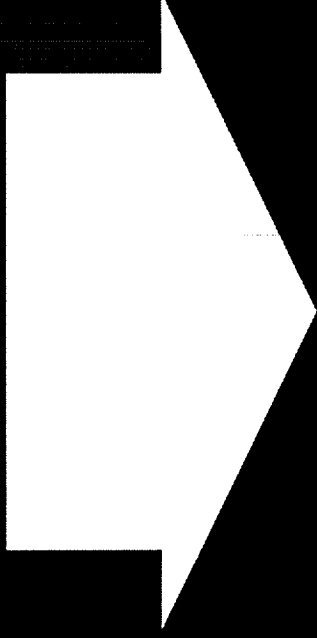# *VentureStar*™ Payload Processing Concept

Developed under NASA MSFC Cooperative Agreement NCC8-115 dated July 2, 1996.
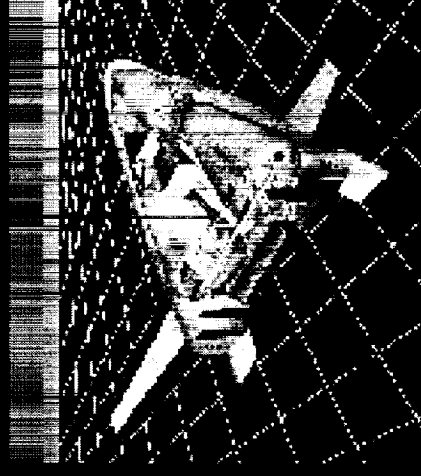
Philosophy of *VentureStar*™ Operations

- **Operability in Vehicle and Ground System**
  - Rapid Turnaround Cycles
  - Increase Launch Rate
  - High System Reliability/Availability
  - Reduce Operations Personnel

Low Cost Access to Space

Philosophy of *VentureStar*™ Operations

- **Design Operability into the Vehicle**
  - Single Stage to Orbit
  - Common Propellant Based System
    - MPS, RCS, Power Generation
  - Standard Vehicle/Payload Interfaces
  - Vehicle Health Monitoring
  - Metallic TPS
  - Minimize Fluid Requirements
  - No Hypergols
  - No Distributed Hydraulics

Philosophy of *VentureStar*™ Operations
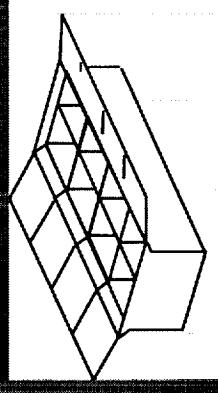
- **Design Operability into the Ground System**

  Descent & Landing

  – Runway – to – Pad – to – Orbit

    • Minimizes Vehicle Transfers
    • Minimizes Umbilical Demates and Retests
    • Minimizes Duplicate Ground Support
      Capabilities

  – Offline-Payload Processing

    • Independent Mission Module
    • Offline Hazardous Operations
    • Reduces Impact to Vehicle Processing

  – Automate Ground Operations
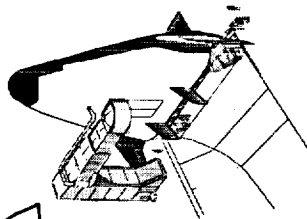
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VentureStar™ Operations Concept

Launch Operations
- Vehicle Rotation
- Propellant Loading
- Crew Ingress
- Late Stowage
- Vertical Launch

Operations Control Center
- Ground Operations
- Launch Operations
- Mission Operations

Mission Operations
- Deploy ASAP
- Return first opportunity
  to Launch Site

e Processing
- Mission Module Removal
- Vehicle Maintenance
- Vehicle Servicing
- Mission Module Installation

Mission Module Interchange

Landing Operations
- Safing
- Tow to Pad
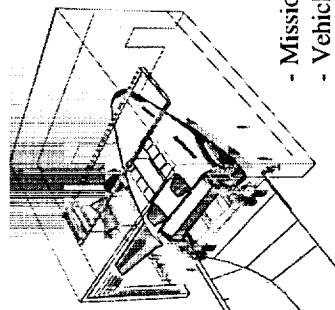
Payload Processing (Offline)
- Mission Module Maintenance
- Payload Processing/ Installation

VentureStar™ Operations Concept

Module Installation

Module Removal

Offline Processing to Vehicle

Payload Processing Site

Module Turnaround Ops

Payload/Upper Stage Integration

Pre-launch Preps:

Hazardous Ops

Module Integration & Test

Receive & Inspect

Payload from Customer

Customer Needs:
Mission Identification
Automated Mission Planning
Module Requirement Definition
Payload Integration Plan

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