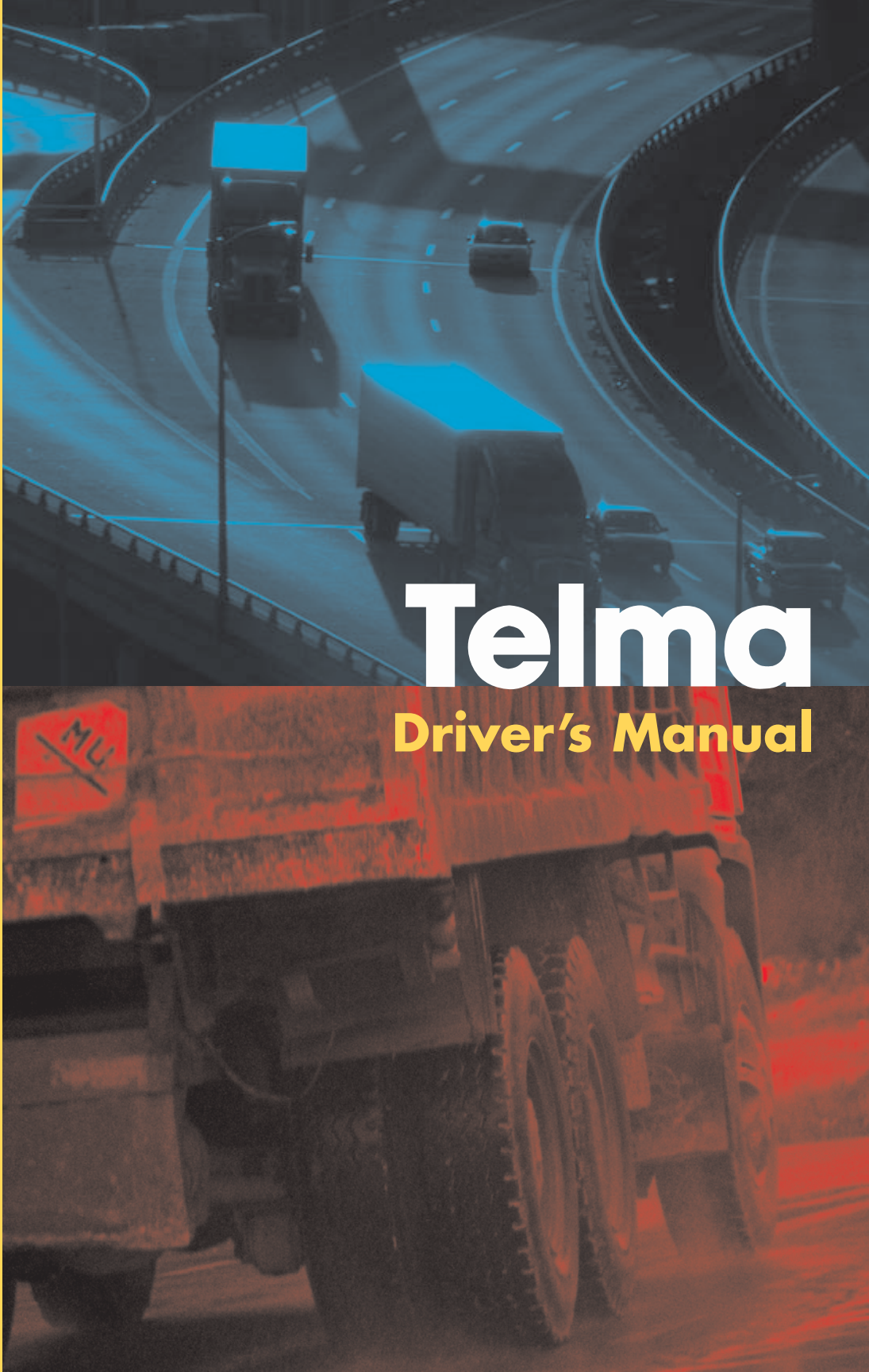


Telma

Driver's Manual

CONGRATULATIONS. Your vehicle is equipped with a TELMA Frictionless Braking System. Permanently connected to the driveline of your vehicle, it provides you with essential safety, cost effectiveness, accurate and reliable braking, and is ready to function under all circumstances. TELMA supplies your vehicle with an additional braking system that works along with your service brakes. You will benefit from improved braking resulting in increased safety and substantial savings on brakes, tires and route times.

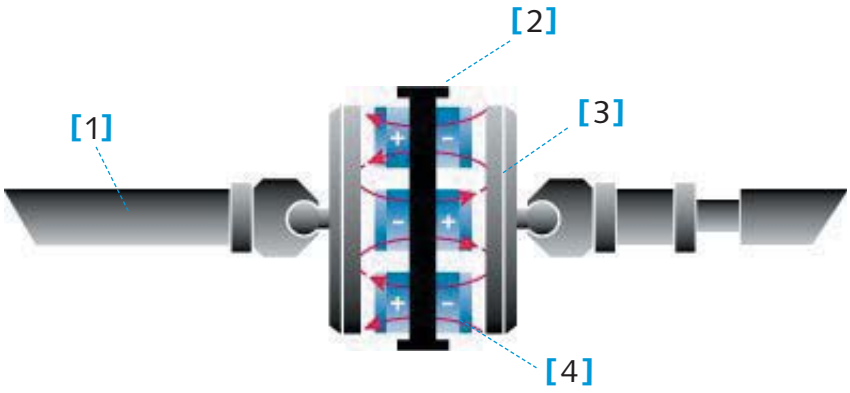
Using your TELMA will reduce the use of the service brakes, which as a result, remain cool and fully effective for the occasions on which they are really needed – such as emergency stops. Read this guide before getting behind the wheel. It will tell you how to make the most of your TELMA.

CONTENTS

WARRANTY

Telma warrants to customers that the product shall be free from defects in materials and workmanship and will confirm to applicable specifications. TRI shall, at its option, repair correct or replace any product or part thereof which is defective in workmanship of material: provided, however, that TRI is given prompt written notice of any failure (setting forth the alleged defect and pertinent delivery dates showing that the product is covered under the warranty) occurring within the lesser of a) two (2) years after the date of delivery to the first user of OEM product into which the product is installed of b) thirty (30) months from original delivery of the product. This Warranty does not cover a product or component thereof which fails, malfunctions or is damaged as a result of (i) improper installation, modification or repair, (ii) accident, abuse or improper or insufficient maintenance including deviation from approved lubricants or change intervals. In addition, this warranty does not cover normal wear and tear. This Warranty does not apply to products of components thereof not manufactured or supplied by TRI or to products of components thereof on vehicles operated outside the United States, Canada and Mexico. The warranty period for repairs or replacements is limited to the greater of 1) three (3) months or twenty-four thousand (24,000) miles, whichever shall occur first or 2) the expiration of date of the original warranty. THE EXPRESSED WARRANTIES HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, PROMISES, AFFIRMATIONS OR REPRESENTATIONS, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE OR USE. TELMA SHALL NOT BE LIABLE FOR ANY INCIDENTAL, COLLATERAL, SPECIAL OR CONSEQUENTIAL LOSS, DAMAGE OR INJURY OF ANY NATURE INCLUDING, WITHOUT LIMITATION, SALES OR USE OF THE PRODUCTS WHETHER OR NOT OCCASIONED BY TELMA'S NEGLIGENCE OR OTHERWISE.

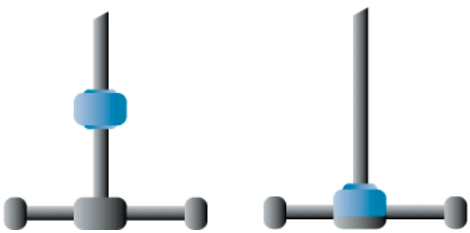
How They Work



- The TELMA is permanently connected to the drive shaft [1] of the vehicle.
- The TELMA contains two rotating discs called rotors [3] and a stationary component called the stator [2]. The rotors rotate at the same speed as the drive shaft. The stator is mounted between the two rotors and has eight coils [4].
- When the TELMA is activated, current flows through the coils which induces a magnetic field that passes through the rotors. This magnetic field produces "eddy currents" within the rotors which slows the motion of the drive shaft, thus decelerating the vehicle. There is no physical contact (friction) within the TELMA and, therefore, no wear.
- The system is configured so that it will be applied gradually in four stages. The four stages reflect 25%, 50%, 75% and 100% of TELMA power that is applied.

Types of TELMA Mounts

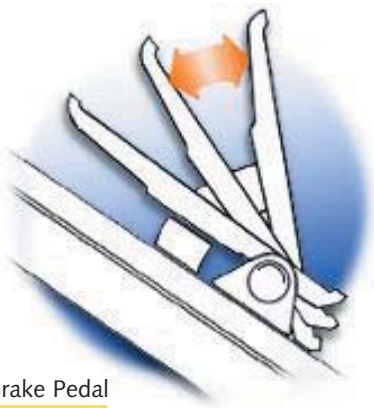
There are two types of TELMAs: a driveline mount and a focal mount. There is no difference in their operation; the difference is where the TELMA is mounted. The driveline unit is mounted within the driveline, between the transmission and the rear axle. The focal is mounted directly to the rear axle.



Driveline Mount Focal Mount

CONTROLS

The TELMA Frictionless Braking System contains several components that the driver needs to understand in order to operate the vehicle safely and effectively. Listed below are the major components and their function within the TELMA system. The TELMA system may be activated by several different methods. It may be necessary to determine which type of controls your vehicle is equipped with.



Brake Pedal

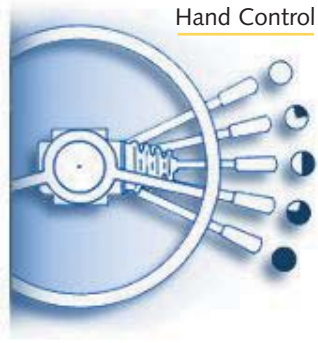
Brake Pedal Application (Foot Control)

This type of control should be used in urban stop-and-go type applications and where automatic TELMA activation is desired. The TELMA activates automatically when the brake pedal is applied. It is integrated into the vehicle braking system (air or hydraulic), and will function as the brake pedal is depressed. Slight pressure on the brake pedal gradually applies the TELMA. The TELMA activates before the service brakes are applied.

Hand Control

This type of control is used for mountainous applications where TELMA activation on long downgrades independent of the brake pedal is desired. The hand control may be mounted either on the steering column or built into the dashboard. To activate the TELMA, simply move the hand lever to one of the four powered positions:

Position 0: TELMA Power OFF
Position 1: 25% TELMA Power
Position 2: 50% TELMA Power
Position 3: 75% TELMA Power
Position 4: 100% TELMA Power



Hand Control

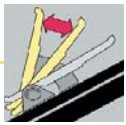
IMPORTANT! The hand control does not automatically turn off at low speeds. Do not forget to reset the lever to Position 0 when the vehicle is stationary or when the TELMA is no longer required.

Off-Throttle Control

Off-throttle control allows the TELMA to be automatically engaged when the driver lets off the accelerator pedal. Either one or two stages can be activated in this manner and the remaining stages activated by the brake pedal. This type of control is usually combined with brake pedal

application. A hand control switch can also be used to select the number of TELMA stages that will activate when the accelerator pedal is released.

Accelerator Pedal



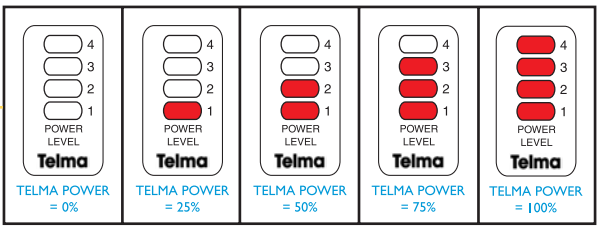
Combined Control

Any of the controls mentioned above can be combined to provide increased versatility in the use of the TELMA. Please refer to each section above for further explanation of each control.

Dashboard Indicator

A dashboard indicator is the driver's main indication of TELMA's function. This indicator contains four separate lights within the display which illuminate as the unit is activated. Each light corresponds to one of the four stages of the unit. The lights will illuminate in succession as the TELMA is being activated.

Dashboard Indicator



IMPORTANT! The lights indicate that the TELMA is operating. They should never illuminate when the vehicle is stopped or when the brakes are not applied. If this occurs discontinue operation and drive the vehicle to the maintenance facility for immediate repair.

ABS Interface

The TELMA system is equipped with an electronic interface designed to work with your vehicle's Anti-Lock Braking System (ABS). During an ABS event (an ABS event is defined as any wheel lock-up) the TELMA will automatically turn off, allowing the ABS to control the brakes without interference from TELMA. After the ABS event, the TELMA will reactivate progressively to assure proper braking.

NOTE:
If the vehicle's ABS warning light remains on, the TELMA will not operate. When the ABS warning light is on, there is a problem with the ABS. The ABS must be serviced before the TELMA will operate.

OPERATION (Driving)

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Overview

The TELMA is a simple, fully integrated system that is always ready to operate as soon as the vehicle is moving (above 2 mph) in any driving conditions: city, highway, hilly, long gradients, snow, ice or mud. The following section will give the driver important operational points on using the TELMA in order to operate it efficiently. The proper use of this device will provide the driver with safe and effective braking in all conditions.

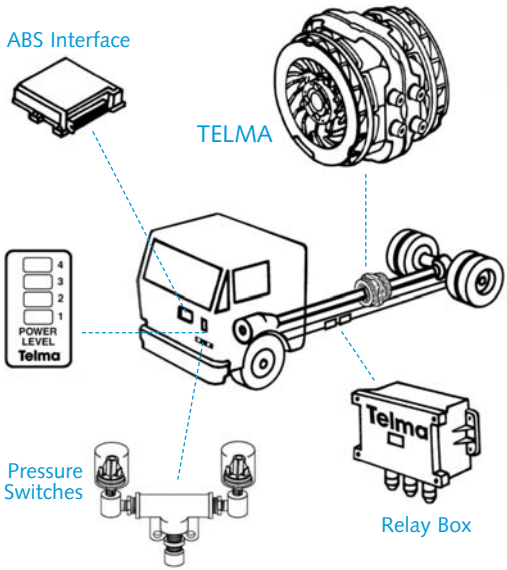
After just a few minutes of operation you will be able to feel the **power** that the TELMA can add to your normal braking.

Important Points to Remember

- The TELMA operates by normally applying the brake pedal. You will notice that less pedal travel is needed to obtain sufficient braking.
- The TELMA will automatically shut off at low speeds (below approximately 2 mph). If the TELMA stays on when the vehicle is stopped or below 2 mph, report it to your maintenance department.
- Make sure all four dashboard indicator lights come on in sequence when the brake pedal is fully engaged. If one of the lights does not turn on, it is possible that one stage of the TELMA may not be working properly.
- When the vehicle's ABS warning light stays on, the TELMA will not operate. Report this to your maintenance department to service the ABS.
- If you experience a noticeable reduction in the TELMA braking force, please notify your maintenance department.
- The TELMA should be pressure washed periodically. Please make sure that it is clean and free of debris before operation of the vehicle.
- Unlike most secondary braking systems, the TELMA will function effectively in reverse (above approximately 2 mph).
- The TELMA will not magnetically attract metal objects.
- The TELMA is integrated into the vehicle's braking system. To avoid vehicle malfunction do not tamper with or disable it.

COMPONENT IDENTIFICATION

This illustration will help to locate and identify the major components of the TELMA Frictionless Braking System.



NOTE: The locations of the components are approximate and may vary from vehicle to vehicle.

ROUTINE MAINTENANCE CHECKLIST

It is recommended that the TELMA maintenance checklist be incorporated into your regular vehicle maintenance schedule. The maintenance intervals may vary depending upon the severity of operation and the annual mileage of the vehicle. The following maintenance schedule is recommended:

MILES	At 3,000	Every 12,500	Every 40,000
Grease TELMA (Driveline Mount) *NOTE: TELMA's sealed grease fittings do not require greasing.*			✓
Check End Play in Rotor and Stator	✓	✓	✓
Check Air Gap Measurement	✓	✓	✓
Check Grease Seal (Driveline Mount)		✓	✓
Check Axle Pinion Seal (Focal Mount)		✓	✓
Check Fastener Tightness – Driveline and Brackets	✓	✓	✓
Check Condition on Rubber (Shock) Mounts			✓
Verify Grounds and Wiring Condition	✓	✓	✓
Check Relay Box Function	✓	✓	✓
Check Relay Box Contacts and Terminal Condition		✓	✓
Verify Retarder Amperage			✓
Check Hydraulic Brake Foot Pedal Adjustment	✓	✓	✓
Verify Dashboard Indicator Light Function	✓	✓	✓
Verify that the TELMA Disengages When Vehicle Stops	✓	✓	✓

IMPORTANT! In the case of any abnormalities, consult your TELMA distributor or the factory as soon as possible for assistance in the maintenance of your vehicle.

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