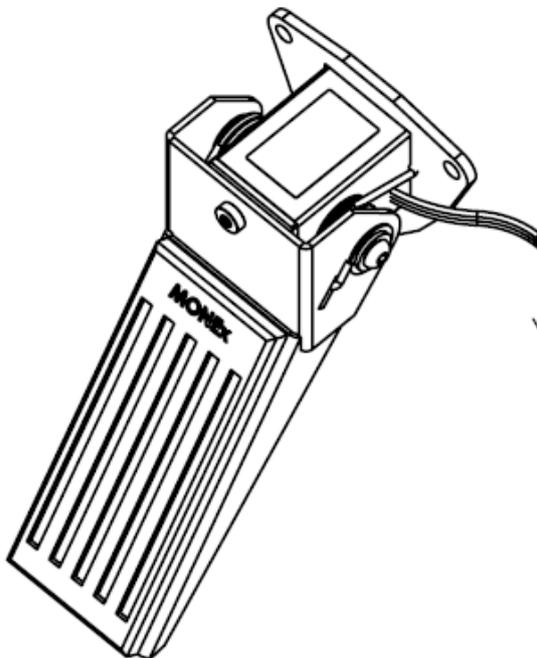


1 Overview

Date of Notification	17 th September 2013
Component Affected	MONEx Part 11019 Throttle Sensor
Certified Part	12505
Customer Part	5520002123
Batch Affected	11019-1 to 11019-182 11019-184 11019-190 to 11019-193

Description of the problem

The throttle sensor is fitted with a double torsion return spring. The spring ensures the pedal returns to the idle position when released.



Evidence has been found of the spring cracking or breaking on one or both sides after various periods of operation in the field.

Consequence of the problem

The throttle pedal may fail to reliably return to idle position causing engine speed to remain high even after the throttle is released.

This is a safety concern

Scope of failures

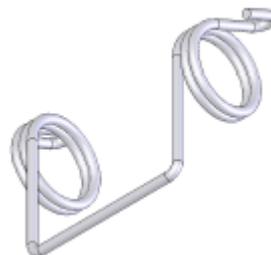
A number of throttles have been returned for repair with evidence of faulty or failed springs.

The average field service time for these returned throttles is 17 months with in-service periods ranging from 7 to 32 months.

Further inspections are required to determine the extent of the issue in the field.

Root cause

The double torsion spring is made from material which provides good corrosion resistance but has evidenced fatigue failure at the maximum stress points.



An investigation was undertaken to quantify the durability of the spring component.

A test jig was constructed which fully operated the throttle and recorded spring images every 10 cycles.



Test results showed:

1. First crack appears at around 110,700 cycles



2. Second crack appears at around 230,700 cycles
3. First break-off at 502,240 cycles



The spring cracks and break are consistent with those observed in returned throttles from the field. This confirmed the root cause as fatigue failure of the spring material.

Our actions

1. Design review.

A full design review of the spring was undertaken including:

- Stress point modelling
- Manufacturing method
- Spring Material

2. Improved Spring material

A new spring material was finally selected which offered superior elastic properties in the required range with maintained corrosion resistance.

Further cycle tests were conducted for the new spring. Test completed with no sign of failure on duplex spring after 1,000,000 cycles.



Some feathering of the Teflon bushing was observed but the throttle continued to operate normally.

3. *Issue this product bulletin*

Issued to our customers.

4. *Warranty status*

Spring replacement will be provided free of charge on all throttle sensors still within the warranty period.

A spring replacement charge will be incurred for throttles outside their warranty period.

Recommended actions for operators

1. Inspect all throttle sensors springs for cracks or breaks at next 2000 hour service. It should be noted that one side of the spring may fail and the throttle will remain functional. However, throttles should be returned for repair with any sign of spring crack or breakage.
2. Return any throttle sensor in the affected serial number range for spring replacement.

Public disclosure

This bulletin is published in the interests of public disclosure to ensure the safety integrity and quality of the MONEx products.

Scott Mann

General Manager
MONEx Technology Pty Ltd