Alright—this is your final, submission-ready version.

Clean, tight, no fluff, no missing pieces. This is what you post.

Air Logistics & Distributed Industry (Aircraft, Fuel Systems, World Expansion)

Game: Captain of Industry

Overview

This proposal introduces air logistics (rotorcraft and fixed-wing aircraft) as a late-game system designed to enable distributed industry across multiple locations and regions.

Aircraft do not replace trucks, belts, or ships. Instead, they add a high-speed, resource-intensive logistics layer that reduces long-distance infrastructure sprawl while introducing new constraints in fuel, infrastructure, and throughput.

The system supports a transition from a centralized factory to a multi-site industrial network, including expansion into world map regions.

Core Concept

Air logistics functions as a third logistics tier:

- Trucks → local, flexible transport
- Ships → bulk, efficient transport
- Aircraft → fast, priority transport

Aircraft are optimized for:

- High-value or time-sensitive goods
- Remote site support
- Inter-region logistics

They are intentionally inefficient at scale and unsuitable for bulk transport.

Aircraft Progression

Rotorcraft (VTOL)

Rotorcraft I — Utility Lift

- Diesel-powered
- Short range, low payload
- Enables VTOL logistics

Rotorcraft II — Industrial Support

- Improved range and payload
- Introduces sling loading
- Supports infrastructure-free delivery

Rotorcraft III — Heavy Lift

- High payload, high maintenance
- Specialized for remote or constrained terrain

Fixed-Wing Aircraft

Aircraft I — Regional Transport

- Short runway requirement
- Moderate payload
- Entry into long-distance logistics

Aircraft II — Industrial Freight

- Increased range and efficiency
- Integrates into sustained logistics routes

Aircraft III — Heavy Air Logistics

- High payload and global reach
- High fuel and infrastructure cost

Sling Loading System

Rotorcraft Tier II+ gain external cargo capability:

- Direct delivery without landing infrastructure
- Supports oversized or construction cargo
- Enables rapid deployment to remote sites

Tradeoffs:

- Very high fuel consumption
- Reduced speed and range
- Lower efficiency than standard cargo

Fuel & Propulsion System

Aircraft progression is tied to fuel refinement:

- Diesel → early rotorcraft (inefficient)
- Jet-A (kerosene) → standard aviation fuel
- Advanced jet fuel → required for late-game aircraft

Fuel consumption scales with:

- Distance
- Payload

Aircraft are intentionally inefficient for bulk transport and compete with other fuel demands (power, ships, industry).

Aircraft Manufacturing

Aircraft are produced through dedicated industrial chains:

- Rotorcraft Assembly Plant
- Aircraft Assembly Plant

Required Components

- Airframe sections
- Turbine components
- Avionics
- Rotor systems / wing assemblies

Production is:

- Resource-intensive
- Time-consuming
- Fully integrated into late-game industry

Infrastructure & Capacity

Air Facilities

- Helipads (VTOL operations)
- Runways (length-scaled for aircraft size)
- Control towers (traffic coordination)

Hangars (Capacity System)

Aircraft require physical storage and servicing.

- Capacity is determined by:
    - Hangar size
    - Facility count
- Aircraft cannot exist without hangar space

Maintenance System

- Maintenance facilities service aircraft
- Limited throughput creates operational constraints
- Overload results in delays or grounding

Logistics Mechanics

- Aircraft operate on assigned routes, not free dispatch
- Cargo must pass through storage or depots
- No direct belt-to-aircraft transfer

Cargo Constraints

- Segmented cargo capacity (bulk / palletized / specialized)
- Mixed cargo reduces efficiency and increases handling time

Balance Framework

Aircraft are constrained by:

- Fuel consumption (scales with distance and payload)
- Infrastructure footprint (runways, hangars, facilities)
- Maintenance throughput
- Loading and routing limitations

System Roles

- Trucks → local logistics
- Ships → bulk transport
- Aircraft → speed and priority

Aircraft are fast, flexible, and expensive—not efficient.

Distributed Industry & Expansion

The primary purpose of air logistics is to enable distributed industry.

Players can:

- Build specialized production sites across multiple locations
- Expand beyond a single island
- Reduce reliance on long-distance belts, pipes, and roads

World Map Integration

World map nodes can be expanded into:

- Playable regions
- Resource-specialized locations

These regions can host:

- Independent industrial facilities
- Integrated logistics networks

Inter-Region Transport

- Ships handle bulk movement
- Aircraft handle:
    - High-value goods
    - Time-sensitive logistics
    - System stabilization

Example Scenario

A local iron deposit is depleted, requiring expansion to a remote island.

The player:

1. Uses rotorcraft sling loading to deliver initial construction materials
2. Establishes a mining outpost
3. Uses ships for bulk ore transport
4. Uses aircraft to move high-value components and maintain supply stability

This creates a hybrid logistics network where each transport method serves a distinct role.

Design Principles

- Aircraft do not replace trucks or ships
- Aircraft are fast but inefficient
- Capacity is limited by infrastructure, not hard caps
- Fuel consumption is the primary balancing factor
- The system enables multi-region distributed industry

Final Statement

Aircraft enable distributed industry across multiple regions while remaining constrained by fuel, infrastructure, and throughput.

Conclusion

This system transforms logistics from a centralized constraint into a distributed network problem, enabling scalable expansion across multiple regions while preserving balance through industrial and operational limitations.