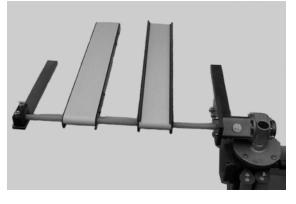


## Installation, Maintenance & Parts Manual

# 63M01 and 63M03 2100, 4100, 6100 Series Gang Drive Mounting Packages for Standard and Heavy Load 90° Industrial 60 Hz Gearmotors





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## 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.



## AV

## **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.

#### 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 Coupling E Inspection Plug

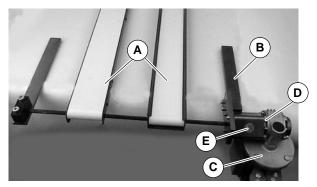


Figure 1

## **Specifications**

#### **Gang Drive Mounting Package Models:**

63M01 = Gang Drive Mounting Package

63M03 = Dual Output Gang Drive Mounting Package

**Table 1: Standard Load Gearmotor Specifications** 

	Single Phase	Three Phase	DC Variable Speed			
Output Power		0.25 hp (0.19 kw)				
Input Voltage	115 Volts A.C.	208 to 230/460 Volts A.C.	130 Volts D.C.			
Input Frequency		60 Hz				
Input Current	5.0 Amperes	5.0 Amperes 1.2 /0.6 Amperes				
Motor RPM		2500				
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1					
Frame Size	NEMA 42 CZ					
Motor Type	Totally Enclosed, Fan-cooled					

#### **Table 2: Heavy Load Gearmotor Specifications**

	Single Phase	Three Phase	DC Variable Speed	VFD Variable Speed		
Output Power		0.50 l	np (0.37 kw)			
Input Voltage	115 VAC 208-230 / 460 VAC		90 VDC	230 VAC		
Input Frequency	6	0 Hz	N/A	10 – 60 Hz		
Input Current	7.4 Amperes	2.1 – 2/1 Amperes 5.0 Amperes		1.6 Amperes		
Motor RPM	1725 2500 1725					
Gearmotor Ratios	5:1, 10:1, 20:1, 40:1, 60:1					
Frame Size	NEMA 56C					
Motor Type	Totally enclosed, Fan-cooled					

## **Specifications**

Table 3: Belt Speeds for Fixed Speed 90° 60 Hz Gearmotors

Standard Load Gearmotors			Heavy Load Gearmotors				Belt Speed		
Part Number	RPM	In-lb	N-m	Part Number	RPM	In-lb	N-m	Ft/min	M/min
32M060HL4(vp)F(n)	29	226	25.5	32M060HS4(vp)F(n)	29	226	25.5	8	2.4
32M040HL4(vp)F(n)	43	237	26.8	32M040HS4(vp)F(n)	43	237	26.8	12	3.7
32M020HL4(vp)F(n)	86	142	16	32M020HS4(vp)F(n)	86	142	16	25	7.6
32M010HL4(vp)F(n)	173	78	8.8	32M010HS4(vp)F(n)	173	78	8.8	49	14.9
32M005HL4(vp)F(n)	345	41	4.6	32M005HS4(vp)F(n)	345	41	4.6	99	30.2

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

23 = 208 - 230/460 V, 3-phase

(n) = Reversing Capability

N = No reversing switch

R = With reversing switch (115V, 1 phase only)

Table 4: Belt Speeds for Variable Speed 90° DC Gearmotors

Standard Load Gearmotors			Heavy Load Gearmotors			Belt Speed			
Part Number	RPM	In-lb	N-m	Part Number	RPM	In-lb	N-m	Ft/min	M/min
32M060HLD3DEN	42	198	22.4	32M060HSD9DEN	42	198	22.4	1.4 – 12	0.4 – 3.6
32M040HLD3DEN	63	163	18.4	32M040HSD9DEN	63	215	24.3	2.1 – 18	0.7 – 5.4
32M020HLD3DEN	125	98	11.1	32M020HSD9DEN	125	196	22.1	4.3 – 36	1.3 – 11
32M010HLD3DEN	250	54	6.1	32M010HSD9DEN	250	108	12.2	9.0 – 71	2.6 – 22
32M005HLD3DEN	500	28	3.2	32M005HSD9DEN	500	56	6.3	17 – 143	5.2 – 43
32M005HLD3DEN	500	28	3.2	32M005HSD9DEN	500	56	6.3	26 – 214	7.8 – 65
32M005HLD3DEN	500	28	3.2	32M005HSD9DEN	500	56	6.3	29 – 245	9.0 – 75

Table 5: Belt Speeds for Variable Speed 90° VFD Gearmotors

Heavy L	Belt S	Speed			
Part Number	RPM*	In-lb	N-m	Ft/min	M/min
32M060HS423EN	29	198	22.4	0.8 – 8.2	0.3 – 2.5
32M040HS423EN	43	163	18.4	1.2 – 12	0.4 - 3.8
32M020HS423EN	86	98	11.1	2.5 – 25	0.8 – 7.5
32M010HS423EN	173	54	6.1	4.9 – 49	1.5 – 15
32M005HS423EN	345	28	3.2	9.9 – 99	3-30

<sup>\* =</sup> At 60 Hz

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

#### **Required Tools**

- Hex key wrenches: 3mm, 4mm, 5mm, 6mm, 8mm
- Large flat-blade screwdriver
- Torque wrench

#### **Mounting**

#### 63M01 Gang Drive Package



#### **Illustration References**

- F Gearmotor Assembly
- G Guard Tube (with inspection plugs installed)
- H Flex Coupling (807-996)
- I Square Key, 5 mm (980540M)
- J Gearmotor Support Assembly
- K Guard Mounting Screws, (4x) M6 x 100 mm, Socket Head
- L Bearing Support Assembly
- M Hexagon Shaft 4-ft (1220 mm) (23-24)
- N Shaft Cover 5-ft (1524 mm) (807-967)
- O Bearing Block (450092)
- **1.** Gather components (Figure 2)

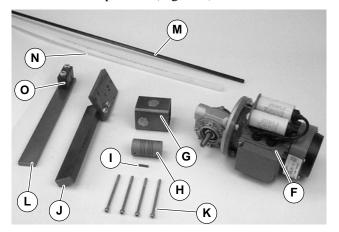
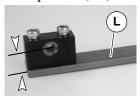


Figure 2

**2.** Check bearing support assembly (L of Figure 3) setup: 2100 (left) and 4100 or 6100 (right).



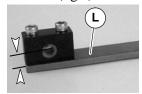
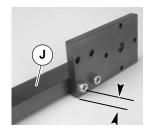


Figure 3

**3.** Check gearmotor support assembly (J of Figure 4) setup: 2100 (left) and 4100 or 6100 (right).



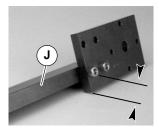


Figure 4



NOTE: Gearmotor may be operated in positions 1, 2, 3 or 4 (Figure 5). Position 4 may reduce gear reducer oil seal life.

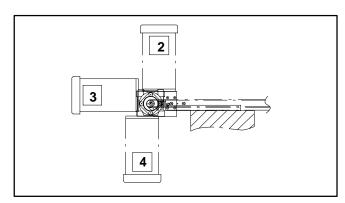


Figure 5

**4.** Attach flex coupling (H of Figure 6) to gearmotor shaft. Tighten set screws (U).

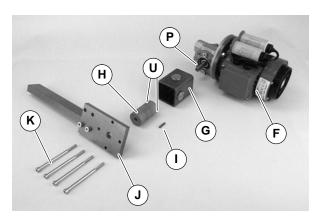


Figure 6

- **5.** Install key (I of Figure 6) in gear reducer shaft (P).
- **6.** Attach guard tube (G) and gearmotor support assembly (J) to gearmotor assembly (F) with screws (K). Tighten screws (K) to 50 in-lb (5.6 Nm).



## **WARNING**

Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.

To prevent injury, both gearmotor and bearing support assemblies must be anchored to mounting surfaces.

NOTE: Mounting holes are not provided. Ensure that gearmotor assembly (J of Figure 7) and bearing support assembly (L) are parallel and center-line of coupling matches center-line of bearing block (O).

**7.** Attach gearmotor assembly (J of Figure 7) and bearing support assembly (L) to mounting surface.

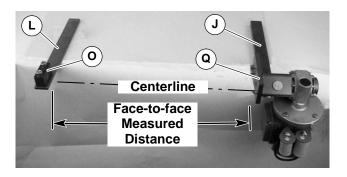


Figure 7

- **8.** Measure distance between motor mounting plate (Q) and bearing block (O).
- **9.** Cut hex shaft (M of Figure 2) to measured distance plus 2-1/8" (54 mm).
- **10.** Align conveyors between gearmotor support assembly (J of Figure 8) and bearing support assembly (L).

NOTE: Do not secure the conveyors (A of Figure 8) to mounting surface.

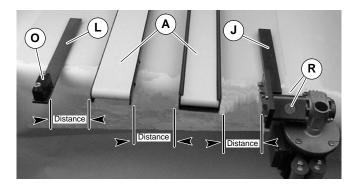
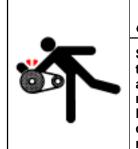


Figure 8



## **↑** WARNING

Shaft covers must be installed to help prevent injury from accidental contact with rotating hex shaft.
Puchase additional shaft cover (807–967) when reconfiguring conveyor setup.

- **11.** Cut shaft cover (N of Figure 2) into pieces to match each distance (Figure 8) minus  $1/16^{\circ}$  (1.5 mm).
- **12.** Remove inspection plugs (R of Figure 8).
- **13.** Remove screws (Tof Figure 9) and remove bearing block (O).
- **14.** Slide hex shaft through conveyors (A of Figure 9) and shaft cover pieces (N) and into flex coupling.

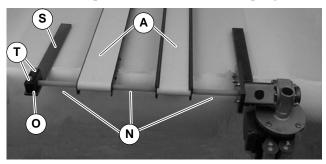


Figure 9

- **15.** Attach bearing block (O of Figure 9) to bearing support bar (S) with screws (T). Tighten screws (T) to 35 ft-lb (45.5Nm).
- **16.** Tighten coupling set screws (U of Figure 10). Replace inspection plugs (R).

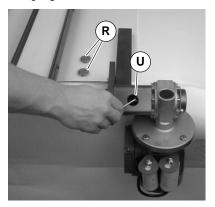


Figure 10

#### 63M03 Dual Output Gang Drive Package



#### **Illustration References**

- F Gearmotor Assembly
- G Guard Tube (2x) (with inspection plugs installed)
- H Flex Coupling (2x) (807-996)
- I Square Key, 5 mm (2x) (980540M)
- J Gearmotor Support Assembly
- K Guard Mounting Screws, (4x) M6 x 100 mm, Socket Head
- L Bearing Support Assembly (2x)
- M Hexagon Shaft 4-ft (1219mm) (2x) (23-24)
- N Shaft Cover 8-ft (2438mm) (807-967)
- O Bearing Block (2x) (450092)
- Shaft Cover
- W Socket Head Screw M6 x 90mm (4x)
- **1.** Gather components (Figure 11).

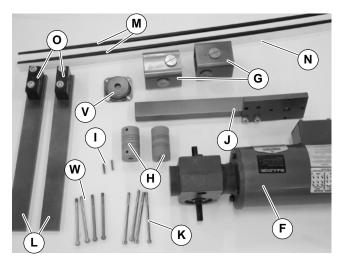
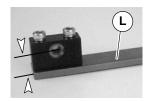


Figure 11

**2.** Check bearing support assembly (L of Figure 12) setup: 2100 (left) and 4100 or 6100 (right).



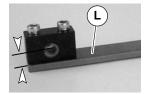
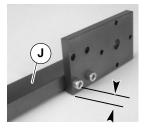


Figure 12

**3.** Check gearmotor support assembly (J of Figure 13) setup: 2100 (left) and 4100 or 6100 (right).



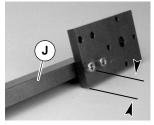


Figure 13



- **4.** Install key (I of Figure 14) in gear reducer shaft (P).
- **5.** Attach flex couplings (H of Figure 14) to gearmotor shaft (P). Tighten set screws (U).

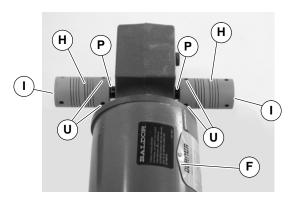


Figure 14

NOTE: Gearmotor may be operated in positions 1, 2, 3 or 4 (Figure 15). Position 4 may reduce gear reducer oil seal life.

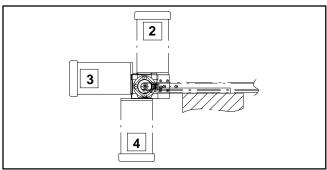


Figure 15

**6.** Attach guard tube (G of Figure 16) and gearmotor support assembly (J) to gearmotor assembly (F) with screws (K). Tighten screws (K) to 50 in-lb (5.6 Nm).

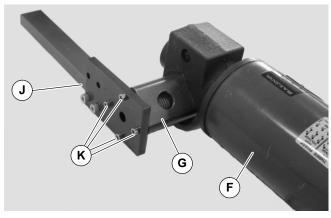


Figure 16

**7.** Attach shaft cover (V of Figure 17) and guard tube (G) with screws (W). Tighten screws (W) to 50 in–lb (5.6 Nm).

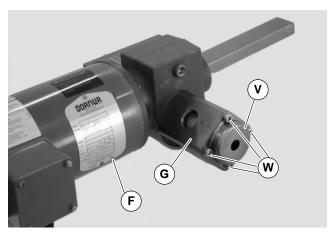


Figure 17



## **MARNING**

Dorner cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user.

To prevent injury, both gearmotor and bearing support assemblies must be anchored to mounting surfaces. NOTE: Mounting holes are not provided. Ensure that gearmotor assembly (J of Figure 18) and bearing support assembly (L) are parallel and center-line of coupling matches center-line of bearing block (O).

**8.** Attach gearmotor assembly (J of Figure 18) and bearing support assemblies (L) to mounting surface.

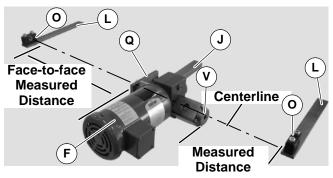


Figure 18

- **9.** Measure distances between motor mounting plate (Q) and bearing block (O) and from shaft cover (V) to bearing block (O).
- **10.** Cut hex shafts (M of Figure 11) to measured distances (Figure 18) plus 2-1/8" (54 mm) on both sides of gearmotor asssembly.
- **11.** Align conveyors between gearmotor support assembly (J of Figure 19) and bearing support assembly (L).

NOTE: Do not secure the conveyors (A of Figure 19) to the mounting surface.

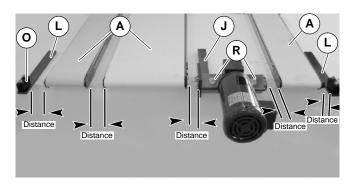
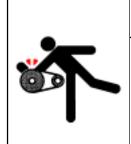


Figure 19



## **⚠** WARNING

Shaft covers must be installed to help prevent injury from accidental contact with rotating hex shaft.

Puchase additional shaft cover (807–967) when reconfiguring conveyor setup.

- **12.** Cut shaft cover (N of Figure 21) into pieces to match each distance (Figure 19) minus 1/16" (1.5 mm).
- **13.** Remove screws (T of Figure 20) and remove bearing blocks (O).

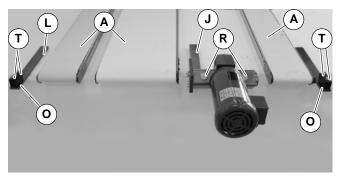


Figure 20

- **14.** Remove four (4) inspection plugs (R of Figure 20).
- **15.** Slide hex shafts (M of Figure 21) through conveyors and shaft cover pieces (N) on both sides of gearmotor assembly (F) and into flex couplings.

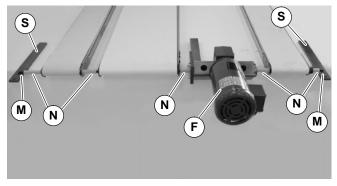


Figure 21

**16.** Attach bearing blocks (O of Figure 22) to bearing support bars (S) with screws (T). Tighten screws (T) to 35 ft-lb (45.5Nm).

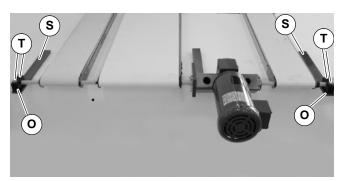


Figure 22

**17.** Tighten coupling hex shaft set screws (U of Figure 23). Replace inspection plugs (R).

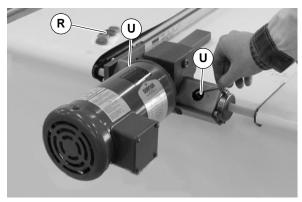


Figure 23

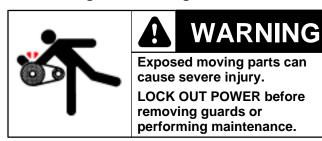
## **Preventive Maintenance and Adjustment**

#### **Required Tools**

- Hex key wrenches: 2.5mm, 3mm, 5mm, 6mm, 8mm
- Large flat-blade screwdriver
- Adjustable wrench (for hexagon head screws)
- Torque wrench

#### **Gear Reducer Replacement**

#### 63M01 Gang Drive Package





1. Remove inspection plugs (R of Figure 24). Jog motor and rotate coupling to align set screws (U) with access hole (Z). Loosen set screw (U). Repeat for second set screw.

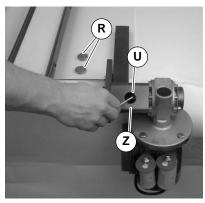


Figure 24

**2.** Remove four (4) screws (K of Figure 25) and remove gear motor assembly (F).

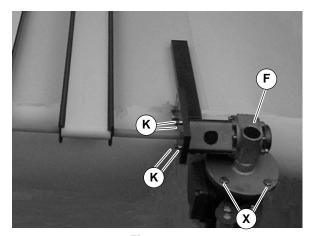


Figure 25

**3.** Remove four screws (X of Figure 26). Detach motor (AA) from gear reducer (AB). Retain shaft key (Y).

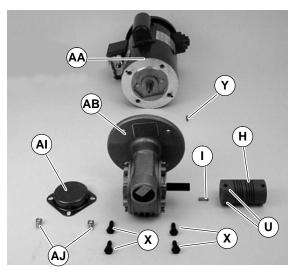


Figure 26

- **4.** Remove two (2) screws (AJ) and detach output shaft cover (AI).
- **5.** Remove gear reducer output shaft key (I).
- **6.** Loosen six (6) set screws (AC of Figure 27). Remove drive shaft (P) and key (AD).

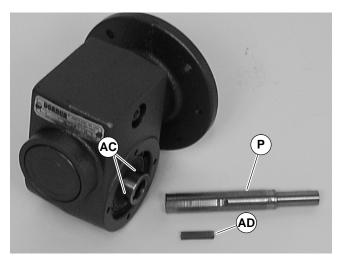


Figure 27

**7.** Apply grease (AE of Figure 28) to shaft.

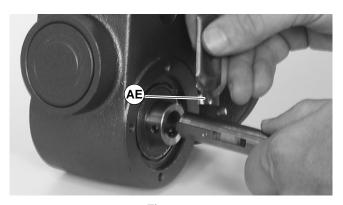


Figure 28

**8.** Replace the original shaft components into new gear reducer (see Figure 27).

**IMPORTANT:** Be extremely careful when coupling motor to gear reducer. Avoid misalignment and forcing the connection causing possible permanent gear reducer seal damage.

- **9.** With key (Y of Figure 26) in keyway, slide motor (AA) and gear reducer (AB) together. Install screws (X) and tighten.
- **10.** Attach coupling (H of Figure 26) to gear reducer shaft. Tighten two set screws (U) to 32 in-lb (4.7 Nm).
- **11.** Attach gearmotor support assembly (J of Figure 29) and guard tube (G) to gearmotor assembly (F). Tighten screws (K) to 103 in-lb (12 Nm).

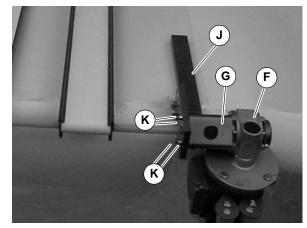


Figure 29

**12.** Tighten coupling set screws (U of Figure 30). Replace inspection plugs (R).

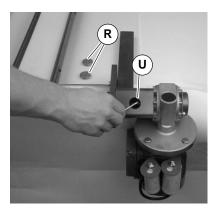


Figure 30

#### 63M03 Dual Output Gang Drive Package



**1.** Remove inspection plugs (R of Figure 31).

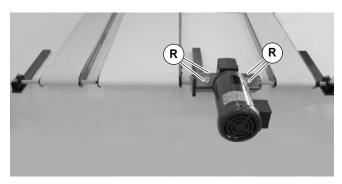


Figure 31



**2.** Jog motor and rotate coupling to align set screws (U of Figure 32) with access hole (AH). Loosen set screws (U) on both sides of gearmotor assembly (F). Repeat for second set screws.

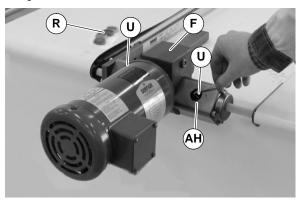


Figure 32

**3.** Remove four (4) screws (T of Figure 33). Remove bearing blocks (O).

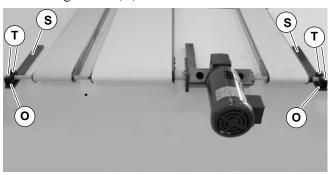


Figure 33

**4.** Remove hex shafts (M of Figure 34) and shaft cover pieces (N).

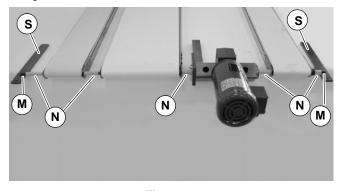


Figure 34

**5.** Remove four (4) screws (W of Figure 35) and remove guard tube (G). Loosen set srews (U) and remove flex coupling (H).

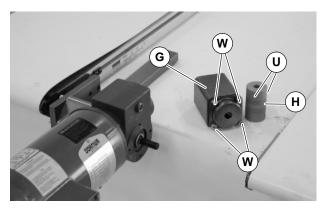


Figure 35

**6.** Remove four (4) screws (K of Figure 36) and remove guard tube (G) and flex coupling (H). Remove gearmotor assembly (F).

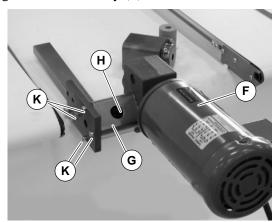


Figure 36

**7.** Remove four screws (X of Figure 37). Detach motor (AA) from gear reducer (AB). Retain shaft key (Y).

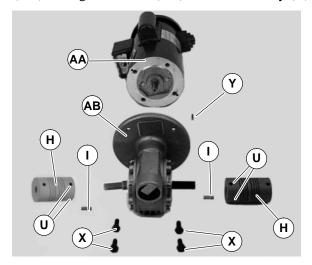


Figure 37

**8.** Remove gear reducer output shaft keys (I).

**9.** Loosen six (6) set screws (AC of Figure 38). Remove drive shaft (P) and key (AD).

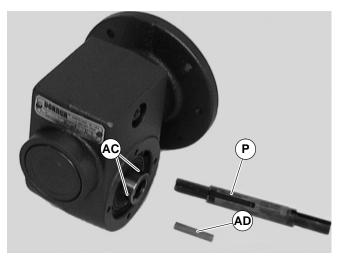


Figure 38

**10.** Apply grease (AE of Figure 39) to shaft.

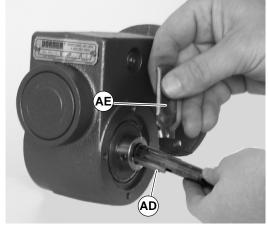


Figure 39

**11.** Replace the original shaft components into new gear reducer (see Figure 38).

IMPORTANT: Be extremely careful when coupling motor to gear reducer. Avoid misalignment and forcing the connection causing possible permanent gear reducer seal damage.

- **12.** With key (Y of Figure 37) in keyway, slide motor (AA) and gear reducer (AB) together. Install screws (X) and tighten.
- **13.** Attach couplings (H of Figure 37) to gear reducer shaft. Tighten set screws (U) to 32 in-lb (4.7 Nm).
- **14.** Complete installation steps on page 8. See "63M03 Dual Ouput Gang Drive Package" section, steps 7 through 18.

#### **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.

LOCKOUT POWER BEFORE wiring.

- **1.** For single phase motor, unplug power cord from outlet.
- **2.** For three phase motor:
  - **a**. Loosen terminal box screws (AF of Figure 40) and remove cover (AG).

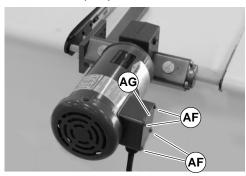


Figure 40

- **b.** Record wire colors connecting to wires 1, 2 and 3. Loosen wire nuts and remove wires 1, 2 and 3.
- **c**. Loosen cord grip and remove cord.
- **3.** For DC variable speed motor, unplug motor cord at disconnect (AH of Figure 41).

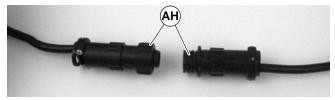


Figure 41

**4.** Remove four screws (X of Figure 42). Detach motor (AA) from gear reducer (AB). Retain motor output shaft key (Y of Figure 43).

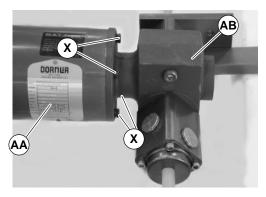


Figure 42

**IMPORTANT:** Be extremely careful when coupling motor to gear reducer. Avoid misalignment and forcing the connection causing possible permanent gear reducer seal damage.

**5.** With key (Y of Figure 43) in keyway, slide new motor and gear reducer together. Install screws (X) and tighten.

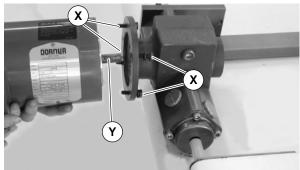


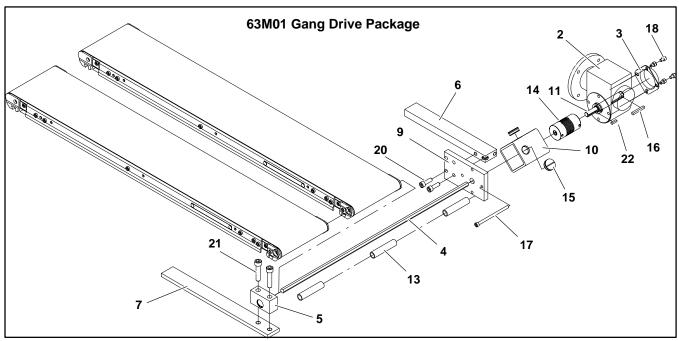
Figure 43

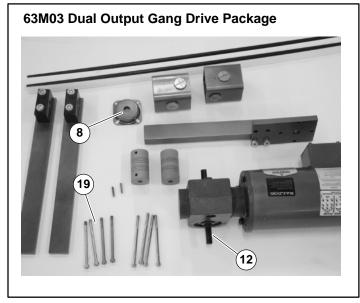
- **6.** Replace wiring:
- For a single phase motor, reverse step 1 on this page.
- For a three phase motor, reverse step 2, on this page.
- For a DC variable speed motor, reverse step 3 on this page.

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## **Service Parts**

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







## Service Parts

Item	Part Number	Part Description
1	826-328	Motor, 0.25 Hp (0.19 Kw) 115/230 Volts, 60 Hz, 1-Phase
	826-337	Motor, 0.25 Hp (0.19 Kw) 115/230 Volts, 60 Hz, 1-Phase with Reversing
	826-330	Motor, 0.25 Hp (0.19 Kw) 208-230/460 Volts, 60 Hz, 3-Phase
	826-332	Motor, 0.25 Hp (0.19 Kw) 130 Volts DC
	826-017	Motor, 0.5 hp (0.37 Kw) 115/230 Volts, 60 Hz, 1-Phase
	826-025	Motor, 0.5 hp (0.37 Kw) 208–230/460 Volts, 60 Hz, 3-Phase
	826-333	Motor, 0.5 hp (0.37 Kw) 90 Volts DC
	826-249	Motor, 0.5 hp (0.37 Kw) 230V, 10–60Hz, Inverter Duty, 3 Phase
2	32M005HL	Gear Reducer, 5:1, 42CZ
	32M010HL	Gear Reducer, 10:1, 42CZ
	32M020HL	Gear Reducer, 20:1, 42CZ
	32M040HL	Gear Reducer, 40:1, 42CZ
	32M060HL	Gear Reducer, 60:1, 42CZ
	32M005HS	Gear Reducer, 5:1, 56C
	32M010HS	Gear Reducer, 10:1, 56C
	32M020HS	Gear Reducer, 20:1, 56C
	32M040HS	Gear Reducer, 40:1, 56C
	32M060HS	Gear Reducer, 60:1, 56C

Item	Part Number	Part Description
3	300139M	Shaft Cover, Drive Bearing
4	43–24	Hex Shaft, 4' (1219mm)
5	450092	Block Assembly
6	450093M	Drive Bar, Motor Mount
7	450094M	Drive Bar, Bearing Block
8	450095M	Shaft Cover Euro Bolster
9	450099M	Drive Plate
10	450267M	Spacer Tube, Side Drive
11	450444M	Output Shaft, Grove 12mm
12	450470M	Output Shaft, 12mm Double
13	807–967	Flexible Tubing
14	807–996	Flex Coupling 1.5 D x 12mm x 3/8 H
15	821–322	Plug
16	912–084	Square Key .188" x 1.50"
17	920600M	Socket Head Screw M6 x 100mm
18	920608M	Socket Head Screw M6 x 8mm
19	920690M	Socket Head Screw M6 x 90mm
20	920825M	Socket Head Screw M8 x 25mm
21	921045M	Socket Head Screw M10 x 45mm
22	980416M	Square Key 4mm x 16mm

## **Return Policy**

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

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



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