ROYAL CANADIAN SEA CADETS

PHASE TWO

INSTRUCTIONAL GUIDE

SECTION 5

EO M221.05 – RIG TACKLES

Total Time: 90 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-602/PG-001, Chapter 4. Specific uses for said resources are identified throughout the Instructional Guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

Photocopy the station cards located at Annex A.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

Demonstration and performance was chosen for TP1 to TP4 as it allows the instructor to explain and demonstrate how to rig various tackles while providing an opportunity for the cadets to practice these skills under supervision.

An in-class activity was chosen for TP5 as it is an interactive way to reinforce rigging tackles and to confirm the cadets' comprehension of the material.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall rig tackles.

IMPORTANCE

It is important for cadets to know how to rig tackles to be able to perform tasks that would be otherwise too difficult to complete. This knowledge will provide assistance when completing future ropework tasks.

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Teaching point 1 **Explain the Use of, Demonstrate, and Have Cadets Rig a Single Whip**

Time: 5 min Method: Demonstration and Performance



Explain and demonstrate how to rig a single whip.

SINGLE WHIP

A single whip is used for hoisting light loads where speed is an important factor.

STEPS TO RIGGING

1. Lay a single block on its cheek.
2. Reeve the line through the sheave.
3. Finish rigging by tying a figure eight knot in the line's end.
4. Secure the standing block to a deckhead/post, etc.
5. Secure the line to the load.
6. Mouse all hooks.
7. Raise the load by hauling in on the hauling part.

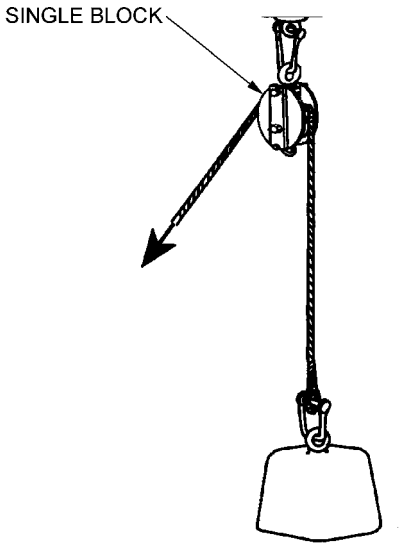

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Figure 1 Single Whip

MECHANICAL ADVANTAGE

The single whip provides a mechanical advantage (MA) equal to one and is often used to change the direction of pull on the hauling part of a tackle.

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Allow the cadets to practice rigging a single whip.

CONFIRMATION OF TEACHING POINT 1

The cadets' rigging of a single whip will serve as the confirmation of this TP.

Teaching point 2 **Explain the Use of, Demonstrate, and Have the Cadets Rig a Double Whip**

Time: 15 min Method: Demonstration and Performance



Explain and demonstrate how to rig a double whip.

DOUBLE WHIP

A double whip consists of two single blocks and is used for hoisting.

STEPS TO RIGGING

1. Lay two single blocks on their cheeks with the beckets toward each other.
2. Label one block A and the other block B.
3. Starting with block A, secure the line to the becket with a bowline.
4. Reeve the other end of the line through the sheave of block B.
5. Reeve the line through the sheave of block A.
6. Finish rigging by tying a figure eight knot in the line's end.
7. Secure the standing block to a deckhead/post, etc.
8. Secure the load to block B.
9. Mouse all hooks.
10. Raise the load by hauling in on the hauling part.

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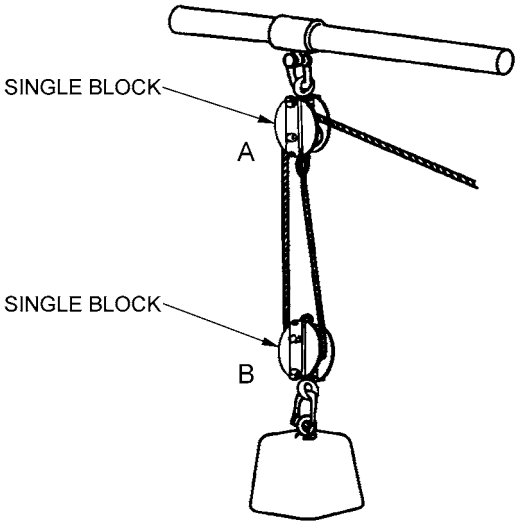

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Figure 2 Double Whip

MECHANICAL ADVANTAGE

The double whip provides a mechanical advantage of two or three depending on the number of lines coming from the moving block. In Figure 2 the MA equals two (rigged to disadvantage). If this tackle was reversed, it would result in three lines coming from the moving block, changing the MA to three (rigged to advantage).



Allow the cadets to practice rigging a double whip to both advantage and disadvantage.

CONFIRMATION OF TEACHING POINT 2

The cadets' rigging of a double whip will serve as the confirmation of this TP.

Teaching point 3 **Explain the Use of, Demonstrate, and Have the Cadet Rig a Luff**

Time: 20 min Method: Demonstration and Performance



Explain and demonstrate how to rig a luff.

LUFF

A luff consists of one single block and one double block.

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STEPS TO RIGGING

1. Lay the single and double blocks on their cheeks with the beckets toward each other.
2. Label the single block A and the double block B.
3. Starting with block A, secure the line to the becket with a bowline.
4. Reeve the other end of the line through the lower sheave of block B.
5. Reeve the line through the sheave of block A.
6. Reeve the line through the upper sheave of block B.
7. Finish rigging by tying a figure eight knot in the line's end.
8. Secure the standing block to a deckhead/post, etc.
9. Secure the load to block A.
10. Mouse all hooks.
11. Raise the load by hauling in on the hauling part.

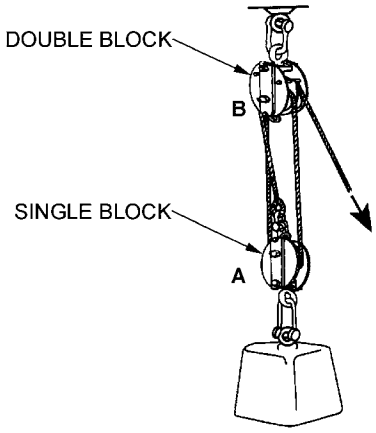

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Figure 3 Luff

MECHANICAL ADVANTAGE

The luff provides a mechanical advantage of three or four depending if it is rove to advantage or disadvantage. In Figure 3 the MA equals three (rigged to disadvantage) because there are three lines coming from the moving block. If this tackle was reversed, it would result in four lines coming from the moving block, changing the MA to four (rigged to advantage).



Allow the cadets to practice rigging a luff to both advantage and disadvantage.

CONFIRMATION OF TEACHING POINT 3

The cadets' rigging of a luff will serve as the confirmation of this TP.

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Teaching point 4 — **Explain the Use of, Demonstrate, and Have the Cadets Rig a Two-Fold Purchase**

Time: 20 min — Method: Demonstration and Performance



Explain and demonstrate how to rig a two-fold purchase.

TWO-FOLD PURCHASE

A two-fold purchase is a useful general-purpose tackle and consists of two double blocks.

STEPS TO RIGGING

1. Lay the two double blocks on their cheeks with the beckets toward each other.
2. Label one block A and the other block B.
3. Starting with block A, secure the line to the becket with a bowline.
4. Reeve the other end of the line through the lower sheave of block B.
5. Reeve the line through the lower sheave of block A.
6. Reeve the line through the upper sheave of block B.
7. Reeve the line through the upper sheave of block A.
8. Finish rigging by tying a figure eight knot in the line's end.
9. Secure the standing block to a deckhead/post, etc.
10. Secure the load to block B.
11. Mouse all hooks.
12. Raise the load by hauling in on the hauling part.

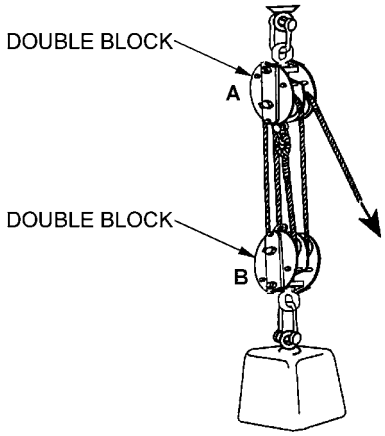

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Figure 4 Two-fold Purchase

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Be careful not to cross the lines as you are reeving each block.

MECHANICAL ADVANTAGE

The two-fold purchase provides a mechanical advantage of four or five depending if it is rove to advantage or disadvantage. In Figure 4 the MA equals four (rigged to disadvantage) because there are four lines coming from the moving block. If this tackle was reversed, it would result in five lines coming from the moving block, changing the MA to five (rigged to advantage).



Allow the cadets to practice rigging a two-fold purchase to both advantage and disadvantage.

CONFIRMATION OF TEACHING POINT 4

The cadets' rigging of a two-fold purchase will serve as the confirmation of this TP.

Teaching point 5 **Conduct an Activity for Rigging Tackles**

Time: 20 min Method: In-Class Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to have cadets review rigging tackles.

RESOURCES

- Two single blocks.
- Two double blocks.
- Twenty-six metres of line.
- A load of 22 kg (50 lbs) or less.
- Bag (any type).
- Whistle.
- Stopwatch.
- Station cards located at Annex A.

ACTIVITY LAYOUT

- Mark off a start area.
- Next to the start area lay out two single blocks, two double blocks, and two lengths of line.
- Place the load at station two.

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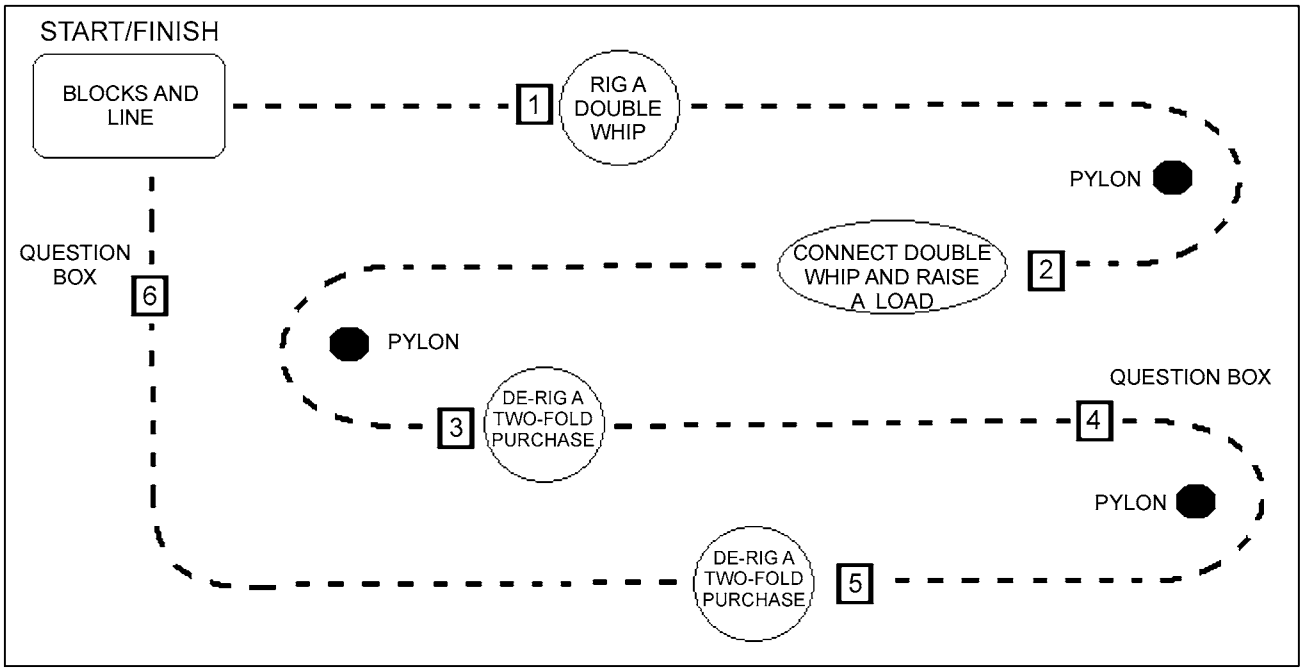
- Set-up the pylons as illustrated in Figure 5.
- Place a bag at each station.
- In each bag place the corresponding station card located at Annex A.



D Cdts 3, 2007, Ottawa, ON: Department of National Defence

Figure 5 Tackle Run

ACTIVITY INSTRUCTIONS

1. Divide the cadets into two or more teams.
2. Have one team line up behind the start area.
3. On the whistle signal, the team must gather up the blocks and line located at the start area.
4. The team must then advance to each station consecutively and complete the task found on the card.
5. The team will continue the course until all tasks have been completed correctly.
6. The team is finished when all members have crossed the finish line.
7. If a team is unable to complete a task they will be required to return to the start line and re-start.
8. Have each team repeat steps two to eight.
9. The team that completes the tackle run with the fastest time is the winner.



If a team is required to re-start, review the areas in which the team had difficulties prior to allowing them another opportunity to complete the tackle run.

For each question answered correctly five seconds will be deducted from the team's finish time.

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SAFETY

This activity must be conducted in a large area that is free of obstructions.

CONFIRMATION OF TEACHING POINT 5

The cadets' participation in the activity will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

The cadets' participation in the TPs will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Rigging tackles free of twists and tangles will enable the line to move freely through the blocks ensuring the tackle works efficiently. The ability to rig tackles will provide the necessary assistance to perform tasks that require the movement of heavy loads, with little difficulty.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

C1-047 (ISBN 0 11 772695 8) B-ON-050-002/PT-004 Command of the Defence Council. (1995). *BR 67 Admiralty Manual of Seamanship.* London, England: HMSO Publications Centre.

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STATION CARDS

STATION ONE

RIG A DOUBLE WHIP. CARRY THE DOUBLE WHIP TO STATION TWO.

STATION TWO

THE DOUBLE WHIP IS TO BE RIGGED TO DISADVANTAGE. CONNECT THE DOUBLE WHIP TO THE LOAD AND RAISE THE LOAD TWO METRES. DE-RIG THE DOUBLE WHIP AND CARRY THE BLOCKS AND LINE TO THE NEXT STATION.

STATION THREE

RIG A TWO-FOLD PURCHASE. CARRY THE TWO-FOLD PURCHASE TO STATION FOUR.

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STATION FOUR

QUESTION:
WHAT IS THE MECHANICAL ADVANTAGE OF A LUFF RIGGED TO DISADVANTAGE?

CARRY THE TWO-FOLD PURCHASE TO STATION FIVE.

STATION FIVE

DE-RIG THE TWO-FOLD PURCHASE. CARRY THE BLOCKS AND LINE TO STATION SIX.

STATION SIX

QUESTION:
WHAT IS THE MECHANICAL ADVANTAGE OF A TWO-FOLD PURCHASE RIGGED TO ADVANTAGE?

CARRY THE BLOCKS AND LINE TO THE FINISH AREA.

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