Abbreviated Operational Test Report

Rigid Immobilization System for Extremities with Individual First Aid Kit Generation I/II

Customer Test

Produced by the
U.S. Army Medical Department Board
U.S. Army Medical Department Center and School
Health Readiness Center of Excellence

USAMEDDBD PROJECT 17−18a MAY 2019

U.S. ARMY MEDICAL DEPARTMENT BOARD

ABBREVIATED OPERATIONAL TEST REPORT

RIGID IMMOBILIZATION SYSTEM FOR EXTREMITIES WITH INDIVIDUAL FIRST AID KIT GENERATION I/II

CUSTOMER TEST

Prepared by:
Gary Cabigon
SFC Jacob Horspool

Materiel T&E Branch

The undersigned reviewed and approved this document for publication.

BUSTAMANTE.MARC.1131301380 Digitally signed by BUSTAMANTE.MARC.1131301380 Date: 2019.05.15 10:13:52 -05'00'

MARC BUSTAMANTE
Colonel, MS
President, U.S. Army Medical Department Board

(This page is intentionally blank.)

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From – To)*
14–05–2019	Abbreviated Operational Test Report (AOTR)	8–12 April 2019

4. TITLE AND SUBTITLE	**5a. CONTRACT NUMBER**
Abbreviated Operational Test Report for the Rigid Immobilization System for Extremities with Individual First Aid Kit Generation I/II	**5b. GRANT NUMBER**
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) Mr. Gary Cabigon SFC Jacob Horspool	**5d. PROJECT NUMBER**
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	**8. PERFORMING ORGANIZATION REPORT NUMBER**
U.S. Army Medical Department Board ATTN: MCCS–MM, 2377 Greeley Road, Suite T, Building 4011 JBSA Fort Sam Houston, Texas 78234–7584	USAMEDDBD Project 17–18a
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Materiel Development Activity, Non-Medical Systems, Medical Support Systems, PMO (Mr. Jaime Lee), 1240 Rocky Springs Road, Fort Detrick, MD 21702–5009	**10. SPONSORING/MONITORING ACRONYM(S)** USAMMDA
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

11. SUPPLEMENTARY NOTES

12. DISTRIBUTION/AVAILABILITY STATEMENT
Distribution limited to U.S. Government agencies only, test and evaluation, April 2019. Other requests for this document must be referred to President, U.S. Army Medical Department Board, ATTN: MCCS–M, 2377 Greeley Road, Suite T, Building 4011, JBSA Fort Sam Houston, Texas 78234–7584.

13. SUPPLEMENTARY NOTES

14. ABSTRACT
This AOTR documents the key observations and recommendations from the Rigid Immobilization System for Extremities (RISE) with Individual First Aid Kit Generation I/II (IFAK Gen I/II) Customer Test. USAMEDDBD conducted the CT from 8 through 12 April 2019 at in the Medical Simulation Training Center, Fort Hood, Texas. The RISE with IFAK Gen I/II is an acquisition category III system and is not on the Office of the Secretary of Defense Test and Evaluation Oversight List. USAMEDDBD conducted the RISE and IFAK Gen I/II CT to collect data on the capability of the RISE to stabilize a casualty's injuries and the medical items available for the Soldiers' Individual First Aid Kit Generation I/II.

15. SUBJECT TERMS
RISE IFAK Gen I/II

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			Gary Cabigon
UNCLASS/ FOUO	UNCLASS	UNCLASS	SAME AS REPORT	32	**19b. TELEPHONE NUMBER** ***(Include area code)*** 210–295–9950

Standard Form 298 (Rev. 8/98)
Prescribed by ANSI Std. Z39-18

(This page is intentionally blank.)

RIGID IMMOBILIZATION SYSTEM FOR EXTREMITIES WITH INDIVIDUAL FIRST AID KIT GENERATION I/II

CUSTOMER TEST

CONTENTS

(This page is intentionally blank.)

RIGID IMMOBILIZATION SYSTEM FOR EXTREMITIES WITH INDIVIDUAL FIRST AID KIT GENERATION II

CUSTOMER TEST

1. INTRODUCTION. This abbreviated operational test report (AOTR) documents the key observations and recommendations from the Rigid Immobilization System for Extremities with Individual First Aid Kit Generation I/II Customer Test (CT). The U.S. Army Medical Department Board (USAMEDDBD) conducted the CT from 8 through 12 April 2019 at the Medical Simulation Training Center (MSTC), Fort Hood, Texas. The CT is a follow-on from a previous CT conducted 11 through 14 December 2018 at the Medical Simulation Training Center at Schofield Barracks, Hawaii. The RISE with IFAK Gen I/II is an acquisition category III system and is not on the Office of the Secretary of Defense Test and Evaluation Oversight List.

a. Purpose. The USAMEDDBD conducted the RISE with IFAK Gen I/II CT to collect data on the capability of the RISE to stabilize a casualty's injuries and the IFAK Gen I/II to provide casualty point of injury (POI) medical interventions for casualties who need immediate medical attention. The USAMEDDBD will provide the data collected during the CT to the U.S. Army Medical Materiel Development Activity, Non-Medical Systems, Medical Support Systems, Program Manager Office (MSS–PMO) for its use on whether to exercise a contract option to purchase additional systems for contingency operations.

b. Requirement. Currently, the fielded vehicle medical kit has limited class VIII medical supplies for resupply of unit Soldiers' IFAKs Gen I/II. The RISE will be incorporated into the mounted standardized vehicle medical kit in the back of vehicles.

2. SYSTEM DESCRIPTION.

a. The RISE (see Figure 1) with the IFAK Gen I (see Figure 2) and IFAK Gen II (see Figure 3) are ruggedized, portable, and able to be carried by a Soldier in configurations as dictated by unit standard operating procedures. The RISE with IFAK Gen I/II is accessible for use by Soldiers in performing buddy-aid and self-aid as required. The MARCH™ IFAK Resupply Kit (see Figure 4) contains different medical intervention items than those normally found in the current Soldier's IFAK Gen I. The items were selected by III Corps command as the medical resupply kits for the command's IFAKs. The RISE with the IFAK Gen I/II medical intervention supplies are accessible for use in performing immediate stabilization for a broken wrist, foot, lower or upper leg area, arm, or pelvic injury as required to meet the needs of a casualty.

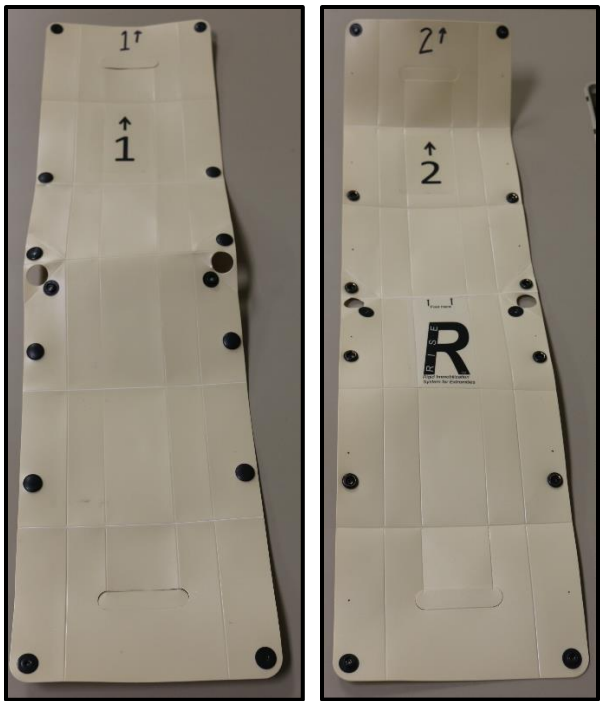


Figure 1. RISE, Front and Back.

Figure 2. IFAK Gen I with RISE.

Figure 3. Individual First Aid Kit Generation II with RISE.

Figure 4. MARCH™ IFAK Resupply Kit.

b. The RISE provides stabilization for both the upper and lower extremities, and it has the ability to lock, into place, a straight splint up to 24 inches. The RISE also has the ability to fold in upon itself; when folded in, it can be packaged to 4 inches in length, 6.375 inches in width, and .2 inches in depth. It uses lightweight metal alloy snaps and adhesive tape for fastening a splint securely to a casualty.

c. The IFAK Gen I/II contained an inside pouch that was designed to ensure supplies were easily visible. The IFAK Gen I/II has a low-profile, it is easy to attach onto the load bearing vest (LBV) system; it has multiple pouches for standard medical supplies, and it has the ability to hold class VIII medical supplies.

3. TEST DESIGN.

a. Test Context.

(1) Test Schedule. The RISE and IFAK Gen I/II CT consisted of training/familiarization and data collection. Table 1 shows the test schedule.

TABLE 1. TEST SCHEDULE

Event	Date
Training on RISE	8 April 2019
Familiarization on IFAK Gen I/II	8 April 2019
CT Start	8 April 2019
CT End	12 April 2019

(2) Test Players. Twenty-six Soldiers attending the Combat Lifesaver Course (CLC) served as the test players (hereafter referred to as CT players in this document); the CT players were from non-specific Military Occupational Specialties (MOS). This is a deviation from the CT plan that indicated 40 CT players would participate. The deviation is due to a reduction in the availability of CLC students. The CLC staff initially projected a student population of 40 personnel. The final number attending the course was 26 personnel. Table 2 shows the personnel who participated as test players.

TABLE 2. TEST PLAYERS

Tasked CT player title	MOS[a]	Test role	Quantity
Soldier	Non-Specific	CT caregiver/casualty	26
MOS[a] = Military Occupational Specialty			

(3) Tactical Context. The USAMEDDBD conducted the CT from 8 through 12 April 2019 at the MSTC. The 26 Soldiers who participated as CT players were from various III Corps units and were attending the CLC. The USAMEDDBD test personnel are hereafter referred to as USAMEDDBD CT team in this document, and the USAMEDDBD lead test officer is hereafter referred to as the primary USAMEDDBD CT officer. The CT players represented the typical users of the RISE with the IFAK Gen I/II. The CT players served as medical intervention providers, hereafter referred to as caregivers, and as simulated casualties.

(a) Prior to the arrival of the CT players, the USAMEDDBD CT team conducted preliminary testing in accordance with essential characteristics for the packaged size, weight, and reduction of the carbon footprint that were identified in the RISE with the IFAK Gen I/II customer test plan memorandum dated 21 February 2019.

(b) On day one, the CT players received two hours of familiarization and hands-on instructions from a vendor instructor on the RISE with the IFAK Gen I/II. The CT players also received familiarization training on the MARCH™ IFAK Resupply Kit and how to properly load the medical supplies into the IFAK Gen I and Gen II. After completing the familiarization and

instructions, the CT players were assigned personal identification numbers (PIN) and were divided into two groups of 13 CT players and were designated as CT Group A and CT Group B. The CT players were then instructed to verify that their issued IFAK Gen I/IIs and issued RISEs were part of each kit (with the MARCH™ IFAK Resupply Kit medical supplies packed) and were positioned on their LBVs.

(c) On day two, CT Group A remained in the classroom and conducted classroom testing using the RISE while wearing work gloves and CBRN gloves. The CT players in CT Group A were provided with the MARCH™ IFAK Resupply Kit packed with IFAK resupply kit medical supplies and were directed to load their IFAK Gen I or II with the medical supplies and RISEs. At the completion of loading the medical supplies into the IFAKs, the CT players in CT Group A were directed to unload the contents and to exchange IFAKs; those with the IFAK Gen I received the IFAK Gen II, and those with the IFAK Gen II received the IFAK Gen I. The step of loading of MARCH™ IFAK Resupply Kit medical supplies was repeated. Next, eight of the CT players from CT Group A assumed roles as caregivers and performed medical interventions using the RISE on simulated casualties, while wearing CBRN gloves (see Figure 5). The remaining five CT players assumed roles as simulated casualties with injuries that required a 90-degree splint for stabilization. Upon completion of the medical interventions, the CT players in CT Group A then switched roles and repeated the process. At the same time the CT players of CT Group A conducted classroom testing, the CT players of CT Group B were directed to move to the medical intervention lanes location and began to prepare their equipment configurations for operational field testing at the operational field testing site. CT Group B began execution of the test event, which was to locate the simulated casualty, to perform caregiver medical interventions, and to stabilize the simulated casualty. Upon reaching the test area, the CT players were provided with verbal instruction for the medical intervention lane scenarios, which were based on the simulated casualty's specified type of injury. The CT players in CT Group B executed the specified medical interventions at the five medical intervention lanes at the operational field testing site using the simulated casualties' (see Table 3) IFAK Gen I/II items and the RISEs. The USAMEDDBD CT team used stopwatches to time the deployments of the RISEs and recorded the findings on data collection sheets. The USAMEDDBD CT team verified completion of caregiver medical interventions and instructed the CT players in CT Group B to remove the medical intervention items and to repackage the RISEs and store them back into the IFAK Gen I/IIs. Once completed, the CT players in CT Group B were then directed to move to the next station.

Figure 5. CBRN Gloves While Using Metal Snaps.

TABLE 3. MEDICAL INTERVENTION LANES		
Station	Simulated Injuries	Caregiver Medical Intervention
1.	Casualty with broken right arm.	Apply splint at 90-degree angle.
2.	Casualty with broken left lower leg.	Apply straight splint.
3.	Casualty with broken right hand and wrist.	Adjust the splint length to accommodate hand and wrist area.
4.	Casualty with broken left foot.	Adjust the splint length to accommodate foot at 90-degree angle.
5.	Casualty with pelvic area injury.	Connect two splints to stabilize casualty.

(d) On day three, the two CT groups rotated. CT Group B conducted classroom testing in the designated classroom, and Group A proceeded to the operational field test site to conduct caregiver operational medical intervention tasks. The USAMEDDBD CT team observed the operations as the CT players from CT Group A executed caregiver medical intervention scenarios at the five medical intervention lanes at the operational field testing site (see Figure 6). The CT players from CT Group A on day three, and the CT players from CT Group B on day two, rotated roles as caregivers and simulated casualties to ensure each CT player from each CT group rotated through all of the medical intervention lanes.

Figure 6. Test Lanes Lined Using Engineering Tape.

(e) On day four, both CT Group A and CT Group B were assembled in the classroom where they completed CT player surveys and participated in a RISE after action review (AAR). The USAMEDDBD CT team performed quality assurance/quality control on each of the completed CT player surveys for content, completeness, readability, and flow of thought.

(f) On day five, a data collection effort was conducted at the request of the USAMMDA program manager in which the 12 CLC instructors at the MSTC use the RISE without first undergoing previous training. The CLC instructors, all of whom serve in MOS 68W (Health Care Specialist), were divided into pairs to perform simulated injury medical interventions on each other using the RISE. The CLC instructors performed medical interventions for the same five specific casualty injuries as the CT players performed during the CT: broken right arm, broken left lower leg, broken right hand and wrist, broken left foot, and pelvic area injury. The instructors rotated roles as caregivers and simulated casualties during each of the five medical intervention lanes.

b. Test Conduct.

(1) CT players received two hours of familiarization and hands-on instructions from the vendor instructor on using the RISE with the IFAK Gen I/II and on loading of the MARCH™ IFAK Resupply Kit medical supplies. Upon completing the familiarization and instructions, the CT players were assigned PINs and were divided into CT Groups designated as CT Group A and CT Group B.

(2) The CT players were instructed to verify that their issued IFAK Gen I/IIs and issued RISEs were part of each kit (with the MARCH™ IFAK Resupply Kit medical supplies packed) and were positioned on their LBVs. CT Group A remained in the classroom and conducted classroom testing using the RISE while wearing working and CBRN gloves. Seven of the CT players from CT Group A assumed roles as caregivers and performed medical interventions, and the remaining six CT players assumed roles as simulated casualties. The CT players performed three medical interventions for: a broken right arm, a broken right hand and wrist, and a broken left foot. When completed with the three medical interventions, the CT players switched roles and repeated the process.

(3) The CT players of CT Group B were directed to move to the medical intervention lane location to prepare the equipment configuration for operational testing at the operational field testing site. The CT players began execution of the test event, which was to locate the simulated casualties at each test lane, to perform caregiver medical interventions, and to stabilize the simulated casualties. Upon reaching the test area, the CT players were provided verbal instruction for the medical intervention lane scenarios, which were based on the simulated casualties' specified types of injuries. The CT players executed the specified medical interventions using the simulated casualties' IFAK Gen I/II items and the RISEs. The USAMEDDBD CT team used stopwatches to time the deployment of the RISEs and recorded the findings on data collection sheets. The USAMEDDBD CT team verified completion of caregiver medical interventions and instructed the CT players to remove the medical intervention items and to repackage the RISEs and store them back into the IFAK Gen I/IIs. Once completed, the CT players were then be directed to move to the next station.

(4) When all CT players from CT Group A and CT Group B completed their rotations through all five medical intervention lanes, they assembled back into the classroom to complete CT player surveys for the RISE and the IFAK Gen I/II. Upon completion of CT player surveys, the USAMEDDBD CT team reviewed the CT player surveys for completeness, readability, context, and flow of thought. The primary USAMEDDBD CT officer conducted an AAR for the RISE and then an AAR for the IFAK Gen I/II. Afterward, the USAMEDDBD CT team secured all test items. The CT players inventoried the test items used (RISEs, IFAK Gen I/IIs, and MARCH™ IFAK Resupply Kit), stowed the RISEs inside of the IFAK Gen I/IIs, and packed all test items into shipping boxes for shipment back to the MSS–PMO. Upon the conclusion of the event, data provided from the completed CT player surveys for the RISE and the completed DCE surveys for the IFAK Gen I/II, to include responses, comments, observations, and AAR comments, was input into an Excel spreadsheet format, analyzed, and the results were used in the development of the AOTR.

4. TEST LIMITATIONS AND IMPACTS. Table 4 shows the CT limitations.

TABLE 4. TEST LIMITATIONS

Limitation	Impact	Mitigation strategy
The CT daily operations were constrained in order to accommodate the CLC program of instruction on a non-interference basis.	Not all planned rotations could be accomplished within the time provided each day. (Low risk)	Data was collected at the start of each CT test event whenever CT players were available to participate. (Low risk)
Limited accessibility to CT players at the conclusion of CLC daily classes.	Delay in starting each day on a set timeline. (Low risk)	Additional time was added at the end of the CLC POI to accomplish planned daily rotations. (Low risk)
Reduced number of CT players to provide feedback during the CT. Initial plans called for 40 CLC students; 26 students attended CLC.	Reduced amount of Soldier feedback. (Low risk)	Data was collected at the end of each CT test; resulted in no direct effect on the CT. (Low risk)

5. OBSERVATIONS AND RECOMMENDATIONS. The recommendations are suggestions for improvement based on USAMEDDBD CT team recorded data and observation notes made during this CT.

a. Deployment times. The deployment times for CT players to remove the RISE from IFAK Gen I and to extend it for use, without work gloves and using a single splint, averaged 8.2 seconds; it took an average of 8.6 seconds to accomplish this using the IFAK Gen II. The deployment times for CT players when using two RISEs (using both the caregiver's and the casualty's) for the treatment in stabilizing a simulated casualty's pelvic area averaged 22.3 seconds without the wearing of work gloves. Twenty-two of the CT players mounted their IFAK Gen I/IIs on the opposite side of their dominant hands, the left side for right-handed CT players

and the right side for the left-handed CT players. The IFAK Gen I/II, when mounted on either side, had a tendency to move toward the back of the LBV during field operations. The moving or shifting of the IFAK Gen I/II toward the back made it difficult for the CT Players to reach and to access the RISEs, which increased their deployment times. Four CT players mounted their IFAK Gen II on the LBV on the front center and indicated that it made it easier to access the medical intervention items and the RISEs. The deployment times by the CT players who wore work gloves when using two RISEs as splints for pelvic stabilization increased to an average of 24.3 seconds (see Figures 7 and 8), which was an increase of two seconds in deployment time when wearing of work gloves. The CT players had some difficulty in inserting the tourniquet buckles through the pre-cut slots of the RISE; the issue persisted both when they did not wear gloves and when they did wear work gloves. In all configuration cases, the average time while deploying a single RISE was less than one minute; the requirement for deployment is met.

Figure 7. Pelvic Stabilization Using Two RISEs.

Figure 8. Pelvic Stabilization Wearing Work Gloves.

b. Equipment positioning. The positioning of the IFAK Gen I/II with the RISE on a CT player's LBV (see Figure 9) was dependent upon which hand was the dominant hand for each specific CT player. For the twenty-one right-handed CT players, the IFAK Gen I/II with the RISE was positioned on the left; for the five left-handed CT players, the IFAK Gen I/II with the RISE was positioned on the right. Four CT players mounted their IFAK Gen IIs with the RISEs on the on the front center of their LBVs.

Figure 9. Load Bearing Vest with IFAK Gen II Attached.

c. Classroom Testing. The RISEs were delivered by the vendor a couple of hours prior to the start of training on day one. They were not stowed inside the IFAK Gen I/IIs. The CT player teams stowed the RISEs inside the IFAK Gen I/IIs during the classroom test activities. They also used the MARCH™ IFAK Resupply Kits to resupply the IFAK Gen I/IIs prior to the start of the operational field test event. The CT players were instructed to load the IFAK Gen I/IIs with the MARCH™ IFAK Resupply Kit medical intervention items in accordance with the packing list and picture diagram provided (see Figure 10). Each of the CT players were able to load both the IFAK Gen I and IFAK Gen II properly with the MARCH™ IFAK Resupply Kit medical intervention items. The CT players, one-half with IFAK Gen Is and one-half with the IFAK Gen IIs, were then instructed to unload the IFAK Gen I/IIs and to place the medical intervention items on the tables as per the MARCH™ IFAK Resupply Kit listing and loading diagram. The CT player who had the IFAK Gen Is, and the CT players who had the IFAK Gen IIs, swapped the equipment with each other and repeated the task to load the IFAK Gen I and II to ensure each of the CT players had hands-on experience with MARCH™ IFAK Resupply Kit and both the IFAK Gen I and the IFAK Gen /II.

Figure 10. MARCH™ IFAK Resupply Kit Picture Diagram.

d. Stowing RISE. The RISEs were delivered by the vendor on day one of CT player training a couple of hours prior to the start of training; they were not stowed inside the IFAK Gen I/IIs. The CT players loaded the IFAK Gen I/IIs with the MARCH™ IFAK Resupply Kit medical intervention items in accordance with the packing list and picture diagram provided. Each CT player was able to load both the IFAK Gen I and IFAK Gen II properly with the MARCH™ IFAK Resupply Kit medical intervention items. The CT players were instructed to stow the RISEs into their IFAKs. They quickly discovered that stowing the RISE was challenging due to its length and thickness. The metal snaps slightly increased the thickness of the RISE, which made it a more difficult to manage in both the IFAK Gen I/IIs' available spacing; however, they were able to get the RISEs stowed inside the IFAK Gen I/II pouches (see Figures 11 and 12). The added length and thickness made it very difficult to close the securing flaps on both the IFAK Gen I and the IFAK Gen II.

Figure 11. IFAK Gen I with RISE Stowed.

Figure 12. IFAK Gen II with RISE Stowed.

e. CT Player Poll. The CT players were polled at the end of the RISE AAR session and were asked: "If you were issued the RISE "as is," which was what you used during testing, would you take and use it in combat?" The poll results were 24–"Yes" and 2–"No." When asked: "If you were issued the RISE with the recommendations incorporated, would you take and use it in combat?" The poll results were 26–"Yes" and 0–"No." The CT players were polled at the end of the IFAK Gen II AAR session and were asked: "If you were issued the IFAK Gen II "as is," which was what you used during testing, would you take and use it in combat?" The poll results were 26–"Yes" and 0–"No."

f. RISE Strengths.

(1) The RISE is compact.

(2) The material used is lightweight.

(3) The RISE is easy to deploy and to use.

(4) It is adjustable; sections can be folded, which makes it simple to size.

(5) It has the versatility to be molded to fit a casualty.

(6) The snaps are easy to use.

(7) The printed arrows and numbers made it simple to use.

(8) The RISE is integrated as part of the IFAK Gen I/II medical intervention items.

g. RISE Weaknesses and Recommendations.

(1) The snaps are tedious to use while wearing work gloves and CBRN gloves**. Recommendation:** Replace the smaller snaps with larger snaps for ease of use.

(2) The RISE's smooth surface makes it hard to grip and to mold it to a casualty. **Recommendation:** Add some texture to the RISE surface to provide additional grip while applying a splint to a casualty.

(3) It is not rigid enough for long extremities**. Recommendation:** Increase the rigidness and length of the RISE for use on longer extremities.

(4) The snaps did not hold the RISE in the 90-degree angle when used as a splint**. Recommendation:** Add more support or snaps to hold the RISE in the 90-degree angle so casualty's extremities cannot flex. (See appendix A for MTIR supporting data.)

(5) The pre-cut holes used for snaps tore easily when the RISE was used to splint a joint at a 90-degree angle when the casualty started to flex upper or lower extremities. **Recommendation:** Add more support around pre-cut holes to prevent tearing when used to splint a joint at a 90-degree angle.

(6) The caregiver's and casualty's RISEs were required for pelvic stabilization. **Recommendation:** Increase the length of the RISE to accommodate the treatment of pelvic stabilization through the use of only one RISE; allow it to be folded for more rigidness.

(7) The pre-cut slots for the tourniquet, when used for pelvic stabilization, tore when using the tourniquet to tighten the RISEs for more stabilization of the pelvic area. **Recommendation:** Increase the thickness of the RISE's pre-cut slots or reinforce the pre-cut slots with additional material.

(8) The use of the currently provided adhesive tape in the MARCH™ IFAK Resupply Kit (battle wrap) for securing the RISE to the casualty was not effective; the CT players had to use scissors to cut the battle wrap excess. **Recommendation:** Replace the currently provided adhesive tape with surgical tape or Velcro-type straps that can be used during a wet-weather environment or some self-locking straps.

(9) The pre-cut slots of the RISEs used for pelvic stabilization are too narrow, which makes it hard to fit the buckles of the tourniquets through the slots of the RISEs for stabilization of the pelvic area. **Recommendation:** Increase the width of the pre-cut slots for ease of using tourniquets.

(10) The RISE is not wide enough for use on Soldiers with large lower extremities. **Recommendation:** Increase the width of the RISE to accommodate larger lower extremities.

(11) It is hard to close the IFAK Gen I and IFAK Gen II closure flaps; securing the flaps is time-consuming when the RISE is stowed inside the pouch**. Recommendation:** The RISE's fold crease areas should be shorter to allow for the overall stow length to fit into the pouch and to ease the closing of the flaps.

h. Additional Observations.

(1) Objective Data Collection. The USAMEDDBD team conducted the collection of objective data that did not require the participation of CT players. The measured depth of RISE in stowed configuration was .75-inches, which does not meet the.2-inch requirement. The measured weight of the RISE was three ounces, which does not meet the two-ounce weight requirement.

(2) Training. The training provided by the vendor personnel, through the use of the instructional slides and through the incorporation of hands-on training, was adequate. The CT players followed the training with the test items (RISE with IFAK Gen I/II and MARCH™ IFAK Resupply Kit) on their desks, which provided them the opportunity to practice using the test items (see Figures 13 and 14) as the vendor instructor provided instructions. The CT players

also had the opportunity to ask various questions on the RISE, the IFAK Gen I/II, and MARCH™ IFAK Resupply Kit pertaining to procedural steps in use, functionality, and usability.

Figure 13. Soldiers Training With IFAK and MARCH™ IFAK Resupply Kit.

Figure 14. Soldiers Training With RISE.

(3) Quality Control and Quality Assurance. Before starting and during the training, the USAMEDDBD CT team initiated a quality control and quality assurance program. The RISE and IFAK Gen I/II test items were inspected and inventoried to ensure all test items and medical items within the IFAK Gen I/II were accounted for and available for training and testing. Additional accessories were verified to be available for use by CT players during the testing. After the CT, the CT players completed surveys and turned the completed surveys in to the USAMEDDBD CT team members, who reviewed them for completeness, readability, context, and flow of information.

(4) Modified Test Incident Report. (See Appendix A for MTIR supporting data.) During pelvic stabilization using two RISEs with a tourniquet, the pre-cut slots tore or ripped, and the slots were stressed and stretched out of configuration at the upper edges when the tourniquet was tightened. There had been several occurrences of this happening at the same test lane during pelvic stabilization; the incidents were documented in one modified incident report and supporting pictures were attached. During the upper arm stabilization in which the RISE is used to splint a 90-degree angle, the pre-cut holes tore or were ripped. The pre-cut holes were stressed and stretched out of their normal configuration at the outer edges. Once the snaps were fastened, the extremity angle started to flex. There had been several occurrences of this happening at the test lanes that required use of the RISE to splint a 90-degree angle for stabilization; the incidents were documented in one modified incident report, and the supporting pictures are attached.

(5) PM Data Collection Effort. Each of the CLC instructors assumed roles as caregivers and simulated casualties after only having written instructions provided as their guide on how to use the RISE to stabilize each of the simulated casualties for each specific injury. The CLC instructors, as a group, were polled the following question: "Do you believe that having only the written instructions as a guide for applying the RISE is enough for a Soldier to use on an injured casualty who needs a splint?" The poll results were 12–"Yes" and 0–"No." The CLC instructors, as a group, were polled also were also polled with the following question: "If you were issued the RISE "as is," which was what you used during testing, would you take and use it in combat?" The poll results were 9–"Yes" and 3–"No."

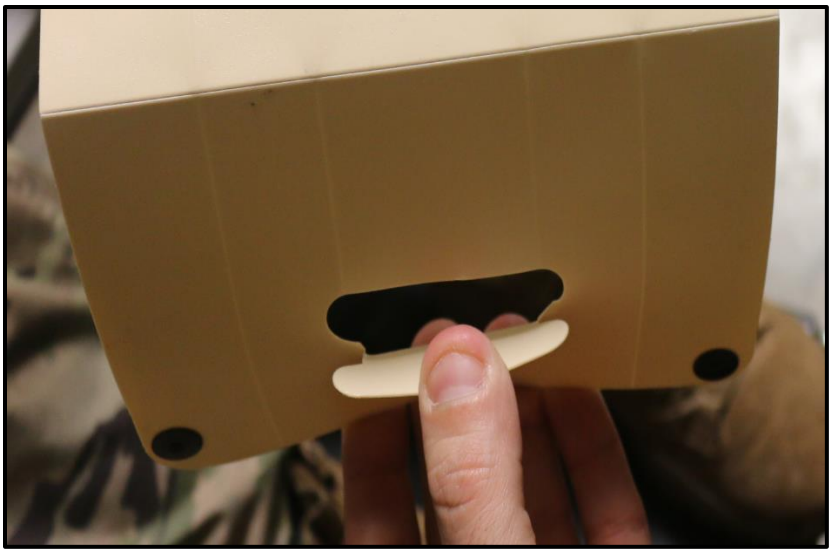
APPENDIX A

MTIR SUPPLEMENTAL DATA

A–1. Modified Test Incident Report. The MTIR below reflects an issue experienced during the pelvic stabilization of simulated casualties with the RISE in which the pre-cut slots tore or ripped at the ends.

1. RISE ISSUES.

PROJECT TITLE: RISE2 with IFAK Gen I/II CT	PROJECT NO: 17-18a	INCIDENT NUMBER: 001
TEST AGENCY: US Army Medical Department Board	REGISTRATION NUMBER: N/A	
I. MAJOR ITEM DATA: RISE SERIAL NUMBER: N/A		
II. INCIDENT DATA		
TITLE: RISE Malfunction – Pre-cut Slots	DATE: ____04/09/2018 (MMM/DD/YYYY) TIME: __1500_____ HH:MM	
PROBLEM TYPE: CRITICAL	OBSERVED DURING: Pelvic Stabilization	
III. INCIDENT DESCRIPTION		
Give a full description of the incident: 1. RISE manufacturer's pre-cut slots used for attaching tourniquet for the stabilization of pelvic area tore or ripped at upper edges (MTIR figure 1 and 2).		
IV. CORRECTIVE ACTION TAKEN		
Give a full description of action(s) taken and results achieved: Took photographs of damaged RISEs and replaced all that were torn or ripped as problems occurred.		
NAME, TITLE, & PHONE NUMBER OF PREPARER: Gary Cabigon, Lead CT Officer, 210-295-9950	PROJECT OFFICER (SIGNATURE):	
ORGANIZATION/LOCATION: USAMEDDBD/JBSA Fort Sam Houston	COMMERCIAL PHONE/TERMINAL: 210-295-9950	



MTIR Figure 1.

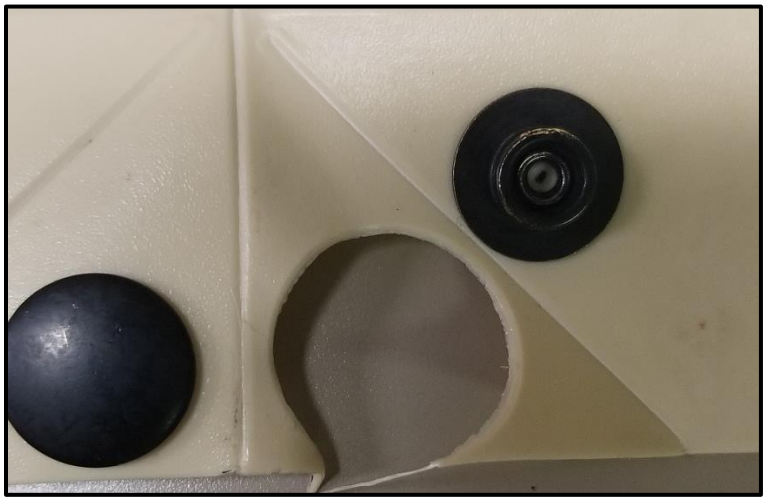
MTIR Figure 2.

A–2. Modified Test Incident Report. The MTIR below reflects an issue experienced during the 90-degree angle stabilization of simulated casualties in which the RISE's pre-cut holes stressed or ripped out of their original configuration.

2. RISE ISSUES.

PROJECT TITLE: RISE with IFAK Gen I/II CT	PROJECT NO: 17-18a	INCIDENT NUMBER: 002
TEST AGENCY: US Army Medical Department Board	REGISTRATION NUMBER: N/A	
I. MAJOR ITEM DATA: RISE SERIAL NUMBER: N/A		
II. INCIDENT DATA		
TITLE: RISE Malfunction - 90% pre-drilled hole	DATE: ___04/09/2018 (MMM/DD/YYYY) TIME: __1600_____ HH:MM	
PROBLEM TYPE: CRITICAL	OBSERVED DURING: Operational Field Testing -	
III. INCIDENT DESCRIPTION		
Give a full description of the incident: 1. RISE manufacturer's pre-cut hole used for molding the 90% angle ripped at the outside edges (MTIR figure 3 and 4).		
IV. CORRECTIVE ACTION TAKEN		
Give a full description of action(s) taken and results achieved: Took photographs of damaged RISEs and replaced with another RISE.		
NAME, TITLE, & PHONE NUMBER OF PREPARER: Gary Cabigon, Lead CT Officer, 210-295-9950	PROJECT OFFICER (SIGNATURE):	
ORGANIZATION/LOCATION: USAMEDDBD/JBSA Fort Sam Houston	COMMERCIAL PHONE/TERMINAL: 210-295-9950	

MTIR Figure 3.



MTIR Figure 4.

ACRONYMS AND ABBREVIATIONS

AAR	after action review
AOTR	abbreviated operational test report
CBRN	chemical biological radiological nuclear
CLC	combat lifesaver course
CT	customer test
IFAK	Individual First Aid Kit
Gen I/II	Generation I/II
LBV	load bearing vest
MOS	military occupational specialty
MSTC	Medical Simulation Training Center
MTIR	modified test incident report
PIN	personal identification number
POI	point of injury
RISE	Rigid Immobilization System for Extremities
USAMEDDBD	U.S. Army Medical Department Board
USAMMDA	U.S. Army Medical Materiel Development Activity

(This page is intentionally blank.)

DISTRIBUTION

AGENCY	POC	.MIL ADDRESS
U.S. Army Medical Materiel Development Activity, Non-Medical Systems, Medical Support Systems, Program Manager Office (MSS–PMO),	Mr. Jaime Lee	jaime.m.lee2.civ@mail.mil
U.S. Army Medical Command Center of History and Heritage	Mr. Nolan Watson	nolan.a.watson.civ@mail.mil
AMEDDC&S Capabilities Development and Integration Directorate	Dr. Chris Gardiner	chris.h.gardiner.civ@mail.mil
AMEDDC&S Directorate of Training and Academic Affairs, Curriculum Development Division, Force Modernization Training Branch	Mr. James Smith	james.l.smith76.civ@mail.mil
Defense Health Agency Medical Logistics Division	CAPT Richard Zeber	richard.g.zeber.mil@mail.mil
Defense Technical Information Center (DTIC)	N/A	https://www.dtic.mil (see Note.)
NOTE: The USAMEDDBD will upload the AOTR onto the DTIC repository for technical documents through an established DTIC account.		

FOR OFFICIAL USE ONLY