N270B Ser. No. 128

COLONIAL AIRCRAFT CORPORATION

SANFORD MAINE

(This document must be kept in airplane at all times)

CAA APPROVED:
J. D. Shur

Date: December 2[illegible], 1957

COLONIAL AIRCRAFT CORP.

CAA Identificat N270B Ser. No. 128 Model C-2
Normal Category

1. LIMITATIONS:

The following limitations must be observed in the operation of this airplane:

Engine: Lycoming O-360-A1A (180 hp)

Engine Limits: For all operations, 2700 rpm, Full Throttle

Fuel: 91/96 minimum octane aviation gasoline

Propeller: Hartzell Hub: HC92ZK-8L
Blades: L8447-12A
Dia: Not over 72 in., not under 70.5 in.
Pitch: 11.5° to 23.5° at 30 in. station

X Note: Avoid operation below 2250 rpm at manifold pressures over 24.5"

Maximum Weight: 2350 lbs.

C.G. Range:

Weight (lbs)	Forward Limit (in. aft datum)	Aft Limit (in. aft datum)
2350	102.5	106.0
1950 or less	102.5	108

Straight line variation between points given. See attached loading schedule. Datum is nose of airplane.

Note: It is the responsibility of the airplane owner and pilot to insure that the airplane is properly loaded.

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CAA APPROVED:

Power Instruments:

Green Arc - Normal operating range.
Yellow Arc - Caution range.
Red Line - Maximum

(a) Oil temperature:
Red Line - 245°F

(b) Oil Pressure:
Green Arc - 60 psi to 85 psi
Yellow Arc - 25 psi to 60 psi
Red Line - 25 psi min. 85 psi max.

(c) Fuel Pressure:
Green Arc - 0.5 psi to 6.5 psi
Red Line - 0.5 psi min. 6.5 psi max.

(d) Tachometer:
Green Arc - 500 RPM to 2100 RPM and
2200 RPM to 2700 RPM
Yellow Arc - 2100 RPM to 2200 RPM
Red Line - 2700 RPM

Airspeed Limits:
(True Indicated Airspeed)

Never Exceed - - - - - - - - - - - - - - - - 146 mph VNE
Max. Structural Cruising - - - - - - - - 122 mph
Maneuvering - - - - - - - - - - - - - - - - -121 mph VA
Flap and Gear Extended - - - - - - - - - 125 mph VFE & VLO

Airspeed Instrument Markings and their Significance:

(a) RED Line marks maximum safe airspeed.
(b) YELLOW Arc denotes range of speed in which operations should be conducted with caution in smooth air.
(c) GREEN Arc denotes normal operating speed range.
(d) WHITE Arc denotes speed range in which flaps and gear may be safely lowered.

Note: Maneuvers involving approach to stalling angle or full application of control surfaces should be confined to speeds below maneuvering speed.

Flight Load Factors:

Max. Positive Load Factors - - - - 3.8
Max. Negative Load Factors - - - - No inverted maneuvers approved.

(a) No acrobatic maneuvers are approved for Normal Category Operation.

Water Operations:

This airplane has been flown and tested in wave heights up to 6 inches. It is not recommended that airplane be operated in wave heights above this amount.

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CAA APPROVED:

Trim Tab System: The two interconnected hydraulically operated trim tabs operate independently of the elevator. A green arc on the trim indicator denotes the trim range to be used for take-off.

CAUTION

Do not use full nose up trim for take-off in the most rear c.g. reduced weight condition since engine failure in such a configuration will result in inability to pitch nose down when the gear and flaps are retracted.

2. PROCEDURES:

(a) Hydraulic system

(1) In normal operation hydraulic pressure is maintained by electric pump when hydraulic pump switch is in "on" position.

(2) For emergency operation, hydraulic pressure may be maintained by use of the emergency hand pump.

(3) The handle of the Emergency Hydraulic Pump should be approximately parallel to the floor when not in use.

3. PERFORMANCE INFORMATION:

(a) Best Rate of Climb Speeds

(1) Gear and Flaps Down - - - - - - - - - - - - -65 mph (TIAS) VY
(2) Gear and Flaps Up - - - - - - - - - - - - - -85 mph (TIAS)

(b) Use full flap for take-off and landing.

(c) Stall Speeds:

(1) Gear and Flaps Up - Power On - - - - - - 58 mph (TIAS) VSI
- Power Off - - - - - 58 mph (TIAS)

(2) Gear and Flaps Down - Power On - - - - - 52 mph (TIAS) VSO
Power Off - - - - 52 mph (TIAS)

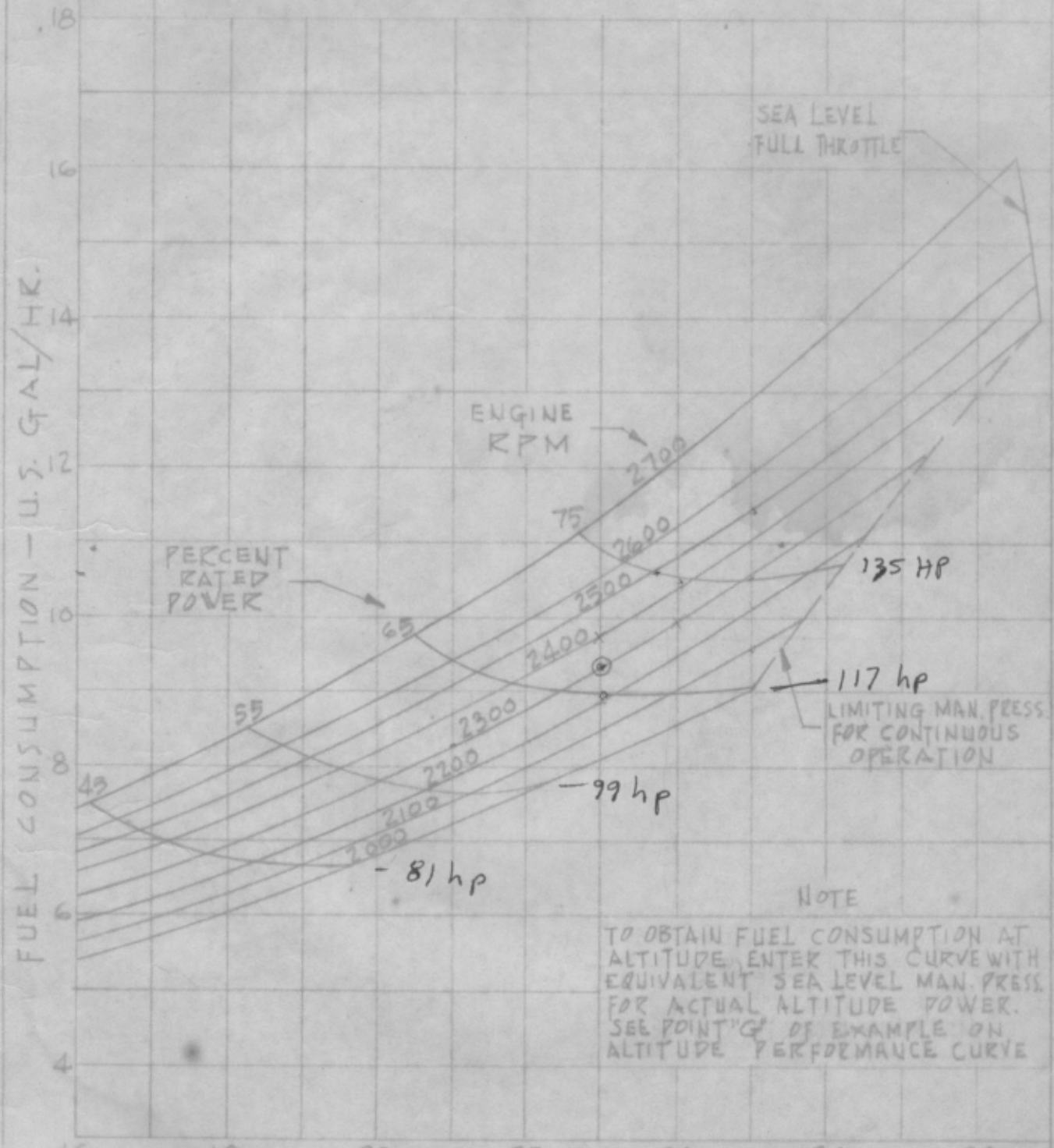
(d) Trim change with power in this airplane is unconventional in that nose will tend to pitch down with application of power and nose will tend to pitch up with reduction of power.

(e) A power-off stall may cause a 250-ft loss of altitude.

CURVE NO. 1754

PART THROTTLE FUEL CONSUMPTION
LYCOMING ENGINE MODEL O-360-A SERIES

COMPRESSION RATIO	8.50 : 1
SPARK TIMING	25° BTC
CARBURETOR	MARVEL-SCHEBLER, MA-4-5
MIXTURE SETTING	FUEL RICH
OPERATING CONDITIONS	STD SEA LEVEL
FUEL GRADE	91/96



NOTE

TO OBTAIN FUEL CONSUMPTION AT ALTITUDE, ENTER THIS CURVE WITH EQUIVALENT SEA LEVEL MAN. PRESS. FOR ACTUAL ALTITUDE POWER. SEE POINT "C" OF EXAMPLE ON ALTITUDE PERFORMANCE CURVE

COPIED FROM PEIST 9/8/58

COLONIAL AIRCRAFT CORPORATION

Sanford, Maine

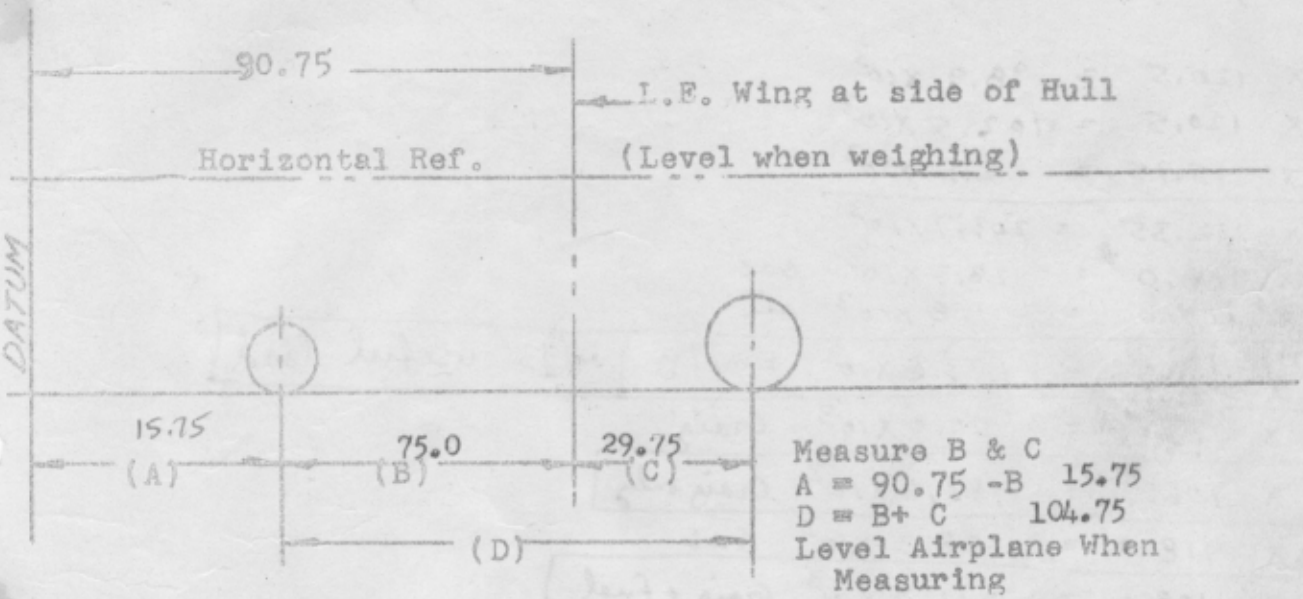
Airplane Flight Manual

Supplement No. 1 Page 1

Weight & Balance

CAA Identification No. N270B Airplane Serial No. 128

Date September 27, 1958



Measure B & C
A = 90.75 -B 15.75
D = B+ C 104.75
Level Airplane When Measuring

Weight As Weighed MAR 12 1973 →

Left Wheel	766 lbs. (x)		900
Right Wheel	756 lbs. (y)		891
Nose Wheel	121 lbs. (z)		161
Total	1643	(t)	1952

C. G. As weighed = $\frac{[(A) \times (Z)] + [(X+Y) \times (A + D)]}{(T)}$ LESS LOAD INCLUDED → 255

NEW E.W. → 1697

= 113.0 inches aft of datum.

	Weight	Arm	Moment
As Weighed	1643		185900
Less Useful Load Included	99		11700
Weight Empty (Includes items checked on equipment list)	1544	112.8	174200

Inches aft datum Empty C.G.

Superseded →

New empty weight per ACA 337 dated 7/2/59
wt empty 1564 Empty CG 111.9

SUPERCEDED MARCH 12, 1973 = AIRCRAFT REWEIGHED — OVER →

	WEIGHT	ARM	MOMENT
AS WEIGHED —	1952		218,351.25
LESS LOAD —	− 255		− 30,075.00
EMPTY WEIGHT	1697.		188,276.25

EMPTY WEIGHT C.G. = 110.9

USEFUL LOAD 653 LBS

---

aircraft weighed 9-1-81 at Sky Services - Auburn

Rt = 821, left = 851 (653), nose = 141 full Tanks, oil

821 × 120.5 = 98.9 × 10^3

851 × 120.5 = 102.5 × 10^3

141 × 15.75 = 2.2 × 10^3

1813 × 112.35 = 203.7 × 10^3

−240 × 118.0 = − 28.3 × 10^3 Gas

−16 × 117.0 = − 1.8 × 10^3 oil

a | 1557 × 111.5 = 173.6 × 10^3 Empty | 793 useful load

160 × 63.0 = 10.0 × 10^3 Craig

b | 1717 × 106.9 = 183.6 × 10^3 Craig only

240 × 118.0 = 28.3 × 10^3 Gas

c | 1960 × 108.1 = 211.9 × 10^3 Craig + fuel

160 × 63.0 = 10.0 × 10^3 passenger

d | 2120 × 104.7 = 221.9 × 10^3 Craig + fuel + pass

160 × 92.0 = 14.72 × 10^3 back seat pass

e | 2280 × 103.8 = 236.62 × 10^3 Craig + fuel + 2 pass

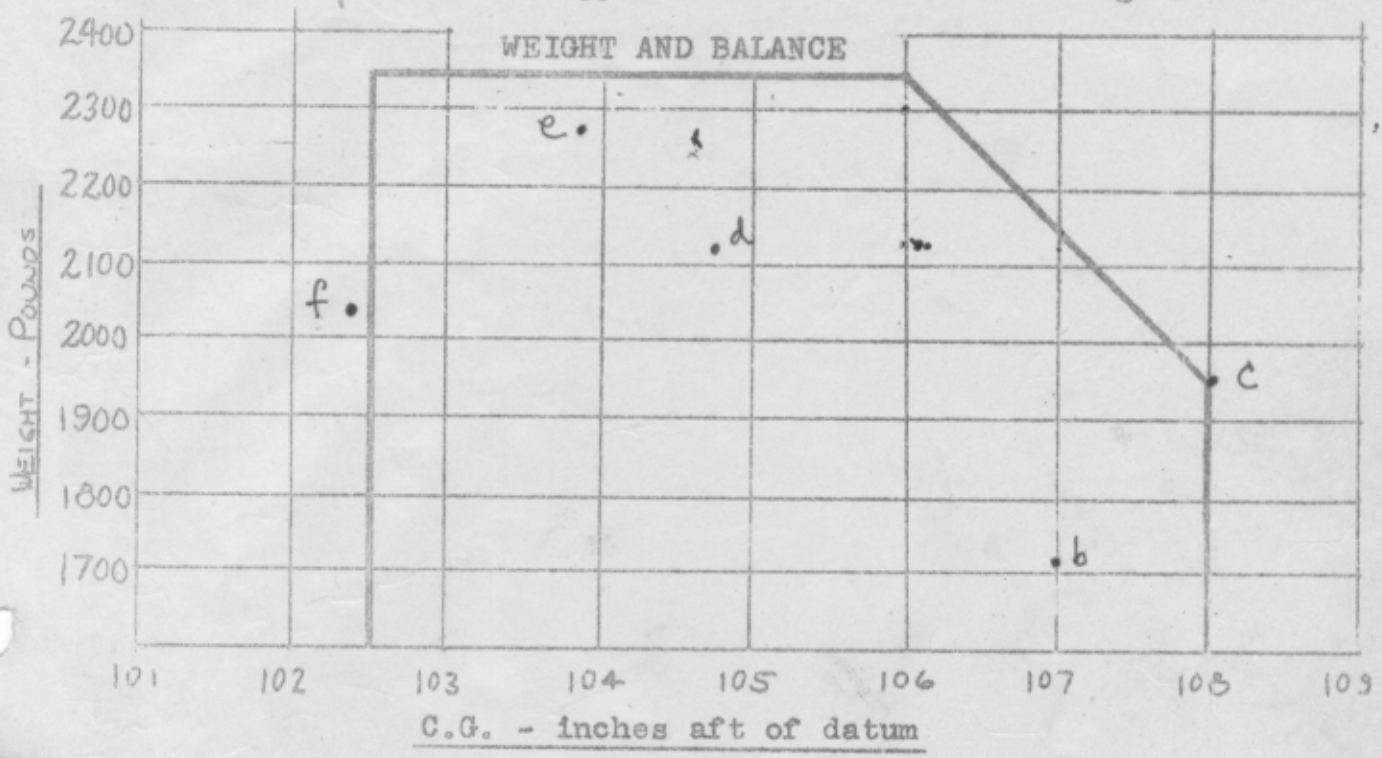
1717 × 106.9 = 183.6 × 10^3

160 × 63.0 = 10.0 × 10^3

160 × 92.0 = 14.72 × 10^3

f | 2037 × 102.3 = 208.32 × 10^3 Craig + 2 pass and no fuel

2350
1544
816



Approved C.G. Range vs. Weight

Useful load variables are as follows:

Item	Station (Arm)
Fual - Min. 15gals., Max. 40 gals.	118.0
Oil - 8 qts.	117.0
Pilot & Passenger	63.0
Rear Passengers	92.0
Baggage	118.0
Ballast	25.0

COLONIAL AIRCRAFT CORPORATION

Sanford, Maine

Model C-2

Supplement No. 1 Page three

WEIGHT AND BALANCE

Loading Schedule:

Any normal loading falls within the approved range except as noted below.

With pilot alone in airplane, ballast must be added according to the table below.

AS OF MARCH 12, 1973 REWEIGHING - BALLAST NEEDED ONLY

Pilot Weight (lbs.) \ Fuel (Gals.)	15	25	35	40
150	15	25	35	5 ~~40~~ 20
170	10	20	25	30
190	5	10	15	20
210	0	5	10	15

5 lbs. forward in the fish tank should provide the best average

Sample Loadings

Forward C.G. - Maximum Weight

(SAMPLES ONLY - EW WRONG)

Item	Weight		Arm	Moment
Empty Weight	1544	1697	112.8	174200
Pilot & Passenger (front)	340	340	63.0	21400
Passengers (rear)	340	147	92.0	31300
Oil - 8 qts.	15	15	117.0	1760
Fuel 18½ gals. 24 (2 hr.)	111	151	118.0	13100
Total	2350	2350	102.7	241760

WEIGHT & BALANCE

Sample Loadings (Cont.)

Aft C.G. - maximum weight

Item	Weight	Arm	Moment
Empty Weight	1544	112.8	174200
Pilot & Passenger (front)	340	63.0	21400
Passenger - rear	170	92.0	15650
Oil - 8 qts.	15	117.0	1760
Fuel - 40 gals.	240	118.0	28320
Baggage	41	118.0	4840
Total	2350	105.0	246170

Aft C. G. - Reduced Weight

Item	Weight	Arm	Moment
Empty Weight	1544	112.8	174200
Pilot	170	63.0	10700
Oil - 8 qts.	15	117.0	1760
Fuel 33 gals	198	118.0	23380
Ballast	23	25.0	575
Total	1950	108.0	210615

LAKE C-2

Seat Belt - Fastened
Parking Brake
Check controls for freedom of movement.
Radio Equipment & Lights Off.
5. Door Closed & Latched.

STARTING PROCEDURE
1. Mixture Control - Full Rich
2. Carb. Heat - Cold
3. ~~Master Switch~~ BATTERY + GENERATOR - On
4. Fuel Selector - On ~~Fullest Tank~~
Electric Fuel Pump - On
Engine -(Below 50°F)
Ignition - On ~~Left Mag~~ BOTH
PROP FORWARD
Clear Propeller
9. Start Engine- Oil Pres. in 30 Sec.
10. ~~[illegible]~~
11. Generator - Check for Operation.
12. Turn Electric Fuel Pump - OFF

ENGINE WARM -UP
1. Run Engine Between 1000-1200 RPM until all gages are in the green.
2. Use Carb Heat for ground operation when temp and Humidity are close to freezing level.

PRE TAKE OFF
1. Parking Brake - Set
2. Fuel Selector on ~~fullest tank~~
3. Mixture Control - Full Rich
4. Carb Heat - Cold for Take off
5. Check Mags-1800 RPM(125 Max. Drop)
6. Check Carb Heat at 1800 RPM
7. ~~Check Generator~~ CYCLE PROPELLER
8. Oil Pressure-Green Range
9. Oil Temp - Green Range
10. Check Engine Idle-500/800 RPM
11. Primer Locked
12. Check Controls for Proper Function.
13. ~~Check Flap Operation~~
14. Set Rudder & Elevator trim for take-Off
15. Set Altimeter to field elevation of alt. setting.

Door - Check

Electric Fuel Pump - Off
Climb Air Speed

Climb.

Adjust Trim

ENGINE SHUT DOWN
Parking Brake Set
2. Radio & Lights Off
3. Electric Fuel Pump Off (Engine ... 1200 RPM)
4. Mixture- Full Lean.
MASTER SWITCH OFF
6. Ignition Switch Off

EMERGENCY
1. Select Field
2. Establish Normal Glide.
3. Check Fuel Selector ON FULLEST TANK
4. Ignition Switch - On
5. Primer Locked
6. Electric Fuel Pump - ON

Model C-2

Airplane Flight Manual

Supplement No. 2

Equipment List

Item No.	Item	Weight	Arm aft of datum
	PROPELLER & ACCESSORIES		
-1	Propeller - Hartzell HC92~~ZK~~-8L hubs with 8447-12 A blades S/N 2143-L Pitch settings at 30 inch station: 11.5° low 23.4° high Diameter: Not over 72 inc. Not under 70.5" S/N 1042589 P/N 0212106 With Woodward hydraulic governor #210065	61 3	144 109
	ENGINE AND ENGINE ACCESSORIES, FUEL AND OIL SYSTEMS		
	Carburetor - Marvel Schebler MA4-5 PN 10-2878 S/N 400-5517		
-101	Starter, Delco Remy, 12 V M/N 1109673 S/N 2665	17	130
-102	Fuel Pump, engine-driven AC type ANNo. 5594068	3-	112
-103	Fuel Pump, electric auxiliary Bendix Model 476087	2	108
-104	Oil Cooler, Harrison Model 8523517	4	118
-105 DRY	Vacuum Pump, ~~Pesco Model 3P-194-F type B-11~~ AIRBORNE Model 113A3 Ser. 5F1321	4	109
	Magnetoes Bendix-Scintilla S4LN-20 Ser. 588699 Black label		
	LANDING GEAR		
	Two main wheel-brake assemblies 6.00-6 Type III (a) Goodrich Model 603A Wheel assembly No. D-3103A Brake assembly No. D-2-695	10 lbs. ea.	122
-202	(a) Two main wheel 4-ply rating tires, 6.00-6, Type III, with regular tubes	8 lbs. ea.	122
-205	Nose wheel assembly, 5.00-4 Type III (a) Goodrich Model 463A Wheel Assembly No. D-3-163A	4 lbs. -	18
-206	(a) Nose wheel 4-ply rating tire, 5.00-4, type III, with regular tube	6 lbs.	18
	ELECTRICAL EQUIPMENT		
-301	Battery, Bowers BA-34, 12V	23	22
-302	Generator, 12V, 35 amp, with bracket	18	133
-303	Landing Light & taxi light instl. GE Mo4509	2	96
-304	Stall Warning Indicator -neglect weight		

Model C-2

Airplane Flight Manual

Supplement No. 2

Equipment List Page two

Item No.		Item	Weight	Arm aft of datum
		INTERIOR EQUIPMENT		
-401		CAA Approved Airplane Flight Manual, with loading schedules, dated Dec. 11, 1957		
		MISCELLANEOUS EQUIPMENT		
-601		Bendix #402961-2-1 Hyd. accumulator	4	31
-602		Bendix #403910-0-1 Hyd. Hand Pump Modified	2	40
-603		Kollsman #369N-010 Heated Pitot Head	1	90
-604		Danforth MK V 2½ Modified anchor	2.5	25
-605		Eastern Industries 1761H8V Type 329 electric hydraulic pump		
-606		Westport CG-12169 Hyd. Pressure switch		
		OPTIONAL EQUIPMENT		
-701	✓	Narco Omnigator	7.4 ✓	42
-702		Narco Simplexer	2.8	42
-703		Narco LFR-3	1.8	42
-704	✓	Narco Power unit V12-MP2	~~7.1~~ ✓	30
-705		VP8 Switch & Jacks	.5	44
-706		High Frequency Antenna	1.0	73
-707	✓	Omni Antenna	2.0	260
-708		Marker Beacon Antenna	1.0	160
-709	✓	Speaker	.5	72
-710		Lear ADF	1.9	42
-711		Cabling	3.0	90
-712		Lear Power Pack	10.0	118
-713		Lear Loop Antenna	3.0	90
-714	✓	Vacuum Instruments	12.0	43
-715	✓	Anti-collision light-Grimes D7080	2.0	262
	✓	NARCO MARK 12 NAV-COM		42
	✓	" " " " " POWER SUPPLY		30
	✓	" VOA 4 OMNI INDICATOR		
	✓	STEWART-WARNER HEATER MODEL 940F12		90
	✓	MORSE BILGE PUMP		
	✓	King KA134	.8	44
	✓	King KY92	2.8	42
	✓	King KT-76	3.0	42
	✓	King KR-80	4.0	42
	✓	narco NAV132	3.0	42

LAKE AIRCRAFT CORP.

Service Letter No. 4

March 30, 1961

SUBJECT: Scott Master Cylinders

TO: All C-2 and LA-4 Owners

The Scott master brake cylinders on some LA-4 & C-2 airplanes have an internal adjusting nut which was not secured in place by the manufacturer. This situation has since been corrected by Scott, but at least one instance of brake failure is known to have resulted from movement of this adjusting nut. It is recommended that the master cylinders be disassembled and inspected for proper location of the nut, and the nut secured in place by staking of the threads on either side.

Form approved.
Budget Bureau No. 41-R052.4.

FEDERAL AVIATION AGENCY

MAJOR REPAIR AND ALTERATION FORM (AIRFRAME, POWERPLANT, PROPELLER OR APPLIANCE)

	MAKE	MODEL	SERIAL NO.	NATIONALITY AND REGISTRATION MARK
1. AIRCRAFT	Colonial	C-2	128	N270B

	NAME (*First, middle, last*)	ADDRESS (*Street and number, city, zone and State*)
2. OWNER	W. L. Trimble	136-30 Sanford Avenue Flushing, L. I., New York

3. COMPLETE ONLY FOR UNIT REPAIRED AND/OR ALTERED. DESCRIBE WORK ACCOMPLISHED ON REVERSE IN ACCORDANCE WITH CIVIL AERONAUTICS MANUAL 18.

UNIT	MAKE	MODEL	SERIAL NO.	NATURE OF WORK (*Check*)	
				MAJOR REPAIR	MAJOR ALTERATION
a. AIRFRAME	(As described in item 1 above)			X	
b. POWERPLANT					
c. PROPELLER					
d. APPLIANCE	TYPE AND MANUFACTURER				

4. AIRCRAFT WEIGHT AND BALANCE DATA
**AFTER the repairs and/or alterations described below were made.*

This item must be completed by repair or alteration agency. However, in the case of a spare component, it will not be completed until such component is installed in an aircraft. At this time, it will be completed by the installing agency, if applicable.

CATEGORY	EMPTY WEIGHT (*Pounds*)*	EMPTY CENTER OF GRAVITY (*Inches from datum*)*	USEFUL LOAD (*Pounds*)*
Normal	1600 Negligible Change	111.3	750

5. CONFORMITY STATEMENT (*Complete and check*)

a. AGENCY'S NAME AND ADDRESS	b. KIND OF AGENCY	c. CERTIFICATE NO.
Lake Aircraft Corp. Sanford, Maine	☐ U. S. Certificated Mechanic. ☐ Foreign Certificated Mechanic. ☐ Certificated Repair Station. ☒ Manufacturer. ☐ (Check if repair or alteration was made under delegation option procedures.)	1A13

d. I certify that the repair and/or alteration made to the unit(s) identified under item 3 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 18 of the U. S. Civil Air Regulations and that the information furnished herein is true and correct to the best of my knowledge.

July 25, 1961
(Date repair and/or alteration completed)

Willy J. Stone A&E 1276058
(Signature of authorized individual)

6. APPROVAL FOR RETURN TO SERVICE (*Check and complete appropriate items*)

Pursuant to the authority specified below the unit identified in item 3 was inspected in the manner prescribed by the Administrator of the Federal Aviation Agency and is

☒ APPROVED
☐ REJECTED

BY { ☒ FAA Designee ☒ Manufacturer ☐ Canadian Department of Transport Inspector of Aircraft
☐ FAA Flight Standards Inspector ☐ Repair Station ☐ Other (*Specify*)

July 25, 1961
(Date of approval or rejection)

Raymond J. Morin DMIR 1127
(Signature of authorized individual; title or identification number)

TO BE COMPLETED ONLY BY FAA PERSONNEL

a. ☐ Forwarded for engineering comment ☐ See attached memorandum

b. ☐ Accepted _____ (Date) ☐ Reinspected _____ (Date) ☐ Spot Checked _____ (Date)

_____
(FAA designation number)

_____
(Signature Flight Standards Inspector)

16—54010-5

INSTRUCTIONS

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

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6. DESCRIPTION OF WORK ACCOMPLISHED.*

1. Crack stop drilled and cleaned, removed wrinkle from inboard lower end of 2-1611-3 Beam Assy.: doubler, made from 2-1611-25 Beam, approximately 7 inches long, added to inboard forward face of damaged beam assy.

2. Cracked and wrinkled lower skin, bounded by ribs at Stations 144-3/4 & 158-1/4, 2-1611-3 Beam Assy. and 2-1611-11 Support Assy. was replaced, repainted.

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*If additional space is needed attach additional sheets bearing aircraft nationality and registration mark and date work completed.

Check block if additional sheets are attached. ☐

U.S. GOVERNMENT PRINTING OFFICE 16—54010-5

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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

Form Approved
Budget Bureau No. 04-R060.1

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.

1. AIRCRAFT	MAKE: Colonial Skimmer	MODEL: Colonial C-2
	SERIAL NO.: 128	NATIONALITY AND REGISTRATION MARK: N 2708
2. OWNER	NAME (As shown on registration certificate): Union Color & Chemical Co. Inc.	ADDRESS (As shown on registration certificate): Box 787 Clark Road Wolfeboro N.H 03894

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION				5. TYPE	
UNIT	MAKE	MODEL	SERIAL NO.	REPAIR	ALTERATION
AIRFRAME	********** (As described in item 1 above) **********				✓
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE / MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS	B. KIND OF AGENCY	C. CERTIFICATE NO.
Winnipesaukee Aviation Inc. Box 165 Lakeport N.H 03246	U.S. CERTIFICATED MECHANIC	
	FOREIGN CERTIFICATED MECHANIC	
	✓ CERTIFICATED REPAIR STATION	1379
	MANUFACTURER	

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	SIGNATURE OF AUTHORIZED INDIVIDUAL
6-8-70	Francis J. Morin

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		INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	✓	REPAIR STATION		CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	

DATE OF APPROVAL OR ~~REJECTION~~	CERTIFICATE OR DESIGNATION NO.	SIGNATURE OF AUTHORIZED INDIVIDUAL
6-8-70		Francis J. Morin

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.)*

Bilge Pump. Installation for Lake LA4 - Installed pump Per Lake Instruction and drawing # L-0250 Approval Basis T.C. IA13 All Parts furnished by Aerofab Inc. (APIS)

☐ ADDITIONAL SHEETS ARE ATTACHED

U.S. GOVERNMENT PRINTING OFFICE : 1967 OF—272-065

AREA CODE 207 TELEPHONE 324-3916

AEROFAB, INC.

SANFORD, -:- MAINE

October 19, 1965

Mr. Frederick T. Ernst
Camp Monadnock,
Joffrey Center, N. H.

Dear Mr. Ernst:

Winter is almost here, and that means cold weather operation.

Being water type people, we don't like winter, but, being land type people also, we do a pre-winter check and continue to fly.

Here's a few suggestion that will save you some trouble this winter and save you some money on that next relicense.

1. Keep the hull well drained this winter. If you've been in rain, drain it.
2. Remove and grease all hull and float drain plugs. Be careful not to get the plugs in too tight.
3. Give that water rudder a good shot of grease. It may not be moved all winter.
4. Empty oil breather tank

I'm also enclosing three pages of useful information that you can add to your flight manual, if you don't already have them.

We, at Aerofab, are ready to give you anykkind of service on your Lake. We have a fully equipped repair station. We built the airplane, and we're ready to give good service on it. Let us quote you a price on a relicense or maybe a new heater installation.

While you're here you may want to brush up on water proficiency with one of our Lake instructor.

Whatever your needs, we are ready to serve you.

Sincerely yours,

AEROFAB, INC.

Calvin Tompson (clh)

Calvin Tompson

CT/lh

Procedure for charging Accumulator on LAKE LA-4

1. Remove valve core from bottom of accumulator, if hydraulic fluid comes out, diaphram is broken.
2. Replace core. Jack up airplane.
3. Connect nitrogen source to accumulator.
4. Turn nitrogen source up to 350 p.s.i. pressure.
5. Leave electric hyd. off and actuate landing gear until panel gauge reads zero.
6. Double check outside pressure. Be sure that 350 p.s.i. is still being delivered.
7. Shut off outside source and disconnect from accumulator.
8. Turn on hyd. pump and check system for proper operation.

FUEL AND POWER CHART - LYCOMING MODEL O-360-A, 180 H.P. ENGINE

Press. Alt. 1000 Feet	Std. Alt. Temp. °F.	99 HP-55% Rated Approx. Fuel 7.4 Gal./Hr. RPM & Man. Press.				117 HP-65% Rated Approx. Fuel 8.8 Gal./Hr. RPM & Man. Press.				135 HP-75% Rated Approx Fuel 10 Gal./Hr. RPM & Man. Press.		
		2100	2200	2300	2400	2100	2200	2300	2400	2200	2300	2400
SL	59	20.9	20.3	19.8	19.3	23.3	22.7	22.1	21.5	25.1	24.5	23.9
1	55	20.7	20.1	19.6	19.1	23.1	22.4	21.8	21.3	24.8	24.2	23.6
2	52	20.4	19.8	19.3	18.8	22.8	22.1	21.6	21.0	24.6	24.0	23.4
3	48	20.2	19.6	19.1	18.6	22.5	21.9	21.3	20.8	24.3	23.7	23.2
4	45	19.9	19.3	18.9	18.4	22.3	21.6	21.1	20.6	24.0	23.5	22.9
5	41	19.7	19.1	18.7	18.2	22.0	21.4	20.9	20.3	23.8	23.2	22.7
6	38	19.5	18.9	18.4	18.0	21.8	21.1	20.6	20.1	....	23.0	22.5
7	34	19.3	18.7	18.2	17.8	21.5	20.9	20.4	19.9	....	....	22.2
8	31	19.0	18.4	18.0	17.6	21.3	20.7	20.2	19.7			
9	27	18.8	18.2	17.8	17.4	....	20.4	20.0	19.5			
10	23	18.6	18.0	17.6	17.2	....	....	19.8	19.3			
11	19	18.4	17.8	17.4	17.0	....	....	....	19.1			
12	16	18.2	17.6	17.2	16.8							
13	12	....	17.4	17.0	16.7							
14	9	....	....	16.8	16.5							
15	5	....	....	....	16.3							

To maintain constant power, correct manifold pressure approximately 0.17" Hg for each 10° F. variation in carburetor air temperature from standard altitude temperature.
Add manifold pressure for air temperature above standard; subtract for temperatyres below standard.

Suggestion to Late owners

In cold weather, the starter Bendix sometimes sticks on the shaft, and will not engage the flywheel when trying to start the engine.

This suggestion is made to eliminate the problem when cold weather is expected.

At time of engine shut down:

1. Check that the Magneto Switch is "OFF".
2. Put Master Switch in the "ON" position.
3. Engage starter and turn engine 2 or 3 revolutions.
4. Shut-off the Master Switch.

AEROFAB, INC. Page 2-7

Inspection Record of Spare Parts Date 9/13/72

Airplane Model C-2 Serial No. 128 Registration No.

Part No. 2-4402-43 Part Name FORK Quantity 1

New [X] Newly Overhauled [ ] Repaired [ ]

From Active Stock Room [X] Domestic [X]

From Inactive Stock Room [ ] Export [ ]

Manufactured for this order [ ] Country [ ]

Inspected for conformity to Drawing No. 2-4402 Rev. H Dated 11/4/71

Applicable to Model No. LA-4

If this is an active part from the active stock room, only a visual inspection is required.

Visual Inspection	Satisfactory	[X]	Unsatisfactory	[ ]
Dimensional Inspection	Satisfactory	[ ]	Unsatisfactory	[ ]
Rockwell Hardness Test	Satisfactory	[ ]	Unsatisfactory	[ ]
Pressure Test	Satisfactory	[ ]	Unsatisfactory	[ ]
Functional Test	Satisfactory	[ ]	Unsatisfactory	[ ]

Airworthiness Directive Service Bulletin

Note below any deviations for DER evaluation

-43 FORK & RELATED PARTS ARE FOR LATEST PRODUCTION AND NOT APPROVED FOR C-2 MODELS

M E Bradley
Inspector

Decision

OK to use on C-2

[illegible]
DER No. 1-72

Airworthiness Approval Tag FAA-8130-3 Issued by DMIR

Shipper or Invoice No. _____

LAKE AIRCRAFT CORPORATION

Rigging & Erection Instructions
Cont'd

(LA-4 Amphibians)

WING INSTALLATION

Support the hull sufficiently far from the floor that the main gear (extended) will not reach the floor when the wing is approximately in installation position.

Remove the end fittings from the flap actuating shaft, then, with the gear extended, lift the wing and align the aft faces of the main beam caps with the forward faces of the steel fittings which extend from the fuselage. When the holes in the beam caps and in the fittings are approximately lined up, set a tapered pin into one hole in the upper fitting, and one hole in the lower fitting. The wing is now sufficiently tied to the fuselage to support its own weight. The bolts must now be installed through the main beam caps and the fittings. (NAS464-6A-1910, NAS464-7A21 (2), AN365-720 (2). These bolts are high strength bolts, and regular AN type bolts must not be substituted.

After the main attachment bolts are tightened, the rear beam attaching bolt may be installed (P/N AN6-13, AN960D616 (2), and AN365-624. Shims may be used between hull and wing fittings if required.

Repeat this procedure with the other wing. The airplane may then be removed from its supports and rested on the gear, provided that the gear is securely locked down. If this is done, it would be advisable to wire the downlock struts in the locked position to guard against inadvertent unlocking, until the hydraulic system is connected and pressurized.

The aileron pushrods may now be connected to their corresponding bellcranks in the fuselage, using AN3-10A bolt, AN960-D10 washer, and AN365-1032 nut.

The rubber boot around the pushrod should be pushed through the hole in the fuselage and wing rib, and attached with rubber cement. No rigging of the aileron system is necessary, since it is preset at the factory.

Replace the end fittings on the flap actuating shaft, and join the flap actuating rods to the fittings with AN23-14A bolt, AN960-10 washer and AN364-1032 nut. As with the ailerons, no rigging is necessary.

The fillets must be attached to the fuselage wing AN470AD4 or equivalent rivets. Pilot holes are provided in the fillet flanges, which must be enlarged to #30 drill size before installing rivets. Some of the holes are already drilled through the fuselage skin. These must be used as aligning holes before drilling the remaining holes

LAKE AIRCRAFT CORPORATION

Rigging & Erection Instructions

(LA-4 Amphibians)

HORIZONTAL TAIL INSTALLATION

Stabilizers

Lift one stabilizer half to the level where the main beam bolt holes align horizontally with the corresponding holes in the fin beam. Holding the trim torque tube (inside stabilizer just forward of beam) in line with the torque shaft which protrudes from the fin, move the stabilizer inboard until the main beam bolt holes line up. Be sure that the trim torque shaft slides into the trim torque tube. Chamfer against weld - with tapered shims (P/N 2-2200-43 in place both inside and outside fin, install bolts, washers and nuts (AN6-13A, AN960-D616L, and AN365-624). Moving forward to the main beam, install bolt, washers and nut (AN4-6A, AN960D416L (2) and AN365-428) with bolt pointing downward, through the steel fittings provided on the fin and stabilizer. The bolt and nut attaching the trim torque tube to the trim torque shaft (AN3-10A, AN960-10L (2) and AN365-1032) may then be installed.

Repeat this procedure with the other stabilizer half. The long bolt (AN3-72A) which passes through the fin at the forward beam may then be installed with its nut (AN365-1032). This completes the stabilizers installation.

Elevators

The elevators are attached to the tail assembly through a bellcrank extending from the fin main beam, and a hinge attached to the stabilizer main beam.

Lift one elevator half into position with hinged surface up. Align holes in elevator inboard rib with holes in elevator bellcrank and install 6 bolts and nuts (AN3-4A, AN960D10L, AN960-10L, and AN365-1032). Then align hinge halves (outer end of elevator) and install hinge pins, clip and hardware. (P/N 2-2210-21, 2-2210-23, AN526-632-6, AN960D6, AN365-632.)

Repeat this procedure with other elevator half.

Trim Surfaces

Match hinge halves on stabilizer and trim surface beams. Insert pins (P/N 2-2210-21) and attach clips with bolt & nut (P/N 2-2210-23, AN526-632-6, AN96006, AN365-632.)

Attach horn (extending from bottom of trim surface) to arm on outboard end of trim torque shaft with rod (P/N 2-2220-19) clevis ends (P/N AN486-4 and AN486-3) and hardware (AN316-4 (2), AN23-10, AN23-13, AN320-3 (2), AN381-2-7 (2)).

Repeat this procedure with the other trim surface.

Covers (P/N 2-2600-49 and -50) are provided for the areas left and right of the elevator bellcrank. Attach these with No. 4 self tapping screws - 5 per cover.

LAKE AIRCRAFT CORPORATION

Hydraulic System - Maintenance & Trouble Shooting

(LA-4 Amphibians)

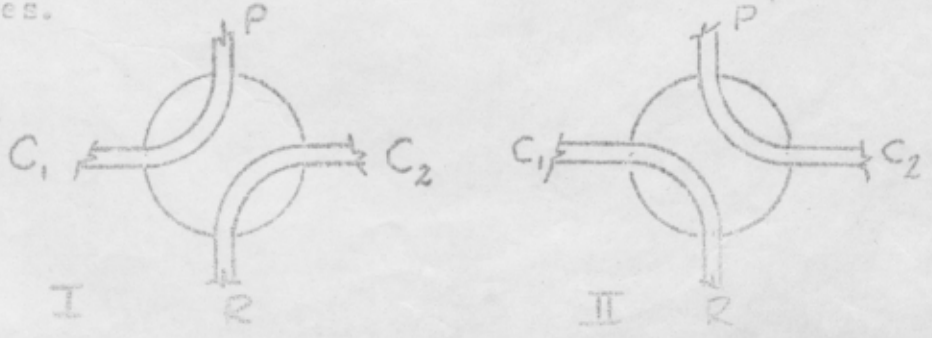
The normal operation of the hydraulic system is outlined below. The operation is outlined assuming that the system pressure is zero at the start.

When the battery switch and hydraulic pump switch are turned to the "on" position, electric power is supplied to the electric hydraulic pump through the hydraulic pressure switch. The circuit diagram for the pressure switch is shown on page _____. Neither the "hi" nor "lo" contacts of the pressure operated switch are in contact. Consequently current flows from the "B" terminal to the "A" terminal of the pressure switch thru the solenoid actuated snap switch. The electric pump draws fluid from the reservoir and delivers it to the high pressure side of the system. At first the pressure rise is rapid but at a system pressure of about 350 psi. The accumulator begins to fill with hydraulic fluid and the pressure rise slows down.

The accumulator is a steel sphere with a rubber diaphragm dividing it into two chambers. On one side of this diaphragm is air under a pressure of 350 psi. When the hydraulic system pressure exceeds 350 psi, oil is forced into the accumulator and the air is further compressed. As the electric pump delivers oil to the high pressure side of the system, the pressure increases slowly above 350 psi. At approximately 850 psi, the "lo" side of the pressure sensitive relay in the hydraulic pressure makes contact. However, with the solenoid actuated snap switch in the starting position, this has no effect. At a system pressure of approximately 1250 psi, the "hi" contacts close. This actuates the solenoid which throws the snap switch and the flow of current to the hydraulic pump motor is stopped.

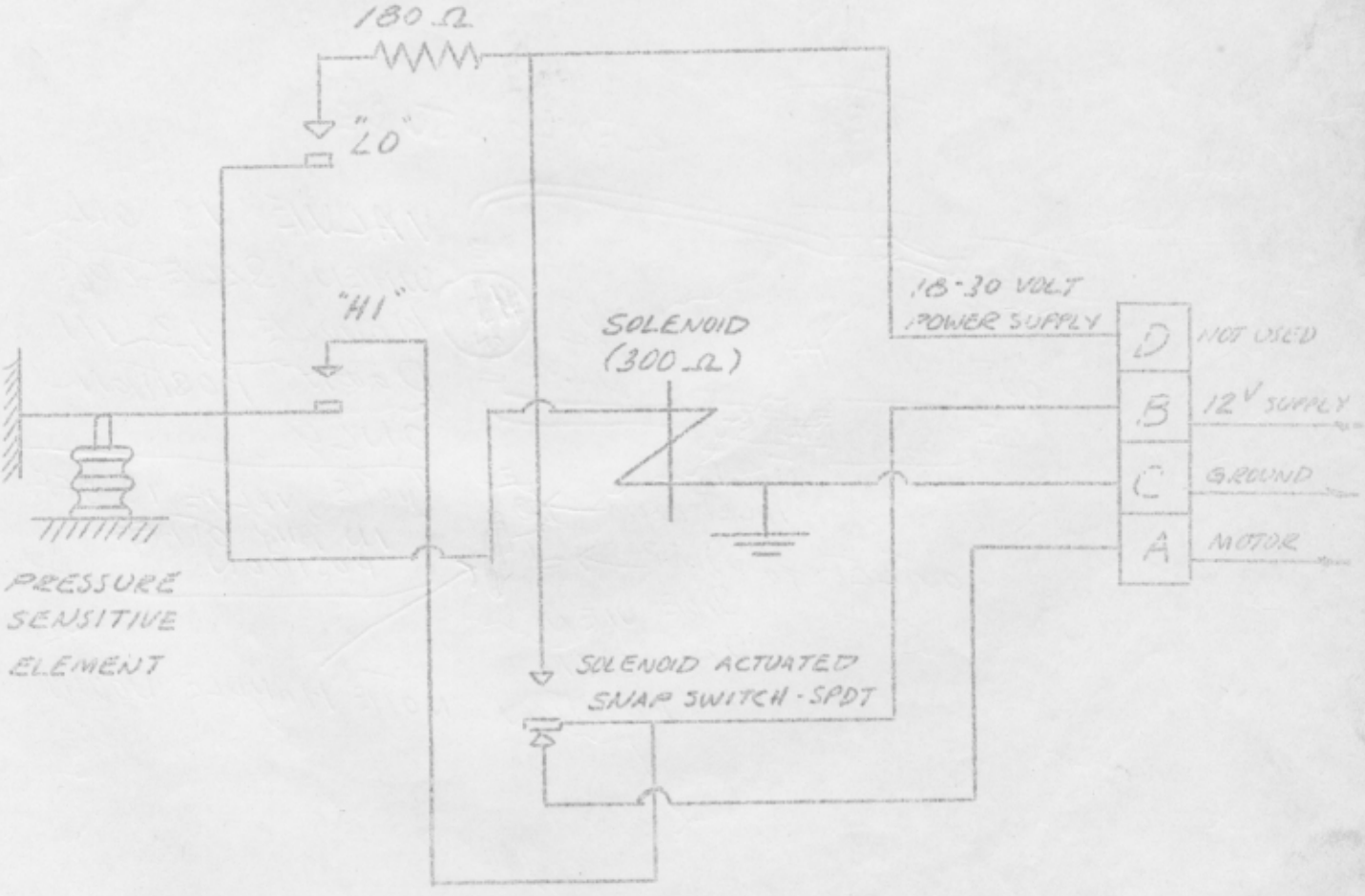
If the hydraulic system is then used to operate the flaps, trim, or landing gear the pressure drops as fluid is drawn out of the accumulator. The electric pump motor is not started by opening of the "hi" contacts of the pressure actuated relay since a "holding" current is free to flow through the snap switch and the "lo" contacts to the solenoid holding the snap switch in the "motor-off" position. As the pressure drops below 850 psi, however, the solenoid drops out and the electric pump motor is energized; building up hydraulic pressure and repeating the cycle noted above.

The hydraulic fluid is directed to the actuating cylinder by "four-way" valves.

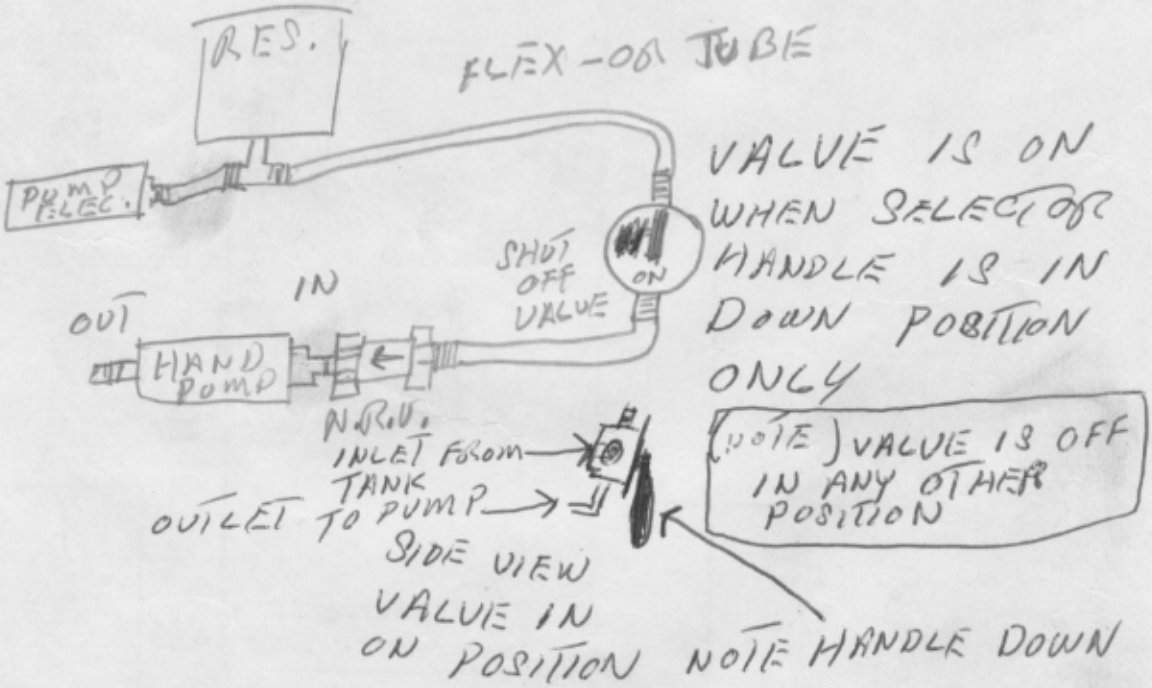


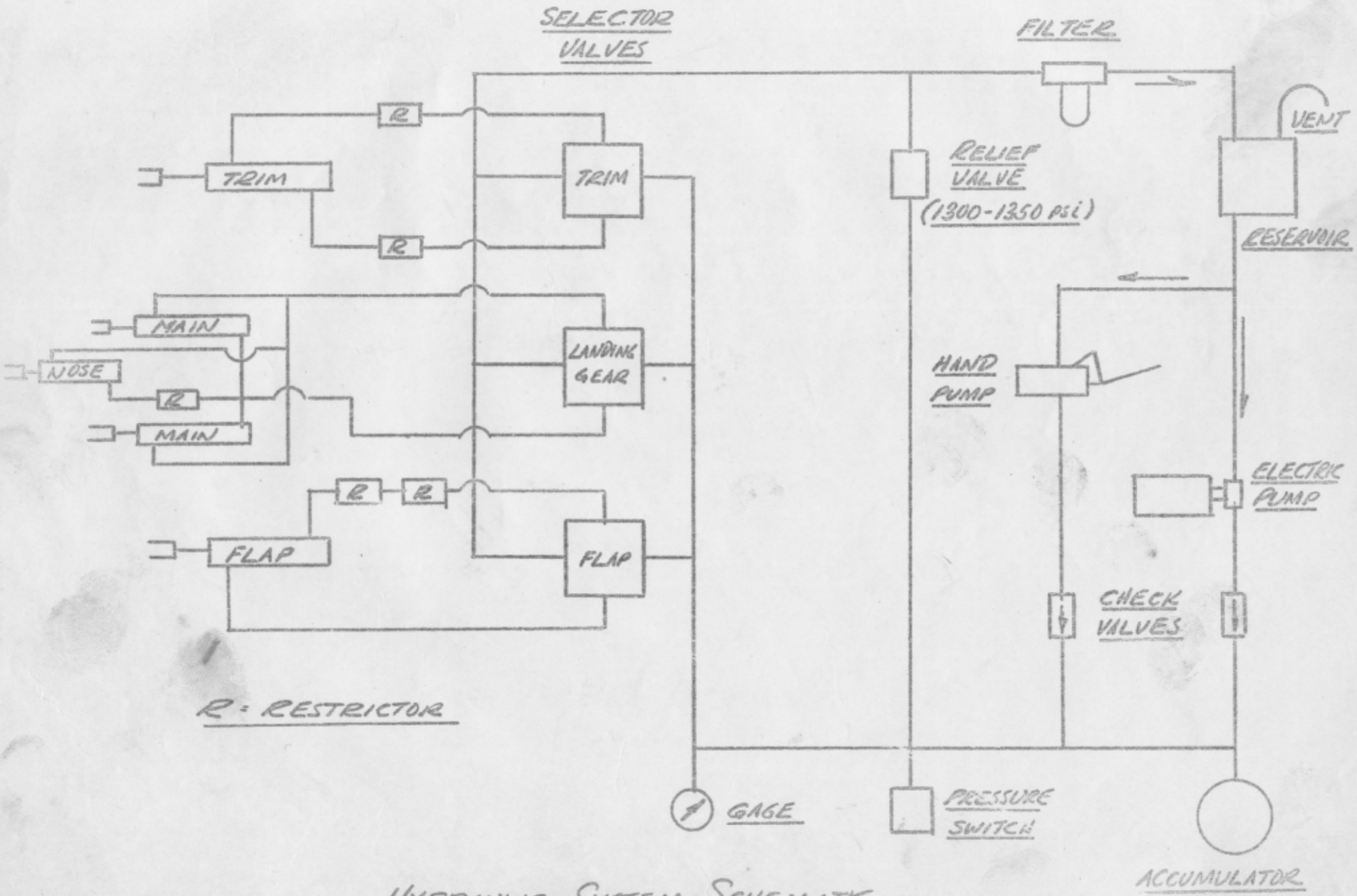
The operation of these valves is indicated diagrammatically above. Flap and landing gear operation is obtained by moving the valve from position I to position II. In the case of the trim actuator, the valve is maintained in an intermediate (closed-center) position and trim adjustment is made by moving the valve momentarily into position I or II.

The accumulator can deliver a large quantity of fluid at high pressure very quickly and it therefore provides rapid landing gear actuation. However, the action would be too rapid for safety in the case of the flap actuation and the trim actuation and therefore "restrictors" are incorporated in these systems. A restrictor is also incorporated in the nose gear "down" line to prevent too-rapid actuation of the nose gear.



HYDRAULIC PRESSURE SWITCH
SCHEMATIC WIRING DIAGRAM
(POWER OFF - PRESSURE OFF)


RES.
FLEX-OIL TUBE
PUMP ELEC.
VALVE IS ON WHEN SELECTOR HANDLE IS IN DOWN POSITION ONLY
SHUT OFF VALVE
ON
IN
OUT
HAND PUMP
N.P.T. INLET FROM TANK
OUTLET TO PUMP
(NOTE) VALVE IS OFF IN ANY OTHER POSITION
SIDE VIEW VALVE IN ON POSITION
NOTE HANDLE DOWN



HYDRAULIC SYSTEM SCHEMATIC

LAKE LA-4

NOTE:

The greatest single cause of trouble in any hydraulic system is dirt. When filling the reservoir, only carefully cleaned utensils should be used and the fluid strained. A paint strainer may be used. The filter located under the instrument panel should be cleaned periodically.

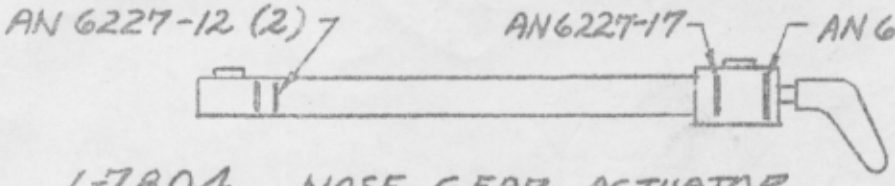
Sympton	Probable Cause
1. Rapid drop in pressure with flap or trim actuation. - Frequent cycling of pump when these controls are used.	Trouble with accumulator. Either loss of air pressure or rupture of diaphragm. Try refilling air in accumulator.
2. Cycling of pump without actuation of any control.	Loss of fluid from the pressure side of system. If no external leaks are evident, then internal leak is present. If loss of pressure is slow then an internal leak in an actuation cylinder is indicated. This can be checked by putting various control valves in the center position. This is a closed position with no pressure going to cylinder controlled by that valve. Rapid loss of pressure is usually caused by sticking of the check valve at the pressure side of the electric pump. A leaky check valve in the hand pump can be checked by pulling pump handle out and positioning handle at mid-stroke. If check valve leaks, handle will creep. The relief valve can be blocked out of the system to check it.
3. Leakage from cylinders.	Cut "O" rings. Care must be exercised that "O" rings are not cut when they are replaced. The exposed areas of piston rods should be kept as clean as possible and if prolonged storage, especially under adverse conditions, is anticipated, the rods should be coated with a light grease. The size of "O" rings used is indicated on pages _____.

4. Pump runs continuously.	If system pressure is above 1300 psi, the electric pump motor may have shorted out or the points of the snap-switch in the pressure switch may have welded. If system pressure is below 1300 psi, then check for an internal leak as outlined under (2).
5. Failure of trim surface or flap to move.	Probably a plugged restrictor. These may be removed and cleaned. The dirt responsible for the blockage may not be apparent so the system should be rechecked before looking for further trouble.

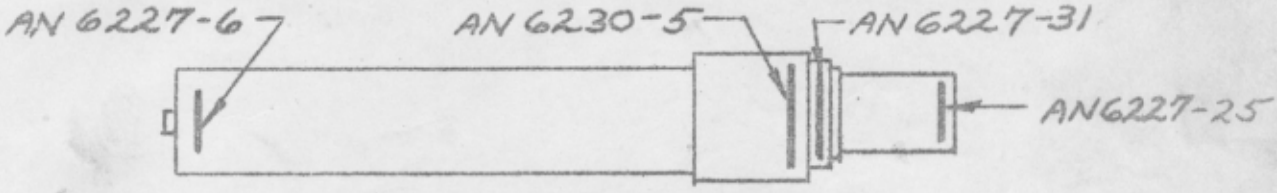
LAKE AIRCRAFT CORP.

"O" RING REQUIREMENTS, C1, C2, & LA4 MODELS

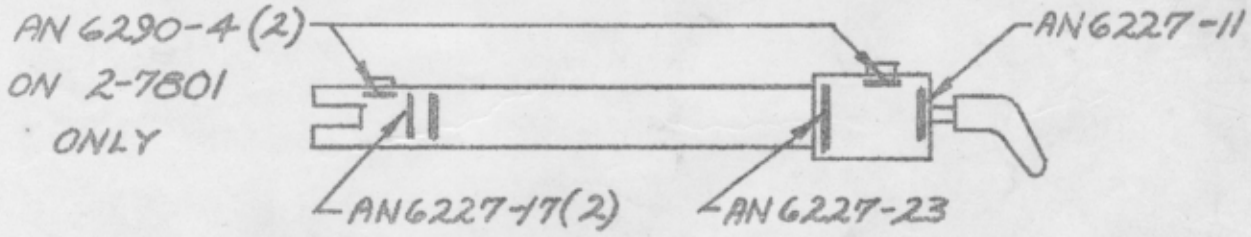
OLEO & ACTUATING CYLINDERS



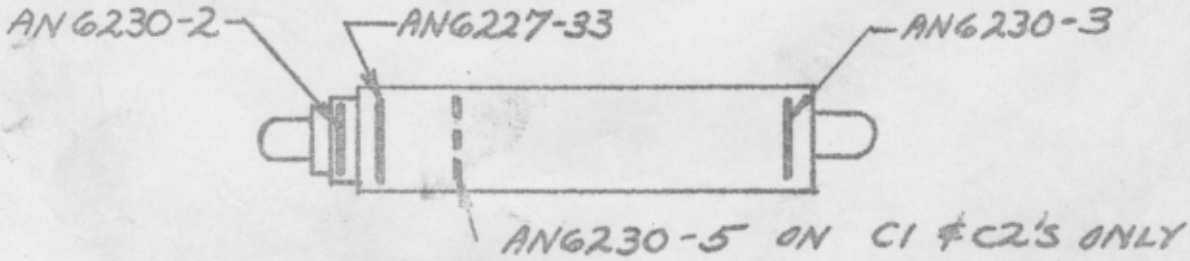
1-7804 NOSE GEAR ACTUATOR



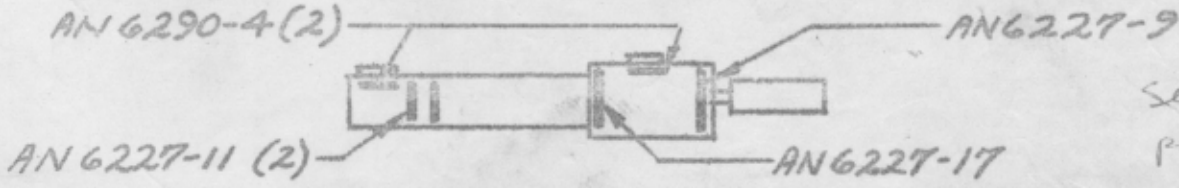
2-4405 NOSE GEAR OLEO



1-7802 MAIN GEAR & 2-7801 TRIM ACTUATORS



1-4102 MAIN GEAR OLEO



See next page →

1-7809 FLAP ACTUATOR

LAKE LA-4

Instructions for Bleeding Brakes (Goodyear)

If pressure bleeder is available:

Remove screw from center of wheel brake cylinder, and connect pressure bleeder.

Remove screw from master cylinder reservoir (top) and insert tube to direct overflow into pan.

Pump fluid up through system until no bubbles are observed.

Replace screws and check for proper braking action.

If no pressure bleeder is available:

Remove screw from master cylinder reservoir.

Crack open or remove screw from wheel brake cylinder.

Fill reservoir and depress brake pedal.

Tighten screw at wheel brake cylinder.

Release brake pedal.

Repeat 8 - 10 times, being sure to fill reservoir each time.

Total O ring requirements:

AN 6227-9 (3)
-11 (4)
-12 (2)
-17 (6)
-23 (2)
-25 (1)
-31 (1)
6230-2 (2)
-3 (2)
-5 (1)
6290-4 (8)

Service Bulletin No. 7 - December 16, 1957

SUBJECTS: 1. SEALING OF ACCESS HOLE IN BULKHEAD 165 3/8
2. ADDITION OF RETAINING RINGS TO PUSH ROD BOOTS AT STATION 165 3/8

APPLIES TO MODEL: C-1, SERIAL #2 AND SUBSEQUENT
COMPLIANCE: AS SOON AS POSSIBLE BUT NOT LATER THAN NEXT 100 HOUR INSPECTION

The subject items are included on the same service bulletin since that may be easily accomplished at the same time.

Water tightness of the bulkhead at Sta. 165 3/8 may not be sufficient until these two additions are made.

(1) The access hole cover in the upper portion of station 165 3/8 bulkhead should be sealed with zinc chromate paste. If this has not been done, it may be accomplished by removing the cover, coating the mating surfaces liberally with zinc chromate paste and replacing the cover.

(2) Attachment of rudder and elevator push rod boots at station 165 3/8 bulkhead should be reinforced by attaching 2-7100-25 Boot Retainer Rings. Slip rings over push rods on forward face of bulkhead and attach with four self-tapping screws.

Parts supplied: (2) 2-7100-25 Rings (8) AN530-4-4 Screws

Service Bulletin No. 8 - August 14, 1958

SUBJECT: INSPECTION OF WELDS ON STEEL STRAPS ON UPRIGHTS OF ENGINE PYLON
APPLIES TO MODEL: ALL MODELS C-1 & C-2
COMPLIANCE: IMMEDIATELY AND EACH 100 HOUR INSPECTION THEREAFTER

During inspection of a Model C-1 at the factory, cracks were found in the welds that hold the steel strap, for the side panel, to the upright of the engine pylon. Although no other instances of this type have been reported, it is recommended as a precautionary measure that these welds be inspected thoroughly immediately and each 100 hour inspection thereafter.

Access to inspect welds may be made by removing the front fairing of the engine pylon.

If cracks are found, repair may be made by removing the front fairing of the engine pylon.

If cracks are found, repair may be made by electric welding over the old welds and extending the new weld approximately 1/2 inch either side of the old weld.

It is imperative that the factory be notified if any such cracks are found.

Service Bulletin No. 9 - June, 1958

not app

SUBJECT: INSTALLATION OF BUNGEE IN ELEVATOR CONTROL SYSTEM
APPLIES TO MODEL: C-1, SERIAL NUMBERS 2 THRU 13

The elevator control feel was comparatively light on the aircraft noted above and this caused a tendency on the part of some pilots to over control the airplane. A bungee was added to the elevator system to increase the elevator feel. The effectiveness of this bungee is most apparent in water operations (ie) it aids the pilot in holding the proper altitude when waves or swells are encountered.

Although not mandatory, it is strongly recommended that this bungee be installed.

Contact Colonial Aircraft Corporation, Sanford, Maine for the necessary prints and installation instructions. Bungee for elevator control system is furnished either in kit form for installation at home base or the installation will be made at the Colonial factory.

Service Bulletin No. 10 - September, 1958

not app

SUBJECT: INCREASE OF UP ELEVATOR TRAVEL FROM $18\frac{1}{2}^{o}$ TO $21\frac{1}{2}^{o}$
APPLIES TO MODEL: C-1, SERIAL NUMBER 2 THRU 25

Tests conducted by Colonial Aircraft Corporation and C.A.A. indicate that increasing the up elevator travel by 3^{o} will improve the water handling characteristics of the Model C-1 SKIMMER. Therefore, it is recommended that the up elevator travel be increased from $18\frac{1}{2}^{o}$ to $21\frac{1}{2}^{o}$.

The accompanying E.O. shows the proper procedure to accomplish this change.

(See Sketch #3 - E.O. 567)

Service Bulletin No. 11 - September, 1958

not applicable to #128

SUBJECT: ACCESS HOLE FOR REMOVAL OF ENGINE SUMP OIL SCREEN
APPLIES TO MODEL: C-2, SERIAL NUMBERS 115, 121, 126, 127

The attached Colonial Aircraft E.O. No. 2-206 shows the positions of access hole that must be made in the web of the engine pylon to remove the engine sump oil screen. The screen can be made to line up with the hole by lifting on the propeller end of the engine. The engine may be held in this position while removing and replacing screen by placing a brace from the propeller hub to the bulkhead just aft of the engine pylon.

(See Sketch #4 - E.O. 2-206)

Service Bulletin No. 12 -

SUBJECT: PITOT, STATIC, AND MANIFOLD PRESSURE LINE DRAINS
APPLIES TO MODEL: ALL C-2 AIRPLANES
COMPLIANCE: NOT APPLICABLE - INFORMATION BULLETIN ONLY

The drain plugs for the pitot, static and manifold pressure lines are located under the floor on the right hand side of the airplanes, between frames 79 and 109. Access to the drains is accomplished by removing the rear seat and the aluminum cover over the location given above. On some airplanes, the floor has not been modified to include the access hole and cover. This may be accomplished simply by cutting a 4 inch diameter hole in the rear floorboard 12½ inches to the right of airplane center line and 6 inches aft of station 97 frame. A plate of .040 24ST3 aluminum 5½ inches in diameter attached with 4 self tapping screws provides a cover for the hole.

Service Bulletin No. 13

SUBJECT: EXHAUST STACK BRACKETS
APPLIES TO MODEL: C-2 AIRPLANES THROUGH SERIAL NO. 131
COMPLIANCE: NEXT PERIODIC INSPECTION OR IF VISUAL INSPECTION SHOWS CRACKING, WHICHEVER IS SOONER

Service experience has indicated that the exhaust stack bracket, P/N 2-6100-109, is subject to cracking, particularly in the area near the engine crankcase stud. A new bracket, P/N 2-6100-129, has been designed to correct this difficulty.

If cracks are found, replacement may be effected by disconnecting the bracket from the exhaust stacks (straps), and loosening the nuts which hold the bracket to the engine crankcase stud. The new bracket is installed by reversing this procedure.

The new bracket is available from the factory on request.

Service Bulletin No. 14

SUBJECT: THROTTLE CONTROL HANDLE
APPLIES TO MODEL: ALL C-1 AND C-2 AIRCRAFT THROUGH SERIAL NO. 134
COMPLIANCE: INSPECT AT ONCE AND COMPLY AT NEXT PERIODIC INSPECTION

The factory has been advised that the rivets fastening the aluminum throttle control handle to the steel bell crank have sheared in one aircraft. These two rivets should be inspected immediately and replaced with AN-3 or AN-23 bolts if any looseness is apparent. In any case, the rivets should be replaced by the bolts not later than the next periodic inspection of the aircraft.

Service Bulletin No. 15

SUBJECT: LOCK FOR CONTROL HINGE PINS
APPLIES TO MODEL: ALL C-1 AND C-2 THRU SERIAL NUMBER 132
COMPLIANCE: IMMEDIATELY

Service experience has indicated that the plastic locks for the control surface hinge pins used on some production aircraft may crack thus making it possible for the hinge pins to work out. Inspect immediately. If locks are plastic and any are broken or cracked, replace immediately with temporary metal locks. In any case, all plastic locks must be replaced with metal.

Contact Colonial Aircraft Corporation for complete set of metal locks which will be shipped without charge.

Service Bulletin No. 16

SUBJECT: CHECK OF REAR-WING ATTACHING BOLTS
APPLIES TO MODEL: ALL MODEL C-1 AND C-2
COMPLIANCE: IMMEDIATELY

A report has been received that one of the two bolts forming rear wing attachment on a Model C-1 aircraft has been found broken. Model C-2 aircraft have the same arrangement.

As a precautionary measure, immediate inspection of these two bolts on each side of hull at hull station 138 is urged. Preliminary inspection may be conducted by checking bolts for security by placing a load on bolts, using a wrench on bolt heads. These are located adjacent to inboard flap hinge and are accessible through wheel wells. At periodic inspection, bolts should be checked inside of hull and at points noted above.

Service Bulletin No. 17

SUBJECT: PROTECTION OF GENERATOR TERMINALS
APPLIES TO MODEL: ALL MODEL C-1 AND C-2 AIRCRAFT THRU SERIAL 141
COMPLIANCE: IMMEDIATELY

Service experience has indicated the possibility of a broken baffle or other stray piece of metal shorting the generator by falling across the generator terminals. These terminals should be insulated immediately by wrapping them with electricians' vinyl tape.

LAKE AIRCRAFT CORP.

c/w remc

Service Bulletin #2

Revision

September 28, 1960

Delete Service Bulletin #2 Dated July 5, 1960

Subject:	Replacement of Engine Mount Bolts
Compliance:	Next periodic inspection, or when bolts show signs of wear or bending, whichever is sooner.
Effectivity:	Colonial C-2 Serial Nos. 115, 121, 126 & Sub. Lake Serial Nos. 244 & 245

It has come to our attention that several engine mount bolt failures have occurred on Colonial Model C-2 aircraft. The engine mount bolts in these airplanes, as well as in Lake Aircraft serial numbers 244 and 245, are AN7-35 bolts (4 req.). The mounting pads in the Colonial C-2 airplanes are Lord Mfg. Company P/N J-7402-1, (4 req.).

The AN7 bolts should be replaced with 2 each Lake P/N 2-6000-93 bolt for top of the engine mount, and 2 each 2-6000-91 stud for bottom of the engine mount. The Lord mounts should be replaced with Lord P/N J-7402-5 or 6. These parts may be obtained from Lake Aircraft Corp.

LAKE AIRCRAFT CORP.

Service Letter No. 2

December 29, 1960

SUBJECT: Engine Breather Oil Separator

MODELS AFFECTED:
Colonial C-2 - Serial Nos. 128 & 134
Lake LA-4A - Serial Nos. 244 & 245
Lake LA-4P - Serial No. 121
Lake LA-4 - Serial Nos. 246 thru 256

To minimize the oil deposit on the empennage of the LA-4, an oil separator was incorporated in the engine oil breather; however, it has been found that when operating in below freezing temperatures the oil breather outlet may freeze, with the possibility of closing the engine breather.

To eliminate this possibility (when operating in below freezing temperatures) disconnect the present hoses and replace with one 1-1/8" x 3/4" x 30" neoprene hose that should run direct from the engine breather to existing outlet in the cowl.

Replacement hose will be furnished by Lake Aircraft Corp. at no charge.

LAKE AIRCRAFT CORP.

Service Letter No. 5

May 2, 1961

SUBJECT: Control Hinge Pin Retainer

TO: C-1, C-2, and LA-4 Owners

It has been observed that the control surface hinge pin retaining clips are susceptible to corrosion when subjected to prolonged salt water operation.

The dural clips have been replaced by stainless steel clips on current production models.

Owners are urged to check the control surface hinge pin retainers and, if condition warrants, replace clip with stainless steel clip. These may be obtained from the factory at cost, or fabricated from AN25703 hinge half stock.

TO

Hunter Aviation

Fitchburg Airport

Fitchburg, Mass. 01420

FROM

Lake Aircraft Div.
P.O. Box 312
Sanford, Maine 04073

SUBJECT

DATE 9/29/72

MESSAGE Attn: Chick: Enclosed is Authority to use 2-4402-43 Fork on C-2, S/N 128, However, be sure to check clearance ~~MX~~ in up & down position & cycling. Note C-2 N. G. Doors are very short and do not cover opening up Fwd.

SIGNED C. Verrill

C. Verrill/Parts Mgr.

REPLY

SIGNED

DATE / /

Form A 43 472

...MUST BE RETURNED W...

	WEIGHT	ARM	MOMENT
AS WEIGHED —	1952		218,351.25
LESS LOAD —	− 255		− 30,075.00
EMPTY WEIGHT	1697.		188,276.25

EMPTY WEIGHT C.G. = 110.9

USEFUL LOAD 653 LBS

---

aircraft weighed 9-1-81 at Sky Services - Auburn

Rt = 821, left = 851, nose = 141 full Tanks, oil

$821 \times 120.5 = 98.9 \times 10^3$

$851 \times 120.5 = 102.5 \times 10^3$

$141 \times 15.75 = 2.2 \times 10^3$

$1813 \times 112.35 = 203.7 \times 10^3$

$-240 \times 118.0 = -28.3 \times 10^3$ Gas

$-16 \times 117.0 = -1.8 \times 10^3$ oil

a | $1557 \times 111.5 = 173.6 \times 10^3$ Empty | 793 useful load

$160 \times 63.0 = 10.0 \times 10^3$ Craig

b | $1717 \times 106.9 = 183.6 \times 10^3$ Craig only

$240 \times 118.0 = 28.3 \times 10^3$ Gas

c | $1960 \times 108.1 = 211.9 \times 10^3$ Craig + fuel

$160 \times 63.0 = 10.0 \times 10^3$ passenger

d | $2120 \times 104.7 = 221.9 \times 10^3$ Craig + fuel + pass

$160 \times 92.0 = 14.72 \times 10^3$ back seat pass

e | $2280 \times 103.8 = 236.62 \times 10^3$ Craig + fuel + 2 pass

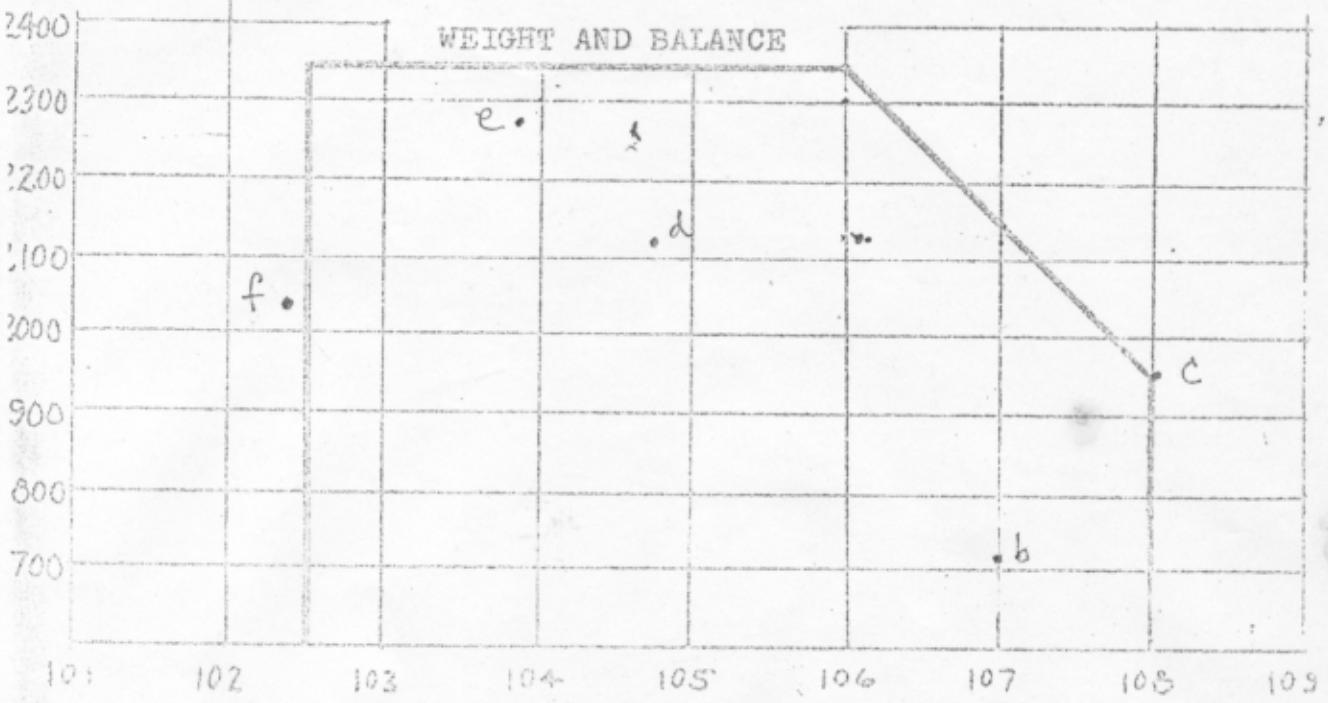
$1717 \times 106.9 = 183.6 \times 10^3$

$160 \times 63.0 = 10.0 \times 10^3$

$160 \times 92.0 = 14.72 \times 10^3$

f | $2037 \times 102.3 = 208.32 \times 10^3$ Craig + 2 pass and no fuel

2350
540
810



C.G. - inches aft of datum

Approved C.G. Range vs. Weight

ıl load variables are as follows:

Item	Station (Arm)
- Min. 15 gals., Max. 40 gals.	118.0
· 8 qts.	117.0
; & Passenger	63.0
Passengers	92.0
ıge	118.0
ıst	25.0

BRACKETT AIR FILTERS

INSTRUCTIONS

ASSEMBLY PART NO. BA-3110

APPROVED ON AIRCRAFT MODELS: SEE FAA APPROVED APPLICABILITY LIST.

FAA APPROVAL DATA: STC-SA71GL List No. 1
FAA-PMA Supplement No. 1

Your new polyurethane air filter element has been designed to give maximum dust collecting efficiency, good air flow, lightweight and economical replacement. The element has been treated with a special treatment called a wetted agent and is approximately 98% efficient. The special wetted agent is the secret to the efficiency of capturing dust and repelling water. The element has also been treated with a fire retardant. For the above reasons replace the element each 200 hours of use or every 12 months or when 50% covered with foreign material. Do NOT wash and reuse.

INSTALLATION INSTRUCTIONS

Step 1. Remove and discard original filter.

Step 2. Modify fiberglas scoop by drilling out all the rivets that held the two attach angles. Set the scoop over the new filter frame over the anchor nuts in the position it was originally. Then mark the four holes and drill them out to 3/16 inch. As an aid for drilling, use the grill for a template.

Step 3. Mount the filter frame in the same manner as original, using the 4 each 832-10 screws. Torque to 1/2 the original thickness of the gasket. Now your filter frame is permanently attached.

Step 4. Insert the element making sure it makes contact on all sides.

Step 5. Place grill into position and place scoop on top of grill. Insert the four 832-6 screws and tighten in place.

Step 6. For future element replacements remove the four screws that hold the scoop and grill. Then remove old element and replace with the new element P.N. BA-7305.

Servicing: Under normal conditions, replace filter element P/N BA-7305 after 200 hours use or 1 year intervals. Under severely dusty conditions, <u>check daily</u> and replace when element is 50% covered with foreign material.

Instruction Sheet
Part No. BA-3106
Date: 3-8-77

Mfg. by:
Brackett Aircraft Co., Inc.
Kingman, AZ

United States of America
Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA71GL

This certificate issued to Brackett Aircraft Company, Inc.

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part Specified under certification basis on the applicable Data Sheets or Aircraft Specifications. *Regulations.*

Original Product — Type Certificate Number

Make / *Model* As shown on Approved Model List(s)

Description of Type Design Change

Replace existing engine air filter frame assembly with Brackett Aircraft Specialties frame assembly in accordance with Approved Model List.

NOTE: FAA- Approved Model List(s) form a part of this certificate.

Limitations and Conditions This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no adverse effect upon the airworthiness of that aircraft.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application January 9, 1975 *Date reissued* March 3, 1983

Date of issuance February 21, 1975 *Date amended*

By direction of the Administrator

(Signature)

Supervisor, Aircraft Modification Section

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

FAA Form 8110-3 (10-68)

BRACKETT AIRCRAFT COMPANY INC.
STC SA71GL
APPROVED MODEL LIST NO. 1 PAGE NO. 5

BRACKETT FILTER MODEL BA-3110 APPLICABILITY LIST			
AIRPLANE MODEL	T.C. NO.	DESCRIPTION OF TYPE DESIGN CHANGE	APPROVED DATE
Consolidated Aeronautics (Lake) LA-4-200, LA-4	1A13	Install BA-3110 filter assembly in accordance with installation instructions No. BA-3106 dated March 8, 1977 or later FAA Approved Revision.	August 8, 1977 Revised Feb. 4, 1983
BRACKETT FILTER MODEL BA-3110A APPLICABILITY LIST			
Piper PA-23, PA-23-160, Piper PA-24, Serial No. 1 thru 1476	1A10 1A15	Install BA-3110A filter assembly in accordance with installation instructions No. BA-3106A dated April 25, 1979 or later FAA Approved Revisions.	April 25, 1979
BRACKETT FILTER MODEL BA-3210 APPLICABILITY LIST			
Piper PA-24-250 Serial No. 1 thru 1476	1A15	Install BA-3210 filter assembly in accordance with installation instructions No. BA-3204 dated March 8, 1979 or later FAA Approved Revisions.	April 25, 1979

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 such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make: Colonial	Model: C-2 Skimmer
	Serial No.: 28	Nationality and Registration Mark: 2703
2. Owner	Name *(As shown on registration certificate)*: Craig Nelson	Address *(As shown on registration certificate)*: Box 58107 Seattle Wa 98105

3. For FAA Use Only

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	B. Kind of Agency	C. Certificate No.
Carl Boosten 3401 72 SE Seattle Wa 98040	X U.S. Certificated Mechanic	516725651
	Foreign Certificated Mechanic	
	Certificated Repair Station	
	Manufacturer	

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	Signature of Authorized Individual
6-9-90	Carl V. Boosten

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	Certificate or Designation No.	Signature of Authorized Individual
6-9-90	516725651	Carl V. Boosten

FAA Form 337 (12-88)

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.)

1. Install ACK Encoder Per Manufacturers Instructions,
2. Wired to Aircraft Buss Through 2 Amp fuse
3. A/H. & Encoder matched By Airtech
4. Correspondence & done by Washington Avionics.

☐ Additional Sheets Are Attached