

J.A. FREEMAN & SON
 TWINE KNOTTER TROUBLESHOOTING GUIDE

When having a twine knotter problem or missing a knot on one twine or another it is important to determine which twine is not tying properly. The TOP twine is the twine that is being held in the knotter while the bale is being formed. The BOTTOM twine is the twine that the needle delivers to the knotter to tie the bale.

When a miss tie occurs you must locate the problem twine and determine:

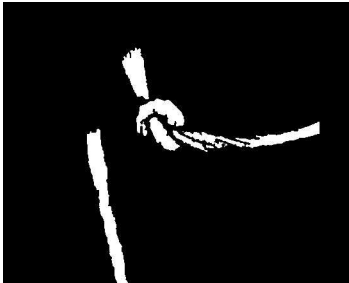
1. Is the knot missing in the TOP or BOTTOM twine?
2. Is the end of the untied twine frayed, or squared cut?
3. Is there any damage to the twine? Frayed along the length, frayed beyond the knot?
4. Is the twine long enough to wrap around the bale?
5. Are there any scraps longer than one inch in or around the knotter?
6. Is there twine tangled in the knotter?


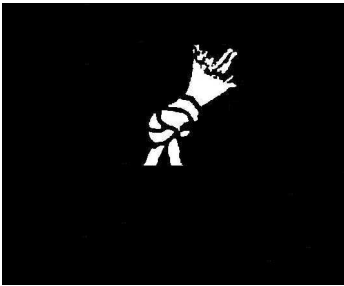
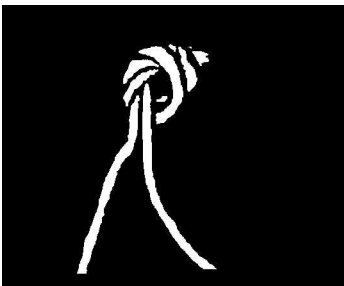
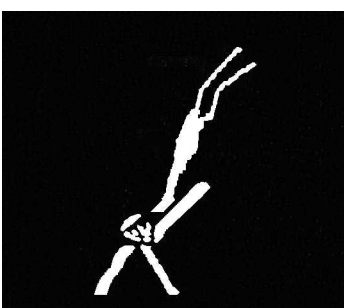

Not all times, but a majority of the time, the miss tie is caused external of the knotter frame.

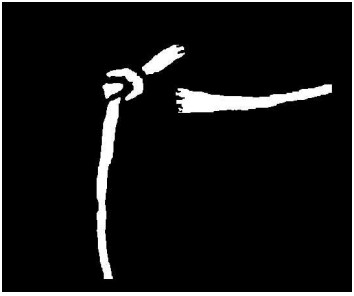

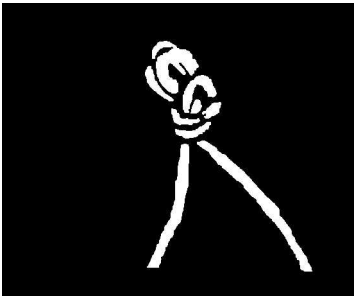
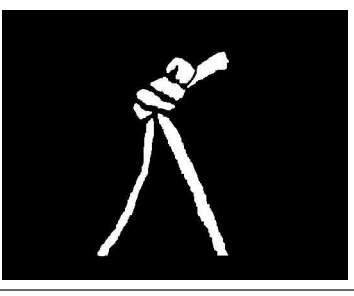
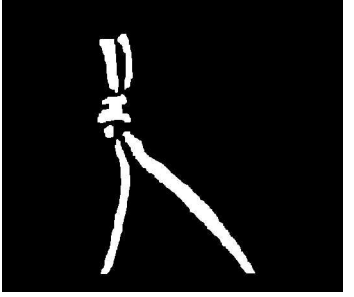
Some things to always check before condemning the knotter are:

1. Check twine delivery from the twine box. Twine boxes are correctly tied together so not obstructing free feeding.
2. Twine is properly routed to the needle.
3. Twine guides and or needles have no sharp worn edges.
4. Twine tensioners are properly adjusted so that twine has approximately 4 pounds of pull, while the knotter is tying.
5. Check hay dogs for proper operation, and or broke or missing springs. Hay dogs will wear and are very important. If unable to correct a twine finger miss tie, it is possible that the hay dogs have worn and are not properly holding the end of the bale.
6. Check bale weight/density. Too light of a bale may cause the knot to hang on the billhook, and to heavy of bale can cause several different miss ties (see chart).
7. Are all the necessary components in proper adjustments? Remember any time you replace or adjust a needle the twine finger must be checked and probably adjusted at the same time.
8. Next to the hay dogs, the twine fingers are important to keep in good operating condition. They cannot have excessive play in the pivot, and they must be free of any nicks or burrs that may damage the twine.

Following are a few examples of failed knots with possible causes for, and possible remedies.

Problem	Possible Cause	Possible Remedy
	<p>Twine fingers did not pickup needle twine. Alternatively, did not fully load the billhook.</p> <p>Hay dogs not properly holding end of bale.</p>	<p>Adjust twine fingers closer to the needle, adjust full travel, adjust needle to twine disc clearance. Check twine tension. Check hay dog springs and free operation. Hay dogs worn replace.</p>

Problem	Possible Cause	Possible Remedy
	<p>Extreme tension on twine around billhook during tying cycle causes twine to shear or pull apart</p>	<p>Loosen twine disc holder spring. Smooth off all rough edges on billhook.</p>
	<p>Dull twine knife.</p>	<p>Replace twine knife or sharpen cutting edge.</p>
	<p>Worn or damaged billhook tongue. Bale density too low. Excessive twine holder pressure. Improper adjustment of twine disc.</p>	<p>Replace billhook. Increase bale density tension. Loosen twine holder spring. Adjust, time twine disc.</p>
	<p>Insufficient tension on twine holder. Dull or chipped knife.</p>	<p>Tighten twine holder spring. Replace twine knife, or sharpen cutting edge.</p>
	<p>Twine sheared in twine disc. Billhook not rotating. Billhook tongue fails to open. Can also be a result of a bow knot that has come apart.</p>	<p>Loosen twine holder or remove all sharp edges and burrs on twine holder and twine disc. Check for sheared roll pin in billhook pinion. Check for lost trigger roller, or roller cam face worn. Check twine finger full travel.</p>

Problem	Possible Cause	Possible Remedy
	<p>Top twine over bale pulled out or sheared out of the twine holder. This twine will be too short to wrap around the bale. If the top twine is squared cut, it pulled out of twine holder. If it is ragged and drastically frayed, it sheared out of the twine disc or over billhook.</p>	<p>Tighten twine holder spring pressure. Decrease bale density tension.</p> <p>Decrease twine holder spring pressure. Decrease bale density tension.</p>
	<p>Billhook is closing on top of twine.</p>	<p>Model knife arm so groove in knife arm will hold twine over billhook tongue farther to the right.</p> <p>Adjust twine disc timing.</p>
	<p>Insufficient travel of knife arm past billhook. Billhook roller cam pressure too loose. Twine finger full travel not going far enough, knot is being formed to far to the left on the bill hook</p>	<p>Model knife arm to obtain more travel past billhook. Check for wear on cam lobe. Tighten billhook roller cam springs. Check twine finger full travel adjustment.</p>
	<p>Insufficient travel of knife arm past billhook. Billhook roller cam pressure too loose.</p>	<p>Model knife arm to obtain more travel past billhook. Check for wear on cam lobe.</p> <p>Tighten billhook roller cam springs.</p>
	<p>As billhook rotates, twine is pinched between billhook and knife arm and twine is damaged below knot. Rough knife arm cuts twine.</p> <p>Extreme high top twine tension.</p>	<p>Bend knife arm so billhook turns freely. Make certain wiper ledge on knife arm contacts back side of billhook. Smooth rough edge in twine notch on knife arm, or replace knife arm. Reduce bale density tension, or check twine tensioners.</p>