

Bungee Installation Tool System (BITS) Instructions

Congratulations, you have purchased the best Comanche bungee tool available. For those aircraft mechanics who have struggled with earlier tools, rest assured that from now on changing bungees is going to be easier, quicker, and safer.

Note- when removing the old bungees it is not recommended to cut them or to use a pry bay in order to remove them. The easiest and safest manner to remove the old bungees is to use the installer tool.



Installer Tool

To remove the old bungees:

1. Put the plane on jacks and secure the tail in a suitable manner.

2. Remove the bungee access inspection panel behind and slightly outboard of the main landing gear wheel well. The landing gear bungee arm, pulley, and the inboard portion of the bungee are now in plain view.
3. Either with an assistant in the cockpit or by reaching through the storm window raise the landing gear slightly by putting the gear switch in the up position and intermittently bumping the master switch. Raise the gear just enough so that the bungee arm is lined up with the bungee cord and bringing it to its full extension.
4. Remove the **detent ring pin** on the bungee installer tool and collapse the tool to its shortest length. Insert the outboard end of the tool between the bungee cord halves and push it toward the outboard pulley. The saddle flanges will guide it toward the outboard pulley.
5. Turn the inboard end of the tool sideways to get the top flange to engage the top bungee half and then rotate the lower flange in to engage the lower cord. The tool should now be suspended between the bungee halves.
6. Push the two parts of the installer tool apart until the detent ring pin holes line up so you can re-insert the detent ring pin. It may be helpful to use a number 2 Phillips screwdriver or suitably sized drift to accomplish this.
7. Raise the landing gear the rest of the way to the full up position.

8. Pull the inboard part of the tool toward you. The bungee is now engaged on the tool and free of the inboard pulley on the landing gear bungee arm.
9. Grasp the bungee tool and the bungee and turn them counterclockwise (as viewed from the inboard end of the tool) until the bolt on the outboard pulley bracket is unscrewed from the nut plate.
10. Remove the bungee tool and the bungee from the plane.



Stretcher Tool

Replacing the bungee on the installer tool:

1. Place the bungee stretcher tool in a vise using the tool holding bracket provided.
2. Insert the bolt in the outboard pulley bracket through the 3/8" hole in the outboard tool arm and secure it with the nut provided, screwing the nut well onto the bolt.

3. Place the inboard end of the bungee over the fixed bungee post of the stretching tool, seating the bungee into the groove on the post as you expand the stretcher tool. See next step.
4. Using a suitable tool (a socket wrench, an electric drill, an impact wrench with a 3/4" adaptor, or an open end/box end wrench, etc), screw the hex drive counterclockwise (as viewed from the hex nut end) until the bungee is stretched about 1½ to 2 inches past the inboard saddle flanges. **Don't extend the tool any more than necessary.** Now you can easily remove the detent ring pin and collapse the installer tool. This will make it easy to remove the tool itself from between the bungee halves.
5. Screw the hex drive clockwise to retract the outboard tool arm until the bungee is loose on the fixed bungee post.
6. While leaving the pulley bracket bolted in the outboard arm, remove the cotter key from the pulley clevis pin and pull out the clevis pin that will free the pulley from the bracket. Remove the old bungee cord and replace it with a new one. Assemble the pulley and clevis pin back into the bracket in reverse order and insert a new cotter key into the clevis pin.
7. Place the other end of the bungee cord over the tool's fixed post and screw the hex drive counterclockwise until the bungee is stretched enough to insert the installer tool. Insert the installer tool between the bungee cord halves in the same manner as you did in the plane, i.e., by removing the detent ring pin, collapsing the installer tool, and inserting it between

- the stretched bungee. Extend the installer tool to align the ring pin holes and re-insert the ring pin.
8. Screw the hex drive clockwise to retract the outboard arm, which will engage the bungee cord onto the installer tool. You can now unfasten the bolt from the outboard bungee arm. The installer tool is now “loaded” with a new bungee and ready to install in the wing.

Installing the New Bungee

1. Place the loaded installer tool into the bungee access opening with the bolt pointing outboard and visually line it up with the nut plate hole. Screw the bolt into the nut plate as far as it will go. You may have to back off one-quarter turn to align the bungee parallel to the inboard pulley.
2. Place the inboard end of the installer tool over the bungee arm pulley.
3. Slowly lower the landing gear until the landing gear bungee arm is extended straight out and lined up with the bungee cord itself. The bungee cord will now be engaged on the inboard pulley.
4. Pull the detent ring pin and collapse the installer tool. Remove the installer tool from between the bungee halves.
5. Repeat the process on the other wing.
6. Perform a gear retraction/extension test and verify the gear and gear indicating systems both function normally. Be certain the landing gear is down and locked before removing the plane from jacks.

Experience has shown it often takes longer to remove and replace the bungee access panels (with its 17 screws) than to replace the bungees themselves. These two tools should make changing the bungees on a Comanche virtually a pleasure. There is no step in this process that will require any real upper body strength as with some previous tools, and safety and ease of use have been greatly improved. These tools should save you hours of work.

Maintenance of the stretcher tool: In order to lubricate the thrust bearing you should periodically add a drop of lubricating oil to the hole located between the fixed bungee post and the hex drive.