

ELECTRICAL HOIST

GT DC 300

GT DC 600

Assembly & Operating Instruction

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INTRODUCTION

Congratulations on your purchase of a high quality hoist. We design and manufacture hoists to strict specifications and with proper use and maintenance should bring you years of satisfying service.

 **WARNING - Read, study and follow all instructions before operating this device. Failure to heed these instructions may result in personal injury and/or property damage.**

Your hoist can develop tremendous pulling forces and if used unsafely or improperly could result in property damage, serious injury or death. Throughout this manual you will find the following symbols for caution, warning and danger. Pay particular attention to the notes preceded by these symbols as they are written for your safety. Ultimately, safe operation of this device rests with you, the operator.

 **CAUTION** This indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. This notation is also used to alert you against unsafe practices.

 **WARNING** This indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

GETTING TO KNOW YOUR HOIST

Your hoist is a powerful piece of machinery. It is important that you understand the basics of its operation and specifications so that when you need to use it, you can use it with confidence and safety. Below is a list of the components of your hoist and their use. You should practice using your hoist before you are in a situation where you need to use it.

1. This hoist is engineered for maximum line pull with only one layer of cable spooled onto the hoist drum (the first layer).

2. Motor: Your motor is powered by a 12/24 volt battery and provides power to the gear mechanism which turns the drum and winds the wire rope;
3. Hoist Drum: The hoist drum is the cylinder on which the wire rope is stored. It can feed or wind the rope depending on the remote hoist switch.
4. Wire Rope: Your hoist has a galvanized aircraft cable designed specifically for load capacity of rated line pull. The wire rope feeds onto the drum in the “under wind” position through the roller fairlead and is looped at the end to accept the clevis hook pin.
5. Roller Fairlead: When using the hoist at an angle the roller fairlead acts to guide the wire rope onto the drum and minimizes damage to the wire rope from abrasion on the hoist mount or bumper.
6. Mechanic Gear System: The reduction gears convert the hoist motor power into extreme pulling forces.
7. Braking System: Braking action is automatically applied to the hoist drum when the hoist motor is stopped and there is a load on the wire rope. A separate mechanical brake applies the braking action.
8. Free Spooling Clutch: The clutch allows the operator to manually disengage (“CLUTCH OUT”) the spooling drum from the gear train, free spool. Engaging the clutch (“CLUTCH IN”) locks the hoist into the gear system.
9. Solenoid: Power from the vehicle battery flows through the weather-sealed switch before being directed to the hoist motor.
10. Remote Switch: The Power switch leads have a dual switch for powering in or powering out your hoist drum. The remote switch allows you to stand clear of the wire rope when the hoist is under load.
11. Wireless Remote Control: allow you control hoist far from 50 Ft away.
12. Universal Flat Bed Mounting Channel: Your hoist could have been optionally supplied with a flat bed mounting channel that can be mounted to most flat surfaces such as trailers, step bumpers, truck beds, etc. The mounting channel also has holes to accept your roller fairlead.
13. Snatch Block: If your hoist is supplied with a snatch block that can double the pulling power of the hoist, or change the pulling direction without damaging the

wire rope. We recommend you to use double line and snatch block for pulling over 70% of the rated line pull.

SAFETY PRECAUTIONS

WARNING

-  **WARNING** – Do not exceed rated capacity shown in this table.
-  **WARNING** – Intermittent use only. Allow hoist to cool between uses.
-  **WARNING** – Do not use hoist to pull or move people in any way.
-  **WARNING** – NEVER cut, weld, or modify any part of the hoist or cable.
-  **WARNING** – A minimum of five wraps of cable around the drum barrel is necessary for pulling and holding the rated load.
-  **WARNING** – Keep yourself and others a safe distance to the side of the cable when it is under tension.
-  **WARNING** – Never step over a cable, or go near a cable under load.
-  **WARNING** – Don't move the vehicle to pull a load (towing) on the hoist cable. This could result in cable breakage.
-  **WARNING** – Disconnect the remote control and battery leads when not in use.
-  **WARNING** – Avoid “shock loads” by using the control switch intermittently to take up the slack in the wire rope. “Shock loads” can far exceed the rate capacity for the wire rope and drum.
-  **WARNING** – Do not exceeds maximum line pull ratings shown on the tables.
-  **WARNING** – When spooling the cable ensure that the cable spools in the under-wind position with the cable entering the drum from the bottom, not the top. To spool correctly you should keep a slight load on the cable while pushing the remote button to draw in the cable. Walk toward the hoist not allowing the cable to slide through your hands. Do not let your hands get within 12 in. of the hoist while spooling. Turn off the hoist and repeat the procedure until a few feet of cable is left. Disconnect the remote control and finish spooling by

rotating the drum by hand with the clutch disengaged. Keep your hands clear of the fairlead and drum while the hoist is under power.

 Failure to heed these warnings may result in personal injury and/or property damage.

 **WARNING** – Use gloves to protect hands when handling the cable. Never let the cable slide through your hands.

 **WARNING** – Never connect the cable back to itself. Apply blocks to the wheels of the vehicle when on an incline. Duration of hoisting pulls should be kept as short as possible. If the motor becomes uncomfortably hot to the touch, stop hoisting immediately and let it cool down for a few minutes. Do not pull for more than one minute at or near the rated load.

 **CAUTION** – If the motor stalls do not maintain power to the hoist. Electric hoistes are designed and made for intermittent use and should not be used in constant duty applications.

 **CAUTION** – Never disengage the clutch when there is a load on the hoist.

 **CAUTION** – Use the hand saver hook when handling the hook for spooling or un-spooling the wire rope.

 Don't place any part of your body or clothing near rotating or moving components.

 Don't stand too close to hoist when operating.

 Don't lift loads greater than the rated load of the hoist.

 Don't touch or hand wire rope or riggings when operating.

 Don't put wire rope around an object and hook it back to rope.

 Don't use unsuitable rope in construction, strength or having any defects.

GENERAL TIPS FOR SAFE OPERATION

- The hoist and its all-derivative types are rated at rated capacity when spooling the first rope layer on the drum. Overloading can damage the hoist/motor/ or wire rope. For loads over 70% of rated line pull, we recommend the use of the pulley block/snatch block to double the wire rope line. This will aid in two ways: a) reduce the number or rope layers on the drum, as well as, b) reduce the load

on the wire rope by as much as 50%. When doubling the line back to the vehicle, attach to the frame or other load bearing part.

- Get to know your hoist before you actually need to use it. We recommend that you set up a few test runs to familiarize yourself with rigging techniques, the sounds your hoist makes under various loads, the way the cable spools on the drum, etc.
- Inspect the wire rope and equipment before each use. A frayed or damaged rope must be replaced immediately. Use only the manufacturer's replacement rope with the exact specifications.
- Inspect the hoist installation and bolts to ensure that all bolts are tight before each operation.
- Never connect the cable back to itself. This will cause cable damage. Always use a snatch block, sling or chain of suitable strength as shown in the illustrations.
- Store the remote control inside your vehicle in a place that it will not be damaged.
- Any hoist that appears to be damaged in any way, is found to be worn, or operates abnormally shall be removed from service.
- Pull only on parts of the vehicle as specified by the vehicle manufacturer.
- Only attachments and/or adapters supplied by the manufacturer shall be used.
- Whenever before your hoist start to working, please slightly test-run your hoist in two direction, even if the hoist drum only round a few degree of angle, ensure the hoist is well-balanced, especially after you operated the clutch, test-running hoist can make hoist in gear.
- Check all safety and environmental conditions prior and during use.
- Before use, ensure that you are familiar with all lifting operations (hoist speeds & direction).
- A wire rope should be replaced if it shows signs of excessive wear, broken wires, corrosion or any other defects.
- The operator must remain with the hoist when it is being operated.
- If the hoist fails to pull a load under normal conditions, stop the operation within 30 seconds otherwise motor damage may occur.

- Ensure that the hoist is connected to the correct voltage. 12VDC or 24VDC only.
- Make sure the wire rope is wound evenly on the first layer on the drum, rewind it if not evenly wound.
- Remove the trigger switch from the hoist when not in use.
- Do not wrap the wire rope around the load and back onto it self.
- Keep hands and clothes away from the hoist, wire rope, and fairlead.
- Never unplug the trigger switch when hoisting a load.
- To avoid insufficient power when hoisting a load, the vehicle should be running and in neutral.
- Keep the trigger switch cord clear of the battery leads at all times.
- If noise or vibration occurs when running, stop the hoist immediately and return it for repair.

HOISTING TECHNIQUES A-Z

- a. Take time to asses your situation and plan your pull.
- b. Put on gloves to protect your hands.
- c. Disengage the clutch to allow free-spooling and to save energy.
- d. Attach the hand saver hook to the clevis hook.
- e. Pull out the wire rope to your desired anchor point using the hand saver hook.
- f. Secure the clevis hook to the anchor point: Sling, chain or snatch block. Do not attach the hook back onto the wire rope.
- g. Engage the clutch.
- h. Connect the remote control to the hoist.
- i. Start your engine to ensure power is being replenished to the battery.
- j. Power in the wire rope guiding the wire under tension to draw up the slack in the wire. Once the wire is under tension stand well clear. Never step over the wire rope.
- k. Double-check your anchors and make sure all connections are secure.
- l. Inspect the wire rope. Make sure there are at least 5 wraps of wire rope around the hoist drum.
- m. Clear the area. Make sure all spectators are back and that no one is directly in front or behind the vehicle or anchor point.

- n. Begin hoisting. Be sure that the wire rope is winding evenly and tightly around the drum. Avoid shock loads; keep the wire rope under tension.
- o. The hoist is meant for intermittent use. Under full load with a single line rig do not power in for more than a minute without letting the motor cool down for a few minutes and then resume the hoisting operation.
- p. The hoisting operation is complete once the vehicle is on stable ground and is able to drive under its own power.
- q. Secure the vehicle. Be sure to set the brakes and place the vehicle in park.
- r. Release the tension on the wire rope. The hoist is not meant to hold the vehicle for long periods of time.
- s. Disconnect the wire rope from the anchor.
- t. Rewind the wire rope. Make sure that any wire already on the drum has spooled tightly and neatly. If not, draw out the wire and re-spool from the point where the rope is tight.
- u. Keep your hands clear of the hoist drum and fairlead as the wire rope is being drawn in.
- v. Secure the hook and hook strap.
- w. Disconnect the remote control and store in a clean, dry place.
- x. Clean and inspect connections and mounting hardware for next hoisting operation.

HOIST ASSEMBLY AND MOUNTING

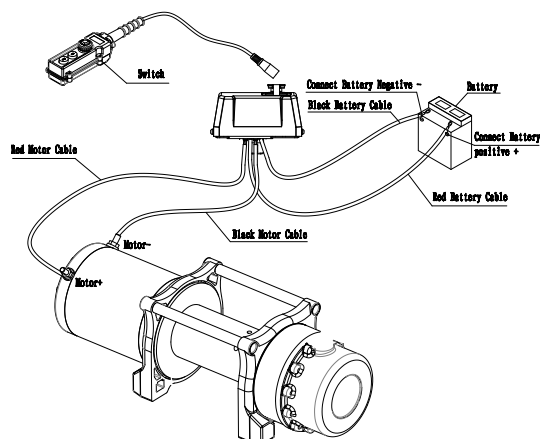
1. Your hoist is designed with a bolt pattern that is standard in this class of hoist. Many hoist mounting kits are available that utilize this bolt pattern for the mounting channels. If you will utilize the mounting channel you must ensure that it is mounted on a flat surface so that the three major sections (motor, drum and gear housing) are properly aligned. Proper alignment of the hoist will allow even distribution of the full rated load.
2. Pull out a few inches of cable from the drum. Now, using the remaining cap screws, flat washer, lock washer and nut secure the hoist to the mounting channel.
3. Connect the battery and motor leads as the drawing above. Keep in mind that every type of hoist is different each other.

4. Assemble the clevis hook to the cable. Take off the pin from the clevis hook, connect the clevis hook to the cable and mount the pin back to the clevis Hook.
5. Always use the hand saver when free-spooling and re-spooling the wire rope. Using the hand saver keeps your hands and fingers away from the rotating drum.
6. Check for proper drum rotation. Pull out some cable from the drum. Press the cable out button on the power switch. If the drum is turning and releasing more cable then your connections are accurate. If the drum is turning and collecting more cable then reverse the leads on the motor. Repeat and check rotation.

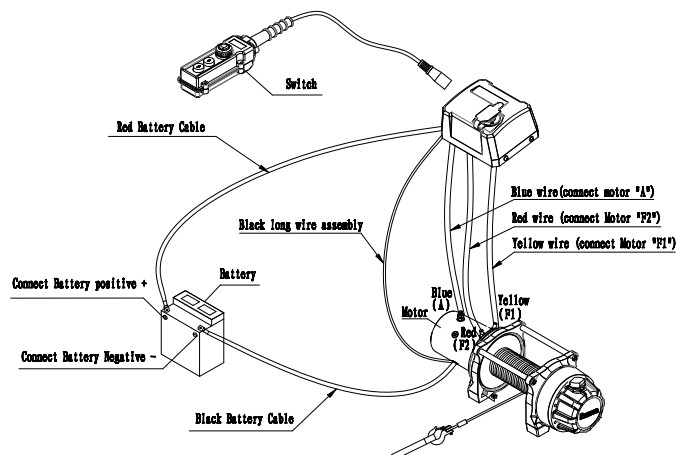
MOUNTING DRAWING

The mounting drawing

GT DC 300



GT DC 600





CAUTION – Batteries contain gases which are flammable and explosive. Wear eye protection during installation and remove all jewelry. Do not lean over battery while making connections.

RIGGING TECHNIQUES

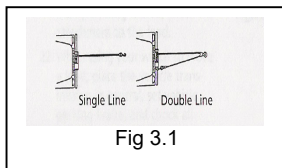


Fig 3.1

For pulls over 70% rated line pull, we recommend the use of the snatch block/pulley block to double line the wire rope. Fig 3.1

This reduces the load on the hoist and the strain on the rope by up to 50% depending on the included angle.

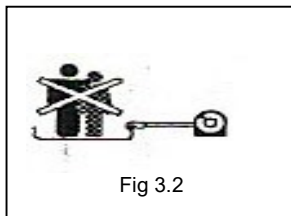


Fig 3.2

WARNING - Never use your hoist for overload hoisting or for lifting people .

HOIST WORKING DEMONSTRATION

1. Grab the cable assembly and pull the cable to the desired length, then attach to item being pulled.

! Caution: Always leave at least five turns of cable on the drum; Review hoist safety warnings and precautions on page 2、 3 before continuing.

2. Insert the switch assembly connector onto the control box.
3. Test-run hoist in two directions, each direction for one or two seconds.
4. While standing aside of the tow path, hold and operate the switch assembly supplied by your choice. To reverse directions. Wait until the motor stops before reversing directions.
5. When the pulling is complete, remove the switch assembly. From the female connector of the directional valve and replace the female connectors cover.

REPLACING THE WIRE ROPE

If the wire rope has become worn or is beginning to show signs of strands breaking, it must be replaced before being used again.

1. Extend cable assembly to its full length. Note how the existing cable is connected to the drum.
2. Remove old cable assembly and attach new one as the old cable connected to the drum. Insert the end of the new rope and secure the screw .
3. Ensure that the new cable wraps in the same rotation direction as the old one. The cable should leave the drum from the bottom, under the drum.
4. Retract Cable Assembly onto drum, first five wraps being careful not to allow kinking, then hoist cable must be wound onto the drum under a load of at least 10% rated line pull.



WARNING - Only replace the wire rope with the identical replacement part recommended by the manufacturer.

MAINTENANCE

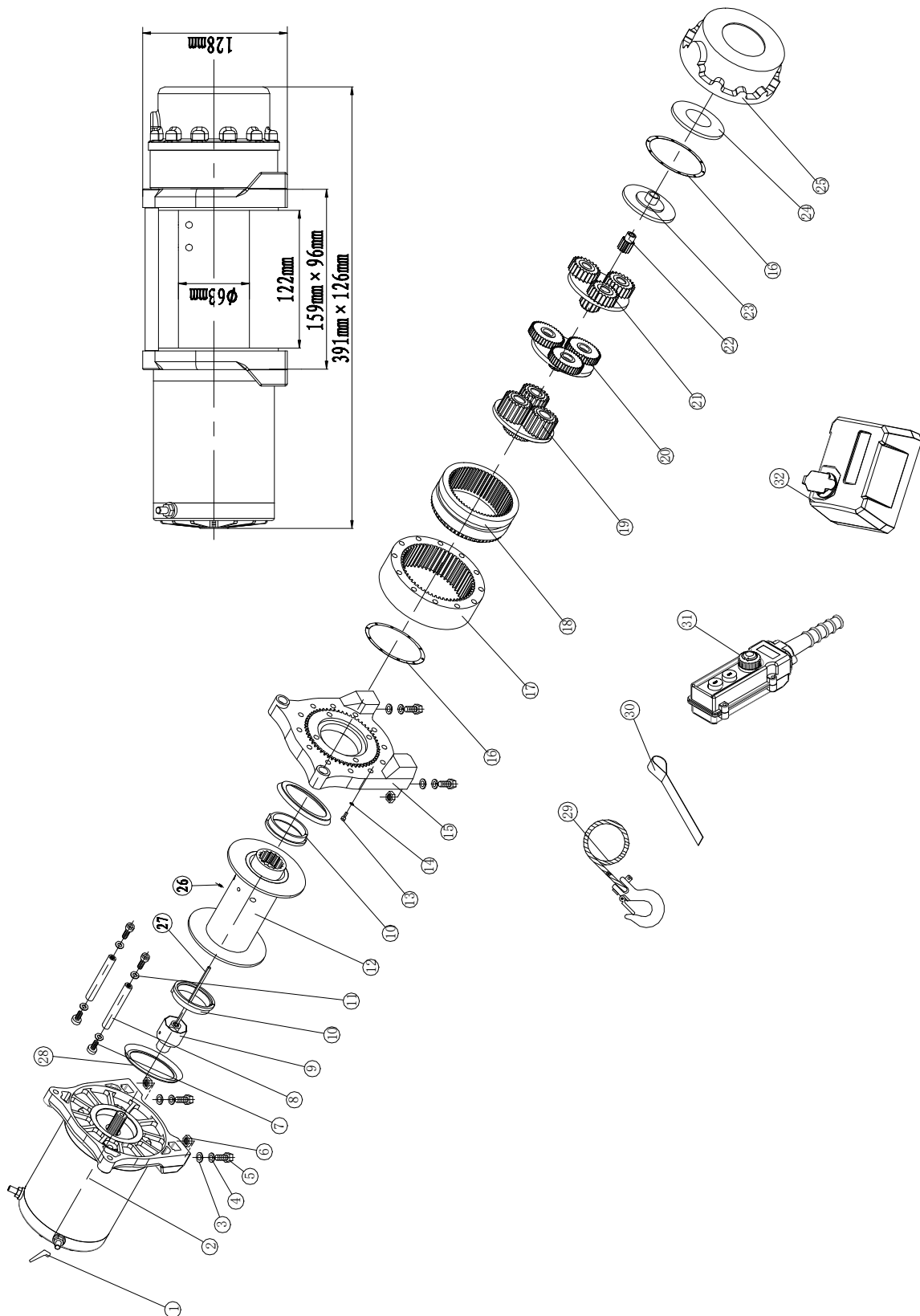
1. Periodically check the tightness of mounting bolts and electrical connections. Remove all dirt or corrosion and always keep clean.
2. Do not attempt to disassemble the gear box. Repairs should be done by the manufacturer or an authorized repair center.
3. The gearbox has been lubricated using a high temperature lithium grease and is sealed at the factory. No internal lubrication is required.

TROUBLE SHOOTING

When the hoist fails to operate after several attempts, or if there is any fault while operating check the following:

Symptom	Possible Cause	Remedy
Hoist will not operate	Cut circuit	Check battery lead
	Weak battery	Recharge or replace battery(at least 650CCA)
	Damaged circuit breaker	Replace circuit breaker
	Bad connection of wirings	Reconnect tightly
	Damaged solenoid	Replace solenoid
	Cut circuit on switch	Replace switch
	Damaged motor or worn carbon brush	Replace motor or carbon brush
	Dropt or lost motor wiring	Tighten wirings
Motor runs in one direction	Broken wiring or bad connection	Reconnect or replace wiring
	Damaged or stuck solenoid	Replace solenoid
	Switch inoperative	Replace switch
	Dropt or lost wiring	Replace wiring and tighten wirings
Hoist won't lift rated load	Considerable voltage drop exceeds by 10% of the rated voltage of 12V DC or 24V DC	Correct leads size
		Replace battery as bad condition
		Clean and tighten the wirings
No brake	Damaged brake cam and disc	Replace brake cam and disc
	Damaged gear box	Replace gear box
	Dropt snatch ring	Replace snatch ring
	Oil leakage at brake	Clean oil leakage
	Damaged or inoperative spiral spring	Replace and position spiral spring
Brake distance is too long	Worn or damaged brake	Replace or adjust brake
	Oil leakage at brake	Clean oil leakage
Damaged gear train	Hit by certain exterior force	Replace the damaged components
	Damaged gear train	Replace the damaged components
	Over load operation	Replace a new hoist
Motor runs extremely hot	Long period of operation	Allow to cool
	Damaged motor	Replace or repair motor
	Damaged or inoperative brake	Replace or repair brake
Hoist vibrates badly or is noisy	Damaged brake	Replace or repair brake
	Mounting surface is not flat	Make sure mounting surface is flat
	Tie bar is bent	Replace tie bar
	Crack on the motor and gearbox support racks	Replace racks

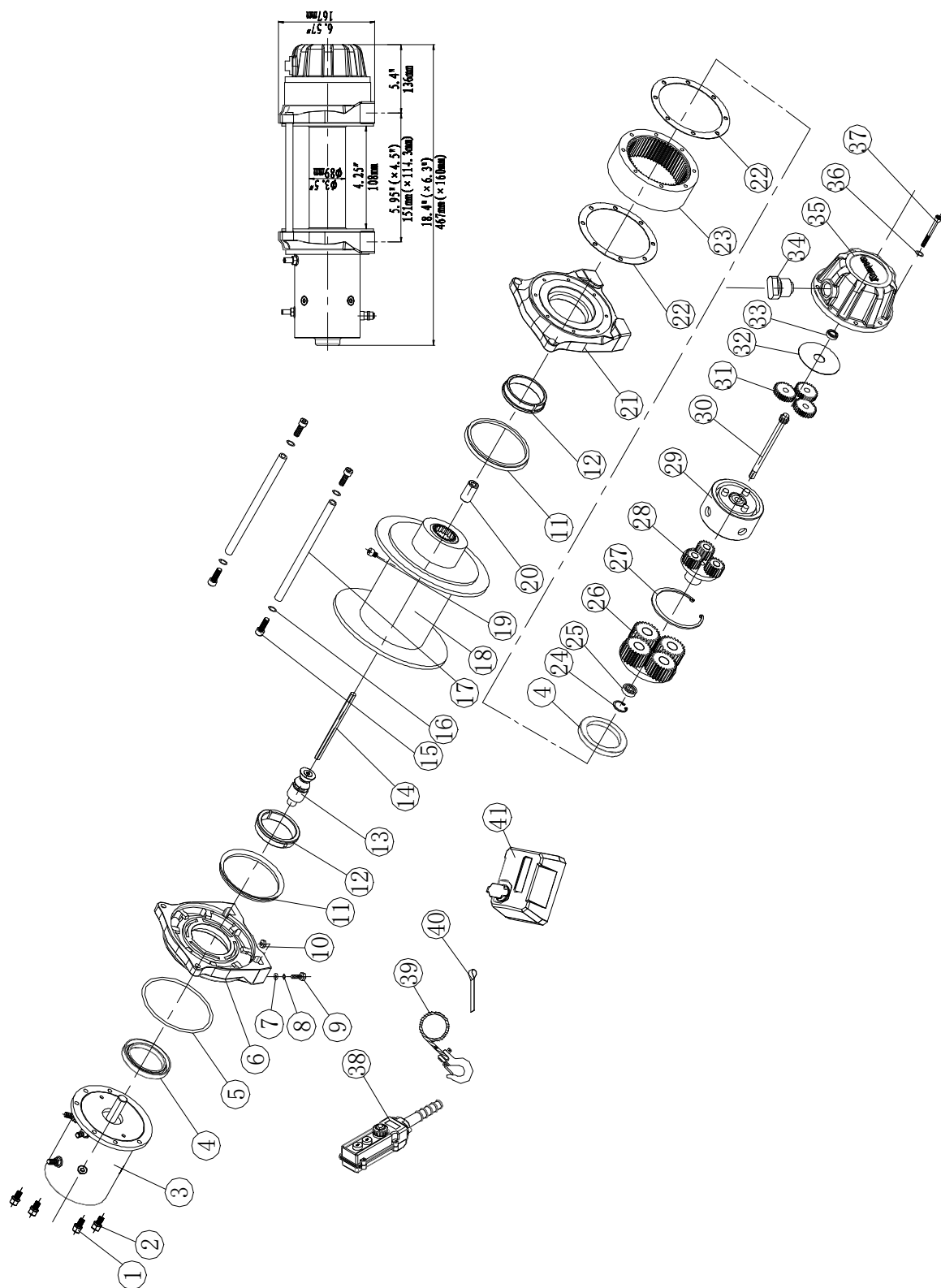
HOIST ASSEMBLY DRAWING (GT DC 300)



HOIST PARTS LIST (GT DC 300)

No.	Part #	Qty	Description	Remark
1	H300001	2	Terminal Protect	
2	H300100	1	Motor Assembly	
3	H300002	4	Thin Flat Washer Φ8	
4	H300003	4	Lock Washer Φ8	
5	H300004	4	Screw M8 x 25	
6	H300005	4	Hex Nut M8	
7	H300006	4	Screw M6 x 20	
8	H300007	2	Tie Bar	
9	H300200	1	Break / Shaft Assembly	
10	H300008	2	Bushing-Drum	
11	H300009	4	Lock Washer Φ6	
12	H300300	1	Drum Assembly	
13	H300010	8	Screw M5 x 50	
14	H300011	8	Lock Washer Φ5	
15	H300012	1	End Bearing	
16	H300013	2	Gasket	
17	H300014	1	Gear—Ring	
18	H300015	1	Inner Gear—Ring	
19	H300400	1	Gear Carrier Assembly (Output)	
20	H300500	1	Gear Carrier Assembly (Intermediate)	
21	H300600	1	Gear Carrier Assembly (Input)	
22	H300016	1	Gear—Input Sun	
23	H300017	1	Trust Washer	
24	H300018	1	Trust Washer I	
25	H300019	1	Gear—Housing	
26	H300020	2	Screw M6×8	
27	H300021	1	Six Angle Bar	
28	H300022	2	Ring Seals	
29	H300700	1	Cable Assembly	
30	H300023	1	Strap	
31	H300800	1	Remote Control Switch	
32	H300900	1	Control Section	

HOIST ASSEMBLY DRAWING (GT DC 600)



HOIST PARTS LIST (GT DC 600)

No.	Part #	Qty	Description	Remark
1	H6000001	4	Lock Washer Φ6	

2	H6000002	4	Screw M6x 20	
3	H6000100	1	Motor Assembly	
4	H6000003	2	Ring Seals	
5	H6000004	1	Ring Seals	
6	H6000005	1	Motor Bracket	
7	H6000006	4	Thin Flat Washer Φ10	
8	H6000007	4	Lock Washer Φ10	
9	H6000008	4	Cap Screw M10 x 35	
10	H6000009	4	Hex Nut M10	
11	H6000010	2	Ring Seals	
12	H6000011	2	Bushing-Drum	
13	H6000200	1	Break / Shaft Assembly	
14	H6000012	1	Six Angle Bar	
15	H6000013	4	Screw M8 x 20	
16	H6000014	4	Lock Washer Φ8	
17	H6000015	2	Tie Bar	
18	H6000300	1	Drum Assembly	
19	H6000016	1	Screw M8×10	
20	H6000017	1	Coupling	
21	H6000018	1	End Bearing	
22	H6000019	2	Gasket	
23	H6000020	1	Gear—Ring	
24	H6000021	1	Circlip For Hole	
25	H6000400	1	Bearing	
26	H6000500	1	Gear Carrier Assembly (Output)	
27	H6000022	1	Circlip For Hole	
28	H6000600	1	Gear Carrier Assembly (Intermediate)	
29	H6000700	1	Brake/ Shaft Assembly	
30	H6000023	1	Gear—Input Sun	
31	H6000024	3	Planetary Gear	
32	H6000025	1	Trust Washer	
33	H6000800	1	Bearing	
34	H6000900	1	Gear ring bolt	
35	H6000026	1	Gear—Housing	
36	H6000027	8	Lock Washer Φ6	
37	H6000028	8	Screw M6x70	
38	H6001000	1	Remote Control Switch	
39	H6001100	1	Cable Assembly	
40	H6000029	1	Strap	
41	H6001200	1	Control Section	

SPECIFICATION (GT DC 300)

Rated line pull	300 kgs	
Motor: series wound	12V:Input: 1.7kW / 2.3hp; Output: 0.9kW / 1.2hp 12-24 V	
Gear reduction ratio	172:1	
Cable (Dia. × L)	Wire rope	Synthetic rope
	Ø4.8mm × 14m	Ø5.0mm × 14m
Drum size (Dia. × L)	Ø63mm × 122 mm	
Mounting bolt pattern	159mm × 96 mm 4-M8	
Overall dimensions (L × W × H)	391mm × 126mm × 128mm	

Pull, Speed, Amperes, Volts:

Layer	Line Pull	Line Speed m/min	Current A
	kg	12V DC / 24 V	12V DC / 24 V
1	300	3.8 / 4.5	39 / 28
2	300	4.0 / 4.9	42 / 34
3	300	4.2 / 5.1	45 / 38

Line Pull And Rope Capacity In Layer

Layer	Rated line pull kgs	Total rope on the drum ft (m)
1	400	5.3
2	350	11.3
3	300	14.0

SPECIFICATION (GT DC 600)

Rated line pull	600 kgs	
Motor: series wound	12V:Input: 4.6kW / 6.1hp; Output: 2.1kW / 2.8hp 24V:Input: 6.5kW / 8.7hp; Output: 2.8kW / 3.8hp	
Gear reduction ratio	228:1	
Cable (Dia. × L)	Wire rope	Synthetic rope
	Ø6.0mm × 14.5m	Ø6.0mm × 15m
Drum size (Dia. × L)	Ø89mm × 108mm	
Mounting bolt pattern	151mm × 114.3 mm 4-M10	
Overall dimensions (L × W × H)	467 mm × 160mm × 167mm	

Pull, Speed, Amperes, Volts:

Layer	Line Pull	Line Speed ft/min (m/min)		Current A	
		12V DC	24V DC	12V DC	24V DC
1	700	7.0	7.7	98	50
2	650	7.5	8.3	104	55
3	600	7.9	8.7	110	60

Line Pull And Rope Capacity In Layer

Layer	Rated line pull lbs (kgs)	Total rope on the drum ft (m)
1	700	5.0
2	650	10.7
3	600	14.5