

INCH-POUND

MIL-DTL-32235/4

30 March 2021

W/Change 01 31 March 23 ES23-016 (DSCP-SS-23-00300)

DETAIL SPECIFICATION SHEET

UNITIZED GROUP RATION-EXPRESS (UGR-E) HEATER MODULE: ASSEMBLED

This specification is approved for use by all
Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-32235.

CLASSIFICATION

Heater modules are of the following styles:

- Style A - Three sub-units plus a Boil-In-Bag (BIB) module
- Style B - Four sub-units

REQUIREMENTS

I. Heater module.

The heater module shall consist of a heater module box containing three or four heating trays, activation fluid units, heaters, polymeric food trays or Institutional Size Pouches (ISP) and the activation mechanisms/pull tabs. Sub-assemblies are allowed. When applicable, there shall also be a Boil-In-Bag (BIB) module. The components and sub-units shall be assembled and the activation mechanisms/pull tabs shall be connected to the three or four activation fluid units and to the three or four heaters. The sub-units and the BIB module (when applicable) shall be placed into the heater module box.

A. Heater.

The heater shall be constructed of materials that, when activated by a fluid, shall initiate and propagate an exothermic reaction suitable for use with food. This reaction shall generate adequate heat to completely cook the food when applicable, or heat the food to a safe food serving temperature. No toxic gas, liquid or solid by-products are desirable. If toxic by-products are produced, they shall be of the least severity and smallest amount possible while

allowing for adequate heating and ensuring operator and consumer safety. When a low hydrogen generating heater is used, it shall generate less than 30 liters of hydrogen in 60 minutes. The heater material shall be evenly distributed and completely sealed within the scrim matrix of the heater to minimize the release of materials, and facilitate direct in-place activation of the heater materials. The heating rate shall be optimized to minimize the time required to heat the food, yet not cause excessive foaming or uncontrolled release of reaction by-products. The heater and barrier material shall not melt, deform or degrade during heating.

The heater is activated by the addition of a fluid that shall fully activate the heater material. The non-woven porous polymeric scrim shall be sealed and sized to accommodate proper fit and function of the heater module. Each heater (heater elements in a matrix) shall be correctly and legibly labeled in accordance with MIL-DTL-32235. In addition, the following statement shall be labeled on the barrier pouch and all boxes, as applicable:

FLAMELESS HEATER – DO NOT CONSUME

NOTE: Any hazard markings required for Occupational Safety and Health Administration (OSHA), U.S. Environmental Protection Agency (USEPA) and U.S. Department of Transportation (USDOT) compliance are to be labeled on the barrier pouch and all boxes, as applicable.

The heater shall be placed in the bottom of the heating tray, covered and hermetically sealed in place with a layer of barrier material to the bottom of the tray with a peelable seal. The barrier material shall be scored (laser or mechanical) and shall be attached to a pull strip to enable activation.

B. Activation fluid unit.

The activation fluid unit consisting of the pouch containing the activation fluid shall be made of material equivalent to Class 1 of MIL-PRF-131. Alternate activation fluid pouch materials and designs shall be permitted with approval from Combat Capabilities Development Command (DEVCOM) Soldier Center. The pouch shall be manufactured in accordance with the dimensions and design shown in Figure 1. Tolerances for the pouch dimensions shall be $\pm 1/8$ inches. Sufficient length for the center strip and careful assembly is critical to ensuring that the pouch is not inadvertently torn open during assembly and subsequent transport and storage. In Figure 1, the solid lines shown at 1 inch off center at the base of the strip are cut lines. The 1 inch center strip section of the pouch shall be constructed with additional material for reinforcement. The center section of the pouch shall be scored (laser or mechanical) to provide easy tear properties without degrading the strength and barrier properties of the pouch. The pouch shall be filled with 1.5 percent saline (water and sodium chloride) solution, or as specified by the heater manufacturer with approval from Combat Capabilities Development Command (DEVCOM) Soldier Center. The volume of fluid in the pouch, when combined with the heater, shall be adequate to initiate and propagate

the exothermic reaction. Each activation fluid unit shall be correctly and legibly labeled in accordance with MIL-DTL-32235. In addition, the following statement shall be labeled on the pouch:

ACTIVATION FLUID - DO NOT CONSUME

NOTE: Any hazard markings required for Occupational Safety and Health Administration (OSHA), U.S. Environmental Protection Agency (USEPA) and U.S. Department of Transportation (USDOT) compliance are to be labeled on the activation fluid unit and all boxes, as applicable.

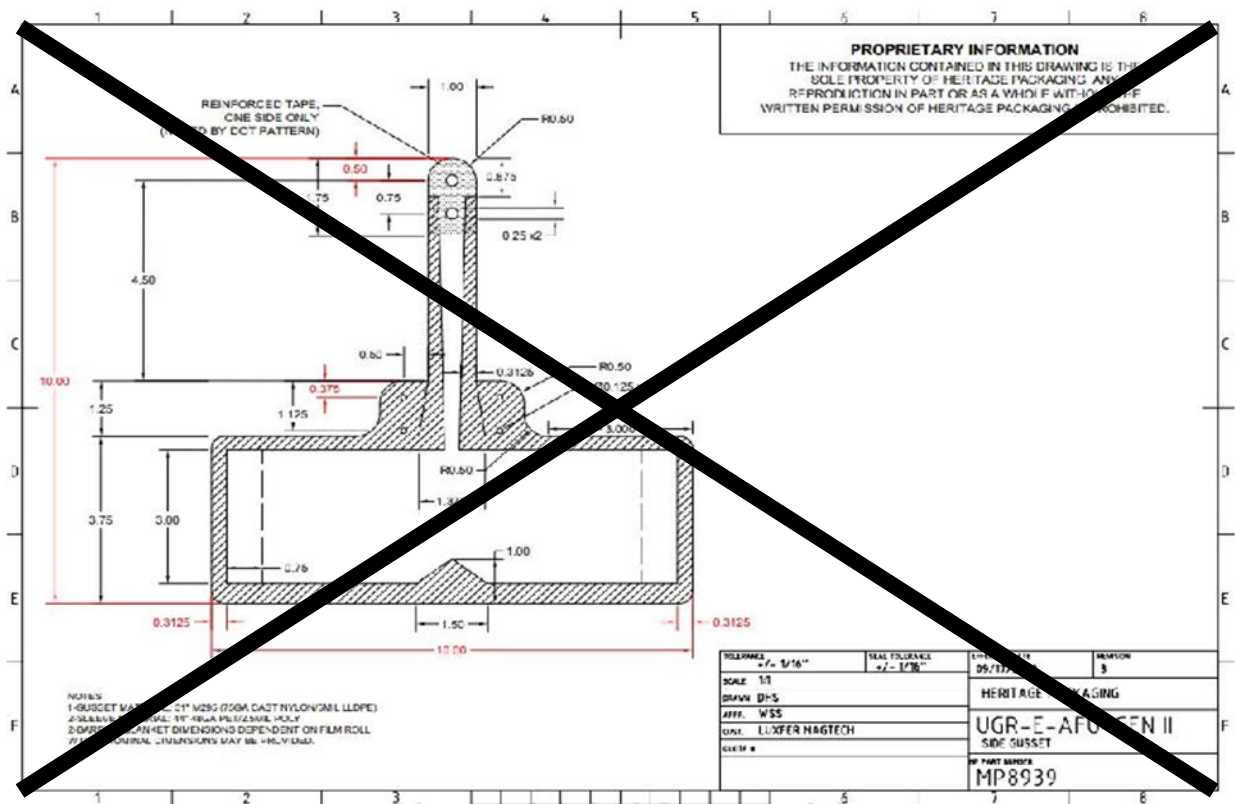


FIGURE 1. Activation fluid unit

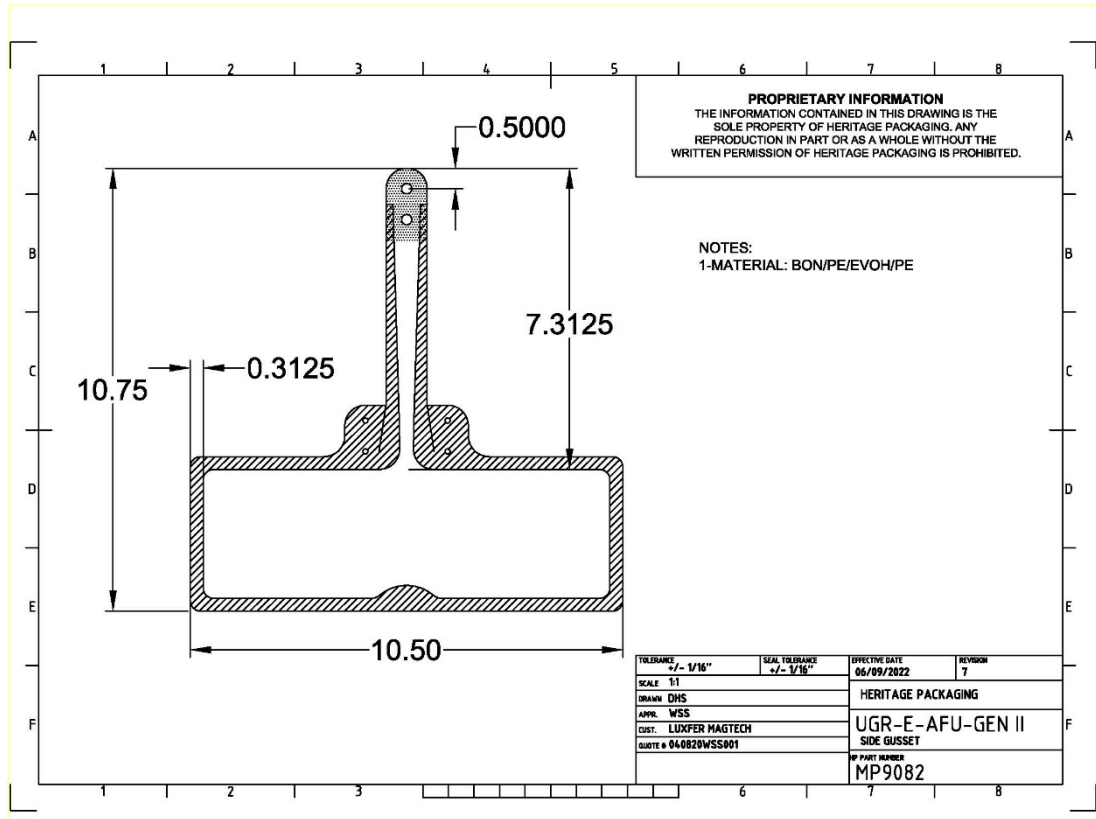


FIGURE 1. Activation fluid unit

C. Heating tray.

The heating tray shall be formed from solid or reinforced fiberboard having a minimum thickness of 0.040 inch. The fiberboard tray shall be constructed to provide a water/saline impermeable inner compartment suitable for containing the heating element and capable of fully supporting the filled/sealed polymeric food tray. The tray shall include a sealed-in heating element and the sealant layer shall consist of at least one aluminum foil (vapor barrier) layer and a high barrier sealable polymeric layer suitable for fully encapsulating the heater to provide extended shelf life to meet the requirements of this specification. The top heater sealant layer must include an extended center leader section that can be securely attached to an activator pull tab to facilitate a tear-away layer, or center section that is fully torn away when the activator tab is pulled for activation (in use). The tray shall be further configured to fully contain the activation fluid unit with a center leader that can be securely attached to a second activator pull tab located outside of the tray end nearest to the activation fluid unit to facilitate a tear-open center section that is fully torn away when the second activator tab is pulled for activation (in use). The heating tray shall consist of two compartments. The smaller compartment serves as a retaining reservoir for the activation

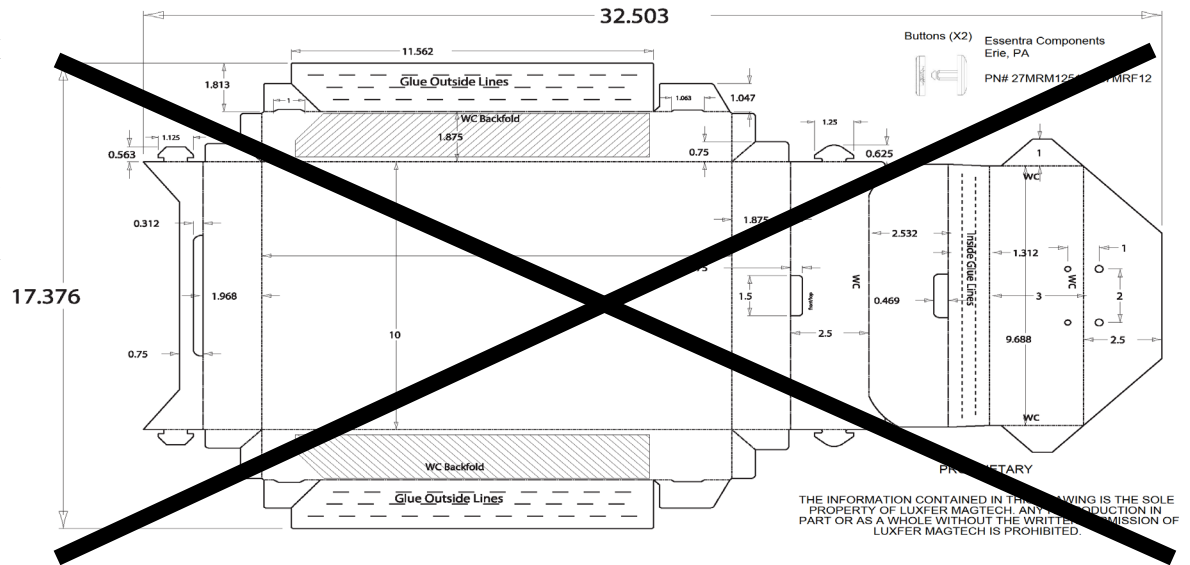


FIGURE 2. Heating tray

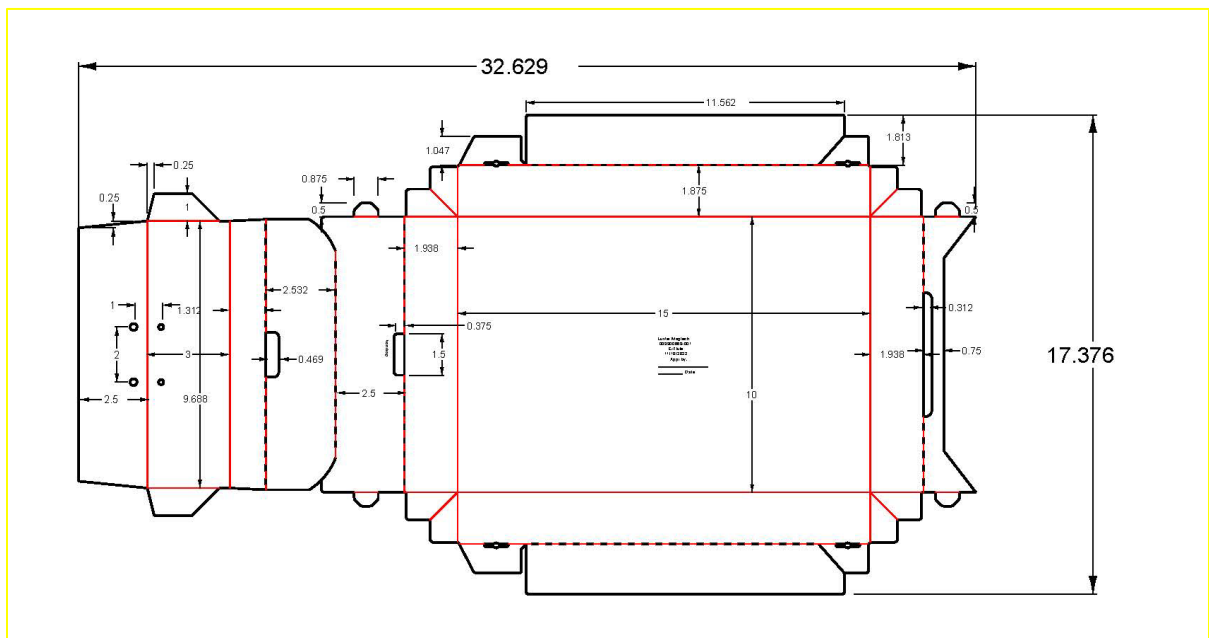
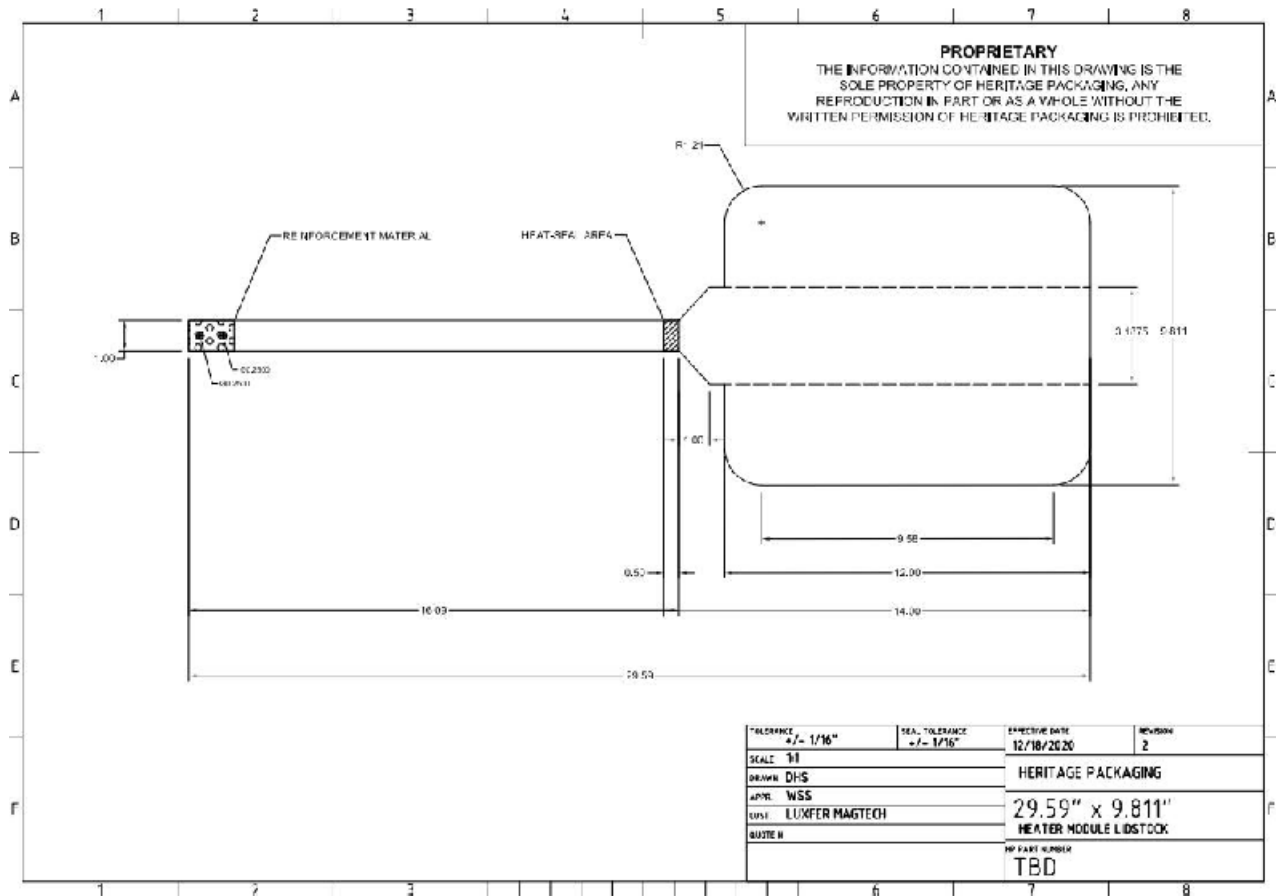


FIGURE 2. Heating tray

FIGURE 3. Heater Seal Lid Stock**D. Pull tabs.**

The pull tabs shall be constructed of a blend of low to medium density polyethylene, copolymer polypropylene, or equivalent material and shall provide high strength characteristics under a wide range of environmental conditions. The material shall withstand temperatures ranging from -20°F to 160°F without fracture or failure. Dimensions of the pull tabs shall be as specified in Figures 4-1 through 4-3.

The pull tabs shall be configured with loading stations to support the three or four tray two-step activation method intended for the heater module. Each station shall be configured to retain the assembled activator strip and withstand a minimum pull force of 75 pounds. For a tab configured like the R16-HCEACTSTRIP-REV-C tab (Figures 4-1 through 4-5), the end of the center strip of the activating fluid unit shall be folded between the retaining holes and the tab inserted through the retaining station(s). The second pull tab shall be assembled to the heater pull strips in a similar configuration.

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Upon completion of the heater module, the three or four center strips of the activation fluid units securely connect to a pull tab, and the three or four pull strips of the packaged heater securely connect to another pull tab. At the time of use, the operator of the heater module pulls the pull tabs to expose the heaters and to tear the activation fluid unit pouches which open and release the saline solution and activate the heaters.

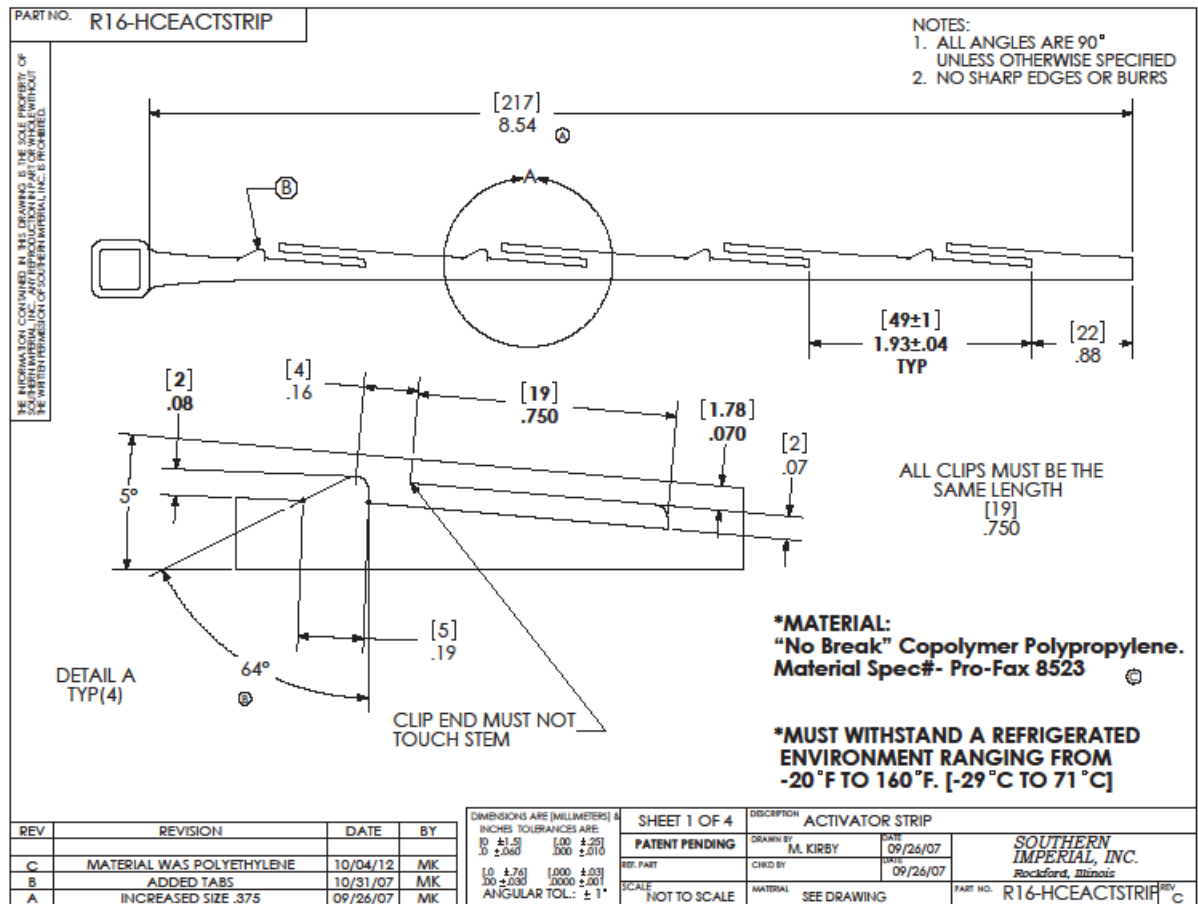


FIGURE 4-1. Pull tab, Center loading design

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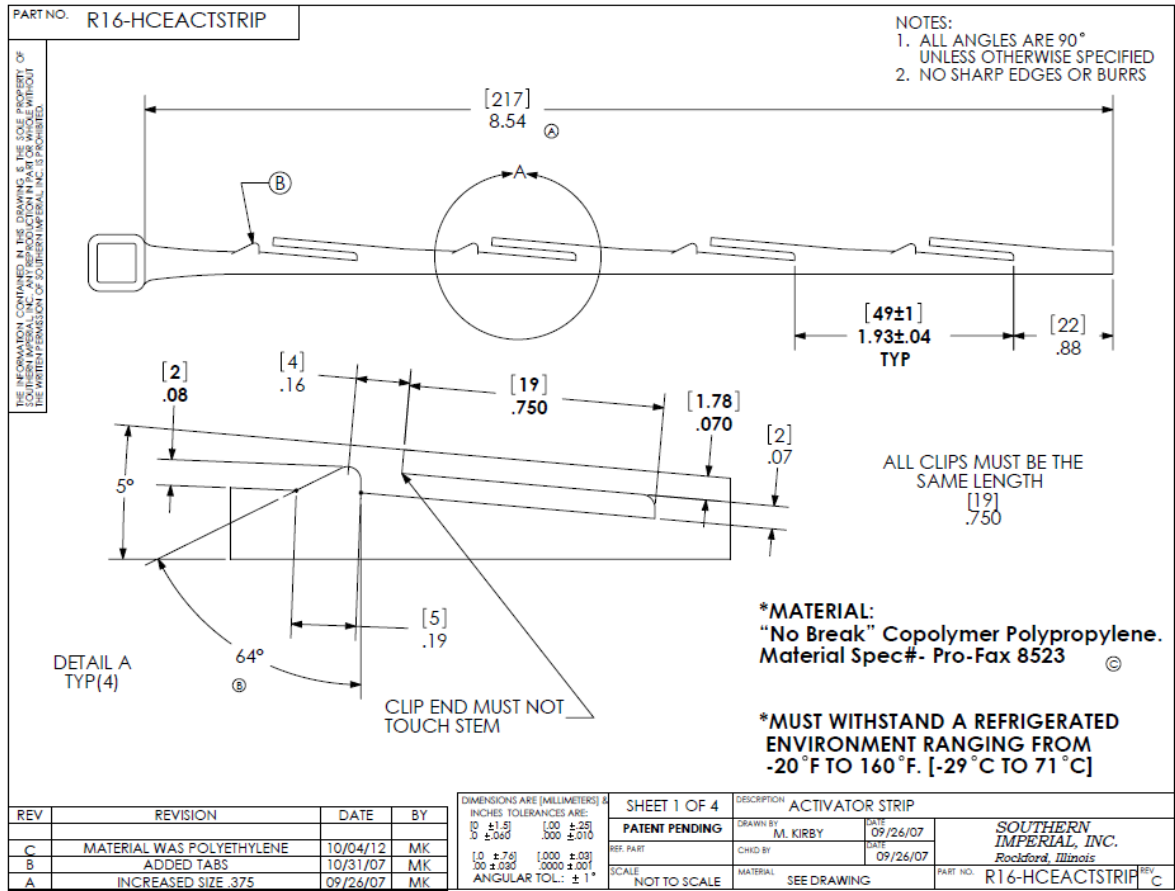


FIGURE 4-2. Pull tab, Center loading design

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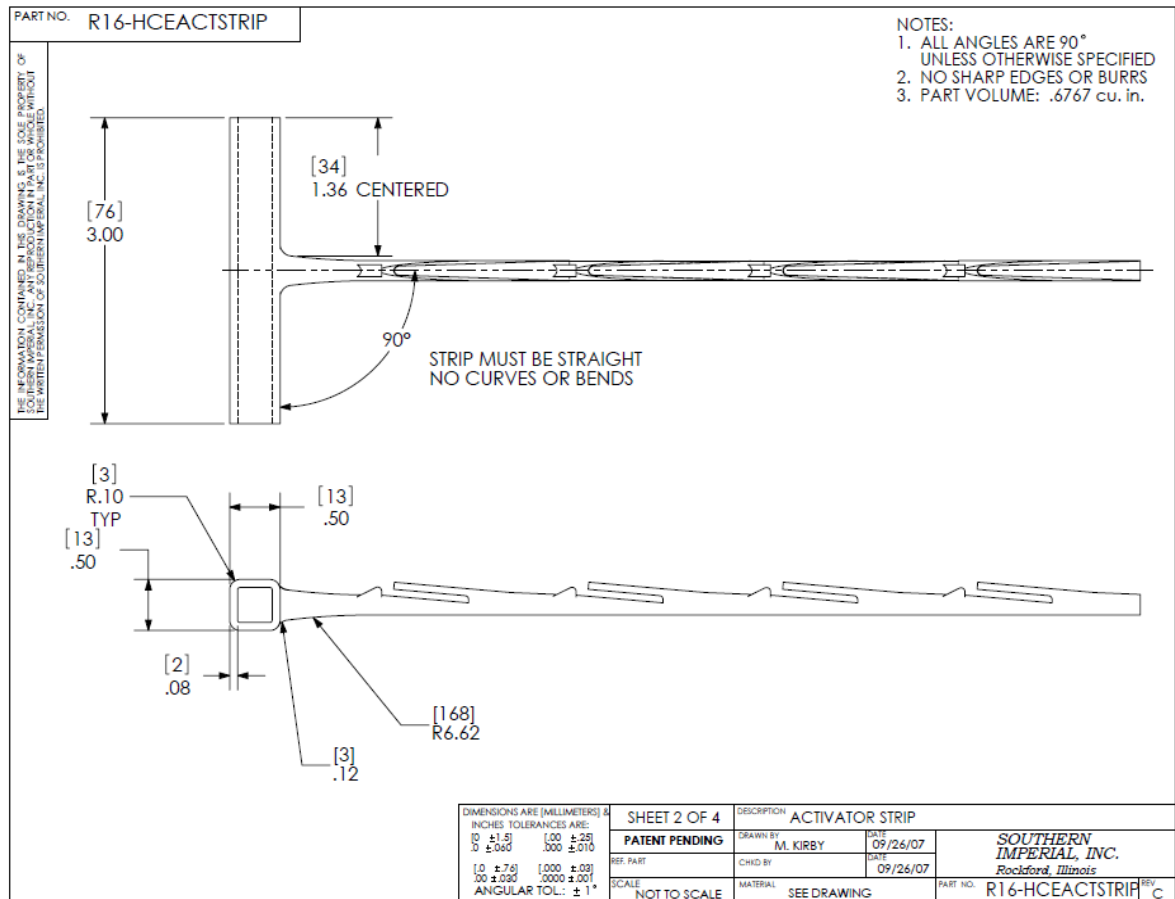


FIGURE 4-3. Pull tab, Center loading design

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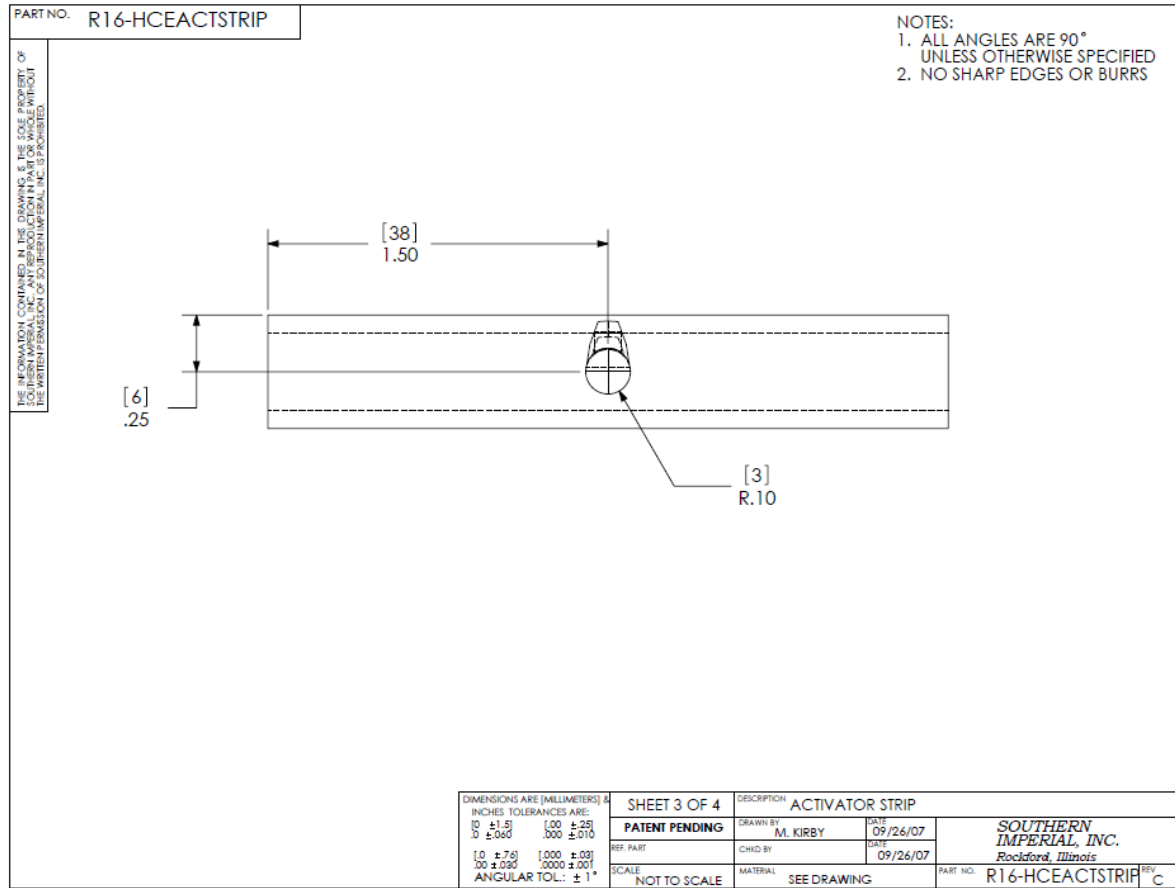
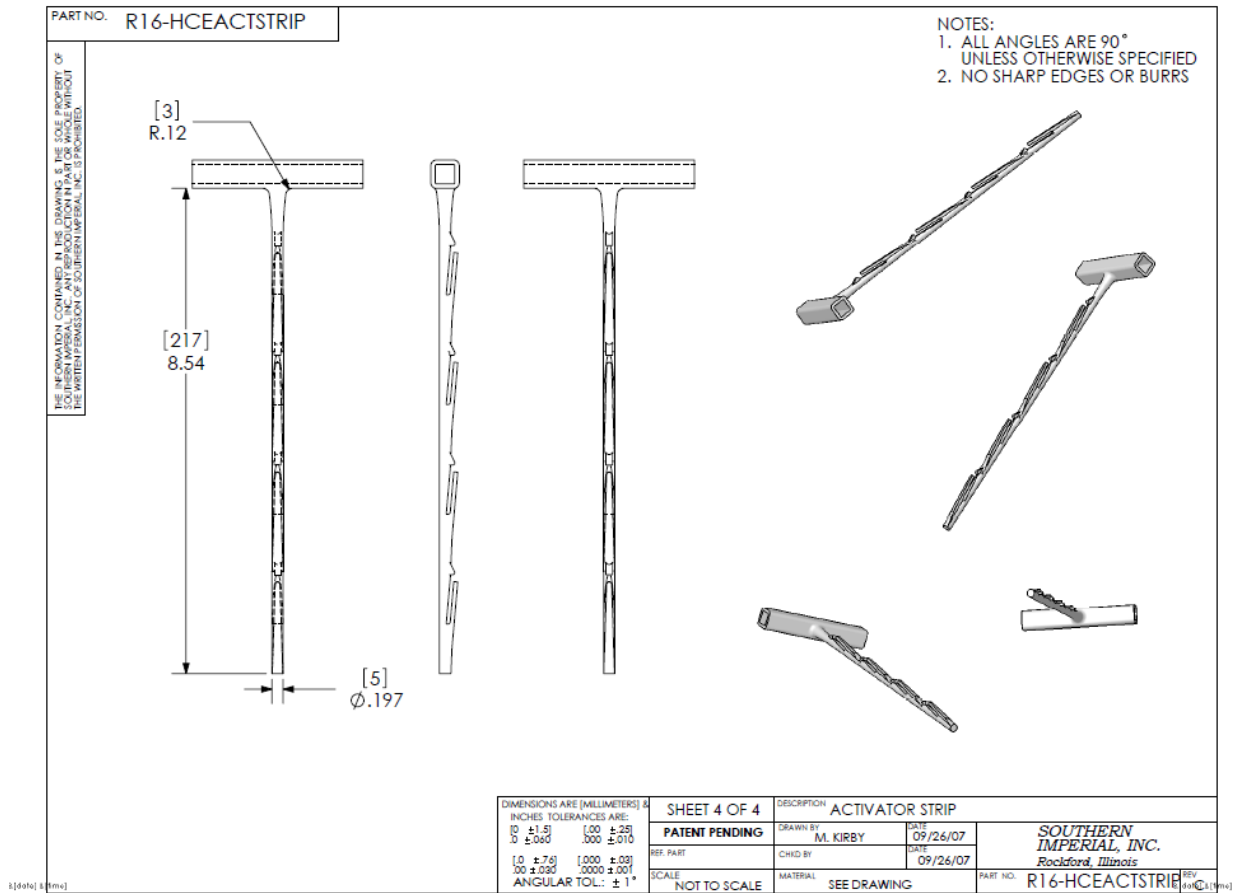


FIGURE 4-4. Pull tab, Center loading design

FIGURE 4-5. Pull tab, Center loading designE. Assembly of heater module.

The components or sub-units shall be assembled. The heater module shall consist of either style A, a box containing three sub-units and a BIB module or style B containing four sub-units, with activation mechanisms/pull tabs. Each sub-unit shall consist of the heating tray with sealed-in heater, the activation fluid unit and the polymeric food tray or (ISP). Sub-assemblies of components may be used. The three or four sub-units shall be stacked and one activation mechanism/pull tab shall be connected to the three or four activation fluid unit center strips and the other activation mechanism/pull tab shall be connected to the three or four heater pull strips. The sub-units and the BIB module (when applicable) shall be placed into the heater module box. The entrée polymeric food tray shall be on the bottom and the dessert polymeric food tray shall be on the top. When there is a BIB module, it shall be placed on top of the three sub-units.

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Corrugated fiberboard pads or cushioning shall be packed as necessary to fill excess headspace. The heater module box shall be closed and instruction sheets applied. Design and dimensions of the heater module box shall be as specified in Figure 5. Each heater module shall be correctly and legibly labeled in accordance with MIL-DTL-32235.

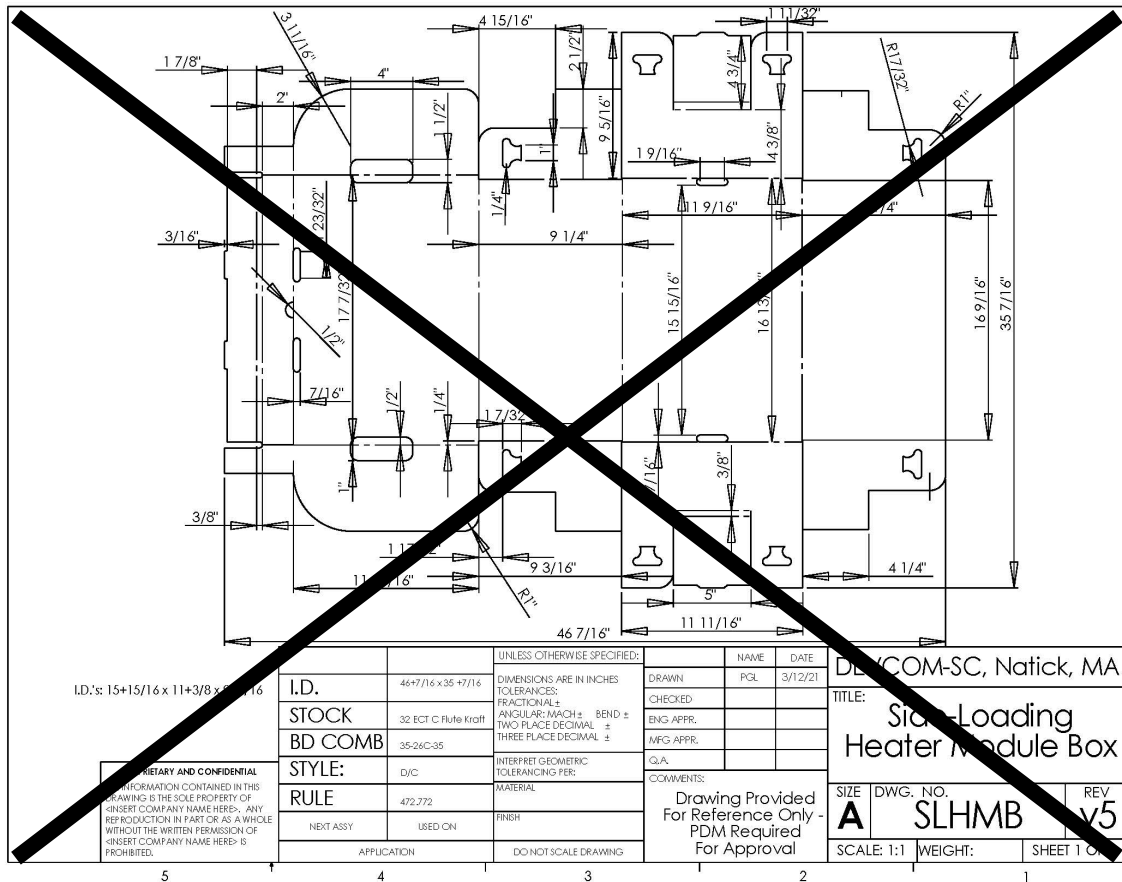


FIGURE 5. Heater module box

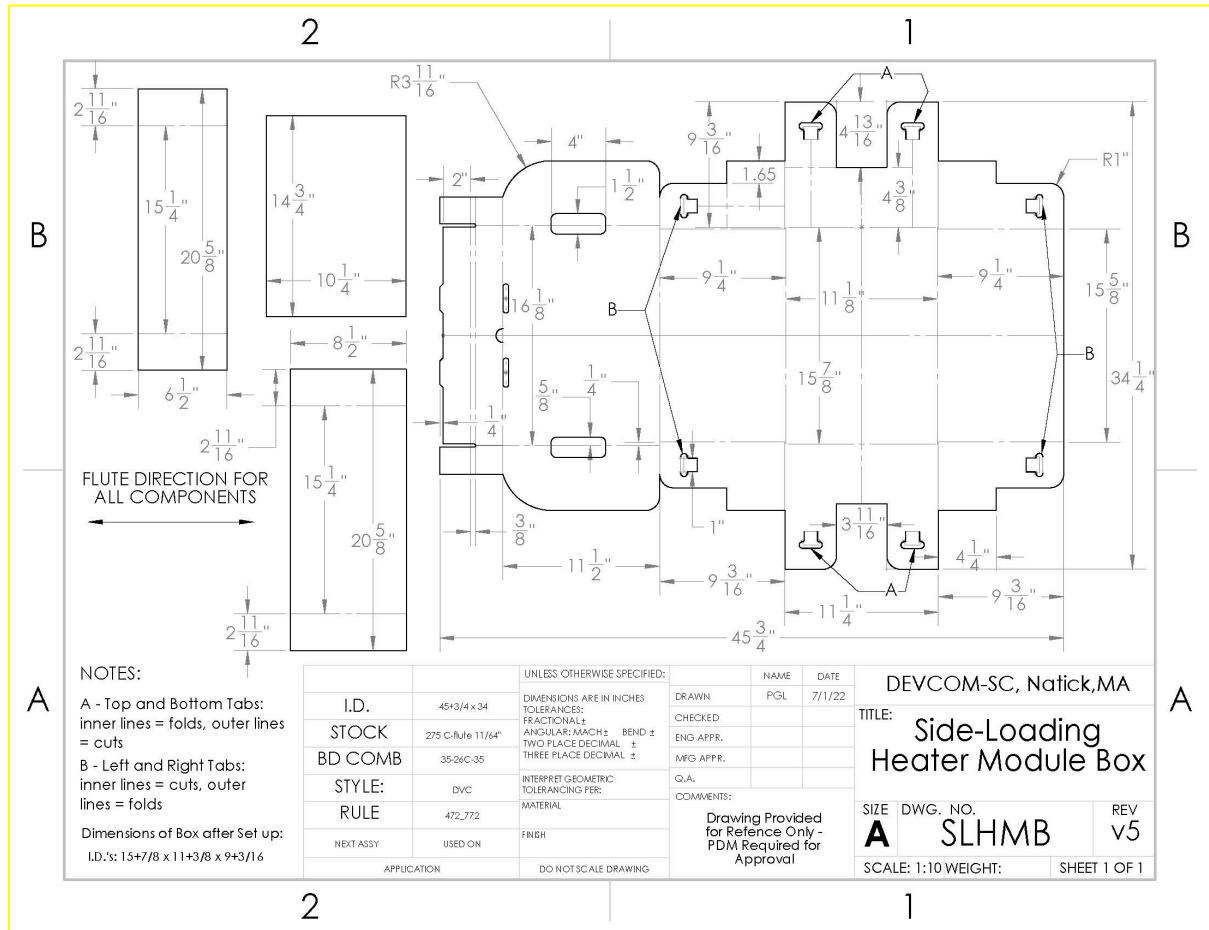


FIGURE 5. Heater module box

EXAMINATION AND TESTS

A. Heater module examination. The finished product shall be examined for conformance with the heater module examination requirements specified in MIL-DTL-32235 and this specification sheet. The heater module shall be examined for the defects listed in Table I.

TABLE I. Heater module defects 1/ 2/ 3/ 4/ 5/ 6/ 7/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Heater module not style specified.
102		Heater does not contain materials that will initiate and propagate an exothermic reaction.
103		Heater causes excessive foaming or uncontrolled release of reaction by-products.
104		Heater not hermetically sealed in tray with barrier material.
105		Heater module does not generate adequate heat to completely cook the food when applicable, or does not heat the food to a safe serving temperature. 8/
106		Center strip of activation fluid units not reinforced.
107		Score lines on activation fluid units missing or damaged.
	201	Score line on heater barrier material not provided.
	202	Heater barrier material not connected to pull strip.
	203	Heater pull strip not attached to activation mechanism/pull tab.
108		Activation mechanism/pull tab missing or damaged.
	204	Activation fluid unit pull strip not attached to activation mechanism/pull tab.
	205	Activation mechanism/pull tab not assembled properly.
109		Fold-over flap on heating tray to retain the activation fluid unit missing or damaged.
110		Heating tray design or dimensions not correct.
	206	Polymeric trays or ISPs or BIBs (if applicable) of food not placed in module in correct order.

TABLE I. Heater module defects 1/ 2/ 3/ 4/ 5/ 6/ 7/ - Continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
111		Excess headspace in module allowing movement of components.
	207	Low hydrogen generating heater generates more than 30 liters of hydrogen in 60 minutes.

1/ Heater material construction shall be verified by Certificate of Conformance (CoC).

2/ Material in accordance with MIL-PRF-131 for the activation fluid unit shall be verified by CoC.

3/ The activation fluid solution shall be identified and verified by CoC.

4/ The use of 0.090 inch high density polyethylene for the heating tray shall be verified by CoC.

5/ The pull tab material shall be verified by CoC.

6/ The pull tab pull strength shall be verified by CoC.

7/ The low hydrogen generating heater shall be verified by CoC.

8/ BIB Eggs must be cooked to an internal temperature of 145°F (63°C) for fifteen seconds. Polymeric food trays must be reheated to an internal temperature of at least 135°F (57°C).

B. Test methods.

I. Single heater capacity test.

The objective of the heating capacity test is to verify that a single heater increases the temperature of the water in the polymeric tray by 100°F (from 40°F to 140°F) in 45 minutes or less. In this test, one sub-unit (polymeric tray of water in the heating tray with the heater and the activation fluid unit) is tested. The following procedures are should be followed:

1. Pre-condition 96 oz. water-filled test tray to a temperature range of 35°F to 40°F.
2. Align matching bi-metallic (copper-constantan) pegs of C-10 Locking Connector to bi-metallic holes in C-9 Locking Receptacle. Thread C-10 Locking Receptacle and C-9 together until seated.

3. Connect Thermocouple wire installed on Locking Receptacle to data acquisition or computer terminal calibrated to the copper-constantan thermocouple.
4. Assemble heater and food tray within the heating tray. Add activation fluid or use activator pouch to activate heater.
5. The test shall be conducted at an ambient temperature of $72^{\circ}\text{F} \pm 2^{\circ}\text{F}$ in an explosion-proof exhaust fume hood or sufficiently ventilated environment, away from open flame or potential ignition sources.
6. Place sub-unit into a representative heater module box with 10-3/4 by 16-1/4 inch corrugated insert placed over the tray (weather grade corrugated or plastic materials may be used for repeated testing). Activate the sub-unit.
7. Record temperature for at least 45 minutes at approximately 1 minute or less intervals.

PART IDENTIFIERS AND SOURCES OF SUPPLY

1. Heater. The heater is available from:

Luxfer Magtech Incorporated
2940 Highland Avenue
Cincinnati, OH 45212
(800) 503-4483

2. Heater barrier pouch. The barrier pouch material is available from:

Winter-Wolff International
131 Jericho Turnpike
Jericho, NY 11753
(516) 997-3300

3. Activation fluid unit. The activator pouch is identified as Part # UGR-E-AFU-GEN II. The material equivalent to Class 1 of MIL-PRF-131 for the construction of the activation fluid unit pouch is available from:

Cadillac Products Packaging Company
5800 Crooks Road
Suite 200
Troy, Michigan 48098-2830
(800) 837-0055

The filled and sealed activation fluid units are available from:

Heritage Packaging
625 Fishers Run
Victor, NY 14564
(585) 742-3310

4. Heating tray. The heating tray is available from:

Luxfer Magtech Incorporated
2940 Highland Avenue
Cincinnati, OH 45212
(800) 503-4483

5. Pull tab. The pull tab is identified as Part # R16-HCEACTSTRIP-REV-C. The pull tab is available from:

Siffron Incorporated
8181 Darrow Road
Twinsburg, OH 44087-2303.
1-800-422-2547

6. Thermocoupled polymeric trays. Filled thermocoupled polymeric trays or instructions on how to construct them are available from:

Combat Capabilities Development Command (DEVCOM) Soldier Center
FCDD-SCD-SCR
10 General Greene Avenue
Natick, MA 01760-5000
(508) 206-3410

7. Heating Tray with Sealed in Heater or Heating Tray with Sealed in Heater and Activator Pouch installed. The heater sealed into a heating tray or heater sealed into a heating tray with activator pouch installed is available from:

Luxfer Magtech Incorporated
2940 Highland Avenue
Cincinnati, OH 45212
(800) 503-4483

8. Assembly and instruction sheets. The following assembly and operating instruction sheets are attached:

FIGURE 6. UGR-E Operating Instructions, for Heater with Hydrogen Generating Warning

FIGURE 7. UGR-E Operating Instructions, for Heater with Low/No Hydrogen Generating Warning

FIGURE 8. UGR-E BIB Operating Instructions, for Heater with Hydrogen Generating Warning

FIGURE 9. UGR-E BIB Operating Instructions, for Heater with Low/No Hydrogen Generating Warning

FIGURE 10. Instructions for UGR-E Eggs, for Heater with Hydrogen Generating Warning

FIGURE 11. Instructions for UGR-E Eggs, for Heater with Low/No Hydrogen Generating Warning

FIGURE 12-1. Assembly Instructions for UGR-E Heater Module

FIGURE 12-2. Assembly Instructions for UGR-E Heater Module - Continued

FIGURE 12-3. Assembly Instructions for UGR-E Heater Module - Continued

FIGURE 12-4. Assembly Instructions for UGR-E Heater Module - Continued

Assembly and instruction sheets in color are available electronically from:

Combat Capabilities Development Command (DEVCOM) Soldier Center
FCDD-SCD-SCR
10 General Greene Avenue
Natick, MA 01760-5000
(508) 206-3410

REFERENCES

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-32235 - Unitized Group Ration – Express (UGR-E) Heater Module, General Specification for

MIL-DTL-32235/4

MIL-PRF-131 - Barrier Materials, Watervaporproof, Greaseproof,
Flexible, Heat-Sealable

(Copies of these documents are available online at <https://quicksearch.dla.mil>.)

GOVERNMENT PUBLICATIONS

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration (29 CFR Part 1910, Subpart H)

(Copies of this document are available online at <http://www.osha.gov> or U.S. Department of Labor Occupational Safety & Health Administration, 200 Constitution Avenue, N.W., Room Number N3626, Washington, D.C. 20210.

U.S. DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration (49 CFR Parts 171-180)

(Copies of this document are available online at <https://www.fmcsa.dot.gov> or Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

U.S. ENVIRONMENTAL PROTECTION AGENCY

Resource Conservation and Recovery Act (40 CFR, Parts 239-282)

(Copies of this document are available online at <http://www.epa.gov> or from the Superintendent of Documents, ATTN: New Orders, P.O. Box 371954, Pittsburgh, PA 15250-7954.)

C. Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

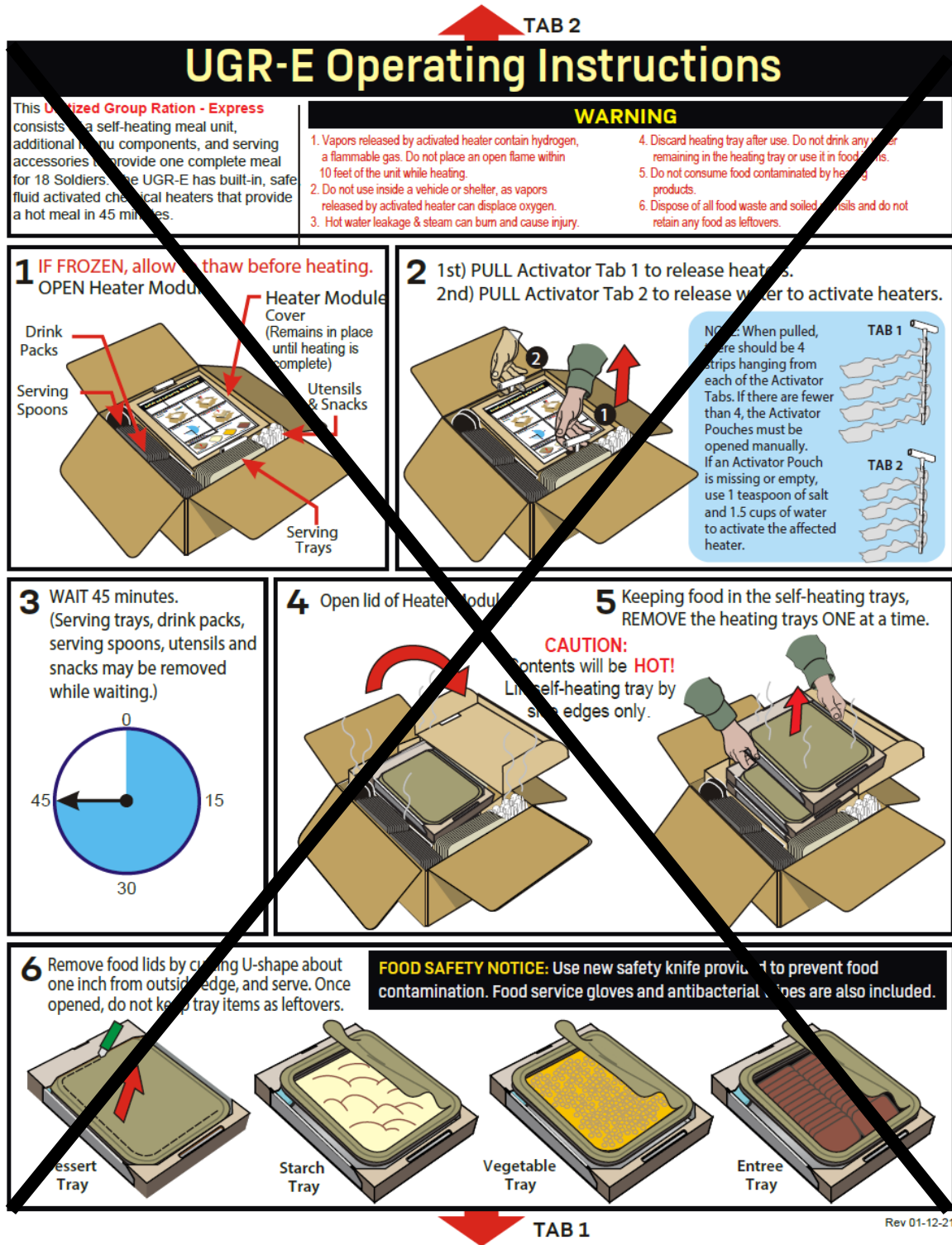


FIGURE 6. UGR-E Operating Instructions, for Heater with Hydrogen-Generating Warning

TAB 2 (Clear/white Activator Tabs)

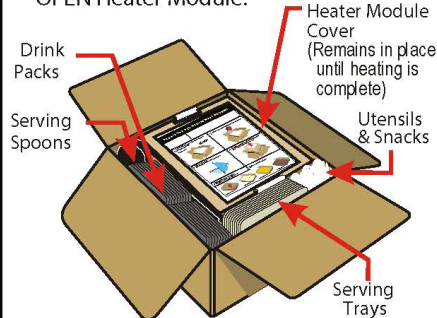
UGR-E Operating Instructions

This **Unitized Group Ration - Express (UGR-E)** consists of a self-heating meal unit, additional menu components, and serving accessories to provide one complete meal for 18 Soldiers. The UGR-E has built-in, safe, fluid activated chemical heaters that provide a hot meal in 45 minutes.

WARNING

1. Vapors released by activated heater contain hydrogen, a flammable gas. **Do not place an open flame within 10 feet of the unit while heating.**
2. Do not use inside a vehicle or shelter, as vapors released by activated heater can displace oxygen.
3. Hot water leakage & steam can burn and cause injury.
4. Discard heating tray after use. Do not drink any water remaining in the heating tray or use it in food items.
5. Do not consume food contaminated by heating products.
6. Dispose of all food waste and soiled utensils and do not retain any food as leftovers.

- 1 IF FROZEN, allow to thaw before heating.**
OPEN Heater Module.



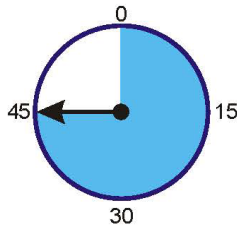
- 2** 1st) PULL Activator Tab 1 to release heaters.
2nd) PULL Activator Tab 2 to release saline to activate heaters.



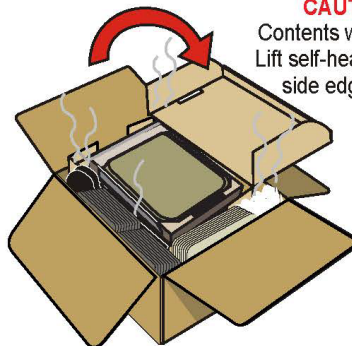
NOTE: When pulled, there should be 4 strips hanging from each of the Activator Tabs. If there are fewer than 4, the Activator Pouches must be opened manually. If an Activator Pouch is missing or empty, use 1 teaspoon of salt and 1.5 cups of water to activate the affected heater.



- 3 CLOSE BOX to retain heat.**
WAIT 45 minutes.
(Serving trays, drink packs, serving spoons, utensils and snacks may be removed while waiting.)



- 4** Open lid of Heater Module.



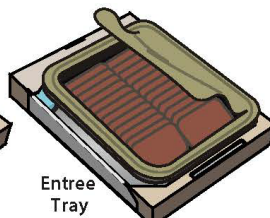
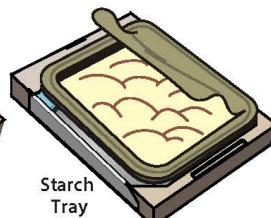
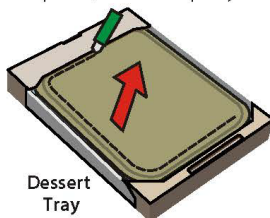
- 5** Keeping food in the self-heating trays, REMOVE the heating trays ONE at a time.

CAUTION:
Contents will be **HOT!**
Lift self-heating tray by side edges only.



- 6** Remove food lids by cutting U-shape about one inch from outside edge, and serve. Once opened, do not keep tray items as leftovers.

FOOD SAFETY NOTICE: Use new safety knife provided to prevent food contamination. Food service gloves and antibacterial wipes are also included.



TAB 1 (Foil-backed Heater Seal Tabs)

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FIGURE 6. UGR-E Operating Instructions, for Heater with Hydrogen Generating Warning

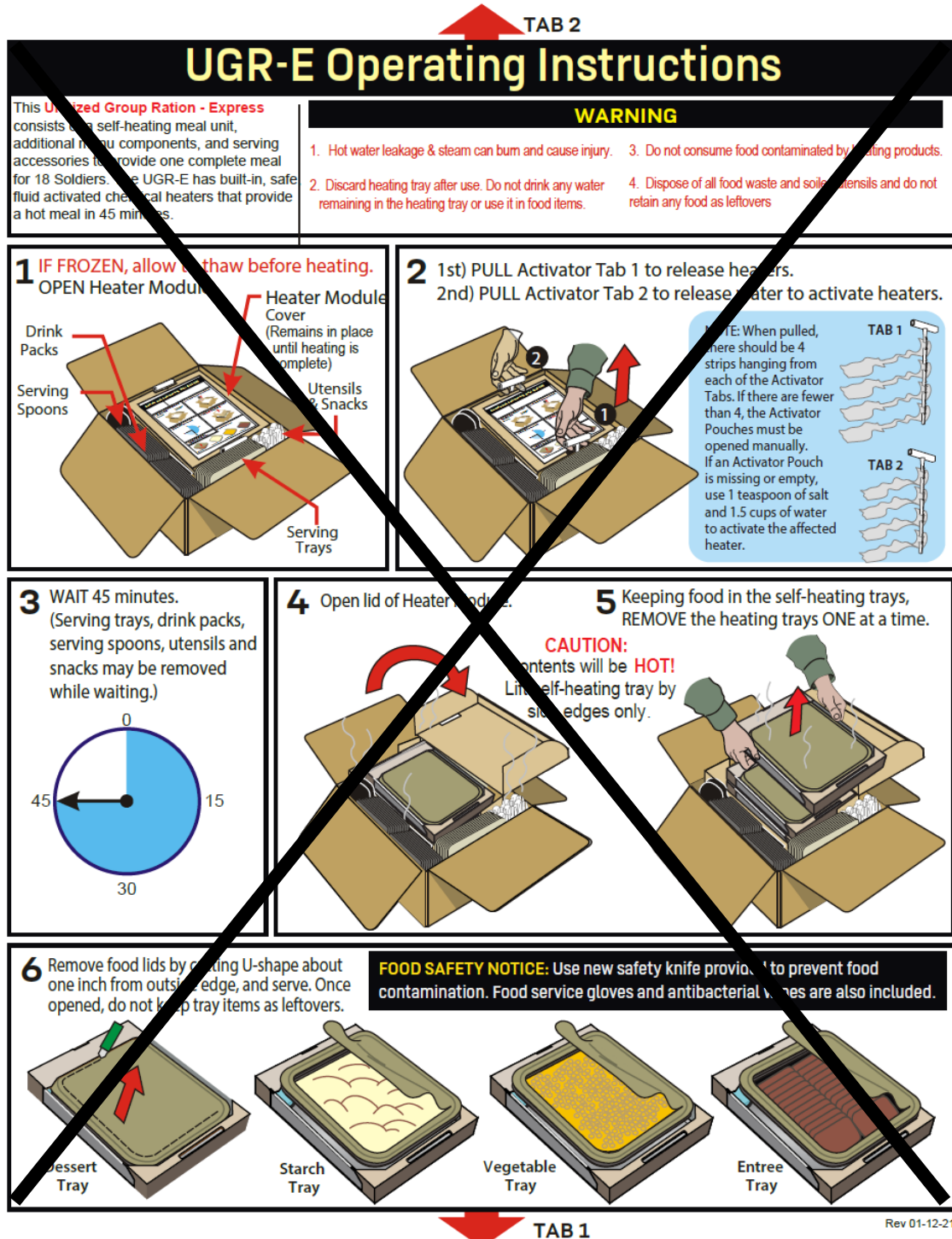


FIGURE 7. UGR-E Operating Instructions, for Heater with Low Hydrogen Generating Warning

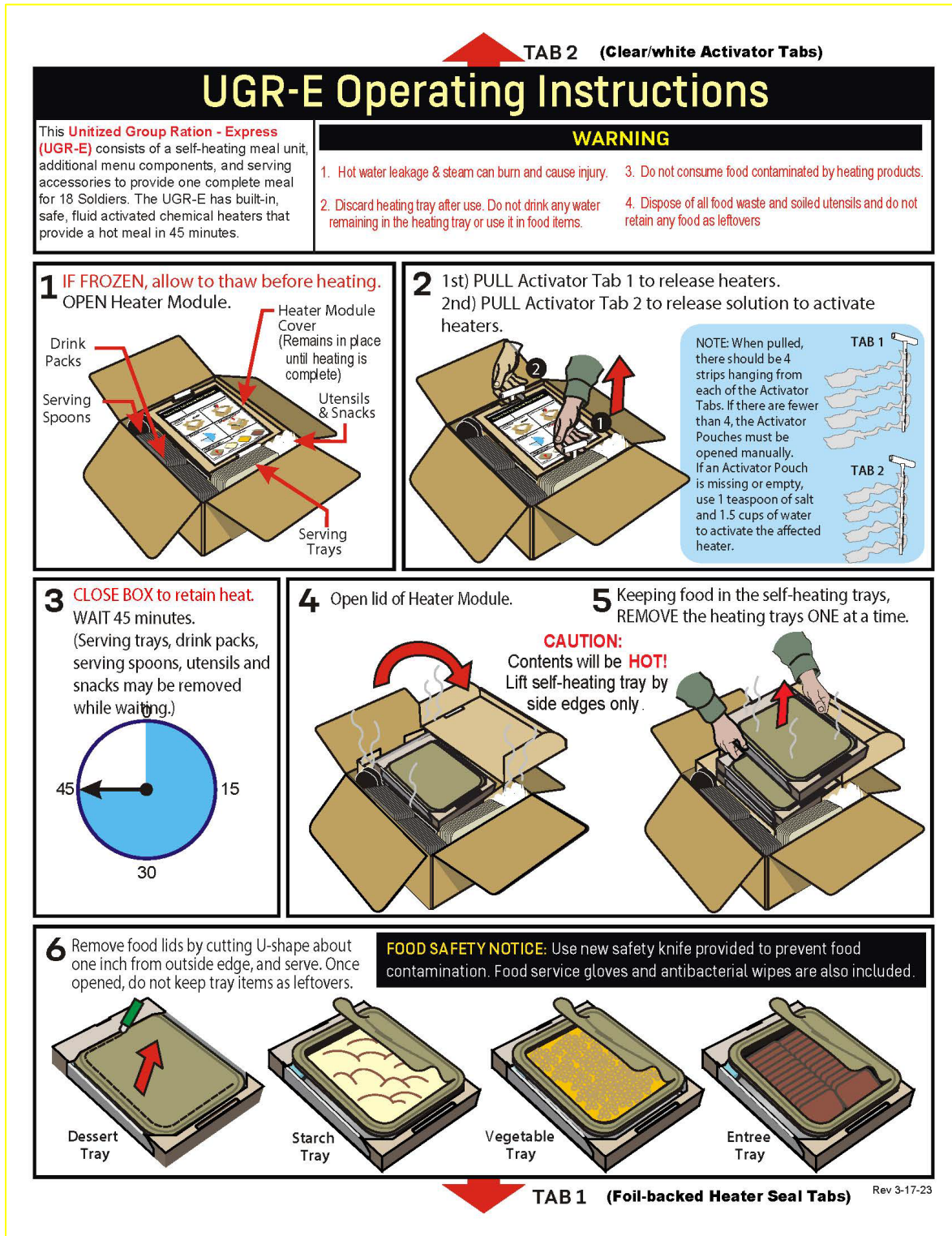


FIGURE 7. UGR-E Operating Instructions, for Heater with Low/No Hydrogen Generating Warning

TAB 2

UGR-E BIB Operating Instructions

This **Unfrozen Group Ration - Express** consists of a self-heating meal unit, additional menu components, and serving accessories to provide one complete meal for 18 Soldiers. The UGR-E has built-in, safe fluid activated chemical heaters that provide a hot meal in 45 minutes.

WARNING

- Vapors released by activated heater contain hydrogen, a flammable gas. Do not place an open flame within 10 feet of the unit while heating.
- Do not use inside a vehicle or shelter, as vapors released by activated heater can displace oxygen.
- Hot water leakage & steam can burn and cause injury.
- Discard heating tray after use. Do not drink any water remaining in the heating tray or use it in food items.
- Do not consume food contaminated by heating products.
- Dispose of all food waste and soiled utensils and do not retain any food as leftovers.

- IF FROZEN, allow to thaw before heating.**
1st) PULL Activator Tab 1 all the way out of box to release heaters.
2nd) PULL Activator Tab 2 all the way out of box to release water to activate heaters.

NOTE: When pulled, there should be 3 strips hanging from each of the Activator Tabs. If there are fewer than 3, the Activator Pouches must be opened manually.

If an Activator Pouch is missing or empty, use 1 teaspoon of salt and 1.5 cups of water to activate the selected heater.

- Open Heater Module Cover and remove Egg Tray. Close Heater Module Cover. Follow the instructions inside the Egg Tray to prepare the eggs.

- WAIT 45 minutes** for bottom 3 trays. (Serving trays, drink packs, serving spoons, utensils and snacks may be removed while waiting.)
WAIT 30 minutes for eggs.

TRAYS

EGGS

- Open lid of Heater Module. Keeping food in the self-heating trays, **REMOVE** the heating trays **ONE** at a time. **CAUTION: Contents will be HOT!** Lift self-heating tray by side edges only.

- A. REMOVE Egg BIB Pouch.**
CAUTION: Pouch is hot!
B. REMOVE Overwrap from Serving Tray, and place on top of Heater inside box.

- A. CUT** bottom of Egg BIB Pouch and empty into Serving Tray. **CAUTION: Contents are Hot.** Fluff eggs before serving.
B. Remove food lids by cutting U-shape about one inch from outside edge, and serve. Once opened, do not keep tray items as leftovers.

FOOD SAFETY NOTICE: Use new safety knife provided to prevent food contamination. Food service gloves and antibacterial wipes are also included.

TAB 1

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FIGURE 8. UGR-E BIB Operating Instructions, for Heater with Hydrogen Generating
Warning

↑ **TAB 2 (Clear/white Activator Tabs)**

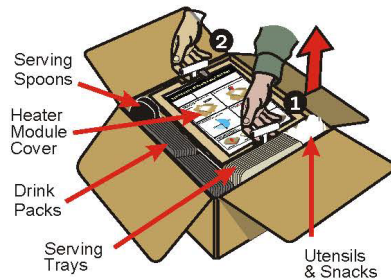
UGR-E BIB Operating Instructions

This **Unitized Group Ration - Express (UGR-E)** consists of a self-heating meal unit, additional menu components, and serving accessories to provide one complete meal for 18 Soldiers. The UGR-E has built-in, safe, fluid activated chemical heaters that provide a hot meal in 45 minutes.

WARNING

1. Vapors released by activated heater contain hydrogen, a flammable gas. **Do not place an open flame within 10 feet of the unit while heating.**
2. Do not use inside a vehicle or shelter, as vapors released by activated heater can displace oxygen.
3. Hot water leakage & steam can burn and cause injury.
4. Discard heating tray after use. Do not drink any water remaining in the heating tray or use it in food items.
5. Do not consume food contaminated by heating products.
6. Dispose of all food waste and soiled utensils and do not retain any food as leftovers.

- 1 IF FROZEN, allow to thaw before heating.**
 1st) PULL Activator Tab 1 **all the way out of box** to release heaters.
 2nd) PULL Activator Tab 2 **all the way out of box** to release saline to activate heaters.



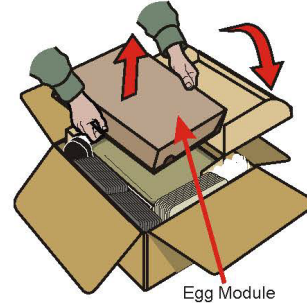
NOTE:
 When pulled, there should be 3 strips hanging from each of the Activator Tabs. If there are fewer than 3, the Activator Pouches must be opened manually.

If an Activator Pouch is missing or empty, use 1 teaspoon of salt and 1.5 cups of water to activate the affected heater.

TAB 1

TAB 2

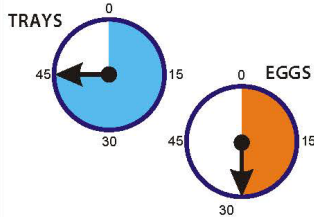
- 2** Open Heater Module Cover and remove Egg Tray. **Close Heater Module Cover.** Follow the instructions inside the Egg Tray to prepare the eggs.



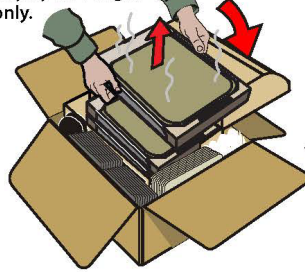
- 3 CLOSE BOX** to retain heat.

WAIT 45 minutes for bottom 3 trays. (Serving trays, drink packs, serving spoons, utensils and snacks may be removed while waiting.)

WAIT 30 minutes for eggs.

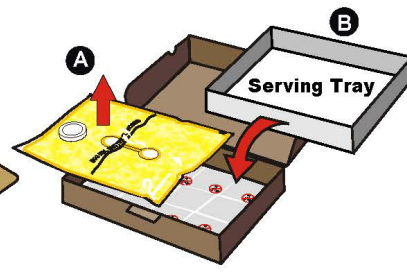


- 4** Open lid of Heater Module. Keeping food in the self-heating trays, **REMOVE** the heating trays **ONE** at a time. **CAUTION: Contents will be HOT!** Lift self-heating tray by side edges only.



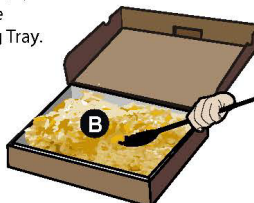
- 5 A. REMOVE** cooked Egg BIB Pouch. **CAUTION: Pouch is hot!**

- B. REMOVE** Overwrap from Serving Tray and place Serving Tray into the Egg Tray.



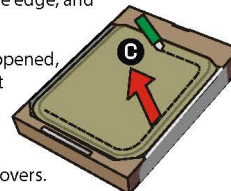
- 6 A. CUT** bottom of Egg BIB Pouch and empty into the Serving Tray. **CAUTION: Contents are Hot.**

- B. FLUFF** eggs before serving.



- C. Remove** food tray lids by cutting U-shape about one inch from outside edge, and serve.

Once opened, do not keep tray items as leftovers.



FOOD SAFETY NOTICE:
 Use new safety knife provided to prevent food contamination. Food service gloves and antibacterial wipes are also included.

↓ **TAB 1 (Foil-backed Heat Seal Tabs)**

Rev 3-17-23

FIGURE 8. UGR-E BIB Operating Instructions, for Heater with Hydrogen Generating Warning

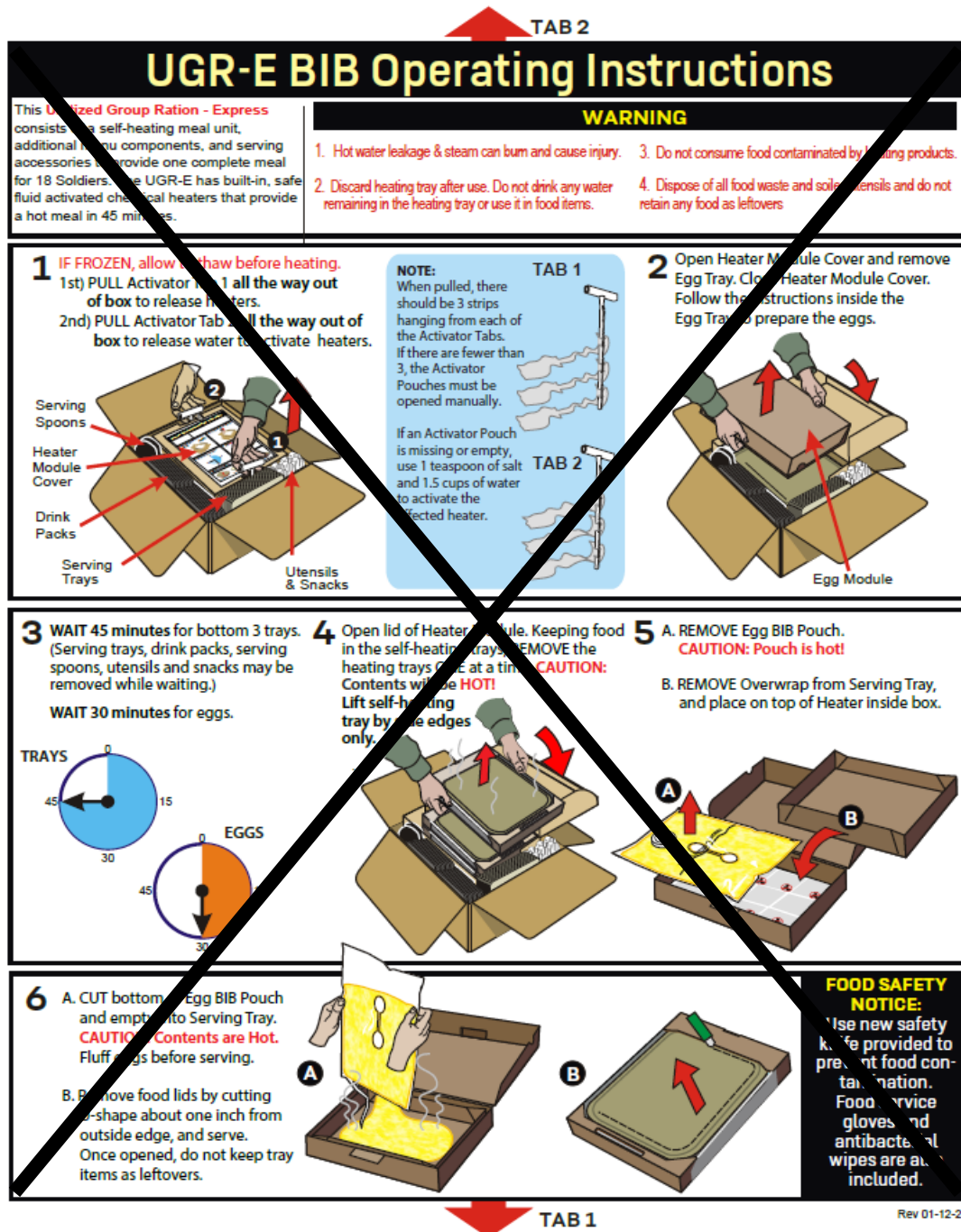


FIGURE 9. UGR-E BIB Operating Instructions, for Heater with Low Hydrogen Generating Warning

TAB 2 (Clear/white Activator Tabs)

UGR-E BIB Operating Instructions

This **Unitized Group Ration - Express (UGR-E)** consists of a self-heating meal unit, additional menu components, and serving accessories to provide one complete meal for 18 Soldiers. The UGR-E has built-in, safe, fluid activated chemical heaters that provide a hot meal in 45 minutes.

WARNING

- Hot water leakage & steam can burn and cause injury.
- Do not consume food contaminated by heating products.
- Discard heating tray after use. Do not drink any water remaining in the heating tray or use it in food items.
- Dispose of all food waste and soiled utensils and do not retain any food as leftovers.

1 IF FROZEN, allow to thaw before heating.
 1st) PULL Activator Tab 1 **all the way out of box** to release heaters.
 2nd) PULL Activator Tab 2 **all the way out of box** to release solution to activate heaters.

NOTE: When pulled, there should be 3 strips hanging from each of the Activator Tabs. If there are fewer than 3, the Activator Pouches must be opened manually.
 If an Activator Pouch is missing or empty, use 1 teaspoon of salt and 1.5 cups of water to activate the affected heater.

2 Open Heater Module Cover and remove Egg Tray. **Close Heater Module Cover.** Follow the instructions inside the Egg Tray to prepare the eggs.

3 CLOSE BOX to retain heat.
 WAIT 45 minutes for bottom 3 trays. (Serving trays, drink packs, serving spoons, utensils and snacks may be removed while waiting.)
 WAIT 30 minutes for eggs.

4 Open lid of Heater Module. Keeping food in the self-heating trays, REMOVE the heating trays ONE at a time. **CAUTION: Contents will be HOT! Lift self-heating tray by side edges only.**

5 A. REMOVE cooked Egg BIB Pouch. **CAUTION: Pouch is hot!**
 B. REMOVE Overwrap from Serving Tray and place Serving Tray into the Egg Tray.

6 A. CUT bottom of Egg BIB Pouch and empty into the Serving Tray.
 B. FLUFF eggs before serving.
 C. Remove food tray lids by cutting U-shape about one inch from outside edge, and serve.
 Once opened, do not keep tray items as leftovers.

FOOD SAFETY NOTICE: Use new safety knife provided to prevent food contamination. Food service gloves and antibacterial wipes are also included.

TAB 1 (Foil-backed Heat Seal Tabs)

Rev 3-17-23

FIGURE 9. UGR-E BIB Operating Instructions, for Heater with Low/No Hydrogen Generating Warning

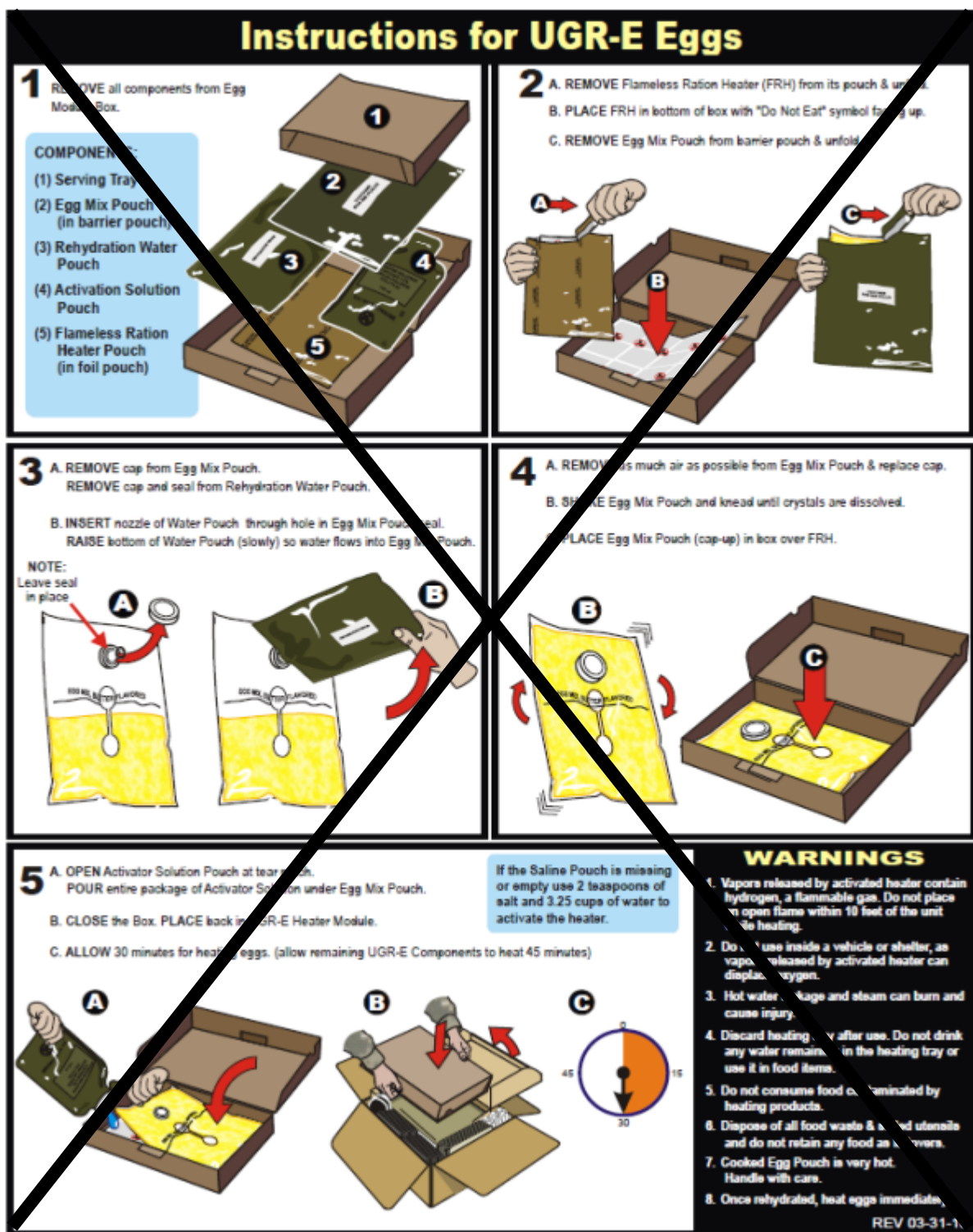


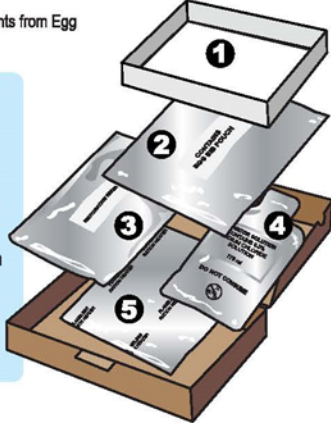
FIGURE 10. ~~Instructions for UGR-E Eggs, for Heater with Hydrogen-Generating Warning~~

Instructions for UGR-E Eggs

1 REMOVE all components from Egg Module Box.

COMPONENTS:

- ① Serving Tray
- ② Egg Mix Pouch (in barrier pouch)
- ③ Rehydration Water Pouch
- ④ Activation Solution Pouch
- ⑤ Flameless Ration Heater Pouch (in foil pouch)

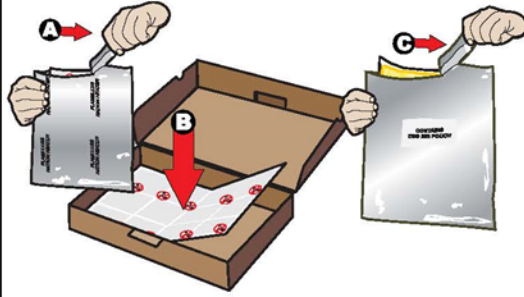


2

A. REMOVE Flameless Ration Heater (FRH) from its pouch & unfold.

B. PLACE FRH in bottom of box with "Do Not Eat" symbol facing up.

C. REMOVE Egg Mix Pouch from barrier pouch & unfold.



3

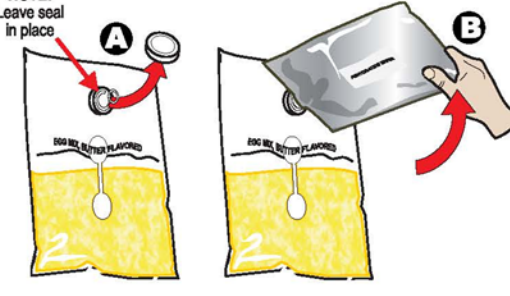
A. REMOVE cap from Egg Mix Pouch.

REMOVE cap and seal from Rehydration Water Pouch.

B. INSERT nozzle of Water Pouch through hole in Egg Mix Pouch seal.

RAISE bottom of Water Pouch (slowly) so water flows into Egg Mix Pouch.

NOTE: Leave seal in place

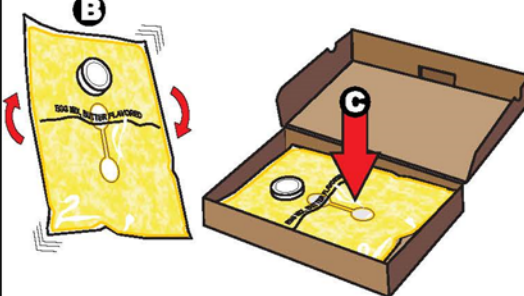


4

A. REMOVE as much air as possible from Egg Mix Pouch & replace cap.

B. SHAKE Egg Mix Pouch and knead until crystals are dissolved.

C. PLACE Egg Mix Pouch (cap-up) in box over FRH.



5

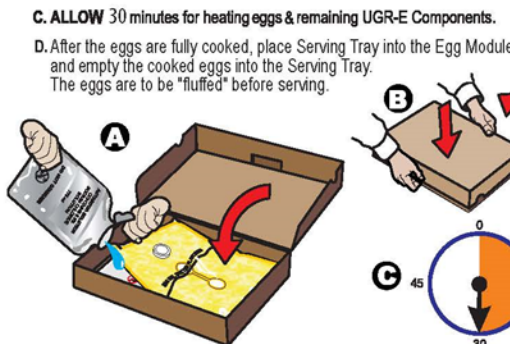
A. OPEN Activator Solution Pouch at tear notch.

POUR entire package of Activator Solution under Egg Mix Pouch.

B. CLOSE the Box. **PLACE** back in UGR-E Heater Module.

C. ALLOW 30 minutes for heating eggs & remaining UGR-E Components.

D. After the eggs are fully cooked, place Serving Tray into the Egg Module Box and empty the cooked eggs into the Serving Tray. The eggs are to be "fluffed" before serving.



If the Saline Pouch is missing or empty, use 2 teaspoons of salt and 3.25 cups of water to activate the heater.

WARNINGS

1. Vapors released by activated heater contain hydrogen, a flammable gas. Do not place an open flame within 10 feet of the unit while heating.
2. Do not use inside a vehicle or shelter, as vapors released by activated heater can displace oxygen.
3. Hot water leakage and steam can burn and cause injury.
4. Discard heating tray after use. Do not drink any water remaining in the heating tray or use it in food items.
5. Do not consume food contaminated by heating products.
6. Dispose of all food waste & soiled utensils and do not retain any food as leftovers.
7. Cooked Egg Pouch is very hot. Handle with care.
8. Once rehydrated, heat eggs immediately.

REV 10-11-22

FIGURE 10. Instructions for UGR-E Eggs, for Heater with Hydrogen Generating Warning

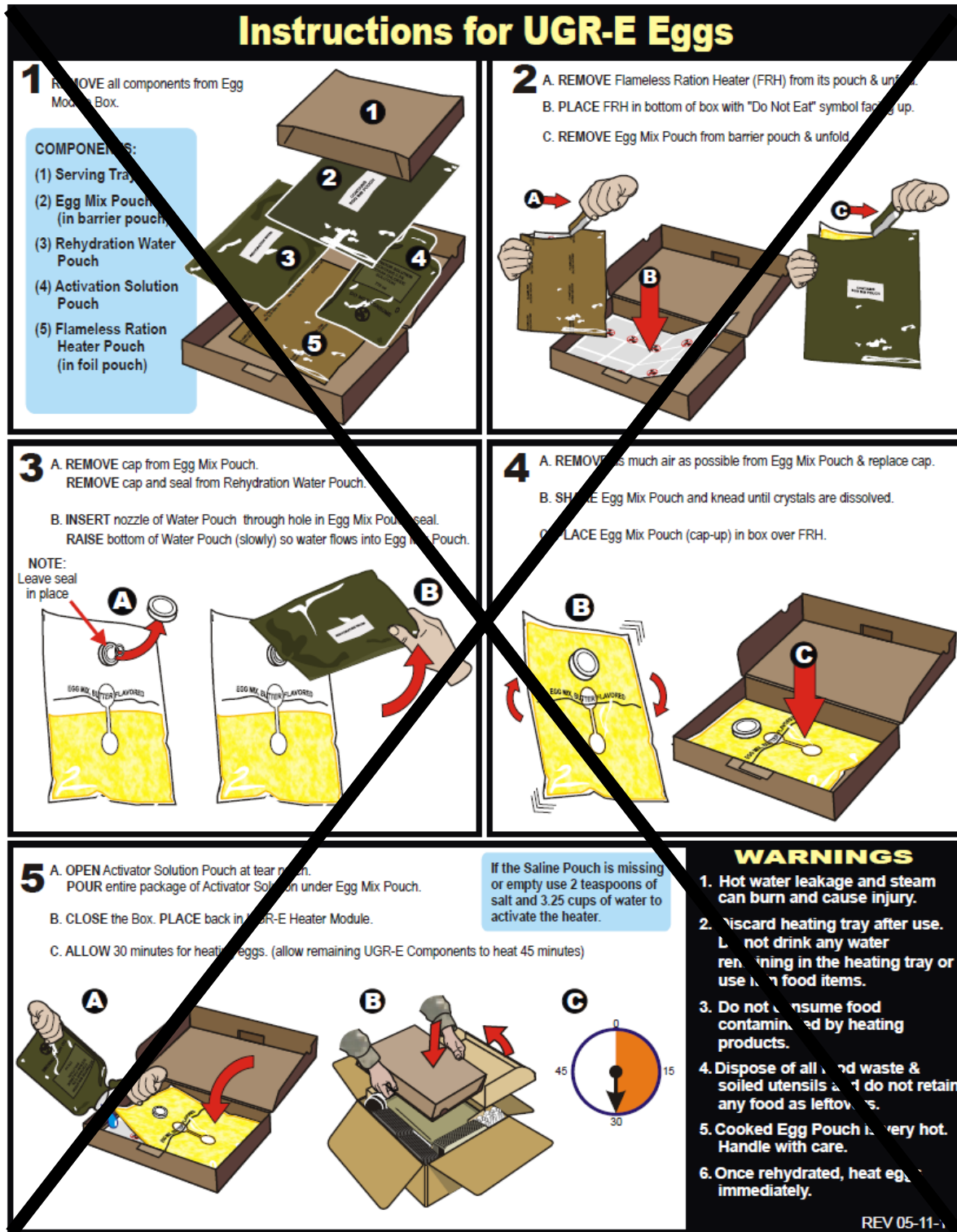


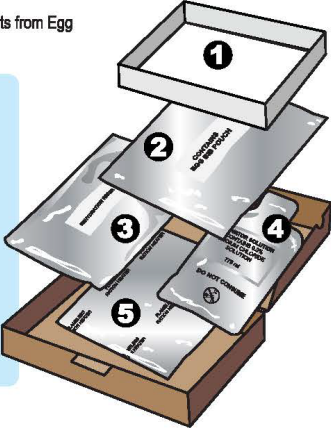
FIGURE 11. Instructions for UGR-E Eggs, for Heater with Low Hydrogen Generating Warning

Instructions for UGR-E Eggs

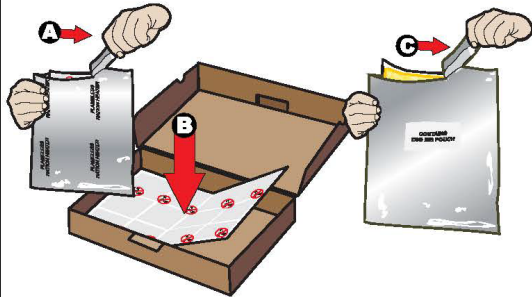
1 REMOVE all components from Egg Module Box.

COMPONENTS:

- ① Serving Tray
- ② Egg Mix Pouch (in barrier pouch)
- ③ Rehydration Water Pouch
- ④ Activation Solution Pouch
- ⑤ Flameless Ration Heater Pouch (in foil pouch)

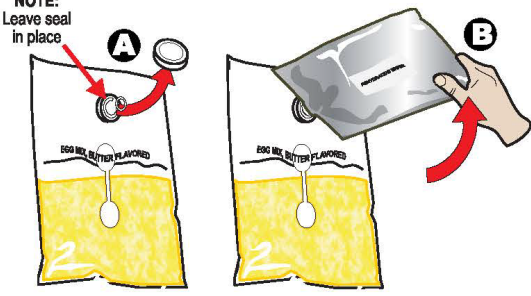


2 A. REMOVE Flameless Ration Heater (FRH) from its pouch & unfold.
 B. PLACE FRH in bottom of box with "Do Not Eat" symbol facing up.
 C. REMOVE Egg Mix Pouch from barrier pouch & unfold.

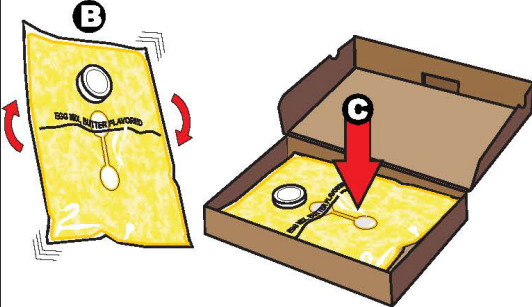


3 A. REMOVE cap from Egg Mix Pouch.
 REMOVE cap and seal from Rehydration Water Pouch.
 B. INSERT nozzle of Water Pouch through hole in Egg Mix Pouch seal.
 RAISE bottom of Water Pouch (slowly) so water flows into Egg Mix Pouch.

NOTE: Leave seal in place



4 A. REMOVE as much air as possible from Egg Mix Pouch & replace cap.
 B. SHAKE Egg Mix Pouch and knead until crystals are dissolved.
 C. PLACE Egg Mix Pouch (cap-up) in box over FRH.



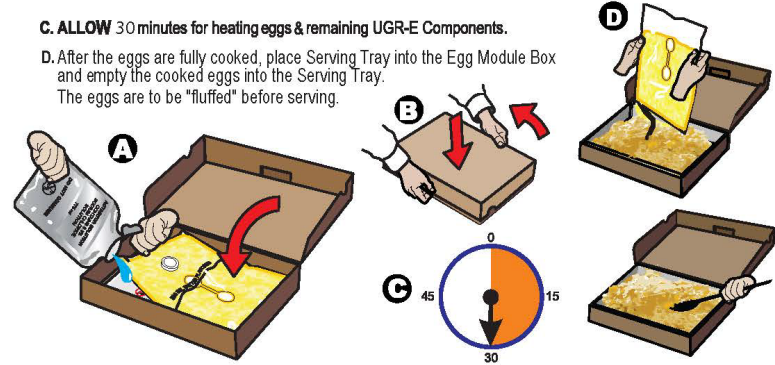
5 A. OPEN Activator Solution Pouch at tear notch.
 POUR entire package of Activator Solution under Egg Mix Pouch.

B. CLOSE the Box. PLACE back in UGR-E Heater Module.

C. ALLOW 30 minutes for heating eggs & remaining UGR-E Components.

D. After the eggs are fully cooked, place Serving Tray into the Egg Module Box and empty the cooked eggs into the Serving Tray.
 The eggs are to be "fluffed" before serving.

If the Saline Pouch is missing or empty, use 2 teaspoons of salt and 3.25 cups of water to activate the heater.



WARNINGS

- 1) Hot water leakage and steam can burn and cause injury.
- 2) Discard heating tray after use. Do not drink any water remaining in the heating tray or use it in food items.
- 3) Do not consume food contaminated by heating products.
- 4) Dispose of all food waste & soiled utensils and do not retain any food as leftovers.
- 5) Cooked Egg Pouch is very hot. Handle with care.
- 6) Once rehydrated, heat eggs immediately.

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FIGURE 11. Instructions for UGR-E Eggs, for Heater with Low/No Hydrogen Generating Warning

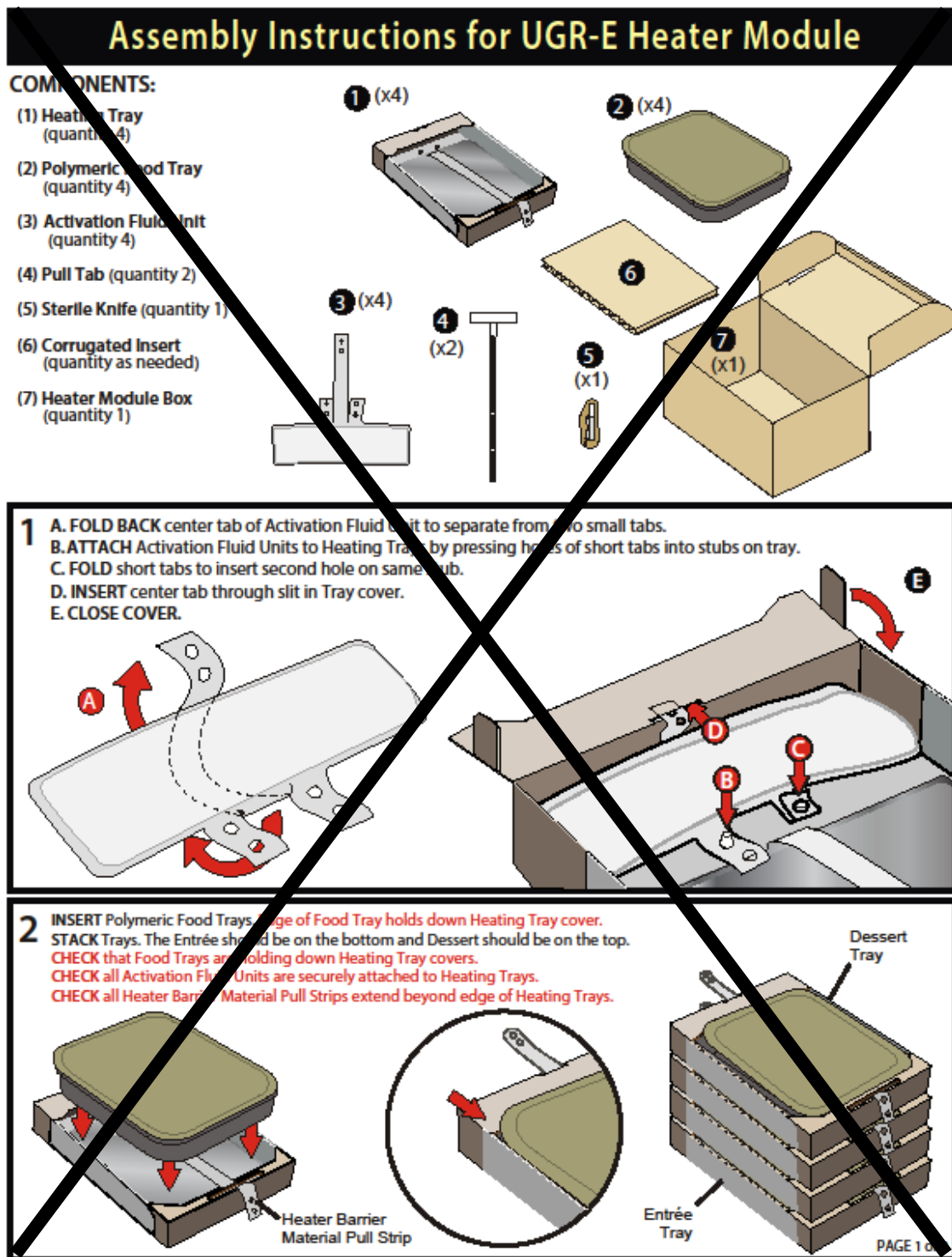
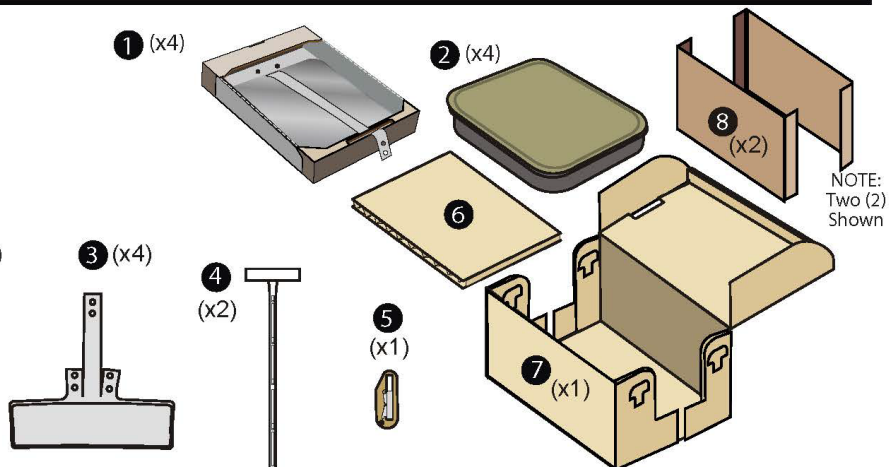


FIGURE 12-1. Assembly Instructions for UGR-E Heater Module

Assembly Instructions for UGR-E Heater Module (Lunch/Dinner)

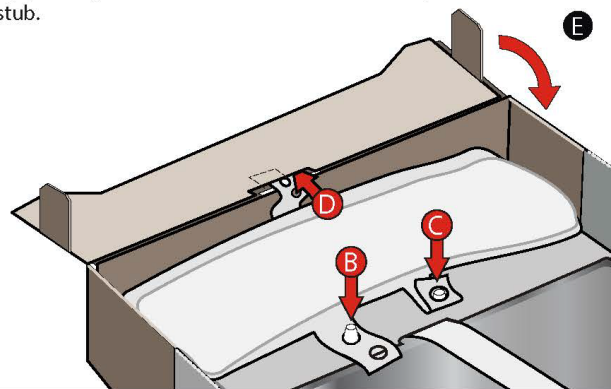
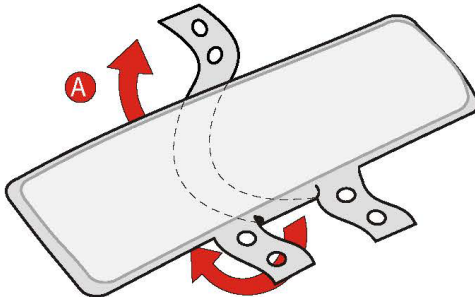
COMPONENTS:

- (1) Heating Tray (quantity 4)
- (2) Polymeric Food Tray (quantity 4)
- (3) Activation Fluid Unit (quantity 4)
- (4) Pull Tab (quantity 2)
- (5) Sterile Knife (quantity 1)
- (6) Corrugated Insert (quantity as needed)
- (7) Heater Module Box (quantity 1)
- (8) Clam-Shell Insert (quantity 1)

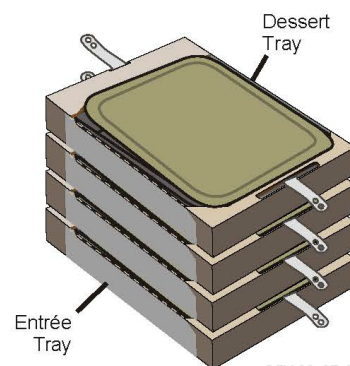
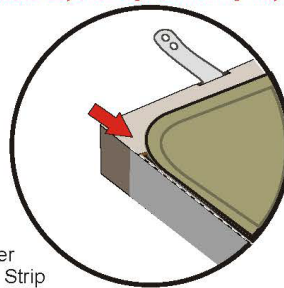
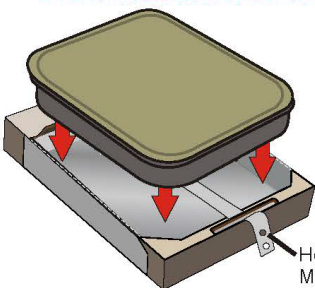


Check heater seal & activator pouch for damage - Replace damaged pouch & assembled Heating Tray prior to assembly

- 1 A. FOLD BACK center tab of Activation Fluid Unit to separate from two small tabs.
B. ATTACH Activation Fluid Units to Heating Trays by pressing holes of short tabs into stubs on tray.
C. FOLD short tabs to insert second hole on same stub.
D. INSERT center tab through slit in Tray cover.
E. CLOSE COVER.



- 2 INSERT Polymeric Food Trays. Edge of Food Tray holds down Heating Tray cover.
STACK Trays. The Entrée should be on the bottom and Dessert should be on the top.
CHECK that Food Trays are holding down Heating Tray covers.
CHECK all Activation Fluid Units are securely attached to Heating Trays.
CHECK all Heater Barrier Material Pull Strips extend beyond edge of Heating Trays.



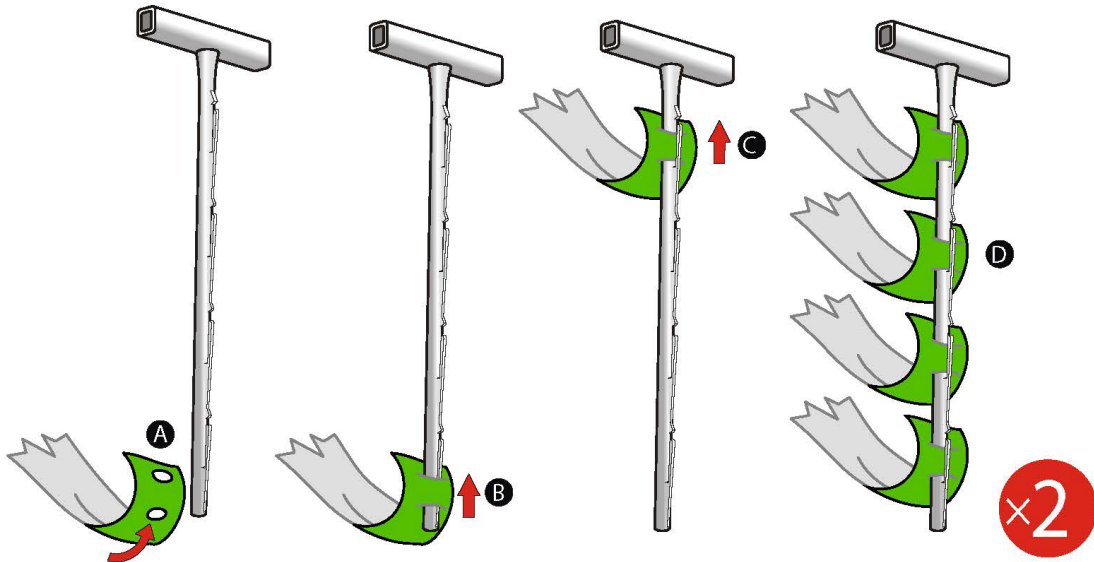
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PAGE 1 of 2

FIGURE 12-1. Assembly Instructions for UGR-E Heater Module

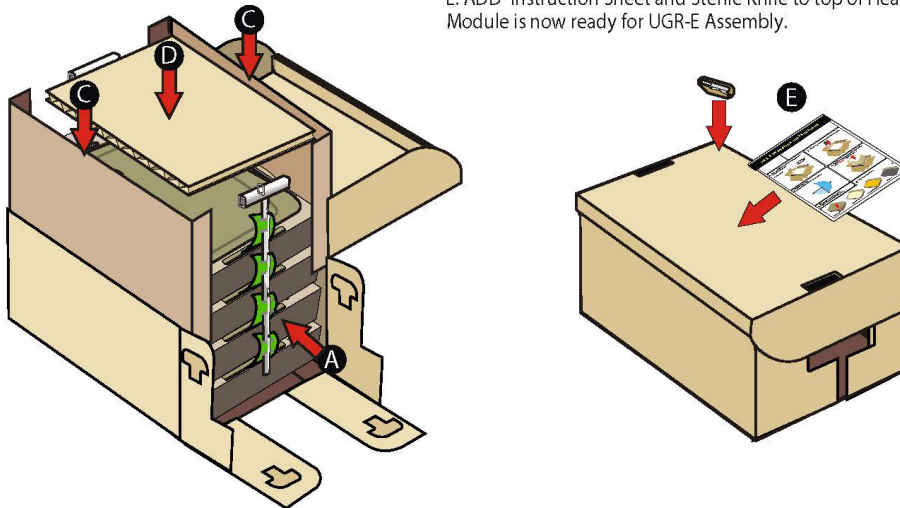
34

Ass'y Instructions for UGR-E Heater Module (Lunch/Dinner) Cont'd

- 3 ATTACH PULL TABS** (Pull Tab teeth point away from Heating Trays).
- A. START with top tooth of Pull tab & Activation Fluid Unit Tab & top Tray.
 - B. SLIDE the center tab onto the Pull Tab.
 - C. MOVE the tab to the highest empty tooth.
 - D. REPEAT for bottom three center tabs.
 - E. REPEAT Steps A thru D for Second Pull Tab with Heater Barrier Material Pull Strips.



- 4**
- A. INSERT stacked Assembled Trays into Module Box.
 - B. CHECK that Pull Tab is not caught on Trays.
 - C. SLIDE Clam-Shell Insert(s) between the Assembled Trays and the Module Box.
 - D. PLACE the Corrugated Insert(s) on top of the Assembled Trays
 - E. ADD Instruction Sheet and Sterile Knife to top of Heater Module. Module is now ready for UGR-E Assembly.



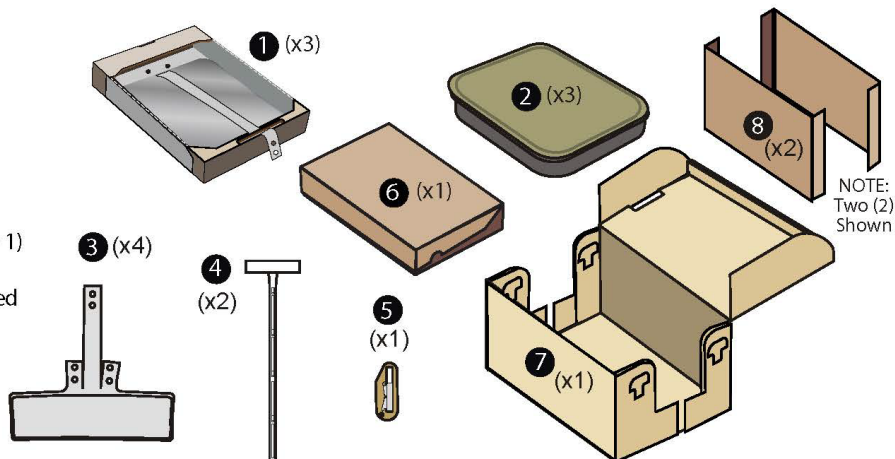
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PAGE 2 of 2

FIGURE 12-2. Assembly Instructions for UGR-E Heater Module – Continued

Assembly Instructions for UGR-E Heater Module (Breakfast Menus)

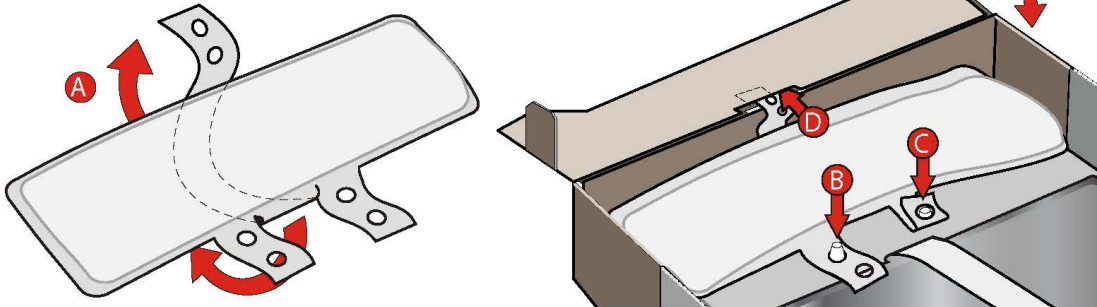
COMPONENTS:

- (1) Heating Tray (quantity 3)
- (2) Polymeric Food Tray (quantity 3)
- (3) Activation Fluid Unit (quantity 4)
- (4) Pull Tab (quantity 2)
- (5) Sterile Knife (quantity 1)
- (6) Boil-In-Bag (BIB) Egg Module, pre-assembled (quantity 1)
- (7) Heater Module Box (quantity 1)
- (8) Clam-Shell Insert (quantity 2)



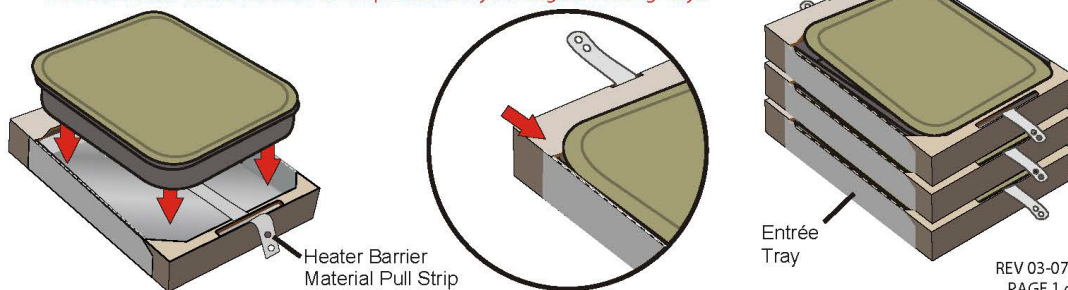
Check heater seal & activator pouch for damage - Replace damaged pouch & assembled Heating Tray prior to assembly

- 1 A. FOLD BACK center tab of Activation Fluid Unit to separate from two small tabs.
B. ATTACH Activation Fluid Units to Heating Trays by pressing holes of short tabs into stubs on tray.
C. FOLD short tabs to insert second hole on same stub.
D. INSERT center tab through slit in Tray cover.
E. CLOSE COVER.



- 2 INSERT Polymeric Food Trays. Edge of Food Tray holds down Heating Tray cover.
STACK Trays. The Entrée should be on the bottom and Dessert should be on the top.
CHECK that Food Trays are holding down Heating Tray covers.
CHECK all Activation Fluid Units are securely attached to Heating Trays.
CHECK all Heater Barrier Material Pull Strips extend beyond edge of Heating Trays.

(Module assembly continued on Page 2)



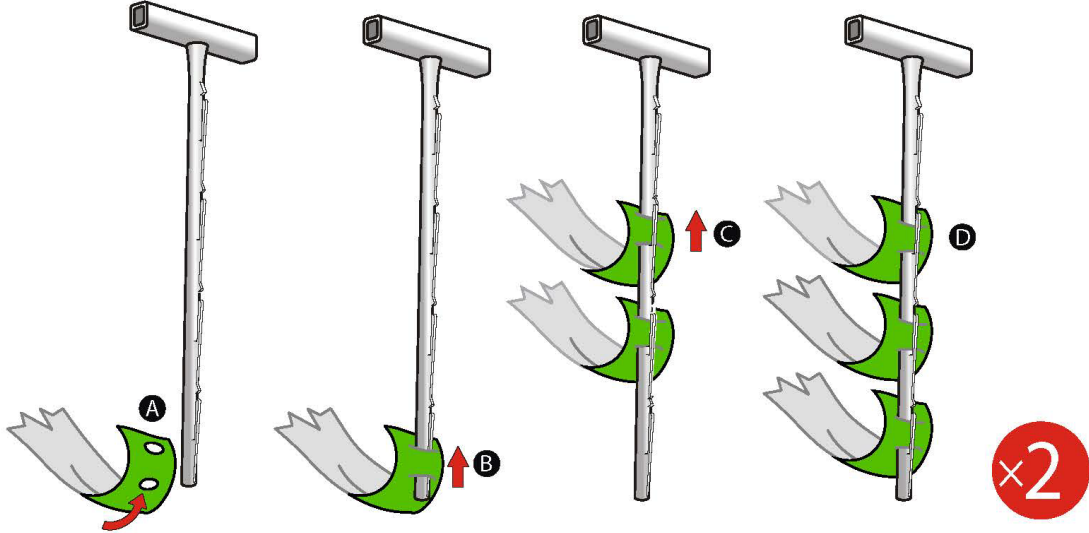
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FIGURE 12-3. Assembly Instructions for UGR-E Heater Module – Continued

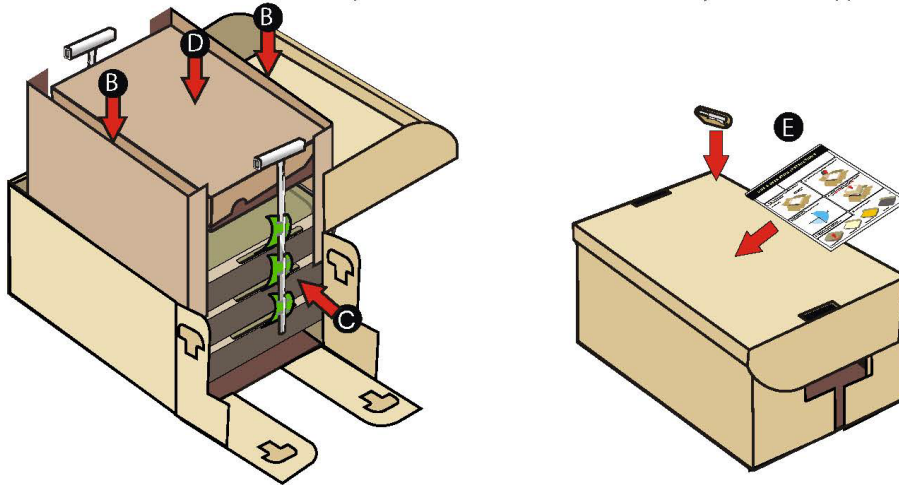
Ass'y Instructions for UGR-E Heater Module (Breakfast Menus) Cont'd

3 ATTACH PULL TABS (Pull Tab teeth point away from Heating Trays).

- A. START by aligning the stack of three Heating Trays fitted with the PolyTray/ISP menu items in same orientation.
 FOLD the end of the Foil-backed Heater Seal Pull Strip extending from the end of the Top Tray.
 B. LOAD the first Pull Tab through the Facing Holes of the Top Tray Pull Strip and slide up above the second tooth.
 CONTINUE loading the first Pull Tab by folding the Second Tray Pull Strip end and slide above the first tooth.
 C. MOVE the Top Tray Pull Strip end up to the next empty tooth, then slide the second lower Pull Strip up one tooth.
 D. SLIDE the Bottom Tray Pull Strip end onto the first tooth and secure all three tabs onto the Pull Tab.
 E. REPEAT Steps A thru D for Second Pull Tab with Activation Fluid Unit H Pull Strips.



- 4 A. INSERT assembled stack of Heating Trays into Module Box. (CHECK that Pull Tabs are not caught on Trays.)
 B. PLACE Clam-shell Inserts lengthwise along each side of Assembled Trays with the ends folded around front & back sides.
 C. SLIDE Assembled Trays with the Clam Shell Inserts into Heater Module Box and fold box side and secure closure cut-outs.
 D. PLACE Breakfast Module on top of assembled Trays
 E. ADD Instruction Sheet & Sterile Knife to top of Heater Module. Module is now ready for UGR-E Shipper/Case Assembly.



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 PAGE 2 of 2

FIGURE 12-4. Assembly Instructions for UGR-E Heater Module – Continued

Custodians:

Army – GL
Navy – SA
Air Force – 35

Preparing activity:

Army – GL
(Project 8970-2021-006)

Review Activities:

Army – MD, QM
Navy – MC
DLA – SS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using ASSIST Online database at <https://assist.dla.mil>.