

NATOPS LANDING SIGNAL OFFICER MANUAL

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NAVAL AIR SYSTEMS COMMAND.

THE LANDING
SIGNAL OFFICER

THE LSO
WORKSTATION

NORMAL
PROCEDURES

EMERGENCY
PROCEDURES

EXTREME WEATHER
CONDITION OPERATIONS

COMMUNICATIONS

NATOPS EVAL, PILOT
PERFORMANCE RECS,
A/C MISHAP STATEMENTS

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9.1 GENERAL From USN LSO NATOPS Manual

The LSO shall possess a thorough knowledge of visual and radio communication procedures as well as complete familiarity with the operation of all available communication equipment, including ACLS data link if applicable. In addition, he should ensure that all pilots under his cognizance are periodically examined on their knowledge of visual communication procedures.

9.2 RADIO COMMUNICATIONS

Under normal recovery conditions, the LSO should restrict his radio transmissions to the minimum necessary to provide positive corrective signals to the pilot during the actual approach. It must be realized, however, that at some times (i.e., initial stages of FCLP, excessive deck motion, restricted ceiling/visibility, etc.) the number of LSO radio transmissions will be greater than normal. Radio communications may be used for airborne brief/debrief at the discretion of the controlling LSO whenever the situation requires it. This includes the pattern and final approach.

The LSO should not permit perceived pressure to maintain total radio silence during EMCON training or ZIP LIP conditions to override his absolute responsibility for the safe recovery of aircraft.

9.3 STANDARD LSO PHRASEOLOGY

The LSO must on occasion use radio transmissions to effect safe aircraft recovery. Calls that are too frequent or verbose actually degrade pilot training and performance. Safety of flight requires that pilots receive short meaningful transmissions that can be instantly understood. **Figure 9-1** contains a listing of standard LSO informative, advisory, and imperative phrases.

LSOs shall train pilots on these standard LSO voice calls, their meanings, and the correct response to them. LSOs shall adopt a voice call strategy that is primarily limited, under normal conditions, to the calls listed herein. Such a strategy will reduce pilot confusion or misinterpretation of any nonstandard calls.

9.4 RADIO COMMUNICATIONS DURING EMERGENCY SITUATIONS

During emergency situations such as loss of visual landing aids, reduced cockpit visibility, excessive deck motion, etc., the LSO will often be required to give pilots a complete radio talkdown, providing lineup, glideslope, and corrective information. The LSO should brief the pilots as time permits on format for the talkdown as well as expected pilot responses to calls.

Communications

9.1 GENERAL

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INFORMATIVE CALLS

Used to inform pilots of existing situations.

TRANSMISSION	MEANING	RESPONSE (Aircraft in Manual Mode)	RESPONSE (Aircraft in APC Mode)
"You're (a little) high."	Aircraft is (slightly) above optimum glide-slope.	Adjust sink rate with power/nose attitude to establish center ball.	Adjust sink rate with nose attitude to establish center ball. (Avoid using in close.)
You're (a little) low."	Aircraft is (slightly) below optimum glide-slope.	Adjust glide slope immediately.	Adjust glide slope immediately.
"You're going high (low)."	Unless corrected, aircraft will go above (below) optimum glide-slope.	Adjust sink rate with power/nose attitude to maintain center ball.	Adjust sink rate with nose attitude to maintain center ball.
"You're on centerline."	Self-explanatory.	N/A	N/A
"You're on glideslope/glidepath."	Self-explanatory.	N/A	N/A
"You're on speed."	Self-explanatory.	N/A	N/A
"You're lined up left/right."	Aircraft has undershot/overshot centerline.	Reestablish centered lineup.	Reestablish centered lineup.
"You're drifting left/right."	Aircraft is drifting left/right of center-line.	Correct lineup to centerline.	Correct lineup to centerline.
"You're (a little fast/slow)." (To be followed by "Go manual" if auto.)	Self-explanatory.	Adjust nose attitude/power to establish optimum AOA.	APC is not maintaining aircraft at optimum AOA. Disengage APC and adjust power/attitude to maintain optimum AOA.
"Roger Ball" ("Auto"/"Coupled" as appropriate).	LSO acknowledges pilot has meatball acquisition, lineup reference, and angle of attack.	N/A	N/A
"Paddles contact."	LSO assuming control from CCA.	N/A	N/A
"Continue."	LSO acknowledges CLARA call but is not able to assume control from CCA	Continue approach to minimums	Continue approach to minimums
"The deck is moving down/up (a little)."	OLS information may be invalid (to be followed by advisory/imperative calls).	Adjust power and attitude under LSO guidance.	Adjust attitude under LSO guidance.
"The deck is steady."	OLS information is valid	Fly normal approach.	Fly normal approach.
"Winds are (slightly) starboard/port/axial."	Self-explanatory.	Monitor lineup to maintain centerline.	Monitor lineup to maintain centerline.
"You're underpowered/overpowered."	Self-explanatory.	Adjust attitude and power as required.	Not used.
"Ship's in a starboard/port turn."	Self-explanatory.	Adjust lineup as necessary.	Adjust lineup as necessary.
"MOVLAS recovery."	MOVLAS is in use.	Fly published pattern altitude until "Roger ball" received.	Fly published pattern altitude until "Roger ball" received.

Figure 9-1. Standard Radio Phraseology (Sheet 1 of 4)

ADVISORY CALLS

Used to direct pilot's attention to potential difficulties and prevent possible control errors.

TRANSMISSION	MEANING	RESPONSE (Aircraft in Manual Mode)	RESPONSE (Aircraft in APC Mode)
"Keep your turn in."	If angle of bank is not adjusted, the aircraft will overshoot the centerline.	Adjust angle of bank.	Adjust angle of bank.
"Check your lineup." (Start only.)	Aircraft lineup is not optimum.	Correct lineup drift or position to maintain aircraft on centerline.	Correct lineup drift or position to maintain aircraft on centerline.
"Back to the right/left."	Aircraft is drifting such that if drift is not corrected, it will overshoot the centerline.	Correct lineup drift to remain on centerline.	Correct lineup drift to remain on centerline.
"Don't settle." "Don't go low."	Aircraft will settle below optimum glideslope if not corrected.	Check sink rate and meatball to avoid settling below glideslope.	Check sink rate and meatball to avoid settling below glideslope.
"Don't climb." "Don't go high."	Aircraft is on or above optimum glideslope with insufficient rate of descent to maintain constant glideslope.	Adjust power/attitude to stop the ball from rising.	Adjust power/attitude to stop the ball from rising.
"Don't go any lower (higher)."	Aircraft is maintaining position well below (above) optimum glideslope with insufficient or no correction.	Adjust power/attitude to make positive correction toward optimum glideslope.	Adjust attitude to make positive correction toward optimum glideslope.
"Don't chase it"	Advises pilot the deck is moving up/down and may present an illusion of a climb or descent	Disregard deck motion and adjust power/attitude to maintain rate-of-descent and optimum airspeed.	Disregard deck motion and adjust power/attitude to maintain rate-of-descent and optimum airspeed.
"Hold what you've got."	OLS information is invalid. Present rate-of-descent is correct to maintain proper glideslope.	Adjust power/attitude. Hold present rate-of-descent and optimum airspeed.	Adjust attitude. Hold present (optimum) rate-of-descent.
"Fly the ball."	OLS information is valid.	Scan the lens and adjust power/attitude to maintain optimum glideslope.	Scan the lens and adjust attitude to maintain optimum glideslope.
"Easy with it."	Magnitude of power correction immediately preceding this transmission is excessive.	Reduce magnitude of power correction to intercept and reestablish optimum glideslope and airspeed.	Reduce magnitude of nose attitude correction to intercept and reestablish optimum glideslope and airspeed.
"Easy with your nose."	Magnitude of nose attitude correction immediately preceding this transmission is excessive.	Reduce magnitude of nose attitude correction to establish optimum aircraft attitude.	Not used.
"Easy with your wings."	Magnitude of lineup correction immediately preceding this transmission is excessive.	Reduce magnitude of lineup correction to intercept and reestablish centerline.	Reduce magnitude of lineup correction to intercept and reestablish centerline.

Figure 9-1. Standard Radio Phraseology (Sheet 2)

IMPERATIVE CALLS

Used to direct the pilot to execute a specific control action. MANDATORY IMMEDIATE RESPONSE

TRANSMISSION	MEANING	RESPONSE (Aircraft in Manual Mode)	RESPONSE (Aircraft in APC Mode)
"A little power."	Aircraft is decelerating or settling.	Correct with power.	Not used.
"Power back on."	Pilot has made an excessive power reduction.	Add power to maintain optimum glideslope/AOA.	Disengage APC. Add power to maintain optimum glideslope/AOA.
"Power."	Aircraft is low/slow.	Add power.	Disengage APC. Refer to Note.
"Burner."	Aircraft is extremely underpowered or in extremis.	Select afterburner power.	Select afterburner power.
"Go manual."	Disengage APC.	Not used.	Disengage APC. Refer to Note.
"Attitude." ("A little attitude.")	Manual: Aircraft nose is low. Auto: Aircraft is low/setting or nose is low.	Increase nose attitude (slightly) to establish landing attitude.	Increase nose attitude (slightly) to reduce sink rate or to establish landing attitude.
"(A little) right/left rudder."	Aircraft does not have enough right or left rudder and will land yawed right or left if not corrected.	Adjust rudder to return aircraft to balanced flight.	Not applicable.
"(A little) Right for lineup." "(A little) Come left."	Aircraft will land left/right if not corrected.	Correct lineup to centerline, then level wings.	Correct lineup to centerline, then level wings.
"Bolter."	Self-explanatory.	Execute bolter in accordance with model NATOPS manual.	Execute bolter in accordance with model NATOPS manual.
"Waveoff" or "Waveoff, foul deck."	Self-explanatory.	Execute waveoff in accordance with model NATOPS manual.	Execute waveoff in accordance with model NATOPS manual.
"Waveoff up the starboard side."	Discontinue turning attempt to overfly the landing area.	Execute waveoff in accordance with model NATOPS manual starboard of the landing area (island).	Execute waveoff in accordance with model NATOPS manual starboard of the landing area (island).
"Cut."	Aircraft is in a position to land.	For barricade recovery, retard throttle(s) to idle and secure engine(s) once safely on deck.	For barricade recovery, retard throttle(s) to idle and secure engine(s) once safely on deck.
"Speedbrakes."	Speedbrakes are extended.	Retract speedbrakes.	Retract speedbrakes.
"Extend speedbrakes."	Self-explanatory.	Comply.	Comply.

Figure 9-1. Standard Radio Phraseology (Sheet 3)

IMPERATIVE CALLS (Cont.)

TRANSMISSION	MEANING	RESPONSE (Aircraft in Manual Mode)	RESPONSE (Aircraft in APC Mode)
“Drop your hook.”	Self-explanatory.	Comply.	Comply.
“Drop your gear.”	Self-explanatory.	Comply.	Comply.
“Drop your flaps.”	Self-explanatory.	Comply.	Comply.
“Level your wings.”	Aircraft is in angle of bank.	Comply.	Comply.
“Downgrade.”*	Disengage ACLS.	Disengage ACLS.	Disengage ACLS.
“Climb.”	Aircraft has bolttered/waved off but has not established proper attitude/power for positive rate of climb.	Adjust nose attitude to optimum, level wings, and maintain MRT (afterburner if required) to establish positive rate of climb.	
<div>Note</div> <div>* Aircraft is considered to be in manual mode immediately after the “Downgrade” call. Manual calls/responses are subsequently applicable.</div>			

Figure 9-1. Standard Radio Phraseology (Sheet 4)

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INFORMATIVE CALLS:

Used to inform pilots of existing situations.

ADVISORY CALLS:

Used to direct pilot's attention to potential difficulties and prevent possible control errors.

IMPERATIVE CALLS:

Used to direct the pilot to execute a specific control action.

MANDATORY IMMEDIATE RESPONSE