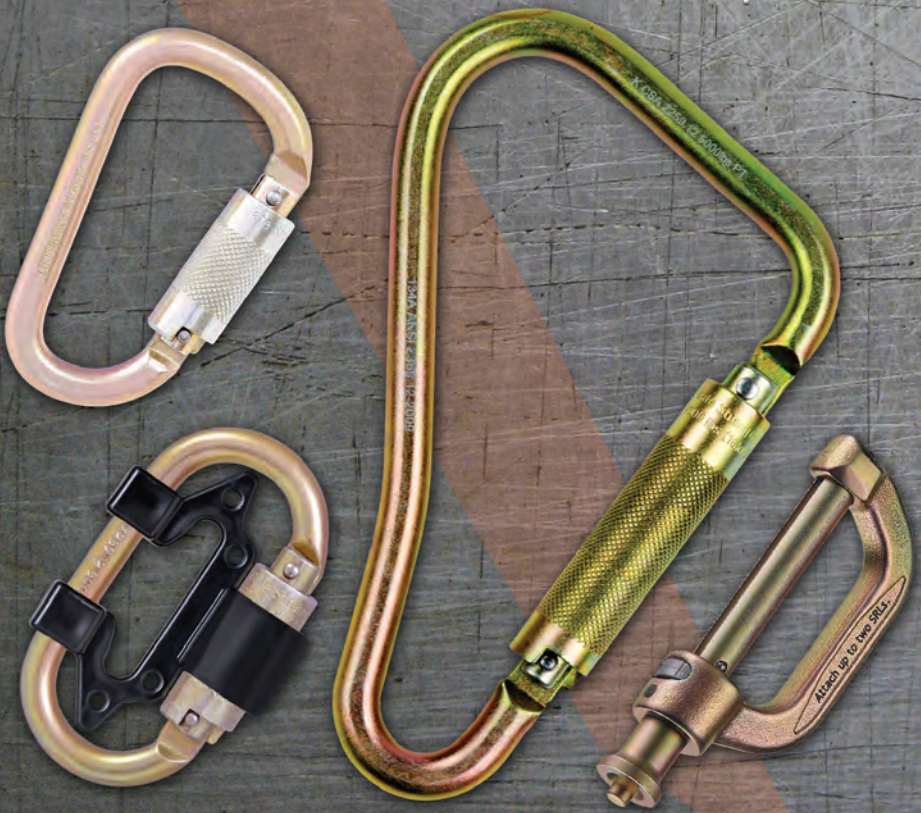
MALTA DYNAMICS

Connecting Hardware Instruction Manual

C1000, C1001, C1002, C1004, C1005



Connecting Hardware
INSTRUCTION MANUAL

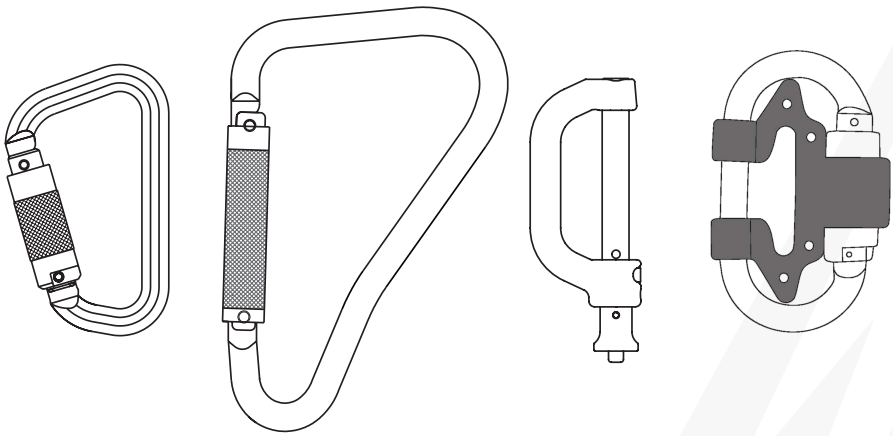
These instructions apply to the following model(s):

C1000 - 1/4” Turn Locking Carabiner
C1001 - 1/4” Turn Locking Carabiner
C1002 - Tower Hook
C1004 - Dual SRL Connector
C1005 - Dual Connector

Manual Revision Code:
MD-CHUIM160805

A copy of this manual must be available to users at all times. Visit www.MaltaDynamics.com for the latest user instruction manual based upon date of manufacture.

C1000 & C1001 **C1002** **C1004** **C1005**



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UNDER PENALTY OF LAW

This manual must be read and understood in its entirety and used as part of your fall protection training program as required by OSHA 1926 and State and local regulatory agencies. This instruction manual is intended to meet industry standards required by and ANSI Z359.0-2007 and should be used as part of an Employee Fall Safety training program as required by OSHA. User must read and fully understand the limitations and proper use of the equipment, and be properly trained by employer prior to use per OSHA 29 CFR 1910.66, 29 CFR 1926.503, and applicable local standards.

NOTE: This *User Instruction Manual* is not to be removed except by the user of this equipment. Current *User Instruction Manuals* must always be available to the user. Read and understand these instructions before using equipment. *Do not discard these instructions.*

WARNING

Misuse or failure to follow warnings, instructions and limitations on the use of this equipment may result in serious personal injury or death. For further instructions about proper use, refer to supervisor or contact Malta Dynamics at 1-800-494-1840.

MATERIALS AND CONSTRUCTION

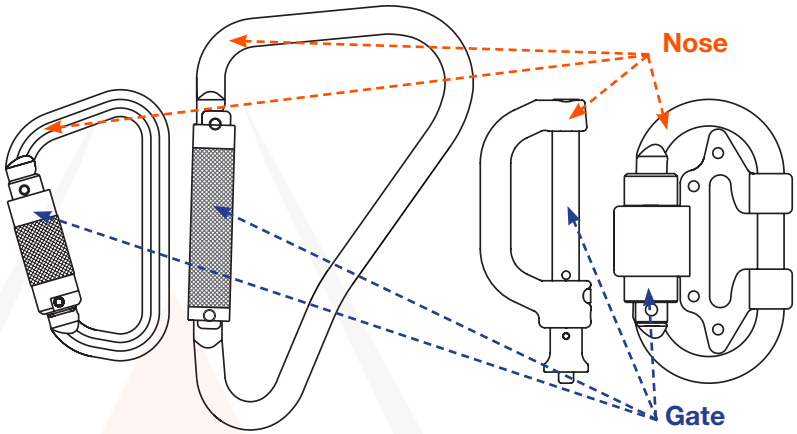
Connector Materials

- Galvanized Alloy Steel
- High-Strength Aluminum Alloy

PURPOSE

Malta Dynamics connectors are intended for use as part of a personal fall arrest system. Such connectors must be used only in combination with other necessary component of such systems.

Description of Hardware Parts:



APPLICATIONS

Personal Fall Arrest:
Personal Fall Arrest Systems typically include a full body harness and a connecting subsystem such as a self-retracting lifeline. Maximum permissible free fall is 6 ft. This type of system is used where a free fall is possible before the fall is arrested.

Restraint:
Restraint systems typically include a full body harness and a lanyard or restraint line used to restrain the user from reaching a hazard. This type of system is used where no vertical free fall is possible.

Work Positioning:
Work positioning systems typically include a full body harness and a lanyard to position or support the user at the work position. Maximum permissible free fall is 2 ft.

Suspension:
Suspension systems typically include a full body harness, chair and a lanyard that is used to suspend or transport the user vertically.

Rescue:
Rescue systems typically include a full body harness and a connecting subsystem such as a lanyard that is used to retrieve a victim in a rescue application.

Do not use Malta Dynamics snap hooks/rebar hooks or carabiners for material handling applications.

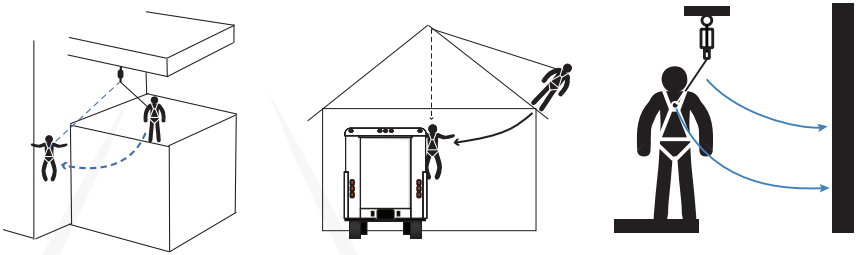
INSTRUCTIONS FOR USE

WARNING

Do not alter or intentionally misuse this equipment.

- Personal Fall Arrest System (PFAS) MUST limit maximum arrest forces to 1800 lbs. (8kN) or less.
- Employees shall be trained in accordance with the requirements of OSHA 29 CFR 1910.66 in the safe use of the system and its components before using a PFAS.
- Inspect all Personal Fall Arrest System equipment for wear, damage, and other deterioration prior to each use. Remove defective equipment from service immediately.
- Thoroughly evaluate and plan all elements of Fall Protection System(s) before using this equipment. Make sure that your Personal Fall Arrest System is appropriate for your needs and facility. Calculate fall clearance and swing fall clearance. The amount of clearance required is dependent on the type of connecting subsystem, the anchorage location, and other factors. When calculating distance, be sure to consider:
  - Deceleration Distance
  - Movement of harness attachment element (D-ring)
  - Free Fall Distance
  - Height of the worker (how tall is the worker?)
  - Elevation of Anchorage Connector
  - Connecting Subsystems length
- Swing falls occur when the anchorage point is not directly above the point where a fall occurs.The force of striking an object in a swing fall may cause serious injury or death. Minimize potential for swing falls by working as close to the anchorage point as possible. Do not permit a swing fall if injury could occur. Swing falls significantly increase the amount of clearance required. **See Illustration 1.**

Illustration 1: Examples of Swing Fall Hazards



- Users must have a written rescue plan and the means to implement it. This plan must provide prompt employee rescue or assure that employees have the ability to rescue themselves in the event of a fall.
- Store this equipment in a cool, dry, and clean environment that is out of direct light when not inuse to prevent UV degradation.
- This equipment must be removed from service immediately if a fall is incurred.

LIMITATIONS FOR USE

WARNING

Do not use this equipment if you are unable to tolerate the impact of a fallarrest. Age and fitness can seriously affect your ability to withstand a fall. Consult with a physician if in doubt. Minors, pregnant women, and anyone with a history of back and/or neckproblems must not use this equipment.

WARNING

Use caution when employing this equipment around machines, electricalhazards, chemical hazards and sharp edges or abrasive surfaces, as contact may cause equipment failure, personal injury, or death.

- This equipment is designed for a single user. Combined weight of user, including clothing, tools, etc. must not exceed weight capacity of up to 310 lbs. Only one personal protective system may be connected to the connectors/anchorage connectors at any time except for emergency situations.
- Use only with structures capable of supporting static loads required for Personal Fall Arrest Systems (PFAS) as follows:
- **FALL ARREST:** Anchorages used for PFAS must be capable of sustaining static loads in the directions permitted by the PFAS of at least: 3,600 lbs. with certification of a qualified person; or 5,000 lbs. without certification. When more than one PFAS is attached to an anchorage, the strengths stated above must be met independently at and for each anchorage location. Use of a PFAS is recommended to protect the user from a ptential fall if the work positioning system disengages from its anchorage point, or when worker detaches from the work positioning system when traveling from point to point.
- Do not expose this equipment to chemicals or harsh solutions that may have a harmful effect.
- User must not use or install equipment before receiving proper training from a Competent Person, as defined by OSHA 29 CFR 1926.32(f).
- Only Malta Dynamics shall make repairs or alterations to the equipment.

CONNECTOR COMPATIBILITY LIMITATIONS

Malta Dynamics equipment must be coupled only to compatible connectors that are suitable to the specific application. Connectors (snap hook/rebar hook, carabiner and D-ring) must be capable of supporting at least 5,000 lbs. (22kN). Connectors must be compatible with the anchorage and all other system components. Ensure all connections are compatible in size, shape and strength.

Ensure all connectors are fully closed and locked. OSHA 29 CFR 1926.502 prohibits the use of snap hooks/rebar hooks to engage to objects unless the following requirements are met:

- Snap hook/rebar hook must be a locking type.
- Snap hook/rebar hook must be explicitly designed for such a connection. “Designed for” means that the manufacturer of the snap hook specifically created the snap hook/rebar hook to be used to connect to the equipment in question.

Use of a non-locking snap hook/rebar hook can result in rollout (a process by which a snap hook/rebar hook or carabiner unintentionally disengages from another connector or object to which it is coupled). Malta Dynamics connectors (snap hooks/rebar hooks and carabiners) are designed to be used only as specified in each product’s user’s instructions.

Avoid the following types of connections:

- Connection of two (or more) snap hooks/rebar hooks or carabiners to one D-ring.
- Connection of a snap hook/rebar hook back to its integral lanyard.
- Direct connection of a snap hook/rebar hook to horizontal lifeline.
- Connection in a manner that results in a load on the gate. NOTE: *Large throat opening snap hooks should not be connected to standard size D-rings or similar objects, as such use will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on structural elements such as rebar or cross members that are not shaped in such a way that they may capture the gate of the hook.*
- False engagement connections, where protruding features of the snap hook/rebar hook or carabiner may catch on the anchor and seem to be fully engaged to the anchor point. Always confirm engagement.
- Connection to snap hooks or carabiners.
- Do not connect a snap hook/rebar hook into a loop or thimble of a wire rope or attach in any way to a slack wire rope.
- Direct connection to webbing lanyard, webbing loop, rope lanyard or tie-back (unless the manufacturer’s instructions for both the lanyard and connector specifically allow such a connection).
- Connection of a snap hook to a D-ring, rebar, or other connection point of improper dimensions in relation to the snap hook dimensions or configurations that could cause the snap hook keeper to be depressed

by a turning motion of the snap hook, or such that snap hook or carabiner will not fully close and lock, or that roll-out could occur.
- Snap hook/rebar hook must be free to align with applied load as intended.
- Carabiner may be connected to a loop or ring connector already occupied by a choker style connector. This type of connection is prohibited for snap hooks/rebar hooks.

Illustration 2 depicts examples of a few of these inappropriate connections:

Illustration 2: Inappropriate Connections

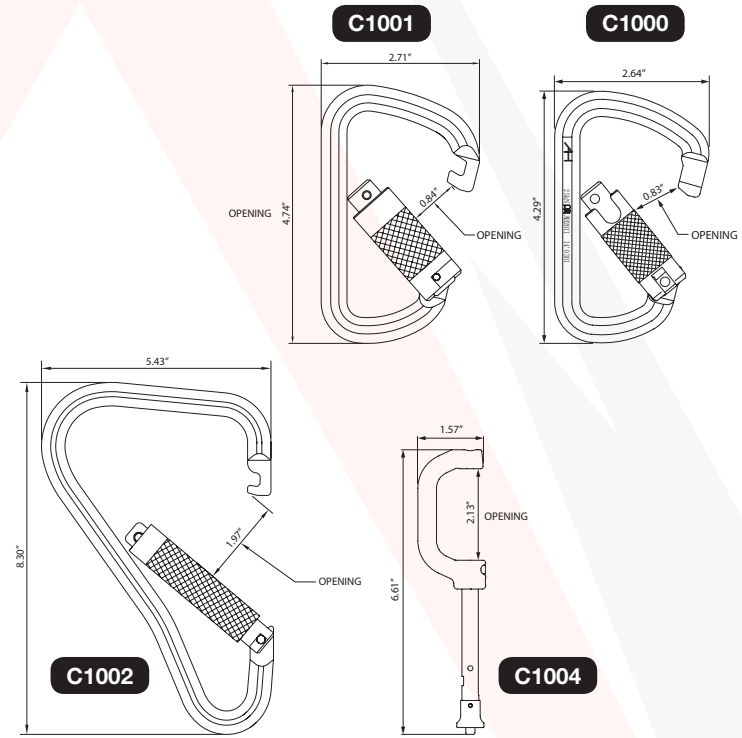
CONNECTING COMPONENT LIMITATIONS

- For use by one person only, weight max. 310 lbs. (including clothing, tools, etc.)
- Do not use if any part of the device appears to be damaged.
- Do not attempt to service the device or alter it in any way.
- A Competent Person must ensure compatibility of all connections and the system.
- Acidic or caustic solutions may cause damage to the equipment, especially at elevated temperatures. Contact Malta Dynamics if doubt exists concerning installing this equipment where chemical hazards are present.
- Do not install this equipment where they, or the user, may come into contact with electrical power lines.

PERFORMANCE

All Malta Dynamics carabiners and snap hooks/rebar hooks are statically tested in accordance with the requirements of ANSI Z359.12-2012 standards. All gate strengths (side and face) are rated 3,600 lbs (16kN). Proof load of 3,600 lbs (16kN).

Model/ Part #	Type	Material	Gate Opening	Weight	Minimum Tensile Breaking Strength	Minimum Gate Face Strength	Minimum Gate Side Strength	Minimum Minor Axis Load Strength	Standard
C1000	1/4 Turn Locking Carabiner	Zinc Plated Alloy Steel	0.83 in.	0.57 lbs.	5,000 lbs. (22kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	ANSI Z359.12-2009
C1001	1/4 Turn Locking Carabiner	Zinc Plated Alloy Steel	0.84 in.	0.58 lbs.	5,000 lbs. (22kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	ANSI Z359.12-2009
C1002	Tower Hook Carabiner	Galvanized Alloy Steel	1.97 in.	1.65 lbs.	5,000 lbs. (22kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	ANSI Z359.12-2009
C1004	Dual Connector	Zinc Plated Alloy Steel	0.67 in.	0.33 lbs.	5,000 lbs. (22kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	3,600 lbs. (16kN)	ANSI Z359.12-2009



Applicable Standards:
Refer to national standards, including OSHA 1926, ANSI Z359.12-2009, local and state requirements for more information on personal fall arrest systems and associated components.

Before Each Use:
Inspect the connecting hardware according to the steps listed in this manual. When planning your system, consider all factors that will affect your safety during use of this equipment including, but not limited to:

- Evaluation of the job site for possible hazards.
- Ensuring the intended path of the user is unobstructed.
- Use of a compliant and compatible full body harness with this equipment.
- Use of a compliant and compatible Personal Fall Arrest System.
- Rescue Plan developed and the means at hand to implement it when using this equipment where a suspension could occur (i.e. following a fall when self-rescue is not possible).

INSTRUCTIONS

Making Connections:

Snap Hook/Rebar Hook Operation: To connect the snap hook to the connection point, depress the locking mechanism with index finger and push back gate with thumb. To operate a snap hook/rebar hook, squeeze the locking mechanism on the back side and press in on the gate.

Carabiner Operation: To connect the carabiner to the connection point, rotate the gate clockwise and push to the center of the carabiner. A carabiner that has a triple locking mechanism must be pulled up before rotating it in the clockwise motion. When positioned around a connection point, release the gate to close and lock.

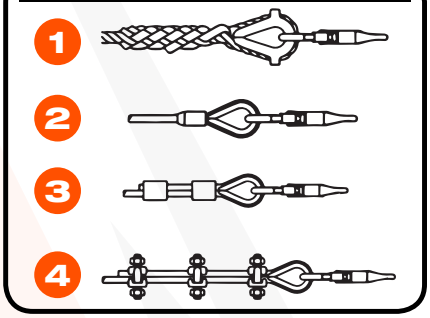
Use Considerations: When making a connection using a snap hook/rebar hook or carabiner, the mating connector must be compatible in size and shape. Improper loading directions can cause the hook to fail or the gate to open, releasing the load. Do not use hooks that will not completely close over the attachment object. Do not connect snap hooks/rebar hooks to snap hooks/rebar hooks, carabiners to carabiners, or snap hooks/rebar hooks to carabiners. Do not install more than one snap hook/rebar hook or carabiner into a single connection ring or opening (except for emergency situations). Do not connect snap hooks/rebar hooks or carabiners to objects or openings that may abrade or cause excessive wear to the hook material.

Subsystem Assemblies: Malta Dynamics is not responsible for subsystem

assemblies not manufactured by Malta Dynamics. If the user splices or forms end terminations, procedures must ensure compatibility in size shape and strength. Recommended methods of attaching subsystem elements and components to Malta Dynamics connectors:

- Connect the energy absorber “pack” end of an energy absorbing lanyard to a harness when using an energy absorbing lanyard.
- When using a self-retracting lifeline, ensure the device is properly positioned so that retraction is not hindered.
- Ensure connections are fully closed and locked when making any connection.
- Ensure all connections are compatible in size, shape, and strength.
- Do not use a knot to connect a lifeline to the connector.
- Do not pass a lanyard or lifeline through a connector and hook it back into the lanyard or lifeline.
- Always protect a lifeline or lanyard from abrading against sharp edges or abrasive surfaces.
    - Connectors attached to synthetic rope lifelines must be attached using spliced eye termination and thimble. Splice must be made using five tucks.
    - Connectors attached to wire rope lifelines must be attached using formed eye terminations utilizing a thimble.
- Accepted methods of forming spliced eyes:
    - Spliced eye with one swaged fitting (Illustration 3, Figure 2)
    - Return eye with a minimum of two swaged fittings (Illustration 3, Figure 3)
    - Return eye with a minimum of three wire rope clips tightened according to clip manufacturer’s specifications. (Illustration 3, Figure 4)

Illustration 3: Spliced Eyes



IMPORTANT: Knots must not be used for load bearing end terminations. Some knots reduce lifeline strength 50% or more.

Anchorage:
Select a rigid anchorage point that is capable of sustaining the loads specified in LIMITATIONS FOR USE section of this manual. For fall arrest applications, select anchorage locations that will minimize free fall and swing fall hazards.

Free Fall:
Personal Fall Arrest Systems (including connectors) must be rigged in such a way that limits free fall to 6 feet (ANSI Z359.1) or 12 feet (ANSI Z359.13). Refer to associated subsystem manufacturer's instructions for further information.

Fall Clearance:
Ensure sufficient clearance exists in your fall path to prevent striking an object during a fall. The clearance required is dependent upon the subsystem properties.

Rescue:
The employer must have a rescue plan and the ability to implement it.

After a Fall Is Incurred:
Components which have been subjected to fall arrest forces must be removed from service immediately.

Installing the C1005

To install the SRD housings onto the FBH, follow the procedure detailed in Figure 4A:

1. Prepare Twin-leg SRD for Attachment
2. Prepare FBH and Preliminary Attachment
3. Reinstating 2nd SRD Unit
4. Closing and Securing

Figure 4A: Attaching Twin-leg SRD to FBH

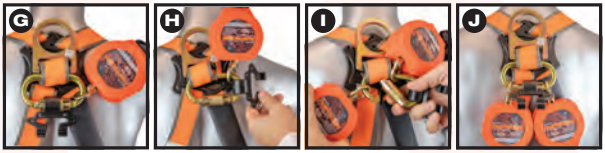
1. Prepare Twin-leg SRD for Attachment

1. Prepare Single-leg for attachment:
(A) Open the Alignment Clip from the reverse side by pushing on the ***top ears*** to release and **(B)** allow clip to rotate downward; next, **(C)** rotate to one side one SRD unit and the clip then open open the triple-lock gate on the Carabiner and remove the other SRD unit. Allow gate to close.

2. Prepare FBH and Preliminary Attachment

2. Prepare FBH and Preliminary Attachment:
(D) Lift the ***Dorsal D-ring*** to the up-pointing position. Then loosen the intersection of the two web straps that pass through the D-ring slot to create ***slacked loops*** of about 2" or 3". **(E)** With only one SRD unit still connected to the Carabiner, reopen the gate and insert the ***nose*** of the Carabiner into the two intersecting slacked loops; **(F)** allow the gate to close while the Alignment Clip remains positioned on the gate only.

3. Reinstating the 2nd SRD Unit



3. Reinstating the 2nd SRD Unit:
(G) Now rotate the Carabiner and Alignment Clip 1/4 turn to the horizontal position; while keeping slack in the web loops, the gate and clip will end up positioned blow the loops. **(H)** Keeping the Carabiner Horizontal, rotate the SRD unit away from teh gate and slide the Alignment Clip off and away from the gate as well. **(I)** Open the Carabiner gate and insert the nose through the swivel eye of the second SRD unit. Then allow the gate to close to capture the second SRD. **(J)** Next, reposition the Aignment Clip back onto the gate.

4. Closing and Securing

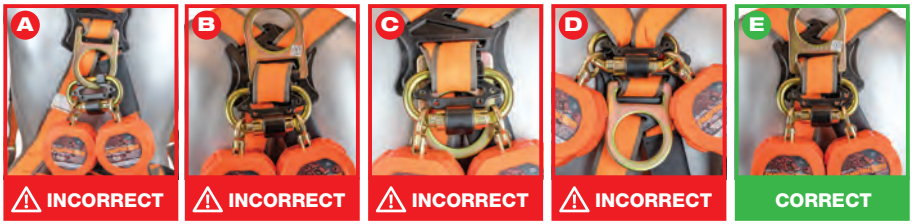
4. Closing and Securing:
(K) With the Alignment Clip on the gate, rotate the clip upward. Then tightly pinch the two web straps together and insert between the ears of the clip and snap the ears to the body of the Carabiner. **(L)** Lastly, remove the slacked loops from the intersecting web straps by pulling up through the D-ring slot and the D-ring holder. Check the gate for full closure and the Alignment Clip to be securely snapped to the Carabiner body. Don your FBH and adjust as needed for proper fit.

WARNING

Ensure the carabiner is correctly installed on the FBH as shown in Figure 4A. Incorrect installation may result in serious injury or death.

Figure 4B shows common INCORRECT connections.

Figure 4B: Incorrect Twin-leg SRD Attachment



A - DO NOT Attach directly to the Dorsal D-ring
B - DO NOT Attach to only one of the intersecting web straps
C - DO NOT Attach to intersecting web straps over/above the Dorsal D-ring
D - DO NOT Attach anywhere outside the intersecting web straps

E - CORRECT attachment to both intersecting web straps with Dorsal D-ring in the up position

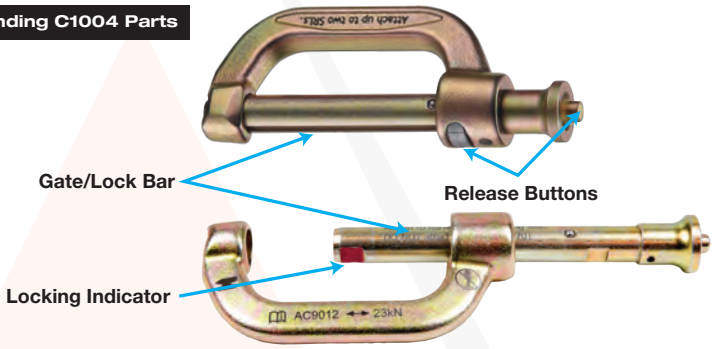
Installing the C1004

To install the SRD housings onto the FBH, follow the procedure detailed in Figure 5A:

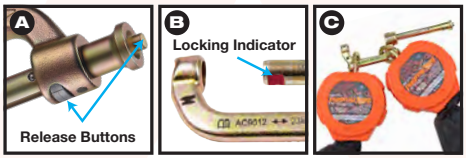
1. Prepare Dual Connector for Attachment
2. Prepare FBH and Preliminary Attachment

Figure 5A: Attaching Twin-leg SRD to FBH with C1004

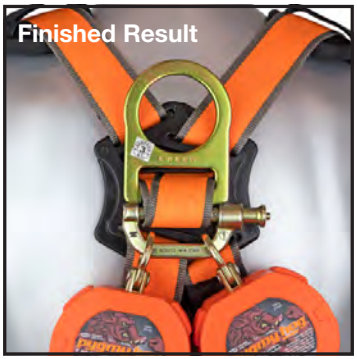
Understanding C1004 Parts



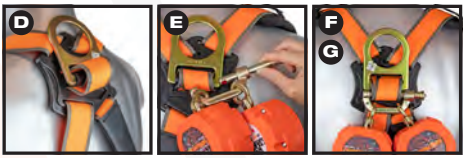
1. Prepare Dual Connector for Attachment



1. Prepare Dual Connector for attachment: **(A)** Push and hold both Release Buttons while simultaneously pulling out the Gate/Lock Bar. **(B)** Take note of the red Locking Indicator which should no longer be visible once installation is complete. **(C)** Attach SRLs to Dual Connector.



2. Prepare FBH and Preliminary Attachment



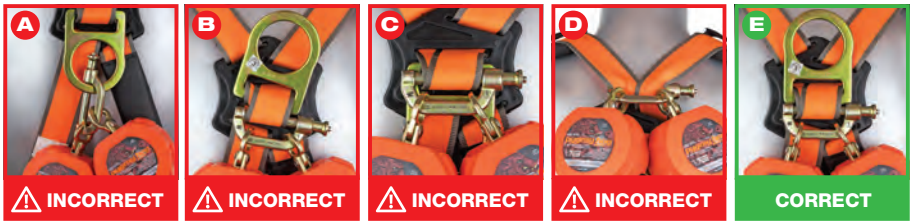
2. Prepare FBH and Preliminary Attachment: **(D)** Lift the ***Dorsal D-ring*** to the up-pointing position. Then loosen the intersection of the two web straps that pass through the D-ring slot to create ***slacked loops*** of about 2" or 3". **(E)** Insert the Gate/Locking Bar of the Carabiner into the two intersecting slacked loops. **(F)** Slide the Gate/Lock Bar back to the fully closed position. Ensure that the red Locking Indicator is not visible. **(G)** Remove the slacked loops from the intersecting web straps by pulling up through the D-ring slot and the D-ring holder.

WARNING

Ensure the carabiner is correctly installed on the FBH as shown in Figure 5A. Incorrect installation may result in serious injury or death.

Figure 5B shows common INCORRECT connections.

Figure 5B: Incorrect Twin-leg SRD Attachment



A - DO NOT Attach directly to the Dorsal D-ring
B - DO NOT Attach to only one of the intersecting web straps
C - DO NOT Attach to intersecting web straps over/above the Dorsal D-ring
D - DO NOT Attach anywhere outside the intersecting web straps

E - CORRECT attachment to both intersecting web straps with Dorsal D-ring in the up position

TRAINING

Employers must provide training to any employee who may be exposed to fall hazards in order to enable the employee to recognize and reduce fall hazards. Training must be conducted by a Competent or Qualified Person. Trainer and trainees must not be exposed to fall hazards during the training course. This equipment is intended to be used by persons trained in its correct application and use.

INSPECTION

Inspect this equipment and its components prior to each use.

Inspection Considerations:

- Equipment must be free of corrosion, chemical attack, alteration, excessive heat or extreme wear.
- Use near seawater or other corrosive environments require more frequent inspection to ensure corrosion damage has not impacted performance of the product.
- All markings must be legible and attached to the equipment.
- Inspect rebar hooks, carabiners and snap hooks for evidence of distortion, sharp edges, burrs, cracks, worn parts or corrosion.
- Snap hook/rebar hook gate spring provides tension to keep the snap hook/rebar hook gate closed in a locked position; snap hook/rebar hook must close flat and exhibit no sideways play. Rivets and grommets must be tightly set in the material with no distortion.
- Inspect each system component and subsystem according to manufacturer's instructions.

Inspection Procedure:

Step 1: Visually inspect for damage including, but not limited to, burrs, cracks, sharp edges, dents or deformities. Check for bending or distortion.

Step 2: Inspect connector for excessive corrosion. Gate and lock should operate smoothly. Gates must fully close and engage nose of rebar hook, snap hook or carabiner.

Step 3: Inspect markings. Markings must be present and fully legible.

Step 4: Inspect each system component of the subsystem according to manufacturer's instructions.

CLEANING

- Clean snap hooks/rebar hooks and carabiners with water and mild detergent.
- Wipe dry. Hang away from heat to dry.All markings must be legible and attached to the equipment.
- Excessive build-up of dirt, paint, etc. can prevent snap hooks/rebar hooks and carabiners from working properly.
- Do not disassemble this equipment. Only Malta Dynamics or entities authorized in writing by Malta Dynamics may service this equipment.
- Store equipment in a cool, dry, clean environment, out of direct sunlight.
- Do not expose to chemical vapors. Avoid areas where chemical vapors are present. Thoroughly inspect this equipment after extended storage.

FREQUENCY

- All Personal Fall Arrest equipment (including connectors) must be visually inspected prior to each use according to the manufacturer's instructions included at time of shipment. Inspections must be performed by a Competent Person other than the user (as defined by OSHA) a minimum of **once** per year.
- Record the results of each formal inspection in your Hog Tracker account or inspection log.

PRODUCT MARKINGS

All necessary markings will be on the body of the Carabiner (rated tensile strength, date of manufacture, rated gate strength, manufacturer's identification and batch tracing number).

INSPECTION LOG

Date of Manufacture: _____

Model Name/#:_____

Serial: _____

Date of First Use: _____

Inspection Date	Items Noted	Corrective Action	Approved By

WARRANTY

THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Equipment offered by Malta Dynamics is warranted against factory defects in workmanship and materials for a period of one year from date of installation or first use by the original owner. LIMITED REMEDY: Upon notice in writing, Malta Dynamics will repair or replace all defective items at Malta Dynamics's sole discretion. Malta Dynamics reserves the right to require that the defective item be returned to its plant for inspection before determining the appropriate course of action. Warranty does not cover equipment damage resulting from wear, abuse, damage in transit, failure to maintain the product or other damage beyond the control of Malta Dynamics. Malta Dynamics shall be the sole judge of product condition and warranty options. This warranty applies only to original purchaser and is the only warranty applicable to this product. Please contact Malta Dynamics customer service department at 800-494-1840 for assistance. LIMITATION OF LIABILITY: IN NO EVENT WILL MALTA DYNAMICS BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO LOSS OF PROFITS, IN ANY WAY RELATED TO THE PRODUCTS REGARDLESS OF THE LEGAL THEORY ASSERTED.

NOTES

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