESSEL, SEE PAGE 11

C



BOTTOM NON-SERVICE
SIDE VALENCE
(item 6)

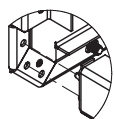
FRONT LOWER VALENCE
(item 9)

BOTTOM SERVICE
SIDE VALENCE
(item 7)

ALIGN PINS IN BOTH LOWER SIDE VALENCES (ITEMS #6 & 7) TO CORRESPONDING HOLES IN FRONT LOWER VALENCE (ITEM #9) AND PUSH TOGETHER. SECURE WITH M8 CAPSCREW, LOCKWASHER AND FLATWASHER (ITEMS #17, 18 & 19) TO THE TOP OF THE BASE FRAME. IF NYLON RIVETS DISPLACE, USE A LONG SCREWDRIVER WITH WIDE FLAT BLADE AGAINST RIVET HEAD AND PUSH BACK INTO POSITION.

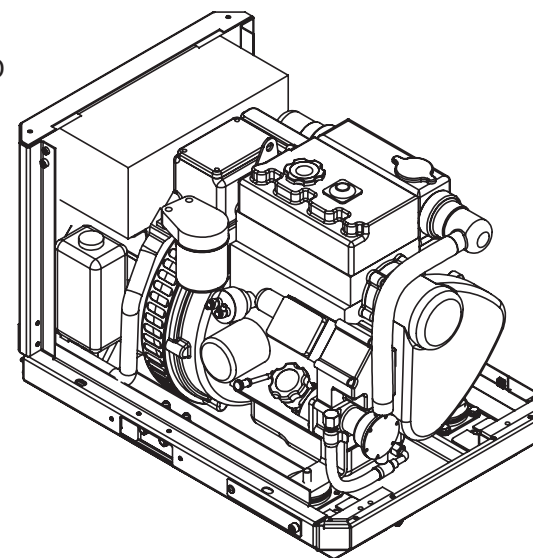
5

B



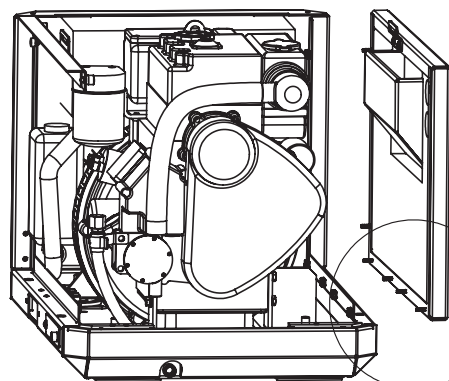
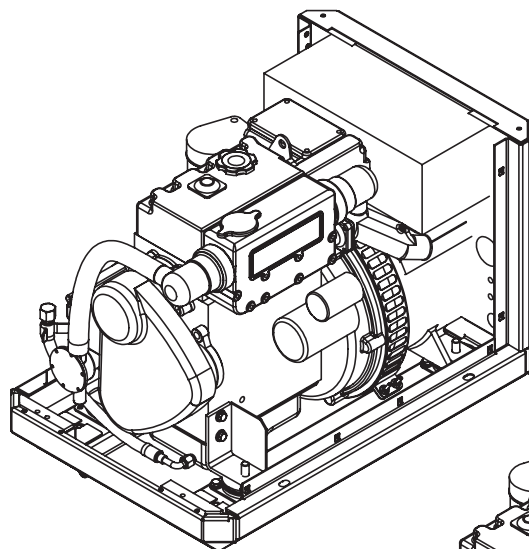
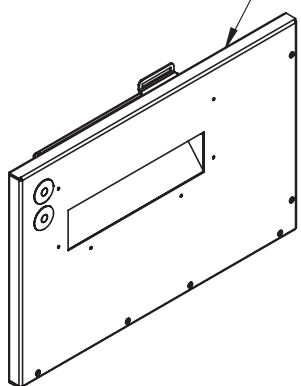
DETAIL B

6



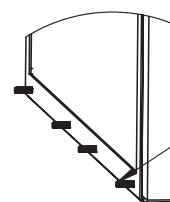
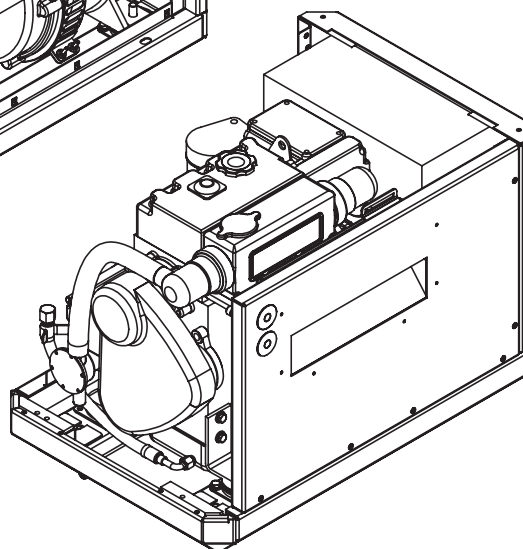
D

NON-SERVICE SIDE PANEL
(item 10)



D

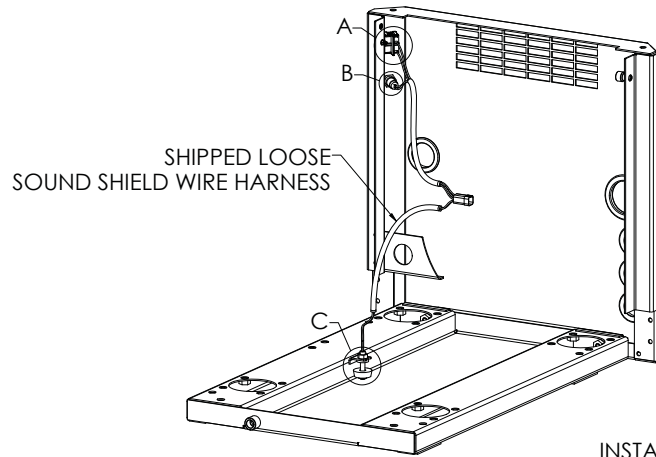
7



ALIGN THE CAPTIVE 10-32 MACHINE SCREWS
ON THE PANEL WITH THE CAGED NUTS LOCATED
ON THE BOTTOM SIDE VALENCE BY HAND
INITIALLY. TIGHTEN WITH HAND TOOLS. USE OF
POWER TOOLS MAY CAUSE DAMAGE TO
HARDWARE.

DETAIL D SCALE 1 : 5

SOUND SHIELD WIRE HARNESS INSTALLATION

**STEP 1.**

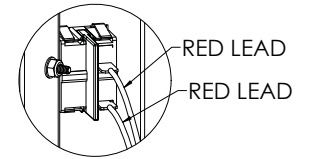
CONNECT SOUND SHIELD WIRE HARNESS TO EMERGENCY STOP SWITCH AND LEAK ALARM LIGHT AS SHOWN IN DETAIL A AND DETAIL B.

NOTES:

ON EARLIER PRODUCTION, E-STOP SWITCH IS LOCATED DIFFERENTLY AND LEAK ALARM HOLE NEEDS TO BE ADDED. SEE NEXT PAGE FOR DETAIL DIMENSIONS.

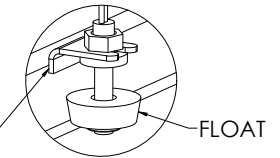
STEP 2.

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

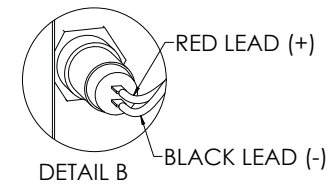
PRE-INSTALLED
EMERGENCY STOP SWITCH

DETAIL A

FLOAT SWITCH

BASE FRAME
FLOAT SWITCH BRACKET

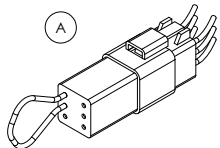
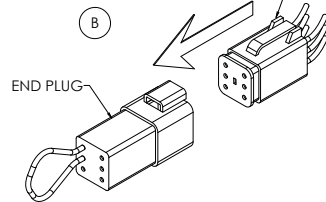
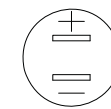
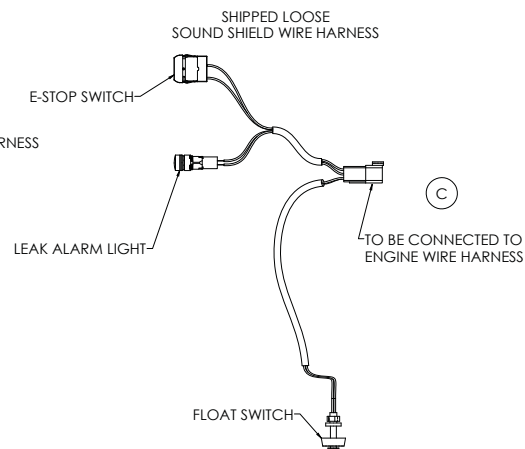
DETAIL C

PRE-INSTALLED
LEAK ALARM LIGHT

DETAIL B

STEP 3.

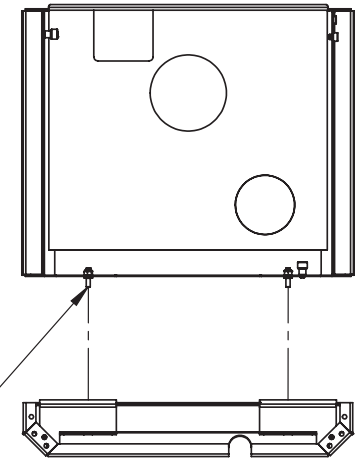
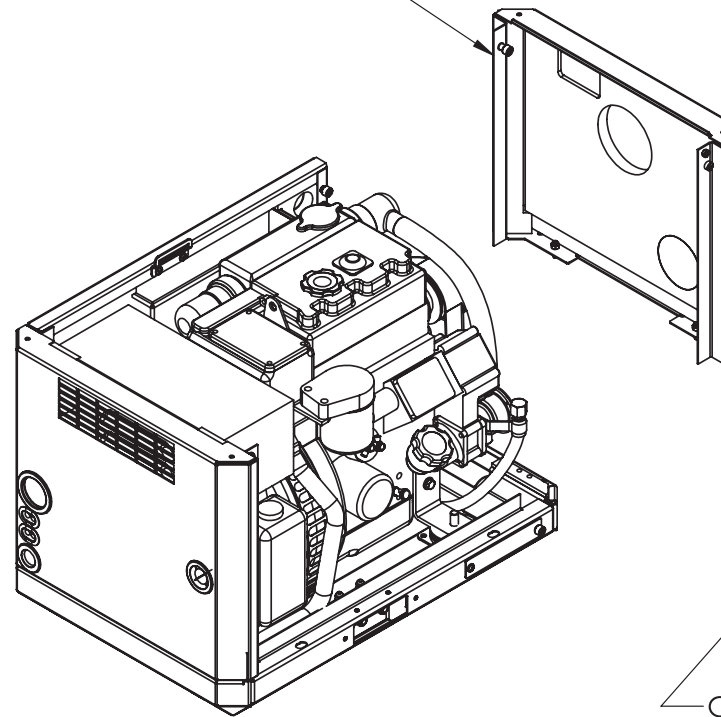
A. LOCATE AND IDENTIFY THE ENGINE WIRE HARNESS.
B. REMOVE THE ENGINE WIRE HARNESS PLUG, AND
C. CONNECT E-STOP /LEAK HARNESS TO THE ENGINE WIRE HARNESS.

STANDARD ENGINE HARNESS CONNECTOR
WITH PRE-INSTALLED END PLUGENGINE HARNESS CONNECTOR
WITH THE END PLUG REMOVED

NOTES:
LEAK ALARM LIGHT WILL NOT
OPERATE IF POLARITY IS SWITCH.
APPEARANCE MAY VARY.

SHIPPED LOOSE
SOUND SHIELD WIRE HARNESS

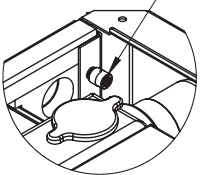
FRONT PANEL
(item 11)



GUIDE LOCATING PINS ON FRONT
PANEL INTO MTG HOLES IN FRONT
LOWER VALENCE

E

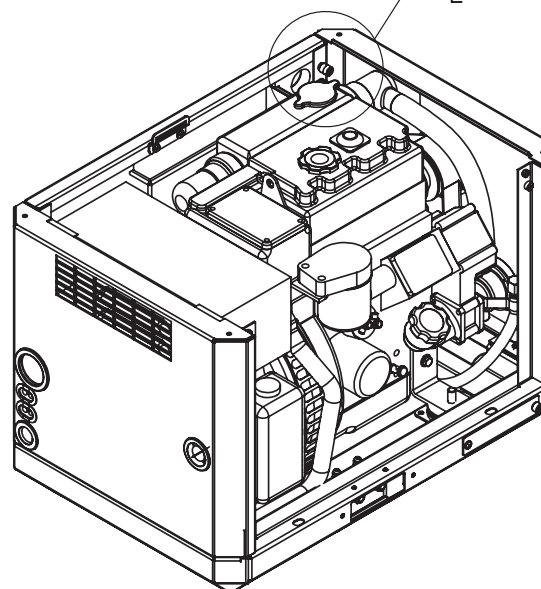
ALIGN CAPTIVE THUMB SCREWS ON FRONT PANEL
WITH CAGED NUTS LOCATED ON NON-SERVICE
SIDE PANEL AND BOTTOM FRONT VALENCE AND
HAND TIGHTEN ONLY.



DETAIL E

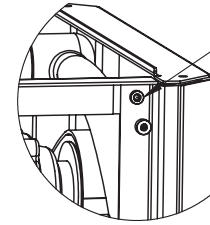
8

E



F

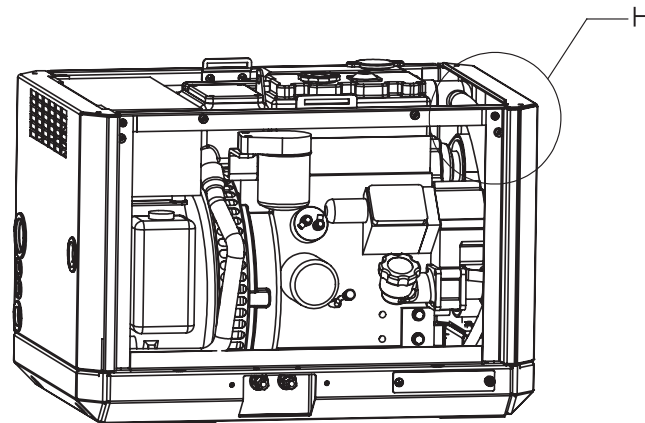
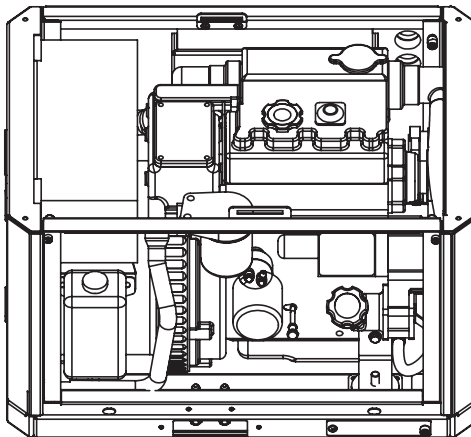
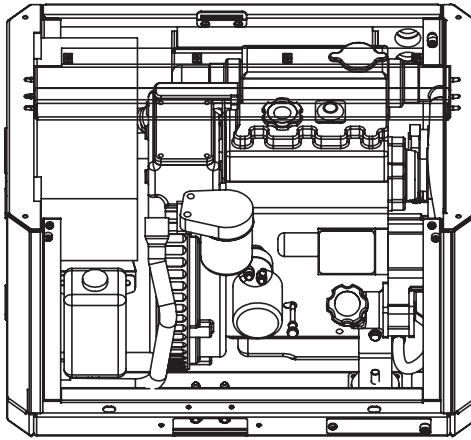
SEAL BAR
(item 12)



-ALIGN SEAL BAR SO THAT CAPTIVE
THUMB SCREWS ENGAGE WITH
PRESS NUTS LOCATED IN FRONT
AND REAR PANELS
-HAND TIGHTEN ONLY

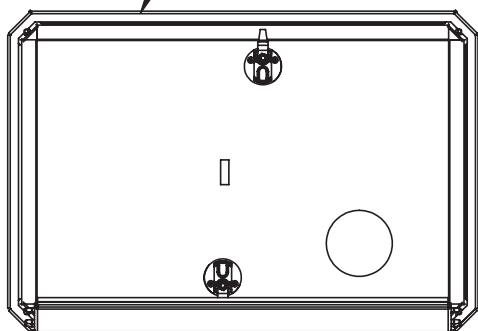
9

DETAIL H SCALE 1 : 5



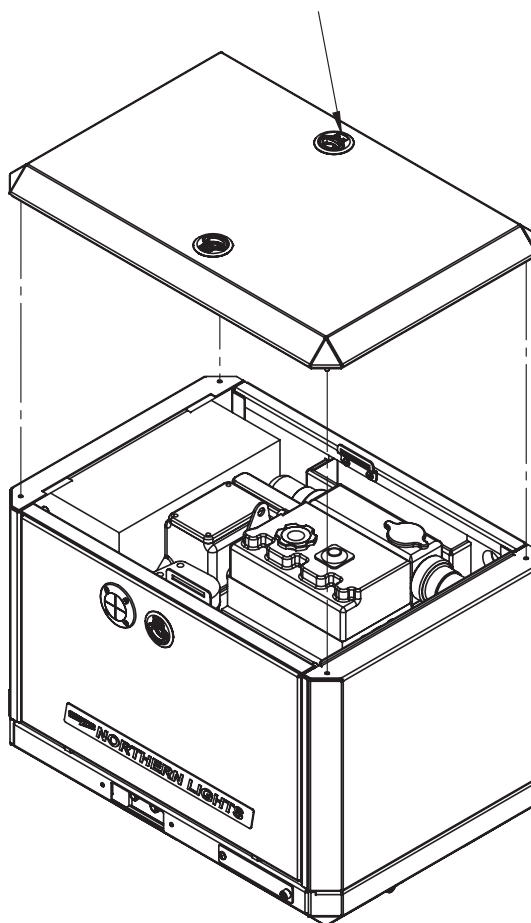
G

TOP PANEL
(item 13)



OPEN LATCHES AND TURN LEVER 90°
BEFORE MOUNTING TO SOUND SHIELD

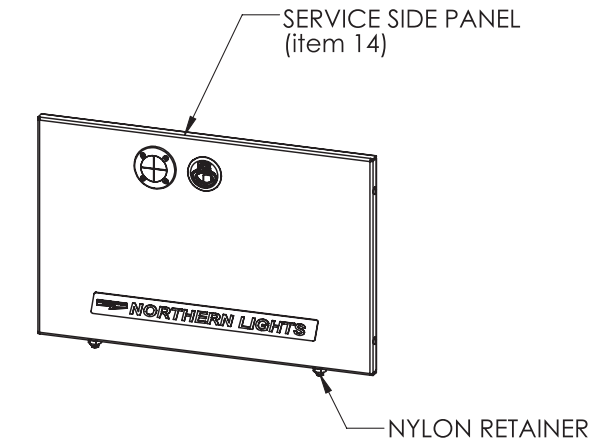
10



11

- LOWER TOP PANEL ONTO SOUND SHIELD.
- ENSURE THAT ALL FOUR (4) LOCATING PINS ENGAGE WITH MATING HOLES.
- TURN LEVERS BACK TO THEIR STARTING POSITION.
- MAKE SURE THERE IS A TIGHT SEAL BETWEEN TOP PANEL AND ENCLOSURE AND TWIST LATCH TO CLOSE.

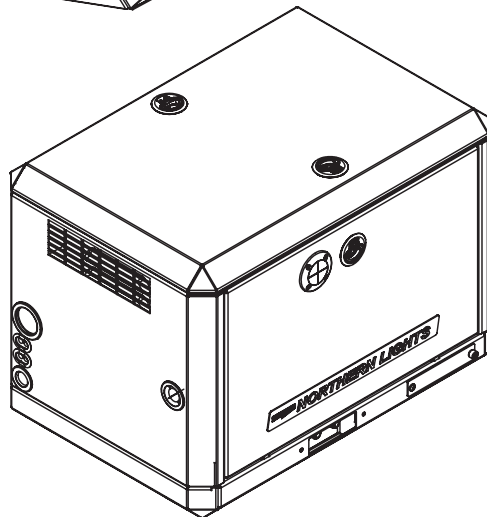
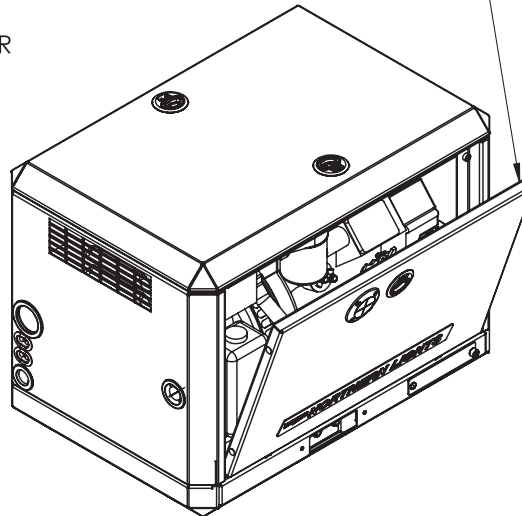
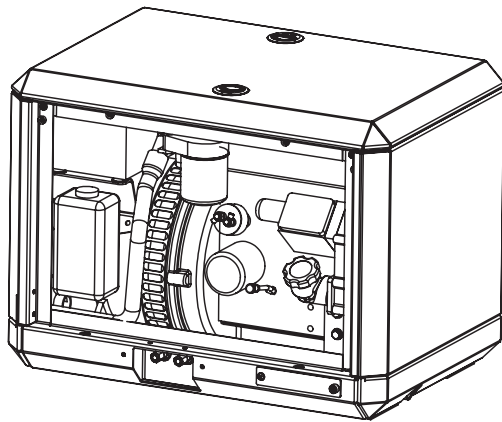
NOTE: SEE PAGE 14 FOR
RING LATCH ADJUSTMENT
PROCEDURE



H

⑫

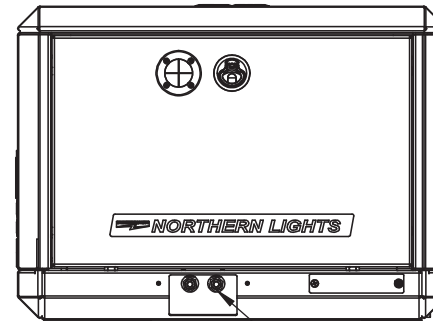
-WITH THE LATCH IN THE OPEN POSITION
 -INSERT NYLON RETAINERS LOCATED ON THE
 BOTTOM OF THE FWD SERVICE PANEL INTO
 THE OBOUND MOUNTING HOLES ON THE
 BOTTOM SIDE VALENCE.
 -PUSH TOP OF PANEL SNUGLY INTO PLACE
 AND TWIST LATCH TO CLOSE.



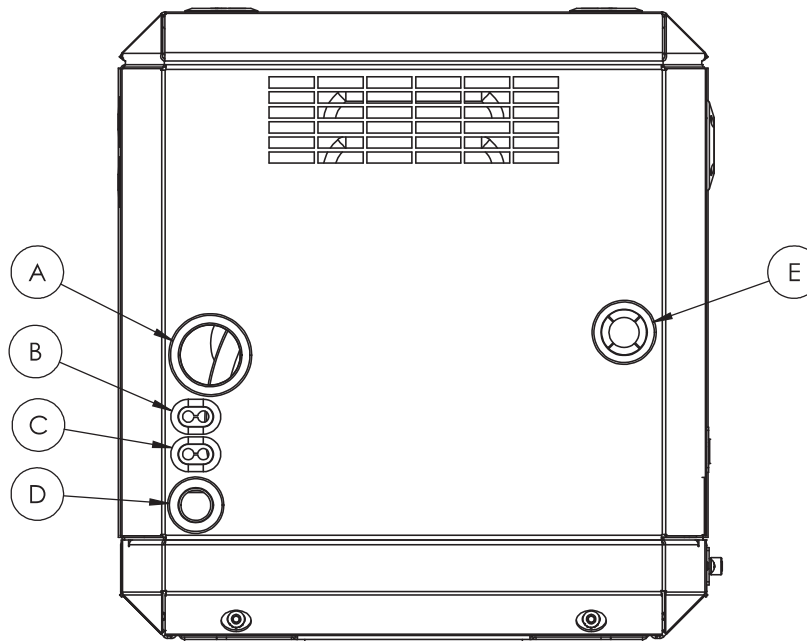
I

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

- a. Connect the genset 1-1/2" exhaust outlet to the exhaust system of the vessel.
- b. Connect the AC output leads from the generator to the vessel's power distribution panel. Pass the two leads through the second to top hole on the left side of the rear panel.
- c. Connect the battery leads to the generator set passing the two leads through the second hole above the bottom left side on the rear panel.
- d. Connect the sea water pump to the vessel's water inlet. Push 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.
- e. Connect the DC control harness to the engine harness plug. Pass the harness and plug through the hole at the mid-section of the right side of the rear panel.
- f. Connect the vessel's fuel lines using Coast Guard approved rubber fuel hoses to the fuel manifold located on the bottom service side of the sound shield. The forward fitting is 5/16" 37T JIC fuel suction, and the aft fitting is 5/16" 37T JIC fuel return.



F



FOR APPLICATIONS WITH A SIPHON BREAK
(if siphon break is used, must order s-bend kit 27-71006)

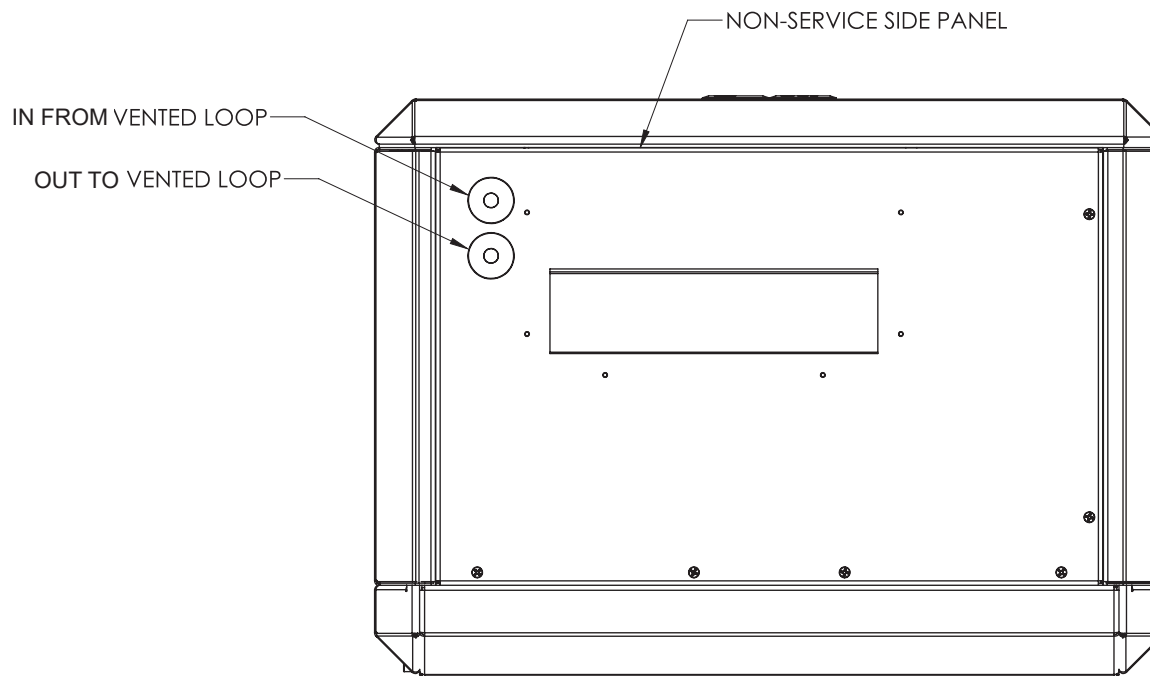
Note the pre-installed penetration point in the upper left corner of the non-service side panel. Reference the plumbing diagram in the mounting and exhaust sections of the IM1000 installation manual.

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

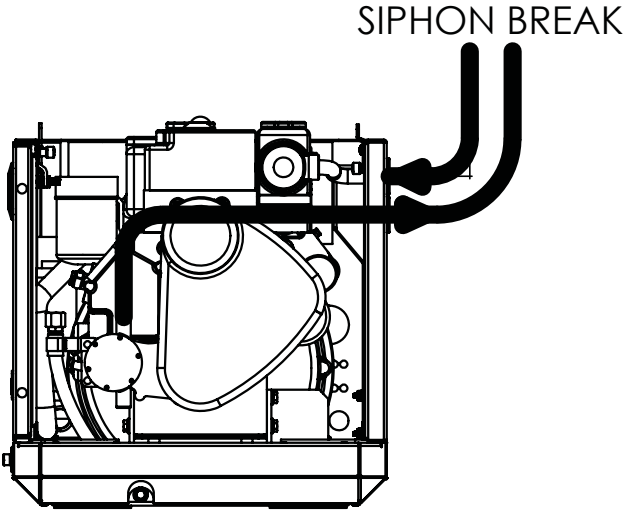
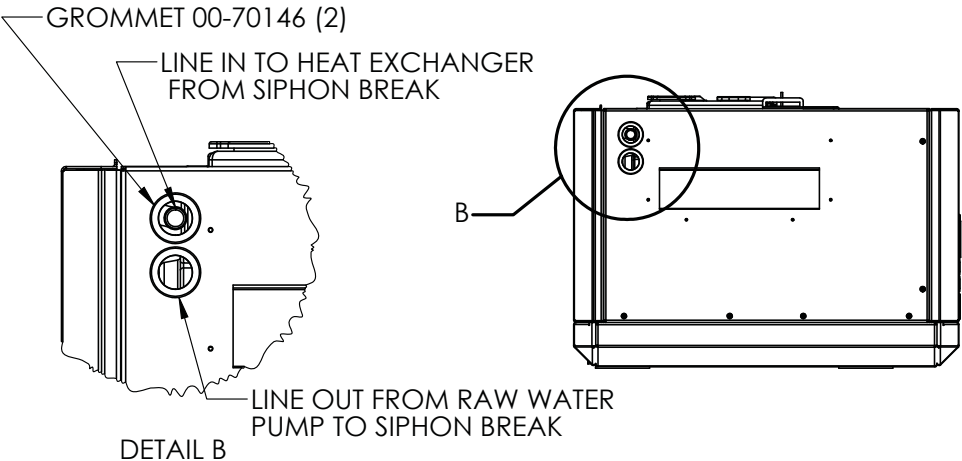
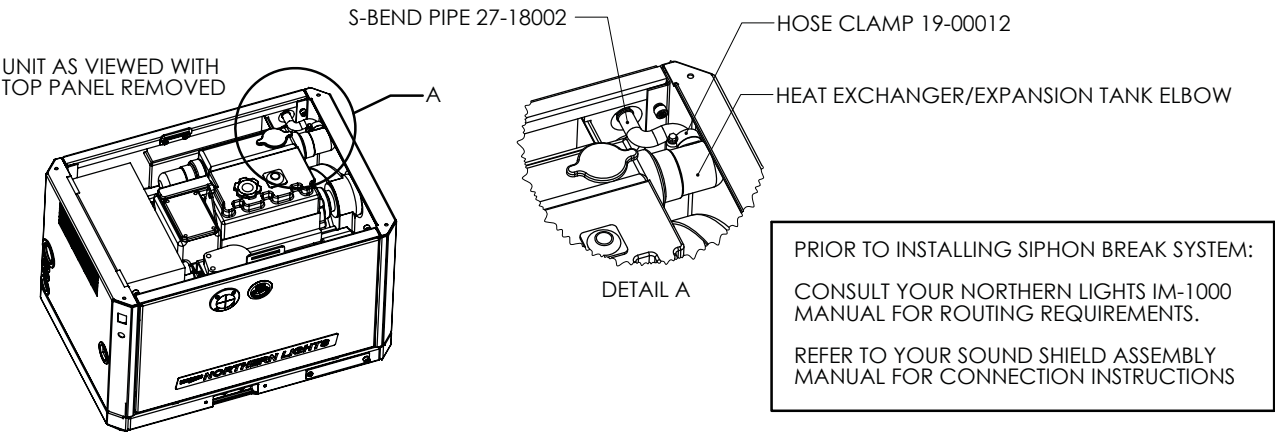
CAUTION: GENERATOR SETS WITH WET EXHAUST THAT ARE INSTALLED NEAR OR BELOW THE VESSEL'S WATER LINE MUST USE A SIPHON BREAK TO PREVENT BACKFLOW OR WATER INTO THE ENGINE. THIS BACKFLOW CAN RUIN AN ENGINE AND POSSIBLY SINK THE VESSEL.

- 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 the IM1000 Installation Manual included with the generator set.

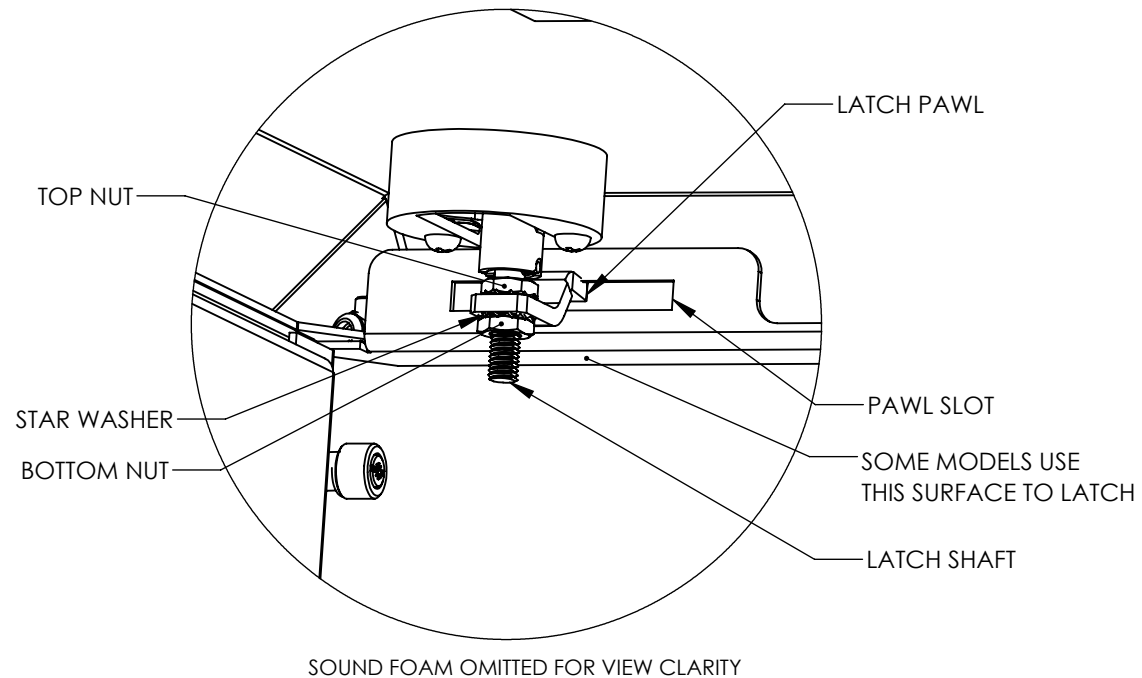
Start the generator set and run under load to check for leaks of fuel, water, or exhaust gas.



SIPHON BREAK "S"-BEND PIPE FITMENT



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.

M673L3/LD3 GEM SERIES SOUND ENCLOSURE PACKING LIST

| ITEM | DESCRIPTION | NLI P/N | QTY | NOTES | PACKED |
|----------------------------------------------------|-----------------------------------------|----------|-----|-----------|--------------------------|
| SOUND SHIELD PANELS: | | | | | |
| 1 | JUNCTION BOX BRIDGE COVER ASSEMBLY | 06-78029 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 11 | FRONT PANEL ASSEMBLY | 06-78002 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 9 | FRONT LOWER VALENCE ASSEMBLY | 06-78015 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 6 | LOWER NON-SERVICE SIDE VALENCE ASSEMBLY | 06-78008 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 10 | NON-SERVICE SIDE PANEL ASSEMBLY | 06-78012 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 2 | REAR PANEL ASSEMBLY | 06-78003 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 5 | REAR LOWER VALENCE ASSEMBLY | 06-78018 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 12 | SEAL BAR ASSEMBLY | 06-78020 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 13 | TOP PANEL ASSEMBLY | 06-78006 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 14 | SERVICE SIDE PANEL ASSEMBLY | 06-78010 | 1 | ASSEMBLED | <input type="checkbox"/> |
| 7 | LOWER SERVICE SIDE VALENCE ASSEMBLY | 06-78030 | 1 | ASSEMBLED | <input type="checkbox"/> |
| HARDWARE BOX (CONSISTS OF THE FOLLOWING PARTS): | | | | | |
| 3 | 1/4-20 x 3/4" HEX HEAD CAPSCREW, S/S | 12-30111 | 3 | LOOSE | <input type="checkbox"/> |
| 4 | 1/4" EXTERNAL STAR WASHER, S/S | 15-09103 | 3 | LOOSE | <input type="checkbox"/> |
| 8 | NYLON BUMPER/RIVET | 11-467 | 12 | LOOSE | <input type="checkbox"/> |
| 15 | GROMMET 1-1/8" ID x 1-7/8" OD | 00-70146 | 2 | LOOSE | <input type="checkbox"/> |
| 16 | M8 x 12 18-8 S/S BUTTON HEAD SCREW | 12-70013 | 2 | LOOSE | <input type="checkbox"/> |
| 17 | M8 x 20 18-8, S/S HEX HEAD CAPSCREW | 12-00776 | 2 | LOOSE | <input type="checkbox"/> |
| 18 | M8 FLATWASHER, S/S | 15-11000 | 2 | LOOSE | <input type="checkbox"/> |
| 19 | M8 LOCKWASHER, S/S | 15-00705 | 2 | LOOSE | <input type="checkbox"/> |
| 20 | WIRE HARNESS KIT | 22-72026 | 1 | LOOSE | <input type="checkbox"/> |

Packed By: _____ Date: _____