

Civil Aviation Organization

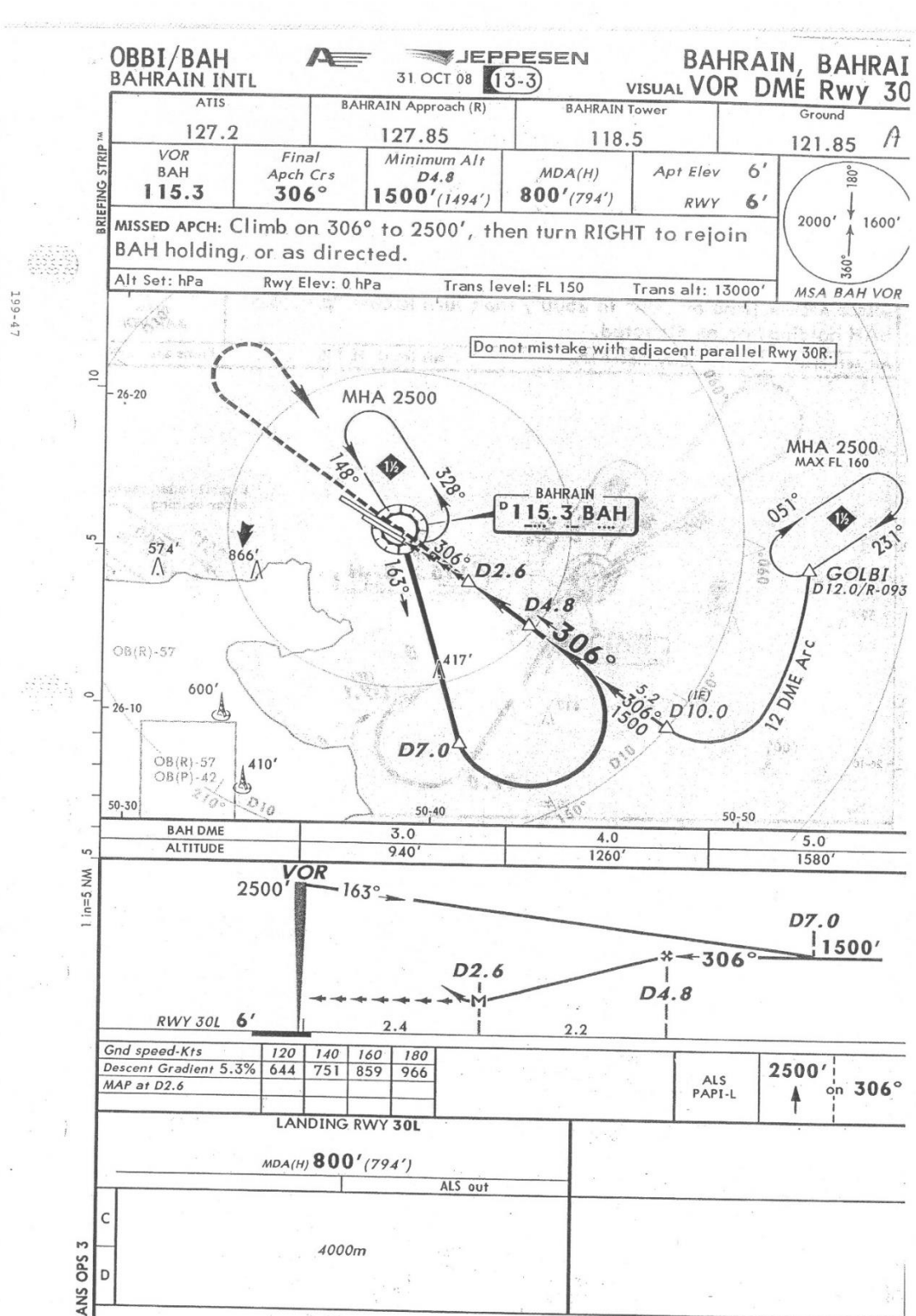
2nd Edition
Nov 2016

Flight Operation Officer

Written Exam



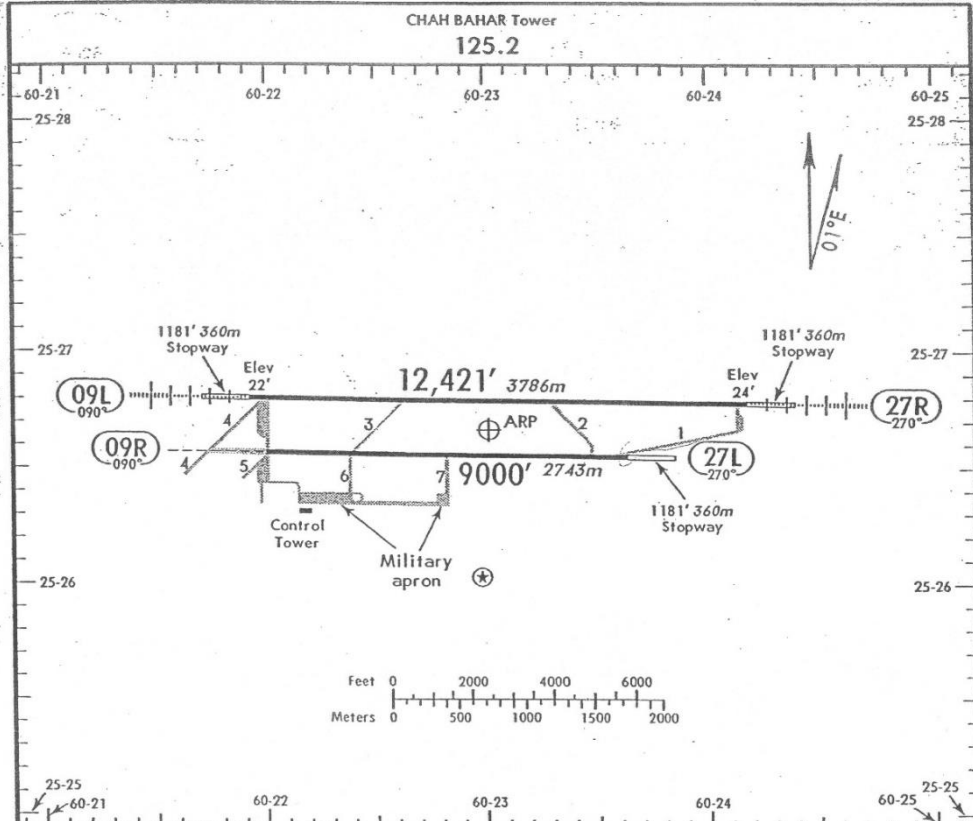
AMENDMENTS AND FIGURES:



OIZC
Apt Elev 24'
266.2°/2.0 from CBH-116.9

JEPPESSEN
31 MAR 00: (13-1)

CHAH BAHAR, IRAN
KONARAK AB
N25 26.7° E060 23.0



ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS			WIDTH
		Threshold	Landing Beyond Glide Slope	TAKE-OFF	
09L 27R	HIRL HIALS				150' 46m
09R 27L	RL ALS (configuration unknown)				150' 46m

TAKE-OFF
AIR CARRIER
All Rwys

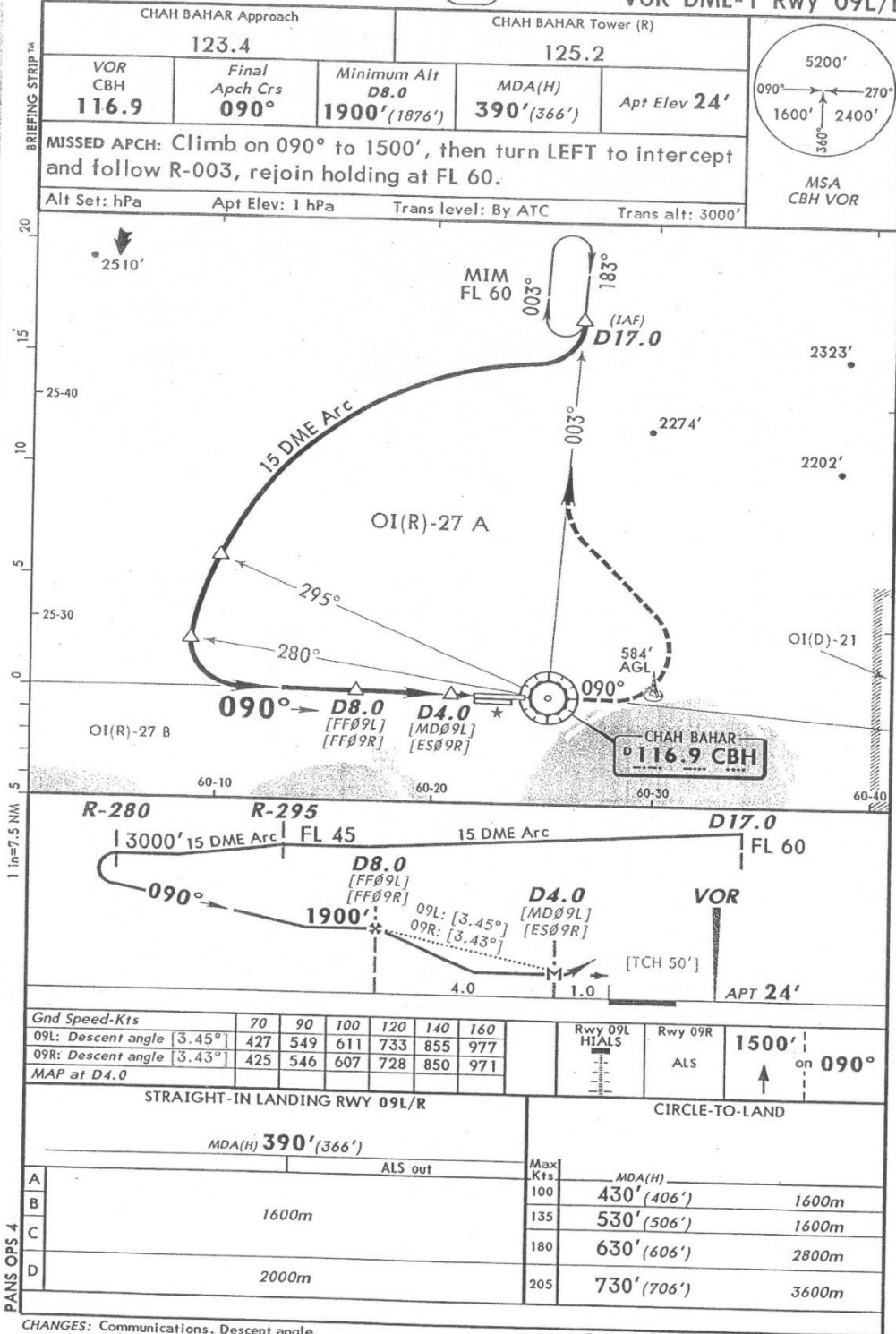
A
B
C

400m

OIZC/ZBR
KONARAK

JEPPESEN
23 JAN 09 (13-1)

CHAH BAHAR, IRAN
VOR DME-1 Rwy 09L/R



OMDB/DXB
DUBAI INTL

JEPPESEN
10 APR 09 **(11-1)**

DUBAI, UAE
ILS Rwy 12L

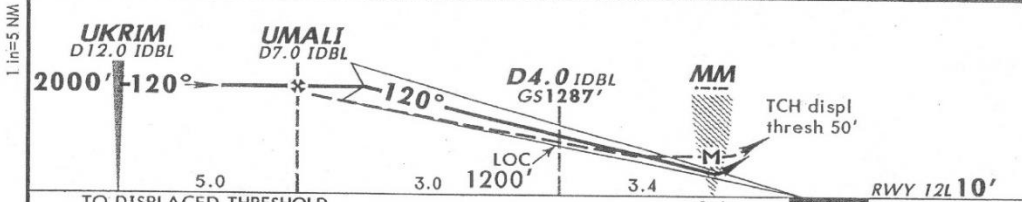
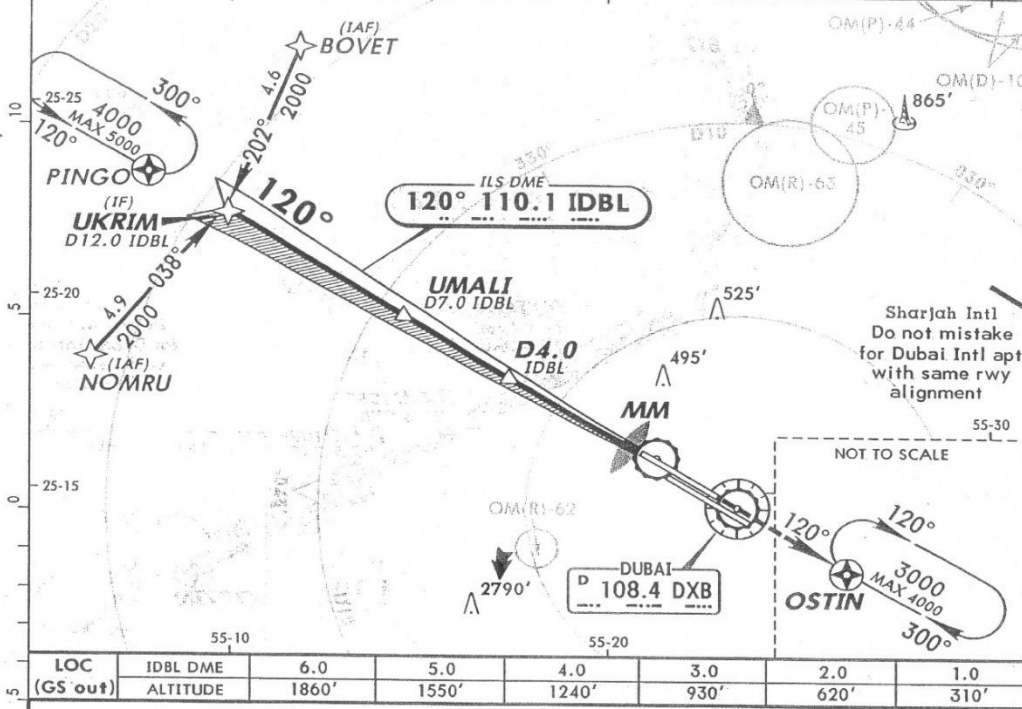
D-ATIS 131.7	DUBAI Arrivals (APP/R) 124.9	DUBAI Director (APP/R) 127.9	DUBAI Tower 118.75 119.55	Ground 118.35
LOC IDBL 110.1	Final Apch Crs 120°	GS D4.0 IDBL 1287'(1277')	CAT IIIA ILS DH 50'	CAT I & II ILS Refer to Minimums
Apt Elev 59'				RWY 10'

MISSED APCH: Climb to 3000' direct to OSTIN and hold.

Alt Set: MB Rwy Elev: 0 MB Trans level: FL 150 Trans alt: 13000'

1. RNAV/RNP5 required. 2. ILS DME reads zero at TDZ.

MSA DXB VOR



LOC (GS out)	IDBL DME	6.0	5.0	4.0	3.0	2.0	1.0
ALTITUDE		1860'	1550'	1240'	930'	620'	310'

STRAIGHT-IN LANDING RWY 12L					LOC (GS out)		CIRCLE-TO-LANE	
CAT IIIA DH 50'	CAT II RA 100' DA(H) 110'(100')	CAT I DA(H) 210'(200')			MDA(H) 590'(580')			
		FULL	TDZ or CL out	ALS out	MM out	ALS out		
C	RVR 200m	RVR 350m	RVR 550m VIS 800m	RVR 720m VIS 800m	1200m	RVR 1500m VIS 1600m	2400m	NOT AUTHORIZED
D						2000m	2800m	NOT AUTHORIZED

ANS OPS 3 CAT III: Min RVR 50m

OMDB/DXB
DUBAI INTL



JEPPESSEN
6 JUN 08 (12-1)

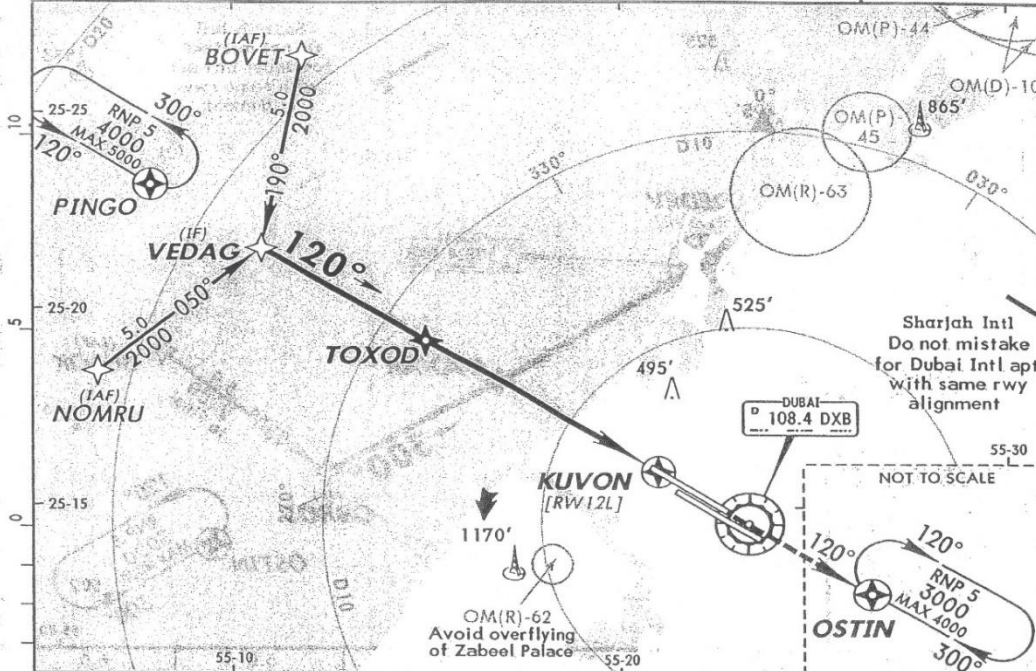
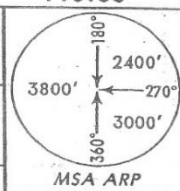
DUBAI, UAE B
RNAV (GNSS) Rwy 12L

D-ATIS 131.7	DUBAI Arrivals (APP/R) 124.9	DUBAI Director (APP/R) 127.9	DUBAI Tower 118.75	Ground 118.35
RNAV	Final Apch Crs 120°	Minimum Alt TOXOD 2000' (1990')	MDA(H) 590' (580')	Apt Elev 62' RWY 10'

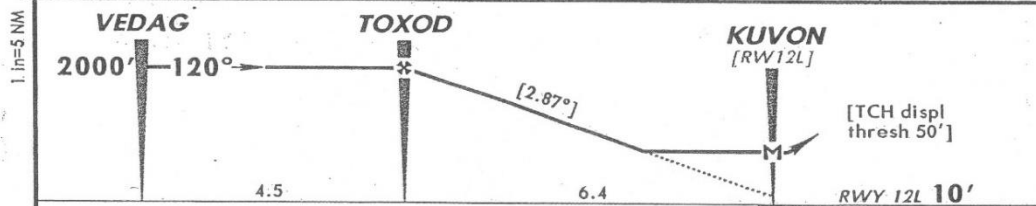
BRIEFING STRIP™

MISSED APCH: Climb to 3000' direct to OSTIN and hold.

Alt Set: MB Rwy Elev: 0 MB Trans level: FL 150 Trans alt: 13000' MSA ARP



DIST to KUVON	6.0	5.0	4.0	3.0	2.0
ALTITUDE	1880'	1580'	1280'	970'	670'



Gnd speed-Kts	120	140	160	180	HTALS-II REIL PAPI PAPI 3000' ↑ → OSTIN
Descent angle	[2.87°]	609	711	812	

MAP at KUVON

STRAIGHT-IN LANDING RWY 12L

CIRCLE-TO-LAND

MDA(H) 590' (580')

	ALS out	
C	RVR 1500m VIS 1600m	2400m
D	2000m	2800m
NOT AUTHORIZED		

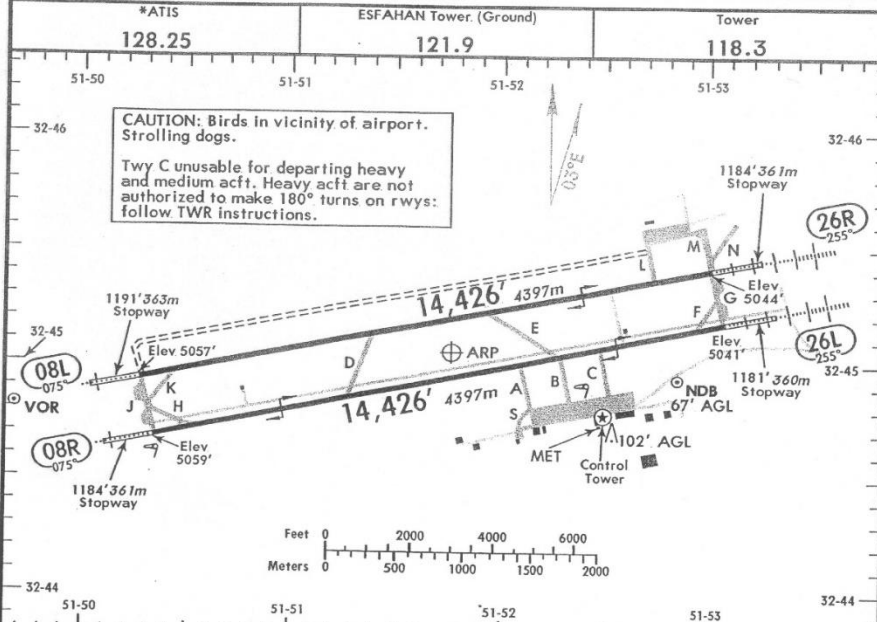
UNSP OPS 3

OIFM/IFN
Apt Elev 5059'
N32 45.1. E051 51.8

JEPPESEN

7 DEC 07 11-1

ESFAHAN, IRAN
SHAHID BEHESHTI INTL



ADDITIONAL RUNWAY INFORMATION

RWY	HIRL(60m) ALS HST-1 PAPI-L(angle 3.00°)	USABLE LENGTHS — LANDING BEYOND —			WIDTH
		Threshold	Glide Slope	TAKE-OFF	
08L	HIRL(60m) ALS HST-1 PAPI-L(angle 3.00°)				148' 45m
26R	HIRL(60m) HIALS HST PAPI-L(angle 2.65°)		13,211' 4027m		148' 45m
08R	HIRL(60m) ALS PAPI-L(angle 3.00°)				148' 45m
26L	HIRL(60m) HIALS PAPI-L(angle 3.02°)				148' 45m

① Rwy 08R/26L primarily used as taxiway.

TAKE-OFF
AIR CARRIER (JAA)
All Rwys

	RL & RCLM	NIL (DAY only)
C		
D	400m	500m

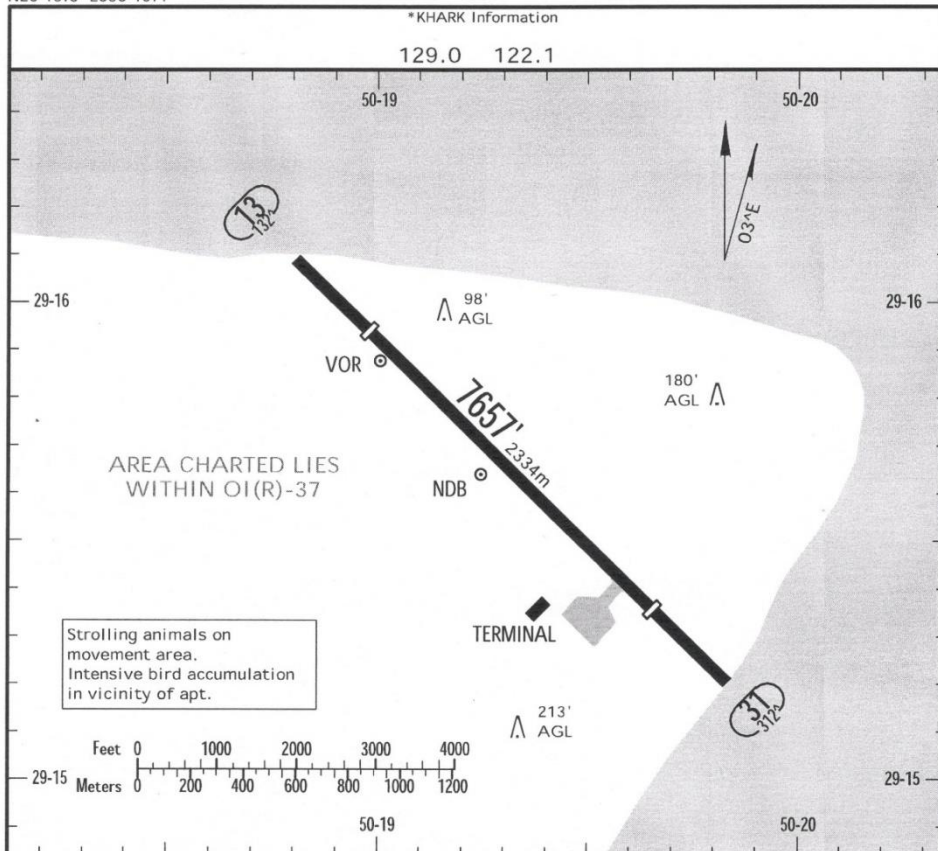
CHANGES: None.

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OIBQ/KHK
Apt Elev 29'
N29 15.6 E050 19.4

JEPPESEN
9 SEP 11 (10-9)

KHARK ISLAND, IRAN
KHARK



RWY	HIRL (60m) PAPI-L (angle 3.0°)	USABLE LENGTHS		TAKE-OFF	WIDTH	
		Threshold	Glide Slope			
13		6345'	1934m	6332'	1930m	148'
31		6332'	1930m	6345'	1934m	45m

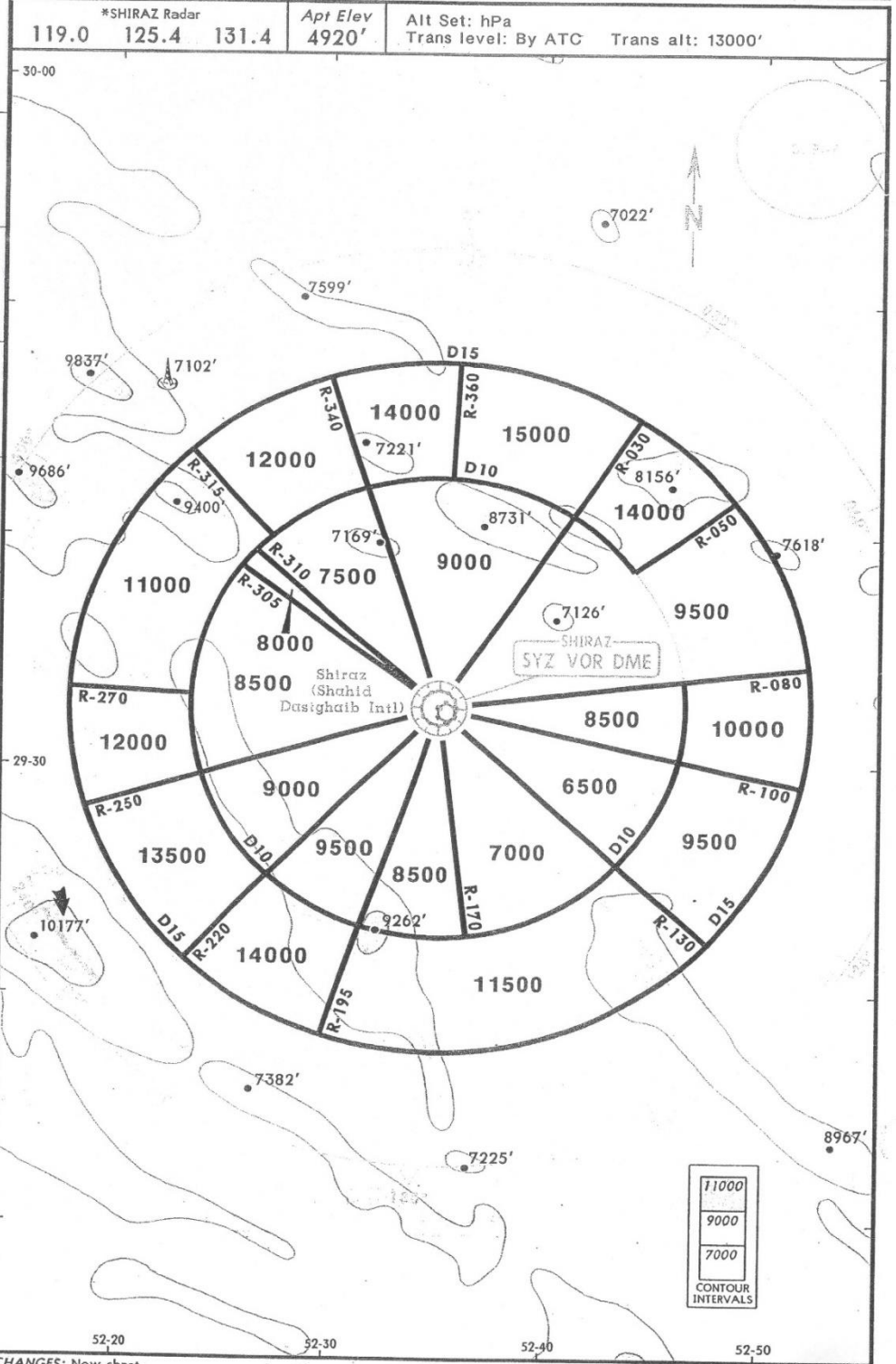
TAKE-OFF	
AIR CARRIER (JAA) All Rwy's	
RL & RCLM	NIL (DAY only)

A		
B	400m	500m
C		
D	NOT APPLICABLE	

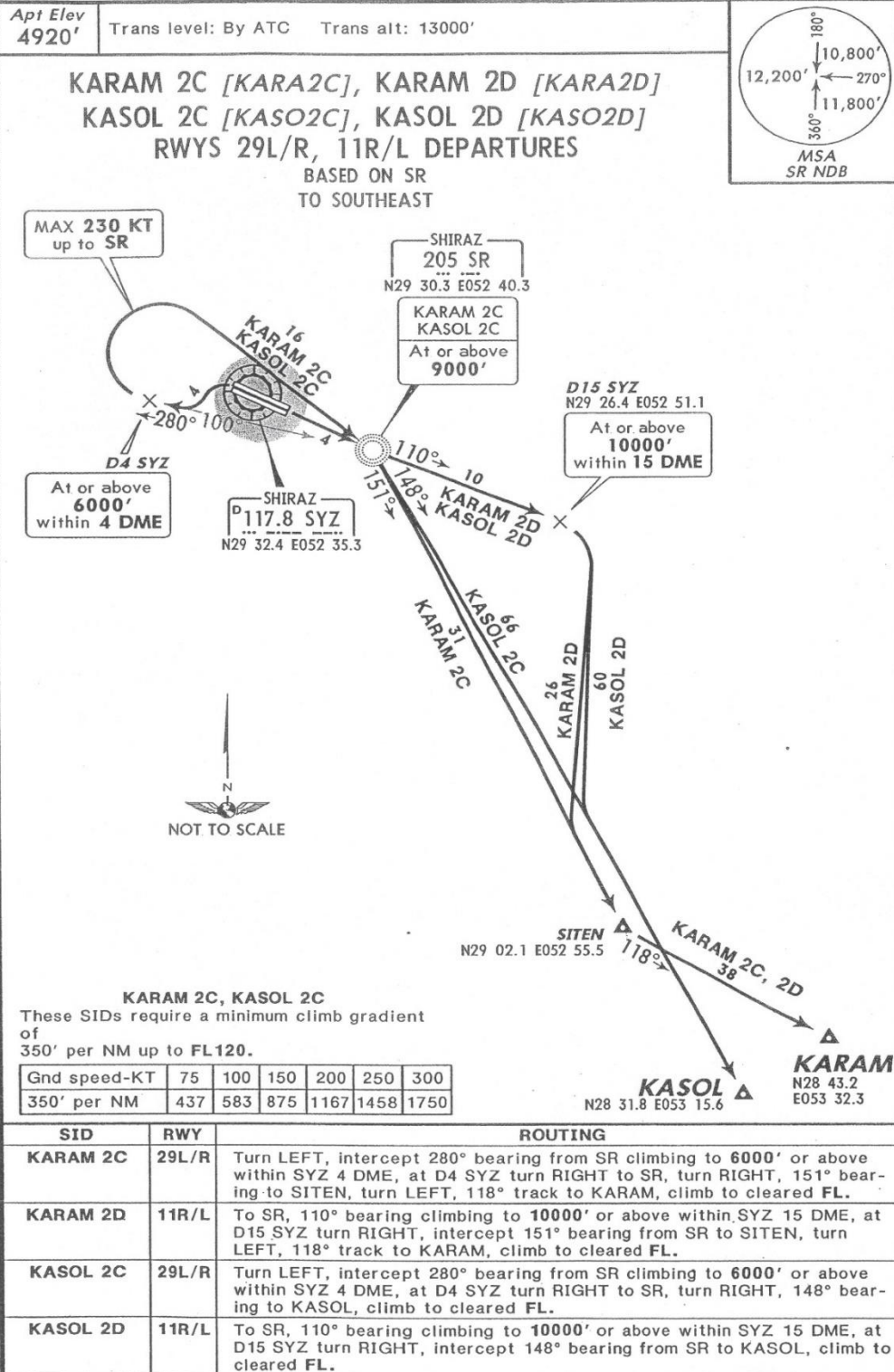
CHANGES: Runway designator. Lights. Minimums.

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OISS/SYZ  **JEPPESSEN** ✓ **SHIRAZ, IRAN**
 SHAHID DASTGHAIB INTL 11 APR 08 (10-IR1) **RADAR MINIMUM ALTITUDES**



OISS/SYZ SHAHID DASTGHAIB INTL 21 APR 06 **10-3E** ✓ **SHIRAZ, IRAN** **SID** B



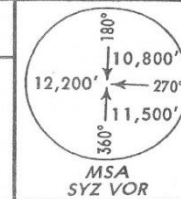
CHANGES: Trans altitude raised.

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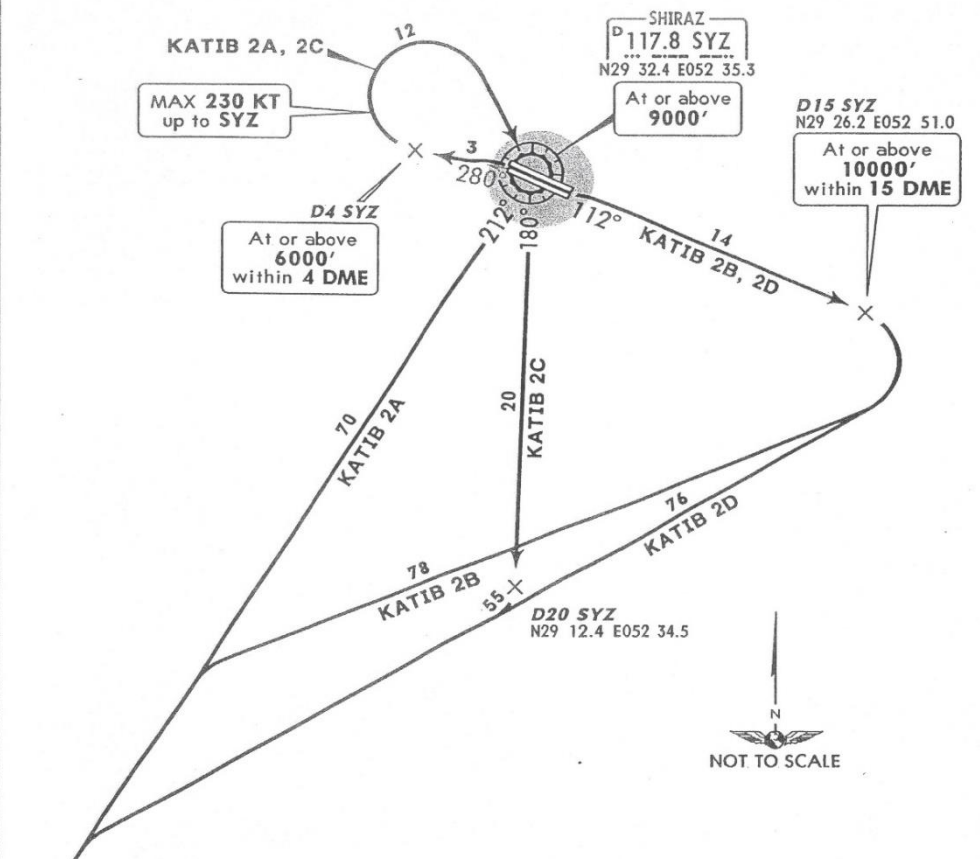
OISS/SYZ SHAHID DASTGHAIB INTL 21 APR 06 (10-3H) SHIRAZ, IRAN SID

Apt Elev
4920'

Trans level: By ATC Trans alt: 13000'



KATIB 2A [KATI2A], KATIB 2B [KATI2B]
KATIB 2C [KATI2C], KATIB 2D [KATI2D]
RWYS 29L/R, 11R/L DEPARTURES
BASED ON SYZ
TO SOUTHSOUTHWEST



KATIB 2A, 2C

These SIDs require a minimum climb gradient of 350' per NM up to FL120.

Gnd speed-KT	75	100	150	200	250	300
350' per NM	437	583	875	1167	1458	1750

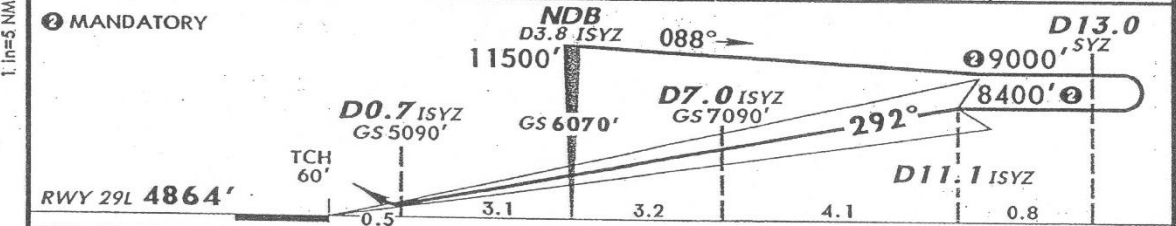
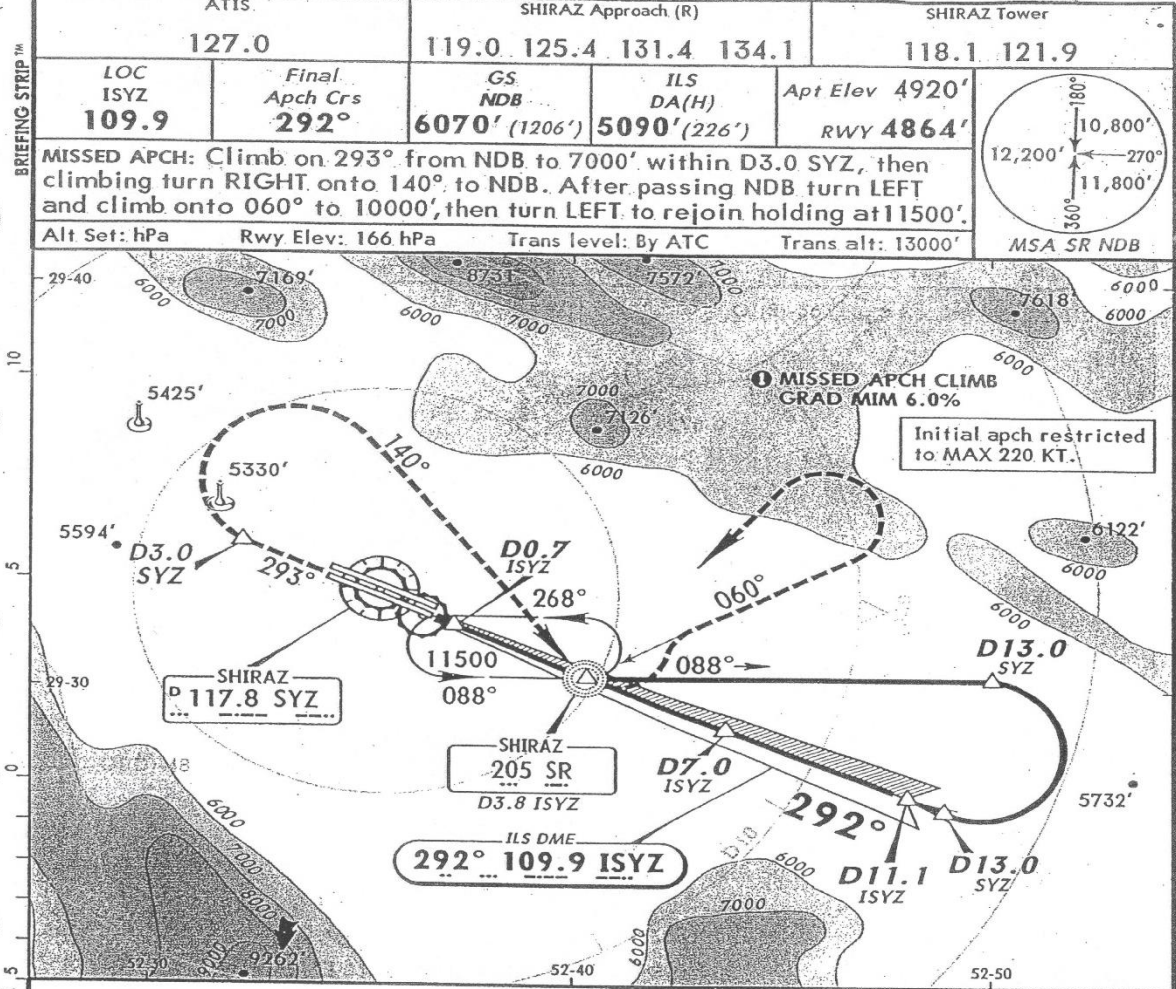
KATIB
N28 34.2 E051 50.8

SID	RWY	ROUTING
KATIB 2A	29L/R	Turn LEFT, intercept SYZ R-280 climbing to 6000' or above within SYZ 4 DME, at D4 SYZ turn RIGHT to SYZ, turn RIGHT, SYZ R-212 to KATIB, climb to cleared FL.
KATIB 2B	11R/L	Intercept SYZ R-112 climbing to 10000' or above within SYZ 15 DME, at D15 SYZ turn RIGHT, intercept SYZ R-212 to KATIB, climb to cleared FL.
KATIB 2C	29L/R	Turn LEFT, intercept SYZ R-280 climbing to 6000' or above within SYZ 4 DME, at D4 SYZ turn RIGHT to SYZ, turn RIGHT, SYZ R-180, at D20 SYZ turn RIGHT, intercept SYZ R-212 to KATIB, climb to cleared FL.
KATIB 2D	11R/L	Intercept SYZ R-112 climbing to 10000' or above within SYZ 15 DME, at D15 SYZ turn RIGHT, pass SYZ R-180 beyond SYZ 20 DME, intercept SYZ R-212 to KATIB, climb to cleared FL.

CHANGES: Trans altitude raised.

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OISS/SYZ  **JEPPesen** **SHIRAZ, IRAN**
SHAHID DASTGHAIB INTL 25 AUG 06 **Eff 31 Aug** **(11-5)** **NDB DME ILS-2 Rwy 29L**

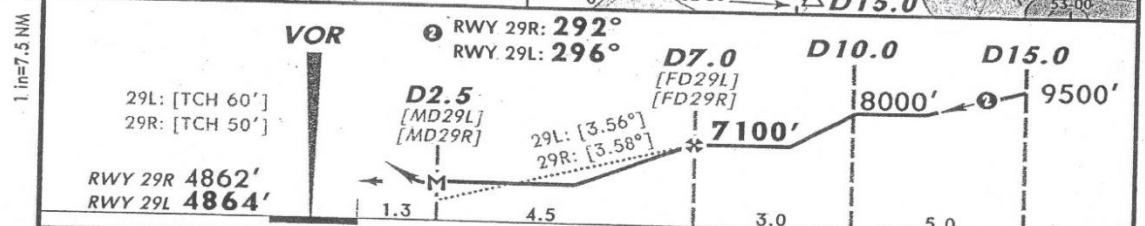
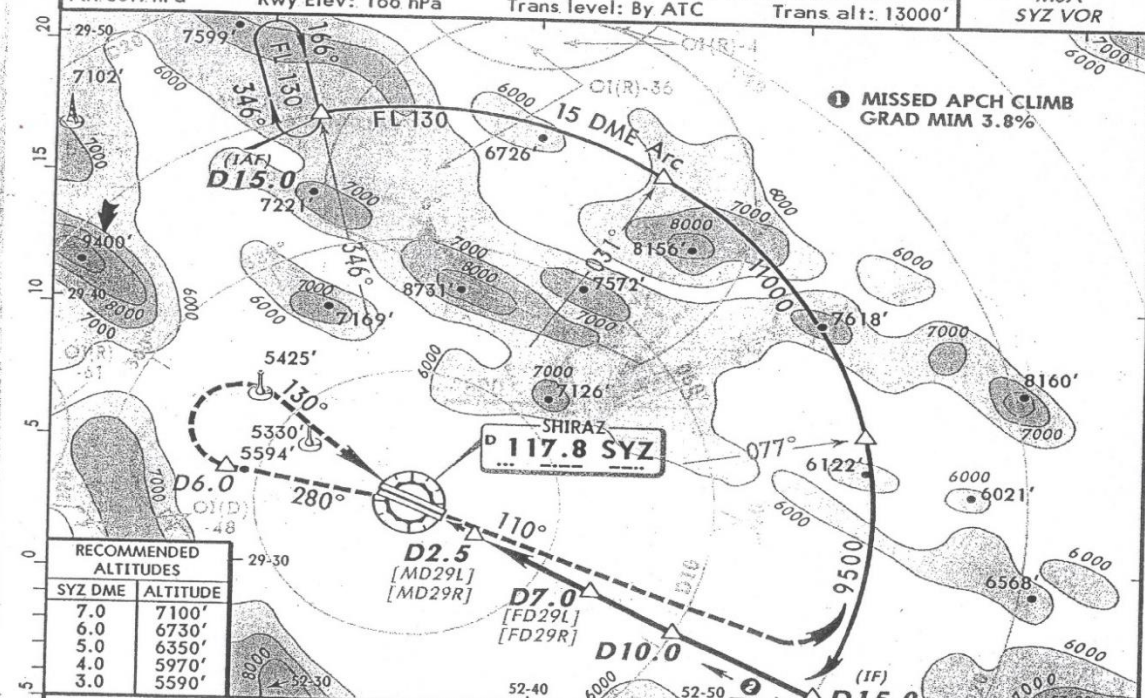
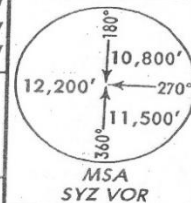


Gnd speed-Kts	120	140	160	180	HIALS PAPI-L	7000' on 293° from SR within D3.0 SYZ
GS	3.00°	646	753	861		
STRAIGHT-IN LANDING RWY 29L Missed apch climb gradient mim 6.0%					CIRCLE-TO-LAND	
ILS DA(H) 5087' (223')			LOC (GS out)		Not authorized North of airport	
FULL		ALS out		Max Kts	MDA(H)	
800m		1200m		180	6380' (1460') 4800m	
NOT APPLICABLE				205		

CHANGES: Procedure. Chart reindexed. © JEPPesen SANDERSON, INC., 2001, 2006. ALL RIGHTS RESERVED

OISS/SYZ **SHAHID DASTGHAIB INTL** **25 AUG 06** **JEPPESSEN** **SHIRAZ, IRAN**
Eff 31 Aug **(13-1)** **VOR DME-1 Rwy 29L/R**

ATIS 127.0		SHIRAZ Approach (R) 119.0 125.4 131.4 134.1			SHIRAZ Tower 118.1 121.9	
VOR SYZ 117.8	Final Apch Crs RWY 29L 296° RWY 29R 292°	Minimum Alt D7.0 7100' (2236')	MDA(H) Refer to Minimums	Apt Elev 4920' RWY 29L 4864' RWY 29R 4862'		
<p>MISSED APCH: Climb STRAIGHT AHEAD to VOR, then turn LEFT to continue climb on R-280 to 7400' within D6.0. Turn RIGHT and proceed on 130° to overhead VOR, then proceed on R-110. Turn LEFT to maintain 15 DME Arc to rejoin holding at FL 130. MAX 185 KT. until overhead VOR.</p>						
Alt Set: hPa		Rwy Elev: 166 hPa		Trans level: By ATC		Trans alt: 13000'



Gnd Speed-Kts	120	140	160	180	HIALS PAPI-L	185 KT MAX	SYZ 117.8 ↑
29L: Descent angle [3.56°]	756	882	1008	1134			
29R: Descent angle [3.58°]	760	887	1014	1140			

STRAIGHT-IN LANDING RWY 29L/R Missed apch climb gradient mim 3.8% MDA(H) RWY 29L: 5510' (646') RWY 29R: 5510' (648')				CIRCLE-TO-LAND Not authorized North of airport MDA(H)			
C	2000m	2800m		Max Kts	6380' (1460')	4800m	
	D	2400m	3200m				

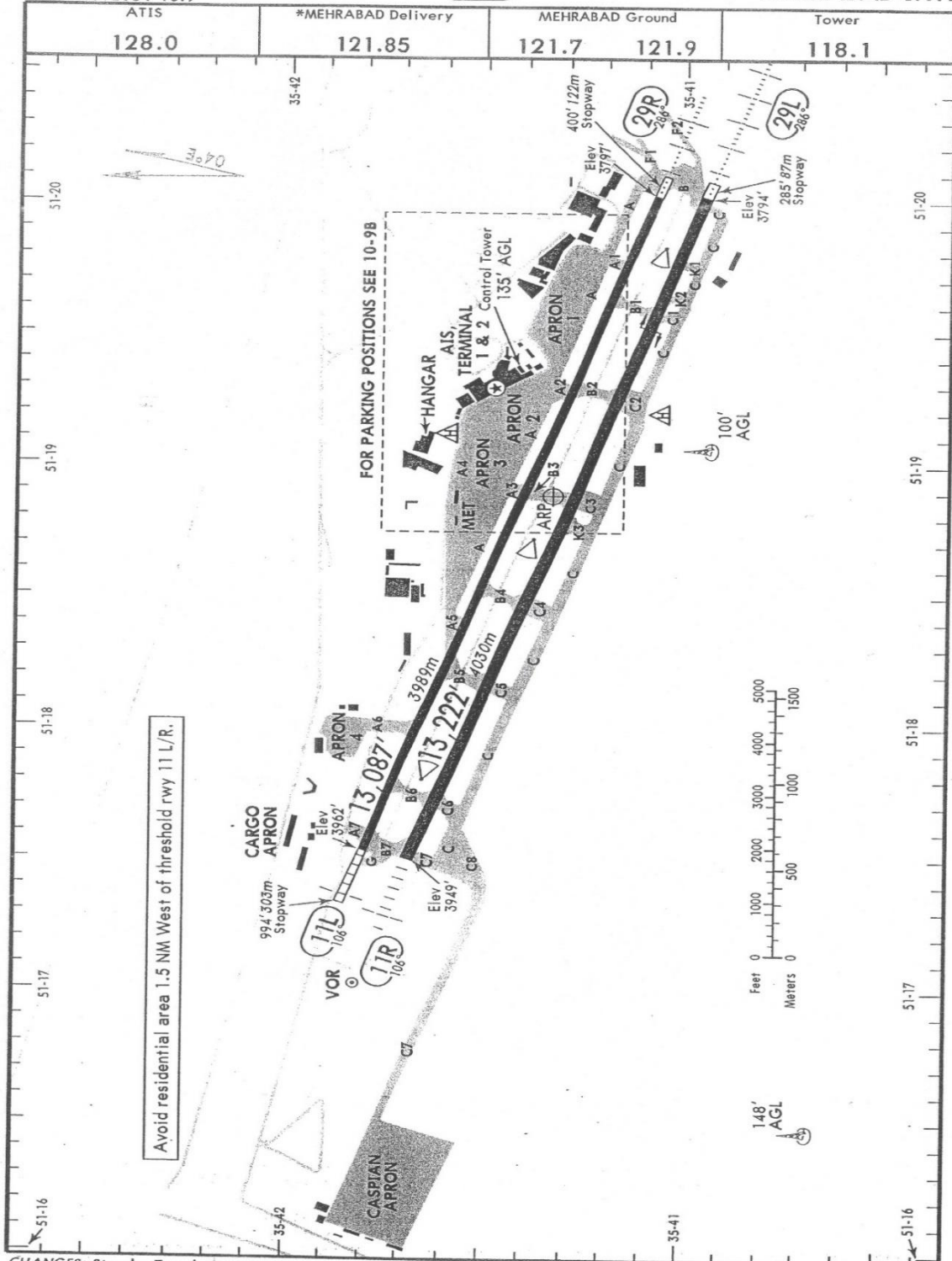
CHANGES: None.

OIII/THR
Apt Elev 3962'
N35 41.3 E051 18.9



JEPPESEN
31 JUL 09 10-9

TEHRAN, IRAN
MEHRABAD INTL



CHANGES: Stands. Twy designation. New apron 4.

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OIII/THR



JEPPESSEN

16 MAR 07 10-9A

TEHRAN, IRAN
MEHRABAD INTL

INS COORDINATES			
STAND No.	COORDINATES	STAND No.	COORDINATES
1, 2	N35 41.5 E051 19.0	23	N35 41.3 E051 19.7
3	N35 41.5 E051 19.1	24	N35 41.3 E051 19.6
4, 5	N35 41.5 E051 19.0	25	N35 41.3 E051 19.7
6, 7	N35 41.5 E051 19.1	26	N35 41.3 E051 19.6
8, 9	N35 41.5 E051 19.2	27	N35 41.3 E051 19.8
13	N35 41.4 E051 19.3	28	N35 41.3 E051 19.7
14	N35 41.3 E051 19.4	29	N35 41.3 E051 19.8
15	N35 41.4 E051 19.5	30, 32	N35 41.2 E051 19.7
16	N35 41.3 E051 19.5	J1	N35 41.5 E051 19.2
17	N35 41.4 E051 19.6	J2, J3	N35 41.4 E051 19.3
18	N35 41.3 E051 19.5		
19	N35 41.3 E051 19.6		
20	N35 41.3 E051 19.5		
21	N35 41.3 E051 19.7		
22	N35 41.3 E051 19.6		

GENERAL

Birds and stray dogs in vicinity of airport.
RWY 11L/R right-hand circuit.

ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS		TAKE-OFF	WIDTH
		LANDING Threshold	BEYOND Glide Slope		
11L	HIRL(60m) ALS PAPI-L (angle 3.22°)				148'
29R	HIRL(60m) HIALS PAPI-L (angle 3.22°)			①	45m
① MIL jet barrier 100' West of RWY 11L height 12' AGL is in up psn and can be lowered on request.					
11R	HIRL(60m) ALS PAPI-L (angle 3.36°)				197'
29L	HIRL(60m) HIALS SFL PAPI-L (angle 3.30°)	②	12,397' 3779m	②	60m
② Single engine aircraft should use portion of runway West of arrester gear which is installed 2598'/792m inwards from threshold 29L.					

TAKE-OFF & DEPARTURE PROCEDURE

AIR CARRIER (JAA)	
All Rwys	
	NIL (DAY only)
C	RL & RCLM
D	400m
	500m

Departure rwy 11 L/R: Rwy 11 not used for T/O during 1730 - 0430 except tail wind component of rwy 29 is 10 KT or more.

Departure rwy 29 L/R: To avoid residential area 1.5 NM West of rwy 11 all JET acft are to make a LEFT turn as soon as practicable after passing end of rwy and follow assigned SID.

CHANGES: Minimums.

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OIIE/IKA



JEPPESEN

5 DEC 08

20-9A

Eff: 18 Dec

TEHRAN, IRAN

IMAM KHOMAINI INTL

RWY	ADDITIONAL RUNWAY INFORMATION					USABLE LENGTHS			WIDTH
						LANDING BEYOND		TAKE-OFF	
						Threshold	Glide Slope		
11	HIRL (60m)	CL (30m)	HIALS	PAPI-L (3.0°)	RVR				
29	HIRL (60m)	CL (30m)	HIALS-II	SFL TDZ ①	RVR		12,801' 3902m		148' 45m

① PAPI-L (angle 3.0°).

MINIMUM RUNWAY OCCUPANCY TIME

ARRIVALS:

In order to minimize the occurrence of "go-around", lessen the runway occupancy time and, therefore, get the maximum runway utilization, pilots shall exit the rwy as soon as possible and this will not affect the acft safety and standard operation.

DEPARTURES:

Pilots, when the corresponding clearance is issued, shall be able to taxi to the take-off position in the rwy as soon as the preceding departure acft had began the take-off or the preceding arrival acft had passed their holding position.

Acft shall be able to initiate the take-off immediately after clearance is issued.

Pilots unable to comply with this requirement shall notify to ATC as soon as possible and once in contact with Tower.

Acft not ready to initiate take-off run immediately when cleared for take-off, will have take-off clearance cancelled and will receive instructions to vacate the rwy at the first available twy.


	TAKE-OFF		
	AIR CARRIER (JAA) All Rwys		
	LVP must be in force RL & CL & RCLM	RL & RCLM	NIL (DAY only)
C	300m	400m	500m
D			

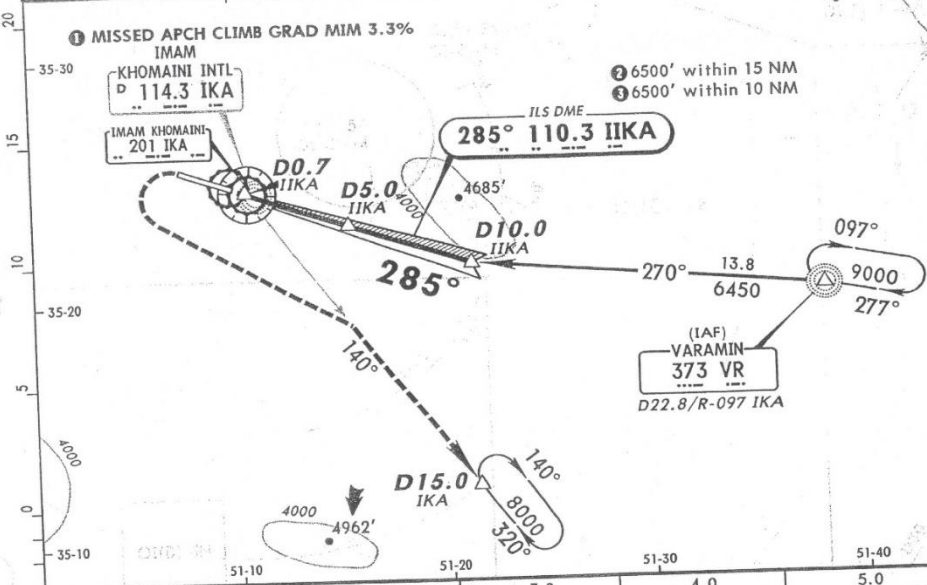
CHANGES: Usable lengths.

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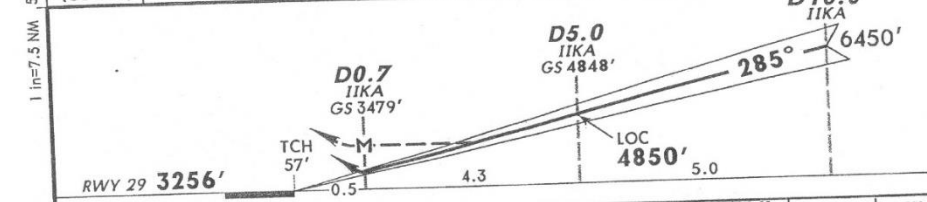
OIIIE/IKA
IMAM KHOMAINI INTL

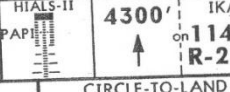
20 MAR 09 **(21-1)** **VOR DME ILS-1 Rwy 29**

ATIS 127.2		MEHRABAD Approach (R) 119.7 125.1 124.45		IKA Tower 118.7	Ground 121.82 121.6
LOC IKA 110.3	Final Apch Crs 285°	GS D5.0 IKA 4848' (1592')	ILS DA(H) 3479' (223')	Apt Elev 3305'	RWY 3256'
MISSED APCH: Climb on R-285 to 4300', then turn LEFT to intercept R-140 to join D15.0 IKA holding at 8000'.					
Alt Set: hPa Rwy Elev: 114 hPa Trans level: By ATC Trans alt: 9000'					
Procedure restricted to MAX 220 KT.					MSA IKA VOR



LOC (GS out)	IKA DME ALTITUDE	2.0 3880'	3.0 4200'	4.0 4510'	5.0 4850'
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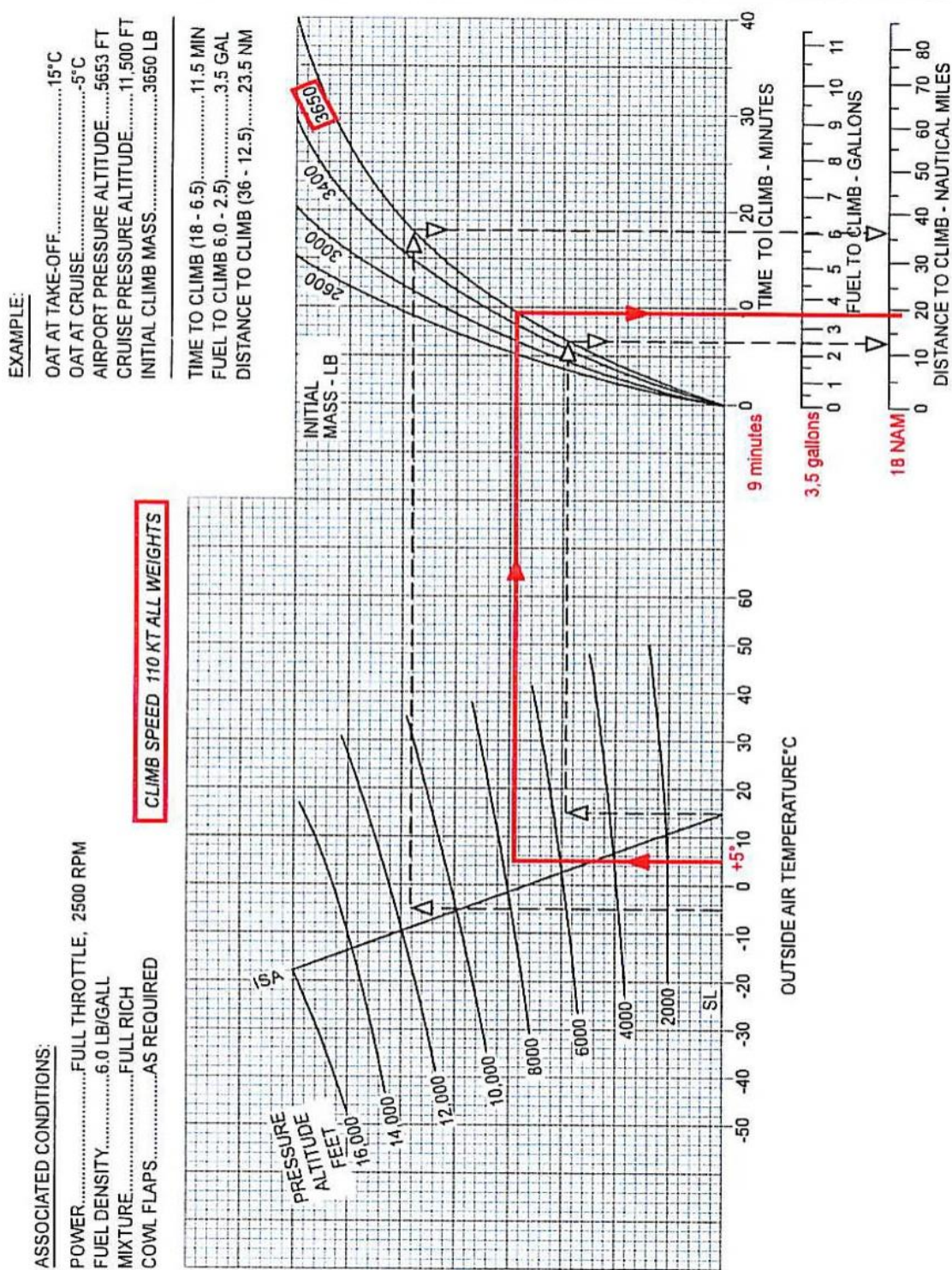
Gnd speed-Kts	120	140	160	180	HIALS-II PAP 	4300' IKA on 114.3 R-285
ILS GS 3.00° or LOC Desc Grad 5.2%	646	753	861	968		
MAP at D0.7 IKA						

STRAIGHT-IN LANDING RWY 29 Missed apch climb gradient mim 3.3%					CIRCLE-TO-LAND	
ILS DA(H) 3479' (223')			LOC (GS out) MDA(H) 3690' (434')		Max Kts	MDA(H)
FULL	TDZ or CL out	ALS out	ALS out	ALS out		
C	RVR 550m VIS 800m	RVR 720m VIS 800m	1200m	1200m	180	3900'(595') 2400m
D				RVR 1500m VIS 1600m	205	4010'(705') 3600m

CHANGES: Minimums.

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FIGURE F-01



Time, Fuel and Distance to Climb

FIGURE F-02

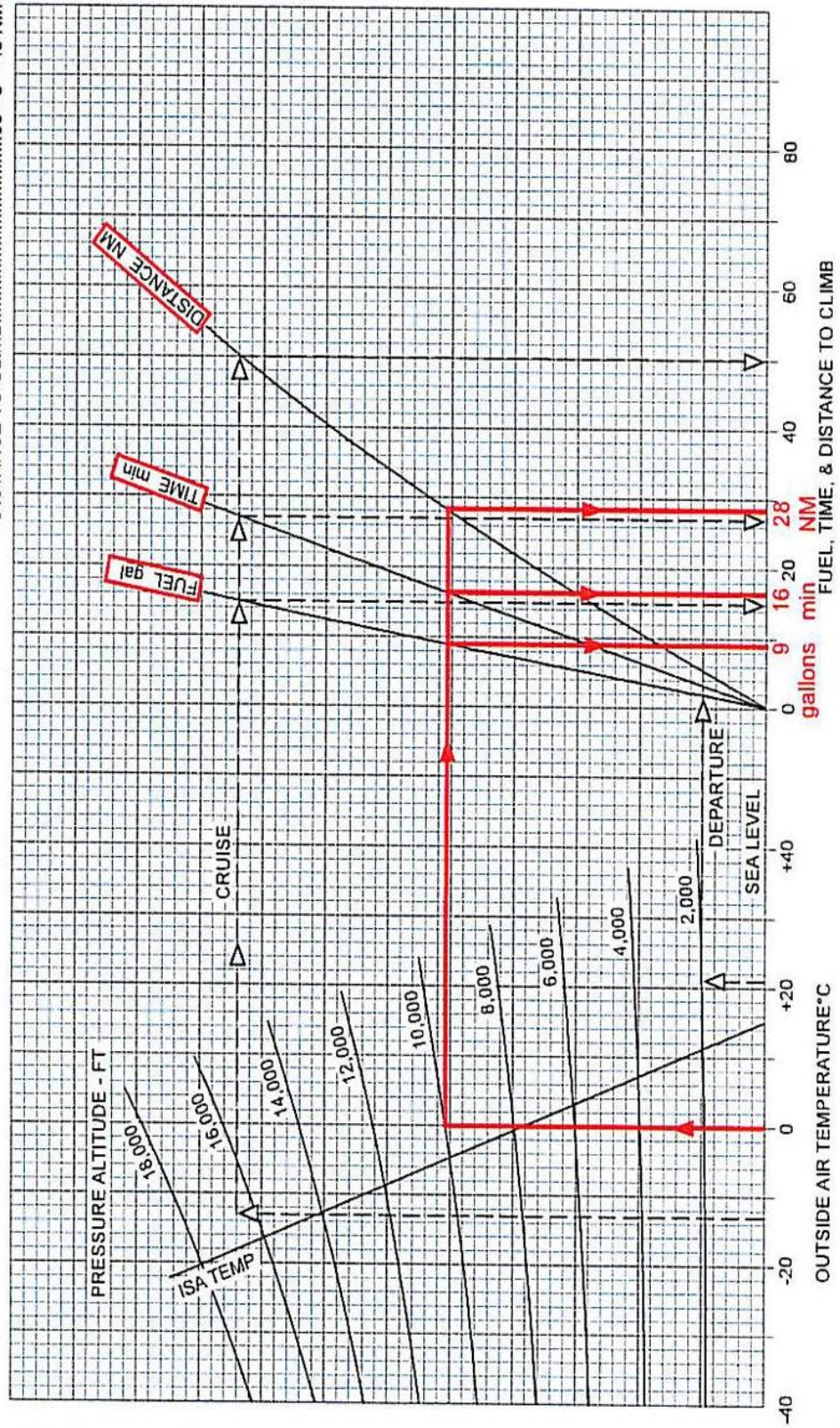
ASSOCIATED CONDITIONS:

4750 LB GEAR UP
COWL FLAPS CLOSED
2600 RPM & 33 IN. HG. or FULL THROTTLE
MIXTURE FULL RICH

CLIMB SPEED 120 kt IAS

EXAMPLE:

DEPARTURE AIRPORT ALTITUDE.....2000 ft
DEPARTURE AIRPORT OAT.....21°C
CRUISE ALTITUDE.....16,500 ft
CRUISE OAT.....-13°C
FUEL TO CLIMB.....15 - 2 = 13 gal
TIME TO CLIMB.....27 - 3 = 24 min
DISTANCE TO CLIMB.....50 - 5 = 45 NM



Climb

FIGURE F-03

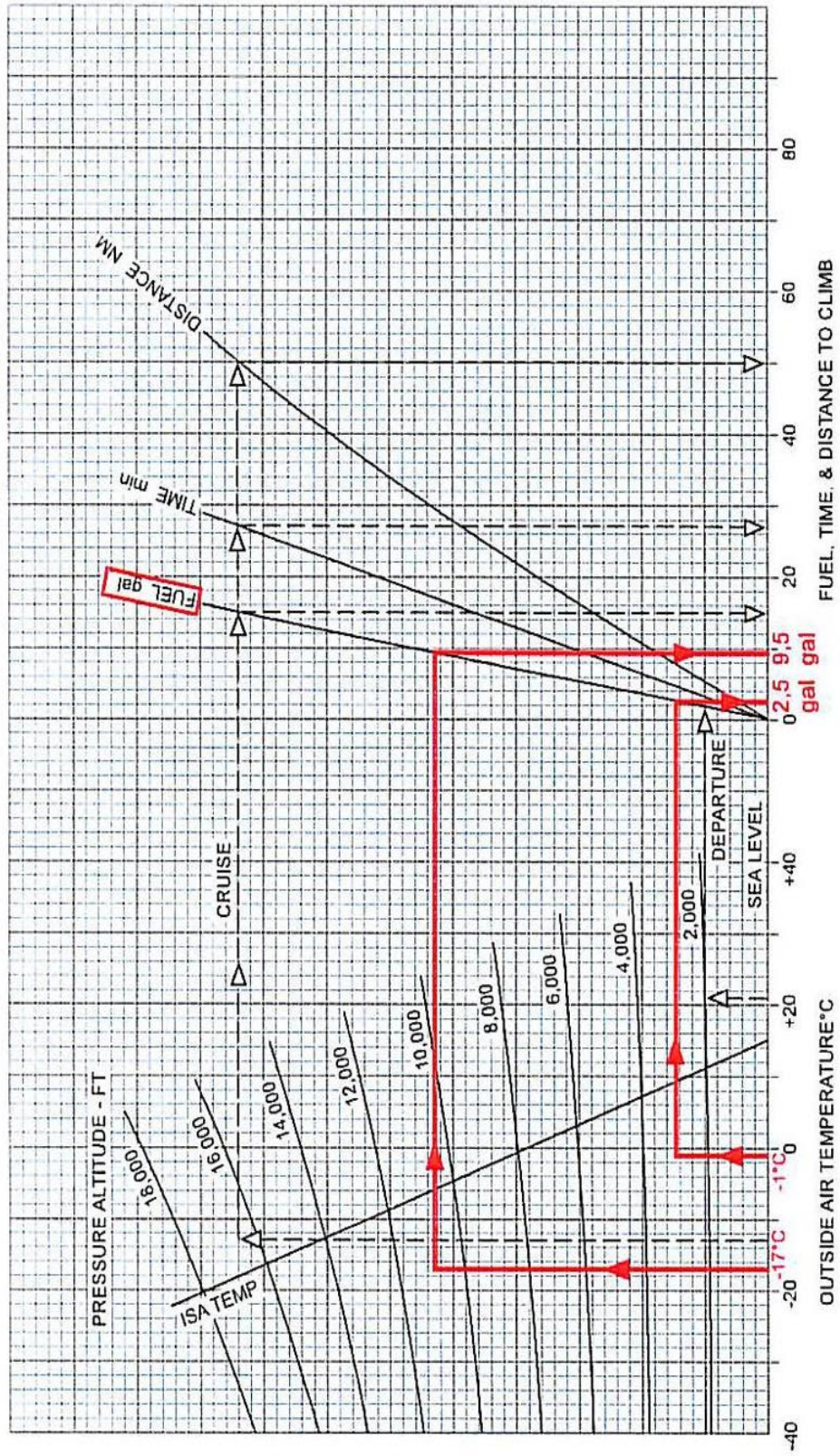
ASSOCIATED CONDITIONS:

4750 LB GEAR UP
COWL FLAPS CLOSED
2600 RPM & 33 IN. HG. or FULL THROTTLE
MIXTURE FULL RICH

CLIMB SPEED 120 kt IAS

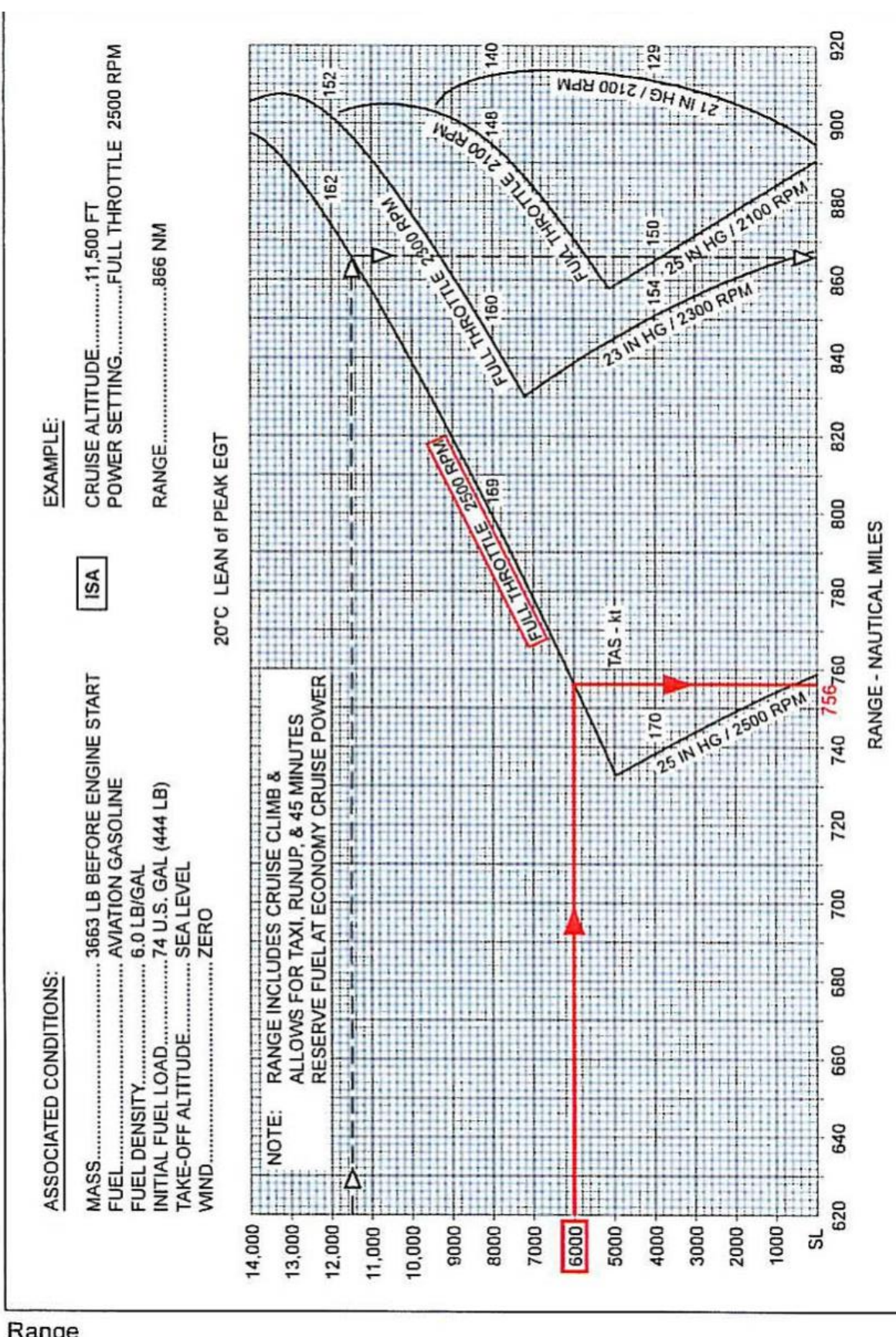
EXAMPLE:

DEPARTURE AIRPORT ALTITUDE.....2000 ft
DEPARTURE AIRPORT OAT.....21°C
CRUISE ALTITUDE.....16,500 ft
CRUISE OAT.....-13°C
FUEL TO CLIMB.....15 - 2 = 13 gal
TIME TO CLIMB.....27 - 3 = 24 min
DISTANCE TO CLIMB.....50 - 5 = 45 NM



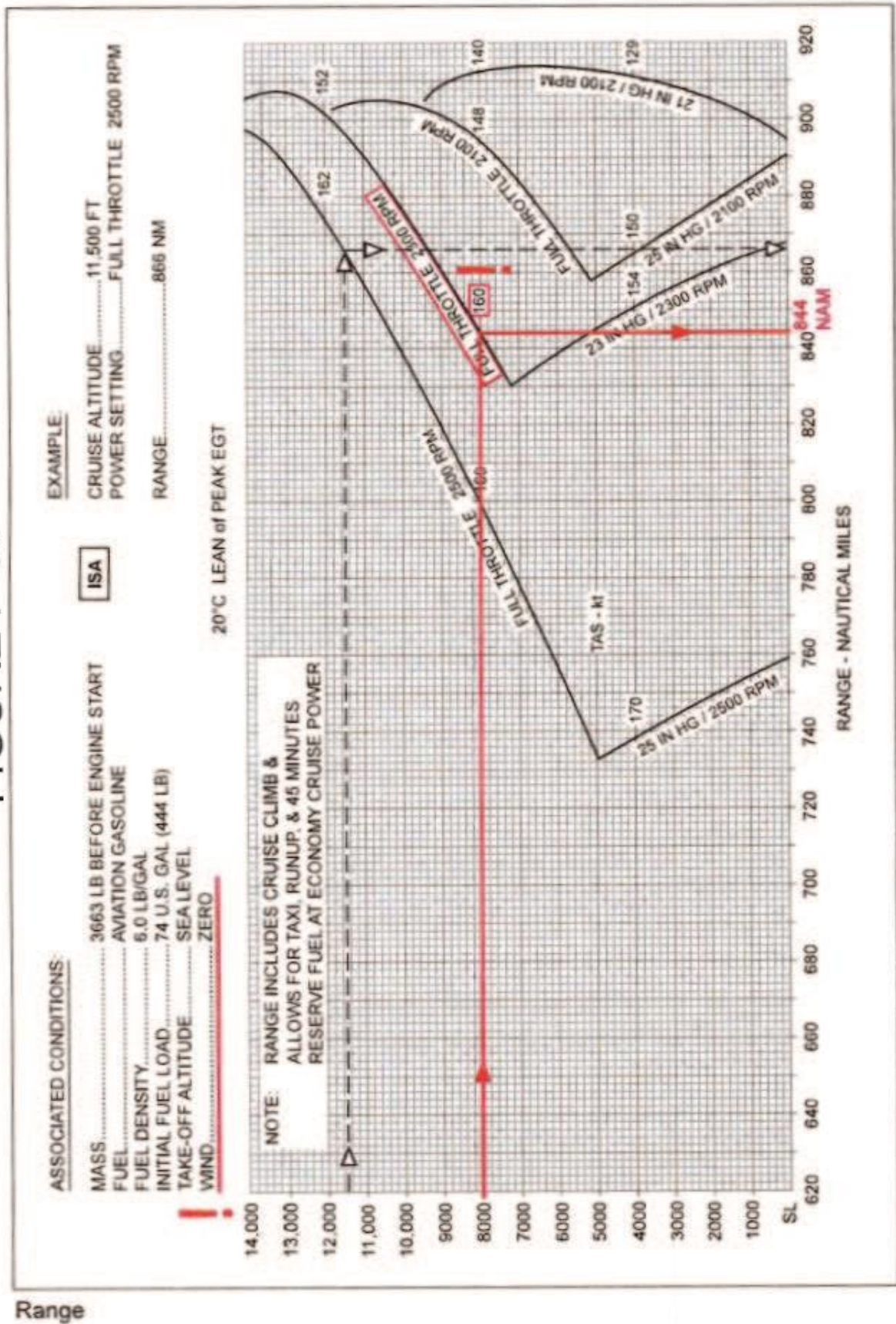
Climb

FIGURE F-04



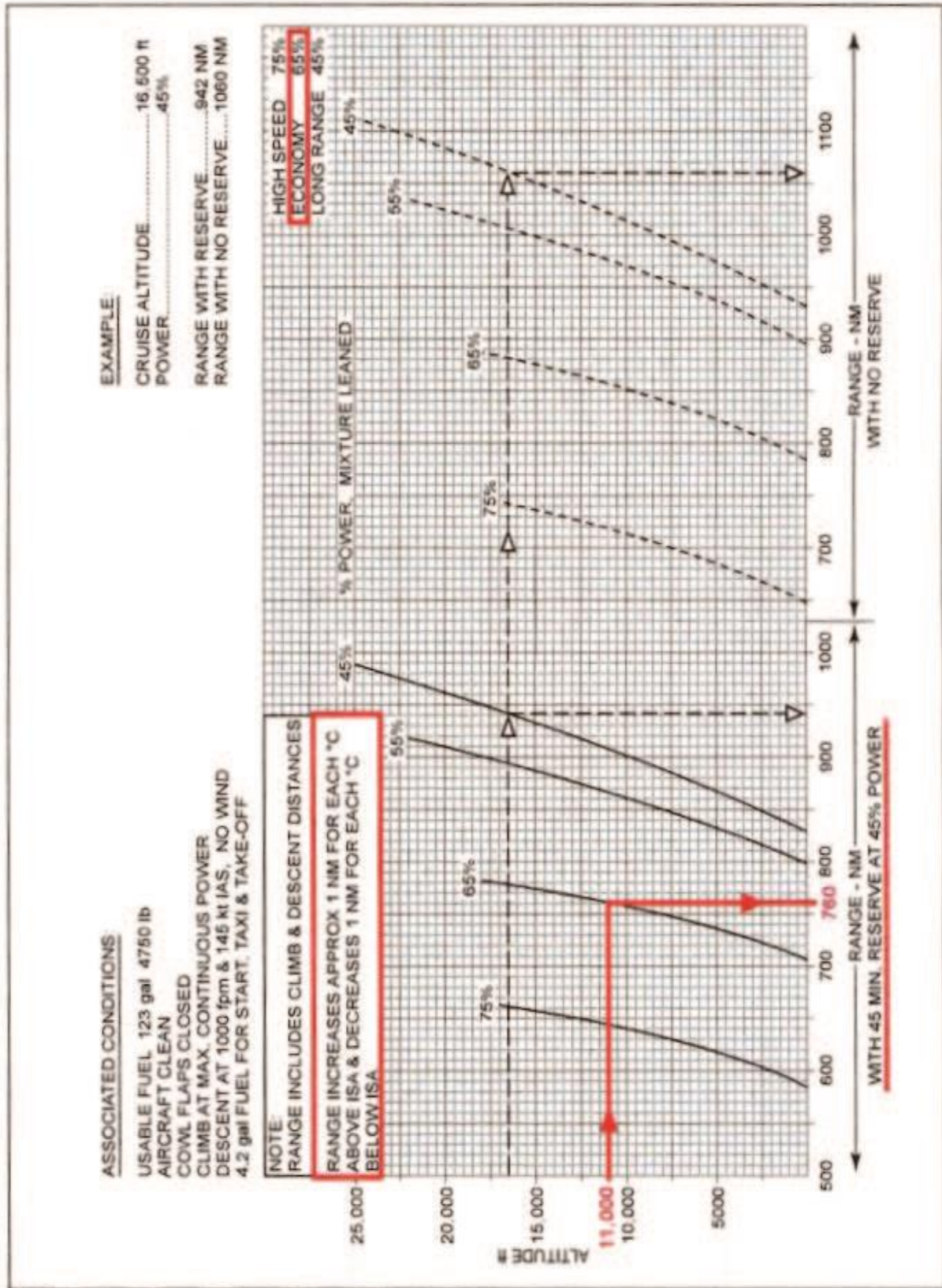
Range

FIGURE F-05



Range

FIGURE F-06



Range

FIGURE F-07

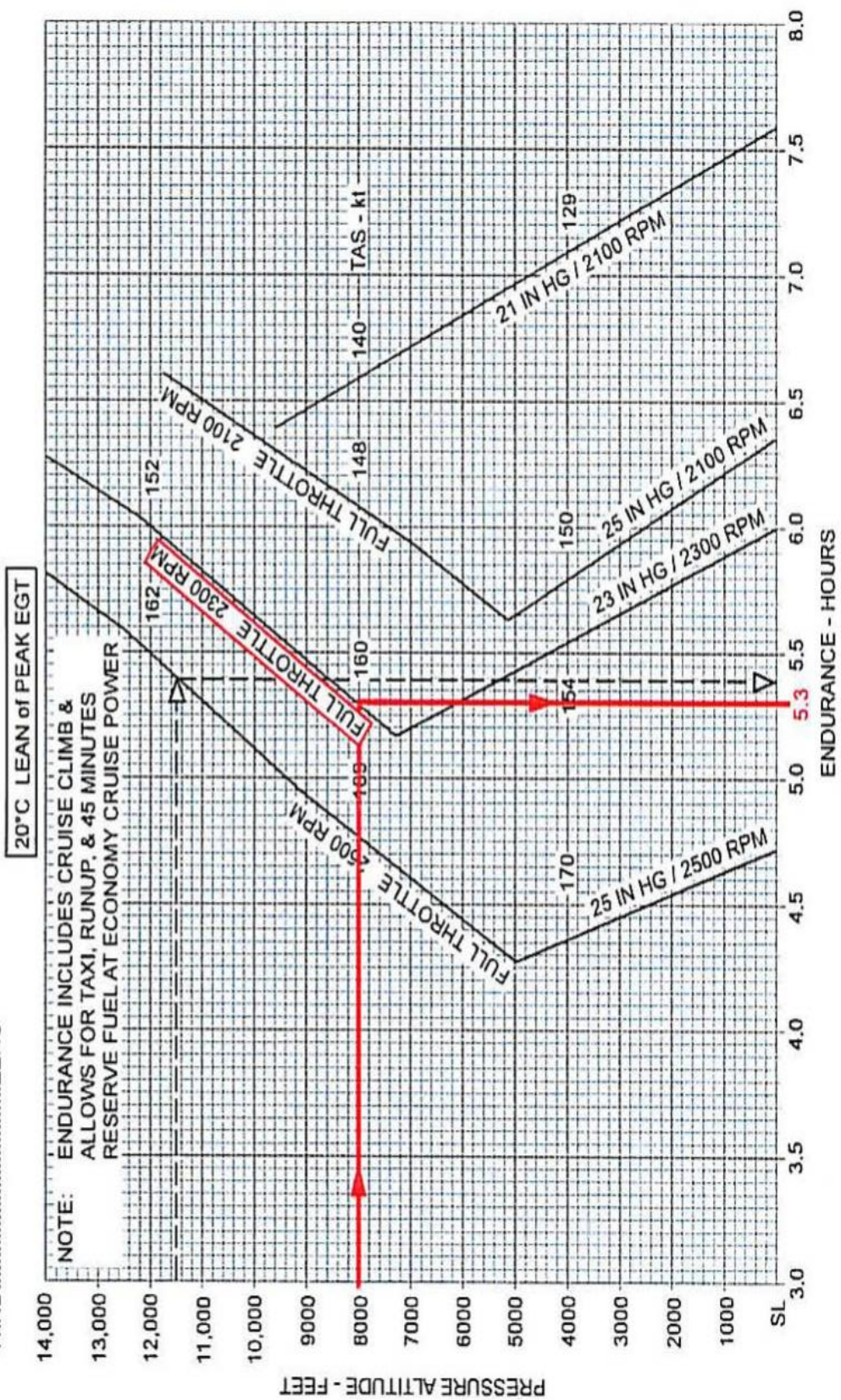
ASSOCIATED CONDITIONS:

MASS..... 3663 LB BEFORE ENGINE START
 FUEL..... AVIATION GASOLINE
 FUEL DENSITY..... 6.0 LB/GAL
 INITIAL FUEL LOAD..... 74 U.S. GAL (444 LB)
 TAKE-OFF ALTITUDE..... SEA LEVEL
 WIND..... ZERO

ISA

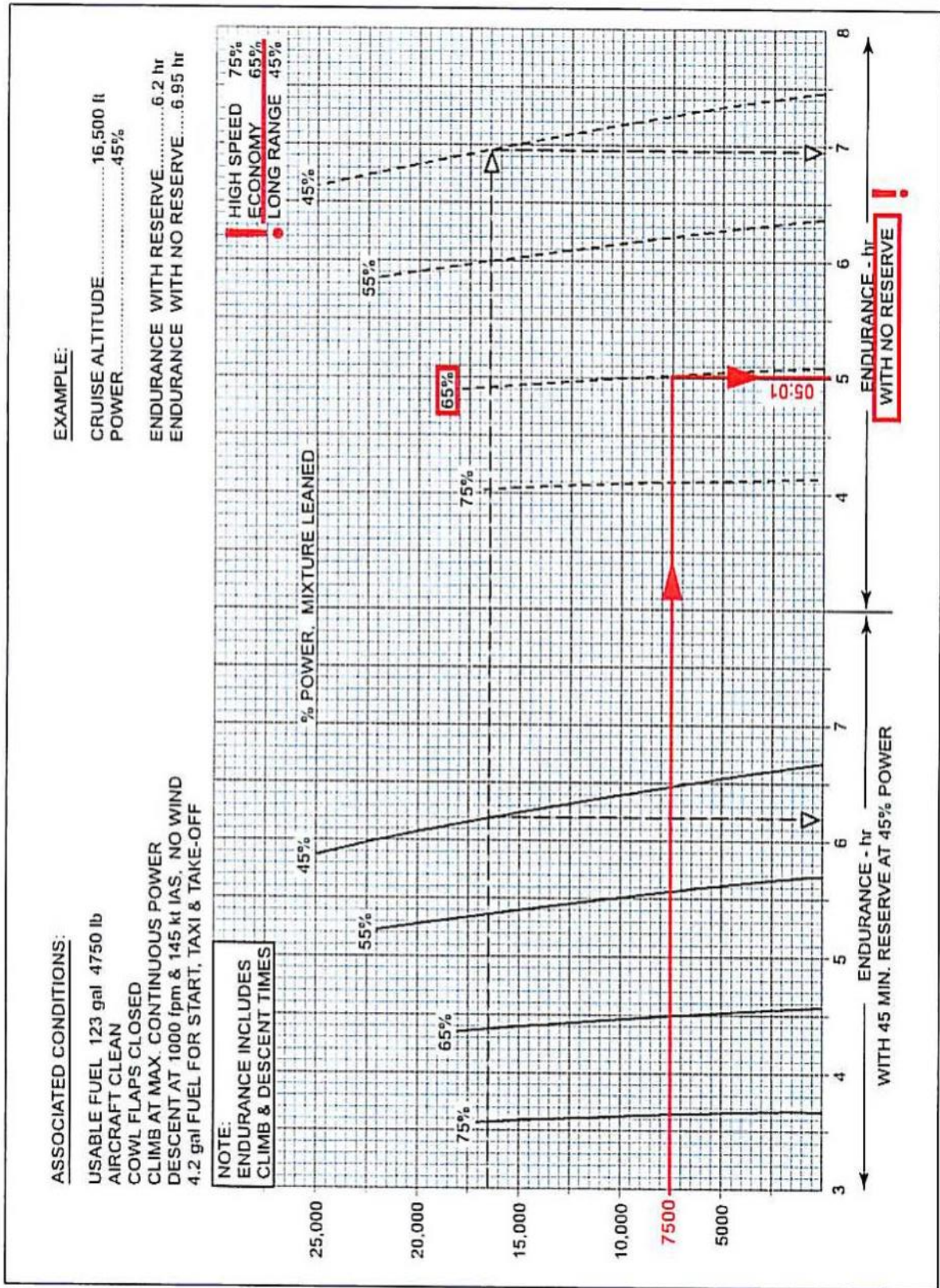
EXAMPLE:

CRUISE ALTITUDE..... 11,500 FT
 POWER SETTING..... FULL THROTTLE 2500 RPM
 ENDURANCE..... 5.4 HRS (5 HRS, 24 MINS)



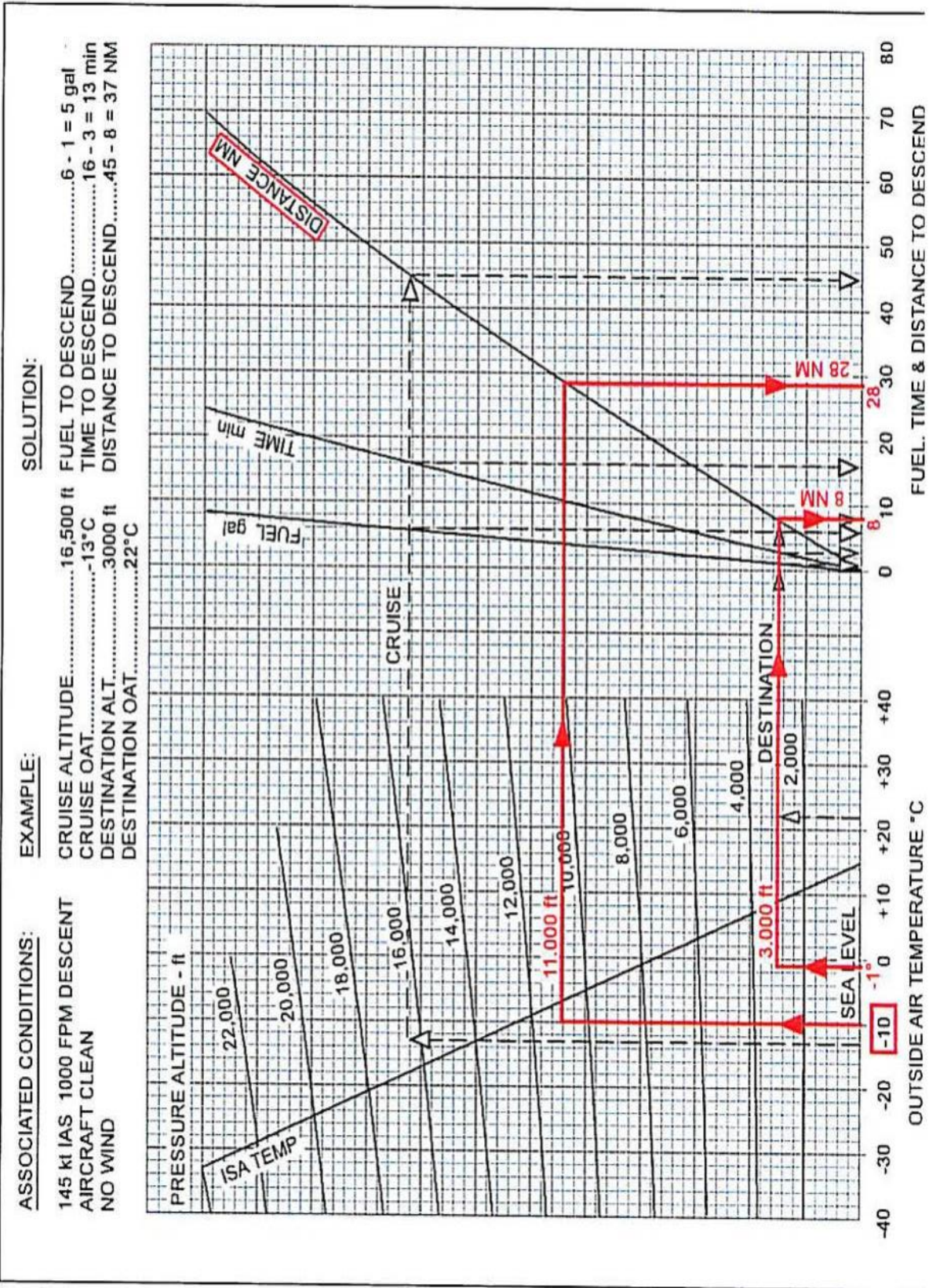
Endurance

FIGURE F-08



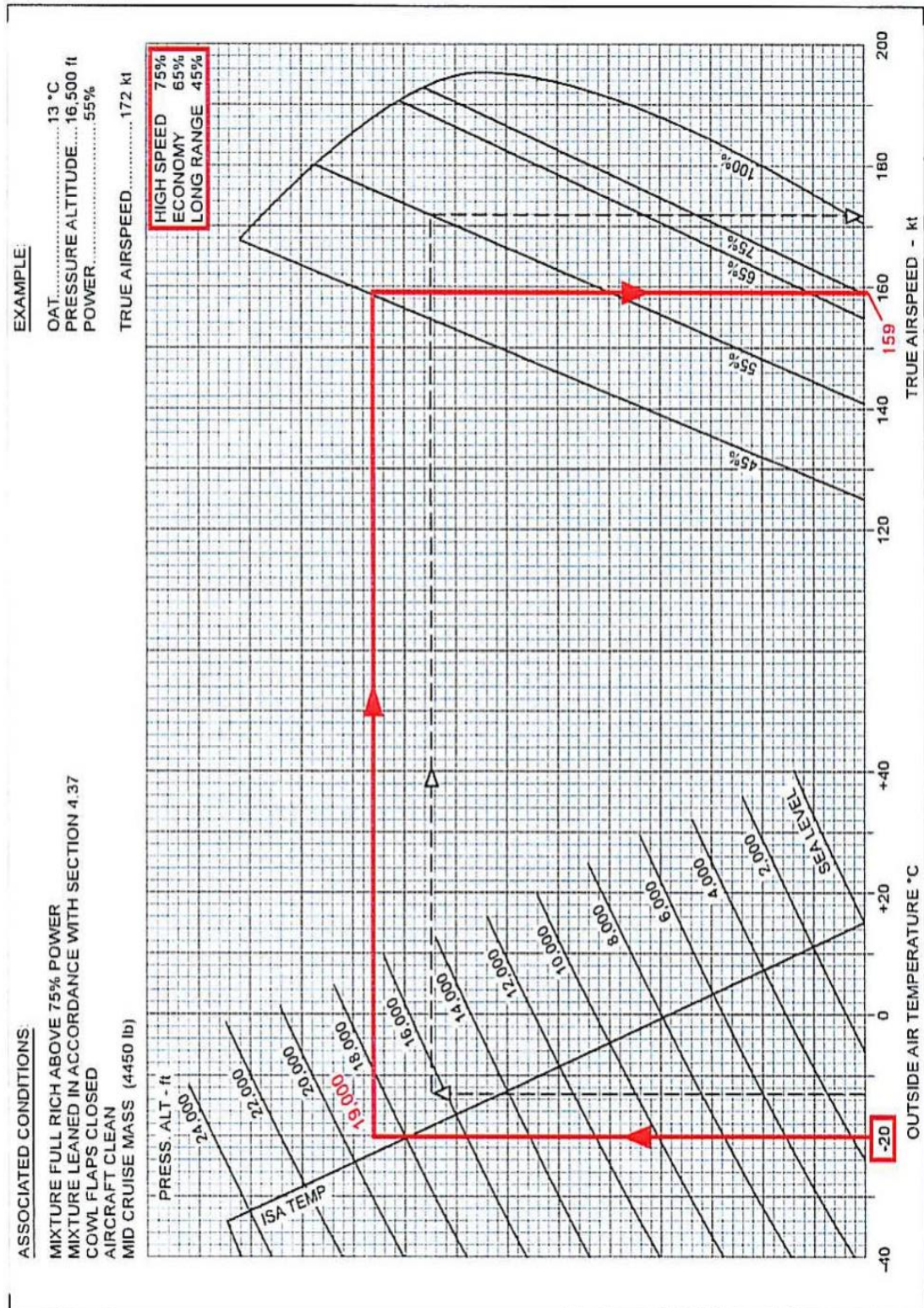
Endurance

FIGURE F-09



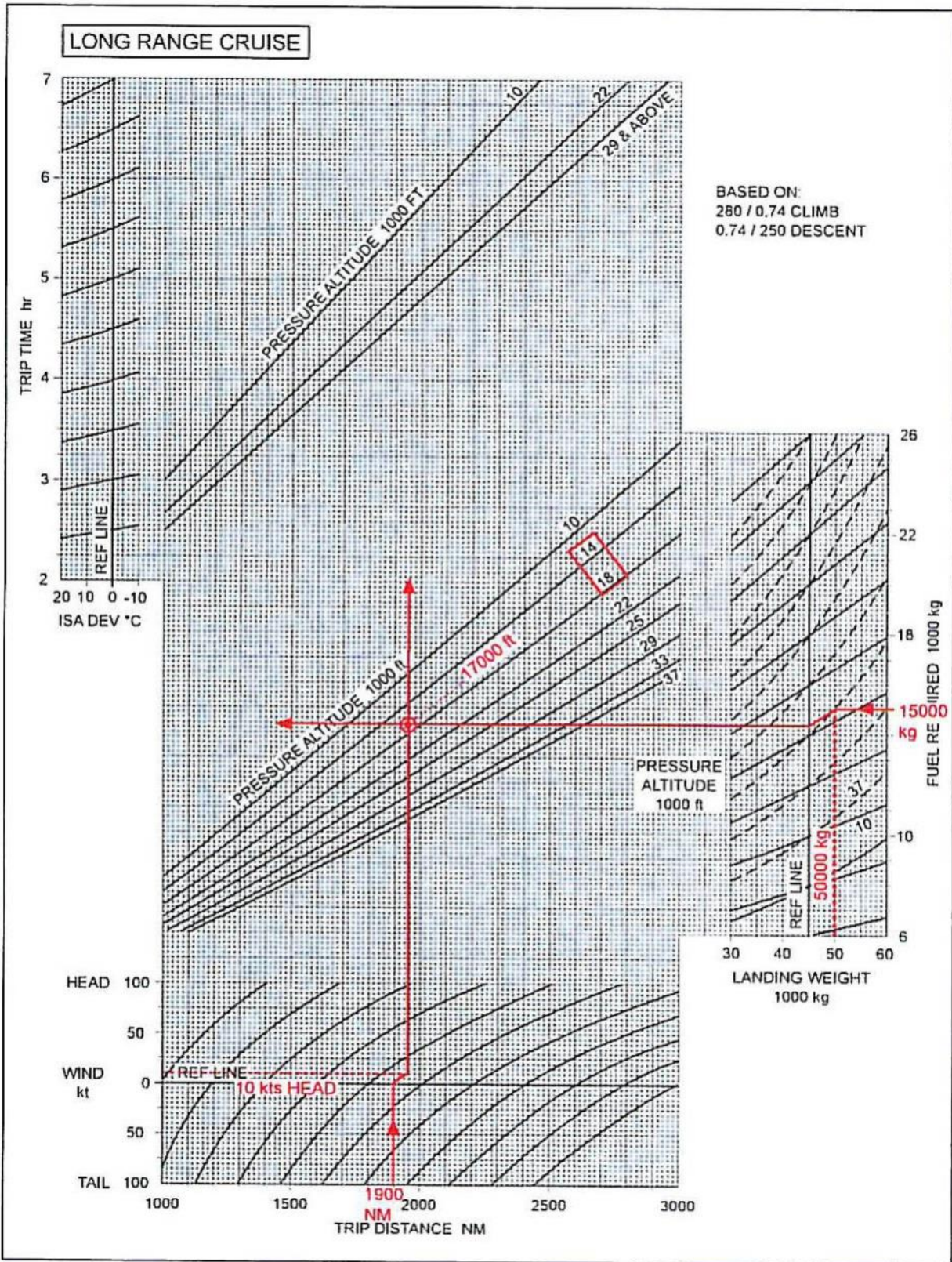
Fuel, Time and Distance to Descend

FIGURE F-10



Speed v Power

FIGURE F-11



Simplified Flight Planning – Trip Distances 1,000 NM to 3,000 NM

FIGURE F-12

Table 2.2.2
Off-peak EGT
25.0 in. Hg (or full throttle) @ 2,100 rpm
Cruise lean mixture @ cruise weight 3,400 lb

ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed		
		°C	°F		PPH	GPH	KIAS	KTAS	
-20	0	-3	26	25.0	63.8	10.6	148	140	
	2,000	-7	19	25.0	66.4	11.1	149	145	
	4,000	-11	12	25.0	68.9	11.5	149	150	
	6,000	-15	5	24.3	68.3	11.4	147	152	
	8,000	-19	-2	22.5	63.9	10.7	139	148	
	10,000	-23	-9	20.8	60.1	10.0	132	144	
	12,000	-27	-17	19.3	56.7	9.5	123	139	
	14,000	-31	-24	17.9	54.5	9.1	113	132	
	16,000	-35	-32	16.5	52.2	8.7	95	114	
	0	0	17	62	25.0	61.9	10.3	143	140
0	2,000	13	55	25.0	64.2	10.7	143	145	
	4,000	9	48	25.0	66.6	11.1	144	150	
	6,000	5	41	24.3	66.1	11.0	141	152	
	8,000	1	34	22.5	61.9	10.3	134	148	
	10,000	-3	27	20.8	58.5	9.8	126	143	
	12,000	-7	19	19.3	55.6	9.3	116	136	
	14,000	-11	12	17.9	53.5	8.9	103	125	
	16,000	-	-	-	-	-	-	-	
	0	0	37	98	25.0	60.1	10.0	138	140
	+20	2,000	33	91	25.0	62.1	10.4	138	145
4,000		29	84	25.0	64.4	10.7	139	150	
6,000		25	77	24.3	63.9	10.7	136	151	
8,000		21	70	22.5	60.2	10.0	128	147	
10,000		17	63	20.8	56.8	9.5	119	141	
12,000		13	55	19.3	54.5	9.1	108	131	
14,000		-	-	-	-	-	-	-	
16,000		-	-	-	-	-	-	-	

ISA + 0°
64 pph

ISA + 20°
62.05 pph

ISA + 10°
63 pph

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.

FIGURE F-13

Table 2.2.3

23.0 in. Hg (or full throttle) @ **2,300 rpm**

Off-peak EGT

Cruise lean mixture @ cruise weight 3,400 lb

STANDARD DAY =
0° ISA DEVIATION

ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed	
		°C	°F		PPH	GPH	KIAS	KTAS
-20	0	-3	26	23.0	67.6	11.3	152	144
	2,000	-7	20	23.0	69.7	11.6	152	149
	4,000	-11	13	23.0	72.1	12.0	153	154
	6,000	-15	6	23.0	74.4	12.4	153	158
	8,000	-18	-1	22.4	73.8	12.3	150	160
	10,000	-23	-9	20.7	68.4	11.4	143	157
	12,000	-27	-16	19.2	63.8	10.6	135	153
	14,000	-31	-23	17.8	60.0	10.0	127	148
	16,000	-35	-31	16.4	56.3	9.4	117	141
0	0	17	62	23.0	65.4	10.9	147	145
	2,000	13	56	23.0	67.4	11.2	147	149
	4,000	9	49	23.0	69.4	11.6	148	154
	6,000	5	42	23.0	71.7	12.0	148	159
	8,000	2	35	22.4	71.1	11.9	145	160
	10,000	-3	27	20.7	66.2	11.0	137	157
	12,000	-7	20	19.2	61.8	10.3	129	152
	14,000	-11	13	17.8	58.5	9.8	120	146
	16,000	-15	5	16.4	55.3	9.2	109	137
+20	0	37	98	23.0	63.2	10.5	142	145
	2,000	33	92	23.0	65.1	10.9	143	149
	4,000	29	85	23.0	67.1	11.2	143	154
	6,000	25	78	23.0	69.0	11.5	142	158
	8,000	22	71	22.4	68.5	11.4	140	160
	10,000	17	63	20.7	64.0	10.7	132	156
	12,000	13	56	19.2	60.0	10.0	123	151
	14,000	9	48	17.8	57.1	9.5	113	142
	16,000	-	-	-	-	-	-	-

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.

FIGURE F-14

	TAS *)	Fuel flow *)	Ground speed (kts)	Time (hrs)	Fuel used (l)
FL50	192	208	162	2,72	565
FL100	201	192	151	2,91	558
FL180	216	163	146	3,02	492

*) Figure must be interpolated from table.

GS = TAS - wind

Time = 440 NM / GS

Fuel = Time * Fuel flow

From table it is evident, that FL180 will offer the lowest fuel economy => best range performance.

FIGURE F-15

Endurance / Fuel Calculation

	Fuel (kg)	Time (hh:mm)
Trip Fuel	5.800	02:32
Contingency Fuel	290	00:07
Alternate Fuel	1.800	00:42
Final Reserve Fuel	1.325	00:30
Minimum T/O Fuel	9.215	
Extra Fuel	585	00:15
Actual T/O Fuel	9.800	
Taxi Fuel	200	
Ramp Fuel	10.000	

FIGURE F-16

POWER		75%		65%			55%						45%						
FUEL FLOW		29.0 GPH		23.3 GPH			18.7 GPH						16.0 GPH						
RPM		2,500	2,600	2,400	2,500	2,600	2,100	2,200	2,300	2,400	2,500	2,600	2,100	2,200	2,300	2,400	2,500	2,600	
PRESS ALT (ft)	ISA 0°C	MANIFOLD ABSOLUTE PRESSURE (Hg in) (MAP)																	
		0	15	34.0	33.0	33.8	32.0	31.0	31.2	30.3	29.4	28.2	27.2	26.3	27.1	26.4	25.5	24.3	23.3
2,000	11	33.8	32.7	33.2	31.7	30.7	30.5	29.7	28.8	27.8	26.8	26.0	26.4	25.8	24.6	23.7	22.8	22.1	
4,000	7	33.6	32.4	32.8	31.5	30.5	30.0	29.2	28.3	27.4	26.4	25.6	25.8	25.0	24.0	23.2	22.3	21.8	
6,000	3	33.4	32.2	32.5	31.2	30.3	29.7	28.8	28.0	27.0	26.2	25.3	25.3	24.5	23.5	22.8	21.9	21.5	
8,000	-1	33.1	32.0	32.3	31.0	30.1	29.4	28.4	27.7	26.8	25.7	25.0	24.8	24.0	23.0	22.4	21.6	21.2	
10,000	-5	33.0	31.9	32.0	30.9	30.0	-	28.3	27.5	26.5	25.5	24.7	24.4	23.7	22.8	22.0	21.4	21.0	
12,000	-9	32.5	31.8	31.8	30.7	29.8	-	28.3	27.2	26.3	25.3	24.6	24.0	23.3	22.5	21.7	21.2	20.9	
14,000	-13	-	31.7	-	30.5	29.7	-	-	27.1	26.1	25.2	24.4	-	23.0	22.3	21.4	21.1	20.8	
16,000	-17	-	31.6	-	30.4	29.5	-	-	-	25.9	25.0	24.3	-	-	22.0	21.3	21.0	20.6	
18,000	-21	-	-	-	-	29.4	-	-	-	-	25.0	24.2	-	-	-	21.2	20.9	20.5	
20,000	-25	-	-	-	-	29.3	-	-	-	-	-	24.2	-	-	-	21.2	20.8	20.4	
22,000	-28	-	-	-	-	-	-	-	-	-	-	24.1	-	-	-	-	-	20.4	
MAX EGT		1,525°F			1,650°F														
24,000	-33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.4	
25,000	-34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.4	

Power Setting Table

FIGURE F-17

Mass definitions	Airframe + Engines	Equipment (all roles)	Unusable fuel + Oil + Hydraulic fluid	Crew + Catering	Payload	Fuel
Basic empty mass (BEM)	Yes	Yes	Yes			
Dry operation mass (DOM)	Yes	Yes	Yes	Yes		
Zero fuel mass (ZMF)	Yes	Yes	Yes	Yes	Yes	
Ramp mass (RM)	Yes	Yes	Yes	Yes	Yes	Yes (Fuel Load)
Take off mass (TOM)	Yes	Yes	Yes	Yes	Yes	Yes (Toff fuel)
Operating mass (OM)	Yes	Yes	Yes	Yes	Yes	Yes (Toff fuel)
Gross mass (GM)	Yes	Yes	Yes	Yes	Yes	Yes (Fuel remaining)
Landing mass (LM)	Yes	Yes	Yes	Yes	Yes	Yes

FIGURE F-18

Table 2.2.3

23.0 in. Hg (or full throttle) @ 2,300 rpm

Off-peak EGT

Cruise lean mixture @ cruise weight 3,400 lb

ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed	
		°C	°F		In. Hg	PPH	GPH	KIAS
-20	0	-3	26	23.0	67.6	11.3	152	144
	2,000	-7	20	23.0	69.7	11.6	152	149
	4,000	-11	13	23.0	72.1	12.0	153	154
	6,000	-15	6	23.0	74.4	12.4	153	158
	8,000	-18	-1	22.4	73.8	12.3	150	160
	10,000	-23	-9	20.7	68.4	11.4	143	157
	12,000	-27	-16	19.2	63.8	10.6	135	153
	14,000	-31	-23	17.8	60.0	10.0	127	148
	16,000	-35	-31	16.4	56.3	9.4	117	141
0	0	17	62	23.0	65.4	10.9	147	145
	2,000	13	56	23.0	67.4	11.2	147	149
	4,000	9	49	23.0	69.4	11.6	148	154
	6,000	5	42	23.0	71.7	12.0	148	159
	8,000	2	35	22.4	71.1	11.9	145	160
	10,000	-3	27	20.7	66.2	11.0	137	157
	12,000	-7	20	19.2	61.8	10.3	129	152
	14,000	-11	13	17.8	58.5	9.8	120	146
	16,000	-15	5	16.4	55.3	9.2	109	137
+20	0	37	98	23.0	63.2	10.5	142	145
	2,000	33	92	23.0	65.1	10.9	143	149
	4,000	29	85	23.0	67.1	11.2	143	154
	6,000	25	78	23.0	69.0	11.5	142	158
	8,000	22	71	22.4	68.5	11.4	140	160
	10,000	17	63	20.7	64.0	10.7	132	156
	12,000	13	56	19.2	60.0	10.0	123	151
	14,000	9	48	17.8	57.1	9.5	113	142
	16,000	-	-	-	-	-	-	-

ISA - 20°C
73.25 pph

ISA + 0°C
70.55 pph

ISA - 10°C
71.9 pph

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.