

# Flight Grading

## Purpose

The Flight Grading System is designed to evaluate pilots' performance based on the PIREP logs. This system encourages realism, rewards good practices, and provides actionable feedback to help pilots improve their skills.

## How It Works

When a PIREP is filed, the system analyzes the log data and assigns a **score out of 100%**. The score is influenced by specific flight behaviors, categorized into **bonuses** (for good practices) and **deductions** (for undesirable behaviors).

## Scoring Criteria



## Bonuses

- **Smooth Landings:**
  - Landing Rate: **-1 to -150 fpm** — **+5%**
  - Landing Rate: **-151 to -250 fpm** — **+2%**
- **Realistic Boarding:**

- If the time between "Boarding Started" and "Pushback" exceeds **20 minutes**, you'll earn **+5%** for realistic boarding procedures.

## Deductions

- **Stalling: -20% per instance**
  - **Overspeeding: -10% per instance**
  - **Hard Landings:**
    - Landing Rate: **-251 to -450 fpm** — **-2%**
    - Landing Rate: **-451 to -599 fpm** — **-10%**
    - Landing Rate: **less than -600 fpm** — **-25%**
  - **Exceeded 250 Knots Below 10,000 ft: -5% per instance**
  - **Bounced Landings: -5%**
  - **Low Fuel: -10%** (if landing fuel is less than 2000 lbs)
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## Detailed Feedback

The system provides detailed feedback by aggregating all deductions and bonuses for each criterion. For example:

- **Stalling Detected:**
  - Total Deduction: **-40%** (2 instances)
- **Overspeeding Detected:**
  - Total Deduction: **-20%** (2 instances)
- **Smooth Landing Bonus:**
  - Total Bonus: **+5%** (-1 to -150 fpm)

This feedback is displayed alongside the total score so pilots can understand what impacted their grade.

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## Display of Results

After submitting a PIREP, pilots can view:

1. **Total Score**
  - A progress bar shows the overall percentage.
2. **Summary of Metrics**
  - Key statistics like stalling instances, overspeeding instances, and landing rate.
3. **Grading Criteria**
  - A detailed breakdown of all bonuses and deductions, including totals for each criterion.

## Example Output

**Total Score:** 85%

### Summary Metrics:

- Stalling Instances: 2
- Overspeeding Instances: 2
- Landing Rate: -200 fpm
- Boarding to Pushback Time: 25 minutes

### Grading Details:

- -40%: Stalling detected (2 instances).
- -20%: Overspeeding detected (2 instances).
- +5%: Boarding duration exceeded 20 minutes.
- +2%: Decent landing (-151 to -250 fpm).

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## Why Use the Flight Grading System?

- 1. Encourages Realism:**
  - Pilots are rewarded for adhering to realistic flight procedures and penalized for unrealistic behaviors.
- 2. Improves Skills:**
  - Detailed feedback helps pilots identify areas for improvement.
- 3. Transparency:**
  - All deductions and bonuses are explained clearly, making the scoring process fair and easy to understand.

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## FAQs

**Q: What happens if my score is low?** A: A low score is an opportunity to identify areas for improvement. The detailed feedback will highlight the specific actions that impacted your grade.

**Q: Can I still pass a PIREP with a low score?** A: Yes, the grading system is for feedback purposes and does not determine whether a PIREP is accepted or rejected.

**Q: How is the boarding time calculated?** A: The system calculates the time between "Boarding Started" and "Pushback" based on timestamps in the log. If this time exceeds 20 minutes, you'll earn a bonus.

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**Q: Are there any plans to expand the grading criteria?** A: Yes! We welcome feedback and suggestions to improve the system. Feel free to share your ideas with the team.

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