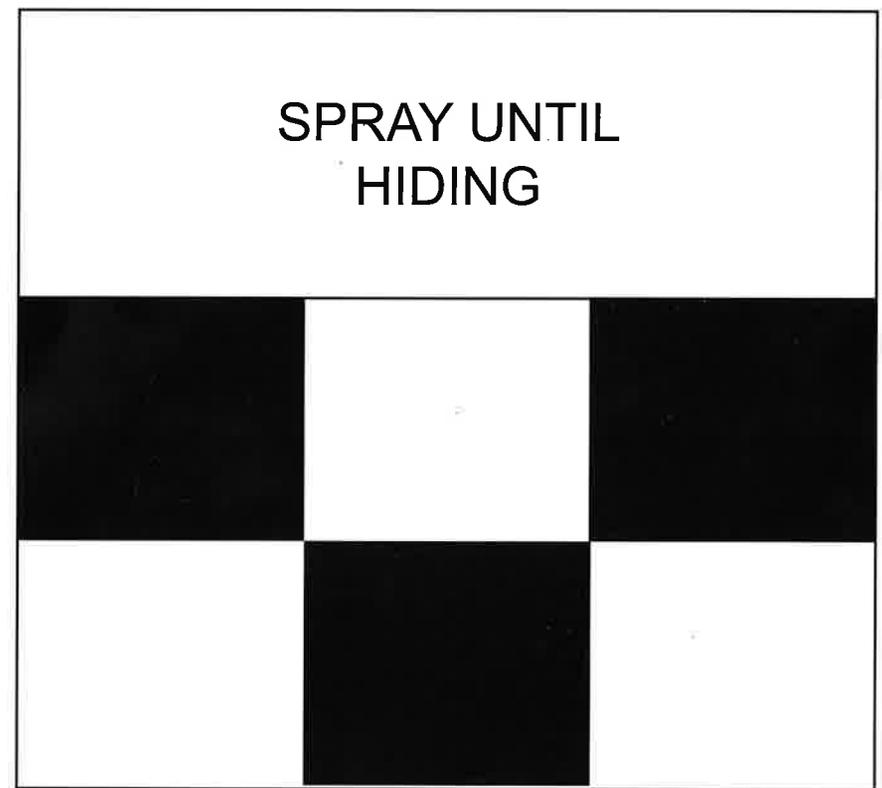
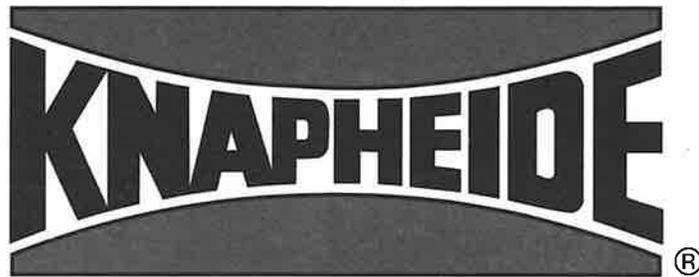




SINCE 1848

Color Check Card





SERVICE BODY, CRANE BODY, LINE BODY, KNAP KAP, KNAP PACK, KUV, TOOL BOX AND WESTERNER STORAGE BODY PRODUCTS PAINTING INFORMATION

This document contains important information on how to prepare and topcoat Knapheide Service Bodies, Crane Bodies, Line Bodies, Knap Kaps, Knap Packs, KUVs and Westerner Storage Bodies. These steel products have a multi-coat primer system which utilizes PPG's Electrodeposited Epoxy Coating. The system is designed to enhance quality in terms of adhesion and corrosion resistance.

Roughneck Tool Boxes are primed with a high solids Urethane and finish coated with an Acrylic Urethane topcoat. It is important to follow the procedures outlined below when changing the color of a Roughneck tool box to insure the quality of the coating.

SURFACE PREPARATION & TOPCOATING

It is important that the procedures outlined below are followed to properly prepare the surface and topcoat Knapheide products.

1. Degrease the body or tool box with PPG DX330 or DX440 or equivalent (e.g. Sikkens M600, DuPont PrepSol).
2. Sanding is required before topcoating a Knapheide body or changing the color on a Roughneck tool box. Avoid breathing sanding dust. Appropriate respiratory protection is recommended. Dry sand the body with #320 grit sandpaper using a DA sander. Dry sand the Roughneck Tool box with #280 grit sandpaper using a DA sander. Do not sand through the primer coat and expose the bare metal. Blow off body to remove dust.
3. The primer/topcoat is applied at the optimum thickness at the factory. However, if the body has a blemish, paint run or other imperfection, lightly sand the affected area with a DA sander

using #320 grit sandpaper. Do not sand to bare metal. Should this occur, see steps 4 and 5.

4. If break through to bare metal occurs, degrease the area with PPG DX330 or DX440 or equivalent (e.g. Sikkens M600, DuPont Prep Sol). Then apply one coat of PPG DPLF Epoxy Primer or equivalent (e.g. Sikkens or DuPont Epoxy Primer).
5. On primed areas, allow 30 minutes flash before applying topcoat. If the entire body has been reprimed, follow the paint manufacturer's recommendation for topcoating.
6. Do not topcoat the body when moisture is present in the primer film. The body should be thoroughly dry before topcoating.
7. Do not apply topcoat to a cold body. The metal temperature should be between 70 and 90 degrees Fahrenheit. The topcoat temperature should be similar to the metal temperature.
8. Do not apply topcoat in excess of the recommended thickness. Heavy coating will result in undesired appearance and performance.
9. Follow the topcoat paint manufacturer's recommendation for application and film thickness to achieve proper opacity.
10. Compartment interiors are repainted and should not require further painting. However, if compartment interior repaint is required, all interior areas should be sanded with #320 grit sandpaper prior to painting.

SUGGESTIONS FOR STAINLESS LATCHES

It is recommended that stainless steel latches always be removed from the door prior to painting the door. Removal of the latch allows paint to be applied under the latch for improved corrosion resistance.

Riveted latches can be removed by removing the temporary fasteners installed at the factory. After painting is completed, the latches are to be attached with stainless rivets.

Rivetless latches can be removed by removing the attaching nuts from the back side of the latch. After painting is completed, the latches can be reinstalled on the door by reinstalling the nuts and applying a torque of 25 to 30 in-lbs.

longer be seen and are completely hidden by the topcoat, opacity has been reached. At opacity, the film build will be adequate for the color being used. Keep track of the number of coats required to achieve opacity and be sure all areas of the body receive the same number of coats.

SUGGESTIONS FOR APPLYING TOPCOAT AROUND DOORS

1. Close door to first position of striker (safety catch).
2. Apply topcoat behind door to cover door overlap area.
3. Wipe excess topcoat off door seals by using paint thinner on soft cloth.

APPROVED TOPCOAT PAINT FINISHES

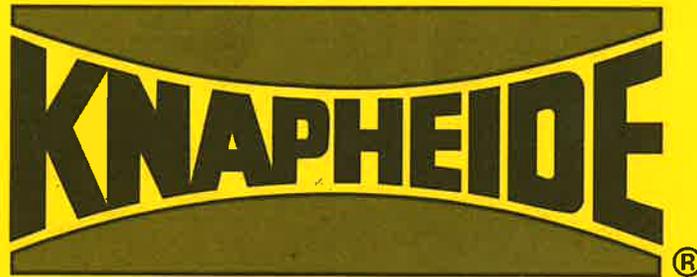
The topcoat paint finishes listed below have been tested and approved for use with the Knapheide primers. Other topcoats not listed below may also be compatible with the Knapheide primer, but have not been tested.

- PPG Delta (DFHS) Urethane
- PPG Concept DCC Acrylic Urethane
- PPG Delfleet Evolution Polyurethane
- PPG Deltron Urethane *
- AKZO/Sikkens Autocoat LV Urethane
- AKZO/Sikkens Autocryl Acrylic Urethane
- AKZO/Sikkens Autobase with Autoclear (proper surface preparation is critical)
- Sherwin-Williams Sunfire 421 with Sunfire 421 Acrylic Urethane Hardener
- DuPont Imron Polyurethane Enamel with DuPont Imron Polyurethane 192 S Activator
- DuPont Centari (with hardener)
- DuPont Chromabase (proper surface preparation is critical)

* If Deltron topcoat is used, the entire body must be reprimed with PPG DPLF Epoxy primer or DEP 351 3.5 Epoxy primer to insure topcoat adhesion.

OPACITY STICKER INSTRUCTIONS

1. Using masking tape, place the sticker behind the bottom edge of the side compartment such that the black and white squares will be coated with paint when the side compartment is being painted.
2. While applying the coats of paint, note the black and white squares. When the squares can no



SINCE 1848

**SERVICE BODY, CRANE BODY, LINE
BODY, KNAP KAP, KNAP PACK,
KUV, TOOL BOX AND WESTERNER
STORAGE BODY PRODUCTS**

**OPERATOR'S MANUAL
AND
MAINTENANCE INSTRUCTIONS**

**THE KNAPHEIDE MANUFACTURING COMPANY
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<http://www.knapheide.com>
knapheide@knapheide.com**

12-30-710-4
ECO 17395 1/14

Product Warranty - Six Years with Unlimited Mileage

The Knapheide Manufacturing Company (hereinafter referred to as "KMC") guarantees the Knapheide Service Body, KUV Body, KSV Body, KSS Body, Crane Body, Line Body, Westerner Body, Knap Kap, Knap Pack and Tool Box sheet metal components will not "rust-through" as defined below. Standard door hinges, door latches and lock cylinders are guaranteed not to fail to operate due to a mechanical failure. Compartment shelving is guaranteed not to bend under the rated load of 250 pounds.

Product Warranty - Three Years or 36,000 Miles, Whichever Occurs First

KMC guarantees the Knapheide Service Body, KUV Body, KSV Body, KSS Body, Crane Body, Line Body, Westerner Storage Body, Knap Kap, Knap Pack, Tool Box, Platform Body, Gooseneck Platform Body, Landscaper Body, Heavy Drop Side Contractor Body, Dump Body, Forestry Body and Water Truck Body to be free from defects in material and and/or workmanship for a period of three years or 36,000 miles, whichever occurs first. KMC guarantees the Platform Body, Gooseneck Platform Body, Landscaper Body, Heavy Drop Side Contractor Body, Dump Body, Forestry Body and Water Truck Body will not "rust-through" for a period of three years or 36,000 miles, whichever occurs first.

Warranty Coverage Duration and Limitation

The warranty period begins on the date of purchase by the end-user, or one year from the date the product is shipped from KMC, whichever occurs first. This warranty is valid for product shipped from KMC after January 1, 2011 and still mounted upon the chassis it was originally installed, as solely determined by KMC. KMC will pay the cost of material and labor to repair or replace the defective product and reserves the sole right to inspect product claimed for warranty and determine the best course of action to remedy the warranty claim.

Exclusions from Warranty

1. Product not installed by an authorized KMC distributor or agent.
2. All accessions (additions, add-on attachments, etc.) to the product not manufactured by KMC.
3. All product repairs, modifications and alterations performed without written authorization of KMC.
4. Products exhibiting damages or fatigue fractures due to accident, misuse, abuse, neglect, overloading, improper installation, severe off road applications or twisting loads induced by cranes or aerial devices.
5. Products not maintained per operator's manual.
6. Products sold by KMC but not manufactured by KMC (i.e. cranes, aerial lifts, lift gates, generators, compressors, pumps, hydraulic or pneumatic reservoirs etc.) Note: These products are covered exclusively by the product manufacturer's warranty in effect at the time of delivery, if any.
7. Paint, decals, or any finish (collectively "finish") not applied by KMC. Finish deterioration caused by chemical reactions including, but not limited to, acid rain, industrial fallout or improper cleaning materials. Provided, however, that as limited above, KMC warrants the product finish applied by KMC for one year from the beginning of the warranty period.
8. "Rust-through" of products for which the finish was not applied by KMC or an authorized agent, or where the product was used to transport corrosive materials. Note: "rust-through" is defined as corrosion that has created a hole through the metal.
9. Products purchased or used outside the U.S.A. and Canada.

KNAPHEIDE HEREBY DISCLAIMS AND EXCLUDES ANY OTHER EXPRESS, IMPLIED, OR STATUTORY WARRANTIES, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Limitations of Liability

UNDER NO CIRCUMSTANCES, WHETHER IN CONTRACT, TORT, OR OTHERWISE, SHALL KMC OR ITS AFFILIATE OR SUBSIDIARY COMPANIES, OR THEIR RESPECTIVE DIRECTORS', OFFICERS', SHAREHOLDERS', EMPLOYEES' OR AGENTS' (HEREINAFTER COLLECTIVELY "KNAPHEIDE") TOTAL LIABILITY ARISING IN CONNECTION WITH THE PRODUCT EXCEED THE AMOUNT OF THE PROCEEDS RECEIVED BY KNAPHEIDE PURSUANT TO ANY CONTRACT OF SALE OR PURCHASE ORDER.

UNDER NO CIRCUMSTANCES, WHETHER IN CONTRACT, TORT, OR OTHERWISE, SHALL KNAPHEIDE BE LIABLE FOR LIQUIDATED, SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES, EXPENSES, OR COSTS, INCLUDING, WITHOUT LIMITATION, LOST PROFITS, HOWSOEVER CAUSED AND EVEN IF THE POTENTIAL OF SUCH DAMAGES WAS DISCLOSED AND/OR KNOWN.

How to Apply for Warranty Coverage

All claims may be handled by contacting your nearest Knapheide Distributor or by contacting The Knapheide Manufacturing Product Support Center.

A list of Knapheide Distributors can be found at www.knapheide.com

Product Support Center E-mail productsupport@knapheide.com

Product Support Center Phone 217.592.5233

CARE AND MAINTENANCE

Proper care and maintenance of your new Knapheide product will assure many years of service. Follow the manufacturer's recommendations below to assure validity of your warranty.

Cleaning

To maximize the life of your new Knapheide product, wash it using non-abrasive cleaners at least monthly or more frequently if required. Wax all exterior surfaces annually.

Mounting Bolts

All fasteners used to attach the product or mounting brackets to the chassis should be checked for proper torque approximately 90 days after the vehicle is put into service and annually or every 10,000 miles thereafter. The proper torque is 150 ft-lbs. for .62" diameter bolts, 115 ft-lbs. for .50" diameter bolts and 45 ft-lbs for .38" bolts. The proper torque for 14 mm bolts used to attach the front of a service body to 2001 and later GM 60" and 84" CA models is 100 ft-lbs.

U-bolts are used on some service body models to attach the front of the service body to the chassis frame. The nut next to the u-bolt tie should be torqued to 20 ft-lbs, and the jam nut should be torqued to 45 ft-lbs.

Adjustment of Door Lockstrike

The lockstrikes used with rotary latches are adjustable in the vertical direction and in the in-out direction. The lockstrikes are properly adjusted vertically when the .25" diameter lockstrike is centered in the cam slot of the latch, and the door opens and closes freely. The lockstrikes are properly adjusted in the in-out direction when the door is tight against the door seal and the latch closes freely to the second stage, leaving the first stage to function as a safety catch. It is important to center the lockstrike in the cam slot so the latch does not bind when the body is in a twisted condition (see Figure 1 reference below). All checking and adjusting must be done with the truck on a level surface so that the body is not in a twisted condition.

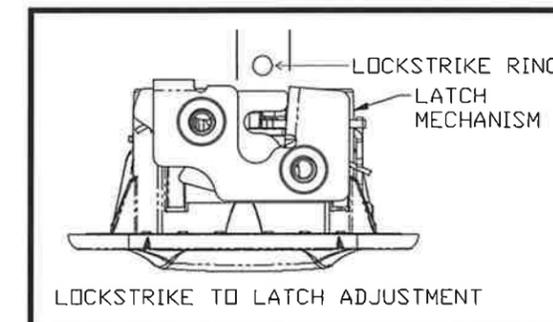


Figure 1

To adjust rotary latch lockstrike, loosen the two attaching Torx screws slightly with a #27 Torx Driver. Move the lockstrike to the desired position. Visually check for proper alignment by observing the position of the lockstrike relative to the cam slot as the door is closing. Readjust the lockstrike if necessary, and repeat the check. After the lockstrike is properly adjusted, torque the Torx drive screw to 90 in-lbs.

Rivetless Door Latch Removal

Rivetless door latches can be removed from the door as follows:

Stainless steel latch (Figure 1) – On the rear cage assembly remove 3 nyloc nuts using a 7/16" nut driver. Reinstall the latch by reversing the process and torquing the nuts 25 to 30 in-lbs.

Nylon composite latch (Figure 2) – On the rear cage assembly remove 4 torx screws using a T25 torx bit. Reinstall latch by reversing the process and torquing the screws 35 to 40 in-lbs.



Figure 1

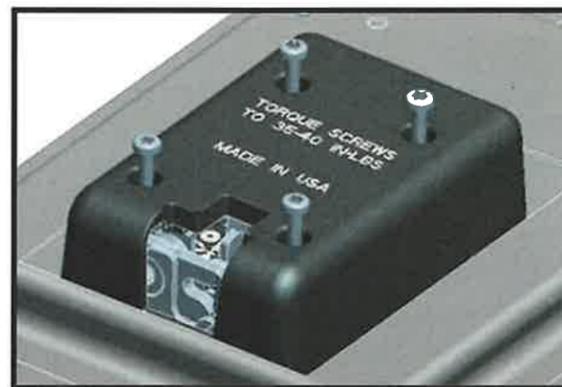


Figure 2

LUBRICATION INSTRUCTIONS

Lubrication – Nylon composite Latch family pictured below introduced in 2014

Rotary latch – The rotary latch mechanism is maintenance free and requires no lubrication throughout its life in service.

2-point latch (KUV/KC rear door) – The 3 pivot points of the latch should be lubricated twice a year using 3M Part No. 08875 Lithium Lube, (heavy bodied white grease) or equivalent. An aerosol can, with a spray nozzle attachment, will make it easier to get the grease in the proper areas. Use a Torx 27 bit to remove screw securing cover plate and set plate aside. Lubricate the 3 pivot points as indicated by the arrows in Figure 1. Reinstall cover plate. *Note: Latch rear cover removed for illustration purposes and removal of the cover is not required to lube the latch mechanism.* If operational efforts increase over time, spray rod guides inside door top and bottom (Figure 3) with white lithium grease and wipe rod ends.

Lock Cylinders – The lock cylinders should be lubricated twice annually (or as required) using Tri-Flow Superior Lubricant. Using either aerosol or liquid form, insert straw tip through shutter opening and apply lube as shown in figure 2.

Do not use WD 40 or similar products to service Knapheide components.



Figure 1



Figure 2



Figure 3

Lubrication of Other Door Latches

Prior to the nylon composite style latch, various steel rotary latches were used on Knapheide products (both riveted style and rivetless style). These should be lubricated twice a year using 3M Lithium Lube, Part No. 08875 (heavy bodied white grease) or equivalent. An aerosol can with a spray nozzle attachment will make it easier to get the grease in the proper areas. Lubricate the cam surface and pivot point outlined in the illustration in Figure 1.

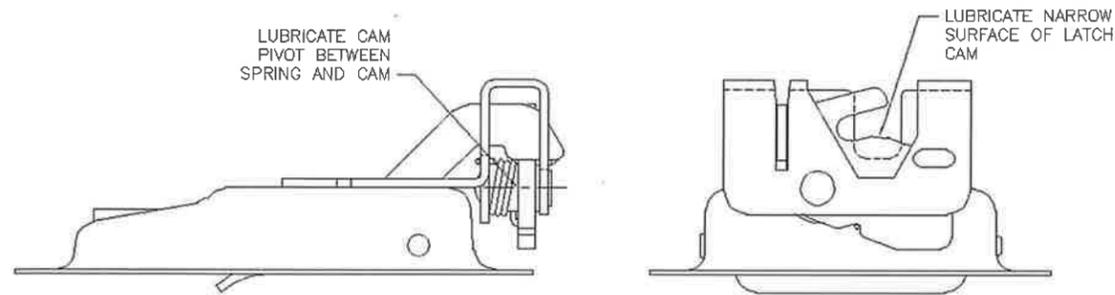


Figure 1

The paddle latches used on Knapheide products should be lubricated twice a year using 3M Lithium Lube, Part No. 08875 (heavy bodied white grease) or equivalent. An aerosol can with a spray nozzle attachment will make it easier to get the grease in the proper areas. Lubricate the bolt cavity as shown in the illustration in Figure 2.

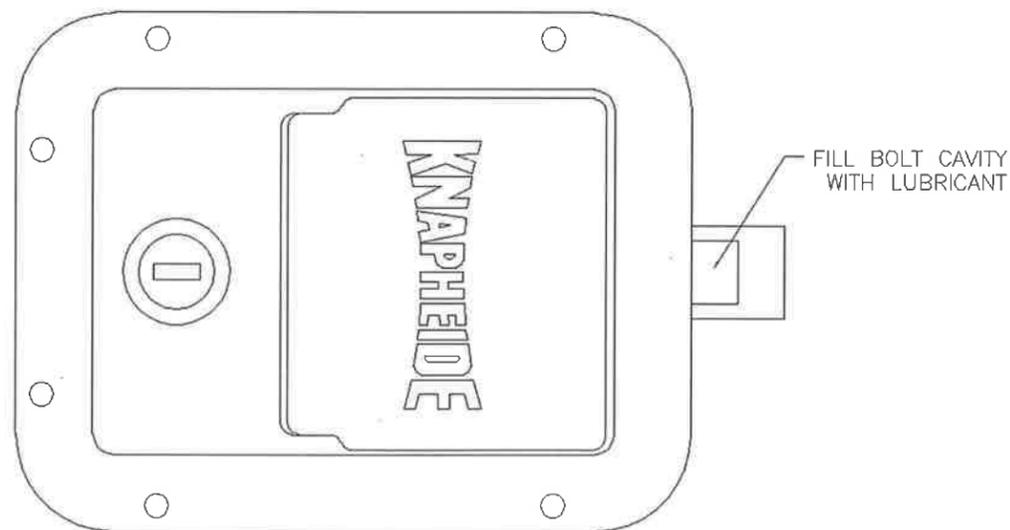


Figure 2

Lubrication of Lock Cylinders

All other locksets - The lock cylinders should be lubricated twice a year using graphite powder that is available in squeeze applicators.

Lubrication of Spring Loaded Door Holders

Lubricate the spring loaded door holders twice a year using 3M Lithium Lube, Part No. 08875 (heavy bodied white grease) or equivalent. An aerosol can with spray nozzle attachment will make it easier to get the grease in the proper areas. Lubricate the rod and pivot point outlined in the illustration in Figure 3.

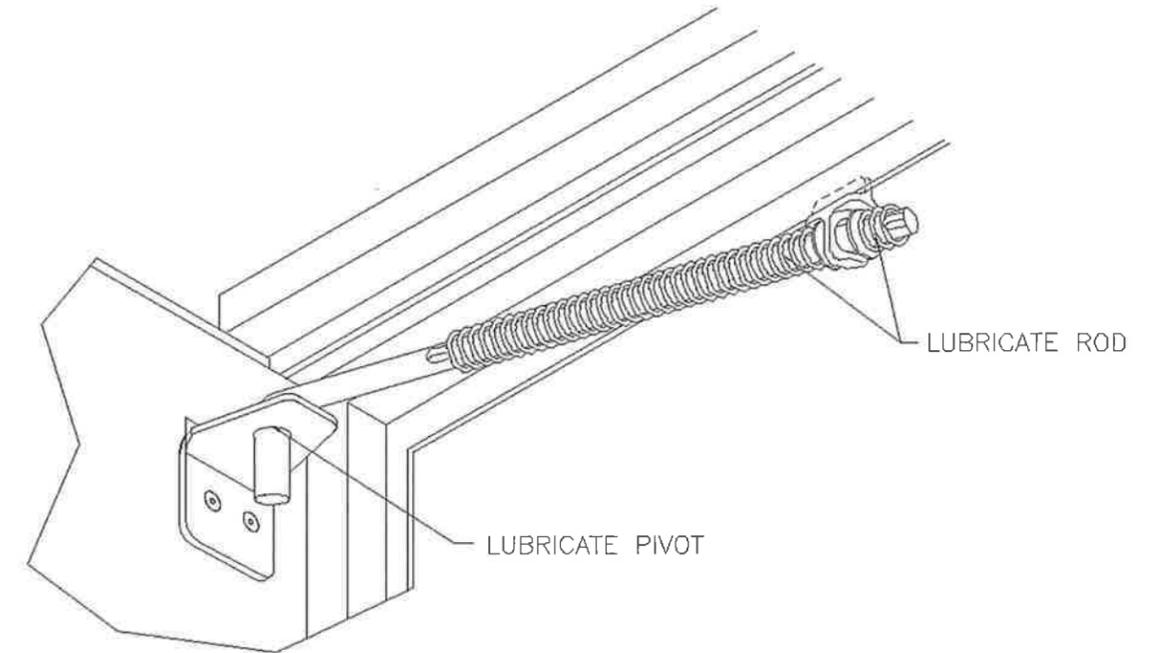


Figure 3

Lubrication of Hinges

The door hinges should be lubricated twice a year using 3M Lithium Lube, Part No. 08875 (heavy bodied white grease) or equivalent. An aerosol can with spray nozzle attachment will make it easier to get the grease in the proper areas.

Do not lubricate the door hinges with WD 40 or similar penetrating lubricants.



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