SF-825, SF-1000, SF-1225, SF-1525, Pin Drive Armature, Spline Drive Armature and SF-1525 Hi Torque

P-215
819-0515

Installation Instructions

Warner® Electric

An Altra Industrial Motion Company

Contents

⚠WARNING Follow the installation instructions in this manual carefully to ensure safe, reliable operation. All stated or implied manufacturer warranties are voided if this product is not installed in accordance with these instructions.

⚠WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

SF-825
Pin Drive
Bearing Mounted

SF-825
Spline Drive
Bearing Mounted

Clutch
Pin Drive Armature

SF-825 SF-1000 SF-1225 SF-1525

The illustration drawings, parts lists, and exploded views for these units can be found beginning on page 12.

A. Installing the Conduit Box

Installation instrutions for the conduit box can be found with Conduit Box.

B. Mounting the Field-and-Rotor Assembly

Flange-Mounted Units

The fields and rotors are shipped separately for flange-mounted units. On some applications it will be necessary to mount the rotor first, and then bring the field into position. In other instances the field will be mounted first, and then the rotor (mounted on a shaft) will be inserted into place.

1. Mounting the Field
   a. Care must be taken in selecting the location for mounting the field assembly. Pilot diameters are machined on the field mounting flange to aid in holding the field in the proper position.

   b. An appropriate pilot diameter must be provided on the mounting surface as well. (Figure 1)

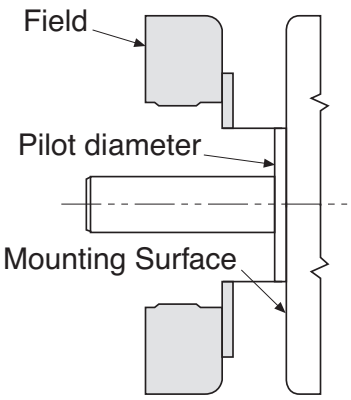


Figure 1

   c. The field assembly is then fastened in place with capscrews and lockwashers. (Figure 2)

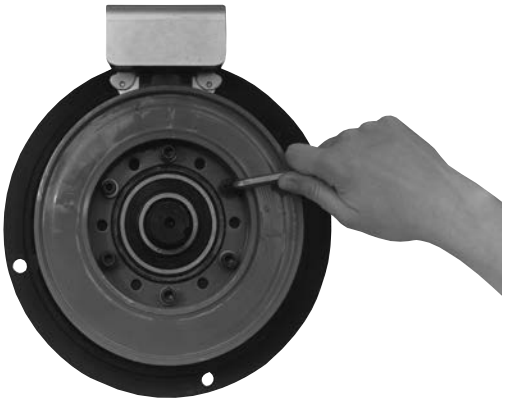


Figure 2

   d. After the unit is in place the mounting face and pilot diameter must be square and concentric with the shaft in accordance with the tolerances listed on the drawings. (Figure 3)

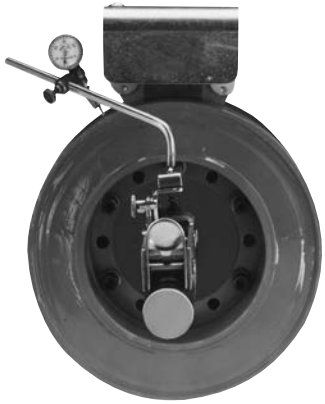


Figure 3

2. Mounting the Rotor
   a. Assemble the rotor to the rotor hub with capscrews and lockwashers. The rotor is reversible depending on the side from which the taperlock bushing must enter. A pilot diameter is machined on the rotor hub to assure a proper fit.

   b. The rotor hub is mounted on the shaft with a taperlock bushing. Be sure all parts are clean and free of dirt, chips, and burrs before assembling.

   c. Insert the bushing into the tapered bore.

   d. Loosely assemble the two locking screws between the bushing and rotor.

   e. Insert the key into the shaft keyway. Prick punch the end of the keyway to ensure that the key cannot slide out.

f. Slide the rotor assembly over the key and onto the shaft.

g. Place the edge of the rotor 1/16" - 1/8" before the line that is inscribed into the O.D. of the field.

h. Lock the rotor into place by alternately tightening the two locking screws in the bushing. As the screws are tightened, the rotor normally is pulled 1/16" - 1/8" further onto the bushing (towards the field). **When the rotor is secured tightly on the bushing, the edge of the rotor must be approximately even with the line inscribed in the field.** The overall axial dimension from the face of the rotor to the back of the field flange is shown on the illustration drawings. Squareness and concentricity tolerances must also be held as specified on the drawings to assure that the unit functions correctly.

Bearing-Mounted Units

In bearing-mounted units, the field and rotor are shipped as an assembly. Either this assembly or the armature and hub assembly can be mounted on the shaft first, depending on the characteristics of each application.

1. Field and rotor assemblies are mounted on the shaft with a Taperlock bushing. Insert the bushing into the tapered bore.

2. Loosely assemble the two locking screws between the Taperlock bushing and the rotor.

3. Insert the key into the shaft keyway. Prick punch the end of the keyway to ensure that the key cannot slide out.

4. Slide the rotor assembly onto the shaft over the key.

5. If the armature has been secured to the shaft first, adjust the rotor's position to allow a 1/32-inch gap between the two faces. (See Figure 10.)

6. Lock the assembly into place by alternately tightening the two locking screws.

7. A tab or torque arm on the field is used to prevent rotation of the field caused by normal bearing drag. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however, should the field be so tightly restrained as to preload the bearing. (For more information on torque tabs, see page 8.)

C. Assembling the Armature

1. A customer may wish to use the autogap accessory to mount a clutch armature to his own pulley, hub, gear, etc. Follow the illustrated dimensions (Figures 4 & 5) to properly adapt these parts to the armature.

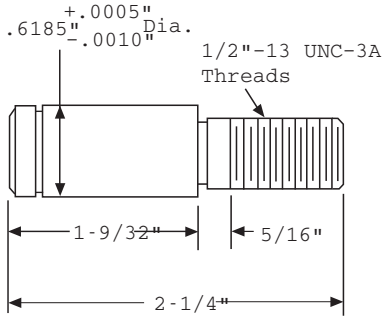


Figure 4

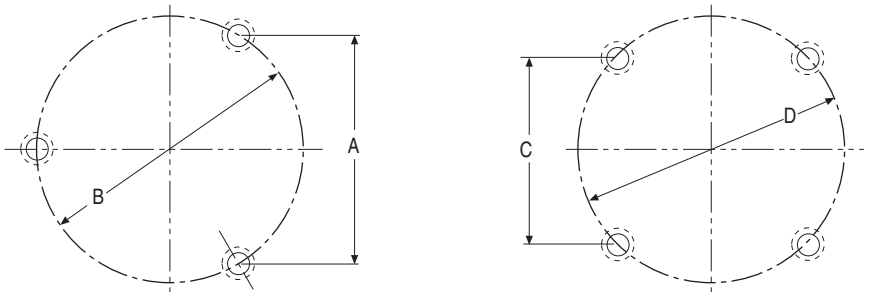
a. Chordal dimensions "A" or "C" must be held for all chords between pin holes.

b. Drill 27/64-inch diameter holes to a sufficient depth, and tap for 1/2-13 NC-3 one-inch minimum full threads. The holes must be square with the plane of the mounting surface.

c. Ream .501/.500 to a 3/8-inch depth and concentric with the tapped holes.

2. Once the pulley, gear, etc., has been adapted according to the above directions, the armature may be mounted to it using the autogap accessory.

3. The autogap assembly is a double spring device which allows for automatic armature clearance and adjustment for wear. The smaller or conical spring pushes the armature from the rotor face, leaving a gap of about 1/32-inch, while the straight spring automatically follows up for wear. This combination maintains maximum performance efficiency throughout the life of the unit.



Unit Size	A	B	C	D
825	3.085 ± .001	3.563 ± .001		
1000	4.548 ±.002	5.252 ±.002		
1225			4.155 ±.002	5.877 ±.002
1525			6.010 ±.002	8.500 ±.002

Figure 5

The assembly procedure for the autogap accessory is as follows:

Note: The 1225 and 1525 units are mounted with four drive pins instead of three as shown in the picture; however, the assembly procedure is the same for either case.

Step 1

Place straight (white) springs over armature bosses on back (unsegmented) side of armature. (Figure 6)

Figure 6

Step 2

Compress heavy (red) spring against retainer ring by sliding detent spring towards the head of the pin. (Figure 7)

Figure 7

Step 3

Insert assembled drive pins through armature (entering from segmented side), through straight (white) springs, and into customer-supplied part. (Figure 8)

Note: Apply Grade "AA" Loctite® Sealant on pin threads.

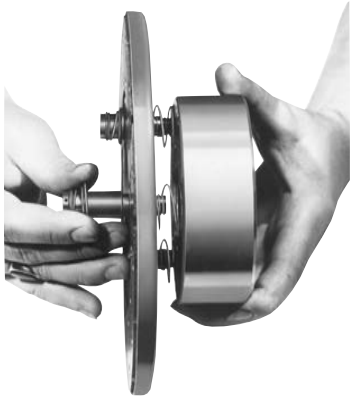


Figure 8

Step 4
Tighten pins until shoulders of pins are against face of customer-supplied part.

⚠CAUTION Straight springs must not get caught under shoulders of drive pins.

Step 5
Check to see that the armature is completely compressed against the face of customer-supplied part.

Step 6
To set the autogap, slide the detent spring retainers against the armature face. (Figure 9)

Figure 9

Note: This position must not be disturbed during completion of assembly.

D. Mounting the Armature and Customer Supplied Assembly

1. Slide the armature and customer supplied assembly onto the shaft.

2. If the field-and-rotor assembly has been secured to the shaft or a machine member first, then adjust the armature's position to allow approximately 1/32-inch between the two faces. (Figure 10)

   Once this 1/32-inch gap has been set, it will be automatically maintained throughout the life of the unit.

3. Secure the assembly in this position on the shaft.

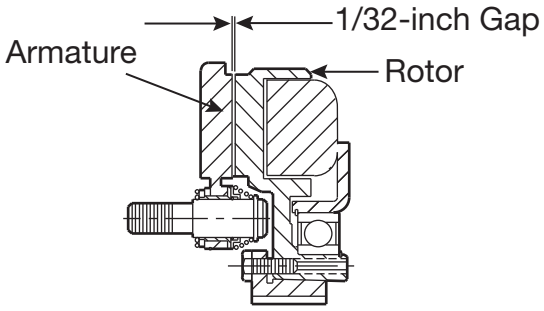


Figure 10

Clutch

Spline Drive Armature

SF-825, SF-1000, SF-1225, SF-1525
SF-1525 Hi-Torque

The illustration drawings, parts lists, and exploded views for these units can be found beginning on page 30. (SF-1525 Hi-Torque may be found on pages 28-29.)

A. Installing the Conduit Box

Install the conduit box on the field. Instructions for this procedure can be found with conduit box.

B. Mounting the Field-and-Rotor Assembly

To mount the field-and-rotor assemblies, follow the instructions provided for the SF pin drive units, page 3. Refer to either the bearing- or flange-mounted instructions, depending on the unit being installed.

C. Assembling the Armature

These units contain a spline drive armature and spline hub. The armatures are shipped with a built-in autogap spring accessory. This device automatically maintains a gap of about 1/32-inch between the armature and rotor faces for the life of the units.

1. Assemble the armature and the splined armature hub.
   a. Place the armature assembly on a flat surface with the segmented side up.
   b. Push the splined hub, with the retainer ring groove down, through the autogap spring and splined armature adapter. (Figure 4) (Considerable force is required to push the hub through the armature.)

Figure 4

2. A customer may assemble the clutch armature to his own free-running sheave, sprocket, or gear.
   a. Refer to the armature view on the illustration drawings for the dimensional information needed to drill and tap holes in the customer-supplied part.
   b. Assemble the armature to the customer-supplied part with the capscrew mounting accessory provided.

D. Mounting the Armature Assembly

1. Slide the armature-hub assembly and customer supplied part on to the shaft.
2. Position the assembly so that the face of the armature is about 1/16" from the rotor face.
3. Secure the assembly in this position by a) retainer rings, b) set collars, c) shoulder on the shaft, or d) any combination of these. The best method will depend on the characteristics of each application.
4. Set the autogap by pressing the armature into contact with the rotor face and then releasing it. The armature should spring back about 1/32". (Figure 5)

   This gap will be automatically maintained for the life of the unit.

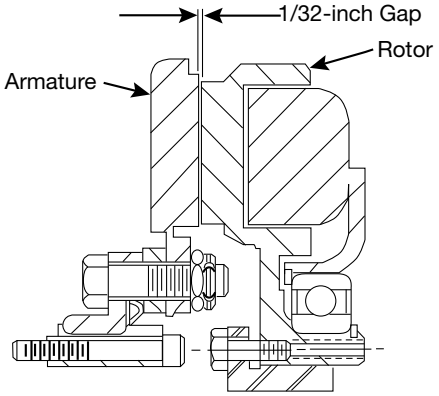


Figure 5

Torque Tabs

Clutches

Many Warner Electric clutch assemblies have a bearing mounted stationery field. By design the bearing maintains its proper position between the field and rotor making it easy for the customer to mount the field-rotor assembly. However, the bearing has a slight drag which tends to make the field rotate with the rotor if not restrained. And, since the field has lead wires attached, it must be restrained to prevent rotation and pulling of these wires. To counteract this rotational force, the field has a “torque tab” to which the customer must attach an appropriate anti-rotational restraint.

A few hints regarding proper torque tab restraints are in order. First and foremost, it is important to recognize that the force to be overcome is very small and the tab should not be restrained any manner which will preload the bearing. For example, if the clutch is mounted with the back of the field adjacent to a rigid machine member the customer should not attach a capscrew tightly between the tab and the machine member. This may pull the tab back against the rigid member as shown in Figure 1 and preload the bearing. The recommended methods are illustrated in Figure 2, 3, and 4. The method selected is primarily a matter of customer preference or convenience.

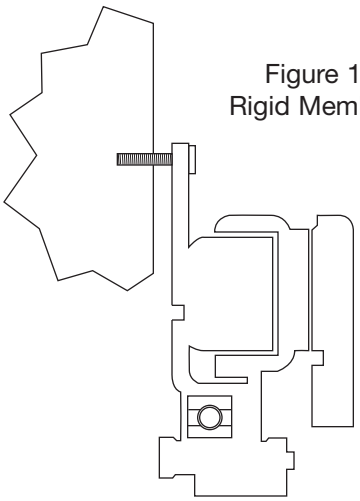


Figure 1
Rigid Member

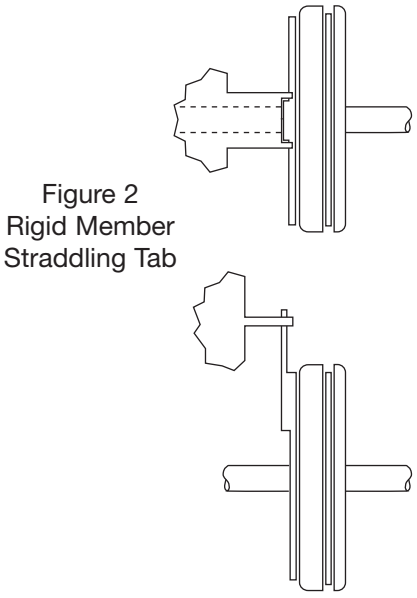
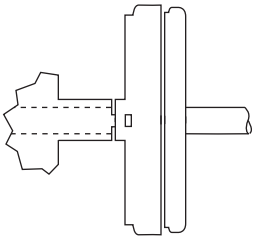


Figure 2
Rigid Member
Straddling Tab



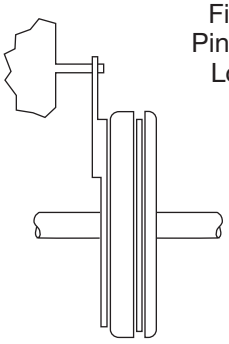
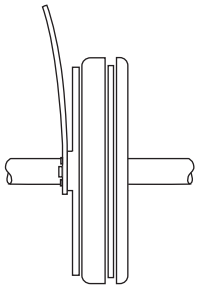


Figure 3
Pin In Hole
Loosely



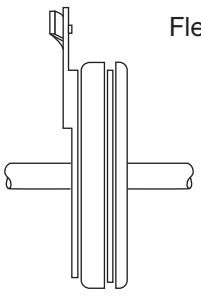


Figure 4
Flexible Strap

Electrical Coil Data

Unit Size	SF-825			SF-825 Brg.			SF-1000		
Voltage–DC	6	24	90	6	24	90	6	24	90
Resistance @ 20°C–Ohms	1.23	20.9	267.0	1.098	14.6	221	1.07	14.4	214.4
Current–Amperes	4.9	1.15	.34	5.464	1.65	.407	5.61	1.67	.42
Watts	29	28	30	33	40	37	34	40	38
Coil Build-Up–Milliseconds	222	200	245	180	200	225	256	275	283
Coil decay–Milliseconds	105	120	100	115	120	130	123	105	90

Unit Size	SF-1225			SF-1525			SF-1525 H.T.	
Voltage – DC	6	24	90	6	24	90	6	90
Resistance @ 20°C–Ohms	1.21	19.5	268.3	1.11	15.5	239.1	.55	113.4
Current – Amperes	4.97	1.23	.34	5.41	1.55	.38	10.83	.794
Watts	30	30	30	32	37	34	65	72
Coil Build-Up – Milliseconds	475	490	510	505	535	575	480	560
Coil decay–Milliseconds	240	230	220	230	237	215	210	160

Notes: Build-up time equals current to approx.* 90% of steady state value and flux to 90%
Decay time equals current to approx.* 10% of steady state value and flux to 10%.
*Approx. because current leads or lags flux by a small amount.

Burnishing and Maintenance

Burnishing
Intimate metal to metal contact is essential between the armature and the metal rings (poles) of the magnet or rotor. Warner Electric clutches and brakes leave the factory with the friction material slightly undercut to assure good initial contact.

Normally, the desired wearing-in process occurs naturally as the surfaces slip upon engagement. The time for wear-in, which is necessary to obtain the ultimate torque of the unit, will vary depending on speed, load, or cycle duty.

If maximum torque is required immediately after installation, the unit should be burnished by slipping the friction surfaces together at reduced voltage. It is recommended that the burnishing be done right on the application, if at all possible.

Burnishing at high speed will result in a smoother wear-in pattern and reduce the time for burnishing. The voltage should be set at approximately 30% or 40% of the rated value.

The unit should be cycled on and off to allow sufficient time between slip cycles to prevent overheating.

When a Warner Electric brake or clutch is properly assembled and installed, no further servicing, lubrication, or maintenance should be required throughout the life of the unit.

Maintenance
Wear Pattern: Wear grooves appear on the armature and rotor surfaces. This is a normal wear condition, and does not impair functioning of the unit. Normally, the rotor and armature, as a mating pair, will wear at the same rate. It is the usual recommendation that both components be replaced at the same time.

Remachining the face of a worn armature is not recommended. If a replacement armature is to be used with a used rotor, it is necessary to remachine the worn rotorface. In refacing a rotor: (1) machine only enough material to clean up the complete face of the magnet; (2) hold the face within .005'' of parallel with the mounting plate; and (3) undercut the molded facing material .002''-.004'' below the metal poles.

Heat: Excessive heat and high operating temperatures are causes of rapid wear. Units therefore, should be ventilated as efficiently as possible, especially if the application requires fast, repetitive cycle operation.

Foreign Materials: If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, shielding of the brake or clutch may be necessary if maximum life is to be obtained.

Where units are used near gear boxes or transmissions requiring frequent lubrication, means should be provided to protect the friction surfaces from oil and grease to prevent serious loss of torque.

Oil and grease accidentally reaching the friction surfaces may be removed by wiping with a rag dampened with a suitable cleaner, which leaves no residue. In performing this operation, do not drench the friction material.

If the friction materials have been saturated with oil or grease, no amount of cleaning will be completely effective. Once such a unit has been placed back in service, heat will cause the oil to boil to the surface, resulting in further torque loss.

Torque Loss: If a brake or clutch slips or loses torque completely, the initial check should be the input voltage to the field as follows:

90-Volt Series: Connect a DC voltmeter with a range of 0-100 or more directly across the field terminals. With the power on and the potentiometer turned up, a normal reading is 90 volts, although 85 to 95 is satisfactory. The reading should drop as the potentiometer control is adjusted counterclockwise.

24-Volt Series: Use a DC voltmeter with a range of 0-30 volts or more. A normal reading is approximately 22-26 volts.

6-Volt Series: Use a DC voltmeter of approximately 0-15 volt range. A normal reading is from 5.5 to 6.5 volts.

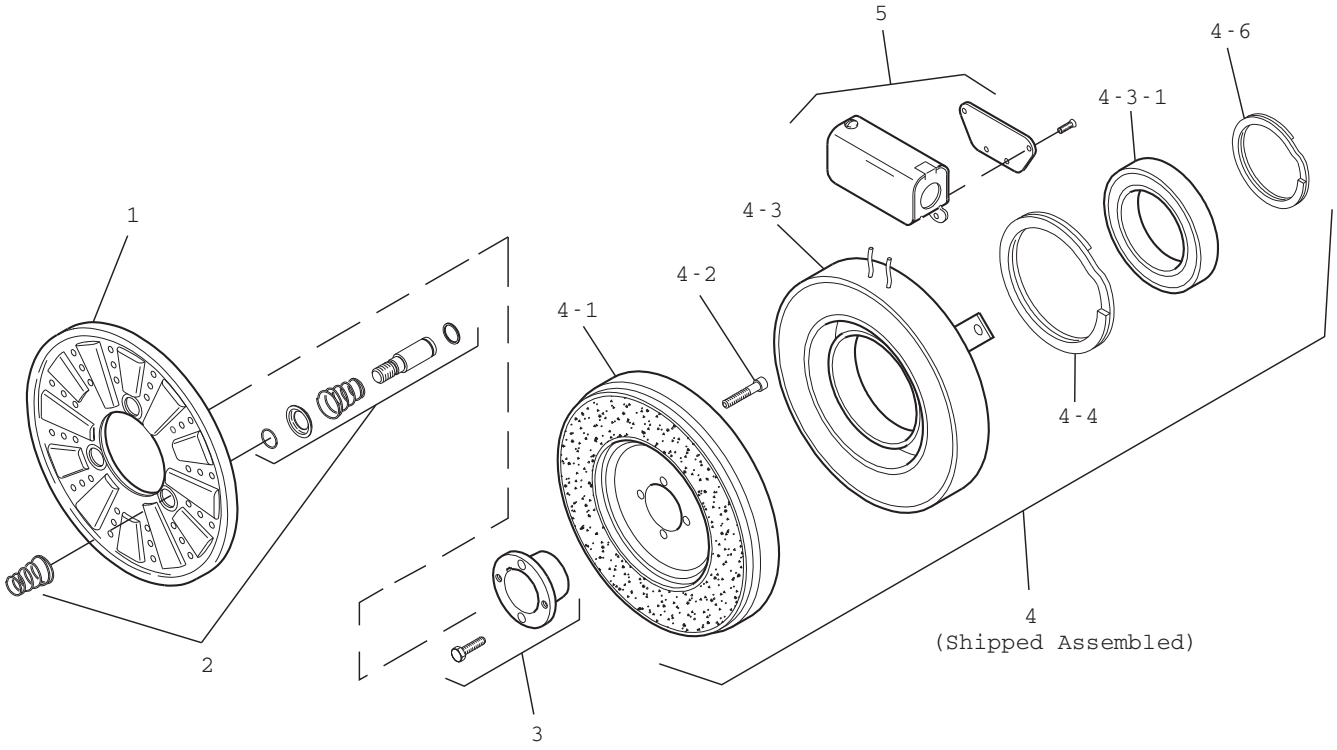
The above checks normally are sufficient. Further checks may be made as follows: a low range ammeter, when connected in series with one field lead, will normally indicate approximately .40 amperes for the 90 volt units, 1.0 ampere for the 24 volt, and 3.5 amperes for the 6 volt series. These readings are with the power on and the potentiometer control in the maximum position.

Ohmmeter checks should be made with the power off and the circuit open (to be certain, disconnect one lead to the field). Average resistance for the 90 volt series is 220 ohms; for the 24 volt, 20 ohms; and for the 6 volt series, 1.5 ohms. A very high or infinite resistance reading would indicate an open coil.

If the above checks indicate that the proper voltage and current is being supplied to the magnet, mechanical parts should be checked to assure that they are in good operating condition and properly installed.

SF-825 Clutch Bearing Mounted–Normal Duty

Drawing I-25575



Item	Description	SF-825, B.M. Part Number	Qty.
1	Armature	5301-111-018	1
2	Autogap Accessory	5201-101-008	3
3	Bushing		
	1/2" to 1-1/2" Bore	180-0002 to 180-0018*	1
4	Field & Rotor Assembly		1
	6 Volt	5201-452-002	
	24 Volt	5201-452-004	
	90 Volt	5201-452-006	
4-1	Rotor		1
	Standard Friction Material	5201-751-008	
4-2	Mounting Accessory	5201-101-005	1
4-3	Field & Bearing Assembly		1
	6 Volt	5201-451-054	
	24 Volt	5201-451-056	
	90 Volt	5201-451-057	
4-3-1	Ball Bearing	166-0142	1
4-4	Retainer Ring	748-0111	1
4-6	Retainer Ring	748-0016	1
5	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers.

How to Order:

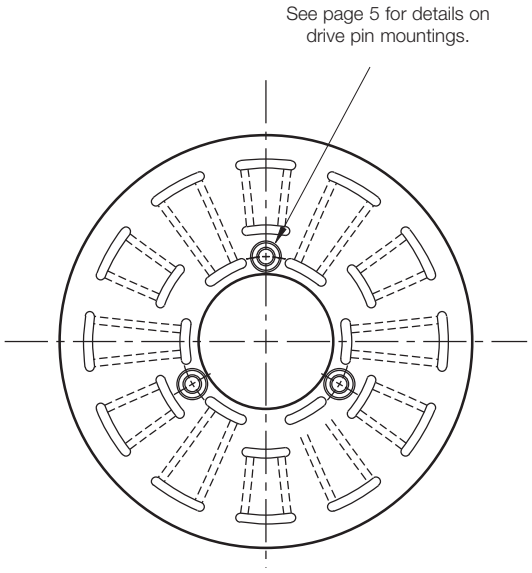
1. Specify Bore Size for Item 3.
2. Specify Voltage for Item 4.

Example:

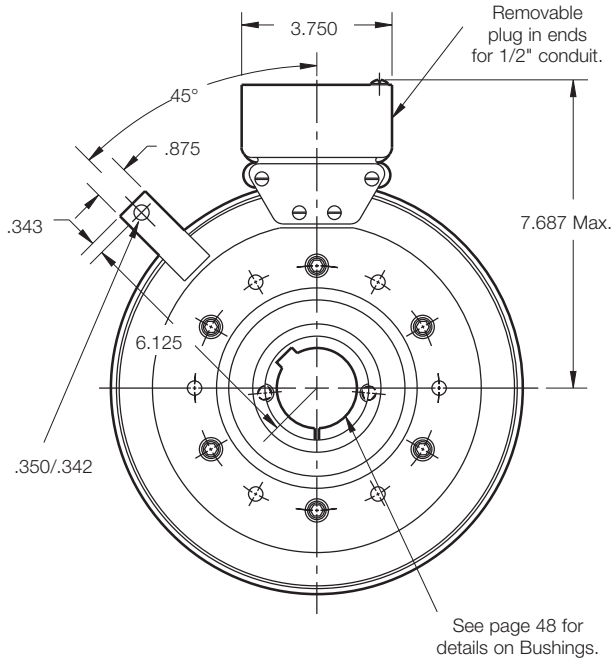
SF-825 Clutch per I-25575 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

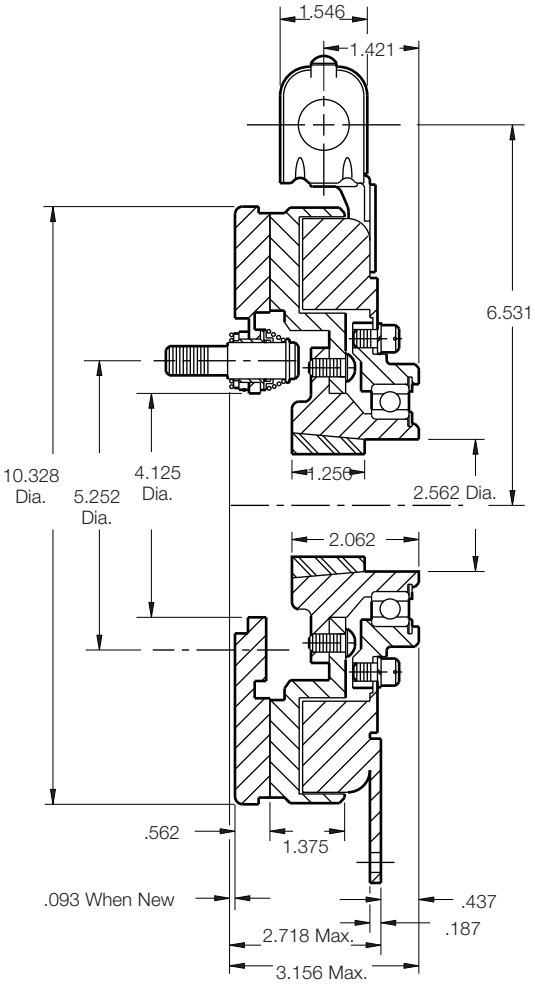
SF-1000 Clutch Bearing Mounted–Normal Duty



Armature View



Field View

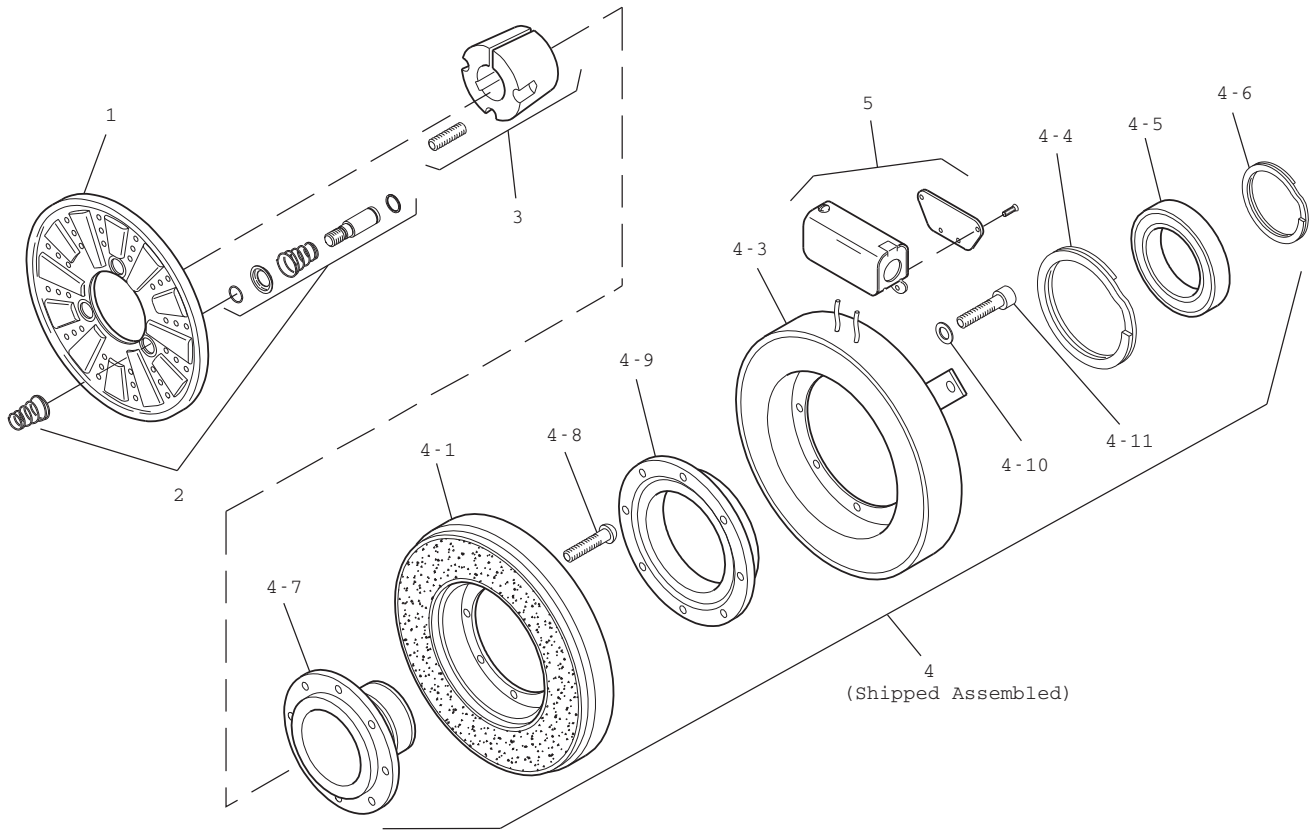


Shaft Size	.500 – 2.000
Static Torque	240 lb. ft.
Maximum Speed	2,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1000 Clutch Bearing Mounted–Normal Duty

Drawing I-25596



Item	Description	SF-1000, B.M. Part Number	Qty.
1	Armature	5302-111-013	1
2	Autogap Accessory	5201-101-008	3
3	Bushing		
	1/2" to 2" Bore	180-0155 to 180-0179*	1
4	Field & Rotor Assembly		1
	6 Volt	5202-452-012	
	24 Volt	5202-452-014	
	90 Volt	5202-452-015	
4-1	Rotor		1
	Standard Friction Material	5202-751-003	
	†Optional LK Facing	5202-751-007	
4-3	Field		1
	6 Volt	5202-451-040	
	24 Volt	5202-451-042	
	90 Volt	5202-451-043	
4-4	Retainer Ring	748-0116	1
4-5	Ball Bearing	166-1046	1
4-6	Retainer Ring	748-0582	1
4-7	Rotor Hub	540-1300	1
4-8	Buttonhead Capscrew	797-1261	6
4-9	Ring Adapter	748-1047	1
4-10	Lockwasher	950-0359	6
4-11	Socket Head Capscrew	797-0424	6
5	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

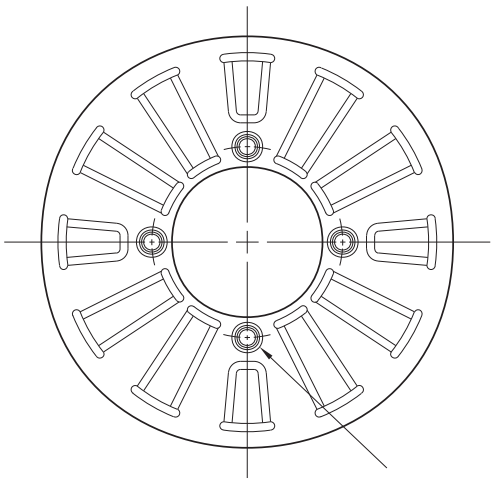
1. Specify Bore Size for Item 3.
2. Specify Voltage for Item 4.

Example:

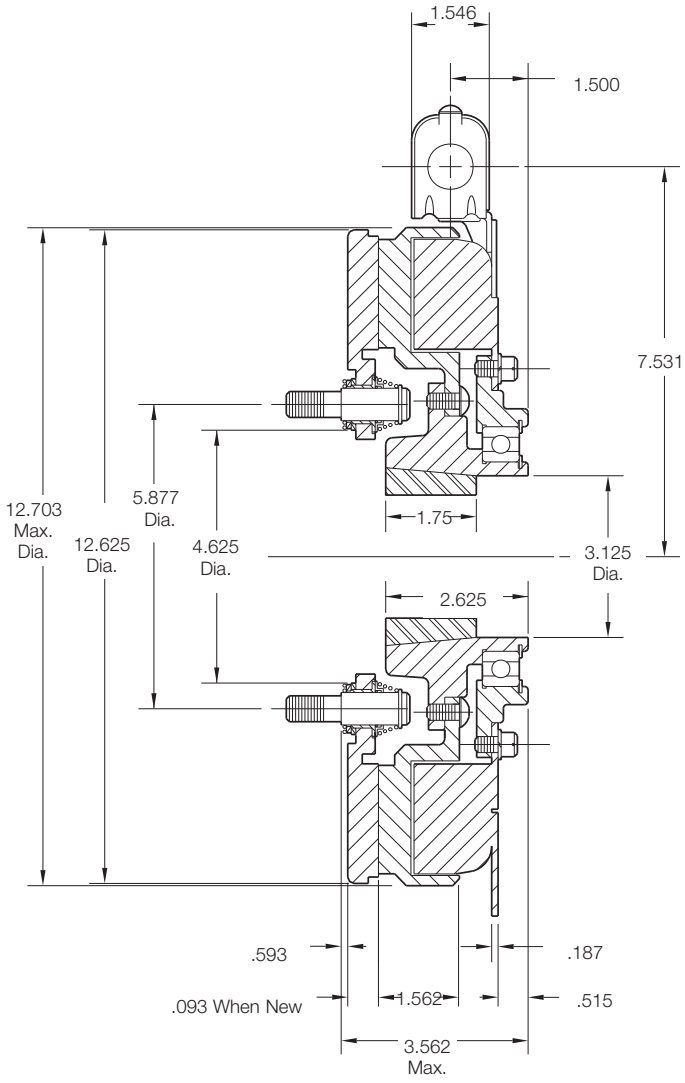
SF-1000 Clutch per I-25596 - 90 Volt, 1" Bore

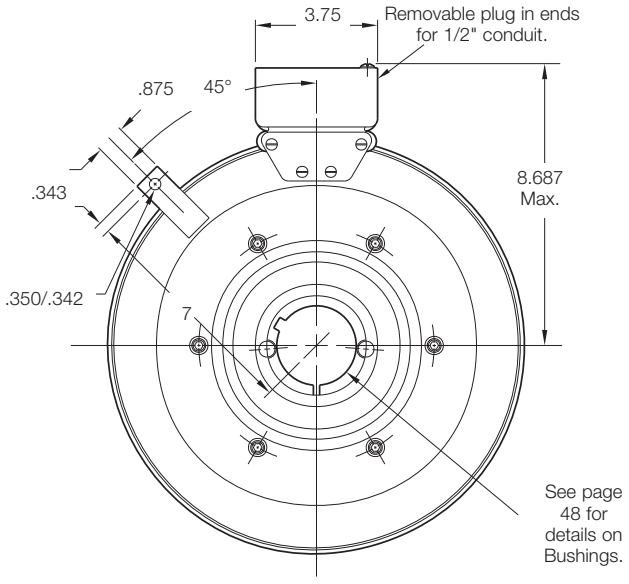
These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

SF-1225 Clutch Bearing Mounted–Normal Duty



Armature View





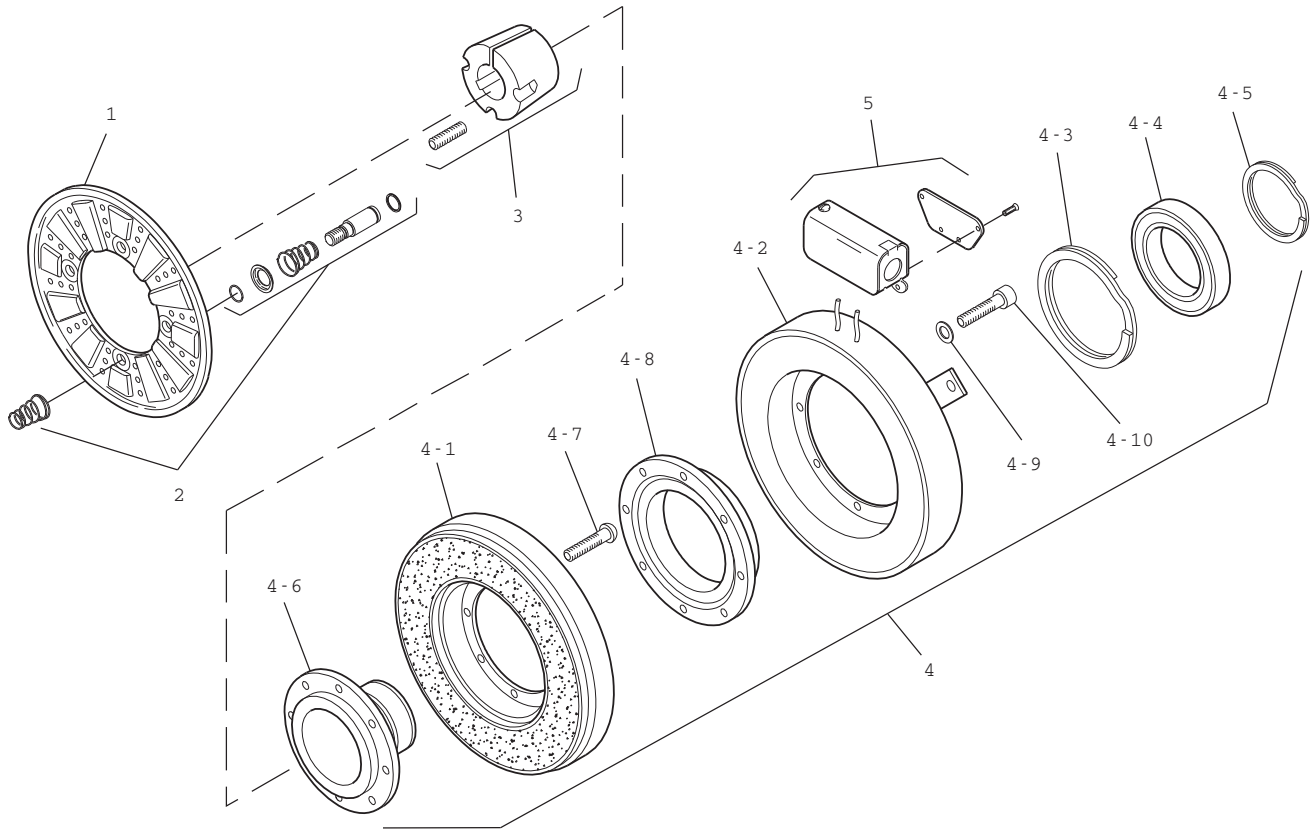
Field View

Shaft Size	.500 – 2.500
Static Torque	465 lb. ft.
Maximum Speed	2,200 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1225 Clutch Bearing Mounted–Normal Duty

Drawing I-25621



Item	Description	SF-1225, B.M. Part Number	Qty.
1	Armature	5303-111-009	1
2	Autogap Accessory	5201-101-008	4
3	Bushing		
	1/2" to 2-1/2" Bore	180-0185 to 180-0217*	1
4	Field & Rotor Assembly		1
	6 Volt	5203-452-009	
	24 Volt	5203-452-011	
	90 Volt	5203-425-012	
4-1	Rotor		1
	Standard Friction Material	5203-751-001	
	†Optional LK Facing	5203-751-004	
4-2	Field		1
	6 Volt	5203-451-034	
	24 Volt	5203-451-036	
	90 Volt	5203-451-037	
4-3	Retainer Ring	748-0119	1
4-4	Ball Bearing	166-1047	1
4-5	Retainer Ring	748-0011	1
4-6	Rotor Hub	540-1304	1
4-7	Buttonhead Capscrew	797-1261	8
4-8	Ring Adapter	748-0591	1
4-9	Lockwasher	950-0359	6
4-10	Socket Head Capscrew	797-0424	6
5	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

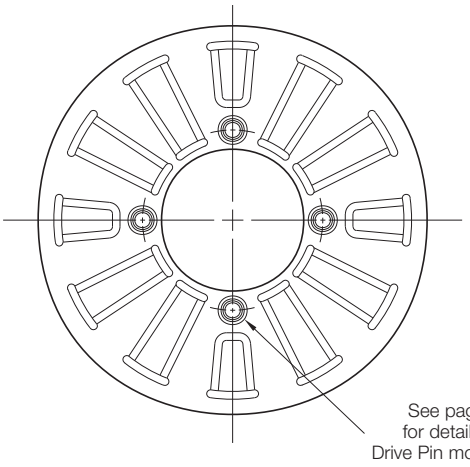
1. Specify Bore Size for Item 3.
2. Specify Voltage for Item 4.

Example:

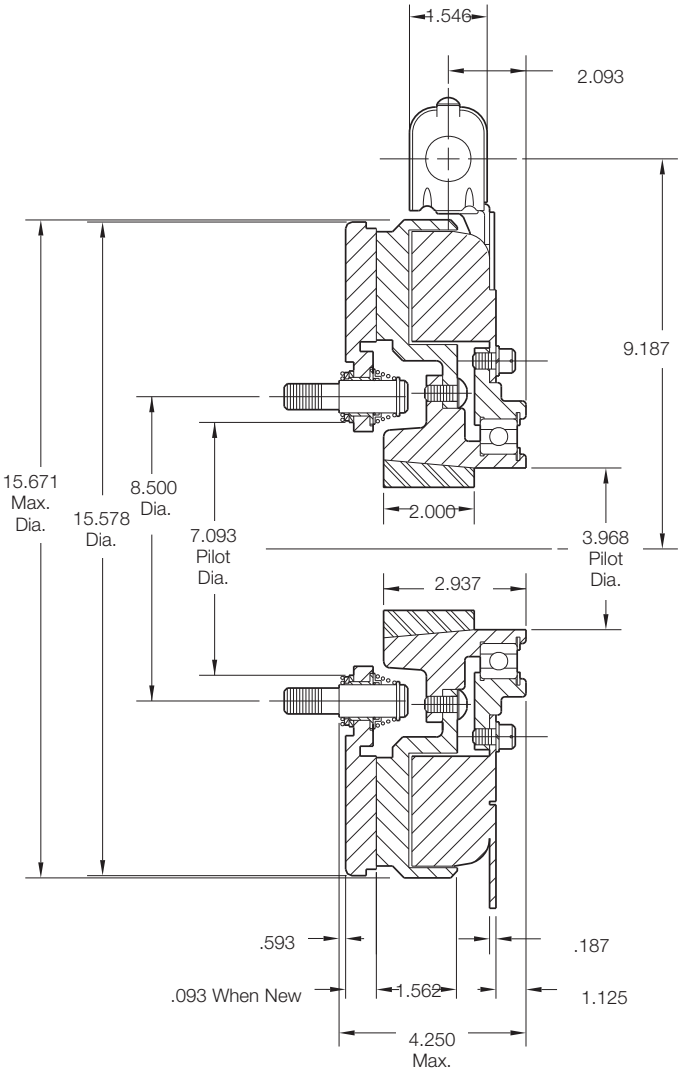
SF-1225 Clutch per I-25621 - 90 Volt, 1" Bore

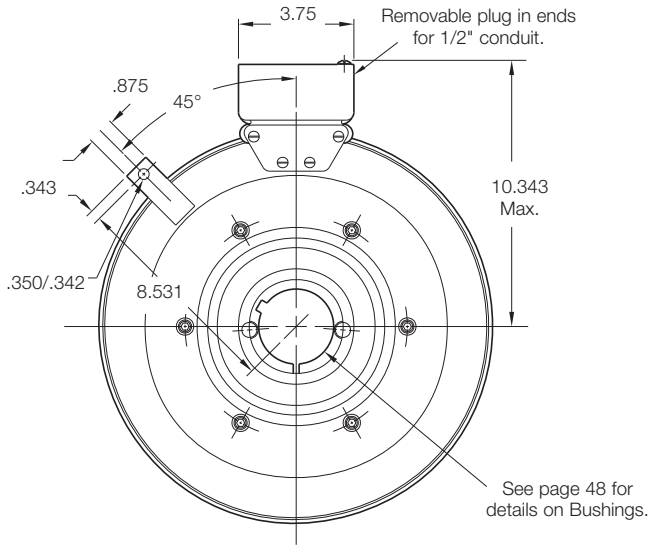
These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

SF-1525 Clutch Bearing Mounted–Normal Duty



Armature View





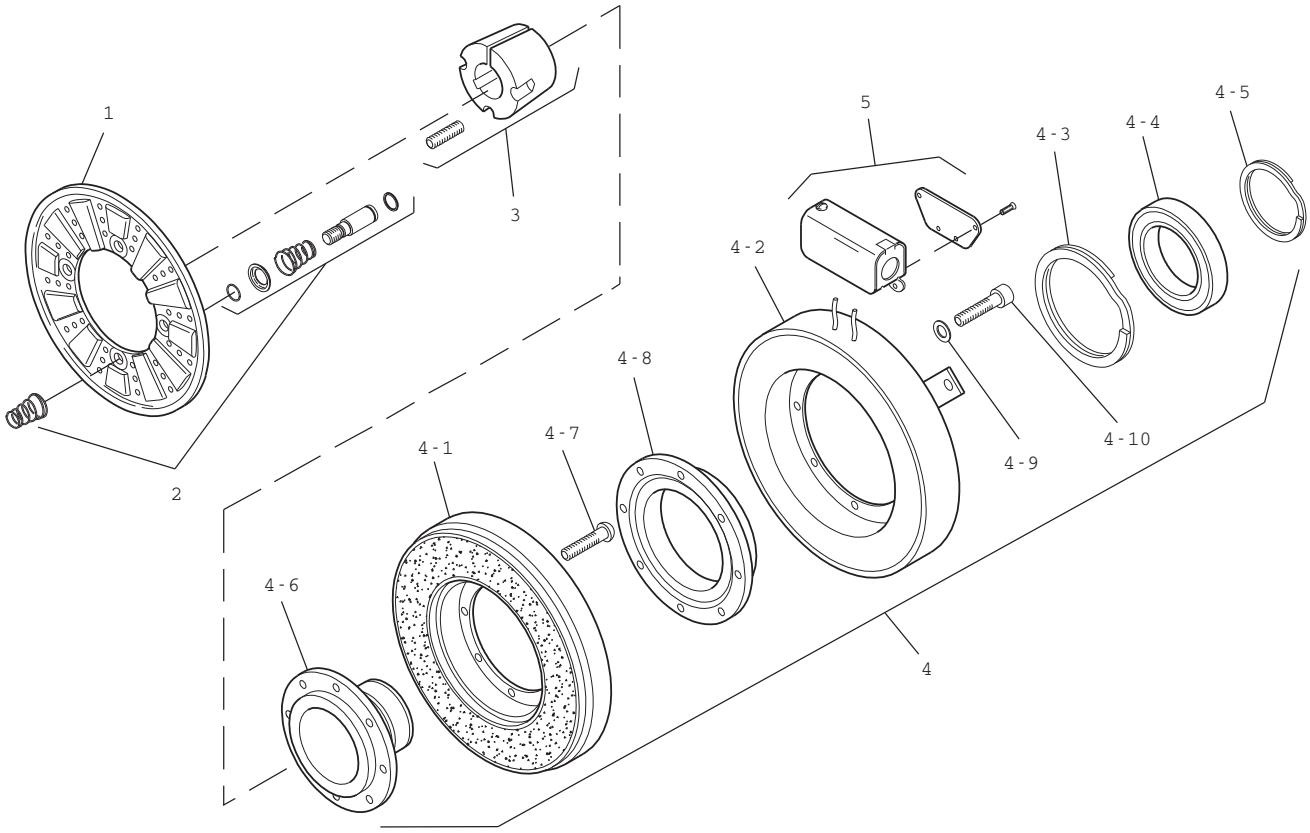
Field View

Shaft Size	.9375 – 3.00
Static Torque	700 lb. ft.
Maximum Speed	1,800 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1525 Clutch Bearing Mounted–Normal Duty

Drawing I-25639



Item	Description	SF-1525, B.M. Part Number	Qty.
1	Armature	5304-111-004	1
2	Autogap Accessory	5201-101-008	4
3	Bushing		
	15/16" to 3" Bore	180-0223 to 180-0256*	1
4	Field & Rotor Assembly		1
	6 Volt	5204-452-009	
	24 Volt	5204-452-011	
	90 Volt	5204-425-012	
4-1	Rotor		1
	Standard Friction Material	5204-751-002	
	†Optional LK Facing	5204-751-004	
4-2	Field		1
	6 Volt	5204-451-084	
	24 Volt	5204-451-086	
	90 Volt	5204-451-087	
4-3	Retainer Ring	748-0114	1
4-4	Ball Bearing	166-0163	1
4-5	Retainer Ring	748-0583	1
4-6	Rotor Hub	540-1306	1
4-7	Buttonhead Capscrew	797-1261	8
4-8	Ring Adapter	748-1048	1
4-9	Lockwasher	950-0359	6
4-10	Socket Head Capscrew	797-0424	6
5	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

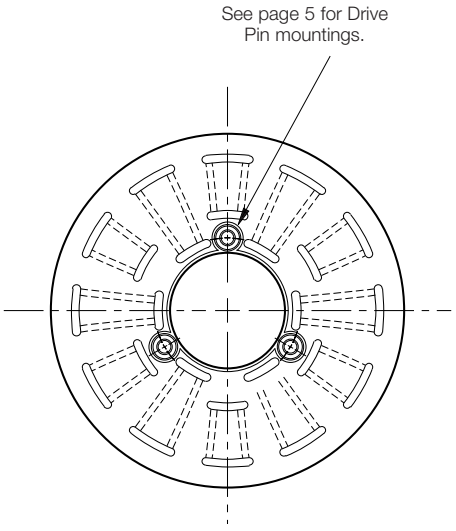
1. Specify Bore Size for Item 3.
2. Specify Voltage for Item 4.

Example:

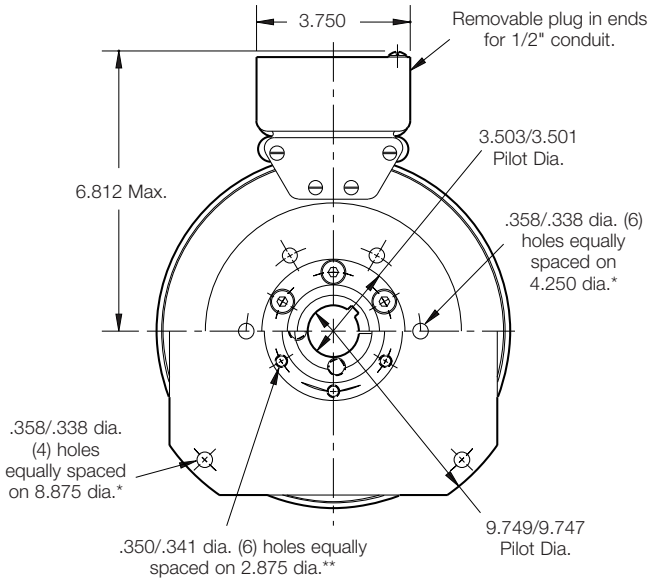
SF-1525 Clutch per I-25639 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

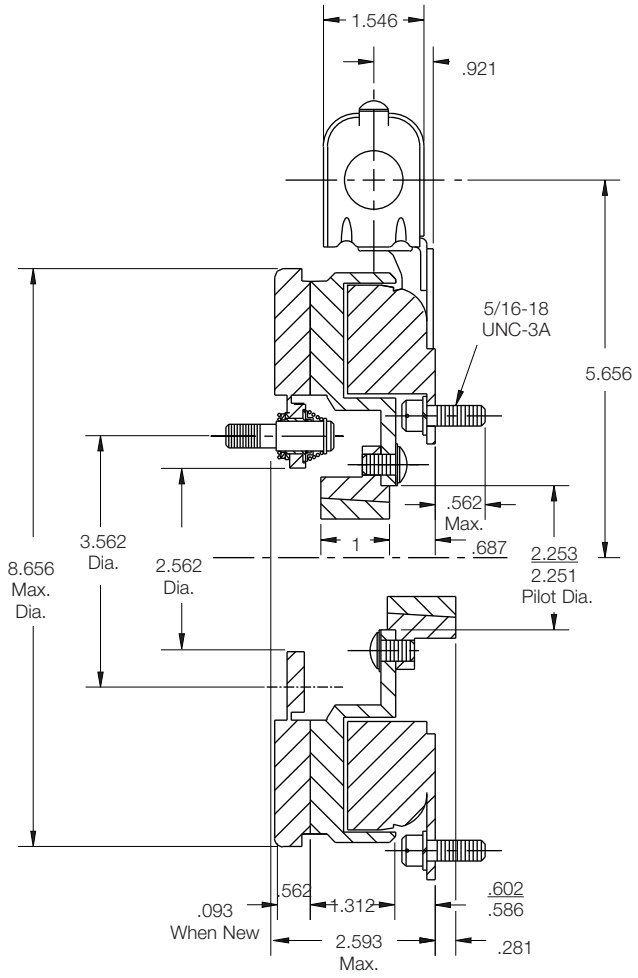
SF-825 Clutch Flange Mounted–Normal Duty



Armature View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

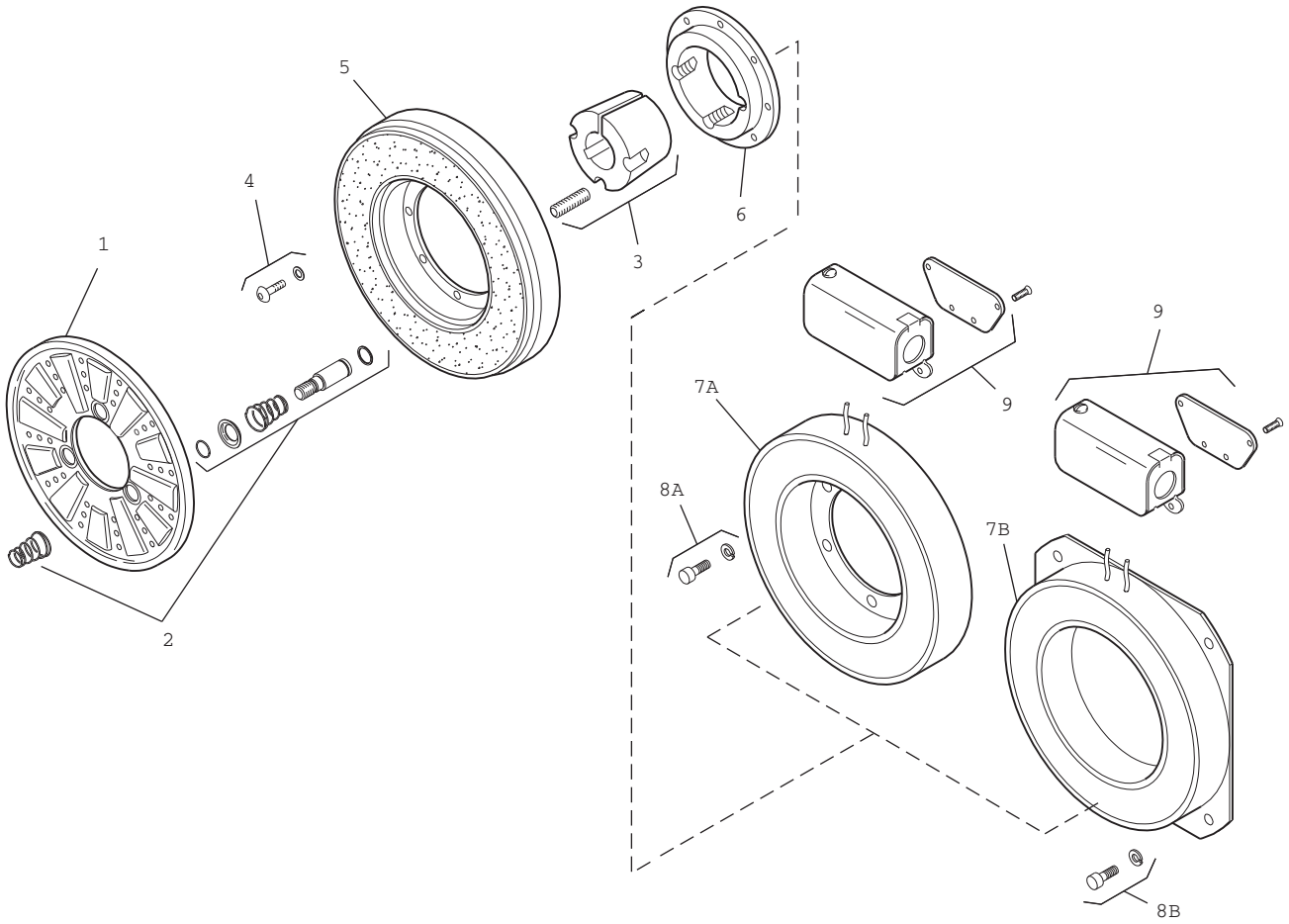
1. Concentricity of field mounting pilot diameter with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Rotor mounting pilot diameter must be concentric with shaft within .006 T.I.R.

Shaft Size	.500 – 1.250
Static Torque	125 lb. ft.
Maximum Speed	4,000 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-825 Clutch Flange Mounted–Normal Duty

Drawing I-25560



Item	Description	SF-825, F.M. Part Number	Qty.
1	Armature	5301-111-018	1
2	Autogap Accessory	5201-101-008	3
3	Bushing		
	1/2" to 1-1/4" Bore	180-0101 to 180-0113*	1
4	Mounting Accessory	5201-101-007	1
5	Rotor		1
	Standard Friction Material	5201-751-003	
	†Optional LK Facing	5201-751-007	
6	Rotor Hub	540-0013	1
7A	Field - Inside Mounted		1
	6 Volt	5201-451-006	
	24 Volt	5201-451-008	
	90 Volt	5201-451-010	
7B	Field - Outside Mounted		1
	6 Volt	5201-451-014	
	24 Volt	5201-451-016	
	90 Volt	5201-451-018	
8A	Mounting Accessory - I.M.	5321-101-001	1
8B	Mounting Accessory - O.M.	5321-101-002	1
9	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

1. Specify Bore Size for Item 3.
2. Specify Voltage for Items 8A or 8B.
3. Specify Inside Mounted for Items 8A and 9A or Outside Mounted for Items 8B and 9B.

Example:

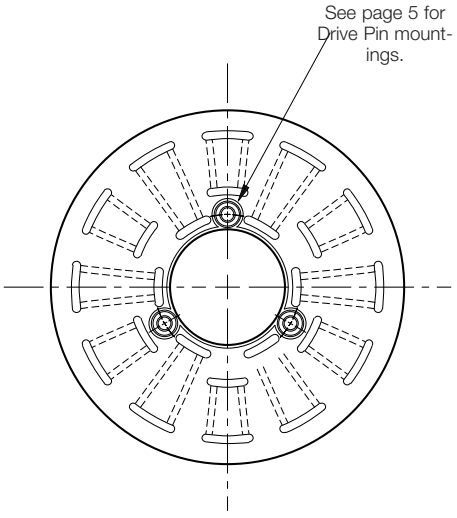
SF-825 Clutch per I-25560–90 Volt, 1" Bore, Inside Mounted.

Note: The two mating shafts on which the clutch is mounted must be mounted rigidly to prevent flexing during engagement. Any flexing will cause vibration and rapid clutchwear. The drive motor should not be mounted on the reducer "scoop" mount or other flexible mounts.

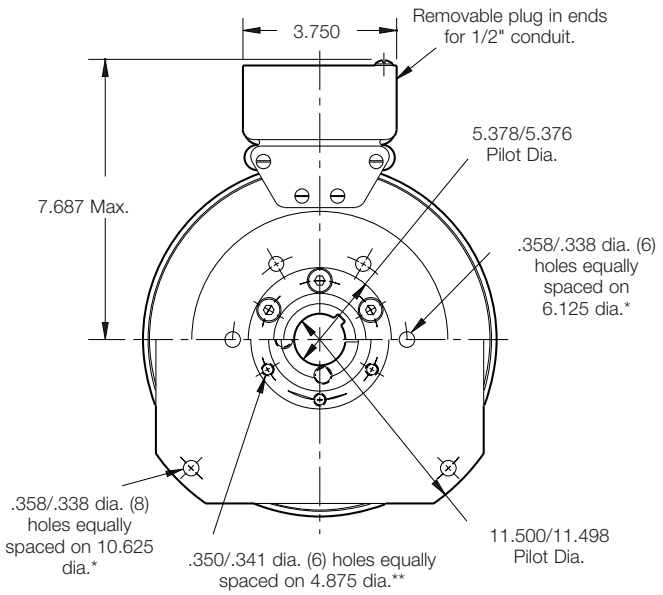
These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

These units are CSA certified under file #LR11543.

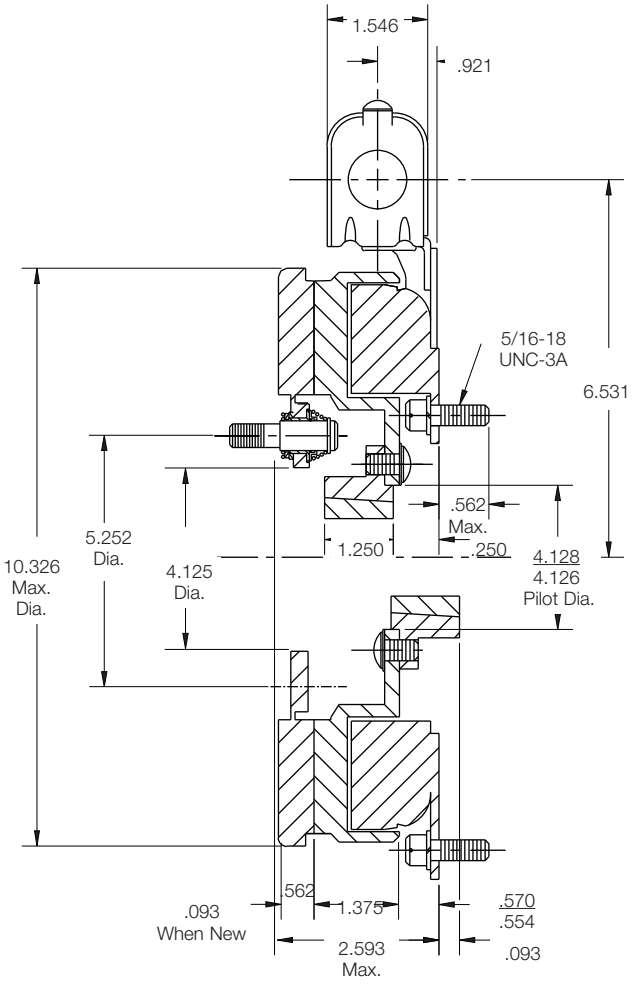
SF-1000 Clutch Flange Mounted–Normal Duty



View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

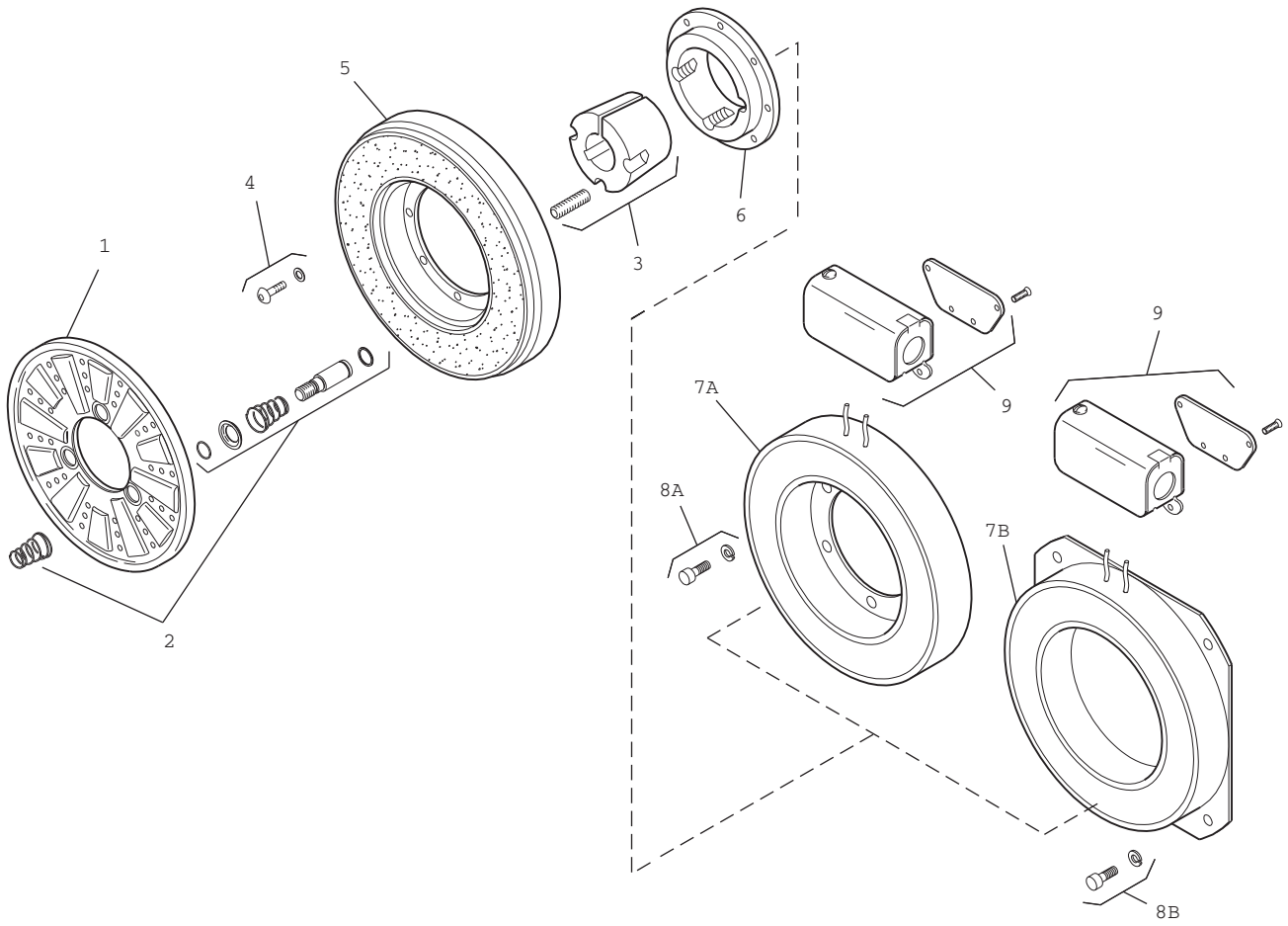
1. Concentricity of field mounting pilot diameter with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Rotor mounting pilot diameter must be concentric with shaft within .006 T.I.R.

Shaft Size	.500 – 2.000
Static Torque	240 lb. ft.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1000 Clutch Flange Mounted–Normal Duty

Drawing I-25580



Item	Description	SF-1000, F.M. Part Number	Qty.
1	Armature	5302-111-013	1
2	Autogap Accessory	5201-101-008	3
3	Bushing		
	1/2" to 2" Bore	180-0155 to 180-0179*	
4	Mounting Accessory	5201-101-007	1
5	Rotor		1
	Standard Friction Material	5202-751-003	
	†Optional LK Facing	5202-751-007	
6	Rotor Hub	540-0315	1
7A	Field - Inside Mounted		1
	6 Volt	5202-451-004	
	24 Volt	5202-451-006	
	90 Volt	5202-451-007	
7B	Field - Outside Mounted		1
	6 Volt	5202-451-011	
	24 Volt	5202-451-013	
	90 Volt	5202-451-014	
8A	Mounting Accessory - I.M.	5321-101-001	1
8B	Mounting Accessory - O.M.	5321-101-002	2
9	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

1. Specify Bore Size for Item 3.
2. Specify Voltage for Items 8A or 8B.
3. Specify Inside Mounted for Items 8A and 9A or Outside Mounted for Items 8B and 9B.

Example:

SF-1000 Clutch per I-25580 -90 Volt, 1" Bore, Inside Mounted

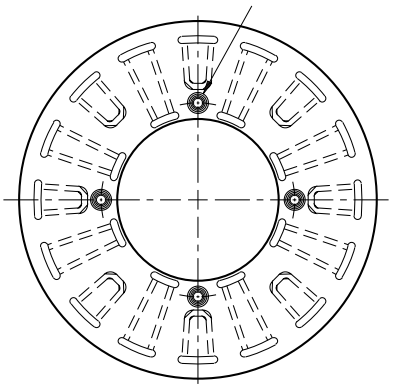
Note: The two mating shafts on which the clutch is mounted must be mounted rigidly to prevent flexing during engagement. Any flexing will cause vibration and rapid clutchwear. The drive motor should not be mounted on the reducer "scoop" mount or other flexible mounts.

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

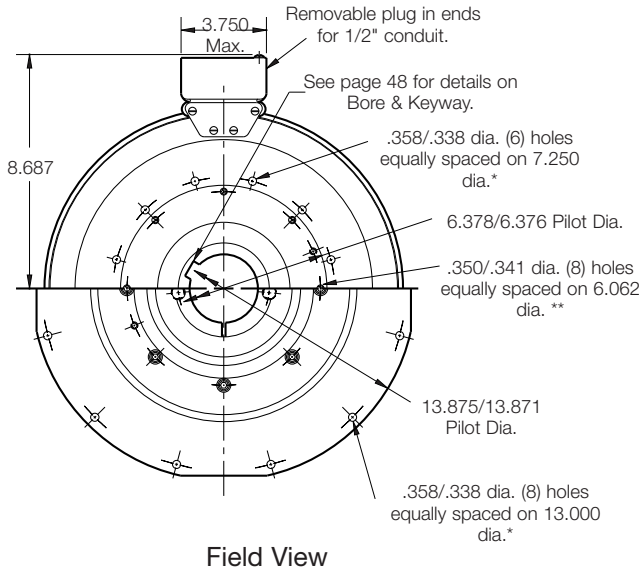
These units are CSA certified under file #LR11543.

SF-1225 Clutch Flange Mounted–Normal Duty

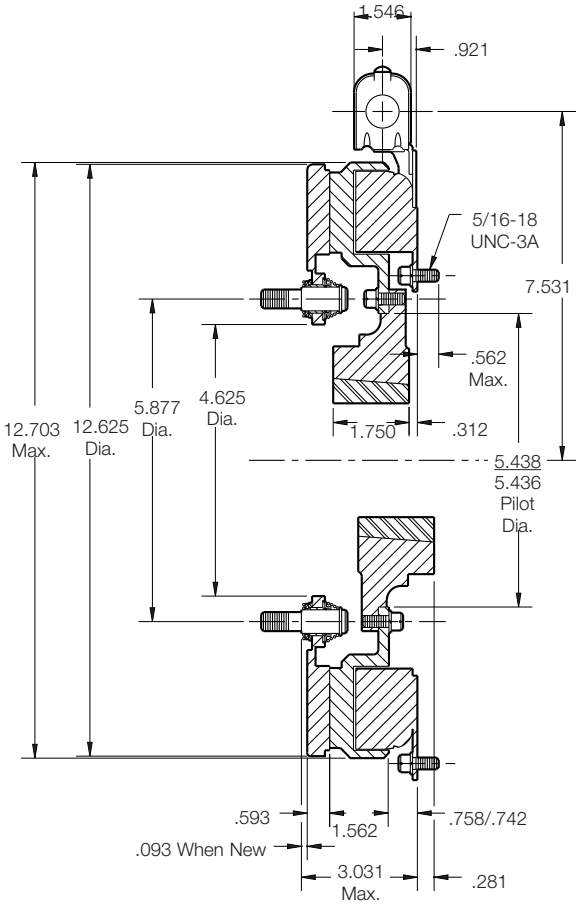
See page 5 for details on Drive Pin mountings.



Armature View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

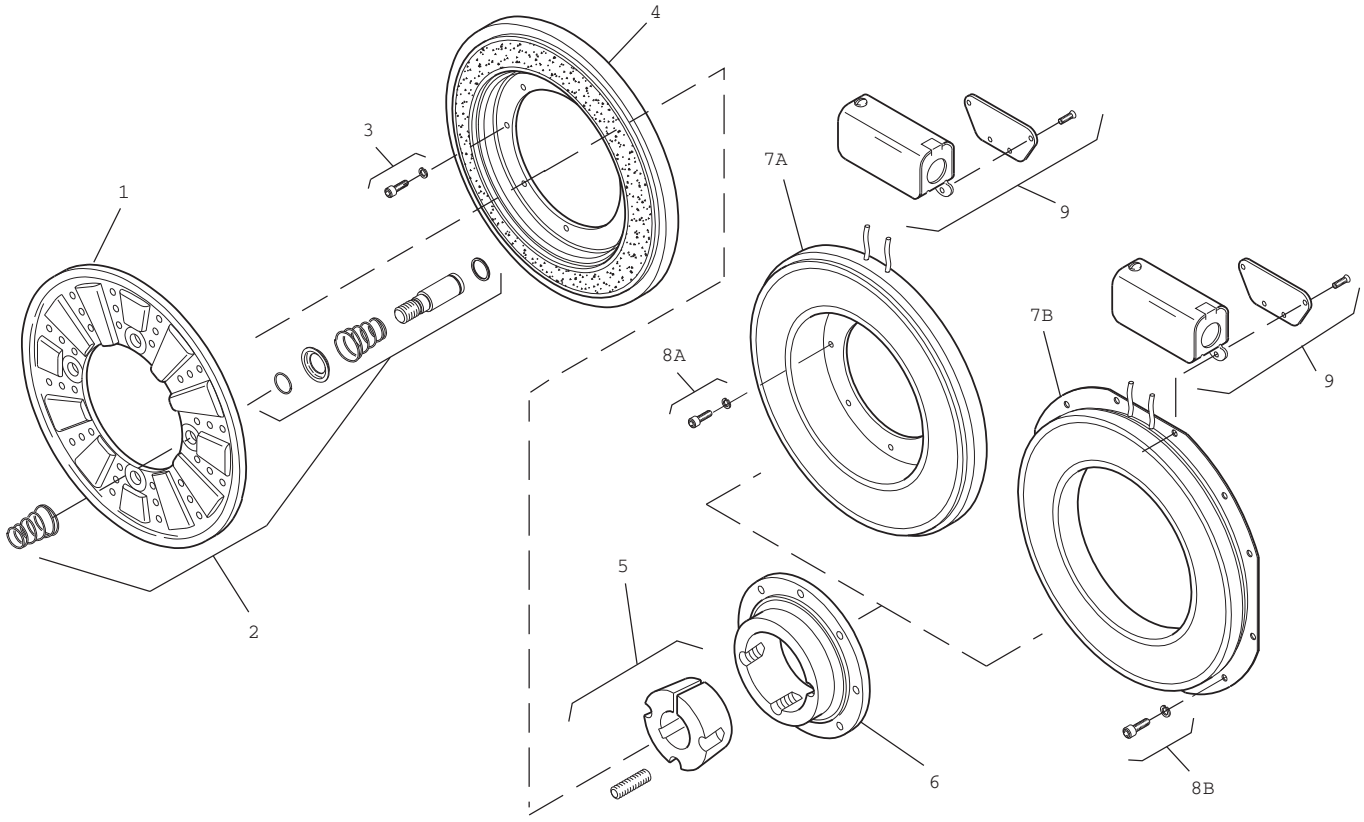
1. Concentricity of field mtg. pilot dia. with rotor mtg. shaft within .006 T.I.R.
2. Squareness of field mtg. face with rotor mtg. shaft within .006 T.I.R. measured at field mtg. bolt circle.
3. Rotor mtg. shaft concentric with armature center of rotation within .006 T.I.R.
4. Armature hub pilot dia. to be concentric with armature center of rotation within .010 T.I.R.

Shaft Size	.500 – 2.500
Static Torque	465 lb. ft.
Maximum Speed	3,000 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1225 Clutch Flange Mounted–Normal Duty

Drawing I-25600



Item	Description	SF-1225 Part Number	Qty.
1	Armature	5303-111-009	1
2	Autgap Accessory	5201-101-008	4
3	Mounting Accessory	5321-101-002	2
4	Rotor		1
	Standard Friction Material	5201-751-001	
	†Optional LK Facing	5203-751-004	
5	Bushing		
	1/2" to 2-1/2" Bore	180-0185 to 180-0217	1
6	Rotor Hub	540-0318	1
7A	Field - Inside Mounted		1
	6 Volt	5203-451-002	
	24 Volt	5203-451-006	
	90 Volt	5203-451-005	
7B	Field - Outside Mounted		1
	6 Volt	5203-451-010	
	24 Volt	5203-451-013	
	90 Volt	5203-451-011	
8A	Mounting Accessory - I.M.	5321-101-001	1
8B	Mounting Accessory - O.M.	5321-101-002	2
9	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. Optional LK facing available.

How to Order:

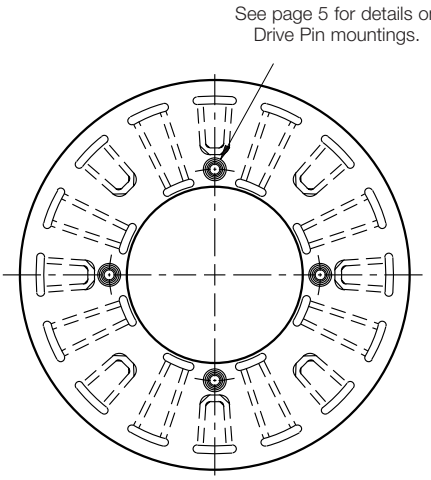
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 7A or 7B.
3. Specify Inside Mounted for Items 7A and 8A or Outside Mounted for Items 7B and 8B.

Example:

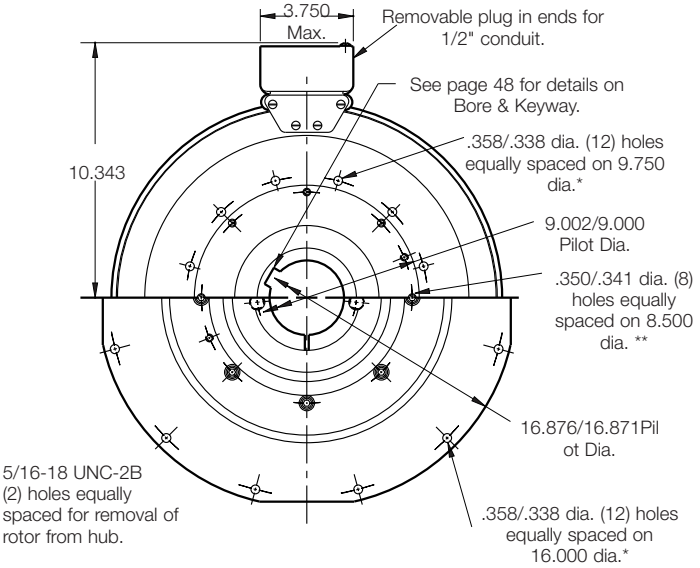
SF-1225 Clutch per I-25600 - 90 Volt, 1-1/2" Bore, Inside Mounted.

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

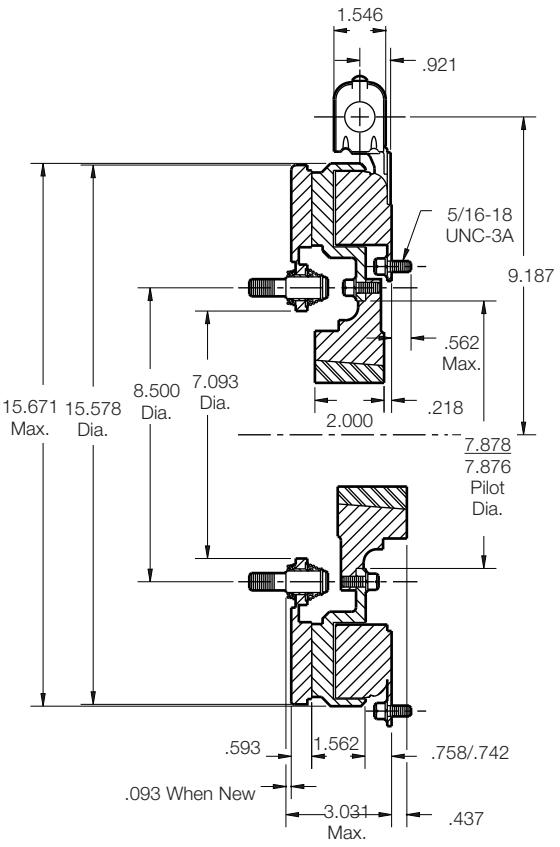
SF-1525 Clutch Flange Mounted–Normal Duty



Armature View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

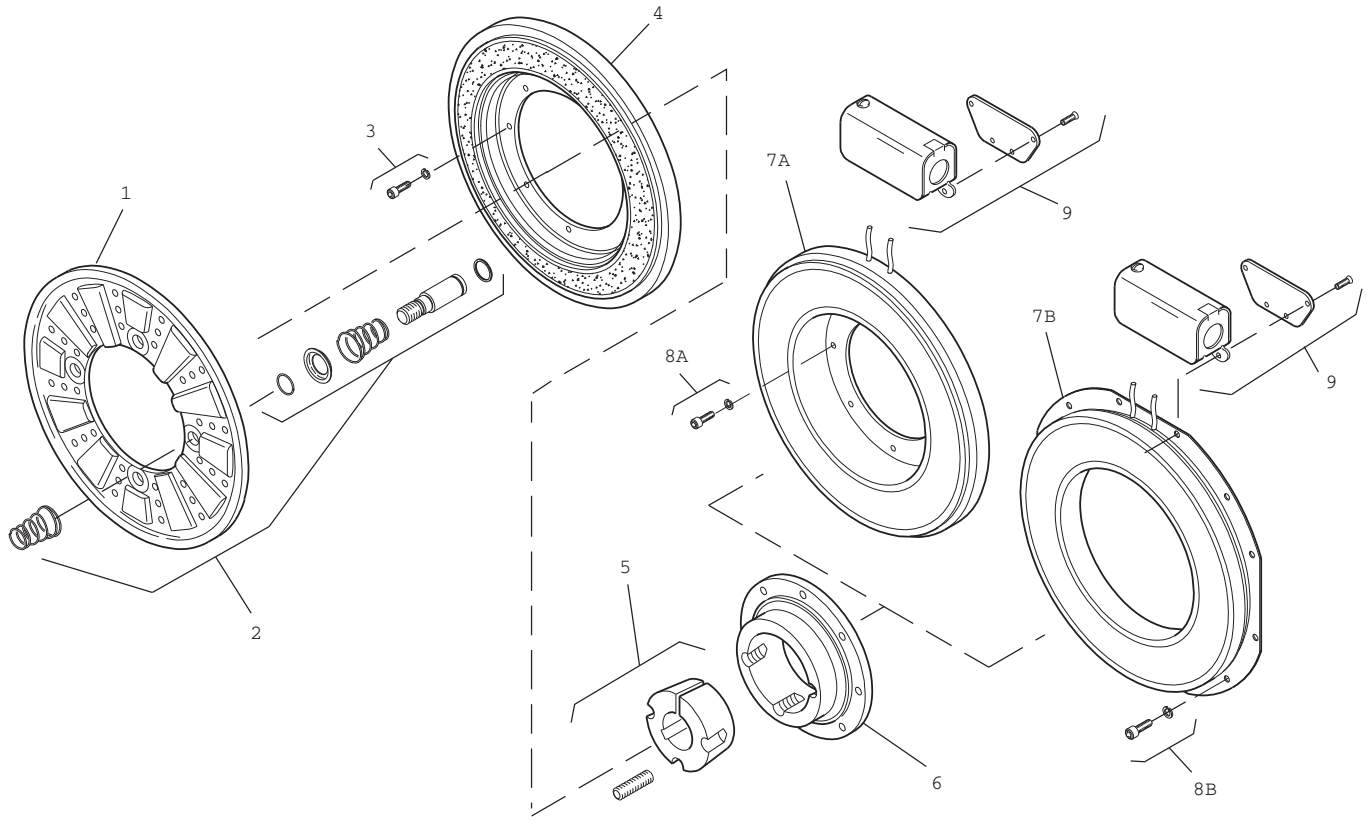
1. Concentricity of field mtg. pilot dia. with rotor mtg. shaft within .006 T.I.R.
2. Squareness of field mtg. face with rotor mtg. shaft within .006 T.I.R. measured at field mtg. bolt circle.
3. Rotor mtg. shaft concentric with armature center of rotation within .006 T.I.R.
4. Armature hub pilot dia. to be concentric with armature center of rotation within .010 T.I.R.

Shaft Size	.937 – 3.000
Static Torque	700 lb. ft.
Maximum Speed	2,000 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1525 Clutch Flange Mounted–Normal Duty

Drawing I-25625



Item	Description	SF-1525, B.M. Part Number	Qty.
1	Armature	5304-111-004	1
2	Autgap Accessory	5201-101-008	4
3	Mounting Accessory	5321-101-002	2
4	Rotor		1
	Standard Friction Material	5204-751-002	
	†Optional LK Facing	5204-751-004	
5	Bushing		
	5/16" to 3" Bore	180-0223 to180-0256	
6	Rotor Hub	540-0004	1
7A	Field - Inside Mounted		1
	6 Volt	5204-451-013	
	24 Volt	5204-451-015	
	90 Volt	5204-451-016	
7B	Field - Outside Mounted		1
	6 Volt	5204-451-055	
	24 Volt	5204-451-056	
	90 Volt	5204-451-057	
8A	Mounting Accessory - I.M.	5321-101-001	2
8B	Mounting Accessory - O.M.	5321-101-001	2
9	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

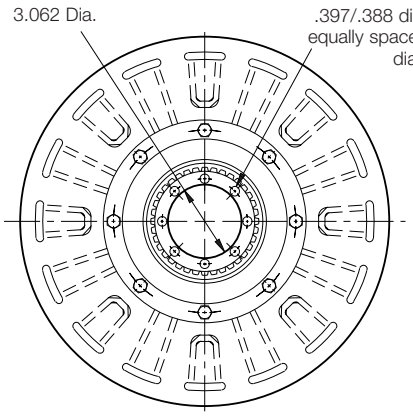
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 7A or 7B.
3. Specify Inside Mounted for Items 7A and 8A or Outside Mounted for Items 7B and 8B.

Example:

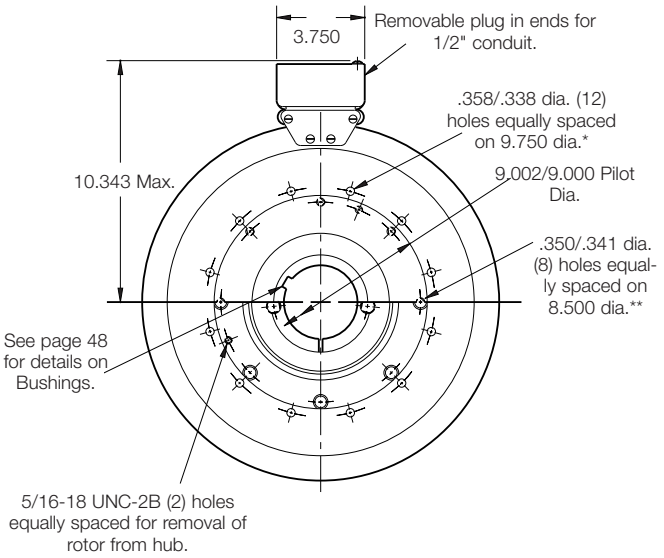
SF-1525 Clutch per I-25625 - 90 Volt, 2" Bore, Inside Mounted.

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

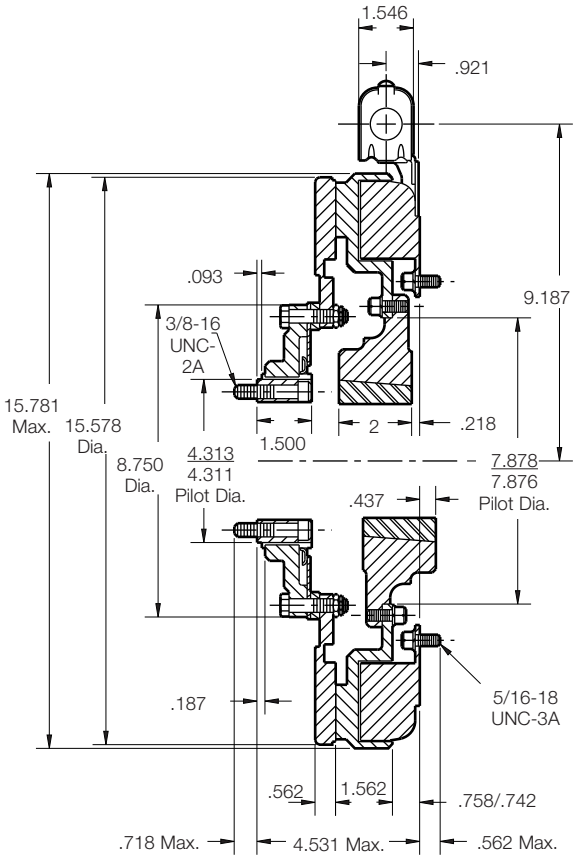
SF-1525 H.T. Clutch, Hi-Torque Flange Mounted



Armature View



Field View



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

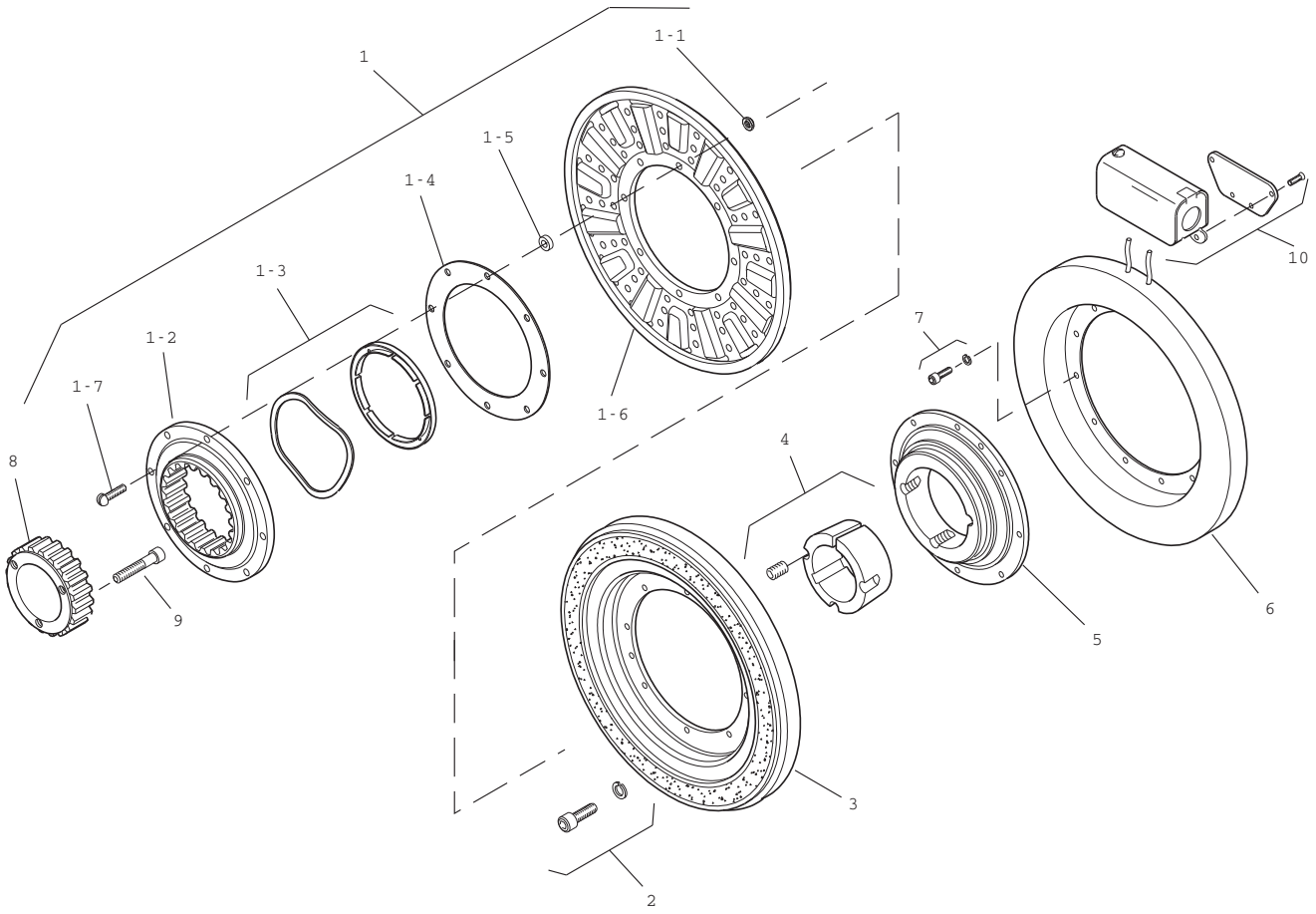
1. Concentricity of field mtg. pilot dia. with rotor mtg. shaft within .006 T.I.R.
2. Squareness of field mtg. face with rotor mtg. shaft within .006 T.I.R. measured at field mtg. bolt circle.
3. Rotor mtg. shaft concentric with armature center of rotation within .006 T.I.R.
4. Armature hub pilot dia. to be concentric with armature center of rotation within .010 T.I.R.

Shaft Size	.937– .3.000
Static Torque	1,350 lb. ft.
Maximum Speed	2,000 rpm
Standard Voltage	D.C. 6, 90

All dimensions are nominal unless otherwise noted.

SF-1525 H.T. Clutch, Hi-Torque Flange Mounted

Drawing I-25627



Item	Description	SF-1525 H.T. Part Number	Qty.
1	Armature Assembly	5204-111-004	1
1-1	Locknut	661-0004	8
1-2	Splined Adapter	104-0011	1
1-3	Autogap Accessory	5323-101-002	1
1-4	Retainer Plate	686-0003	1
1-5	Spacer	748-0333	8
1-6	Armature	5324-111-034	1
1-7	Screw	797-0342	8
2	Mounting Accessory	5321-101-002	2
3	Rotor	5204-751-001	1
4	Bushing		
	15/16" to 3" Bore	180-0223 to 180-0256*	1
5	Rotor Hub	540-0004	1
6	Field - Inside Mounted		1
	6 Volt	5204-451-005	
	90 Volt	5204-451-006	
7	Mounting Accessory - I.M.	5321-101-001	2

Item	Description	SF-1525 H.T. Part Number	Qty.
8	Splined Hub	540-0148	1
9	Mounting Accessory	5202-101-001	1
10	Conduit Box	5200-101-012	1

How to Order:

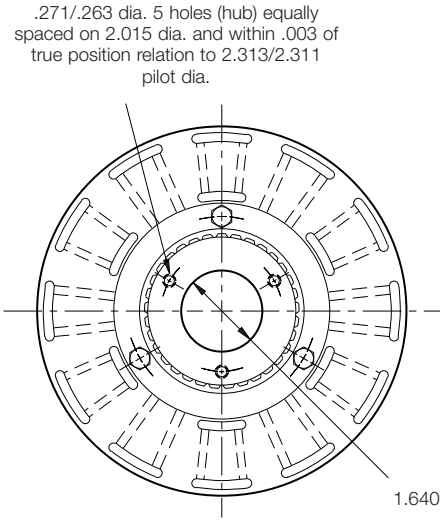
1. Specify Bore Size of Item 4.

Example:

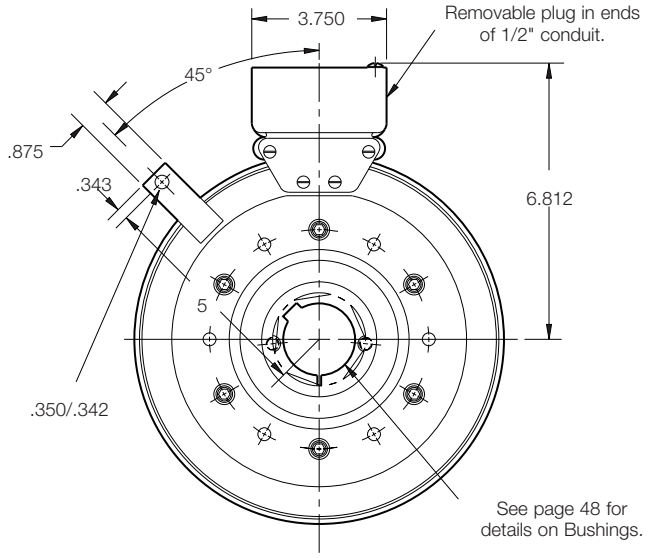
SF-1525 Clutch, Hi-Torque, per I-25627 - 90 Volt, 2" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

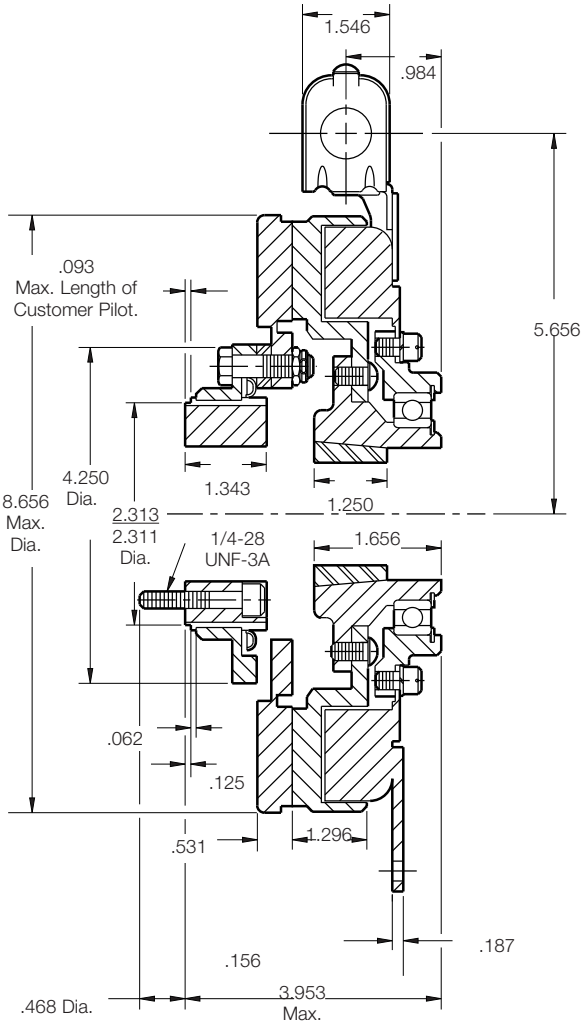
SF-825 Clutch Bearing Mounted–Heavy Duty



Armature View



Field View



Shaft Size	.500 – 1.500
Static Torque	150 lb. ft.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

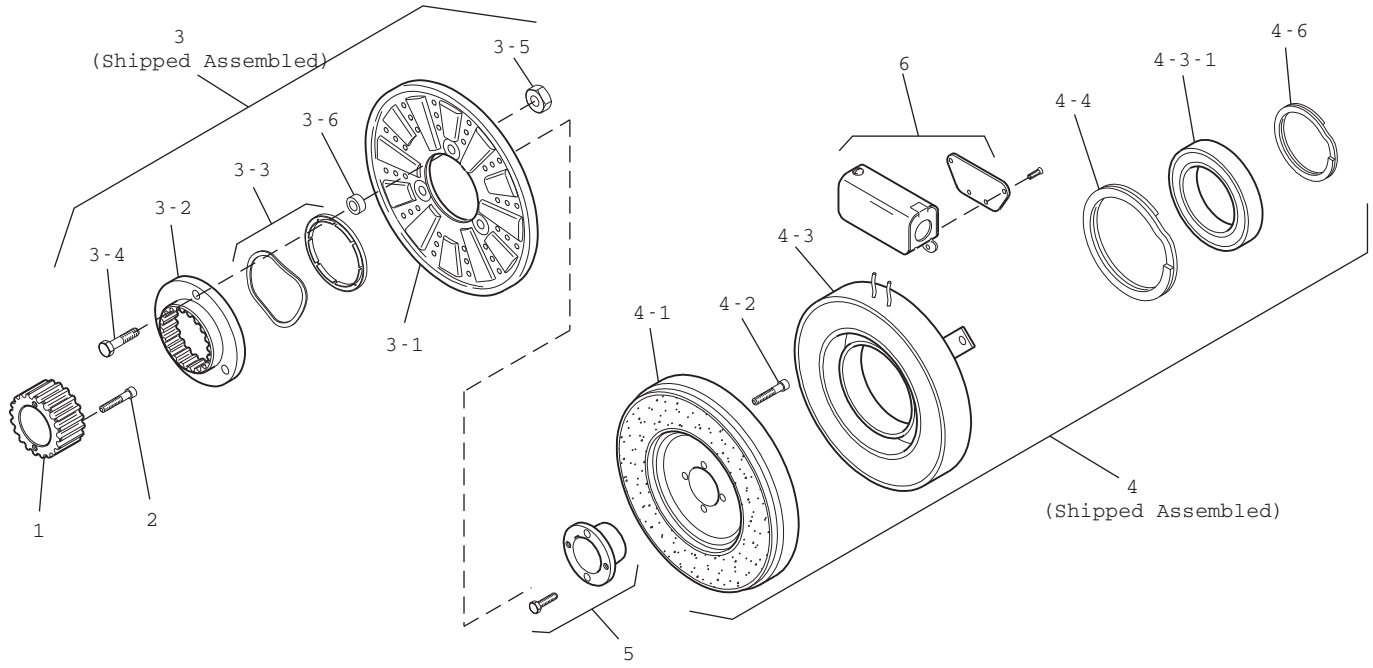
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature hub pilot dia. to be concentric with field and rotor mounting shaft within .010 T.I.R.
2. Angular alignment of shafts within 1/2 degree.

SF-825 Clutch Bearing Mounted–Heavy Duty

Drawing I-25573



Item	Description	SF-825 B.M. Part Number	Qty.
1	Splined Hub	540-0146	1
2	Accessory, Mounting	5201-101-001	1
3	Armature & Adapter Assembly	5201-111-001	1
3-1	Armature	5321-111-022	1
3-2	Splined Adapter	104-0008	1
3-3	Autogap Accessory	5321-101-006	1
3-4	Screw	797-0341	3
3-5	Locknut	661-0004	3
3-6	Spacer	748-0333	3
4	Field & Rotor Assembly		1
	6 Volt	5201-452-002	
	24 Volt	5201-452-004	
	90 Volt	5201-452-006	
4-1	Rotor		1
	Standard Friction Material	5201-751-008	
4-2	Mounting Accessory	5201-101-005	
4-3	Field & Bearing Assembly		1
	6 Volt	5201-451-054	
	24 Volt	5201-451-056	
	90 Volt	5201-451-057	
4-4	Retainer Ring	748-0111	1
4-5	Ball Bearing	166-0142	1
4-6	Retainer Ring	748-0016	1
5	Bushing*	180-0002 to 180-0018	1
6	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers.

How to Order:

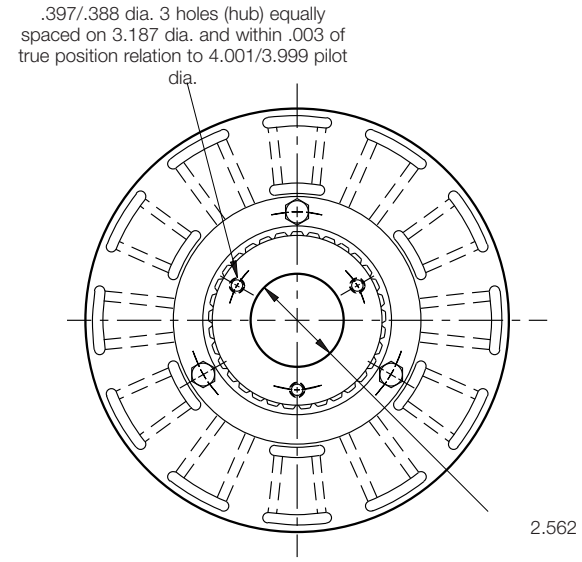
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 4.

Example:

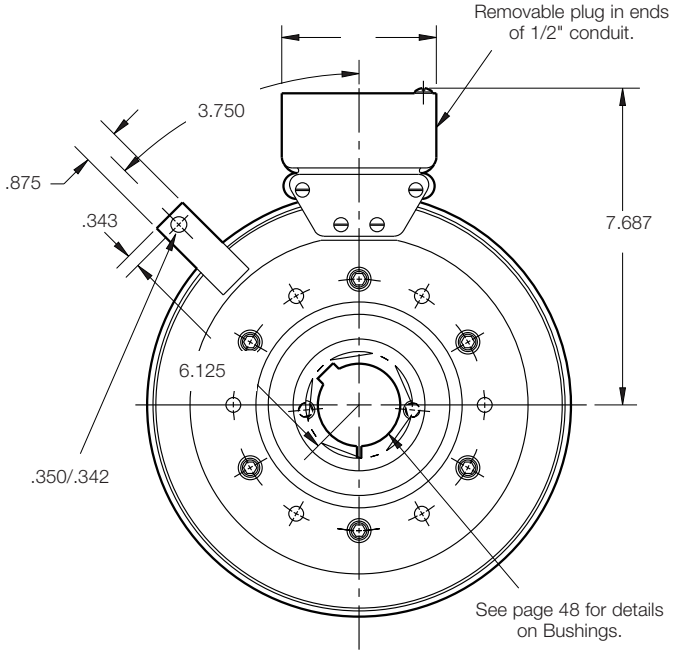
SF-825 Clutch per I-25573 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

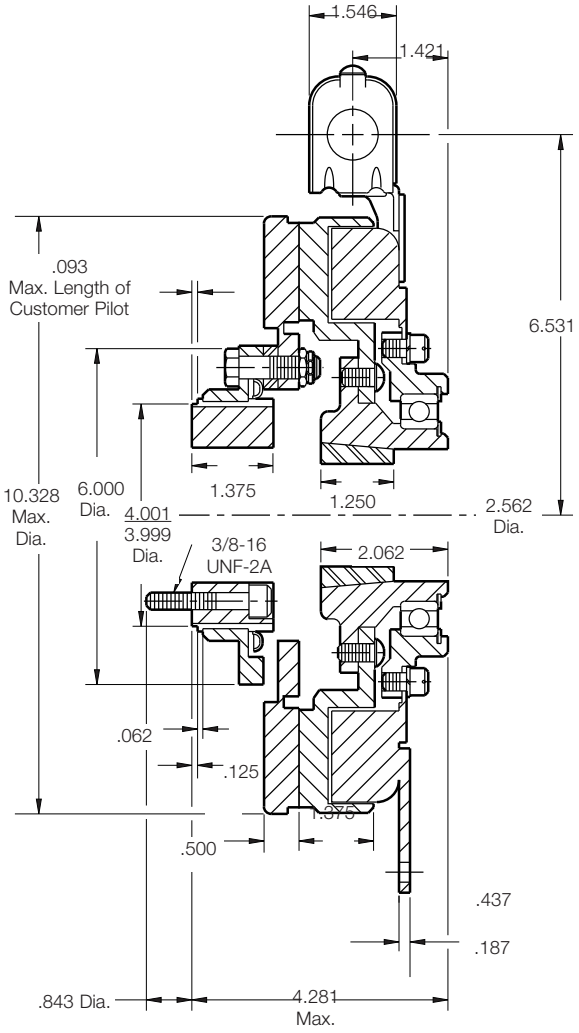
SF-1000 Clutch Bearing Mounted–Heavy Duty



Armature View



Field View



Shaft Size	.500 – 2.000
Static Torque	240 lb. ft.
Maximum Speed	2,500 rpm
Standard Voltage	D.C. 6, 24, 90

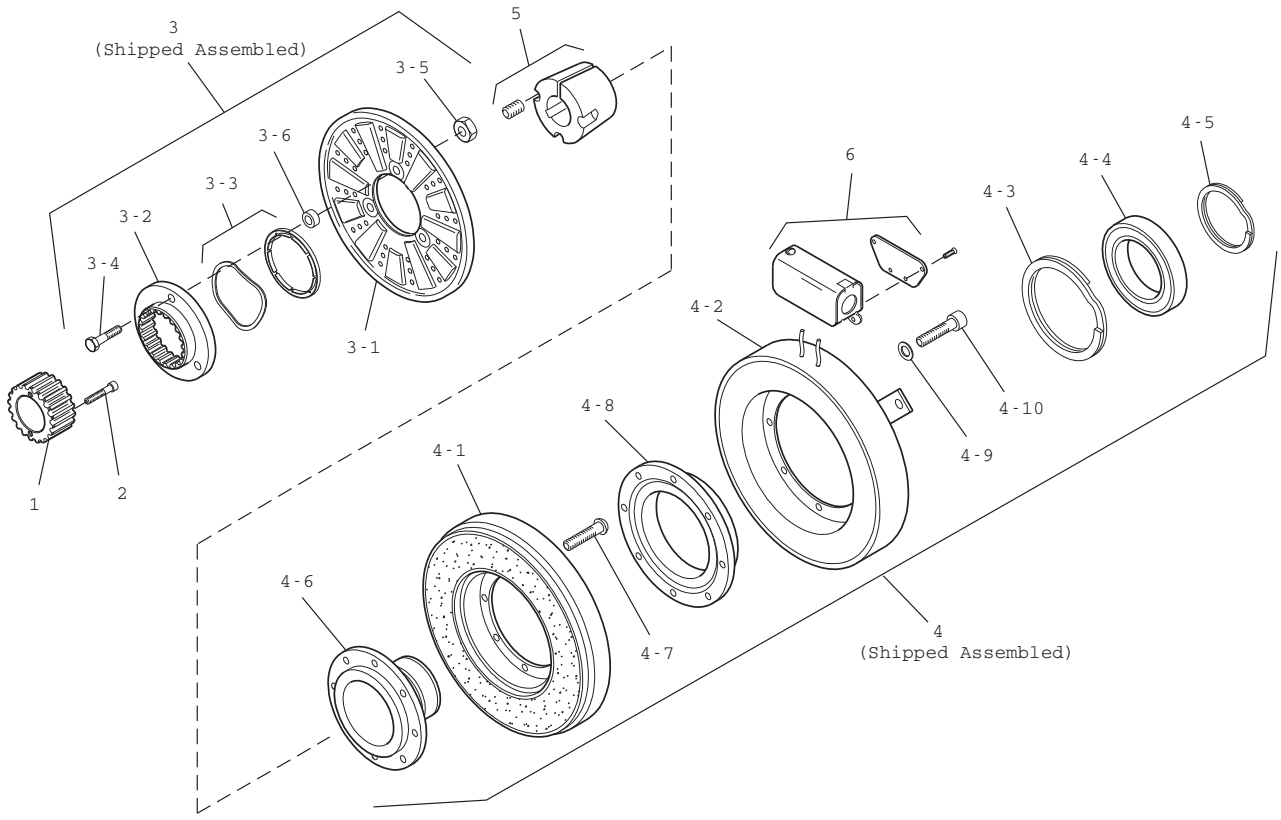
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature hub pilot dia. to be concentric with field and rotor mounting shaft within .010 T.I.R.
2. Angular alignment of shafts within 1/2 degree.

SF-1000 Clutch Bearing Mounted–Heavy Duty

Drawing I-25597



Item	Description	SF-1000 B.M. Part Number	Qty.
1	Splined Hub	540-0147	1
2	Accessory, Mounting	5202-101-001	1
3	Armature & Adapter Assembly	5202-111-001	1
3-1	Armature	5322-111-036	1
3-2	Splined Adapter	104-0009	1
3-3	Autogap Accessory	5322-101-004	1
3-4	Screw	797-0341	3
3-5	Locknut	661-0004	3
3-6	Spacer	748-0333	3
4	Field & Rotor Assembly		1
	6 Volt	5202-452-012	
	24 Volt	5202-452-014	
	90 Volt	5202-452-015	
4-1	Rotor		1
	Standard Friction Material	5202-751-003	
	†Optional LK Facing	5202-751-007	
4-2	Mounting Accessory		
4-3	Field		1
	6 Volt	5202-451-040	
	24 Volt	5202-451-042	
	90 Volt	5202-451-043	
4-4	Retainer Ring	748-0116	1
4-5	Ball Bearing	166-1046	1
4-6	Retainer Ring	748-0582	1
4-7	Rotor Hub	540-1300	1
4-8	Buttonhead Capscrew	797-1261	6

Item	Description	SF-1000 B.M. Part Number	Qty.
4-9	Ring Adapter	748-1047	1
4-10	Lockwasher	950-0359	6
4-11	Socket Head Capscrew	797-0422	6
5	Bushing*	180-0155 to 180-0179	1
6	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

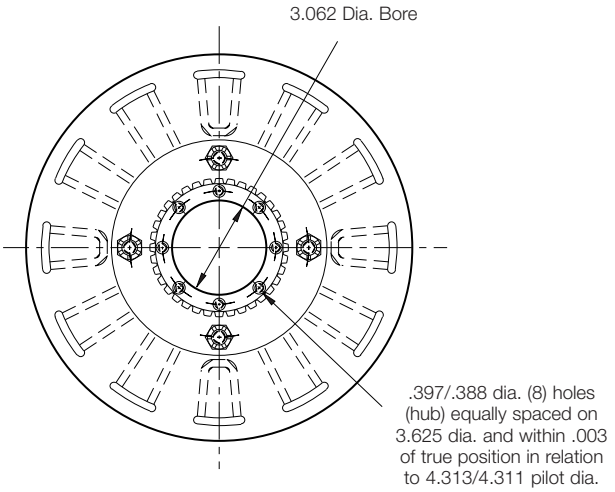
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 4.

Example:

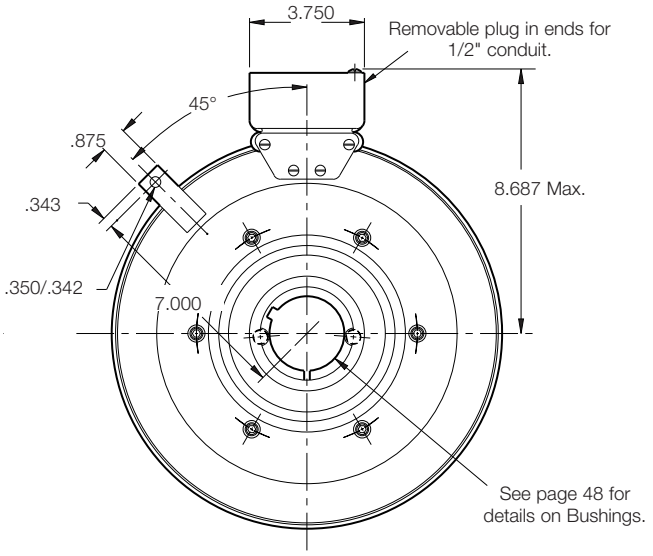
SF-1000 Clutch per I-25597 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

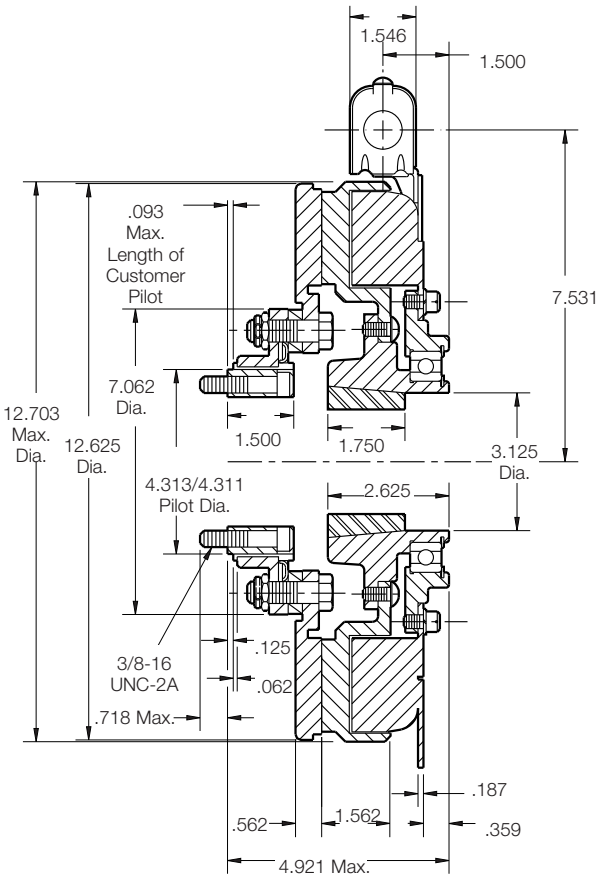
SF-1225 Clutch Bearing Mounted–Heavy Duty



Armature View



Field View



Shaft Size	.500 – 2.500
Static Torque	465 lb. ft.
Maximum Speed	2,200 rpm
Standard Voltage	D.C. 6, 24, 90

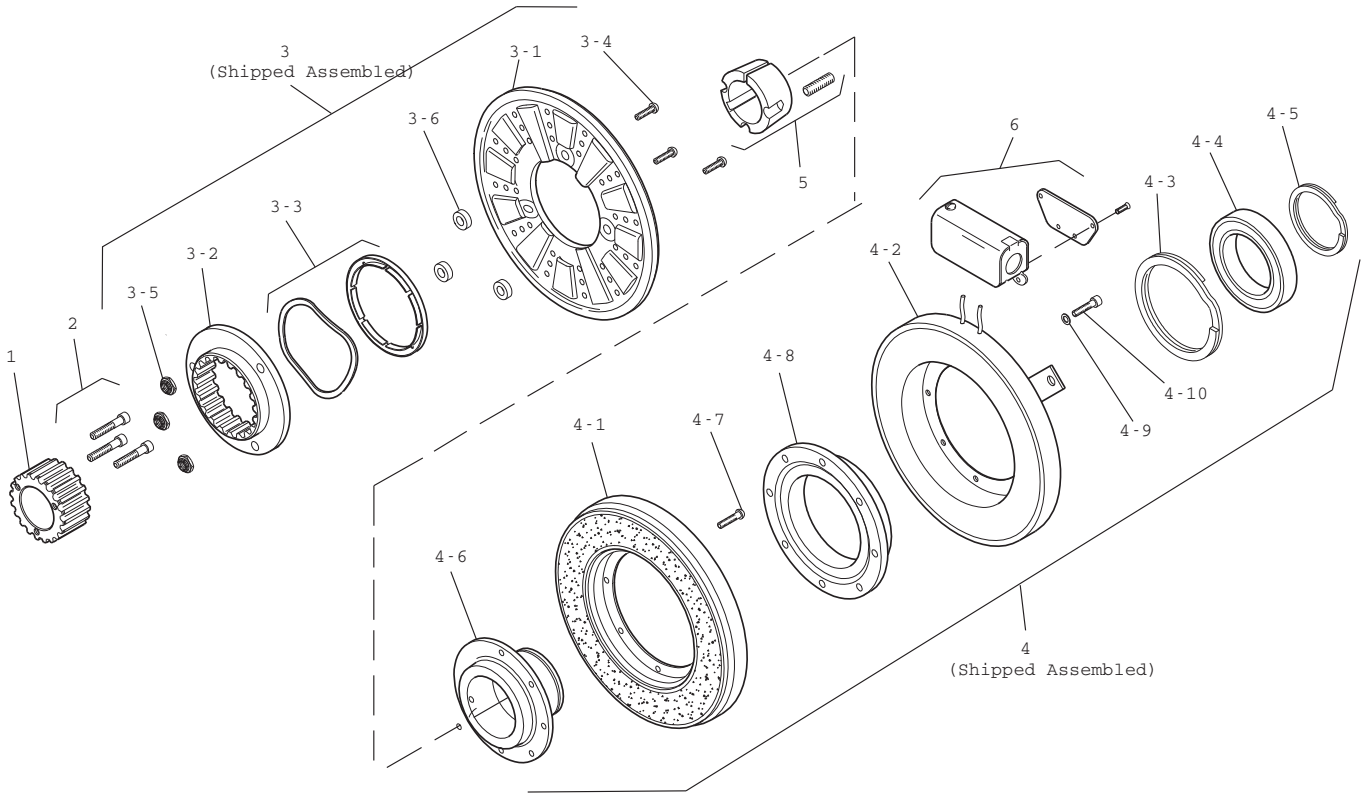
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature hub pilot dia. to be concentric with field and rotor mounting shaft within .010 T.I.R.
2. Angular alignment of shafts within 1/2 degree.

SF-1225 Clutch Bearing Mounted–Heavy Duty

Drawing I-25622



Item	Description	SF-1225, B.M. Part Number	Qty.
1	Splined Hub	540-0148	1
2	Accessory Mounting	5202-101-001	1
3	Armature & Adapter Assembly	5203-111-001	1
3-1	Armature	5323-111-034	1
3-2	Splined Adapter	104-0010	1
3-3	Autogap Accessory	5323-101-002	1
3-4	Screw	797-0356	4
3-5	Locknut	661-0005	4
3-6	Spacer	266-0004	4
4	Field & Rotor Assembly		1
	6 Volt	5203-452-009	
	24 Volt	5203-452-011	
	90 Volt	5203-452-012	1
4-1	Rotor		1
	Standard Friction Material	5203-751-001	
	†Optional LK Facing	5203-751-004	
4-2	Field		1
	6 Volt	5203-451-034	
	24 Volt	5203-451-036	
	90 Volt	5203-451-037	
4-3	Retainer Ring	748-0119	1
4-4	Ball Bearing	166-1047	1
4-5	Retainer Ring	748-0011	1

Item	Description	SF-1225, B.M. Part Number	Qty.
4-6	Rotor Hub	540-1304	1
4-7	Buttonhead Screw	797-1261	8
4-8	Ring Adapter	748-0591	1
4-9	Lockwasher	950-0359	6
4-10	Sockethead Screw	797-0424	6
5	Bushing*	180-0185 to 180-0217	1
6	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

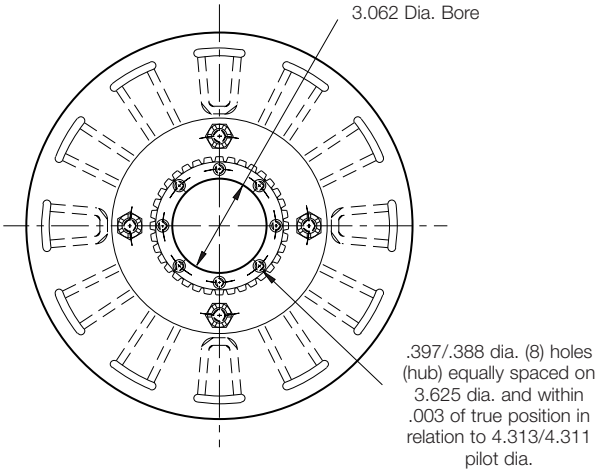
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 4.

Example:

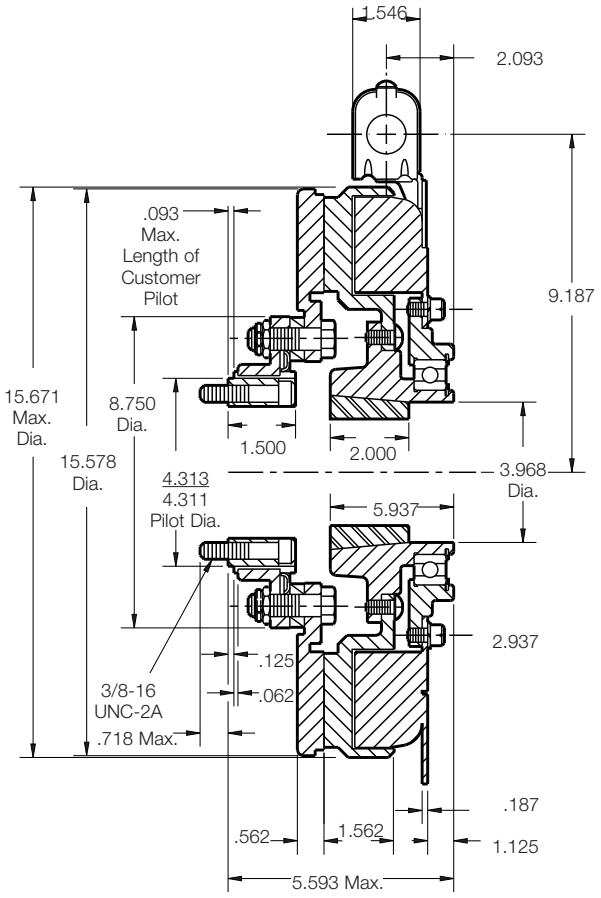
SF-1225 Clutch per I-25622 - 90 Volt, 1" Bore

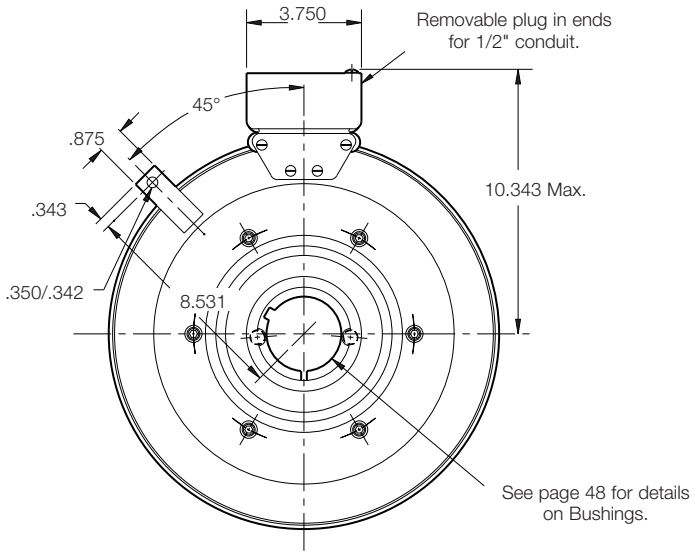
These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

SF-1525 Clutch Bearing Mounted–Heavy Duty



Armature View





Field View

Shaft Size	.937 – 3.000
Static Torque	700 lb. ft.
Maximum Speed	1,800 rpm
Standard Voltage	D.C. 6, 24, 90

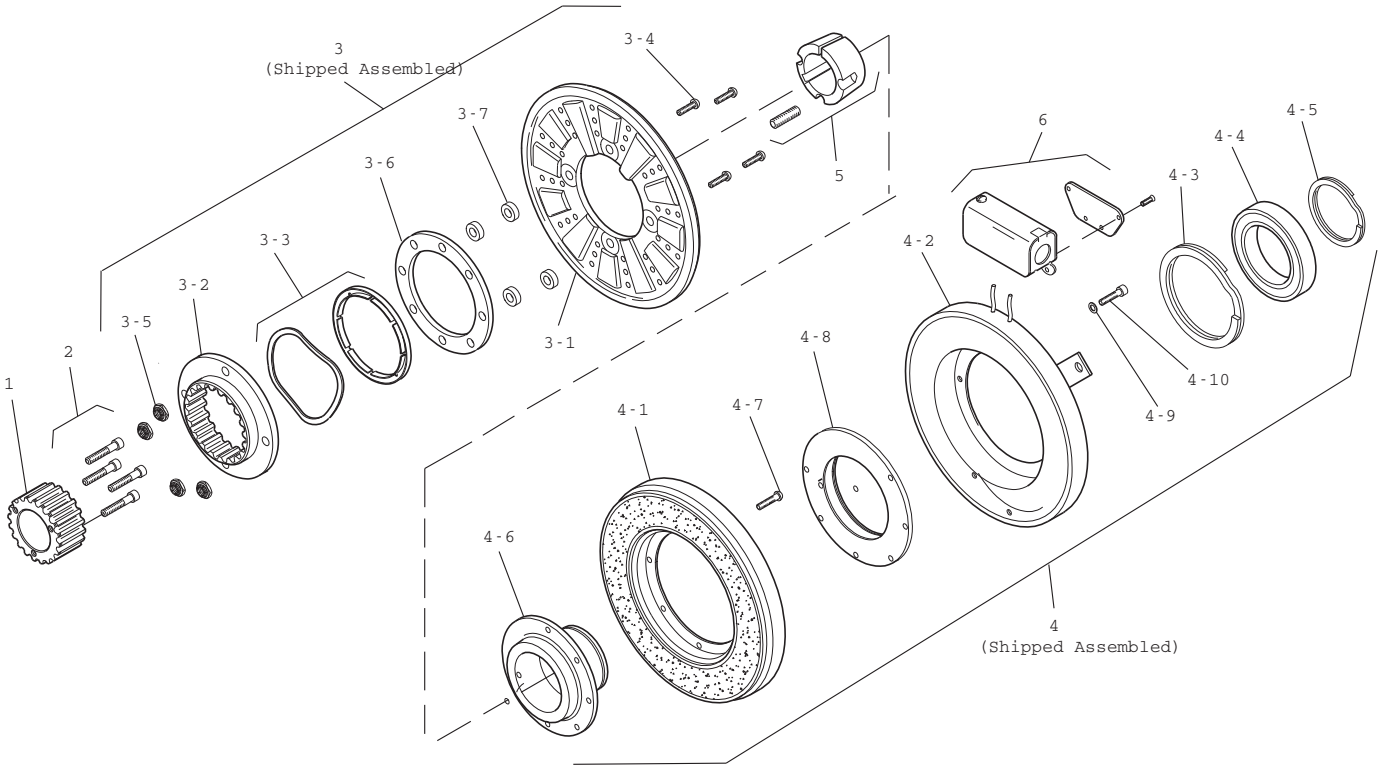
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature hub pilot dia. to be concentric with field and rotor mounting shaft within .010 T.I.R.
2. Angular alignment of shafts within 1/2 degree.

SF-1525 Clutch Bearing Mounted–Heavy Duty

Drawing I-25640



Item	Description	SF-1525, B.M. Part Number	Qty.
1	Splined Hub	540-0148	1
2	Accessory Mounting	5202-101-001	1
3	Armature & Adapter Assembly	5204-111-004	1
3-1	Armature	5324-111-034	1
3-2	Splined Adapter	104-0011	1
3-3	Autogap Accessory	5324-101-002	1
3-4	Screw	797-0342	8
3-5	Locknut	661-0004	8
3-6	Retainer Plate	686-0003	
3-7	Spacer	748-0333	8
4	Field & Rotor Assembly		1
	6 Volt	5204-452-009	
	24 Volt	5204-452-011	
	90 Volt	5204-452-012	
4-1	Rotor		1
	Standard Friction Material	5204-751-002	
	†Optional LK Facing	5204-751-004	
4-2	Field		1
	6 Volt	5204-451-084	
	24 Volt	5204-451-086	
	90 Volt	5204-451-087	
4-3	Retainer Ring	748-0114	1
4-4	Ball Bearing	166-0163	1

Item	Description	SF-1525, B.M. Part Number	Qty.
4-5	Retainer Ring	748-0583	1
4-6	Rotor Hub	540-1306	1
4-7	Buttonhead Screw	797-1261	8
4-8	Ring Adapter	748-1048	1
4-9	Lockwasher	950-0359	6
4-10	Sockethead Screw	797-0424	6
5	Bushing*	180-0223 to 180-0256*	1
6	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing a

How to Order:

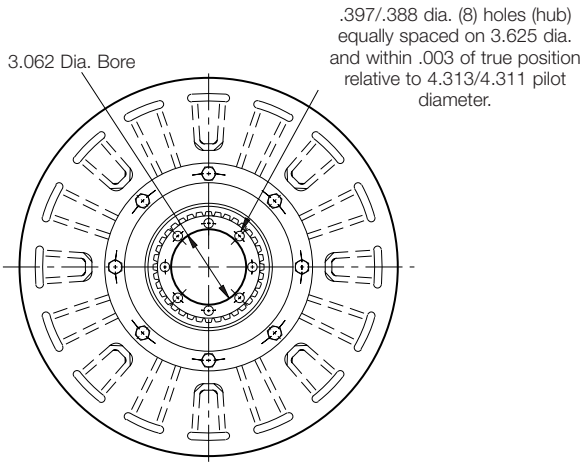
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 4.

Example:

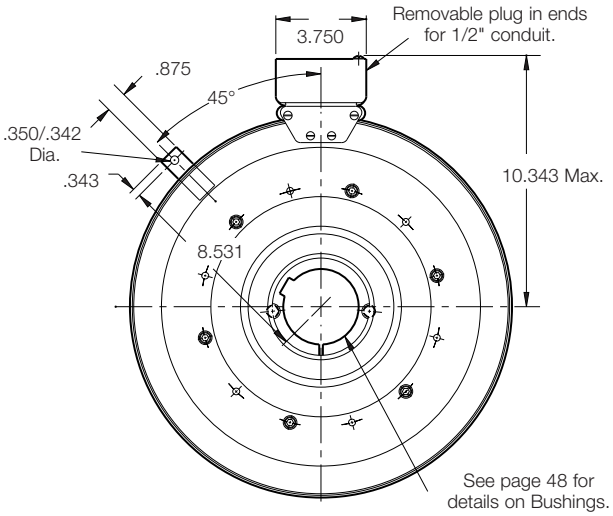
SF-1525 Clutch per I-25640 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

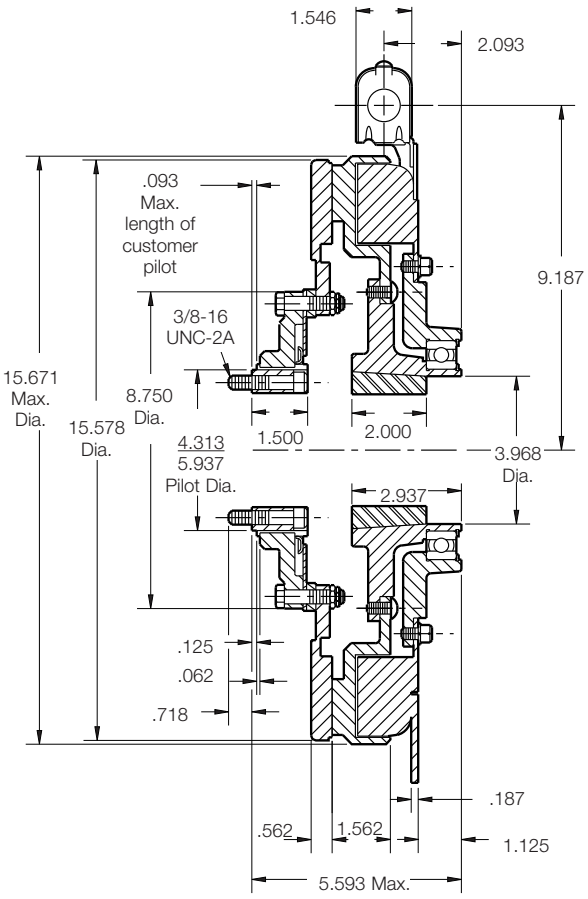
SF-1525 H.T. Clutch, Hi-Torque Bearing Mounted



Armature View



Field View



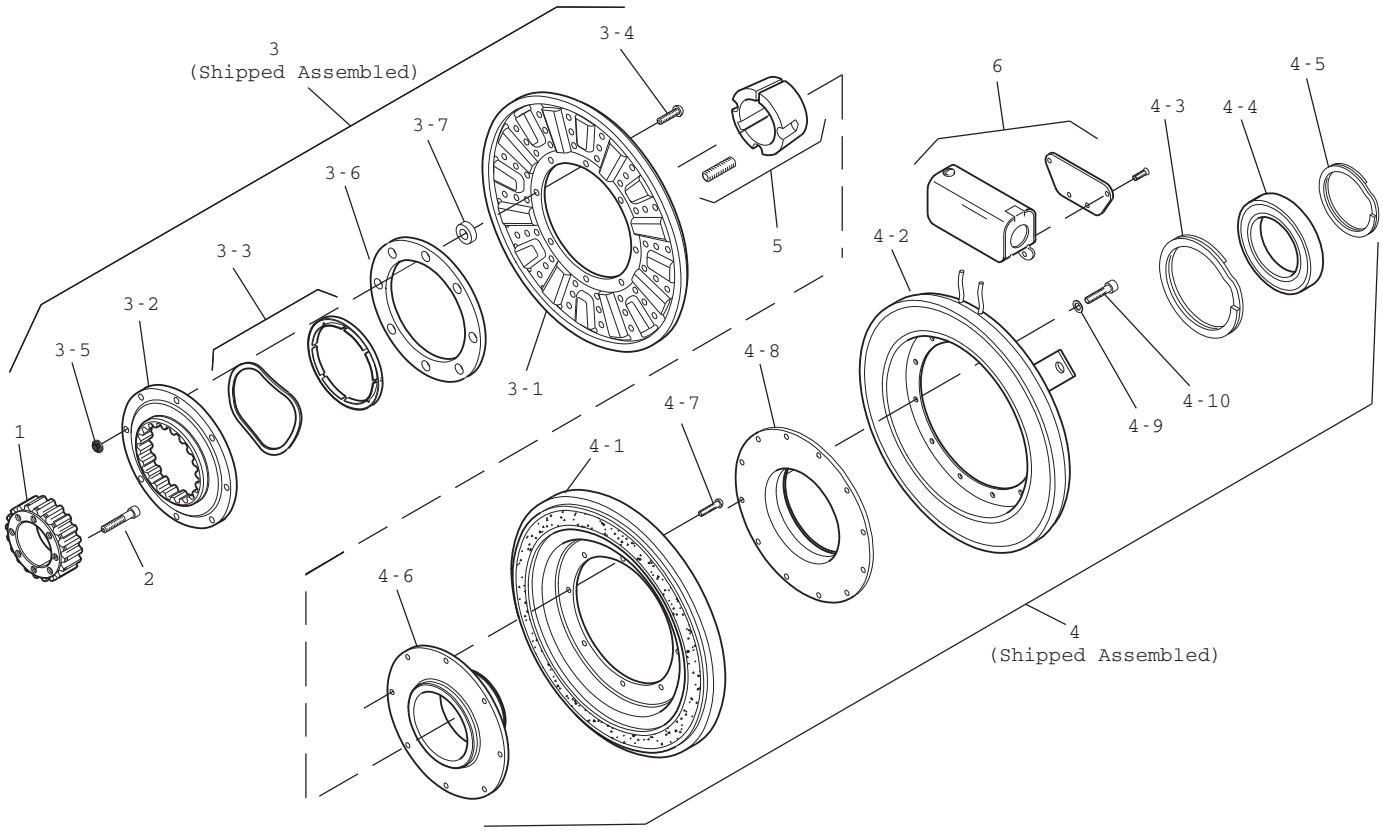
Shaft Size	.937– 3.000
Static Torque	1,350 lb. ft.
Maximum Speed	1,800 rpm
Standard Voltage	D.C. 90

All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature hub pilot dia. to be concentric with field and rotor mounting shaft within .010 T.I.R.
2. Angular aligment of shafts within 1/2 degree.

SF-1525 H.T. Clutch, Hi-Torque Bearing Mounted — Drawing I-25643



Item	Description	SF-1525 H.T. B.M. Part Number	Qty.
1	Splined Hub	540-0148	1
2	Accessory, Mounting	5202-101-001	1
3	Armature & Adapter Assembly	5204-111-004	1
3-1	Armature	5324-111-034	1
3-2	Splined Adapter	104-0011	1
3-3	Autogap Accessory	5323-101-002	1
3-4	Screw	797-0342	8
3-5	Locknut	661-0004	8
3-6	Retainer Plate	686-0003	1
3-7	Spacer	748-0333	8
4	Field & Rotor Assembly		1
	90 Volt	5204-452-015	
4-1	Rotor	5204-751-001	1
4-2	Field		1
	90 Volt	5204-451-090	
4-3	Retainer Ring	748-0114	1
4-4	Ball Bearing	166-0163	1
4-5	Retainer Ring	748-0583	1
4-6	Rotor Hub	540-1306	1
4-7	Buttonhead Screw	797-1261	8
4-8	Ring Adapter	748-1048	1

Item	Description	SF-1525 H.T. B.M. Part Number	Qty.
4-9	Lockwasher	950-0359	6
4-10	Sockethead Screw	797-0424	6
5	Bushing*	180-0223 to 180-0256	1
6	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers.

How to Order:

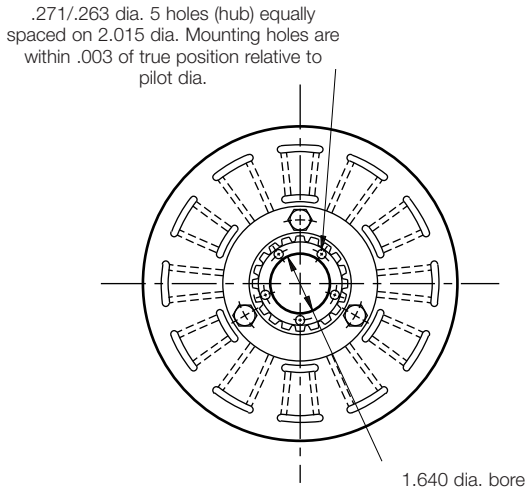
1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 4.

Example:

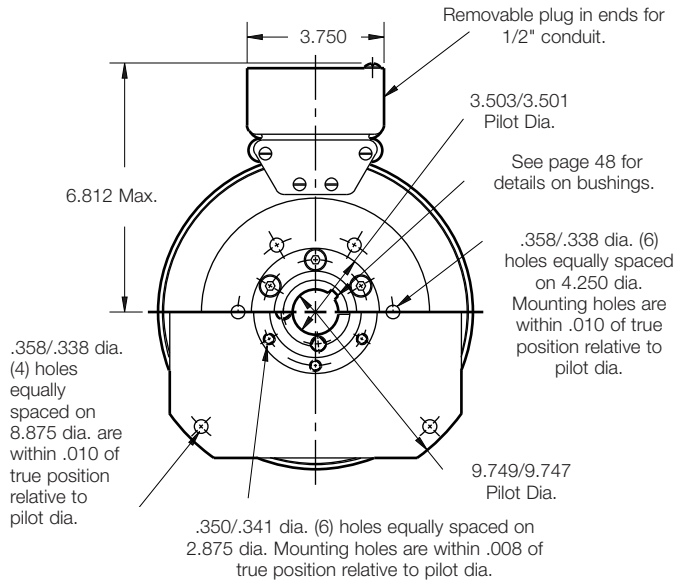
SF-1225 Clutch Hi-Torque per I-25643 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

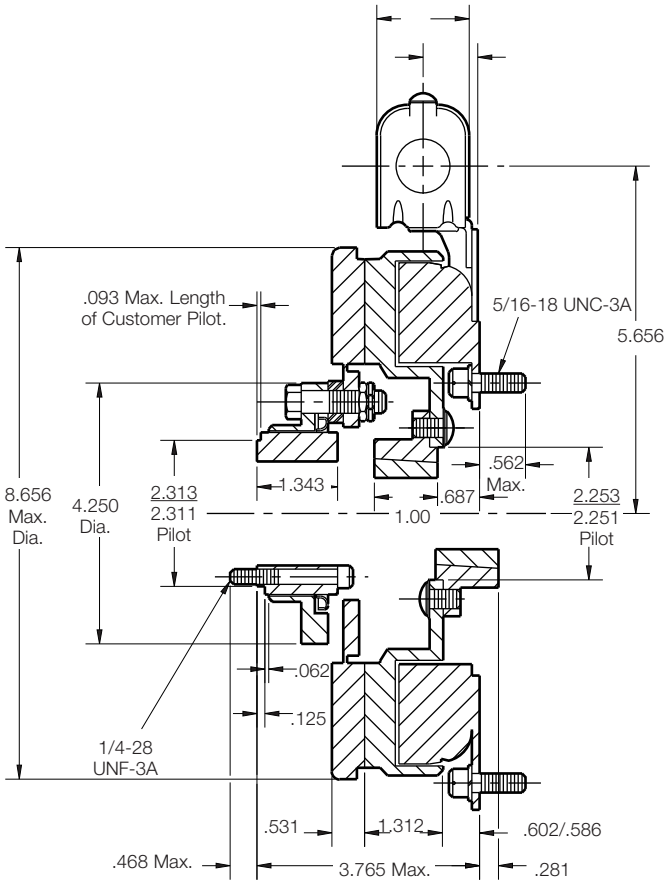
SF-825 Clutch Flange Mounted–Heavy Duty



Armature View



Field View
(Inside & Outside Mounted)



Shaft Size	.500 – 1.250
Static Torque	125 lb. ft.
Maximum Speed	4,000 rpm
Standard Voltage	D.C. 6, 24, 90

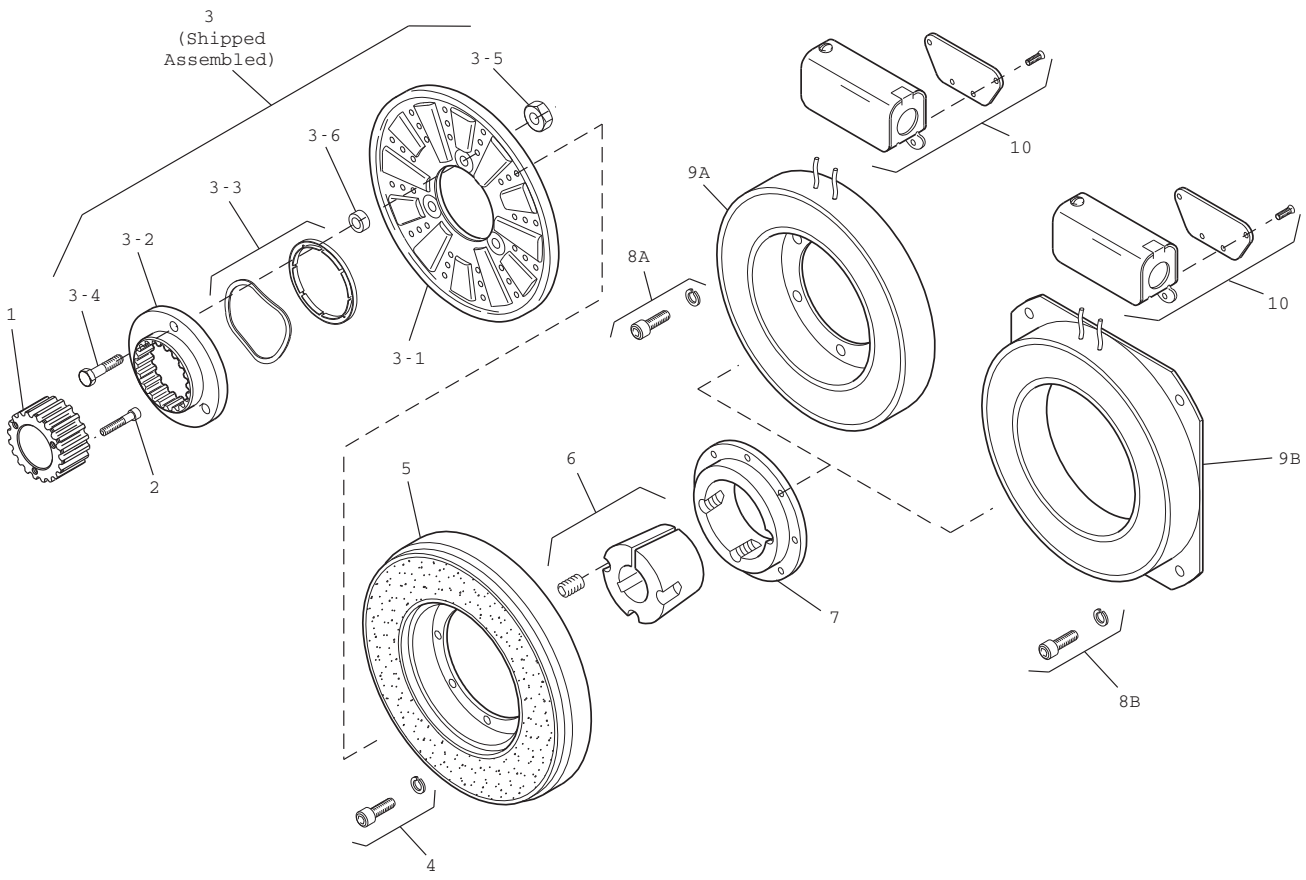
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Concentricity of field mounting pilot dia. with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Rotor mounting shaft concentric with armature hub pilot dia. within .010 T.I.R.

SF-825 Clutch Flange Mounted–Heavy Duty

Drawing I-25561



Item	Description	SF-825, F.M. Part Number	Qty.
1	Splined Hub	540-0146	1
2	Mounting Accessory	5201-101-001	1
3	Armature & Splined Adapter	5201-111-001	1
3-1	Armature	5321-111-022	1
3-2	Splined Adapter	104-0008	1
3-3	Autogap Accessory	5321-101-006	1
3-4	Screw	797-0341	3
3-5	Locknut	661-0004	3
3-6	Spacer	748-0333	3
4	Mounting Accessory	5201-101-007	1
5	Rotor		1
	Standard Friction Material	5201-751-003	
	†Optional LK Facing	5201-751-007	
6	Bushing, Taperlock*	180-0101 to 180-0113	1
7	Rotor Hub	540-0013	1
8A	Mounting Accessory, I.M.	5321-101-001	1
8B	Mounting Accessory, O.M.	5321-101-002	1
9A	Field, Inside Mounted		1
	6 Volt	5201-451-006	
	24 Volt	5201-451-008	
	90 Volt	5201-451-010	
9B	Field, Outside Mounted		1
	6 Volt	5201-451-014	
	24 Volt	5201-451-016	
	90 Volt	5201-451-018	
10	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

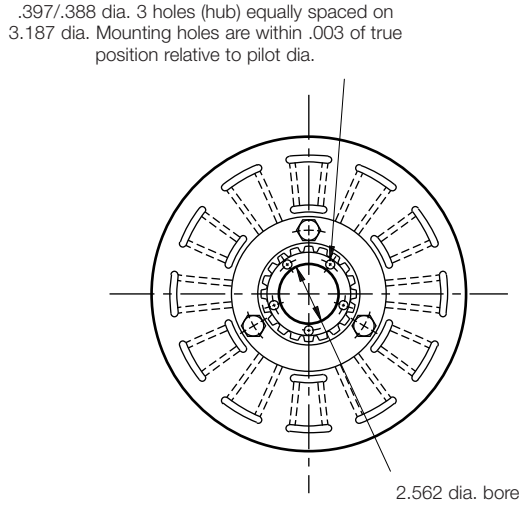
1. Specify Bore Size for Item 6.
2. Specify Voltage for Item 9A or 9B.
3. Specify Inside Mounted for Items 9A and 10A or Outside Mounted for Items 9B and 10B.

Example:

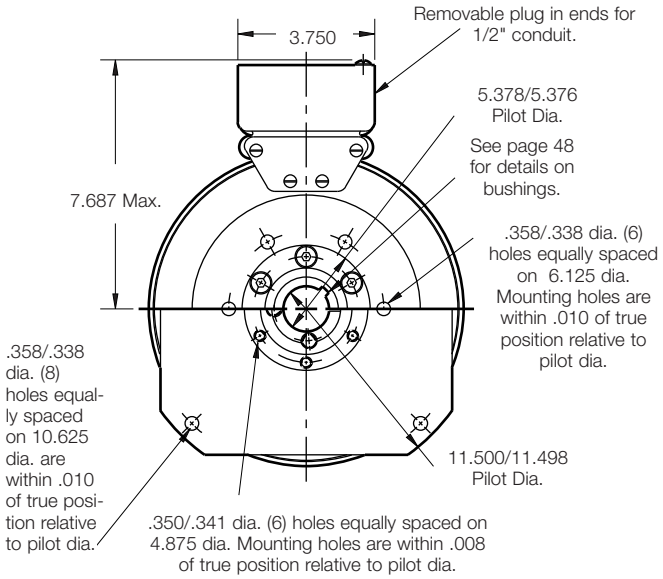
SF-825 Clutch Coupling, Heavy Duty, per I-25561 - 90 Volt, Inside Mounted, 1" Bore (Item 6)

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543

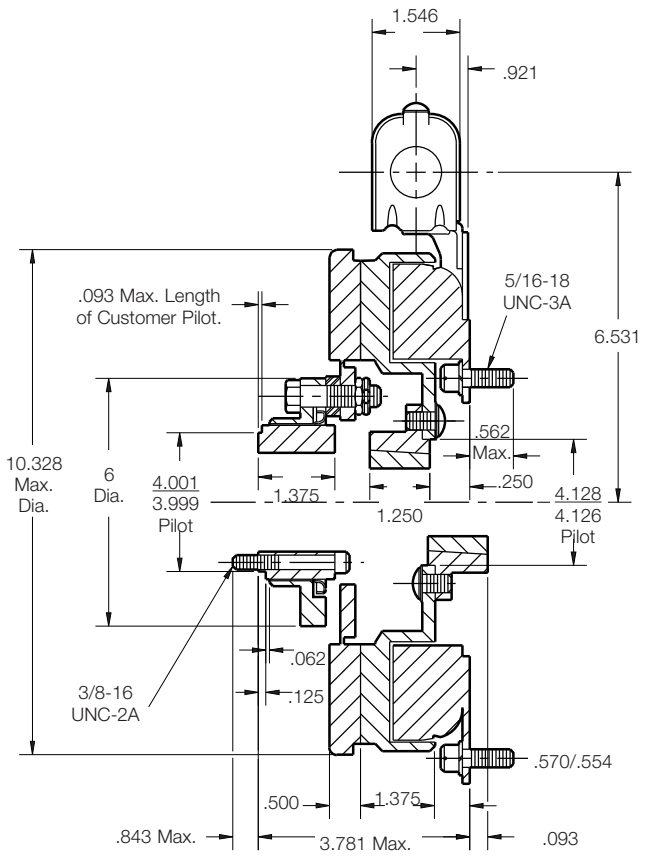
SF-1000 Clutch Flange Mounted–Heavy Duty



Armature View



Field View
(Inside & Outside Mounted)



Customer Shall Maintain:

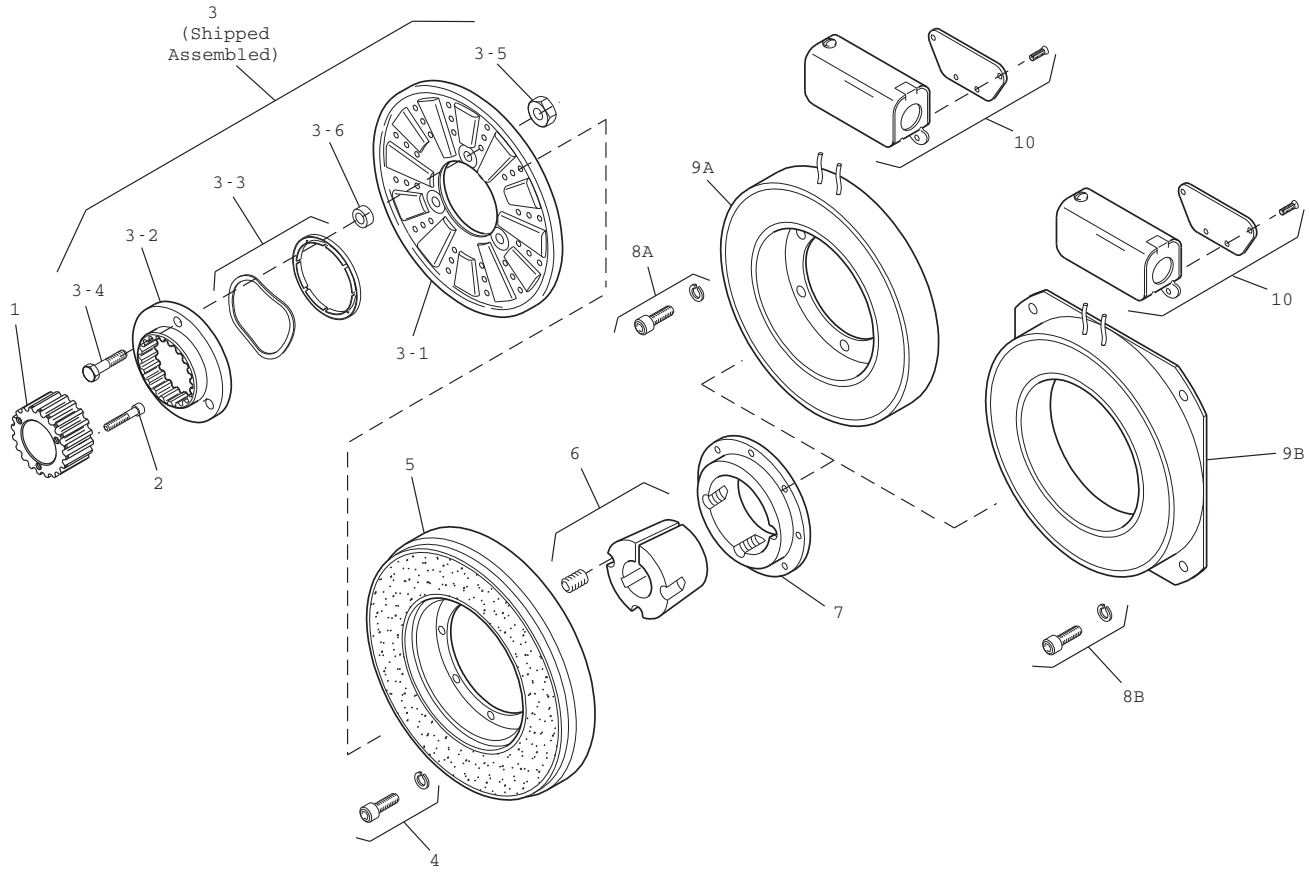
1. Concentricity of field mounting pilot dia. with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Rotor mounting shaft concentric with armature hub pilot dia. within .010 T.I.R.

Shaft Size	.500 – 2.000
Static Torque	240 lb. ft.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1000 Clutch Flange Mounted–Heavy Duty

Drawing I-25581



Item	Description	SF-1000, F.M. Part Number	Qty.
1	Splined Hub	540-0147	1
2	Mounting Accessory	5202-101-001	1
3	Armature & Splined Adapter	5202-111-001	1
3-1	Armature	5322-111-036	1
3-2	Splined Adapter	104-0009	1
3-3	Autogap Accessory	5322-101-004	1
3-4	Screw	797-0341	3
3-5	Locknut	661-0004	3
3-6	Spacer	748-0333	3
4	Mounting Accessory	5202-101-007	1
5	Rotor		1
	Standard Friction Material	5202-751-003	
	†Optional LK Facing	5202-751-007	
6	Bushing, Taperlock*	180-0155 to 180-0179	1
7	Rotor Hub	540-0315	1
8A	Mounting Accessory, I.M.	5321-101-001	1
8B	Mounting Accessory, O.M.	5321-101-002	2
9A	Field, Inside Mounted		1
	6 Volt	5202-451-004	
	24 Volt	5202-451-006	
	90 Volt	5202-451-007	
9B	Field, Outside Mounted		1
	6 Volt	5202-451-011	
	24 Volt	5202-451-013	
	90 Volt	5202-451-014	
10	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

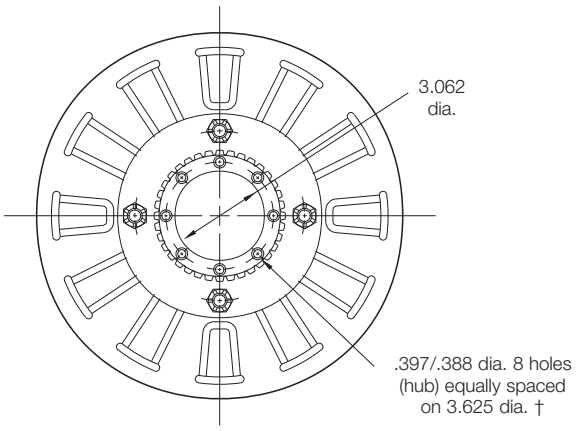
1. Specify Bore Size for Item 6.
2. Specify Voltage for Item 9A or 9B.
3. Specify Inside Mounted for Items 9A and 10A or Outside Mounted for Items 9B and 10B.

Example:

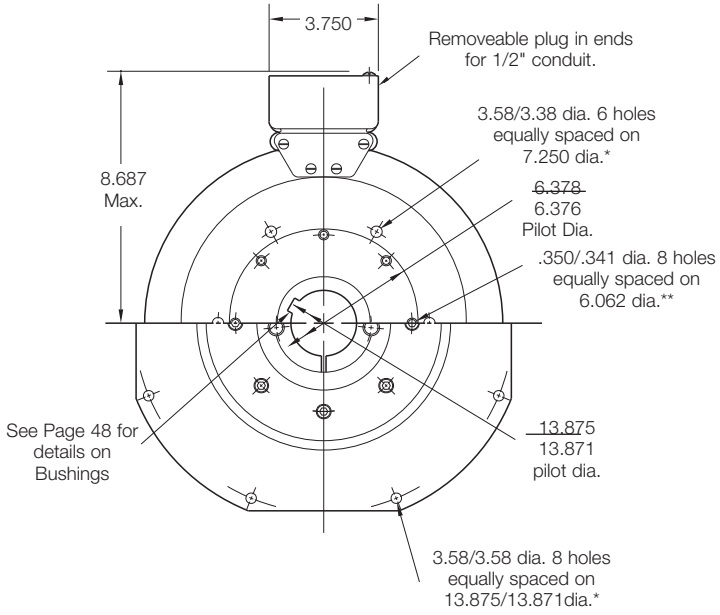
SF-1000 Clutch Coupling, Heavy Duty per I-25581 - 90 Volt, Inside Mounted, 1-1/4" Bore (Item 6)

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543

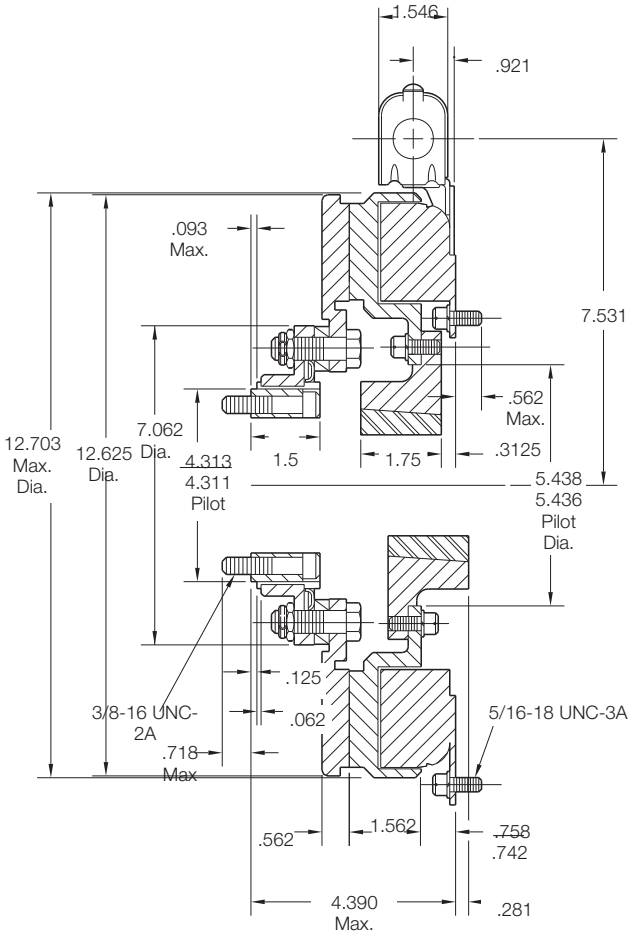
SF-1225 Clutch Flange Mounted–Heavy Duty



Armature View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

† Mounting holes are within .003 of true position relative to pilot diameter.

Customer Shall Maintain:

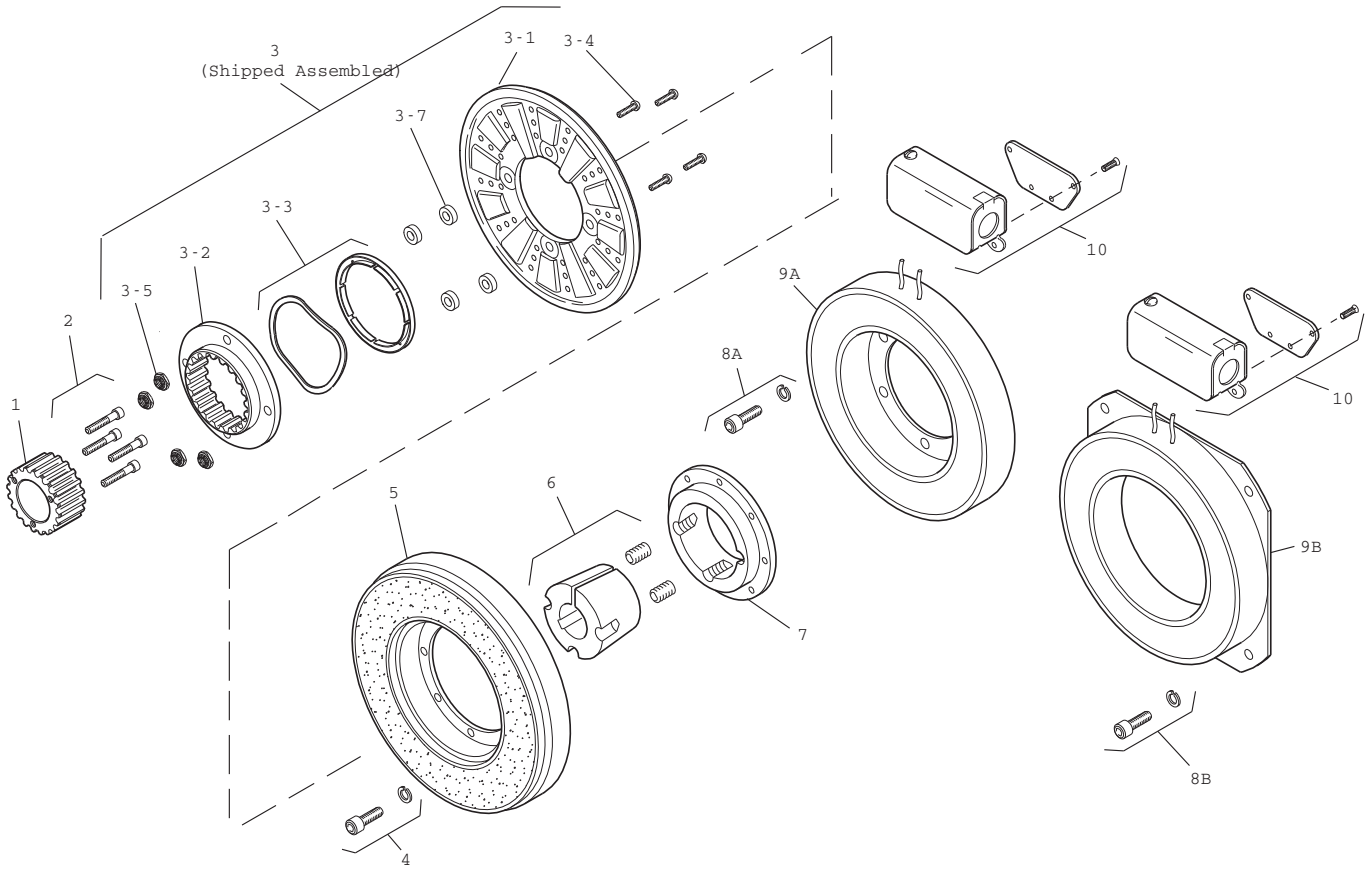
1. Concentricity of field mounting pilot dia. with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Armature hub pilot diameter to be concentric with rotor mounting shaft within .010 T.I.R.

Shaft Size	.500 – 2.500
Static Torque	465 lb. ft.
Maximum Speed	3,000 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1225 Clutch Flange Mounted–Heavy Duty

Drawing I-25601



Item	Description	SF-1225, F.M. Part Number	Qty.
1	Splined Hub	540-0148	1
2	Mounting Accessory	5202-101-001	1
3	Armature & Splined Adapter	5203-111-001	1
3-1	Armature	5323-111-034	1
3-2	Splined Adapter	104-0010	1
3-3	Autogap Accessory	5323-101-002	1
3-4	Screw	797-0356	4
3-5	Locknut	661-0005	4
3-6	Retainer Plate		
3-7	Spacer	266-0004	4
4	Mounting Accessory	5321-101-002	1
5	Rotor		1
	Standard Friction Material	5203-751-001	
	†Optional LK Facing	5203-751-004	
6	Bushing, Taperlock*	180-0185 to 180-0217*	1
7	Rotor Hub	540-0318	1
8A	Mounting Accessory, I.M.	5321-101-001	1
8B	Mounting Accessory, O.M.	5321-101-002	2
9A	Field, Inside Mounted		1
	6 Volt	5203-451-002	
	24 Volt	5203-451-006	
	90 Volt	5203-451-005	
9B	Field, Outside Mounted		1
	6 Volt	5203-451-010	
	24 Volt	5203-451-013	
	90 Volt	5203-451-011	
10	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

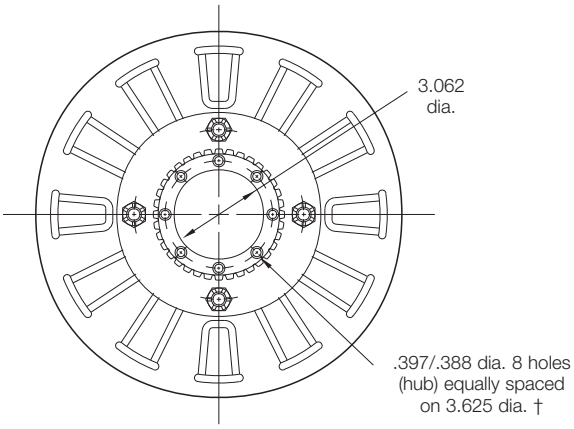
1. Specify Bore Size for Item 6.
2. Specify Voltage for Item 9A or 9B.
3. Specify Inside Mounted for Items 8A and 9A or Outside Mounted for Items 8B and 9B.

Example:

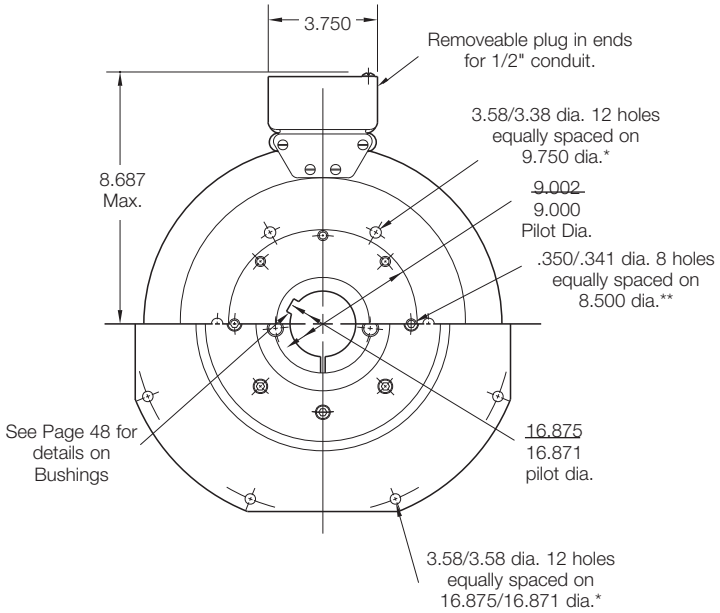
SF-1225 Clutch per I-25601 - 90 Volt, 1-1/2" Bore Inside Mounted

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543

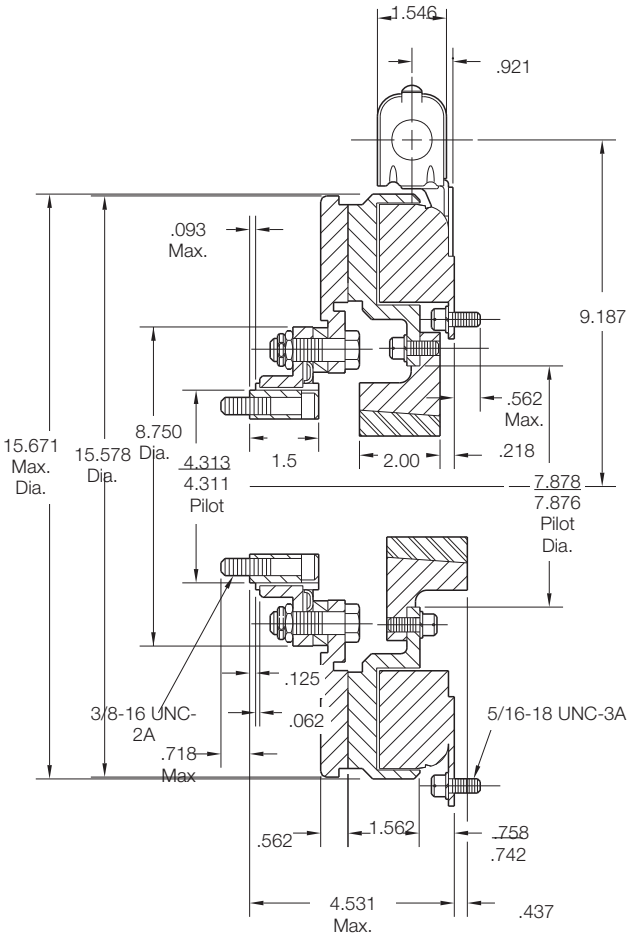
SF-1525 Clutch Flange Mounted–Heavy Duty



Armature View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

† Mounting holes are within .003 of true position relative to pilot diameter.

Customer Shall Maintain:

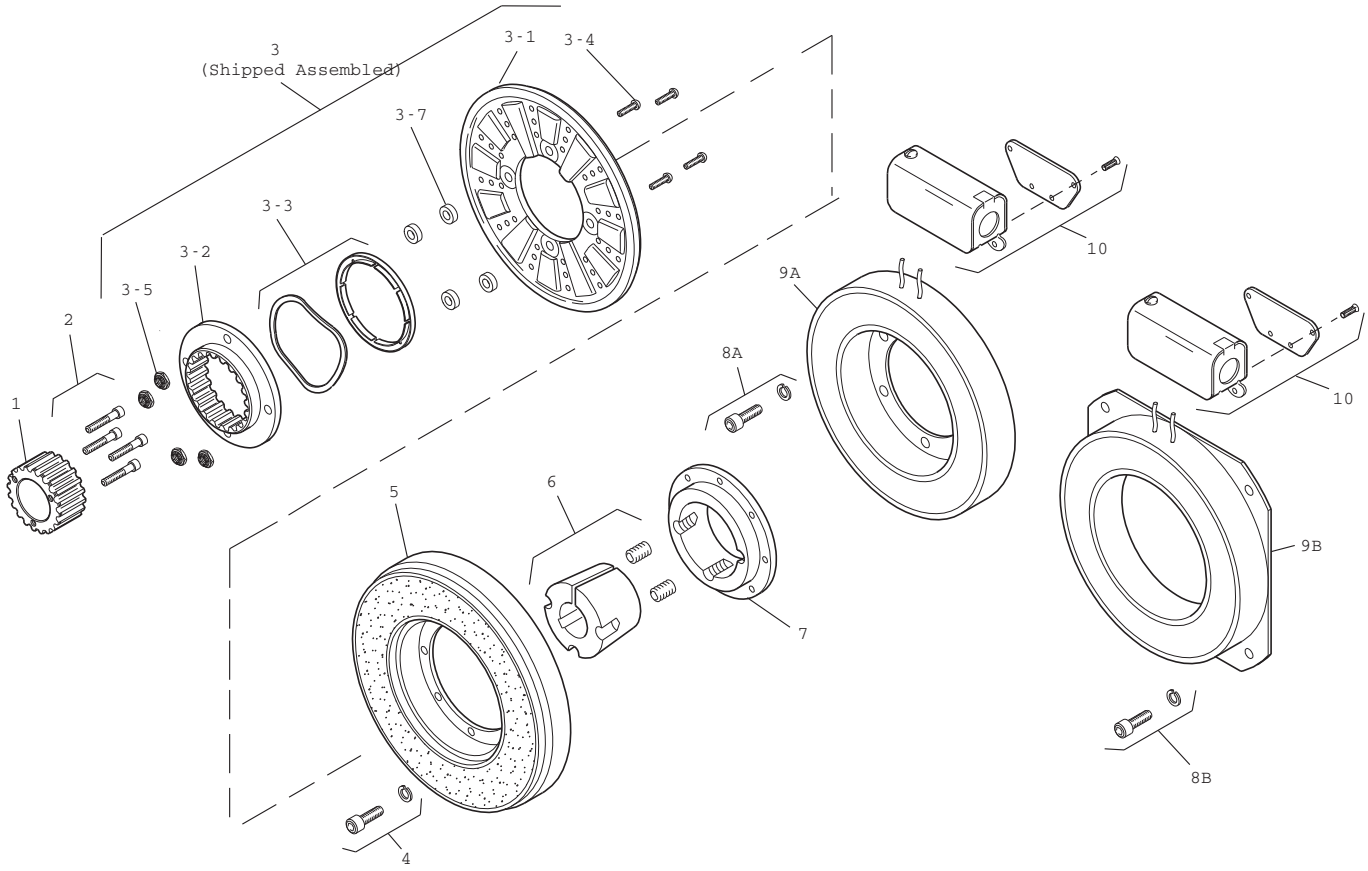
1. Concentricity of field mounting pilot dia. with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Armature hub pilot diameter to be concentric with rotor mounting shaft within .010 T.I.R.

Shaft Size	.937 – 3.000
Static Torque	700 lb. ft.
Maximum Speed	2,000 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-1525 Clutch Flange Mounted–Heavy Duty

Drawing I-25626



Item	Description	SF-1525, F.M. Part Number	Qty.
1	Splined Hub	540-0148	1
2	Mounting Accessory	5202-101-001	1
3	Armature & Splined Adapter	5204-111-004	1
3-1	Armature	5324-111-034	1
3-2	Splined Adapter	104-0011	1
3-3	Autogap Accessory	5323-101-002	1
3-4	Screw	797-0342	8
3-5	Locknut	661-0004	8
3-6	Retainer Plate	686-0003	1
3-7	Spacer	748-0333	8
4	Mounting Accessory	5321-101-002	2
5	Rotor		1
	Standard Friction Material	5204-751-002	
	†Optional LK Facing	5204-751-004	
6	Bushing, Taperlock*	1180-0223 to 180-0256*	1
7	Rotor Hub	540-0004	1
8A	Mounting Accessory, I.M.	5321-101-001	2
8B	Mounting Accessory, O.M.	5321-101-002	2
9A	Field, Inside Mounted		1
	6 Volt	5204-451-013	
	24 Volt	5204-451-015	
	90 Volt	5204-451-016	
9B	Field, Outside Mounted		1
	6 Volt	5204-451-055	
	24 Volt	5204-451-056	
	90 Volt	5204-451-057	
10	Conduit Box	5200-101-012	1

*See page 48 for specific part numbers. †Optional LK facing available.

How to Order:

1. Specify Bore Size for Item 6.
2. Specify Voltage for Item 9A or 9B.
3. Specify Inside Mounted for Items 8A and 9A or Outside Mounted for Items 8B and 9B.

Example:

SF-1525 Clutch per I-25626 - 90 Volt, 2" Bore Inside Mounted

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543

Bushing Part Numbers
Browning Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Browning
1/2	1/8 x 1/16	180-0002	H-1
9/16	1/8 x 1/6	180-0003	
5/8	3/16 x 3/32	180-0004	
11/16	3/16 x 3/32	180-0005	
3/4	3/16 x 3/32	180-0006	
13/16	3/16 x 3/32	180-0007	
7/8	3/16 x 3/32	180-0008	
15/16	1/4 x 1/8	180-0009	
1	1/4 x 1/8	180-0010	
1-1/6	1/4 x 1/8	180-0011	
1-1/8	1/4 x 1/8	180-0012	
1-3/16	1/4 x 1/8	180-0013	
1-1/4	1/4 x 3/16	180-0014	
1-5/16	5/16 x 7/32	180-0015	
1-3/8	5/16 x 7/32	180-0016	
1-7/16	3/8 x 1/4	180-0017	H-2
1-1/2	3/8 x 7/32	180-0018	
3/4	1/2 x 3/8	180-0026	QI-1
13/16	1/2 x 3/8	180-0027	
7/8	1/2 x 3/8	180-0028	
15/16	1/2 x 3/8	180-0029	
1	1/2 x 3/8	180-0030	
1-1/16	1/2 x 3/8	180-0031	
1-1/8	1/2 x 3/8	180-0032	
1-3/16	1/2 x 3/8	180-0033	
1-1/4	1/2 x 3/8	180-0034	
1-5/16	1/2 x 3/8	180-0035	
1-3/8	1/2 x 3/8	180-0036	
1-7/16	1/2 x 3/8	180-0037	
1-1/2	1/2 x 3/8	180-0038	
1-9/16	1/2 x 3/8	180-0039	
1-5/8	1/2 x 3/8	180-0040	
1-11/16	1/2 x 3/8	180-0041	
1-3/4	1/2 x 3/8	180-0042	
1-13/16	1/2 x 3/8	180-0043	
1-7/8	1/2 x 3/8	180-0044	
1-15/16	1/2 x 3/8	180-0045	
2	1/2 x 3/8	180-0046	QI-2
2-1/16	1/2 x 3/8	180-0047	
2-1/8	1/2 x 3/4	180-0048	
2-3/16	1/2 x 23/32	180-0049	
2-1/4	1/2 x 11/16	180-0050	
2-5/16	5/8 x 5/16	180-0051	
2-3/8	5/8 x 5/16	180-0052	
2-7/16	5/8 x 5/16	180-0053	
2-1/2	5/8 x 5/16	180-0054	
2-9/16	5/8 x 5/16	180-0055	
2-5/8	5/8 x 5/16	180-0056	
2-11/16	5/8 x 5/16	180-0057	

Dodge Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Dodge
1/2	1/8 x 1/16	180-0101	1210
9/16	1/8 x 1/16	180-0102	
5/8	3/16 x 3/32	180-0103	
11/16	3/16 x 3/32	180-0104	
3/4	3/16 x 3/32	180-0105	
13/16	3/16 x 3/32	180-0106	
7/8	3/16 x 3/32	180-0107	
5/16	1/4 x 1/8	180-0108	
1	1/4 x 1/8	180-0109	
1-1/16	1/4 x 1/8	180-0110	
1-1/8	1/4 x 1/8	180-0111	
1-3/16	1/4 x 1/8	180-0112	
1-1/4	1/4 x 1/8	180-0113	
1/2	1/8 x 1/16	180-0116	1215
9/16	1/8 x 1/16	180-0117	
5/8	3/16 x 3/32	180-0118	
11/16	3/16 x 3/32	180-0119	
3/4	3/16 x 3/32	180-0120	
13/16	3/16 x 3/32	180-0121	
7/8	3/16 x 3/32	180-0122	
15/16	1/4 x 1/8	180-0123	
1	1/4 x 1/8	180-0124	
1-1/16	1/4 x 1/8	180-0125	
1-1/8	1/4 x 1/8	180-0126	
1-3/16	1/4 x 1/8	180-0127	
1-1/4	1/4 x 1/8	180-0128	
1/2	1/8 x 1/16	180-0131	1615
9/16	1/8 x 1/16	180-0132	
5/8	3/16 x 3/32	180-0133	
11/16	3/16 x 3/32	180-0134	
3/4	3/16 x 3/32	180-0135	
13/16	3/16 x 3/32	180-0136	
7/8	3/16 x 3/32	180-0137	
15/16	1/4 x 1/8	180-0138	
1	1/4 x 1/8	180-0139	
1-1/16	1/4 x 1/8	180-0140	
1-1/8	1/4 x 1/8	180-0141	
1-3/16	1/4 x 1/8	180-0142	
1-1/4	1/4 x 1/8	180-0143	
1-5/16	5/16 x 5/32	180-0144	
1-3/8	5/16 x 5/32	180-0145	
1-7/16	3/8 x 3/16	180-0146	
1-1/2	3/8 x 3/16	180-0147	
1-9/16	3/8 x 3/16	180-0148	
1-5/8	3/8 x 3/16	180-0149	
1/2	1/8 x 1/16	180-0155	2012
9/16	1/8 x 1/16	180-0156	
5/8	3/16 x 3/32	180-0157	
11/16	3/16 x 3/32	180-0158	
3/4	3/16 x 3/32	180-0159	
13/16	3/16 x 3/32	180-0160	
7/8	3/16 x 3/32	180-0161	
15/16	1/4 x 1/8	180-0162	
1	1/4 x 1/8	180-0163	
1-1/16	1/4 x 1/8	180-0164	
1-1/8	1/4 x 1/8	180-0165	
1-3/16	1/4 x 1/8	180-0166	
1-1/4	1/4 x 1/8	180-0167	

Bushing Part Numbers
Dodge Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Dodge
1-5/16	5/16 x 5/32	180-0168	2012
1-3/8	5/16 x 5/32	180-0169	
1-7/16	3/8 x 3/16	180-0170	
1-1/12	3/8 x 3/16	180-0171	
1-9/16	3/8 x 3/16	180-0172	
1-5/8	3/8 x 3/16	180-0173	
1-11/16	3/8 x 3/16	180-0174	
1-3/4	3/8 x 3/16	180-0175	
1-13/16	1/2 x 1/4	180-0176	
1-7/8	1/2 x 1/4	180-0177	
1-15/16	1/2 x 1/4	180-0178	
2	1/2 x 1/4	180-0179	
1/2	1/8 x 1/16	180-0185	2517
9/16	1/8 x 1/16	180-0186	
5/8	3/16 x 3/32	180-0187	
11/16	3/16 x 3/32	180-0188	
3/4	3/16 x 3/32	180-0189	
13/16	3/16 x 3/32	180-0190	
7/8	3/16 x 3/32	180-0191	
15/16	1/4 x 1/8	180-0192	
1	1/4 x 1/8	180-0193	
1-1/16	1/4 x 1/8	180-0194	
1-1/8	1/4 x 1/8	180-0195	
1-3/16	1/4 x 1/8	180-0196	
1-1/4	1/4 x 1/8	180-0197	
1-5/16	5/16 x 5/32	180-0198	
1-3/8	5/16 x 5/32	180-0199	
1-7/16	3/8 x 3/16	180-0200	
1-1/2	3/8 x 3/16	180-0201	
1-9/16	3/8 x 3/16	180-0202	
1-5/8	3/8 x 3/16	180-0203	
1-11/16	3/8 x 3/16	180-0204	
1-3/4	3/8 x 3/16	180-0205	
1-13/16	1/2 x 1/4	180-0206	
1-7/8	1/2 x 1/4	180-0207	
1-15/16	1/2 x 1/4	180-0208	
2	1/2 x 1/4	180-0209	
2-1/16	1/2 x 1/4	180-0210	
2-1/8	1/2 x 1/4	180-0211	
2-3/16	1/2 x 1/4	180-0212	
2-1/4	1/2 x 1/4	180-0213	
2-5/16	5/8 x 5/16	180-0214	
2-3/8	5/8 x 5/16	180-0215	
2-7/16	5/8 x 5/16	180-0216	
2-1/2	5/8 x 5/16	180-0217	
15/16	1/4 x 1/8	180-0223	3020
1	1/4 x 1/8	180-0224	
1-1/16	1/4 x 1/8	180-0225	
1-1/8	1/4 x 1/8	180-0226	
1-3/16	1/4 x 1/8	180-0227	
1-1/4	1/4 x 1/8	180-0228	
1-5/16	5/16 x 5/32	180-0229	
1-3/8	5/16 x 5/32	180-0230	
1-7/16	3/8 x 3/16	180-0231	
1-1/2	3/8 x 3/16	180-0232	
1-9/16	3/8 x 3/16	180-0233	
1-5/8	3/8 x 3/16	180-0234	

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Dodge
1-11/16	3/8 x 3/16	180-0235	3020
1-3/4	3/8 x 3/16	180-0236	
1-13/16	1/2 x 1/4	180-0237	
1-7/8	1/2 x 1/4	180-0238	
1-15/16	1/2 x 1/4	180-0239	
2	1/2 x 1/4	180-0240	
2-1/16	1/2 x 1/4	180-0241	
2-1/8	1/2 x 1/4	180-0242	
2-3/16	1/2 x 1/4	180-0243	
2-1/4	1/2 x 1/4	180-0244	
2-5/16	5/8 x 5/16	180-0245	
2-3/8	5/8 x 5/16	180-0246	
2-7/16	5/8 x 5/16	180-0247	
2-1/2	5/8 x 5/16	180-0248	
2-9/16	5/8 x 5/16	180-0249	
2-5/8	5/8 x 5/16	180-0250	
2-11/16	5/8 x 5/16	180-0251	
2-3/4	5/8 x 5/16	180-0252	
2-13/16	3/4 x 3/8	180-0253	
2-7/8	3/4 x 3/8	180-0254	
2-15/16	3/4 x 3/8	180-0255	
3	3/4 x 3/8	180-0256	
15/16	1/4 x 1/8	180-0262	3030
1	1/4 x 1/8	180-0263	
1-1/16	1/4 x 1/8	180-0264	
1-1/8	1/4 x 1/8	180-0265	
1-3/16	1/4 x 1/8	180-0266	
1-1/4	1/4 x 1/8	180-0267	
1-5/16	5/16 x 5/32	180-0268	
1-3/8	5/16 x 5/32	180-0269	
1-7/16	3/8 x 3/16	180-0270	
1-1/2	3/8 x 3/16	180-0271	
1-9/16	3/8 x 3/16	180-0272	
1-5/8	3/8 x 3/16	180-0273	
1-11/16	3/8 x 3/16	180-0274	
1-3/4	3/8 x 3/16	180-0275	
1-13/16	1/2 x 1/4	180-0276	
1-7/8	1/2 x 1/4	180-0277	
1-15/16	1/2 x 1/4	180-0278	
2	1/2 x 1/4	180-0279	
2-1/16	1/2 x 1/4	180-0280	
2-1/18	1/2 x 1/4	180-0281	
2-3/16	1/2 x 1/4	180-0282	
2-1/4	1/2 x 1/4	180-0283	
2-15/16	5/8 x 5/16	180-0284	
2-3/8	5/8 x 5/16	180-0285	
2-7/16	5/8 x 5/16	180-0286	
2-1/2	5/8 x 5/16	180-0287	
2-9/16	5/8 x 5/16	180-0288	
2-5/8	5/8 x 5/16	180-0289	
2-11/16	5/8 x 5/16	180-0290	
2-3/4	5/8 x 5/16	180-0291	
2-13/16	3/4 x 3/8	180-0292	
2-7/8	3/4 x 3/8	180-0293	
2-15/16	3/4 x 3/8	180-0294	
3	3/4 x 3/8	180-0295	

Bushing Part Numbers

Dodge Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Dodge
1/2	1/8 x 1/16	180-0326	1610
9/16	1/8 x 1/16	180-0327	
5/8	3/16 x 3/32	180-0328	
11/16	3/16 x 3/32	180-0329	
3/4	3/16 x 3/32	180-0330	
13/16	3/16 x 3/32	180-0331	
7/8	3/16 x 3/32	180-0332	
15/16	1/4 x 1/8	180-0333	
1	1/4 x 1/8	180-0334	
1-1/16	1/4 x 1/8	180-0335	
1-1/8	1/4 x 1/8	180-0336	
1-3/16	1/4 x 1/8	180-0337	
1-1/4	1/4 x 1/8	180-0338	
1-5/16	5/16 x 5/32	180-0339	
1-3/8	5/16 x 5/32	180-0340	
1-7/16	3/8 x 3/16	180-0341	
1-1/2	3/8 x 3/16	180-0342	
1-9/16	3/8 x 3/16	180-0343	
1-5/8	3/8 x 3/16	180-0344	
1/2	1/8 x 1/16	180-0410	1008
9/16	1/18 x 1/16	180-0411	
5/8	3/16 x 3/32	180-0412	
11/16	3/16 x 3/32	180-0413	
3/4	3/16 x 3/32	180-0414	
13/16	3/16 x 3/32	180-0415	
7/8	3/16 x 3/32	180-0416	
15/16	1/4 x 1/16	180-0417	
1	1/4 x 1/16	180-0418	
1/2	1/8 x 1/16	180-0421	1310
9/16	1/8 x 1/16	180-0422	
5/8	3/16 x 3/32	180-0423	
11/16	3/16 x 3/32	180-0424	
3/4	3/16 x 3/32	180-0425	
13/16	3/16 x 3/32	180-0426	
7/8	3/16 x 3/32	180-0427	
15/16	1/4 x 1/16	180-0428	
1	1/4 x 1/16	180-0429	
1-1/16	1/4 x 1/8	180-0430	
1-1/8	1/4 x 1/8	180-0431	
1-3/16	1/4 x 1/8	180-0432	
1-1/4	1/4 x 1/8	180-0433	
1-5/16	15/16 x 5/32	180-0434	
1-3/8	15/16 x 5/32	180-0435	

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Warner Electric LLC 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.

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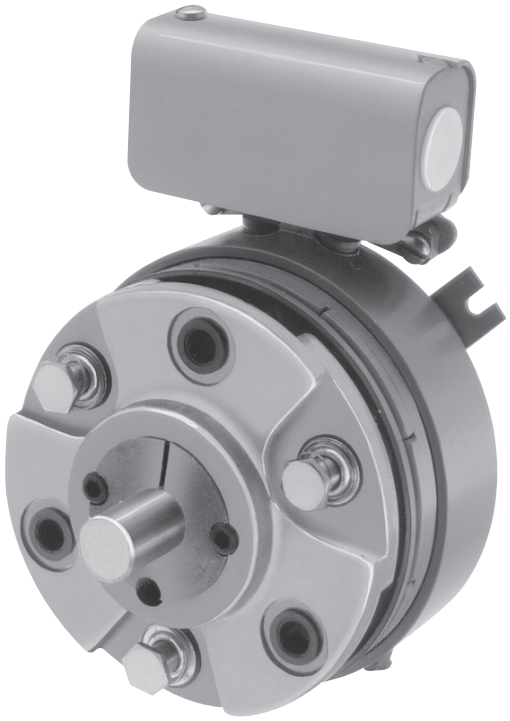
P-215 819-0515 06/11

Printed in USA

SF-500, SF-650, SFC-500, SFC-650, SFPBC-500, SFPBC-650 Pin Drive Armature & Spline Drive Armatures

P-0202-WE
819-0482

Installation & Operating Instructions



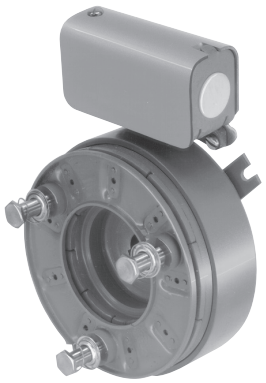
Warner Electric

An Altra Industrial Motion Company

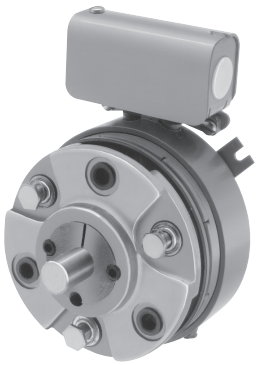
Contents

⚠WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

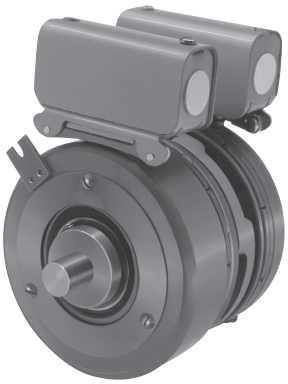
Follow the installation instructions in this manual carefully to ensure safe, reliable operation. All stated or implied manufacturer warranties are voided if this product is not installed in accordance with these instructions.



SF-500



SFC-500
Pin Drive



SFPBC-500

SFC-500 SFC-650
Clutch-Coupling Pin Drive Armatures

The illustration drawings, parts lists, and exploded views for these units can be found on pages 30, 31 and 34 thru 36.

A. Aligning the Shafts

In order for the clutch-coupling unit to operate properly, the mounting shafts of the motor and reducer or other hardware must be aligned with respect to each other before the unit is installed. The two shafts should be concentric with each other within .004 T.I.R., and angular alignment should be within 1/2 degree. (Figure 1)

1. Use a straight-edge to check if the shafts are aligned with each other. For a more precise indication of alignment, use a dial indicator.
2. Adjust the position of the motor, reducer, or other hardware as required to achieve the correct alignment.
3. To be sure the shafts stay in alignment, drill holes for tapered dowel pins through the mounting bases of the motor, reducer, or other hardware and into the mounting surfaces. This procedure will ensure that, after the clutch-coupling has been installed, the shafts can easily be placed in proper alignment again by lining up the holes and secured by inserting the dowel pins.

B. Installing the Conduit Box

Install the conduit box on the field. Instructions for this procedure are supplied with conduit box.

C. Mounting the Field-and-Rotor Assembly

Either the field-and-rotor assembly or the armature-and-hub assembly can be installed first, depending on the characteristics of each application.

The SFC-500 clutch-couplings are bearing-mounted units. The SFC-650 units are either bearing-mounted or flange-mounted.

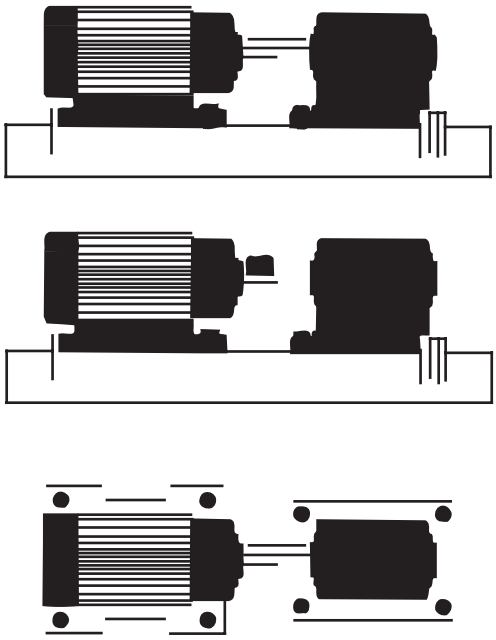


Figure 1

Bearing Mounted Units

In bearing-mounted units, the field and rotor are shipped as an assembly. Step 1 applies only to the SFC-650 units. Steps 2-5 apply to both the SFC-650 and SFC-500.

1. The SFC-650 field and rotor assemblies are mounted on the shaft with a taperlock bushing. Insert the bushing into the tapered bore, lining up the clearance holes in the bushing flange with the tapered holes in the rotor hub.
2. Insert a key into the keyway in the bore of the rotor and slide the assembly onto the shaft.
3. If the armature has been secured to the shaft first, then adjust the rotor's position to allow approximately 1/32-inch between the two faces. (Figure 11)
4. Secure the assembly on the shaft by alternately tightening the two screws.
5. A tab or torque arm is provided to prevent the field from rotating with the shaft. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however, should the field be so tightly restrained that is preloads the bearing. For more information on torque tabs, see page 18.

Flange-Mounted Units

The fields and rotors are shipped separately for flange mounted units. On some applications it will be necessary to mount the rotor first, and then bring the field into position. In other instances the field will be mounted first, and then the rotor (mounted on a shaft) will be inserted into place.

In either case, **the rotor and field must be positioned in accordance with the overall axial dimension from the face of the rotor to the back of the field flange** as shown on the illustration drawings (dimension "L," page 34). Holding this dimension will assure the proper axial clearance between the field and the rotor.

1. Care must be taken in selecting the location for mounting the field assembly. Pilot diameters are machined on the field mounting flange to aid in holding the field in the proper position.
2. An appropriate pilot diameter must be provided on the mounting surface as well. (Figure 2)

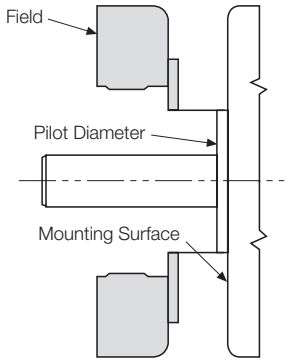


Figure 2

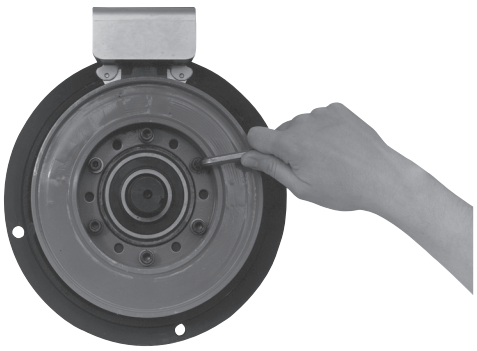


Figure 3

3. The field assembly is then fastened in place with capscrews and lockwashers. (Figure 3)

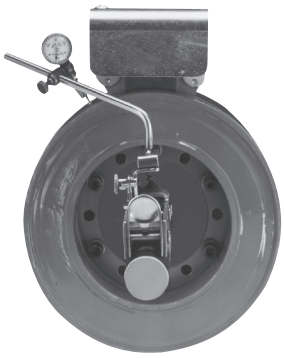
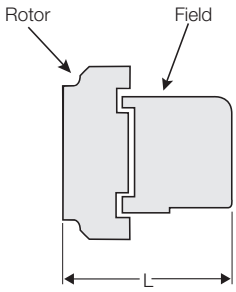


Figure 4

4. Once the unit is in place, it must be square and concentric with the shaft in accordance with the tolerances listed on the drawings. (Figure 4)
5. The rotor is mounted on the shaft with a taperlock bushing. Insert the bushing into the tapered bore.
6. Loosely assemble the two locking screws between the bushing and the rotor.
7. Insert the key into the shaft keyway, and slide the rotor assembly over the key and on to the shaft.
8. Adjust the rotor's position to achieve the overall axial dimension "L" (page 34) **when the bushing is secured.**
9. Secure the assembly in this position by alternately tightening the two locking screws.



D. Assembling the Armature and Hub

Assemble the armature to the armature hub with the autogap mounting accessory. The hub is reversible. The side on which the armature is mounted will depend on the direction in which the taperlock bushing must enter.

The autogap assembly is a double spring device which allows for automatic armature clearance and adjustment for wear. The smaller or conical spring pushes the armature from the rotor face, leaving a gap of about 1/32 inch, while the straight spring automatically follows up for wear. This combination maintains maximum performance efficiency throughout the life of the unit.

The assembly procedure for the autogap accessory is as follows. (Figure 5)

Step 1 Place the straight springs over the armature bosses on the back side of the armature. (Figure 6)

Step 2 Place the armature hub over the straight springs.

⚠CAUTION The straight springs must fit into the grooves in the armature hub. (Figure 7)

Step 3 Compress the conical springs against the retainer rings by sliding the detent springs toward the head of the pins. (All pins) (Figure 8)

Step 4 Insert the assembled drive pins through the armature hub and straight springs and into the threaded armature bosses. Apply grade 290 Loctite Sealant on the drive pin threads. (Figure 9)

Step 5 Tighten the drive pins until the shoulders of

Figure 6

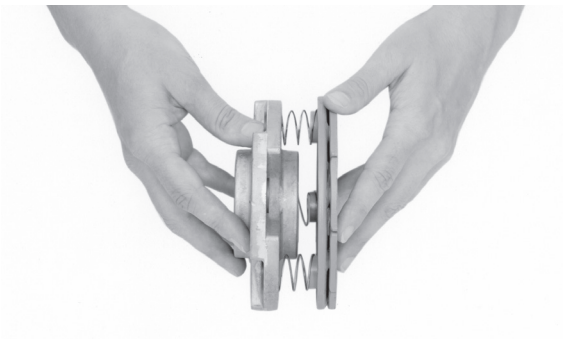


Figure 7

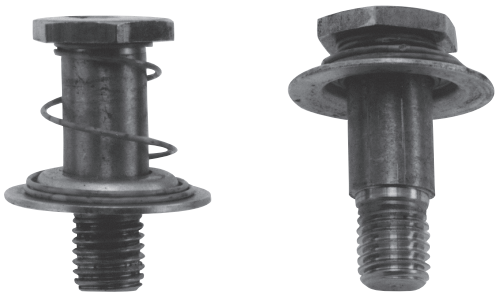


Figure 8

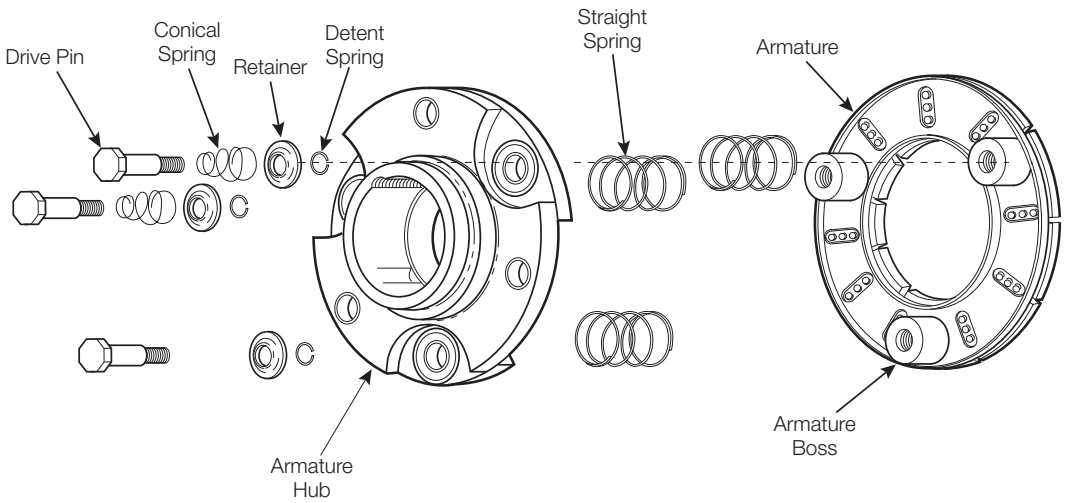


Figure 5

the pins are against the face of the armature bosses. Since the threads are a class No. 3 fit, the pins may seem to bind.

Note: Alternately tighten each drive pin a

Figure 9

few turns at a time.

Step 6 Compress the retainers against the armature hub and check to see that the armature hub is held tightly to the armature bosses. Note: This position must not be disturbed during completion of assembly. (Figure 10)

E. Mounting the Armature Assembly

The armature assembly is mounted on the shaft with a taperlock bushing. All parts must be clean and free from burrs and chips before assembling.

1. Place the bushing into the hub and insert the

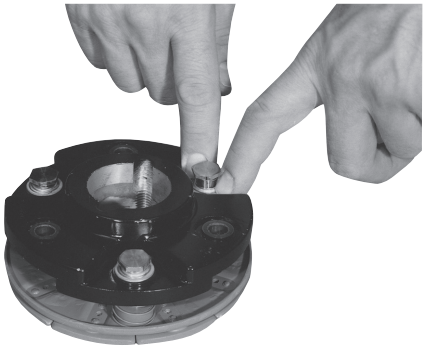


Figure 10

key. The key is a side-to-side fit and should not contact the top of the keyway.

2. Insert the locking setscrews loosely into the bushing and slide the assembly onto the shaft.
3. If the field-and-rotor assembly has been secured to the shaft first, then adjust the armature's position to allow approximately 1/32-inch between the two faces.

   Once this 1/32-inch gap has been set, it will be automatically maintained throughout the life of the unit. (Figure 11)
4. Secure the armature's position on the shaft by alternately tightening each setscrew. During the tightening process the bushing should be tapped lightly to make sure it seats-in properly.

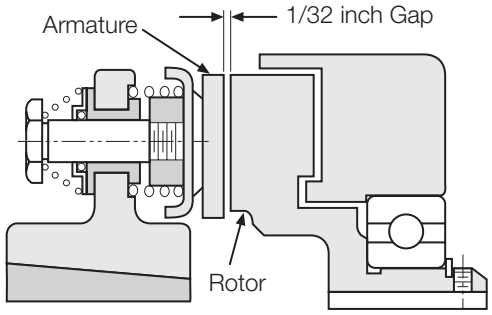


Figure 11

SFC-500 Clutch Coupling Spline Drive Armature

The illustration drawing, parts list, and exploded view for this unit can be found on pages 32-33.

The SFC-500 clutch-couplings are bearing-mounted units. Either the field-and-rotor assembly or the armature-and-hub assembly can be installed first, depending on the characteristics of each application.

A. Aligning the shafts

Before the clutch coupling can be installed, the mounting shafts of the motor and reducer or other hardware must be aligned to each other. Follow the instructions provided on page 3, Step A.

B. Installing the Conduit Box

Installed the conduit box on the field assembly. Instructions for this procedure can be found on are supplied with conduit box.

C. Mounting the Field-and-Rotor Assembly

1. Insert a key into the keyway in the bore of the rotor, and slide the assembly onto the shaft.
2. If the armature has been secured to the shaft first, then adjust the rotor's position to allow approximately 1/32-inch between the two faces. (Figure 3)

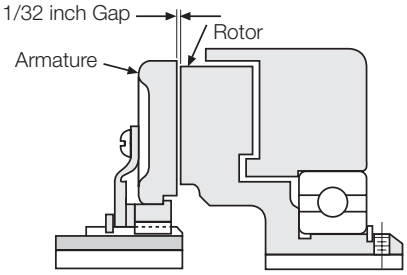


Figure 3

3. Secure the assembly on the shaft by alternately tightening the two setscrews.
4. A tab or torque arm is provided to prevent the field from rotating with the shaft. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however, should the field be so tightly restrained that it preloads the bearing. For more information on torque tabs, see page 18.

D. Assembling the Armature and Hub

Scan to watch!
Setting the Autogap for a Heavy Duty Clutch Coupling or Brake in sizes 500 & 650
https://p.widencdn.net/mqwdke/V-0100-WE

The clutch-coupling units contain spline drive armatures and hubs. The armatures are shipped with a built-in autogap spring accessory. This device automatically maintains a gap of about 1/32'' between the armature and magnet faces for the life of the unit. (Figure 3)

These units are shipped with the armature and autogap already assembled. Follow these instructions to assemble the splined armature assembly and hub:

Step 1 Place the splined hub on a flat surface. The extended portion of the hub, where the set screw holes are located, should be down.

Step 2 Check the detent ring in the armature assembly to make sure it is centered evenly around the spline. This ring moves freely, but it should be centered for easier assembly of the hub.

Step 3 Holding the armature with the segmented side up, press the armature onto the splined hub. This is most easily done by applying firm back-and-forth pressure. (Figure 2)

Step 4 Push the assembly up against the retainer ring.

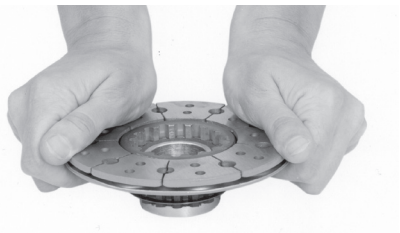


Figure 2

E. Mounting the Armature-Hub Assembly

1. Insert a key in the keyway of the hub and slide the armature-hub assembly on to the shaft.
2. If the field-and-rotor assembly has been secured to the shaft first, then adjust the armature's position to allow a 1/32-inch gap between the two faces. (Figure 3)
3. Secure the armature-hub assembly in this position by tightening the two setscrews in the hub.
4. Check the assembly by pressing the armature into contact with the rotor face and then releasing it. The armature should spring back about 1/32''. This gap will be automatically maintained for the life of the unit.

SF-500 SF-650 Clutch Pin Drive Armature

The illustration drawings, parts lists, and exploded views for these units can be found beginning on pages 24 to 29.

A. Installing the Conduit Box

Install the conduit box on the field assembly. Instructions are supplied with conduit box.

B. Mounting the Field-and-Rotor Assembly

Follow the instructions provided for the SFC-500 and SFC-650 units, Section C, page 3, for mounting the field-and-rotor assemblies.

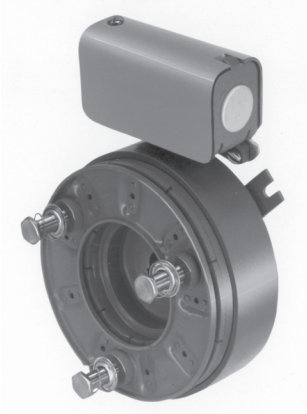
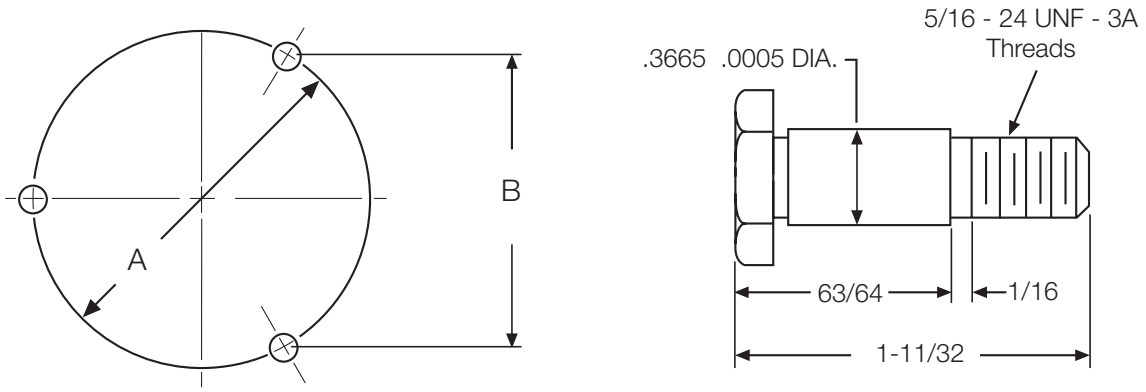


Figure 4

C. Assembling the Armature

1. A customer may wish to use the autogap accessory to mount a clutch armature to his own pulley, hub, gear, etc. Follow the illustrated dimensions to properly adapt these parts to the armature.
    a. The chordal dimension must be held for all chords between pin holes.
    b. Sleeve bearings (Oilite Bronze) with an I.D. of .376 ±.001 must be provided in the holes of pulley or hub at the chordal and bolt circle dimensions shown below. (Figure 5)
    c. The drive pins must be square with the plane of the mounting surface and magnet within .006 T.I.R.
2. Once the pulley, gear, etc., has been adapted to the armature according to the above directions, the armature may be mounted to it using the autogap accessory.
3. The autogap assembly is a double spring device which allows for automatic armature clearance and adjustment for wear. The smaller or conical spring pushes the armature from the rotor face, leaving a gap of about 1/32 inch, while the straight spring automatically follows up for wear. This combination maintains maximum performance efficiency throughout the life of the unit.

Machining Instructions for Gear, Sprocket, or Pulley



	A	B
SF-500	3.875 ± .001	3.356 ± .001
SF-650	5.125 ± .001	3.624 ± .001

Figure 5

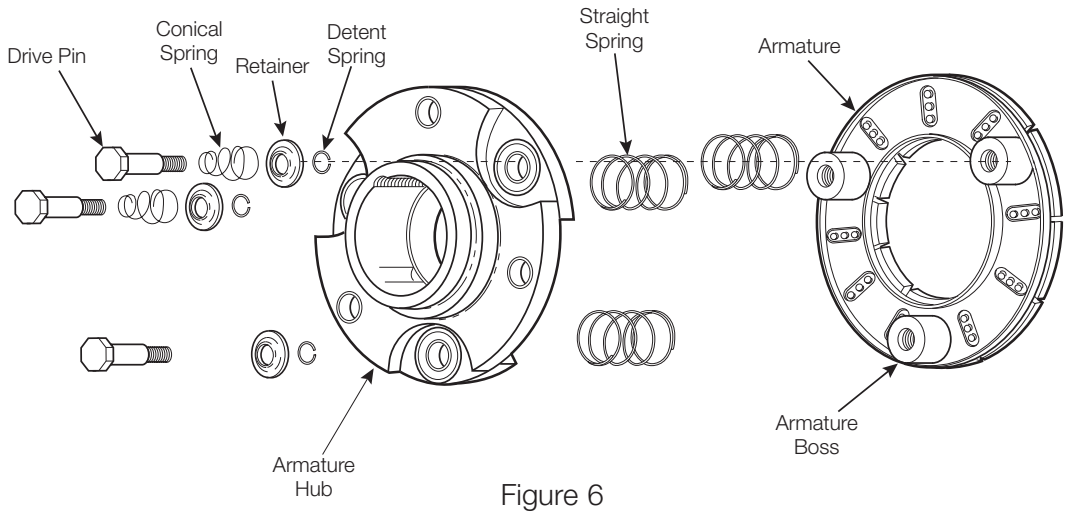


Figure 6

The assembly procedure for the autogap accessory is as follows (see Figure 6):

Step 1 Place straight springs over armature bosses on back side of armature. (Figure 7)

Figure 7

Step 2 Compress conical spring against retainer ring by sliding detent spring towards head of pin. (All pins). (Figure 8)

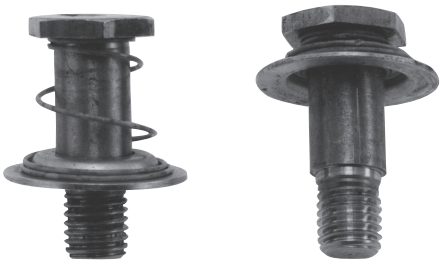


Figure 8

Step 3 Insert assembled drive pins through armature hub (or customer-supplied part), through the straight springs, and into the threaded armature bosses. Apply grade 290 Loctite Sealant on drive pin threads. (Figure 9)

Figure 9

Step 4 Tighten drive pins until shoulders of pins are against face of armature bosses. Since threads are class No. 3 fit, pins may seem to bind.

Step 5 Compress the retainer rings against the armature hub (or customer-supplied part), and check to see that the part is held tightly to the armature bosses. Note: This position must not be disturbed during completion of assembly. (Figure 10)

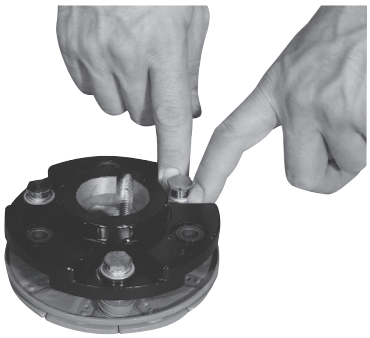


Figure 10

D. Mounting the Armature Assembly

1. Slide the armature assembly onto the shaft.
2. If the field-and-rotor assembly has been secured to the shaft or a machine member first, then adjust the armature's position to allow approximately 1/32-inch between the two faces.

   Once this 1/32-inch gap has been set, it will be automatically maintained throughout the life of the unit. (Figure 11)

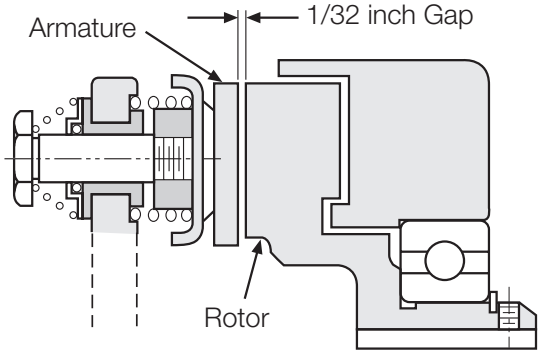


Figure 11

3. Secure the assembly in this position on the shaft.

SFPBC-500 Spline Drive Armature Clutch/ Brake Coupling

This illustration drawing, parts list, and exploded view for this unit can be found on page 40 and 41.

A. Aligning the Shafts

In order for the clutch-coupling unit to operate properly, the mounting shafts of the motor and the reducer or other hardware must be aligned with respect to each other before the unit is installed. The two shafts should be concentric with each other within 004 T.I.R., and angular alignment should be within 1/2 degree.

1. Use a straight edge to check if the shafts are aligned with each other. For a more precise indication of alignment, use a dial indicator.
2. Adjust the position of the motor, reducer, or other hardware as required to achieve the correct alignment.
3. To be sure the shafts stay in alignment, drill holes for tapered dowel pins through the mounting bases of the motor, reducer, or other hardware and into the mounting surfaces. This procedure will ensure that, after the clutch-coupling has been installed, the shafts can easily be placed in proper alignment again by lining up the holes and secured by inserting the dowel pins.

B. Installing the Conduit Boxes

Install a conduit box on the brake magnet and on the clutch field. Instructions for this procedure are supplied with a conduit box.

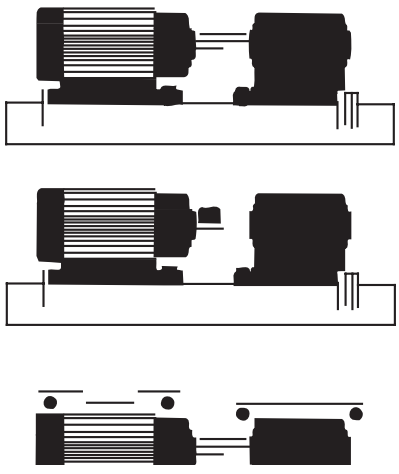


Figure 1

C. Mounting the Magnet

The brake half of the clutch/brake unit is usually installed first; however, in some cases it may be necessary to start with the clutch portion of the unit to assure a proper assembly when complete.

The brake magnet is mounted to a stationary machine member by a flange. Extreme care must be taken in selecting the location for the mounting of the magnet. Proper positioning is very important for the unit to function correctly.

1. A pilot diameter on the mounting surface is essential to hold the magnet within the required tolerances. (Figure 2)

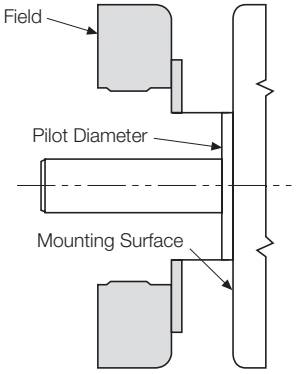


Figure 2

2. A machined pilot diameter is provided on the magnet mounting flange (refer to illustration drawings page 40) to aid in the proper positioning of the magnet.
3. Once the mounting surface has been prepared, the magnet is bolted in place with capscrews and lockwashers. (Figure 3)

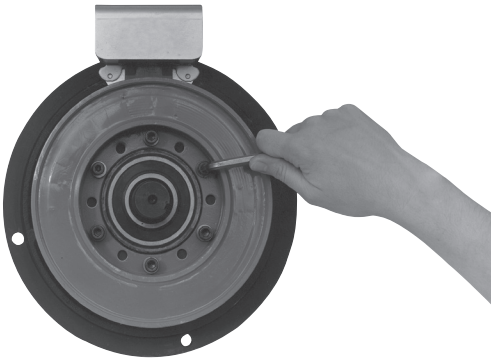


Figure 3

4. Use a dial indicator to check the unit for concentricity and squareness to the shaft. The unit should be concentric within .010 T.I.R. and square within .006 T.I.R. (Figure 4)

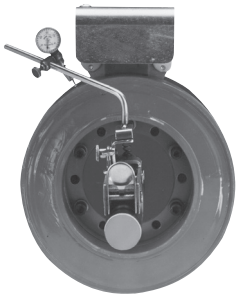


Figure 4

D. Assembling the Hub and Armatures

The heavy duty units contain spline drive armatures and hubs. The armatures are shipped with a built-in autogap spring accessory. This device automatically maintains a gap of about 1/32'' between the armature and magnet faces for the life of the unit.

Use the following method to assemble the armature and splined hub:

1. Place the armature hub up on one end.
2. Check the detent ring in the armature assembly to make sure it is evenly centered around the spline. This ring moves freely, and it should be centered for easier assembly of the hub.
3. Holding one of the armatures with the segmented side up, press the armature on to the hub using firm back-and-forth pressure. (Figure 5)

Figure 5

4. Push the assembly up against the retainer ring.

Figure 6

5. Turn the hub over and repeat Steps 3 and 4 with the other armature. (Figure 6)

E. Mounting the Armature-Hub Assembly

1. Insert a key in the keyway of the hub and slide the armature-hub assembly on to the shaft.

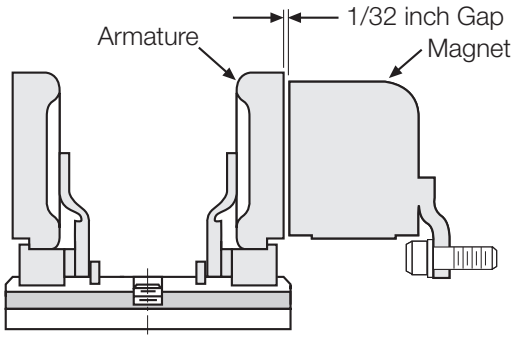


Figure 7

2. Position the assembly so that the face of the armature is about 1/32-inch from the magnet face. (Figure 7)
3. Secure the armature-hub assembly in this position by tightening the two setscrews in the hub.
4. Check the assembly by pressing the armature into contact with the magnet face and then releasing it. The armature should spring back about 1/32''. This gap will be automatically maintained for the life of the unit.

F. Mounting the Field-and-Rotor Assembly

1. Insert a key into the keyway in the bore of the rotor, and slide the assembly onto the shaft.
2. Adjust the rotor's position on the shaft to allow approximately 1/32'' gap between the faces of the rotor and armature. (Figure 8)

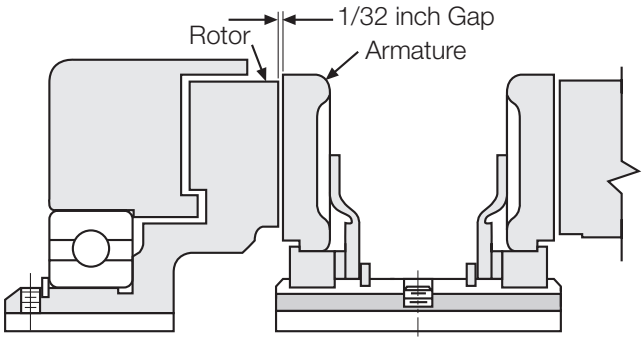


Figure 8

3. Secure the assembly on the shaft by alternately tightening the two setscrews.
4. Set the autogap by pressing the face of the armature into the rotor face. When the armature is released, it will spring back about 1/32''. Once this 1/32'' gap is set, it will be automatically maintained throughout the life of the unit.
5. A tab or torque arm is provided to prevent the field from rotating with the shaft. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however, should the field be so tightly restrained that it preloads the bearing. For more information on torque tabs, see page 18.

SFPBC-500 & SFPBC-650 Clutch/Brake Coupling Normal Duty Pin Drive Armature

The illustration drawings, parts lists, and exploded views for these units can be found beginning on pages 38, 39 and 42, 43.

The brake half of the clutch/brake unit is usually installed first; however, in some cases it may be necessary to start with the clutch portion of the unit to assure a proper assembly when complete.

A. Aligning the Shafts

Before the clutch/brake coupling can be installed, the mounting shafts of the motor and reducer or other hardware must be aligned to each other. Follow the instructions provided on page 11 for the spline drive unit.

B. Installing the Conduit Boxes

Install a conduit box on the brake magnet and on the clutch field. Instructions are supplied with a conduit box.

C. Mounting the Magnet

The brake magnet is mounted to a stationary machine member by a flange. Extreme care must be taken in selecting the location for the mounting of the magnet. Proper positioning is very important for the unit to function correctly.

1. A pilot diameter on the mounting surface is essential to hold the magnet within the required tolerances. (Figure 2)
2. A machined pilot diameter is provided on the magnet mounting flange (refer to illustration drawings page 38 & 42) to aid in the proper positioning of the magnet.

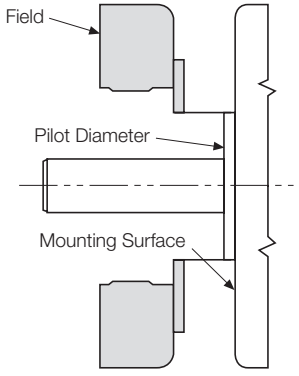


Figure 2

3. Once the mounting surface has been prepared, the magnet is bolted in place with capscrews and lockwashers. (Figure 3)

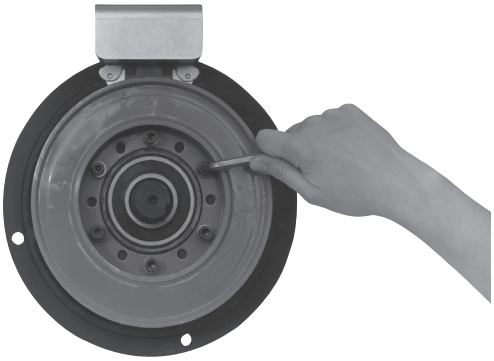


Figure 3

4. Use a dial indicator to check the unit for concentricity and squareness to the shaft. The unit should be concentric within .010 T.I.R. and square within .006 T.I.R. (Figure 4)

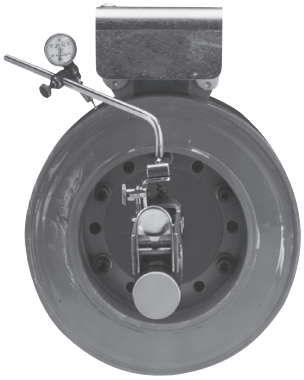


Figure 4

D. Assembling the Armature and Hub

Assemble the armature to the armature hub with the autogap mounting accessory.

The autogap assembly is a double spring device which allows for automatic armature clearance and adjustment for wear. The smaller or conical spring pushes the armature from the rotor face, leaving a gap of about 1/32 inch, while the straight spring automatically follows up for wear. This combination maintains maximum performance efficiency throughout the life of the unit.

The assembly procedure for the autogap accessory is as follows. (Figure 5)

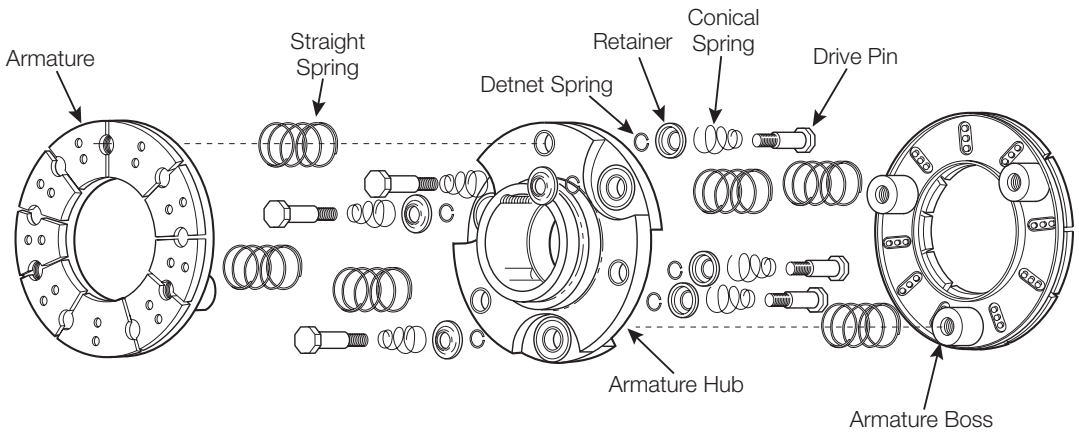


Figure 5

Step 1 Place straight springs over armature bosses on back side of both armatures (Figure 6).

Figure 6

Step 2 Compress conical spring against retainer ring by sliding detent spring toward head of pin. (All pins). (Figure 7)

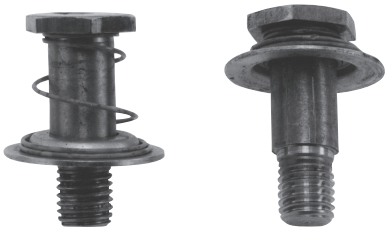


Figure 7

Step 3 Insert half of the compressed drive pins through the armature hub. The threaded end of the pins must come through on the side of the hub with grooves around the holes. (Figure 8)

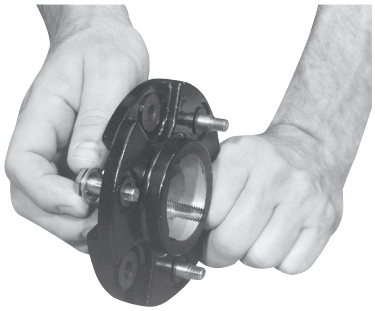


Figure 8

Step 4 Insert the remaining drive pins from the opposite side of armature hub through remaining holes.

Note: Apply grade 290 Loctite Sealant on the threads of all drive pins. (Figure 9)

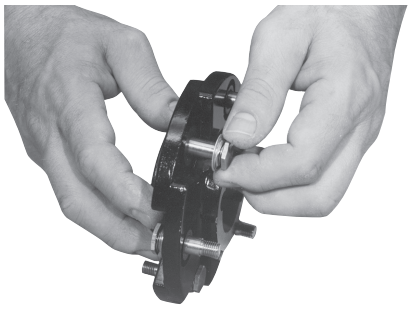


Figure 9

Step 5 Holding the pins in position, place the armature hub over one armature. Make sure the straight springs on the armature bosses fit into the grooves in the armature hub. (Figure 10)

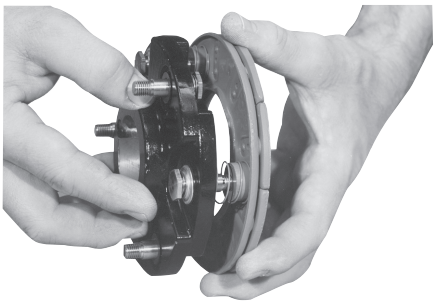


Figure 10

Step 6 Tighten these drive pins until shoulders of pins are against face of armature bosses. Since threads are class No. 3 fit, pins may seem to bind.

Note: Alternately tighten each drive pin a few turns at a time.

Step 7 Repeat Steps 5 and 6 for the second amature. (Figure 11)

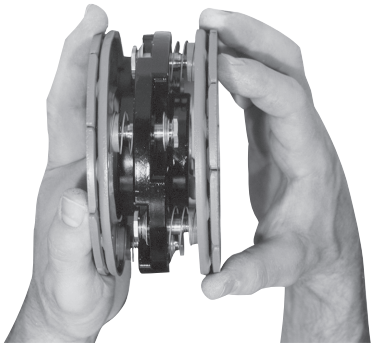


Figure 11

Step 8 Compress the armature hub and one of the armatures together until the armature hub bottoms on the armature boss. Slide the retainer on each pin down tightly against the armature hub. (Figure 12)

Step 9 Turn the assembly over and repeat Step 8 for the second armature.

Note: This position must not be disturbed during completion of the assembly. (Figure 13)

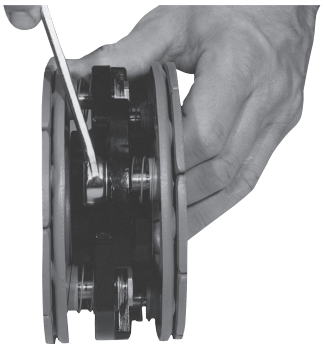


Figure 12

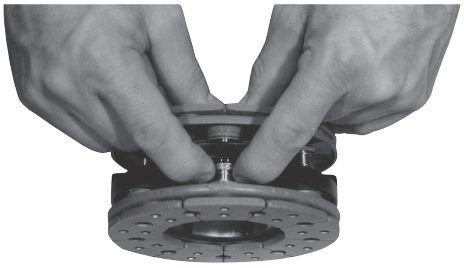


Figure 13

E. Mounting the Armature Assembly

The armature and armature hub are mounted on the shaft with a taperlock bushing. All parts must be clean and free from burrs and chips before assembling.

1. Place the bushing into the hub and insert the key. The key is a side-to-side fit and should not contact the top of the keyway.
2. Insert the locking setscrews loosely into the bushing and slide the assembly onto the shaft.
3. Place the face of the armature approximately 1/32'' from the face of the magnet. Once this gap is set, it will be automatically maintained throughout the life of the unit. (Figure 14)

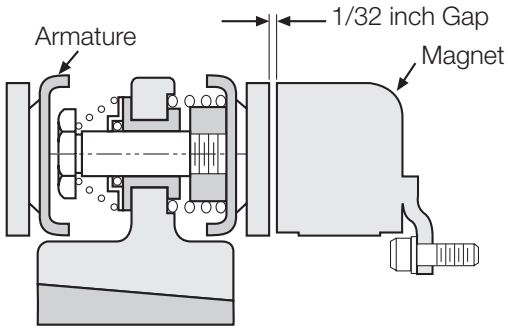


Figure 14

4. Secure the armature's position on the shaft by alternately tightening each setscrew. During the tightening process the bushing should be tapped lightly to make certain it seats in properly.

F. Mounting the Field-and-Rotor Assembly

1. Insert a key into the keyway in the bore of the rotor, and slide the assembly onto the shaft.
2. Adjust the rotor's position on the shaft to allow approximately 1/32'' between the faces of the rotor and armature. Secure the rotor in this position by alternately tightening the two locking screws. Once this 1/32'' gap is set, it will be

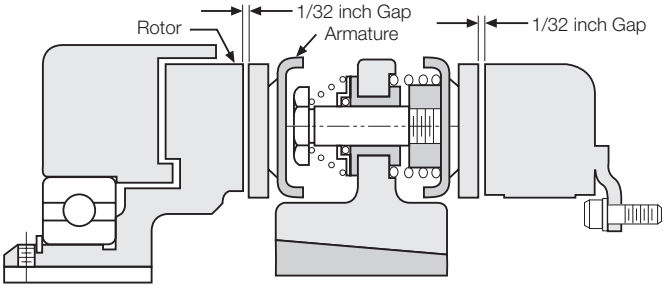


Figure 15

automatically maintained throughout the life of the unit. (Figure 15)

3. Secure the assembly on the shaft by alternately tightening the two setscrews.
4. A tab or torque arm is provided to prevent the field from rotating with the shaft. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however should the field be so tightly restrained that it preloads the bearing. (For more information on torque tabs, see page 18.)

Torque Tabs

Clutches

Many Warner Electric clutch assemblies have a bearing mounted stationary field. By design the bearing maintains its proper position between the field and rotor making it easy for the customer to mount the field-rotor assembly. However, the bearing has a slight drag which tends to make the field rotate with the rotor if not restrained. And, since the field has lead wires attached, it must be restrained to prevent rotation and pulling of these wires. To counteract this rotational force, the field has a “torque tab” to which the customer must attach an appropriate anti-rotational restraint.

A few hints regarding proper torque tab restraints are in order. First and foremost, it is important to recognize that the force to be overcome is very small and the tab should not be restrained in any manner which will preload the bearing. For example, if the clutch is mounted with the back of the field adjacent to a rigid machine member the customer should not attach a capscrew tightly between the tab and the machine member. This may pull the tab back against the rigid member as shown in Figure 1 and preload the bearing. The recommended methods are illustrated in Figures 2, 3, and 4. The method selected is primarily a matter of customer preference or convenience.

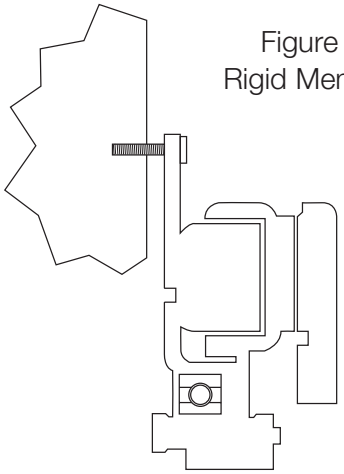
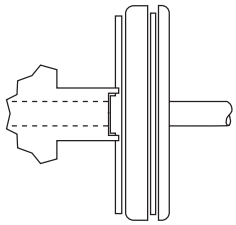


Figure 1
Rigid Member



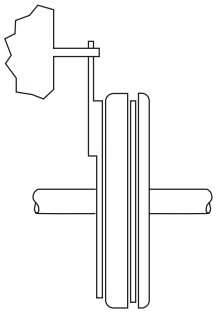
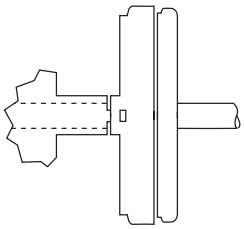


Figure 2
Rigid Member
Straddling Tab



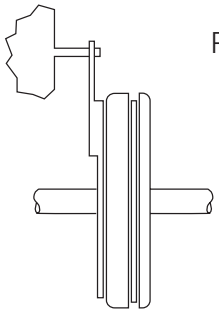
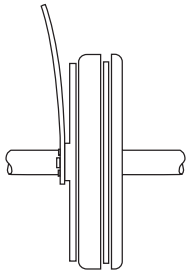


Figure 3
Pin in Hole
Loosely



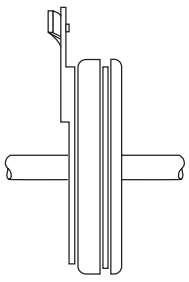
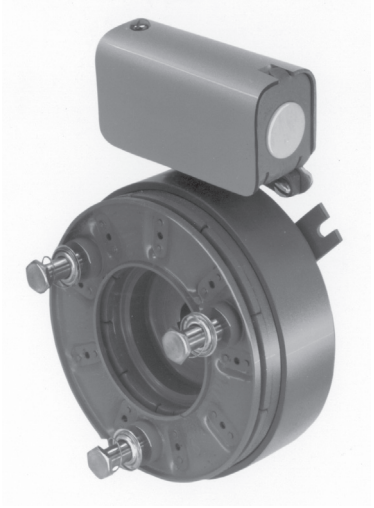


Figure 4
Flexible Strap

Installation Instructions

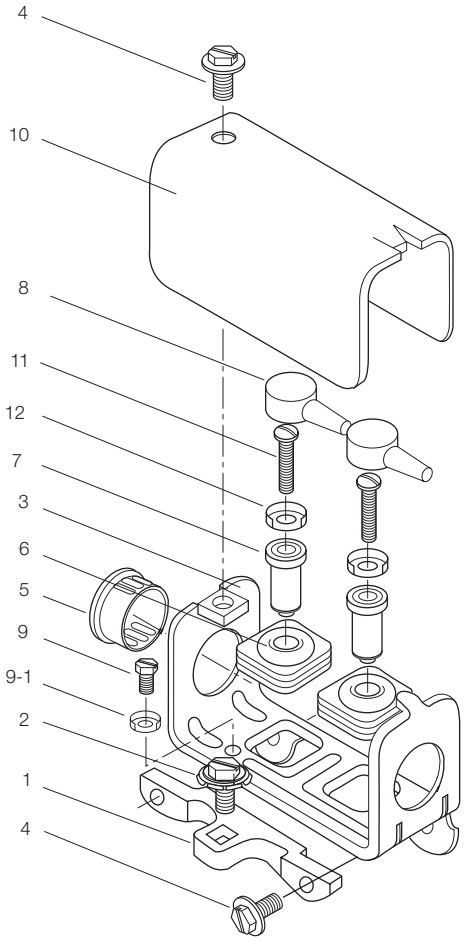
Conduit Box Kit No. 5200-101-010



Description

This Warner Electric conduit box is designed to provide a proper means for field wiring terminations. It conforms to the requirements of Underwriters Laboratories. Kit No. 5200-101-010, plus magnet terminal accessory kit, contains all components needed to assemble a conduit box for the above mentioned units. Please follow these instructions carefully when installing this conduit box. Failure to comply with these instructions could result in unsafe electrical connections.

Components



Parts List for Kit 5200-101-010

Item	Quan.	Part Name
1	1	Bracket
2	1	Screw, Hex, Washer Hd.
		and Sems Conical Washer
3	1	Box, Conduit
4	3	Screw, Hex. Washer Hd.
5	1	Plug, Protective
6	2	Grommet, Wire
7	2	Spacer, Terminal
8	2	Cap, Terminal
9	1	Screw, Hex. Washer Hd.
9-1	1	Terminal, Ring
10	1	Cover Assembly
*11	2	Screw No. 6 Brass
	2	Screw No. 8 Brass
†12	2	Terminal, Ring

*The No. 6 screws are required on Sizes 375, 400, and 475. All others use No. 8.

† Terminal Ring provided with terminal accessory kit 5311-101-003, 5311-101-001 respectively, supplied with magnets.

Note: All mounting screws are self-tapping.

Step 1 Fasten bracket (1) to the clutch or brake with one No. 10-32 hex. washer head screw and washer (2). The square projection on the clutch or brake between the terminals is to be assembled into the square hole in the bracket. The bracket flange is installed toward the back of the unit. (See Figure 1)

Figure 1

Step 2 Assemble a 1/2" flexible conduit fitting into the desired end of the conduit box (3). If the grounding nut on this conduit fitting is tightened after the conduit box is installed on the magnet or field, avoid using excessive tapping force, which could damage the mounting. (Step 6)

Step 3 Mount conduit box (3) to the bracket (1). The conduit box flange must be toward the back of the clutch or brake. Secure the box with two No.10-32 hex. washer head screws (4). (See Figure 2)

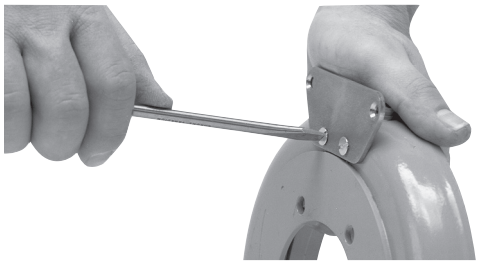


Figure 2

Step 4 Snap the two rubber grommets (6) into two square holes in the bottom of the conduit box. The grommet crowns should be in the box and the rubber flanges should be on both sides of the metal floor. (See Figure 3)

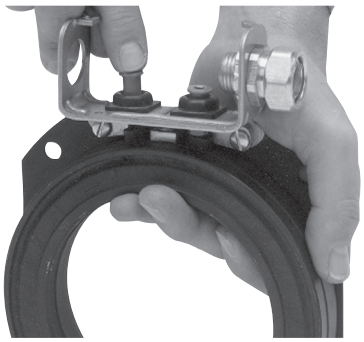


Figure 3

Step 5 Push two terminal spacers (7) through the grommets with the spacer flanged ends inside the conduit box. (See Figure 3)

Step 6 Connect electric supply cable to the fitting installed on the conduit box. Use D.C. supply only.

⚠CAUTION Rigid conduit must not be connected directly to the box. A minimum of 12" of flexible cable must be used. It is recommended that flexible "UL" listed liquid-tight, metallic or non-metallic conduit, meeting local codes, be used with appropriate fittings. Flexible cable is required to prevent side loading of bearing on bearing mounted clutches and brakes and possible deformation of the conduit box or components during assembly.

Step 7 Press protective plug (5) into the unused conduit hole in the box.

Step 8 Slide one rubber cap (8) onto each of the two supply conductors, small end first. Connect the two supply conductors (with rubber caps) to the magnet or field terminals using two No. 6 or No. 8 screws (11). Use wire retaining ring terminals supplied with the clutch or brake terminal accessory. The stripped wires may be wrapped around the screw between the wire terminal ring and the screw head or other ring type terminals such as "AMP" may be used. The screws are then assembled through the terminal spacers (7) and threaded into the clutch or brake terminals.

Electrical Coil Data

Unit Size	SF-500			PB & PC-500		
Voltage – DC	6	24	90	6	24	90
Resistance @ 20°C — Ohms	1.076	14.9	206.1	1.36	23.8	251.1
Current — Amperes	5.58	1.61	.44	4.4	1.01	.36
Watts	34	39	39	26	24	32
Coil Build-up — Milliseconds	82	85	90	84	87	93
Coil Decay — Milliseconds	40	40	40	38	35	30
Unit Size	**SF-650**			**PB-650**		
Voltage – DC	6	24	90	6	24	90
Resistance @ 20°C — Ohms	1.16	17.7	225	1.24	18.3	257.2
Current — Amperes	5.19	1.36	.4	4.84	1.31	.35
Watts	31	33	36	29	31	32
Coil Build-up — Milliseconds	110	115	120	100	105	110
Coil Decay — Milliseconds	50	50	50	50	50	50

Notes: Build-up time equals current to approximately 90% of steady state value and flux to 90%.
Decay time equals current to approximately 10% of steady state value and flux to 10%.
Approximately because current leads or lags flux by a small amount.

Burnishing and Maintenance

Burnishing

Intimate metal to metal contact is essential between the armature and the metal rings (poles) of the magnet or rotor. Warner Electric clutches and brakes leave the factory with the friction material slightly undercut to assure good initial contact.

Normally, the desired wearing-in process occurs naturally as the surfaces slip upon engagement. The time for wear-in, which is necessary to obtain the ultimate torque of the unit, will vary depending on speed, load and cycle duty.

If maximum torque is required immediately after installation, the unit should be burnished by slipping the friction surfaces together at reduced voltage. It is recommended that the burnishing be done right on the application, if at all possible.

Burnishing at high speed will result in a smoother wear-in pattern and reduce the time for burnishing. The voltage should be set at approximately 30% or 40% of the rated value.

The unit should be cycled on and off to allow sufficient time between slip cycles to prevent overheating.

When a Warner Electric brake or clutch is properly assembled and installed, no further servicing, lubrication, or maintenance should be required throughout the life of the unit.

Maintenance

Wear Pattern: Wear grooves appear on the armature and magnet surfaces. This is a normal wear condition, and does not impair functioning of the unit. Normally, the magnet and armature, as a mating pair, will wear at the same rate. It is the usual recommendation that both components be replaced at the same time.

Remachining the face of a worn armature is not recommended. If a replacement armature is to be used with a used magnet, it is necessary to remachine the worn magnet face. In refacing a magnet: (1) machine only enough material to clean up the complete face of the magnet; (2) hold the face within .005'' of parallel with the mounting plate; and (3) undercut the molded facing material .002''-.004'' below the metal poles.

Heat: Excessive heat and high operating temperatures are causes of rapid wear. Units therefore, should be ventilated as efficiently as possible, especially if the application requires fast, repetitive cycle operation.

Foreign Materials: If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, shielding of the brake or clutch may be necessary if maximum life is to be obtained.

Where units are used near gear boxes or transmissions requiring frequent lubrication, means should be provided to protect the friction surfaces from oil and grease to prevent serious loss of torque.

Oil and grease accidently reaching the friction surfaces may be removed by wiping with a rag dampened with a suitable cleaner, which leaves no residue. In performing this operation, do not drench the friction material.

If the friction materials have been saturated with oil or grease, no amount of cleaning will be completely effective. Once such a unit has been placed back in service, heat will cause the oil to boil to the surface, resulting in further torque loss.

Torque Loss: If a brake or clutch slips or loses torque completely, the initial check should be the input voltage to the field as follows:

90-Volt Series: Connect a DC voltmeter with a range of 0-100 or more directly across the magnet or field terminals. With the power on and the potentiometer turned up, a normal reading is 90 volts, although 85 to 95 is satisfactory. The reading should drop as the potentiometer control is adjusted counterclockwise.

24-Volt Series: Use a DC voltmeter with a range of 0-30 volts or more. A normal reading is approximately 22-26 volts.

6-Volt Series: Use a DC voltmeter of approximately 0-15 volt range. A normal reading is from 5.5 to 6.5 volts.

The above checks normally are sufficient. Further checks may be made as follows: a low range ammeter, when connected in series with one magnet lead, will normally indicate approximately .40 amperes for the 90 volt units, 1.0 ampere for the 24 volt, and 3.5 amperes for the 6 volt series. These readings are with the power on and the potentiometer control in the maximum position.

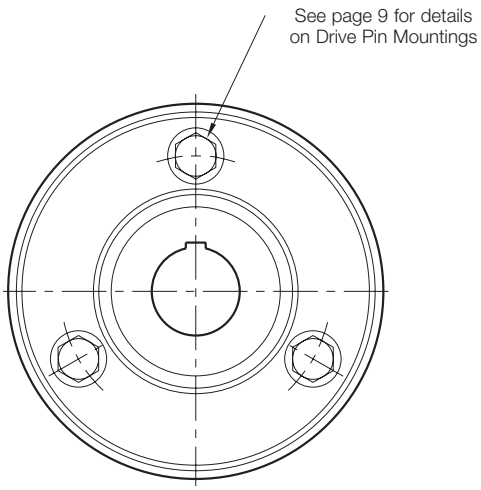
Ohmmeter checks should be made with the power off and the circuit open (to be certain, disconnect one lead to the magnet). Average resistance for the 90 volt series is 220 ohms; for the 24 volt, 20 ohms; and for the 6 volt series, 1.5 ohms. A very high or infinite resistance reading would indicate an open coil.

If the above checks indicate that the proper voltage and current is being supplied to the magnet, mechanical parts should be checked to assure that they are in good operating condition and properly installed.

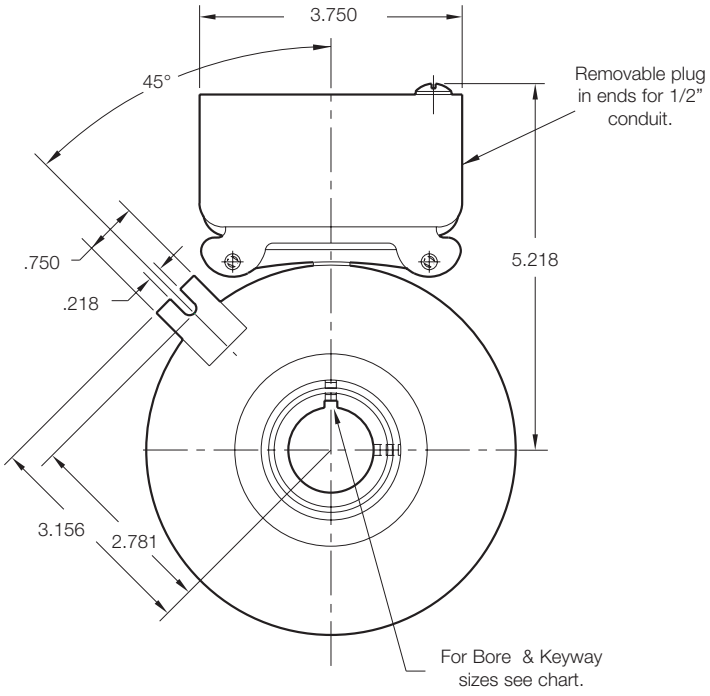
Notes

SF-500 Bearing Mounted Clutch

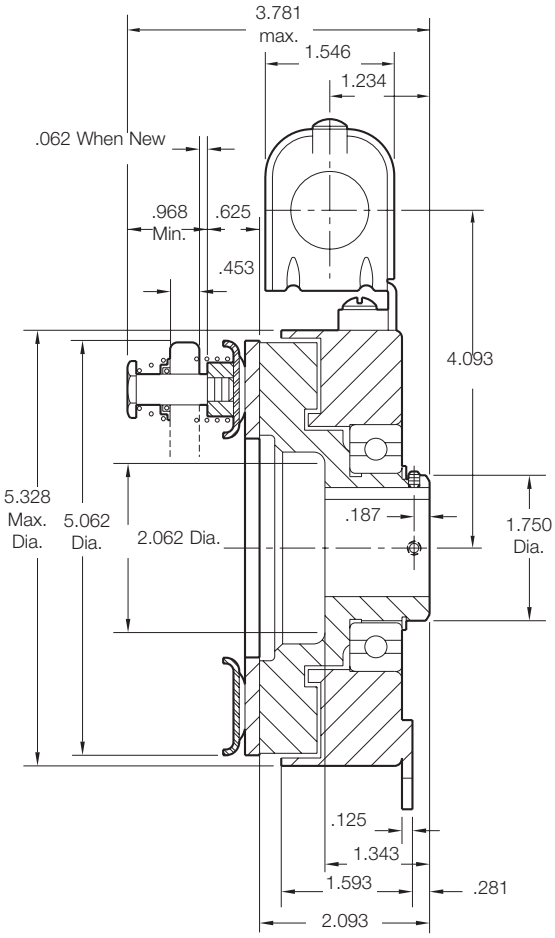
Drawing I-25715



Armature View



Field View



Bore and Keyway Dimensions

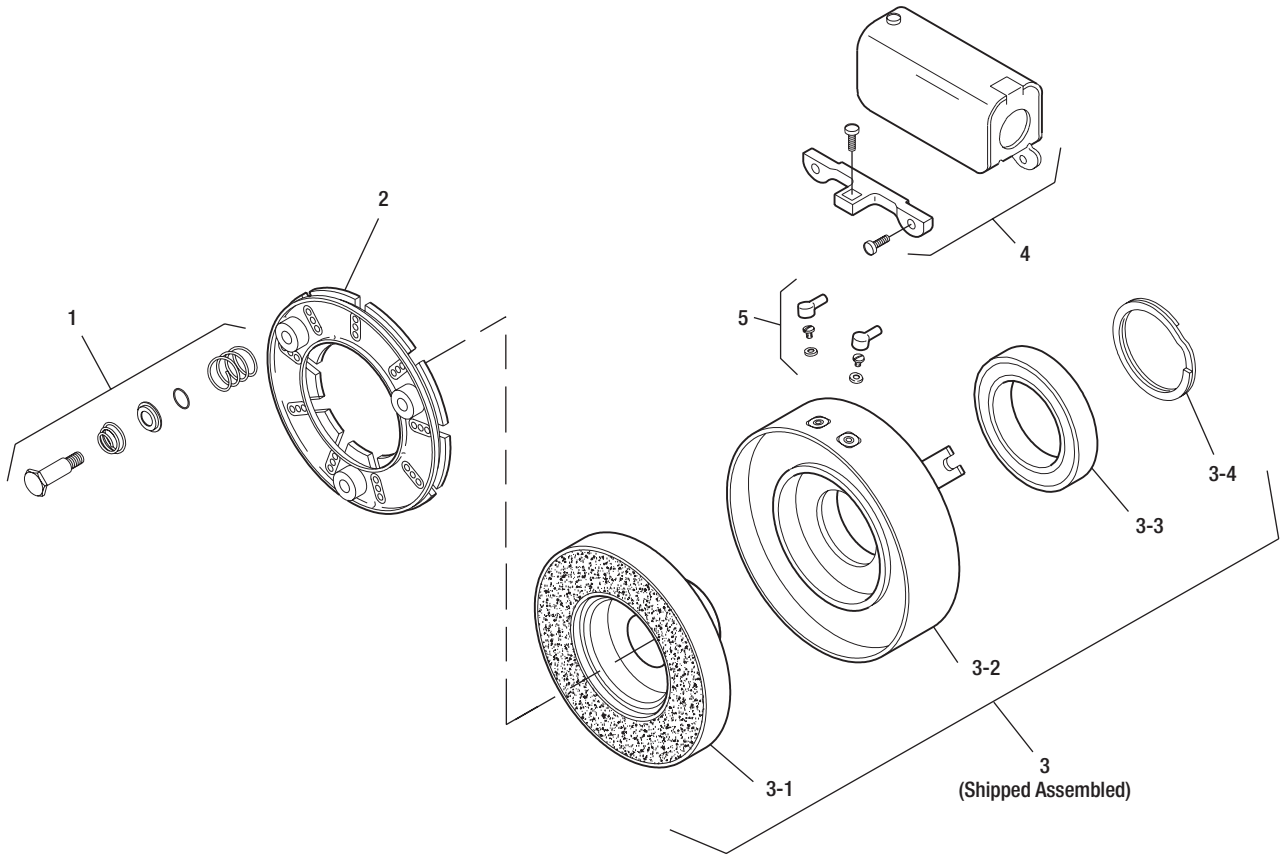
Rotor Bore Dia.	Keyway
.751/.750 .876/.875	.187 x .093
.9385/.9375 1.001/1.000 1.126/1.125 1.251/1.250	.250 x .125
Rotor Shaft	.750 – 1.250
Static Torque	50 lb.ft.
Maximum Speed	4,000 RPM
Standard Voltage	D.C. 6, 24, 90

Customer Shall Maintain:

1. Armature shafts to be concentric with rotor mounting shaft within .006 T.I.R.

All dimensions are nominal, unless otherwise noted.

SF-500 Bearing Mounted Clutch



Item	Description	Part Number	Qty.
1	Autogap Accessory	5200-101-009	3
2	Armature	5300-111-002	1
3	Field and Rotor Assembly		1
	6 Volt – 3/4" Bore	5200-452-002	
	24 Volt – 3/4" Bore	5200-452-004	
	90 Volt – 3/4" Bore	5200-452-005	
	6 Volt – 7/8" Bore	5200-452-008	
	24 Volt – 7/8" Bore	5200-452-010	
	90 Volt – 7/8" Bore	5200-452-011	
	24 Volt – 15/16" Bore	5200-452-016	
	90 Volt – 15/16" Bore	5200-452-017	
	6 Volt – 1" Bore	5200-452-020	
	24 Volt – 1" Bore	5200-452-022	
	90 Volt – 1" Bore	5200-452-023	
	6 Volt – 1-1/8" Bore	5200-452-026	
	24 Volt – 1-1/8" Bore	5200-452-028	
	90 Volt – 1-1/8" Bore	5200-452-029	
	6 Volt – 1-1/4" Bore	5200-452-032	
	24 Volt – 1-1/4" Bore	5200-452-034	
	90 Volt – 1-1/4" Bore	5200-452-035	
3-1	Rotor		1
	3/4" Bore	5200-751-002	
	7/8" Bore	5200-751-003	
	15/16" Bore	5200-751-004	
	1" Bore	5200-751-005	
	1-1/8" Bore	5200-751-006	
	1-1/4" Bore	5200-751-007	

Item	Description	Part Number	Qty.
3-2	Field & Bearing Assembly		1
	6 Volt	5200-451-024	
	24 Volt	5200-451-026	
	90 Volt	5200-451-027	
3-3	Ball Bearing	166-0110	1
3-4	Retainer Ring	748-0002	1
4	Conduit Box	5200-101-010	1
5	Terminal Accessory	5311-101-001	1

How to Order:

1. Specify Bore Size for Item 3.
2. Specify Voltage for Item 3.

Example:

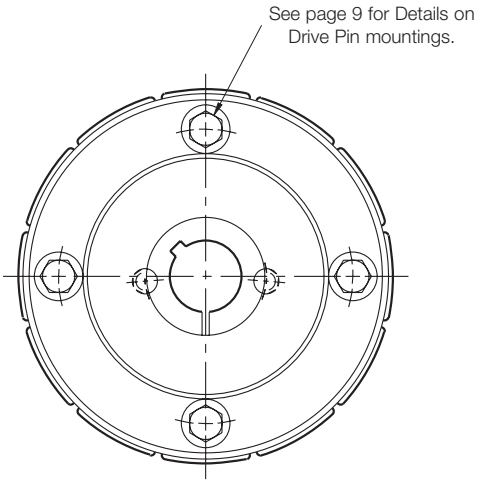
SF-500 Clutch per I-25715 - 90 Volt 3/4" Bore

These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

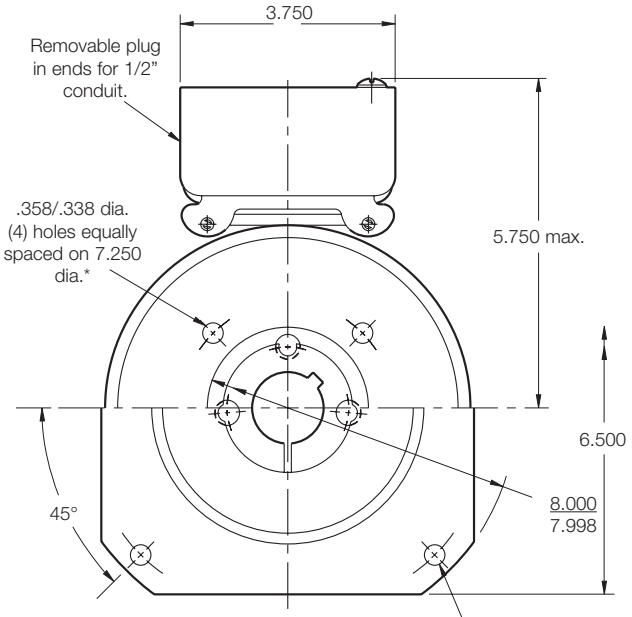
These units are CSA certified under file #LR11543.

SF-650 Flange Mounted Clutch

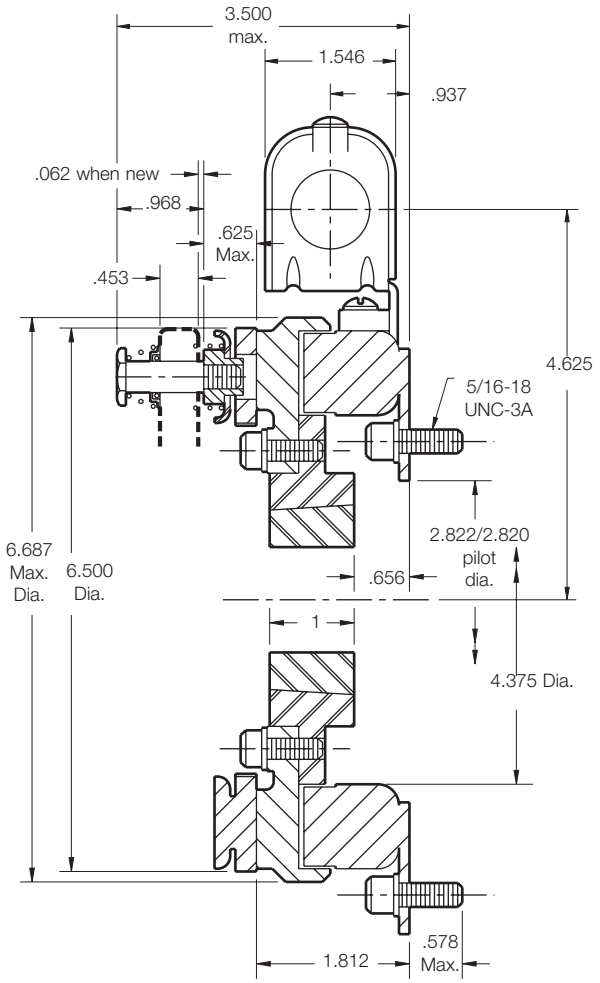
Drawing I-25749



Armature View



Field View
(Inside & Outside Mounted)



* Mounting holes are within .010 of true position relative to pilot diameter.

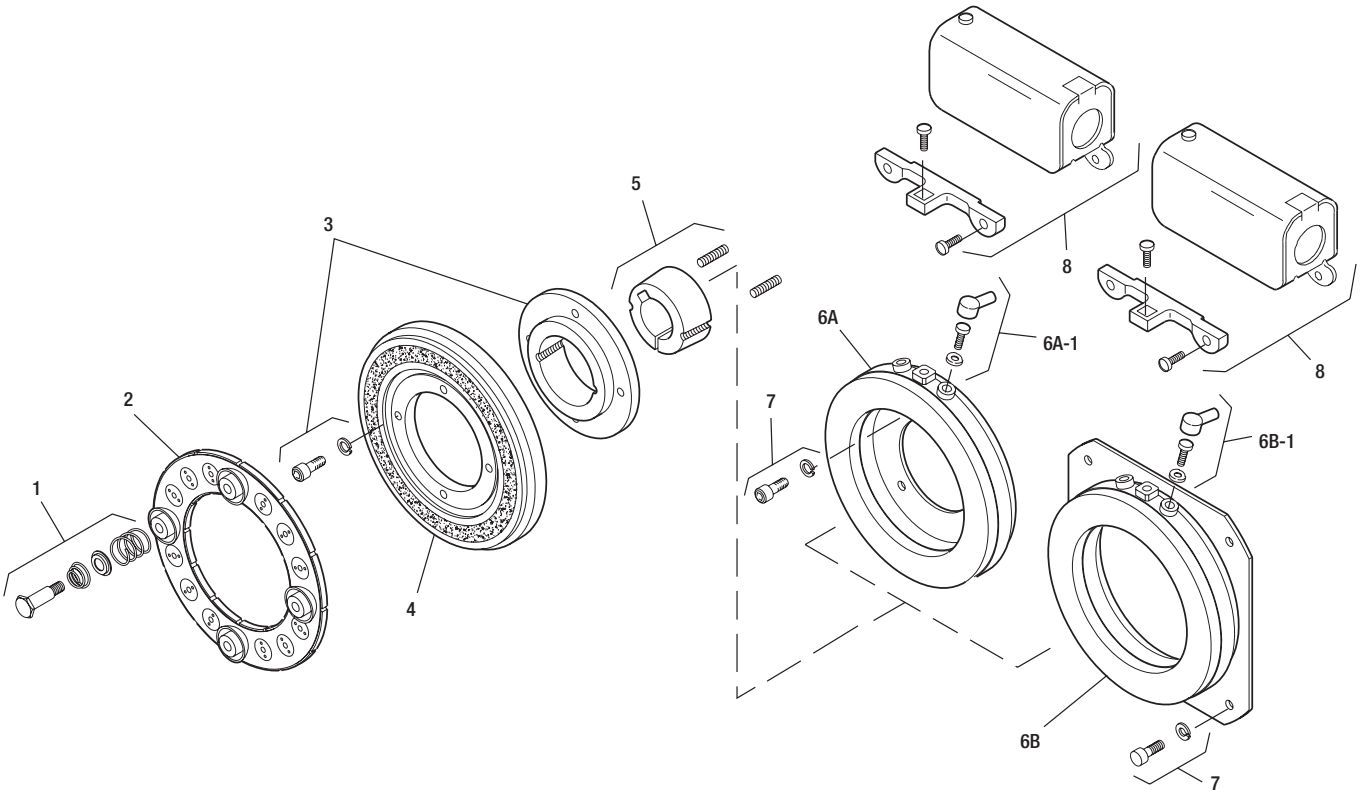
Customer Shall Maintain:

1. Concentricity of field mounting pilot diameter with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Rotor mounting pilot diameter must be concentric with shaft within .006 T.I.R.

All dimensions are nominal, unless otherwise noted.

Shaft Size	.500 – 1.625
Static Torque	95 lb.ft.
Maximum Speed	3,600 RPM
Standard Voltage	D.C. 6, 24, 90

SF-650 Flange Mounted Clutch



Item	Description	Part Number	Qty.
1	Armature Accessory	5181-101-010	4
2	Armature	5281-111-002	1
3	Rotor Hub & Mounting Acc.	5207-101-005	1
4	Rotor	5281-751-001	1
5	Bushing*		
	1/2" to 1-5/8" Bore	180-0326 to 180-0344	1
6A	Field - Inside Mounted		1
	6 Volt	5207-451-009	
	24 Volt	5207-451-012	
	90 Volt	5207-451-011	
6A-1	Terminal Accessory	5311-101-001	1
6B	Field - Outside Mounted		1
	6 Volt	5207-451-003	
	24 Volt	5207-451-006	
	90 Volt	5207-451-005	
6B-1	Terminal Accessory	5311-101-001	1
7	Mounting Accessory	5321-101-002	1
8	Conduit Box	5200-101-010	1

* See page 44 for specific part numbers.

How to Order:

1. Specify Bore Size for Item 5.
2. Specify Voltage for Item 6.
3. Specify Inside or Outside Mounted for Item 6.

Example:

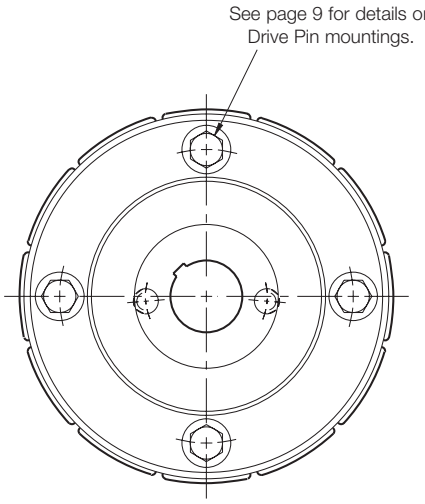
SF-650 Clutch per I-25749 - 90 Volt 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

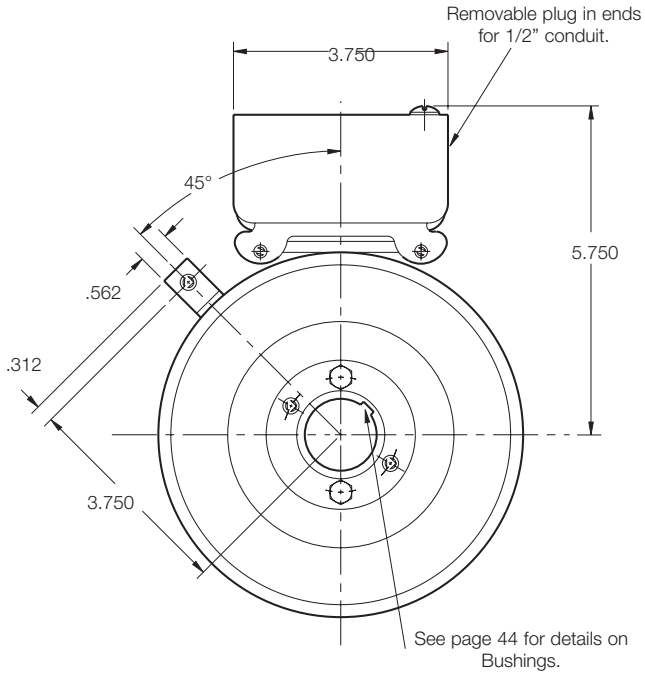
These units are CSA certified under file #LR11543.

SF-650 Bearing Mounted Clutch

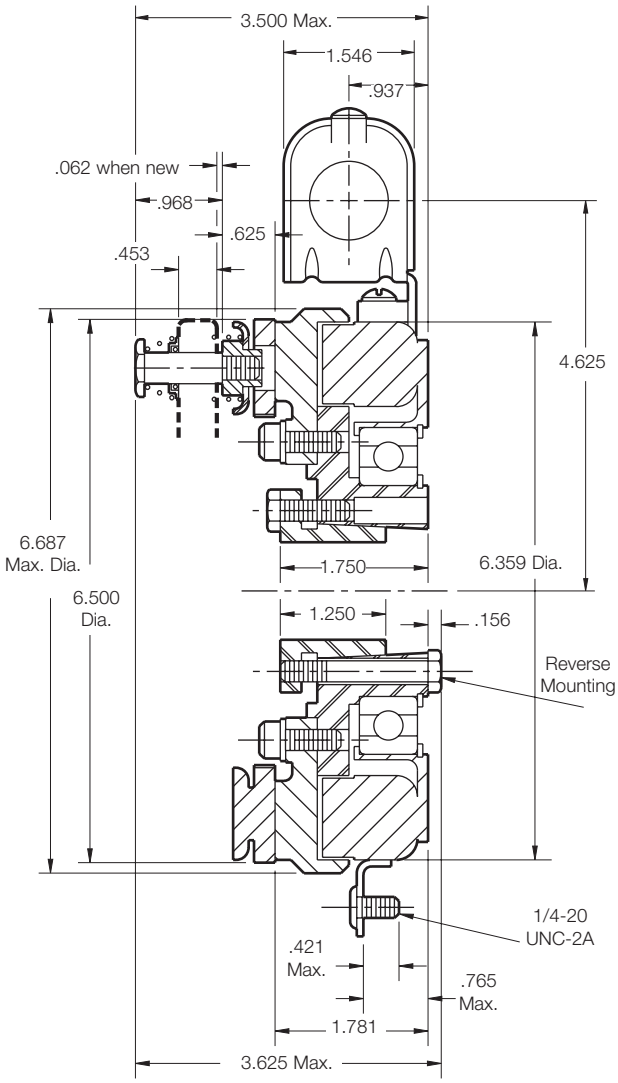
Drawing I-25750



Armature View



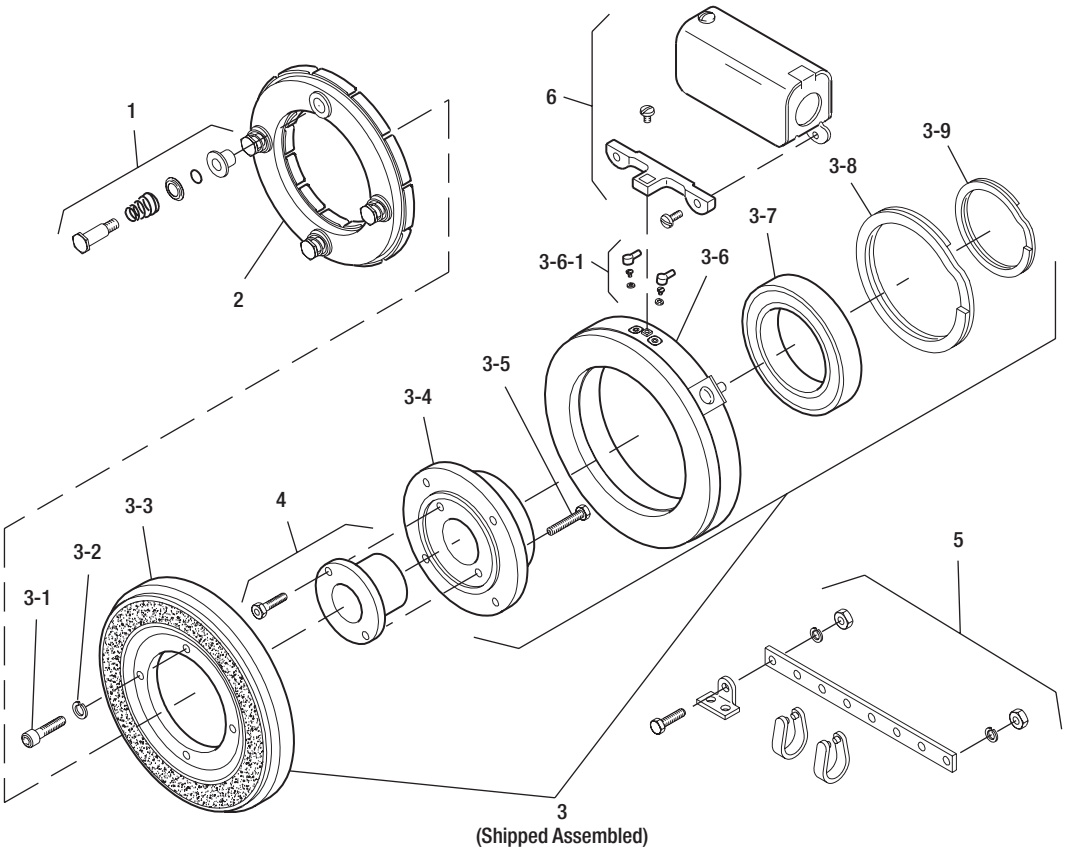
Field View



Shaft Size	.500 – 1.500
Static Torque	95 lb.ft.
Maximum Speed	3,600 RPM
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal, unless otherwise noted.

SF-650 Bearing Mounted Clutch



Item	Description	Part Number	Qty.
1	Autogap Accessory	5181-101-010	4
2	Armature	5281-111-002	1
3	Field and Rotor Assembly		1
	6 Volt	5207-452-002	
	24 Volt	5207-452-005	
	90 Volt	5207-452-004	
3-1	Capscrew	797-0083	4
3-2	Lockwasher	950-0355	4
3-3	Rotor Assembly	5281-751-001	1
3-4	Rotor Hub	540-0614	1
3-5	Reverse Mounting Accessory	5201-101-005	1
3-6	Field		1
	6 Volt	5281-451-002	
	24 Volt	5281-451-004	
	90 Volt	5281-451-005	
3-6-1	Terminal Accessory	5311-101-001	1
3-7	Ball Bearing	166-0104	1
3-8	Retainer Ring - External	748-0004	1
3-9	Retainer Ring -Internal	748-0104	1
4	Bushing*		
	1/2" to 1-1/2" Bore	180-0002 to 180-0018	1
†5	Torque Arm Accessory	5207-101-003	1
6	Conduit Box	5200-101-010	1

* See page 44 for specific part numbers.

† Optional—not included in price.

How to Order:

1. Specify Voltage for Item 3.
2. Specify Bore Size for Item 4.

Example:

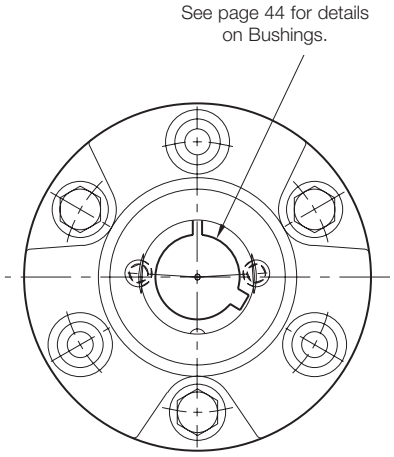
SF-650 Clutch, bearing mounted per I-25750 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

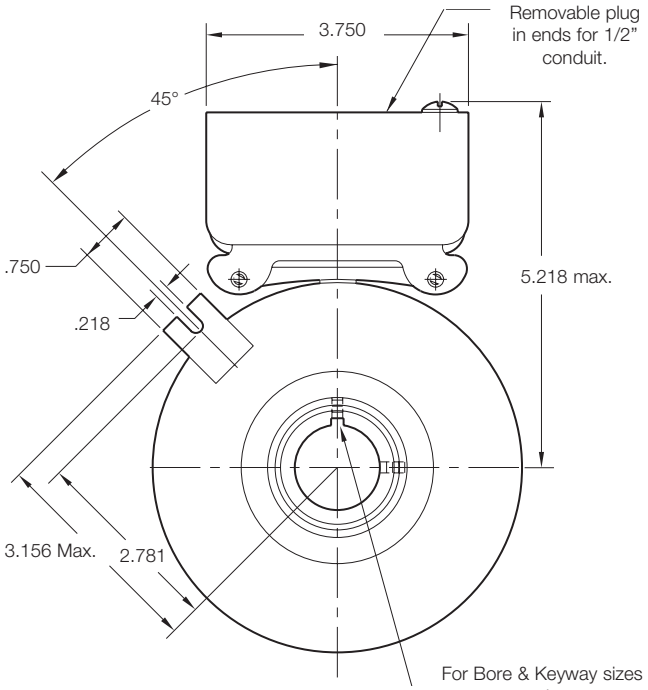
These units are CSA certified under file #LR11543.

SFC-500 Bearing Mounted Clutch Coupling
Normal Duty

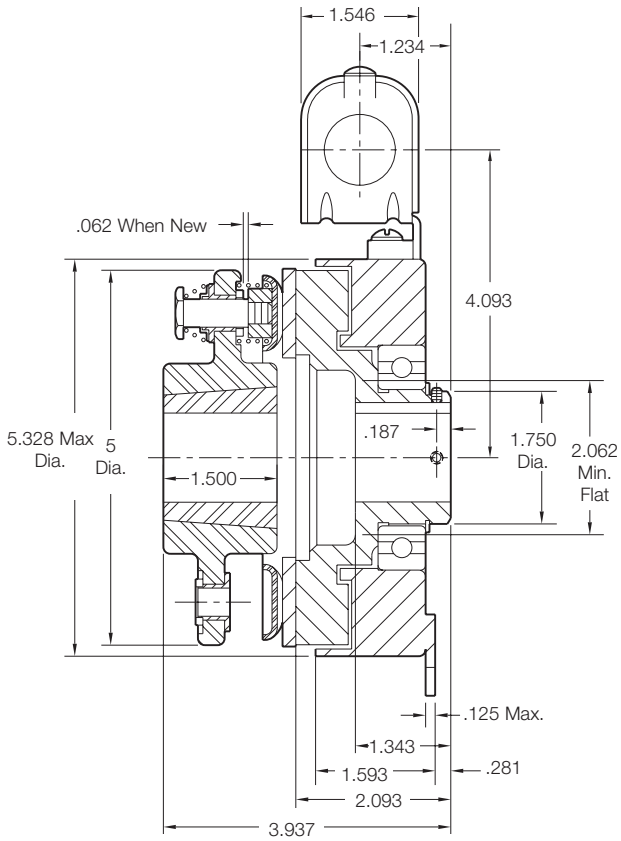
Drawing I-25540



Hub View



Field View



Bore & Keyway Dimensions

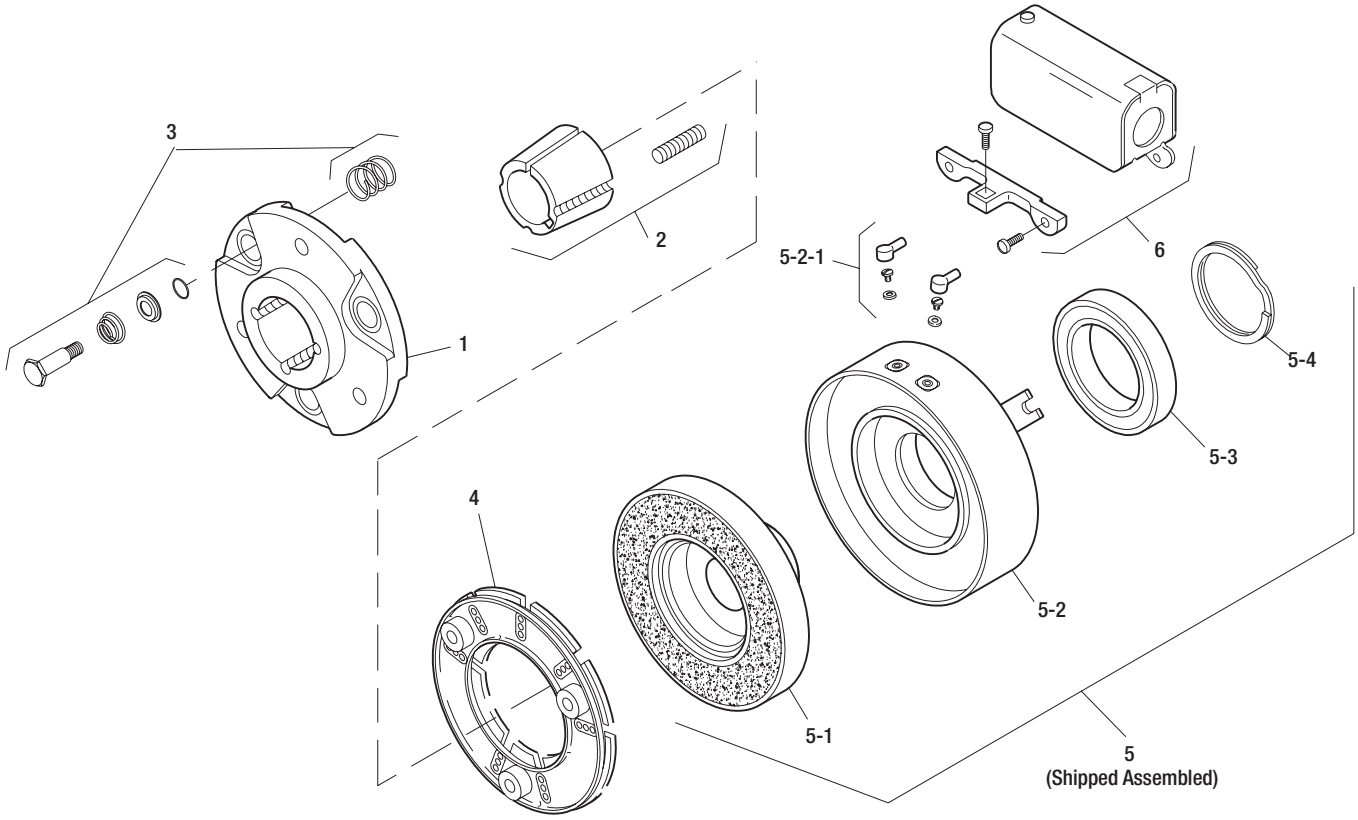
Rotor Bore Dia.	Keyway
.751/.750 .876/.875	.187 x .093
.9385/.9375 1.001/1.000 1.126/1.125 1.251/1.250	.250 x .125

Armature Shaft	.500 – 1.250
Rotor Shaft	.750 – 1.250
Static Torque	50 lb.ft.
Maximum Speed	4,000 RPM
Standard Voltage	D.C. 6, 24, 90

Customer Shall Maintain:

1. Armature mounting shaft to be concentric with rotor mounting shaft within .006 T.I.R.

All dimensions are nominal, unless otherwise noted.



Item	Description	Part Number	Qty.
1	Armature Hub	5300-541-004	1
2	Bushing*		
	1/2" to 1-1/4" Bore	180-0116 to 180-0128	1
3	Autogap Accessory	5200-101-009	3
4	Armature	5300-111-002	1
5	Field and Rotor Assembly		1
	6 Volt – 3/4" Bore	5200-452-002	
	24 Volt – 3/4" Bore	5200-452-004	
	90 Volt – 3/4" Bore	5200-452-005	
	6 Volt – 7/8" Bore	5200-452-008	
	24 Volt – 7/8" Bore	5200-452-010	
	90 Volt – 7/8" Bore	5200-452-011	
	24 Volt – 15/15" Bore	5200-452-016	
	90 Volt – 15/16" Bore	5200-452-017	
	6 Volt – 1" Bore	5200-452-020	
	24 Volt – 1" Bore	5200-452-022	
	90 Volt – 1" Bore	5200-452-023	
	6 Volt – 1-1/8" Bore	5200-452-026	
	24 Volt – 1-1/8" Bore	5200-452-028	
	90 Volt – 1-1/8" Bore	5200-452-029	
	6 Volt – 1-1/4" Bore	5200-452-032	
	24 Volt – 1-1/4" Bore	5200-452-034	
	90 Volt – 1-1/4" Bore	5200-452-035	
5-1	Rotor		1
	3/4" Bore	5200-751-002	
	7/8" Bore	5200-751-003	
	15/16" Bore	5200-751-004	
	1" Bore	5200-751-005	
	1-1/8" Bore	5200-751-006	

Item	Description	Part Number	Qty.
	1-1/4" Bore	5200-751-007	
5-2	Field & Bearing Assembly		1
	6 Volt	5200-451-024	
	24 Volt	5200-451-026	
	90 Volt	5200-451-027	
5-3	Terminal Accessory	5311-101-001	1
5-4	Ball Bearing	166-0110	1
5-5	Retainer Ring	748-0002	1
6	Conduit Box	5200-101-010	1

*See page 44 for specific part numbers.

How to Order:

1. Specify Bore Size for Item 2 and Item 5.
2. Specify Voltage for Item 5.

Example:

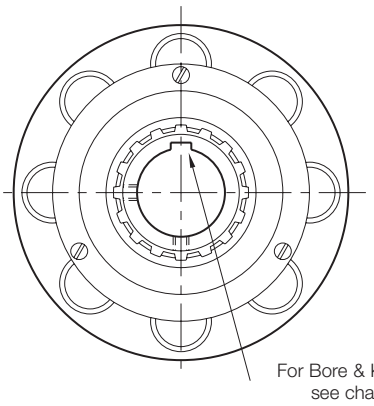
SFC-500 Clutch Coupling per I-25540 - 90 Volt 3/4" Bores

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards set of UL508 and are listed under guide card #NMTR2, file #59164.

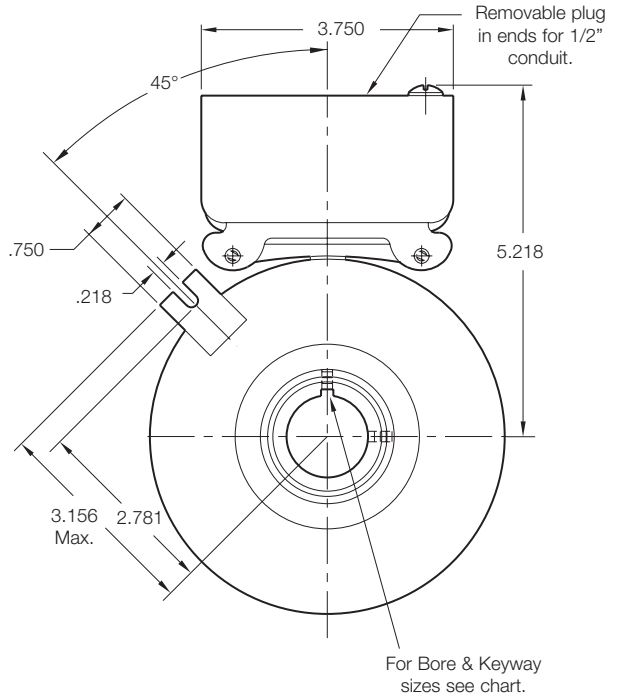
These units are CSA certified under file #LR11543.

SFC-500 Bearing Mounted Clutch Coupling
Heavy Duty

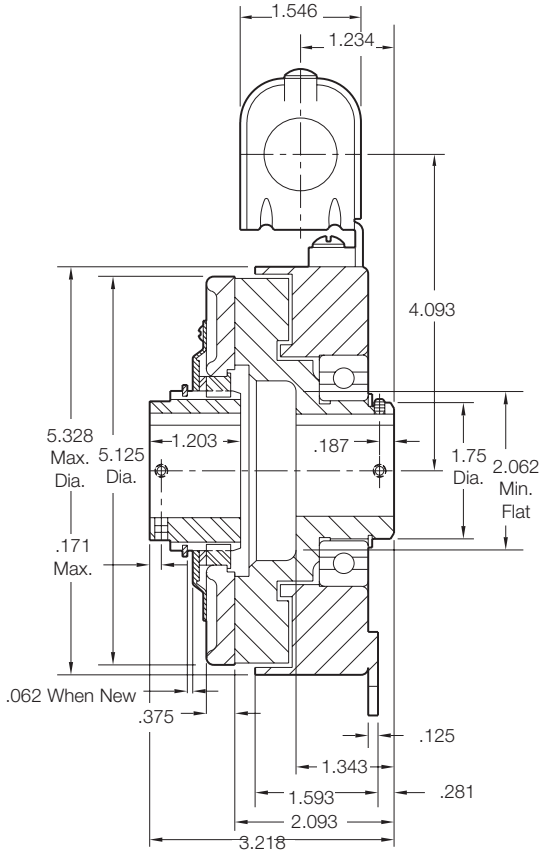
Drawing I-25541



Armature View



Field View



Bore & Keyway Dimensions

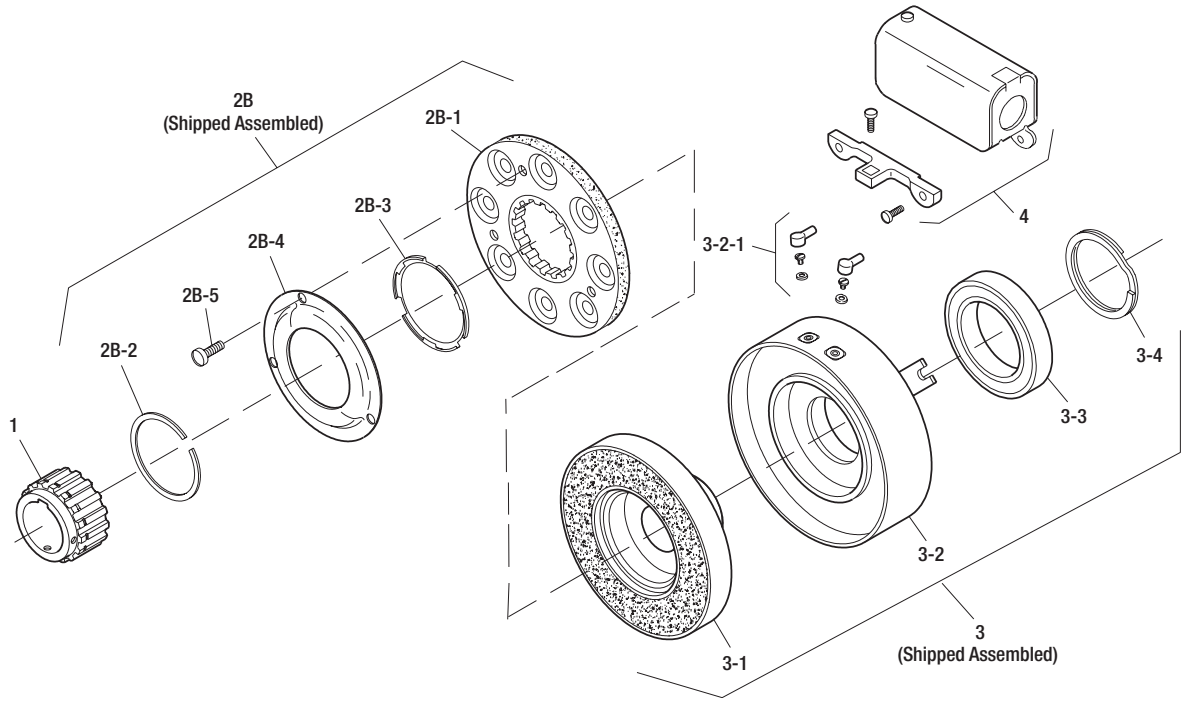
Rotor Bore Dia.	Keyway
.751/.750 .876/.875	.187 x .093
.9385/.9375 1.001/1.00 1.126/1.125 1.251/1.250	.250 x .125

Customer Shall Maintain:

1. Angular alignment of shafts within 1/2 degree.
2. Armature mounting shaft to be concentric with rotor mounting shaft within .006 T.I.R.

Armature Shaft	.750 – 1.250
Rotor Shaft	.750 – 1.250
Static Torque	50 lb.ft.
Maximum Speed	4,000 RPM
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal, unless otherwise noted.



Item	Description	Part Number	Qty.
1	Armature Hub Assembly		1
	3/4" Bore	5200-541-002	
	7/8" Bore	5200-541-003	
	15/16" Bore	5200-541-004	
	1" Bore	5200-541-005	
	1-1/8" Bore	5200-541-006	
	1-1/4" Bore	5200-541-007	
2B	Armature Assembly w/Autogap	5230-111-002	1
2B-1	Armature	5230-111-001	1
2B-2	Retainer Ring	748-0355	1
2B-3	Autogap Spring	808-0412	1
2B-4	Retainer Plate	748-0364	1
2B-5	Screw	797-0028	3
3	Field and Rotor Assembly		1
	6 Volt – 3/4" Bore	5200-452-002	
	24 Volt – 3/4" Bore	5200-452-004	
	90 Volt – 3/4" Bore	5200-452-005	
	6 Volt – 7/8" Bore	5200-452-008	
	24 Volt – 7/8" Bore	5200-452-010	
	90 Volt – 7/8" Bore	5200-452-011	
	24 Volt – 15/16" Bore	5200-452-016	
	90 Volt – 15/16" Bore	5200-452-017	
	6 Volt – 1" Bore	5200-452-020	
	24 Volt – 1" Bore	5200-452-022	
	90 Volt – 1" Bore	5200-452-023	
	6 Volt – 1-1/8" Bore	5200-452-026	
	24 Volt – 1-1/8" Bore	5200-452-028	
	90 Volt – 1-1/8" Bore	5200-452-029	
	6 Volt – 1-1/4" Bore	5200-452-032	
	24 Volt – 1-1/4" Bore	5200-452-034	
	90 Volt – 1-1/4" Bore	5200-452-035	
3-1	Rotor		1
	3/4" Bore	5200-751-002	
	7/8" Bore	5200-751-003	
	15/16" Bore	5200-751-004	
	1" Bore	5200-751-005	
	1-1/8" Bore	5200-751-006	
	1-1/4" Bore	5200-751-007	
3-2	Field & Bearing Assembly		1
	6 Volt	5200-451-024	
	24 Volt	5200-451-026	
	90 Volt	5200-451-027	
3-2-1	Terminal Accessory	5311-101-001	1
3-3	Ball Bearing	166-0110	1
3-4	Retainer Ring	748-0002	1
4	Conduit Box	5200-101-010	1

How to Order:

1. Specify Bore Size for Item 1 and 1B and Item 4.
2. Specify Voltage for Item 5.

Example:

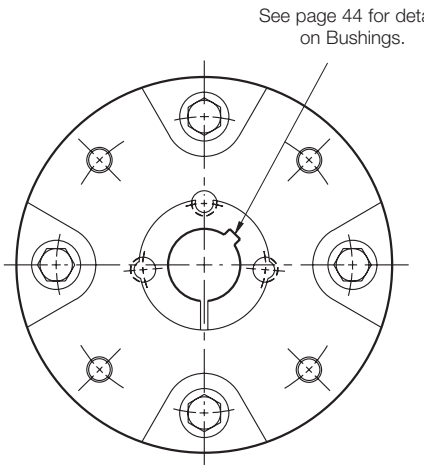
SFC-500 Clutch Coupling per I-25541- 90 Volt 3/4" Armature Hub Bore 7/8" Rotor Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

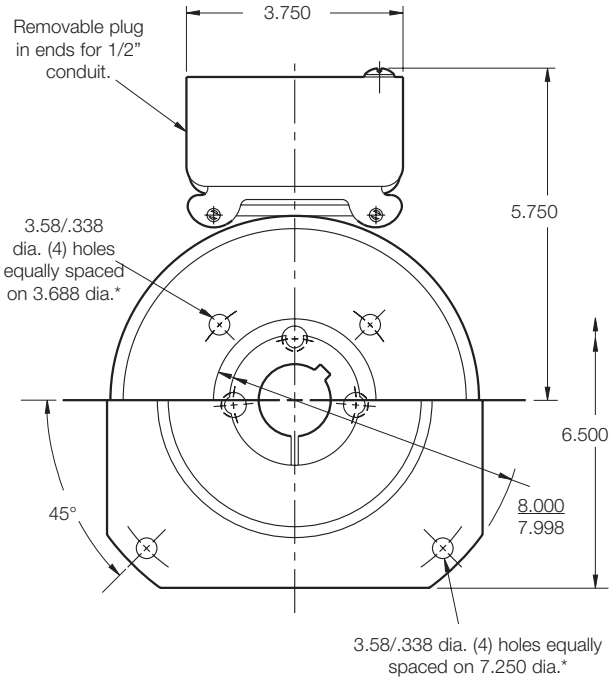
These units are CSA certified under file #LR11543.

SFC-650 Clutch Coupling
Flange Mounted

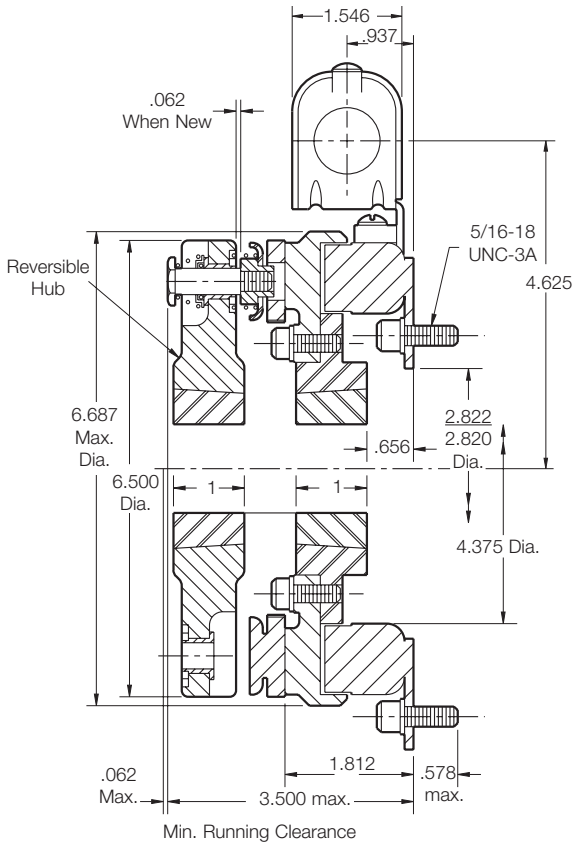
Drawing I-25728



Hub View



Field View
(Inside & Outside Mounted)



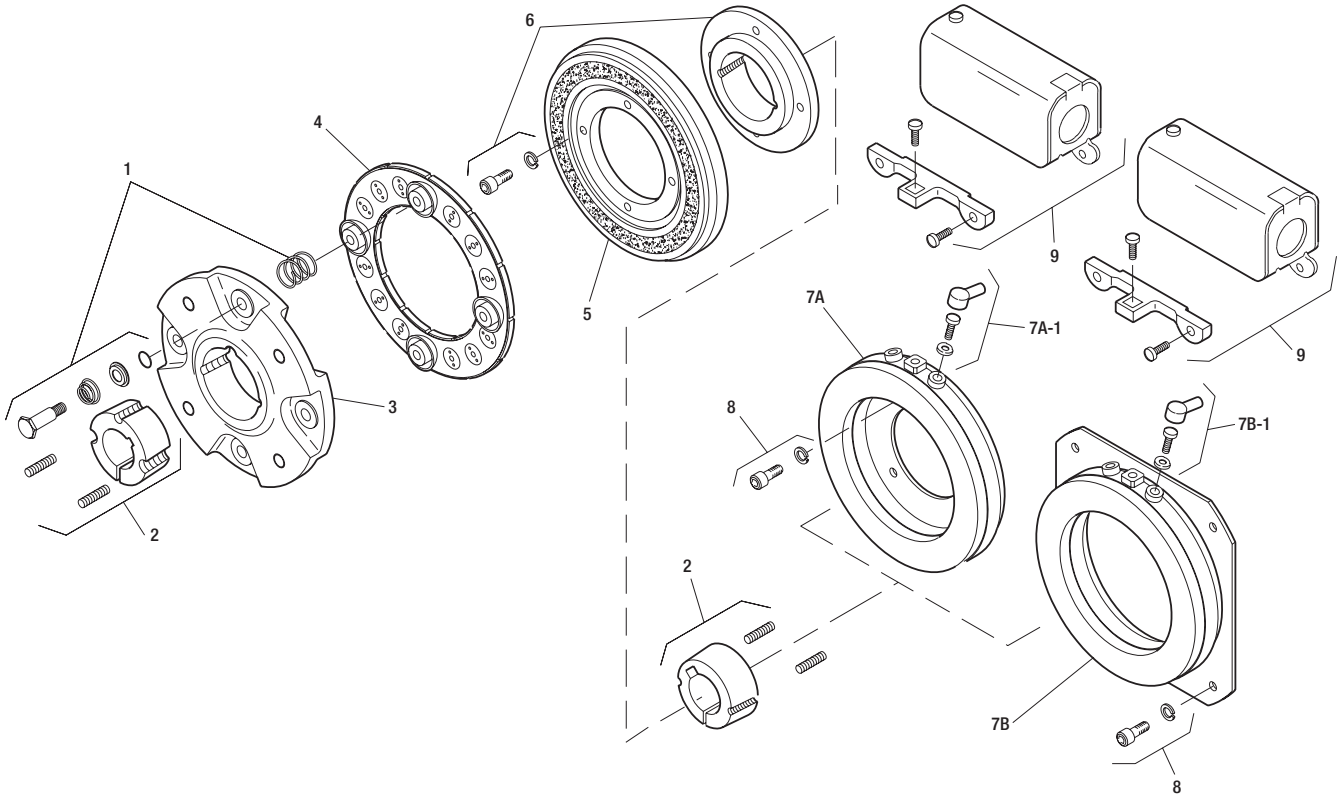
* Mounting holes are within .010 of true position relative to pilot diameter.

Customer Shall Maintain:

1. Concentricity of field mounting pilot diameter with rotor mounting shaft within .006 T.I.R.
2. Squareness of field mounting face with shaft within .006 T.I.R. measured at field mounting bolt circle.
3. Rotor mounting pilot diameter must be concentric with shaft within .006 T.I.R.
4. Armature mounting shaft to be concentric with rotor mounting shaft within .006 T.I.R.

Armature Shaft	.500 – 1.625
Rotor Shaft	.500 – 1.625
Static Torque	95 lb.ft.
Maximum Speed	3,600 RPM
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal, unless otherwise noted.



Item	Description	Part Number	Qty.
1	Autogap Accessory	5181-101-010	4
2	Bushing*		
	1/2" to 1-5/8" Bore	180-0326 to 180-0344	2
3	Armature Hub	5207-541-002	1
4	Armature	5281-111-002	1
5	Rotor	5281-751-001	1
6	Rotor Hub &		
	Mounting Accessory	5207-101-005	1
7A	Field - Inside Mounted		1
	6 Volt	5207-451-009	
	24 Volt	5207-451-012	
	90 Volt	5207-451-011	
7A-1	Terminal Accessory	5311-101-001	1
7B	Field - Outside Mounted		1
	6 Volt	5207-451-003	
	24 Volt	5207-451-006	
	90 Volt	5207-451-005	
8	Mounting Accessory	5321-101-002	1
9	Conduit Box	5200-101-010	1

* See page 44 for specific part numbers.

How to Order:

1. Specify Bore Size for Item 2.
2. Specify Voltage for Item 7.
3. Specify Inside or Outside Mounted for Item 7.

Example:

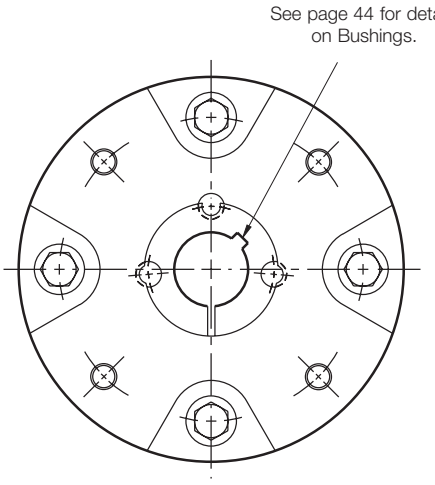
SFC-650 Clutch Coupling Flange Mounted per I-25728 -90 Volt 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

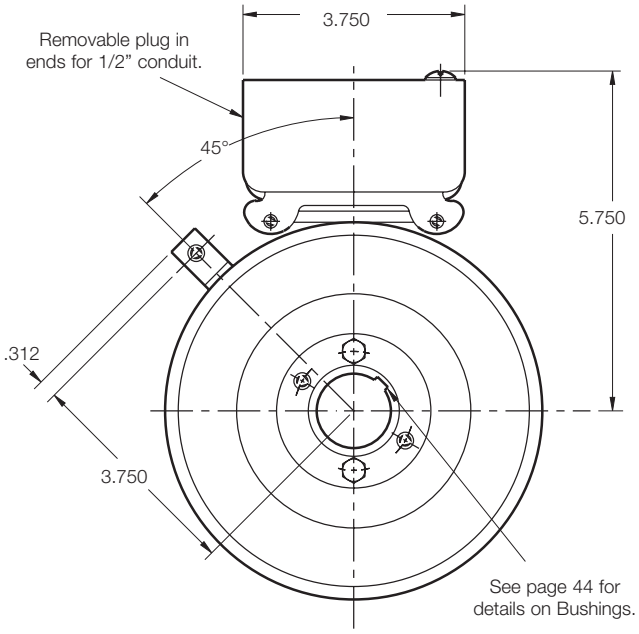
These units are CSA certified under file #LR11543.

SFC-650 Clutch Coupling
Bearing Mounted

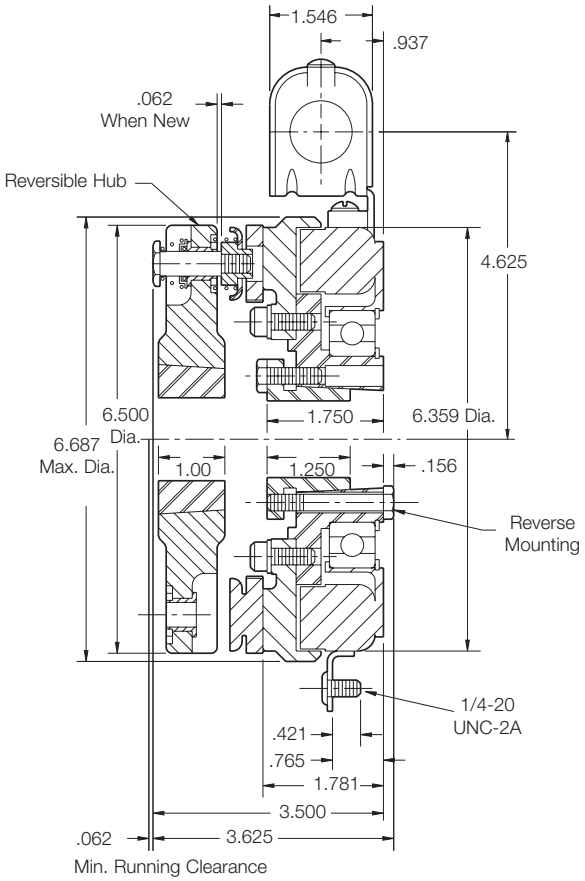
Drawing I-25729



Hub View



Field View

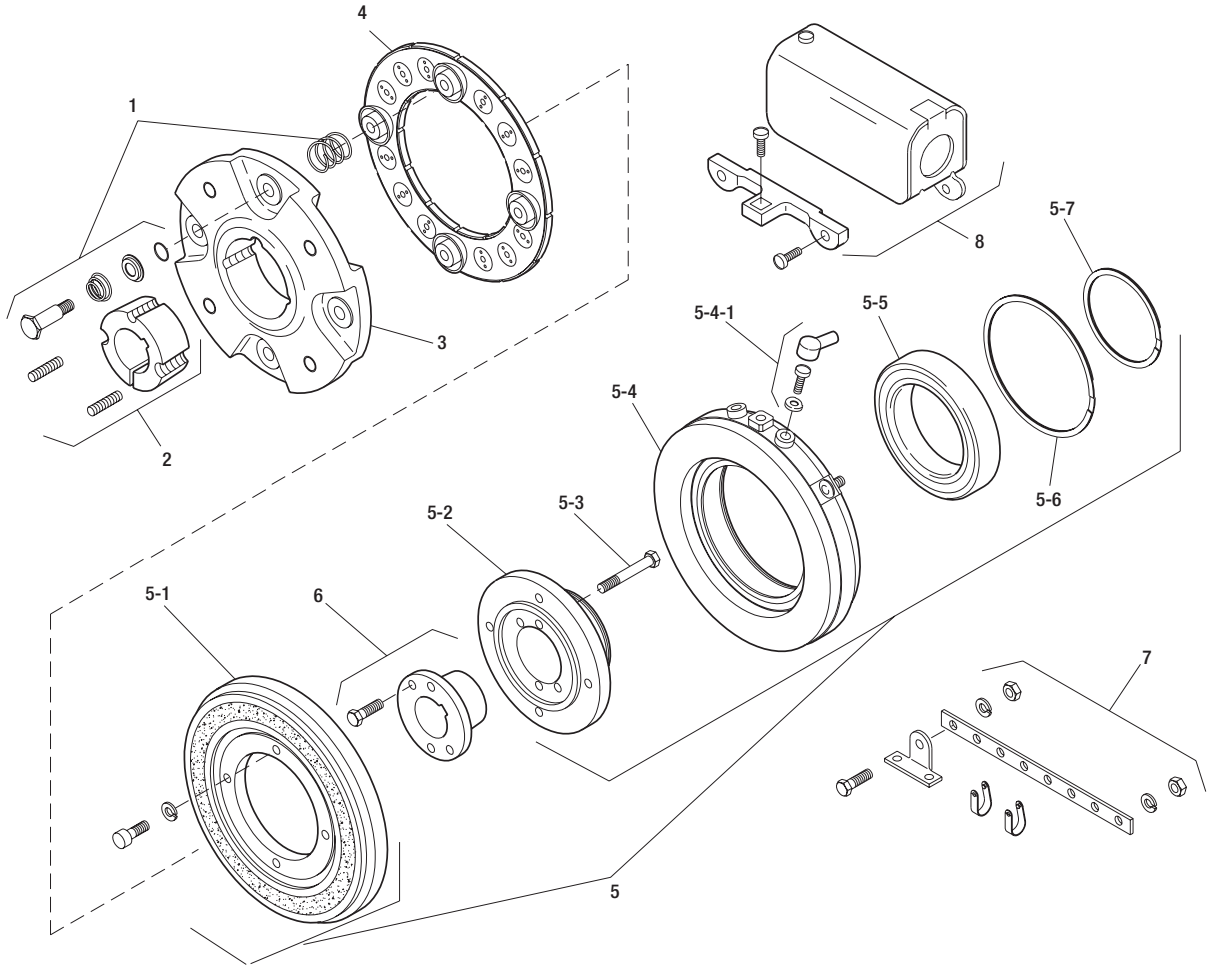


Armature Shaft	.500 – 1.625
Rotor Shaft	.500 – 1.500
Static Torque	95 lb.ft.
Maximum Speed	3,600 RPM
Standard Voltage	D.C. 6, 24, 90

Customer Shall Maintain:

1. Armature mounting shaft to be concentric with rotor mounting shaft within .006 T.I.R.

All dimensions are nominal, unless otherwise noted.



Item	Description	Part Number	Qty.
1	Autogap Accessory	5181-101-010	4
2	Bushing*		
	1/2" to 1-5/8" Bore	180-0326 to 180-0344	1
3	Armature Hub	5207-541-002	1
4	Armature	5281-111-002	1
5	Field and Rotor Assembly		1
	6 Volt	5207-452-002	
	24 Volt	5207-452-005	
	90 Volt	5207-452-004	
5-1	Rotor Assembly	5281-751-001	1
5-2	Rotor Hub	540-0614	1
5-3	Reverse Mounting Accessory	5201-101-005	1
5-4	Field Assembly		1
	6 Volt	5281-451-002	
	24 Volt	5281-451-004	
	90 Volt	5281-451-005	
5-4-1	Terminal Accessory	5311-101-001	1
5-5	Ball Bearing	166-0104	1
5-6	Retainer Ring - Exterior	748-0004	1
5-7	Retainer Ring - Interior	748-0104	1
6	Bushing*		
	1/2" to 1-1/2" Bore	180-0002 to180-0018	1
†7	Torque Arm Accessory	5207-101-003	1
8	Conduit Box	5200-101-010	1

* See page 44 for specific part numbers.
† Optional - not included in price.

How to Order:

1. Specify Bore Size of Item 2 and Item 6.
2. Specify Voltage for Item 5.

Example:

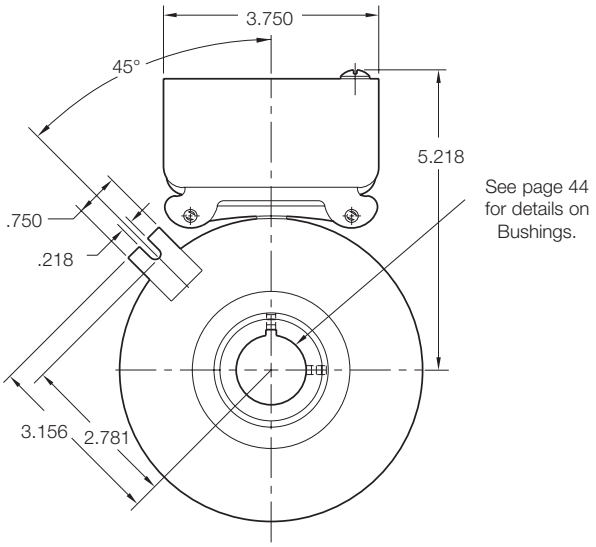
SFC-650 Clutch Coupling, Bearing Mounted per I-25729 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

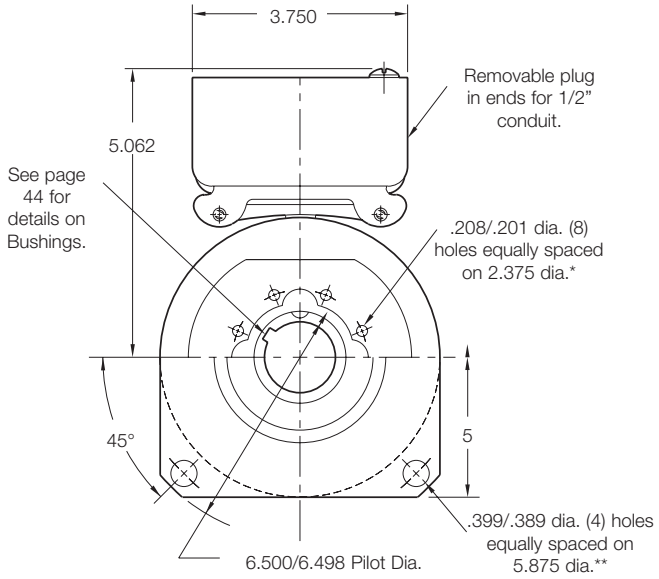
These units are CSA certified under file #LR11543.

SFPBC-500 Clutch-Brake Coupling
Normal Duty

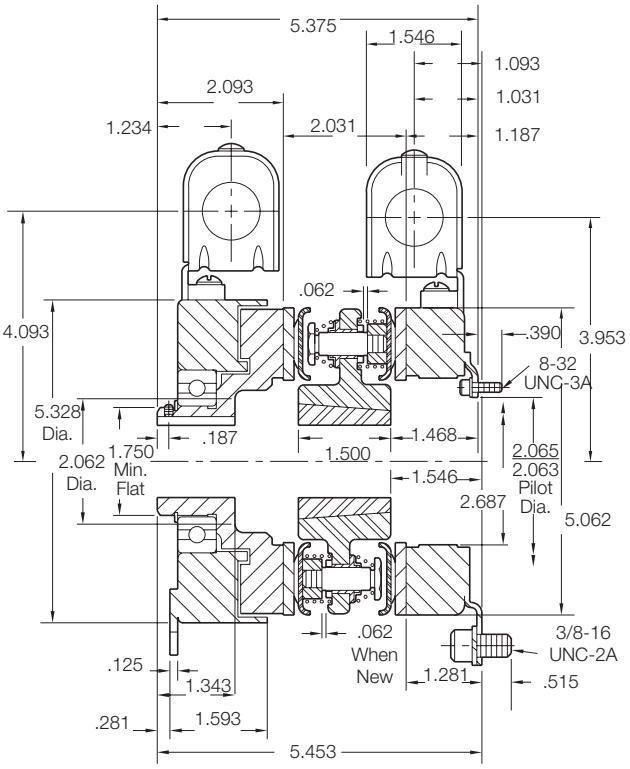
Drawing I-25546



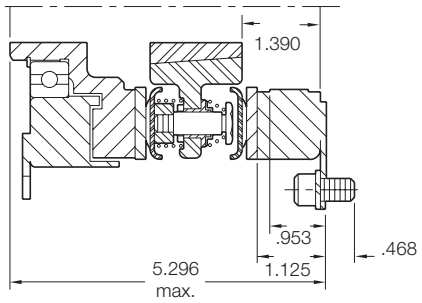
Field View



Magnet View



Outside Mounted Offset Backing Plate



Outside Mounted Flush Backing Plate

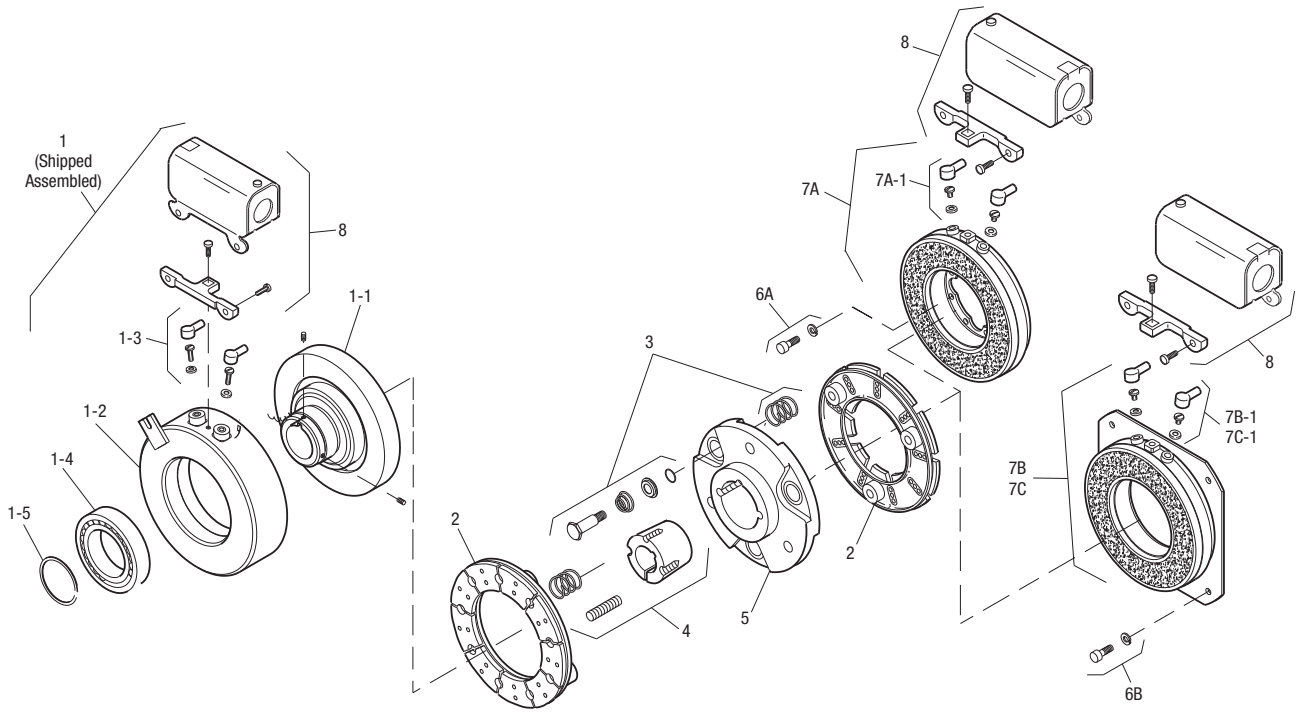
* Mounting holes are within .010 of true position relative to pilot diameter.

** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

1. Squareness of brake mounting face with armature hub shaft within .006 T.I.R.
2. Concentricity of brake mounting pilot diameter with armature hub shaft within .010 T.I.R.
3. Concentricity of clutch magnet hub assembly shaft with armature hub shaft within .006 T.I.R.

Shaft Size	.750 – 1.250
Static Torque Clutch	50 lb.ft.
Static Torque Brake	40 lb.ft.
Maximum Speed	4,000 RPM
Standard Voltage	D.C. 6, 24, 90



Item	Description	Part Number	Qty.
1	Field and Rotor Assembly		1
	6 Volt – 3/4" Bore	5200-452-002	
	24 Volt – 3/4" Bore	5200-452-004	
	90 Volt – 3/4" Bore	5200-452-005	
	6 Volt – 7/8" Bore	5200-452-008	
	24 Volt – 7/8" Bore	5200-452-010	
	90 Volt – 7/8" Bore	5200-452-011	
	90 Volt – 15/16" Bore	5200-452-017	
	6 Volt – 1" Bore	5200-452-020	
	24 Volt – 1" Bore	5200-452-022	
	90 Volt – 1" Bore	5200-452-023	
	6 Volt – 1-1/8" Bore	5200-452-026	
	24 Volt – 1-1/8" Bore	5200-452-028	
	90 Volt – 1-1/8" Bore	5200-452-029	
	6 Volt – 1-1/4" Bore	5200-452-032	
	90 Volt – 1-1/4" Bore	5200-452-035	
1-1	Rotor		1
	3/4" Bore	5200-751-002	
	7/8" Bore	5200-751-003	
	15/16" Bore	5200-751-004	
	1" Bore	5200-751-005	
	1-1/8" Bore	5200-751-006	
	1-1/4" Bore	5200-751-007	
1-2	Field		1
	6 Volt	5200-451-002	
	24 Volt	5200-451-004	
	90 Volt	5200-451-005	
1-3	Terminal Accessory	5311-101-001	1
1-4	Ball Bearing	166-0110	1
1-5	Retainer Ring	748-0002	1
2	Armature	5300-111-002	2
3	Autogap Accessory	5200-101-009	6
4	Bushing* - 1/2" to 1-1/4" Bore	180-0116 to 180-0128	1
5	Armature Hub	5300-541-004	1
6A	Mounting Accessory - I.M.	5102-101-001	2
6B	Mounting Accessory - O.M.	5300-101-008	1

Item	Description	Part Number	Qty.
7A	Magnet - I.M.		1
	6 Volt	5300-631-002	
	24 Volt	5300-631-003	
	90 Volt	5300-631-005	
7A-1	Terminal Accessory	5311-101-001	1
7B	Magnet - O.M. - Offset		1
	90 Volt	5300-631-014	
7B-1	Terminal Accessory	5311-101-001	1
7C	Magnet - O.M. - Flush		1
	6 Volt	5300-631-009	
	24 Volt	5300-631-010	
	90 Volt	5300-631-011	
7C-1	Terminal Accessory	5311-101-001	1
8	Conduit Box	5200-101-010	2

* See page 44 for specific part numbers.

How to Order:

1. Specify Bore Size for Item 1 and Item 4.
2. Specify Voltage for Item 1 and Item 7A, 7B or 7C.
3. Specify Inside Mounted for Item 7A and Outside Mounted (Offset) for Item 7B or Outside Mounted (Flush) for Item 7C.

Example:

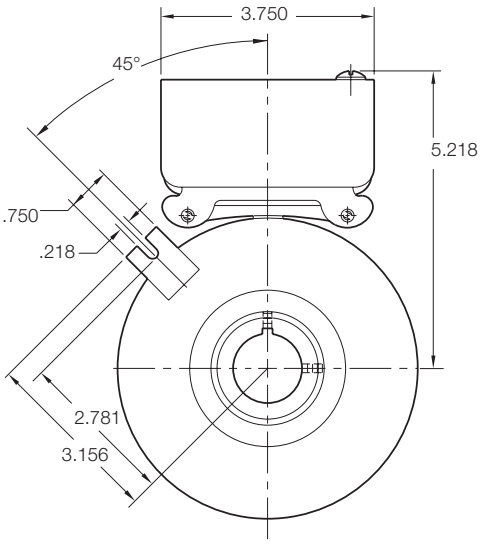
SFPBC-500 Clutch Brake Coupling per I-25546 - 90 Volt, Inside Mounted, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

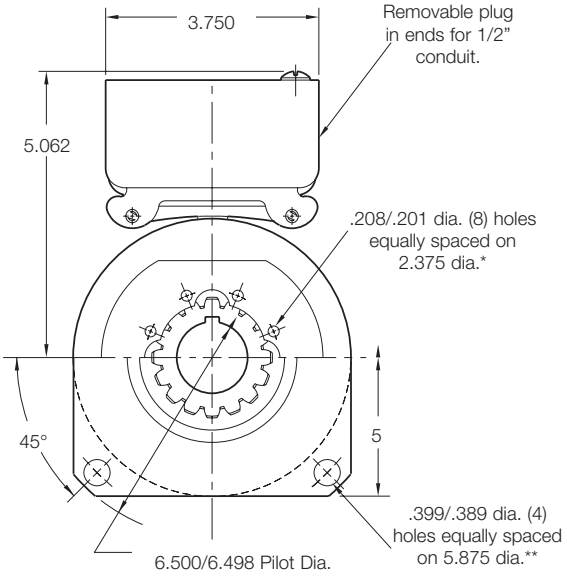
These units are CSA certified under file #LR11543.

SFPBC-500 Clutch-Brake Coupling
Heavy Duty

Drawing I-25554



Field View



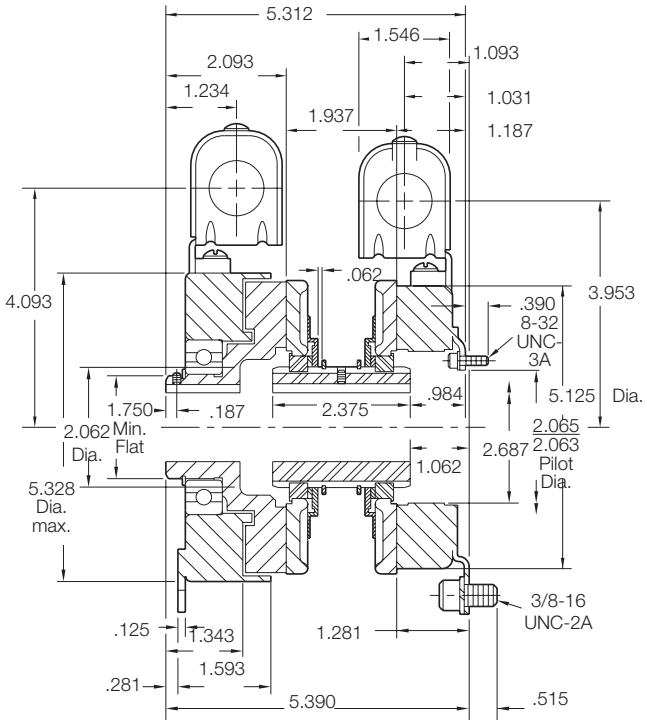
Magnet View

* Mounting holes are within .010 of true position relative to pilot diameter.

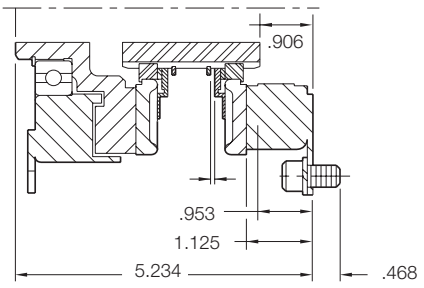
** Mounting holes are within .008 of true position relative to pilot diameter.

Customer Shall Maintain:

1. Squareness of brake mounting face with armature hub shaft within .006 T.I.R.
2. Concentricity of brake mounting pilot diameter with armature hub shaft within .010 T.I.R.
3. Concentricity of clutch magnet hub assembly shaft with armature hub shaft within .006 T.I.R.

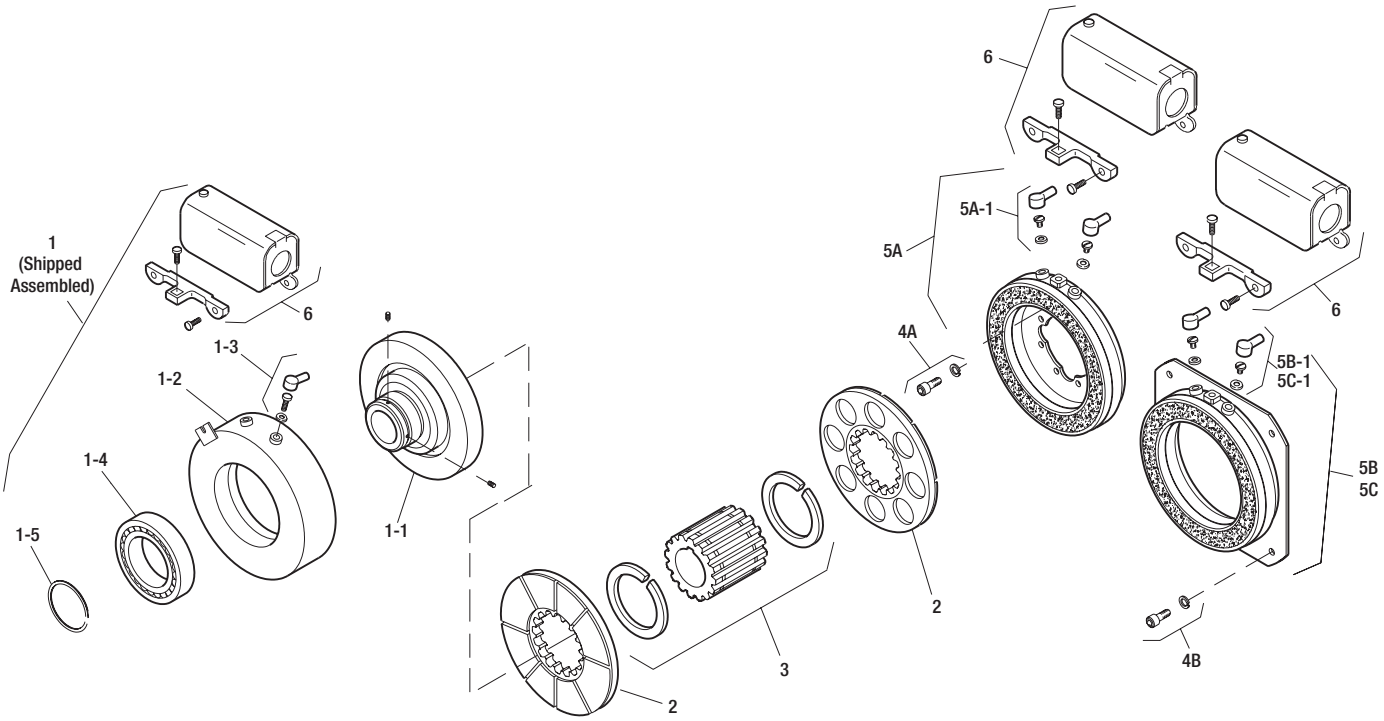


Outside Mounted Offset Backing Plate



Outside Mounted Flush Backing Plate

Shaft Size	.750 – 1.250
Static Torque Clutch	50 lb.ft.
Static Torque Brake	40 lb.ft.
Maximum Speed	4,000 RPM
Standard Voltage	D.C. 6, 24, 90



Item	Description	Part Number	Qty.
1	Field and Rotor Assembly		1
	6 Volt – 3/4" Bore	5200-452-002	
	24 Volt – 3/4" Bore	5200-452-004	
	90 Volt – 3/4" Bore	5200-452-005	
	6 Volt – 7/8" Bore	5200-452-008	
	24 Volt – 7/8" Bore	5200-452-010	
	90 Volt – 7/8" Bore	5200-452-011	
	90 Volt – 15/16" Bore	5200-452-017	
	6 Volt – 1" Bore	5200-452-020	
	24 Volt – 1" Bore	5200-452-022	
	90 Volt – 1" Bore	5200-452-023	
	6 Volt – 1-1/8" Bore	5200-452-026	
	24 Volt – 1-1/8" Bore	5200-452-028	
	90 Volt – 1-1/8" Bore	5200-452-029	
	6 Volt – 1-1/4" Bore	5200-452-032	
	90 Volt – 1-1/4" Bore	5200-452-035	
1-1	Rotor		1
	3/4" Bore	5200-751-002	
	7/8" Bore	5200-751-003	
	15/16" Bore	5200-751-004	
	1" Bore	5200-751-005	
	1-1/8" Bore	5200-751-006	
	1-1/4" Bore	5200-751-007	
1-2	Field		1
	6 Volt	5200-451-002	
	24 Volt	5200-451-004	
	90 Volt	5200-451-005	
1-3	Terminal Accessory	5311-101-001	1
1-4	Ball Bearing	166-0110	1
1-5	Retainer Ring	748-0002	1
2	Armature	5230-111-002	2
3	Armature Hub		1
	3/4" Bore	5300-541-006	
	7/8" Bore	5300-541-007	
	15/16" Bore	5300-541-008	
	1" Bore	5300-541-009	
	1-1/8" Bore	5300-541-010	
	1-1/4" Bore	5300-541-011	

Item	Description	Part Number	Qty.
4A	Mounting Accessory - I.M.	5102-101-001	2
4B	Mounting Accessory - O.M.	5300-101-008	1
5A	Magnet - I.M.		1
	6 Volt	5300-631-002	
	24 Volt	5300-631-003	
	90 Volt	5300-631-005	
5A-1	Terminal Accessory	5311-101-001	1
5B	Magnet - O.M. - Offset		1
	90 Volt	5300-631-014	
5B-1	Terminal Accessory	5311-101-001	1
5C	Magnet - O.M. - Flush		1
	6 Volt	5300-631-009	
	24 Volt	5300-631-010	
	90 Volt	5300-631-011	
5C-1	Terminal Accessory	5311-101-001	1
6	Conduit Box	5200-101-010	2

How to Order:

1. Specify Bore Size for Item 1 and Item 4.
2. Specify Voltage for Item 1 and Item 7A, 7B or 7C.
3. Specify Inside Mounted for Item 7A and Outside Mounted (Offset) for Item 7B or Outside Mounted (Flush) for Item 7C.

Example:

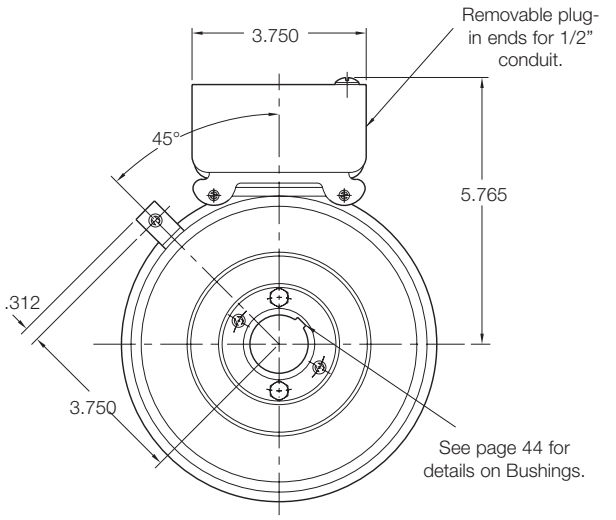
SFPBC-500 Clutch Brake Coupling per I-25554 - 90 Volt, Inside Mounted, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164.

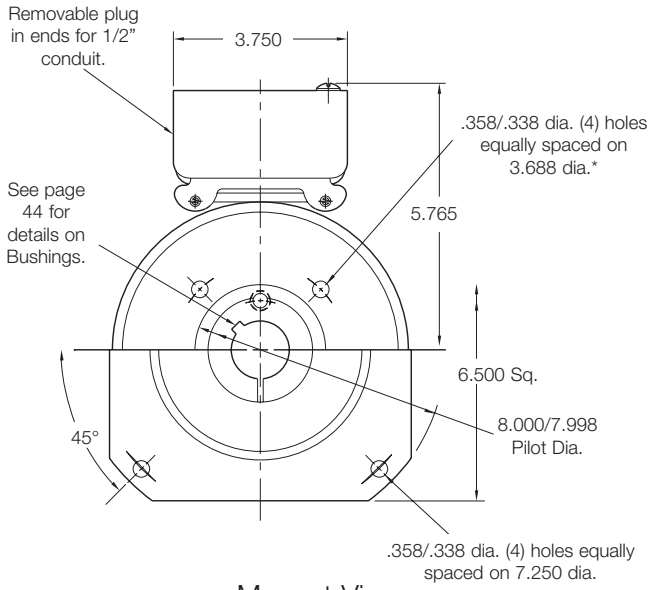
These units are CSA certified under file #LR11543.

SFPBC-650 Clutch-Brake Coupling

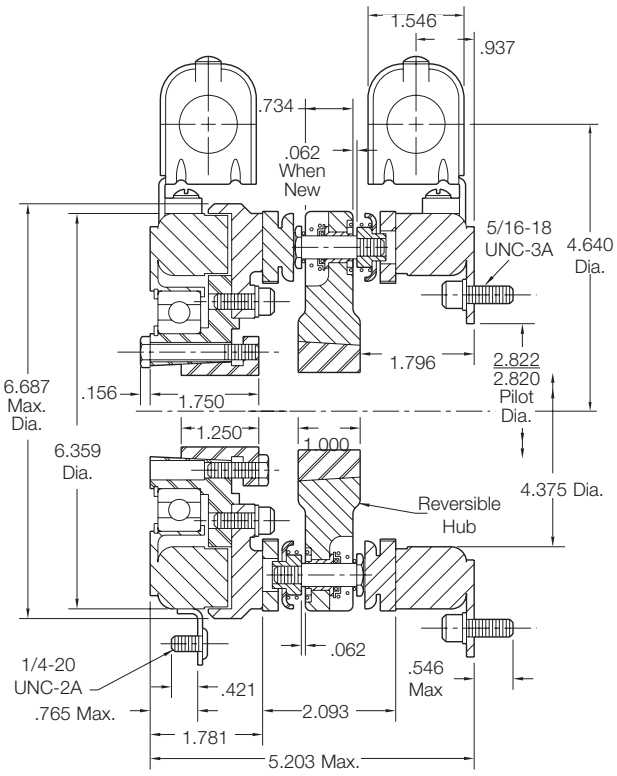
Drawing I-25751



Field View



Magnet View
(Inside & Outside Mounted)



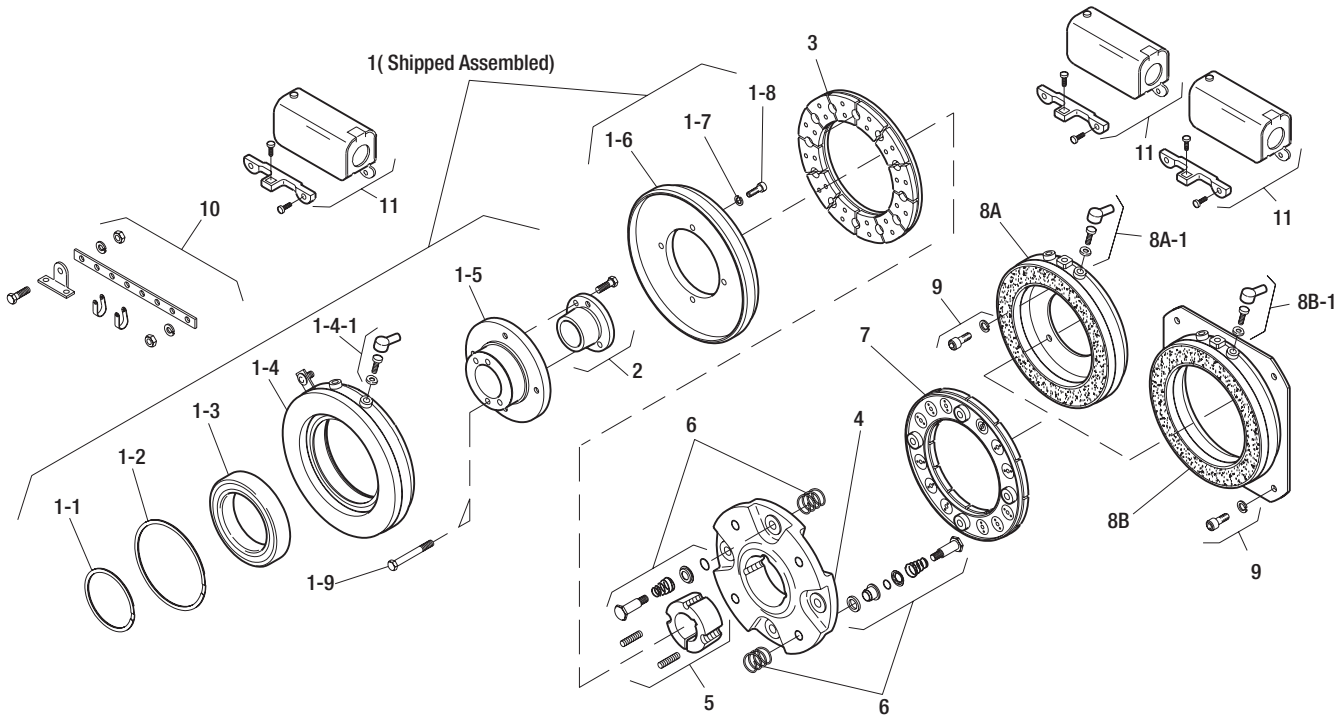
* Mounting holes are within .010 of true position relative to pilot diameter.

Shaft Size	.500 – 1.500
Static Torque Clutch	95 lb.ft.
Static Torque Brake	95 lb.ft.
Maximum Speed	3,600 RPM
Standard Voltage	D.C. 6, 24, 90

Customer Shall Maintain:

1. Squareness of brake mounting face with armature hub shaft within .006 T.I.R.
2. Concentricity of brake mounting pilot diameter with armature hub shaft within .010 T.I.R.
3. Concentricity of clutch magnet hub assembly shaft with armature hub shaft within .006 T.I.R.

SFPBC-650 Clutch/Brake Coupling



Item	Description	Part Number	Qty.
1	Field & Rotor Assembly		1
	6 Volt	5207-452-002	
	24 Volt	5207-452-005	
	90 Volt	5207-452-004	
1-1	Retainer Ring External	748-0004	1
1-2	Retainer Ring Internal	748-0104	1
1-3	Ball Bearing	166-0104	1
1-4	Field Assembly		1
	6 Volt	5281-451-002	
	24 Volt	5281-451-004	
	90 Volt	5281-451-005	
1-4-1	Terminal Accessory	5311-101-001	2
1-5	Rotor Hub	540-0614	1
1-6	Rotor Assembly	5281-751-001	1
1-7	Lockwasher	950-0355	4
1-8	Capscrew	797-0083	4
1-9	Reverse Mounting Accessory	5201-101-005	1
2	Bushing*		
	1/2" to 1-1/2" Bore	180-0002 to 180-0018	1
3	Armature Clutch	5281-111-002	1
4	Armature Hub	5207-541-002	1
5	Bushing*		
	1/2" to 1-5/8" Bore	180-0326 to 180-0344	1
6	Autogap Accessory	5181-101-010	8
7	Armature - Brake	5281-111-002	1
8A	Magnet - Inside Mounted		1
	6 Volt	5369-631-003	
	24 Volt	5369-631-006	
	90 Volt	5369-631-005	

Item	Description	Part Number	Qty.
8A-1	Terminal Accessory	5311-101-001	2
8B	Magnet - Outside Mounted		1
	6 Volt	5369-631-009	
	24 Volt	5369-631-012	
	90 Volt	5369-631-011	
8B-1	Terminal Accessory	5311-101-001	2
9	Mounting Accessory	5321-101-002	1
†10	Torque Arm Accessory	5207-101-003	1
11	Conduit Box	5200-101-010	2

* See page 44 for specific part numbers.

† Optional - not included in price.

How to Order:

1. Specify Voltage for Item 1 and Item 8.
2. Specify Bore Size for Item 2 and Item 5.
3. Specify Inside Mounted for Item 8A and Outside Mounted for Item 8B.

Example:

SFPBC-650 per I-25751 - 90 Volt, 1" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

Bushing Part Numbers

Browning Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Browning
1/2	1/8 x 1/16	180-0002	H-1
9/16	1/8 x 1/16	180-0003	
5/8	3/16 x 3/32	180-0004	
11/16	3/16 x 3/32	180-0005	
3/4	3/16 x 3/32	180-0006	
13/16	3/16 x 3/32	180-0007	
7/8	3/16 x 3/32	180-0008	
15/16	1/4 x 1/8	180-0009	
1	1/4 x 1/8	180-0010	
1-1/6	1/4 x 1/8	180-0011	
1-1/8	1/4 x 1/8	180-0012	
1-3/16	1/4 x 1/8	180-0013	
1-1/4	1/4 x 3/16	180-0014	
1-5/16	5/16 x 7/32	180-0015	
1-3/8	5/16 x 7/32	180-0016	
1-7/16	3/8 x 1/4	180-0017	H-2
1-1/2	3/8 x 7/32	180-0018	
3/4 QI-1	1/2 x 3/8	180-0026	
13/16	1/2 x 3/8	180-0027	
7/8	1/2 x 3/8	180-0028	
15/16	1/2 x 3/8	180-0029	
1	1/2 x 3/8	180-0030	
1-1/16	1/2 x 3/8	180-0031	
1-1/8	1/2 x 3/8	180-0032	
1-3/16	1/2 x 3/8	180-0033	
1-1/4	1/2 x 3/8	180-0034	
1-5/16	1/2 x 3/8	180-0035	
1-3/8	1/2 x 3/8	180-0036	
1-7/16	1/2 x 3/8	180-0037	
1-1/2	1/2 x 3/8	180-0038	
1-9/16	1/2 x 3/8	180-0039	
1-5/8	1/2 x 3/8	180-0040	
1-11/16	1/2 x 3/8	180-0041	
1-3/4	1/2 x 3/8	180-0042	
1-13/16	1/2 x 3/8	180-0043	
1-7/8	1/2 x 3/8	180-0044	
1-15/16	1/2 x 3/8	180-0045	
2	1/2 x 3/8	180-0046	QI-2
2-1/16	1/2 x 3/8	180-0047	
2-1/8	1/2 x 3/4	180-0048	
2-3/16	1/2 x 23/32	180-0049	
2-1/4	1/2 x 11/16	180-0050	
2-5/16	5/8 x 5/16	180-0051	
2-3/8	5/8 x 5/16	180-0052	
2-7/16	5/8 x 5/16	180-0053	
2-1/2	5/8 x 5/16	180-0054	
2-9/16	5/8 x 5/16	180-0055	
2-5/8	5/8 x 5/16	180-0056	
2-11/16	5/8 x 5/16	180-0057	

Dodge Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Dodge
1/2	1/8 x 1/16	180-0101	1210
9/16	1/8 x 1/16	180-0102	
5/8	3/16 x 3/32	180-0103	
11/16	3/16 x 3/32	180-0104	
3/4	3/16 x 3/32	180-0105	
13/16	3/16 x 3/32	180-0106	
7/8	3/16 x 3/32	180-0107	
5/16	1/4 x 1/8	180-0108	
1	1/4 x 1/8	180-0109	
1-1/16	1/4 x 1/8	180-0110	
1-1/8	1/4 x 1/8	180-0111	
1-3/16	1/4 x 1/8	180-0112	
1-1/4	1/4 x 1/8	180-0113	
1/2	1/8 x 1/16	180-0116	1215
9/16	1/8 x 1/16	180-0117	
5/8	3/16 x 3/32	180-0118	
11/16	3/16 x 3/32	180-0119	
3/4	3/16 x 3/32	180-0120	
13/16	3/16 x 3/32	180-0121	
7/8	3/16 x 3/32	180-0122	
15/16	1/4 x 1/8	180-0123	
1	1/4 x 1/8	180-0124	
1-1/16	1/4 x 1/8	180-0125	
1-1/8	1/4 x 1/8	180-0126	
1-3/16	1/4 x 1/8	180-0127	
1-1/4	1/4 x 1/8	180-0128	
1/2	1/8 x 1/16	180-0131	1615
9/16	1/8 x 1/16	180-0132	
5/8	3/16 x 3/32	180-0133	
11/16	3/16 x 3/32	180-0134	
3/4	3/16 x 3/32	180-0135	
13/16	3/16 x 3/32	180-0136	
7/8	3/16 x 3/32	180-0137	
15/16	1/4 x 1/8	180-0138	
1	1/4 x 1/8	180-0139	
1-1/16	1/4 x 1/8	180-0140	
1-1/8	1/4 x 1/8	180-0141	
1-3/16	1/4 x 1/8	180-0142	
1-1/4	1/4 x 1/8	180-0143	
1-5/16	5/16 x 5/32	180-0144	
1-3/8	5/16 x 5/32	180-0145	
1-7/16	3/8 x 3/16	180-0146	
1-1/2	3/8 x 3/16	180-0147	
1-9/16	3/8 x 3/16	180-0148	
1-5/8	3/8 x 3/16	180-0149	
1/2	1/8 x 1/16	180-0155	2012
9/16	1/8 x 1/16	180-0156	
5/8	3/16 x 3/32	180-0157	
11/16	3/16 x 3/32	180-0158	
3/4	3/16 x 3/32	180-0159	
13/16	3/16 x 3/32	180-0160	
7/8	3/16 x 3/32	180-0161	
15/16	1/4 x 1/8	180-0162	
1	1/4 x 1/8	180-0163	
1-1/16	1/4 x 1/8	180-0164	
1-1/8	1/4 x 1/8	180-0165	
1-3/16	1/4 x 1/8	180-0166	
1-1/4	1/4 x 1/8	180-0167	

Bushing Part Numbers

Dodge Bushing

Shaft Size	Keyway Size	Bushing Number	
		Warner Electric	Dodge
1/2	1/8 x 1/16	180-0326	1610
9/16	1/8 x 1/16	180-0327	
5/8	3/16 x 3/32	180-0328	
11/16	3/16 x 3/32	180-0329	
3/4	3/16 x 3/32	180-0330	
13/16	3/16 x 3/32	180-0331	
7/8	3/16 x 3/32	180-0332	
15/16	1/4 x 1/8	180-0333	
1	1/4 x 1/8	180-0334	
1-1/16	1/4 x 1/8	180-0335	
1-1/8	1/4 x 1/8	180-0336	
1-3/16	1/4 x 1/8	180-0337	
1-1/4	1/4 x 1/8	180-0338	
1-5/16	5/16 x 5/32	180-0339	
1-3/8	5/16 x 5/32	180-0340	
1-7/16	3/8 x 3/16	180-0341	
1-1/2	3/8 x 3/16	180-0342	
1-9/16	3/8 x 3/16	180-0343	
1-5/8	3/8 x 3/16	180-0344	
1/2	1/8 x 1/16	180-0410	1008
9/16	1/8 x 1/16	180-0411	
5/8	3/16 x 3/32	180-0412	
11/16	3/16 x 3/32	180-0413	
3/4	3/16 x 3/32	180-0414	
13/16	3/16 x 3/32	180-0415	
7/8	3/16 x 3/32	180-0416	
15/16	1/4 x 1/16	180-0417	
1	1/4 x 1/16	180-0418	
1/2	1/8 x 1/16	180-0421	1310
9/16	1/8 x 1/16	180-0422	
5/8	3/16 x 3/32	180-0423	
11/16	3/16 x 3/32	180-0424	
3/4	3/16 x 3/32	180-0425	
13/16	3/16 x 3/32	180-0426	
7/8	3/16 x 3/32	180-0427	
15/16	1/4 x 1/16	180-0428	
1	1/4 x 1/16	180-0429	
1-1/16	1/4 x 1/8	180-0430	
1-1/8	1/4 x 1/8	180-0431	
1-3/16	1/4 x 1/8	180-0432	
1-1/4	1/4 x 1/8	180-0433	
1-5/16	15/16 x 5/32	180-0434	
1-3/8	15/16 x 5/32	180-0435	

Warranty

Warner Electric LLC 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 LLC'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 LLC factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric LLC, 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.

Warner Electric LLC's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric LLC 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 LLC 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 EXPRESSED 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.

Changes in Dimensions and Specifications
All dimensions and specifications shown in Warner Electric catalogs are subject to change without notice. Weights do not include weight of boxing for shipment. Certified prints will be furnished without charge on request to Warner Electric.

Warner® Electric

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P-0202-WE 2/17 Printed in USA

SF-120, SF-170, SF-250, SF-400 Bearing Mounted, Flange Mounted, SFC-120, SFC-170, SFC-250, SFC-400 Bearing Mounted, Flange Mounted

Installation Instructions

P-0200-WE
819-0481

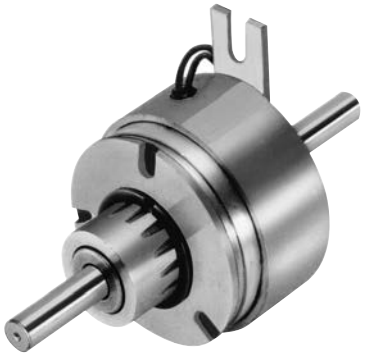
Warner® Electric

An **Altra Industrial Motion** Company

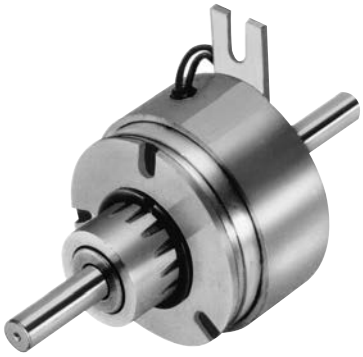
Contents

Follow the installation instructions in this manual carefully to ensure safe, reliable operation. All stated or implied manufacturer warranties are voided if this product is not installed in accordance with these instructions.

⚠WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.



SF-120



SF-170

SF-250

SF-400

Mounting Examples and Options

Warner Electric clutches are simple to install. They consist of components which must be assembled on the shaft and properly attached to the machine frame.

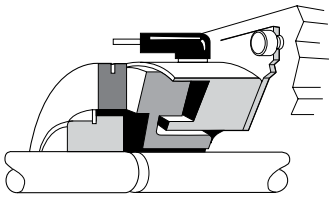
Various customer furnished drive components must be assembled with the clutch. Pulleys, sprockets and bearings/pillow blocks for shafting may be essential elements of a complete drive system. Squareness and concentricity tolerances are specified where critical to proper clutch/brake functioning.

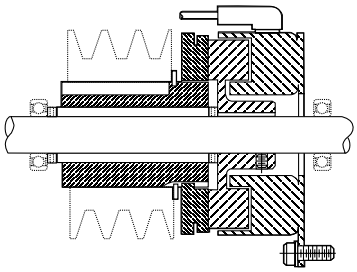
The illustrations show SF, and SFC Flange Mounted and Bearing Mounted units mounted with customer supplied bearing mounted pulley. In each illustration the drive pin for a normal duty clutch is shown. In this manner the pulley will support the armature.

SF Clutches and SFC Clutch Couplings

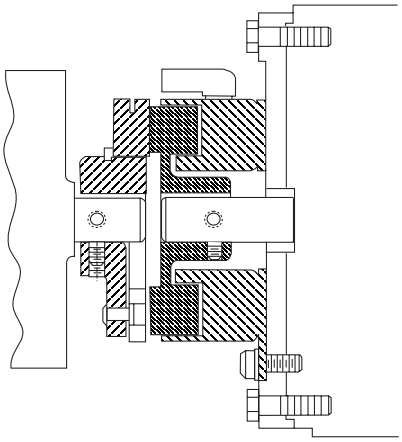
Flange Mounting

Concentricity tolerances, held by customer, are critical. Pilot surface required on machine member. Eliminates bearings. Good design for high speed applications.





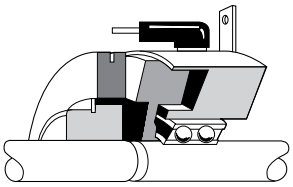
SF Clutch
Typical Installation

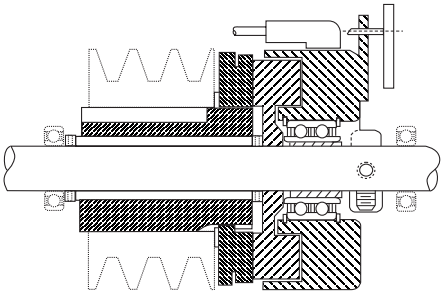


SFC
Clutch Coupling
Typical Installation

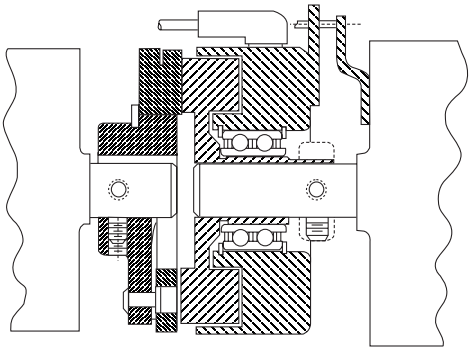
Bearing Mounting

Bearing supports field and holds close tolerances required between rotor and field. Easy to install and priced about the same as the flange mounted design.





SF Clutch
Typical Installation



SFC Clutch Coupling
Typical Installation

Clutch SF-120, SF-170, SF-250, SF-400 Installation Instructions

A. Installing the Conduit Box

To install the conduit box on the size 400 units, refer to the instructions supplied with conduit box.

B. Mounting the Field-and-Rotor Assembly

Flange-Mounted Units

The fields and rotors are shipped separately for flange-mounted units. On some applications it may be necessary to mount the rotor first, and then bring the field into position. In other instances the field may be mounted first, and then the rotor (mounted on a shaft) will be inserted into place.

1. Care must be taken in selecting the location for mounting the field assembly. Pilot diameters are machined on the field mounting flange to aid in holding the field in the proper position.

2. An appropriate pilot diameter must be provided on the mounting surface as well. (Figure 1)

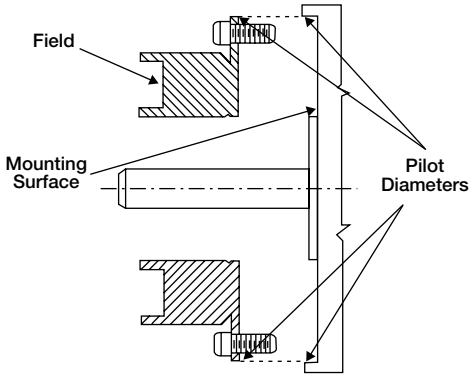


Figure 1

3. The field assembly is then fastened in place with capscrews and lockwashers. (Figure 2)

4. After the unit is in place, the mounting face and pilot must be square and concentric with the shaft in accordance with the tolerances listed on the drawings.

5. Insert a key into the shaft keyway.

6. Slide the rotor assembly onto the shaft over the key.

Figure 2

7. Secure the assembly in this position by alternately tightening the two setscrews.

8. Position the field and rotor in accordance with the overall axial dimension shown on the illustration drawings for correct size unit. Holding this dimension will assure the proper clearance between the field and rotor.

Bearing-Mounted Units

In bearing-mounted units, the field and rotor are shipped as an assembly. Either this assembly or the armature and hub assembly can be mounted on the shaft first, depending on the characteristics on each application.

1. Insert the key into the shaft keyway.

2. Slide the rotor assembly over the key and on to the shaft.

3. Secure the field-and-rotor assembly in place by alternately tightening the two set screws.

   Note: The field-and-rotor assemblies for **120 units** and **250 units, 1/2 inch bore,** are held in place by set screws inserted into a set collar on the end of the rotor hub extension. Secure these assemblies in place by alternately tightening the screws.

4. A tab or torque arm on the field is used to prevent rotation of the field caused by normal bearing drag. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however, should the field be so tightly restrained as to preload the bearing.

C. Assembling the Armature and Hub

The clutch units contain an extended armature hub mounted on sleeve bearings. These hubs may be adapted to a customer-supplied sheave, sprocket, or gear for transmitting power to a parallel shaft.

1. The antibacklash armatures are shipped assembled and ready to be installed. See Section D.

2. The standard armature and hub must be assembled before it can be installed. Assemble the armatures so that the shiny surfaces size (120 and 170) or backing plate sides size (250 and 400) are against the hub retainer ring (Figure 3).

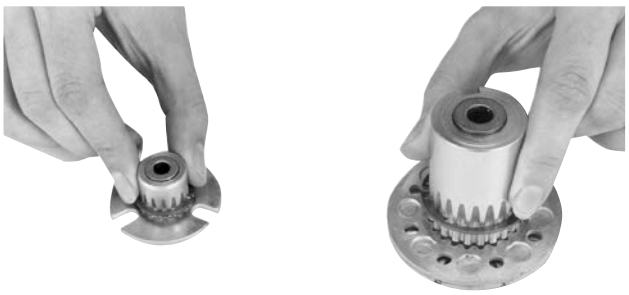


Figure 3

3. An optional release spring may be used with the standard armatures and hubs. The release spring forces the armature back against the hub retainer ring when the magnet coil is de-energized.

   Follow these instructions to assemble the armature and hub when the optional release springs are being used.

   SF-170
   Assemble the splined armature to the hub. The shiny side of the armature should be against the hub retainer ring.

   Assemble the release spring into the groove in the hub spline. The curved portion of the spring should be against the armature (Figure 4).

   SF-250

   Insert the hub, with snap ring intact, into the armature from the backing plate side. (See Figure 5)

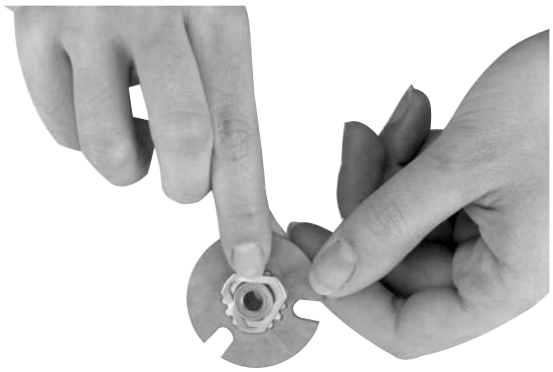


Figure 4

Insert both release springs into the holes of the backing plate. Bow the springs as necessary to insert them into the armature. (See Figure 6)

Figure 5

Figure 6

SF-400

Insert the release springs into the backing plate holes of the armature. Bow the springs as necessary to insert them into the armature. (See Figure 7)

Figure 7

Remove the snap ring from the hub.

Insert the hub, with the setscrew end first, into the armature from the segmented side. Slide the hub into the armature until the release springs engage the snap ring groove. (See Figure 8)

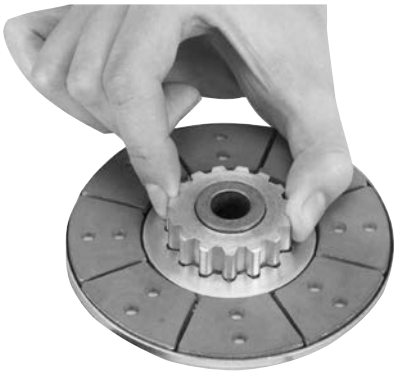


Figure 8

Assemble the snap ring into the groove in the hub, clamping the release spring against the end of the spline. (See Figure 9)

Figure 6

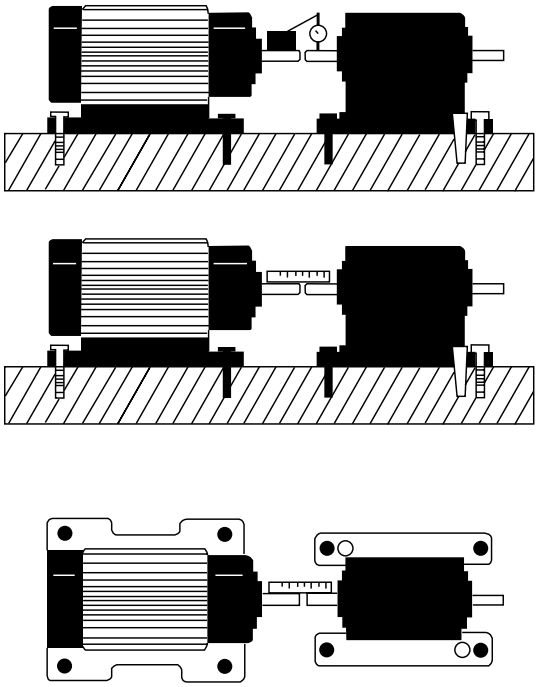
D. Mounting the Armature Assembly

1. Slide the armature assembly onto the shaft. Position the assembly in accordance with the overall axial dimensions given on the illustration drawings.

2. The armature-hub assembly can be held in this position with retainer rings, a set collar, a shoulder on the shaft, or any combination of these. The hub may need to be repositioned as wear occurs with time.

A. Aligning the Shafts

In order for the clutch-coupling unit to operate properly, the mounting shafts of the motor and reducer or other hardware must be aligned with respect to each other before the unit is installed. The two shafts should be concentric with each other within .004 T.I.R., and angular alignment should be within 1/2 degree.



1. Use a straight-edge to check if the shafts are aligned with each other. For a more precise indication of alignment, use a dial indicator. (Figure 10)

2. Adjust the position of the motor, reducer, or other hardware as required to achieve the correct alignment.

3. To be sure the shafts stay in alignment, drill holes for tapered dowel pins through the mounting bases of the motor, reducer, or other hardware and into the mounting surfaces. This procedure will ensure that, after the clutch-coupling has been installed, the shafts can easily be placed in proper alignment again by lining up the holes and secured by inserting the dowel pins.

B. Installing the Conduit Box

To install the conduit box on the size 400 units, refer to the instructions supplied with conduit box.

C. Mounting the Field-and-Rotor Assembly Flange-Mounted Units

The fields and rotors are shipped separately for flange-mounted units. On some applications it will be necessary to mount the rotor first, and then bring the field into position. In other instances the field will be mounted first, and then the rotor (mounted on a shaft) will be inserted into place.

1. Care must be taken in selecting the location for mounting the field assembly. Pilot diameters are machined on the field mounting flange to aid in holding the field in the proper position. (Figure 1)

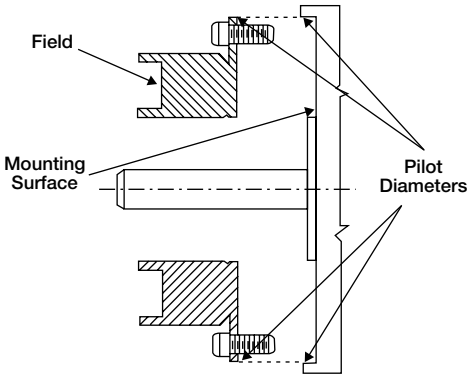


Figure 1

2. An appropriate pilot diameter must be provided on the mounting surface as well.

3. The field assembly is then fastened in place with capscrews and lockwashers. (Figure 2)

Figure 2

4. After the unit is in place, the mounting face and pilot diameter must be square and concentric with the shaft in accordance with the tolerances listed on the drawings.
5. Insert a key into the shaft keyway.

6. Slide the rotor assembly onto the shaft over the key.

7. Secure the assembly in this position by alternately tightening the two setscrews.

8. Position the field and rotor in accordance with the overall axial dimension shown on the illustration drawings. Holding this dimension will assure the proper clearance between the field and rotor.

Bearing-Mounted Units

In bearing-mounted units, the field and rotor are shipped as an assembly. Either this assembly or the armature and hub assembly can be mounted on the shaft first, depending on the characteristics of each application.

1. Insert the key into the shaft keyway.

2. Slide the rotor assembly over the key and on to the shaft.

3. Secure the field-and-rotor assembly in place by alternately tightening the two set screws.

   Note: The field-and-rotor assemblies for **120 units** and **250 units, 1/2 inch bore,** are held in place by set screws inserted into a set collar on the end of the rotor hub extension. Secure the assembly in place by alternately tightening the screws.

4. A tab or torque arm on the field is used to prevent rotation of the field caused by normal bearing drag. Insert either a pin in the U-slot or a fork around the torque arm to prevent this rotation. Under no circumstances, however, should the field be so tightly restrained as to preload the bearing.

C. Assembling the Armature and Hub

1. The antibacklash armatures are shipped assembled and ready to be installed. See Section D.

2. The standard armature and hub must be assembled before it can be installed. Assemble the armatures so that the shiny surfaces size (120 and 170) or backing plate sides size (250 and 400) are against the hub retainer ring (Figure 3).

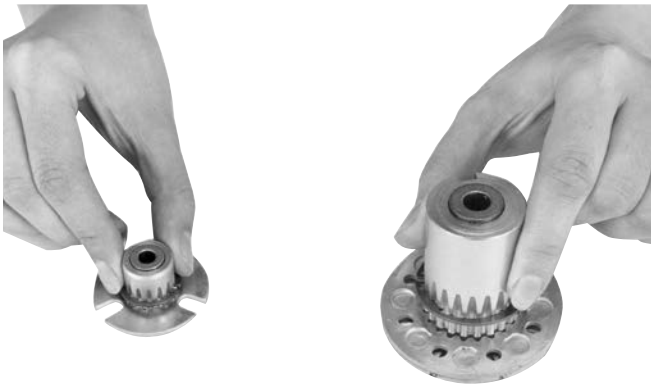


Figure 3

3. An optional release spring may be used with the standard armatures and hubs. The release spring forces the armature back against the hub retainer ring when the magnet coil is de-energized.

   Follow these instructions to assemble the armature and hub when the optional release springs are being used.

SFC-170

Assemble the splined armature to the hub. The shiny side of the armature should be against the hub retainer ring.

Assemble the release spring into the groove in the hub spline. The curved portion of the spring should be against the armature (Figure 4).

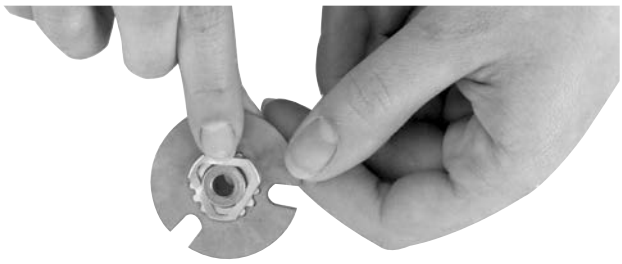
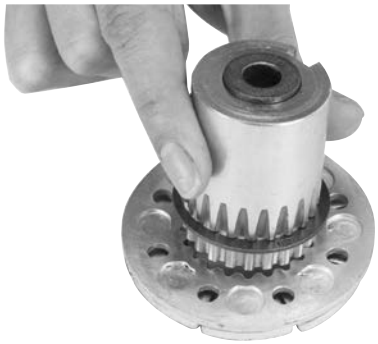


Figure 4

SFC-250

Insert the hub, with snap ring intact, into the armature from the backing plate side. (See Figure 5)

Figure 5



Insert both release springs into the holes of the backing plate. Bow the springs as necessary to insert them into the armature. (See Figure 6)

Figure 6

SFC-400

Insert the release springs into the backing plate holes of the armature. Bow the springs as necessary to insert them into the armature. (See Figure 7)

Figure 7

Remove the snap ring from the hub.

Insert the hub, with the setscrew end first, into the armature from the segmented side. Slide the hub into the armature until the release springs engage the snap ring groove. (See Figure 8.)

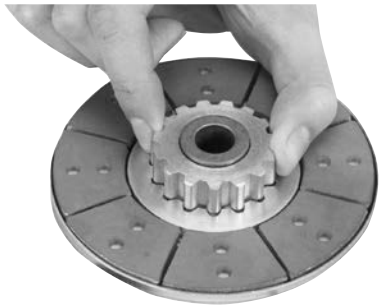


Figure 8

Assemble the snap ring into the groove in the hub, clamping the release spring against the end of the spline. (See Figure 9.)

Figure 9

D. Mounting the Armature Assembly

1. SFC 250 and 400 size units.

   Insert a key in the keyslot of the shaft and slide the armature assembly onto the shaft.

2. (SFC120 do not use keyway)

   Position the assembly to allow a gap of about 1/64 inch between the faces of the armature and magnet. The overall axial dimension should be in accordance with the dimensions specified on the illustration drawings.

3. Secure the assembly in this position by alternately tightening the two setscrews in the hub.

4. The hub may need to be repositioned as wear occurs with time.

Electrical Coil Data

Unit Size	SF/SFC 120			SF/SFC 170		
Voltage – DC	6	24	90	6	24	90
Resistance @ 20°C — Ohms	6.32	104	1386	6.96	111.2	1506
Current — Amperes	.949	.230	.065	.861	.215	.060
Watts	5.69	5.52	5.85	5.85	5.16	5.37
Coil Build-up — Milliseconds	12	12	11	17	17	16
Coil Decay — Milliseconds	8	8	7	8	7	6
Unit Size	**SF/SFC 250**			**SF/SFC 400**		
Voltage – DC	6	24	90	6	24	90
Resistance @ 20°C — Ohms	5	76.4	1079	4.88	73	1087
Current — Amperes	1.2	.314	.084	1.23	.322	.083
Watts	7.2	7.5	7.51	7.39	7.96	7.45
Coil Build-up — Milliseconds	48	48	44	154	154	154
Coil Decay — Milliseconds	15	15	13	62	60	55

Scan to Watch Clutch & Brake Electrical Troubleshooting Video
https://p.widencdn.net/byvbde

Notes: Build-up time equals current to approximately 90% of steady state value and flux to 90%.

Decay time equals current to approximately 10% of steady state value and flux to 10%.

Approximately because current leads or lags flux by a small amount.

Burnishing and Maintenance

Burnishing

Intimate metal to metal contact is essential between the armature and the metal rings (poles) of the magnet or rotor. Warner Electric clutches and brakes leave the factory with the friction material slightly undercut to assure good initial contact.

Normally, the desired wearing-in process occurs naturally as the surfaces slip upon engagement. The time for wear-in, which is necessary to obtain the ultimate torque of the unit, will vary depending on speed, load, or cycle duty.

If maximum torque is required immediately after installation, the unit should be burnished by slipping the friction surfaces together at reduced voltage. It is recommended that the burnishings be done right on the application, if at all possible.

Burnishing at high speed will result in a smoother wear-in pattern and reduce the time for burnishing. The voltage should be set at approximately 30% or 40% of the rated value.

The unit should be cycled on and off to allow sufficient time between slip cycles to prevent overheating.

When a Warner Electric brake or clutch is properly assembled and installed, no further servicing, lubrication, or maintenance should be required throughout the life of the unit.

Maintenance

Wear Pattern: Wear grooves appear on the armature and magnet surfaces. This is a normal wear condition, and does not impair functioning of the unit. Normally, the magnet and armature, as a mating pair, will wear at the same rate. It is the usual recommendation that both components be replaced at the same time.

Remachining the face of a worn armature is not recommended. If a replacement armature is to be used with a used magnet, it is necessary to remachine the worn magnet face. In refacing a magnet: (1) machine only enough material to clean up the complete face of the magnet; (2) hold the face within .005" of parallel with the mounting plate; and (3) undercut the molded facing material .001" - .003" below the metal poles.

Scan to Watch Normal Wear Patterns for Warner Electric Friction Clutches and Brakes Video
https://p.widencdn.net/glqyk6

Heat: Excessive heat and high operating temperatures are causes of rapid wear. Units, therefore, should be ventilated as efficiently as possible, especially if the application requires fast, repetitive cycle operation.

Foreign Materials: If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, shielding of the brake may be necessary if maximum life is to be obtained.

Where units are used near gear boxes or transmissions requiring frequent lubrication, means should be provided to protect the friction surfaces from oil and grease to prevent serious loss of torque.

Oil and grease accidentally reaching the friction surfaces may be removed by wiping with a rag dampened with a suitable cleaner, which leaves no residue. In performing this operation, do not drench the friction material.

If the friction materials have been saturated with oil or grease, no amount of cleaning will be completely effective. Once such a unit has been placed back in service, heat will cause the oil to boil to the surface, resulting in further torque loss.

Torque Loss: If a brake or clutch slips or loses torque completely, the initial check should be the input voltage to the magnet as follows:

90-Volt Series: Connect a DC voltmeter with a range of 0-100 or more directly across the magnet terminals. With the power on and the potentiometer turned up, a normal reading is 90 volts, although 85 to 95 is satisfactory. The reading should drop as the potentiometer control is adjusted counterclockwise.

24-Volt Series: Use a DC voltmeter with a range of 0-30 volts or more. A normal reading is approximately 22-26 volts.

6-Volt Series: Use a DC voltmeter of approximately 0-15 volt range. A normal reading is from 5.5 to 6.5 volts.

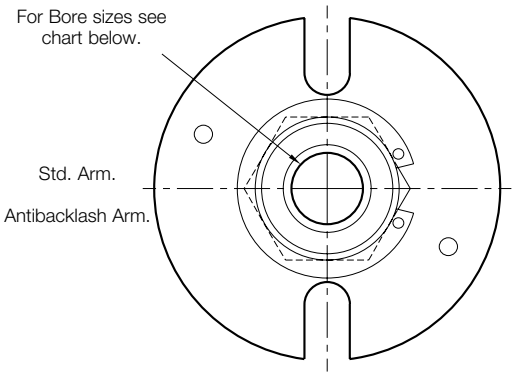
The above checks normally are sufficient. Further checks may be made as follows: a low range ammeter, when connected in series with one magnet lead, will normally indicate approximately .40 amperes for the 90 volt units, 1.0 ampere for the 24 volt, and 3.5 amperes for the 6 volt series. These readings are with the power on and the potentiometer control in the maximum position.

Ohmmeter checks should be made with the power off and the circuit open (to be certain, disconnect one lead to the magnet). Average resistance for the 90 volt series is 220 ohms; for the 24 volt, 20 ohms; and for the 6 volt series, 1.5 ohms. A very high or infinite resistance reading would indicate an open coil.

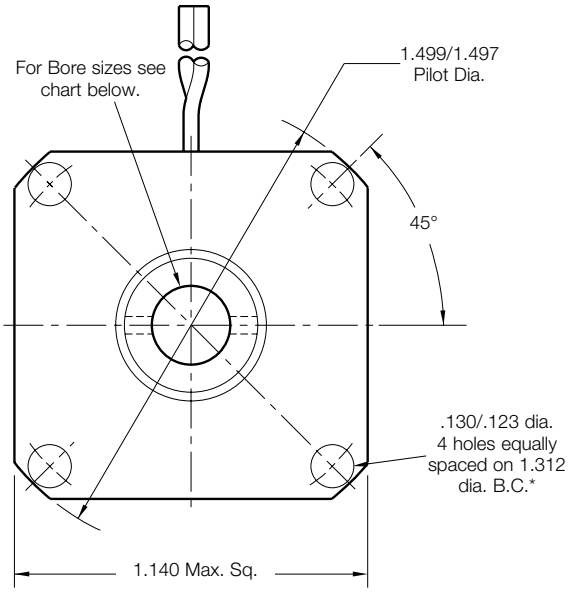
If the above checks indicate that the proper voltage and current is being supplied to the magnet, mechanical parts should be checked to assure that they are in good operating condition and properly installed.

NOTES

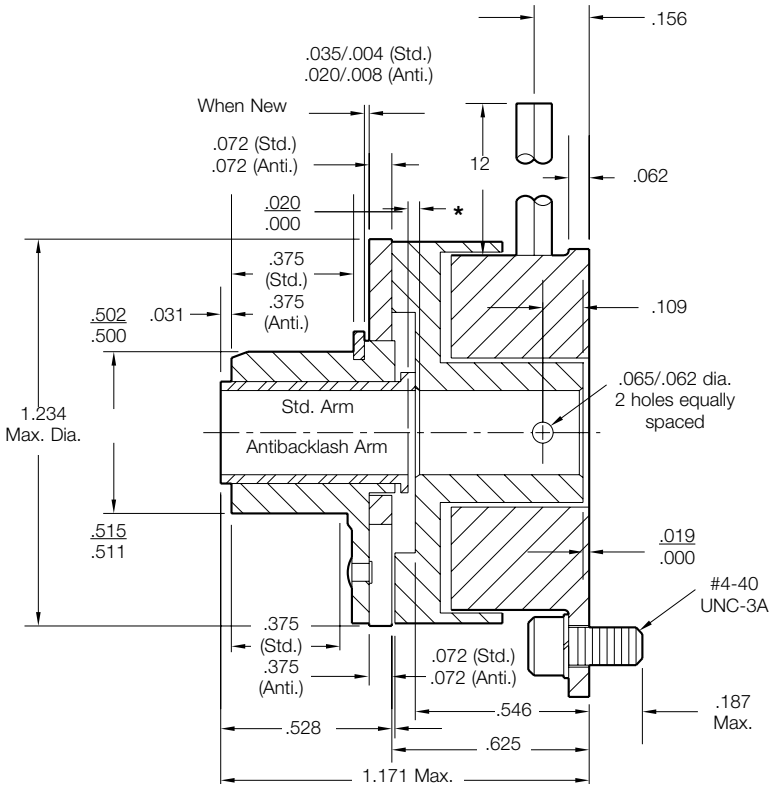
SF-120 Clutch Flange Mounted



Armature View



Field View



* Mounting holes are within .006 of true position relative to pilot diameter.

Bore Dimensions

Rotor Bore Dia.	Armature Bore Dia.
.188/.187	.195/.190
.251/.250	.257/.252
.313/.312	—

Customer Shall Maintain:

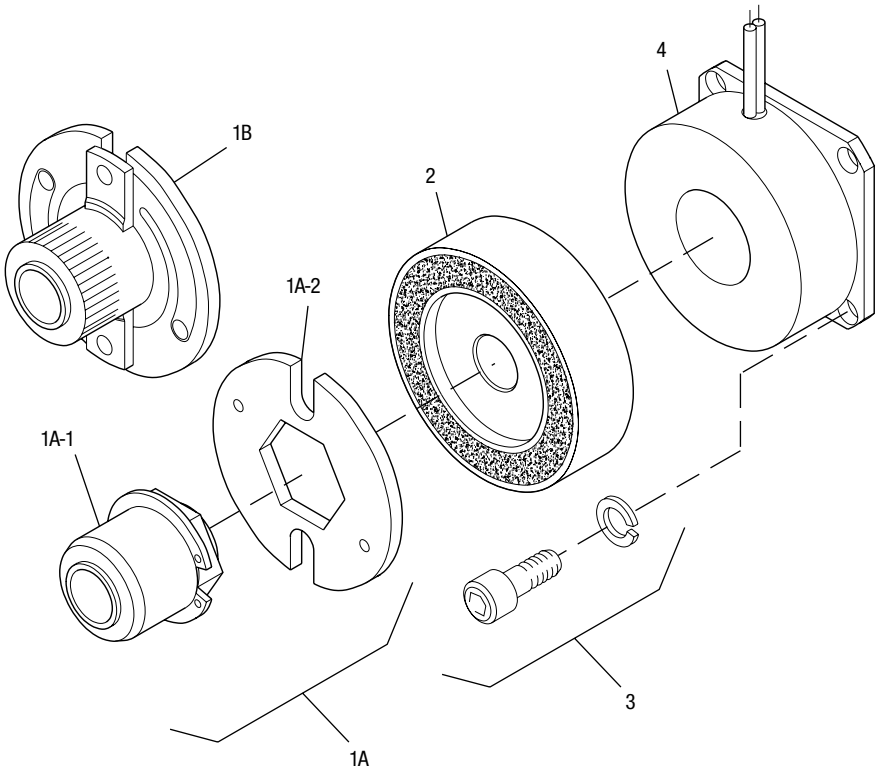
1. Squareness of field mounting face with shaft with .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.

Armature Shaft	.187 – .250
Rotor Shaft	.187 – .312
Static Torque	5 lb. in.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-120 Clutch Flange Mounted – Outside Mounted

Drawing I-25508



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	3/16” Bore	5602-541-009	
	1/4” Bore	5602-541-008	
1A-2	Armature	110-0110	1
1B	Antibacklash Armature		1
	3/16” Bore	5602-111-002	
	1/4” Bore	5602-111-003	
	5/16” Bore	5602-111-007	
2	Rotor		1
	3/16” Bore	5602-751-004	
	1/4” Bore	5602-751-002	
	5/16” Bore	5602-751-003	
3	Mounting Accessory	5101-101-001	1
4	Field		1
	6 Volt	5602-451-003	
	24 Volt	5602-451-005	
	90 Volt	5602-451-007	

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 4.

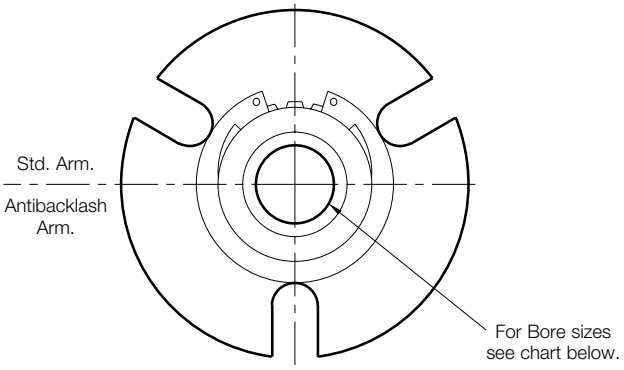
Example:

SF-120 Clutch per I-25508 - 90 Volt
Standard Armature
1/4” Armature Hub Bore
1/4” Rotor Bore

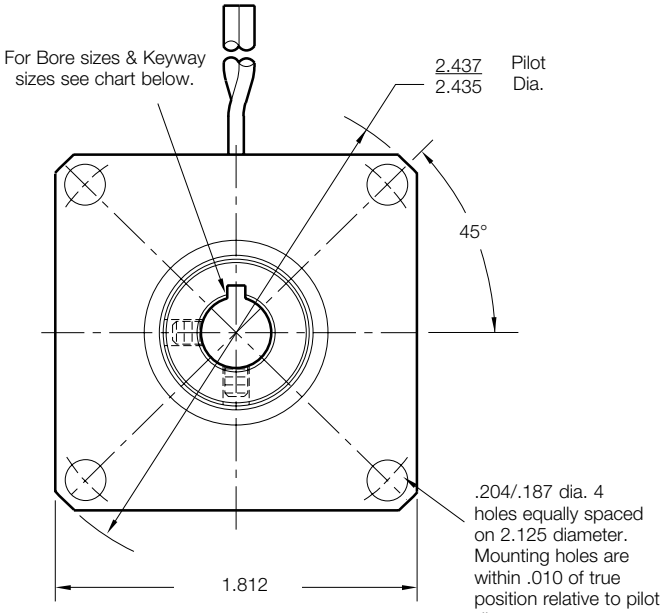
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

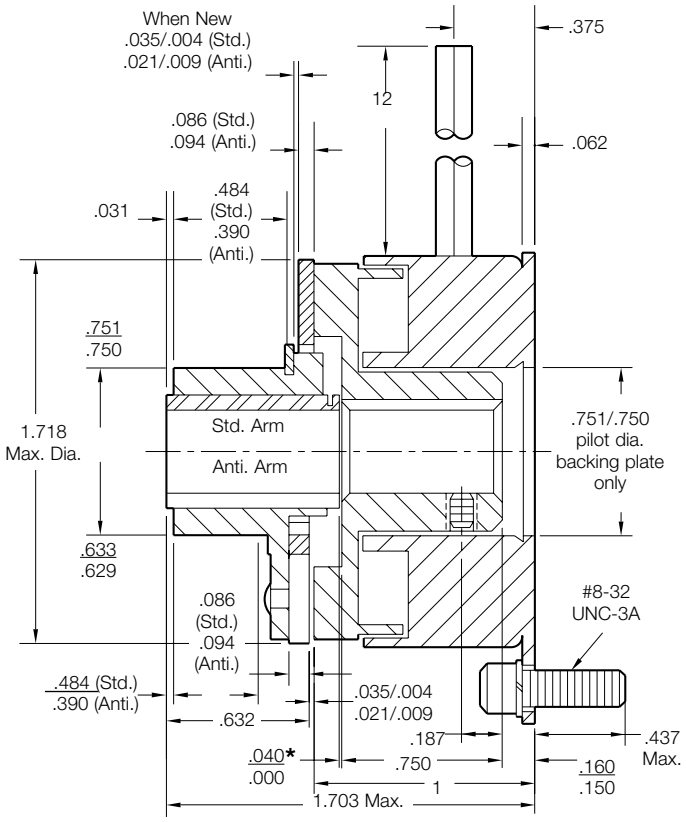
SF-170 Clutch Flange Mounted



Armature View



Field View



*Diameter over knurl.

Rotor Bore Dimensions

Rotor Bore Dia.	Keyway	Armature Bore Dia.
.251/.250	.062/.031	.2522/.2507
.313/.312	.062/.031	.3145/.3130
.376/.375	.093/.047	.3773/.3755

Armature Shaft	.250 – .375
Rotor Shaft	.250 – .375
Static Torque	15 lb.in.
Maximum Speed	5,000 rpm
Standard Voltage	D.C. 6, 24, 90

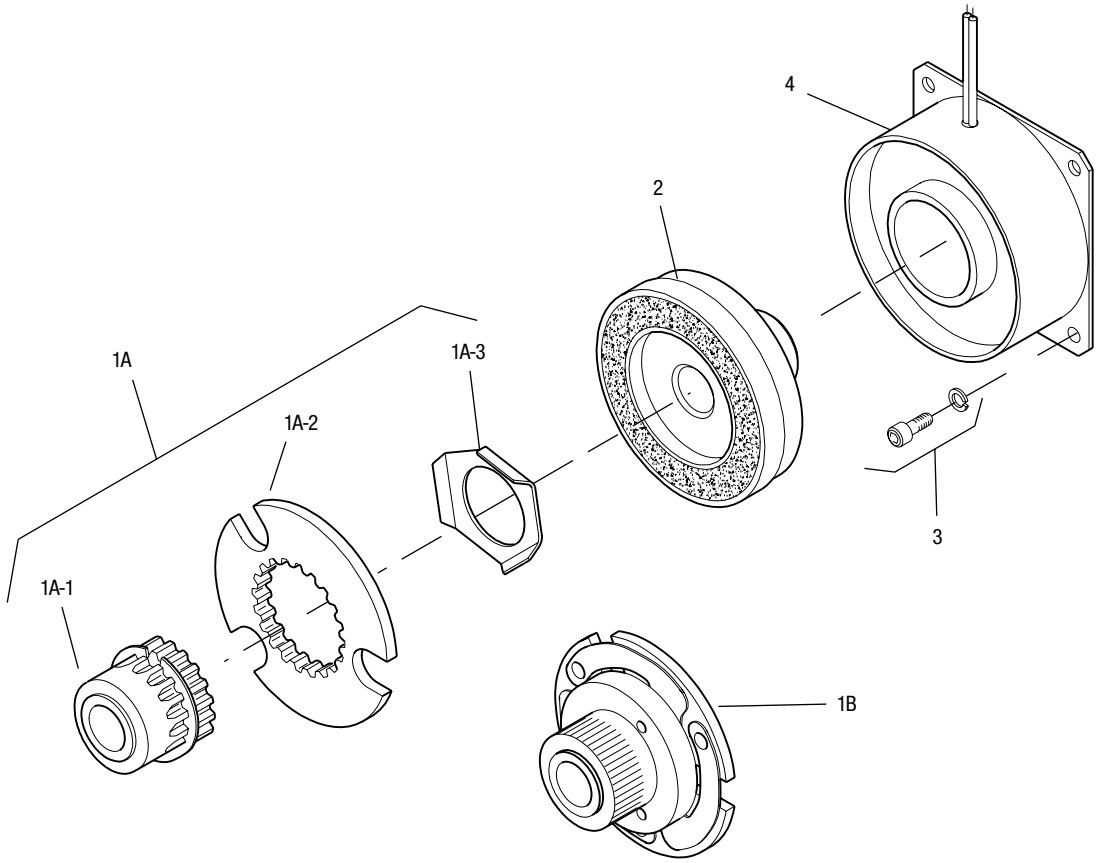
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Squareness of field mounting face with shaft with .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.

SF-170 Clutch Flange Mounted – Outside Mounted

Drawing I-25754



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	1/4” Bore	5123-541-002	
	5/16” Bore	5123-541-003	
	3/8” Bore	5123-541-004	
1A-2	Armature	110-0111	1
1A-3	Release Spring	808-0019	1
1B	Antibacklash Armature		1
	1/4” Bore	5603-111-033	
	5/16” Bore	5603-111-034	
	3/8” Bore	5603-111-035	
2	Rotor		1
	1/4” Bore	5603-751-028	
	5/16” Bore	5603-751-029	
	3/8” Bore	5603-751-030	
3	Mounting Accessory	5102-101-001	1
4	Field		1
	6 Volt	5603-451-047	
	24 Volt	5603-451-049	
	90 Volt	5603-451-051	

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 4.

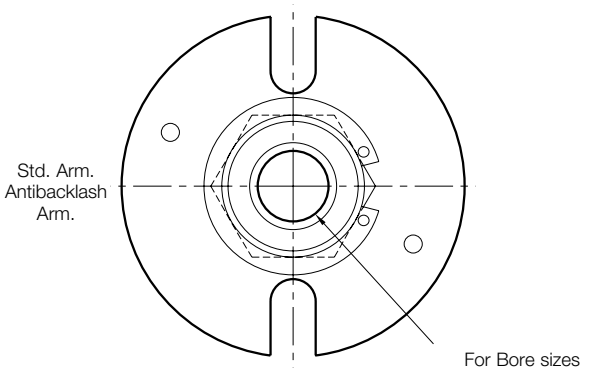
Example:

SF-170 Clutch per I-25754 - 90 Volt
Antibacklash Armature
1/4” Armature Hub Bore
1/4” Rotor Bore

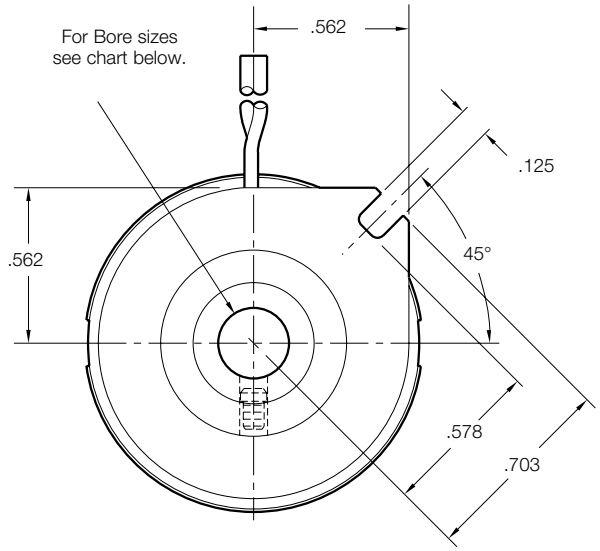
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

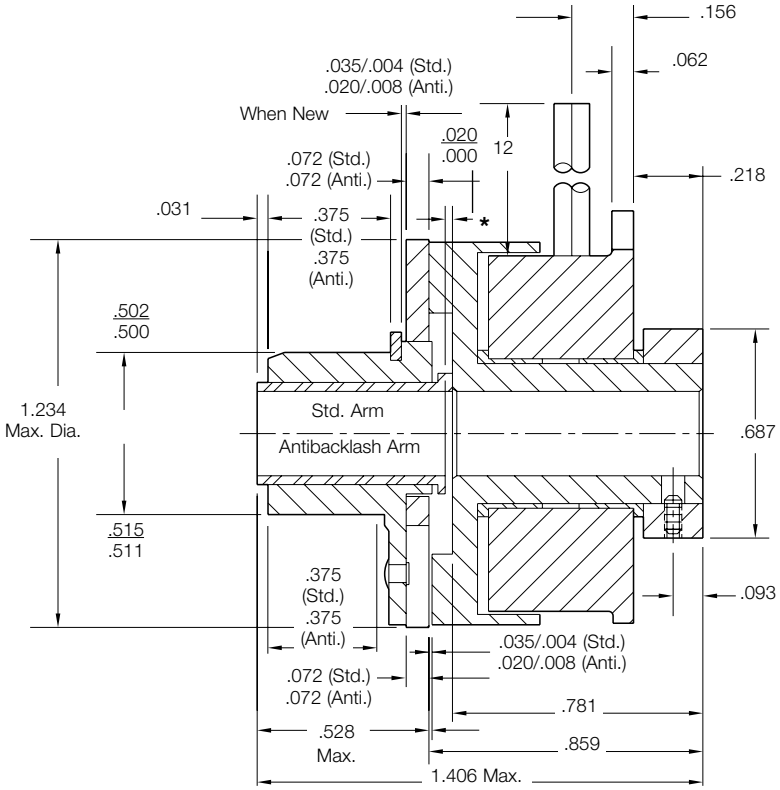
SF-120 Clutch Bearing Mounted



Armature View



Field View



*Customer shall maintain dimension as noted.

Bore Dimensions

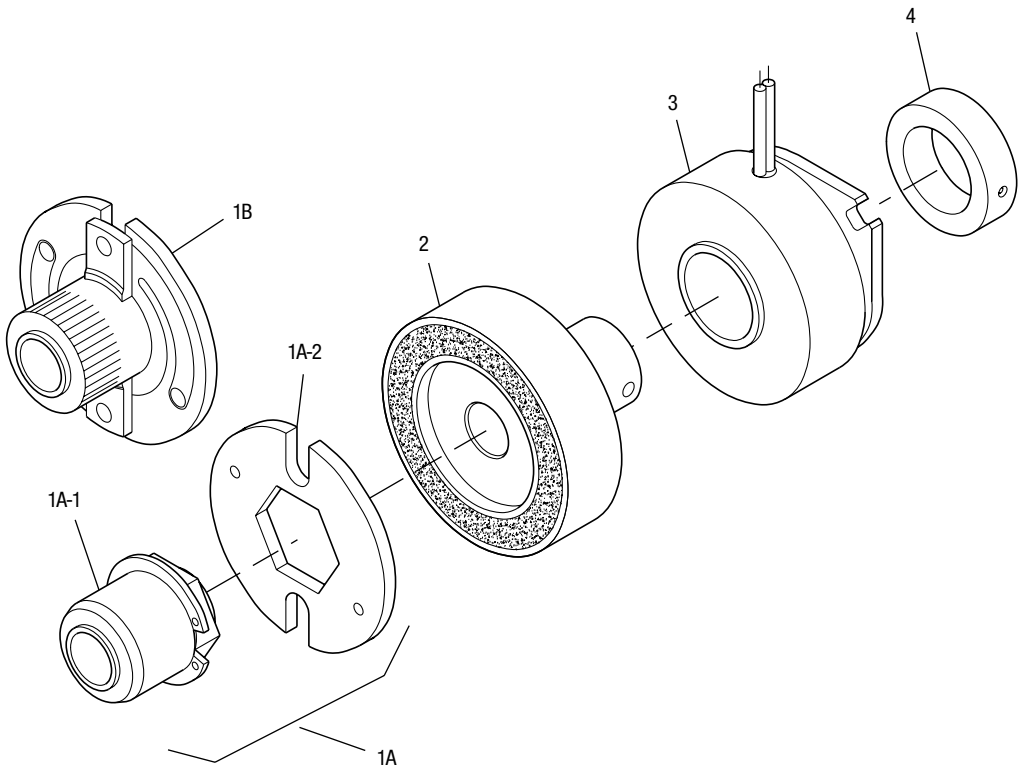
Rotor Bore Dia.	Armature Bore Dia.
.188/.187	.195/.190
.251/.250	.257/.252
.313/.312	—

Armature Shaft	.187 – .250
Rotor Shaft	.187 – .250
Static Torque	5 lb.in.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-120 Clutch Bearing Mounted

Drawing I-25509



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	3/16” Bore	5602-541-009	
	1/4” Bore	5602-541-008	
1A-2	Armature	110-0110	1
1B	Antibacklash Armature		1
	3/16” Bore	5602-111-002	
	1/4” Bore	5602-111-003	
	5/16” Bore	5602-111-007	
2	Rotor		1
	3/16” Bore	5602-751-008	
	1/4” Bore	5602-751-006	
	5/16” Bore	5602-751-007	
3	Field		1
	6 Volt	5602-451-021	
	24 Volt	5602-451-023	
	90 Volt	5602-451-025	
4	Set Collar	5602-266-001	1

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 3.

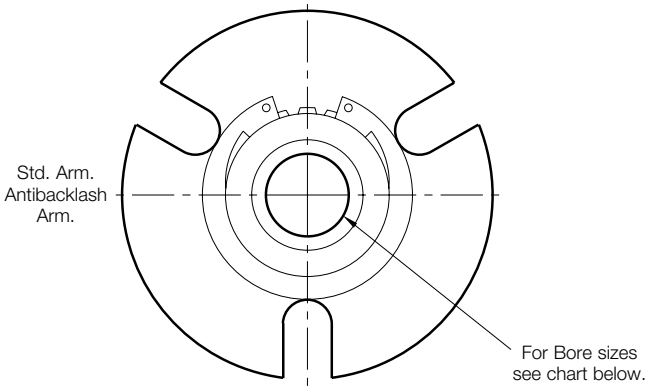
Example:

SF-120 Clutch per I-25509 - 90 Volt
Standard Armature
1/4” Armature Hub Bore

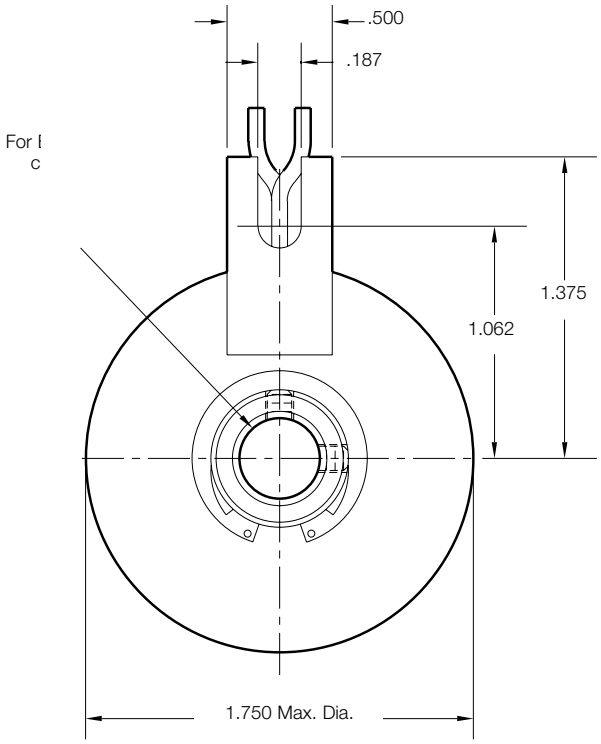
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

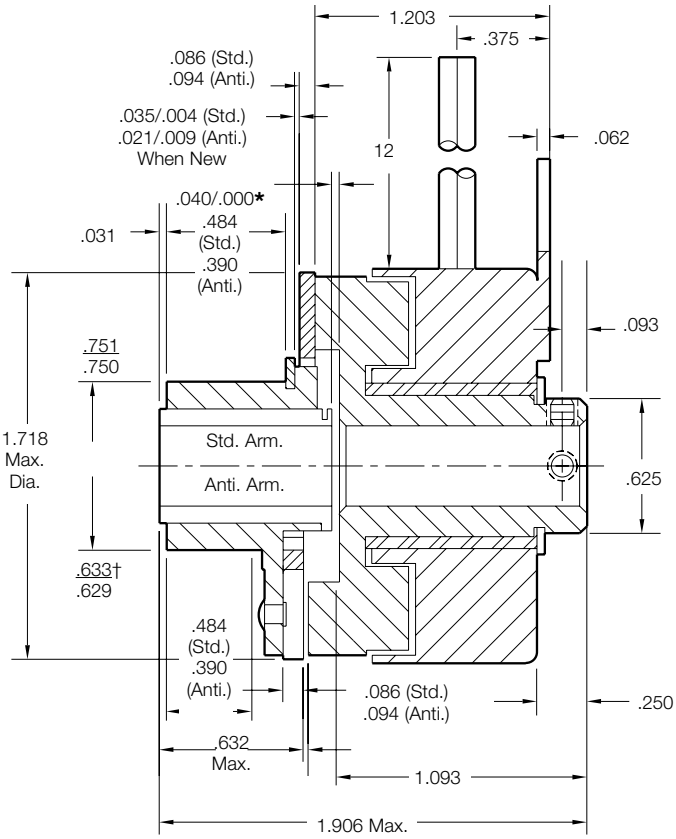
SF-170 Clutch Bearing Mounted



Armature View



Field View



Bore Dimensions

Rotor Bore Dia.	Armature Bore Dia.
.251/.250	.2522/.2507
.313/.312	.3145/.3130
.376/.375	.3773/.3755

Armature Shaft	.187 – .250
Rotor Shaft	.250 – .375
Static Torque	15 lb.in.
Maximum Speed	5,000 rpm
Standard Voltage	D.C. 6, 24, 90

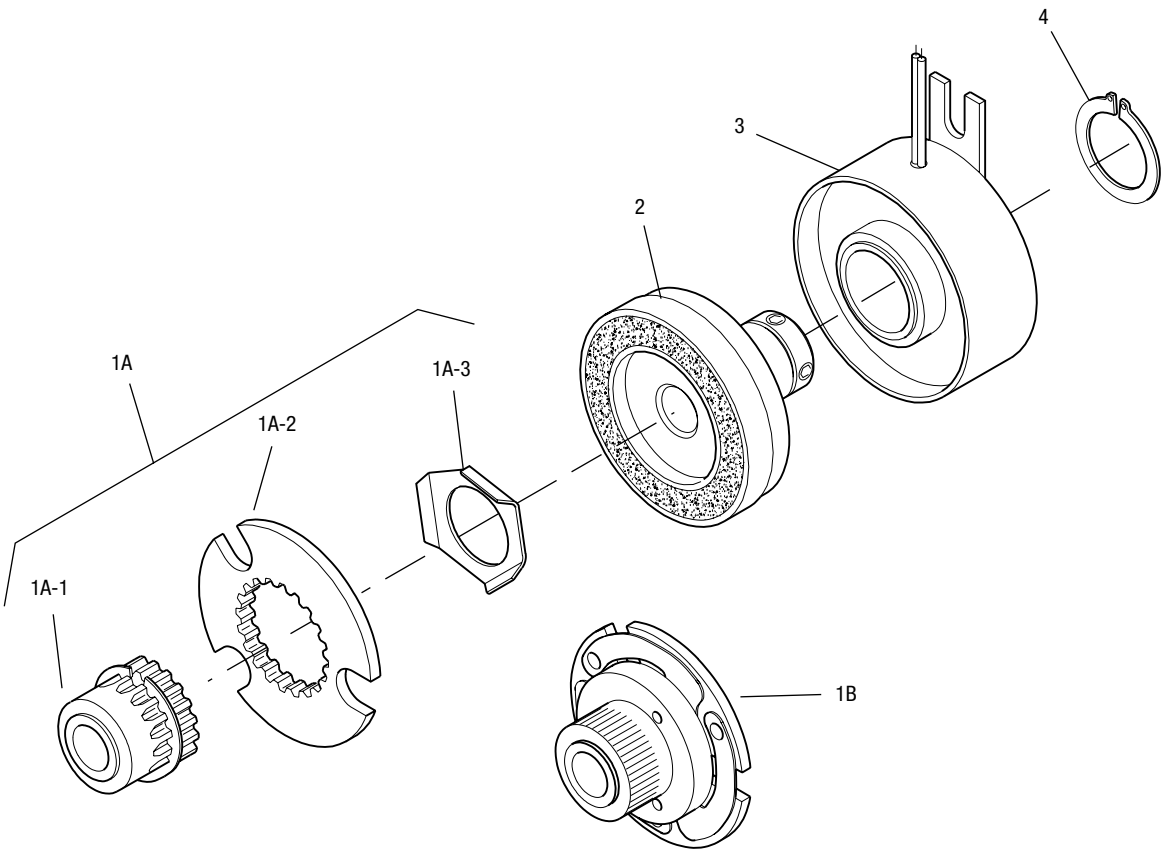
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:
*Customer shall maintain dimension as noted.

† over knurl

SF-170 Clutch Bearing Mounted

Drawing I-25755



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	1/4” Bore	5123-541-002	
	5/16” Bore	5123-541-003	
	3/8” Bore	5123-541-004	
1A-2	Armature	110-0111	1
1A-3	Release Spring	`808-0019	1
1B	Antibacklash Armature		1
	1/4” Bore	5603-111-033	
	5/16” Bore	5603-111-034	
	3/8” Bore	5603-111-035	
2	Rotor		1
	1/4” Bore	5603-751-019	
	5/16” Bore	5603-751-021	
	3/8” Bore	5603-751-020	
3	Field		1
	6 Volt	5603-451-039	
	24 Volt	5603-451-041	
	90 Volt	5603-451-043	
4	Retainer Ring	748-0024	1

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 3.

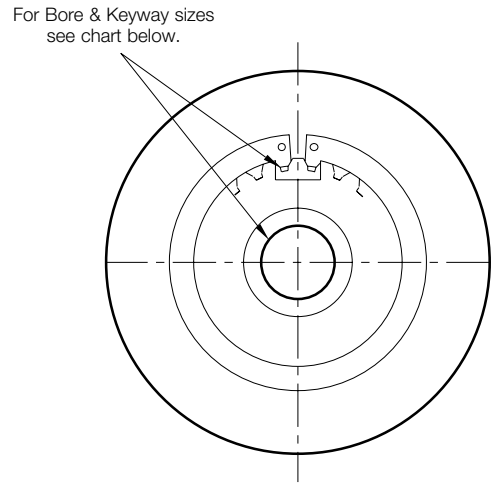
Example:

SF-170 Clutch per I-25755 - 90 Volt
Antibacklash Armature
1/4” Armature Hub Bore

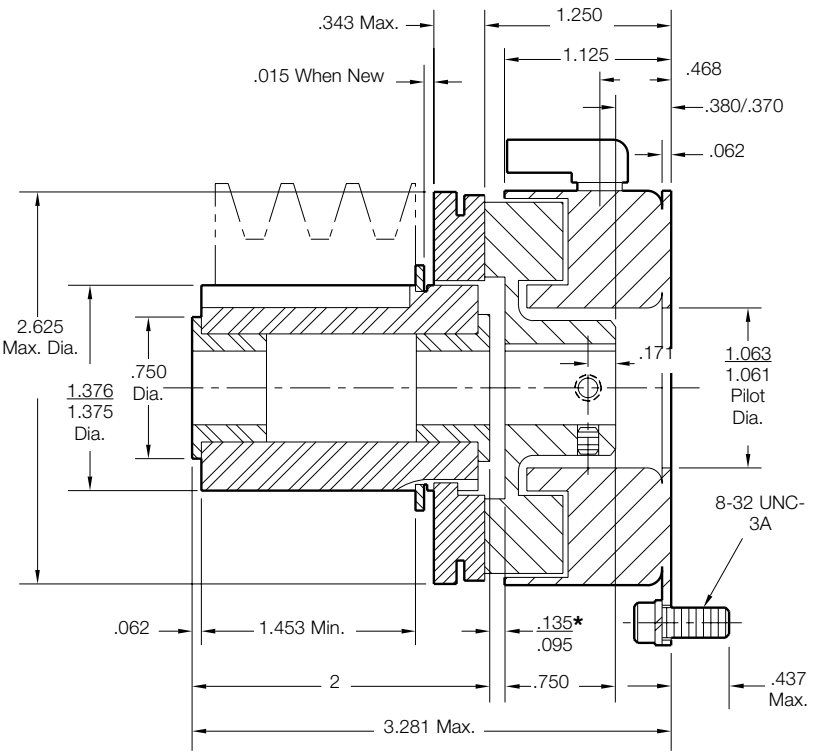
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

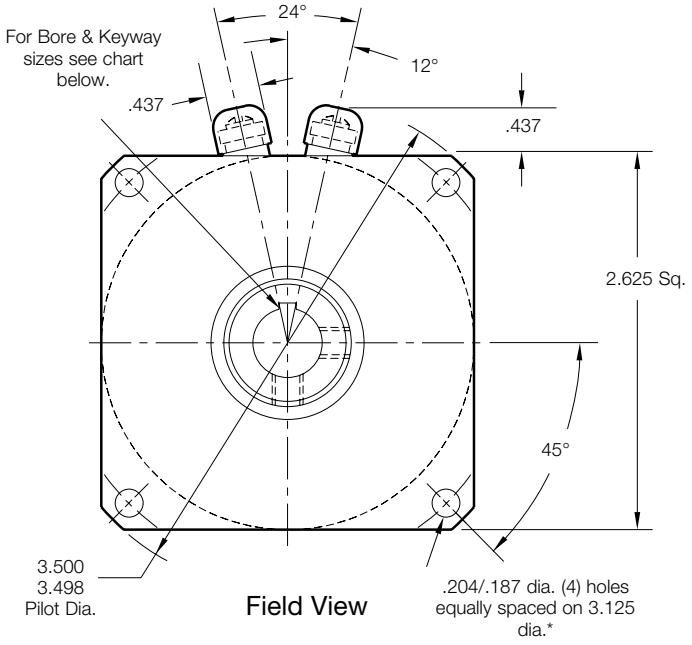
SF-250 Clutch Flange Mounted



Armature View



*Customer shall maintain dimension as noted.



Field View

* Mounting holes are within .010 of true position relative to pilot diameter.

Bore and Keyway Dimensions

Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.3750/.3745		.376/.375	.093 x .046
.5000/.4995	.312 x .156	*.438/.437	.125 x .031
*.5625/.5620	x 1.250	.501/.500	.125 x .031
.6250/.6245			

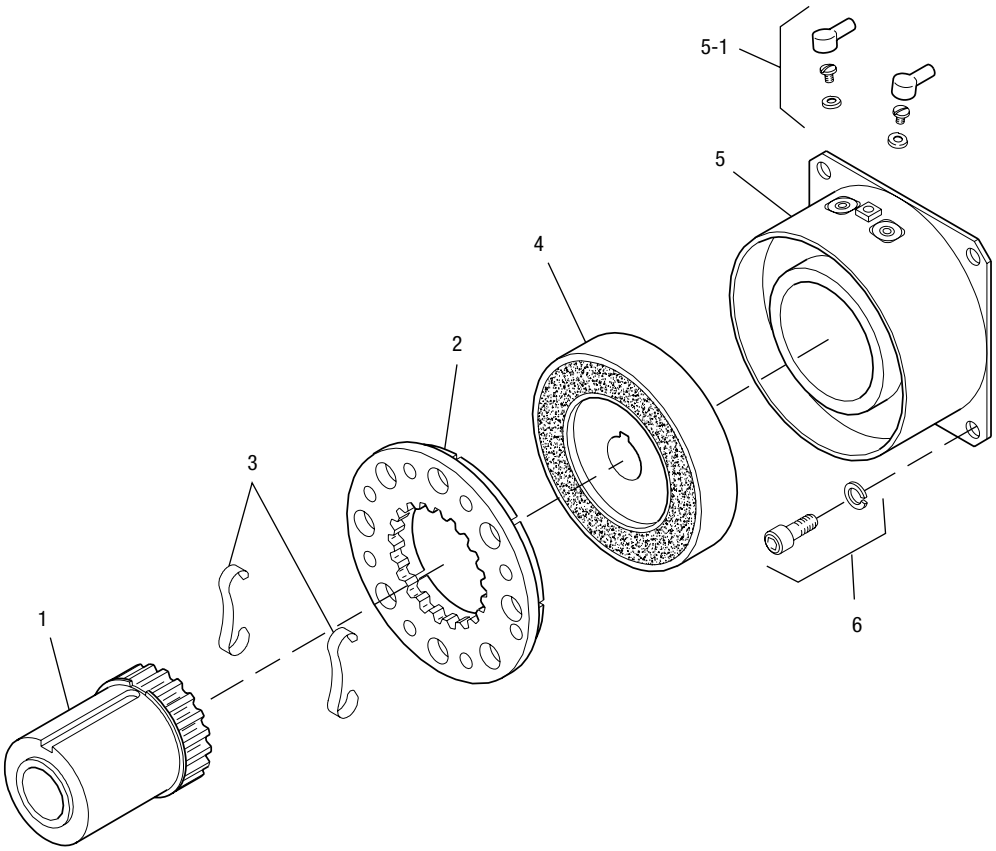
*Available on special order only.

Armature Shaft	.375 – .625
Rotor Shaft	.375 – .500
Static Torque	70 lb.in.
Maximum Speed	7,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Squareness of field mounting face with shaft within .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.



Item	Description	Part Number	Qty.
1	Armature Hub		1
	3/8” Bore	5124-541-002	
	1/2” Bore	5124-541-003	
	5/8” Bore	5124-541-005	
2	Armature	5124-111-001	1
3	Release Spring	5103-101-003	1
4	Rotor		1
	3/8” Bore	5103-751-008	
	1/2” Bore	5103-751-010	
5	Field		1
	6 Volt	5103-451-002	
	24 Volt	5103-451-004	
	90 Volt	5103-451-007	
5-1	Terminal Accessory	5103-101-002	1
6	Mounting Accessory	5102-101-001	1

How to Order:

1. Specify Bore Size for Item 1 and Item 4.
2. Specify Voltage for Item 5.

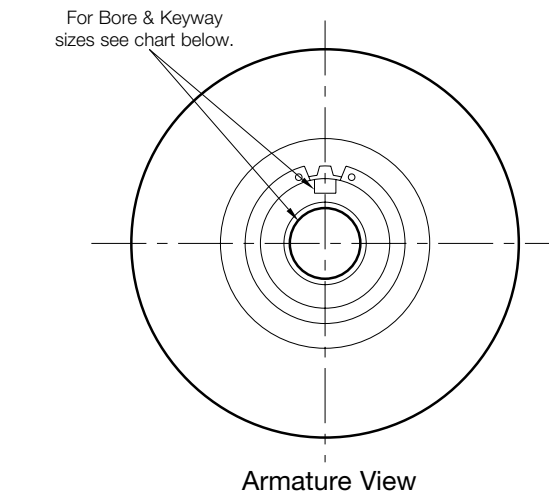
Example:

SF-250 Clutch per I-25520 - 90 Volt
3/8” Armature Hub Bore
3/8” Rotor Bore

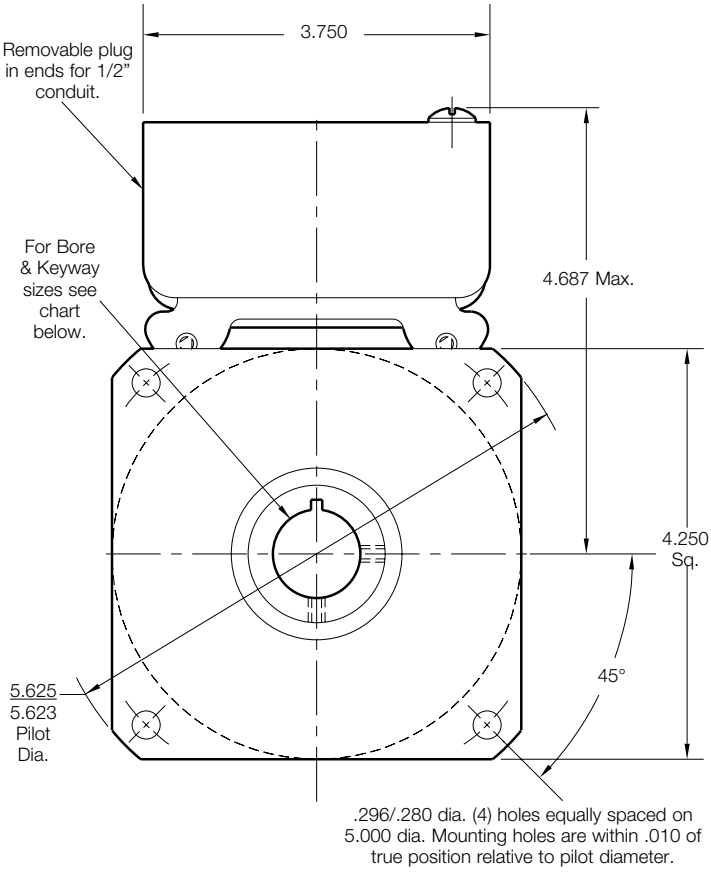
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

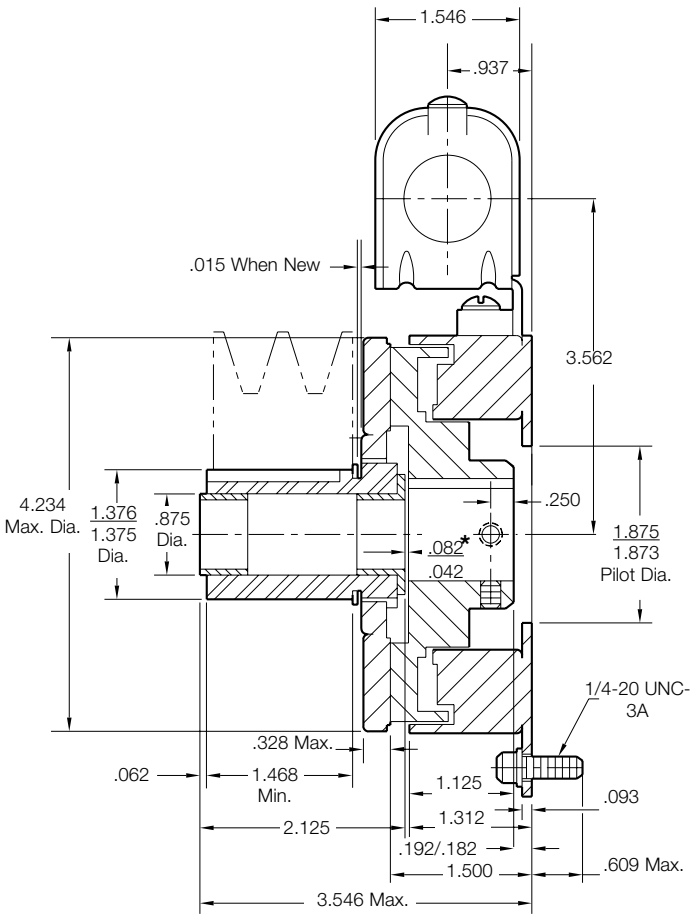
SF-400 Clutch Flange Mounted



Armature View



Field View



Bore and Keyway Dimensions

Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.5000/.4995	.312 x .156	.501/.500	.125 x.062
.6250/.6245	x 1.25	.626/.625	
.7500/.7495		.751/.750	.187 x .093

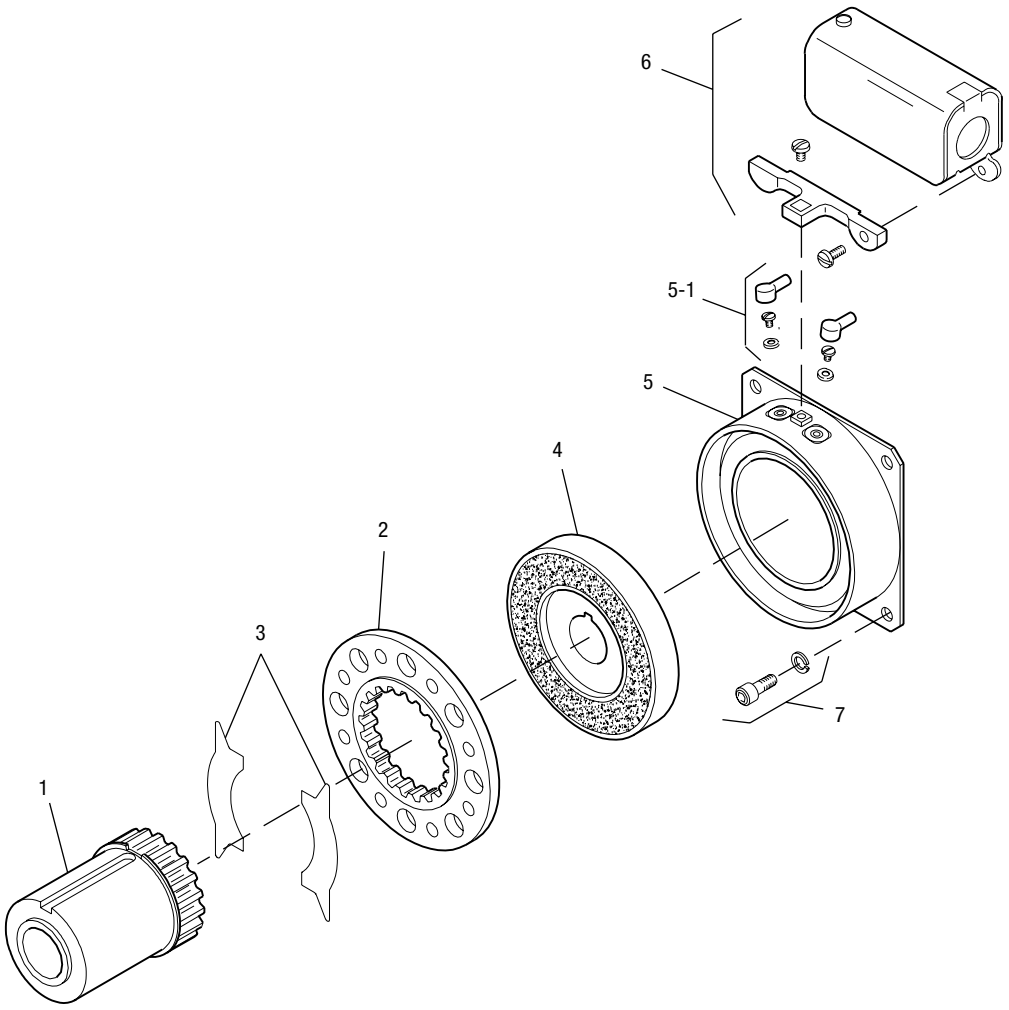
Armature Shaft	.500 – .750
Rotor Shaft	.500 – 1
Static Torque	270 lb.in.
Maximum Speed	4,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Squareness of field mounting face with shaft within .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.

*3. Customer shall maintain dimension as noted.



Item	Description	Part Number	Qty.
1	Armature Hub		1
	1/2” Bore	5125-541-002	
	5/8” Bore	5125-541-003	
	3/4” Bore	5125-541-004	
2	Armature	5125-111-001	1
3	Release Spring	5104-101-003	1
4	Rotor		1
	1/2” Bore	5104-751-033	
	5/8” Bore	5104-751-034	
	3/4” Bore	5104-751-035	
	7/8” Bore	5104-751-036	
	1” Bore	5104-751-037	
5	Field		1
	6 Volt	5104-451-032	
	24 Volt	5104-451-033	
	90 Volt	5104-451-034	
5-1	Terminal Accessory	5103-101-002	1
6	Conduit Box	5200-101-010	1
7	Mounting Accessory	5104-101-002	1

How to Order:

1. Specify Bore Size for Items 1 and 4.
2. Specify Voltage for Item 5.

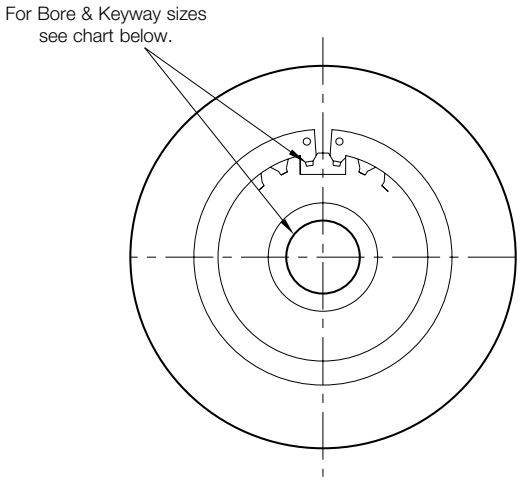
Example:

SF-400 Clutch per I-25695 - 90 Volt
3/4” Armature Hub Bore
3/4” Rotor Bore

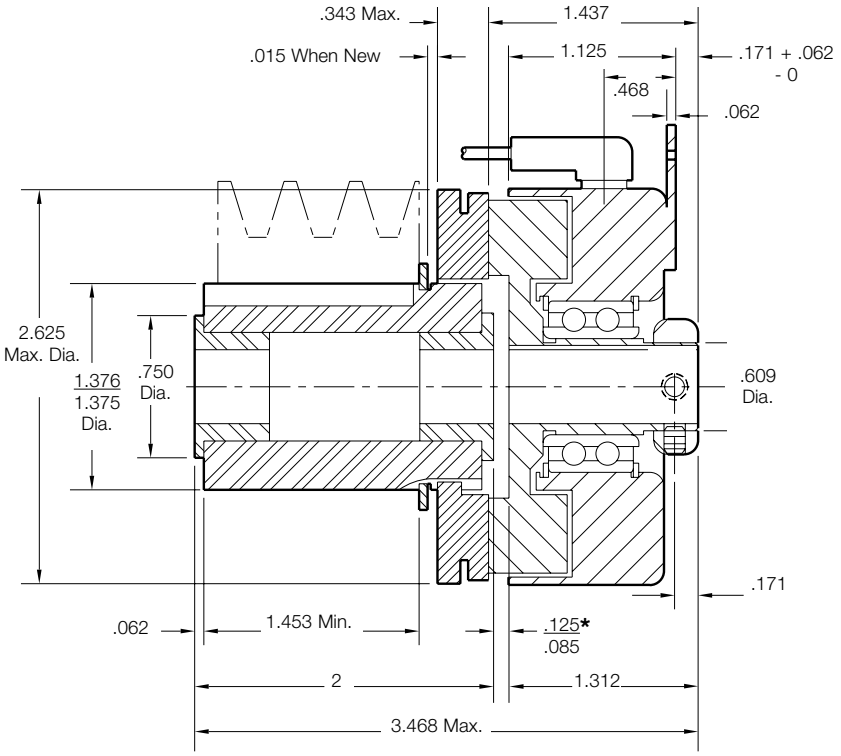
These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards set of UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543

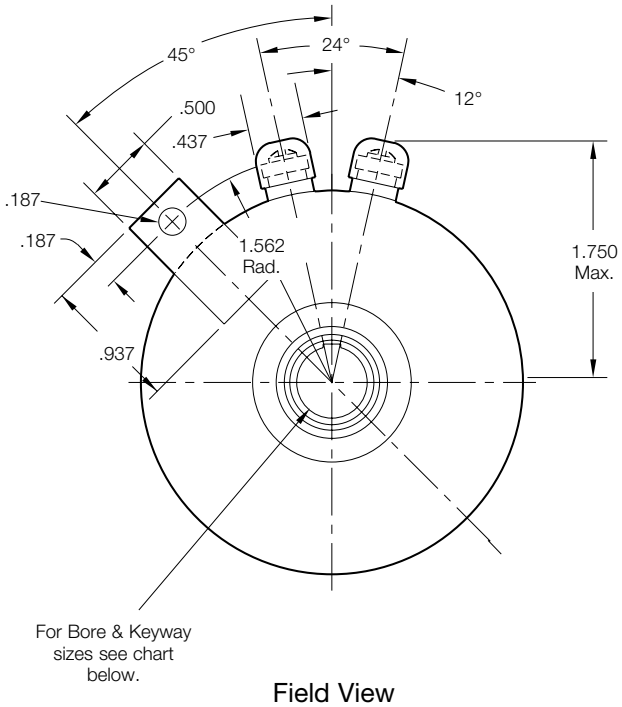
SF-250 Clutch Bearing Mounted



Armature View



*Customer shall maintain dimension as noted.



Field View

Bore and Keyway Dimensions

Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.3750/.3745		.376/.375	.093 x .046
.5000/.4995	.312 x .156	.438/.437*	.125 x .062
.5625/.5620*	x 1.25	.501/.500	.125 x .062
.6250/.6245			

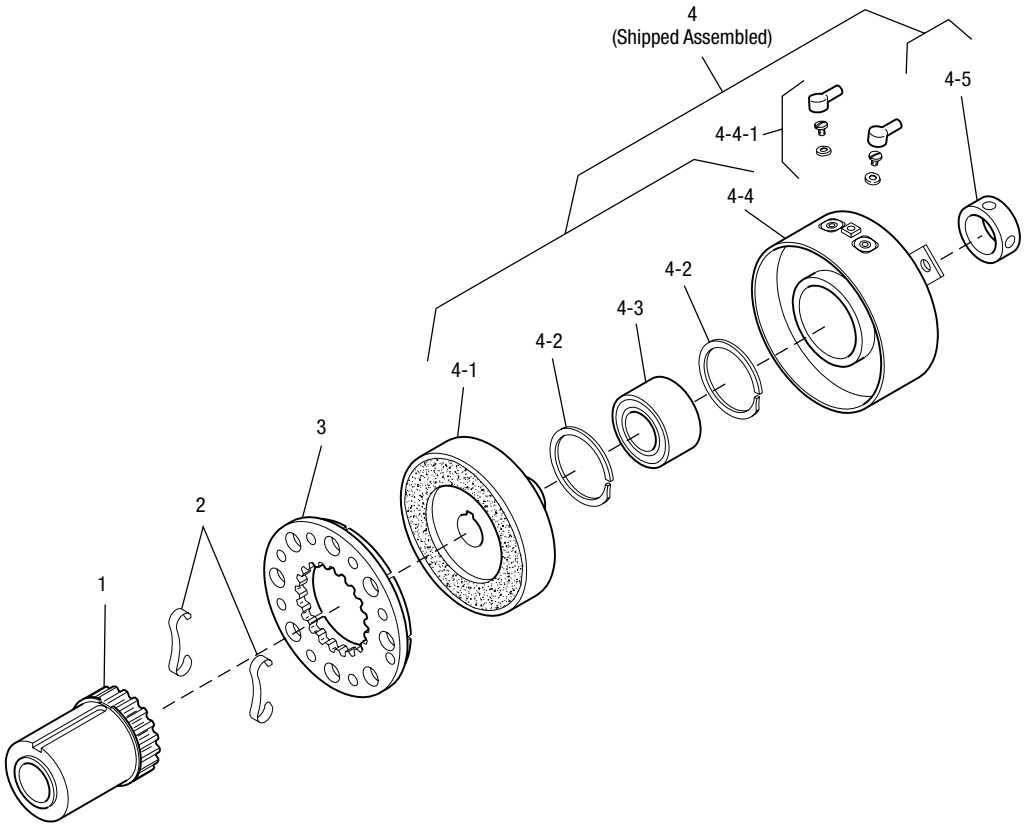
* Available on special order only.

Armature Shaft	.375 – .625
Rotor Shaft	.375 – .500
Static Torque	70 lb.in.
Maximum Speed	7,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-250 Clutch Bearing Mounted

Drawing I-25521



Item	Description	Part Number	Qty.
1	Armature Hub		1
	3/8” Bore	5124-541-002	
	1/2” Bore	5124-541-003	
	5/8” Bore	5124-541-005	
2	Release Spring	5103-101-003	1
3	Armature	5124-111-001	1
4	Field and Rotor Assembly		1
	6 Volt – 3/8” Bore	5103-452-002	
	24 Volt – 3/8” Bore	5103-452-004	
	90 Volt – 3/8” Bore	5103-452-007	
	6 Volt – 1/2” Bore	5103-452-016	
	24 Volt – 1/2” Bore	5103-452-018	
	90 Volt – 1/2” Bore	5103-452-021	
4-1	Rotor		1
	3/8” Bore	5103-751-014	
	1/2” Bore	5103-751-016	
4-2	Retainer Ring	748-0371	2
4-3	Ball Bearing	166-0108	1
4-4	Field		1
	6 Volt	5103-451-018	
	24 Volt	5103-451-020	
	90 Volt	5103-451-023	
4-4-1	Terminal Accessory	5103-101-002	1
4-5*	Set Collar	266-0005	1

*Used with 1/2” Bore only.

How to Order:

1. Specify Bore Size for Item 1 and Item 4.
2. Specify Voltage for Item 4.

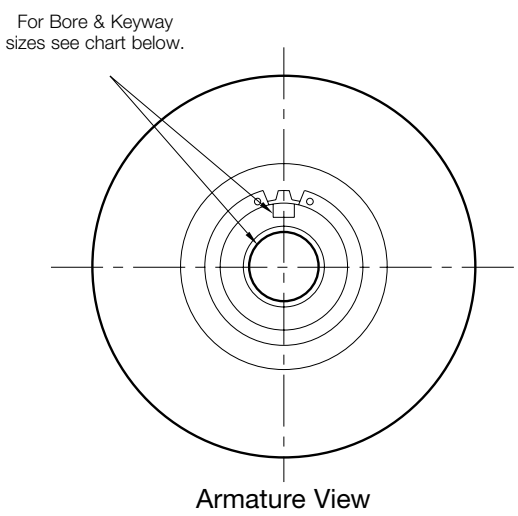
Example:

SF-250 Clutch per I-25521 - 90 Volt
1/2” Armature Hub Bore
1/2” Rotor Bore

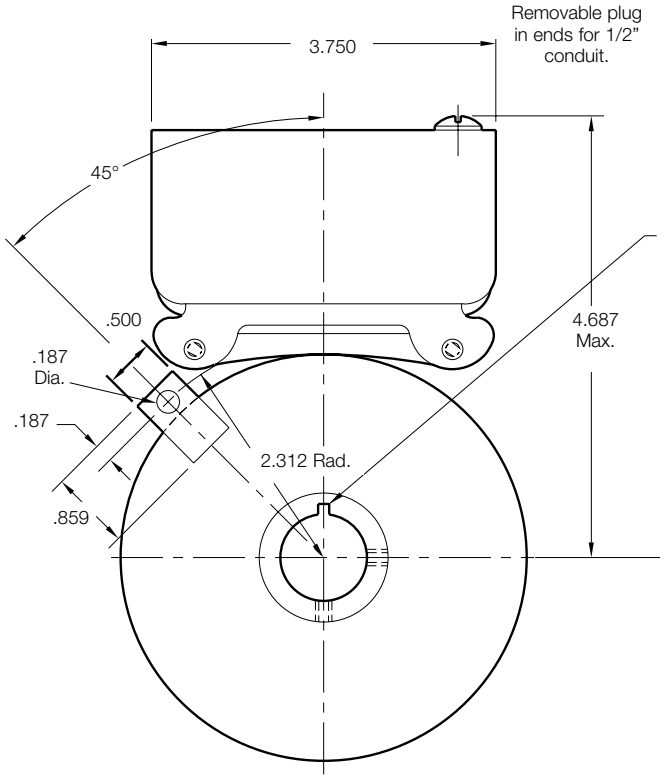
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

SF-400 Clutch Bearing Mounted

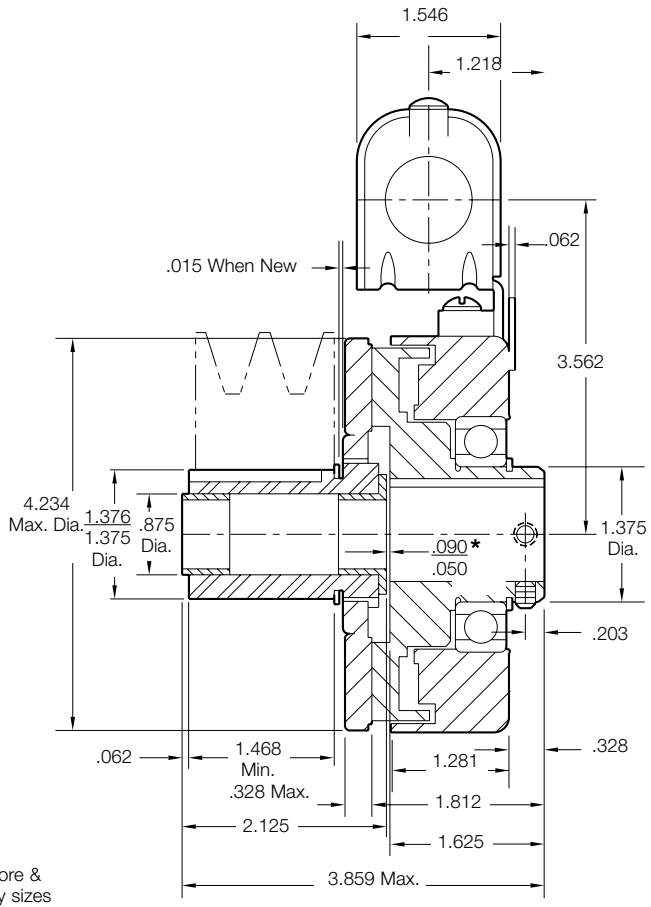


Armature View



Field View

*Customer shall maintain dimension as noted.



Bore and Keyway Dimensions

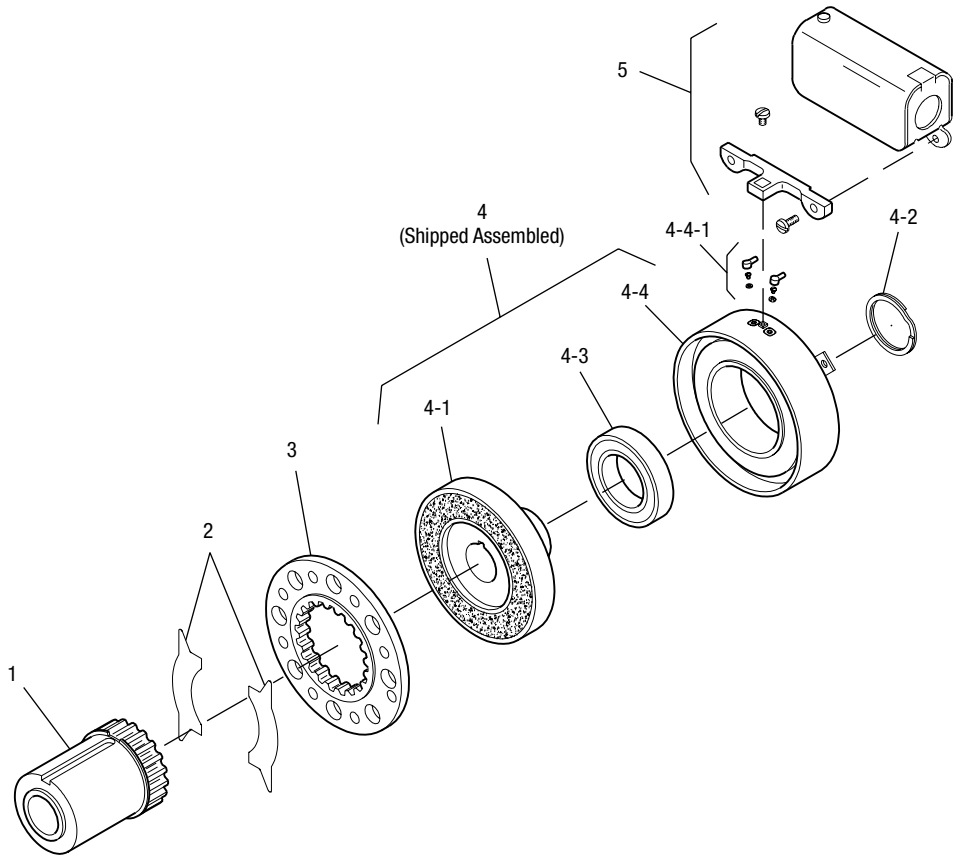
Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
		.501/.500	.125 x.062
.5000/.4995	.312 x .156	.626/.625	
.6250/.6245	x 1.25	.751/.750	.187 x .093
.7500/.7495		.876/.875	
		1.001/1.000	

Armature	.500 – .750
Rotor Shaft	.500 – 1
Static Torque	270 lb.in.
Maximum Speed	4,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SF-400 Clutch Bearing Mounted

Drawing I-25696



Item	Description	Part Number	Qty.
1	Armature Hub		1
	1/2" Bore	5125-541-002	
	5/8" Bore	5125-541-003	
	3/4" Bore	5125-541-004	
2	Release Spring 5104-101-003	1	
3	Armature	5125-111-001	1
4	Field and Rotor Assembly		1
	6 Volt – 1/2" Bore	5104-452-052	
	24 Volt – 1/2" Bore	5104-452-053	
	90 Volt – 1/2" Bore	5104-452-054	
	6 Volt – 5/8" Bore	5104-452-055	
	24 Volt – 5/8" Bore	5104-452-056	
	90 Volt – 5/8" Bore	5104-452-057	
	6 Volt – 3/4" Bore	5104-452-058	
	24 Volt – 3/4" Bore	5104-452-059	
	90 Volt – 3/4" Bore	5104-452-060	
4-1	Rotor		1
	1/2" Bore	5104-751-043	
	5/8" Bore	5104-751-044	
	3/4" Bore	5104-751-045	
4-2	Retainer Ring	748-0018	1
4-3	Ball Bearing	166-0150	1
4-4	Field		1
	6 Volt	5104-451-038	
	24 Volt	5104-451-039	
	90 Volt	5104-451-040	
4-4-1	Terminal Accessory	5103-101-002	1
5	Conduit Box	5200-101-010	1

How to Order:

1. Specify Bore Size for Items 1 and 4.
2. Specify Voltage for Item 4.

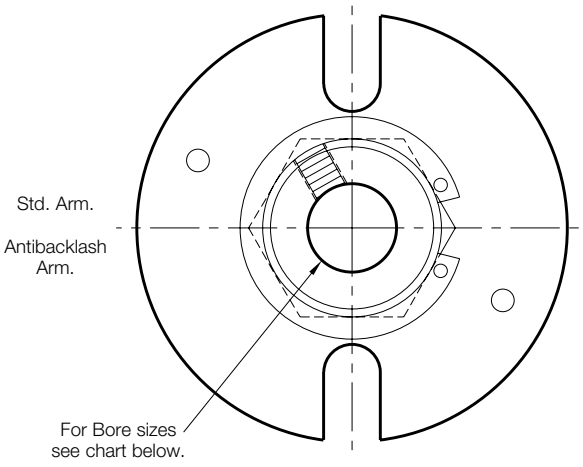
Example:

SF-400 Clutch per I-25696 - 90 Volt
3/4" Armature Hub Bore
3/4" Rotor Bore

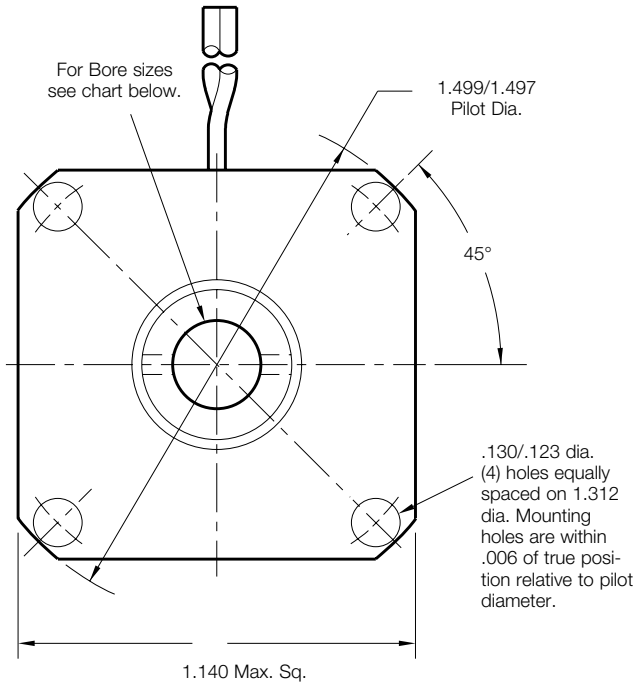
These units, when used in conjunction with the correct Warner Electric conduit box, meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543

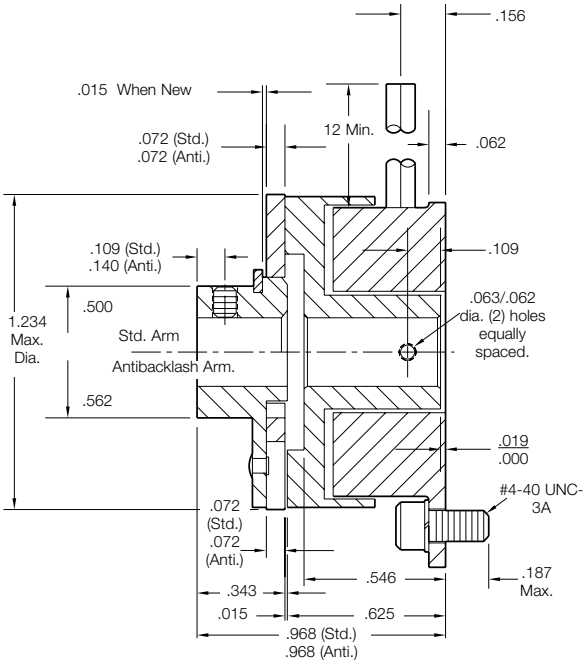
SFC-120 Clutch Coupling Flange Mounted



Armature View



Field View



Bore Dimensions

Rotor Bore Dia.	Armature Bore Dia.
.188/.187	.188/.187
.251/.250	.251/.250
.313/.312	(.313/.312)*

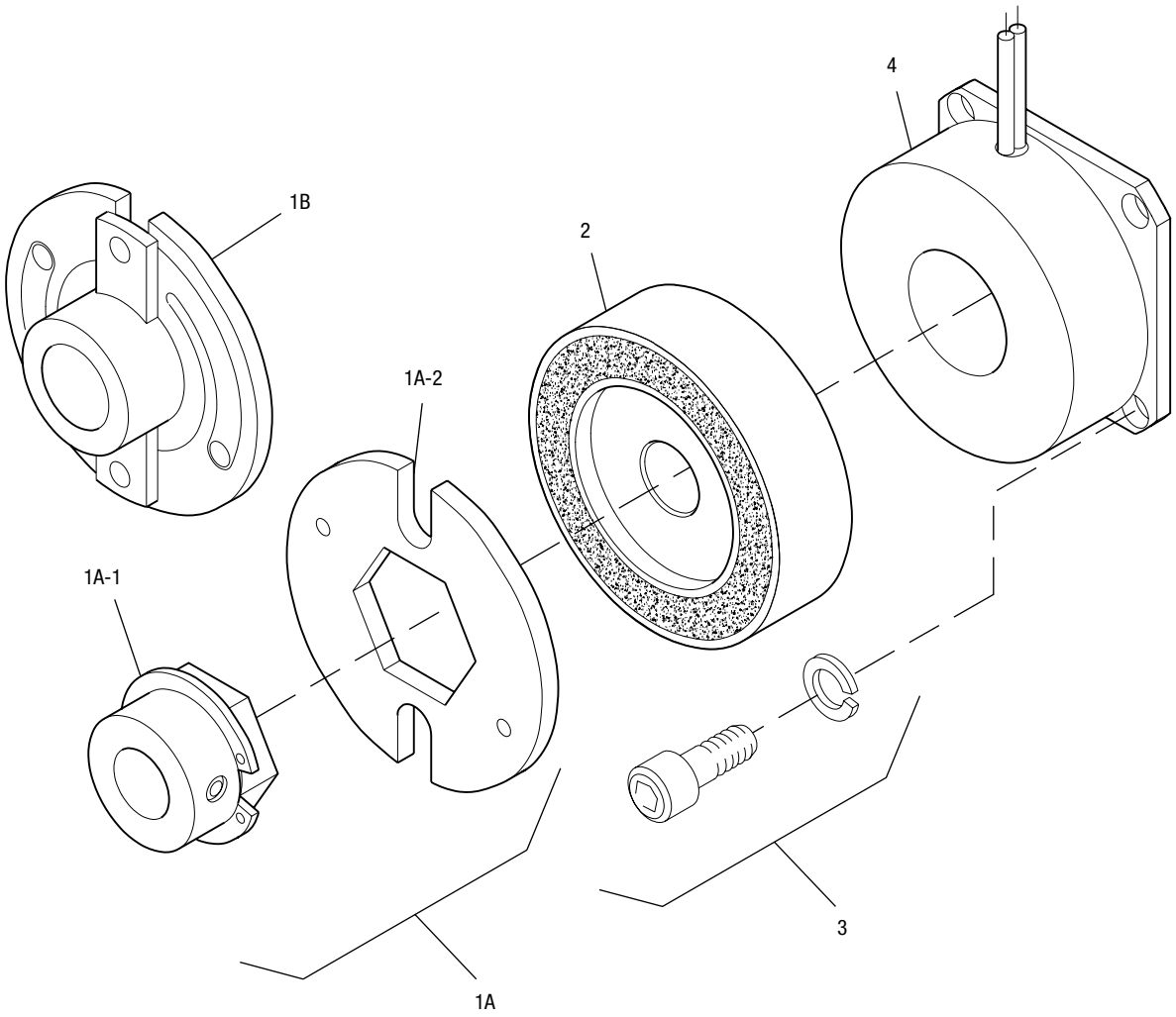
*(Antibacklash Armatures)

Armature Shaft	.187 – .250
Rotor Shaft	.187 – .312
Static Torque	5 lb. in.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Squareness of field mounting face with rotor shaft within .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.
3. Rotor and armature shafts in line within .003 T.I.R.



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	3/16" Bore	5622-541-009	
	1/4" Bore	5622-541-008	
1A-2	Armature	110-0110	1
1B	Antibacklash Armature		1
	3/16" Bore	5622-111-004	
	1/4" Bore	5622-111-002	
	5/16" Bore	5622-111-003	
2	Rotor		1
	3/16" Bore	5602-751-004	
	1/4" Bore	5602-751-002	
	5/16" Bore	5602-751-003	
3	Mounting Accessory	5101-101-001	1
4	Field		1
	6 Volt	5602-451-003	
	24 Volt	5602-451-005	
	90 Volt	5602-451-007	

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 4.

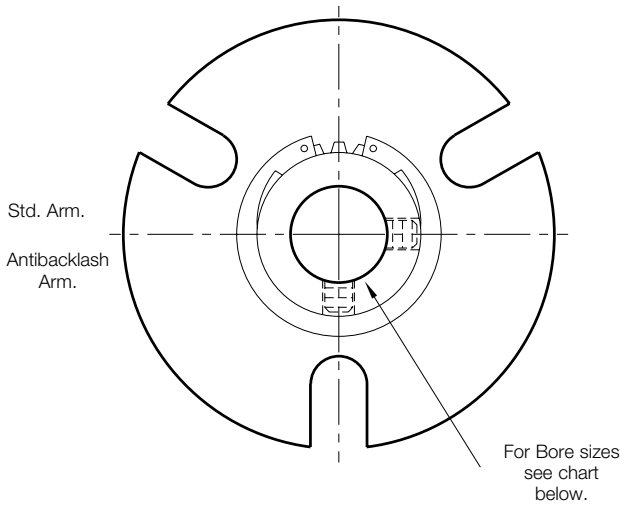
Example:

SFC-120 Clutch per I-25503 - 90 Volt
Standard Armature
1/4" Armature Hub Bore
1/4" Rotor Bore

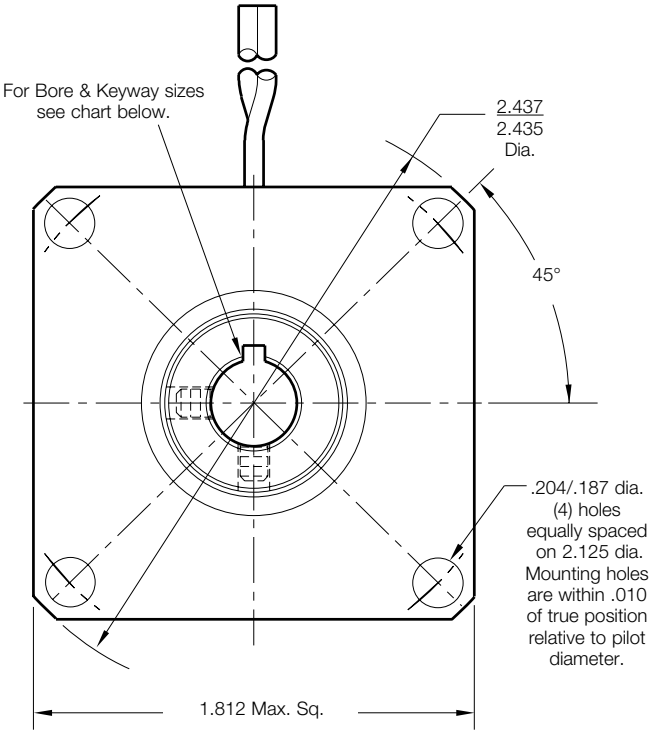
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

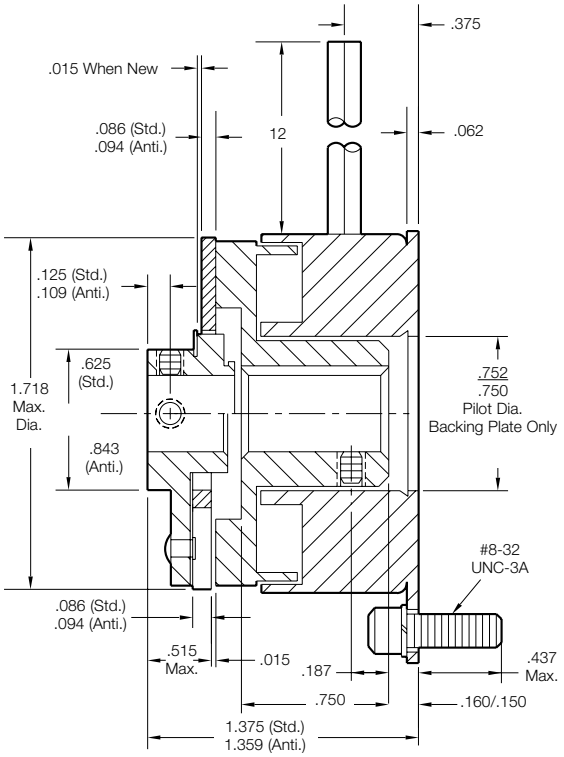
SFC-170 Clutch Coupling Flange Mounted



Armature View



Field View



Bore Dimensions

Rotor Bore Dia.	Keyway	Armature Bore Dia.
.251/.250	.062 x .031	.251/.250
.313/.312	.062 x .031	.313/.312
.376/.375	.093 x .046	.376/.375

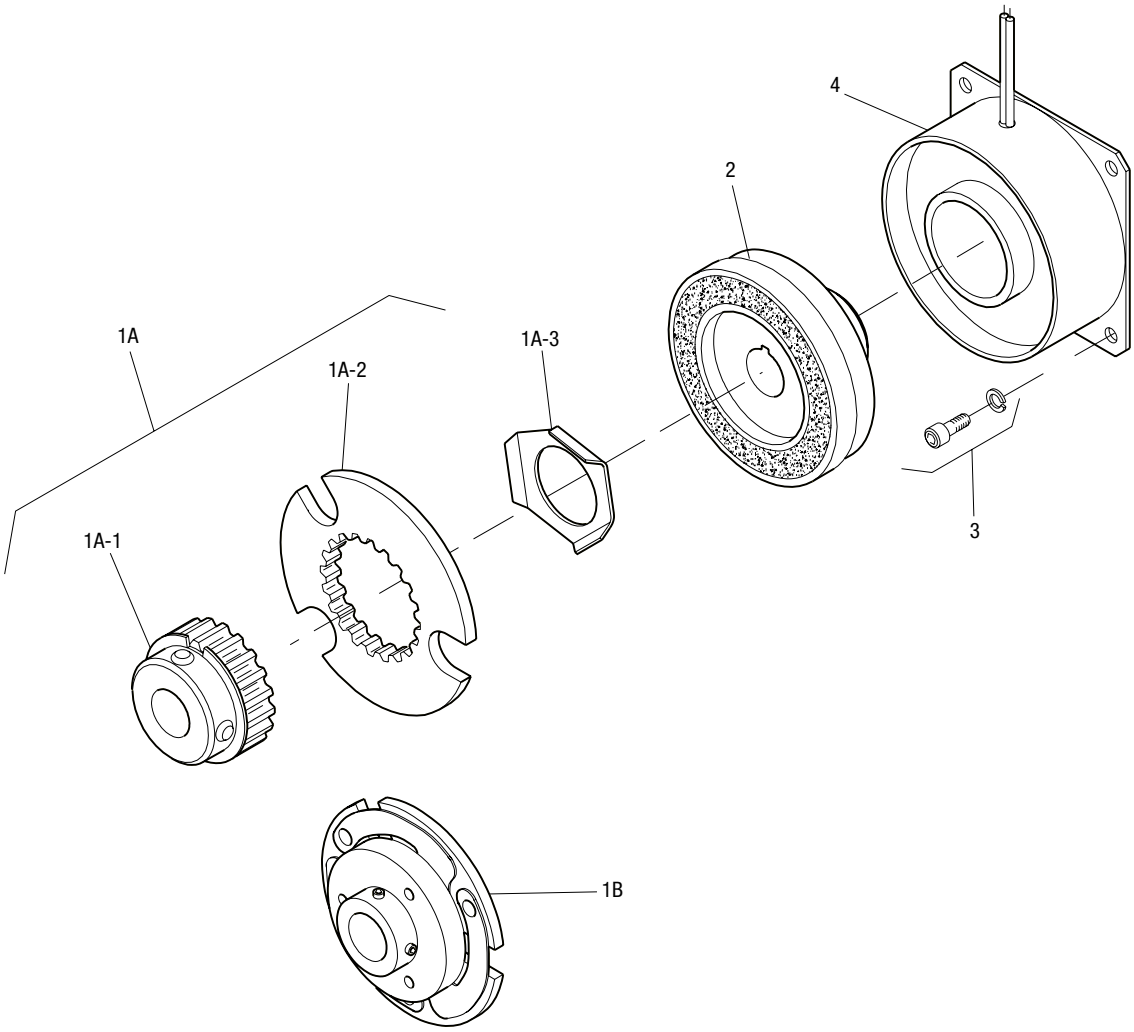
Customer Shall Maintain:

1. Squareness of field mounting face with rotor shaft within .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.
3. Rotor and armature shafts in line within .003 T.I.R.

Armature Shaft	.250 – .375
Rotor Shaft	.250 – .375
Static Torque	15 lb. in.
Maximum Speed	5,000 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SFC-170 Clutch Coupling Flange Mounted – Outside Mounted Drawing I-25756



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	1/4” Bore	5102-541-002	
	5/16” Bore	5102-541-003	
	3/8” Bore	5102-541-004	
1A-2	Armature	110-0111	1
1A-3	Release Spring	808-0019	1
1B	Antibacklash Armature		1
	1/4” Bore	5623-111-008	
	5/16” Bore	5623-111-009	
	3/8” Bore	5623-111-010	
2	Rotor		1
	1/4” Bore	5603-751-028	
	5/16” Bore	5603-751-029	
	3/8” Bore	5603-751-030	
3	Mounting Accessory	5102-101-001	1
4	Field		1
	6 Volt	5603-451-047	
	24 Volt	5603-451-049	
	90 Volt	5603-451-051	

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 4.

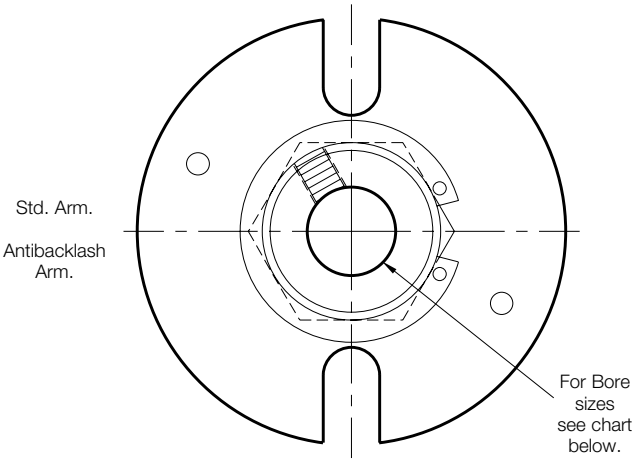
Example:

SFC-170 Clutch per I-25756 - 90 Volt
Antibacklash Armature
1/4” Armature Hub Bore
1/4” Rotor Bore

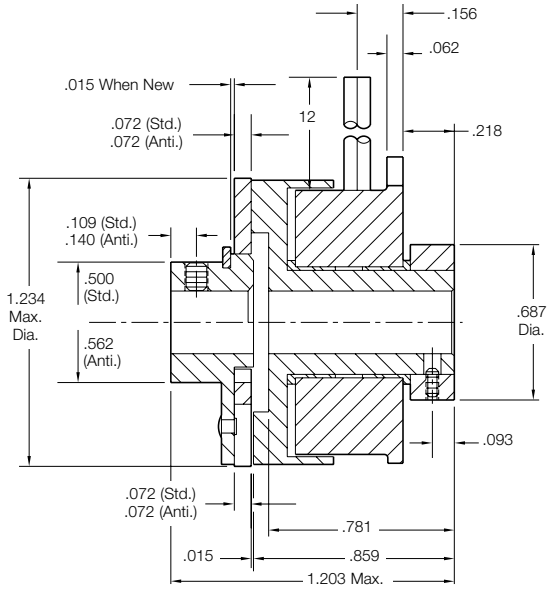
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

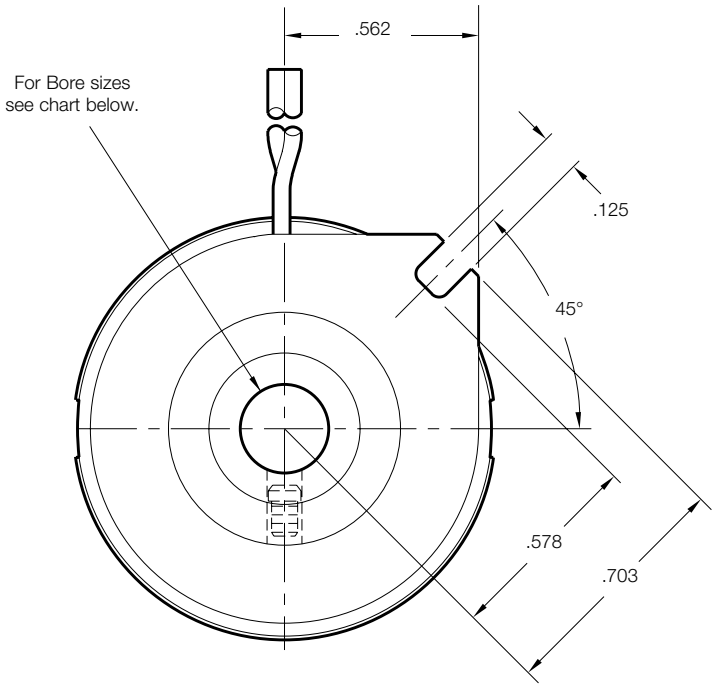
These units are CSA certified under file #LR11543.

SFC-120 Clutch Coupling Bearing Mounted



Armature View





Field View

Bore Dimensions

Rotor Bore Dia.	Armature Bore Dia.
.188/.187	.188/.187
.251/.250	.251/.250
.313/.312	(.313/.312)*

*(Antibacklash Armatures)

Armature Shaft	.187 – .250
Rotor Shaft	.187 – .312
Static Torque	5 lb. in.
Maximum Speed	3,600 rpm
Standard Voltage	D.C. 6, 24, 90

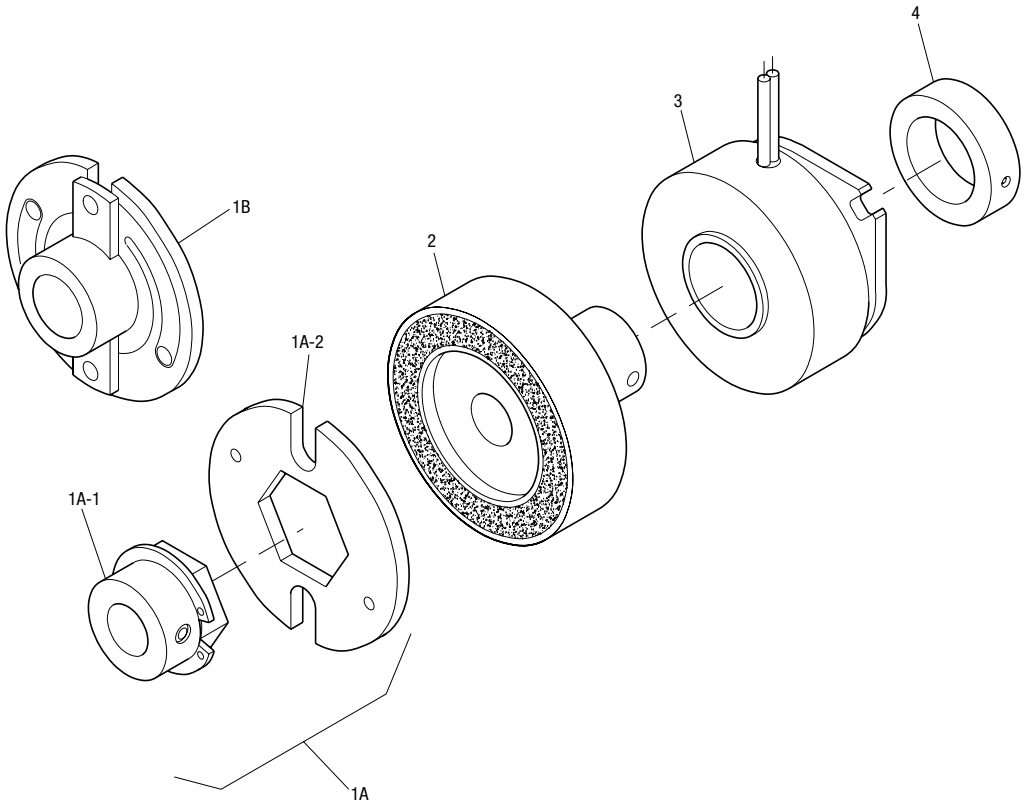
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Alignment between rotor and armature shafts to be .003 T.I.R.

SFC-120 Clutch Coupling Bearing Mounted

Drawing I-25504



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	3/16" Bore	5622-541-009	
	1/4" Bore	5622-541-008	
1A-2	Armature	110-0110	1
1B	Antibacklash Armature		1
	3/16" Bore	5622-111-004	
	1/4" Bore	5622-111-002	
	5/16" Bore	5622-111-003	
2	Rotor		1
	3/16" Bore	5602-751-008	
	1/4" Bore	5602-751-006	
	5/16" Bore	5602-751-007	
3	Field		1
	6 Volt	5602-451-021	
	24 Volt	5602-451-023	
	90 Volt	5602-451-025	
4	Set Collar	5602-266-001	1

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 3.

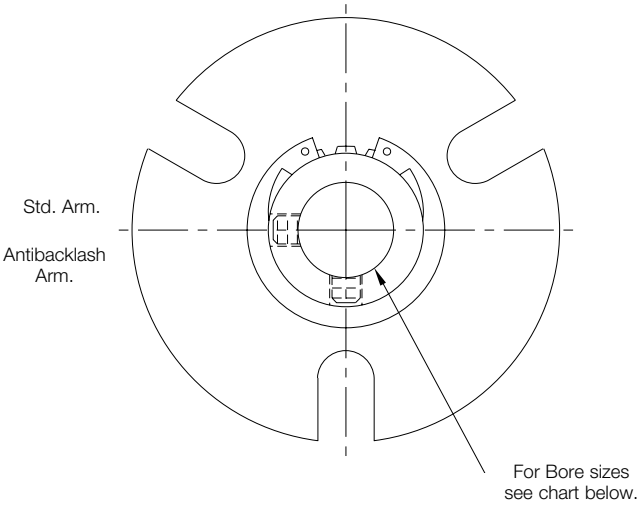
Example:

SFC-120 Clutch per I-25504 - 90 Volt
Standard Armature
1/4" Armature Hub Bore

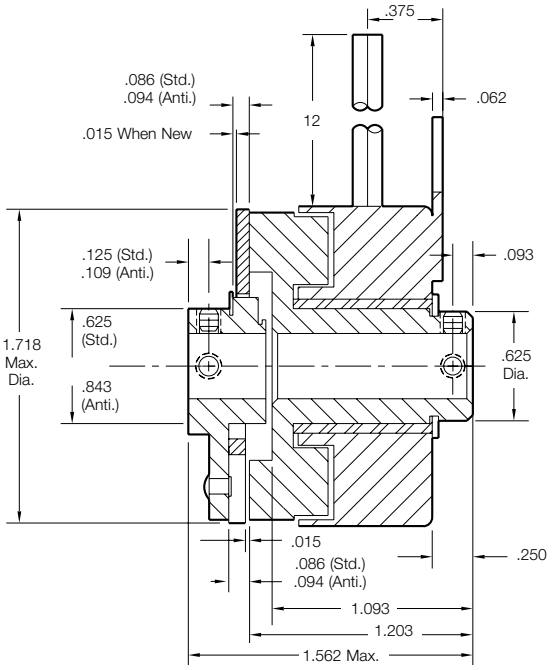
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

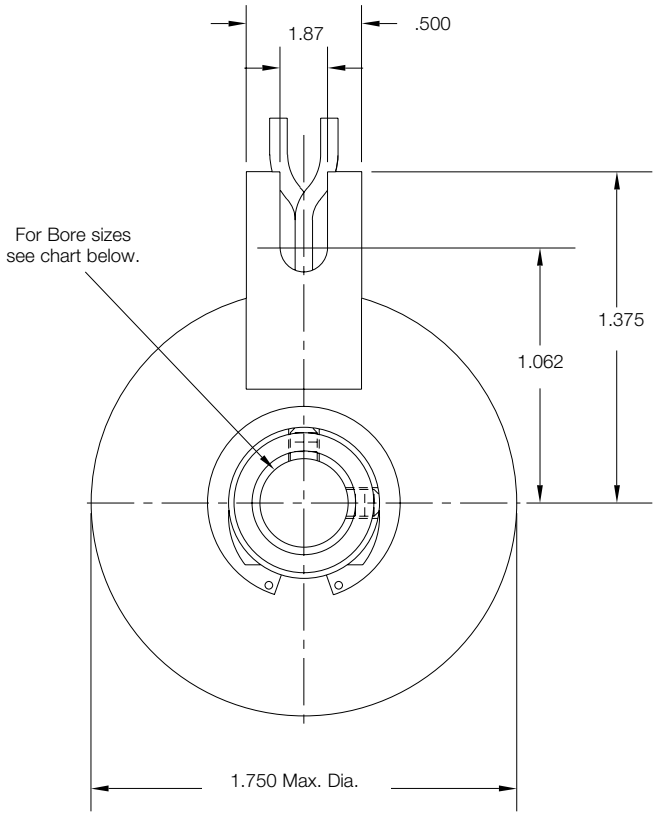
These units are CSA certified under file #LR11543.

SFC-170 Clutch Coupling Bearing Mounted



Armature View





Field View

Bore Dimensions

Rotor Bore Dia.	Armature Bore Dia.
.251/.250	.251/.250
.313/.312	.313/.312
.376/.375	.376/.375

Armature Shaft	.250 – .375
Rotor Shaft	.250 – .375
Static Torque	15 lb. in.
Maximum Speed	5,000 rpm
Standard Voltage	D.C. 6, 24, 90

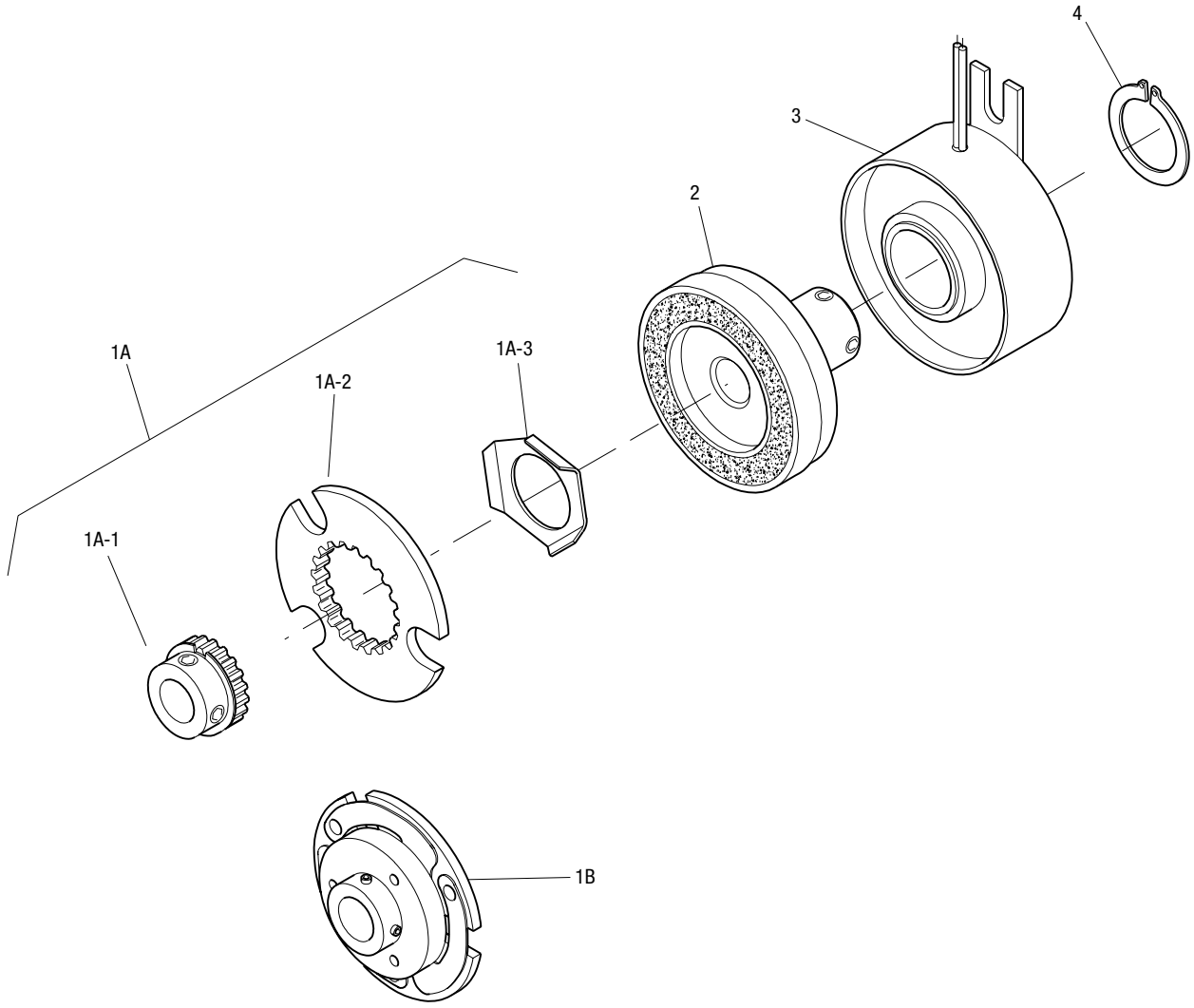
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Alignment between rotor and armature shafts to be .003 T.I.R.

SFC-170 Clutch Coupling Bearing Mounted

Drawing I-25757



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	1/4” Bore	5102-541-002	
	5/16” Bore	5102-541-003	
	3/8” Bore	5102-541-004	
1A-2	Armature	110-0111	1
1A-3	Release Spring	808-0019	1
1B	Antibacklash Armature		1
	1/4” Bore	5623-111-008	
	5/16” Bore	5623-111-009	
	3/8” Bore	5623-111-010	
2	Rotor		1
	1/4” Bore	5603-751-019	
	5/16” Bore	5603-751-021	
	3/8” Bore	5603-751-020	
3	Field		1
	6 Volt	5603-451-039	
	24 Volt	5603-451-041	
	90 Volt	5603-451-043	
4	Retainer Ring	748-0024	1

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 3.

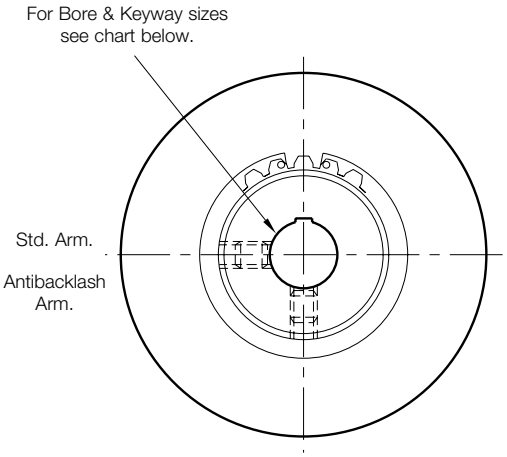
Example:

SFC-170 Clutch per I-25757 - 90 Volt
Antibacklash Armature
1/4” Armature Hub Bore

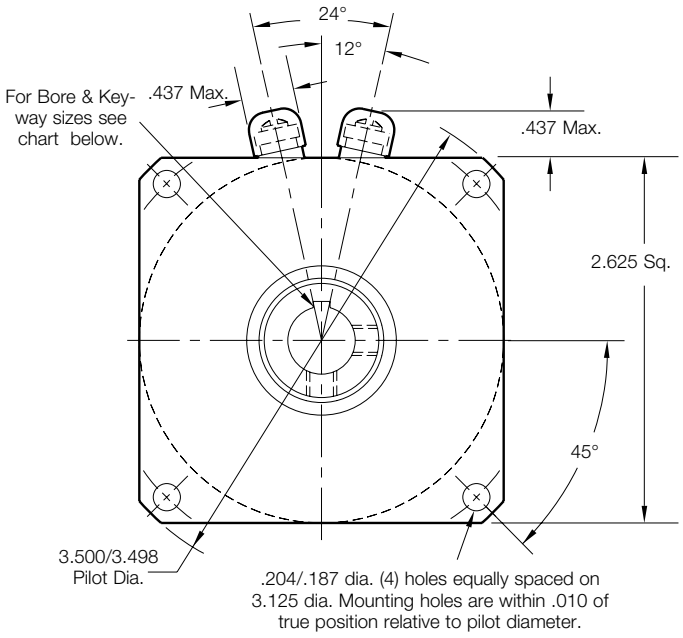
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

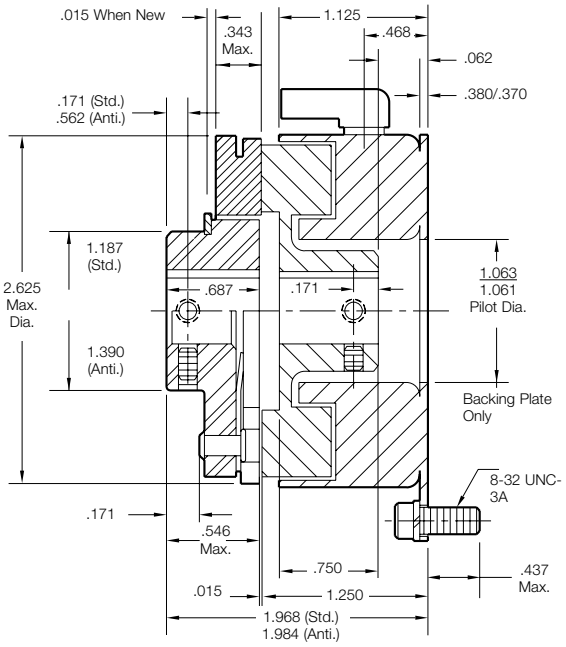
SFC-250 Clutch Coupling Flange Mounted



Armature View



Field View



Bore and Keyway Dimensions

Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.376/.375	.093 x .046		
*.438/.437		.376/.375	.093 x .046
.501/.500	.125 x .062	*.438/.437	.125x .062
*.563/.562		.501/.500	
.626/.625			
*.688/.687	.187 x .093		
.751/.750			

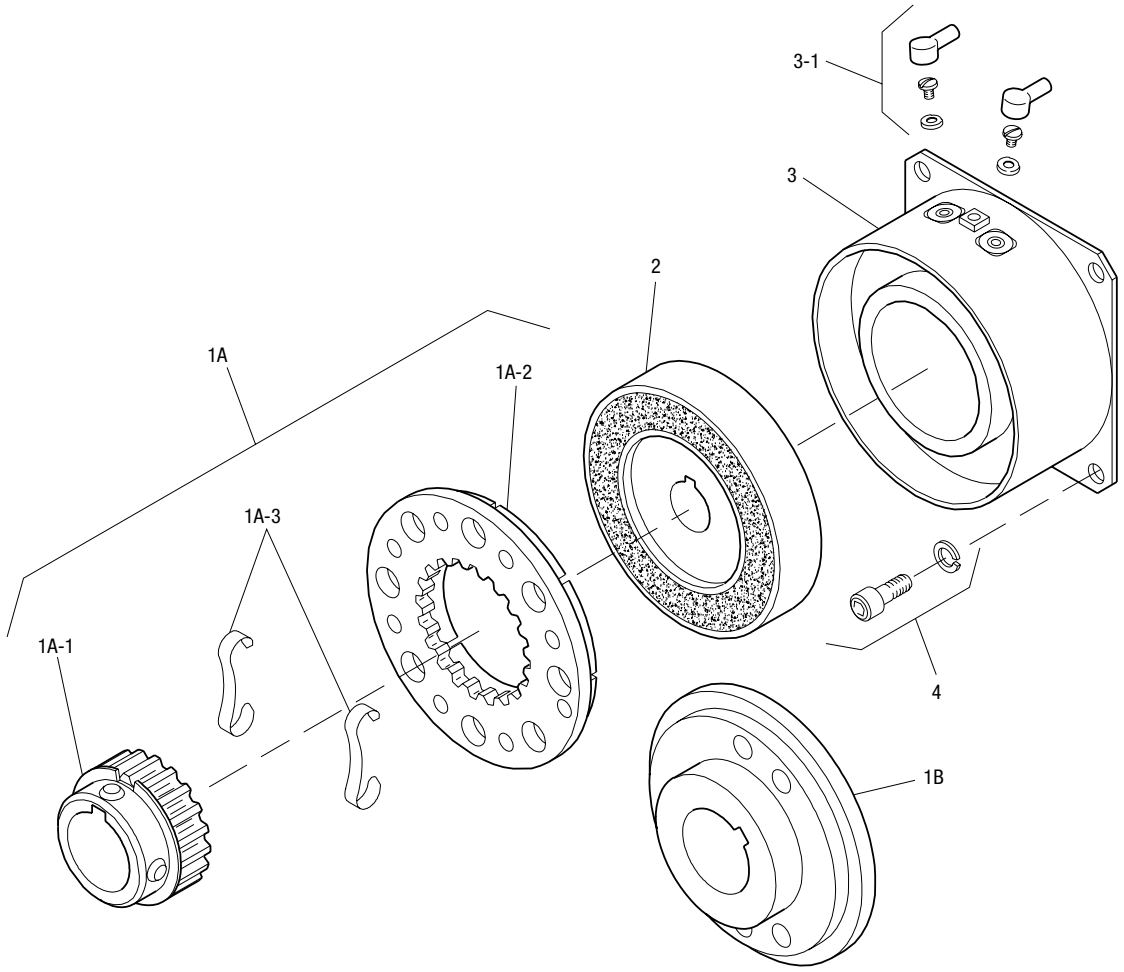
* Available on special order only.

Customer Shall Maintain:

1. Squareness of field mounting face with rotor shaft within .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.
3. Rotor and armature shafts in line within .003 T.I.R.

Armature Shaft	.375 – .750
Rotor Shaft	.375 – .500
Static Torque	70 lb. in.
Maximum Speed	7,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	3/8” Bore	5103-541-002	
	1/2” Bore	5103-541-004	
	5/8” Bore	5103-541-006	
	3/4” Bore	5103-541-008	
1A-2	Armature	5124-111-001	1
1A-3	Release Spring	5103-101-003	1
1B	Antibacklash Armature		1
	3/8” Bore	5365-111-003	
	1/2” Bore	5365-111-005	
	5/8” Bore	5365-111-007	
	3/4” Bore	5365-111-009	
2	Rotor		1
	3/8” Bore	5103-751-008	
	1/2” Bore	5103-751-010	
3	Field		1
	6 Volt	5103-451-002	
	24 Volt	5103-451-004	
	90 Volt	5103-451-007	
3-1	Terminal Accessory	5103-101-002	1
4	Mounting Accessory	5102-101-001	1

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1-B and Item 2.
3. Specify Voltage for Item 3.

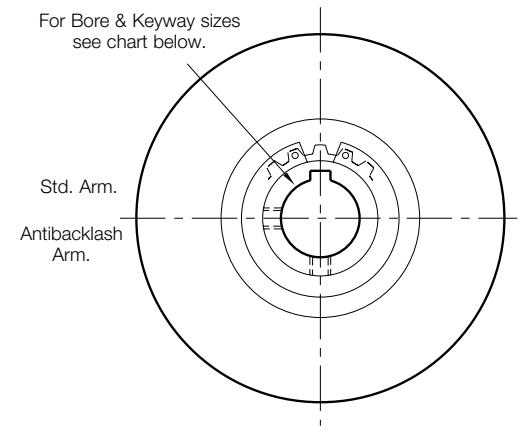
Example:

SFC-250 Clutch Coupling per I-25522 - 90 Volt
Standard Armature
1/2” Armature Hub Bore
1/2” Rotor Bore

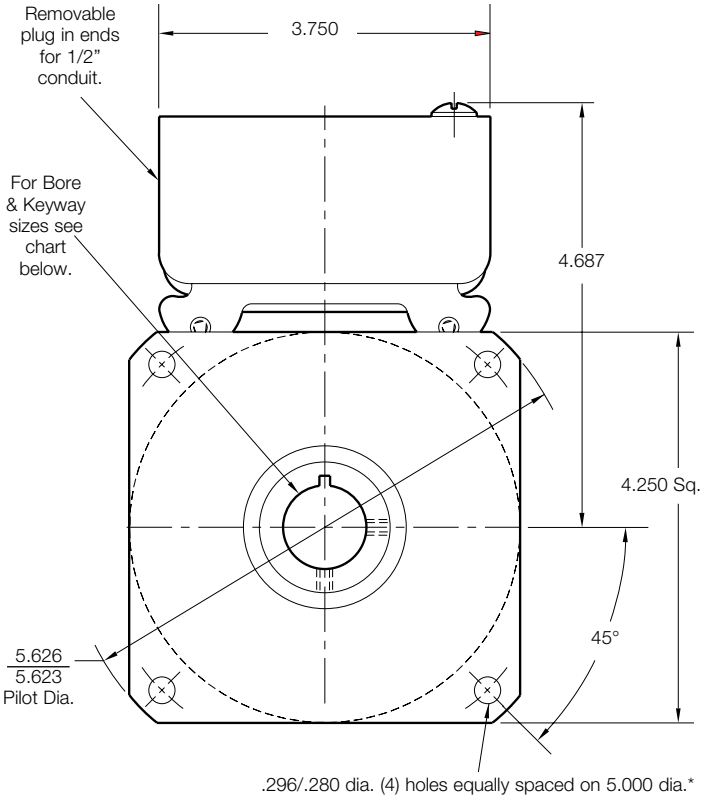
These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

SFC-400 Clutch Coupling Flange Mounted



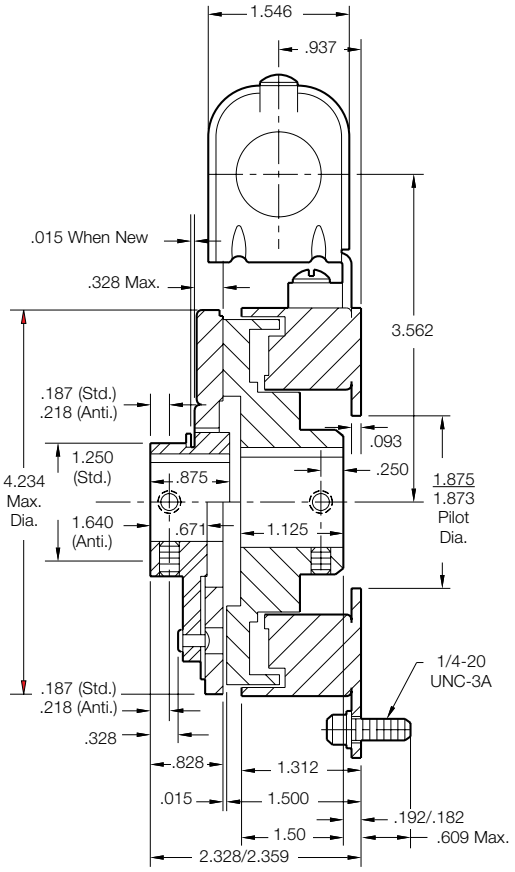
Armature View



Field View

Customer Shall Maintain:

1. Squareness of field mounting face with rotor shaft within .003 T.I.R. measured at pilot diameter.
2. Concentricity of field mounting pilot diameter with rotor mounting shaft within .003 T.I.R.
3. Rotor and armature shafts in line within .003 T.I.R.



*Mounting holes are within .010 of true position relative to pilot diameter.

Bore and Keyway Dimensions

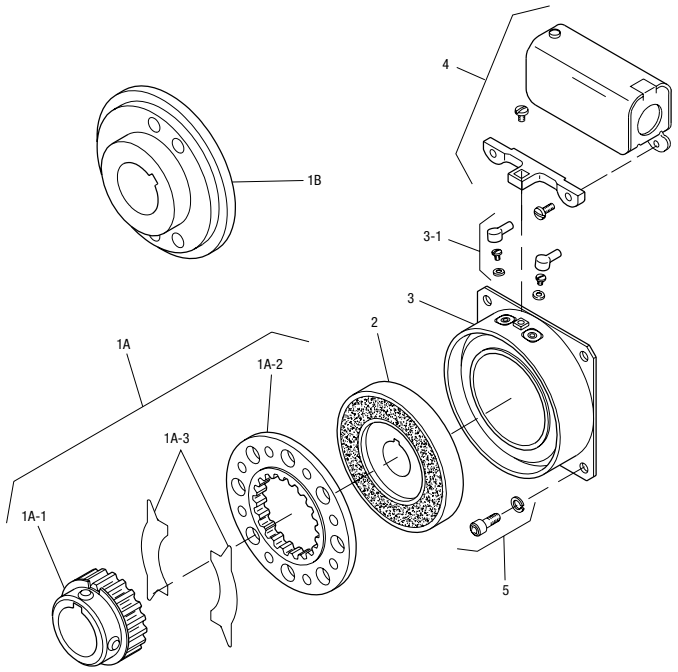
Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.501/.500	.125 x .062	.501/.500	.125 x.062
*.563/.562			
.626/.625		.626/.625	
*.688/.687	.187 x .093	.751/.750	.187 x .093
.751/.750		.876/.875	
.876/.875		1.001/1.000	

*Available on special order only

Armature Shaft	.500 – .875
Rotor Shaft	.500 – 1
Static Torque	270 lb. in.
Maximum Speed	4,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

SFC-400 Clutch Coupling Flange Mounted – Outside Mounted Drawing I-25697



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	1/2” Bore	5104-541-002	
	5/8” Bore	5104-541-004	
	3/4” Bore	5104-541-006	
	7/8” Bore	5104-541-007	
1A-2	Armature	5125-111-001	1
1A-3	Release Spring	5104-101-003	1
1B	Antibacklash Armature		1
	1/2” Bore	5367-111-003	
	5/8” Bore	5367-111-005	
	3/4” Bore	5367-111-007	
	7/8” Bore	5367-111-008	
2	Rotor		1
	1/2” Bore	5104-751-033	
	5/8” Bore	5104-751-034	
	3/4” Bore	5104-751-035	
	7/8” Bore	5104-751-036	
	1” Bore	5104-751-037	
3	Field		1
	6 Volt	5104-451-032	
	24 Volt	5104-451-033	
	90 Volt	5104-451-034	
3-1	Terminal Accessory	5103-101-002	1
4	Conduit Box	5200-101-010	1
5	Mounting Accessory	5104-101-002	1

How to Order:

1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 3.

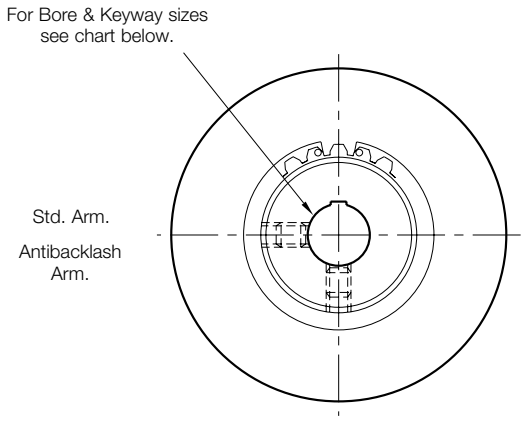
Example:

SFC-400 Clutch Coupling per I-25697 - 90 Volt
3/4” Armature Hub Bore
3/4” Rotor Bore

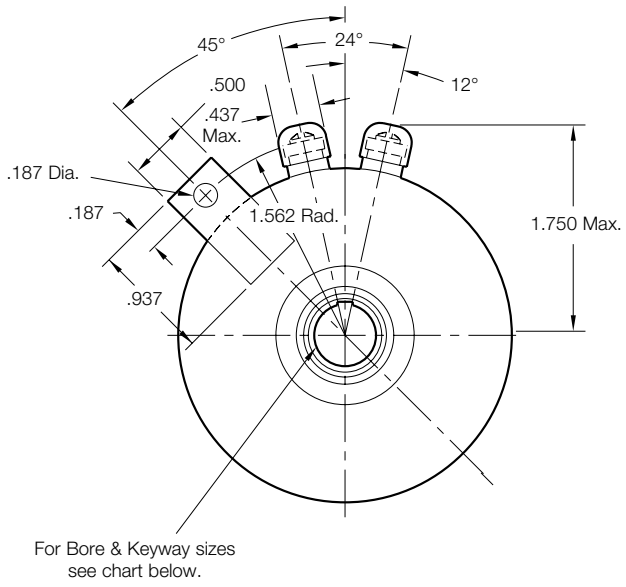
These units, when used in conjunction with the correct Warner Electric conduit box, meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164.

These units are CSA certified under file #LR11543.

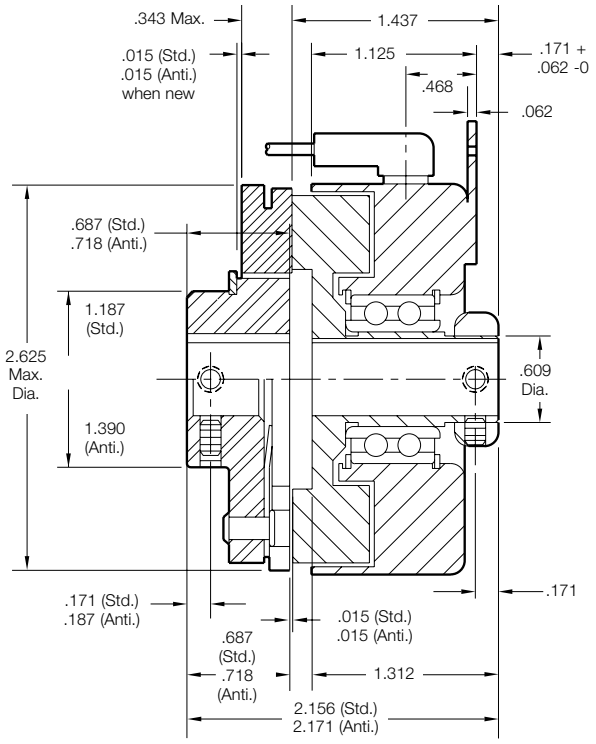
SFC-250 Clutch Coupling Bearing Mounted



Armature View



Field View



Bore and Keyway Dimensions

Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.375/.376	.093 x .046	.376/.375	.093 x .046
*.438/.437 .501/.500 *.563/.562 .626/.625	.125 x .062	*.438/.437 .501/.500	.125 x .062
*.688/.687 .751/.750	.187 x .093		

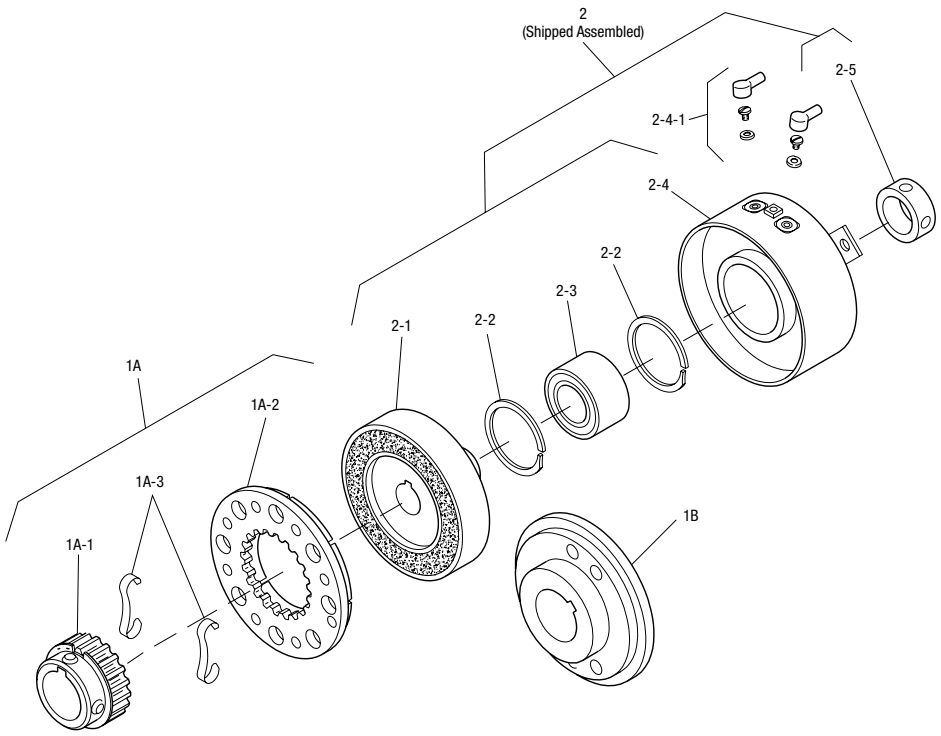
* Available on special order only.

Armature Shaft	.375 – .750
Rotor Shaft	.375 – .500
Static Torque	70 lb. in.
Maximum Speed	7,500 rpm
Standard Voltage	D.C. 6, 24, 90

All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature shaft to be concentric with rotor shaft within .003 T.I.R.



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	3/8” Bore	5103-541-002	
	1/2” Bore	5103-541-004	
	5/8” Bore	5103-541-006	
	3/4” Bore	5103-541-008	
1A-2	Armature	5124-111-001	1
1A-3	Release Spring	5103-101-003	1
1B	Antibacklash Armature		1
	3/8” Bore	5365-111-003	
	1/2” Bore	5365-111-005	
	5/8” Bore	5365-111-007	
	3/4” Bore	5365-111-009	
2	Field and Rotor Assembly		1
	6 Volt – 3/8” Bore	5103-452-002	
	24 Volt – 3/8” Bore	5103-452-004	
	90 Volt – 3/8” Bore	5103-452-007	
	6 Volt – 1/2” Bore	5103-452-016	
	24 Volt – 1/2” Bore	5103-452-018	
	90 Volt – 1/2” Bore	5103-452-021	
2-1	Rotor		1
	3/8” Bore	5103-751-014	
	1/2” Bore	5103-751-016	
2-2	Retainer Ring	748-0371	2
2-3	Ball Bearing	166-0108	1
2-4	Field		1
	6 Volt	5103-451-018	
	24 Volt	5103-451-020	
	90 Volt	5103-451-023	
2-4-1	Terminal Accessory	5103-101-002	1
2-5	Set Collar*	266-0005	1

*Used with 1/2” Bore only.

How to Order:

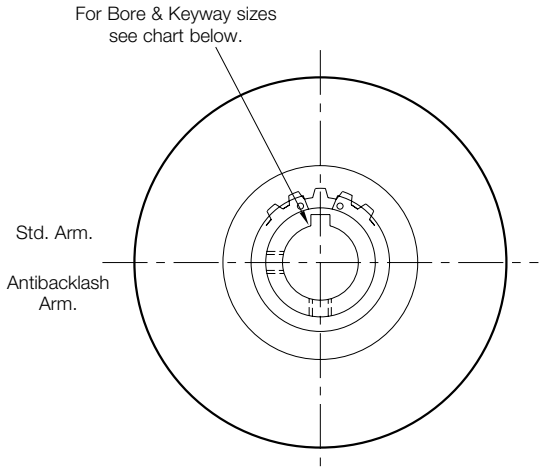
1. Specify Type of Armature Desired.
2. Specify Bore Size for Item 1A-1 or 1B and Item 2.
3. Specify Voltage for Item 2.

Example:

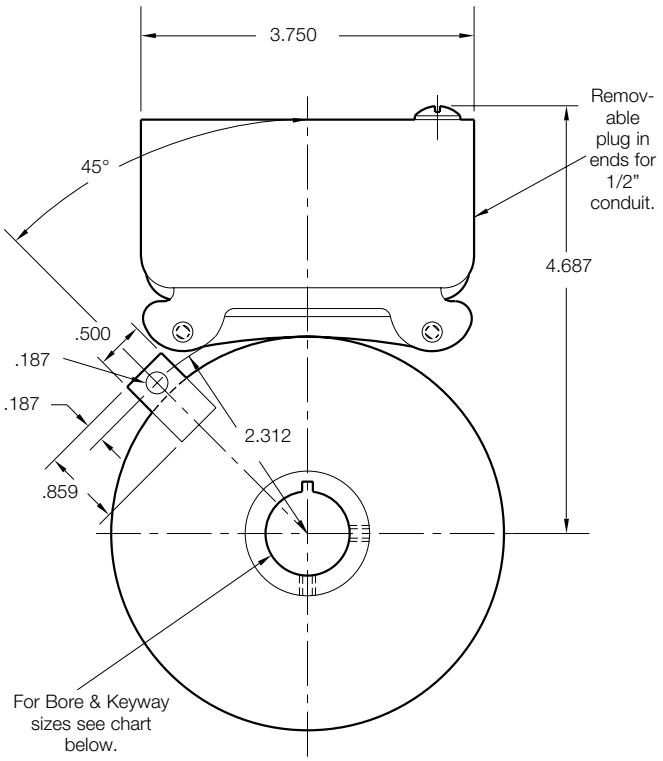
SFC-250 Clutch Coupling per I-25523 - 90 Volt
Standard Armature
1/2” Armature Hub Bore
1/2” Rotor Bore

These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164. These units are CSA certified under file #LR11543.

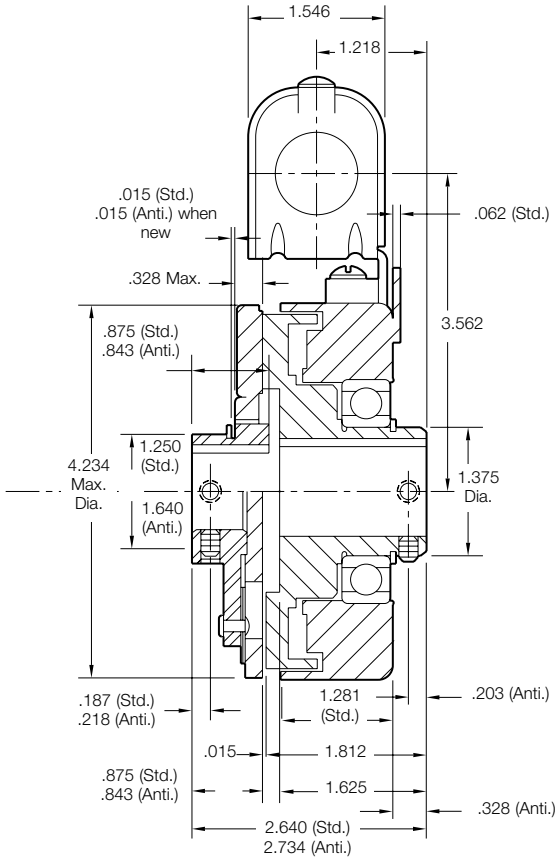
SFC-400 Clutch Coupling Bearing Mounted



Armature View



Field View



Bore and Keyway Dimensions

Armature Bore Dia.	Keyway	Rotor Bore Dia.	Keyway
.501/.500	.125 x .062	.501/.500	.125 x.062
*.563/.562			
.626/.625		.626/.625	
*.688/.687	.187 x .093	.751/.750	.187 x .093
.751/.750		.876/.875	
.876/.875		1.001/1.000	

* Available on special order only.

Armature Shaft	.500 – .875
Rotor Shaft	.500 – 1
Static Torque	270 lb. in.
Maximum Speed	4,500 rpm
Standard Voltage	D.C. 6, 24, 90

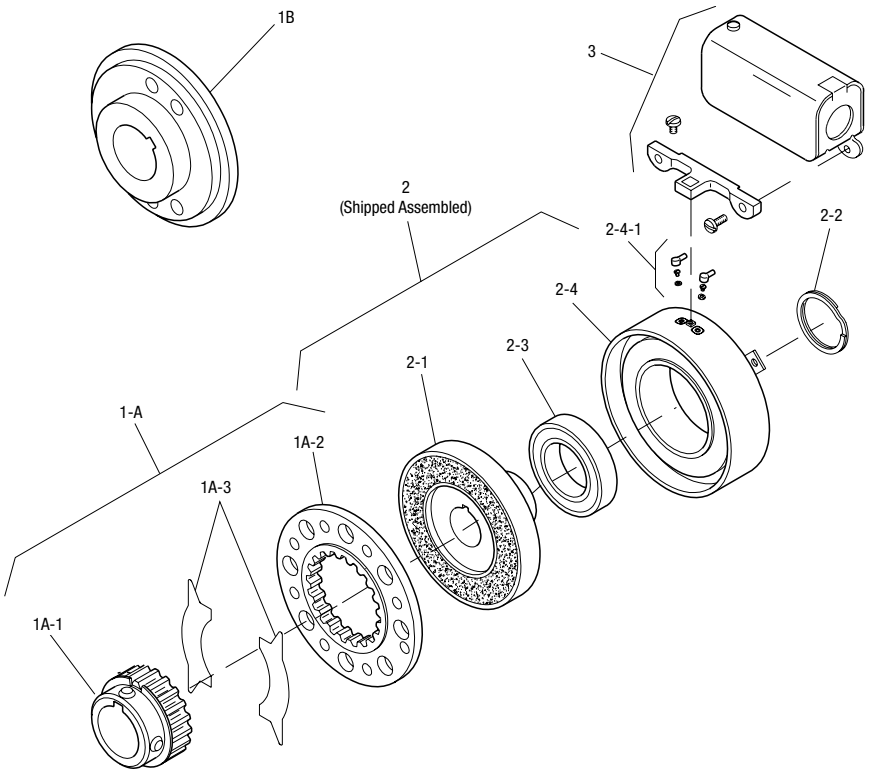
All dimensions are nominal unless otherwise noted.

Customer Shall Maintain:

1. Armature shaft to be concentric with rotor shaft within .003 T.I.R.

SFC-400 Clutch Coupling Bearing Mounted

Drawing I-25698



Item	Description	Part Number	Qty.
1A	Armature and Hub		
1A-1	Armature Hub		1
	1/2" Bore	5104-541-002	
	5/8" Bore	5104-541-004	
	3/4" Bore	5104-541-006	
	7/8" Bore	5104-541-007	
1A-2	Armature	5125-111-001	1
1A-3	Release Spring	5104-101-003	1
1B	Antibacklash Armature		1
	1/2" Bore	5367-111-003	
	5/8" Bore	5367-111-005	
	3/4" Bore	5367-111-007	
	7/8" Bore	5367-111-008	
2	Field and Rotor Assembly		1
	6 Volt – 1/2" Bore	5104-452-052	
	24 Volt – 1/2" Bore	5104-452-053	
	90 Volt – 1/2" Bore	5104-452-054	
	6 Volt – 5/8" Bore	5104-452-055	
	24 Volt – 5/8" Bore	5104-452-056	
	90 Volt – 5/8" Bore	5104-452-057	
	6 Volt – 3/4" Bore	5104-452-058	
	24 Volt – 3/4" Bore	5104-452-059	
	90 Volt – 3/4" Bore	5104-452-060	
	6 Volt – 7/8" Bore	5104-452-061	
	24 Volt – 7/8" Bore	5104-452-062	
	90 Volt – 7/8" Bore	5104-452-063	
	6 Volt – 1" Bore	5104-452-064	
	24 Volt – 1" Bore	5104-452-065	
	90 Volt – 1" Bore	5104-452-066	
2-1	Rotor		1
	1/2" Bore	5104-751-043	
	5/8" Bore	5104-751-044	
	3/4" Bore	5104-751-045	
	7/8" Bore	5104-751-046	
	1" Bore	5104-751-047	
2-2	Retainer Ring	748-0018	1
2-3	Ball Bearing	166-0150	1
2-4	Field		1
	6 Volt	5104-451-038	
	24 Volt	5104-451-039	
	90 Volt	5104-451-040	
2-4-1	Terminal Accessory	5103-101-002	1
3	Conduit Box	5200-101-010	1

How to Order:

1. Specify Type of Armature Desired.
2 Specify Bore Size for Item 1A-1 or 1-B and Item 2.
3. Specify Voltage for Item 2.

Example:

SFC-400 Clutch Coupling per I-25698 - 90 Volt
Antibacklash Armature
3/4" Armature Hub Bore
3/4" Rotor Bore

These units meet standards set forth in UL508 and are listed under guide card #NMTR2, file #59164. These units are CSA certified under file #LR11543.

Warranty

Warner Electric LLC 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 LLC'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 LLC factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric LLC, 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.

Warner Electric LLC's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric LLC 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 LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.

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