Installation Manual
for
Engine-to-Generator
SINGLE BEARING FLEXIBLE COUPLING KIT
Part No. 283554
Used on
Series 7130 Generator Sets

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1. General

This manual provides basic instructions for removal, service and installation of a single bearing generator flexible coupling kit, with fan attached, manufactured by Hobart Brothers Company as Part Number 283554. This assembly is illustrated in Figure 1. The primary function of this assembly is to couple a Hobart generator set to a diesel engine. The flexible coupling assembly compensates for slight misalignment between the engine and the generator, due to manufacturing tolerances. A split taper bushing secures the coupling to the generator’s armature shaft. (See Fig. 5).

2. Coupling Screws (Routine Coupling Maintenance)

Failure to verify proper coupling screw installation may result in coupling failure and damage to the equipment.

If the generator set is functioning properly, servicing the coupling assembly will be essentially limited to checking the screws which attach the flexible coupling to the engine flywheel of the generator set. These screws should be checked periodically to make certain that: (1) screws of proper type, length, and hardness are installed, (2) that the threads of the screws are not stripped, and (3) that they are torqued properly. Proceed as follows to check coupling screws.
a. Refer to Figure 2. Hold a short iron bar through the generator housing against the fan blades of the fan and coupling assembly to block the armature against clockwise rotation. Do this carefully to avoid damaging the fan blades.

b. Use a long-handled, reversible ratchet drive fitted with a 5/16-inch Allen wrench to remove one coupling screw. Examine the screw and washers. Screws specified for this coupling are Hobart Part No. 283130, which are socket-head, self-locking 3/8 - 16 X 3/4 inch long. The vibration-proof washers are Hobart Part No. 283459, which must be installed in pairs with their cam faces together.

NOTE: Use of the proper coupling screws and washers for replacement is very important. Replacement screws and washers MUST be those specified above, torqued to 45 foot-pounds (61 Nm). There is NO ACCEPTABLE SUBSTITUTE for these screws or washers.

c. Check the threads of the screw for stripping and replace it if the threads are stripped. If the screw is not stripped, reinstall it and torque it to 45 foot-pounds (61 Nm).

d. Repeat the steps a, b, and c above for the remaining seven screws.

3. Disassembly

Removal of the flexible coupling is required for servicing the generator armature, generator bearings, or the coupling itself. To remove the coupling, for any reason, it is necessary to separate the engine and generator. Many mechanics prefer to remove the engine and generator as an assembly, and then separate them. Others may prefer to remove the engine or the generator separately to reach the coupling. However, separating the engine and generator while they are installed in the ground power unit is VERY DIFFICULT because of the limited working space.

During removal DO NOT cut any cables or wires. Disconnect cables or wires if/as necessary and tag them for reassembly.

a. Separate Engine and Generator

(1) Remove the sheet metal cover from around the generator housing.

(2) Install a lifting eye with 1/2-13 threads in the rear-most tapped hole on top of the generator housing, and attach a hoist to it. Lifting eyes are available from Hobart as Part Number CTW-116A.
(3) Use a long-handled, reversible ratchet drive fitted with a 5/16-inch Allen wrench to remove the screws which attach the flexible coupling disk to the engine flywheel.

(4) Support the rear of the engine with a jack.

(5) Remove the bolts and shock mounts attaching the generator housing to the frame.

(6) Remove the bolts attaching the generator housing to the engine flywheel housing.

(7) Separate the generator from the engine with a hoist and move it to a clear working area.

b. Remove Coupling Assembly

(1) Refer to Figure 3. Using a socket wrench, remove all three of the 3/8-16 screws (3) that secure the bushing (1) to the hub of the fan and coupling assembly.

(2) To separate the bushing from the hub, lubricate two of the 3/8-16 screws and insert them into the threaded holes (4) in the bushing. With socket wrench, screw these screws into the bushing such that the bushing pops loose from the hub.

(3) Using a 3/16-inch Allen wrench, loosen the set screw (6) in the bushing to release pressure on the key (5).

(4) When the bushing (1) is loose in the hub, use a mallet to GENTLY tap the bushing out of the hub.

(5) Slide the coupling assembly off the shaft and remove the key (5).

(6) Using a 5/16-inch Allen wrench, remove the screws and washers which attach the flexible disks to the hub.

(7) Inspect the coupling assembly components carefully as follows:

a. Check for deformed fan blades and damage to the disk.

b. Check hub and split bushing for cracks, evidence of galling, and rust pits. Light rust is permissible on the split bushing and the tapered bore of the hub.

c. Check the flexible coupling disks for warping, cracks, or worn mounting holes.

Figure 3

1. Bushing
2. Split
3. Mounting holes (3)
4. Tapped holes (2)
5. Key
6. Setscrew
7. Tapped setscrew hole

Split Taper Bushing
d. Check the screws and washers which attach the flexible disks to the hub. The screws are Hobart Part No. 283130, which are socket-head, self-locking 3/8 - 16 X 3/4 inch long. If they are cracked, stretched, or have stripped threads, replace them. The vibration-proof washers are Hobart Part No. 283459, which must be installed in pairs with their cam faces together.

NOTE: Use of the proper coupling screws and washers for replacement is very important. Replacement screws and washers MUST be those specified above, torqued to 45 foot-pounds (61 Nm). There is NO ACCEPTABLE SUBSTITUTE for these screws or washers.

e. Check the shaft for any damage or deformation where the coupling was mounted on it.

4. Coupling Service

When ordering coupling kits or other parts from your Hobart Brothers Company Distributor, be sure to include all pertinent information from the unit's identification plate: Specification No., Model No., and unit rating. Illustrated in Figure 4 is the replacement coupling assembly with attaching hardware.

If you have any questions concerning your Hobart Power Systems Group equipment, you are invited to contact our Service Department by mail, telephone or FAX.

Write: Hobart Brothers Company
        Airport Systems Group
        Service Department
        1177 Trade Square East
        Troy, Ohio 45373
        U.S.A

In U.S.A. Call: (800) 422-4166
                (800) 422-4177

From Foreign Countries, Call: (513) 332-5050 (Parts)
                             (513) 332-5060 (Service)

Fax: (513) 332-5121
5. Coupling Installation

**CAUTION**

Improper installation of the coupling assembly can result in serious damage to the equipment. Follow these installation instructions exactly.

**a. Cleaning**

Refer to Figure 5. It is **VERY IMPORTANT** that the shaft, the bore and the outside of the split bushing, and the tapered inside of the hub be thoroughly **CLEANED FREE OF DIRT AND GRIT**.

**CAUTION**

Do not lubricate any of the surfaces listed above. Lubrication of these surfaces can cause the coupling to fail and damage the generator set. Slight traces of rust are permissible only on the bushing, but nothing else.

**b. Assembly**

(1) Using a 5/16-inch Allen wrench, attach the four flexible disks to the coupling hub with the socket-head, self-locking 3/8 - 16 X 3/4 inch screws (Hobart Part No. 283130) and the 3/8-inch vibration-proof washers (Hobart Part No. 283459). The washers must be installed in pairs with their cam faces together, and the screws must be torqued to 45 foot-pounds (61 Nm).

(2) Position armature shaft in generator housing so that the generator fields and stator core are aligned, and the exciter fields and exciter armature core are aligned. The engine end of the armature shaft should be 2 inches from the face (not the seat flange) of the generator housing.

(3) Install the key in the keyway of the armature shaft.

(4) Place the bushing in the hub of the fan and coupling assembly such that the keyway of the bushing lines up with the keyway in the hub.

(5) Install the coupling assembly on the armature shaft over the installed key, pushing it on until the engine side of the flexible disks are approximately 1-5/8 inch from the face (not the seat flange) of the generator housing.

**CAUTION**

Make certain that only the screws are lubricated, and that no lubricant is permitted to get inside the bushing where the armature shaft will enter the bushing. Should these bolts need to be replaced, make certain that they are replaced with Grade 5 replacement screws.

(6) Lubricate the three 3/8-16 X 1-3/4 screws **SPARINGLY** and start them into the three (unthreaded) holes finger-tight.

(7) Tighten the 3/8-16 X 1-3/4 screws alternately and evenly as follows:

a. Set a torque wrench to 30 foot-pounds (41 N-m) and tighten all three 3/8-16 screws to that value. As illustrated in Figure 2, insert and hold a short iron bar through the fan housing against the fan blades of the fan and coupling assembly to block the coupling against clockwise rotation. Do this carefully to avoid damaging the fan blades. Note that as these screws are tightened, the coupling hub, along with the fan and flexible disks, will move toward the rear of the generator.

b. Repeat step (a) above until 3/8-16 screws can no longer be tightened.

(8) Measure the distance from the engine side of the flexible disks to the face (not the seat flange) of the generator housing. **THIS DISTANCE MUST BE 1-1/2-INCH**!

(9) If the 1-1/2-inch distance is not achieved, loosen the three screws in step (7), relocate the coupling on the armature shaft, and repeat steps (7) and (8) until the distance is achieved.
6. Reassemble Engine and Generator

Use of the proper coupling screws and washers is very important. Failure to use the proper screws and washers, as outlined below, can result in coupling failure and damage to the generator set.

Screws specified for this coupling are Hobart Part No. 283130, which are socket-head, self-locking 3/8 - 16 X 3/4 inch long. The vibration-proof washers are Hobart Part No. 283459, and must be installed in pairs with their cam faces together. These screws and washers are included in the coupling kit.

a. Using a hoist, align the generator housing flange with the flange on the engine flywheel housing and insert two of the attaching screws, one on each side of the flange. Start the screws into the tapped holes in the flywheel housing just enough to ensure thread engagement. DO NOT TIGHTEN.

b. Insert the proper coupling screws and washers through the flexible disc at the front of the coupling and into the flywheel.

c. Turn all of the coupling screws into the tapped holes in the flywheel, finger tight. DO NOT tighten with a wrench.

d. Insert all remaining attaching screws (two installed in Step a, above) through the generator flange, engaging the tapped holes in the flywheel housing, and tighten them all securely.

e. Refer to Figure 2. Insert and hold a short iron bar through the housing against the fan blades of the fan and coupling assembly to block the armature against clockwise rotation. Do this carefully to avoid damaging the fan blades. Torque all of the coupling screws to 45 foot-pounds (61 N-m). Be sure the flexible disks are all seated evenly into the seat of the flywheel.

7. Run-in and Periodic Check

a. Mount the engine-generator assembly in a suitable test area and operate it for a 2-hour run-in.

b. Shut down the engine after 2 hours and re-torque all coupling screws to 45 foot-pounds (61 N-m) to compensate for normal torque relaxation.

c. Return the unit to normal service.

d. After 200 hours of operation, check all coupling screws with a torque wrench set at 45 foot-pounds (61 N-m).

e. Return the unit to normal service.

f. After each additional 2,000 hours of operation (or every year) recheck all coupling screws to maintain the same torque value.
Assembly Procedure Illustration
Figure 5

- Fan & Coupling Assembly
- Flexible Coupling Disks
- Coupling Screw 3/8-16 x 3/4" (8 required)
- Hub
- Key
- Split Taper Bushing
- Split Bushing Mounting Bolt 3/8-16 x 1-3/4" (3 required)
- Armature Shaft