GROUSER BAR Welding Procedure

CORPORATION

Proper welding procedure and good preparation will prevent cracking problems.

1. Make sure bars and pads are clean before welding. Giving extra attention to ensure all moisture is removed.

2. If the bars and pads are cold, preheat lightly with a torch to 100 - 200 degrees F.

3. We recommend trimming the old grouser back to approximately 1”; this procedure is normally performed using an oxy-acetylene torch method. The best results are achieved when there is a clean, smooth edge to accept the new grouser.

4. Cut bars shorter than the full width of the tractor pad - 1/4” short on each end of the pad works very well.

5. Tack weld grouser bars to the pad at each end and center leaving approximately 1/16” gap, so the grouser bar can move in slightly as the weld shrinks. This gap can be obtained by striking the shoe with a heavy center punch. *Tack welds must be a minimum of 2” in length.

Too much overhang on bar

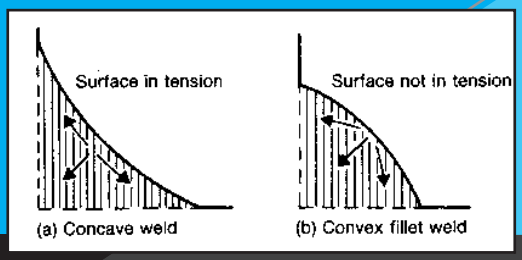
Underfilled welding area

Ends not welded completly

6. It is important to make sure that the ends of the grouser bar are completely welded to the shoe. Don't leave cavities where the weld was started as this will allow the end of the grouser bar to break off. The pictures to the right show examples of poorly welded grouser bar.

Cavities left in weld

7. Control the bead shape or size of the deposited weld. As the hot weld cools, it tends to shrink. When a concave bead cools and shrinks, its outer face is stressed in tension. By using a convex bead, shrinkage cracks can be avoided because the weld can shrink while cooling without stressing the outer face in tension and reduce cracking tendencies.



IS IT REBUILD TIME?

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GROUSER BAR Welding Procedure

4N CORPORATION

8. In all cases, a good quality of low hydrogen welding rod or wire should be used. Use proper storage for low hydrogen electrodes and flux to avoid moisture pickup. Any hydrogen present tends to separate out and builds up pressure. This pressure, when combined with shrinkage stresses and any hardening effect of the steel's chemistry, may cause tiny cracks.

We recommend using 4N or Lincoln Welding Wire as follows:

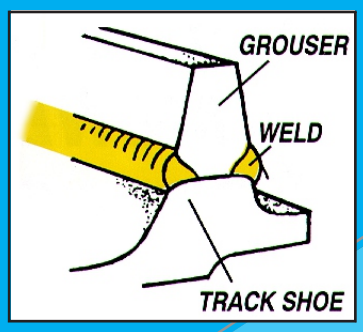
a. Electrode Welding	E-7018
b. Mig Welding	4NMIG-1 or NS-3M Wire
c. Submerged Arc	4NGM-1 or L-60 or L-61 Wire

9. It is recommended that amperes and wire feed be set as high as the operator can easily handle. The purpose of this is to achieve a fast low penetration weld procedure helping to prevent Carbon from the grouser bar building up in the weld puddle and making it crack sensitive.

The following are for reference only when welding with 3/32" 4NMIG-1 or NS-3M:

	820 Bar	890 Bar	910 Bar
Amperes	250	300	550
Volts	26	28	30
Wire Feed	110"/ min	145" / min	Set by machine
Travel Speed	9" to 13"/ min	12 to 16" / min	14 to 18" / min

10. Avoid quenching or rapid cooling of welds. Do not let the welds come in contact with water, mud, snow etc.



Note: To completely ensure a proper welding procedure, preheating 500 degrees F prior to welding should be performed. Preheat to remove condensed moisture from plate surfaces.

814-676-4477
800-793-4477
4NCORP@4NCORP.COM

PO BOX 215
Franklin, PA 16323
USA

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