



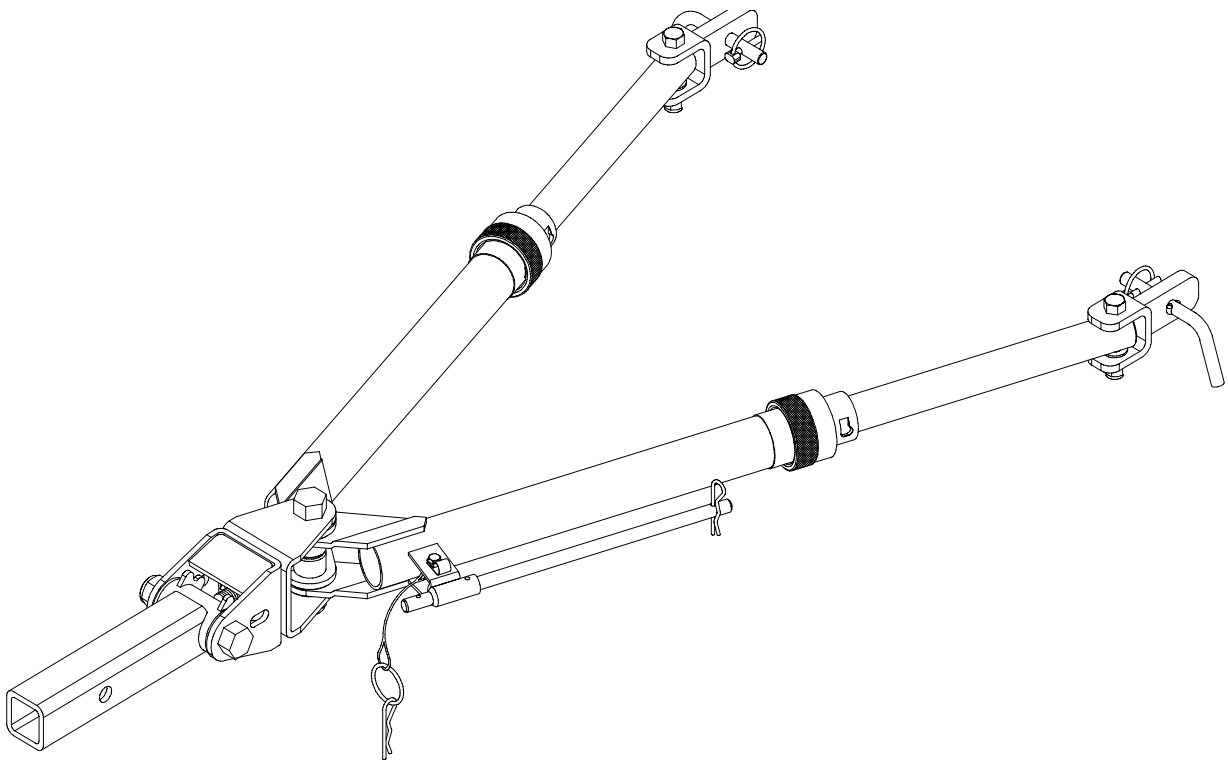
Excali-Bar[®]

SELF-ALIGNING TOW BAR

OWNERS MANUAL

ASSEMBLY
CALIBRATION
OPERATION
REPLACEMENT PARTS

READ complete manual CAREFULLY
BEFORE attempting operation.



DEMCO • Dethmers Mfg. Co. • P.O. Box 189 • 4010 320th Street • Boyden, IA 51234
PH: (712) 725-2311 or (712) 725-2302 • Toll Free: 1-800-543-3626 • FAX: (712) 725-2380

WARNING: Exceeding weight limitations or not using a towing vehicle larger and at least 1,000 lbs. heavier than the tow bar and the towed vehicle combined can result in loss of towing vehicle control, separation of the tow bar from the towing vehicle, or separation of the towed vehicle from the tow bar, causing severe personal injury, death, and/or property damage.



SAFETY

- **DO NOT** use worn or damaged cables.
- Examine pivot points and latch collars to make sure they are in good working condition. Check after first 5 miles and every 200 miles thereafter.
- Be certain the safety lock pins lock the clevis pins.
- Keep fingers away from pivot points to prevent personal injury.
- Check clearance between vehicles in a turning situation.

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Class III Hitch Req'd for 5000#
Class IV Hitch Req'd for 6000#



DETHMERS MFG. COMPANY
4010 320th St., P.O. Box 189
Boyd, Iowa 51234
PH: 1-800-54DEMCO (1-800-543-3626)

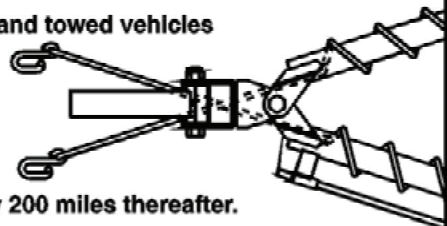
Patent Number: Re 35,482
Patent Pending

TB21001, Rev.1

Important User Instructions

**To prevent the possibility of personal injury or property damage
follow these safety items:**

- Before operating, read and follow instruction manual.
- Be sure **SAFETY CABLES** are hooked to both the towing and towed vehicles using the "Criss-Cross" method.
- Replace all worn or damaged parts.
- Be certain all attaching pins and safety pins are in place.
- Check all attaching points after the first 5 miles and every 200 miles thereafter.
- Check clearance between vehicles in a turning situation.



TB21004

WARNING: FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN LOSS OF TOWING VEHICLE CONTROL, SEPARATION OF THE TOW BAR FROM THE TOWING VEHICLE, SEPARATION OF THE TOWED VEHICLE FROM THE TOW BAR, CAUSING SEVERE PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE.

ADDITIONAL SAFETY ITEMS

Safety is of utmost importance at all times. There are several items that must be checked each time before using and while using the *Excali-Bar®*.

Before allowing anyone to hook up or operate the *Excali-Bar®*, be sure they have read and understand the proper operating procedure.

This unit must be used with a Class III, 5,000 lb. Hitch.

Be sure the steering components of the towed vehicle are properly aligned.

The male receiver tube must fit snugly in the hitch receiver and the safety pin must be in position to lock the receiver and tube together.

NOTE: This unit can be backed up in moderate increments. Any severe backwards cornering could result in damage to the *Excali-Bar®* and/or towed vehicle chassis.

For automatic transmissions: Consult your vehicle owners manual for towing suitability with the drive shaft connected. Otherwise, the towed vehicle will have to be equipped with a transmission pump or drive shaft disconnect.

Be sure the **SAFETY CABLES w/retainers** are hooked to both the towing and towed vehicles using the criss-cross method.

Do not load the towed vehicle with anything as you may exceed the towing capacity of the tow bar.

Check to make sure that all lights are in proper working order.

Make sure the optional light bar is fastened securely at the rear of the towed vehicle.

MAINTENANCE

Periodically check all bolts and nuts to ensure proper tension or torque.

Check all pivot points for wear or breakage.

Replace any worn or damaged parts with O.E.M. parts only.

An occasional spray of lubricant may be required inside the Lock Collar of the extending legs.

DO NOT lubricate any of the pivot points of the *Excali-Bar®*. These are self-lubricating washers and your towbar could lose its self-supporting ability.

Keep the *Excali-Bar®* covered when stored on or off the towing vehicle.

If the Lock Collars become limited in their movement they may require disassembly using the instructions provided on page 6.

Make sure all bolts are properly tightened and those requiring a set torque are up to specifications:

Center Horizontal Pivot Bolt - 40 ft./lbs.

Front Vertical Pivot Bolt - 120 ft./lbs.

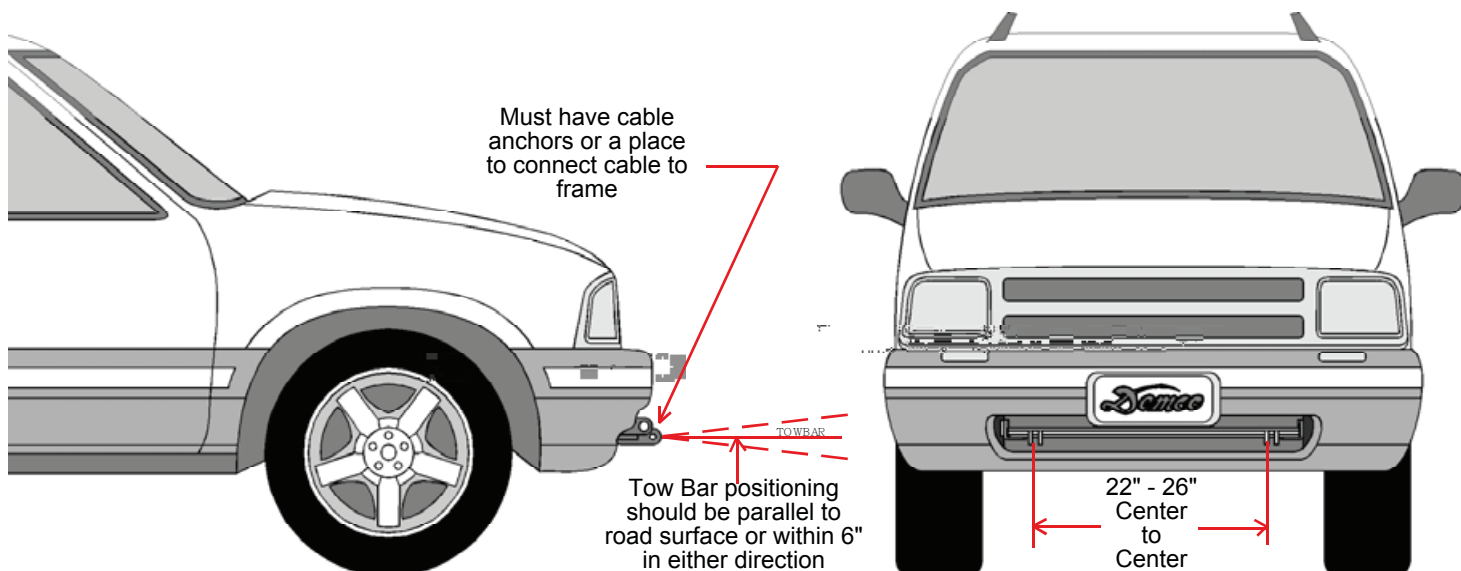
(This bolt can be tightened to a torque range of 75 ft./lbs - 130 ft./lbs for the ease of maneuverability)

Rear Horizontal Pivot Bolt - 60 ft./lbs.

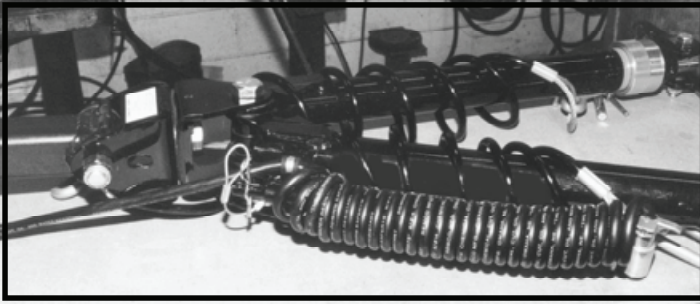
(See diagram on Page 5)

Thank you for Purchasing *Demo* Products.

BASE PLATE RECOMMENDATIONS



SAFETY CABLE & LIGHT CABLE INSTALLATION



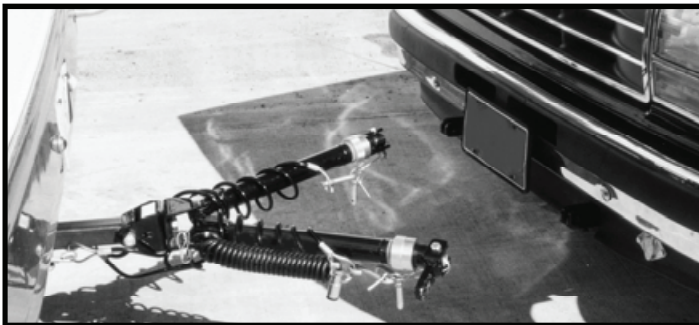
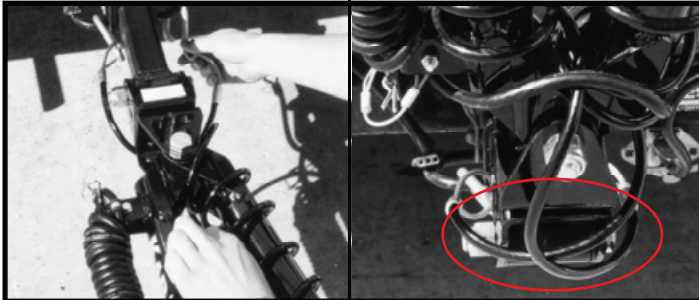
Step 1. Remove safety cables from box and coil a cable around each leg of the tow bar, starting near the pivot point. Install the light cable (optional) by placing the coil over the wire support rod. Secure the cable with the cable anchor located on left connecting leg lock pin mount. Remove 1/4" bolt, place anchor over coil of cable and replace bolt. This will prevent the cable from pulling off and becoming damaged.

HOOKING UP THE VEHICLE TO BE TOWED

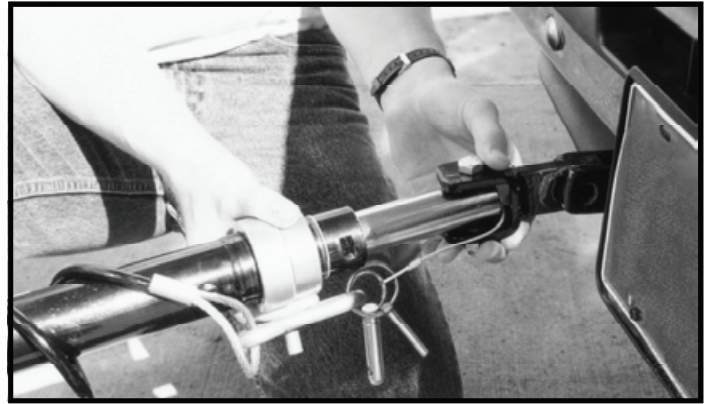
Refer to load limits on inside of front cover.



Step 1. Insert the *Excali-Bar*® into a Class III (5,000 lb.) hitch. Make sure the receiver tube of the tow bar is secured with a hitch pin supplied with your *Excali-Bar*®. Criss Cross cables underneath pivot assembly and attach safety cables near receiver of towing vehicle. Secure with rubber retainers.



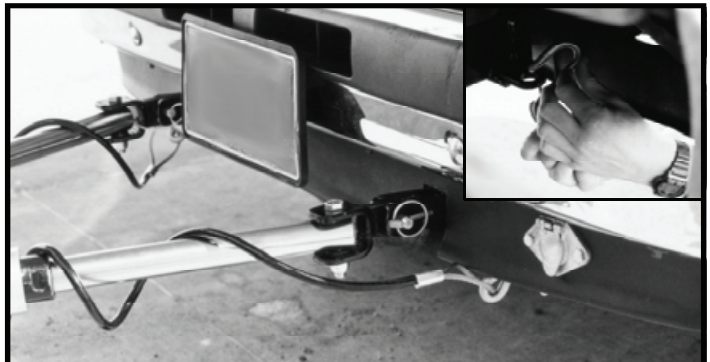
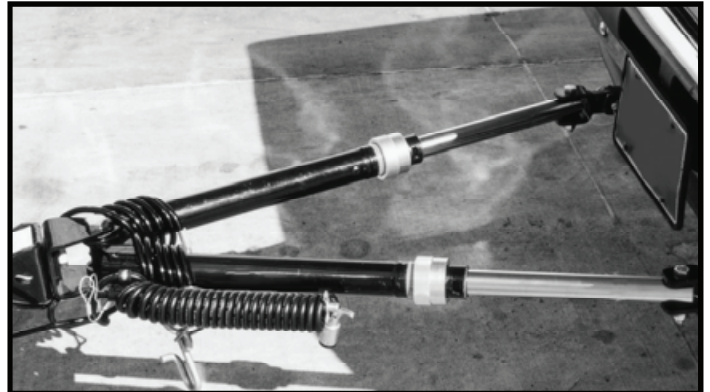
Step 2. Position the vehicle to be towed approx. 24" behind the towing vehicle. The vehicles **do not** have to be in straight alignment to complete the hook-up. **Engage towed vehicle and towing vehicle parking brake.**



Step 3. Extend legs by pulling the Lock Collar back over the green stripe, which releases the locking mechanism, and slide the rear legs outward.



Step 4. Slide and twist the legs into position to attach them to the baseplate. Secure to baseplate using the two attaching pins and 1/4" Quick-Lock Pin. **Towing vehicle must be larger and at least 1000 lbs. heavier than the towed vehicle.**



(Continued on Page 3)

Step 5. Once you are secured to the tow bar, release towed vehicle parking brake, shift transmission into neutral and unlock the steering wheel. **NOTE:** For four-wheel drive units the transfer unit must be shifted into neutral also. **Reminder:** Consult your vehicles manufacturer for towing suitability.

Attach Safety Cables w/rubber retainers to the baseplate on towed vehicle. Drive the towing vehicle straight forward approx. 20 feet until the vehicles are in alignment. Look to see if green indicator stripes are showing on both Lock Collars. If they are not, drive straight forward a few more feet then examine again. Repeat procedure until securely latched.

Alternative Method: If vehicles are in alignment you can back-up towed vehicle to latch legs. If this fails to latch legs use above method.

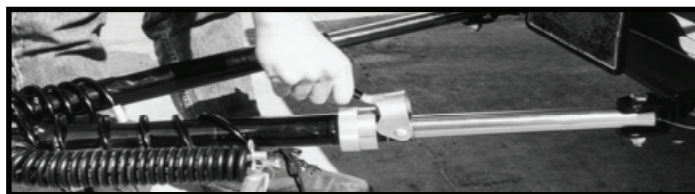
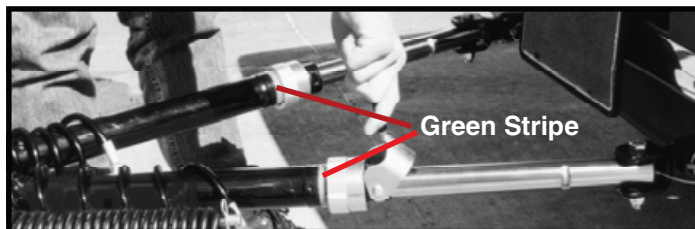


Step 6. Now connect the lighting cable between the towing vehicle and the towed vehicle lighting system or optional light bar. The coiled section of the cable will be stored on the support rod of the left connecting leg. The cotter pin in the end of the support rod can be used to keep any excess cable from sliding off.

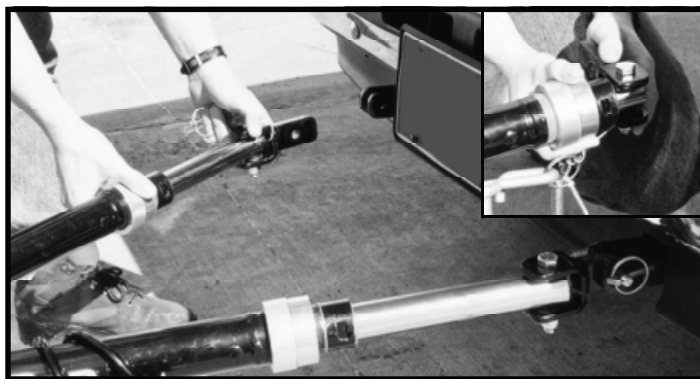
REMINDER: The transmission must be in neutral and the steering must be unlocked to allow the front wheels to "Track" and disengage the parking brake of the towed vehicle.

UNHOOKING THE TOWED VEHICLE

Step 1. Begin unhooking your unit by first applying both vehicle parking brakes and unhook your lighting and safety cables. **Failure to have parking brakes applied could allow towed vehicle to roll forward, this could result in limited space between towing vehicle and towed vehicle.**



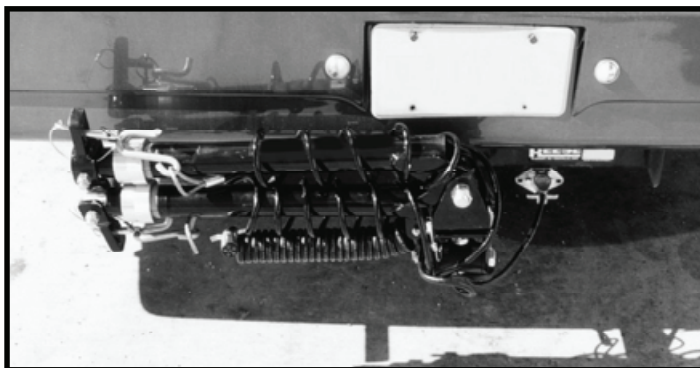
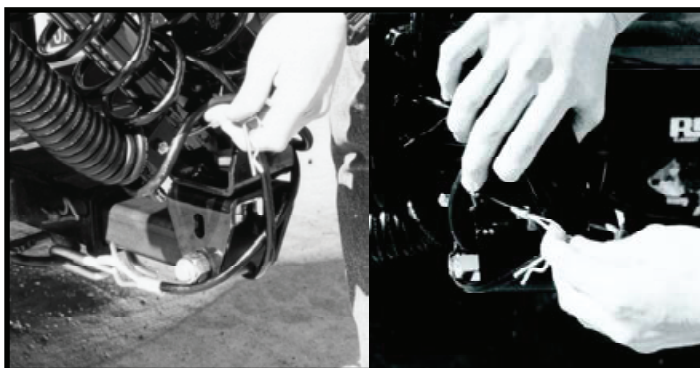
Step 2. Use the Lock Collar Release Tool to relieve any pressure in the connecting legs between the two vehicles.



Step 3. Remove pins that attach tow bar to towed vehicle. *Excali-Bar®* will remain in position. Now release Lock Collars and slide the extendable legs back into tube. You must rotate the attaching clevis 90° for the leg to latch in the storage position.



Step 4. Now fold both legs together and push them upward.



Step 5. Rotate them counter-clockwise into the storage position. The unit is self supportive in this position. Insert the small hairpin into the lockpin inside the front yoke. Cover your *Excali-Bar®* and you are ready to drive your vehicle.

NOTE: If you need to store your *Excali-Bar®* on the opposite side you must rotate the rear yoke 180° and rotate the legs clockwise into the storage position.

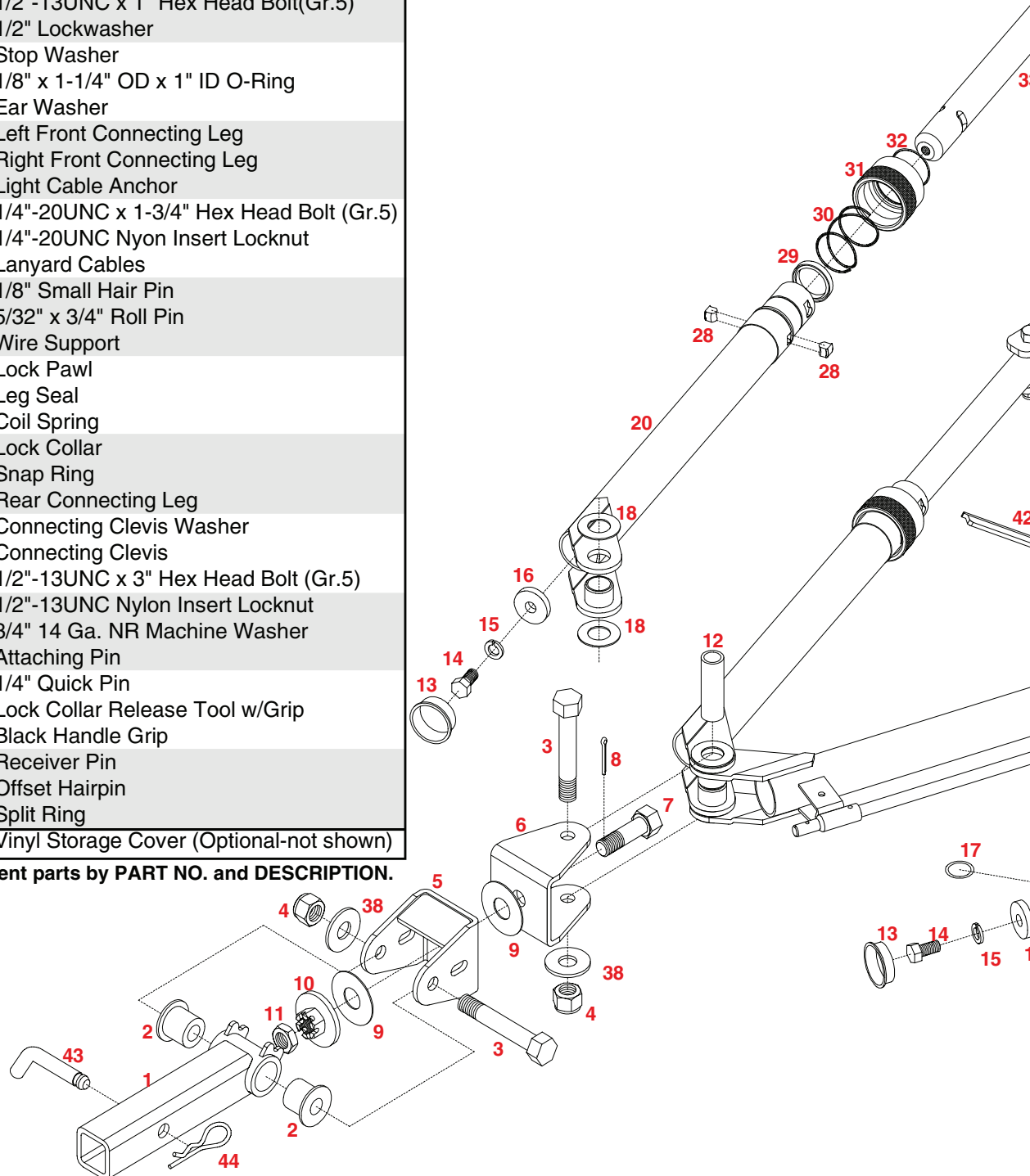
REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	03796 X	1	Male Receiver
2.	03808 X	2	Crosstube Bushing
3.	07161 X	2	3/4"-10UNC x 4-1/2" Hex Head Bolt (Gr.5)
4.	02961 X	2	3/4"-10UNC Nylon Insert Locknut
5.	03798 X	1	Front Yoke
6.	03799 X	1	Rear Yoke
7.	07162 X	1	3/4"-16UNF x 2-1/2" Hex Head Bolt (Gr.5)
8.	00116 X	1	5/32" x 1-1/2" Ig. Cotter Pin
9.	03806 X	2	Yoke Washer
10.	03797 X	1	Thrust Plate
11.	07218 X	1	3/4"-16UNF Hex Jam Nut
12.	03810 X	1	Connecting Arm Bushing
13.	05645 X	2	1-3/4" Round Caplug
14.	04795 X	2	1/2"-13UNC x 1" Hex Head Bolt(Gr.5)
15.	00084 X	2	1/2" Lockwasher
16.	03804 X	2	Stop Washer
17.	01516 X	1	1/8" x 1-1/4" OD x 1" ID O-Ring
18.	03807 X	4	Ear Washer
19.	07696 X	1	Left Front Connecting Leg
20.	07697 X	1	Right Front Connecting Leg
21.	07221 X	1	Light Cable Anchor
22.	00879 X	1	1/4"-20UNC x 1-3/4" Hex Head Bolt (Gr.5)
23.	02772 X	1	1/4"-20UNC Nylon Insert Locknut
24.	07222 X	1	Lanyard Cables
25.	00182 X	2	1/8" Small Hair Pin
26.	07223 X	1	5/32" x 3/4" Roll Pin
27.	03805 X	1	Wire Support
28.	03871 X	4	Lock Pawl
29.	07224 X	2	Leg Seal
30.	03872 X	2	Coil Spring
31.	07695 X	2	Lock Collar
32.	03873 X	2	Snap Ring
33.	07694 X	2	Rear Connecting Leg
34.	03809 X	4	Connecting Clevis Washer
35.	03803 X	2	Connecting Clevis
36.	07164 X	2	1/2"-13UNC x 3" Hex Head Bolt (Gr.5)
37.	02178 X	4	1/2"-13UNC Nylon Insert Locknut
38.	07275 X	2	3/4" 14 Ga. NR Machine Washer
39.	03878 X	2	Attaching Pin
40.	02397 X	2	1/4" Quick Pin
41.	03870 X	1	Lock Collar Release Tool w/Grip
42.	02243 X	2	Black Handle Grip
43.	07248 X	1	Receiver Pin
44.	07245 X	1	Offset Hairpin
45.	07225 X	1	Split Ring
-	9523002	-	Vinyl Storage Cover (Optional-not shown)

Please order replacement parts by PART NO. and DESCRIPTION.



PARTS BREAKDOWN

Order No. 9511004



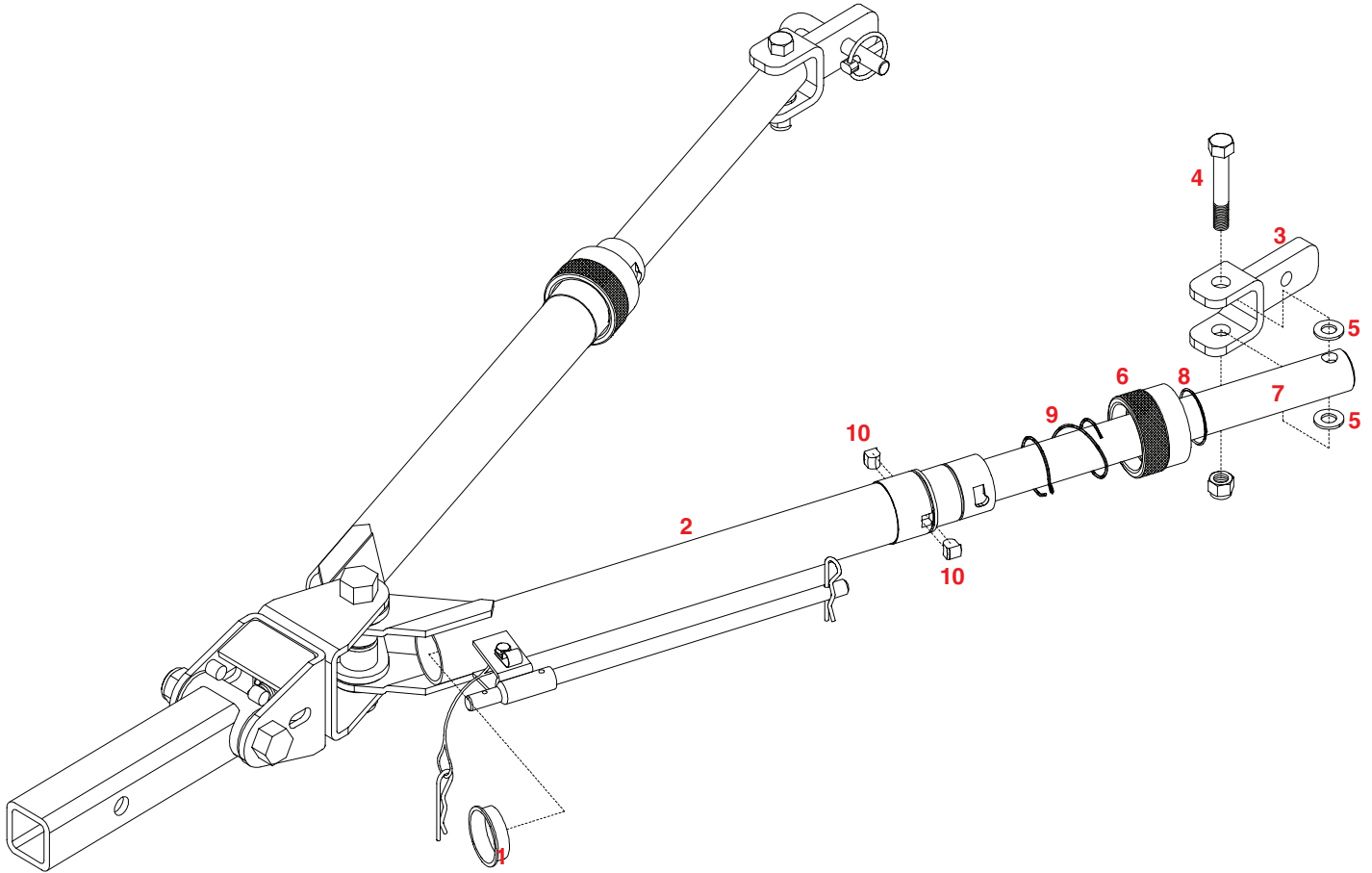
CROSS SECTIONAL VIEW OF ASSEMBLED FLEX-JOINT

This technical diagram illustrates the cross-sectional assembly of a flex-joint. The components and their associated torque specifications are as follows:

- 120 ft./lbs.**: Torque specification for the Crosstube Bushing.
- Crosstube Bushing**: The central bushing component.
- Yoke Washers**: Washers located on the left side of the assembly.
- 40 ft./lbs.**: Torque specification for the bolts securing the Yoke Washers.
- Ear Washers**: Washers located on the right side of the assembly.
- 60 ft./lbs.**: Torque specification for the bolts securing the Ear Washers.
- Inner Sleeve**: The sleeve component on the right side.
- Pivot Bushing**: The bushing at the end of the Right Connecting Arm.
- Right Connecting Arm**: The arm extending to the right.
- Left Connecting Arm**: The arm extending to the left.
- O-Ring**: The seal located between the Inner Sleeve and the Right Connecting Arm.



LOCK COLLAR MAINTENANCE INSTRUCTIONS



DISASSEMBLY:

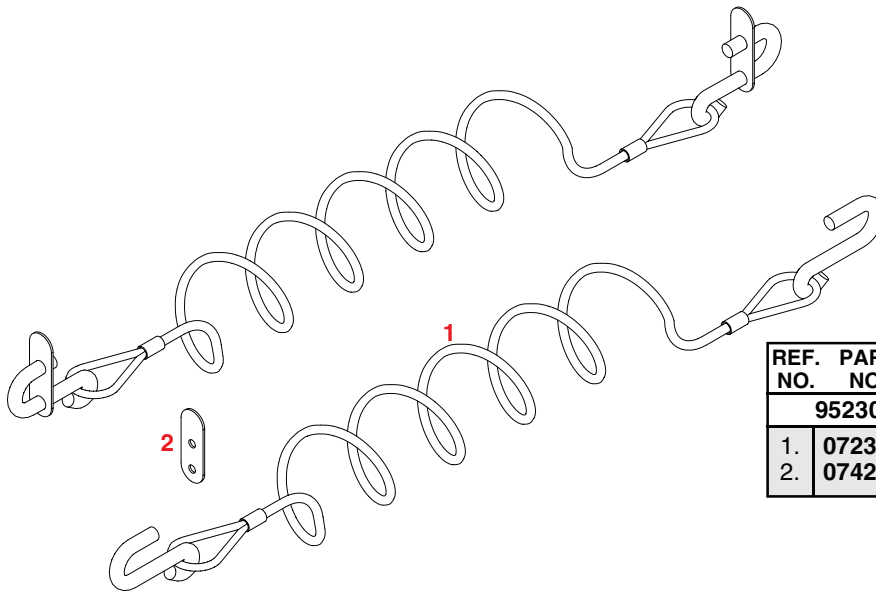
1. Leave *Excali-Bar*® on towing vehicle or clamp hitch tube in heavy-duty vise.
2. Pull back the Lock Collar (#6) and push the Rear Leg (#7) approximately halfway in. This will hold the Lock Collar in the release position.
3. Remove the snap-ring (#8).
4. While holding Lock Collar, pull rear connecting leg outward to the latch position and collar will release completely. **NOTE:** Lock Pawls can be removed at this time for cleaning and lock collar (#6) can be pulled forward and inside of lock collar cleaned. **NOTE: For extensive cleaning or shaft removal;** Remove caplugs (#1) from the Front Connecting Leg Tube (#2) and unbolt Connecting Clevis (#3) from Rear Connecting Leg (#7) by removing the 1/2" x 3" bolts (#4), washers (#5) and locknuts.
5. Remove Lock Collar (#6) and Lock Spring (#9).
6. Remove the two square lock pawls (#10) from the tube insert and slide out Rear Leg, be careful not to damage the shaft seal.
7. Clean and inspect all parts for excessive wear. **Lubricate all moving parts with a light coat of lubricant.**
8. Reassemble this leg, repeat steps for other side.

REASSEMBLY:

1. If Rear Leg (#7) was removed, slide it into Front Connecting Leg Tube (#2) being careful not to damage shaft seal. A slight twisting motion will aid in the installation. Slide the rear leg in until the first shaft groove matches up with the square pawl holes.
2. Reinstall the caplug (#1).
3. Replace the two square lock pawls (#10) into the tube insert.
4. Replace Lock Spring (#9) and Lock Collar (#6). **NOTE:** The smaller end of the tapered lock spring (#9) must be against the Lock Insert part of the Front Connecting Leg.
5. Pull Lock Collar back and slide the rear leg in approximately halfway. This will hold the Lock Collar in the release position.
6. Replace the snap-ring (#8).
7. Slide the rear leg (#7) in the rest of the way. This will cause the Lock Collar (#6) to snap into the locked position.
8. Reattach Connecting Clevis (#3) on Rear Connecting Leg (#7) with the 1/2" x 3" bolts (#4), washers (#5) and locknuts. Tighten bolts until clevises are just snug.

SAFETY CABLES

(STANDARD FOR *Excali-Bar*® & REQUIRED FOR TOWING)



PARTS LIST

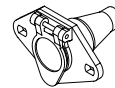
REF. NO.	PART NO.	QTY.	DESCRIPTION
	9523003		Safety Cable Kit (complete)
1.	07230 X	2	Coiled Safety Cable w/Hooks
2.	07426 X	4	Safety Hook Retainer (Plastic)

AUXILIARY LIGHTING CABLE

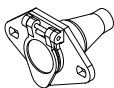
(OPTIONAL)



Possible mounting location for lighting receptacle in vehicle air dam.



NOTE: To be used with optional Light Bar, the ends will have to be cut off light bar harness. This end will then need to be wired to the receptacle of the auxiliary lighting kit.



NOTE: For replacement parts, call original manufacturer or DEMCO at 1-800-543-3626

AVAILABLE WIRING KITS

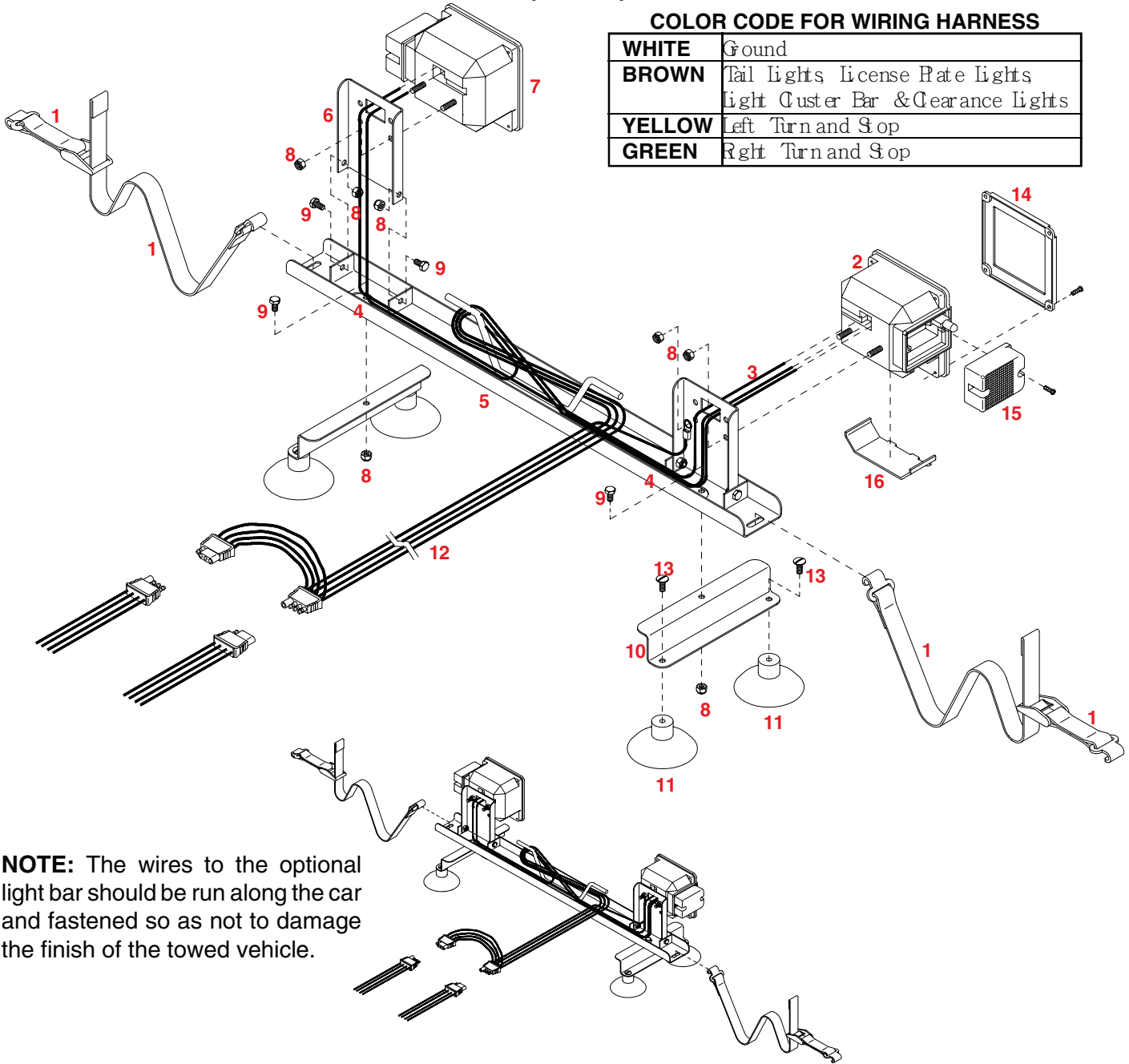
ORDER NO.	DESCRIPTION
9523004	4-WayAuxiliary Coiled Lighting Cable w/recpt.
9523006	6-WayAuxiliary Coiled Lighting Cable w/recpt.
9523009	9523004 & Towed Vehicle Tail Light Wiring/Diode Kit
9523010	Towed Vehicle Tail Light Wiring/Diode Kit Only
9523011	9523006 & Towed Vehicle Tail Light Wiring/Diode Kit

Please order replacement parts by **PART NO.** and **DESCRIPTION.**

OPTIONAL LIGHT BAR (KKLB) PARTS BREAKDOWN

COLOR CODE FOR WIRING HARNESS

WHITE	Ground
BROWN	Tail Lights License Plate Lights Light Cluster Bar & Clearance Lights
YELLOW	Left Turn and Stop
GREEN	Right Turn and Stop



NOTE: The wires to the optional light bar should be run along the car and fastened so as not to damage the finish of the towed vehicle.

LIGHT BAR PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
KKLB Excali-Bar® Light Bar (complete)			
1.	01772 X	2	Nylon Security Strap with hooks & tightener
2.	01857 X	1	Left Tail/ Brake and Signal Light w/Lenses
3.	01773 X	1	Brown Jumper Wire
4.	01886 X	4	Wire Holder (metal)
5.	02385 X	1	Light Bar Framework
6.	02386 X	2	Adjustable Light Bracket
7.	01856 X	1	Right Tail/ Brake and Signal Light w/Lenses
8.	02772 X	10	1/4"-20UNC Nylon Insert Locknut
9.	00092 X	6	1/4"-20UNC x 1/2" Hex Head Bolt
10.	01777 X	2	Light Bar "Z" Bracket
11.	01778 X	4	3" Suction Cup w/Bolt (#13)
12.	02198 X	1	Light Bar Wiring Harness (new style)
13.	00068 X	4	1/4"-20UNC x 3/4" Hex Head Bolt
14.	01911 X	-	Large Red Lens
15.	01912 X	-	Small Red Lens
16.	01890 X	-	Clear Lens

Please order replacement parts by PART NO. and DESCRIPTION.

TESTING LIGHTS BEFORE USE

1. With headlights in "ON" position, the tail lights and the clearance lights should be lighted.
2. Start engine and have someone depress brake pedal. Brake lights of the light bar and towing vehicle should come "on" and "off" simultaneously with each application.
3. Turn left turn signal on. Left turn light of light bar and towing vehicle should flash simultaneously. Should the turn signal lights of the light bar function opposite to those of the towing vehicle, it is probable that the **YELLOW** and **GREEN** wires have been reversed. Check the plug connections to make sure wire colors are not crossed at any point. If plug connection is incorrect, correct problem by reversing yellow and green wire connection on the towing vehicle.

DEMCO PRODUCTS - *Excali-Bar®* Tow Bar

ORIGINAL PURCHASERS LIMITED WARRANTY

1. Extent and Duration of this Warranty:

Your Demco *Excali-Bar®* is warranted to be free from defects in materials and workmanship under normal use and service for a period of one year after date of purchase by the original (first) retail owner, or until it is resold or transferred by the original owner. Any part of the Demco *Excali-Bar®* found in the judgement of the manufacturer to be defective in materials or workmanship will be repaired or replaced at the manufacturer's option without charge for parts or labor to the original owner.

2. Manufacturer and Warrantor of Tow Bar:

Dethmers Manufacturing Co.
4010 320th Street
P.O. Box 189
Boyden, IA 51234
(712) 725-2311

3. Repair or Replacement Procedure:

If your Demco Tow Bar develops a defect during the warranty period, promptly notify Dethmers Manufacturing Co. customer service department. Until such notice is received, Warrantor will not be responsible for any repair or replacement.

Upon receipt of notice from you, Warrantor will have a choice of options in replacing any part it determines to be defective:

- a) Warrantor may require you at your own expense to deliver or ship the part to its factory or authorized dealer. Any defective part will be repaired or replaced and returned to you free of charge. Any part returned to Warrantor and found not to be defective will be returned to you freight collect with an explanation.
- b) Warrantor may elect to ship a new part to its dealer to be exchanged free of charge for the defective part returned by you to the dealer.
- c) Warrantor may elect to ship or deliver a replacement part to your address.

4. Limitations on Warranty Coverage:

Coverage under this warranty will be valid only if the customer warranty card is returned by the original purchaser within 30 days of purchase.

Coverage under this warranty will be effective only when a copy of the original invoice, showing the date and location of purchase, accompanies any claim for warranty.

Warrantor has no liability whatsoever and this warranty is null and void if any Demco Tow Bar has been misassembled or subjected to neglect, negligence, misuse, accident or operated in any way contrary to the operating and maintenance instructions as specified in the Demco Owner's Manual for that model tow bar.

This warranty does not cover any tow bar that has been altered or modified so as to affect the tow bar's operation, performance or durability, or that has been modified to change the intended use of the tow bar.

In addition, the warranty does not extend to repairs made necessary by normal use of parts, accessories or other equipment which in the judgment of Warrantor, are either incompatible with the Demco Tow Bar, or affect its operation, performance or durability.

This warranty does not cover:

- 1) normal wear and tear
- 2) road film or gravel damage to paint
- 3) paint
- 4) rust damage
- 5) Any Demco Tow Bar that has been loaded in excess of the load capacity stated on the tow bar identification label.

Warrantor has a policy of continuous product improvement. We reserve the right to change or improve the design of any Demco Tow Bar model, including but not limited to state of the art changes, without assuming any obligation to modify any tow bar previously manufactured.

Warrantor assumes no responsibility to the owner for loss of use of the tow bar, loss of time, inconvenience or other damage consequential or otherwise, including, but not limited to expense for gasoline, expense of transporting the tow bar to the dealer and expense of returning the tow bar, mechanic's travel time, telephone or telegram charges, road service/towing charges, rental of another tow bar during the time warranty repairs are being performed, travel, lodging, loss or damage to personal property or loss of revenue or earnings.

5. Limitations of Implied Warranties:

All implied warranties, if any, expire and terminate upon expiration of this warranty. Some states do not allow limitation on how long an implied warranty lasts, so this limitation may not apply to you.

6. Limitation of Consequential Damages:

Warrantor's responsibility under this warranty extends solely to repair or replacement of your Demco Tow Bar and its component parts.

Warrantor does not assume responsibility for, nor shall it be liable for, any special, incidental or consequential damages. Some states do not allow the exclusion or limitation on incidental or consequential damages, so the above exclusion or limitation may not apply to you.

7. Use of Serial Number Identification (SN):

The SN is a 6 digit number located on the tow bar identification label. The label is located on the bottom side of the tow bar rear yoke. Be sure to include the SN number in all communications with Warrantor or its dealers concerning the warranty.

Serial No. _____

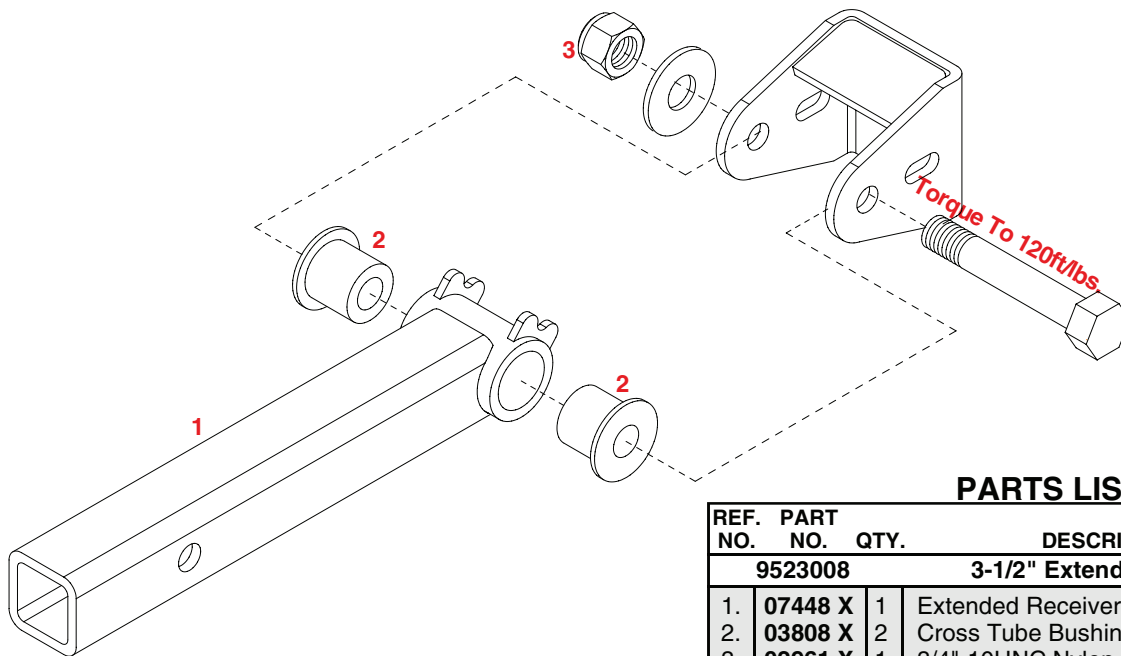
8. Purchaser's Rights:

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

9. Exclusive Warranty:

This is the only express warranty made by Dethmers Manufacturing Co. on your Demco Tow Bar and no agent, employee, or other person is allowed to change or add to this warranty.

OPTIONAL 3-1/2" EXTENDED MALE RECEIVER TUBE PARTS BREAKDOWN

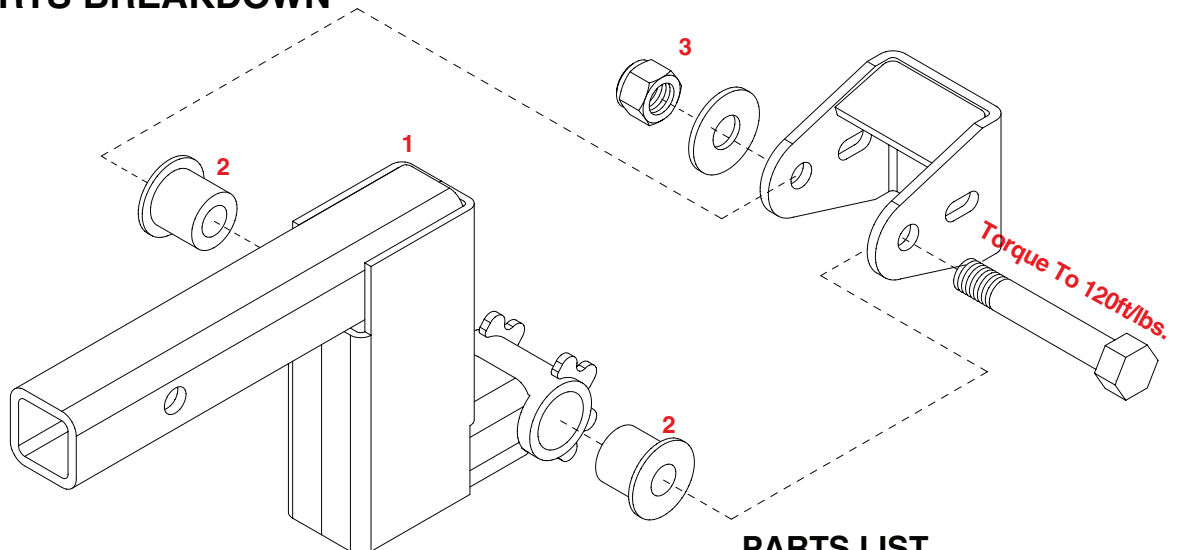


PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
	9523008		3-1/2" Extended Male Receiver Tube
1.	07448 X	1	Extended Receiver Tube (3-1/2")
2.	03808 X	2	Cross Tube Bushing
3.	02961 X	1	3/4"-10UNC Nylon Insert Locknut

Please order replacement parts by PART NO. and DESCRIPTION.

OPTIONAL DROP/LIFT RECEIVER HITCH PARTS BREAKDOWN



PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
	9523007		6" Drop/Lift Receiver Hitch (complete)
	9523020		3" Drop/Lift Receiver Hitch (complete)
1.	07480 X	1	6" Drop/Lift Receiver Tube
-	09281 X	1	3" Drop/Lift Receiver Tube
2.	03808 X	2	Cross Tube Bushing
3.	02961 X	1	3/4"-10 UNC Nylon Insert Locknut

Please order replacement parts by PART NO. and DESCRIPTION.



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