

# MATERIALS & RESEARCH DIVISION

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## RESEARCH UPDATE

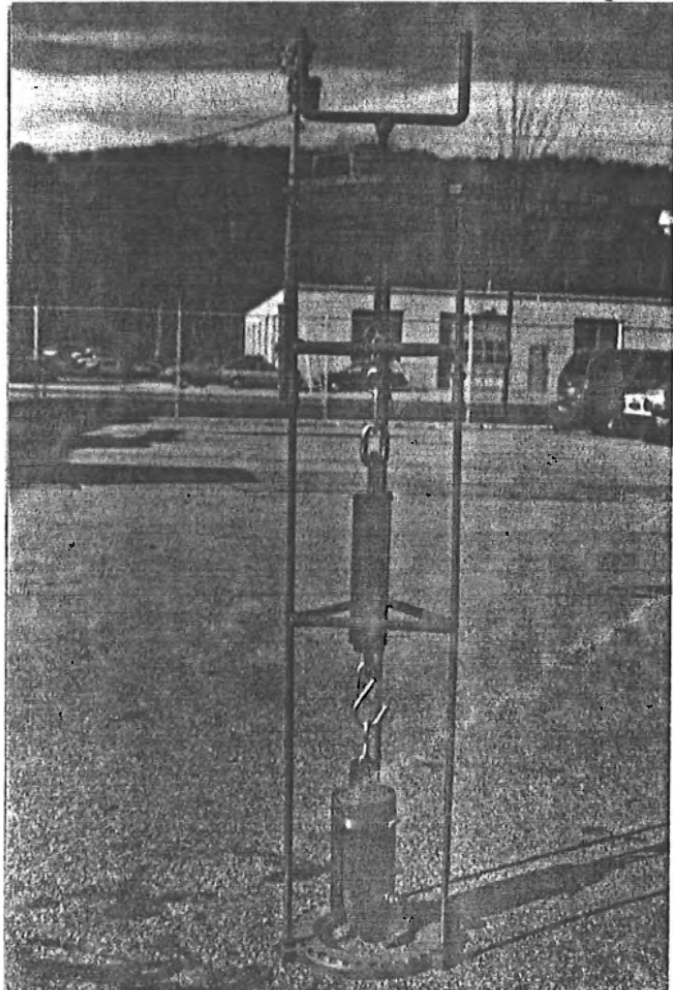
NUMBER 88-2

If you can't find it, make it!

**HISTORY:** In the summer of 1987, a problem developed which made it desirable to measure the bond strength of bituminous pavement to a bridge deck membrane. It was proposed that 4" cores be drilled through the pavement to the membrane. Pulling the core until the pavement /membrane interface broke, would provide an indication of the bond strength.

Equipment was not available to perform this test so a machine was designed and built by personnel of the Research and Development subdivision. The photograph (right) shows this device.

Much of this device was built from scrap material. The hanging scale was the greatest expense but has other applications within the division. It will weigh up to 300 lbs with 5 lb divisions. The total cost of the scale and new material was approx. \$150.00. Labor cost included two days work for the central garage machinist and an hour or two for the welder. With that our "Core Puller" was ready.



**STATUS** In the field a 4" core is drilled through the pavement to the membrane.

The "grabber" (a device made from an old core barrel) is torqued to the core with the cross bolt. The handle, atop the device, is then turned, which applies pull to the core through the scale which registers the increased pounds until the bond breaks and the core is released. The pounds shown on the scale are converted to pounds per square inch and the bond strength is thus quantified. With this machine the bond strength of the membrane to the concrete substrate can also be tested.

Distribution A,B,C,D,E,F