

## **2100, 4100, 6100 Series Bottom Mount Drive Package for Standard Load Parallel Shaft 60 Hz Gearmotors**



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# Warnings – General Safety

	<b>WARNING</b>	
<p>The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.</p>		

		<b>WARNING</b>
<p>Gearmotors may be HOT. <b>DO NOT TOUCH</b> Gearmotors.</p>		

		<b>DANGER</b>
<p>Climbing, sitting, walking or riding on conveyor will cause severe injury. <b>KEEP OFF CONVEYORS.</b></p>		

		<b>WARNING</b>
<p>Exposed moving parts can cause severe injury. <b>REPLACE ALL GUARDS BEFORE RUNNING CONVEYOR.</b></p>		

		<b>DANGER</b>
<p>Do NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.</p>		

		<b>WARNING</b>
<p>Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.</p> <p>When conveyors are used in conjunction with other equipment or as part of a multiple conveyor system, <b>CHECK FOR POTENTIAL PINCH POINTS</b> and other mechanical hazards before system start-up.</p>		

		<b>WARNING</b>
<p>Exposed moving parts can cause severe injury. <b>LOCK OUT POWER</b> before removing guards or performing maintenance.</p>		

## Introduction

**IMPORTANT:** Some illustrations may show guards removed. Do NOT operate equipment without guards.

Upon receipt of shipment:

- Compare shipment with packing slip. Contact factory regarding discrepancies.
- Inspect packages for shipping damage. Contact carrier regarding damage.
- Accessories may be shipped loose. See accessory instructions for installation.

Dorner 2100 Series conveyors are covered by the following patent numbers: 5131529, 5174435, and corresponding patents and patent applications in other countries.

Dorner 4100 Series conveyors are covered by patent number 3923148 and corresponding patents and patent applications in other countries.

Dorner 6100 Series conveyors are covered by patent number 5174435 and corresponding patents and patent applications in other countries.

Dorner's Limited Warranty applies.

Dorner reserves the right to make changes at any time without notice or obligation.

# Product Description

Refer to Figure 1 for typical components.

Typical Components	
A	Conveyor
B	Mounting Bracket
C	Gearmotor
D	Timing Belt Tensioner
E	Cover
F	Timing Belt
G	Drive Pulley
H	Driven Pulley

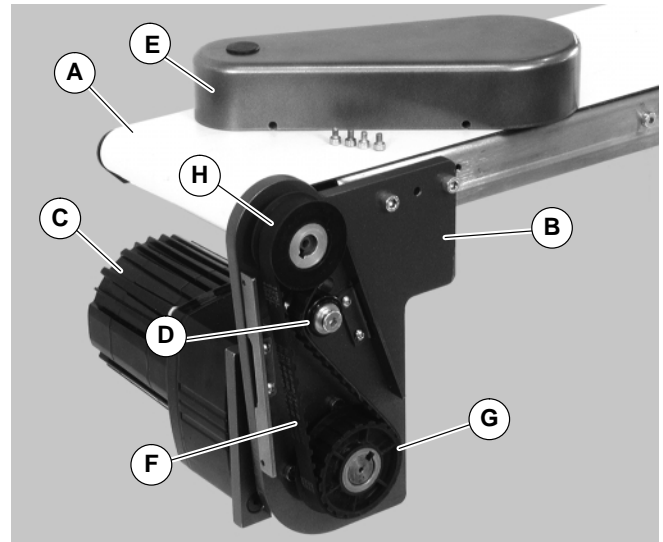


Figure 1

# Specifications

## Gearmotor Mounting Package Models:

Example:

**2 M B P S WW A - 32 32**

- 2 = 2100 Series Conveyor
- M = 4100 Series Conveyor
- B = 6100 Series Conveyor
- P = Standard Load
- S = Industrial
- WW = Parallel Shaft
- A = Mount Position (see detail to the right)
- 32 = Drive Pulley (see Table 2 & 3)
- 32 = Driven Pulley (see Table 2 & 3)

Belt Type (- = flat belt, A through J = cleated belt)

Mount Position = A, B, C or D (see detail to the right)

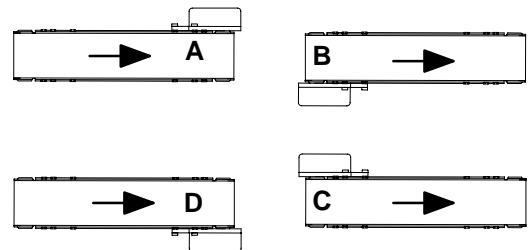
Conveyor Width Reference\*

Gearmotor Type = Standard Load, Industrial

Output Shaft Type = Parallel Shaft

Mount Style = Bottom Mount

Language Code = U.S. English



\* See "Ordering and Specifications" Catalog for details.

Table 1: Gearmotor Specifications

	Single Phase	Three Phase	DC Variable Speed
Output Power	0.17 hp (0.13 kw)		0.25 hp (0.19 kw)
Input Voltage	115 Volts A.C.	230 Volts A.C.	130 Volts D.C.
Input Frequency	60 Hz		N/A
Input Current	1.9 Amperes	1.2 Amperes	1.8 Amperes
Motor RPM	1725		2500
Gearmotor Ratios	5:1, 10:1, 20:1, 30:1, 60:1, 180:1		
Motor Type	Totally enclosed, Fan-cooled		Totally enclosed, Non-ventilated

# Specifications

**Table 2: Belt Speeds for Standard Load Fixed Speed Parallel Shaft 60 Hz Gearmotors**

Gearmotors				Belt Speed		Drive Pulley	Driven Pulley
Part Number	RPM	In-lb	N-m	Ft/min	M/min		
62M180PS411F(n)	10	341	38.5	2	0.6	22	32
62M180PS411F(n)	10	341	38.5	3	0.9	32	32
62M180PS411F(n)	10	341	38.5	4	1.2	48	32
62M060PS4(vp)F(n)	29	270	30.5	5	1.5	19	32
62M060PS4(vp)F(n)	29	270	30.5	8	2.4	32	32
62M060PS4(vp)F(n)	29	270	30.5	12	3.7	48	32
62M030PS4(vp)F(n)	58	135	15.3	16	4.9	32	32
62M020PS411F(n)	86	90	10.2	25	7.6	32	32
62M020PS411F(n)	86	90	10.2	37	11.3	48	32
62M010PS4(vp)F(n)	173	45	5.1	49	14.9	32	32
62M010PS4(vp)F(n)	173	45	5.1	74	22.6	48	28
62M005PS411F(n)	345	25	2.8	99	30.2	32	22
62M005PS411F(n)	345	25	2.8	148	45.1	48	22
62M005PS411F(n)	345	25	2.8	169	51.5	48	28
62M005PS411F(n)	345	25	2.8	197	60.0	44	22
62M005PS411F(n)	345	25	2.8	215	65.5	48	22
62M005PS411F(n)	345	25	2.8	249	75.9	48	19

(vp) = voltage and phase  
 11 = 115 V, 1-phase  
 23 = 230V, 3-phase

(n) = reversing capability  
 N = no reversing switch  
 R = with reversing switch  
 (115V, 1 phase only)

**Table 3: Belt Speeds for Standard Load Variable Speed Parallel Shaft DC Gearmotors**

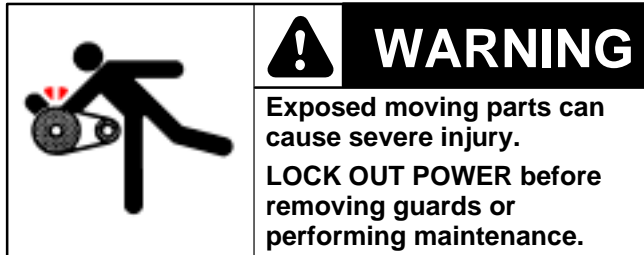
Gearmotors				Belt Speed		Drive Pulley	Driven Pulley
Part Number	RPM	In-lb	N-m	Ft/min	M/min		
62M180PSD3DEN	14	341	38.5	0.3 – 2.7	0.1 – 0.8	22	32
62M180PSD3DEN	14	341	38.5	0.5 – 4.0	0.1 – 1.2	32	32
62M060PSD3DEN	42	270	30.5	0.8 – 7.0	0.3 – 2.2	19	32
62M060PSD3DEN	42	270	30.5	1.4 – 12	0.4 – 3.6	32	32
62M030PSD3DEN	83	135	15.3	2.9 – 24	0.9 – 7.3	32	32
62M020PSD3DEN	125	90	10.2	4.3 – 36	1.3 – 11	32	32
62M010PSD3DEN	250	72	8.1	9.0 – 71	2.6 – 22	32	32
62M005PSD3DEN	500	25	2.8	17 – 143	5.2 – 43	32	32
62M005PSD3DEN	500	25	2.8	26 – 214	7.8 – 65	48	32
62M005PSD3DEN	500	25	2.8	29 – 245	9.0 – 75	48	28

**NOTE: For belt speed other than those listed, contact factory for details.**

## Required Tools

- Hex key wrenches:  
2 mm, 2.5 mm, 3 mm, 5 mm
- Straight edge
- Torque wrench

## Mounting



Installation Component List	
I	Bottom Mount Assembly
J	Drive Pulley
K	Cover
L	M4 Socket Head Screws (4x)
M	Driven Pulley
N	Key
O	M6 Socket Head Screws (2x)
P	Timing Belt

**NOTE:** Gearmotor position on Flat Belt conveyor shown below left (Figure 2). Gearmotor position on Cleated Belt conveyor shown below right (Figure 2).

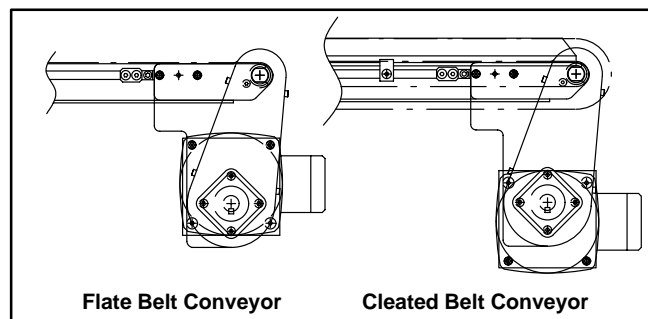


Figure 2

## 1. Typical components (Figure 3)

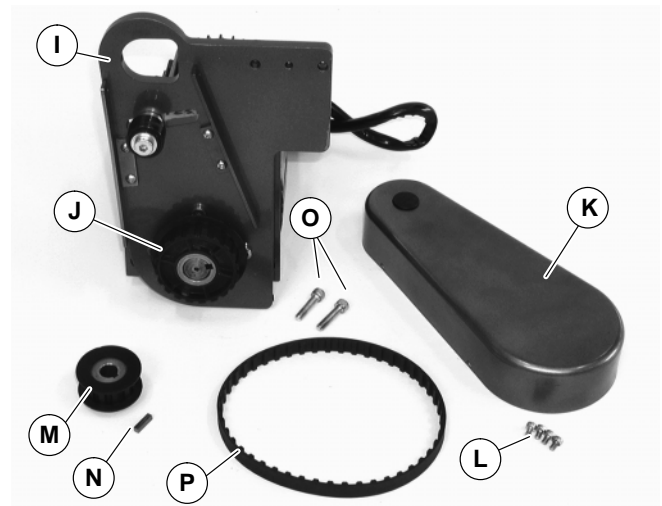


Figure 3

**NOTE:** Flat belt mounting package shown above (Figure 3), cleated belt mounting package similar.

**NOTE:** 6100 conveyor shown, 2100 & 4100 similar.

## 2. Locate drive output shaft (R of Figure 4) and remove two (2) screws (S).

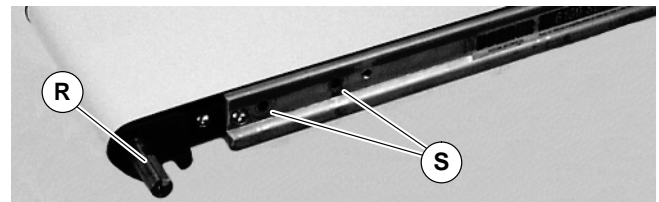


Figure 4

## 3. Attach mounting assembly (I of Figure 5) with screws (O). Tighten to 80 in-lb (9 Nm).

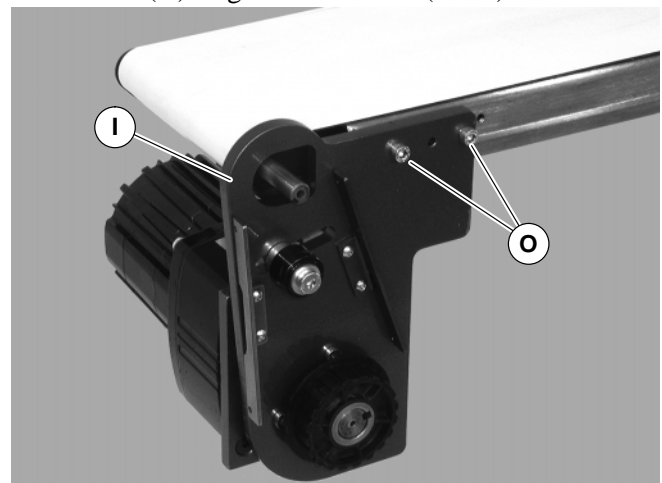
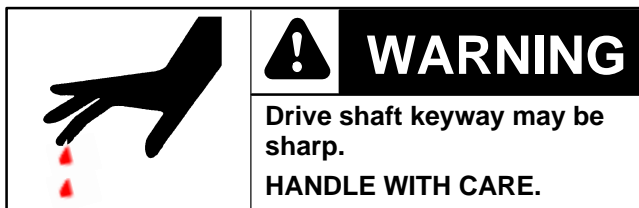


Figure 5

# Installation



4. Install key (N of Figure 6).

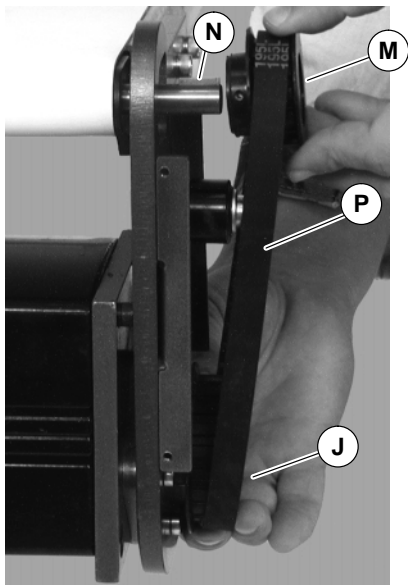


Figure 6

5. Wrap timing belt (P) around driven pulley (M) and drive pulley (J). Install driven pulley (M) onto conveyor shaft.

6. Using a straight edge (T of Figure 7), align driven pulley (M) with drive pulley (J). Tighten driven pulley set screws (U).

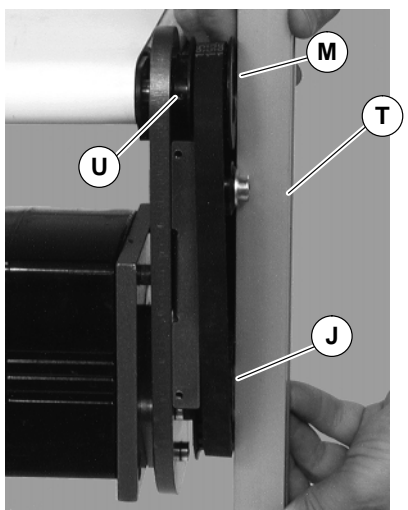


Figure 7

7. Depending on direction of conveyor belt travel (1 or 2 of Figure 8), position belt tensioner (V) as shown. Tension belt to obtain 0.125" (3 mm) deflection for 1.0 lb (456 grams) of force at belt mid-point (W). Tighten tensioner screw to 103 in-lb (12 Nm).

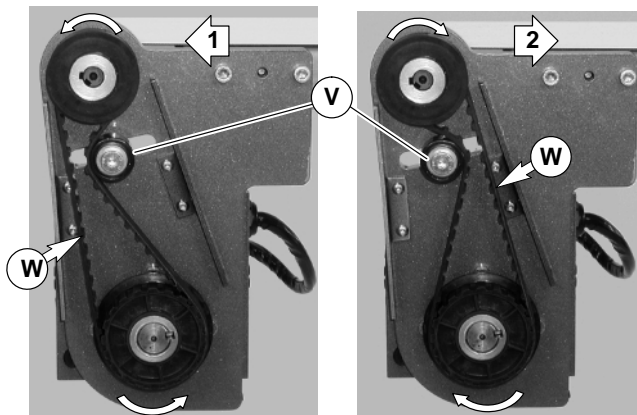


Figure 8

8. Install cover (K of Figure 9) with four (4) screws (L). Tighten to 35 in-lb (4 Nm).

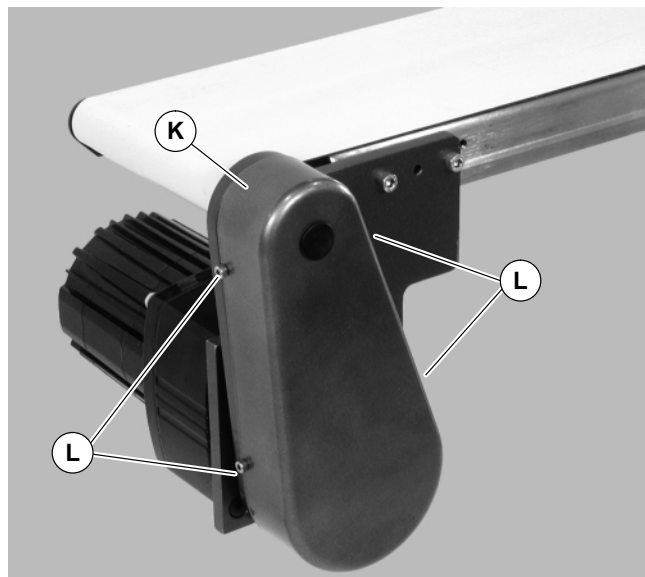


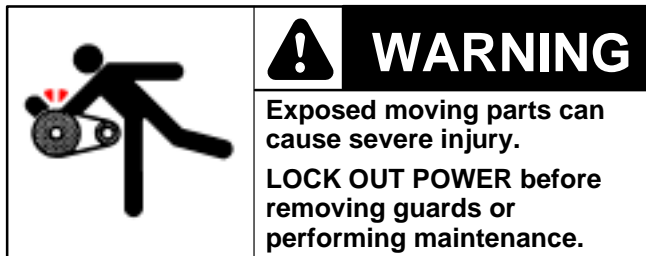
Figure 9

# Preventive Maintenance and Adjustment

## Required Tools

- Hex key wrenches:
  - 2 mm, 2.5 mm, 3 mm, 5 mm
- Adjustable wrench (for hexagon head screws)
- Straight edge
- Torque wrench

## Timing Belt Tensioning



1. Remove four (4) screws (L of Figure 9) and remove cover (K).
2. Loosen tensioner (V of Figure 10).

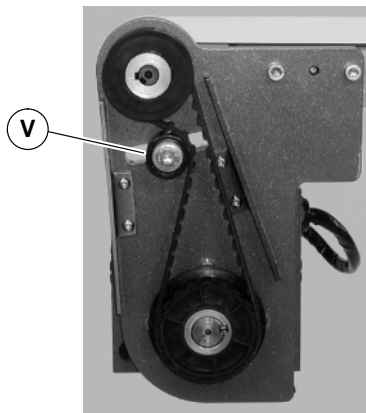
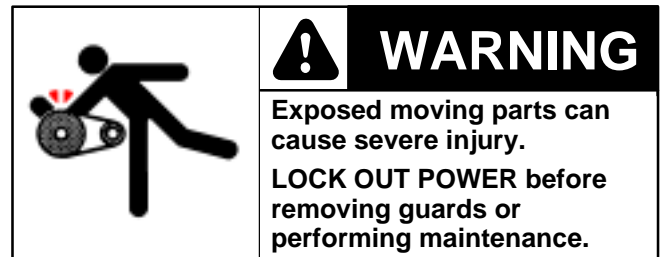


Figure 10

3. Depending on direction of conveyor belt travel (1 or 2 of Figure 8), position belt tensioner (V) as shown. Tension belt to obtain 0.125" (3 mm) deflection for 1.0 lb (456 grams) of force at belt mid-point (W). Tighten tensioner screw to 103 in-lb (12 Nm).
4. Install cover (K of Figure 9) with four (4) screws (L). Tighten to 35 in-lb (4 Nm).

## Timing Belt Replacement



1. Remove four (4) screws (L of Figure 9) and remove cover (K).
2. Loosen tensioner (V of Figure 10).
3. Remove timing belt (P of Figure 11).

**NOTE:** If timing belt does not slide over pulley flange, loosen driven pulley set screws (U of Figure 11) and remove pulley with belt (P). For re-installation, see steps 5 and 6 on page 6.

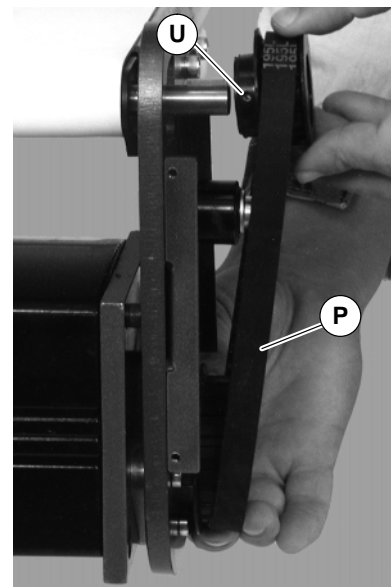


Figure 11

4. Install new timing belt.
5. Depending on direction of conveyor belt travel (1 or 2 of Figure 8), position belt tensioner (V) as shown. Tension belt to obtain 0.125" (3 mm) deflection for 1.0 lb (456 grams) of force at belt mid-point (W). Tighten tensioner screw to 103 in-lb (12 Nm).
6. Install cover (K of Figure 9) with four (4) screws (L). Tighten to 35 in-lb (4 Nm).

# Preventive Maintenance and Adjustment

## Drive or Driven Pulley Replacement

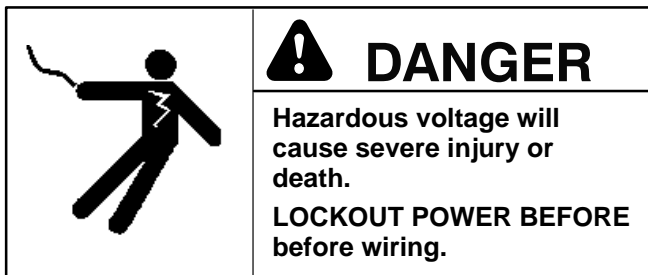
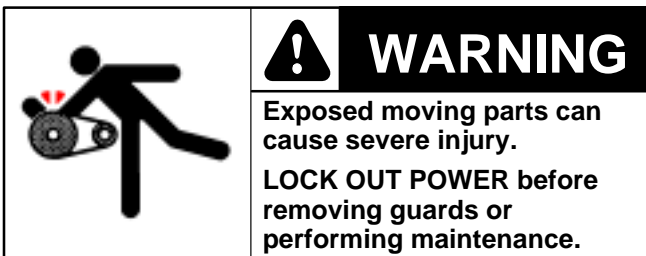


1. Complete steps 1 through 3 of “Timing Belt Replacement” section on page 7.
2. Loosen set screws and remove drive or driven pulley.

**NOTE:** If drive pulley (J of Figure 14) is replaced, wrap timing belt around drive pulley and complete step 3.

3. Complete steps 5 through 8 of “Installation” section on page 6.

## Gear Motor Replacement



1. For single phase motor, unplug power cord from outlet.
2. For three phase motor:
  - a. Loosen terminal box screws (AF of Figure 12) and remove cover (AG).

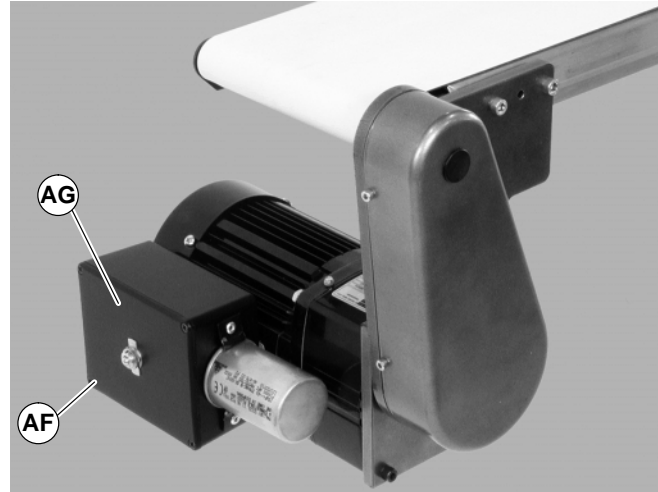


Figure 12

- b. Record incoming wire colors on red, black and blue leads. Loosen wire nuts and remove incoming wires.
  - c. Loosen cord grip and remove cord.
3. For DC variable speed motor, unplug motor cord at disconnect (AH of Figure 13).

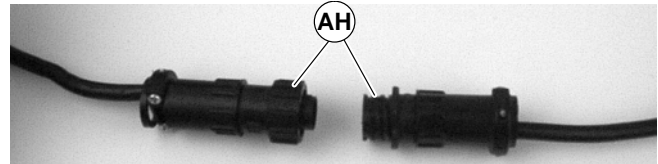


Figure 13

4. Remove four (4) screws (L of Figure 9) and remove cover (K).
5. Loosen tensioner (V of Figure 10).
6. Loosen drive pulley set screws (X of Figure 14). Remove drive pulley (J) and timing belt (P).

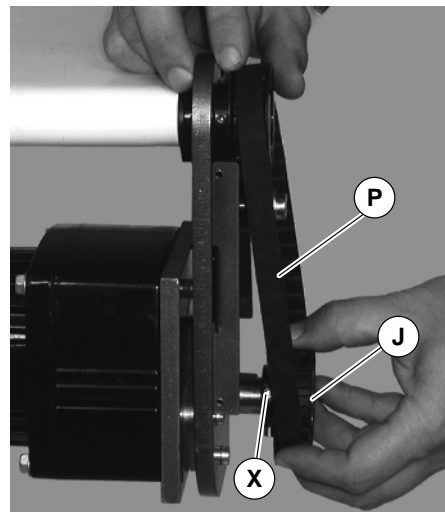


Figure 14



# Preventive Maintenance and Adjustment

7. Remove four (4) gearmotor mounting screws (Q of Figure 15). Remove gearmotor with adapter plate.

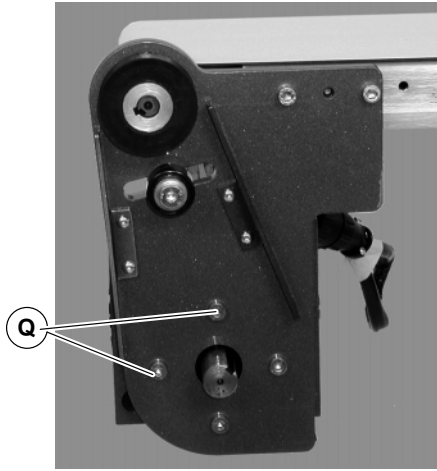


Figure 15

8. Remove four (4) adapter plate screws (AI of Figure 16). Remove adapter plate.

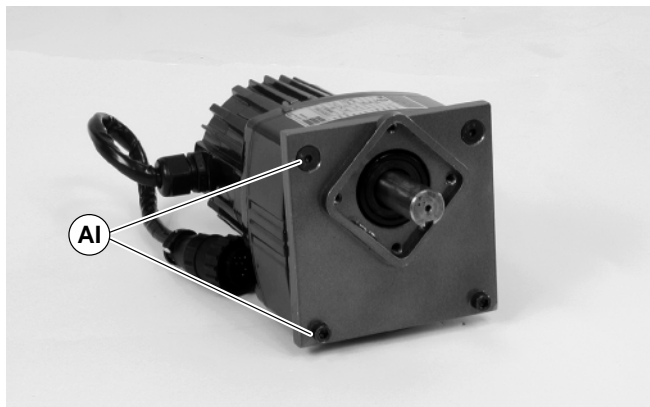


Figure 16

**NOTE:** Gearmotor position on Flat Belt conveyor shown below left (Figure 17). Gearmotor position on Cleated Belt conveyor shown below right (Figure 17).

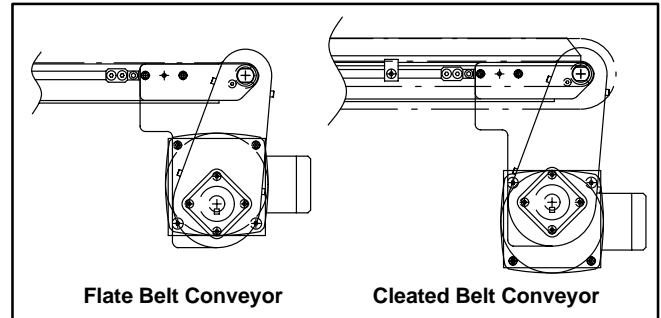


Figure 17

9. Install new gearmotor to adapter plate and mounting bracket. Tighten screws (Q of Figure 15) to 103 in-lb (12 Nm).

**NOTE:** Drive pulley (J of Figure 14) is removed. Wrap timing belt around drive pulley and complete step 10.

10. Complete steps 5 through 8 of “Installation” section on page 6.

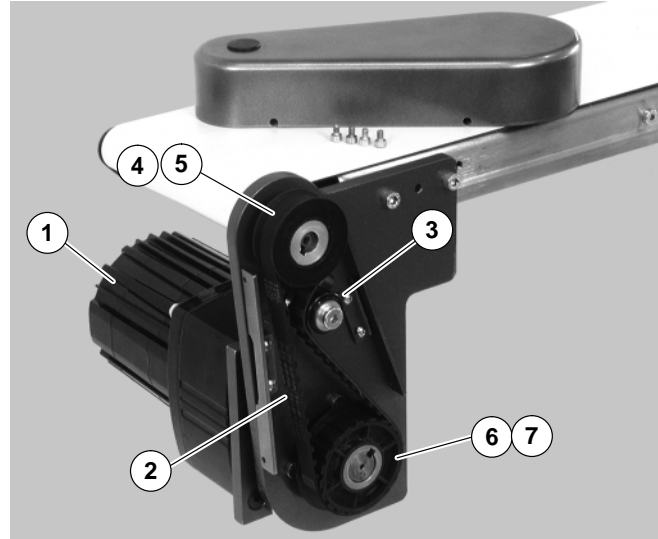
11. Replace wiring:

- For a single phase motor, reverse step 1 on page 8.
- For a three phase motor, reverse step 2, on page 8.
- For a DC variable speed motor, reverse step 3 on page 8.

# Service Parts

**NOTE:** For replacement parts other than those shown on this page, contact an authorized Dorner Service Center or the factory.

Item	Part No.	Part Description
1	62M180PS411FN	Motor, 0.08hp (0.06Kw), 10 RPM, 115VAC, 60Hz, 1-Phase
	62M180PS411FR	Motor, 0.08hp (0.06Kw), 10 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M060PS411FN	Motor, 0.17hp (0.13Kw), 29 RPM, 115VAC, 60Hz, 1-Phase
	62M060PS411FR	Motor, 0.17hp (0.13Kw), 29 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M060PS423FN	Motor, 0.25hp (0.19Kw), 29 RPM, 230VAC, 60Hz, 3-Phase
	62M030PS411FN	Motor, 0.17hp (0.13Kw), 58 RPM, 115VAC, 60Hz, 1-Phase
	62M030PS411FR	Motor, 0.17hp (0.13Kw), 58 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M030PS423FN	Motor, 0.25hp (0.19Kw), 58 RPM, 230VAC, 60Hz, 3-Phase
	62M020PS411FN	Motor, 0.17hp (0.13Kw), 86 RPM, 230VAC, 60Hz, 1-Phase
	62M020PS411FR	Motor, 0.17hp (0.13Kw), 86 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M010PS411FN	Motor, 0.17hp (0.13Kw), 173 RPM, 115VAC, 60Hz, 1-Phase
	62M010PS411FR	Motor, 0.17hp (0.13Kw), 173 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M010PS423FN	Motor, 0.25hp (0.19Kw), 173 RPM, 230VAC, 60Hz, 3-Phase
	62M005PS411FN	Motor, 0.17hp (0.13Kw), 345 RPM, 230VAC, 60Hz, 1-Phase
	62M005PS411FR	Motor, 0.17hp (0.13Kw), 345 RPM, 115VAC, 60Hz, 1-Phase with reversing switch
	62M180PSD3DEN	Motor, 0.12hp (0.09Kw), 14 RPM, 130VDC
	62M060PSD3DEN	Motor, 0.25hp (0.19Kw), 42 RPM, 130VDC
	62M030PSD3DEN	Motor, 0.25hp (0.19Kw), 83 RPM, 130VDC
	62M020PSD3DEN	Motor, 0.25hp (0.19Kw), 125 RPM, 130VDC
	62M010PSD3DEN	Motor, 0.25hp (0.19Kw), 250 RPM, 130VDC
62M005PSD3DEN	Motor, 0.25hp (0.19Kw), 500 RPM, 130VDC	



**Figure 18**

Item	Part No.	Part Description
2	814-104	Timing Belt, 15mm W x 450mm L
	814-105	Timing Belt, 15mm W x 460mm L
	814-065	Timing Belt, 15mm W x 475mm L
	814-101	Timing Belt, 15mm W x 500mm L
	814-108	Timing Belt, 15mm W x 520mm L
	814-064	Timing Belt, 15mm W x 535mm L
	814-099	Timing Belt, 15mm W x 565mm L
	3	802-046
4	450365MP	Driven Pulley, 19Tooth, 12mm bore
	450366MP	Driven Pulley, 22Tooth, 12mm bore
	450367MP	Driven Pulley, 28Tooth, 12mm bore
	450368MP	Driven Pulley, 32Tooth, 12mm bore
5	980422M	Square Key, 4 mm x 22 mm
6	450434	Drive Pulley, 22Tooth, 0.75" bore
	450435	Drive Pulley, 28Tooth, 0.75" bore
	450436	Drive Pulley, 32Tooth, 0.75" bore
	450437	Drive Pulley, 44Tooth, 0.75" bore
	450438	Drive Pulley, 48Tooth, 0.75" bore
	450439	Drive Pulley, 60Tooth, 0.75" bore
7	912-078	Key, Square, 0.188" x 0.75" L



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## Return Policy

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No returns will be accepted without prior written factory authorization. When calling for authorization, please have the following information ready for the Dorner Factory representative or your local distributor:

1. Name and address of customer.
2. Item(s) being returned.
3. Reason for return.
4. Customer's original order number used when ordering the item(s).
5. Dorner or distributor invoice number.

A representative will discuss action to be taken on the Returned items and provide a Returned Goods Authorization Number to reference.

There will be a 15% restocking charge on all new items returned for credit where Dorner was not at fault. These will not be accepted after 60 days from original invoice date. The restocking charge covers inspection, cleaning, disassembly, and reissuing to inventory.

If a replacement is needed prior to evaluation of returned item, a purchase order must be issued. Credit (if any) is issued only after return and evaluation is complete.

Dorner has representatives throughout the world. Feel free to contact Dorner for the name of your local representative. Our technical sales and service staff will gladly help with your questions on Dorner products.

For a copy of Dorner's Limited Warranty, contact factory, distributor, service center or visit our website at [www.dorner.com](http://www.dorner.com)

**For replacement parts, contact an authorized  
Dorner Service Center or the factory.**

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