

SKF TLGU 10



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Safety recommendations

Read this instruction for use fully. Follow all safety precautions to avoid personal injury or property damage during equipment operation. SKF cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect equipment operation. In case of any uncertainties as regards the use of the equipment contact SKF.

Failure to comply with the following could cause equipment damage and personal injury.

- Do not expose the equipment to rough handling or heavy impacts.
- Always read and follow the operating instructions.
- Opening the housing of the instrument may result in hazardous mishandling and voids warranty.
- The equipment should not be used in areas where there is a risk for explosion.
- Do not expose the equipment to high humidity or direct contact with water.
- All repair work should be performed by an SKF repair shop.
- Using any other headset than the one supplied with the instrument can cause internal damage to the checker.

EU Declaration of Conformity TLGU 10

We, SKF MPT, Meidoornkade 14, 3992 AE Houten, The Netherlands herewith declare under our sole responsibility that the products described in these instructions for use, are in accordance with the conditions of the following Directive(s):

EMC DIRECTIVE 2014/30/EU

RoHS DIRECTIVE (EU) 2015/863

and are in conformity with the following standards:
EN 61326-1:2013:

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements.

EN 55011: 2016 + A1:2017:

Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement.

EN 61000-4-2:2009:

Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques.

Section 2: Electrostatic discharge immunity test.

EN 61000-4-3:2006 + A1:2008 + IS1:2009 + A2:2010:

Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques.

Section 3: Radiated, radio-frequency, electromagnetic field immunity test.

Houten, The Netherlands, December 2020

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1. Introduction

The SKF Ultrasonic Lubrication Checker TLGU 10 is designed to help improving relubrication practices, based on machinery condition.



Fig. 1 – SKF TLGU 10 on a grease gun

1.1 Intended use

It can be used to verify that a lubricant is effectively reaching the lubricated component as well as adjusting a relubrication route, based on initial OEM recommendations for example. TLGU 10 can be used to have a condition based approach of relubrication practices, as a complement to theoretical calculations. TLGU 10 can not determine the machine condition nor its bearings. TLGU 10 will not detect over-greasing situations. If your machine shows some unusual acoustic patterns when using TLGU 10, some more investigations are recommended, using other condition diagnosis tools like vibration analysis and/or lubricant analysis.

1.2 Principle of operation

The principle of operation of the TLGU 10 can be compared to a special microphone, sensitive only to high frequency ultrasounds. A sensitive piezoelectric crystal is used as a sensor element. Minute sound waves excite the crystal, creating an electrical pulse that is amplified and then “heterodyned” or translated into an audible frequency that the user can hear through a pair of noise reduction headphones.

2. Operating



Fig. 2 – General aspect

Open the battery compartment with a screwdriver. Correctly insert (+/-) two AA alkaline or rechargeable batteries. The remaining battery level is displayed here (1).

The device can be powered through its USB port (2) with an external power source (not provided). It turns off automatically when the battery power is insufficient to ensure proper operation, or after 10 minutes of inactivity.

Connect the cable to the device by lining up the red dot on the plug with the red mark on the connector (9) and then inserting the plug into the connector. To unplug them, move-up the knurled barrel of the plug without any rotating movement. Proceed in the same way to connect and unplug the sensor to the cable.

Quick Start:

- (1) battery level
- (2) USB port for external power
- (3) Headset plug; (9) Sensor plug
- (4) A long press on ON/OFF will switch the unit ON/OFF; A short press on ON/OFF will toggle between the graph mode and numbers mode.
- (5) Up and down arrows will help choosing the correct amplification of the signal.
- (5) Left and right arrows will help adjusting the volume in the headset.
- (6) (7) It is important to settle the amplification level before taking any stand on diagnosis: following the amplification guidance icons (5): when the RMS measurement (6) is displayed in green, the amplification is correctly set. When red, the amplification is too high. When "-.-" is displayed, the amplification is too low. The current amplification setting is displayed here (7).
- (8) Volume level on headset
- (10) (x) ID and Sensor?

The '(x) ID' and 'Sensor ?' messages (10) indicate that no or an incompatible probe is connected. The "x"-sensor" indication will only disappear when the TLGU 10 is correctly wired up and connected to the correct probe.

When pressing the on/off switch (4), the equipment will switch on immediately. To switch off, the on/off button needs to be pressed for approx. 2 seconds. To take a correct measurement, the amplification needs to be adjusted for every reading in the default screen. This is done by using the up and down arrows (5) and following the triangular amplification guidance icons (5) in the top left hand corner of the display.

The current amplification setting is displayed here (7).

Once the correct amplification level is reached, the reading (measurement) will be displayed in green and a “smiley” :-) will appear in the place where previously the triangular amplification guidance icon was shown.

When the reading (measurement) is displayed in red, the amplification is too high and will need to be reduced by pressing the “arrow down” button.

When “-.-” is displayed on the default screen or in orange in the streaming mode, the amplification is too low and will require increasing by pressing the “arrow up” button. In both cases, i.e. when the amplification is too low or too high, the amplification should be adjusted until the reading (measurement) is displayed in green and the smiley :-) appears in the left hand top corner.

To switch between the default screen and the streaming screen press the on/off button (4) once. An histogram giving a brief history of the measurement is dynamically displayed. The amplification adjustment is not available anymore.

2.1 Using the headphones:

To enhance the hearing experience, the audio volume of the headset can be adjusted by pressing the left and right arrows (5) until the sound level is comfortable.

Avoid setting the sound too low as otherwise some signals may not be heard and possible leaky spots overlooked. Connect the headphones here (3). The current volume setting is displayed (8) only when a headset is connected.

2.2 Graphical streaming screen

Press the ON/OFF button once to toggle between the default screen and the graphical streaming screen.

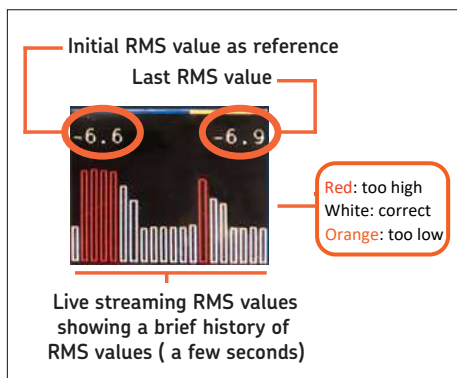


Fig. 3 – Example

2.3 Accessories to hold the sensor, the handset and grease gun

The SKF Ultrasonic Lubrication Checker TLGU 10 comes with a set of accessories to help the user in operation: please see photos below to see how to use them.

When using an SKF grease gun, please use the adapter M10x1 to 1/8" provided in the case.

Example of usage and configurations:



3. Technical data

Designation	SKF TLGU 10
Description	Ultrasound lubrication checker
General	
Measurement	channel 1 channel via a 7 pole LEMO connector
Display	160 × 128 pixels Color OLED
Keyboard	5 function keys
Measuring range	-6 to 99.9 dB μ V (reference 0 dB = 1 μ V)
Resolution	0.1 dB
Measurement Bandwidth	35 to 42 kHz
Signal amplification	+30 to +102 by step of 6 dB
Audio	
Amplification	5 adjustable positions in steps of 6 dB
Maximum output	+83 dB SPL with supplied headset
Headset	25 dB NRR Peltor HQ headset
Headset connector	Stereo jack connector of 6.35 mm (1/4 in)
Power	
Battery	2 AA batteries; rechargeable batteries too
Battery life	7 hours
Environmental	
Operating temperature	from -10 °C to +50 °C (14 °F to 122 °F)
IP rating	IP42
Mechanical	
Housing material	ABS
Dimensions instrument	158 × 59 × 38.5 mm (6.22 × 2.32 × 1.51 in)
Flexible rod length	445 mm (17.51 in)
Weight instrument	164 g (5.78 lb)
Carrying case dimensions	530 × 110 × 360 mm (20.9 × 4.3 × 14.2 in)
Total weight (incl. case, sensor & 2 AA batteries)	3 kg (6.6 lb)

4. Spare parts

Designation	Description
TLGU 10-HEADS	Neckband headset for TLGU 10 and cable
TLGU 10-HANDS	Ultrasonic Lubrication Checker handset
TLGU 10-PROBE	Probe and accessories: coiled cable, grease gun adapter, SKF grease gun thread adapter, 2 magnetic bases
TLGU 10-CRADLE	Grease gun mounting strap and magnetic cradle
TLGU 10-CC	Toolcase with inlay for TLGU 10
TDTC 1/C	General toolcase without inlay, size C

5. Appendix: FAQ (Frequently Asked Questions):

- **Q: How do I start using TLGU 10 on my machine?**
- **A:** Here is a typical scenario of usage of TLGU 10: after installing and turning "ON" TLGU 10, you can hear a noise level. Then a grease gun is connected and filled with the right lubricant, and very slowly, some grease is pumped into the grease nipple: then, typically, the noise level drops; Unless it is already enough or over-lubricated, where basically there is no change on the noise: beware, we do not know when we start over-greasing, and it could be understood as grease not arriving at the bearing, and over-grease even more, watch out! When you pump some grease and noise level drops, then re-grease to the recommended quantity. Most of the time, we can hear that the grease is reaching the bearing: very good first valuable input. We then recommend not to overshoot the initial quantity defined by OEM or theoretical calculations. As long as the noise level is going down, grease can be added to the contact/raceways, using advised quantity as recommended, or to be adjusted with experience.
- **Q: Why should I use TLGU 10?**
- **A:** TLGU 10 will be an add-on to your lubrication strategy and help improve your lubrication practices. TLGU 10 can be especially valuable on machinery where lubrication issues have been already experienced, it can help adjusting the lubrication route and practices on those specific machines. TLGU 10 will help giving more insights on your lubrication strategy. TLGU 10 is a simple and comprehensive tool that will help adjust relubrication intervals.
- **Q: What do the numbers mean when going up?**
- **A:** Typically, as an example scenario, here is an overview of what the displayed numbers may relate to: + 2dB: OK ; +8dB could probably mean that some early damage are taking place in the bearing; +16 dB could probably mean that some damages have occurred in the bearing; + 24dB vibrations appear.
- **Q: Should I use TLGU 10 on all my machines?**
- We strongly recommend to assess criticality of assets before changing lubrication routes based on TLGU 10 feedback solely. We strongly recommend not use this tool is for applications where contamination is the typical failure mode, then using far more grease is usually the method to keep contamination away, by pushing old grease when injecting fresh grease.
- **Q: When should I use TLGU 10?**
- **A:** Using TLGU 10 is a step or the beginning to lubrication conditioning. When optimizing your settled and good lubrication conditioning, then TLGU 10 may not bring as much value.



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MP5500 EN · 2021/02