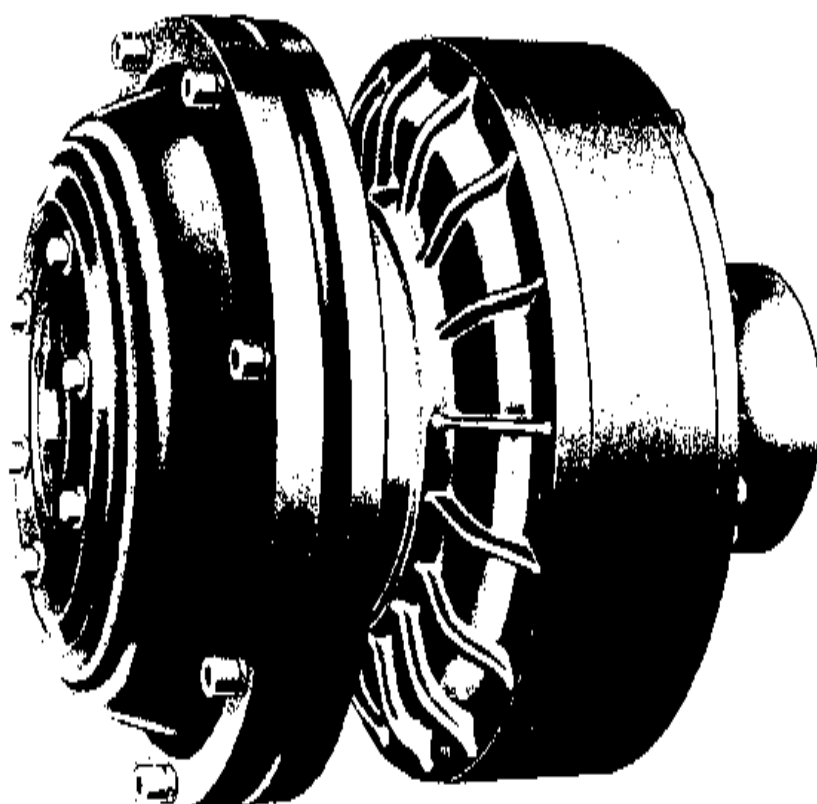


INSTRUCTION MANUAL
FOR
DODGE®
Flexidyne® PH Couplings
Sizes: D15116, D15131, D18172



WARNING: Because of the possible danger to persons(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 holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

DESCRIPTION

Flexidyne dry fluid couplings are a unique concept to provide soft start and momentary overload protection for all types of driven equipment. Standard NEMA-B motors with RPM base speeds of 1750, 1160 or 860 are commonly used with a Flexidyne coupling, yet other available power sources may be used with the Flexidyne coupling.

The dry "fluid" in the Flexidyne coupling is heat treated steel shot. A measured amount, referred to as flow charge, is added into a housing which has been keyed to the motor shaft. When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, packs it between the housing and the rotor which in turn transmits power to the load.

After the starting period of slippage between housing and rotor the two become locked together and achieve full load speed, operating without slip and with 100% efficiency.

Consequently, the motor accelerates instantly to base speed, while the load starts gradually and smoothly.

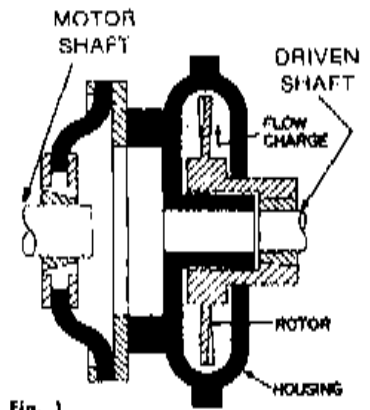


Fig. 1

INSTALLATION

IMPORTANT: Duplex (double cavity) Flexidyne couplings are for use on horizontal shafts only.

1. Install driven hub (70) on driven shaft, making sure that the shaft does not project beyond the end of the TAPER-LOCK® bushing (4). Install Taper-Lock bushing per instruction sheet (499645) supplied with bushing.

2. Mount flange assembly on motor shaft. Straight bored assemblies -- press or shrink flange assembly on the shaft. Taper-Lock assemblies -- install per instruction sheet (499645) supplied with Taper-Lock bushing. Taper-Lock flanges are reversible to allow the locating of bushing screws on either the inside or the outside as desired. Motor shaft end is normally flush with flange but, may extend through as much as dimension 'A' in Table 1.

NOTE: The D18172 requires a spacer ring (14) which must be installed between flange (9 or 10) and clamp ring (11) before mounting flange assembly on shaft.

Flexible Element Installation

3. Slip bolt ring (18) over flange and rest on shaft.

4. **Size D15116 & D15131** -- remove clamp ring screws (12) and internal clamp ring (7). Place internal clamp ring (7) inside the element (16) and reassemble to flange (5) seating the bead of the element on the flange. Tighten clamp ring screws alternately and evenly to torque values shown in Table 1.

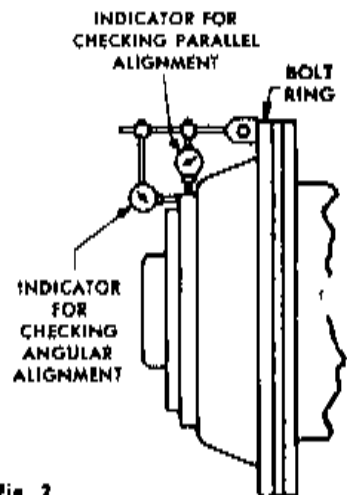
Size D18172 -- remove external clamp ring (11) and rest it on shaft. Turn element (16) sideways to shaft and push over flange. Seat element on flange (9 or 10) and reassemble clamp ring (11) and screws (12) tightening to recommended torque value in Table 1.

5. Place shafts in position so that dimension 'B' Table 1 will be maintained. If shaft end float is to occur, locate shafts at mid-position of end float.

6. Place bolt ring (18) and screws (20) in position. Using a torque wrench, tighten screws alternately and evenly until all screws are tightened to recommended torque in Table 1.

7. Check shaft alignment. Although the shafts may be perfectly aligned in installation, some parallel and angular misalignment may develop in usage due to shifting of the driving and driven units. It is desirable to align the coupling as accurately as possible at installation to minimize flexing of the flexible element caused by the shaft misalignment which usually develops in usage.

Check both parallel and angular alignments by mounting indicators near the O.D. of the flange (Fig. 2) and rotating the shafts through 360°. For a good installation neither indicator reading should exceed value "C" in Table 1. Both alignments should be rechecked after any repositioning.



The cutout which is included with the coupling must be installed to protect against excessive heat which may be generated in the Flexidyne mechanism by prolonged or frequent slipping caused by Fig. 2

overloads. It can be hooked up to automatically interrupt the current and, if desired, activate a bell, light or other warning device. For hazardous atmospheres special explosion-proof cutouts are available.

Table 1

Flexidyne Coupling Size	A*	B*	C	Torque Values (in.-lbs.)		
				Clamp Ring	Bolt Ring	Rotor Screw
D15116	2 3/4"	2"	.030	400	300	200
D15131	3 1/4"	2 1/4"	.035	400	350	200
D18172	3 1/4"	2 1/4"	.045	900	500	350

*See drawing on page 6.

START-UP

1. The flow charge recommended in Table 2 on page 4 is the amount per cavity required. To assure a more even initial distribution of flow charge, remove filler plugs and pour 1/2 of recommended amount in both cavities. Replace filler plugs being careful to clear threads of any flow charge. Manually rotate the Flexidyne housing several turns. Remove filler plugs and pour in remaining amount of flow charge. Clear threads as before, replace filler plugs and torque to 700 in.-lbs.

2. Attach AC ammeter (conventional clamp-on or equivalent) to one line of the AC motor. Set range to cover 200% of motor nameplate current.

3. Note maximum allowable acceleration time for Flexidyne as stated in Table 3. **Note:** Table 3 lists starting time capacity for starting cycles occurring more than once every 2 hours.

4. Push start button. Observe motor current during load acceleration and number of seconds required to reach full speed (Fig. 3).

Increase amount of flow charge if:

- A. Acceleration time reaches maximum allowable before load is up to speed. Turn off power immediately if this time is reached.
- B. Acceleration amperage is below motor nameplate.

Decrease amount of flow charge if:

- A. Acceleration time is less than $1\frac{1}{2}$ seconds.
- B. Acceleration amperage is above 200% of motor nameplate.

5. Once satisfactory operation has been obtained record the following for future reference:

1. The amount of flow charge.
2. Starting current.
3. Acceleration time.

The Flexidyne coupling should start the load smoothly and without delay provided the proper amount of flow charge has been used. Should the acceleration time exceed the maximum allowable in Table 2 on page 4, shut off power to the Flexidyne coupling immediately. Allow the Flexidyne coupling to cool, then add small amounts of flow charge until proper acceleration is observed.

Vibration -- is an indication of accelerating too rapidly and not allowing flow charge to become evenly distributed in the Flexidyne housing. This can be corrected by removing small amounts of flow charge until vibration subsides. Other causes of vibration are, undersize shafting, unit not installed far enough on shaft or worn bore in the unit.

Slippage -- The Flexidyne coupling can, without slipping, transmit overloads up to 130% of its pre-set starting

For average industrial applications involving 3 or 4 starts a day and of not more than 6 seconds acceleration time each, the flow charge should be changed every 10,000 hours of operation. For more severe conditions, visually inspect flow charge at more frequent intervals; it should be changed when it has deteriorated to a half powder, half granular condition. See page 7 for flow charge analysis. Visual inspections should continue until

Since there is slippage within the flow charge during acceleration, heat is generated from friction. The thermal capacity of the Flexidyne coupling is based on balancing this heat generated during acceleration against the cooling time between accelerations. The amount of heat generated is determined by the amount of horsepower dissipated by slipping and the duration of each acceleration. If the flow charge weight is light, the heat generated will not be as great as that which would be generated with a heavier flow charge, when compared at the same acceleration time. A longer time between starts will dissipate more heat; therefore, higher starting horsepower may be transmitted, or longer acceleration times may be allowable. (See Starting Cycle)

Acceleration times shown in Table 2 are for starting frequencies of one start per hour or less. If starting frequency is more than once per hour, use acceleration time for actual starting cycle shown in Table 3.

Acceleration times listed in Tables 2 and 3 are the MAXIMUM permissible for the various starting frequencies listed. The MINIMUM acceleration time required for proper Flexidyne coupling operation is 1 to $1\frac{1}{2}$ seconds. This is the time required for the flow charge to be uniformly distributed around the housing cavity before the unit "locks in". Any acceleration time between the minimum and maximum listed is acceptable, although a shorter

Warning: The rotor of the Flexidyne coupling must slip during acceleration to allow flow charge to become evenly distributed in the Flexidyne housing. Therefore, **DO NOT ALLOW FLEXIDYNE COUPLINGS TO RUN "FREE"** (that is, without a load on the driven end), otherwise an out-of-balance condition may result damaging equipment.

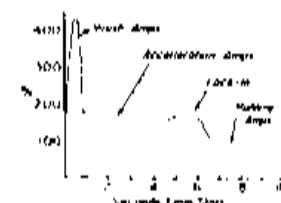


Fig. 3

The amount of flow charge in the Flexidyne housing determines the acceleration time for a given load. Slower acceleration times will occur when less flow charge is used and faster acceleration, from stop to full speed, will be observed with greater amounts of flow charge.

OPERATION

torque. Should this breakaway torque be exceeded the Flexidyne coupling will slip and generate heat (see Overload Protection). Although slippage usually indicates increased loads, it can also be caused by worn flow charge or a worn rotor especially if the Flexidyne coupling has been in operation for some time. The necessity to replace either a rotor or flow charge will be made evident by a loss in power transmitting capacity of the Flexidyne coupling.

To Replace Flexible Element

1. Remove screws (20) from bolt ring (18) and place bolt ring on shaft.
2. Remove screws (12), back off clamp ring (6, 7 or 11) and remove flexible element (16). (It may be necessary to back off one shaft to allow room.)
3. Install new flexible element per INSTALLATION, Step 2 on page 2.

MAINTENANCE

enough flow charge changes have been made to adequately establish a schedule for renewing Flexidyne flow charge.

The Flexidyne coupling has been lubricated at the factory and no further lubrication is required. **Never apply grease, oil or any other foreign material to the flow charge.**

THERMAL CAPACITY

acceleration time will generally provide longer wear life. For applications requiring a specific acceleration time (within these limits) flow charge may be added or removed to produce the required results.

Stalled -- If a jam-up stalls the drive, the motor continues to run and the Flexidyne coupling slips. This causes heat to be generated at twice the rate of normal acceleration. Therefore, the allowable slipping time, when stalled, is half the allowable acceleration time given in Table 2.

Starting Cycle is the time from the beginning of one acceleration to the beginning of the next Allowable acceleration times in Table 3 are based on the assumption that the Flexidyne coupling will be running continuously except for a momentary stop before the next start. If the stop is more than momentary, decrease the actual starting cycle by one-half the stopped time before using Table 3; for example, with a 50 minute actual starting cycle of which 20 minutes is stopped time, decrease 50 by half of 20 to give 40 minutes as the starting cycle time to use for Table 3.

Grouped Starts -- For several starts grouped together followed by uninterrupted running, add the acceleration times of all starts and consider it as the time for one start. The starting cycle would be the time from the beginning of one group of starts to the beginning of the next group.

Table 2 — Flow Charge Recommendations
Based on % of Starting Torque for 1760 RPM NEMA Design B Motors

Rated Motor HP	100% @ 1760 RPM												125% @ 1750 RPM						150% @ 1740 RPM						175% @ 1700 RPM						200% @ 1650 RPM					
	Start- ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time In Sec. †	Start- ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time In Sec. †	Start- ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time In Sec. †	Start- ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time In Sec. †	Start- ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time In Sec. †	Start- ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time In Sec. †						
			Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.		Lbs.	Oz.	Lbs.	Oz.		
125	125	D15131	7	3	30	156	D15131	8	6	24	186	D15131	9	4	19	312	D15131	10	4	15	236	D15131	11	1	14											
150	150	D15131	8	3	25	167	D15131	9	3	19	224	D15131	10	3	19	305	D15131	11	1	15	285	D15131	12	1	12											
200	200	D15131	9	7	16	250	D15131	10	10	13	278	D15131	11	10	12	341	D15131	12	9	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Table 2 — Flow Charge Recommendations
Based on % of Starting Torque for 1175 RPM NEMA Design B Motors

Rated Motor HP	100% @ 1175 RPM					125% @ 1160 RPM					150% @ 1150 RPM					175% @ 1130 RPM					200% @ 1100 RPM				
	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †
			Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.	
50	50	D15116	8	8	178	68	D15116	9	13	161	74	D15116	10	12	124	85	D15116	11	8	160	94	D15116	14	12	88
60	60	D15116	9	7	167	75	D15116	10	10	124	89	D15116	11	11	98	102	D15116	12	9	79	113	D15116	13	8	64
75	75	D15116	10	9	124	93	D15116	11	13	91	111	D15116	12	11	68	127	D15116	13	10	54	141	D15116	14	10	47
200	200	D18172	13	12	60	249	D18172	16	10	47	283	D18172	20	5	35	340	D18172	22	13	30	377	D18172	24	13	26
250	250	D18172	18	9	47	312	D18172	21	8	35	370	D18172	23	2	28	424	D18172	25	8	23	470	D18172	27	8	20

Table 2 — Flow Charge Recommendations
Based on % of Starting Torque for 875 RPM NEMA Design B Motors

Rated Motor HP	100% @ 875 RPM								125% @ 870 RPM				150% @ 850 RPM				175% @ 840 RPM				200% @ 820 RPM						
	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †	Start. ing HP	Flexi- dyne Cou- pling Size	Flow Charge A		Max. Time in Sec. †		
			Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.				Lbs.	Oz.		Lbs.	Oz.
25	25	D15116	9	7	498	31	D15116	10	9	430	36	D15116	11	11	334	42	D15116	12	8	290	47	D15116	13	5	270		
30	30	D15116	10	5	430	37	D15116	11	7	356	44	D15116	12	8	280	50	D15116	13	5	250	56	D15116	14	8	220		
75	75	D18172	14	8	700	93	D18172	17	2	188	109	D18172	19	11	172	126	D18172	21	13	154	141	D18172	23	12	140		
100	100	D18172	17	14	180	124	D18172	20	4	156	146	D18172	22	14	134	168	D18172	24	14	115	187	D18172	26	14	103		
125	125	D18172	20	7	160	135	D18172	22	13	126	162	D18172	25	7	107	210	D18172	27	4	90	234	D18172	29	4	76		

* Flow Charge for use only is listed.

† Maximum Allowable Acceleration Time for one start per hour, or less (for several starts grouped together followed by uninterrupted running, add the acceleration times of all starts and consider it as the time for one start. The

corresponding cycle time is the time between the beginning of one group of starts to the beginning of the next group.) Proper application of the Flexidyne coupling requires that the load be connected. Without connected load acceleration time may be too fast to allow charge to be distributed for proper balance.

Table 3 — Flexidyne Coupling Thermal Capacity

		Maximum Allowable Acceleration Time in Seconds for Standard Motor Speeds of Various Starting Cycles																								
Flexidyne Coupling Size	Start- ing HP	7 Hours			1 Hour			30 Min.			15 Min.			10 Min.			5 Min.			2 Min.			1 Min.			
		870	1160	1750	870	1160	1750	870	1160	1750	870	1160	1750	870	1160	1750	870	1160	1750	870	1160	1750	870	1160	1750	
D15	70	560	...	...	560	...	...	460	...	...	390	...	...	260	...	...	160	...	...	85	...	...	53	...	...
	40	300	230	...	300	230	...	240	230	...	170	190	...	130	160	...	80	100	...	43	44	...	25	23	...	
	60	200	167	...	200	167	...	160	167	...	125	140	...	95	117	...	60	73	...	32	32	...	19	17	...	
	80	145	105	...	145	105	...	120	105	...	90	90	...	68	74	...	42	46	...	22	20	...	14	10	...	
	100	...	81	35	...	81	35	...	81	34	...	68	30	...	57	28	...	35	19	...	15	12	...	7	8	...
	120	...	56	31	...	56	31	...	56	30	...	47	27	...	40	25	...	25	16	...	11	10	...	5	7	...
	140	...	47	27	...	47	27	...	47	26	...	40	23	...	34	21	...	21	14	...	9	9	...	5	6	...
	160	...	39	23	...	39	23	...	39	22	...	33	20	...	28	17	...	17	12	...	7	7	...	4	5	...
	180	...	33	20	...	33	20	...	33	18	...	28	16	...	24	15	...	14	10	...	6	6	...	3	4	...
	200	...	28	16	...	28	16	...	28	15	...	24	13	...	20	13	...	12	9	...	5	5	...	3	3	...
	220	13	13	14	12	12	8	5
	240	14	14	13	11	11	7	4
	260	13	13	12	10	10	7	4
	280	12	12	11	10	9	6	3
	300	11	11	10	9	8	6	3
	320	10	10	10	8	8	6
	340	9	9	9	8	7	5
	360	9	9	9	7	7	5
	380	8	8	8	7	6	4
	400	8	8	7	6	6	4
D18	40	600	...	...	600	...	...	450	...	...	300	...	...	200	...	...	90	...	...	35	...	...	16	...	...
	80	370	200	...	370	200	...	280	160	...	180	115	...	120	90	...	34	44	...	21	17	...	10	8	...	
	120	220	160	...	220	160	...	160	130	...	100	94	...	66	72	...	32	35	...	12	13	...	5	6	...	
	160	160	120	...	160	120	...	120	100	...	74	72	...	48	54	...	23	27	...	8	10	...	4	5	...	
	200	...	96	60	...	96	60	...	80	56	...	58	44	...	43	32	...	21	17	...	6	7	...	4	...	
	240	...	72	49	...	72	49	...	60	45	...	45	35	...	32	26	...	16	13	...	5	5	...	3	...	
	280	...	62	38	...	62	38	...	52	35	...	38	26	...	27	20	...	13	10	...	5	4	...	...	...
	320	...	52	33	...	52	33	...	44	30	...	32	23	...	22	17	...	11	9	...	4	4	...	...	...
	360	...	...	28	...	...	28	...	...	26	...	...	20	...	...	15	...	...	8	...	...	3	...	...	...
	400	...	...	25	...	...	25	...	...	23	...	...	18	...	...	13	...	...	7	...	...	...	...	...	...
	440	...	...	22	...	...	22	...	...	20	...	...	16	...	...	12	...	...	6	...	...	...	...	...	...
	480	...	...	20	...	...	20	...	...	18	...	...	14	...	...	10	...	...	5	...	...	...	...	...	...
	520	...	...	18	...	...	18	...	...	17	...	...	13	...	...	9	...	...	5	...	...	...	...	...	...
	560	...	...	16	...	...	16	...	...	15	...	...	11	...	...	8	...	...	4	...	...	...	...	...	...
	600	...	...	14	...	...	14	...	...	13	...	...	10	...	...	7	...	...	4	...	...	...	...	...	...

PARTS REPLACEMENT

Replacement of seals -- (refer to parts drawing on page 6).

1. Remove bolt ring screws (20) and back off bolt ring (18). Back off one shaft.

2. Remove driven hub (70) from shaft per instruction sheet (#499645) packed with Taper-Lock bushing. Remove Flexidyne coupling from driven shaft.

3. Remove filler plug (38) and pour out flow charge, being careful not to spill any.

4. Remove housing screws (36) and housing cover (32).

5. Remove rotor screws (60), outside rotor (56) and housing spacer (34).

6. **Size D15:** remove rotor screws (62), driven hub (70), inside rotor (56), retaining ring (78), ball bearing (74) and rotor retainer (58) in that order. **Note:** To remove ball bearing, replace every other drive hub screw (29) with pins of equal length and $\frac{1}{32}$ " to $\frac{1}{16}$ " diameter. Press pins equally against bearing.

Size D18: Remove retaining ring (76) and driven hub (70) with inside rotor (56) attached.

7. Remove and replace housing seal (64) and bearing seal felt (80) as follows: Set seals in place on rotor retainer (58) **Size D15 only** or driven hub (70) **Sizes D18, D22 & D27**. Install housing (28) in place on rotor retainer (**Size D15**) or driven hub (**Sizes D18, D22 or D27**) and tap gently until housing starts to pass over housing seal (64), making sure that seal is not cocked. After seal is in position, tap housing into place.

8. **Sizes D18** replace retaining ring (76).

Size D15 only, press ball bearing (74) onto housing (28). **Note:** Press against inner (not outer) bearing race. Rotor retainer (58) must not be cocked when outer bearing race enters it. Check this, after pressing bearing, by running rotor retainer to see that it rotates freely in housing seal (64).

Install retaining ring (78), inside rotor (56) and driven hub (70). Install rotor screws (62) and tighten per recommended torque in Table 1 on page 2.

9. Install housing spacer (34), outside rotor (56), and rotor screws (60) and tighten per recommended torque in Table 1 on page 2.

10. To replace cover seal (33) in housing cover (32), first remove seal retainer by inserting a small rod in drive screw holes and tap on rod to remove drive screws. Remove and replace cover seal (33); reinstall retainer and drive screws. Place housing cover in position.

11. Install housing screws (36) and tighten to recommended torque in Table 1 on page 2.

12. Replace flow charge and filler plug per Start-Up, Step 1 on page 2.

13. Reinstall Flexidyne assembly per Installation Instructions on page 2.

Replacement of bearings and seals

Steps 1 thru 13 cover the replacement of seals on all sizes and the replacement of large bearing (74) on D15 only. To replace small bearing (72) on D15 and both bearings (72 & 74) on D18, use following steps.

Size D15 — After performing steps 1 thru 6.

1. Insert a plug in bore of hub and press on end (right end as viewed in drawing) of bearing (72). Press against outside (not inner) race.

2. Replace bearing (72) in driven hub (70) by pressing on outer (not inner) race.

3. Bearing (74) is removed and replaced in steps 6 and 8 above.

Sizes D18 — After performing steps 1 thru 7.

1. Removal of bearing (74) is similar to removal of bearing (74) on D15 in step 6 above except for diameter of pins. $\frac{1}{2}$ " to $\frac{1}{32}$ " diameter on D18.

2. Replace bearing (74) in housing (28) by pressing on the inner (not outer) race until it bottoms.

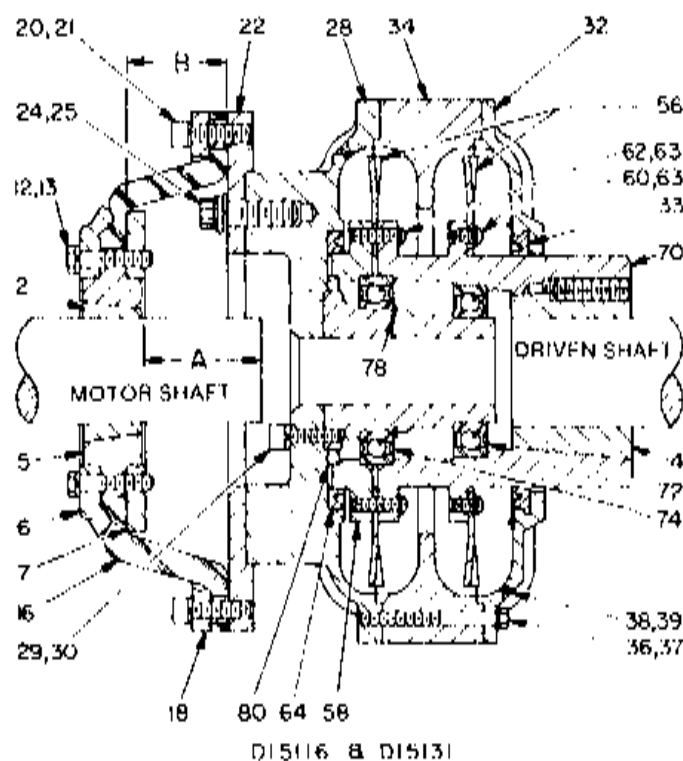
3. Remove bearing (72) by removing retaining ring (77) from driven hub (70). Insert a plug in bore of hub and press on end (right end as viewed in drawing) of bearing (72). Press against inner race.

4. Replace bearing (72) in driven hub (70) by pressing on outer (not inner) race until it bottoms. Replace retaining ring (77).

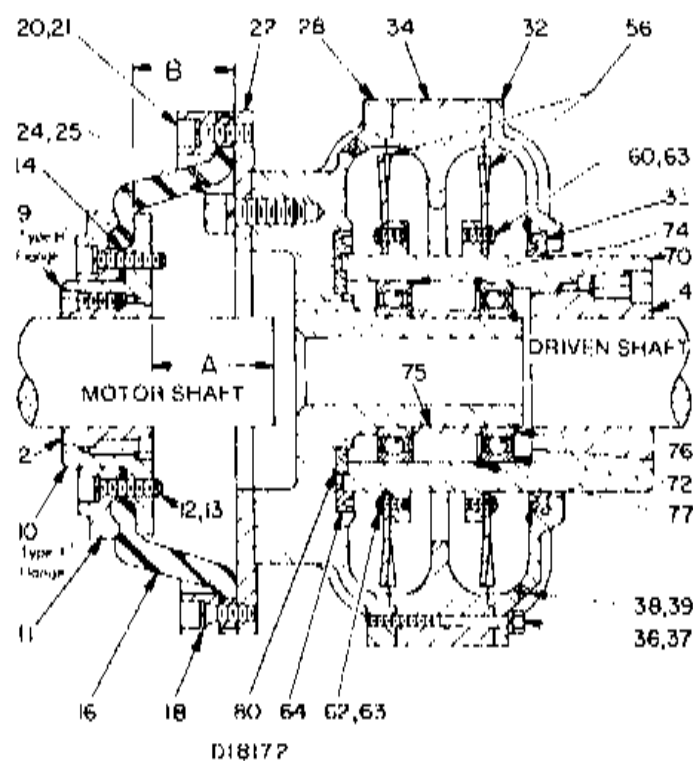
Replacement of rotors only

Size D15 -- Perform steps 1 thru 6 above to removal of inside rotor only. Replace per steps 8 thru 13 above.

Sizes D18 -- Perform steps 1 thru 7 above to remove outer rotor (56). Remove rotor screws (62) and inside rotor (56). Replace inside rotor (56) and rotor screws (62) and tighten per recommended torque in Table 1 on page 2. Perform steps 8 thru 13 above to replace outer rotor (56).



D15116 & D15131



D18177

Replacement Parts for Duplex Flexidyne Couplings

Reference	Name of Part	No. Req'd	Part Numbers		
			D15116	D15131	D18177
2	Taper-Lock Bushing w/ screws (Drive End) X	1	2517	7517	3535
4	Taper-Lock Bushing w/ screws (Driven End) X	1	3030	3030	3535
	TAPER LOCK FLANGE ASSEMBLY *	1	010606	010607	...
5	▲ Flange	1	010616	010617	...
6	▲ External Clamp Ring	1	010626	010627	...
7	▲ Internal Clamp Ring	1	011050	010632	...
12	▲ Clamp Ring Screw	6	411257	411261	...
13	▲ Washer	6	419066	419086	...
	TYPE H FLANGE ASSEMBLY *	1			011134
9	▲ Type H Flange	1			011014
11	▲ Clamp Ring	1			011054
12	▲ Clamp Ring Screw	2			411504
13	▲ Washer	2			419070
	TYPE F FLANGE ASSEMBLY *	1			011154
10	▲ Type F Flange	1			011034
11	▲ Clamp Ring	1			011054
12	▲ Clamp Ring Screw	2			411504
13	▲ Washer	2			419070
14	Flange Spacer Ring	1			011274
16	Flexible Element	1	011730	011231	011734
18	Bolt Ring	1	011687	011608	011688
20	Bolt Ring Screw	8	412376	412374	412382
21	Lockwasher	8	419047	419047	419050
4	Bolt Ring Pin	2	420150	420151	420152

X Specify bore and bushing size number which is shown as Part Number

* Includes parts listed immediately below marked "▲"

▲ Parts marked "▲" make up the assemblies under which they are listed

◆ Parts marked "◆" are included in the assemblies under which they are listed

‡ 8 req'd for D18177.

Reference	Name of Part	No. Req'd	Part Numbers		
			D15116	D15131	D18177
22	Adapter Plate	1	315449	315450	318449
24	Adapter Screw	6	415642	411203	411203
25	Lockwasher	6	419020	419020	419020
28	DRIVE HUB AND HOUSING ASSEMBLY *	1	391263	391263	391264
29	◆ Drive Hub Screw ◆	6	415042	411203	417220
30	◆ Lockwasher ◆	6	419020	419020	419052
	HOUSING COVER AND SEAL ASSEMBLY *	1	391246	391246	391250
32	▲ Housing Cover	1	315079	315079	318203
33	▲ Cover Seal (Groy)	1	315023	315023	318223
34	Housing Spacer	1	315080	315080	318241
36	Housing Screw	6	411420	411420	411242
37	Lockwasher	6	419011	419011	419013
81	Hex Nut	1	407007	407047	407051
38	Filler Plug	2	315021	315021	315021
39	Lockwasher	2	419123	419123	419123
58	Rotor	2	315006	315006	318006
59	Rotor Retainer	1	315207	315207	...
60	Rotor Screw (Inside)	‡	415109	415109	415114
62	Rotor Screw (Outside)	‡	415112	415112	415114
63	Lockwasher	‡	419010	419010	419011
64	Housing Seal (Red)	1	315017	315017	318038
70	Driven Hub	1	315405	315405	318243
72	Small Bearing	1	391230	391230	391237
74	Large Bearing	1	391227	391227	391235
75	Bearing Spacer	1			...
76	Inner Race Retaining Ring	1			421088
77	Outer Race Retaining Ring	1			421047
78	Retaining Ring	1	421028	421028	...
80	Seal felt	1	315024	315024	318224

◆ 5 req'd for D15116 & D15131, 6 req'd for D18177, 9 req'd

‡ 6 req'd for D15116, D15131, & D18177

◆ 12 req'd for D15116, D15131, & D18177

▲ Not shown on D18177 drawing

◆ Not shown on drawings.

Flexidyne Mechanism Trouble Analysis

Symptom	Cause	Cure
Vibration	<ol style="list-style-type: none"> 1. Misalignment 2. Bent shaft 3. Excess flow charge 4. Fused flow charge 5. Improper installation Output shaft jammed against housing 	<ol style="list-style-type: none"> 1. Realign drive or coupling. 2. Replace or straighten. 3. Remove small amount of flow charge. 4. Correct the overload. 5. Readjust spacing between shafts and Flexidyne housing.
Erratic Acceleration	<ol style="list-style-type: none"> 1. Breakdown of flow charge 2. Caked flow charge 3. Below minimum amount of flow charge 	<ol style="list-style-type: none"> 1. Replace flow charge. 2. Moist environment — use stainless flow charge. 3. Add flow charge.
Flexidyne Mechanism Doesn't Slip	<ol style="list-style-type: none"> 1. Improper installation — Output shaft jammed against housing 2. Flow charge in bearings — causing bearing seizure 	<ol style="list-style-type: none"> 1. Readjust spacing between shafts and Flexidyne housing. 2. Replace seals, bearings and flow charge or replace Flexidyne mechanism.
Excessive Slippage	<ol style="list-style-type: none"> 1. Not enough flow charge 2. Overload 3. Worn flow charge 4. Worn rotor 	<ol style="list-style-type: none"> 1. Add flow charge. 2. Relieve overload. 3. Replace flow charge. 4. Replace rotor.
Poor or short flow charge life	<ol style="list-style-type: none"> 1. Excessive slip at start up 2. Excessive inching or jogging of machine 	<ol style="list-style-type: none"> 1. Add flow charge to reduce starting time. 2. Install time delay in motor control circuit.

Flexidyne Mechanism Flow Charge Analysis

Condition	Cause
1. Red oxide color, granular consistency	1. Normal after some usage.
2. Red oxide color, powdery consistency, possibly with powdery flakes	2. Worn-out, can cause Flexidyne mechanism damage.
3. Black, powdery	3. Rotor worn, excessive slip and heat.
4. Red oxide, powdery and chunky	4. Worn-out and moisture present.
5. Clumping of flow charge	5. Moisture present, use stainless flow charge.



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