

Summary Report for Individual Task  
052-247-1232  
Establish Access and Egress Openings for a Heavy Vehicle Incident  
Status: Approved

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**Distribution Restriction:** Approved for public release; distribution is unlimited.

**Destruction Notice:** None

**Foreign Disclosure: FD1** - The materials contained in this course have been reviewed by the course developers in coordination with the MSCOE/Ft. Leonard Wood MOJ foreign disclosure authority. This course is releasable to students from all requesting foreign countries without restrictions.

**Condition:** You are a member of an Urban Search and Rescue (US&R) team given a heavy vehicle incident in varying positions, vehicle tool kit, specialized tools and equipment, personal protective equipment (PPE). This task should not be trained in MOPP 4.

**Standard:** Establish access and egress openings ensuring the movement of rescuers and equipment compliments victim care and removal. The technique chosen is expedient, victim/rescuer protection is afforded, and vehicle stability is maintained IAW National Fire Protection Association (NFPA) 1006 and 1670 standards.

**Special Condition:** None

**Safety Risk:** Medium

**MOPP 4:** Never

**Task Statements**

**Cue:** None

**DANGER**

None

**WARNING**

None

**CAUTION**

Do not cause further injury to the victim. Reassure the victim during extrication and if possible, provide a blanket or tarp to protect the victim when making access or egress openings.

**Remarks:** All required references and technical manuals will be provided by the local US&R Command.

**Notes:** NFPA defines heavy vehicle as a "heavy duty highway, off road, construction, or mass transit vehicle constructed of materials presenting resistance to common extrication procedures, tactics, and resources and posing multiple concurrent hazards to rescuers from occupancy, cargo, size, construction, weight or position." This task focuses on a mass transit vehicle (bus or school bus) because of the complexities and the vehicle's safety features and should not be taken as a "bus only" extrication. Other heavy vehicles can be substituted in the various steps and it does not take away from the seriousness of any other heavy vehicle.

**Material Items (NSN)**

## Performance Steps

1. Stabilize the vehicle(s). (See task 052-247-1326)
2. Neutralize the power sources and other hazards to ensure the vehicle(s) is/are not energized. (See task 052-247-1230)
3. Determine access and egress points of the vehicle(s).
  - a. Determine the location of the victim(s).
  - b. Identify access and egress points based on the vehicle's position.

Note: Air bags, reinforced panels and energy absorbing bumpers should be considered when determining access/egress points.
4. Create an opening(s) in a bus.
  - a. Create access through the front door.
    - (1) Operate the manual controller.
      - (a) Break entry door glass with center punch or axe to gain access to center pivot arm control lever.
      - (b) Reach in through door glass window with pike pole or other tool to operate control lever.



Figure 052-247-1232-1  
Pike Pole

- (2) Operate the air actuated controller.

Note: Air actuated doors can only be operated if there is air in the tank reservoir. If the air tank has been punctured or there is no air left in the tank, then an alternate method of gaining access through the doors will be required.

  - (a) Look inside the bus to locate switch which is usually located to the left of the driver's instrument console.

(b) Reach in through the driver's side window and operate the main switch.

(3) Enter through the door that will not operate manually.

(a) Remove all the safety glass from the entry door by removing the gasket and pushing the panels inward or breaking and/or cutting the glass out using the appropriate techniques. (See task 052-247-1327)



Figure 052-247-1232-2  
Door Glass Removal

(b) Cut out the cross shaped existing panels with a reciprocating saw or hydraulic cutter. Cut an A-post and side /front windshield if additional access is needed.



Figure 052-247-1232-3  
Cutting Cross Shape Panel

- (c) Make entry into the bus once one side of door is removed.
- (d) Cut the lever arm controller with a hydraulic cutter if opening and closing is inoperable.
- (e) Place removed debris outside hot zone.

b. Create windshield access.

(1) Remove the glass windshield.(Method 1)

- (a) Make a purchase point opening at the top of the window by striking the window using a Halligan bar or a glass hand saw.

Note: Purchase point is the location where access can best be gained. Purchase point is a common term used in vehicle rescue/extrication where a "hole" is created so other tools can be used.



Figure 052-247-1232-4  
Window Purchase Point

(b) Cut out the two sections of glass using a reciprocating saw cutting through the center divided bar and working the blade around the inside perimeter of the windshield.

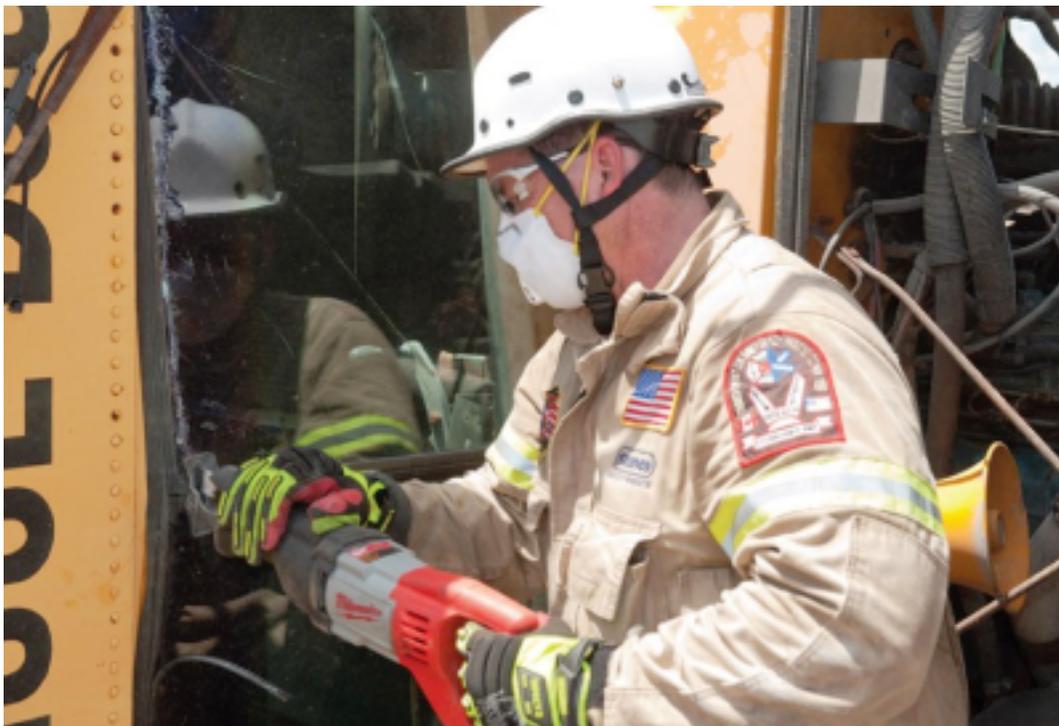


Figure 052-247-1232-5  
Using a Reciprocating Saw to Create an Opening

(c) Remove the windshield and place it in a designated debris pile outside of the hot zone.

(2) Remove the glass windshield. (Method 2)

(a) Pry up a section of windshield gasket using a large flat-head screwdriver or some type of prying tool.

(b) Remove the entire gasket by pulling it around the entire perimeter of the windshield.

(c) Use the prying tool to work the corner of the glass away from the frame.

(d) Pull the entire glass toward you and out of the casing.



Figure 052-247-1232-6  
Bus Winshield Removal

(e) Remove the windshield and place it in a designated debris pile outside the hot zone.

c. Create side wall access.

(1) Remove the windows from the side of the vehicle.

(a) Cut through the screw attachment or screw heads that lock the windows to the bus frame with a pneumatic air chisel tool kit.

(b) Pull out the window once these attachments or screws are removed.

(2) Cut the window support truss that divides the two windows using a hydraulic cutter utilizing a cross-cut technique to keep the post stub from protruding downward.



Figure 052-247-1232-7  
Cutting the Window Support Truss

(3) Cut the outside of bus with reciprocating saws.

(a) Cut downward on the two sections of the sidewall.

(b) Begin cutting just inside the outer section of the window frame where two window support trusses form the outer frame of the two windows that were removed.

(c) Cut down past the first rub rail.



Figure 052-247-1232-8  
Vertical Cuts

(4) Establish a relief cut.

(a) Create two holes on both sides of the lower section of the window support truss in the general area of the seat level rub rail.

\_1\_ Direct an additional rescuer to hold a halligan bar with spiked end in area where holes will be made.

\_2\_ Drive the spiked end of the halligan bar into the sidewall by striking it with the flat-head axe.



Figure 052-247-1232-9

## Create Two Holes

(b) Insert the blade of a reciprocating saw into one of the holes just created and cut through the window support truss which will now act as a relief cut.



Figure 052-247-1232-10  
Relief Cut

(5) Grip the top of the window support truss that was cut and pull out and downward, taking with it the entire sidewall that was just cut out.



Figure 052-247-1232-11  
Pull Down on Center Roof Truss

d. Create an access opening in a bus floor.

Note: Gaining access through the floor of a bus should only be used as a last resort.

(1) Identify the two adjacent main supporting beams between which the opening will be made.

## WARNING

Take extra care when attempting to breach the floor of a bus due to the danger of flash fire. Keep charged fire extinguishers ready and manned at all times.

(2) Cut two sections in the end of each of the supporting beams that lie between the main supporting beams using an air chisel or power shears.

(3) Knock out the small section of beam between the cuts using a sledge hammer or similar tool.

(4) Cut an access hole in the floor of the bus using an air chisel or other tool.

(5) Insert the blade of the reciprocating saw into the access hole and cut the floor.

(6) Fold back the flap of flooring to create the access opening once three sides of a square or rectangular opening have been cut.

e. Create access through the rear door.

(1) Bus in a normal position.

(a) Attempt to open door manually.

Note: Proceed to the next step if the rear door does not open.

(b) Remove the two safety glass panels located within the rear door frame.



Figure 052-247-1232-12  
Removal of Rear Door Glass

\_1\_ Use glass tool if tempered glass.

\_2\_ Use a hand glass saw to cut out laminate glass.

(c) Place the hydraulic spreader with the arms vertical in the lower window frame opening, and perform a spread technique.



Figure 052-247-1232-13  
Hydraulic Spreader in Lower Window Frame

(d) Place the tips of the spreader into the door frame once purchase point has been made to create a larger opening, working the tool upward toward the latching mechanism.



Figure 052-247-1232-14  
Tips of Spreader in Rear Door Frame

(e) Cut the latch using a hydraulic cutter once a large enough opening has been created around latching mechanism, which will release the door.

(f) Tie the door back once the door is released in the open position utilizing rope or webbing material.



Figure 052-247-1232-15  
Rear Door Tied Back

(2) Bus on its side.

(a) Attempt to open the door manually.

(b) Build a standing platform to work from so the tools are not elevated and operated over your head.

(c) Remove all safety glass from rear windows using the appropriate technique.

(d) Cut through the top section of the door frame using the hydraulic cutter.

(e) Cut diagonally into the bottom corner section of the top window where the door latch and the top window frame meet. Cut line should be directed downward toward the corner of the bottom window frame of the door.

(f) Cut diagonally upward, toward the upper frame, attempting to meet the first cut.

Note: If two cuts do not meet, then take a reciprocating saw and complete the cut or attempt to work the hydraulic cutter upward, cutting away the last remaining section.

f. Establish roof access opening in a bus roof (bus on its side).

(1) Locate the area of the roof that will be designated as an exit/egress path.

Note: The height of the opening will vary depending on the structure and position of the bus as well as the overall height of the rescuer. An adequate area can measure six foot tall and five foot wide, depending on where the roof bow trusses are located. Be aware that all buses are not the same, and some may have additional support members such as roof stringers that run perpendicular to roof trusses, these can be identified by the presence of rivets.

(2) Count three roof bow trusses and cut the outside dimensions of the opening just inside the two outer roof bow trusses, the center bow truss should be positioned directly in the middle of your opening.

Note: To maintain an even cut or opening, you can mark or draw your opening to give yourself a cutting guide.

(3) Create four purchase point holes using a halligan bar and flat-head axe or appropriate striking tool. The first two holes will be just on the outside of the center roof bow truss at the top, which will mark the top dimension of your opening.

(4) Insert the blade of a reciprocating saw (with help from another rescuer on opposite side with reciprocating saw) into the top purchase point hole just created and start the opening cuts.

Note: Do not cut the top center roof bow truss until last. The saws should move in opposite directions outward and then down, staying inside the rivets.



Figure 052-247-1232-16  
Purchase Point Cut

(5) Continue cutting back to the center roof bow truss with the intention of removing the entire section of metal, or the section can be pulled down or flapped.

Note: If the plan is to flap, then use one saw to cut the bottom center roof bow truss, inserting the blade into the purchase point opening that was made and cutting completely through the roof bow truss.

(6) Cut at the top section of the center roof bow truss in the same fashion, remember this needs to be cut last.

(7) Pull the entire section of metal that was just cut downward, place a tarp or covering over the flapped or cut section to avoid injury to rescuer and victim.



Figure 052-247-1232-17  
Roof Opening

g. Establish rear wall access.

(1) Cut to the top of the window post nearest the door and along the floor level of the rear wall using a cutting tool.



Figure 052-247-1232-18  
Window and Floor Level Posts

- (2) Create relief cuts just inside the corner post of the bus.
- (3) Fold cut flaps to the side to increase the opening size.



Figure 052-247-1232-19  
Folding the Flaps to the Side

h. Establish a front cab flap-over (flapping a bus roof).

(1) Cut the three front window "A" roof posts after removing the front windshield.



Figure 052-247-1232-20  
Cutting the Front Window Roof Posts

- (2) Cut the B-posts on each side.
- (3) Create relief cuts in the roof slightly behind the B-posts.
- (4) Attach a chain around the roof and connect it to a come-along.
- (5) Connect the come-along to an anchor point.



Figure 052-247-1232-21  
Flapping the Roof

(6) Operate the come-along and raise the roof back to create the flap.

(Asterisks indicates a leader performance step.)

**Evaluation Guidance:** Score the Soldier GO if all measures are passed (P). Score the Soldier NO-GO if any measure is failed (F). If the student fails any measure, show him how to do it correctly.

**Evaluation Preparation:** Provide the Soldier with all the items listed in the conditions. Tell the Soldier to establish access and egress openings for a heavy vehicle incident.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Stabilized the vehicle(s). (See task 052-247-1326)			
2. Neutralized the power sources and other hazards to ensure the vehicle(s) was/were not energized. (See task 052-247-1230)			
3. Determined access and egress points of the vehicle(s).			
4. Created an opening(s) in a bus.			

**Supporting Reference(s):**

Step Number	Reference ID	Reference Name	Required	Primary
	IFSTA	International Fire Service Training Association ( IFSTA) Fire Service Search and Rescue, 7th Edition	No	No
	IFSTA - 1st Edition	IFSTA Technical Rescue for Structural Collapse, 1st Edition	No	No
	ISBN 978-1449648827	Vehicle Extrication, Levels I and II, David Sweet, Jones and Bartlett Learning. <a href="http://www.jblearning.com/fire/rescue/">http://www.jblearning.com/fire/rescue/</a>	No	No
	NFPA 1006	Standard for Rescue Technician Professional Qualifications	Yes	Yes
	NFPA 1670	Standard on Operations and Training for Technical Search and Rescue Incidents. 2009 Edition	No	No

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

**Prerequisite Individual Tasks :** None

**Supporting Individual Tasks :**

Task Number	Title	Proponent	Status
052-249-2122	Respond to a Ground Vehicle Emergency	052 - Engineer (Individual)	Approved
052-247-3201	Supervise Rescue Operations at an Urban Search and Rescue Incident	052 - Engineer (Individual)	Approved
052-247-1231	Stabilize Heavy Vehicles and Machinery	052 - Engineer (Individual)	Analysis
052-247-1225	Construct Cribbing System(s) to Stabilize a Load	052 - Engineer (Individual)	Approved
052-249-1154	Utilize Airlifting Bags and Cribbing	052 - Engineer (Individual)	Approved
052-247-4101	Develop an Incident Action Plan for an Urban Search and Rescue Incident	052 - Engineer (Individual)	Analysis
052-247-3101	Perform a Size Up of an Urban Search and Rescue Incident	052 - Engineer (Individual)	Approved
052-247-1230	Neutralize Power Sources and Other Hazards for a Vehicle or Machinery Incident	052 - Engineer (Individual)	Approved

**Supported Individual Tasks :**

Task Number	Title	Proponent	Status
052-247-1225	Construct Cribbing System(s) to Stabilize a Load	052 - Engineer (Individual)	Approved
052-247-1233	Rescue an Injured or Entrapped Victim from a Heavy Vehicle or Machinery Incident	052 - Engineer (Individual)	Analysis

**Supported Collective Tasks :** None