



V³ Flex Plane

Owners and Operators Manual

Purchase Date
Serial Number
Model Number
Dealer

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To The Owner

This manual contains information concerning the operation, adjustment, and maintenance of the V³ Flex Plane assembly. You have purchased dependable, long lasting equipment, but only by proper care and operation can you expect to receive the performance and long service built into our products. Please have all operators read this manual carefully and keep the manual available for ready reference. If you have any questions or concerns, contact Grouser Products.

Torque Specifications

All bolts should be tightened to the specifications that are stated. If specifications are not stated, follow torque charts below.

	Torque - Dry (ft-lbs)			
	SAE Grade 5		SAE Grade 8	
Size	UNC	UNF	UNC	UNF
5/16	17	19	24	27
3/8	30	35	45	50
7/16	50	55	70	80
1/2	75	85	110	120
9/16	110	120	150	170
5/8	150	170	210	240
3/4	260	300	380	420
7/8	430	470	600	670
1	640	720	910	1020

	Torque - Dry (ft-lbs)
Size	Grade 10.9
M18 x 2.50	284
M20 x 2.50	401
M22 x 2.50	547
M24 x 3.00	694

Maintenance

Due to the harsh environment many of our equipment operates in, the following tasks should be performed every 10 hours or less.

- Inspect all equipment before operation for existing or potential damages.
- Inspect and tighten all bolts to torque specifications on page 2.
- Check replaceable cutting edge for wear ensuring there is enough material to prevent permanent damage to the Flex Plane.

Safety Precautions

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read and take the following precautions before operating this equipment. In addition to these precautions, please follow all safety and operational instructions of your machine manufacturer.

The V³ Flex Plane:

1. The Flex Plane should be operated only by those who are responsible and instructed to do so.
2. Read the owner's manual carefully before using this equipment. Lack of operating knowledge can lead to accidents.
3. Keep the Flex Plane maintained in reliable and satisfactory condition to ensure your safety.
4. Make sure the area is clear of people before moving any equipment.
5. Do not modify or permit anyone else to modify or alter the equipment and its components without first consulting Grouser Products.

Servicing the V³ Flex Plane:

1. Read and follow all safety instructions provided by the skidsteer manufacturer.
2. Always use proper personal safety gear when performing maintenance on equipment.
3. Before servicing, relieve hydraulic pressure, stop engine and fully engage parking brake.

Storing the V³ Flex Plane:

1. Thoroughly clean the Flex Plane before storage. Use paint where necessary to prevent rust.
2. Check the Flex plane for worn or damaged parts. Install new parts as required.

Attaching and Adjusting V³ Flex Plane

1. Attach the V³ Flex Plane to your machine's quick attach.
2. Refer to your machine's operator manual for the proper use of your quick attach.
3. Verify that the wedges of the quick attach are fully engaged into the V³ Flex Plane. The wedge must contact the edge of the opening on the V³ Flex Plane quick attach that is closest to the operator (#1 in Figure 1).
4. Loosen the nuts on the V³ Flex Plane's female quick attaches. Place a 1x4 under the V³ Flex Plane so it is off the ground by about an 1" or you can keep the V³ Flex Plane flat on the ground. Tighten the nuts. (#2 in Figure 2) Quick attaches can be adjusted more or less depending on operator's preference.



Figure 1

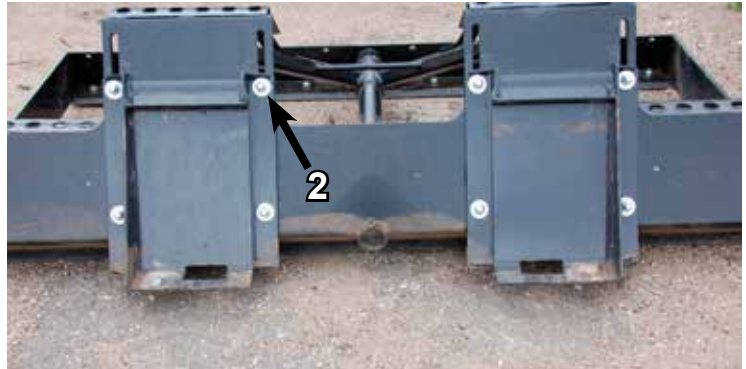


Figure 2

Operating V³ Flex Plane

1. Raise the lifting arms of your machine and tilt the V³ Flex Plane to the desired angle.
2. When driving forward, lower the lifting arms till the front cutting edge is cutting into the ground.
3. When driving in reverse, tilt the V³ Flex Plane up and lower the lifting arms till the rear cutting edge is cutting into the ground.

Note: Utilize your machine's tilt and lift functions to adjust the cutting depth.

4. If you prefer to have your V³ Flex Plane angle (flex) to the contour of the ground, move the lock out pin to the open position on both sides of the V³ Flex Plane (#3 in Figure 3).
5. Verify that the handle on the lock out pin is down as shown in Figure 3.
6. Operate as usual. Figure 5 shows the V³ Flex Plane without the plane locked
7. To lock the V3 Flex plane up, move the lock out pin to the closed position (#4 in Figure 4).



Figure 3

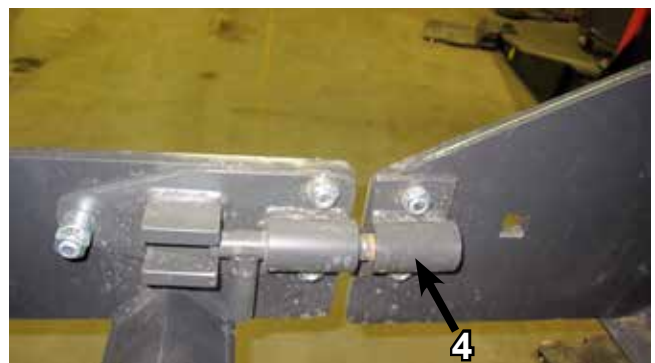
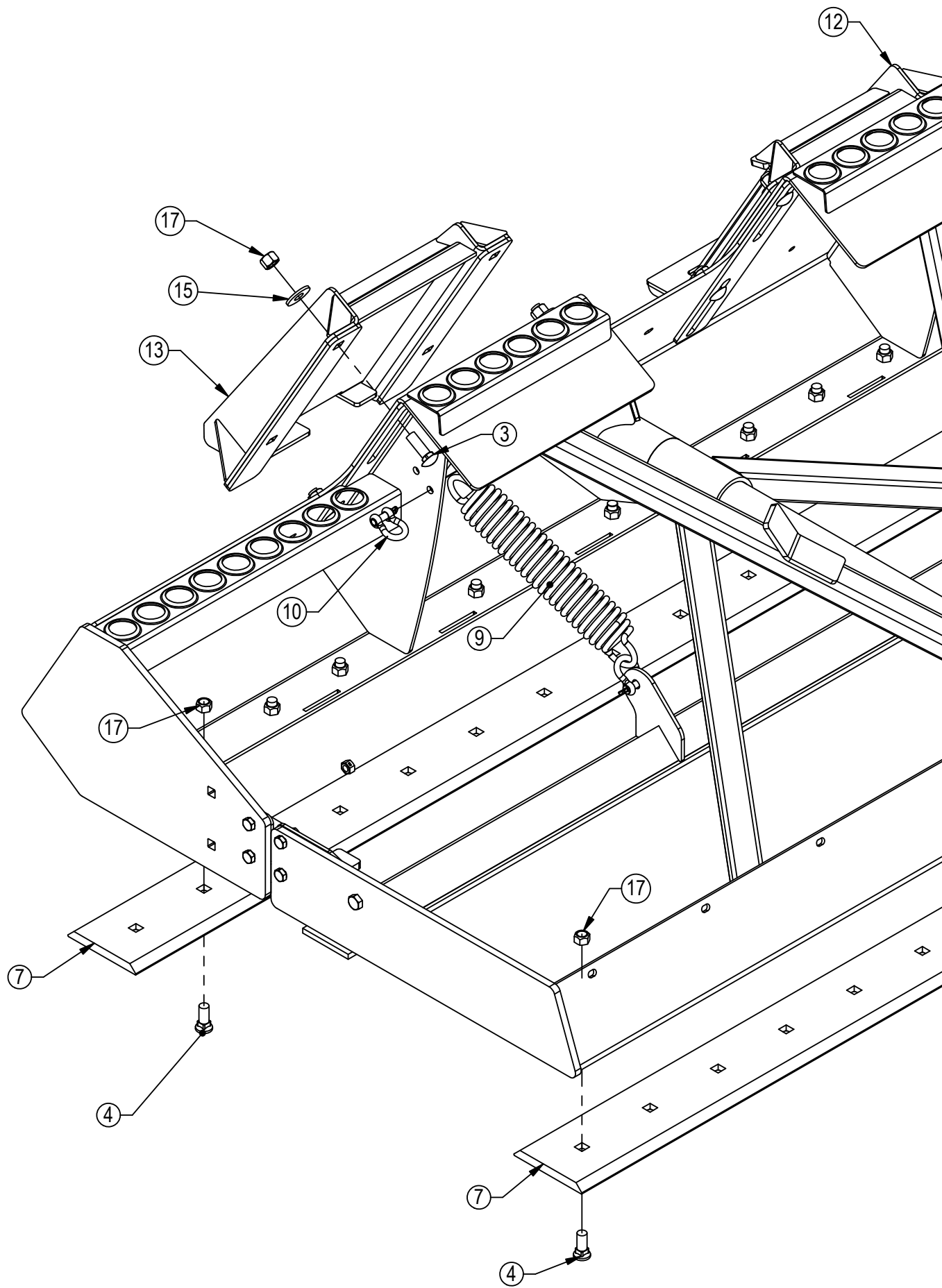
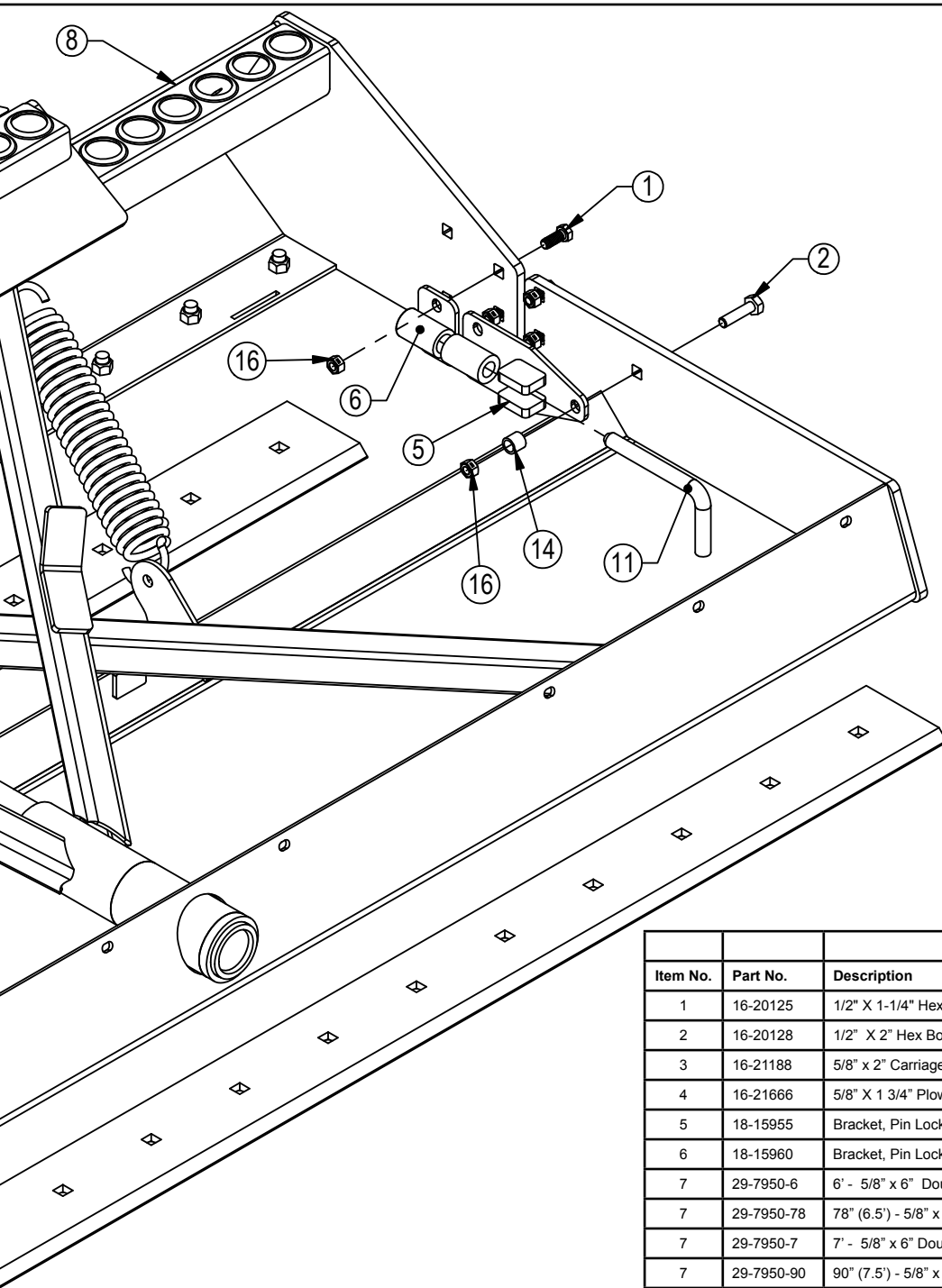


Figure 4



Figure 5





Item No.	Part No.	Description	V ³ Flex Plan Width				
			72"	78"	84"	90"	96"
1	16-20125	1/2" X 1-1/4" Hex Bolt Gr 5 NC	8	8	8	8	8
2	16-20128	1/2" X 2" Hex Bolt Gr 5 NC	2	2	2	2	2
3	16-21188	5/8" x 2" Carriage Bolt Gr 5 NC	8	8	8	8	8
4	16-21666	5/8" X 1 3/4" Plow Bolt Gr 5 NC	24	22	28	26	32
5	18-15955	Bracket, Pin Lockout 1	2	2	2	2	2
6	18-15960	Bracket, Pin Lockout 2	2	2	2	2	2
7	29-7950-6	6' - 5/8" x 6" Double Bevel Cutting Edge	2				
7	29-7950-78	78" (6.5') - 5/8" x 6" Double Bevel Cutting Edge		2			
7	29-7950-7	7' - 5/8" x 6" Double Bevel Cutting Edge			2		
7	29-7950-90	90" (7.5') - 5/8" x 6" Double Bevel Cutting Edge				2	
7	29-7950-8	8' - 5/8" x 6" Double Bevel Cutting Edge					2
8	32-15290-72	Flex Plane Frame - 72	1				
8	32-15290-78	Flex Plane Frame - 78		1			
8	32-15290-84	Flex Plane Frame - 84			1		
8	32-15290-90	Flex Plane Frame - 90				1	
8	32-15290-96	Flex Plane Frame - 96					1
9	34-15061	Spring, Extension 12.00 x 2.894	2	2	2	2	2
10	34-15361	Pin Shackle (CL490303)	4	4	4	4	4
11	43-15959	Flex Lockout Pin	2	2	2	2	2
12	45-15250-L	Flex Plane Quick Attach - Left	1	1	1	1	1
13	45-15250-R	Flex Plane Quick Attach - Right	1	1	1	1	1
14	53-15528	Round Tube Spacer	2	2	2	2	2
15	57-20756	5/8" SAE Hardened Flat Washer - 1-5/16" OD	8	8	8	8	8
16	70-20604	1/2" Hex Center Lock Nut Gr 2 NC	10	10	10	10	10
17	70-20646	5/8" Hex Top Lock Nut Gr 5 NC	32	30	36	24	40

Contact Us

As always, if you have any questions about your V³ Flex Plane or other products made by Grouser, feel free to contact us.

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Improvements

Grouser Products Inc. is continually striving to improve its products. We reserve the right to change prices, specification, or equipment at any time without notice. We also reserve the right to make improvements or changes when it becomes practical and possible to do so without incurring any obligation to make changes or additions to the equipment sold previously.

Warranty

Grouser Products warrants to the original purchaser of each item that the product be free from defects in material and workmanship under normal use and service for a period of one year. If such equipment is found to be defective within one year, it is the obligation of Grouser Products under this warranty to repair or replace (exclusive of the cost of labor and transportation), any equipment or parts, in the judgment of Grouser Products to be defective in material or workmanship.

All equipment or parts claimed to be defective in material or workmanship must be made available for inspection at the place of business of a dealer authorized to handle the equipment covered by this warranty, or, upon request by Grouser Products, shipped to the Grouser Products factory in West Fargo, North Dakota. Grouser Products shall have no obligation to bear the cost of labor or transportation in connection with replacement or repair of any such defective parts in the setup process.

This warranty covers only defects in material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper assembly, improper adjustments, improper maintenance including lack of proper lubrication, or improper use. Therefore, Grouser Products liability under this warranty shall not be effective or actionable unless the equipment is assembled, maintained and operated in accordance with the operating instructions accompanying the equipment. Grouser Products shall have no liability if the equipment has been altered or reworked without the written authorization of Grouser Products.

Grouser Products' parts, which are furnished under this warranty and properly installed, shall be warranted to the same extent as the original parts under this warranty if, and only if, such parts are found to be defective within the original warranty period covering the original equipment.

