

Introduction:

This CO and, where available, CO₂ data is intended to provide baseline data for performing the loaded repeatable engine test required by §75.1914(g). Generally, if the CO emissions of the engine at torque stall conditions exceeds twice the baseline given for the engine, maintenance is required. The CO₂ data is provided to ensure the test is performed on the lug curve. Where CO₂ data is not listed, it should be approximately 10% for a naturally aspirated engine when operating on the lug curve or 8% for an altitude compensated (turbocharged or supercharged) engine operating on the lug curve.

Use Adobe's search feature (Binoculars in tool bar) to search for permissible approval number you are interested in.

The data is for the nonpermissible version of the engine. The CO & CO₂ data is the same for both versions when tested in fresh air.

Permission to post CO data could not be obtained from Isuzu, Cummins, or Ford-New Holland. Contact these companies directly for more information.

A training video can be obtained by contacting Bob Setren at 304-547-2070, setren-robert@msha.gov.

Best Practices guidance for Machines with Torque Converters is also available. See links below.

[Machines with Hydrostatic Transmissions](#)

[Machines with Torque Converter Transmissions](#)

For more information contact Jim Angel at 304-547-2064, angel-james@msha.gov

TORQUE CURVE TEST		
ALL TESTS AT FULL THROTTLE		
MSHA # :	7E-B001-0	
Engine:	Deutz - MWM 916-6	
Engine Rating:	94 HP @ 2300 RPM	
Engine Speed, RPM	CO, ppm	CO2, %
2300	259	9.6
2200	270	9.5
2100	290	9.6
2000	305	9.7
1900	300	9.7
1800	248	9.3
1700	250	9.4
1600	255	9.2

TORQUE CURVE TEST		
ALL TESTS AT FULL THROTTLE		
MSHA # :	7E-B003-0	
Engine:	Caterpillar 3306 PCNA	
Engine Rating:	150 HP @ 2200 RPM	
Engine Speed, RPM	CO, ppm	CO2, %
2200	392	10.8
2100	394	10.9
2000	352	10.8
1900	348	10.7
1800	330	10.6
1700	332	10.5
1600	315	10.4
1500	313	10.3
1400	314	10.2

TORQUE CURVE TEST		
ALL TESTS AT FULL THROTTLE		
MSHA # :	7E-B004-0	
Engine:	Caterpillar 3304 PCNA	
Engine Rating:	100 HP @ 2200 RPM	
Engine Speed, RPM	CO, ppm	CO2, %
2200	392	10.8
2100	394	10.9
2000	352	10.8
1900	348	10.7
1800	330	10.6
1700	332	10.5
1600	315	10.4
1500	313	10.3
1400	314	10.2

TORQUE CURVE TEST		
ALL TESTS AT FULL THROTTLE		
MSHA # :	7E-B063	
Engine:	Caterpillar 3306 PCTA	
Engine Rating:	215 HP @ 2200 RPM	
Engine Speed, RPM	CO, ppm	CO2, %
2200	153	8.4
2100	145	8.4
2000	133	8.5
1900	120	8.7
1800	114	8.9
1700	114	9.1
1575	130	9.5