



“Training exercises” Program

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This program is designed for the interactive shooting gallery “RUBY” and enables its users to practice in taking aim, retargeting, changing aiming speed, pulling a gun, aiming on the move, etc. without wasting cartridges. For general technique of conducting training course on fast and accurate shooting, refer to “Life Practice” monograph /1/.

“Training exercises” program allows instructor to develop, modify, and save up to 20 custom exercises.



HELP	ABOUT COMPANY	EXIT
Exercise	1	Training on gunlaying and aiming
Exercise	2	Training on speed and pinpoint firing
Exercise	3	Training on double-shot pinpoint firing
Exercise	4	Training on retargeting
Exercise	5	Training on changing aiming speed
Exercise	6	Training on motion coordination and attentiveness
Exercise	7	Training on pulling a gun and making first shot
Exercise	8	Training on aiming on the move
Exercise	9	Training on shooting with change of body position
Exercise	10	Training on shooting with change of arms position
Exercise	11	creat new exercise
Exercise	12	creat new exercise
Exercise	13	creat new exercise
Exercise	14	creat new exercise
Exercise	15	creat new exercise
Exercise	16	creat new exercise
Exercise	17	creat new exercise
Exercise	18	creat new exercise
Exercise	19	creat new exercise
Exercise	20	creat new exercise

○ Русский

1. Kryutchin V. A. “Life Practice”. Perm: OJSC “Publishing Polygraphic Complex” “Zvezda”, 265 p, 2006.

To create and edit an exercise, use the “PARAMETERS” window. At the top of the window, you will find the menu containing the following options:

- EXIT (quit the program)
- SAVE (save all changes made to exercise)
- BACK (return to selecting between exercises)
- NEXT (start exercise)

The menu also contains the “ABOUT COMPANY” and “USER MANUAL” buttons. Below the menu, there is exercise number and a field where you can specify a name for the exercise.

Wide range of program parameters enables instructor to simplify or complicate exercise depending on academic program and trainees’ qualification.



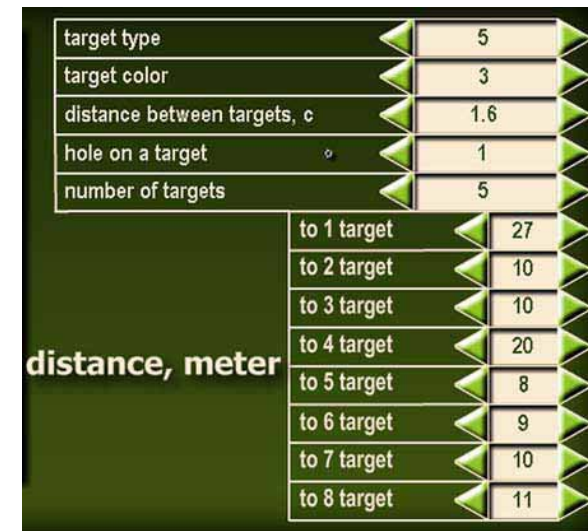
Once you modify a parameter, the changes are immediately displayed on the interactive window, which helps instructor promptly control the created target area. Target area is a set of static targets which are spread laterally and in depth. Maximum number of targets is 8. All targets within one exercise have one color and type, but each of them is distanced from the firing line on certain length (3 - 50 m). Targets are equally-spaced and the distance between them varies from 0 to 10 m.

First subset of parameters includes the following:

- Type of target (one of 11 available)
- Color of target (one of 6 available)
- Distance between targets (1-10m)
- Show holes (on/off, editable hole size: 1, 2, or 3)
- Number of targets (1-8)
- Distance to 1st, 2nd, 3d, ...8th target (3-50 m)

The first two parameters allow you to select the type and color of target. The third parameter sets the distance between targets. Distance can vary from 0 to 10 m and remains the same for all targets. If the distance between targets is so big that they do not fit the screen, then the value of the parameter becomes highlighted with red color.

The last parameter sets distance from each target to the firing line.



Now you should select a background for the targets (30 backgrounds are available):



At the bottom part of the window, you can configure the following parameters:

- Number of shooters (1-20, step 1)
- Number of repetitions (1-10, step 1)
- Number of shots per target (1-8, step 1)
- Type of shot (single/double)
- Sound of shot (on/off)
- Timer signal (on/off)
- Background sound (10 available)
- Order of hitting targets: arbitrary, by a line, reverse, there-back, special.



Number of shooters, number of repetitions, number of shots per target, type of shot and order of hitting targets – are basic parameters which define the procedure of exercises.

Sound of shot, timer signal, background sound are supplementary parameters. As well as background and displaying holes.

Number of shooters:

This parameter allows to display final comparison table with the shooting results of every shooter.

Number of repetitions:

Exercise is repeated required number of times for each shooter.

Number of shots per target:

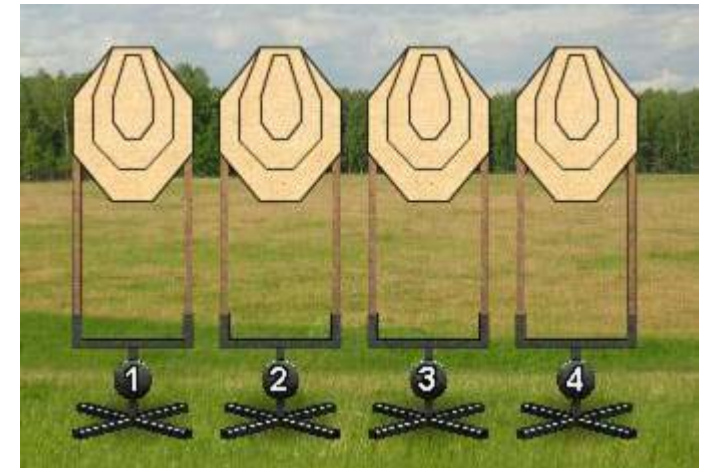
Each target must be hit as many times as defined by instructor. Only after that a target will disappear from the screen.

Type of shot:

1. Single shot – shooter is allowed to make only one shot per target. If the same target is hit more than one time, a warning signal sounds. No penalty points are given for the shot.
2. Double shot – shooter makes two shots one after another (double or paired shot) per target.

Order of hitting targets:

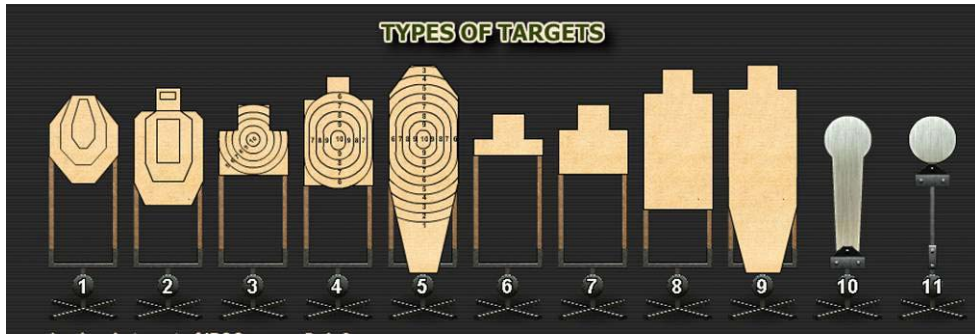
1. Arbitrary – targets are hit in arbitrary order.
2. By a line – targets are hit from right to left (for example, if we have 4 targets, the order will be as follows: 1-2-3-4-1-2-3-4-1-2-3-4)
3. Reverse - targets are hit from left to right (for example, if we have 4 targets, the order will be as follows: 4-3-2-1-4-3-2-1-4-3-2-1)
4. There-back - targets are hit in the following order: 1-2-3-4-4-3-2-1-1-2-3-4
5. Special – targets are hit in the following order: 1-4-1-4-1-4-1-4, i.e. first the leftmost and rightmost targets are hit, then the two central targets.



If the order of hitting targets is broken, a warning signal sounds. No penalty points are given for the shot.

Available types of targets:

1. Classic IPSC target (points: 5, 4, 2)
 2. Metric IPSC target (points: 5, 4, 2)
 3. Half-silhouette target with circles (points: 10, 9, 8, 7, 6, 5)
 4. Waist-figure target with circles (points: 10, 9, 8, 7, 6, 5)
 5. Full-height figure target (points: 10, 9, 8, 7, 6, 5)
 6. Head-silhouette target (10 points)
 7. Half-silhouette target (10 points)
 8. Waist-figure target (10 points)
 9. Full-height figure target (10 points)
 10. Popper (5 points)
 11. Plate (5 points)
- Zero hit – minus 10 points



Once all the parameters are configured, give a name to the exercise and save it ("SAVE" button). Now you can proceed to performing the exercise. To do so, click "NEXT" and, then click "START".



Targets appear on the screen and in a few seconds a timer signal sounds. If the shot is made before the signal, a "FALSE START" message is displayed (you will have to return to the beginning of the exercise; no penalty points are given).

Once a target is hit required number of times, it disappears from the screen. Targets should be hit with single or double shots in the order specified in the exercise. Once all the targets are hit, the exercise is completed.

Points are given depending on the hit area. In case of zero hit, penalty points are added to the total points. Upon completion of the exercise, the results for each shooter are displayed on the screen:

- Number of shots
- Exercise time
- Hit factor (total number of shots/exercise time)
- On target shots number
- Number of zero hits
- Average time between shots

Detailed results are presented in the "Shooting speed" table. Each shot is described by three parameters:

- Shot time
- Time between shots
- Number of points

SHOOTER 1

score	50
time of performance of exercise, seconds	31.75
hit factor	1.57
number of hits in a target	24
number of misses	39
mean time between shots	0.5

TABLE OF RATE OF FIRE

shot	time shot	time between shots	score	comment
1	2.11	2.11	5	M1
2	2.33	0.22	0	M1
3	3.28	0.95	4	M2
4	3.45	0.17	0	M2
5	4.5	1.05	5	M3
6	4.65	0.15	0	M3
7	5.35	0.7	5	M4
8	5.51	0.16	0	M4
9	6.14	0.63	5	M5
10	6.31	0.17	0	M5
11	6.97	0.66	5	M6
12	7.14	0.17	0	M6
13	7.89	0.75	0	M6
14	8.07	0.18	0	M6

BACK NEXT

After each shooter completes the exercise, a final table with the results is displayed on the screen (you can print it if necessary). The picture below shows an example of such table generated for nine shooters.

GENERAL RESULTS						
shooter	sum score	time, seconds	hit factor	number of hits in a target	number of misses	mean time between shots
1	10	0.54	18.52	1	0	0.54
2	10	4.78	2.09	1	0	4.78
3	10	1.55	6.45	1	0	1.55
4	10	2.69	3.72	1	0	2.69
5	10	2.98	3.36	1	0	2.98
6	10	2.04	4.9	1	0	2.04
7	10	1.09	9.17	1	0	1.09
8	10	2.7	3.7	1	0	2.7
9	10	3.12	3.21	1	0	3.12

Program settings allow instructor to create new and edit existing exercises. Every exercise is supposed to help trainees learn a certain shooting skill. Below are some examples of possible exercises.

- Exercise 1. Training on gunlaying and aiming.
- Exercise 2. Training on speed and pinpoint firing.
- Exercise 3. Training on double-shot pinpoint firing.
- Exercise 4. Training on retargeting.
- Exercise 5. Training on changing aiming speed.
- Exercise 6. Training on motion coordination and attentiveness.
- Exercise 7. Training on pulling a gun and making first shot.
- Exercise 8. Training on aiming on the move.
- Exercise 9. Training on shooting with change of body position.
- Exercise 10. Training on shooting with change of arms position.

Let's take a closer look at one of the exercises.

Exercise 1. Training on gunlaying and aiming.

Default exercise parameters:

1. type of target 3
2. color of target 1
3. distance between targets, m 0,2
4. show holes on target On (1)
5. number of targets 3
 - distance to the first target, m 10
 - distance to the second target, m 10
 - distance to thirds of target, m 10
6. background 2
7. number of shooters 1
8. number of repetitions 10
9. number of shots per target 1
10. type of shot single
11. sound of shot on
12. timer signal on
13. background sound off
14. order of hitting targets arbitrary

The screenshot shows the 'Settings' screen for Exercise 1. At the top, there are navigation buttons: HELP, ABOUT COMPANY, EXIT, SAVE, BACK, and NEXT. Below these, the exercise name '1 Training on gunlaying and aiming' is displayed. The main area is titled 'Settings' and contains a list of adjustable parameters, each with a value and a slider control:

- target type: 3
- target color: 1
- distance between targets, c: 0.2
- hole on a target: 1
- number of targets: 3
- distance, meter (for 3 targets):
 - to 1 target: 10
 - to 2 target: 10
 - to 3 target: 10
 - to 4 target: 20
 - to 5 target: 8
 - to 6 target: 9
 - to 7 target: 10
 - to 8 target: 11
- background: 2
- number of shooters: 1
- number of repetitions: 10
- number of shots in a target: 1
- type of shot: single
- sound of shot: on
- signal of timer: on
- background sound: 0
- order of hitting of targets: arbitrary

Exercise 2. Training on speed and pinpoint firing.

Default exercise parameters:

- | | |
|------------------------------------|-----------|
| 1. type of target | 1 |
| 2. color of target | 1 |
| 3. distance between targets, m | 0,1 |
| 4. show holes on target | On (1) |
| 5. number of targets | 4 |
| • distance to the first target, m | 5 |
| • distance to the second target, m | 5 |
| • distance to thirds of target, m | 5 |
| • distance to the fourth target, m | 5 |
| 6. background | 5 |
| 7. number of shooters | 1 |
| 8. number of repetitions | 10 |
| 9. number of shots per target | 1 |
| 10. type of shot | single |
| 11. sound of shot | on |
| 12. timer signal | on |
| 13. background sound | off |
| 14. order of hitting targets | arbitrary |

Exercise 3. Training on double-shot pinpoint firing.

Default exercise parameters:

- | | |
|------------------------------------|-----------|
| 1. type of target | 9 |
| 2. color of target | 1 |
| 3. distance between targets, m | 0,4 |
| 4. show holes on target | On (1) |
| 5. number of targets | 4 |
| • distance to the first target, m | 10 |
| • distance to the second target, m | 10 |
| • distance to thirds of target, m | 10 |
| • distance to the fourth target, m | 10 |
| 6. background | 19 |
| 7. number of shooters | 1 |
| 8. number of repetitions | 1 |
| 9. number of shots per target | 2 |
| 10. type of shot | double |
| 11. sound of shot | on |
| 12. timer signal | on |
| 13. background sound | off |
| 14. order of hitting targets | arbitrary |

Exercise 4. Training on retargeting.

Default exercise parameters:

- | | |
|------------------------------------|-----------|
| 1. type of target | 10 |
| 2. color of target | 1 |
| 3. distance between targets, m | 1,2 |
| 4. show holes on target | On (1) |
| 5. number of targets | 5 |
| • distance to the first target, m | 10 |
| • distance to the second target, m | 10 |
| • distance to thirds of target, m | 10 |
| • distance to the fourth target, m | 10 |
| • distance to the fifth target, m | 10 |
| 6. background | 10 |
| 7. number of shooters | 1 |
| 8. number of repetitions | 10 |
| 9. number of shots per target | 1 |
| 10. type of shot | single |
| 11. sound of shot | on |
| 12. timer signal | on |
| 13. background sound | off |
| 14. order of hitting targets | by a line |



Exercise 5. Training on changing aiming speed.

Default exercise parameters:

- | | |
|------------------------------------|-----------|
| 1. type of target | 11 |
| 2. color of target | 1 |
| 3. distance between targets, m | 0,5 |
| 4. show holes on target | On (1) |
| 5. number of targets | 6 |
| • distance to the first target, m | 4 |
| • distance to the second target, m | 8 |
| • distance to thirds of target, m | 12 |
| • distance to the fourth target, m | 12 |
| • distance to the fifth target, m | 8 |
| • distance to the sixth target, m | 4 |
| 6. background | 11 |
| 7. number of shooters | 1 |
| 8. number of repetitions | 8 |
| 9. number of shots per target | 1 |
| 10. type of shot | single |
| 11. sound of shot | on |
| 12. timer signal | on |
| 13. background sound | off |
| 14. order of hitting targets | by a line |



Exercise 6. Training on motion coordination and attentiveness.

Default exercise parameters:

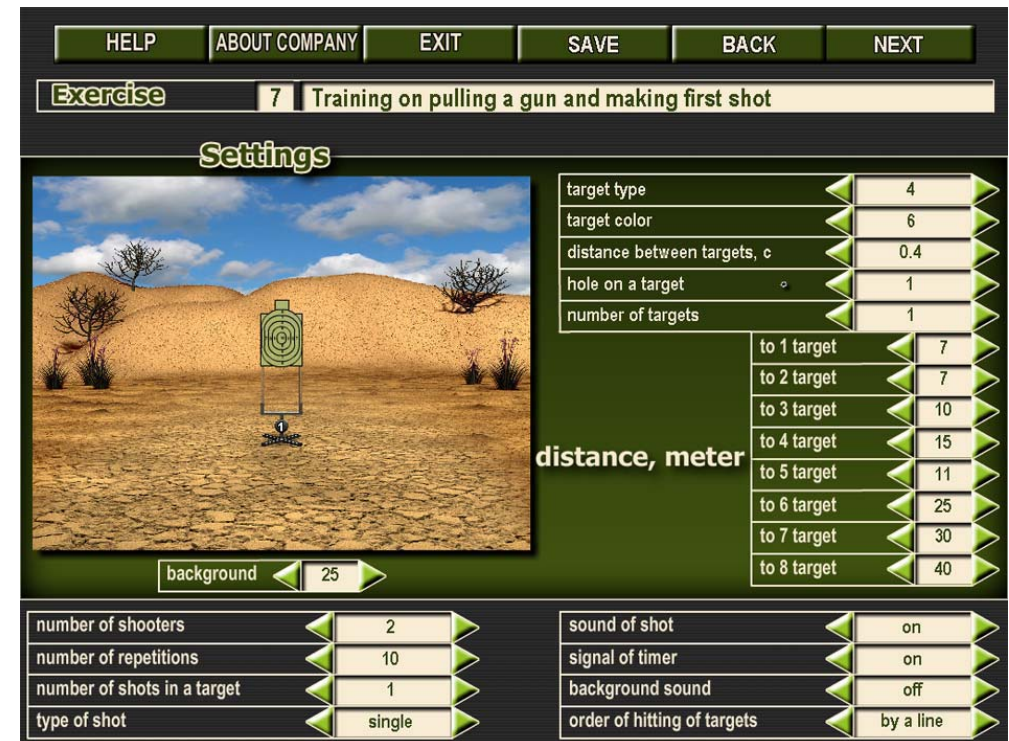
- | | |
|-------------------------------------|---------|
| 1. type of target | 10 |
| 2. color of target | 1 |
| 3. distance between targets, m | 0,4 |
| 4. show holes on target | On (1) |
| 5. number of targets | 8 |
| • distance to the first target, m | 5 |
| • distance to the second target, m | 10 |
| • distance to thirds of target, m | 15 |
| • distance to the fourth target, m | 8 |
| • distance to the fifth target, m | 8 |
| • distance to the sixth target, m | 15 |
| • distance to the seventh target, m | 10 |
| • distance to the eighth target, m | 5 |
| 6. background | 12 |
| 7. number of shooters | 1 |
| 8. number of repetitions | 1 |
| 9. number of shots per target | 2 |
| 10. type of shot | single |
| 11. sound of shot | on |
| 12. timer signal | on |
| 13. background sound | off |
| 14. order of hitting targets | special |



Exercise 7. Training on pulling a gun and making first shot.

Default exercise parameters:

- | | |
|-----------------------------------|-----------|
| 1. type of target | 4 |
| 2. color of target | 6 |
| 3. distance between targets, m | 0,4 |
| 4. show holes on target | On (1) |
| 5. number of targets | 1 |
| • distance to the first target, m | 7 |
| 6. background | 25 |
| 7. number of shooters | 2 |
| 8. number of repetitions | 10 |
| 9. number of shots per target | 1 |
| 10. type of shot | single |
| 11. sound of shot | on |
| 12. timer signal | on |
| 13. background sound | off |
| 14. order of hitting targets | by a line |



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