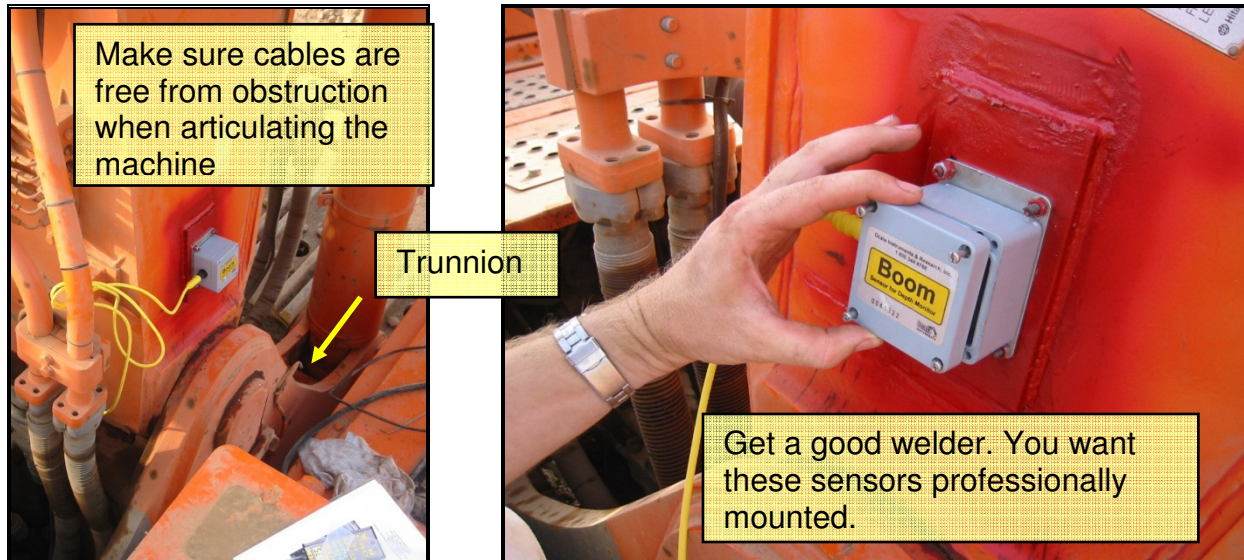


EXCAVATORS with DREDGEPACK®

By: Christian Shaw

Working with your excavator and DREDGEPACK® has never been easier. For angle sensors, the Ocala System or the Etrac System can be used. In the example below, an Ocala System was setup on an excavator with a 3-piece arm.

Three sensors are used on each piece of the excavator. The boom, stick, and bucket all get sensors near the pivot point along the axis of each piece of the arm.



Once the sensors are all mounted, the calibration of the Ocala system is done internally in the Ocala control unit by setting each piece to a corresponding angle as follows:

- **The Boom:** You must set the boom in a horizontal position and store angle in the Ocala control box.
- **The Stick:** You must calibrate so that it is plum in a vertical position.
- **The Bucket** is calibrated in the same manner as the stick. You want it vertical or plum from the pin to the teeth of the bucket. These values are stored in the Ocala control box just like the boom piece.

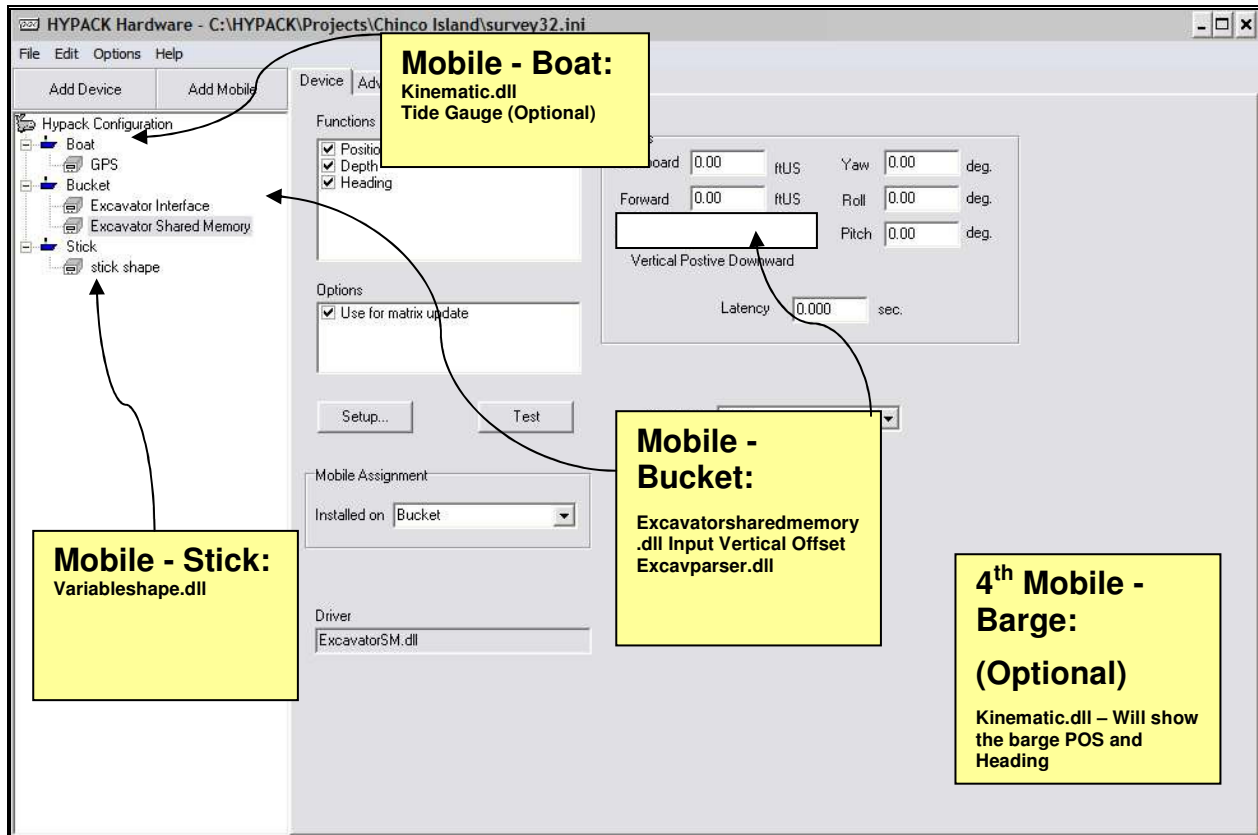
The installation of a GPS with heading is critical in this application. Typically it is mounted on the cab of the excavator or on the aft portion of the machine and is offset in HYPACK Hardware to the Trunnion Point. The Trunnion point is the pin or the medium in which the boom is attached and where the arm articulates. All horizontal and vertical positioning is derived from this point on the machine.

Once all the hardware is installed and calibrated within the Ocala Control box, it is time to move on to configure HYPACK Hardware.

The drivers for Excavators, Ocala or Etrac, are :

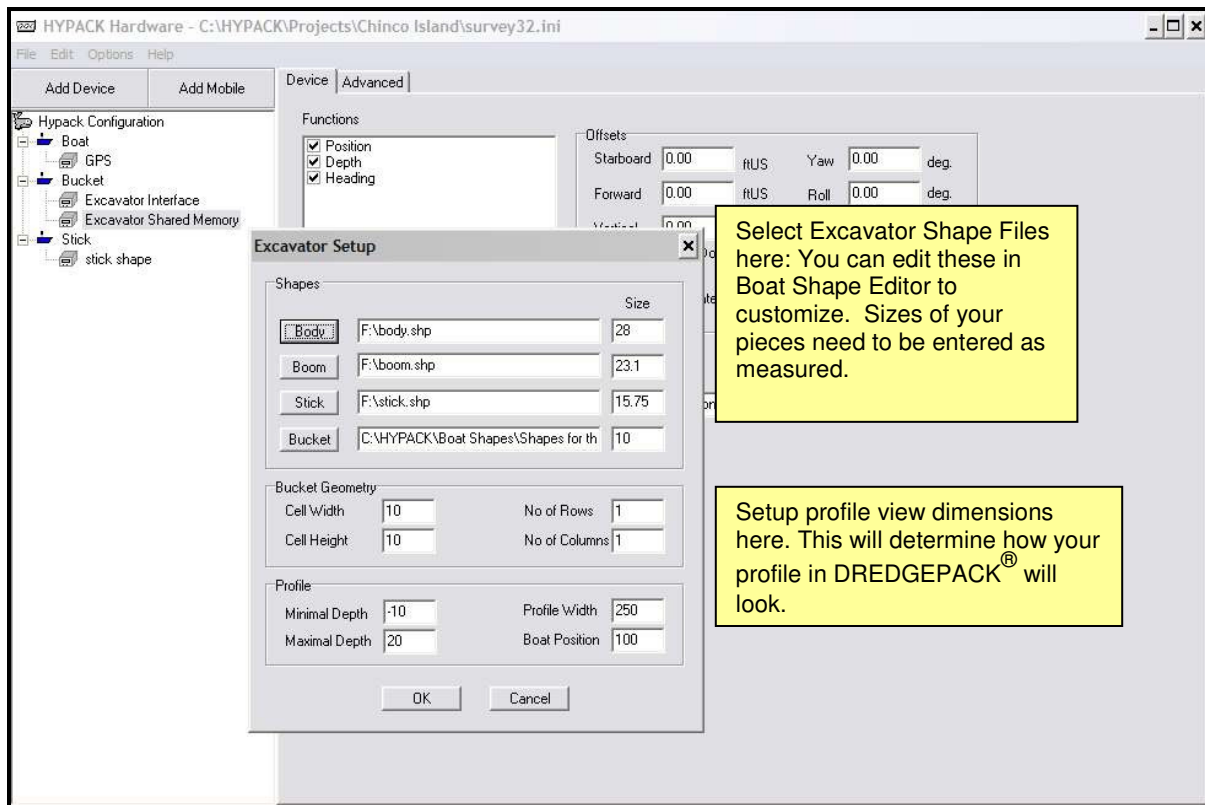
- Kinematic.dll
- Excavparser.dll

- Excavator Shared Memory.dll
- Variable Shape.dll



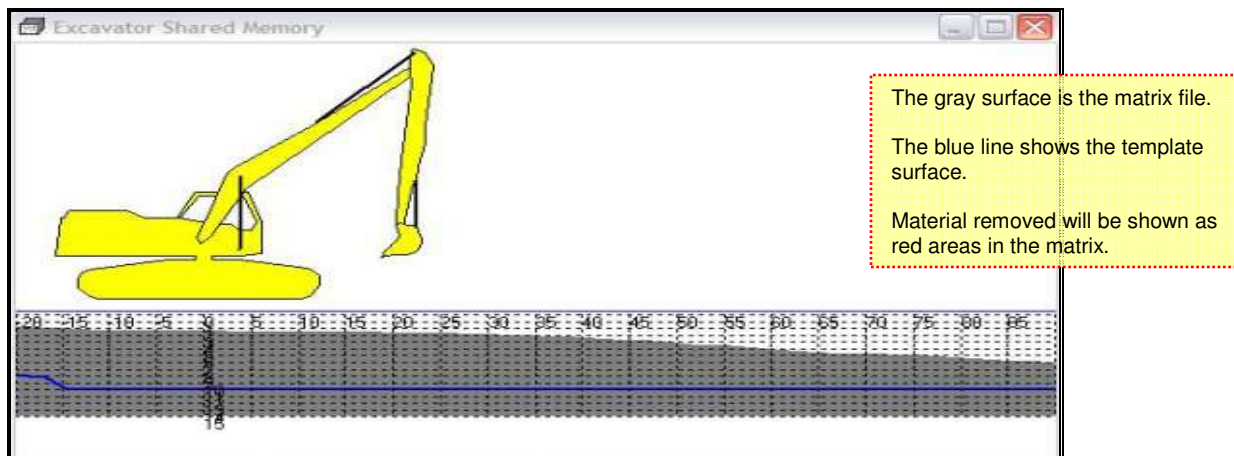
Three mobiles are setup.

Mobile	Drivers
Boat	GPS.dll : Offsets referenced to the trunnion of excavator – Can be used with RTK in which case a vertical offset is applied from the antenna to the trunnion vertically.
Bucket	Excavparser.dll: Connects to the Ocala system via communication port and receives angles from Ocala. Excavator Shared Memory.dll : This driver takes the angles that are received from Ocala and computes horizontal and vertical positions from the trunnion. This driver also has a setup dialog that lets you set the dimensions of your excavator and the bucket size parameters. The important offset with this driver is the Vertical offset. The vertical offset is the measurement from the Trunnion to the water surface.
Stick	Variable Shape.dll : This is a shape driver that connects the Trunnion to the bucket with a variable sized shape. This shape will expand and contract based on the horizontal positron of the bucket.

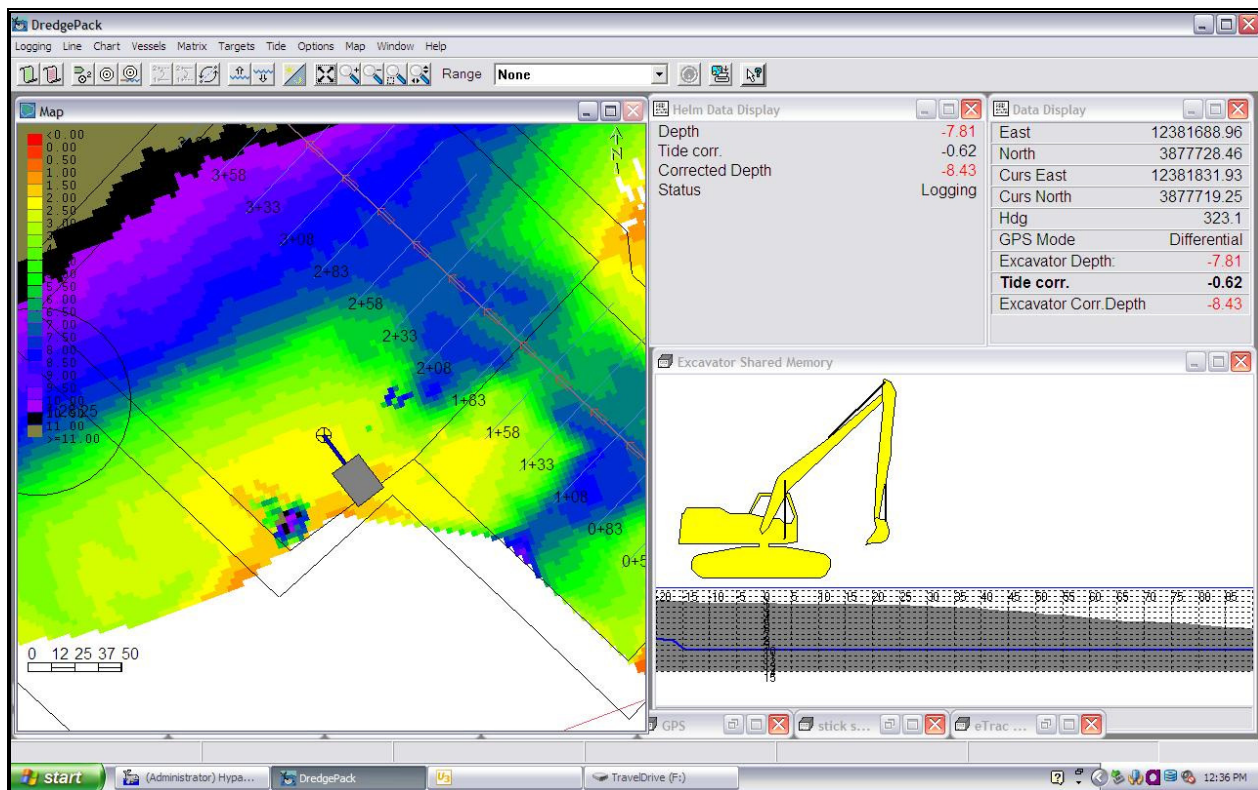


With the Excavator Shared Memory driver, there are default excavator shapes in HYPACK installation folder – \Boat Shapes\Shapes for Excavator. You can load these default shapes. It is a little tricky to make these shapes from scratch. Try just modifying one of ours. You then need to specify your bucket and arm dimensions, and set the parameters for your profile window in DREDGEPAK® in this setup dialog.

In DREDGEPAK® there is the addition of an excavator profile window. This is a smart profile, capturing information down the center-line axis of the excavator arm. Template information is displayed if you have a template in the Chart/Channel Section of DREDGEPAK®.



DREDGEPACK® ready for use:



If you want to show the barge that the excavator is mounted on, you must add a GPS to the barge and bring into Hardware as a fourth mobile.



DREDGEPACK® was recently installed on an Excavator for the Rock Island Corps. of Engineers Cat 375 Laptop Mount – Make sure you have the video drivers for this!

Installation of these systems typically takes one to two days for complete configuration and integration.