GCI PROCEDURES HANDBOOK version 1.0

VIRTUAL ALLIED AIR FORCES SOUTHERN EUROPE

INTERCEPT PROCEDURES NOTES FOR BOTH AIRCREWS AND GCI CONTROLLERS

CONTROLLER/FIGHTER TEAMWORK

It is crucial for the success of the mission to develop a strong working relationship between the intercept controllers and the fighter aircrew.

Many intercept problems can be attributed to a breakdown in the radar picture, the loss of effective communications, and eroded teamwork between the aircrew and the controllers.

When these problems develop, they can, at the least, result in bad setups and missed intercepts. At worst, these problems can cause the fighter to be killed by an unseen or untargeted enemy aircraft, friendly assets to be destroyed by enemies who slip through our fighter screens or "blue-on-blue" engagements. Intercept controllers can direct the fighter to target certain high threat bogeys, and have access to information from higher command authority.

Proper exchange of this type of information will allow rapid and correct decisions to be made in the air.

Bear in mind that, while the fighter aircrew are honing their tactical skills, the controllers are improving theirs also.

Professional briefs and debriefs between the fighter and the controller will improve team effectiveness and emphasize the information the fighter needs to stay alive in the combat arena.

At certain times, working area constraints may present specific challenges. Area limitations may require less than ideal setups and, at times, may require early termination of the intercept as the fighter closes into firing range.

Remember, if under positive control, the aircraft must remain within the area or risk a flight violation, This may be particularly applicable when working in a foreign defense zone.

CONCLUSION

It is very important that the fighter have some knowledge of the capabilities and limitations of the air intercept controller in order to develop a closer working relationship.

Aircrew should take the opportunity to get to know the air controllers to develop better teamwork in the air.

Often, a fighter squadron's reputation and effectiveness can be traced to their rapport with the intercept controllers.

This close working relationship will result in more successful intercepts in Combat.

RADAR TRAINING FLIGHT PROCEDURES

Upon check-in with GCI controller, you will be under positive control. GCI controller will assume responsibility for keeping the aircraft in the assigned area and clear of other aircraft.

Ultimate responsibility of the aircraft, however, still remains with the aircrew.

Before the intercept begins, the GCI controller will provide information about other aircraft, enemy and otherwise, in the area of operations where the fighter is on CAP (Broadcast control).

There are three essential transmissions given by a GCI controller that can help build aircrew situation aawareness and prepare them for the upcoming intercept.

They are:

1. Bogey heading and maneuver - Caping, mashalling, turning hot, etc.
2. Composition and altitude - an estimate of the size and makeup of aircraft that may become a factor to the fighter aircraft.

3. Picture call: defines the position of the other aircraft in relation to either a known point (Bullseye)[1] or the fighter's nose (BRA)[2].

Once the fighter commits on a bogey/group, the fighter will be the primary provider of bogey information, with GCI filling in the gaps with information that the fighter may not be able to see (Tactical control).

Typically, at some predetermined range, the format of the calls will switch completely to the BRA format so as to provide the best possible SA[3] for the aircrew during their intercept. Some of the transmissions may appear repetitious during training but they are required for the air controller and will help out when the missiles and enemy aircraft are real.

GCI will provide BRA control once the fighter is headed down range towards the bogey. During phases where bogey heading is not required (unknowns and advanced), controllers will provide bullseye control followed by BRA control.

There are two procedures for acknowledging calls from GCI/AIC.

- The first is communications (comm) cadence, where the fighter responds to all controller calls over the radio to show that they have heard and understood the information being passed to them.
- The second is comm priority, where only controller / aircrew with new information speaks, thus minimizing the amount of radio traffic. This can be important in an environment with many players, as frequencies can become jammed with too many people saying too many things. Once flying in real world scenarios, comm priority will be the norm.

Descriptive Comms (BRA/AREO Reports)

The purpose of descriptive coms is to keep GCI and the pilot informed of the progress of the intercept. Specifically, you are giving the bogey's position in relation to the fighter, there are two separate formats for formalized descriptive comm. They are BRA and AREO reports:

BRA

As already mentioned, the BRA report is given to describe the contact's position, referenced from the fighter's nose. The initial contact call to GCI/AIC should be in the BRA format and should be as accurate as possible.

This confirms and correlates with the controller that the contact is in fact the bogey they intend to intercept. Subsequent BRA calls can be made as appropriate during the intercept over the fighter formation's tactical frequency to build SA for wingmen who may not have radar contact because their primary search responsibility is in another altitude block. Remember, once identified the bogey, subsequent BRA calls continue to be considered as descriptive comm and will not take priority over directive comm.

The initial BRA report consists of Bearing, Range and Altitude information which queries the controller on the status of the contact and should be followed by a response. It is a two-way communication over UHF.

An example of a BRA call is:

"HM13 target at 100, 22NM, medium altitude, [STAND-BY/HOSTILE ENGAGE/BANDIT/BOGEY]."

HM13 is the tactical call sign of the fighter, and the BRA information follows.

The fighter can expect one of :

- STAND-BY meaning weapons release authority is not available but may be released shortly;
- HOSTILE ENGAGE weapons release is authorized;
- BANDIT confirmed enemy, weapons release not authorized
- BOGEY unknown contact, proceed with intercept, weapons release not authorized.

The bearing information is given in terms of magnetic bearing from the fighter to the bogey. If, for example, the fighter is heading 130 and the bogey appears at 30 left angle off, the bogey's magnetic bearing is 100 degrees.

The Range information in the BRA report is the miles from the fighter to the bogey.

In the BRA format that the second number is the range in miles.

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1 Bullseye, bearing and range of bogey from a reference point such as a lat/long, geographical reference, or NAVAID

2 BRA, Bearing (from the fighter's nose), Range, and Altitude of the bogey/group

3 SA, Situation Awareness

The Altitude information is given in relation to the bogey's altitude in 1000s of feet. This information is not given as a hard number, but as a block of altitude of high, medium or low.

AREO

The AREO report states, in order, the bogey's azimuth, range, elevation and overtake (rate of closure). Descriptive comm should be given smoothly and easily in a natural tone of voice.

The AREO reports should be given every two or three miles (beyond visual range) as long as the bogey information remains relatively constant (on collision).

Inside visual range, or if the bogey is drifting, AREO reports should be given as often as possible to better describe the bogey's position to the pilot and help the pilot get a tally-ho.

Once a tally by the pilot is achieved, AERO calls are no longer desired.

AREO reports should not be given when the intercept situation requires directive commentary to control intercept progression.

Visual contact is usually made between 6-10 nautical miles under favorable visibility conditions with radar cues on the pilot's Heads Up Display (HUD). If fighters has no HUD, AREO reports are particularly important during this time for the pilot to get a "Tally-Ho."

Azimuth Angle Reporting

Azimuth is reported as degrees *Right* or *Left* of the longitudinal axis (nose) of the fighter. When referring to the azimuth angle and drift movement of the bogey, the terms "Right" and "Left" must be used.

When the bogey is neither "right" nor "left" of the fighter, it is said to be "Dead ahead" (DA) or, "On the nose" (pure pursuit).

Range Reporting

Range to a radar bogey on the scope presentation is read in nautical miles and is determined by the vertical displacement of the bogey contact above the bottom of the scope.

Range should be reported to the nearest mile. If the bogey is 25 degrees left of the fighter's nose at a range of ten miles, the first part of the AREO report would be "25 left, 10 miles." Notice the word "degrees" is assumed and thus, omitted in the AREO report but "miles" is emphasized for clarity. This is done, because AREO reports are used during dynamic portions of the intercept and unlike BRA calls, may be interrupted to be directive.

Elevation Reporting

Elevation is reported in degrees HIGH or LOW from the fighter. For example, if the bogey contact were 2 degrees high at a range of ten miles, the elevation portion of the AREO report would be "2 high." When there is no altitude or elevation scale differential, the bogey is reported "Level."

Overtake Reporting

After automatic radar track has been established, rate of closure (ROC) information can be given in knots. Overtake is always true airspeed and not indicated airspeed. Since closure is difficult to estimate, it is acceptable to use "closing" or "opening" in the AREO report in this case. Positive ROC means the fighter is closing on the bogey. Overtake will be reported using knots read from the scope; for example, "400" means 400 knots of overtake. The words "knots" and "overtake" are omitted. When the overtake is negative it will be reported as opening; for example, "100 opening."

AREO Reports

At long range, when sufficient time is available, the AREO report will be given as a complete four-part report.

At medium and short ranges, when task loading increases, it may be abbreviated to azimuth, range and elevation (ARE).

In the busier phases of an intercept, there is a tendency to report azimuth and range but neglect elevation information.

Any such tendency should be avoided because it fails to keep the aircrew informed of significant tactical information.

Additions to AREO Reports

It is correct and important to announce bogey tendencies as they occur, as well as remain cognizant of the attitude of the fighter. Bogey drift patterns and any movement of the bogey not caused by the fighter should be noted. Some examples of supplementary information worthy of mention, in addition to the standard AREO call, are listed below:

- It is always significant when the bogey shows drift and should be reported as "Bogey drifting left/right."
- When the bogey is not drifting, it may be reported as "Bogey holding (degrees) left/right". In this case it may be further noted that "Bogey is on collision."
- When a speed differential is realized, it should be reported as "Bogey's fast" or "Bogey's 350 true," etc.
- Changes in bogey heading ("jinking") will cause scope indications that should be noted in descriptive comm. They should be noted as "Bogey's jinked right," "Bogey's jinked into us," "Bogey's slowing," "Bogey's diving," "Bogey's speeding up," etc.
- When pitch, bank or speed maneuvers have been previously directed, their effect should be noted later when time permits. Example: "We're climbing," "Speed set .6," "We're descending," etc.

Directives Command

Directive comm directs the pilot to take positive action necessary to execute an intercept. In effect, the weapons officer controls the fighter through commands to the pilot. A fighter is maneuvered by changing its bank, pitch and speed. Directive comm controls the aircraft in these three dimensions.

Remember, **directive always takes precedence over descriptive**.

The GCI controllers hould never hesitate to break off an AREO report to give a necessary directive command. Directive comm should be given with a sharp authoritative voice and with a sufficiently different inflection to preclude any possibility of misinterpretation as descriptive comm. Any time a maneuver is directed which exceeds the fighter's performance capabilities, the pilot will comply with the direction up to the fighter's limits. Upon achieving a directed parameter change, the pilot will inform the weapons officer with descriptive commentary, such as "Speed set," "Steady," "level" or Altitude set."

Turn Commands

Turn commands control the heading of the fighter and also the angle off of the bogey. *Airspeed and "g" determine rate of turn and turning radius*. Turn radius and rate will vary with the airspeed and "g" of the fighter. When a turn command is given, the pilot will establish the appropriate bank angle with a moderate roll rate and apply "g" as necessary to maintain the turn parameters. Roll out to steady will also be moderate.

The turn commands are:

- **"Easy left/right"** When given this command, the pilot will roll into a shallow bank (15°) of bank, half-standard rate turn, maintaining airspeed and altitude, or attitude if climbing or Descending.
- **"Left/right standard"** The standard turn for intercept work. It is a 30 degree angle of bank, standard rate turn, maintaining airspeed and altitude, or attitude if climbing or descending.
- **"Left/right hard"** The pilot will maintain a 45 degree angle of bank. Airspeed, altitude and attitude will be held constant.
- **"Left/right hard as possible"** The pilot will use the maximum angle of bank possible that permits the fighter to maintain airspeed and altitude with full military power. This usually equates to a 60 degree angle of bank.
- **"Harder"** After any bank angle is established, the command "Harder" is used to establish the next higher increment of bank.
- **"Ease"** This establishes a slow roll to a wings level position.
- **"Hold"** The pilot will hold the present bank angle. This command follows an "Ease" and is used to establish any bank angle desired.
- **"Steady up"** The pilot will roll the fighter to a wings-level position.
- **"Reverse"** The pilot will immediately turn in the opposite direction with the same angle of bank already established. Rate of roll will be rapid. A different angle of bank can be

commanded, as in "Reverse hard as poss."

All turning commands can be modified to direct the pilot to stop turning automatically by specifying the number of degrees to turn to a specific heading on which to steady-up. For example, "Left hard 40, steady 160," or "Right hard as poss to 160."

Elevation Control Commands

The pilot will execute all altitude commands by climbing or descending as appropriate.

- **"Descend to ____"** The pilot will descend to the designated altitude, maintaining airspeed. The pilot will descend by retarding the throttles and using the speed brake as required.
- **"Climb to ____"** The pilot will climb to the designated altitude, maintaining airspeed to level off. With a climb limit, the pilot will stop after climbing the designated number of feet or reaching the designated altitude.
- **"Level off"** The pilot will resume level flight.
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- The aircrew must be aware of exactly what a particular command means. If a command requires a follow-up order, the pilot will continue until the appropriate command is given. Make sure to use the proper terminology and always scan to verify that the pilot complies with directions.
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- **Speed Control Commands**
- Speed control commands alter fighter speed as required to complete a successful intercept.
- **"Buster/Gate"** This command requires full-military/full after burner power. Speed is allowed to increase to the maximum allowed for the aircraft.
- **"Buster/Gate, set speed ____"** Military power is used to accelerate to the requested IAS or Mach number
- **"Throttle back, set speed ____"** The pilot will decrease speed to the IMN desired by the weapons officer.
- **"Throttle right back"** The pilot will decrease speed as rapidly as possible by retarding the throttles and using the speed brake. The pilot will continue to slow to minimum flight speed or until a "Hold speed" command is given.

FLIGHT PATH VISUALIZATION AND FUNDAMENTALS OF INTERCEPT GEOMETRY

The aircrew must correctly position the fighter's weapons system in preparation for weapons release.

Prior to aircrew learning the procedures involved, they must understand the orientation of the basic angles of the intercept.

Correctly orienting the fighter and bogey flight paths will allow aircrew to advantageously position the weapons system.

There are three ways the intercept may be viewed: from a God's eye view, from the aircrew's viewpoint in the fighter, and from the viewpoint of the aircrew in the bogey aircraft.

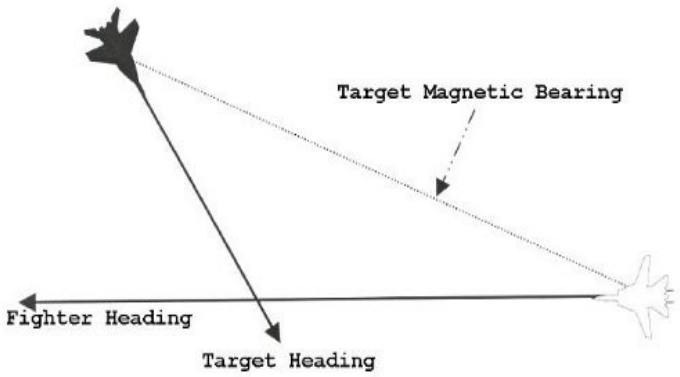


Figure 1

All aircrew should attempt to visualize the intercept as it would appear from the position in the fighter aircraft

Spatial Relationship

The magnetic bearing call or bogey bearing (BB) call, provided by the GCI controller, is the bearing from the fighter to the bogey, independent of fighter or bogey heading. The relative azimuth (angle off), however, changes as a result of the fighter's turn and changes in the same amount but in the opposite direction of the turn.

GCI Information

The first two items provided by GCI in the normal intercept are bogey heading (BH) and magnetic bearing (MB) from the fighter to the bogey.

With these two items, BH and MB, aircrew can determine the proper heading on which to initiate the intercept.

Bogey reciprocal (BR) is the direction that is opposite to (or 180° from) bogey heading (e.g., BH 270°; BR 090°).

To execute the intercept, aircrew must be able to accurately and instantaneously determine heading reciprocals around the compass rose. **This requires constant practice!** A basic premise in the initial training phases is that once the bogey heading is given, it will not change.

Hence, bogey reciprocal need be determined only once, since it will not change throughout the intercept.

Cut Defined

Once aircrew have determined the proper fighter heading, they may also determine the orientation of the bogey and fighter flight paths. The angle from fighter heading to bogey reciprocal is defined as the *cut*.

This is the angle at which the two flight paths intersect.

It must **always** be expressed in both magnitude and direction, such as a 40 LEFT or 20 RIGHT cut.

The direction of pass (DOP) is the direction the bogey would pass from one side of the fighter's flight path to the other.

The direction of pass alone makes no implications of where the bogey and fighter are located along their flight paths, but simply gives a direction to the bogey's flight path expressed relative to the fighter's flight path.

Therefore, the DOP is called as a right-to-left or a left-to-right pass.

Figure 5 provides an example of a right-to-left pass, indicating that the bogey's flight path is oriented such that the bogey would come from the right of the fighter's flight path and pass to the left of it.

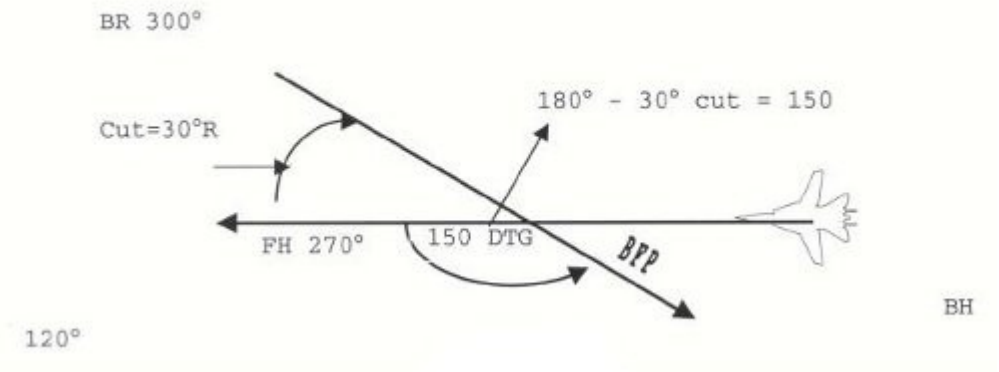


Figure 5

DTG Defined

Degrees-to-go (DTG) is the shortest number of degrees the fighter needs to turn to **parallel** the bogey's flight path, or turn to the bogey's heading.

Because the DTG and cut form a straight line (the bogey's flight path), their sum equals 180°.

The recommended procedure for computing DTG is to subtract the cut from 180°.

Target Aspect and Aspect Angle Defined

Target Aspect (TA) is the line of sight angle from the target's **nose** to the fighter (how the bogey sees the fighter).

It is analogous to the fighter's Angle-Off. It is measured in direction right or left of the target's flight path.

Aspect Angle (AA) is the angle from the bearing line of the fighter to the **tail** of the target.

It is also measured in direction right or left of the target's flight path.

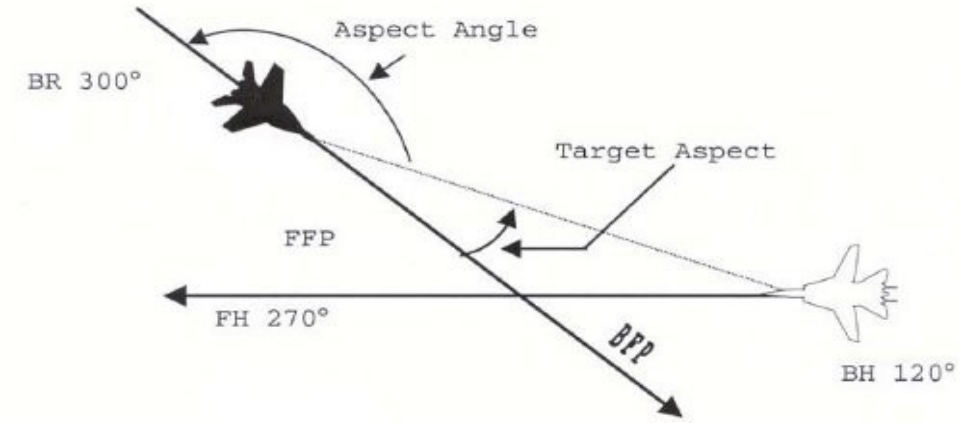


Figure 6

Calculating Aspect Angle

Target aspect and aspect angle are two ways to view similar relationships. Aspect angle is how the bogey sees the fighter measured to the tail of the bogey.

AA = 180° - (180° - HCA – AO) = 180° - TA

Intercept Triangulation

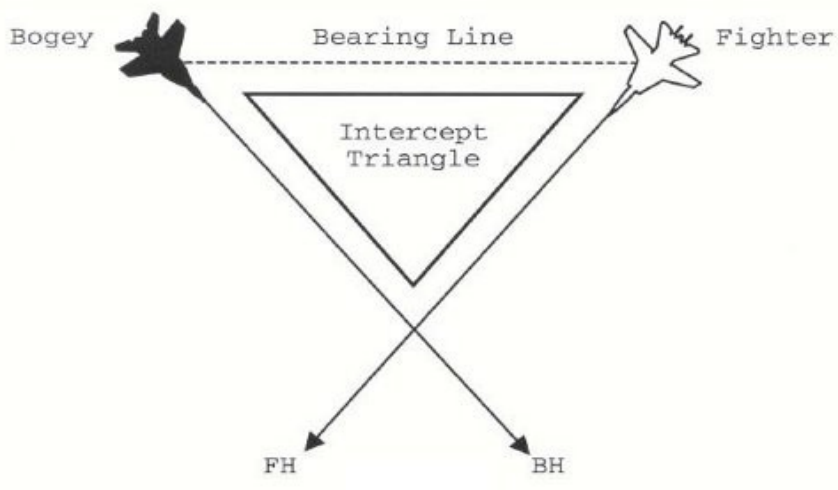


Figure 7

Once aircrew establish the bogey and fighter positions on their respective flight paths, a triangle is formed by the flight paths and the bearing line between aircraft.

This intercept triangle is a useful tool in relating angles such as DTG, cut, AO and TA. When combined with the fact that the three angles in a triangle add up to 180°, a more complete spatial picture can be obtained. TA, and consequently AA, can always be calculated if BB or AO and DTG are known.

Flight Path Visualization Procedures

The procedure for flight path visualization must make use of the cut, DTG, and DOP.

The bogey heading and bogey bearing are received from the GCI controller. After receiving this information, aircrew must determine the proper fighter heading for intercept. Then the aircrew can visualize the orientation of the fighter and bogey flight paths using the following five steps:

- *STEP 1*: Visualize the fighter heading
- *STEP 2*: From the bogey heading (for example, 320°) determine bogey reciprocal (140°) and visualize its position relative to fighter heading. Visualize a bogey's flight path extending from the bogey's reciprocal to bogey's heading.
- *STEP 3*: Compute the cut. The cut is the angle from fighter heading to bogey reciprocal (180° to 140° = 40° Left cut)
- *STEP 4*: Compute DTG by the recommended formula. 180° - cut (40°L) = 140 DTG.
- *STEP 5*: The DOP is determined from the cut (bogey recip relative to the fighter heading). For instance, if bogey recip is left of fighter heading (as in the above example), the direction of pass is left-to-right; if bogey recip is right of fighter heading, the direction of pass is right-to-left.

Example 1:

By now aircrew should be able to orient the fighter and bogey flight paths given one aircraft heading and either the cut or DTG/DOP.

Example 1: Given FH 030°; 150 DTG R-L pass
Step 1: Since we have a 150 DTG R-L, we know we have a 30°R cut (180° - 150° = 30°)
Step 2: Since cut = FH to BR, we go from FH of 030° to BR of 060°
Step 3: If BR is 060°, then BH is 240°

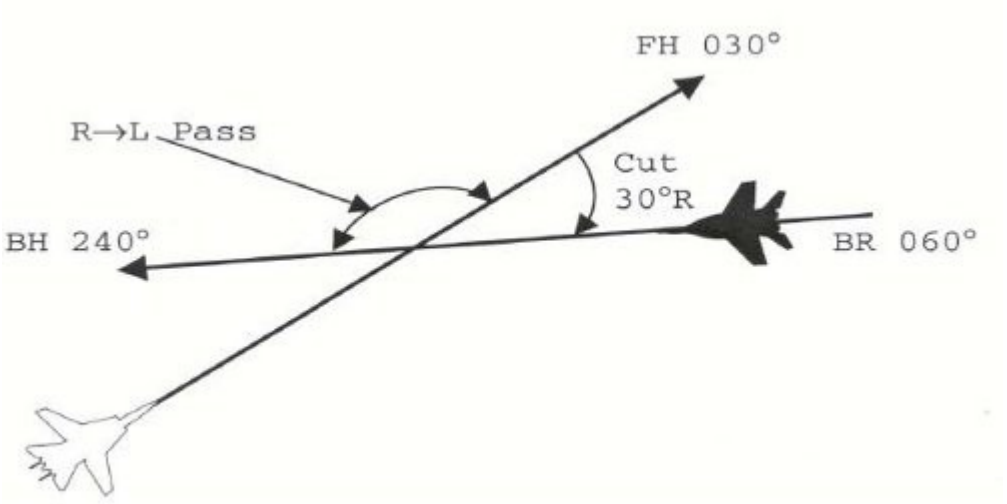


Figure 8

Note that aircraft positions on the respective flight paths do not yet come into play. Only the flight paths themselves and the angles made by their intersection are being referred to at this time.

Example 2:

140 DTG L-R
with 30°L AO
140º + 30º + TA = 180º
TA = 10ºR
AA = 180º - 10ºR = 170ºR

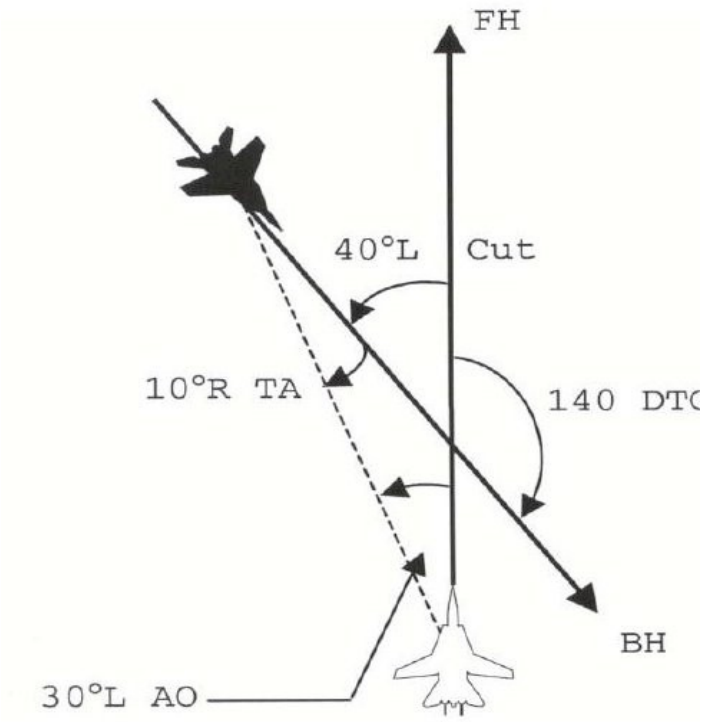


Figure 9

While this method of drawing intercept triangles helps aircrew to visualize the spatial picture, it takes far too long to be applied during an actual intercept. Consequently, aircrew should practice drawing these triangles until AO, cut, DTG, DOP, and most importantly, TA are firmly defined and visualized. Once this has been accomplished, aircrew should be ready for the real thing.

FUNDAMENTALS OF INTERCEPT GEOMETRY

Introduction

An air-to-air intercept is a relative motion problem in which the GCI controller is constantly striving to control the position of the fighter in relation to the bogey aircraft.

The aircrew must not only know the correct intercept procedures completely, but also must be consistently able to execute them with speed and accuracy. The ultimate goal is to continually visualize the spatial picture between the two aircraft.

The GCI controller must automatically analyze the problem and take corrective action to ensure a successful intercept.

Intercept Terms

The intercept terms that have been introduced already are listed on the figure below:

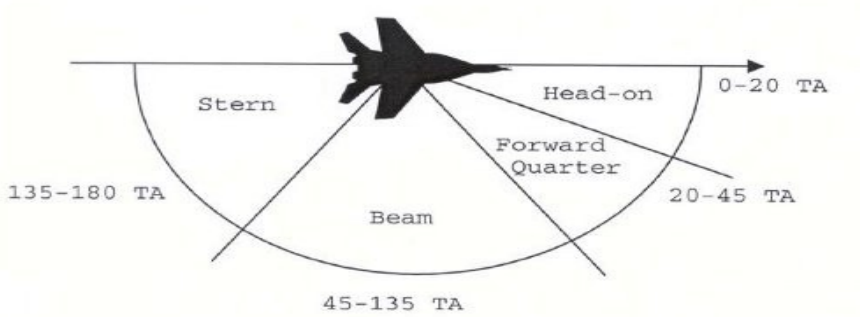


Figure 10

Fighter Positions

In the intercept, there are four approach quadrants that influence the way we accomplish the intercept.

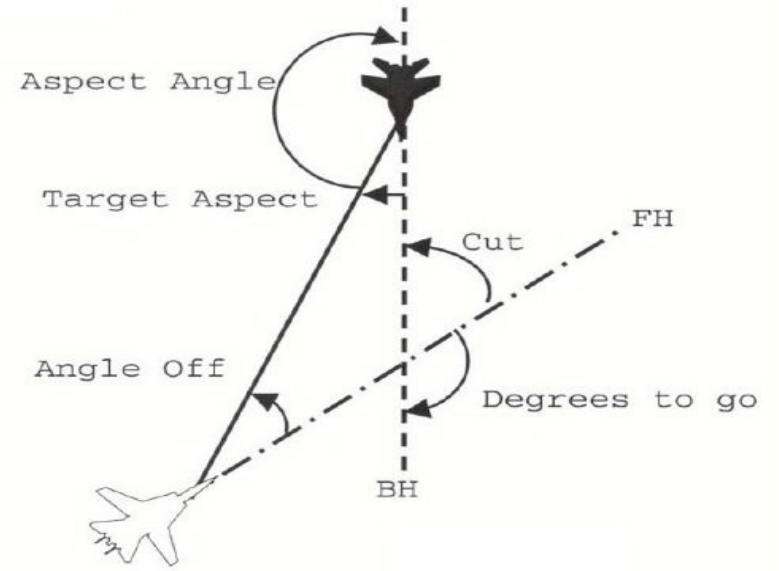


Figure 11

Position Advantage

Position advantage is a relative term used to describe the fighter's ability to defend an asset or other defined point against an attack from the enemy.

With a bogey heading towards a defined point, less target aspect means the fighter will be in a more advantageous position in which to defend against the bogey. In this case, as

target aspect decreases, position advantage increases. This is true at ranges in which forward quarter missiles are used.

Once a forward quarter missile is employed, the fighter will attempt to increase TA to achieve a position at the bogey's six, thus gaining a rear quarter positional advantage with high TA.

Computing Lateral Separation

Lateral separation is the perpendicular distance from the fighter to the bogey's flight path. Lateral separation (lat sep, also called lateral displacement, or LD) occurs in the horizontal plane. It may be measured in terms of feet or nautical miles and is determined from **target aspect** and slant range.

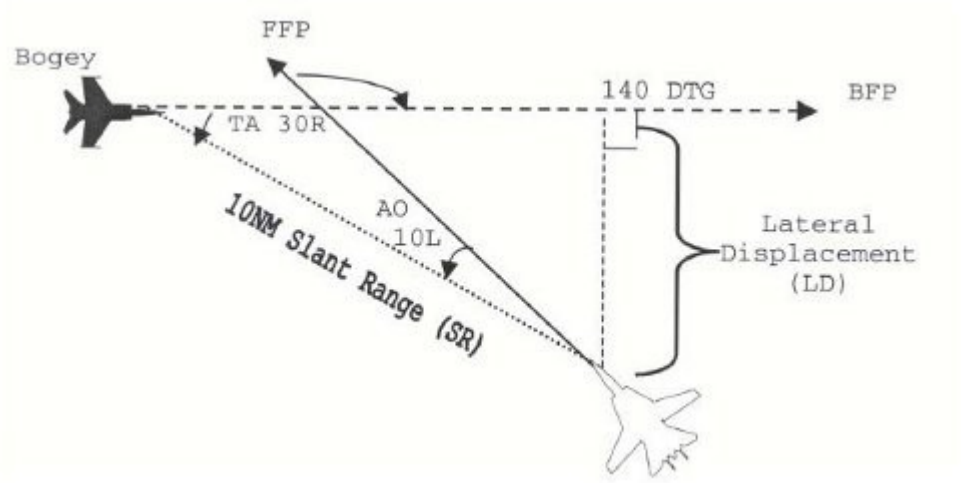


Figure 12

Lateral separation (feet) = TA X SR X 100, which in the above example would be 30 (TA) X 10 (nm) X 100 = 30,000 feet. The actual formula involves trigonometric functions, but the above formula is accurate enough for intercept execution.

Further, lat sep may be computed in miles by simply taking the feet of lat sep divided by 6000 (6000 feet = approximately 1 nautical mile).

$$\frac{TA \times SR \times 100}{6000}$$

or

$$\frac{TA \times SR}{60}$$

The formula for computing lateral separation in feet is:

$$LD' = TA \times SR \times 100$$

Vertical Displacement

Vertical displacement is the perpendicular distance the fighter is located above or below the bogey's flight path. This represents the altitude difference between the fighter and bogey and should be computed in feet. Note that the same formula for feet of lateral displacement applies to vertical displacement, except degrees of elevation is used instead of degrees of target aspect.

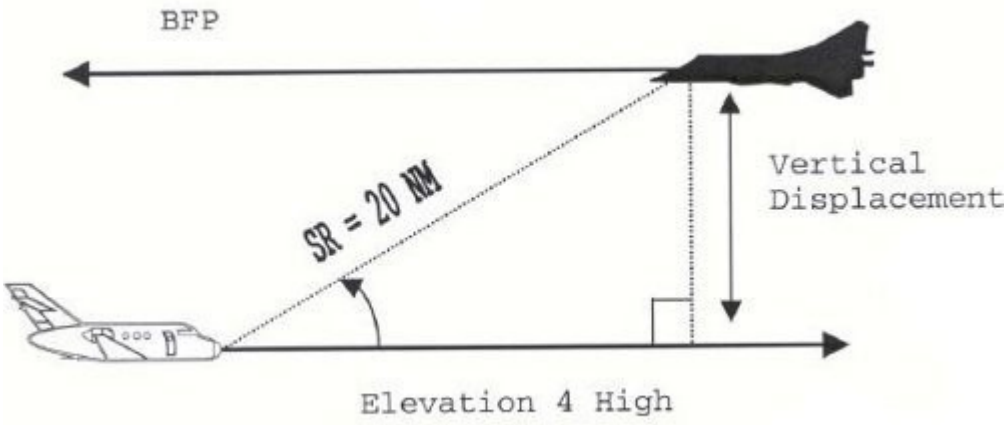


Figure 13

Vertical displacement (feet) = Elevation X SR X 100

In the example above, the bogey is 4 high at 20 miles, therefore 4 x 20 x 100 means that the bogey is 8000 feet above the fighter.

Elevation Angle

During real world intercepts, you will frequently be told the altitude of the bogey and must compute the elevation in order to determine where to look for him. Therefore, you must be able to work the vertical displacement problem in reverse. Example: The bogey is at 30,000 feet at 20 miles with the fighter level at 10,000 feet. Where do you look with your radar?

30,000 feet - 10,000 feet = 20,000' of vertical displacement

20,000 feet = 20 = 10 of elevation 20 nm x 100

A simplified statement of this formula is to drop the two zeros from the altitude difference and divide by the slant range.

20,000 -- drop the two zeros = 200, divided by SR of 20 miles = 10 of elevation.

Rate of Closure (ROC)

The rate of closure is the sum of the fighter and bogey's true airspeeds measured along the bearing line between both aircraft.

The variables that affect the ROC are:

1. Target aspect
2. Angle off
3. Bogey true airspeed
4. Fighter true airspeed

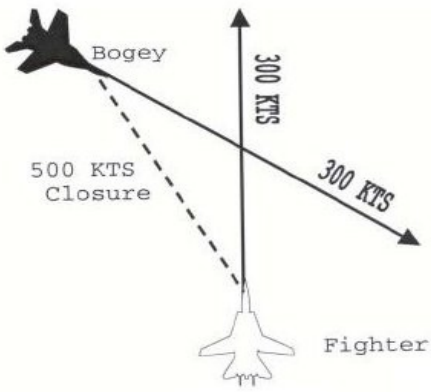


Figure 14

Target Aspect and Rate of Closure

The smaller the TA and AO, the higher the ROC. With zero degrees TA and zero degrees AO, and both aircraft traveling at 300 knots the ROC will be 600 knots. The illustration provided below should help you to visualize this concept.

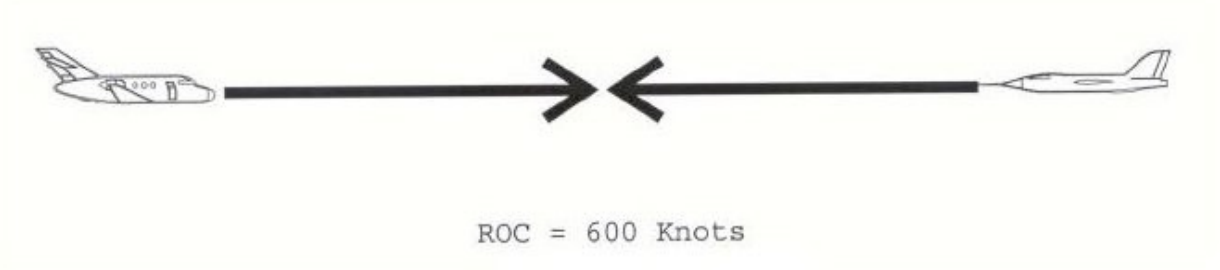


Figure 15

With varying degrees of target aspect and aspect angle, the ROC will be less than it is for zero degrees of TA. The aircrew can interpolate the drop in ROC as TA increases from 0 to 90. At the 90 DTG position, the ROC will be the airspeed of the fighter aircraft.

Conclusion

The concepts presented in this unit must be committed to memory because they are the fundamentals for all intercepts.

Proper understanding and employment of these principles must become automatic to correctly execute an intercept

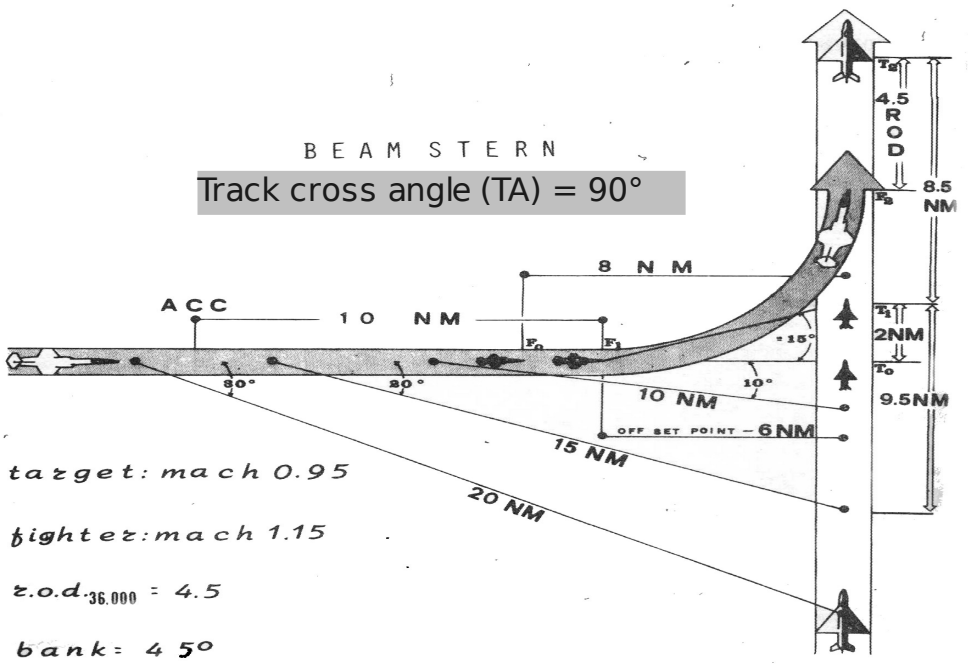
APPENDIX A:
EXAMPLES OF MOST USED BREVITY CODES

CODE	MEANING	NOTE
ANGELS X	ALTITUDE	Each Angel = 1000 FEET
BANDIT	HOSTILE TARGET	A bandit should be engaged, waiting for firing authorization
BOGEY	NOT IDENTIFIED OR UNKNOW TARGET	A bogey is normally intercepted and identified, no hostile acts are allowed
BUSTER	MILITARY POWER	Applied to set up speed
GATE	MAXIMUM POWER/ MAX AFTERBURNER	
HOSTILE	HOSTILE TARGET	Hostile means that clearly has done or is going to do attacks on firned assets. Hostile is engaged and fired
LINER	MINIMUM FUEL CONSUMPTION SPEED	
ORBIT	HOLDING PATTERN	Generally hold over a known bullseye
PANCAKE	WEAPON SYSTEM TURN AROUND	Aircraft is refuelled and rearmed
PORT	LEFT	
SAUNTER	MINIMUM CRUISE SPEED	Used when fghters have to wait over an orbit point
SCRAMBLE	IMMEDIATE TAKEOFF	This is done generally by 1 or more fighter that are ready for ALERT 5 takeoff within 5' ALERT 3 takeoff within 3' RWY ALERT immediate takeoff, engine running
SPLASH	Target downed	
TALLY HO!	Bogey/Bandit/Hostile on sight	
STARBOARD	RIGHT	
JUDY	Target acquired by fighter airborne radar	Once on JUDY GCI continue to give information, but interception, engaging and firing is managed by fighetr pilots.
VECTOR XYZ	ASSUME HEADING XYZ	

APPENDIX B

MOST USED INTERCEPTING TACTICS

Front Attack, Beam Attack , Stern Attack , the most effective is beam+stern attack, here down two canonical examples.



ROD = roll out distance