



TL113009
INSTALLATION MANUAL
FOR
TELMA AC50-55
ON
CHEVY 4500 EXPRESS / SAVANNA
(GMT610) CUTAWAY
FROM MODEL YEAR 2010
WITH 6.6L DIESEL ENGINE
AND TELMA CONTROL MODULE (TRCM)

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SECTION 1 PREPARATION OF THE CHASSIS

1.1 DRIVELINE

Remove the complete drive-shaft assembly after measurements have been taken.

1.2 EXHAUST

An exhaust modification is needed for all wheelbases to route the exhaust between the Telma side plate bracket and the frame. Keep all components at least ¼" away from the side plate bracket to prevent vibrations through the exhaust.

1.3 FUEL TANK

An aft-of-axle fuel tank and no mid ship tank is required for Telma installation

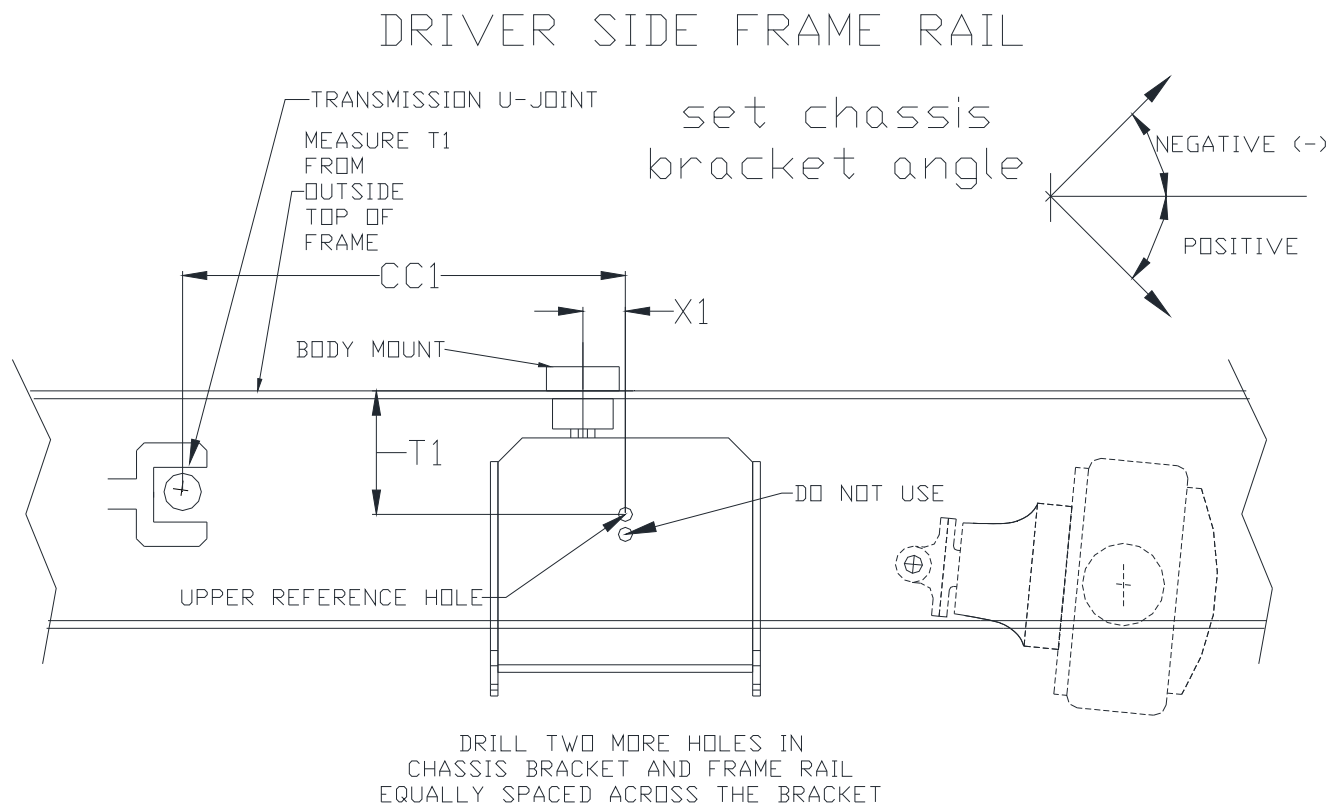
SECTION 2 RETARDER INSTALLATION
2.1 INSTALLATION KIT TIK10309

P/N	DESCRIPTION	QTY
CN201155	AC50-55 / 12V 1480	1
TIB03123	CHEVY GMT 610 DRIVER SIDE BRACKET (DIESEL)	1
TIB03124	CHEVY GMT 610 PASSENGER SIDE BRACKET (DIESEL)	1
TIB03125	CHEVY GMT 610 CHASSIS BRACKET	2
JZ100280	SIDE PLATE FASTENERS	1
JZ1007XX-30	TELMA SHOCK MOUNT SET (30 SHORE)	1
VF120340	SELF-LOCKING NUT 155 INDEX	8
TIF03003	NUT 9/16 - 12 UNC G8	6
TIF03005	LOCKWASHER 9/16 G8	6
TIF04001	BOLT 9/16 - 12 UNC X 2 HEX HEAD G8	6
TID11050	HARNESS W/ JD331121	1
TIB01017	CONTROL / RELAY BOX BRACKET	2
TIG31064	TELMA CONTROL MODULE GM CAN	1
TIB05048	CHEVY GMT CONTROL MODULE BRACKET	1
TIB05049	CHEVY GMT FOOT SWITCH BRACKET	1
TIB05050	CHEVY GMT PEDAL CLAMP	1
TIB05053	CHEVY GMT PEDAL BRACKET	1
JC120102	FOOT SWITCH	1
TIG11010	TELMA LIGHT BAR DISPLAY	1
TIF05021	MUSIC WIRE / RETURN SPRING	1
TIF05000	LOCKWASHER 1/4 SPLIT	6
TIF05002	NUT 3/8 - 16 UNC G5	2
TIF05003	LOCKWASHER 3/8 G5 SPLIT	1
TIF05004	NUT 1/4 - 28 UNF G8	6
TIF05005	BOLT 1/4 - 28 UNF X 3/4 HEX HEAD G8	4
TIF01064	BOLT 1/4 - 28 UNF X 1 1/4 HEX HEAD G8	2
TIF05010	LOCKWASHER 5/16 SPLIT	4
TIF05011	NUT 5/16	4
TIF05012	BOLT 5/16 - 18 UNC X 1-3/4 HEX HEAD G5	4
TIF05013	BOLT 1/2 - 13 UNC X 1-1/2 HEX HEAD G5	2
TIF05019	ELEVATOR BOLT 3/8 - 16 UNC 2-1/2	1
VF500160	GREASE TUBE VENT VALVE	1

Note: 1480 Flange yokes 2 x Telma part number TIF01081 / Spicer part number 3-2-479 must be ordered separately.

2.2 INSTALLATION OF THE CHASSIS BRACKETS

- Remove any bolts such as battery box and/or exhaust hanger mounts that will interfere with the chassis bracket mounting
- Mark the reference hole T1 from the top of the frame down to the reference hole.
- Mark the reference hole CC1 from the center of the transmission u-joint or X1 from the body mount hole.
- Drill a single 9/16" hole in the frame and bolt the chassis bracket (TIB03125) against the outside of the frame using the **UPPER REFERENCE HOLE**.
- Rotate the bracket to the angle specified on the installation drawing.
NOTE: Use electronic anglemeter with 0.1° accuracy (e.g. SPI Pro360 digital protractor). All angles indicated are with frame reference of 0°.
- Drill two more 9/16" holes in the chassis bracket and frame rail keeping away from fuel and brake lines and secure with bolts (TIF03002), nuts (TIF03003), and lock washers (TIF03004) included in the kit.
- Tighten the 9/16" bolts to 150 lb-ft (±10%).
- Drill through the chassis bracket any holes needed for battery box and/or exhaust hanger mounts and reinstall the original bolts that were previously removed. It may be necessary to make a 5/16" spacer to keep the accessory brackets flush on the outside of the frame rail.
- Install the male parts of the rubber mounts into the 1 5/8" holes in the brackets from the bottom. Place one 2-3/4" diameter 5/8" flat washer on the top and bottom of each mount.



2.3 INSTALLATION OF THE VENT TUBE VALVE

At the time of installation the vent tube valve should be installed on the grease chamber vent tube. The vent valve replaces the nylon vent tube extension used previously. The vent tube is located at the upper passenger side corner of the Telma. Install the vent valve and tighten to 9.5 lb-ft.

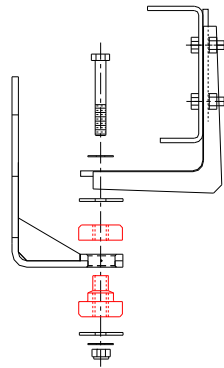


2.4 ASSEMBLY OF THE TELMA BRACKETS AND MOUNTS

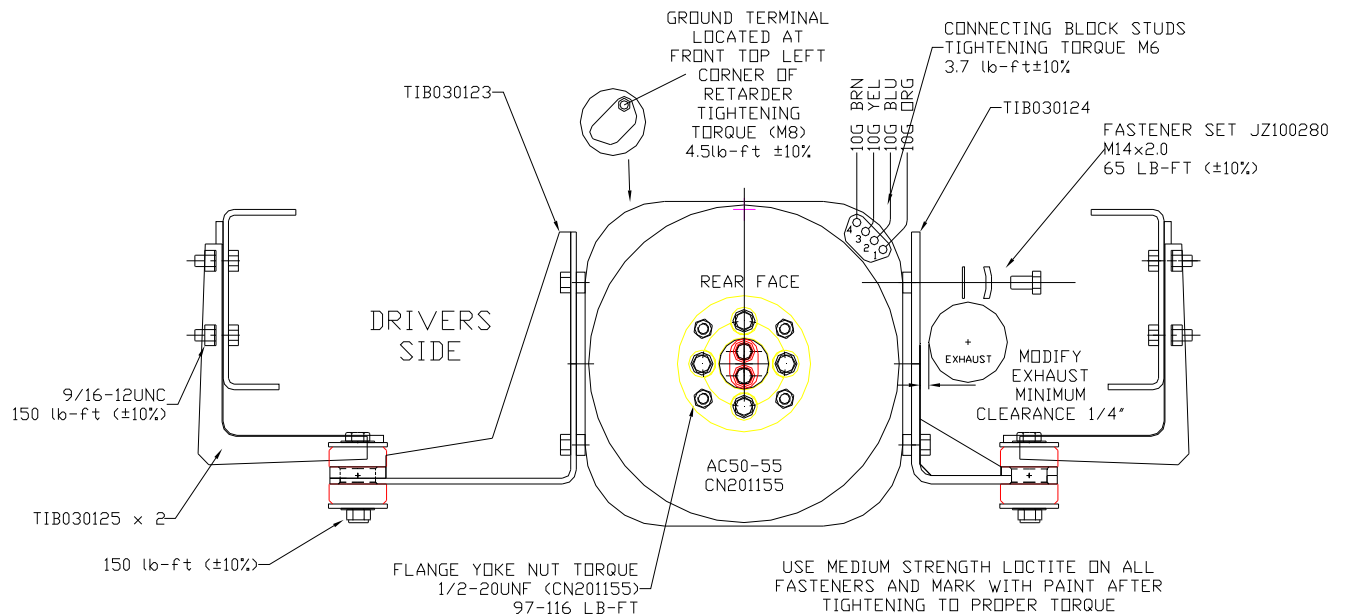
- Identify the driver's side of the Telma from the passenger side. To do so, orient the arrow of the red plate on the Telma towards the axle with the red plate on the driver's side.
- Identify the Telma brackets. The longer bracket TIB03123 is for the driver's side. The shorter passenger side bracket is TIB03124.
- Use four M14 bolts flat washers and Trep washers provided with the set of fasteners (JZ100280) to fasten the Telma bracket onto each side of the unit. Tighten bolts to 65 lb.-ft ($\pm 10\%$).
- Refer to the appendix for detailed drawings.
- Assemble the mounts to the side plate brackets with the female portion of the mounts on the top side of the brackets.

2.5 INSTALLATION OF THE TELMA IN THE CHASSIS

- Install the Telma, equipped with the side plate brackets to the chassis brackets in the hanging position.
- Secure the Telma to the chassis brackets using the 16mm diameter x 110mm long bolts through the holes in the chassis brackets, mounts and side plate brackets. At each mount, install the 2 3/4" diameter flat washer, the 5/8" lock nut and tighten to 150 lb.-ft ($\pm 10\%$).

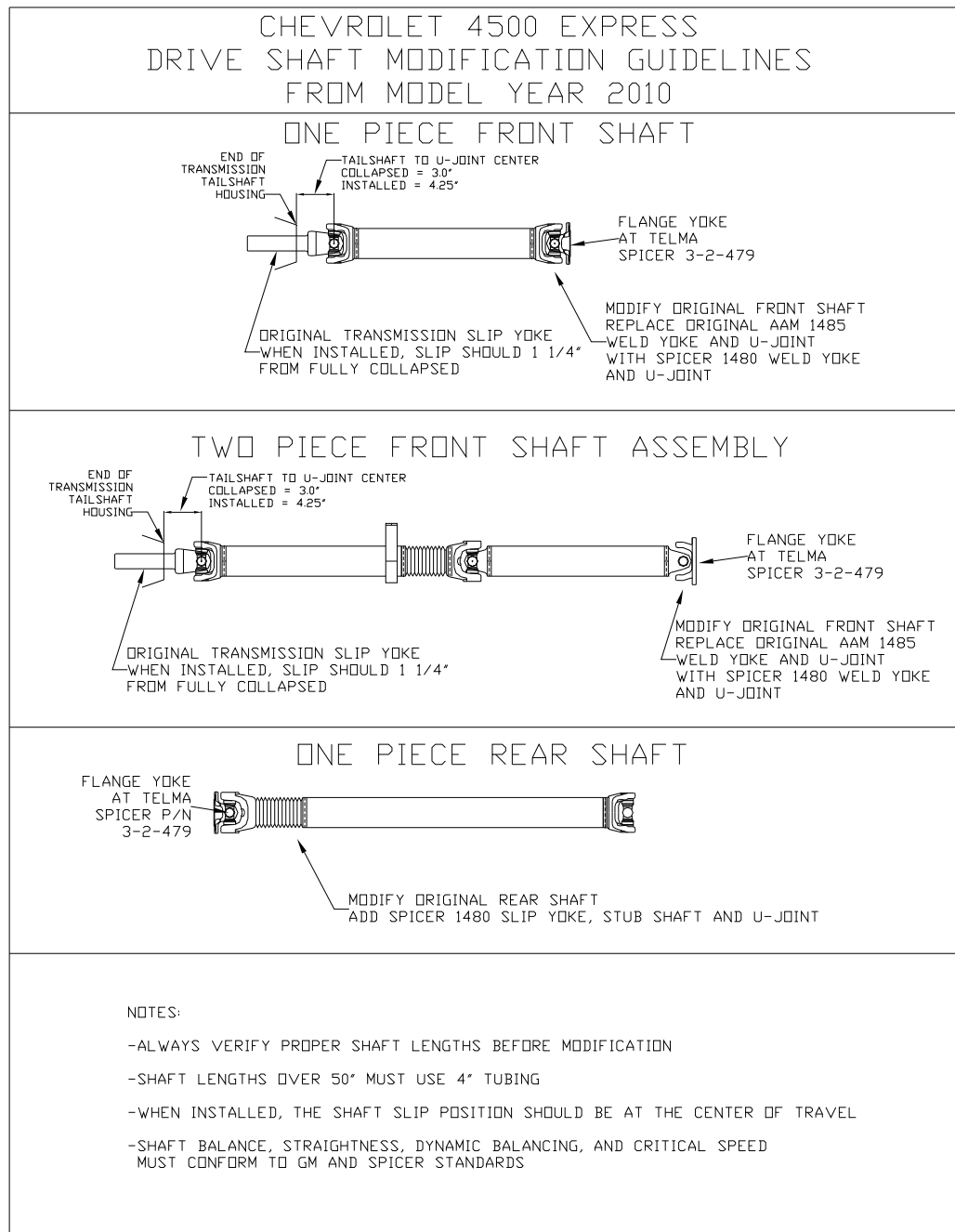


GMT 610 BRACKET ASSEMBLY



2.6 DRIVE SHAFT MODIFICATION AND INSTALLATION

- A slip assembly is required on each side of the Telma. The slip position should be at center of slip travel when the shaft is installed.
- Refer to GM Upfitters guidelines for proper drive shaft manufacture, balance, straightness, and critical speed limits.
- Refer to the appendix for Telma guidelines.
- Refer to the installation drawings in the appendix for shaft length guidelines.
- Shaft lengths over 50" should use 4" tubing.
- Always verify proper shaft lengths before modification.
- Connect the flange yoke of each drive shaft to the Telma coupling flange using the supplied locknuts.
CN201155: Tighten the 1/2"-20UNF all metal lock nuts to 97-116 lb-ft.

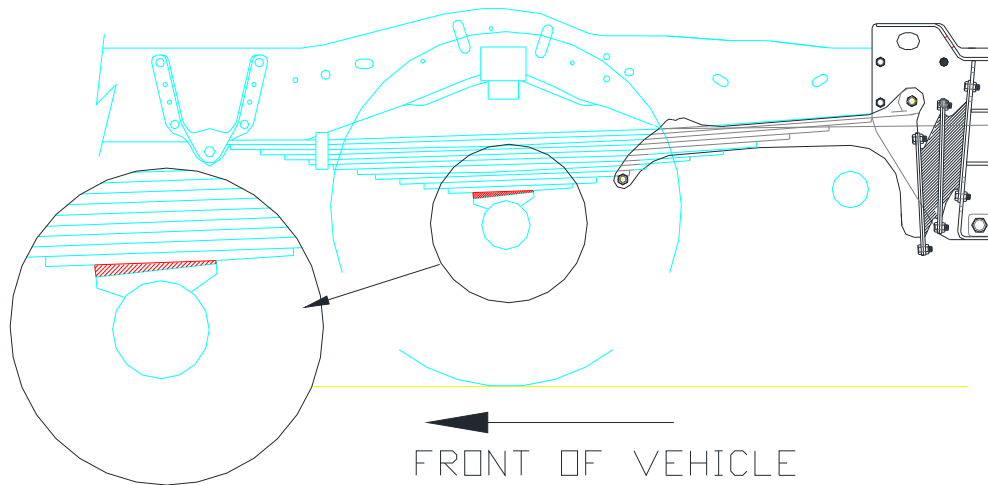


2.7 AXLE SHIM INSTALLATION

Some installation configurations require the addition of steel shims to adjust the axle angle. Refer to GM guidelines for proper shim type and procedure

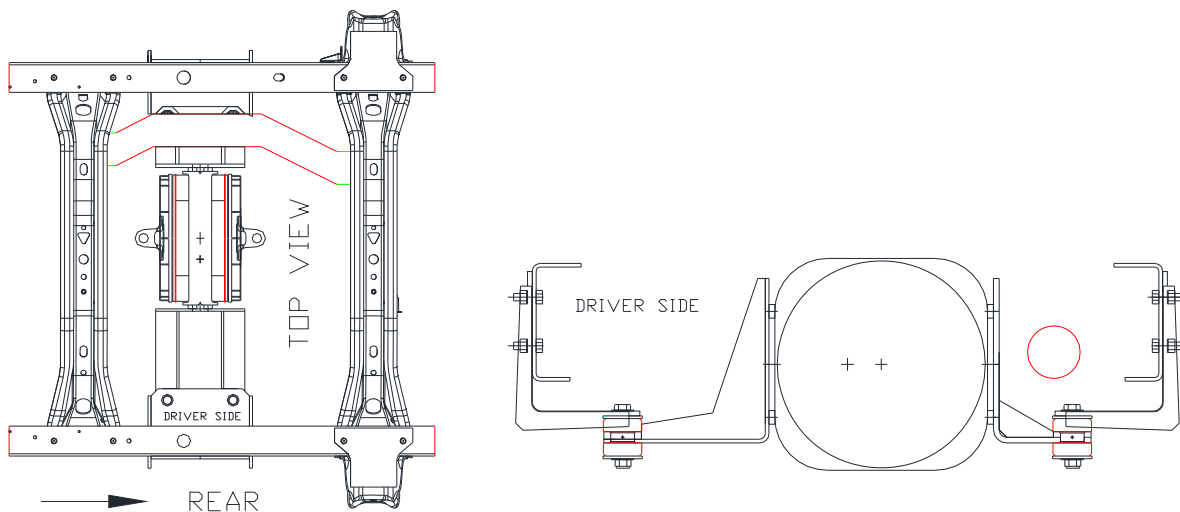
Below are some guidelines

- Loosen the spring u-bolt nuts
- Lift the chassis by the frame rail until the shim can be slid over the centering pin.
- To reduce the axle angle (as shown in the example), the thicker part of the shim should be toward the front of the vehicle. The nose of the axle will go down.
- Lower the chassis and tighten the u-bolts. In some cases a new spring pack bolt will need to be installed to make sure the centering pin extends far enough into the spring pad hole.



2.7 EXHAUST MODIFICATION

Modify the exhaust as shown below.



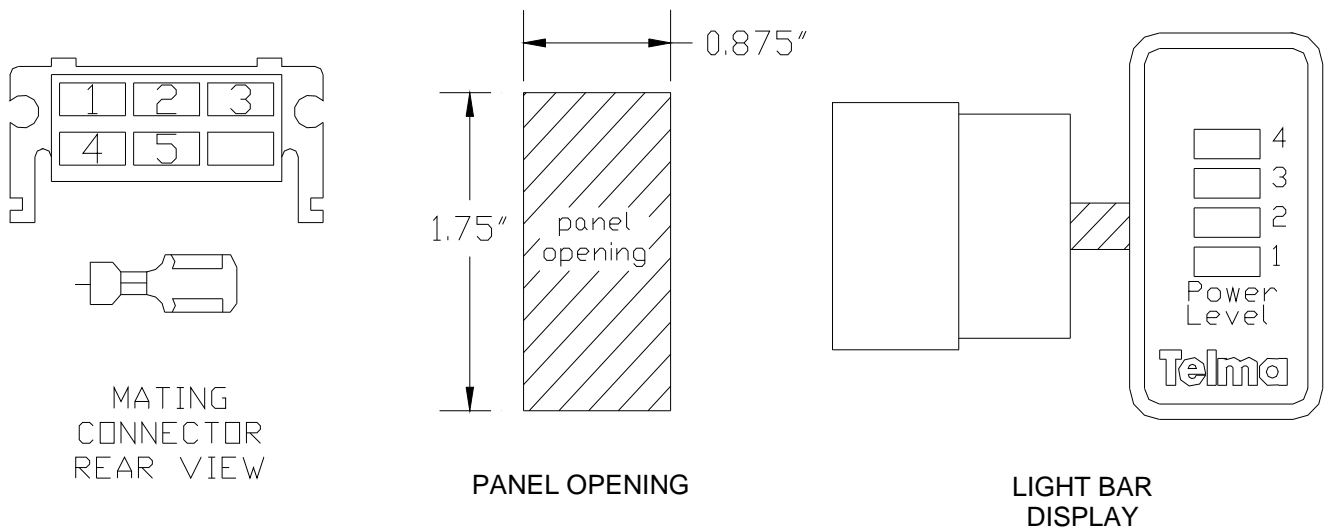
SECTION 3 CONTROL SYSTEM COMPONENTS INSTALLATION

3.1 RELAY BOX MOUNTING

- Install the relay box on the inside of the driver side frame rail as high as possible using the relay box mounting brackets TIB01017 x 2 and fasteners supplied in the kit.
- Tighten the four 5/16" bolts to 17 lb-ft (±10%) and the two 1/2" bolts to 75 lb-ft (±10%).

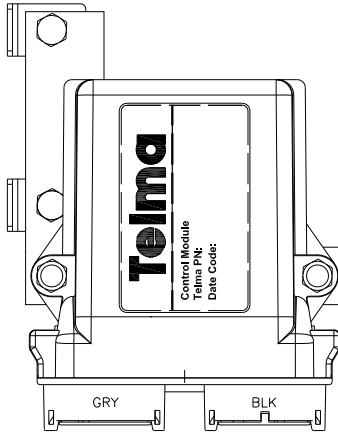
3.2 LIGHT BAR INSTALLATION

- The Light Bar should be mounted so that it is easily visible to the driver.
- Make a rectangular hole, 7/8" wide x 1 3/4" tall in the lower dash to the right of the steering column or install the Light Bar in an existing console receptacle.
- Feed the harness through the hole and connect to the Light Bar.
- Plug the light bar into the hole.



3.3 TELMA CONTROL MODULE & FOOT CONTROL SWITCH INSTALLATION

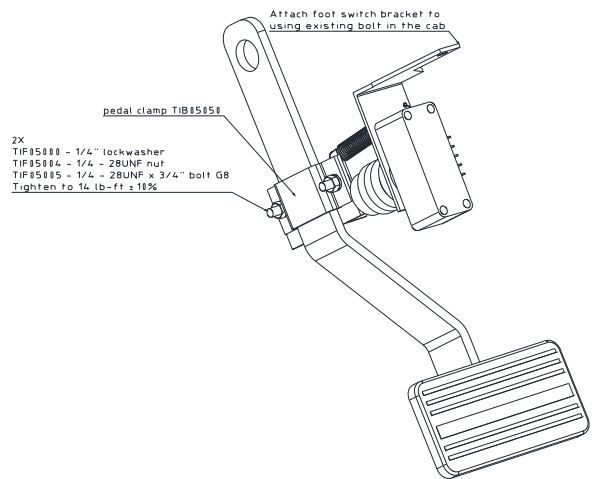
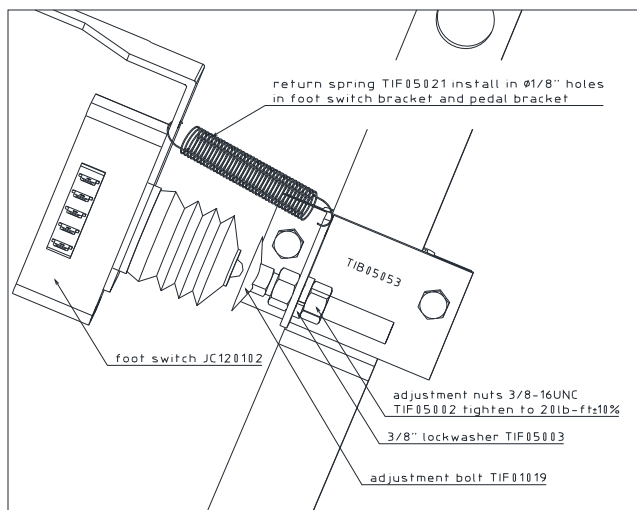
Bracket TIB05048 is used to mount the Telma Control Module.
 Bracket TIB05049 is used to mount the foot switch to the dash as shown.



Attach pedal clamp TIB05050 and pedal bracket TIB05053 to the brake pedal using the 1/4" bolts, nuts and lock washers supplied in the kit.

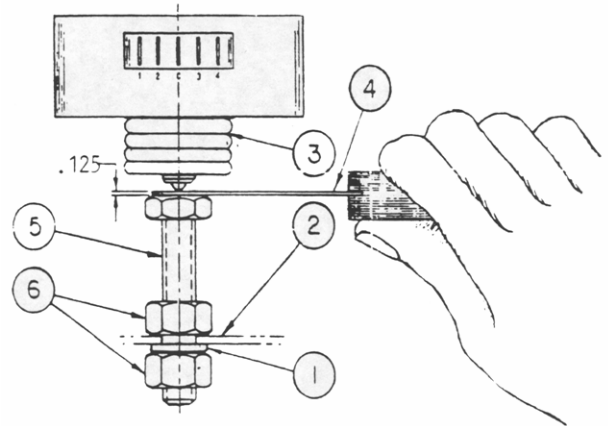
Attach the return spring TIF05021 using the 1/8" holes in the pedal bracket and foot switch bracket.

The special 3/8" adjustment bolt, nuts and lock washers are assembled as shown below.



3.4 FOOT SWITCH ADJUSTMENT

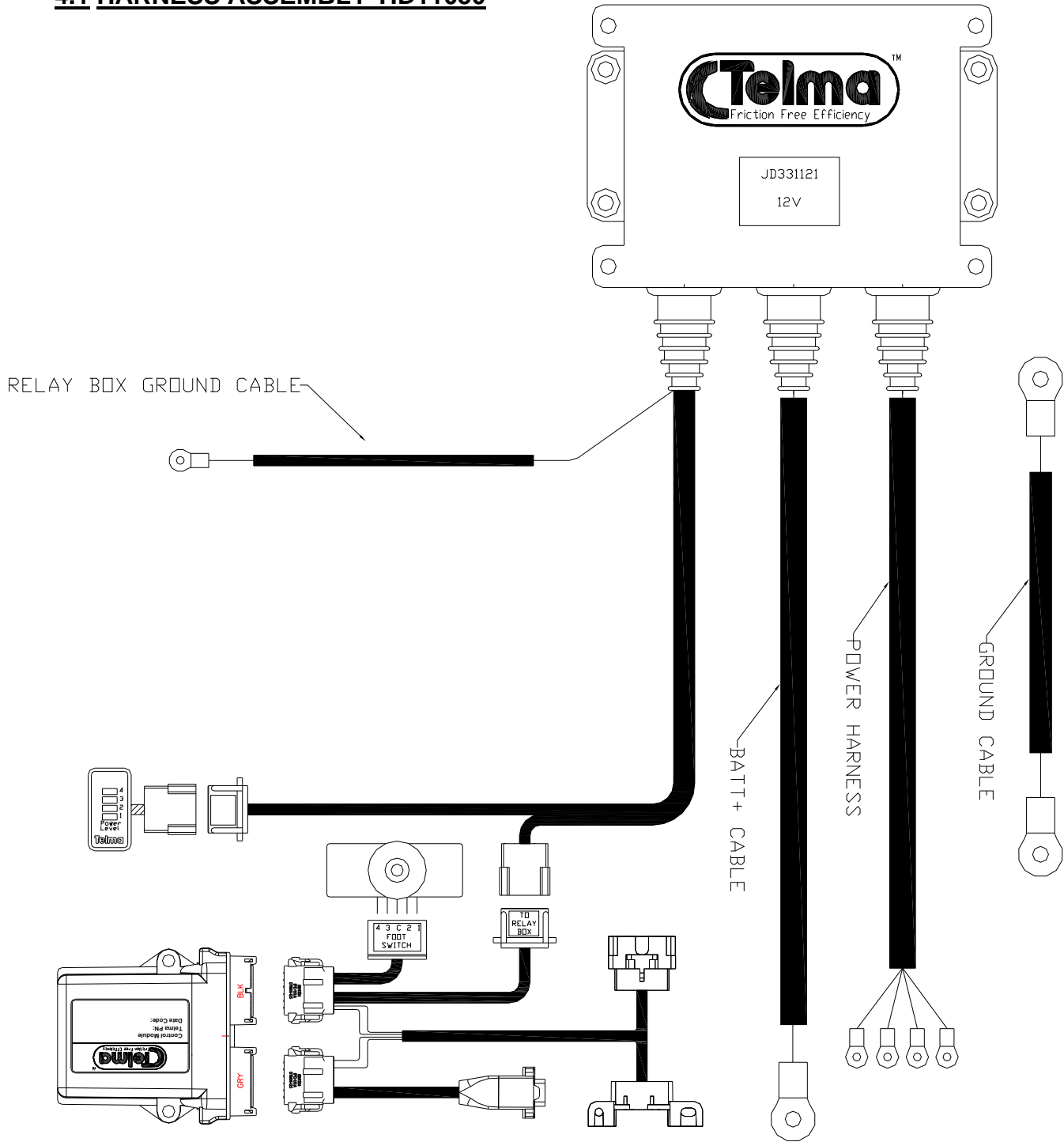
The plunger type foot switch should be carefully adjusted to avoid switch damage and optimize retarder activation in the free play of the pedal. With the return spring installed, use a feeler gauge and adjust the switch stop (item 5) until there is 1/8" gap. The switch plunger should be fully compressed and the brake pedal should be in its highest position.



ITEM	DESCRIPTION
1	3/8" lock washer
2	Pedal bracket
3	foot switch JC120102
4	feeler gauge
5	3/8" diameter switch stop adjusting bolt
6	3/8" jam nuts

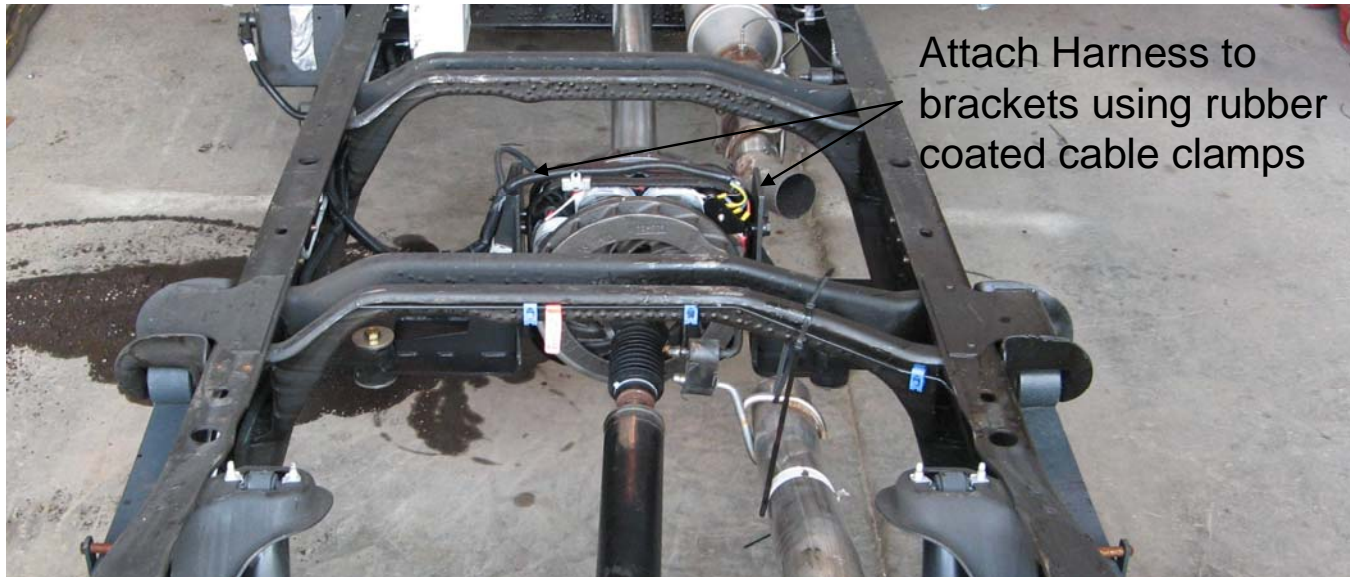
SECTION 4 WIRING HARNESS INSTALLATION

4.1 HARNESS ASSEMBLY TID11050



4.1 POWER HARNESS INSTALLATION

- From the relay box, route the Telma power connection and ground harness along the inside of the frame rail and up over the top along the middle of the Telma. Connect the 10G orange, blue, yellow, and brown wires to the connecting block at the top right rear corner. Connect the 10G relay box ground cable and the 4G Telma main ground cable to the insulated ground terminal at the Telma top left front corner. Coat the terminals with anti-corrosion paint or body undercoat after the connections are made. Secure the harness to the center of the Telma brackets with rubber coated cable clamps. The harness should be secured along the centerline of the Telma and as far away as possible from either rotor to avoid heat damage to the harness. No cables should cross the heat outlets in the periphery of the rotors. Continue across with the black 4G ground cable and connect to negative terminal of the battery pack. If necessary route the red power positive cable along the cross member in front of the Telma and connect to the positive terminal of the battery pack. Secure the cable to the cross member with rubber coated cable clamps.



4.2 CONTROL HARNESS INSTALLATION

- Route the control harness into the cab through the rubber grommet in the floor under the driver's seat. Follow the OEM harness under the carpet to the dashboard. Connect the main harness to the sub-harness at the connector labeled "TO RELAY BOX".
- Find the Telma Control Module cab harness and plug the two plugs into the Telma Control Module.
- Plug the foot switch connector onto the foot switch so that the orange wire is on terminal 1.
- Remove the OEM OBD2 diagnostics connector from its attachment points under the dash and plug the mating OBD2 connector of the Telma harness into the OEM OBD2 connector. Secure together with a wire tie. Attach the OBD2 connector of the Telma harness to the OEM attaching points where the OEM OBD2 diagnostics connector was installed.
- Attach the mating connector to the four wires (org, blu, yel, brn) found in the relay box control harness and plug into the cab harness receptacle labeled "to relay box".
- After final installation of the wiring, connect the PC to configure the Telma Control Module (TRCM) and check proper function. Unplug the gray connector from the module and reconnect in order to power cycle after a configuration change has been made.



- Feed the harness equipped with the light bar mating connector through the light bar hole and plug in the Light Bar.
- Plug the light bar into the hole.





SECTION 6 POST INSTALL CHECKLIST

- Use checklist TIL05064 to check that correct installation was performed and file in the vehicle records
- Connect the PC to configure the Telma Control Module (TRCM) and check proper function. Unplug the gray connector from the module and reconnect in order to power cycle after a configuration change has been made.

TL105064 **TELMA INSTALLATION CHECKLIST**
 REVISED: 23aug11jh **INSTALLATION REPORT**
OBD2 AC50-55



CHASSIS # (last 8)	
Telma serial #	
INSPECTION DATE:	
INSPECTION LOCATION:	
INSPECTED BY:	
Customer:	
Body Manufacturer:	
chassis Make / Model:	
engine:	
Wheelbase:	
Telma installed by:	

PHYSICAL

CHECKS The following checks should be made after the installation is completed. A copy of the completed inspection report should be kept in the vehicle file. **INSPECTION COMMENTS**

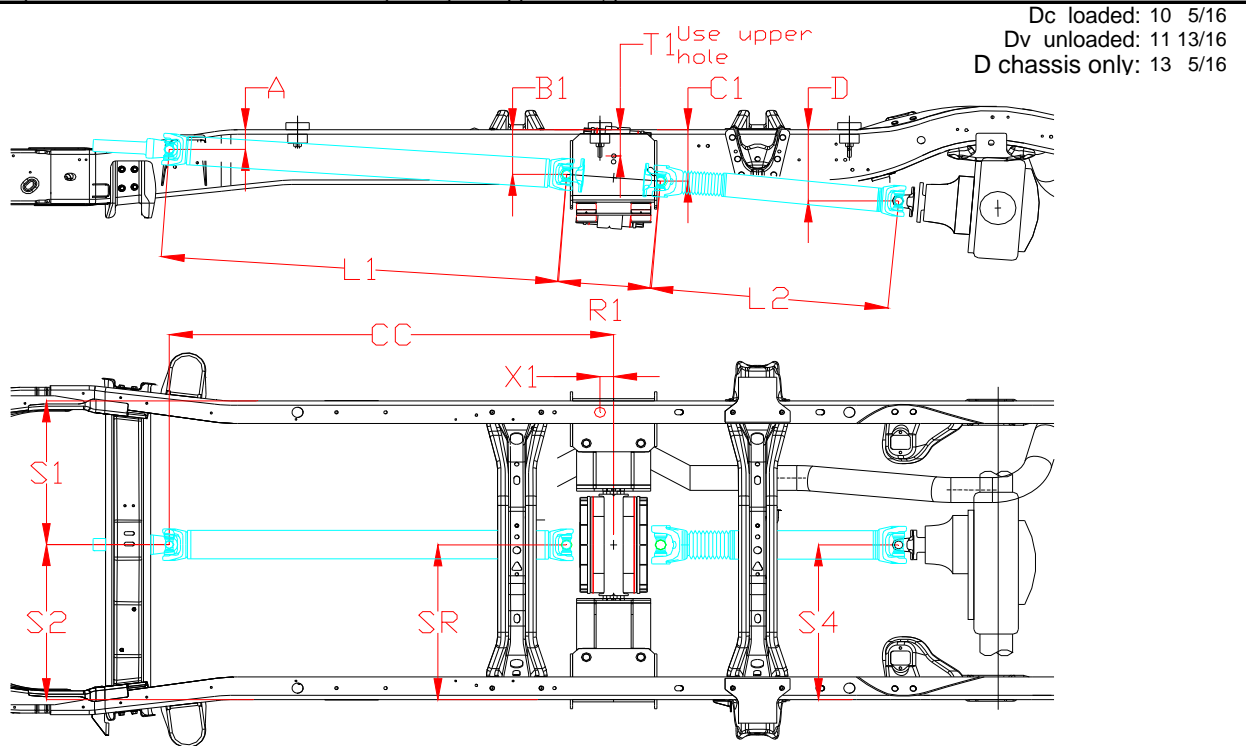
Batteries	The battery pack must consist of 2 batteries connected in parallel equivalent to diesel OEM capacity.																							
Telma Batt "-" and "+" cables	The Telma battery cables (4AWG) must be connected to the terminal of the battery pack or to a remote mounted post connected directly to the post of the battery pack with at least a 4AWG cable. Protect the connection with anti-corrosion paint or body undercoating.																							
Relay Box	The relay box should be mounted in a vertical position. The relay box should be away from heat sources and moving components to prevent damage. The relay box placement should allow easy removal of the cover for inspection. All harnesses should exit from the bottom of the relay box and be secured with a drip loop.																							
Telma	The power connecting block should be at the top right rear corner of the Telma. The Telma ground terminal should be at the top left front corner of the Telma. Heat sensitive chassis components should be no closer than 4 inches from the Telma rotors. All connections should be protected with anti-corrosion paint or coating. Vent tube or vent valve should be installed before brackets are installed on the Telma																							
Control Module	The Telma Control Module (trcm) should be located on the Telma bracket under the driver side dash. Connect to the PC to configure and check operation before release. Refer to TL105087 and TL105088 for product details.																							
Foot Switch	When the brake pedal is in the highest position, the Telma foot switch should be adjusted so that there is a 1/8" gap between the fully compressed foot switch plunger and the pedal bracket. There should be a return spring installed between the foot switch bracket and the pedal bracket in order to maintain the brake pedal in the highest position when released. The Telma foot switch should be oriented so that the wiring connector points up and away from the driver's foot.																							
Indicator Lights	The Telma Light Bar Display should be mounted where it is easily visible to the driver.																							
General Wiring	The control harness and battery connection cables should be secured with cable clamps and routed along the inside of the frame rail wherever possible. All harnesses should be positioned at least 6 inches from exhaust system components or protected with high temperature insulation and heat shields. Avoid sharp edges that could cause damage. At least 3 inches clearance should be maintained from moving or rotating components. Install grommets in holes through sheet metal.																							
Control Harness	The Telma control harness should be routed along the inside of the driver side frame rail from the relay box toward the front of the chassis. It should enter the cab through an existing hole under the driver side stepwell and be routed behind the left kick panel and up under the dash toward the steering column area. Make sure the harness does not interfere with the parking brake mechanism and cannot be damaged when the parking brake is applied.																							
Power Harness	Harnesses connected to the retarder should be positioned along the center of the retarder frame as far away as possible from either retarder rotor and secured to the retarder bracket with rubber-coated metal cable clamps.																							
Drive Shafts	Drive shafts must be equipped with universal joints of the same type as supplied by the OEM. The front drive shaft must be equipped with a slip yoke. When the shaft is installed, the 3" slip should be extended approximately 1 1/2". The rear drive shaft must be equipped with the same type of slip yoke as supplied by the OEM and installed toward the front at the rear of the retarder. When the shaft is installed, the slip should be extended approximately 1 1/2". Front and rear Telma yokes should be in the same plane.																							
Installation drawing Post install Check	Drive shaft lengths and angles should conform to the installation drawing. An electronic anglemeter with 0.1 degree accuracy must be used. Contact Telma for recommendations. all angle measurements are with chassis reference of 0 degrees (zero meter on frame) Check and record measurements and compare to the installation drawing used. Place a copy of this checklist and the install drawing used in the vehicle file	<table border="1"> <thead> <tr> <th>ANGLE</th> <th>LENGTH</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">TRANSMISSION ANGLE</td> </tr> <tr> <td>(FRONT SHAFT INSTALLED LENGTH AND ANGLE) L1</td> <td></td> </tr> <tr> <td>(REAR OR SECOND SHAFT INSTALLED LENGTH AND ANGLE) L2</td> <td></td> </tr> <tr> <td>(REAR SHAFT IN A THREE SHAFT SYSTEM INSTALLED LENGTH AND ANGLE) L3</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">TELMA ANGLE</td> </tr> <tr> <td>(outside top of frame to lower chassis bracket hole) T1</td> <td></td> </tr> <tr> <td>(body mount to lower chassis bracket hole) X1</td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">AXLE ANGLE</td> </tr> <tr> <td>Mor-Ryde Suspension (yes/no)</td> <td></td> </tr> <tr> <td>axle shims installed (yes/no)</td> <td></td> </tr> </tbody> </table>	ANGLE	LENGTH	TRANSMISSION ANGLE		(FRONT SHAFT INSTALLED LENGTH AND ANGLE) L1		(REAR OR SECOND SHAFT INSTALLED LENGTH AND ANGLE) L2		(REAR SHAFT IN A THREE SHAFT SYSTEM INSTALLED LENGTH AND ANGLE) L3		TELMA ANGLE		(outside top of frame to lower chassis bracket hole) T1		(body mount to lower chassis bracket hole) X1		AXLE ANGLE		Mor-Ryde Suspension (yes/no)		axle shims installed (yes/no)	
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OPERATIONAL CHECKS																								
Road Test	The four dash lights illuminate progressively when the brake pedal is applied and vehicle is moving. Telma turns off when the brake pedal is released and vehicle is moving. Telma turns off when the vehicle comes to a stop and the brakes are still applied Telma does not activate if the accelerator is pressed Telma does not activate if the cruise control is engaged The four dash lights do not illuminate if the brakes are not applied No vibrations noticed during road test up to speed limit																							

APPENDIX

VEHICLE TECHNICAL DATA

CHASSIS MAKE / MODEL	CHEVROLET 4500 EXPRESS	CUSTOMER:	
WHEELBASE	159.0"	VEHICLE NUMBER	
ENGINE MAKE / MODEL	CHEVROLET 6.6L DIESEL	SPEED SWITCH / INTERFACE	
TRANSMISSION MAKE / MODEL	CHEVROLET 6L90	TIRE SIZE	225/75R-16
AXLE MAKE / MODEL	AAM	GVW / GCW	14200 lbs
DRIVE TYPE	4X2	BRAKES	HYD
RETARDER MODEL	AC50-55	ABS	
RETARDER PART NUMBER	CN201155	AXLE RATIO	4.10
RETARDER SERIAL NUMBER		DRIVE LINE SERIES	1480
RETARDER CONTROL SYSTEM	FOOT	FLANGE YOKE	3-2-479
MILEAGE AT TIME OF INSTALL		SUSPENSION TYPE	SPRING
HOURS AT TIME OF INSTALL		VOCATION	SHUTTLE

Note: If any of the above mentioned factors vary with your application, please call our TECHNICAL DEPARTMENT.



Dc loaded: 10 5/16
 Dv unloaded: 11 13/16
 D chassis only: 13 5/16

TRANSMISSION= 3.5°
 L1= 4.0°

CHASSIS BRACKET= 0.0°
 RETARDER= 4.5°



L2 CHASSIS ONLY (±1.0°) = 9.6°
 L2 UNLOADED WITH BODY (±1.0°) = 6.9°
 L2 LOADED (±1.0°) = 4.1°

AXLE UNLOADED= 4.6°
 AXLE LOADED= 4.5°

A	B1	C1	CC1	T1	X1
3 4/8	7	8 1/16	57 5/16	4 1/2	-1 3/4
S1	S2	S4	SR	R1	
18 3/4	23 1/4	21 3/4	23 1/4	12 1/16	

SHAFT LENGTH	L1	L2
SHAFT MINIMUM TUBE DIAMETER	4.00	3.00
SHAFT MINIMUM TUBE THICKNESS	0.083	0.083

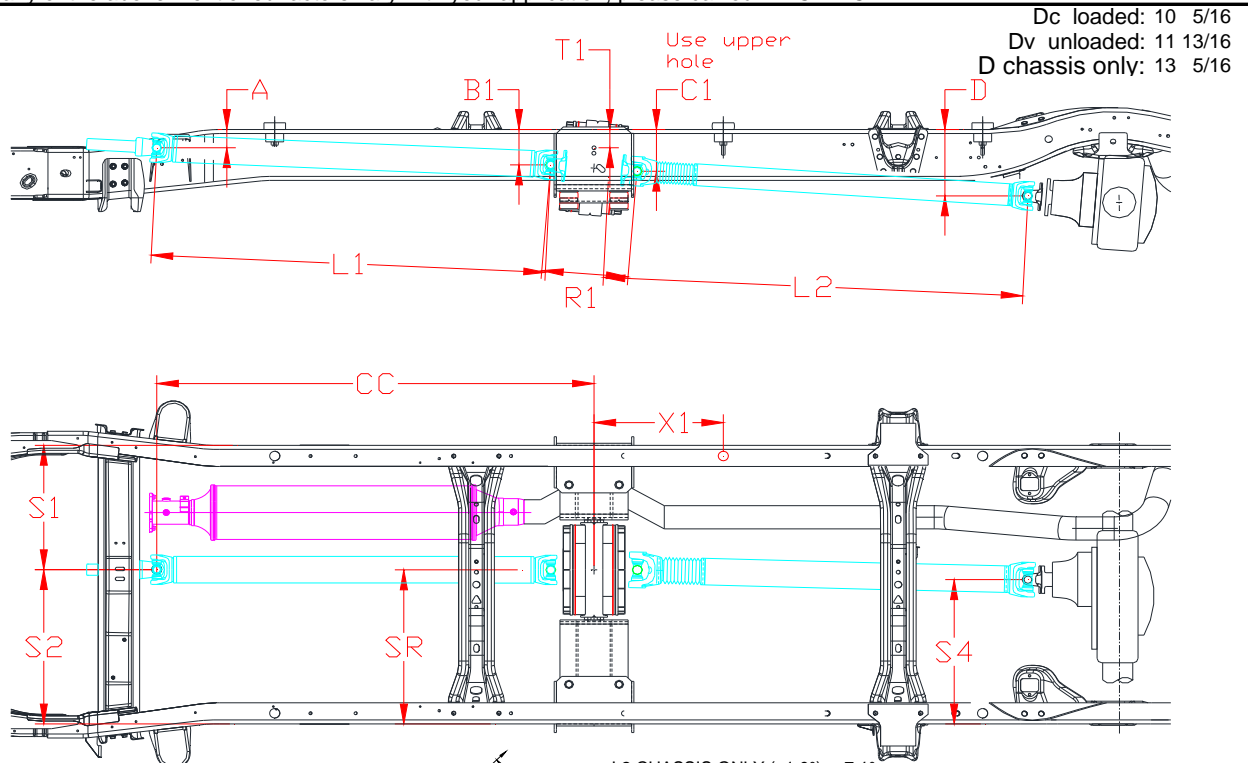
angle tolerance=±0.2°
 dimension tolerance=±1/16"

- NOTE 1: Drive shaft lengths are measured from center of U-joint and are installed lengths.
- NOTE 2: All drive shafts must be dynamically balanced after modification.
- NOTE 3: Always verify proper shaft lengths before modification
- NOTE 4: When not specified, the front & the rear drive shafts, on each retarder side, must have at least the same slip as the original drive shaft
- NOTE 5: When not specified, the flange yoke on each retarder side must have the maximum working angle capacity available in the driveline series concerned.
- NOTE 6: adjust retarder to angle indicated by rotating bracket
- NOTE 7: After installation is completed, measure drive shaft angles and compare to the angles on the installation drawing. Contact TELMA Customer Support Engineering if the angles measured do not conform to the drawing
- NOTE 8: Use brackets TIB03123, TIB03124, TIB03125
- NOTE 9: Check axle angle after body is installed and if necessary adjust to 4.5° with frame reference of 0°
- NOTE 10: maximum allowed vehicle speed 89mph

VEHICLE TECHNICAL DATA

CHASSIS MAKE / MODEL	CHEVROLET 4500 EXPRESS	CUSTOMER:	
WHEELBASE	177.0"	VEHICLE NUMBER	
ENGINE MAKE / MODEL	CHEVROLET 6.6L DIESEL	SPEED SWITCH / INTERFACE	
TRANSMISSION MAKE / MODEL	CHEVROLET 6L90	TIRE SIZE	225/75R-16
AXLE MAKE / MODEL	AAM	GVW / GCW	14200 lbs
DRIVE TYPE	4X2	BRAKES	HYD
RETARDER MODEL	AC50-55	ABS	
RETARDER PART NUMBER	CN201155	AXLE RATIO	4.10
RETARDER SERIAL NUMBER		DRIVE LINE SERIES	1480
RETARDER CONTROL SYSTEM	FOOT	FLANGE YOKE	3-2-479
MILEAGE AT TIME OF INSTALL		SUSPENSION TYPE	SPRING
HOURS AT TIME OF INSTALL		VOCATION	SHUTTLE

Note: If any of the above mentioned factors vary with your application, please call our TECHNICAL DEPARTMENT.


 TRANSMISSION= 3.5°
L1= 3.9°

 CHASSIS BRACKET= 0.0°
RETARDER= 4.5°

 L2 CHASSIS ONLY (±1.0°) = 7.1°
L2 UNLOADED WITH BODY (±1.0°) = 5.1°
L2 LOADED (±1.0°) = 3.1°

 AXLE UNLOADED= 4.6°
AXLE LOADED= 4.5°

A	B1	C1	CC1	T1	X1
3	7 1/16	8 1/16	65 7/16	4 1/2	8 1/2
S1	S2	S4	SR	R1	
18 3/4	23 1/4	21 3/4	23 1/4	12 1/16	

SHAFT LENGTH	L1	L2
SHAFT MINIMUM TUBE DIAMETER	59 9/16	42 3/4
SHAFT MINIMUM TUBE THICKNESS	4.00	3.00
	0.083	0.083

 angle tolerance=±0.2°
dimension tolerance=±1/16"

NOTE 1: Drive shaft lengths are measured from center of U-joint and are installed lengths.

NOTE 2: All drive shafts must be dynamically balanced after modification.

NOTE 3: Always verify proper shaft lengths before modification

NOTE 4: When not specified, the front & the rear drive shafts, on each retarder side, must have at least the same slip as the original drive shaft

NOTE 5: When not specified, the flange yoke on each retarder side must have the maximum working angle capacity available in the driveline series concerned.

NOTE 6: adjust retarder to angle indicated by rotating bracket

NOTE 7: After installation is completed, measure drive shaft angles and compare to the angles on the installation drawing.

Contact TELMA Customer Support Engineering if the angles measured do not conform to the drawing

NOTE 8: Use brackets TIB03123, TIB03124, TIB03125

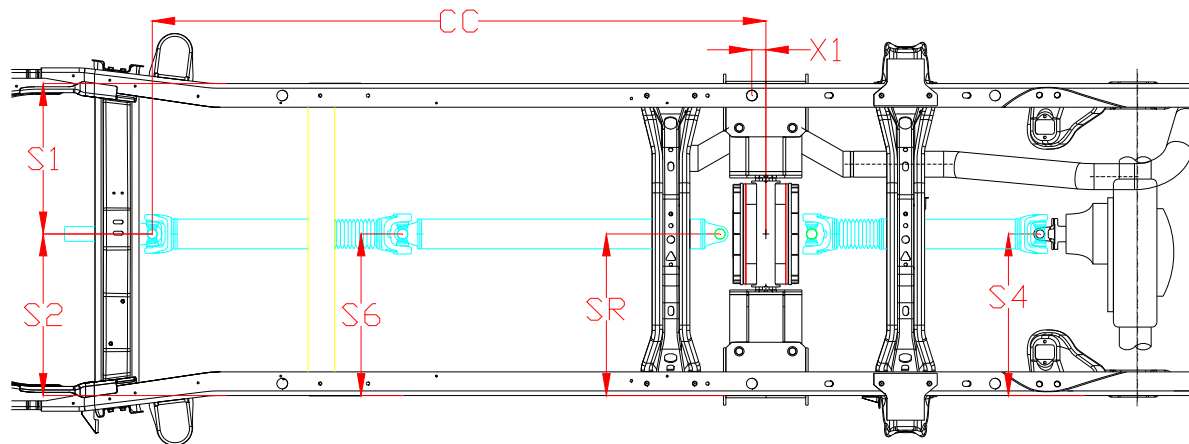
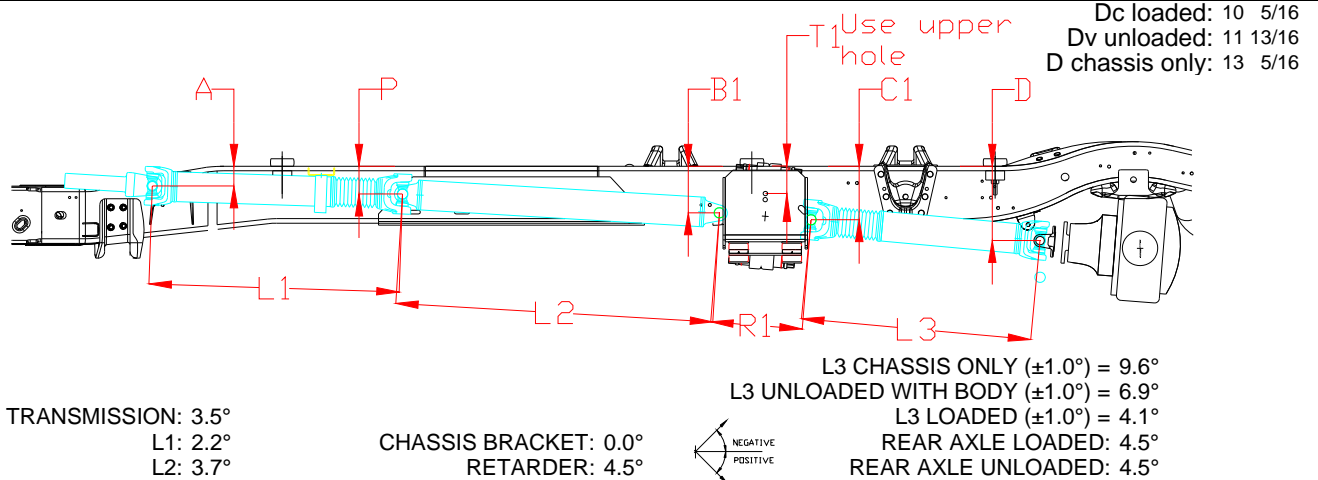
NOTE 9: Check axle angle after body is installed and if necessary adjust to 4.5° with frame reference of 0°

NOTE 10: maximum allowed vehicle speed 89mph

VEHICLE TECHNICAL DATA

CHASSIS MAKE / MODEL	CHEVROLET 4500 EXPRESS	CUSTOMER:	
WHEELBASE	177.0" STRETCH FROM 159	VEHICLE NUMBER	
ENGINE MAKE / MODEL	CHEVROLET 6.6L DIESEL	SPEED SWITCH / INTERFACE	
TRANSMISSION MAKE / MODEL	CHEVROLET 6L90	TIRE SIZE	225/75R-16
AXLE MAKE / MODEL	AAM	GVW / GCW	14200 lbs
DRIVE TYPE	4X2	BRAKES	HYD
RETARDER MODEL	AC50-55	ABS	
RETARDER PART NUMBER	CN201155	AXLE RATIO	4.10
RETARDER SERIAL NUMBER		DRIVE LINE SERIES	1480
RETARDER CONTROL SYSTEM	FOOT	FLANGE YOKE	3-2-479
MILEAGE AT TIME OF INSTALL		SUSPENSION TYPE	SPRING
HOURS AT TIME OF INSTALL		VOCATION	SHUTTLE

Note: If any of the above mentioned factors vary with your application, please call our TECHNICAL DEPARTMENT.



A	B1	C1	P	CC1	T1	X1
3 1/2	7	8 1/16	5	75 5/16	4 1/2	-1 3/4
S1	S2	S4	S6	SR	R1	
18 3/4	23 1/4	21 3/4	23 1/4	23 1/4	12 1/16	

	L1	L2	L3
SHAFT LENGTH	34	35 3/8	31 1/2
SHAFT MINIMUM TUBE DIAMETER	3.00	3.00	3.00
SHAFT MINIMUM TUBE THICKNESS	0.083	0.083	0.083

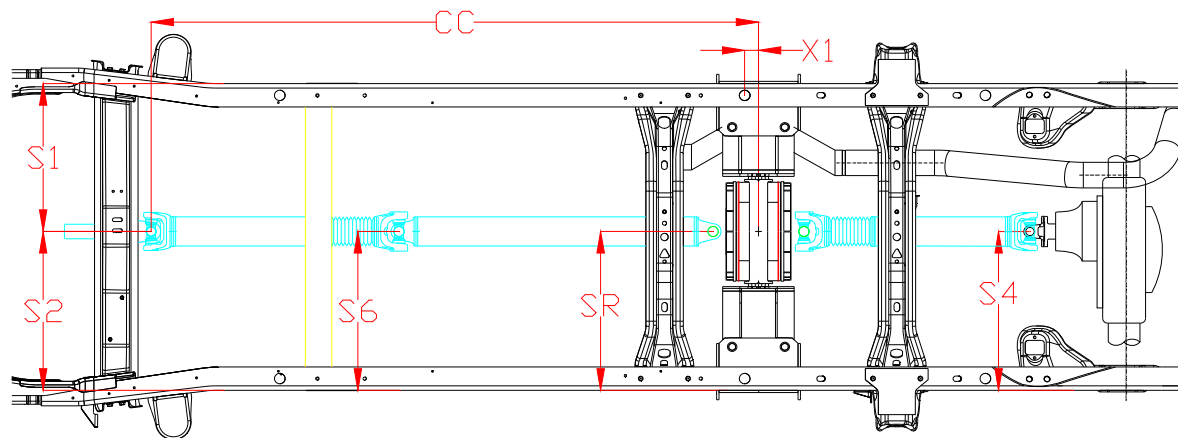
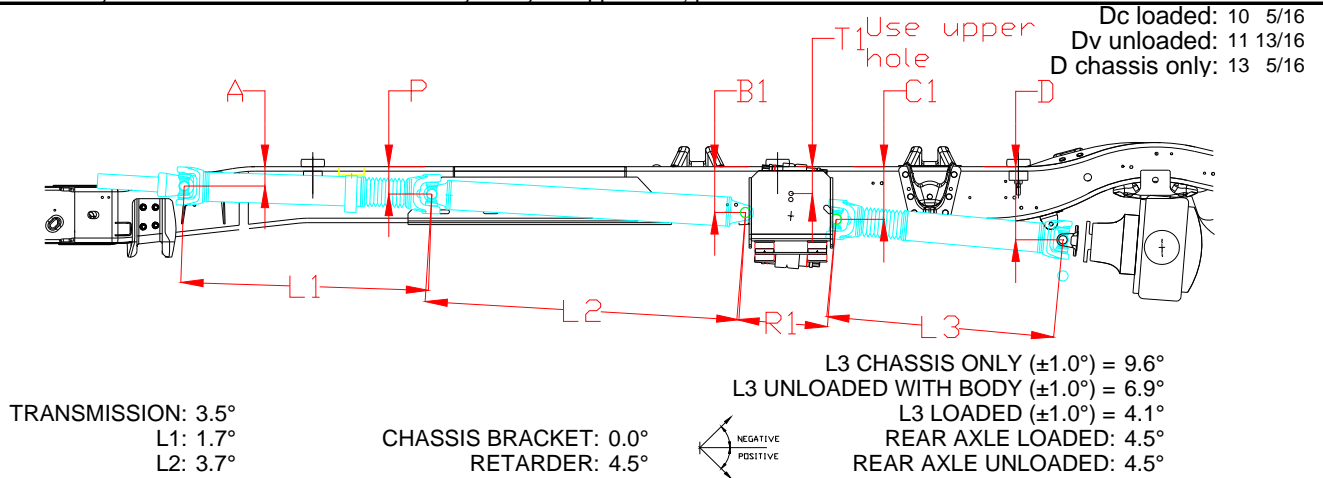
CAUTION:

- NOTE 1: L1, L2 and L3 are measured from center of U-joint and are installed lengths.
- NOTE 2: All drive shafts must be dynamically balanced after modification.
- NOTE 3: When not specified, the front & the rear drive shafts, on each retarder side, must have at least the same slip as the original driveshaft
- NOTE 4: When not specified, the flange yoke on each retarder side must have the maximum working angle capacity available for the driveline series.
- NOTE 5: Use brackets TIB03128, TIB03129, TIB03125
- NOTE 6: ADJUST CARRIER BEARING SO THAT SECOND SHAFT (L2) IS 3.7° WITH CHASSIS REFERENCE OF 0°
- NOTE 7: ADJUST CARRIER BEARING SO THAT SECOND U-JOINT OFFSET IS 2.25"
- NOTE 8: Check axle angle after body is installed and if necessary adjust to 4.5° with frame reference of 0°
- NOTE 9: maximum allowed vehicle speed 89mph

VEHICLE TECHNICAL DATA

CHASSIS MAKE / MODEL	CHEVROLET 4500 EXPRESS	CUSTOMER:	
WHEELBASE	182.0" STRETCH FROM 159"	VEHICLE NUMBER	
ENGINE MAKE / MODEL	CHEVROLET 6.6L DIESEL	SPEED SWITCH / INTERFACE	
TRANSMISSION MAKE / MODEL	CHEVROLET 6L90	TIRE SIZE	225/75R-16
AXLE MAKE / MODEL	AAM	GVW / GCW	14200 lbs
DRIVE TYPE	4X2	BRAKES	HYD
RETARDER MODEL	AC50-55	ABS	
RETARDER PART NUMBER	CN201155	AXLE RATIO	4.10
RETARDER SERIAL NUMBER		DRIVE LINE SERIES	1480
RETARDER CONTROL SYSTEM	FOOT	FLANGE YOKE	3-2-479
MILEAGE AT TIME OF INSTALL		SUSPENSION TYPE	SPRING
HOURS AT TIME OF INSTALL		VOCATION	SHUTTLE

Note: If any of the above mentioned factors vary with your application, please call our TECHNICAL DEPARTMENT.



A	B1	C1	P	CC1	T1	X1
3 1/2	7	8 1/16	4 1/2	80 5/16	4 1/2	-1 3/4
S1	S2	S4	S6	SR	R1	
18 3/4	23 1/4	21 3/4	23 1/4	23 1/4	12 1/16	

SHAFT LENGTH	L1	L2	L3
	34	40 3/8	31 1/2
SHAFT MINIMUM TUBE DIAMETER	3.00	3.00	3.00
SHAFT MINIMUM TUBE THICKNESS	0.083	0.083	0.083

CAUTION:

- NOTE 1: L1, L2 and L3 are measured from center of U-joint and are installed lengths.
- NOTE 2: All drive shafts must be dynamically balanced after modification.
- NOTE 3: When not specified, the front & the rear drive shafts, on each retarder side, must have at least the same slip as the original driveshaft
- NOTE 4: When not specified, the flange yoke on each retarder side must have the maximum working angle capacity available for the driveline series.
- NOTE 5: **Use brackets TIB03123, TIB03124, TIB03125**
- NOTE 6: **ADJUST CARRIER BEARING SO THAT SECOND SHAFT (L2) IS 3.7° WITH CHASSIS REFERENCE OF 0°**
- NOTE 7: **ADJUST CARRIER BEARING SO THAT SECOND U-JOINT OFFSET IS 2.25"**
- NOTE 8: **Check axle angle after body is installed and if necessary adjust to 4.5° with frame reference of 0°**
- NOTE 9: **maximum allowed vehicle speed 89mph**