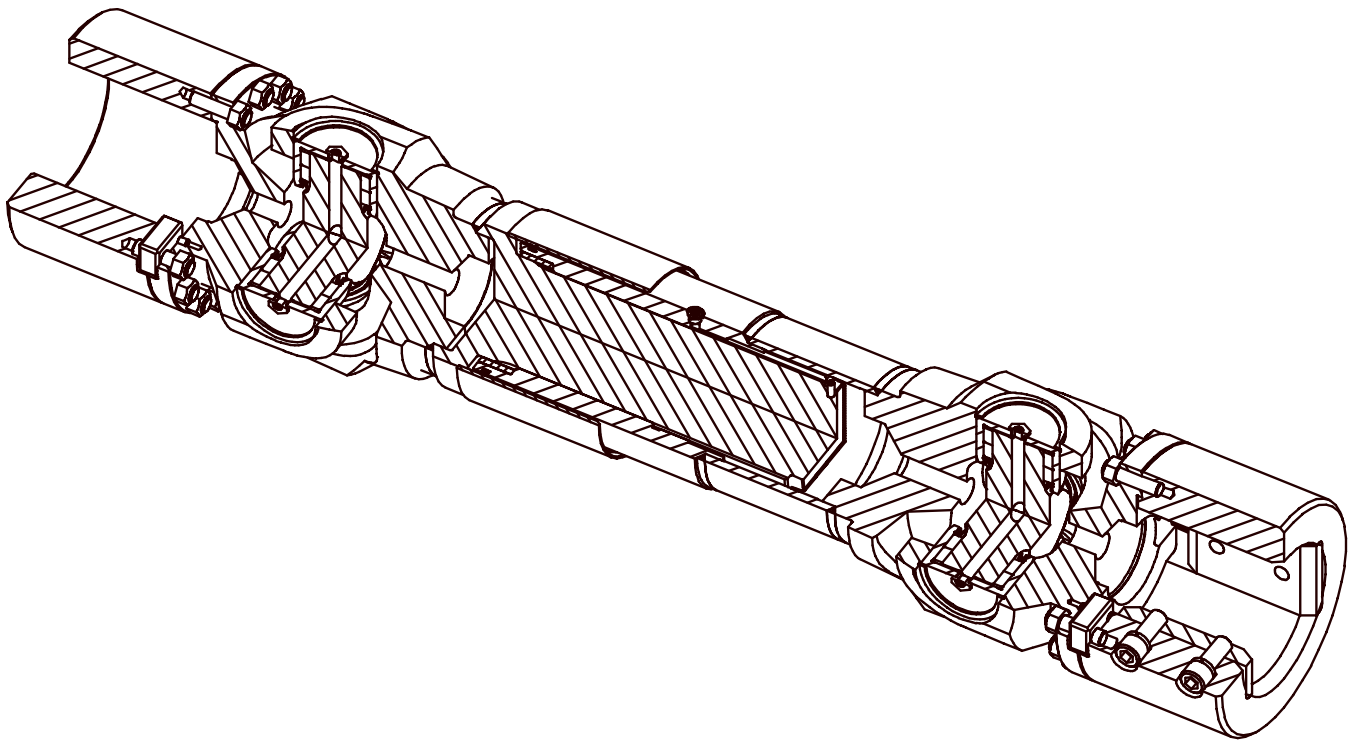


## **Americardan**

### **High Capacity Industrial Universal Joints Installation and Maintenance Manual**



# U - Joint Installation and Maintenance Manual

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## WARNING

**ACCIDENTS INVOLVING ROTATING EQUIPMENT MAY RESULT IN LOSS OF LIFE, SERIOUS BODILY INJURY OR PROPERTY DAMAGE. THE PURCHASER OF THIS EQUIPMENT MUST ASSURE THAT THE EQUIPMENT IS PROPERLY ASSEMBLED, INSTALLED, SHIELDED, OPERATED AND MAINTAINED. THIS EQUIPMENT MUST NOT BE OPERATED AT CONDITIONS THAT EXCEED MANUFACTURER'S SPECIFICATIONS.**

**PURCHASER MUST FOLLOW ALL FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS COVERING THE SAFE OPERATION AND MAINTENANCE OF THE EQUIPMENT, INCLUDING, WITHOUT LIMITATION, THE USDOL-OSHA "LOCKOUT/TAGOUT" PROCEDURE SET FORTH IN 29 CFR 1910.147.**

**IT IS THE PURCHASERS RESPONSIBILITY TO IMPLEMENT AND FOLLOW ITS OWN SAFETY, MAINTENANCE, AND EMPLOYEE TRAINING PROGRAM REGARDING THE SAFE AND PROPER OPERATION AND MAINTENANCE OF THE EQUIPMENT.**

NOTE: THIS DOCUMENT SUPERSEDES IM5 - 001

## 1 GENERAL

This manual is intended to be used as a guide for the installation and maintenance for Americardan Universal Joint Shaft Assemblies. For specific operating capacities and joint data, refer to the Ameridrives Sales Drawing.

Americardan Universal Joint Shaft Assemblies are high performance “ready to install” drive components for connecting misaligned shafts. Axial displacement can be accommodated with length compensating splines which are part of the intermediate shaft assemblies.

The Americardan Universal Joint Shaft Assembly features a factory assembled universal joint at each end of an intermediate shaft assembly. Length compensating splines are provided on Type ST and FT (see Section 2 for a detailed series description). The length compensating splines are lightly greased by hand at the factory and **must be fully lubricated by the installer before start-up.**

## 2 DESIGN AND TYPES - DESCRIPTION OF TERMINOLOGY

### 2.1 Bearing Designs

Americardan Universal Joints are provided with four (4) basic bearing designs:

- |                     |   |
|---------------------|---|
| Sizes U2131 - U2155 | Single row needle bearing design. Each bearing housing is retained by a snap ring.  |
| Sizes U2160 - U2180 | Single row needle bearing design. Bearing housings are retained by bolts and straps.  |
| Sizes U2190 - U2191 | Single row needle bearing wing bearing design. Bearing housings are bolted to the yokes.  |
| Sizes U3120 - U3390 | Two rows of roller bearings. Each bearing housing is retained by a large snap ring.   |
| Sizes U3440 - U3860 | Three or more rows of roller bearings. Includes replaceable inner races in the bearing assembly. Each bearing housing is retained by a large snap ring. |

### 2.2 Americardan Universal Joint Types

Americardan universal joints are one of the following four (4) types (refer to the Ameridrives Sales Drawing title block):

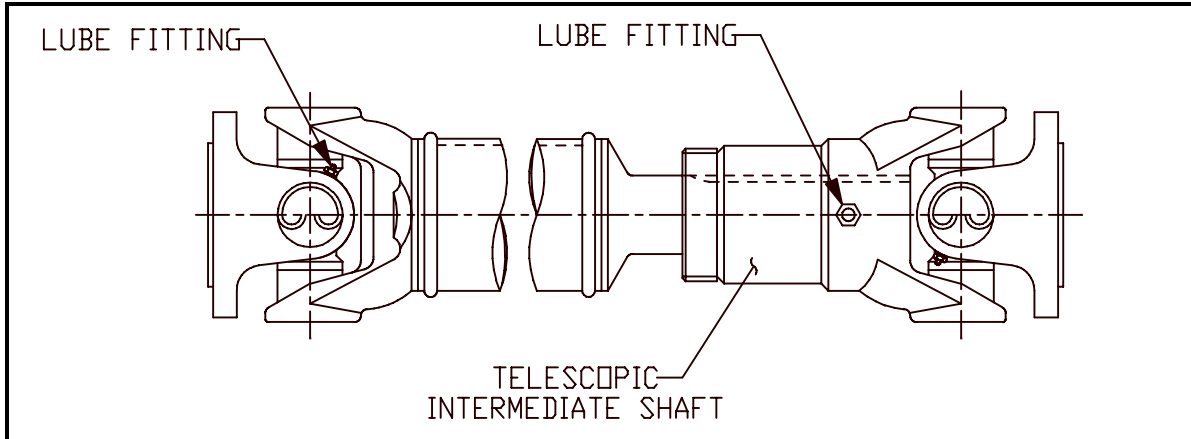
- |         |  |
|---------|--|
| Type ST | Telescopic intermediate shaft. Inboard yokes are welded integrally to each end of a the telescopic intermediate shaft. See Figures 2.1 through 2.3.  |
| Type SF | Fixed length intermediate shaft. Inboard yokes are welded integrally to each end of a fixed length intermediate shaft. See Figures 2.4 and 2.5.      |
| Type FT | Telescopic intermediate shaft with flanges. Flanged inboard yokes are bolted to each end of a flanged telescopic intermediate shaft. See Figure 2.6. |

Type FF

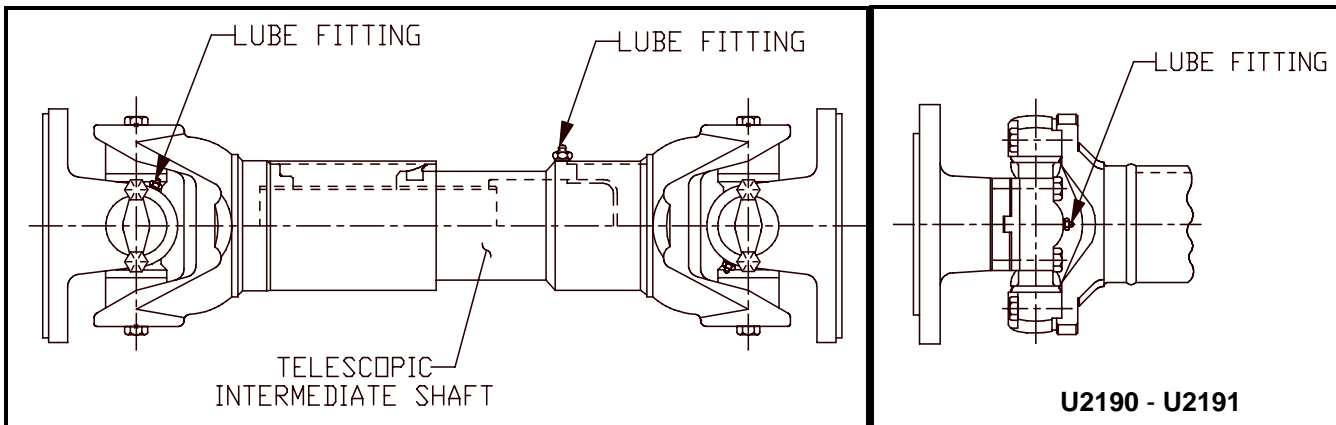
Fixed Length intermediate shaft with flanges. Flanged inboard yokes are bolted to each end of a flanged fixed length intermediate shaft. See Figure 2.7.

The outboard yokes are generally flanged and bolted to a flange adapter. The outboard yokes may have face keys, integral face pads, Hirth radial teeth or only bolts. See Figure 2.8.

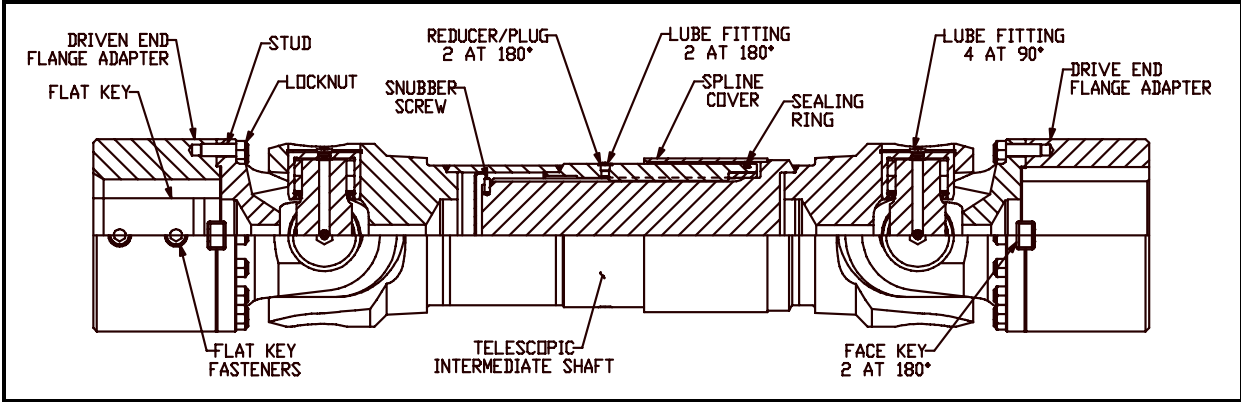
Figures 2.1 through 2.8 identify the major components and it's terminology for each Americardan Universal Joint Type.



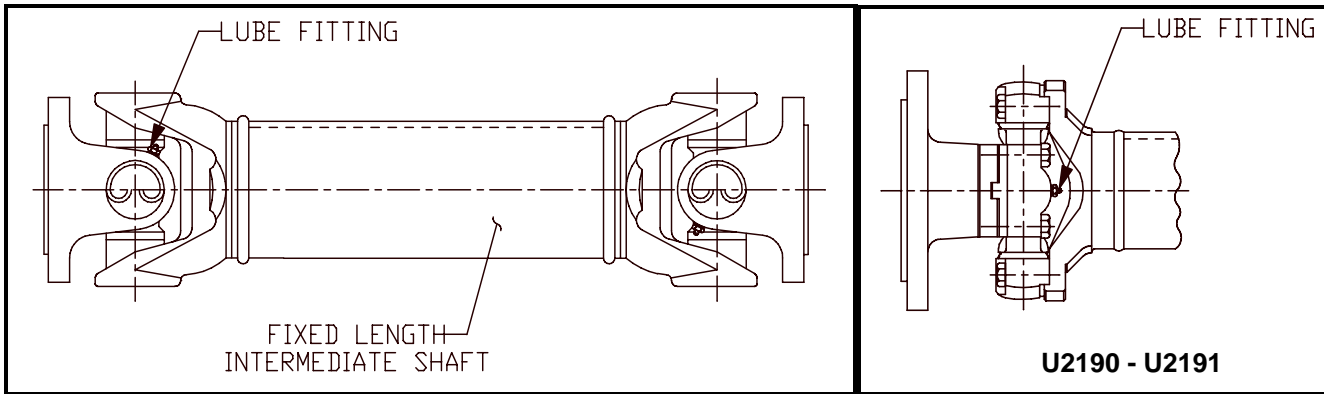
**Figure 2.1**  
Type ST: U2131 - U2148



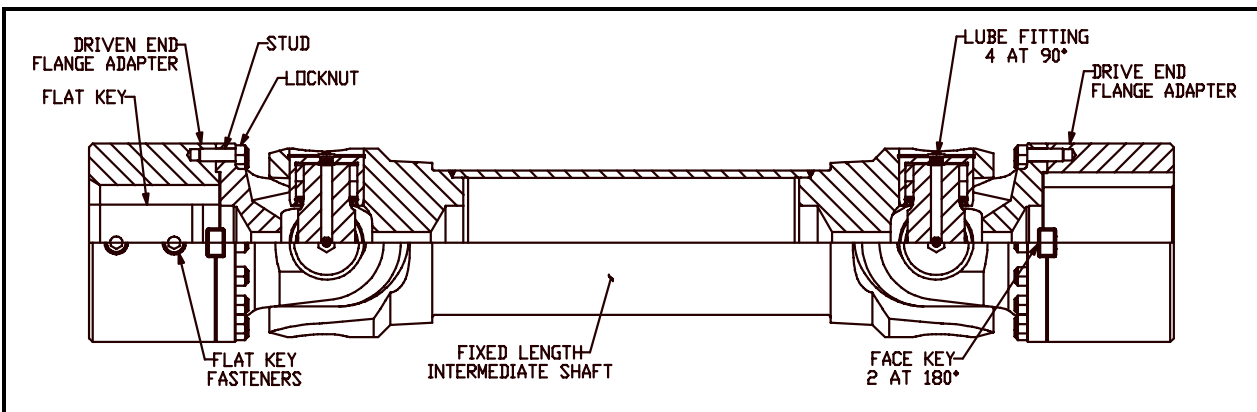
**Figure 2.2**  
Type ST: U2155 - U2191



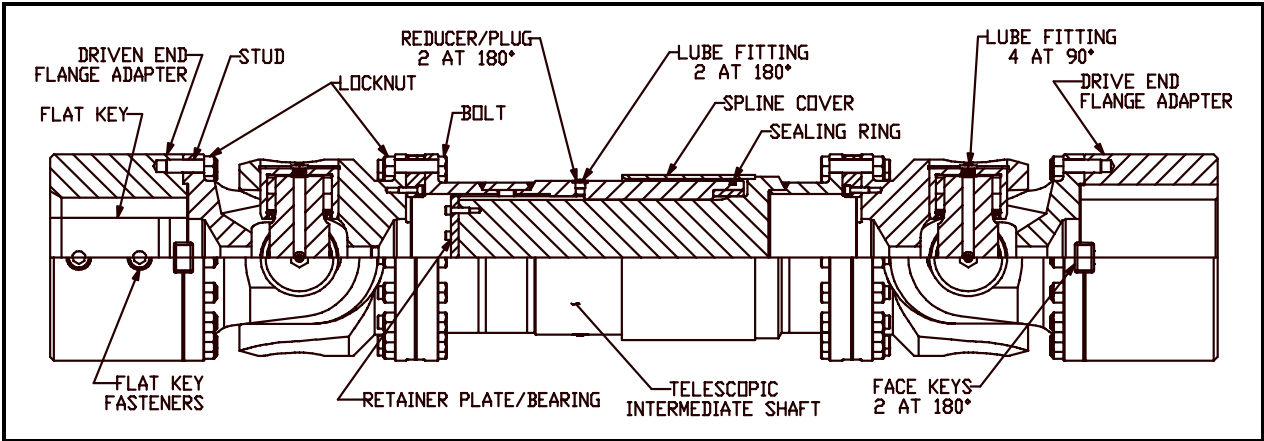
**Figure 2.3**  
Type ST: U3180 - U3390



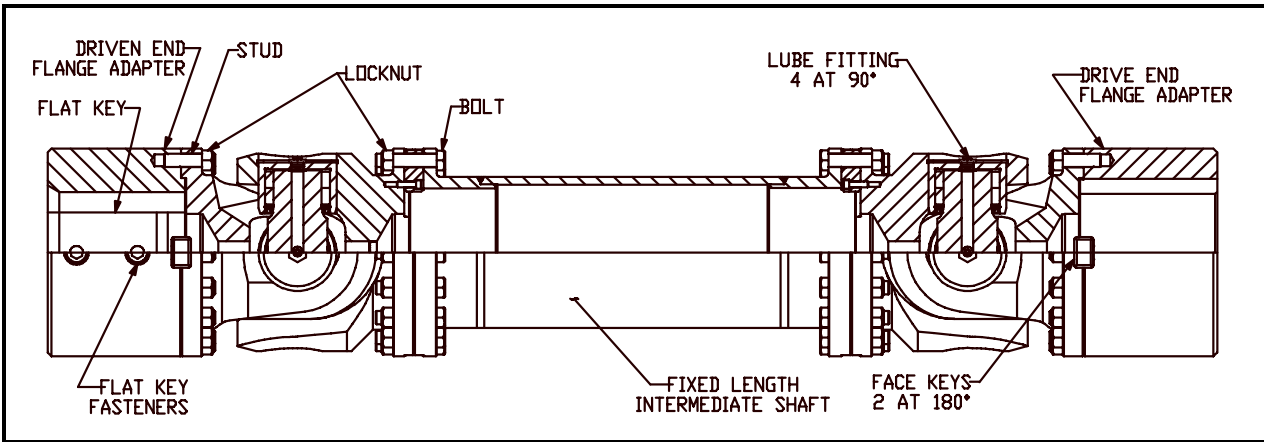
**Figure 2.4**  
Type SF: U2131 - U2191



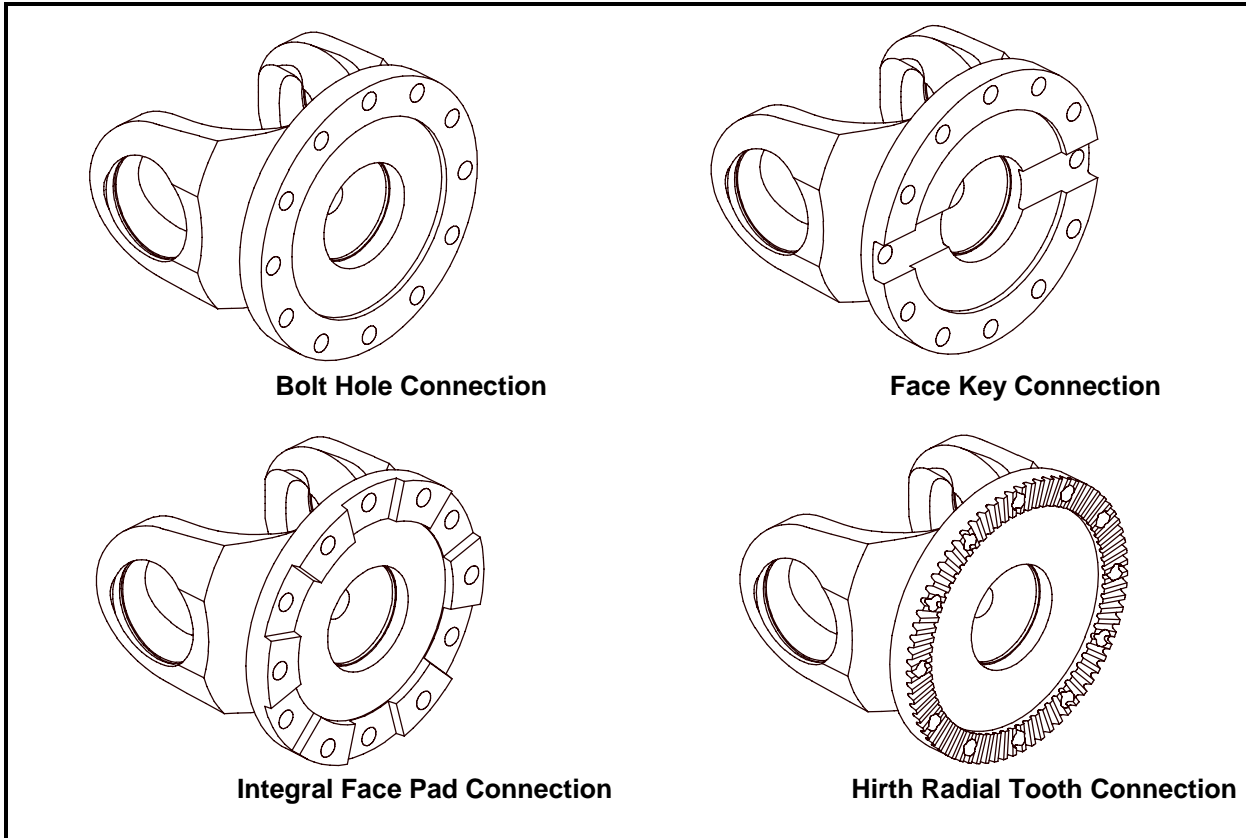
**Figure 2.5**  
Type SF: U3180 - U3390



**Figure 2.6**  
**Type FT: U3180 - U3860**



**Figure 2.7**  
**Type FF: U3180 - U3860**



**Figure 2.8  
Flange Connections**

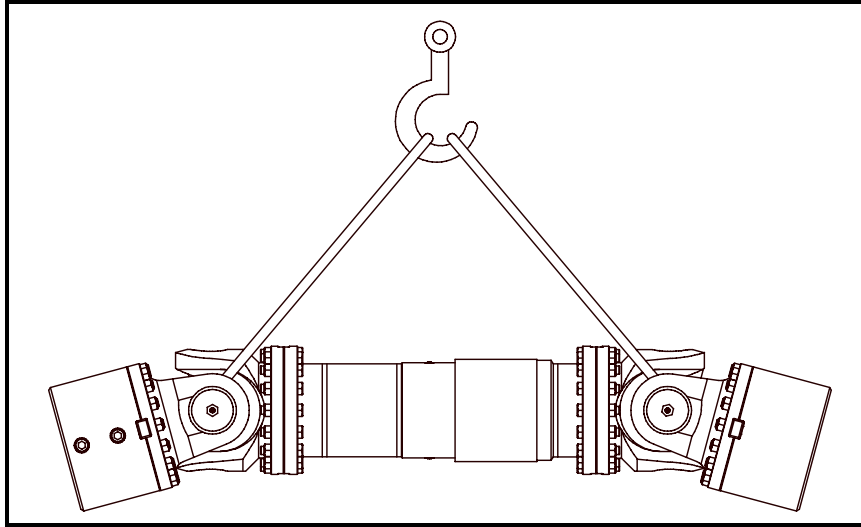
### **3 PRE-INSTALLATION INSTRUCTIONS**

Refer to the referenced sales drawing to confirm specific set-up dimensions. Wedges made of wood may be placed into the open areas between the yokes to prevent angular misalignment during shipment. Critical exposed surfaces are protected and coated with a preservative. At installation this coating should be removed with solvent.

If the assembly is to be stored for an extended period, do not remove the preservative. Be sure that the storage area is dry. If stored outdoors, the universal joint shaft assembly must be crated and protected from moisture at all times. Place supports under the unit to keep it off the ground.

**CAUTION: DO NOT PLACE A SLING OR CHAIN AROUND THE INTERMEDIATE SHAFT OR SPLINE COVER WHEN LIFTING OR TRANSPORTING. ALWAYS HANDLE AND TRANSPORT IN A HORIZONTAL POSITION EXCEPT WHEN HANDLING A UNIT DESIGNED FOR VERTICAL APPLICATIONS. SEE FIGURE 3.1 FOR THE PROPER METHOD TO LIFT THE ASSEMBLY.**

As soon as possible after the universal joint shaft assembly is received, check for damaged or missing components. Verify that the assembly is properly identified and complies with the Ameridrives Sales Drawing which contains important dimensions, parts list, operating data and matchmark notes pertinent to the application.



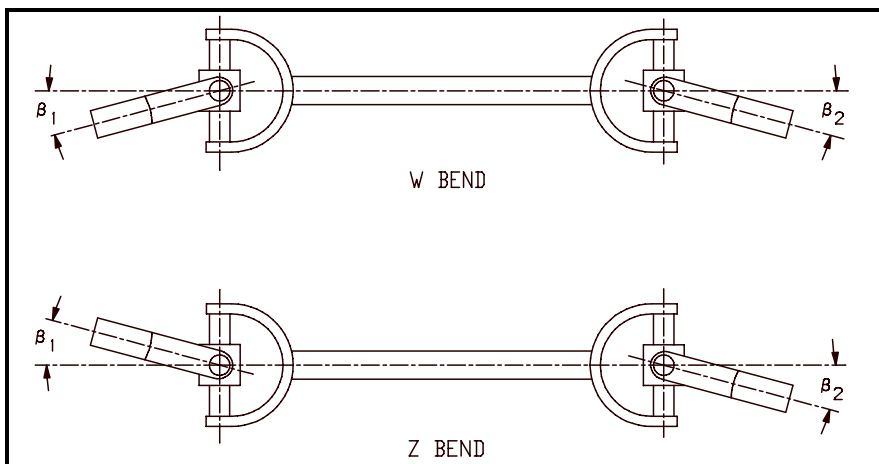
**Figure 3.1**  
**Lifting Method**

#### 4 INSTALLATION

Refer to the Ameridrives Sales Drawing and Ameridrives Form No. 750 - ADV for additional information.

Americardan Universal Joint Shaft Assemblies are designed to give maximum performance for the required operating conditions specified on the Ameridrives Sales Drawing. Refer to the Sales Drawing for the actual axial length requirements. The initial angular and parallel offset alignment of the equipment to be coupled should be set and secured so that the specified operating angle and parallel offset specified on the Sales Drawing are not exceeded. This will aid in assuring optimum life and performance of the universal joint assembly.

The two universal joints in tandem on the center section must be installed properly to assure the velocity variations in the first joint are in effect canceled by the velocity variation in the second joint. This is achieved by arranging the two joints in either a "W" or "Z" bend configuration with the joint angles  $\beta_1$  and  $\beta_2$  equal. See Figure 4.1.



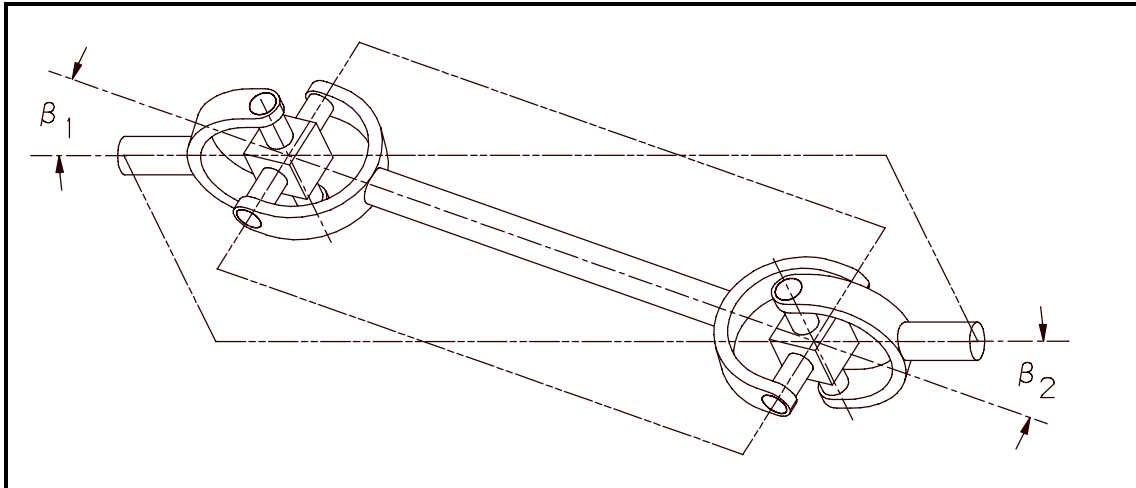
**Figure 4.1**  
**Equal Joint Angles**



Synchronous rotation of the drive and driven shafts is possible providing that all three of following conditions are met (see Figure 4.2):

1. The axis of all shaft sections lie in the same plane.
2. The bearing bores of the inboard yokes of the center section lie in the same plane.
3. The bend angles  $\beta_1$  and  $\beta_2$  are equal.

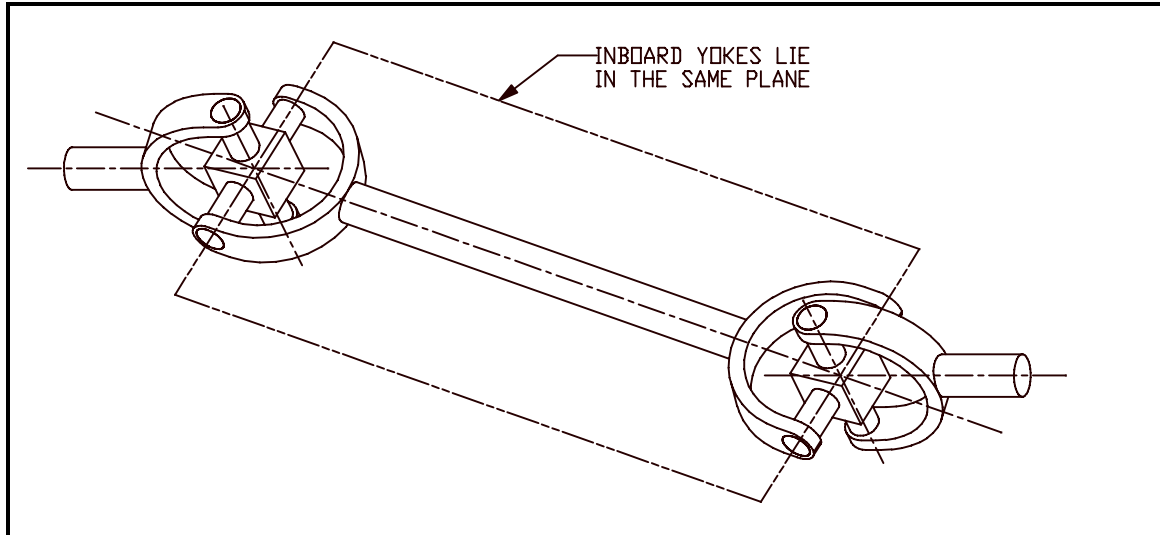
This ideal or phased arrangement will result in homokinetic operation of the universal joint driveline assembly. Failure to meet one or more of these requirements will result in some velocity fluctuation in the driven shaft. The acceptability of this velocity fluctuation is a function of the speed, system mass, and the sensitivity of the application.



**Figure 4.2**  
**Universal Joint Phased Arrangement**

The following is the recommended procedure for installation of an universal joint assembly after alignment of the equipment is completed. This procedure is for an ideal situation where there are no obstructions to hinder installation. It is not necessary to remove the clearance fit adapter from the yoke flange of the intermediate shaft assembly unless necessary to facilitate assembly due to obstructions, etc.

- 4.1 Partial disassembly is usually required, take note of the matchmarks when specified on the Sales Drawing and end to end alignment of the yokes. Occasionally, because of size or customer's preference, the flange adapters are not assembled to the universal joints. Check the assembly and Ameridrives Sales Drawing for matchmarks or other markings pertinent to the assembly. Unless otherwise specified on the Ameridrives Sales Drawing, it is important **that the yokes at each end of the intermediate shaft assembly be in the same plane. See Figure 4.3.** Therefore, it is necessary to refer to the Ameridrives Sales Drawing prior to and during installation for parts identification and specific set-up dimensions.



**Figure 4.3**  
**Inboard Yokes In Plane**

- 4.2 Remove the drive end flange adapter. Remove the driven end (roll end typically) adapter unless the adapter has a clearance fit and flat key surfaces. If the driven end adapter has a clearance fit it is not required to remove that adapter from the yoke flange of the intermediate shaft unless removal facilitates assembly due to obstructions, etc.

**CAUTION:** AMERIDRIVES MANUFACTURED THE UNIVERSAL JOINT ADAPTERS TO SHAFT INTERFACES BASED ON THE SHAFT DATA SUPPLIED BY THE PURCHASER. AMERIDRIVES IS NOT RESPONSIBLE FOR INACCURATE OR INCOMPLETE INFORMATION SUPPLIED BY THE PURCHASER.

**IT IS THE PURCHASERS RESPONSIBILITY TO ASSURE THAT THE INTERFACE CONNECTIONS (INTERFERENCE FITS, KEYS, ETC.) BETWEEN THE UNIVERSAL JOINT ADAPTERS AND THE CONNECTED EQUIPMENT ARE CAPABLE OF HANDLING THE ANTICIPATED LOADS.**

#### **4.3 Flange Adapter With Straight Bore (Interference Fit) Mounting Procedure**

- 4.3.1 Thoroughly clean the flange adapter bore, keyway, flange face and pilot. Face keyways, integral face pads, or Hirth splines should be cleaned when applicable.
- 4.3.2 Thoroughly clean the shaft and keyway.
- 4.3.3 Check the bore, shaft diameter, key and keyways for proper fit. Verify that any face keys are properly secured, and verify fit of face keyways, integral face pads and Hirth splines if applicable. Install the key typically flush with the shaft end.
- 4.3.4 Remove any nicks or dents with a fine grit stone.
- 4.3.5 Uniformly heat the flange adapter in an oven or hot oil bath to a temperature of 400° F maximum to expand the bore. Hold for 1 (one) hour per inch of thickness. Be cautious of the oil flash point.

The use of a torch is permissible under controlled conditions. While applying heat uniformly to the bore and outside diameter surfaces, the surface temperature must be checked constantly with temple sticks limiting the temperature to 500° F maximum. The torches or adapter should be continuously rotated to avoid localized hot spots.

4.3.6 Prepare a positive stop to prevent over travel of the flange adapter on the shaft at mounting. Align the heated flange adapter and shaft keyways and assemble the flange adapter as shown on the Ameridrives Sales Drawing.

4.3.7 Allow the components to **COOL** before doing further installation at this end.

#### **4.4 Flange Adapter With Tapered Bore (Interference Fit) Mounting Procedure**

4.4.1 Thoroughly clean the flange adapter bore, keyway, flange face and pilot. Face keyways, integral face pads, or Hirth splines should be cleaned when applicable.

4.4.2 Thoroughly clean the shaft and keyway.

4.4.3 Check the bore, shaft diameter, key and keyways for proper fit. Verify that any face keys are properly secured, and verify fit of face keyways, integral face pads and Hirth splines if applicable. Install the key typically flush with the shaft end.

4.4.4 Remove any nicks or dents with a fine grit stone.

4.4.5 Trial mount the flange adapter on the shaft. Make sure that the flange adapter is fully seated, but **DO NOT PULL-UP**. Verify fit and pull-up required for the adapter position. Using feeler gages, install a positive stop to achieve the required position.

4.4.6 Remove the flange adapter and uniformly heat the flange adapter in an oven or hot oil bath to a temperature of 400° F maximum to expand the bore. Hold for 1 (one) hour per inch of thickness. Be cautious of the oil flash point.

The use of a torch is permissible under controlled conditions. While applying heat uniformly to the bore and outside diameter surfaces, the surface temperature must be checked constantly with temple sticks limiting the temperature to 500° F maximum. The torches or adapter should be continuously rotated to avoid localized hot spots.

4.4.7 Align the heated flange adapter and shaft keyways and assemble the flange adapter against the positive stop to the position as shown on the Ameridrives Sales Drawing. Immediately install and seat the shaft locknut and locking setscrews.

4.4.8 Allow the components to **COOL** before doing further installation at this end.

#### **4.5 Flange Adapter With Clearance Fit Bore and Flat Key Surfaces Mounting Procedure**

It is not required to remove the clearance fit adapter from the yoke flange of the intermediate shaft assembly unless necessary to facilitate assembly due to obstructions, etc.

4.5.1 Thoroughly clean and inspect the roll end bore and flats for nicks and burrs. Deburr with fine grit stone or file.

4.5.2 Check bore, shaft diameter, and across flats for proper fit. Verify that any face keys are properly secured, and verify fit of face keyways, integral face pads and Hirth splines when provided.

- 4.5.3 Assure that the support devices for the roll end flange adapter are operational if applicable. If locking or holding devices for a clearance fit flange adapter are furnished, make sure they are functioning properly.
- 4.5.4 Position and install the flange adapter if disassembled from the intermediate shaft assembly, otherwise proceed to Section 4.6.

#### **4.6 Intermediate Shaft Assembly**

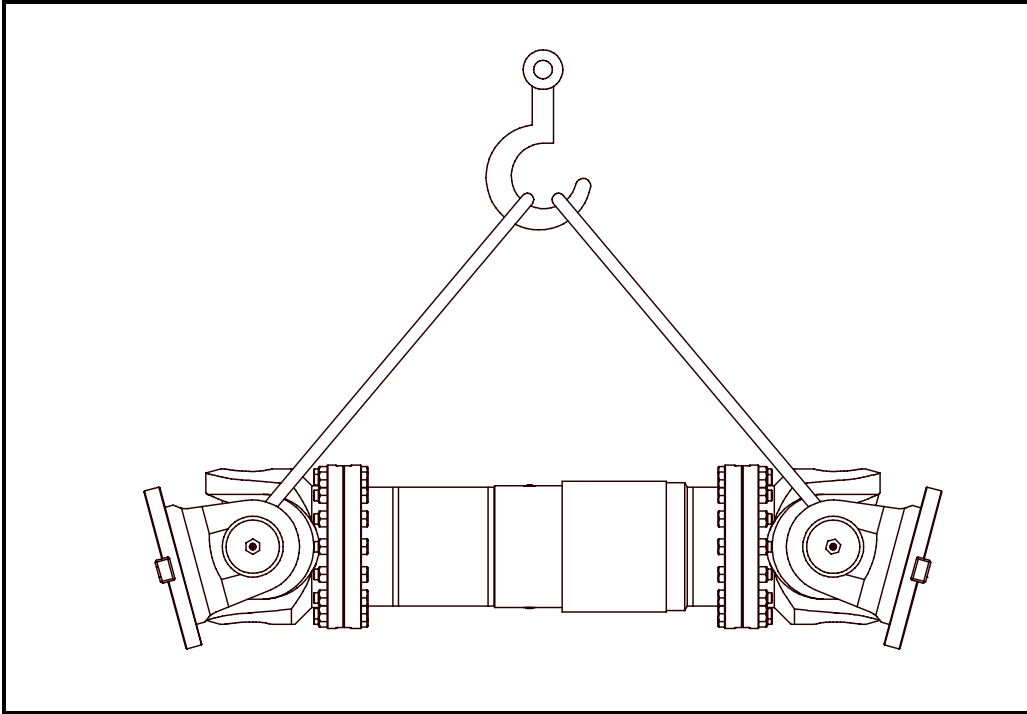
- 4.6.1 **DO NOT** remove the universal joint assemblies from either end of the intermediate shaft assembly.

**CAUTION: YOKES AT EACH END OF THE INTERMEDIATE SHAFT MUST BE IN THE SAME PLANE. SEE FIGURE 4.3.**

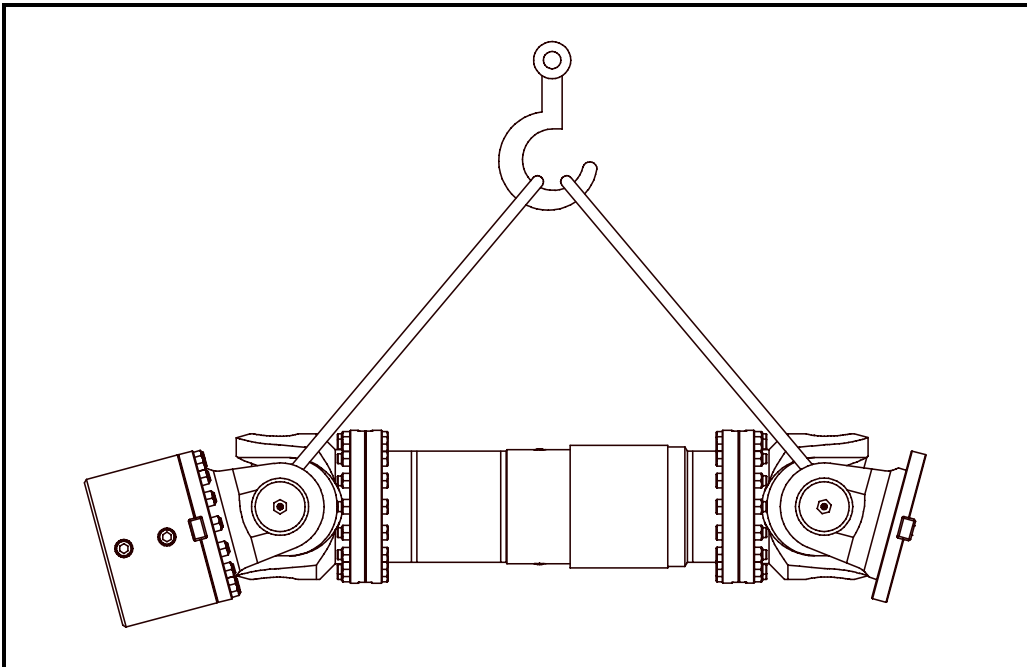
- 4.6.2 When face keys are present, verify that they are properly secured.
- 4.6.3 Mating flange faces and pilot diameters of flange adapters and universal joints are to be clean and free of burrs and nicks.
- 4.6.4 Check that the flange to flange dimension between the installed equipment complies with the data on the sales drawing.
- 4.6.5 Lift the intermediate shaft assembly with a sling at the inboard yokes as shown in Figure 4.4 or Figure 4.5 if a clearance fit adapter is assembled. This permits the outboard yokes to swivel and will facilitate alignment while mating with the flange adapter(s).

**CAUTION: DO NOT PLACE A SLING OR CHAIN AROUND THE INTERMEDIATE SHAFT OR SPLINE COVER WHEN LIFTING OR TRANSPORTING. ALWAYS HANDLE AND TRANSPORT IN A HORIZONTAL POSITION EXCEPT WHEN HANDLING A UNIT DESIGNED FOR VERTICAL APPLICATIONS. SEE FIGURES 4.4 OR 4.5 FOR THE PROPER METHOD TO LIFT THE ASSEMBLY.**

**CAUTION: FOR VERTICAL APPLICATIONS WITH A TELESCOPIC INTERMEDIATE SHAFT (SERIES ST AND FT), THE SHAFT SHOULD BE FULLY EXTENDED BEFORE LIFTING IN A VERTICAL POSITION. 2000 SERIES HAVE NO LOCKING FEATURE TO PREVENT DISCONNECTION OF SPLINES - USE EXTREME CARE AND SUPPORT LOWER HALF.**



**Figure 4.4**  
**Lifting Method Without Adapters**



**Figure 4.5**  
**Lifting Method With Clearance Fit Adapter**

- 4.6.6 Position the supported intermediate shaft assembly between the flanges of the drive end flange adapter and driven end flange adapter. Align bolt/stud holes, face keys

with keyways, or integral face pads and Hirth splines male to female as provided. If a clearance fit flange adapter is bolted to the intermediate shaft this adapter should be cradled in position with the roll end support mechanism provided by the equipment supplier.

- 4.6.7 Pass a few equally spaced bolts or all studs through the aligned holes of the mating flanges on the drive end and partially secure each with a locknut.
- 4.6.8 Draw-up each bolt/stud and nut uniformly and evenly until the face pad, Hirth spline or pilot is properly seated. Use of a crow foot wrench is recommended to assist in tightening the nuts. Install the remaining bolts and nuts on the drive end, tightening them uniformly and evenly in a cross wise pattern with a torque wrench. Refer to the Ameridrives Sales Drawing or Table 1 for the recommended tightening torque.

**NOTE: A SLIGHT GAP SHOULD BE PRESENT ON THE BOTTOM OF FACE KEYS AND FLANGE ADAPTER KEYWAYS, THE MALE AND FEMALE INTEGRAL FACE PADS, AND THE MALE AND FEMALE HIRTH SPLINE TEETH.**

<b>BOLT SIZE (INCH)</b>	<b>TIGHTENING TORQUE (FT-LB) DRY THREADS</b>	<b>TIGHTENING TORQUE (FT-LB) LUBED THREADS</b>
3/8—24	45	35
7/16—20	65	50
1/2—20	100	75
5/8—18	205	155
5/8—11	175	140
3/4—10	290	225
7/8—9	470	360
1—8	690	540
1-1/8—7	880	680
1-1/4—7	1,230	940
1-1/2—6	2,100	1,600

**TABLE 1: UNIVERSAL JOINT SHAFT ASSEMBLY  
HARDWARE TIGHTENING TORQUES**

- 4.6.9 To secure the mating flanges on the driven end repeat Steps 4.6.6 through 4.6.8.
- 4.6.10 Confirm the tightening torque of all remaining fasteners.
- 4.6.11 Remove the sling and all other supports except for the roll end support mechanism when applicable.

**5 LUBRICATION**

- 5.1 Check lubrication of all universal joint bearings which are pre-lubed at the factory prior to initial start-up. See Figures 2.1 through 2.7 for the location of the bearing lube fittings. When lubricating the universal joint bearings, grease is to be pumped into each of the bearing lube fittings until it emerges from the sealing lip. Do not overpressurize the bearings during lubrication. A maximum grease pressure of 5000 PSI is recommended.
- 5.2 Fully lubricate the telescoping spline of the intermediate shaft assembly for Types ST and FT prior to initial start-up. An adequate amount of lube should be provided for the telescopic spline. It is preferred to lube the telescopic spline with the center section fully

compressed. This will prevent the entire available lube cavity from being filled which could restrict length compensating travel. With the telescopic spline compressed, pump grease into one of the two lube fittings until it emerges past the sealing ring under the spline protector. See Figures 2.1, 2.2, 2.3 and 2.6 for the location of the telescopic spline lube fittings and sealing ring.

5.3 **CAUTION: THE LENGTH COMPENSATING SPLINES ARE ONLY HAND WIPED WITH GREASE AT THE FACTORY AND MUST BE THOROUGHLY LUBRICATED PRIOR TO START-UP.**

5.4 A lithium base grease or EP lubricant in compliance with AGMA 9001 for high torque operating conditions should be used. The following greases comply with AGMA 9001 for high torque operating conditions, for use of lubricants from alternate suppliers contact Ameridrives Power Transmission :

Lithium base grease: Mobilux EP-111 by Mobil

Synthetic type grease: Anderol 786 by Huls America, Inc. (recommended for extreme service or high temperature applications)

**CAUTION: THE UNIVERSAL JOINT BEARINGS AND LENGTH COMPENSATING SPLINES ARE PARTIALLY LUBED AT THE FACTORY WITH MOBILUX EP-111. THIS IS A LITHIUM BASED GREASE. OTHER TYPES OF GREASES MAY NOT BE COMPATIBLE. ALWAYS CONTACT THE LUBRICANT MANUFACTURER TO ASSURE COMPATIBILITY BEFORE USING DIFFERENT LUBRICANTS TO PREVENT PREMATURE FAILURE.**

## 5.5 Lubrication Intervals

5.5.1 Before start-up and subsequently after 500 hours maximum or every 30 days, re-lubricate all universal joint bearings and the telescopic spline on Types ST and FT. The lubrication program should comply with good operating practices for the equipment on which the universal joint is installed. Reference Figures 2.1 through 2.7 for the location of the bearing lube fittings and telescopic spline lube fittings.

5.5.2 When lubricating the universal joint bearings, grease is to be pumped into each of the lube fittings until it emerges from the sealing lip. A maximum grease pressure of 5000 PSI is recommended to prevent overpressurizing of the bearings.

5.5.3 Re-grease at ALL lube fittings if the universal joint is out of service for an extended period of time

**NOTE: COMPLIANCE WITH ALL APPLICABLE SAFETY CODES MUST BE OBSERVED AT ALL TIMES.**

## 6 ASSEMBLY CHECK

- 6.1 Verify that the application requirements comply with the operating conditions specified on the applicable sales drawing.
- 6.2 Check that all fasteners are properly torqued.
- 6.3 Check lubrication of the pre-lubricated universal joint bearings and length compensating spline at this time per Section 5 LUBRICATION.
- 6.4 Refer to Section 7 MAINTENANCE for the recommended frequency of lubrication.
- 6.5 Be sure that the drive and driven equipment are properly positioned and secured. Assure all unnecessary supports, wooden blocks, etc. are removed.
- 6.6 During start-up and initial operation observe the performance. Excessive vibration generally indicates a problem. Shut down is recommended, see Section 7.

## 7 MAINTENANCE

Americardan universal joints require a minimum amount of maintenance. However, a regularly scheduled maintenance program will assure maximum performance and extended life. The following is recommended as a guide. The intervals of maintenance and lubrication should comply with good operating practices for the type of equipment on which the universal joint is installed. Minimum recommendation is every 500 hours of operation or every 30 days.

Therefore, the following should be done simultaneously when servicing.

- 7.1 Check fasteners and mating flanges for tightness. Re-tighten if necessary to the proper tightening torque.
- 7.2 Check for play in the universal joints and in the sliding spline section. If any abnormal looseness is found, the universal joint should be overhauled. Contact Ameridrives Industries.
- 7.3 The presence of any unusual vibration and noise during operation or abnormal movement during the maintenance check should be thoroughly investigated to determine the cause. The possibility of improper flange connections, loose bolts, and keys should be corrected if present. Worn bearings and splines should be replaced.
- 7.4 It is recommended that Ameridrives Power Transmission be contacted for overhaul of the universal joint on a minimum of an annual basis.

**CAUTION: YOKES AT EACH END OF THE INTERMEDIATE SHAFT MUST BE IN THE SAME PLANE. SEE FIGURE 4.3.**

- 7.5 If an overhaul is not required, proceed with lubrication per Section 5.



## 8 DISASSEMBLY

- 8.1 If an overhaul is deemed necessary, it is recommended to remove the drive end adapter and driven end adapter. Return the whole intermediate shaft assembly on Types ST and SF per Figures 2.1 through 2.5. For Types FT and FF per Figures 2.6 and 2.7 either the whole intermediate shaft assembly or only the universal joints can be unbolted from the end of the intermediate shaft assembly per customer preference. Support the assembly as shown in Figures 4.4 or 4.5 during disassembly.

**CAUTION: DO NOT PLACE A SLING OR CHAIN AROUND THE INTERMEDIATE SHAFT OR SPLINE PROTECTOR WHEN LIFTING OR TRANSPORTING. ALWAYS HANDLE AND TRANSPORT IN A HORIZONTAL POSITION EXCEPT WHEN HANDLING A UNIT DESIGNED FOR VERTICAL APPLICATIONS. SEE FIGURES 4.4 AND 4.5 FOR THE PROPER METHOD TO LIFT THE ASSEMBLY.**

- 8.2 It is not recommended to disassemble the bearing assemblies or intermediate shaft assemblies with telescoping splines in the field. Contact Ameridrives customer service for assistance. In an emergency situation, the following is the basic procedure for disassembly of the intermediate shaft assembly.
- 8.2.1 Always apply easily visible matchmarks on the male and female telescopic spline of the intermediate shaft before total disassembly. This will assure that the universal joint yokes remain in the same plane at reassembly.
- 8.2.2 For 2000 Type ST pull the intermediate shaft apart. See Figures 2.1 and 2.2.
- 8.2.3 For 3000 Type ST remove the two lube plugs/ reducers and extend the travel until the two snubbing screws are visible and remove. Continue to extend the travel to fully disassemble. See Figure 2.3.
- 8.2.4 For 3000 Type FT refer to the Ameridrives Sales Drawing to identify the type of intermediate shaft. If snubbing screws are used follow the procedure in Section 8.2.3. For all other intermediate shaft types, the inboard universal joint yokes must be disassembled to provide access to the hardware attaching the snubbing plate or bearing. Fully collapse the intermediate shaft, remove the hardware and the plate or bearing. Extend the travel to disassemble. See Figure 2.6.
- 8.2.5 Reassemble reversing the procedures in Sections 8.2.1 through 8.2.4 using care to assure the applied spline matchmarks are in line to keep the universal joint yokes in the same plane.

**CAUTION: YOKES AT EACH END OF THE INTERMEDIATE SHAFT MUST BE IN THE SAME PLANE. SEE FIGURE 4.3.**

## 9 ORDERING INFORMATION

- 9.1 When returning an universal joint for overhaul or to order replacement parts, please contact our Mill Products Group at ***our new address or call us at our new phone listed below, our fax remains the same:***

***Ameridrives Power Transmission  
1680 Cornell Road  
Green Bay, WI 54313 USA  
(P) 920-593-2444  
(F) 920-593-2440***

- 9.2 Please provide the following information:

Size and type of Americardan universal joint assembly.  
Ameridrives sales drawing (assembly) number.  
Part number, name and quantity of each part.