Torque Information

Table I shows the recommended tightening torques for silicon bronze, stainless steel, galvanized steel and aluminum alloy hardware. The shaded portion represents torques presently recommended by NEMA-CC1-1984 specification.

TABLE I
TIGHTENING TORQUES

Bolt Diameter	Nominal Torque Values			
	Silicon Bronze, Galvanized or Stainless Steel		Aluminum Alloy (Lubricated)	
	Ft.-Lbs.	Inch-Lbs.	Ft.-Lbs.	Inch-Lbs
5/16-18	15	180	–	–
3/8-16	20	240	14	168
1/2-13	40	480	25	300
5/8-11	55	660	40	480
3/4-10	80	960	70	840

For optimum efficiency, it is necessary that the correct bolt, nut and washer combination be used with the correct combination of conductor materials. Table II shows acceptable methods of joining different combinations of bus bar. Where different combinations of metals are being joined, a follow-up device such as a conical pressure washer is usually recommended if one, or both, bus materials are soft drawn aluminum. If both bars are hard drawn, large flat washers will suffice regardless of the bolt materials.

Other considerations which should be taken into account when selecting hardware are corrosion and vibration. For example, if severe corrosion is anticipated, non-corrosive materials such as stainless steel or silicon bronze, should be selected in preference to galvanized steel. If vibration is anticipated, the use of locking washers should be considered.

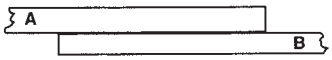
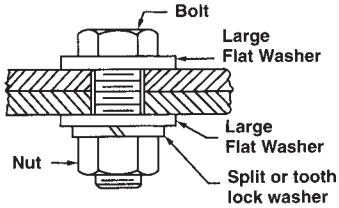
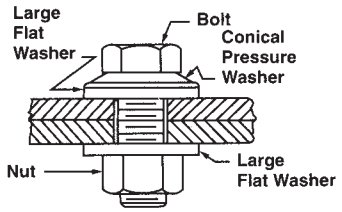


TABLE II
METHODS OF JOINING BUS BARS

If "A" Bar is and If "B" Bar is	Copper / Copper	Aluminum / Copper	Steel / Copper	Aluminum / Aluminum	Steel / Aluminum
Hard Drawn Bus such as aluminum alloy. 	(1) Silicon Bronze (2) Stainless Steel	(1) Silicon Bronze (2) Aluminum (3) Stainless Steel	(1) Silicon Bronze (2) Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Silicon Bronze, Plated	(1) Aluminum (2) Stainless Steel
Soft Drawn Bus such as EC-H13 Aluminum. 	(1) Silicon Bronze (2) Stainless Steel	(1) Silicon Bronze (2) Aluminum (3) Stainless Steel (4) Conical Pressure Washer Plated or Stainless Steel	(1) Silicon Bronze (2) Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Silicon Bronze Plated (4) Conical Pressure Washer Plated or Stainless Steel	(1) Aluminum (2) Stainless Steel (3) Conical Pressure Washer Plated or Stainless Steel

(1) Denotes preferred hardware usage
Note: Contact sealant recommended between aluminum to aluminum and aluminum to copper connections, unless other protective measures are taken.

Bar Connections

The tang of a compression or a mechanical connector is a bus bar, which connects to another bus bar. If you remember the rule about wire brushing and using joint compound with bare (unplated) aluminum, you cannot go wrong. Plated parts should be cleaned with a solvent if they are dirty, but never abrade or otherwise disturb the plating! Fig. 3 shows a typical bar connection and the type of hardware used.

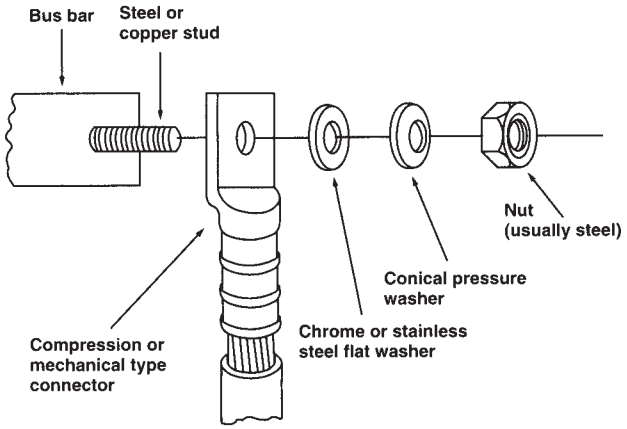


Figure 3. Contact surfaces must be clean. Use a joint compound with bare aluminum. Conical pressure washer is usually recommended if one, or both, bus materials are soft drawn aluminum.

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