



# Alpha 70K TMA<sup>®</sup>

(MODEL 7000) 24 VOLT INTERNATIONAL

## PRODUCT DESCRIPTION ASSEMBLY MANUAL

# Alpha 70K TMA<sup>®</sup> (Model 7000) 24 Volt International

## Product Description Assembly Manual



15601 Dallas Parkway  
Suite 525  
Addison, Texas 75001



**Important:** These instructions are to be used only in conjunction with the assembly, maintenance, and repair of the Alpha 70K TMA<sup>®</sup> system. These instructions are for standard assembly specified by the appropriate highway authority only. In the event the specified system assembly, maintenance, or repair would require a deviation from standard assembly parameters, contact the appropriate highway authority engineer. This system has been accepted for use by the Federal Highway Administration for use on the national highway system under strict criteria utilized by that agency. Valtir representatives are available for consultation if required.

**This Manual must be available to the worker overseeing and/or assembling the product at all times. For additional copies, contact Valtir at +1 (214) 589-8140 or download from websites below.**

The instructions contained in this Manual supersede all previous information and Manuals. All information, illustrations, and specifications in this Manual are based on the latest Alpha 70K TMA<sup>®</sup> system information available to Valtir at the time of printing. We reserve the right to make changes at any time. Please contact Valtir to confirm that you are referring to the most current instructions.

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## **Customer Service Contacts**

Valtir is committed to the highest level of customer service. Feedback regarding the Alpha 70K TMA® system, its assembly procedures, supporting documentation, and performance is always welcome. Additional information can be obtained from the contact information below:

### **Valtir:**

Telephone:	+1 (214) 589-8140
E-mail:	Valtir.com/Contact
Internet:	Valtir.com

## **Important Introductory Notes**

Proper assembly, deployment and future maintenance of the Alpha 70K TMA® are critical to achieve tested performance under accepted criteria. Take the time to review this Manual thoroughly before performing all necessary work. Do not attempt to assemble any TMA without the proper plans and specifications from the highway authority and instructional Manual from the manufacturer. If you need additional information, or have questions about the Alpha 70K TMA® system, please contact the highway authority that has planned and specified this assembly and, if needed, contact Valtir Customer Service Department. This product must be assembled in the location specified by the appropriate highway authority just as it was tested. If there are deviations, alterations, or departures from the assembly protocol specified in this Manual, the device may not perform as it was tested and accepted. This product must be assembled only by persons who are experienced with the assembly of highway products and who possess both the ability and experience to read and understand these instructions. No one should be allowed to attempt to assemble this system that does not have access to these instructions at all times.



**Important:** Read safety instructions thoroughly and follow the assembly directions and suggested safe practices before assembling, maintaining, or repairing the Alpha 70K TMA<sup>®</sup> system. Failure to follow this warning can result in serious injury or death to the worker and/or bystanders. It further compromises the acceptance of this system by the FHWA. Please have these instructions available for use and reference by anyone involved with the Alpha 70K TMA<sup>®</sup> system.



**Warning:** Ensure that all of the Alpha 70K TMA<sup>®</sup> system Warnings, Cautions, and Important statements within the Alpha 70K TMA<sup>®</sup> Manual are completely followed. Failure to follow this warning could result in serious injury or death in the event of a collision.

## **Recommended Safety Rules for Assembly**

### **\* Important Safety Instructions \***

This Manual must be kept in a location where it is readily available to persons who assemble, maintain, or repair the Alpha 70K TMA<sup>®</sup> system. Additional copies of this Manual are immediately available from Valtir by calling (888) 323-6374. Please contact Valtir if you have any questions concerning the information in this Manual or the Alpha 70K TMA<sup>®</sup> system. This Manual may also be downloaded directly from the websites indicated below.

Always use appropriate safety precautions when operating power equipment, mixing chemicals, and when moving heavy equipment or the Alpha 70K TMA<sup>®</sup> components. Gloves, safety goggles, steel toe boots, and back protection shall be used.

Safety measures incorporating traffic control devices specified by the highway authority must be used to provide safety for personnel while at the assembly, maintenance, or repair site.

## Safety Symbols

This section describes the safety symbols that appear in this Alpha 70K TMA® Manual. Read the Manual for complete safety, assembly, operating, maintenance, repair, and service information.

### Symbol

### Meaning



**Safety Alert Symbol:** Indicates Danger, Warning, or Caution. Failure to read and follow the Danger, Warning, Safety, or Caution indicators could result in serious injury or death to the workers and/or bystanders.

## Warnings and Cautions

Read all instructions before assembling, maintaining, or repairing the Alpha 70K TMA® system.



**Warning:** Do not assemble, maintain, or repair the Alpha 70K TMA® system until you have read this Manual thoroughly and completely understand it. Ensure that all Warnings, Cautions, and Important Statements within the Manual are completely followed. Please call Valtir at (888) 323-6374 if you do not understand these instructions. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Safety measures incorporating appropriate traffic control devices specified by the highway authority must be used to protect all personnel while at the assembly, maintenance, or repair site. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Use only Valtir parts that are specified herein for the Alpha 70K TMA® for assembling, maintaining, or repairing the Alpha 70K TMA®. Do not utilize or otherwise combine parts from other systems even if those systems are other Valtir or Valtir Product systems. Such configurations have not been tested, nor have they been accepted for use. Assembly, maintenance, or repairs using unspecified parts or accessories is strictly prohibited. Failure to follow this warning could result in serious injury or death in the event of a vehicle impact with an UNACCEPTED system.



**Warning:** Do NOT modify the Alpha 70K TMA® system in any way. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Ensure that the Alpha 70K TMA® system and delineation used meet all federal, state, specifying agency, and local specifications. Failure to follow this warning could result in serious injury or death in the event of a collision.



**Warning:** Ensure that your assembly meets all appropriate Manual on Uniform Traffic Control Devices (MUTCD) and local standards. Failure to follow this warning could result in serious injury or death in the event of a collision.

## **Limitations and Warnings**

The Alpha 70K TMA (Truck Mounted Attenuator) has been tested and evaluated per the recommendations of the National Cooperative Highway Research Program Report 350 (NCHRP 350) for Test Level 2. The Alpha 70K TMA, as currently designed, is capable of decelerating and stopping light and heavy weight vehicles (820 and 2,000 kg [1,808 and 4,410 lbs.]) when the rear of the Cartridge is impacted head-on at 70 km/h [43 mph] within this criteria.

To achieve intended impact performance, the Alpha 70K TMA must be mounted to a truck with a 5,000 to 12,000 kg. [11,025 to 26,460 lbs.] gross vehicle weight rating (actual weight should not exceed 9,000 kg. [19,845 lbs.]). The TMA Cartridge must be level and the bottom of the Cartridge must be 305 mm  $\pm$  25 mm [12"  $\pm$  1"] above the ground.

Impacts that exceed the design capabilities described in the Manual (vehicle weight, speed and impact angle) may not result in acceptable crash performance as described in NCHRP 350 relative to occupant risk and vehicle trajectory factors.

Follow all applicable DOT and/or applicable highway authority plans, specifications, and other regulations regarding placement and use of TMA.

Definition-The BARRIER VEHICLE is the truck on which a TMA is mounted, while positioned upstream (towards the direction that traffic is approaching) of a work zone.

The SHADOW VEHICLE is the truck on which a TMA is mounted, which is following behind a moving operation such as striping, spraying, etc.

**THE USE OF A TMA ON THE BACK OF A TRUCK IS INTENDED TO:**

- Gradually decelerate the impacting vehicle
- Protect the occupants of the impacting vehicle
- Protect the barrier/shadow vehicle occupants
- Reduce damage to the barrier/shadow vehicle

**IF:**

- **These impacts occur within NCHRP 350 criteria**

**WILL NOT:**

- Affect the skid (roll ahead) distance of an impacted truck

**KEEP WORK CREWS CLEAR!**

**CONTROLLING SKID DISTANCE (ROLL AHEAD):**

- Skid distance is significantly increased and is less predictable for lighter shadow/barrier vehicles
- Skid distance is reduced and is more consistent when heavier shadow/barrier vehicles are used
- Required Truck Weight: 6800kg [15,000 lbs.] to 11350 kg [25,000 lbs.]
- Recommended Curb Weight: 6800 kg [15,000 lbs.]

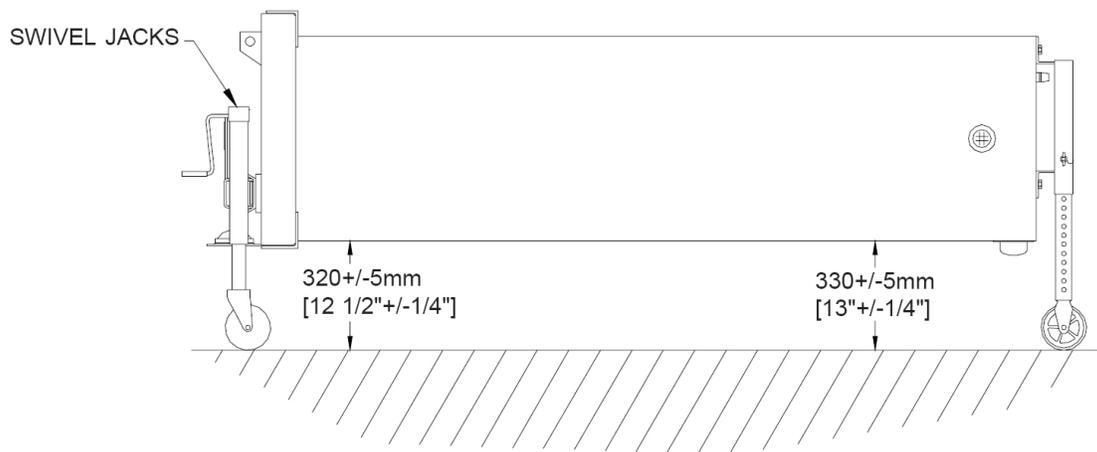
## Recommended Tools

- Welding equipment for 13 mm [1/2"] plate
- Cutting torch
- Hammer
- Framing square
- Tape measure
- 1/2" drive socket wrench
- 1/2" drive sockets (9/16", 3/4", 1-1/8", 1-1/2")
- Open end wrenches (3/8", 1/2", 9/16", 11/16", 3/4", 7/8", 1-1/8", 1-1/2")
- 12" crescent wrench
- Vise grip welding clamps or C-clamps
- Pliers for attaching crimped connectors on 16 gauge wires
- Marking implement (pencil, soap stone)
- Floor jack
- Torque wrench
- Surface grinder
- Drill motor
- Drills (9/16", 7/8" and pilot drills)

**Note: The above list of tools is a general recommendation. Depending on specific site conditions and the complexity of the assembly specified by the appropriate highway authority, additional or fewer tools may be required. Decisions as to what tools are needed to perform the job are entirely within the discretion of the specifying highway authority and the authority's selected contractor performing the assembly of the system at the authority's specified assembly site.**

## **Assembly**

1. Check shipping list against actual parts to make sure all items were received. Review drawing package and familiarize yourself with the assembly and part numbers. Read the entire Manual before proceeding.
2. The Model 7000 is intended to attach to trucks with a gross vehicle weight (GVW) between 5,000 and 12,000 kg [11,025 and 26,460 lbs.] and with an outside frame to frame dimension of 865 mm [34"]. Please consult the Customer Service Department of Valtir for trucks with different characteristics before proceeding with assembly.
3. Park truck on a level surface (use bubble level). The truck should be as close to the final driving weight as possible. If ballast must be added to achieve the 5,000 kg [11,025 lbs.] minimum weight, add it at this time. The ballast must be properly anchored to the truck to keep it in place during an impact. Ideally an adequately sized truck that requires no ballast should be used.
4. The TMA Cartridge is shipped attached to the Backup. The first step in the assembly process is to remove the assembly from the crate and make it mobile. This is accomplished by carefully removing the crating material to confirm the two Backup Jacks are attached. If the Jacks are not attached, attach them to the Backup as required (see Drawing 610984 on page 23). The TMA can be made mobile (see Figure 1).

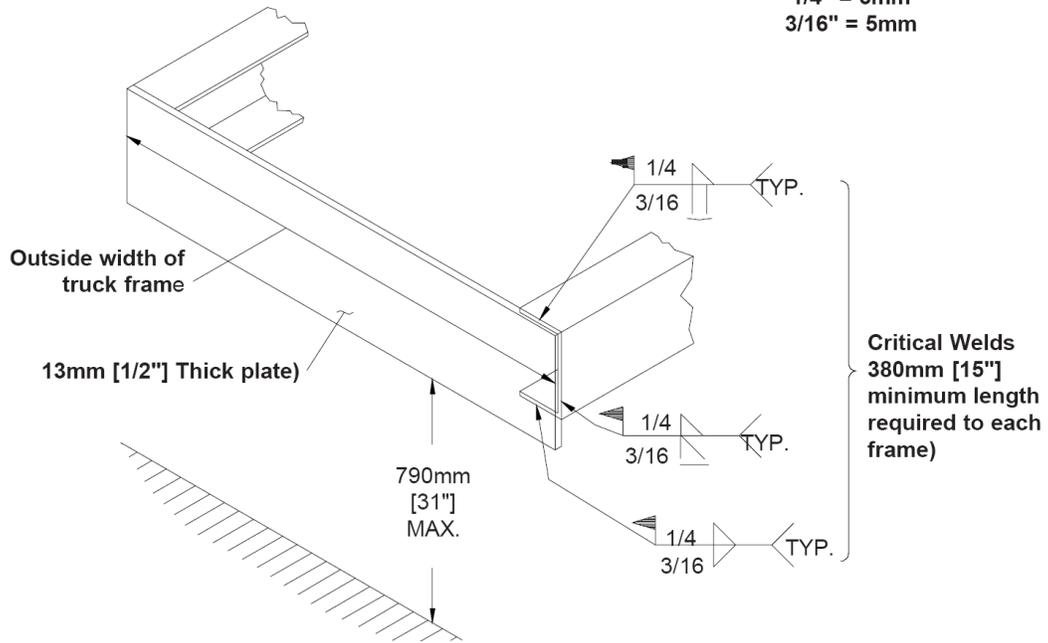


**Figure 1**

Elevate the Jacks so the Cartridge is 320 mm  $\pm$  5 mm [12 1/2"  $\pm$  1/4"] above the level surface at the Backup end and 330 mm  $\pm$  6 mm [13"  $\pm$  1/4"] at the rear end.

- Cut a 13 mm [ $1/2$ "] thick piece of steel plate to shape and weld it between the rear frame members (see Figure 2). Each side of the plate should be welded to the Frame Member with a minimum 380 mm [ $15$ " long] 6 mm [ $1/4$ "] weld.

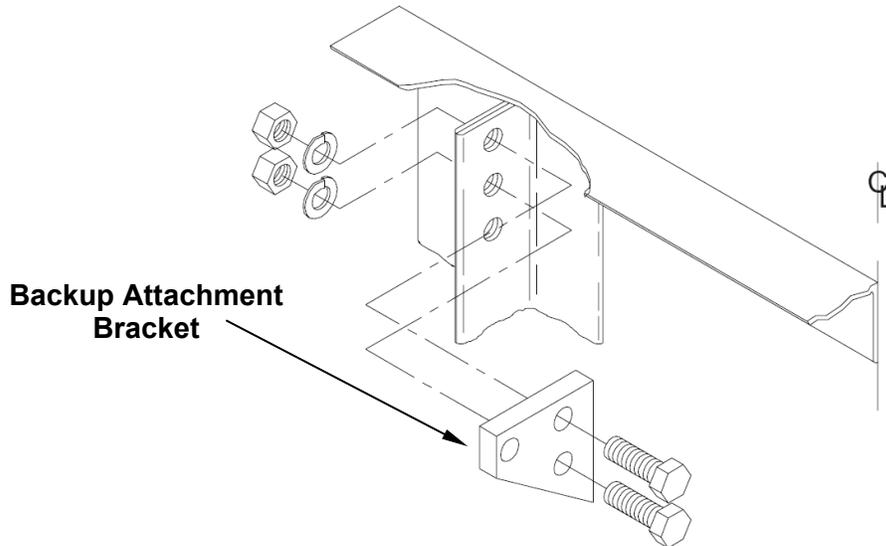
Note weld size equivalents  
 $1/4$ " = 6mm  
 $3/16$ " = 5mm



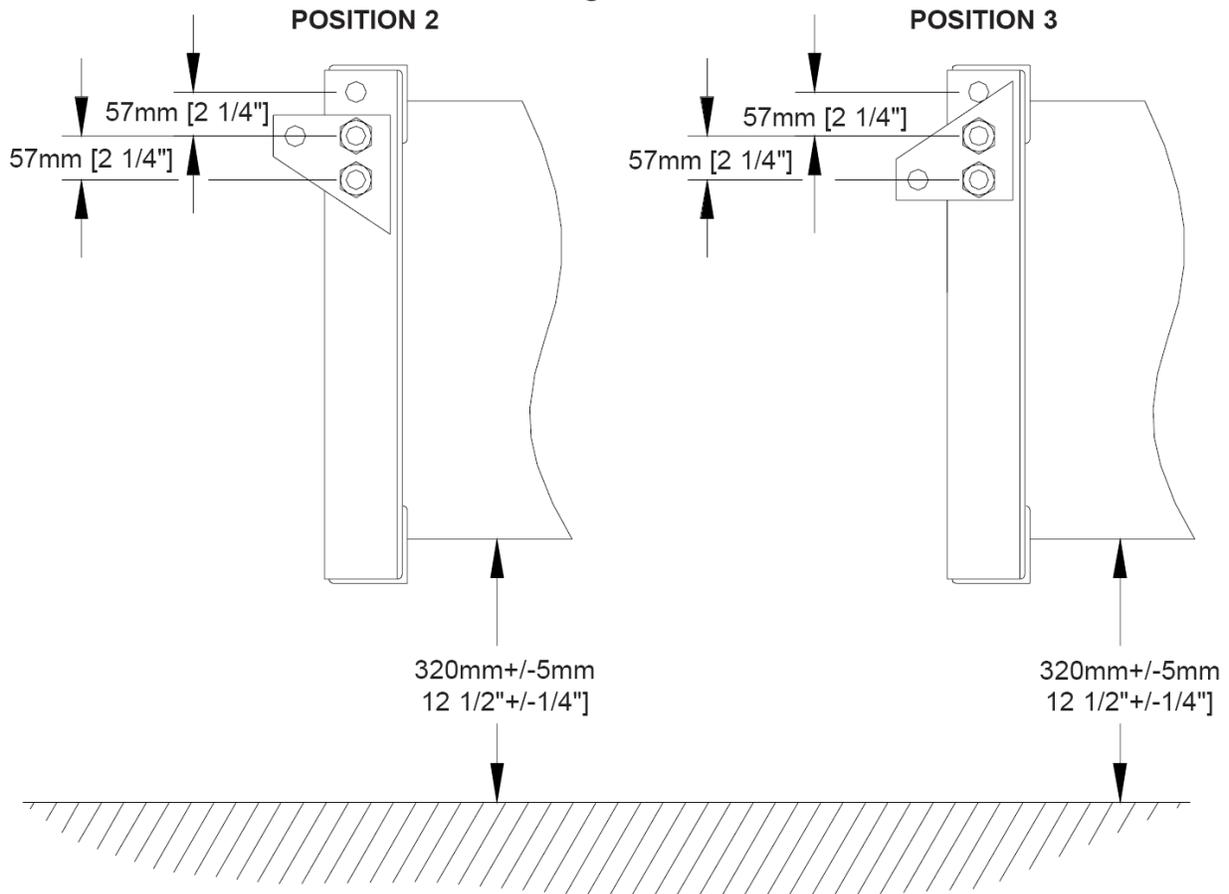
**Figure 2**

- Attach the Backup Attachment Brackets (PN 605405) to the upper two holes in the Backup using the 1" diameter x 3" long hex head bolts, lock washers, and nuts provided (see Figure 3). Torque the nuts to 340 N-m [250 ft-lb].

**Note:** If truck has an especially low frame, it may be desirable to attach the Backup Attachment Brackets in one of the alternate positions shown in Figure 4.

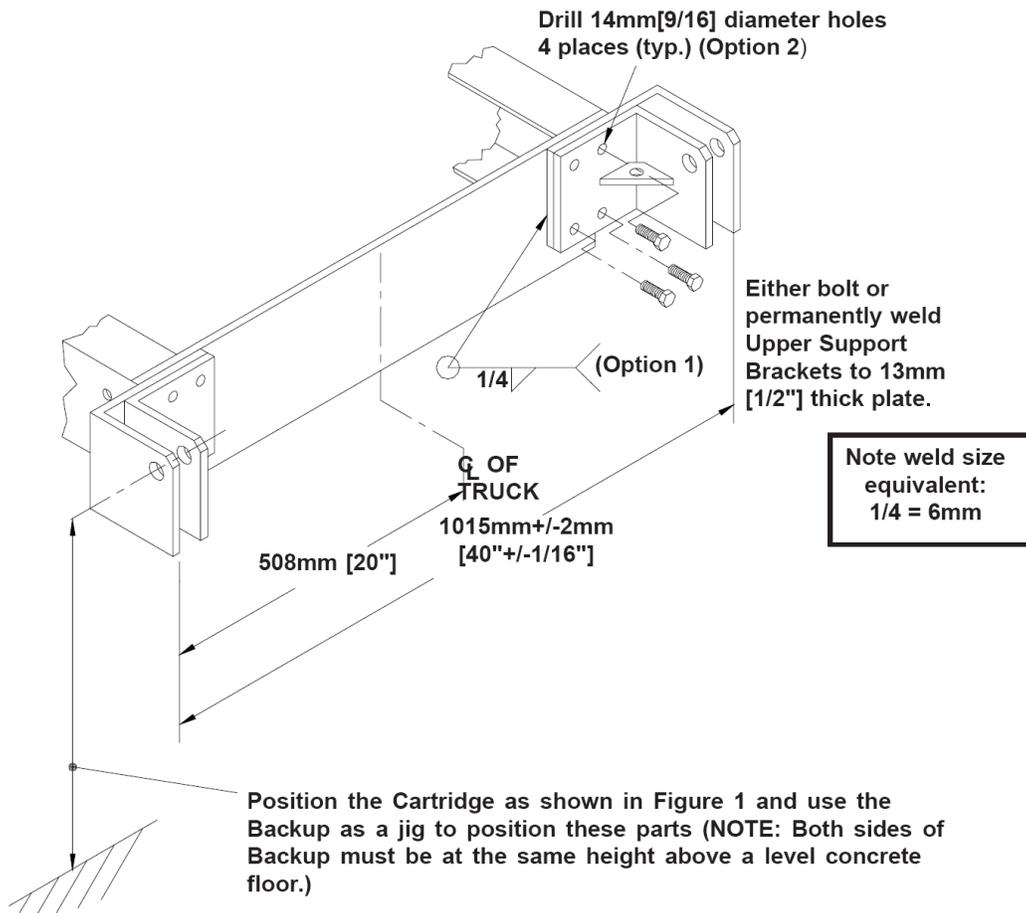


**Figure 3**



**Figure 4**

- Attach the Upper Support Bracket to the Backup with the (2) 1" Hitch Pins (PN 116294). Move Cartridge, Backup, and Upper Support Brackets to the 13 mm [1/2"] plate. Making sure that the bottom of the Cartridge is 320 mm [12 1/2"] from level grade at the front and 330 mm [13"] from level grade at the rear, clamp or spot weld Upper Support Brackets to the 13 mm [1/2"] plate. Remove 1" Hitch Pins and move Backup and Cartridge clear. Then attach the Upper Support Brackets (left PN 2725501-0000 and right PN 2725491-0000) to the 13 mm [1/2"] plate as shown in Figure 5 and on Sheet 2 of detail drawings. The decision to permanently weld or bolt the parts should be based on the expected future use of the truck and on possible interference with existing parts (i.e., dump in up position, salt spreader, etc.). If bolting is used, all eight (8) bolts must be attached into drilled holes and torqued to 108 N-m [80 ft-lb]. If welding is used, it should be done by a qualified welder and should be completed as shown on sheet 2 of detail drawings.



**Figure 5**

8. After attaching the Upper Support Brackets, attach the Upper Side Support (PN 2725441-0000), as shown in Figures 6A-6C. Where these parts contact the Upper Support Brackets, they must be welded as shown. Again, the front part of these brackets can be either bolted or welded. (Note: If there is interference with the truck's rear leaf spring hangers; weld two 45° x 50 mm [2"] wide gussets per side; top and bottom, in place of the side bracket.)

Note weld size equivalent:  
1/4 = 6mm

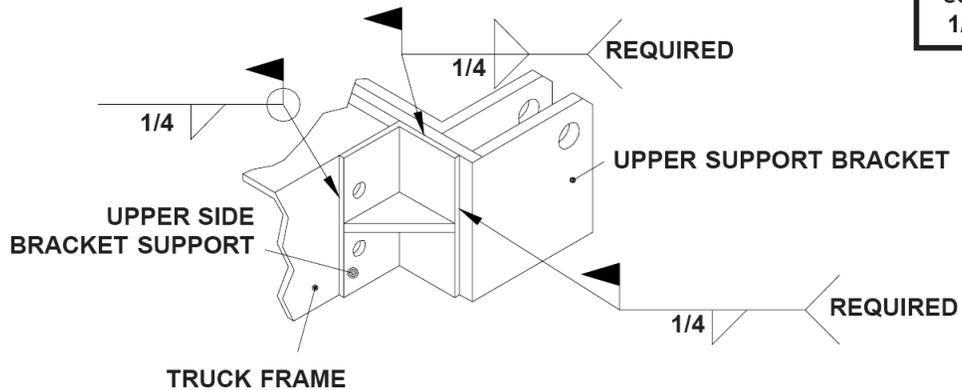


Figure 6A  
Option 1

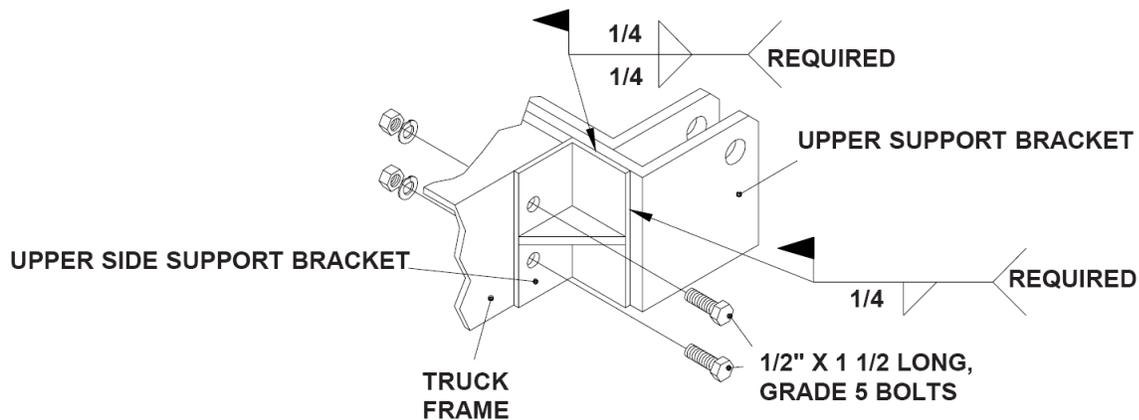


Figure 6B  
Option 2

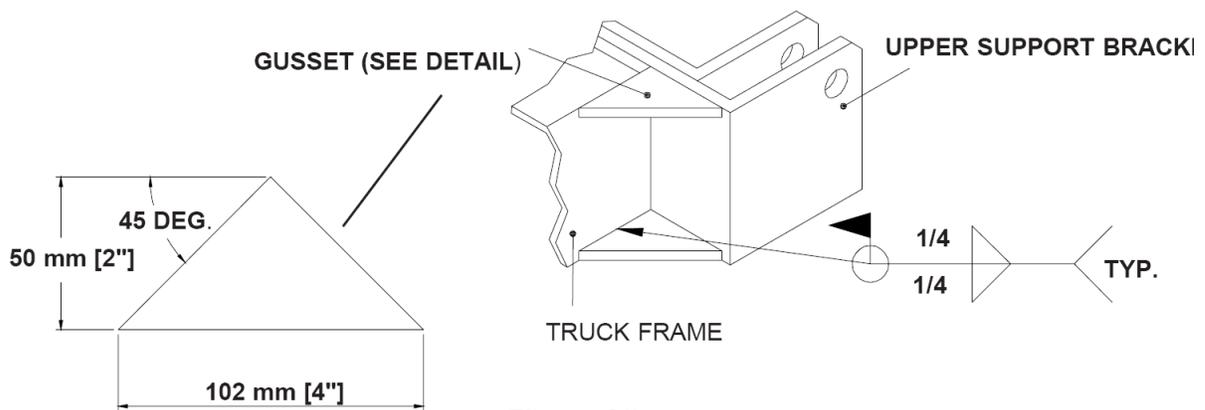
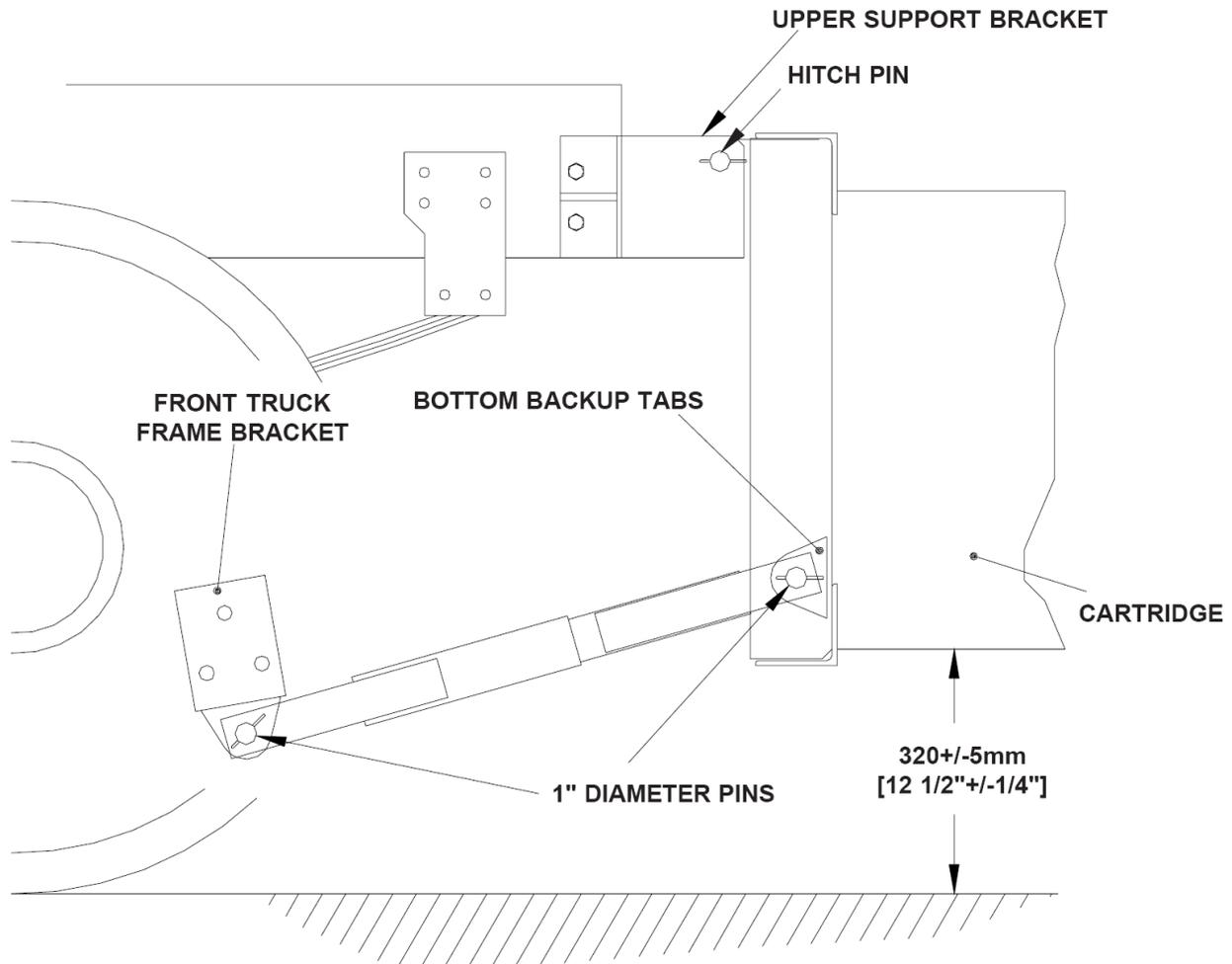


Figure 6C  
Option 3

9. Move the Cartridge and Backup to the Upper Support Brackets and insert the two Hitch Pins (PN 116294) (see Figure 7). Verify bottom of Cartridge is  $318 \text{ mm} \pm 6 \text{ mm}$  [ $12 \frac{1}{2}'' \pm \frac{1}{4}''$ ] from the ground at the front and  $330 \text{ mm} \pm 6 \text{ mm}$  [ $13'' \pm \frac{1}{4}''$ ] from the ground at the rear (use plywood under the rear jack, if necessary). The reason for these dimensions is to compensate for settling of the truck springs after TMA has been attached to the truck with the jacks elevated to their travel positions.
10. Attach the Standard Struts (PN 3522560-0000) to the bottom Backup tabs. Attach the Front Truck Frame Brackets (PN 2725451-0000) to the other end of the Struts (see Figure 7).



**Figure 7**

11. As shown in Figure 8, swing the Standard Struts up and position the Front Brackets against the side of the truck frame. This part may be either bolted or welded to the truck frame. If bolting is used, all six (6) bolts must be attached into drilled holes (three on each side) and the bolts torqued to 270 N-m [200 ft-lb]. (Before attempting the bolting method, make sure there is enough clearance between the side of the truck frame and the outboard leaf springs.) If welding is used, it should be done by a qualified welder and should be completed as shown on the detail drawings. Do NOT weld across the bottom of the truck frame. If there is interference between the Front Truck Frame Bracket and some existing part on the truck then the part can be assembled as shown in Figure 9.

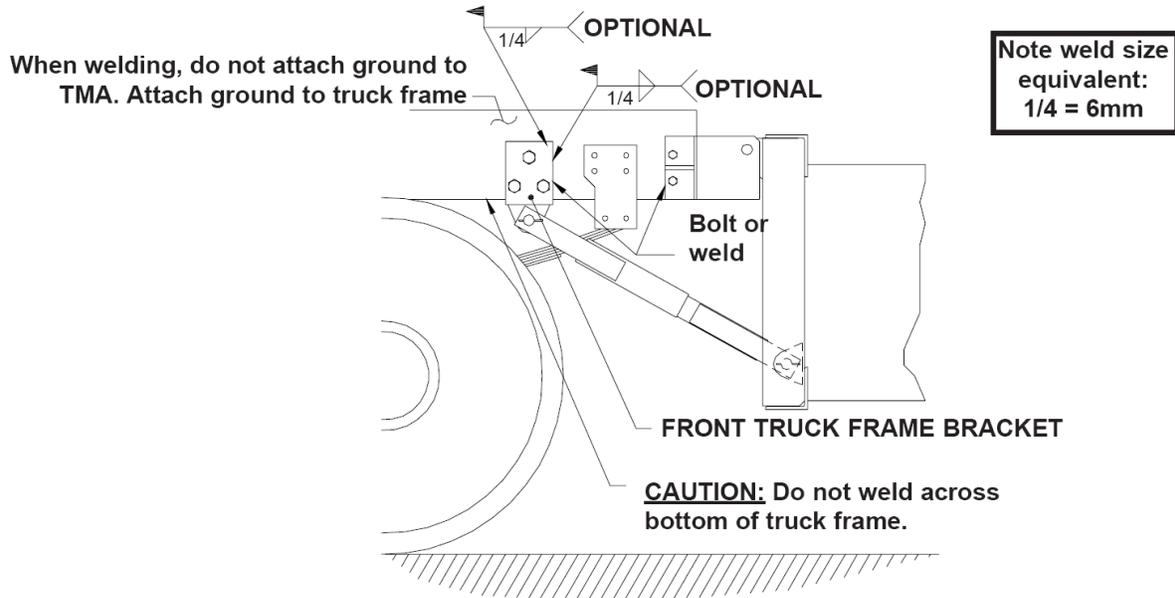


Figure 8

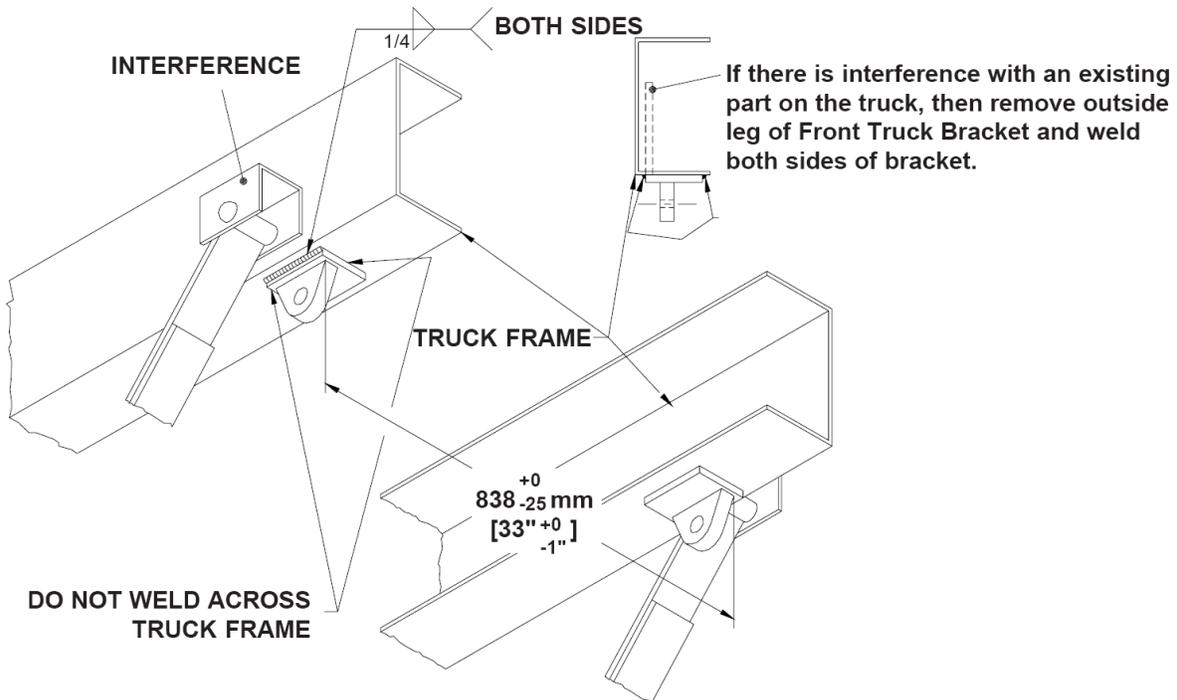
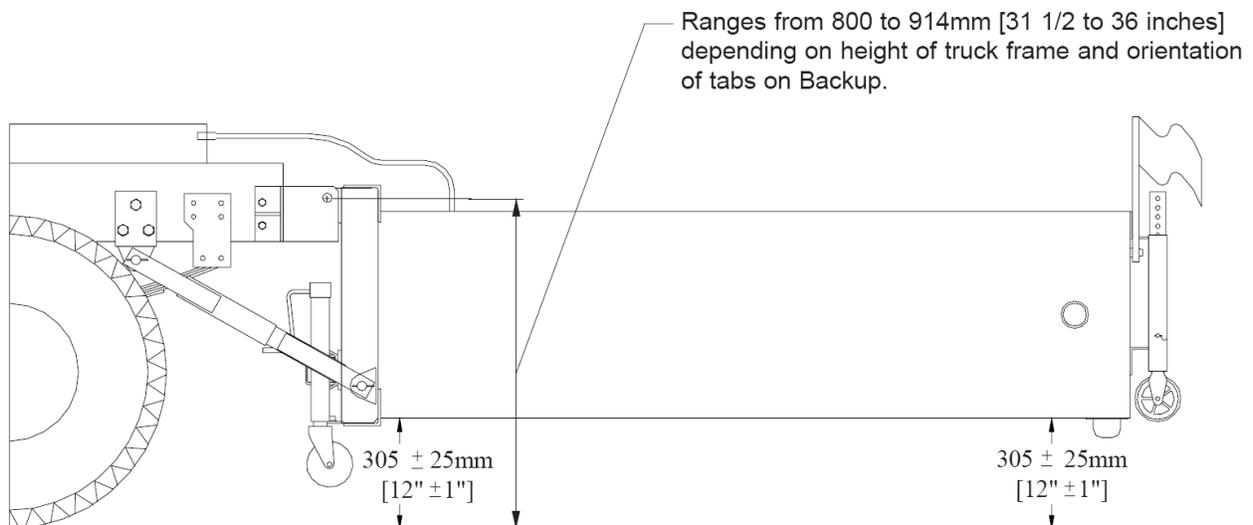


Figure 9

12. Detach the Backup from the upper attach points and from the Diagonal Struts. Move the TMA away from the rear end of the truck.
13. Paint exposed metal parts using the primer and spray paints provided.
14. Attach the 7 Pin Socket for the Cartridge turn/stop/tail/clearance lights. (Use 14 gauge wire to connect the socket to the existing truck's wiring harness.)
15. Check the tightness of the Cartridge-to-Backup bolts (120 N-m [90 ft-lb]).
16. Reattach the Backup to the Upper Support Brackets and to the diagonal Struts. Retract the Jacks to their travel position.
17. Plug in the light harness and verify that the turn/stop/tail/clearance lights are functioning properly.
18. Check the location of all electrical lines to make sure they will not be damaged.
19. Verify that tall fasteners are tight.
20. Verify Cartridge is  $12'' \pm 1''$  [ $305 \text{ mm} \pm 25 \text{ mm}$ ] and level.
21. Users of the TMA should be trained as to its proper use. Please refer to Suggested Attachment and Removal Instructions in this Manual plus any additional guidelines established by the owner.
22. The TMA is now ready for use.



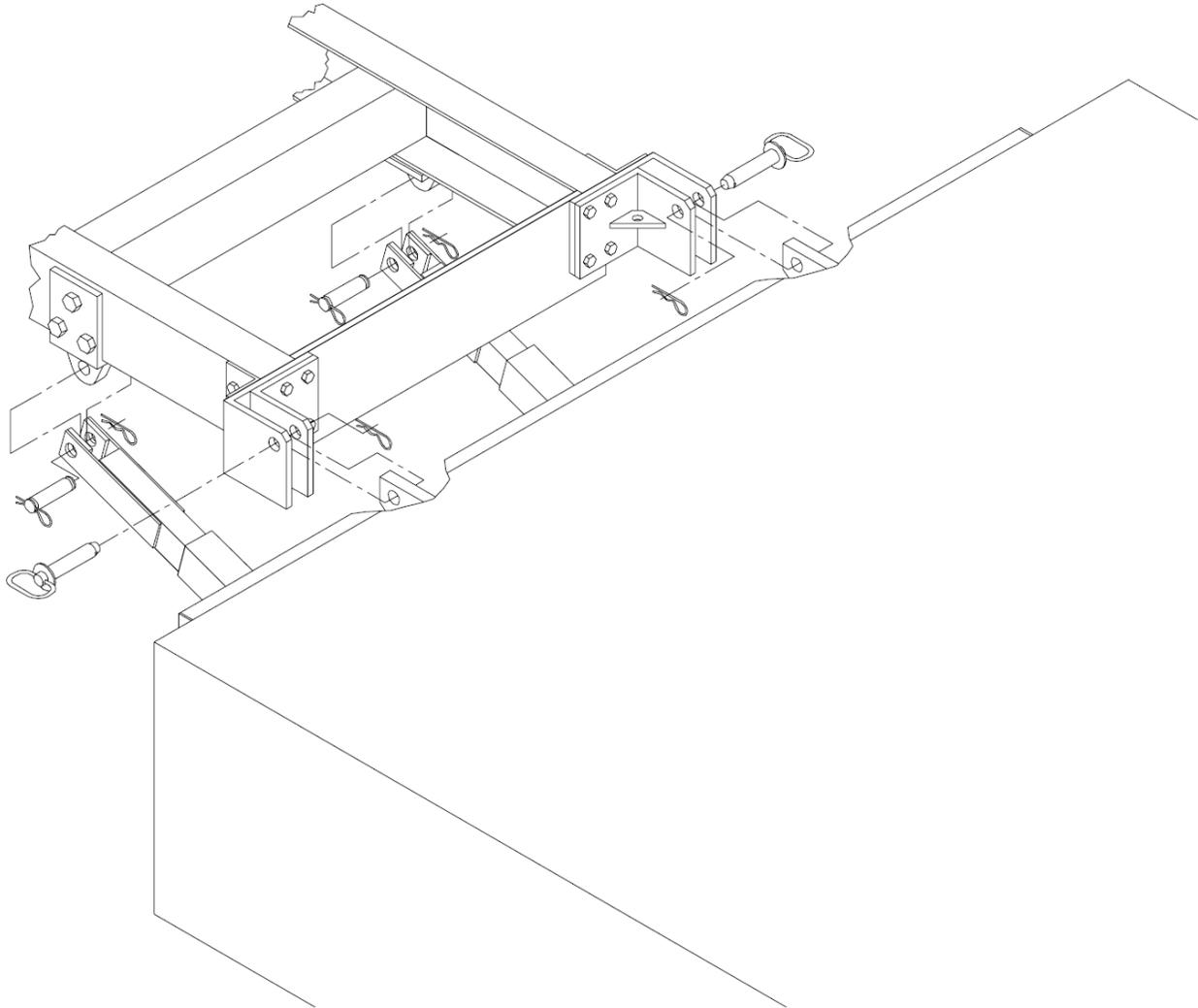
**Figure 10**

## **Attachment and Removal of 70K TMA®**

### **I. Attaching TMA to Truck**

To attach the Model 7000 to the truck:

- A. Roll the system squarely toward the rear attachment points
- B. Insert the two 1" diameter attachment Pins and Retaining Pins which connect the Backup to the Truck Brackets.
- C. Attach the Upper Arms of the Diagonal Struts to their Attachment Brackets. Make sure the 1" diameter Pins are properly applied.



**Figure 11**

- D. Plug in the light harness and verify all turn/stop/tail/clearance lights are working properly.
- E. Secure the rear Cartridge Jack and two Backup Jacks into their storage positions.
- F. Verify electrical harness is clear of moving parts.
- G. Verify all fasteners are tight and Cartridge is 12"  $\pm$  1" [305 mm  $\pm$  25 mm] from the level ground at all points.



**Caution:** Missing or damaged Pins or Retaining Pins should be replaced before putting the TMA into service. Ensure all Retainer Pins are affixed correctly.

## II. TMA Removal

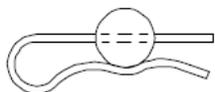
To Remove TMA from rear of truck:

- A. Lower the rear Jack to the “down” position.
- B. Swing the two Backup Jacks into position and extend them until the weight of the TMA is off the 1 inch diameter attachment Pins.
- C. Remove the two Backup attachment Pins and the two upper attachment Pins in the Diagonal Struts. (The Struts should remain attached to the Backup.) Make sure the Struts are properly supported. Return the Pins and Retainer Pins to their positions in the TMA so they won't be lost.
- D. Unplug the light harness
- E. Roll the TMA away from the truck.

**Note:** The Jacks have been designed to roll over smooth surfaces. Rolling the TMA over rough surfaces may result in damage to Jacks and/or Cartridge.

## General Maintenance

DESCRIPTION	INTERVAL
1. Check tightness of fasteners.	1 month or 1,000 miles
2. Oil swivel Jacks.	6 months
3. Replace light bulbs.	As required.
4. Clean system (dirt and salt).	As required.
5. Check that levelness and height of Cartridge attached to truck is 12" ± 1" [305 mm ± 25 mm] from level ground.	As required.
6. Grease friction points (moving steel parts).	6 months
7. Check 1" diameter Pins in Backup and in Diagonal Struts to make sure they are properly held in position by a Retaining Pin.	As required.
8. Check roll pins in Diagonal Struts.	As required.



**Note:** As required maintenance shall be checked monthly.

## **Repair Instructions**

### **I. Lights will not work**

- A. Replace affected light bulb(s).
- B. Check wires for damage.
- C. Using a volt/ohm meter, troubleshoot and locate the problem.

### **II. Unit is not level**

- A. Check for cause of problem.
  1. Temporary extra load in truck.
  2. Support Frame improperly assembled.
  3. Weakening truck springs.
- B. If problems above cannot be corrected, a new diagonal strut must be fabricated that will position the Cartridge 305 mm  $\pm$  25 mm [12"  $\pm$  1"] above the ground at all points.

### **III. Alpha 70K Cartridge has been damaged**

The following is a general description of various types of damage that can occur to Alpha 70K TMA Cartridges. Please review and heed the following recommendations to achieve intended impact performance (see Figure 12).

### **IV. DURASHELL NOSE damage**

The DURASHELL NOSE is a resilient plastic Nose that normally recovers its shape after nuisance hits. However, if either the left or right side is damaged, it must be replaced in the following manner:

- A. Remove the bolts and washers attaching the Nose to Cartridge.
- B. Disconnect the light plugs from the lights.
- C. Connect the light plugs to the lights in the new Nose.
- D. Attach new Nose to Cartridge using bolts and washers previously removed.
- E. Lights and grommets, if undamaged, may be salvaged.

### **V. Minor damage to aluminum Cartridge**

- A. Damage to the rear 2,134 mm [7'] of the Cartridge top and bottom outer skin or to the rear 914 mm [3'] of the side cover with an affected area smaller than 610 mm [24"] wide x 571 mm [22 1/2"] high x 152 mm [6"] deep may be repaired by applying appropriately sized aluminum reinforcement to cover the damaged area. Use .032" [0.8 mm] thick aluminum on damaged top and bottom skins and .063" [1.6 mm] thick aluminum on damaged side covers. Pop riveting is the recommended fastening method for attaching new parts.
- B. Damage to the front of the Cartridge, because this is the area that supports the cantilevered weight of the system, cannot be replaced. If this area of the Cartridge has not been crushed, extra rivets can be added as needed.

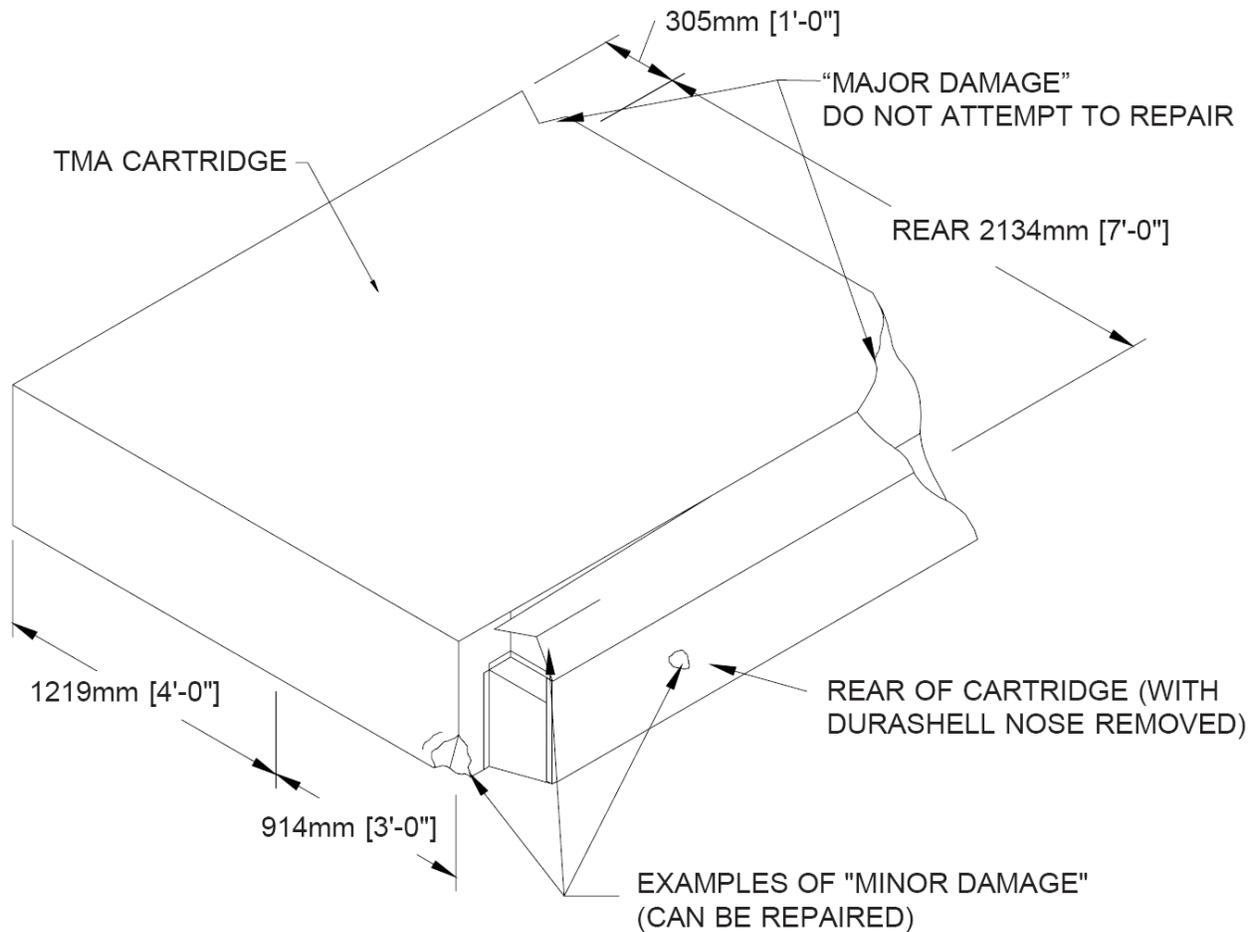
**Major damage**

Damage to areas larger or deeper than 610 mm [24"] wide x 571 mm [22 1/2"] high x 152 mm [6"] deep in the rear 2,134 mm [7'] of the Cartridge, or any crushed area in the front 305 mm [12"] of the Cartridge is considered "major" damage. Damage to the front 1,219 mm [4'] of the side covers, or length ripples along any covers is also considered "major" damage. Such damage could significantly affect the total energy absorbing ability of the Cartridge. Repairs for "major" damage are not recommended.

**See General Information if an evaluation is desired.**

**General Information**

Valtir personnel are available to assist in evaluating damaged TMA Cartridges. Several photos of the damaged area, taken at different angles, should be submitted for evaluation (see page 3).



**Figure 12**





# DWG 6'10984

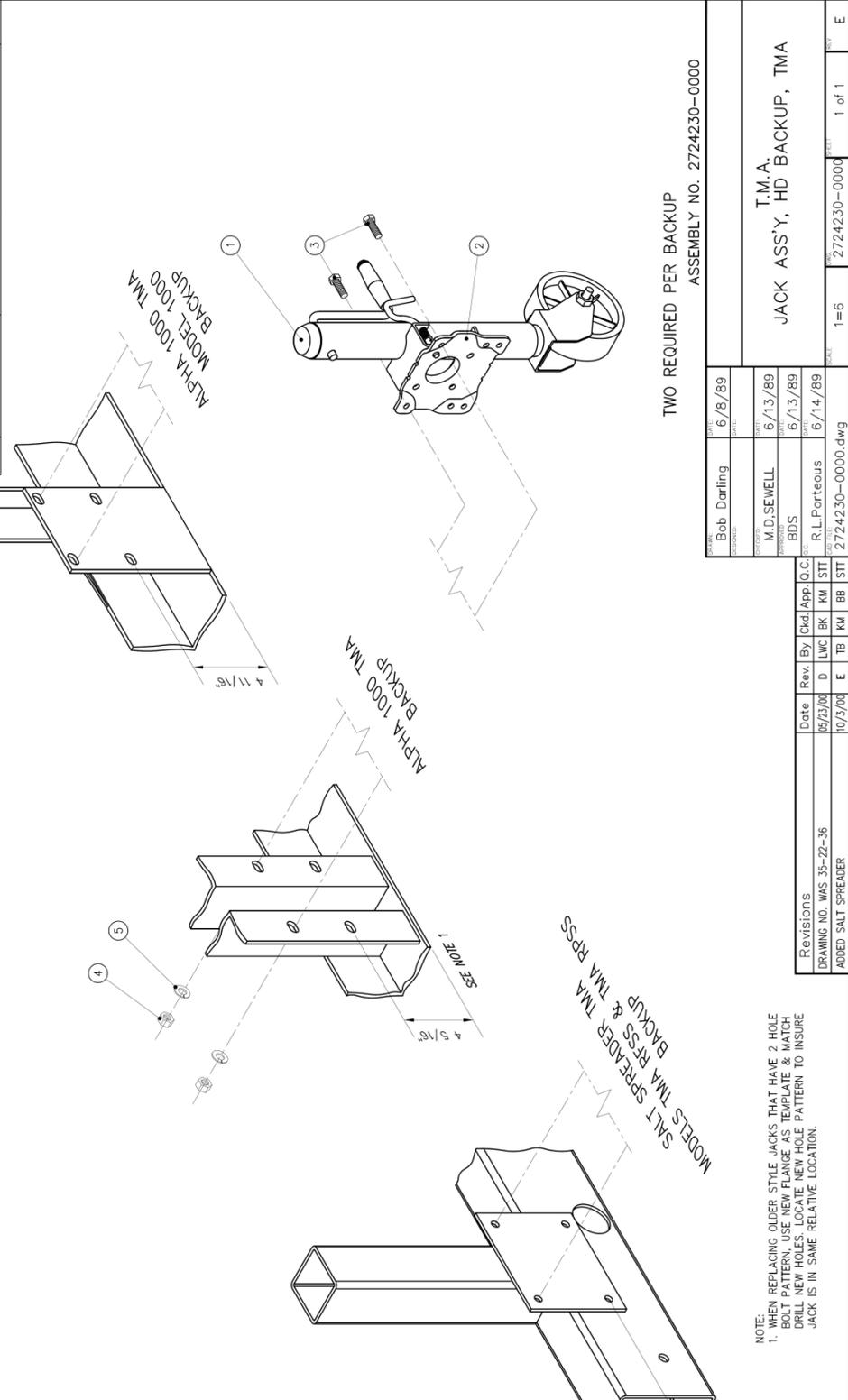
ITEM	STOCK NO.	DESCRIPTION	REC'D
1	2724231-0000	JACK, SWIVEL, 500 LB	1.00
2	2724232-0000	JACK-FLANGE W/SNAP RING	1.00
3	2701221-0100	BOLT, HX, 3/8X1.62, P.	4.00
4	2704031-0100	NUT, HX, 3/8, P.	4.00
5	2708041-0100	WASHER, LOCK, 3/8, P.	4.00

TOL. ANGULAR: ±1°		TOL. LINEAR: ±1/16"	
UNLESS OTHERWISE NOTED.			

DATE	REV.	BY	CHKD.	APP.	Q.C.
05/25/00	D	LWC	BK	KM	STT
10/3/00	E	TB	KM	BB	STT

DATE	REV.	BY	CHKD.	APP.	Q.C.
06/13/89		M.D.	SEMELL		
06/13/89		BDS			
06/14/89		R.L.	Porteous		

DATE	REV.	BY	CHKD.	APP.	Q.C.
06/08/89		Bob	Darling		



DATE	REV.	BY	CHKD.	APP.	Q.C.
06/13/89		M.D.	SEMELL		
06/13/89		BDS			
06/14/89		R.L.	Porteous		

NOTE:  
 1. WHEN REPLACING OLDER STYLE JACKS THAT HAVE 2 HOLE BOLT PATTERN, USE NEW FLANGE AS TEMPLATE & MATCH DRILL NEW HOLES. LOCATE NEW HOLE PATTERN TO INSURE JACK IS IN SAME RELATIVE LOCATION.

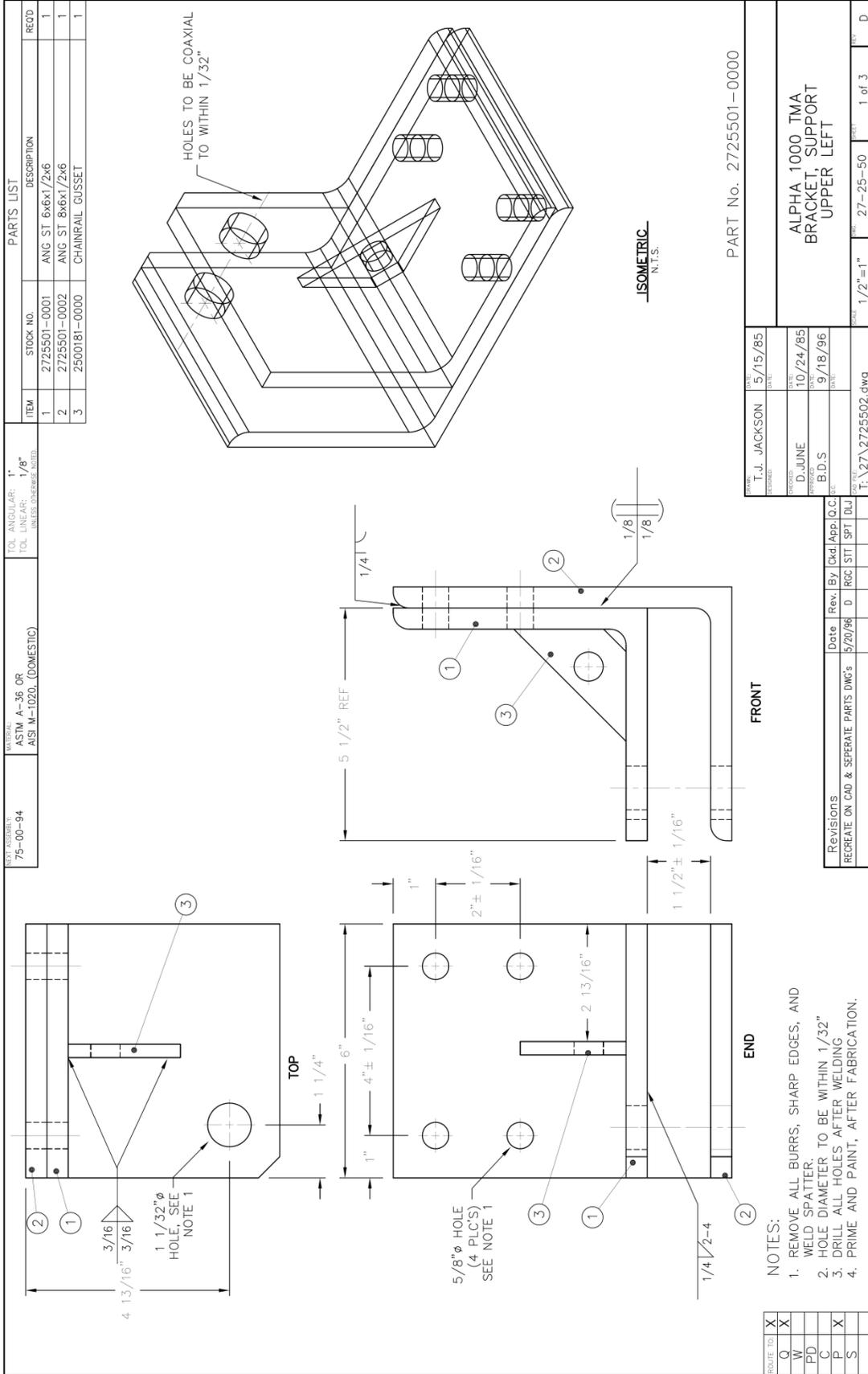
TWO REQUIRED PER BACKUP  
 ASSEMBLY NO. 2724230-0000

T.M.A.  
 JACK ASS'Y, HD BACKUP, TMA

1-6 2724230-0000 1 of 1 E

## Jack Assembly, HD Backup TMA

DWG 2725501-0000



Alpha 1000 TMA Bracket, Support Upper Left



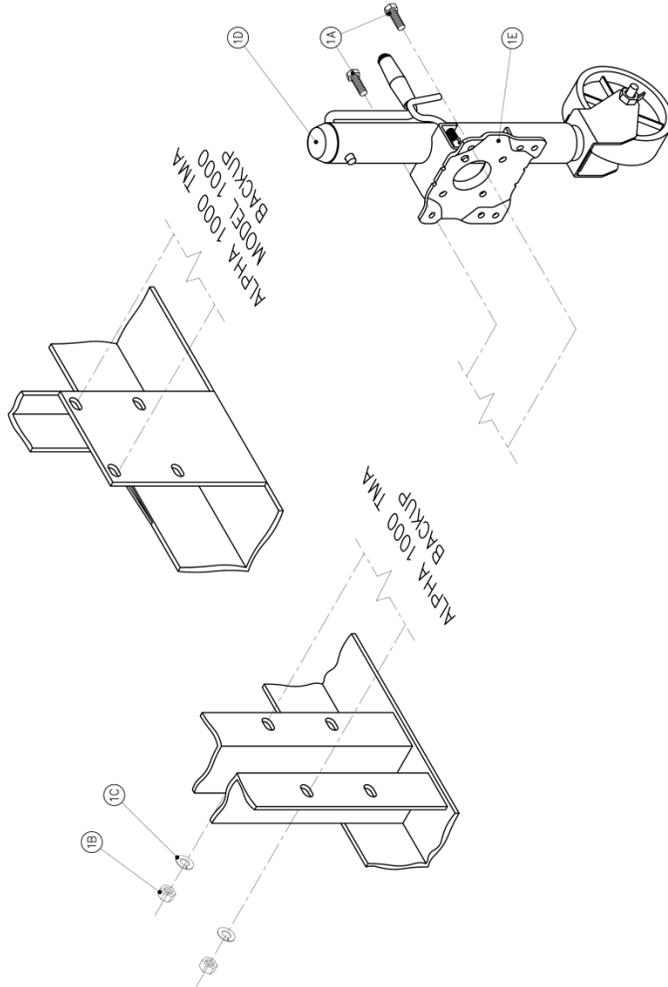
# DWG 352236

ITEM	STOCK NO.	DESCRIPTION	RECD
1	2724230-0000	JACK ASSY,HD BACKUP,TMA	1.00
1A	2701221-0100	BOL,T.HX,3/8X1.02,P	4.00
1B	2704031-0100	NIUT,HX,3/8,P	4.00
1C	2708041-0100	WASHER,LOCK,3/8,P	4.00
1D	2724231-0000	JACK,SWIVEL	1.00
1E	2724232-0000	JACK FLANGE W/SNAP RING	1.00

TOL ANGULAR: 1"  
TOL LINEAR: 1/16"  
UNLESS OTHERWISE NOTED.

MATERIAL:  
SEE MATERIAL SPECS  
AND PART DRAWINGS

NET ASSEMBLY



TWO REQUIRED PER BACKUP

DATE	6/8/89
BY	Bob Darling
DATE	6/13/89
BY	M.D. SEWELL
DATE	6/13/89
BY	BDS
DATE	6/14/89
BY	R.L. Porteous
DATE	352236.dwg
BY	JME I.D.O. I STI

Revisions	Date	Rev.	By	Old	App.	I.C.C.
TOTAL REVISIONS	6/8/89	H	BD	/	/	/
REVISIONS	6/13/89	I	DM	JME	I.D.O.	I STI

NOTE: THIS DRAWING WAS 2724231-0000, 1B WAS 2724231-0000, 1C WAS 2708041-0000, 1D WAS 2724231-0000 AND 1E WAS 2708041-0000 FOR THE JACK AND BARRIER.

T.M.A	
BACKUP JACK ASS'Y	
1=6	35-22-36
1 of 1	1

## TMA Backup Jack Assembly



For more complete information on Valtir products and services, visit us on the web at [www.valtir.com](http://www.valtir.com). Materials and specifications are subject to change without notice. Please contact Valtir to confirm that you are referring to the most current instructions.

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