Photo: László Szebényi

MÁV HUNGARIAN RAILWAYS NOW ENJOY IMPROVED RELIABILITY AND LONGER GEAR OIL LIFE!

COMPANY:
MÁV-GÉPÉSZET
Railway Vehicle Maintenance & Repairs Company

INDUSTRY:
Repair and maintenance of hauler and hauled rail vehicles

APPLICATION:
Motor-coach train, Serial No. 6341

PRODUCT:
LE 1605 Duolec™ gear oil

SUPPLIER:
MOL-LUB Ltd.

SERVICE:
Expert consulting in lubrication, LubCheck* oil and machine monitoring including ferrography testing

Excerpt from report by MÁV-GÉPÉSZET Co.:

"As the data show, operating costs of the two oils are practically the same up to 300,000 Kms travelled. In light of these data as well as the technical, operational, lifetime and other improvements described earlier, ***I would definitely recommend LE 1605 Duolec™ gear oil supplied by MOL for motor-coach train Ser. No 6341 shaft drives."***

László Csabai,
Chemicals and lubrication expert
– MÁV-GÉPÉSZET Co.

MÁV-START Co. operates double diesel motor-coach passenger trains, Serial No.: 6341. Since the very beginning, problems have been experienced with these motor-coach trains' shaft drives. Downtime has been frequent due to operating failures and the need for unscheduled maintenance sessions. MÁV-GÉPÉSZET Co., the company responsible for repair and maintenance of these motor-coach trains requested MOL-LUB Ltd. to find answers to these problems.

In motor-coach trains Ser.No.: 6341, the lifetimes of shaft drives, both direct and final drives, were shorter than planned and expected. In addition, in the higher-loaded direct drives, abnormal wear on and serious damage to gear teeth were experienced, some teeth even being broken.

Transmission systems became overheated and were operating at high noise levels. Due to this overheating, big wear particles, strong vibration seal damage and oil loss became common occurrences.

According to MÁV-GÉPÉSZET engineers, the primary cause of these problems was design error. This often led to misalignment and backlash problems during maintenance. Regardless of these difficulties, MOL-LUB experts were asked to propose a lubricant that could deliver more effective gear protection and decreased frictional loss. Their help in operational testing of the lubricant proposed was also requested.

Field tests were carried out with LE 1605 Duolec™, a gear oil with surface-modifying properties containing special additives produced by Lubrication Engineers Inc. (LE). MOL-LUB conducted comparative tests against the gear oil used formerly and the oil chosen for field testing. The tests included wear metal content measurement of the tested gear oils. The test method was based on a special microscopic examination of wear particles called ferrography.

The field test unequivocally showed the advantages of using LE 1605 Duolec™ gear oil. Wear significantly decreased, due to the surface-modifying properties of the gear oil. The gear teeth surface was evened out, smaller seizing disappeared and transmission operating temperatures and noise levels decreased.

MÁV-GÉPÉSZET engineers had made the right decision! Application of the gear oil proposed by MOL-LUB Ltd. resulted in significant improvements as proven in special tests carried out by its experts.

The field tests carried out by the two companies together resulted in longer oil change intervals – up to 300,000 kms – and practically nonexistent oil loss. Despite LE 1605 Duolec™ gear oil's higher price, lubricant-related costs did not increase while maintenance-related costs and time consumption decreased which led to far less motor-coach train downtime.

Successful application of LE 1605 Duolec™ has opened up further opportunities for other types of the company's motor-coach trains.

* At the time of the case study the name of our Oil- and machine diagnostics service was called „WearCheck", which changed to "LubCheck" in 2017.

1 CHALLENGE

Eliminating malfunctions leading to frequent transmission failures and shorter gear life of double diesel motor-coach trains, Serial No.: 6341

2 SOLUTION

Field tests, backed by LubCheck oil and machine monitoring including ferrography tests, were carried out with LE 1605 Duolec™, a gear oil with surface-modifying properties to replace the conventional gear oil used earlier.

3 RESULTS

The formerly-planned 200,000 km oil change intervals, not often reached due to technical problems, increased up to 300,000 kms, while lubricant-related costs remained the same and transmission technical condition significantly improved

LUBCHECK OIL AND MACHINE CONDITION MONITORING

LubCheck diagnostics is the world's leading lubricant-analysis process, which helps to precisely identify the degree of lubricant ageing, degradation and any kind of damage to machines well before its consequences might cause significant losses in production and lead to high repair costs.

STATE-OF-THE-ART LABORATORY

As a pioneer in oil diagnostics and machine condition-monitoring in Central Europe, MOL-LUB Ltd. has been operating a state-of-the art oil testing laboratory for 20 years. The accredited laboratory is a specialist member of LubCheck International and analyses and evaluates several thousand oil samples every year, thus saving its customers significant amounts of money and ensuring more efficient production scheduling.

LUBCHECK DIAGNOSTICS IN 4 SIMPLE STEPS

Sampling	Forwarding samples	Analysis	Expert opinion
Please follow the process described in the attached Information booklet to ensure proper sampling!	Following sampling, please fill in the attached form, and forward the oil sample vessel to the MOL-LUB Ltd. LubCheck laboratory!	The samples received are analysed and a diagnosis is made by lubrication engineering experts.	Test results are summarised within 72 hours and the partner receives an e-mail describing any likely problems and effective preventive maintenance actions to be taken.

WITH THE HELP OF LUBCHECK DIAGNOSTICS

- potential breakdowns can be recognised and identified at an early stage
- any hidden depreciation and irregular operation of machines can be identified and tested
- production losses can be reduced or eliminated
- machine repair costs can be reduced
- maintenance will be more precise and easier to plan
- machine oil change intervals can be optimised
- machine reliability can be improved

INDICATORS ARE IMPROVING

- more efficient production scheduling
- optimised lubrication
- significant financial savings
- easy-to-plan maintenance costs

YOUR PARTNER: