Heavy Duty Ball Winder (HDBW) Trouble Shooting Guide

*** See Swift/Ball Winder alignment recommendations on last page ***

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Problem	Manual BW or Power Base	Characteristic of problem	Fault Code*	Proba -bility	Probable Solution
Wonky Balls	Both	Mis-shaped yarn balls (space ship appearance, yarn not spread out in evenly spaced strands	BW-1	80%	O-ring on Ball Winder Spindle Flange is too tight against the conical shaped shaft
			BW-2	5%	Shaft collar on Ball Winder Spindle is jammed up too tight under spindle flange preventing rotation of spindle
			BW-3	10%	Tensioning post and/or curly Q are creating too much tension
			BW-4	5%	Yarn on Swift is too tight or user is holding yarn and applying too much tension
Hard to turn crank	Manual	Handle has gotten steadily harder to turn	BW-1	35%	O-ring on Ball Winder Spindle Flange is too tight against the conical shaped shaft
			BW-5	30%	Gear teeth have been packed with fiber debris from yarn
			BW-4	5%	Yarn on Swift is too tight or user is holding yarn and applying too much tension
			BW-16	30%	Lubricant has become gummy and sticky on the gear surfaces.
BW is squeaking	Both	Metallic squeaking	BW-6	75%	Torque Tube shaft needs to be lubricated
			BW-7	15%	Main handle shaft needs to be lubricated internally (rear bearing area)
			BW-8	10%	Exact cause not known – perform general maintenance procedure
Handle not turning spindle	Manual	While cranking handle, spindle arm and spindle do not turning smoothly	BW-9	60%	Spindle clamp ring is loose against torque tube
			BW-10	40%	Handle is not engaging the pin in the handle shaft
Cannot tighten Clamp Ring on spindle arm	Both	Cannot tighten the 2 screws in the gray composite material underneath the spindle arm, spindle arm is not secure	BW-11	33%	Screw holes are stripped in the gray composite material
			BW-12	33%	The gray composite material has developed a crack and cannot be tightened
			BW-13	33%	The 2 halves of the gray composite material are "bottoming out" and cannot be tightened any further
Power Base Belts are slipping	Power Base	Motor drive will not turn the spindle, belts just slip when under load	BW-1	75%	The O-ring is so tight against the conical shaped shaft that all of the motor's energy is being used to try to turn the spindle and o-ring. This may occur and yet not create a wonky ball but still be the primary cause of the problem.
			PB-1	10%	User installed the wrong o-ring on Power Base pulleys (too large)
			PB-2	10%	The correct belt simply stretched out and needs replacement
			PB-3	5%	User should use Orange Belts instead of black (or you must use only the larger ¼" clear belts on NEW HIGH TORQUE motor option or any unit that uses the

					new cast metal motor pulley)
Motor has gotten weaker	Power Base	Motor is not able to turn spindle and yet the o-ring is correctly tensioned	PB-4	100%	If motor has been in service between 1,500 and 2,000 hours, it may need to be replaced due to brush wear-out or gear failure (motor life is rated at 2,000 hrs approx.). NKK sells motor kits for this purpose.
No power	Power Base Lite	The unit will not run at all, no motor noise, etc.	PB-5	80%	Power Switch has failed, replace (do not turn power off after each ball – leave unit on during the work day and turn down the speed to zero after each ball)
			PB-6	20%	Power supply has failed – also check that plug is in wall socket and in power supply and that the AC circuit did not trip. Check if LED on PS is lit.
Power Base is making gear noise	Power Base	Metallic noises (gear grinding noises) are coming from Power Base housing	PB-7	30%	Too much tension, load or stress being exerted onto the Ball Winder.
			BW-1	50%	The O-ring is so tight against the conical shaped shaft that all of the motor's energy is being used to try to turn the spindle and o-ring. This may occur and yet not create a wonky ball but still be the primary cause of the problem.
			PB-4	20%	If motor has been in service between 1,500 and 2,000 hours, it may need to be replaced due to brush wear-out or gear failure (motor life is rated at 2,000 hrs approx.). NKK sells motor kits for this purpose.
Messy balls (not wonky but yarn is behaving badly)	Both	Yarn is riding up to the top of the ball or falling down to the bottom of the ball	BW-14	100%	If you have our adjustable tension post, slide the post all the way in toward the spindle. Adjust the curly Q so that it applies some tension to the yarn. If you do not have the adjustable arm or the tension post with a black knob, then please upgrade your unit at NKK.
Center pull ball issues	Both	Center pull balls have tangled centers	BW-15	100%	User did not wind the first 5-15 wraps snugly enough against the spindle and/or they did not force the beginning of the ball to the center of the spindle
Small Diameter Spindle issues	Both	Yarn is riding up or falling down on the ball while winding	BW-14	100%	If you have our adjustable tension post, slide the post all the way in toward the spindle. Adjust the curly Q so that it applies some tension to the yarn. If you do not have the adjustable arm or the tension post with a black knob, then please upgrade your unit at NKK.
Elect Yarn Meter not turning off Power Base	Power Base	Electronic Yarn Meter cannot stop the Power Base when the yardage has been reached on the meter	PB-8	100%	Bad connection in cable between Power Base and EYM. Plug in meter to power base with power base power OFF. Then turn on power base. May need either a "cheater" cable or a new jack on Power Base. Contact NKK after making sure all connections are sound and proper power sequencing has been done.

* - See Fault Code list on the following page

Fault Code	Solution
BW-1	Adjust the O-ring tension on the ball winder according to the procedure outlined in the attached document " Simple O-ring Adjustment for Ball Winder". A video is also available online at http://www.nancysknitknacks.com/ball_winder.htm (Simple O-ring Adjustment). The O-ring being

	too tight is the cause of MOST problems with the ball winder.
BW-2	Adjust the collar's fit by adjusting it with a business card as a spacer. Fault Code BW-1 explains this. Do not jam the collar up too tight.
BW-3	Aim the curly-Q on the 8" tall post such that it is putting less tension on the yarn. Aim curly-Q more toward the spindle and aim the arm that post sits on toward the swift. Make as straight a line for the yarn to travel as possible. Use knob to loosen post and then turn post.
BW-4	Relax yarn on swift by not jamming up the swift knob so tight. Allow the yarn to relax after mounting it on swift (lower knob 1" on swift).
BW-5	Gear teeth inside ball winder have collected yarn fiber in their crevices. Remove spindle arm and look down the hole at the gear at the bottom of the torque tube assy. If you see fiber stuck in these teeth, then there is probably fiber in the main gears inside as well**. Refer to Ball Winder Maintenance procedure on website under Spares & Repairs** (BW needs to be cleaned every 2-5 years depending on amount of use).
BW-6	Remove Spindle arm and spindle, loosen collar on torque tube shaft with 1/8" Allen wrench and pull torque tube assy up and out. Put lubricant on the steel shaft and inside of torque tube. Re-install it and remember to put white washer and collar back on. Leave a small space between collar and other parts (1/32 – 1/16"). Retighten collar with Allen Wrench.
BW-7	Remove 4 screws at bottom of BW base. You will need to remove the arm by twisting it back and forth repeatedly until it comes off (it is a press-fit on the shaft). Refer to attachment entitled **Other Processes** for picture of area. Lubricate the end of the shaft that is near the opening in the wood and the adjacent bearing that this shaft goes through. No other part of this assy. needs to be lubricated.
BW-8	**Refer to Ball Winder Maintenance procedure on website under Spares & Repairs** (BW needs to be cleaned every 2-5 years depending on amount of use). If this does not work, please contact NKK.
BW-9	Tighten the Clamp Ring by tightening the 2 screws in the gray composite material under the wooden spindle arm. Refer to procedure in BW-1. If the clamp ring cannot be made tight, then you may need a new clamp ring. Inspect the underside of the clamp ring for cracking (there should be 1 seam but no other cracks). If it has a crack (caused by over-tightening the screws), then this part needs to be replaced. If the clamp ring cannot be tightened adequately and it is not cracked, then it may be bottoming out before the screws can be tightened, then contact us for a new ring (you may also insert a spacer (1/32 - 1/16" or so) between the clamp ring halves to prevent bottoming out.
BW-10	Ensure that the slot in the handle is capturing the pin that goers through the handle shaft. Then tighten set screw on handle
BW-11	If the screw holes are stripped due to repeated tightening of the screws, then you will need to order a new clamp ring (note: early production units in 2006-2008 were glued and screwed and the entire spindle arm may have to be returned for repair).
BW-12	The clamp ring will need to be replaced (see note in BW-11 for glued and screws parts). Unglued clamp rings can be replaced by user.
BW-13	See BW-9. A new part can be ordered from NKK.
BW-14	Move the tensioning post close to the spindle (if you have the new arm with a slot in it). Otherwise, you will need the Tensioning Post Upgrade kit or just the new arm if you already have the adjustable post with a knob.
BW-15	Always force the beginning of the ball to the middle of the spindle with your finger (see instructions) and wind the initial 5-15 wraps snugly by adding back tension on the yarn with your hand.
BW-16	Lubricant has become gummy and sticky and is slowing the unit down. We no longer recommend lubricating the unit except for shaft in BW-6. Please check the **Ball Winder Maintenance procedure on website under Spares & Repairs.** You will need to disassemble the unit and clean the lubricant off of all of the gears. You will use Rubbing Alcohol to do this (90% if available). While you are inside, clean the fiber debris from the gear teeth as well. No need to add new lubricant.
PB-1	Install the Orange O-rings on all motors except the High Torque Motor. If only black o-rings are available, they must measure 3/16" thick and 3-1/8" – 3-1/4" inside diameter (the ball winder uses an o-ring that measures 3-5/8" inside diameter. The High Torque motor uses a thicker ¼" diameter o-ring and is clear.

PB-2	Replace belt (see PB-1 above)
PB-3	Replace belt (see PB-1 above)
PB-4	Motors will last up to 2,000 hrs but this can be reduced if excessive loads were applied or the BW o-ring was too tight for much of its life. Order a motor replacement kit from NKK. These are easy to install by user.
PB-5	The switch will not hold up to constant on/off cycles if you turned it off after each ball for a long time. NKK will provide a free replacement switch or will install it for you if you if you return the Power Base Lite to NKK .
PB-6	Power Supplies last a long time so this will not normally be the cause of the problem. Consult with NKK if it appears to be a PS problem.
PB-7	Ensure that the o-ring on the BW is not too tight. Ensure that the Swift is not too tight. Aim the BW tensioning post toward the swift, reduce the angle of the curly Q. Do not handle the yarn on its way to the BW. Make sure the belt is not stretched and make sure you are using the correct size belt (see PB-1).
PB-8	Reboot both meter and Power Base. Turn the power base on last after making all connections. Press Stop button on power base and then test measurement and signal to power base from meter. If still a problem, contact NKK.

		
ALWAYS aim the ball winder's yarn guide post Arm (in which the 8" tall post sits) toward the swift. Keep the yarn path from the swift to the ball winder as straight as possible.	Do not turn the yarn guide post Arm away from the swift in order to increase tension on the yarn. Instead, use the curly Q on top of the post to add tension by loosening the black knob at the base of the post and then turning the post between 20-45 degrees away from the spindle. If you were to also turn the Arm, you would be adding too much tension and might get a wonky (spaceship) ball.	This shows the standard amount that you should turn the curly Q away from the spindle (about 30 – 45 degrees away from the center of the spindle). You adjust the tension on the yarn by ONLY turning the post and the curly Q away from the spindle. Sometimes as much as 90 degrees, and sometimes not at all. Slide the Post in the slot in the Arm, toward the Spindle as much as possible.

90% of all issues are caused by the o-ring on the ball winder being too tight against the conical shaped shaft. We have a video and downloadable PDF on the Ball Winder info page that addresses this issue.