

## Suggested Lubrication Practices

for TW25B Lubricant/Protectant on the

### M197 20mm Automatic Gun

(20mm 3-barrel Gatling)

TW25B is the preferred lubricant. TW25B is a light, semi-fluid grease that provides both lubrication and protection against corrosion. TW25B is available in a variety of packages to make application easier: bulk jar, grease gun cartridge, syringe (for precision placement), tube, and spray ("EP"). A companion product, MC3000, is a light, pourable/pumpable oil. Product descriptions and NSNs are listed on the last page.

#### Note

Before applying TW25B, the surface must be thoroughly cleaned: **all old oil and grease should be removed, the surface should be cleaned and free of oil residues**, and the surface should be dry. The EP spray can be used as needed on unpainted surfaces to quickly achieve effective corrosion protection.

#### SURFACE PREPARATION

The suggested method of preparation is:

- Clean with approved cleaning product
- Flush off all residue with isopropyl alcohol

#### APPLICATION

##### Conditions for applying TW25B

	Conditions	Thickness	Visibility After Application	Applicators
1	- very close tolerances - sand or dust environments	very light	white grease is <b>not visible</b>	brush, cloth, patch, spray
2	- heavy load bearing - salt/fresh water corrosion - heat or high speed - long-term storage	light to moderate	white grease is <b>slightly visible</b>	brush, cloth, syringe, spray
3	- bearings, gears, grease fittings - extended extreme load - marine exposure	heavy	white grease is <b>plentiful</b>	brush, caulk or grease gun, bearing packer

#### General

1. **After cleaning each part, spray with EP to Condition 1 for immediate corrosion protection.**
2. Apply additional TW25B to Condition 2 as needed on parts in contact, or that slide or mesh.
3. Apply additional TW25B to Condition 3 as needed on parts where heavy load and/or pressure is experienced.
4. Where sand and/or dust accumulations would impede functionality, wipe off excess with a cloth. (The cloth can be used to apply a light coat to exterior surfaces of other parts.)

### Specific Parts and Assemblies

**NOTE:** The high impact areas of the gun assembly are: the locking cam, unlocking cams, locking block (aft surface), and the gun rotor bolt locking surface. Pay particular attention to applying TW25B to these areas to Condition 3.

1. Split and thoroughly clean the gun upper and lower housings. Remove the locking cam, both forward and rear unlocking cams. With the housing separated, use the EP spray to apply a thin coat (Condition 1) of TW25B to the inside of the housing.
2. Spray the mating flanges, the tapped and through hole surfaces, and slot surfaces of the housing to provide corrosion protection (Condition 1). Wipe off excess with a clean rag.
3. Assemble upper and lower housings, and cams, coating all hardware threads with TW25B to Condition 2. Be sure to coat the sides of the main cam, the wear surfaces of the locking cam, and the unlocking cams with TW25B to Condition 2.
4. Use the EP spray to spray all surfaces of the gun rotor and the leaf spring set with a thin coat (Condition 1) to protect them against corrosion. In environments of high humidity, add a coating of MC2500 (Condition 2) to these surfaces.
5. During assembly, coat the rotor track surfaces that contact the bolt body with TW25B to Condition 2.
6. Apply TW25B to Condition 1 to the forward and aft gear teeth. Apply TW25B to Condition 3 to the rotor locking area that mates with the locking block.
7. Do **not** apply lubricant to the solenoid plunger or to the electrical core and connector.
8. Remove the main bearing rear seal. Clean and flush off old lubricant. Use the syringe to re-lubricate the main bearing, using about 0.25 to 0.5 ounces of TW25B (Condition 3). Apply lubricant to bearings visible in the area of aft and forward seals: spread the bearing races apart at the center to lubricate the balls, and rotate the races to work the lubricant in. Lubricate the needle bearings on the aft end of the rotor to Condition 3 with an acid brush and work the TW25B into the bearings.
9. Apply a light coat of TW25B to Condition 1 to all parts of the bolt assembly, including the bolt face. Add TW25B grease (Condition 3) to the aft locking block surfaces that interface with the gun rotor.
10. Apply a moderate coat of TW25B (Condition 2) to the top and bottom of the roller; work lubricant into the surfaces between the roller and the shaft.
11. Apply TW25B (Condition 1) to the barrel surface in the area where the dry film lubricant has been omitted. Do not apply lubricant in barrel chamber.
12. M-89 Feeder Gear: Apply TW25B (Condition 1) to the feeder gear and declutching knife blade. Apply TW25B (Condition 2) to the "T" rail link guide.

## REFERENCED PRODUCTS

The above instructions make reference to the following product packages:

	Mil-Comm Part Number	National Stock Number (NSN)
<b>TW25B Grease Packages</b>		
1.5 oz. Tube	TW25B-1SP11	9150-01-439-0859
4.0 oz. Tube	TW25B-4SP14	9150-01-439-1873
8 oz. Can	TW25B-1JSL16	9150-01-439-0858
16.9 fl. oz. (500 ml) EP Spray	TW25B-CA16EP	9150-01-448-2298
0.5 oz. Syringe	TW25B-1SY12	9150-01-448-2266
16 wt. oz. Cartridge, Zerk	TW25B-6NZ17	9150-01-439-0857
16 wt. oz. Cartridge, Caulk	TW25B-1NC17	9150-01-439-1864
<b>MC3000 Oil Packages</b>		
4 fl. oz. Squeeze Bottle, oil	MC3000-4BLP4	9150-01-475-3055
8 fl. oz. Squeeze Bottle, oil	MC3000-8BLP8	9150-01-475-3065
8 fl. oz. Jar, oil	MC3000-3JSL8	9150-01-475-3064
16 fl. oz. Bottle, oil	MC3000-3BLP16	9150-01-475-3067
128 fl. oz. (1 Gal) Jug, oil	MC3000-1GLP17	9150-01-475-3087

Mil-Comm offers other packaging; contact your local representative or the Defense Logistics Agency.

### Product Descriptions

**TW25B Lubricant/Protectant and MC3000 are non-toxic, non-flammable, non-corrosive, harmless to wood, plastic, rubber, and composites. EP spray contains flammable isopropyl alcohol.**

#### **TW-25B LIGHT GREASE**

TW25B-1SY12	SYRINGE	0.5 weight-ounce plastic syringe (14 grams). Designed for convenient application into small, recessed or otherwise hard to reach lubrication points, featuring a one inch, tapered plastic dispensing tip and a flow turn-off valve.
TW25B-1SP11	TUBE	1.5 weight-ounce plastic tube (43 grams) featuring a dispenser tip with a screw-on closure. Designed for individual, tool, or weapons maintenance kit.
TW25B-4SP14	TUBE	4 weight-ounce plastic tube (113 grams) having a dispenser tip with a screw-on closure. Designed for large tool or weapons maintenance kit.
TW25B-1JSL16	JAR	8 weight-ounce (227 grams) plastic jar featuring screw-on lid. Designed for shop or bench use.
TW25B-1NC17	CARTRIDGE	16 weight-ounce (454 grams) plastic caulk cartridge for larger lubrication points WITHOUT grease fittings.
TW25B-6NZ17	CARTRIDGE	16 weight-ounce (454 grams) cardboard ZERK cartridge for lubrication points WITH grease fittings.
TW25B-CA16EP	COMPRESSED-AIR PRESSURIZED SPRAY CAN ("EP") (NON-AEROSOL)	16.9 fluid-ounce (500 ml) non-aerosol pressurized aluminum EP spray can designed for convenient spray application into recessed or hard to reach points, and for quick application of initial corrosion protection layer. Features an angular extended nozzle with fingertip pushbutton actuator.  The EP spray contains isopropyl alcohol, which helps to loosen and flush residues and distribute the TW25B.

#### **MC-3000 OIL**

MC3000-4BLP4	SQUEEZE BOTTLE	4 fluid-ounce plastic squeeze bottle.
MC3000-8BLP8	SQUEEZE BOTTLE	8 fluid-ounce plastic squeeze bottle.
MC3000-3JSL8	JAR	8 fluid-ounce plastic jar.
MC3000-3BLP16	BOTTLE	16 fluid-ounce plastic bottle.
MC3000-1GLP17	JUG	1 Gallon (3.785 liters) plastic pouring jug.