David Alciatore, PhD ("Dr. Dave")   **ILLUSTRATED PRINCIPLES**
"VEPS GEMS - Part IX: Plus System Adjustments"

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. 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.

This is my ninth 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*. Last month, we looked at the Plus System used to aim two-rail kick shots off a short rail, from the fourth DVD: "VEPS IV - Banks, Kicks, and Advanced Shots." This month, we'll look at how to make adjustments to the Plus System at its extremes, where the basic system breaks down if you don't alter shot speed, the amount of English, and/or your aim point. If you don't remember the Plus System basics from last month, be sure to review by reading my August article and/or by viewing **NV B.84**.

Diagram 1 shows how to make an adjustment to the system when aiming at large diamond numbers on the short rail. Here, the aiming line is through diamond 6 from diamond 2 on the long rail, and the ideal Plus System thus predicts that the cue ball (CB) should head six diamonds up table to pocket the 8-ball. However, when aiming at larger numbers on the short rail, the CB tends to come up short of the target (see the red path in the diagram) when using the previously established benchmark speed and English (see last month's article for an explanation of how to determine this benchmark or reference combination of speed and English). We can adjust for this by using less English (see the black path in the diagram). At even larger short rail numbers, for example, aiming from diamond 1 through diamond 7, you would need to use even less English, or possibly none at all. Depending on table conditions, at these larger numbers, even no English might still result in the CB coming up short of the target. If this is the case, you can also add more speed to compensate, since as we saw last month, more speed makes the CB go longer. Various examples of the larger-diamond-number adjustments are demonstrated in **NV B.84** (VEPS Shot # 509).
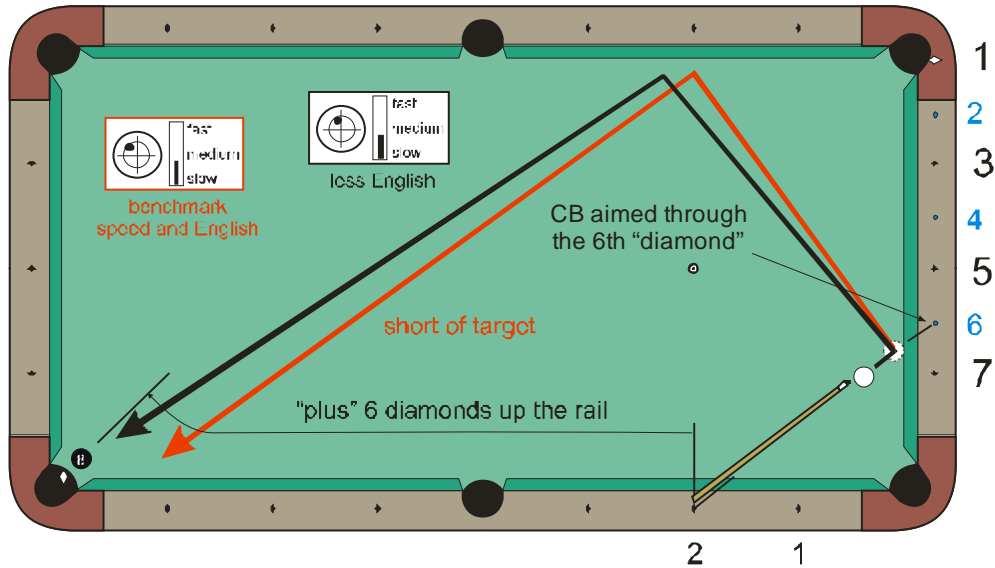
Diagram 1 Large-diamond-number Plus System adjustment

Diagram 2 shows how to make an adjustment to the system when aiming at small diamond numbers on the short rail. Here, the aiming line is through diamond 2 from diamond 6 on the long rail, and the ideal Plus System thus predicts that the CB should head two diamonds up table to pocket the 8-ball. However, when aiming at smaller numbers on the short rail, the CB tends to go long of the target (see the red path in the diagram) when using the reference speed and English. We can adjust for this by using more English (see the black path in the diagram). As we saw last month, more English makes the CB go shorter; although, the amount you will need will vary with table conditions. On my table, the benchmark speed and English actually work just as well at smaller numbers as at mid-range numbers (see VEPS Shot # 509 in **NV B.84**). However, this is not typical and most tables will require more English at the smaller diamonds numbers.
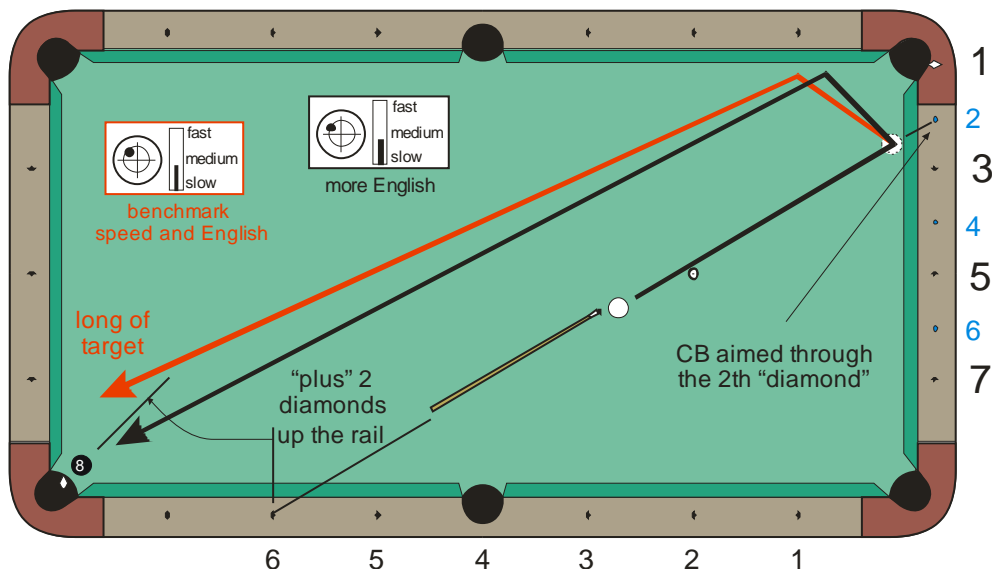
Diagram 2 **Small-diamond-number Plus System adjustment**

Diagram 3 illustrates a situation where knowledge of English effects can help you make a shot that would not be possible with the straight Plus System. In this example, to pocket the 8-ball with an "on-system" shot, we need about a 1-diamond shift up table. The Plus System would suggest that we aim from diamond 7 through diamond 1 (see the blue line in the diagram), which would clearly result in either a scratch or deflection off the point of the pocket. Instead, we can shift our aim to diamond 1.5 in spite of the fact that the "on-system" 1.5 diamond shift up table would take us long of the target (see the red path in the diagram). To compensate, as described above, we add more English to shorten the kick and allow us to pocket the 8-ball (see the black path in the diagram). This shot (also part of VEPS Shot # 509) is also demonstrated in **NV B.84**.
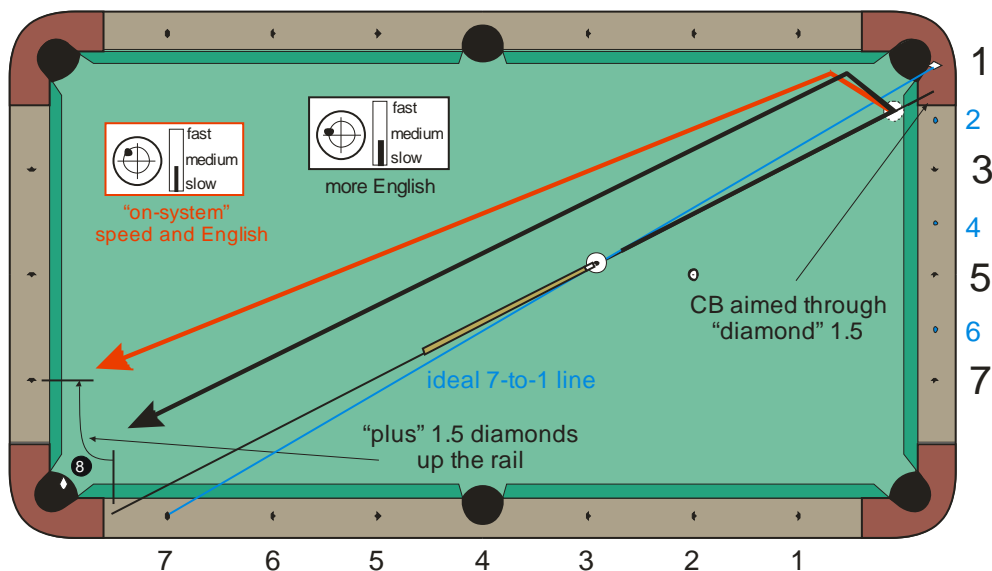

Diagram 3 **Plus System aim and English adjustment example**

In Diagrams 1 and 2, English adjustments were made to be able to use the short-rail number suggested by the ideal Plus System (i.e., we forced the shot to play "on system"). In Diagram 3, English was used to alter the result of the system's prediction. Regardless of which approach you may be using on a particular shot, it is important to know the effects of English and speed that we covered last month. Furthermore, it is essential to practice on a particular table to develop a feel for how, what, when, and how much to adjust.

Example gems and other shots from the fourth VEPS DVD, including the ones discussed above, can be viewed on the VEPS website or at **_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

normal video

Well, I hope you enjoy and benefit from my series of articles highlighting shots and gems from the "*Video Encyclopedia of Pool Shots (VEPS)*." Next month, we'll look at several examples of how the Plus System can be applied in different game situations.

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."