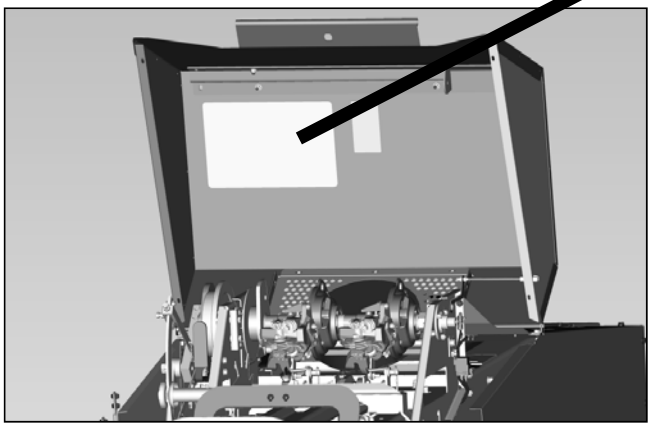
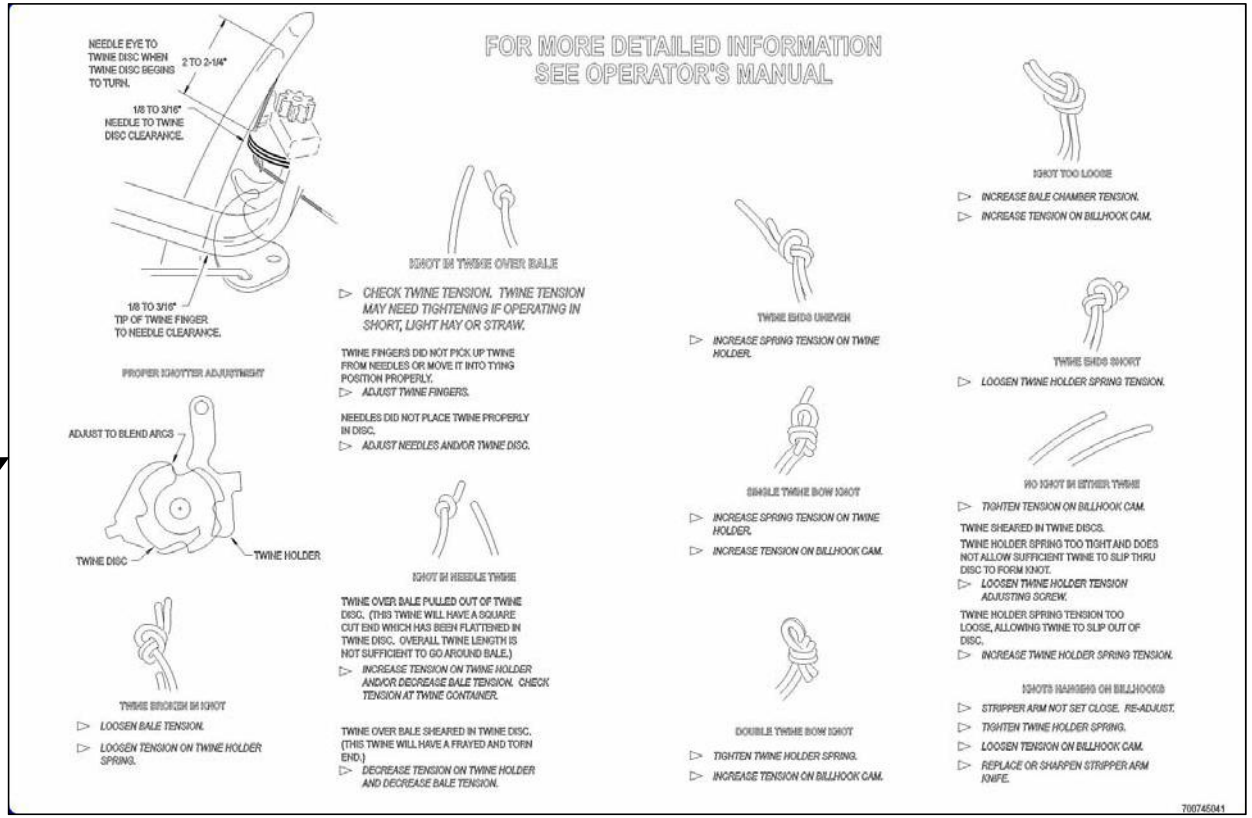
1800 Series Small Square Baler Knotter Troubleshooting

Knotter Troubleshooting Decal

The tying system on a small square baler is a critical component. If adjusted and maintained correctly the knotters can be a very reliable part of the baler.

To assist the operator with knotter troubleshooting a guide is attached to the inside of the knotter shield. Additional information is in the operator's manual as well as also being listed below.





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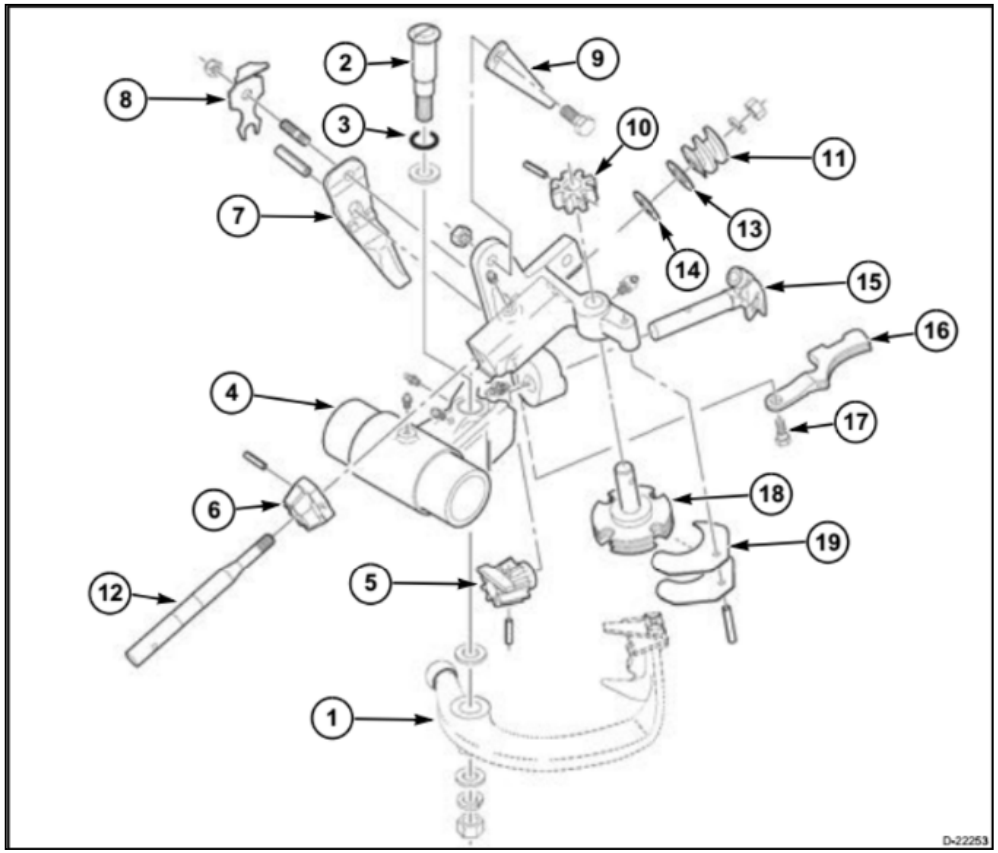
Knotter Component Identification

FIG. 22: Knotter shaft assembly

(1) Stripper Arm
(2) Stripper Arm Shaft
(3) O-ring
(4) Knotter Head Frame
(5) Billhook Pinion Gear
(6) Worm Pinion Gear
(7) Billhook Cam
(8) Billhook Cam Spring
(9) Tension Lever
(10) Twine Disc Gear
(11) Worm Gear
(12) Worm Gear Shaft
(13) Machinery Bushing - 0.89 mm (0.13 in)
(14) Shim - 0.18 mm (0.007 in)
(15) Billhook
(16) Twine Holder
(17) Shoulder Bolt
(18) Twine Disc
(19) Twine Disc Cleaner



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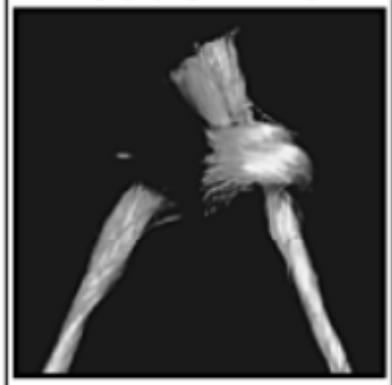
Knotter Problem Identification and Correction

Problem	Possible Cause	Correction
Knot in twine over bale 	Twine finger did not pick up twine from needle, or move twine into tying position properly	Adjust twine fingers. Check twine tension. If necessary, increase twine tension if operating in short, light hay, or straw.
	Needle did not locate twine properly in the disc.	Adjust the needle and / or twine disc.
	Hay dogs are not entering the baling chamber	Clean hay and dirt between the hay dogs and the baling chamber. Check for broken springs.
	Twine finger spring broken	Replace the twine finger spring.

Twine broken in knot 	Bale density too high in dry material	Loosen bale tension.
	Tension is too high on twine around billhook during tying cycle causing twine to shear or to break.	Loosen the tension on twine holder spring.
	Rough, or sharp, edges on billhook	Smooth billhook with emery cloth
	Poor grade of twine	Use good quality twine.
Knot too loose 	Worn, or damaged, billhook tongue	Replace billhook tongue.
	Bale density too low	Increase the baling chamber tension.
	Not enough tension on the billhook cam	Increase the tension on billhook cam.

Knotter Problem Identification and Correction

Twine ends not even 	The twine knife is dull, or damaged. Not enough spring tension on twine holder	Sharpen, or replace, twine knife. Increase spring tension on twine holder.

Problem	Possible Cause	Correction
No knot in either twine 	The twine disc is cutting the twine.	Loosen the twine holder and, or, remove all sharp edges and rough edges on the twine holder and the discs.
	Not enough tension on billhook cam	Tighten tension on billhook cam.
	Twine holder spring too tight and does not permit enough twine to slip through the disc to form a knot	Loosen the twine holder tension adjusting screw. Clean the dust and chaff from under the twine holder spring.
	Billhook not rotating	Replace the pin in the billhook pinion.
	Twine holder spring tension too loose, permitting twine to slip out of the disc	Increase the twine holder spring tension
	Bent, or damaged, billhook tongue	Straighten, or replace, the billhook tongue.
No twine from bottom	Plunger slots are filled with crop	Clean the plunger slots.

Twine ends frayed 	Dull twine knife	Sharpen twine knife.
Knot in needle twine 	Twine over the bale got cut in twine disc (This twine will have a frayed and torn end.) Twine over the bale frayed on the twine disc. (This twine will have a frayed and torn end.) The needle went past the knotter frame and the top twine got frayed. The twine will look like the twine got pulled out of the twine disc. The twine will be approximately one bale long.	Decrease the tension on the twine holder and decrease the bale tension Decrease the tension on the twine holder and decrease the bale tension Remove the rough edges from the knotter in the area of the twine disc on the side opposite the twine cleaner.

Strands of one twine double back through the knot 	Billhook tongue is closing on top of twine	Time the twine disc. Adjust the knife arm to hold the twine over the billhook tongue farther to the right.
Single twine bow knot 	Not enough tension on the twine holder Not enough tension on the billhook cam Not enough travel of stripper arm past the billhook Dull twine knife	Increase spring tension on twine holder. Increase the tension on the billhook cam. Adjust the stripper arm to get more travel past the billhook. Sharpen the twine knife.

Knotter Problem Identification and Correction

Twine cut and, or, frayed behind knot 	Not enough clearance between the billhook and the inside face of the stripper arm. Twine is damaged approximately 13 mm (1/2 inch) from knot.	Adjust the stripper arm.
	Rough edges, or sharp projections, on stripper arm; twine is damaged approximately 50 mm (2 inch) from knot.	Smooth the stripper arm with emery cloth.
	Twine fingers crimping twine against the baling chamber; twine is damaged approximately 75 mm (3 inch) from knot	Replace the spacer in the twine finger. Check the twine finger adjustment.
	There is a rough, or rusty, twine finger. The twine from the needle is damaged approximately 75 mm (3 inch) from the knot.	Smooth the twine finger with emery cloth.

Knotter Problem Identification and Correction

Twine cut and, or, frayed behind knot 	Rough baling chamber slot; twine is damaged approximately 100 mm (4 inch) from knot	Smooth slot with emery cloth.
	A plunger projection point is bent. The twine is damaged approximately 114 mm (4-1/2 inch) from knot.	Straighten the plunger projection points.
	Plunger knife cutting twine approximately 457 mm (18 inch) from the knot.	Center the plunger in the baling chamfer so the sharp corner of the knife does not go beyond the edge of the needle slot.

Knotter Problem Identification and Correction

Double twine bow knot 	Not enough twine holder tension	Tighten the twine holder spring.
	Not enough tension on the billhook cam	Increase the tension on the billhook cam.
	Not enough travel of the stripper arm past the billhook	Adjust the stripper arm to get more travel past the billhook.

Problem	Possible Cause	Correction
Knot staying on the billhook	Not enough twine holder tension	Tighten the twine holder spring.
	Bent billhook tongue	Replace billhook tongue.
	Stripper arm not set close enough	Adjust stripper arm.
	Too much tension on the billhook cam	Loosen the tension on the billhook cam.
	Stripper arm does not travel far enough past the end of the billhook.	Adjust the stripper arm.
	Worn, or rough, billhook	Replace, or polish, the billhook.
	Dull stripper arm knife	Replace, or sharpen, the knife.

Problem	Possible Cause	Correction
Twine disc does not stay in time	Twine disc drive pinion roll pin broken.	Replace the twine disc drive roll pin.
	Adjustable knotter worm gear slips on shaft	The locknut is loose, or, the spacer washers are holding the gear off the tapered shaft. Replace a worm gear that has a crack.
	Worn gears	Replace gears.
	A gear has been tightened too much and has broken.	Replace gears.
Knotter dog clutch will not engage	Clutch dog does not move freely.	Free the clutch dog. Spray penetrating oil on the clutch dog pivot. Apply oil to the surface to prevent corrosion.
	Metering wheel and knotter trip arm are out of adjustment.	See Knotter Trip Arm Adjustment in the Lubrication and Maintenance section.