



US ACADEMY of  
PARACHUTE RIGGING

## VERTICAL AXIS ROTARY HOOK TIMING

By Wayne Snyder, USAPR Instructor

You see this on some walking foot and all double needle machines

Same Timing

Take the needle bar all the way down – mark the needle bar at 3/32 inch

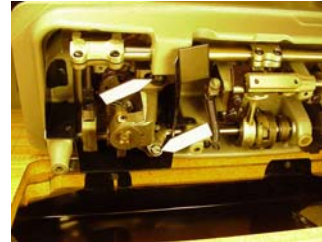
Hand wheel forward to 3/32 inch need rise

### TIMING

To move hook closer loosen two big screw and tap assembly toward or away from needle. The point of hook should be as close as possible without touching.



Mark needle bar



Lock screws



Timing

Tighten screws. Loosen drive gear set screws, move drive gear so it is lined up on centerline of driven gear.








Gear alignment



## VERTICAL AXIS ROTARY HOOK TIMING

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|   |   |
|---|---|
| <p>Tighten set screws. Loosen set screws on driver gear. Rotate hook to center of needle.</p>   |  <p>Set Screws</p>                                    |
| <p>Bobbin case opener. Loosen screw. Rotate hand wheel until you get maximum opening of opener then make sure you can get a piece of thread between opener and bobbin case. You need clearance.</p>   |  <p>Bobbin case opener</p>                            |
| <b>JAMS</b>   |   |
| <p>You have thread jammed in and around the bobbin case – try and pull out pieces after removing bobbin while gently moving hand wheel back and forth.</p>  |  <p>Jammed thread</p>                                |
| <p>Bad jam and safety clutch kicked out – Top and bottom shafts no longer connected.<br/>First we remove the bobbin and clear jam.<br/>Still stuck<br/>Remove 3 screws in retainer<br/>Remove retainer<br/>Move center to removal/insertion point and pop-up<br/>Clear thread</p> |  <p>3 screws and retainer</p>                       |
| <p>Reinstall center and retainer and screws</p>   |  <p>Top &amp; Bottom shafts no longer connected</p> |



# VERTICAL AXIS ROTARY HOOK TIMING

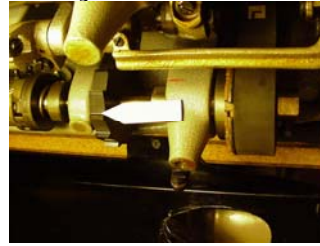
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To re-engage safety clutch hold down right button while hand wheeling in reverse direction. You will feel the button engage – keep moving hand wheel in reverse direction and you will feel and hear a clunk. The safety clutch has re-engaged.

Check timing and point of hook.  
You may dress the point if it is messed up.



Safety clutch bottom



Safety clutch gear

## TOP DOWN VIEW OF ROTARY HOOK AND NEEDLE

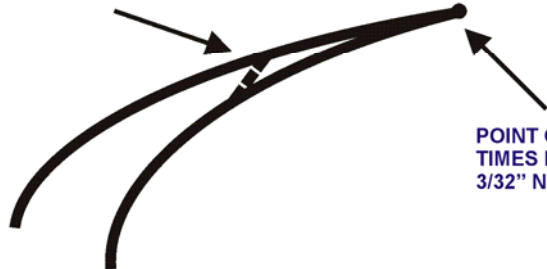
If you need to dress the point of the hook , try not to remove material from the outside  
After you dress the point a lot you will have to replace the whole hook or have it re-pointed.

### TOP DOWN VIEW OF ROTARY HOOK AND NEEDLE

OLD HOOK WHERE POINT HAS BEEN GROUND BACK BY REPAIRS  
NOTE: TIMING CHANGE



Needle



POINT OF NEW HOOK TIMES RIGHT AFTER 3/32" NEEDLE RISE

WHEN ENOUGH MATERIAL HAS BEEN REMOVED, HOOK WILL NOT PICK-UP LOOP. REPLACE WITH NEW HOOK.