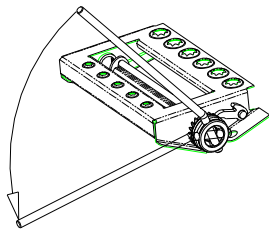
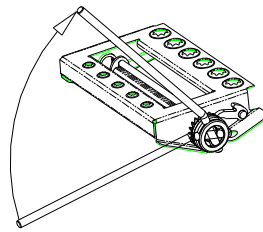


QuiXspinz Inspection and Maintenance

Cottrell QuiXspinz ratchets are designed to increase operator efficiency by minimizing time required to secure vehicles. The Cottrell QuiXspinz ratchet is essentially a 1 way clutch. That is, it engages when rotated in one direction, and freewheels or disengages when rotating in the opposite direction. While every effort has been made to make the design as robust as possible, it is still a mechanical assembly that requires regular inspection and maintenance to insure long-lasting, proper operation. Inspection and maintenance guidelines are noted below.



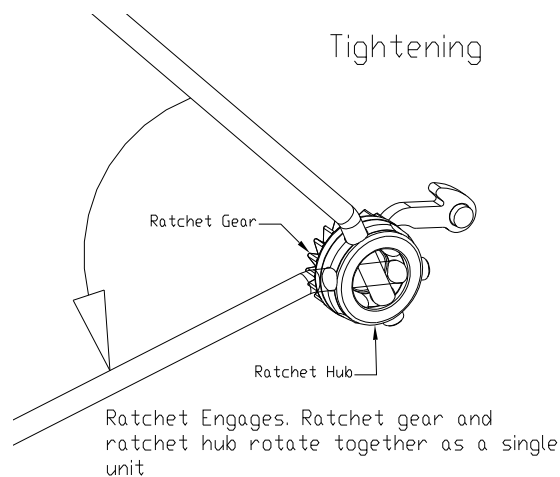
Tightening/ Ratchet Engages



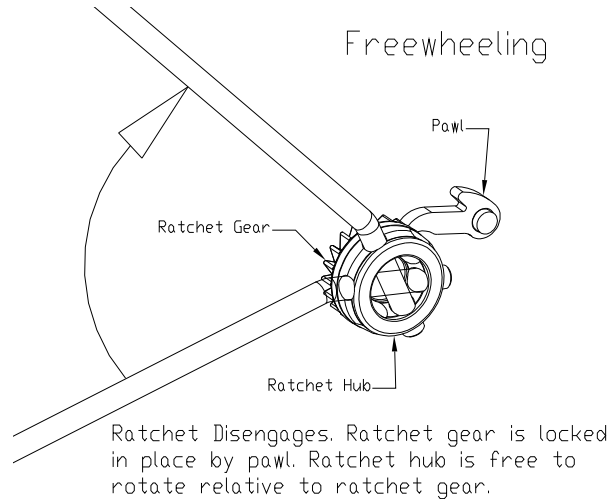
Freewheeling/ Ratchet Disengages

QuiXspinz Inspection

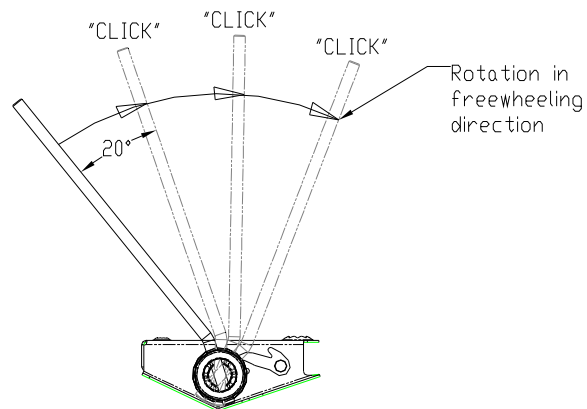
1. Below are conditions to inspect for during every QuiXspinz use and indicate a QuiXspinz in proper working condition:
 - a. The QuiXspinz ratchet hub must engage with the ratchet gear and act as a single component when rotated in a direction that tightens the tie down strap. See Figure 1a below.



- b. The QuiXspinz ratchet hub must disengage the ratchet gear (freewheel) and act as 2 separate components when rotated in a freewheeling direction which is opposite of what is required to tighten the tie down strap.



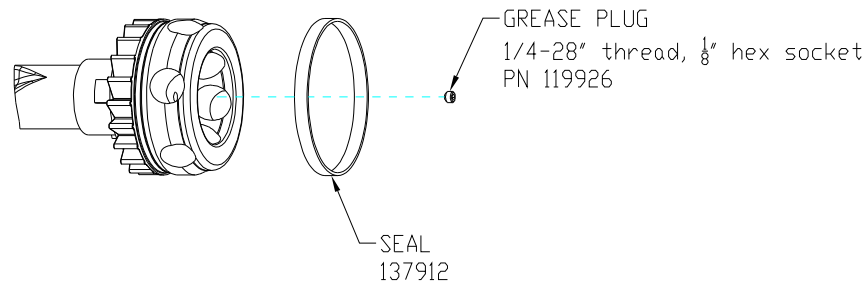
- c. During operation in the disengage (freewheeling) direction there should be an audible clicking sound for about every 20 degrees of ratchet hub rotation.



- d. The ratchet seal should be tight around the hub perimeter, with no seal gaps or looseness.
- e. If there is excess grease visible around seals, just wipe it away with a shop towel. The QuiXspinz assembly is pre greased at the factory. Some grease purging after putting into service is not unusual.

2. Below are conditions to inspect for during every QuiXspinz use and indicate some maintenance is required:
 - a. Loose seals- conditions 1a, 1b, and 1c above are still met. Seal replacement and greasing is required. See instructions at end of this document.
 - b. Missing seals- conditions 1a, 1b, and 1c above are still met. Seal replacement and greasing is required. See instructions at end of this document.
3. Below are conditions to inspect for during every QuiXspinz use that indicate a replacement of the QuiXspinz is required:
 - a. Silent operation- no audible sound is discernible when rotating the ratchet in the disengage direction.
 - b. Free spinning- the ratchet hub will not engage when it is supposed to, that is, in the strap tightening direction.
 - c. Unusual gaps or looseness between the ratchet hub and ratchet gear.
 - d. QuiXspinz "locked up"- assembly will not freewheel in the disengage direction.
4. QuiXspinz maintenance. Cottrell recommends that the QuiXspinz assemblies be greased annually per the instructions attached.

QuiXspinz Greasing and Seal Replacement Instructions.



1. Remove grease plug with a 1/8" hex Allen wrench. A screw extractor such as the Craftsman ScrewOut Remover or a SpeedOut Screw Extractor may be needed if paint build up prevents using an Allen wrench.
2. Remove seal by cutting off with utility knife or other appropriate cutting tool.
3. Wipe seal area clean with shop rag.
4. Install a 1/4-28" zerk fitting into ratchet hub.
5. Pump grease into zerk fitting until it purges out slightly. Only use a water resistant grease that provides good rust and corrosion protection such as that provided by Chevron Starplex grade 1 or grade 2. (specification attached)
6. Install new seal PN 137912. No special tools required.
7. Verify ratchet operates properly per instructions at the beginning of this document.
8. Remove zerk fitting and reinstall plug.