



US Department
of Transportation

Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved

OMB No. 2120-0020

For FAA Use Only

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of Federal Aviation Act of 1958).

1. Aircraft	Make <p style="text-align: center;">Ryan</p>	Model <p style="text-align: center;">Navion B</p>
	Serial No. <p style="text-align: center;">NAV-4-2313B</p>	Nationality and Registration Mark <p style="text-align: center;">N5413K</p>
2. Owner	Name (As shown on registration certificate) <p style="text-align: center;">Putney, William W III Rodgers, Gail C</p>	Address (As shown on registration certificate) <p style="text-align: center;">5780 Balmoral Drive Oakland, CA 94619</p>

3. For FAA Use Only

The data identified herein complies with the applicable airworthiness requirements and is approved for the above described aircraft, subject to conformity inspection by a person authorized in FAR 43, Section 43.7

11 FEB 03

DATE SIGNATURE OAK-FSDO

4. Unit Identification

5. Type

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in Item 1 above) ~~~~~				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement

A. Agency's Name and Address <p style="text-align: center;">Pierre Borduas 875A Island Dr. #253 Alameda, CA. 94502</p>	B. Kind of Agency <input checked="" type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input type="checkbox"/> Certified Repair Station <input type="checkbox"/> Manufacturer	C. Certificate No. <p style="text-align: center;">A.P. 2020552 I.A.</p>
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D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date <p style="text-align: center; font-size: large;">6-2-03</p>	Signature of Authorized Individual <p style="text-align: center; font-size: large;"><i>P. Borduas</i></p>
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7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Flt. Standards Inspector	Manufacturer	X	Inspection Authorization	Other (Specify)
	FAA Designee	Repair Station		Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection <p style="text-align: center; font-size: large;">6-2-03</p>	Certificate or Designation No. <p style="text-align: center;">A.P. 2020552 I.A.</p>	Signature of Authorized Individual <p style="text-align: center; font-size: large;"><i>P. Borduas</i></p>
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

See Attached ICA.

----- NOTHING FOLLOWS -----

Additional Sheets are Attached

REG: N5413K
SN: NAV-4-2313B

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

A/C Make: Ryan

Model: Navion B

S/N: NAV-4-2313B

Reg. #: N5413K

Revision: _____ **Date:** _____

This sixteen item checklist are Instructions for Continued Airworthiness (ICA), to comply with FAA Handbook Bulletin for Airworthiness (HBAW 98-18 Dated October 7, 1998), are applicable to the aircraft listed above when the following equipment is installed:

SYSTEM: _____

ITEM	CHECKLIST INFORMATION
1.	<p>Introduction: This section briefly describes the aircraft, engine, propeller, or component that has been altered. Include any other information on the content, scope, purpose, arrangement, applicability, definitions, abbreviations, precautions, units of measurement, referenced publications, and distribution of the ICA as applicable.</p> <p>Comment: This alteration is to replace the main fuel tank fuel level sender and fuel level gauge. This was necessitated by the failure of the original main fuel tank fuel level sender and the unavailability of a direct replacement part. The King-Seeley company manufactured the original sender and gauge. King-Seeley has been out of business since the mid 1950's. A search for a certified repair station or a replacement sender found none available. Therefore a project to develop a replacement sender was undertaken by the owner with the concurrence of the Administrator. In addition to the new sender a new fuel level gauge will be installed. The new gauge is an aircraft type gauge, manufactured by Electronics International of Bend, OR, and currently being used in many certificated aircraft as an alteration.</p>
2.	<p>Description: Of the major alteration, its functions, including an explanation of its interface with other systems, if any.</p> <p>Comment: No alteration to the airframe, fuel system or electrical system was made as a part of this alteration except as described herein.</p> <p>A part number MC0726110-1 replacement sender, made under PMA by Mc Farlane Aviation, was used as the component basis for the fabrication of the fuel level sender. The MC0726110-1 sender uses a standard Stewart-Warner style mounting and would not mount to the aircraft fuel tank. The sender was disassembled and a new mounting plate designed. Design of the new mounting plate involved determining the required sender float arm and tank geometry and then incorporating this information into the new sender mounting plate in such a manner that the new sender measures the greatest possible volume of the fuel tank (see attached drawings). A certified shop, using the same type of material used in the Mc Farlane sender's mounting plate, fabricated the mounting plate. The float arm was made from materials obtained from Mc Farlane Aviation with the sender.</p> <p>Because the King-Seeley and Stewart-Warner senders are of fundamentally different electrical designs the fuel level gauge was also replaced. The Electronics International FL-2RA-12 gauge was chosen because it can be calibrated to accurately display the fuel level with the new sender. The gauge will also replace the existing auxiliary tank fuel level gauge. The auxiliary fuel tank already had a Stewart-Warner type sender and no other alteration was necessary to that system. Both the Stewart-Warner and the King-Seeley systems use a single wire between the sender and the gauge so no aircraft wiring changes were required.</p> <p>Both the main and auxiliary tanks were calibrated according to Electronic International's calibration procedure. The main fuel tank calibration followed the procedure outlined in the Ryan Navion 1951 Service manual with respect to measured volumes and tank pre-fill prior to indication above empty.</p>
3.	<p>Control: Operation information: Or special procedures, if any.</p> <p>Comment: No special procedures are required.</p>
4.	<p>Servicing information: Such as types of fluids used, servicing points, and location of access panels, as appropriate.</p> <p>Comment: Not applicable.</p>
5.	<p>Maintenance Instructions: Such as recommended inspection/maintenance periods in which each of the major alteration components are inspected, cleaned, lubricated, adjusted, tested, including applicable wear tolerances and</p>

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

work recommended at each scheduled maintenance period. This section can refer to the manufacturers' instructions for the equipment installed where appropriate (e.g., functional checks, repairs, inspections.) It should also include any special notes, cautions, or warnings, as applicable.

Comment: No continuing maintenance required.

6.

Trouble shooting information: Information describing probable malfunctions, how to recognize those malfunctions, and the remedial actions to be taken.

Comment: Follow trouble shooting information contained in the EI FL-2 installation and owners manual.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

7.	<p>Removal and replacement information: This section describes the order and method of removing and replacing products, parts and any necessary precautions. This section should also describe or refer to manufacturer's instructions to make required tests, trim checks, alignment, calibrations, center of gravity changes, lifting or shoring, etc., if any.</p> <p>Comment: The battery master switch(s) must be in the "Off" position before removal of the gauge or sender for maintenance.</p>
8.	<p>Diagrams: Of access plates and information, if needed, to gain access for inspection.</p> <p>Comment: Not applicable.</p>
9.	<p>Special inspection requirements: Such as X-ray, ultrasonic testing, or magnetic particle inspection, if required.</p> <p>Comment: Not applicable</p>
10.	<p>Application of protective treatments: To the affected area after inspection and/or maintenance, if any.</p> <p>Comment: Not applicable.</p>
11.	<p>Data: Relative to structural fasteners such as type, torque, and installation requirements, if any.</p> <p>Comment: There are no structurally significant fasteners associated with this alteration.</p>
12.	<p>List of special tools: Special tools that are required, if any.</p> <p>Comment: No special tools are required to install or maintain any components associated with this alteration.</p>
13.	<p>For commuter category aircraft: The following additional information must be furnished, as applicable:</p> <ul style="list-style-type: none"> A. Electrical loads B. Methods of balancing flight controls C. Identification of primary and secondary structures D. Special repair methods applicable to the airplane. <p>Comment: Not applicable.</p>
14.	<p>Recommended overhaul periods: Are required to be noted on the ICA when an overhaul period has been set by the manufacturer of a component, or equipment. If there is no overhaul period, the ICA should state for item 14: "No additional overhaul time limitations."</p> <p>Comment: No component associated with this alteration has an overhaul period.</p>

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

15.	<p>Airworthiness Limitation Section: Include any "approved" airworthiness limitations identified by the manufacturer or FAA Type Certificate Holding Office (e.g., An STC incorporated in a larger field approved major alteration may have an airworthiness limitation.) The FAA inspector should not establish, alter, or cancel airworthiness limitations without coordinating with the appropriate FAA Type Certificate Holding Office. If there are no changes to the airworthiness limitations, the ICA should state for item 15: "No additional airworthiness limitations" or "Not Applicable."</p> <p>Comment: Not applicable.</p>
16.	<p>Revision: This section should include information on how to revise the ICA. For example, a letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA inspector accepts the change by signing Block 3 and including the following statement: "The attached revised/new Instructions for Continued Airworthiness (date _____) for the above aircraft or component major alteration have been accepted by the FAA, superseding the Instructions for Continued Airworthiness (date _____)." Once the revision has been accepted, a maintenance record entry will be made, identifying the revision, its location, and date of the Form 337.</p> <p>Comment: a letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA inspector accepts the change by signing Block 3 of the 337.</p>

Note:

Implementation and Record Keeping: For major alterations performed in accordance with FAA Field Approval policy, the owner/operator operating under part 91 is responsible for ensuring that the ICA is made part of the applicable section 91.409 inspection program for their aircraft. This is accomplished when a maintenance entry is made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., Block 8 of FAA Form 337, dated 5/28/98) along with a statement that the ICA is now part of the aircraft's inspection/maintenance requirements.

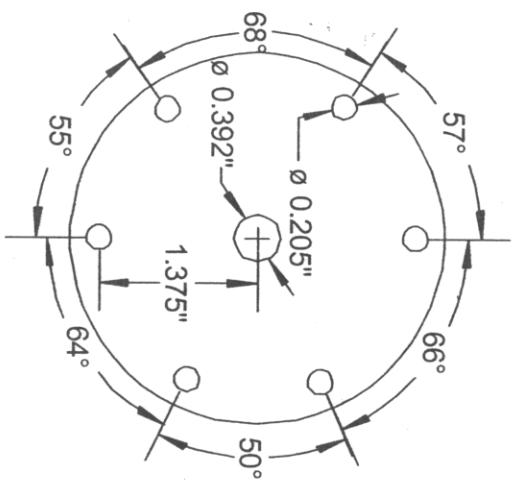
For major alterations performed in accordance with a field approval on air carrier aircraft, the air carrier operator is responsible for ensuring that the ICA is made part of the applicable inspection/maintenance program for their aircraft. If a procedure is not currently included in the operator's manual to incorporate ICA, this process will need to be appropriately addressed (i.e. the operator submits a revision to its maintenance program to the applicable certificate-holding district office (CHDO).

For aircraft inspected under an Approved Aircraft Inspection Program (AAIP), the operator will submit a change to the CHDO in accordance with section 135.419 b).

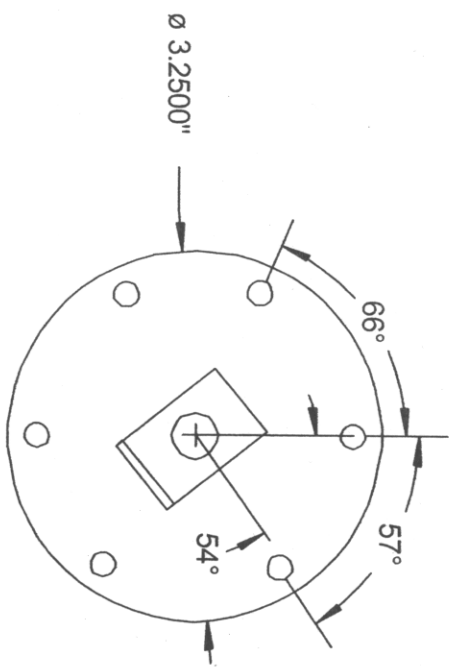
For air carrier aircraft inspected using an annual/100 hour inspection program, a reference to the new ICA will be made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., ICA are located/attached to Block 8 of FAA Form 337, dated 5/28/98). In addition, the operator will request a revision to the operator's Operations Specifications, additional maintenance requirements, which incorporates the ICA into the inspection program.

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

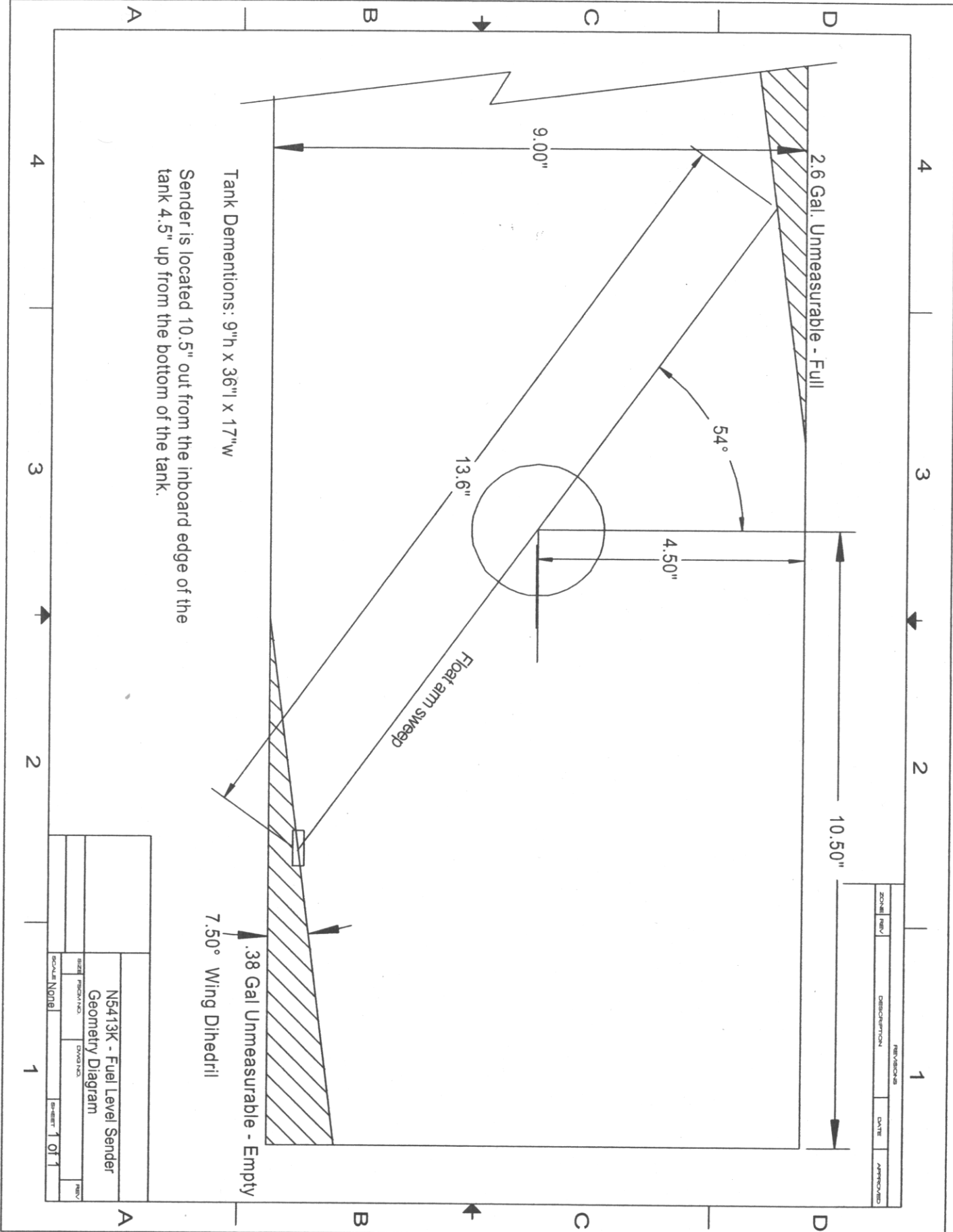
Mounting Plate Front View
(outside of tank)



Mounting Plate Rear View
(inside tank looking out)



N5413K - Fuel Level Sender		SIZE		FSCM NO.		DWG NO.		REV	
Fabrication Detail		SCALE		None		SHEET		1 of 1	



REVISIONS		DATE	APPROVED
ZONE	REV.	DESCRIPTION	

N5413K - Fuel Level Sender	
Geometry Diagram	
SCALE: NONE	SHEET: 1 OF 1