

Chronology of Defect / Noncompliance Determination

May 2018 - Kawasaki Heavy Industries, Ltd. (KHI) received a report of “inability to shift gear due to breakage of Output 4th gear” from its European distributor (KME). The user was unable to shift into 4th gear, but operation of the lower gears was not affected. No collision or injury was reported. KHI began to collect failed parts and investigate the cause of the reported problem.

October 2018 – KHI evaluated the failed engine returned from KME. Overload fracture of the fourth output gear was observed, resulting in the inability to shift into 4th gear. However there was no irregularity in the dimensions, hardness or material texture of the gears, including 4th gear. KHI continued to investigate the cause of the reported problem.

March 2019 - KHI received a report of “inability to shift gear due to breakage of 5th output gear” from its Japanese distributor (KMJ). The user was unable to shift into 5th gear but the operation of the lower gears was not affected. No collision or injury was reported. Once again, there was no irregularity in the dimensions, hardness or material texture of the gears, including 5th gear. KHI continued to investigate the cause of the reported problem.

October 2019 – KHI first considered a sudden increase in engine rpm when the transmission gears are not properly engaged while shifting as a possible cause of reported problem. KHI continued to investigate the cause of the reported problem. No related injuries or collisions had been reported.

March – June 2020 – COVID-19 disruptions delay further investigation. No related injuries or collisions had been reported.

October 2020 – KHI confirmed that when the transmission gears are not properly engaged while shifting into 4th or 5th gear, high engine RPM can cause the output gears of 4th and 5th gear to fracture when the gears re-engage. This can result in the inability to shift into 4th or 5th gear.

October 2020 -- Though the misengagement of the gears is the result of improper use of the transmission, and though there were no reports of collisions or injuries related to this issue, KHI decided to recall the unit to reprogram the ECU so that it would prevent high rpms while the gears are not engaged. KHI confirmed the effectiveness of this solution in testing.