Starfleet Operations Manual
Model RD-X84 Navigation System

This manual describes how to operate the RD-X84 Starfleet standard navigation system. Understanding how to operate this system is crucial for any Starfleet officer.

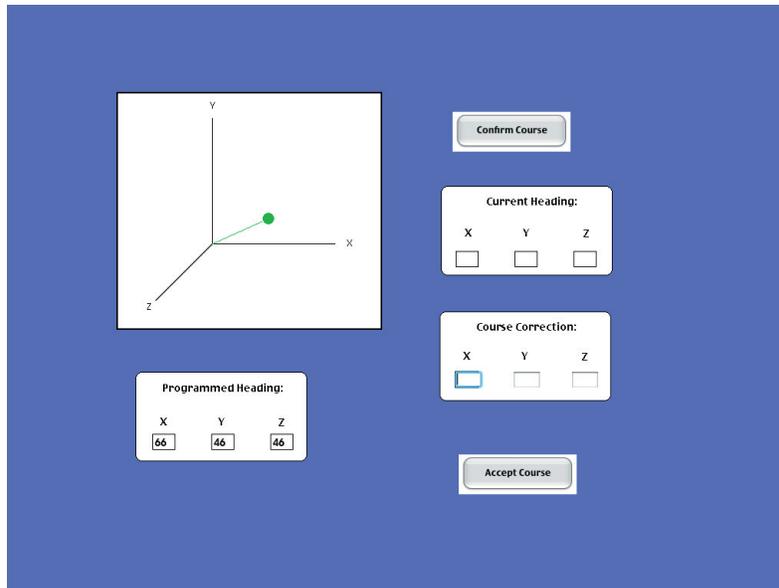Figure 1 below shows the navigation console.

Figure 1. Navigation console

There are three essential steps involved in operating the navigation system:

1. Determine the ship's course heading relative to the programmed heading.
2. Compute course difference if current heading deviates from programmed heading.
3. Enter course correction into the navigation system.

Each step will be further described in the following pages of the manual.

Step 1. Determine Ship's Course Heading

Overview of steps:

      1. Click 'Confirm Course'

During space flight, variations in the atmosphere (i.e., solar winds, stellar dust fields, etc.) can influence a starship's projected course. Thus, it may be necessary to engage in course correction.

The first step of correcting a ship's course is to determine its current heading. This is done by clicking on the 'Confirm Course' button on the control panel, as shown in Figure 2.

Figure 2. 'Confirm Course'.

Step 2. Compute Difference

Overview of steps:

    1. Compare course heading in 'Programmed Heading' with course heading in 'Current Heading'
    2. Enter course correction in the 'Course Correction' text boxes

If the course identified in the 'Course Heading' matches the 'Programmed Heading', enter '0' on the X, Y, and Z fields by using the numeric keypad.

If the course idenfitied in 'Current Heading' does NOT match the 'Programmed Heading', you must compute the difference between the intended (programmed) heading course and the actual (current) course. To compute the difference, subtract the 'Current Heading' values from the 'Programmed Heading' values. For example, if the 'Programmed Heading' is [45, 49, 40], and the 'Current Heading' is [68, 59, 93], you would calculate the course correction as follows:

    Axis: Programmed - Current
    X: 45 - 68 = -23
    Y: 49 - 59 = -10
    Z: 40 - 93 = -53

You would thus enter [-23, -20, -53] in the 'Course Correction' field. Note that if 'Programmed Heading' for a value is less than the 'Current Heading', the 'Course Correction' value will be negative (you need to move "down" in space to reach the correct heading).

Figures 3-5 illustrate this process.

Note: The 'Current Heading' + the 'Course Correction' should equal the 'Programmed Heading'

Figures 3-5. 'Programmed Heading' - 'Current Heading' = 'Course Correction'

Step 3. Enter Course Correction

Overview of steps:

    1. Click 'Accept Course'

In order to accept the course correction into the navigation computer, click the 'Accept Course' button, as shown in Figure 6.

Figure 6. 'Accept Course' button

Once this is done, the entered correction is processed by the navigation computer, correcting the ship's course.

Review. Summary of Steps

Overview of steps:

Step 1. Determine Ship's Course Heading
　　　　1. Click 'Confirm Course'

Step 2. Compute Difference from the Programmed Heading
　　　　1. Compare course heading in 'Programmed Heading' with course heading
　　　　　 in 'Current Heading'
　　　　2. Calculate difference between 'Programmed Heading' and 'Current
　　　　　 Heading' by subtracting 'Current Heading' from 'Programmed Heading'
　　　　　 (Value = Programmed - Current)
　　　　3. Enter course correction in 'Course Correction' text boxes

Step 3. Enter course correction into the navigation system
　　　　1. Click 'Accept Course'

Return to Main Control.

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                    ┌───────┐
                    │ Start │
                    └───┬───┘
                        │
                        ▼
              ┌───────────────────┐
              │ Determine Ship's  │
              │     Heading       │
              └─────────┬─────────┘
                        │
                        ▼
              ┌───────────────────┐
              │     Compute       │
              │    Difference     │
              └───────────────────┘
                        ▲
       IF incorrect, recalculate correction
                        │
              ┌───────────────────┐
              │ Accept Correction │
              └─────────┬─────────┘
                        │
        IF correct, proceed to next task
                        │
                        ▼
                    ┌───────┐
                    │ Next  │
                    │ Task  │
                    └───────┘
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