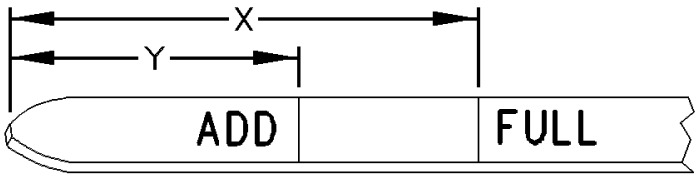
Engine Oil Level Gauge Calibration on Caterpillar 3116 & 3126 Marine Engines

The AERA Technical Committee offers the following information concerning the engine oil level gauge calibration for Caterpillar 3116 & 3126 marine engines. This information should be considered anytime one of these engines is removed and reinstalled in a marine application.

It should also be noted, a NEW engine is shipped with an engine oil level gauge that is not marked. The engine oil level gauge is not marked because the angle of installation can be different for each engine. The angle of installation will affect the “ADD” mark (Y) and the “FULL” mark (X) that is engraved on the engine oil level gauge as shown below.



Oil Level Gauge
(Y) “ADD” mark
(X) “FULL” mark

The engine oil level gauge must be calibrated after the engine is installed in the vessel. Table 36 and Table 37 list the corresponding “ADD” mark, “FULL” mark and the angle of installation. Use a marking pen in order to engrave “ADD” mark (Y) and “FULL” mark (X) on the engine oil level gauge according to the information in Table 1 or Table 2 on the following page.

Table 1 Engine Oil Level Gauge 4KG1-05782 1SK1-01724 8NM1-01465		
Angle[1]	**"FULL" Mark (X)**	**"ADD" Mark (Y)**
15 degrees	156 mm (6.14 inch)	137 mm (5.39 inch)
14 degrees	151 mm (5.95 inch)	133 mm (5.24 inch)
13 degrees	148 mm (5.83 inch)	129 mm (5.08 inch)
12 degrees	144 mm (5.67 inch)	125 mm (4.92 inch)
11 degrees	139 mm (5.47 inch)	119 mm (4.69 inch)
10 degrees	136 mm (5.35 inch)	115 mm (4.53 inch)
9 degrees	130 mm (5.12 inch)	114 mm (4.49 inch)
8 degrees	128 mm (5.04 inch)	113 mm (4.45 inch)
7 degrees	121 mm (4.76 inch)	114 mm (4.49 inch)
6 degrees	117 mm (4.61 inch)	107 mm (4.21 inch)
5 degrees	113 mm (4.45 inch)	100 mm (3.94 inch)
4 degrees	112 mm (4.41 inch)	93 mm (3.66 inch)
3 degrees	111 mm (4.37 inch)	88 mm (3.47 inch)
2 degrees	109 mm (4.29 inch)	81 mm (3.19 inch)
1 degree	102 mm (4.02 inch)	76 mm (2.99 inch)
0 degrees	96 mm (3.78 inch)	70 mm (2.76 inch)

(1) The angle indicates the number of degrees that the front of the engine is raised.

Table 2 Engine Oil Level Gauge 4KG05783-UP 1SK01725-UP 8NM01466-UP 6SR1-UP 1ZJ1-UP 6MK1-UP		
Angle[1]	**"FULL" Mark (X)**	**"ADD" Mark (Y)**
10 degrees	125 mm (4.92 inch)	114 mm (4.49 inch)
9 degrees	124 mm (4.89 inch)	106 mm (4.17 inch)
8 degrees	122 mm (4.80 inch)	102 mm (4.02 inch)
7 degrees	120 mm (4.72 inch)	96 mm (3.78 inch)
6 degrees	115 mm (4.53 inch)	89 mm (3.50 inch)
5 degrees	110 mm (4.33 inch)	81 mm (3.19 inch)
4 degrees	101 mm (3.98 inch)	71 mm (2.80 inch)
3 degrees	94 mm (3.70 inch)	66 mm (2.60 inch)
2 degrees	90 mm (3.54 inch)	59 mm (2.32 inch)
1 degree	82 mm (3.23 inch)	52 mm (2.05 inch)
0 degrees	76 mm (2.99 inch)	46 mm (1.81 inch)
-1 degree	65 mm (2.56 inch)	39 mm (1.54 inch)
-2 degrees	59 mm (2.32 inch)	33 mm (1.30 inch)
-3 degrees	53 mm (2.09 inch)	26 mm (1.02 inch)
-4 degrees	46 mm (1.81 inch)	20 mm (0.79 inch)
-5 degrees	39 mm (1.54 inch)	12 mm (0.47 inch)

(1) The angle indicates the number of degrees that the front of the engine is raised. A negative angle indicates the number of degrees that the front of the engine is lowered.

Verifying the Calibration of the Oil Level Gauge

Caterpillar recommends verifying the calibration of the oil level gauge at the first oil change. Use the following procedure to verify the "FULL" mark on the oil level gauge:

Note: The vessel must be level in order to perform this procedure.

1. Add 26.5 quarts (25 Liter) of the recommended oil grade and weight of engine oil to the crankcase. Note: The engine may be equipped with auxiliary engine oil filters which require additional oil. Refer to the OEM specifications. NOTICE: To help prevent crankshaft or bearing damage, crank engine to fill all filters before starting. Do not crank engine for more than 30 seconds.
2. Allow the starting motor to cool for two minutes before cranking again.

3. Turbocharger (if equipped) damage can result, if the engine rpm is not kept low until the engine oil light/ gauge verifies the oil pressure is sufficient.
4. Start the engine. Ensure that the lubrication system and the new engine oil filter are filled with oil.
5. Inspect the lubrication system for leaks.
6. Stop the engine and allow the engine oil to drain into the engine crankcase for approximately ten minutes.
7. Check the engine oil level. If necessary, use a Permanent marking pen in order to correct the “FULL” mark (X).