

**ROTORCRAFT FLIGHT
MANUAL SUPPLEMENT**

TO THE

**ROBINSON R22 AND R44
PILOT'S OPERATING HANDBOOK
AND FAA APPROVED
ROTORCRAFT FLIGHT MANUAL**

WHEN EQUIPPED WITH THE

**HELITRAK COLLECTIVE
PULL DOWN (CPD) SYSTEM**

HELICOPTER SERIAL NO. _____

HELICOPTER REGISTRATION NO. _____

This supplement must be included in the Pilot's Operating Handbook and FAA Approved Rotorcraft Flight Manual when the HeliTrak CPD System is installed in accordance with:

STC No. SR02506SE

The information contained herein supplements or supersedes the basic manual only in those areas listed in this supplement. For limitations, procedures, and performance information not contained in this supplement, consult the basic Pilot's Operating Handbook.

FAA APPROVED _____

for/ Manager

Northwest Flight Test Section, AIR-715
Federal Aviation Administration
Seattle, WA

DATE _____ 13 September 2017 _____




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SECTION 1: GENERAL

This supplement contains the changes to the basic flight manual procedures and additional data applicable when the HeliTrak Collective Pull Down (CPD) System is installed on the helicopter.

The CPD System provides a motorized pull down of the collective when the rotor RPM is at or below 97%, as annunciated by the low RPM horn and caution light.

When the master switch is turned on, the CPD annunciator (Ann.) light turns on, signifying the CPD System is non-operational.

Cycle the CPD switch to OFF then ON to make the system operational. The annunciator light will turn off indicating the CPD is operational.

After a pull down event, the CPD System returns to the non-operational state with the CPD light ON and must be reset by cycling the CPD switch to OFF and back ON. The annunciator light will turn off.

The CPD System continues pulling the collective down for 3 seconds while the low rotor RPM warning is active.

The CPD pull down time is less than one second unless the pilot overrides. The pilot is able to override the collective pull down action by manually holding or raising the collective.

R22 override force is between 6.5 and 10 lbs, and the R44 override force with hydraulics is 5.5 to 10lbs.

The CPD System can be made non-operational by toggling the CPD switch to OFF and the CPD light will turn ON.

The CPD cable is connected to the Collective Friction Lever so when it starts pulling, the friction is pulled to the OFF position, reducing the collective friction.

NOTE: If the CPD circuit breaker is out, the CPD annunciator light will not be illuminated, and the CPD will not be activated.

CAUTION

The CPD System is intended to enhance safety when a low RPM event occurs by ensuring immediate pull down of the collective. It is not a substitute for adequate pilot skill, nor does it relieve the pilot of the responsibility to maintain adequate control of the rotor speed and the aircraft.

SECTION 2: LIMITATIONS

No change.

SECTION 3: EMERGENCY PROCEDURES

For the emergency events defined in the Robinson R22 and R44 RFM, Section 3, Emergency Procedures, lowering collective immediately is defined when at 8 feet AGL or greater. During a CPD pull down event, the pilot may override the CPD action by manually holding or raising the collective. Below 8 feet AGL the pilot must hold the collective securely for proper control. The CPD may be turned off, but that does not alleviate the pilot's responsibility to control the collective.

NOTE: In the event of a hydraulics failure or HYD switch OFF in an R44 with hydraulic boosted controls, the CPD will not be able to exert the force necessary to pull the collective down. The pilot may wish to set the CPD switch to the OFF position if workload permits.

SECTION 4: NORMAL PROCEDURES

1. Starting Engine and Run-Up Checklist:

The following steps are performed after “Warning lights – Out”:

CPD.....Switch ON/CPD Ann. Light Out
Lift collective slightly, reduce RPM.....Horn/light at 97%
CPD pulls Collective Down.....Check
Cycle CPD switch.....Switch ON/CPD Ann. Light out

2. In-flight Operations: The following actions may occur during any phase of flight:

For a low rotor RPM warning, the CPD pulls the collective down within 1 second, and can be reset 5 seconds after that event by cycling the switch from ON to OFF then back to ON.

SECTION 5: PERFORMANCE

No change.

SECTION 6: WEIGHT AND BALANCE

Refer to the aircraft Weight and Balance Record in the Pilot Operating Handbook.

SECTION 7: SYSTEM DESCRIPTION

During normal operation, the CPD System is designed to be transparent to the pilot. The operational system automatically pulls the collective down when a low RPM warning signal is received.

The primary CPD components and their locations and functions are described below.

CPD assembly (keel tunnel) – Houses electronics board, gear motor, clutch, and cable pulley.

Annunciator light (console) – Informs pilot of CPD status.

CPD switch (cyclic box cover) – Sets system to ON (operational) or OFF (non-operational).

Pull down cable (from CPD assembly to friction lever) – Pulls friction lever forward to release friction then pulls collective down.

CPD circuit breaker (breaker panel) – 7.5A circuit breaker provides power to CPD components.

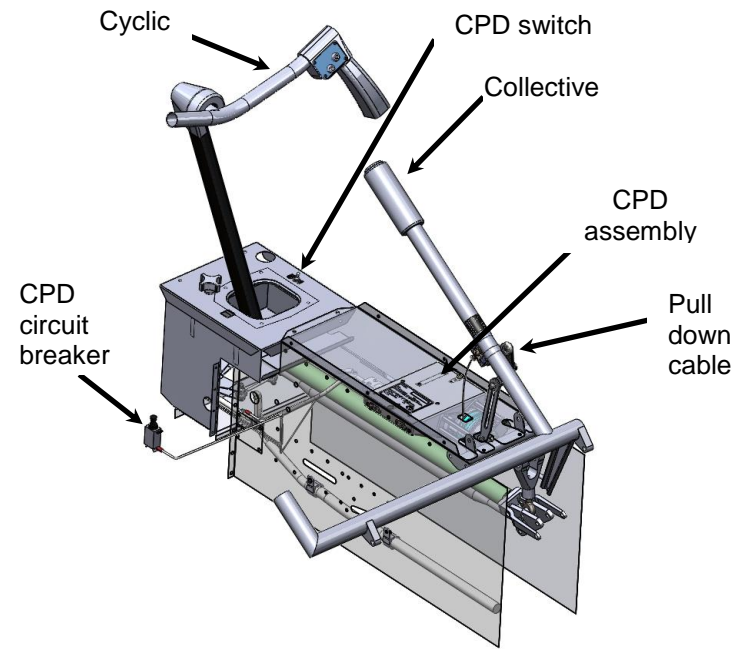


FIGURE 1: R22 & R44 CPD SYSTEM LOCATION

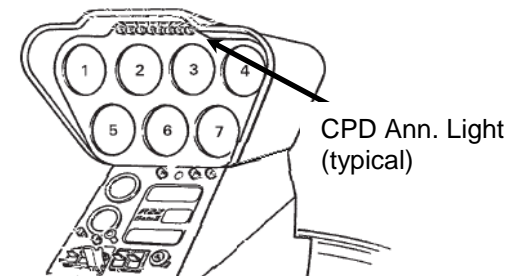


FIGURE 2 INSTRUMENT PANEL – TYPICAL (EARLIER AIRCRAFT)

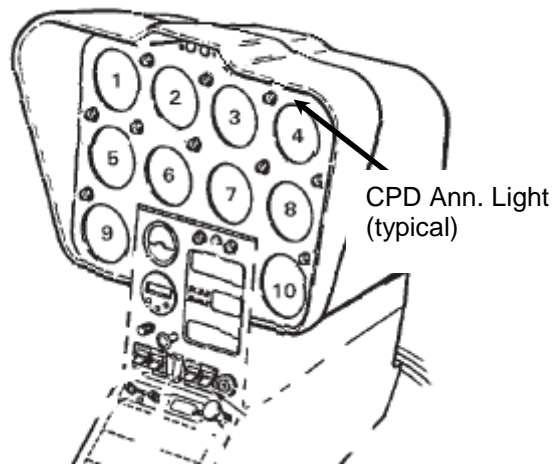
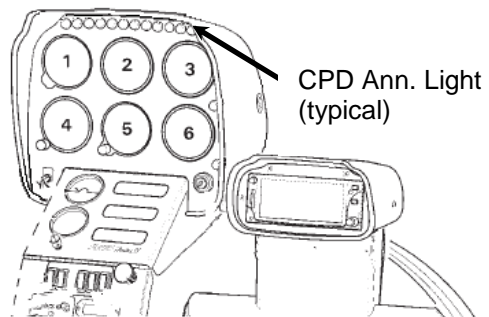


FIGURE 3: OPTIONAL INSTRUMENT PANEL



**FIGURE 4: INSTRUMENT PANEL - TYPICAL
(LATER AIRCRAFT)**

SECTION 8: HANDLING, SERVICING AND MAINTENANCE

For the R22 Aircraft, refer to the latest version of HeliTrak CPD ICA 900071 CPD Installation and Maintenance Manual.

For the R44 aircraft, refer to the latest version of 900153 CPD R44 ICA

SECTION 9: SUPPLEMENTS

No change.

SECTION 10: SAFETY TIPS

The CPD System can be ON (operational) for all flight regimes. If extensive low-altitude hovering maneuvers, such as hover-autorotations and slope landings, are being performed, the pilot can turn the CPD switch to OFF to make the system non-operational. This will illuminate the CPD annunciator light. Remember to turn the switch back to ON to make the system operational above 8 feet AGL (the POH Section 3 procedure states to “Lower the collective immediately to maintain rotor RPM” in the event of a power failure above 8 feet AGL).

CPD Familiarization

R22 familiarization should begin with the aircraft on the ground with the engine off. The pilot can become familiar with CPD operation and forces to override. Turn on the Master Switch. Hold the collective raised, and cycle the CPD switch from ON to OFF and back to ON to activate the CPD. The force required to override the CPD is between 6.5 and 10 lbf.

R44 familiarization requires the engine to be running in order to provide hydraulic assistance in the collective control for the CPD to function properly. The force required to override the R44 CPD is between 5.5 and 10lbf.

In flight, manual autorotations should be practiced before activating the CPD. Initially, activate the CPD during a low-power descent. CPD assisted autorotations can be initiated by slowly rolling off the throttle to obtain 97% to illuminate the low rotor RPM annunciator. When the CPD pulls down, hold the initial attitude with the cyclic. In both manual and CPD assisted autorotations, the collective must be adjusted to control rotor RPM and the cyclic used to adjust airspeed.