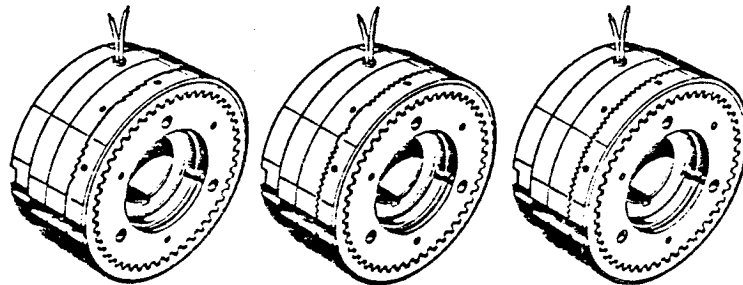


MIKI PULLEY

ELECTROMAGNETIC TOOTH CLUTCH

Type 546

INSTRUCTION MANUAL



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CONSTRUCTION

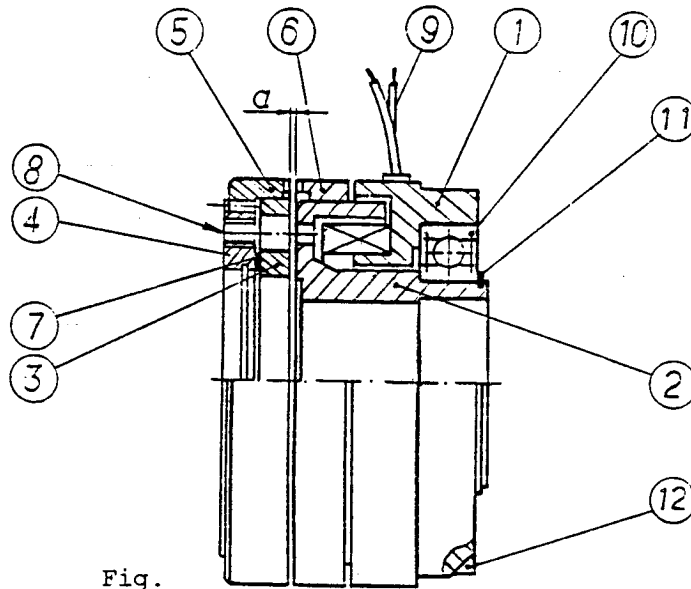


Fig.

- | | | |
|-----------------|------------------|----------------|
| ① Stator | ⑤ Toothed Ring | ⑨ Lead Wire |
| ② Rotor | ⑥ Toothed Ring | ⑩ Ball Bearing |
| ③ Armature | ⑦ Release Spring | ⑪ Snap Ring |
| ④ Adaptor Plate | ⑧ Threaded hole | ⑫ Stop Notch |
| | for attaching | ⑬ Air Gap |
| | Armature | |

o Attachment

(1) This clutch is for use on through shafts. They can also be used for butt jointed shafts, but in such

cases, particular attention should be paid to the alignment of the centers.

- (2) h6 or j6 is recommended for the fittings of the attaching shaft.
- (3) Make adjustments by using collars and shims so that the value for air gap 'a' is as given in Table 1.
- (4) Attach all parts so that there will be no play in the axial direction.
- (5) Stop notch (12) should be used to hold the stator in position.

o Connections

- (1) The clutch is operated on a power source of DC 24V. Power source fluctuation should be kept within $\pm 10\%$.
- (2) ON-OFF operation should be carried out by installing a switch on the DC side. If carried out on the AC side there will be a delay in operating time. (Fig. 2)

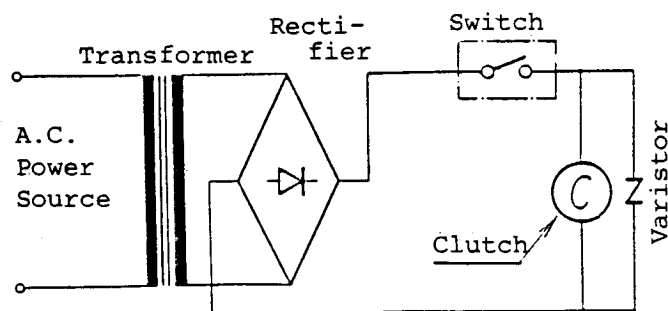


Fig. 2

- (3) The protective element (varistor) provided as an accessory to absorb surge should be connected in

parallel with the clutch. This element has no polarity. (Fig. 1)

o CAUTIONS

- (1) Coupling operations should be limited to non-running or slow speed running times. When the relative rotations are large, the teeth will not mesh properly, which will cause damage or originate noise. (Refer to Table 1)
- (2) When load torque is too light, it may only turn on the surface of the teeth.
- (3) If the flywheel effect (GD^2) is too great on the load side, proper meshing may not be attained.

o Specifications

Type & Form	Torque kgm	Capacity W	Resistance Ω	Operating RPM (Max) rpm	Permissible Coupling RPM			Air Gap a mm	Varistor (Accessory)
					Standard Tooth Full Position	Standard Tooth Single Position	Saw Tooth		
546-12-34	1.75	13.3	43.3	2000	50	25	100	0.15~0.3	9G820K
546-13-34	2.5	18.7	30.8	2000				0.2~0.4	
546-15-34	5	23.8	24.2	2000				0.2~0.4	
546-21-34	10	27	21.3	1500				0.3~0.5	
546-23-34	25	37	15.6	1500				0.3~0.5	
546-25-34	50	54	10.7	1500				0.3~0.5	
546-31-34	100	79.7	7.2	1500				0.4~0.6	15G820K
546-32-34	200	114	5.1	1500				0.4~0.6	

ELECTROMAGNETIC TOOTH CLUTCH

TYPE 546

EXPLANATORY MANUAL FOR ATTACHING THE HOLDER ASSEMBLY

The assembly position of the Stator side teeth and the Armature side teeth is of great importance. If the procedures given below are followed, alignment is easily made.

Procedure (If the adaptor plate is not provided with a projection to facilitate alignment, or when the projection is loose)

1. Insert the stator (2) on the shaft, and fix by a key.
2. Tighten the holder assembly (11) [Armature (4), adaptor plate (6) and holder (7) (gears, etc.)] temporarily, (do not tighten the bolts (5) to the very end, but allow some leeway for the adaptor plate (6) to move.)
3. Insert the holder assembly (11) on to the shaft. Apply electricity to the stator (2) or press the holder assembly (11) towards the stator (2) by hand to make the teeth mesh.
4. The bolt (5) is tightened under these conditions.
(Refer to Table 2 on 'tightening torque' of the bolt).
A small amount of screw locking paint should be applied.
5. In order to set a gap (3) correctly, draw out the holder

assembly (11) from the shaft, and insert the collar and shims (10) on the shaft. Insert the holder assembly (11) again and check gap (3) with a thickness gauge.

If the load torque is less than 1/3 of the rated torque of the tooth clutch, it is not necessary to drive in the spring pin (8) but for the sake of safety, we recommend the insertion of the spring pin. (#12 does not require a spring pin.)

How to fix the spring pin (8).

After procedure '4' the extract holder assembly (11) from the shaft. Loosen the small hexagon socket head bolt (previously screwed on from the armature side) to separate the armature (4) from the adaptor plate (6).

If at this time the assembly position between the armature and adaptor plate is marked with ink at 1 ~ 2 points, it will be of use when re-assembling.

By utilizing the premachined hole for the spring pin on the adaptor plate (6), bore holes for the spring pin (8), on each of the holders (7) (gears and other parts). Remove the swarf carefully. Apply molybdenum disulfide grease at the spline part of the adaptor plate (6). Tighten the small hexagon socket head bolts to fix the armature and adaptor plate at a torque exceeding the tightening torques on Table 1. (Screw locks are unnecessary). Do not forget the plate washers.

Note 1) The locking washer (1) should be set at a point where the stator (2) will chatter lightly, and pressure should never be applied in the direction of the shaft, so that the bearing will not be exposed to thrust.

Note 2)  The gap must be measured from teeth top of one side to the other

Note 3) Permissible voltage to be applied to the Tooth Clutch
DC 20 ~ 24 (Full wave rectification)

Note 4) Splashing oil on the teeth will pose no problem, but the impregnation of foreign matter from between the teeth should be cleaned off periodically.

Table 1 Tightening Torque of Small Hexagon Socket Head Bolt
(Fixing Armature and Adoptor Plate)

Size	Bolt	Classification of Strength	Tightning Torque (kgf-m)
12	M3x3	8.8	0.15
13	M3x4	8.8	0.15
15	M3x4	8.8	0.15
21	M3x6	8.8	0.40
23	M4x6	8.8	0.40
25	M4x8	8.8	0.40
31	M5x10	8.8	0.70
32	M6x10	8.8	1.20

Table 2 Recommended Tightening Torque for Hexagon Socket
Head Bolt (Fixing the Adaptor Plate with Holder)

Size	Bolt	Tightening Torque (kgf-m)	
		10.9 (Classification of Strength)	12.9 (Classification of Strength)
12	3-M4	0.34	0.41
13	3-M5	0.7	0.83
15	3-M6	1.17	1.41
21	3-M8	2.9	3.4
23	3-M8	2.9	3.4
25	6-M12	9.8	11.8
31	6-M12	9.8	11.8
32	6-M12	9.8	11.8

