



Universal Drive Package

Installation, Maintenance & Parts Manual



INBOARD



OUTBOARD

DORNER MFG. CORP.
P.O. Box 20 • 975 Cottonwood Ave.
Hartland, WI 53029-0020 USA

INSIDE THE USA
TEL: 1-800-397-8664
FAX: 1-800-369-2440

OUTSIDE THE USA
TEL: 262-367-7600
FAX: 262-367-5827

For other service manuals visit our website at:
www.dorner.com/service_manuals.asp

Table of Contents

Introduction	2	Top	10
Warnings - General Safety	3	Top Rotated Back 30°	10
Product Description	4	Top Rotated Back 60°	
Specifications	4	(Only available with Outboard Motor Position)	10
Gearmotor Mounting Package Models:	4	Top Rotated Forward 30°	10
Table 1: Gearmotor Specifications	5	Top Rotated Forward 60°	10
Installation	6	Side Rotated Forward	10
Required Tools	6	Positioning Screw Location	11
Mounting	6	Preventive Maintenance and Adjustment	12
Controller	9	Required Tools	12
Motor Orientation	9	Timing Belt Replacement	12
Inboard Motor Position	9	Drive or Driven Pulley Replacement	14
Outboard Motor Position	9	Driven Pulley	14
Drive Package Rotation	10	Drive Pulley	14
Bottom	10	Motor Replacement	14
Bottom Rotated Back 30°	10	Initialize Replacement Drive	15
Bottom Rotated Back 60°		Controller Replacement	16
(Only available with Outboard Motor Position)	10	Service Parts	17
Bottom Rotated Forward 30°	10	Drive Package	17
Bottom Rotated Forward 60°	10	Controller	18
Side Rotated Back		Notes	19
(Only available with Outboard Motor Position)	10	Return Policy	20

Introduction


IMPORTANT
<i>Some illustrations may show guards removed. DO NOT operate equipment without guards.</i>

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's Limited Warranty applies.

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

Dorner has convenient, pre-configured kits of Key Service Parts for all conveyor products. These time saving kits are easy to order, designed for fast installation, and guarantee you will have what you need when you need it. Key Parts and Kits are marked in the Service Parts section of this manual with the Performance Parts Kits  logo.

Warnings - General Safety

WARNING

The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.

DANGER



Climbing, sitting, walking or riding on conveyor will cause severe injury.
KEEP OFF CONVEYORS.

DANGER



DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.

WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

WARNING



Gearmotors may be HOT.
DO NOT TOUCH Gearmotors.

WARNING



Exposed moving parts can cause severe injury.
REPLACE ALL GUARDS BEFORE RUNNING CONVEYOR.

WARNING



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

Product Description

Refer to **Figure 1** for typical conveyor components.

1	Mount Plate
2	Guard, Upper
3	Pulley, 22 Teeth
4	Gearmotor Assembly
5	Conveyor
6	Plug
7	Socket Head Screw, M6-1.00 x 55 mm
8	Flat Head Screw, M6-1.00 x 22 mm
9	Socket Head Screw, M6-1.00 x 12 mm
10	Controller

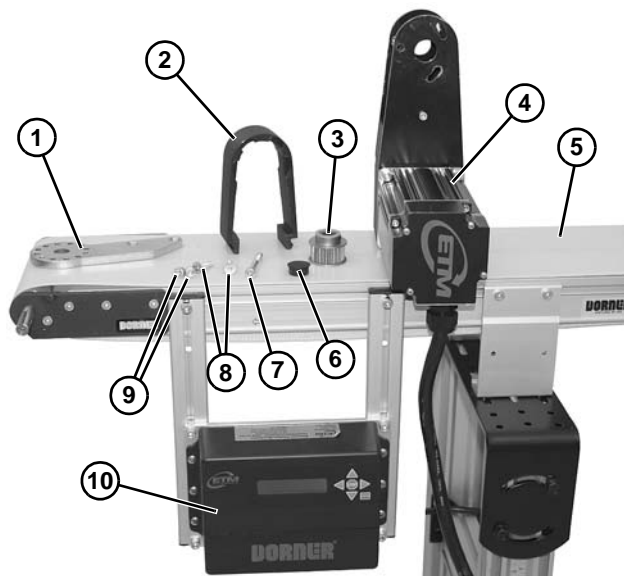


Figure 1

Specifications

Gearmotor Mounting Package Models:

Example:

22U M V

— Voltage (1 = 115 VAC / 1 Phase, 2 = 208/230 VAC / 1 or 3 Phase)

— Language (M = English)

Table 1: Gearmotor Specifications

Universal Motor and Drive Package		
Dorner Model	22UM1	22UM2
Input Voltage	115 VAC	208/230 VAC
Input Phase	1	1 or 3
Input Frequency	47-63 Hz	
Peak Input Amps	10	5
Motor Power	0.5 Hp (3.7 Kw)	
Motor Face	NEMA 100	
Reversing	Yes	
Motor RPM*	10 - 300/500	
Belt Speed	5 - 150/230 ft/min	
In-Lbs	49/44	
N-m	5.5/4.9	

* Single package can run up to 500 RPM; however, output torque is limited above 300 RPM.

NOTE
<i>For belt speed other than those listed, contact factory for details.</i>

Installation

Required Tools

- Hex key wrenches: 2.5 mm, 4 mm, 5 mm

Mounting

⚠ WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

Installation Component List:

- | | |
|---|------------------------------------|
| 1 | Mount Plate |
| 2 | Guard, Upper |
| 3 | Pulley, 22 Teeth |
| 4 | Gearmotor Assembly |
| 5 | Plug |
| 6 | Socket Head Screw, M6-1.00 x 55 mm |
| 7 | Flat Head Screw, M6-1.00 x 22 mm |
| 8 | Socket Head Screw, M6-1.00 x 12 mm |
| 9 | Controller |

1. Typical components (**Figure 2**).

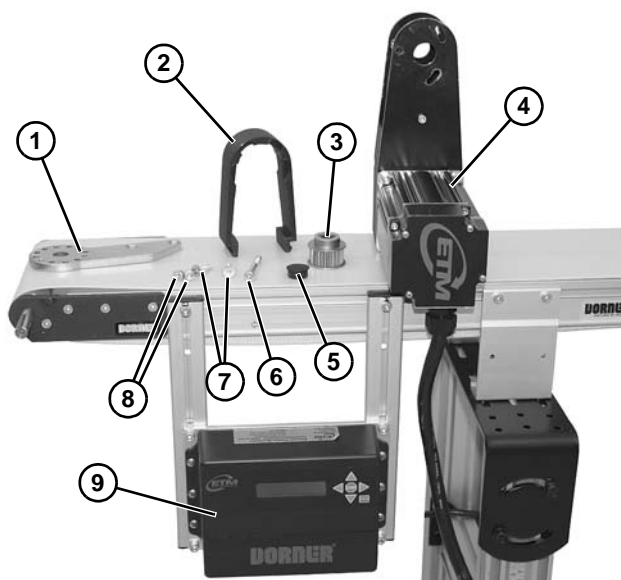


Figure 2

NOTE

The installation procedure shown is for an outboard drive package configuration. The procedure for an inboard configuration is similar.

⚠ WARNING



Drive shaft keyway may be sharp.
HANDLE WITH CARE.

2. Remove key (**Figure 3, item 1**) from output shaft, if not already done.

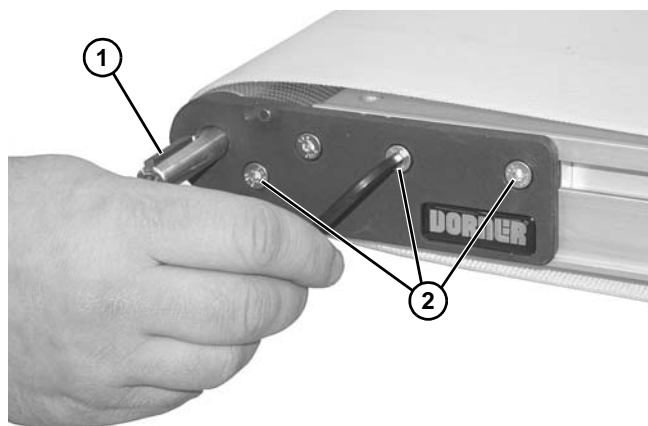


Figure 3

3. Remove three screws (**Figure 3, item 2**) and discard.
4. Attach mounting plate (**Figure 4, item 1**) with screws (**Figure 4, item 2**) provided on the universal drive package.

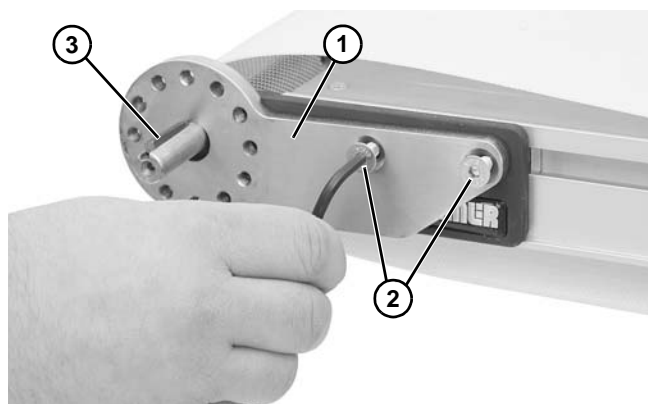


Figure 4

5. Install key (**Figure 4, item 3**).

NOTE

Make certain flat surface of driven pulley is facing away from conveyor as shown in (Figure 5).

6. Insert driven pulley (Figure 5, item 1) into timing belt (Figure 5, item 2) as shown.

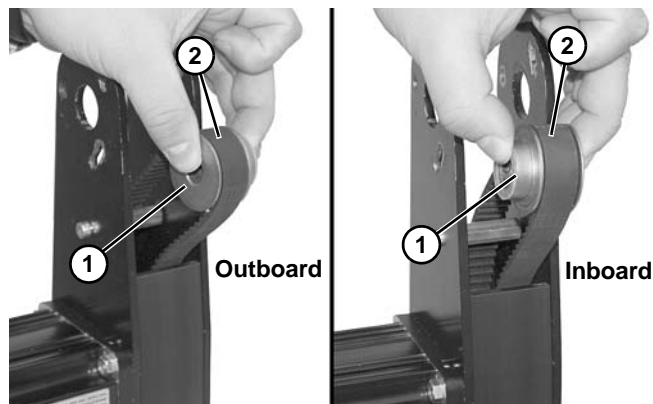


Figure 5

7. Determine motor orientation. See page 9-10 for details.
8. Install drive package (Figure 6, item 1) and driven pulley (Figure 6, item 2) on output shaft.

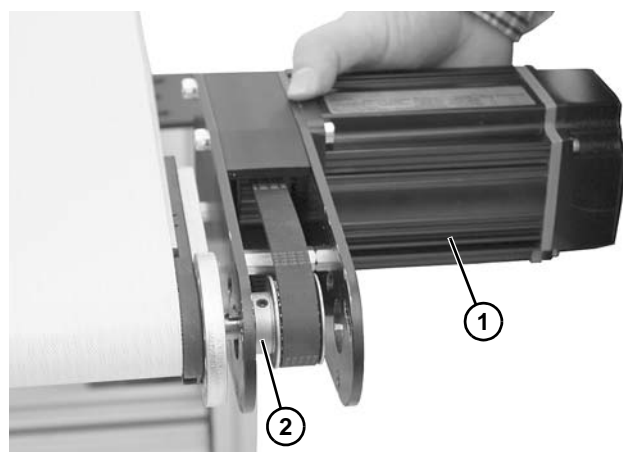


Figure 6

NOTE

See Drive Package Rotation and Positioning Screw Location beginning on page 10.

9. Install positioning screw (Figure 7, item 1) through round hole in rear plate (Figure 7, item 2) and into mounting plate (Figure 7, item 3).

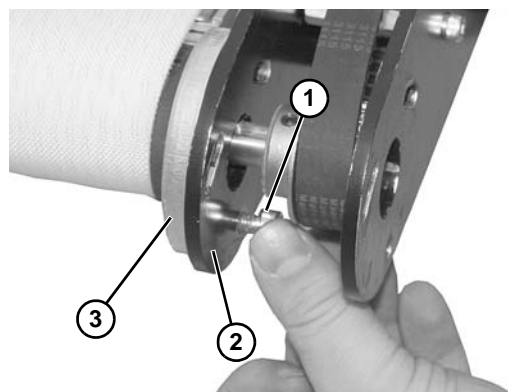


Figure 7

10. Install screw (Figure 8, item 1) through slotted hole in rear plate (Figure 8, item 2) and into mounting plate (Figure 8, item 3).

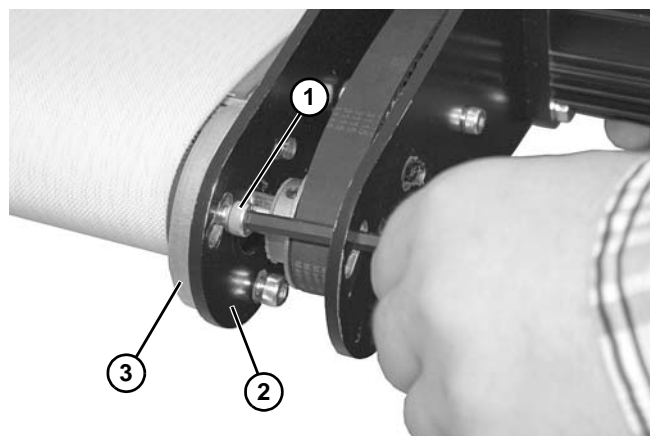


Figure 8

Installation

11. Install long screw (Figure 9, item 1) through slotted hole in front (Figure 9, item 2) and rear (Figure 9, item 3) plate into mounting plate (Figure 9, item 4).

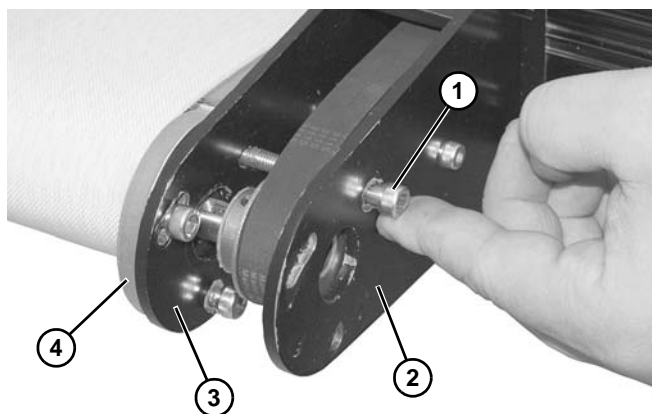


Figure 9

12. Position driven pulley (Figure 10, item 1) so that the flat surface (Figure 10, item 2) is flush with the output shaft (Figure 10, item 3).

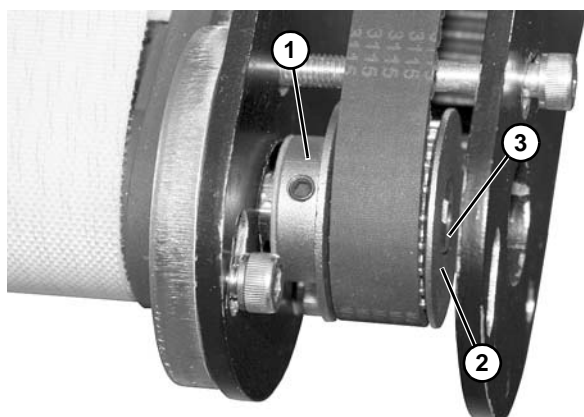


Figure 10

13. Tighten set screws (Figure 11, item 1).



Figure 11

14. Rotate drive package to tension belt. Tighten two screws (Figure 12, item 1).

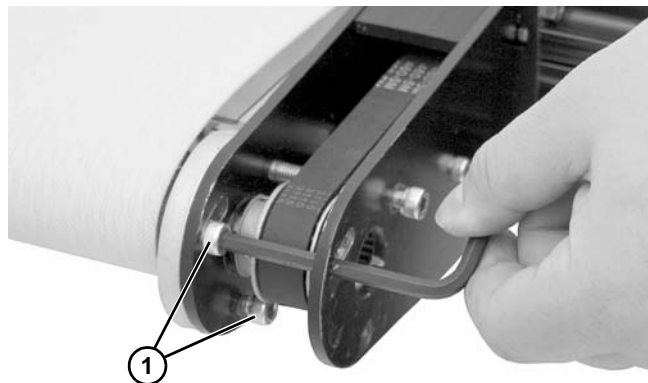


Figure 12

15. Install upper guard (Figure 13, item 1) and tighten screw (Figure 13, item 2).

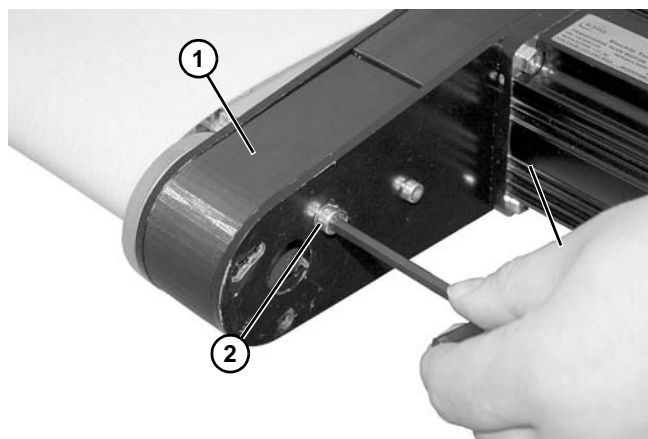


Figure 13

16. Install plug (Figure 14, item 1).

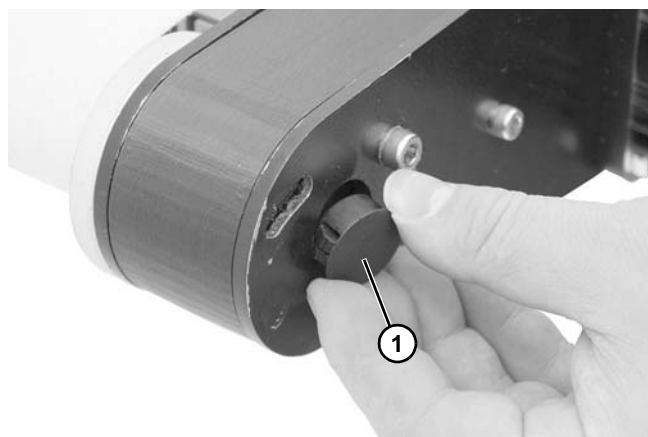


Figure 14

Controller

1. Install t-bars (Figure 15, item 1) into conveyor t-slot.

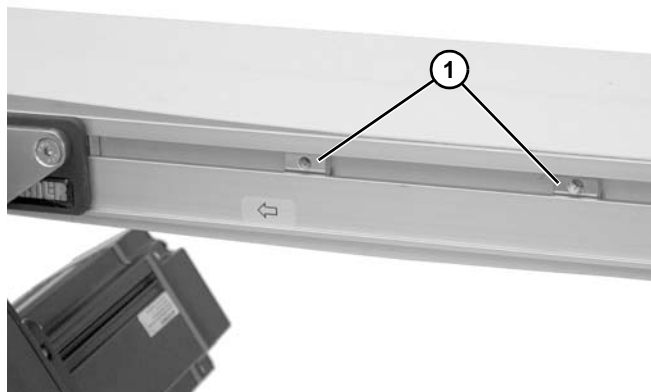


Figure 15

2. Attach controller (Figure 16, item 1) to conveyor with screws (Figure 16, item 2).

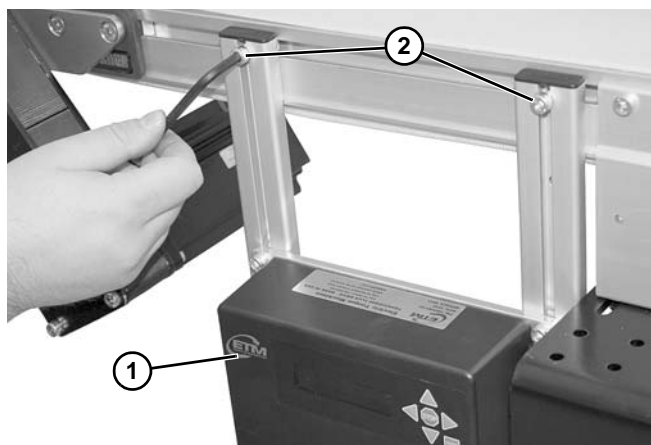


Figure 16

3. Slide controller to desired mounting location along conveyor and tighten both screws.

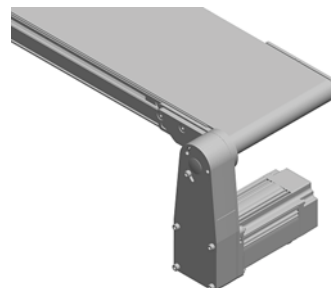
NOTE

For controller set up, refer to ETM manual 851-819.

Motor Orientation

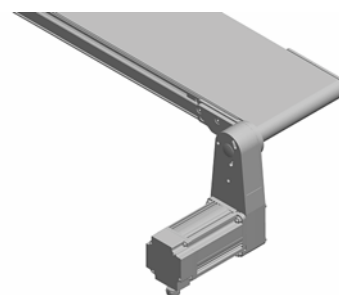
Inboard Motor Position

The motor is located under/over the conveyor.



Outboard Motor Position

The motor is located away from the conveyor.



Installation

Drive Package Rotation

Bottom



Bottom Rotated Back 30°



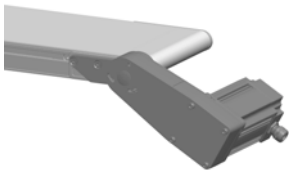
**Bottom Rotated Back 60°
(Only available with Outboard Motor Position)**



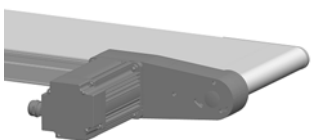
Bottom Rotated Forward 30°



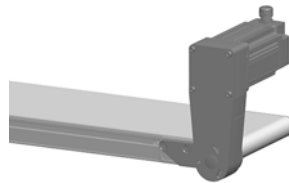
Bottom Rotated Forward 60°



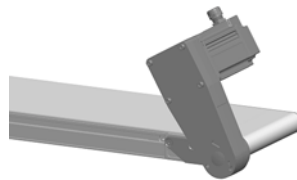
**Side Rotated Back
(Only available with Outboard Motor Position)**



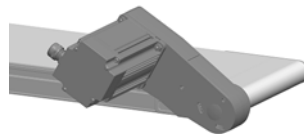
Top



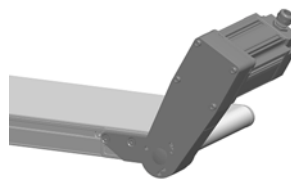
Top Rotated Back 30°



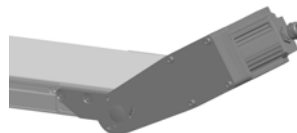
**Top Rotated Back 60°
(Only available with Outboard Motor Position)**



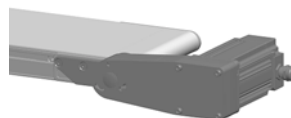
Top Rotated Forward 30°



Top Rotated Forward 60°



Side Rotated Forward



Positioning Screw Location

Locate the positioning screw according to the chart below. The numbers on the chart reflect the numbers on a clock while looking at the side of the conveyor that the drive package is assembled to.

Hole Location for Positioning Screw				
	Inboard Mount Motor Positions 'A' or 'B'	Outboard Mount Motor Positions 'A' or 'B'	Inboard Mount Motor Positions 'D' or 'C'	Outboard Mount Motor Positions 'D' or 'C'
Bottom	3	9	3	9
Bottom rotated back 30°	2	8	4	10
Bottom rotated back 60°	1	7	5	11
Bottom rotated forward 30°	4	10	2	8
Bottom rotated forward 60°	5	11	1	7
Side rotated back	12	6	6	12
Side rotated forward	6	12	12	6
Top	9	3	9	3
Top rotated back 30°	10	4	8	2
Top rotated back 60°	11	5	7	1
Top rotated forward 30°	8	2	10	4
Top rotated forward 60°	7	1	11	5

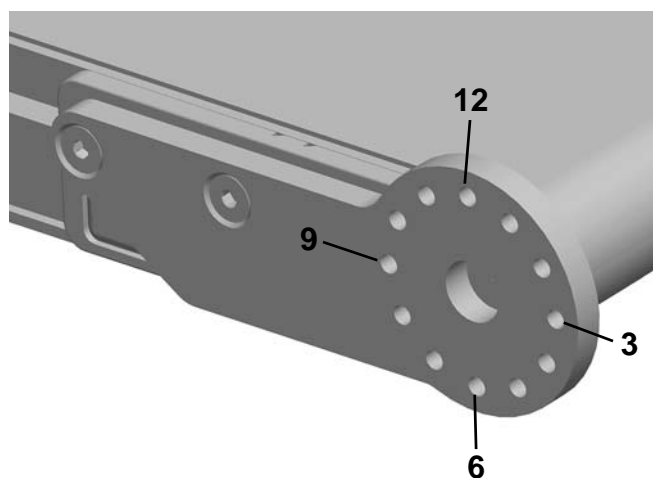


Figure 17

Preventive Maintenance and Adjustment

Required Tools

- Hex-key wrenches: 2.5 mm, 4 mm, 5 mm
- 10 mm wrench
- Phillips head screw driver

Timing Belt Replacement

⚠ WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

1. Remove plug (Figure 18, item 1).

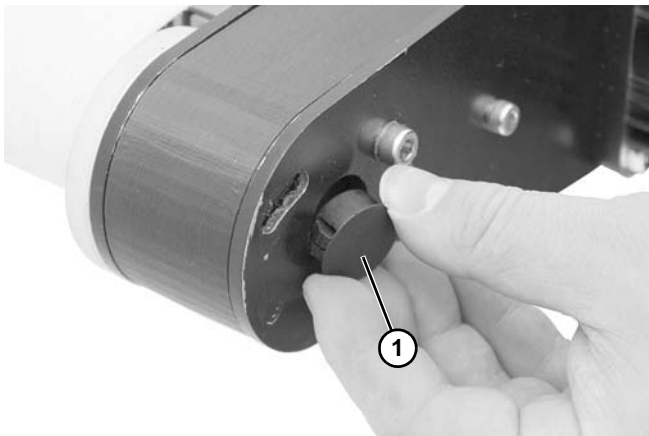


Figure 18

2. Loosen screw (Figure 19, item 1) and remove upper guard (Figure 19, item 2).

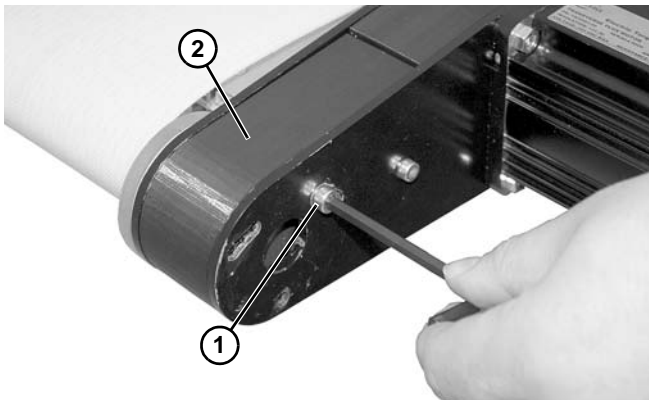


Figure 19

3. Loosen two screws (Figure 20, item 1) and raise drive package to remove tension on belt.

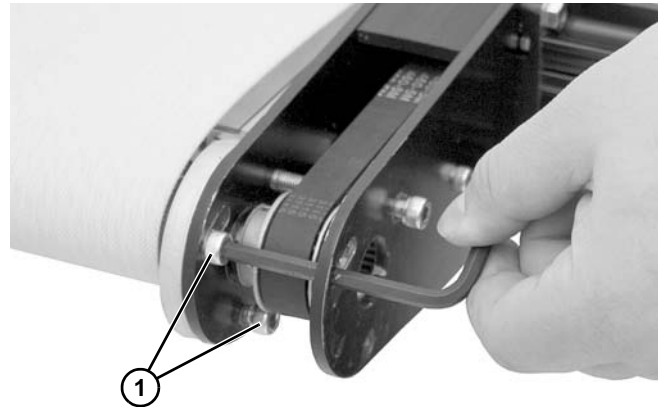


Figure 20

4. Loosen set screws (Figure 21, item 1) on driven pulley.



Figure 21

5. Remove three screws (Figure 22, item 1).

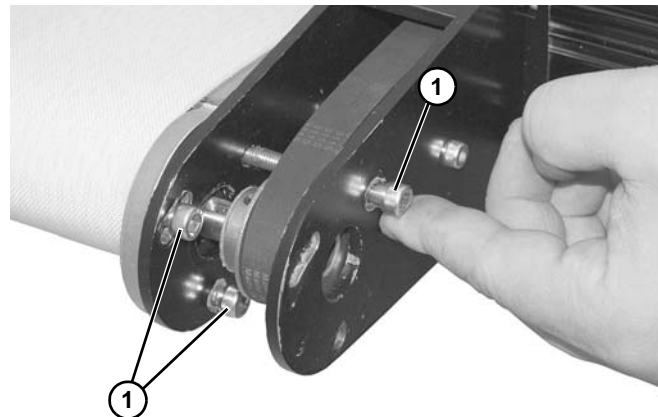


Figure 22

Preventive Maintenance and Adjustment

6. Slide drive package (**Figure 23, item 1**) and driven pulley (**Figure 23, item 2**) off output shaft.

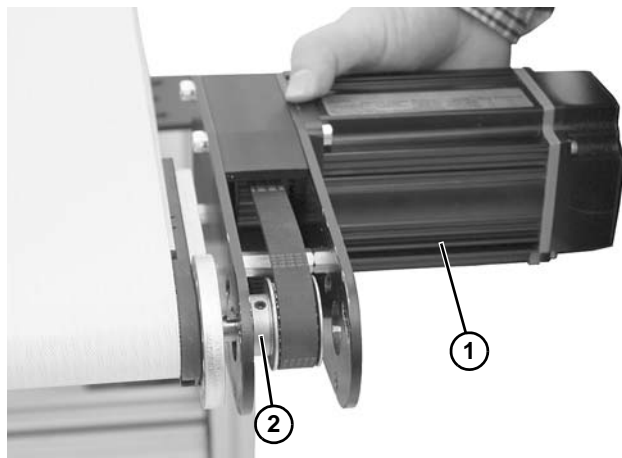


Figure 23

7. Remove driven pulley (**Figure 24, item 1**) from timing belt (**Figure 24, item 2**).

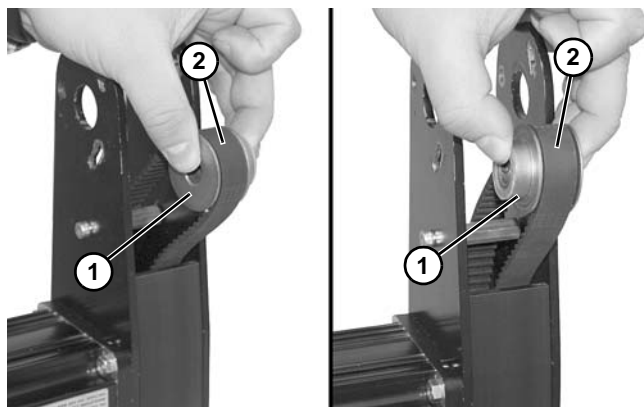


Figure 24

8. Remove four screws (**Figure 25, item 1**) and nuts (**Figure 25, item 2**).

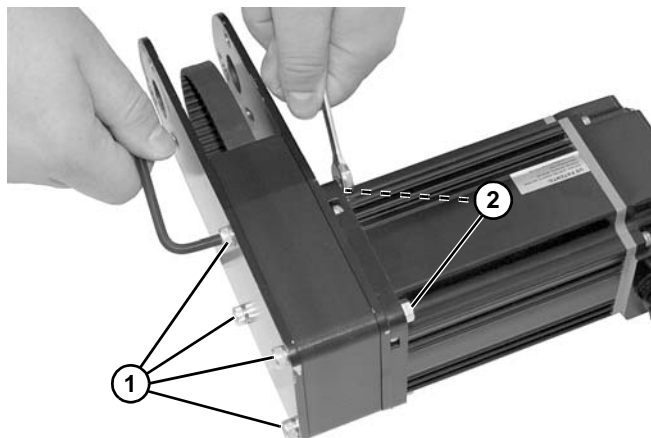


Figure 25

9. Remove front plate (**Figure 26, item 1**), lower guard (**Figure 26, item 2**), and timing belt (**Figure 26, item 3**).

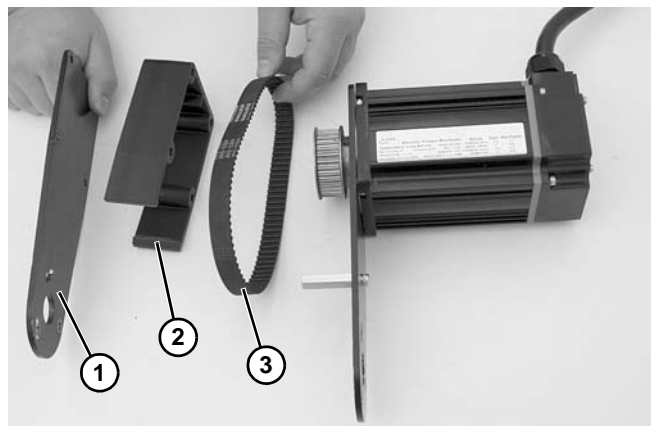


Figure 26

10. Install new timing belt.
11. Install upper guard and front plate (**Figure 27, item 1**), making sure that holes (**Figure 27, item 2**) in front and rear plate are oriented in the same position.

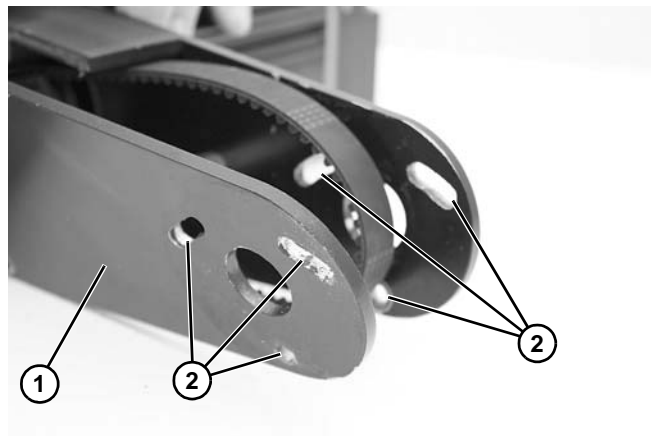


Figure 27

12. Complete steps 6 through 15 of “Mounting” section beginning on page 6.

Preventive Maintenance and Adjustment

Drive or Driven Pulley Replacement

⚠ WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

Driven Pulley

1. Complete steps 1 through 7 of “Timing Belt Replacement” section beginning on page 12.
2. Complete steps 6 through 15 of “Mounting” section beginning on page 6.

Drive Pulley

1. Complete steps 1 through 9 of “Timing Belt Replacement” section beginning on page 12.
2. Loosen set screws (**Figure 28, item 1**) and remove drive pulley (**Figure 28, item 2**).

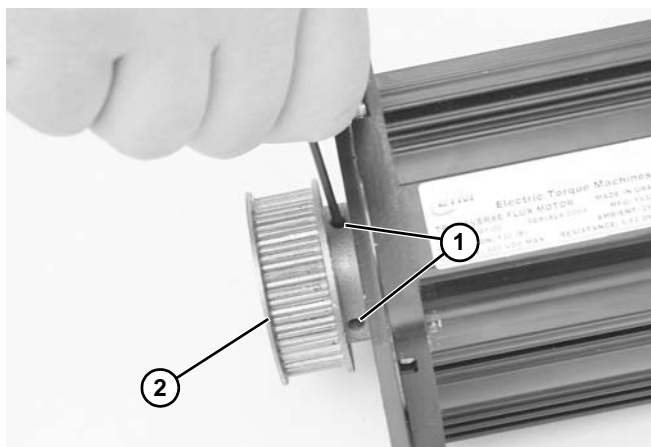


Figure 28

3. Install new drive pulley.
4. Complete steps 11 and 12 of “Timing Belt Replacement” section beginning on page 12.

Motor Replacement

⚠ WARNING



Exposed moving parts can cause severe injury.

LOCK OUT POWER before removing guards or performing maintenance.

⚠ DANGER



Hazardous voltage will cause severe injury or death.

LOCK OUT POWER BEFORE WIRING.

1. Complete steps 1 through 9 of “Timing Belt Replacement” section beginning on page 12.
2. Loosen set screws (**Figure 29, item 1**) and remove drive pulley (**Figure 29, item 2**).

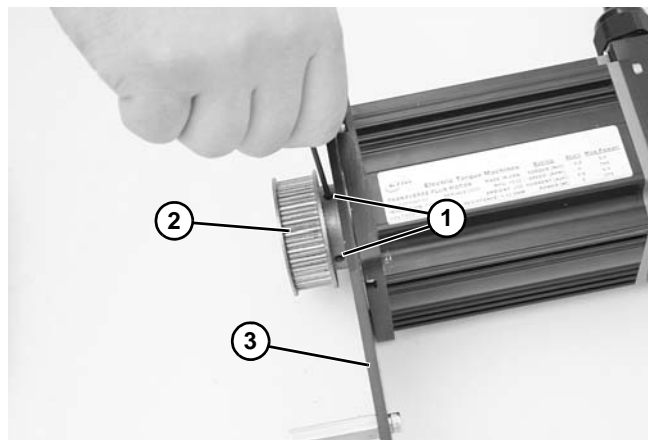


Figure 29

3. Remove rear plate (**Figure 29, item 3**).

Preventive Maintenance and Adjustment

4. Remove two screws (Figure 30, item 1) and lower cover (Figure 30, item 2) from controller.



Figure 30

5. Remove screw (Figure 31, item 1) and clamp (Figure 31, item 2) securing motor wiring (Figure 31, item 3) to controller.

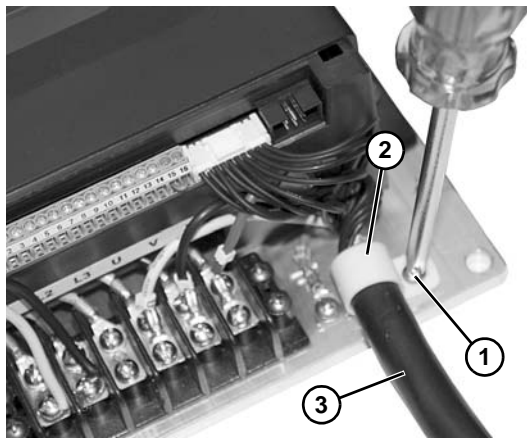


Figure 31

6. Unplug connector (Figure 32, item 1) from controller.

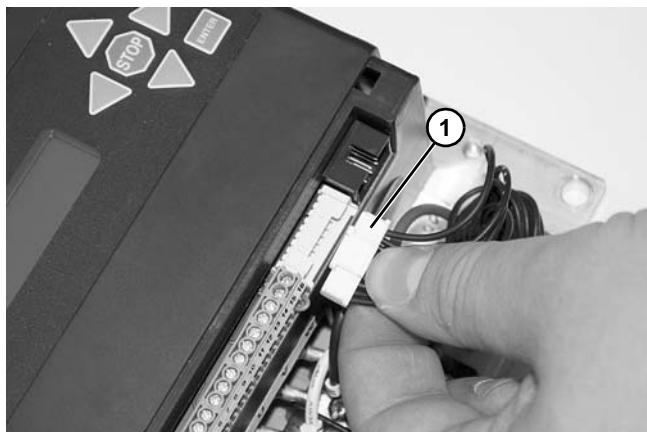


Figure 32

7. Remove motor power wires (Figure 33, item 1) from controller terminal (Figure 33, item 2).

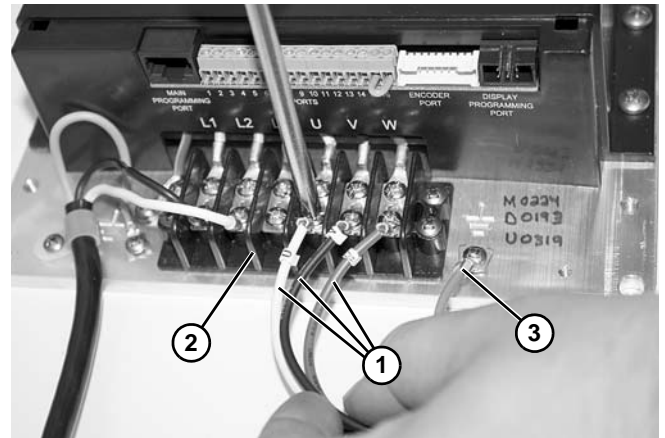


Figure 33

8. Remove ground wire (Figure 33, item 3).
9. Repeat in reverse order to install new motor.
10. Complete steps 11 and 12 of "Timing Belt Replacement" section beginning on page 12.

Initialize Replacement Drive

NOTE

Initialize the drive/motor pair on an unloaded conveyor.

1. Enter Menu by pressing and holding **ENTER**.
2. Scroll to the window that displays "To Exit Menu Press Enter".
3. Press the following keys one at a time in this order; **STOP, Left Arrow, Right Arrow, ENTER**.
4. Scroll to the window that displays "Phase Alignment" and press **ENTER**. Conveyor will move slightly while initialization takes place.
5. Scroll back to the window that displays "To Exit Menu Press Enter" and press **ENTER**.

Preventive Maintenance and Adjustment

Controller Replacement

⚠ WARNING



Exposed moving parts can cause severe injury.
LOCK OUT POWER before removing guards or performing maintenance.

⚠ DANGER



Hazardous voltage will cause severe injury or death.
LOCK OUT POWER BEFORE WIRING.

1. Remove two screws (**Figure 34, item 1**) and lower cover (**Figure 34, item 2**) from controller.



Figure 34

2. Remove screw (**Figure 35, item 1**) and clamp (**Figure 35, item 2**) securing motor wiring (**Figure 35, item 3**) to controller.

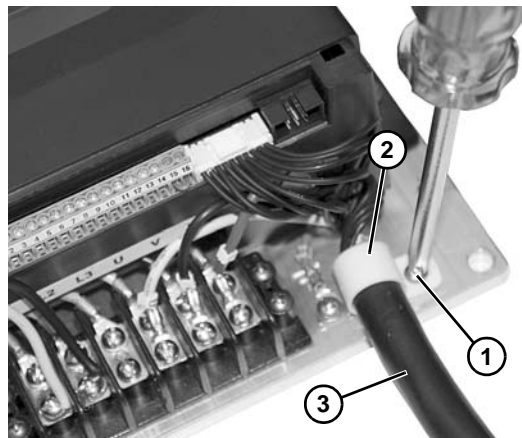


Figure 35

3. Unplug connector (**Figure 36, item 1**) from controller.

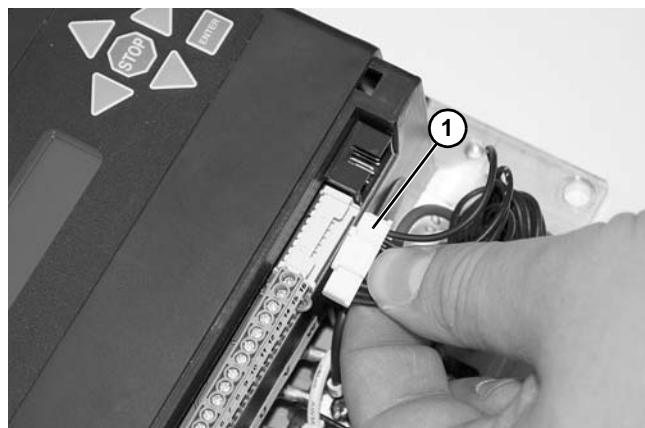


Figure 36

4. Remove motor power wires (**Figure 37, item 1**) from controller terminal (**Figure 37, item 2**).

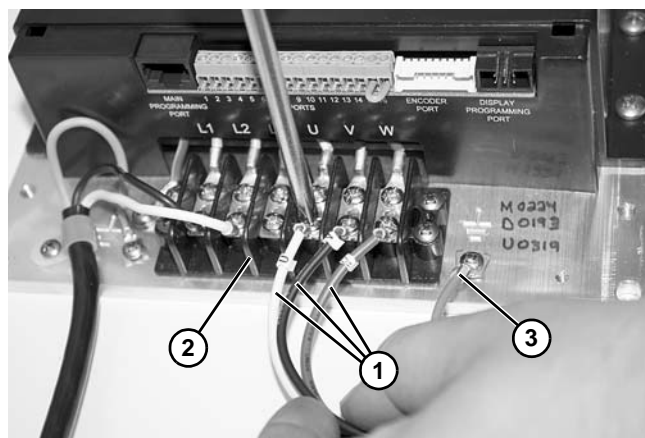



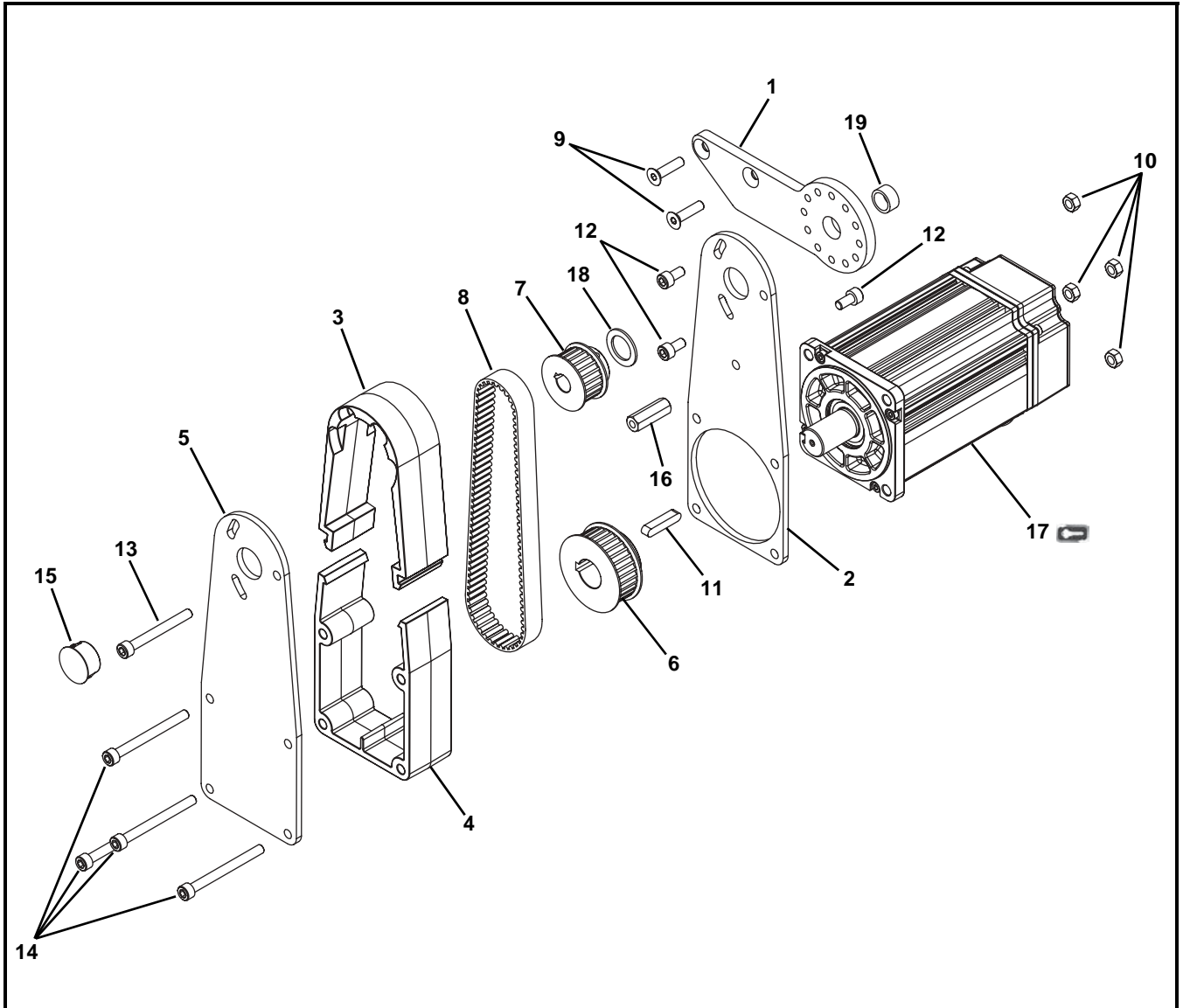
Figure 37

5. Remove ground wire (**Figure 37, item 3**).
6. Repeat in reverse order to install new motor.


Drive Package

NOTE

For replacement parts other than those shown in this section, contact an authorized Dorner Service Center or the factory. Key Service Parts and Kits are identified by the Performance Parts Kits logo . Dorner recommends keeping these parts on hand.

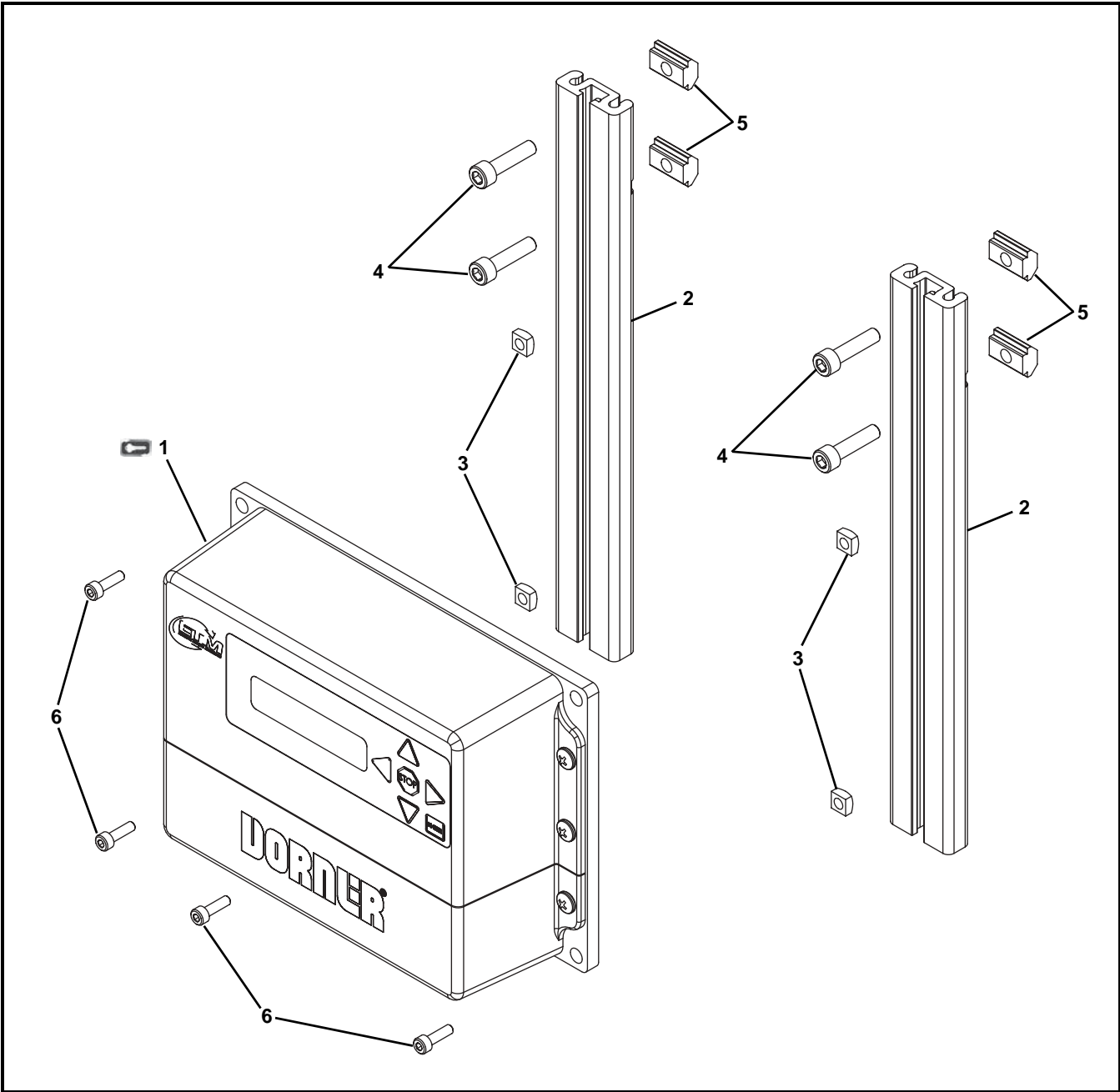


Item	Part Number	Description
1	205992	Mount Plate
2	205984	Rear Plate
3	205982	Upper Guard
4	205983	Lower Guard
5	205985	Front Plate
6	205980	Pulley, 20 mm bore, 32 Teeth
7	450366MP	Pulley, 22 Teeth
8	814-105	Timing Belt, 460 mm
9	930625M	Flat Head Screw, M6-1.00 x 22 mm
10	990601M	Nut, M6-1.00

Item	Part Number	Description
11	980630M	Key, 6 mm x 30 mm
12	920612M	Socket Head Screw, M6-1.00 x 12 mm
13	920655M	Socket Head Screw, M6-1.00 x 55 mm
14	920665M	Socket Head Screw, M6-1.00 x 65 mm
15	807-2860	Plug
16	807-983	Hex Standoffs
17	 826-798	Gearmotor
18	205470	Washer
19	801-184	Bushing

Service Parts

Controller



Item	Part Number	Description
1	805-1711	Controller, 115V, 1 Phase with Power Cord
	205994	Controller, 230V, 1/3 Phase without Power Cord
2	205993	Extrusion
3	807-920	Square Nut
4	920625M	Socket Head Screw, M6-1.00 x 25 mm
5	639971M	Drop-In Tee Bar
6	920414M	Socket Head Screw, M4-.70 x 14 mm

Return Policy

Returns must have prior written factory authorization or they will not be accepted. Items that are returned to Dorner without authorization will not be credited nor returned to the original sender. 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. Dorner part number(s) of 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 (if available, part serial number).

A representative will discuss action to be taken on the returned items and provide a Returned Goods Authorization (RMA) number for reference. RMA will automatically close 30 days after being issued. To get credit, items must be new and undamaged. There will be a return charge on all items returned for credit, where Dorner was not at fault. It is the customer's responsibility to prevent damage during return shipping. Damaged or modified items will not be accepted. The customer is responsible for return freight.

	Product Type								
	Standard Products								Engineered to order parts
Product Line	Conveyors	Gearmotors & Mounting Packages	Support Stands	Accessories	Spare Parts (non-belt)	Spare Belts - Standard Flat Fabric	Spare Belts - Cleated & Specialty Fabric	Spare Belts - Plastic Chain	All equipment and parts
1100	30% return fee for all products except: 50% return fee for conveyors with modular belt, cleated belt or specialty belts						non-returnable		case-by-case
2200									
2200 Modular Belt									
2200 Precision Move									
2300									
2300 Modular Belt									
3200									
3200 LPZ									
3200 Precision Move									
4100									
5200									
5300									
6200									
Controls									
7200 / 7300	50% return fee for all products								
7350	non-returnable								
7360									
7400									
7600									

Returns will not be accepted after 60 days from original invoice date. The return charge covers inspection, cleaning, disassembly, disposal and reissuing of components 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. Contact Dorner for the name of your local representative. Our Customer Service Team will gladly help with your questions on Dorner products.

For a copy of Dorner's Warranty, contact factory, distributor, service center or visit our website at www.dorner.com.

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



Dorner Mfg. Corp. reserves the right to change or discontinue products without notice. All products and services are covered in accordance with our standard warranty. All rights reserved. © Dorner Mfg. Corp. 2014

DORNER MFG. CORP.

975 Cottonwood Ave., PO Box 20
Hartland, WI 53029-0020 USA
TEL 1-800-397-8664 (USA)
FAX 1-800-369-2440 (USA)
Internet: www.dorner.com

Outside the USA:
TEL 1-262-367-7600
FAX 1-262-367-5827