SPACE SHUTTLE ADVENTURE

MODULE I

by Paul Kindl

Join the crew of the Space Shuttle as they prepare to take the next step into the world of space travel. Take control of the world's first reusable spaceship, the *Space Shuttle*, and in an accurate full graphics simulation, place yourself in the cockpit. Pilot the *Space Shuttle* through take-off with booster stage separations, orbit, descent down the glide path and landing to touchdown complete with a chase plane and scrolling runway visible through the cockpit windscreen. You assume command throughout all phases of the mission aided by complete instrumentation.

You will receive a rating and a point score depending on the success of your flight and the command level you select. There are 5 different command levels available from *Novice* through *Commander,* each having its own level of difficulty and complexity. A complete mission is possible or in the *Training Mission Mode*, separate parts of the full mission may be selected and flown. A full 3 axis *Automatic Pilot* is available at all levels, and *T.M.S. (Thrust Management System)* controls your throttles.

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INSTRUMENTS

The first step before flight is to familiarize yourself with the cockpit instruments. Refer to the cockpit view on the inside cover as each functional instrument is covered below.

1. **Computer C.R.T.** ***(Cathode Rae Tube)*** - This display provides you, the pilot, with a view of the *Space Shuttles* exterior during launch and orbit. Using forward looking radar when landing, the display gives you a visual presentation of the runway and surrounding terrain until direct visual contact is possible after breaking through a cloud cover *(approx. 8000 ft.)*

2. **Time** - This clock *(slightly faster than normal)* shows the time spent in a particular part of the mission.

3. Landing Gear - 3 indicators shows the status of the main and nose landing gear. As the gear is lowered, the white rectangles change their pattern, accompanied by the sounds of the hydraulic system. The landing gear is controlled by the *Automatic Pilot.*

4. ADI - Attitude Direction Indicator. The ADI is probably the most complex and misunderstood instrument in the cockpit of an aircraft. The *Space Shuttle* is on the proper course when the crossbars are centered.

The horizontal bar of the ADI represents the horizon *(pitch)*. When this bar is down, the nose of the Shuttle is *"up"* and to correct this requires that the joystick be pushed forward - nose *"down"*. When the bar is up, the nose of the Shuttle is *"down"*, and you must pull back on the joystick to bring the nose back *"up"*.

The vertical bar of the ADI represents the proper heading that the Shuttle should be following. When the bar is to the left, you have drifted to the right. To correct this requires that the joystick be pushed to the left. If the bar is to the right, correct by pushing the joystick to the right.

An easy way to remember these movements is to move the joystick to the opposite of the bar for pitch corrections, and follow the bar for heading correction. With a minimum of practice you will quickly become accustomed to these movements.

5. Range - This indicator shows the distance to go before completing a particular portion of the mission. The range indicator reads 000 at lift-off.

6. Throttle Indicator - In the lift-off mode, this indicator shows the power level of the 3 engines *(controlled automatically by Thrust Management System.)* In the descent and landing modes it shows the relative airspeed of the shuttle.

7. Altitude Indicator - This instrument provides the altitude in miles and breaks the reading down to 1/100 miles during the critical minutes before touchdown.

8. Indicator Panel - This panel contains 4 system status instruments with lights to the right of each.

S.R.B. - The Solid Rocket Booster indicator shows booster stage separation.

M.F.T. - The Main Fuel Tank indicator advises of separation.

A/P - *Automatic Pilot* engaged. This indicator flashes whenever the autopilot is engaged.

MSG - The Message Indicator flashes when one of the above indicators of the System Status Message Center changes. The MSG automatically resets to off after a short time delay.

9. System Status Message Center - This indicator provides updates of current flight status with messages and warnings such as *On Target, Autopilot Engaged, Pitch Error, Roll Error, SRB Released, MFT Released, Red Alert* and *Beacon Locked,* etc.

10. - Automatic Pilot ***(not shown)*** - To engage the *Automatic Pilot,* press and hold for approximately 2 seconds the red trigger button on your joystick. When the *Automatic Pilot* is used, your flight path is corrected and the Space Shuttle is *"on course". (see scoring for penalty points for using the Automatic Pilot.)*

PREPARING FOR FLIGHT

When you boot-up *Space Shuttle Adventure,* the *Primary Menu* will appear on your screen. This first menu gives you the option of proceeding on the *Main Voyage* or the *Flight Training Simulator.* The *Main Voyage* is a complete flight, with lift-off, orbit, descent and landing to touchdown. The *Flight Training Simulator* gives you the ability to practice any portion of the main flight over and over again without flying an entire mission.

For now, let us assume that we are embarking on a *Main Voyage,* press [A] from the *Primary Menu.*

You are now in the *Flight Log Menu.*

If this is your first flight, press [B] to create a new flight. The *Create Flight Menu* will be displayed on the screen.

Remove your main program diskette and insert a blank formatted diskette into the drive. If you do not have a formatted blank diskette, you can format one now by pressing [1]. Press [2] with a formatted diskette in the drive to write your flight log. When steps 1 and 2 have been completed, press [3] to return to the *Primary Menu. (Throughout the program, you are given many opportunities to return to the Primary Menu.)*

From the *Primary Menu,* press [A] once again. Now that we have created a flight log, press [1] to update the log. As per the instructions on the screen, remove your program diskette and insert the flight log diskette into the drive.

Enter the data into the flight log structure as prompted on the screen. The flight number must be less than 1000, your name should be less than 25 characters long, and the date should be written as 6/28/82 *(for June 28, 1982 for example.)* Press [*Start*] when complete to continue onto selecting your mission level.

The *Mission Level* screen now appears and you must input a level of difficulty from 1 *(easiest)* to 5 *(most difficult)*. There are approximately 15 variables that change when you select different levels of difficulty ranging from steering ability to crosswinds when landing and everything in between. After picking your level, insert the main program diskette, and *Good Luck!*

FLIGHT SIMULATOR TRAINING

In this mode, *(select [B] from the Primary Menu,)* you need only select the difficulty level and the portion of the flight you wish to practice from the *Training Flight Menu.*

Select numbers 1 to 3 for the different phases of the mission, or select 4 to return to the *Primary Menu.* You will be guided by easy to follow screen prompts and can easily repeat any phase of the flight over and over again.

LIFT-OFF NOTES

You are poised on the launch pad, staring into your instrument panel and out of the Space Shuttle windscreen at the heavens. As the countdown proceeds, be prepared to guide the roll and pitch of the shuttle through lift-off with the joystick. *(See ADI for steering instruction.)*

At the proper altitude during lift-off, your main boosters and external fuel tanks are jetisoned, and can be seen in the *Computer C.R.T.* display on the instrument panel. After you have reached orbital altitude, your task is to lock on to a radar beacon for a perfect orbit. This is not an easy task, and is not required to achieve a satisfactory orbit.

After achieving orbit in the *Main Voyage,* you are instructed to insert your flight log diskette to record you score. *(This is not necessary if in the Flight Training Simulator mode.)* After that, insert an *"Adventure Disk"* or continue on with the main voyage. See the *Adventure Disk* section for more information.

DESCENT NOTES

The descent is the longest and most difficult portion of the flight. Since the day is very overcast *(ceiling about 8000 ft.)* you will have to rely completely on instrumentation to break out of orbit and descend. You will not be on radar/visual approach until about 100 miles from the landing site. *(Users with 40K or 48K computers are treated to an extra screen display in this mode.)*

After allowing the Shuttle's computer to compute the descent from orbit, carefully guide the shuttle down the glide path, using the pitch portion of the A.D.I. and on-board warning system as aids. In this portion of the mission, you need only control the pitch of the shuttle *(no easy task)* as the roll axis is controlled by the Automatic Pilot.

LANDING NOTES

This is the most climactic and exciting portion of the flight. Without giving any of the thrills away, do not become nervous if a NASA chase plane zooms overhead and into view, or if the A.D.I. is centered but the runway is off to one side...remember, there can be crosswinds.

Fly the shuttle very carefully and remember that as your speed decreases the effect of your steering lessens. Small errors can be very dangerous. The *Automatic Pilot* is available *(as in all phases of the mission)* to assist you when needed.

SCORING

Points are accumulated through accurate steering and as little use of the *Automatic Pilot* as possible. Every time you engage the *Automatic Pilot,* you will lose approximately 20% of your total points. 500 bonus points are awarded for locking onto the radar beacon after lift-off and orbit are achieved. After a complete flight, your score is recorded, displayed, and a rating is assigned.

ADVENTURE DISKS

Future releases from *Swiftware, Inc.* will include *Space Shuttle Series Adventure Disks* that continue the mission after achieving orbit. Constructing a space station requiring many trips *(up to 20)* into space is now in development. Other planned *Adventure Disks* include realistic full graphic war-games in space with killer sattelites and laser weapons. All the *Swiftware Space Shuttle Series Adventure Disks* will be as realisic and accurate as possible, and require the use of this primary program, *Module I.*

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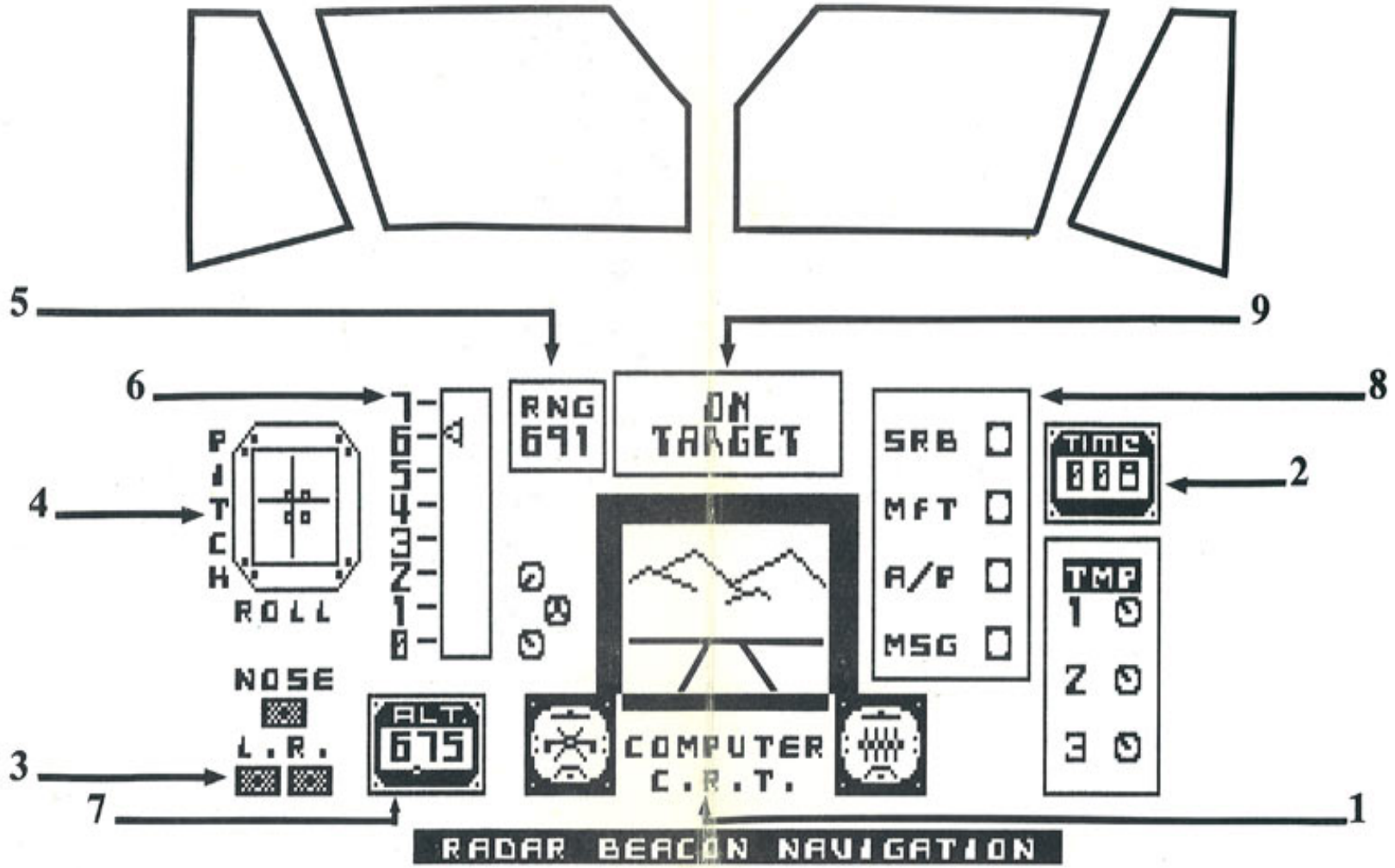

1 - COMPUTER CRT
2 - CLOCK
3 - LANDING GEAR
4 - ADI
5 - RANGE
6 - THROTTLE
7 - ALTIMETER
8 - INDICATOR PANEL
9 - MESSAGE CENTER