

INSTALLATION MANUAL

WARRANTY, TOOLS AND HARDWARE

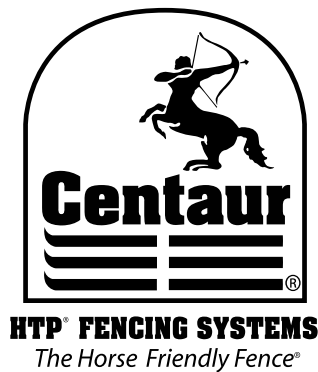
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Muscle Shoals, AL 35661
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HTP® FENCING SYSTEMS
The Horse Friendly Fence®





Centaur® HTP® Fencing Systems
2802 East Avalon Avenue
Muscle Shoals, AL 35661-3748
1-800-348-7787

To The Customer:

Thank you for your interest in our Centaur High Tensile Polymer (HTP)® fencing system. I am sure after you examine this installation manual, you will agree that this is a very well engineered and thought-out fencing system. We have expended twenty years of time and several million dollars in the development of this product. As a matter of fact, we have been granted several patents. When properly installed following the instructions of this manual, your fence will give you many years of trouble-free performance.

This product was brought into existence as a result of my being a lifetime horseman and a manufacturer of polymers and plastics for approximately 50 years. Therefore, it was only natural after seeing a close friend's horse mutilated in a wire fence to be inspired to initiate the research which has been going on for the past twenty-four years. Safety was one of the foremost features that I wanted in this new fence, but other advantages were gained as well, including, low maintenance, traditional board look, toughness and long-term durability. After searching throughout the world for other types of products that might be in this category, we found absolutely none that could perform as well as this fence. It combines high tensile wire with advanced outdoor polymer technology. The material is rated at the highest level for outdoor performance of any polymer material on the market today. We tested several materials before we found a suitable state-of-the-art product. What other fence in the marketplace can compare to a fence rail that requires no painting, is the ultimate in safety, has the traditional board look, is super tough, and has the long-term durability that so many horse owners desire? They know if they build a conventional fence they will be saddled with a lifetime of painting, maintenance, injury and possible liability. Therefore, Centaur is known as "The Horse Friendly Fence®."

Other aspects to consider are the engineering and testing that have been put into the installation methods we have developed at Centaur. These installation methods are unique to Centaur and have patents worldwide. The manual should be followed explicitly. In fact, to help assure a quality installation, we will not grant the warranty without photographs and completed affidavit as outlined in this manual.

Yes, we are proud of this unique product and want to make sure you will get the most from your investment.

Sincerely,

Edward S. Robbins, III
President

ESR/BW



HTP® FENCING SYSTEMS

The Horse Friendly Fence®

PRODUCT WARRANTY INFORMATION

CENTAUR® HTP® FENCING SYSTEMS ("CENTAUR"), TO THE EXTENT PERMITTED BY LAW, EXPRESSLY DISCLAIMS ALL EXPRESS WARRANTIES AND ALL IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE UNTIL THE FENCE RAILS ARE INSTALLED BY AN INDIVIDUAL CERTIFIED BY CENTAUR OR BY ANY OTHER INDIVIDUAL IN COMPLIANCE WITH SPECIFICATIONS AND REQUIREMENTS PROVIDED BY CENTAUR. IF CENTAUR CERTIFIES THE INSTALLATION OF THE FENCE, CENTAUR WILL PROVIDE YOU WITH A CERTIFICATE OF LIMITED WARRANTY. YOUR SOLE REMEDY IS SET FORTH IN THE CERTIFICATE OF LIMITED WARRANTY. CENTAUR MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSLY SET FORTH IN THE CERTIFICATE OF LIMITED WARRANTY. PLEASE CAREFULLY REVIEW THE CERTIFICATE OF LIMITED WARRANTY.

CENTAUR EXPRESSLY DISCLAIMS ALL EXPRESS WARRANTIES AND IMPLIED WARRANTIES RELATED TO THE INSTALLATION OF THE FENCE.

WARNING

AS NO FENCE PRODUCT IS TOTALLY SAFE, THERE REMAINS A POTENTIAL FOR INJURY TO LIVESTOCK. THEREFORE, CENTAUR HTP® FENCING SYSTEMS SHALL IN NO EVENT BE RESPONSIBLE FOR ANY INJURY TO PERSONS, LIVESTOCK OR PERSONAL PROPERTY.

Warranty Requirements

In order to have a better understanding of installation methods; it is important that this manual is thoroughly read before beginning installation. **In fact, the methods presented in this manual must be followed or the warranty is void.** If you have any additional questions, please call your dealer/distributor.

In order to be eligible for your limited product warranty, within 90 days of purchase the following photos must be taken and sent back with the completed affidavit (found on page 6), production sticker, and quality questionnaire to: Centaur® HTP® Fencing Systems (hereafter referred to as Centaur), 2802 E. Avalon Avenue, Muscle Shoals, AL 35661-3748:

1. A photo of a termination footing using one of the bracing methods described in this manual showing the depth and configuration before the concrete is poured (see photo 1 below).
2. A photo of a finished termination brace before the rail is attached (see photo 2 below).
3. A photo of a corner post footing showing the depth and configuration before the concrete is poured (see photo 3 below).
4. A photo of the corner completely finished with rail up and brackets nailed (see photo 4 below).
5. A photo of the tensioners installed.
6. A photo showing as much of the finished fence as possible.



In addition to these photos, the quality questionnaire must be completed as well as enclosing one of the stickers on the packaging showing the production date of the rail (one sticker for each date).

These photos, the quality questionnaire, the production sticker, and the affidavit will be examined by Centaur for proper installation of the fence. Once approved, a limited product warranty will be issued.

It is the opinion of Centaur that following these selected methods and techniques of installation will provide the most effective approach to equine containment, visual aesthetics, and durability offered in High Tensile Polymer Fencing.

Quality Questionnaire

In order to ensure that you have a quality installation and for us to provide the best horse fencing solutions possible, please fill out the following survey. This survey must be filled out in order to receive a warranty. The installer is to complete the technical questions and the owner is to complete the quality questions.

Technical Questions (To be completed by installer)

1. To what depth were the footings for the terminations and corners dug?
2. What was the diameter of the auger if used?
3. What spacing was used between posts?
4. Were the line posts driven or augered?
5. What are the soil conditions (rocky, sandy, wet)?
6. Did the purchaser install the fence?
7. If not, was the fence installed by someone recommended by Centaur?
8. If so, who was the installer?
9. What are the **production dates** on the rail (found on the sticker on the rail packaging)?

Quality Questions (to be filled out by fence owner)

Please rate the following quality aspects using 4 for great, 3 for good, 2 for fair, 1 for poor:

1. Overall appearance of the rail itself. _____
2. Overall quality of the bracing at the terminations and corners. _____
3. Overall appearance of the fence. _____
4. Overall satisfaction with the fence. _____
5. Overall satisfaction with Centaur. _____
6. Overall satisfaction with the dealer / contractor. _____

AFFIDAVIT

I hereby certify that I have used the installation procedures and methods recommended in the Centaur Installation Manual and/or Centaur Installation video cassette. I also certify that the enclosed photos, as required by Centaur, depict the actual installation methods and procedures used installing the Centaur fence.

FENCE INSTALLER:

Signature _____

Name _____

Company _____

Title _____

Date _____

Date Installation Was Completed _____

WARRANTY TO BE ISSUED TO:

NAME

ADDRESS



HTP® FENCING SYSTEMS
The Horse Friendly Fence®

HARDWARE



**Centaur
Installation
Manual and
DVD**



**Colored
String, Stakes,
and/or Layout
Paint**



**8" Lineman
Pliers or
Wire Cutters**



**1/2" Drive
Long Handle
Ratchet**



**Tape Measure
- 25 ft.
minimum
(100 ft.
optional)**



**Brush or
Roller for
painting
posts**



**Marking Pen
and Pencil**



Chain Saw



**1" x 2" x 48"
Long Straight
Wood for
template of
bracket and
staple locations**



**Hammers,
claw and 2
lbs. sledge**



**"T" Square
and Speed
Square**



**Drill and
3/8" Drill Bit**



Bolt Cutters



Razor Knife



**Power Post
Hole Digger**



**Level - 3 ft.
long**



Safety Glasses



**Post Hole Digger -
hand held
and Shovels -
spade type and
regular**

MATERIALS



Required Rolls of Centaur® HTP® Fencing
Qty: _____



Undergate Cable
Qty: _____



CCA Pressure Treated Posts 6" - 7" dia. by 8 or 9 ft. long for end & corner locations
Qty: _____



Centaur/Hot Rail® or CenFlex® Bracket
Qty: _____



Line Tap Connector
Qty: _____



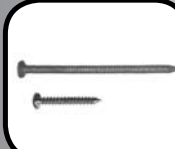
CCA 4" - 5" dia. by 7.5 to 8 ft. Long Posts for line and brace locations
Qty: _____



Barbed Staples
Qty: _____



Splice Cover (Does not include wire links or crimping tools)
Qty: _____



Nails and Screws
Qty: _____



Barrel Tensioner
Qty: _____



Rust Preventative Spray - same color as rail
Qty: _____



Insulator Pad
Qty: _____



Diagonal Brace Plate or Brace Pin
Qty: _____



Pre-Mixed Concrete
Qty: _____



Wire Links 12.5 Gauge
Qty: _____



Paint for the posts (optional)
Qty: _____

SURE-FIT®
ACCESSORIES

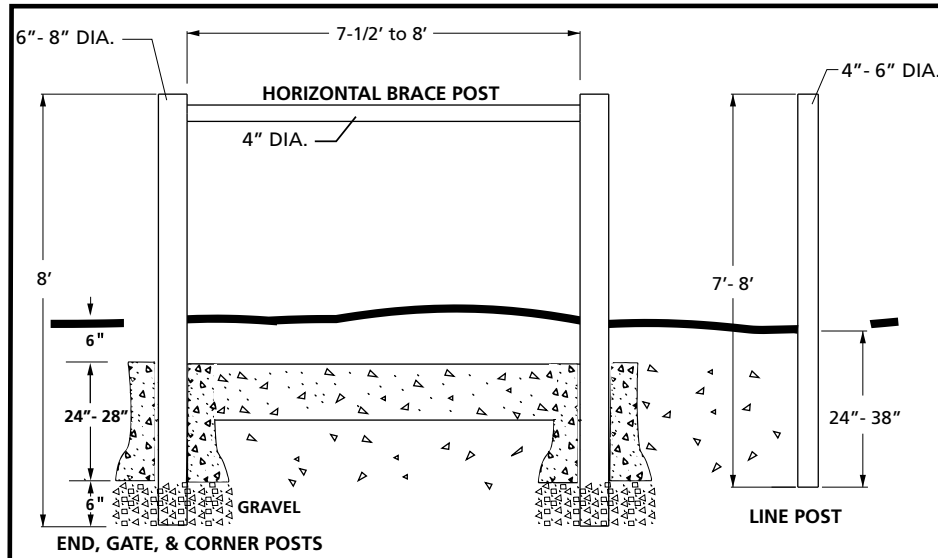
**Safer,
Stronger
and Lasts
Longer**

POST REQUIREMENTS

Below are recommended post dimensions.

Wood Posts

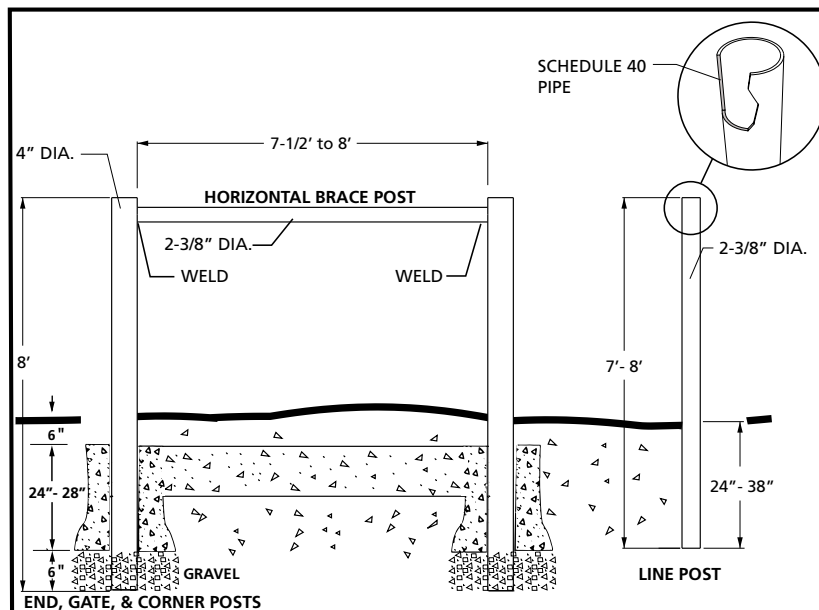
Post Type	Post Diameter	Length	Depth of Embedment
Line	4" - 6"	7' - 8'	Min 24" - 38"
Corner	6" - 8"	8'	Min 36"
Gate and/or End	6" - 8"	8'	Min 36"
Horizontal/Diag Brace Post	4"	7-1/2' - 10'	N/A



Steel Posts (Note: All pipe is schedule 40)

Post Type	Post Diameter	Length	Depth of Embedment
Line	Min 2-3/8"	7' - 8'	Min 24" - 38"
Corner	4"	8'	Min 36"
Gate and/or End	4"	8'	Min 36"
Horizontal/Diag. Brace Post	2-3/8"	7-1/2' - 10'	N/A

It is recommended to use #10 x 2" long self-tapping screws.



Note: In sandy soils or colder climates we recommend longer post lengths. Post depth will always increase strength.

7 EASY INSTALLATION STEPS

This manual will guide you through 7 Easy Steps which are outlined below. When the installation is complete you will have a beautiful, low maintenance, animal-safe fence. Each step is very important, but **THE MOST IMPORTANT STEP** is Building End, Gate & Corner Brace Assemblies. The 7 steps are as follows:

Step 1: Fence Layout (page 11-13)

Step 2: Building End, Gate & Corner Brace Assemblies (page 14-16)

Step 3: Line Post Installation (page 17)

Step 4: Identify Top Line (page 18)

Step 5: Attaching Brackets (page 19-21)

Step 6: Installing the Rail (page 21-25)

Step 7: Installing Barrel Tensioners (page 26-28)

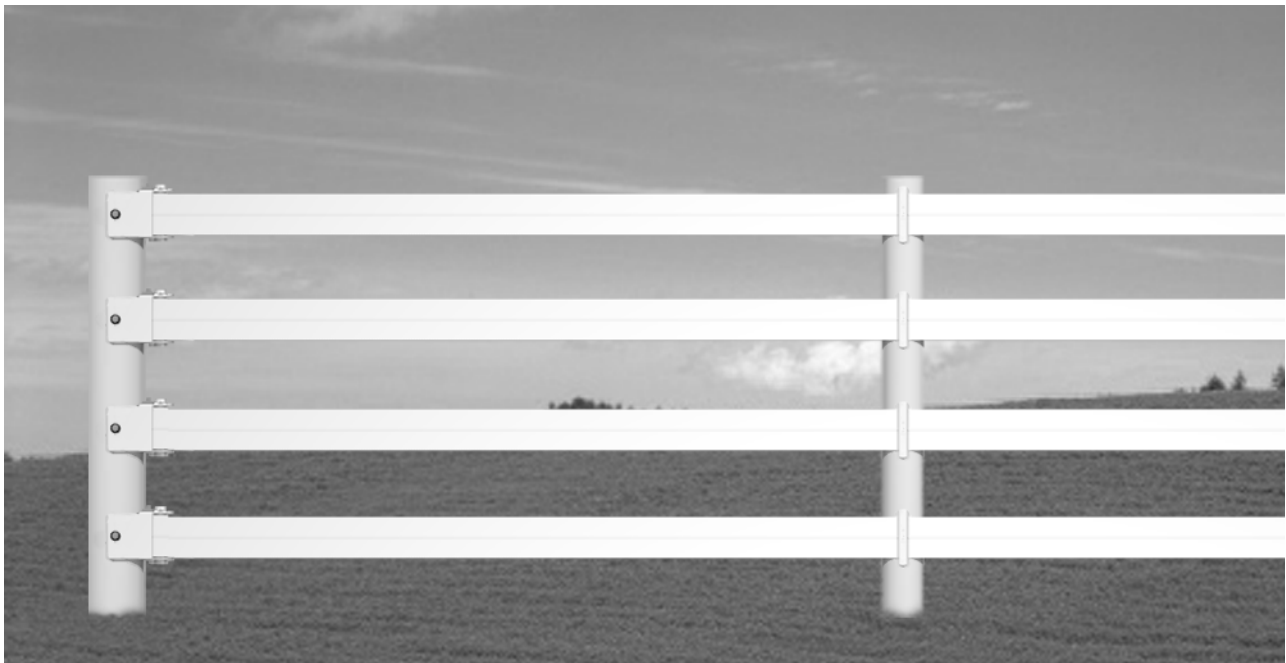
Plus, in the back of this manual are tips on the following:

Splicing Techniques (page 29-30)

Hot-Rail Connections (page 31)

Cross Fencing Options (page 32-33)

Fence Layout Template (page 34)



Step I: Fence Layout

Call **811** or visit **www.call811.com** to have the local utilities department locate and mark all underground lines that may interfere with your **Fence Layout**.

When determining the Fence Layout there are many things to consider. Below is a list of main points that should be considered when completing the Fence Layout.

- Property Lines
- Approximate Measurements
- Gate Locations & Sizes
- Distance Between Line Posts (8', 10', 12')
 - *This is important because your Rail price includes line post brackets.**
- # of Rails, Spacing Between Rails & Rail Placement (Inside or Outside)
 - *For a safer fence, we recommend placement of rail on the inside.**
- End & Gate Bracing Assemblies (Horizontal/Diagonal or Horizontal or Diagonal)
- Corner Bracing Assemblies (Rounded, Double 45 degree or 90 degree)
 - *For a safer fence, we recommend Rounded or Double 45 degree corner assemblies.**
- Types of Terminations (End Staple Procedure, One-Way Tensioner, or Terminator Bracket)
- If area being fenced requires a two-way Barrel Tensioner, mark these locations

How much Rail do I need?

Use this formula to calculate how many rolls will be needed for your installation.

$$\frac{\text{Total Footage}}{\text{Total Footage}} \times \frac{\text{\# of Rails}}{\text{\# of Rails}} = \frac{\text{Total Rail Footage}}{\text{Total Rail Footage}} / 660' = \frac{\text{\# of Rolls Needed}}{\text{\# of Rolls Needed}}$$

Example: 1315' x 4 = 5260' / 660' = (7.97) 8 Rolls

1A:

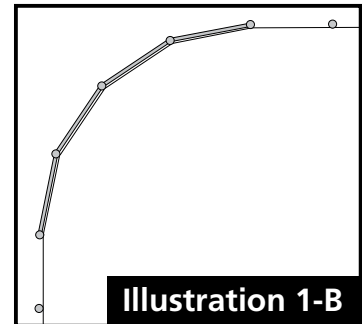
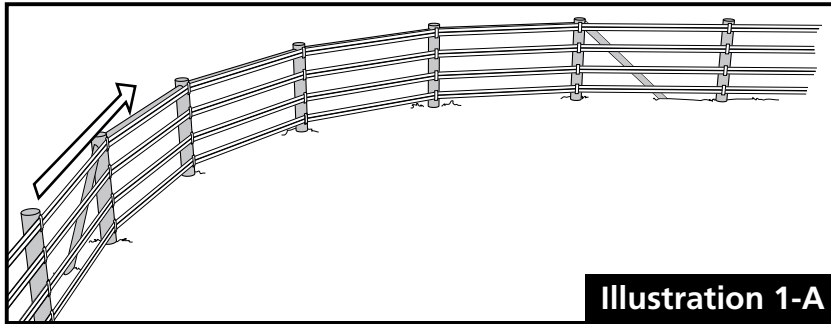
Using the provided graph paper in the back of this manual, complete your Fence Layout. Be sure to:

- Note all gate locations, sizes & opening direction.
- Mark individual measurements on fence layout.
- Decide on the spacing that will be used between line posts.
- Decide which side of the post you will place your rail.
- Mark all end, gate & corner bracing assemblies locations & types.
- Decide on termination types & tensioner locations.

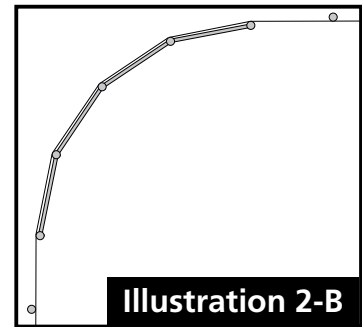
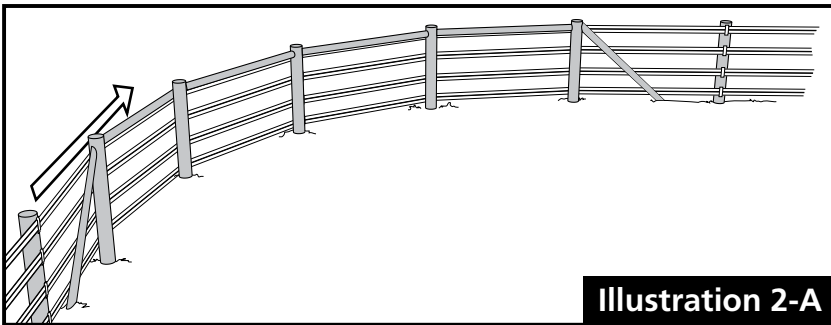
NOTE: To reduce wear and tear on your fence, Centaur recommends the use of Hot Rail® or White Lightning® on cross fences or perimeter fences where animals are on both sides. Animals are sociable just like humans and to keep them from riding down, fighting over, under, or through fences this consideration will deter that kind of activity.

The illustrations below show different options that Centaur recommends when running corners in a typical paddock.

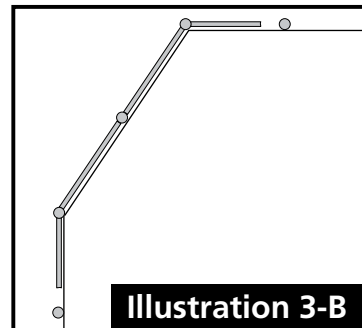
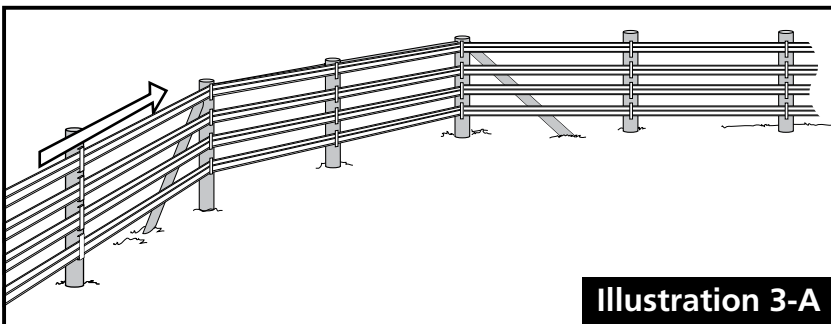
1. ROUNDED CORNER with rail on INSIDE of corner posts.



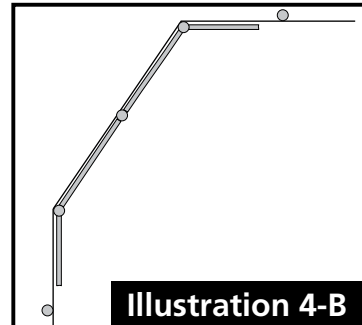
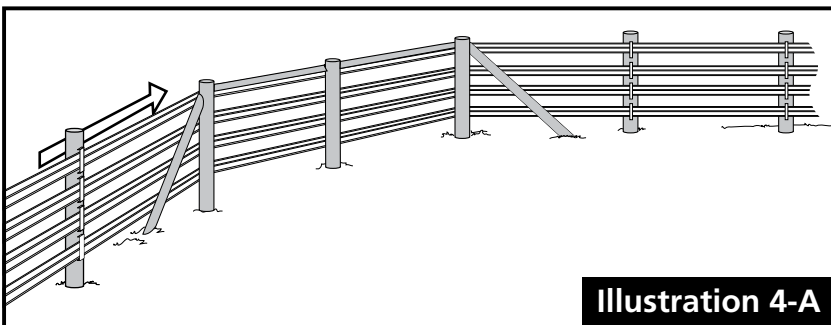
2. ROUNDED CORNER with rail on OUTSIDE of corner posts.



3. Double 45 DEGREE CORNER with rail on INSIDE of line posts.



4. Double 45 DEGREE CORNER with rail on OUTSIDE of corner posts.



The illustrations below show two more corner options in a typical paddock. Note that over time the wire may break at the corners due to the tight bend created by the 90 degree angle.

5. Paddock with rail on inside of line posts, outside of 90 DEGREE CORNER.

NOTE: When using 90 degree corners, rail must run on outside of corner as shown in Illustrations 3-A and 3-B. Post and Brace Assembly Post are on opposite sides of rail, allowing rail to run straight and not place a side pull on post.

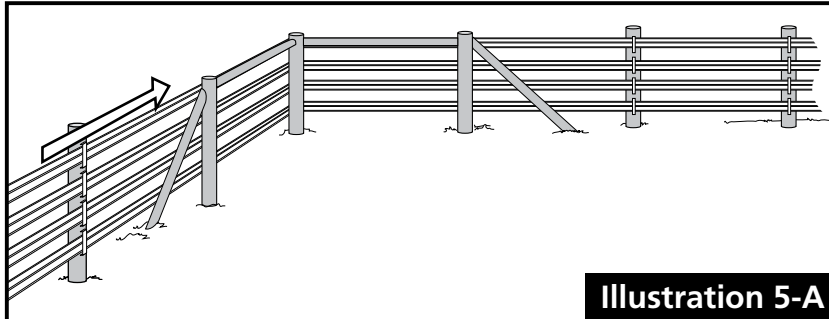


Illustration 5-A

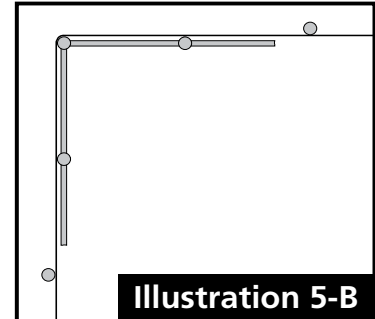


Illustration 5-B

6. Paddock with rail on outside of line posts, outside of 90 DEGREE CORNER.

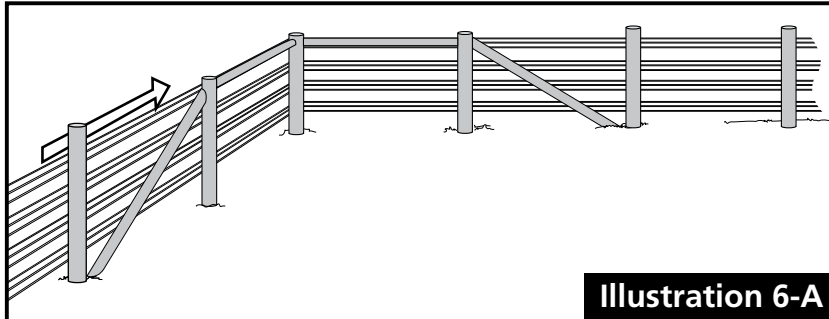


Illustration 6-A

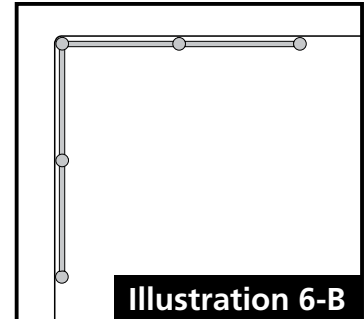


Illustration 6-B

1B: Complete Fence Layout on the Ground

Complete your fence layout on the ground using the layout you completed on graph paper in **Step 1A**. The following points will help you to complete the layout efficiently:

- If possible, mow the area where the fence will be installed.
- Use spray paint and stakes to mark all gate openings, end, and corner bracing assembly locations.
- Use string to pull your fence line.
- Use spray paint to mark additional secondary bracing assembly and line post locations.

Step 2: Building End, Gate & Corner Brace Assemblies

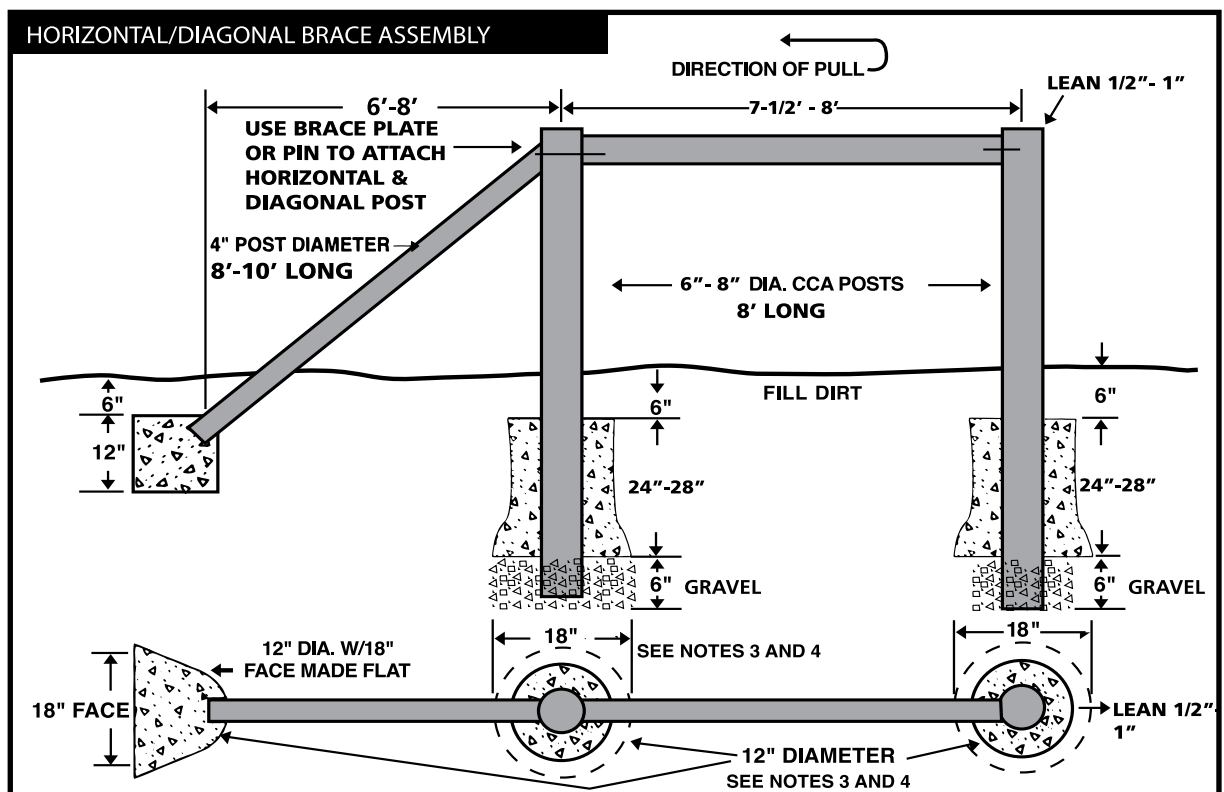
Please remember this is the foundation of your fence, so the extra time and construction on this step will result in a **strong, low maintenance, and animal-safe fence**.

The following diagrams illustrate the various end, gate and corner brace assemblies that Centaur recommends for installation. The horizontal/diagonal brace and the 5-post corner are the strongest and safest of each assembly type.

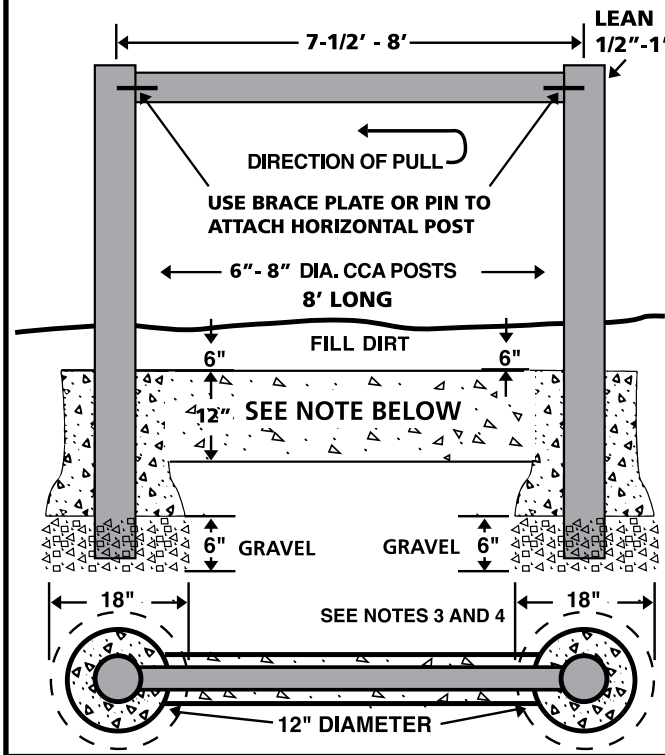
FENCE TIP: When building your end, gate and corner brace assemblies, don't forget to place the larger end of the post toward the end or corner on horizontals.

NOTES (These notes apply to all brace assemblies):

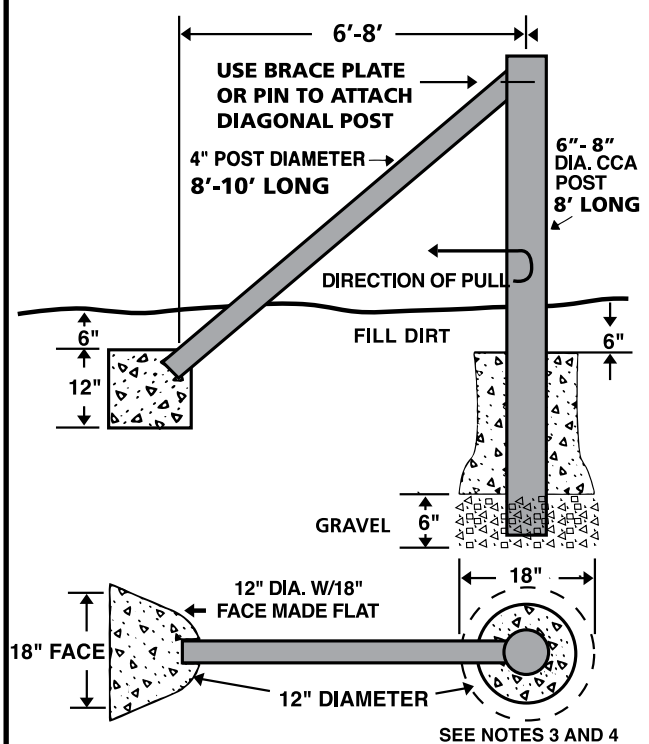
1. The depth of concrete may vary to frost lines in your area. Consult local codes for details.
 2. Lean post 1/2" - 1" away from direction of pull.
 3. In firm ground it is recommended to auger a 12" diameter hole, 3' deep with an 18" bell diameter.
 4. In sandy soils or colder climates it is recommended to auger a 16" diameter hole, 4' - 5' deep with a 22" bell diameter.
- NOTE: Post depth will always increase strength.



HORIZONTAL BRACE ASSEMBLY



DIAGONAL BRACE ASSEMBLY



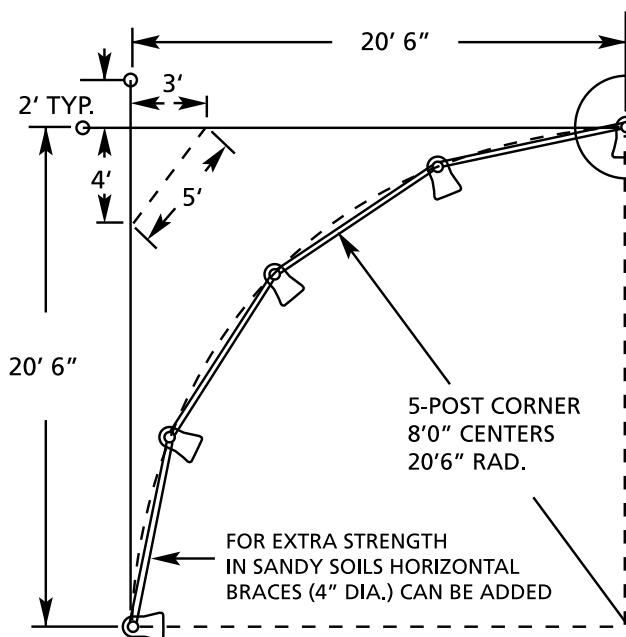
NOTE: Underground concrete brace is 9" wide x 12" high.

NOTE:

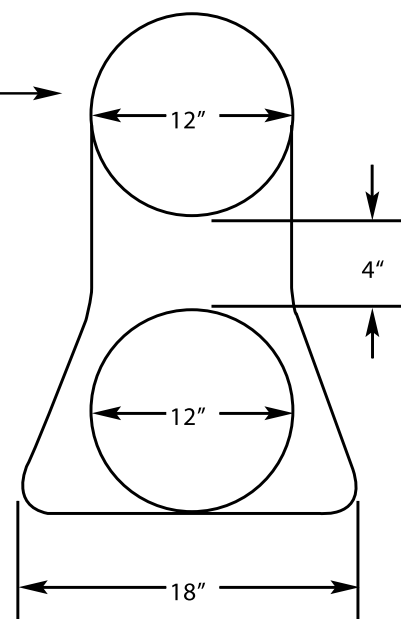
- A 5-post corner assembly is much safer than 90 degree corner assembly.
- All posts are 6" - 8" x 8' min (wood), 4" - 6" x 8' min (steel).

5-POST CORNER

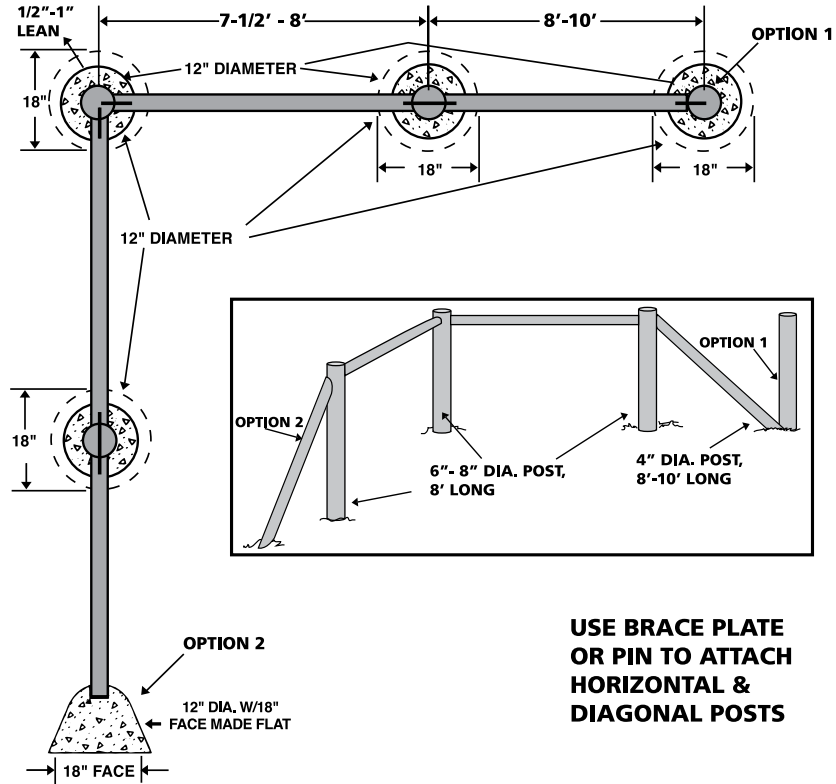
Based on 90° corner. Refer to Centaur website for assistance on varied angled corners.



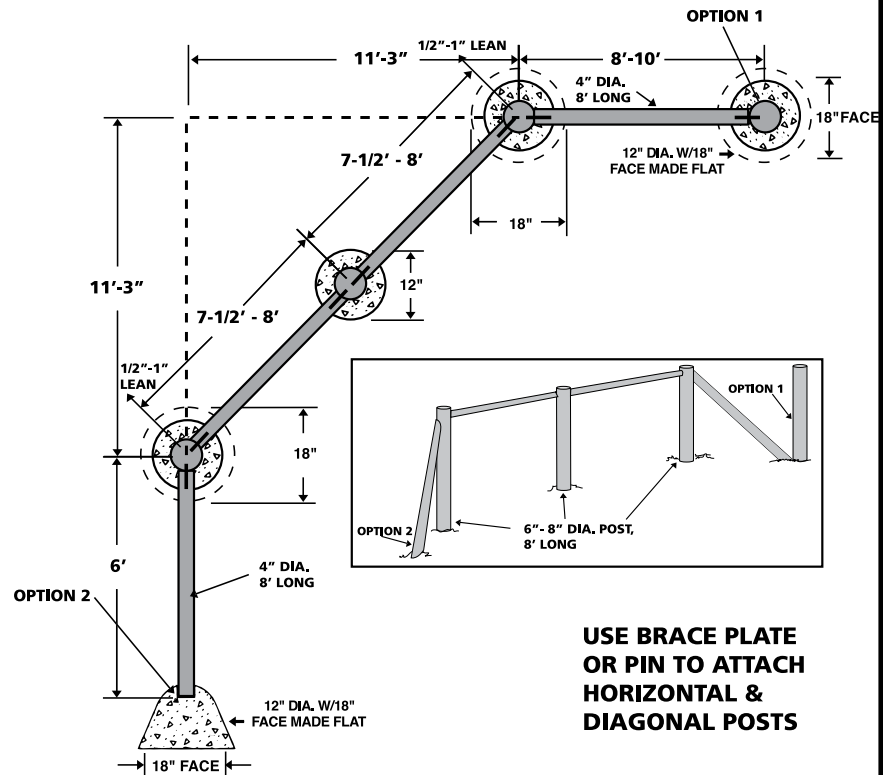
CONCRETE FOOTING LAYOUT



90 DEGREE CORNER



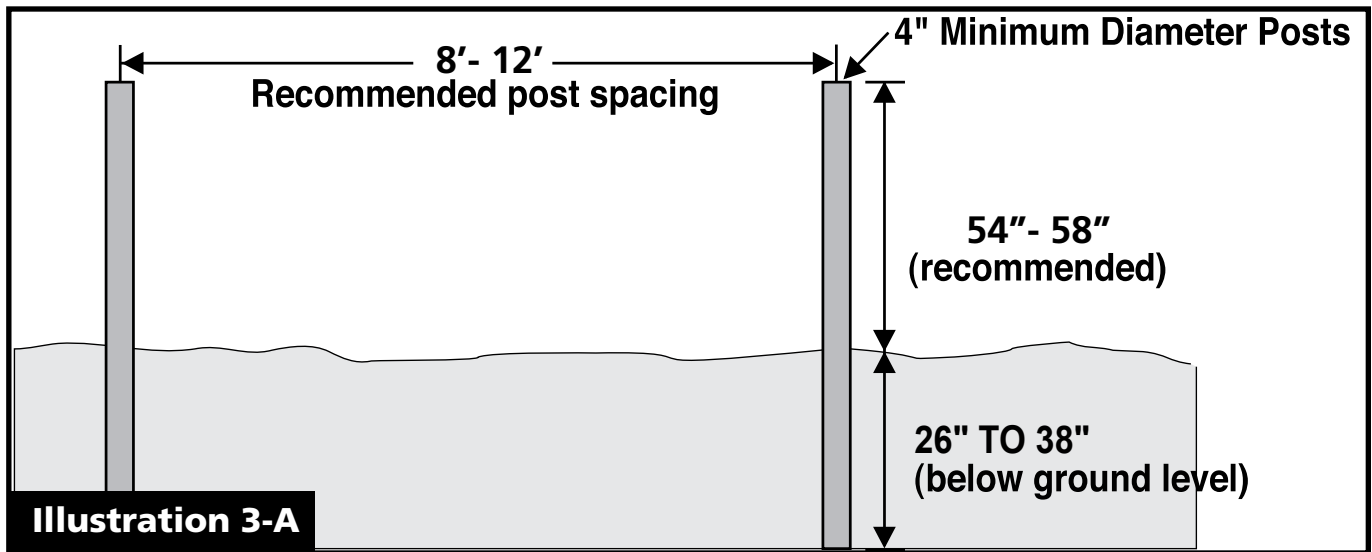
DOUBLE 45 DEGREE CORNER



Step 3: Line Post Installation

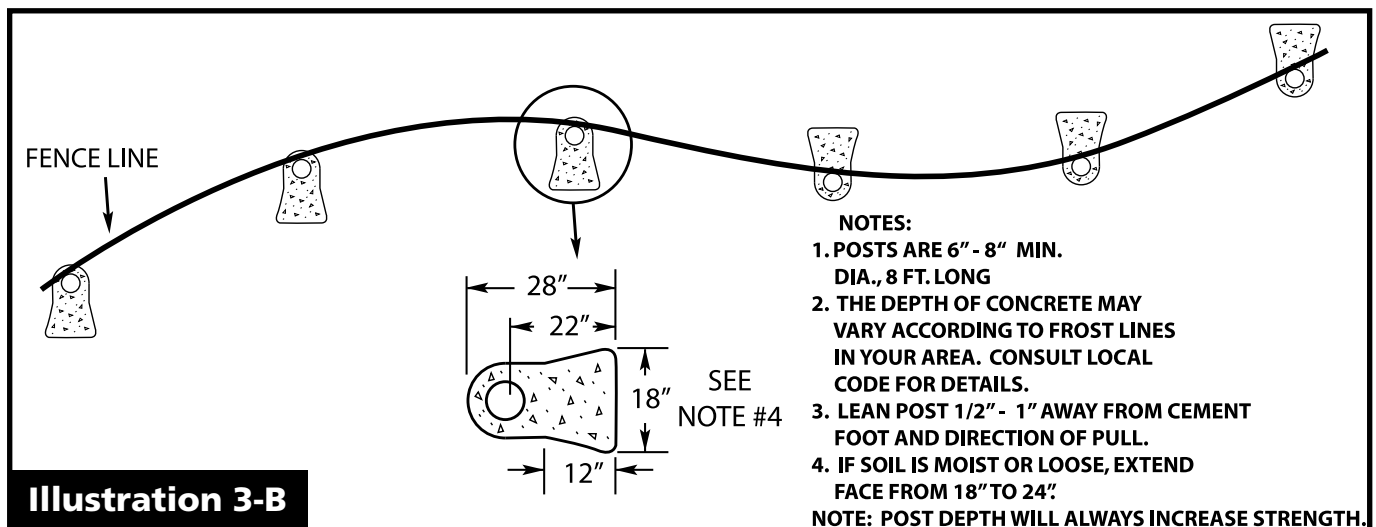
3A: Post Spacing

Line posts can be installed by either augering a hole or by using a hydraulic post driver. If an auger is used, be sure that after the post is inserted in the hole that the hole is filled with dirt or concrete and compacted. A spacing of 8'-12' is recommended between line posts. The closer the posts are set, the stronger the fence will be. Refer to **Illustration A** below for more information.



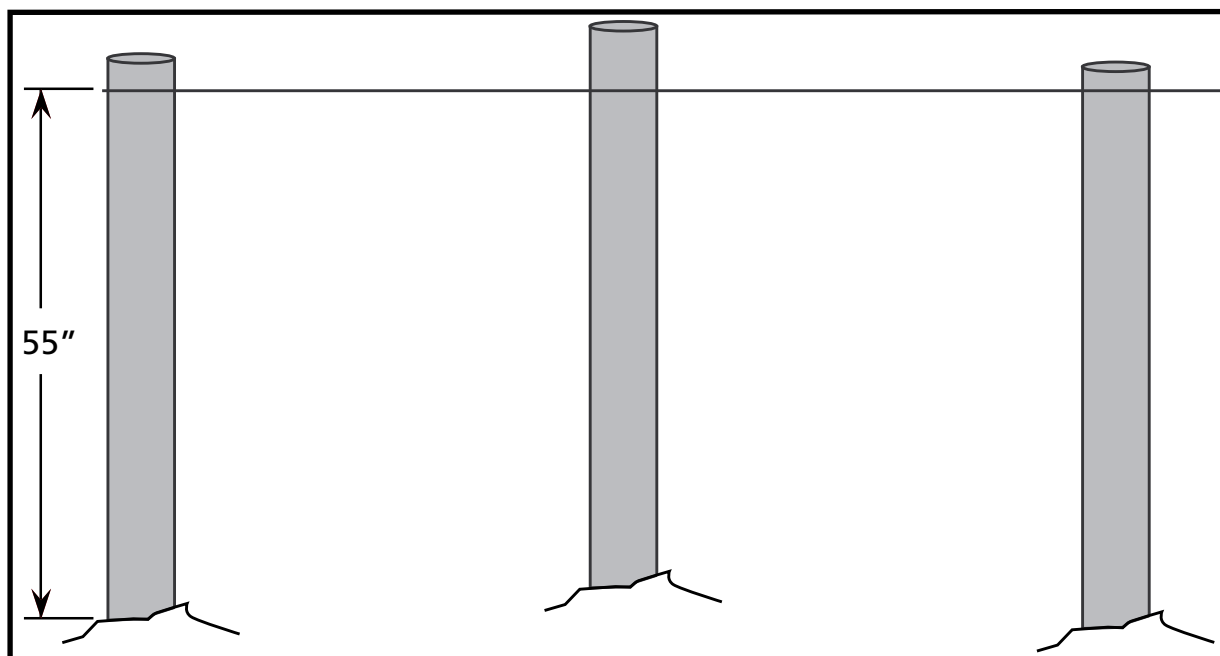
3B: Curving Fence Line

If the fence line has gentle curves, like in the case of following the contour of a driveway, then the fence posts must be reinforced with concrete. Refer to **Illustration B** for more information. As shown, concrete footings need to be made with the flat face of the concrete facing the **OPPOSITE** direction of the curve.

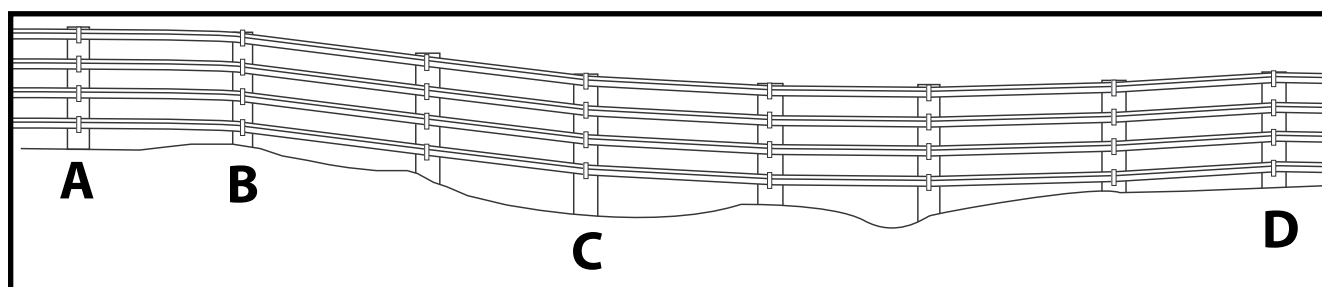


Step 4: Identifying Top Line

Step 4A: Identify Top Line



The first step to identifying the top line is determining your final post height. In the example above, a post height of 55" has been chosen. Starting on level terrain, mark the first post at 55" and attach a string. Continue along with the string, wrapping it around each post or a small nail may also be used to hold the string in place on each post. Once the string has been pulled from end to end, stand back and make sure the string follows in a gentle, smooth flow. If not, with assistance, move the string up or down to achieve a gentle smooth flow. Do not be concerned that the bottom rail is not always the same distance from the ground. The illustration below shows how a fence should flow along an irregular terrain.



- A - Typical 55" post height on level terrain.
- B - Over abrupt rise of terrain post could be 50" in height.
- C - Over abrupt fall of terrain post could be 58" in height.
- D - Typical 55" height on level terrain.

Next:

Mark all line posts where the string touches with a lumber crayon or marker. This will be your final post height.

NOTE: If you have excess post above your final post height, this would be the best time to remove it using a chain saw. If you choose to cut off the excess post, it is recommended to slope the top of the post approximately 1". Make sure the post slopes **AWAY** from the rail.

FENCE TIP: For an improved appearance on end and corner posts it is also recommended to add an additional 1" to the height and cut the posts flat.

NOTE: If you plan to paint the posts, this would be the best time, prior to attaching brackets.

IMPORTANT NOTE: Post manufacturers often will not issue a warranty on a post that has been cut. Centaur is not responsible for these posts if you choose to cut the tops off.

Step 5: Attaching Brackets

5A: Identifying Bracket Placement

It is important that your rails are spaced evenly as it makes for a better looking fence. The equation below will simplify this step.

$$X = (H - 5N - B - A) / (N - 1)$$

X = Space between the rails

H = Height of the post (55" is used in this example)

N = Number of rails used (4 in this example)

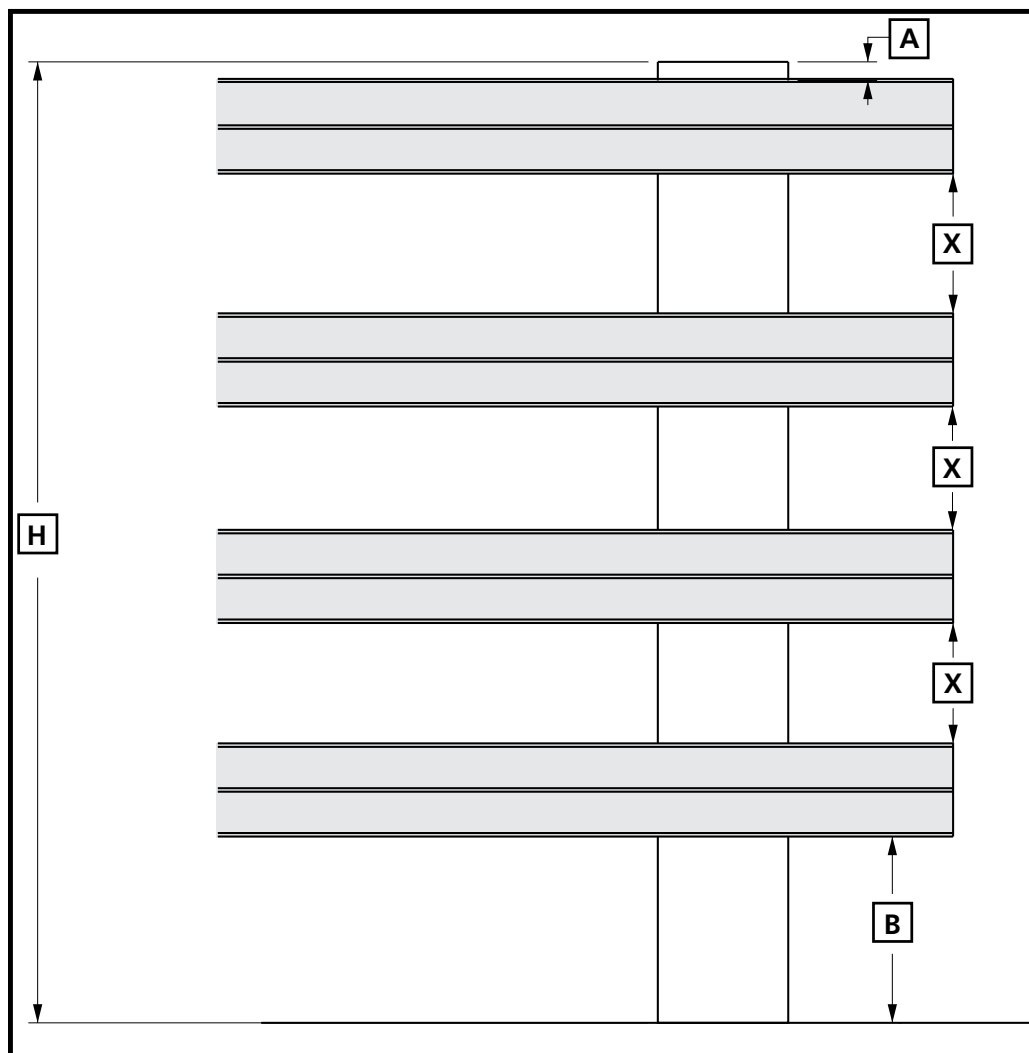
B = Clearance below the fence (12" is recommended)

A = Distance from the top of the rail to the top of the post (1" in this example)

NOTE: The 1" distance between the top of the rail and the top of the post allows the top bracket to be flush with the top of the post. If you want a little of your post showing above the bracket, then additional space will be required.

The illustration below shows what each letter in the above equation represents. In our example:

$$X = (55 - 5 \times 4 - 12 - 1) / (4 - 1) = 22 / 3 = 7\text{-}1/4" \text{ between rails}$$



5B: Making Bracket Template

Now that we have the spacing figured for the rails, it is time to begin attaching the brackets. Using a T-square or similar device will help to speed up the marking process and eliminate potential mistakes when marking the line posts.

Using a T-square (or similar device) and some tape, mark off the stick to make a template. The top of the first piece of tape should be 7" down from the right angle of the T-square. Refer to the below illustration for clarification. From there, the top of each additional piece of tape should be whatever you figured your rail spacing to be in Step 5A **PLUS 5"**. So, in the example in 5a, the spacing was figured to be 7-1/4".

$7\text{-}1/4" + 5" = 12\text{-}1/4"$.

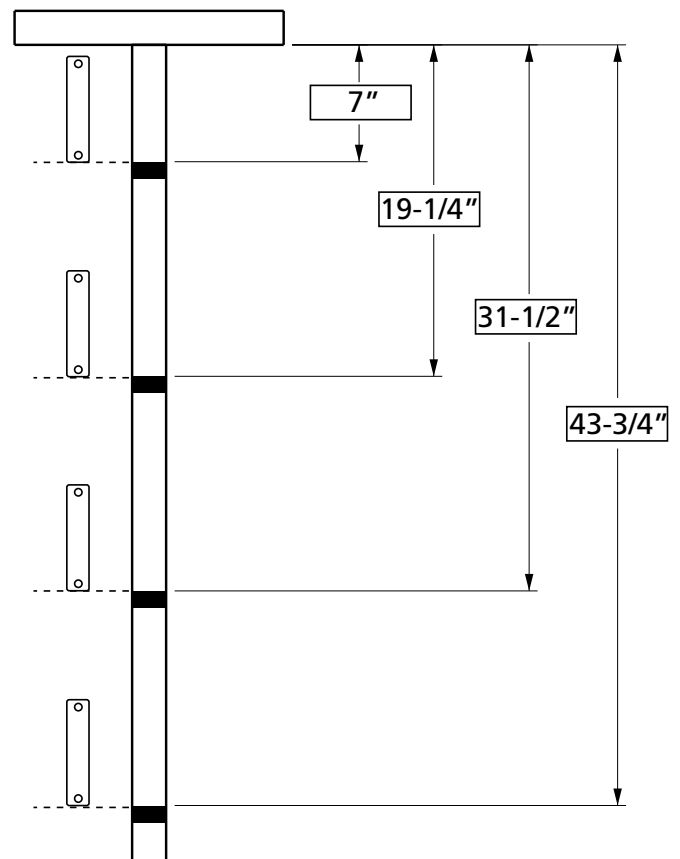
NOTE: The TOP of each piece of tape is where the BOTTOM of each bracket should be placed. Refer to the diagram below.

Tape 1: 7" below the right angle of the T-square

Tape 2: $7 + 12\text{-}1/4 = 19\text{-}1/4"$ from the right angle.

Tape 3: $19\text{-}1/4 + 12\text{-}1/4 = 31\text{-}1/2"$ from the right angle.

Tape 4: $31\text{-}1/2 + 12\text{-}1/4 = 43\text{-}3/4"$ from the right angle.



NOTE: Notice that all measurements reference from top downward. This is very important because you identified the flow of your rail earlier and that was achieved using the string on the top of your post.

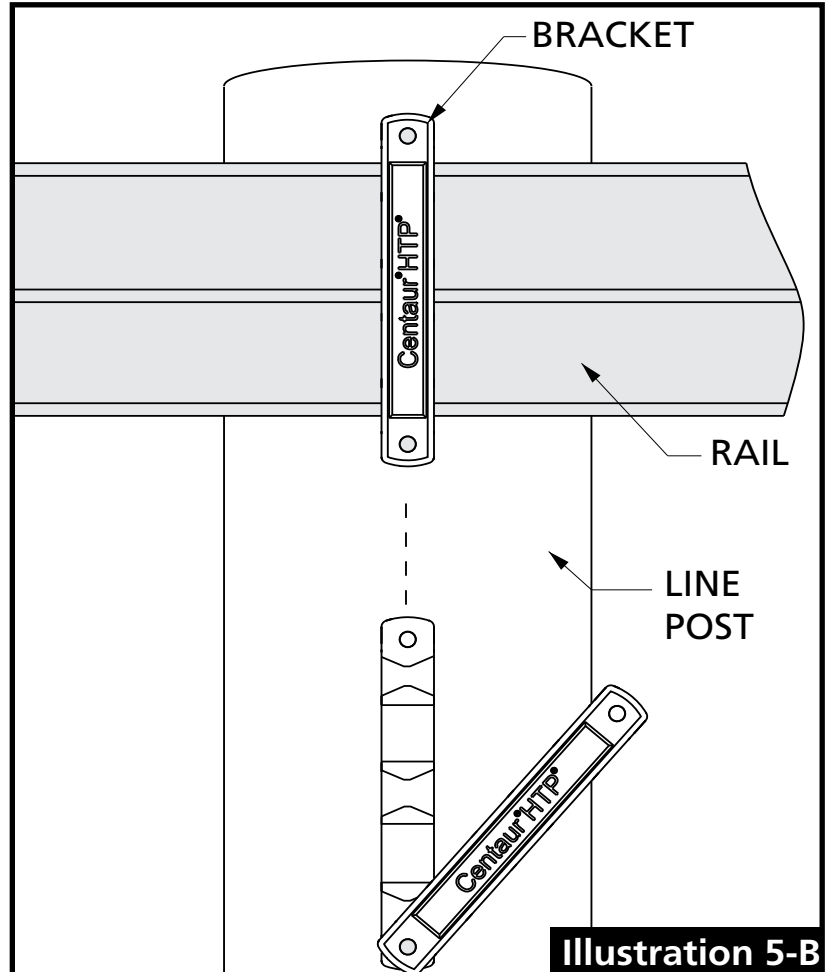
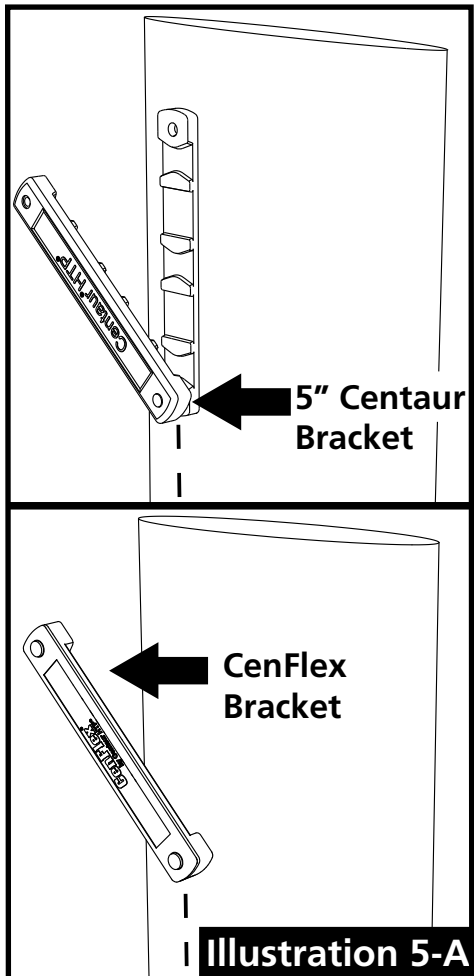
5C: Marking Post

Using the template made in Step 5B, mark all line posts with a lumber crayon or marker. This will be the location to place the bottom of each bracket as you attach them to your line posts.

NOTE: Be sure to make the mark at the TOP of each piece of tape, otherwise the rails will move up and down.

5D:

Attach the brackets to the line posts using the marks you made in Step 5C. Nail or screw the bottom of the brackets to the posts, then open the brackets as shown in **Illustration 5-A** below. Note that Illustration 5-A shows the 5" Centaur® bracket on the top half which is made up of two pieces and the CenFlex® bracket is shown in the bottom half and is only one piece. Brackets must be square to the post and the rail so that the rail will look smooth and react properly when required to flex. Refer to **Illustration 5-B** below to see how the brackets should look when the rail is installed.



NOTE: The top nail or screw should **NOT** be inserted until the rail has been paid/pulled out, inserted into brackets and deemed to be of acceptable quality.

Step 6: Installing the Rail

Important: Be sure to remove and keep the stickers on the rail packaging as the production dates will be needed to complete the Quality Questionnaire in order to receive the warranty.

6A: Terminations

At this point you need to decide how you want to terminate your rails. There are three options:

- Option 1:** End staple procedure (Centaur and CenFlex rail only)
- Option 2:** One-way barrel tensioners (Centaur, Hot-Rail, and CenFlex)
- Option 3:** Terminator Bracket (Centaur, Hot-Rail, and CenFlex)

NOTE: Terminating one end of your rail will make Step 6B easier to complete.

Option 1: End Staple Procedure

This option may only be used when terminating **Centaur®** and **CenFlex®** rail. This type of termination **CANNOT** be used with **Hot Rail®**. Refer to **Illustration 6-A** and steps below to complete this termination.

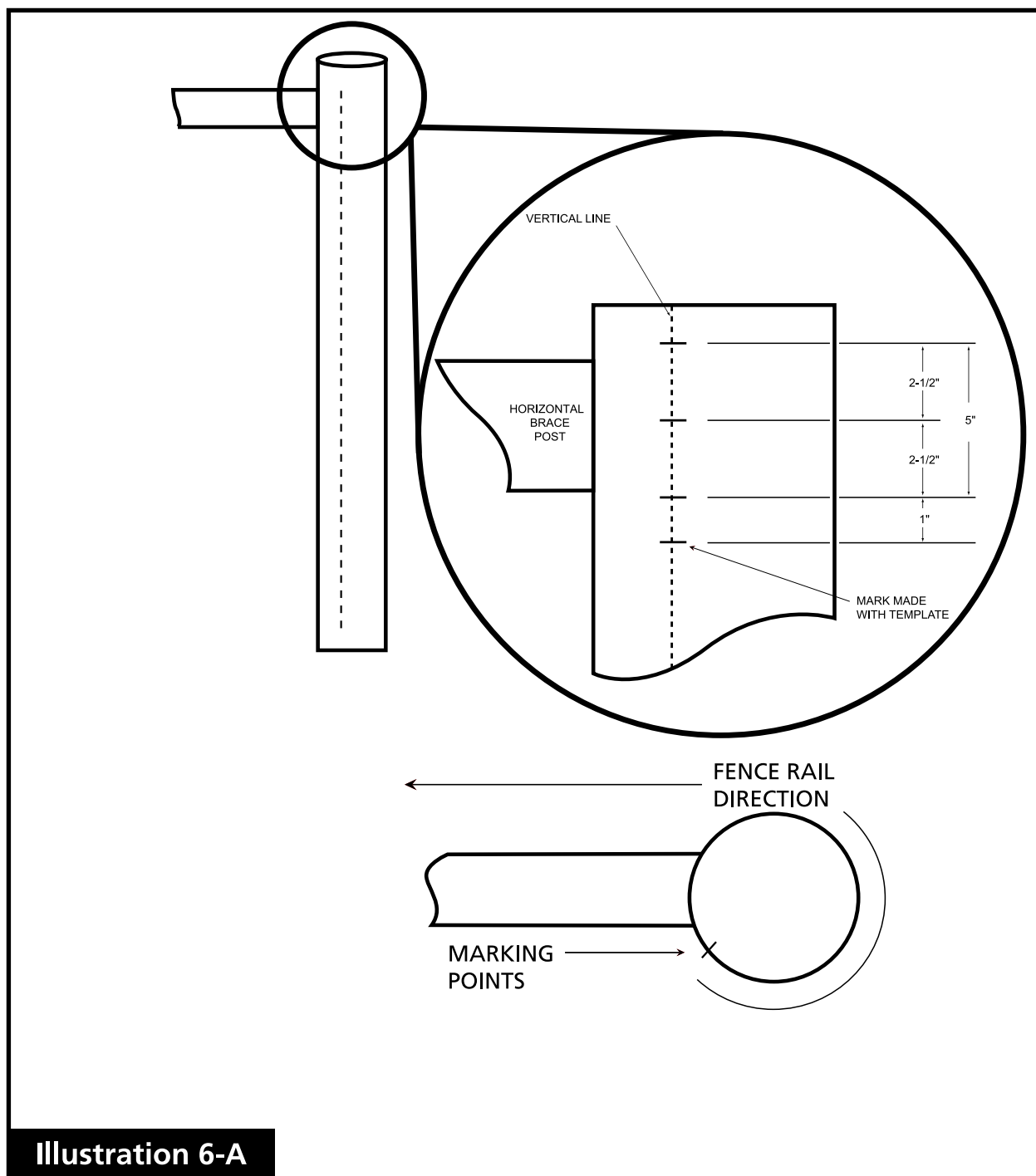
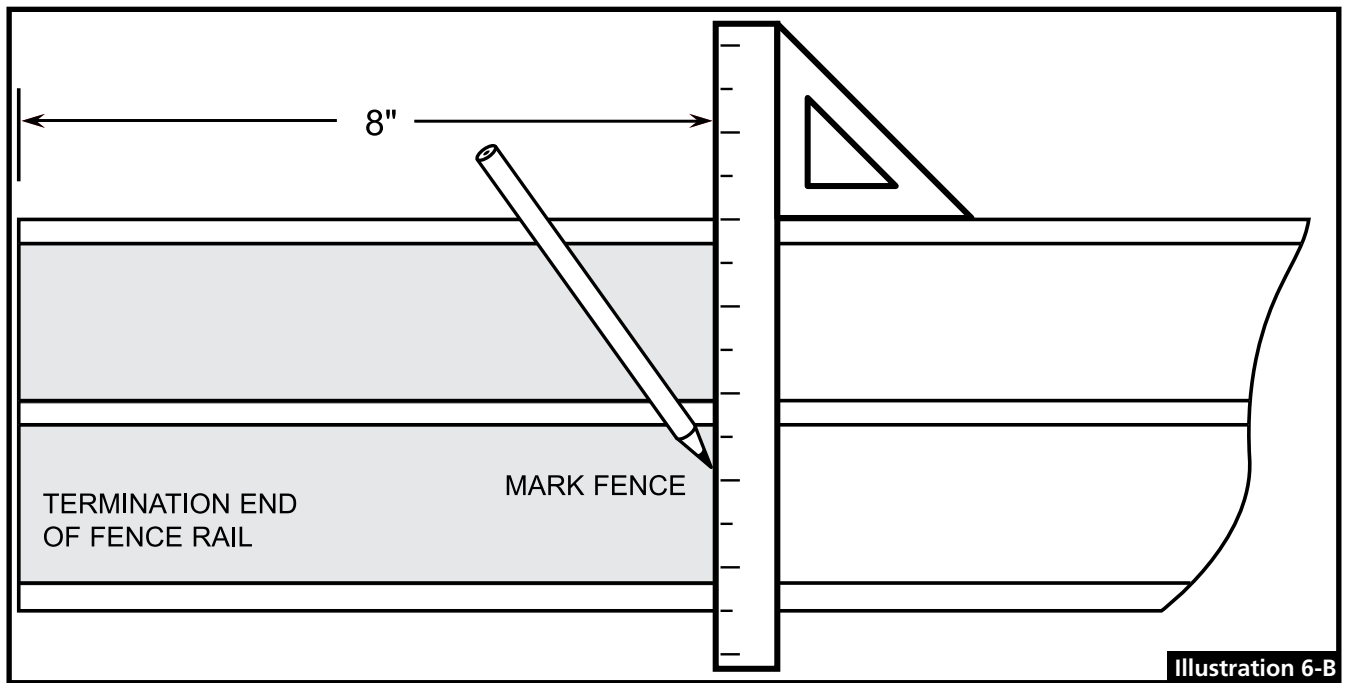


Illustration 6-A

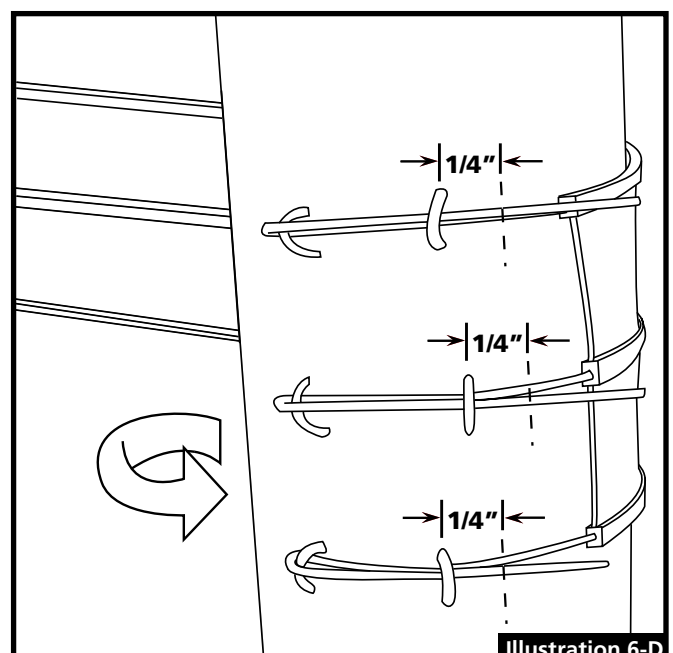
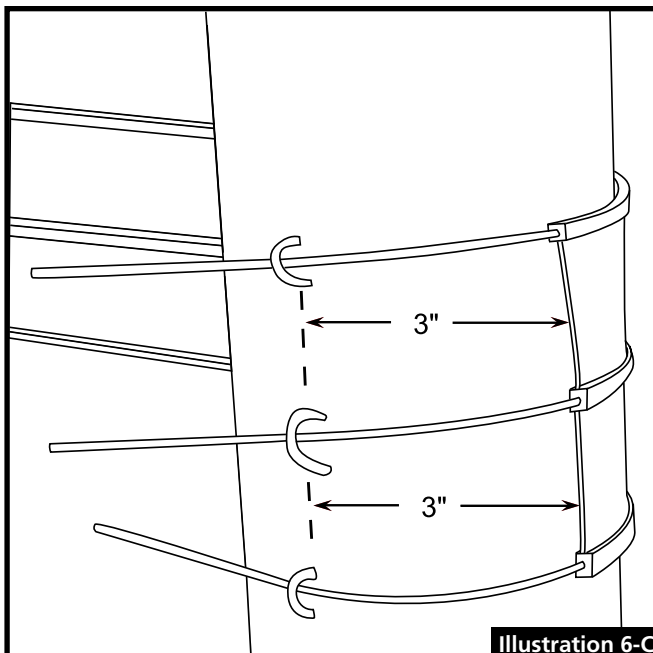
Using the template you created in Step 5B, mark your end and corner posts as shown in the above illustration. Draw a vertical line parallel with the edge of the post and begin marking the post for your staple locations. The first staple should be placed 1" above the marks you made in Step 5 for your brackets. The mark for the middle staple should be made up an additional 2-1/2". For the top staple, mark up an additional 2-1/2" as shown. Repeat these steps for the remaining rails.

NOTE: If you choose to have your end or corner posts higher, keep this in mind when marking the posts.

Next, measure back 8" from the end of the rail and, with the aid of a T-square, mark the rail. Then remove the polymer in the shaded areas on **Illustration 6-B** below, leaving polymer covering the wires.



Feed 5" of all wires through the staples, leaving about 3" space between the polymer and the vertical mark made on the post earlier (see **Illustration 6-C** below). Drive the middle staple in tight. Then, pull the slack out of the rail. While keeping pressure on the rail, drive the remaining two staples in tight. Finally, bend the coated wires back on the staples as shown in **Illustration 6-D**. Place 3 staples over both coated wires. Drive the staples in half way. Then, using wire cutters, remove excess coated wire 1/4" beyond staple. Now, drive the staples in tight. Repeat for remaining rails.



Option 2: One-Way Barrel Tensioner Termination (Centaur®, Hot Rail®, and CenFlex®)

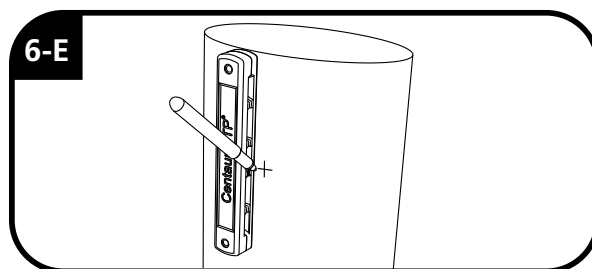
If installing Hot Rail®, you must use a one-way barrel tensioner or terminator bracket to terminate each rail. Refer to **Step 7** for instructions on installing a one-way barrel tensioner.

Option 3: Terminator Bracket (Centaur®, Hot Rail®, and CenFlex®)

This option may be used when terminating Centaur, Hot Rail®, and CenFlex® rail. When using with Hot Rail®, you must include a piece of Iso Pad, which will serve as an insulator.

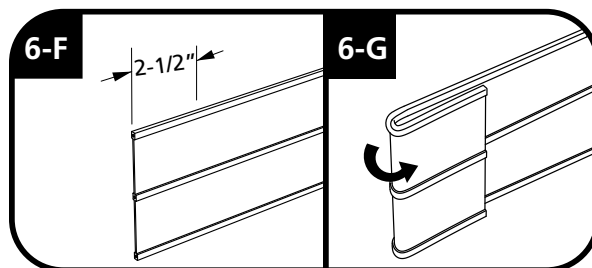
Step One:

Pilot holes must be drilled first. To do this, use a bracket as a guide and mark the center point for pilot hole locations as shown in **Illustration 6-E**. Using a 3/8" drill bit, drill pilot holes for all Terminator Bracket locations.



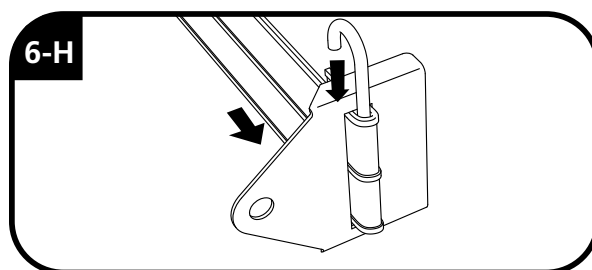
Step Two:

Measure back approximately 2-1/2" on the rail as shown in **Illustration 6-F** and then bend the rail back as shown in **Illustration 6-G**.



Step Three:

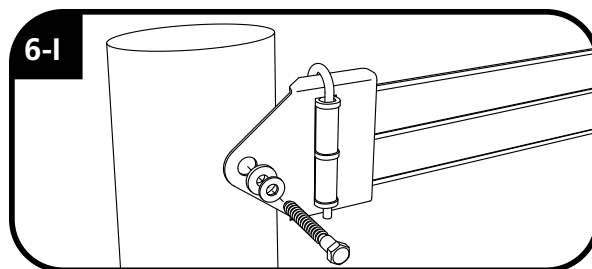
Insert the bent piece of rail into the slot on the Terminator Bracket as shown in **Illustration 6-H**. Make sure the short side of the bent rail is farthest from the mounting hole in the bracket. Once the rail is inserted, slide the provided bent pin into place as shown in the illustration.



Step Four:

Attach the Terminator Bracket using the supplied lag screw, washer, and plastic grommet in that order as shown in **Illustration 6-I**. If using the Terminator Bracket with Hot-Rail, place the Iso Pad between the Terminator Bracket and post. Once the bracket is attached to the post, tension the rail from the opposite end to take up slack.

NOTE: Do NOT overtighten the lag screw. Terminator Bracket should fit snug to post, but still be able to move with slight pressure.



6B: Paying/Pulling Out Your Rail

This step is completed with ease and care for your rail when utilizing a spinning jenny, pictured below.

Note: When paying out Hot Rail®, the electrified bead will always be on top of the rail when placed on the spinning jenny as shown in Image 2 below, paying off of the left side of the roll.

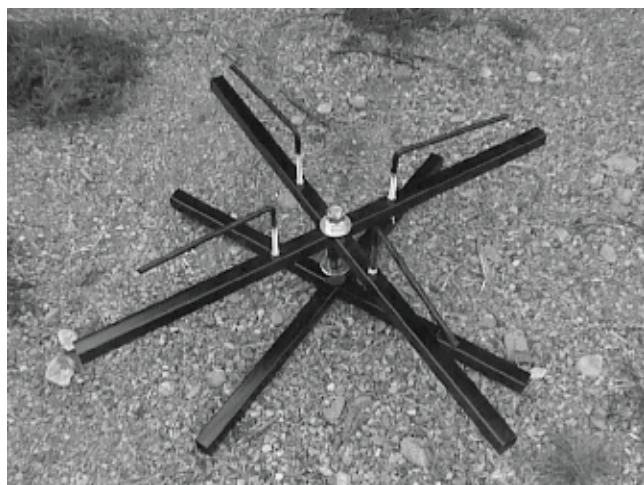


Image 1



Image 2

The spinning jenny can be placed on the ground at one end of your fence, in the back of a pickup truck, or on a trailer. Proceed down your fence line paying/pulling out your rail.

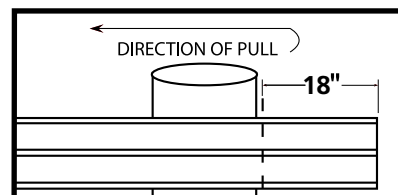
FENCE TIP: If you are using the back of a truck or trailer and you have adequate manpower, place the rail in the brackets as you pass each line post. This eliminates the possibility of getting rails crossed around each other or walking on the rail as you pay/pull out additional rails.

When reaching the opposite end, pull the rail by hand to remove as much slack as possible. Before cutting the rail:

End Staple Procedure: Allow an overlap of at least 18". This overlap will be used to complete the termination.

One-Way Barrel Tensioner: Cut rail flush with far side of termination post.

Terminator Bracket: Cut rail flush with far side of termination post.



Repeat until all rails are paid/pulled out. At this point, complete all terminations on both ends. If not already completed, walk back up along the fence line placing the rails into the brackets. Make sure not to get the rails crossed around each other. Repeat this process until all rails are complete.

If a splice is required, refer to the section at the end of this manual on "Splicing Techniques".

Step 7: Installing Barrel Tensioners & Tensioning Rail

Refer to 7B for Hot-Rail installations. Each barrel tensioner is capable of tensioning 660 ft. of rail, but you must deduct from that the length when the direction changes and elevation changes occur.

7A: Barrel Tensioners for Centaur® & CenFlex® Only

HARDWARE INCLUDED FOR BARREL TENSIONERS

[A]



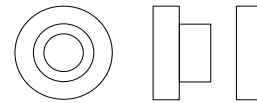
4" L x 1/2" Lag Screw

[B]



1" O.D. Washer

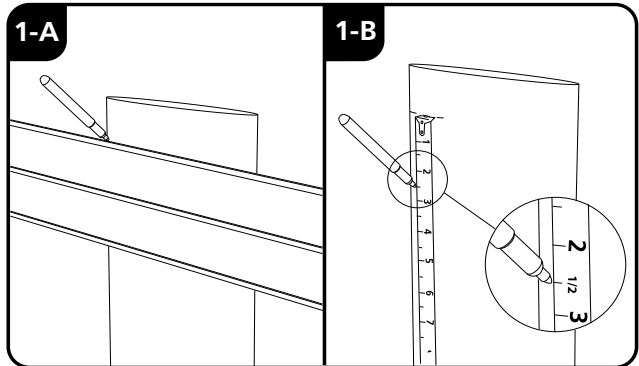
[C]



2-Piece Plastic Grommet

STEP ① DETERMINING BARREL TENSIONER LOCATIONS

1. Pilot holes must be drilled first. To do this, position the top rail of fencing, making sure it lines up correctly. Mark the top of the rail on the post as shown in **Illustration 1-A**.
2. Measure down 2.5 inches from the mark as shown in **Illustration 1-B**. This mark is where the first pilot hole will be drilled. For additional barrel tensioners, use the same spacing that was used when installing fence brackets.

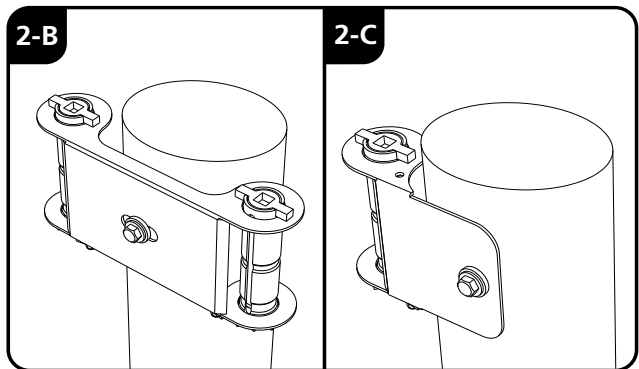
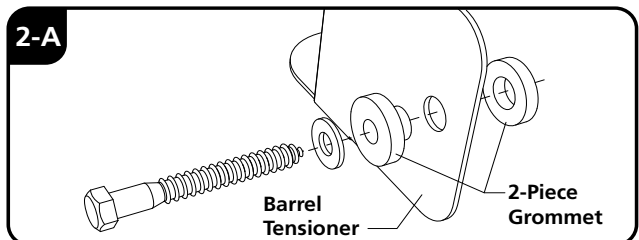


STEP ② ATTACHING BARREL TENSIONERS TO POST

1. Using a 3/8" drill bit, drill pilot holes for all barrel tensioners.
2. Attach the barrel tensioners using the supplied lag screw [A] washer [B], and 2-piece plastic grommet [C] in the order shown in **Illustration 2-A**. NOTE that the barrel tensioner will be between the grommet pieces as called out in **Illustration 2-A**.
3. The two-way barrel tensioner should be mounted as shown in **Illustration 2-B**, making sure the locking block is facing down toward the ground.
4. The one-way barrel tensioner can be mounted facing left (as shown in **Illustration 2-C**) or right, depending on the location of the fence.

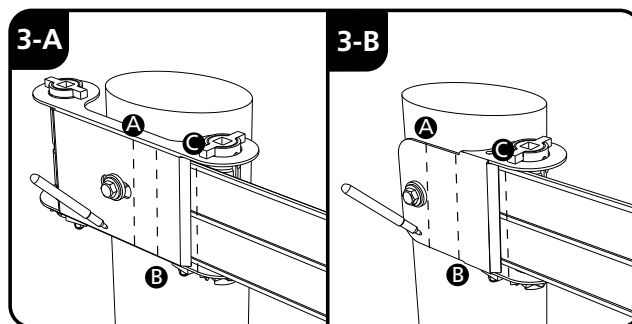
NOTE: Make sure the locking block is always facing toward the ground. This can be achieved by unscrewing the bolt that holds the locking block and moving it to the opposite hole on the tensioner bracket. DO NOT overtighten bolt, as locking block needs to rotate back and forth. The barrel assembly must also be flipped by straightening and removing the copper pin, flipping the barrel assembly and reinserting the pin.

NOTE: Do NOT overtighten lag screw. Barrel tensioners should fit snug to post, but still be able to move with slight pressure.



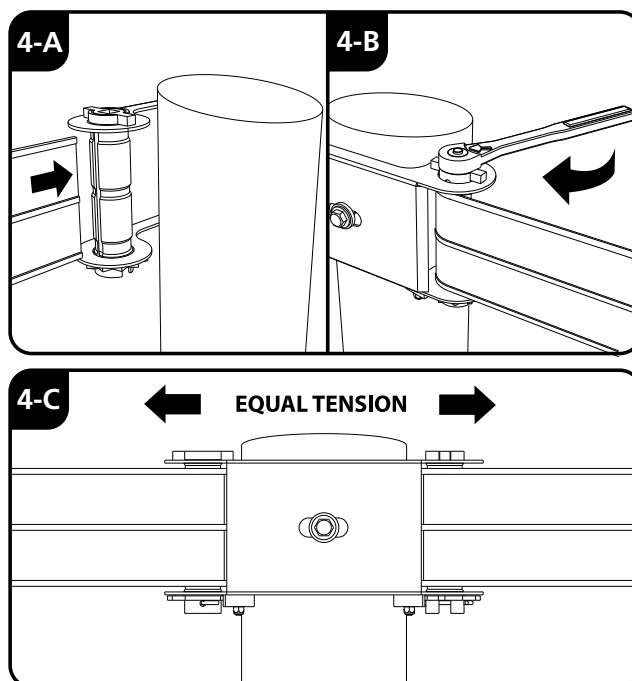
STEP ③ MARK AND CUT RAIL

1. Hold rail up to barrel tensioners and mark the rail as shown in **Illustrations 3-A and 3-B**.
If fence is less than 200' long, mark rail at line A
If the fence is 200' - 450' long, mark rail at line B
If the fence is 450' - 660' long, mark rail at line C
2. Once the rail is marked, cut the polymer using a straight edge to ensure the end of the rail will be square. Cut and remove excess rail using wire cutters.



STEP ④ TENSIONING RAIL

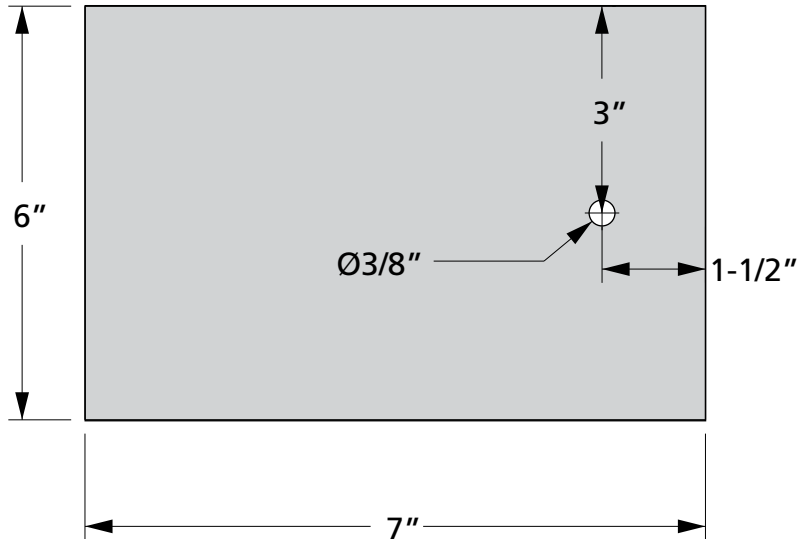
1. Insert end of rail into slot on barrel as shown in **Illustration 4-A**. Next, insert a 1/2" drive ratchet into the square hole on the end of the barrel. Begin turning the barrel to wrap the rail around it as shown in **Illustration 4-B**. Use the square locking block on the bottom of the barrel to prevent the rail from uncoiling as it is tensioned.
2. **IMPORTANT:** When tensioning a two-way barrel tensioner, be sure to apply tension in small increments to both sides to avoid causing the post to lean or break off. See **Illustration 4-C**.
3. Continue to coil rail onto barrels until the rail is satisfactorily tight. Do NOT overtighten the rail, as this will reduce the flexibility of your Centaur fence. **Photo 4-D** shows a finished fence with tensioner assemblies.



7B: Install Barrel Tensioners for Hot Rail®

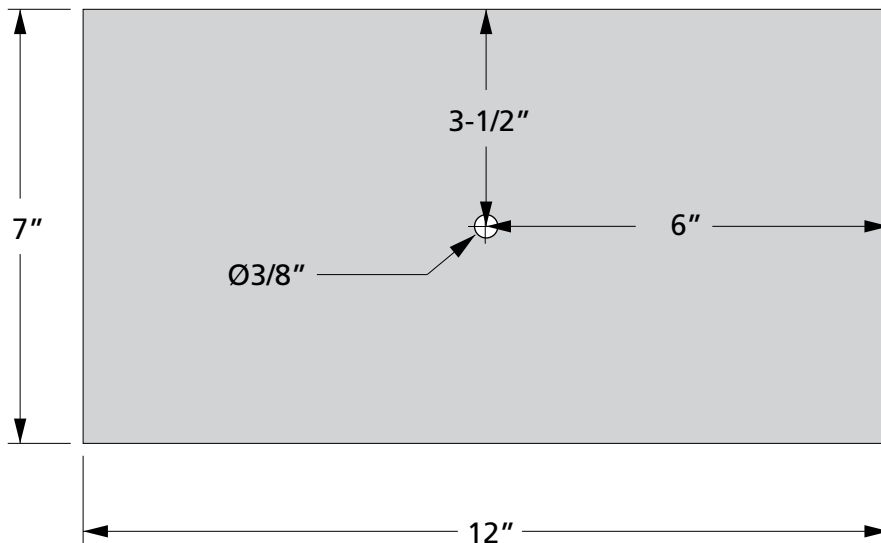
Since Hot-Rail is electrified, the tensioners must be insulated from the post using IsoPad, supplied by Centaur. IsoPads are sold in individual pieces measuring 7" wide x 48" long.

For a one-way barrel tensioner, the IsoPad should be modified using the following instructions:

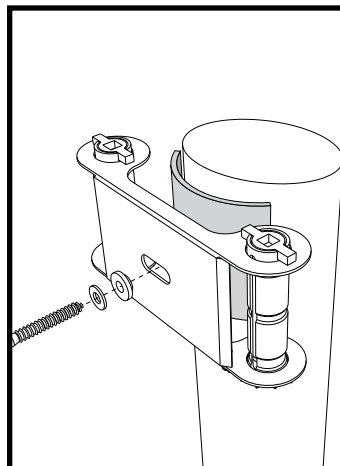
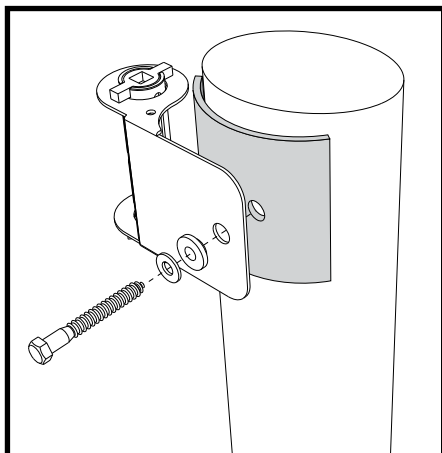


Measure down 3" from the top edge and over 1-1/2" from the side. Then, drill a hole using 3/8" drill bit. This hole will allow the lag screw to pass through the rubber when placed between the barrel tensioner and the post.

For a two-way barrel tensioner, the IsoPad should be modified using the following instructions:



Measure down 3-1/2" from the top edge and over 6" from the side. Then, drill a hole using a 3/8" drill bit. This hole will allow the lag screw to pass through the rubber when placed between the barrel tensioner and the post.



The images to the left show each barrel tensioner with an IsoPad (shaded gray).

Splicing Techinques:

There are two different techniques generally used when splicing rail. Option 1: Wire Links, Option 2: Crimp Sleeves

Option 1:

Wire Links (refer to the below diagrams):

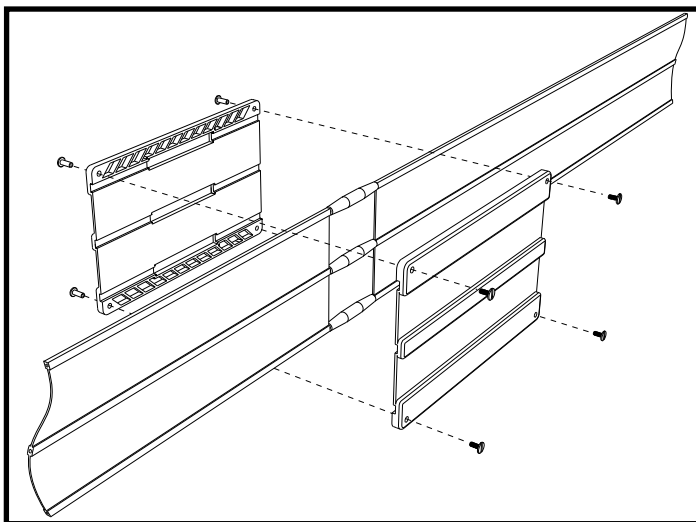
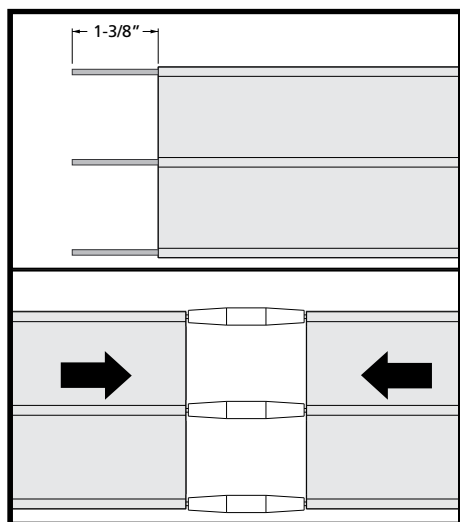
Step 1: Carefully remove 1-3/8" of polymer exposing high tensile wires on the ends of both rails.

Step 2: Slide 1 each wire link onto each wire of one rail.

Step 3: Carefully insert the wire from the other rail into the other side of the wire links.

Step 4: Paint exposed crimps to match rail and prohibit rust.

Step 5: Attach splice cover over wire links.



Option 2:

Crimp Sleeves (refer to the below diagrams):

Step 1: Carefully remove 1-1/4" of polymer bead from each high tensile wire on the ends of both rails.

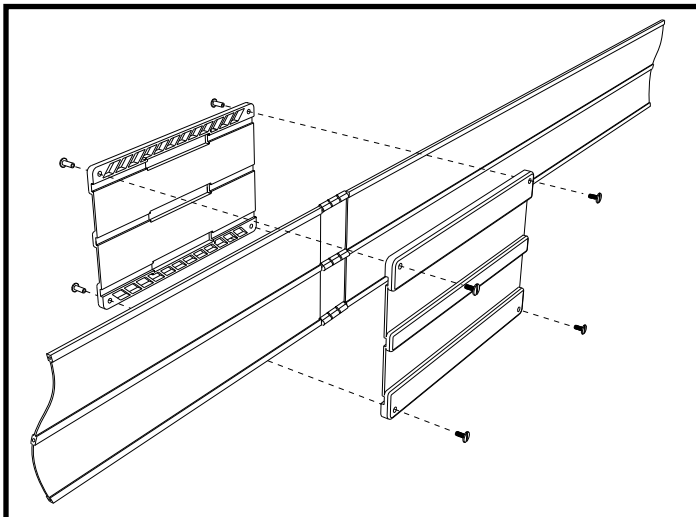
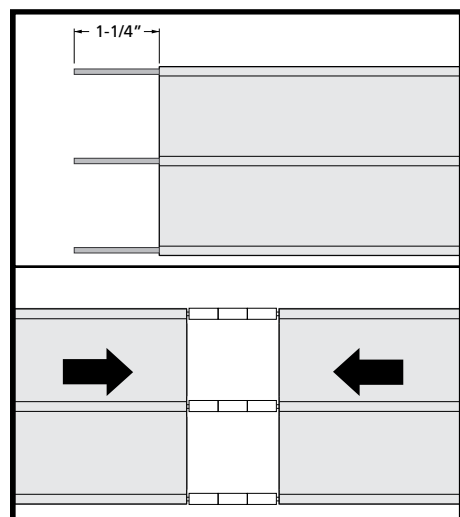
Step 2: Slide 3 each crimp sleeves onto each wire of one rail.

Step 3: Carefully insert the wire from the other rail into the crimp sleeves.

NOTE: Keep rails as parallel as possible when crimping sleeves. Crimp the middle wire first. This will make it easier to hold the rail parallel when crimping outside wires.

Step 4: Paint exposed crimps to match rail and prohibit rust.

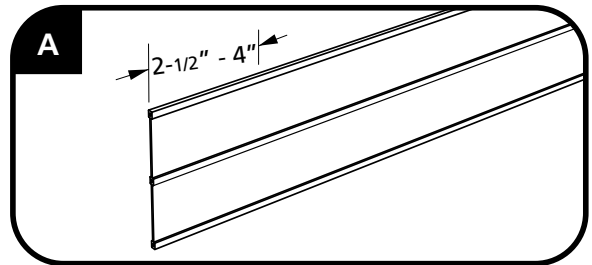
Step 5: Attach splice cover over crimp sleeves.



**Option 3:
Terminator Splice Bracket:**

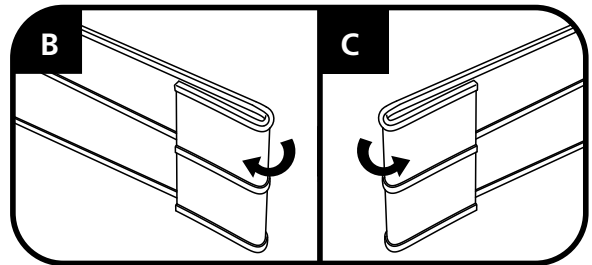
Step One:

Measure back approximately 2-1/2" - 4" from the end of both rails that will be used in the splice bracket as shown in **Illustration A**.



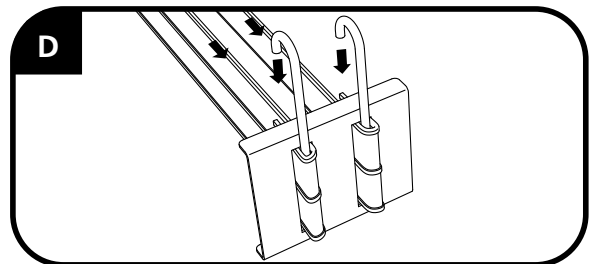
Step Two:

Bend each rail back as shown in **Illustration B** and **Illustration C**. NOTE that it is better to bend the rail so the cut ends will be between the rail and the bracket.



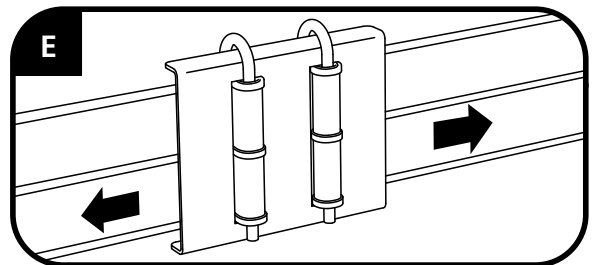
Step Three:

Insert the bent pieces of rail into the slots on the Splice Terminator Bracket as shown in **Illustration D**. Once the rail is inserted, slide the provided bent pins into place as shown in the illustration.



Step Four:

Once the rails are in place, tension the rail to pull it tight. After the rail is tensioned, check the bent pins to make sure they are snugly in place.



Hot Rail® Connections

Use a line-tap connector (split bolt) to connect undergate wire to exposed high tensile wire. Just remove a small section of bead and polymer web from the rail and attach the line-tap connector to bare wire as shown in the image below.

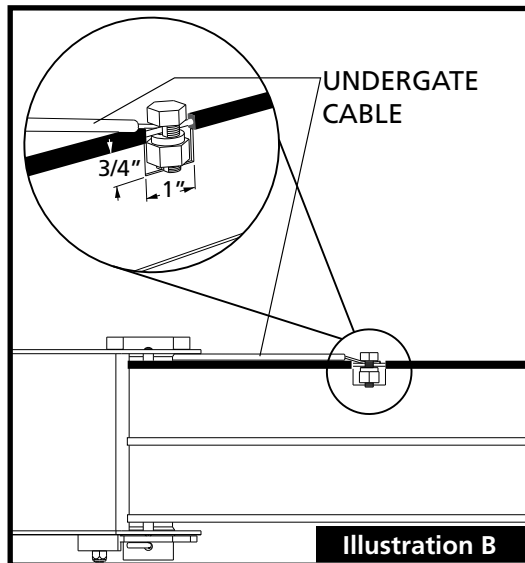
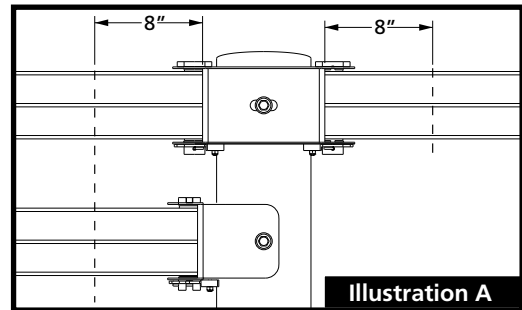
These connections will be required:

- Rail to Energizer/Charger
- Rail to Rail
- Rail to Rail in Gate Opening
- Rail to Rail with Two-Way Barrel Tensioner

STEP 1

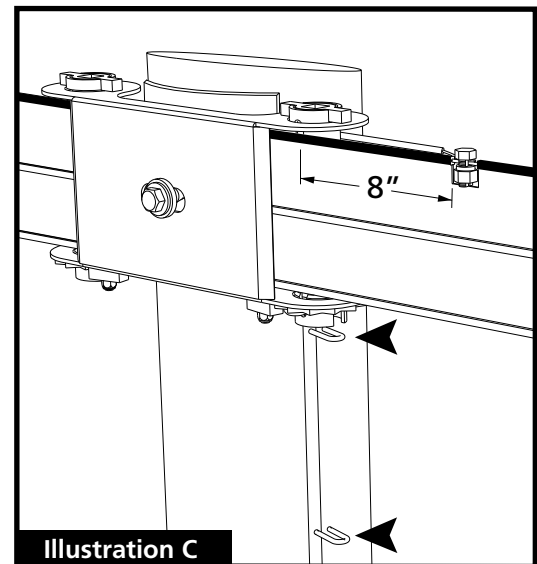
After the rail has been tensioned, measure over 8" from the edge of the tensioner as shown in **Illustration A**.

NOTE: This space allows for additional tensioning in the future.



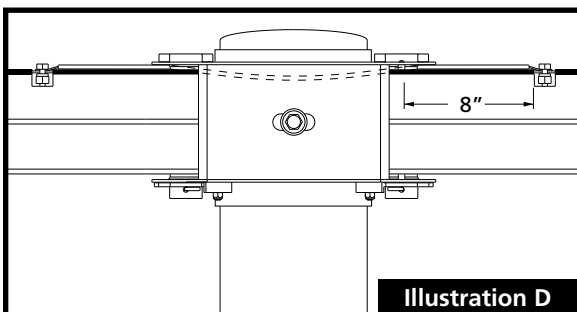
STEP 2

Remove a section of polymer 1" wide x 3/4" high on the rail and insert split bolt as shown. Then, using undergate cable, remove 2" of polymer coating, exposing the bare wire. Insert the wire into the split bolt and tighten bolt for a solid connection. See **Illustration B** for detail.



STEP 3

Once undergate cable is attached, secure it to the nearest post with staples. Drive staples in just snug enough against undergate cable. See **Illustration C**.



STEP 4

When connecting two Hot-Rails with a two-way tensioner, weave the cable through the tensioner for a cleaner appearance. See **Illustration D**. Cable is shown as dotted line behind tensioner.

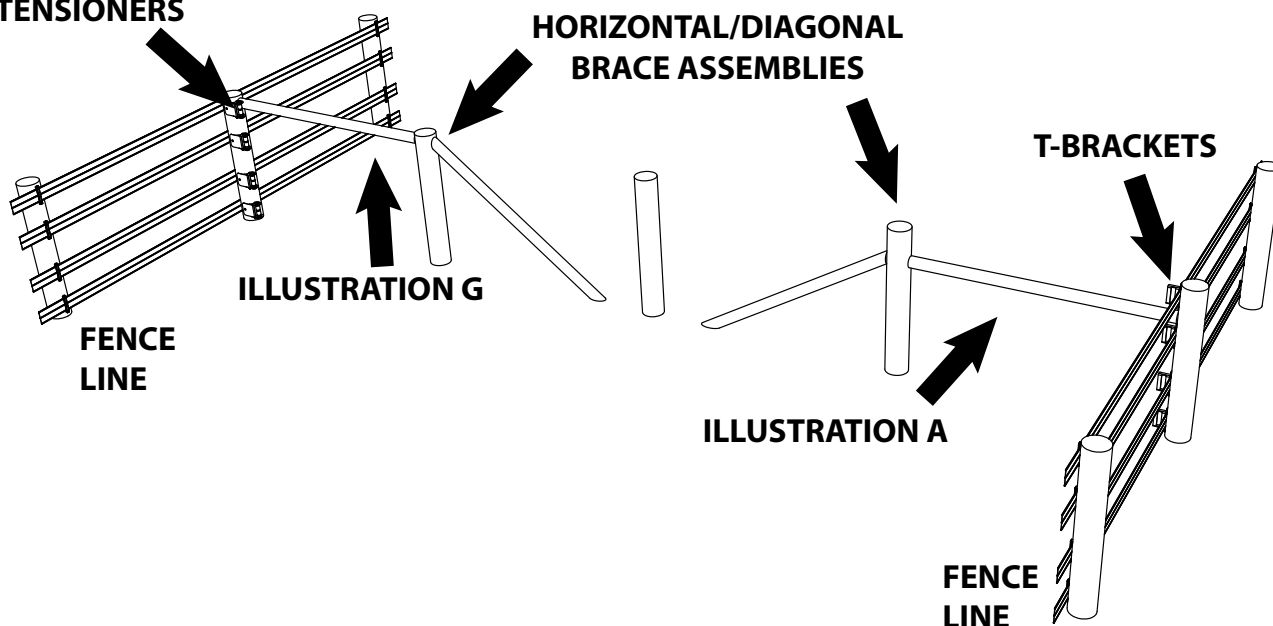
Cross Fencing

Cross fencing is used to divided a large paddock or pasture into smaller sections using a fence line. Centaur's T-Bracket can be used to easily terminate a fence line when cross fencing. Below are steps to install the T-Bracket. **NOTE:** The T-Bracket may be used when terminating Centaur® and CenFlex® rail. **IT IS NOT RECOMMENDED FOR USE WITH HOT RAIL®.**

The illustration below shows an example layout of cross fencing. There is a fence line running on each side and the line posts for the cross fencing are set up between the fence lines to split the paddock/pasture area. Notice the ends of the fence lines are braced with horizontal/diagonal brace assemblies to offse the pull of the rail. The T-Brackets will be mounted on one end and Barrel Tensioners mounted on the opposite end to pull tension on the rail.

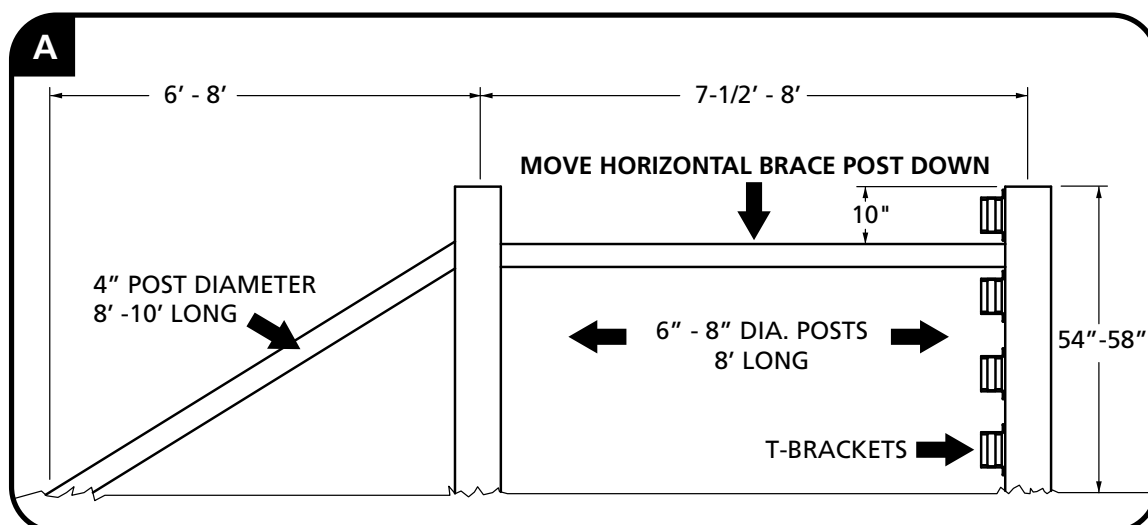
BARREL

TENSIONERS



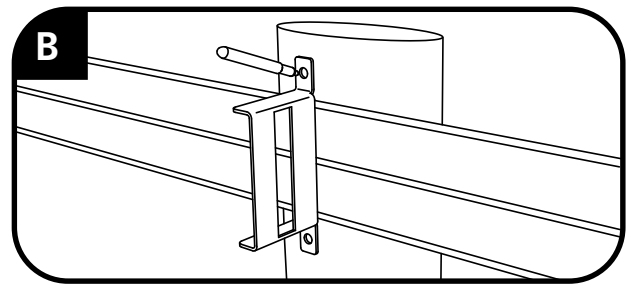
Step One:

The end post that the T-Bracket mounts to will need to be properly braced to offset the pull from the fence line. A **Horizontal/Diagonal Brace Assembly** would work best for this situation. Refer back to page 14 in the manual for information on installing this assembly. **Illustration A** below shows the brace assembly. **NOTE** that the the horizontal brace post has been moved down approximately 10" from the top of the line posts to allow room to mount the T-Bracket.



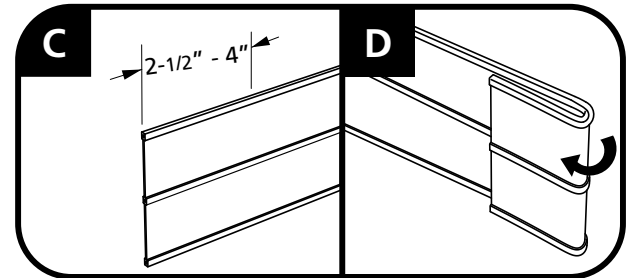
Step Two:

Place T-Bracket over rail as shown in **Illustration B**. Use the T-Bracket as a template to mark hole locations. Using a 1/4" drill bit, drill pilot holes for all T-Bracket locations.



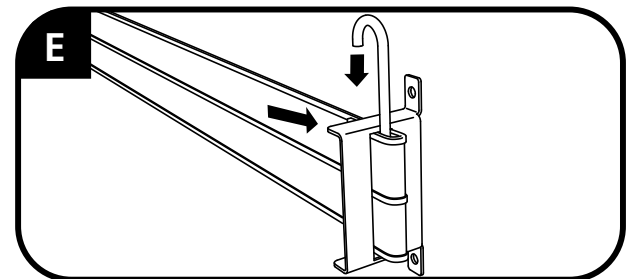
Step Three:

Measure back approximately 2-1/2" - 4" on the rail as shown in **Illustration C** and then bend the rail back as shown in **Illustration D**.



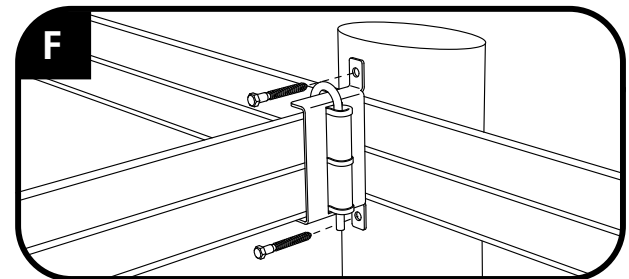
Step Four:

Insert the bent piece of rail into the slot on the T-Bracket as shown in **Illustration E**. If possible, have the short side of the bent rail between the bracket and the rail. Once the rail is inserted, slide the provided bent pin into place as shown in the illustration.



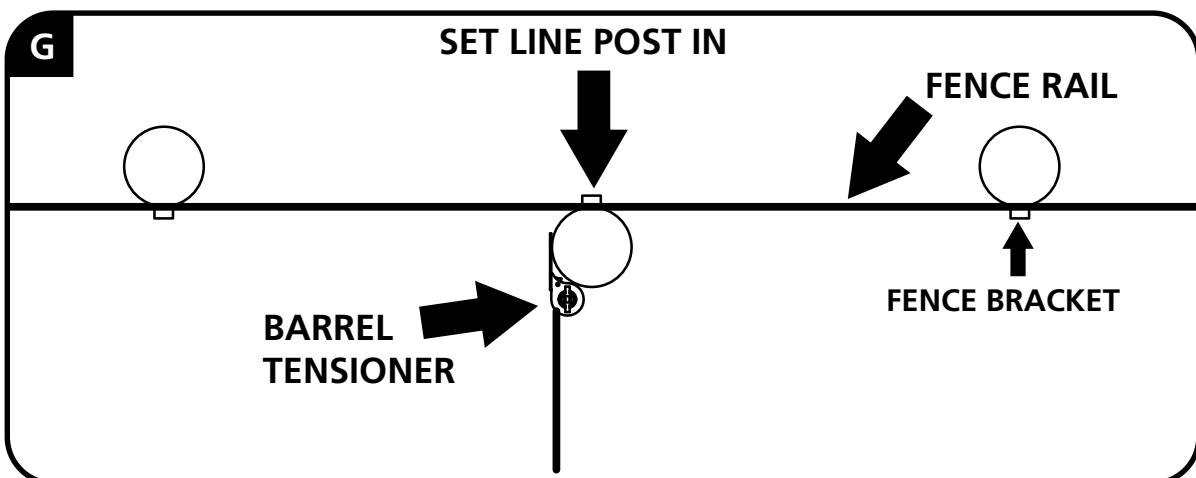
Step Five:

Attach the T-Bracket using the supplied lag screws as shown in **Illustration F**. Once the bracket is attached to the post, tension the rail from the opposite end to take up slack.



Step Six:

Illustration G below shows Barrel Tensioner termination from the **TOP**. The post must be set it from the other line posts in order to mount the Barrel Tensioners and allow the rail to run straight thru the fence brackets. The post should be braced with a Horizontal/Diagonal Brace Assembly.



Fence Layout

Use the grid below to layout your fence.

