

Flight Test Brevity

A Communications Guide

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Purpose:

Accelerate the communications training of flight testers. Desired end state is a flight test team who can safely, securely, effectively, and efficiently communicate with each other, whether over the radio or face-to-face.

Method:

Introduce **brevity codes** in their proper context, AFTTP(I) 3-2.5 (Feb 2002), to reduce the confusion of misused brevity and to leverage rated aircrews' operational training. The AFTTP(I) 3-2.5 brevity codes most applicable to flight test are shown in Appendix A, with the definition and the flight test context included. Codes most often misused are indicated with an asterisk (*) and an explanation of how to avoid misuse.

Develop a general approach to **Flight Test Brevity** to enhance test conduct quality and inform test teams' communication plans. Appendix B contains Flight Test Brevity terms. Each entry states the term, and its definition. Typical errors associated with each term are also shown, as well as the effects of the error and a "plain English antidote" to be used if brevity breaks down.

Introduction:

"Brevity codes" are short, standard phrases used in operational radio communications to maximize information content while minimizing time spent transmitting (keying the microphone) and receiving (wondering what they guy just said).

For the United States armed forces, brevity codes are defined in the document "BREVITY – Multiservice Brevity Codes"¹ with the Air Force document designation of AFTTP(I) 3-2.5. The February 2002 version is unclassified and publicly releasable.

"Flight Test Brevity" is a more general approach to test team communications (comm) that uses the principles of brevity codes, does not misuse official brevity codes, and defines specific words to be used in a communications plan for a particular test mission.

Properly used, brevity can assist flight test conduct because there is direct correlation between proper communications and test conduct quality, as shown in Table 1.

¹ <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA404426>

Table 1. Correlation Between Test Conduct Quality and Proper Communications

Test Conduct Quality	Proper Communication
Safe	Correct
Secure	Concise
Effective	Complete
Efficient	Clear

The Principles of Brevity:

AFTTP(I) 3-2.5 does not contain all of the words required for test conduct, but it is an important document for establishing the principles of brevity and for avoiding misuse of official terms.

Principle 1 - Contracts

One of the strengths of brevity is the coupling of a code with pre-arranged roles and responsibilities, or “contracts.” A given code, when broadcast, is always associated with a particular role, reducing the amount of time required for identifying the transmitter and intended receiver. A given code also updates or confirms the responsibilities of the transmitter and the receiver.

BREVITY EXAMPLE: TACO 02: "TACO 02 is IN RIGHT"
TACO 01: "PRESS"

PLAIN ENGLISH EXAMPLE:

TACO 02: "TACO 01, TACO 02, I'm going to engage with the target that I had been previously assigned by making a sharp turn to the right, therefore I'll no longer be able to stay visual with you, so you need to make sure you don't run into me and keep scanning for other threats."

TACO 01: "TACO 02, TACO 01, as Flight Lead, I'm directing you to continue your attack as stated in your transmission. I will continue to scan for other threats, while preventing your target from obtaining the advantage over you. I will also not run into you."

In the above example, notice that the wingman, “Taco 02,” and flight lead, “Taco 01,” did not have to identify himself, could use single-syllable words, “IN” and “PRESS,” to communicate current and future actions, as well as changes to responsibilities for separation and support.

Principle 2 - Only Three Types of Brevity Code

Brevity codes can be sorted by their intent, as shown in Table 2. This sorting is important, because it shows the three types of brevity code: directive, informative, and requesting.

Table 2. The Three Brevity Code Types

Type	Intent	Examples
Directive	I am telling you to do something	"HOOK LEFT"
Informative	I am describing something to you	"WINCHESTER"
Requesting	I am requesting information AND you are expected to reply	"PICTURE"

The bottom line is this: if you aren't directing, informing or requesting, then you're not using brevity, you're having a discussion.

Principle 3 - Standard Word Count

Some brevity codes are standalone and some are always accompanied by other words, as shown in Table 3. This distinction is important, because it sets the expectation of how many words should constitute a radio call. If the number of words doesn't match expectations, confusion may ensue.

Table 3. Word Count in Brevity Codes

Word Count	Examples
Standalone	"MADDOG" "LINE ABREAST"
Standard Additional Words	"CHECK (number, left/right)" "(system) BENT"

Brevity...A Small Part of the Comm Plan:

Part of the test engineer's responsibility is to establish and use a communications plan during test conduct.

The primary purpose of the comm plan is to create a "cadence" to the test flow, allowing the test team to anticipate the next step, then execute that step at the right time and right place with the right actions. If the comm plan is poorly briefed and/or understood, the execution of the test will suffer because of the difficulty of establishing an understanding of what is to be done, by whom, when and where.

Brevity can assist the comm plan by reducing the "chatter" on the radio, allowing the test team to focus on action, rather than communication.

Brevity is NOT the most important part of a comm plan, however! Referring back to Table 1, you can see there is a priority order. Always remember that plain English (AKA “Trucker Comm”) is sometimes necessary to safely execute, but you should NEVER “talk around” classified over the radio.

Creating a Comm Plan:

Defining your terms is the foundation of a good comm plan. Test team members come from varied backgrounds. The mission materials and the pre-flight brief are the last opportunity to get everyone on the same page. A non-exhaustive listing of definition priorities is shown in Table 4.

Table 4. Priority of Term Definitions

Terms	Examples	Priority
Emergency/Anomalies	Knock-It-Off Abort Terminate	Highest
Switch Actuations	“Designate” v “TMS FWD”	High
Maneuvers	Success Criteria	
Chase/Target Responsibilities	Safety v Photo v Area	
Callsigns	“Test” v “Taco 01”	Medium
Plain English “Happy-to-Glad”	“Fly a normal pattern” v “Establish a normal pattern”	Low

Identifying the types of test points provides the structure of a good comm plan. Some test missions consist of a single type of test point, necessitating a single, repeated comm plan. Other test missions have many types of test points, necessitating a carefully laid out comm plan, which clarifies which test point type is being flown for each test point.

Scripting the plan is essential to ensure the test team has an objective reference for planning and briefing purposes. Include pacing when appropriate, for example during weapons deliveries pauses might be inserted into the countdown to allow for team members to call for aborts. Also consider the role of hot mic, which tends to reduce brevity on the part of the aircrew while the ground controllers are still constrained by radio communications, as well as reduced/partial comm situations, where portions of the test team cannot participate in the comm as briefed.

Keeping brevity in mind is the finishing touch of a good comm plan. Brevity takes a comm plan to the next level, but the foundation and structure are more important! So, when you get to the point of scripting your plan, only after defining your terms and identifying test point types, apply the three principles of brevity:

- 1) **Contracts** - At each step of the comm plan, know who is responsible for speaking next.
- 2) **Three Types** - Ensure your words accurately reflect whether the responsible party is:
 - a. Directing – “Cleared to...” “Check...”
 - b. Informing – “Next point is...” “Point complete...”

or

c. Requesting – “Ops check...” “Confirm...”

3) **Standard Word Count** - Use words in accordance with the brief and the mission materials

Using the Comm Plan:

The key to establishing a cadence during test execution is consistency. Say the same thing at the same time to build test team confidence and to help reinforce the impression that the test mission is proceeding under control.

When inconsistencies creep in, they are a sign that something has changed. It may be as simple as fatigue, or it may be a serious system problem. Bring the test team back to the comm plan, if there are no safety-of-flight or test concerns. If there are problems to be resolved, be explicit about the plan of action and the exit criteria from the troubleshooting.

Example: “We are reviewing the data. If we can’t find the cause in the next 5 minutes, we’ll stop testing and return to base.”

Remember, you’re either using the comm plan, or you’re having a discussion. Make sure the entire test team is clear on where you are in your communications.

Appendix A: Brevity Codes Applicable to Flight Test

Table A1. Attention-Getting Brevity Codes

Attention-Getting Brevity Code	Definition	Flight Test Context
ABORT	Directive call to cease action/attack/event/mission.	Per the comm plan, but typically used when test limits or boundaries have been or will be exceeded. Usually implies a briefed recovery procedure.
(system) BENT/SICK	System indicated is inoperative/degraded	Describing system difficulties
BINGO	Fuel state needed for recovery.	Briefed fuel state that triggers an automatic decision to terminate testing and RTB.
BLIND	No visual contact with friendly aircraft/ground position. Opposite of VISUAL.	Could be a test or a safety consideration.
BOGEY	A radar or visual air contact whose identity is unknown.	An indication of “stranger traffic” that could interfere with test execution.
DIVERT	Proceed to alternate mission/base.	Directing to alternate landing site for WX/MX/other
JOKER*	Fuel state above BINGO at which separation/bugout/event termination should begin.	Briefed fuel state that indicates a decision point in the test flow. *Can have multiple jokers for various reasons (tanker, altitude block change, etc.) as determined by test team.
KNOCK IT OFF	In training, a directive call to cease all air combat maneuvers/attacks/activities/exercises.	In test, typically used to indicate a safety of flight concern, directing termination of testing and resumption of “normal” flight. Followed by discussion of cause and next action to be taken.
NO FACTOR	Not a threat.	Declaring that an identified aircraft will not interfere with safety of flight or test.
NO JOY*	Aircrew does not have visual contact with the target/bandit/landmark. Opposite of TALLY.	Similar to BLIND, but BLIND is for friendlies; NO JOY is for everyone else.

Appendix A: Brevity Codes Applicable to Flight Test

Attention-Getting Brevity Code	Definition	Flight Test Context
PADLOCKED	Informative call indicating aircrew cannot take eyes off an aircraft, ground target, or surface position without risk of losing TALLY/VISUAL.	Indicates aircrew is task saturated and channelized.
SOUR (mode)	Invalid/no response to an administrative IFF/SIF check. Opposite of SWEET.	Systems testing.
STRANGER	Unidentified traffic that is not a participant with the action in progress.	Traffic that could conflict with test execution or flight safety.
TALLY	Sighting of a target, non-friendly aircraft, or enemy position. Opposite of NO JOY.	Should cause a sigh of relief.
TERMINATE*	<ol style="list-style-type: none"> 1. Stop laser illumination of a target. 2. In training, cease local engagement without affecting the overall exercise. 	<p>Often used to cease test point execution. In test, this means whatever the test team briefed it to mean, but the meaning is typically different from standard brevity code.</p> <p>BE CAREFUL TO CLEARLY DEFINE USE WHEN FLIGHT TERMINATION SYSTEMS ARE EMPLOYED!!!</p>
TUMBLEWEED	Indicates limited SA, NO JOY, BLIND and is a request for information.	HELP!!
VISUAL	Sighting of a friendly aircraft or ground position. Opposite of BLIND.	Could change required separations per the safety considerations.

Appendix A: Brevity Codes Applicable to Flight Test

Table A2. Informative Geometry Brevity Codes

Informative Geometry Brevity Code	Definition
ANCHOR(ED) (location)	1. Directive call to orbit about a specific point. 2. Informative call to indicate a turning engagement at a specific location. 3. Refueling track flown by tanker.
FEET WET/DRY	Flying over water/land.
IN (Direction)	1. Informative call indicating a turn toward a known threat. 2. Entering terminal phase of an air-to-ground attack. Opposite of OFF.
MARSHAL(ING)	Establish(ed) at a specific point.
OFF (direction)	Informative call indicating attack is terminated and maneuvering to the indicated direction.
ON STATION	Informative call that unit/aircraft has reached assigned station.
OUT (direction)	Informative call indicating a turn to a cold aspect relative to a known threat.
PUSHING	Departing designated point.
SADDLED	Informative call from wingman or element indicating the return to briefed formation position.
STRIPPED	Informative call that aircraft is out of prebriefed formation. Opposite of SADDLED.
WINGS LEVEL	Informative call from aircraft to FAC reporting rolled-out on final attack heading.

Appendix A: Brevity Codes Applicable to Flight Test

Table A3. Relative Geometry Brevity Codes

Relative Geometry Brevity Code	Definition
BEAM (cardinal direction)	Contact stabilized within 70 to 110 degrees of aspect.
BRAA	<ol style="list-style-type: none"> 1. Following information is in a tactical control format providing target bearing, range, altitude, and aspect, relative to the specified friendly aircraft. 2. Request/directive call to switch to tactical BRAA control format.
BULLSEYE	<p>An established reference point from which the position of an object can be referenced.</p> <p>Extremely important! Ensure that the BULLSEYE is briefed. Typically paired with a bearing and range. "Bullseye 050 at 50 miles." Think polar coordinates with a briefed origin, instead of the Cartesian lat/long coordinates.</p>
CLOSING	Decreasing in separation.
COLD	<ol style="list-style-type: none"> 1. A descriptive/directive call to initiate a turn away from anticipated threats. 2. Defined area is not expected to receive fire (enemy or friendly). 3. Intercept geometry will result in a pass or roll out behind the target.
DRAG (Cardinal Direction)	Contact aspect stabilized at 0-60 degrees angle from tail or 120-180 degrees angle from nose.
FLANK (Cardinal direction)	Contact aspect stabilized at 120 to 150 degrees angle from tail or 30 to 60 degrees angle from nose of aspect.
HOT	<ol style="list-style-type: none"> 1. A descriptive/directive call to initiate a turn toward anticipated threats. 2. Defined area is expected to receive fire (enemy or friendly). 3. Ordnance employment intended or completed. 4. Contact aspect stabilized at 160-180 degrees angle from tail or 0 – 20 degrees angle from nose.
OPENING	Increasing in separation.
STACK	Two or more contacts or formations with an altitude separation in relation to each other.

Appendix A: Brevity Codes Applicable to Flight Test

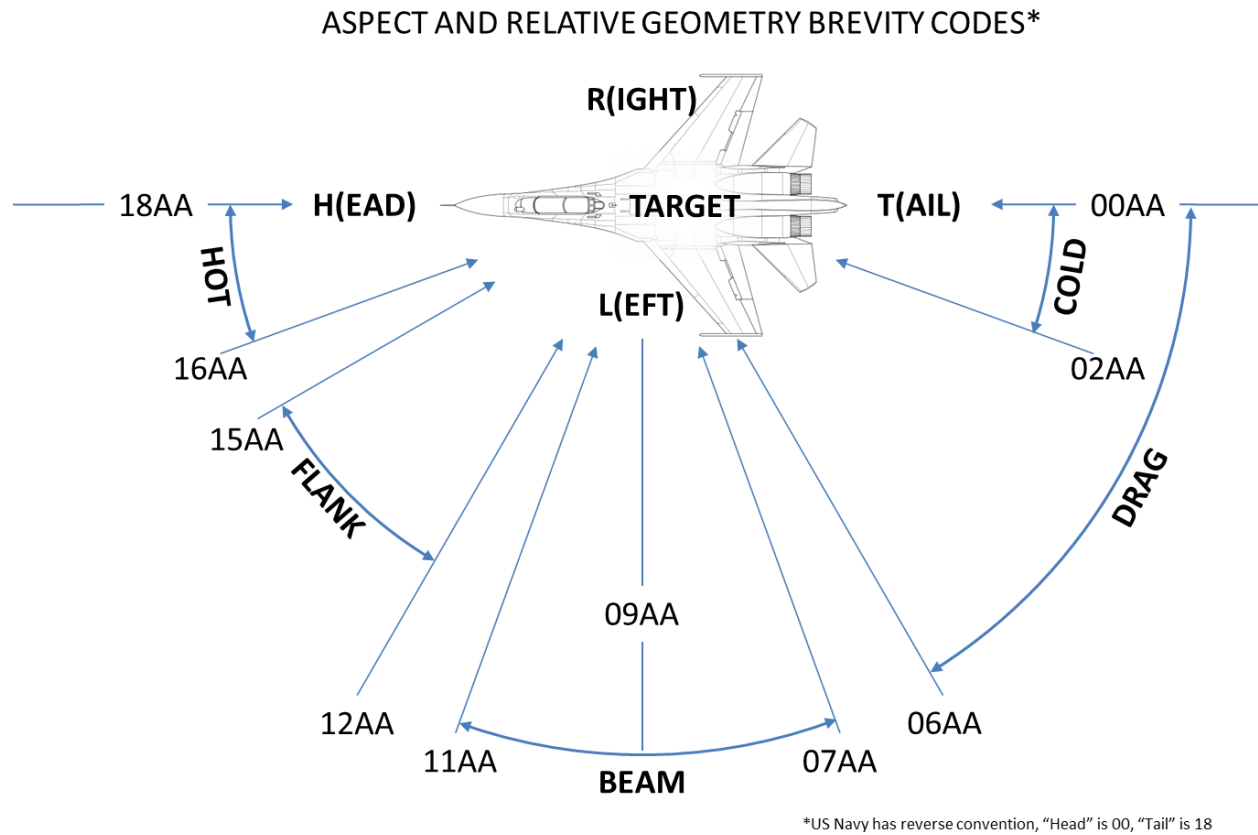


Figure A1. The Relation Between Aspect Angles and Relative Geometry Brevity Codes

Appendix A: Brevity Codes Applicable to Flight Test

Table A4. "Picture" Geometry Brevity Codes

"Picture" Geometry Brevity Code	Definition
PICTURE	A request to provide air information pertinent to the mission in a digital bullseye format.
NEW PICTURE	Used by controller or aircrew when tactical picture has changed. Supersedes all previous calls and re-establishes picture for all players.
CONTACT	1. Sensor contact at the stated position. Think "VISUAL" for points on the ground. 2. Acknowledges sighting of a specified reference point. 3. Individual radar return within a GROUP or ARM.
GROUP	Any number of air contacts within 3 NM in azimuth or range of each other.
PACKAGE	Geographically isolated collection of GROUPS.
ARM	Element resulting from target maneuvers exceeding GROUP criteria.
AZIMUTH	A picture label describing two GROUPS separated laterally.
ECHELON (Direction)	Picture label/fill-in describing two GROUPS with one group displaced behind and to the side of the other group.
RANGE	A picture label describing two GROUPS separated in distance along the same line of bearing.
BOX	A picture label describing four distinct GROUPS with two in front and two behind in a square or offset square orientation.
CHAMPAGNE	A picture label describing three distinct GROUPS with two in front and one behind.
LADDER	A picture label describing three or more GROUPS separated in range.
VIC	A picture label describing three GROUPS with a single group closest in range and two trail groups separated in azimuth.
WALL	A picture label describing three or more GROUPS separated primarily in azimuth.
DEEP	Descriptive term used to indicate separation between the nearest and farthest GROUPS in range in a relative formation, used to describe a LADDER, VIC, CHAMPAGNE, BOX.
STACK	Two or more contacts or formations with an altitude separation in relation to each other.
WEIGHTED (Cardinal Direction)	(USN/USMC) Descriptive term used for a multiple GROUP formation (WALL, LADDER, VIC, CHAMPAGNE) that is offset in one direction.
WIDE	Descriptive term used to indicate the separation between the farthest GROUPS in azimuth in a relative formation, use to describe a WALL, VIC, CHAMPAGNE, or BOX.

Appendix A: Brevity Codes Applicable to Flight Test

"Picture" Geometry Brevity Code	Definition
CONTAINER	Inner GROUP formation with four contacts oriented in a square or offset square.
LEAD-TRAIL	Inner GROUP formation of two contacts separated in range.
LINE ABREAST	Inner GROUP formation of two or more contacts separated in azimuth.
NEAR-FAR	(USAF) Fighter term depicting a radar-apparent description of two or more contacts within a GROUP separated in range.
SIDE-SIDE	(USAF) Fighter term depicting a radar-apparent description of two or more contacts within a group separated in azimuth.
STINGER	Three-ship inner group formation with two lead contacts line abreast and the single in trail.
WEDGE	Three-ship inner group formation with a single contact closest in range and two trail contacts line abreast.
CROSSING	Descriptive term for when two GROUPs initially separated in azimuth decrease azimuth separation to pass each other.
MANEUVER (AZIMUTH /RANGE/ ALTITUDE)	Informative call that specified GROUP is maneuvering in azimuth, range, and/or altitude.
MARSHAL(ING)	Establish(ed) at a specific point.
MERGE(D)	1. Information that friendlies and targets have arrived in the same visual arena. 2. Informative call indicating radar returns have come together.
PASSING	Descriptive term for when two GROUPs initially separated in range, decrease range separation and pass each other.
SWITCHED	Indicates an attacker is changing from one aircraft to another.
TRACK (cardinal direction)	Group/contact's direction of flight.

Appendix A: Brevity Codes Applicable to Flight Test

Table A5. Maneuver Brevity Codes

Maneuver Brevity Code	Definition
BANZAI	<p>Informative/directive call to execute launch and decide tactics.</p> <p>Launch your missiles, then continue to the target. May end up as a merge.</p> <p>Not common in DT, but significant for OT tactics. Also, fun to say, with aerial combat overtones.</p>
BRACKET (direction)	Directive call to maneuver to a position on opposing sides, either laterally or vertically from the target.
BUSTER	Directive call to fly at maximum continuous speed (military power).
CRANK (Direction)	F-Pole maneuver in the direction indicated; implies illuminating target at radar GIMBAL limits.
EXTEND (ING) (Direction)	Short-term maneuver to gain energy, distance, or separation, normally with the intent of reengaging.
GATE	Directive/informative call to fly as quickly as possible, using after-burner/max power.
HOT	<ol style="list-style-type: none"> 1. A descriptive/directive call to initiate a turn toward anticipated threats. 2. Defined area is expected to receive fire (enemy or friendly). 3. Ordnance employment intended or completed. 4. Contact aspect stabilized at 160-180 degrees angle from tail or 0 – 20 degrees angle from nose.
JINK	Directive call to perform an unpredictable maneuver to negate a tracking solution.
LEAN (direction)	Directive/informative call to maneuver in a direction to avoid the threat.
NOTCH(ING) (direction)	Directive/informative call that an aircraft is in a defensive position and maneuvering with reference to an air-to-air threat.
OFFSET (direction)	Directive/informative call indicating maneuver in a specified direction with reference to the target.
PUMP	A briefed maneuver to minimize closure on the threat or geographical boundary with the intent to re-engage.
SHORT SKATE	<p>(USAF) Informative or directive call to execute launch-and-leave tactics and be out no later than MAR/DR.</p> <p>Launch your missiles, then turn away to fight another day prior to a briefed distance from the target.</p>
SKATE	<p>Informative or directive call to execute launch-and-leave tactics.</p> <p>Launch your missiles, then turn away to fight another day. Turning at a distance closer than short skate to support your missile for longer.</p>
STERN	Request for, or directive to, intercept using STERN geometry.

Appendix A: Brevity Codes Applicable to Flight Test

Maneuver Brevity Code	Definition
CHECK (number, left/right)	Turn (number) degrees left or right and maintain new heading.
COME OFF (direction)	1. Directive call to maneuver as indicated to either regain mutual support or to deconflict flight paths. Implies both VISUAL and TALLY. 2. Directive call to maneuver or execute a specific instruction (e.g., COME OFF DRY).
HARD (Direction)	High-G, energy sustaining 180 degree turn (or as directed) in the indicated direction.
HOOK LEFT/RIGHT	Directive call to perform an in-place 180 degree turn.
IN PLACE (direction)	Perform indicated maneuver simultaneously.
PITCH/PITCHBACK LEFT/RIGHT	Directive call for fighter or flight to execute a nose-high heading reversal.
SLICE/SLICEBACK (left/right)	Directive call to perform a high-G descending turn in the stated direction, usually 180 degree turn.
FLOAT	Directive/informative call to expand the formation laterally within visual limits to maintain radar contact or prepare for a defensive response.
FLOW (Direction)	Directive call to fly stated heading.
MARSHAL(ING)	Establish(ed) at a specific point.
POP	1. Starting climb for A/S attack. 2. Max performance climb out of low-altitude structure.
POST HOLE	Rapid descending spiral.
SHACKLE	One weave, a single crossing of flight paths; maneuver to adjust or regain formation parameters.
SPIN	Directive or informative call to execute a timing/spacing maneuver.
SPLIT	Informative/directive call that flight member is leaving formation to pursue a separate attack; VISUAL may not be maintained.

Appendix A: Brevity Codes Applicable to Flight Test

Table A6. Request Brevity Codes

Request Brevity Code	Definition
POSIT	Request for friendly position; response in terms of a geographic landmark or off a common reference point.
STATUS	1. Request for an individual's tactical situation. 2. (Group) Request for a full positional update in digital bullseye format on the specified group.
WHAT LUCK	Request for results of missions or tasks.
WORDS	Directive or interrogative call regarding further information or directives pertinent to the mission.

Appendix A: Brevity Codes Applicable to Flight Test

Table A7. Weapon Test Brevity Codes

Weapon Test Brevity Code	Definition
(weapon) AWAY	Release/launch of specified weapon.
FOX (Number)	Simulated/actual launch of air-to-air weapons. ONE - semiactive radar-guided missile. TWO - infrared-guided missile. THREE - active radar-guided missile. http://www.youtube.com/watch?v=qau8Wiv7Aas
GUNS	Reference to gun engagement.
MILLER TIME	1. (A-G) Informative call indicating completion of air-to-ground ordnance delivery. Generally used by the last striker in conjunction with a pre-coordinated egress plan. 2. (CSAR) Indicates survivor(s) are aboard recovery vehicle in Combat Search and Rescue.
PIG(S)	Friendly glide weapon (i.e., JSOW).
RIFLE	Friendly air-to-surface missile launch.
RIPPLE	Two or more munitions released or fired in close succession.
SHOOTER	Aircraft/unit designated to employ ordnance.
SHOTGUN	Briefed weapons state at which separation/bugout should begin.
SPLASH(ED)	1. (A/A) Target destroyed. 2. (A/S) Weapons impact. 3. (S/S) Informative call to observer or spotter five seconds prior to estimated time of impact.
TARGET	1. Directive call to assign group responsibility. 2. (w/TAD/TIDS, etc.) Inter-flight directive to target via information displayed on data link system.
TARGETED	Informative call that GROUP responsibility has been met.
THUNDER	Informative call one minute prior to A/S weapons impact.
WHAT STATE (Item)	Request for amount of fuel and missiles remaining. Ammunition and oxygen are reported only when specifically requested or critical. (Active) = number of active radar missiles remaining. (Radar) = number of semi-active radar missiles remaining. (Heat) = number of IR missiles remaining. (Fuel) = pounds of fuel or time remaining.
WINCHESTER	No ordnance remaining.
ARIZONA	No ARM ordnance remaining.
MAGNUM (system/location)	Launch of friendly antiradiation missile.
SLAPSHOT (type/bearing)	Directive call for an aircraft to immediately employ a best available HARM against a specified threat at the specified bearing.

Appendix A: Brevity Codes Applicable to Flight Test

Weapon Test Brevity Code	Definition
SNIPER (type, location [range Bearing])	Directive call for an aircraft to employ a range-known HARM against a specified threat at the specified location.
WORKING	1. (system w/location) Platform gathering EOB on a designated emitter. 2. Platform executing EID on a specific aircraft/group to obtain identification necessary for BVR employment.
CHEAPSHOT	AIM-120 missile data link terminated between high and medium PRF active.
FOX 3 (X) SHIP (formative description)	(USAF) Valid missile shot against (x) separate targets (assumes 1 missile per target).
FOX THREE/ SECOND FOX 3	(USAF) Simulated or actual launch of multiple active radar-guided missiles on the same target.
HUSKY	Informative call that the AIM-120 is at HPRF active range.
MADDOG	Visual AIM-120/AIM-54 launch.
PITBULL	1. Informative call that the AIM-120 is at MPRF active range. 2. Informative call that the AIM-54 is at active range.
SKOSH	Aircraft is out of/or unable to employ active radar missiles.

Appendix A: Brevity Codes Applicable to Flight Test

Table A8. Radar or Sensor Test Brevity Codes

Radar/Sensor Test Brevity Code	Definition
BROKE LOCK	Advisory call regarding loss of radar/IR lock-on.
BUDDY LOCK	Locked to a known friendly aircraft. Normally a response to a "SPIKED" or "BUDDY SPIKE" call. Usually for transit to/from range, but could be used during test.
BUDDY SPIKE (Posit/heading/alt)	Friendly aircraft air-to-air indication on radar warning receiver (RWR). Usually for transit to/from range, but could be used during test.
CAPTURED	Aircrew has acquired and is able to track a specified air-to-ground (A/G) target with an on-board sensor.
CLEAN	1. No sensor information on non-friendly group of interest. 2. No visible battle damage. Battle Damage (BD) checks "Clean and Dry" means no damage and no leaking fluids. 3. Aircraft not carrying external stores. Aircraft configuration. Be careful and be specific. Better to state explicitly the required configuration than to just say "clean."
DROP(PING)	1. Directive/informative call to stop monitoring a specified emitter/target and resume search responsibilities. 2. Informative call that fighter has discontinued tracking responsibility. 3. Remove the emitter/target from tactical picture/track stores. 4. Directive call to remove a specific system or EOB category from search responsibilities.
EMPTY	No emitters of interest detected.
FADED	Radar contact is (temporarily) lost on nonfriendly air/surface contact and any positional information given is estimated.
GADGET	Radar or emitter equipment.
GIMBAL (w/Direction)	Radar target is approaching azimuth or elevation limits.
HIT(S)	1. Momentary radar return(s). 2. (A/A) Indicates approximate target altitude (e.g., GROUP BULLSEYE 360/10, HITS 15 thousand). 3. (A/G) Weapons impact within lethal distance.
LASER ON	Directive call to start laser designation.
LASING	Informative call indicating that the speaker is firing the laser.
LOCKED	1. (w/Group Label) Radar lock-on; SORT is not assumed. 2. (w/Position) Radar lock-on; correct targeting is not assumed.
MAPPING	Multifunction radar in an A/G mode.

Appendix A: Brevity Codes Applicable to Flight Test

Radar/Sensor Test Brevity Code	Definition
MARK	1. Used when aircraft passes over pickup zone/landing zone (PZ/LZ) team. 2. Directive term to record the location of a ground point of interest.
MONITOR	Maintain radar awareness on specified group.
MUD (type/direction)	Informative call Indicating RWR ground threat displayed.
MUSIC	Radar electronic deceptive jamming.
NAILS (direction)	RWR indication of AI radar in search.
NAKED	No RWR indications.
NEGATIVE CONTACT	Sensor information on a friendly aircraft is lost. Termination of CONTACT, track plotting is not warranted.
RAYGUN (Position/Heading/ Altitude)	Indicating a radar lock-on to unknown aircraft. A request for a "BUDDY SPIKE" reply from friendly aircraft meeting these parameters.
SHIFT (direction)	Directive call to shift laser illumination.
SINGER (type/direction)	Informative call of RWR indication of SAM launch.
SNAPLOCK (BRAA)	Indicates fighter has obtained a radar contact inside briefed threat range with beam, flank, or hot/head aspect.
SNIFF (type)	Passive sensor indication of a radar emitter.
SPARKLE	1. Target marking by IR pointer. 2. Target marking by gunship/ FAC-A using incendiary rounds.
SPIKE(D) (direction)	RWR indication of an AI threat in track or launch.
SPOT	Acquisition of laser designation.
STROBE(S) (bearing)	Radar indication(s) of noise jamming.
TIED	Positive radar contact with element or aircraft.
TOY	HTS pods.

Appendix A: Brevity Codes Applicable to Flight Test

Table A9. Avionics or Datalink Testing Brevity Codes

Avionics/Datalink Test Brevity Code	Definition
(system) BENT	System indicated is inoperative.
(system) SICK	System indicated is degraded/partially operative.
(system) SILENT (time)	System will be unavailable for time indicated.
(system) WELL	System indicated is fully operative.
SOUR (mode)	Invalid/no response to an administrative IFF/SIF check. Opposite of SWEET.
SWEET	Valid response to an administrative IFF/SIF check request. Opposite of SOUR.
FLASH (system)	Temporarily activate specified system for identification purposes (IFF/afterburner/flare/chaff/etc.).
STRANGLE (system)	Turn off equipment indicated. Example: "STRANGLE PARROT"
TOGGLE	Execute a briefed change of an avionics setting.
GADGET	Radar or emitter equipment.
PARROT	IFF/SIF transponder.
TIMBER	Air control NPG of Link 16/TADIL J. Datalink testing, especially "TIMBER SWEET" or "TIMBER SOUR"
TOY	HTS pods.
UNIFORM	UHF radio.
VICTOR	VHF radio.
PRIME	Primary radio frequency. UHF if UHF/VHF. UHF1 if UHF1/UHF2.
AUX	Auxiliary radio frequency. VHF if UHF/VHF. UHF2 if UHF1/UHF2
FENCE (IN/OUT)	Set cockpit switches as appropriate before entering/exiting the combat area.
INTERROGATE	Interrogate the designated contact of the IFF mode indicated.
SQUAWK (mode/Code)	Operate IFF/SIF as indicated or IFF/SIF is operating as indicated.
SQUAWKING (Mode #)	An informative/descriptive call denoting a BOGEY is responding with an IFF/SIF mode or code other than that prescribed by the ATO/identification criteria.
ZAP	Request for data link information.

Appendix A: Brevity Codes Applicable to Flight Test

Table A10. Clearance Brevity Codes

Clearance Brevity Code	Definition	Flight Test Context
CLEAR(ED)*	Response to requested action is authorized. No engaged/support roles are assumed.	Test point pacing ONLY. DO NOT SAY CLEARED WHEN A/C IS ABOUT TO TAXI, TAKE THE RUNWAY, OR LAND. The “cleared” word is reserved in those situations for the controlling agency (ground, tower, etc.). Don’t get your aircrew violated because they acted without clearance from the controlling agency!
CLEARED HOT*	Ordnance release is authorized.	NOT FOR YOU TO SAY! Range control has the hammer.
CONTINUE	Continue present maneuver, does not imply a change in clearance to engage or expend ordnance.	VERY USEFUL. By replying to an aircrew query with “CONTINUE”, you are indicating that you are aware of the situation, you’ve taken it into consideration, and they can safely, securely, effectively, and efficiently proceed with the current course of action.
CONTINUE DRY	Ordnance release not authorized.	NOT FOR YOU TO SAY!
PRESS*	Directive call to continue the attack; mutual support will be maintained. Supportive role will be assumed by the speaker.	Not typically used in flight test conduct, but a very common term in informal settings.
PUSH (Channel)	Go to designated frequency; no acknowledgment required.	Not for you to say, but the flight lead is directing the flight to change frequencies, so follow along.
RESET	Proceed to a pre-briefed position or AO.	Start over, per the brief.
RESUME	Resume last formation/route/mission ordered.	If test point was paused, resume at last step.

Appendix A: Brevity Codes Applicable to Flight Test

Clearance Brevity Code	Definition	Flight Test Context
ROGER***	Indicates the receipt of radio transmission; does not indicate compliance or reaction.	One of the more abused brevity codes. Only indicates that you heard, nothing more. "ROGER, COPY" is redundant, as is "ROGER, WILCO."
ROLEX (+/- Time)	Time line adjustment in minutes always referenced from original preplanned mission execution time. Plus means later; minus means earlier.	Often used when delays have offset brief mission times.
SAUNTER	Fly at best endurance.	Used when test is on hold.
SKIP IT	Veto of fighter COMMIT, usually followed with further directions.	Used to veto aircrew suggestion or to tell aircrew NOT TO PICKLE.
UNABLE	Cannot comply as requested or directed.	Used to indicate inability to comply.
WEAPONS () FREE TIGHT HOLD* (USAF, USA,USMC)/ SAFE* (USN)	Fire only: At targets not identified as friendly IAW current ROE. At targets positively identified as hostile IAW current ROE. In self-defense or in response to a formal order.	Weapons testing.

Appendix A: Brevity Codes Applicable to Flight Test

Table A11. Flight Condition Brevity Codes

Flight Condition Brevity Code	Definition
VERY FAST	Target speed greater than 900 knots/ 1.5 Mach ground speed.
FAST	Target speed is estimated to be 600 – 900 knots /Mach 1 – 1.5 ground speed.
SLOW	Contact with ground speed of less than 300 knots.
VERY HIGH	Target above 40,000 ft MSL.
HIGH	Contact is between 25,000 and 40,000 ft MSL.
MEDIUM	Contact altitude between 10,000 ft MSL and 25,000 ft MSL.
LOW	Contact altitude below 10,000 ft MSL.
WEEDS	Indicates that aircraft are operating close to the surface.

Appendix A: Brevity Codes Applicable to Flight Test

Table A12. Rules of Engagement & ID Brevity Codes

ROE & ID Brevity Code	Definition
BANDIT	An aircraft identified as an enemy in accordance with (IAW) theater ID criteria. The term does not necessarily imply direction or authority to engage.
BOGEY	A radar or visual air contact whose identity is unknown.
CHICKS	Friendly aircraft, typically used for aircraft on the tanker.
FRIENDLY	A positively identified friendly aircraft, ship, or ground position.
HOSTILE	A contact identified as enemy upon which clearance to fire is authorized in accordance with theater rules of engagement.
OUTLAW	Informative call that a BOGEY has met point of origin criteria for ROE. Point of Origin means that the contact came from a geographic location identified as hostile.
SPADES	An interrogated group/radar contact which lacks all of the ATO (or equivalent) IFF/SIF modes and codes required for the ID criteria.
DECLARE	Inquiry as to the identification of a specified track(s), target(s), or correlated GROUP.
ID	1. Directive call to identify the target. 2. Informative call that identification is accomplished, followed by type.
PAINT(S)	An interrogated group/radar contact that is responding with any of the specified IFF/SIF modes and correct codes established for the ID criteria.
PRINT (Type)	Active NCTR reply.

Appendix B: Flight Test Brevity Definitions and Errors

Table B1. Flight Test Brevity Terms

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"RADIO CHECK"	I'm requesting that you tell me how well you can hear my transmission on UHF PRIME.	Calling from AUX or VHF	Aircrew think you're calling on UHF PRIME but you're actually on VHF or UHF AUX	<ul style="list-style-type: none"> "How do you hear me on UHF PRIME?"
"RADIO CHECK ON AUX"	I'm requesting that you tell me how well you can hear my transmission on the auxiliary (either UHF2 or VHF).	<ul style="list-style-type: none"> "RADIO CHECK" Accidentally calling from UHF PRIME 	<ul style="list-style-type: none"> Aircrew think you're calling on UHF PRIME Aircrew think you're calling on VHF or UHF AUX but you're actually on UHF PRIME 	<ul style="list-style-type: none"> "How do you hear me on [UHF AUX or VHF]?"
"RADIO CHECK ON VICTOR"	I'm requesting that you tell me how well you can hear my transmission on VHF.	<ul style="list-style-type: none"> "RADIO CHECK" Accidentally calling from UHF PRIME 	<ul style="list-style-type: none"> Aircrew think you're calling on UHF PRIME Aircrew think you're calling on VHF or UHF AUX but you're actually on UHF PRIME 	<ul style="list-style-type: none"> "How do you hear me on VHF?"

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"[Control Room Callsign] IS READY [for taxi/takeoff/point X/etc.]"	The control room is ready to support test as soon as you get clearance for the next administrative step (taxi, takeoff, etc.), or as soon as you call back with "TEST IS READY"	<ul style="list-style-type: none"> • "CLEARED TO TAXI" • "CLEARED TO TAKEOFF" • "..." (crickets) 	<ul style="list-style-type: none"> • Aircrew begin taxi without proper coordination. • Aircrew take the runway without proper coordination. • Aircrew are wondering what's going on. 	<ul style="list-style-type: none"> • "The control room has seen everything necessary before you leave the parking area." • "The control room has seen everything necessary before you leave EOR." • Say something/anything.
"CLEARED TO MANEUVER"	Initiate action per the brief for this test point	<ul style="list-style-type: none"> • Saying "CLEARED TO MANEUVER" way too early, i.e. prior to setup, instead of clearing the aircrew to a setup flight condition to prepare for the actual maneuver. • Saying "CLEARED TO MANEUVER" way too late, i.e. the aircrew are waiting and burning gas, or they've already begun the maneuver without your clearance. 	<ul style="list-style-type: none"> • Confusion ensues about if the test point has actually begun, if aircrew are on parameters, or if clearance has already been issued, requiring a conversation. • TC loses control of the mission and the trust/confidence of the aircrew because aircrew have gone rogue, not wanting to burn gas and time waiting for your clearance. 	"We are on test point XX. We show good setup. The control room is ready. You are cleared to maneuver."

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"CONCUR"	I have heard your proposed course of action and I agree with it	<ul style="list-style-type: none"> • "... (crickets)" • "CONFIRM" • "AFFIRMATIVE" • "COPY" 	<ul style="list-style-type: none"> • Aircrew have no idea why they are waiting, if the radios are broken, and generally if you are still alive and breathing • Answering a proposal with a request. • Answering a complicated proposal with a simple "yes" • Aircrew are left wondering you have any opinion. 	"I agree"
"CONFIRM [declarative statement]"	I am requesting that you reply with your understanding of something or with the current status of something.	Convolved verbiage	Confusion	"Is the [THING] in [STATE]?"
"CONTINUE"	I have heard you, but your concern can be addressed later. Keep going.	<ul style="list-style-type: none"> • "... (crickets)" • "HOLD" 	<ul style="list-style-type: none"> • Aircrew have no idea why they are waiting, if the radios are broken, and generally if you are still alive and breathing • Aircrew confusion, since they may not be expecting to hold their current flight condition, since they brought up a concern. 	<ul style="list-style-type: none"> • Say something/anything. • "Keep doing what you're doing."

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"AFFIRM"	Yes	"ROGER"	Answering a question with "I heard you" brings things to a halt	"Yes"
"NEGATIVE"	No	See "AFFIRM"	See "AFFIRM"	"No"
"ROGER"	I have heard you	<ul style="list-style-type: none"> "ROGER, COPY" "ROGER, WILCO" 	<ul style="list-style-type: none"> I have heard you, and I have heard you and recorded what you said. I have heard you, and I have heard you, and I will comply with your request (even though you probably didn't request anything) 	"I understand"
"COPY"	I have heard you and have recorded what you said	<ul style="list-style-type: none"> See "ROGER" Saying "COPY" but not actually remembering what was said 	Important information/data gets lost because it wasn't recorded. Or the speaker assumes too much retention on the part of the hearer.	Read back what you just heard
"WILCO"	I have heard you and will comply with your request	<ul style="list-style-type: none"> See "ROGER" Saying "WILCO" when you mean "AFFIRM" 	Confusion about the status of the request/statement	"I will do [the thing you just requested]"
"ACKNOWLEDGE"	I have updated something and am requesting verbal acknowledgement from all players.	"..." (crickets)	<ul style="list-style-type: none"> You don't know that the test team has heard the update The test team doesn't know you have heard the update. 	<ul style="list-style-type: none"> Repeat the transmission and request acknowledgement. Repeat back the transmission verbatim: "The control room copies new floor 10K."

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"WHEN ABLE"	It sounds like you're busy, but I've got something to discuss, so get back to me when you can talk	Talking over or into a busy pilot's conversation/thought process	Increased frustration	"I've got a question/piece of information when you have a chance."
"STANDBY"	I have heard you, but I'm unable to reply to your transmission in detail at this time. In a moment, I will say more.	<ul style="list-style-type: none"> • "... " (crickets) • "HOLD" 	<ul style="list-style-type: none"> • Aircrew have no idea why they are waiting, if the radios are broken, and generally if you are still alive and breathing. Also waste of gas/resources as aircrew come off conditions. • Aircrew confusion, since they may not be expecting to hold their current flight condition 	<ul style="list-style-type: none"> • Say something/anything. • "Wait a moment while we discuss."
"HOLD"	Maintain current conditions until further notice.	<ul style="list-style-type: none"> • "... " (crickets) • "STANDBY" 	<ul style="list-style-type: none"> • Aircrew have no idea why they are waiting, if the radios are broken, and generally if you are still alive and breathing • Aircrew confusion, since they may not be expecting to be told to wait for you to get back to them. 	<ul style="list-style-type: none"> • Say something/anything. • "Keep doing what you're doing."

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"..."	A pause between transmissions to allow the test team to interject. Often used in countdowns to irreversible events	<ul style="list-style-type: none"> • Holding the transmission key for the duration of the countdown • Too short of a pause 	<ul style="list-style-type: none"> • The test team cannot interject to prevent mistaken triggering of the irreversible event • The aircrew don't have time to listen for interjections 	<ul style="list-style-type: none"> • "..." (waiting long enough to listen for test team inputs)
"[INCREASE/DECREASE] [PARAMETER]"	Per the brief and the mission materials, the parameter is about to go out of tolerance/limits unless you comply with this advisory call.	<ul style="list-style-type: none"> • "CHECK/WATCH [PARAMETER]" • "..." (crickets) 	<ul style="list-style-type: none"> • Aircrew doesn't know what you want after they look at the parameter. The parameter probably dropped out of their scan, which necessitated the call in the first place, so they aren't aware of the corrective action. • Test point needs to be repeated, test limits are exceeded, aircraft limits are exceeded. 	<ul style="list-style-type: none"> • "Your [PARAMETER] is approaching [TOLERANCE/LIMIT]." • Say something/anything.

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
<p>“TERMINATE” “ABORT” “KNOCK-IT-OFF”</p> <p>Ex. Project: "Quell Terminate" Quell 1: "Quell 1 Terminate" Quell 2: "Quell 2 Terminate" Project: "Project Terminate, [REASON]"</p> <p>Ex. Test: "Terminate, Test Terminate" Chase: "Chase Terminate" Project: "Project Terminate" Test: "[REASON]"</p>	<p>Per the brief and the mission materials, stop what you're doing and take corrective action.</p>	<ul style="list-style-type: none"> • Not reacting per the brief • The originator not saying the reason for the call. 	<p>Confusion</p>	<ul style="list-style-type: none"> • Because of the urgent nature of these calls, it's better to say the wrong thing than to say nothing. The best this is to practice the calls in the brief and over the radio prior to beginning test execution. • Say something/anything.

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"POINT COMPLETE"	The test point was executed within the success criteria per the brief and mission materials	<ul style="list-style-type: none"> • Saying "POINT COMPLETE" before you know if it was executed successfully. • Saying "POINT COMPLETE" before the maneuver and/or recovery are finished. • Saying "POINT COMPLETE" when what you really mean is "TERMINATE." • "... " (crickets) 	<ul style="list-style-type: none"> • Either you're lucky and the point was actually complete, or you have to eat your words and call for a repeat because the point was not, in fact, complete. • The aircrew cease test point execution prior to completion, negating the data and wasting millions of dollars of taxpayer money. • The aircrew aren't aware that something is wrong and continue with the test, possibly repeating the mistake. • Bueller?... Bueller?... Bueller? 	<ul style="list-style-type: none"> • "Standby while we look at the data." • Say nothing until the test point is complete. • "Mach/airspeed/altitude out of parameters. We'll need to repeat that point." • "The control room is satisfied with this test point."
"NEXT [POINT/CARD/FLIGHT CONDITION]"	The next thing is...	"..." (crickets)	Two effects, depending on aircrew. Either the aircrew wait and wonder what's next, or the aircrew declare what's next and the control room loses control of the mission.	"Next point is X, at X feet and X Mach."

Appendix B: Flight Test Brevity Definitions and Errors

Correct Term	Meaning	Typical Error	Effect of Error	Plain English Antidote
"MISSION COMPLETE"	The data, fuel, aircraft, or formation requires that the test portion of the mission must conclude.	<ul style="list-style-type: none">• "... (crickets) or generally success-ambiguous comm• "CLEARED TO RTB"	<ul style="list-style-type: none">• Aircrew ask questions, trying to determine if the mission is going to continue or not.• ATC hears "RTB" and begins coordination before the aircrew are ready.	<ul style="list-style-type: none">• Say something/anything• "The control room shows there is no more testing to be accomplished."