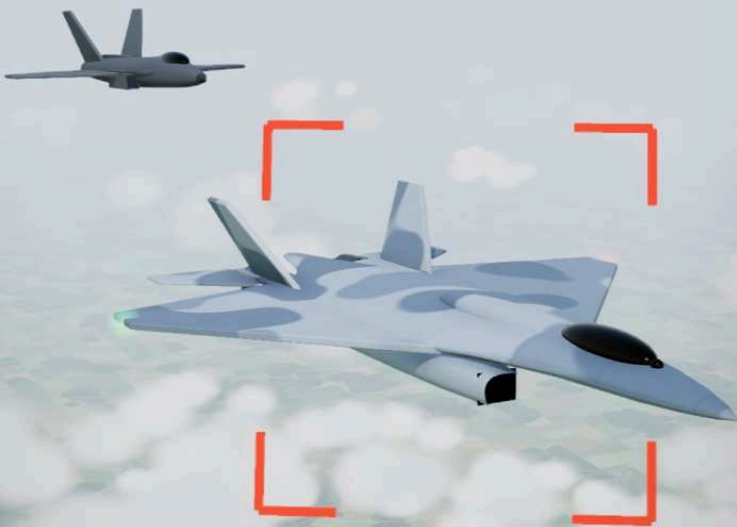


So You Need To...

# shake a fighter off your tail



## ON YOUR TAIL



**You need to** shake a  
**fighter off your  
tail.**

You're flying a Su-57, and an enemy fighter is sitting on your tail.

You turn hard. He turns with you.



**So** you yank the nose up, past straight up.

The jet keeps flying flat. This is the cobra.

## AIR BRAKE



**And the whole belly hits the air like a wall.**

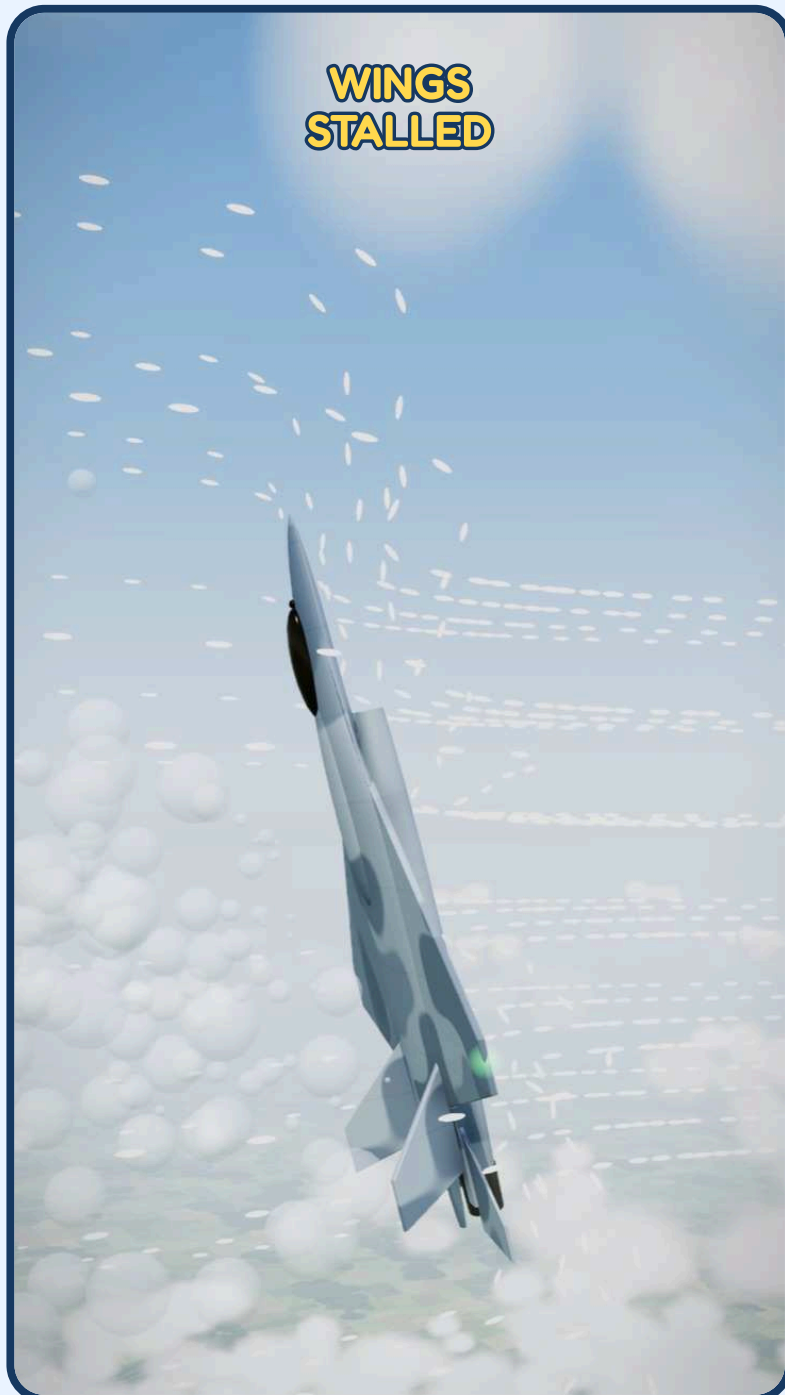
Your speed falls from about 400 km/h to well under 200 in a few seconds.

**HE SHOOTS  
PAST**



**So** if he's close,  
he shoots right  
past you.

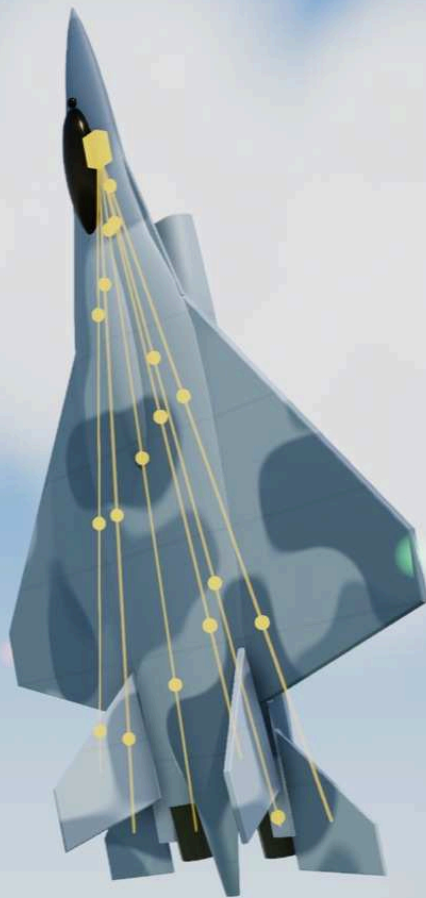
He can't slow down that fast.  
Now you're the one behind.



**But** at that angle  
your wings have  
stalled.

In most jets, that's the start of  
a spin.

**UNSTABLE  
ON PURPOSE**



**FLIGHT  
COMPUTER**

**So this jet is built  
unstable on  
purpose.**

The nose swings up fast, and a flight computer keeps it from spinning, correcting it many times a second.

**AIR FROM  
BELOW**



**And the engines  
keep running with  
air hitting the  
intakes from  
below.**

## SWIVELLING NOZZLES



**So** the nozzles swivel and help push the nose back down.

And the wings start flying again.

**SPEED IS  
YOUR ESCAPE**



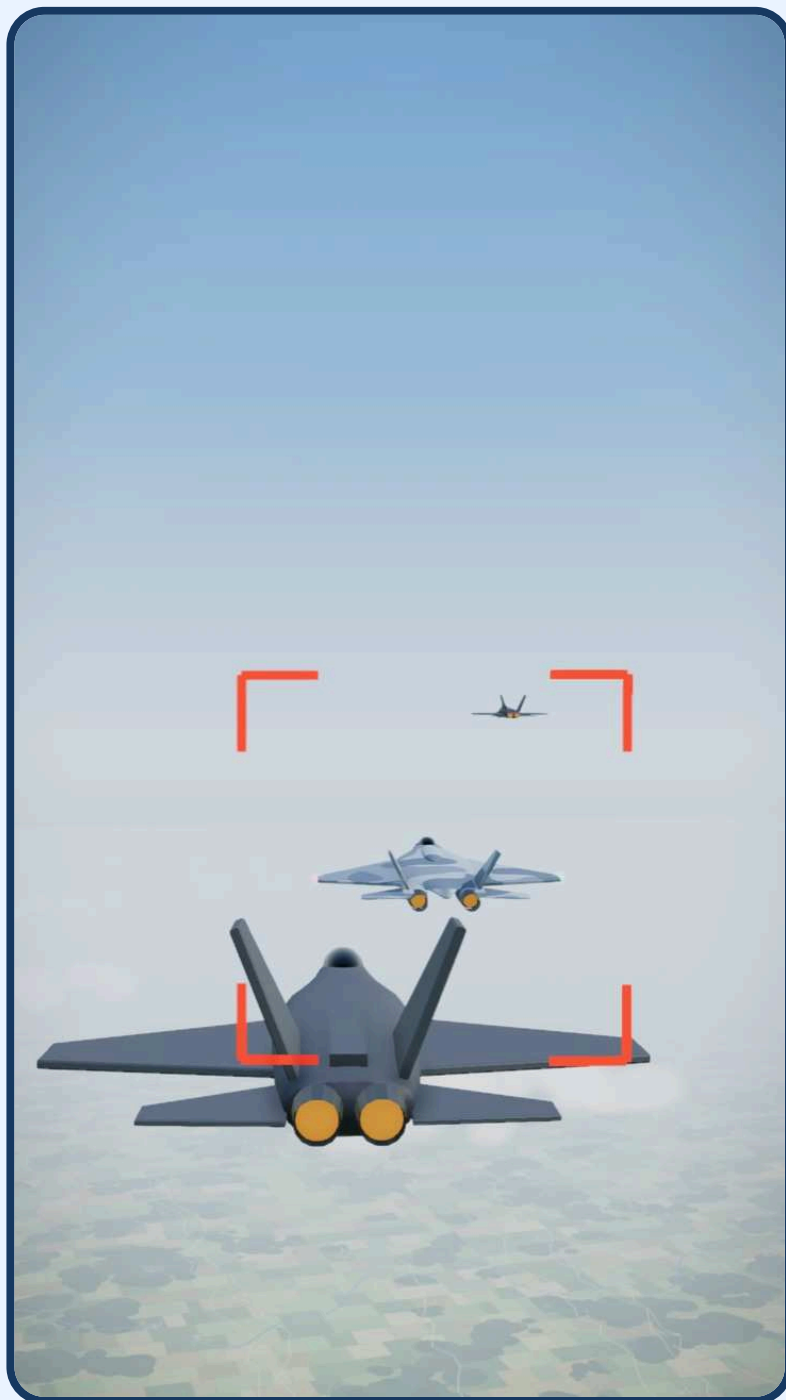
**But** now you're  
**slow.**

In a dogfight, speed is your escape. A slow jet can't climb away or run.



**And if he brought a wingman, you're the easiest target around.**

Modern missiles can lock onto a jet off to the side, so being behind matters less than it used to.



**So** the cobra is mostly an air-show move.

It shakes one fighter off your tail. The second one just lines up behind you.

# The short version

**You need to** shake a fighter off your tail.

**So** you yank the nose up, past straight up.

**And** the whole belly hits the air like a wall.

**So** if he's close, he shoots right past you.

**But** at that angle your wings have stalled.

**So** this jet is built unstable on purpose.

**And** the engines keep running with air hitting the intakes from below.

**So** the nozzles swivel and help push the nose back down.

**But** now you're slow.

**And** if he brought a wingman, you're the easiest target around.

**So** the cobra is mostly an air-show move.

**It shakes one fighter off your tail. The second one just lines up behind you.**

# Sources

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TASS, defense news, on the Su-57's display flying. [tass.com/defense/1060610](https://tass.com/defense/1060610)

## **Nose past vertical, speed loss, overshoot, stall, mostly an air-show move**

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## **Pugachev's cobra: angle of attack 90–120°**

Wikipedia (Russian): Кобра Пугачёва. [ru.wikipedia.org/wiki/Кобра\\_Пугачёва](https://ru.wikipedia.org/wiki/Кобра_Пугачёва)

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## **Missiles that lock onto targets far off the nose**

FlightGlobal and The War Zone, reporting on the AIM-9X Block II.

Watch the video: [youtube.com/@SoYouNeedTo](https://youtube.com/@SoYouNeedTo)

More at [soyouneedto.com](https://soyouneedto.com) and [youtube.com/@soyouneedto](https://youtube.com/@soyouneedto)

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