
**D-Ring
Extender**
INSTRUCTION MANUAL



Safe Keeper

18" D-Ring Extender
INSTRUCTION MANUAL

These instructions apply to the following model(s):
LE0110-SK D-Ring Extender

A copy of this manual must be available to users at all times

UNDER PENALTY OF LAW

This manual must be read and understood in its entirety, and used as part of a fall protection training program, as required by OSHA or any state/local regulatory agencies. This instruction manual is intended to meet industry standards required by ANSI Z359.1-2007 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 equipment. All users must be properly trained by their 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 equipment user. 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 a supervisor or contact Safe Keeper, Tel:001-863-354-1315, address 314 E CANAL ST. MULBERRY FL 33860 USA

MATERIALS AND CONSTRUCTION

Webbing:

- Polyester — 1.18" Width

Snap Hooks/Rebar Hooks:

- Galvanized Steel

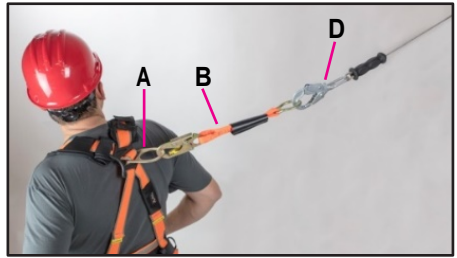
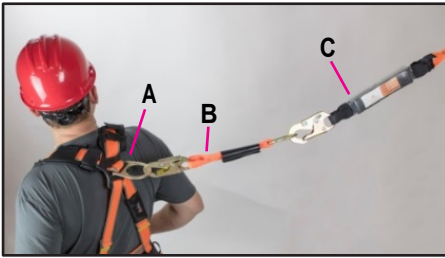
PURPOSE

SAFE KEEPER 18" D-Ring Extender is intended for use as part of a personal restraint system. The D-Ring extension assembly may be used as part of a personal fall arrest system only if it is attached to a self-retracting lifeline or an energy absorbing lanyard. Applications include: inspection work, construction, demolition, maintenance, and oil production. **See Illustration 1.**

Personal Fall Arrest System (PFAS): The D-Ring extension is used in-line with a personal fall arrest system to assist in attachment to the system. Only D-Ring extender snap hook can be attached to full body harness back D-Ring when used for fall arrest. Lanyard or SRL snap hook must engage the D-Ring extender closed ring end not snap hook end. User cannot attach two active connectors on a single D-Ring per ANSI and requirements and OSHA regulation. **See Figure 1.**

Figure 1: Suitable Use of D-Ring Extender

A	Dorsal D-Ring on Full Body Harness (FBH)
B	D-Ring Extender with Snap Hook
C	User Option with Shock Absorbing Lanyard (SAL)
or	Only one active Connector may be used with a D-Ring Extender per application
D	User Option with Self-Retracting Device (SRD)
B (extender) must be connected to A (dorsal D-ring): either C (SAL) or D (SRD) may be connected to B (extender)	



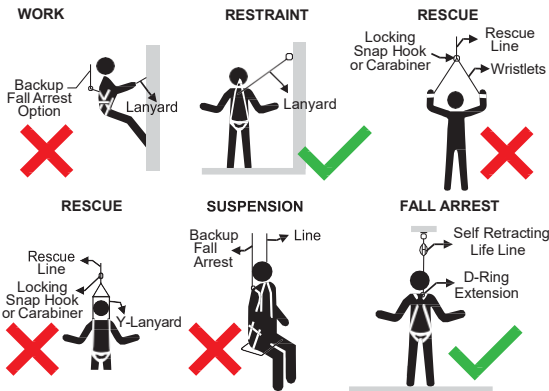
Fall Restraint: 18" D-Ring Extender is used to prevent the user from reaching a hazard, such as a leading edge. No vertical free fall permitted.

Work Positioning: The lanyard is used to position or support (with a harness or body belt) the user at the work position, such as window washing or steel workers. Two feet maximum free fall. The SAFE KEEPER 18" D-Ring Extender is not suitable for positioning.

Suspension: The lanyard is used with a chair or other support system to suspend or transport the user vertically, such as in an Easy Seat. No vertical free fall possible. The SAFE KEEPER 18" D-Ring Extender is not suitable for suspension.

Rescue: The lanyard is used to retrieve a victim in a rescue, such as confined space rescue and retrieval. No vertical free fall possible. The SAFE KEEPER 18" D-Ring Extender is not suitable for rescue.

Illustration 1: Lanyard Applications



NOTE: The 18" D-Ring Extender is intended for fall arrest and fall restraint applications only. The 18" D-Ring Extender can only be used for fall arrest when it is attached to a self-retracting lifeline or an energy absorbing lanyard.

INSTRUCTIONS FOR USE

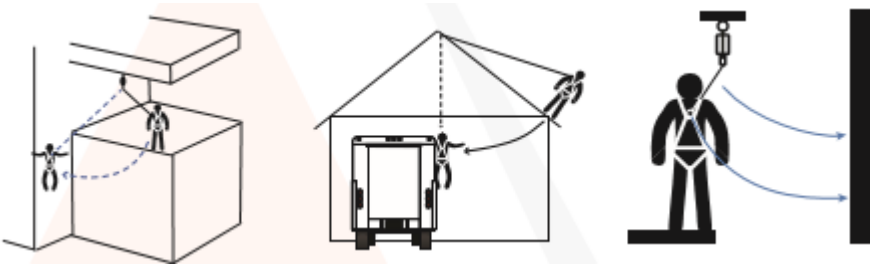
WARNING

Do not alter or intentionally misuse this equipment.

- 18" D-ring extenders which meet ANSI Z359.1 are intended to be used with other components of a Personal Fall Arrest system that limit maximum arrest forces (MAF) to 1800 pounds (8 kN) 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 Personal Fall Arrest System.
- Inspect all personal fall arrest system equipment for wear, damage, and other deterioration prior to each use. Remove defective components 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 (rope grab, lanyard), the anchorage location, and the amount of stretch in the lifeline. 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 of a fall. The force of striking an object in a swing may cause serious injury or death. Minimize potential for swing falls by working as close to the anchorage point as possible. Swing falls significantly increase the amount of clearance required. The use of the SAFE KEEPER 18" D-Ring Extender will increase the users free fall distance. The user must be sure the increased length of a lanyard is accounted for in determining swing fall hazards.

Illustration 2: Examples of Swing Fall Hazards



LIMITATIONS FOR USE

WARNING

Do not use this equipment if you are unable to tolerate the impact of a fall arrest. 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 neck problems must not use this equipment.

WARNING

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

- Use only with compatible components of subsystems. Substitutions or replacements made with non-approved components may jeopardize equipment compatibility and affect system safety and reliability

The SAFE KEEPER 18" D-Ring Extender is designed for a single user. Combined user weight, including clothing and tools must not exceed weight capacity. For use by one person only, with maximum weight of 310 lbs. or up to 420 lbs. if used in combination with equipment explicitly certified for such use (including clothing, tools, etc.).

- This equipment is designed to be used in temperatures ranging from -40°F To +130°F(-40°C - +54°C).
- 18" D-ring extender is not to be used for looping around small diameter structural members.
- 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 SAFE KEEPER shall make repairs or alterations to the equipment.
- 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 in use to prevent UV degradation.
- This equipment must be removed from service immediately if a fall is incurred.
- Use only with structures capable of supporting static loads required for fall arrest or restraint system as follows:

Anchorage Strength:

In accordance with ANSI Z359.1, anchorage selected for **Personal Fall Arrest Systems must meet all** anchorage strength requirements.

- **Personal Fall Arrest:** Anchorages used for PFAS must be capable of sustaining static loads in the direction 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.
- **Work Positioning:** The structure to which the work positioning system is attached must sustain static loads applied in the directions permitted by the work positioning system of at least 3,000 lbs., or twice the potential impact load, whichever is greater. See OSHA 1926.502. When more than one work positioning system is attached to an anchorage, the strengths stated above must be multiplied by the number of work positioning systems attached to the anchorage.
- **Restraint:** Anchorages selected for rescue systems must be capable of sustaining static loads of at least: 1,100 lbs. When more than one restraint and travel restraint system is attached to an anchorage, the strengths stated above must be multiplied by the number of work positioning systems attached to the anchorage.
- **Rescue:** The structure to which rescue system is attached must sustain static loads applied in the directions permitted by the work positioning system of at least 3,000 lbs., or five times the potential impact load, whichever is greater. See OSHA 1926.502. When more than one work positioning system is attached

to an anchorage, the strengths stated above must be multiplied by the number of work positioning systems attached to the anchorage.

Fall Arrest	Non-Certified Anchorage	5,000 lbs. (22.2kN)	Multiple Systems: When more than one of the defined systems is attached to an anchorage, the strength defined shall be multiplied by the number of systems attached to the anchorage.	
	Certified Anchorage	3,600 lbs. (16.1kN)		
Restraint	Non-Certified Anchorage	1,100 lbs. (22.2kN)		
	Certified Anchorage	≥ 2 Times the Maximum Potential Impact Load		
Work Positioning	Non-Certified Anchorage	3,000 lbs. (22.2kN)		Certified Anchorage: An anchorage for Personal Fall Arrest, Work Positioning, Restraint or Rescue systems that a qualified person certified to be capable of supporting the potential fall or that meets the criteria for a certified anchorage point, as prescribed by relevant ANSI and OSHA standards.
	Certified Anchorage	≥ 2 Times the Maximum Potential Impact Load		
Rescue	Non-Certified Anchorage	3,000 lbs. (22.2kN)		
	Certified Anchorage	≥ 5 Times the Maximum Potential Impact Load		

CONNECTOR COMPATIBILITY LIMITATIONS

SAFE KEEPER equipment must be coupled only to compatible connectors that are suitable to your application. 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 to engage to objects unless the following requirements are met:

- Snap hook must be an ANSI-style locking model.
- Snap hook must be explicitly designed for such a connection, meaning that the manufacturer of the snap hook specifically it to connect to the equipment in question.

Use of a non-locking snap hook can result in rollout (a process by which a snap hook or carabiner unintentionally disengages from another connector or the object to which it is coupled (ANSI Z359.12-2009). SAFE KEEPER connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user instructions.

Avoid the following types of connections:

- Two or more snap hooks or carabiners attached to one D-Ring.
- A snap hook connected to its integral lanyard.
- A snap hook connected to a 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. This could 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 to capture the gate of the hook.*
- False engagement connections, where protruding features of the snap hook or carabiner may catch on the anchor and seem fully engaged to the anchor point. Always confirm engagement.
- Connection to snap hooks or carabiners.
- 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).
- A snap hook connected to a D-Ring, Rebar, or other connection point with improper dimensions/configurations could cause the snap hook keeper to become depressed by the turning motion of the snap hook; the snap hook or carabiner may not fully close and lock or roll-out may occur.

Illustration 3 depicts examples of inappropriate connections:

Illustration 3: Inappropriate Connections



CONNECTING COMPONENT LIMITATIONS

18" D-Ring Extender:

- For use by one person only, with maximum weight of 310 lbs. or up to 420 lbs. if used in combination with equipment explicitly certified for

- such use (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.
 - The following application limitations must be recognized and considered before using this product:
 - **Capacity:** This equipment is for use by one person with a combined weight (person, clothing, tools, etc.) of 130 lbs. to 310 lbs., or up to 420 lbs. if used in combination with equipment explicitly certified for such use.
 - **Free Fall:** Lanyards used for work positioning applications must be rigged to minimize any potential vertical free fall. In no case should potential free fall be greater than two feet. For situations where free fall may exceed two feet, a backup fall arrest system should be used. If D-Ring extension assemblies are used in conjunction with a self-retracting lifeline or an energy absorbing lanyard in a fall arrest application, the length of the D-Ring extension assembly must be taken into account when calculating free fall distance and fall clearance requirements.
 - **Fall Clearance:** Always ensure fall clearance distance before using lanyards equipped with energy absorbers (shock packs). If there is a risk of fall or if the only anchorage is below the attachments points on a harness, it is essential to use a lanyard provided with an energy absorber. Before using an energy absorbing lanyard, check that there is sufficient fall clearance below the user to prevent any collision with structure or ground. **(See Illustration 3, Page 9.)**
 - **Backup Fall Arrest System:** Some applications of this equipment may require the use of a backup fall arrest system such as when using a Y-lanyard to suspend a person in an Easy Seat.

System:

- A Competent Person must ensure the compatibility of all connections and that of the system.
- Do not use the system if any component in the system does not operate properly.
- Do not use if any part of the system appears to be damaged.
- Do not use a body belt for fall arrest applications.

PERFORMANCE

The SAFE KEEPER 18" D-Ring Extender has a minimum tensile breaking strength of 5,000 lbs. (22.2 kN) when statically tested in accordance with the requirements of the ANSI Z359.1-2007 standard.

Model/ Part #	Description (Materials & Size)	Length	Minimum Strength	ANSI Rated Capacity	Max Elongation	Standard
LE0110-SK	Polyester D-Ring Extension with Steel Snap Hook and Steel "O" Ring	18"	5500 lbs.	130-310 lbs.	N/A	ANSI Z359.1- 2007

Applicable Standards:

Refer to national standards, including ANSI Z359.0-2012, and local, state and federal (OSHA 1910.66, appendix C, 1926.500) requirements for more information on personal fall arrest systems and associated components.

Before Each Use:

- Inspect the 18" D-Ring Extender for any damage or soiling (dirt, oil, paint, etc.)
- Ensure self-locking snap hooks & carabiners work properly. Inspect rope or webbing for wear, cuts, burns, frayed edges, or other damage.
- **Anchorage:** Select a rigid anchorage point capable of supporting required loads. Select appropriate anchorage point that will reduce possible free fall and swing fall hazards and avoid striking an object during a fall. Anchorage should be level (horizontal) in order to prevent the connector from sliding on an incline when in use, which could cause serious injury to the user.
- **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.
- **Free Fall:** Personal fall arrest systems must be rigged in such a way that the free fall does not exceed 6 ft. Avoid working above the anchorage level to avoid an increase in fall distance.
- **Fall Arrest Forces:** The assembled Personal Fall Arrest system must limit maximum arrest forces to 1800 pounds (8 kN) or less when used with a full body harness.

Instructions:

- Do not tie knots of any type in lanyards.
- Do not hook a lanyard back upon itself (choker style).
- Do not attach snap hooks to web loops.
- The fixed anchorage to which a lifeline, lanyard, or decelerating device is attached must be capable of supporting 3,600 lbs. with certification, 5,000 lbs. without certification—per worker.
- Keep lanyards as short as possible to minimize free fall distance.
- Free fall distance must not exceed six feet at any time.
- Locate attachment point to the anchor at or above the connection point of the fall arrest equipment to the harness.

Connecting to Anchorage or Anchorage Connector:

- Connect energy absorber to end of the lanyard to the full body harness. Connect the other end of the lanyard to the anchorage or anchorage

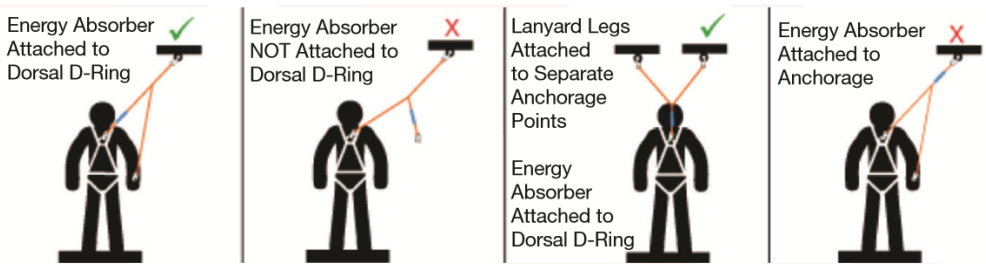
connector.

- **100% Tie-Off Considerations:** Energy absorbing Y-type, twin leg or double lanyards can be used to provide continuous fall protection while moving. The worker can move to a new location while one lanyard leg is attached. Attach the free (unused) lanyard leg, then disconnect the attached leg. This procedure may be repeated as a new location is reached.
- Energy absorber portion of the lanyard must be connected to the Dorsal D-Ring of the FBH or the SAFE KEEPER 18" D-Ring Extender only. **See Figure 1.**
- Do not attach the energy absorber to the anchorage.
- Do not attach the free (unused) leg of the lanyard back to the harness at any location unless a specially designed lanyard keeper is provided for this purpose.
- Connection of both lanyard legs to separate anchorage points is acceptable.
- Never connect more than one person to a Y-type lanyard.
- Do not allow any lanyard to pass under arms or legs during use.

Connecting to a Rope Grab:

- Connect lanyard end (not the energy absorber end) to the rope grab.
- Some rope grabs are supplied with a permanently attached energy absorbing lanyard, use of an additional energy absorber is not recommended with these types of rope grabs.
- Ensure the length of the energy absorber or energy absorbing lanyard does not exceed the rope grab manufacturer's recommended maximum connection length (3 feet maximum per ANSI Z359.1:2007).

Illustration 4: Connecting to an Anchorage



Connecting to a Self-Retracting Lifeline: Connecting an energy absorbing lanyard or component to a self-retracting lifeline is not recommended. Special applications exist where it may be permissible. Contact SAFE KEEPER if considering connecting an energy absorbing lanyard to a self-retracting lifeline.

Knots: Knots of any kind are not approved in lanyards. Strength is drastically reduced by tie-offs using knots, tying around sharp edges, etc. Tie-offs using a knot in a rope lanyard (at any location) reduces the lanyard strength by 50 percent

or more. Tie-off around an “H” or “I” beam can reduce the strength of lanyard by approximately 70 percent due to cutting action of beam edges.

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. For restraint applications, locate the anchorages such that no vertical free fall is possible.

Free Fall: Maximum free fall distance allowed for use in a Personal Fall Arrest System is 6 ft. For use in a Restraint System, no vertical free fall is permitted. Do not work above the anchorage level to avoid increased free fall distance.

Fall Arrest Forces: Personal Fall Arrest system must limit maximum arrest forces to 1800 lbs. (8 kN) or less. Deceleration distance shall not be allowed to exceed 48” per ANSI standards.

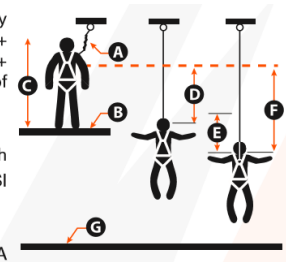
Swing Falls: Minimize swing falls by working as directly below the anchorage point as possible. Do not permit a swing fall if injury could occur.

Fall Clearance: Clearance required is dependent upon the subsystem and lanyard properties. Energy absorbers can extend the fall arrest distance by up to 48” per ANSI standards. Other factors may influence the required clearance distances. Use caution when assembling system components that could extend the fall arrest distance (and therefore fall clearance required). Consider the following when calculating fall clearance:

Clearance Required is Dependent On the Following Factors:

- Elevation of Anchorage
- Connecting Subsystem Length
- Deceleration Distance
- Free-Fall Distance
- Worker Height
- D-Ring/Connector Length
- Movement of Harness’s Attachment Element
- Length of Full Body Harness (FBH) Stretch
- Working Level

Illustration 5: Fall Clearance Considerations

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- A. Connecting Subsystems (Energy Absorbing Lanyard shown) Length + Movement of Harness Attachment + Length of FBH Stretch + Settling of User’s Body While in the Harness
 - B. Working Level (Thickness)
 - C. Worker Height + Connector Length
 - D. Free-Fall—6’ Max. (per ANSI Z359.1)
 - E. Deceleration Distance
 - F. Total Fall Distance: Sum of A through E
 - G. Lower Level or Obstruction

The use of an extender will increase the users potential free fall. The user must make sure the increased total length of the lanyard is accounted for in calculating fall clearance distances. **See Illustration 5.** If there is a risk of fall or if the only anchorage point is below the attachment

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

Note: Keep all instructions available for reference. Record the date of first use:

Record all observations and results of each inspection in your Hog Tracker account or inspection log. If inspection reveals any defect, inadequate maintenance, or unsafe condition, remove Self Retracting Lifeline from service immediately.

Any equipment that has been subjected to the forces of arresting a fall must be removed from service immediately.

Note: Equipment must not be altered in any way, including attempted repair. Only manufacturer, or entities authorized in writing by the manufacturer, may make repairs to this product.

- Equipment must be free of corrosion, chemical degradation, excessive heat, or extreme wear.
- All markings must be legible and attached to the equipment.
- Inspect hardware (snap hooks, adjusters, thimbles, spreader bar, etc.) for evidence of distortion, sharp edges, burrs, cracks, worn parts or corrosion.
- Make sure connecting snap hooks work correctly, move freely and lock upon closing.
- Snap hook gate spring provides tension to keep the snap hook gate closed in a locked position; snap hook must close flat and exhibit no sideways play. Ensure adjusters, if present, work properly.
- All webbing must be free of frayed or broken fiber, pulled stitches, tears, abrasions, mold, burns or discoloration.
- Inspect webbing and stitching by pressing to bend webbing over a 1½ inch diameter object. Webbing and stitching must be free of cuts, fraying or signs of wear.
- Shock absorbing devices must show no evidence of elongation or activation.
- Ensure energy absorber cover is not torn or damaged, and is securely in place.

If inspection reveals any defective condition, remove from service immediately.



SAFE KEEPER, 314 E.CANAL ST.MULBERRY,FL 33860