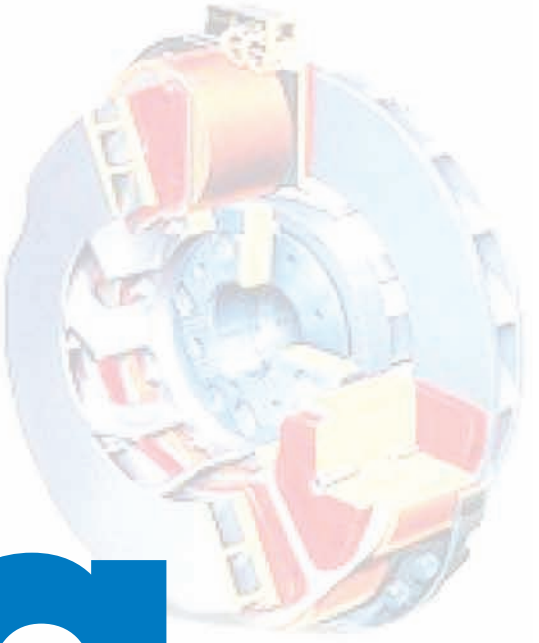


Telma

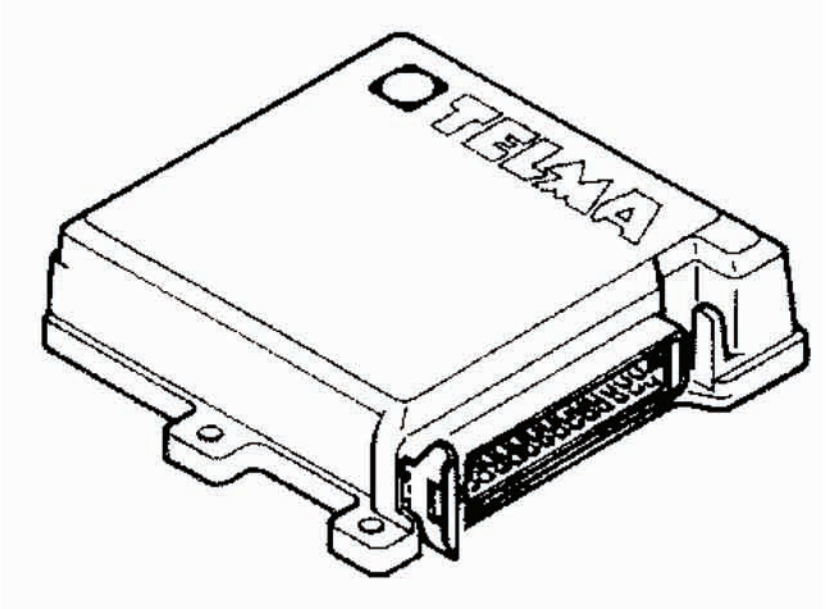
Quick Reference Guide

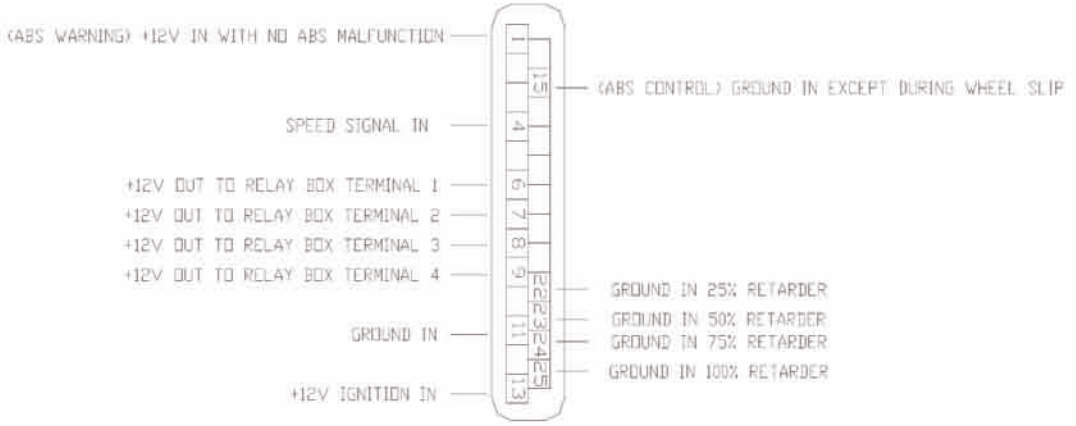
Telma Retarder Inc. Tel 800-797-7714 Fax 847-593-3592 www.TelmaUSA.com 22jan09

TL101010

ABS INTERFACE

- ALLOWS THE ABS TO CONTROL THE TELMA DURING WHEEL SLIP
- DISABLES TELMA WHEN ABS MALFUNCTIONS
- TURNS OFF TELMA WHEN VEHICLE COMES TO A STOP
- Two versions
  - JC241105 for speed signals with output higher than 3.5 AC volts such as Allison World transmission
  - JC241103 for speed signals less than 3.5 AC volts output such magnetic pickup sensors in manual transmissions and Allison AT, MT, HT automatic transmissions





Telma QRG Page 2

Troubleshooting of the ABS interface

In order for the Telma ABS interface to work, the unit must receive the following signals:

1. Pin 1 needs to receive positive voltage through the ABS warning light. When an ABS light is on, the OEM ABS unit interrupts this circuit with a ground signal, which defeats the foot-control operation

2. Pin 2 needs to be "open". Supplying a ground to this pin, via the foot-control disconnect switch, defeats the foot-control operation.

3. Pin 4 must receive an AC or pulse DC signal from the speedometer input wire.

4. Pin 11 must be grounded

5. Pin 13 must have positive battery voltage

6. Pin 15 must be grounded via the OEM supplied ABS control relay.

7. When pins 22,23,24,and 25 receive ground signals from the air pressure switches, pins 6,7,8,and 9, send positive battery voltage to the relay card control terminals.

For testing purposes connect pin 1 to +12 volts (pin 13) to bypass TELMA disable when abs warning light is on.

RELAY BOX CONTACTS

- **Contact Replacement**

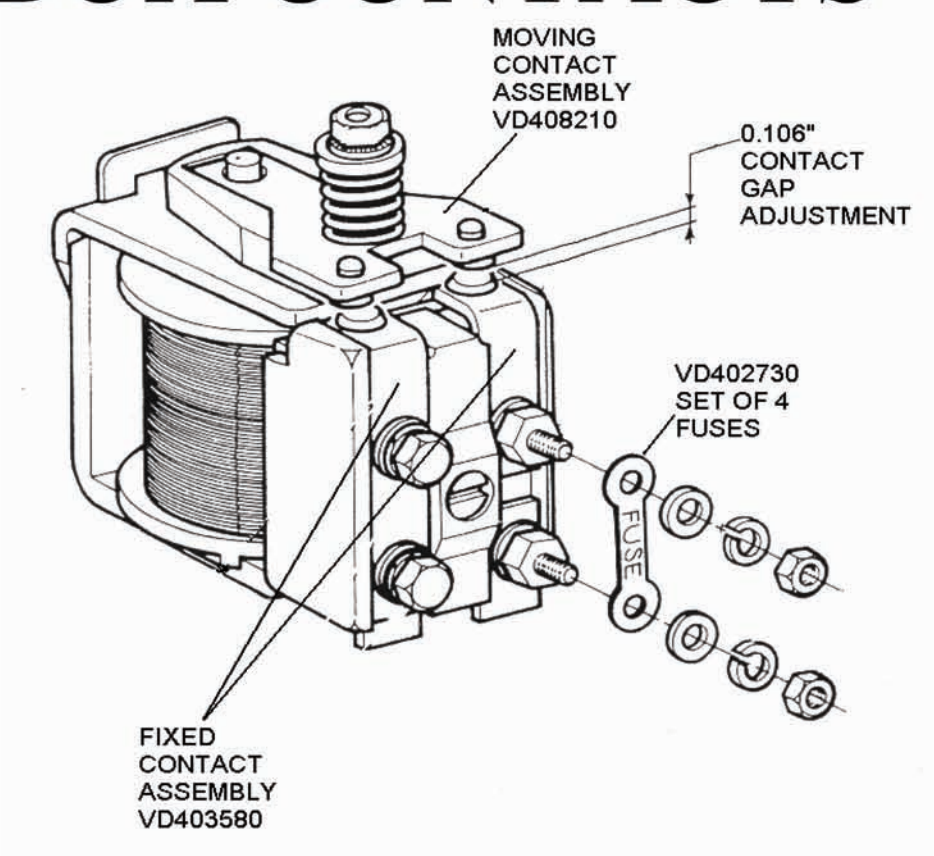
  Fixed contacts VD403580
  - Remove the two screws to replace the long fixed contact without fuse on the left
  - Remove the nuts, washers and fuse to replace the short fixed contact on the right

  Moving contact assembly VD408210
  - Remove screws at the back of the relay.

Note: Replace contacts whenever they become pitted or burned. Always replace moving and fixed contacts as a complete set.

- **Contact adjustment**

  Long fixed contact without fuse
  - Loosen the screws and adjust until there is a gap of 0.106". Tighten the screws.
  - Loosen the nuts and adjust until there is a gap of 0.106". Tighten the nuts.

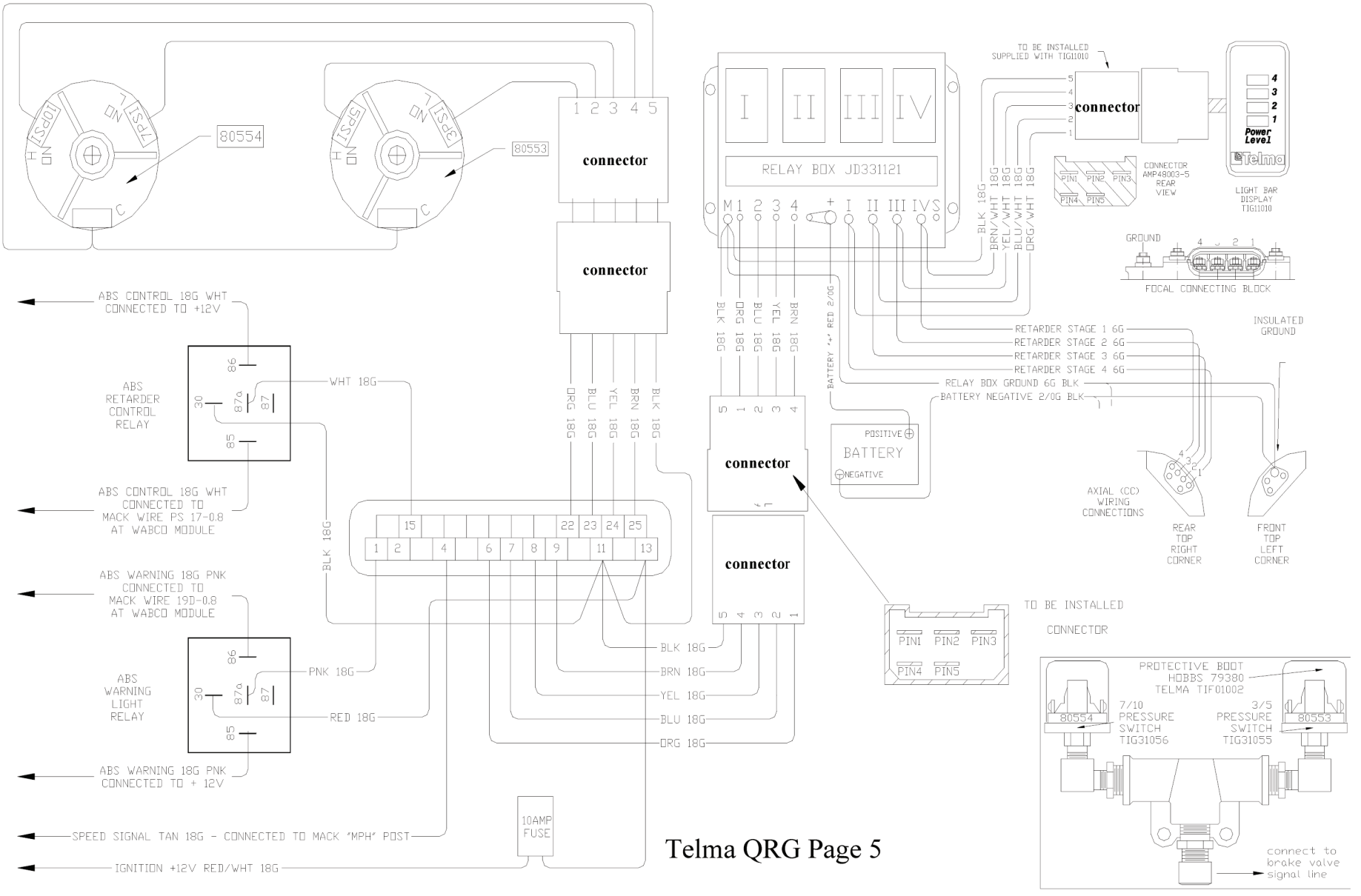


FUSE REPLACEMENT

A spare fuse is located on the lower screw on the left side (not shown)

Note: The fuse should only fail if there is a short circuit. Check the wiring or retarder for a short before installing a new fuse.

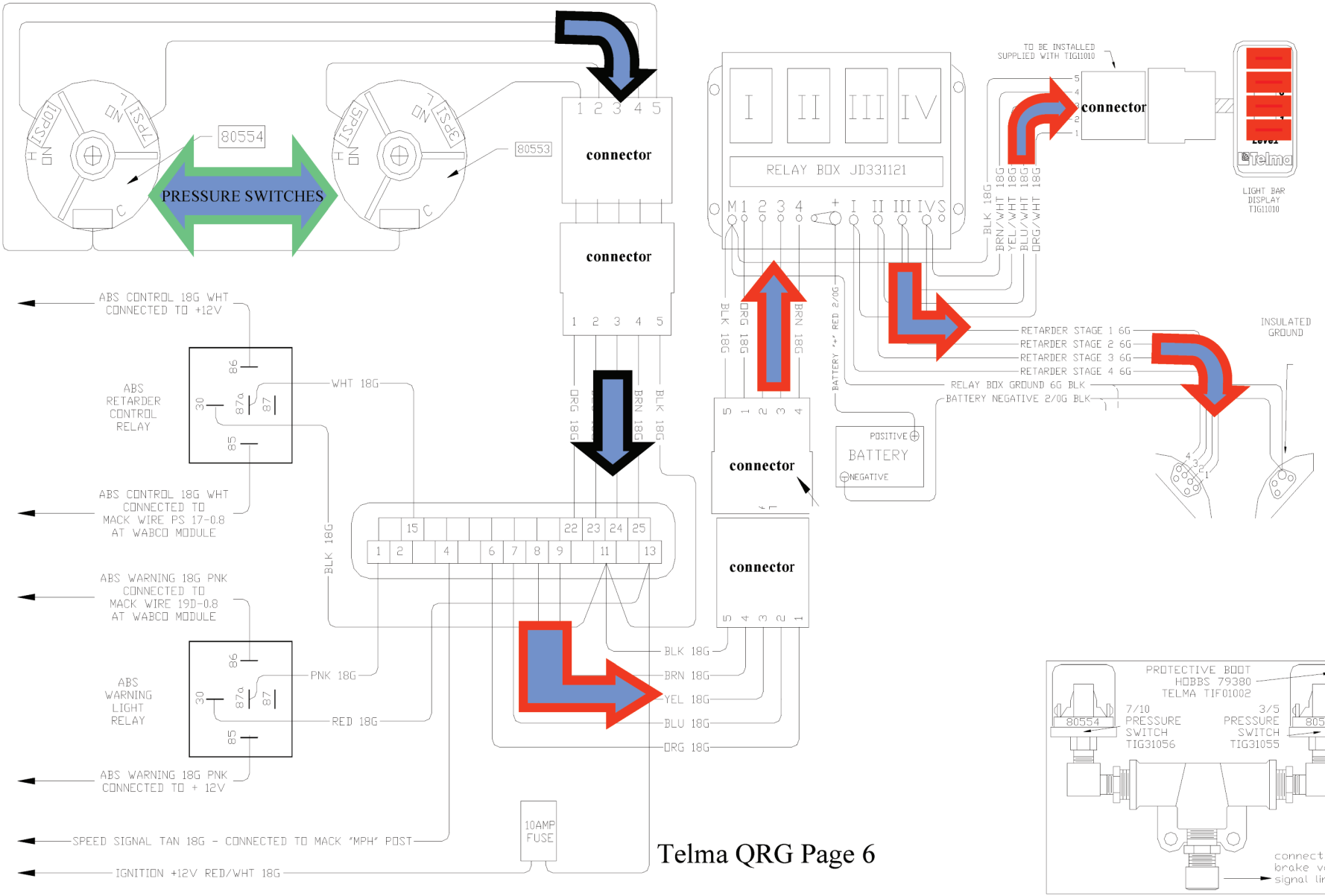
MACK FOOT CONTROL WIRING



Telma QRG Page 5

TL101010

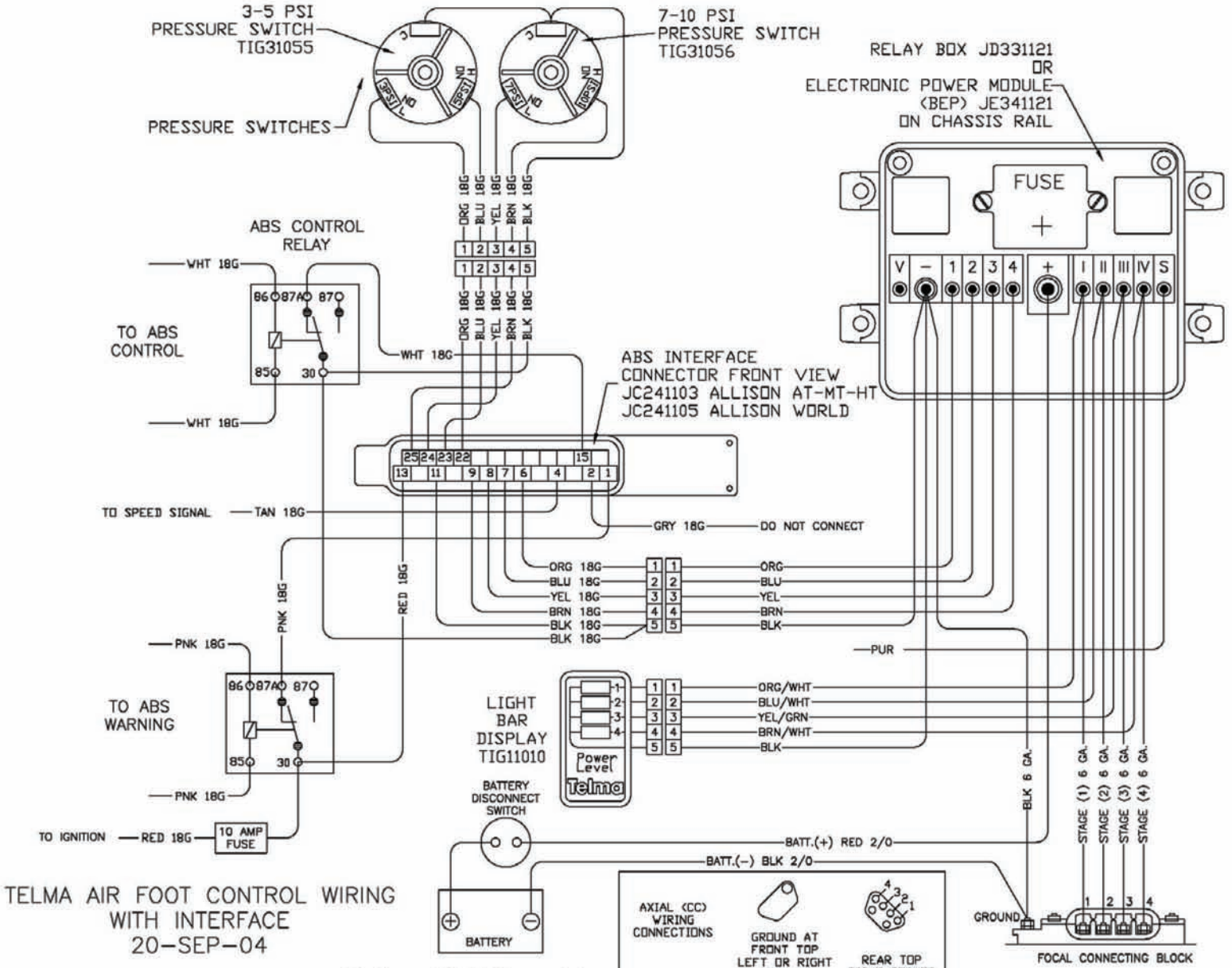
FOOT CONTROL FLOW DIAGRAM



Telma QRG Page 6

TL101010

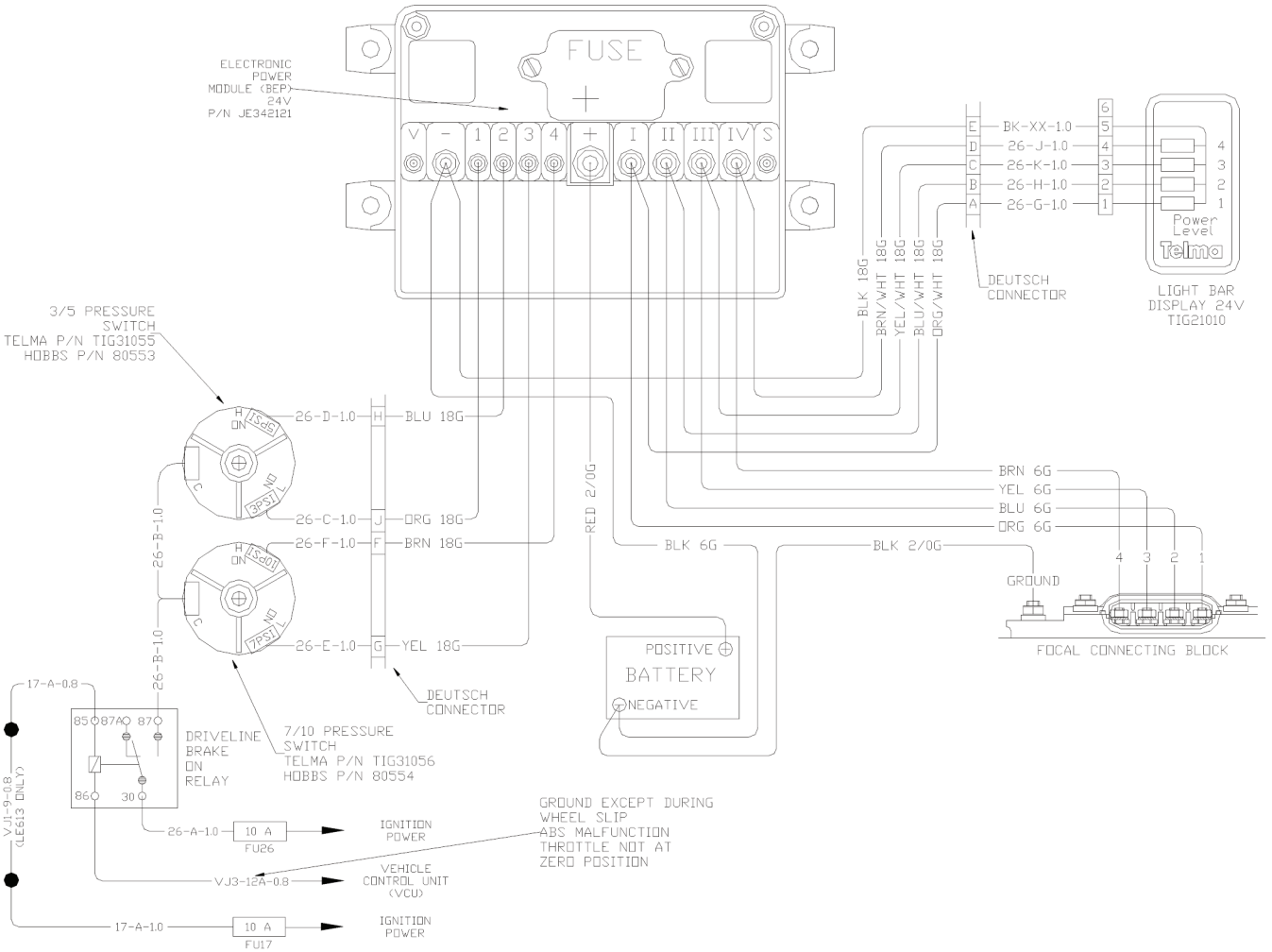
UNIVERSAL AIR BRAKE WIRING EXAMPLE



TELMA AIR FOOT CONTROL WIRING
WITH INTERFACE
20-SEP-04

MACK CDS WIRING DIAGRAM

For New Focal Installations with no abs interface



TL101010

AMPERAGE CHECK PROCEDURE

Tools Needed:

Inductive Clamp-on amp-meter 0-400 amps

Measuring Procedure:

1. Clamp the amp-meter around the main power cable connected to the "+" terminal of the relay box.
2. Start engine and run at fast idle if equipped
3. Close each relay individually and record the amps and voltage

Amp value for each stage should be similar to each other and close to the published specifications for your retarder.

If there is a wide variance between stages check the condition of the relay contacts and the wiring connections.

If amps for all stages are similar but too low, check the main retarder ground connection as well as all other wiring connections.

If amps are zero for one or more stages check for a blown relay fuse. A blown fuse indicates a short circuit in the wiring or retarder. Diagnose and repair before replacing the fuse.

Refer to retarder technical data sheets for amperage specifications. A few Telma specs are on Page 11 of this Quick Reference Guide.

RESISTANCE CHECK PROCEDURE

TOOLS NEEDED:

Digital ohmmeter with a 0.01 ohms accuracy on a scale of 0 to 3 ohms.

PROCEDURE:

Step 1: Disconnect the retarder from the relay box terminals (I, II, III, IV)

Step2: Connect the ohmmeter with one lead on one terminal of the connecting block and the other lead on the retarder ground stud. Read each resistance and note each abnormal stage compared with the values indicated for your retarder model on the electrical specifications page.

Step 3: Connect the ohmmeter to position 1 and 2; 1 and 3; 1 and 4; 2 and 3; 2 and 4; 3 and 4 of the Retarder. In each case, you should read a resistance value corresponding to the sum of the stages concerned measured in step 2.This procedure determines if the stages of the retarder are shorted. If they are shorted, trace the short and replace the damaged wires.

Step 4: Now that the defective stages have been identified, disconnect all the coils associated with these stages, and check individually the resistance of each coil.

Step 5: Change all defective coils.

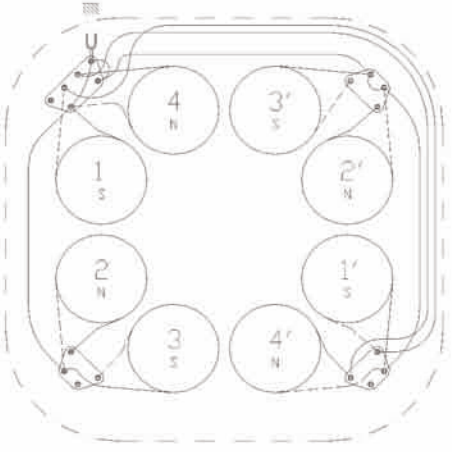
Step 6: Check the resistance per stage.

Step 7: Repair the Retarder and relay box in case of any damage.

Step 8: Check amperage for each stage and verify that the values correspond to the electrical specifications for your model.

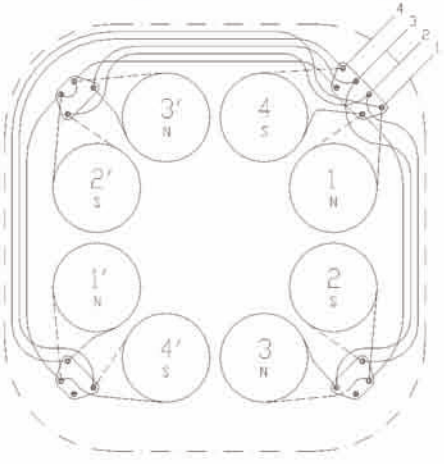
ELECTRICAL SPECIFICATIONS

TELMA MODEL:	AC 61-60	AC 72-00	AC 82-45	AC 82-70	FN 72-40	AD 72-45
TELMA P/N (REF):	(CF23####)	(CH23####)	(CK23####)	(CU23####)	(DK31####)	(BH20####)
Resistance per circuit (± 5%) at 20 °C (68 °F)	0.19 Ω	0.19 Ω	0.33 Ω	0.18 Ω	0.17 Ω	0.2 Ω
Resistance per coil (±5%) at 20 °C (68 °F)	0.75 Ω	0.75 Ω	1.35 Ω	0.70Ω	0.34 Ω	0.39 Ω
Current draw per stage ±5% (Amps)	63.0 A	63.6 A	35.5 A	67.5 A	69.4 A	60 A
Air-Gap	.041 / .047 inch	.041 / .047 inch	.041 / .047 inch	.041 / .047 inch	.055 / .061 inch	.039 / .047 inch



FRONT SIDE

Driveline TELMA
Internal wiring



REAR SIDE

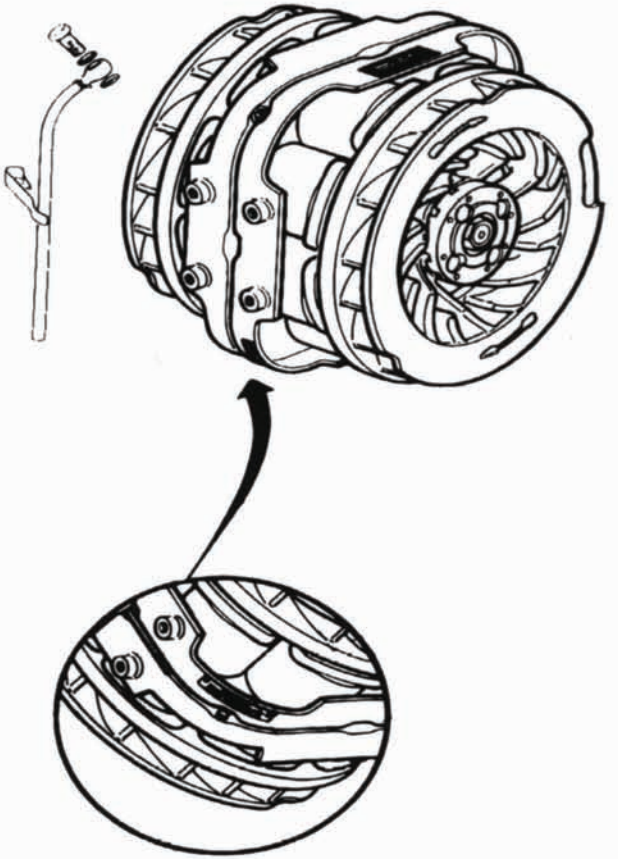
GREASING (DRIVELINE MOUNTED)

Specifications
Amsoil Multi-Purpose GLC
Synthetic Lithium Complex NLGI grades 2EP / GC-LB

Greasing Procedure
Use a hand grease gun at the grease fitting located at lower right corner of the retarder until grease comes out of the vent tube

Greasing Frequency
The retarder is greased initially at the factory
Do not grease until approximately 40,000 miles.
Greasing interval afterwards is every 40,000 miles.
Do not grease at more frequent intervals

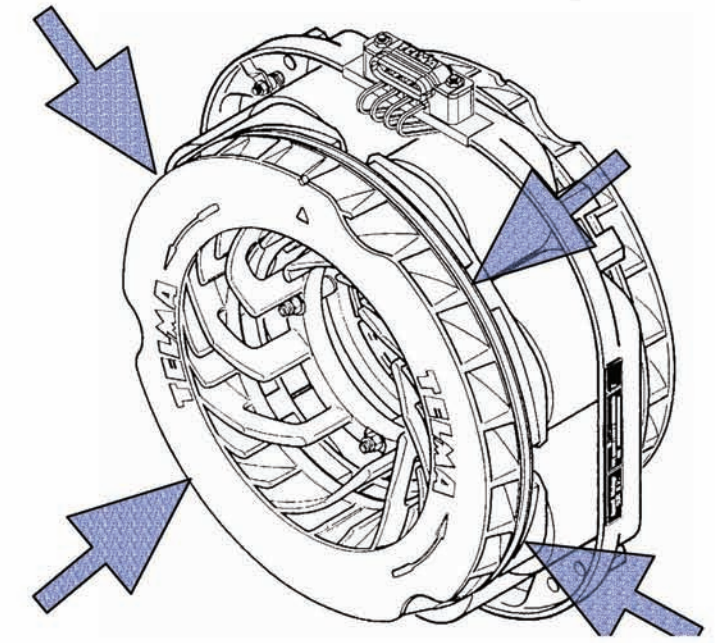
Availability - 14 ounce cartridges
From any Telma dealer - part number TIJ05001
Directly from Amsoil Inc. - part number GLC-14
Call 800 777-7094 for a list of Amsoil distributors

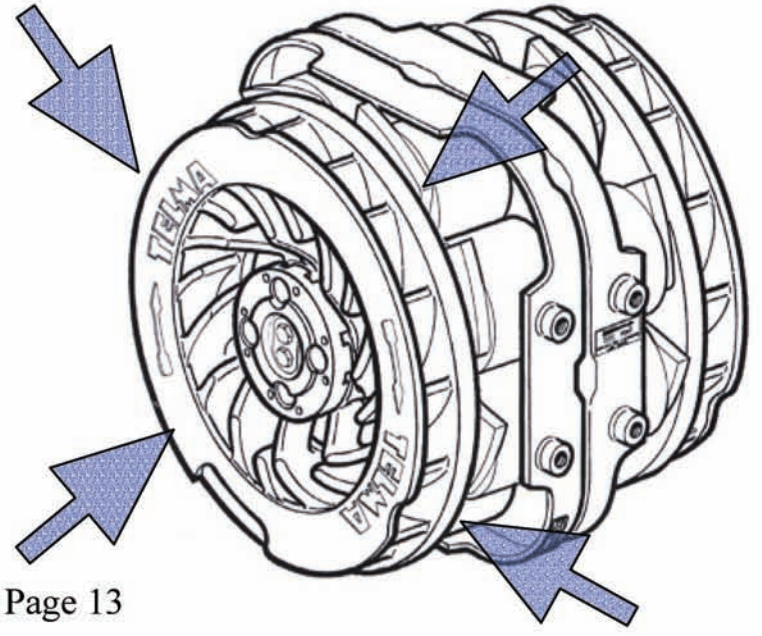


Long life retarders will
Have sealed grease fittings
And do not require greasing

AIR GAP

- CHECK WITH FEELER GAUGE BETWEEN ROTOR AND POLE SHOE AT 4 POINTS AROUND ROTOR
- REFER TO DATA SHEET FOR CORRECT SPECIFICATION
- CHECK ONLY WHEN RETARDER IS COLD





MAINTENANCE CHART

	Check AT 3000 miles	Check every 12,500 miles	Check every 40,000 miles
GREASE RETARDER (AXIAL)			√
NO ABNORMAL END PLAY IN THE ROTOR/STATOR			√
AIR GAP MEASUREMENT	√	√	
RETARDER GREASE SEAL (AXIAL) / AXLE PINION SEAL (FOCAL)		√	
FASTENER TIGHTNESS - DRIVELINE AND RETARDER BRACKETS	√	√	
CONDITION OF RUBBER MOUNTS (AXIAL)			√
GROUNDS / WIRING CONDITION - RETARDER & RELAY BOX	√	√	
RELAY BOX - CONTACTS & TERMINALS CONDITION			√
RETARDER AMPERAGE			√
RELAY BOX FUNCTION	**QUICK CHECKS BY TEST DRIVE**		
DASH LIGHTS FUNCTION WHEN RETARDER IS APPLIED			
FOOT CONTROL – RETARDER TURNS OFF WHEN VEHICLE STOPS			

TELMA WEBSITE

Tech Support:

www.TelmaUSA.com > Technical Website > Tech Support

Service Manual:

www.TelmaUSA.com > Technical Website > Tech Support > Service Manual

Warranty:

www.TelmaUSA.com > Technical Website > Warranty

www.TelmaUSA.com

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