

International® S13 Integration (2023)

Overview: *S13 Fuel Compensation
Factor*

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General Overview: S13 Fuel Compensation Factor

The S13 Fuel Compensation Factor feature is used to make small corrections between the reported fuel used and actual fuel used.

Programming to support this feature is accomplished within the engine control module (CEM1) using the SDS software.

This document will address the unique S13 Fuel Compensation Factor feature for the S13.

Description and Operation

NOTE: Refer to the vehicle operation and maintenance manual, as well as the S13 engine operation and maintenance manual, for additional information on operation and indications.

Description

If the fuel consumption displayed in the instrument cluster differs from the actual fuel consumption, you can change a calibration factor in SDS so that the display corresponds to the actual fuel consumption.

Programmable Parameters

The following engine controller (CEM1) programmable parameter is available for the S13 Fuel Compensation Factor feature.

Parameter Value	Description	Possible Values	Cust Pgrm	Recommended Settings
Fuel Compensation Factor (CF) (1019 000) CEM1	This parameter trims the fuel consumption reporting for improved accuracy	0.81-1.20	YES	1

Parameter Setup

S13 Fuel Compensation Factor feature Calculation

The compensation factor is determined by dividing the actual fuel consumption by the displayed fuel consumption.

A procedure used to calculate the fuel calibration factor, K, is described here.

Test stages:

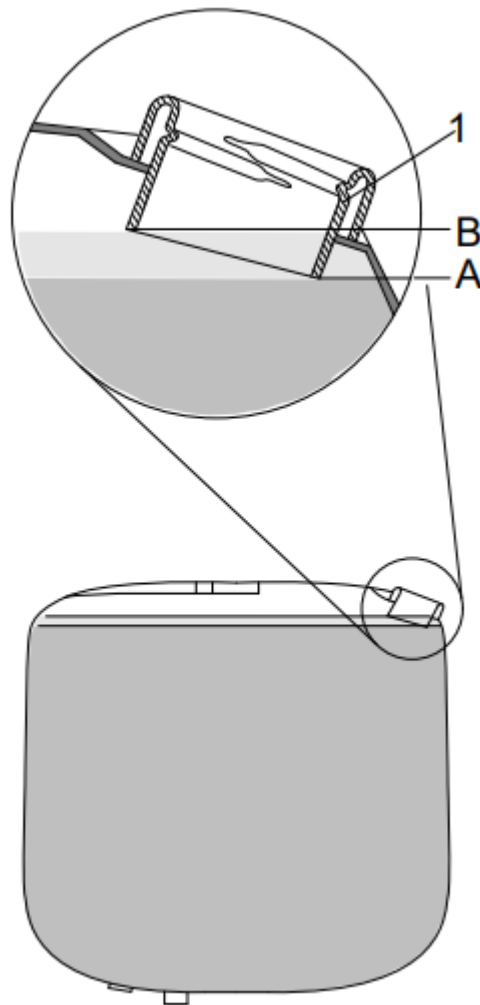
1. Initial refueling to a reference level.
2. Reset the trip meter in the instrument cluster.
3. Driving and normal refueling with monitoring of the number of Gallons/Liters added.
4. Final refueling to the reference level.
5. Summary and calculation of the K factor.

Refueling to reference level

In order to assess the vehicle actual fuel consumption as precisely as possible, it is important for the fuel volume in the tank to be the same after refueling for the first and the last time.

It is therefore important to comply with the procedure below during the first and last refueling during the test.

Select a reference level in the tank. Scania recommends reference level A, if possible (see illustration). If it is difficult to see the level at point A, e.g. because of the bodywork, reference level B can be used, the highest point of the filler pipe.



Reference levels in the tank, select reference level A, if possible.

1. Filler pipe.

NOTE: Remember the level that has been selected as a reference level, so that the tank is filled to the same level at the first and last refueling.

If the vehicle is equipped with double fuel tanks, the same procedure is conducted on both tanks.

Try to choose a filling station with a surface that is as level as possible. It is, however, most important for the refueling to be conducted in a consistent manner when filling the tank for the first and last time during the test. This means that the vehicle should be refueled at the same filling station and positioned in the same direction and on the same gradient.

Resetting the trip meter

After refueling for the first time, before the vehicle is driven, the vehicle trip meter should be reset in the instrument cluster.

- a. Resetting the trip meter after fueling to the reference level:

Use the cluster selector to display the trip meter and reset it to 0.

- b. Record all fueling after resetting. The longer the test distance, the more dependable the test result will be.

Driving and normal refueling with monitoring of the number of Gallons/Liters added.

Drive the vehicle and refuel as usual. Write down the number of liters every time the vehicle is refueled, even including decimals.

NOTE: Make sure that you write down the number of Gallons/Liters every time you refuel. When the test is completed, these values should be added up to determine the total consumption.

In order to ensure that the value is as accurate as possible, the vehicle should be driven at least 10,000 km during the test.

Note that the longer the distance driven, the more dependable the result. Therefore, drive more than 10,000 km if it is possible for you to do so.

Intermediate refueling during the test does not need to be filled to the reference level.

When the vehicle has been driven far enough, the tank should be filled to the same reference level as when it was first refueled. Unlike the first refueling, the last refueling should be included in the test.

NOTE: The fuel pumps used for refueling should be calibrated.

NOTE: In order to get an accurate result, first and last refueling should be conducted with the vehicle in the same position and location. Try to choose a filling station with a surface which is as level as possible. The volume of the last refueling should be included in the total volume of fuel filled. Be sure that you write down the number of Gallons/Liters every time you refuel. When the test is completed, these values should be added up to the total consumption.

Summary and calculation of the K factor

Add up the actual total fuel consumption. Unlike the first refueling, the last refueling to the reference level should be included in the test.

Read the number of Gallons/Liters consumed as displayed in the instrument cluster trip meter.

Press the down arrow – select total number of Gallons/Liters consumed.

The fuel consumption factor is calculated as follows:

$K = R/S$.

K= Calibration factor.

R= Actual consumption, total number of Gallons/Liters added during the test.

S= Displayed consumption, total number of Gallons/Liters consumed as displayed in the instrument cluster.

It is only possible to enter the calibration factor within the range 0.81-1.20.

Recalibration

If, after a period of driving, you think that the result from the calibration is unsatisfactory and you would like to repeat the calibration, this can be conducted in two ways.

1. Reset the calibration factor to 1.0 using SDS before starting a new test.
2. Conduct the test and then multiply the new calibration factor by the current one set with SDS to obtain a new calibration factor.

Example of option 2.

The first test resulted in the calibration factor = 0.94.

The vehicle has been calibrated with this calibration factor, but after driving for some time the consumption level still does not correspond to the actual consumption level.

A second test is required.

Test number 2 shows that there is still a difference of a factor of 0.96 between the read-off and actual consumption levels.

The new calibration factor is calculated as follows:

$$0.94 \times 0.96 = 0.9024$$

Since the calibration factor is shown to a precision of two decimal places, the new calibration factor is 0.90.

Frequently Asked Questions

Definitions/Acronyms

The following term is referenced in this document:

Acronym	Definition
CEM	Engine Control Module
SDS	Service Diagnostic Solutions