

WOMBAT-FC

Version 1.3

Candidate's Manual

Electronic Edition

A note about this electronic edition of the Candidate's Manual.

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Familiarization with WOMBAT-FC Candidate's Manual

This manual should be read attentively by the candidate before commencing the practice period that precedes WOMBAT-FC.

For software version FC 1.3 only.

IMPORTANT NOTICE:

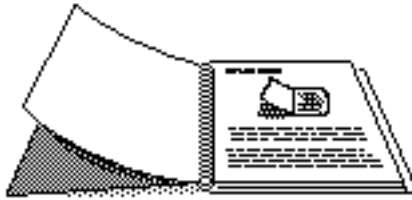
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WOMBAT-FC is a computerized test that measures your ability to manage a complex system by presenting situations and evaluating how you react to those situations.

Before you take the test, you will sit down at the WOMBAT computer and learn without any scoring how each of the different parts of the computer and the test will work together as a complex system.

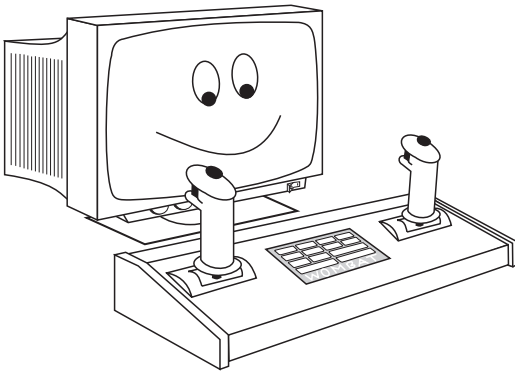


This manual is your introduction to the complete instructions that will precede the WOMBAT-FC test. It does not replace those pretest instructions. Its purpose is to familiarize you with the basic vocabulary, the structure, and the control operations before you sit down at the WOMBAT computer and begin those instructions.

If you need more explanation about WOMBAT, be sure to ask your supervisor **before the test begins**.

The first thing WOMBAT will ask you to do is to enter your reference number.

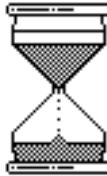
Your supervisor will guide you in these steps, giving you the reference number and other information you have to provide. WOMBAT needs this information because it keeps track of everyone who has taken the test. Your supervisor will also be able to retrieve your score from WOMBAT's database for further evaluating.



The WOMBAT console and display.

After identifying yourself to WOMBAT, you will go through some instruction pages that are reviews of what you will read in this manual. You will alternate between instruction pages and practice sessions. Each practice session will cover one aspect of WOMBAT at a time.

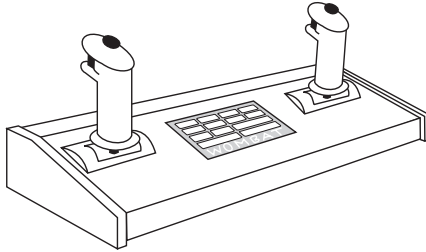
No scores will be recorded during the instructions period. Only in the test will all the different tasks be simultaneously available and scored.



Your test administrator will tell you about the maximum time allowed for the instructions period. In the lower right corner of every exercise/instruction phase you will see a display of the time you have left before the test begins. As long as there is some time remaining, you can go to any instructions page you wish to review. Once the instructions period is over, you will be committed to go through the complete test. You will not be able to go back to the instructions during the test, so you should use the time allowed in the exercise/instruction phases wisely.

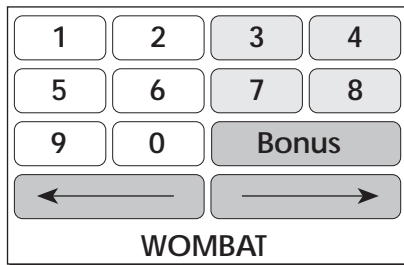
If you need to use the washroom, make sure you come back **before** the instructions period is over, otherwise the test will begin without you. Once started, the test cannot be stopped.

The WOMBAT console includes two joysticks and a special keypad.



The WOMBAT console

The keypad is very sensitive. To indicate it has received a signal from the candidate, the computer will produce a sound ("click") each time a button is depressed on the console, and again when the button is released. On the WOMBAT's display, each functional button will be indicated by its legend within a colored rectangular box.



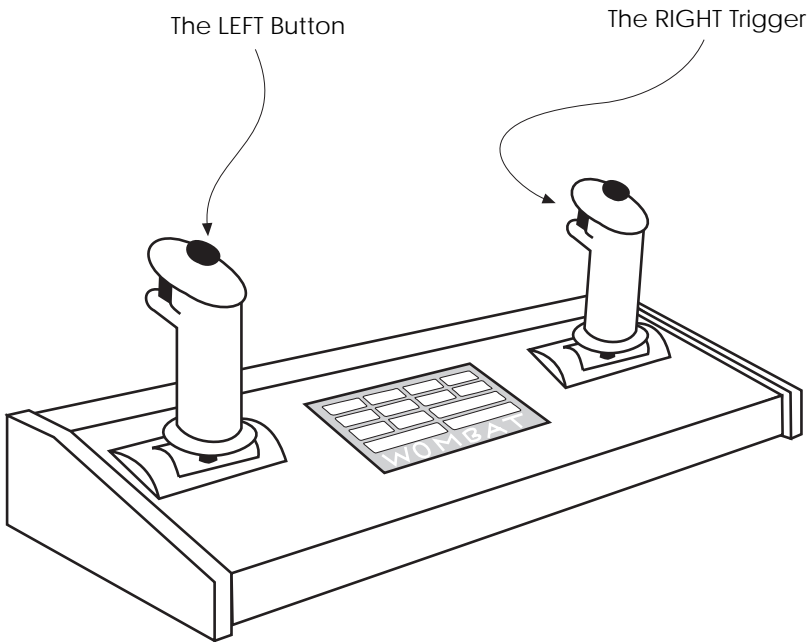
The WOMBAT keypad

On the WOMBAT console, each joystick includes a spring-loaded red trigger switch. Only the **RIGHT trigger** switch is used in WOMBAT. Its function is indicated on the graphics display screen by the word Trigger surrounded by a rectangle. You will learn the function of the Trigger and when to use it later.

Trigger

Each control stick also has a round red button on top. You will use only the **LEFT button** during the WOMBAT test.

In the practice sessions, you will be given an opportunity to use each of these devices by itself to control part of the test.



The WOMBAT test measures your ability to recognize situations and react to them (your situational awareness) as you manage a complex system. The more situational awareness you have and use, the more points you can score.

The complex system you will have to manage has four different tasks that contribute to the total score (the Tracking Task and three Bonus Tasks: Figure Rotation, Quadrant Location, and Digit Canceling.) Your performance will be measured on each of these tasks; the better your performance the more points you can earn from that task. In addition, each task has a value (or "worth"), which changes during the test; the higher the worth the more points you can earn from that task with the same performance. Throughout the test, watch the indicators that tell you the present worth of each task.

Earning many points requires good performance on each of the tasks and good choices about which task to perform at any given time, because those choices can have effects (good or bad) on the worths of tasks to come. **This is the secret of the test.**

The first task you will learn about is the Tracking Task. Later, you will learn about the three Bonus Tasks.

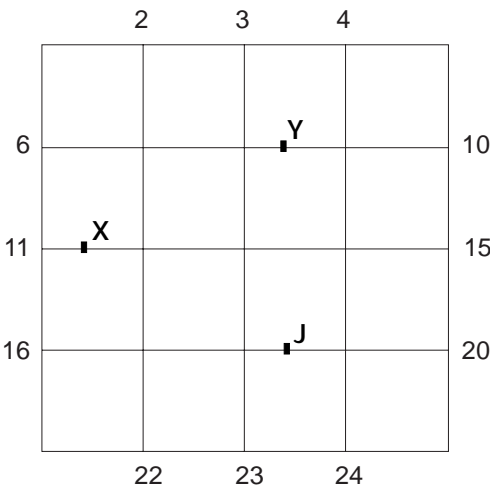
In the Tracking Task a variable number of targets move along individually assigned routes on a 5-by-5 lined grid, as illustrated below.

Normally the targets are tracked automatically by the computer in a tracking mode called "AUTOTRACK." This allows you to select and work on one or another of the three Bonus Tasks on which you can score additional points while the AUTOTRACK mode does the Tracking Task.

However, the AUTOTRACK mode is prone to failure and occasionally loses track of a target. When this happens, the target continues along its assigned route but is no longer visible on the screen. Your job is to notice that a target is "missing," remember where the missing target should be, "illuminate" it with a cursor, and return it to AUTOTRACK.

The procedures by which you will do all these things will be explained further in the following pages, and you will have time to practice all of them during the exercise phase prior to starting the WOMBAT-FC test.

Just remember: the Tracking Task is your primary responsibility in the sense that you must monitor it throughout the entire test and attend to it frequently. The number of targets on the screen will vary depending in part on how many you can keep track of without long periods in which one is missing.



Shown left is the 5-by-5 lined grid over which targets and their associated identifying letters follow assigned routes. Individual targets can enter and leave the grid only at the numbered intersections.

The Tracking Task...

The Targets

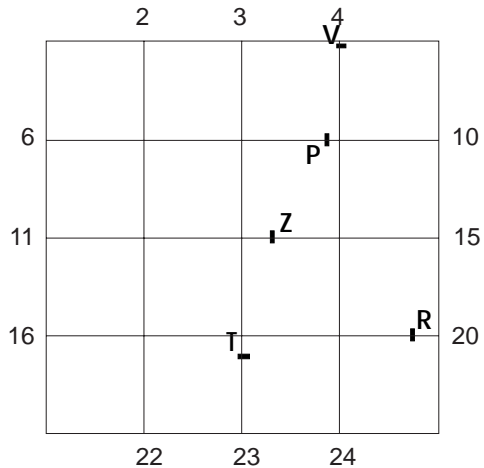
In the Tracking Task, each target is identified by a single letter of the alphabet. There are "active" targets and "inactive" targets.

Inactive targets have not yet entered the grid, but each, in turn, will become active when it does.

Active targets are displayed in one of three bright colors, and the letters are the same colors as their associated targets. Each active target (and its identifying letter) moves along a specified route assigned by the computer. Once assigned, the route can not be changed. Targets enter the grid at any of the 12 numbered intersections and will leave the grid at another of the numbered intersections.

When one target leaves the grid, it can be replaced by another target entering at a different intersection. The number of targets on the screen at any given time will depend in part on how well you keep track of targets and how quickly you reacquire missing targets. The number of targets entering the grid will increase until you can handle no more and will decrease if you do not reacquire missing targets quickly.

E
C
M
V
R
Z
P
T

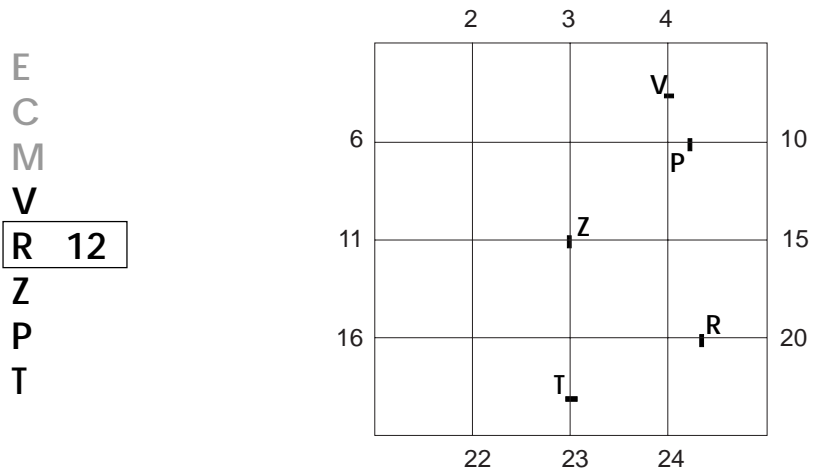


On the WOMBAT-FC display, you will see the 5-by-5 lined grid and, on the left edge, the list of inactive and active targets. E, C and M represent INACTIVE targets and are displayed in gray. The letters V, R, Z, P, and T represent ACTIVE targets, and each is displayed in one of three bright colors, both in the list and on the grid.

Both active and inactive targets are listed on the left side of the display in a column of identifying letters. The first three letters on top represent the inactive targets waiting for activation. Each of these letters is gray. Just below are colored letters that match the active targets on the grid in color and number.

A white rectangle frames one of the letters in the column. When you push forward on the left stick, the rectangle will move up the column. When you pull the left stick towards you, the rectangle will move down the column.

There are two reasons why you will want to select a target: to view its assigned route and to reacquire a missing target. For now, remember that the left control stick is used to **select a target** in the list of targets.

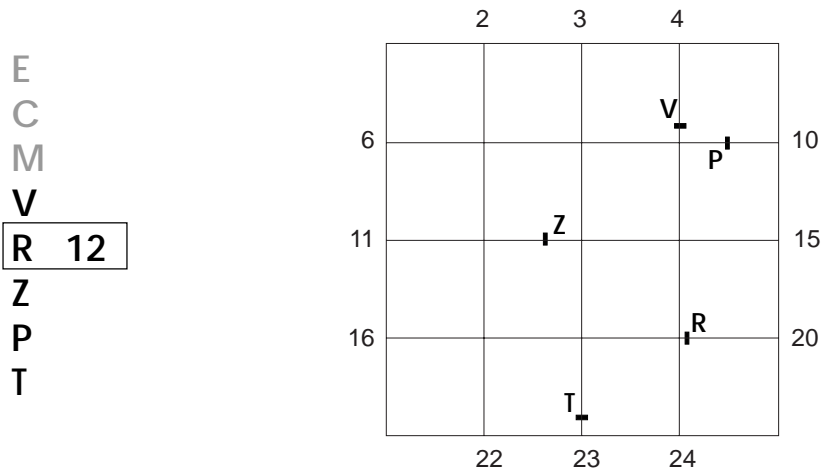


To select a target, the rectangle is moved up and down the column of letters to the left of the grid by displacing the left-hand control stick fore and aft, respectively. In the illustration above, the active letter "R" is being selected.

Each of the 25 places where the grid lines intersect is called a "waypoint."

"**Target Activation**" means that the next available target goes from the inactive state to the active state. Upon activation, the third gray letter you see in the list of target letters receives a color assignment. A target identified by this letter then begins its journey entering the grid at one of the 12 numbered waypoints at the edge of the grid.

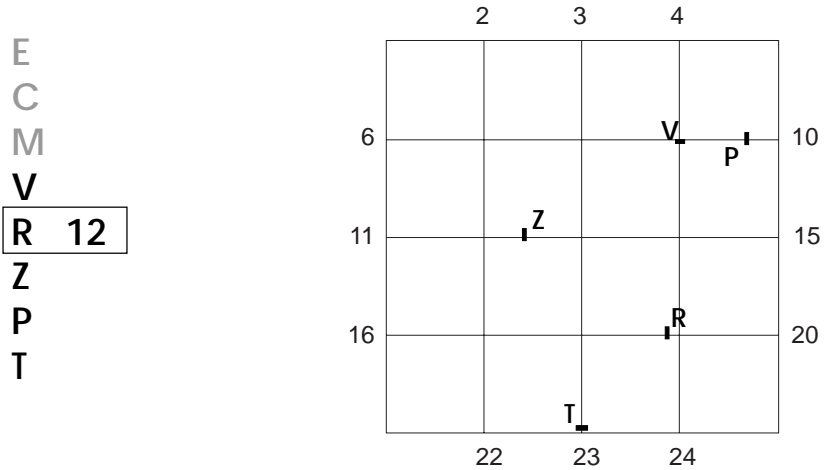
Only the computer can activate a target. When a Target Activation occurs, the computer supplies a new inactive gray target letter at the top of the column of identification letters, and pushes all the other letters downward.



Compare the illustration above with the illustration on Page 12. Here, target "V" was the last target to be activated by the computer. The letter "V" received a color assignment, and its associated target entered the grid at Waypoint 4. A gray letter "E" was also introduced at the top of the list, waiting for future activation in sequence. In this example, the next target to be activated will be "M".

The 25 intersections (called waypoints) in the 5-by-5 grid are used to define the routes the various targets will follow as they move along the grid lines, all at the same speed.

When a target reaches a waypoint, it can change course in either direction or continue along the same course. At the end of its journey at a numbered waypoint, a target and its identifying letter will disappear both from the grid and from the list.



In the example above, target "T" is about to leave the grid at Waypoint 23 and disappear, both from the grid and from the list.

The Tracking Task...

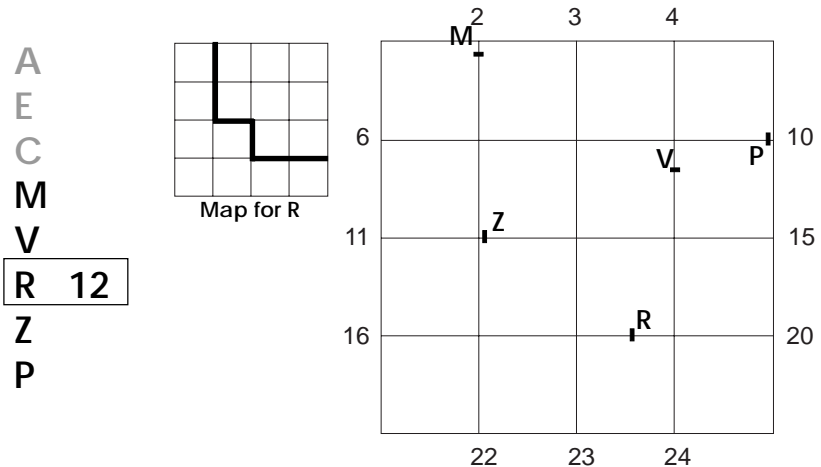
Viewing a Route Map

Each target follows a route on the grid assigned by the computer, and you can view this route on a small map that can be called up at the left of the grid for any target you select (see figure below). This is called "**viewing a route map.**"

There is no limit on how long you can view an **inactive** target's route map, but there is a time limit once a target enters the grid and becomes **active**. The initial time allowed depends on the length of the route, and active targets' time remaining decreases whenever the map is on.

The viewing time remaining in seconds appears next to the selected target letter, as shown below. When the limit reaches zero, the map disappears and cannot be viewed again. To conserve viewing time, try to memorize each route as quickly as you can.

To view a target's route map you must first select the desired target, as described on Page 12. Then press the button on top of the left control stick as shown on Page 8. If the remaining viewing time is greater than zero, the map will appear. To turn the map off, press the button again.

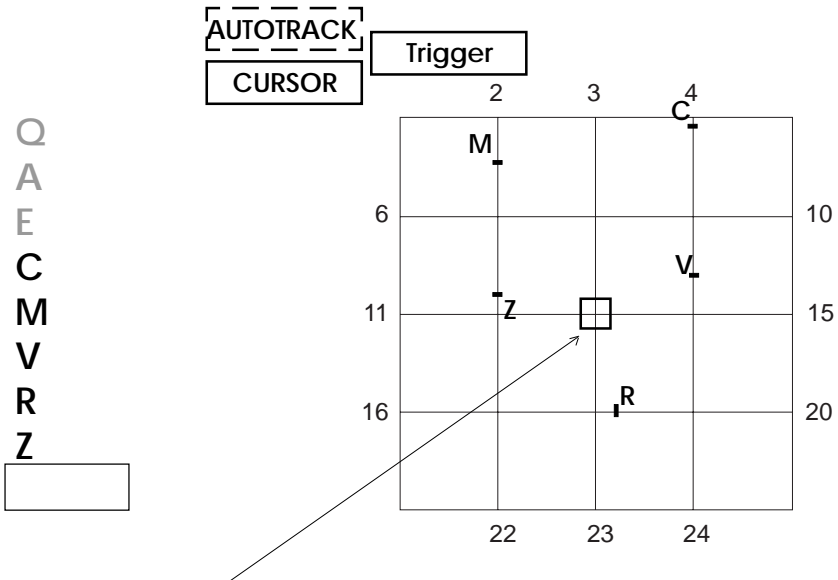


In the example above, target "R" was selected in the column on the left. Then the top button of the left control stick was pressed to display the route map. The viewing time will count down until you turn the map off or until it reaches zero. Presently, the remaining viewing time is 12 seconds. Study the route map. You will discover that "R" entered the grid at Waypoint 20 and will eventually leave the grid at 2. Go back a few pages in this manual to see the progression of "R" on the grid.

The right control stick is used to position a cursor on the grid for predicting a collision or reacquiring a missing target as will be explained in the following pages. When the index-finger trigger on the right control stick is pressed (see illustration, Page 8) the square cursor, as shown below, appears at the center of the grid, and it disappears when the trigger is pressed a second time.

Left and right displacements of the stick cause left and right movement of the cursor, and fore and aft displacements cause up and down movement of the cursor, respectively.

Two rectangles at the top edge of the display indicate whether the system is in the CURSOR or the AUTOTRACK mode. The solid rectangle shows the active mode, the dashed rectangle the inactive mode.



As shown above, the square cursor at the center of the grid has been activated by pulling the trigger on the right-hand control stick. Once the cursor appears, it can be moved left and right and up and down the face of the grid by corresponding displacements of the control stick. Note the solid border around the word CURSOR near the top of the display. Target "P" has left the grid at Waypoint 10. Target "C" has entered the grid at Waypoint 4.

The Tracking Task...

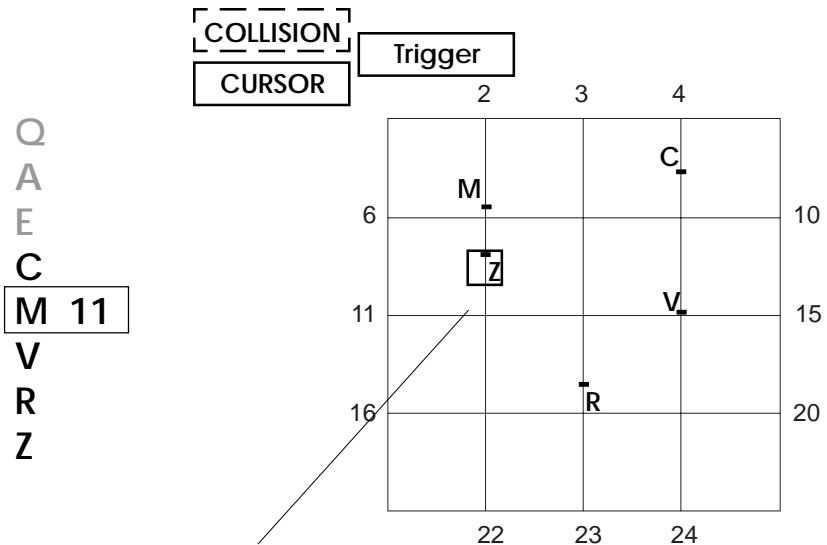
Collision of Two Targets

As mentioned on Page 11, each target is assigned one of three bright colors: blue, yellow, or purple (each of which is replaced by the color red in the letter column at the left of the display when a target is missing).

Two targets of the **same color** will collide if they meet on the grid. When this happens, both targets disappear from the grid and a "starburst" symbol marks for 10 seconds the spot where they collided. The identifying letters of these targets in the column on the left will also disappear following the collision.

There is no penalty when collisions happen, other than a simple reduction of available targets on the grid, which decreases slightly your Tracking Task Score. However, you can predict a collision and ask the computer to record your prediction. This is done by positioning the square cursor over one of the two colliding targets and by pressing the trigger.

If your prediction was correct, the computer will then change the color of the target and you will receive extra points for your excellent situational awareness. If your prediction was incorrect, you will lose some points and the target's color will remain unchanged.



You turned the square cursor On and positioned it over target "Z" because you anticipate a collision with target "M" (both the same color). Now to predict a collision, press the right-hand trigger again to turn the cursor Off. "Z" will change color if your prediction was correct. Your action will record a collision prediction (you earn extra points for that) and avoid losing these two targets from the grid.

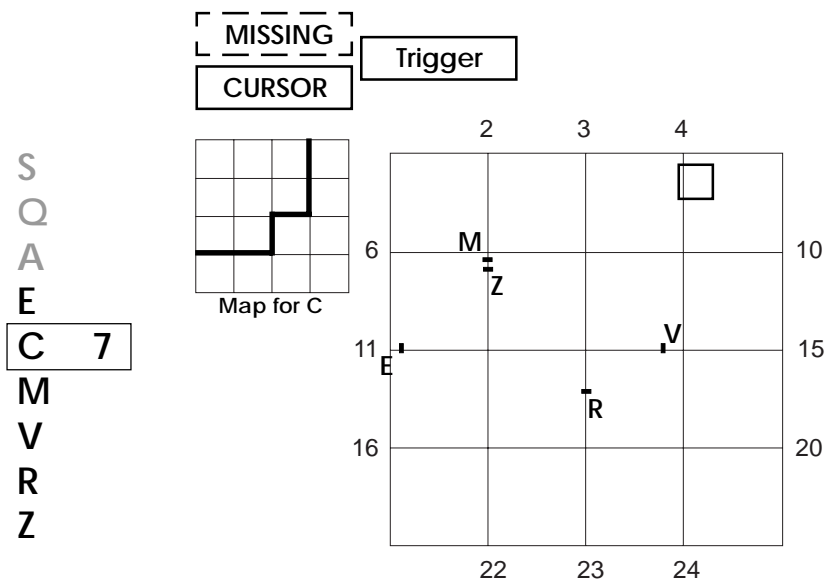
The Tracking Task...

Missing Targets

AUTOTRACK will keep track of all the targets as they proceed via their assigned routes on the grid. However, AUTOTRACK mode is prone to failure and occasionally loses track of a target. When this happens, the target disappears from the grid but continues along its assigned route, and the word AUTOTRACK in the solid rectangle at the top of the display changes to MISSING. It is your job to:

1. **Notice** that a target is missing.
2. **Select** the missing target's letter from the list of targets on the left.
3. **Remember** where the missing target should be (with help by viewing its route map if available and needed).
4. **Illuminate** the missing target with the cursor (as if it were a magnifying glass). The missing target will reappear when it has been inside the cursor for enough time.
5. Press the right-hand trigger again to **return** the target to AUTOTRACK (thereby causing the cursor to disappear).

Even though the missing target and its identifying letter are no longer visible on the grid, the missing target can still collide with another visible target with the same assigned color.



Although target "C" is shown in the column at the left (on the actual display it is colored red), it is missing from the grid. The invisible missing target "C" is still somewhere on the grid and needs to be found and returned to AUTOTRACK as soon as possible. Select target "C" using the left control stick (if needed, view its route map) and activate the cursor with the right trigger. Move the cursor until you find missing target "C" somewhere along its assigned route. Once target "C" is visible, don't forget to press the right trigger again to return target "C" to AUTOTRACK.

The Tracking Task...

Reacquiring a Missing Target

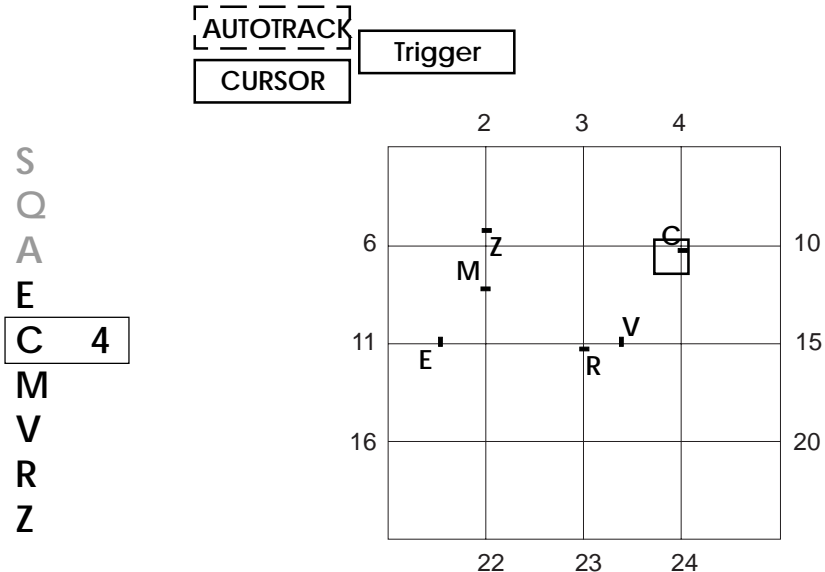
When a target is missing, we expect you to find it as fast as you can.

After you have selected the missing target identifying letter (colored in red) in the column at the left and activated the cursor with the right trigger, start looking for the missing target by moving the cursor along a grid line where you think the missing target should be.

You can move the cursor quickly to the target's expected location, but once there you must wait briefly for the target to be illuminated and reappear in or near the cursor. If the missing target does not reappear where you think it should be, you should move the cursor one way or the other along its assigned route until it does reappear.

A brief "illumination delay" is built into the system, so you have to move the cursor **slowly** for the target to be illuminated. If you move the cursor too fast over the missing target, it will not reappear. During your practice trials you will learn how fast the cursor can be moved without missing a target.

The last step in reacquiring a missing target is to press the right-hand trigger to return it to AUTOTRACK.



You selected "C" from the column and briefly studied its map. Target "C" was illuminated by the cursor. Now the missing target must be returned to AUTOTRACK by pressing the right-hand trigger, causing the target to remain visible and the cursor to disappear. The more situational awareness you demonstrate, the faster missing targets are reacquired, which leads to a good Tracking score.

The Tracking Task...

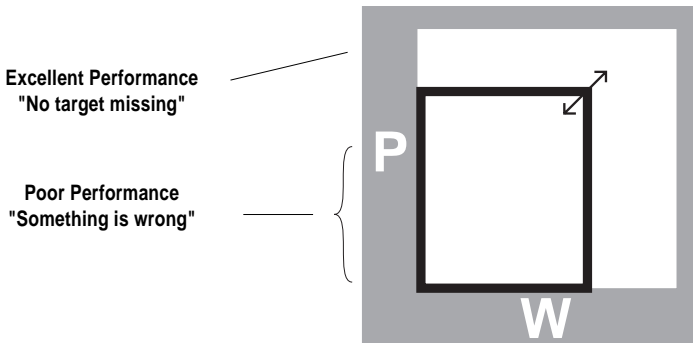
Your Tracking Performance

Your Tracking Performance, **P**, is monitored continuously during the WOMBAT test. The performance indicator will always be visible in the upper-left corner of the display. It is scaled from poor Performance at the lower area to excellent Performance at the top.

When no target is missing, the Tracking Performance is at its best. When a target is missing, the Tracking Performance gradually decreases until you reacquire the missing target at which time the Tracking Performance returns to its maximum value.

Your Tracking Performance also decreases very quickly to zero whenever an active target's route map is viewed (the price you pay for information) but resets as soon as the map is turned off.

Remember that the higher your Performance is, the more points you are accumulating. Fast target reacquisition and limited map viewing of active targets are therefore essential for the optimum Tracking Score.



This illustration represents the Tracking Worth-Performance Indicator located in the upper-left corner of the display. The letter "P" indicates "Performance." The letter "W" indicates "Worth." When no target is missing, the Tracking Performance is at its best (very good). When a target disappears, your Tracking Performance begins to drop and you lose important Tracking points. In the example above, the Worth-Performance Indicator shows a Tracking Performance that is affected by having one target missing and not found.

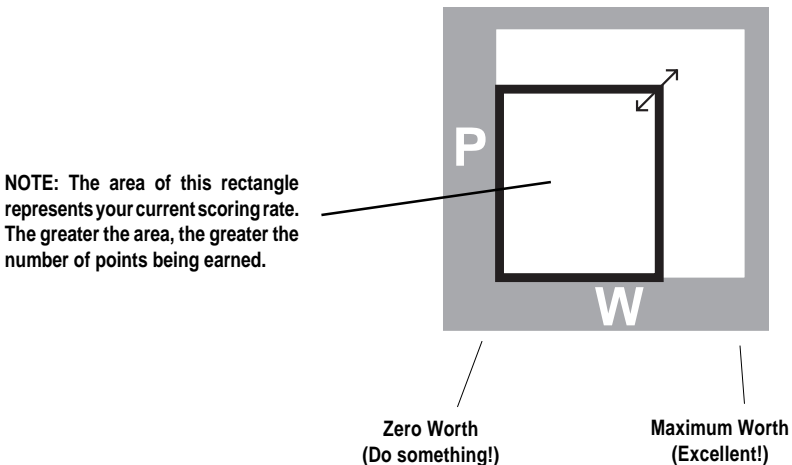
As we stated on Page 9, each task in the WOMBAT test has its own worth, which changes many times during the test. The secret of taking the WOMBAT test is making choices that lead to high worths for each of the tasks and that score many points when a task is performed well.

Three factors influence the Tracking Worth:

First, the Tracking Worth is influenced by the **number of targets on the grid**. For example, tracking 4 targets on the grid is worth less than tracking 12 targets on the grid.

Second, the Tracking Worth is influenced by **when you last executed a Bonus Task** (Bonus Tasks are explained in the following pages of this manual). If you never play Bonus Tasks, but track targets on the grid all the time, the Tracking Worth will decline slowly until it reaches zero. Each time you complete a Bonus Task, the Tracking Worth will be reset to its best available value.

Finally, the Tracking Worth is influenced by how **efficient you are at finding missing targets**.



This illustration represents the Tracking Worth-Performance Indicator located in the upper-left corner of the display. The letter "W" indicates the Tracking "Worth." You can influence the Tracking Worth by frequently playing Bonus Tasks and responding quickly to each missing target. The faster you are in reacquiring missing targets, the more targets there will be on the grid, thus raising the Tracking Worth. Keep an eye on this indicator.

The designers of WOMBAT expect that each of you should be able to manage the AUTOTRACK mode, find missing targets, and predict collisions well enough that everyone would earn similar scores based on the Tracking Task alone, with nothing else to do.

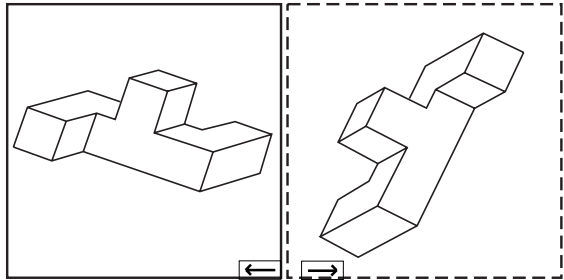
So, to distinguish those with higher and lower situational awareness, three additional tasks, called **Figure Rotation**, **Quadrant Location**, and **Digit Canceling**, are available for you to earn "**Bonus**" points in 60-second trials.

When the tracking task is under AUTOTRACK's control and you are free to earn bonus points, press the **Bonus** button on the keypad. This will switch you to the Bonus Pouch and remove the Tracking Task from the screen. Only the Tracking Worth-Performance Indicator will remain so that you can continue to monitor that task. Pressing the **Bonus** button again at any time will suspend the Bonus Task for later resumption and return WOMBAT to the Tracking Task.

You will be given practice periods that start with the Tracking Task where you can press the Bonus button to switch to the Bonus Pouch to practice each of the three Bonus Tasks.

This bonus task will display two 3-D figures side-by-side. One figure will be inside a solid square and the other figure will be inside a dashed square. The solid square means that you can rotate the figure using the two sticks; it is the **active figure**. The dashed square means this figure is **standing by** and can be **made active by pressing the corresponding arrow on the console**.

Using both sticks, you can rotate the active figure until you know all the details of its construction. Press the appropriate arrow to make the other figure active, so you can rotate it also.



The goal is to find out, as fast as you can, whether the two figures are:

This task will display two 3-D figures. You can rotate each figure, one at a time, using the joy sticks.

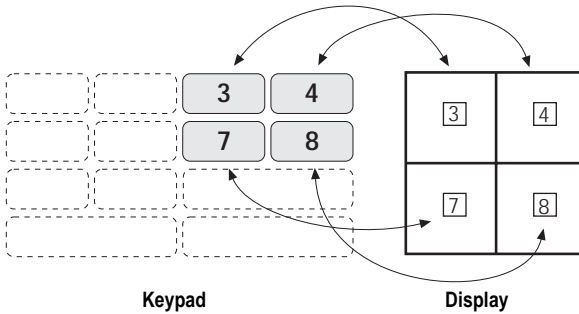
- identical,
- mirror symmetric (mirror images of each other), or
- different in some obvious way.

You earn points by giving the computer the correct answer. As soon as you answer, the Performance and Worth are fixed and scoring takes place until the end of the 60 seconds. If you haven't answered, the Worth starts decreasing 15 seconds after the start of the problem, so don't waste any time!

If your answer is correct, you may press the **4** button on the console keypad and continue with a new 3-D problem while you still have some time left. Try to solve as many 3-D problems as you can during the 60 seconds to earn more points. If your answer is incorrect, you can use the rest of the 60 seconds to find out why your answer was wrong.

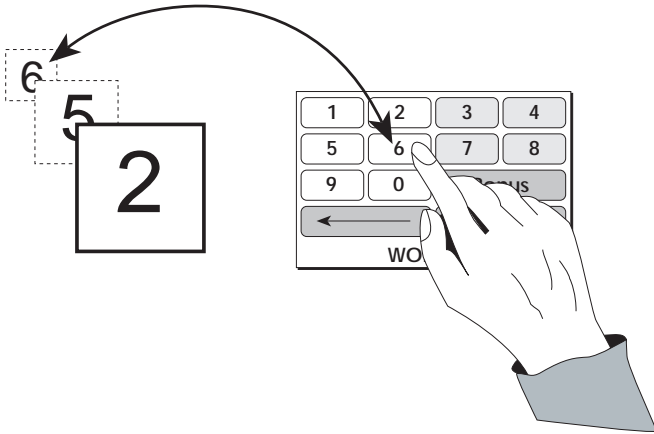
This Bonus task displays four quadrants. As shown in the illustration below, each quadrant is identified by a number corresponding to a button on the keypad. The **3** button corresponds to the upper-left quadrant, the **4** button to the upper-right quadrant, the **7** button to the lower-left quadrant, and the **8** button to the lower-right quadrant.

Consecutive numbers from 1 to 32 are presented eight in each of the four quadrants on the display. The task is to find each number in **ascending order** beginning with 1 and press the button on the keypad that corresponds to the quadrant in which it lies, thereby canceling the numbers in sequence, 1 through 32.



Your score increases for each correct quadrant button pressed and decreases for each incorrect button. You must press the correct quadrant button for each number before you can go on to the next.

If all 32 numbers are found and correctly located within the 60 seconds allotted, then the rate of scoring continues for the remaining time. If you make few errors, you will be offered the chance to press the **4** button on the keypad to cancel another sequence and earn even more points during the time remaining.



In this task, single digits (1 to 8) will be displayed briefly at set time intervals in the square at the center of the display. Starting with the third digit displayed, as soon as each new digit appears, you should press the button on the keypad matching the digit displayed two back in the sequence.

For example, in the figure above, the digit "2" has just been shown on the WOMBAT display, so you should cancel the "two-back" digit "6." Once this action has been completed, another digit will be shown on the display, and then you should cancel digit "5" which is next in sequence. **You must press a digit button, correct or incorrect, or you will not see the next digit in the sequence.**

Each time you make a response, the interval between the digits is adjusted according to how fast and how accurate you were. If you are correct and fast, the interval will become shorter and the Bonus-Task Worth will be increased. If you are wrong or slow the Bonus-Task Worth will be decreased.

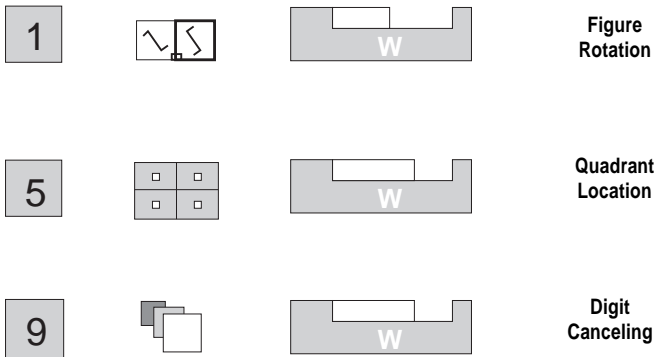
You will win points for each correct response and lose points for each incorrect response or delay in making a response.

You will choose your Bonus tasks from a Bonus-Pouch Menu (see figure below). This menu appears when you leave the Tracking Task by pressing the Bonus key. The same menu will also appear each time a Bonus Task ends.

On the menu, each variable Bonus Worth is displayed by a small horizontal indicator similar to the Worth indicators shown on Page 21 of this manual. The longer the horizontal indicator is, the greater the Worth of the respective Bonus Task.

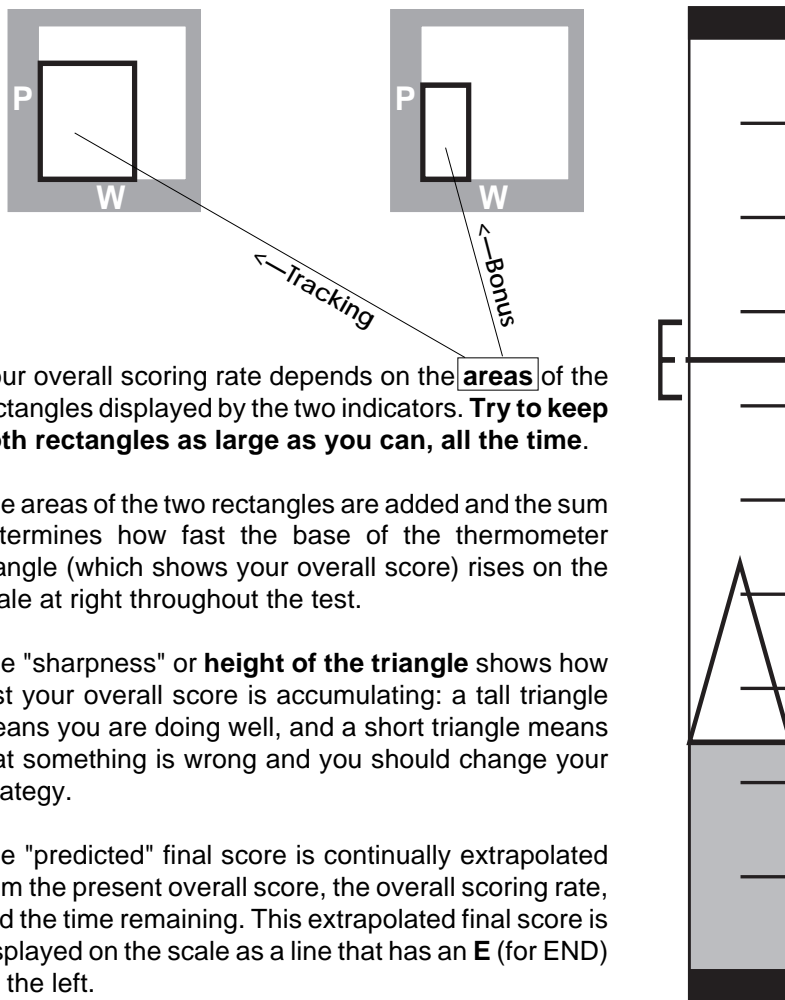
You can choose any Bonus Task regardless of its worth by pressing the keys **1**, **5** or **9** on the WOMBAT keypad. Remember, however, that the higher the Worth, the more points are available for you to earn. After you choose a Bonus Task, its worth will be decreased while the worths of the other Bonus Tasks will be increased. The worths of all Bonus Tasks will be reduced if you choose one Bonus Task much more often than the others. The worths will also decrease when a target goes missing and only recover when you reacquire the missing target.

Bonus Pouch Options



This represents the Bonus-Pouch menu. You access this menu when you leave the Tracking Task by pressing on the Bonus key (and there is no suspended Bonus task waiting for completion). In this example, the Figure-Rotation task is worth less than the other tasks. If the candidate selects the Digit-Canceling task by pressing on the 9 key, the Worth of that task will be decreased slightly the next time the Bonus menu appears, while the two other Worths will be increased. If you choose one Bonus task much more often than the others, the three Worths will decrease.

The Tracking and Bonus-Pouch Worths are displayed at the top of the display. Each indicator has a **W** at the bottom.



Your overall scoring rate depends on the **areas** of the rectangles displayed by the two indicators. **Try to keep both rectangles as large as you can, all the time.**

The areas of the two rectangles are added and the sum determines how fast the base of the thermometer triangle (which shows your overall score) rises on the scale at right throughout the test.

The "sharpness" or **height of the triangle** shows how fast your overall score is accumulating: a tall triangle means you are doing well, and a short triangle means that something is wrong and you should change your strategy.

The "predicted" final score is continually extrapolated from the present overall score, the overall scoring rate, and the time remaining. This extrapolated final score is displayed on the scale as a line that has an **E** (for END) on the left.

You should attempt to maximize your final score by skillful performance during the WOMBAT test.

When you have read through this manual up to this page you should be ready to sit down at the WOMBAT computer and begin the instructions period. You will have some idea how the different parts of the WOMBAT console control the WOMBAT-FC test, and you will have been introduced to many of the terms that will be used in the instruction phases. Much of the text in this book will be repeated or restated there, but the practice sessions will give you the chance to actually try the different actions that can only be described in words or shown in static pictures in this manual.

Remember, your overall goal is to come to the end of the test with as many points as possible. To achieve this goal you will have to learn what is going on, remain alert to changing conditions, remember how targets are moving on the grid, and exercise good judgment.

Good luck !