

WHEEL TEST TOOL KIT

drive band - thin, non stretchy (#10 crochet cotton)
thicker, non-stretchy cord for footman

bobbin leader

NARROW orifice hook

scissors

penetrating oil (liquid wrench, PB Blaster, etc.)

oil (motor, turbine or sewing machine)

screw drivers - flat head, one large, one small

paper towels/rags

wooden pencil

cardstock for shimming wobbly parts

wool for spinning

ordered checklist of test process

optional: belt leather (missing axle bearing)

recommended: assistant - especially if you're not experienced at tying drive bands

DEAL BREAKERS:

major or numerous cracks, very warped/out-of-round drive wheel (vigorous side to side wobble or more than 1/4 inch top line bounce)

HARDER/PRICIER FIXES:

missing/broken flyer assembly, cracked hub.

CHEAPER/EASIER-TO-FIX FLAWS

upright alignment, missing/broken bearings, loose parts, missing footman, frozen bobbin or flyer pulley, broken/missing flyer hooks. A failed finish isn't super expensive to restore, but it's labor intensive.

- Custom bobbins can be made for \$15-30
- Flyer assembly problems can be \$25-\$150, depending on what needs repairing/replacing.
- Hub rebuilds can run upwards of \$100, depending on if it's a repair or replace

RESOURCES FOR REPAIR AND REPLACEMENT PARTS

Dave Paul at Merlin Tree (Vermont)
Does restorations and builds reproduction wheels
www.themerlintree.com

Alvin Ramer
27 Percy Street, Colborne, Ontario
Open May to November by chance or appointment. Call ahead.
Phone 905-355-2546
email: aerbar@phc.igs.net

Fred Hatton (Pennsylvania)
- his wife is Grace, "FinnSheep" on Ravelry.com

Nordic Weevs (Maine)

Ron Antoine (Amity, OR)

MISC RESOURCES

Ravelry Groups

Antique Wheel Group

Spindle Wheels

Canadian Production Wheel Lovers

"Spinning Wheel Sleuth"

Newsletter covering antique fiber tools

www.spwhsl.com

Antique friendly finish remover:

Circa 1850

www.jamestowndistributors.com

WHEEL INSPECTION AND TESTING

- The wood on older wheels is often only compression fitted/pegged. Throughout your inspection, keep an eye out for bad glue repairs that have caused problems. Cracks may be glued or stabilized, but parts that have been wrongly glued in (like legs or spokes) can become cracked as weather changes affect the wood.
- **Oil all moving parts and contact points**, placing paper/rags under contact points where oil might drip.
- **Inspect flyer while mounted in maidens** to make sure it seems to be the right length. A too-short flyer will have too much side-to-side play, which may result in rattles. A too long flyer will force bearings out (front bearing should be perpendicular to flyer shaft) and may bind in bearings.
- **Remove flyer assembly** from maidens (often removed by twisting front maiden)
- **Remove flyer pulley and bobbin.** Pulleys are frequently reverse threaded, so you may have to twist clockwise to remove. If pulley loosens easily and bobbin spins independently of flyer, great: wipe flyer shaft and inside bobbin bushings, oil, replace, and skip to next item. If either pulley/bobbin are frozen, apply penetrating oil and let sit while you evaluate other parts of the wheel. Don't grab the flyer arm to unscrew a stuck pulley, as flyer arms can crack. Instead, insert the small screwdriver crosswise through the orifice entry holes and use that for gentle leverage. Never force frozen threads, as this may damage the function of the flyer/bobbin. Keep applying penetrating oil periodically and wobble gently until components loosen.
- **Examine leather flyer bearings** for looseness or cracks, oil, and place flyer assembly back into maidens.
- **Examine the drive wheel.** Check hub for cracks, repairs, or axle that wobbles/turns within hub. Check axle/crank for serious wear, and make sure uprights both have bearings. The bearing sits in the slot of the upright and may be bone, leather, or metal. A perfectly straight wheel may appear warped when it spins if the bearings are not level. If a bearing is missing, try leveling the wheel by placing a small strip of oiled leather in the upright slot. (If upright slots are not level but bearings seem equal, the uprights may need shimming to raise the lower one.)
- **Check drive wheel in motion.** With drive band and footman off if possible, give drive wheel a spin with your hand (with no attachments it should spin a while on its own). As it spins, line your eye up with the wheel's top to make sure there's no more than 1/4 inch vertical bounce of the top line as it spins (seriously out of round wheels will have surging uptake). As it spins, also look at the wheel from the back end, checking for side to side warping of the rim. Some movement is okay, but a wheel with too much sideways action can throw drive bands. Check that the wheel is aligned vertically with the uprights and that nothing's tipping or rubbing.
- **Attach the footman.** If footman is missing, tie a cord that allows the treadle to be just level when the crank is at its lowest position. No more than an inch is good ground clearance. No stretchy materials should be used for a footman. Cord should ride at outside edge of crank. If cord vibrates or squeaks, rub graphite (pencil lead) on the crank shaft.
- **Inspect legs, uprights and all sides of table** for splits or repairs.
- **Make sure wheel has axle retaining pin(s).** If missing, the axle may jump on the treadle downstroke and make the wheel seem warped. You can rig a temporary substitute from a pencil or golf tee.
- **Check butt end of table for missing secondary supports** (small braces that stabilize the main wheel supports). Some wheels will have none, some will have one or two, but check for evidence (nail holes in the table or divots in the uprights) that the wheel has the number it was built with.
- **Tie a drive band** if needed. (familiarize yourself with the process in advance if you haven't tied a double-drive wheel) For best results, place the drive band X so that the drive wheel spins toward it - so if spinning clockwise, place the X at the bottom.
- **Tension drive band** by tightening tension device. Use the minimum tension necessary. A too-loose drive band will oscillate and fly off. A too-tight drive band can make the wheel noisy and hard to treadle.
- **Attach leader and test wheel** out with some fiber.

IF THERE'S LITTLE/NO UPTAKE

- Try tightening drive band tension. If tension device is loosening or failing to tighten enough, assess problem.
- Note whether the tension is intermittent. If uptake is erratic, suddenly stopping, the yarn might be snagging on a rough hook or burr in the orifice. If uptake surges badly with treadling, check for wheel warpage.
- Check to see if flyer pulley screws down too close to the bobbin and puts pressure on the bobbin end. (a temporary kluge to keep the pulley from touching the bobbin is to insert a small bit of paper towel into the threads to keep the pulley from screwing on too far)
- Check to see if the flyer pulley and bobbin pulley are too close to the same diameter. Ideally for double drive, you want about a 20% difference in pulley diameters.

IF DRIVE BAND FLIES OFF OR JUMPS TO ONE GROOVE

- Double check for warpage
 - Make sure there is no side to side play in the drive wheel (“traveling” from one upright to the other)
 - Make sure drive band tension is not too much or too little.
 - Check alignment of supports; drive wheel should point at the pulleys. Wheel support(s) may need adjusting by twisting one way or the other, then shimming to stabilize
 - Check for wobbles - loose legs, wheel supports, or missing retaining pin.
- **Special note on flat rim wheels:** Flat rim wheels (like great wheels) have no groove in which the drive band rides, and as such, require particularly good alignment between the drive wheel and pulleys. If the alignment/stability can't be established, drive band throwing may be a fatal flaw on a flat rim wheel.

*If a wheel is in very bad condition, cannot be saved and it has some usable pieces,
ask about renegotiating the price way down as a parts resource for others.
Never drive further than you're willing to return from empty handed, and don't hesitate to
walk away from a wheel that seems too far gone or beyond your ability to repair.
More antique wheels go looking for loving, adoptive homes every day.
Yours is searching for you right now!*