

WINTER HARDWARE PRODUCT CATEGORY

Technical Bulletin

Assembly Procedure for Plow Bolt Hardware



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Assembly Procedure for Plow Bolt Hardware

Achieving consistent and uniform tension at a specified torque is important in ensuring a safe secure assembly that will maximize resistance to loosening and prevent failures in plow applications. When plow bolt assemblies are tightened to their optimum clamp load the impact forces encountered in the application will be spread over the entire plow to prevent fastener or blade damage.

Applying the torque to the nut using a torque controlled pneumatic wrench or hand held torque wrench is the industry standard method for the proper assembly of nut and bolt assemblies. The tension that is developed in the bolt after it has been tightened is called the clamp load. **In order to achieve the optimum clamp load in an assembly tighten bolts to the specified torque load.**

To ensure that the blade and components are assembled properly it is recommended that the moldboard is cleaned of all rust and foreign matter. The assemblies are then first torqued to 50% of the final torque load to seat the blade and remove any distortion in the moldboard.

The assemblies are tightened in a cross hatch pattern (see below) starting at the center of the blade and working out to the outside edges. After all assemblies have been tightened to 50% of the final torque, then go back and apply the final torque in the same cross hatch pattern.

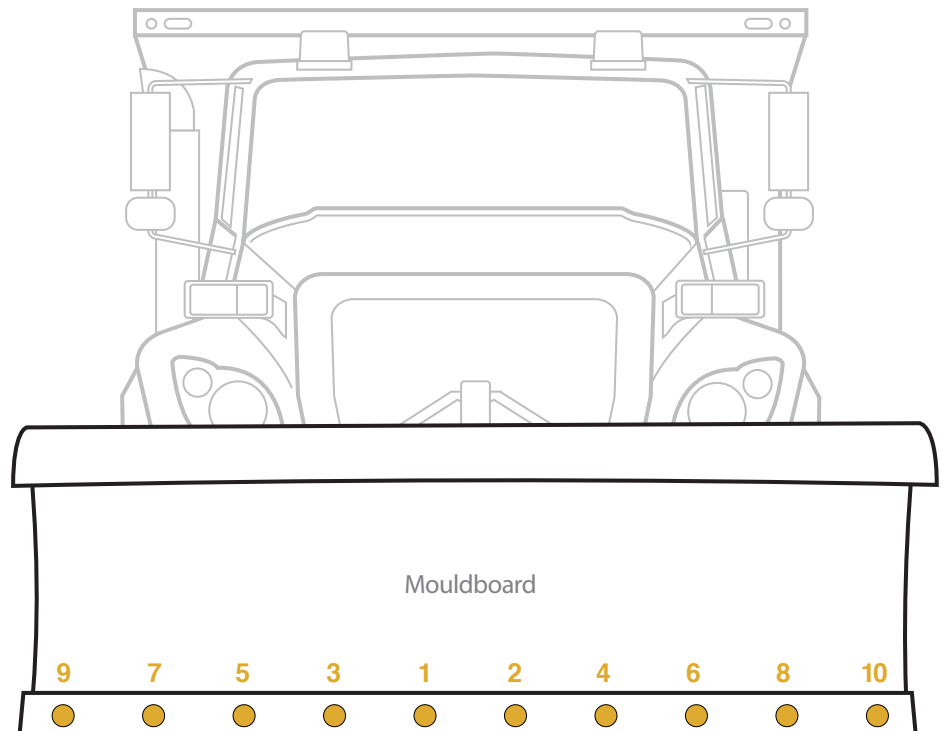
For example, a 5/8 – 11 plow bolt with matching all metal lock nut and washer requires a torque rate of 150 to 175 ft-lb is designed to develop the recommended clamp force of 15,000 to 20,000 pounds. You would first seat the bolts at 75 - 100 ft-lb of torque. The make a second pass tightening to the finished torque load of 175 ft-lb of torque.

For optimum performance and life the bolt assemblies should be checked for their torque after 10 plow hours of service.

[Refer to the Plow Bolt Torque Guide on the next page.](#)

RECOMMENDED BOLT ASSEMBLY FOR PLOW BLADE TO MOULDBOARD

1. Clean moldboard of all rust and foreign matter
2. Set torque tool to **50% of the final torque rate** for your first seating pass.
3. Starting from the middle, follow the bolt order at right. Working back a forth across the blade until all of the bolts are seated at 50% of the finished torques rate.
4. Adjust torque tool to the finished torque rate and repeat the tightening order in Step 3. Working back a forth across the blade until all of the bolts are seated at the bolts specified torque value.





Recommended Torques for # 3 Head Plow Bolts Assembled with Earnest All Metal Lock Nuts

Always consult the plow blade manufacturer's recommendation for installation torque. If torque values are not available from the manufacturer, use the torques shown below. When installing plow blades, it is recommended to initially torque all bolts to half the value listed in the chart, to "set the blade", and then go back and tighten all the bolts to the torque listed below.

DIAMETER	TPI	GRADE	TORQUE
3/8	16	Grade 5	26 ft-lb
7/16	14	Grade 5	42 ft-lb
1/2	13	Grade 5	64 ft-lb
1/2	13	Grade 8	90 ft-lb
5/8	11	Grade 5	128 ft-lb
5/8	11	Grade 8	175 ft-lb
5/8	11	170M	211 ft-lb
3/4	10	Grade 5	226 ft-lb
3/4	10	Grade 8	319 ft-lb
3/4	10	170M	374 ft-lb
7/8	9	Grade 8	515 ft-lb
7/8	9	170M	604 ft-lb
1	8	Grade 8	773 ft-lb
1	8	170M	906 ft-lb
1 1/8	7	Grade 8	1094 ft-lb
1 1/4	7	Grade 8	1544 ft-lb
1 1/4	7	170M	1811 ft-lb

The torque listed above are based on the Earnest's line of plain finished plow bolts being assembled with Earnest's all metal lock nuts with a zinc plating and wax (lubricated) finish.

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