



MATCO mfg  
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Phone: 801-335-0582; Fax: 801-335-0581  
[www.matcomfg.com](http://www.matcomfg.com)

### MATCO mfg ASSEMBLY INFORMATION

Congratulations on your purchase of MATCO mfg wheels. We are proud of the products that we manufacture. They are engineered to give you many years of excellent service. If you have any inquiries about our products, please feel free to call our customer service for help. The following information should answer most of your questions about our assemblies.

1. The brake mounting plate (#16 on the five/six brake assembly, #12 on dual puck assembly and #8 on the four inch brake assembly drawing) should be spaced from the bearing so that it aligns in the same plane and parallel with the brake disk (#3 on wheel assembly drawing).
2. All tapered roller bearings are oiled from the factory for rust prevention, but are not greased. Tapered roller bearings should be cleaned, dried, and then packed with a suitable grease. Packing grease without first removing the oil will dilute the grease, causing it to run out past the seal and not lubricate properly.

All ball bearings are sealed and do not require additional maintenance.

3. The axle nut should be tightened until all play is out of the assembly. Rotate the wheel back and forth while tightening the nut to help seat the bearing. When all play is out of the assembly, and the wheel rotates freely, tighten to the next castle slot and insert the cotter pin. The rubber seal on the tapered roller bearings will remain stationary while the wheel rotates around it. If the seal is spinning on the axle, the nut should be tightened further until the seal stops spinning with the wheel.
4. All o-rings in the brake and master cylinder assembly are buna nitrile and are not compatible with automotive glycol based brake fluid. ONLY red aircraft fluid (Mil-H-5606) or other suitable petroleum-based or silicon-based fluid should be used.
5. The ideal mounting position for the brake caliper is the trailing side of the wheel at 270 degrees from vertical. However, the caliper may be mounted at any location as long as the system can be bled of air properly.

6. If the MATCO bolt-on axle is used, it can be shimmed for toe-in or toe-out and spaced out from the wheel if needed so brake disk attachments screws will clear the gear leg. Aluminum axle material is black anodized 2024-T351 aluminum.
7. Care should be taken when mounting the tire and tube on the wheel so as not to pinch the tube between the wheel halves. Slightly inflate the tube after placing it in the tire. This will keep it from between the halves. Some tire mounting soap also helps. A strip of thin cardboard or poster paper wrapped around the wheel between the mounting half and the tube will help in preventing the tube from getting pinched during assembly if it is unusually tight. Another idea that may help is a strand of fishing monofilament line placed between the wheel and the tube and running in the same direction as the axle. It can then be worked back and forth around the wheel as the nuts are tightened then pulled out when assembled.
8. Bleeding the brake system. When the system is installed, you may facilitate the bleeding of air from the system by slightly opening the brake bleeder valve (#7 on five/six brake assembly, #13 on triple puck brake assembly, #5 on four inch brake assembly, and #10 on dual puck assembly drawings). With a squirt can of brake fluid and a tube connecting the can nozzle to the brake bleeder valve, inject the fluid into the brake puck housing and up the brake line into the master cylinder. If the master cylinder is at the highest point in the system with no loops in the brake line that will trap air, all the air should be pushed out of the system ahead of the fluid. With the vertical mount, self-contained master cylinder (MATCO mfg part #MC-5) the fluid level should only reach to about 3/4" from the top. If fluid is leaking out the top during operation, it is a sign that the fluid level is too high. (MC-5 is not approved for inverted flight.)
9. When assembling the components, please refer to the manufacturer's instructions for the torque specifications for the respective bolts.
10. All drilled bolts are to be safety wired.



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IMPORTANT NOTE ABOUT AXLE NUT TORQUE ON WHEELS WITH TAPERED  
ROLLER BEARINGS

Your MATCO mfg wheel is equipped with Timken tapered roller bearings with integrated grease seals on the bearing cone to ensure the longest possible life. The torquing procedure for bearings with these type seals is different than for tapered roller bearings without them. A common torquing technique for bearings without seals is to tighten the axle nut until the wheel stops spinning freely and then back off to the nearest locking feature. **THIS TECHNEQUE WILL NOT WORK ON A BEARING WITH AN INTEGRATED SEAL.** The reason for a different torquing technique is that the grease seal produces some drag and makes the wheel feel somewhat stiff when rotated.

Reducing the axle nut torque until the wheel spins freely will allow the grease seal and the bearing cone to improperly rotate with the wheel (the cone must not rotate relative to the axle). The higher rolling drag is completely normal for this bearing and allows for longer bearing life since the seal will keep most contaminants out. Timken specification state, for example, that the two 1.25 inch tapered roller bearing used on the WE51 will produce between 18-26 inch pounds of torque (drag) when properly installed. A light coating of grease on the seal will help reduce the drag on initial installation. The drag will also reduce after the bearings have been installed and the seal relaxes in the bore. It is important that the axle nut torque be sufficient to keep the seal from rotating with the wheel.



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### Brake Disk: Inspection and Service

The MATCO brake disk should give years of trouble-free service under normal field conditions. Conditions such as unimproved fields, standing water, industrial pollution, even infrequent use of the aircraft, may require more frequent inspection of the disks in order to prolong the life of the brake lining.

The disk faces should be checked for wear (Dim. "A"), and for any grooves, deep scratches, excessive pitting, or coning of the brake disk. Coning beyond .015 inches in either direction would be cause for replacement. Coning, however, is rarely a problem with a MATCO disk.

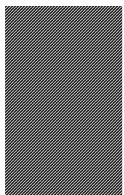
Isolated grooves up to .030 inches deep should not be cause for replacement, although general grooving of the disk will reduce the lining life.

Disks are normally plated for rust prevention, but the plating wears off where the lining rubs in just a few landings. The remaining portion of the disk should be corrosion free for several years under normal use. Chrome plated disks are available from MATCO for additional corrosion protection and wear.

Rust in varying degrees can occur. If a powdered rust appears, one or two taxi-braking applications should wipe the disk clear. Rust build-up beyond this point, may require removal of the disk from the wheel to properly clean both surfaces. Wire brushing followed by sanding with 220 grit sandpaper should restore the braking surfaces adequately.

"A" = MINIMUM THICKNESS ALLOWABLE  
(Measure at 2 or 3 points to get average disk  
thickness)

| "A" |



Wheel Assembly

Minimum "A" Thickness

W40R, MH5B, MH6B  
W50CC, W60CC

0.130

W50S, W50L, W51S, W51L,  
W60, W62  
W80CC-Z

0.200

W51LD, W51LT, W60D

0.325

W600, W600XT

0.325



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SUBJECT: Brake Lining Installation

Following are instructions on how to properly remove and replace brake linings on the Matco mfg. brake shoes.

Remove the old brake lining by drilling from the crimped side of the rivet. Using a #25 drill (0.1495 diameter), drill through the rivet taking care to avoid damaging the rivet hole. After drilling crimped edge off all rivets, carefully lift old lining and remaining rivet pieces off of brake shoe. A punch should not be used to remove the rivet as it may result in distortion of the rivet hole.

Inspect the brake shoe for any bending or other damage that may have occurred in service. A shoe with more than .010 bend should be replaced. Inspect to ensure rivet hole has not been damaged during removal.

Using a rivet squeezer, rotating forming tool, or pneumatic press, replace lining using 4-4 or -6 brass rivet only. A punch and hammer should not be used to replace the lining as it may result in damage to the lining, incorrect seating of the rivet, or distortion of the rivet hole.

Questions regarding brake lining installation or part numbers for respective brake shoes can be referred to the technical support department of MATCO mfg. at (801) 335-0582.

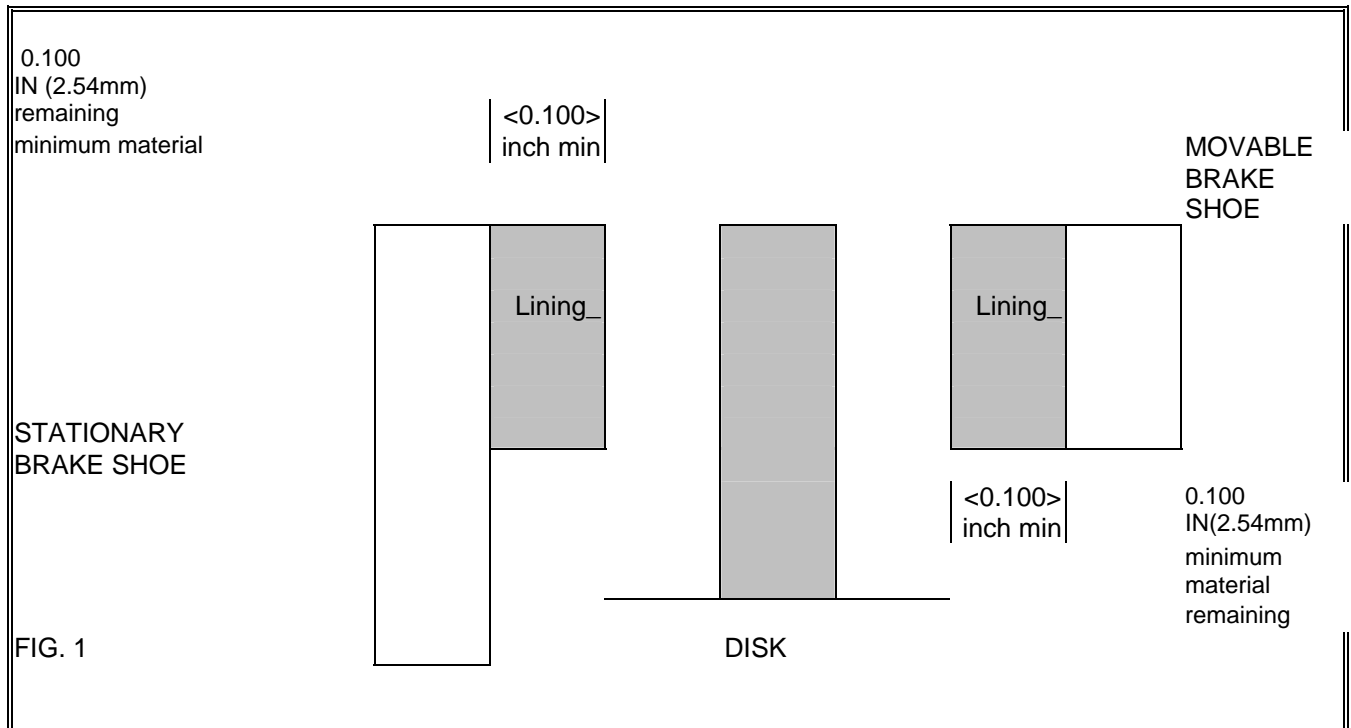


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## Brake Lining Wear Limits

To eliminate the use of brake linings beyond design limitations and reduce probability of piston damage and brake fluid drainage, we are issuing a restatement of brake lining wear limits

All M66 series brake linings should be replaced when the wear indicator is no longer visible. If a new lining has no wear indicator, replace lining when thickness of remaining wear material reaches 0.100 IN (2.54 mm). See Fig. 1.





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### MATCO MFG WHEEL BOLT TORQUE INSTRUCTIONS

<b>WHEEL</b>	<b>BOLT</b>	<b>TORQUE</b>
4 INCH	10-24	13.8 INCH POUNDS IN ALUMINUM
	10-24	23.8 INCH POUNDS IN STEEL
	10-32	33.1 INCH POUNDS IN STEEL
5 INCH	1/4-20	45.6 INCH POUNDS IN ALUMINUM
	1/4-28	99 INCH POUNDS IN STEEL
6 INCH AND 8 INCH	1/4-20	45.6 INCH POUNDS IN ALUMINUM
	5/16-18	80 INCH POUNDS IN ALUMINUM
	1/4-28	99 INCH POUNDS IN STEEL

#### DISCLAIMER

All material included in this information is advisory only, and its use by anyone is entirely voluntary. Reliance on its contents for any purposes by anyone is at sole risk of that person, and Matco mfg is not responsible for any loss, claim or damage arising therefrom.

In developing this information, Matco mfg has made a determined effort to present its contents accurately.



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## MATCO mfg announces the *SwiftLine* Pad Replacement Program

The SwiftLine Pad Replacement program is designed to:

- Simplify pad replacement on your MATCO mfg brakes saving you valuable time.
- Eliminate the need to rivet linings saving you maintenance & tooling
- Provides a 20% discount on reline kits saving you money

Enrollment in the SwiftLine pad replacement program entitles the brake owner to obtain the applicable reline kit at a 20% discount. In addition, replacement stationary and moveable brake shoes are included at a 60% discount. The linings are riveted to the replacement brake shoes at the factory and sent ready to install. Upon installation of the new components on the aircraft, the stationary and moveable shoes with worn linings removed from the brakes may then be sent to the factory for lining removal and mounting of new linings. The new linings are also obtained at a 20% discount. The second set of brake shoes, with new factory installed linings attached, are returned to the brake owner and are ready for use when needed. Enrollment in the SwiftLine program entitles the brake owner to the same 20% discount and free mounting of the pads on all future reline orders. Two sets of brake shoes with factory installed linings means always having reline parts at the ready, saving you maintenance, time, and money!

For information and pricing on the SwiftLine program for your brake configuration, call the factory at 801-486-7574 or contact us via email at [tech@matcomfg.com](mailto:tech@matcomfg.com)

