Photograph from Mercury Outboard Motors

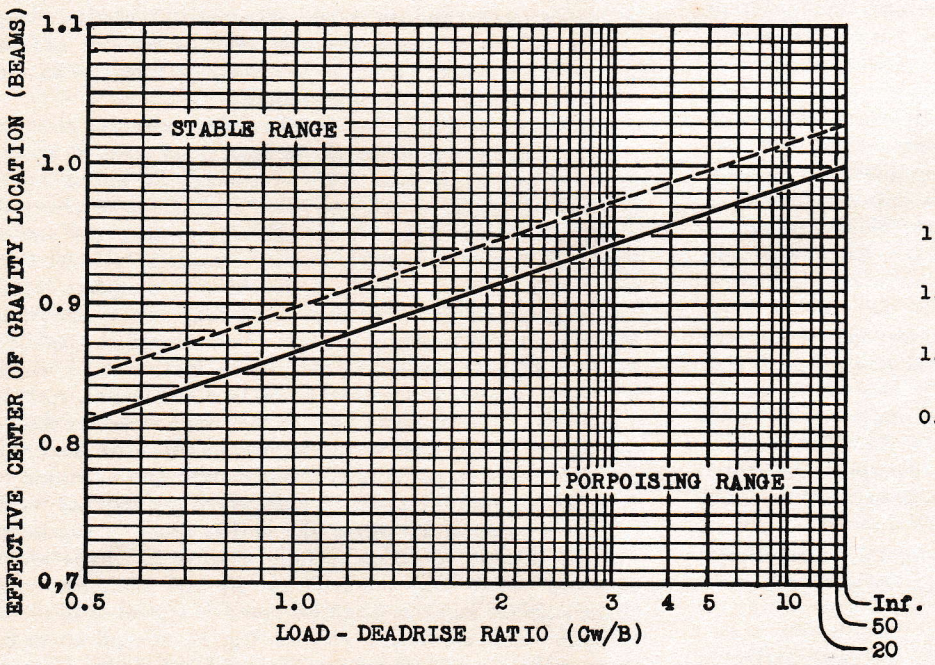
When outboard hulls ... loaded so that they ... close to the porpois... limit, the adjustment ... the motor angle may sp... the difference betwe... the boat's porpoising a... smooth, stable operati...

trim angle is unstable, the hull is galloping, perhaps even slamming, and the driver is receiving the punishment which he has earned. Thus, for the stepless planing hull, porpoising defines the limit of speed and efficiency, at least under respectable operating conditions.

What Causes Porpoising?

You will hear nearly as many explanations of the causes of porpoising as there are people to explain it. As a school-age boy in 1929, I had built a very small outboard hull which my 3-hp motor planed beautifully. The following year, needing funds to build a new and larger hull, I sold this boat to a friend who owned a 10-hp motor. Much to my surprise and embarrassment, the little craft seemed to resent being sold and immediately proceeded to porpoise disgracefully. She not only galloped, but slammed hard even on the smoothest water. My older friends assured me there was nothing wrong with the hull—that it was just overpowered with the larger motor. It was a long time before I learned that porpoising was *not* caused by too much power.

We had overlooked an important *(Continued on next page)*



Cw = Load Coefficient = W/b^3
W = Gross load (lbs.)
b = Beam (ft.)
B = Deadrise angle (degrees)

Fig. 3. *Effective center of gravity values on solid line are at porpoising limit for the most critical speed. Values above dotted line assure stability for your speeding boat.*

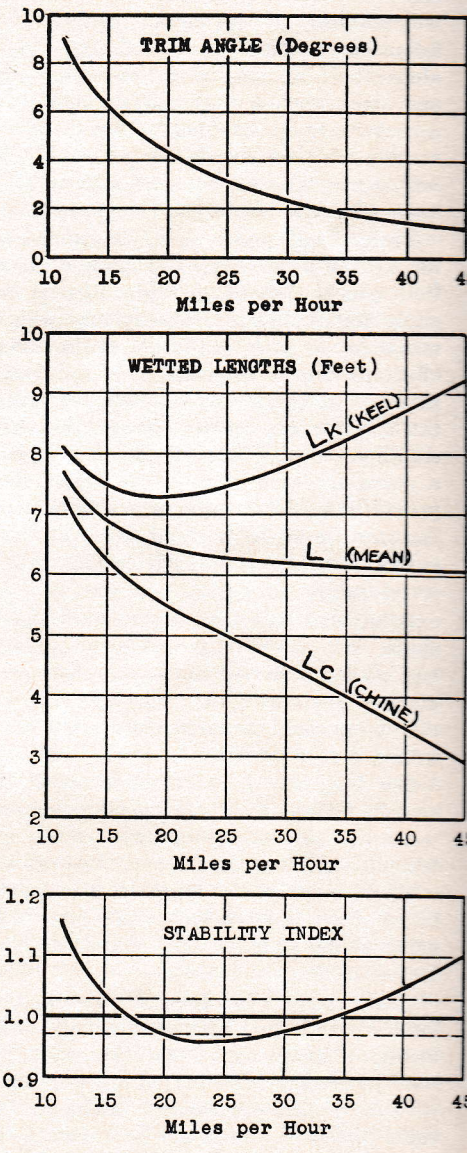


Fig. 4. *These plots illustrate how trim angle, wetted lengths, and stability index vary over a range of speeds for the craft in Figure 3.*