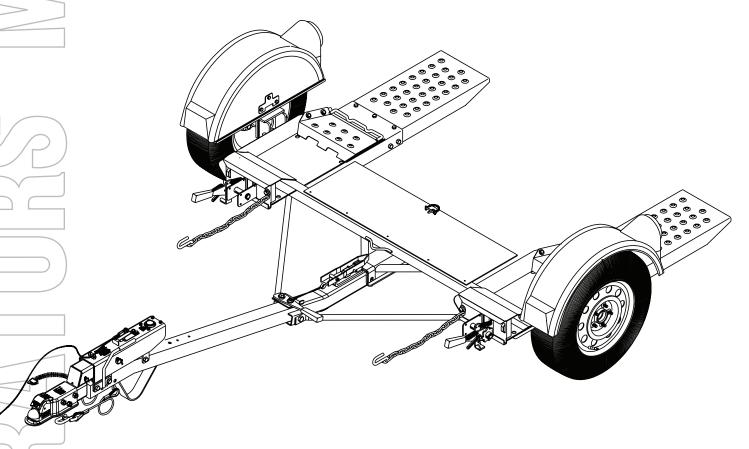




# Tow-It 2



ASSEMBLY
CALIBRATION
OPERATION
REPLACEMENT PARTS

**READ** complete manual CAREFULLY BEFORE attempting operation.

# **WARRANTY POLICY, OPERATOR MANUALS & REGISTRATION**

Go online to www.demco-products.com to review Demco warranty policies, operator manuals and register your Demco product.

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# A

# WARNING: To Prevent Serious Injury Or Death

- Exceeding weight limitations or not using a towing vehicle larger and at least 1,000 lbs. heavier than the tow dolly and the towed vehicle combined can result in loss of towing vehicle control, separation of the tow dolly from the towing vehicle, or separation of the towed vehicle from the tow dolly
- All vehicles to be towed on Demco Tow Dollies must be towed with the front axle on the dolly.

It is recommended that two people set-up and load this piece of equipment If you are planning to tow a new or late model full size car, we recommend the 8-1/2' wide unit.

# "Reporting Safety Defects"

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying DEMCO.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or DEMCO.

To contact NHTSA, you may either call the Auto Safety Hot line toll-free at 1-800-424-9393 (or 366-0129 in Washington, D.C. area) or write to:

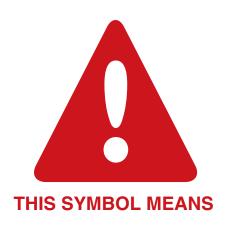
NHTSA,

U.S. Department of Transportation Washington, D.C. 20590.

You can also obtain other information about motor vehicle safety from the Hot line.

#### **SAFETY**

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



-ATTENTION

-BECOME ALERT

-YOUR SAFETY IS INVOLVED!

#### SIGNAL WORDS

Note the use of the following signal words **DANGER**, **WARNING**, and **CAUTION** with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

#### DANGER:

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

#### **WARNING:**

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

#### **CAUTION:**

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual, require additional copies, or if your manual is damaged, please contact your dealer or Demco, 4010 320th Street, Boyden, IA 51234 ph: (712) 725-2311 Toll Free: 1-800-543-3626 Fax: (712) 725-2380 http://www.demco-products.com

# **SAFETY...YOU CAN LIVE WITH IT**



# **EQUIPMENT SAFETY GUIDELINES**

Every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You the operator, can avoid many accidents by observing and following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or you yourself, follow them.

In order to provide a better view, certain illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace shield prior to use.

Replace any caution, warning, danger or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this booklet.

Do not attempt to operate this equipment under the influence of alcohol or drugs.

Review safety instructions with all users.

Operator should be a responsible adult. **DO NOT ALLOW PERSONS TO OPERATE OR ASSEMBLE THIS UNIT UNTIL THEY HAVE DEVELOPED A THOROUGH UNDERSTANDING OF SAFETY PRECAUTIONS AND HOW IT WORKS.** 

Do not paint over, remove, or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice instructions on them.

Never exceed limits of a piece of machinery. If its ability to do a job, or to do so safely is in question-DON'T TRY IT.



# **LIGHTING AND MARKING**

It is the responsibility of the customer to know the lighting and marking requirements of the local highway authorities and to install and maintain the equipment to ,provide compliance with the regulations. Add extra lights when transporting at night or during periods of limited visibility.

Lighting kits are available from your dealer or from the manufacturer.



## REMEMBER

Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer.



# **SAFETY SIGN CARE**

- · Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replace parts that displayed a safety sign should also display the current sign.
- Safety signs are available from your distributor, dealer parts department, or the factory.

#### How to install safety signs:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.

- Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal into place.



• Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.

# **TIRE SAFETY**

- Failure to follow proper procedures when mounting a tire on a rim can produce an explosion which may result in a serious injury or death.
- Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/ or mount tires.
- Always order and install tires and wheels with appropriate capacity to meet or exceed the anticipated weight to be
  placed on the equipment.



# **BEFORE OPERATION:**

- · Carefully study and understand this manual.
- Do not wear loose-fitting clothing which may catch in moving parts.
- · Always wear protective clothing and substantial shoes.
- Keep wheel and lug nuts tightened to specified torque.
- Assure tires are inflated evenly.
- Give the unit a visual inspection for any loose bolts, worn parts, or cracked welds, and make necessary repairs. Follow
  the maintenance safety instructions included in this manual.
- · Be sure there are no tools lying on or in the equipment
- · Do not use the unit until you are sure that the area is clear, especially around children and animals.
- · Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment.
- Practice operation of your equipment and its attachments. Completely familiarize yourself and other operators with it's
  operation before using.
- Make sure that the brakes are evenly adjusted (if equipped with brakes)
- Securely attach to towing unit. Use a high strength, appropriately sized hitch pin with a mechanical retainer and attach
  a safety chain.
- Do not allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the equipment.
- Make Sure the tow rating on vehicle is high enough for what it is towing.



# **DURING OPERATION**

- SAFETY CHAIN -A safety chain must be obtained and installed. Always follow state and local regulations regarding safety chain and auxiliary lighting when towing equipment on a public high way. Be sure to check with local law enforcement agencies for your own particular regulations. Only a safety chain (not an elastic or nylon/plastic tow strap) should be used to retain the connection between the towing and towed machines in the event of separation of the primary attaching system.
- Install the safety chains by criss crossing chains under tongue and secure to draw bar cage, mounting loops, or bumper frame.
- Beware of bystanders, PARTICULARLY CHILDREN! Always look around to make sure that it is safe to start the engine of
  the towing vehicle or move the unit. This is particularly important with higher noise levels, as you may not hear people
  shouting.
- NO PASSENGERS ALLOWED- Do not carry passengers anywhere on or in equipment.
- Do not clean, lubricate, or adjust your equipment while it is moving.
- · When halting operation, even periodically, set the or towing vehicle brakes, shut off the engine, and remove the ignition key.
- · Be extra careful when working on inclines.
- Maneuver towing vehicle at safe speeds.
- Avoid loose fill, rocks, and holes; they can be dangerous for equipment operation or movement.
- Allow for unit length when making turns.
- Keep all bystanders and pets clear of the work area.
- Operate the towing vehicle from the operators seat only.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside
  of unit.
- · Never leave running equipment attachments unattended.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems.
   Follow the maintenance safety procedures.



# **FOLLOWING OPERATION**

- Following operation, or when unhitching, stop the towing vehicle, set the brakes, shut off the engine and **remove the ignition keys**.
- · Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored unit.
- · Make sure all parked machines are on a hard, level surface and engage all safety devices.
- Wheel chocks may be needed to prevent unit from rolling.



# **HIGHWAY AND TRANSPORT OPERATIONS**

- · Adopt safe driving practices:
  - Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop.
  - Reduce speed prior to turns to avoid the risk of overturning.
  - Always keep the towing vehicle in gear to provide engine braking when going downhill. Do not coast.
  - Do not drink and drive!

- Comply with state and local laws governing highway safety on public roads.
- Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during transport. Various safety lights and devices are available from your dealer.
- · Local laws should be checked for all highway lighting and marking requirements.
- · Plan your route to avoid heavy traffic.
- · Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- · Watch for obstructions overhead and to the side while transporting.
- Always operate equipment in a position to provide maximum visibility at all times. Make allowances for increased length and
  weight of the equipment when making turns, stopping the unit, etc.



# PERFORMING MAINTENANCE

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, stop the towing vehicle, set the brakes, shut off the engine and remove the ignition keys.
- Be certain all moving parts and attachments have come to a complete stop before attempting to perform maintenance.
- Always use a safety support and block wheels. Never use a jack to support unit.
- Always use the proper tools or equipment for the job at hand.
- Use extreme caution when making adjustments.
- Follow the torque chart in this manual when tightening bolts and nuts.
- Openings in the skin and minor cuts are susceptible to infection from brake fluid.
   Without immediate medical treatment, serious infection and reactions can occur.
- Replace all shields and guards after servicing and before moving.
- After servicing, be sure all tools, parts and service equipment are removed.
- Do not allow grease or oil to build up on the actuator, any step, or platform.
- When replacing bolts, refer to the owner's manual.
- Refer to bolt torque chart for head identification marking.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be
  used to restore your equipment to original specifications. The Manufacturer will not claim responsibility for use of unapproved
  parts and/or accessories and other damages as a result of their use.
- If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment
- Periodically check all bolts and nuts to insure proper tension or torque.
- Grease the center pivot pin every 1500 miles.
- An occasional drop of oil may be required on the moving parts of the tie-down winch.



Safety is of utmost importance at all times. There are several items that must be checked each time <u>before</u> using and <u>while</u> using the tow dolly.

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

Lug Nuts - 120 ft. lbs.

Check lug nut tension after the first 5 miles and periodically thereafter.

The tires <u>must</u> be inflated to the recommended PSI (located on side of tire).

The ball hitch must latch securely around the ball and the safety ball clamp must be in position to lock the hitch on the ball.

#### RECOMMENDED BALL HEIGHT: 18" to the top of the ball.

The transport safety chains must be hooked to the frame of the towing vehicle and the towed vehicle safety chain must be hooked to the towed vehicle frame directly above the area where the chain is mounted on the tow dolly. Leave some slack in the chain to allow suspension movement.

Caution the user not to attempt to back-up the tow dolly as damage may be done to the tow dolly and/or the vehicle being towed.

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

Examine the ramps, winches and straps, making sure they are in good condition.

Be certain the safety lock pin is locking the strap winch.

Re-tighten straps after the first 5 miles and every 50 miles thereafter to ensure that they are tight.

The strap on the optional winch must be in good condition and should be wound neatly on winch when not in use.

NOTE: The winch strap must not be left connected to the towed vehicle after it is loaded and strapped down.

# IMPORTANT LOADING INSTRUCTION Check your wheel tie-down straps.

Your tow dolly is equipped with custom made wheel tie-down straps of a standard size that will fit most tires, however if your tires are too large or too small you will want to exchange these new straps for the proper size straps.

- 1. Tire too large This is very obvious. The strap will not basket over the tire properly. <u>Call us</u>. We will provide at NO Charge, on an exchange basis, the proper size strap. You must return your <u>new, unused straps</u> and provide us with the Make and Model of your car and the tire size.
- 2. Tire too small This is not as obvious. The basket will fit down over the tire very well. The problems cannot be readily seen. You must tighten the straps down solid and then check on the inside of the tire and be sure the strap, when tightened, does not come in contact with any metal that may cause wear or cutting such as strut mounts. If there is contact, you need a smaller strap. Call us. We will provide on a NO Charge, exchange basis, the proper size strap. You must return your new, unused straps and provide us with the Make and Model of your car and tire size.



# **WARNING:** To Prevent Serious Injury Or Death

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN LOSS OF TOWING VEHICLE CONTROL, SEPARATION OF THE TOW DOLLY FROM THE TOWING VEHICLE, SEPARATION OF THE TOWED VEHICLE FROM THE TOW DOLLY

# **REMINDER:** Check lighting for proper operation before heading down the road.

- Check that the WHITE ground wire of the wiring harness is connected to the tow dolly frame and the WHITE (ground) wire is connected to the frame of the towing vehicle.
- With headlights in "ON" position, the taillight should be lighted.
- 3. Start engine and have someone depress brake pedal. Brake lights of the tow dolly and towing vehicle should come "on" and "off" simultaneously with each application.
- 4. Put left turn signal on. Left turn light of tow dolly and towing vehicle should flash simultaneously. Should the turn signal light of the tow dolly function opposite to those of the towing vehicle, it is probable that the YELLOW and GREEN wires have been reversed. Check the plug connection under the tongue of the tow dolly to make sure wire colors are not crossed at that point. If plug connection is correct, correct problem by reversing yellow and green wire connection on the towing vehicle.

The owner assumes all responsibility for the towing vehicle's fitness and suitability to perform the towing task in a safe, legal, and reliable manner. These responsibilities include, but are not limited to:

- Compliance with towing restrictions as stated by the towing vehicle's owners manual and/or manufacturer.
- Towing vehicle must have as a minimum a Class 3-5,000 lb. (for non-brake units) or a Class 4-6,000 lb.(for brake units) hitch and hitch ball. Do not use any other size hitch ball.
- Towing vehicle must be in good condition.
- Towing vehicle must have a current federal and/or state inspection where applicable, and comply with any applicable laws.
- The towing vehicle's weight must be substantially greater (at least 1000 lbs.) than the weight of the tow dolly and towed vehicle combined.
- up and operating at all times.
- Towing vehicle's hitch must be approximately 18 inches off the ground (measured to the top of the ball). Make sure that the hitch and hitch ball are in good condition and not rusted, loose or stripped. Both the hitch and the hitch ball must be securely attached to the towing vehicle.
- Reading and following these instructions.

#### **TOWED VEHICLE WEIGHT & SIZE LIMITATIONS:**

Tread Width 42" Min. 68" Max.

**Body Width** 68" Max.

**FWD** TI210SB 4800 lbs.

FWD = Front Wheel Drive Towed Vehicle

 Make sure all lights are properly hooked
 Do not load the towed vehicle with cargo. Towed vehicles exceeding weight limits will overload the tow dolly and may cause serious injury and damage to both the towed vehicle and dolly. Do not load a towed vehicle exceeding the width limit - it will obstruct the platform's swivel action when underway and could damage the towed vehicle and/ or the tow dolly.

> Do not exceed 55 miles per hour or any lower posted speed limit.

#### **WARNING**

Check your vehicle owners manual or registration for vehicle weight. Towing vehicle must be larger and at least 1000 lbs. heavier than the towed vehicle and tow dolly combined.



Examine ramps, winches and straps to make sure they are in good condition. Check wheel nuts every trip.

To check the towing system after hook-up, tow about 100 feet. Then stop and perform a safety check. Check the bolts, chains, tire straps, ramps, coupler latch and other items, to ensure that they are tight. In addition, check all taillights and stoplights to make sure that they are operating properly. Repeat the safety check after the first 5 miles and every 50 miles thereafter.

Tire inflation must be maintained per recommendation of tire manufacturer (located on side wall of tire).

Tire pressure may increase during travel - do not bleed off this increase in pressure.

Recheck coupler to be sure it is properly secured to the ball. Check tightness of **DD164** coupler latch.

rev. 3-94

# **Loading Angle Clearance Guide** Tow It Loading Angle = 16°

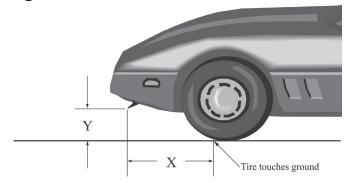
#### **IMPORTANT:**

Using this guideline will reduce the chance of the towed vehicles air dam, or bottom of facia from interfering with tow dolly platform and/or tire stop. "X" must be less than 3.5 x "Y".

Example: If Y measures 6"  $3.5 \times 6 = 21$ 

X must measure less than 21"

NOTE: User's responsibility for checking clearance. If "Y" is less than 3.5", interference may occur.



# BOLT TORQUE TORQUE DATA FOR STANDARD NUTS, BOLTS, AND CAPSCREWS.

Tighten all bolts to torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt chart as guide. Replace hardware with same grade bolt.

NOTE: Unless otherwise specified, high-strength Grade 5 hex bolts are used throughout assembly of equipment.



**Torque Specifications** 

**Torque Lug Nuts to 120 FT/LBS** 

## **Bolt Torque for Standard bolts \***

	GRADE 2		GRADE 2 GRADE 5		ADE 5	GR	ADE 8
" <b>A</b> "	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)	
1/4"	6	(8)	9	(12)	12	(16)	
5/16"	10	(13)	18	(25)	25	(35)	
3/8"	20	(27)	30	(40)	45	(60)	
7/16"	30	(40)	50	(70)	80	(110)	
1/2"	45	(60)	75	(100)	115	(155)	
9/16"	70	(95)	115	(155)	165	(220)	
5/8"	95	(130)	150	(200)	225	(300)	
3/4"	165	(225)	290	(390)	400	(540)	
7/8"	170	(230)	420	(570)	650	(880)	
1"	225	(300)	630	(850)	970	(1310)	

# **Bolt Torque for Metric bolts \***

Torque figures indicated are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

\* GRADE or CLASS value for bolts and capscrews are identified by their head markings.

	CLA	CLASS 8.8		ASS 9.8	CL	ASS 10.9
" <b>A</b> "	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
6	9	(13)	10	(14)	13	(17)
7	15	(21)	18	(24)	21	(29)
8	23	(31)	25	(34)	31	(42)
10	45	(61)	50	(68)	61	(83)
12	78	(106)	88	(118)	106	(144)
14	125	(169)	140	(189)	170	(230)
16	194	(263)	216	(293)	263	(357)
18	268	(363)			364	(493)
20	378	(513)			515	(689)
22	516	(699)			702	(952)
24	654	(886)			890	(1206)

Torque 11MM caliper bolts to 40 ft/lbs

#### WINCH OPERATING INSTRUCTIONS

Remove which lock pins (A) from strap winches on front of tow doly.

Release winch: Grasp handle (B) squeeze trigger (C) push down and pull all

excess strap from winch. Lay life strap to outside of tow dolly.

Tighten straps: Place tire straps over tires centering straps and winches to

tires. While ightening straps, pull cross straps forward to ensure even lightening.

Tighten straps unlie ach te starts to latten against tire stop. After strap is tight,

insert lock pin and make sure handle is in horizontal position.



# **Decal Location**

#### A. DD21016 QTY.2

Keep wheel lug nuts or bolts tightened to specified torque. Maintain tire pressure at 50 P.S.I. cold REV 1 DA21001

B. DA21001 QTY.2

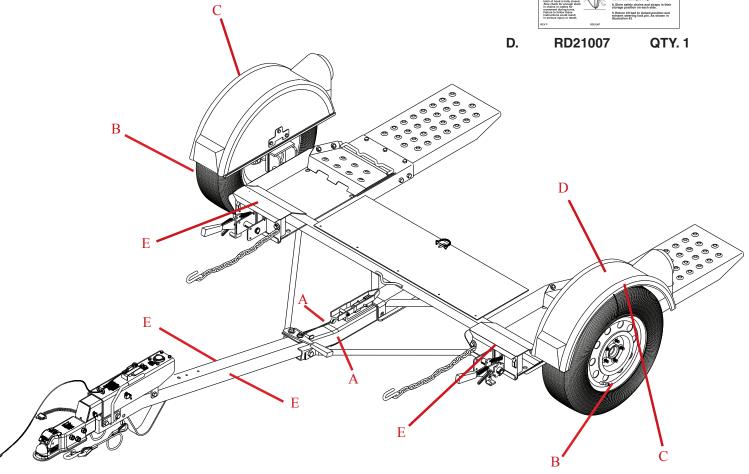
Keep wheel nut torque to 120 ft. lbs. Maintain tire pressure at 50 P.S.I. Cold

C. **RD21008** QTY. 2

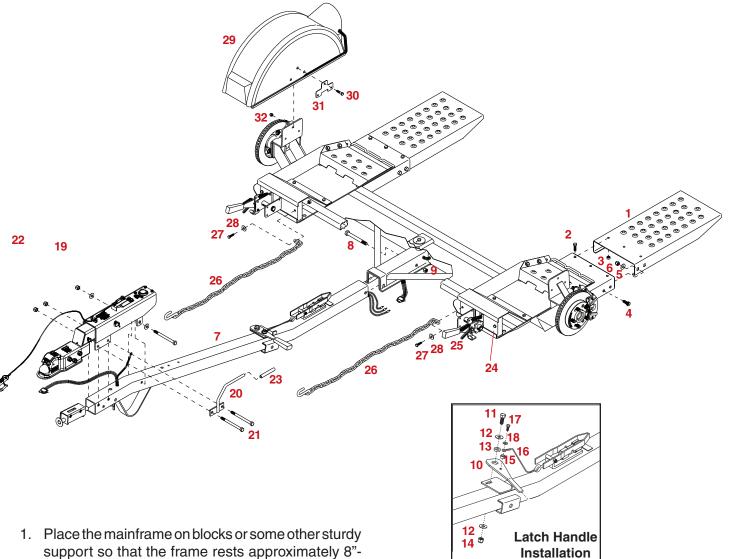


**QTY. 4** E. DD21021



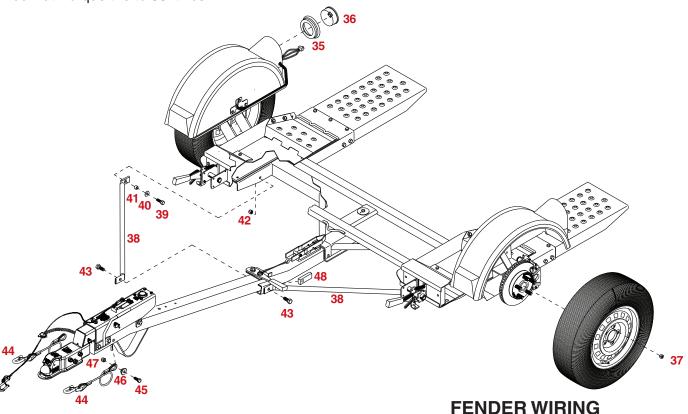


#### Tow-It 2 ASSEMBLY INSTRUCTIONS



- Place the mainframe on blocks or some other sturdy support so that the frame rests approximately 8"-10" off the ground. Attach the tilt bed ramps (#1) as shown using three 7/16" x 1" grade 8 bolts (#2) and lock nuts (#3) on the top of each ramp and four 1/2" x 1-1/4" grade 5 bolts (#4), flatwasher (#5) and locknuts (#6) (two on each side of the ramp). Torque the 7/16" bolts to 80 ft. lbs. and torque the 1/2" bolts to 75 ft. lbs.
- Hold the tongue (#7) up to the front of the tow dolly and locate the three bullet connectors extending out the back of the tongue and plug into the connector protruding from under the mainframe channel. Do not cross colors when making this connection.
- 3. Mount the tongue to the front of the tow dolly using one 5/8" x 4-1/2" grade 5 bolt (#8) and locknut(#9) (torque to 50 ft. lbs.). Do not torque over 50 ft. lbs. or the bed will not tilt. Make sure the tongue latch is in the latched position to the tilt bed.
- 4. Mount the latch handle (#10) to the mounting plate using the 1/2" x 1-1/4" grade 5 bolt (#11), two 1/2" flatwashers (#12), bushing (#13), and 1/2" locknut (#14). Put stainless steel bushing (#15) into latch cable (#16) and secure to handle using 3/8" x 3/4" Epoxied grade 5 hex head bolt (#17) and 5/16" flatwasher (#18). Adjust latch so cable is snug by loosening bolt and nut and sliding handle forward or back.
- 5. Secure the coupler (#19) and lift handle (#20) to the front end of the tongue with two 1/2" x 4-1/2" gr.5 bolts (#21), one 1/2" x 4" gr.5 bolt (#33) and locknuts (#22). Torque the locknuts to 60 70 ft. lbs. Tap the rubber grip (#23) onto the handle with a rubber hammer or a wooden mallet.

- 6. Remove the 7/16" x 1-1/4" bolt (#24), flatwasher, and locknut from the outer front panel of each wheel platform tire stop. Slide the tie-down winch (#25) into the channel at the front of the wheel platforms as shown. Note that #25 is the left winch. The ratchet handles are to the outside of each winch and ratchet springs are to the top. Attach two 36" towed vehicle safety chains (#26). Secure one chain to each wheel platform tire stop with the 7/16" x 1-1/4" bolt (#27), flatwasher (#28) and locknut. Torque the to 50 ft. lbs.
- 7. When assembling the tie-down strap to the tow dolly winch, make sure the tie-down strap does not contain any twists and the overlaps are to the inside. Thread tie-down strap through the slotted tube on the tie-down winch. Pull approximately 4" of strap through this slot. This will allow the tube to be between the end of strap and second sewn patch.



- 8. Lay the braking struts (#38) out along the tow dolly tongue with the back end (the end with the larger hole in it) of the bracing strut toward the mainframe. Loosely bolt the back of each bracing strut to the trailer frame as shown using 1/2" x 1-1/2" grade 5 bolt (#39), flatwasher (#40), pivot bushing (#41), and locknut (#42). Hold up the front end (the end with the smaller hole) of each bracing strut to the tongue, slide nut plate (#48) inside tongue channels, align holes, and secure with two 5/8" x 1-1/4" epoxied bolt (#43). Torque the bolts with the pivot bushing to 60-70 ft lbs.
- 9. Attach the two 36" transport safety cables (#44) to the two holes in the angle located under the tongue using two 7/16" x 1-1/2" grade 8 bolts (#45), cable mounting washers (#46), and locknuts (#47). Torque bolts to 50 ft lbs.

# On the left side, plug in bullet plugs with white to white, black to brown and yellow to red. On the right side, plug white to white, black to brown and green to red.

#### **COLOR CODE FOR WIRING HARNESS**

WHITE	Ground
BROWN	Tail Lights and License Plate Light
	<u> </u>
YELLOW	Left Turn and Stop
GREEN	Right Turn and Stop

#### FENDER ASSEMBLY



 Install fender backup plate and three 3/8 x 1-1/2" bolts. Put nylon lock nuts inside of fender and tighten.



3. Router wiring in through back of tail light housing on the bottom inside of housing. Fish the three wire inside of housing.



5. Push wires back into housing and finish routing wires in wire trough of fender and attach cable hanger. Install two metal wire clips using pliers. Place one clip 5-1/2" from rear of fender and one 8" from rear of fender (see red arrow).



2. Fish the three wires from the mainframe through the rear hole in the fender trough.



 Pull all wire from light hole in housing and install the snapper hose clip approximately 1-1/2" back from end of wire shielding. Squeeze snapper clip tight with pliers.



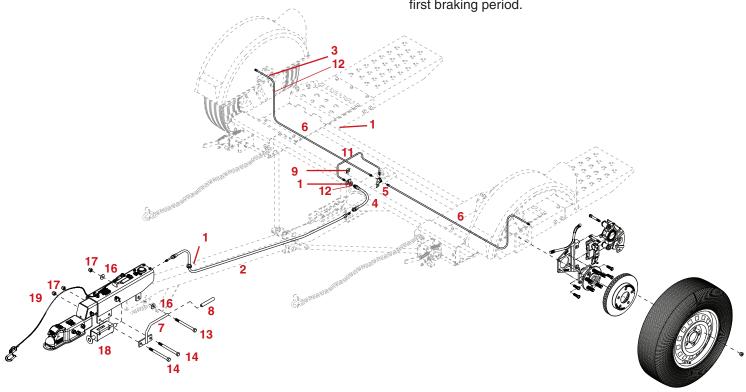
- 6. Install rubber grommet, plug in wiring to light and attach 3 wire pigtail harness to fender wiring. **NOTE:**On the left side, plug in the bullet plugs with white to white, black to brown, and yellow to red. On the right side, plug in the bullet plugs with white to white, black to brown, and green to red.
- 7. Attach the tire/rim assembly to the mainframe. Use the supplied lug nuts (#37) and torque to 120 ft lbs.

## **TESTING CIRCUITRY**

- 1. With headlights in "ON" position, the taillight should be lighted.
- 2. Start engine and have someone depress brake pedal. Brake lights of the tow dolly and towing vehicle should come "on" and "off" simultaneously with each application.
- 3. Put left turn signal on. Left turnlight of tow dolly and towing vehicle should flash simultaneously. Should the turn signal light of the tow dolly function opposite to those of the towing vehicle, it is probable that the YELLOW and GREEN wires have been reversed. Check the
- plug connection under the tongue of the tow dolly to make sure wire colors are not crossed at that point. If plug connection is correct, correct problem by reversing yellow and green wire connection on the towing vehicle.
- 4. **CAUTION:** Many flashers for vehicle turn signals will not carry the additional load of tow dolly turn signals. If normal operation does not occur when connected to the tow dolly, a heavy duty replacement flasher may be obtained through auto parts outlets.

#### **SURGE BRAKE ASSEMBLY**

**NOTE:** The spring return system has a small nut wedged in the spring area for pre-load installation. **Do not** remove nut. Nut will automatically drop out during first braking period.



- Slide 1"O.D. x 5/8"I.D. bushing over end of rubber brake line and insert end through hole in the angle bracket welded to the front of the tow dolly main frame, secure the brake line end with a retainer clip. Slit one side of a 5/8" grommet, slide over brake line green/brown wires coming out mainframe tongue channel, push grommet into the tongue channel. Fish the bent 12" metal brake line between the mainframe and top platform Secure one end to the rubber brake hose and other end into the top of the brake tee on back of tow dolly axle. Make sure these connections are tight.
- 2. Slide spring return system (19) into tongue tube, secure actuator and lift handle to front end of tongue using two 1/2" x 5" gr. 5 bolts and locknuts. Secure rear of actuator using one 1/2" x 4-1/2" gr.5 bolt, locknut, and two flatwashers as shown (three bolts, two flatwashers, and three locknuts provided with DA91D actuator). The white ground wire is attached under the head of the second bolt attaching the actuator. (It is very important that a good ground is made). Torque the locknuts to 60 70 ft. lbs. Tap the rubber grip onto the handle with a rubber hammer or a wooden mallet.
- Connect DA91 actuator to brake hose coming out the top of the tongue. Make sure all brake line connections are tight. Follow the installation procedure as outlined in the DA91 actuator instruction, beginning with step 3 (fill the master cylinder and the bleeding procedure for brakes).

4. Attach wheels to the mainframe. Use supplied lug nuts, torque to 75 -80 ft. lbs. The retainer washers on the lug bolts next to the drum have been installed at the factory (two per drum).

#### **BRAKE LINES PARTS LIST**

			EIITEO I AITTO EIOT
REF.			
NO.	PART NO.	QTY.	DESCRIPTION
1.	13047	6	Rubber Grommet
2.	12508	1	63" Brake Hose
3.	11616	2	Grommet .625 OD x .375 ID x .125
4.	SB13H66	1	13" Rubber Brake Hose
5.	SB7785	1	3/16" Brake Tee
6.	SB544	2	44" Brake Line
7.	04017	1	Lift Handle
8.	02189	1	Hand Grip
9.	SB7764	1	Brake Hose Clip
10.	04174	4	12mm Drum Retainer Washer
11.	SB512	1	12" Brake Line (Metal)
12.	00496	1	1-1/8" OD x 5/8" ID x 14 GA Washer
13.	01338	1	1/2" UNC x 4-1/2" Hex Head Bolt
14.	01975	2	1/2" UNC x 5" Hex Head Bolt
16.	00085	2	1/2" Flat Washer
17.	02178	3	1/2" UNC Nylon Insert Lock Nut
18.	12445-30	1	Spring Return System
19.	13730	1	Safety Cable Assembly

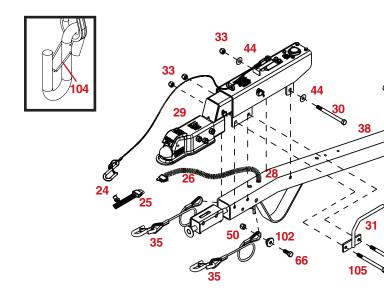
Please order replacement parts by PART NO. and DESCRIPTION.

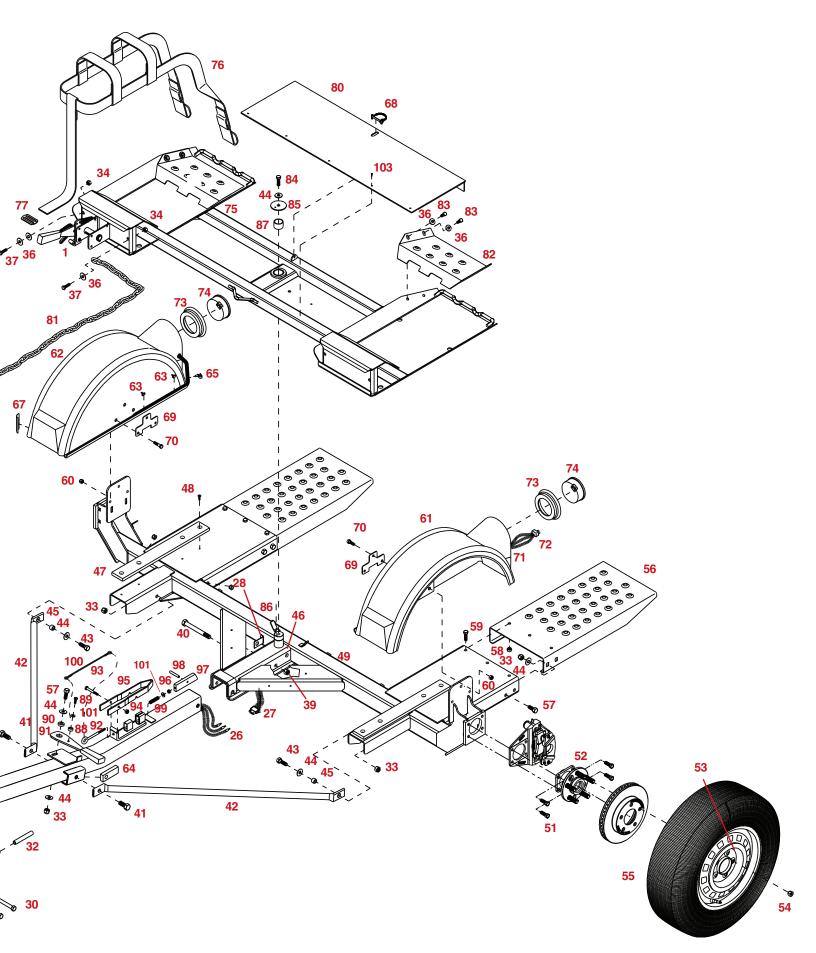
ITEM	PART #	DESCRIPTION	QTY.
26	11590	FRONT HALF TRAILER WIRING HARNESS	1
27	15921	REAR HALF TRAILER WIRING HARNESS	1
28	13047	GROMMET .50	4
29	12925	10000# 2" eZ-LATCH COUPLER	1
30	01338	BOLT, .50-13UNC X 4.50 HEX HEAD GR.5	2
31	04017-95	HANDLE	1
32	02189	.50 I.D. HANDLE GRIP	1
33	02178	LOCKNUT .50-13UNC NYLON INSERT	14
34	02771	LOCKNUT .4375-14UNC NYLON INSERT	4
35	12238	36" SAFETY CABLE BLK W/HOOK	2
36	00059	WASHER FLAT .375	20
37 38	01898	BOLT, .4375-14UNC X 1.50 HEX HEAD TONGUE	4
39	12714-76 02587	LOCKNUT .625-11UNC NYLON INSERT	1
40	02387	BOLT, .625-11UNC X 4.50 HEX HEAD	1
41	03503	BOLT, .625-11UNC X 1.25 HEX HEAD EPOXY	2
42		BRAKING STRUT	2
43	01254	BOLT50-13UNC X 1.50 HEX HEAD	2
44	00085	WASHER FLAT .50	13
45		PIVOT BUSHING	2
46	04815	GROMMET .375 I.D. X .50 O.D.	2
47	11780	WEAR PLATE (FOUR HOLE)	2
48	11779	SELF TAP SCREW .25 X .75 FLAT HEAD	8
49	11979-76	UNDERCARRIAGE	1
50	02209	NUT .4375-20UNF HEX GR.8	2
51	02210	BOLT, .4375-20UNF X 1.25 EPOXY GR.8	8
52	04369	HUB & SPINDLE (5 ON 115MM BC)	2
-	02917	REPLACEMENT 12MM X 1.50 STUD BOLT	-
53	09296	14 X 5.5 RIM (5 ON 115MM BC)	2
54	02933	LUG NUT 12MM CHROME	10
55	13989	ST205/75R 14" "C" RADIAL TIRE (8.50 UNIT)	2
56	04323-96	TILT BED RAMP	2
57	00967	BOLT, .50-13UNC X 1.25 HEX HEAD	9
58 50	04168 04167	LOCKNUT .4375-20UNF NYLON INSERT BOLT, .4375-20UNF X 1 HEX HEAD GR.8	6
59 60	04167	LOCKNUT .375-16UNC NYLON INSERT	6 14
61	5978	LEFT FENDER ASSEMBLY W/LIGHTS	1
62	5979	RIGHT FENDER ASSEMBLY W/LIGHTS	1
63	04425	TINNERMAN FENDER CLAMP	4
64	11971-95	NUT PLATE .625	2
65	05443	CABLE HANGER WIRE HARNESS	2
66	02377	BOLT, .4375-20UNF X 1.50 EPOXY GR.8	2
67	04508	AMBER FENDER REFLECTOR	2
68	11790	LYNCH PIN	1
69	04424	BACK UP PLATE FOR FENDER	2
70	00914	BOLT, .375-16UNC X 1.50 HEX HEAD	6
71	04804	RED FENDER REFLECTOR	2
72	11206	HARNESS WIRE F/ LED LIGHT	2
73	05447	GROMMET RUBBER MOUNTING F/LIGHT	2
74	11209	ROUND 4" LED	2
75 76			1
76 77	03528	3 PT TIE DOWN STRAP W/J HOOK & BUCKLE	2
77 80	02729-95 11981	BUCKLE ONLY TOP COVER/LID	2
81	02383	36" SAFETY CHAIN W/HOOK	2
-	02363	S HOOK F/SAFETY CHAIN .4375	-
82		REAR TIRE STOP	2
83	00907	BOLT, .375-16UNC X 1 HEX HEAD	8
84	05570	BOLT, .50-13UNC X 1 EPOXY W/ZERK	1
85	02578	WASHER FLAT .50 SPECIAL	1
86	02584	ROLL PIN .1875 X .75	1
87	04083	BRONZE BUSHING 1.75 O.D.	1
88	05449	SPACER BUSHING STAINLESS STEEL	1
89	05444	BOLT, .375-16UNC X .75 HEX EPOXY	1
90	03382-95	LATCH HANDLE PIVOT BUSHING	1

Please order replacement parts by PART NO. and DESCRIPTION.

ITEM	PART #	DESCRIPTION					
91	03574-95	LATCH HANDLE	1				
92	03434	EYE BOLT, .3125-18UNC X 4	1				
93	04221	BOLT, .3125-18UNC X 2.50 HEX HEAD	1				
94	02802	LOCKNUT .3125-18UNC NYLON INSERT	1				
95	03381-95	LATCH CATCH	1				
96	00007	NUT .3125-18UNC HEX	1				
97	03379	LATCH BLOCK					
98	03435	ROLL PIN .3125 X 2.25	1				
99	03499	LATCH SPRING STAINLESS STEEL	1				
100	03433	LATCH CABLE	1				
101	00004	WASHER FLAT .3125	2				
102	01855	PIN SAFETY LOCK	1				
103	12171	SELF TAPPING SCREW #10 NC X .75					
104	12253	REPLACEMENT SAFETY HOOK SPRING CLIP					
105	01896	BOLT, .50-13UNC X 4 HEX HEAD	1				

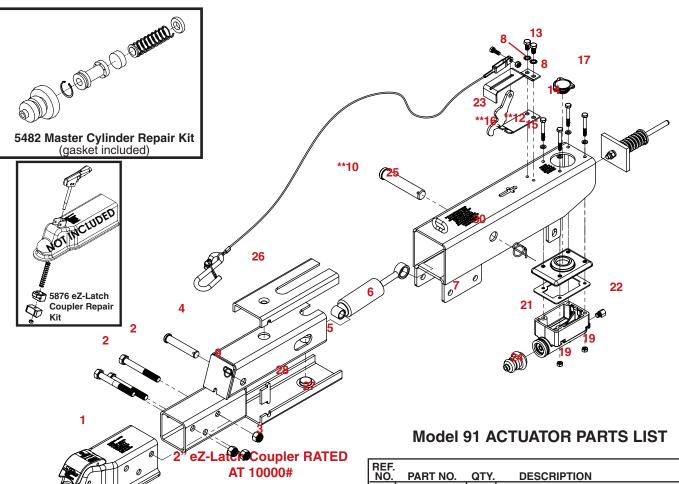
ITEM	PART #	DESCRIPTION	QTY			
-	5432	LEFT RATCHET WINCH ASSEMBLY (Plated)	-			
-	5433	RIGHT RATCHET WINCH ASSEMBLY (Plated)	-			
1	00004	WASHER FLAT .3125	1			
2	00214	WASHER FLAT .25	1			
3	01076	BOLT, .25-20UNC X .75 HEX HEAD	1			
4	01864	SPRING	2			
5	02772	LOCKNUT, .25-20UNC NYLON INSERT	2			
6	03574-95	RATCHET HANDLE PLATED W/ HAND GRIP	1			
7	03578	BOLT, .3125-18UNC X .50 SHOULDER				
8	05337	SAFETY PIN CABLE	1			
9	05444	BOLT, .375-16UNC X .75 HEX HEAD W/ EPOXY	1			
10	05449	WINCH PAWL BUSHING STAINLESS STEEL	1			
11	05450	WINCH PAWL	1			
12	11750	ROLL PIN .3125 X 1.50	1			
Ple	Please order replacement parts by PART NO. and DESCRIPTION					





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#### MODEL DA91 ACTUATOR PARTS BREAKDOWN



The first requirement for safe, sure hydraulic braking is the use of quality brake fluid. Use only DOT-3 or DOT-4 brake fluid from a sealed container.

**BLEEDING THE SYSTEM** 

If pressure bleeding equipment is available, follow the manufacturer's instruction in bleeding the system.

If system must be bled manually, proceed as follows: Fill master cylinder with fluid. Install bleeder hose on top bleeder of first caliper to be bled.

# NOTE: always bleed brakes by using the top bleed screw on the caliper.

Have loose end of hose submerged in brake fluid in glass container to observe bubbling.

By loosening the top bleeder screw located on the caliper one turn, the system is open to the atmosphere through the passage drilled in the screw. Pump actuator with long steady strokes. The bleeding operation is completed when bubbles no longer rise to the surface of the fluid. **Be sure to close bleeder screw securely.** 

Repeat bleeding operation at each caliper. During the bleeding process, replenish the brake fluid, so the level does not fall below the 1/2 full level in the master cylinder reservoir. After bleeding is complete, make sure master cylinder reservoir is filled and filler cap is securely in place.

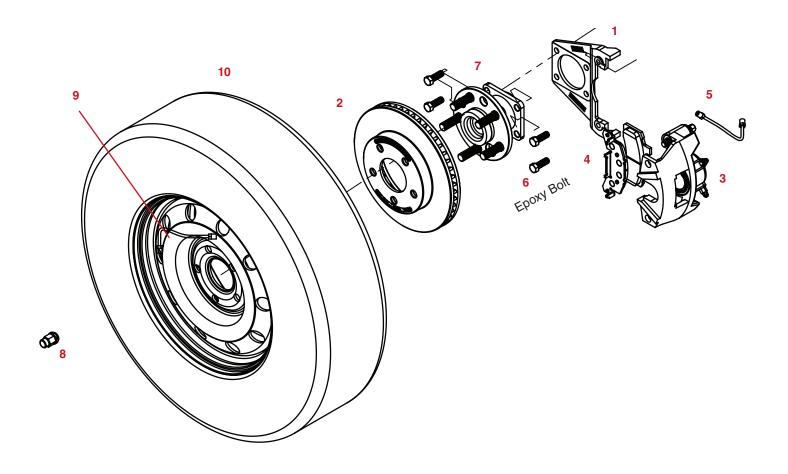
After the bleeding operation has been completed, apply pressure to the system and check the whole brake system for leaks.

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	12925	1	10000# 2" eZ-Latch Coupler
2.	01896	3	1/2"-13UNC x 4" Hex Head Bolt (gr.5)
3.	02178	3	1/2"-13UNC Nylon Insert Lock Nut
4.	05426	1	Front Shock Pin (drop tube actuators)
5.	11079-95	1	Drop Tube Actuator Slider (plated)
6.	SB12426	1	Damper/ Shock
7.	11164-95	1	3 Bolt Mount Outer Case (plated)
8.	05424	2	5/16" External Tooth Lock Washer
9.	12557	1	Rue Cotter Pin for 5/8" Pin
**10.	05408	1	3/32" Cable with hooks
**12.	05693-95	1	Emergency Lever Spring (plated)
13.	05961	2	5/16"-18UNC x 5/8" Hex Head Bolt (gr.5)
14.	00618	4	1/4-20UNC x 2" Hex Head Bolt (gr.5)
15.	00057	4	1/4" Lock Washer
**16.	05951	1	Emergency Lever Assembly
17.	03876	1	Master Cylinder Cap w/ Diaphragm & O-ring
-	05849	1	O-Ring Only (not shown)
18.	05977	1	Push Rod Assembly
19.	00062	4	1/4"-20 UNC Hex Nut
** 20.	09153	-	Plastic Master Cyl. Gasket ONLY
21.	11190	1	Master Cylinder
22.	14798	1	90° Fitting
** 23.		1	Lever Guide (plated)
24.	05687	1	Master Cylinder Protective Boot
25.	05986-95	1	Connecting Pin (plated)
26.	10965	1	Upper Slider
27.	10966		Lower Slider
28.	10967	2	Side Spacers
29.	12557	1 1	Master Cylinder Cap
30.	12397	<u> </u>	Rue Cotter Pin for 7/8" Pin

_	8669113	-	DA91 Actuator w/ 2" eZ-Latch Coupler
-	5401	-	Lever Replacement Kit (incl. items w/**)
-	5482	-	Master Cyl. Replacement Kit (disc)
-	5876	-	eZ-Latch Coupler Repair Kit

Please order replacement parts by PART NO. and DESCRIPTION

## DISC BRAKE PARTS BREAKDOWN AND PARTS LIST



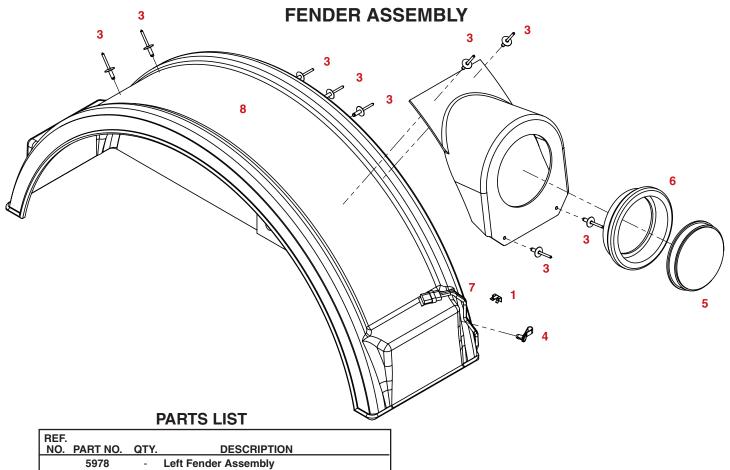
#### **ASSEMBLY**

- 1. Begin by mounting the Hub Assembly and the Caliper Mounting Bracket (#1) to the Forged Arm using the (#6) 7/16" Epoxied Bolts (as shown).
- 2. Now place the Rotor (#2) onto the Hub Assembly as shown in the diagram.
- 3. Make sure the Brake Pads (#4) are correctly placed in the Caliper (#3).
- 4. Place Caliper (#3) over the Rotor (#2), and secure it to the Mounting Bracket (#1) using the Caliper Mounting Bolts (not shown).
- 5. When mounting left caliper only, rotate elbow fitting 1/4 turn tighter (clockwise) to position elbow fitting correctly. Hook up Brake Hoses (#5) and replace the Rim and Tire.

#### **PARTS LIST**

REF.	PART	REQE	)
NO.	NO.	QTY.	DESCRIPTION
1.	13920-92	2	Caliper Mounting Plate
2.	03927-92	2	Rotor
3.	13825-92	2	Disc Brake Caliper Complete
4.	13824	1	Brake Pads (for one complete axle)
5.	SB544	2	Brake Line .188 x 44"
6.	02210	8	7/16" Gr8 x 1-1/4" Epoxy Hex Hd Bolt
7.	04369	2	Hub (5 on 115mm Bolt Circle)
-	02917	-	12mm x 1-1/2" Replacement Stud Bolt
8.	02933	10	12mm Lug Nut Chrome
9.	09296	2	14x5.5" White Rim (115mm Bolt Circle)
10.	5965	2	Rim and Tire Assembly
-	14179	-	Kit Disc Brake Fitting (includes items listed below)
-	14798	1	90° Fitting (not shown)
-	-	2	Bleeder Valve
-	-	2	Rubber Bushing
-	-	2	Stainless Steel Bushing
	-	2	Stainless Steel Bolt

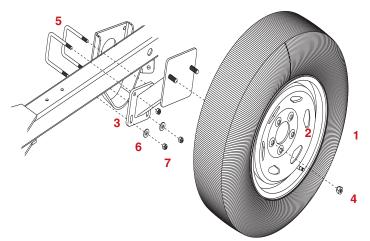
Please order replacement parts by PART NO. and DESCRIPTION.



REF	_		
NO.	PART NO.	QTY.	DESCRIPTION
	5978	-	Left Fender Assembly
	5979		Right Fender Assembly
1.	04425	2	Tinnerman U-clamp
2.	04508	1	Amber Reflector (not shown)
-	04804	1	Red Reflector (not shown)
3.	14722	9	3/16" x 1/2" Pop Rivet
4.	05443	1	Nylon Cable Hanger
5.	11209	1	4" LED Tail Light
6.	05447	1	Rubber Grommet for Light
7.	11206	1	LED Fender Harness
8.	14121	1	Left Fender Assembly
-	14122	1	Right Fender Assembly

Please order replacement parts by PART NO. and DESCRIPTION.

# **OPTIONAL SPARE TIRE and MOUNT**



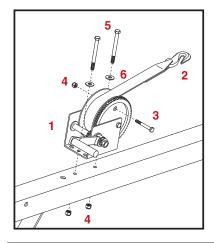
# PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
	5965	1	Optional Spare Tire
1. 2.	04826 09296		ST205/75R 14"x"C" BSW Radial Tire 5.5 x 14" Rim

	RKSTM	1	Spare Tire Mounting Bracket
3.	02193-30	1	Spare Tire Bracket
4.	02917	1	Stud Bolt (12mm x 1.5)
5.	02933	2	Wheel Nut (12mm) Chrome
6.	02759	2	3/8"-16UNC Square U-Bolt
7.	00059	2	3/8" Flatwasher
8.	02592	4	3/8"-16UNC Nylon Insert Locknut

Please order replacement parts by PART NO. & DESCRIPTION.

<sup>\*</sup> All options may not mount on tow dolly simultaneously.\*



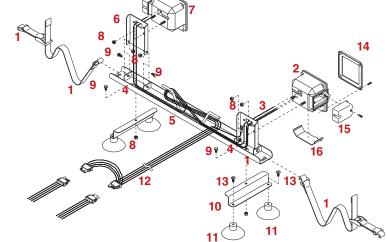
# **OPTIONAL WINCH**

REF. NO.	REF. NO.   PART NO.   QTY.  DESCRIPTION			
	KK2W	1	Optional Winch	
1.	04620	1	Winch Mechanism (1400 capacity)	
-	04621	-	Replacement Handle	
2.	01738	1	Strap Assembly (includes strap & hook)	
3.	02207	1	3/8"-16UNC x 3" Hex Hd. Bolt	
4.	02592	3	3/8"-16UNC Nylon Insert Locknut	
5.	02769	2	3/8"-16UNC x 4" Hex Head Bolt	
6.	00059	2	3/8" Flatwasher	

Please order replacement parts by PART NO. and DESCRIPTION.

OPTIONAL LIGHT BAR PARTS BREAKDOWN

KKLB LIGHT BAR PARTS LIST			
ITEM	PART #	QTY	DESCRIPTION
1	01772	2	NYLON SECURITY STRAP W/ HOOKS &
			TIGHTENER
2	01857	1	LEFT TAIL/BRAKE & SIGNAL LIGHT W/
			LENSES
3	01773	1	BROWN JUMPER WIRE
4	01886	4	WIRE HOLDER (METAL)
5	02385-30	1	LIGHT BAR FRAMEWORK
6	02386-30	2	ADJUSTABLE LIGHT BRACKET
7	01856	1	RIGHT TAIL/BRAKE & SIGNAL LIGHT W/
			LENSES
8	02772	10	1/4"-20UNC NYLON INSERT LOCKNUT
9	00092	6	1/4"-20UNC X 1/2" HEX HEAD BOLT
10	01777-30	2	LIGHT BAR "Z" BRACKET
11	01778	4	3 SUCTION CUP W/ BOLT (#13)
12	02198	1	LIGHT BAR WIRING HARNESS (NEW
			STYLE)
13	00068	4	1/4"-20UNC X 3/4" HEX HEAD BOLT
14	01911	-	LARGE RED LENS
15	01912	-	SMALL RED LENS
16	01890	-	CLEAR LENS
17	02316	1	GROUND WIRE (NOT SHOWN)
18	01883	1	WIRE SPLICE (NOT SHOWN)
Please order replacement parts by PART NO. and DESCRIPTION.			



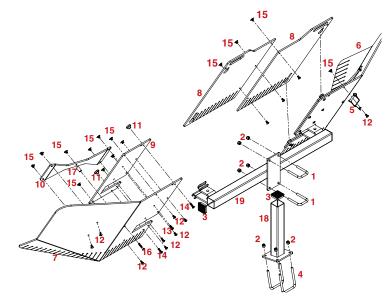
## **COLOR CODE FOR WIRING HARNESS**

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

# **OPTIONAL SENTRY DEFLECTOR (5950)**

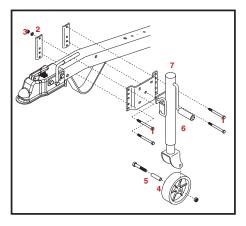
SENTRY DEFLECTOR (5950) PARTS LIST

ITEM	PART #	DESCRIPTION	
1	02128	U-BOLT, SQ, .375NC X 2.063 X 3.00	2
2	02592	NUT, .375NC NYLON LOCK	8
3	04193	CAP PLUG SQUARE 2 X 18 GA	3
4	02759	U-BOLT, SQ, .375 X 3.125 X 4.00	2
5	05337	SAFETY LOCK PIN ASSEMBLY	1
6	10131	ROCK GUARD, LEFT	1
7	10132	ROCK GUARD, RIGHT	1
8	10133	DEFLECTOR CENTER SECTION	2
9	10134	DEFLECTOR MOUNTING PLATE	2
10	10135	DEFLECTOR BRACE/HANDLE	2
11	10136	RETAINER BUTTON	4
12	10183	SCREW, .25 NC X .50 PHILLIPS HEAD	17
13	10184	SCREW, .25 NC X .75 PHILLIPS HEAD	4
14	10185	SCREW, .25 NC X 1.00 PHILLIPS HEAD	4
15	10186	T-NUT, .25 NC X .41 BARREL	23
16	11264	SCREW, .25 NC X 1.50 PHILLIPS HEAD	2
17	11265	SPACER BUSHING	2
18	13731-81	UPRIGHT POST MOUNT	1
19	13732-81	SENTRY CROSSMEMBER TD MNT	1



Please order replacement parts by PART NO. and DESCRIPTION.

<sup>\*</sup> All options may not mount on tow dolly simultaneously.\*



# **OPTIONAL WHEEL JACK**

\* All options may not mount on tow dolly simultaneously.\*

-	11683	1	Optional Wheel Jack w/ hardware
1.	02769	4	3/8"-16 UNC x 4 Hex Head Bolt
2.	00060	4	3/8" Lock Washer
3.	00061	4	3/8"-16 UNC Hex Nut
4.	03646	1	Replacement Wheel only
5.	14542-95	1	Wheel Bushing for replacement only
6.	03129	1	Jack
7.	13303	1	Plastic Cap

Please order replacement parts by PART NO. and DESCRIPTION.



4010 320th St., BOYDEN, IA. 51234 PH: (712) 725-2311 FAX: (712) 725-2380

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