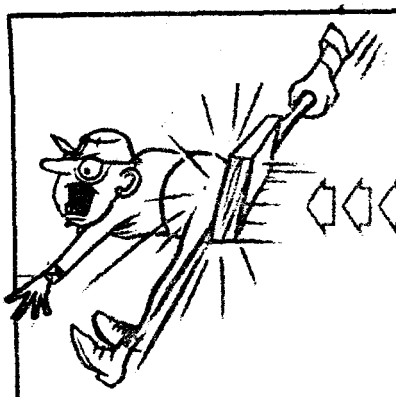
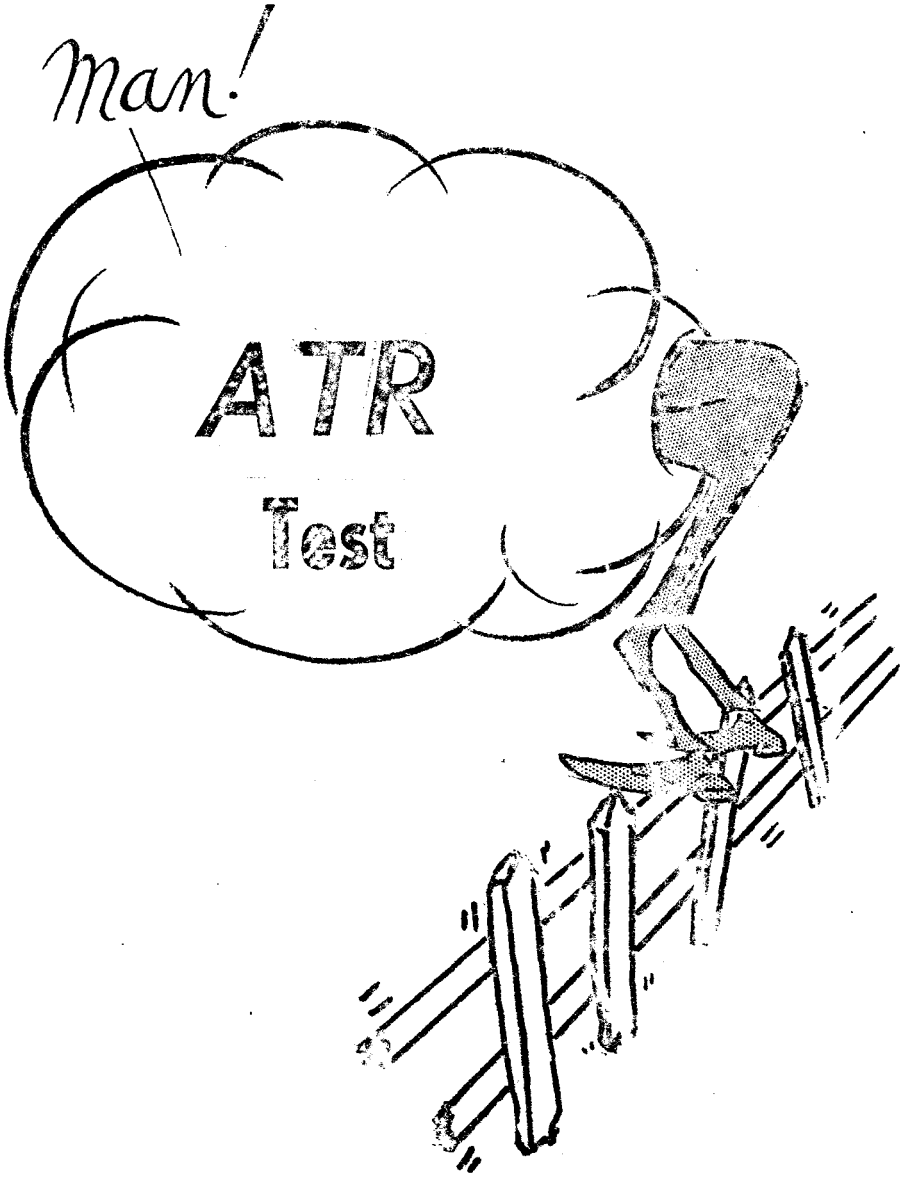


DIRECTED STUDY

Training Program

COMING READY OR NOT

YOUR



Where Do YOU Stand?

AIRLINE TRANSPORT RATING EXAMINATION GUIDE

INTRODUCTION

This guide has been prepared from the most recent information concerning USFAA examinations.

The material contained herein is intended as a guide and is similar to the type of questions confronting you when you sit for the examination.

If you use the guide as directed, the USFAA examination will be easy to understand and complete with a satisfactory grade.

Do not memorize, little advantage will be gained by this method; work out the problems, MATCH them with the answers and correct your computations as appropriate.

If any problem appears to be unacceptable or not understood in regard to its solution, please contact Operations Training, Directed Study Program, identify the problem, and we will sypply the solution.

This program will be continuously up-dated to prepare you for the examination at the time you wish to take it ..... Good luck!

ATR WRITTEN EXAM - 1

You are employed by an Airline, which operates between Miami International Airport, Miami, Florida and John F. Kennedy International Airport, New York. As Pilot-in-Command, you will be expected to make judgements based on compliance with applicable regulations, good operating procedures, and information supplied in the supplementary data section of this exam.

You are scheduled on a flight to depart Miami at 1130 EST, January 25, for New York. You review regulations, weather maps, forecasts, sequence reports, and A.T.C. procedures pertaining to this flight.

exam 1 ?

(3) calendar mos

(5)

(9) part >5 (?)

(13) ACF (what?)

(32) (D) why not?

57

~~(4) [illegible]~~

exam # 2

* ~~(5) [illegible]~~

(53)

DIRECTED STUDY PROGRAM

USFAA EXAMINATION GUIDE

DATE: 15 June 1965

REF: 2000-1

SUBJECT: ATR Exam - 1

1. As Pilot-in-Command of this flight, your actions are governed by regulations from the list below:
   A. The preflight planning for this flight is the joint responsibility of the Pilot-in-Command and the aircraft dispatcher.
   B. If your Second-in-Command holds an A.T.R. and type rating for this aircraft, he may log all of the instrument flight time on the flight.
   C. All flight crew members must remain at their respective stations at all times.
   D. Your first class medical certificate is dated November 5. To continue to serve as Pilot-in-Command, you must renew this certificate not later than May 31.
   E. As Pilot-in-Command, you must take an enroute flight check every 12 months.
   1. A and E
   2. A,D,E
   3. B and C
   4. C,D,E

2. As part of this flight will be made under instrument conditions, regulations require that you must have recent instrument flight experience. This instrument time may have been under actual or simulated conditions, and must be:
   1. at least 2 hours within the last 90 days.
   2. at least 6 hours within the preceding 6 calendar months.
   3. at least 6 hours within the last 90 days.
   4. at least 2 hours within the preceding 6 calendar months.

3. Each pilot acting as Second-in-Command must meet certain periodic proficiency requirements. Your Second-in-Command on this flight received his last proficiency check in an aircraft of the type being flown on this trip. To continue to serve as Second-in-Command, he must be checked for proficiency on instruments:
   1. in an airplane by the last day of next January.
   2. either in an airplane or a flight simulator by next January ~~24~~. 31
   3. in a flight simulator by next January 24.
   4. at anytime before next January 25, by an air carrier check pilot or by a representative of the FAA.

SUBJECT: ATR Exam - 1

4. If the weather conditions at your take-off airport are such that an alternate airport for departure is required, this alternate airport must be located at a distance no greater than:
   1. one hour flying time in still air at normal cruising speed with one engine inoperative.
   2. two hours flying time in still air at normal cruising speed with one engine inoperative.
   3. onehour flying time at normal cruising speed under forecast wind conditions.
   4. two hours flying time under forecast wind conditions with one engine inoperative.

5. An alternate airport for departure is not required if the ceiling and visibility at the takeoff airport are at least:
   1. 300 feet and 1 mile, 400 feet and 3/4 mile, or 500 feet and 1/2 mile.
   2. 1000 feet and 1 mile, 900 feet and 1 1/2 miles, or 800 feet and 2 miles.
   3. 1000 feet and visibility 2 miles
   4. 800 feet and 1 mile, 700 feet and 1 1/2 miles, 600 feet and 2 miles.

— above landing minima

6. How much rest must an air carrier pilot have before being assigned to duty if he has flown in excess of 8 hours during the last 24 hours?
   1. 12 hours according to FAR PART 121.
   2. 16 hours according to FAR PART 121. 121.471 (c)
   3. 8 hours according to FAR PART 121.
   4. 18 hours according to FAR PART 121.

121.471 (c)

7. An alternate airport for destination is not required, when, for the period 2 hours before to 2 hours after the estimated time of arrival at the destination, the weather is forecast to be:
   1. a ceiling of at least 800 feet and visibility at least 2 miles.
   2. a ceiling of at least 1000 feet and visibility at least 3 miles.
   3. a ceiling at least 1000 feet above the minimum initial approach altitude and visibility at least 3 miles.
   4. a ceiling of at least 1000 feet above the minimum enroute instrument altitude and visibility at least 2 miles.

121.619

SUBJECT: ATR Exam - 1

8. In emergency situations which require immediate decision and action, the Pilot-in-Command may follow any course of action which he considers necessary under the circumstances. When emergency authority is exercised by the Pilot-in-Command, he:

A. may, to the extent required for safety, deviate from prescribed operating procedures, weather minimums and regulations.

B. must submit a written report of the circumstances to the company operations manager within 48 hours.

C. must submit a written report of any deviation from regulations to the nearest FAA Regional Office within 48 hours.

D. must, within 10 days after the flight, submit a written report of any deviation to the administrator through the company operations manager.

1. A and B only
2. A, C, D.
3. A and D only
4. B and C.

9. The introduction of Turbo Jet aircraft into air carrier operations has resulted in some significant charges in performance determination from methods previously used for reciprocating engine airplanes. The most important of these is:

1. the introduction of full temperature accountability in all states of performance, except landing distance required.
2. minimum climb performance is expressed in terms of climb gradient, in percent, rather than in rates of climb in feet per minute.
3. the introduction of a rotational speed Vr, which is directly related to the lift off speed VLOF.
4. All of the above.

10. When an airplane is released by the maintenance organization to flight operations, a maintenance release or appropriate entry into the maintenance log certifying that the airplane is in an airworthy condition shall be:

1. prepared and signed by a maintenance inspector or a person authorized by the inspection organization to release the airplane.
2. prepared and presented to the Pilot-in-Command for this signature.
3. prepared only if discrepencies written up on the last flight have not been completely corrected.
4. prepared in duplicate and a copy given to the Pilot-in-Command. The other copy shall be retained at least 6 months.

SUBJECT: ATR Exam - 1

11. F.A.R. part ~~40~~ 25 specifies that the critical engine failure speed shall be given in terms of:
   1. true air speed at which the take-off can be continued when the critical engine becomes inoperative.
   2. indicated air speed at which the take-off can be continued when the critical engine becomes inoperative.
   3. calibrated air speed at which the take-off can be aborted or continued when the critical engine becomes inoperative.
   4. indicated air speed at which the take-off must be aborted when the critical engine becomes inoperative.

12. Referring to take-off limitations to provide for critical engine failure, the take-off weight of the airplane must not exceed a value that will permit take-off and climb to 50 feet before passing the end of the runway. After passing the airport boundry, it must be possible to clear all obstacles by at least:
   1. 50 feet vertically or 300 feet horizontally.
   2. 50 feet vertically or 200 feet horizontally.
   3. 200 feet horizontally or by using a maximum bank of 10 degrees.
   4. 400 feet horizontally or by using a maximum bank of 20 degrees.

14.177

13. Listed below are symbols and definitions for different airplane speeds. Select the statements which are correct.
   A. IAS is the reading of the air speed indicator including the correction for sea level adiabatic compressible flow.
   B. CAS is the reading of the air speed indicator corrected for position error only.
   C. CAS with the correction for adiabatic compressible flow is equal to TAS in standard atmosphere at sea level.
   D. VMC is the minimum control speed with all engines operating.
   E. VMO is the maximum speed which shall not be deliberately exceeded in any regime of flight.
   F. VF is the maximum flap extension speed.
   G. Mach number is the ratio of TAS to the speed of sound.
   1. B, D, F, G.
   2. A, C, E, G.
   3. B, D, E, F.
   4. A, B, C, E.

SUBJECT: ATR Exam - 1

14. Regulations require that the cruising altitude or flight level of your aircraft be maintained by reference to an altimeter which shall be set:

A. at or below 18,000 feet MSL, to the current reported altimeter setting of a station along the route of flight within 100 nautical miles.

B. below 18,000 feet MSL, to the current reported altimeter setting of a station along the route of flight within 100 nautical miles.

C. at or above 18,000 feet MSL, (FL 180) to 29.92 HG. (Standard setting).

D. at or below 23,500 feet MSL to the current reported altimeter setting of a station along the route of flight within 200 nautical miles.

E. above 18,000 feet MSL (FL 180) to 29.92 Hg. (Standard setting).

1. A and E.
2. B and C
3. D only
4. B and E

15. Part 4b of the Federal Air Regulations classifies cargo and baggage compartments as class, A, B, C, D, or E. Select the correct statements below regarding these compartments.

A. Cargo and baggage compartments are classified as class "A" if the presence of a fire therein would be easily discernible to a member of the crew at his station, and if all parts of the compartment are easily accessible in flight.

B. Cargo and baggage compartments are classified as class""B" if sufficient access is provided while in flight to enable a crew member to reach effectively all parts of the compartment and its contents with a hand fire extinguisher.

C. Cargo and baggage compartments are classified as Class "C" if they do not conform to the requirements for class "A" or "B" designation.

D. Cargo and baggage compartments are classified as class "D" if a fire occuring therein will be completely confined without endangering the safety of the airplane or the occupants

1. A and C only
2. A and D only
3. B and C only.
4. A, B, C, D

16. A separate system of an approved type smoke or fire detector to give warning at the pilot or flight engineer's station is required in each compartment classified as:

SUBJECT: ATR Exam - 1

1. class A, B, or C
2. class B & C
3. class B, C, and D
4. class A, B, and D

17. The portable fire extinguisher installed in the crew compartment must be suitable for fires of
1. class B and C
2. class A only
3. class C only
4. class A and B.

18. In regards to fire extinguisher requirements for the different classes of cargo and baggage compartments, as an A.T.R. Pilot, you should know:
1. a hand fire extinguisher shall be available for each compartment classified as class "A" or class "B".
2. an approved built in fire extinguisher system must be provided for each class "C" compartment.
3. no fire extinguisher is necessary for class "D" compartments.
4. all of the above.

19. If you file a proper flight plan but arrive over your destination at a weight in excess of your landing weight, you should:
1. use your emergency authority and go ahead and land.
2. dump fuel down to legal landing weight.
3. fly in the local area until fuel is used down to legal landing weight.
4. go ahead and land as it is legal to do so under these circumstances.

20. A deficiency or lack of oxygen in the body is called hypoxia. Which of the following statements correctly applies to hypoxia?
1. It causes cramps in the joints and course tremors of the hands.
2. It may first be noted by ~~e~~ IN creased pulse and respiration.
3. Carbon monoxide from smoking with reduced blood oxygen may result in a dangerous state of hypoxia as low as 10,000 feet.
4. Hypoxia always gives ample warning with impairment of judgement and increased reaction time.

21. The extremely rapid loss of cabin pressure on a pressurized airplane is termed explosive decompression. Select the statements below that correctly state the effects of explosive decompression.

SUBJECT: ATR Exam - 1

A. With the sudden equalization of pressure, there is a forceful blast of air outward through openings and passages in the aircraft.
B. The smaller the cabin the less the effect of explosive decompression, other factors being equal.
C. The free gases within the body suddenly expand and are partially expelled, These expanding gases may cause pain but serious injury is not likely to occur.
D. The time of consciousness is usually brief following rapid decompression since hypoxia developes more quickly than from simple lack of oxygen.

correct

1. A,B,D
2. B and D
3. A, C, D
4. B and C

22. If a runaway propeller is experienced in flight, prompt initiation of emergency procedures is vital to safety of flight. As Pilot-in-Command, you should:

A. slow the aircraft to the minimum safe air speed immediately.
B. move passengers from seats within approximately 15° of the propeller arc.
C. if terrain permits descend to a lower altitude.
D. immediately close oil shutoff valve to "freeze" engine and reduce windmilling drag.

1. A, B, C
2. A and D only
3. B and D
4. B, C, D

23. The concept of "clearways" and "stopways" as defined in SR ~~422~~A and ~~422~~B has increased the utility of existing airports in this country. From the statements below select those that are correct in regard to clearways.

A. Clearways, as defined in FAR PART ~~121~~ are areas not suitable for stopping the airplane in the event of an aborted take-off.
B. A clearway is an area beyond the airport runway not less than 200 feet on either side of the extended center line of the runway, at an elevation no higher than the end of the runway.
C. A clearway is an area beyond the runway, not less than 500 feet wide, centrally located about the extended center line of the runway, and under control of the airport authorities.
D. The clearway is expressed in terms of a clearway plane, extending from the end of the runway with an upward slope not exceeding 1.25 percent.

E. No object nor any portion of the terrain may protrude above the clearway plane except runway threshold lights, provided their height above the end of the terrain is not more than 26 inches and they are located on each side of the runway.
1. A-B-D-E
2. A-D
3. A-C-D-E
4. A-B-E

24. When adequate clearway is available, ~~SR 422A~~ and ~~SR 422B~~ permit a take-off to be made so that the 35 foot clearance is reached over the clearway rather than over the runway end. Under these conditions
1. The normal VI speed ~~is~~ reduced so that the accelerate-stop distance is equal to runway length.
2. At least one half of the horizontal distance from lift off to the 35 foot height will be over the runway. The remaining portion of the climb to 35 feet may be over the clearway.
3. Use of clearways permit increased takeoff gross weight from a given runway or require less surfaced runway for any fixed conditions of airplane gross weight and airport elevation and temperature.
4. All of the above statements are correct.

25. Reference to question 23 above, select the statements below that correctly define a stopway.
A. A stopway is an area beyond the runway, not less in width than the width of the runway, and designated by the airport authorities for use in deceleration of the airplane during an aborted take-off.
B. To be considered as such, a stopway must be capable of supporting the airplane during an aborted take-off without causing structural damage to the airplane.
C. A stopway is an area beyond the runway not less than 200 feet on either side of the extended centerline of the runway, and designated by the airport authorities for use in decelerating the airplane during an aborted take-off.
D. A clearway and a stopway are identical in construction.
1. A-C-D
2. A-D
3. B-C-D
4. A-B

26. Assume that carbon-dioxide has been discharged because of a fire in the baggage compartment and as a result a high concentration is present on the flight deck. Under these conditions you should:

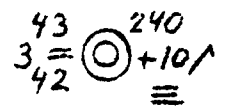
SUBJECT: ATR Exam - 1

1. purge the flight deck by operating the heater at maximum output.
2. have flight crew don oxygen masks and set regulators to 100% oxygen.
3. turn on the cabin air fan to dilute the gas concentration
4. go on oxygen and use the dilutor demand setting of the regulator.

27. Weather associated with frontal activity can be attributed in part to the speed of movement of the front, steepness of the frontal surface and wind activity. What other factor determines the type weather encountered along a front?
1. Stability of the cold air.
2. Stability of the warm air.
3. Temperature discontinuity across the front.
4. Source region of the air mass.

28. What type clouds would you expect from the following hourly sequence report? 9ØE15⊕1F
1. Stratus
2. Stratocumulus
3. Cirrostratus
4. Altocumulus.

29. While checking over the weather map you observe the station model shown at the right. Select the statements below that correctly interpret conditions shown by this model.



A. The sky is clear and the wind is calm.
B. The temperature dew point spread is 1°C
C. The visibility is reduced by haze.
D. The pressure change during the 3 hours preceeding the observation is 1 millibar.
E. The barometric pressure has been increasing, but is now falling.
F. The station barometric pressure is 1024.0 millibars.
G. The past weather at this station has been fog,smoke or haze.

1. A,C,E,F
2. B,D,F,G
3. C,D,E,F
4. A,D,E,G

SUBJECT: ATR Exam - 1

30. Referring to the terminal forecasts which of the following statements is correct?
(See Page S-1)
   1. ROA is forecast to have a ceiling of 25,000 feet from 0600 E throughout the remainder of the forecast period.
   2. RDU will have scattered clouds for the entire period.
   3. CRW will have a ceiling of 5,500 feet after 1900E
   4. DCA is forecast to have scattered clouds for the entire period.

31. You read the Washington Regional forecast (FN). Choose the statements below which correctly interpret the data contained in this report.
   A. The cold front across nothern New England is expected to reach Central New York by 0000E Wednesday.
   B. The high pressure center along the So. Carolina coast is expected to move North•west•ward.
   C. Broken to overcast cloud layers from 1,800 to 2,000 feet MSL can be expected over Southern New York and New Jersey.
   D. Occasional moderate to locally heavy icing in clouds can be expected from freezing level to 18,000 ft.
      1. A and C
      2. B and D
      3. A and D
      4. B and C

32. The 0600 EST sequence reports for certain stations are listed below.

```
SA
~~JAX~~ 30 09 1200Z
MIA S M10⊕6HF 110/58/53/0000/984
WPB W4X1/2F 111/53/52/2710/982 PRESRR
JAX M5⊕3F 047/55/52/0904/967
CHS M10⊕2RF 130/47/42/1510/992
```

Select the statements below that correctly interpret these reports.
   A. Dew point temperature at MIA is 53°C.
   B. The pressure is rising at WPB
   C. Altimeter setting at CHS is 29.92 Hg.
   D. Station pressure at Jax is 1004.7 MBS
   E. At WPB the wind is from the west at 10 MPH
   F. The sky is obscured at WPB
   G. Visibility at MIA is reduced by fog and smoke
   H. Lowest reported ceiling is 400 Ft.
      1. B,D,F,H
      2. A,C,E,G
      3. A,D,E,G
      4. B,C,F,H

SUBJECT: ATR Exam - 1

33. The standard height of the 300 millibar pressure level is approximately:
    1. 30,000 ft
    2. 40,000 ft
    3. 5,000 ft
    4. 10,000 ft

300 30,000
500 18,000

34. In the winds aloft forecasts available for your flight, wind direction is given in relation to:
    1. magnetic north, speed is in MPH
    2. true north, speed is in MPH
    3. true north, speed is in KNOTS
    4. magnetic north, speed is in KNOTS.

35. Every thunderstorm has turbulence, sustained updrafts and down drafts, precipitation and lighting. Select the statements below that correctly describe thunderstorm conditions.
    A. The chances of severe or extreme turbulence within thunderstorms are greater at higher altitudes.
    B. In general, updrafts are more severe than downdrafts, also updrafts increase in velocity at higher altitudes.
    C. Usually, the least turbulence is found between 8,000 and 15,000 ft. above the terrain.
    D. The probability of lightning strikes occuring is greatest near or slightly above the freezing level.
    E. Turbulence normally more severe than in the thunderstorm cell itself is always present in the clear air around the buildup.
    F. The air in the center of the thunderstorm is colder than the surrounding air IN DISSIPATING STAGE.
    1. A,B,D,F
    2. B,E,F
    3. A,C,D,E,
    4. A,C,E,F

36. During preflight preparation, you review departure procedures for MIA. You note from the MIA area departure chart that Standard Instrument Departures (SIDS) are approved for Miami International Airport. Which of the following statements concerning SIDS is true?
    1. Request for SIDS should be made only in certain areas where complex traffic control problems exist.
    2. Request for a particular SID is considered as a statement by the pilot that he is familar with and has available in pictorial or narrative form all the SIDS for this particular airport and is prepared to accept any established SID given to him.

SUBJECT: ATR Exam - 1

3. All requests for SIDS should be forwarded to ATC at least 30 minutes prior to take-off to provide time for processing.
4. Pilots are required to request the approprivate SID. Only this requested SID will be assigned for departure.

37. Miami International Airport is equipped with a VOR radiated test signal (VOT).From the statements below, select those that correctly apply to VOR receiver accuracy checks.

A. A VOR accuracy check must be made every 10 hours of aircraft flight time or every 10 days.
B. If a VOR accuracy check (Ground Check) is made utilizing a VOT, the maximum allowable receiver error is ± 6°.
C. A VOR accuracy check must be made every 10 hours of aircraft flight time and every 10 days.
D. When using the VOT for a ground accuracy check, the OMNI bearing selector is set to 0° the "To-FROM" indicator should indicate "From".

1. A and B
2. B and D
3. C and D
4. B and C

IN PROBLEMS 38 THRU 44 USE INFORMATION PROVIDED ON PAGE S-5 OF SUPPLEMENTAL DATA

38. The C.G. location for take-off at 105,000 pounds gross weight is:
1. 447.8 inches AFT of Datum line.
2. 452.0 inches AFT of Datum line.
3. 434.7 inches AFT of Datum line.
4. 440.7 inches AFT of Datum line.

39. What is the location of the forward and AFT C.G. limits in the gear down position at a gross weight of 105,000 pounds?
1. 420.3 and 448.0 inches AFT of Datum line.
2. 422.7 and 448.0 inches AFT of Datum line
3. 418.9 and 452.1 inches AFT of Datum line.
4. 416.8 and 443.9 inches AFT of Datum line.

40. What is the C.G. range in the gear up position at a gross weight of 105,000 pounds?
1. 52.4 inches
2. 39.0 inches
3. 30.4 inches
4. 31.4 inches

SUBJECT: ATR Exam - 1

41 Assume your C.G. location is at 25.2% MAC at 105,000 pounds gross weight. If you move 1500 pounds from the forward to the AFT cargo compartment, what is the new CG in % MAC?

1. 31.5 percent
2. 28.9 percent
3. 29.8 percent
4. 30.3 percent

42. You are near the AFT C.G. limit. How much weight will have to be moved from the AFT cargo compartment to the Forward cargo compartment to move the C.G. 3 inches forward?

1. 375 pounds
2. 630 pounds
3. 570 pounds
4. not enough information given

43. Assume a gross weight of 122,200 pounds with the C.G. located at the foward limit in the gear down position. Using the reduction factor of 10,000, the gross weight index is:

1. 4997.8
2. 5205.7
3. 520.5
4. 4012.8

44. If you shift 1200 pounds of cargo from the AFT cargo compartment to the foward C.G. limit, what would be the C.G. change in inches? (Assume a gross weight of 112220 pounds).

1. 1.9 inches
2. 3.0 inches
3. 3.3 inches
4. 2.8 inches

45. The zero fuel weight of an aircraft is:

1. The basic operating weight minus drainable fuel and oil.
2. The maximum weight authorized for such aircraft without fuel.
3. The maximum allowable take-off gross weight minus trip fuel.
4. The sum of the aircraft empty weight plus payload.

46. The crew complement for this flight consists of two pilots, a flight engineer and two flight stewardesses. What is the maximum allowance pay load? (See aircraft specifications.)

1. 28,650 pounds
2. 18,050 pounds
3. 20,090 pounds
4. 23,600 pounds

FOR PROBLEMS 47 THROUGH 51.USE INFORMATION PROVIDED ON PAGE S-3 OF SUPPLEMENTAL DATA. ASSUME A TAKE-OFF GROSS WEIGHT OF 105,000 POUNDS

47. Four minutes after take-off you,cross the Miami VOR at 3000 feet. Using the information supplied in the navigation and route data,what will be the elapsed time from take-off to level off at cruising altitude?
1. 20 minutes
2. 25 minutes
3. 23 minutes
4. 27 minutes

48. Using the information in question 47 above and the data furnished in the take-off and climb power schedule on page S-7, compute the fuel required for take-off and climb to cruising altitude. (Allow 1 minute at take-off power and 3 minutes at maximum continous power).
1. 2535 pounds
2. 2440 pounds
3. 2425 pounds
4. 2380 pounds

49. You level off at cruising altitude near VRB and set up long range cruise airspeed appropriate for your weight. If you maintain long range cruise procedures your flight time to your destination will be:
1. 3 hours 25 minutes
2. 3 hours 33 minutes
3. 3 hours 41 minutes
4. 4 hours 9 minutes

50. The total fuel required for the flight to your destination is:
1. 11,750
2. 13,430
3. 10,950
4. 15,100

SUBJECT: ATR Exam -1

51. Using the data furnished in the long range cruise performance chart page S-6 in the supplementary data and a useable fuel load of 12,600 pounds, how long could you expect to stay airborne?
    1. 3 hours 51 minutes
    2. 3 hours 37 minutes
    3. 4 hours 17 minutes
    4. 3 hours 58 minutes

52. Your ATC clearance given before departure included traffic information. This information is:
    1. Concerned with converging IFR traffic within less than 10 minutes from point of convergenc and 1000 feet or less vertical separation.
    2. Concerned with IFR traffic whenever less than the applicable minimum time separation exists.
    3. Concerned with any converging IFR and VFR traffic.
    4. Given by ATC only on pilots request.

AIM 1.16

53. You are cleared to climb to your cruising altitude (20,000 ft) You may climb unrestricted to:
    1. 19,500 ft
    2. 20,000 ft.
    3. 18,500 ft.
    4. 19,000 ft.

54. Your aircraft is at 20,000 ft. pressure altitude and the true OAT is -22°C. The true altitude is:
    1. 19,800 ft.
    2. 21,400 ft
    3. 20,500 ft.
    4. 20,200 ft.

55. Given: speed of sound 600 knots, altimeter setting 30.12 and pressure altitude 30,000 ft. What is your true airspeed if you are cruising at .65 MACH?
    1. 390 mph
    2. 430 knots
    3. 410 knots
    4. 390 knots

56. Experience gained with the present volume of jet operations has led to the adoption of a standard altimeter setting for flights operating in the higher altitudes. An advantage of this system is :

SUBJECT: ATR Exam - 1

1. a standard setting eliminates altitude conflicts caused by altimeter settings derived from different sources.
2. ensures adequate terrain clearance.
3. eliminates the possibility of altimeter setting errors.
4. all of the above.

57. You review the meanings of various types of air speeds. If the reading shown on the air speed indicator is corrected for position error, instrument error, and for adiabatic compressible flow for the particular altitude, the result is :
1. calibrated air speed.
2. equivalent air speed.
3. true air speed.
4. basic air speed.

58. Density, by definition is the weight of a substance per unit volume. Where there is no change of state or heat transfer, the density of the air varies :
1. directly with pressure and inversely with temperature.
2. directly with pressure and temperature.
3. inversely with pressure and temperature.
4. inversely with pressure and directly with temperature.

59. Maximum range operation of reciprocating engine airplanes requires flying a specified air speed for a given weight and altitude condition. When encountering strong head winds or tail winds, you should :
1. increase air speed with either a headwind or tailwind.
2. increase TAS for a tailwind, decrease TAS for a headwind.
3. increase air speed with a headwind, decrease air speed with a tailwind.
4. the proper maximum air speed is a function of weight and altitude and should not be changed for wind condition.

60. On reaching Savannah you request a radar vector around a large thunderstorm buildup. Radar takes you out the 015° radial of Savannah VORTAC. After flying for several minutes, you tune in Charleston VORTAC and center the needle on the 280° radial. From this you know you are :
1. 55 nautical miles from Savannah.
2. 65 nautical miles from Savannah.
3. 30 nautical miles northwest of Charleston.
4. approximately 6 nautical miles to the right of your desired course.

61. Disregarding the above distance, assume radar has fixed your position as 43 NM from Savannah on the 015° radial and has requested you return to the airway within 29 NM. How many degrees must you correct your heading ?

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1. 12° left.
2. 30° left.
3. 24° left.
4. -6° left.

62. At 1415 you loose an engine and immediately set up 3 engine long range cruise appropriate for your weight. How much will this change your ETA at your destination?
1. 17 minutes
2. 5 minutes
3. 9 minutes
4. 21 minutes

63. After reaching Coyle Vortac you are being radar vectored to the final approach course for an ILS approach to runway 4R at JFK Airport. You have been requested by ATC to adjust your aircraft speed. Select the statements below that correctly describe speed adjustment procedures.
A. All speed adjustment requests shall be expressed in terms of knots and are based on indicated airspeed (IAS).
B. Speed adjustment procedures will normally be applied to flights conducting jet penetrations.
C. Pilots complying with speed adjustment requests will be expected to maintain a speed within plus or minus 10 knots of the specified speed.
D. Unless prior concurrence in the use of a lower speed is obtained, the minimum specified speed adjustment is 200 knots.
E. The pilot retains the perogative of rejecting speed adjustments by ATC, if in his opinion, it will adversely affect the operating characteristics of the aircraft.
F. Approach clearances supersede speed adjustments and pilots are expected to effect their own speed adjustments as necessary to complete the approach.
1. A, B, D, F
2. B, C, E, F
3. B, C, D, F
4. A, C, E, F

64. The visual approach slope indicator system is designed to provide by visual reference the same information that the glide slope unit of an ILS provides electronically. Which of the following statements concerning this system are correct?
A. Provision is made for controlling the intensity of the lights and adjustments can be made at pilots request.
B. The lights are spaced at 25 foot intervals beginning 75 feet from the landing threshold.

C. In haze and dust conditions the white bars of the system may appear yellowish. This is also true at night when the VASI system is operated at low intensity.

D. When an approach is made into the sun, the red lights may appear orange or have a brownish tint.

1. A and B
2. B and D
3. A and C
4. All of the above.

65. Radar traffic information service is a service provided by radar air traffic control facilities. Select the statements that are correct in regard to this service.

A. Traffic information is routinely provided to all aircraft operating on IFR flight plans except when the pilot advises he does not desire the service.

B. The purpose of this service is to relieve the pilot of the responsibility to see and avoid other aircraft.

C. Traffic information is not provided to IFR flight operating in VFR weather conditions.

D. The ATC controller has complete discretion for determining if and when this service will be provided.

1. A and C
2. B and D
3. A only
4. A and D

66. You plan to make an ILS approach to runway 4R and therefore review the approach chart. For your aircraft, which of the following statements are correct?

A. There is a lighted tower 217 feet high 1.1 mile SSE of runway 4R.

B. The time between the outer marker and middle marker at 140k is approximately 54 seconds.

C. High intensity runway lights are available to runway 4L.

D. The glide slope crosses the middle marker at 209 ft above the ground.

E. Runway visual range 2000 ft. authorized for landing on runway 22L.

1. A,D,E
2. B,C,D
3. A,C,D
4. B,D,E

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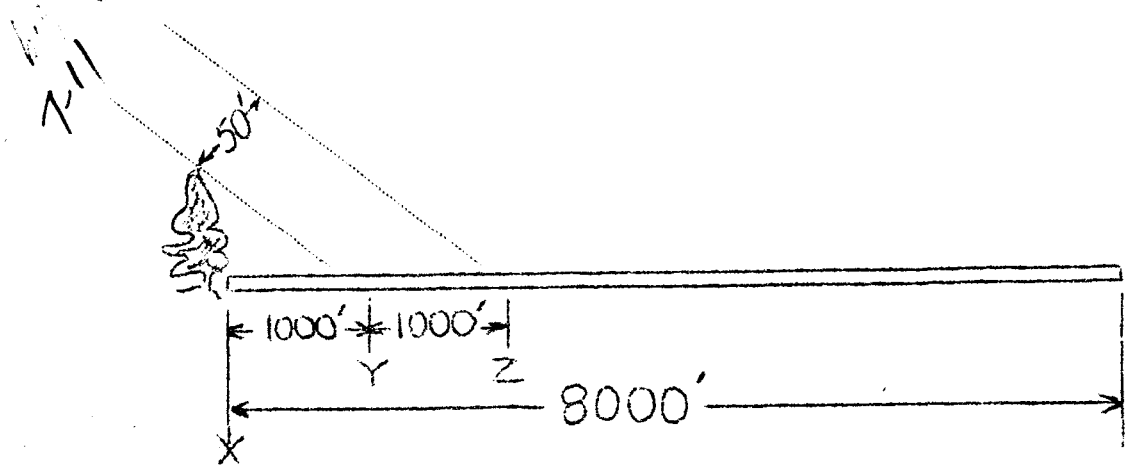
67. At locations where the selected instrument final approach course coincides with the precision approach radar course, you will be observed on the precision approach radar and offered advisories:

1. if the controller is not busy watching other traffic.
2. then there may be a possible conflict between you and other aircraft.
3. if the field is below circling minimums.
4. whenever the reported weather is below basic VFR minimums.



68. The effective landing runway length for a destination airport based on the diagram above is:

1. 60 percent of the distance from point "y" to the far end of the runway.
2. 70 percent of the distance from point "Y" to the far end of the runway.
3. 60 percent of the distance from point "Z" to the far end of the runway.
4. 70 percent of the distance from point "Z" to the far end of the runway.

69. The conditions of flight that will achieve the highest speed possible without resulting in supersonic airflow, is referred to as the:

1. maximum lift/drag ratio
2. sound barrier
3. critical Mach. number
4. compressibility range

70. Transonic flight is when the airflow over the aircraft surfaces is part supersonic and part subsonic. Transonic flow ranges from Mach. numbers

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1. 0.75 to a maximum of 1.20
2. 0.75 to a maximum of 1.00
3. 0.85 to a maximum of 1.05
4. 0.90 to a máximum of 1.01

71. A factor of great importance in the study of high speed airflow is the speed of sound. The speed of sound is the rate at which small pressure disturbances will be propagated through the air. The propagation speed is:
1. a function of air density
2. a function of pressure altitude
3. solely a function of air temperature
4. a function of ambient pressure only.

72. What is the effect of a clearway on V1 speed?
1. The normal V1 speed is reduced so that the accelerate stop distance is equal to the runway length.
2. The normal V1 speed is increased so that the take-off distance is equal to the runway plus clearway.
3. The normal V1 speed is reduced so that the take-off distance is equal to the runway plus one half the clearway.
4. The normal V1 speed is increased so that the accelerate stop distance is equal to the runway length.

73. What is the effect of a stopway on V1 speed?
1. The normal V1 speed is increased so that the accelerate stop distance equals the runway plus one half of the stopway.
2. The normal V1 speed is decreased so that the accelerate stop distance equals the runway plus allowable stopway.
3. The normal V1 speed is increased so that the accelerate stop distance equals the runway plus stopway.
4. A stopway has no effect on V1 speed.

74. Take-off rotation speed V_R is defined or the speed at which rotation is iniated during the take-off to obtain the V_2 climb speed at a height of 35 feet. V_R must not be:

1. less than 1.10 times the air minimum control speed or greater than V_1.
2. greater than 1.12 times the ground minimum control speed or less than V_1.
3. less than 1.05 times the air minimum control speed or less than V_1.
4. less than 120% stall speed in the take-off configuration and 110 % air minimum control speed.

SUBJECT: ATR Exam - 1

Test items 75 through 80 pertain to Turbo-Prop and Turbo-Jet aircraft. Use the performance charts in the supplemental data and the following information.

Pressure Altitude	2,000 Feet
Ambient Temperature (Runway OAT)	+80° F
Headwind Component	10 Knots
Runway Slope	1 % Downhill

75. Find the effective take-off distance for a gross weight of 230,000 pounds. (See take-off distance chart).
    1. 12,600 feet
    2. 11,900 feet
    3. 10,500 feet
    4. 9,900 feet

76. What is the maximum take-off gross weight permitted for an effective take-off distance of 8,000 feet? (See take-off distance chart).
    1. 212,000 pounds
    2. 208,000 pounds
    3. 214,000 pounds
    4. 205,000 pounds

77. Assume a runway length of 10,000 feet with no clearway or stopway. Find the V_1/V_{1B} speed ratio.
    1. .95
    2. 1.00
    3. .90
    4. 1.05

78. What is the V_1 speed for a take-off gross weight of 230,000 pounds and the V_1/V_{1B} speed ratio obtained in question 77 above?
    1. 94 knots
    2. 89 knots
    3. 99 knots
    4. 102 knots

79. What is the landing field length required for a destination airport? (Assume a landing gross weight of 210,000 pounds).
    1. 7150 feet
    2. 4650 feet
    3. 5300 feet
    4. 4900 feet

SUBJECT: ATR Exam - 1

80. What is the landing field length required for an alternate airport? (Assume a landing gross weight of 210,000 pounds).

1. 5950 Feet
2. 6300 Feet
3. 5650 Feet
4. 6100 Feet

ANSWER KEY TO A.T.R. EXAM # 1

1 is 2	21 is 3	41 is 3	61 is 3
2 is 4	22 is 1	42 is 2	62 is 3
3 is 2	23 is 3	43 is 2	63 is 4
4 is 2	24 is 4	44 is 3	64 is 3
5 is 1	25 is 4	45 is 2	65 is 4
6 is 2	26 is 2	46 is 2	66 is 2
7 is 3	27 is 2	47 is 4	67 is 4
8 is 3	28 is 1	48 is 2	68 is 1
9 is 4	29 is 4	49 is 2	69 is 3
10 is 1	30 is 3	50 is 1	70 is 1
11 is 3	31 is 3	51 is 1	71 is 3
12 is 1	32 is 4	52 is 2	72 is 1
13 is 2	33 is 1	53 is 4	73 is 3
14 is 2	34 is 3	54 is 4	74 is 3
15 is 4	35 is 1	55 is 4	75 is 3
16 is 2	36 is 2	56 is 4	76 is 2
17 is 1	37 is 3	57 is 2	77 is 4
18 is 4	38 is 4	58 is 1	78 is 4
19 is 4	39 is 1	59 is 3	79 is 4
20 is 2	40 is 4	60 is 1	80 is 1

ATR WRITTEN EXAM - 2

You are assigned by your Airline, to flight 34 which operates between Seattle-Tacoma Airport, Seattle, Washington and Los Angeles International Airport, Los Angeles, California. The equipment used on this flight will be a 4 engine reciprocating powered pressurized cabin transport aircraft.

As Pilot-in-Command you are expected to make judgements based on pertinent regulations, good operating procedures and information supplied with this examination.

You are scheduled to depart Seattle at 0630 PST January 25. Together with your crew, you report to the dispatch office at 0500 PST.

DIRECTED STUDY PROGRAM

USFAA EXAMINATION GUIDE

DATE: 15 June 1965

REF: 2000 - 1

SUBJECT: ATR Exam - 2

1. The aircraft dispatcher and Pilot-in-Command share joint responsibility for:
   1. safety of the flight in the air.
   2. scheduling, preflight planning and in flight safety.
   3. preflight planning, delay, dispatch and in flight operation.
   4. preflight planning, delay, and dispatch release of the flight.

2. The pilot who is assigned to this flight as your Second-in-Command must meet certain requirements as outlined in FAR's. Select the statements below which correctly interpret these requirements.
   A. He must hold an Airline Transport Pilot Rating.
   B. Within the preceeding 90 days, he must have made at least three take-offs and three landings in this type of airplane.
   C. Initial pilot training for Second-in-Command qualification includes only a demonstration of ability to take-off and land the type of airplane on which he is to serve.
   D. Second-in-Command proficiency checks may be demonstrated from either the left or right pilot seat.
      1. A and C
      2. B and D
      3. A and D
      4. B and C

3. As Pilot-in-Command you are required by company policy to conduct a pre-departure briefing of the crew on emergency procedures and equipment. Select the correct statements regarding this vital area from the list below.
   A. Each crew member must have in his possession a flashlight in good working order.
   B. All passenger emergency exit markings must be illuminated by the main lighting system for night operations.
   C. Protective breathing equipment, or smoke masks, must be provided for each flight crew member on duty.
   D. Flight crew members need only know the location of emergency equipment in the immediate flight deck area.
   E. A hand fire extinguisher must be provided on the flight deck for use by the flight crew.
      1. B,C,E
      2. A,C,E
      3. A,B,D
      4. B,D,E

SUBJECT: ATR Exam - 2

4. The assignment of emergency evacuation fuctions for each crew-member is the responsibility of:
   1. the Pilot-in-Command
   2. the air carrier
   3. the FAA
   4. the Second-in-Command

5. Emergency evacuation training of flight crew members is required by FAR 121. This training is accomplished by:
   1. the Pilot-in-Command
   2. a recurrent company training program once every 6 months
   3. a recurrent company training program once every 12 months.
   4. a crew member emergency procedures program and is required during initial checkout training only.

6. When should crew members on duty wear safety belts?
   1. At all times except when duty requires otherwise.
   2. During take-offs, landings, and turbulent air conditions.
   3. One pilot and one engineer must wear safety belts at all time.
   4. Whenever directed to do so by the Pilot-in-Command

7. How much time can a co-pilot log if he has an A.T.R. type rating for that type airplane?
   1. Only the time he is at the controls
   2. 50% of the time
   3. 100% of the time
   4. Any percentage of the total time not logged by the Pilot-in-Command.

8. An airport can be listed as an alternate airport under which of the following conditions?
   1. Current weather forecasts show ceiling and visibility above minimums at time of take-off from departure airport.
   2. The current weather reports and forecasts show a trend that the ceiling and visibility will be at or above minimums at time of arrival.
   3. Current weather forecasts show a trend that the ceiling will remain 800 feet and visibility one mile when airport is served by radio directional facility.
   4. Current weather forecasts show a trend that the ceiling will reamin at 1,000 feet overcast when airport is not served by radio directional facility.

SUBJECT: ATR Exam - 2

9. Who is responsible for loading the aircraft, preparation and signing of the load manifest?
   1. The pilot.
   2. An airline mechanic.
   3. The flight engineer.
   4. Any qualified person so designated by the air carrier.

10. In all passenger carrying airplanes an independent lighting system is installed to illuminate all passenger emergency exits. When such lights require manual operation to function, they shall be turned on:
   1. before loading passengers.
   2. before starting engines.
   3. before each take-off and landing.
   4. before taxi and before landing.

11. When selecting a hand fire extinguisher for aircraft, consideration must be given to the most appropriate extinguishing agent for the type of fire likely to be encountered. You should know that:
   A. carbon dioxide extinguishers are acceptable when the chief hazard is a Class"B" or Class "C" fire.
   B. dry chemical extinguishers are acceptable where the principal hazard is a Class "D" fire.
   C. water extinguishers are acceptable when the principal hazard is a Class "A" fire.
   D. any approved type fire extinguisher is acceptable for all classes of fires.
      1. A and B
      2. A and C
      3. B and C
      4. D only

12. What type cargo compartment must have a built-in fire extinguisher dischargeable by the pilot or flight engineer?
   1. Class "B" and "C".
   2. Class "C".
   3. Class "C" and "D".
   4. Class "C","D", "E".

13. Part 4B of the regulations requires a minimum number of portable fire extinguishers in transport category aircraft. The total number required for an aircraft of 85 passenger capacity is:

SUBJECT: ATR Exam - 2

1. three
2. five
3. four
4. two

14. If you are clearing smoke from the flight deck how , should your oxygen regulator be set?
    1. To the "NORMAL" automix "ON" position.
    2. To the "NORMAL" automix "OFF" position.
    3. To the "100% OXYGEN" automix "OFF" position.
    4. To the"EMERGENCY" automix "ON" position.

15. Protective breathing equipment covering the eyes, nose, and mouth is required equipment on pressurized cabin airplanes. Select the correct statements below concerning this equipment.
    A. Protective breathing equipment is required for all crew members.
    B. Protective breathing equipment is required for each flight crew member on flight deck duty and shall be easily available at his station.
    C. Protective breathing equipment is required for each crew member on flight deck duty and for 10% of the passengers.
    D. Not less than a 300 liter STPD supply of oxygen for each required flight crew member on flight deck duty shall be provided for this purpose.
    E. Protective breathing equipment is required for all crew members and for 30% of the passengers for flights above 15,000 feet.
    1. A, B, E
    2. A, D, E,
    3. C and D only
    4. B and D only

16. The maintenance department releases your airplane to operations. Which of the procedures listed below is correct in this situation?
    1. An appropriate entry may be made in the airplane maintenance log or a separate release form may be prepared.
    2. The release can be made verbally.
    3. A separate release form must be prepared.
    4. The release procedure must be complied with only if previous write-ups have been repaired.

17. You read the San Francisco Regional Forecast (FN). Choose the statements below which correctly interpret the data contained in this report. (See supplemental data page S-2)

SUBJECT: ATR Exam - 2

A. The low pressure area over Northern California is expected to reach Southern Oregon by 1800 PST Saturday.
B. Southeast of the low center, high clouds extend to 25,000 feet.
C. Cumulonimbus clouds are imbeded in the stratiform clouds over Eastern Oregon.
D. Moderate clear air turbulence is expected 150 to 200 miles west of the cold front.
   1. A and D
   2. B and C
   3. A and C
   4. B and D

18. **Your Airline** is authorized to use the following alternate airports for this flight:

San Diego, California	Lindberg Field (SAN)
Bakersfield, California	Meadows Field (BFL)
Fresno, California	Chandler Field (FAT)

Each of these airports is served by an approved radio navigation facility and an instrument landing system (ILS). The basic alternate airport landing minimums under these circumstances are:

1. broken clouds, ceiling 1,000 feet, and visibility 2 miles.
2. ceiling 300 feet, visibility 3/4 mile.
3. 1000 feet and 1 mile; 900 feet and 1-1/2 miles; 800 feet and 2 miles.
4. 800 feet and 1 mile; 700 feet and 1-1/2 miles; 600 feet and 2 miles.

19. On the basis of the terminal forecast (FT-LAX) for the alternate airports listed in question 18 above, select the proper alternate for this flight. Use the period between 0600 P and 0900 P for this purpose.
   1. FAT
   2. SAN and BFL
   3. FAT and BFL
   4. BFL, FAT and SAN

20. Assume you have served 80 hours as Pilot-in-Command of the type airplane being used for this trip. In view of this circumstance, which of the following statements regarding landing minimums is correct?
   1. Landing minimums at regular, provisional, and alternate airports must be increased by 100 feet and 1/4 mile.

under 100 PIC
Pub number for test. 1x1/2 100 1x1/2 mi

SUBJECT: ATR Exam - 2

2. Use of the sliding scale is authorized where applicable.
3. Landing minimums at refueling airports must be increased by 100 feet and 3/4 mile.
4. Landing minimums for alternate airports are not affected by Pilot-in-Command time.

21. The most marked weather changes take place along cold fronts and some of the most hazardous flying weather is found in cold front zones. Which of the following statements correctly interpret cold front conditions?

A. Strong cold fronts are usually orientated in a NE and SW direction and move SE.
B. The speed of a cold front is usually a little above half that of a warm front.
C. A cold front is followed by cooler and drier weather. It often preceeds severe cold spells and sometimes dust storms.
D. There are two general types of cold fronts, slowly moving or retarded cold fronts and rapidly moving cold fronts.
E. If the air is conditionally unstable, cumulonimbus and altocumulus clods will be scattered ahead of the front.

1. A, C, E
2. B, D, E
3. C and D
4. A, C, D

22. Although thunderstorms generally have the same physical features, they differ in intensity, degree of development, and associated weather phenomena. Select the statements below that are correct.

A. There is a strong possibility of encountering hail in any thunderstorm. Hail may be found in the precipitation area within the cloud; falling from the anvil or other overhanging cloud; or several miles from the cloud itself.
B. Only in the mature stage of thunderstorms will you get strong updrafts.
C. In the dissipating stage of thunderstorms as the downdrafts spread, the updrafts will become less and less.
D. It has been found that the greatest turbulence in a thunderstorm is associated with the highest water concentrations.
E. Downdrafts in thunderstorms tend to be more gusty and higher in speed than updrafts.
F. The occurance of rain on the ground generally indicates the transition from the cumulus stage to the mature stage.

1. A, B, D, E
2. A, C, D, F
3. B, C, E, F
4. A, C, D, E

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23. The "Cumulus" stage of the life cycle of a thunderstorm cell is characterized by:
    1. downdrafts throughout the cell.
    2. the presence of both updrafts and downdrafts in the upper half of the cell.
    3. the presence of both updrafts and downdrafts in the lower half of the cell.
    4. updrafts throughout the cell.

24. The surface wind speeds underneath a thunderstorm cell may reach an intensity equal to the vertical wind speed within the thunderstorm itself. This is caused by:
    1. the rapid freezing of rain drops within the cell.
    2. Coriolis force.
    3. the out flowing of cold downdraft air currents.
    4. horizontal spreading of warm updraft air when encountering cold downdraft air.

25. The jet stream is a narrow current or currents of wind over 50 knots and often as high as 300 knots, with varying intensity at different points along the stream or current. In relation to jet streams, you should know:
    A. a jet stream can usually be found with an intense, rapidly moving cold front, separating a Continental Polar air mass from a tropical air mass.
    B. jet streams are normally orientated from northwest to southeast.
    C. wind speeds are highest in winter.
    D. there is a sharp drop in wind speed when you leave a jet stream.
    E. jet streams are normally 100 or more miles wide and about 4,000 to 20,000 feet thick.
    F. jet streams are more frequently encountered in summer in temperate zones than in winter.
    G. the core of the strongest winds in the jet stream is generally found below 25,000 feet depending on latitude and season.
    1. A, B, E, F
    2. B, C, F, G
    3. A, C, D, E
    4. A, B, D, F

26. Aircraft performance is compared and evaluated on the basis of the standard atmosphere. Which of the following statements is correct?
    1. Pressure altitude is indicated altitude corrected for temperature.

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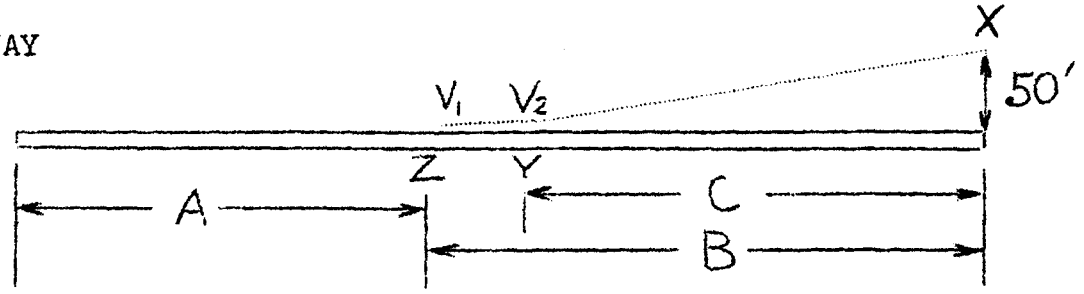
2. Density altitude is corrected for sea level pressure.
3. Absolute altitude is the true height of the aircraft above sea level.
4. Density altitude is pressure altitude corrected for temperature.

27. Which of the following statements regarding airspeed and temperature indicators are correct?
   A. Compressibility effect varies directly with speed.
   B. The OAT indicator reads warmer than true temperature.
   C. Compressibility effects cause the airspeed indicator to read too low.
   D. The OAT indicator reads colder than true temperature.
      1. A and B
      2. B and C
      3. C and D
      4. A and D

28. Which of the following factors would effect the take-off speed of your airplane?
   A. Added weight.
   B. An uphill runway slope.
   C. High humidity.
   D. High density altitude.
      1. A, C, D
      2. A, B, D
      3. A only
      4. All of the above.

29. Consider the following diagram based on the balanced runway concept.

LEVEL RUNWAY
NO WIND



If an engine fails at V_1 speed, point Z on the diagram, which of the statements below is correct?
1. "A" must equal "B".
2. "Z", "Y", "X" must equal "B".
3. "A" must equal "X", "Y", "Z".
4. "A" must equal "C".

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30. In order to assure an accurate altimeter setting, you should adjust your altimeter to the setting of a station within:
1. 50 miles of your flight path.
2. 100 miles of your flight path.
3. 150 miles of your flight path.
4. 200 miles of your flight path.

31. The speed of sound at your altitude is 600 knots. If you are cruising at .65 MACH, what is your true airspeed?
1. 390 mph
2. 430 knots
3. 390 knots
4. 410 knots

32. You are flying at a constant altimeter setting of 29.92 with the OAT higher than normal. You know that your terrain clearance will be:
1. higher than your indicated altitude.
2. lower than your indicated altitude.
3. unaffected by the higher temperature.
4. gradually decreasing as you maintain a constant indicated altitude.

33. How will the true air speed change if the altitude and power remains constant and the outside air temperature increases?
1. The ground speed will increase.
2. The equivalent air speed will increase.
3. The true air speed will decrease.
4. The true air speed will increase.

34. A new limit speed has been defined in special regulation 450, issued on March 27, 1962. This new speed is designated as the "maximum operating limit speed" (VMO/VMO), and it replaces the existing VNO and VNE speeds by a single speed at the previous VNO value. In which of the following regimes of flight may this new limit speed be deliberately exceeded?
1. During normal climb.
2. During level flight.
3. Where higher speeds are specifically authorized for flight test or pilot training operations.
4. During normal climbs and descents only.

35. Special Civil Air Regulation No. SR-422 outlines performance and operating requirements for turbine-powered transport category aircraft. Which of the statements below regarding these areas differs from the requirements for reciprocating powered transport category aircraft?

SUBJECT: ATR Exam - 2

1. The take-off flight path is based upon climb gradient in percent, rather than rates-of-climb in feet.
2. Take-off flight path may be determined by the segmental method.
3. It is assumed that the airplane is not banked before reaching a height of 50 feet, as shown by the take-off flight data.
4. With regard to enroute limitations, fuel jettisoning is permitted under certain stipulated conditions.

36. What will happen to the BMEP if the power, altitude and air speed remains constant but the temperature increases from minus 35 to minus 25 ?
1. BMEP will increase.
2. BMEP will decrease.
3. BMEP will increase, BHP will increase.
4. BMEP will decrease, BHP will increase.

37. In all reciprocating engines, what will be the first indication of carburetor ice?
1. A decrease in RPM.
2. A decrease in manifold pressure.
3. An increase in fuel flow.
4. A decrease in BMEP.

38. Hypoxia or lack of oxygen can occur from 10,000 feet up. Some of the symptoms are:
1. a feeling of well being.
2. tingling fingers.
3. narrowing vision and loss of visual acuity.
4. all of the above.

39. One of the effects of hypoxia is:
1. an increase in both pulse rate and respiration.
2. a decrease in both pulse rate and respriation.
3. a decrease in respiration, increase in pulse rate.
4. an increase in respiration, decrease in pulse rate.

40. Since your aircraft is being operated at an altitude of 19,000 feet and there is a portion of the route where the aircraft cannot descend safely to an altitude of 14,000 feet or less, additional oxygen must be provided for:
1. crew members on flight deck duty only.
2. two hours for crew members and 10 percent of the passengers.

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3. all passengers for the duration of the flight in excess of 4 minutes at such altitudes above 15,000 feet.
4. all crew members for not less than 2 hours.

41. An average weight may be used for adult passengers to compute passenger loads. This average weight for summer is:
1. 160 pounds.
2. 165 pounds.
3. 155 pounds.
4. 170 pounds.

FOR PROBLEMS 42 THROUGH 46 USE INFORMATION PROVIDED ON PAGE S-5 OF SUPPLEMENTAL DATA. Assume a takeoff gross weight of 105,000 lbs.

42. What is the C.G. range at a gross weight of 116,000 pounds in the gear down configuration?
1. 24.04
2. 28.57
3. 22.02
4. 39.12

43. Your gross weight is 110,000 pounds and the C.G. is near the aft limit. How much weight must you move from the aft to the forward cargo compartment to move the C.G. forward 2 inches?
1. 670 pounds
2. 320 pounds
3. 750 pounds
4. 440 pounds

44. Determine the moment index at a gross weight of 110,000 pounds with the C.G. located at the aft limit in the gear down configuration (Use a reduction factor of 10,000).
1. 5839.9
2. 4927.7
3. 492.5
4. 6138.0

45. Assume the C.G. location is 25.2% MAC at a gross weight of 105,000 pounds. If 1500 pounds of cargo is loaded in the forward cargo compartment, what is the new C.G. in % MAC?
1. 23.4
2. 17.9
3. 26.6
4. 28.9

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46. At the basic operating weight of 74,200 pounds, the C.G. location is 414.6 inches aft of the datum. The following items are loaded aboard the aircraft:

20,000 pounds of fuel	Index	960.0
12,000 pounds passenger wt.	Index	620.0
2,000 pounds cargo	Index	46.0
500 pounds cargo	Index	36.5

What is the C.G. location in inches aft of the datum ? (Use reduction factor of 10,000).

1. 419.4
2. 442.5
3. 435.9
4. 429.7

FOR PROBLEMS 47 THROUGH 51 USE INFORMATION PROVIDED ON PAGE S-3 OF SUPPLEMENTAL DATA.

47. Five mimutes after take-off you cross the Seattle VOR at 5000 feet using the information supplied in the navigation and route data. What will be the elapsed time from take-off to level off at cruising altitude?

1. 22 minutes
2. 27 minutes
3. 18 minutes
4. 16 minutes

48. Using the information in question 47, above and the data furnished in the take-off and climb power schedule on page S-7 of the supplemental data, compute the fuel required for take-off and climb to cruising altitude. (Allow 1 minute at take-off power and 3 minutes at maximum continuous power).

1. 2437 pounds
2. 1860 pounds
3. 1980 pounds
4. 2120 pounds

49. You level off at cruising altitude near DLS and set up long range cruise airspeed appropriate for your weight. If you maintain long range cruise procedures, your flight time to your destination will be:

1. 3 hours 1 minute
2. 2 hours 53 minutes
3. 3 hours 19 minutes
4. 3 hours 27 minutes

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50. The total fuel required for the flight to your destination is:
    1. 11,600 pounds
    2. 9,700 pounds
    3. 13,330 pounds
    4. 10,030 pounds

51. Using the data furnished in the long range cruise performance chart, page S-6 in the supplemental data and a useable fuel load of 12,200 pounds, how long could you expect to stay airborne?
    1. 4 hours 9 minutes
    2. 3 hours 46 minutes
    3. 5 hours 27 minutes
    4. 4 hours 39 minutes

52. You were over the LKV vortac at 1417 GMT and arrived over the RNO vortac at 1454 GMT. Your TAS has averaged 310 knots and the magnetic heading to stay on course, has been 154°. The wind encountered at flight altitude was approximately:
    1. 235° at 40 knots
    2. 285° at 40 knots
    3. 055° at 25 knots
    4. 135° at 35 knots

53. Just after passing Reno you reset your altimeter to the current altimeter setting of 30.06 and note that it indicates 19,000 feet. If your indicated OAT is -23°C, what is your actual height above sea level?
    1. 19,900 feet
    2. 19,100 feet
    3. 18,400 feet
    4. 18,900 feet

54. Compute the true airspeed in the following situation, considering temperature and compressibility corrections:

Indicated airspeed	219 knots
Instrument and position correction	+3 knots
Compressibility correction	1 knot
Indicated temperature	-29° C
Temperature correction	6° C
Altitude	19,000 feet

    1. 279 knots
    2. 287 knots
    3. 290 knots
    4. 294 knots

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55. The Mach number for the TAS computed above is:
    1. .51 Mach
    2. .48 Mach
    3. .46 Mach
    4. .61 Mach

56. Assume that you have been vectored off the route contained in your clearance and lost two-way communications while under radar control. The correct procedure is to:
    1. proceed directly from the point where communications was lost, to your destination.
    2. return to your assigned route by the most direct course and proceed in accordance with standard two-way radio failure procedures.
    3. continue on last assigned vector until reaching VFR conditions, or intercepting original route.
    4. descend to minimum enroute altitude and proceed to destination.

57. Just north of Fresno you encounter a high cumulus buildup and request ATC clearance to detour around it. ATC advises they are unable to give you an ammended clearance so ycu decide to exercise your emergency authority. Under these conditions, you must:
    1. submit a written report within 48 hours to the nearest FAA Regional Office.
    2. submit a written report to the Administrator within 7 days.
    3. no action on your part is necessary since the reason for the deviation is obvious.
    4. submit a written report to the administrator through the air carrier operations manager within 10 days after completion of the flight.

58. You are cruising at 19,000 feet and are maintaining a cabin altitude of 7000 feet when the stewardess informs you one of the passengers is ill. After discussing the situation, you decide to land at Bakersfield. What rate of descent should you use if the cabin descent is to be 500 feet per minute and you wish to depressurize at 1000 feet above ground level?
    1. 1450 feet per minute.
    2. 1600 feet per minute.
    3. 1260 feet per minute.
    4. 1750 feet per minute.

59. The visual approach slope indicator system is designed to provide a visual glide path within the approach zone. It will

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provide guidance for a safe approach to landing within the first third of the runway. The pilot of an aircraft on approach will see different combinations of lights. When approaching on the proper glide slope, he will see:

1. the upwind lights white and the downwind lights red.
2. both upwind and downwind lights white.
3. both upwind and downwind lights pink.
4. the upwind lights red and the downwind lights white.

60. A complete installation of precision approach radar includes at least the following:
1. surveillance radar, azimuth radar and approach lights.
2. surveillance radar, altitude radar and high intensity approach lights.
3. surveillance radar, altitude and azimuth control radar, and approach lights.
4. surveillance radar, altitude and azimuth control radar, and high intensity approach lights.

61 Traffic information will include the following concerning the target constituing traffic:
1. azimuth from the aircraft in terms of the twelve hour clock
2. distance from the aircraft in nautical miles.
3. direction in which the target is proceding,type aircraft and altitude if known.
4. all of the above.

62. You are given instruction to hold on the 070° radial of the LAX VOR, ~~left~~ turns, 1 minute legs. Your heading on arrival at the VOR is 111°. Your correct entry procedure is:
1. turn outbound on approach side and fly a teardrop back inbound.
2. proceed outbound parallel inbound holding course, turn left, and return to holding fix or intercept holding course.
3. turn left and fly the pattern.
4. proceed on outbound track of 30° to holding course, turn right and intercept holding course.

63. Reference to question 62, what is your maximum holding speed if you are at 7,000 feet?
1. 170 knots
2. 156 knots
3. 175 knots
4. 210 knots

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64. After departing the outer marker inbound on your ILS approach to runway 7R at Los Angeles you receive a special weather report indicating the field has gone below minimums. Under these conditions you:

1. should return to the outer marker and request futher clearance.
2. execute a missed approach and proceed to your alternate.
3. proceed to the VOR and hold untill the weather improves.
4. may complete the approach and land if weather conditions equal to or better than prescribed minimums are found to exist after reaching authorized minimums.

65. During landing as your airplane comes into ground effect you should know that:

1. the angle of attack required will be less.
2. the nose will tend to rotate up.
3. the downwash on the tail will increase.
4. the nose will tend to pitch down.

66. After parking at the ramp, you secure the aircraft and fill in your flight log. Flight time in air carrier operation is the total time from:

1. the moment power is applied for take-off until the wheels touch the runway at destination.
2. the moment power is applied for take-off until the engines are cut at the end of the flight.
3. the moment the airplane moves from the terminal area until touchdown at destination airport.
4. the moment the aircraft first moves under its own power for the purpose of flight until the moment it comes to rest at the end of the flight.

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QUESTIONS 67 TO 80 ARE PURPOSELY OMITTED BECAUSE THEY ARE DUPLICATES OF QUESTIONS FOUND IN A.T.R. EXAMS 1 AND 3.

ANSWER KEY TO A.T.R. EXAM #2

1 is 4	21 is 4	41 is 1	61 is 4
2 is 2	22 is 2	42 is 1	62 is 2
3 is 2	23 is 4	43 is 4	63 is 3
4 is 2	24 is 3	44 is 2	64 is 4
5 is 3	25 is 3	45 is 1	65 is 1
6 is 1	26 is 4	46 is 3	66 is 4
7 is 3	27 is 1	47 is 1	
8 is 2	28 is 3	48 is 3	
9 is 4	29 is 2	49 is 1	
10 is 3	30 is 2	50 is 4	
11 is 2	31 is 3	51 is 2	
12 is 2	32 is 1	52 is 1	
13 is 3	33 is 4	53 is 3	
14 is 2	34 is 3	54 is 3	
15 is 4	35 is 1	55 is 2	
16 is 1	36 is 2	56 is 2	
17 is 3	37 is 4	57 is 4	
18 is 4	38 is 4	58 is 2	
19 is 4	39 is 2	59 is 4	
20 is 4	40 is 3	60 is 3	

ATR WRITTEN EXAM - 3

You are employed by an Airline, which operates between Los Angeles International Airport, Los Angeles, California and Seattle-Tacoma Airport, Seattle, Washington. As Pilot-in-Command you will be expected to make judgements based on compliance with pertinent regulations, sound operating procedures, and information supplied with this examination.

You must demonstrate your ability to deal with routine problems of preflight planning and enroute management of your aircraft; in addition, you must cope with emergency situations which might preclude the safe and orderly completion of a scheduled flight.

You are scheduled on a flight to depart Los Angeles at 1130 GMT, January 25, for Settle, Washington. You review regulations, weather maps, forecasts, sequence reports, and ATC procedures pertaining to this flight.

DIRECTED STUDY PROGRAM

USFAA EXAMINATION GUIDE

DATE: 15 June 1965

REF: 2000 - 1

SUBJECT: ATR Exam - 3

1. Your first class medical certificate is dated November 10th. In order to continue to exercise your privilages as an ATR pilot, you must obtain another first class medical certificate before:
   1. 31 May
   2. 1 May
   3. 1 June
   4. 10 May

2. A pilot qualifying to serve as Pilot-in-Command must demonstrate his ability to complete a maximum gross weight take-off with simulated failure of the critical engine:
   1. in a flight simulator during each of his recurring proficiency checks.
   2. every 6 months as a part of his pilot proficiency check.
   3. during initial checkout only.
   4. in an airplane or flight simulator at least once each 12 months.

3. To maintain pilot route and airport qualifications, each pilot being utilized as Pilot-in-Command must:
   1. within the preceding 6 month period, have made at least one trip as pilot or other member of the flight crew between terminals into which he is scheduled to fly.
   2. within the preceeding 12 month period, have made at least one trip as pilot or other member of the flight crew between terminals into which he is scheduled to fly.
   3. at least once every 6 months demonstrate to a check pilot or a representative of the administrator his qualifications for the route on which he is to serve.
   4. at least once every 12 months complete a line check in one of the types of airplanes to be flown by him.

4. In order to reestablich pilot route and airport qualifications after absence from a route for a period in excess of 12 months, a pilot must have:
   1. demonstrated adequate knowledge concerning the route to be flown.
   2. make an entry as a member of the flight crew at each regular, provisional, and refueling airport into which he is scheduled to fly.
   3. an appropriate instructor or check pilot certify he is qualified for the route.
   4. all of the above.

5. Your first officer, or pilot acting as Second-in-Command, must also meet periodic proficiency requirements. The last proficiency check taken,by your first officer,was in an aircraft of the type

being flown on this trip. To continue to serve as first officer, he must be checked for proficiency on instruments:

1. in a flight simulator by next January 25.
2. either in an airplane or flight simulator by next March 1.
3. in an airplane by the last day of next January.
4. at any time before next Febuary 1, by a company check pilot or a FAA air carrier inspector.

6. As Pilot-in-Command of this flight, in which of the following areas do you share joint responsibility with aircraft dispatcher?
   - A. Selection of alternate airport for this flight, if required.
   - B. Adequate charts, navigation aids,data and instrument approach procedures.
   - C. Delayed departure of this flight.
   - D. Safety of passengers and cargo in flight.

   1. B and C
   2. A anc D
   3. A and C
   4. B and D

7. The responsibility for supervising loading of the airplane belongs to:
   1. the Pilot-in-Command.
   2. any person so designated by the air carrier.
   3. the flight engineer.
   4. the ramp crew and station agent.

8. If an alternate airport for departure is required for this flight, regulations require that this alternate be located at a distance:
   1. no greater than one hours flying time in still air with one engine inoperative.
   2. no greater than two hours flying time under forecast wind conditions with one engine inoperative.
   3. no greater than two hours flying time in still air with one engine inoperative.
   4. no greater than one hours flying time under forecast wind conditions with one engine inoperative.

9. The weather minimums for an alternate airport served by an approved radio navigational facility only are:
   1. ceiling 800 feet and visibility one mile; or ceiling 700 feet and visibility 1 1/2 miles; or ceiling 600 feet and visibility two miles.
   2. ceiling 1000 feet and visibility one mile; or ceiling 900 feet and visibility 1 1/2 miles; or ceiling 800 feet and visibility 2 miles.

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3. ceiling 1000 feet above the minimum enroute altitude and visibility 2 miles.
4. ceiling 1000 feet above the minimum enroute altitude and visibility of one mile.

10. You have flown 8 hours and two minutes within a twenty four hour period. When may you be scheduled aloft again?
1. After a 24 hour rest period.
2. Immediately, no rest is required.
3. After a 12 hours off from duty.
4. After 16 hours off from duty.

11. For operations conducted under IFR or over-the-top conditions your aircraft must be equipped with such radio equipment as is necessary to:
1. receive satisfactorily by either of two independent systems, radio navigational signals from all enroute and approach navigational aids available.
2. receive satisfactorily by two independent systems, radio navigational signals from all enroute and approach aids intended to be used.
3. receive satisfactorily by either of two independent systems radio navigational signals from all enroute and approach navigational aids intended to be used, except that only one marker beacon and one ILS receiver need be provided.
4. receiver satisfactorily by either of two independent systems, radio navigational signals from all enroute and approach navigational aids intended to be used.

12. When using a VOT facility to perform a VOR receiver accuracy check, with the flight path deviation indicator centered, the OMNI bearing selector should read:
1. 180° with the "To-From" indicator reading "From".
2. 0° with the "To-From" indicator reading "From".
3. plus or minus 4 degrees with the "To-From" reading "To".
4. 0° with the "To-From" indicator reading "To".

13. Cargo may be carried in the passenger compartment aft of the seated passengers only:
1. if it is properly secured by means of safety belts or other adequate tiedowns.
2. if the airplane has been certified under SR 422 B.
3. under no circumstances.
4. in an approved cargo bin.

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14. Landing distance limitations for a destination airport may limit the aircraft take-off gross weight. Regulations prohibit take-off at a weight in excess of that which, allowing for fuel and oil expended in flight, will permit the airplane to be brought to a stop:

1. within 60 percent of the effective length of the runway from a point directly over the intersection of the obstruction clearance plane and the runway.
2. within 60 percent of the effective length of the runway from a point directly over the threshold of the runway.
3. within 60 percent of the effective length of the runway from a point 50 feet directly above the intersection of the obstruction clearance plane and runway.
4. within 60 percent of the runway length assuming the airplane passes over the end of the runway at an altitude of 50 feet.

15. On this trip you are flying a pressurized cabin reciprocating engine airplane. Select the statements below that are correct, in regard to oxygen requirements.

A. When operating at flight altitudes above 10000 feet, oxygen must be provided for all crew members for the duration of the flight at such altitudes.
B. At flight altitudes above 10,000 feet, not less than a 2 hour supply of oxygen must be provided for flight crew members on flight deck duty regardless of the duration of the flight at such altitudes.
C. For flight altitudes up to and including 25,000 feet a supply of oxygen sufficient to furnish oxygen for 30 minutes to 10 percent of the passengers provided the airplane can descend to a flight altitude of 14,000 feet or less within 4 minutes.
D. For flight at cabin pressure altitudes above 15,000 feet oxygen shall be provided for each passenger for the duration of the flight at such altitudes.

Select the statements that are correct.

1. A and C
2. A, C, D
3. B and D
4. All of the above.

16. An approved type smoke or fire detector system is required in each:

1. A, B and C compartment
2. B, C, and E compartment
3. C and C compartment only
4. B and C compartment only

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17. Class "D" cargo compartment need not have a built in fire extinguisher system if it:
    1. is a "smother type" (sealed) compartment.
    2. can be reached in flight through an access provided for a crew member.
    3. equipped with smoke and flame detectors.
    4. is visible in flight by a crew member.

18. What is the meaning of the term "Load Factor"?
    1. It is the ratio of the maximum load anticipated in normal flight to the design gross weight.
    2. It is the ultimate load divided by the appropriate factor of safety.
    3. It is the ratio of a specified load to the total weight of the airplane.
    4. It is a design factor used to provide for the possiblity of loads greater than those anticipated in normal operation.

19. With respect to aircraft structural limitations, a limit load is the:
    1. maximum certified operating gross weight.
    2. maximum gust load which the aircraft can sustain without permanent structural deformation.
    3. maximum load anticipated in normal conditions of operation.
    4. maximum weight multiplied by the appropriate factor of safety.

20. The factor of safety is the design factor used to:
    1. limit the maximum load applied to the airplane in normal operations.
    2. provide for the possibility of loads greater than thoes anticipated in normal conditions of operation and for uncertainties in design.
    3. determine the ratio of a specified load to the total weight of the airplane.
    4. relate the aero dynamic forces acting on the airplane to the gross weight.

21. Listed below are symbols and definations for different airplane speeds which you, as an ATR pilot, should be familiar with. Select the statements that are correct.
    A. VA: the design manuevering speed.
    B. VB: the design speed for maximum gust intensity.
    C. VLO: calibrated airspeed at which the airplane will lift off the ground.
    D. VFE: maximum speed with wing flaps in a prescribed extended position.

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E. VDE: maximum design cruising speed.
F. VNO: normal operating limit speed.
G. VS_1: stalling speed with flaps in landing position.
   1. A, C, D, F
   2. A, B, D, F
   3. B, C, E, G
   4. B, E, F, G

22. For best long range cruise performance on reciprocating engine aircraft, as the weight decreases:
   1. airspeed and power should be reduced.
   2. power should be reduced to maintain a constant airspeed.
   3. power should remain constant and airspeed allowed to increase.
   4. both airspeed and power should be increased as weight decreases.

23. The highest cruise speed an airplane can be flown at, without encountering compressibility effects is termed:
   1. maximum cruise lift drag ratio.
   2. critical mach number.
   3. high speed burble point.
   4. drag divergence mach number.

24. You review the terminal forecast for Los Angeles International Airport (see supplemental data page S-2; station designator LAX). Weather conditions during certain intervals of the forecast period are correctly described by which of the statements below?
   1. After 0300 ceiling 500 feet overcast, visibility 1 1/2 miles in rain and light fog, wind from 090° at 14 knots.
   2. Between 0600 P and 0000 P, ceiling 800 feet, visibility 1 1/2 miles in light fog.
   3. Between 2300 P and 0300 P ceiling 800 feet overcast visibility 2 miles in light rain, fog and smoke.
   4. After 0800 P ceiling 10,000 overcast, visibility 3 miles occasional light drizzle.

25. The 0600 PST sequence reports for certain stations are listed below.

LAX -X4-⓪14-⓪/-⊕4HK	196/66/63/0000/989/VSBY N 2
SAN 10⓪M30⓪80⊕2VFK	031/75/65/1105/VSBY 1 V3
SEA E18⊕4S-K	031/32/30/0000/957/VSBY N 1
PDX M12⓪20⊕21/2R-F	071/39/37/0905/941
SAC -X10⓪14-⓪140-⊕5H	288/54/48/2110/988

Which of the statements below correctly interpet these reports.

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A. The reported visibility is reduced to 1 mile to the north at SEA
B. The ceiling at SAC, is 1400 feet broken.
C. LAX is reporting a partial obscuration at 400 feet.
D. The ceiling at PDX is measured 1200 feet, visibility is two and one half miles in light rain and fog.
E. The visibility at SAN is reduced by fog and smoke.
F. The ceiling at SEA is estimated 1800 feet overcast, visibility 11 miles in light snow and smoke.

1. A, C, D, E
2. B, C, E, F
3. A, D, E, F
4. A, B, C, D

26. Which of the following factors is the most reliable index of frontal passage at a reporting station?

1. A counter clockwise shift in wind direction.
2. Pressure tendency and change. — correct ans
3. An increase in wind speed.
4. Change in wind speed.

27. If the temperature at your flight altitude is warmer than standard, your altimeter will:

1. read higher than your actual altitude.
2. read lower than your actual terrain clearance.
3. read correctly provided it is set to the correct altimeter setting.
4. read higher than your actual altitude above sea level.

28. What is the approximate altitude shown on the 500 millibar constant pressure chart ?

1. Approximately 18,000 feet.
2. Approximately 12,500 feet.
3. Approximately 10,000 feet.
4. Approximately 22,500 feet.

29. When you fly through a front into the colder air mass you can expect :

1. BMEP to increase.
2. BMEP to decrease.
3. BMEP to increase MAP to decrease.
4. both BMEP and MAP to decrease.

30. What type weather conditions should you expect to encounter if the wind is from your left ?

1. Extreme turbulence, hail, lightning.
2. General clearing and increasing ceiling and visibility.

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3. You are flying into a low pressure area and will encounter deteriorating weather conditions.
4. You are flying into a high pressure area and will encounter gusty winds, mild turbulence and clearing conditions.

31. Since a maritime tropical cold air mass dominates the area of your flight, you can expect :
1. low clouds and precipitation along the route of flight.
2. light turbulence in the morning and thunderstorms in the afternoon.
3. stratocumulus and cumulus clouds.
4. thunderstorms in the morning and general clearing in the afternoon.

32. On occasion, both warm and cold fronts gradually lose their speed and for a period of time have no motion. During this period they are called stationary fronts. The weather associated with a stationary front is :
1. the same as that associated with cold fronts.
2. the same as that associated with occluded fronts.
3. more severe than that associated with cold fronts.
4. the same as that associated with warm fronts.

33. The complex front resulting when a cold front overtakes a warm front is an occluded front. Select the statements below which correctly describes the weather associated with an occluded front.
A. The weather accompanying an occluded front is a combination of the warm front and cold front types.
B. Occluded fronts cause widespread areas of heavy precipitation, low ceilings, and poor visibilities.
C. In the last stages of an occlusion in winter, icing is the chief hazard.
D. The bad weather is most widespread and most active when the cold front is first overtaken.

1. A, B, D.
2. A, B, C.
3. A, B, C, D.
4. A, C, D.

34. Clouds formed by vertical currents carrying moist air upward to its condensation point are lumpy or billowy and are called "Cumulus". Those which develop horizontally and lie in sheets or layers are called "Stratus". Listed below are statements which may or may not be correct concerning clouds.
A. Low clouds near the earth's surface are designated simply as "Cumulus" or "Stratus" unless they are producing precipitation in which case the word "nimbo" (meaning rain), is added as nimbostratus or cumulonimbus.

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B. The word alto is generally added to designate clouds appearing at levels of 5,000 to 20,000 feet as altostratus or altocumulus.
C. Clouds formed in very cold temperatures are composed of ice crystals and have a delicate curly appearance. These clouds are called "cirrus".
D. The low clouds are of great importance to the pilot because they create low ceilings and visibilities. They change rapidly and frequently drop to the ground forming a complete blanket over landmarks and landing fields.

Select the correct statements from the above.

1. A and D only
2. A, B, C
3. B, C, D
4. A, B, D

35. Referring to thunderstorms, which of the following statements are correct?

A. The post-frontal thunderstorm is normally less violent of all types.
B. Downdrafts are faster and have greater horizontal and vertical extent than updrafts.
C. If necessary to fly through a thunderstorm, hold a reasonably constant heading, altitude, and power setting.
D. The probability of lightning strikes is less, near or slightly above the freezing level.
E. Hail usually occurs during the dissipating stage of the thunderstorm with downdrafts of more than average intensity.
F. The presence of a "roll-cloud" indicates a heavy rain and severe updrafts directly ahead of the "roll-cloud".

1. A-C-F
2. B-D-E
3. C-E-F
4. A-C-D

36. No pilot should intentionally fly into a thunderstorm. If forced into a situation where thunderstorm penetration is required, the best procedure would be:

1. reduce air speed to maneuvering speed or less and set a desired attitude by referring to attitude instruments.
2. accomplish penetration by reference to attitude instruments and a known power setting. Known power settings are recommended because the air speed indicator gives false readings in vertical drafts or in heavy rain.
3. turn all cockpit lights up to full bright to lessen the blinding effect of lightning flashes.
4. all of the above.

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37. The weather bureau issues weather safety advisories in two catagories, Sigmets and Advisories For Light Aircraft. Which of the following statements regarding Sigmets are correct?

A. The advisory will cover moderate icing and turbulence.
B. The advisory will cover severe turbulence, tornados,lines of thunderstorms, etc.
C. The advisory will cover all items listed in "A" and "B" above.
D. Pilots should not interrupt their guard of ATC channels.
E. You can expect Sigmets to be broadcast at 15 minute interval
F. You can expect Sigmets to be broadcast at H+00 and H+30 only.
G. Sigmets apply to transport category aircraft only.

1. A-D-F
2. B-E-G
3. B-D-E
4. C-F-G

FOR PROBLEMS 38 THROUGH 41 USE INFORMATION PROVIDED ON PAGE S-5 OF SUPPLEMENTAL DATA

38. What is the C.G. range at a gross weight of 107,000 pounds in the gear down configuration?

1. 51.2 inches
2. 36.3 inches
3. 27 inches
4. 44.7 inches

39. Your gross weight is 114,000 pounds and the C.G. is near the forward limit. How much weight must you move from the forward to the aft cargo compartment to move the C.G. aft 2 inches?

1. 630 pounds
2. 570 pounds
3. 378 pounds
4. 456 pounds

40. Determine the moment index at a gross weight of 114,000 pounds with the C.G. located at the aft limit in the gear down configuration (use a reduction factor of 10,000).

1. 5095.4
2. 509.5
3. 4469.7
4. 446.9

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41. At the basic operating weight of 74,200 pounds, the C.G. location is 419.7 inches aft of the datum. The following items are loaded aboard the aircraft:

24,000 pounds of fuel	Index	1030.0
16,000 pounds passenger wt.	Index	770.0
2,500 pounds cargo	Index	44.0
500 pounds cargo	Index	29.5

What is the C.G. location in inches aft of the datum. (Use reduction factor of 10,000).

1. 429.72
2. 436.18
3. 425.18
4. 417.90

42. Regulations permit a fuel weight allowance for taxiing and runup, which is not included in the computed take-off gross weight. The allowance for this aircraft is:
1. 216 pounds
2. 312 pounds
3. 264 pounds
4. 186 pounds

43. When actual weights are not used there is a weight allowance for passengers. The allowance per adult passenger in winter is:
1. 160 pounds
2. 150 pounds
3. 165 pounds
4. 170 pounds

44. In certain cases the maximum allowable take-off gross weight is limited by the maximum landing gross weight. Using the data given on page S-5 of the supplemental data and assuming a fuel load of 11,400 pounds required for the flight to your destination, your maximum allowable take-off gross weight would be:
1. 122,200 pounds
2. 92,250 pounds
3. 108,400 pounds
4. 86,400 pounds

FOR PROBLEMS 45 THROUGH 49 USE INFORMATION PROVIDED ON PAGE S-4 OF SUPPLEMENTAL DATA. ASSUME A TAKE_OFF GROSS WEIGHT OF 105,000 POUNDS.

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45. Four minutes after take-off you cross the Los Angeles VOR at 3000 feet. Using the information supplied in the navigation and route data, what will be the elapsed time from take-off to level off at cruising altitude?
1. 22 minutes
2. 25 minutes
3. 18 minutes
4. 16 minutes

46. Using the information in question 45 above and the data furnished in the take-off and climb power schedule on page S-7 of the supplemental data compute the fuel required for take-off and climb to cruising altitude. (Allow 1 minute at take-off power and 3 minutes at maximum continuous power).
1. 2340 pounds
2. 2120 pounds
3. 2560 pounds
4. 2280 pounds

47. You level off at cruising altitude near BFL and set up long range cruise airspeed appropriate for your weight. If you maintain long range cruise procedures, your flight time to your destination will be:
1. 2 hours 59 minutes
2. 3 hours 18 minutes
3. 3 hours 2 minutes
4. 3 hours 41 minutes

48. The total fuel required for the flight to your destination is:
1. 10,230 pounds
2. 14,800 pounds
3. 11,600 pounds
4. 9,450 pounds

49. Using the data furnished in the long range cruise performance chart page S-6 in the supplemental data and a useable fuel load of 10,600 pounds, how long could you expect to stay airborne?
1. 4 hours 10 minutes
2. 3 hours 9 minutes
3. 3 hours 28 minutes
4. 4 hours 24 minutes

50. Your ATC clearance given before departure included traffic information, This information is:

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1. concerned with converging IFR traffic within less than 10 minutes from point of convergence and 1000 feet or less vertical separation.
2. concerned with IFR traffic whenever less than the applicable minimum time separation exists.
3. concerned with any converging IFR and VFR traffic.
4. given by ATC only on pilots request.

51. Experience gained with the present volume of Jet Operations, has led to the adoption of a standard altimeter setting for flights operating in the higher altitudes. An advantage of this system is:
1. a standard setting eliminates altitude conflicts caused by altimeter settings derived from different sources.
2. insured adequate terrain clearance.
3. eliminates the possibility of altimeter setting errors.
4. all of the above.

52. You review the meanings of various types of air speeds. If the reading shown on the air speed indicator is corrected for position error, instrument error, and for adiabatic compressible flow for the particular altitude, the result is:
1. calibrated air speed.
2. equivalent air speed.
3. true air speed.
4. basic air speed.

53. What is the true air speed of an aircraft which is flying at MACH 0.50 at an altitude of 20,000 feet ? (True air temperature -25°C, SEA LEVEL pressure 30.12 in. H.G., speed of sound 615 knots).
1. 254 knots
2. 307 knots
3. 288 knots
4. The TAS can not be determined from the information given.

54. As you approach SAC along airway J65, ATC clears your flight to cross SAC Vortac not before 1455 GMT. You tune in the SCK Vortac and find that you are crossing the 068° radial at 1444 GMT. What is the distance to the SAC Vortac?
1. 47 NM
2. 44 NM
3. 60 NM
4. 56 NM

SUBJECT: ATR Exam - 3

55. What indicated airspeed must you maintain to comply with this clearance?

Instrument and position correction	+3 Knots
Compressibility correction	1 Knot
Indicated temperature	-25° C
Temperature correction	8°
Wind aloft component	+20 Knots
Altitude	20,000 Feet

1. 181 knots
2. 173 knots
3. 177 knots
4. 169 knots

56. Before reaching RBL you are advised to reduce power so as to arrive over MFR at 1540 PST. Using the data below, compute the IAS required to comply with this instruction.

Time over RBL	1509 PST
Air speed instrument and position correction	+4 Knots
Indicated outside air temperature	-28° C
Temperature correction	8° C
Compressibility correction	-2 Knots
Wind	260° at 35 Knots

The required IAS is:

1. 214 knots
2. 210 knots
3. 212 knots
4. 216 knots

57. You report over Medford at 1540 PST. Approximately 5 minutes later No.2 engine is feathered due to excessive vibration. Which of the following courses of action should you, as Pilot-in-Command, follow in this situation?

1. Proceed to the nearest suitable airport in point of time, where a safe landing can be made.
2. Proceed to an airport of your selection, if upon consideration of all factors, you believe such action to be safe.
3. Inform the nearest ground radio station and proceed to your alternate airport.
4. Declare an emergency to the nearest radio station and immediately request priority handling.

58. When operating pressurized cabin reciprocating engine powered airplanes at altitudes above 10,000 feet, sufficient oxygen must be provided:

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A. for all crew members for the duration of the flight at such altitudes.
B. for all crew members on flight deck duty for the duration of the flight at such altitudes.
C. for at least a two hour supply of oxygen for the flight crew members on flight deck duty.
D. for all crew members on flight deck duty and 50 percent of the passengers for the duration of the flight.
1. B and D
2. B, C, D
3. C only
4. A and C

59. The visual approach slope indicator system is designed to provide by visual reference the same information that the glide slope unit of an ILS provides electronically. Which of the following statements concerning this system are correct?
A. Provision is made for controlling the intensity of the lights and adjustments can be made at pilots request.
B. The lights are spaced at 25 foot intervals beginning 75 feet from the landing threshold.
C. In haze and dust conditions the white bars of the system may appear yellowish. This is also true at night when the VASI system is operated at low intensity.
D. When an approach is made into the sun the red lights may appear orange or have a brownish tint.
1. A and B
2. B and D
3. A and C
4. All of the above.

60. Assume that you encounter an emergency and request ATC to give priority to your flight, If you do not deviate from air traffic rules as a result of this priority treatment, you are required to make a written report to the:
1. FAA adminstrator within 24 hours.
2. FAA adminstrator within 7 days.
3. FAA adminstrator through the company operations manager within 10 days.
4. Nearest FAA regional office within 48 hours.

61. You are at 20,000 feet in a standard holding pattern at Rainer Intersection (30 miles from Seattle Vortac).Your air speed must be:
1. between 180 and 250 knots.
2. 175 knots IAS or under.
3. 175 knots TAS or under.
4. 156 knots IAS or less.

SUBJECT: ATR Exam - 3

62. To expedite your landing, ATC clears you to descend to 10,000 feet in the holding pattern at Rainer Intersection, then to descend enroute to the Seattle Vortac to cross at 8,000 feet. After departing Rainer Intersection at 10,000 feet, you must maintain an indicated airspeed not in excess of:

1. 170 Knots
2. 200 Knots
3. 250 Knots
4. 156 Knots

63. What is the minimum manifold pressure you should use during descent while maintaining an engine speed of 2100 RPM?

1. 25" HG.
2. 21" HG.
3. 30" HG.
4. 15" HG.

64. You approach the Seattle VOR on a heading of 300° and are instructed to hold on the 330° radial, right turns. What entry should you use?

1. Parallel method.
2. Teardrop.
3. Teardrop on non holding side.
4. Direct entry.

65. You intend to make an ILS approach to runway 34 at Seattle and therefore review the approach chart. For your aircraft, which of the following statements are correct?

A. The distance from the outer marker to the runway threshold is 4 nautical miles.
B. Your altitude over the middle marker should be 560 feet.
C. Runway visual 2,000 feet authorized for landing provided all required aids are operational.
D. On missed approach climb to 2,000 feet direct to SZ LOM, or as directed by ATC.
E. The time from the middle marker to the airport at 130K is 17 seconds.
F. Rate of descent on glide slope for 140 knots is approximately 685 feet per minute.

1. A, B, D, E
2. A, C, E, F
3. B, C, E, F
4. A, D, E, F

SUBJECT: ATR Exam - 3

66. As you are inbound to the outer marker, the tower advises that the field is now below minimums. Under these conditions you:
   1. can continue the approach, but not below minimums.
   2. can continue, minimums do not apply after leaving outer marker inbound.
   3. can continue only if the approach being made is to your alternate airport.
   4. execute missed approach and proceed to alternate.

67. As your airplane descends into ground effect on landing, which of the following effects take place?
   1. A smaller wing angle of attack will be required to produce the same lift coefficient.
   2. A nose up change in pitching moment will be produced for a conventional airplane configuration.
   3. An increase in downwash at the horizontal stabalizer will occur.
   4. The induced flow causes a significant increase in induced drag, but has no direct effect on parasite drag.

68. As you complete your landing roll, your radio reciever becomes inoperative. You notice the tower operator is giving you a flashing red signal with his traffic control light. You should:
   1. exercize extreme caution.
   2. stop immediately.
   3. taxi clear of runway.
   4. expedite taxiing to end of runway.

SUBJECT: ATR Exam - 3

QUESTIONS 69 TO 80 ARE PURPOSELY OMITTED BECAUSE THEY ARE DUPLICATES OF QUESTIONS FOUND IN A.T.R. EXAMS 1 AND 2.

ANSWER KEY TO A.T.R. EXAM # 3

1 is 3	21 is 2	41 is 3	61 is 2
2 is 3	22 is 1	42 is 2	62 is 3
3 is 2	23 is 2	43 is 3	63 is 2
4 is 4	24 is 3	44 is 3	64 is 2
5 is 2	25 is 1	45 is 2	65 is 4
6 is 3	26 is 1	46 is 4	66 is 4
7 is 2	27 is 2	47 is 3	67 is 2
8 is 3	28 is 1	48 is 1	68 is 3
9 is 2	29 is 1	49 is 2	
10 is 4	30 is 3	50 is 2	
11 is 3	31 is 2	51 is 4	
12 is 2	32 is 4	52 is 2	
13 is 4	33 is 2	53 is 2	
14 is 3	34 is 3	54 is 1	
15 is 4	35 is 1	55 is 2	
16 is 2	36 is 4	56 is 3	
17 is 1	37 is 3	57 is 2	
18 is 3	38 is 3	58 is 4	
19 is 3	39 is 4	59 is 3	
20 is 2	40 is 1	60 is 4	

S U P P L E M E N T A R Y D A T A

Use the data in the following supplementary pages where applicable in answering questions found in all the exams in this booklet.

FN DCA 240550Z
WASHINGTON REGION 00E TUE-00E WED
PROG. COLD FRONT NRN NEW ENGLAND EXTNG WWD SRN QUE WL MOVE SWD AT ABT 15KTS AND PROCD TO CNTRL NY SRN NEW ENG LN BY 00E WED. HIGH PRESS RDG ALG SC COAST WL RMN NRLY STNRY.
SIGNIFICANT WX. BRKN OVC CLD LYRS TOPS 180-200 OVER E CNTRL PA EXTNG ENE WD ACROSS NY TO S CNTRL NEW ENG WL DRIFT SLOLY SWD TO SRN PA SERN NY AND NJ LN WITH CLD TOPS LWR OVER NRN NEW ENG AND NRN NY TNGT. OCNL MDT TO LCLY HVY ICIGIC FRM FRZG LVL TO 180. OCNL MDT CAT 250-380 OVER NRN NEW ENG.

FT DCA 240420Z
05E TUE-17E TUE
DCA 0. 0600E 250Ø7. 1000E 250Ø 2110. 1400E 60ØC250Ø
1900E 120ØC250Ø.
RIC 0. 0600E 250Ø. 1300E 250Ø 2710. 1900E C250⊕
ROA 0. 0600E 250Ø. 1000E C250Ø 2310 OCNL 60Ø DURG AFTN.
1900E C250Ø
RDU 8Ø6F CHANCE BFR C6Ø4F. 1000E 40Ø250Ø. 1900E 250Ø.
CRW 250Ø. 0700E C250Ø7. 1100E 50ØC250Ø 2410. 1900E C55Ø
100⊕ 2113. CHANCE TRW- OR RW-.

FT JFK 240420Z
05E TUE-17E TUE
LGA 07. 0700E 120Ø250-Ø5K 0310 VSBY VRBL 3K. 1300E 120Ø250-Ø
0710 ØVØ. 1600E 40ØC120Ø 2715 ØVØ SCTD RW- CHANCE TSTM.
1900E FROPA C40⊕ 3615. 2200E Ø 1512.
JFK 0. 0600E 120Ø250-Ø7 2110 VSBY VRBL 4K. 1300E 120Ø250-Ø
2815 ØVØ. SCTD RW-CHANCE TSTMS. 1600E FROPA C30⊕ 3612.
2000E 0 3610.
PHL 20Ø 2412 OCNLY C20⊕ CHANCE BRF RW-. 1000E 25Ø 2215. 2200E
20Ø28Ø 2512 OCNLY C20Ø.

AW JAX 240954Z
04E-16E TUE

LVL	5,000	10,000	15,000	20,000	25,000
MIA	2905+23	2808+13	2810+3	2912-07	3120-17
JAX	2812+18	2815+08	2720-02	2725-14	2635-26
CHS	3010+12	2913+02	27[illegible]-08	2725-14	2730-24
RDU	3110+08	2920-02	3030-12	3030-16	3035-27
RIC	3115+04	2925-06	3030-16	3025-20	3130-30
DCA	2910+02	2920-08	3030-18	3035-22	3140-33
JFK	2815+02	2925-08	3035-19	3145-22	3145-34

(S - 1, Continued)

FN SFO 090550Z

SAN FRANCISCO REGION 00P FRI-00P SAT
PROG. DPNG LOW PRESS AREA OVR NRN CALIF 00P WITH COLD FRONT EXTNG SWWD. LOW MOVG ENEWD 30 KT RCHG WSTRN NEV SERN ORE BY 18P SAT WITH COLD FRONT EXTNG SWD FROM LOW.
SIGNIFICANT WX. VCNTY AND 200-300 MIS SE OF LOW AS IT MOVES ENE OVR ORE AND NEV EXTNSV LO ST MERGG WITH HIER OVC AC AS LYRS TO 250 WITH WDSPRD RAIN AND FOG SE OF LOW CNTR. N AND NE FOR 200 MIS+ OF LOW CNTR AS IT MOVES EWD ST SC LYRS TO 220 FRZG RAIN CHGG TO SNW OVR NRN ORE SRN WASH EWD INTO IDAHO BY 06 SAT AND INTO WRN MONT AFT 06P SAT. OCNL MDT ICGIG ICGIP LCLY HVY MIXD OR FRZN PCPN. SCTD TSTMS OVR NWRN CALIF MOVG EWD WITH SYST. IMBDD CBS TOPS TO 450 OVR ERN ORE. MDT TO LCLY SVR TURBC VCNTY CBS. PCPN W OF LOW CNTR AND COLD FRONT CHGG TO SNW FLRYS WITH TOPS DCRG TO 90-140 ABT 150-200 MIS W OF COLD FRONT AND LOW.

FT LAX 090420Z
23P THU-11P FRI

LAX C8⊕2R-FK 1512. 0300P C5⊕11/2R-F 0914. 0800P C10⊕3F 2112 OCNL R-
PRB C8⊕2ZR-F. 00P C8⊕2ZR-S-F OCNLY C5X 3/4 S-F. 03P C8⊕2S-F OCNLY C5X 3/4 S-F. 10P C12⊕7.
FAT C18⊕3KH CHNCE F-. 02P C10⊕2F. 06P C8⊕ 11/2F. 09P C10⊙20⊕3F-.
BFL 15⊙C30⊙5FH OCNLY C8⊕2FK. 03P C12⊕3FK. 09P 30⊙C100⊙ OCNLY C30⊙
SAN O

FT SEA 090420Z
23P THU-11P FRI
SEA C12⊙80⊕ ⊙V⊙ CHANCE 3S-. 06P C4⊕1S-F 0912 CHNCE ZR-. 09P C8X1S.
PDX C6⊕3F. 03P C2⊕2F OCNL S-E-. 04P C2⊕2S-E-F VSBY OCNLY 1. 10P C7⊕1RSF.
RNO C10⊙120⊕2F. 04P 25⊙C100⊙5H. 08P 40⊙/⊙7.
YKM C18⊕2ZR-F. 04P C12⊕2ZR-S-F OCNLY E- or ZR- CHNCE C8X1S.

AW SFO 090954Z
04P - 16P FRI

LVL	5,000	10,000	15,000	20,000	25,000
SEA	9905+01	2725-09	2540-13	2440-23	2345-33
PDX	2230+03	2135-07	2340-11	2445-22	2450-32
MFR	2525+05	2535-05	2540-09	2450-20	2355-30
RBL	2415+08	2515+02	2625-08	2735-18	2745-28
SAC	2420+13	2415+05	2625-05	2820-15	2930-25
FAT	2515+16	2620+10	2725-01	2725-11	2830-21
LAX	2620+16	2625+10	2725+01	2730-09	2835-19
SAN	2515+17	2520+11	2620+02	2625-08	2730-18

NAVIGATION AND ROUTE DATA TEST #1

ROUTE- - - MIA J53 to JAX, J51-55 to SAV, J51 to RDU, J55 to Intersection J37, J37-55 to CYN, J55 to JFK. Alternate PHL direct. For computations use distances between VOR stations. (See enroute chart).

WINDS ALOFT FORECASTS - - - - - - - - - - - - - - - -	Use winds on Page S-1
MIA to VRB	Use MIA winds
VRB to JAX	Use JAX winds
JAX to SAV	Use CHS winds
SAV to RDU	Use avg. of CHS & RDU winds
RDU to CYN	Use avg. of RIC & DCA winds
CYN to JFK	Use JFK winds
ALTERNATE	
JFK to PHL	Use JFK winds

CLIMB-----Use 195K average TAS for climb. To compute time to climb use average rate of climb of 800 FPM to 15,000 feet, 625 FPM from 15,000 to 20,000 feet.

CRUISE-----Use long range IAS appropriate for weight. (Refer to page S-6.)

Transfer the information listed below and use in computations. Use blank flight log.

Check pts. from	to	Cruise Altitude	Avg. True Course	Via Airway	Avg. TAS Kts	Avg. G/S Kts	Dist N.M.	Time
MIA	L.O.	Climb	---	J-53	195			
L.O.	VRB	20,000	343°	J-53				
VRB	JAX	20,000	341°	J-53				
JAX	SAV	20,000	013°	J-51-55				
SAV	CAE	20,000	002°	J-51				
CAE	RDU	20,000	043°	J-51				
RDU	FAK	20,000	025°	J-55				
FAK	X J37	20,000	025°	J-55				
X J37	CYN	20,000	060°	J37-55				
CYN	JFK	20,000	033°	J-55				
			ALTERNATE DATA					
JFK	PHL	15,000	240°					

S-3

(S-3, Continued)

ROUTE DATA FOR ATR TEST # 2

FLIGHT This scheduled flight is from Boeing Airport in Seattle to the Los Angeles Airport using the San Diego International Airport as an alternate.

ROUTE The route from SEA to LAX is along J-5. The route from destination LAX to alternate SAN is along J-1.

CLIMB Use average TAS 195 knots for climb. Use 875 FPM as average during climb.

CRUISE Use long range cruise IAS appropriate for weight. After level-off, cruising altitude is 19,000 feet to destination and alternate.

WINDS Use SEA winds from SEA to DLS
Use average of PDX and MFR winds from DLS to LKV
Use RBL winds from LKV to RNO
Use FAT winds from RNO to BFL
Use LAX winds from BFL to LAX
Use average of LAX and SAN winds from LAX to SAN

ROUTE DATA FOR ATR TEST # 3

FLIGHT This scheduled flight is from Los Angeles International Airport to Boeing Airport, Seattle with Portland International Airport as alternate.

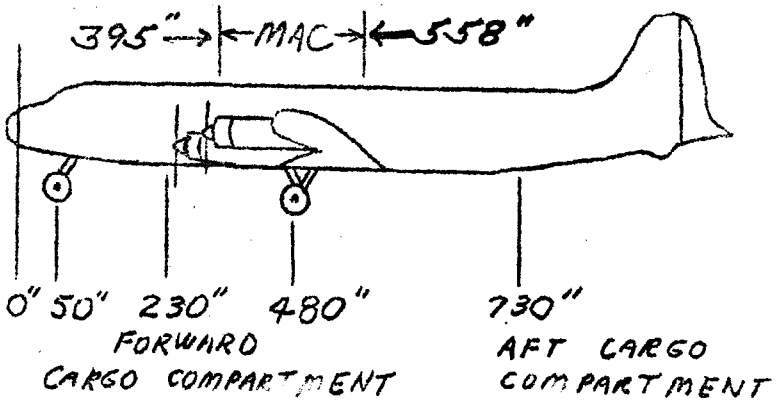
ROUTE The route is from LAX to BFL along J-5. Route from BFL to RBL is along J-65. Route from RBL to SEA is along J-1. Route from destination SEA to alternate PDX is along J-1.

CLIMB Use average TAS 195 knots for climb. Use 800 FPM as average during climb.

CRUISE Use long range cruise IAS appropriate for weight. After level-off, cruising altitude to destination and alternate is 20,000 feet.

WINDS Use LAX winds from LAX to BFL
Use FAT winds from BFL to SAC
Use RBL winds from SAC to MFR
Use average of MFR and PDX winds from MFR to PDX
Use SEA winds from PDX to SEA
Use SEA winds from SEA to PDX

(S-4, Continued)



CENTER OF GRAVITY LIMITS

Gross Weight Up to & Incl	Landing Gear Up Forward % MAC	Landing Gear Up Aft % MAC	Landing Gear Down Forward % MAC	Landing Gear Down Aft % MAC
83,300	8.0	32.5	11.0	32.5
112,220	15.0	32.5	17.0	32.5
122,200	15.0	32.5	19.0	32.5

Note: Fwd CG limit varies linearly with gross weight.

WHEEL WEIGHTS

Nose Wheel	9,600 pounds
Left Main Wheel	47,650 pounds
Right Main Wheel	47,750 pounds
Gross Weight	105,000 pounds

AIRCRAFT APECIFICATIONS

ENGINE LIMITS	BHP	RPM	MAP	LIMIT
Takeoff Wet	3250	2900	56.5	2 min.
Maximum Continuous	2600	2600	47.5	--
Maximum High Blower	2405	2600	48.5	--

MAXIMUM WEIGHTS

Max allowable takeoff gross weight	122,200 pounds
Max allowable landing gross weight	97,000 pounds
Max allowable zero fuel weight	92,250 pounds
Basic operating weight	74,200 pounds

CG SPECIFICATIONS

Datum	63 in. aft of nose (sta 0)
MAC	163 in (L.E. of MAC +395.0)

FOUR ENGINE LONG RANGE CRUISE PERFORMANCE

PRESSURE ALTITUDE	GROSS WEIGHT	115,000 to 110,000	110,000 to 105,000	105,000 to 100,000	100,000 to 95,000	95,000 to 90,000
20,000	IAS (KNOTS)	227	224	220	216	212
	BHP	1960	1870	1780	1685	1590
	BLOWER	HIGH	HIGH	HIGH	LOW	LOW
	RPM	2500	2500	2500	2400	2400
	BMEP	183	177	170	162	154
	MAP (APPROX)	38.5	37.9	37.5	37.0	36.5
	FF lb/hr/eng	840	860	780	750	710
19,000	IAS (KNOTS)	227	224	220	216	212
	BHP	1930	1840	1750	1655	1560
	BLOWER	HIGH	HIGH	LOW	LOW	LOW
	RPM	2480	2480	2480	2360	2360
	BMEP	180	174	167	159	155
	MAP (APPROX)	37.5	36.8	36.4	36.5	36.0
	FF lb/hr/eng	820	790	760	730	690
18,000	IAS (KNOTS)	226	223	219	215	210
	BHP	1900	1810	1720	1630	1540
	BLOWER	HIGH	HIGH	LOW	LOW	LOW
	RPM	2400	2400	2360	2340	2320
	BMEP	158	155	150	150	150
	MAP (APPROX)	36.0	35.5	34.9	34.0	33.2
	FF lb/hr/eng	790	760	730	700	670

FOUR AND THREE ENGINE LONG RANGE CRUISE PERFORMANCE

1. Indicated airspeeds are based on Captains normal static source.

2. True indicated airspeeds may be determined by correcting the tabulated indicated airspeeds for position error and compressibility effect.

3. Long range cruise airspeed is 110% of the maximum L/D speed, which is the optimum airspeed against a headwind of approx. 50 knots. If headwind exceeds 50 knots, the power setting for the next higher weight bracket should be used.

4. If the indicated airspeed is more than three or four knots below the tabulated indicated airspeed, when weight is near the middle of the weight bracket, airspeed should be increased either by reduction in altitude or by use of the power setting for the next higher weight bracket.

(S-6, Continued)

THREE ENGINE LONG RANGE CRUISE PERFORMANCE

PRESSURE ALTITUDE	GROSS WEIGHT	96,000 to 92,001	92,000 to 88,001	88,000 to 84,001	84,000 to 80,001
20,000	TAS(IAS)-Kts.	251(180)	244(175)	237(170)	230(164)
	BHP	1192	1097	1000	915
	BLOWER	HIGH	HIGH	HIGH	LOW
	RPM	2300	2200	2100	2100
	BMEP	159	153	147	129
	MAP APPROX.	35.0	32.5	30.5	26.5
	FF-lb/hr/eng.	570	520	470	430
19,000	TAS(IAS)-Kts.	247(180)	240(175)	233(170)	226(164)
	BHP	1170	1080	985	900
	BLOWER	HIGH	HIGH	HIGH	LOW
	RPM	2250	2150	2100	2100
	BMEP	160	154	145	132
	MAP-Approx.	34.5	32.5	30.5	26.5
	FF-lb/hr/eng.	555	510	465	420
18,000	TAS(IAS)-Kts.	243(180)	236(175)	229(170)	222(164)
	BHP	1150	1060	970	880
	BLOWER	HIGH	HIGH	LOW	LOW
	RPM	2200	2100	2150	2100
	BMEP	160	155	140	131
	MAP-Approx	34.0	32.5	28.0	26.5
	FF-lb/hr/eng.	540	495	450	415

TAKEOFF AND CLIMB POWER SCHEDULE

	TAKEOFF	METO	LOW BLOWER CLIMB	HIGH BLOWER CLIMB
ALT	SL-5,500	SL-6,500	SL-15,000	15,000-21,500
RPM	2900	2600	2500	2500
BHP	3250	2600	2150	2080
MAP	56.5	50.5	44.0	38.0-36.5
BMEP	265	245	202	196
MIX	AR	AR	AR	AR
F/F*	2200	1750	1300	1200

* FUEL FLOW IN POUNDS PER HOUR/PER ENGINE

AIRSPEED INDICATOR
POSITION AND COMPRESSIBILITY ERROR CORRECTION
TO IAS KNOTS

FLIGHT CONDITION, FLAPS UP, GEAR UP

	NORMAL SYSTEM ALTITUDE FEET			ALTERNATE SYSTEM ALTITUDE FEET		
	SEA LEVEL	10,000	20,000	SEA LEVEL	10,000	20,000
150	+1	+1	0	-2	-1	-3
160	+1	+1	-1	-2	-2	-3
170	+1	0	-1	-2	-3	-4
180	0	-1	-2	-3	-4	-5
190	0	-1	-2	-3	-4	-6
200	0	-1	+3	-3	-4	-6
210	0	+1	+3	-3	-4	-6
220	0	+2	+3	-3	-5	-7
230	0	+3	+4	-3	-5	-7
240	0	+3	+4	-3	-5	-8
250	0	+3	+4	-3	-6	-9

TEMPERATURE CORRECTION FOR COMPRESSIBILITY

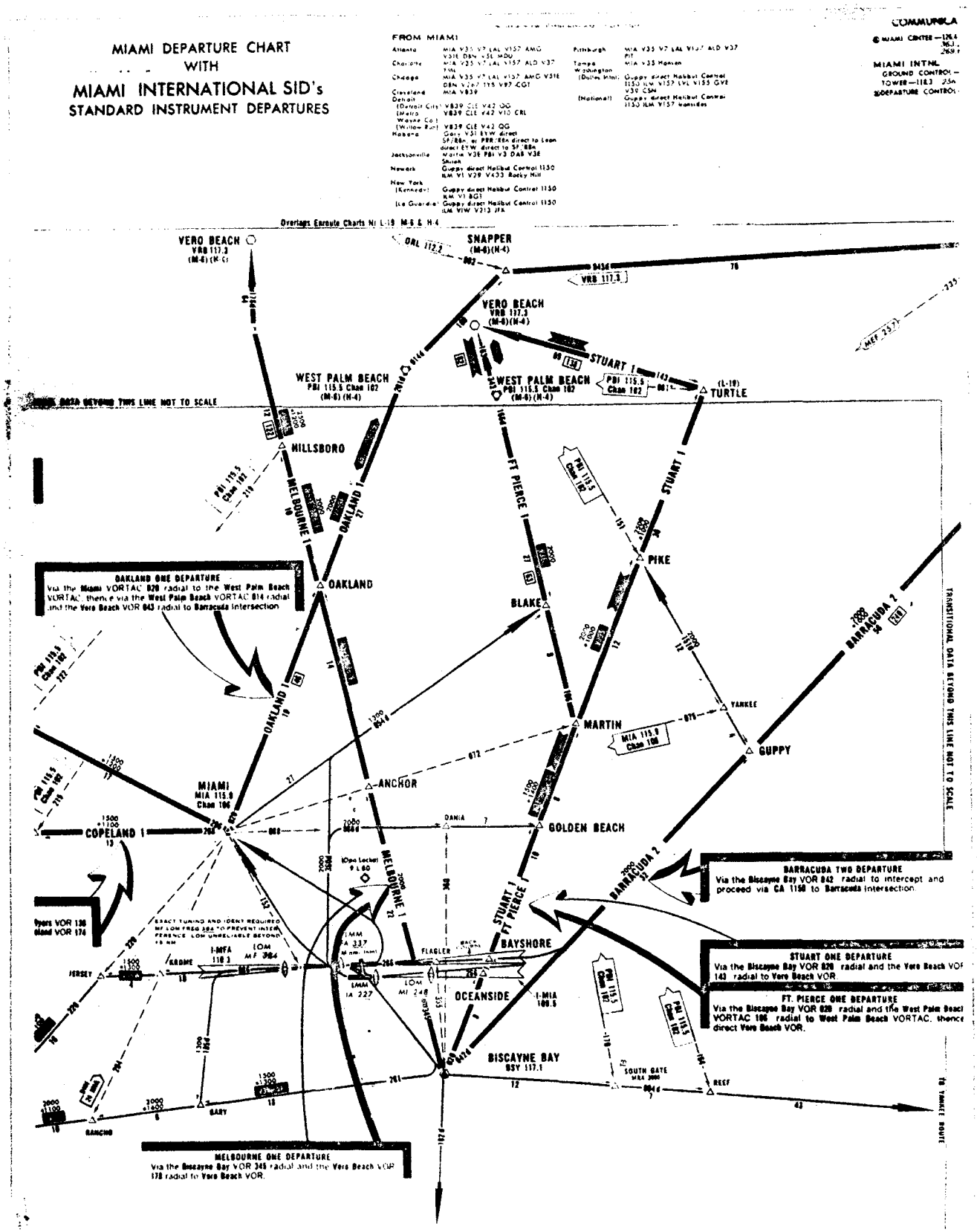
IAS - KNOTS

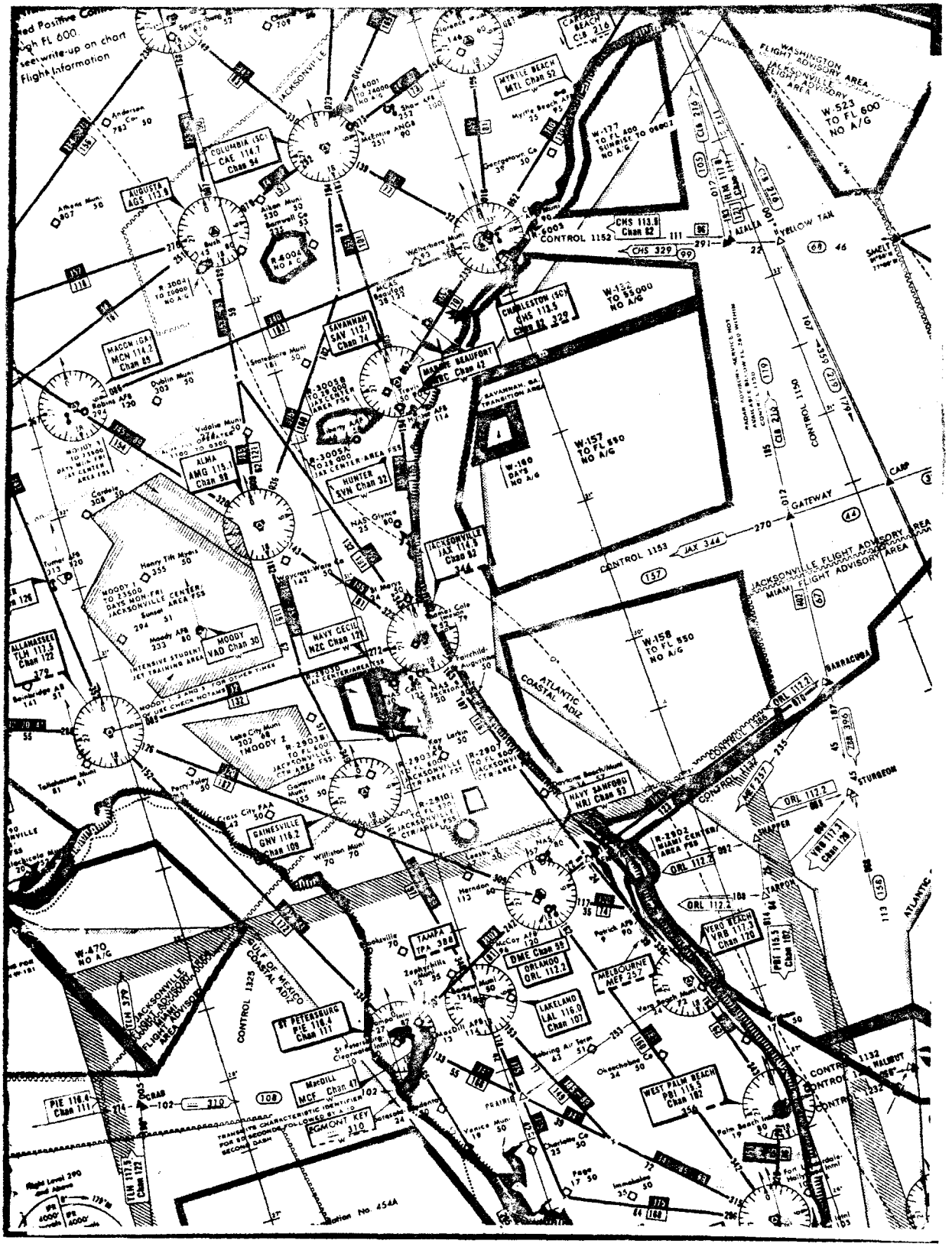
PRESSURE ALTITUDE	180	190	200	220	240	260	280	300
	REDUCE O.A.T. READING BY AMOUNT BELOW TO CORRECT FOR COMPRESSIBILITY							
Sea Level	3	3	3	4	5	6	6	7
5,000	3	4	4	5	6	6	8	9
10,000	4	4	5	5	6	8	9	10
15,000	4	5	5	6	8	9	10	11
20,000	5	6	6	8	9	11	12	13
25,000	6	7	7	9	11	12	14	15

COMPASS DEVIATION

FOR MAGNETIC	360	30	60	90	120	150	180	210	240	270	300	330
STEER COMPASS	4	35	63	89	123	147	176	205	235	270	304	335

MIAMI DEPARTURE CHART
WITH
MIAMI INTERNATIONAL SID's
STANDARD INSTRUMENT DEPARTURES



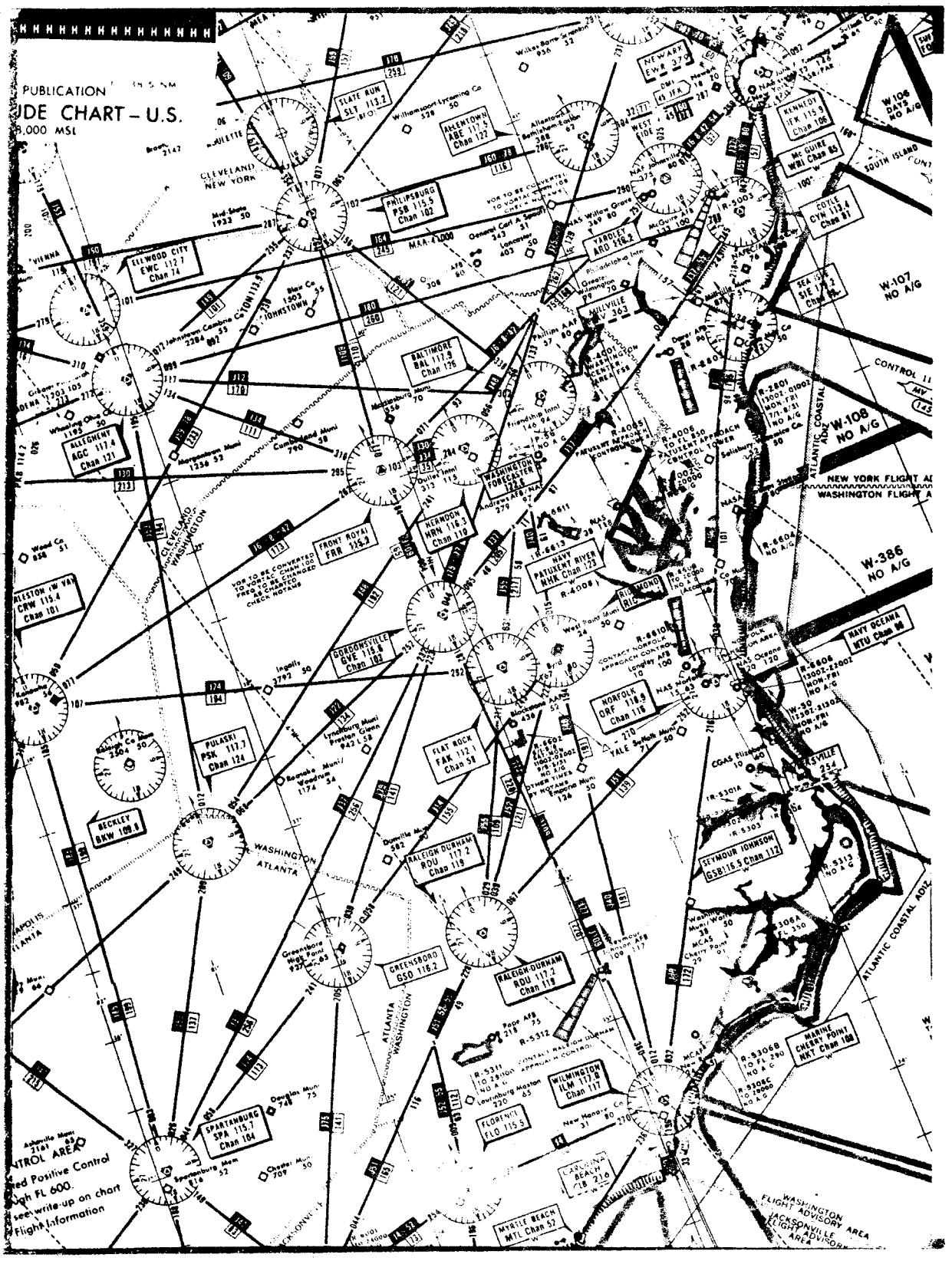

JACKSONVILLE
COLUMBIA (SC) CAE 114.7 Chan 94
AUGUSTA AGS 113.8
MYRTLE BEACH MTL Chan 52
CARAVAN BEACH CUB 116
WASHINGTON FLIGHT ADVISORY AREA
JACKSONVILLE FLIGHT ADVISORY AREA
W-523 TO FL 600 NO A/G
W-177 TO FL 600 SUNRISE TO 0600Z NO A/G
CONTROL 1152
CHS 113.8 Chan 82
CHS 329
AZALEA
YELLOW TAN
SHELT
CHARLESTON (SC) CHS 113.8 Chan 82 329
W-155 TO 55,000 NO A/G
MACON (GA) MCN 114.2 Chan 85
SAVANNAH SAV 112.7 Chan 74
MARINE BEAUFORT MRC Chan 42
SAVANNAH, GA TRANSITION AREA
W-157 TO FL 550 NO A/G
W-150 DAYS NO A/G
ALMA AMG 119.1 Chan 58
HUNTER SVN Chan 32
CONTROL 1150
GATEWAY
CAMP
CONTROL 1153
JAX 344
JACKSONVILLE FLIGHT ADVISORY AREA
MIAMI FLIGHT ADVISORY AREA
JACKSONVILLE JAX 114.8 Chan 82 344
MOODY VAD Chan 30
NAVY CECIL NZC Chan 121
W-158 TO FL 550 NO A/G
ALLAHASSEE TLH 117.3 Chan 122
ATLANTIC COASTAL ADIZ
BARRACUDA
ORL 112.2
STURGEON
CHAPPER
TARPON
NAVY SANFORD NRJ Chan 93
GAINESVILLE GNV 116.2 Chan 109
VRB 111.3 Chan 128
VERO BEACH VRB 111.3 Chan 128
W-470 NO A/G
TAMPA TPA 388
DME Chan 59
ORLANDO ORL 112.2
MELBOURNE MEB 257
LAKELAND LAL 116.0 Chan 107
ST PETERSBURG PIE 116.4 Chan 111
CONTROL 1325
GULF OF MEXICO COASTAL ADIZ
MacDILL MCF Chan 47
WEST PALM BEACH PBI 115.5 Chan 102
PIE 116.4 Chan 111
KEY WEST
SEGMONT KEY
CONTROL 1132
WALNUT
Section No 454A

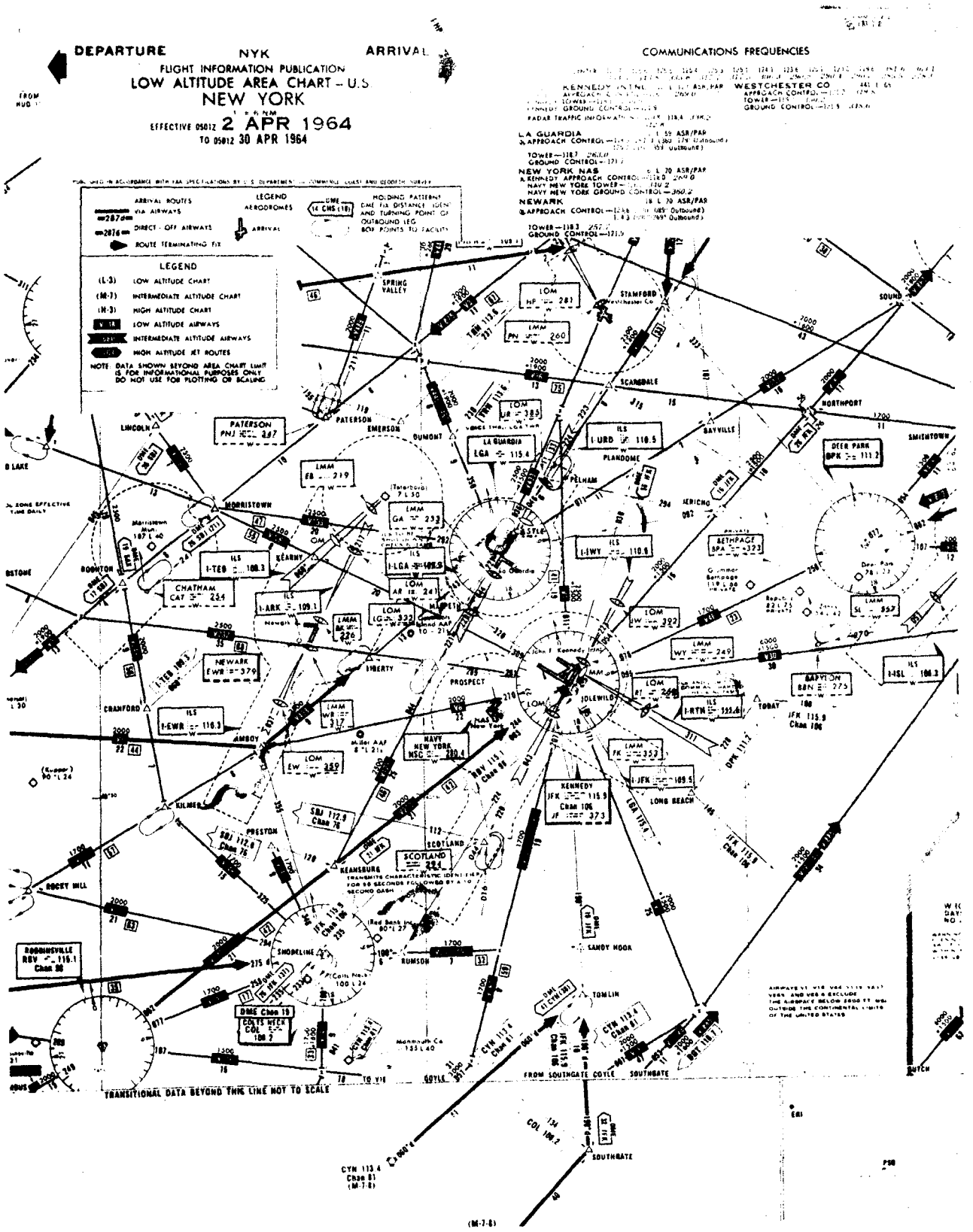
DIRECTED STUDY PROGRAM

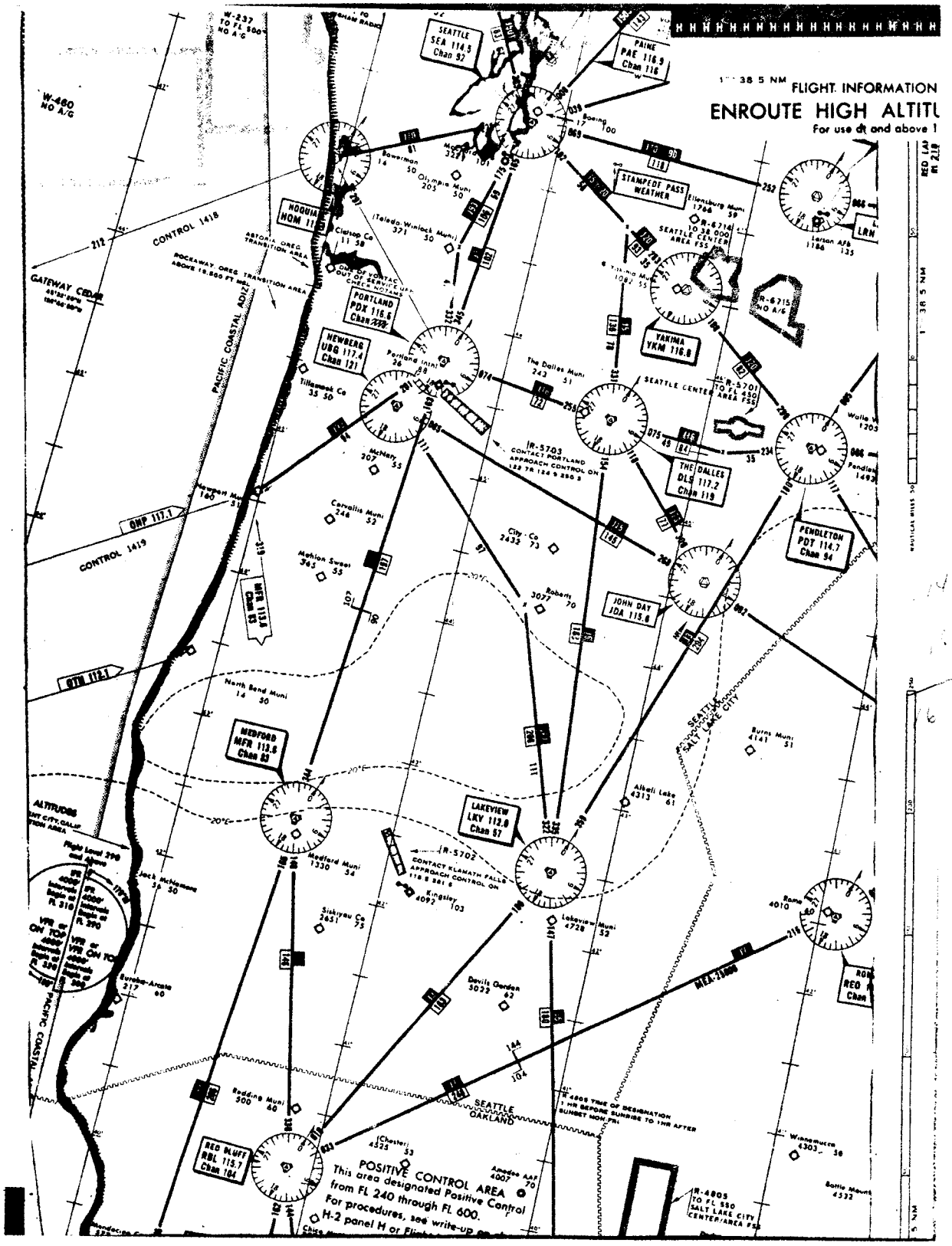
USFAA EXAMINATION GUIDE

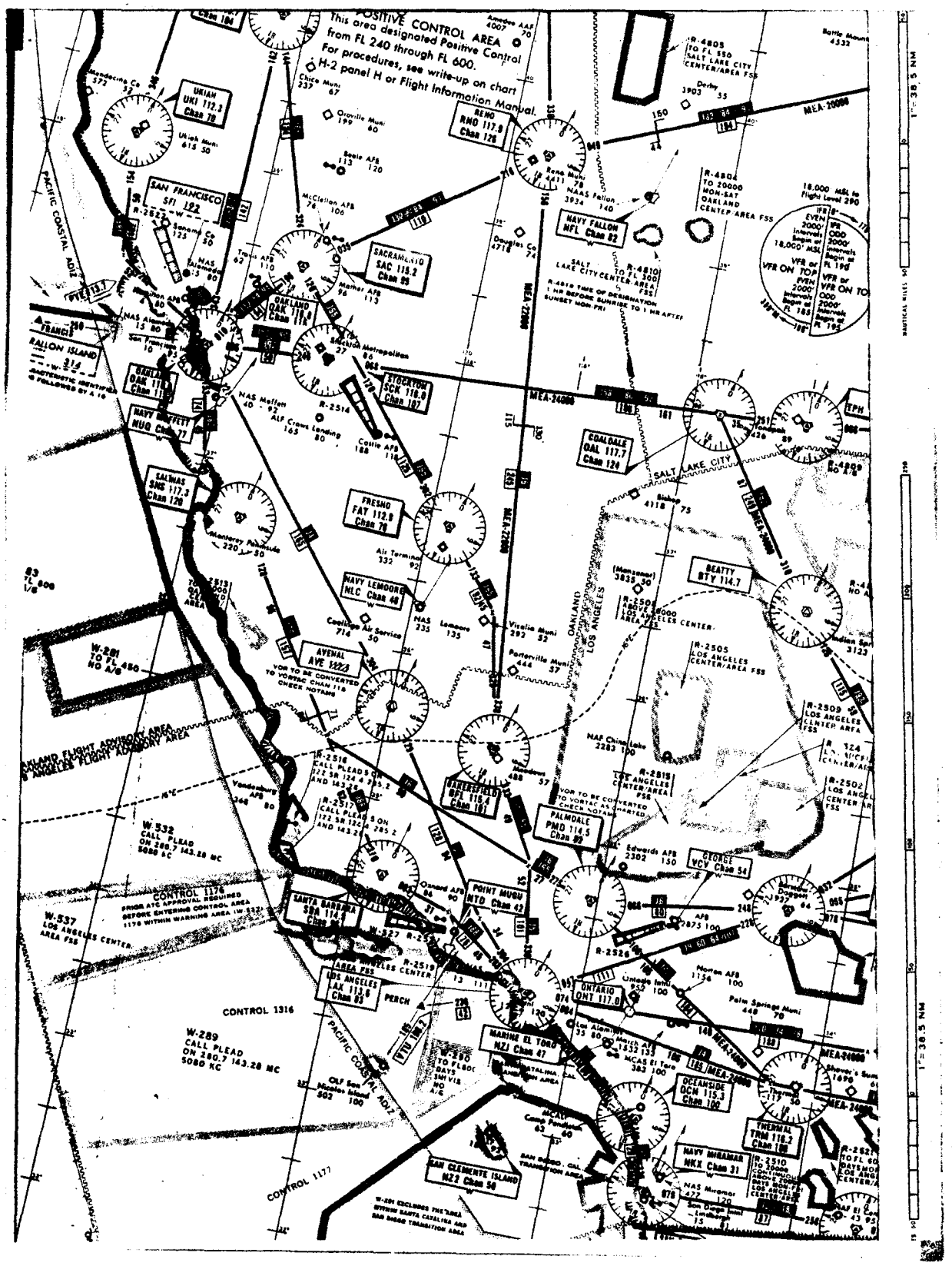
DATE: 15 June 1965

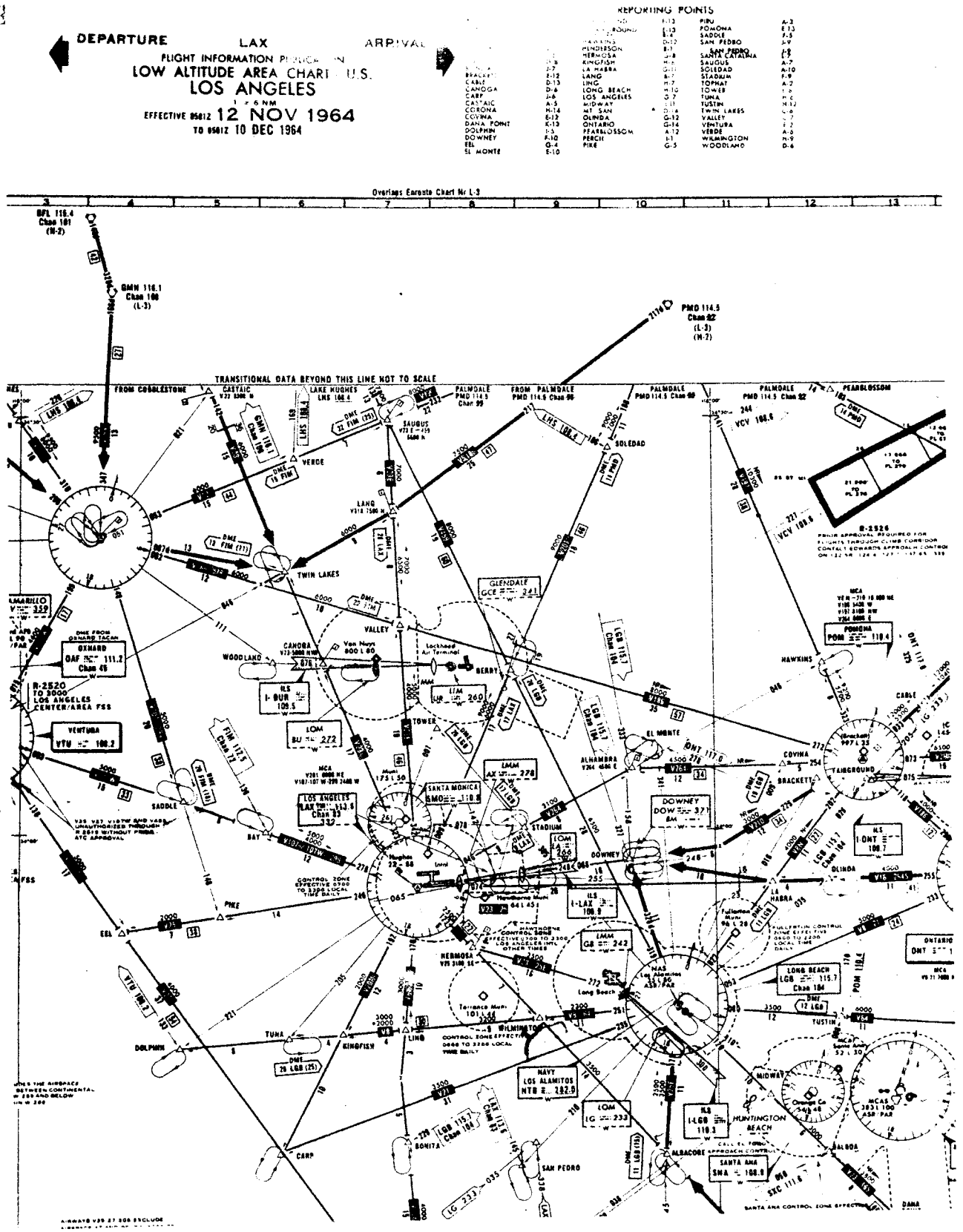
REF: 2000 - 1




DEPARTURE
NYK
ARRIVAL
FLIGHT INFORMATION PUBLICATION
LOW ALTITUDE AREA CHART - U.S.
NEW YORK
EFFECTIVE 05012 2 APR 1964
TO 05012 30 APR 1964
COMMUNICATIONS FREQUENCIES
LEGEND
ARRIVAL ROUTES VIA AIRWAYS
DIRECT - OFF AIRWAYS
ROUTE TERMINATING FIX
AERODROMES
ARRIVAL
HOLDING PATTERN
DME FIX DISTANCE IDENT AND TURNING POINT OF OUTBOUND LEG
BOX POINTS TO FACILITY
LEGEND
(L-3) LOW ALTITUDE CHART
(M-7) INTERMEDIATE ALTITUDE CHART
(H-3) HIGH ALTITUDE CHART
LOW ALTITUDE AIRWAYS
INTERMEDIATE ALTITUDE AIRWAYS
HIGH ALTITUDE JET ROUTES
NOTE: DATA SHOWN BEYOND AREA CHART LIMIT IS FOR INFORMATIONAL PURPOSES ONLY DO NOT USE FOR PLOTTING OR SCALING
LA GUARDIA
NEW YORK NAS
NEWARK
WESTCHESTER CO
SPRING VALLEY
STAMFORD
SOUND
SCARSDALE
PATERSON
EMERSON
DUMONT
LINCOLN
MORRISTOWN
KEARNY
ROBERTSON
CHATHAM
NEWARK
CRANFORD
AMBOY
KILMER
PRESTON
ROCKY HILL
ROBBINSVILLE
LIBERTY
PROSPECT
JOLEWILD
PELHAM
PLANDOME
BAYVILLES
NORTHPORT
SMITHTOWN
DEER PARK
JERICHO
BETHPAGE
BABYLON
TOBAY
LONG BEACH
KEANSBURG
SCOTLAND
SHOREHAM
RUMSON
SANDY HOOK
TOMLIN
SOUTHGATE
FROM SOUTHGATE COYLE
TRANSITIONAL DATA BEYOND THIS LINE NOT TO SCALE
(M-7-8)

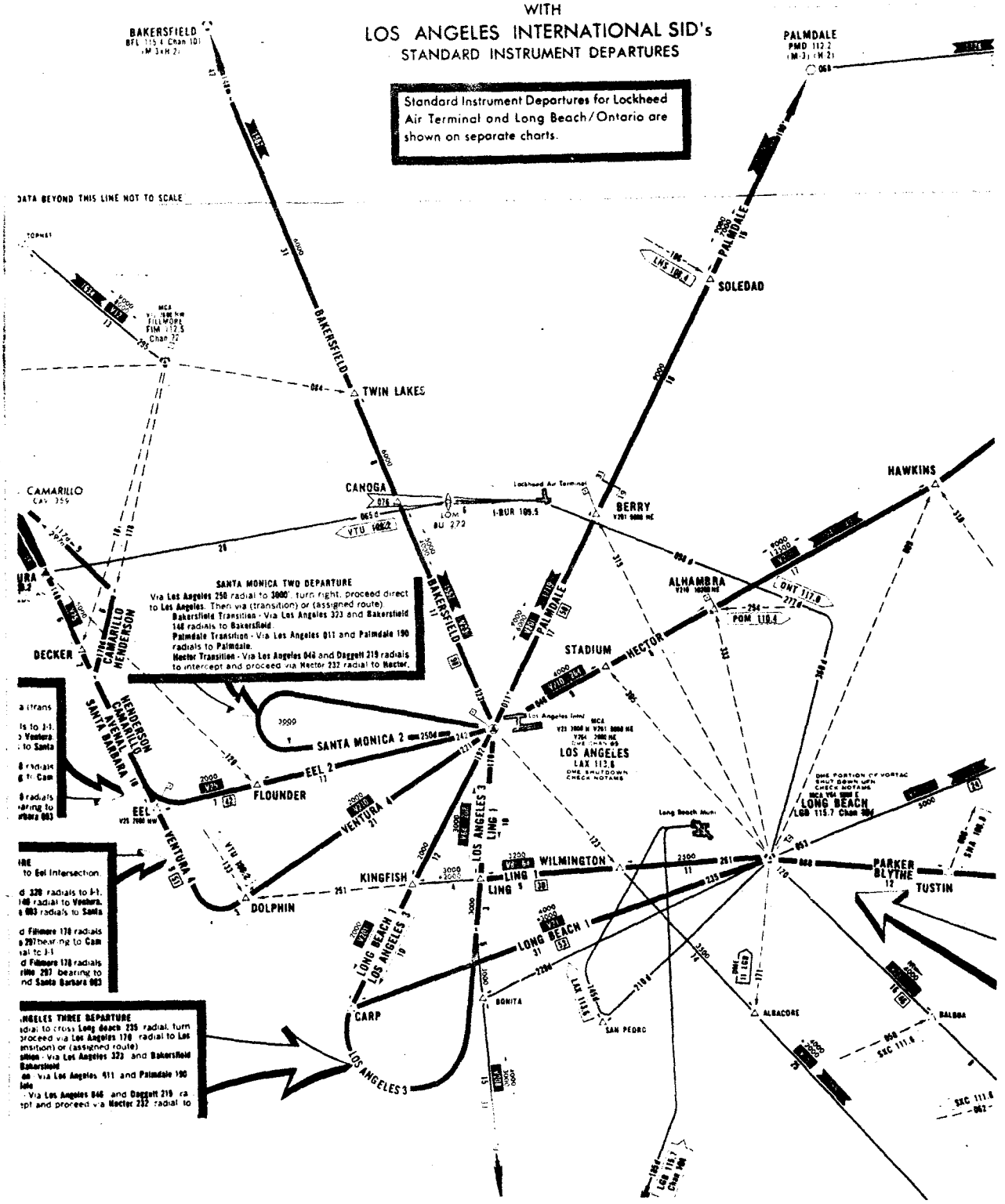

FLIGHT INFORMATION
ENROUTE HIGH ALTITU
For use at and above 1
SEATTLE
SEA 114.5
Chan 92
PAINE
PAE 116.5
Chan 116
STAMPEDE PASS
WEATHER
HOQUIAM
HOM
PORTLAND
PDX 116.6
Chan
NEWBERG
UBG 117.4
Chan 121
YAKIMA
YKM 116.8
THE DALLES
DLS 117.2
Chan 119
PENDLETON
PDT 114.7
Chan 94
JOHN DAY
JDA 115.6
MEDFORD
MFR 113.6
Chan 83
LAKEVIEW
LKV 112.8
Chan 57
RED BLUFF
RBL 115.7
Chan 104
CONTROL 1418
CONTROL 1419
GATEWAY CEDAR
PACIFIC COASTAL ADIZ
SEATTLE CENTER AREA FSS
SEATTLE
SALT LAKE CITY
SEATTLE
OAKLAND
POSITIVE CONTROL AREA
This area designated Positive Control
from FL 240 through FL 600.
For procedures, see write-up on
H-2 panel M or Flight

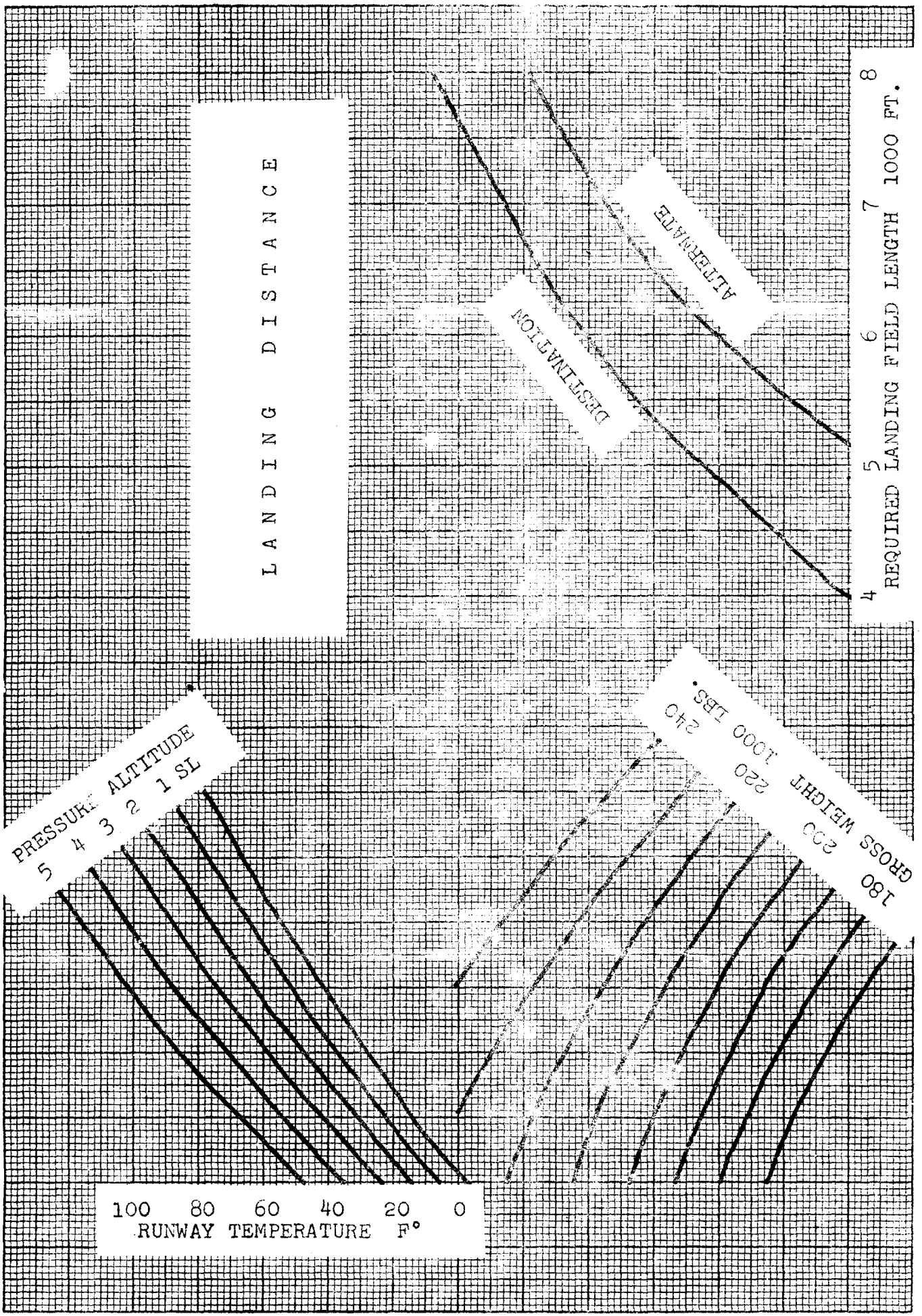

POSITIVE CONTROL AREA
This area designated Positive Control from FL 240 through FL 600.
For procedures, see write-up on chart H-2 panel H or Flight Information Manual.
UKIAH UKI 112.3 Chan 79
SAN FRANCISCO SFI 122
RENO RNO 117.9 Chan 126
NAVY FALLON NFL Chan 82
SACRAMENTO SAC 115.2 Chan 85
OAKLAND OAK 116.8 Chan 116
STOCKTON SCK 116.8 Chan 107
NAVY MOFFETT NUQ Chan 77
SALINAS SNS 117.3 Chan 120
FRESNO FAT 112.9 Chan 78
COALDALE OAL 117.7 Chan 124
SALT LAKE CITY
NAVY LEMOORE NLC Chan 48
AVENAL AVE 122.3
BEATTY BTY 114.7
BAKERSFIELD BFL 115.4 Chan 101
PALMDALE PMD 114.5 Chan 89
GEORGE VCV Chan 54
POINT MUGU MTD Chan 42
SANTA BARBARA SBA 114.6 Chan 41
LOS ANGELES LAX 113.6 Chan 83
ONTARIO ONT 117.0
MARINE EL TORO NZJ Chan 47
OCEANSIDE OCN 115.3 Chan 100
THERMAL TRM 116.2 Chan 108
NAVY MIRAMAR NKX Chan 31
SAN CLEMENTE ISLAND NZS Chan 56
PACIFIC COASTAL ADIZ
OAKLAND FLIGHT ADVISORY AREA
LOS ANGELES FLIGHT ADVISORY AREA
W-532 CALL PLEAD ON 280.7 143.28 MC 5080 KC
W-537 LOS ANGELES CENTER AREA FSS
CONTROL 1176
CONTROL 1316
W-289 CALL PLEAD ON 280.7 143.28 MC 5080 KC
CONTROL 1177
MEA-24000
MEA-22000
MEA-20000
R-4805 TO FL 550 SALT LAKE CITY CENTER/AREA FSS
R-4806 TO 20000 MON-SAT OAKLAND CENTER/AREA FSS
R-4810 TO FL 300 SALT LAKE CITY CENTER/AREA FSS
R-2505 LOS ANGELES CENTER/AREA FSS
R-2509 LOS ANGELES CENTER/AREA FSS
R-2502 LOS ANGELES CENTER/AREA FSS
R-2514
R-2516 CALL PLEAD ON 122 SB 124.4 255.2 AND 143.25
R-2517 CALL PLEAD ON 122 SB 122.4 285.2 AND 143.25
R-2519 LOS ANGELES CENTER AREA FSS
R-2526
W-227
W-290 TO FL 800 BAYS SMI VIS NO A/C
W-291 EXCLUDES THE ZONE WITHIN SANTA CATALINA AND SAN DIEGO TRANSITION AREA
1" = 38.5 NM

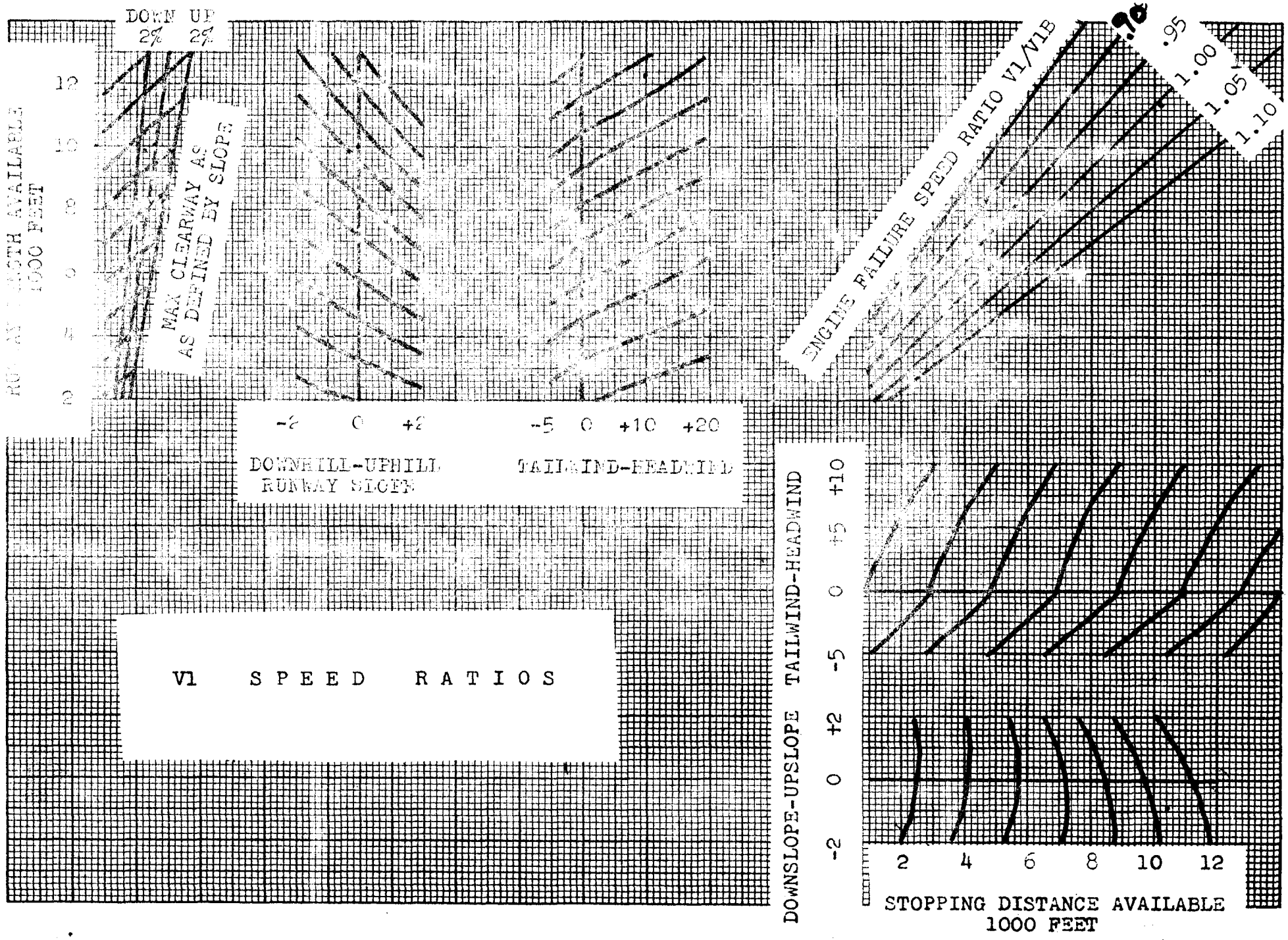

DEPARTURE
LAX
ARRIVAL
FLIGHT INFORMATION PUBLICATION
LOW ALTITUDE AREA CHART U.S.
LOS ANGELES
1 = 6 NM
EFFECTIVE 0501Z 12 NOV 1964
TO 0501Z 10 DEC 1964
REPORTING POINTS
Overlaps Eureka Chart Nr L-3
TRANSITIONAL DATA BEYOND THIS LINE NOT TO SCALE
FROM COBBLESTONE
CASTAIC
LAKE HUGHES
PALMDALE
FROM PALMDALE
PEARLBLOSSOM
VERDE
SAUGUS
SOLEDAD
LANG
TWIN LAKES
GLENDALE
VALLEY
WOODLAND
CANOGA
BERRY
TOWER
EL MONTE
HAWKINS
CABLE
COVINA
BRACKETT
TAINGROUND
SADDLE
BAY
SANTA MONICA
LOS ANGELES
STADIUM
DOWNEY
OLINDA
LA HABRA
PHE
EEL
HERMOSA
LONG BEACH
TUSTIN
TUNA
DOLPHIN
KINGFISH
LINB
WILMINGTON
MIDWAY
HUNTINGTON BEACH
CARP
BONITA
SAN PEDRO
ALBACORE
SANTA ANA
DANA
ONTARIO
R-2520 TO 3000 LOS ANGELES CENTER/AREA FSS
R-2526

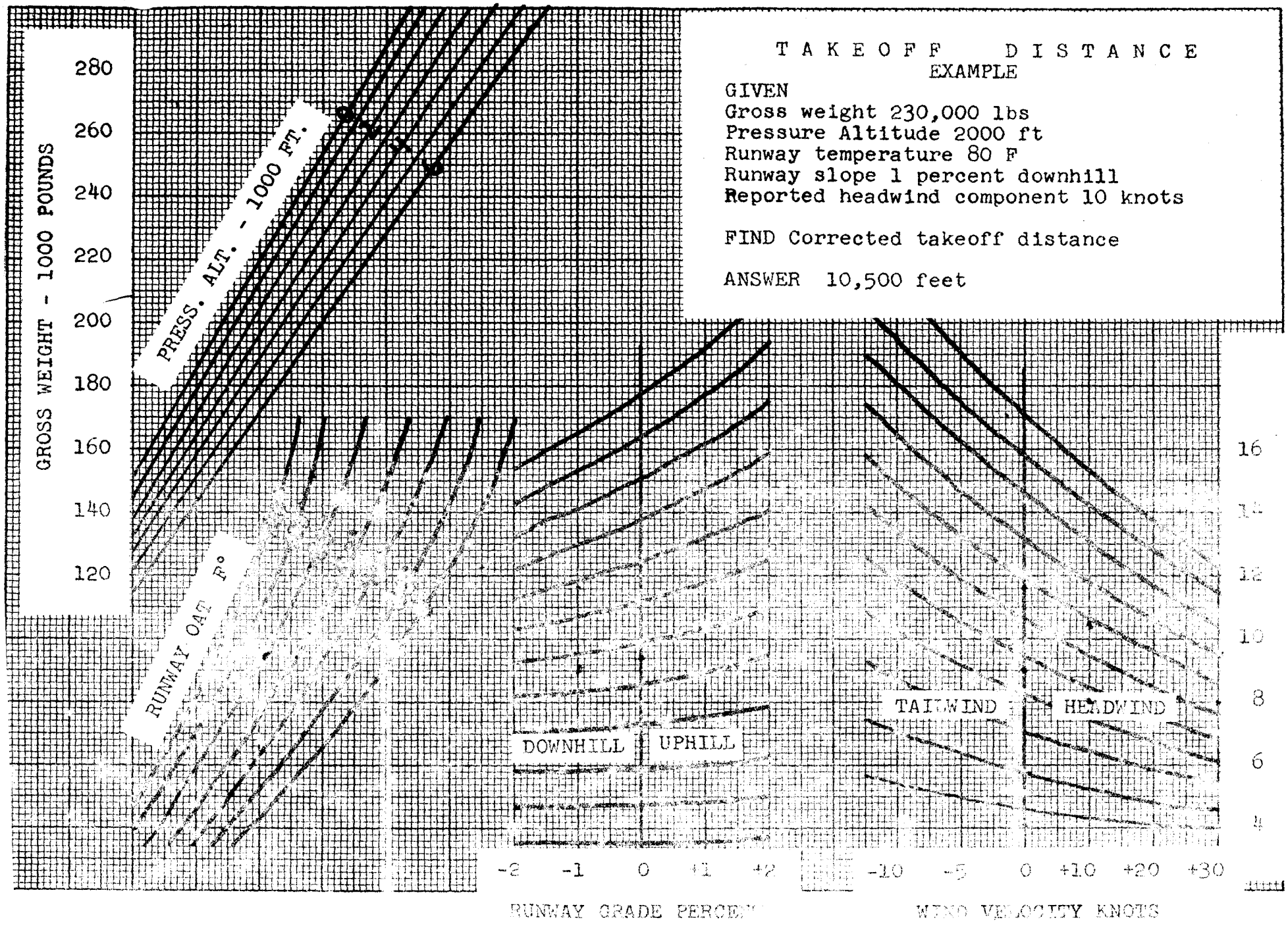
LOS ANGELES DEPARTURE CHART
WITH
LOS ANGELES INTERNATIONAL SID's
STANDARD INSTRUMENT DEPARTURES

Standard Instrument Departures for Lockheed Air Terminal and Long Beach/Ontario are shown on separate charts.

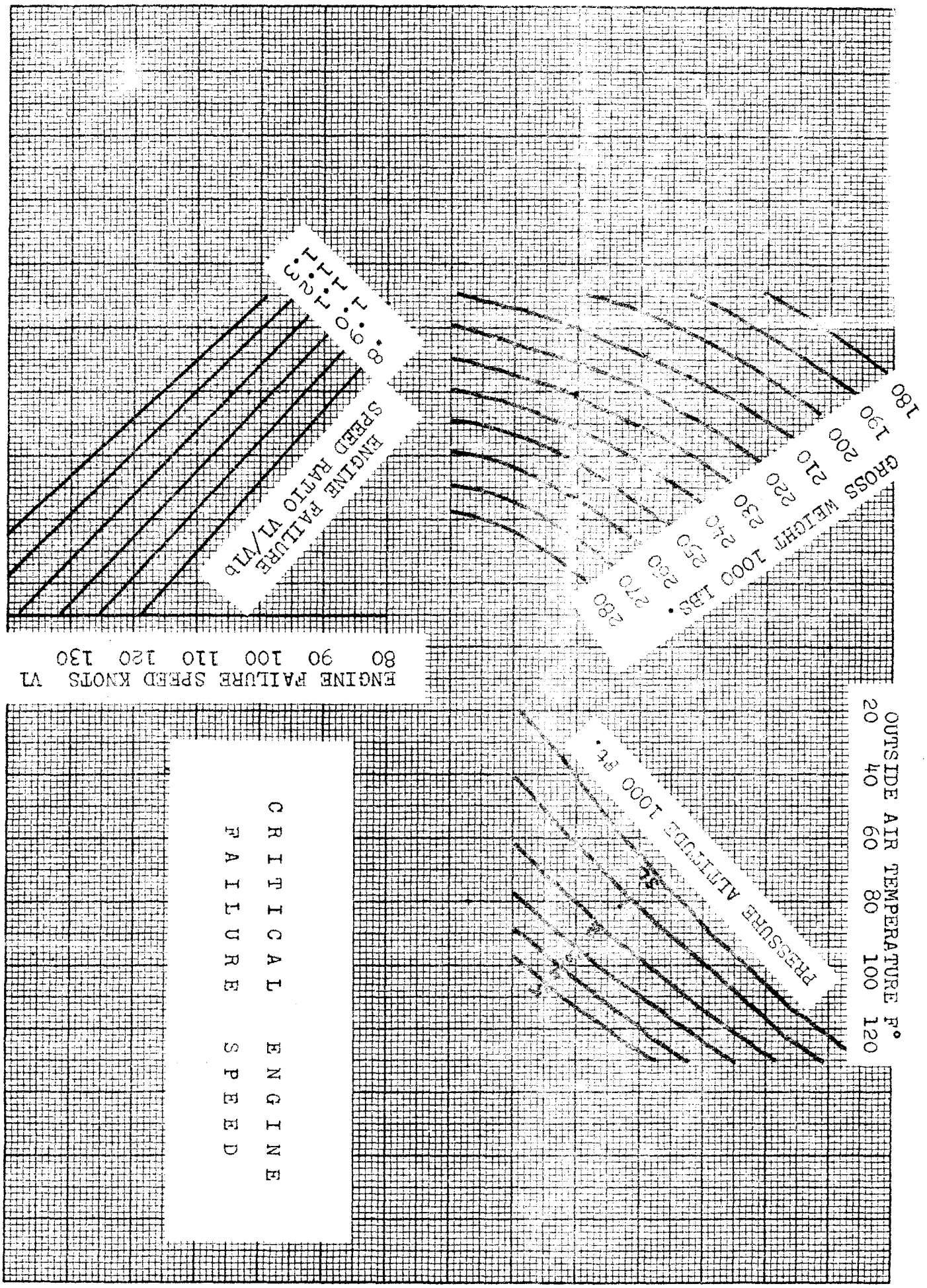



LANDING DISTANCE
ALTERNATE
DESTINATION
REQUIRED LANDING FIELD LENGTH 1000 FT.
4
5
6
7
8
GROSS WEIGHT 1000 LBS.
180
200
220
240
PRESSURE ALTITUDE
5 4 3 2 1 SL
100 80 60 40 20 0
RUNWAY TEMPERATURE F°


DOWN UP
2% 2%
MAX CLEARWAY AS AS DEFINED BY SLOPE
ENGINE FAILURE SPEED RATIO V1/V1B
.90
.95
1.00
1.05
1.10
-2 0 +2
-5 0 +10 +20
DOWNHILL-UPHILL RUNWAY SLOPE
TAILWIND-HEADWIND
V1 SPEED RATIOS
DOWNSLOPE-UPSLOPE
TAILWIND-HEADWIND
-2 0 +2 -5 0 +5 +10
2 4 6 8 10 12
STOPPING DISTANCE AVAILABLE
1000 FEET

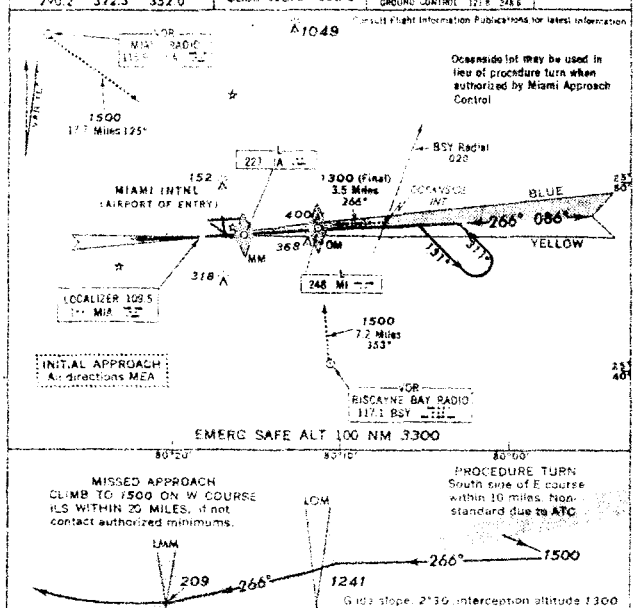


PAGE: 41
DATE: 15 June 1965
REF: 2600 - 1


OUTSIDE AIR TEMPERATURE F°
20 40 60 80 100 120
PRESSURE ALTITUDE 1000 ft.
GROSS WEIGHT 1000 LBS.
180 190 200 210 220 230 240 250 260 270 280
ENGINE RATIO V1/V1b
SPEED
.8 .9 1.0 1.1 1.2 1.3
ENGINE FAILURE SPEED KNOTS V1
80 90 100 110 120 130
CRITICAL ENGINE
FAILURE SPEED

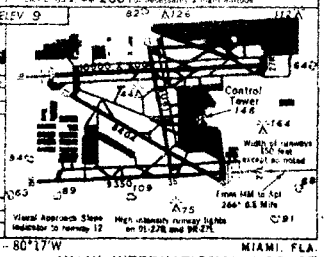
INST APCH PRO (FAA) — U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY — MIAMI INTERNATIONAL AIRPORT, MIAMI, FLA.

MIAMI APPROACH CONTROL	LOCALIZER 109.5	MIAMI TOWER	RADAR
South 118.1 North 123.7 123.9 124.4 256.9 290.2 322.3 352.0	I-- MIA GLIDE SLOPE 332.6	278 118.3 126.2 256.9 GROUND CONTROL 121.8 348.6	AVAILABLE



MINIMA	FIELD ELEV 9					
	65 knots or less 2 eng or less		Over 65 knots 2 eng or less		Over 65 knots Over 2 eng	
	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
T	300-1	300-1	300-1	300-1	200-½	200-½
C	500-1	500-1	500-1	500-1	500-1½	500-1½
S 27L*	200-½	200-½	200-½	200-½	200-½	200-½
A	600-2	600-2	600-2	600-2	600-2	600-2

*400-½ is required when glide slope inoperative

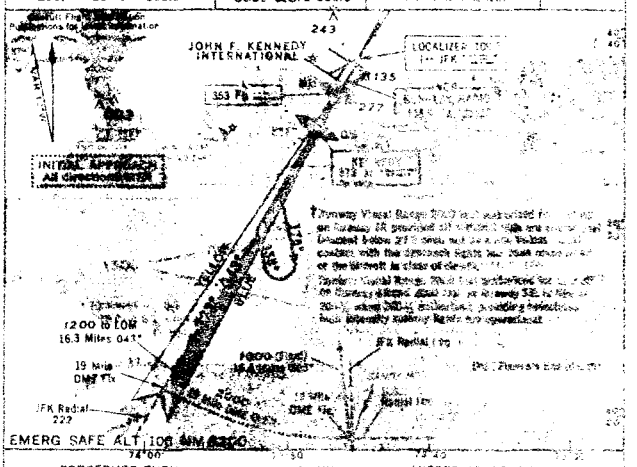


RATE OF DESCENT FROM OM					
KNOTS	90	100	110	130	150
FEET/MIN	400	440	485	575	665

AL-257-ILS-RWY 27L — 25°48'N - 80°17'W — MIAMI, FLA.
5 JULY 1963 — MIAMI INTERNATIONAL AIRPORT

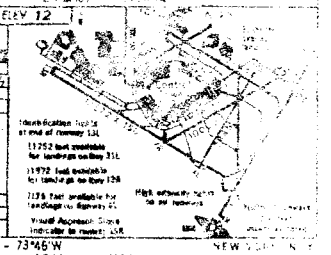
INST APCH PRO (FAA) — U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY — JOHN F. KENNEDY INTNL AIRPORT, NEW YORK, N.Y.

KENNEDY APPROACH CONTROL	LOCALIZER 109.5	KENNEDY TOWER	RADAR
118.0 123.7 134.1 256.9 269.0 388.0	I-- JFK GLIDE SLOPE 332.6	119.1 134.1 256.9 306.2 GROUND CONTROL	AVAILABLE



MINIMA	FIELD ELEV 12					
	65 knots or less 2 eng or less		Over 65 knots 2 eng or less		Over 65 knots Over 2 eng	
	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
T	300-1	300-1	300-1	300-1	200-½	200-½
C	500-1	500-1	500-1	500-1	500-1½	500-1½
E 4R†	200-½	200-½	200-½	200-½	200-½	200-½
A	800-2	800-2	800-2	800-2	800-2	800-2

CAUTION: Circling landing minimums do not provide standard clearance over 277 Stack 1.1 miles SSE of Runway 4R

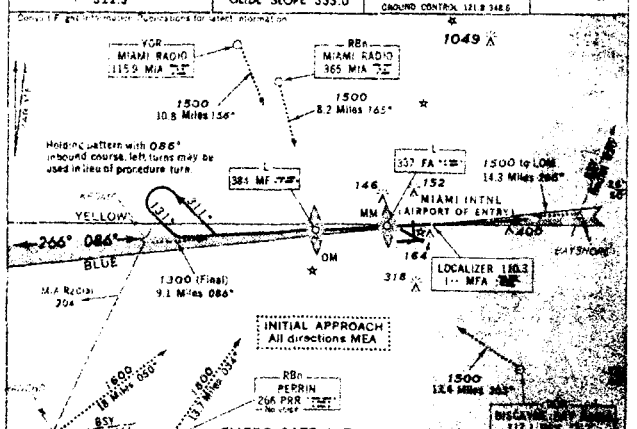


RATE OF DESCENT ON GLIDE SLOPE					
KNOTS	90	100	110	130	150
FEET/MIN	400	440	485	575	665

AL-610-ILS-RWY 4R — 40°38'N - 73°46'W — NEW YORK, N.Y.
2 APRIL 1964 — JOHN F. KENNEDY INTNL AIRPORT

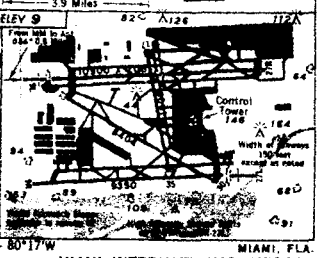
INST APCH PRO (FAA) — U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY — MIAMI INTERNATIONAL AIRPORT, MIAMI, FLA.

MIAMI APPROACH CONTROL	LOCALIZER 110.3	MIAMI TOWER	RADAR
North 123.7 South 118.1 322.3	I-- MFA GLIDE SLOPE 335.0	278 118.3 126.2 256.9 GROUND CONTROL 121.8 348.6	AVAILABLE



MINIMA	FIELD ELEV 9					
	65 knots or less 2 eng or less		Over 65 knots 2 eng or less		Over 65 knots Over 2 eng	
	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
T	300-1	300-1	300-1	300-1	200-½	200-½
C	500-1	500-1	500-1	500-1	500-1½	500-1½
S 9L*	200-½	200-½	200-½	200-½	200-½	200-½
A	600-2	600-2	600-2	600-2	600-2	600-2

*400-½ required for straight-in when glide slope inoperative

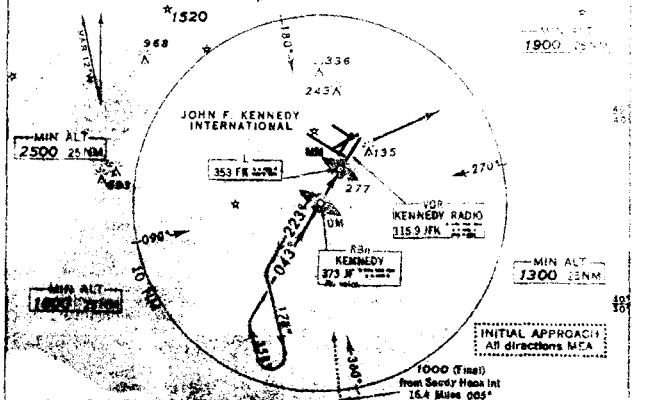


RATE OF DESCENT ON GLIDE SLOPE					
KNOTS	90	100	110	130	150
FEET/MIN	400	440	485	575	665

AL-257-ILS-RWY 9L — 25°48'N - 80°17'W — MIAMI, FLA.
11 APRIL 1964 — MIAMI INTERNATIONAL AIRPORT

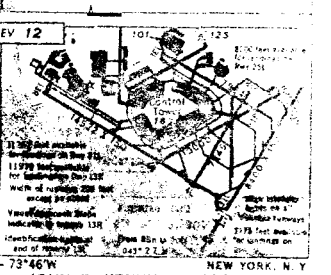
INST APCH PRO (FAA) — U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY — JOHN F. KENNEDY INTNL AIRPORT, NEW YORK, N.Y.

KENNEDY APPROACH CONTROL	KENNEDY	KENNEDY TOWER	RADAR
118.0 123.7 134.1 256.9 269.0 388.0	373 JF No voice	119.1 134.1 256.9 306.2 GROUND CONTROL 121.9	AVAILABLE



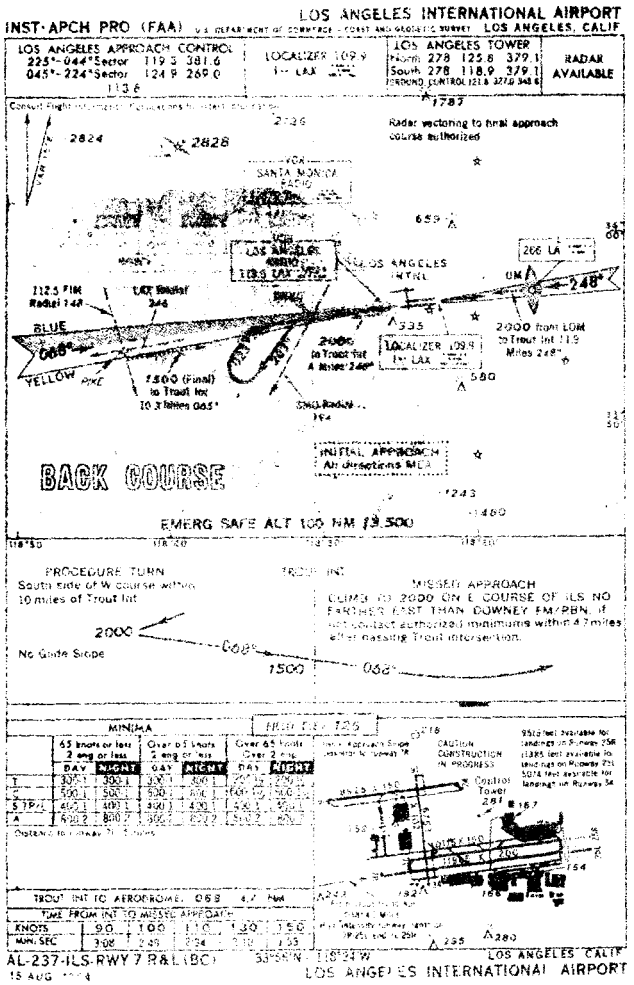
MINIMA	FIELD ELEV 12					
	65 knots or less 2 eng or less		Over 65 knots 2 eng or less		Over 65 knots Over 2 eng	
	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
T	300-1	300-1	300-1	300-1	200-½	200-½
C	500-1	500-1	500-1	500-1	500-1½	500-1½
S 4R/L	500-1	500-1	500-1	500-1	500-1	500-1
A	800-2	800-2	800-2	800-2	800-2	800-2

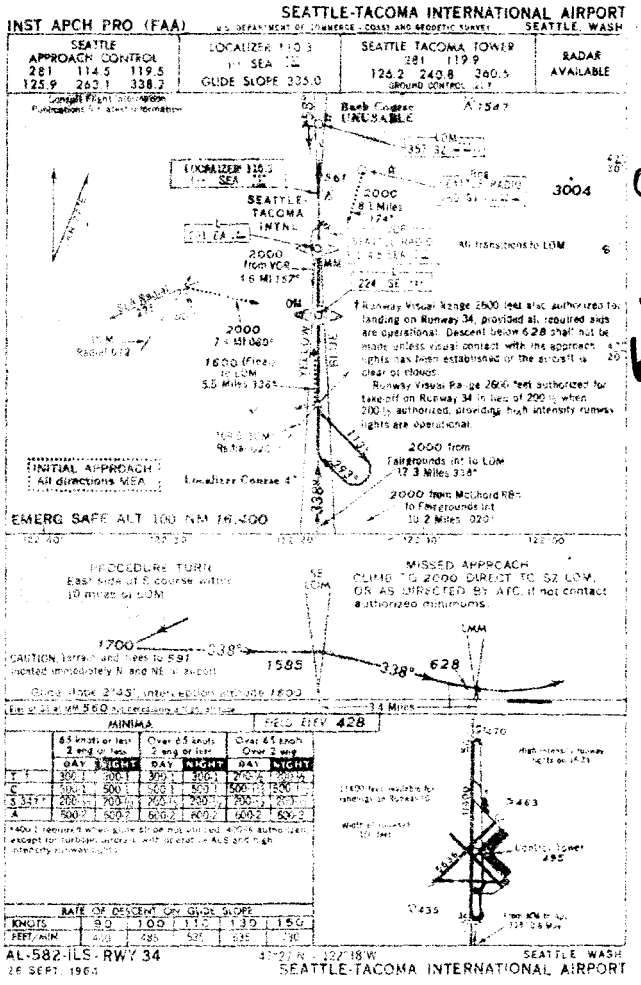
CAUTION: Circling and straight-in landing minimums do not provide standard clearance over 277 stack 1.1 miles SSE of Runway 4R
Bearing and distance to runway 4L 033° 2.8 miles

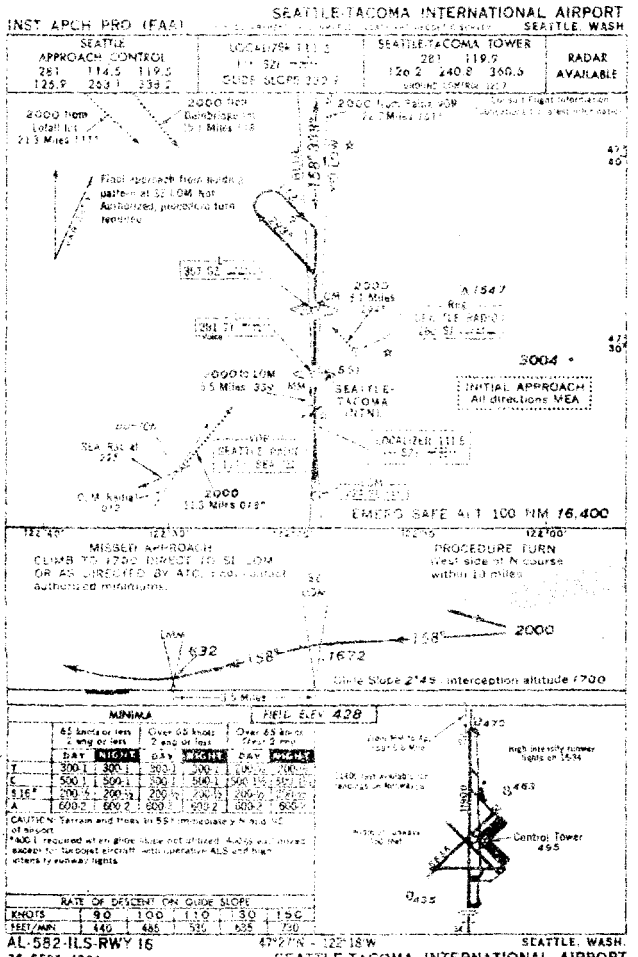


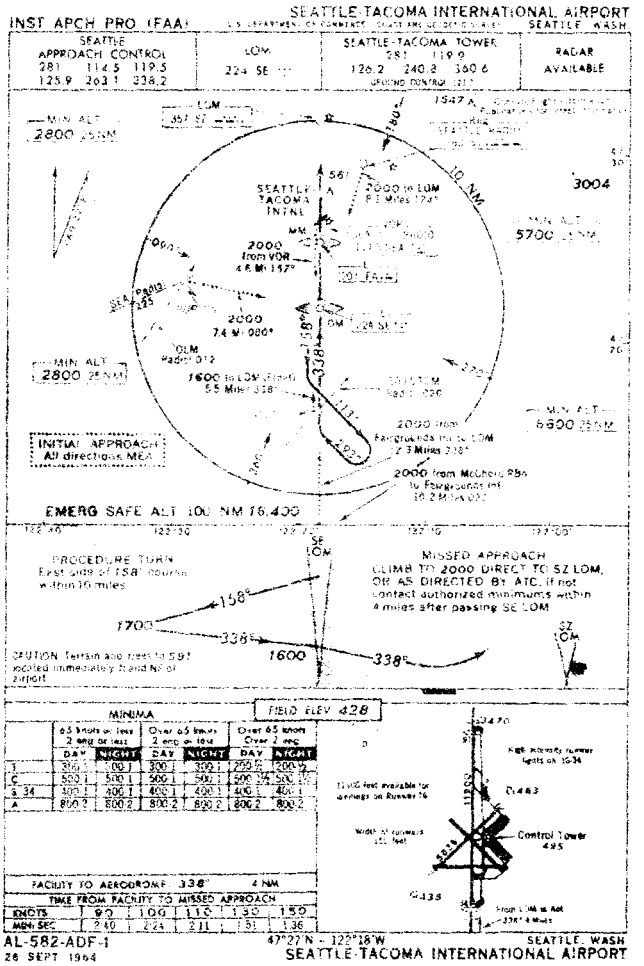
FACILITY TO AERODROME: 043° 2.7 NM					
TIME FROM FACILITY TO MISSED APPROACH					
KNOTS	90	100	110	130	150
MIN:SEC	1:48	1:37	1:28	1:15	1:06

AL-610-ADF-1 — 40°38'N - 73°46'W — NEW YORK, N.Y.
2 APRIL 1964 — JOHN F. KENNEDY INTNL AIRPORT


LOS ANGELES INTERNATIONAL AIRPORT
INST APCH PRO (FAA)
LOS ANGELES, CALIF
LOS ANGELES APPROACH CONTROL
225°-044° Sector 119.3 381.6
045°-224° Sector 124.9 269.0
113.6
LOCALIZER 109.9
LOS ANGELES TOWER
North 278 125.8 379.1
South 278 118.9 379.1
RADAR AVAILABLE
Radar vectoring to final approach course authorized
SANTA MONICA
LOS ANGELES INTNL
BLUE
YELLOW
BACK COURSE
INITIAL APPROACH All directions MEA
EMERG SAFE ALT 100 NM 19,500
PROCEDURE TURN
South side of W course within 10 miles of Trout Int
No Glide Slope
MISSED APPROACH
CLIMB TO 2000 ON E COURSE OF ILS. NO FARTHER EAST THAN DOWNEY FM/PBN. If not contact authorized minimums within 4.7 miles after passing Trout intersection.
MINIMA
FIELD ELEV 126
CAUTION CONSTRUCTION IN PROGRESS
TROUT INT TO AEROBOME 068 4.7 NM
TIME FROM INT TO MISSED APPROACH
KNOTS 90 100 110 130 150
MIN:SEC 3:08 2:49 2:34 2:16 2:03
AL-237-ILS-RWY 7 R&L(BC)
33°55'N - 118°24'W
15 AUG
LOS ANGELES CALIF
LOS ANGELES INTERNATIONAL AIRPORT


SEATTLE-TACOMA INTERNATIONAL AIRPORT
INST APCH PRO (FAA)
SEATTLE, WASH
SEATTLE APPROACH CONTROL
281 114.5 119.5
125.9 263.1 338.2
LOCALIZER 110.3
GLIDE SLOPE 335.0
SEATTLE TACOMA TOWER
281 119.9
126.2 240.8 360.5
RADAR AVAILABLE
Back Course UNUSABLE
SEATTLE-TACOMA INTNL
INITIAL APPROACH All directions MEA
EMERG SAFE ALT 100 NM 16,400
PROCEDURE TURN
East side of S course within 10 miles of LOM
MISSED APPROACH
CLIMB TO 2000 DIRECT TO SZ LOM, OR AS DIRECTED BY ATC, if not contact authorized minimums.
CAUTION Terrain and trees to 591 located immediately N and NE of airport
MINIMA
FIELD ELEV 428
RATE OF DESCENT ON GLIDE SLOPE
KNOTS 90 100 110 130 150
FEET/MIN 600 500 550 650 750
AL-582-ILS-RWY 34
47°27'N - 122°18'W
26 SEPT. 1963
SEATTLE, WASH
SEATTLE-TACOMA INTERNATIONAL AIRPORT


SEATTLE-TACOMA INTERNATIONAL AIRPORT
INST APCH PRO (FAA)
SEATTLE, WASH
SEATTLE APPROACH CONTROL
281 114.5 119.5
125.9 263.1 338.2
SEATTLE-TACOMA TOWER
281 119.9
126.2 240.8 360.5
RADAR AVAILABLE
INITIAL APPROACH All directions MEA
EMERG SAFE ALT 100 NM 16,400
MISSED APPROACH
CLIMB TO 1700 DIRECT TO SZ LOM, OR AS DIRECTED BY ATC, if not contact authorized minimums.
PROCEDURE TURN
West side of N course within 10 miles
Glide Slope 2°45' interception altitude 1700
MINIMA
FIELD ELEV 428
CAUTION Terrain and trees to 591 located immediately N and NE of airport
RATE OF DESCENT ON GLIDE SLOPE
KNOTS 90 100 110 130 150
FEET/MIN 600 665 550 635 750
AL-582-ILS-RWY 16
47°27'N - 122°18'W
SEATTLE, WASH
SEATTLE-TACOMA INTERNATIONAL AIRPORT


SEATTLE-TACOMA INTERNATIONAL AIRPORT
INST APCH PRO (FAA)
SEATTLE, WASH
SEATTLE APPROACH CONTROL
281 114.5 119.5
125.9 263.1 338.2
LOM
SEATTLE-TACOMA TOWER
281 119.9
126.2 240.8 360.6
RADAR AVAILABLE
INITIAL APPROACH All directions MEA
EMERG SAFE ALT 100 NM 16,400
PROCEDURE TURN
East side of 158° course within 10 miles
MISSED APPROACH
CLIMB TO 2000 DIRECT TO SZ LOM, OR AS DIRECTED BY ATC, if not contact authorized minimums within 4 miles after passing SE LOM
CAUTION Terrain and trees to 591 located immediately N and NE of airport
MINIMA
FIELD ELEV 428
FACILITY TO AEROBOME 338° 4 NM
TIME FROM FACILITY TO MISSED APPROACH
KNOTS 90 100 110 130 150
MIN:SEC 2:40 2:24 2:11 1:51 1:36
AL-582-ADF-1
47°27'N - 122°18'W
26 SEPT. 1964
SEATTLE, WASH
SEATTLE-TACOMA INTERNATIONAL AIRPORT