Pilot's Operating Handbook and
FAA Approved Airplane Flight Manual
Supplement
for

Perception

(Aircraft Serials w/ Perspective+ avionics only)

When Perception is installed on the aircraft, this POH Supplement is applicable and must be inserted in the Supplements section (Section 9) of the Pilot's Operating Handbook. This document must be carried in the airplane at all times. Information in this supplement adds to, supersedes, or deletes information in the basic Pilot's Operating Handbook.

FAA Approved _____ **Date** May 3, 2017
for Timothy Smyth, Manager
Chicago Aircraft Certification Office, ACE-115C
Federal Aviation Administration

Section 1 - General

Perception provides for the structural and electrical installation of an externally-mounted sensor.

• Note •

It is the responsibility of the system integrator to determine the suitability of installed equipment and obtain airworthiness approval of the equipment installation.

Section 2 - Limitations

Powerplant Limitations

Propeller

SR22 Serials:

Hartzell with Aluminum Hub and Blades

Propeller Type..... Constant Speed, Three Blade

Model Number ..... PHC-J3YF-1RF/F7693DF(B)

Diameter ..... 78.0 inches (76.0 inches minimum)

SR22T Serials:

Hartzell Compact Series Lightweight Hub with Composite Blades

Propeller Type..... Constant Speed, Three Blade

Model Number ..... PHC-J3Y1F-1N/N7605(B/C/CB)

Diameter ..... 78.0 inches (2.0 m)

Kinds of Operation

Icing

Flight into known icing conditions is prohibited with the sensor arm attached.

Systems and Equipment Limits

The sensor fairing must be attached to the support arm for flight.

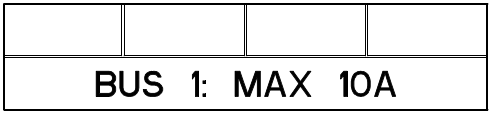
Sensor Limitations

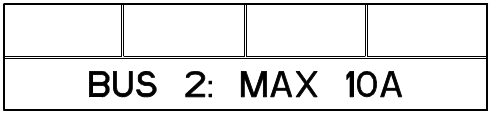
Maximum Diameter ..... 10.3 inches (26.2 cm)

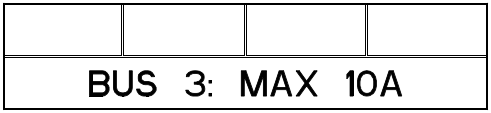
Maximum Weight ..... 60 lb (27 kg)

Placards

Aft Circuit Breaker Panel, top:







Aft Circuit Breaker Panel, side:

SR22_FM09_4198

Figure - 1
Placards

Section 3 - Emergency Procedures

Maximum Glide with Perception

Maximum Glide Ratios with the Sensor Arm, Fairing, and externally-mounted sensor installed are shown below.

SR22 Serials:

Maximum Glide Ratio ~ 8.3 : 1

SR22T Serials:

Maximum Glide Ratio ~ 8.1 : 1

Section 3A - Abnormal Procedures

Low Alternator 1 Output

ALT 1 Caution (Failure)

ALT 1

1. ALT 1 Circuit Breaker .....CHECK AND SET
2. ALT 1 Master Switch .....CYCLE

   If alternator does not reset (low A1 Current and M1 voltage):
3. ALT 1 Master Switch .....OFF
4. AFT CB PANEL Switch .....OFF
5. Non-Essential Bus Loads.....REDUCE
   a. If flight conditions permit, consider shedding the following to preserve Battery 1:
      (1) Air Conditioning
      (2) Landing Light
      (3) Yaw Servo
      (4) Convenience Power (aux items plugged into armrest jack)
6. Continue flight, avoiding IMC or night flight as able (reduced power redundancy).

Amplification

• Caution •

Dependant on Battery 1 state (indicated by M1 voltage), landing light may be weak or inoperative for landing.

Alternator 1 output is low, indicative of alternator failure; will typically be associated with low M1 voltage, Battery 1 discharge and M BUS 1 Caution message.

Low Alternator 2 Output

ALT 2 Caution (Failure)

ALT 2

1. ALT 2 Circuit Breaker ..... CHECK AND SET
2. ALT 2 Master Switch ..... CYCLE

   If alternator does not reset (low A2 Current and M2 voltage less than M1 voltage):

3. ALT 2 Master Switch ..... OFF
4. AFT CB PANEL Switch ..... OFF
5. Continue Flight, avoiding IMC or night flight as able (reduced power redundancy).

Amplification

Alternator 2 output is low, indicative of alternator failure; isolated Alt 2 failure will not typically be associated with any other unusual indications, cautions or warnings (Alt 1 will pick up all loads).

Section 4 - Normal Procedures

Aft Circuit Breaker Panel

To energize the aft circuit breaker panel:

1. AFT BUS 1 Circuit Breaker ..... SET
2. AFT BUS 2 Circuit Breaker ..... SET
3. AFT BUS 3 Circuit Breaker ..... SET
4. AFT CB PANEL Switch ..... ON

Noise Characteristics/Abatement

SR22 Serials:

The certificated noise levels for the SR22 established in accordance with FAR 36 Appendix G are:

Configuration	Actual	Maximum Allowable
Hartzell 3-blade Propeller PHC-J3YF-1RF/F7693DF(B)	84.7 dB(A)	88.0 dB(A)

SR22T Serials:

The certificated noise levels for the SR22T established in accordance with FAR 36 Appendix G are:

Configuration	Actual	Maximum Allowable
Hartzell 3-blade Propeller PHC-J3Y1F-1N/N7605(B/C/CB)	80.6 dB(A)	88.0 dB(A)

Section 5 - Performance

When the Sensor Arm, Fairing, and externally-mounted sensor are installed, the following performance changes will result:

Description	Flaps	Model	
		SR22	SR22T
Takeoff distance	50%	Add 15% at sea level. Add an additional 1% per 1000 feet PA.	Add 15%.
Takeoff Rate of Climb	50%	Subtract 15% at sea level. Subtract an additional 1% per 1000 feet PA.	Subtract 15%.
Enroute Rate of Climb	0%	Subtract 15% at sea level. Subtract an additional 2% per 1000 feet PA.	Subtract 15% at sea level. Subtract an additional 2% per 1000 feet PA at or above 18,000 feet PA.
Cruise Performance		Subtract 5%.	Subtract 5%.
Range / Endurance: Full Power Climb		Subtract 5%.	Subtract 5%.
Range / Endurance: Cruise Climb		Subtract 5%.	Subtract 5%.
Balked Landing Rate of Climb	100%	Subtract 15% at sea level. Subtract an additional 3% per 1000 feet PA.	Subtract 15%.

Section 6 - Weight & Balance

Installation of Perception adds the following optional (Sym = O) equipment at the weight and arm shown in the following table.

ATA / Item	Description	Sym	Qty	Part Number	Unit Weight LB	Arm Inches
93-00	Sensor Mounting Structure	O	1	35575-001	18.1	208.6
93-00	Sensor Arm	O	1	35865-001	6.1	214.8
93-00	Sensor Fairing	O	1	35574-001	5.5	214.8
24-31	Aft Circuit Breaker Sub-Panel	O	1	33577-001	3.1	194.8
24-31	Wire Harness	O	1	35304-001	0.9	160.1

Section 7 - System Description

Perception Structural Provisions

The sensor mounting system consists of aluminum beams mounted to the baggage floor, and removable metal sensor arm protruding through a hole in the baggage door. The lower aft corner of the baggage door is cut out and affixed to the sensor structure. Both the door and the cutout are fitted with mating flanges and weather stripping to form a seal.

The sensor and sensor arm are covered by an aerodynamic fairing to protect the system and reduce the aerodynamic effects on the airplane.

The sensor arm can be removed for cross country travel. (Refer to AMM 90-00)

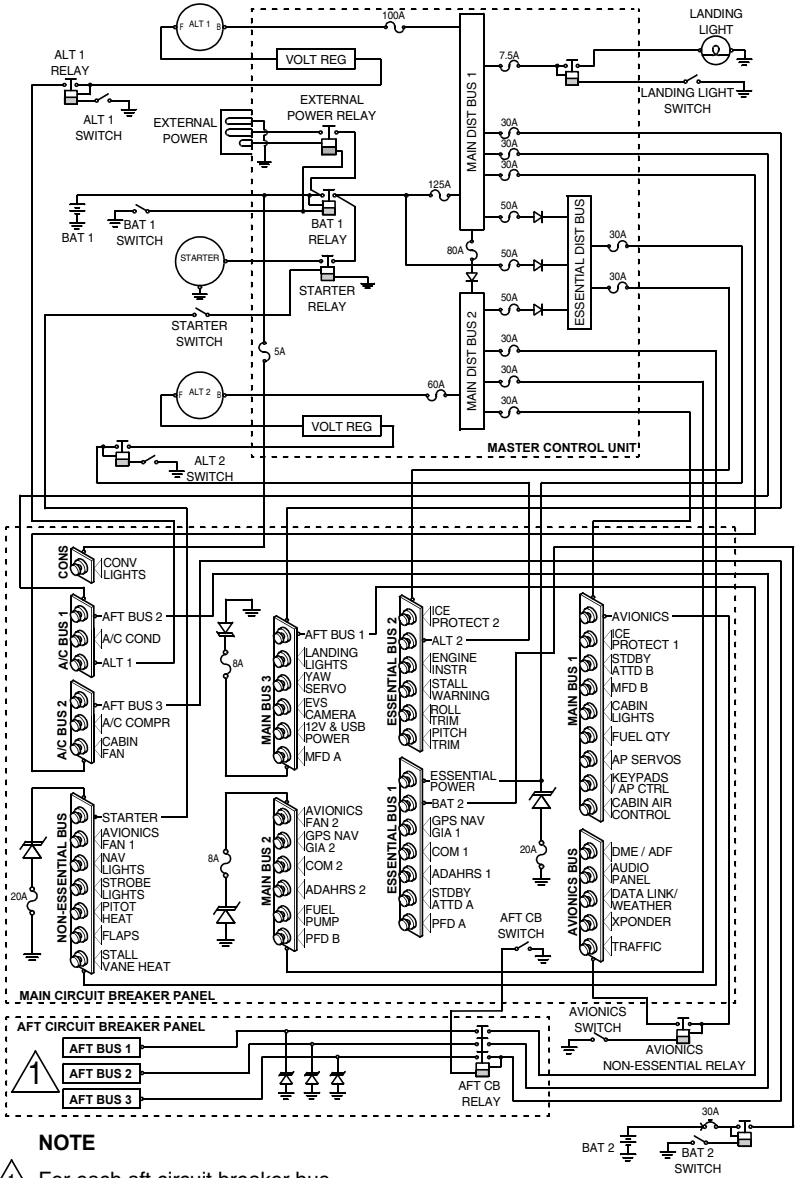
Perception Electrical System

A 30A circuit breaker sub-panel is located aft of the rear seat, providing access to 28V DC power for Perception equipment integrators. The aft circuit breaker sub-panel is fed by three 10A feeder circuits. Aft Bus 1 is powered by Main Bus 3, Aft Bus 2 is powered by A/C Bus 1, and Aft Bus 3 is powered by A/C Bus 2.

An additional four Transient Voltage Suppressors (TVS) are installed in the aft circuit breaker sub-panel.

A single, pilot-accessible toggle switch, labeled AFT CB PANEL, is mounted in the circuit breaker panel on the left side of the center console, and controls electrical power to AFT BUS 1, AFT BUS 2, and AFT BUS 3. In the event of an alternator failure, the switch allows Perception electrical loads to be shed in a single pilot action.

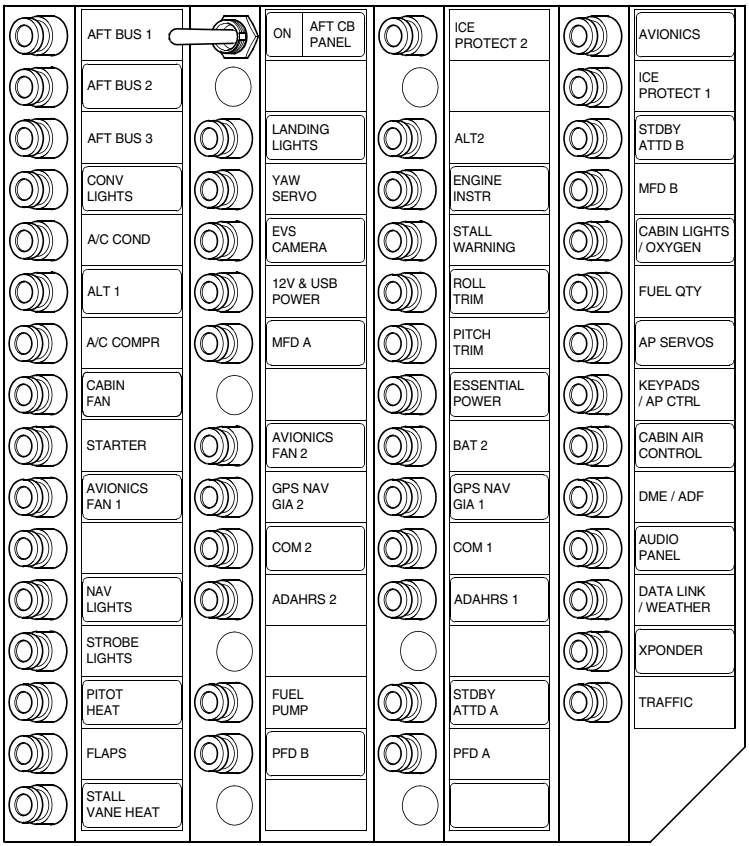
Pre-wired access to the VIDEO 2 port on the MFD is provided in the aft baggage area, allowing for a composite video feed from the sensor to MFD VIDEO 2 IN.



NOTE

1. For each aft circuit breaker bus, connection is made at discretion of Perception system integrator.

Figure - 2
Electrical System Schematic



SR22_FM09_5403

Figure - 3
Circuit Breaker Panel

Section 8 – Handling, Service, & Maintenance

No change.

Section 10 – Safety Information

No change.