

SERVICE LETTER #20A

R E V I S E D

Date: 1 July 1983

Revised: 20 June 1984

Subject: Vee Belt Installation

Rotorcraft Affected: All R22 Helicopters

Background: This service letter has been revised to change sheave alignment tolerances and engine shimming when installing V-belts to agree with Service Letter #23.

Whenever V-belts, lower sheave, or engine are replaced or reinstalled, all of the following checks must be performed:

INSPECTION CHECK LIST

- 1) Sheave wear.
- 2) V-belt damage or wear.
- 3) Actuator adjustment.
- 4) Sheave alignment.

1. SHEAVES: Inspect sheaves for damage and wear.

Worn sheaves can seriously shorten belt life and cause belts to fail or roll over in a few hours. Any wear of sheave grooves that produce ridges or steps greater than .006 inch are cause for replacing the sheaves. (Reference R22 Maintenance Manual, Section 2.410).

2. V-BELTS: Worn V-belts can roll over, break or fray.

Visually inspect corners and sides of belts for damage, fraying and separation of the chord and rubber. Check for wear by measuring the belts at their widest point. If V-belts measure less than 0.45 inch, or actuator maximum engaged extension limit per R22 Maintenance Manual is exceeded, the V-belts should be replaced. Belts must be replaced as matched sets. Do NOT attempt to use unmatched belts or non-aircraft belts.

3. ACTUATOR: Measure belt deflection with actuator disengaged.

CAUTION

During start up and engagement, belts that are too tight can damage flexplates and belts too loose can jump out of the grooves. Adjust V-belt deflection.

Use a six inch scale and finger pressure in line with the top right side of the scroll. Adjust actuator down limit screw to maintain proper belt deflection every two to three flight hours until belt stretching (run-in) and measured belt deflection stabilizes, usually within ten to fifteen hours on a new belt set. R22 Maintenance Manual Section 7.540 for belt deflection and actuator down limit adjustment.

Check the following clearances after actuator adjustments, with actuator disengaged and tail rotor pedals neutral:

- a) Manually rotate drive train and check intermediate flexplate to T.R. bellcrank/rod end clearance .25 inch minimum. If insufficient clearance with actuator disengaged and proper V-belt deflection, shim engine by adding equal amounts of shims to both lower engine mounts. (Refer to R22 Maintenance Manual Section 6.130, Engine Shimming).

NOTE

Engine shimming also changes sheave alignment and engine scroll to T.R. bellcrank clearance.

- b) When the engine is shimmed properly, there should be a minimum clearance of .25 inch between engine scroll and A331-1 T.R. bellcrank/rod end.

4. SHEAVE ALIGNMENT WITH CLUTCH FULLY ENGAGED
(See R22 Maintenance Manual Section 7.230)

Upper clutch sheave should be aligned within the following tolerances:

- a) New V-belt installation: .000 inch forward to .070 inch aft of lower sheave face.
- b) V-belts over 100 hours in service: .020 inch forward to .070 inch aft of lower sheave face.

NOTE

Aluminum groove engine sheaves have a flat face. Steel groove engine sheaves have overspray on the edge of the face. Overspray thickness must be measured and deleted in determining sheave alignment.

TROUBLE SHOOTING

<u>Symptom</u>	<u>Probable Cause</u>	<u>Corrective Action</u>
1. Upper clutch sheave misaligned forward of lower drive sheave.	Engine shifted or rubber engine mounts worn or compressed.	Shim engine up and/or replace lower rubber engine mounts per R22 M.M. Section 6.130.
	Forward flexplate shimmed improperly or changed.	Shim forward flexplate, (Do not exceed max. allowable shims) per R22 M.M. Section 7.230.
	Improper length A907 yoke installed.	Install proper length A907 yoke.
2. Upper clutch sheave misaligned aft of max. allowable to lower drive sheave.	Engine shimmed improperly.	Shim engine per R22 M.M. Section 6.130.
	Forward flexplate shimmed improperly or changed.	Shim forward flexplate per R22 M.M. Section 7.230.
	Improper length A907 yoke installed.	Install proper length A907 yoke.
3. Intermediate flexplate to T.R. bellcrank below min. clearance.	Engine shifted or rubber engine mounts worn or compressed.	Shim engine up and/or replace lower rubber engine mounts per R22 M.M. Section 6.130.
	Engine shimmed too high.	Shim engine per R22 M.M. Section 6.130.
4. T.R. bellcrank to engine cooling scroll below min. clearance.		

NOTE

If corrective action has been taken; recheck sheave alignment (R22 M.M. Section 7.230), intermediate flexplate and engine scroll clearance to T.R. bellcrank clearance .25 inc. minimum. Engine shimming also requires a check of clutch angle (R22 M.M. Section 7.240),