

6/28/2017

MOONEY M20,A,B,C,D,E,F,G

## SHOULDER HARNESS INSTALLATION 3-Point Diagonal Restraint Assemblies

**This upgrade is applicable to those MOONEY M20 aircraft that were not factory equipped with 3-Point Diagonal Shoulder Harnesses; aircraft that require the installation of upper attachment points to accommodate the attachment of the shoulder strap.**

The shoulder strap upper attachment points are created by adding a MS27405-6 clamp to the fuselage tubing structure, adjacent to and aft of each pilot's outboard shoulder.

The design of the shoulder strap upper attachment is similar to that provided by Mooney on M20J aircraft; Serial numbers 24-001 thru 0083 and 24-0085 thru 0629. The installation is accomplished through the installation of the attachment hardware to the existing 4130-chrommolly fuselage structure, without modification.

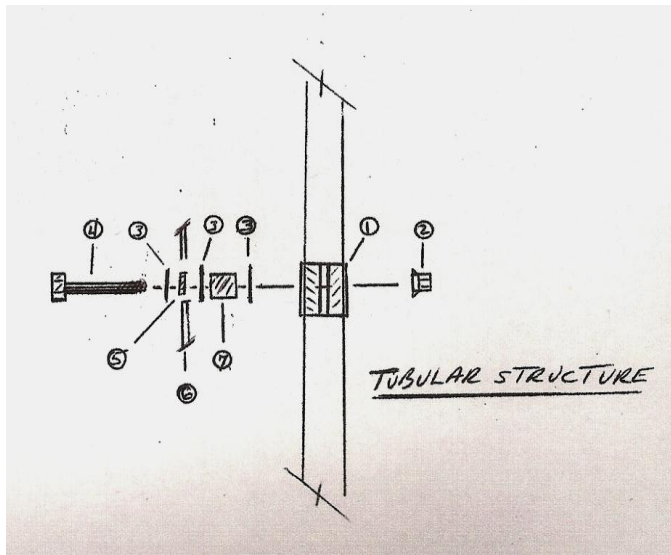
This installation may be considered by the FAA to be a "Minor Alteration"; per AC 43.13-2B, chapter 9, par 903, a, 1/2. And requires an authorized mechanic to document the change with a logbook entry.

Seat belt assemblies are available in two styles:

- Replacement – 3 Point Fixed Strap Assemblies.
- Replacement – 3 Point Assemblies, Inertial Reel Equipped.

These replacement restraint assemblies are constructed to meet the requirements of TSO-C114 and are superior to the older TSO-22 belt assemblies. They are fabricated using upgraded hardware components and the polyester webbing will provide a longer service life than the previously used nylon material.





HARDWARE CONFIGURATION		
Required Item #		
1.	2ea - MS27405-6	CLAMP
2.	2ea - MS21042-4	NUT
3.	6ea - AN960-416	WASHER
4.	2ea - AN4-15A	BOLT
5.	2ea - NAS75-4-004	BUSHING
6.	TSO-C114 HARNESS FITTING	
7.	2ea - AAI 4.2006	BUSHING

## Hardware Configuration, Fixed Strap / Inertial Reel

### Installation:

1. Remove the existing lap belt assemblies and install the new TSO-C114 lap belts. Note – The new belt assemblies are provided with solid end connectors for added security.
2. Remove the Royalite window surrounds from each passenger side window and open the headliner to the extent needed to provide access to the tubular structure.
3. On the vertical fuselage tube, adjacent to each pilot's shoulder; locate and mark a point halfway between the top and bottom of the passenger window opening.
4. On each side, remove the fuselage skin attachment screws, as necessary, from the previously marked vertical location up to the first available point where the MS27405-6 clamp can be installed over the tube structure.
5. Install the MS27405-6 Clamps on each side and work them down to the marked location, with the bolt mounting flanges oriented aft.  
 Note - The clamp can be opened without distortion by the use of two #1 Phillips screw drivers worked from the outside through the bolt holes. Close the clamp using a slip jaw pliers.
6. Reinstall the fuselage skin attachment screws and secure the headliner
7. Temporarily install the attaching hardware and determine the location of the opening required in each Royalite window surround.
8. Open the required hole in each Royalite window surround to a diameter of 9/16". The hole is best done with a step drill and finished with a rotary ream.
9. Assemble the shoulder upper attachment point as shown – leaving the window surround loose until the bolt is brought to final torque.
10. Torque attachment bolt to 60 inch pounds and complete the reinstallation of the window surrounds.