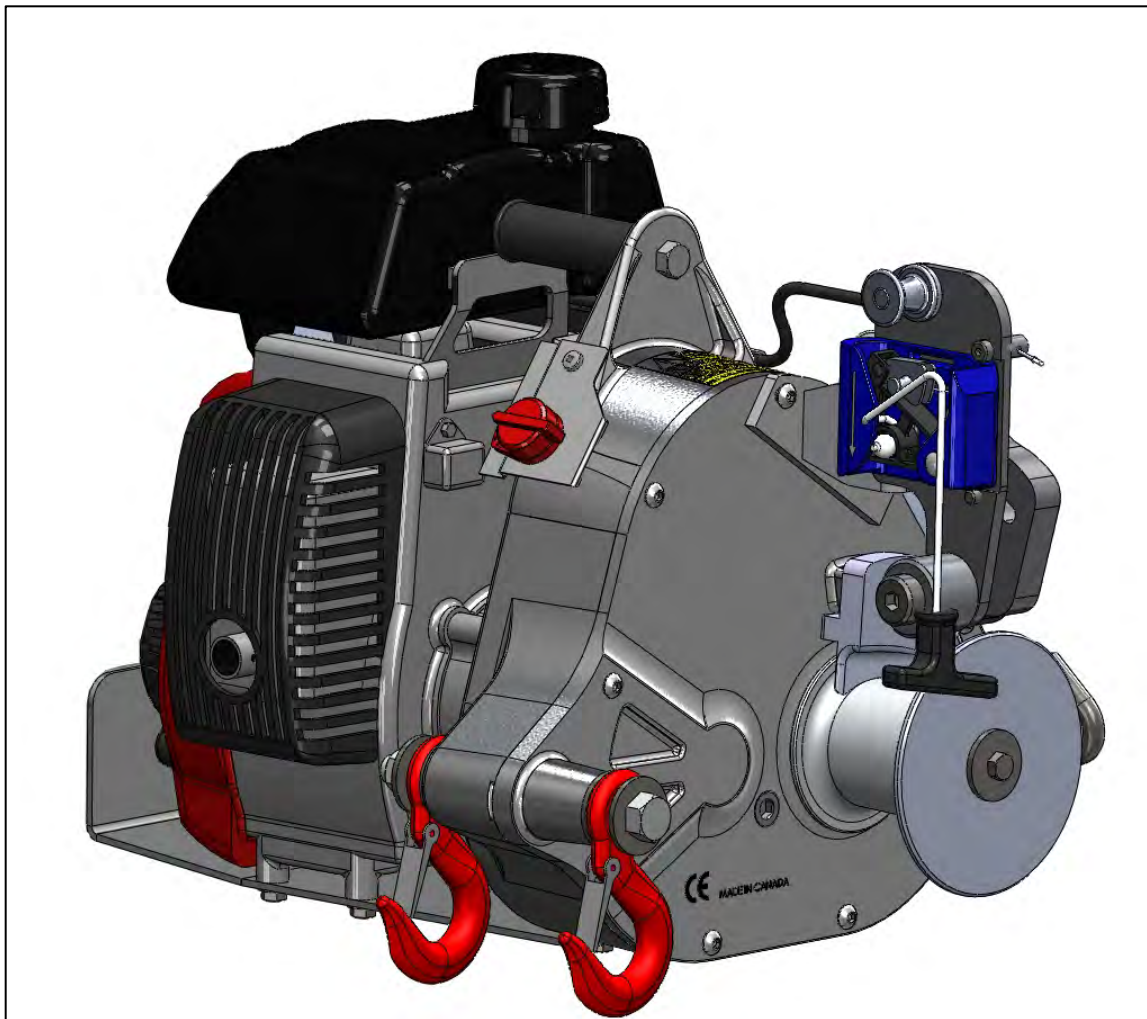




READ
CAREFULLY
BEFORE USE

TUF-Lugger™ Lite Lifting Cable Puller - Gas 41000-400

USER MANUAL



Maximum pulling force (single line): 1000 lb (450 kg)
Rated lifting capacity (single line): 555 lb (250 kg)

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Introduction

DCD Design wishes to thank you for purchasing a *TUF-Lugger™ Lite*. This manual was written to help you make the best use of your new winch and to use it in the most secure way. **READ IT CAREFULLY BEFORE USING THE WINCH.** For any problems or questions please contact us directly.

1.0 Safety guidelines

The TUF-Lugger™ Lite is designed for lifting objects at angles up to vertical. It is fitted with a rope grabbing system that can maintain the load in position, and provide stop and go operation. **THE ROPE GRABBING SYSTEM IS NOT DESIGNED TO STOP A FAST MOVING LOAD OR TO LIFT PEOPLE.** The use of a lifting device implies serious risks of injuries, property damage or even death. **DO NOT UNDERESTIMATE ITS POTENTIAL DANGER.**

⚠ WARNING **WHEN LIFTING, NEVER GO OVER THE RATED LIFTING CAPACITY (555 lb (250 kg)) SINGLE LINE.**


⚠ WARNING **WHEN LIFTING, NEVER BYPASS THE ROPE GRABBING SYSTEM.**

⚠ WARNING **NEVER SHOCKLOAD THE SYSTEM.**

⚠ WARNING **NEVER OPERATE WITHOUT PROPER TRAINING AND SUPERVISION. REMEMBER THE FIRST CAUSE OF ACCIDENT IS HUMAN ERROR. MAKE SURE EVERY PERSON HAS RECEIVED THE APPROPRIATE TRAINING FOR THE JOB.**

1.1 Safety messages

Your safety and the safety of others are very important. You will find important safety messages in this manual. **READ THEM CAREFULLY.**

These security messages are warning you of potential injuries to either you or others. Every safety message is preceded by a warning symbol  and one of the following terms: DANGER, WARNING or CAUTION.

These indicator words mean:

⚠ DANGER You WILL be MORTALLY or SEVERELY INJURED if you do not follow these instructions.

⚠ WARNING You COULD be MORTALLY or SEVERELY INJURED if you do not follow these instructions.

⚠ CAUTION You COULD be INJURED if you do not follow these instructions.

1.2 Labels

1.2.1 Serial number and warning label

The *serial number and warning* label is positioned on the right side of the winch housing. Read the meaning of all four icons (figure 1 to the right):

1. Read this instruction manual and Honda engine user’s manual prior to using the winch.
2. Only use low-stretch rope. Minimum diameter: 1/2” (12 mm). Maximum diameter: 1/2” (13 mm).
3. Never place your hands near the moving parts while the engine is running.
4. Never use the winch for lifting people.



1.2.1 Sound power level label

The *sound power level* label is also positioned on the right side of the winch housing. The meaning of the icon in figure 1 to the right is:

1. The guaranteed sound power level is 105 dB. We recommend wearing hearing protection when using your *TUF-Lugger™ Lite*.



1.2.3 Rope ‘DANGER’ label

The *rope ‘DANGER’* label is positioned on the top of the winch housing. The meaning of the icon in figure 1 to the right is:

1. It is IMPERATIVE to use ONLY DCD Design double braided polyester rope 1/2” (12-13 mm) with buried eyed splice and a minimal breaking strength of 6945 lb (3150 kg).



1.3 Safety information

⚠ WARNING DO NOT LET CHILDREN USE THE *TUF-LUGGER™ LITE*. KEEP CHILDREN AND ANIMALS AWAY FROM THE WORK AREA.

⚠ WARNING NEVER LET SOMEONE WITHOUT TRAINING USE THE *TUF-LUGGER™ LITE*. MAKE SURE THE USER KNOWS ABOUT THE SAFETY AND USAGE PROCEDURES AND HAS READ THIS MANUAL AND THE HONDA ENGINE USER MANUAL. THE OPERATOR SHOULD BE ABLE TO OPERATE A LIFTING DEVICE AND BE AWARE OF ALL ASPECTS OF SUCH OPERATIONS. HE SHOULD ALSO BE AWARE OF LOCAL REGULATION.

▲ WARNING INFORM ALL USERS OF THE SAFETY GUIDELINES AND USAGE PROCEDURES.

▲ WARNING FAMILIARIZE YOURSELF WITH THE PRODUCT AND THE SAFETY GUIDELINES BEFORE WORKING WITH THE WINCH.

▲ WARNING MAKE SURE THAT YOUR CLOTHES ARE NOT GOING TO GET CAUGHT INTO THE WINCH MOBILE PARTS.

▲ WARNING NEVER USE THE *TUF-LUGGER™ LITE* TO LIFT PEOPLE.

▲ WARNING USE ONLY 1/2" (12 MM-13 MM) DIAMETER DOUBLE BRAID DCD DESIGN POLYESTER ROPE WITH THIS WINCH.

▲ WARNING NEVER LIFT OBJECTS OVERHEAD OF PEOPLE.

▲ WARNING ALWAYS USE THE *TUF-LUGGER™ LITE* HORIZONTALLY, USING A PULLEY OR THE VERTICAL PULL WINCH SUPPORT TO REDIRECT THE ROPE VERTICALLY.

▲ DANGER THE EXHAUST GAS CONTAINS TOXIC CARBON MONOXIDE. NEVER RUN THE ENGINE IN A CLOSED AREA WITHOUT PROPER VENTILATION.

▲ CAUTION REPLACE ANY SAFETY LABELS THAT ARE DAMAGED, ILLEGIBLE OR MISSING.

▲ WARNING NEVER PUT YOUR HANDS ON THE CAPSTAN DRUM, THE ROPE GRABBING SYSTEM, THE ROPE ENTRY PULLEY OR NEAR THE ROPE GUIDE WHEN THE ENGINE IS RUNNING.

▲ WARNING ALWAYS KEEP BYSTANDERS OUTSIDE THE WORKING AREA.

▲ DANGER NEVER PULL ROLLING OBJECTS THAT MIGHT ROLL OUT OF YOUR CONTROL.

▲ WARNING NEVER TRY TO MOVE FIXED OR OBSTRUCTED LOADS.

▲ WARNING AVOID EXCESSIVE INCHING (E.G. GIVING SHORT PULSES TO THE MOTOR).

▲ WARNING ALWAYS INITIATE MOVEMENTS OF THE LOAD WITH THE LOWEST AVAILABLE SPEED. THE ROPE SHALL BE TIGHTENED AND SHALL NOT BE IN THE SLACK-CONDITION WHEN THE LOAD MOVEMENT BEGINS.

▲ WARNING SIDE-PULL OF LOAD IS NOT ALLOWED WITH THE *TUF-LUGGER™ LITE*.

⚠ WARNING KEEP IN MIND THAT YOUR SET-UP IS ONLY AS RESISTANT AS THE WEAKEST LINK. THIS IS WHY IT IS VERY IMPORTANT TO USE THE ADEQUATE ACCESSORIES IN ACCORDANCE WITH THE JOB TO BE DONE. IN THIS CASE (LIFTING), IT IS RECOMMENDED TO HAVE A **10 TO 1 SAFETY FACTOR** FOR ALL ACCESSORIES.

2.0 Before first use

2.1 Upon receiving the winch

Inspect the box to detect any apparent damage. If there is damage or missing parts, inform the carrier immediately.

2.2 Is the engine ready to work?

2.2.1 Engine oil

Fill the Honda engine with a maximum of 0.25 litre of SAE 10W-30 API SJ oil. For special usage or conditions such as extreme weather, refer to the Honda engine user manual. Check the oil level on a horizontal surface. The oil level should be up to the edge of the opening.

2.2.2 Gas (petrol)

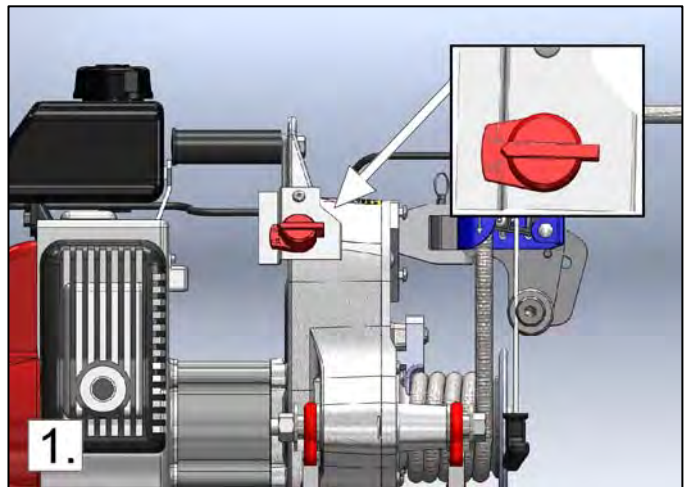
Fill the gas (petrol) tank with **UNLEADED GASOLINE**. Do not use oil/gas (petrol) mixture; your *TUF-Lugger™ Lite* is equipped with a 4-stroke engine. Refer to the Honda engine user manual.

2.2.3 Engine start-up

Refer to the Honda engine user manual for start-up instructions.

FIRST USE: LET THE ENGINE RUN FIVE (5) MINUTES AT IDLE BEFORE FIRST PULL.

The engine on-off switch is located on the winch housing, to the left of the handle (figure 1 to the left).



Make sure to pull on the recoil starter in the axis of the rope outlet (figure 1 below). If you pull vertically (figure 2 below) the friction of the rope on the plastic cover might damage the rope and the cover.



2.2.4 Capstan drum

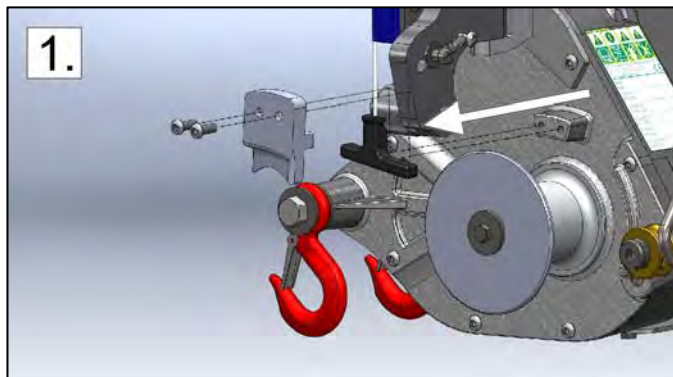
Your *TUF-Lugger™ Lite* is equipped with the 2-1/4" (57 mm) diameter capstan drum and the 4-5/8" (117 mm) diameter safety lip.

If you wish to change the drum for the 3-3/8" (85 mm) drum (sold separately), you will also need to purchase and install the 5" (127 mm) diameter safety lip. To do so, follow these simple steps:

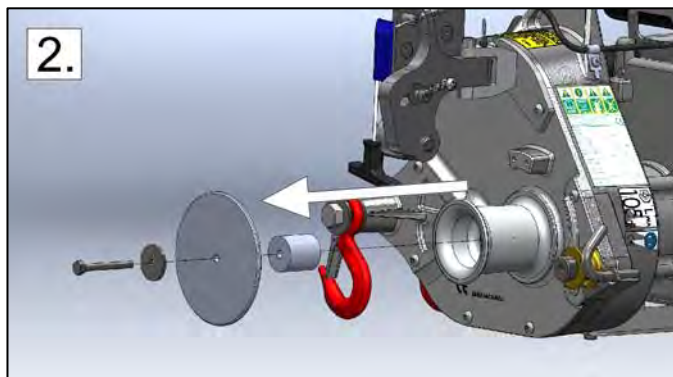
The tools required to change the drum are:

- A 5/32" (4 mm) hex wrench (included with your winch).
- An 7/16" (11 mm) wrench or adjustable wrench (not included).

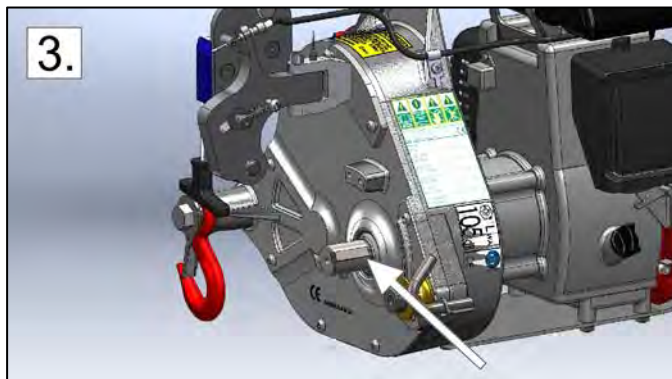
1) Figure 1: Remove the two bolts holding the rope guide and then, remove the rope guide;



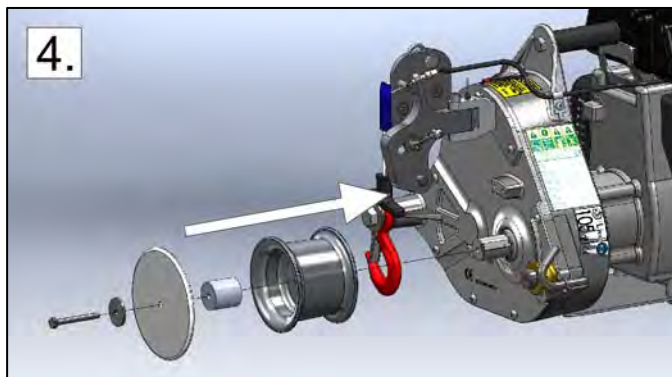
2) Figure 2: Remove the hex bolt holding the safety lip and drum using the 7/16" (11 mm) wrench. Then, remove the washer, the safety lip and the spacer bushing;



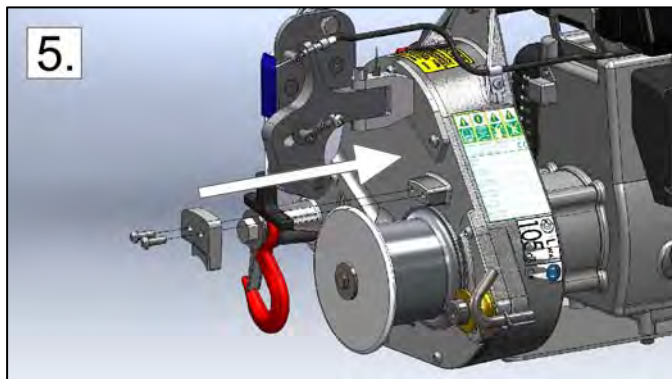
- 3) Figure 3: Remove the drum from the shaft. If necessary, you may push it forward with two screwdrivers. **Make sure that the shaft key stays in place.**



- 4) Figure 4: Insert the 3-3/8" (85 mm) drum on the winch shaft. Insert the washer, the safety lip and the spacer bushing on the hex bolt and insert this assembly in the hole of the shaft. Then, tighten the hex bolt with the 7/16" (11 mm) wrench;



- 5) Figure 5: Insert the new rope in position and tighten it using the two (2) bolts.



IMPORTANT: Make sure that the rope guide is not in contact with the capstan drum.

2.2.5 Spark arrestor

In certain areas, it is forbidden to use a gas (petrol) engine without a spark arrestor. Check local regulations. An optional spark arrestor is available from DCD Design and/or *Honda Power*



Products dealers.

Installation:

- 1) Figure 1: Insert the spark arrestor into the exhaust tube. Make sure the holes are aligned;
- 2) Figure 2: Fasten lightly the metal screw provided with the appropriate screwdriver.

Refer to the Honda engine user manual for the spark arrestor cleaning instructions.

- Portable Winch part number: 42120-000
- Honda part number: 350-2M7-801

3.0 Winch usage

⚠ WARNING MOST WINCHING SITUATIONS PRESENT **POTENTIAL DANGERS!**

3.1 Rope

⚠ WARNING STAY OUT OF THE WINCH LINE'S PATH.

3.1.1 Rope type

⚠ WARNING USE **ONLY** LOW STRETCH 1/2" (12 OR 13 MM) DIAMETER DCD DESIGN DOUBLE BRAIDED POLYESTER ROPE WITH A MINIMAL BREAKING POINT OF 6945 LB (3150 KG) WITH THIS WINCH. PLEASE CONTACT US FOR OTHER ROPE TYPE'S SUITABILITY.

⚠ WARNING DO NOT USE 3-STRAND POLYPROPYLENE YELLOW ROPE!

- ⚠ Polypropylene and polyethylene ropes are dangerous for winching because of their great elasticity and low melt point.
- ⚠ Make sure the rope is not damaged and that it offers an adequate resistance to pull the load.

⚠ WARNING STRETCH EQUALS DANGER!

- ⚠ A stretched rope can recoil and cause serious burns as the rope leaves your hand.
- ⚠ All ropes stretch: a longer one more than a shorter one. The more you pull, the more it stretches.
- ⚠ A stretched rope can also move the load in an unpredictable or dangerous way.
- ⚠ A stretched rope can recoil and bring your hand towards the winch causing severe injuries. **NEVER WRAP THE ROPE AROUND YOUR HAND.**

⚠ CAUTION ALWAYS WEAR **GLOVES.**

3.1.2 Rope maintenance

⚠ CAUTION VISUALLY INSPECT YOUR ROPE **BEFORE EACH USAGE.** IF IT SHOWS ANY SIGN OF DETERIORATION (CUT STRANDS, EXCESSIVE ABRASION), REPLACE IT.

⚠ CAUTION IF YOUR ROPE IS DIRTY, WASH IT. DIRTY ROPES DETERIORATE FASTER AND CAUSE PREMATURE WEAR OF THE PARTS IN CONTACT WITH THE ROPE SUCH AS THE CAPSTAN DRUM AND ROPE GUIDE.

3.2 At the end of the rope

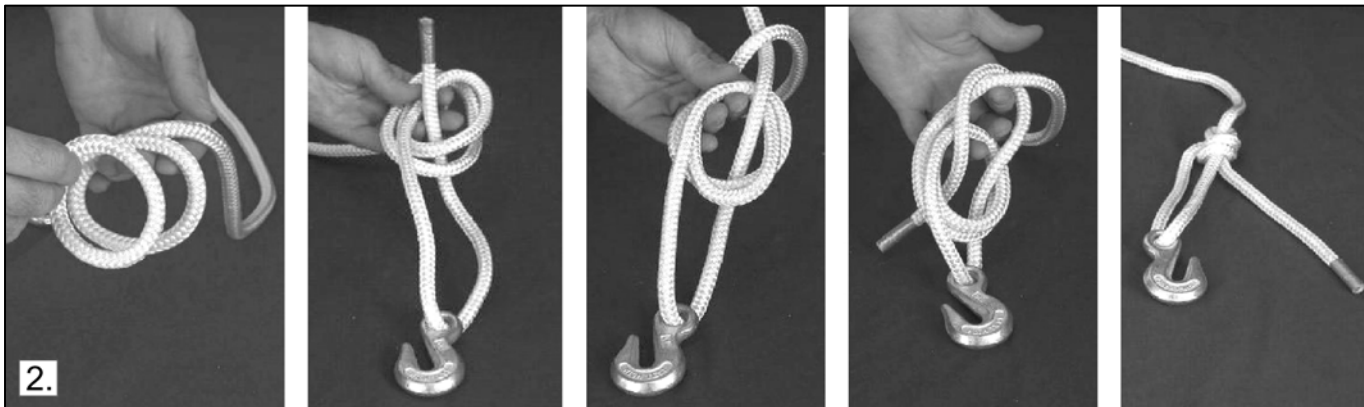
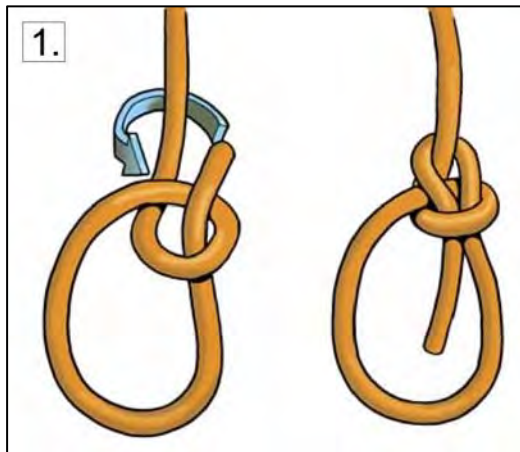
3.2.1 Recommendations

Since the *TUF-Lugger™ Lite* can be used for pulling and lifting, there are some guidelines to follow:

3.2.1.1 Pulling

For pulling loads, you have to attach the load to the end of the rope. Even if a simple knot can do the job, we recommend the installation of a hook with the bowline knot (figure 1 on the right) because it can be easily undone if you need to change the hook. Moreover, it retains about 70% of the rope's capacity while most knots will reduce it by more than 50%.

Even better, the double bowline knot (figure 2 below) will keep about 75% of your rope's capacity.



3.2.1.2 Lifting - Rope with buried eyed splice

For lifting, again, you have to attach the load to the end of the rope. Even if you believe that a bowline knot could do the job, it is **STRONGLY RECOMMENDED** to use the DCD Design rope with buried eyed splice. The installation of a hook with a strong enough safety factor carabiner or shackle to the rope will help prevent any problems that might occur in case of knot failure.



NOTE: Please, check with local authority for safety regulation in your area.

3.3 Winch anchors

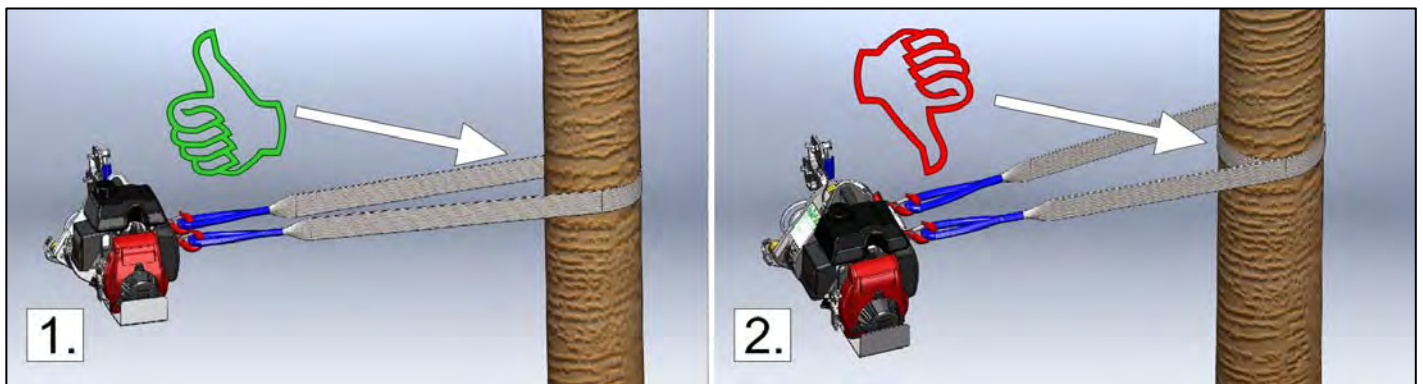
The winch is anchored to a fixed point using the included polyester sling or with optional anchoring devices and the rope end is tied to the object you want to move. The load is moving towards the winch when you pull the rope.

3.3.1 Using the polyester sling (included with the winch)

Go around the anchor point with the sling. Insert each end of the sling in one of the safety hooks located on the winch (figure 1 below).

Position the winch in line with the load. When the winch is under tension, it will try to align itself with the load. The friction of the sling against the anchor point could prevent correct alignment. If that is the case, release the tension on the rope and position the sling on the anchor point so that the tension is equally distributed on both winch anchor hooks.

CAUTION **DON'T DO THIS!** WHEN YOU ANCHOR THE WINCH, MAKE SURE THAT YOU **DO NOT** DO A COMPLETE WRAP AROUND THE ANCHOR POINT (FIGURE 2 BELOW). THIS SET-UP WILL PREVENT PROPER ALIGNMENT OF THE WINCH WITH THE LOAD AND WILL PUT UNEVEN TENSION ON THE WINCH ANCHOR HOOKS.



CAUTION AVOID INSTALLING THE SLING ON SHARP EDGES THAT MIGHT DAMAGE IT. WHETHER YOU ARE USING A POST, A TREE OR A STUMP, ALWAYS INSTALL THE SLING NEAR THE ANCHOR'S BASE.

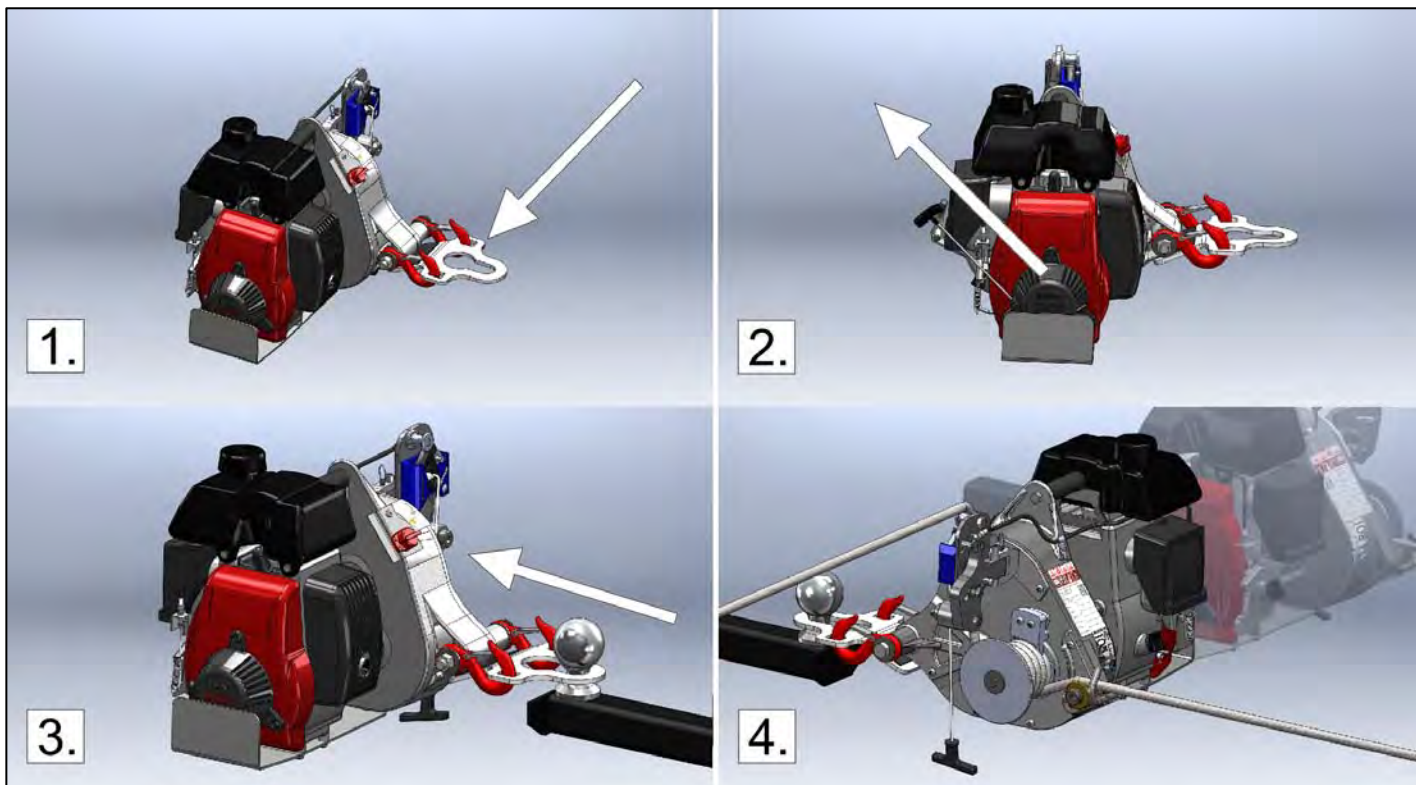
CAUTION USING A STUMP AS AN ANCHOR POINT MEANS PAYING SPECIAL ATTENTION IN ORDER TO PREVENT THE SLING FROM SLIPPING OVER IT.

WARNING MAKE SURE THE ANCHOR POINT IS STRONG ENOUGH TO RESIST THE PULL WITHOUT BREAKING OR BEING DAMAGED.

3.3.2 Using the towing ball adapter (42200-030) for tow balls up to 2" (50 mm) diameter

- 1) Figure 1: Push the safety hooks in the rectangular openings of the hitch plate. The rubber plate must be under the winch;
- 2) Figure 2: Start the winch engine;
- 3) Figure 3: Slide the plate on the ball hitch and pull the winch forward;
- 4) Figure 4: Wrap the rope around the drum and start winching. The winch will align itself automatically with the load.

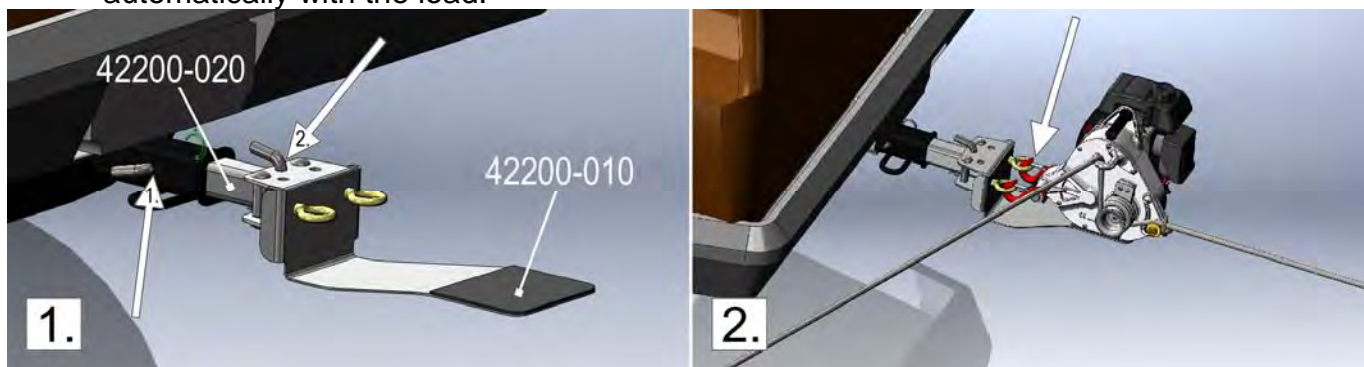
5) **NOTE: Do not leave the winch on the hitch with the engine running; the resting position will cause the Oil Alert™ device to turn the Honda engine off (see section 3.5).**



CAUTION USE THE TOWING BALL ADAPTER ONLY WITH CATEGORY II BALL HITCH (3300 LB (1500 KG)) OR HIGHER. MAKE SURE THE ANCHORING VEHICLE'S HAND BRAKE IS ON AND WORKING PROPERLY. POSITION BLOCKS BEHIND THE WHEELS TO PREVENT ROLL BACK.

3.3.3 Using the winch support plate (42200-010) with square tubing 50 mm (2") (42200-020)

- 1) Figure 1, no. 1: Slide the square tubing (42200-020) into the vehicle's receiver and secure it with both the hitch pin and the "R" pin;
- 2) Figure 1, no. 2: Slide the winch support plate (42200-010) onto the square tubing and secure it with both the hitch pin and the "R" pin;
Note: Its lateral movement can be adjusted by positioning the bolts into the square holes;
- 3) Figure 2: Attach the winch anchor hooks to the eye bolts;
- 4) Figure 2: Wrap the rope around the drum and start winching. The winch will align itself automatically with the load.



⚠ CAUTION IF YOU NEED TO PULL DOWNWARD, YOU WILL NEED TO INSTALL EITHER A PULLEY OR A ROLLER TO PREVENT DAMAGE TO THE WINCH SUPPORT PLATE.

⚠ CAUTION MAKE SURE THE ANCHORING VEHICLE'S HAND BRAKE IS ON AND WORKING PROPERLY. POSITION BLOCKS BEHIND THE WHEELS TO PREVENT ROLL BACK.

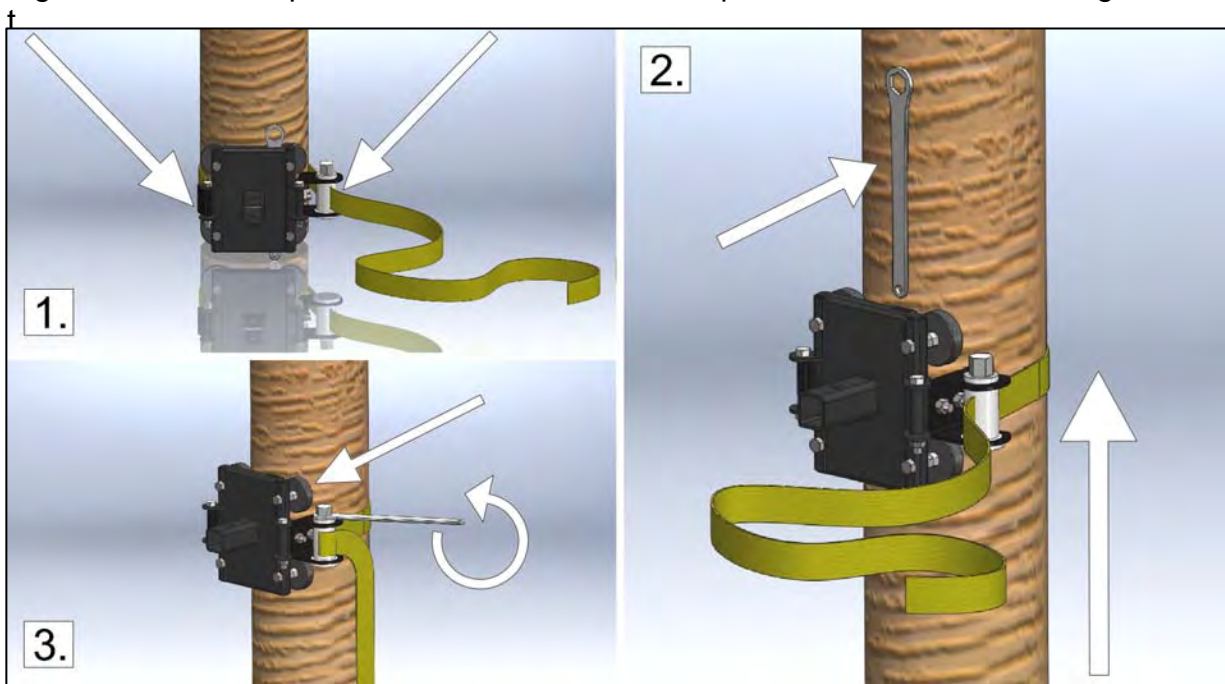
⚠ CAUTION IF YOU NEED TO PULL DOWNWARD, YOU WILL NEED TO INSTALL EITHER A PULLEY OR A ROLLER TO PREVENT DAMAGE TO THE WINCH SUPPORT PLATE.

⚠ CAUTION MAKE SURE THE ANCHORING VEHICLE'S HAND BRAKE IS ON AND WORKING PROPERLY. POSITION BLOCKS BEHIND THE WHEELS TO PREVENT ROLL BACK.

3.3.4 Using the pole mount with anchor strap (42200-040)

The pole mount is intended to use with either the winch support plate (42200-010) or the vertical pull winch support (42200-050). Therefore, you must first install the pole mount. To do this, follow these steps:

- 1) Figure 1: Place the pole mount at the base of the pole or tree. Insert the sling's hook into

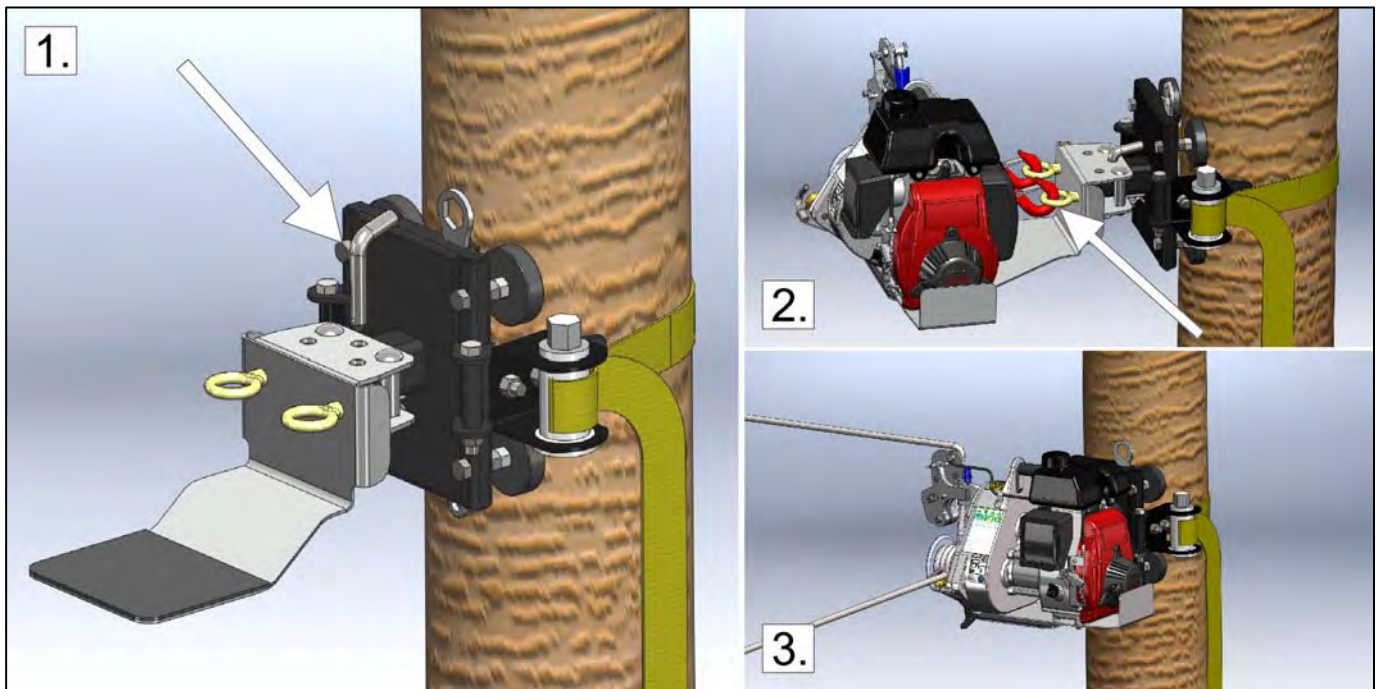


- the left; then feed the sling's end through the ratchet system;
- 2) Figure 2: Slide the whole set-up upward to the desired height and remove the supplied wrench;
- 3) Figure 3: Tighten the sling with the wrench while making sure the rubber pads are properly positioned. The pads should offer maximum contact surface with the tree or pole.

3.3.4.1 With the winch support plate (42200-010)

After the installation of the tree/pole mount (section 3.3.5), follow these steps:

- 1) Figure 1: Insert the winch support plate onto the square tubing of the pole mount (42200-040) and fasten it down with the hitch pin and "R" pin;
Note: Its lateral movement can be adjusted by positioning the bolts into the square holes;
- 2) Figure 2: Attach the winch anchor hooks to the eye bolts of the winch support plate;
- 3) Figure 3: Wrap the rope around the drum and start winching. The winch will align itself automatically with the load.



CAUTION IF YOU NEED TO PULL DOWNWARD, YOU WILL NEED TO INSTALL EITHER A PULLEY OR A ROLLER TO PREVENT DAMAGE TO THE WINCH SUPPORT PLATE.

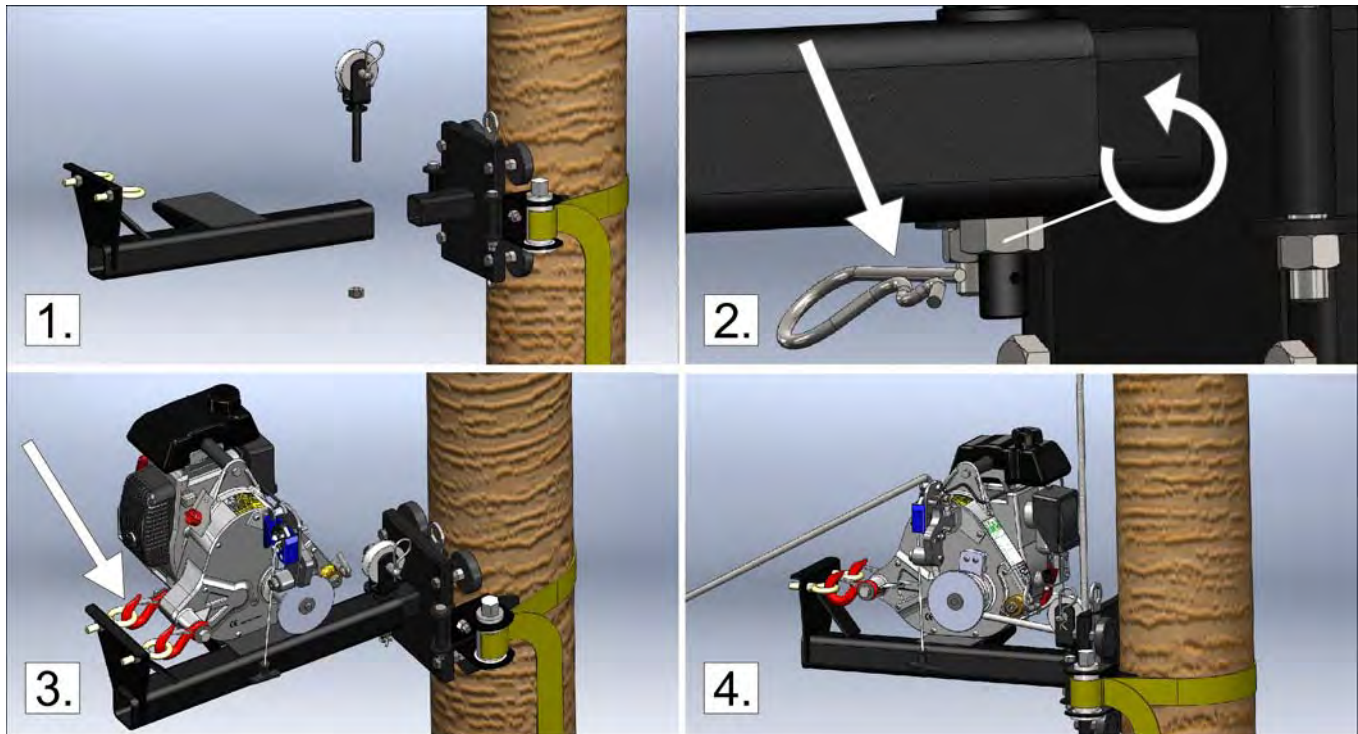
WARNING AFTER PULLING FOR A FEW SECONDS WITH THE POLE MOUNT, RELEASE THE TENSION OFF THE *TUF-LUGGER™ LITE*. CHECK THE SOLIDITY OF THE INSTALLATION AND TIGHTEN THE SLING AGAIN.

3.3.4.2 With the vertical pull winch support (42200-050)

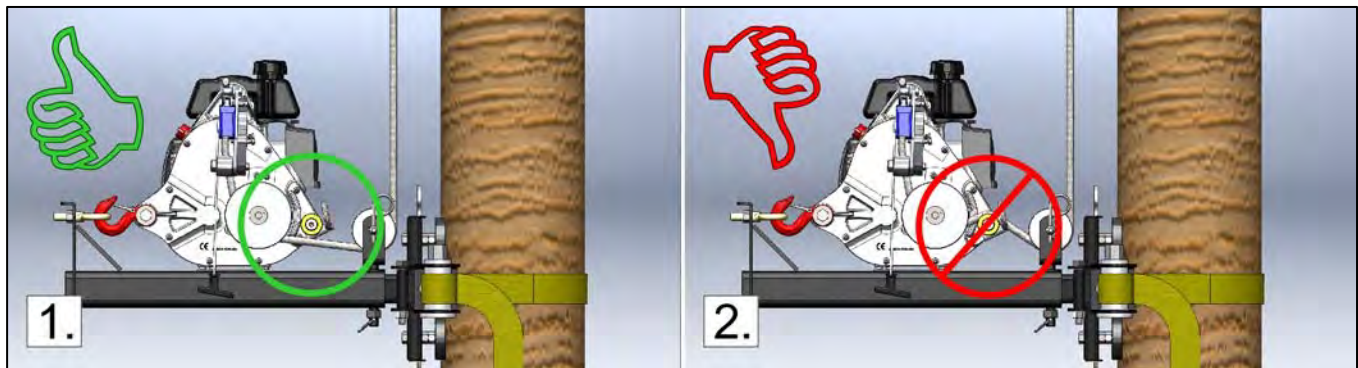
After the installation of the tree/pole mount (section 3.3.5), follow these steps:

- 1) Figure 1: Insert the vertical pull winch support onto the square tubing of the pole mount (42200-040), align the holes and insert the pulley;
- 2) Figure 2: Tighten the nut with your fingers until it touches the support. Then reinforce it with the "R" pin;
- 3) Figure 3: Attach the winch anchor hooks to the eye bolts of the vertical pull winch support;

4) Figure 4: Wrap the rope around the drum and align the vertical support pulley with the rope axe and start to pull;



⚠ WARNING **IMPORTANT:** DON'T GO OVER THE ROPE ENTRY PULLEY OF THE WINCH WITH THE ROPE (FIGURE 2 BELOW) AS IT WILL CREATE FRICTION AND WILL REDUCE LIFTING CAPACITY. **GO UNDER THE ROPE ENTRY PULLEY** (FIGURE 1 BELOW). IN THIS CASE, THE ROPE ENTRY PULLEY OF THE WINCH WILL NOT BE USED.



⚠ WARNING **IMPORTANT:** AFTER PULLING FOR A FEW SECONDS, RELEASE THE TENSION AND CHECK THE SOLIDITY OF THE INSTALLATION AND TIGHTEN THE SLING OF THE TREE/POLE MOUNT AGAIN.

3.4 Moving a load

⚠ WARNING USING COMMON SENSE WHILE MOVING A LOAD IS THE KEY TO A SECURE WINCH USAGE.

The great variety of situations encountered when winching prevents us from providing specific instructions; however you need to consider the following points:

⚠ WARNING CHECK WINCH POSITION, ROPE CONDITION, SOLIDITY OF THE ANCHOR POINT, KNOTS, CARABINERS OR SHACKLES IN ORDER TO PREVENT INJURIES OR MATERIAL DAMAGE.

⚠ WARNING INSTALL THE ROPE IN SUCH A WAY THAT IT DOES NOT RUB AGAINST OTHER OBJECTS OR THROUGH AN OBSTRUCTION.

⚠ **GENERALLY, IF THE ROPE TOUCHES AN OBJECT, YOUR INSTALLATION IS INCORRECT.**

⚠ WARNING NEVER PUT YOUR HANDS ON THE CAPSTAN DRUM, THE ROPE GRABBING SYSTEM, THE ROPE GUIDE OR THE ROPE ENTRY PULLEY WHEN THE ENGINE IS RUNNING.

⚠ WARNING LOOK AT YOUR SET-UP TO MAKE SURE THAT THE WINCH ANCHORS AND THE ROPE ENTRY PULLEY ARE ALIGNED WITH THE ROPE.

⚠ WARNING WHILE WINCHING, POSITION YOURSELF AWAY FROM THE WINCH IN ORDER TO SEE BOTH THE WINCH AND THE LOAD. PULL **HORIZONTALLY** ON THE ROPE. THE TENSION YOU EXERT ON THE ROPE WILL KEEP THE WINCH LEVELED. DO NOT OPERATE WITH THE WINCH TILTED OR THE OIL ALERT™ WILL KICK IN (SEE SECTION 3.5).

⚠ DANGER DO NOT WRAP THE ROPE AROUND YOUR HANDS OR YOUR BODY! ALSO BEWARE OF THE ROPE ACCUMULATING NEXT TO YOU; MAKE SURE YOUR FEET DO NOT GET TANGLED IN IT.

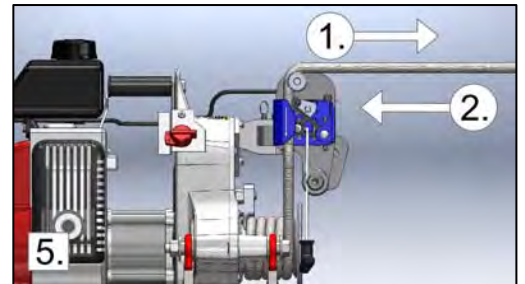
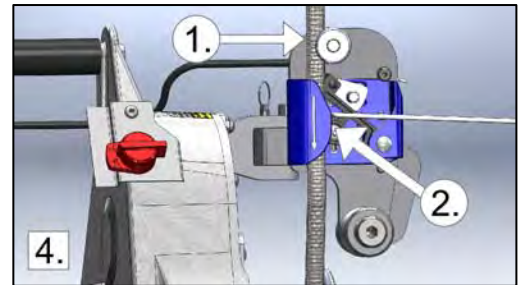
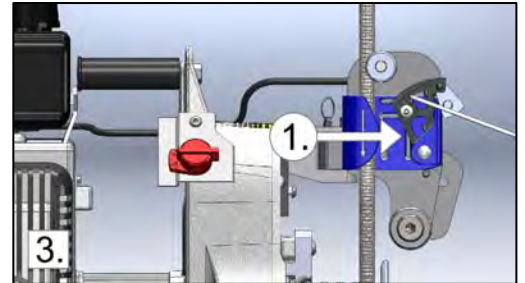
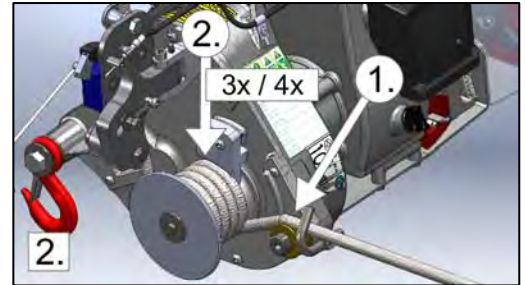
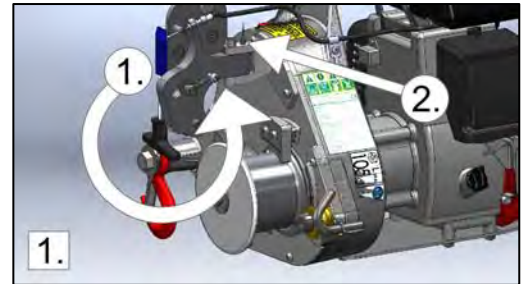
⚠ WARNING CAREFULLY WATCH THE CAPSTAN DRUM DURING THE OPERATION AND MAKE SURE THE ROPE DOES NOT CROSS OVER ON IT. IF IT HAPPENS, RELEASE THE TENSION ON THE ROPE AND STOP THE ENGINE WHILE UNDOING THE CROSS OVER.

⚠ WARNING DO NOT PULL A LOAD DIRECTLY TOWARD THE WINCH IN A DOWNWARD SLOPE SINCE IT COULD SLIDE WITHOUT YOU BEING ABLE TO STOP IT. IN THAT SITUATION, USE A PULLEY AT THE BOTTOM OF THE HILL AND POSITION THE WINCH OUTSIDE OF THE LOAD'S PATH.

3.4.1 Installing the rope on the TUF-Lugger™ Lite

⚠ WARNING NEVER PUT YOUR HANDS ON THE CAPSTAN DRUM OR THE ROPE ENTRY PULLEY WHEN THE WINCH IS RUNNING.

- 1) Figure 1: Open the rope grabbing system (no. 1) and lock in place with spring pin (no.2);
- 2) Start the engine and let it idle for 30 seconds to warm-up;
- 3) Figure 2: Run the rope **OVER** the rope keeper and the rope entry pulley (no. 1) and **UNDER** the drum (except when using vertical pull winch support (see section 3.3.5.2). Then, wrap the rope around the drum 3 or 4 turns (no. 2);
- 4) Figure 3: Insert the rope into rope grabbing system device by pulling the spring-loaded cam lever upwards (no. 1). This will give enough room to insert the rope.
- 5) Figure 4: Make sure the rope goes over the stainless steel knob (no. 1). Then, push the spring-loaded cam back against the rope which will automatically hold a load if the rope end is let go (no. 2).
- 6) Figure 5: As you pull the rope (no. 1), the throttle will engage and load will move. **IMPORTANT:** It is necessary to pull the rope **HORIZONTALLY** to get the load started. To stop load movement, stop pulling on rope (no. 2).
- 7) Stand about 1 m (3') from the winch and pull gently and horizontally on the rope to get the slack until you feel the tension rising on the rope;
- 8) Look at your set-up to make sure that the winch anchor and the rope entry pulley are aligned with the rope;
- 9) Check that the rope does not rub against objects along the path;
- 10) Pull on the rope, the throttle will go up and the winching will start.



3.4.2 Lifting

3.4.2.1 Load lifting charts

⚠ WARNING BEFORE ATTEMPTING TO LIFT A LOAD, IT IS IMPERATIVE TO EVALUATE ITS APPROXIMATE WEIGHT.

When lifting a load, you may figure the minimal number of wraps required on the capstan drum in order to move the load. Below are two charts in accordance with the capstan drum size used.

These charts are designed to help figure out the number of wraps you need to lift a load and also allow its lowering. The friction on the capstan drum is relative to the size of the drum installed, the number of wraps and the load weight, therefore too many wraps may prevent a load to lower.

Number of wraps on the 2-1/4" (57 mm) capstan drum	Weight			
	Pounds		Kilograms	
	From	To	From	To
1	⚠ WARNING Never use only one wrap on the drum ⚠ WARNING			
2	2 lb	175 lb	1 kg	80 kg
3	176 lb	375 lb	81 kg	170 kg
4	376 lb	1000 lb	171 kg	450 kg

Number of wraps on the 3-3/8" (85 mm) capstan drum	Weight			
	Pounds		Kilograms	
	From	To	From	To
1	⚠ WARNING Never use only one wrap on the drum ⚠ WARNING			
2	2 lb	175 lb	1 kg	80 kg
3	176 lb	440 lb	81 kg	200 kg
4	441 lb	570 lb	201 kg	260 kg

3.4.2.2 Lifting operation

⚠ CAUTION ALWAYS WEAR GLOVES.

To lift a load, you will need to decide which anchoring accessories you will use. Refer to section 3.3 Winch anchor to decide.

⚠ WARNING KEEP IN MIND THAT YOUR SET-UP IS ONLY AS RESISTANT AS THE WEAKEST LINK. THIS IS WHY IT IS VERY IMPORTANT TO USE THE ADEQUATE ACCESSORIES IN ACCORDANCE WITH THE JOB TO BE DONE. IN THIS CASE (LIFTING), IT IS RECOMMENDED TO HAVE A **10 TO 1 SAFETY FACTOR** FOR ALL ACCESSORIES.

Refer to the charts in section 3.4.2.1 Load lifting charts for the correct drum size and number of wraps of rope to use

3.4.2.3 Lowering a load

⚠ CAUTION ALWAYS WEAR GLOVES.

⚠ WARNING YOUR TUF-LUGGER™ LITE IS EQUIPPED WITH A ROPE GRABBING SYSTEM. THIS SYSTEM IS NOT DESIGNED TO STOP FAST MOVING LOADS; DAMAGE CAN OCCUR TO THE ROPE AND/OR THE ROPE GRABBING SYSTEM WHEN SHOCK LOADED, AND POSSIBLY LEAD TO CATASTROPHIC FAILURE.

⚠ DANGER DO NOT WRAP THE ROPE AROUND YOUR HANDS OR YOUR BODY! ALSO BEWARE OF THE ROPE ACCUMULATING NEXT TO YOU; MAKE SURE YOUR FEET DO NOT GET TANGLED IN IT.

⚠ DANGER *THE TUF-LUGGER™ LITE* IS NOT DESIGNED FOR LOWERING HEAVY LOADS OVER LONG DISTANCES. FRICTION OF THE ROPE ON THE CAPSTAN DRUM WILL GENERATE HEAT THAT COULD DETERIORATE OR EVEN MELT THE ROPE. YOU MAY WANT TO RUN SOME TESTS IN ORDER TO EXPERIMENT. YOU CAN ALSO USE PULLEY BLOCKS ON THE LOAD TO REDUCE FRICTION ON THE DRUM.

⚠ CAUTION AFTER EACH LOWERING OPERATION, IT IS IMPERATIVE TO CHECK ROPE CONDITION.

⚠ WARNING NEVER GO OVER THE RATED LIFTING CAPACITY (555 LB (250 KG)) SINGLE LINE.

⚠ WARNING NEVER BYPASS THE ROPE GRABBING SYSTEM.

⚠ WARNING NEVER SHOCKLOAD THE SYSTEM.

⚠ WARNING BEWARE OF ROPE SNARLS WHILE LOWERING. IF ROPE GETS TANGLED, PULL ON ROPE WHILE ENGINE IS RUNNING UNTIL CLEARED.

⚠ CAUTION DO NOT TOUCH THE CAPSTAN DRUM IMMEDIATELY AFTER OPERATION AS IT WILL GET HOT AND BURN BARE SKIN.

When you stop lifting with the *TUF-Lugger™ Lite*, the rope grabbing system engages, therefore, holds a load in position and keeps the rope under tension. To release it, follow these steps:

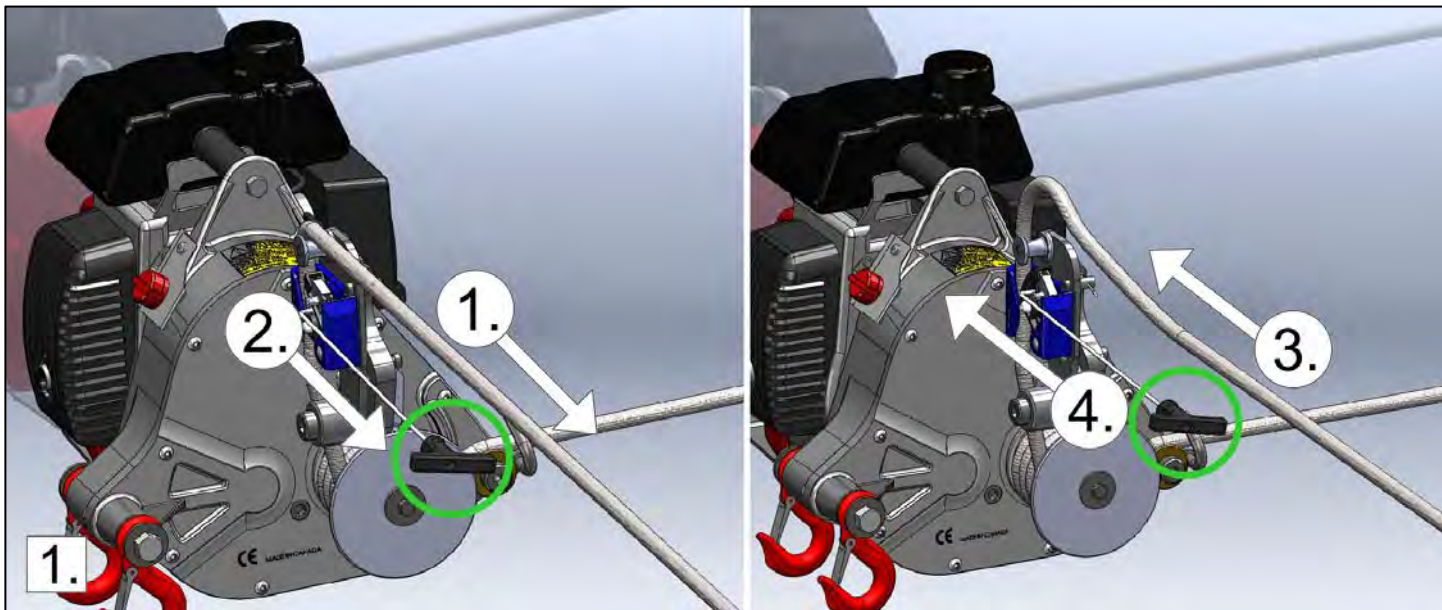
1. Figure 1, no. 1: Pull horizontally (and gently) on the pulling rope to engage the throttle, this will release the tension applied by the rope grabbing system on the pulling rope;
2. Figure 1, no. 2: Pull gently on the rubber handle of the rope attached to the rope grabbing system; this will disengage the system;

⚠ WARNING DO NOT COMPLETELY DISENGAGE THE ROPE GRABBING SYSTEM, IN CASE OF EMERGENCY, SIMPLY LET THE RUBBER HANDLE GO, THE SYSTEM WILL RE-ENGAGE.

⚠ WARNING NEVER LET THE PULLING ROPE SLIDE SUDDENLY IF A LOAD IS SUSPENDED.

3. Figure 1, no. 3: Slowly payout the pulling rope (push it towards the winch if necessary - this may occur if you have four wraps of rope on the drum and a light load) while keeping the rope grabbing system slightly open;
4. Figure 1, no. 4: Release the tension applied to the rubber handle, this will re-engage the rope grabbing system. You can now let go the pulling rope and grab it further;
5. Repeat steps 1 to 4 until the load is at desired position or completely lowered;

6. Once at desired position, let the rubber handle go, this will re-engage the system (if needed);
7. If needed, stop the engine with the on/off switch.



3.4.2.4 Sending the rope back down

After lifting objects, you may want to send the rope back down. Since there is no reverse on the winch and friction is in cause, simply disengage the rope grabbing system, remove the rope from the capstan drum to eliminate friction and let the rope back down. If the rope does not come down, you may have to attach a small rope to it (prior to lifting) in order to pull it back down.

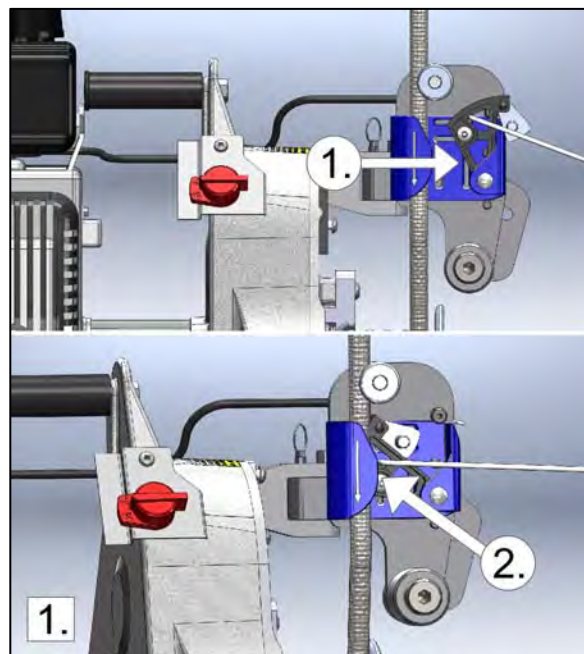
3.4.3 Pulling

To pull a load, follow the steps found in section 3.4.1. However, when pulling a load on the ground that does not risk falling or rolling back, you may want to disengage the rope grabbing system. If you do not and the load get stuck, you may have trouble getting some slack since the rope will already be stretched to its maximum and the rope grabbing system will be very hard to disengage.

⚠ WARNING IF THERE IS ANY RISK THE LOAD MAY FALL OR ROLL BACK, DO NOT COMPLETELY DISENGAGE THE ROPE GRABBING SYSTEM.

Using the winch without the rope grabbing system allows you to release the tension and benefit from the elasticity of the rope to restart pulling and let the engine reach its maximum revolution (RPM).

To disengage the rope grabbing system, open the spring-loaded cam upwards and let it rest on the frame of the rope grabbing system (figure 1, no.1). To re-engage it, lift it upward again and bring it back towards the pulling rope (figure 1, no.2).



3.4.3.1 Releasing the tension

⚠ CAUTION ALWAYS WEAR **GLOVES**.

⚠ WARNING STRETCH EQUALS DANGER!

⚠ DANGER DO NOT WRAP THE ROPE AROUND YOUR HANDS OR YOUR BODY! ALSO BEWARE OF THE ROPE ACCUMULATING NEXT TO YOU; MAKE SURE YOUR FEET DO NOT GET TANGLED IN IT.

3.4.3.1.1 When pulling with the rope grabbing system engaged

If the rope grabbing system is used, when you stop pulling with the *TUF-Lugger™ Lite*, the rope grabbing system engages, therefore, applies pressure on the rope and keeps it under tension. To release it, follow steps 1 to 7 of section 3.4.2.3)

3.4.3.1.2 When pulling with the rope grabbing system disengaged

If the rope grabbing system is not used, when you stop pulling with the *TUF-Lugger™ Lite*, you simply have to release tension gradually to lower the winch gently to the ground.

3.5 Oil Alert™ system

The GX-50 Honda engine is equipped with an Oil Alert™ system that automatically turns off the ignition when the oil level goes below a safe level. The Oil Alert™ system also turns off the ignition when the winch is operating at an angle greater than 20 degrees (± 4 degrees). Make sure that your set-up keeps the winch at a relatively horizontal level while winching and idling.

4.0 Maintenance

4.1 Cleaning

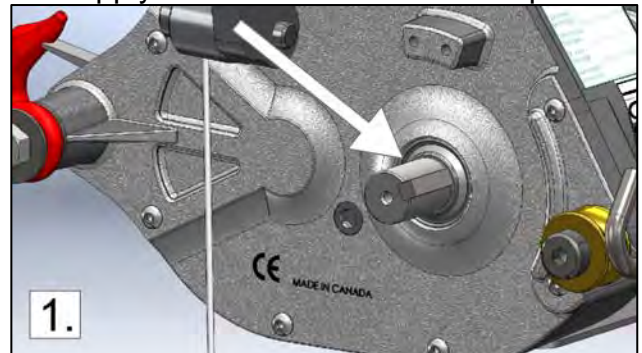
Once your job is done, you should clean and dry your winch.

⚠ CAUTION INSPECT THE WINCH, HOOKS, ROPE GRABBING SYSTEM, ROPE AND POLYESTER SLING TO DETECT ANY DAMAGE OR SIGNS OF WEAR BEFORE AND AFTER EACH USE.

Periodically, remove the capstan drum (section 2.2.4) and clean around the shaft (figure 1 above). Accumulated debris can damage the shaft seal. Apply a bit of oil on the shaft to prevent corrosion.

4.2 Lubrication

The rope entry pulley (figure 1, no 1) must turn freely. Lubricate it regularly with light oil. Dirt and grime lodged between the pulley and the shaft may prevent it from turning freely. If required, disassemble it to clean the shaft. Use an 8 mm hex key.



The gearbox is lubricated at the factory and **SHOULD NOT** require additional lubrication or maintenance. If there is appearance of a leak, check oil level by placing the winch on a level surface and remove the oil plug (figure 1, no. 2).

Lean it toward you; some oil should leak out of the hole. If needed, you can add type SAE80W90EP gear box oil.

4.3 Honda engine

Maintain the engine according to the instructions found in the Honda engine user manual provided.

4.4 Storage

Always store your *TUF-Lugger™ Lite* seated on its guard plate. Refer to the Honda engine user manual for engine storage instructions.

4.5 Spark arrestor

If your *TUF-Lugger™ Lite* is equipped with the optional spark arrestor (42120-000), you must clean it every hundred (100) hours to keep it running properly. Refer to the Honda engine user manual for cleaning instructions.

5.0 Complementary information

5.1 Accessories

A complete line of accessories is available.

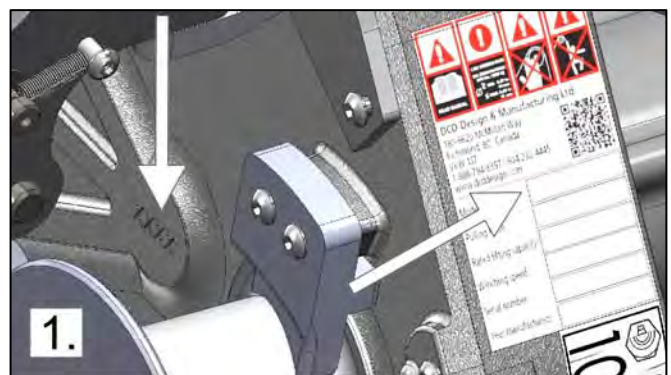
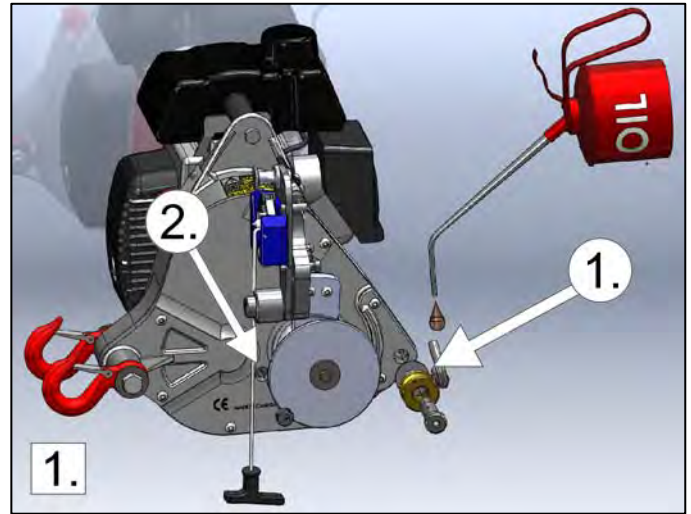
5.2 Serial number localization

The winch serial number is indicated on the *serial number and warning label* located on the right side of the winch housing and is also engraved on the cover of the winch, to the left of the capstan drum.

5.3 Warranty

DCD Design products are warranted against defects in materials and workmanship while owned by the "*original purchaser*" as defined below.

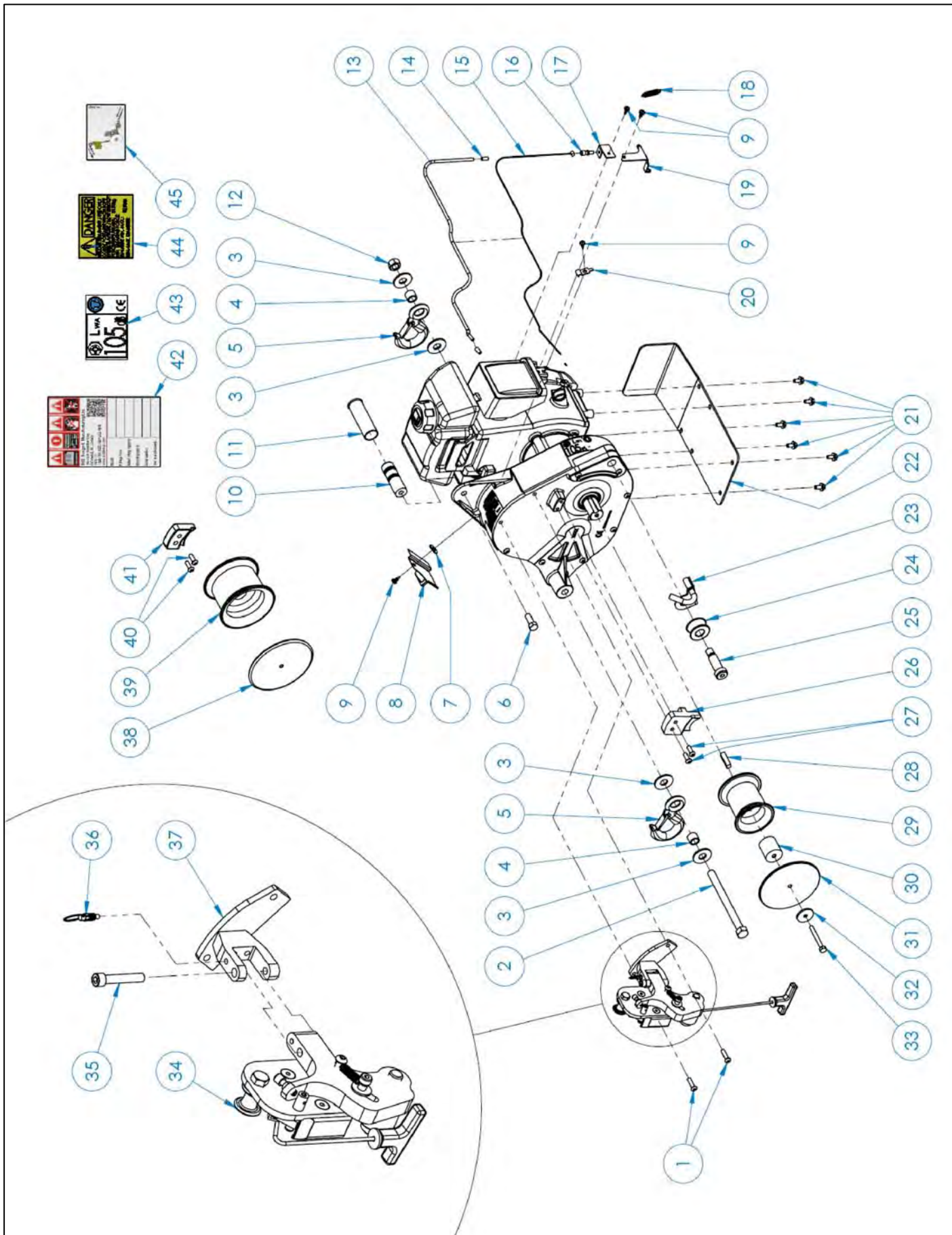
The "*original purchaser*" is defined as the party or entity which purchases the winch and/or accessories from an authorized DCD Design retailer as shown by the original invoice. The warranty ownership is transferable, provided the end-user has a copy of the original purchaser's invoice. This warranty does not apply to "*wear parts*" defined as being in contact with the rope while winching.



The TUF-Lugger™ Lite is covered as follow:

- Winch components:
 - Private use: Two (2) year warranty (service by DCD Design);
 - Commercial use: One (1) year warranty (service by DCD Design);
- Engine: The Honda engine is warranted by Honda Motor Corporation and the duration varies according to country and usage. All Honda service centers can repair the winch engine under warranty. Hang on to your proof of purchase (invoice with serial number). It will be used to establish the beginning of the warranty period.

DCD Design will replace or repair, at its option, any defective product. All other winch accessories are covered by a complete one (1) year warranty. Please refer to the DCD Design warranty policies on www.dcdesign.com if you have any questions.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	31-0024	BHCS 1/4-20 X 1 - SS	6
2	31-0010	HCS 1/2-13 X 6 GR5 - ZN	1
3	35-0004	FLAT WASHER 1/2 - ZN	4
4	10-0098	BUSHING FOR SAFETY HOOK	2
5	42430-020	SAFETY HOOK 3/4 TON	2
6	31-0019	HCS 3/8-24 X 1 - ZN	1
7	35-0006	FLAT WASHER 1/4 - ZN	3
8	70-0023	ON/OFF SWITCH WITH SUPPORT PLATE FOR GXH-50 ENGINE	1
9	39-0007	METAL SCREW NO. 10 X 1/2 (PAN HEAD. SQ. DR.)	4
10	10-0094	WINCH HANDLE	1
11	10-0171	VINYL GRIP FOR 41000-400	1
12	33-0005	NYLON LOCKNUT 1/2-13 ZN	1
13	41-0003	CABLE HOUSING (FEET)	1
14	41-0006	CABLE HOUSING TIP	2
15	41-0005	CABLE STAINLESS	1
16	41-0002	CABLE ADJUSTER	2
17	10-0059	THROTTLE CABLE HOUSING SUPPORT PLATE	1
18	39-0005	THROTTLE SPRING DWX-03 OD - 8.5 - SS	1
19	10-0058	THROTTLE SPRING ATTACHEMENT PLATE	1
20	41-0001	CABLE HOLDER	1
21	32-0002	HEX FLANGE SERRATED BOLT M6-1 X 12 MM - ZP	6
22	10-0041	GUARD PLATE FOR 41000-400	1
23	10-0103	ROPE KEEPER	1
24	10-0101	ROPE ENTRY PULLEY	1
25	10-0119	SHOULDER BOLT 5/8 X 1-1/2 - ZN	2
26	10-0100	ROPE GUIDE FOR CAPSTAN DRUM 2-1/4"	1
27	31-0025	BHCS 1/4-20 X 3/4 - SS	2
28	43-0013	SHAFT KEY FOR CAPSTAN DRUMS 2-1/4" & 3-3/8"	1
29	10-0096	CAPSTAN DRUM 2-1/4"	1
30	10-0043	SPACER FOR SAFETY LIP	1
31	10-0044	SAFETY LIP FOR CAPSTAN DRUM 2-1/4"	1
32	10-0102	DRUM RETAINING WASHER	1
33	31-0011	HCS 1/4-20 X 2-1/4 - GR5 - ZN	1
34	70-0006	ROPE GRABBING SYSTEM	1
35	31-0033	SHCS 5/16-18 X 1-3/4 - SS	1
36	39-0014	PULL PIN 1/4-20	1
37	70-0007	ROBE GRABBING SYSTEM ATTACHMENT	1
38	10-0043	SAFETY LIP FOR CAPSTAN DRUM 3-3/8"	1
39	10-0001	CAPSTAN DRUM 3-3/8"	1

40	31-0025	BHCS 1/4-20 X 3/4 - SS	2
41	10-0106	ROPE GUIDE FOR CAPSTAN DRUM 3-3/8"	1
42	44-0001	UNIVERSAL SERIAL NUMBER & WARNING LABEL DCD DESIGN	1
43	44-0029	DECIBEL WARNING 105 dB LABEL	1
44	44-0022	ROPE LABEL DANGER	1
45	44-0026	ROPE INSTALLATION LABEL FOR 41000-400 & 41000-500	1

5.5 Technical data

- Engine: 4-stroke Honda GXH-50 cc
- Maximum pulling force (single line): 1000 lb (450 kg)
- Rated lifting capacity (single line): 555 lb (250 kg)
- Speed: 40 ft/min (12 m/min)
- Capstan drum: 2-1/4" (57 mm) diameter
 - Up to 4 wraps of 1/2" (12-13 mm) rope
- Gear box: Aluminum alloy; Gear ratio 110:1
- Unit weight: 42 lb (19 kg)
- Clutch: Centrifugal
- Rope grabbing system (can be disabled)
- Dimensions (overall): 20" x 14" x 15" (52 cm wide x 36 cm high x 38 cm deep)
- Rope: Double braided polyester (not included) – Unlimited rope length
 - Minimum diameter: 1/2" (12 mm)
 - Maximum diameter: 1/2" (13 mm)
 - Recommended rope with buried eye splice

5.6 Noise emissions

Here are the different noise emissions of the *TUF-Lugger™ Lite*:

- Sound pressure level at operator position – L_{pA} (measured)
 - Engine idling: 73 dBA
 - Full throttle: 89 dBA
- Sound power level – L_{wA} (measured)
 - Engine idling: 85 dBA
 - Full throttle: 102 dBA
- Guaranteed sound power level – L_{wA} : 105 dBA

5.7 Periodical testing

Some local regulations require lifting equipment to be tested periodically. Check with local authorities for testing procedures.

5.8 Manufacturer

The *TUF-Lugger™ Lite* is manufactured for:

DCD Design

180-6620 McMillan Way

Richmond, BC, V6W 1J7, CANADA

Phone: +1-604-232-4445 Toll free (Canada & USA): 1-888-794-8357

Fax: +1-604-232-4446

Email: sales@dcddesign.com

Web site: www.dcddesign.com