

Instruction and Lubrication Manual for DODGE® GRID-LIGN FLEXIBLE COUPLINGS

Sizes 1020-1200T10 (Close Coupled, Horizontally Split Cover)

T20 (Close coupled, Vertically Split Covers)

T31 (Full Spacer Type)

T35 (Half Spacer Type)

These instructions must be read thoroughly before installation or operation.

INSTALLATION:

STEP 1: PRE-ASSEMBLY INSPECTION

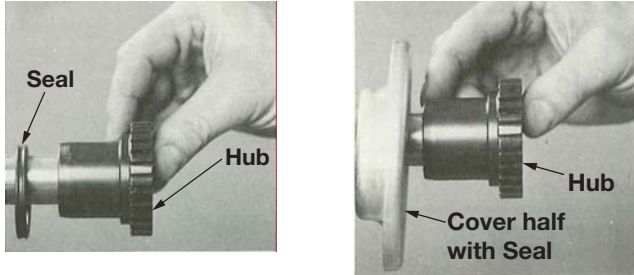
All parts should be examined for any damage during the shipping and handling process. Measurement should be taken to ensure parts meet application requirements, such as hub and shaft fits, shaft separation, etc. All parts must be clean and free of any foreign material before attempting assembly.

STEP 2: INSTALLATION OF KEYS

Install keys in respective shafts. Keys should fit keyseat with a tight fit on the sides and slight clearance over the key. Use plastic oil sealing compound around keys to prevent loss of lubricant.

STEP 3: MOUNTING HUBS

Fit hubs with ends of shaft per the following recommendations:



T10 Hub Mounting

T20 Hub Mounting

Figure 1 - Hub Mounting

NOTE: When mounting T10 couplings, seals must be installed prior to mounting shaft hubs. Lightly grease each of the two seals from the grid and cover assembly. Place each seal far back on its respective shaft.

NOTE: When mounting T20 coupling, cover halves including seals, must be mounted prior to mounting shaft hubs. Remove lube plugs from each cover half and insert the two seal rings into each cover. Lightly coat seals with grease. Place cover halves as far back as respective shafts with flanges facing each other.

A. Interference Fit with a straight bore hub requires the hub be expanded prior to mounting. Heat hub in oil bath or oven until bore is larger than shaft diameter. Refer to Chart 1 for temperature guidelines. Use extreme caution if heating bore with an open flame: To avoid distortion, it is essential that hub be heated evenly, not exceeding +450°F (+232°C).

NOTE: Interference fit limitation for keyed hub is a maximum of .00075" (0.019mm) interference per inch of shaft diameter.

WARNING: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a fail safe device must be an integral part of the driven equipment beyond the speed reducer output shaft.

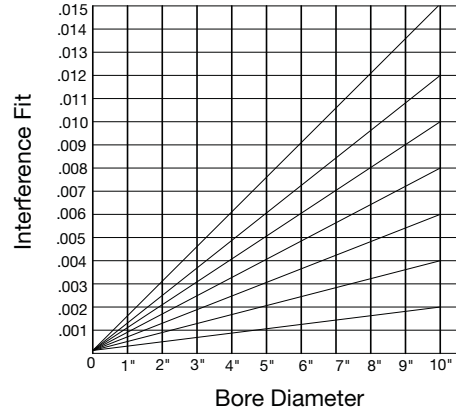


Chart 1 - Temperature Guidelines

- B. Clearance Fit** with a straight bore hub is recommended only for light duty applications. Slip hub onto shaft and tighten set screws to value listed in Table 4. Setscrews should be checked periodically for tightness.
- C. Taper Bored** hubs do not require preheating for assembly. Mount hub and align on shaft before drawing up on shaft the required distance. In most applications, the hub face will project beyond the small end of the shaft taper. Lock hub in place with proper locking device provided with shaft.
- D. TAPER-LOCK®** hubs are available for T10, T20, T31 and T35 style couplings for light and medium applications. Install per instructions for the TAPER-LOCK bushings.
- E. Shaft Separation** for T10 and T20 couplings should be set per appropriate "G" dimensions in Table 1. For T31 and 35 couplings, refer to the BSE (between shaft ends) dimension in Table 1.

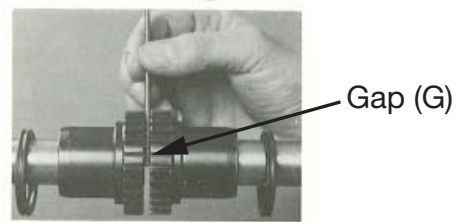


Figure 2 - Shaft Separation

STEP 4: ALIGNMENT

ANGULAR ALIGNMENT

NOTE: Proper alignment yields the longest service life.

A. Instrument Method of checking alignment is recommended since it is most accurate. Rigidly attach dial base to one of the hubs and indicator needle against a face of the other hub. Rotate both hubs 360°. Take indicator reading at four points, 90° apart. Adjust alignment until all four readings are within angular misalignment limits given in Table 1. To check alignment, relocate the dial base to the opposite hub and repeat the procedure.



B. Caliper / Feeler Gauge Method may be used if dial indicator is not available or shaft gap is too small; however, it is not the recommended method of checking alignment. Check with calipers or feeler gauge at four points, 90° apart. Adjust alignment until all four readings are within angular misalignment limits as shown in Table 1.

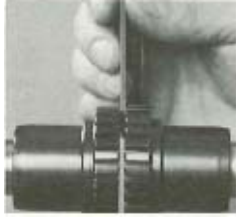


Figure 3 - Angular Alignment Feeler Gauge Method.

PARALLEL ALIGNMENT

A. Instrument Method is again recommended since it is most accurate. Rigidly attach dial base to one hub and set dial indicator button in contact with an outside diameter of opposite hub. Rotate both hubs 360°. Take indicator reading at four points 90° apart. Adjust alignment until all four readings are within parallel misalignment limits given in Table 1. To check alignment, relocate dial base on opposite hub and repeat the procedure. Recheck angular alignment.

B. A Straight Edge and Feeler Gauge may be used if a dial indicator is not available; however, it is not recommended as the most accurate method of checking alignment. Adjust alignment until straight edge appears to be resting squarely on both outside tooth diameters. Repeat procedure at 3 additional points, 90° apart. Refer to Table 1 for limits of parallel misalignment. Recheck angular alignment.

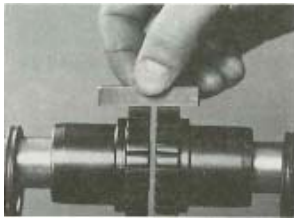


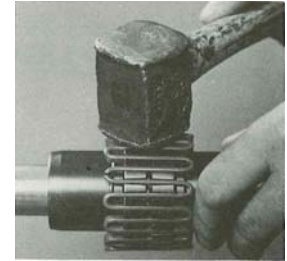
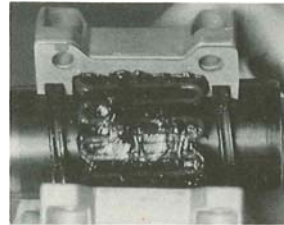
Figure 4 - Parallel Alignment Straight Edge Method

STEP 5: ASSEMBLY OF STANDARD GRID

A. Assembly of T10 (Close coupled, horizontally split cover) coupling:

- a. Before inserting grid, hand pack hub teeth with lubricant. (Refer to Tables 1 and 2 for recommendations on type and quantity of lubricant.) Fit grid over hubs and starting at one end, work coils of grid between the teeth. Seat with a soft mallet. If grids are supplied in more than one segment, install so that all cut ends extend in the same direction.

Hand pack more lubricant around the grid and between the spaces of the grid after it is installed. Refer to Step 7 for important information on lubrication.



Grease Packing

Inserting Grid

Figure 5 - Grease Packing and Grid Insertion

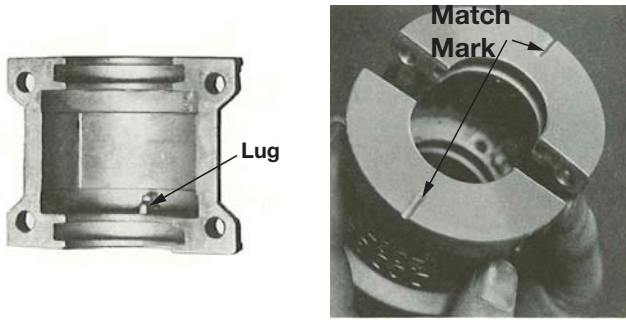
- b. Position the two cover seals on the hub and align with the grooves in the half cover. Place gaskets on flanges of bottom cover half. Assemble cover with match marks on same side. Install fasteners in cover halves with nut end of bolt nearest lube plug. (In this position, nuts are self retaining and do not require a wrench.) Tighten per T10 cover bolt tightening torque as shown in Table 1. (Sizes 1020-1090 have nut locking flats in cover.)

NOTE: T10 coupling may be mounted on vertical or inclined shafts. When doing so, assemble cover halves with anti-rotation lug and match mark up or on the higher side. (See below.)

Table 1 - Recommended Operating Misalignment

Size	Misalignment Limits ①				Coupling Gap - "G"				BSE (Shaft Spacing) for T31				BSE (Shaft Space) for T35				Spacer Flange Bolt Tightening Torque		Cover bolt Tightening Torque for Type T20, T10, T31, T35		Lubrication Weight	
	Parallel		Angular		Type T20, T10 T35		Type T31		Min.		Max.		Min.		Max.		(lb.-in.)	(Nm)	(lb.-in.)	(Nm)	Lbs.	Kg
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm								
1020T	0.005	0.13	0.005	0.13	0.125	3.18	0.188	4.78	3.50	88.9	8.00	203.2	1.78	45.2	4.03	102.4	120	14	100	11	0.06	0.03
1030T	0.005	0.13	0.005	0.13	0.125	3.18	0.188	4.78	3.50	88.9	8.50	215.9	1.78	45.2	4.28	108.7	120	14	100	11	0.06	0.03
1040T	0.005	0.13	0.005	0.13	0.125	3.18	0.188	4.78	3.50	88.9	8.50	215.9	1.78	45.2	4.28	108.7	120	14	100	11	0.12	0.05
1050T	0.005	0.13	0.005	0.13	0.125	3.18	0.188	4.78	4.38	111.3	8.50	215.9	2.22	56.4	4.28	108.7	250	28	200	23	0.12	0.05
1060T	0.010	0.25	0.010	0.25	0.125	3.18	0.188	4.78	5.00	127.0	13.00	330.2	2.53	64.3	6.53	165.9	440	50	200	23	0.25	0.11
1070T	0.010	0.25	0.010	0.25	0.125	3.18	0.188	4.78	5.00	127.0	13.00	330.2	2.53	64.3	6.53	165.9	440	50	200	23	0.25	0.11
1080T	0.010	0.25	0.010	0.25	0.125	3.18	0.188	4.78	7.25	184.2	16.00	406.4	3.66	93.0	8.03	204.0	825	93	200	23	0.38	0.17
1090T	0.012	0.30	0.012	0.30	0.125	3.18	0.188	4.78	7.25	184.2	16.00	406.4	3.66	93.0	8.03	204.0	1640	185	200	23	0.56	0.25
1100T	0.012	0.30	0.012	0.30	0.188	4.78	0.250	6.35	8.00	203.2	16.00	406.4	3.93	99.8	7.93	201.4	2940	332	260	29	0.94	0.43
1110T	0.012	0.30	0.012	0.30	0.188	4.78	0.250	6.35	8.25	209.6	16.00	406.4	4.80	121.9	7.93	201.4	2940	332	260	29	1.12	0.51
1120T	0.012	0.30	0.012	0.30	0.375	9.53	0.375	9.53	9.69	246.1	16.00	406.4	5.78	146.8	7.65	194.3	8160	922	650	73	1.60	0.73
1130T	0.012	0.30	0.012	0.30	0.375	9.53	0.375	9.53	10.12	257.0	16.00	406.4	6.53	165.9	7.90	200.7	11640	1315	650	73	2.00	0.91
1140T	0.012	0.30	0.012	0.30	0.375	9.53	0.375	9.53	10.50	266.7	16.00	406.4	7.40	188.0	7.90	200.7	16320	1844	650	73	2.50	1.13
1150T	0.012	0.30	0.016	0.41	0.375	9.53	0.375	9.53	13.50	342.9	14.75	374.7	6.65	168.9	7.28	184.9	5400	610	650	73	4.30	1.95
1160T	0.012	0.30	0.018	0.46	0.375	9.53	0.375	9.53	13.50	342.9	16.00	406.4	6.65	168.9	7.90	200.7	5400	610	650	73	6.20	2.81
1170T	0.012	0.30	0.020	0.51	0.375	9.53	0.375	9.53	15.00	381.0	17.50	444.5	7.40	188.0	8.65	219.7	8160	922	1300	147	7.70	3.49
1180T	0.015	0.38	0.022	0.56	0.375	9.53	0.375	9.53	15.75	400.1	19.31	490.5	7.78	197.6	9.56	242.8	11640	1315	1300	147	8.30	3.76
1190T	0.015	0.38	0.024	0.61	0.375	9.53	0.375	9.53	16.00	406.4	20.88	530.4	8.00	203.2	10.34	262.6	16320	1844	1300	147	9.70	4.40
1200T	0.015	0.38	0.027	0.69	0.375	9.53	0.375	9.53	17.50	444.5	22.50	571.5	8.80	223.5	11.15	283.2	16320	1844	2300	260	12.40	5.62

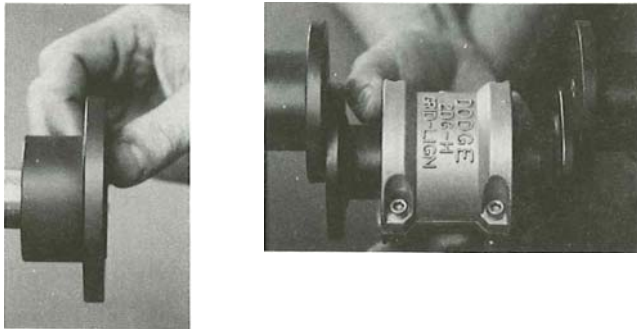
① These are recommended installation misalignment limits. As operating misalignment increases, coupling life is reduced.



Anti-Rotation Lug Cover Match Marks
Figure 6 - Positioning

B. Assembly of T20 (Close coupled, vertically split cover) coupling:

- a. Lubricate and install grid per Step 5a for T10.
- b. Bring together the T20 vertical cover halves with gasket positioned between them, aligning all bolt holes. Lube holes should be 180° apart. Tighten bolts to tightening torque given in Table 1.



Rigid Hub Mounting T31 Center Section Drops Out
Figure 7 - Full Spacer and Half Spacer Mountings

1.
C. Assembly of T31 (Full Spacer) and T35 (Half Spacer):

- a. The T31 and T35 seals and covers are mounted after the rigid shaft hubs are in place.
- b. Set shaft spacing per appropriate BSE dimensions per Table 1.
- c. Carefully stretch cover seals over teeth and onto spacer hub. Bolt each half spacer hub onto rigid shaft hubs and torque to specifications given in Table 1 (Spacer Flange Bolt Tightening Torque).
- d. Lubricate and install grid per Step 5a for T10.
- e. Position cover seals on hubs and assemble cover with seals and gaskets per Step 5b.
- f. To remove spacer with cover, loosen rigid hub bolts and compress spacer hubs to disengage pilots. Center section of spacer coupling will drop out without disturbing driver or driven shafts.

STEP 6: LUBRICATION

Remove both lube plugs in cover and insert lube fitting. Pump in appropriate lubricant and amount of lubricant (per Tables 1 and 2) until it is forced out of the opposite lube hole, then install lube plugs in holes.

NOTE: All lube plugs must be installed before operating coupling.

NOTE: Proper lubrication of all types of GRID-LIGN couplings is necessary for their efficient operation and long service life.

Table 2 lists lubricants from several manufacturers, which will perform satisfactorily under average industrial conditions as long as the ambient temperature is within the limits of 0°F to 150°F (-18°C to +66°C). This table does not constitute a complete listing of acceptable lubricants, and is not meant to prohibit the use of lubricants with equivalent properties. Lubricants required for severe operating conditions should be referred to CO Engineering (864-284-5700) or a lubrication manufacturer's representative for recommendations. Under average industrial conditions it is recommended that GRID-LIGN coupling lubricants meet the specifications listed in Table 2.

**Table 2 -- Suggested Lubricants
(Ambient Temperature 0°F to 150°F)**

Manufacturer	Name of Lubricant
Amoco	Amolith #2
Citgo	Citgo HEP-2
Conoco	EP Conolith #2
Exxon	Ronex MP
Mobil	Moilux EP-1 and EP-2
Shell	Alvania Grease #2
Sun Oil	Prestige 42
Mobil	Mobilegrease XTC

GRID-LIGN Coupling Lubricant Recommendations:

- Ambient Temperature Range: 0°F to 150°F (-18°C to +66°C)
- NLGI Rating: 1 through 3 per ASTM D-217
- Minimum Base Oil Viscosity: 750 SSU @ 100°F per ASTM D-445
- Minimum Dropping Point: 220°F (105°C) per ASTM D-556 or D-2265
- Maximum Thickener Content: 8% Oxidation Resistance, Maximum Pressure Drop: 20 psi@ 100 hours per ASTM D-942
- Recommended Properties: anti-oxidation, anti-rust, extreme pressure.

STEP 7: MAINTENANCE

Maintenance is recommended every 6 months to ensure long life. Disassemble coupling, remove old lubricant and clean. Visually inspect all parts. Replace any worn parts. Hand pack coupling with lubricant and repeat Step 6.

STEP 8: GRID REMOVAL

When it is necessary to disassemble coupling, remove cover halves. Beginning at a cut end of grid, carefully insert a screwdriver into loop. Using the teeth for lever-age, gradually pry the grid up, alternating sides while working around the coupling.

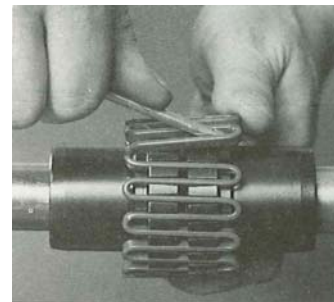


Figure 8 - Grid Removal

INTERCHANGE INFORMATION

The DODGE GRID-LIGN flexible couplings components are designed to be interchangeable with other tapered grid style coupling components. See Table 3 for more information.

Table 3 - Tapered Grid Coupling Nomenclature Interchange					
Coupling with Horizontally Split Covers			Coupling with Vertically Split covers		
DODGE	Falk		DODGE	Falk	
1020T10	20T10	1020T10	1020T20	20T20	1020T20
1030T10	30T10	1030T10	1030T20	30T20	1030T20
1040T10	40T10	1040T10	1040T20	40T20	1040T20
1050T10	50T10	1050T10	1050T20	50T20	1050T20
1060T10	60T10	1060T10	1060T20	60T20	1060T20
1070T10	70T10	1070T10	1070T20	70T20	1070T20
1080T10	80T10	1080T10	1080T20	80T20	1080T20
1090T10	90T10	1090T10	1090T20	90T20	1090T20
1100T10	100T10	1100T10	1100T20	100T20	1100T20
1110T10	110T10	1110T10	1110T20	110T20	1110T20
1120T10	120T10	1120T10	1120T20	120T20	1120T20
1130T10	130T10	1130T10	1130T20	130T20	1130T20
1140T10	140T10	1140T10	1140T20	140T20	1140T20
1150T10	150T10	1150T10	1150T20	150T20	1150T20
1160T10	160T10	1160T10	1160T20	160T20	1160T20
1170T10	170T10	1170T10	1170T20	170T20	1170T20
1180T10	180T10	1180T10	1180T20	180T20	1180T20
1190T10	190T10	1190T10	1190T20	190T20	1190T20
1200T10	200T10	1200T10	1200T20	200T20	1200T20
Spacer Coupling			Half Spacer Coupling		
DODGE	Falk		DODGE	Falk	
1020T31	20T31	1020T31	1020T35	20T35	1020T35
1030T31	30T31	1030T31	1030T35	30T35	1030T35
1040T31	40T31	1040T31	1040T35	40T35	1040T35
1050T31	50T31	1050T31	1050T35	50T35	1050T35
1060T31	60T31	1060T31	1060T35	60T35	1060T35
1070T31	70T31	1070T31	1070T35	70T35	1070T35
1080T31	80T31	1080T31	1080T35	80T35	1080T35
1090T31	90T31	1090T31	1090T35	90T35	1090T35
1100T31	100T31	1100T31	1100T35	100T35	1100T35
1110T31	110T31	1110T31	1110T35	110T35	1110T35

Set Screw Installation Torque

Table 4 - Set Screw Installation Torque for Straight and Finished Bore Flanges																				
Inch Set Screw Size	#0	#1	#2	#3	#4	#5	#6	#8	#10	1/4	5/16	3/8	7/16	1/2	1/16	5/8	3/4	7/8	1	
Torque (lb-in)	1	1.8	1.8	5	5	10	10	20	36	87	165	290	430	620	620	1325	2400	5200	7200	
Torque (Nm)	0.1	0.2	0.2	0.6	0.6	1.1	1.1	2.3	4.1	9.8	18.6	32.8	48.6	70.1	70.1	149.7	271.2	587.5	813.5	
Metric Set Screw Size	M4	M5	M6	M8	M10	M12	M16	M20												
Torque (in-lbs)	19	35	64	150	290	480	1190	2100												
Installation Torque (Nm)	2.2	4	7.2	17	33	54	134	237												

NOTE: Verify Set Screw Size Prior to Tightening



P.O. Box 2400, Fort Smith, AR 72902-2400 U.S.A., Ph: (1) 479.646.4711, Fax (1) 479.648.5792, International Fax (1) 479.648.5895

Dodge Product Support

6040 Ponders Court, Greenville, SC 29615-4617 U.S.A., Ph: (1) 864.297.4800, Fax: (1) 864.281.2433

www.baldor.com

