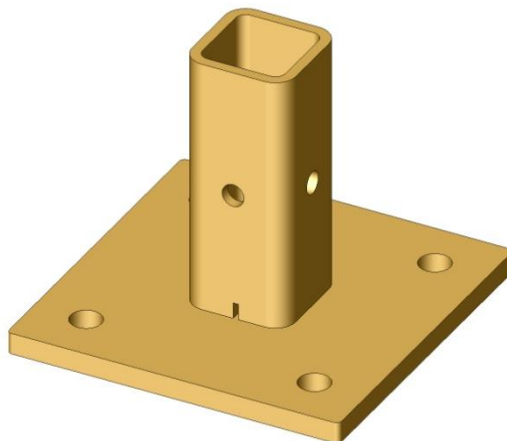




Reliance Industries, LLC
Operating instructions
for
Stanchion Receiver Anchorage Plates for Concrete

Part Numbers 6184-10, 6185-10



Reliance Industries, LLC
Deer Park, TX 7753680214
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User Instructions
Stanchion Receiver Anchorage Plate

Important Instructions!

These instructions must be kept on file and available for the users reference at **all** times. The users must read and full understand these instructions or have the instructions explained in detail before using this equipment. **Failure to observe these instructions could result in serious injury or death.**

Prior to use, all workers must be trained in the proper use of all systems and equipment.

A Training and Instruction review should be repeated at regular intervals.

A rescue plan must be prepared; the workers must be trained in its use, and rescue equipment must be on hand prior to any use of this horizontal lifeline system.

Any questions regarding these instructions should be directed to:

Reliance Industries, LLC
Deer Park, TX 77536
USA

Tel.: (281) 930-8000

Tel.: (888) 362-2826

Fax: (281) 930-8666



User Instructions
Stanchion Receiver Anchorage Plate

Table of Contents

IMPORTANT INSTRUCTIONS! 2

SYSTEM DESCRIPTION..... 5

ANCHORAGE POINT CONSIDERATIONS..... 5

STANCHION RECEIVER ANCHORAGE PLATE COMPONENTS..... 6

PERSONAL FALL ARREST EQUIPMENT FOR USE WITH THE STANCHION RECEIVER ANCHORAGE PLATE 6

INSTALLATION 7

POSSIBLE METHODS OF INSTALLATION OF THE 6184/6185 ANCHOR PLATE 7

ANCHORAGE PLATE INSTALLATION PROCEDURES 8

 INSTALLING THE 6184-10 10-IN. ANCHOR PLATES USING DRILL-IN WEDGE STYLE ANCHORS 8

 INSTALLING THE ANCHOR PLATE USING EPOXY STYLE ANCHORS 9

 ATTACHING A STRONGBACK STANCHION TO THE ANCHORAGE PLATE..... 10

 ATTACHING AN END/BYPASS STANCHION TO THE ANCHORAGE PLATE..... 10

TRAINING 10

PLANNING FOR RESCUE..... 11

INSPECTION..... 11

SERVICING..... 11

WARNINGS AND LIMITATIONS 12

INSPECTION LOG FOR 6185-10/6184-10 STANCHION RECEIVER ANCHOR PLATE 13



User Instructions

Stanchion Receiver Anchorage Plate

Important OSHA Regulations Covering the Use of Personal Fall Arrest Anchorages

OSHA 1926.502 (d)(15):

Anchorage used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000-lb (22 kN) per employee attached, or shall be designed, installed, and used as follows:

(d)(15)(i):

as part of a complete personal fall arrest system which maintains a safety factor of at least two; and

(d)(15)(ii):

under the supervision of a qualified person.

OSHA 1926.502 (d)(16)(iii):

Personal fall arrest systems shall be rigged such that an employee can neither free-fall more than 6-ft. nor contact any lower surface.

OSHA 1926.502 (d)(21):

Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.

OSHA 1926.502 (d)(19):

Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.



User Instructions

Stanchion Receiver Anchorage Plate

System Description

The Reliance Industries Anchorage Plates for Concrete are a series of various sized bolt down plates designed for use with horizontal lifeline components when properly attached to concrete surfaces of an appropriate size that meet minimum strength requirements. It uses bolt-thru or epoxy concrete anchors (such as Hilti) to anchor into the concrete surface. It provides a means of attaching an End Stanchion for use with horizontal lifeline systems, or attachment points for a Strongback stanchion, Bypass or End Stanchion. Contact Reliance Engineering for help in determining the suitability of components for use in specific situations.

Anchorage Point Considerations

The strength of the structure to which the Plate is attached must be at least 3,600-lb. with certification, or 5,000-lb. in the absence of certification for each Anchor Plate when used as the anchor point for an individual personal fall arrest system. When used as the end termination of a horizontal lifeline the strength of the structure must be rated to twice that of the maximum force it will see when loaded by a horizontal lifeline during fall arrest. These minimum load capacities must be multiplied by the number of Plates that will be attached to a structure at any one time. Only one person may be attached to each anchorage at any one time if used as an anchor point for a personal fall arrest system such as a shock-absorbing lanyard or self-retracting lifeline. When used as the end anchor point for a horizontal lifeline, one Reliance Industries Skyline™ Horizontal Lifeline may be connected to each Anchor plate at any one time. This strength must be certified by a qualified person and must be verifiable by either calculation or testing. In some applications, with proper design, testing, and certification by a qualified person or Professional Engineer, an anchorage may be designed with a 2 to 1 safety factor over the anticipated loads per OSHA 1926.502 (d)(15)(i-ii).

When used as a Strongback stanchion end support for HLLs, the Anchor Plate must take a minimum of 2 times the expected load.

Anchorage locations must be selected carefully. Considerations must be made of the potential for swing falls. Anchorages should be placed to minimize the exposure to swing falls, or additional anchorages should be installed to offer a greater number of attachment options to help reduce the exposure to a swing fall.

If in question, consult Reliance Industries engineering staff for proper design requirements.



User Instructions Stanchion Receiver Anchorage Plate

Stanchion Receiver Anchorage Plate Components

(The 8-in. by 8-in. plates are not for use with wedge style concrete anchors unless the installation is specifically designed by a Professional Engineer (PE) who must maintain a safety factor of 2 to 1.)

The 6185-10 Anchorage Plate consists of the following standard approved and compatible components:

- 1 ea. Anchorage Plate, 8-in. x 8-in. with Receiver tube, zinc plated (carbon steel)
- 4 ea. 5/8-in. x 8-in. long epoxy concrete anchors (such as Hilti) (stainless steel)

The 6184-10 Anchorage Plate consists of the following standard approved and compatible components:

- 1 ea. Anchorage Plate, 10-in. x 10-in. with Receiver tube, zinc plated (carbon steel)
- 4 ea. 5/8-in. x 7-in. long mechanical wedge style concrete anchors (such as Hilti) (stainless steel)

The above listed Reliance Industries products are designed for use with the approved, above listed components only. Substitutions or replacements with non-approved components will make the system integrity indeterminate and may affect the safety and reliability of the total system.

Personal Fall Arrest Equipment for Use with the Stanchion Receiver Anchorage Plate

It is of utmost importance in the design of personal fall arrest systems to understand the nature and type of work being performed in an area prior to the installation of fall protection equipment. Anchorages should be located such that they are directly overhead (or as much so as possible) to help reduce or eliminate the possibility of a swing fall. Separate anchorages must be provided for each individual worker in an area, and only one worker should be attached to an anchorage at any one time. If several workers are to be in an area at a given time, the anchorages should be placed so that the potential for entangling the vertical lifelines is minimal.

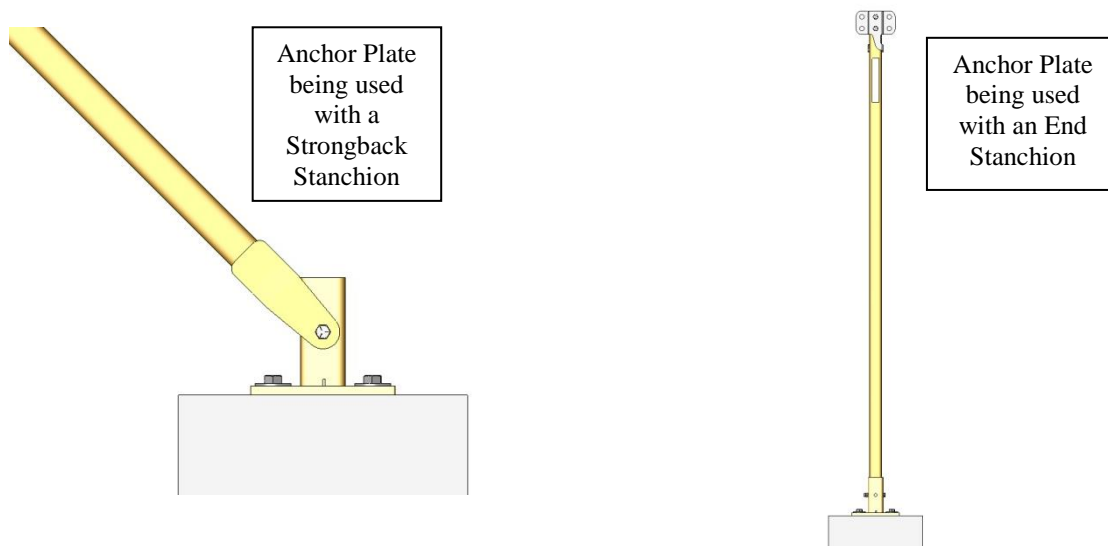
Care should also be used in selecting a harness. Harnesses with sewn down or high friction back pads can limit as much as 1 ft. of back pad slippage during fall arrest, giving additional safety. If the system will be used where a worker could encounter a head first free-fall, a non-secured back pad can slide down the webbing to the small of the back, allowing the worker to fall out of the harness through the top by allowing the harness straps to slip over the shoulders. For this reason, we recommend the use of harnesses with Reliance Industries style high friction back pads. The use of body belts as fall arrest anchorages is not allowed under OSHA guidelines.

User Instructions
Stanchion Receiver Anchorage Plate

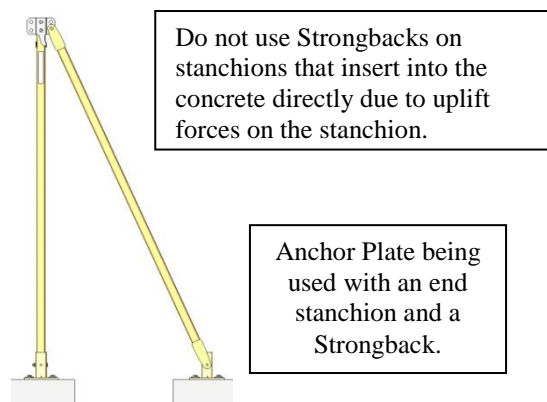
Installation

Installation of personal fall arrest anchorages should be done under the supervision of a Qualified Person trained in their design and use. Use only connections and equipment that have been qualified as compatible components by Reliance Industries. Ensure that the minimum anchorage strength is at least 5000-lb. Have the anchorage locations certified by a qualified person and keep documentation on hand.

Possible Methods of Installation of the 6184/6185 Anchor Plate



The Stanchion Receiver Anchorage Plate for Concrete may be used with either a Strongback Stanchion or an End/Bypass Stanchion as shown above but it **MAY NOT** be used for both at the same time in the same plate.



User Instructions

Stanchion Receiver Anchorage Plate

Anchorage Plate Installation Procedures

Installing the 6184-10 10-in. Anchor Plates using drill-in wedge style anchors

The 6184-10 Stanchion Receiver Anchor plates with the 10-in. by 10-in. plate may be installed using either 5/8-in. drill in. wedge style concrete anchors or epoxy anchors (the procedure for using epoxy anchors is outlined in a following section). The 6185-10 Stanchion Receiver Anchor Plate with the 8-in by 8-in. plate may ONLY be used with drill-in wedge style anchors if their use and design is certified by a Professional Engineer (PE); typically, the 6185-10 Anchor Plate is used with epoxy anchors only (the procedure for using epoxy anchors is outlined in a following section).

NOTE: Approved fall protection must be worn during Anchorage Plate installation at all times. Do not use the anchorage until the system has been completely installed, inspected, and approved for use by a Qualified Person.

1. Determine the best location to mount the Anchor Plate. **NOTE:** Careful consideration must be made prior to locating the Anchorage Plate. If the plate is to be used as a connection point for a Strongback Stanchion, then it should be located in such a position that the Strongback is placed at a 45 degree angle with the End Stanchion it connects to, in line with the End Stanchion, and the sides of the receiver must be parallel to the sides of the End Stanchion. It is best to have the stanchion already installed and have the strongback and anchor plate connected to the stanchion while locating the strongback base plate holes. If the Plate is to be used as a receiver for an End/Bypass Stanchion then it should be placed to be in line with the other stanchions or in such a fashion that it is accessible if needed. In all situations, the Plate must be located the proper distance away from any concrete edges or voids as recommended in the specific concrete anchor guide for the specific concrete anchors selected to be used with this plate and only in concrete of the proper strength that has cured for the proper amount of time. The minimum depth of embedment when using wedge style anchor bolts is 4-in. The minimum drill depth with a 5/8-in. anchor drill is 5.5-in. The wedge anchors selected must be long enough such that when 4-in. is embedded into the concrete, that at least 1-in. remains above the surface for securing the plate into place. Consult the manufacturer of the specific wedge anchor being used for exact guidelines on surface and hole preparation/placement. Contact Reliance Engineering with any questions to help determine exact placing of the Anchor Plate for a specific use.
2. Hold plate in place and mark locations of the 4 holes. Using the appropriate sized concrete drill bit, drill at marked locations to the appropriate depth for the concrete anchor. After the first hole is drilled the plate may be bolted down and then drilled through the remaining holes to limit drift while drilling. Refer to the design guide for limitations that may be placed on the location of the Anchor Plate in relation to the edges of the concrete structure, or the minimum thickness of concrete required. Take care to ensure holes are drilled perpendicular to the surface of the concrete.
3. Blow out holes with compressed air or flush with water to removed concrete dust.
4. Remove nut from concrete anchor. Tap anchor into hole carefully. Approximately 1-in. of thread must remain above the surface of the plate so that the plate and nut may be attached. Repeat with the other three concrete anchors.
5. Place plate over the anchors.



User Instructions

Stanchion Receiver Anchorage Plate

6. Secure plate in place with washers and nuts.
7. Torque anchor bolts to a minimum of 60-ft lb. If bolts will not torque to 60-ft lb., then the hole is oversized and the plate must be moved and the holes re-drilled.

The Anchor plate may be removed by simply loosening the nuts. Concrete anchors, once installed, are not easily removed. They may be cut off at the surface using a saw if they are not to be used again.

Installing the Anchor Plate using epoxy style anchors

The 6185-10 Anchor plates with the 8-in. by 8-in. backing plate may be installed using epoxy style concrete anchors. Only epoxy anchors are to be used with Anchor Plates that are 8-in. by 8-in. Wedge anchors may only be used with the 8-in. Anchor Plates if the system is designed and installed under the supervision of a Professional Engineer (the procedure for using wedge anchors is outlined in the above section).

NOTE: Approved fall protection must be worn during Anchorage Plate installation at all times. Do not use the anchorage until the system has been completely installed, inspected, and approved for use by a Qualified Person.

These instructions may be used when installing the 6185-10, 6184-10 Anchor Plates

1. Determine the best location to mount the Anchor Plate. **NOTE:** Careful consideration must be made prior to locating the Anchorage Plate. If the plate is to be used as a connection point for a Strongback Stanchion, then it should be located in such a position that the Strongback is placed at approximately a 45 degree angle with the End Stanchion it connects to, in line with the End Stanchion, and the sides of the receiver must be parallel to the sides of the End Stanchion. Before drilling for the Strongback Anchor Plate, connect the Strongback to the Stanchion and Plate and then drill through the plate holes after it is located correctly. If the Plate is to be used as a receiver for an End/Bypass Stanchion then it should be placed to be in line with the other stanchions or in such a fashion that it is accessible if needed. In all situations, the Plate must be located the proper distance away from any concrete edges or voids as recommended in the specific concrete anchor guide for the specific concrete anchors selected to be used with this plate and only in concrete of the proper strength that has cured for the proper amount of time. The required depth of embedment when using epoxy anchors is 5-in. The rods (or studs) used with the epoxy must be long enough such that after 5-in. are inserted into the epoxy there will be a minimum of 1-in. above the surface for the plate to connect to. Contact Reliance Engineering with any questions to help determine exact placing of the Receiver.
2. The preparation of the drilled holes for use with epoxy anchors require special attention to manner and method of drilling and cleaning the holes. The manufacturers' specific instructions for the brand of epoxy anchors should be followed at all times. Contact Reliance Engineering with any questions regarding specific questions concerning the use of the epoxy anchors. Hold plate in place and mark locations of the 4 holes. After drilling the first hole bolt down the plate and drill through the plate holes to locate the other three holes. Using the appropriate sized concrete drill bit, drill at marked locations to the appropriate depth for the concrete anchor. Refer to the design guide for limitations that may be placed on the location of the Anchor Plate in relation to the edges of the concrete



User Instructions

Stanchion Receiver Anchorage Plate

- structure, or the minimum thickness of concrete required. Take care to ensure holes are drilled perpendicular to the surface of the concrete.
3. Blow out holes with compressed air or brush to removed concrete dust. Air should be used until no visible dust comes out of the hole.
 4. Follow manufacturers' procedure for mixing epoxy and filling hole to proper depth.
 5. Insert threaded rod or stud into epoxy taking care to ensure that a minimum of 5-in. are inserted, and that approximately 1-in. remain above the surface. Verify that stud is sticking out of the surface in a straight fashion.
 6. Allow anchors to cure fully before proceeding using epoxy manufacturers' recommendation.
 7. Place plate over the anchors.
 8. Secure plate in place with washers and nuts.

The Anchor plate may be removed by simply loosening the nuts. Epoxy anchors, once installed, are not easily removed. The threaded rod may be cut off flush at the surface using a saw if they are not to be used again.

Attaching a Strongback Stanchion to the Anchorage Plate

1. Remove bolt from the end of the Strongback Stanchion where the plates are spaced furthest apart from one another.
2. Slide Strongback Stanchion side plates down Receiver tube until holes line up.
3. Re-insert bolt and tighten into place with nylock nut.
4. Opposite end of Strongback Stanchion may be installed and secured into the LOWER hole of a horizontal lifeline End Stanchion if the End Stanchion has already been installed.

Attaching an End/Bypass Stanchion to the Anchorage Plate

1. Remove bolt from the end of the End/Bypass Stanchion.
2. Insert the End Stanchion tube into the Receiver of the Anchorage Plate. Verify that the stanchion is oriented properly so the head of the stanchion is pointing the correct way for how it is to be used (the lugs of the head should be parallel to the direction of travel of the horizontal lifeline).
3. Secure in place with bolt and nut.

Training

It is the responsibility of the employer to train all workers prior to using this system (per OSHA 1926.503 (a)(1)). The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.



User Instructions

Stanchion Receiver Anchorage Plate

The employer shall assure that, as necessary, each employee has been trained by a competent person qualified in the following areas:

- a. OSHA regulations governing the use of personal fall arrest systems.
- b. Ability to recognize potential fall and workplace hazards.
- c. Method of inspection of safety equipment.
- d. Rescue procedures.
- e. Installation and removal techniques.

Planning for Rescue

Prior to system use, a rescue plan must be prepared, the workers must be trained in its use, and the rescue equipment must be on hand to implement it in case of a fall.

Typical rescue plans include (but are not limited to) the following items:

1. List of equipment that must be readily accessible in the event of an emergency and the names of those workers certified to use or operate that equipment.
2. Emergency contact phone numbers (ambulance, hospital, fire department...) and a means to contact them (cell phone, emergency radio).
3. List of employees on the site, and the specific tasks they will perform to effect the rescue.

The equipment that will be used to aid in the rescue of any worker must be attached to structural anchorages independent of those used by the fallen worker. During installation of worker anchorages, rescue anchorages and equipment attachment hardpoints should be installed, and also clearly marked in such a manner as to provide a means to rescue a worker in any position in the work area.

Inspection

Prior to each use, the worker must inspect the system for any physical damage, wear, corrosion, or missing parts. If a fall protection system that was connected to the Anchorage Plate has seen a fall arrest load, it must be removed from service until it is inspected by a competent person who either replaces or repairs and re-certifies the components and the structure that it was attached to for use again. If an inspection reveals a problem or unsafe condition, remove the entire system from service until it can be re-certified by a competent person.

Servicing

A qualified person trained in the inspection and servicing of system components must carry out servicing of this system. The company's safety officer should maintain a record log of all servicing and inspection dates. The system and all components must be withdrawn from service if subjected to fall arrest forces.



User Instructions

Stanchion Receiver Anchorage Plate

Those components may be returned to service only after being certified by a qualified person. Only original Reliance Industries equipment replacement parts are approved for use in this system. Contact Reliance Industries Engineering with questions and when in need of assistance.

Warnings and Limitations

Proper care should always be taken to visually scan the work area prior to use. Remove any obstruction, debris, and other materials from, and beneath the work area that could cause injuries or interfere with the operation of this system. Be cautious of swing fall hazards if working horizontally to the side of the anchorage. Always use the shortest lanyard length possible to connect to the anchorage. Be aware of the movements of others in the work area at the same time to ensure that the vertical lifelines do not become entangled, knowing that if they do and a fall occurs, the sudden motion in the lifelines could pull others off balance.

Users should be familiar with pertinent regulations governing the use of this system and its components. Only trained and competent personnel should install and supervise the use of this system.

Use only Reliance Industries supplied or qualified compatible components.

If you have any questions regarding the correct installation or use of this product DO NOT USE. Call Reliance Industries Engineering at Ph. (303) 456-8418 or Fax (303) 456-8471.



User Instructions
Stanchion Receiver Anchorage Plate

Inspection Log for 6185-10/6184-10 Stanchion Receiver Anchor Plate

Company: _____ Location: _____ Date: _____
Job Site: _____ Anchor No.: _____ System No.: _____

Describe non-conforming conditions in the boxes below:

Inspection Criteria	Missing Parts	Label Readable	Corrosion	Deformed Parts	Excessive Loading
Anchor Plate intact?					
Receiver Tube intact?		N/A			
Weld intact?					
Plating OK?		N/A			
Anchor bolts present and tight?					
Structure intact? Concrete not cracked?		N/A			

Has a Rescue Plan been prepared? _____

Is Rescue Equipment on hand? _____

Have workers been trained in the Rescue Procedures and been given a copy of the Rescue Plan? _____