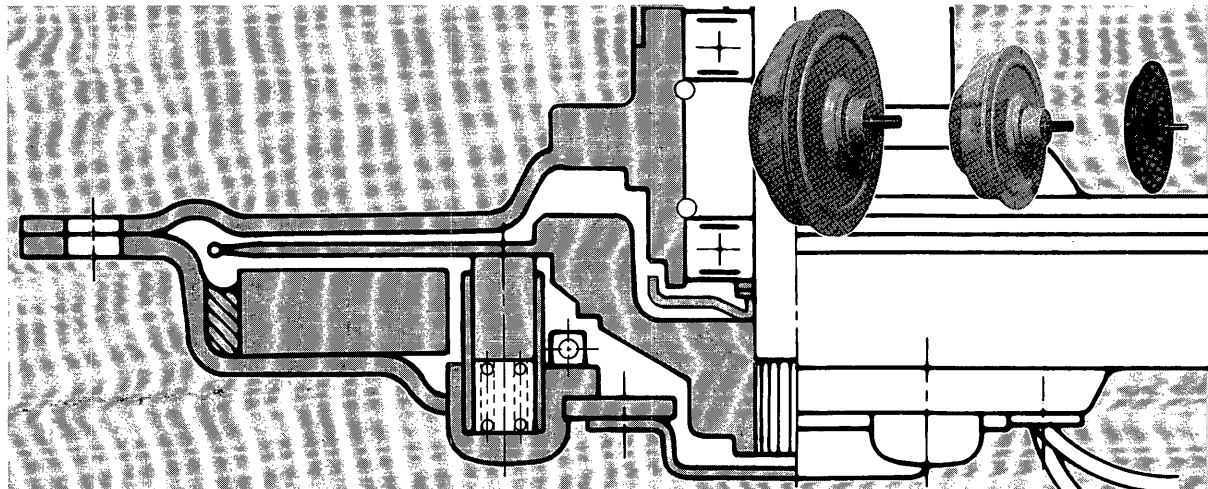


PRINT MOTOR Junior Series

DC SERVOMOTORS

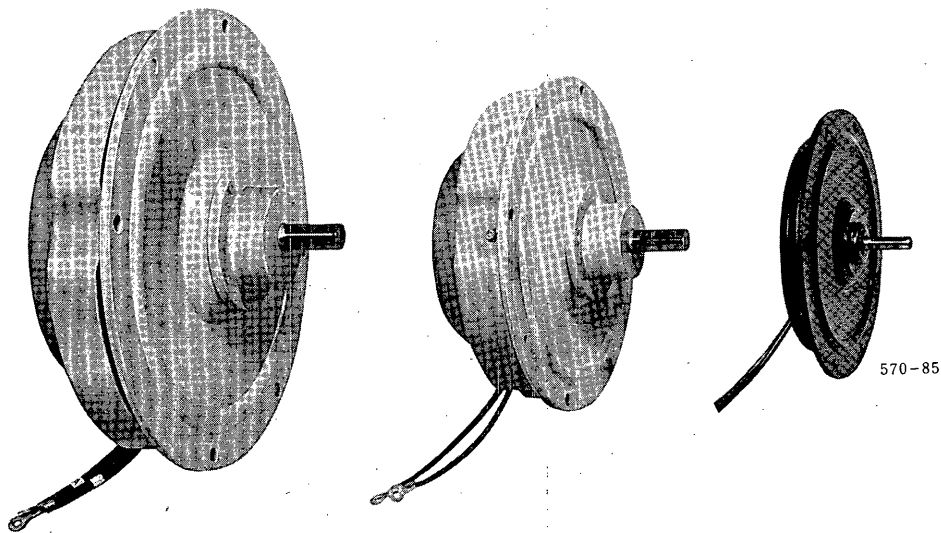
TYPE UGPMEE, UGPMFE, UGPMEG



Before initial operation read these instructions thoroughly, and retain for future reference.



YASKAWA



When properly installed, operated and maintained, this equipment will provide a lifetime of optimum operation. It is mandatory that the person who operates, inspects, and maintains this equipment thoroughly read and understand this manual.

RECEIVING

This motor has been put through severe tests at the factory before shipped. After unpacking, however, check and see the following.

1. Its nameplate rating meets your requirements.

2. It has sustained no damage while in transit.

3. Fastening bolts and screws are not loose.

If any part of the unit is damaged or lost, immediately notify us giving full details and nameplate data.

CONSTRUCTION

Figs. 1, 2 and 3 indicate the construction of Print Motor Junior Series.

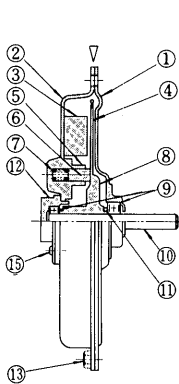


Fig 1 Totally-enclosed Type UGPMEE-□2

- ① BRACKET A
- ② BRACKET B
- ③ MAGNET (bonded to bracket B)
- ④ ARMATURE
- ⑤ BRUSH HOLDER
- ⑥ BRUSH
- ⑦ SPRING

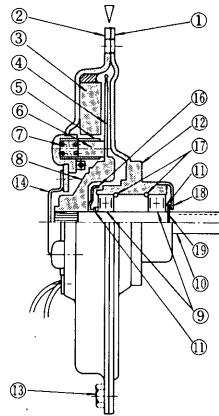


Fig. 2 Totally-enclosed Type UGPMEE-□ B

- ⑧ ROTOR HUB
- ⑨ BALL BEARING
- ⑩ OUTPUT SHAFT
- ⑪ THRUST WASHER
- ⑫ HOUSING
- ⑬ MOTOR MTG SCREW
- ⑭ SEALING COVER
- ⑮ HOUSING MTG SCREW

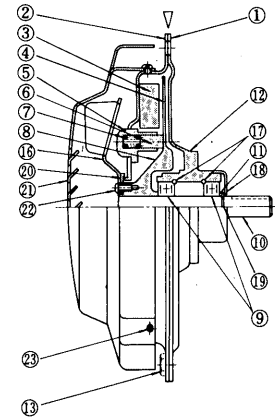


Fig. 3 Totally-enclosed, Fan-cooled Type UGPMFE-□ B

- ⑯ FAN
- ⑰ SNAP RING
- ⑱ CAP
- ⑲ E-SHAPED RETAINER
- ⑳ SEALING PLATE
- ㉑ FAN COVER
- ㉒ FAN MTG SCREW
- ㉓ FAN COVER MTG SCREW

INSTALLATION AND WIRING

WHEN INSTALLING, DO NOT DROP PRINT MOTOR OR GIVE SEVERE SHOCK. MAGNET WILL BE DAMAGED AND PRINT MOTOR WILL FAIL TO OPERATE.

The following are suggested as a guide to proper installation and wiring Print Motors :

1. Print Motor should be installed at a well ventilated place where the motor is not subjected to dirt and moisture. Since the motor is not provided with an oil seal, protect motor from oil splash or mist.
2. When installing, be sure that motor is not subjected to excessive shock, vibration and thrust from the driven machine.
3. Where a rectifier is used for power supply, the AC circuit must be connected to the earth.
4. The rotating direction of output shaft varies with the polarity of the power applied to the armature winding. When terminal A (red wire) is connected to ⊕ side of the power, the rotating direction is counterclockwise facing the output shaft extension.

PRECAUTIONS IN LOAD CONNECTION

1. During connection to the load, be sure that the motor is not subjected to excessive thrust and undue force by hammering.
2. Care should be taken to avoid letting the bearing carry the thrust due to the worm or helical gears mounted to the shaft extension. The E-shaped retainer may be loosened by the excessive thrust. Table 1 shows permissible thrust load.
3. Where coupling is used, a flexible bellows coupling is recommended.

Table 1 Permissible Thrust Load

Type	Thrust Load	
	N	kgf
UGPMEE-07B12	9.8	1
UGPMEE-09B12	9.8	1
(UG) PMEE-12CBB	34.3	3.5
(UG) PMEE-12CB2	68.6	7
(UG) PMFE-12CBB	34.3	3.5
UGPMEE-16AAB	34.3	3.5
UGPMEE-16AA2	98.0	10
UGPMFE-16AAB	34.3	3.5

MOUNTING OF GEAR, COUPLING OR PULLEY

Procedure of mounting gear, coupling or pulley is as follows :

1. When gear, coupling or pulley is snug fit on motor shaft, mount it by hand.
2. When hammering or thrust must be applied, proceed as follows, referring to DISASSEMBLY.
 - a. Pry brackets open with edged tool. The end-opposite-drive shaft and disc armature are exposed.
 - b. Place armature assembly with the end-opposite-drive shaft down on wood blocks.
 - c. Mount gear, coupling or pulley to the drive-end shaft extension.

DISASSEMBLY AND REASSEMBLY

PRECAUTIONS

When disassembling, take the following precautions.

1. Choose a clean place and avoid disassembling the ferrite type Print Motor at a place exposed to metal filings and air-born iron particles. These materials highly contribute to demagnetization of powerful permanent ferrite magnet of the motor.
2. Ferrite magnets are permanently magnetized and adjusted so as to produce expected characteristics. Do not rest iron tools such as screw driver or wrench on the magnet, nor give shocks to the magnet. **NEVER PUT OTHER MAGNET CLOSE TO THE FERRITE MAGNET FOR THE FUN OF SEEING ATTRACTION AND REPULSION FORCE.** Failure to take these precautions may lead to demagnetization of magnet and lowering of motor performance.
3. Do not leave motor in atmosphere below 10°C with bracket B removed (i. e., with magnetic field open). The magnet may be demagnetized.
4. Do not give a blow to bracket B. Magnet is made of ceramics and is not strong enough to withstand excessive shocks.

DISASSEMBLY

Type UGPMEE- □ 2 (Fig. 1)

1. Remove the screw ⑮ and take off housing ⑰ in Fig. 1.
2. Pry the brackets open by inserting a screw driver or edged tool between brackets. (See Fig. 4)

Use extreme care not to damage armature ④ with the tool tip by running the tool too deep into the motor inside or accidentally hitting the armature when pried open.

Type UGPMEE- □ B (Fig. 2)

Pry the brackets open as described in Type UGPMEE- □ 2, Fig. 4.

Type (UG) PMFE-12 □ B (Fig. 3)

1. Pry and take off the fan cover by inserting screw driver or other tools between bracket and fan cover.
2. Remove the fan mounting snap ring.
3. Pry the brackets open as described in Type UGPMEE- □ 2, Fig. 4.

Type UGPMFE-16 □ B (Fig. 3)

1. Remove the fan cover mounting screws ㉓ in Fig. 3.
2. Remove the fan mounting screws ㉒.
3. Remove the bracket mounting screws (not provided on standard motor).
4. Pry the brackets open as described in Type UGPMEE- □ 2, Fig. 4.

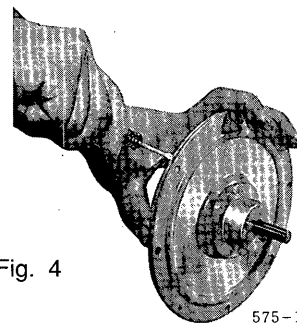


Fig. 4

575-112

REASSEMBLY

Follow reverse procedure as outlined for DISASSEMBLY described above.

Before mounting bracket, check to see that ferrite magnets are free from metal filings. If any iron particles are observed on the magnets, oil putty or other adhesive agent may be effective to remove them.

MAINTENANCE AND INSPECTION

CLEANING

After disassembling or before reassembling, clean the motor. Remove bracket, and blow out brush particles or dust sticking to armature or inner surface of bracket with compressed air free from water.

BRUSHES

Brush pressure is properly adjusted at factory, and no adjustment is required during operation. The rate of brush wear highly depends on the load type or ambient temperature. When the motor is used under normal operating conditions (under rated load, 30°C ambient temperature), brush wears approximately 1.5 to 2mm per 1,000 running hours. It is advisable to replace the brush every 4,000 to 5,000 running hours.

In operation right after brush has been replaced, the motor may produce sound and show unstable operation characteristics, but the motor will become stable after one hour running.

REPLACEMENT OF BRUSHES

Fig. 5 illustrates brush and related parts construction. Pigtail and outgoing lead have their ends soldered to terminal imbedded in the brush holder.

To replace brushes, proceed as follows :

1. Remove brackets. (See DISASSEMBLY.)
2. Disconnect pigtail from imbedded terminal by means of soldering iron, so that the brush can be easily taken out of brush holder. (Care must be exercised that the spring is not lost.)
3. Insert spring first and then new brush into brush holder. Solder pigtail positively to terminal after adjusting its length so that the brush protrudes from the brush holder to the length shown in Table 2.
4. Use only those brushes recommended by Yaskawa, Table 2, or equivalents.
5. Cut off the part of pigtail extending from the soldered point. Make the outgoing lead taut so that it runs along inner surface of the motor bracket. Sagged lead may accidentally contact armature, causing short circuit.

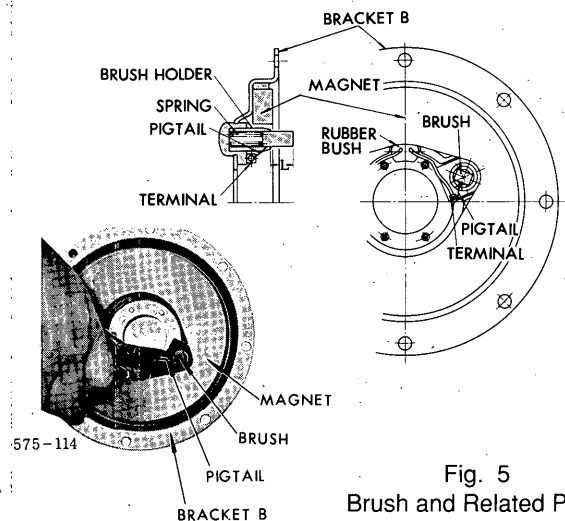


Fig. 5
Brush and Related Parts

Table 2 Brush Types and Specifications

Dimensions in mm

Motor Type	Brush	Dimensions W × T × L	Q'ty	L (Fig. 5)
	UGPMEG-07B12	3 × 4 × 8	2	5
	UGPMEE-09B12	4 × 5 × 9	2	5
	(UG) PMEE-12CBB (UG) PMEE-12CB2 (UG) PMFE-12CBB	6 × 8 × 15	2	11
	UGPMEE-16AAB UGPMEE-16AA2 UGPMFE-16AAB	6 × 8 × 15	4	11

PRINT MOTOR Junior Series

DC SERVOMOTORS

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