SL0005 Calibrating SMARTlift Angle Sensors Using the Plumb-Bob method

SL0005	Version 2	SMARTlift	08-07-05

Calibration procedure for SMARTlift SB330/200/361/401

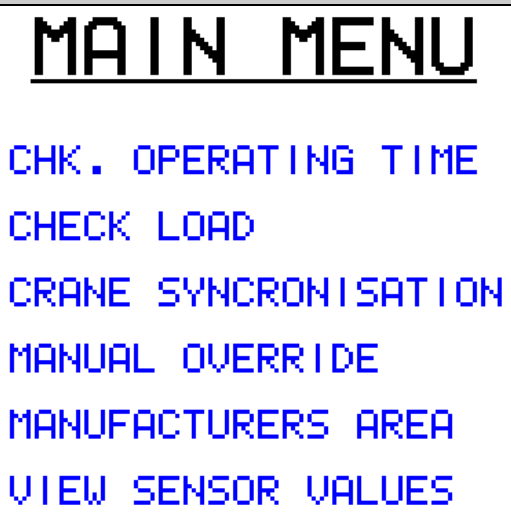
Safety precautions for SMART*LIFT* CALIBRATION

- Connect both Emergency and Service Airlines to the Trailer and apply the park brake.
- Ensure the trailer's brakes are applied and working.
- Keep non-involved Staff out of the calibration area.
- Attach the Exhaust Hose to the Powerpack’s Exhaust Pipe to vent Exhaust Gases outside.

Special Tool Requirements for SMARTlift Calibration

- Spirit Level
- A Plumb Bob

Trailer Leveling	Instructions
	▪ Place the Spirit Level firstly ALONG the Chassis Rails and secondly ACROSS the chassis rails. ▪ Use Hydraulic Jacks to level the trailer, in Camber (across) and Elevation (along).

1. Calibration	
	▪ Start the Engine on the Sidelifter and wait for the SMARTlift System to “Boot Up” on the SMARTlift LED Screen. ▪ Use the Rotary Switch to enter the Main Menu Area and Select the Manufacturers Area.

2. Calibration	
	▪ Enter the Manufacturers Area Code: *2111* and press the Rotary Switch in to enter the code. ▪ IMPORTANT: When Calibrating the angle sensors make sure that the engine is not running, so as to avoid unnecessary vibrations.

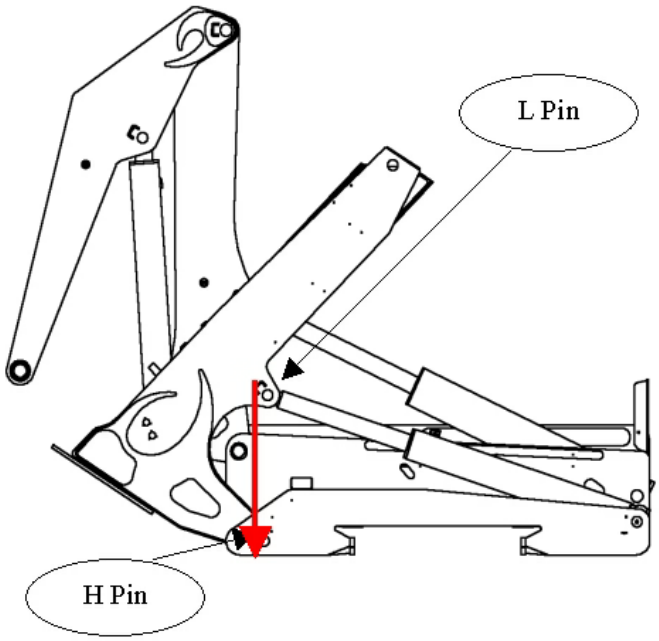
3. Calibration	
	▪ Enter the Manufacturers Area and select the Angle Sensor Calibration folder, press the Rotary Switch in to enter the folder.

4. Calibration	
ANGLE SENSOR CALIBRATION 1)CALIBRATE ALL CRANE ANGLE SENSORS 2)CALIBRATE INDIVIDUAL ANGLE SENSORS RETURN TO MENU	▪ Enter the Angle Sensor Calibration folder and select the 2ND folder: Calibrate Individual Angle Sensors. Press the Rotary Switch in to enter the folder.

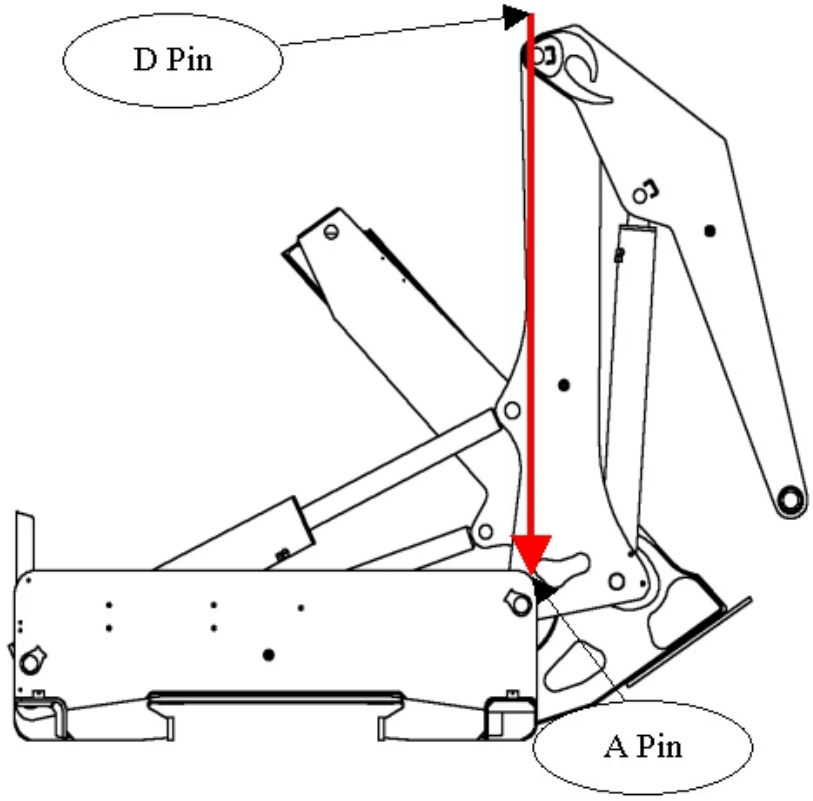
5. Calibration	
INDIVIDUAL ANGLE SENSOR CALIBRATION FRONT TOP ARM FRONT BOTTOM ARM FRONT STABILISER FRONT CRANE MODULE REAR TOP ARM REAR BOTTOM ARM REAR STABILISER REAR CRANE MODULE RETURN TO MENU	▪ The Calibration of the Individual Angle Sensors must be completed in the approved sequence order working from the Crane base upwards. The approved sequence for calibration is: 1, Front Crane Module 2, Rear Crane Module 3, Front Stabiliser 4, Rear Stabiliser 5, Front bottom Arm 6, Rear bottom Arm 7, Front Top Arm 8, Rear Top Arm

6. Calibration	
FRONT MODULE ANGLE CALIBRATION USING A BUBBLE LEVEL ENSURE THAT THE CHASSIS IS LEVEL IN BOTH AXIS PRESS CALIBRATE WHEN READY **CALIBRATE** RETURN TO MENU FRONT MODULE ANGLE CALIBRATION OK FRONT MODULE CALIBRATION FAILED	Once the Chassis has confirmed to be level on both Axis and the Cranes are in their full folded positions ENSURE THAT THE DIESEL ENGINE IS **NOT** RUNNING. Move from the Individual Angle Sensor Calibration Folder to the Front Module Angle Calibration folder, move to the CALIBRATE portion of the screen and press the Rotary Switch in. The calibration should now be complete and the CALIBRATION OK folder will flash. (If the CALIBRATION FAILED folder flashes; inform Steelbro electrical staff) Once completed repeat process again with the Rear Module. It is now ok to start the engine.

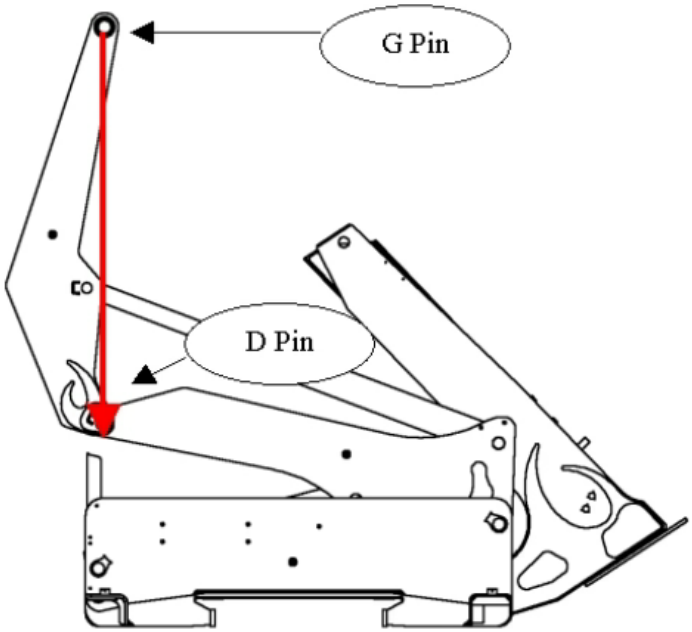
7. Calibration	
FRONT STABILISER CALIBRATION USING A PLUMB BOB ENSURE THAT PIN-L TO PIN-H IS VERTICAL PRESS CALIBRATE WHEN READY **CALIBRATE** RETURN TO MENU FRONT STABILISER CALIBRATION OK FRONT STABILISER CALIBRATION FAILED	Once you have calibrated the Modules you must now move to the Stabilisers starting with the front unit. ▪ Begin by hanging a Plumb Bob from the L Pin as in the diagram below. ▪ Move the Stabiliser until the Plum Bob is vertical from the L Pin to the H Pin. ▪ *You have a Tolerance at the H Pin of ±10mm.* ▪ *For all Calibration Tasks that require the use of Plumb Bobs the Powerpack must be turned off once the Plumb Bob is in the required position.*

8. Calibration	
	▪ Enter the Angle Sensor Calibration folder and select the 2ND folder: Calibrate Individual Angle Sensors. Press the Rotary Switch in to enter the folder. ▪ Select the Front Stabiliser folder move to the CALIBRATE portion of the screen and press the Rotary Switch in. The calibration should now be complete and the CALIBRATION OK folder will flash. (If the CALIBRATION FAILED folder flashes; inform Steelbro electrical staff) Once completed repeat process again with the Rear Stabiliser.

9. Calibration	
FRONT BOTTOM ARM CALIBRATION USING A PLUMB BOB ENSURE THAT PIN-D TO PIN-A IS VERTICAL PRESS CALIBRATE WHEN READY **CALIBRATE** RETURN TO MENU FRONT BOTTOM ARM CALIBRATION OK FRONT BOTTOM ARM CALIBRATION FAILED	Once you have calibrated the Stabilisers you must now move to the Bottom Arms starting with the front unit. ▪ Begin by hanging a Plumb Bob from the D Pin as in the diagram below. ▪ Move the Bottom Arm until the Plum Bob is vertical from the D Pin to the A Pin. ▪ *You have a Tolerance at the A Pin of ±10mm.* ▪ *For all Calibration Tasks that require the use of Plumb Bobs the Powerpack must be turned off once the Plumb Bob is in the required position.*

10. Calibration	
	▪ Enter the Angle Sensor Calibration folder and select the 2ND folder: Calibrate Individual Angle Sensors. Press the Rotary Switch in to enter the folder. ▪ Select the Front Bottom Arm folder move to the CALIBRATE portion of the screen and press the Rotary Switch in. The calibration should now be complete and the CALIBRATION OK folder will flash. (If the CALIBRATION FAILED folder flashes; inform Steelbro electrical staff) Once completed repeat process again with the Rear Bottom Arm.

11. Calibration	
FRONT TOP ARM CALIBRATION USING A PLUMB BOB ENSURE THAT PIN-G TO PIN-D IS VERTICAL PRESS CALIBRATE WHEN READY **CALIBRATE** RETURN TO MENU FRONT TOP ARM CALIBRATION OK FRONT TOP ARM CALIBRATION FAILED	Once you have calibrated the Bottom Arms you must now move to the Top Arms starting with the front unit. ▪ Begin by hanging a Plumb Bob from the G Pin as in the diagram below. ▪ Move the Bottom Arm until the Plum Bob is vertical from the G Pin to the D Pin. ▪ *You have a Tolerance at the D Pin of ±10mm.* ▪ *For all Calibration Tasks that require the use of Plumb Bobs the Powerpack must be turned off once the Plumb Bob is in the required position.*

12. Calibration	
	▪ Enter the Angle Sensor Calibration folder and select the 2ND folder: Calibrate Individual Angle Sensors. Press the Rotary Switch in to enter the folder. ▪ Select the Front Top Arm folder move to the CALIBRATE portion of the screen and press the Rotary Switch in. The calibration should now be complete and the CALIBRATION OK folder will flash. (If the CALIBRATION FAILED folder flashes; inform Steelbro electrical staff) Once completed repeat process again with the Rear Top Arm. The Sidelifter is now fully Calibrated.

Important – Verification

With the Trailer Level: Fully fold away the Arms and Stabilisers on both cranes. From the MAIN MENU select VIEW SENSOR VALUES and select FRONT ANGLE SENSORS check that the angles equal (within ± 1 degree) those listed in the tables below, repeat for REAR ANGLE SENSORS.

for SB361	
Stabiliser Angle	11º
Top Arm Angle	16º
Bottom Arm Angle	167º
Front Elevation	0º
Front Camber	0º

For SB401	
Stabiliser Angle	11º
Top Arm Angle	18º
Bottom Arm Angle	167º
Front Elevation	0º
Front Camber	0º

For SB330	
Stabiliser Angle	0º
Top Arm Angle	10º
Bottom Arm Angle	159º
Front Elevation	0º
Front Camber	0º