
NES-BA-USA
SPACE SHUTTLE
PROJECT
ABSOLUTE
ENTERTAINMENT
USA
COMMANDER'S
HANDBOOK
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TABLE OF CONTENTS

Office of the Director

After careful review of top aerospace candidates and current personnel, the Council congratulates you on your outstanding training performance and is pleased to inform you of your status elevation to Shuttle Commander, effective immediately.

You are hereby enjoined to lead a series of six Alpha Priority missions vital to our nation's welfare, U.S.-Soviet relations, and the continuation of the space program itself.

Your orders are contained within this document, which you should read and understand completely before proceeding. You are reminded that discussion of Shuttle operations with persons not cleared by Security Directive 3.33.0 is a breech of the Secrecy Act. Failure to comply with this regulation will result in swift military prosecution.

The Council charges you with sole responsibility for the success of these missions and the safe return of your flight crew and Shuttle.

Good luck, Commander.

PRE-FLIGHT PROCEDURES

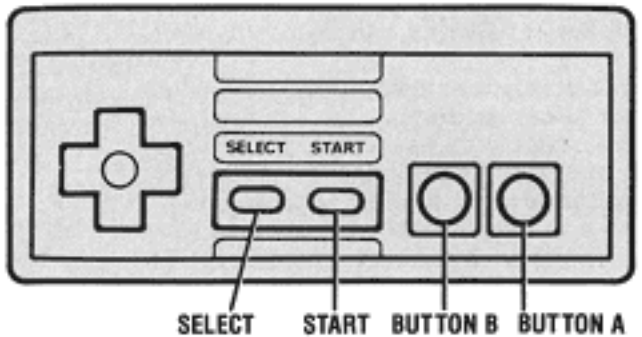
1. Make sure the power switch is OFF.
2. Insert the Space Shuttle Project™ CARTRIDGE as described in your NINTENDO® ENTERTAINMENT SYSTEM™ manual.
3. Turn the power switch ON.

TO START: Push the START BUTTON on the game controller.

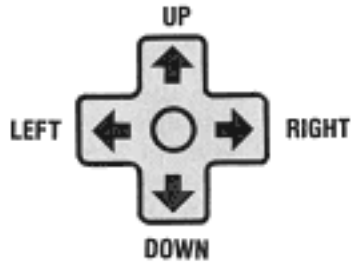
THE CONTROL PANEL

The following illustration demonstrates the control keys on your Council-approved NINTENDO® ENTERTAINMENT SYSTEM™ controller. All shuttle operations are performed via this controller. Throughout this manual we will refer to these controls by the names indicated here.

CONTROLLER:



CONTROLLER KEYS:



SECURITY CHECK

Intelligence reports indicate renewed espionage activity in the field. Be advised of possible hostile infiltration. Class A security measures will now be enforced. You are expected to thoroughly familiarize yourself with all new entry procedures—deviation from these procedures will be considered sabotage and will be dealt with severely.

ENTRY PROCEDURES

1. **Memorize Security Code** Look at the numbers displayed on the LED read-out . This is your security code. Memorize or write down this four-digit number. Also memorize the name of the **shuttle craft** that is displayed below the number.
2. **Enter Name** Use the CONTROLLER KEYS to move the cursor. Press BUTTON A to select a letter. To erase a mistake press BUTTON B. When you have completed your entry, select "END."
3. **Clear your Code** Once your name is entered, your code will highlight. Immediately after, the numbers on the read-out will begin to cycle independently. (This is why it is vitally important that you take a good look at the number *before* you select "END.")
4. **Enter your Security Code** Starting with the first digit, press BUTTON A when the correct number is displayed. Repeat for all 4 digits.

Note: *If you are continuing your flight history from previously-flown missions, you must enter the* ***Top Secret*** *security code you were issued at the end of those missions (see the Council Advisory below).*

5. **Confirm Shuttle Craft** When the name of the craft originally shown (in Step 2, above) is displayed, press BUTTON A.
6. **Start or Repeat** If the sign-in procedure is successful, you will be cleared by the security mainframe and given admittance to the launch pad. Failure to sign in correctly will result in 4 more opportunities to do so. Failure after the fourth effort will alert security forces.

COUNCIL ADVISORY: *Upon successful completion of each mission, Shuttle Security will issue you a personalized* ***Top Secret*** *entry code. Use of this code on future flights will enable you to bypass previously-completed missions.*

MISSION REGISTER

You have been assigned a total of six missions; each of increasing technical complexity. The Council expects your abilities will improve with experience.

***MISSION 1*–Launch Satellite**

***MISSION 2*–Begin Space Station Construction (Initial Phase)**

***MISSION 3*–Retrieve and Re-launch Satellite**

***MISSION 4*–Continue Space Station Construction (Second Phase)**

***MISSION 5*–Rescue Cosmonaut**

***MISSION 6*–Complete Space Station Construction (Final Phase)**

OPERATIONAL STAGES

The following stages and procedures comprise each of the six missions. Stages 1, 2, and 4 are pre-launch, lift-off, and reentry operations; Stage 3, Extravehicular Activity, consists of a particular mission assignment. All four stages must be completed in their entirety for a mission to be deemed successful.

FUELING/BOARDING: STAGE 1

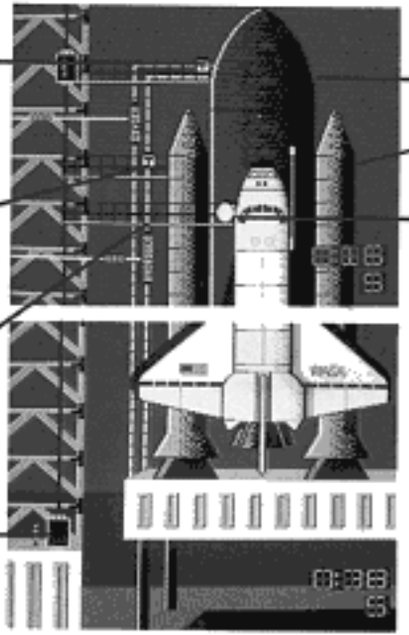
It is essential you perform these operations in order to prepare the craft for lift-off and to ensure a timely departure.

OBJECTIVES

- Activate oxygen pump
- Activate hydrogen pump
- Open orbiter hatch
- Escort crew into orbiter

Once this phase is complete, **Stage 2** will commence.

STAGE 1



O_2 TANK

2. Activate oxygen pump (press BUTTON A at flashing switch).

H TANK

3. Activate hydrogen pump (press BUTTON A at flashing switch).

WALKWAY

6. Escort crew member through hatch (step outside elevator for him to pass).

ELEVATOR

1. Enter elevator and go up (use CONTROLLER KEYS).

EXTERNAL TANK (ET)

SOLID ROCKET BOOSTER (SRB)

HATCH

4. Open Orbiter Hatch (press BUTTON A at flashing switch).

BOTTOM

5. Take elevator down and collect crew (one at a time).

Repeat Steps 5 and 6 for each member of your crew.

When the message "GET IN COMMANDER" appears, your entire crew is aboard the craft and it is now time for you to embark.

COUNCIL ADVISORY: *In each mission the Fueling and Boarding Stage is timed. In* ***Mission 1*** *you have 40 seconds to complete all operations; later missions have different time limits.*

LIFT-OFF: STAGE 2

Successful completion of this phase will ensure the craft's ability to break gravitational pull and enter orbit.

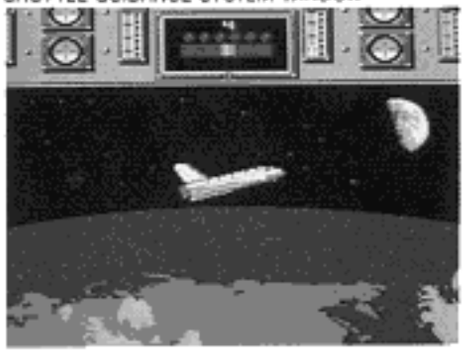
OBJECTIVES

- Navigational tracking
- Roll 120°
- Throttle down to 65%
- Throttle up to 100%
- Solid Rocket Booster (SRB) Separation
- Throttle down to 65%
- Main Engine Cutoff
- External Tank (ET) Separation
- Fire Orbital Maneuvering System (OMS) #1
- Fire Orbital Maneuvering System (OMS) #2

To perform the above operations you must become familiar with the computerized **Shuttle Guidance Systems** displayed on the Control Panel. The next section explains these systems in detail.

SHUTTLE GUIDANCE SYSTEM

SHUTTLE GUIDANCE SYSTEM WINDOW

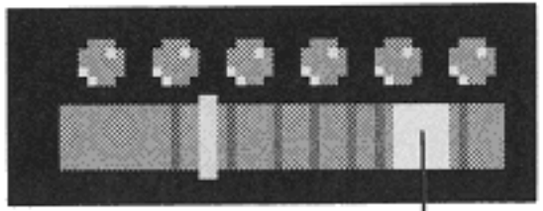


The computerized Shuttle Guidance System controls your craft's operations during Lift-off, Reentry, and Landing. Each of the functions run by the system will appear on the CRT of the Shuttle Control Panel. You will also see a prompt that labels the function you are being asked to perform.

Read and study the function descriptions below. Each mission will require different combinations of these functions due to varying orbital coordinates. Refer back to this list whenever necessary.

SHUTTLE FUNCTION DISPLAYS

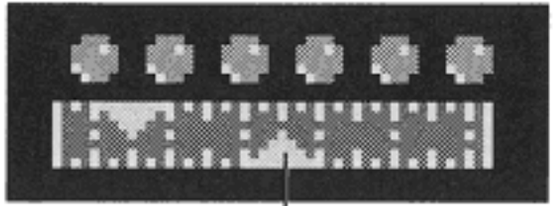
FLIGHT PROCEDURE DISPLAY



Used during Lift-off for: ROLL, SRB SEP, MECO, ET SEP

Used during Reentry for: DOORS, S-TURN, TAEM, GEAR

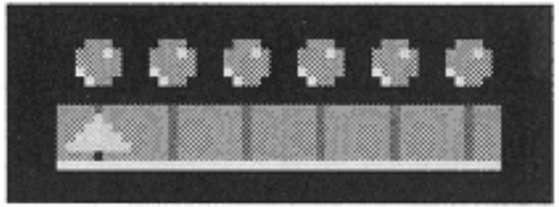
THRUST INDICATOR



Used during Lift-off for: THRUST, OMS #1, OMS #2
Used during Reentry for: THRUST, BRAKE

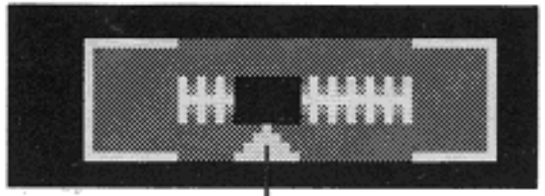
COUNCIL ADVISORY: *When preparing to maneuver THRUST during launch, hold down the RIGHT controller key. This is the direction the indicator will be moving when the sequence starts.*

TEST INDICATOR



Used in Lift-off and Reentry for: VALVES adjustment

VERNIER INDICATOR



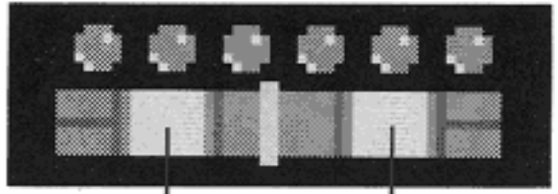
Move your indicator arrow through the space in the moving bar.

(Press UP or DOWN controller keys.)

Used in Lift-off and Reentry for: VERNIER adjustment

Council Advisory: *Wait for the moving bar to slow down before attempting to move your arrow.*

GIMBAL INDICATOR

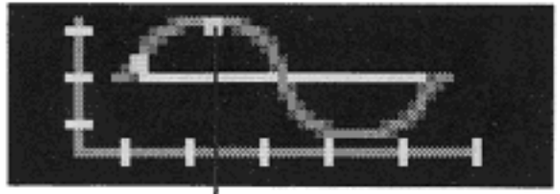


Press BUTTON B to stop needle in the blue area on the left.

Press BUTTON A to stop needle in the blue area on the right.

Used during Lift-off and Reentry for: GIMBAL adjustment

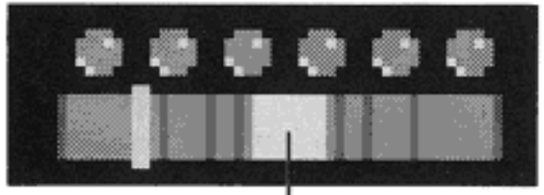
TRACKING INDICATOR



Use the UP and DOWN controller keys to keep the slow-moving tracking indicator dot as close to the computer-generated wave line as possible.

Used during Lift-off for: Navigational TRACKING

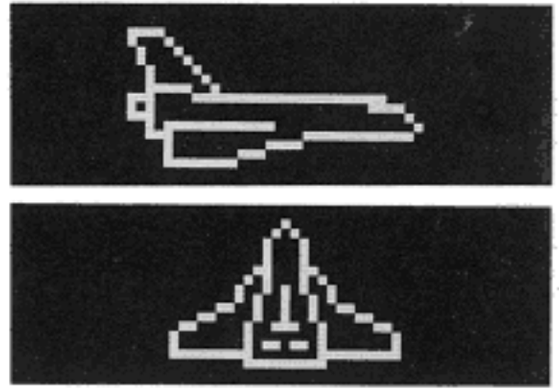
MANEUVER INDICATOR



Stop needle here.
(Press the appropriate controller key [UP, DOWN, RIGHT, LEFT] when prompted by the computer.)

Used during Reentry for: YAW, PITCH, ROLL, FLARE

ALIGNMENT INDICATOR



Align the moving shuttle image to overlap the stationary computer-generated shuttle image.

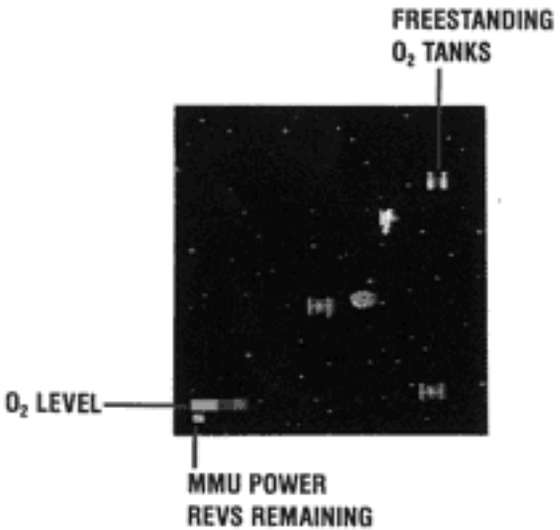
(Press and hold down RIGHT and LEFT controller keys; press BUTTON A quickly to lock in when overlapped images flash.)

Used during Reentry for: Navigational ALIGNMENT

EXTRAVEHICULAR ACTIVITY: STAGE 3

THE MISSIONS

This stage consists of the actual mission you are required to perform. Before proceeding to the **Mission Briefing** section, be sure you have a thorough understanding of the following life support components:



LIFE SUPPORT: OXYGEN

Maintain close observation of your oxygen levels during extravehicular activity. You will use O_2 at a constant rate during spacewalk maneuvers. When your O_2 supply reaches critically low levels, find and touch the emergency O_2 tanks. These can be found in various locations attached to the Space Station, or freestanding in space.

MMU POWER REVS

The power supply contained by your Manned Maneuvering Unit (MMU) is limited and is severely affected by asteroid and satellite collisions. Check the number displayed beneath your O_2 level to see how many power revs are available to you. To replenish this supply and gain extra revs, locate and touch the moving energy modules.

MISSION 1: SATELLITE LAUNCH

OBJECTIVES

- Release satellite from Cargo Bay
- Place satellite into orbit
- Complete task before full depletion of O_2 supply

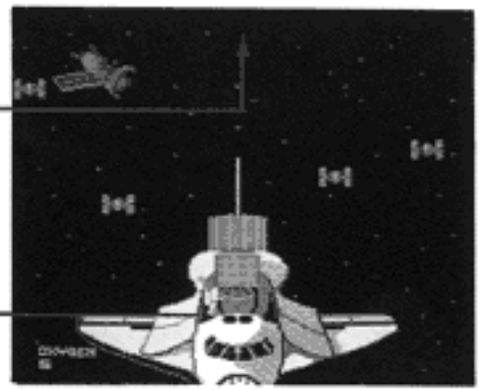
COUNCIL ADVISORY: *Be sure to position the satellite at a sufficient distance from the other satellites that orbit Earth. This will ensure that it has enough time to open its solar panels and begin its orbit before a collision occurs.*

EARTH

2. Use RIGHT/LEFT, UP/DOWN controller keys to maneuver satellite into its orbital path around the Earth (above), avoiding other satellites.

CARGO BAY

1. Press BUTTON A to release satellite from Cargo Bay.



3. Press BUTTON A to release satellite into orbit.

MISSION 2: SPACE STATION CONSTRUCTION (INITIAL PHASE)

OBJECTIVES

- Release Manned Maneuvering Unit (MMU) from Cargo Bay
- Carry Space Station building component to construction zone
- Install building component where needed (see illustration)
- Return MMU to shuttle Cargo Bay
- Repeat for all building components in Cargo Bay
- Monitor oxygen levels–replenish O_2 supply as needed at attached O_2 tanks

MMU

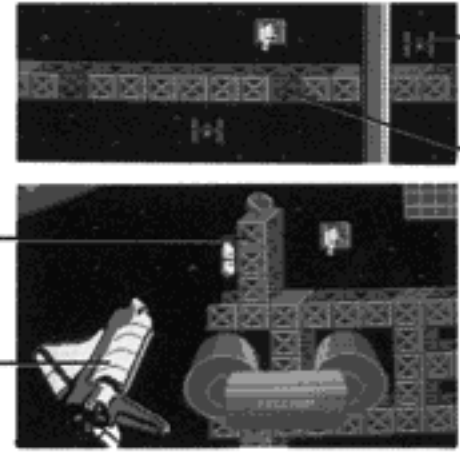
1. Press BUTTON A to release MMU from Cargo Bay.

SPACE STATION

2. Use RIGHT/LEFT, UP/DOWN controller keys to move toward Space Station.

CARGO BAY

5. Return here for additional pieces. It takes **4** components to complete this phase of construction.



SATELLITE

3. Avoid orbiting satellites.

CONSTRUCTION ZONE

4. Align your component with other Space Station components. Search for areas that are missing pieces. When properly positioned, the component will lock into place.

COUNCIL ADVISORY: *For maximum efficiency during construction, the Council recommends a slow and cautious pace. Such restraint offers maximum visibility necessary for orbiting satellite avoidance.*

MISSION 3: SATELLITE RETRIEVAL AND RE-LAUNCH

OBJECTIVES

- Release Manned Maneuvering Unit (MMU) from Cargo Bay
- Retrieve orbiting satellite
- Return satellite to Cargo Bay for repairs
- Return satellite to orbit
- Return to shuttle Cargo Bay
- Monitor oxygen levels–complete task before depletion of O_2 supply

MMU

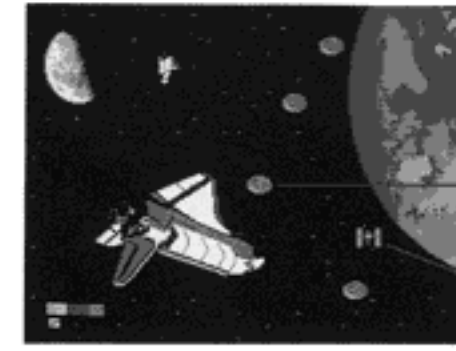
1. Press BUTTON A to release MMU.

CARGO BAY

5. Enter slowly with satellite.

6. Return satellite to its original orbit.

7. Return MMU to shuttle.



2. Use RIGHT/LEFT, UP/DOWN controller keys to move.

ASTEROID

3. Avoid asteroids.

SATELLITE

4. Catch satellite as it orbits Earth and return it to Cargo Bay.

COUNCIL ADVISORY: *Taking a position with a full view of Earth allows the maximum visibility necessary for asteroid avoidance.*

MISSION 4: SPACE STATION CONSTRUCTION (SECOND PHASE)

Follow the instructions given for **Mission 2** on page 18. Note that this phase takes **6** construction components to complete.

COUNCIL ADVISORY: *Live high-voltage sections of the Space Station must be left exposed during this phase of construction. To prevent critical injury, avoid these sections, which are identified by their pulsing red surface.*

MISSION 5: SOVIET COSMONAUT RESCUE

OBJECTIVES

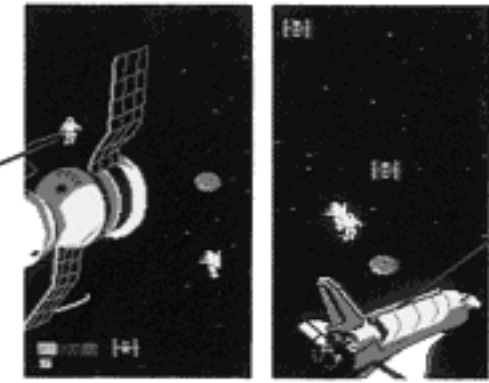
- Release Manned Maneuvering Unit (MMU) from Cargo Bay
- Perform spacewalk toward stranded cosmonaut
- Rescue cosmonaut
- Return MMU and cosmonaut to shuttle Cargo Bay
- Monitor oxygen supply–replenish as necessary by sustaining contact with freestanding O_2 tanks

MMU

1. Press BUTTON A to release MMU.

SOYEZ CRAFT

3. Move MMU to Soviet craft and grasp cosmonaut.



2. Use RIGHT/LEFT, UP/DOWN controller keys to move.

CARGO BAY

4. Maneuver back to shuttle and enter Cargo Bay with cosmonaut.

MISSION 6: SPACE STATION CONSTRUCTION (FINAL PHASE)

Follow the instructions given for **Mission 2** on page 18. This last phase of construction requires you to venture toward the most treacherous areas of the Space Station. Note that this phase takes **8** construction components to complete.

COUNCIL ADVISORY: *Due to the time constraints of this mission and the extreme hazardous nature of the path from orbiter to Space Station, the Council has ordered installation of a Vacuum Transfer Tube. Entering this tube will facilitate your return to the orbiter from outer sections of the station. Regrettably, location and status of this installation was unavailable to the Council at press time.*

REENTRY: STAGE 4

In this stage you must perform these operations to reenter Earth's atmosphere and touch down.

- Close Cargo Bay doors
- Turn orbiter around (YAW and thrust)
- Deorbit burn to slow down
- Pitch orbiter nose up
- Fall into Earth's atmosphere
- Perform S-turn
- Approach runway
- Deploy landing gear
- Land and apply brakes

To complete the objectives listed above requires knowledge of the **Computer Guidance System** functions, described on page 12–15. The display window will flash the action you are required to perform.

Remember—later missions include more complex computer functions due to more complicated mission objectives. Refer back to the Guidance System list and study it.

GLOSSARY

CREW

COMMANDER —Responsible for overall crew safety and flight execution.

MISSION SPECIALIST —Coordinates payload operations and performs scientific objectives.

PAYLOAD SPECIALIST —Non-professional astronaut who is an expert on the payload to be deployed.

PILOT —Second in command; assists Commander.

ACRONYMS

ET —**E**xternal **T**ank (attached to the Orbiter bottom)

MECO —**M**ain **E**ngine **C**ut**O**ff

MET —**M**ission **E**lapsed **T**ime

MMU —**M**anned **M**aneuvering **U**nit (propellant device that attaches to astronaut for movement through space during extravehicular activity)

OMS —**O**rbital **M**aneuvering **S**ystem (jet engines used to position the Orbiter in space)

SEP —**SEP**aration

SRB —**S**olid **R**ocket **B**ooster (twin SRBs are located on either side of the Orbiter)

SSME —**S**pace **S**huttle **M**ain **E**ngine

STS —**S**pace **T**ransportation **S**ystem

TAEM —**T**erminal **A**rea **E**nergy **M**anagement (process that conserves energy during reentry)

DEFINITIONS

CARGO BAY —Area inside the large doors located on the top of the Orbiter.

DEORBIT BURN —The firing of the OMS engines to slow the Orbiter down to below orbital speed and facilitate reentry.

GIMBAL —Type of hinged attachment used for the rocket nozzles to allow multi-directional thrust.

ORBITER —Winged portion of the Space Shuttle system.

PAYLOAD —Equipment contained in the Cargo Bay specific to a particular mission.

PITCH —Up and down rotation of the Orbiter (nose to tail).

ROLL —Bottom to top rotation of the Orbiter (roof to landing gear).

VERNIER —Small engine used for precise adjustments in Orbiter position.

YAW —Side to side rotation of the Orbiter (right wing to left wing).