

FIGHTER WEAPONS SCHOOL



FOR THE AERGES MIRAGE F1

by Don Rudi

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Overview

This mission set is designed for players that are new to the Mirage F1 by Aerges Engineering and shall serve as a means to introduce them to the different weapons and weapon delivery modes. It will lead to quick results and therefore fun in the Mirage. Players familiar with the module might want to use it to refresh their skills or simply to practice alternative weapons delivery methods.

With currently all flights set to take place in Cyprus, flight times are kept to the necessary minimum, in order to focus on weapon delivery.

Assistance

For the bombing tasks, the player will be provided with flight parameters and sight depressions that have given the author reproducible results. Feel free to experiment with your own parameters and depressions though - that's what this sandbox is for.

Target points will be provided as TACAN offsets, with already included magnetic declination of the map, thus the values can be entered as presented. As some players might be new to this form of navigation, an introductory task will explain how to enter and use the TACAN offset.

For the "Exam" air-to-ground tasks, the player will have to calculate his own TACAN Offset point.

Note: *when using your own offset points, keep in mind TACAN signals are line of sight. So when flying low over the center of the island, the aircraft will not receive the signals of TACAN stations on the southern coast due to the mountains! The magnetic declination of the map is 5°, meaning that 5 degrees must be subtracted from any bearing taken on the F10 map.*

Tasks

As the cold start of the Mirage takes less than two minutes, all slots will be cold and dark. The missions have loadout restrictions, as they serve a specific training purpose.

Please refer to this manual for more detailed descriptions of the tasks and to learn about the relevant attack parameters, sight depressions and sight pictures.

Note: the parameters presented in this manual are not THE parameters. They are easy to use parameters that allow reproducible results, but there sure are other ways to bring a bomb to the target.

Difficulty

Via radio commands, the player can select, if the enemy ground targets will fire back at him or not. Sea and air targets will always fire back.

Labels are not disabled by default. As this set of missions targets all skill levels, the author leaves it up to the player, to use labels or not.

Targets are not hidden on the maps, except for the targets of the three Exam grade tasks.

In air to ground tasks, the player will receive an additional F10 - Other radio option, to mark his target with smoke.



Adaptability

The player may add additional targets to his liking.

However do not remove any of the existing targets, as the large amount of triggers is dependent on both Unit and Group names of the existing assets.

Future

Once the Mirage F1 module evolves and new weapons or variants become available, these will be included in the sandbox.



Basic Training

In the basic training phase you will be flying the two-seat Mirage F1BE.

T-Scramble

Intercept an incoming bogey, approaching the island from the south west.
You have five minutes to cold start the aircraft, locate and intercept the bogey.

Initial vectors will be provided after take off.

The bogey in this training scramble is a friendly Mirage F1B, so no weapons are carried.
After the successful intercept, the bogey will follow you back to base.

Please refer to manual, appendix C or the kneeboard for the expedited cold start procedure.

Target	initial bearing, distance, angels
<i>Bogey</i>	<i>230° for 20, angels 18</i>

TACAN offsets

As all ground target positions in the following tasks will be provided as TACAN offsets, based on Paphos or Nikosia TCN, this task is a navigation flight, where you have to overfly a series of relevant waypoints.

If overflying the points was accurate, an aerial photo of the overflown "target" will be displayed.

Two points need to be overflown. Point 3 will lead you back onto the ILS for Akrotiri air base.

Target	TCN offset*	QFE
<i>WP1</i>	<i>107X, 348°, 20.5 NM</i>	
<i>WP2</i>	<i>101X, 120°, 11 NM</i>	
<i>WP3</i>	<i>107X, 103°, 14 NM</i>	

*) Bearings already include magnetic declination

Please refer to manual, appendix E for how to setup a TACAN offset.

Rockets and guns

Attack a lightly armored convoy.

The Mirage will be loaded with four rocket pods and internal 30mm guns.

Gunsight depressions

For a shallow dive use a depression of 44 (milli radians aka mrads) for rockets and the gun pod*.

Place the reticle on the target and fire at about 1000 feet.



Target	TCN offset	QFE
Convoy	101X, 272°, 17 NM	1016.7

*) Note the gun pod of the Mirage F1BE uses the same depression values as the installed DEFA canons on the F1CE, F1EE and F1M.

High drag bombs - low level

Low level attack against missile launchers using SAMP 250 parachute retarded bombs.

Set up your attack run at or below **500 feet** with a speed of around 500 knots. Set the depression to **144** and pickle, when the reticle is on the target.

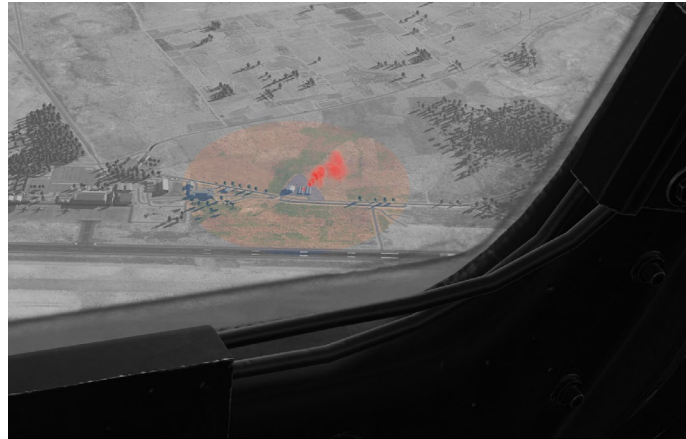


Target	TCN offset	QFE
<i>Rocket artillery</i>	<i>101X, 144°, 7 NM</i>	<i>995.2</i>

Low drag bombs - dive bombing

Dive bombing attack against an ammunition depot using SAMP 400 low drag bombs. Set up your attack run at **10,000ft** AGL with a speed of **400 knots**. Set the depression to **94**.

Position the target slightly left (or right) off your nose. When the target is in the forward corner of your main canopy frame, roll in and slightly throttle back.



This will bring you into a stable dive of **30°** at about 450 knots. The reticle will be below the target initially. Walk the reticle over the target and pickle when it is right on target.



Target	TCN offset	QFE
<i>Ammo depot</i>	<i>101X, 89°, 11.5 NM</i>	<i>1009.6</i>

Durandal anti runway bombs

Low level anti runway attack using a full load of Durandal anti runway bombs.

You will be provided with a TACAN offset point that will lead you to an initial point west of the runway, to give an ideal line up with the runway.



Approach the runway at 500 - 1000 feet and 500 knots or more. No gunsight depression is needed. As the Durandal is parachute retarded, do not release them before the flight path marker points at the far end of the runway.

Due to the quick interval in salvo release, you might want to set the release mode to single and pickle multiple times manually.



Target	TCN offset	QFE
Runway IP	101X, 68°, 12 NM	1015

Toss bombing Belouga cluster bombs

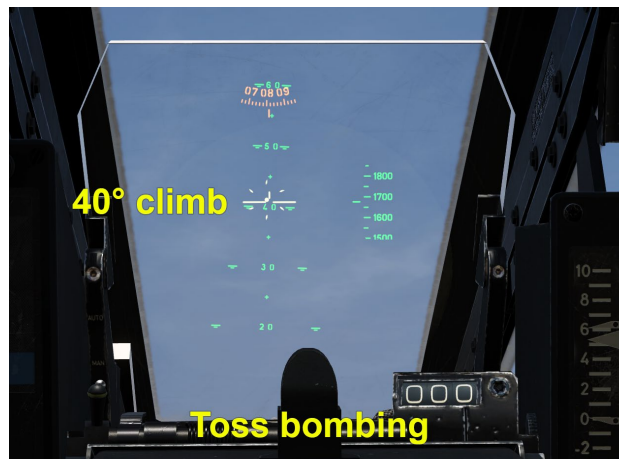
Low level toss bombing attack against an air defense site using Belouga cluster bombs. Set up your attack run at **500 feet** or below and **500 knots**. **2.5 miles** to the target hit full afterburner and pull up and release the bombs at **40°**.

For this task you will be provided with two TACAN offset points:

- 1) The target position, if you want to plan your own attack. Use the distance displayed on the HSI to plan your pull up.
- 2) IP 10 miles west of the target. Flying this route will enable a set of smoke markers to assist in lining up the target and when to pull up. Align these smoke markers and you will be optimally aligned for the target. Smoke markers are orange: initial line up, green: pull up into a 40° climb and red: target



When at 2.5 miles to the target (or the green marker) pull up and release bombs when reaching 40°.



Target	TACAN offset	QFE
AD Site IP	101X, 264°, 12.5 NM	995.6
AD Site	101X, 264°, 2.8 NM	995.6

Pop up attack

This is a variant of the dive bombing attack.

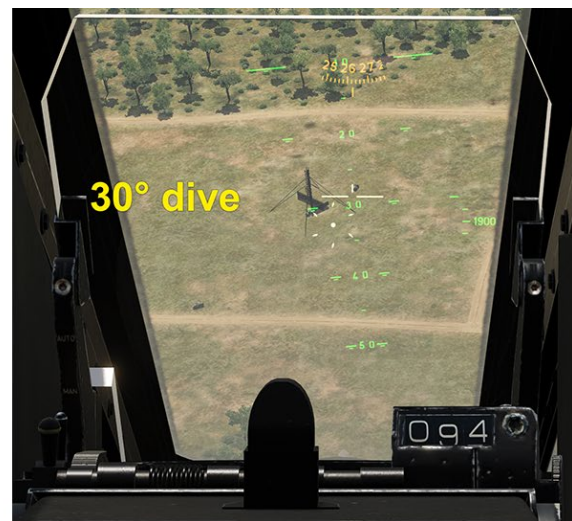
Low level pop up attack against a radar site in the north west of the island with 500kg BR 500 low drag bombs.

The TACAN offset will lead you to an IP where you initiate your pop up maneuver.

Perform your run in at 500 feet and 500 knots, set the gunsight depression to 94. At 2,5 NM to the target, with the target being about 45° off your nose, hit full afterburner and pull up into a 40° climb.

(Note: as we intend to perform a 30° , the pull up shall be 10 degrees more than the intended dive angle.)

At about 6000 feet AGL, the target should now be roughly 90° off our nose - roll in and throttle back to maintain around 450 knots in the 30° dive. Walk the reticle over the target and release the bombs when it is over the target.



Target	TCN offset	QFE
<i>EWR Radar IP</i>	<i>101X, 289°, 15.5 NM</i>	<i>1017.4</i>

Laser guided bombs with 3rd party laser

Attack an enemy building with a GBU-10 using a 3rd party laser (drone).

Plan your attack run at 10,000ft and 400-450 knots. The communication with the drone operator/JTAC will begin automatically. Lasing of the target starts at the end of the dialogue.

Release the GBU-10 at between 4 to 3.5 miles to the target. An onscreen *"Drop drop drop"* message will appear. There will be no feedback in the cockpit, if the LGB has locked on to the laser beam.

Target	TCN offset	QFE
<i>Building</i>	<i>101X, 007°, 7.5 NM</i>	<i>995.2</i>

Maritime strike

Low level attack against enemy shipping using high drag SAMP 400 bombs.

Only initial vectors will be provided for the ship's location, so use your air to ground radar to find the vessel.



The attack parameters for the high drag bombs are equal to those from task “Low level bombing” and should be familiar by now.

When attacking the ship's broadside, you will not want to drop all four bombs at once. Due to the release interval at least two bombs will drop behind the ship.

You can select inboard (IN) and outboard (EX) pylons separately:

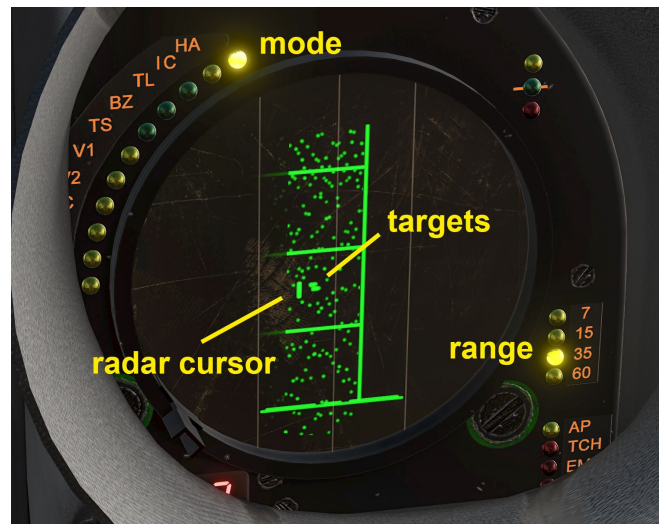


Target	initial bearing, distance, angels
Ship	250° for 25

Intercept (easy)

Intercept a Tupolev Bear bomber approaching from the east and shoot it down with semi active radar homing Matra R.530 EM missiles.

You will receive initial vectors after take off. Use your radar to find the intruder.



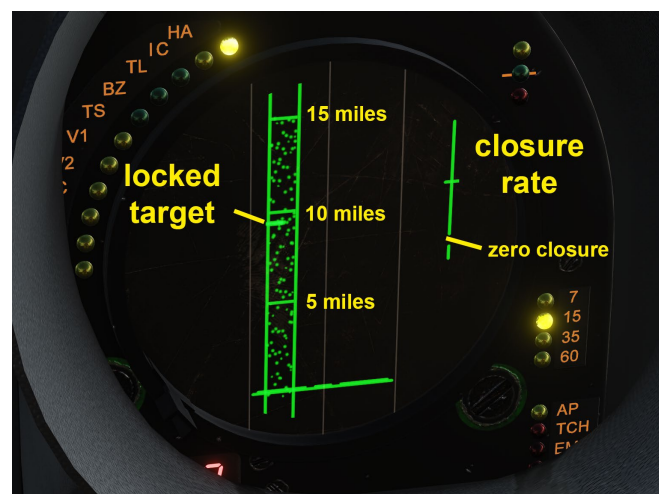
Maximum detection range of your Cyrano IV radar is 60 nautical miles.

The distance markers are increments of 2 miles for a scale of 7 miles, 5 miles for a scale of 15 miles, 10 miles for a scale of 35 miles and 20 miles for a scale of 60 miles.

You can roughly judge the relative altitude of a target, by the direction of the sweep that displays the target. If the sweep goes from left to right, the target is above you, if the target is displayed in a sweep that goes from right to left, it is below you.

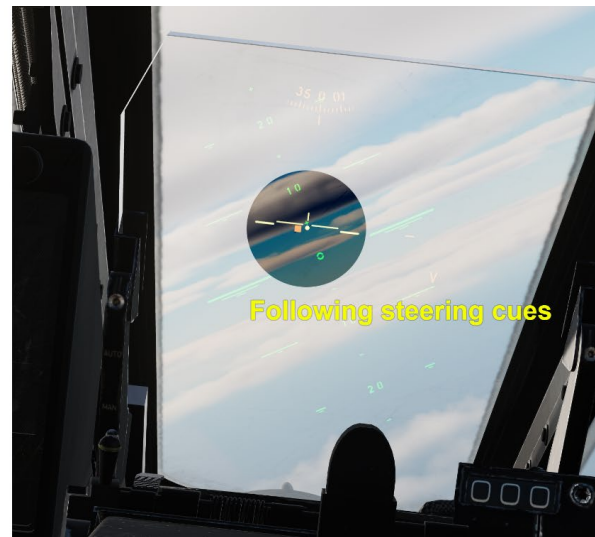
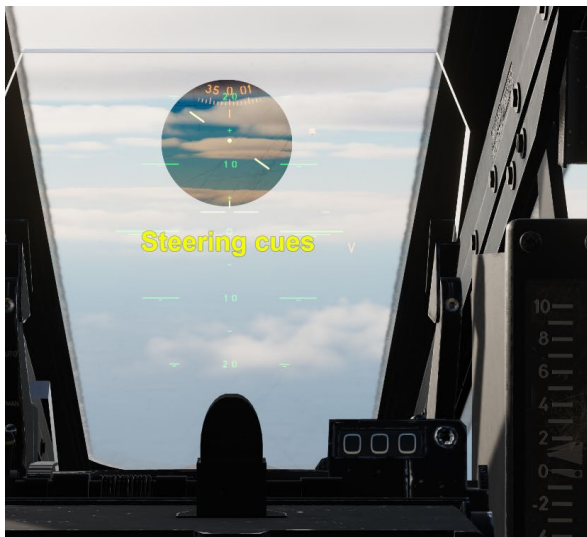
For more detailed information, please refer to the official Aerges manual of Appendix H.

When a target is within 35 miles, move your radar cursor ("alidade"/"strobe") over the left edge of a target and press target lock for around one second to lock the target.



Once the target is locked, you will receive information about the distance and closure rate. The higher the small bar is, the higher the closure rate.

When a target is locked, the fire control computer will display steering cues in the HUD to bring your Mirage into an optimal firing position.



Let's take a closer look at the information displayed on the HUD.



Always follow the steering cues for a successful missile shot. A big green dot will appear in the center of the HUD, when the R.530's launch parameters are met. Do not launch before the green dot is displayed.

For additional assistance you can call your GCI callsign *WIZARD* on channel RED 3.

Target	initial bearing, distance, angels
<i>Heavy bomber (single)</i>	<i>095° for 80, angels 20</i>

Intercept (medium)

This time you will intercept a pair of Sukhoi 24 recce planes, both armed with a pair of IR guided R-60 missiles.

Your armament will consist of a pair of radar guided S.530 F and a pair of rear aspect Magic I heat seeking missiles.

Select the S.530Fs on your armament panel and use the (C + M or SW) R (*Canon and Magic or Sidewinder Rapid = dogfight mode*) switch located on the left wall, to quickly switch back and forth between guns + heaters and radar guided missiles.

The dogfight mode is marked by a green light on the right side of the HUD frame.



For additional assistance you can call your GCI callsign *WIZARD* on channel RED 3.

Target	initial bearing, distance, angels
<i>Medium bomber (pair)</i>	<i>030° for 75, angels 12</i>

Intercept (hard)

If you want things a bit more challenging, this task will serve you well. You will intercept a pair of MiG-21s, equipped with radar guided and rear aspect heat seeking missiles. Your armament will consist of a pair of radar guided S.530Fs and a pair of all aspect AIM-9 JULI (AIM-9J with seeker head of AIM-9M), as well as a DEFA 30mm gun pod.

For additional assistance you can call your GCI callsign *WIZARD* on channel RED 3.

Target	initial bearing, distance, angels
<i>Fighter (pair)</i>	<i>320° for 55, angels 25</i>

Advanced Training

Congratulations, you are now familiar with the weapons systems of the Mirage F1 family. You have so far flown the Mirage F1BE, which is the two-seat variant of the F1CE. It is now time to move on to the single seaters, namely the more advanced Mirage F1EE.

The EE differs from the BE/CE in that it offers INS navigation, inflight refueling, an advanced RWR and the Barax ECM pod.

INS Navigation

Analogue to the TACAN offset mission from the basic training phase, this task is a navigation flight, where you have to overfly a series of relevant waypoints.

If overflying the points was accurate, an aerial photo of the overflown “target” will be displayed.

Four points need to be overflown. Staying on present heading after Point 4 will lead you back to the ILS for Paphos air base.

As the stored heading might be unreliable, your aircraft stand position is:

N 34 43.060 E 32 29.893 48 ft

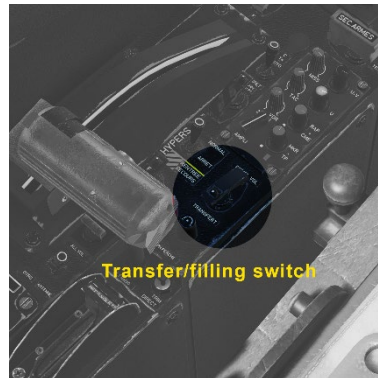
Target	LAT/LONG	Alt	Type
<i>WP1</i>	<i>N 35 2.5 E 32 23.7</i>	<i>0 ft</i>	<i>Marina</i>
<i>WP2</i>	<i>N 35 15.4 E 32 59.3</i>	<i>113 ft</i>	<i>Lake</i>
<i>WP3</i>	<i>N 35 6.4 E 33 19.3</i>	<i>758 ft</i>	<i>Airfield</i>
<i>WP4</i>	<i>N 34 43.6 E 32 55.1</i>	<i>700 ft</i>	<i>Dam</i>

Please refer to Appendices F and G of this manual for the alignment of the INS and how to create INS waypoints.

Air-to-Air refueling (easy)

This mission is an air start. You will start about 10 nautical miles aft and 1000 feet below of the tanker. The tanker is a KC-135 callsign SHELL 1-1, flying a race track pattern at 24,000 feet with an indicated airspeed of 270 knots.

Contact the tanker on channel RED 5 and take at least 2000 pounds of fuel.



Do not forget to map the "transfer/filling" switch. If this is not flipped to the "REMP. VOL" (aerial refueling) position (up), the Mirage will not take on any fuel from the tanker.



Try to line up the refueling pod in the center of the front window above your HUD.

Callsign	Type	TACAN	Channel
<i>SHELL 1-1</i>	<i>KC-135</i>	<i>15Y BOE</i>	<i>RED 5</i>

Air-to-Air refueling (medium)

This mission is an air start. You will start about 5 nautical miles aft of the tanker. The tanker is a KC-130 callsign ARCO 3-1, flying a race track pattern at 1000 feet MSL with an indicated airspeed of 250 knots.



Contact the tanker on channel RED 4 and take at least 2000 pounds of fuel.

Callsign	Type	TACAN	Channel
<i>ARCO 3-1</i>	<i>KC-130</i>	<i>13Y HRK</i>	<i>RED 4</i>

Air-to-Air refueling (hard)

This mission is an air start. You will start about 25 nautical miles away from the tanker. You are enroute to Cyprus from the eastern Mediterranean coast. Your fuel level is down to 20% and you are in bad weather.

Establish contact with the tanker SHELL 2-1 on RED 5, it will be in the vicinity of your waypoint 1.



This is a night refueling mission. Use your TACAN and Radar to locate the tanker.

Contact the tanker on channel RED 5 and take at least 4000 pounds of fuel.

Callsign	Type	TACAN	Channel
<i>SHELL 2-1</i>	<i>KC-135</i>	<i>15Y BOE</i>	<i>RED 5</i>

Note: The refueling probe light will only come on, if you not only map the transfer/filling switch, but you need to open the cover as well!

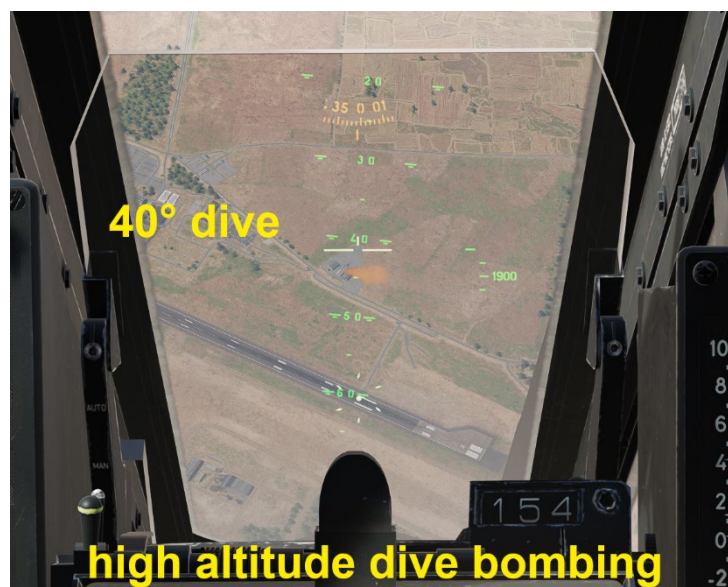
High level dive bombing

In the basic training phase, you conducted a 30° dive attack from 10,000ft AGL. This time you attack the same target, but defended by AAA and MANPADS. To avoid the defenses, set up your attack run at **24,000ft AGL** with a speed of **400 knots**. Set the depression to **154**.

Position the target slightly left (or right) off your nose. When the target is abeam the clamp of your lower canopy frame, roll in and slightly throttle back.



This will bring you into a stable dive of **40°** at about 450 knots. The reticle will be below the target initially. Walk the reticle over the target and pickle when it is right on target, at about **13,000ft AGL**.



Target	INS position	QFE
<i>Ammo depot</i>	<i>N 35 9.4 E 33 30.6</i>	<i>1009.6</i>

Air-to-air situational awareness

During the basic training phase you successfully stood your ground in the air to air dogfight arena.

In more complex scenarios not every contact on the radar will be a hostile and as your F1 is not equipped with an IFF interrogator, extra caution needs to be exercised.

In this mission you will encounter four bogeys and based on the data provided need to identify and shoot down the single hostile target.

Use your radar sweeps as a tool – remember if a target is displayed during a left to right sweep, the target is above you, if it is displayed in a right to left sweep, it is below you and if it is displayed in both sweeps, it is at the same level as you!

Please refer to Appendix H “Radar sweep logic” for more information!

Your bogeys are flying at:

Bogey1: 20,000ft

Bogey2: 23,000ft

Bogey3: 17,000ft

Bogey4: 15,000ft

Beware, all four bogeys are close to each other. Identify and shoot down Bogey3!

Target	initial bearing, distance, angels
<i>Hawk</i>	<i>235° for 50, angels 20</i>

Exam

Unlike the preceding tasks, there is no loadout restriction in place for the following three tasks. Choose whatever ordnance you like. But also unlike the preceding tasks, no waypoints are given and have to be created by the player himself. The targets are hidden on the map, but their area is marked.

Attention - do not forget to include the magnetic declination of 5° of the map in your waypoint calculation!

Note: in the Exams you are free to choose between the Mirage F1CE and F1EE variants.

CAS

Troops in contact! A platoon of friendly LAV-25s has come under fire by hostile IFVs. The location is marked on the map. Find them and neutralize the enemy vehicles.

SEAD

Your task is to attack a SA-6 SAM site on the north eastern end of the island. The position is marked on the map and you will have to create your own TACAN offset/INS point, to navigate to the target.

Stay low, as the area is protected by several SA-8 SAMs. Recommended attack profiles would be either a pop up attack or a toss bombing attack. But the choice is up to you.

A-Scramble

Air defense radar reports two incoming contacts. Select your air-to-air loadout and scramble to intercept the bogies.

Bogies are a pair of angry MiG-23s, equipped with medium range SARH and IR missiles, as well as short range IR missiles. If you only see one on the radar, be assured, they are two.

For additional assistance you can call your GCI callsign *WIZARD* on channel RED 3.

Graduation

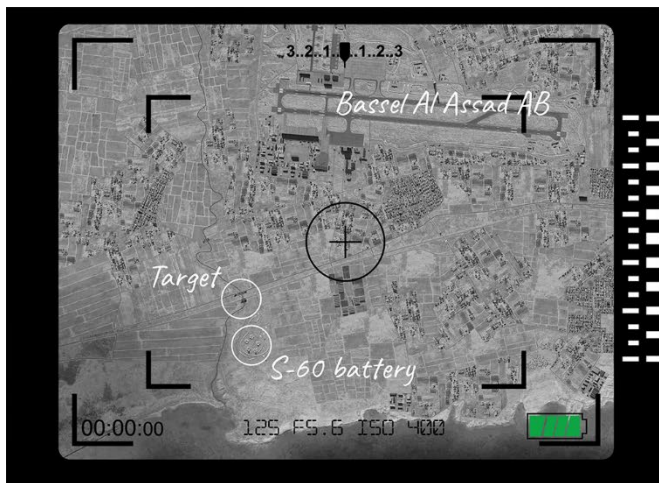
Long range strike

Congratulations, you successfully passed the exams and earned your combat ready medal.

Now you can prove, if you have "IT" to become an honorary member of the Gurkistani Air Force.

Your task is to destroy a railroad bridge north-east of Bassel Al Assad Air base in Syria. You will take off from Paphos AB just before sunrise. A KC-135 will be on station half way between Cyprus and the Syrian coast, should you need to refuel during the ingress or egress.

The target is defended by a radar guided S-60 AAA battery and MANPADS, so our planners would suggest a high altitude dive bombing attack, but the choice is yours.



Target	INS position	QFE
<i>Railway bridge</i>	<i>N 35 20.9 E 35 55.6</i>	<i>1019,0</i>

Tanker	INS position	FL /IAS	TACAN	Radio
<i>SHELL 3-1</i>	<i>N 35 5.3 E 34 50.0</i>	<i>FL200 / 270</i>	<i>15Y BOE</i>	<i>RED 5</i>

Good luck!

Appendix A

Relevant target data – basic phase

Task	Target	TCN offset*	QFE
<i>TACAN navigation</i>	<i>WP1 WP2 WP3</i>	<i>107X, 348°, 20.5 NM 101X, 120°, 11 NM 107X, 103°, 14 NM</i>	
<i>Rockets & guns</i>	<i>Convoy</i>	<i>101X, 272°, 17 NM</i>	<i>1016.7</i>
<i>low level bombing</i>	<i>Rocket artillery</i>	<i>101X, 144°, 7 NM</i>	<i>995.2</i>
<i>dive bombing</i>	<i>Ammo depot</i>	<i>101X, 89°, 11.5 NM</i>	<i>1009.6</i>
<i>Anti runway</i>	<i>Runway IP</i>	<i>101X, 68°, 12 NM</i>	<i>1015</i>
<i>Toss bombing</i>	<i>AD Site IP</i>	<i>101X, 264°, 12.5 NM</i>	<i>995.6</i>
<i>“</i>	<i>AD Site</i>	<i>101X, 264°, 2.8 NM</i>	<i>995.6</i>
<i>Pop up attack</i>	<i>EWR Radar IP</i>	<i>101X, 289°, 15.5 NM</i>	<i>1017.4</i>
<i>LGb with JTAC</i>	<i>Building</i>	<i>101X, 007°, 7.5 NM</i>	<i>995.2</i>

**) magnetic declination already included*

Task	Target	initial bearing, distance, angels
<i>T-Scramble</i>	<i>Bogey</i>	<i>220° for 20, angels 18</i>
<i>Anti shipping</i>	<i>Ship</i>	<i>250° for 25</i>
<i>Intercept (easy)</i>	<i>Heavy bomber (single)</i>	<i>095° for 80, angels 20</i>
<i>Intercept (medium)</i>	<i>Medium bomber (pair)</i>	<i>030° for 75, angels 12</i>
<i>Intercept (hard)</i>	<i>Fighter (pair)</i>	<i>320° for 55, angels 25</i>

Relevant target data – advanced phase

Task	Target	INS position
<i>INS navigation</i>	<i>WP1</i>	<i>N 35 2.5 E 32 23.7</i>
	<i>WP2</i>	<i>N 35 15.4 E 32 59.3</i>
	<i>WP3</i>	<i>N 35 6.4 E 33 19.3</i>
	<i>WP4</i>	<i>N 34 43.6 E 32 55.1</i>
<i>High altitude dive bombing</i>	<i>Warehouse</i>	<i>N 35 9.4 E 33 30.6</i>
<i>Graduation</i>	<i>Railway bridge</i>	<i>N 35 20.9 E 35 55.6</i>
	<i>Tanker</i>	<i>N 35 5.3 E 34 50.0</i>

Task	Target	initial bearing, distance, angels
<i>Air to air SA</i>	<i>Bogey</i>	<i>235° for 50, angels 20</i>

Appendix B

Relevant navigation data

Aerodrome	TACAN	VOR	ILS	QFE
<i>Paphos</i>	<i>79X PHA</i>	<i>117.90 PHA</i>	<i>108,90 / 290°</i>	<i>1018.7</i>
<i>Akrotiri</i>	<i>107X AKR</i>	<i>n/a</i>	<i>109,70 / 287°</i>	<i>1017.8</i>
<i>Nikosia</i>	<i>101X NIK</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>

Relevant communication data

Station	Type	Channel
<i>Paphos</i>	<i>TWR</i>	<i>GREEN 1 (VHF)</i> <i>GREEN 2 (UHF)</i>
<i>Akrotiri</i>	<i>TWR</i>	<i>GREEN 3 (VHF)</i> <i>GREEN 4 (UHF)</i>
<i>WIZARD</i>	<i>GCI</i>	<i>RED 3</i>
<i>ARCO</i>	<i>TANKER (KC-130)</i>	<i>RED 4</i>
<i>TEXACO</i>	<i>TANKER (KC-135)</i>	<i>RED 5</i>

Relevant AAR data

Callsign	Type	TACAN	Channel
<i>ARCO</i>	<i>KC-130</i>	<i>13Y HRC</i>	<i>RED 4</i>
<i>SHELL</i>	<i>KC-135</i>	<i>15Y BOE</i>	<i>RED 5</i>

Appendix C

Expedited Cold Start

based on Red Kite's excellent YouTube tutorial: [DCS: Mirage F1CE Expedited Cold Start Tutorial](#)



- 1) Close canopy
- 2) lock canopy



- 3) Switch on batteries (up)
- 4) Check inverters are set to AUTO
- 5) Switch on VERT.SON. (warning panel)
- 6) silence warning horn



- 7) Switch on main fuel cock and close cover
- 8) switch on left and right fuel pumps
- 9) open starter cover and wait for 1-2 seconds for the pressure to build up
- 10) press starter button for 1-2 seconds



- 11) Switch on master valve control (M)
- 12) Switch on gyroscopic system (GM)
- 13) Switch on backup system (M)
- 14) Gyro will be ready when the horizon is steady
- 15) uncage backup horizon



- 16) Reset servos
- 17) Switch on remaining switches in top row
- 18) Reset inverters
- 19) Switch on HUD (VIS to M)
- 20) Set radar to Standby (middle position)



- 21) Push button to set air intake cone to AUTO
- 22) Push button to set nose wheel steering gain to high (if desired)
- 23) Remove ejection seat safety pin

Set radios and navigation as desired. You are now ready to taxi.

Appendix D

Radio

The Mirage F1 has two radios:

Green radio: VHF + UHF, with frequencies selectable either manually or as presets. Located on the front left side panel.

Red radio: UHF only, frequencies selectable as presets. Located on the rear left panel.

Which radio will be used, is selected by a green (3) and red (4) pushbutton just aft of the green radio.

Your Mirage F1 will be pre-configured with all necessary frequencies. Please refer to Appendix B or your kneeboard for more details.

Example: how to select channel “**Green 2**”

- 1) set mode switch to **P** to select a preset channel
- 2) set desired channel (**2**)
- 3) push green button to select green radio as active



Appendix E

TACAN offset

A short introduction into creating a way- or target point by using a TACAN offset.
As an example we will create the following point:

CHN 107X, bearing from TACAN 120°, distance from TACAN 25 nautical miles

First tune the TACAN station on your right hand console and make sure the mode is set to T/R (transmit/receive), so we can receive distance information.



Next create the offset on HSI on the front panel.

- 1) switch mode to TT (TACAN/RADAR). Alternatively you can use VT (VOR/TACAN).
- 2) switch mode to VECT.ADD.
- 3) enter bearing from TACAN using the dial below the display (120°).
Beware the bearing is magnetic, so you need to correct any readings from the map by including the map's magnetic declination!
- 4) right click the switch to change to distance input
- 5) enter the distance from the TACAN station (25 miles)



The thick needle will now point to your newly created offset point. Beware TACAN signal is line of sight, so a TACAN station behind a mountain chain will not be received by the plane.

Appendix F

INS alignment

When starting the Mirage F1.EE from cold and dark, the INS has to be aligned. There are three options to do this:

- ALN (*Alignement Normal*) = full alignment.
- ALR (*Alignement Rapide*) = fast alignment with reduced accuracy, for scramble.
- ALCM (*Alignement Cap memorisé*) = stored heading alignment.

Note: that depending on the mission settings this mode might be inaccurate.

Our parking stand position is:

N 34 43.1 E 32 29.9



1) Switch on the INS by selecting VEI (standby)

2) Select PP (Present Position) on the mode selector to verify the correct parking stand coordinates. We see, the coordinates are off.

Set mode selector to POS and enter the correct coordinates as described in APPENDIX G.



3a) Switch the dial to ALCM for alignment.

3b) Start the alignment by pressing * The status lights will change from ALERTE to ALIGN.

3c) You can monitor the progress in the display. Alignment will be finished at 999.

4a) Switch the dial to NAV for navigation.

4b) Switch the display mode dial to your desired position, like POS.

Appendix G

INS waypoint creation

A short introduction into creating a way- or target point in the INS.
As an example we will create the following point as waypoint 2:

N 35 2.5 E 32 23.8



- 1) Switch the mode selector to POS
- 2) Select the waypoint number you want to edit (#2 in our example)
If the entry is empty, LAT/LONG will be shown as zeros.
- 3) Enter your coordinates, starting with N for north, followed by the degrees, minutes and decimal minutes. Remember to add leading zeros! The input will thus be
N → 35025



- 4) Hit INSERT to log in the northing coordinate.
- 5) Hit E for east, followed by the coordinates. Remember that longitude degrees are 3 digits, thus add a leading zero E → 032237
- 6) Hit INSERT. The new waypoint is now created.



- 7) To set the newly created point as active, hit *
- 8) You can switch to ΔL / ΔG . ΔL will display the range to the new waypoint from your current position.
- 9) You can also validate the position on the IDN. For INS navigation select mode NAV N. We will now see that the point is 20 nautical miles from our current position at a bearing of 340 degrees.

Appendix H

Radar sweep logic

In default mode, the Cyrano IV of the Mirage F1 scans in a 4-line pattern. I.e. two lines above the own level (sweep left to right) and two lines below (sweep right to left). We can use this to determine the relative altitude of a target, for instance to distinguish friend and foe based on a given traffic picture.

Targets displayed during left to right sweeps are above you, targets displayed in right to left sweeps are below you and targets displayed during both left to right and right to left are roughly at the same level as you.



Pic1

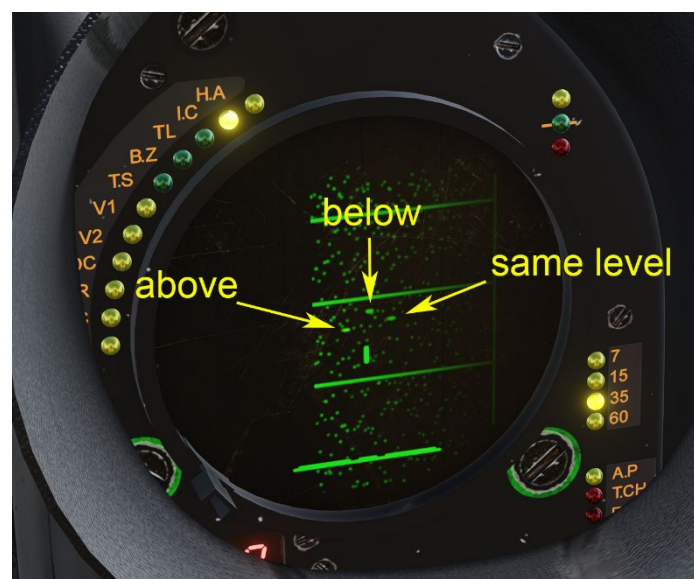


Pic 2

Pic1: the radar beam sweeps left to right, thus displays two targets at or above our own level

Pic2: the radar beam sweeps right to left, thus displays two targets at or below our own level

If we (mentally) overlay the two pictures, we get the following traffic picture:



Pic 3: overlaid image

The left target is only displayed in a **left to right** sweep → it is **above** us.

The center target is only displayed in **right to left** sweeps → it is **below** us.

The right target appears in **both sweeps** → it is at the **same level**.

Imprint

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A huge "Thanks!" especially to my beta testers Guillermo and Vincent, their input really contributed to polishing the original mission set.

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Special thanks also to Nico for his really valuable input.

Also a special thanks to Ryan for his input to the added missions.

If you liked this mission, please check out my other ones as well:

<https://www.digitalcombatsimulator.com/en/files/filter/user-is-Don%20Rudi/apply/>

Constructive feedback is always welcome. You can reach me through the official forum or on the DCS: Mirage F1 Pilots group on Facebook

<https://www.facebook.com/groups/745252046441786/>



Enjoy!

Change log

V C.1.0 17.08.2022
V C.1.1 10.11.2023
added F1EE and F1BE.

initial release

Completely reworked. Corrected sight depressions,