Warner Clutch/Brake Adjustment

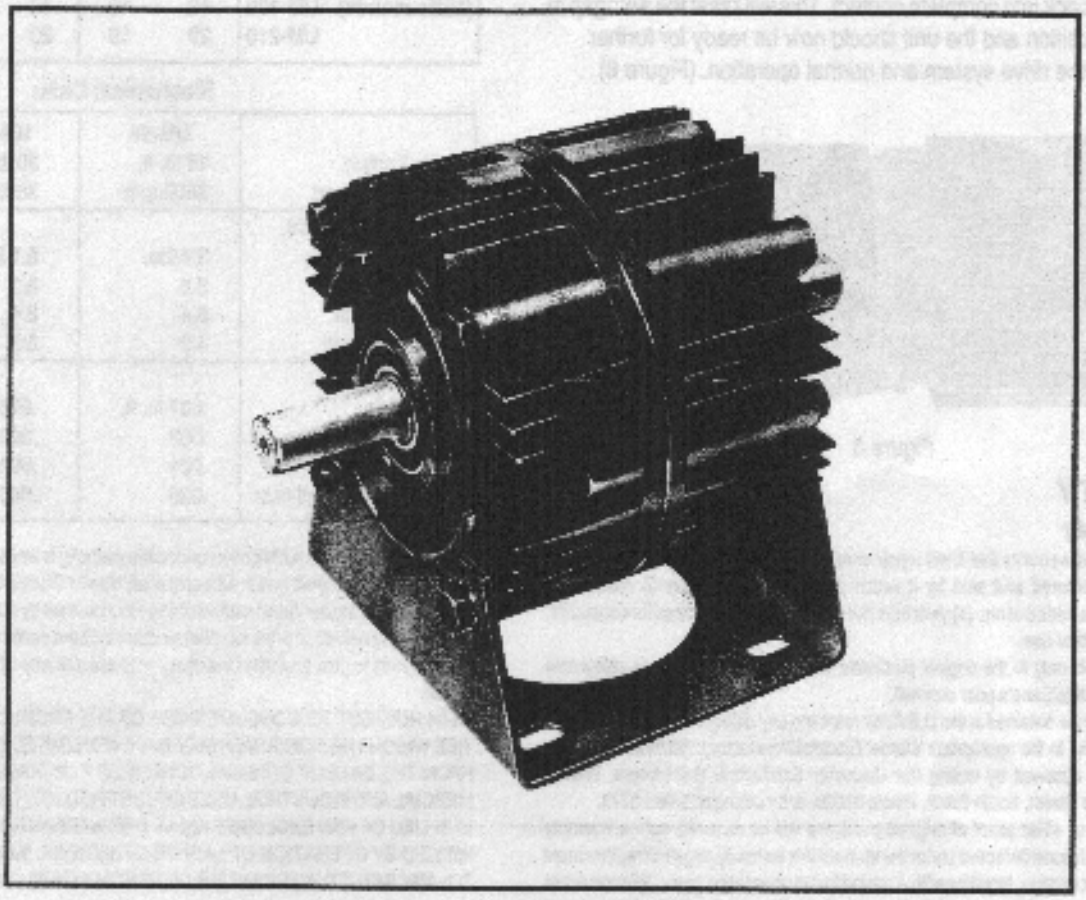
- Tools needed: One medium size flat blade screwdriver.
- Turn off power at main disconnect.
- Remove drive belt from variable speed pulley.
- Squat down facing the drive motor and clutch brake. The clutch/brake has a squirrel cage type of fan that you can see through the louvers of the housing. Using your left hand on the variable pulley, move it until you find a large slot in the squirrel cage fan. At this point you will see two shiny metal faces that are opposed to each other. Insert a flat blade screw driver in between these metal faces and pry them apart from each other. Now move the variable pulley in one direction a little and repeat the procedure. Do this procedure all away around while moving the variable speed pulley until you have completed one complete rotation. This should complete the adjustment.
- Replace the drive belt.
- Turn on power at disconnect.
- Test the drive by jogging the machine.

819-0343

WARNER

INSTALLATION & OPERATION MANUAL

Preassembled Clutch/Brake Module



WARNER ELECTRIC®

DANA

Start-Up:

With the motor at rest, check the following:

A. Spin the output shaft by hand to insure that it turns freely.

B. With full voltage applied to the clutch or brake, switch back and forth between the clutch and brake and observe the armatures (plates) through the vent holes and opening in the fan. They should move back and forth approximately 1/32" when switched.

C. If a scraping sound is noted when the output shaft is spun, it means an armature is dragging slightly because of shock and displacement during shipment. This is easily corrected.

Insert a screwdriver through the vent holes and slot in the fan and pry the dragging armature (clutch or brake as observed) away from the mating surface evenly all the way around as far as it will move. Then insert the screwdriver between the two armatures (back to back) and pry it evenly back into complete contact. This will reset the autogap in the proper position and the unit should now be ready for further assembly in the drive system and normal operation. (Figure 8)

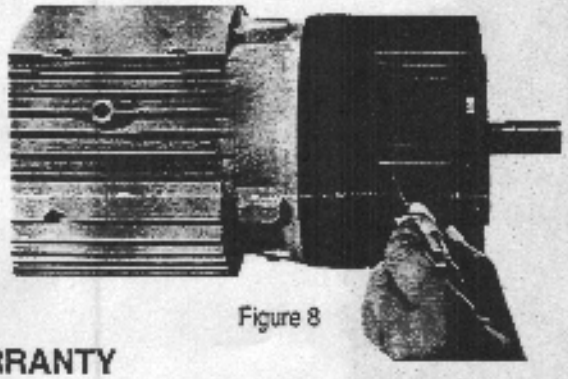


Figure 8

WARRANTY

Limited Warranty

Warner Electric/Dana warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of one (1) year from the date of original purchase for consumer, commercial or industrial use.

This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric/Dana's prior consent.

Warranty service can be obtained in the U.S.A. by returning any defective product, transportation charges prepaid, to the appropriate Warner Electric/Dana factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric, 449 Gardner Street, South Beloit, Illinois 61080, or by calling 815-389-3771.

A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

Some States do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Electrical Coil Data:
(Unimodule)

		Clutch	Brake	Clutch	Brake	Clutch	Brake
Voltage-D.C.		90	90	24	24	6	6
Resistance (OHMS)	UM-50	452	452	31.8	31.8	1.86	1.86
	UM-180	362	362	26.7	26.7	1.9	1.9
	UM-210	264	264	17.9	17.9	1.33	1.33
AMPERES	UM-50	.199	.201	.755	.755	3.23	3.23
	UM-180	.249	.249	.896	.896	3.1	3.1
	UM-210	.341	.341	1.34	1.34	4.5	4.5
WATTS	UM-50	18	18	18	18	19	19
	UM-180	22	22	21.5	21.5	19	19
	UM-210	30.7	30.7	32	32	27	27
Build Up (Milliseconds)	UM-50	52	53	52	53	52	53
	UM-180	72	75	72	75	72	70
	UM-210	120	100	120	100	110	100
Decay (Milliseconds)	UM-50	6.2	5.0	6.2	5.0	6.5	5.0
	UM-180	12	10	12	10	12	10
	UM-210	20	10	20	10	20	10

Mechanical Data:

	UM-50	UM-180	UM-210
Static Torque	16 lb. ft.	30 lb. ft.	95 lb. ft.
Maximum Speed	3600 rpm	3600 rpm	3600 rpm
Average Weight-lbs.			
Motor Clutch	3.4 lbs.	5.1 lbs.	9.1 lbs.
Brake	6.6	8.1	21.5
Input Clutch	6.4	8.4	19.8
Output Clutch	4.9	5.2	15.2
Inertia - WR			
Armature	.007 lb. ft.	.016 lb. ft.	.081 lb. ft.
Armature hub	.002	.003	.021
Shaft	.001	.002	.017
Rotor w/Fan and hub	.020	.046	.166

Warner Electric/Dana's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric/Dana be liable for consequential, indirect, or incidental damages of any kind incurred by reason of the manufacture, sale or use of any defective product. Warner Electric/Dana neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.

WITH RESPECT TO CONSUMER USE OF THE PRODUCT, ANY IMPLIED WARRANTIES WHICH THE CONSUMER MAY HAVE ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL CONSUMER PURCHASE. WITH RESPECT TO COMMERCIAL AND INDUSTRIAL USES OF THE PRODUCT, THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

WARNER ELECTRIC INDUSTRIAL PRODUCTS DIVISION
ROSCOE PLANT
449 GARDNER STREET
SOUTH BELOIT, IL 61080
(815) 389-3771 FAX: (815) 389-6639

P-273-1 819-0343 9/96 Printed in U.S.A.

WARNER ELECTRIC®

DANA

WARNER

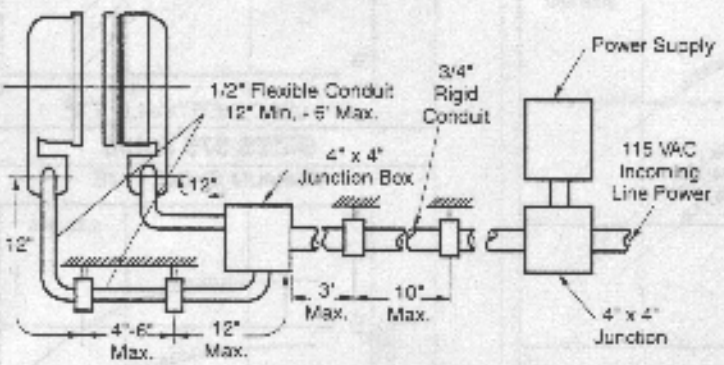
INSTALLATION & OPERATION MANUAL

Recommended Electrical Installation Procedure for Warner Electric Clutches and Brakes

Warner Electric clutches and brakes conform to UL (Underwriters Laboratories) and CSA (Canadian Standards Association) requirements. All packaged products come with conduit boxes or are enclosed in housings with provision for electrical conduit connection. UL Listed/CSA Certified fittings must be used in making connections. All size 400 and larger SF clutch fields and brake magnets accept UL and CSA conforming conduit boxes available from Warner Electric. UL Listed/CSA Certified fittings must be used in making connections.

The National Electrical Code (NEC) requires that conductors subject to physical damage be adequately protected. When electrical conduit is used, a minimum of 12" of 1/2 " flexible conduit is to be used between each brake and/or clutch and its box. This construction will prevent improper bearing loading in bearing mounted units and ease field and magnet assembly and disassembly. Refer to the information below for proper installation practices and wire sizes.

Notwithstanding the above recommendations, all electrical installations should conform to NEC and/or other governing electrical codes.



Recommended wire size versus maximum distance

Wire Size AWG	Fractional Horsepower Sizes 170-400 Distance (feet) 6 volt	24 volt	90 volt	Integral Horsepower Sizes 500-1525 Distance (feet) 6 volt	24 volt	90 volt
18	20	280	1000	4	65	700
16	30	430		6	95	
14	50	720		10	160	
12	75	720		10	160	
10	125			25	400	
8	200			40		

General construction wire type MTW or THW recommended.
#6 terminal screws (size 400 and smaller) are to be torqued to 15 in-lb.
#8 terminal screws (size 500 and larger) are to be torqued to 20 in-lb.

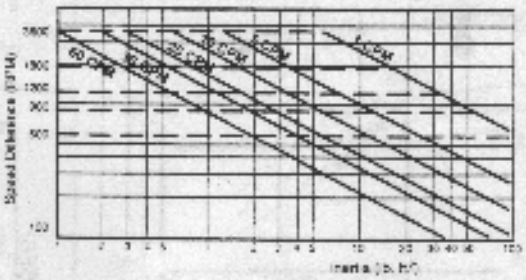
CYCLE RATES

The performance curves below and on the following page meet current UL Listing and Recognition coil temperature limitations, which are class A or 105° C. Consult Warner Electric's Master Catalog, P-1000, for performance characteristics for applications not subject to UL listings.

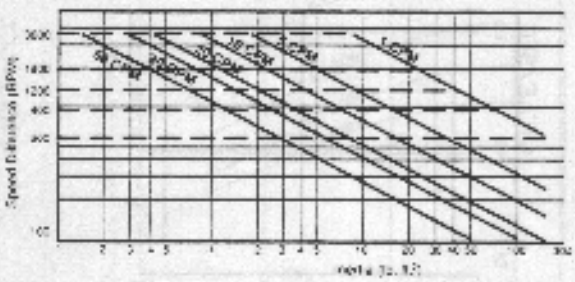
AT MODELS

Select the chart for the appropriate size AT clutch or brake. The intersection of the reflected inertia (lb.ft) and speed difference (RPM) lines will indicate the maximum cycle rate for that size unit.

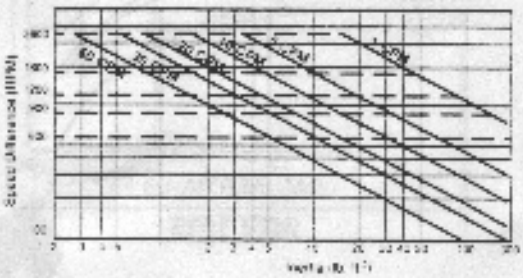
AT 25



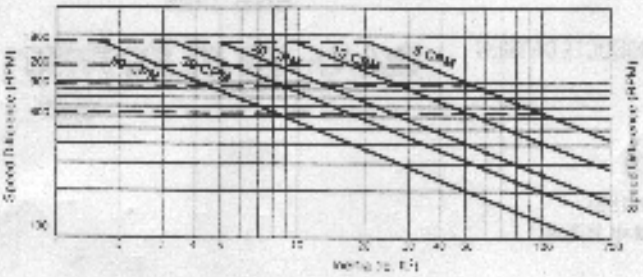
AT 55



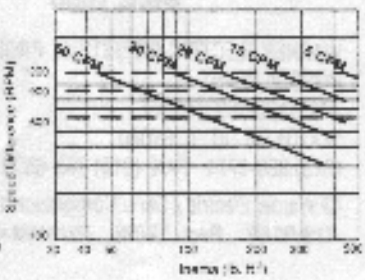
AT 115



AT 205

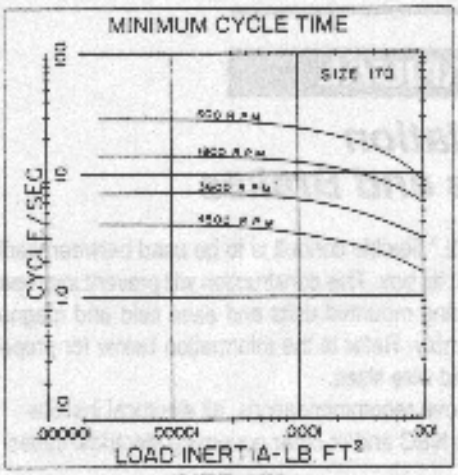


AT305

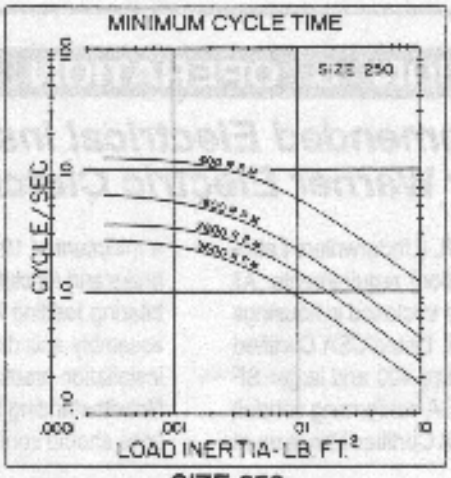


PACKAGED AND BASIC PRODUCTS, SIZES 120-1525

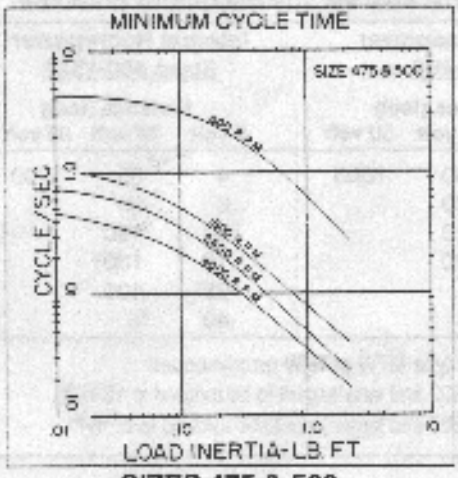
To determine maximum allowable cycle rate, select the chart which covers your size clutch or brake, refer to the horizontal "Load Inertia" axis and project vertically until intersecting the applicable RPM line. Then project horizontally to the left to intersect the vertical cycle / second axis. This is the maximum cycle rate allowable for class A operation.



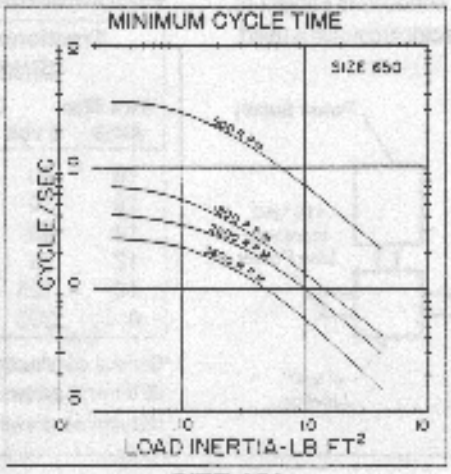
SIZE 170



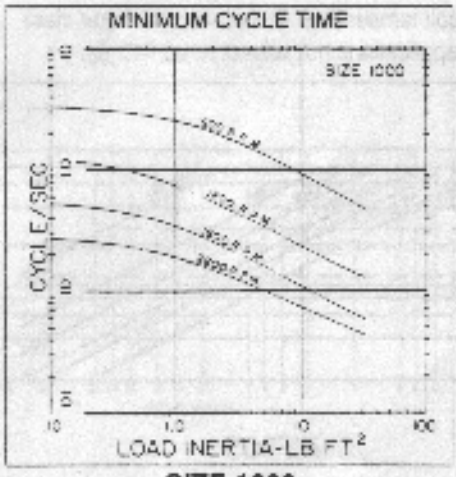
SIZE 250



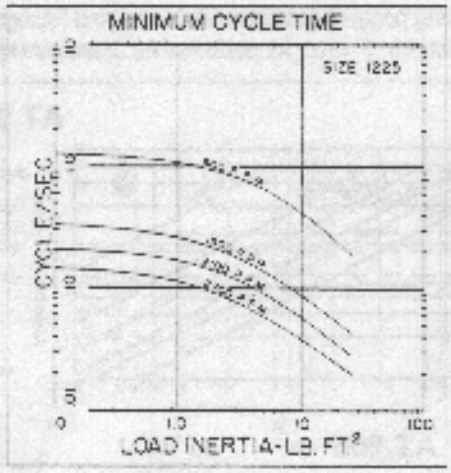
SIZES 475 & 500



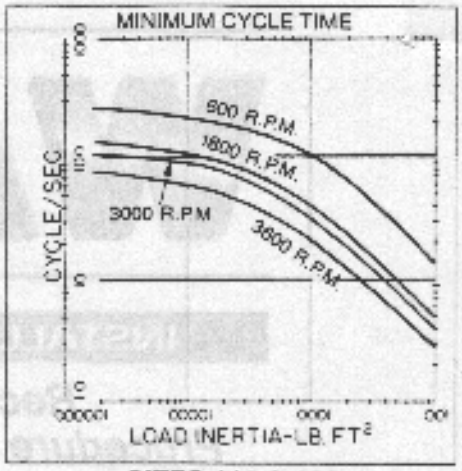
SIZE 650



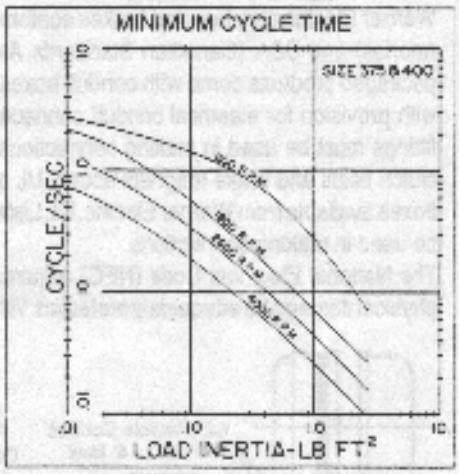
SIZE 1000



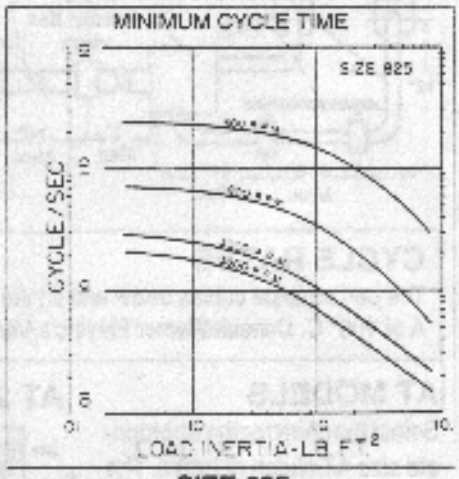
SIZE 1225



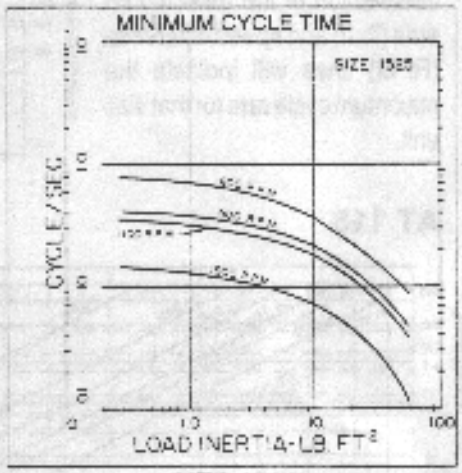
SIZES 110 & 120



SIZES 375 & 400



SIZE 825



SIZE 1525

WARNER ELECTRIC INDUSTRIAL PRODUCTS DIVISION
ROSCOE PLANT
449 GARDNER STREET
SOUTH BELOIT, IL 61080
(815) 389-3771 FAX: (815) 389-5639

WARNER ELECTRIC®

819-0188 Rev. 12/96 Printed in U.S.A.

Preassembled Clutch/Brake Module Installation Instructions

INTRODUCTION

Warner Electric's Unimodule has been designed to NEMA standards and can be installed with all standard power transmission drive systems. Before installing the Unimodule to a motor or reducer, make certain that the UM Unimodule size and NEMA frame dimensions match according to the following chart.

UM Size	Corresponding NEMA Frame Sizes		Shaft Dia.	C-Face Pilot Dia.
	Old NEMA	New NEMA		
50	56 C	48 Y	5/8	4 1/2
100	56 C	48 Y	5/8	4 1/2
180	182 C 184 C	143 TC 145 TC	7/8	4 1/2
210	213 C 215 C	182 TC 184 TC	1 1/8	8 1/2

Install your specific modular combination according to the installation steps specified in the table. Use only those steps indicated for each combination.

The 1020 and 1040 Unimodules are furnished with a special key already assembled in the rotor hub.

The size 210 Unimodules require an adapter ring to be mounted to the motor prior to mounting the 1020 or 1040 Unilmodule. Adapter and mounting hardware are provided with the Unimodule assembly.

NOTE: The equipment covered by this service manual must be installed in accordance with these instructions. Failure to do so may damage the equipment and void the warranty.

Mounting to a Motor:

STEP 1:

Slide the assembly onto the motor shaft as shown in Figure 1. Align the key in the Unimodule with the motor shaft keyway.

Do not use force. If the Unimodule does not slide on freely, polish the motor shaft sufficiently to achieve a slip fit.

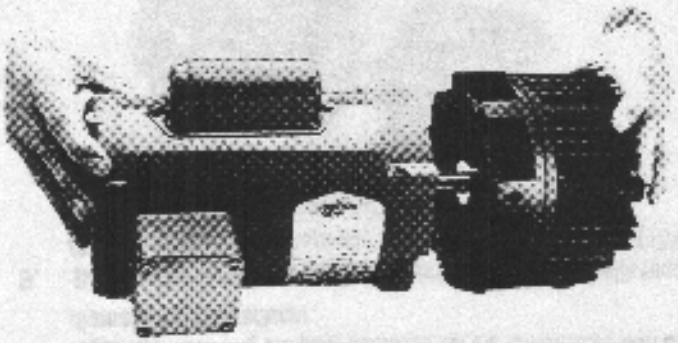


Figure 1

For These UM Combinations		Use These Installation Steps:
	Unimodule Clutch-Brake Between C-Face Motor and Reducer - 1020 Unimodule Clutch between Motor and Reducer - 1040	Mounting to a Motor Mounting to a Reducer Electrical Connections Start Up
	Unimodule Clutch-Brake - 2030 Unimodule Clutch - 3040	Chain or pulley Drive to a Reducer Electrical Connection Start Up
	Motor Mount Module Clutch-Brake on a C-Face Motor - 1020-M Motor Mount Unimodule Clutch on a C-Face Motor - 1040-M	Mounting to a Motor Installing the Motor Mount Electrical Connection Start Up
	Base Mounted Unimodule Clutch-Brake - 2030-B Unimodule Clutch - 3040-B	Installing the Base Mount Electrical Connection Start Up

STEP 2 (Figure 2):

The housing is provided with vent holes which are normally placed in the down position. Rotate the assembly to where the vent holes are toward the bottom and insert the four long capscrews (provided) through the mounting holes in the housing and into the motor face. Tighten alternately and securely. (30 to 35 ft. lbs.)

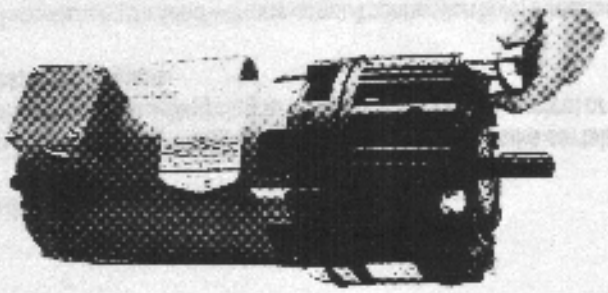


Figure 2

STEP 3:

The access hole for the Allen wrench to tighten the rotor setscrews is shown in Figure 3. Rotate the clutch rotor as necessary to insert the wrench into the setscrews. Tighten both screws alternately and securely. (40 to 45 in. lbs. for 180 size, 80 to 85 in. lbs. for 50 and 210 sizes.)

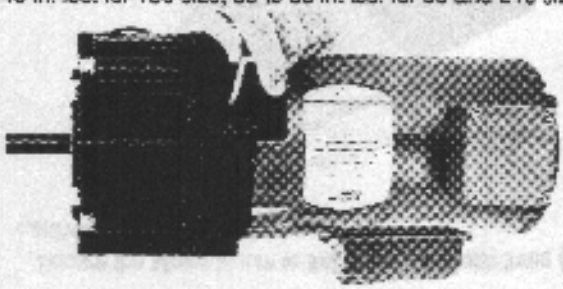


Figure 3

Mounting to a Reducer (Figure 4):

The output side of a Unimodule may be mounted directly to a reducer.

A. Align the output shaft and key of the Unimodule with the correspond ing shaft hole and keyway of the reducer. Slide the assembly together, matching the pilot diameter on the Unimodule with a pilot diameter on the reducer.

B. Bolt the Unimodule to the reducer flange. The four (4) bolts required (3/8 - 16 UNC-2A) are normally furnished with the reducer. (18 to 22 ft. lbs. for 50 and 180 sizes, 40 to 45 lbs. for 210 size.)

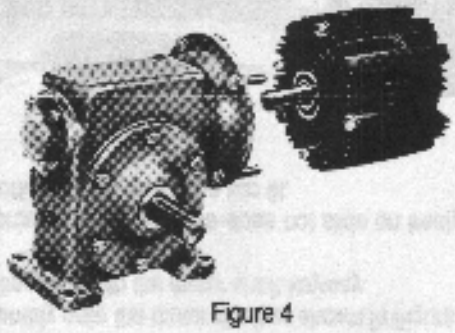


Figure 4

Installing the Base Mount:

Unimodules 2030 and 3040 can be base-mounted (Figure 5).

A. Mount each Unimodule so that the base is located below the ventilation holes. A pilot diameter on the end of each Unimodule mates with pilot diameters on the base.

B. Secure the base to the Unimodule with the four (4) bolts provided. (18 to 22 ft. lbs. for 50 and 180 sizes, 40 to 45 ft. lbs. for 210 size.)

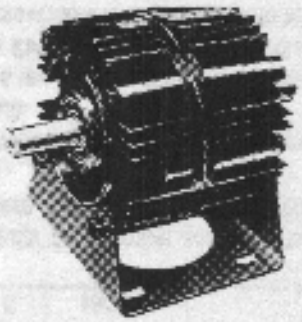


Figure 5

Installing the Motor Mount (M):

A Motor Mount (M) can be installed to theoutput end of the Unimodule to provide a foot mounting for the complete assembly of Unimodule and motor.

Size 50 and 180:

A. Remove the two (2) long hex head bolts from the side of the Unimodule toward the ventilation holes.

B. Mount the Unimodule on the Motor Mount so that the base of the Motor Mount is underneath the Unimodule and motor (Figure 6). A pilot diameter on the Unimodule mates with a pilot diameter on the Motor Mount.

C. Secure the Motor Mount in place with two (2) longer mounting bolts (30 to 35 ft lbs.) and the two shorter bolts (18 to 22 ft. lbs.) all provided in the kit.

Size 210:

A. Mount the Unimodule on the Motor Mount so that the base of the Motor Mount is underneath the Unimodule and motor (Figure 6). A pilot diameter on the Unimodule mates with a pilot diameter on the Motor Mount.

B. Secure the Motor Mount to the Unimodule with three (3) bolts provided. (40 to 45 ft. lbs.)

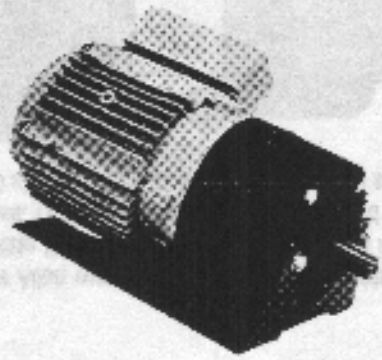


Figure 6

Electrical Connections:

WARNING: To avoid injury (or even death), always make certain all power is off before attempting to install or service this control or any electrical equipment.

The Unimodule is provided with one conduit connection hole, threaded for standard 1/2" conduit connectors. Both the clutch and the brake lead wires are brought out through this opening. The conduit box accessory kit, P/N 5370-101-042, provides two conduit connection holes for standard 1/2" conduit connectors.

The clutch and brake coils operate on DC voltage. Warner Electric offers a full line of AC voltage powered controls to meet the needs of almost every clutch/brake application. The service and installation instructions included with each Warner Electric control show the proper electrical connections.

Please refer to the figure below for the proper Unimodule electrical connections. **Clutch leads are identified with a white insulator sleeve. Brake leads have a black insulator sleeve.**