

Section IV

Transmission Assembly

4-1. TRANSMISSION ASSEMBLY. (Figure 4-1.)

4-2. DESCRIPTION. The transmission assembly, which is mounted on an adapter plate at the upper end of the engine, is a speed-reducing mechanism for driving the main rotor, cooling fan, generator, tail rotor, and rotor tachometer generator. The cylindrical case is composed of a series of castings and rings held together by through bolts. The main rotor mast support bearing is mounted in the top of the upper section. Four drive assemblies, which drive the tail rotor drive shaft, cooling fan, generator, and rotor tachometer generator are mounted to the lower section of the case.

Internally, the assembly consists of a centrifugal clutch, freewheeling unit, a two-stage planetary reduction gear train, spiral bevel gear to drive the tail rotor drive assembly, and a bevel gear to drive the cooling fan.

The centrifugal clutch relieves the starter of the rotor load during starts, and permits rotation of the rotor manually for inspection without turning the engine. The freewheeling unit makes possible autorotation landings with an idling or dead engine. The generator, tail rotor drive, and rotor tachometer generator are driven whenever the main rotor is in motion, power on or power off. This makes it possible for the pilot to have complete control of the helicopter during autorotation landings.

RATIO CHARTS

Engine Crankshaft	1.0
Main Rotor Mast	0.111
Tail Rotor Drive	1.2
Tail Rotor	0.6
Fan Drive	1.5
Tachometer Drive	0.5
Generator Drive	1.2

4-3. TROUBLE SHOOTING - TRANSMISSION.

Indication of Trouble	Probable Cause	Remedy
Rotor and engine tachometer needles not synchronized at engine speed greater than 2000 rpm	Centrifugal clutch slipping	Remove clutch and replace worn or damaged parts. If shoes are glazed, wire brush to remove glaze
Excessive engine oil on transmission	Oil seals damaged or worn	Replace damaged or worn seals
Excessive oil at accessory drive assemblies	Cork plug missing from drive shaft affected	Replace cork plug
	Damaged O-rings	Replace O-rings

4-4. REMOVAL - TRANSMISSION.

Note

On Models 47G and 47G-2 the fuel tanks and supports may be removed to facilitate removal of the transmission.

a. Remove main rotor installation. (Refer to Section II.) Remove mast and controls. (Refer to Section II.) Cover top of transmission to prevent entry of foreign matter. Remove fan belts. (Refer to Section V.) Mark fan belts so they may be reinstalled on same pulleys.

b. Disconnect and remove cyclic and collective pitch control linkage and supports from transmission, keep all spacers for reinstallation in same location.

c. Disconnect wiring and remove generator, rotor tachometer generator, and transmission oil temperature bulb. Disconnect flexible oil feed line from transmission and cover ends to prevent entry of foreign particles.