N O T E

The Student Outline is not a questionaire.

It is for use in the classroom during lecture, and is intended to save you a lot of writing and taking notes.

Your instructor will use this outline during the course, and at this time you will find it easy to fill in the blanks.

STUDY OUTLINE

Beech Ten-Two

P-65/1-IR-001

GENERAL

1. The wing span is _____ ft. and the length is _____ ft.
2. Height of the aircraft is_____ ft.; the wheel tread is _____ ft.
3. Normal propeller ground clearance is _____ inches, in 3-point attitude.
4. The landing gear may be extended either _____ or _____ .
5. The cowl flaps are operated _____ .
6. The wing flaps may be extended to a maximum of _____ degrees.
7. At full gross load, the power loading is _____ lbs. per BHP (METO).
8. The aileron trim tab is located on the _____ aileron.
9. A power "air step" is installed under the _____, which retracts electrically; it takes power from between the _____ and the _____ solenoid, and therefore can be operated with the master switch OFF. The control switch is located at the _____ side of the _____ .
10. There are two exits in the cabin: the cabin _____ and an _____ exit located _____ of the cabin entrance door.
11. Except for the _____ and _____ , all anti-icing and de-icing equipment have been removed from the aircraft.
12. The two windshield wipers are actuated by _____ .
13. There are two pitot tubes located at the nose section, one of which (left) is connected to the _____, while the other (right) _____ .
14. There are two static ports located on the _____ .
15. It is a good pilot precaution to inspect the static ports to see that they are _____ .
16. The maximum size cargo that can be loaded and unloaded through the cargo door is _____ .
17. The cargo door is a light-weight, _____ extending from No. 9 to No. 10 bulkhead _____ the cabin entrance door.
18. The modifications of the C-45 incorporated in the Ten-Two include longer nose cone of _____, reinforced wing _____, _____door, New wing tips of _____, landing gear _____, a _____ in the angle of the horizontal stabilizer.

19. BEACON LIGHT is a Crimes rotating beacon on the top side of _____, has two lamps, turns _____ rpm by a 26V _____ motor and gear assembly, operated by a switch on the co-pilots sub panel.
20. Cold air valves are installed above _____.

LIMITATIONS & PERFORMANCE

21. RPM, take-off _____.
22. RPM, high pitch _____.
23. RPM, ground power check at 30"Hg _____.
24. RPM, max drop, ignition check _____.
25. RPM, max differential between L & R mag on ignition check _____.
26. RPM, minimum for flight _____.
27. RPM, idling _____.
28. MAP, T/O sea level _____.
29. MAP, T/O 3500 ft. _____.
30. MAP, METO sea level _____.
31. MAP, METO 3500 ft. _____.
32. MAP, normal operating range _____.
33. Fuel pressure, range _____ psi.
34. Fuel pressure, desired _____ psi.
35. Oil pressure, range _____ psi.
36. Oil pressure, normal operating _____ psi.
37. Oil pressure, minimum idling _____ psi.
38. Oil pressure, warning light _____ psi. (not pressently installed)
39. Oil temperature, range _____ °C.
40. Oil temperature, normal operating _____ °C.
41. Oil temperature, minimum for run up _____ °C.
42. CHT minimum for run up _____ °C.
43. CHT maximum before T/O _____ °C.
44. CHT maximum during T/O _____ °C.
45. CHT maximum during cruise _____ °C.
46. CHT normal operating range _____.
47. CHT desired operating _____ °C.
48. CAT (carburetor air temperature) normal operating _____ °C.
49. CAT icing range _____ °C.
50. CAT maximum _____ °C.
51. Vacuum, normal range _____ "Hg.

52. Vacuum, maximum & minimum _____"Hg.
53. Air speed, never exceed (Vne) _____ knots.
54. Air speed, maximum normal operating (Vno) _____ knots.
55. Air speed, normal operating range _____ knots.
56. Air speed, max flap extension (Vfe) _____ knots.
57. Air speed, max gear extension (Vlg) _____ knots.
58. Air speed, max maneuvering (Va) _____ knots.
59. Structural load factor, maneuvers + _____ and -_____.
60. Structural load factor, gusts + _____ and - _____.

FUEL SYSTEM

61. The front inboard tanks are the _____ fuel tanks and the_____ _____ are installed in them.
62. All takeoffs and landings should be made on the _____ tanks, and with the _____ ON.
63. The two front (main) tanks have a capacity of _____ useable US gals. each, and are located in the _____ one on each side of the _____, just aft of the _____access covers.
64. Two rear main tanks have a capacity of _____ gals. each, are located immediately_____ of the front mains.
65. Two auxiliary outboard wing tanks have a capacity of _____gals., except _____gals. capacity in N7950C and N7951C aircraft.
66. The total useable fuel is _____ gals., _____ lbs. except in N7950C and N7951C which have a total capacity of _____ gals. _____lbs.
67. Each tank has a sump containing a _____, a _____ and a potassium chromate cartridge (except outboard tanks).
68. A cross feed valve handle is located on the _____.
69. There are _____engine tank selectors located on each _____ _____.
70. Fuel pressure is obtained from _____engine driven fuel pump(s) located on the _____section of _____.
71. There are _____boost pumps in the rear tanks and auxiliary tanks.
72. The auxiliary tanks must be used _____.
73. Fuel strainers are located on the _____ side of each
74. Pressure for the priming system is obtained by _____ pumps located in the _____, and released to the priming system by a _____ valve.
75. The fuel pressure relief valves are located on each fuel pump and are set to _____ psi.

76. The fuel pressure warning switch is set to actuate the _____ at _____ psi.

77. Fuel cuantity is indicated by _____ type equipment.

78. The fuel quantity indicating system is electrically operated by _____ V.

79. An indicator and a _____ switch are located on the _____ _____.

80. The fuel quantity gage selector switch has a _____ handle that permits reading from _____ fuel tanks.

81. The fuel capacity of each tank is indicated above each _____.

82. The liquidometer fuel quantity tank installation includes a _____ _____ mechanism which actuates a movable _____ arm on an electrical _____ strip.

ELECTRICAL SYSTEM

83. The electrical system consists of a _____ volt, current, _____ wire, _____ return system.

84. Primary dc power is from the _____, which are rated at _____ volts and _____ amperes each.

85. Auxiliary power for the _____ volt dc system is supplied by _____ volt _____ amp. hour battery(s).

86. There is an external receptacle for use of ground power, which is located on the _____ side of the _____ nacelle.

87. AC is supplied by a _____ volt, _____ cycle inverter for the operation of the _____ compass.

88. The voltage and _____ conditions of the two generators are indicated by _____ and _____ on the _____ panel.

89. Circuit breakers are normally used for the protection of _____ electrical circuits, while fuses are used for _____ circuits.

90. The batteries are located one in each _____ forward of the main fuel _____.

91. Being of very low capacity (_____ ampere hours each) care must be exercised not to put a load on them when the _____ are not on the circuit, except for a very short period of time.

92. The batteries may be used for _____ when ground power is not available, and they serve in normal operating conditions to aid the generators in maintaining normal voltages during _____ demand or _____.

93. In flight, the batteries may be used as an emergency power source if _____ _____ fail; maximum loads on the emergency system will be _____ volts, _____ amperes, which is within the required limits for _____ _____ operation.

94. A fully charged battery will loss one half its charge while standing unused in _____ days at 60°F., and _____ days at 100°.

95. Each generator circuit includes a voltage _____ , a field _____ , an _____ control, a _____ current relay, a control switch, an _____ voltage warning light _____ meter, and a _____ meter.

96. The two generator circuits are connected in _____ to the bus.

97. The output of the generators is balanced by means of the _____ _____ which are of the _____ type.

98. The allowable maximum amperage differential limit between the two generators is (within) _____ .

99. If during flight the batteries are fully charged and there is little or no load on the electrical system, the loadmeters should indicate _____ _____ . In this case, the low loadmeter indication _____ _____ indicate faulty operation of the system.

100. In the case cited in paragraph 99 above, the voltmeter will indicate _____ voltage.

101. The generator field magnetism may be lost or reversed, which will be indicated by _____ output on the gages. To correct this situation, maintenance must _____ _____ to restore proper polarity.

102. Voltage regulators should not be adjusted during flight by flight crews because the _____ in the cockpit do not have the _____ _____ for balancing the generators.

103. For proper operation of the electrical system, the bus voltage must not exceed _____ volts, not be under _____ volts.

104. In a case of failure or indication of improper operation of an engine driven generator, immediately _____ by opening the _____ _____ . Do not attempt to operate _____ equipment.

105. Carbon pile voltage regulators maintain constant voltage despite variations in generator _____ and _____ conditions.

106. The left generator control box is located _____ , and the right one is _____ .

137. This lever operates _____ valves on the _____unit.

COMMUNICATIONS SYSTEM

138. Communications equipment include an HF _____, one ARC-120 _____, one Collins 1718 _____and one Collins 51X3 _____, and one _____.

139. The HF transceiver is a _____ controlled, _____ channel type with a 29 ft. _____ antenna.

140. The HF transmitting power output is nominally _____watts, and the actual power to the antenna is _____ to _____, depending upon the frequency.

141. The ARC-120 VHF transceiver has _____ crystal controlled frequencies, and has a power output to the antenna of _____ watts.

142. The ARC-120 is mounted in the _____.

143. The ARC-120 is designated _____ and is located in the _____ _____the control is located on the _____ side _____ instrument panel.

144. The Collins VHF transmitter and receiver are designated _____ and have _____ transmitting channels and 180 receiving channels.

145. The Collins VHG transmitter and receiver are located on the _____ _____.

146. The controls for the VHF-2 receiver are located on the _____ _____ and consists of _____ and _____, and frequency selector.

147. VHF communication range is limited to _____ distances.

148. The audio selector system the _____ toggle switches to select _____, _____, _____, _____ or _____.

149. The MIC selector is a rotary switch to select _____, or _____.

150. Since there is no _____ amplifier in the monitoring circuits, monitoring more than one receiver at a time will result in reduced _____ _____.

151. Normally, it is better for pilot and copilot _____ monitor the same system, since if both are on HF for example and one turns on ADF, the other will also hear the ADF and the signal will be correspondingly _____ _____.

FIRE EXTINGUISHING SYSTEM

152. The fire protection system consists of a _____ located under the _____ seat, a control panel with a selector valve and a _____ _____ handle located at the _____, and a discharge spray ring in each _____.

153. There is a safety outlet on the _____ below the bottle, connected by a flexible line to a pop off valve on the bottle.

154. There is a _____ CO2 fire extinguisher located under the _____ _____.

155. A CO2 fire extinguisher, a fire axe, and a first aid kit are located _____ _____.

156. If a CO2 fire extinguisher discharge seal is found to be missing, the bottle should be _____ and _____.

INSTRUMENT SYSTEM

157. The Pioneer remote compass consists of a _____ element and a transmitter, located in the _____ wing and operating on _____ volt _____ cycle ac, to _____ indicator unit on the instrument panel.

158. Electrically operated instruments include the _____, fuel gages, T & B, the _____ and _____ position indicators, and the _____ compass.

POWER PLANT

159. The two engines are P & W Wasp Jr., Model _____, use _____ grade fuel and _____ oil are _____ cylinder, radial, air cooled, _____ drive.

160. This engine is supercharged by an impeller with a _____ ratio.

161. The ignition system is a _____ tension type.

162. The magnetos are located on the _____ section of the engine.

163. The carburetor is a _____ float type.

PROPELLERS

164. Propellers are Hartzell make, _____ -blade, _____ speed and _____ type.

165. The propeller pitch is controlled by a governor mounted on the engine supplying _____ oil through the _____.

166. Governor oil pressure (0-300 psi) _____ the pitch, while counter weights attached to the blade clamps _____ the pitch.

167. Feathering is accomplished by _____ which allows the _____ in the propeller dome to force the oil out of the back into the _____, thereby _____ the angle to the feathered position.

168. Centrifugally actuated stops prevent feathering (due to action of the _____) when the engine is _____. At speeds of over _____ rpm, the stops are withdrawn by _____ allowing the engine to be feathered at any time.

169. Unfeathering is accomplished by operating the _____ control lever which opens a valve to release _____ psi pressure from an _____ to the propeller dome, which _____ the pitch.

170. The unfeathering accumlator is kept at _____ psi continually while the engine is running, by the _____.

171. The accumulator is precharged to _____ psi air pressure.

172. When the engine is stopped, the oil pressure in the accumulator will _____ _____ psi unless the pitch control lever is left in _____ position, in which case the pressure is _____ in the accumulator.

173. The prcpeller is a _____ type and is always stopped in the _____ _____ pitch position.

174. Stopping in this position protects the piston from collecting _____ _____.

175. Stopping in high position assures that the cylinder will be _____ (which can _____ in cold weather).

176. If the propeller is left in low pitch, oil leaks into engine; then if started in _____ pitch demand for oil in propeller can _____.

177. In running up a cold engine, several operations of the pitch control slowly throughout its range serves to eliminate _____ from the propeller system, as well as check _____ operation.

178. Propeller control connections are of the Teleflex _____ type.

179. These Teleflex controls are lubricated with _____ and not with oil.

AIRCONDITIONING

180. Air conditioner is made by Brittan Industries, is installed in the _____ aft of bulkhead _____.

181. Air conditioner controls are located on the _____.

182. It operates electrically at _____ volts dc and draws _____ amperes.

183. In ground operation (on external power) a cabin temperature of 110°F (with CAT at 100°F) can reduced to 90°F in about _____ minutes, or to 80°F in approximately _____ minutes after the conditioner is turned on.

BEECH TEN-TWO POWER SETTINGS FOR P&W WASP JR. R985 AN4-AN14B

Pressure Altitude	STD Temp °C	TAKE OFF 450 BHP RPM	TAKE OFF 450 BHP MAP	CLIMB 342 BHP RPM	CLIMB 342 BHP MAP	CRUISE POWER SETTINGS 300 BHP RPM	300 BHP MAP	260 BHP RPM	260 BHP MAP	240 BHP RPM	240 BHP MAP	200 BHP RPM	200 BHP MAP
Sea Level	15	2300	36.5	2050	31.7	2000	29.0	1850	28.0	1800	27.0	1800	24.0
1000	13	"	36.2	"	31.4	"	28.7	"	27.8	"	26.8	"	23.7
2000	11	"	35.9	"	31.1	"	28.2	"	27.3	"	26.6	"	23.2
3000	9	"	35.6	"	30.7	"	28.0	"	27.0	"	26.3	"	22.8
4000	7	"	F.T.	"	30.3	"	27.7	"	26.8	"	26.0	"	22.6
5000	5	"	"	"	29.9	"	27.5	"	26.5	"	25.8	"	22.3
6000	3	"	"	"	29.5	"	27.1	"	26.2	"	25.2	"	22.0
7000	1	"	"	"	29.2	"	26.8	"	25.8	"	25.0	"	21.6
8000	-1	"	"	"	28.9	"	26.5	"	25.4	"	24.8	"	21.3
9000	-3	"	"	"	F.T.	"	26.2	"	25.2	"	24.5	"	21.0
10000	-5	"	"	"	"	"	26.0	"	24.9	"	24.2	"	20.8
11000	-7	"	"	"	"	2050	25.3	1900	24.0	"	24.0	"	20.5
12000	-9	"	"	"	"	2100	24.7	1900	23.8	1850	23.3	"	20.3

NOTE:

1. F.T., Full Throttle, indicates the critical altitude for this power setting.
2. Temp. Corr. to MAP is .5 inch of Hg. For each 10°C deviation of C.A.T. from standard. Add for high temps. subtract for low temps.

Fuel Consumption	
200 BHP	34.2 Gal Per HR
240 BHP	39.7 Gal Per HR
260 BHP	42.7 Gal Per HR
300 BHP	50.0 Gal Per HR