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*Note: Supporting narrated video (NV) demonstrations, high-speed video (HSV) clips, and technical proofs (TP), and all of my past articles, can be accessed and viewed online at [billiards.colostate.edu](http://billiards.colostate.edu). The reference numbers used in the article help you locate the resources on the website. If you have a slow or inconvenient Internet connection, you might want to view the resources from a CD-ROM or DVD. Details can be found online at: [dr-dave-billiards.com](http://dr-dave-billiards.com).*

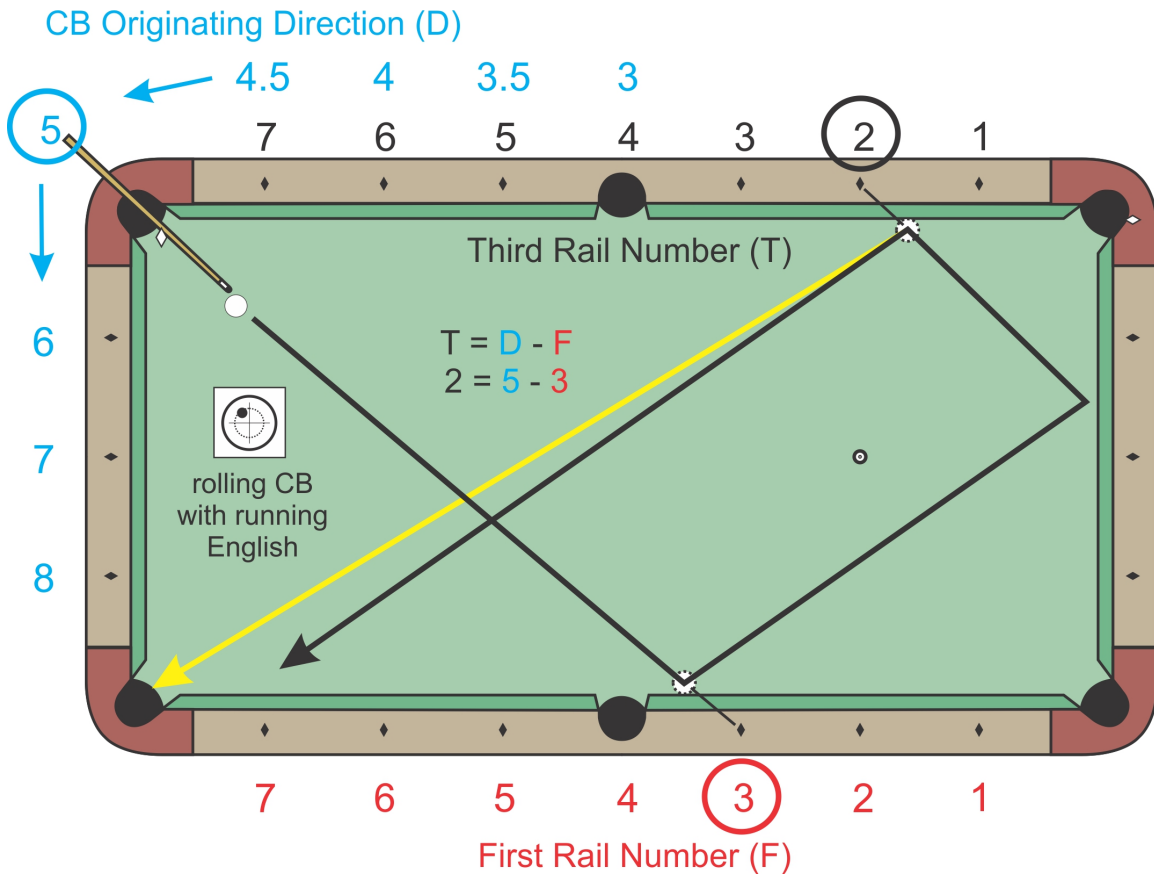
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This is my eleventh article based on the “[The Video Encyclopedia of Pool Shots \(VEPS\)](#),” an instructional DVD series I recently created with past BD columnist and good friend Tom Ross. VEPS contains 750 shot types within 50 main categories and 5 major areas. Many clips in the series are also designated as “gems,” indicating shots or concepts important to know as a pool player, whether understood explicitly or in a more intuitive way. An outline of the entire VEPS series, the complete list of shot types in each major area, the gem designations, and video excerpts from each DVD can be viewed online at: [dr-dave-billiards.com/veps](http://dr-dave-billiards.com/veps). The last three months, we’ve looked at the Plus System, which is used to aim two-rail kick shots off a short rail. Starting this month, we’ll look at the Corner-5 System used to aim two-, three-, and four-rail kicks off a long rail. This system is covered in detail in the fourth DVD: “[VEPS IV - Banks, Kicks, and Advanced Shots](#).”

Recently, Bob Jewett featured the Corner-5 System over several months in his instructional column. Some of the information I will present over the next few months will be review, but I will also include several variations and examples of how the system is applied. Let’s start with a refresher on the Corner-5 System basics. **Diagram 1** shows the three sets of diamond numbers used with the system, along with the formula that relates them. The first set of numbers, shown in blue and labeled “**D**,” indicates the cue ball’s **origination direction**, which locates where the aiming line through the CB crosses the rail closest to the shooter. The system is referred to as the “Corner-5” System, because the origination number begins with “5” at the corner pocket. As with the Plus System, the corner pocket diamond is assumed to be centered as shown. The origination number increases by 1 for each diamond on the short-rail side of the corner, and it decreases by  $\frac{1}{2}$  for every diamond on the long-rail side. For the example in the diagram, the origination direction number (D) is 5 since the cue passes right over the corner pocket diamond.

The second set of numbers, shown in red and labeled “**F**,” indicates the **first-rail number**, which locates the aiming line through a point on the first rail. The first-rail number starts with 1 at the first diamond from the far end rail and increases by 1 for each diamond up table. Since the shot in the diagram is aimed through the 3<sup>rd</sup> diamond, the first-rail number (F) is 3. The third set of numbers, shown in black and labeled “**T**,” indicates the **third-rail number**, which predicts where the CB heads into the third rail. These numbers are the same as with the first rail, starting with 1 at the far diamond. In the example, the CB heads through the 2<sup>nd</sup> diamond, so the third-rail number (T) is 2.

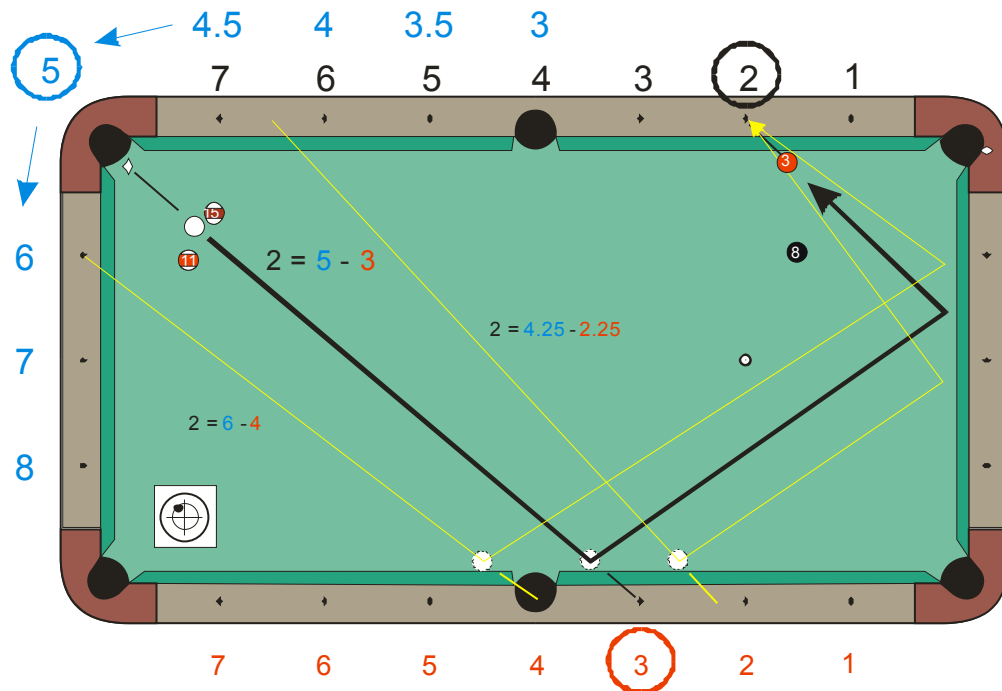
The Corner-5 System is based on the formula:  $T = D - F$ . That is, the diamond the CB will head toward along the third-rail (T), can be predicted by subtracting the first-rail number (F) from the origination direction number (D). In the example, with  $D=5$  and  $F=3$ , the system correctly predicts that the CB will head through diamond 2 on the third rail ( $T = 5 - 3 = 2$ ). As with the Plus System, the Corner-5 System applies only for a rolling CB with running English.



**Diagram 1** Corner-5 System

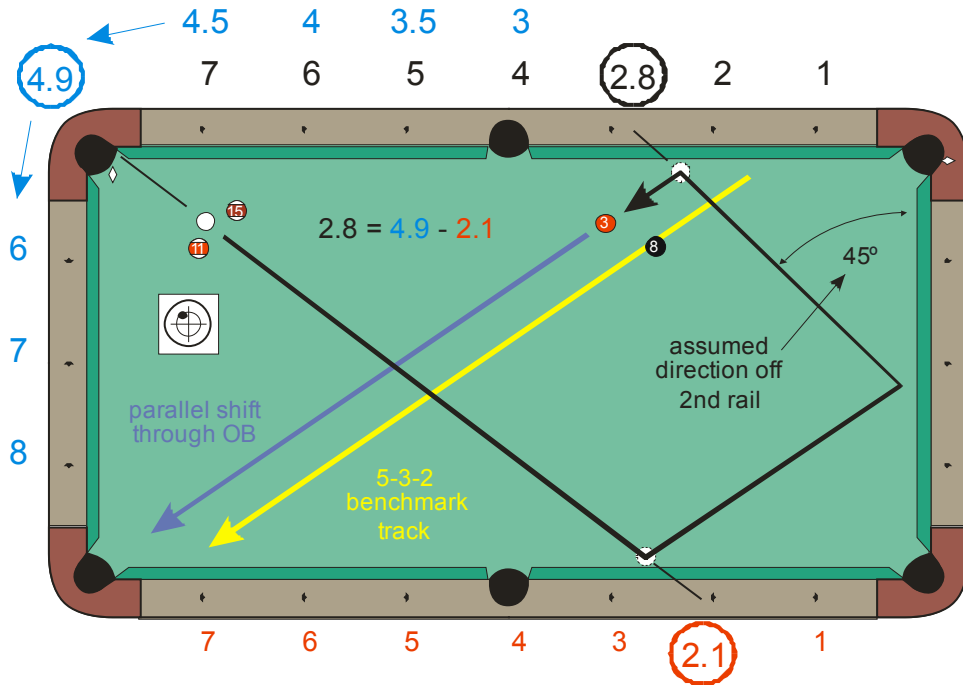
The 5-3-2 track is an important benchmark for the Corner-5 System. Many books that present the system show the 5-3-2 track heading straight to the corner-pocket off the third rail, as per the yellow direction in Diagram 1). On a three-cushion billiards table (which is larger than a pool table, has no pockets, and has cushions of different properties than a pool table), this is the direction the CB typically heads off the third rail. When the 5-3-2 track does head to the corner pocket, we say the table plays “on system.” With typical pool tables, however, while the 5-to-3 aim will send the CB through the formula-predicted third-rail number ( $2 = 5 - 3$ ) fairly accurately, it will come up short of the corner pocket. VEPS shot #516 in **NV B.85** demonstrates the benchmark shot, showing the CB hitting the third rail target and coming up almost one diamond short of the corner pocket.

Because the Corner-5 System formula does in fact predicts third-rail number so well on most tables, it can be used very effectively when kicking two or three rails to a ball close to a long rail. **Diagram 2** shows an example where we need to contact the 3-ball to avoid a foul. The 11-ball and 15-ball block a direct path to the 3-ball as well as any reasonable one-rail kick. The proximity of the 15-ball also makes a jump shot difficult. However, since the 3-ball is close to a long rail, we can easily use the Corner-5 System to get an accurate hit. In this case, since the 3-ball is just below the 2<sup>nd</sup> diamond on the third rail, the 5-3-2 track is perfect. See VEPS Shot #517 in **NV B.85** for a demonstration. In general, we are not limited to the 5-3 track to get the CB to diamond 2 on the third rail. The yellow lines and accompanying math in **Diagram 2** illustrate two additional examples of tracks which would get the job done for different CB positions.



**Diagram 2** Kicking two rails at a ball on the rail

Unfortunately, in the real world, the ball we are kicking at isn't always at the perfect place to be able to use the 5-3-2 benchmark shot. **Diagram 3** shows an example of how we target a ball off the rail in an arbitrary position. Here, we need to kick three rails at the 3-ball. The first step is to find the necessary third-rail number. The 5-3-2 benchmark shot can help you visualize the average direction off the third rail. As indicated by the yellow line, the 5-3-2 track comes off the third rail from the through-diamond-2 position to about one diamond short of the corner pocket. Using this, the next step is to shift this line to the object-ball (3-ball), keeping it parallel to the benchmark track, as per the purple line. This will give us a good estimate for the CB rebound angle off the third rail, along with the third-rail contact point indicated by the ghost ball in the diagram. We will assume the CB comes off the second rail at close to a 45° angle, which is a good estimate for many Corner-5 System shots. (With practice, you will get better at visualizing this angle more accurately). Using the 45° direction, we get a required third-rail number of about 2.8. Now we need to find a line of aim through the CB where the origination number minus the first-rail number gives us 2.8. While the necessary direction is close to the 5-3 aim-line, the CB isn't exactly along this track, and the target isn't quite at 2 (2.8 versus  $5 - 3 = 2$ ). As demonstrated by VEPS Shot #518 in **NV B.85**, we need to place our cue over the CB and pivot until our aim-line goes through the two relevant numbers D and F, such that  $D - F = 2.8$ . We first perform a small trial pivot, check the rail numbers (D and F) and then repeat until their difference is 2.8. If you're not comfortable with visualizing the lines or doing the arithmetic, you might find this process a little frustrating. But with a little practice, it isn't as difficult as it might seem at first. In our current example, it turns out that 4.9 through 2.1 gives us the desired third-rail number ( $4.9 - 2.1 = 2.8$ ).



**Diagram 3** Kicking three rails at a ball off the rail

Example gems and other shots from the fourth VEPS DVD, including the ones discussed in this article, can be viewed on the [VEPS website](#) or at [billiards.colostate.edu](http://billiards.colostate.edu) under **NV B.81** through **NV B.86**.



- [NV B.81](#) – Bank and kick shot terminology and basics, from VEPS IV
- [NV B.82](#) – Rolling-cue-ball through-diamond kick-shot aiming system, from VEPS IV
- [NV B.83](#) – Shallow-angle contact-point-mirror-image kick-shot aiming system, from VEPS IV
- [NV B.84](#) – Plus System for aiming two-rail kick shots, from VEPS IV
- [NV B.85](#) – Corner-Five System for aiming three-rail kick shots, from VEPS IV
- [NV B.86](#) – Cut-induced throw (CIT) and spin-induced throw (SIT), from VEPS IV

I hope you are enjoying and benefiting from my series of articles featuring shots and gems from the “[Video Encyclopedia of Pool Shots \(VEPS\)](#).” Next month, we’ll look at additional examples of how you apply the Corner-5 System to different types of situations on a pool table.

Good luck with your game,  
Dr. Dave

PS:

- I know other authors and I tend to use lots of terminology (e.g., squirt, throw, stun, ball-hit fraction, etc.), and I know not all readers are totally familiar with these terms. If you ever come across a word or phrase you don’t fully understand, please refer to the [online glossary](#) on my website.

- I want to thank Jim Valasina. He graciously proof-reads my articles every month to help find errors and make suggestions. My article quality is better as a result of his efforts. Thanks again Jim!

*Dr. Dave is author of the book, DVD, and CD-ROM: “[The Illustrated Principles of Pool and Billiards](#),” the DVD Series: “[The Video Encyclopedia of Pool Shots](#),” and the DVD: “[High-speed Video Magic](#).”*