The torque-preload relationship of Superbolt® tensioners depends on the tensioner body and jackbolt materials, heat treatment, plating, lubricants, and other factors. Superbolt® engineers have performed extensive tests to determine the best lubricants for the various materials utilized by Superbolt®, Inc. In an emergency, a number of commercially available graphite or nickel based lubricant compounds can be used for jackbolt re-lubrication in the field, however, obtained preload may not be accurate.

Copper bearing compounds have not performed well as jackbolt lubricants.

Two custom lubricants, JL-G and JL-M are RECOMMENDED by Superbolt®. Both compounds have a higher solids content than commercially available compounds. They have performed better as jackbolt lubricants, particularly in high temperature applications. JL-G and JL-M are available in various container sizes and can be ordered directly from Superbolt®.

Proper Lubricant should be applied to the tips of the Jackbolts prior to installation.

**JL-G** is a lubricant paste made from selected flaky graphite and pure mineral oil. It has a relatively uniform friction factor of 0.130 under widely varying conditions.

JL-G is used in the assembly of most Superbolt® products. Tests show that as long as the lubricant is intact, the torque-preload relationship does not change appreciably in subsequent tightenings. Re-lubrication of jackbolts after lengthy or high temperature service restores Superbolt® products to their original performance.

**JL-M** is a lubricant paste with a high concentration of Molybdenum Disulfide powder. JL-M lubricant has the lowest coefficient of friction available commercially. Friction factors approaches 0.055, once broken in.

In addition to being used on several product lines, this lubricant is used on products with larger jackbolts (roughly 5/8” and up) enabling high bolt preload capacities with a low torque input (approximately 1/2 the torque of JL-G). This also helps reduce wear on sockets and adds the possibility of using smaller wrenches. JL-M should not be used on applications above 650° F.

As with all lubricants, it is important to apply some to the jackbolts prior to installation.
**SECTION 1 – PRODUCT IDENTIFICATION**

Product Name: JL-M Lubricant

Revised: 03/17/00
Prepared by: C. Semerod
Emergency Information: (412) 279-1149

Manufacturer’s Name: Superbolt, Inc.
Manufacturer’s Address: 500 Superior Street
Carnegie, PA 15106

**SECTION 2 – HAZARDOUS INGREDIENTS**

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>CAS NO.</th>
<th>OSHA PEL:</th>
<th>ACGIH TLY:</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molybdenum Disulfide</td>
<td>1317-33-5</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
<td>N/A</td>
</tr>
<tr>
<td>Silica, Fused</td>
<td>60676-86-0</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
<td>N/A</td>
</tr>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>2 mg/m³</td>
<td>2 mg/m³</td>
<td>N/A</td>
</tr>
<tr>
<td>Silica, Crystalline</td>
<td>14808-60-7</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
<td>N/A</td>
</tr>
<tr>
<td>Lubricating Oils, Petroleum, Hydrotreated, Spent Residual Oils (Petroleum), Solvent-Dewaxed Solvent-Refined Heavy Paraffinic Distillate (Petroleum) Solvent-Dewaxed Hydrotreated Heavy Paraffinic Distillate (Petroleum) Proprietary Additives Mixture (&lt;1%)</td>
<td>64742-58-1</td>
<td>5 mg/m³*</td>
<td>5 mg/m³*</td>
<td>10 mg/m³*</td>
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<tr>
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<td>5 mg/m³*</td>
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<td>10 mg/m³*</td>
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</tbody>
</table>

(*) Designates limits set by OSHA and the ACGIH for oil mist. This product is sold in a paste form so misting should not occur.

**SECTION 3 – PHYSICAL DATA**

Appearance and Odor: Dark Grey Paste, Mild Petroleum

Boiling Point: > 500 degrees F

% Volatile: 0%

Vapor Density: > 1 (Air = 1)

Evaporation Rate: < 1 (Ether = 1)

Specific Gravity: 4.8 (Water = 1)

Vapor Pressure: Essentially 0 (mm Hg)

Solubility in Water: Insoluble

pH: N/A

**SECTION 4 – FIRE AND EXPLOSION DATA**

Flash Point: 338 degrees F

Lower Explosive Limit: N/A

Upper Explosive Limit: N/A

Extinguishing Media: Carbon Dioxide, Regular Foam, Dry Chemical

Special Fire Fighting Procedures: Fire may produce dense smoke, firefighters should wear self contained breathing apparatus. Use water to cool fire exposed containers.

Unusual Fire & Explosion Hazards: Decomposition and combustion by-products may be toxic. Heated containers may rupture or explode.

**SECTION 5 – REACTIVITY DATA**

Stability: Stable

Hazardous Polymerization: Will not occur.

Incompatibility: Avoid contact with oxidizing agents, heat, sparks or flame.

Hazardous Combustion By-Products: Carbon Monoxide, Sulfur Dioxide, Aldehydes, and Nitrogen Oxides

Hazardous Decomposition: Thermal decomposition may yield methacrylate monomers.

**SECTION 6 – STORAGE & HANDLING**

Handling Precautions: Use good personal hygiene practices. Clean contaminated clothing and protective equipment before reuse.

Storage Precautions: Store in a cool dry location. Keep container tightly closed when not in use and during transport. Keep away from open sparks or flames.

**SECTION 7 – HEALTH HAZARDS**

Effects of Overexposure:

- Skin: May Cause Irritation
- Eyes: Eye Irritant. May cause redness and Blurred vision.
- Ingestion: Not Expected
- Inhalation: Not Expected (Chronic respiratory diseases may be aggravated by dust exposure.)

NFPA CODES: Health: 1

Flammability: 0

Reactivity: 0

Carcinogenicity: Silica is a suspected carcinogen in a respirable form by the IARC and NTP however, not by the ACGIH or OSHA.

**SECTION 8 – SPECIAL PROTECTION**

Eye Protection: Safety Glasses or Face Shield

Protective Gloves: Recommended

Respiratory Protection: Avoid breathing dust, use an approved respirator if levels exceed OSHA limits.

Ventilation: Local ventilation to maintain levels within OSHA limits.

**SECTION 9 – SPILL AND DISPOSAL PROCEDURES**

Spill Procedures: Scrape or wipe up any spilled material. Wear proper protective equipment when cleaning up a spill.

Disposal Procedures: Dispose of in accordance with any applicable federal, state, or local laws.

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