

**TOSHIBA INTERNATIONAL CORPORATION**  
**Industrial Division / Houston Motor Plant**

**Motor Operation Procedure**

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SHEET No.	1 of 5
ISSUED	11/04/2014
SUPERSEDES	4/29/2013
REVISION	3
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APPROVED BY	<i>J. Bugbee</i>
REVISED BY	R. Roth

REFERENCE USE ONLY WHEN ISSUED BY MOTOR MKTG.

**Motor Re-Lubrication**

Dist Mktg.  
QC

**1. SCOPE**

To give the recommended guidelines for electric motor relubrication.

**2. START UP**

Toshiba motors are properly greased at the time of manufacture. It is recommended that motors which have been stored for a period of six months or more be relubricated prior to starting (See Table 1 ) using a standard hand held grease gun. (Typically, low pressure hand held grease guns deliver approximately 1.25 grams/pump.)

Frame Size	Quantity of Pumps
143-256	2 to 3 strokes
284-405	4 to 5 strokes
444 and larger	6 to 10 strokes

**Table 1: Recommended relubrication quantity for stored motors**

Relubrication of electric motors should be part of a planned maintenance program.

Make sure grease nipples are clean and free from dirt before regreasing. Always use grease that is fresh and free from contamination.

Toshiba motors may be equipped with an automatic grease relief fitting, a grease plug or a grease outlet cover plate.

Grease leakage around the shaft hole could indicate over-packing. Excess grease should be purged by operating the motor temporarily with the relief open.

It may be necessary to remove an automatic grease relief fitting due to hardening of grease. Motors utilizing a grease plate may require that old grease be scrapped out a minimum of once every two years.

**3. STANDARD SERVICE**

1. Select the proper service condition from Table 2.
2. Select the frequency from Table 3 for horizontal motors or Table 4 for vertical motors.
3. Select the volume from Table 5 for horizontal motors or Table 6 or 7 for vertical motors.
4. Before greasing make sure fittings are clean and free from dirt.
5. Remove relief plug or plate and pump the required amount of grease using a low pressure hand held grease gun.

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6. It is important that the machine be relubricated while it is running. Allow the motor to run with the grease outlets open for the following recommended time periods before replacing hardware;
- 143T to 365T - 20 to 30 minutes
  - 405T and larger - 30 to 60 minutes
7. Used grease may not always come out of the grease outlet when new grease is pumped in. Use the recommended volumes to avoid over-greasing.

Service Conditions	
<b>Standard Duty</b>	Eight hours per day. Light to normal loading. Clean condition, free from dust.
<b>Severe Duty</b>	24 hours per day. Light to normal shock loading, vibration. Exposure to dirt or dusty conditions.
<b>Very Severe Duty</b>	24 hours per day. High ambient temperature. Normal to high shock loading, vibration. Dusty conditions. Confined mounting conditions. Reduce Severe Duty interval by 1/3.

**Table 2: Description of Service Conditions**

Sync. RPM Range	Frame Size	Type of Service	
		Standard Duty	Severe Duty
3600 - 3000 1800 - 750	143 - 256	8 mo	4 mo
		30 mo	12 mo
3600 - 3000 1800 - 750	284 - 365	8 mo	4 mo
		24 mo	12 mo
3600 - 3000 1800 - 750	404 - 5811	8 mo	4 mo
		18 mo	8 mo

**Table 3: Horizontal Motor Lubrication Schedule**

Sync. RPM Range	Frame Size	Type of Service	
		Standard Duty	Severe Duty
3600 - 3000 1800 - 750	180 - 250	8 mo	4 mo
		30 mo	10 mo
3600 - 3000 1800 - 750	280 - 360	8 mo	3 mo
		24 mo	8 mo
3600 - 3000 1800 - 750	400 - N449	4 mo	2 mo
		18 mo	6 mo

**Table 4: Vertical Motor Lubrication Schedule**

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Frame Range	Bearing Size	Periodic Grease Amount
143 to 256	6205 / 6206	3 grams
	6207 / 6208 / 6305	5 grams
	6306	10 grams
	6308 / 6309	20 grams
284 to 365	6211	10 grams
	6309	20 grams
	6310 / 6312	30 grams
	6314	50 grams
404 to 5811	6216	20 grams
	6313/NU313 /NU317	30 grams
	NU318 / NU320	50 grams
	6317 / 6318	80 grams
	6320 / 6322 / 6324	80 grams
	NU322 / NU324	80 grams
	NU328 / NU228	100 grams

**Table 5: Horizontal Motor Bearing Relubrication Volumes**

Frame Range	Bearing Size	Periodic Grease Amount
180HP	6306	7 grams
210HP to 280HP	6308	10 grams
	6309	13 grams
320HP to 360HP	6310	15 grams
	6311	17 grams
400HP to N449HP	6312	20 grams
	6313	23 grams
	6314	26 grams
	6315	30 grams
	6318	41 grams

**Table 6: Vertical Motor Bearing Relubrication Volumes**

Frame Range	Bearing Size	Periodic Grease Amount
180LP	7306B	14 grams
210LP to 280LP	7308B	21 grams
	7309B	25 grams
	7310B	30 grams
320LP to 360LP	7311B	35 grams
	7312B	40 grams
400LP to N449LP	7313B	46 grams
	7314B	53 grams
	7315B	56 grams
	7318B	82 grams

**Table 7: Vertical Motor Angular Contact Bearing Relubrication Volumes**

**Notes:**

1. When relubricating roller bearings divide the monthly service time by two.
2. See Table 2 for definitions of Service Conditions
3. Gram quantity when using a typical low pressure hand grease gun is approximately 4 pumps for 5 grams.

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#### 4. RECOMMENDED GREASES

Confirm if the motor nameplate has specified the grease used.

Standard, 840 and 841 motors greased at the factory will use:

Grease Name:	Mobil Polyrex EM or equivalent
Manufactured By:	Exxon Mobil Corporation
Operating Ambient Temp.:	-30°C to 50°C

#### 5. RECOMMENDED GREASES FOR STANDARD APPLICATIONS

Use the following greases listed for the given temperature range, unless otherwise indicated on the motor grease nameplate:

<b>Operating Ambient Temp. -30°C to 50°C</b>	
Chevron SRI	Chevron Products Co.
Exxon Unirex N 2	Exxon Mobil Corp.
Polyrex EM	Exxon Mobil Corp.
Shell Dolium R	Shell Oil Co.
Mobilith SHC 100	Exxon Mobil Corp.

#### 6. RECOMMENDED GREASES FOR SPECIAL APPLICATIONS

The following greases recommended for special applications only and should be used only for motors specifically built for such conditions.

<b>Minimum Ambient Temp. -60°C</b>	
Beacon 325	Exxon Mobil Corp.
<b>Maximum Ambient Temp. 90°C</b>	
Dow Corning 44	Dow Corning Corp.
Unirex S 2	Exxon Mobil Corp.
Triton 460	ConocoPhillips Co.
Mobilith SHC 460	Exxon Mobil Corp.

**WARNING:** In general it is not recommended to mix greases of different brands. The mixing of different types of thickeners may destroy the composition and physical properties of the grease. In the event that a different grease is required by the end user, the following steps can be taken; using the instructions for lubrication, open grease outlet and purge the system as much as possible of the old or unwanted grease. Repeat this same operation after 1 week of service. Consult TOSHIBA/HOUSTON Engineering for further recommendations on grease compatibility.

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**REVISION HISTORY**

<b>REV No.</b>	<b>DATE</b>	<b>BY</b>	<b>DESCRIPTION</b>
0	01/24/1996	I. Marquez	First Issue
1	07/31/2008	S. Johnson	Added Vertical Motor Relubrication Schedule Updated list of recommended greases
2	4/29/2013	R. Roth	Change Std. Grease from Chevron SRI and Include Frame Sizes to 5811.
3	11/04/14	MCA	Remove Very Severe Duty column and add 1/3 interval statement in the service conditions table.