CRANE
AEROSPACE &
ELECTRONICS

Tire Pressure & Brake Temperature Monitoring
for your 737 MAX

[Easily monitor tire pressure and brake temperature from the cockpit]

Using *Smart*Stem® Technology

Proper tire inflation is essential –According to tire manufacturers, proper tire inflation is the most important element of any preventative maintenance program. With an onboard tire pressure monitoring system, you can be assured that your aircraft tires are properly inflated.

Correct brake temperature is critical – OEMs agree that dispatching with overheated brakes reduces safety margins and causes melted fuse plugs, which, in turn, results in equipment damage. With onboard brake temperature monitoring, you can know your brake temperature at all times and can make the best decisions for dispatching your aircraft and avoiding aircraft damage due to overheated brakes and melted fuse plugs.

Introducing onboard tire pressure and brake temperature for the 737 MAX

Crane and Boeing have developed three options for tire pressure and brake temperature monitoring on the 737 MAX aircraft.

The TPIS Option is an onboard, continuously monitoring Tire Pressure Indication System (TPIS). The system consists of passive wireless tire pressure sensors using *Smart*Stem® sensor technology, in-axle equipment to communicate with the sensors, and a Tire and Brake Monitoring Unit (TBMU) for communicating to the cockpit and displaying tire pressure in the flight deck.

The BTMS Option is the Brake Temperature Monitoring System (BTMS). This system consists of a Tire Brake Monitoring Unit (TBMU) that processes brake temperature provided by a thermocouple mounted in the brake structure and displays brake health performance in the flight deck.

The TBMS Option combines the benefits offered by the TPIS with the new adaptive BTMS into a Tire Pressure and Brake Temperature Monitoring System (TBMS). This option includes all of the equipment in the TPIS and BTMS systems. It more accurately provides fuse plug temperature through the use of both the temperature reported by the thermocouple mounted in the brake structure, and the temperature reported by the tire pressure sensor. The TBMS continuously monitors and displays both brake health and tire pressure in the flight deck.

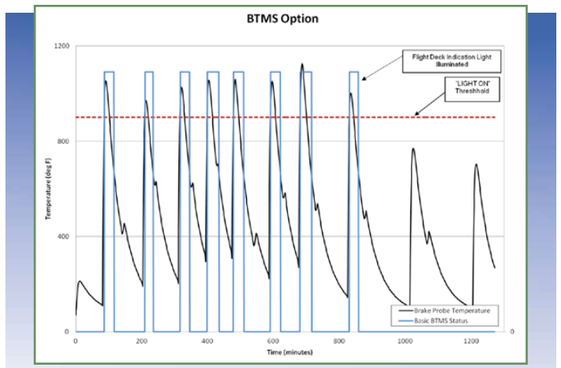
Benefits	737 MAX Options TPIS	BTMS	TBMS
Reduced maintenance labor and improved turn around time	●		●
Address principle cause of tire events	●		●
Improve dispatch through aircraft autonomy	●	●	●
Extend tire pressure check intervals	●		●
Improved tire pressure accuracy	●		●
Ability to take tire pressure in all environments	●		●
Improved tire economics	●		●
Enhanced awareness of brake thermal risk for safe dispatch		●	●
Identification of dragging or inoperative brake		●	●
Ensure safe tire and brake operations			●
No scheduled maintenance or calibration required	●	●	●
Enhanced crew awareness	●	●	●

"Underinflation produces uneven tire wear and greatly increases stress and flex heating in the tire, which shortens tire life and can lead to tire incidents."

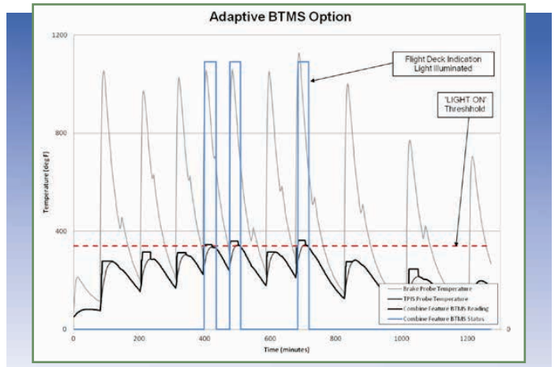
Goodyear Aircraft Tire Care and Maintenance Manual

Aggressive 737 Brake Temperature Flight Profile

The new Adaptive BTMS feature prevents unnecessary dispatch delays for brake temperature while also ensuring safe operations for your fleet.



Conventional **Brake Temperature Monitoring System (BTMS)** predicts that eight dispatch delays are required due to overheated brakes. The conventional BTMS calculation is conservative due to reliance on only one temperature point to predict the brake and wheel fuse plug temperature.



The output of the new **Adaptive BTMS** (a feature of the Tire Pressure and Brake Temperature Monitoring System, available for the 737 MAX aircraft) indicates only three dispatch delays are required for the same flight profile. A more accurate prediction of fuse temperature is enabled through the use of two temperature measurement points.

above charts provided by Boeing

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