CREW 617

B-17F QUESTIONNAIRE

NAME HILDRETH- MAJOR P. DATE

0-411402 -

1. (a) In what order should the engines be started, both electrically and manually? 1-2-3-4

(b) Why?

2. (a) Can wheels and/or tail wheel be retracted or extended independently of each other? YES, MANUAL

(b) Together? YES - ELECT.

3. Give various steps in feathering a propeller in -

(a) Emergency. FEATHERING SWITCH - SUPERCHARGERS OFF, CLOSE THROTTLE - IDLE CUT OFF. FUEL SWITCH + GENERATOR.

(b) Practice. GENERATOR - BOOSTER PUMP, SUPERCHARGER - THROTTLE MIXTURE CONTROL - FEATHER

4. Give various steps in unfeathering propeller. PROP. LOW RPM, CRACK THROTTLE, MIXTURE CONTROL, BOOSTER PUMP. PROP. FEATHERING

5. Should engines be started with surface controls locked? NO.

6. What is total oil capacity? 148 GAL.

7. (a) What is normal fuel capacity? 1700 GAL.

(b) What is maximum fuel capacity? 3600 GAL.

(c) What is bomb-bay fuel capacity? 820

(d) What is Tokyo Tanks' fuel capacity? 1080

(e) How is fuel in bomb tanks used? TRANSFER TO TANKS.

8. (a) What is maximum allowable air speed at which flaps may be lowered? 147 MPH.

(b) What is the maximum allowable diving speed? 305 MPH.

9. (a) How many exits are available for emergency use? 5.

(b) Give location of each. 1. FRONT ENTRANCE 2. BOMBAY DOORS. 3. RADIO HATCH. 4. MANDOOR - 5. TAIL GUNNERS DOOR.

10. (a) What types of fire extinguishers are used in this airplane? CARBON TET

(b) Give location of extinguishers. 1. ENGINE - NACELLS 2. BULK HEADS 4 - FLOOR OF FLIGHT DECK.

11. Give procedure in case of engine fire in flight. 1. CUT. ENGINE 2. CLOSE COWL FLAPS -

12. (a) How many emergency bomb releases are installed? 2

(b) Give location of each. 1. ON FLOOR PILOTS LEFT 2. ON STEP IN BOMBAY

(c) Explain procedure of operation. PULL HANDLE.

13. (a) On what engines are vacuum pumps installed?
2 + 3

(b) How can pumps be checked individually?
ALTERNATE SWITCH.

14. How is hydraulic pressure maintained?
ELECTRIC SOLENOID OPERATING HYD. PUMP.

15. What is the emergency braking procedure?
BRAKE HANDLE TOP OF FLIGHT DECK.

16. How is the emergency accumulator serviced?
OPEN STAR VALVE - USE MANUAL SWITCH.

17. What is the use of the hand hydraulic pump?
TO BUILD UP PRESSURE

18. Why should power be reduced after take-off before lowering propeller RPM?
PREVENT DETONATION

19. Why is carburetor icing seldom found in pressure type carburetor?
GAS - INJECTED BELOW VENTURI.

20. (a) Should more than one starter be energized simultaneously?
NO.

(b) Why? LOAD ON BATTERIES TO MUCH

21. Why should landing gear retracting switch be turned off even though the retraction or extension has been completed? TO PREVENT. BURNING OUT MOTOR ~~SWITCH~~ IF LIMIT SWITCH DOES. NOT WORK

22. (a) Should landing gear be retracted during practice take-offs and landings?
NO.

(b) Why? OVERLOAD ON ELECT. SYSTM.

23. (a) What provisions are made for elimination of propeller ice?
ANTI ICING - SYSTEM.

(b) Where are controls? TO LEFT OF PILOT

24. (a) Describe briefly the autosyn inverters. A DEVICE TO CHANGE DC TO AC CURRENT. 26 TO 115 VOLT.

(b) Explain their use.

25. Name all the autosyn instruments. ~~ALTIMETER~~ MANIFOLD PRESSURE, TACH., OIL PRESSURE, FUEL PRESSURE OIL TEMP. GAUGE CYCL. HEAD TEMP. CARB. AIR TEMP. - FREE AIR + FUEL GAUGES.

26. By what methods can bomb-bay tanks be released?
BOMB RELEASES OR SALVO SWITCH.

27. (a) Where are life rafts carried?
ONE ON EACH SIDE OF BOMB BAY FAIRING

(b) Where are controls located?
RADIO COMP.

(c) Explain in detail the use and operation of these controls.
PULL HANDLE

28. (a) When landing gear is operated manually, should assistance be given electrically? NO

(b) Why? CRANK MAY SPIN + CAUSE INJURY

29. (a) What supplies pressure for supercharger regulators?
ENGINE OIL PRESSURE

(b) Where are supercharger controls located?
ON CONTROL PANEL.

(c) How can operation of regulator control be checked with engine idling on the ground?
BY OPERATION OBSERVED ON GROUND.

30. If intercooler becomes coated with ice, how is this eliminated?
BY MOVING TO HOT-POSITION

31. What is the purpose of the large coil spring on the elevator controls?
TO AID IN CONTROL OF FLIGHT. POSITION.

32. (a) Where is air for the supercharger obtained with carburetor air filter open? THROUGH WING VENTS. AIR FILTERS.

(b) Where is air for the supercharger obtained with carburetor air filter closed? OPENINGS LEADING EDGE OF WING.

(c) Why must they be turned off above 8000'?
TO PREVENT TURBO OVERSPEED + DETONATION.

33. How are fluorescent lights operated?
HOLD SWITCH TO START. POSITION THEN BACK TO ON POSITION

34. What must be done before energizing an engine externally?
RELEASE SWITCH BACK OF MOTOR TO REMOVE BRUSHES

35. What is the location of the auxiliary power unit and for what is it used?
ON FLOOR BY MAIN DOOR.

36. What will happen if sudden application of brakes is made at altitude or in cold weather on the ground? RUPTURE BRAKE EXPANDER TUBES

37. What is the danger in taxiing with low or dead batteries?
HYD. PUMP WILL NOT CUT IN

38. If pitot tube ices what instruments will again operate if the airspeed-static-pressure alternate source switch is moved?
ALTIMETER RATE OF CLIMB

39. Will range be increased by using less than four engines?
No

40. In case of failure of electric fuel transfer pump, how can fuel be transferred? HAND OR MANUAL SYSTEM.

41. What is the purpose of individual energizing and meshing switches for each engine? IN ORDER TO ENERG. WHILE MESHING

42. What units depend on the hydraulic pressure system for their operation?
COWL FLAPS + BRAKES

43. Except in an emergency how many propellers should be feathered at one time?
ONE

44. What auxiliary equipment is lost by the failure of -

(a) #1 engine? GENERATOR.

(b) #2 engine? GENERATOR VACUUM PUMP GLYCOL SYST.

(c) #3 engine? GENERATOR VACUUM PUMP

(d) #4 engine? GENERATOR.

45. Explain fuel system as follows -

(a) How is fuel transferred from tank to carburetor?
ENGINE DRIVEN FUEL PUMP.

(b) Can all or two engines use fuel from one tank?
NO.

(c) Can fuel be transferred from one to tank to another? If so, explain.
YES. ACROSS SHIP ONLY.

(d) How can fuel be pumped from left bomb-bay tank to #1 engine tank?
BY TRANSFER TO NO. 2 OR 4 TANKS.

(e) Why are fuel gauges less accurate in this type system?
NO

46. (a) What is the maximum permissible gross weight of the airplane overloaded?
65,000

(b) What caution should be exercised when operating the airplane overloaded?
USE ALL RUN WAY

47. Should landing gear be retracted as soon after take-off as possible?
YES

48. (a) When and why do you turn on electric fuel booster pumps?
WHEN STARTING ENGINES

(b) What booster pump must be on in order to prime any engine?
#3

(c) Why should primer (hand) be in off position when priming is completed?
TO PREVENT FIRE + OVERPRIMING

(d) When are booster pumps turned off?
1+10000 ft.

49. Why is throttle pumping harmful in starting high pressure carburetor engine?
Causes backfire due to lean mixture

50. (a) How should engines be started?
SET Procedure

(b) How should engines be stopped.
Set procedure.

51. Why should engines be idled at 1200 RPM a short time before stopping?
To reduce cyl. head temp & scavenge crankcase oil.

52. What is engine RPM, manifold pressure, and carburetor mixture adjustment for the following:

(a) Climb and high speed?
2300 RPM 37 in.

(b) Cruising (desired)?
20, ~~29~~ 29"

(c) Cruising (maximum)?
21- 30"

(d) Cruising (long range)?
1630 - 28" - 28"

53. What is cylinder head temperature for the following:

(a) Maximum allowable for take-off and climb (5 min. max. time)?
260°C

(b) Continuous operation (Rated power)?
218°C

(c) Continuous operation (Cruising power)?
205°C

54. What is oil pressure in lbs./sq. for the following:

(a) Desired? 75 lbs sq. in.

(b) Maximum? 80 lbs sq in.

(c) Minimum? 70 lbs sq in.

(d) Minimum idling? 15 lbs sq in.

55. What is fuel pressure in lbs/sq. in. for the following:

(a) Desired? 12 to 16 lbs

(b) Maximum? 16 lbs

(c) Minimum? 12 lb.

56. What is the oil inlet temperature for the following:

(a) Desired? 70°

(b) Maximum? 88°

57. What is the fuel consumption per engine per hour for the following:

(a) Climb and high speed? 110

(b) Cruising (desired)? 49

(c) Cruising (maximum)? 62½

(d) Cruising (long range)? 38 Gal.

58. Should engine controls be shot away, what predetermined position will your controls assume? 1. Throttles wide open 2.

59. How is manifold pressure set for take-off when supercharging is desired? OPEN THROTTLE WIDE - adjust knobs for desired setting

60. (a) When is oil dilution system used? cold weather

(b) Explain operation. Push dilution switches for not more than 4 minutes

61. What is the first action in case of a runaway supercharger or propeller? Throttle engine back.

62. What effect do the fumes from carbon tetrachloride fire extinguishers have on humans? These fumes known as Phos. Gas are poisonous

63. How are ailerons locked? By manual locking dev.

64. What are the various normal design bomb loads? 2064 lbs.

65. What is the maximum bomb load possible? 8-1600 2-4000

66. Where is the main supply tank for the hydraulic system located?
ON RIGHT Bulkhead in pilots Comp.

67. Name three ways pilot can attract attention of various crew members?
Interphone Alarm bell Phone call.

68. Why can the radio compass be used satisfactorily during periods of intense static? loop

69. When using radio for beam flying, why should volume on the interphone control box be kept at a minimum?
If volume is high will act as automatic volume control

70. (a) Describe effectiveness of the various controls as the airplane approaches a stall. Lose effectiveness

(b) Why should one hand be kept on the throttles when taking off and landing? Engines give faster response.

71. What compartment is most desirable for storing weight with regard to the center of gravity?
Radio + comps under pilots Comps.

72. Describe the procedure to be followed when a forced landing is to be made on water. Ditching procedure.

73. (a) In case of radio failure and inverter stoppage after taxiing out, what is likely to be the trouble?
low Batteries

(b) What is the procedure in this case?
Hold Brakes run up engine to cause Generators to cut in

74. What is the number of available spaces for passengers and crew?
10

75. Pilots will be required to demonstrate (while in the airplane to the check pilot) that they have satisfactory knowledge as to the location of the following instruments:
The items listed below have been demonstrated.

Life raft control

Emergency bomb releases

Hydraulic supply tank

Fuel transfer valves and switch

Propeller anti-icers, control and switch

Wing de-icers, valve

Aileron tabs, control

Elevator tabs, control and lock

Rudder tabs

Cabin air control

Vacuum pump selector valve

Passing light switch

Bomber call switch

Phone call switch

Inverters switch

Battery switches

Amp. Meters

Generator switches

Voltmeter

Voltmeter selector switch

Rheostat position lights

Pitot heater switch

Landing gear warning switch

Alarm bell switch

Running light switches

Rudder pedal adjustment levers

Identification light switches and key

Spare lamps flourescent

Cockpit air control

Windshield wiper control

Rheostats, landing gear and tail wheel lamps

Aileron lock

Bomb release light

A.F.C.E. lights

PDI instrument

Vacuum pump warning light

Oil pressure warning lights

Inverter voltmeter

Suction gage

Hydraulic pressure gages

Bomber call light

Landing gear down light

Flight indicator

Tail wheel lock light

Radio compass needle

Turn indicator

Both radio call number tags

Altimeter

Marker beacon light

Airspeed indicator

Bank and turn indicator

Climb indicator (note how this instrument is graduated)

Prop feathering switches

Manifold pressure gage

Tachometers

Flap indicators

Fuel pressure gages

Oil pressure gages

Oil in temperature gages

Fuel tank gages

Fuel tank warning light

De-icer gage

Cylinder head temperature gages

Carburetor air temperature gages

Spare lamps for signal and cockpit lights

Oil dilution switches

Engine starter switches

Parking brakes release lever

Intercooler head controls

Engine primer

Hydraulic hand pump

Valve position indicator, hydraulic

Manual shut-off valve (hydraulic accumulator)

Manual - automatic hydraulic pump switch

Ignition switches

Master ignition switch

Fuel shut-off valve switches

Booster pump switches

Instrument panel light switch

Instrument light switches

Landing gear switch

Flap switch

Landing light switches

Identification light switches

All interior light switches

Cowl flap controls

Fuse boxes

Throttles

Throttle lock

Propeller control

Propeller control lock

Mixture control levers

Supercharger levers

Mixture and supercharger lock

A.F.C.E. switches

Tail wheel lock

Rudder and elevator lock

Clock

Pilot's compass

Free Air temperature gage

Command set receiver tuning dials

Command set transmitter control box

Radio compass controls

Interphone junction boxes

Switch box for range, voice, or both