

Spicer® CTIS (Central Tire Inflation System)

Enhanced Mobility For Government Defense
and Vocational Vehicles

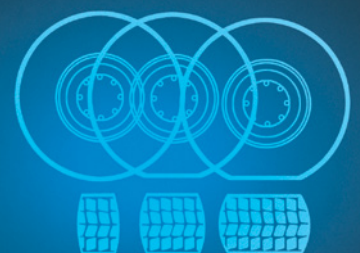


SPICER®

Central Tire Inflation System



With the press of a button from inside the cab, Spicer® CTIS maximizes vehicle mobility by adjusting tire pressure to provide the optimum footprint on any terrain. Whether in the field or at a construction site, Spicer® CTIS promotes confidence on soft, sandy soil and other unpaved surfaces.



Enhancing Government Defense Vehicles

Reliability and performance are the most critical features in military applications. CTIS has been shown to significantly enhance the performance of all-wheel drive, maximizing mobility and delivering benefits, such as:

- Complete mobility optimization
- Limp home feature avoids disabling vehicle on the battlefield or other severe applications where most major tire leaks are encountered
- Wheel valves are sealed from environmental contamination
- Remote wheel-end venting for most demanding applications and added layer of contamination ingress protection



Spicer® CTIS Offers Enhanced Mobility for Government Vehicles

Flexibility was a key factor in designing the Spicer® Central Tire Inflation System (CTIS). Its various setting options enable users to adjust tire pressure based on vehicle load, terrain type, and application. CTIS adjusts tire pressure to the optimum level whether driving at highway speeds on paved surfaces, unpaved surfaces, or off road. It is also possible to free a stuck vehicle or take

Features

Convenient push-button operation

Automatic over-speed protection

Automated tire maintenance feature checks and maintains pressure at selectable time intervals

Multi-channel pressure control available by axle groups or wheel ends

Electro-pneumatic controls

System provides integration and control of engine, transmission, ABS, and axle differential locks via an SAE J1939 (CAN) data link

Field programmable

Integrated diagnostics

No external air lines. All rotating seals are internally mounted for reliable operation

Automatic run flat, limp home vehicle operation in the presence of major tire leaks

OEM installed and warranted

Improved Mobility

- Increases traction on unimproved roads, severe grades, sand, and mud.
- Allows higher vehicle speeds over a greater variety of terrains.
- Allows continuous vehicle operation in the presence of minor tire leaks.

Enhanced Efficiency

- Allows users to match tire pressures to vehicle loads and speeds, resulting in reduced vehicle operating costs.
- Extends tread life and improves fuel economy.
- Reduces instances of costly tire punctures and tread chunk-out.
- Benefits highway authorities, as road damage is significantly reduced, resulting in lower maintenance and construction costs.

New Mechatronic Control Unit (MCU) Option

Dana offers the Mechatronic Control Unit (MCU) as an option to meet the requirements of lower flow applications. The integrated system has a smaller footprint with reduced weight and less wiring complexity that allows for individual wheel control when needed. The MCU design integrates electronic, computer, and mechanical engineering into one package to bring about weight reduction and improved reliability. Used on the JLTV platform that started production in 2018.



Government Defense and Vocational Vehicles

on grades and other extreme conditions that previously required assistance, as CTIS allows vehicles to function with extremely low tire pressures. Convenient push-button operation allows for optimum pressure selection, and integrated diagnostics alert drivers of potential tire problems and system status – making CTIS a valuable component for any application.

Benefits

Allows accurate selection of tire pressure for terrain and load condition

Maintains appropriate pressure at speed and maintains tire life

No operator intervention required

Maximizes performance by application

CTI pressure target configuration set by CAN messaging

Automated driver enhancement for easy operation

Complete vehicle application flexibility

Alerts driver of potential tire problems and system status

Enhances reliability and eliminates possibility of damage due to external hoses

Avoids disabling vehicle when most major tire leaks are encountered

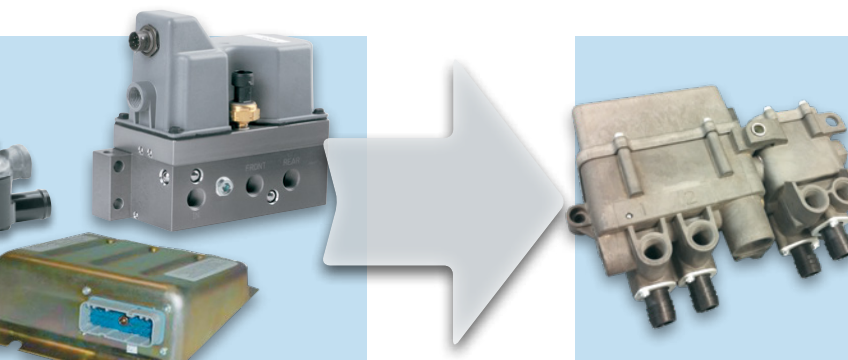
Reliable performance and service support

Reliable Performance

- Eliminates tire leak down – seals and control hoses are isolated from tires and not pressurized during normal operation or when parked.
- Truck brake air supply is protected by an air priority system.
- Provides a better ride, lower step height, and reduced driveline maintenance.

Differentiating Features

- Provides for the electronic control of inflation and deflation of tire pressure from the cab, while the vehicle is in motion.
- Dana system includes patented designs and algorithms.
- Dana offers the industry's only mechatronics design.
- Dana has extensive experience, a broad portfolio, and is the CTIS global market leader.



Enhancing Vocational Vehicles

CTIS outperforms all-wheel drive (AWD) in soft soil applications. The performance enhancements are so great that Spicer® CTIS can be used as an alternative to all-wheel drive for the majority of vocational truck applications. When used as an alternative to all-wheel drive, CTIS delivers reduced life-cycle costs, as well as:

- Increased payload by eliminating 450 kg of weight
- Reduced vehicle height by 30 to 35 cm and improved stability
- Reduced overall vehicle cost, complexity, and required maintenance
- Available from all truck manufacturers for a wide range of heavy truck models and configurations
- Works with steer, drive, and trailer axles



Quick Release Valves

- Serve as a remote air exhaust port
- Can be fitted with an external hose to allow venting above deep-water fording levels



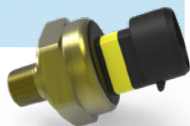
Wheel Valves

- Normally closed design isolates tires in the event of tire puncture or hose failure
- Prevents tire pressure leak-down automatically when parked
- No need for separate shut-off valves
- Available options allow for integration into aluminum wheels, eliminating the need for external hoses



Pressure Transducer

- Dynamically monitors pressure of vehicle supply air tank with 0.5 psi resolution
- Provides air system priority to brakes, which suspends CTIS operation in the event of low truck air system pressure
- Allows for "smart" sequencing of pressure checks



Integrated Control Switch/Driver Display Module (DDM)

- Compact rocker switches and DDM provide operator interface and are designed for instrument panel mounting
- Supports three terrain and two load selections
- Built-in diagnostic messaging
- Comes with a remote mounted ECU

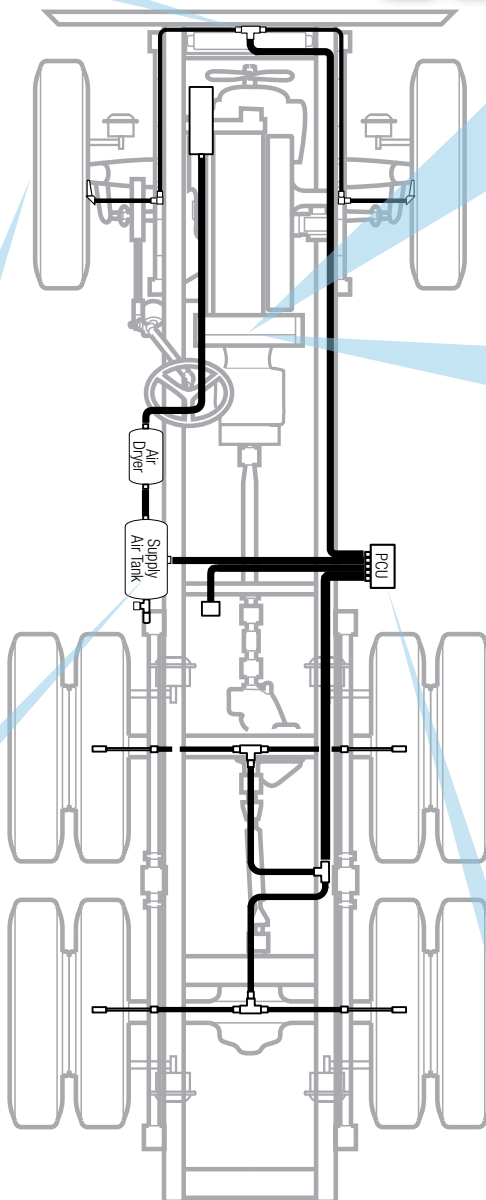
Electronic Control Unit (ECU) Option

- Microprocessor-based control center receives driver input from the DDM
- Option to communicate to the drivetrain to optimize vehicle performance
- Supports industry standard diagnostic tools
- Provides operator selections for terrain and can be configured to optimize tire pressures based on axle loads
- Has ability to adjust engine speed, transmission shifting, ABS, and axle differential locks
- J1587 and J1939 data link compatible
- Built-in self diagnostics
- Field programmable



Pneumatic Control Unit (PCU)

- Solenoid-controlled manifold receives electrical commands from the Electronic Control Unit (ECU)
- Controls wheel valves to inflate, deflate, or measure tire pressures by wheel position or axle groups
- Pressurizes the system only during inflate/deflate cycles, extending air seal life



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Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.