Deck General – Safety

Seamanship

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You are using tackle number 12 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 2. What is the mechanical advantage of this rig?
14

Illustrations: D029DG_WM_073018, TACKLE2014_WM, TACKLE_WM
See REF436

You are using tackle number 10 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 4. What is the mechanical advantage of this rig?
20

Illustrations: D029DG_WM_073018, TACKLE2196_WM, TACKLE_WM
See REF436

You are using tackle number 6 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 8. Disregarding friction, what is the mechanical advantage of this rig?
18

Illustrations: D029DG_WM_073018, TACKLE2213_WM, TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 8. What is the mechanical advantage of this rig?
15

Illustrations: D029DG_WM_073018, TACKLE2221_WM, TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook of tackle number 9. What is the mechanical advantage of this rig?
20

Illustrations: D029DG_WM_073018, TACKLE2229_WM, TACKLE_WM
See REF436

You are using tackle number 4 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook of tackle number 11. What is the mechanical advantage of this rig?
24

Illustrations: D029DG_WM_073018, TACKLE2243_WM, TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight of 300 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
90 lbs.

Illustrations: D029DG_WM_073018, TACKLE03_WM, TACKLE_WM
See REF436

You are using tackle number 3 as shown in illustration D029DG below to lift a weight of 120 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
52 lbs.

Illustrations: D029DG_WM_073018, TACKLE02_WM, TACKLE_WM
See REF436

You are using tackle number 2 as shown in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
60 lbs.

Illustrations: D029DG_WM_073018, TACKLE01_WM, TACKLE_WM
See REF436

You are using tackle number 12 shown in illustration D029DG below to lift a weight of 300 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
69 lbs.

Illustrations: D029DG_WM_073018, TACKLE05_WM, TACKLE_WM
See REF436

You are using tackle number 8 in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
40 lbs.

Illustrations: D029DG_WM_073018, TACKLE06_WM, TACKLE_WM
See REF436

You are using tackle number 7 in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
55 lbs.

Illustrations: D029DG_WM_073018, TACKLE04_WM, TACKLE_WM
See REF436

A breeches buoy is being rigged from the shore to a stranded vessel. The initial shot line passed to the vessel is normally made fast to a _____.
tail-block and whip which may be used to pass a hawser to the vessel

Illustrations: BREECHESBUOY

What is the name of tackle number 5 as shown in illustration D029DG below?
Double luff tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage, neglecting friction, of tackle number 12 as shown in illustration D029DG below?
7

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 8 as shown in illustration D029DG below?
3

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 12 shown in illustration D029DG below to lift a weight of 300 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
69 lbs.

Illustrations: D029DG_WM_073018, TACKLE05_WM, TACKLE_WM
See REF436

What is the name of tackle number 6 as shown in illustration D029DG below?
Threefold purchase

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 1 as shown in illustration D029DG below?
1

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook of tackle number 9. What is the mechanical advantage of this rig?
20

Illustrations: D029DG_WM_073018, TACKLE2229_WM, TACKLE_WM
See REF436

What is the name of tackle number 1 as shown in illustration D029DG below?
Whip

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the name of tackle number 7 as shown in illustration D029DG below?
Runner

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 2 as shown in illustration D029DG below?
2

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 2 as shown in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
60 lbs.

Illustrations: D029DG_WM_073018, TACKLE01_WM, TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 8. What is the mechanical advantage of this rig?
15

Illustrations: D029DG_WM_073018, TACKLE2221_WM, TACKLE_WM

See REF436

What is the name of tackle number 2 as shown in illustration D029DG below?
Gun tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the name of tackle number 8 as shown in illustration D029DG below?
Gun tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 3 as shown in illustration D029DG below?
3

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 3 as shown in illustration D029DG below to lift a weight of 120 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
52 lbs.

Illustrations: D029DG_WM_073018, TACKLE02_WM, TACKLE_WM
See REF436

What is the name of tackle number 11 as shown in illustration D029DG below?
Double luff tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the name of tackle number 9as shown in illustration D029DG below?
Luff tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage, neglecting friction, of tackle number 4 as shown in illustration D029DG below?
4

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 6 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 8. Disregarding friction, what is the mechanical advantage of this rig?
18

Illustrations: D029DG_WM_073018, TACKLE2213_WM, TACKLE_WM
See REF436

What is the name of tackle number 12 as shown in illustration D029DG below?
Threefold purchase

Illustrations: D029DG_WM_073018, TACKLE_WM

See REF436

What is the mechanical advantage of tackle number 9 as shown in illustration D029DG below?
4

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage, neglecting friction, of tackle number 5 as shown in illustration D029DG below?
5

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight of 300 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
90 lbs.

Illustrations: D029DG_WM_073018, TACKLE03_WM, TACKLE_WM
See REF436

You are using tackle number 7 in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
55 lbs.

Illustrations: D029DG_WM_073018, TACKLE04_WM, TACKLE_WM
See REF436

You are using tackle number 10 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 4. What is the mechanical advantage of this rig?
20

Illustrations: D029DG_WM_073018, TACKLE2196_WM, TACKLE_WM
See REF436

What is the name of tackle number 3 as shown in illustration D029DG below?
Single luff tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 10 as shown in illustration D029DG below?
5

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 6 as shown in illustration D029DG below?
6

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 4 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 10. What is the mechanical advantage of this rig?
20

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the name of tackle number 4 as shown in illustration D029DG below?
Two-fold purchase

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 11 as shown in illustration D029DG below?
6

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 7 as shown in illustration D029DG below?
2

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

You are using tackle number 8 in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
40 lbs.

Illustrations: D029DG_WM_073018, TACKLE06_WM, TACKLE_WM
See REF436

You are using tackle number 12 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 2. What is the mechanical advantage of this rig?
14

Illustrations: D029DG_WM_073018, TACKLE2014_WM, TACKLE_WM
See REF436

You are using tackle number 4 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook of tackle number 11. What is the mechanical advantage of this rig?
24

Illustrations: D029DG_WM_073018, TACKLE2243_WM, TACKLE_WM
See REF436

A block that can be opened at the hook or shackle end to receive a bight of the line is a _____.
snatch block

Illustrations: TACKLE_WM
See REF437

You are using tackle number 8 in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
40 lbs.

Illustrations: D029DG_WM_073018, TACKLE06_WM, TACKLE_WM
See REF436

You are using tackle number 12 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook (w) of tackle number 2. What is the mechanical advantage of this rig?
14

Illustrations: D029DG_WM_073018, TACKLE2014_WM, TACKLE_WM
See REF436

What is the name of tackle number 5 as shown in illustration D029DG below?
Double luff tackle

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage, neglecting friction, of tackle number 12 as shown in illustration D029DG below?
7

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 8 as shown in illustration D029DG below?
3

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

The grooved wheel inside a block is called a _____.
sheave

Illustrations: TACKLE_WM
See REF436

You are using tackle number 4 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook of tackle number 11. What is the mechanical advantage of this rig?
24

Illustrations: D029DG_WM_073018, TACKLE2243_WM, TACKLE_WM
See REF436

What is the mechanical advantage of a threefold purchase when rove to disadvantage and neglecting friction?
6

Illustrations: TACKLE_WM
See REF436

What is the stress on the hauling part when lifting a 4,200 lbs. weight using a threefold purchase rove to advantage? (Allow 10 percent of the weight per sheave for friction.)
960

Illustrations: TACKLE_WM

See REF436

A metal ring on the bottom of a block, to which the standing part of a tackle is spliced, is known as a(n) _____.
becket

Illustrations: TACKLE_WM
See REF436

Disregarding friction, what is the mechanical advantage of a twofold purchase when rove to disadvantage?
4

Illustrations: TACKLE_WM
See REF436

What is the name of tackle number 6 as shown in illustration D029DG below?
Threefold purchase

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 1 as shown in illustration D029DG below?
1

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

The sheave diameter to be used with a 3-inch manila rope is _____.
6 inches

Illustrations: TACKLE_WM
See REF436

The standing part of a tackle is _____.
that part of the falls made fast to one of the blocks

Illustrations: TACKLE_WM
See REF436

You are using tackle number 12 shown in illustration D029DG below to lift a weight of 300 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
69 lbs.

Illustrations: D029DG_WM_073018, TACKLE05_WM, TACKLE_WM
See REF436

A block and tackle is "rove to advantage". This means that the _____.
hauling part leads through the movable block

Illustrations: TACKLE_WM
See REF436

You are using tackle number 5 as shown in illustration D029DG below to lift a weight. The hauling part of this tackle is bent to the weight hook of tackle number 9. What is the mechanical advantage of this rig?
20

Illustrations: D029DG_WM_073018, TACKLE2229_WM, TACKLE_WM

See REF436

What is the name of tackle number 1 as shown in illustration D029DG below?
Whip

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the name of tackle number 7 as shown in illustration D029DG below?
Runner

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

What is the mechanical advantage of tackle number 2 as shown in illustration D029DG below?
2

Illustrations: D029DG_WM_073018, TACKLE_WM
See REF436

How much force would be required to lift a weight of 200 lbs. using a gun tackle rigged to disadvantage (do not consider friction)?
100 lbs.

Illustrations: TACKLE_WM
See REF436

Safety shackles are fitted with _____.
a threaded bolt, locknuts, and cotter pins

Illustrations: TACKLE_WM
See REF436

Unless extremely flexible wire rope is used, the sheave diameter should always be as large as possible, but should never be less than _____.
20 times the rope diameter

Illustrations: TACKLE_WM
See REF436

A small light tackle with blocks of steel or wood that is used for miscellaneous small jobs is called a _____.
handy-billy

Illustrations: TACKLE_WM
See REF438

You are using tackle number 2 as shown in illustration D029DG below to lift a weight of 100 lbs. If you include 10 percent of the weight for each sheave for friction, what is the pull on the hauling part required to lift the weight?
60 lbs.

Illustrations: D029DG_WM_073018, TACKLE01_WM, TACKLE_WM
See REF436

Finally, your rope may have more than four strands, either twisted together, which produces a rope smoother than three-stranded but not so strong, or plaited, over and under each other. The latter is braided rope, which is smooth, strong and non-kinking. Opening out a strand of rope (Strand II in Diagram) reveals a number of yarns, laid up in the opposite direction to the strands to give the rope flexibility (except in certain specialized lines such as non-kinkable rope used for boats' falls).Teasing out a yarn reveals the fibers which have almost invariably a right-handed twist. In the U.S.A. the size of a rope is commonly given by its diameter, or thickness, although its circumference may also be used. (In Britain, rope sizes are always given as circumferences.) The size of the yarns which make up the rope are based upon the number of a particular thickness of yarn needed to make up one strand with a diameter of 1/2 in. Thus a standard rope of 3 in. circumference will contain three strands each of i in. diameter and each strand will contain 18 yarns. The size of these yarns is therefore said to be "18s". Smaller ropes will be made of smaller yarns, which will be known by higher numbers since more of them would be needed to make up a 1/2-in. diameter strand. The reverse applies to ropes larger than 3 in. circumference. In Britain, rope sizes are generally varied by using different numbers of standard sized yarns, 24 of which are needed to make a strand of 1/2 in. diameter. Ropes for general usage are laid up with a standard or plain lay, but others may be twisted up exceptionally tight and hard, which gives them a firm or short lay, or more loosely than normal, which gives them a soft or long lay. A short laid rope is less liable to lose its shape through absorbing water but will be weaker and less pliable than a standard rope, whilst for a long laid rope the advantages and disadvantages are exactly reversed. Most ropes are 'oil spun', i.e. treated with a special lubricant during manufacture to soften the fibers. The few which are not are termed 'dry spun'. Ropes intended for prolonged use in water are 'tanned' or 'barked' or treated with a special waterproof dressing, but those which will be wetted only occasionally, e.g. by rain through being exposed to the weather, are merely soaked in tar. Tarring makes a rope stiffer and heavier and reduces its strength by one-seventh if firm laid, one-sixth if plain laid and one-third if soft laid.

REF422
Diagram 2 shows a hempen rope of three separate strands which have been twisted together so that, as you look at them, they spiral away from left to right. It is, therefore, a right-handed, hawser-laid rope. Since the vast majority of ropes in ordinary, everyday use are of the same construction, it is probable that yours, too, is hawser-laid. However, in your length, the strands, whilst still three in number, may spiral away from right to left, In that event, yours is left-banded, hawser-laid rope. It is possible, though, that your rope has four strands, not three, laid up right-handed round a central heart. If so, it is shroud-laid rope. Or, if it is large, it may be cable-laid, formed of three right-handed ropes laid up together left-handed. Finally, your rope may have more than four strands, either twisted together, which produces a rope smoother than three-stranded but not so strong, or plaited, over and under each other. The latter is braided rope, which is smooth, strong and non-kinking. Opening out a strand of rope (Strand II in Diagram) reveals a number of yarns, laid up in the opposite direction to the strands to give the rope flexibility (except in certain specialized lines such as non-kinkable rope used for boats' falls).Teasing out a yarn reveals the fibers which have almost invariably a right-handed twist. In the U.S.A. the size of a rope is commonly given by its diameter, or thickness, although its circumference may also be used. (In Britain, rope sizes are always given as circumferences.) The size of the yarns which make up the rope are based upon the number of a particular thickness of yarn needed to make up one strand with a diameter of 1/2 in. Thus a standard rope of 3 in. circumference will contain three strands each of i in. diameter and each strand will contain 18 yarns. The size of these yarns is therefore said to be "18s". Smaller ropes will be made of smaller yarns, which will be known by higher numbers since more of them would be needed to make up a 1/2-in. diameter strand. The reverse applies to ropes larger than 3 in. circumference. In Britain, rope sizes are generally varied by using different numbers of standard sized yarns, 24 of which are needed to make a strand of 1/2 in. diameter. Ropes for general usage are laid up with a standard or plain lay, but others may be twisted up exceptionally tight and hard, which gives them a firm or short lay, or more loosely than normal, which gives them a soft or long lay. A short laid rope is less liable to lose its shape through absorbing water but will be weaker and less pliable than a standard rope, whilst for a long laid rope the advantages and disadvantages are exactly reversed. Most ropes are 'oil spun', i.e. treated with a special lubricant during manufacture to soften the fibers. The few which are not are termed 'dry spun'. Ropes intended for prolonged use in water are 'tanned' or 'barked' or treated with a special waterproof dressing, but those which will be wetted only occasionally, e.g. by rain through being exposed to the weather, are merely soaked in tar. Tarring makes a rope stiffer and heavier and reduces its strength by one-seventh if firm laid, one-sixth if plain laid and one-third if soft laid.

REF423
FIBER LINE Any rope that is not wire is fiber rope. Except in a few instances where it has special uses, fiber rope is never called anything but line aboard ship. Lines are classified by both their construction and their material. Nearly all line used in the Navy is three-strand line. Line is made by twisting fibers into threads (or yarns), threads into strands, and strands into rope. Taking the process further, ropes twisted together form a cable—an item seldom seen nowadays. Most lines are three-strand and right-laid; that is, as you look along a line, the twist is to the right. During construction of natural fiber line, a lubricant is added that also serves as a preservative. Large line is measured by circumference. Line 1 3/4 inches and

under in circumference, called small stuff, is identified by the number of threads in the line. A line with twenty-four thread is 1 1/2 inches in circumference. Inasmuch as the numbers of threads per strand are equal, thread numbers in a three-strand line are divisible by 3—24, 21, 18, and so on, down to the smallest—6 thread (3/4 inch). Line from 1 3/4 inches to about 4 inches is manufactured in 1/4-inch graduations. The length of all line and wire rope is usually measured in feet.

REF424
Heaving line: A small line thrown to an approaching vessel, or a dock as a messenger.

REF425
laying a line on deck in a series figure eights so the line will run free without tangling

REF426
Using a safety factor of 6, determine the safe working load of manila line with a breaking stress of 8 tons. Safe Working Load = Breaking Stress / Safety Factor BS = 8 SF = 6 8 / 6 = 1.33

REF427
Using a safety factor of 6, determine the safe working load of a line with a breaking strain of 30,000 pounds. Safe Working Load = Breaking Stress / Safety Factor BS = 30,000 SF = 6 30,000 / 6 = 5000 lb

REF428
Using a safety factor of five, determine what is the safe working load for 3-1/2 inch manila line with a breaking stress of 4.9 tons. Safe Working Load = Breaking Stress / Safety Factor BS = 4.9 SF = 5 4.9 / 5 = .98 tons

REF429
What is the computed breaking strength of a 4-inch manila line? Breaking Strength = circumfrence² 900 4² = 16 900 = 14,400

REF430
What minimum size manila line is required to hold a weight of 932 pounds, if you use a safety factor of six? Circumference "size" = √ Safety Factor Weight of load / 900 In this problem: C = √ 6 932 / 900 = 2.492

REF431
a rope rove through a single block hung from a mast, funnel, etc., as a means of hoisting workers, tools, flags, or the like.

REF432
What is the difference of pilot ladder and Jacob ladder? They are used to allow access over the side of ships and as a result Pilot ladders are often incorrectly referred to as Jacob's ladders. A pilot ladder has specific regulations on step size, spacing and the use of spreaders. It is the use of spreaders in a pilot ladder that distinguishes it from a Jacob's ladder.

REF433
serving a protective or decorative winding of tarred yarn, marline, or another similar material around a line

REF434
SLUSH Grease, formerly obtained from the meat boiled in the coppers, used for lubrication and for slushing the spars after scraping them.

REF435
Galvanized wire is generally used for standing rigging or towing hawsers because it will lose its zinc coating if constantly run through blocks.

REF436
Calculating Power of a Tackle 10% of the weight of the load X Number of sheaves + Weight of load / Number of sheaves = Force or F/W = 1 + ((1/10 number of sheaves) / T.M.A.) from Merchant Marine Officers' Handbook F = force (in pounds or tons) to be applied at the hauling end of the block W = weight to be lifted T.M.A. = theoretical mechanical advantage, the ratio of W to F, assuming no friction KINDS OF TACKLE Tackles are named according to the number of sheaves in the blocks that are used (single, two-fold, three-fold purchases), according to the purpose for which the tackle is used (yard-tackles, stay-tackles, etc.), or from names handed down from the past (luff-tackles, watchtackles, gun-tackles, Spanish-burtons, etc.). The tackles that may be found aboard cruising boats, and should be known are: 1. Single Whip-A

single fixed block and fall-no increase in power. Gain only in height of lift or change in direction of pull. 2. Gun Tackle-Two single blocks. If lower block is movable, double force is gained. If upper block is movable, triple force is gained. 3. Luff Tackle-A double hook-block and single hook block. Force gained three if single block is movable, four if double block is movable .. 4. Two-Fold or Double Tackle-Two double sheave hook-blocks. Force gained four or five, depending upon application.

REF437
Snatch Block - a block having one side that opens so that a line may be introduced from the side and the block locked around it rather than having to be threaded into it Calculating Power of a Tackle 10% of the weight of the load X Number of sheaves + Weight of load / Number of sheaves = Force or F/W = 1 + ((1/10 number of sheaves) / T.M.A.) from Merchant Marine Officers' Handbook F = force (in pounds or tons) to be applied at the hauling end of the block W = weight to be lifted T.M.A. = theoretical mechanical advantage, the ratio of W to F, assuming no friction KINDS OF TACKLE Tackles are named according to the number of sheaves in the blocks that are used (single, two-fold, three-fold purchases), according to the purpose for which the tackle is used (yard-tackles, stay-tackles, etc.), or from names handed down from the past (luff-tackles, watchtackles, gun-tackles, Spanish-burtons, etc.). The tackles that may be found aboard cruising boats, and should be known are: 1. Single Whip-A single fixed block and fall-no increase in power. Gain only in height of lift or change in direction of pull. 2. Gun Tackle-Two single blocks. If lower block is movable, double force is gained. If upper block is movable, triple force is gained. 3. Luff Tackle-A double hook-block and single hook block. Force gained three if single block is movable, four if double block is movable .. 4. Two-Fold or Double Tackle-Two double sheave hook-blocks. Force gained four or five, depending upon application.

REF438
Handy Billy - a loose block and tackle with a hook or tail on each end, which can be used wherever it is needed. Usually made up of one single and one double block.

REF439
Sheave(pronounced as "Shiv" - the wheel of a block pulley

REF440
Snatch Block - a block having one side that opens so that a line may be introduced from the side and the block locked around it rather than having to be threaded into it