

Beechcraft®



BONANZA

**FAA APPROVED
AIRPLANE
FLIGHT MANUAL**

BEECHCRAFT BONANZA/DEBONAIR SERIES LANDPLANES

AIRPLANE FLIGHT MANUAL SUPPLEMENT

(Individual airplane eligibility is shown in eligibility block below)

This information in this document is FAA Approved material and is to be attached to the basic airplane flight manual.

This supplement must be carried in the airplane during all flight operations. The information in this supplement supersedes or adds to that of the basic airplane flight manual. Users of this manual are advised always to refer to the supplement for possible superseding information and placarding applicable to operation of this airplane.

1. LIMITATIONS:

FUEL.

1. Maximum usable fuel of each 25 gal. main tank is 22 gallons.
2. Maximum usable fuel of each 39 or 40 gal. main tank is 37 gallons.
3. Do not take off if Fuel Quantity Gages indicate in yellow arc or with less than 13 gallons in each main tank.

POWER PLANT INSTRUMENTS.

1. Fuel Quantity: Yellow Band (denotes inadequate fuel for take-off)
 - a. 22 gal. main tank system - E to 1/2 Full
 - b. 37 gal. main tank system - E to 3/8 Full

VERTICAL INSTRUMENTS.

- a. 22 gal. main tank - 0 to 80 lbs.
- b. 37 gal. main tank - 0 to 80 lbs.

MANEUVERS.

- 1. Airplanes equipped with baffled main fuel cells (both wings) - maximum slip duration is 30 seconds.
- 2. Airplanes with unbaffled main fuel cells (in either wing) - maximum slip duration is 20 seconds.

PLACARDS.

On fuel selector panel on BEECHCRAFT K35, M35, 35-33, and 35-A33.
“(USE 10 GAL. FIRST) LH TANK 22 GAL.” “RH TANK 22 GAL.”

NOTE: On airplane equipped with auxiliary fuel tanks.

“(USE 10 GAL. FIRST) LH TANK 22 GAL.” “AUX TANK 20 GAL. (USE SECOND), LEVEL FLIGHT ONLY.” “RH TANK 22 GAL.”

On fuel selector panel on BEECHCRAFT N35, P35, S35, V35, V35A, V35B, 35-B33, 35-C33, E33, F33 and G33.

Standard System “OFF” “LH TANK 22 GAL” “RH TANK 22 GAL”

Optional System “OFF” “LH TANK 37 GAL” “RH TANK 37 GAL”

On fuel selector valve cover or instrument panel in full view of pilot on all models.

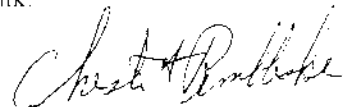
“DO NOT TAKE OFF IF FUEL QUANTITY GAGES INDICATE IN YELLOW BAND OR WITH LESS THAN 13 GALLONS IN EACH MAIN TANK.”

II. PROCEDURES

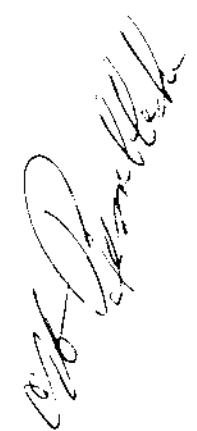
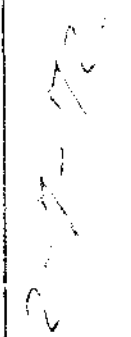
NORMAL PROCEDURES

- 1. Fuel System: Inadequate fuel for take-off is indicated by yellow band on Fuel Quantity Gage.
- 2. Do not take-off with less than 13 gallons in each main tank.

Approved:



Chester A. Remblesse
Beech Aircraft Corporation
DOA CE-2

ELIGIBILITY BLOCK		
MODELS ELIGIBLE	DOA CE-2 OR CHIEF TECHNICAL ENGINEER	APPROVAL DATE
35-33 35-A33 35-B33 35-C33 E33 F33 G33 K35 M35 N35 P35 S35 V35 V35A V35B		

FAA Approved

Date: February 11, 1972

P/N: 35-590118-15

FAA Approved

Date: February 11, 1972

P/N: 35-590118-15

THIS MANUAL MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

BEECH AIRCRAFT CORPORATION, WICHITA 1, KANSAS

FAA Identification **N7201N**

Airplane Serial **D-8815**

Type Certificate 3A15

FAA Approved, based on CAR 3, Utility Category

MODEL BONANZA V35A LANDPLANE
AIRPLANE FLIGHT MANUAL

(Observance of the limitations listed in Section I is mandatory.)

I. LIMITATIONS.

The following limitations are to be observed in the operation of this airplane equipped with a Continental IO-520-B engine.

- A. Engine Limits: Take-off and maximum continuous operation (sea level) - 2700 rpm, full throttle (285 hp).
- B. Fuel: Aviation gasoline, 100/150 minimum grade. Usable fuel from standard system - 49 gallons; usable fuel from optional installation - 80 gallons.

C. Propeller:

Manufacturer	Hub	Blades
McCaughey Industrial Corporation	2A36C23	Two 84B-0
OR		
Hartzell Propeller, Inc.	PHC-A3VF-4	Three V8433-2R or V8433-4R

D. Power Plant Instruments:

Oil Temperature: Green Line (normal operating range), 100° to 240° F; Yellow Mark (caution), 100° F; Red Mark (maximum), 240° F.

Oil Pressure: Green Line (normal operating range), 30 to 60 psi; Red Mark (maximum), 100 psi; Red Mark (minimum), 30 psi.

Fuel Flow: Green Arc (operating range), 6.9 to 24.3 gph; Red Radial (maximum), 17.5 psi; Red Radial (minimum), 1.5 psi.

Tachometer: Green Arc (normal operating range), 1800 to 2700 rpm; Red Radial (maximum), 2700 rpm.

Cylinder Head Temperature: Green Line (normal operating range), 200° to 460° F; Red Mark (maximum), 460° F.

Manifold Pressure: Green Arc (normal operating range), 15 to 29.6 in. Hg; Red Radial (maximum at sea level), 29.6 in. Hg.

E. Airspeed Limits: (Calibrated Airspeed, Utility Category).

Never Exceed (Red Radial)	225 mph (195 knots)
Caution Range (Yellow Arc)	190 to 225 mph (165 to 195 knots)
Normal Operating Range (Green Arc)	74 to 190 mph (64.3 to 165 knots)
Flap Extension Range (White Arc)	63 to 130 mph (54.7 to 113 knots)
Maximum Gear Extension Speed	165 mph (143 knots)
Maximum Design Maneuvering Speed	152 mph (132 knots)
Maximum Structural Cruising Speed	190 mph (165 knots)

F. Approved Maneuvers:

Maneuvers	Entry Speed
Chandelle	152 mph (132 knots) CAS
Steep Turn	152 mph (132 knots) CAS
Lazy Eight	152 mph (132 knots) CAS
Stall (except whip)	152 mph (132 knots) CAS

Spins are prohibited. In the event of an inadvertant spin, apply opposite rudder and forward elevator control. Avoid abrupt pullout after rotation has been stopped.

G. Design Structural Load Factor: 4.4G No inverted maneuvers are approved.

NOTE: Apply control pressures with caution at speeds above 152 mph (132 knots) and with extreme caution at speeds above 190 mph (165 knots). Reduce speed to 152 mph (132 knots) or less, in rough or turbulent air.

H. Maximum Gross Weight: 3400 pounds.

Datum is 83.1 inches forward of center line through forward jack points.

MAC leading edge is 66.7 inches aft of datum; 65.3 inches long.

CG Limitations (wheels down):

Forward - 77.0 inches aft of datum to weight of 2900 pounds with straight-line variation to 82.1 inches at 3400 pounds.

Rear - 85.7 inches aft of datum to weight of 3000 pounds with straight-line variation to 84.4 inches at 3400 pounds.

I. Placards:

On control console: "AUX FUEL PUMP OPERATION - Take-Off and Land with Aux Fuel Pump off except in Case of Loss of Fuel Press." "Alternate Air - Pull and Release."

On storm window: "Caution - Do Not Open Above 145 MPH."

In full view of pilot: "AIR SPEED LIMITATION - Maximum Speed with Landing Gear Extended (Normal) 165 MPH (143 KTS). Maximum Design Maneuvering Speed 152 MPH (132 KTS). UTILITY CATEGORY AIRPLANE - Operate in Accordance with FAA Approved Airplane Flight Manual. INTENTIONAL SPINS PROHIBITED - No Acrobatic Maneuvers Approved Except Those Listed in the Airplane Flight Manual."

On left-hand lower subpanel: "Vent Shutoff - Pull to Close."

On fuel selector panel: "Off", "LJI Tank 25 Gal.", "RII Tank 25 Gal." (standard system); "Off", "LH Tank 40 Gal.", "RH Tank 40 Gal." (optional system).

On top of front spar carry-through structure between front seats: "EMERGENCY LANDING GEAR INSTRUCTIONS TO EXTEND - Engage Handle in Rear of Front Seat and Turn Counterclockwise as Far as Possible (50 Turns)."

On middle windows: "Latch Window before Take-Off." "Do Not Open in Flight."

Above landing gear mechanical position indicator when winter baffles are installed: "Notice - Remove Winter Baffles when Outside Air Temperature Exceeds 70° F."

On upholstery panel below left-hand middle window near emergency release handle when the folding fifth and sixth seats are installed: "EMERGENCY EXIT - PULL PIN - Push Window Out."

On inner side of baggage compartment door: "BAGGAGE AND CARGO COMPARTMENT - Floor Structural Capacity 270 Pounds Maximum. Check Aircraft Flight Manual for Weight and Center of Gravity Limits when Loading Baggage, Cargo or Family Seats."

Above inside door handle: "Rotate Handle to Full Locked Position."

In full view of pilot-"Turning type takeoffs, and takeoff immediately following fast taxi turn prohibited. Avoid prolonged slips(20 seconds or more) with fuel tanks less than half full."(AD 70-3-5-d)

II. PROCEDURES.

A. Normal Procedures.

1. Cabin door latch: Turn inside handle counterclockwise to lock.
2. Fuel System: Excess fuel from the engine is returned to the cell from which fuel is being drawn. Drain fuel sumps and fuel system low spot daily.

To start engine: Place mixture control in full rich position (pull control out 1/4 to 1/2 of its travel above 5000 feet), position propeller control for high rpm, and open throttle approximately 1/2 inch; turn auxiliary fuel pump ON until fuel flow peaks, then OFF; reduce throttle to 1000 to 1200 rpm and engage starter. Hot engine starting: Auxiliary fuel pump ON until fuel flow stabilizes, indicating system is purged of fuel vapor, then OFF. CAUTION: Do not overprime engine. In event of overprime condition, place mixture control in idle cut-off, open throttle, and engage starter; as engine starts, reduce throttle to idle rpm and place mixture control in full rich position. After starting, if necessary, turn auxiliary fuel pump ON to purge system of any remaining vapor, then turn pump OFF. NOTE: Auxiliary fuel pump switch in ON position with engine-driven pump operating may produce over-rich mixture resulting in slight power loss.

CAUTION: When switching cells, if cell is allowed to run completely dry, retard throttle to prevent an engine overspeed condition, switch to the other cell, and turn on auxiliary fuel pump momentarily until power is regained.

3. Wing Flap Settings: Use 0° for normal take-off. Use 30° for landing, or as wind conditions dictate.
4. Circuit Breakers: All circuit breakers except alternator output circuit breaker are located on left-hand and right-hand lower subpanels; alternator circuit breaker is located on left side of nose wheel well cover. Push circuit breakers to reset. Landing gear circuit breaker on left hand lower subpanel can be pulled off, then pushed to reset.
5. Occupied Seats: Must be in upright position during take-off and landing.

B. Emergency Procedures.

1. Fuel System: Turn auxiliary fuel pump switch to "ON" position in case of loss of fuel pressure.
2. Engine Fire: Ignition switch - OFF; fuel selector - OFF; pull vent shutoff control in left-hand lower subpanel.
3. Emergency Landing Gear Extension: Landing gear switch DOWN, circuit breaker OFF. Engage handle at rear of front seats, turn counterclockwise as far as possible. WARNING: Keep handle strapped in disengaged position when not in use.
4. Alternate Air Door Inoperative: Open door manually with "PULL-AND-RELEASE" control until engine air induction system again functions automatically.

NOTE: Particularly at night, reflections from rotating anti-collision lights on clouds, dense haze or dust can produce optical illusions and intense vertigo. Such lights, when installed, should be turned off before entering an overcast; their use may not be advisable under any instrument or limited VFR condition.

III. PERFORMANCE.

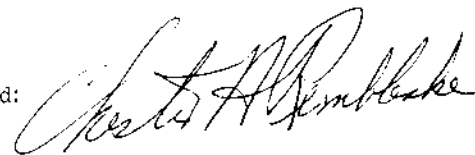
The following performance figures were obtained during the official FAA Flight Tests, and may be realized under conditions indicated with the airplane and engine in good condition and with average piloting technique. All performance is given for a gross weight of 3400 pounds. Take-off and landing distances are given for no wind and level, paved runways with IO-520-B engine. In using the following data, allowance for actual conditions must be made.

III. PERFORMANCE (Continued)

	ALTITUDE FEET	OUTSIDE AIR TEMPERATURE				
		0° F	25° F	50° F	75° F	100° F
Take-Off Distance (Feet).	Sea Level	1474	1636	1808	1988	2177
Distance required to take-off and climb to 50 feet, flaps up, 2700 rpm, full throttle. Take-off speed: 80 mph (70 knots) CAS.	2000	1763	1958	2163	2379	2605
	4000	2130	2366	2615	2876	3150
	6000	2561	2845	3144	3459	3788
	8000	3099	3443	3806	4186	4586
Landing Distance (Feet).	Sea Level	1356	1418	1479	1539	1599
Distance required to land over 50-foot obstacle and stop, flaps full down. Approach at 86 mph (75 knots) CAS.	2000	1442	1507	1571	1634	1696
	4000	1533	1602	1669	1735	1800
	6000	1631	1703	1773	1842	1910
	8000	1735	1810	1884	1956	2027
Normal Rate of Climb (Feet per Minute).	Sea Level	1229	1190	1150	1110	1071
Flaps up, 2700 rpm, full throttle. Best rate-of-climb speed: 113 mph (98.2 knots) CAS at sea level. Reduce 1.0 mph per 1300-foot increase in altitude.	2000	1104	1063	1021	980	938
	4000	977	934	891	848	806
	6000	850	805	761	716	673
	8000	721	675	629	584	539
Balked Landing Climb (Feet per Minute).	Sea Level	630	605	579	552	526
Gear and flaps down, 2700 rpm, full throttle. Best rate-of-climb speed: 79 mph (68.6 knots) CAS. Reduce 1.0 mph per 2500-foot increase in altitude.	2000	536	509	482	454	426
	4000	441	413	384	355	327
	6000	345	316	286	256	226
	8000	249	218	187	156	126
Stall Speeds (CAS), Power Off. Gross Weight 3400 Pounds.	ANGLE OF BANK	0°	20°	40°	60°	
	Gear and Flaps Down	63 mph (54.7 knots)	65 mph (56.5 knots)	72 mph (62.6 knots)	89 mph (77.3 knots)	
	Gear and Flaps Up	74 mph (64.3 knots)	76 mph (66.0 knots)	85 mph (73.8 knots)	105 mph (91.2 knots)	

Altitude lost during a stall is approximately 250 feet.

Approved:



Chester A. Rembleske
Beech Aircraft Corporation
DOA CE-2

BEECHCRAFT MODEL 35-33 AND 35 SERIES LANDPLANES

AIRPLANE FLIGHT MANUAL SUPPLEMENT

This document is to be attached to the FAA Approved Flight Manual when the airplane is equipped with an emergency static air source.

PROCEDURES

Emergency Procedures:

Emergency Static Air Source - Emergency static air valve "ON EMERGENCY". Correct airspeed and altimeter indications per the following charts. Be sure that the emergency static air valve is fully closed when the source is not needed.

EMERGENCY STATIC AIR SOURCE CALIBRATIONS

IAS (MPH)	STORM WINDOW CLOSED		STORM WINDOW OPEN	
	GEAR AND FLAPS UP IAS (MPH)	GEAR AND FLAPS DOWN IAS (MPH)	GEAR AND FLAPS UP IAS (MPH)	GEAR AND FLAPS DOWN IAS (MPH)
80	81	77	88	84
100	103	98	109	106
120	125	120	130	108
140	146		152	
160	167			
180	189			
200	210			
225	236			


When using the emergency static air source, the altimeter indication will be high except as noted below. The approximate errors are as follows:

IAS (MPH)	STORM WINDOW CLOSED		STORM WINDOW OPEN	
	GEAR AND FLAPS UP (FEET)	GEAR AND FLAPS DOWN (FEET)	GEAR AND FLAPS UP (FEET)	GEAR AND FLAPS DOWN (FEET)
80	5	-20*	60	20
100	20	-15*	75	50
120	35	0	100	60
140	60		130	
160	80			
180	115			
200	130			

*Altimeter reads low at this airspeed.

NOTE: The calibrations noted above are not affected by the selection of heater or fresh air.

Approved:


 Chester A. Rembleske
 Beech Aircraft Corporation
 DOA CE-2

AIRCRAFT EMPTY WEIGHT AND BALANCE

DIAGRAMS FOR MEASURING ARMS OF REACTIONS

MODEL **V35A**

SERIAL NO. **D-8815**

REGIST. NO. **N7201N**

COMPUTED BY *J. Kuller*

CHECKED BY **C.A.**

DATE **5-1-68**

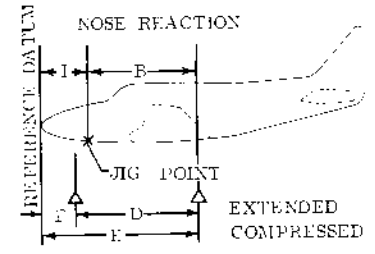
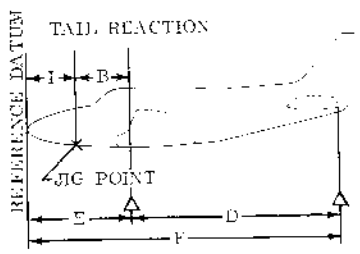
APPLICABLE FORMS NOS

USEFUL LOAD WEIGHTS & MOMENTS

90-31650

GROSS WEIGHT MOMENT LIMITS

90-34029



STRUT POSITION
E E

EXTENDED 96 11.8
COMPRESSED 97 13.1

B = 0

I = 83.1

D = 187.9

E = 83.1

F = 271.0

The distance from the jig point to the centerline of the main reactions. Obtain by measurement. (The jig point is usually identified in the "Datum" Definition on the Applicable FAA Aircraft Specification or Type Certificate Data Sheet and represents a convenient reference or plumb line point.)

The distance from the reference datum to the jig point of the Airplane. Obtain from the applicable FAA Aircraft Specification or Type Certificate Data Sheet.

The wheel base (or the distance between fore and aft reactions). Obtain by measurement.

The distance from the Reference Datum to the centerline of the main reactions. $E = I - B$ (with jig point FWD of \bar{C} of main reactions). $E = I - B$ (with jig point AFT of \bar{C} of main reactions). Check against approx. dimension "E" above when aircraft is weighed on wheels.

The distance from the reference datum to the centerline of the nose or tail reaction. $F = E - D$ (for nose reaction weighing). $F = E + D$ (for tail reaction weighing). Check against approx. dimension "F" above when aircraft is weighed on wheels.

WEIGHTS ARE TO BE RECORDED IN POUNDS AND TENTHS OF A POUND. MEASUREMENTS ARE TO BE RECORDED IN INCHES AND TENTHS OF AN INCH. MOMENTS ARE TO BE RECORDED IN WHOLE INCH POUNDS.					
REACTION (Wheels, Jack Points, ETC)	SCALE Reading	TARE	NET WEIGHT	ARM	MOMENT
LEFT MAIN					
RIGHT MAIN					
SUB-TOTAL (BOTH MAIN)				× E	=
NOSE OR TAIL				× F	=
TOTAL (AS WEIGHED)					

IF USEFUL LOAD ITEMS ARE IN AIRPLANE AS WEIGHED, THEY SHOULD BE SUBTRACTED IN SPACE BELOW.
IF ALL EMPTY WEIGHT ITEMS ARE NOT IN AIRPLANE AS WEIGHED THEY SHOULD BE ADDED IN SPACE BELOW.

<p>(Superseded October 2, 1968) ✓ ✓ 16, 1972</p>					
CORRECTED EMPTY WEIGHT			2032	78.7	159994
UNUSABLE OIL			3	21	63
UNUSABLE FUEL			9	79	711
FAA CERTIFICATED WEIGHT	Computed		2044	78.7	160768

INSTRUCTIONS FOR PROPER LOADING

It is the responsibility of the airplane owner and pilot to insure that the airplane is properly loaded. At the time of delivery, Beech Aircraft Corporation provides the necessary weight and balance data for the pilot or owner to compute individual loadings with minimum effort. All subsequent changes in weight and balance are the responsibility of the airplane owner and are normally computed on FAA Form 337, "Major Repair and Alteration".

The FAA Certificated Weight and Moment of the Airplane at the time of delivery is shown on the previous Aircraft Empty Weight and Balance Form. FAA approved Useful Load Weights and Moments of useful load items which may be loaded into the Airplane are shown on the Useful Load Weights and Moments Tables. Moment is the weight of an item multiplied by its arm (horizontal distance from the Reference Datum to the Center of Gravity of the item). The FAA approved Gross Weight Moments are shown as the shaded area on the Gross Weight Moment Limits Graph. The bordering lines of this shaded area represent the forward and aft center of Gravity flight limits. All Moments are divided as noted by either 1000 (last three digits dropped) or 100 (last two digits dropped) to simplify computations.

EXAMPLE

COMPUTING PROCEDURE

1. Record the FAA Certificated Weight and Moment from the Aircraft Empty Weight and Balance Form (or from the latest FAA Repair and Alteration Form 337 if the airplane has been altered and the latest information has not been entered on the Aircraft Empty Weight and Balance Form). The moment must be divided by 1000 or 100 to correspond to Useful Load Moments.

2. Record the weight and corresponding moment of each useful load item to be carried. These values are found on the Useful Load Weights and Moments Tables.

3. Total the weight column and moment column. The total weight must not exceed the maximum allowable gross weight for take-off, and the total moment must be within the shaded area shown on the Gross Weight Moment Limits Graph.

The airplane must be loaded properly throughout the flight; therefore the loading must be checked for fuel usage.

4. Record the weights and corresponding moments of fuel in the incremental sequence in which it will be used. Refer to the Procedures Section of the Flight Manual for possible fuel usage sequence restrictions.

5. Subtract in steps, sub-totaling each step, the incremental weight and moment from the take-off weight and moment. The total weight at landing must not exceed the allowable landing weight. The moment for each sub-total must be within the shaded area shown on the Gross Weight Moment Limits Graph. In each of the above cases, if the total moment is to the left of the shaded area, useful load items must be shifted aft or forward load items reduced. If the total moment is to the right of the shaded area, useful load items must be shifted forward or aft load items reduced. If the quantity or location of load items are changed, the calculations must be revised and the moments rechecked.

<u>Item</u>	<u>Weight</u>	<u>Mom.</u> <u>100</u>
FAA Certificated Weight	2044	1608
Oil 12 Quarts	23	6
Anti-Icer Fluid (Gal.)	-	-
Pilot	170	145
Copilot	170	145
Passenger	170	206
Passenger	170	206
Passenger	-	-
Baggage or Cargo and/or 5th Passenger	78	117
Fuel 80 Gallons	480	360
Total at Take-Off	3305	2793
Use Fuel 60 Gallons	-360	-270
Sub-Total		
Sub-Total		
Sub-Total		
Total at Landing	2945	2523

USEFUL LOAD WEIGHTS AND MOMENTS

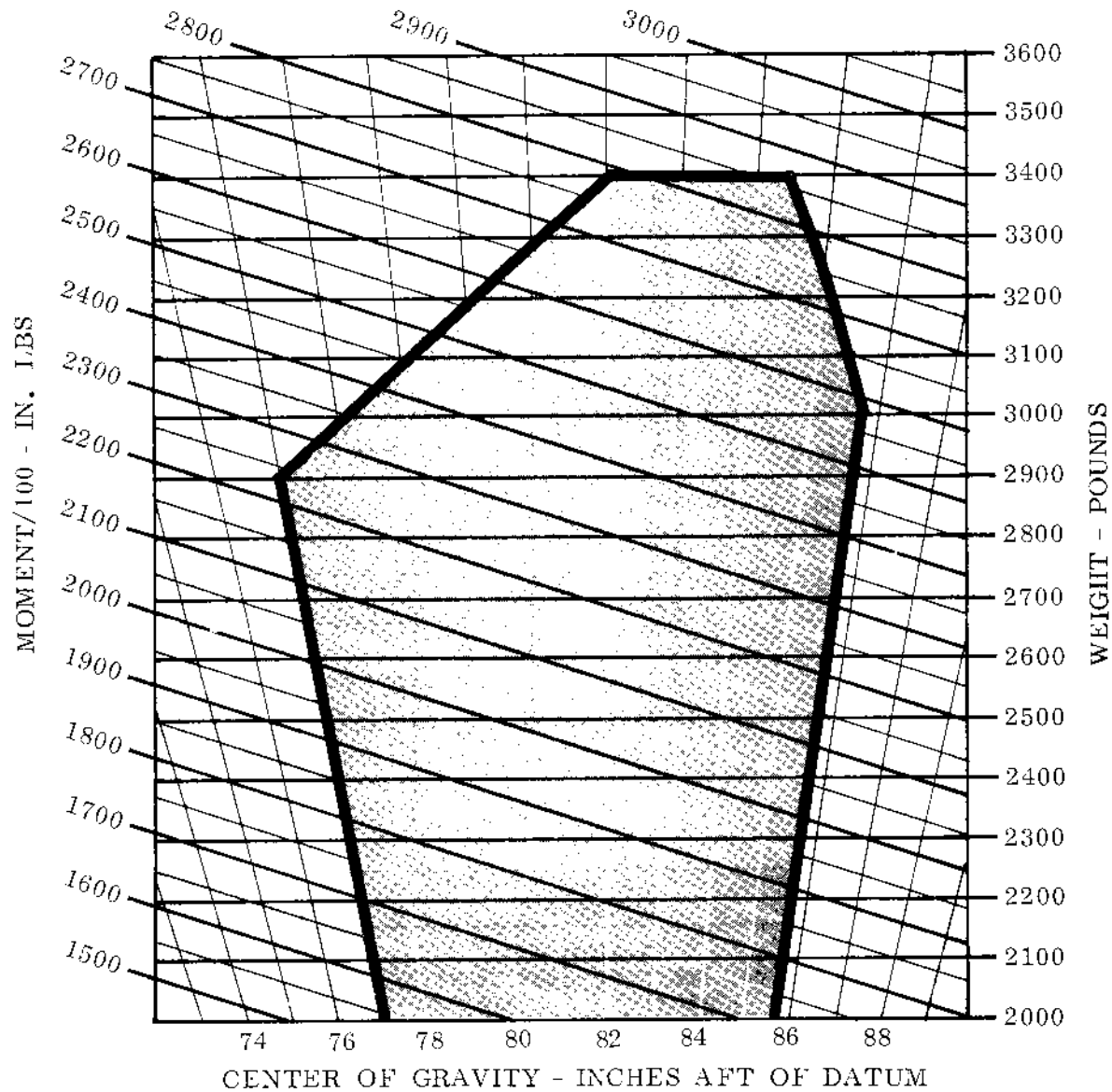
BAGGAGE		CARGO	
ARM 150		FWD OF SPAR ARM 108	AFT OF SPAR ARM 145
WEIGHT	MOMENT/100		
10	15	11	15
20	30	22	29
30	45	32	44
40	60	43	58
50	75	54	73
60	90	65	87
70	105	76	102
80	120	86	116
90	135	97	131
100	150	108	145
110	165	119	160
120	180	130	174
130	195	140	189
140	210	151	203
150	225	162	218
160	240	173	232
170	255	184	247
180	270	194	261
190	285	205	276
200	300	216	290
210	315		305
220	330		319
230	345		334
240	360		348
250	375		363
260	390		377
270	405		392

FUEL		
LEADING EDGE TANKS ARM 75		
GALLONS	WEIGHT	MOMENT/100
5	30	23
10	60	45
15	90	68
20	120	90
25	150	113
30	180	135
35	210	158
40	240	180
45	270	203
49	294	221
55	330	248
60	360	270
65	390	293
70	420	315
75	450	338
80	480	360

OIL		
ARM 25		
QUARTS	WEIGHT	MOMENT/100
12	23	6

OCCUPANTS						
FRONT SEATS ARM 85		REAR SEATS (FWD POSITION) (AFT POSITION) ARM 121 ARM 136			FIFTH & SIXTH SEATS ARM 150	
WEIGHT	MOMENT 100	WEIGHT	MOMENT 100	MOMENT 100	WEIGHT	MOMENT 100
120	102	120	145	163	30	45
130	111	130	157	177	40	60
140	119	140	169	190	50	75
150	128	150	182	204	60	90
160	136	160	194	218	70	105
170	145	170	208	231	80	120
180	153	180	218	245	90	135
190	162	190	230	258	100	150
200	170	200	242	272	110	165
					120	180
					130	195
					140	210
					150	225
					160	240
					170	255

GROSS WEIGHT MOMENT LIMITS



ENVELOPE BASED ON THE FOLLOWING WEIGHT AND CENTER OF GRAVITY LIMIT DATA (LANDING GEAR DOWN)

<u>WEIGHT CONDITION</u>	<u>FORWARD C.G. LIMIT</u>	<u>AFT C.G. LIMIT</u>
3400 LB. (MAX. TAKE-OFF & LANDING)	82.1	84.4
3000 LB.	78.0	85.7
2900 LB. OR LESS	77.0	85.7

x - Installed in Airplane o - Not Installed in Airplane

	<u>ITEM</u>	<u>WEIGHT</u>	<u>AMT</u>
	11. McCauley Constant Speed Propeller		
x	(a) McCauley 2A36C23 Hub with 84B-0 Blades	62	1
x	(d) McCauley D3396 Spinner Assembly	5	1
x	(e) Woodward C210452 Governor	3	10
*	14. McCauley Constant Speed 3-Blade Propeller		
o	(a) McCauley 3A36C76 Hub with 82NB-2 Blades	66	1
o	(c) McCauley D3584 Spinner Assembly	4	1
	15. McCauley Constant Speed 2-Blade Propeller		
o	(a) McCauley 2A36C82 Hub with 84B-2 Blades	62	1
x	101. Fuel Pumps		
	(i) Engine driven - Continental Motors 630947-2	2	39
x	(j) Dukes 4140-00-39	3	74
o	(l) Engine driven Continental Motors 632637-1	2	39
o	(m) Dukes 4140-00-103	3	80
	102. Oil Radiator		
x	(c) Modine 1E14061 (C.M.C. 632210)	8	36
	or (d) Modine 1E150PB (C.M.C. 633277 or 634063)	8	36
x	103. Carburetor Air Cleaner	1	10
x	105. Starter		
	(b) Delco Remy 1104249	17	39
x	109. Starter Solenoid, Delco Remy 1114213 or 1118823	Negl.	
x	113. Two 40-Gallon Auxiliary Fuel Tanks replacing Two Standard 25-Gallon Tanks	+11	75
*	114. (a) Continental TJO-500-D Engine with AiResearch Turbo-Charger System installed in accordance with Beech Drawing 35-91008 and AiResearch Drawing 100-335-209 (JTC BA1035B).	Use Actual Weight Increase	

x - Installed in Airplane

o - Not Installed in Airplane

	<u>ITEM</u>	<u>WEIGHT</u>	<u>ARM</u>
	115. Pressure Pump		
x	(a) Airborne 200CW installed per Beech Drawing 35-329012-5	4	41
o	(b) Airborne 224CW or 232CW installed per Beech Drawing 35-329012-7 (with Item 114 only)	4	41
	201. Two Main Wheel-Brake Assemblies		
x	(j) Goodyear 6.00-6 or Beech 6.00-6 Type III No. 35-8002 Wheel Assembly No. 9543027 or 35-8002-3 Brake Assembly No. 524-2869 or 35-8002-5 or 35-8002-25	22	97
	202. Main Wheel Tires		
x	(f) Two 7.00-6, 6-ply, rating tires with regular tubes	24	97
	205. One Nose Wheel 5.00-5		
x	(e) Goodyear 9532926	4	12
	206. Nose Wheel Tire		
x	(a) One 5.00-5, 4-ply rating tire with regular tube	6	12
o	211. Co-pilot Brakes	4	54
	301. Generator		
x	(e) 70-Amp Delco Remy 1100667	11	11
	or (f) 70-Amp Delco Remy 1100715	11	11
	302. Battery		
x	(c) 12-Volt, 33-Amp-Hr.	28	45
	303. Landing Lights		
x	(c) General Electric (One 4522 and One 4509 or 4313)	2	9
	304. Voltage Regulator		
x	(g) Beech 35-380093-1	1	50

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BEECHCRAFT MODEL V35A
 EQUIPMENT LIST

x - Installed in Airplane o - Not Installed in Airplane

	<u>ITEM</u>	<u>WEIGHT</u>	<u>ARM</u>
x	305. Anti-Collision Light, Upper (Beech Drawing 35-364161) (a) Grimes 07000-1-12 or (b) Beech 33-30003-1 (Whelan WRM-12)	2	182
x o	306. Anti-Collision Light, Lower (Beech Drawing 35-364161) (a) Grimes 07000-1-12 or (b) Beech 33-30003-3 (Whelan WRMB-12)	2	102
o	402. Dual Control Column (T-Type) (b) Beech 35-544656	+3	72
x	403. DOA CE-1 Approved Airplane Flight Manual (t) Model V-35A dated September 22, 1967		
x	601. Stall Warning Indicator Installation (a) Safe-Light (Beech Drawing 35-361025)	Negl.	
x	602. Heated Pitot Head Installation (a) Beech Drawing 35-361100	1	74
x	603. Aileron Trimmer Control	1	73
x	607. Optional Seating (a) Fifth Seat (Beech 35-534432 or 96-534051-5 or 35-001120)	13	155
o	(b) Fifth and Sixth Seats (Beech 96-534051-57 or 35-001120) Stowed	13 ea	155
x	604. (c) Oxygen System Installation (49 cu. ft.) per Beech Drawings 35-560001 and 35-560010-39	25	77
o	(d) Oxygen System Installation (114 cu. ft.) per Beech Drawings 35-560001 and 35-560011-1	52	77
* x	609. Emergency Static Air Source (a) Beech Drawing 35-324426	Negl.	
* o	610. Landing Gear Safety System (b) Beech Drawing 35-364170	3	104

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BEECHCRAFT MODEL V35A
EQUIPMENT LIST

RADIO EQUIPMENT

<u>ITEM</u>	<u>WEIGHT</u>	<u>ARM</u>
<u>Narco Mark 12A w/VOA-8 Omni</u>		
x Mark 12A Transceiver	7	63
-x T12MP-12A Power Supply	4	52
x VOA-8 Omni Indicator	3	63
x Beech B-11-1 Antenna	5	95
x Speaker	1	96
x Microphone and Headset	1	83
x Radio Shelf	1	52
x Wiring, Plugs, etc.	3	55
<u>Bendix ADF-T-12C</u>		
x 201C Receiver	4	63
-x 551A Indicator	2	67
-x 2321E Fixed Loop Antenna	1	106
-x Sense Antenna (Belly Mounted)	1	110
x Loop Cable, Wiring, etc.	2	70
x <u>Narco</u> : MKX11A Transceiver	7.0	63.0
-x F-12MP12A Power Supply	4.0	52.0
x VOA-8 Omni Converter	3.0	63.0
x UDI-4 DME	8.5	63.0
-x AT6A Transponder	1.7	63.0
x AT6A Power Supply	5.3	52.0
x <u>Bendix</u> : 204A Marker Receiver	1.6	63.0
x <u>Antenna Development</u> : AD-1 Broadband Antenna	1.0	148.0
-x Wiring, Plugs, Etc.	4.0	55.0

SERIAL NO. D-5575

REG. NO. N-7201N

FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR
BEECH MODELS S35, V35, V35A, V35B
WITH
BENDIX FCS-810 FLIGHT CONTROL SYSTEM
WITH
FC-813E/F FLIGHT CONTROLLERS
AND
OPTIONAL BI-LEVEL A/P AND TRIM RELEASE SWITCH

This supplement must be attached to the FAA approved airplane flight manual when Bendix FCS-810 Flight Control System with FC-813E/F Flight Controller and Optional Bi-Level A/P and Trim Release Switch are installed in accordance with STC SA468SO. The 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.

FAA APPROVED

W. K. Kain
Acting Chief, Engineering and
Manufacturing Branch
Southern Region, FAA

DATE

June 3, 1976

AFMS FOR BEECH BONANZA
MODELS S35, V35, V35A, V35B
WITH BENDIX FCS-810

FAA APPROVED June 3, 1976

SECTION I

OPERATING LIMITATIONS

1. Autopilot OFF during takeoff and landing.
2. Do not engage autopilot if airplane is out of trim.
3. Maximum airspeed for autopilot operation is 215 MPH (187 KTS) CAS.
4. During autopilot operation, the pilot must be in his seat with the safety belt fastened.
5. Do not manually override autopilot to produce or prevent pitch attitude changes or to increase bank angle.
6. Autopilot and electric trim system must not be operated when throw over control wheel is on right side.

SECTION II

NORMAL OPERATING PROCEDURES

AP RELEASE SWITCH

Disengage the autopilot by pressing the autopilot release switch located on the left side of the pilot's control wheel.

AP & TRIM RELEASE SWITCH (OPTIONAL)

If airplane is equipped with a panel-mounted, solenoid-held trim power switch, the trim power switch must be turned on prior to each flight and reset any time the trim release switch is actuated for pre-flight or in-flight test. The AP & TRIM RELEASE switch, located on the left side of the pilot's control wheel, is a bi-level unit. Pushing the switch to the first detent releases the autopilot. Pushing the switch all the way down releases the solenoid-held trim power switch, disabling trim.

MANUAL ELECTRIC TRIM

Manual electric trim is provided as standard equipment with the autopilot installation. The manual electric trim system is powered through the aircraft master switch, which must be ON for electric trim operation. (Optional trim power switch must be ON if installed.) A circuit breaker, located on the circuit breaker panel, provides circuit protection. Electric trim is obtained by actuating the electric trim switch on the pilot's control wheel in the desired direction.

AFMS FOR BEECH
MODELS S35, V35, V35A, V35B
WITH BENDIX FCS-810

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PRE-FLIGHT

1. AUTOPILOT

- a. Turn the autopilot master switch to "ON".
- b. Check attitude gyro for proper erection. Set the directional gyro, if manual slaving type.
- c. Engage the autopilot; apply a force to the controls (one axis at a time) to determine if the autopilot may be overpowered.
- d. Press HDG, NAV, APPR, ALT, GS PUSH MAN and REV buttons (one at a time) and check respective lights on flight controller for proper operation.

2. MANUAL ELECTRIC TRIM

NOTE

Paragraphs a, f, and g below apply only to aircraft with optional TRIM POWER SWITCH.

- a. Turn on the trim power switch located below the trim test button on the instrument panel.
- b. Trim Warning Light - OUT
- c. Manual Trim Wheel Freedom of Movement - CHECK
- d. Actuate electric trim switch and observe proper direction of movement of the manual trim wheel - CHECK
- e. Press the press-to-test button in the area of trim warning light. Light should light while being pressed and trim should not run. If trim runs, or if light does not illuminate, turn off the trim power switch, pull circuit breaker, and do not reset until the problem has been corrected.
- f. Press the AP & TRIM RELEASE switch to the full down position to disengage trim function. Push trim switch to UP or DN. Trim should not run.
- g. Reset the trim power switch to ON.
- h. Recheck aircraft pitch trim prior to takeoff.

AFMS FOR BEECH
MODELS S35, V35, V35A, V35B
WITH BENDIX FCS-810

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IN-FLIGHT

NOTE

When engaging the autopilot, the pitch synchronizer will automatically stabilize the aircraft in the pitch attitude existing at the time of engagement.

1. ENGAGEMENT

- a. Manually adjust aircraft trim in WINGS-LEVEL attitude prior to engaging autopilot. Press the AP ENGAGE BUTTON which will light upon engagement. To climb, actuate the pitch rocker switch to UP. To descend, actuate the pitch rocker switch to DN.
- b. SYNC BUTTON (OPTIONAL) - Pressing and holding the optional SYNC button, located on the pilot's wheel, disengages the pitch axis to allow the pilot to manually change the aircraft pitch attitude. The pitch trim indicator, when centered, indicates to the pilot that the autopilot has synchronized to the aircraft pitch attitude. While the SYNC button is depressed, manual electric trim may be actuated without disengaging the autopilot. When the SYNC button is released, the pitch axis will re-engage, synchronized to the new pitch attitude. The SYNC button will cancel GS, ALT, or GA modes.

2. AUTOMATIC PITCH TRIM

Automatic pitch trim is provided whenever the autopilot is engaged. Any attempt to overpower the autopilot pitch axis will cause the pitch trim to oppose the applied force, resulting in an out-of-trim condition.

3. MANUAL ELECTRIC TRIM / AP DISENGAGE

During normal AP operations, actuation of the trim switch in either direction disconnects AP, and electric trim is immediately available. The electric trim system design is such that a single fault, other than a stuck switch will not cause a runaway trim. Other faults will be indicated by the trim warning light or by a pre-flight check. Illumination of the trim warning light indicates that a single fault has occurred, but trim will not run away. (See Emergency Pitch Trim Procedures.)

4. ALTITUDE HOLD

The ALT button may be depressed at any time. Aircraft pressure altitude will be held when the autopilot altitude hold is engaged. Momentarily actuating the pitch rocker switch in either direction, engagement of the glide slope, or pressing the optional PITCH SYNC switch, disengages the altitude hold function.

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4. NOTE

The altitude controller attempts to maintain the aircraft at the selected altitude by changing the pitch attitude of the aircraft. The human pilot must then maintain power settings to assure a safe airspeed.

NOTE

If for any reason the selected altitude is deviated from by approximately 300 feet, the altitude controller will recycle to the new altitude.

5. HEADING MODE

The heading knob on the Horizontal Situation Display (HSD) or DG-817() may be used to select a heading prior to pushing the HDG button. When the HDG button is pressed, the button will light and the aircraft will turn to the selected heading in the direction which is less than 180°, and at a bank angle of no more than 25°.

6. EN ROUTE NAVIGATION

NOTE

There are two methods of intercepting a VOR radial.

a. VARIABLE INTERCEPT ANGLE

With this method, the pilot may preselect any intercept angle desired.

- (1) After identifying desired omni station, select desired omni course by rotating the CRS knob on the HSD or NAV indicator until the course select pointer aligns with the desired omni course.
- (2) Position the heading bug to select the desired intercept angle by rotating the HDG knob on the HSD or DG-817(). The number of degrees between the course select pointer and the heading bug is the intercept angle. The pilot should not select an intercept angle less than 20°, or more than 90°.
- (3) Simultaneously press HDG and NAV buttons on the controller. HDG and NAV buttons will light. The aircraft will turn toward the heading selected until the lateral deviation needle moves approximately one dot away from full deflection. At this time, the HDG button light on the controller will go out and the aircraft will assume a normal 45° intercept angle.

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6.

NOTE

If the NAV indicator is not equipped with a course datum synchro, the heading bug must be reset to the same heading as the course select pointer when the HDG light goes out.

b. FIXED INTERCEPT ANGLE

- (1) After identifying the desired omni station, select desired omni course on the HSD or NAV indicator by rotating the CRS knob until the course select pointer aligns with the desired omni course.
- (2) Press the NAV button. Button light comes on. Aircraft will turn left or right, depending upon the relation of the aircraft heading to that of the selected omni bearing. If the omni bearing selected is less than 120° from the aircraft heading when the NAV mode is selected, the aircraft will turn toward the selected omni course. At angles of 120° or greater, the aircraft will turn away from the selected omni course and continue to turn through the larger angle until a proper intercept angle is established. In either case, the aircraft will assume an intercept course which will be no greater than 45° to the selected omni course.

NOTE

If the NAV indicator is not equipped with a course datum synchro, the heading bug must be set to the same heading as the course select pointer.

7. AUTOMATIC APPROACH COUPLER

NOTE

There are two methods of intercepting the localizer.

a. VARIABLE INTERCEPT ANGLE

This method is recommended when being vectored toward the localizer, by approach control, with the HDG and APPR modes engaged.

- (1) Align course arrow with the published inbound course by rotating the CRS knob on the HSD or NAV indicator.
- (2) Position the heading bug to select the desired intercept angle by rotating the HDG knob on the HSD or DG-817().

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7. a. (3) Simultaneously press HDG and APPR buttons on the controller. HDG and APPR buttons will light. Aircraft will turn toward the heading selected until the lateral deviation needle moves approximately one dot away from full deflection. At this time, the HDG button light on the controller will go out and the aircraft will assume a normal 45° intercept angle.

NOTE

If the NAV indicator is not equipped with a course datum synchro, the heading bug must be reset to the same heading as the course select pointer when the HDG light goes out.

b. FIXED INTERCEPT ANGLE

- (1) Align the course select pointer with the published inbound course by rotating the CRS knob on the HSD or NAV indicator.
- (2) Press the APPR button on the controller. The APPR button will light and the aircraft will turn left or right, depending upon the relation of the aircraft heading to that of the localizer inbound heading. Aircraft will automatically assume an intercept course of no more than 45° to the localizer. For the reason explained in Paragraph 6. b. (2), do not select APPR until the aircraft heading is less than 120° from the localizer inbound heading.

NOTE

If the NAV indicator is not equipped with a course datum synchro, the heading bug must be set to the same heading as the course select pointer.

c. GLIDE SLOPE

(1) AUTOMATIC ENGAGE

Glide slope is automatically armed and the aircraft will bracket the glide slope and begin a rate of descent commensurate with the glide slope angle and airspeed, providing the following conditions are met:

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7. c. (1) (a) The APPR button is pressed.
- (b) The glide slope pointer is centered.
- (c) Aircraft is established on localizer beam at least 20 seconds prior to glide slope interception.

(2) MANUAL ENGAGE

If desired, glide slope may be captured manually by actuating glide slope button when glide slope pointer centers, provided the aircraft is in approach mode.

(3) GLIDE SLOPE MODE

- (a) When the aircraft couples to the glide slope signal, the GS PUSH MAN light on the controller will light, and ALT light extinguishes.
- (b) Glide slope may be disengaged while flying the localizer by pressing ALT, HDG or NAV button on the controller; actuating pitch rocker switch; depressing the GA button or optional pitch SYNC button.

d. BACK COURSE LOCALIZER

For a back course localizer approach, select the localizer front course inbound heading. Press REV button on controller. Both APPR and REV button lights will light, indicating to the pilot that he is in both the localizer and reverse modes.

e. GO-AROUND

Go-around switch may be pressed any time the pilot decides not to continue the approach to landing. Pressing the GA switch will cause the aircraft to automatically assume a pitch attitude of approximately seven degrees nose-up. (Pilot must adjust power settings to maintain airspeed.) Aircraft will continue to track localizer. GA light on controller will light. If a missed approach heading is selected and HDG button pressed, aircraft will turn to the selected heading, and remain in a pitch-up attitude of approximately seven degrees. Movement of the pitch rocker switch, pressing the optional pitch SYNC button or ALT button will disengage the GA mode.

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7. f. AP RELEASE SWITCH

If the approach is carried to completion, the automatic pilot release switch must be momentarily pressed prior to landing, thus disconnecting the automatic pilot and returning the aircraft to manual control for completion of the landing.

OPTIONAL EQUIPMENT

FLIGHT DIRECTOR SYSTEM

DH-841() BENDIX FLIGHT DIRECTOR INDICATOR

1. The optional flight director system incorporates a director horizon in lieu of the conventional, artificial horizon. In addition to supplying information to the computer, the director horizon displays commands which receive information from the computer. By maneuvering the aircraft to satisfy the commands, the pilot is acting in the same manner as the autopilot servos.
2. To operate the flight director, turn on the autopilot master switch. Adjust pitch command, or depress optional pitch SYNC button, to align the commands with the fixed reference of the director horizon. All operations are identical to the autopilot, except the AP ENG button on the controller is not pressed for flight director only. Press HDG on controller and the commands will indicate the direction and attitude to satisfy the heading command. Likewise, NAV, APPR, REV, all work in the same manner as explained for autopilot operations.

PITCH SYNC BUTTON

Pressing and holding the optional pitch SYNC button, located on the pilot's wheel, disengages the pitch axis to allow the pilot to manually change the pitch attitude. When the pitch SYNC button is released, the pitch axis will again engage, synchronized to the new pitch attitude. SYNC will cancel GS, ALT, or GA modes.

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SECTION III

EMERGENCY PROCEDURES

AUTOPILOT

1. In the event a malfunction in the autopilot performance is detected, the pilot must immediately disengage the autopilot by momentarily pressing the AUTOPILOT RELEASE SWITCH. This switch is on the left side of the pilot's control wheel.
2. Maximum altitude loss during malfunction tests in the following flight configuration.
 - a. Cruise, Climb, Descent 150 feet
 - b. ILS Approach 40 feet

PITCH TRIM

1. If the trim warning light illuminates in flight or if electric trim runs at any time without actuating the trim switch, press the AP & TRIM RELEASE switch (if installed) to the full down position, pull the pitch trim circuit breaker and have system inspected prior to operation.
2. If the trim circuit breaker releases or the trim follow-up becomes inoperative during autopilot operation, disengage the autopilot and pull the trim circuit breaker.

SECTION IV

PERFORMANCE: NO CHANGE.