



*Installation Manual*

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# **Bankshot**

August 2005 / 171804

### *Statement of Intent*

*This manual has been provided for use by  
Brunswick **trained and certified** installation personnel.  
Any other use is prohibited.*

## **Bankshot Installation Manual**

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## SAFETY

Throughout this publication, “Warnings” and “Cautions” (accompanied by one of the International HAZARD Symbols) are used to alert the mechanic to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. They are defined below. **OBSERVE AND READ THEM CAREFULLY!**

These “Safety Alerts” alone cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the service, plus training and “Common Sense” operation are major accident prevention measures.



### **WARNING!**

*Will designate a mechanical or nonelectrical alert which could potentially cause personal injury or death.*



### **WARNING!**

*Will designate electrical alerts which could potentially cause personal injury or death.*



### **CAUTION!**

*Will designate a mechanical or nonelectrical alert which could potentially cause product damage.*



*Will designate grounding alerts.*



### **NOTE or IMPORTANT!:**

*Will designate significant informational notes.*

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## **SAFETY NOTICE TO USERS OF THIS MANUAL**

This manual has been written and published by the Service Department of Brunswick Bowling and Billiards to aid the reader when servicing or installing the products described.

We have assumed that the reader is familiar with, and has been trained in, the service or installation procedures relating to Brunswick's bowling products, which includes the use of common mechanic's hand tools as well as any special Brunswick tools or recommended tools from other suppliers.

We could not possibly know of and advise the reader of all conceivable procedures by which a service might be performed and of the possible hazards and/or results of each method. We have not attempted any such wide evaluation. Therefore, anyone who uses a service procedure and/or tool, which is not recommended by Brunswick, must first completely satisfy himself that neither his nor the products safety will be endangered by the service procedure selected.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication.

It should be kept in mind, while working on the product, that the electrical system is capable of violent and damaging short circuits or severe electrical shocks. When performing any work where electrical terminals could possibly be grounded or touched by the mechanic, the power to the product should be disconnected prior to servicing and remain disconnected until servicing is complete.

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## Warning Label Placement

The warning label should be placed on the foul line end of each rail, with the text oriented in the direction that can be easily read by the bowler.



Figure 1. Warning Label Placement



### **WARNING!**

***Always use the Bankshot deployment tool to raise or lower rails. Injury can occur if fingers/hands are used to raise and lower rails.***



---

## Tools Required

The following is a suggested list of tools needed (per installer) to ensure a quality installation:

- 3/8" Chuck Reversing Drill Motor (58 degree angle)
- 3/8"-1/2" Chuck Reversing Drill
- 3/8" Cordless Drill
- Paint Marker or other suitable marking device
- Tape Measure
- Utility Knife
- Small Framing Square
- Small Combination Square with Scribe
- Reciprocating Saw (crib foundation)
- Jig Saw
- Circular Saw
- Router
- 4" Carbide Router Bit (purchase from Brunswick Service Parts p/n 11-700108-000)
- 1/16" Drill Bit
- 1/2" - 5/8" Drill Bit (for jig saw blade clearance)
- 9/32" Drill Bit
- 9/64" Allen Wrench
- Carpenter's Square
- Robertson R2 Bits or Drivers
- E-Style External Retaining Ring Tool for a 1/4" shaft (purchase from Brunswick Service Parts p/n 84-200472-000)
- Bankshot Bumper Deployment Tool (p/n 84-860100-000)
- Protective Eyewear

---

## **Mechanical Component - Installation**

---

### **Remove Existing Gutters and Capping**

The following instructions list the necessary steps to install new Bankshot gutters in new or existing centers. Different lane surfaces may require variations on these instructions. Make sure you refer to the text and/or graphics for the specific lanes within your center BEFORE performing any necessary foundation modifications.

1. Remove the existing ball return capping, Tel-E-Foul covers and division capping. Set aside for reinstallation.
2. If installing gutters at a new center installation, go to “New Gutter Installation” section. Foundation/underlayment modification should NOT be required.

## Foundation/Underlayment Modification



### NOTE:

Certain lane surfaces and/or division capping supports will require modification to allow installation of the Bankshot gutters. Although it is not the intent of this manual to address every possible lane surface while installing Bankshot gutters, the basic gutter to lane dimensions are listed.



### NOTE:

New lane/foundation with 11-7/8" (302 mm) I-joists requires no modification for installation of gutters.

### System B2000 Lane Surface - With Truss Foundation

1. Using a power router or equivalent tool, remove a 2-1/4" (57.2 mm) x 3/4" (15.9 mm) maximum depth section on top surface of truss, parallel to the outside edge of lane. Refer to *Figure 3*.

- (1) DIVISION SUPPORT STRIP
- (2) GUTTER
- (3) ROUTE AREA
- (4) LANE SURFACE
- (5) TRUSS
- (6) 1/8" (3.2 mm) MINIMUM
- (7) 3/4" (19 mm) MAXIMUM

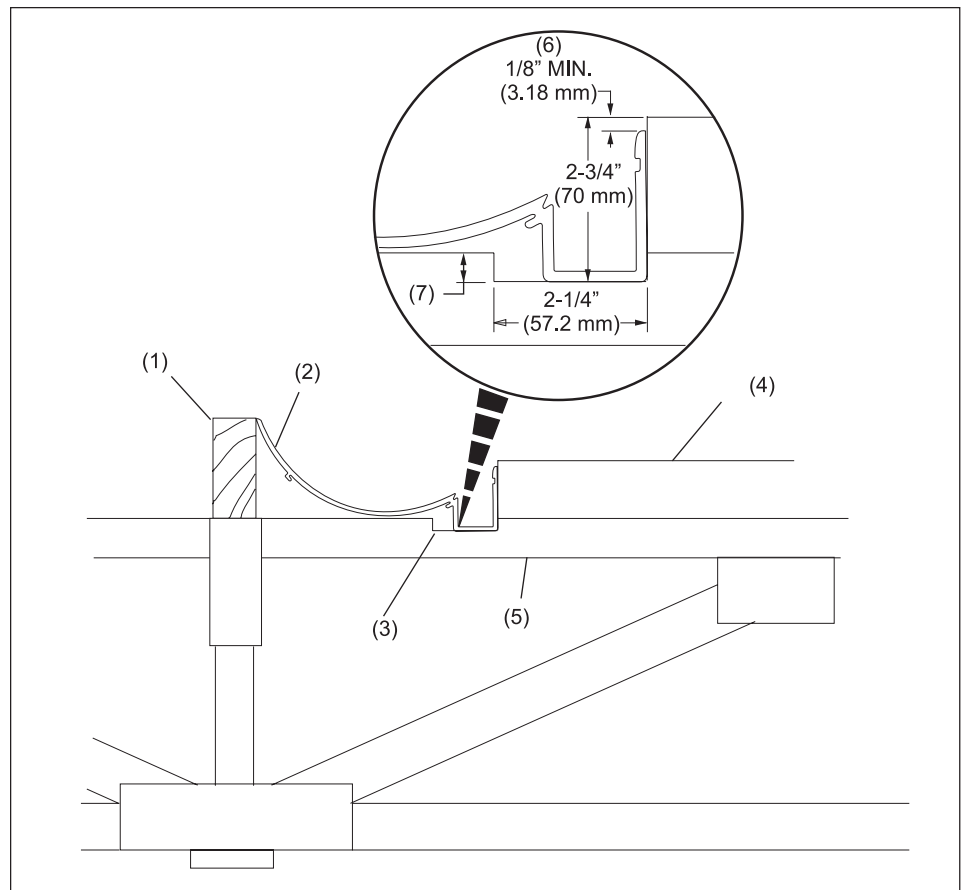


Figure 3. Route Top of Trusses as Required



**NOTE:**

Removing surface area more than 3/4" (19 mm) deep on top surface of truss is not recommended. Upon placing gutter into routed area, the distance from top of gutter to top of lane surface should be 1/8" (3.2 mm) minimum for system B2000.

2. Remove any loose wood chips or dust from routed area.

**Anvilane/Prolane Existing Lane - With I-Joist Foundation**



**NOTE:**

New lane/foundation with 11-7/8" (302 mm) I-joist requires no modification.

1. Using a router or suitable tool, remove I-joist surface area as needed to maintain a 1/4" (6.3 mm) minimum distance between the top of the gutter and the lane surface. Refer to *Figure 4*.

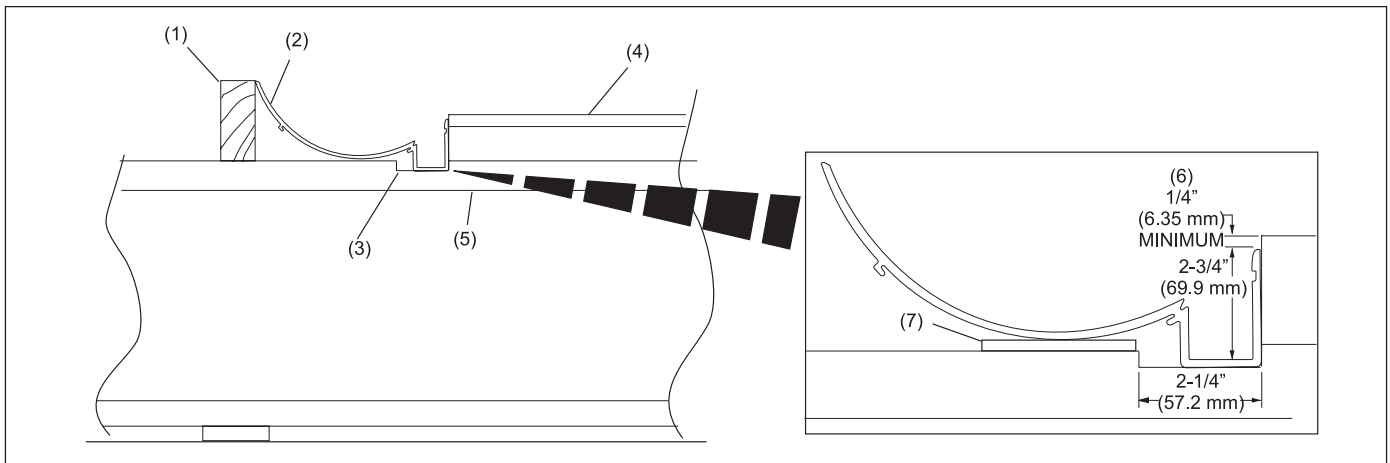


Figure 4. Route Top of I-Joist

- |  |             |                            |
|--|-------------|----------------------------|
| (1) DIVISION SUPPORT STRIP                       | (2) GUTTER  | (3) ROUTE AREA             |
| (4) LANE SURFACE                                 | (5) I-JOIST | (6) 1/4" (6.35 mm) MINIMUM |
| (7) SHIM BETWEEN I-JOIST AND GUTTER IF NECESSARY |             |                            |



**NOTE:**

Using a screwed down 2 x 4 aligned at the 2-1/4" mark from the lane edge will provide an easy guide for routing.

2. At the division capping support, it may be necessary to either shim (up) or remove (plane down) the surface area where the new gutters will be mounting. Refer to *Figure 4*.



**NOTE:**

Two key factors; the top of gutter on division capping side **MUST** be approximately flush with bottom surface of division capping (division capping installed) **AND** gutters must not buckle or sag once installed. The use of shims between gutter and leveling strip may be required to accomplish these factors.

# New Gutter Installation

## Gas Spring Installation

Bankshot gutters (part numbers 84-860660-xxx left hand gutter, 84-860661-xxx right hand gutter), are manufactured with the numbers 1-8 placed on the end of them. These numbers identify the order and position of gutters regarding installation for a single lane. Refer to *Figure 5*.

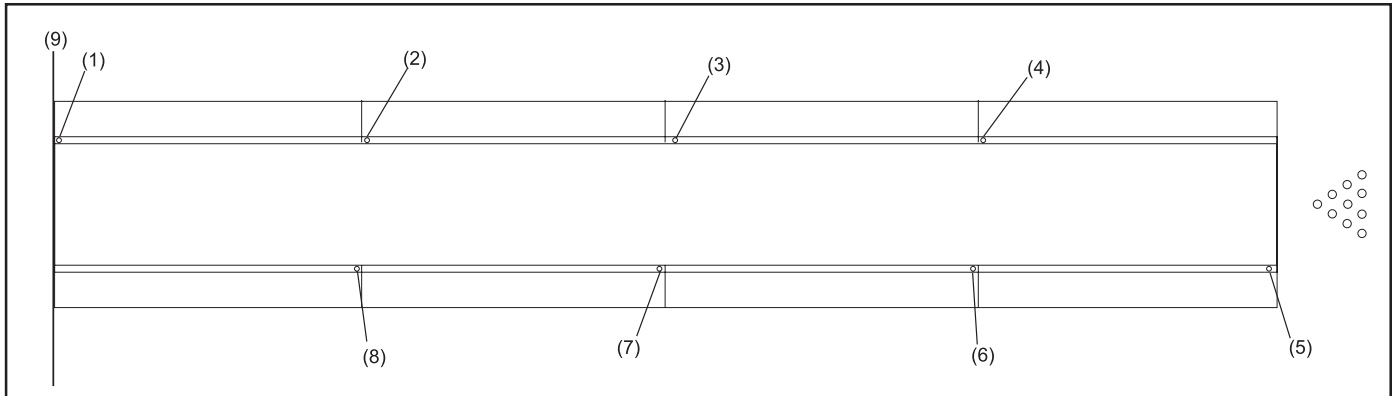


Figure 5. Gutter Location Stickers

- |  |  |  |
|--|--|--|
| (1) STICKER PLACEMENT FOR GUTTER LOCATION #1 | (2) STICKER PLACEMENT FOR GUTTER LOCATION #2 | (3) STICKER PLACEMENT FOR GUTTER LOCATION #3 |
| (4) STICKER PLACEMENT FOR GUTTER LOCATION #4 | (5) STICKER PLACEMENT FOR GUTTER LOCATION #5 | (6) STICKER PLACEMENT FOR GUTTER LOCATION #6 |
| (7) STICKER PLACEMENT FOR GUTTER LOCATION #7 | (8) STICKER PLACEMENT FOR GUTTER LOCATION #8 | (9) FOULLINE                                 |

- The gas spring will be located between the 6th and 7th upright on gutter #4 and gutter #5. Refer to *Figure 6*. Holes are predrilled on the gutter and rail for gas spring installation.

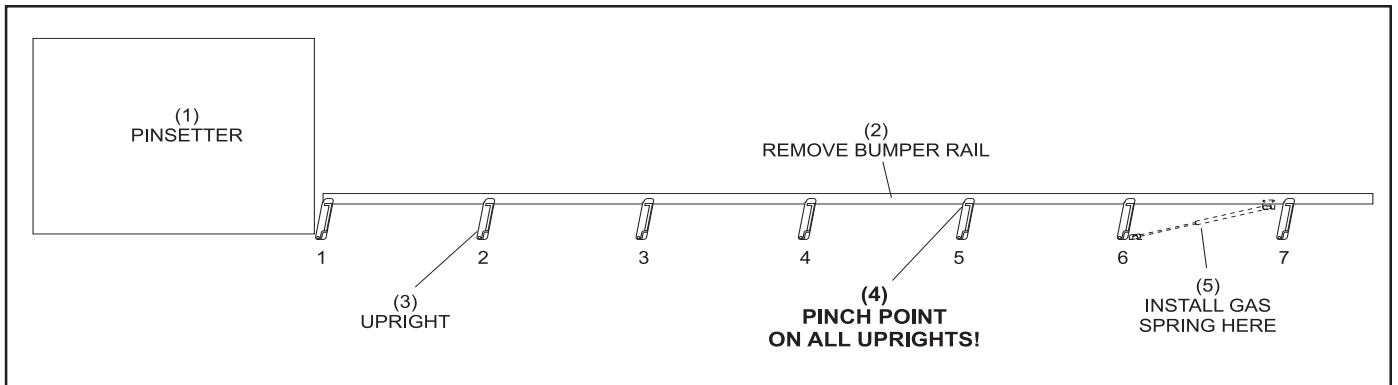


Figure 6. Gas Spring Location

- |                                   |                             |             |
|-----------------------------------|-----------------------------|-------------|
| (1) PINSETTER                     | (2) REMOVE BUMPER RAIL      | (3) UPRIGHT |
| (4) PINCH POINTS ON ALL UPRIGHTS! | (5) INSTALL GAS SPRING HERE |             |

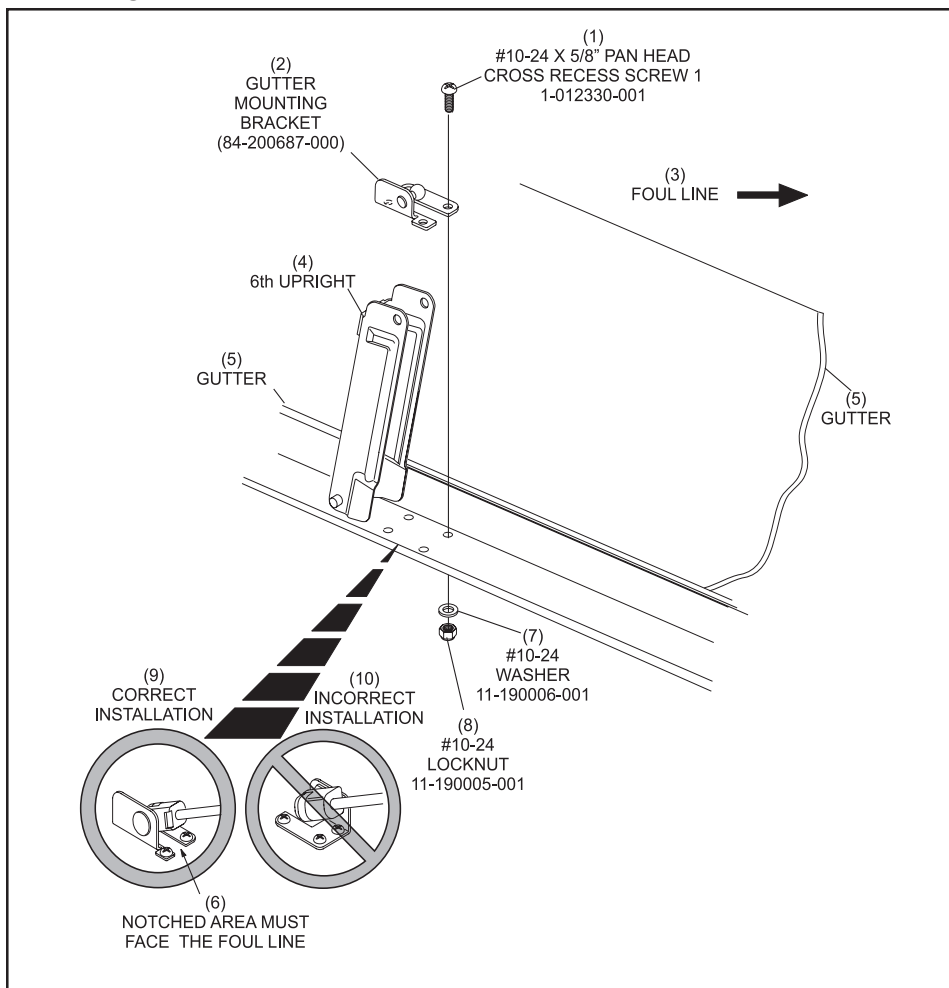


### **WARNING!**

**Pinch points are present on all uprights. Always use the Bankshot deployment tool to raise and lower rails. Injury can occur to hands or fingers if rails are raised or lowered manually.**

- With the 6th upright in the full up position, install the gutter mounting bracket, #84-200687-000. The cutout is toward the foul line. Refer to *Figure 7*.

- #10-24 X 5/8" PAN HEAD CROSS RECESS SCREW 11-012330-001
- GUTTERMOUNTINGBRACKET 84-200687-000
- FOULLINE
- 6THUPRIGHT
- GUTTER
- NOTCHED AREA MUST BE FACE THE FOULLINE
- #10-24 WASHER 11-190006-001
- #10-24 LOCKNUT 11-190005-001
- CORRECTINSTALLATION
- INCORRECTINSTALLATION



*Figure 7. Gutter Mounting Bracket Location*

- Secure the gutter mounting bracket firmly in place with four #10-24 x 5/8" pan head cross recess screws 11-012330-001, four #10-24 washers 11-190006-001, and four #10-24 self locking nuts 11-190005-001. Refer to *Figure 7*.

- Assemble the gas spring, 11-210005-000, to the gutter mounting bracket, 84-200687-000, and the rail mounting bracket. The gas spring simply snaps onto the ball on each bracket. Refer to *Figure 8*. No tools are needed.

- PINSETTER
- GUTTER
- GAS SPRING 11-210005-000
- GUTTER MOUNTING BRACKET 84-200687-000
- RAIL MOUNTING BRACKET 84-200688-000

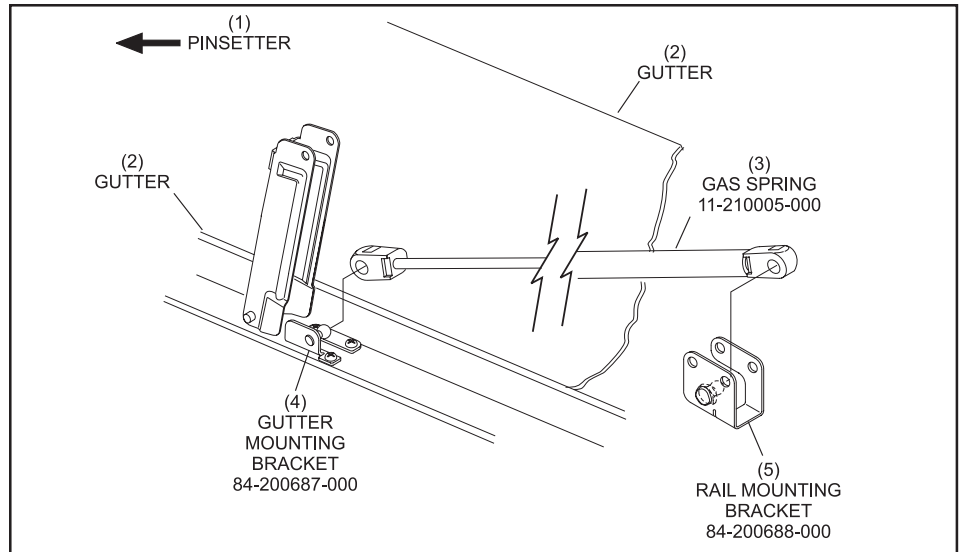


Figure 8. Gas Spring Installation

- Reassemble the bumper rail to all the uprights.
- Attach the rail mounting bracket and gas spring assembly to the bumper rail with (2) connecting pins, 84-200458-004, and (2) E-Rings, 11-537050-000. The E-Rings should be on the gutter side of the rail, not the lane side. Refer to *Figure 9*.

- CONNECTING PINS 84-200485-000
- E-RINGS 11-537050-000
- RAIL MOUNTING BRACKET 84-200688-000
- GUTTER
- RAIL

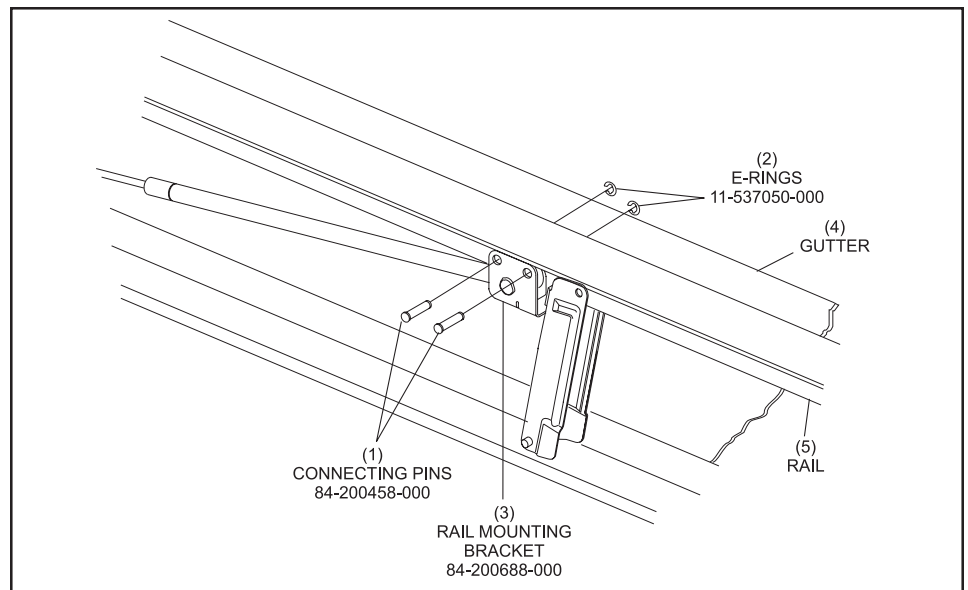


Figure 9. Rail Mounting Bracket Installation



## WARNING!

**Pinch points are present on all uprights. Always use the Bankshot deployment tool to raise and lower rails. Injury can occur to hands or fingers if rails are raised or lowered manually.**

## Gutter Installation

As viewed from the foul line facing the pin deck, the first gutter to be installed on the left-hand side would be #1, then #2, #3 and so on. Refer to *Figure 5*.

1. Beginning with gutter #1, place the gutter section into position starting at the foul line and working toward the pin deck and repeat steps for gutter #5. Place the remaining three sections of gutter into position. The stamped number should face the foul line (gutters 1-4), or face pit end (gutters 5-8) once installed. Check for minimum distance of 1/4" (6.35 mm) from top of gutter to top of lane surface. Refer to *Figure 5*.



**NOTE:**

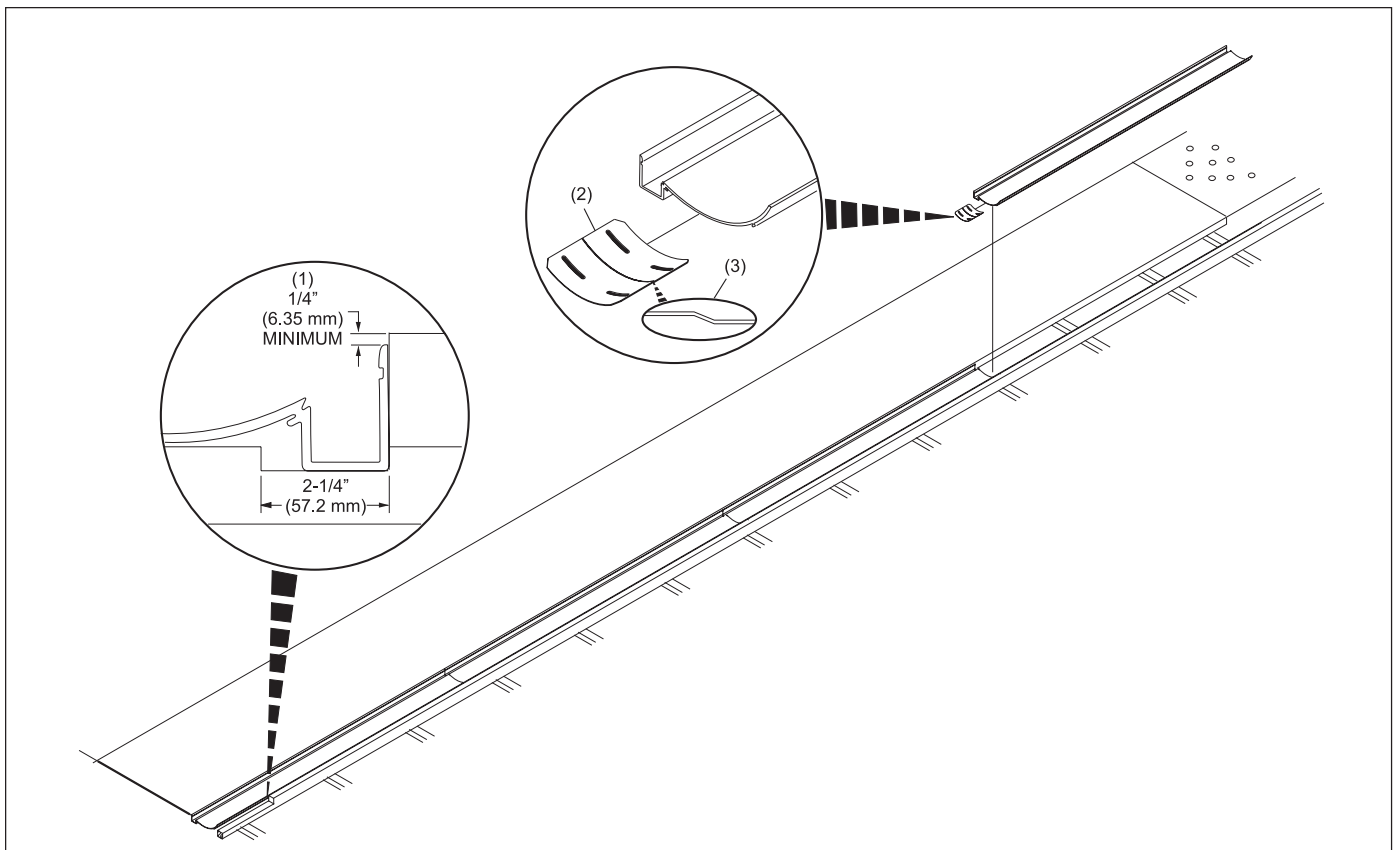
*New foundation/lane requires no modification.*



**NOTE:**

*DO NOT screw gutters into place at this time.*

2. Slide a gutter coupler (part number 84-200462-000) into the foul line end of the fourth gutter section and carefully insert into groove of third gutter section. **Make sure joint has step down toward the pindeck.** Refer to *Figure 10*.



*Figure 10. Place New Gutter Into Position*

(1) 1/4" (6.35 mm) MINIMUM

(2) GUTTERCOUPLER

(3) INSTALL COUPLER WITH  
DOWNWARD BEND TOWARD  
PIT END



**CAUTION!**

To ensure proper and consistent ball travel toward the pit end of the lane, a step down (higher to lower) condition **MUST** exist at every gutter joint.

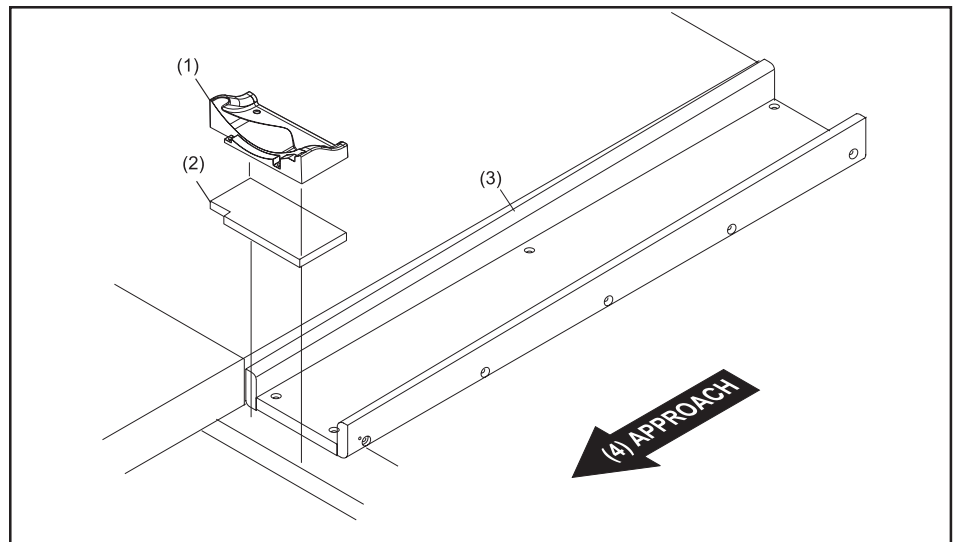


**CAUTION!**

The design of the gutter coupler assists in maintaining a step-down condition however, additional support at **EVERY** joint is needed. Locally purchased material should be used to support the foul line half of the gutter couplers. Supports may extend from existing trusses, anchor strip, etc. or from the floor to the bottom of the couplers but must not interfere with ball return or automation components. This is not required on new foundations.

3. Cut to fit the pit end of the fourth gutter section to accommodate the transition (flat gutter) block (part number 84-200456-000) and kickback. Refer to *Figure 11*.

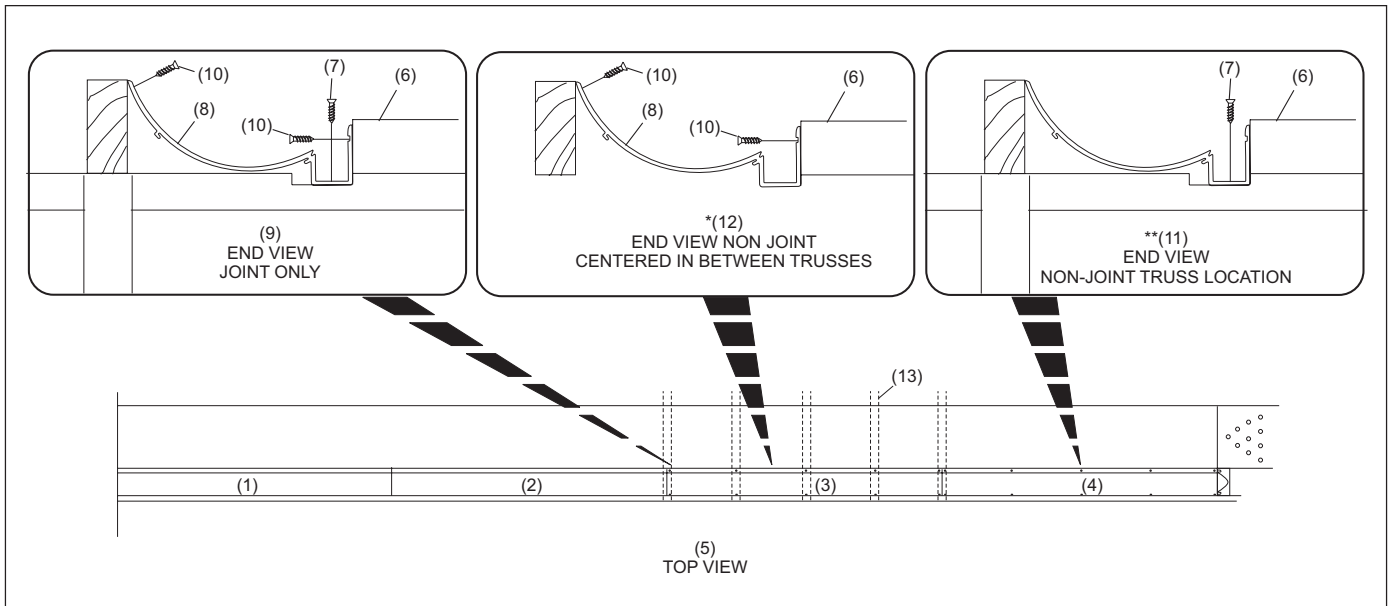
- (1) TRANSITION BLOCK
- (2) SPACER
- (3) FLAT GUTTER
- (4) APPROACH DIRECTION



*Figure 11. Install Flat Gutters*

4. Install flat gutter spacer (part number 84-200556-000, part of package number 84-860621-000) against pit end of gutter (notch in wood spacer toward the lane). Secure spacer with wood 2-1/2" screws. Refer to *Figure 11*.
5. Install transition block onto pit end of the fourth gutter section.

6. With all four gutter sections in place and transition block installed, use #10 x 1-1/2" Robertson screws (part number 11-081201-000) to attach sections 1, 2, 3 & 4. Refer to *Figure 12*.



*Figure 12. Attach Third and Fourth Sections of Gutter*

- |                      |  |   |
|----------------------|--|---|
| (1) FIRSTGUTTER      | (2) SECONDGUTTER                         | (3) THIRDGUTTER                                     |
| (4) FOURTHGUTTER     | (5) TOP VIEW                             | (6) LANE  |
| (7) SCREW            | (8) GUTTER                               | (9) END VIEW (GUTTER JOINT ONLY)                    |
| (10) SCREW AS NEEDED | (11) END VIEW (NON-JOINT TRUSS LOCATION) | (12) END VIEW NON JOINT CENTERED IN BETWEEN TRUSSES |
| (13) TRUSS LOCATIONS |  |   |

\* Not required on crib foundation.

\*\* On crib foundation secure to anchor strips approximately 40-48".

## Installing Rail Couplers

The vertical supports and rails are assembled to the gutters prior to shipping. Visually check that pivot arms are oriented properly with the “e-clips” on the *outside* of the pins attaching vertical support to rail. Refer to *Figure 13* for proper e-clip position. Ball damage may occur if e-clips are on the inside of rails!

1. Place rails in the down position.



**NOTE:**

*The foul line rails have a notched area on top of rail surface for raising and lowering Bankshot with the Bankshot Deployment tool.*

2. Beginning with foul line rail, measure gap between the rail sections. Note this measurement and mark gap on gutter.



**NOTE:**

*A gap between rails less than 1/4" is recommended. Gap should be maintained with rails in down position to prevent binding.*

3. Repeat step 3 to record gap between rails on both sides of lane.
4. Place rails in up position.
5. Slide a rail coupler (part number 84-200457-000, part of package number 84-860623-000) into the pit end of the foul line rail and insert pin (part number 84-200458-001) through rail to secure. Secure pin with e-clip. Refer to *Figure 13*.
6. Insert the next rail section over rail coupler of the previous rail. Reproduce gap (noted in step 3 above) between the two rail sections. Using a 9/32" drill bit, insert drill bit through hole in rail and drill through metal rail coupler. Refer to *Figure 13*.

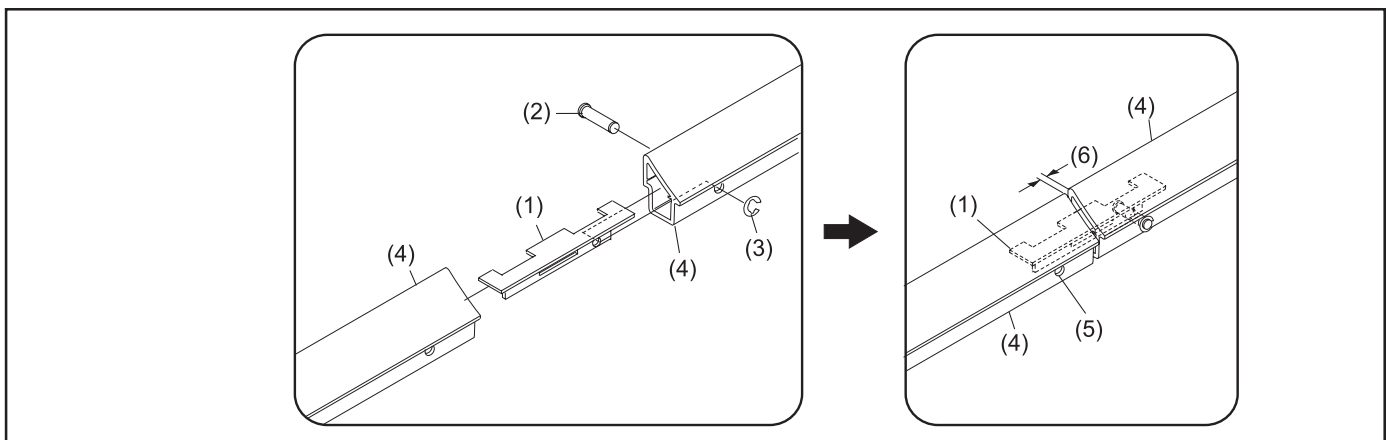


Figure 13. Join Rail Sections

(1) RAIL COUPLER  
(4) RAIL SECTION

(2) RAIL PIN  
(5) USE HOLE IN RAIL AS A GUIDE TO DRILL THROUGH METAL COUPLER

(3) E-CLIP GUTTER SIDE OF RAIL  
(6) NOTED GAP

7. Insert rail pin (part number 84-200458-001) through rail and install E-clip (part number 11-537051-000).
8. Install remaining rail couplers by performing steps 1 through 7 above.

---

### **Ball Detect/Scanner Path**



**IMPORTANT!:**

*With the Bankshot rails in the raised position, there may be interference with the ball detect/scanner path. Modification to the height of gutter rails is not possible so the scanner mount brackets and or reflectors may have to be shimmed.*

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### **Stand Alone Covers - Installation**

Included in package 84-860623-700 are covers (cosmetic strips) which cover the unused rail track opening at the foul line and pin deck ends of the lane.

1. Snap the cosmetic cover (31-1/8" length, part number 84-200465-xxx) into place next to the foul line rail. Refer to *Figure 2*.



**NOTE:**

*Cosmetic covers may need to be trimmed to fit. A gap of 5/8" (15.87 mm) to 3/4" (19.05 mm) should exist between cosmetic cover and first rail.*

2. Snap the cosmetic cover (24" in length, part number 84-200466-xxx) into place next to the transition block at the pit end of the lane. Refer to *Figure 2*.

## Appendix A - Packaging

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### Model Number 61-171801-000 Bankshot, 1 Lane Kit - Dark Grey Rail

| QTY.  | PART NUMBER   | DESCRIPTION OF PACKAGE                                |
|-------|---------------|---|
| *1.00 | 171804        | Manual - Bankshot Installation                        |
| 1.00  | 84-860705-100 | Assembly L.H. Rail/Gutter, Bumper System, DG          |
| 1.00  | 84-860706-100 | Assembly R.H. Rail/Gutter, Bumper System, DG          |
| 1.00  | 84-860621-000 | Gutter Hardware                                       |
| 1.00  | 84-860703-000 | Package Gas Spring & Mounting Hardware, Bumper System |
| *1.00 | 84-860100-000 | Package - Tool, Bumper System                         |

\* = Per Center

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### Model Number 61-171801-001 Bankshot, 1 Lane Kit - Medium Grey

| QTY.  | PART NUMBER   | DESCRIPTION OF PACKAGE                                |
|-------|---------------|---|
| *1.00 | 171804        | Manual - Bankshot Installation                        |
| 1.00  | 84-860705-142 | Assembly L.H. Rail/Gutter, Bumper System, MG          |
| 1.00  | 84-860706-142 | Assembly R.H. Rail/Gutter, Bumper System, MG          |
| 1.00  | 84-860621-000 | Gutter Hardware                                       |
| 1.00  | 84-860703-000 | Package Gas Spring & Mounting Hardware, Bumper System |
| *1.00 | 84-860100-000 | Package - Tool, Bumper System                         |

\* = Per Center

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### Model Number Model Number 61-171807-001 Bankshot, Upgrade Kit - Medium Grey Rail

| QTY.  | PART NUMBER   | DESCRIPTION OF PACKAGE                                |
|-------|---------------|---|
| *1.00 | 171804        | Manual - Bankshot Installation                        |
| 1.00  | 84-860704-142 | Package - Upgrade Kit, Rails (Med. Grey)              |
| 1.00  | 84-860694-000 | Package - Upgrade Kit, Vertical Support Bumper System |
| 1.00  | 84-860703-000 | Package Gas Spring & Mounting Hardware, Bumper System |
| *1.00 | 84-860100-000 | Package - Tool, Bumper System                         |

\* = Per Center

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**Model Number Model Number 61-171811-001 Bankshot, 1 Lane Kit - Medium Grey w/GID Rail**

| <b>QTY.</b> | <b>PART NUMBER</b> | <b>DESCRIPTION OF PACKAGE</b>                         |
|-------------|--------------------|---|
| *1.00       | 171804             | Manual - Bankshot Installation                        |
| 1.00        | 84-860705-999      | Assembly L.H. Rail/Gutter, Bumper System, MG w/GID    |
| 1.00        | 84-860706-999      | Assembly R.H. Rail/Gutter, Bumper System, MG w/GID    |
| 1.00        | 84-860621-000      | Gutter Hardware                                       |
| 1.00        | 84-860703-000      | Package Gas Spring & Mounting Hardware, Bumper System |
| *1.00       | 84-860100-000      | Package - Tool, Bumper System                         |

\* = Per Center

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**Model Number 61-171817-001 Bankshot, Upgrade Kit - Medium Grey w/GID Rail**

| <b>QTY.</b> | <b>PART NUMBER</b> | <b>DESCRIPTION OF PACKAGE</b>                         |
|-------------|--------------------|---|
| *1.00       | 171804             | Manual - Bankshot Installation                        |
| 1.00        | 84-860704-999      | Package - Upgrade Kit, Rails (Med. Grey w/GID)        |
| 1.00        | 84-860694-000      | Package - Upgrade Kit, Vertical Support, Bumper Kit   |
| 1.00        | 84-860703-000      | Package Gas Spring & Mounting Hardware, Bumper System |
| *1.00       | 84-860100-000      | Package - Tool, Bumper System                         |

\* = Per Center

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**Model Number L2-600117-000 Spare Vertical Metal Supports (10 Supports)**

| <b>QTY.</b> | <b>PART NUMBER</b> | <b>DESCRIPTION OF PACKAGE</b>             |
|-------------|--------------------|---|
| 1           | 84-860690-000      | Package - Spare Parts Kit - Bumper System |

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**Model Number L2-600151-000 Gas Spring Upgrade Kit (lane pair)**

| <b>QTY.</b> | <b>PART NUMBER</b> | <b>DESCRIPTION OF PACKAGE</b>                                 |
|-------------|--------------------|---|
| 1           | 84-860715-000      | Package - Gas Spring Upgrade Kit, (Lane Pair) - Bumper System |
| .05         | 84-860716-000      | Package - Drill Bits, Gas Spring Upgrade Kit, Bumper System   |