

## **VEHICLE MOUNTED HYDRAULIC SOIL SAMPLER**

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## VEHICLE MOUNTED HYDRAULIC SOIL SAMPLER

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Soil sampling techniques have to be streamlined in keeping with economic constraints upon research grants. A hydraulic soil sampler designed to reduce the sampling time has proved valuable in the collection of undisturbed cores and for installing neutron probe access tubes.

The sampler has been designed and built to mount on the bull-bar of a vehicle. In this way the heavier weight of the front of the vehicle is utilized. The unit consists of a 12V DC electric-hydraulic pump, capable of two way action, operating a 0.9 m double acting hydraulic ram mounted on a beam suspended vertically from the bull bar. The modular form of the sampler allows simple adaptations for vehicle type, while each component is portable. Requiring less than 5 minutes to assemble, the vehicle can be driven short distances with the sampler fully assembled.

Sampling undisturbed cores to a depth of 800 mm takes less than two minutes, including the time to remove the sample from the tube. Extensions to greater depths are possible in steps of 0.9 m as restricted by the action length of the ram. A sliding mechanism on the bull bar caters for up to four samples side by side without moving the vehicle.

Bulk density rings of 100 mm diameter (70 mm deep) can be pushed into the soil for sampling beside a pit. Sample tubes to 100 mm have also been used to extract undisturbed cores.

Neutron probe access tubes have been installed at the rate of 100 per day using the hydraulic sampler.

The sampler has proved a time efficient method of obtaining samples for chemical testing, moisture analysis, bulk density, undisturbed cores and installing neutron probe access tubes.