

Geovista

GV200 Series Winch

Operations manual



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Purpose Of This Manual.

This manual is designed to allow the user to get the best out of their GeoVista GV200 winch and to operate efficiently and safely. Maintenance points are highlighted where appropriate.

Safety

Careless Operation Of This Piece Of Equipment Can Result In Personal Injury And Equipment Damage. Ensure That You Are Trained In The Operation. If In Doubt, Get Assistance From Competent Personnel. If In Doubt, Stop Activities. Observe Local Operating Procedures That Are In Place.

Particular safety points will be highlighted throughout this manual. Please do take note.

GV200 Winch Main features

The GV200 winch is designed to meet shallow depth and low weight logging requirements with 3/16" cable. The main parts are as follows:

1. 12V dc Motor & gearbox with Sprag clutch

This comprises a 120W, 12V dc motor with reduction gear box and drive chain.

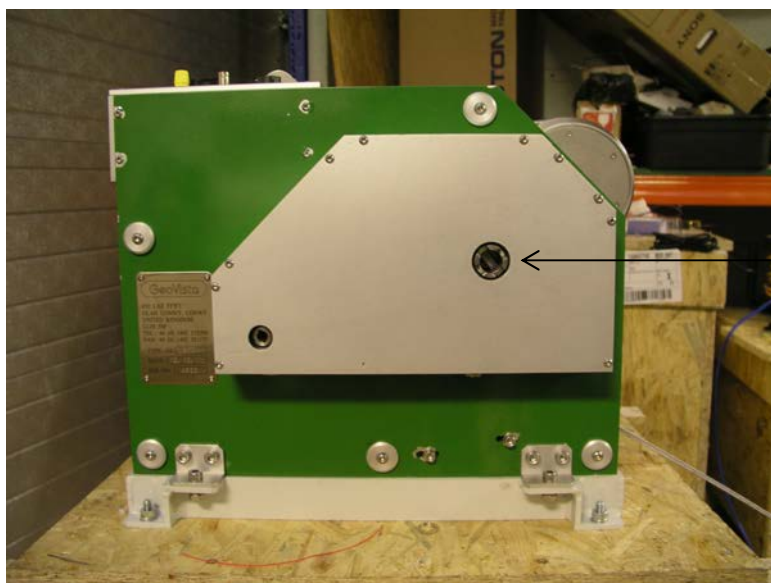
A hand operated brake is fitted to prevent cable tension from turning the drum when the motor is stopped

Safety Note 1: *The motor requires a good 12Vdc 20Amp supply for correct operation, this can be supplied from a battery or from an adequate rated AC to DC power supply. Cables between the power supply should be suitably rated and kept as short as possible.*

2. Cable spooling device

It is important that the cable be spooled neatly to avoid damaging the cable. If the cable crosses itself, then the tension can cause internal damage to the cable. The GV200 winch has a lead screw arrangement which is driven from the main cable drum shaft via a belt. The spooling device is mounted on a carriage which traverses backwards and forwards with the cable movement

If the cable becomes out of synchronisation with the spooling device, then this is corrected by use of the special tool supplied with the winch. This is a T-handled device. To apply the tool, first stop the winch drive. Firmly push the tool into the slot on the end of the spooling device to disengage the drive. Then the tool can be turned to rotate the lead screw independently of the cable drum. When alignment is reached remove the tool. As the drum is then turned the drive will re-engage with a click and spooling should continue correctly. The lead screw is greased for life and comes with a protective sleeve against dirt. Make sure that the measure wheel is free of dirt, and clean the grooves in the wheels regularly or incorrect depth measurements will occur.



Insert Levelwind
Adjustment Key
Here

3. Measure head with integral cable tension measuring device and depth encoder

The sonde depth is measured by passing the cable over a measure wheel coupled to shaft encoder. A jockey wheel is used so that the measure wheel does not slip as the cable moves.

The cable tension measuring device is a load beam mounted below the measure wheel bearing. A pin is located below the measure wheel bearing and bears onto the load cell to transmit the load as required. Ensure that this is free to move and is not stuck with grit or mud. There are no user serviceable parts inside the load cell and it should not be dismantled. The measure wheel should be free to rock side to side on its bearing. Only a small amount of rock is required, but there must be some or else there will be a preload on the load cell which may damage it.

The only maintenance required is washing down to prevent the build up of mud on the moving parts. All the bearings are sealed and greased for life. Ensure that the jockey wheel spindles are free to move. After washing down, allow to dry in free air before storage. A spray with a water repellent spray (e.g. WD-40) is a good idea to keep everything working well.

Safety Note 2: Do not attempt to remove the measure head jockey wheels when the cable is in the hole or the mains power is attached to the winch. Always disconnect the mains power before working on the winch.

4. Shaft Encoder

The shaft encoder is mounted on the measure wheel spindle underneath a black cover. The shaft encoder normally installed is the Baumer Electric BDK 16.24K500-5-4. The important characteristics of this encoder are:

Series	BDK 16.24
Output driver	Push-Pull
Pulses per revolution	500
Power supply	10-30VDC
Shaft diameter	5mm

The colour code for the wires is

Green	Phase A
Yellow	Phase B
Brown	Positive supply
White	Ground supply

Note that there is a 2:1 ratio between the measure wheel and encoder, therefore the encoder will give 1000 pulses for one measure wheel revolution. The nominal circumference of the measure wheel is 0.4m.

5. Winch Control Panel

The schematic for this unit is attached to this manual.

The winch control panel has a large top mounted rotary control for speed and motor direction. Running the winch requires two actions: a) connect the winch to the appropriate 12Vdc supply, b) rotate the speed and direction knob in the required direction until the desired speed is reached.

There is also a switch and socket for an optional remote switch.



Winch Control Panel

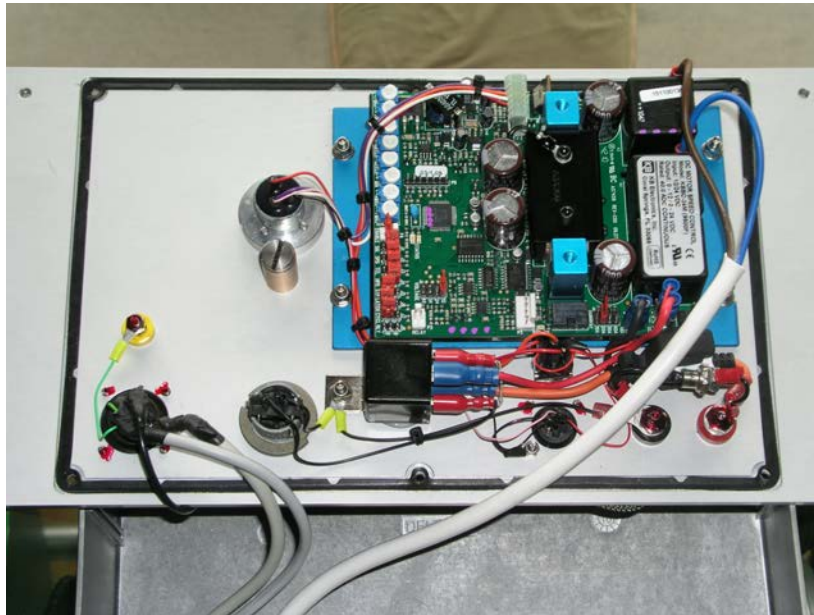
Safety Note 3: The Spraag clutch will disengage if the if the cable tension drops to prevent the cable from unravelling in the drum.

Panel Opening:

Should the control panel require opening, the procedure is as follows.

Safety note 4: Ensure that no power is applied to control panel and that power is not inadvertently applied while working on the unit.

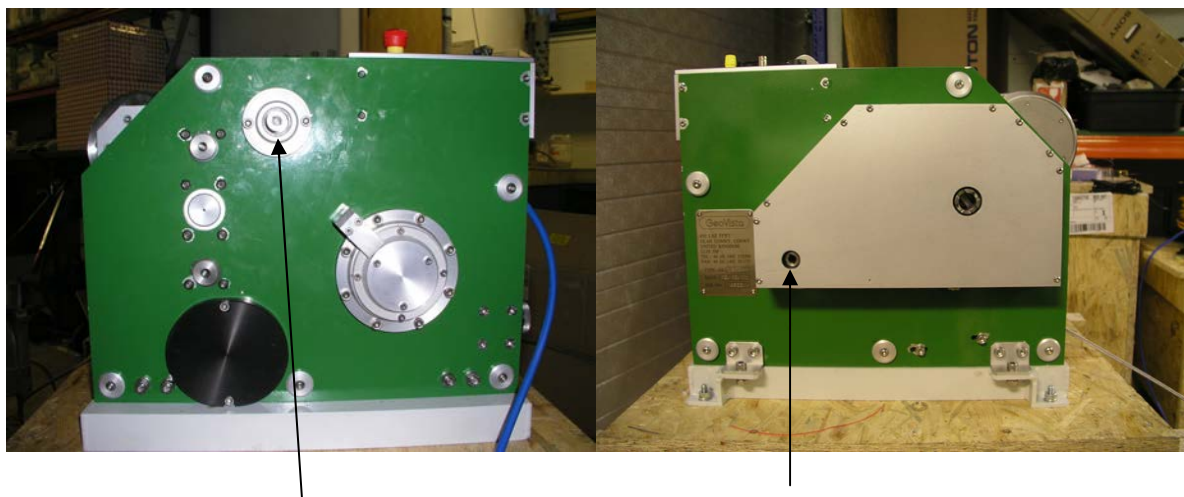
Loosen the 4 dome-head screws, one in each corner, of the front panel. Also, Loosen the 6 countersunk screws, along the edges of the front panel. The top can then be lifted off. There is sufficient wire lengths on the other front panel controls to allow the top to be removed and put to one side while working inside the box.



Inside Control Panel

6. Hand Cranking

In the event of power or motor failure, it is possible to manually drive the winch. There is a supplied hand crank, which can be inserted into one of two drive positions. One position (below left) drives the drum via a chain drive. The other position (below right), on the opposite side of the winch, drives the drum directly requiring more torque but proceeding more quickly.



Slow Drive via Chain

Direct Drive to Drum

7. Signal Wiring

The signal wiring schematics are attached to this manual

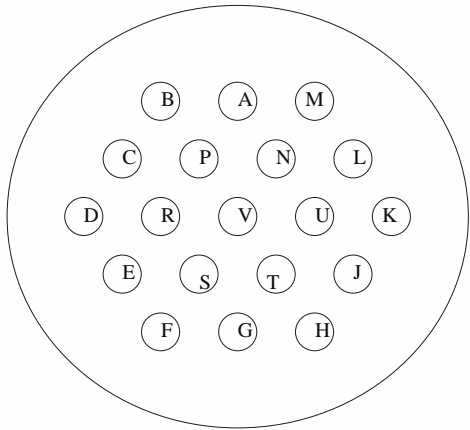
8. Cablehead

Cable head description and rebuilding instruction are included in the supplied *Cable-head Manual*.

9. Schematics

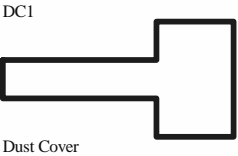
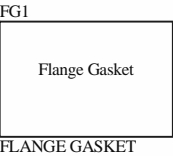
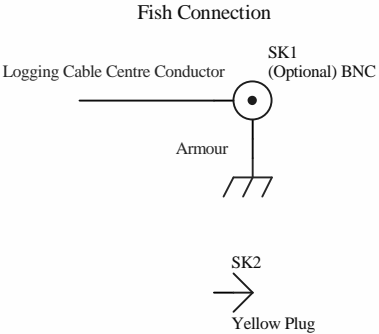
Included Schematics:

1. 19-Way Connector
2. Controller Assembly Wiring
3. Control Box Assembly
4. Side G.A.
5. Frame Assembly
6. Drum Assembly
7. Gearbox Assembly
8. Brake Assembly
9. Level-Wind Assembly
10. Chain Adjuster Assembly



PL1
Cannon 19 Male Solder View
CANNON 19 MALE

- Cannon Connector Pin Assignments
- A Logging Cable Conductor (When BNC Is Not Used)
 - M Logging Cable Armour (When BNC Is Not Used)
 - B Strain gauge cable screen
 - C Strain Gauge -ve Signal IP (Green)
 - L Strain Gauge +ve Supply (Red)
 - P Strain Gauge +Ve Signal Ip (White)
 - N Strain Gauge -ve Supply (Blue)
 - K Shaft Encoder +v Power Supply (Brown)
 - R Depth Encoder 0VDC Supply (White)
 - U Depth Encoder Phase A (Green)
 - V Depth Encoder Phase B (Yellow)
 - D Depth Encoder Cable Screen
 - F Fish Reference Electrode
 - S Not Used
 - T Not Used
 - E Not Used
 - G Not Used
 - H Not Used
 - J Not Used



GeoVista - Unit 6, Cae Ffwrt Business Park, Glan Conwy, Conwy, LL28 5SP. Tel +44 (0)1492 573399 Fax +44 (0)1492 581177		
PCB Ident:	Filename MPW_2.SCH	Issue 2
Sheet Of 2 of 2	Project GV118 Winch	

Drawn	Issue	Circuit Description	Checked	Date	Issue	Parts List	Checked	Date
Date								

A RemoteWiper
B Remote+5V
C Remote Gnd
D
E
F

SK1
Chassis Socket

KB Electronics
DC Motor Speed Control
KBBC-24M

P1
Header 7

Violet
Orange
White

VR1
1K
Speed Control Pot

SW1
REMOTE LOCAL

Red

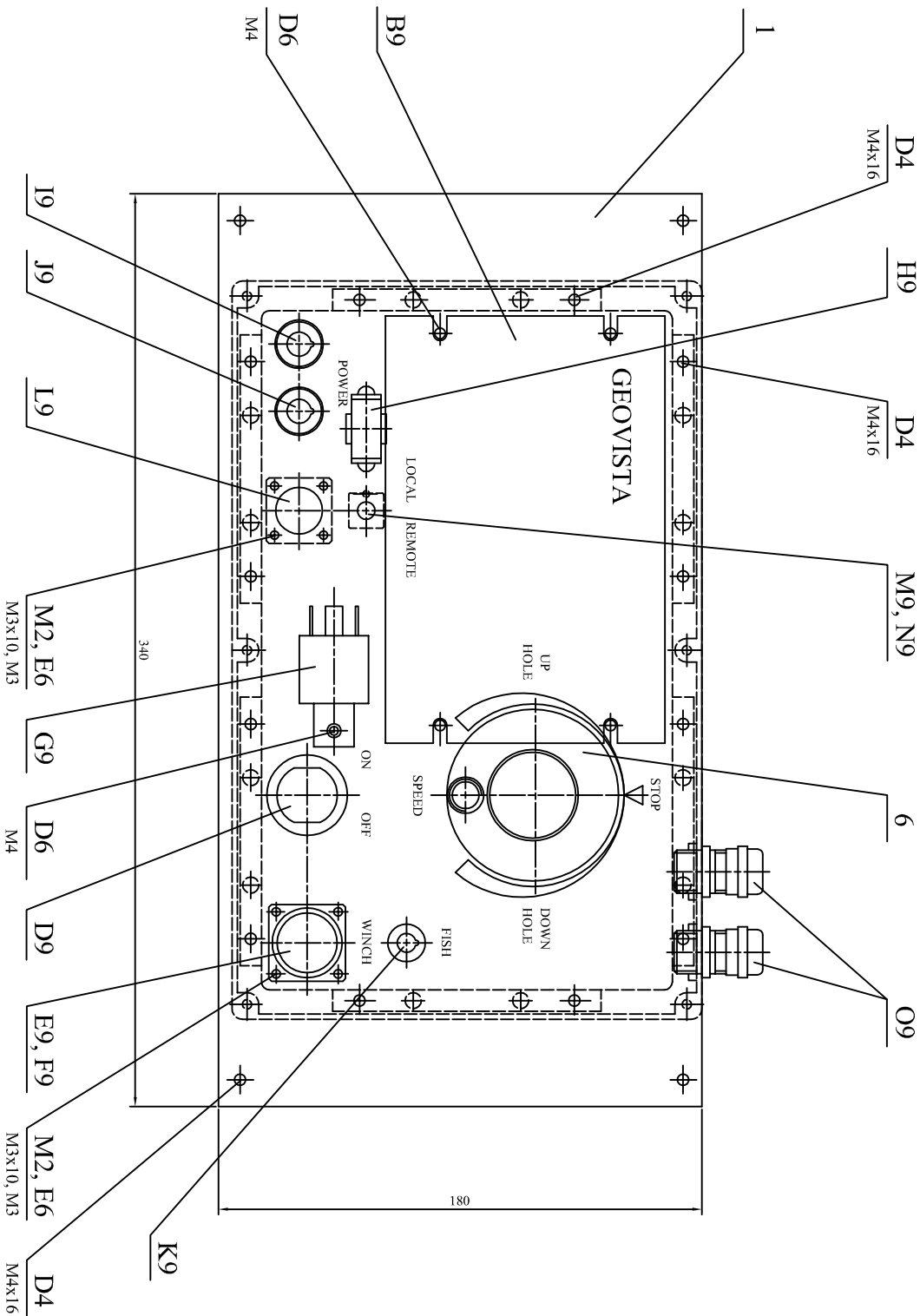
JA Voltage - set to 12Vdc
JB Curebt - set to 20A

Out to Motor

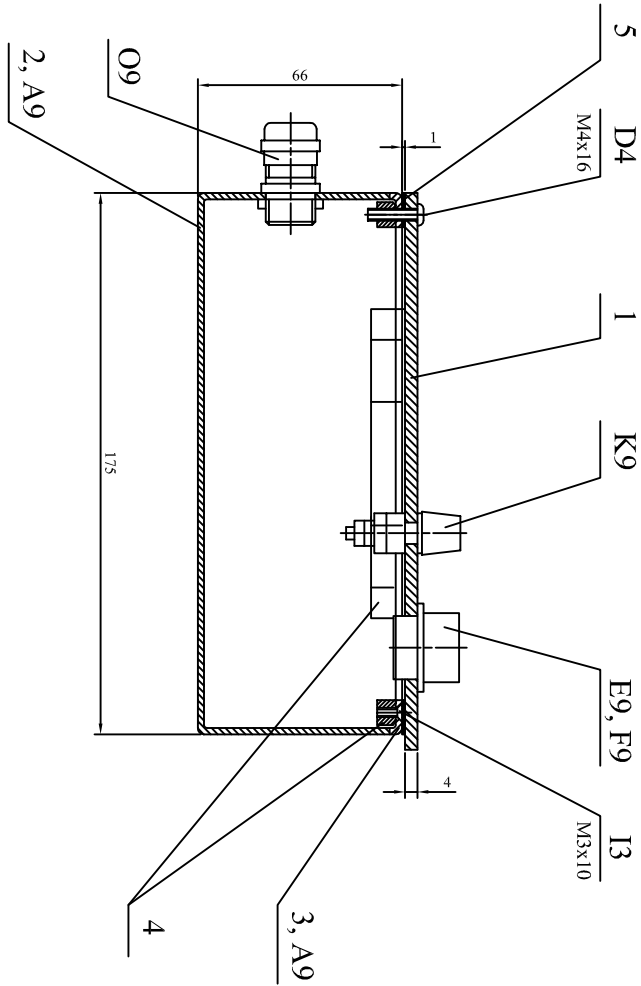
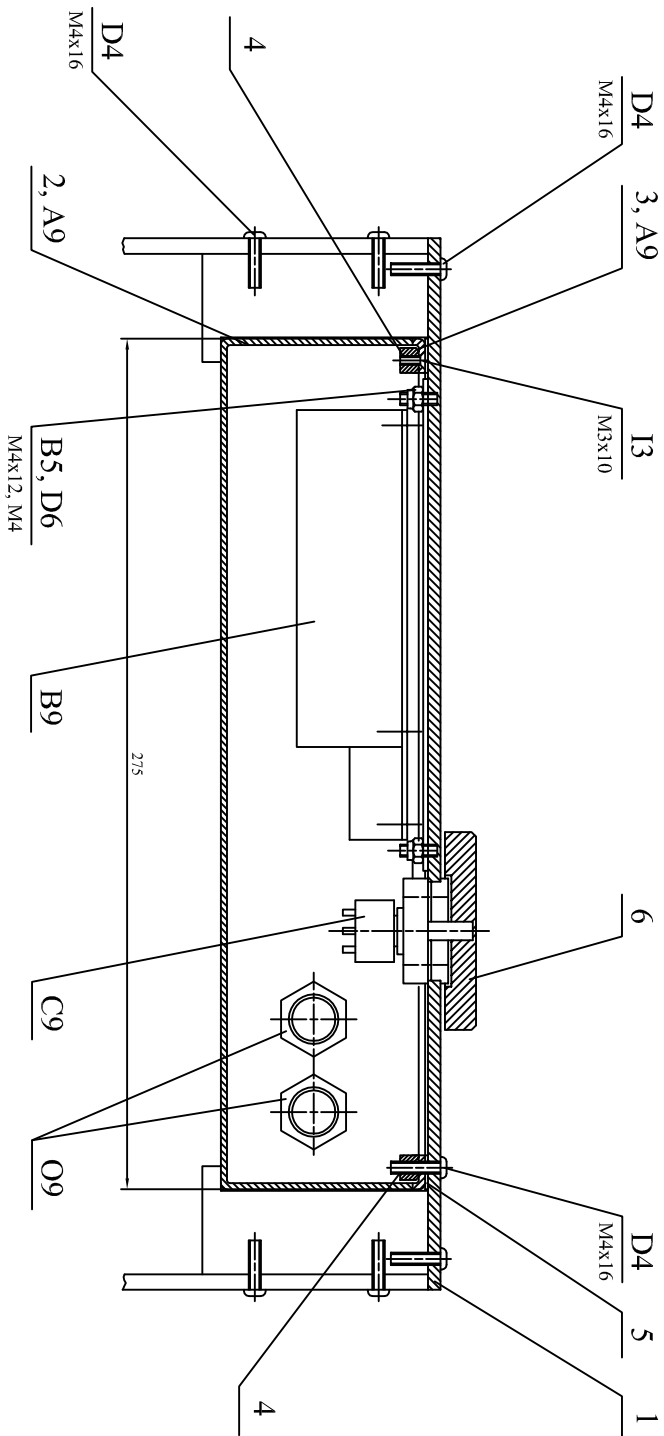
VF POT SE WW NTCL TCL NHPD HPD DEC FIX OFF ON OFF ON NO NC
P4 J1 J2 J3 J4 J5 J6 J7 J8
ENABLE SIG SPD TCL HPD STP LATCH CYCL RLY
N/A

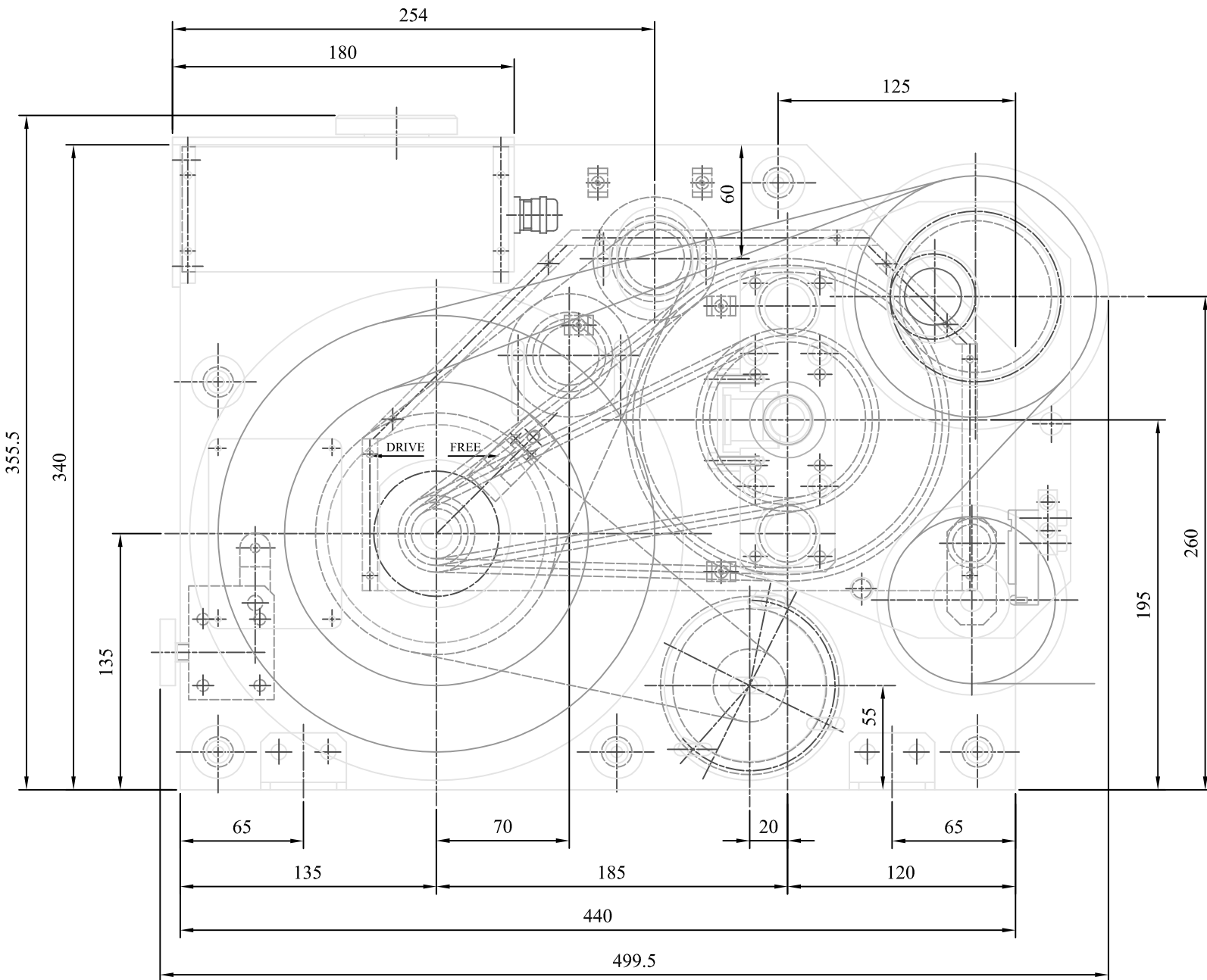
GeoVista - Unit 6, Cae Ffwrt Business Park,
Glan Conwy, Conwy, LL28 5SP.
Tel +44 (0)1492 573399 Fax +44 (0)1492 581177

Drawn	Issue	Circuit Description	Checked	Date	Issue	Parts List	Checked	Date	Title: GV118 / 112 KB Speed Control Winch Wiring		
Date									PCB Ident:	Filename	Issue
15/09/2009										MPW_KB_1	2
									Sheet Of 1 of 2	Project GV112 / 118 Winch	



- A9 ALU BOX 275 x 175 x 66 GREY PAINTED RS 515-3923
B9 SPEED CONTROL UNIT KBBC-44M
C9 POTENTIOMETER 1k RS 188-5492
D9 ROTARY ON-OFF SWITCH RS 352-884
E9 19 WAY PLUG LMH 02A 14.19 PN
F9 CAP LMA 1054-14-00-00
G9 RELAY 12 V RS 308-0611
H9 FUSE HOLDER RS 337-5234
I9 BLACK TERMINAL 4 MM RS 738-402
J9 RED TERMINAL 4 MM RS 738-418
K9 FISH TERMINAL 4 MM FARNELL 401-7717
L9 6 WAY CONNECTOR RS 442-1883
M9 ON - OFF - ON SWITCH RS 317-011
N9 SEAL RS 321-212
O9 CABLE GLAND M16 FARNELL 116-8802





GV 200 WINCH

CABLE 1/10 INCH (2.54 MM) x 750 M
COUPLING CHAIN SPROCKET TEETH = 64

CABLE 1/8 INCH (3.22 MM) x 450 M
COUPLING CHAIN SPROCKET TEETH = 51

CABLE 3/16 INCH (4.72 MM) x 220 M
COUPLING CHAIN SPROCKET TEETH = 35

GEARBOX: IMS P81 RATIO 46:1,
PERMITTED TORQUE 60 NM

MOTOR: GEFEG PG 8040
112 W, 2800 RPM, 24 V DC

LEVELWIND SCREW PITCH 16 x 12.7 MM

DRUM DIA 158 x 204 MM
MAX. SPEED = 13.2 M/MIN

ENCODER BAUMER BDK 16.24 K.0500-5-4

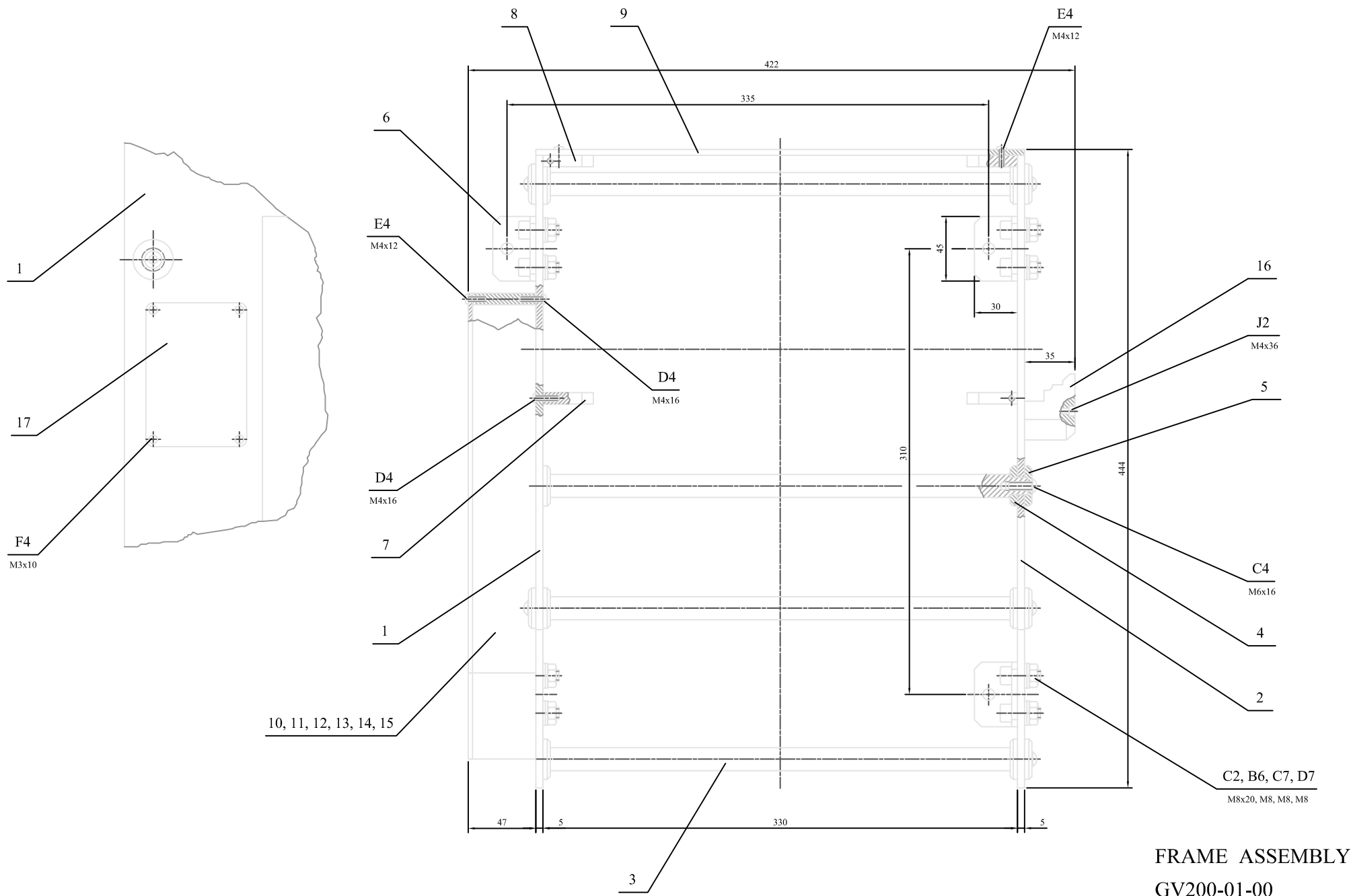
MEASURE WHEEL CIRCUMFERENCE 0.4 M

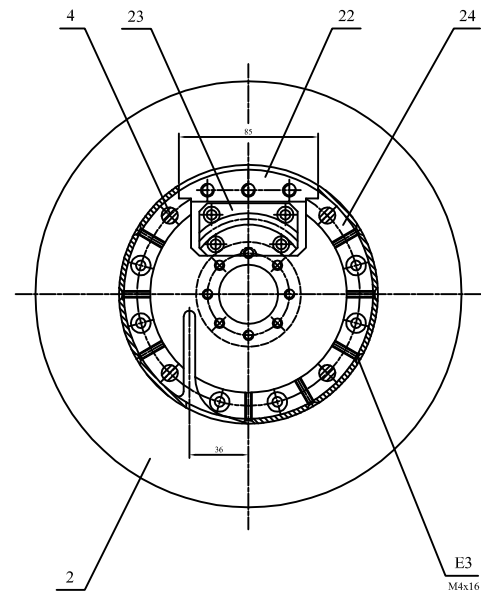
WINCH DIMENSIONS

LENGTH = 540 MM

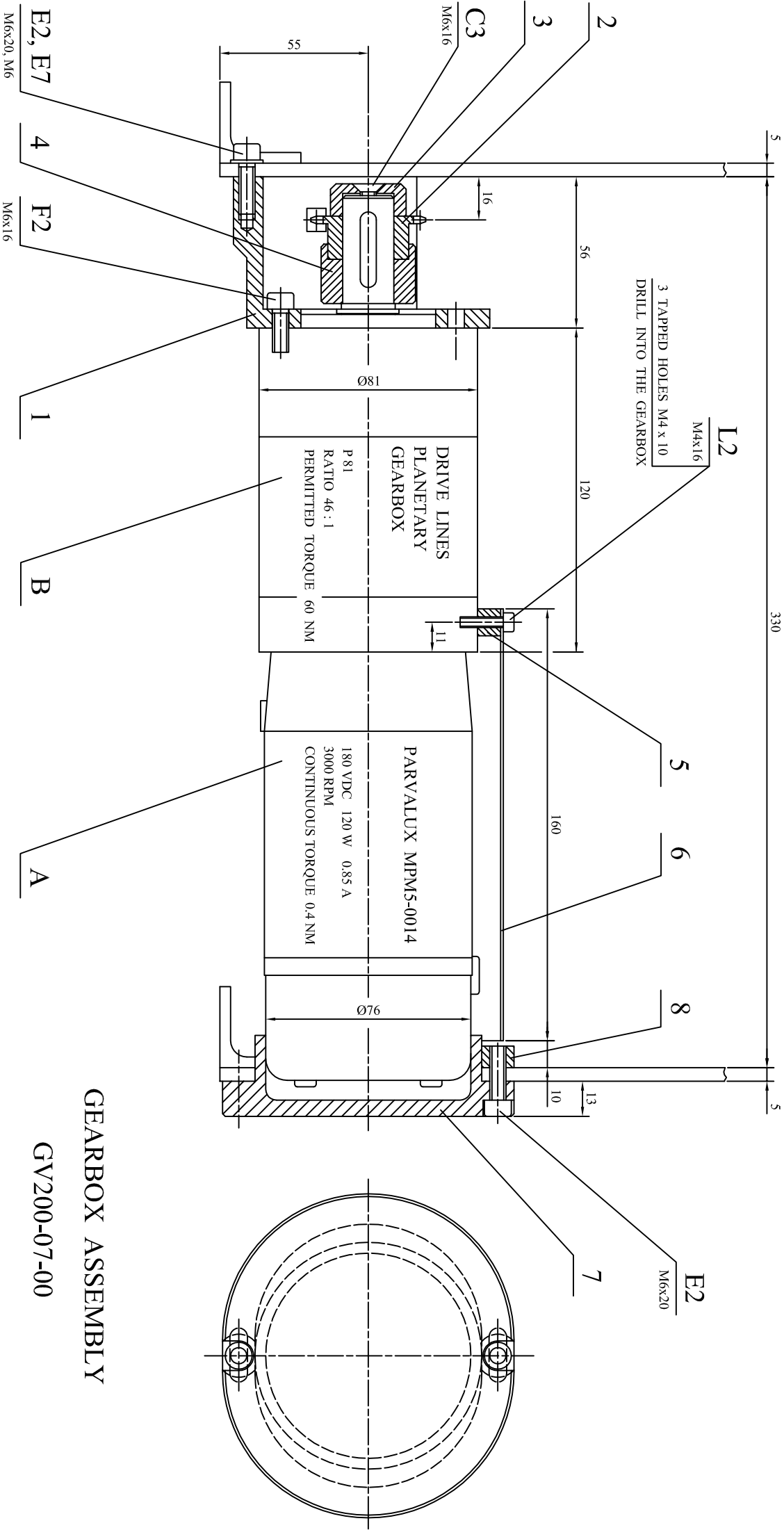
WIDTH = 450 MM

HEIGHT = 400 MM



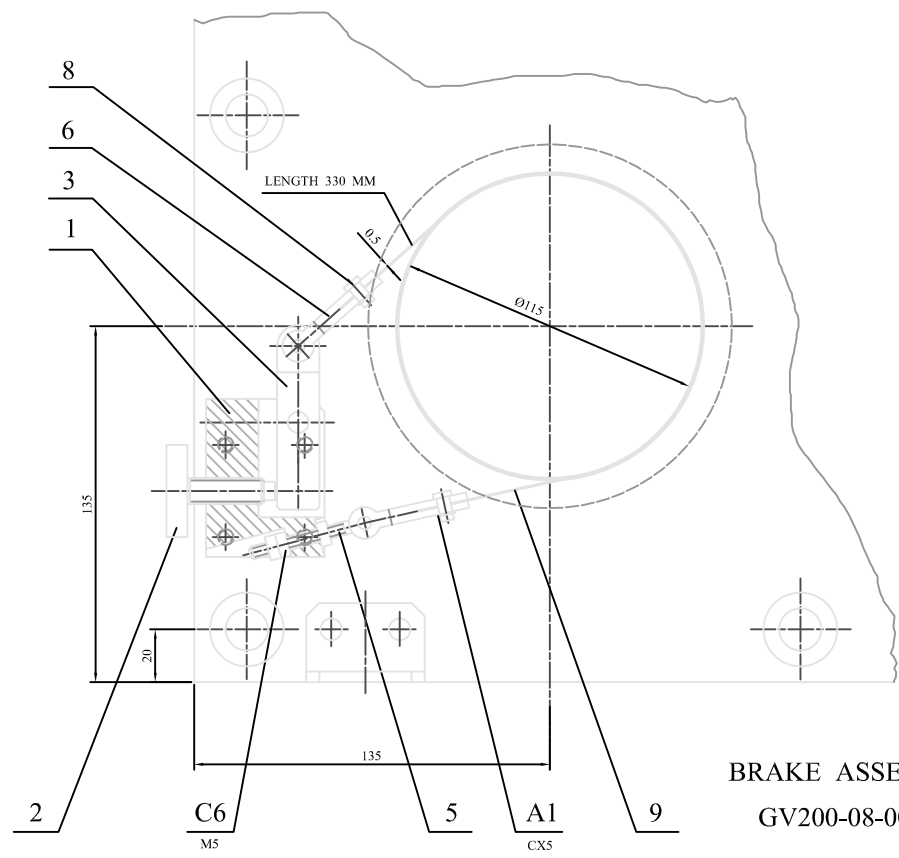
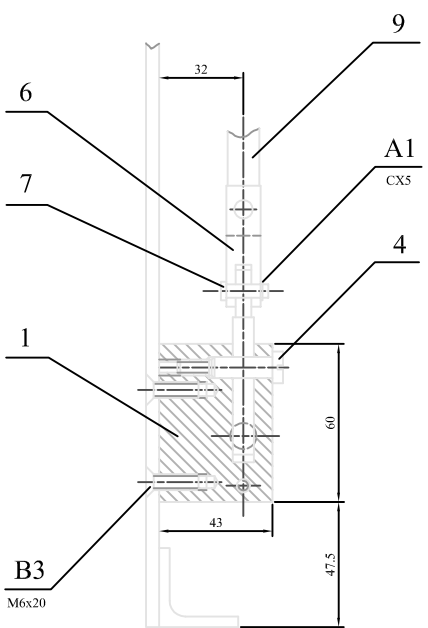


GV200-02-00

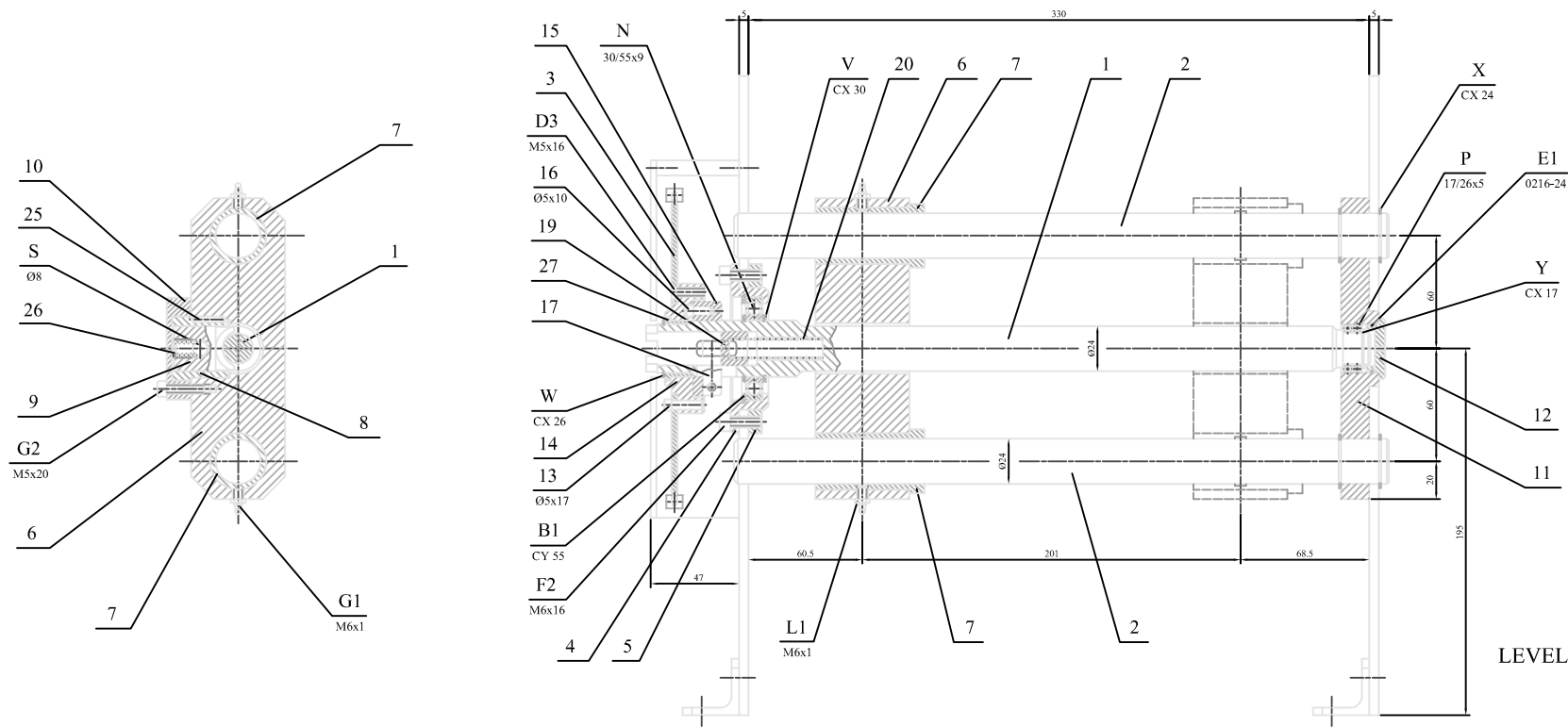
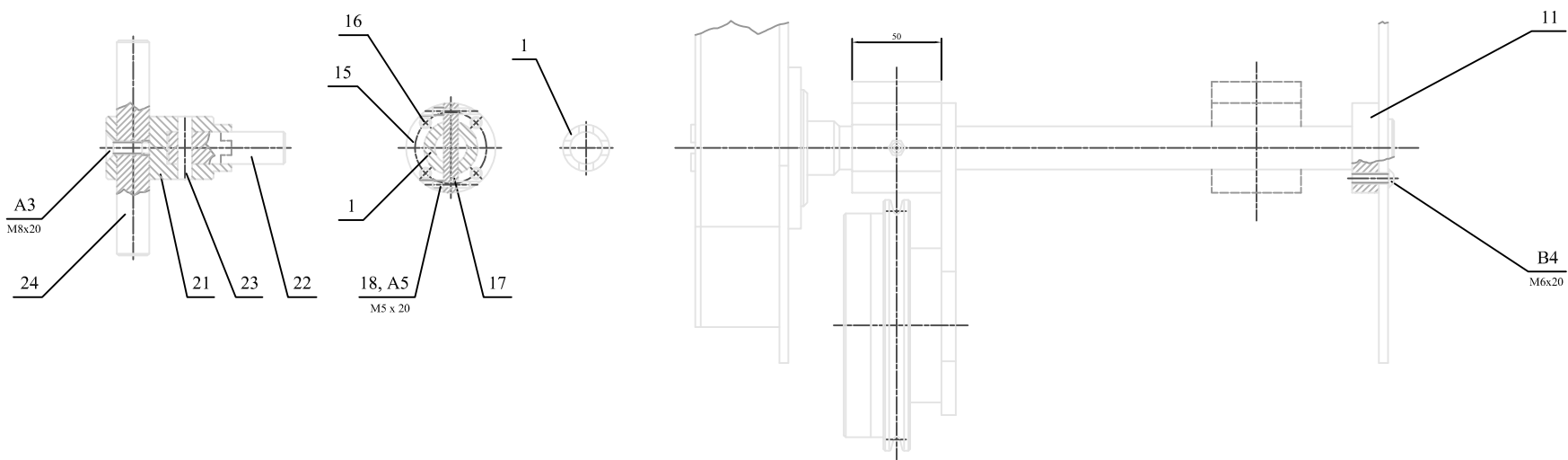


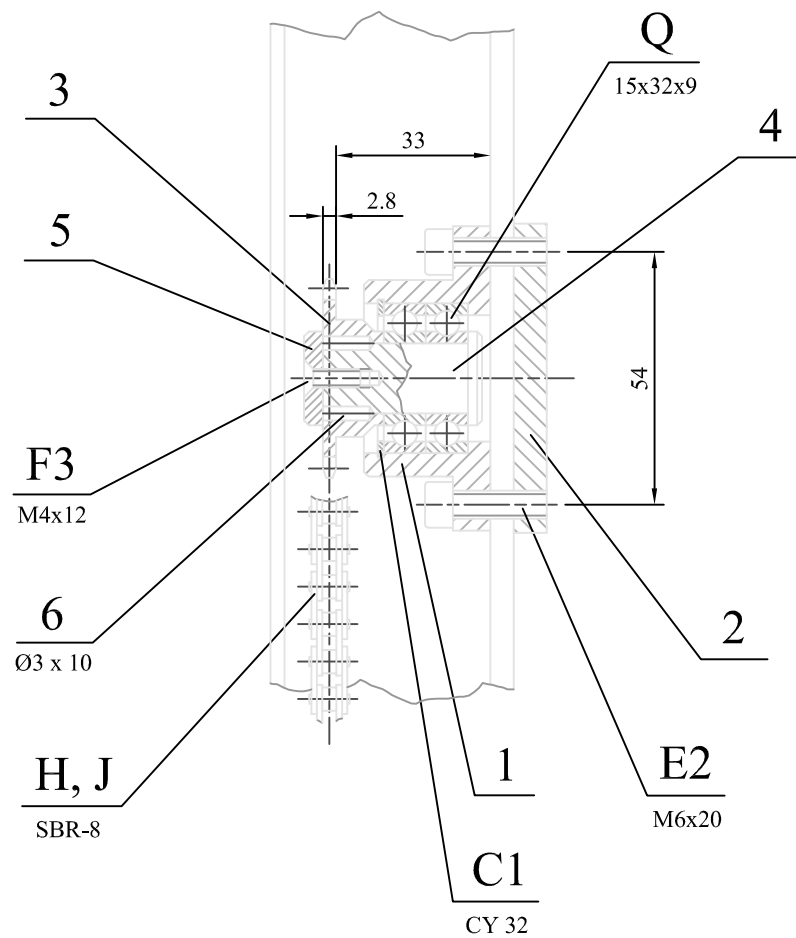
GEARBOX ASSEMBLY

GV200-07-00

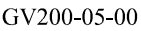


BRAKE ASSEMBLY
GV200-08-00





CHAIN ADJUSTER
ASSEMBLY
GV200-04-00



MEASURE WHEEL ASSEMBLY