



## Instructions for the following series products:

Steel Plate Anchor  
(Model number:2104550)

### USER INSTRUCTION MANUAL FOR 2104550 STEEL PLATE ANCHOR

This manual is intended to meet the Manufacturer's Instructions as required by ANSI Z359.1, and the Canadian Standards Association, and should be used as part of an employee training program as required by OSHA.

**WARNING:** This product is part of a personal restraint, work positioning, suspension, or rescue system. These instructions must be provided to the user and rescuer (see section 8.0 Terminology). The user must read and understand these instructions or have them explained to them before using this equipment. The user must read and follow the manufacturer's instructions for each component or part of the complete system. Manufacturer's instructions must be followed for proper use and maintenance of this product. Alterations or misuse of this product or failure to follow instructions may result in serious injury or death.

**IMPORTANT:** If you have questions on the use, care, or suitability of this equipment for your application, contact DBI-SALA.

**IMPORTANT:** Before using this equipment, record the product identification information from the ID label into the inspection and maintenance log in section 10.0 of this manual.

#### 1.0 APPLICATIONS

**1.1 PURPOSE:** DBI-SALA's steel plate anchor is a portable anchorage connector designed for fall arrest applications and was developed to be used by steel erectors and workers that operate at heights on structural steel-work where no other anchorage point exists. Do not use the steel plate anchor as an anchorage component on a horizontal lifeline system. Do not hang, lift or support tools or equipment from this device.

**WARNING:** Working at height has inherent risks. Some risks are noted here but are not limited to the following: falling, suspension/prolonged suspension, striking objects, and unconsciousness. In the event of a fall arrest and/or subsequent rescue (emergency) situation, some personal medical conditions may affect your safety. Medical conditions identified as risky for this type of activity include but are not limited to the following: heart disease, high blood pressure, vertigo, epilepsy, drug or alcohol dependence, psychiatric illness, impaired limb function and balance issues. We recommend that your employer/physician determine if you are fit to handle normal and emergency use of this equipment.

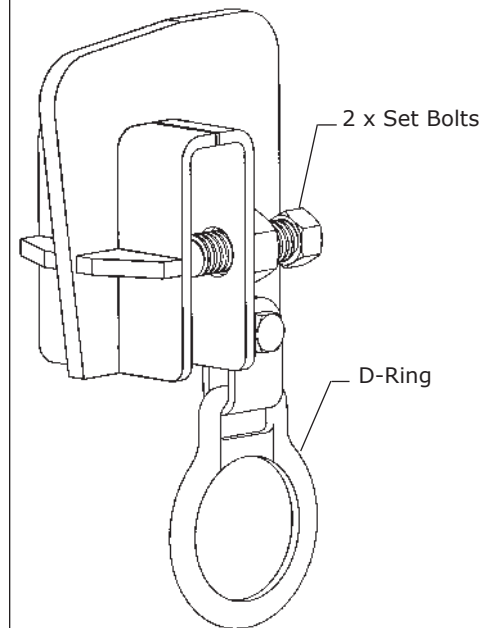
**A. PERSONAL FALL ARREST:** The full body harness is used as a component of a personal fall arrest system. Personal fall arrest systems typically include a full body harness and a connecting subsystem (energy absorbing lanyard). Maximum arresting force must not exceed 1,800 lbs (8 kN). Maximum permissible free fall is 6 feet (1.8 m).

**1.2 LIMITATIONS:** The following application limitations must be recognized and considered before using this product:

**A. ANCHORAGE:** This anchorage connector system is intended to be installed on mild steel plate only (.375-1.00 inches thick) and must meet the anchorage strength requirements as set forth in section 2.4. The anchorage connector is not intended for use on other materials such as hardened steel, cast iron, aluminum, concrete or wood.

**B. CAPACITY:** This anchorage connector system is designed for use by persons with a combined weight (person, clothing, tools, etc.) of no more than 310 lbs. (141 kg). Only one personal protective system may be connected to the anchorage connector at any time. Make sure all of the components in your system are rated to a capacity appropriate to your application.

Figure 1 - Steel Plate Anchor



- C. FREE FALL:** Personal fall arrest systems must be rigged in such a way as to limit the free fall to a maximum of 6 feet (1.8 m) (Ref. ANSI Z359.1). See associated connecting subsystem manufacturer's instructions for further information.
- D. FALL CLEARANCE:** Make certain that enough clearance exists in your fall path to prevent striking an object. The amount of clearance needed is dependent upon the type of connecting subsystem used (ie. shock absorbing lanyard or self retracting lifeline), and the anchorage location. Refer to manufacturer's instructions of the connecting subsystem or component for more information on fall clearance.
- E. PHYSICAL AND ENVIRONMENTAL HAZARDS:** Use of this equipment in areas with physical or environmental hazards may require additional precautions to reduce the possibility of injury to the user or damage to the equipment. Hazards may include, but are not limited to: severe cold, gases, moving machinery, and sharp edges. Contact DBI-SALA if you have any questions about using this equipment where physical or environmental hazards exists.
- F. CORROSION:** Do not leave this equipment for long periods in environments where corrosion of metal parts could take place as a result of vapors rising into the atmosphere from organic materials. Caution should be exercised when working around sewage or fertilizer because of their high concentration of ammonia which is very corrosive. Use near sea water or other corrosive environments may require more frequent inspections or servicing to assure corrosion damage is not affecting the performance of the product.
- G. CHEMICAL HAZARDS:** Solutions containing acids, alkali, or other caustic chemicals, especially at elevated temperatures may cause damage to this equipment. When working with such chemicals, frequent inspection of this equipment must be performed. Consult DBI-SALA if doubt exists concerning using this equipment around chemical hazards.
- H. HEAT:** This equipment is not designed for use in high temperature environments. Protection should be provided for this equipment when used near welding, metal cutting, or similar activities. Consult DBI-SALA for details on high temperature environments.
- I. ELECTRICAL HAZARDS:** Due to the possibility of electric current flowing through this equipment, or connecting components (hooks), use extreme caution when working near high voltage power lines.
- J. ARRESTING FORCE:** Personal fall arrest subsystem components used in combination with this product must maintain fall arrest forces below 1800 lbs. (8 kN). Only use a shock absorbing lanyard or self retracting lifeline with this product.
- K. TRAINING:** This equipment is intended to be used by persons who have been properly trained in its correct application and use.

**1.3** Refer to national Standards including ANSI Z359 (.0, .1, .2, .3, and .4) family of standards on fall protection, ANSI A10.32, and applicable local, state and federal (OSHA) requirements governing occupational safety for more information about work positioning systems.

## **2.0 SYSTEM REQUIREMENTS**

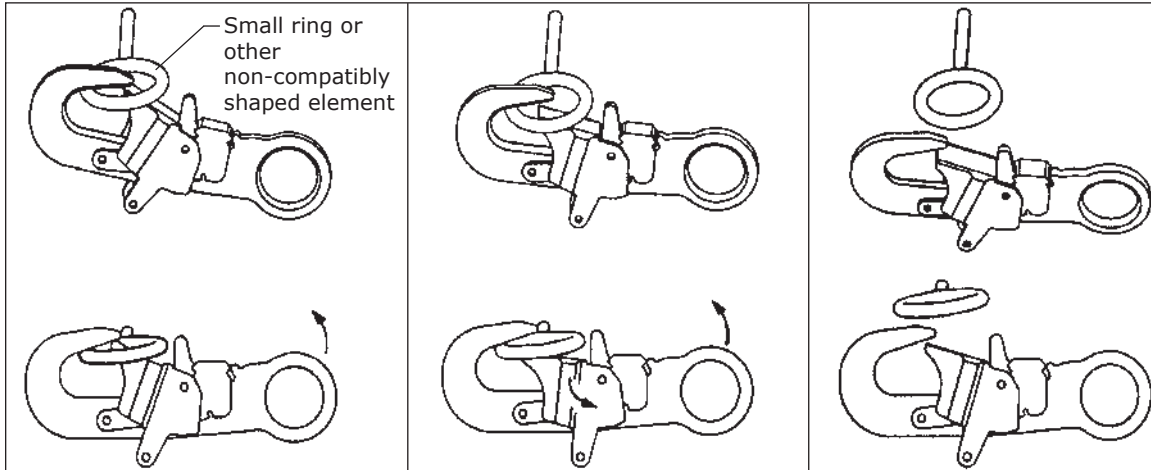
**2.1 COMPATIBILITY OF COMPONENTS:** DBI-SALA equipment is designed for use with DBI-SALA approved components and subsystems only. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may effect the safety and reliability of the complete system. Contact DBI-SALA if you have any questions about compatibility of equipment.

**2.2 COMPATIBILITY OF CONNECTORS:** Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented. Contact DBI-SALA if you have any questions about compatibility.

Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 kN). Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. See Figure 2. Connectors must be compatible in size, shape, and strength. Self locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA.

## FIGURE 2 - Unintentional Disengagement (Roll-out)

If the connecting element that a snap hook (shown) or carabiner attaches to is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open, allowing the snap hook or carabiner to disengage from the connecting point.



1. Force is applied to the snap hook.

2. The gate presses against the connecting ring.

3. The gate opens allowing the snap hook to slip off.

**2.3 MAKING CONNECTIONS:** Only use self-locking snap hooks and carabiners with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked.

DBI-SALA connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 3 for inappropriate connections. DBI-SALA snap hooks and carabiners should not be connected:

- A. To a D-ring to which another connector is attached.
- B. In a manner that would result in a load on the gate.

**NOTE:** Large throat opening snap hooks should not be connected to standard size D-rings or similar objects which 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 fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.

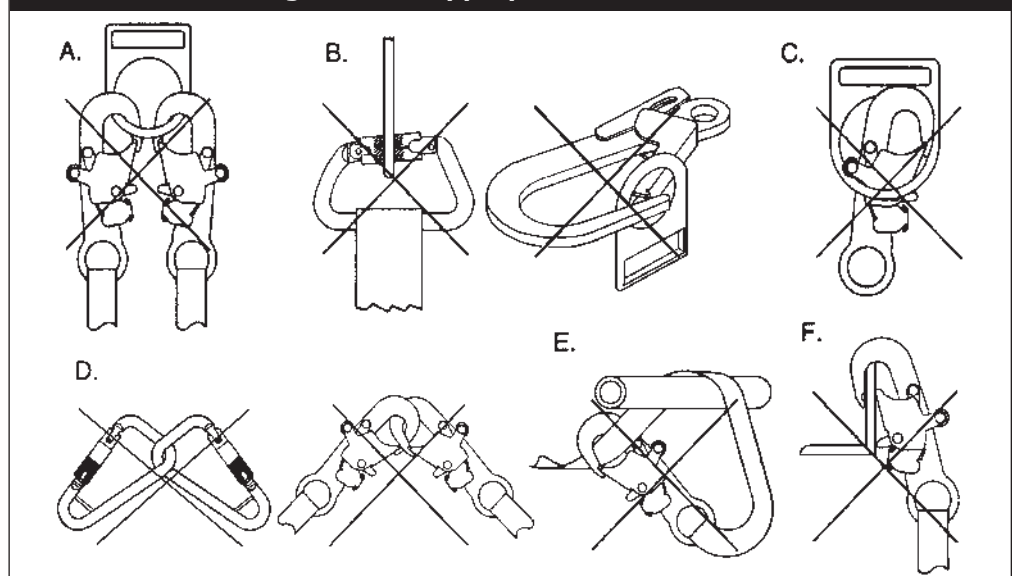
- C. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point.

- D. To each other.

- E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allow such a connection).

- F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.

Figure 3 - Inappropriate Connections



**2.4 ANCHORAGE STRENGTH:** The anchorage strength required is dependent on the application type. The following are the requirements of ANSI 359.1 for these application types:

- A. FALL ARREST:** Anchorages selected for fall arrest systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:
  1. 5,000 lbs. (22.2 kN) for non-certified anchorages, or
  2. Two times the maximum arresting force for certified anchorages. When more than one fall arrest system is attached to an anchorage, the strengths set forth in (1) and (2) above shall be multiplied by the number of systems attached to the anchorage.

### 3.0 OPERATION AND USAGE

**WARNING:** Do not alter or intentionally misuse this equipment. Consult DBI-SALA when using this equipment in combination with other components or subsystems other than those described in this manual. Some subsystem and component combinations may interfere with the proper operation of this equipment. Use caution when using this equipment around moving machinery and electrical hazards. Use caution when using this equipment around sharp edges and chemical hazards.

**WARNING:** Consult your doctor if there is any reason to doubt your fitness to safely absorb the shock from a fall arrest. Age and fitness seriously affect a workers ability to withstand falls. Pregnant women or minors must not use DBI-SALA steel plate anchors.

**3.1 BEFORE EACH USE** of this equipment, carefully inspect it to assure that it is in serviceable condition. Check for worn or damaged parts; ensure all hardware is present and secure and is not distorted, or have any sharp edges, burrs, cracks, or corrosion. Refer to section 5.0 for further inspection details. Do not use this equipment if inspection reveals an unsafe condition.

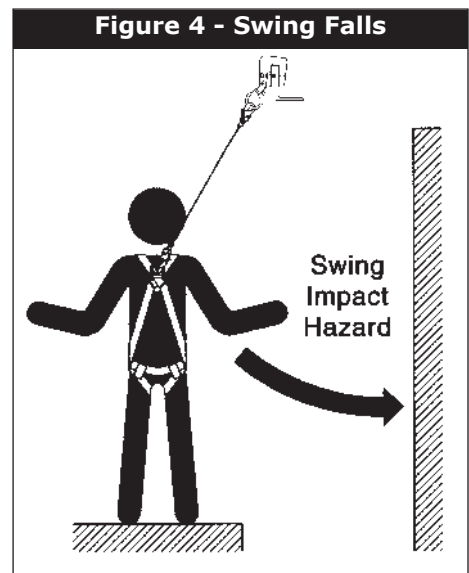
**3.2 PLAN** your fall arrest system before starting work. Take into consideration factors that affect your safety at any time during use. The following list gives some important points to consider when planning your system:

**A. ANCHORAGE:** Select an anchorage point that is rigid and capable of supporting the required loads. See section 2.4.

**B. FREE FALL:** Personal fall arrest systems must be rigged to limit any free fall to a maximum of 6 feet (1.8 m) (Federal Law and ANSI Z359.1). Avoid working above your anchorage level since an increased free fall distance will result. Consult DBI-SALA for maximum free fall distances for applications other than fall arrest.

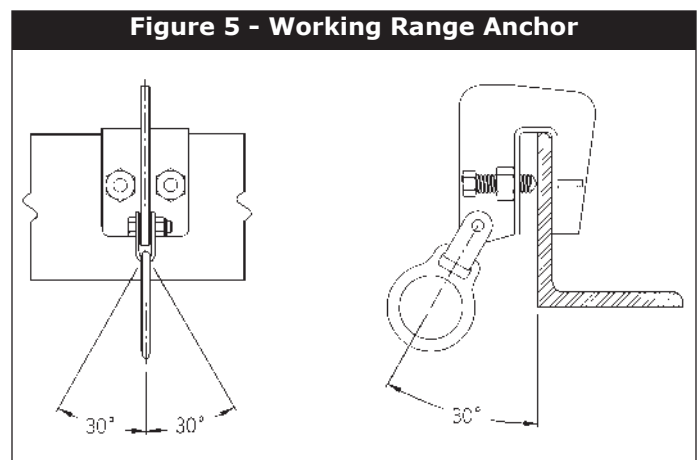
**C. SYSTEM PERFORMANCE:** The steel plate anchor must be used in combination with either a shock absorbing lanyard or a self retracting lifeline that will limit the maximum fall arrest forces to 1800 lbs. (8 kN).

**D. FALL CLEARANCE:** Should a fall occur, there must be sufficient clearance in the fall area to arrest the fall before striking the ground or other object. The actual clearance required is dependent upon the type of fall arrester connecting subsystem used (shock absorbing lanyard or self retracting lifeline). Energy Absorbing Lanyards can extend the fall arrest distance by up to 42 inches. (1 m)



**E. SWING FALLS:** Swing falls occur when the anchorage point is not directly above the point where a fall occurs. See Figure 4. The force of striking an object while swinging can be great and may cause serious injury. Swing falls can be minimized by working as directly below the anchorage as possible. Do not work at more than a 30 degree angle from vertical below the steel plate anchor, working beyond this range could create a swing fall situation. See Figure 5.

**F. SHARP EDGES:** Avoid working where the connecting subsystem (ie. shock absorbing lanyard, self retracting lifeline, full body

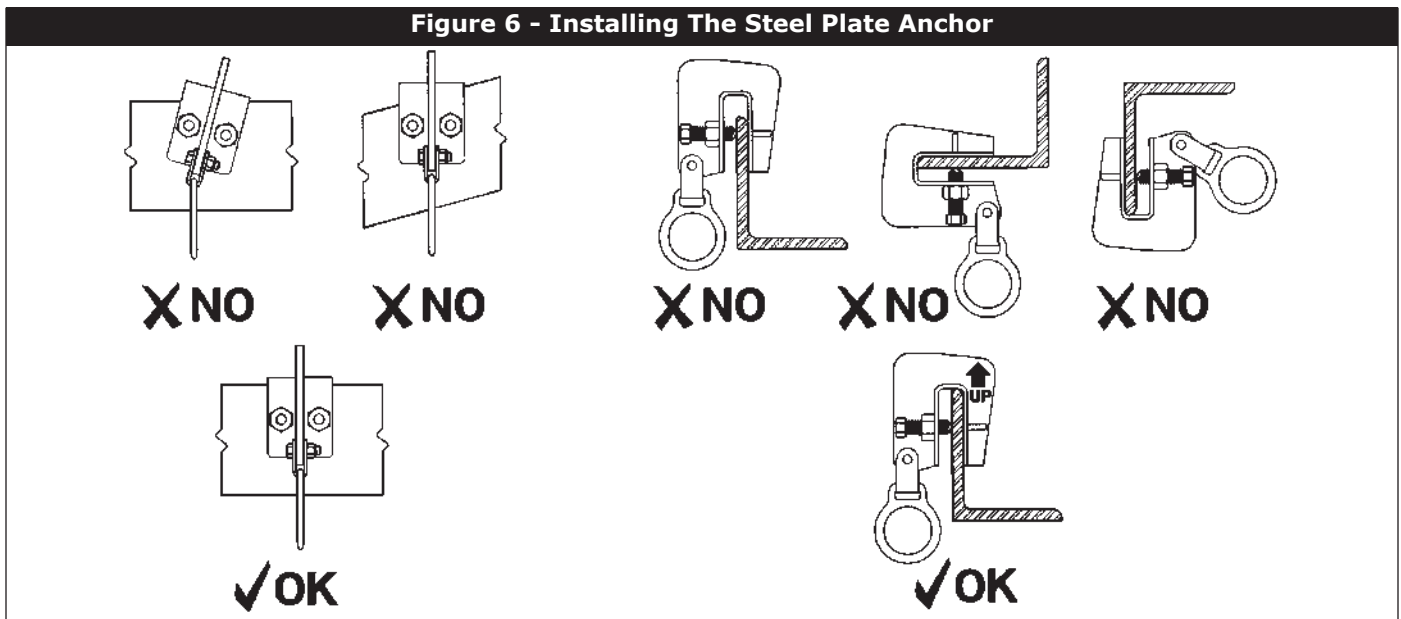


harness, etc.) or other system components will be in contact with, or abrade against, unprotected sharp edges. If working with this equipment near sharp edges is unavoidable, protection against cutting must be provided by using a heavy pad or other means over the exposed sharp edge.

- G. RESCUE:** When using this equipment, the employer must have a rescue plan and the means at hand to implement it and communicate that plan to users, authorized persons, and rescuers.
- H. AFTER A FALL:** Any equipment which has been subjected to the forces of arresting a fall or exhibits damage consistent with the effect of fall arrest forces as described in section 5.0, must be removed from service immediately and destroyed by the user, the rescuer, or an authorized person.
- I. ABUSE:** Avoid dropping the steel plate anchor from a height or allowing it to strike against a structure which could damage it.
- J. FOREIGN ELEMENTS:** Avoid contaminating the equipment with paints, cement or other materials which could adversely effect the performance of the product.

### 3.3 INSTALLATION REQUIREMENTS:

- A. SUPERVISION:** It is recommended that this equipment is installed under the supervision of a qualified person as defined by OSHA 1910.66 Appendix C.
- B. ANCHORAGE CONNECTOR LOCATION:** Select an anchorage with suitable anchorage strength requirements (see section 2.4) which will provide the best overall safety to the user. The following are some considerations that must be made when choosing an anchorage location: the thickness of the steel work onto which the steel plate anchor is to be installed must be between .38—1.00 inch (9.5—25.4 mm), the location must be safely accessible when connecting to or disconnecting from the anchor, swing falls should not be permitted if injury could occur should the user fall, the location must be free of other equipment or moving parts, there must be adequate total fall clearance, and a rescue plan. The anchorage must allow the steel plate anchor to hang in a vertical orientation. Do not install the steel plate anchor on an incline, at an angle, or upside-down. See Figure 6.



- C. INSTALLATION:** (See Figure 1 for referenced parts). Screw the set screws out so that the points do not protrude into the anchor slot. Place the anchor over an appropriate steel plate anchorage. Make sure the top wall of the anchor slot is full seated on the steel plate anchorage. Tighten each set screw until it makes contact with the anchorage. Continue to tighten the set screws in an alternating fashion until a torque of 20 ft.-lbs (2.7 kg m) is measured at both screws. Exceeding the torque requirements could damage the steel plate anchor.

**WARNING:** Read and follow manufacturer's instructions for associated equipment (ie. full body harness, shock absorbing lanyard, self retracting lifeline, etc.) used in your personal fall arrest system.

- 3.4 MAKING CONNECTIONS:** When using a hook to connect to an anchorage connector, be certain accidental disengagement (roll-out) cannot occur. Self locking snap hooks or self locking and self and closing gate carabiners must be used to reduce the possibility of roll-out when making connections. Do not use hooks or

connectors that will not completely close over the attachment object. Do not use non-locking snap hooks. Always follow the manufacturer's instructions supplied with each system component.

**3.5 CONNECTING TO THE STEEL PLATE ANCHOR:** The steel plate anchor is an anchorage connector point for a shock absorbing lanyard or a self retracting lifeline, contact DBI-SALA for further information other possible connecting subsystems. Make sure the connector (ie. self locking snap hook of lanyard) is fully engaged and locked onto the back D-ring (dorsal) of the body support. Make sure connections are compatible (size, shape, strength, etc.).

If connecting an independent shock absorbing lanyard to the steel plate anchor, follow the above instructions to connect one end of lanyard (shock absorber pack end) to body support and connect the other end to the steel plate anchor making sure the self locking snap hook is fully engaged and locked onto the D-ring.

If using a self retracting lifeline, it must be connected to the D-ring with a self locking and self closing carabiner (attach the carabiner to the anchorage location on SRL), the self retracting lifeline must hang vertically. Then connect the lifeline end of the SRL to the body support (harness). Make sure the connector (ie. self locking snap hook, carabiner) is fully engaged and locked onto the anchorage connector, SRL and body support. Make sure connections are compatible (size, shape, strength, etc.).

**WARNING:** When attaching a self retracting lifeline to a steel plate anchor, make certain the SRL hangs vertically and freely (not at an angle).

## 4.0 TRAINING:

**4.1** It is the responsibility of the user and the purchaser of this equipment to assure they are familiar with these instructions, trained in the correct care and use of, and are aware of the operating characteristics, application limits and the consequences of improper use of this equipment.

**IMPORTANT:** Training must be conducted without exposing the trainee to a fall hazard. Training should be repeated on a periodic basis.

## 5.0 INSPECTION

### 5.1 FREQUENCY

- Before each use, visually inspect per steps listed in section 5.2 and 5.3.
- This equipment must be inspected by a competent person other than the user at least annually. See section 5.2 and 5.3 for guidelines. Record the results of each formal inspection in the inspection log in section 10.0.

**IMPORTANT:** Extreme working conditions (harsh environments, prolong use, etc.) may require increasing the frequency of inspections.

**IMPORTANT:** If this equipment has been subjected to forces resulting from the arrest of a fall, it must be immediately removed from service and destroyed or returned to DBI-SALA for possible repair. See section 5.2.

### 5.2 INSPECTION STEPS

- Step 1. Inspect the steel plate anchor for physical damage. Look carefully for any signs of cracks, dents or deformities in the metal.
- Step 2. Inspect the steel plate anchor for signs of excessive corrosion.
- Step 3. Ensure that the working parts are free from excessive dirt, oil, or other build-up.
- Step 4. Inspect the D-ring and connecting bracket and bolt. The D-ring must be free of cracks, dents or deformities in the metal. The bracket and bolt holding the D-ring must be undamaged and the nut fastened tight.
- Step 5. Inspect the points of the set screws. The points must not be broken and must be sharp enough to bite into a mild steel plate.
- Step 6. Inspect labels, all labels should be present and fully legible. See section 9.0. Labels must be replaced if illegible or missing.
- Step 7. Inspect each system component or subsystem per associated manufacturer's instructions.
- Step 8. Record the inspection date and results in the inspection log. See section 10.0.

**5.3** If inspection reveals a defective condition, remove the unit from service immediately and destroy or contact a factory authorized service center for repair.

**NOTE:** Only DBI-SALA or parties authorized in writing may make repairs to this equipment.

## **6.0 MAINTENANCE - SERVICING - STORAGE**

- 6.1** Clean the anchorage connector (steel plate anchor) with mild soap detergent solution and rinse. The working parts may be sprayed sparingly with a moisture repelling agent. Excessive build-up of dirt, paint, etc. may prevent the anchorage connector from working properly.
- 6.2** If you have any questions concerning the condition of your steel plate anchor or have any doubt about putting it into service contact DBI-SALA immediately.

## **7.0 SPECIFICATIONS**

### **STEEL PLATE ANCHOR:**

**MATERIAL:** Zinc Plated Steel

**STEEL PLATE THICKNESS:** .38 in. to 1.00 in. thick (9.5–25.4 mm)

**MINIMUM BREAKING STRENGTH:** 5,000 lbs. (22.2 kN)

**MAXIMUM CAPACITY:** 310 lbs. (one person) (141.2 kg)

**WEIGHT:** 3.5 lbs. (1.6 kg)

## **8.0 TERMINOLOGY**

**AUTHORIZED PERSON:** A person assigned by the employer to perform duties at a location where the person will be exposed to a fall hazard (otherwise referred to as "user" for the purpose of these instructions).

**RESCUER:** Person or persons other than the rescue subject acting to perform an assisted rescue by operation of a rescue system.

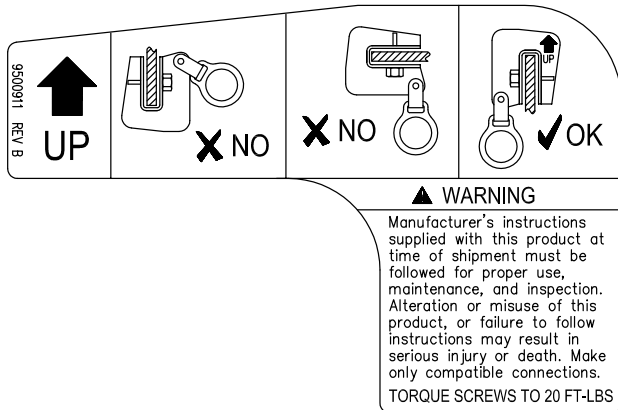
**CERTIFIED ANCHORAGE:** An anchorage for fall arrest, positioning, restraint, or rescue systems that a qualified person certifies to be capable of supporting the potential fall forces that could be encountered during a fall or that meet the criteria for a certified anchorage prescribed in this standard.

**QUALIFIED PERSON:** A person with a recognized degree or professional certificate and with extensive knowledge, training, and experience in the fall protection and rescue field who is capable of designing, analyzing, evaluating and specifying fall protection and rescue systems to the extent required by this standard.

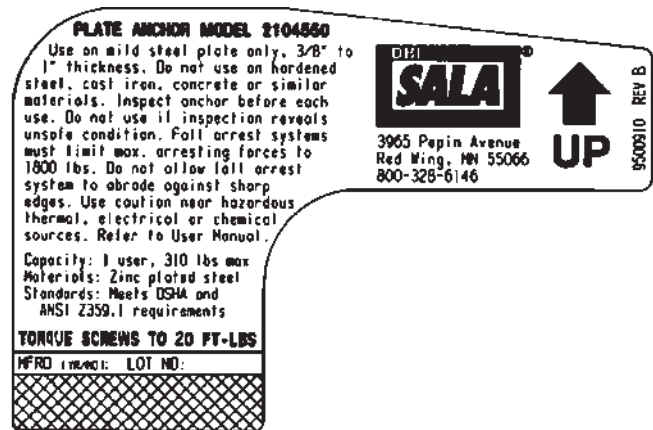
**COMPETENT PERSON:** One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

## 9.0 LABELS

### 9.1 THE FOLLOWING LABELS MUST BE PRESENT AND FULLY LEGIBLE



**WARNING LABEL**



**ID LABEL**



**10.0 INSPECTION AND MAINTENANCE LOG**

**DATE OF MANUFACTURE:** \_\_\_\_\_

**MODEL NUMBER:** \_\_\_\_\_

**DATE PURCHASED:** \_\_\_\_\_

INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED
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**10.0 INSPECTION AND MAINTENANCE LOG**

**DATE OF MANUFACTURE:** \_\_\_\_\_

**MODEL NUMBER:** \_\_\_\_\_

**DATE PURCHASED:** \_\_\_\_\_

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**10.0 INSPECTION AND MAINTENANCE LOG**

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Form: 5902285  
Rev: B