

FLINT AERO, INC.
8665 MISSION GORGE RD.
SANTEE, CALIFORNIA 92071
DOCUMENT NO. 210R(3)

FAA APPROVED

AIRPLANE FLIGHT MANUAL AND PILOTS OPERATING HANDBOOK SUPPLEMENT

TO

CESSNA 210R, T210R and P210R

AIRPLANE FLIGHT MANUAL

AND POH AS NOTED BELOW*

This supplement must be attached to the FAA Approved Airplane Flight Manual and POH as noted below* when the airplane is modified by the installation of Flint Aero Auxiliary Wing Fuel Tanks in accordance with STC SA4300WE.

This information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the basic Airplane Flight Manual and POH.

* MODEL	POH	AIRPLANE S/N
210R, Cessna		
	P/N D1288-R1-13PH	(S/N 21064898 THRU 21064949)
	P/N D1304-13PH-RPC-55-11/85	(S/N 21064950 AND UP)
T210R, Cessna		
	P/N D1289-R1-13PH	(S/N T21064898 THRU T21064949)
	P/N D1305-13PH-RPC-135-10/85	(S/N T21064950 AND UP)
P210R, Cessna		
	P/N D1290R1-13PH	(S/N P21000835 THRU P21000866)
	P/N D1300-13PH-RPC-80-11/85	(S/N P21000867 AND UP)

This installation is only applicable to airplanes with Cessna standard main fuel tanks.

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Frank J. Herman

Supervisor, Flight Test Section
FAA Western Acft. Certification Office
Northwest Mountain Region

Date

Feb 12, 1987

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LOG OF PAGES (INCLUDING REVISIONS)

*Revised Pages

REV. NO.	PAGES NO.	DATE	DESCRIPTION	FAA APPROVED
Orig.	1 thru 17	FEB 12 1987	Installation of Auxiliary Wing Fuel tanks	<i>Frank J. Holman</i> Supv., Flight Test Sec. WACO, NW Mountain Region Date <i>Feb 12 1987</i>

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SECTION 1

GENERAL

FUEL

In addition to standard tanks only:

AUXILIARY WING FUEL TANKS:

TOTAL CAPACITY:	33 U.S. Gallons
TOTAL CAPACITY EACH TANK:	16.5 U. S. Gallons
TOTAL USABLE:	32.5 U. S. Gallons

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SECTION 2
LIMITATIONS

AIRSPEED LIMITATIONS

For 210R models with auxiliary wing fuel tanks below 18,000 feet:

AIRSPEED LIMITS WITH INSTALLATION OF AUXILIARY TANKS ARE THE SAME AS PUBLISHED IN THE AIRPLANE FLIGHT MANUAL.

For T210R and P210R models with auxiliary wing fuel tanks the following airspeed limits apply:

	SPEED	KCAS	KIAS	REMARKS
Vne	Never exceed speed	198	200	Do not exceed this speed in any operation.
	Above 18,000 ft.			Reduce Vne 5 knots for each 1000 ft. of altitude.
	Max. altitude			
	25,000 ft.			

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SECTION 2 (cont'd)
FUEL LIMITATIONS

In addition to standard range tanks only:

2 AUXILIARY WING FUEL TANKS: 33 Gallons
TOTAL FUEL: 33 U.S. Gallons
USABLE FUEL (Level Flight): 32.5 U.S. Gallons

WEIGHT LIMITATIONS

NOTE

WEIGHT LIMITATIONS MODIFIED FOR 210R MODEL WITH AUXILIARY FUEL TANKS.

With both auxiliary fuel tank holding 7 U.S. Gals. or more.
MAXIMUM TAKEOFF WEIGHT 3850 LBS.

With either auxiliary fuel tank holding less than 7 U.S. Gals.
MAXIMUM TAKEOFF WEIGHT 3580 LBS.

WEIGHT LIMITATIONS MODIFIED FOR T210R AND P210R MODELS WITH AUXILIARY FUEL TANKS.

MAXIMUM RAMP WEIGHT 4118 LBS.

With both auxiliary fuel tank holding 7 U.S. Gals. or more.
MAXIMUM TAKEOFF WEIGHT 4100 LBS.

With either auxiliary fuel tank holding less than 7 U.S. Gals.
MAXIMUM TAKEOFF WEIGHT 3830 LBS.

PLACARDS

LIMITATIONS AND CONDITIONS

Fuel Capacity 123 gal. (119.5 usable); two main tanks in wings at 43.5 U.S. Gallons (usable)
Two aux. tanks in wings at 16.25 U.S. Gallons (usable).

THE FOLLOWING PLACARDS ARE REQUIRED IN LOCATIONS NOTED:

Adjacent to each auxiliary tank shutoff valve:

TOTAL AUX. FUEL 33 U.S. GALS (32.5 GALS. USABLE). TRANSFER AUX. FUEL ONLY IN LEVEL FLIGHT WHEN MAIN TANK IS HALF EMPTY. AUX. FUEL TANK PUMP SWITCHES MUST BE OFF DURING TAKE-OFF, LANDING, REFUELING AND WHEN EMPTY.

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SECTION 2 (Cont'd.)

Forward of each auxiliary tank filler:
16.5 U.S. GALS. 100LL OR 100 GRADE AV. GASOLINE.
AUX. FUEL SWITCH MUST BE OFF BEFORE FILLING.

For Model 210R:

WING TIP AUX. TANK WEIGHT LIMITS

AUX FUEL TANK	MAX. T.O. WEIGHT
EITHER IS LESS THAN 7 GALS.	3580 LBS.
BOTH ARE 7 GALS. OR MORE	3850 LBS.

For Models, T210R and P210R standard tanks:

WING TIP AUX. TANK WEIGHT LIMITS

AUX FUEL TANK	MAX. T.O. WEIGHT
EITHER IS LESS THAN 7 GALS.	3830 LBS.
BOTH ARE 7 GALS. OR MORE	4100 LBS.

Adjacent to auxiliary fuel tank pump switches.

AUXILIARY FUEL - 33 U.S. GAL.
(32.5 USABLE)

AUXILIARY FUEL MUST BE OFF DURING TAKE-OFF, LANDING, REFUELING, AND WHEN AUXILIARY IS EMPTY. MONITOR MAIN FUEL TANK GAUGE WHILE TRANSFERRING AUXILIARY FUEL TO PREVENT OVERFILLING.

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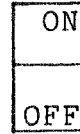
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SECTION 2 (Cont'd.)

At auxiliary fuel tank pump switches.

LEFT AUX
FUEL 16.5 GAL
16.25 USABLE

RIGHT AUX
FUEL 16.5 GAL
16.25 USABLE



On panel in view of pilot.

REDUCE Vne 5 KNOTS FOR EACH 1,000 FEET OF ALTITUDE ABOVE 18,000 FEET. MAXIMUM ALTITUDE 25,000 FEET.

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SECTION 3

EMERGENCY PROCEDURES

NOTE

All references in the Cessna Pilot's Operating Handbook and FAA approved Airplane Flight Manual to the auxiliary fuel pump are to the electric fuel pump supplying fuel to the engine. With Flint Aero, Inc. auxiliary fuel tanks installed, fuel transfer to the standard main wing tanks is provided by the auxiliary fuel tank pumps controlled by the auxiliary fuel tank pump switches.

EMERGENCY LANDING WITH OR WITHOUT ENGINE POWER (add)

Auxiliary fuel tank pump switches--off.

WING FIRE (add)

Auxiliary fuel tank pump switches--off.

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SECTION 4
NORMAL PROCEDURES

PREFLIGHT INSPECTION - AUXILIARY WING FUEL TANKS

1. Master switch on. Check auxiliary fuel tank gauges for auxiliary fuel quantity. Visually check for quantity.
2. With master switch on, check each auxiliary fuel tank pump for operation by turning each pump separately on. Listen for pump operation. If no noise or vibration, assume pump is not operating. Check for service.
3. From each auxiliary tank drain a sample quantity of fuel. Check for contamination. If any water is visible, drain additional amounts of fuel until all water is expelled from the auxiliary fuel tank.
4. Visually inspect external areas of wing around auxiliary fuel tanks for any signs of fuel leakage.
5. Each auxiliary filler cap to be secure with vent unobstructed.

BEFORE STARTING ENGINE (add)

AUXILIARY FUEL TANK PUMP SWITCHES -- OFF

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SECTION 5
RANGE PROFILE

WITH AUXILIARY WING FUEL TANKS 33 U..S. GALLONS (32.5 USABLE)

Use manufacturer's 690 lbs. usable fuel charts for range and endurance calculations when calculating for full use of auxiliary fuel.

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SECTION 6
WEIGHT & BALANCE
EQUIPMENT LIST

Item	Weight (Lbs.) X C.G.Arm(In.)=	Moment/1000 (Lbs.In.)
<hr/>		
Airplane weight (From Weight and balance)		
<hr/>		
Verify Unusable Fuel included in above: or add Standard Tanks (3 Gal. at 6 Lbs Gal)		
<hr/>		
Equipment Changes - Auxiliary Tanks		
Cessna tips removed	-11.5 lbs.x 42.5	-488.75
Flint Aero tips installed	+36.5 lbs.x 49.5	1806.75
<hr/>		
Auxiliary Fuel Tanks (.5 Gal at 6 Lbs/Gal unusable fuel)	3 lbs. x 49.5	148.5
<hr/>		
Airplane Basic Empty Weight		

NOTE

In calculating weight and balance for full auxiliary fuel tanks.

$$32.5 \text{ U.S. Gals. } \times 6 \text{ Lbs/Gal } \times 49.5 \text{ Arm } = 9652.5 \text{ Lbs.In.}$$

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SECTION 7

WITH AUXILIARY WING FUEL TANKS

AIRFRAME

Left and right auxiliary fuel tank pump switches are located on the instrument panel.

Left and right auxiliary fuel tank quantity gauges are located either on the instrument panel or above each door sill respectfully.

FUEL SYSTEM

FUEL QUANTITY DATA (U.S. GALLONS)

TANKS	TOTAL USABLE FUEL ALL FLIGHT CONDITIONS	TOTAL UNUSABLE FUEL	TOTAL FUEL VOLUME
STANDARD (45 Gal. Each)	87.0	3	90
AUXILIARY WING (16.5 Gal. Each)	32.5	.5	33

In addition to the main tanks, two auxiliary wing fuel tanks are installed in the tip area of the wings. The capacity is 16.5 U.S. gallons each (16.25 usable). These tanks transfer to each main tank by transfer pumps controlled by two switches in the cockpit. Each tank has a water drain and is vented through its respective filler cap. Each tank has its individual fuel quantity gauge. The auxiliary tanks are separately filled and electric pumps transfer fuel from each auxiliary fuel tank to the main tank in each wing.

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SECTION 7 (Cont'd.)

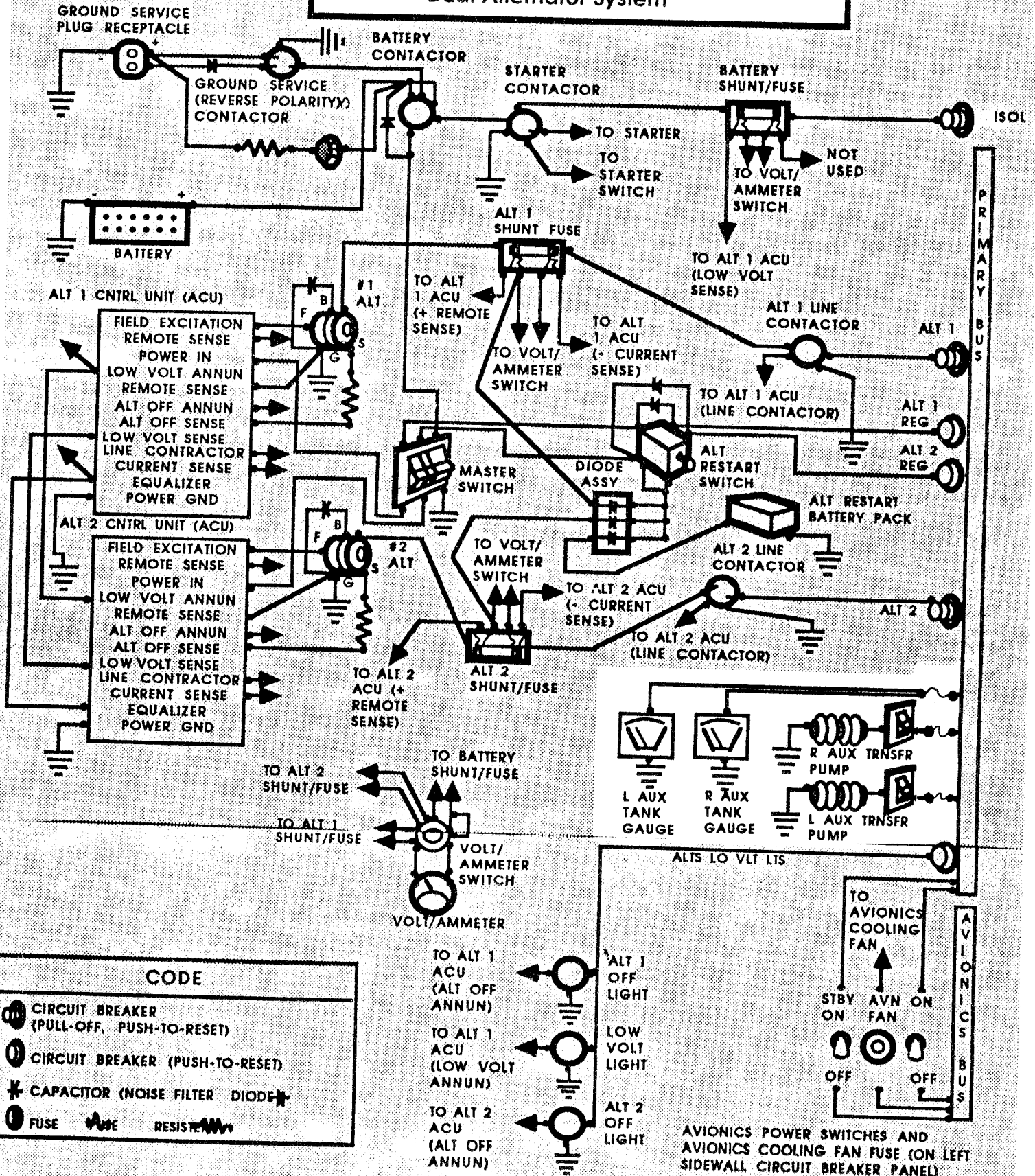
NOTES

The auxiliary fuel gauges are similar in operation to the main fuel tank gauges and visual inspection of the tanks during preflight is the best assurance of fuel quantities.

The fuel in the auxiliary fuel tanks is available to the engine only through the aircraft main fuel tank. The main fuel tank gauges are the sole reference gauges for immediately available engine fuel.

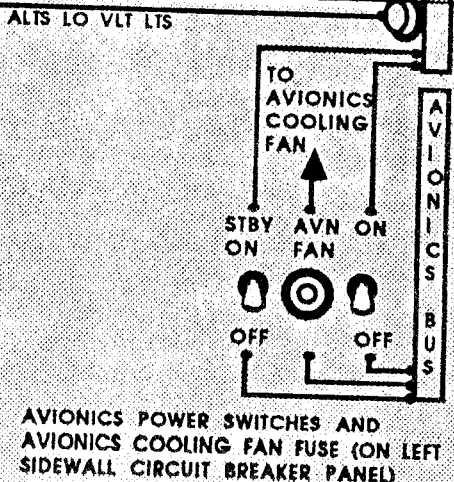
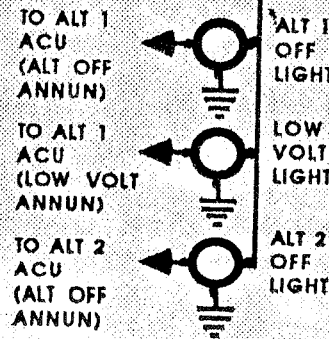
Should an auxiliary fuel tank pump fail, it is not possible to transfer fuel from the affected tank during the flight in progress and the pilot must immediately adjust his range and endurance calculations on the basis of the then available fuel through the standard fuel system.

Dual Alternator System



CODE

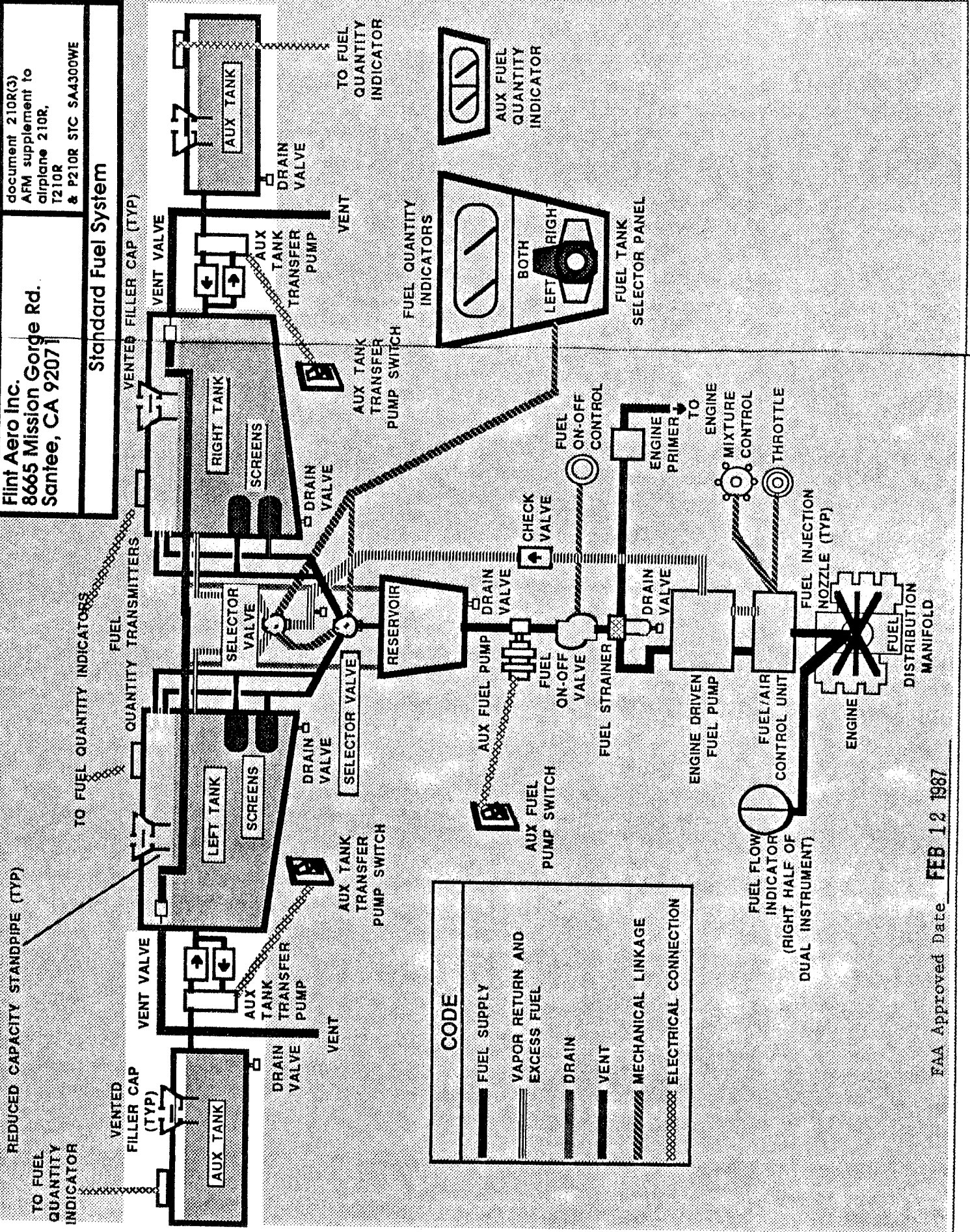
- CIRCUIT BREAKER (PULL-OFF, PUSH-TO-RESET)
- CIRCUIT BREAKER (PUSH-TO-RESET)
- CAPACITOR (NOISE FILTER DIODE)
- FUSE RESISTOR



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airplane 210R,
T210R
& P210R STC SA4300WE

Standard Fuel System



CODE	
	FUEL SUPPLY
	VAPOR RETURN AND EXCESS FUEL
	DRAIN
	VENT
	MECHANICAL LINKAGE
	ELECTRICAL CONNECTION

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SECTION 8

WITH AUXILIARY FUEL TANKS

Capacity each standard tank	45 Gallons
Capacity each auxiliary fuel tank	16.5 Gallons

NOTE

There is no filler neck for the auxiliary fuel tanks. To attempt to calculate reduced capacity fuel in the auxiliary tanks is impossible.

NOTE

In servicing the fuel system, the pilot must note that operating the aircraft with fuel level in either or both auxiliary fuel tanks below 7 U.S. gallons reduces maximum take off weights significantly. The pilot in command must consider the advantages of keeping the auxiliary tanks full or filled to at least 7 gallons (See limitations).