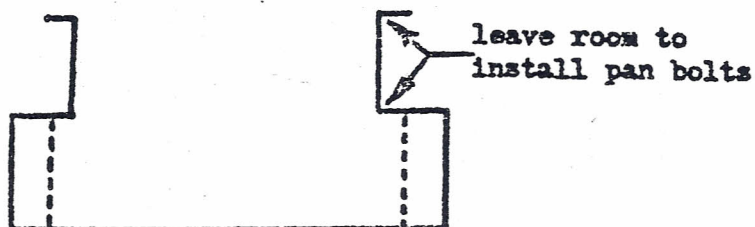


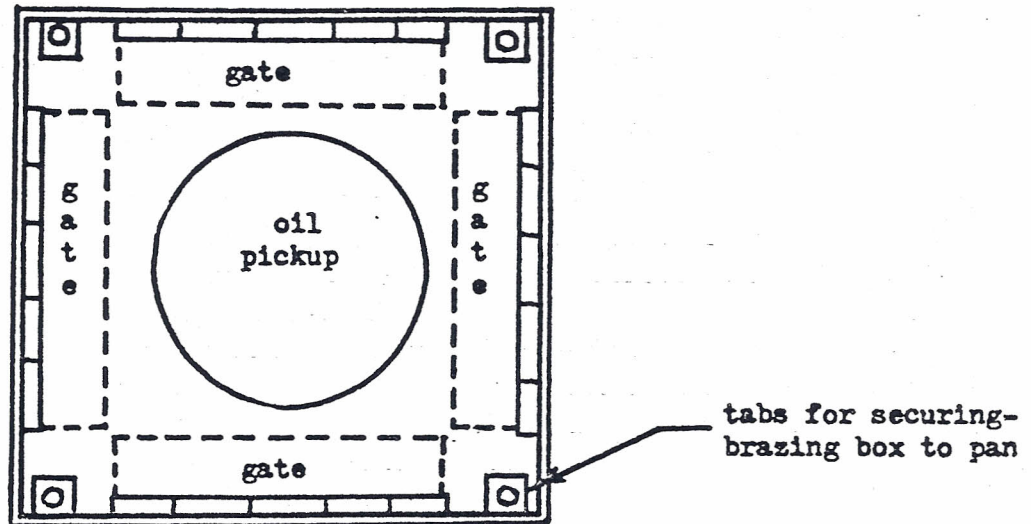
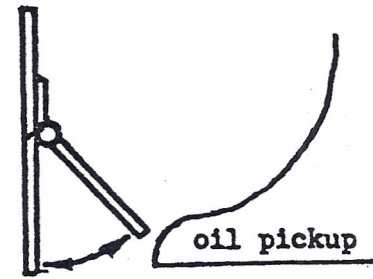
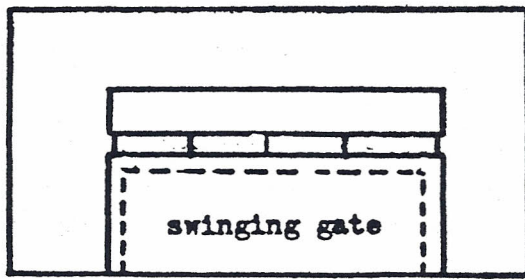
A SOLUTION TO OIL PRESSURE LOSS

There are several ways to attack the problem of oil pressure loss during cornering or braking. First, best, and most expensive is the dry sump. This involves a high volume pump feeding into an external tank, and a low volume, high pressure pump supplying the bearings. The second, another sophisticated and difficult solution, is a pivoting pickup that moves within the oil as it surges within the sump. The third is a gated-and-baffled pan, the topic of this article.

The purpose of baffling is to prevent the oil from surging away from the pickup during cornering, braking, or accelerating. Before installing the baffling it would be wise to increase the capacity of the sump, since a larger supply of oil eases the problem of keeping the pickup immersed in oil. To do this, widen the sump by cutting and adding metal as shown in the front view below. Brazing is recommended since welding can result in cracks. Make the bottom corners square to direct the surging oil back toward the center of the sump rather than up the crankcase wall.



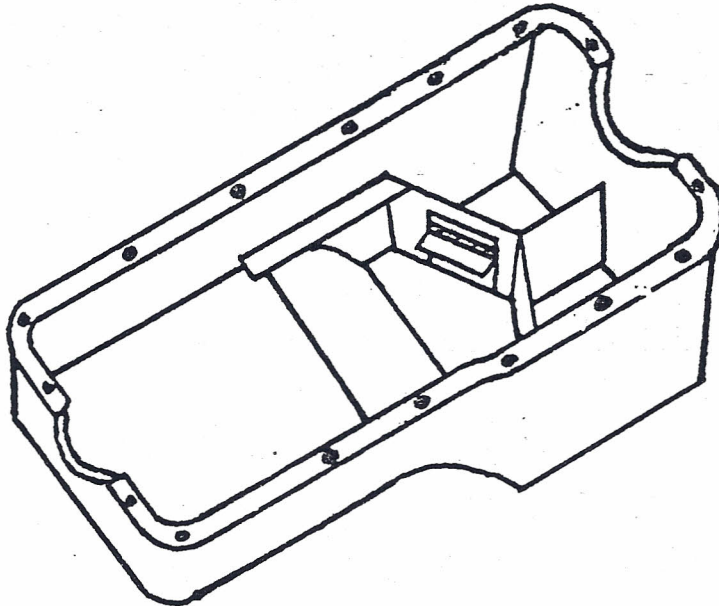
The next step is to make a baffle box with swinging gates on each of the four sides of the pickup. Note: if the pickup is not in the center of the sump, redesign or replace the pickup to achieve this. Next, carefully remove all baffling present, as constructed by the factory. The baffle box is constructed as illustrated below and incorporates four swinging gates, one on each side of the box. The gates themselves are fabricated from piano hinge which is available from your friendly neighborhood hardware store in various widths, and is sold by the foot. A hinge about 1 inch in width (per leg) should be acceptable for all but Chevrolet 454 owners. Construct a box to surround your oil pickup with openings at the bottom of all 4 sides which approximate the diameter of the pickup itself. One leg of the piano hinge is brazed to the inside of the box and the other leg becomes the swinging gate. Make sure the hinge swings freely, loosening it if necessary by prying slightly where it is wrapped around the hinge pin. As the gates must all swing inward, be sure your box size is sufficient to permit each gate to swing freely without making contact with the pickup. The box may vary in height, but 2 to 3 inches seems adequate for most applications.



It is vital to ensure that your oil pickup is perfectly centered within your baffle box. Do this by removing and cleaning pan, remove factory baffling, and then carefully replace pan after painting the bottom of your pickup with Prussian Blue machinists' dye. This will leave an imprint of the oil pickup on the floor of your pan and it is then an easy matter to place the box so that the hinged gates will swing easily and freely without contacting the pickup.

The box may be secured to the pan by brazing, or by riveting and brazing, in which case, great care must be taken to totally seal the steel rivets with braze to prevent leaking.

Another variation of the pickup box is shown opposite and incorporates a fore-&-aft baffle ahead of the diagonal gates to insure that surging oil goes through rather than around the gate. The diagonal gates in this case serve the purpose of both front and side gates to keep oil around the pickup in both braking and cornering modes. The natural rise in the floor of the sump limits oil movement during acceleration. To be noted, as well, are the fore-&-aft baffles constructed on the side walls of the sump to prevent oil from climbing the walls of the sump during hard cornering.



The windage tray is designed to surround the crankshaft, and thus prevent oil from coming in direct contact with the rotating crank. This prevents foaming and whipping up of the oil, as well as reducing friction or crank drag because of sheet oil clinging to the crank. Several methods have been used for construction of the windage tray. One is to incorporate the windage tray into the design of the pan itself, with a large hole for the oil pickup to pass through when installing the pan. Another successful method is to mount the windage tray to the main bearing caps, independent of the pan, which simplifies installation of pan and pickup. It is critical to provide adequate drainage in the windage tray so as not to defeat our purpose by holding unwanted oil around the crank.

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