

SKF

SKF TMEH 1

OilCheck



Instructions for use

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1. Introduction

The SKF OilCheck TMEH 1 measures the effect of contamination and electro-chemical changes that occur in synthetic and petroleum based oils. It is especially developed for engine oils but is also suitable for gear and lubrication oils.

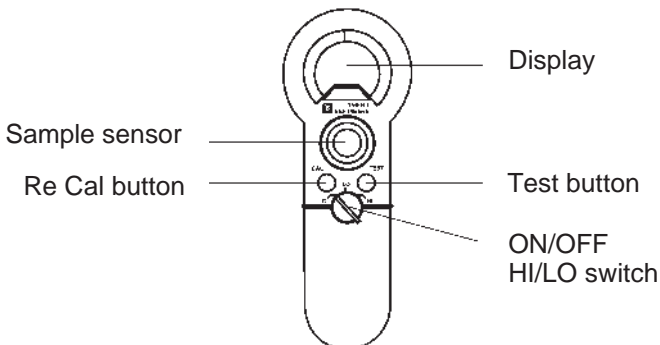
The OilCheck is a portable instrument which offers a two-minute alternative to lengthy laboratory investigations.

1.1 Principle of operation

The OilCheck detects and measures the dielectric constant of an oil. By comparing the measurements obtained from used and unused oils of the same brand, the SKF OilCheck is able to determine the degree of change in the dielectric constant of the oil. Dielectric change is directly related to the degradation and contamination level of the oil and helps the user to optimise intervals between oil changes and to detect increased mechanical wear and loss of the oils lubricating properties. To facilitate trending the instrument is equipped with a numerical read-out.

2. Technical data

| | |
|-------------------------|------------------------------------------------|
| CE requirements | : all applicable norms fulfilled. |
| Suitable oil types | : Mineral and synthetic oils |
| Repeatability | : Better than 5% |
| Read-out | : Green/Red grading + Numerical value (0 -100) |
| Battery | : 9 V Alkaline, IEC 6LR61 |
| Battery lifetime | : 150 hours or 3.000 tests |
| Dimensions (instrument) | : 250 x 95 x 32 mm (9,8 x 3,7 x 1,3 in) |
| Designation | : TMEH 1 |



3. Operating instructions

3.1 Calibration

Before calibration it is important to ensure the sensing cell is clean and dry, as moisture and contamination will adversely effect the results.

Testing should generally be undertaken with the unit switched in the HI position. The Green/Red scale is mainly for use when testing engine oils.

Step 1.

Half fill the sensing cell with clean oil (ensure that the whole surface of the sensor is well covered with oil). Oil of the same brand as in the system being evaluated, should be used for calibration.

Step 2.

Run the rotary switch from the OFF position to the HI position, the display will complete a full sweep and return to the zero position. The display will show with the CAL symbol flashing. If during testing the CAL graphic flashes the unit will require re-calibration.

Step 3.

Press the test button. The CAL graphic will disappear and one segment will remain displayed. The instrument has now calibrated itself against the clean sample and is ready to test the oil in your system.

Note: Ensure that the CAL knob is not pressed as this will put the instrument back into calibration mode and the unit will need to be re-calibrated.

3.2 Cleaning of sensor

Remove the unused sample from the sensor cell with a clean rag or tissue. Clean the sensor by using an electro-contact cleaning solution (penetrating, fast-evaporating, non-residue solution).



3.3 Measuring

For optimum results make sure you use a representative oil sample and that its temperature is not higher than 40°C (100°F). Place enough oil in the sensor to fully cover the sensor surface. Press the test button and keep it depressed for 10 seconds or until the segments have stopped moving around the display (the display will flash to show the unit is testing). The result will remain on the display when the button is released until the next test is carried out.

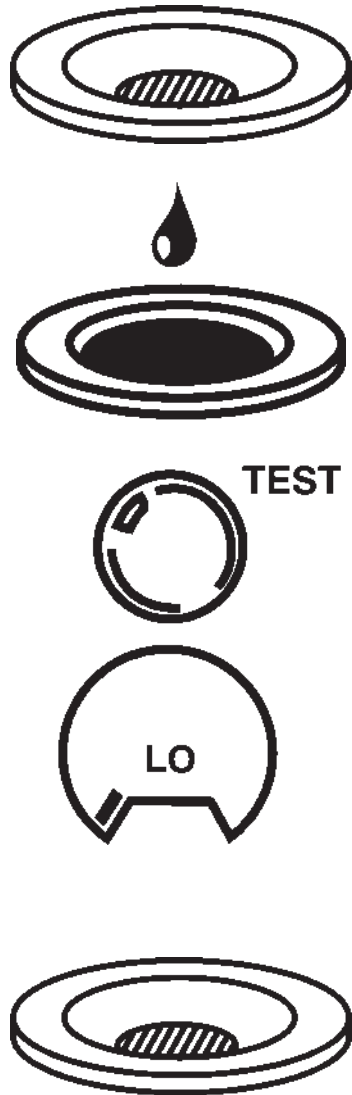
To test again, clean out the sensor well with a clean rag or tissue. Refill the sensor well and press the test button again. A new reading will appear on the display.

In case an oil of another brand is checked, re-calibration of the instrument will be needed.

3.4 Interpretation of the reading

Users should use the OilCheck to monitor the change in the oils properties and build up a picture of oil degradation based on their experience and own operating criteria. Individual thresholds of acceptability can be marked on the unit's scale.

The red and green areas are designed as an indicator of the condition of an engine oil. Within the green band the oil is deemed acceptable and within the red area the oil should be changed and checked again after a short running period to ensure no mechanical problems are present.



4. Contamination effects

The usual contamination found in oils is caused by oxidation and acid build up, these occur during the normal running of an engine and should show up as a gradual increase in readings over a period of time or distance.

Other contaminants occur because of excessive wear or mechanical failure, the main elements of which are dirt, soot, fuel, water, anti-freeze and metal particles.

These elements give a marked increase in the OilCheck's reading and will give immediate warning of possible resulting failure.

1. Water and anti-freeze contamination will cause a dramatic change in the reading which will move the segments well into the red.
2. Metal particles will also cause an extreme reading though the display should move up in small jumps as the particles settle on the sensor surface.
3. Fuel is harder to detect as its presence will sometimes mask the presence of other contaminants. If the oil is only contaminated by fuel the display will show it as a stronger reading well into the red but the presence of water or metal will sometimes counteract the fuel giving a reading in the green. Should an engine oil continue to show no increase in its reading over a period of time the possibility of fuel contamination should be investigated.
4. Changes in the viscosity of the oil will cause a slow reduction of the dielectric constant which will be difficult to detect.
5. Changes of the acidity will typically reduce the dielectric strength in a detectable manner.

5. Important information

For the best results please ensure these guidelines are adhered to:

1. The OilCheck is very sensitive to moisture. Ensure that the surface of the sensor is dry and that the unit is not used in conditions of high humidity, snow, rain or fog.
2. Extremes of temperature will also affect the results, ensure that the unit is calibrated at the ambient temperature at which the tests will be conducted. Normal operating temperature is between 5°C - 25°C.
3. Ensure that the sample taken from the engine does not pick up contamination from airborne particles or moisture. Use a vacuum sampler if available.
4. Treat the surface of the sensor with care as excessive scratching and abrasion of the tracks will damage the product.
5. The unit can not be used for fire resistant fluids (water-in-oil-emulsion).

6. Maintenance

Keep the instrument clean and do not allow the instrument to get wet. If the instrument is dropped or hit the device should be re-calibrated to re-check its performance.

To replace the battery remove the 2 screws holding the battery cover in place.

In line with our policy of continuous development of our products we reserve the right to alter any part of the above specification without prior notice.

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SKF Maintenance Products

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