We developed the MilSpec Adjustable Receptacle to make traditional C-Spec Fasteners more user friendly. Our design solves three significant problems associated with traditional fasteners.

- First, with the Adjusting Receptacle, one stud size can fit a wide range of panel thickness. Traditional designs were limited to .030" of grip per stud length.

- Second, figuring total panel thickness and determining the various sizes of studs required to fit a given project takes a lot of time. Stocking all of those parts ties up a lot of money in inventory. With our adjusting receptacles one size fits all, which saves a lot of time and the high inventory costs associated with traditional fasteners are eliminated.

- Third, for thicker panels where longer stud lengths were required, price and availability were a problem. With the MilSpec Adjusting Receptacles, a standard dash -2 length stud can cover total thickness from 1/16" (.0625") to 7/16" (.437") !

Features:

- MilSpec receptacles are interchangeable and fully compatible with existing designs.
- The aluminum receptacles are also lighter weight than standard fixed depth receptacles with no sacrifice in strength ratings. These receptacles are available in aluminum, zinc plated steel and stainless steel.
- Three basic styles are available. Including the CM1 shock mount, MS245 heavy duty floating receptacles and MS213 general purpose rigid receptacles.
- Each style is available in several materials and configurations offering the fabricator a variety of options for panel mounting.
- MilSpec receptacles can be readjusted if the panel is patched or damaged.
- FAA approved for aircraft use under the provisions of TSO-C-148.

General Design Data:

The internal mechanisms of the CM1 rubber cowling mounts are the same as the MS245 and MS213 adjustable receptacles. The main components are a threaded barrel, threaded insert, locking clip and anti lock pin. The insert is the portion that the fastener stud locks into. It has two vertical grooves machined on the outside diameter. These grooves are where the locking clip engages to prevent the insert from rotating after the proper depth has been acquired. For the initial adjustment we have installed an anti-locking pin underneath the locking clip on the outside diameter of the barrel. This pin keeps the locking clip from engaging until the proper fit is determined. These pins should be left in for the installation and panel fitting process but must be removed prior to flight or return to service.

Installation and Depth Adjustment:

After the fasteners, grommets, receptacles or shock mounts are installed, position the cowling or panel and engage the MilSpec C-Spec fasteners into the receptacle. The studs should lock with the head protruding, this is normal. To perform the initial adjustment of the receptacle, simply turn the stud clockwise just like tightening a screw until the head of the stud is flush with the grommet (or stud cup when using 2600/2700/2800 series). Proceed around the cowling or panel performing this operation at all locations. Do not go beyond flush as this will over stress the stud assembly.

Now that all locations have been fitted, the cowling or panel can be removed and the anti-locking pins can be removed from the receptacles. To unlock the fasteners without spinning the insert you will need some fancy wrist action and a bit of a feel for it. The way to do this is to push in ***slightly*** on the stud head and with a quick motion, release pressure while giving the stud a 1/4 turn counterclockwise. This is not hard but, may take a few attempts to get it just right. Once the studs are unlocked and the cowling or panel is removed, go to the receptacle and remove the anti-lock pin. If the pins are not removed and the inserts are not properly locked, the fasteners could potentially unlock in service. The locking clip may not be lined up with a locking groove in the insert. Therefore, you will need to turn the insert with a flat blade screwdriver a half turn or so until one of the locking grooves in the insert comes around to the position of the locking clip. Be sure that the locking clip is engaged into the locking groove of the insert and not the fastener access slots. When the clip engages properly you should hear a positive snap. Verify that the pin is completely removed and that the insert does not rotate more that 5° in either direction using ***reasonable force***. Proceed around the cowling or panel repeating this process at all locations. In some instances it may be necessary to press on the O.D. of the receptacle to help the locking clip fully engage.

In the event that the receptacle needs to be readjusted some time in the future, you can reuse the original anti-lock pin if it is available or use the MilSpec pick tool (MS-PK) or any thin pick tool and insert it into the unlocking groove of the receptacle. Properly engaged, this will lift the locking clip away from the insert enough to allow a flat blade screwdriver to turn the insert in the appropriate direction. Note that there are two locking grooves in the insert 180° apart. This allows adjustment in .015" increments. Typical C-Spec (Camloc®) studs vary in length by .030" so, with the MilSpec adjustable receptacles you can fine tune the fit of your cowling or panel in increments of .015" (equal to 1/2 of a typical stud length). After readjustment be sure to engage the locking clip into one of the locking grooves in the insert.

Installation Parameters:

- Each Fabricator Will Have Their Own Preference but, we Recommend a Standard of 3.5" to 4" Spacing Between Fasteners. Much wider spacing can be used with Re-Enforcement strips or support strucure.
- Distance From the Edge of the Cowling to the Center of the Fastener Hole Requires 5/8" Minimum.
- The Support Lip Width Should be a Minimum of 1-1/8" (preferably 1-1/2").
- The Minimum Thickness for the Support Lip is 0.040". We recommend 0.050"

Panel Thickness Ranges When Using MS213 Adjustable Depth Receptacles

2700 / 2800 Series Stud Dash Number	Minimum Grip (TMT)	Maximum Grip (TMT)	2600 Series Stud Dash Number	Minimum Grip (TMT)	Maximum Grip (TMT)
-1	0.010 - (.254mm)	0.310 - (7.87mm)	-1	0.010 - (.254mm)	0.370 - (9.39mm)
-2	0.040 - (1.01mm)	0.340 - (8.63mm)	-2	0.040 - (1.01mm)	0.400 - (10.16mm)
-3	0.070 - (1.77mm)	0.370 - (9.39mm)	-3	0.070 - (1.77mm)	0.430 - (10.92mm)
-4	0.100 - (2.54mm)	0.400 - (10.16mm)	-4	0.100 - (2.54mm)	0.460 - (11.68mm)
-5	0.130 - (3.30mm)	0.430 - (10.92mm)	-5	0.130 - (3.30mm)	0.490 - (12.46mm)
-6	0.160 - (4.06mm)	0.460 - (11.68mm)	-6	0.160 - (4.06mm)	0.520 - (13.20mm)
-7	0.190 - (4.82mm)	0.490 - (12.44mm)	-7	0.190 - (4.82mm)	0.550 - (13.97mm)
8	0.220 - (5.58mm)	0.520 - (13.20mm)	8	0.220 - (5.58mm)	0.580 - (14.73mm)
-9	0.250 - (6.35mm)	0.550 - (13.97mm)	-9	0.250 - (6.35mm)	0.610 - (15.49mm)
-10	0.280 - (7.11mm)	0.580 - (14.73mm)	-10	0.280 - (7.11mm)	0.640 - (16.25mm)
-11	0.310 - (7.87mm)	0.610 - (15.49mm)	-11	0.310 - (7.87mm)	0.670 - (17.01mm)
-12	0.340 - (8.63mm)	0.640 - (16.25mm)	-12	0.340 - (8.63mm)	0.700 - (17.78mm)
-13	0.370 - (9.39mm)	0.670 - (17.01mm)	-13	0.370 - (9.39mm)	0.730 - (18.54mm)
-14	0.400 -(10.16mm)	0.700 - (17.78mm)	-14	0.400 -(10.16mm)	0.760 - (19.30mm)
-15	0.430 - (10.92mm)	0.730 - (18.54mm)	-15	0.430 - (10.92mm)	0.790 - (20.00mm)
-16	0.460 - (11.68mm)	0.760 - (19.30mm)	-16	0.460 - (11.68mm)	0.820 - (20.82mm)
-17	0.490 - (12.46mm)	0.790 - (20.00mm)	-17	0.490 - (12.46mm)	0.850 - (21.59mm)
-18	0.520 - (13.20mm)	0.820 - (20.82mm)	-18	0.520 - (13.20mm)	0.880 - (22.35mm)
-19	0.550 - (13.97mm)	0.850 - (21.59mm)	-19	0.550 - (13.97mm)	0.900 - (22.86mm)
-20	0.580 - (14.73mm)	0.880 - (22.35mm)	-20	0.580 - (14.73mm)	0.930 - (23.62mm)

Longer lengths are available.
Add .030" (.762mm) to minimum and maximum grip ranges for every stud dash number increase. Easy conversion:
Inches x 25.4 = mm mm ÷ 25.4 = Inches.