ASTRONAUTICS CORPORATION OF AMERICA
2416 AMSLER STREET
TORRANCE, CALIFORNIA 90505
MANUAL NO. 82-041-P3A

FAA APPROVED

AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

MOONEY 20 MODELS LISTED

This Supplement must be attached to the FAA approved Airplane Flight Manual, when the airplane is modified by the installation of the Pathfinder Flight Control System, Model P3A in accordance with STC SA3186WE.

The information contained herein supplements or supersedes the basic Airplane Flight Manual only in those areas contained in this Supplement. For limitations and procedures not contained in this Supplement, consult the basic Airplane Flight Manual.

FAA APPROVED A. F. [illegible]

Chief, Aircraft Engineering Division
Federal Aviation Administration
Western Region

DATE 6/17/76

LOG OF PAGES (INCLUDING REVISIONS)

*Revised Pages

REV. LTR.	PAGES NO.	PAGES DATE	DESCRIPTION	APPLICABLE MODELS	FAA APPROVED
Orig.	1 thru 6		Complete Manual	M20F Serial Number 22-0001 And Up	Chief, Acft. Eng. Div. FAA Western Region DATE 6/17/76
A	2	8-4-76	Add New Model	M20J Serial Number 24-0001 & UP	9/28/76

LOG OF PAGES (INCLUDING REVISIONS)

*Revised Pages

REV. LTR.	PAGES NO.	PAGES DATE	DESCRIPTION	APPLICABLE MODELS	FAA APPROVED

SECTION I

LIMITATIONS

1. The A/P must be disengaged:

   (a) When operating at speeds above 175 MPH or below 90 MPH.

   (b) If fuel loading differs by more than 1/4 tank from one side to the other.

   (c) During take-offs and landings.

2. Back Course Localizer approaches are not approved with this A/P.

3. Do not attempt to use A/P if red flag is in view on Turn Coordinator or if red "PWR FAIL" light is on.

SECTION II

NORMAL PROCEDURES

1. The P3A A/P may be used to provide basic roll stabilization and features a heading mode, a navigational mode from either of two NAV receivers, and an altitude hold mode. These various modes are selected by operating the appropriate button or switch on the A/P controller.

2. The A/P may be disengaged by either of two methods:

   (a) The A/P off switch located on the A/P Controller provides complete disengagement of the A/P when pressed.

   (b) The A/P circuit breakers located in CB panel provide complete A/P disengagement when moved to OFF position.

3. Pre-flight check:

   (a) Check to see that the red flag is not showing in the Turn Coordinator.

   (b) Move A/P circuit breaker to "OFF."

   NOTE: That the red "PWR FAIL" light comes on.

   (c) With A/P circuit breaker "ON" move the turn knob on the Turn Coordinator left and right.

   NOTE: That the control wheel moves left and right in the same direction as the desired turn.

   (d) Recenter the Turn Command Knob.

4. To Maintain Wings Level:

   (a) Press any button on the controller part way down. All buttons will pop out engaging basic stabilization in Roll and Pitch.

   (b) The Roll Trim knob (located on the Turn Coordinator) provides aileron trim control in wings level mode. This may be used to pick up a heavy wing or to make a shallow turn.

5. To Turn Aircraft:

   (a) The turn knob (located on the Turn Coordinator) provides standard rate turns either left or right (3°/sec) and overrides all other lateral modes. Altitude Hold Mode is not affected by the Turn knob.

   (b) When the Turn knob is centered, the A/P returns to the selected lateral mode (Wings Level, HDG, NAV 1 or NAV 2).

6. To Fly Heading:

   The HDG switch located on the controller engages basic roll stabilization and couples the autopilot to the Directional Gyro or HSI.

   (a) Set the D/G or HSI bug to the desired heading.

   (b) Press HDG mode button on the Controller.

7. To Fly a VOR Course/ILS Localizer:

   (a) Rotate OMNI bearing selector (OBS) to desired VOR/ILS Course.

   (b) Select desired HDG on D/G or HSI.

   (c) Press NAV Mode on the Controller.

   (d) Aircraft will turn in the proper direction to track the VOR/ILS Localizer Course.

   (e) A/P may be switched to HDG Mode during station passage to avoid wing rocking over the VOR station.

   NOTE: If radio transmission causes OMNI needle fluctuations during tracking, use an alternate Transmitter or switch to HDG Mode during radio transmissions.

8. To Maintain Altitude:

   The Altitude hold switch (located on L.H. side of the autopilot controller) provides a normal altitude hold function when switch is on in up position. Altitude hold is off with switch in full down position. The elevator trim meter (located on the autopilot controller) indicates the magnitude and direction of Elevator Servo effort, whether the autopilot is on or off. Engage Altitude hold functions as follows:

   (a) Altitude hold off (switch down).

   (b) Trim aircraft to level flight.

   (c) Altitude Hold to on position (up).

   (d) A flashing green light indicates the aircraft needs Elevator trim.

   NOTE: If autopilot is turned off the Alt. Hold Switch must be reset to OFF before the Alt. Hold will engage.

   NOTE: Altitude Hold should be disengaged during Power and configuration changes.

SECTION III

EMERGENCY

1. Autopilot Malfunction or Failure:

   (a) Manually override the A/P control forces until the A/P off button on the controller can be pressed.

2. Evasive Action (Collision Avoidance):

   (a) Manually override the A/P.

3. Roll Axis Hardover Altitude Loss:

   (a) Cruise configuration 50 feet after a 3 second delay.

   (b) Approach configuration negligible after a 1 second delay.

4. Pitch Axis Hardover Loss:

   (a) Cruise configuration - 150 ft. after a 3 second delay.

   (b) Approach configuration - 30 ft. after a 1 second delay.

SECTION IV

PERFORMANCE

NO CHANGE