BUZZ ALDRIN'S
RACE INTO SPACE!

RULES OF PLAY

Written by Fritz Bronner

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INTRODUCTION

In Buzz *Aldrin's Race* Into *Space,* you are placed in command of your country's space program. As Mission Director, you'll purchase and develop space hardware, recruit and assign astronauts, plan and initiate missions into space. The first country to successfully complete a manned lunar landing and return to Earth wins the game.

This is a strategy-oriented game that requires short and long-term planning. You'll need to determine what space hardware is needed to complete your objectives. While it is certainly not required, it is suggested that you read some of the historical material on the space race. The American and Soviet strategies are quite insightful.

INSTALLATION

Buzz *Aldrin's Race Into Space* requires at least 570kB of RAM free and about 16MB of Hard Disk space.

To install *Buzz Aldrin's Race Into Space,* insert the Startup Disk into drive A: (or B:) and type.. .

    A: (or B) <enter>
    Install <enter>

To run Buzz after installation, type.. .

    (: (or appropriate Hard Drive) <enter>
    cd\buzz <enter>
    Buzz <enter>

The first time you run Buzz, it will ask you about your computer configuration. If you wish to change your configuration you will need to run Setup. To do this, type. . .

    cd\Buzz <enter>
    Setup <enter>

QUICK START

For a quick start, if you would like to dive into the game and experiment, you can begin the game by using the Help Box: Function One Key <Fl> for explanations of each screen, the Function Two Key <F2> for keyboard commands, and the Function Three Key <F3> gives a list of space mission abbreviations. There is a Help Box available for every major screen in the game.

The entire game can be played with mouse, keyboard, or by combining the two. The left mouse button activates all buttons and buildings, the right button acts the same as the <Fl> key and gives overviews of each different location at the spaceport and surrounding environs.

After the introduction, select a new game or continue a previously saved game. You can also view the game credits or exit the game.

DESIGNER'S NOTES

The actual space race between the U.S. and USSR was extremely close. All of the major space hardware, including alternative proposals, are available. This gives you the same flexibility as your real-life counterparts had.

Some modifications obviously had to be made for simplification of monetary units and budgets. A megabuck or MB was designed as the universal monetary standard. This creates a quicker analysis of costs and budgets between countries.

As in the game, real life programs were man-rated after an extensive R&D phase and a flight testing program. After several successful launches/flights a vehicle was given approval to carry humans. It is a very tine line between safety and failure. Percentages were incorporated into the game as aid to help the player evaluate this choice. The dilemma of when a rocket or capsule is ready to carry humans is the player's decision. Short cuts may be necessary as they were in real life.

Most of the major rocket boosters are available for game play. For play balance some minor programs were deleted. The lift capability of the various rockets were greatly simplified as a common unit weight. The Soviets had more powerful rockets but their payloads were generally heavier, so any lift advantage was lost. Determining which rocket boosters are to be used for various payloads is the important factor.

Capsule design features were also simplified. The Soviets brought the Soyuz capsule through three major design phases. There were also many minor variants. The Gemini capsule was more advanced than the Voskhod, which had limited maneuverability and couldn't dock. The weight ratios of all of the spacecraft were altered for game play. Most of the basic historical design features of spacecraft are included in the game.

All events are based on historical events that occurred in some fashion.
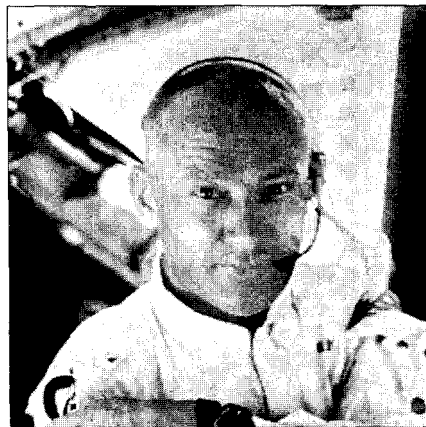
Buzz Aldrin.

Most of the astronauts and cosmonauts of that time period in history are included for game play. Their skills are strictly subjective with an historical flavor for game play. They are not meant to reflect any real life individual's strengths and weaknesses.

All of the lunar approaches were seriously considered by the U.S. and USSR and they all are included in this game. Some steps in these and other space missions were deleted or greatly simplified. For all of the space missions, most of the major hurdles and challenges were retained in spirit if not accuracy.

Certain animated sequences and still images were altered and models were constructed to portray mission events more dramatically and were not meant for historical interpretation. Some American space footage was used to reflect certain Soviet sequences.

A great emphasis is given to the magnitude of this Cold War space race. The consequences were of national importance. The end game was included to give the player the spirit of dramatically changing history. It was never intended for accuracy.

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LiFT OFF!

The Preferences screen. Each column represents the following top to bottom:

Player Name.

Country (The USA is always on the left and the USSR is always on the right). The little icon in the corner of the Country box selects human or computer player.

Game Difficulty.

Astronaut Difficulty.

In the center, the icons select the following preferences:

1 Music

2: Astronaut Roster

3: Sound

4: Animation

5: Basic or historical game play; tustom or historical astro/cosmonaut roster.

Preferences

Determine which country and features you desire to play by. Options include: U.S. Human vs. Soviet Human, U.S. Human vs. Soviet Computer, U.S. Computer vs. Soviet Human. Player one takes the first turn.

The game defaults to a Level One U.S. Human player vs. a Soviet Computer opponent. If you desire any different configuration before playing, now is your chance to select it.

Model and Roster Type

Select which type of game you wish to play. The Basic Model starts both countries with equal circumstances and costs. The Historical Model builds in the historical advantages and relative costs for each country. Generally, American hardware has a higher cost and better reliablity and Soviet hardware is less expensive and has worse reliablity. Each model also has a customized astronaut roster option to select. This roster must be first customized in Preferences.

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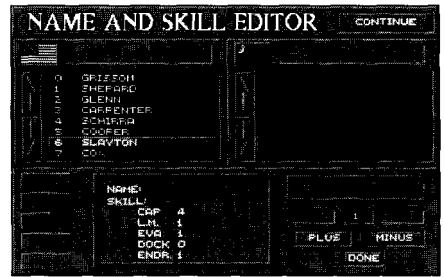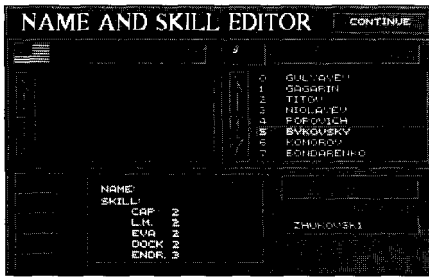
Difficulty Level

Three levels of difficulty can be chosen for each side. Level 1 is the easiest and 3 is the hardest. For handicapping either opponent, switch them to a higher level. The variations give you a nine different levels to play. The computer opponent operates under the same conditions as you so don't feel too bad when things go wrong. It's happening to the other side, you just won't always hear about it. There is an exception: do badly enough on Level 2 or 3 and you can get fired which loses the game.

Astronaut Difficulty

There are three levels of astronaut personnel data. By selecting the lowest level, you are provided with the most data on your astronaut. The higher the level, the less information is provided.

Music/Sound/Animation

These features can be toggled on or off. If you toggle Animation off, you will get still photos instead.

Astronaut Roster

This list of all astro/cosmonauts lets you alter the existing roster to create your own custom roster.

The custom roster can be revised at the start of every new game. You can change your historical astronaut's skills, type in a new name, or both. However the cumulative skill points cannot be exceeded: you can only add points to a skill if you first take some away from another.

First decide which country's roster you wish to alter by selecting the flag. Move the cursor over an astronaut's name and click on it to activate it. A box will appear where a new name can be typed in or default to the supplied name by hitting <Enter>. You can select a skill you wish to change by selecting the + or – buttons to increase or decrease the value. Any of the skills can be changed. You can change or alter as many astro/cosmonauts as you wish. This updated roster is saved by selecting Continue. You can only save one custom roster.

Turn Announcement

This informs you which country's turn is about to begin. Each turn, or season, is six months in length. The game begins in Spring 1957.

You have until Spring 1977 to complete your victory conditions: Successfully landing astronauts on the moon, and returning them safely to the Earth.

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Network News

A series of news briefs will inform you on
Space News, Astronaut News and *World
Events.* Select the arrow keys to scroll up
or down, and Continue to move on to
the Spaceport.

Spaceports

Each country has its own unique space
facility. The United States' facility is
called the Cape (Cape Canaveral). The
Soviet's port into space is known as
Baikonour.

At the beginning of the game, your
Spaceport will appear small, with only a
few key buildings. As you purchase more
programs and obtain more prestige,
more buildings will appear along with
general improvements in the overall
appearance.

As Director or Designer, you'll need to
visit key buildings in order to properly

Top: Baikonour, the Soviet spaceport.
Bottom: The Cape (Cape Canoveral), the US.'s spaceport.

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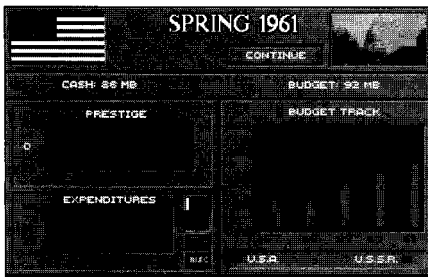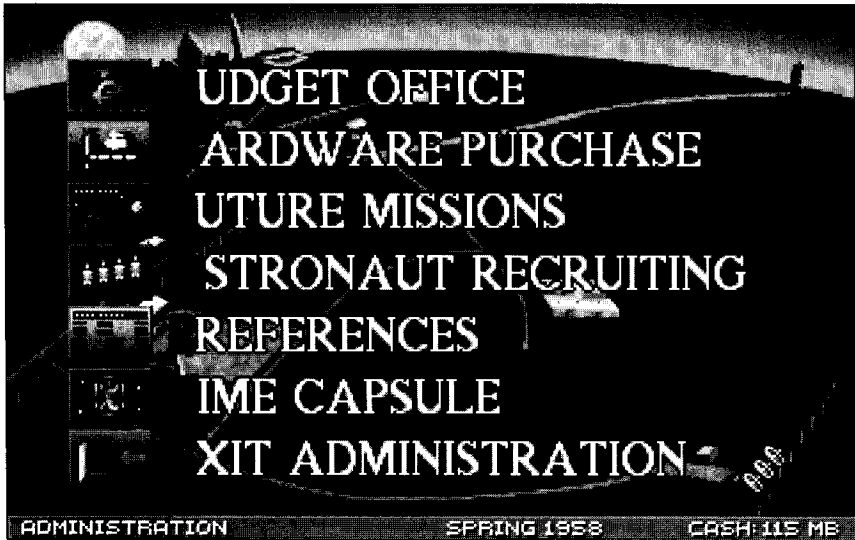
The Budget Office tells your projected budget, past budget, prestige points and expenditures.

The Administration Building

These offices are located in this building:

Budget Office

The upper left box provides you with comparative past space prestige information vs. your opponent's. The lower left box has selectable data on your expenditures by category: Satellites, Manned Spacecraft, Rocket and Miscellaneous Hardware (see Figure 1.) By clicking on each category, you'll observe your past expenditures. The last box offers a history of your space budget along with your intelligence agency's estimate of your opponent's space budget.

Hardware Purchase

The purchasing office is where you purchase new hardware programs or restock your hardware inventory. Your budget starts at 60 MB. All of the programs are useful in winning the game, but not all

run your space program. This can be accomplished by moving the cursor over the desired building or area and clicking the left mouse button.

At the bottom of the screen the building name appears as you move the cursor around. Your current budget is listed at the bottom right-hand side. Spaceport building identification diagrams (Beginning and Advanced Phase) have been included for each side.

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Proposed Sputnik satellite program
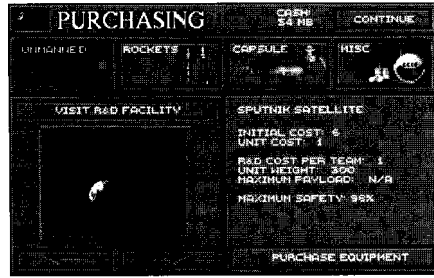
A purchased Sputnik satellite program.

are needed at one time or possibly at all in each game. Budget, price, what your opponent is doing, and your overall strategy all become factors on what programs you should develop. There is a built-in advantage (technology transfer), for developing similar programs in progressive order. If you develop the Atlas rocket and R&D it up to 75% or greater, and then purchase the Titan Program, the Titan's initial safety factor will start at a higher level (25%). If you had purchased the Titan program first, it would start at an initial safety of 5%. (See the *Player's Aid* Card for technology transfer figures).

Developing programs in sequence is helpful but again not always necessary. Some players may devise unique strategies by skipping some programs and adapting to current and future needs.

You select your hardware by clicking on one of the four boxes near the top of the screen. By selecting one of these categories, you can cycle to a specific type of hardware with the arrows at the lower left side of the screen. On the right side is pertinent data on the specific hardware.
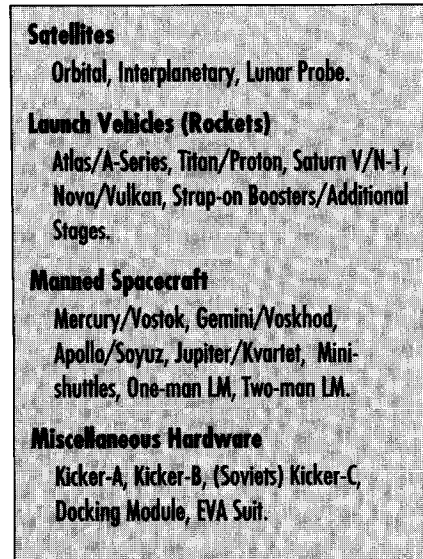
Figure 1:
Categories of space hardware

Satellites
  Orbital, Interplanetary, Lunar Probe.

Launch Vehicles (Rockets)
  Atlas/A-Series, Titan/Proton, Saturn V/N-1, Nova/Vulkan, Strap-on Boosters/Additional Stages.

Manned Spacecraft
  Mercury/Vostok, Gemini/Voskhod, Apollo/Soyuz, Jupiter/Kvartet, Mini-shuttles, One-man LM, Two-man LM.

Miscellaneous Hardware
  Kicker-A, Kicker-B, (Soviets) Kicker-C, Docking Module, EVA Suit.

Program Name

Mercury, Vostok, Kicker-B, Proton, etc.

Quantity

The number of units in your inventory. You can have no more than 6 of any type of hardware.

Initial Cost

The start-up cost of developing a new program.

Unit Cost

The cost of each additional unit.

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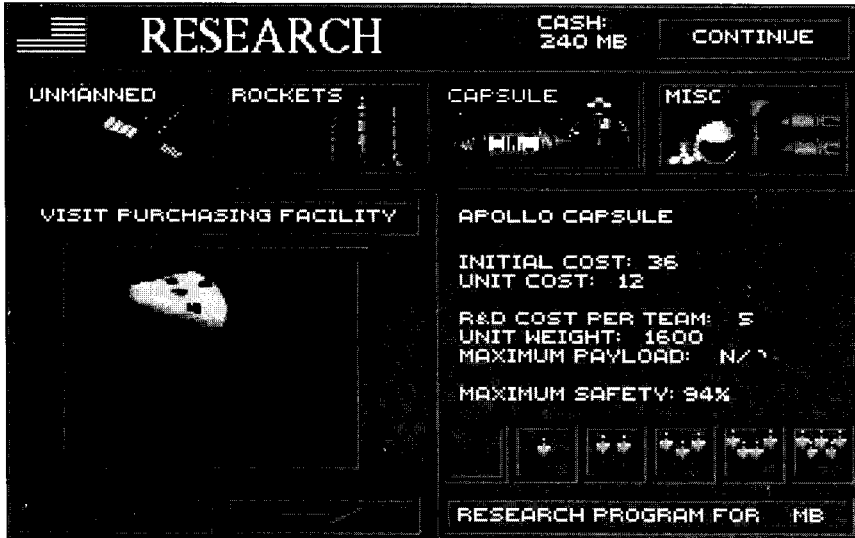
Safety Factor

The current safety reliability of the program.

R&D Cost per Team

The cost per engineer team (total of five teams available) for improving the program's safety factor through R&D.

Weight

The weight of the hardware unit (payload). This does not apply to launch vehicles.

Maximum Payload

The total payload weight that a launch vehicle can lift into space.

Max R&D

The maximum level of safety that the program can achieve by R&D.

Max Safety

The maximum level of safety for a program. To obtain a higher safety factor than Max R&D, the hardware must used and tested on actual space missions. The hardware must successfully complete at least one step of that particular piece's use during o space mission. When successful, the program safety is increased by 1% It can never exceed the Max Safety level. The mission can be manned or unmanned (dummy tests) and all components used successfully during the space mission will improve. (Note: the mission does not have to be successful, just the hardware.)

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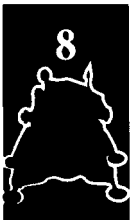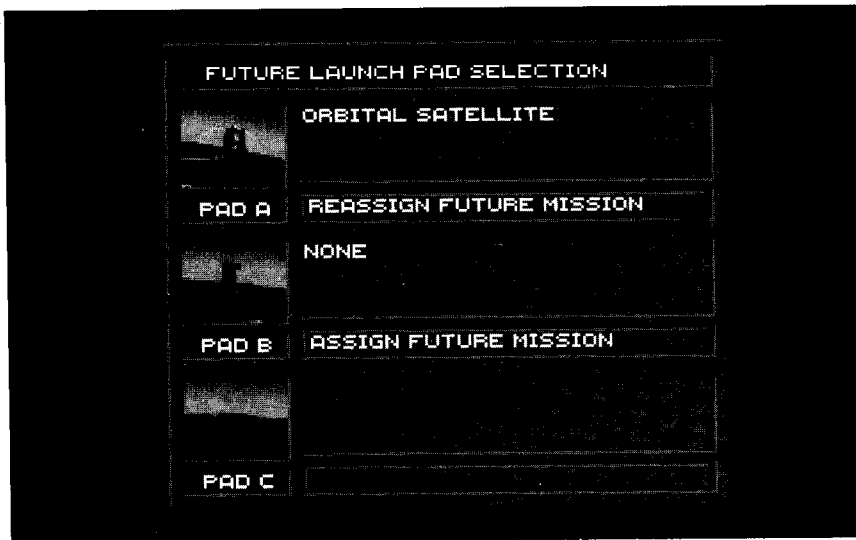
Research and Development

This short-cut "tunnel" button, takes you to the Research Park, for researching and developing the hardware to a higher safety factor.

Future Missions Office

Before sending spacecraft, satellites and astro/cosmonauts into space you must first schedule launches. All space missions must be planned one season in advance. If it is Spring you will be scheduling space missions for the Fall season. On the first turn of the game, Spring 1957, it would be impossible to launch any missions until the Fall 1957.

After selecting Future Missions, you will be presented with a view of the spaceport's launch pads. You start the game with one available pad, and may purchase up to two more on this screen, one mission per pad. Pads damaged by errant rockets or adverse conditions must be

repaired here before it becomes available again for missions.

Select which launch facility that you wish to use. With a minimum of two launch facilities, joint launches can be scheduled. Joint launches are missions that use two pads and involve separate launch vehicles. The payloads rendezvous and dock in Earth orbit, lunar orbit or on lunar landings. If you do not wish to schedule any future launches, purchase or repair launch facilities, you can exit by clicking the cursor on the black area outside the launch pad boxes or the exit box.

Each space mission must be scheduled for each launch facility *(see* the *Future Missions* screen.) The main features here are the Earth and moon. Most of your missions will be close to the Earth. Later in the game you'll send missions to the moon. It is also possible to send satellite fly-bys to every planet on the screen. Due to orbital mechanics some planets are not available each season.

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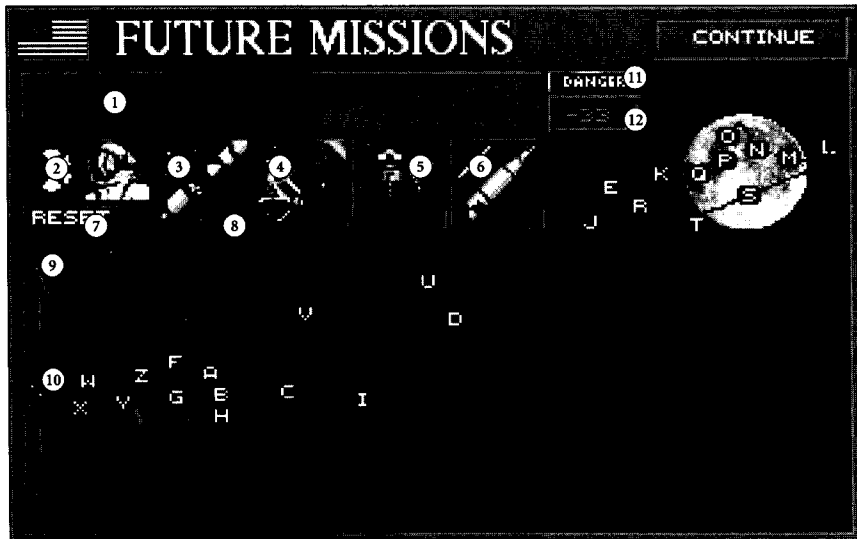
The Future Missions screen.

1: Mission Description	5: Toggles LM	10: Draw Mission Steps
2: Manned Mission w/Durations	6: Single or Joint Mission	1 1:Milestone Risk
3: Toggles Docking	7: Reset Button to reset mission	12:Safety Risk
4: Toggles EVA	8: Lock Buttons	
	9: Scrolls forward or brkward through selected missions	

Near the upper left is text, displaying which pad is being assigned and the mission name and number. (There is also a quick reference of all of the possible space missions on the *Player's Aid Curd.)* To the right of the mission text is the **mission penalty box.** This displays the loss of safety percentage that will be applied to every step on all hardware during the space mission (see Milestones). The mission penalty box is based on current circumstances. This penalty value is really the worst case scenario in safety loss. Missions scheduled and launched this season and the following season could alter this percentage. The penalties on a particular launch could include steps skipped in mission milestones and missed duration steps.

The lower left border has mission selection arrows that can cycle through all fifty-seven types of space missions. By clicking once on the top arrow, the Orbital Satellite mission appears first. Between the mission selection arrows is a small button for displaying all the sequences of the current mission. On more complex space missions this is of great assistance in determining the correct sequence order of the mission steps. Try moving the mouse over the steps of the missions (letters A, B, C,) and you will see a text description of the Orbital Satellite mission at the bottom of the screen.

Move the cursor over to the Reset button and select it. You will notice that the Orbital Satellite mission has been can-

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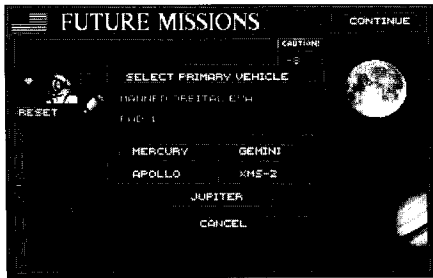
Select spacecraft types.
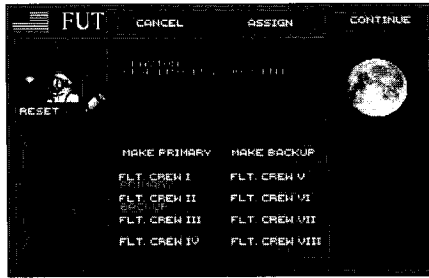
Assign primary and backup crews for manned missions.

celed and reset to zero. By holding the left mouse button down on the mission selection arrow, you can cycle through the mission selection at a quicker rate. (Note: If you have only one active launch facility joint missions will not appear.)

By scheduling one launch for next season, it would launch on the fifth month of the next season. Two independent single launches would launch on the fourth and sixth month of the next season. See Figure 2 for the entire list of launch scheduling. Don't panic! This is all kept track of automatically by the game.

Joint missions must be scheduled on pad combinations: **1:2** or 2:3 respectively (never Pads 1:3).

Custom Mission Selection

Another way to select missions is with the mission icon buttons. Similar to playing chords on a piano, this feature assists you in selecting custom missions. There are five icons with small lock buttons. This lock feature (red button) activates the icon. When you select the mission selection arrows, this initiates a search for all missions with this type of feature. The icons can be toggled on/off and then locked (see the icon descriptions below). After selecting the icons with locks activated, cycle through the

mission selection arrows. You'll notice that only mission combinations that comply with the lock button appear. For example, click on the Docking icon, lock it, and when using the mission selection arrows, only missions that involve docking will be displayed. By locking the Docking icon when it is not highlighted, you will skip all missions that involve docking. These icons make it much easier to narrow down the type of mission you are looking for. To change the icon the lock must be deactivated. Click the lock again to deactivate it. Select Reset if you wish to clear, restart or cancel your mission selection. See Figure 3 for feature descriptions.

Note: Mission Descriptions that include docking require that you place a docking module in orbit in the previous mission or season. Docking modules have a life span of two seasons in space.

Number of Launches	Number of Months in the Following Season
One	Fifth (month)
Two	Fourth, Sixth
Three	Third, Fourth, Fifth
Two Joint	Fifth
One single, Two Joint	Fourth (single), Sixth (joint)

Figure 2: Launch scheduling.

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RECRUITMENT

CONTINUE

ASTRONAUT SELECTION
GROUP I   SPRING 1958

① POOL OF APPLICANTS
REMAINING POSITIONS: 3

MR. SHEPARD

MR. SLAYTON

CAPSULE PILOT: 1
L.M. PILOT: --
E.V.A.: --
DOCKING: --
ENDURANCE: 2

CAPSULE PILOT: 4
L.M. PILOT: --
② E.V.A.: --
DOCKING: --
ENDURANCE: 1

③ DISMISS APPLICANT

④ RECRUIT APPLICANT

GRISSOM
SHEPARD
SCHIRRA
COOPER

GLENN
CARPENTER

SLAYTON
COX
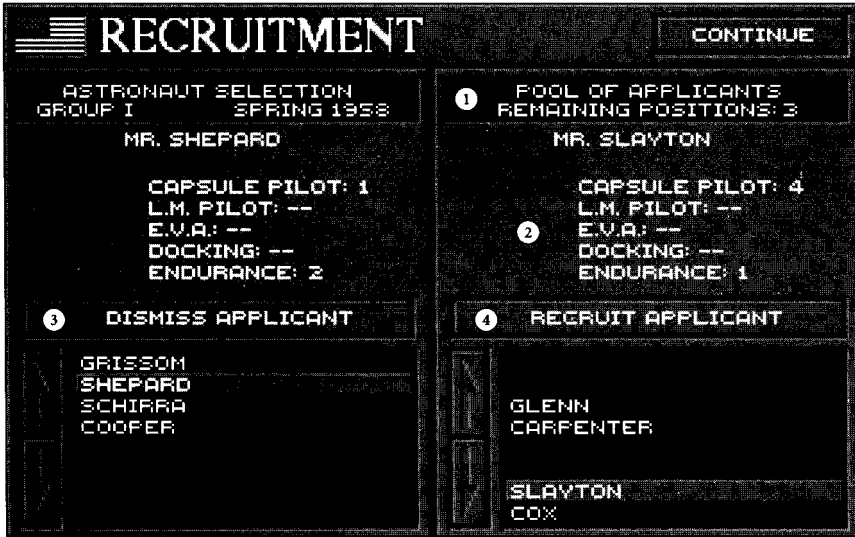
Dummy Tests are unmanned missions that you can schedule for capsules, mini-shuttles and rockets (sub-orbital, orbital and unmanned docking.) Prestige points are not gained or lost on dummy tests, but if the hardware is successful on one mission step, the safety factor improves 1%. This also occurs on all manned missions but has greater consequences for failure.

Once you have the mission you want displayed, select continue. After selecting a manned mission you will be requested to choose a spacecraft program. After selecting a it, you must assign a primary flight crew and backup crew. These crews must have already been trained with the spacecraft a season earlier.

Once all your missions have been assigned, you should only revisit Future Missions if you wish to change or cancel a mission.

Astronaut Recruiting Off ice

Every two to three years in the administration astronauts will appear in the box. This means a new group is available for recruiting. By clicking on the Astronaut Recruitment Box a screen appears, asking you if you wish to recruit astronauts. During the course of the game, up to five astronaut groups may be selected (from a total of 106 astronauts for each side.) Random events determine whether a player receives an additional three military pilots and the availability of female astronauts. (This would make the selection 63 out of 109).

In astronaut recruiting, on the right side, there is a list of names of potential recruits to select from. By moving the arrows up or down, you can cycle through the list.

Above the list is data on the featured recruit's skills. Not all of skills are known until after they are selected and sent to basic training. Each skill point of an

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Figure 3. Feature descriptions.

figure 4: Astronaut skills

Group I	Seven astronauts (of 11)
Group II	Nine astronauts (of 18)
Group III	Fourteen astronauts (of 20)
Group IV	Sixteen astronauts (of 28)
Group V	Fourteen astronauts (of 20)

Figure 5: Groups and number of astronauts in each.

astronaut are additional percentages that can be added to corresponding safety factor during a space mission. The higher the number, the higher the safety percentage increase. It is advised to select recruits with the higher skills. The maximum level in each skill category is 4. See Figure 4 for skills.

On the left hand side, you can remove nauts from your picked list and choose new recruits on the right side. You can-

not leave this screen until you select a full astronaut group. See Figure 5.

Preferences Office

During game play you can only change music, sound and animation.

Time Capsule Office

This is where you save and load games or quit entirely.

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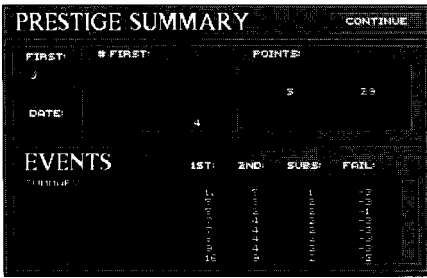
Prestige Summary shows the country who first succeeded, space firsts ond attempts, prestige points and space milestones.
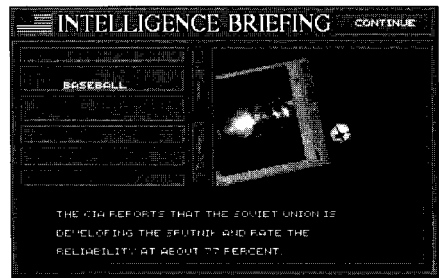
Intelligence Briefing displays data on your opponent's hardware or mission plans.

Space Museum

The museum offers information that can assist you with data and statistics in the current game and compare records and firsts with previous games.

Director's Rating Chart

You can compare your progress as Mission Director. The country listed at the top is the declared victor. Your total points will vary depending on game level.

Space History Display

A calendar history of your current game, with all your country's successful and failed missions. Each type of capsule or mission description is listed. By clicking on the spacecraft, text description displays the mission, crew and total prestige points gained. You may replay any mission by clicking the replay button.

Mission Records

From previous completed games, the best and worst mission records and individual records are listed for review. Examples: earliest successful lunar landing; the earliest space walk, the astronaut with the most space flights in a game, etc.

Reset will clear the records for that particular category only.

Prestige Summary

This chart displays which country is ahead on the Prestige List of the game. Each major space first and milestone is listed with a flag displaying which country was first and the cumulative prestige points in each category. This can also advise you of milestones not reached, valuable for planning future missions.

Hardware Efficiency

All of your hardware programs in the current game are displayed with mission success ratio's and hardware prestige points. Click on the flag for cycling through Prestige and Efficiency comparison. These two charts are useful determining reliable hardware, and hardware that assisted in earning prestige.

Astronaut History

A record of each astronaut's accomplishments in the current game. Number of missions flown, mission patches, years of experience, etc.
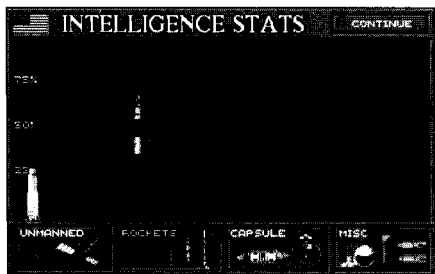
Data for comparison on your hardware and your opponent's.
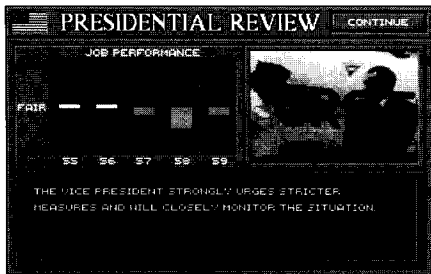
Your boss reviewing your performance.

The Pentagon/ KGB Headquarters

This is the location for intelligence briefings on your opponent. As in real life, not all intelligence data is accurate. Even photographs can be altered for deception. Sometimes early mockups of space proposals were misinterpreted by rival intelligence agencies as primary programs.

Library

Top secret data is provided on your opponent's hardware or upcoming space missions. Unfortunately this may not always be accurate.

CIA/KGB Statistics

An inventory of your space hardware compared against your opponent's known hardware. See Space *Hardware* for hardware descriptions and *Appendix* A for hardware artwork.

Capitol/Politburo

Once a year, your country's leader reviews your performance as head of the space program. A successful year can bring praise and increases in funding, while failure can cause great disappointment. At Level 1 difficulty, if your performance is extremely poor, the President will suggest you retire. At higher levels against a computer opponent, a poor performance will result in dismissal and ends the game. Human vs. Human only suggest dismissal. A chart displays recent your prestige swings. As in real life, public opinion of the government moves slowly.

VAB/VI B

Payloads and rockets must be assembled for missions that are scheduled in the current season. The left side displays a description of the planned mission goals. If a manned mission is scheduled, the flight crew roster is displayed. Carefully select the desired hardware/payload configuration and the correct launch vehicle. Place the cursor over the launch vehicle or payload box and select it to cycle through them. Each program has the current safety factor and the number of hardware units available. Carefully compare the payload weights with rocket lift ratios. VAB will not accept a launch configuration if the payload is heavier than

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Vehicle Assembly
1 : Accept Vehicle
assembly.
2: Payload
configuration.
3: Rocket
Selection.
4: leave VAB.
5: Cancel mission.
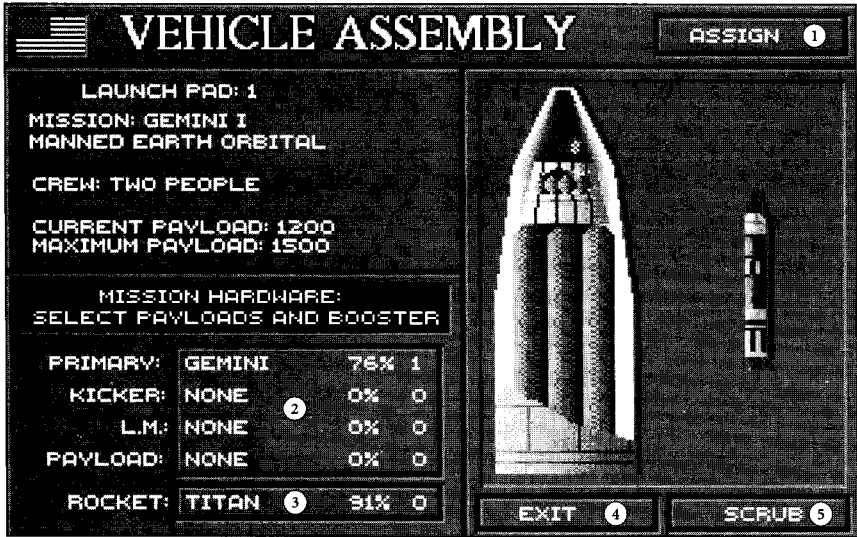
the capabilities of the rocket. Either select a more powerful rocket and/or booster combination or scrub the mission. If the payload and launch vehicle is correct, move it to the launch pad by clicking **Assign. If** you need to replace hardware or conduct other tasks, select Exit.

Sometimes your programs are not flight-ready for a launch this season. You can cancel launches by selecting **Scrub. (You** will be penalized three Prestige points for scrubbing a mission.)

The **Auto Purchase** button conveniently purchases the current hardware displayed in VAB/VIB, but you must of course already have the program developed.

Launch Pad A, B and C

You start with one operational launch pad (A) and can purchase two more for a total of three launch facilities. They will list current missions scheduled for this season. You may also scrub missions from this location. Damaged launch pads can be repaired at this site.

Research Park

This region starts as a small facility for the research and development of space hardware. It grows to a cluster of buildings during the game. Each hardware program can be selected as in the Purchasing Office. No more than five teams of engineers can be assigned to an R&D program, once per season. To improve the safety factor of a program, compare costs per team. The more teams selected, the better chance of improvement.

By selecting the R&D button, you will see the team's progress. You may R&D other

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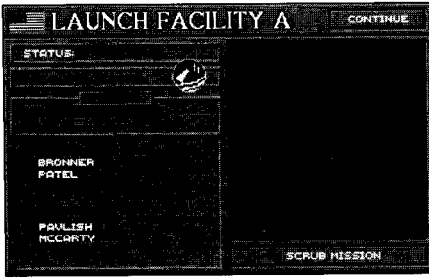
This screen shows your mission description, primary and backup crews, and lek you cancel or launch your rocket.

In the Mission Control Building you may rush o launch or downgrade your mission.

programs or exit Research via Continue or by using the "tunnel" button to Purchasing.

The Moon

This view of the moon is a reminder of your overall objective. By clicking on the moon, you are updated on your current photo reconnaissance of safe landing sites. Photo reconnaissance can only be improved by sending interplanetary satellites, landing lunar probes, manned lunar passes or manned lunar orbitals. *See Milestone Hurdles* for more details.

Mission Control

If you have missions scheduled this season and you have completed all of your other tasks, including VAB/VIB, you are ready to begin launch countdowns. A screen will appear asking if you wish to *rush* a launch (lowering the safety factor by 3% for all hardware on each step), or *downgrade* a mission (a less complicated safer mission but you lose 3 prestige). You can only downgrade a mission once. Later on you will only have the option of Launch or Scrub.

Each mission you have scheduled can be rushed one or two months. This costs additional funds (3MB) and a loss of safety (-3%) for each month rushed. On joint missions, rushing would move both missions up and safety would be lowered on both launches. Rushing a mission is dangerous, but can allow you to to complete a milestone earlier and collect prestige that you opponent may have gotten.

A series of screens will list the launch order and describe the current mission Human opponents may watch the missions together.

Note: You will only see your computer opponent's mission footage if it has a successful prestige first. The releasing of this propaganda footage gives your intelligence agency the opportunity to analyze the film data and provide you information on the their space hardware in Pentagon/KGB Statistics. Your opponent's nominal missions or failures will be kept in secret.

Before each of your missions, you will have one last opportunity to scrub or continue your launches. Hardware safety statistics will be displayed for your perusal. It would be highly advisable to scrub missions with hardware that had just failed catastrophically on previous manned launches! Once you give the mission this final go, it proceeds on its

17

HARDWARE POWER-ON
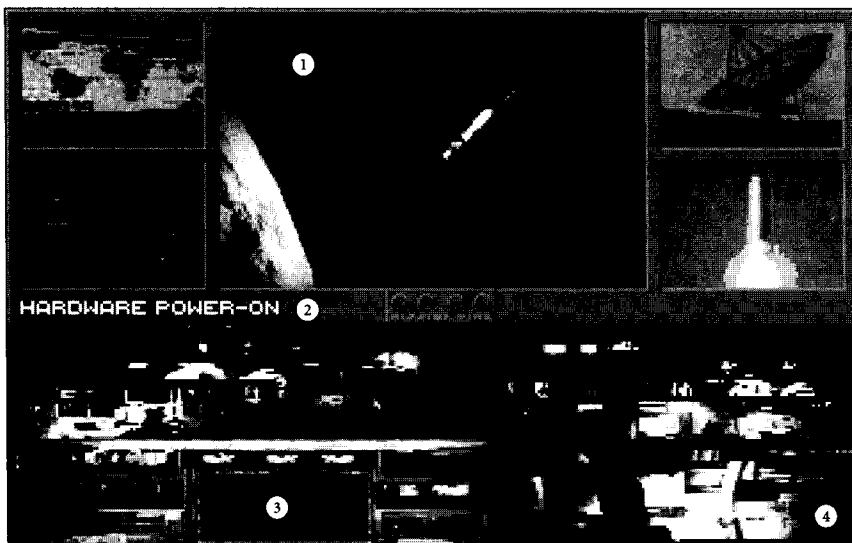
own. You may be given an option cut the mission short due to a sequence failure, but otherwise sit back and bite your fingernails!

During space missions, many different animations will run, depending on which country, hardware and mission event. Moonwalk animations vary between countries and LM type. The four smaller screens display relevant photos of what also is occuring at that particular mission step. There are over six hundred photos assigned to specific steps.

On manned launches, orbital satellites and probes to the Moon, animations will appear for all steps of the missions. For miscellaneous unmanned missions and dummy tests, only a launch animation will appear and the mission review display the results.

During the animations, each current mission step is displayed on the Mission Control Screen. On U.S. launches, the mission step is underneath the main

screen. Soviet mission step text is displayed above the main screen.

The status box on the mission control console displays the safety tolerance of the key hardware on each mission step. The safety range is displayed in blue. Green is the tolerance level and yellow is the astronaut skill. If green tolerance rises above the blue range, it changes to red and the mission step is a failure mode. At this point, either a new animation will appear (explosions, etc.) or a Failure Mode screen will appear.

The Failure Mode screen will display which hardware failed the safety range and the consequences. Sometimes you will have to make a decision to abort or continue a mission. It is advisable to follow a safe path and get your crew home as fast as possible. After failure mode, either the mission continues or the mission review screen appears.

18
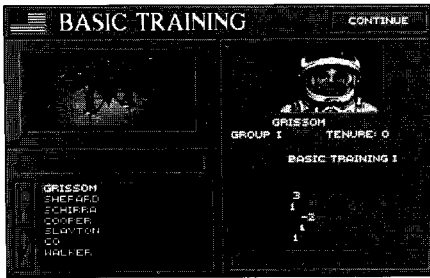
Basic Training shows the current astronaut, his skills, and a withdrawal option.
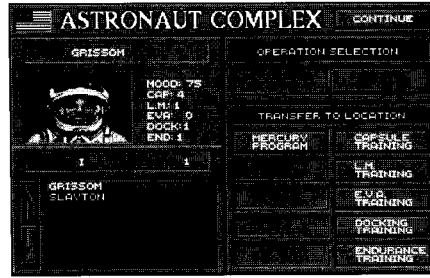
The Astronaut Complex lets you transfer the astronaut or visit the building. It also lets you select spacecraft programs or advanced training.

Arlington Cemetery/Kremlin Wall

A resting place for your fallen heroes.

Flag

When you have completed your turn, click on the flag. If you have missions scheduled this season, you'll be directed to go to Mission Control to confirm launches. You can then end your turn by lowering the flag.

Additional Buildings

Other Buildings appear at the Spaceport after you purchase new Space Hardware Programs and Recruit Astronauts/ Cosmonauts.

Astronauts and Cosmonauts

After recruiting your first Group of astronauts, several key buildings will appear at the spaceport. Cosmonaut buildings function the same way.

Astronaut Basic Training

Your new astronauts begin their careers in basic training. You can withdraw an astronaut at any time, but the longer they stay (up to 3 seasons) in basic training

the more their skills will improve. Once removed from Basic Training, an astronaut cannot return. Upon leaving Basic Training, astronauts are sent to the Astronaut Complex.

Astronaut Complex /Cosmonaut Center

From here, you assign your astronauts to Advanced Training (capsule training, LM training, etc.) or to Spacecraft Programs (Mercury, Vostok, XMS-2, etc.) On the upper left, are the skills of the featured astronaut. The column on the lower left, lists astronauts available for assignments. On the right side of the screen are ten buttons (Spacecraft Programs and Advanced Training facilities) you can transfer the individual astronaut. A spacecraft program's button will not be active unless you have purchased it.

When you transfer astronauts to a spacecraft program, you must also assign them as flight crews. You can visit these spacecraft programs by clicking the specific building on the Spaceport or via a "tunnel" short-cut. Click the Transfer Astronaut button (a Transfer to Location title will appear) and select which spacecraft program you wish to send an astro-

19
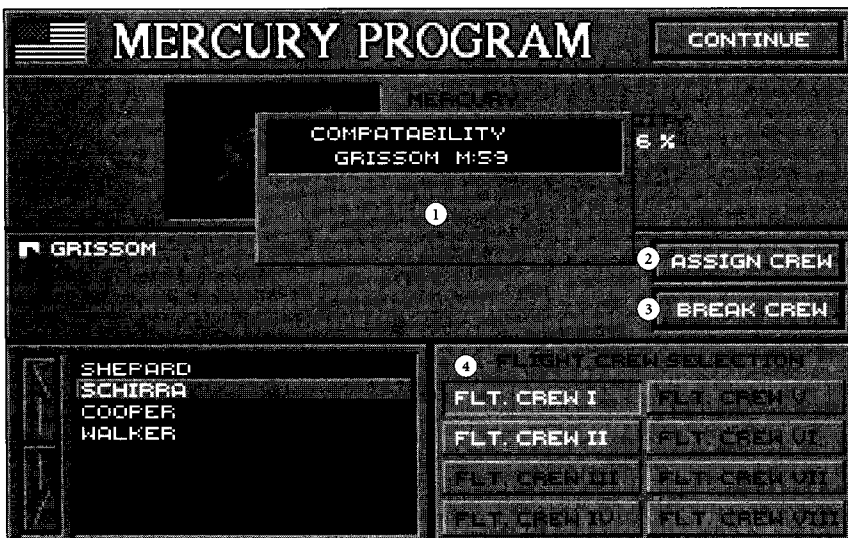
naut to (be sure to send enough astronauts to fill at least one primary and backup crew). Example, two-man capsule programs will need a primary crew of two astronauts and a backup crew of two astronauts. Any leftover stray astronauts will be sent back to the Astronaut Complex. Or you can send astronauts to one of the advanced training centers and improve an individual skill, or leave them in the Astronaut Complex.

By clicking the Facility Transfer button (a Visit Location title will appear), you can select which program or advanced training facility you wish to visit.

It's highly advised to visit the spacecraft program where you just sent your astronauts. Before you end you turn, they must be assigned to flight crews or else they will default back to the Astronaut Complex. Astronauts will have to be reassigned to the spacecraft program and will be training for that season. This will make them unavailable for future missions until the following season!

Advanced Capsule Training
Improves an astronaut's Capsule Pilot Skill. This would aid in safety on all capsule and mini-shuttle mission steps.

LM Pilot Training
Improves the astronaut's LM Pilot skill.

EVA Training
Improves the astronaut's EVA skill.

Navigation and Docking Building
Improves an astronaut's skill for all docking attempts.

Centrifuge Building
Improves an astronaut's endurance for long space duration missions.

Figure 6: Advanced training.

LAUNCH FACILITY A   CONTINUE

STATUS:

BRONNER
PATEL

PAVLISH
MCCARTY

SCRUB MISSION
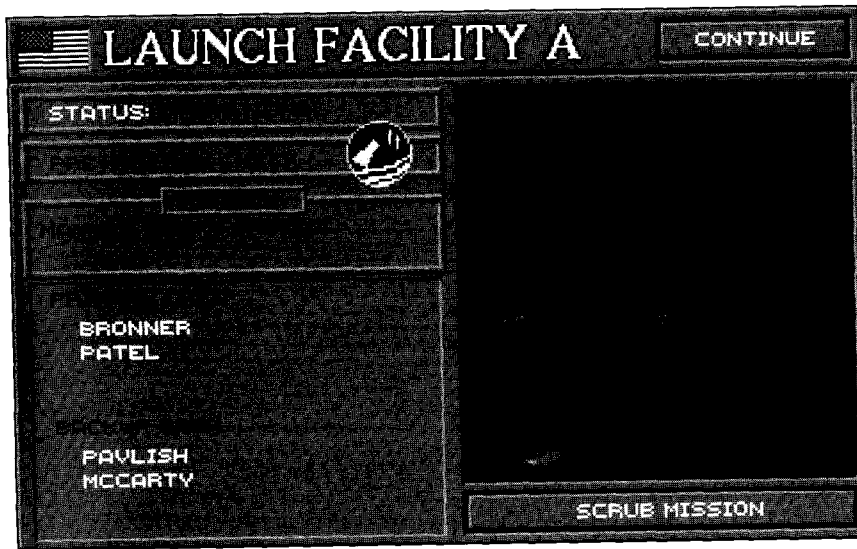
Medical Center

This hospital is where your astronauts attempt to recover for flight status. One season after you recruited your Group I astronauts, five advanced training buildings will be constructed at the spaceport. Astronauts can be assigned to these facilities from the Astronaut Complex.

Advanced Training

Once per career Astronauts can improve one of their skills by completing the full term (2 years) of advanced training. It costs 3MB per astronaut to be sent to advanced training. See Figure 6.

Spacecraft Programs Buildings

For Mercury, Vostok, etc., provide you with information on the current reliability status of the spacecraft, the assignment of flight crews and data on their morale and compatibility.

When astronauts are sent to train in a spacecraft program, they must be assigned to flight crews. As flight crew, astronauts need a full season to become oriented with a spacecraft and fellow crew members before they can be assigned on space missions. Even if they have been assigned to that program before, they will have to train.

While in a spacecraft program, you can examine each astronaut's skills: place the cursor over the desired astronaut, click and hold the mouse down on their names. Carefully compare the skills each astronaut before assigning them to flight crews, especially spacecraft with multiple crew members. Each spacecraft program has a specified number of positions required for flight crew. Each position (seat) on a flight crew has specific responsibilities during the space mission.

Gemini Capsule

1. Capsule Pilot/Docking
2. LM Pilot/EVA Specialist

By assigning an astronaut to a seat, their skill will be utilized during those por-

tions of the mission. The seat #1 astronaut performs all capsule and docking responsibilities, while seat #2 astronaut is responsible as LM Pilot and for all EVAs. Not all skills are necessarily utilized on every mission. However, it is advised to team up a well-rounded flight crew.

All astronauts in a spacecraft program must be assigned to a flight crew or they will be automatically sent back to the Astronaut Complex.

For every space mission, a primary flight crew and a backup flight crew is required. If you plan two manned space missions with same type of spacecraft, four different flight crews are required. A flight crew can be assigned (primary or backup) on a mission once per year.

Morale & Compatibility

When assigning astronauts to flight crews a morale box appears to the left of their names. This box reflects their overall morale regarding their personal progress and satisfaction within the space program.

Color	Mood
Green	Thumbs up!
Yellow	OK
Red	Frustrated
Black	Burned-out (will retire)

Astronauts are competitive "fly-boys" who live for flying. If they're not assigned space missions and are sitting in the Astronaut Complex, they'll become bored and frustrated. Successful (milestone firsts) missions improve the overall morale of the corps and of each astronaut. All astronauts that successfully reach space get their astronaut wings.

Mercury/Vostok Training Building
This is a one-man capsule program.

Gemini/Voskhod Training Building
This a two-man capsule program.

Apollo/Soyuz Training Building
This is a three-man capsule program.

Jupiter/Kvartet Training Building
This is a four-man spacecraft.

XMS-2/Lapot Training Hanger
This is a three-man mini-shuttle.

Being assigned as a primary crew pleases them. Going into space makes them especially happy. Failures and canceled missions depress them. A death of a fellow astronaut will deeply affect the Astronaut Corps. Some may even resign!

Compatibility among astronauts in a flight crew is another factor that affects their morale. By clicking on the morale box (the small color box, left of the astronaut's name once assigned to a flight crew), the individual astronaut's file will appear. This screen provides you with a psychologist's report on the astronaut and how they get along astronauts in the flight crew. You can click on each astronaut's morale box and review their compatibility. The compatibility box features the astronaut your studying, and if a multi-manned flight crew, color boxes of how they like or dislike the other astronauts. Review the whole flight crew - just because one astronaut likes another doesn't mean the reverse is true!

Color	Compatibility
Green	A-OK! An ideal team.
Red	Warning! They don't get along!

LUNAR MODULE CONTINUE

CENTRAL HANGAR

CRICKET 10%
1
0
0

EAGLE 10%
1
0
0

TOTAL LM POINTS 0
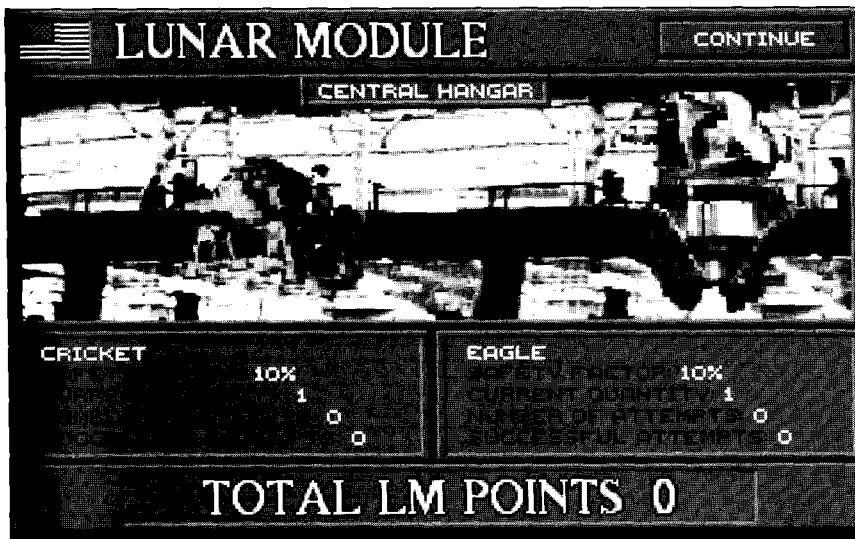
Some astronauts get along better with other astronauts in the corps. If they dislike each other, they're not going to be happy that you teamed them up. Their morale will drop as result of this. (Astronauts always maintain their professionalism during space missions. Incompatibility does not effect their skills during flight.)

The Astronaut Morale screen will inform you on how well the flight crew gets along. You may want to reassign flight crews for the best results. Astronauts prefer to be in the most advanced spacecraft program, and don't enjoy being bounced around from one program to another countless times.

Other Programs

LM Facilities

The LM training facilities give you information on your LM test status and reliability. LM test status is displayed as points at the bottom of the screen. Each successful Earth orbital LM test is worth one point. Successful Lunar orbital LM test are worth two points. Before attempting a manned lunar landing, you must have at least three LM test points or safety is lowered on the LM during Lunar landings. You can have any combination of LM tests as long as the point total is three or greater. Direct Ascent landings (Jupiter and Kvartet) do not require any LM tests.

Satellite Building

Data is provided on Orbital satellites, Interplanetary Satellites, Lunar Probes and Docking ability. The Interplanetary Satellite Box gives data and statistics on each planet that has had successful missions. By selecting the Moon via the Interplanetary or Probe Boxes, your current level of Photo Reconnaissance for Lunar landing zones is displayed. (This data is also be found on the Moon in the spaceport screen.)

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BUILDING DESCRIPTIONS

U.S. Administration

NASA Headquarters
Budget A view of you and your opponent's budget. Other screens give information on the changes in prestige points and where expense have been allocated.

Purchasing This is where new programs can be started and replacement parts be purchased.

Future Mission Planning Determine what space missions will be planned for next season.

Astronaut Recruiting Select your astronauts for your space program.

preferences Toggle music, sound, still and animation features on/off.

Time Capsule Save game or load game.

Space Museum
Director's Ranking A quick overview of your progress in the space race.

Space History A chronology of the space icons showing the space events in your current game. A replay feature will display your missons.

Mission Records All sorts of best and worst records in space.

prestige Records A chart displaying the milestones vs. your opponent's.

Hardware Efficiency Stats on how effective each program has been.

Astronaut History Information on each astronaut and a list of their achievements.

Capitol Building Presidential review of your performance as Mission Director.

Pentagon
Library Intelligence briefing of your opponents' programs and plans.

Statistics Hardware information statistics.

Arlington Cemetery The site of fallen astronauts.

Program Buildings
Mercury One man capsule program and flight crews in training.

Gemini Two man capsule program and flight crews in training.

Apollo Three man capsule program and flight crews in training.

XMS-2 Three man mini-shuttle program and flight crews in training.

Jupiter Four man direct ascent lander and flight crews in training.

Satellite An inventory of docking reliability, photo reconassiance satellite programs and accomplishments.Which planets have been explored, etc.
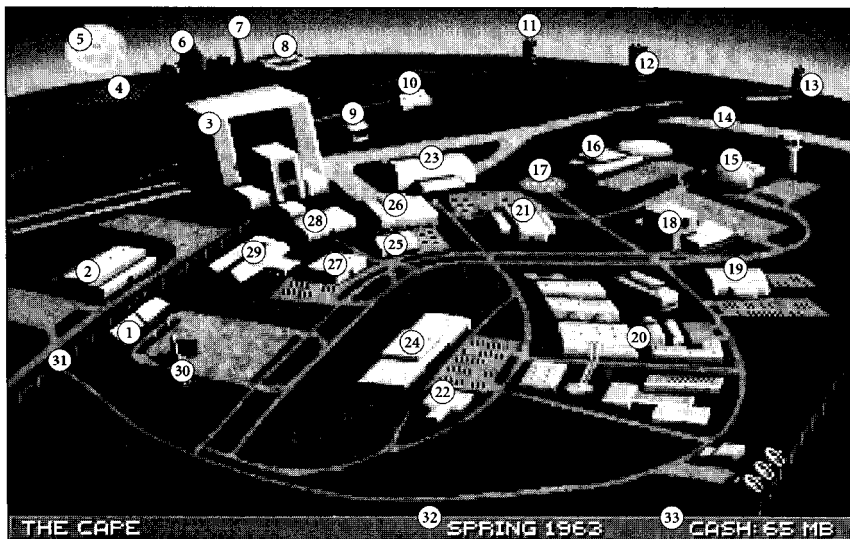
Cape Canaveral, the American Spaceport
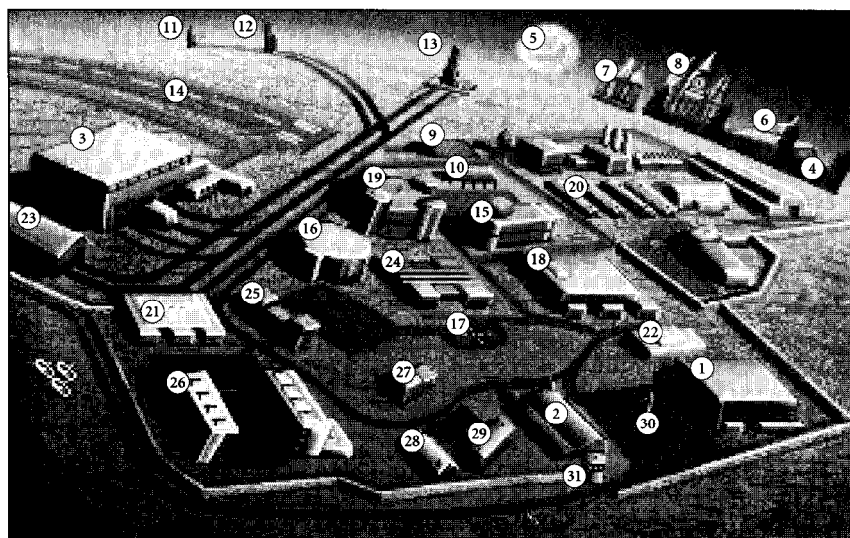
Baikonour, the Soviet Spaceport.

1	Administration	9:	Mission Control	18:	Hospital	26:	Apollo/Soyuz Program
2:	Museum	10:	Viewing Stands	19:	EVA Training	27:	Satellite Programs
3 :	VAB/VIB	11: Pad C		20:	R&D Complex	28:	Gemini/Voshkod Program
4:	Arlington Cemetery/ Kremlin Wall	12:	Pad B	21:	Jupiter/Kvartet Program	29:	Mercury/Vostok Progrom
5:	Moon	13:	Pad A	22:	Boric Training	30:	Flog (End Turn)
6:	Capitol/Politburo	14:	Capsule Pilot Training	23:	XMS-2/Lapot Program	31:	Front Gate (Quit)
7	Washington's Monument/ St. Basil's Cathedral	15:	Docking/Nav Training	24:	Astronaut Complex/ Cosmonaut Center	32:	Date (Season/Year)
8:	Pentagon/KGB	16	Endurance Training			33:	Current Budget
		17:	LM Pilot Training	25:	LM Progrom		

Lunar Module A list of the active LM programs, and data on LM tests.

Miscellaneous Sites

Astronaut Basic Training Center Initial training evaluation center of astronaut skills.

Astronaut Complex Assignment center, directing astronauts to Spacecraft Programs, Advanced Training and astronaut status.

Centrifuge Advanced training for improving astronaut's endurance.

EVA Training Advanced EVA training.

Flag Pole End of turn, (If missions are scheduled, go to Mission Control)

Front Gate Quits game.

Launch Pad Check to see any launches scheduled for the current season.

LM **Training** Advanced LM training.

Medical Center Location of injured astronauts.

Mission Control Missions that are scheduled for launch the current season can be rushed months earlier and/or downgraded.

Pilot Training Air Field Advanced training for improving capsule/mini-shuttle pilot skills.

Planetarium Advanced training for improving astronaut's navigation and docking skill.

Research & Development Complex Allocation of funds to spend on R&D; improves the safety factor of programs.

Vehicle Assembly Building (VAB) Assemble your payloads and rockets for launches scheduled the current season.

Viewing Stand A chronology of Space News events.

Soviet Administration

Administration

Budget, Purchasing, Future Mission Planning, Cosmonaut Recruiting, Preferences, Time Capsule All of these are as the American counterparts.

Space Museum

Director's Ranking, Space History, Mission Records, Prestige Records, Hardware Efficiency, Cosmonaut History All of these are as the American counterparts.

Kremlin Secratary General's review of your performance as Chief Designer.

KGB HEADQUARTERS

Library, Statistics, Kremlin Wall All of these are as the American counterparts.

Program Buildings

Vostok, Voskhod and Soyuz One, two and three-man capsule program and flight crews in training.

Lapot Three man mini-shuttle program and flight crews in training.

Kvartet Program Four man direct ascent lander and flight crews in training.

Satellite An inventory of Docking Reliability, Photo Reconassiance satellite programs and accomplishments.Which planets have been explored, etc.

Lunar Module A list of the active LM programs, and data on LM tests

Miscellaneous Sites

Cosmonaut Basic Training Center Initial training evaluation center of astro-naut skills.

Centrifuge Advanced training for improving astronaut's endurance.

Cosmonaut Center Assignment center, directing astronauts to Spacecraft Programs, Advanced Training and astro-naut status.

EVA Training Advanced EVA training.

Flag Pole End of turn. (If missions are scheduled, go to Mission Control)

Launch Pad Check to see any launches scheduled for the current season.

LM Training Advanced LM training.

Cosmonaut Center Location of injured cosmonauts.

Mission Control Missions that are scheduled for launch the current season can be rushed months earlier and/or downgraded.

Pilot Training Air Field Advanced training for improving capsule/mini-shuttle pilot skills.

Planetarium Advanced training for improving cosmonaut's Navigation and Docking skill.

Research & Development Complex Allocation of funds to spend on R&D; improves the safety factor of programs.

Security **Gate** Quit Game feature.

Vehicle Integration Center (VIB) Assemble your payloads and rockets for launches scheduled the current season.

Viewing Stand A chronology of Space News events.

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PRESTIGE

Index	Prestige Name	1st	2nd	Other	Failure
1	Orbital Satellite	12	5	1	-3
2	Lunar Flyby	5	3	2	-3
3	Mercury Flyby	5	2	2	-3
4	Venus Flyby	7	4	2	-3
5	Mars Flyby	7	4	2	-3
6	Jupiter Flyby	8	4	2	-3
7	Saturn Flyby	9	4	2	-3
8	Lunar Probe Landing	16	9	2	-5
9	Duration Level 'F'	7	7	0	0
10	Duration Level 'E'	5	5	0	0
11	Duration Level 'D'	1	1	0	0
12	Duration Level 'C'	5	5	0	0
13	Duration Level 'B'	3	3	0	0
14	One-Person Craft	3	1	0	0
15	Two-Person Craft	7	2	0	0
16	Three-Person Craft	15	5	0	0
17	Minishuttle	20	8	0	0
18	Four-Person Craft	20	8	0	0
19	Manned Orbital	12	5	1	-10
20	Manned Lunar Pass	12	5	2	-10
21	Manned Lunar Orbit	20	7	1	-10
22	Manned Lunar Landing	40	15	8	-10
23	Experimental Orbiting Lab	6	4	0	-10
24	Manned Docking	8	4	1	-3
25	Woman In Space	8	0	0	-4
26	Space Walk	8	4	1	-3
27	Manned Space Mission	15	5	0	-10

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SPACE HARDWARE

Both countries have varieties of programs that can be developed during the game. A quick review of what each program is designed for and its capabilities are listed below.

This data is from the Basic Module-in the Historical Module, costs, weights and lift capabilities vary.

EXPLORER/SPUTNIK

Program Cost: 6
R&D Cost: 1
Weight: 300

The orbital satellite is the lightest payload in the space inventory. Designed only for orbital satellite missions, it can be launched on all rocket systems. Boosters or strap-ons con be added for launches, but not used separately.

RANGER/COSMOS

Program Cost: 24
R&D Cost: 3
Weight: 700

Interplanetary satellites can be sent during available lounth windows to the moon, Mercury, Venus, Mars, Jupiter and Saturn. The interplanetary satellite weighs more and requires at least a Titan/Proton rocket system or more powerful system to help the satellite achieve escape velocity. Boosters and strap-ons can be added for lounth, but not used separately. On successful lunar fly bys, photo recon of safe landing sites can be improved.

SURVEYOR/LUNA

Program Cost: 30
R&D Cost: 4
Weight: 1200

This unmanned probe is designed only for soft landings on the moon. It weighs considerably more than the inter-planetary satellite. It also requires at least a Titan/Proton rocket system.

DOCKING MODULE

Program Cost: 18
R&D Cost: n/a
Weight: 300

Docking modules are used only in missions that attempt space dockings. The docking unit weighs the same as the orbital satellite. It requires satellite technology for it to be functional, "Power-on." (The DM power-on skill is equal to the orbitol satellite technology.) Docking power-on skill cannot be improved by R&D, rather only by actu-al missions and practice.

The beginning safety factor for docking is 40%. When docking is attempted during a space mission (multiple attempts during an actual space mission count for one) the skill is increased 5%. A successful dock increases the skill another 5% (for a total of 10%). The highest safety for docking is 98%.

With successful power-ons, DMs have an operating life of one year (the season it's launched plus the next season). Any number of friendly croft or mini-shuttles may attempt to dock with the module during its operating life. The DM can be launched separately or attached to Gemini/Voskhod, Apollo/Soyuz, mini-shuttles and LMs.

ATLAS/A-SERIES ROCKET

Program Cost: 24
R&D Cost: 2
Payload Capacity: 600

These rockets have the smallest lift capability. The rock-ets lift payloads into low Earth orbital or sub-orbital mis-sions. Even when aided by booster strap-ons, payloads can only be launched sub-orbital or into low Earth orbit. They cannot be used for lunar or interplanetary missions. These rockets can lift into Earth orbit, orbital satellites, DMs, Mercury/Vostok, and with boosters, Gemini/Voskhod, Apollo/Soyuz, mini-shuttles and LMs.

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TITAN/PROTON ROCKET

Program Cost: 60
R&D Cost: 4
Payload Capotity: 1500

Besides having a greater lift capability these rockets can launch payloads for sub-orbital, Earth-orbital, lunar or interplanetary missions (if payload limit is exceeded, boosters and strap-ons might be needed.)

SATURN/N-I

Program Cost: 84
R&D Cost: 6
Payload Capacity: 3200

The moon rockets are extremely powerful rockets, which can carry various spacecraft combinations for sub-orbital, Earth-orbital, lunar and interplanetary missions.

NOVA/VULKAN

Program Cost: 150
R&D Cost: 8
Payload Capacity: 4800

These giant rockets have the greatest lift capability for all types of missions, sub-orbital, Earth-orbital, lunar and interplanetary (if payload limit is followed). Boosters and strap-ons cannot be added.

A-KICKER

Program Cost: 12
R&D Cost: 1
Payload Capacity: 1 Spacecraft TLI

A booster package that can propel one spacecraft (capsule or LM) from Earth orbit to lunar orbit. Gemini/Voskhod, mini-shuttles, and LMs need a Kicker to reach lunar orbit. Kickers have payload dead weight at launch.

B-KICKER

Program Cost: 18
R&D Cost: 2
Payload Capacity: 2 Spacecraft TLI

This more powerful booster package can propel a combination spacecraft/DM/LM into lunar orbit. This Kicker can lift one spacecraft (capsule or LM) or spacecraft-LM **combo.**

C-KICKER

Program Cost: 40
R&D Cost: 4
Payload Copocity: n/a

A Soviet booster potkage that docks only with a Soyuz spacecraft in lunar orbit and then lands the entire package on the lunar surface. Docking experience is strongly recommended. LM tests, LMs, Kickers A & B or DMs are not required.

STRAP-ONS/BOOSTERS

Program Cost: 12
R&D Cost: 2
Payload Capacity: 1000

This booster progrom may be used only in conjunction with Atlas/A-Series, Titan/Proton or Saturn/N-I rocket programs and increase the overall lift capability (by 1000) during launch.

MERCURY/VOSTOK CAPSULE

Program Cost: 18
R&D Cost: 1
Weight: 500
Max Duration: 5 Days, B-duration

A one-man capsule than con tarry single astronaut on a short duration mission (max. duration is 5 days) The capsule can be used on sub-orbital, orbital, orbital-EVAs, and limited space duration missions. It is not capable of conducting any docking missions or lunar missions.

GEMINI/VOSKHOD SPACECRAFT

Program Cost: 24
R&D Cost: 2
Weight: 1200
Max Duration: 14 Days, E-duration

This manned spacecrah can carry two astronauts/cosmonauts on sub-orbital, Earth-orbital, orbital-EVAs, orbital dockings, orbital durations and most lunar missions. For lunar missions, the two-man spacecrah requires an A or B kicker. On LM tests and landings, the two-man craft requires a one-man LM and a docking module. Single launched manned lunar landing missions with o Gemini/Voskhod, DM and LM payload configuration require a Kicker B. The maximum craft duration is 14 days.

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APOLLO/SOYUZ SPACECRAFT

Program Cost: 36
R&D Cost: 5
Weight: 1600
Max Duration: 18 Days, f-duration

This three-man craft can carry astronauts on sub-orbital, orbital and most lunar missions. This craft does not require a kicker for lunar missions. The craft service module can also propel an LM into lunar orbit. On LM tests and lunar landings, the craft is adaptable to one or two-man LMs. The craft has a built-in docking adapter for docking with LMs. The craft may use a DM for practice dockings or when docking with other spacecraft.

XMS-2/LAPOT MINI-SHUTTLE

Program Cost: 60
R&D Cost: 7
Weight: 1500
Max Duration: 12 Days, D-duration

This three-man reusable mini-shuttle can carry astronauts on sub-orbital, orbital and most lunar missions. For lunar missions the mini-shuttle requires a Kicker A or B. On LM tests and landings the mini-shuttle is adaptable to one or two-man LMs with a DM. Each mini-shuttle can be reused on space missions (once per season) unless it is heavily damaged or of course destroyed.

JUPITER/KVARTET SPACECRAFT

Program Cost: 60
R&D Cost: 8
Weight: 4300
Max Duration: 20 Days, f-duration

This four man craft can carry astronauts/cosmonauts on sub-orbital, orbital, orbital EVA, orbital durations, lunar passes and lunar orbitals and landings. This a special vehicle that tan land on the moon but doesn't dock with ony other craft. No docking skills or LM tests are required. This craft is extremely heavy and requires the massive Nova/Vulkan rockets for lift. It does not need a kicker for lunar missions.

EAGLE/DUET LUNAR MODULE

Program Cost: 30
R&D Cost: 2
Weight: 1500
Max Duration: 5 Days

This two-man lunar module can tarry two astronauts/cosmonauts to the lunar surface and rendezvous and dock with the orbiting command ship. The two-man LM can be used with Apollo/Soyuz and the XMS-2/Lapot mini-shuttle. The only missions that LMs can be used for are LM tests and landings.

CRICKET/L9 LUNAR MODULE

Program Cost: 42
R&D Cost: 4
Weight: 1000
Max Duration: 3 Days

A one-man lunar module that can carry one astronaut to the lunar surface and rendezvous and dock with the orbiting command ship. This LM can be used with Gemini/Voskhod, Apollo/Soyuz, and the XMS-2/Lapot mini-shuttle. The only missions that LMs are used for are LM tests and lunar.

The one-man LM *is* a *more* expensive program since *it* would *require* additional *automated systems and back-ups* to assist the /one occupant.

EVA SUITS

Program Cost: 18
R&D Cost: 1
Weight: n/a
Max Duration: 6 Hours

A space suit is needed to protect the astronaut during extravehicular-activity outside the spacecraft. The EVA suit is required for all spacewalks and lunar excursions.

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MISSION MILESTONES

In the conquest of space there are great unknowns and technological barriers. Before traversing to the moon, probes were sent to study gravitational effects, solar flares, extreme temperatures and radiation. Animals were test subjects first to see if man could withstand the physiological stresses of launch, zero gravity, extreme G-forces and other factors. Man first ventured into space for short durations. Gradually, missions were increased in duration to test man's limits and the spacecraft's reliability. Skipping steps in this early phase of space exploration could have been catastrophic.

Below is a list of milestones that represent the unknown barriers of space exploration. Steps may be skipped, but caution is recommended when exploring a new hostile environment. There are no restrictions on mission order other than a -3% safety factor for each milestone skipped, for all steps involved in that mission. Penalties from multiple milestones skipped are cumulative. For instance, if two milestone steps are skipped, safety factor is reduced 6% on all steps during the mission. Duration steps skipped also increase the total reduction. Sskipped milestones reduce safety by 3%; skipped duration steps reduce safety by 5% each. See the Player's Ref Card for details.

ORBITAL SATELLITE

Prestige: 12 pts.
Penalty: -3%

The first country to successfully launch a satellite into Earth orbit is the victor of a great technological achievement. An ideal stepping stone for greater endeavors in the space age.

SUB-ORBITAL/MANNED SPACE MISSION

Prestige: 15 pts.
Penalty: -3%

The first successful human into space, no matter how short the duration, is mankind's first step into the cosmos. spacecraft designs are tested in the harsh environment of space. This O great moment in man's quest for knowledge.

MANNED ORBITAL

Prestige: 12 pts.
Penalty: -3%

The first human to orbit the Earth is a motor achievement in the conquest of space. (This can be combined with manned space mission for additional prestige points, e.g. Yuri Gagarin, first man in spate and manned orbital) By studying man's adaptability in space, longer, more ambitious missions can be planned. Current spacecraft reliability is analyzed and various approaches and new spacecraft systems are considered for the longer lunar missions.

LUNAR SATELLITE FLY-BY

Prestige: 5 Pts.
Penalty: -3%

The first successful satellite sent to Earth's nearest neighbor is a precursor to studying the lunar surface features and gravitational effect. It is also the first man-made object to permanently leave the Earth. Through robotic eyes, the way is paved for future robotic landers and eventually manned expeditions.

LUNAR PROBE LANDING

Prestige: 16 Pts.
Penalty: -3%

The first successful soft landing on the moon is a technological achievement in robotic exploration. Soil composition and firmness can be determined and the search for future manned landing sites can be researched with robotic landers.

MANNED LUNAR PASS

Prestige: 12 Pts.
Penalty: -3%

The first successful manned lunar pass is the completion of a great psychological barrier. Mankind flies around on alien world and observes an Earth rise on a lunar horizon. Spacecraft systems can be tested in lunar gravity. The crew can study potential landing sites and improve photo recon.

MANNED LUNAR ORBITAL

Prestige: 20 Pts.
Penalty: -3%

The first successful manned lunar orbital is the final run-through before mankind walks on another world. Spacecraft systems can be tested in lunar gravity. The crew can study landing sites (improve photo recon)

MANNED LUNAR LANDING

Prestige: 40 Pts.
Penalty: n/a

The first landing on the moon and successful return to Earth is man's greatest technological triumph! Mankind scans the horizon for new challenges.

The milestone steps listed below affect the lunar landings. (Docking and LM tests are not necessary for direct ascent missions.)

PHOTO RECONNAISSANCE

Prestige: n/a
Penalty: n/o

There is no program cost or R&D expense for photo retort. It portrays a country's ability to select a safe landing site on the moon. Photo recon begins with base safety of 55% Every successful interplanetary fly-by of the moon, manned lunar pass or lunar orbital increases photo recon by 5%. Successful landing lunar probes increase photo recon by 15%. lunar probes that foil landing but still manage to make a lunar de-orbit burn increase photo recon 5%.

SPACEWALK

Prestige: 8 Pts.
Penalty: n/o

The first human to leave the confines of the spacecraft and freely maneuver in space. A historic achievement, and an important step to determine if man can work in space or on the moon.

(MANNED) DOCKING

Prestige: 8 Pts.
Penalty: n/a

The complexities of orbital rendezvous and docking is a necessary skill for several lunar approaches.

Docking skills can only be acquired by actual spaceflight docking missions. Docking reliability starts at a base 40%. Each successful docking mission will increase the Docking skill 10% Failed docking attempts still increase the Docking skill 5%.

DURATION 'D

Prestige: 1 Pt.
Penalty: -5% (per Duration step skipped)

The test of spacecraft systems and human adaptability on an 8 to 12 day spaceflight. Required for manned lunar missions.

LUNAR MODULE TESTS

Prestige: n/a

Penalty: -3% (per Test skipped)

LMs require a manned testing phase for reliability before attempting a lunar landing. Three different strategies ton be selected for approved LM tests: 1. A combination of three separate Earth-orbitol LM Tests; 2. Two individual missions involving o Earth-orbital LM tests and a lunor-orbitol LM test (e.g., Apollo 9 and 10); 3. Two lunar-orbital LM tests. For every skipped LM test the lunar landing is penalized -3% safety. So if all LM tests are skipped the tool penalty is -9%

Each successful Earth-orbital LM test is worth one point. Successful lunar-orbital LM tests ore worth two points. Before ottempting o manned lunar landing you must hove at least three LM test points or safety is lowered on the LM during lunar landings. You con have any combinotion of LM tests os long os the point total is at least three. Direct ascent landings (Jupiter and Kvortet) don't require LM tests.

LM tests ore very important missions before landing on the moon. Ironically, little prestige is oworded for the success of these missions.

Astronauts with high enduronte ore better oble of sustaining the demands of long duration missions. (It's recommended to select crews with high enduronte skills.) A mission to lond on the moon and return to Earth will take from B to 12 days.

Before embarking on a monned lunor landing, we recommend you gradually increase the mission duration length, one step at o time. By successfully completing o

Days	Duration
1-2	A
3-5	B
6-7	C
8-12	D
13-16	E
17-20	F

Figure 7: Duration steps.

duration step, another borrier of unknown is broken down ond scientific data is gathered. Each step completed makes it safer for the next crew when attempting the next level.

The potential dangers ore increased when skipping steps. A formula overages the flight crew's endurance skill with the number of steps skipped. The penalty can range from -5% to -8% per step. See figure 7.

Milestone Hurdles

Here is a list of necessary steps of successful completion and penalty consequences for skipping.

Primary Milestones are steps that must be completed in sequence. Durs. B and C must be completed in that order after manned orbitals and before a manned lunar pass; duration D must be completed before manned lunar orbital. LM tests must be completed after manned orbital and before manned lunar landings.

Examples

If the first mission attempted is manned *orbital, the penalty is -9%* on *all aspects of the mission.*

A manned orbital 'B' has been *successfully completed. If a manned lunar pass were attempted, it* would be -14% on all *aspects of the mission,*

A manned orbital duration 'D' has been successfully completed. If a manned lunar landing was attempted, it would be -12% on all aspects of the mission.

Multiple milestones can be attempted on a single mission or joint launches. Beware, ambitions space missions can lead to disappointments and spoil prestige points.

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STRATEGY

How I Won and Lost the Moon Race

Kennedy's challenge of landing men on the Moon and returning safely to the Earth is the ultimate goal of winning the space race. It is especially challenging, when starting with a meager budget and an fledgling space program.

As Director or Designer you need to make decisions on short term goals in order to achieve the long terms and only then should lunar missions be attempted. Possible short term goals could be, an orbital satellite or sending a man in space. You must decide whether the risks of skipping milestone steps are worthwhile in order to complete your goals. There are a lot of different directions to choose from, just keep the overall picture in mind.

Success breeds confidence and more support, meaning funding and growth. Failure can only mean setbacks and should be avoided. Loss of life should be avoided at all costs!

Space Hardware and R&D

Determine which types of hardware you are going to develop in your space program. Program and R&D costs must be evaluated carefully. A program's payload weight should be compared to various rocket program lift capabilities. Compare the safety factors of various programs. Programs that are inexpensive are gener-

ally not as reliable. The advantage is a quick way into space. The disadvantage is without numerous dummy tests, a catastrophe isn't far away. Buying expensive programs too early can trap you into a long R&D phase and your opponent ends up further ahead with more funds and better high-tech hardware.

The trick is to buy only the programs that you currently need in order to complete your current objective. Streamline your short term goals so that some of the hardware you're using now can be used in the later stages. Even if some hardware is not designed for certain missions, use that hardware for other important tasks. Timing is crucial when determining to purchase new programs. If you purchase expensive high tech programs too early, a depleted budget limits the number of space missions with your inventory.

Spacemen

Try to keep your 'nauts happy. Evenly spread the glory missions around the corps. Use your best pilots and specialists for the key missions. Top notch flight crews are worth it, even if they have compatibility problems. They have the best chance of completing the mission. Build up mission experience, since experienced spacemen have a better chance of fixing problems. The *key is to try to keep the majority of the corps happy with the way you're running the space program.*

Be sure to keep each of your active manned programs well stocked with flight crews. It's always better to have the

flexibility of numerous crews available for several potential space missions then to be short of crews (primary and back-up) and canceling space missions. Nothing is more wasteful than having open flight crew slots and lots of astronauts tied up in advanced training. Remember that the short-term objective to the game is achieving space missions, not improving individual astronaut skills. We advise to send some astronauts to Advanced Training since higher skills can assist in the success of space missions.

To the Moon

There are twenty different ways to send 'nauts to the moon. It's worthwhile to decide early on which of these approaches you prefer. If obstacles arise that are too difficult or could delay a mission or become to costly, be flexible and adapt. Always have contingency plans for short term goals and going to the moon. If one program fails, there are alternative ways of completing the same goal.

Each of the twenty approaches to the moon can be successful. Depending on your planning, mission success and available funding, at certain times some approaches become more advantageous. With proper wits, and a little luck, forging your own path can be just as successful. Immediately jumping into the more advanced manned programs, such as the three-man capsule, mini-shuttle, or the four-man module, will take several years to develop with very little space flight activity in the interim. Balancing these programs with a some prestige successful minor programs (planetary satellites, EVAs and space duration with smaller

capsules) can assist reaching victory. Otherwise your budget can remain static and leave you behind in the race.

Sometimes, you're going to have some tough choices when it involves cutting safety in order to beat your opponent. Caution is always recommended. Let the other country take the risks. Even if they get ahead early on, it is likely that they will trip-up at some point. If they are remarkably lucky for eight or ten years (this would be rare), only at the very end should you resort to last gap measures. Take big risks on unmanned missions, that can garner some prestige points.

Be sure to build up your space endurance and docking skills in Earth orbit before attempting any ambitious lunar missions. With careful planning, docking, LM tests and duration can all achieved within several years. But only on a good foundation of proper R&D and numerous dummy tests.

History is a good example of what to follow. Target the easy prestige milestones first. Try for first satellite or a manned sub-orbital or orbital. Notice how many times the Americans and Soviets performed dummy tests on their programs before launching men into space. It's not necessary to follow every step though; be creative.

Game Strategies

You Take an Early Lead

How you get there, by taking risks or by being cautious is unimportant. Your objective should be to continue a steady momentum of success. Let your opponent, who is behind, panic and take the

big risks and fall further behind. Focus your objectives on the safest most direct path of goals. Be efficient, if a mission doesn't advance your program and get you closer to the moon, ignore it. Take the big prestige missions away from your opponent. It not only helps you, but bleeds more funds away from your opponent's program.

You Fall Behind Early

Don't Panic! It's a long, tough race. A lot can happen. The worst thing to do is to launch a risky mission just in order to win a short term goal. If you fail, your set even further behind. Pursue the goals that your opponent isn't striving for. Analyze your opponent via your Intelligence Agencies and Space Museums. Where are they ahead? If they are ahead in manned missions, then proceed with satellites and probes and take risks, since they are unmanned. Sending probes to the moon and planets can collect you those much needed prestige points. Lunar satellites can also help you skip steps for future manned lunar missions. Remember, even if you suffer from bad luck and poor planning and your opponent is ahead of you in all categories, you are still in the race. Don't take dangerous risks until the very end.

Nip and Tuck

This is one of those races that's too close to call till the very end. Be very frugal and cautious. Utilize your strengths and pursue the easy prestige points. R&D all your manned programs and rockets to the maximums. Perform numerous dummy tests and raise the safety specifications on all of your hardware and spacecraft. Have backup plans. Anything can happen.

One Snafu After Another

Another of your manned programs catastrophically fails! This can be frustrating, but stick it out. Be sure to R&D your programs to the maximum levels. Launch numerous dummy tests so that your space inventory is very reliable. If program is R&Ded and fails, and then is R&Ded and fails again, maybe it's time for a more advanced program or additional backup programs. Be creative and find easy ways of gaining prestige. Get that budget up with several unmanned missions, or if manned, always minimize the risks. Consider the least complicated way of getting to the moon. Patience will reward you.

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REALISM

As designer, I have debated the issue of realism for several years. In this game there are images of rocket explosions, funerals, and other unpleasant events. This footage is real and the flesh and blood of people were involved. It includes not only national heroes, but families and friends who have lost their loved ones. Death is indiscriminate toward nationality as the Americans and Soviets mourned their losses equally. This simulation is meant to be historical. It is not about war, its glorification, or nameless statistics.

My whole intention with this game is to educate children and adults about man's early exploration of space. The public in general is unaware of who participated in this adventure as a generation has separated current times from the Apollo decade. Very few can name the first two men who walked on the moon and even fewer know how many Soviets and women have walked on her. It is amazing that the public has such little knowledge of man's greatest technological achievement: landing men on the moon. So many names of those involved are forgotten. Even those who tragically lost their lives are nothing but a void.

The space program is a high risk business. A great emphasis is made on minimizing these risks, but catastrophic accidents can happen. For the near future, going into space will never be routine like riding in an airliner. In this simulation, the player is held responsible and accountable for the loss of life. Safety is strongly encouraged and the player who ignores this is punished. If this is to be a realistic simulation, the possibility of catastrophic failure must be included without sugar-coating the issue.

There are too many slick graphic games that display death with no consequences. In this simulation, film footage of catastrophic events is not meant to take advantage of or harm the relatives and survivors of these events. The intention is to educate the sacrifices that these individuals made. This footage exists, and is part of history. If in any way it can inform and teach people what really happened, then I feel it is worth it. The other choice is to let the film collect dust and history be forgotten by all.

Many speak of the trauma for the children and adults who viewed the Challenger disaster. Yes, it was very disturbing, but they recovered and moved on as did NASA. They had to. If they did not, then there was no purpose in the lives that were lost. Out of the ashes of death, a new life will emerge.

On Jan. 27, 1967, a ten-year old Cub Scout toured NASA and saw America's proud new spacecraft, Apollo 1. Within the hour, Grissom, Chaffe and White were dead. The boy cried, the nation mourned, and an investigation found the cause. Out of the ashes a new standard emerged, a resolve for even greater safety. Within eighteen months the Apollo spacecraft flew and shortly after, men walked on another world. The boy also found a purpose. Life goes on and mankind learns from its mistakes.

TURN SEQUENCE

Suggested Mission Director's Checklist

This a good review of the duties of a space director. Try to cover each of these steps each turn.

Purchase Hardware and New Space Programs. (In Administration)

Research and Develop Spate Hardware. (At the R&D Facilities)

Plan Future Space Missions. (In Administration)

Astronaut/Cosmonaut Management. (Astronaut Complex and various Capsule Programs and Training Facilities)

Review Presidential Approval, Intelligence Reports, Budget and Space Statistics. (The Capitol, Pentagon/KGB Headquarters, Administration and Space Museum)

VAB/VIB Assemble Payloads and Rockets for current launches. (VAB/VIB)

Mission Control launch Review. (Mission Control Center)

Determine whether to rush a launches. (Mission Control Center)

End Turn. Click on your Flag.

MISSION DESCRIPTIONS

M Requirements

0 None

1 Orbital Satellite Orbital Satellite, Rocket.

2 Manned Sub-orbital Spacecraft, Astronaut, Rocket

3 Unmanned Sub-orbital Spacecraft, Rocket

4 Manned Orbital Spacecroh, Astronaut, Rocket

5 Unmanned Orbital Spacecraft, Rocket

6 Manned Orbital EVA Spacecraft Astronaut, Rocket, EVA Suit

7 lunar Flyby Interplatentary Satellite, >Titan/Proton Rocket.

8 lunar Probe landing lunar Probe, >Titan/Proton Rocket.

9 Venus Flyby Interplatentary Satellite, >Titan/Proton Rocket.

10 Mars Flyby Interplatentary Satellite, &an/Proton Rocket.

11 Mercury Flyby Interplatentary Satellite, >Titan/Proton Rocket.

12 Jupiter Flyby Interplatentary Satellite, >Titan/Proton Rocket.

13 Saturn Flyby Interplatenetary Satellite, >Titan/Proton Rocket.

14 Manned Orbital Docking Spacecraft, Astronauts, Rocket, DM.

15 Unmanned Orbital Docking Spacecraft, Rocket, DM.

M Requirements

16 Jt Manned Orbital Docking Spacecraft, Astronauts Rockets, DM.

17 Manned Orbital Docking (orbit) Spacecraft, Astronauts, Rocket, DM in Orbit.

18 Jt Unmanned Docking Spacecraft Rockets, DM.

19 Jt Manned Orbitals Docking Spacecraft, Astronauts, Rockets, DM.

20 Manned Orbital Docking EVA Spacecraft, Astronauts, Rocket, EVA Suit, DM.

21 Jt Manned Orbital Docking EVA Spacecraft, Astronauts, Rockets, EVA Suit, DM.

22 Jt Manned Orbitals Docking EVA Spacecraft, Astronauts, Rockets, EVA Suit, DM.

23 Jt Manned Orbitals Docking Jt EVA Spacecraft, Astronauts, Rockets, EVA Suit, DM.

24 Manned Orbital Docking (orbit) EVA Spacecrah, Astronauts, Rockets, EVA Suit, DM.

25 Manned Orbital Duration Spacecraft, Astronaut, Rocket.

26 Manned Orbital EVA Duration Spacecroft, Astronaut, Rocket.

27 Manned Orbital Docking Duration Spacecraft, Astronauls, Rocket, DM.

28 Manned Orbital Docking (orbit) Duration Spacecraft, Astronauts, Rocket.

29 Manned Orbital Docking (orbit) EVA Duration Spacecraft, Astronauts, Rocket, EVA Suit.

30 Jt Manned Orbitals EVA Docking Duration Spacecraft, Astronauts, Rockets, EVA Suit, DM

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M	Requirements	M	Requirements

M Requirements

31 **Jt Manned Orbital Docking Duration** Spacecraft, Astronauts, Rockets, DM.

32 **Jt Manned Orbiting lab** Spacecraft, Astronauts, Rockets, DM.

33 **Manned Orbital Docking EVA Duration** Spocecrah, Astronauts, Rocket, EVA Suit, DM.

34 **Jt Manned Orbital Docking EVA Duration** Spocecrah, Astronauts, Rockets, EVA Suit, DM.

35 **Jt Manned Orbitals Docking EVA Duration** Spocetroh, Astronauts, Rockets, EVA Suit, DM.

36 **Jt Manned Orbiting lab EVA** Spacecroh, Astronouts, Rockets, EVA Suit, DM.

37 **Jt Manned Orbitals Docking Duration** Spacecraft, Astronauts, Rockets, DM.

38 **Manned Earth Orbital LM Test** Spacecraft, Astronauts, Rocket, LM, DM*.

39 **Jt Manned Earth Orbital LM Test** Spocetroh, Astronauts, Rockets, LM, DM*.

40 **Manned Earth Orbital LM Test EVA Duration** Spacecrah, Astronauts, Rocket, LM, EVA Suit, DM*.

41 **Jt Manned Earth Orbital LM Test EVA Duration** Spocetroh, Astronauts, Rocket, LM, DM*, EVA.

42 **Unmanned lunar Pass** Spoterroh, Kicker*, Rocket.

43 **Manned lunar Pass** Spacecroh, Astronauts, Kicker*, Rockets.

44 **Jt Manned lunar Pass EOR** Spacetroh, Astronauts, Kicker*, DM*, Rockets.

M Requirements

45 **Unmanned lunar Orbital** Spacecraft, Kicker*, Rocket.

46 **Manned lunar Orbital** Spacecraft, Astronauts, Kicker*, Rocket.

47 **Jt Manned lunar Orbital EOR** Spacecraft, Astronauts, Kicker*, DM*, Rockets.

48 **Manned lunar Orbital LM Test** Spacecraft, Astronauts, LM, Kicker*, DM, Rockets.

49 **Jt Manned lunar Orbital LM Test LOR** Spocecroh, Astronauts, LM, Kickers*, DM, Rockets.

50 **Manned lunar Orbital LM Test EVA** Spacecraft, Astronauts, LM, Kicker*, DM, EVA Suit, Rockets.

51 **Jt Manned lunar Orbital LM Test EVA** Spotecrah, Astronauts, LM, Kickers*, DM, EVA Suit, Rockets.

52 **Jt Manned lunar Orbital LM Test EOR/LOR** Spacecraft, Astronauts, LM, Kicker*, DM, Rockets.

53 **Historical Manned lunar landing** Spacecraft, Astronaut, LM, Kicker* DM", LM, Rocket, EVA Suit.

54 **Direct Ascent lunar landing** Jupiter/Kvortet, Astronauts, Nova/Vultan*, EVA Suit.

55 **Jt lunar landing EOR** Spacecraft, Astronauts, LM, Kicker*, DM, EVA Suit, Rockets.

56 **Jt lunar landing LOR** Spocecroh, Astronauts, LM, Kicker*, DM, EVA Suit, Rockets.

57 **Soyuz lunar landing** Soyuz, Cosmonauts, Docking Skill, Kicker C, Rockets, EVA Suit.

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* could be required

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ΔPPENDiX Δ

Hardware Artwork

Unmanned Spacecraft (Satellites)

From left to right:

  U.S. 1-man LM
  Soviet 1-man LM
  U.S. 2-man LM
  Soviet 2-man LM
  Explorer
  Sputnik
  Ranger
  Cosmos
  Surveyor
  tuna
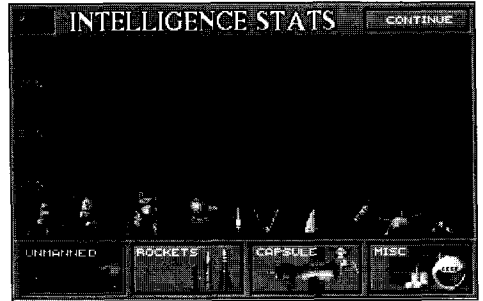
Manned Capsules and Spacecraft

From left to right:

  Mercury
  Vostok
  Gemini
  Voskhod
  Apollo
  Soyuz
  XMS-2
  Lapot
  Jupiter
  Kvortet

A-1
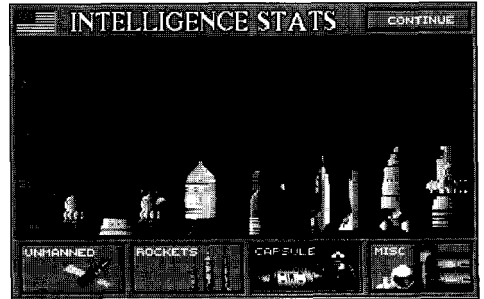
Hardware Artwork, cont.

Rockets

From left to right:

Atlas
A-series
Titan
Proton
Saturn V
N-1
Nova
Vulkan
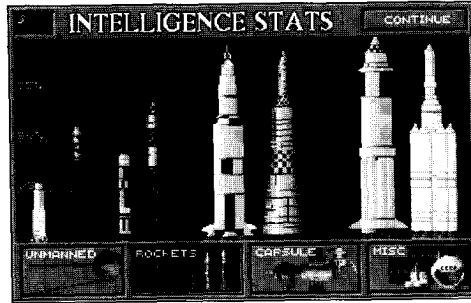
Misc. Hardware

From left to right:

U.S. EVA Suit
Soviet EVA Suit
U.S. Docking Module
Soviet Docking Module
U.S. Strap-on Booster
Soviet Strap-on Booster
U.S. Kicker A
Soviet Kicker A
U.S. Kicker B
Soviet Kicker B
Soviet Kicker C
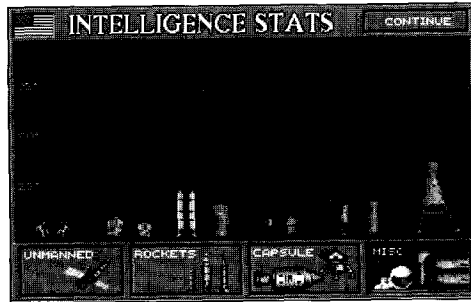
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A-3

Installation & Quick Start

INSTALLATION

Buzz Aldrin's Race Into Space requires at least 570kB of RAM free and about 16MB of Hard Disk space.

To **INSTALL** Buzz Aldrin's Race Into Space, insert the Startup Disk into drive A: (or B:) and type...

    A: (or B:) <enter>
    Install <enter>

To run Buzz after installation, type...

    C: (or appropriate Hard Drive) <enter>
    cd\buzz <enter>
    Buzz <enter>

The first time you run Buzz, it will ask you about your computer configuration. If you wish to change your configuration you will need to run Setup. To do this, type...

    cd\Buzz <enter>
    Setup <enter>

QUICK START

For a quick start, if you would like to dive into the game and experiment, you can begin the game by using the Help Box: Function One Key <F1> for explanations of each screen, the Function Two Key <F2> for keyboard commands, and the Function Three Key <F3> gives a list of space mission abbreviations. There is a Help Box available for every major screen in the game.

The entire game can be played with mouse, keyboard, or by combining the two. The left mouse button activates all buttons and buildings, the right button acts the same as the <F1> key and gives overviews of each different location at the spaceport and surrounding environs.

After the introduction, select a new game or continue a previously saved game. You can also view the game credits or exit the game.

NEED-TO-KNOWS

DURATION STEPS

Days	Duration
1-2	A
3-5	B
6-7	C
8-12	D
13-16	E
17-20	F

PENALTIES FOR SKIPPING STEPS

Penalty	Event
-3%	Orbital Satellites
-3%	Manned Sub-Orbital
-3%	Manned Orbital
-5%	Duration 'B'
-5%	Duration 'C'
-3%	Lunar Satellite Fly-by
-3%	Lunar Probe Landing
-3%	Manned Lunar Pass
-5%	Duration 'D'
-3%	Manned Lunar Orbital
-3%	LM Tests (minimum. 2)
-3%	Manned Lunar Landing

PRESTIGE POINTS

Index	Prestige Name	1st	2nd	Other	Failure
1	Orbital Satellite	12	5	1	-3
2	Lunar Flyby	5	3	2	-3
3	Mercury Flyby	5	2	2	-3
4	Venus Flyby	7	4	2	-3
5	Mars Flyby	7	4	2	-3
6	Jupiter Flyby	8	4	2	-3
7	Saturn Flyby	9	4	2	-3
8	Lunar Probe Landing	16	9	2	-5
9	Duration Level 'F'	7	7	0	0
10	Duration Level 'E'	5	5	0	0
11	Duration Level 'D'	1	1	0	0
12	Duration Level 'C'	5	5	0	0
13	Duration Level 'B'	3	3	0	0
14	One-Person Craft	3	1	0	0
15	Two-Person Craft	7	2	0	0
16	Three-Person Craft	15	5	0	0
17	Minishuttle	20	6	0	0
18	Four-Person Craft	20	6	0	0
19	Manned Orbital	12	5	1	-10
20	Manned Lunar Pass	12	5	2	-10
21	Manned Lunar Orbit	20	7	1	-10
22	Manned Lunar Landing	40	15	8	-10
23	Experimental Orbiting Lab	6	4	0	-10
24	Manned Docking	8	4	1	-3
25	Woman in Space	8	0	0	-4
26	Space Walk	8	4	1	-3
27	Manned Space Mission	15	5	0	-10

Hardware and R&D Costs

BASIC MODEL

Program	Cost	Unit	R&D	Weight	Payload Lift	Max R&D	Max Safety
Explorer	6	1	1	300	n/a	95%	98%
Sputnik	6	1	1	300	n/a	95%	98%
Ranger	24	4	3	700	n/a	90%	93%
Cosmos	24	4	3	700	n/a	90%	93%
Surveyor	30	6	4	1200	n/a	85%	88%
Luna	30	6	4	1200	n/a	85%	88%
Atlas	24	3	2	n/a	600	84%	98%
A-Series	24	3	2	n/a	600	84%	98%
Titan	60	12	4	n/a	1500	90%	98%
Proton	60	12	4	n/a	1500	90%	98%
Saturn V	84	18	6	n/a	3200	95%	98%
N-1	84	18	6	n/a	3200	95%	98%
Nova	150	30	8	n/a	4800	95%	98%
Vulkon	150	30	8	n/a	4800	95%	98%
B. Strap-On	12	3	2	n/a	1000	85%	98%
B. Stage	12	3	2	n/a	1000	85%	98%
Mercury	18	2	1	500	n/a	76%	90%
Vostok	18	2	1	500	n/a	76%	90%
Gemini	24	6	2	1200	n/a	81%	94%
Voskhod	24	6	2	1200	n/a	81%	94%
Apollo	36	12	5	1600	n/a	84%	94%
Soyuz	36	12	5	1600	n/a	84%	94%
XMS-2	60	30	7	1500	n/a	91%	94%
Lapot	60	30	7	1500	n/a	91%	94%
Jupiter	60	30	8	4300	n/a	89%	94%
Kvartet	60	30	8	4300	n/a	89%	94%
Eagle LM	30	8	2	1500	n/a	90%	94%
Duet LM	30	8	2	1500	n/a	90%	94%
Cricket	42	8	4	1000	n/a	90%	94%
L-3	42	8	4	1000	n/a	90%	94%
U.S. Kicker-A	12	3	1	300	n/a	94%	97%
Soviet Kicker-A	12	3	1	300	n/a	94%	97%
U.S. Kicker-B	18	6	2	600	n/a	94%	96%
Soviet Kicker-B	18	6	2	600	n/a	94%	96%
Soviet Kicker-C	40	20	4	2500	n/a	90%	95%
U.S. EVA Suit	18	—	1	n/a	n/a	91%	94%
Soviet EVA Suit	18	—	1	n/a	n/a	91%	94%
U.S. Docking Module	18	2	n/a	300	n/a	n/a	93%
Soviet Docking Module	18	2	n/a	300	n/a	n/a	93%

Hardware and R&D Costs

HiSTORiCAL mODEL

Program	Cost	Unit	R&D	Weight	Payload Lift	Max R&D	Max Safety
Explorer	6	1	1	200	n/a	95%	98%
Sputnik	6	1	1	400	n/a	95%	98%
Ranger	24	5	3	700	n/a	90%	93%
Cosmos	20	3	3	1000	n/a	88%	93%
Surveyor	30	7	4	1200	n/a	85%	88%
Luna	26	6	4	1500	n/a	85%	88%
Atlas	26	3	2	n/a	500	87%	98%
A-Series	20	3	2	n/a	800	85%	98%
Titan	60	12	4	n/a	1200	91%	98%
Proton	60	12	4	n/a	1900	90%	98%
Saturn V	90	18	6	n/a	3500	95%	98%
N-1	84	18	7	n/a	3900	93%	98%
Nova	150	30	8	n/a	4800	94%	98%
Vulkon	150	30	8	n/a	5500	94%	98%
B. Strap-On	18	4	2	n/a	800	85%	98%
B. Stage	15	4	2	n/a	1200	87%	98%
Mercury	20	3	1	500	n/a	78%	92%
Vostok	18	3	1	700	n/a	76%	92%
Gemini	30	7	2	1200	n/a	83%	94%
Voskhod	24	6	2	1400	n/a	80%	92%
Apollo	40	14	5	1700	n/a	89%	94%
Soyuz	36	12	5	1900	n/a	85%	4%
XMS-2	55	30	7	1400	n/a	91%	94%
Lapot	65	30	7	1800	n/a	87%	94%
Jupiter	65	30	8	4600	n/a	89%	94%
Kvartet	60	30	9	5300	n/a	89%	94%
Eagle LM	30	8	2	1500	n/a	91%	94%
Duet LM	35	8	2	1700	n/a	90%	94%
Cricket	42	9	4	1100	n/a	90%	94%
L-3	48	9	4	1500	n/a	89%	94%
U.S. Kicker-A	12	3	1	300	n/a	92%	97%
Soviet Kicker-A	12	3	1	500	n/a	91%	95%
U.S. Kicker-B	18	6	2	700	n/a	94%	97%
Soviet Kicker-B	18	6	2	700	n/a	91%	95%
Soviet Kicker-C	40	20	4	3000	n/a	90%	94%
U.S. EVA Suit	18	—	1	n/a	n/a	91%	94%
Soviet EVA Suit	18	—	1	n/a	n/a	91%	94%
U.S. Docking Module	18	3	n/a	300	n/a	n/a	93%
Soviet Docking Module	15	2	n/a	300	n/a	n/a	94%

Keyboard Commands

ENTER OR ESC WiLL EXiT mOST SCREENS

SPACEPORT (MAIN SCREEN)
Enter — Select Highlighted Item
Up/Dn — Highlight Next/Previous Item
A — Administration
B — Basic Training
C — Mission Control
E — End Turn
I — Intelligence
M — Museum
P — Presidential/Politburo
Q — Quit
R — Research & Development Review
T — Training Complex
V — VAB/VIB

PREFERENCES
S — Sound on/off
M — Music on/off
E — Editing Roster
A — Animation on/off
Space — Game Model & Astronaut Roster
P — Player Selection
G — Game Level
N — Name (Enter to Complete)
H — Human/Computer
C — Country (U.S./USSR)
L — Astronaut Level

BUDGET OFFICE
U — Unmanned Spending
R — Rocket Spending
C — Capsule Spending
M — Miscellaneous Spending

BASIC & ADVANCED TRAINING
Up/Dn — Move Up/Down One Crewman
W — Withdraw from Training

ASTRONAUT COMPLEX
Up/Dn — Move Up/Down One Crewman
Left — Transfer Crew
Right — Visit Facility
0-9 — Select Program to Transfer Into

SPACECRAFT ASSIGNMENT
Esc — Cancel
1 — One Person Capsule
2 — Two Person Capsule
3 — Three Person Capsule
4 — Three Person Mini-Shuttle
5 — Four Person Capsule

ASTRONAUT ROSTER
U — U.S. Side
S — Soviet Side
Up/Dn — Move Up/Down One Crewman
Space — Edit Crewman
C — Edit Capsule Pilot Skill
L — Edit LM Pilot Skill
E — Edit EVA Skill
D — Edit Docking Skill
N — Edit Endurance
+/− — Increase/Decrease Skill Value
Enter — Exit from Editing a Particular Skill

ASTRONAUT HISTORY
L/R — Step Left/Right
Hm/Ed — Jump to Start/End
Up/Dn — Select Next/Previous Mission

FLIGHT CREW ASSIGNMENT for Future Missions
Enter — Select/Assign
Esc — Cancel/Exit
1-8 — Select Crew No. 1-8
P — Make Primary
B — Make Backup

FLIGHT CREW RECRUITING
R — Select Recruit
D — Dismiss Recruit
Left — Dismiss Roster
Right — Recruit Roster
Up/Dn — Scan Up/Down List

FUTURE MISSION PLANNING
Enter — Select Mission and Exit
Esc — Reset All Selections
Up/Dn — Go to Next/Previous Mission
1 — Manned/Unmanned/Duration
2 — Docking
3 — EVA
4 — LM
5 — Joint Mission
Space — Draw Mission Steps
A-Z — Mission Step Name
Shift# — Locks Mission Type (e.g., Shift-3 locks EVA)

HARDWARE EFFICIENCY
U — Unmanned Programs
R — Rocket Programs
C — Capsule/Manned Programs
M — Miscellaneous Programs
T — Efficiency/Prestige Statistics

HARDWARE PURCHASE
U — Unmanned Select
R — Rocket Select
C — Capsule Select
M — Misc. Select
L/R — Cycle Left/Right
V — Visit R&D Building
P — Purchase Hardware

HOSPITAL & CEMETERY
Up/Dn — Select Next/Previous Crewman

INTELLIGENCE LIBRARY
Up/Dn — Select Earlier/Later Briefing

INTELLIGENCE STATISTICS
U — Unmanned Programs
R — Rocket Programs
C — Capsule/Manned Programs
M — Miscellaneous Programs

LAUNCH FACILITY
S — Scrub Mission
F — Fix Launch Pad

SATELLITE PROGRAMS
L/R — Int. Satellites Left

MANNED PROGRAMS
Up/Dn — Move Up/Down One Crewman
A — Assign Crew
B — Break Crew
C — Select Flight Crew
S — Show Skills
1-4 — Show Compatibility and Morale

MISSION CONTROL
1-3 — Month Toggle (Pad A)
Q — Downgrade (Pad A)
4 - 6 — Month Toggle (Pad B)
R — Downgrade (Pad B)
7-9 — Month Toggle (Pad C)
U — Downgrade (Pad C)

MISSION HISTORY
L/R — Step Left/Right
Hm/Ed — Jump to Start/End
1-3 — View Mission (Enter to Return)
R — Replay Mission (From View Mission)

PAD SELECTION, FUTURE MISSIONS & VAB/VIB
A — Pad A Select
B — Pad B Select
C — Pad C Select

PRESTIGE ORDER
Up/Dn — Select Next/Previous

RESEARCH & DEVELOPMENT
U — Unmanned Select
R — Rocket Select
C — Capsule Select
M — Misc. Select
L/R — Select Hardware Unit
V — Visit Purchase Tunnel
0-5 — 0-5 Engineer Teams
S — To Research Program

STATISTICS
D — Director Ranking
0 — Winning Space History
1 — Winning Museum Records
2 — Winning Prestige Order
3 — Winning Hardware Efficiency
4 — Winning Astronaut History
If Human vs. Human
5 — Losing Space History
6 — Losing Museum Records
7 — Losing Prestige Order
8 — Losing Hardware Efficiency
9 — Losing Astronaut History

TIME CAPSULE
L — Load Game
S — Save Game
D — Delete Game
P — Play Game
Q — Quit Game
Up/Dn — Select Game Up/Dn
Y — Yes
N/Esc — Cancel

VAB/VIB PAD SELECTION
A — Pad A Select
B — Pad B Select
C — Pad C Select

VAB/VIB VEHICLE ASSEMBLY
Enter — Continue/Assign
S — Scrub
R — Rocket
P — Payload/Primary
A — Auto Purchase Hardware

**VIEWING STAND**
L/R — Next/Previous Message

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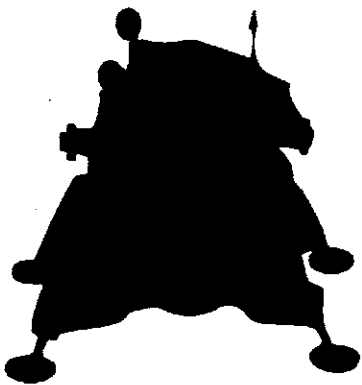
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Mission Descriptions

0   None

1   Orbital Satellite—Orbital Satellite, Rocket.

2   Manned Sub-orbital—Spacecraft, Astronaut, Rocket

3   Unmanned Sub-orbital—Spacecraft, Rocket

4   Manned Orbital—Spacecraft, Astronaut, Rocket

5   Unmanned Orbital—Spacecraft, Rocket

6   Manned Orbital EVA—Spacecraft Astronaut, Rocket, EVA Suit

7   Lunar Flyby—Int'py Satellite, ≥Titan/Proton Rocket.

8   Lunar Probe Landing—Lunar Probe, ≥Titan/Proton Rocket.

9   Venus Flyby—Int'py Satellite, ≥Titan/Proton Rocket.

10   Mars Flyby—Int'py Satellite, ≥Titan/Proton Rocket.

11   Mercury Flyby—Int'py Satellite, ≥Titan/Proton Rocket.

12   Jupiter Flyby—Int'py Satellite, ≥Titan/Proton Rocket.

13   Saturn Flyby—Int'py Satellite, ≥Titan/Proton Rocket.

14   Manned Orbital Docking—Spacecraft, Astronauts, Rocket, DM.

15   Unmanned Orbital Docking—Spacecraft, Rocket, DM.

16   Jt Manned Orbital Docking—Spacecraft, Astronauts Rockets, DM.

17   Manned Orbital Docking (orbit)—Spacecraft, Astronauts, Rocket, DM is in Orbit.

18   Jt Unmanned Docking—Spacecraft, Rockets, DM.

19   Jt Manned Orbitals Docking— Spacecraft, Astronauts, Rockets, DM.

20   Manned Orbital Docking EVA—Spacecraft, Astronauts, Rocket, EVA Suit, DM.

21   Jt Manned Orbital Docking EVA—Spacecraft, Astronauts, Rockets, EVA Suit, DM.

22   Jt Manned Orbitals Docking EVA—Spacecraft, Astronauts, Rockets, EVA Suit, DM.

23   Jt Manned Orbitals Docking Jt EVA—Spacecraft, Astronauts, Rockets, EVA Suit, DM.

24   Manned Orbital Docking (orbit) EVA—Spacecraft, Astronauts, Rockets, EVA Suit, DM.

25   Manned Orbital Duration—Spacecraft, Astronaut, Rocket.

26   Manned Orbital EVA Duration—Spacecraft, Astronaut, Rocket.

27   Manned Orbital Docking Duration—Spacecraft, Astronauts, Rocket, DM.

28   Manned Orbital Docking (orbit) Duration—Spacecraft, Astronauts, Rocket.

29   Manned Orbital Docking (orbit) EVA Duration—Spacecraft, Astronauts, Rocket, EVA Suit.

30   Jt Manned Orbitals EVA Docking Duration—Spacecraft, Astronauts, Rockets, EVA Suit, DM

31   Jt Manned Orbital Docking Duration—Spacecraft, Astronauts, Rockets, DM.

32   Jt Manned Orbiting Lab— Spacecraft, Astronauts, Rockets, DM.

33   Manned Orbital Docking EVA Duration—Spacecraft, Astronauts, Rocket, EVA Suit, DM.

34   Jt Manned Orbital Docking EVA Duration—Spacecraft, Astronauts, Rockets, EVA Suit, DM.

35   Jt Manned Orbitals Docking EVA Duration—Spacecraft, Astronauts, Rockets, EVA Suit, DM.

36   Jt Manned Orbiting Lab EVA— Spacecraft, Astronauts, Rockets, EVA Suit, DM.

37   Jt Manned Orbitals Docking Duration—Spacecraft, Astronauts, Rockers, DM.

38   Manned Earth Orbital LM Test—Spacecraft, Astronauts, Rocket, LM, (DM*).

39   Jt Manned Earth Orbital LM Test—Spacecraft, Astronauts, Rockets, LM, (DM*).

40   Manned Earth Orbital LM Test EVA Duration—Spacecraft, Astronauts, Rocket, LM, EVA Suit (DM*).

41   Jt Manned Earth Orbital LM Test EVA Duration—Spacecraft, Astronauts, Rocket, LM, (DM*), EVA.

42   Unmanned Lunar Pass—Spacecraft, (Kicker*), Rocket.

43   Manned Lunar Pass—Spacecraft, Astronauts, (Kicker*), Rockets.

44   Jt Manned Lunar Pass EOR—Spacecraft, Astronauts, (Kicker*), (DM), Rockets.

45   Unmanned Lunar Orbital—Spacecraft, (Kicker*), Rocket.

46   Manned Lunar Orbital—Spacecraft, Astronauts, (Kicker*), Rocket.

47   Jt Manned Lunar Orbital EOR—Spacecraft, Astronauts, (Kicker*), (DM), Rockets.

48   Manned Lunar Orbital LM Test—Spacecraft, Astronauts, LM, (Kicker*), DM, Rockets.

49   Jt Manned Lunar Orbital LM Test LOR—Spacecraft, Astronauts, LM, (Kickers*), DM, Rockets.

50   Manned Lunar Orbital LM Test EVA—Spacecraft, Astronauts, LM, (Kicker*), DM, EVA Suit, Rockets.

51   Jt Manned Lunar Orbital LM Test EVA—Spacecraft, Astronauts, LM, (Kickers*), DM, EVA Suit, Rockets.

52   Jt Manned Lunar Orbital LM Test EOR/LOR— Spacecraft, Astronauts, LM, (Kickers*), DM, Rockets.

53   Historical Manned Lunar Landing—Spacecraft, Astronaut, LM, (Kicker*) DM*, LM, Rocket, EVA Suit.

54   Direct Lunar Ascent Landing—Jupiter/Kvartet, Astronauts, Nova*Vulcan, EVA Suit.

55   Jt Lunar Landing EOR—Spacecraft, Astronauts, LM, (Kicker*), DM, EVA Suit, Rockets.

56   Jt Lunar Landing LOR—Spacecraft, Astronauts, LM, (Kicker*), DM, EVA Suit, Rockets.

57   Soyuz Lunar Landing—Soyuz, Cosmonauts, Docking Skill, Kicker C, Rockets, EVA Suit.

* could be required