COSMOS
Navigate the Compliance Universe

40 C.F.R. § 1065.303

Summary of required calibration and verifications.

The following table summarizes the required and recommended calibrations and verifications described in this subpart and indicates when these have to be performed:

Table 1 of § 1065.303—Summary of Required Calibration and Verifications

Type of calibration or verification	Minimum frequency a
§ 1065.305: Accuracy, repeatability and noise	*Accuracy:* Not required, but recommended for initial installation. Repeatability: Not required, but recommended for initial installation.
	Noise: Not required, but recommended for initial installation.
§ 1065.307: Linearity verification	
	Speed: Upon initial installation, within 370 days before testing and after major maintenance.
	Torque: Upon initial installation, within 370 days before testing and after major maintenance.
	Electrical power, current, and voltage: Upon initial installation, within 370 days before testing and after major maintenance.b
	Fuel mass flow rate: Upon initial installation, within 370 days before testing, and after major maintenance.
	Fuel mass scale: Upon initial installation, within 370 days before testing, and after major maintenance.
	DEF mass flow rate: Upon initial installation, within 370 days before testing, and after major maintenance.c
	DEF mass scale: Upon initial installation, within 370 days before testing, and after major maintenance.
	Intake-air, dilution air, diluted exhaust, and batch sampler flow rates: Upon initial installation, within 370 days before testing and after major maintenance.d
	Raw exhaust flow rate: Upon initial installation, within 185 days before testing and after major maintenance.d

	Gas dividers: Upon initial installation, within 370 days before testing, and after major maintenance.
	Gas analyzers (unless otherwise noted): Upon initial installation, within 35 days before testing and after major maintenance.
	FTIR and photoacoustic analyzers: Upon initial installation, within 370 days before testing and after major maintenance.
	GC-ECD: Upon initial installation and after major maintenance.
	PM balance: Upon initial installation, within 370 days before testing and after major maintenance.
	Pressure, temperature, and dewpoint: Upon initial installation, within 370 days before testing and after major maintenance.
§ 1065.308: Continuous gas analyzer system response and updating-recording verification—for gas analyzers not continuously compensated for other gas species	Upon initial installation or after system modification that would affect response.
§ 1065.309: Continuous gas analyzer system-response and updating-recording verification—for gas analyzers continuously compensated for other gas species	Upon initial installation or after system modification that would affect response.
§ 1065.310: Torque	Upon initial installation and after major maintenance.
§ 1065.315: Pressure, temperature, dewpoint	Upon initial installation and after major maintenance.
§ 1065.320: Fuel flow	Upon initial installation and after major maintenance.
§ 1065.325: Intake flow	Upon initial installation and after major maintenance.
§ 1065.330: Exhaust flow	Upon initial installation and after major maintenance.
§ 1065.340: Diluted exhaust flow (CVS)	Upon initial installation and after major maintenance.
§ 1065.341: CVS and PFD flow verification (propane check)	Upon initial installation, within 35 days before testing, and after major maintenance.e
§ 1065.342 Sample dryer verification	For thermal chillers: Upon installation and after major maintenance. For osmotic membranes; upon installation, within 35 days of testing, and after major maintenance.
§ 1065.345: Vacuum leak	For laboratory testing: Upon initial installation of the sampling system, within 8 hours before the start of the first test interval of each duty-cycle sequence, and after maintenance such as pre-filter changes.
	For field testing: After each installation of the sampling system on the vehicle, prior to the start of the field test, and after maintenance such as pre-filter changes.

§ 1065.350: CO_2 NDIR H_2O interference	Upon initial installation and after major maintenance.
§ 1065.355: CO NDIR CO_2 and H_2O interference	Upon initial installation and after major maintenance.
§ 1065.360: FID calibration THC FID optimization, and THC FID verification	Calibrate all FID analyzers: upon initial installation and after major maintenance.
	Optimize and determine CH_4 response for THC FID analyzers: upon initial installation and after major maintenance.
	Verify CH_4 response for THC FID analyzers: upon initial installation, within 185 days before testing, and after major maintenance.
	Verify C_2H_6 response for THC FID analyzers if used for NMNEHC determination: upon initial installation, within 185 days before testing, and after major maintenance.
§ 1065.362: Raw exhaust FID O_2 interference	For all FID analyzers: upon initial installation, and after major maintenance.
	For THC FID analyzers: upon initial installation, after major maintenance, and after FID optimization according to § 1065.360.
§ 1065.365: Nonmethane cutter penetration	Upon initial installation, within 185 days before testing, and after major maintenance.
§ 1065.366: Interference verification for FTIR analyzers	Upon initial installation and after major maintenance.
§ 1065.369: H_2O, CO, and CO_2 interference verification for ethanol photoacoustic analyzers	Upon initial installation and after major maintenance.
§ 1065.370: CLD CO_2 and H_2O quench	Upon initial installation and after major maintenance.
§ 1065.372: NDUV HC and H_2O interference	Upon initial installation and after major maintenance.
§ 1065.375: N_2O analyzer interference	Upon initial installation and after major maintenance.
§ 1065.376: Chiller NO_2 penetration	Upon initial installation and after major maintenance.
§ 1065.378: NO_2-to-NO converter conversion	Upon initial installation, within 35 days before testing, and after major maintenance.
§ 1065.390: PM balance and weighing	Independent verification: Upon initial installation, within 370 days before testing, and after major maintenance.
	Zero, span, and reference sample verifications: Within 12 hours of weighing, and after major maintenance.
§ 1065.395: Inertial PM balance and weighing	Independent verification: Upon initial installation, within 370 days before testing, and after major maintenance.
	Other verifications: Upon initial installation and after major maintenance.