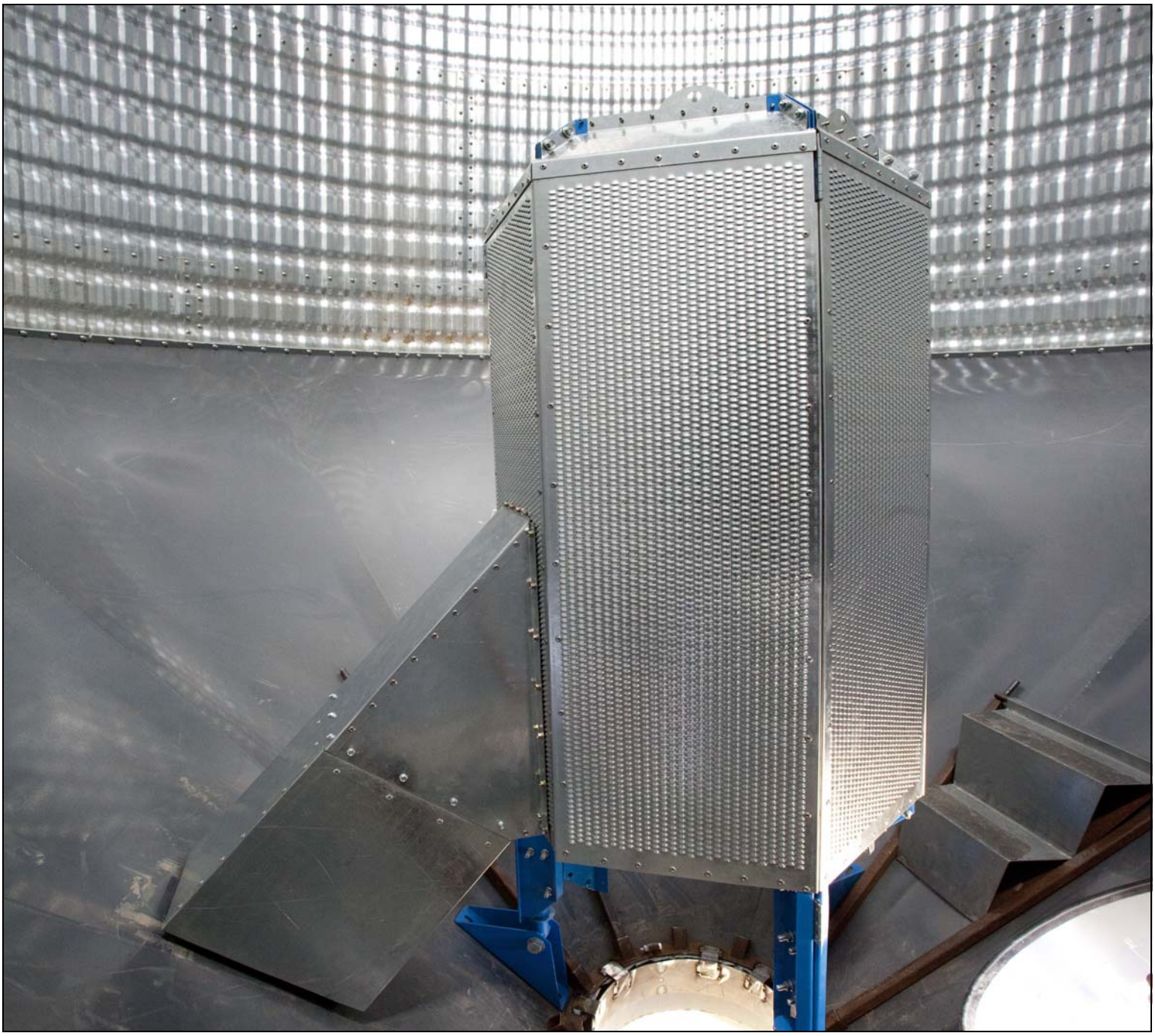
GRAIN GUARD

RETRO ROCKET

GRS-7004 / GRS-7006 SERIES
INSTALLATION MANUAL



Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: RNF-3066 R0

Revised: Jul/11

This product has been designed and constructed according to general engineering standards[a]. Other local regulations may apply and must be followed by the operator. We strongly recommend that all personnel associated with this equipment be trained in the correct operational and safety procedures required for this product. Periodic reviews of this manual with all employees should be standard practice. For your convenience, we include this sign-off sheet so you can record your periodic reviews.

Date	Employee Signature	Employer Signature

a. Standards include organizations such as the American Society of Agricultural and Biological Engineers, American National Standards Institute, Canadian Standards Association, International Organization for Standardization, and/or others.

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1. Introduction

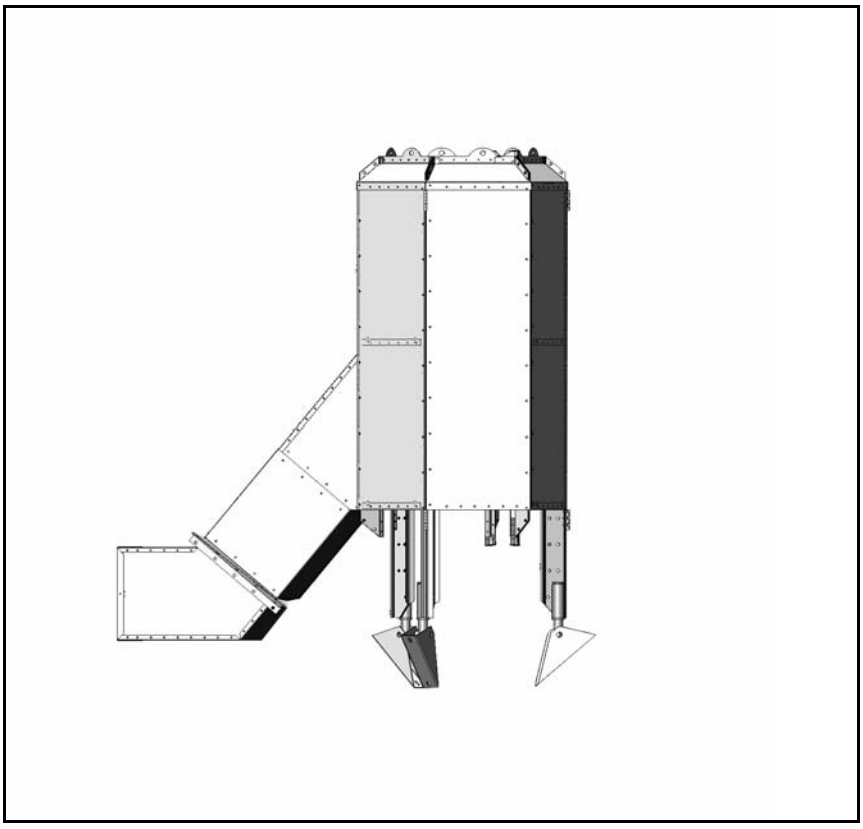
Thank you for your purchase. The Grain Guard GRS-7004/GRS-7006 Series is an excellent addition to any new or existing hopper bottom bin that does not presently include an aeration system. It features a unique folding design that allows it to be installed through an opening much smaller in size than itself. It is designed to fit through existing bin openings that are minimum 19” square, minimum 22” diameter, or oval openings minimum 18.5” x 16”. Also, by simply removing four bolts and inserting the rocket into the hopper bin in three sections, it can be inserted through a minimum 16” diameter round or 12” square opening. Once inside, the bolts are then reinstalled and the unit is ready to be unfolded into working position. It will allow you to harvest in damp conditions, maintain stored grain in peak condition, and prevent mold growth and insect infestation. With proper care during and after installation, your aeration system will provide you with many years of trouble-free service.

The Grain Guard Rocket is designed to reduce grain drying time and increase fan efficiency by forcing air into the center of the bin. This system dries grain more uniformly and efficiently than conventional bottom-up aeration systems.

Safe, efficient and trouble-free operation of the Rocket aeration system requires that you, and anyone else who may operate this equipment, read and understand all safety instructions and procedures.

Keep this manual handy for frequent reference and to review with new personnel. Call your local distributor or dealer if you need assistance or additional information.

Note: *The Grain Guard Rocket is intended for grain use only. Do not use with fertilizer or other material.*



2. Safety First

2.1. GENERAL SAFETY

- It is the equipment owner and the operator's responsibility to read and understand **ALL** safety instructions, safety decals, and manuals and follow them before assembling operating, or maintaining the equipment. All accidents can be avoided.
- Use this equipment for its intended purposes only.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety, and could affect the life of the equipment. Any modification to the equipment voids the warranty.
- Have a first-aid kit available for use should the need arise, and know how to use it.
- Wear appropriate protective gear. This list includes, but is not limited to:
  - a hard hat
  - gloves
  - protective shoes with slip-resistant soles
  - protective goggles
  - hearing protection

- Follow good shop practices:
  - keep service area clean and dry
  - be sure electrical outlets and tools are properly grounded
  - use adequate light for the job at hand
  - Think SAFETY! Work SAFELY!

3. Installation

The following location and installation instructions apply to the GRS7004/GRS-7006 Series Rockets. The specifications for these aeration systems are given in the table below.

Series	Part No.	Maximum Sidewall Height	Rocket Diameter (outer/inner)	Bin Size	Airflow Capacity (CFM)	Air Inlet Size
GG 7000 4’	GRS-7004	27’	30”/20”	1500 to 5000 bu.	6,700	9” x 14”
GG 7000 6’	GRS-7006	27’	30”/20”	up to 6000 bu.	7,800	9” x 14”

NOTICE

Grain Guard Rockets are not to be used on hopper slopes more than 40° from the horizontal. For hoppers with slopes steeper than 40°, consult Edwards before installation.

3.1. LOCATION

All models of the Grain Guard Rocket are designed to be installed in the center of hopper-bottom bins, with the rocket center aligned with the center of hopper cone. To ensure proper airflow, the rocket must be installed completely vertical.

3.2. INSTALLATION

During installation, refer to Figure 3.1, and depending on model being installed, one of Figures 4.1– 4.2 and one of Tables 4.1– 4.2 as found in the Appendix.

The following tools are required for proper installation:

- 9/16” wrench
- electric drill with 7/16” bit
- marker
- torch or cutting wheel
- level
- tin snips
- safety equipment (e.g. goggles)
- silicone
- winching device with minimum load rating of 700 lbs

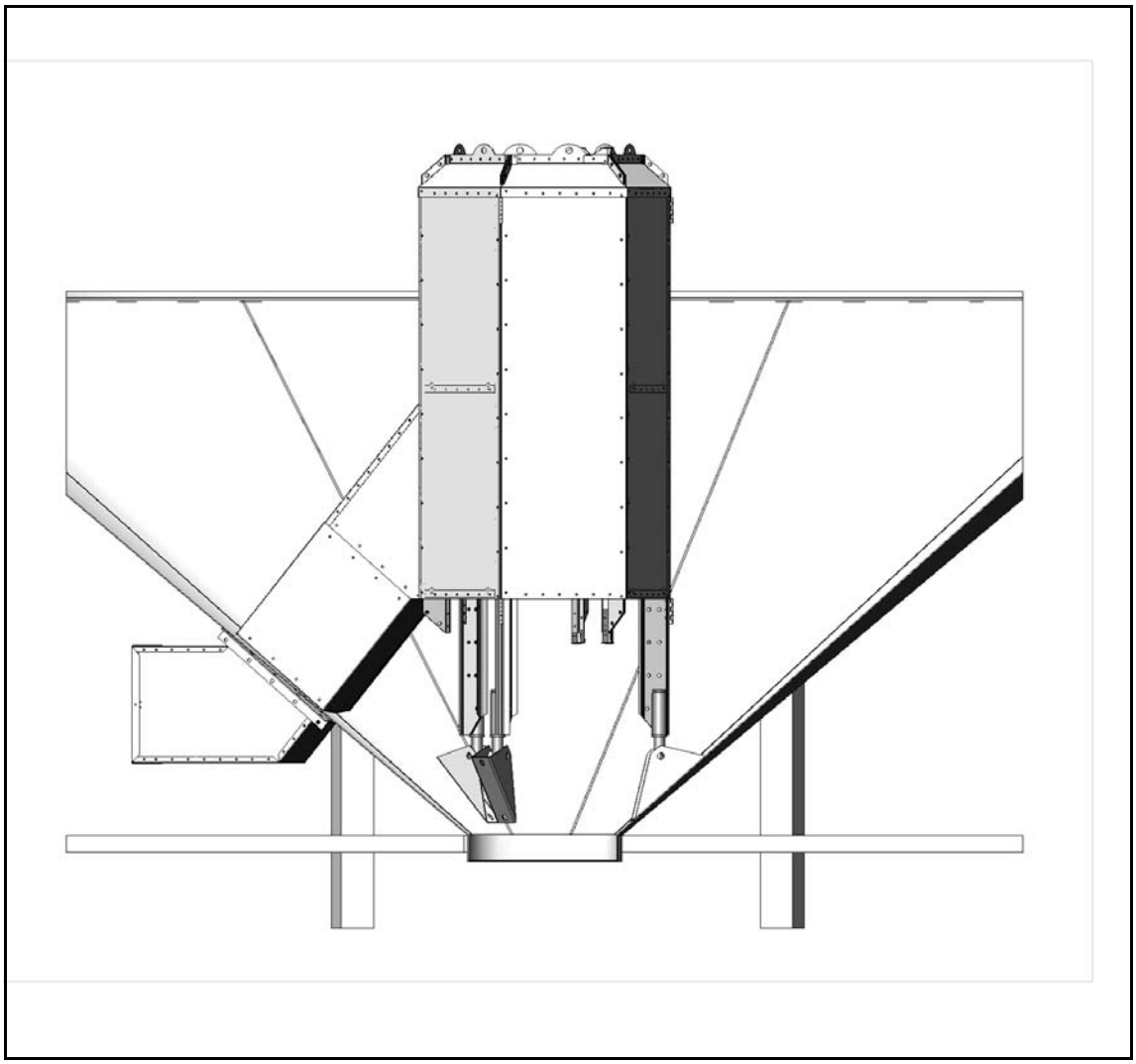


Figure 3.1

3.2.1. FOR HOPPER BINS WITH SMALL ACCESS OPENINGS:

Hopper bins with small access openings have minimum opening of:

- 16” to 18.5” for square

16” to 22” for round

1. Lay rocket on side with louvered face down. Cut and remove banding.
2. Remove bolts (2) from hinges located between the second and third sections. See Figure 3.2.

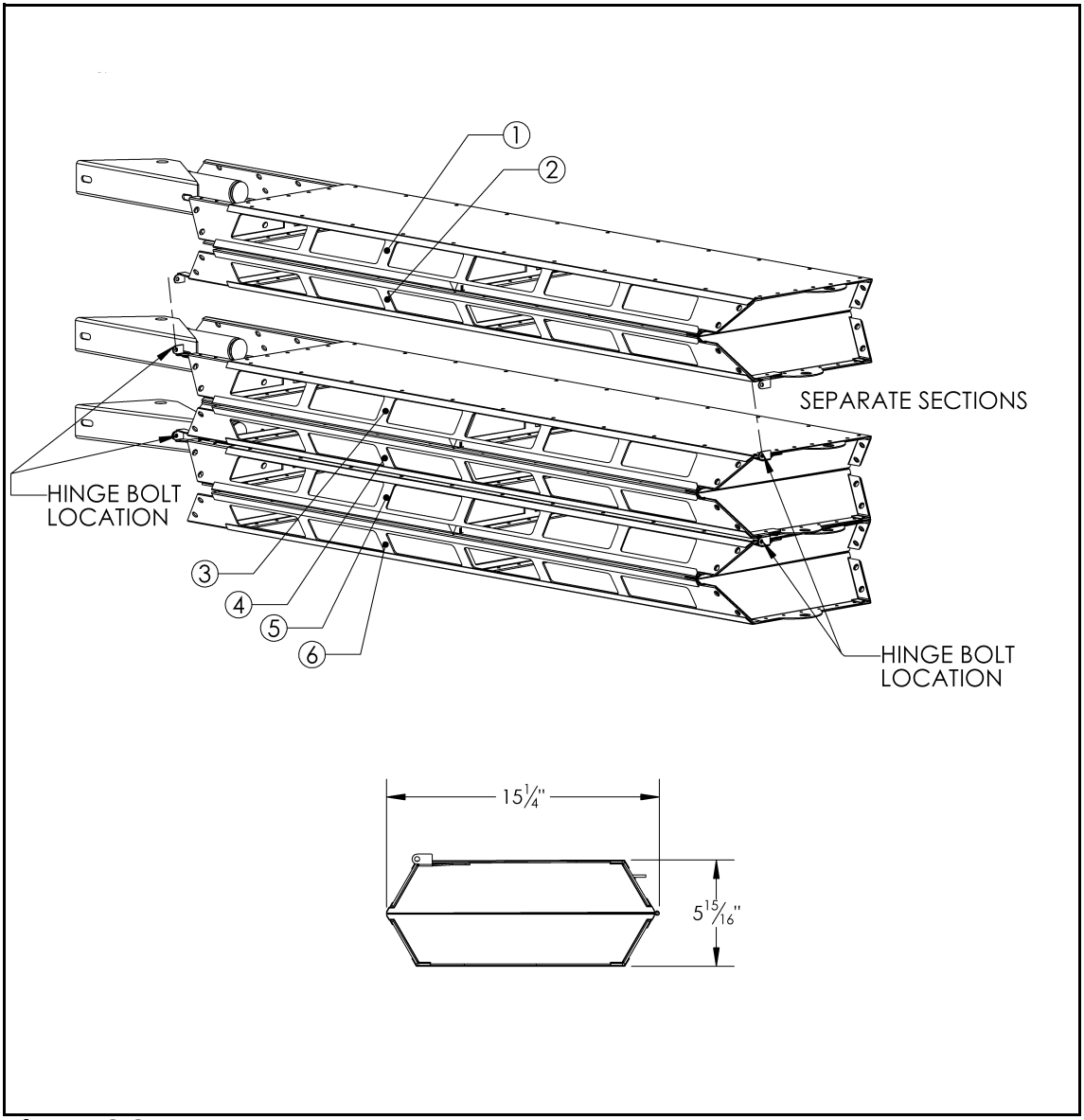


Figure 3.2

3. Remove bolts (2) from hinges located between the fourth and fifth sections. See Figure 3.2.
4. Lift sections 1 and 2 off together and insert into bin through opening. Once inside the bin, lay section on hopper cone with leg pointing downward and hinge half facing upward.

5. Lift sections 3 and 4 off together and insert into the bin through opening. Once inside, lay them on top of sections 1 and 2. Line up the hinge holes and place hinge bolts back in place. See Figure 3.3.

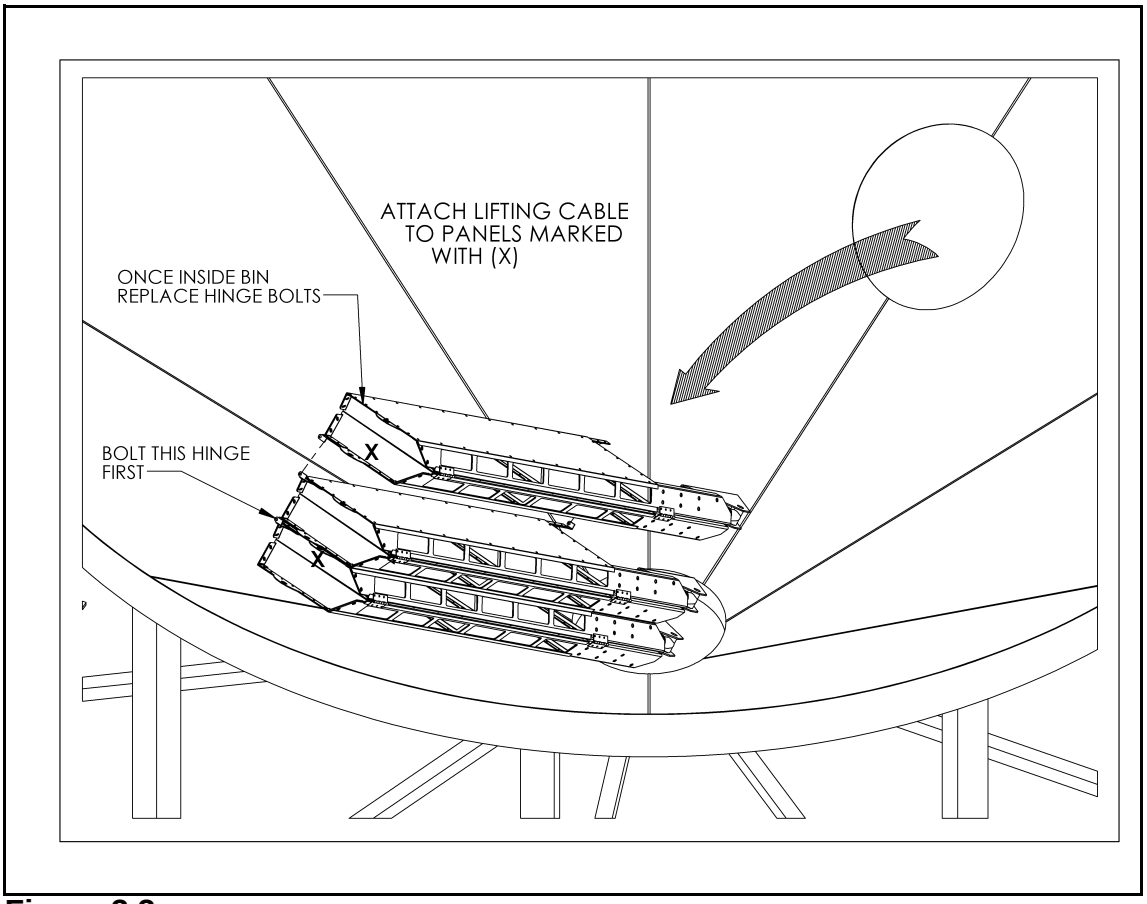


Figure 3.3

6. Lift sections 5 and 6 together and insert into the bin through opening. Once inside, place them on top of recently assembled sections 1, 2, 3, and 4. Align the hinge holes and put hinge bolts into place. See Figure 3.3.
7. Connect cable from the lifting device to the lugs located on the second and fifth section from the outside on either side of the folded up rocket. See Figure 3.5.
8. Follow steps 3 to 26 in section 3.2.1 to complete the installation.

3.2.2. FOR HOPPER BINS WITH LARGE ACCESS OPENINGS:

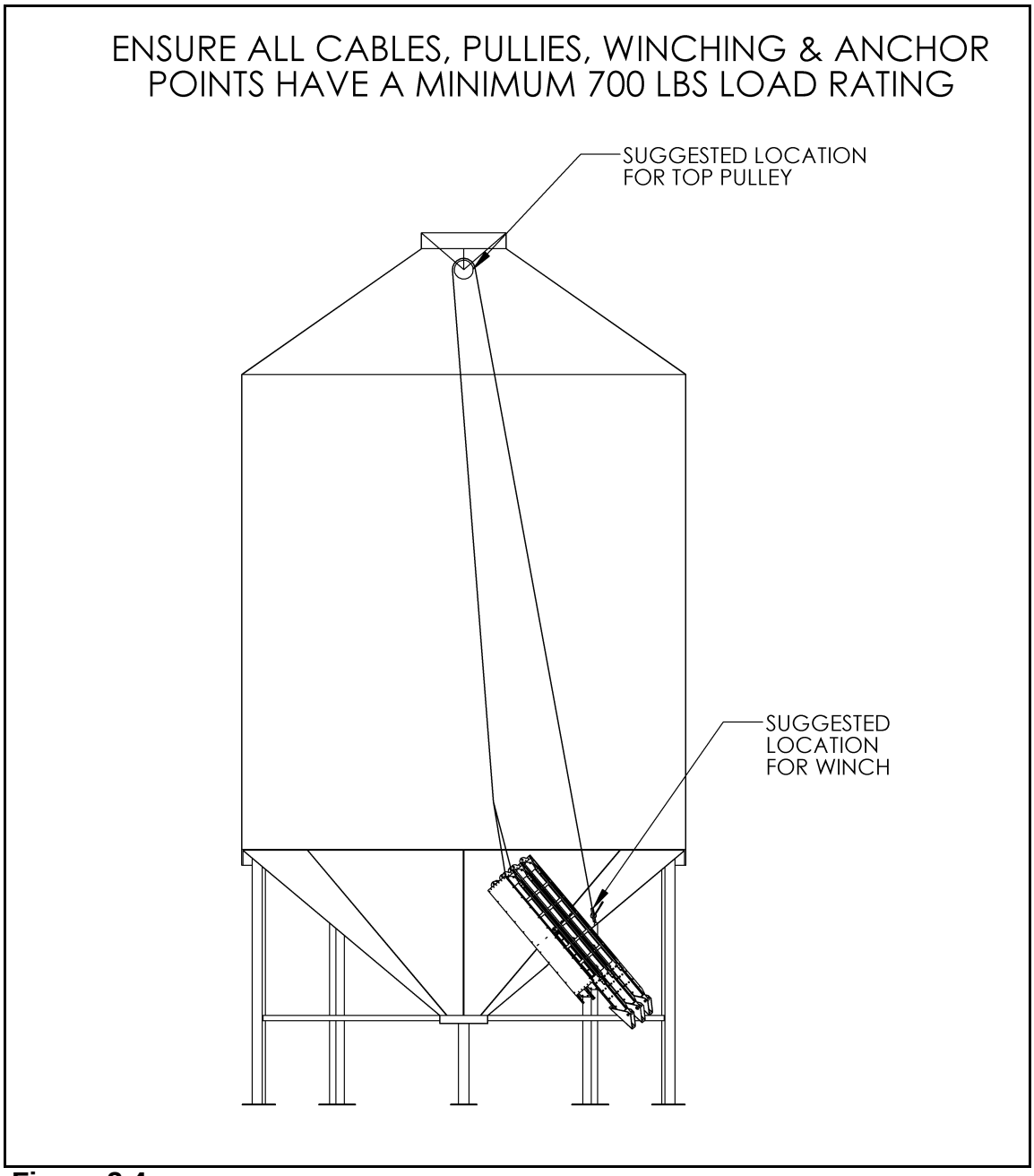


Figure 3.4

WARNING	
	To prevent personal injury or damage to equipment, do not drop the panels and use winching device with minimum load rating of 700lbs.

Important: *Check the bin manual to ensure the bin roof is capable of holding at least 700 lbs concentrated load from the filler cap, otherwise assemble Retro Rocket following "For Hopper Bins with small access openings:" on page 11. Twister and Grain Guard bins, and any welded steel bin are strong enough to support the Retro Rocket. Consult your bin dealer if you are unsure.*

Hopper bins with large access openings have minimum opening of:

- 18.5" for square
- 22" for round
- 16" x 19" for oval or rectangle

1. Place folded up rocket into the opening of the hopper cone (Figure 3.5).
2. From the outside, connect cable from the lifting device to the lugs located on the second and fifth section on either side of the folded up rocket. See Figure 3.5.

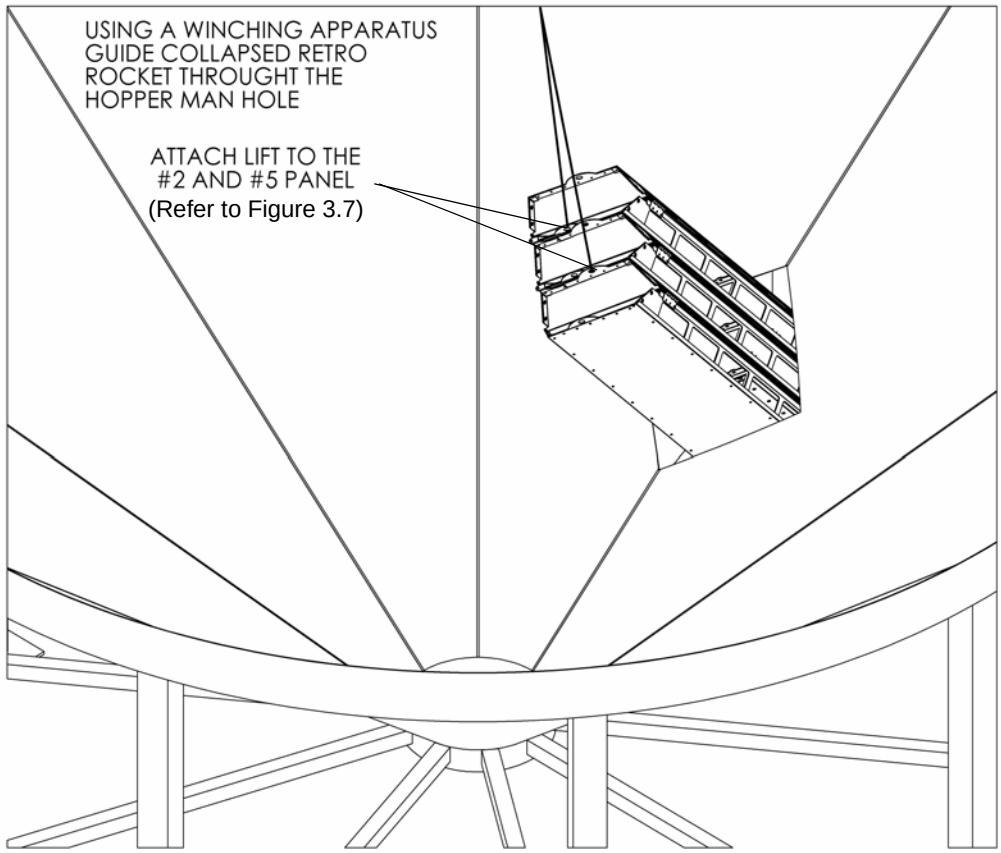


Figure 3.5

3. Winch rocket into bin with lifting device until rocket is suspended 30" to 36" above the bottom of the hopper cone. See Figure 3.6.

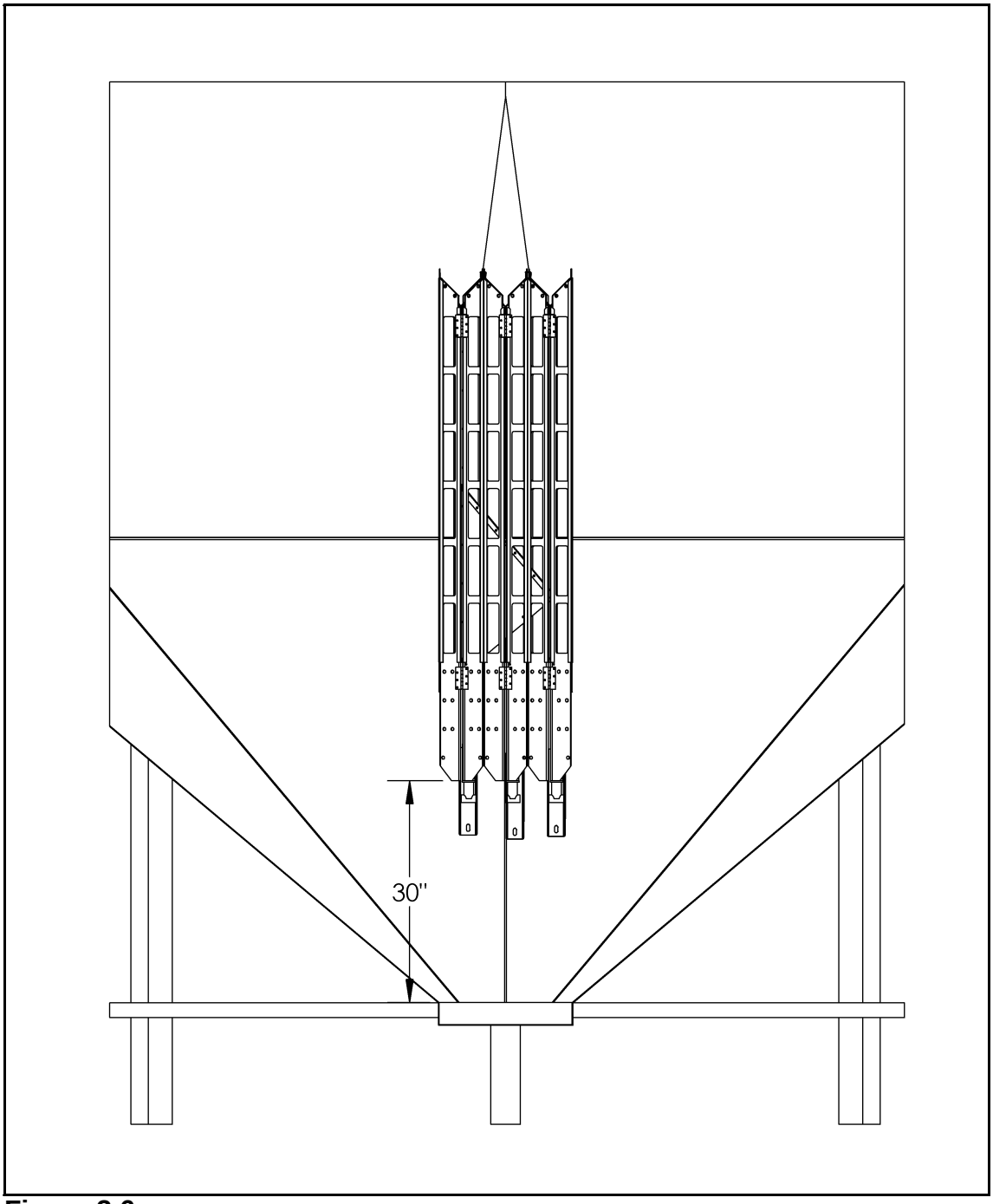


Figure 3.6

4. Cut and remove banding from around folded rocket.
5. Cut the weather stripping provided by the manufacturer to length and place onto all edges as indicated in Figure 3.7 and 3.8.

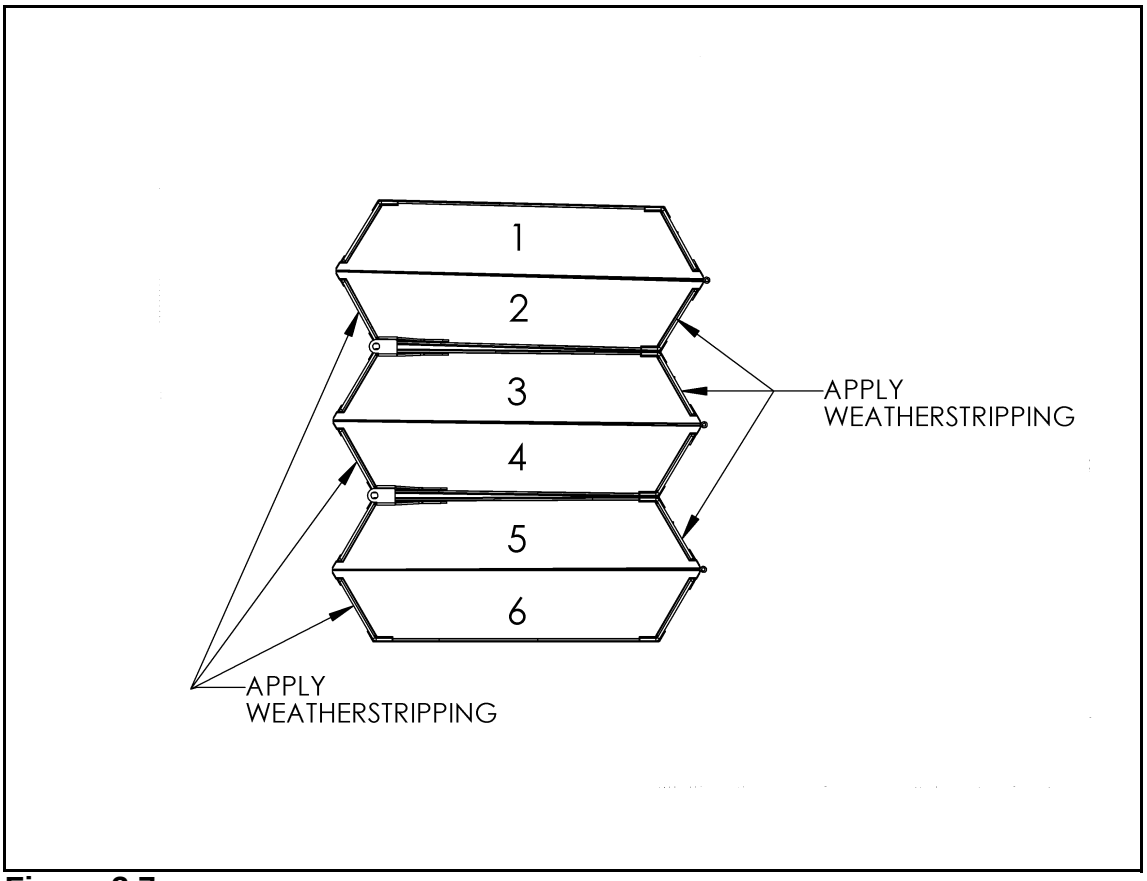


Figure 3.7

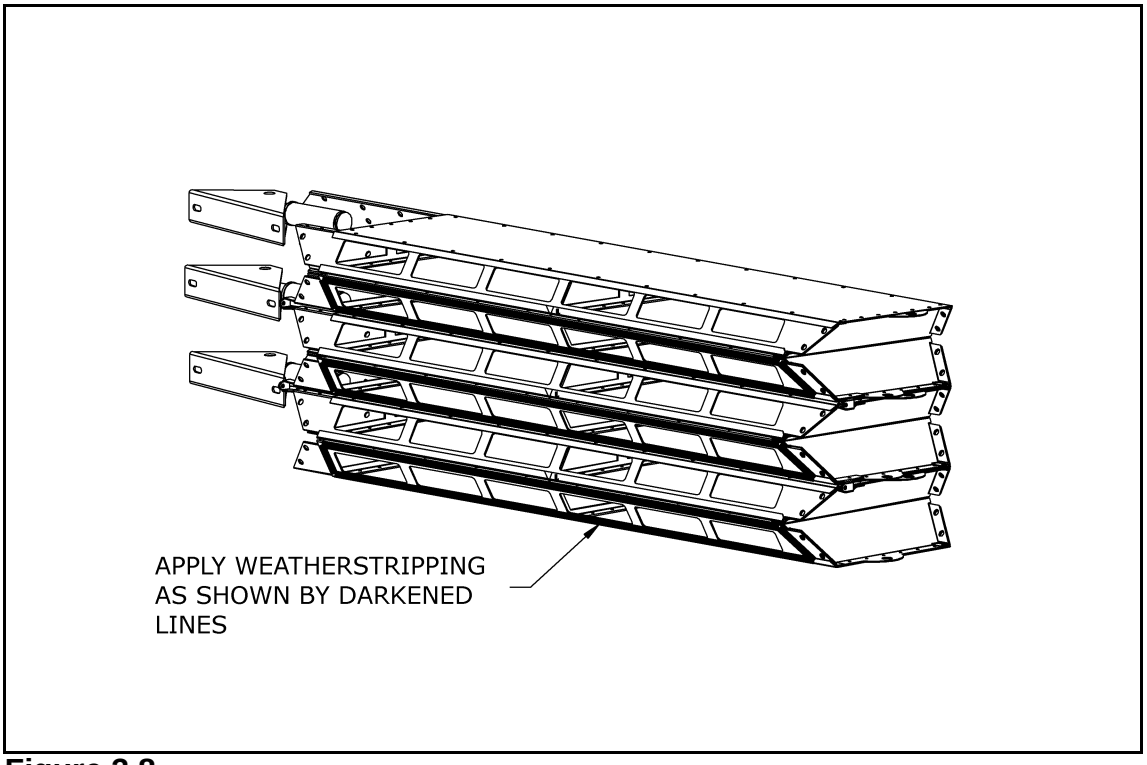


Figure 3.8

Note: *The process of unfolding the rocket can be achieved by any one of several sequences. The one listed below is a suggested sequence.*

CAUTION	
	To avoid potential pinching hazard, be careful not to place fingers in-between panels that hinge together.

6. Swing the first and second sections outwards at the same time. Sections can be fastened together with a clamp to prevent outside panel from swinging outwards. See Figure 3.9, #2.
7. When the connecting faces (blue surfaces) of panels two and three come together, place bolt through both flanges at point A.
8. Repeat step 6 on other side, bolting top flanges together at point B. See Figure 3.9, #3.

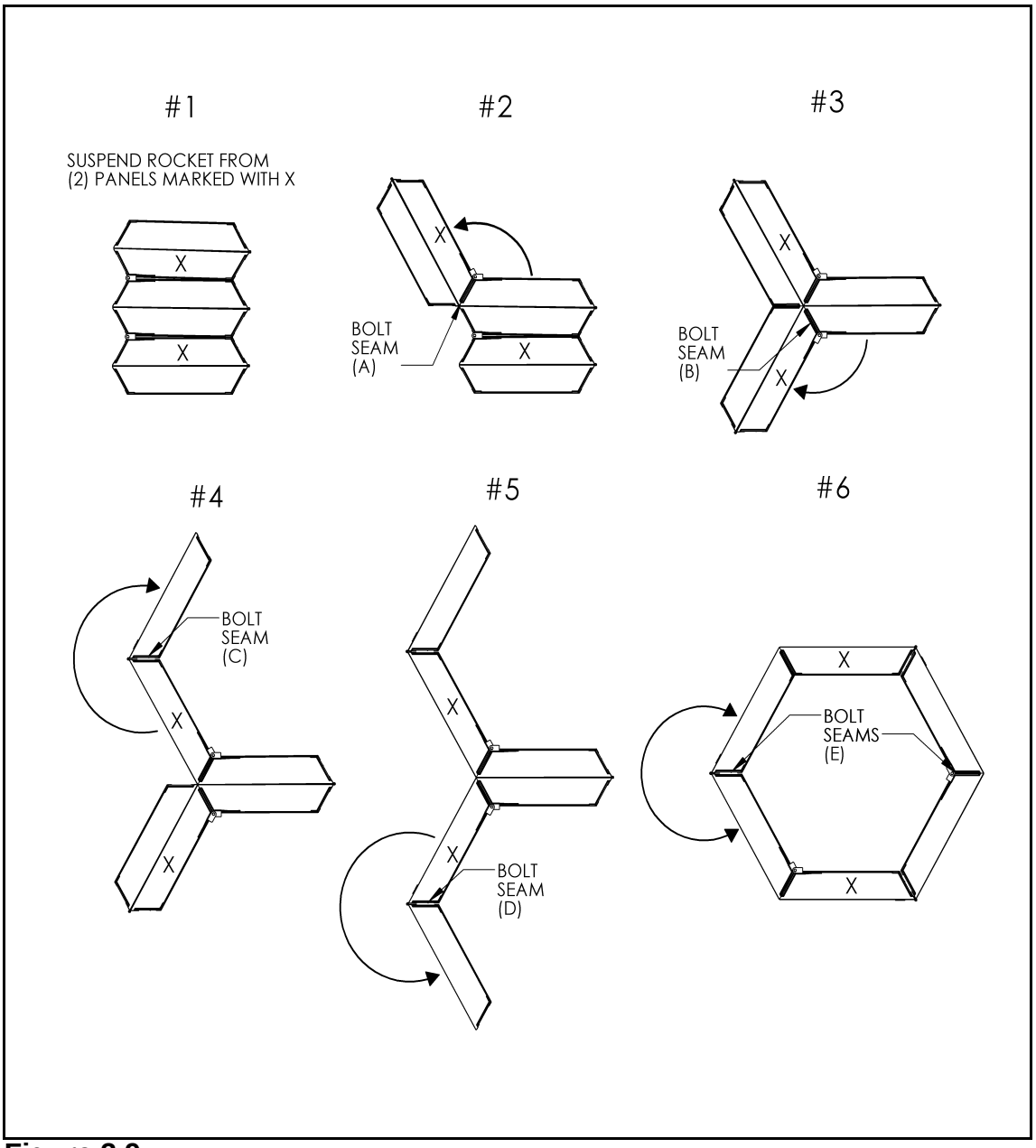


Figure 3.9

9. Swing outside section outwards (Figure 3.9, #4). Secure top flanges with bolt at point C.
10. Repeat step 8 on other side, securing with bolts at point D. See Figure 3.9, #5.
11. Swing the two halves towards each other. Hold swinging sections firmly to prevent them from closing together quickly and pinching any body parts. Fasten top panels together with bolts at point E. See Figure 3.9, #6.
12. Lower the rocket assembly onto the cone, ensuring that it is centered over the discharge at the bottom of the cone. It is critical that the rocket be level vertically. At this point ensure that inlet opening is oriented towards the location that fan is to be placed.
13. Bolt together all remaining locations on the top flange and bolt together all three pairs of legs at the bottom of the rocket. See Figure 3.10.

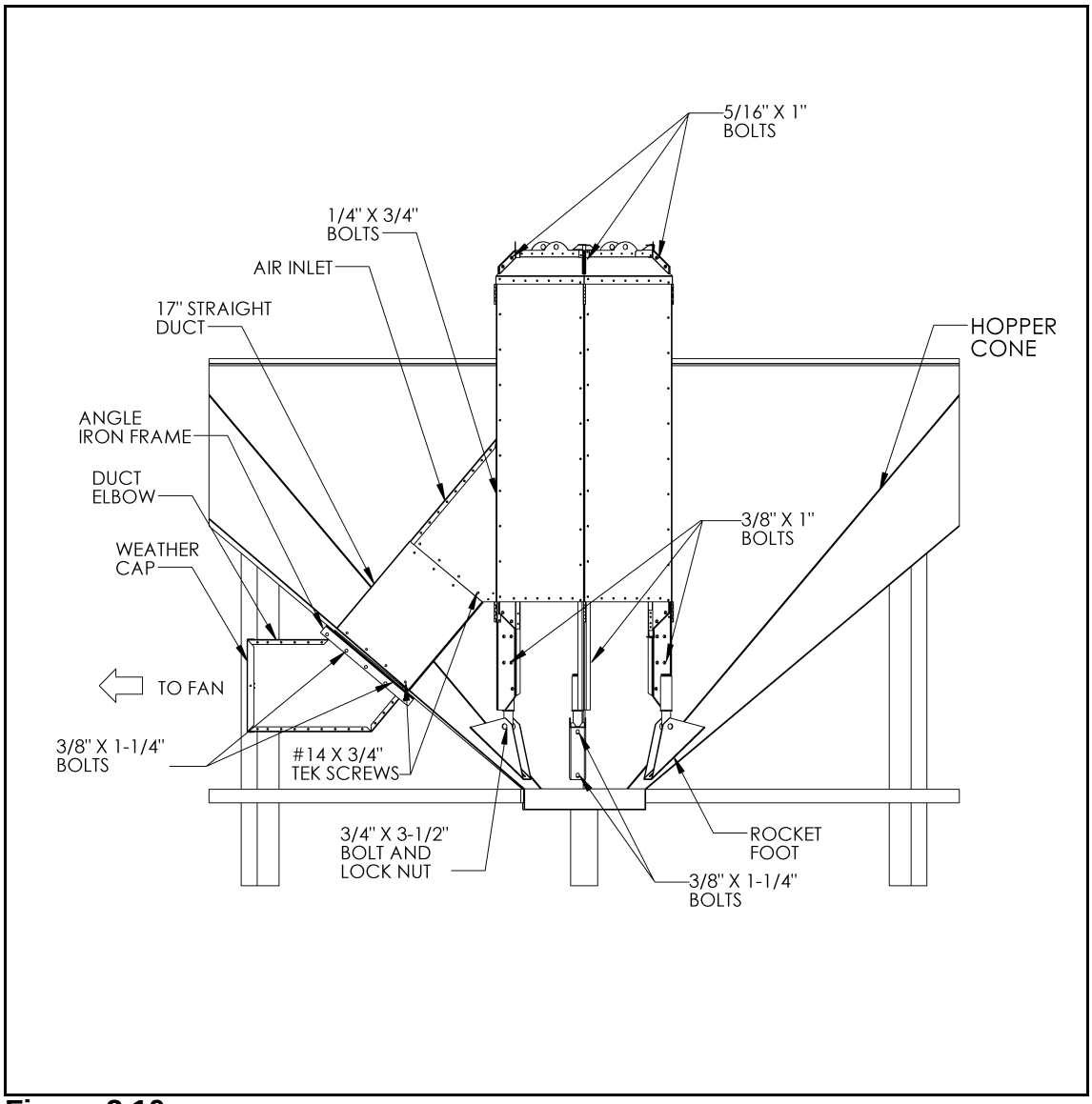


Figure 3.10

14. Tighten all the bolts on the top flange and through all the legs.
15. Ensure rocket is level and centered over the discharge opening. Mark the cone sheet through the slotted holes in the feet of the rocket (two places).
16. Lift rocket up to expose the marked holes. Drill out each with a 13/32” drill bit.
17. Once all holes are drilled, lower rocket down over drilled holes.
18. Using 3/8” x 1” bolts, bolt down the two feet opposite the inlet opening in the rocket body. Leave these bolts loose and do not put bolts through the foot located beside the rocket inlet opening.
19. Install rocket inlet over opening by sliding tab on top under the louvered sheet of the rocket at the top of the inlet opening. Once slid up into place, place all 1/4” x 3/4” bolts into the flanges along the top and sides of the inlet. Tighten all bolts around inlet when in place.
20. Tip rocket back away from the outlet side until straight duct can be slid into the sloped opening of the inlet. Once in place, lower rocket back down onto the cone.

21. Mark outline of outside of straight duct on hopper cone for air inlet opening.
22. Tip rocket back again and remove straight duct. Cut inlet opening in hopper cone. A torch or cutting wheel is recommended.

CAUTION	
	Wear protective eye wear while cutting opening in hopper cone.

Important: *Make cut inside the marked line to help keep the opening as clean as possible. Ensure that the minimum size of hole is 8-7/8" x 13-7/8", and that the maximum size is no larger than 9" x 14".*

23. Place straight duct back into inlet and lower rocket foot and straight duct down onto the hopper cone. Fasten straight duct to inlet with #14 x 3/4" tek screws provided. With the rocket in a vertical position, check if any of the straight duct protrudes outside the exterior hopper wall (this may occur on hopper cones that have fewer degrees of slope). Trim off any excess straight duct to make duct flush with hopper cone.
24. Bolt down the foot beside the inlet and tighten bolts through rocket feet and cone at all three locations.
25. Install duct elbow as follows:
    a. Place elbow angle frame on the uncapped (short) end of duct elbow. Ensure that the flat side of elbow angle frame faces outward on duct elbow.
    b. Insert duct elbow and elbow angle frame into the precut opening and straight duct until at least 1-1/2" of the elbow is parallel to the ground. Support elbow in this position.
    c. Move elbow angle frame up duct elbow until it lays flush against the hopper cone. Mark the location of all holes:
        - 12 holes through elbow angle frame and hopper cone
        - 8 holes through elbow angle frame and duct elbow
    d. Remove duct elbow and elbow angle frame from inlet hole. Pre-drill all marked holes with a 3/16" drill bit, then drill out with a 7/16" drill bit.
    e. Slide duct elbow and elbow angle frame back into opening and straight duct. Ensure that the long edge of elbow is parallel to the ground.
    f. Fasten elbow angle frame to hopper cone (at 12 places) and to elbow (at 8 places) with 3/8" x 1-1/4" bolts and nuts.
26. Ensure that straight duct is aligned over the duct elbow. Fasten straight duct to duct elbow using twelve #154 x 3/4" tek screws. Use four screws on each side and two screws on both the top and the bottom of duct.

4. Appendix

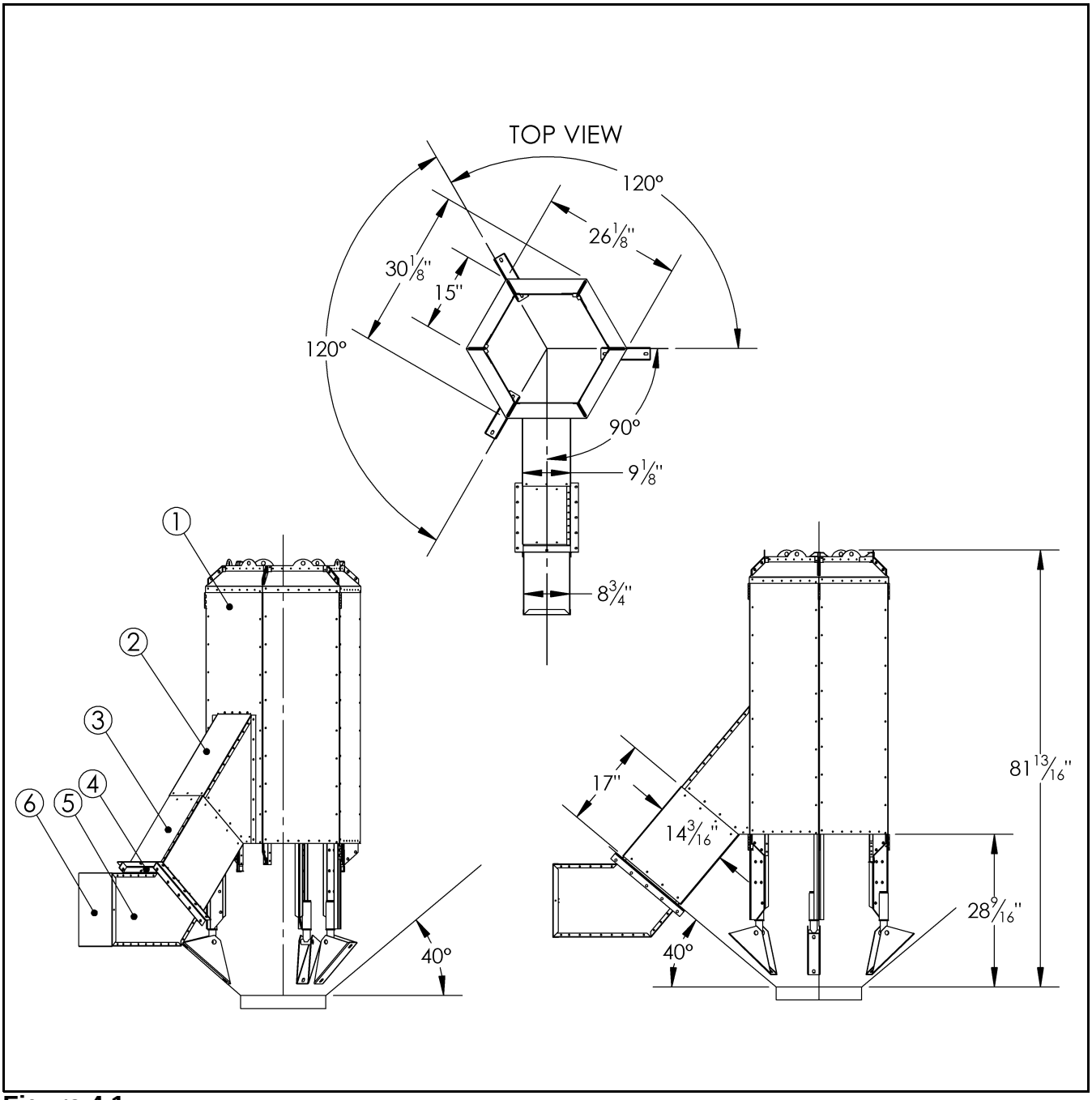


Figure 4.1

Table 4.1 GG7000 4’ Rocket

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	GRS-7004	Rocket body, 4’	1
2	GGA-8441	Inlet, 9” x 14”	1
3	GGA-8647	Rectangular Duct, 17”	1
4	GGA-8688	9” x 14” Elbow Angle Frame	1
5	GGA-8636	9” x 14” Elbow with Weather Cap	1
6	GGA-8618	9” x 14” Weather Cap	1

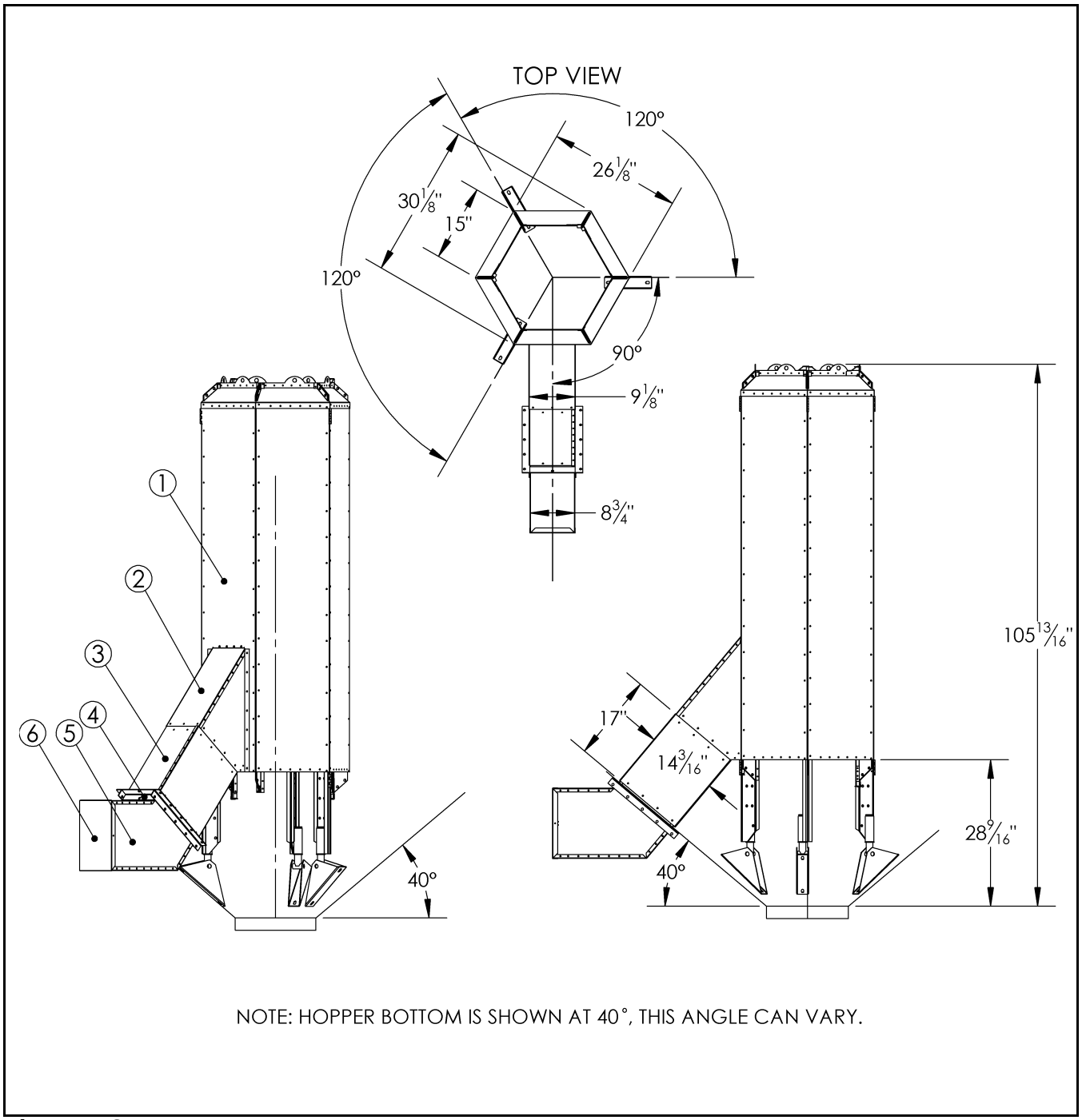


Figure 4.2

Table 4.2 GG 7000 6' Rocket

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	GRS-7006	Rocket body, 6'	1
2	GGA-8441	Inlet, 9" x 14"	1
3	GGA-8647	Rectangular Duct, 17"	1
4	GGA-8688	9" x 14" Elbow Angle Frame	1
5	GGA-8636	9" x 14" Elbow with Weather Cap	1
6	GGA-8618	9" x 14" Weather Cap	1

WARRANTY

Except as expressly provided in this agreement, Grain Guard (hereinafter called the Manufacturer) excludes all express or implied warranties, conditions, and obligations of the Manufacturer, whether statutory or otherwise, concerning the quality of the units or their fitness for any purpose.

Under no circumstances will the Manufacturer be liable for any kind of special, consequential, indirect, or incidental damages resulting from the use of its products, nor shall the Manufacturer's liability ever exceed the selling price of the product.

Grain Guard warrants their products as follows:

1. Goods free from defect:
   a. The unit shall be free from defects in materials and workmanship and shall operate properly in accordance with industry standards when employed in normal usage, provided the unit has been properly installed for a period of: three (3) years from the original date of purchase.
2. The warranty does not include:
   a. Routine replacement of parts due to normal wear and tear arising from use.
   b. Any defect attributable in whole or in part to misuse or improper installation.
   c. Any damage or defect attributable to repair of the unit outside the Manufacturer's facilities or those of an authorized dealer, or the installation of unapproved parts on the unit in the Manufacturer's judgment to affect it's performance or reliability, or which has been subject to misuse, negligence, or accident.
   d. Any damage attributable to accident or to lightning, power surge, brownout, leaking, damage, or connection to a power source having a greater rating than that specified in the unit specifications.
3. Repair or Replacement

Where any part of the unit fails during normal usage during the warranty period specified, the Manufacturer, or authorized dealer of the Manufacturer, shall repair or replace the defective part of the unit with a new or factory reconditioned part, such replacement or repair to be made without charge for parts or labor, F.O.B. the Manufacturer.

4. Warranties shall not apply to any product made by the Manufacturer that has not been operated in accordance with the Manufacturer's printed instructions or shall have been operated beyond the rated capacity of the product or a use not intended.
5. The Manufacturer reserves the right to make design or specification changes at any time, without contingent obligation to purchasers of products already sold.

WARRANTY VOID IF NOT REGISTERED