VIME INDUSTRIAL
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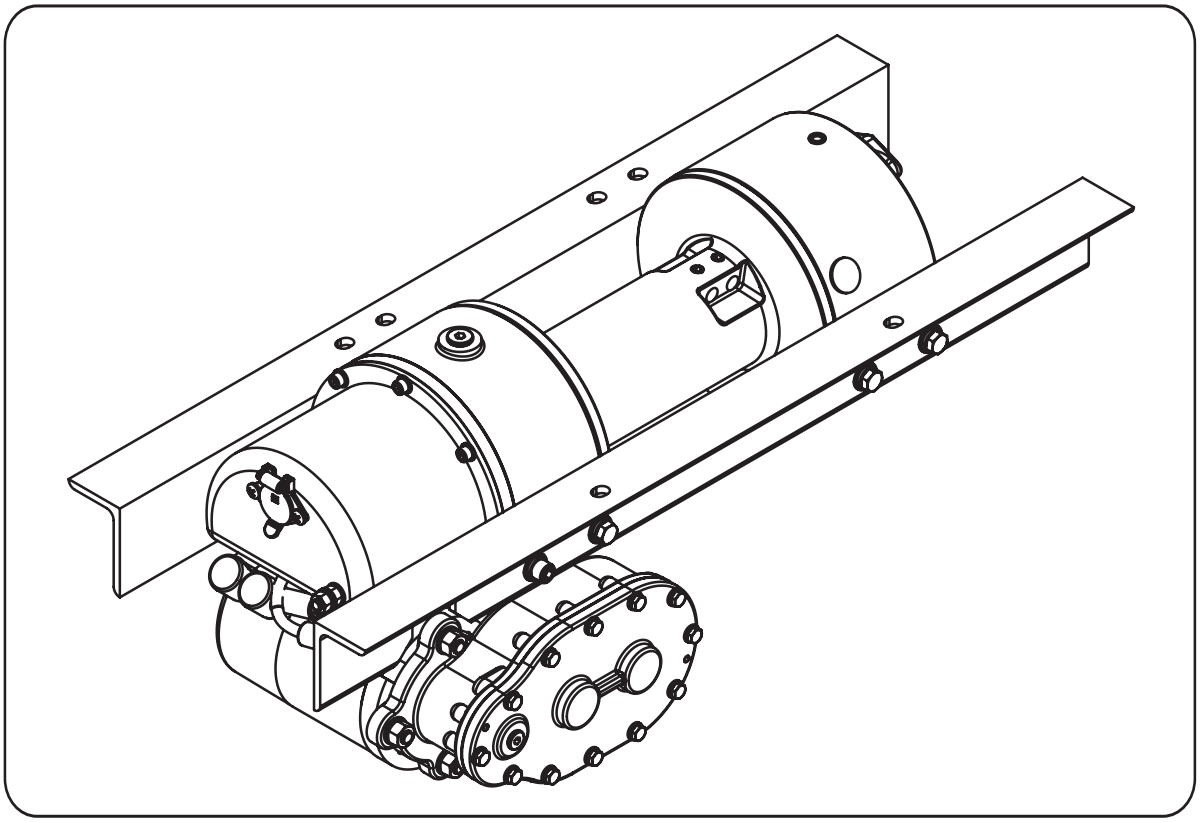
JE

ENGLISH

OPERATING SERVICE AND MAINTENANCE MANUAL



WORM GEAR ELECTRIC WINCH

Because of continued product improvement, we reserve the right to make changes without notice.

CE
EN 14492-1

⚠ WARNING

Read and understand this manual before installation and operation of winch.
Keep this manual with the winch at all times.

VIME has no responsibility for physical injury to persons, animals or property damages. That can result from failure to read and apply the instructions contained in the manual supplied with the winch and especially for: Failure with global safety aspects - Not correct linking to the source of energy – Deficiency in the annual and monthly maintenance - Improper uses - Any alteration, repair or modification from unauthorized personnel.

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12/2010 - UK - REV A - 11 - EN 14492-1

WARNING

Do not operate this winch until you have fully read this manual.

Many accidents are due for non observance safety procedures. A good reason, most of it can be avoided by knowing causes and taking in advance the opportunity safety.

WARNING

Read and understand this manual before installation and operation of winch.

Model	JEC 3600 JEM 3600 JEL 3600	JEC 2700 JEM 2700 JEL 2700
Serial number		
Manufacture year		
Max. rated line pull	• JEC 3600 • JEC 2700 • JEM 3600 • JEM 2700 • JEL 3600 • JEL 2700	3.600 kgs. 2.700 kgs. 3.600 kgs. 2.700 kgs. 3.600 kgs. 2.700 kgs.
Wire rope diameter	• JEC - JEM - JEL 3600 • JEC - JEM - JEL 2700	Dia. 10 mm Dia. 8 mm
Voltage	• JEC - JEM - JEL 3600 • JEC - JEM - JEL 2700	12V - 24V 12V - 24V
Weight (with roller fairlead and without cable)	• JEC 3600 - JEC 2700 • JEM 3600 - JEM 2700 • JEL 3600 - JEL 2700	39,5 kgs. 40,5 kgs. 43 kgs.

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TABLE OF CONTENTS

SECTION 1
SAFETY PROCEDURES

1.1. INTRODUCTION

Manual identified by code No. 12/2010 UK-REV A - 11 - EN 14492-1 has 76 pages.

IMPORTANT

At the delivery of this manual checks all data and for possibile incogruities.

VIME reserves the right to improve its products through changes in designed or materials as it may seem desirable without being obligated to incorporate such changes in this manual.

This manual contains useful ideas in obtaining the most efficient operation and maintenance from the winch and safety procedures one need to know before operating a winch.

For safety procedures, read carefully safety procedures in chapter 1.7.

Manual has to be kept intact and near to the winch for a prompt reading and consultation.

WARNING

In case of misunderstanding of this manual or parts of it, please contact VIME. For repair service contact VIME.

For a rapid consultations, manual is being shared in 7 sections:

Section 1 Safety procedures
Section 2 Mounting
Section 3 Operation
Section 4 Accessories
Section 5 Maintenance
Section 6 Trouble shooting guide
Section 7 Parts list

Section **1** contains alls data for winch operations, for **SAFETY PROCEDURES** and full winch description. Section **2** contains note about road traffic, electrical system, winch and cable drum installations. Section **3** contains all information for safety procedures. Section **4** accessories description. Section **5** is referred to the operator in charge of the winch maintenance. In this section are indicated all procedures as well as the maintenance must be executed in winch life. Section **6** is a guide for a trouble shooting should verify in winching operation. Section **7** contains parts list codes and parts drawing. All sections are shared in chapters progressive numbered. Chapters are shared in subsections progressive numbered.

IMPORTANT

For a rapid reading see table of contents.

1.2 SYMBOLS

In this manual there are three different symbols to prevent serious injuries.

• "DANGEROUS " symbol

DANGEROUS

Used to indicate dangerous situation and prevent injury.

• "WARNING" symbol

WARNING

Used to indicate dangerous situation for winch efficiency and for operator safety.

• "IMPORTANT" symbol

IMPORTANT

Used to call attention on important informations which user must knowing.

In addition to all warning symbols has been used a symbol to underline the notes.

• "NOTE" symbol

NOTE

Used to call attention on informations or advices that could help on winching operation.

The various symbols are completed by messages that describe in detail such warnings and dangerous situation, not neglecting to point out the recommended procedures and the useful informations.

1.3 SYMBOLS

According to EEC Directive Machinery 2006/42/CE, on VIME's winches there are, in a visibile position for the utiliser, the following symbols:

CABLE INJURES KEEP CLEAR (roller fairlead)

KEEP SAFETY DISTANCE (winch identification decal)

DANGEROUS KEEP HANDS OFF OVERHEATING (electric motor)

READ CAREFULLY THE OPERATING SERVICE AND MAINTENANCE MANUAL (winch identification decal)

WEAR WORKING GLOVES (winch identification decal)

IMPORTANT

We recommend to respect the symbols above.
It is necessary to recognize the meaning of symbols and keeping visible and readable.
If decals are damaged or unreadable replace it.

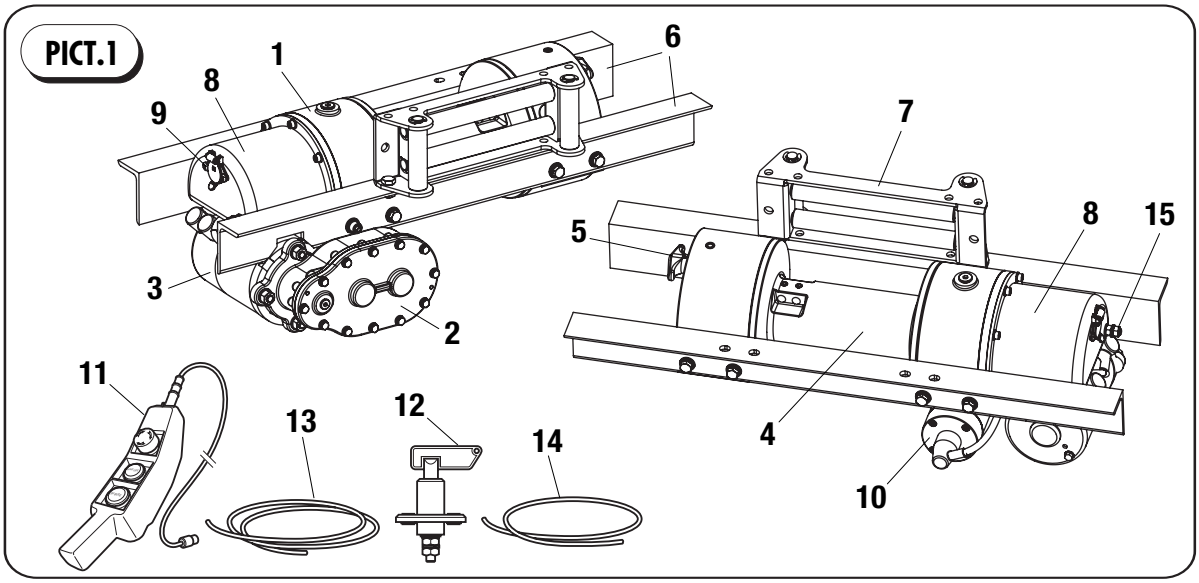
1.4 DESCRIPTION

Model JE is a DC electric worm gear winch with steel spur gear reduction. Designed for extend life and gives best safe duty. This winch is built according with higher safety standards to complaint with Directive Machinery 2006/24/CE EN 14492-1. The special aluminium alloy bronze gear match to an hardened steel ground polished worm. Worm gear provides load reversing protection. It is suitable to be mounted on vehicle where hydraulic system is not available. Its particular design make it proper for front end or rear trucks mounting.

WARNING

The winch is built for working on range temperature between –20°C and +50°C. Do not exceed the range temperature it may be cause damage.

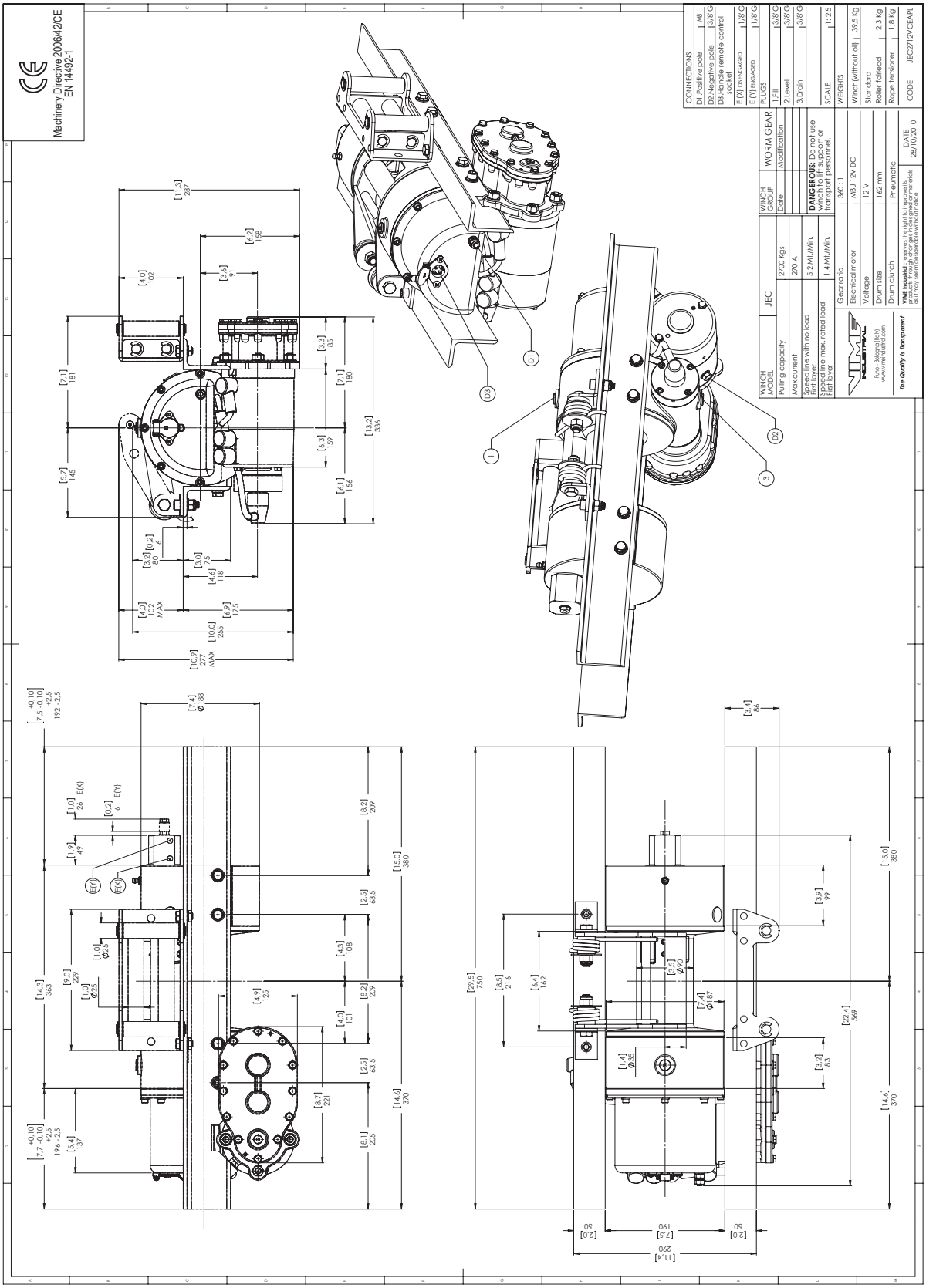
1.4.1 WINCH DESCRIPTION



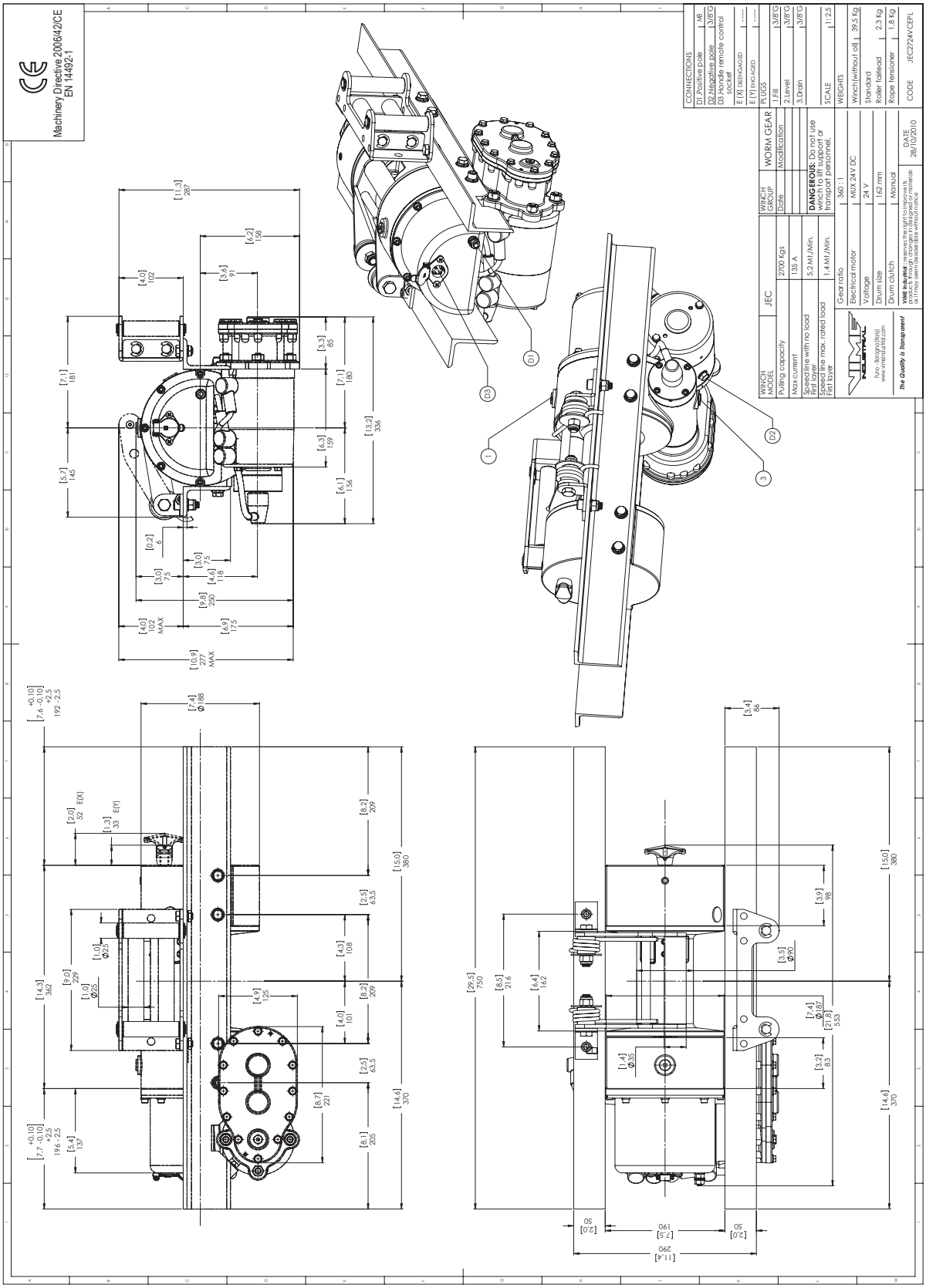
Components:

1. Worm gear housing
2. Spur gear housing
3. Electric motor DC 12V-1,9HP o 24V-2,5 HP
4. Drum length, distance between flanges:
   - JEC (short) = 162 mm/ 6,4 inch
   - JEM (medium) = 211 mm/ 8,3 inch
   - JEL (long) = 350 mm/ 13,8 inch
5. Clutch handle
6. Standard mounting angles:
   - JEC (short) 750 mm/ 29,5 inch
   - JEM (medium) 750 mm/ 29,5 inch
   - JEL (long) 820 mm/ 32,3 inch
7. Zinc plated standard roller fairlead:
   - JEC (short)
   - JEM (medium)
   - JEL (long)
8. Solenoid housing 12V o 24V
9. Socket
10. Load limiting device
11. Remote control switch assembly (includes plug and cable, length 4 Mt.)
12. Battery switch
13. Battery cable length (1,5 Mt.)
14. Battery cable length (0,5 Mt.)
15. Power supply stud (+) (nut M8)

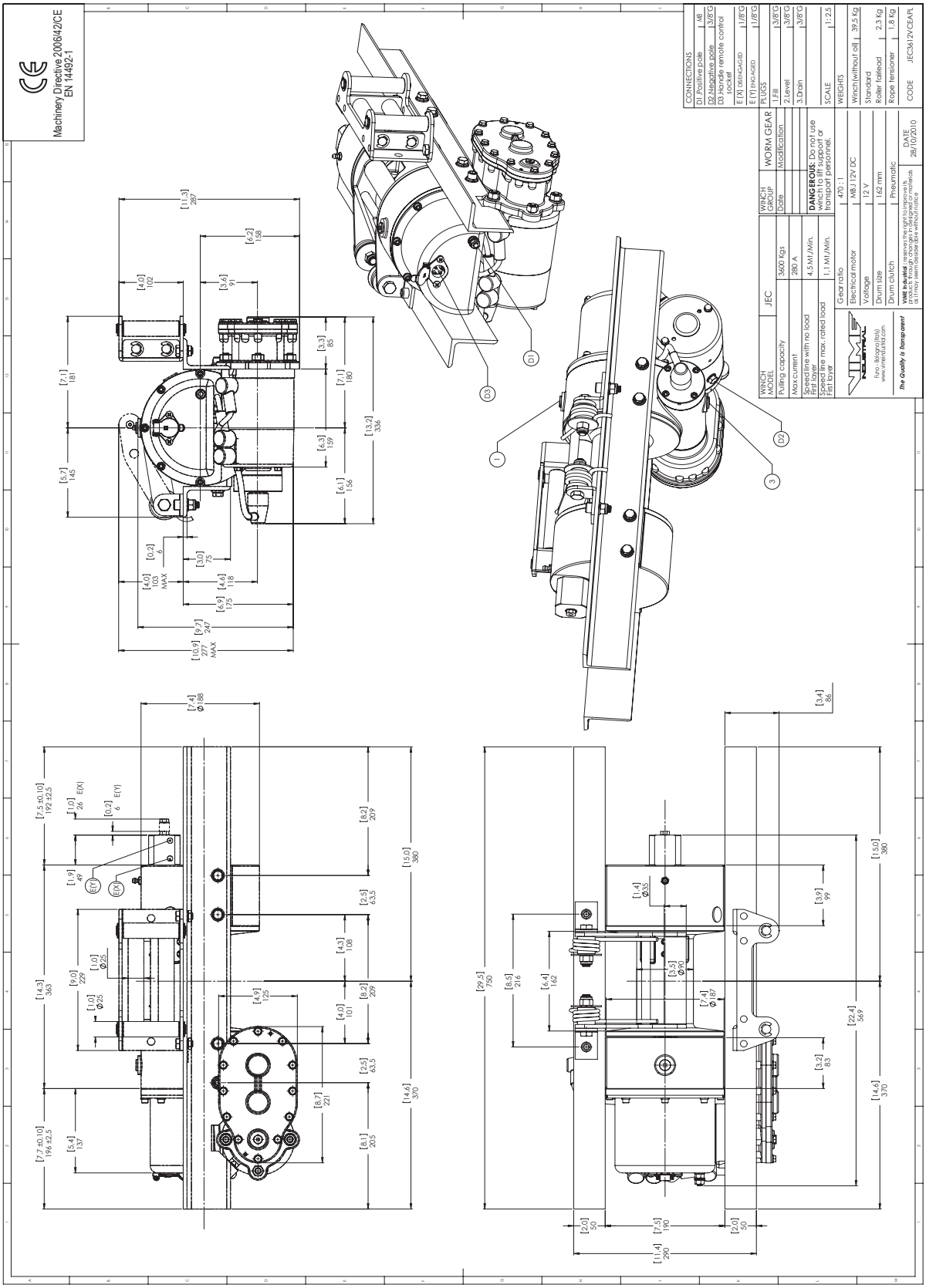
1.4.2 JEC 2700 12V WINCH DIMENSIONAL DATA



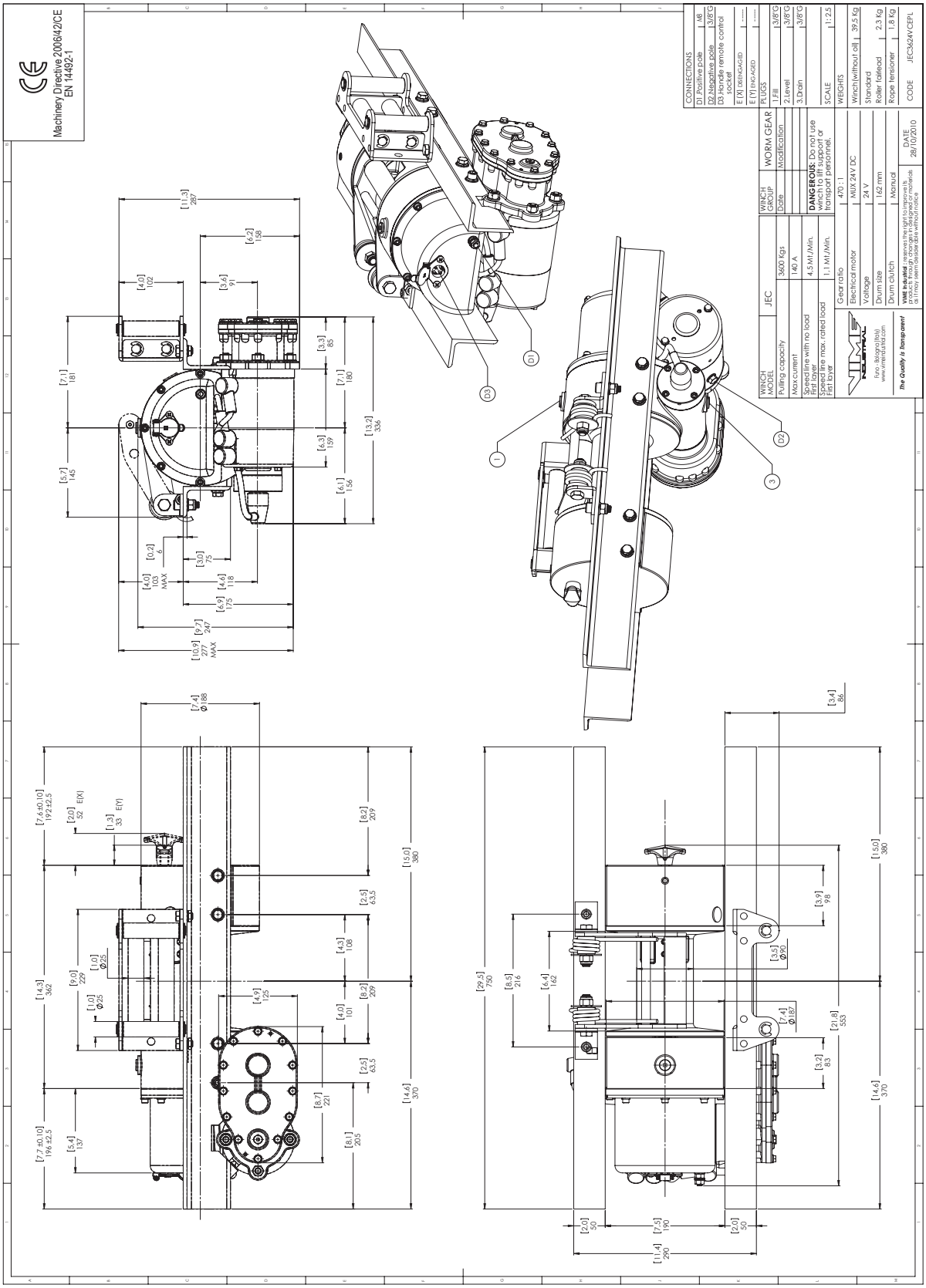
1.4.3 JEC 2700 24V WINCH DIMENSIONAL DATA



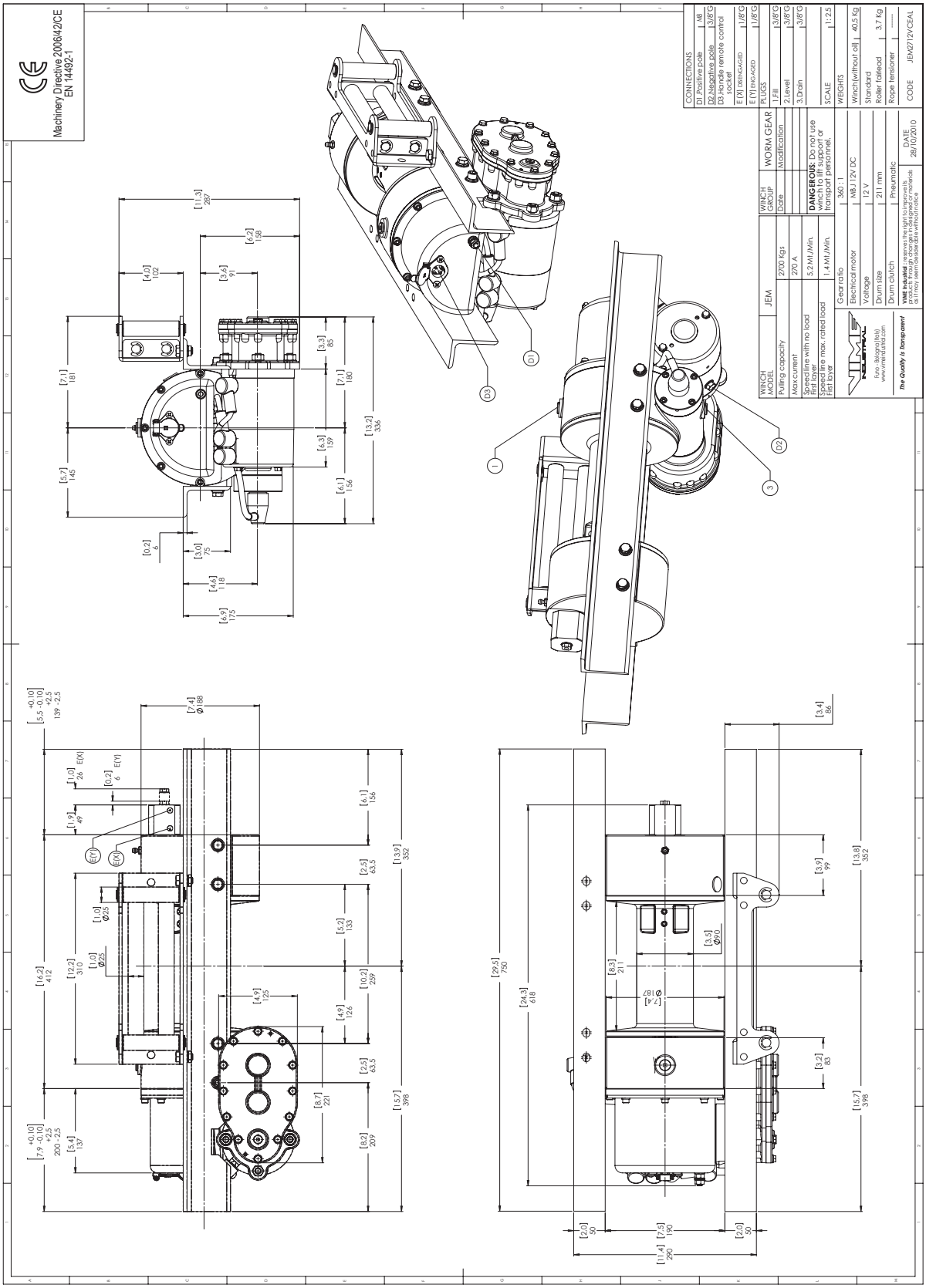
1.4.4 JEC 3600 12V WINCH DIMENSIONAL DATA



1.4.5 JEC 3600 24V WINCH DIMENSIONAL DATA



1.4.6 JEM 2700 12V WINCH DIMENSIONAL DATA



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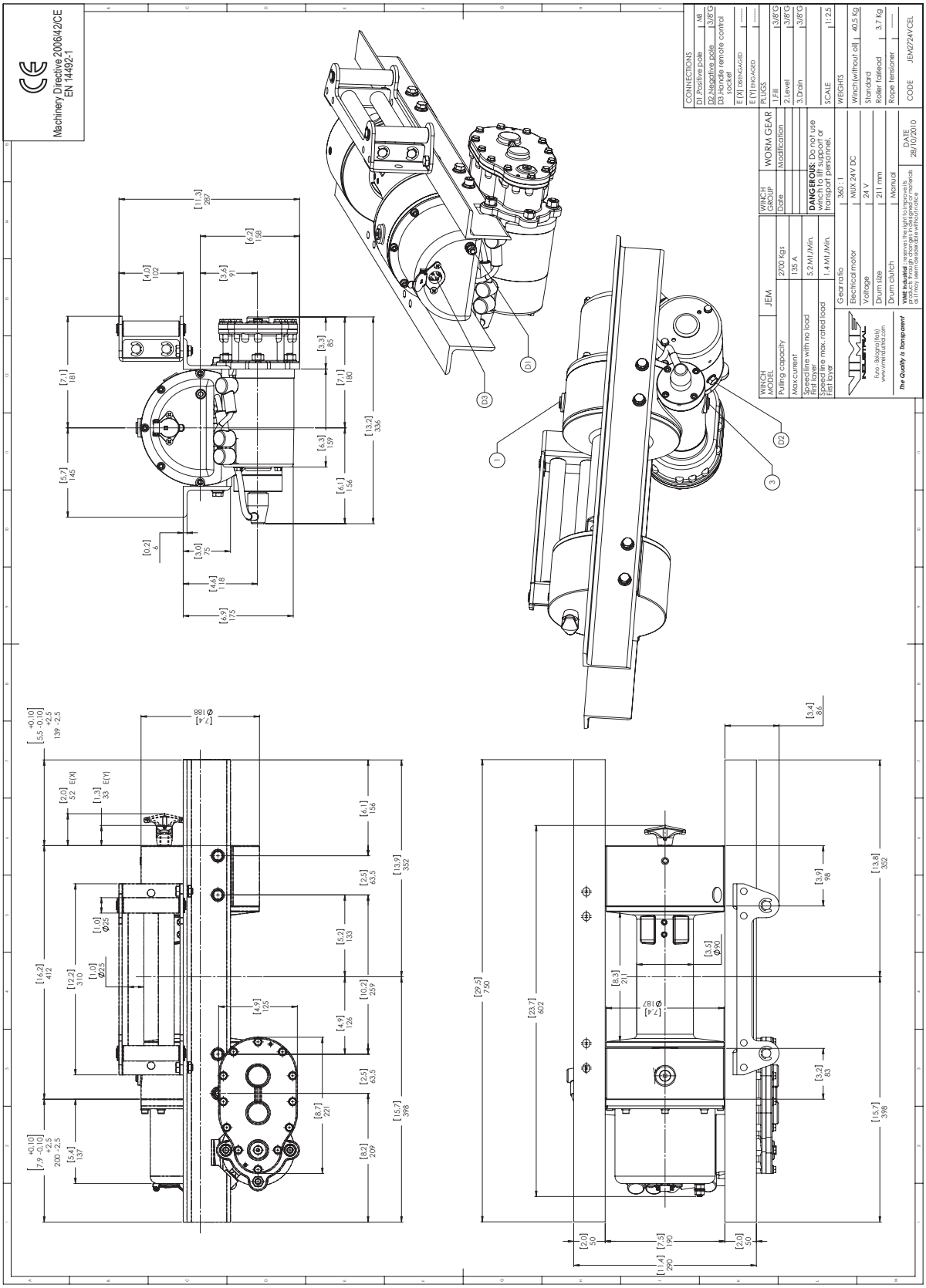

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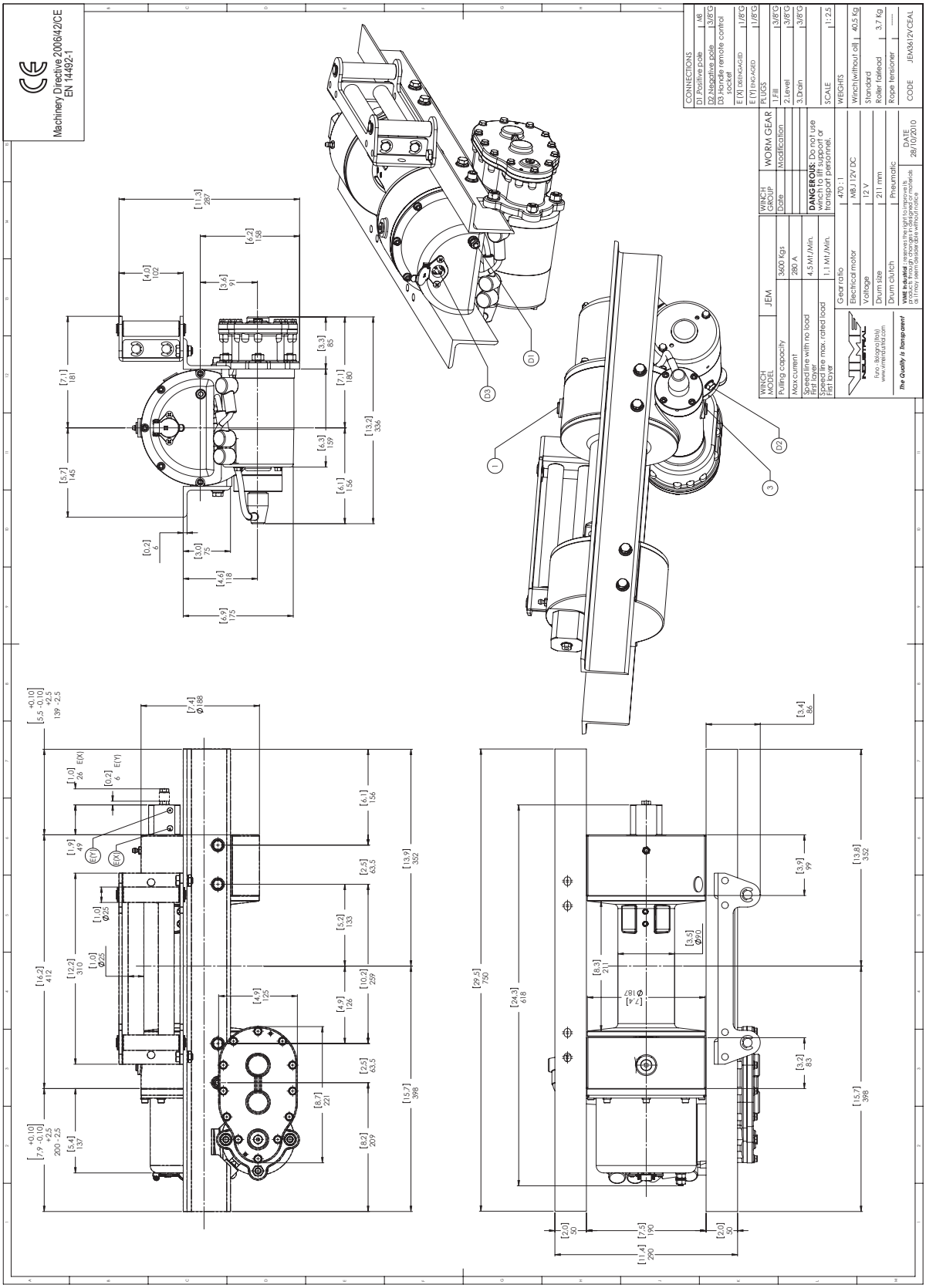

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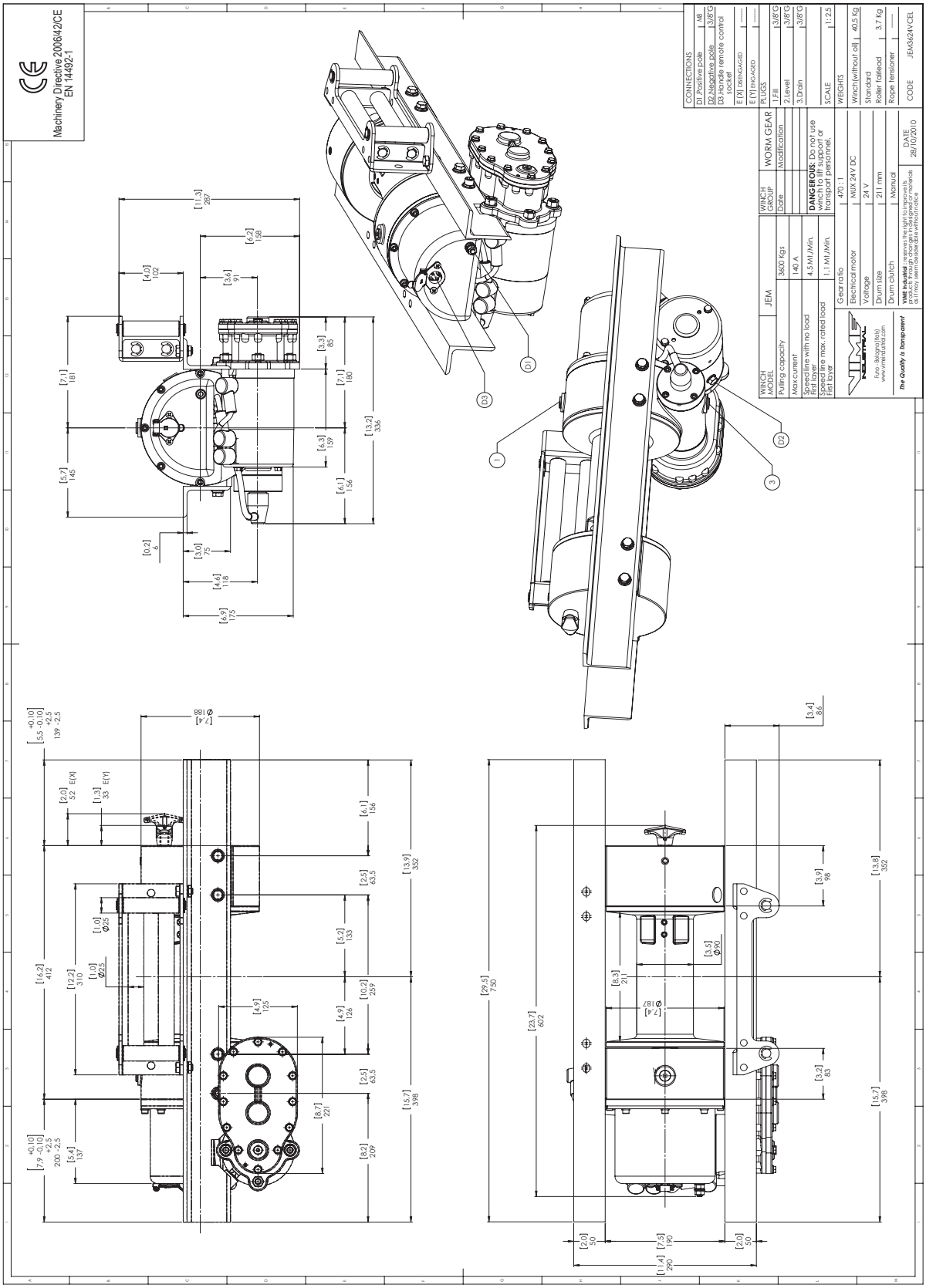

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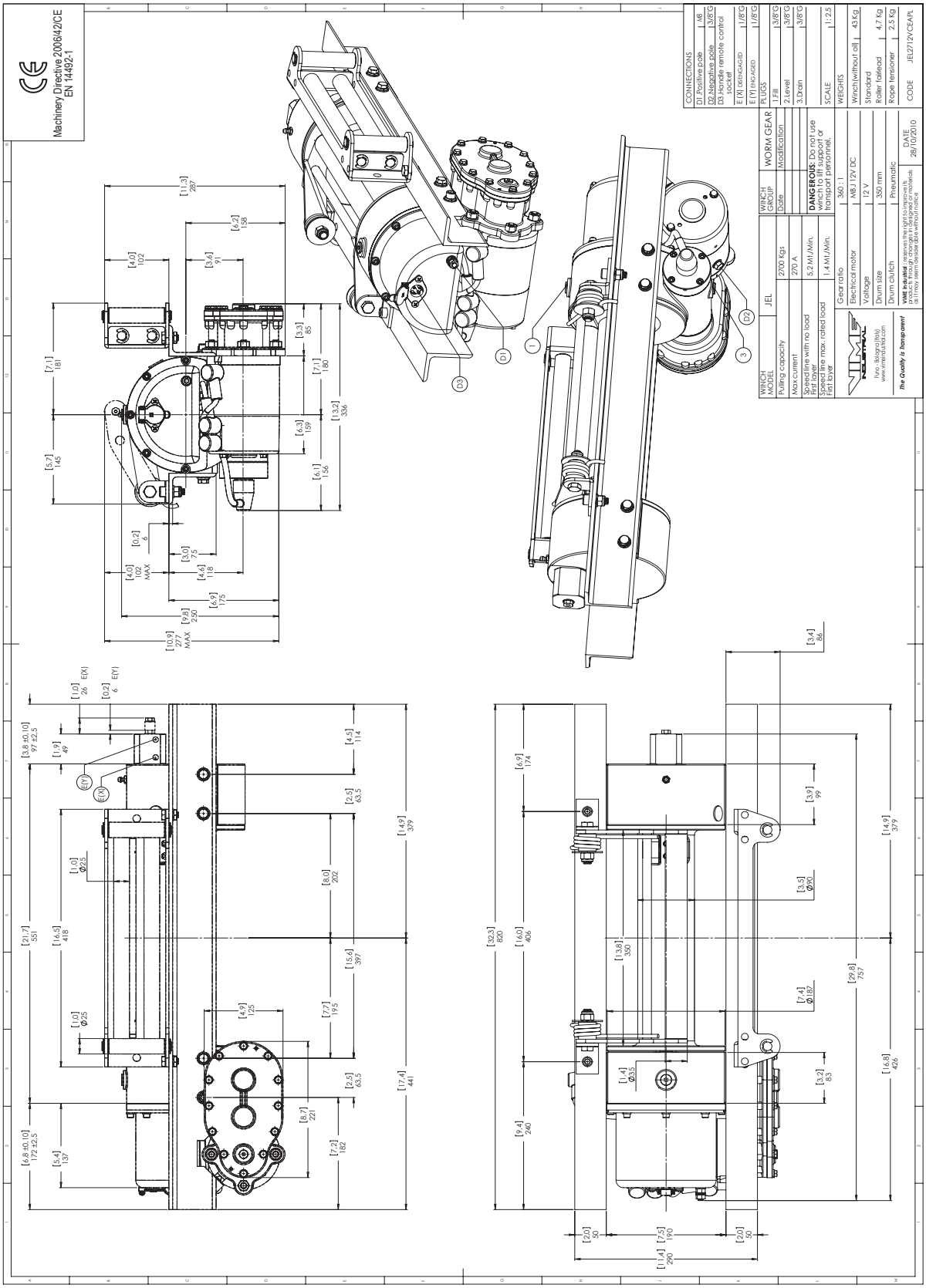
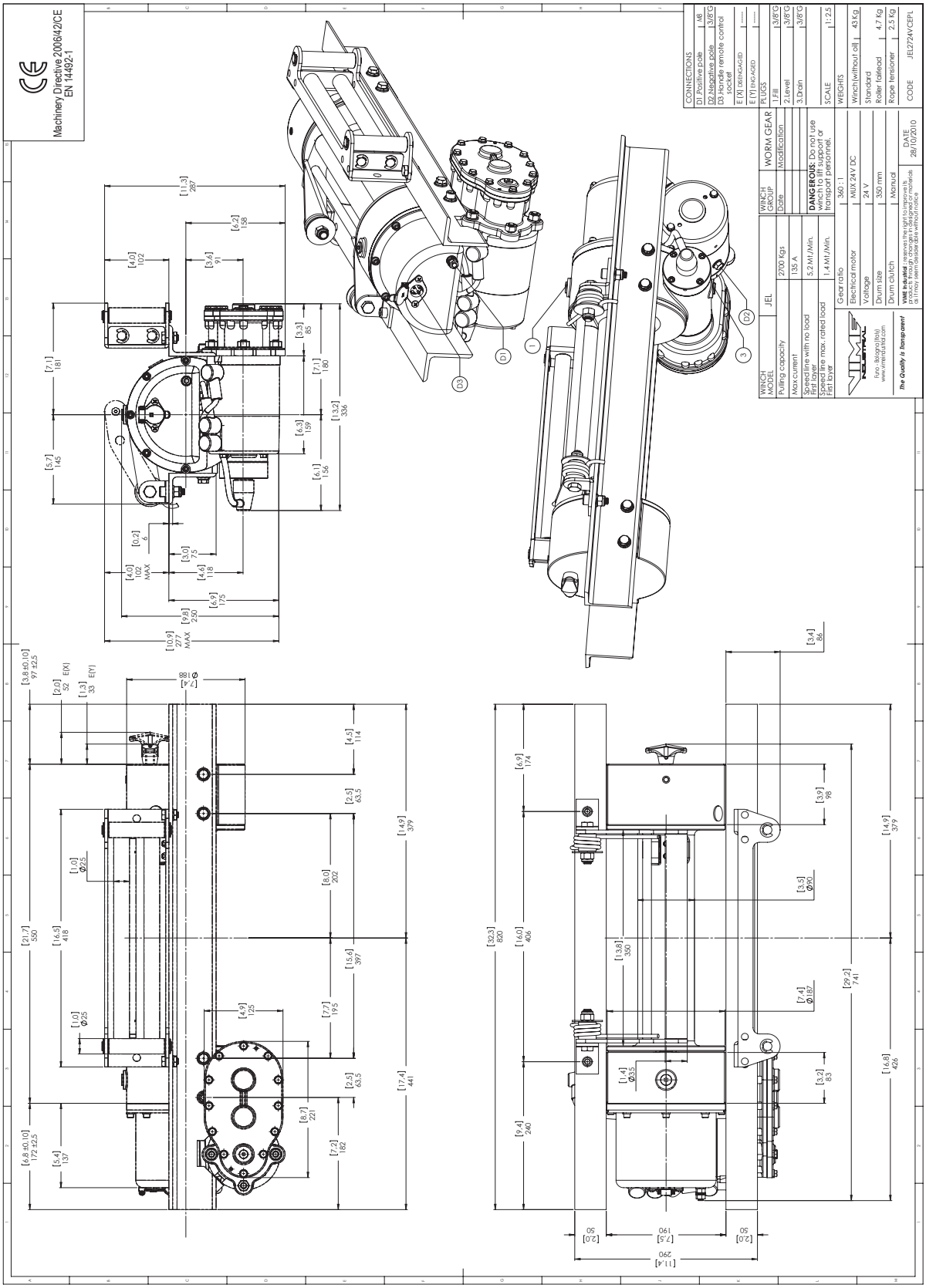
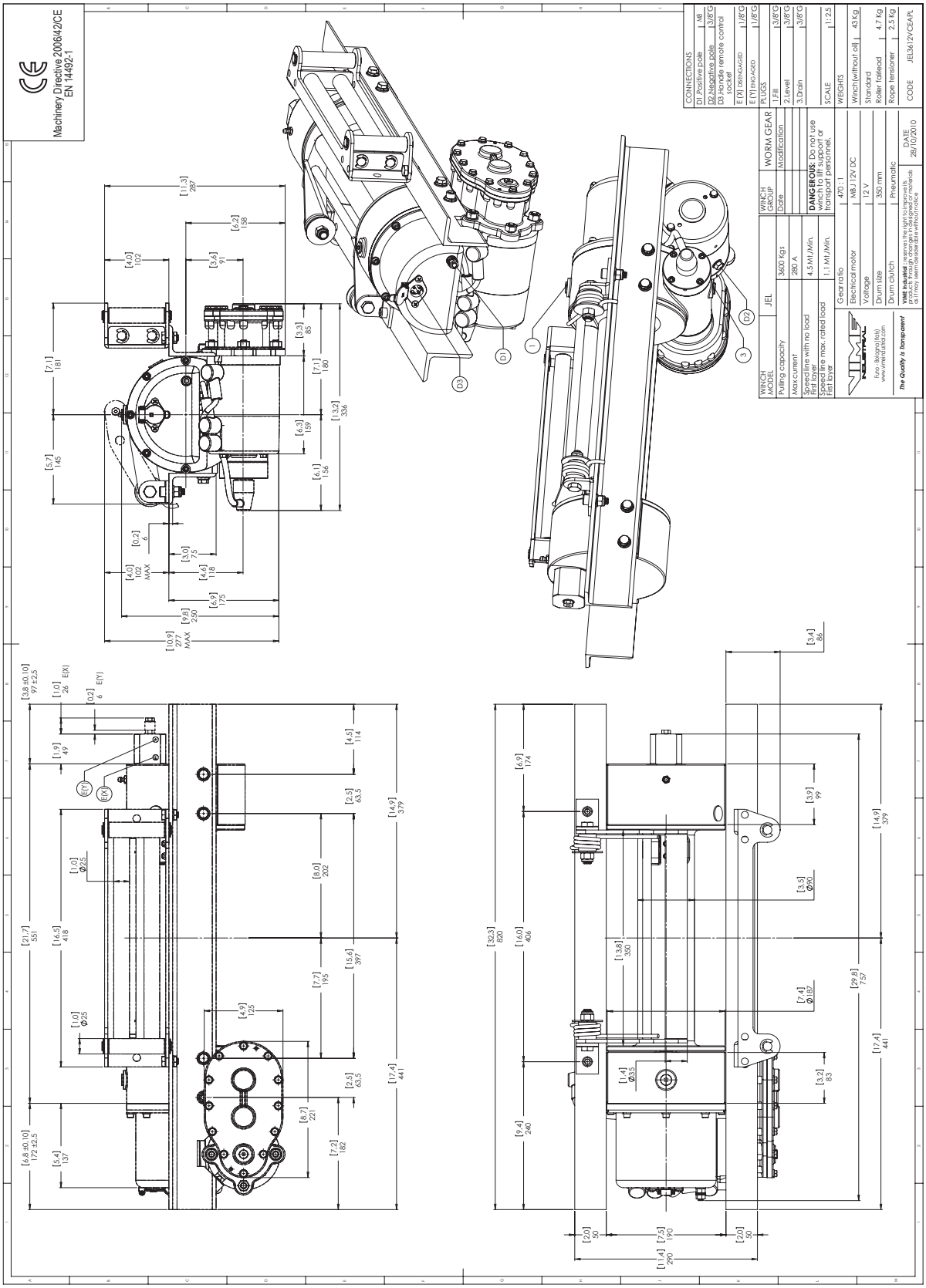


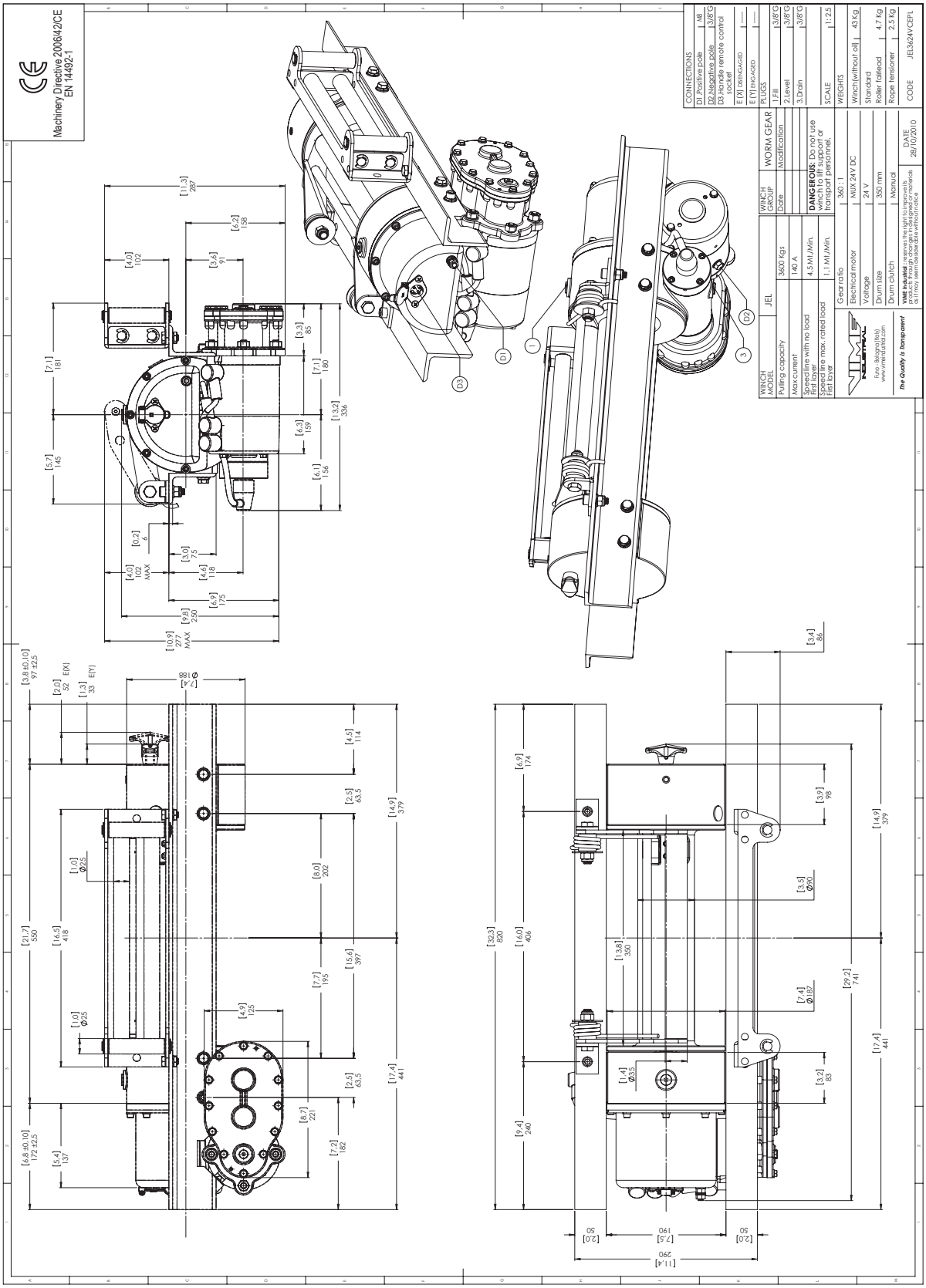
1.4.11 JEL 2700 24V WINCH DIMENSIONAL DATA



1.4.12 JEL 3600 12V WINCH DIMENSIONAL DATA

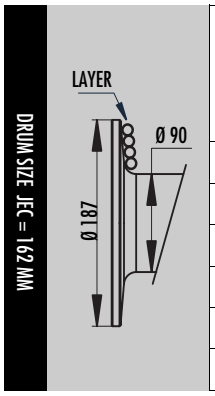


1.4.13 JEL 3600 24V WINCH DIMENSIONAL DATA



1.4.14 JEC 2700/3600 12V/24V TECHNICAL DATA

RATIO	WIRE ROPE SIZE [MM]	LAYER	LINE PULL [KG]	WIRE ROPE MINIMUM BREAKING LOAD EN 14492-1
1/470	10	1	3.600	7.200
		2	2.970	
		3	2.550	
		4	2.230	
		5	1.980	
1/360	8	1	2.700	5.400
		2	2.300	
		3	2.000	
		4	1.800	
		5	1.630	



LAYER	DRUM DIAMETER Ø [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
	8 MM	10 MM	8 MM	10 MM	8 MM	10 MM
5	162	180	9,8	8,6	39,3	33,4
4	146	160	8,8	7,6	29,5	24,8
3	130	140	7,9	6,7	20,7	17,2
2	114	120	6,9	5,7	12,8	10,5
1	98	100	5,9	4,8	5,9	4,8
0	90	90	-	-	-	-

WIRE ROPE CAPACITY [MT]		MAX. WIRE ROPE CAPACITY EN 14492-1 [MT]		MAX. WIRE ROPE-CAPACITY [MT]	
8 MM	10 MM	8 MM	10 MM	8 MM	10 MM
30	25	39**	24**	50	33

PERFORMANCE CHARTS AT THE 1ST LAYER

VOLTAGE [V]	RATIO	NO LOAD		900 [KG]		1800 [KG]		2700 [KG]		3600 [KG]	
		LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]
12	1/360	5,2	70	2,8	140	2,1	200	1,4	270		
	1/470	4,5	65	2,4	110	1,9	180	1,2	220	1,1	280
24	1/360	5,2	35	2,8	70	2,1	100	1,4	135		
	1/470	4,5	30	2,4	50	1,9	90	1,2	110	1,1	140

NOTES

Specifications are subject to change without notification and without incurring obligation. Specifications in this publication are theoretical and may vary depending on electrical system, environment, etc.

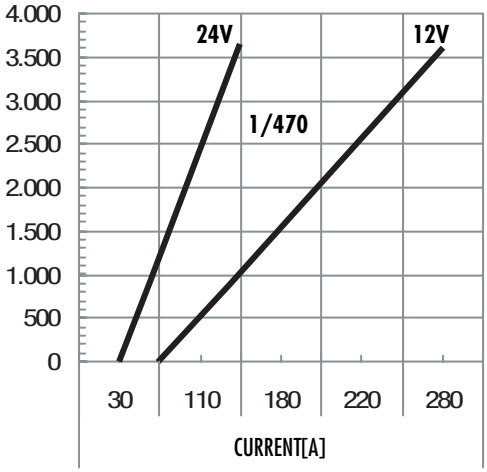
NOTES

*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm².
Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

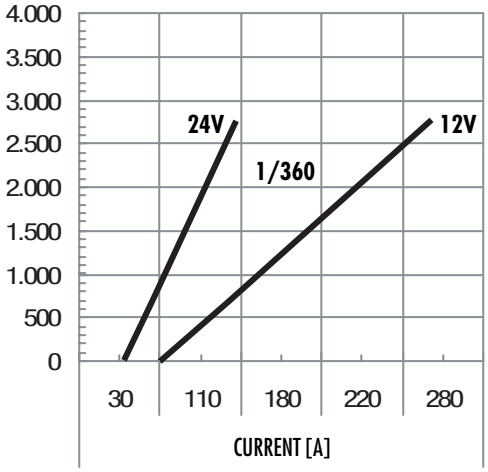
** Max. wire rope capacity according with EN 14492-1.

1.4.15 JEC 2700/3600 WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

LINE PULL-FIRST LAYER [KG]

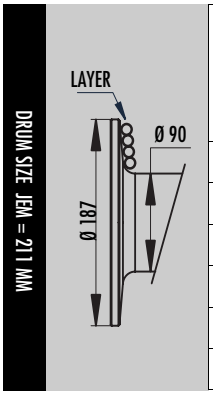


LINE PULL-FIRST LAYER [KG]



1.4.16 JEM 2700/3600 12V-24V TECHNICAL DATA

RATIO	WIRE ROPE SIZE [MM]	LAYER	LINE PULL [KG]	WIRE ROPE MINIMUM BREAKING LOAD EN 14492-1
1/470	10	1	3.600	7.200
		2	2.970	
		3	2.550	
		4	2.230	
		5	1.980	
1/360	8	1	2.700	5.400
		2	2.300	
		3	2.000	
		4	1.800	
		5	1.630	



LAYER	DRUM DIAMETER Ø [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
	8 MM	10 MM	8 MM	10 MM	8 MM	10 MM
5	162	180	12,9	11,4	51,8	44,2
4	146	160	11,6	10,1	38,9	32,8
3	130	140	10,4	8,8	27,3	22,7
2	114	120	9,1	7,6	16,9	13,9
1	98	100	7,8	6,3	7,8	6,3
0	90	90	-	-	-	-

WIRE ROPE CAPACITY [MT]		MAX. WIRE ROPE CAPACITY EN 14492-1 [MT]		MAX. WIRE ROPE-CAPACITY [MT]	
8 MM	10 MM	8 MM	10 MM	8 MM	10 MM
40	30	51**	32**	64	44

PERFORMANCE CHARTS AT THE 1ST LAYER

VOLTAGE [V]	RATIO	NO LOAD		900 [KG]		1800 [KG]		2700 [KG]		3600 [KG]	
		LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]
12	1/360	5,2	70	2,8	140	2,1	200	1,4	270		
	1/470	4,5	65	2,4	110	1,9	180	1,2	220	1,1	280
24	1/360	5,2	35	2,8	70	2,1	100	1,4	135		
	1/470	4,5	30	2,4	50	1,9	90	1,2	110	1,1	140

NOTES

Specifications are subject to change without notification and without incurring obligation. Specifications in this publication are theoretical and may vary depending on electrical system, environment, etc.

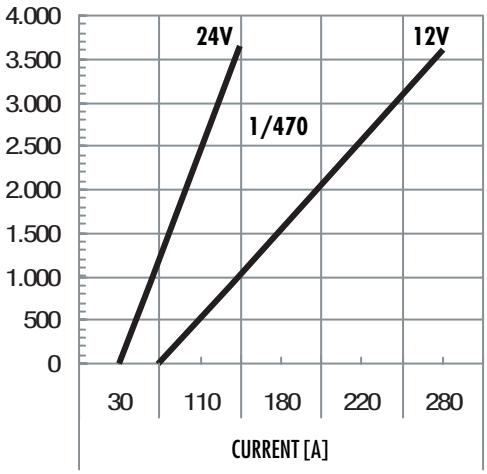
NOTES

*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm².
Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

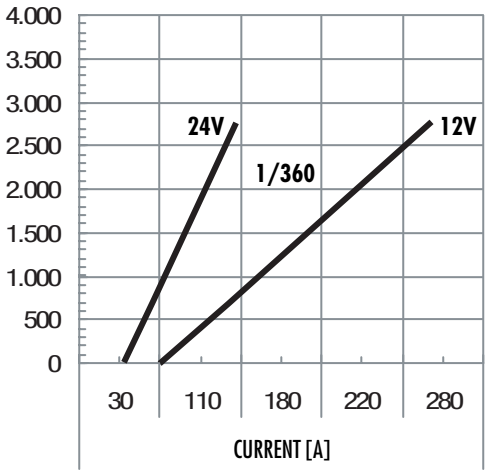
** Max. wire rope capacity according with EN 14492-1.

1.4.17 JEM 2700/3600 WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

LINE PULL-FIRST LAYER [KG]



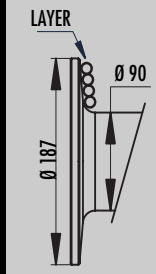
LINE PULL-FIRST LAYER [KG]



1.4.18 JEL 2700/3600 12V-24V TECHNICAL DATA

RATIO	WIRE ROPE SIZE [MM]	LAYER	LINE PULL [KG]	WIRE ROPE MINIMUM BREAKING LOAD EN 14492-1
1/470	10	1	3.600	7.200
		2	2.970	
		3	2.550	
		4	2.230	
		5	1.980	
1/360	8	1	2.700	5.400
		2	2.300	
		3	2.000	
		4	1.800	
		5	1.630	

DRUM SIZE JEL = 350 MM



LAYER	DRUM DIAMETER Ø [MM]		WIRE ROPE ON LAYER [MT]		WIRE ROPE QUANTITY [MT]	
	8 MM	10 MM	8 MM	10 MM	8 MM	10 MM
5	162	180	21,8	19,2	87,3	74,8
4	146	160	19,6	17,1	65,5	55,5
3	130	140	17,5	15,0	45,9	38,5
2	114	120	15,3	12,8	28,5	23,5
1	98	100	13,2	10,7	13,2	10,7
0	90	90	-	-	-	-

WIRE ROPE CAPACITY [MT]		MAX. WIRE ROPE CAPACITY EN 14492-1 [MT]		MAX. WIRE ROPE-CAPACITY [MT]	
8 MM	10 MM	8 MM	10 MM	8 MM	10 MM
50	40	87**	55**	109	74

PERFORMANCE CHARTS AT THE 1ST LAYER

VOLTAGE [V]	RATIO	NO LOAD		900 [KG]		1800 [KG]		2700 [KG]		3600 [KG]	
		LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]	LINE SPEED [MT/MIN]	CURRENT [A]
12	1/360	5,2	70	2,8	140	2,1	200	1,4	270		
	1/470	4,5	65	2,4	110	1,9	180	1,2	220	1,1	280
24	1/360	5,2	35	2,8	70	2,1	100	1,4	135		
	1/470	4,5	30	2,4	50	1,9	90	1,2	110	1,1	140

NOTES

Specifications are subject to change without notification and without incurring obligation. Specifications in this publication are theoretical and may vary depending on electrical system, environment, etc.

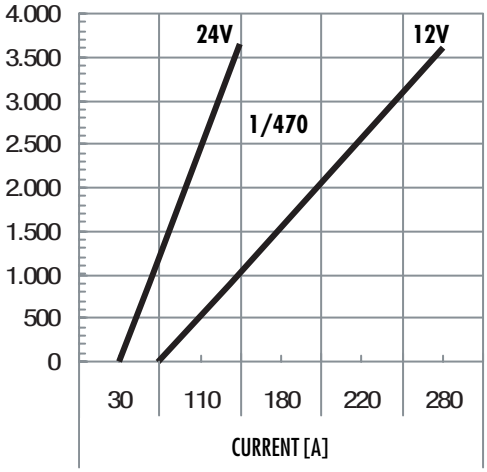
NOTES

*Wire rope size must be respected. Recommended wire rope min. tensile strength 2160 N/mm².
Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

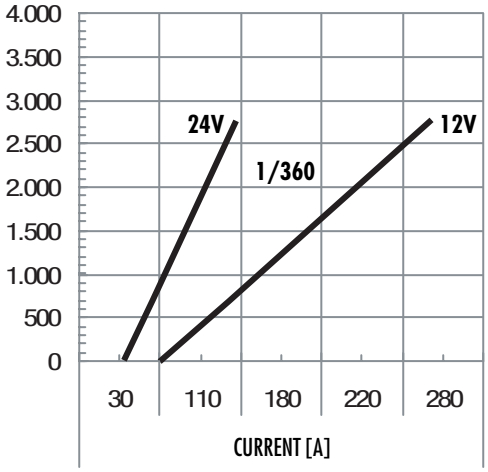
** Max. wire rope capacity according with EN 14492-1.

1.4.19 JEL 2700/3600 WINCH PERFORMANCE CHARTS AT THE 1ST LAYER

LINE PULL-FIRST LAYER [KG]

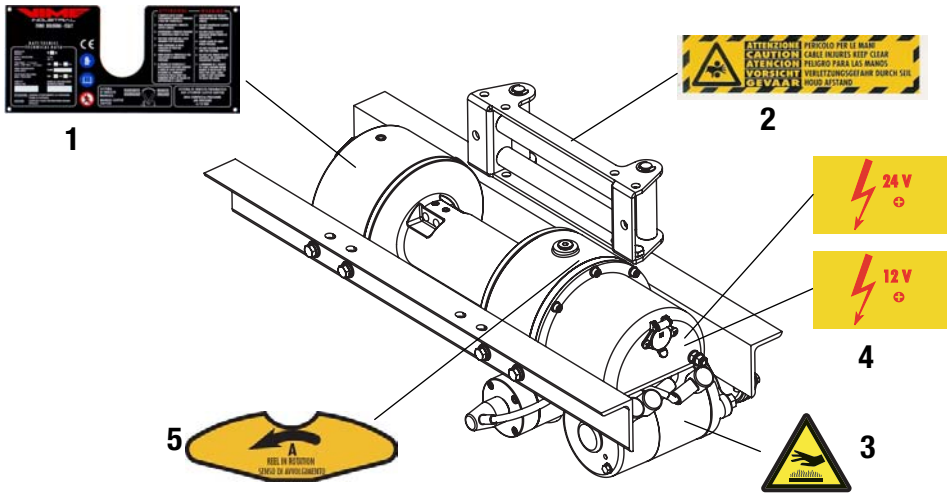


LINE PULL-FIRST LAYER [KG]



1.5 WINCH DECALS. SAFETY ADVICES

PICT.2



A decal (1), onto the top of the clutch housing, gives: winch model, max. pulling capacity at 1st layer, wire rope diameter according to the rule,voltage, serial number and year of built. A yellow sticker (2) onto the roller fairlead, warns about rotating parts. A yellow sticker (3) onto the electric motor, warns of overheating parts. A sticker (4) gives electric motor voltage 12V or 24V. A sticker (5) onto the top of the worm gear housing end indicates the spooling direction of the cable : " A" or "B". If not specified in the order, winch is supplied with counter clockwise cable rotation on the drum " A Rotation". Cable rotation determined from the solenoid housing end side as shown in pict.2 (see chapter 2.8).

IMPORTANT

When ordering replacement parts or contact VIME's customers service, please gives winch model and serial number.

IMPORTANT

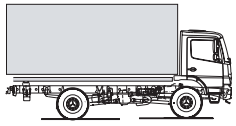
If decals are damaged or unreadable, replace it.

1.6 CONDITIONS OF SALES

The winch, except special customer requirements is delivered assembled and tested. Accessories such as: roller fairlead, cable tensioner (not supplied for mod. JEM), air-cylinder clutch shifter, only if required, are included in the commitment. Wire rope and hook are not included in the standard winch version, only if required are included in the commitment. At the delivery, open carefully the packing. Inspect the winch and see if it is free from defects.

IMPORTANT

At the delivery, open carefully the packing. Inspect the winch and see if it is free from defects.



1.6.1 PACKAGING

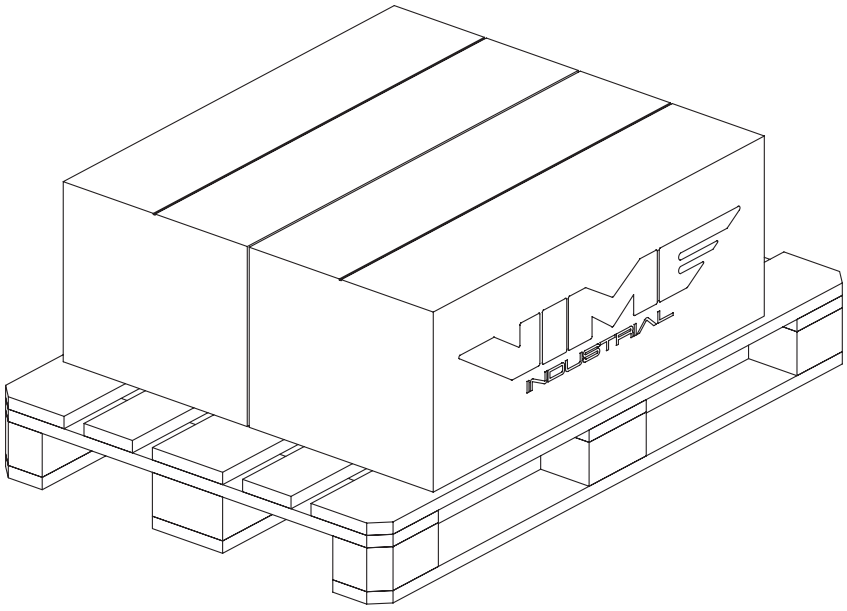
The standard packaging, if supplied, and unless otherwise agreed, is not rainproof and is intended for shipping by ground and not sea, and for areas which are under cover and not humid.

IMPORTANT

Dispose of packaging materials as stipulated by the applicable legislation.

1.6.2 PACKAGING ILLUSTRATION

PICT.3



NOTE

Winches in carton box on pallet are wrapped with plastic film. About its rainproof capacity, refer what indicated above.

1.7 SAFETY PROCEDURES

Do not operate this winch until you have carefully read and understand the warnings operation sections of this manual.

WARNING

Winch use allowed by trained personnel only.

DANGEROUS

When winching is obligatory wear working gloves.

1. Manual or air-clutch must be fully engaged before starting the winch.

2. Do not disengage manual or air clutch under load.

3. Leave the clutch disengaged when the winch is not in use (for manual clutch version only).

4. Disconnect the remote control switch from winch when not in use and switch off power supply with battery switch.

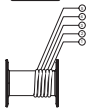
5. Do not exceed maximum line pull ratings.

6. In car carrier applications after pulling vehicle on carrier, be sure to secure vehicle to carrier bed. Do not maintain load on winch cable while transporting vehicle. Do not use winch as a tie down.

WARNING

Do not use winch to lift, support or otherwise transport personnel.

DANGEROUS



A minimum of 5 wraps of cable around drum barrel are recommended.

DANGEROUS

When pulling a load, the suddenly cable failure or either the hook failure gives a dangerous snap back of broken cable. Operators must stay clear of cable when pulling.

DANGEROUS

Accessories such as roller fairlead and cable tensioner are a natural drum protection. A yellow sticker (ref.2 pict.2 chapter1.5) on roller fairlead warns about rotating parts. In case of winch purchasing without accessories, winch drum must be protected by a cover. Protection will be fitted by the installer according to the winch mounting.

SECTION 2
MOUNTING

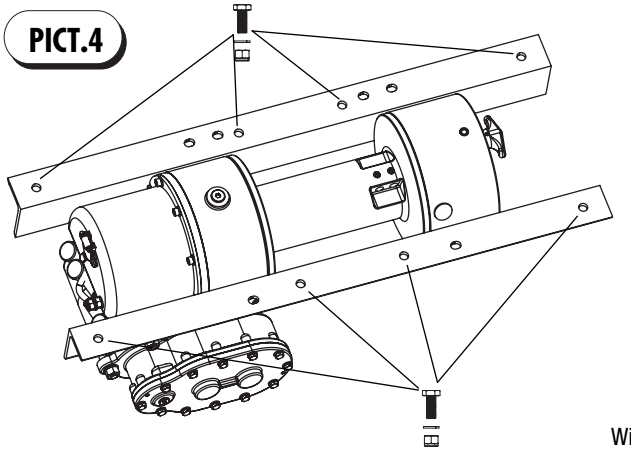
2.1 ROAD TRAFFIC

Winch must be mounted on vehicles in compliance with regulation. Many countries require to keep up to date with traffic card.

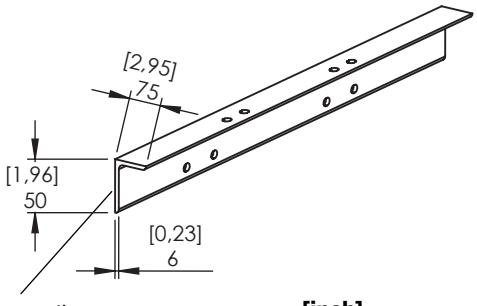
Do not drive vehicle not in compliance with regulation or not up dated traffic card.

2.2 WINCH MOUNTING

PICT.4



Standard mounting angle delivered mounted on winch:
dimensions 75x50x6 mm - 2,95x1,96x0,23 inch



Winch mounting side

Dimensions [inch]
MM

NOTE
The number 4 mounting angles holes on each side shown in pict.4, are not present at the delivery. Are shown in pict.4 just as demonstration. All others holes are for the accessories mounting.

Winches mod. **JE** are designed to be mounted on vehicles frame. The winch base angles should be securely mounted to the vehicle frame in manner acceptable to the vehicle manufacturer. It is responsibility of the person (s) installing the winch to make certain that the winch is secured to the vehicle with equivalent or greater strength capscrews than VIME Industrial used to secure the winch to the base angles. The winch must be fitted horizontally to give best lubrication and securely mounted on a surface who resist to the winch pulling, without having any flex within the base and winch while in use.

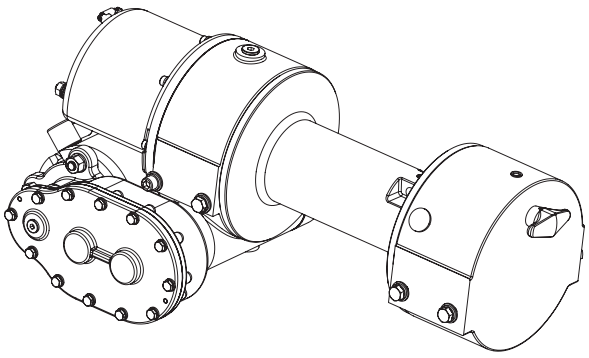
IMPORTANT

Winch is built up for different model of trucks. Holes on the mounting angles are present, installer will make it, taking care in consideration the right winch position on the truck.

WARNING

Winch must no be mounted directly onto the vehicle chassis.

Winch can be mounted without the mounting angle.



Winch must no be mounted directly onto the vehicle chassis, it should be better mounting a frame adapter brackets who can resist to the winch pulling.

Mounting hole locations, size and thread depth are specified for every winch (pict.5-6-7).

WARNING

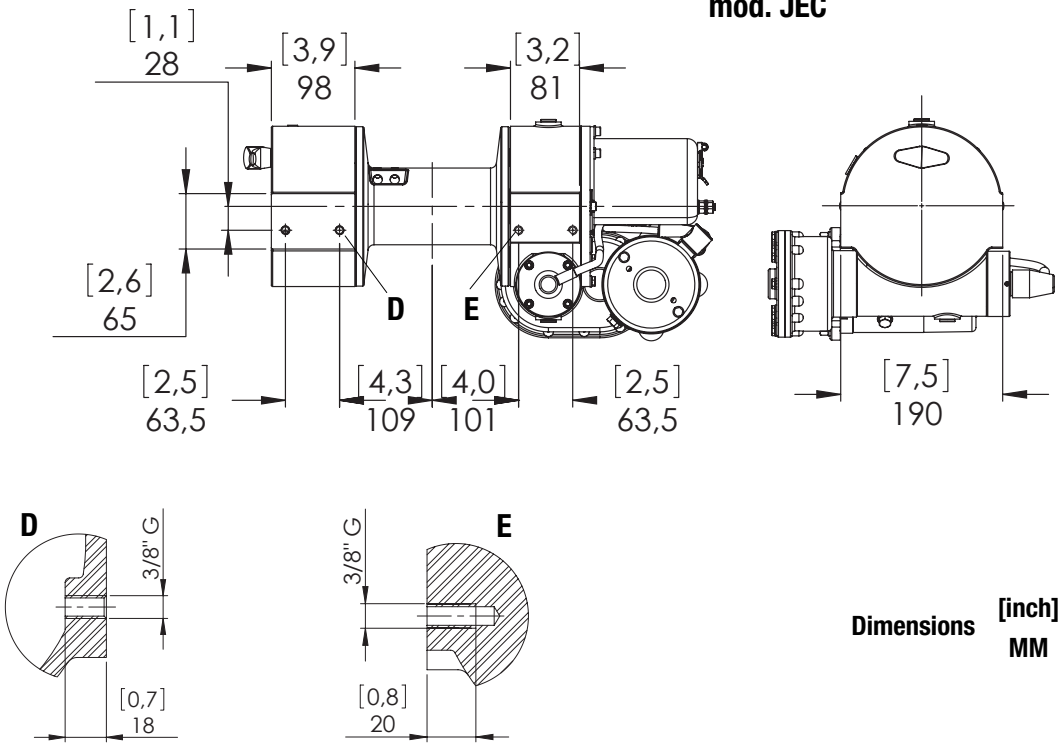
All mounting holes patterns should be used to bolt the winch.

WARNING

Use the mounting hole locations provided on the dimensional data pict.5-6-7 pair dimensions of surfaces must be respected. A wrong winch mounting reduce winch performance, cause overheating, excessive wear and could damage the winch.

PICT.5

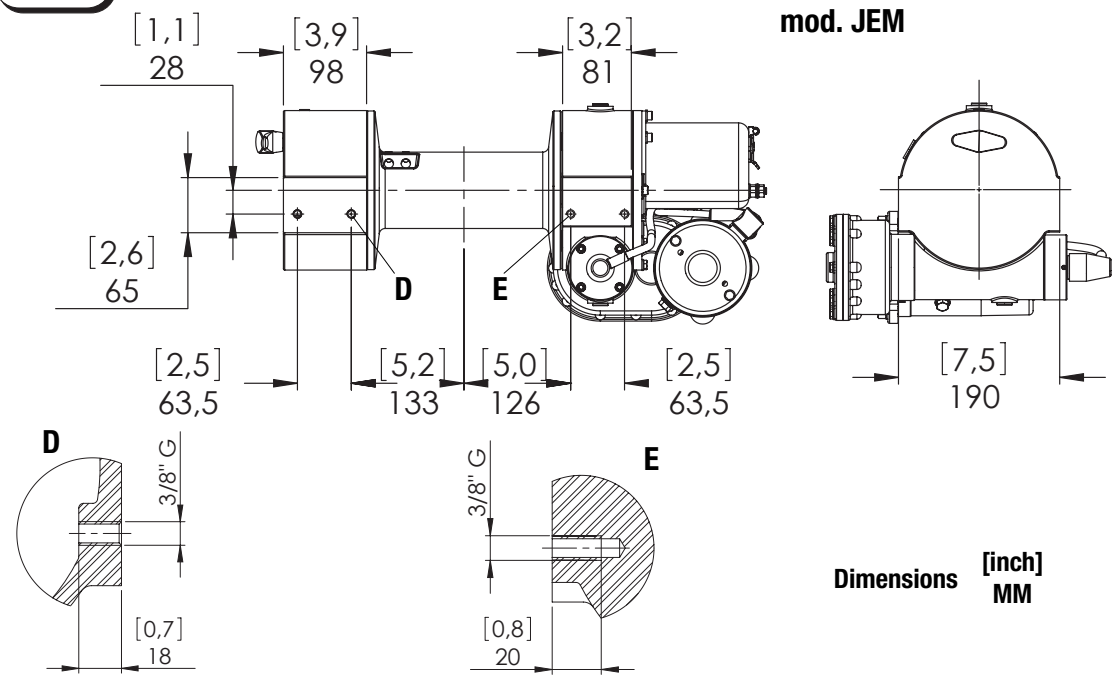
mod. JEC



Dimensions [inch]
MM

PICT.6

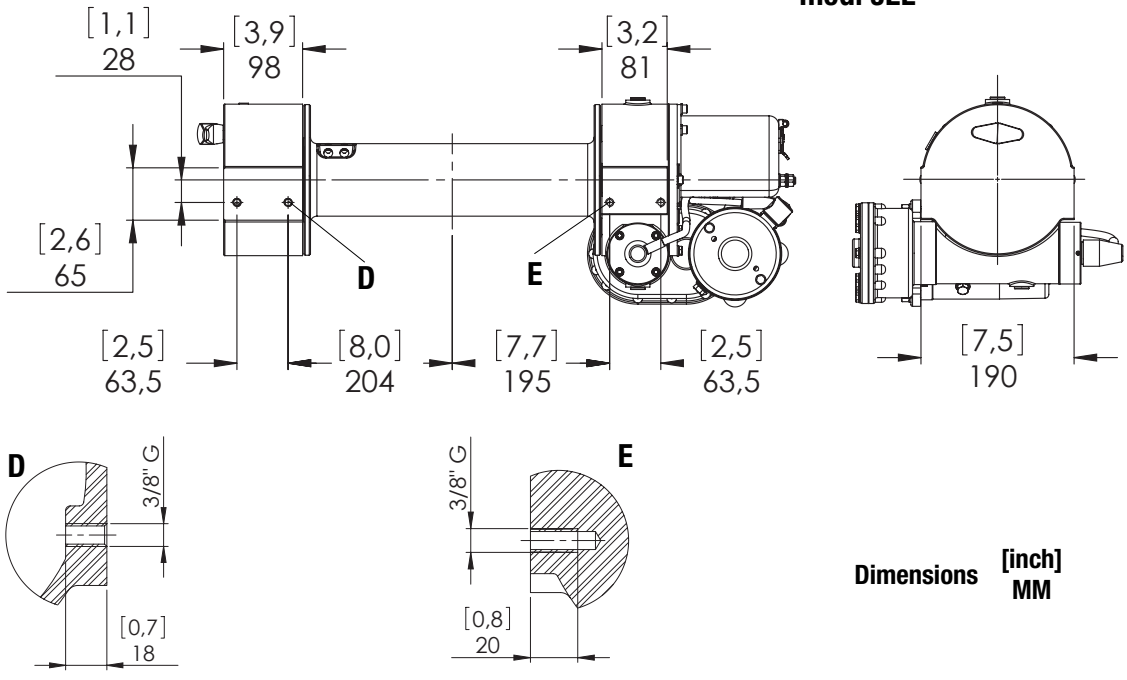
mod. JEM



Dimensions **[inch]**
MM

PICT.7

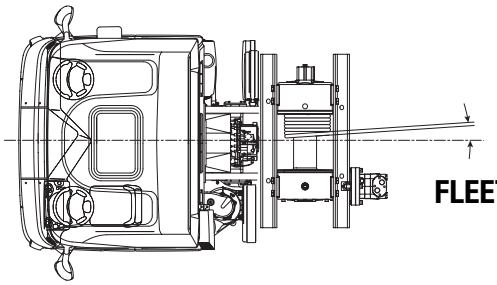
mod. JEL



Dimensions **[inch]**
MM

2.3 FLEET ANGLE

PICT.8



FLEET ANGLE

Winch should be mounted as close to centre and as perpendicular as possible to the direction of the line pull. This will keep the wire rope fleet angle centred onto the drum as small as possible.

DANGEROUS

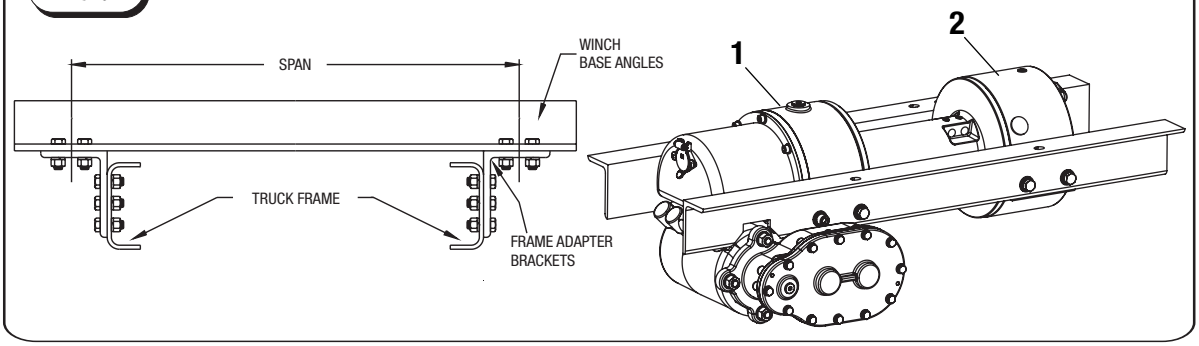
If the proper fleet angle is not maintained, the wire rope could wind onto one side of the drum. This could cause failure of the winch or wire rope, resulting in damage, injury or death.

WARNING

A wrong or inadequate winch mounting could damage the winch.

2.4 WINCH MOUNTING ANGLES

PICT.9



To fit the winch on vehicle chassis it should be better mounting a frame adapter brackets bolted to the winch base angles as close to the gear housing (1) and clutch housing (2) as practicable (SPAN distance) shown in pict.9. This method would provide the greatest strength and minimize distortion by using frame adapter brackets not inferior to the base angles

WARNING

Winch must no be mounted directly onto the vehicle chassis.

IMPORTANT

In the winch mounting, check the gear housing end (1) clutch housing end (2) (pict.10), are properly aligned for not compromising the winch working.

WARNING

Excessive gear and bushing wear, difficult in drum freespooling, lowest winch performance are usually symptoms of misalignments.

IMPORTANT

At the end of winch mounting, check winch alignment; with drum disengaged manually turn winch drum. A visual check could be done, inspecting the distance between drum flanges (7) and gear housing end (1) see view A, reference (8).

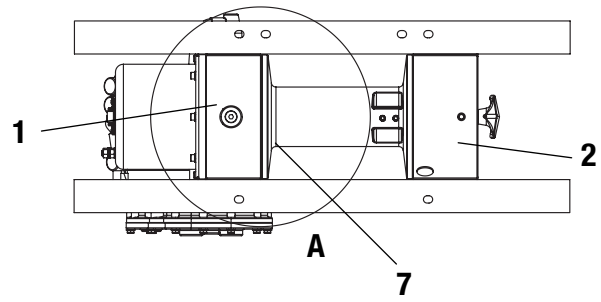
NOTE

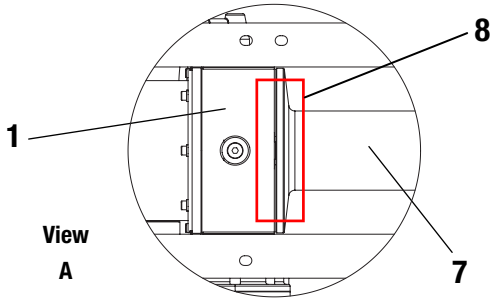
Turn by hands the drum, a certain resistance will be given by teflon discs (ref.9) who breaking onto the drum lateral flange, to avoid in the freespooling a cable birdnests.

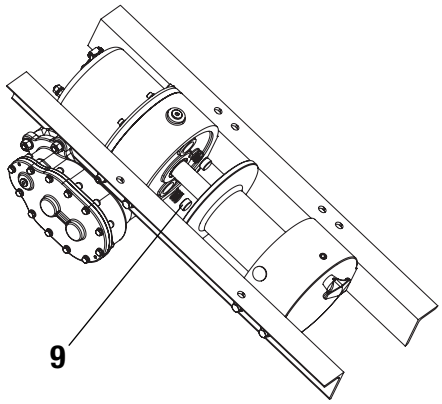
WARNING

Electrical motor has an IP55 grade protection. Winch must be mounted in a way electrical motor could not be exposed to direct high pressure water. To minimize corrosion of internal motor components, that may occur due to condensation, power the winch in or out. Energizing the motor will generate heat, which will dissipate any moisture build-up in the motor. Cleansing and corrosive elements such as salt residue could damage electrical components.

PICT.10







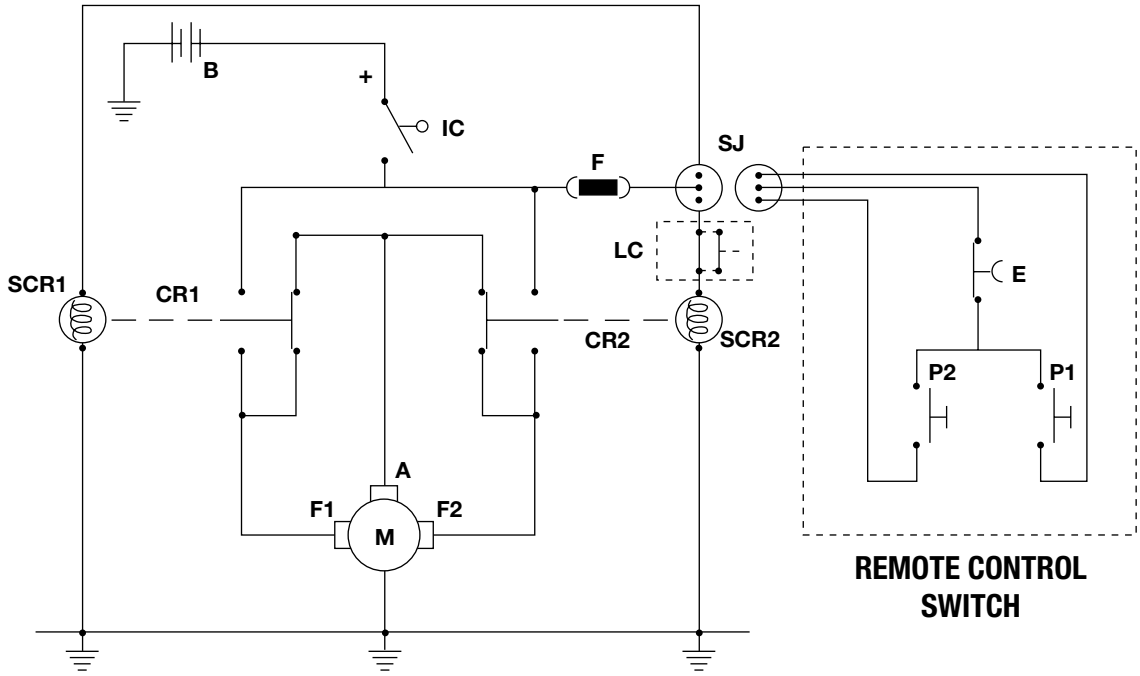
NOTE

The no. 2 brake discs and springs here shown, are not visible, while winch is assembled. Pictures shown are just as demonstration.

2.5 WIRING DIAGRAM

Once the winch has been mounted onto the vehicle chassis (chapter 2.2-2.3-2.4) should be connected to the truck battery according to the lay-out shown below (pict.11).

PICT.11



B. BATTERY

IC.BATTERY SWITCH

M. ELECTRICAL MOTOR 12V / 24V DC

Terminals : (F1) (F2) (A)

F.FUSE 15A

SJ.CONNECTOR-REMOTE CONTROL SWITCH

E.RED SAFETY STOP BUTTON

P1."UNWINDING" BUTTON

P2."WINDING" BUTTON

CR1.SOLENOID 1

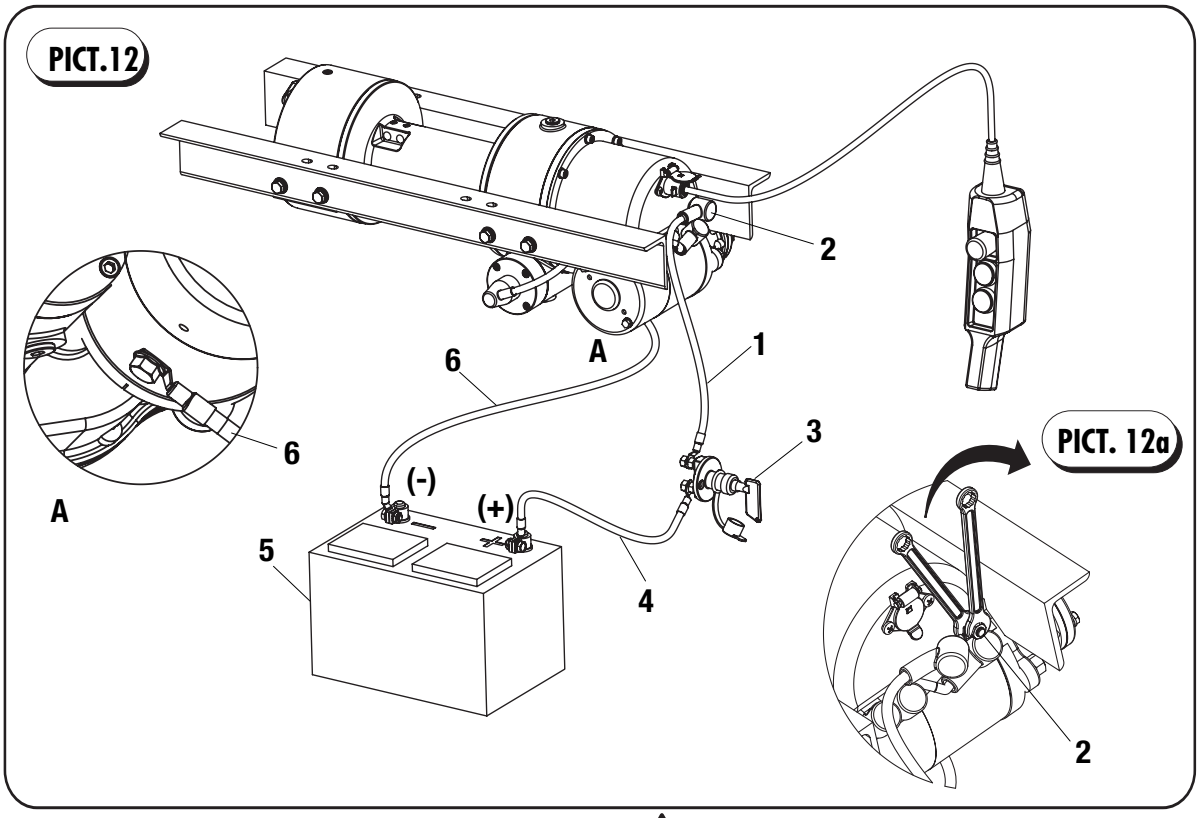
CR2.SOLENOID 2

SCR1.SOLENOID COIL 1

SCR2.SOLENOID COIL 1

LC.LOAD LIMITING DEVICE

2.5.1 ELECTRICAL CONNECTIONS



Connect cable (1), length (1,5 Mt), from power supply terminal (2) to battery switch terminal (3). Connect cable (4), length (0,5 Mt), from battery switch terminal (3) to positive battery terminal. Attach ground wire from motor housing (capscrew 3/8") to negative battery terminal (detail A, pict.12).

IMPORTANT

Section of electric cables supplied (35 mm²) depend on its length. Using much longer electric cables will be necessary increase its diameter.

IMPORTANT

For good winching, electrical system and battery must be keep in good conditions. The minimum ampere-hour rating of vehicle battery should be 90.

WARNING

Connecting cable (1) to stud (2) on plastic solenoids cover, hold the inner nut when tightening the outer nut (pict.12a). Power supply terminal (2) do not have to rotate which lead to internal electrical connections failure.

WARNING

To avoid serious injury or death from electrical fire, never route electrical cables:

- **Across any sharp edges.**
- **Through or near moving parts.**
- **Near parts that become hot.**

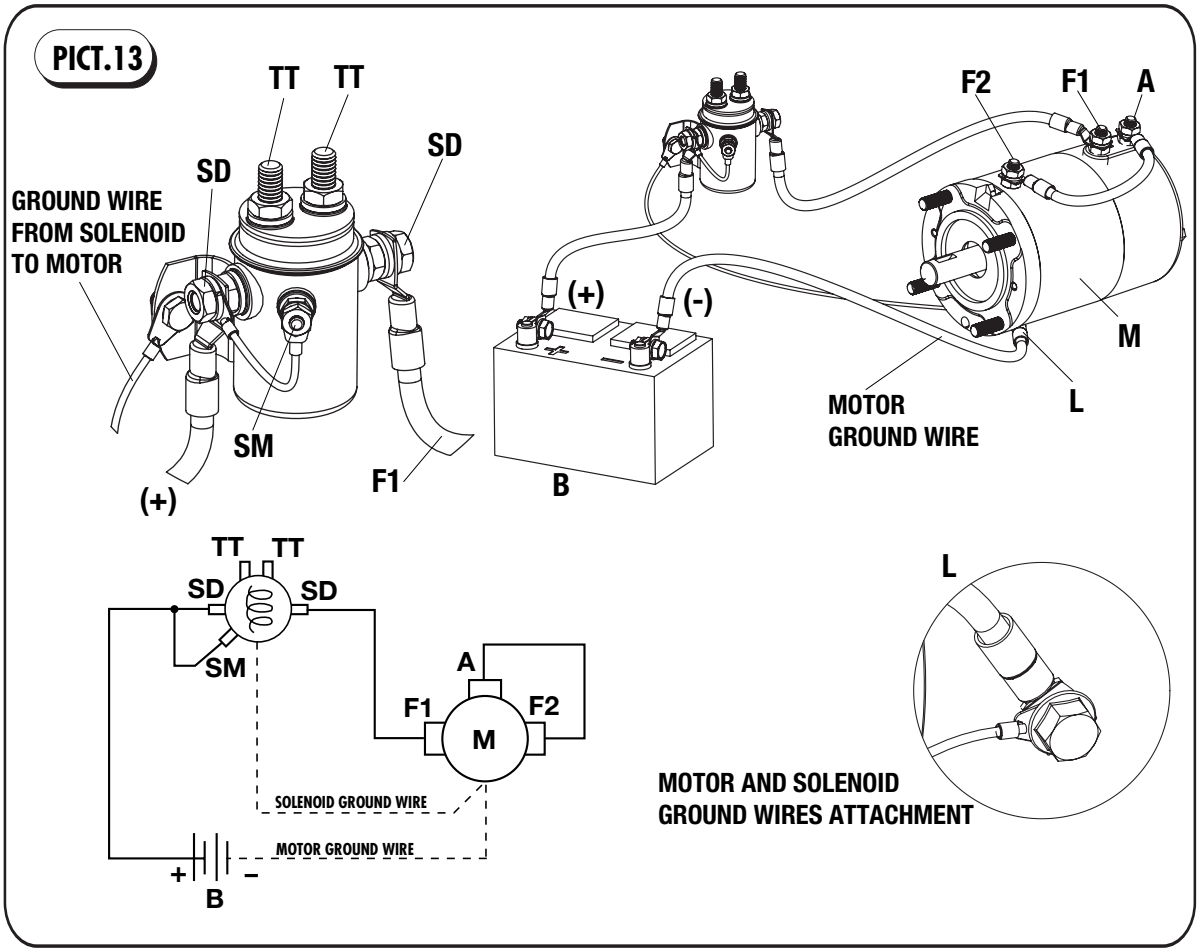
2.5.2 TEST PROCEDURE FOR 12V SOLENOIDS

Steps to follow when testing current flow through 12V DC solenoids.

It should be noted that when testing a 12 volt solenoid, the DC motor (M) and battery (B) must be of the same voltage (12V).

To test the solenoids (pict.13):

1. Securely clamp a motor (M) to a bench or work surface.
2. Attach a jumper wire from (A) terminal on the motor (M) to one of the field terminals (F2) on the motor.
3. Attach the other motor field terminal (F1) to one of the side terminals (SD) of the solenoid.
4. Ground the solenoid to the motor (M) with a wire as shown (pict.13, ref. L).
5. Attach positive (+) battery (B) wire to the opposite side terminal (SD) of the solenoid. Ground the negative (-) battery (B) wire to the motor housing (M), (pict.13, ref. L).
6. Attach a jumper wire from the opposite side terminal (SD) to the small side terminal (SM) of the solenoid.
7. The motor (M) should now be running if the solenoid is good.



8. To test the upper contacts (TT) of the solenoid use the same hook-up except use the top terminals (pict.14). If the solenoid is good, the motor will stop operating. Disconnecting the jumper wire from (TT) to (SM) terminals, the motor must be running.

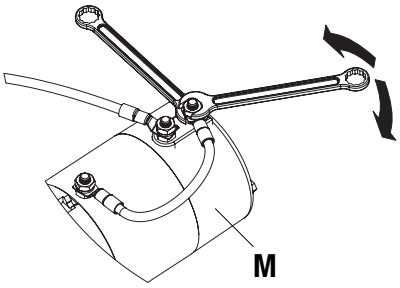
The top terminals (TT) are normally closed (connected); the side terminals (SD) are normally open (not connected). When the solenoid operates, the top terminals are disconnected and the side terminals are connected.

WARNING

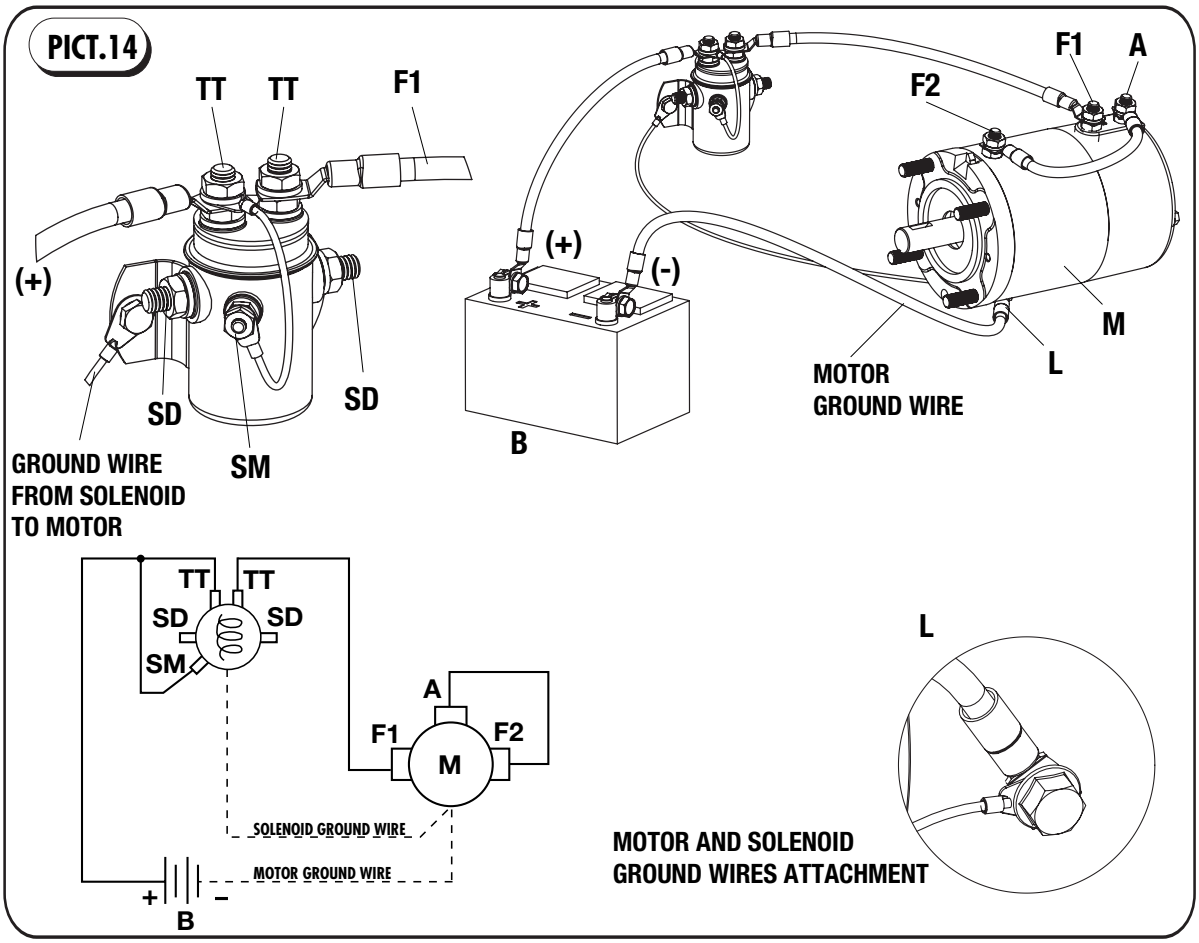
Take care not to bring hot wires (+) into contact with ground (-) in order to prevent electrical arcing.

WARNING

When attaching wires to the motor and solenoids terminals, hold the inner nut when tightening the outer nut. Do not allow the motor terminals to rotate causing internal wire breakage. Be especially careful in preventing the solenoid terminals from rotating. Any rotation can damage the solenoid.



PICT.14



2.5.3 TEST PROCEDURE FOR 24V SOLENOIDS

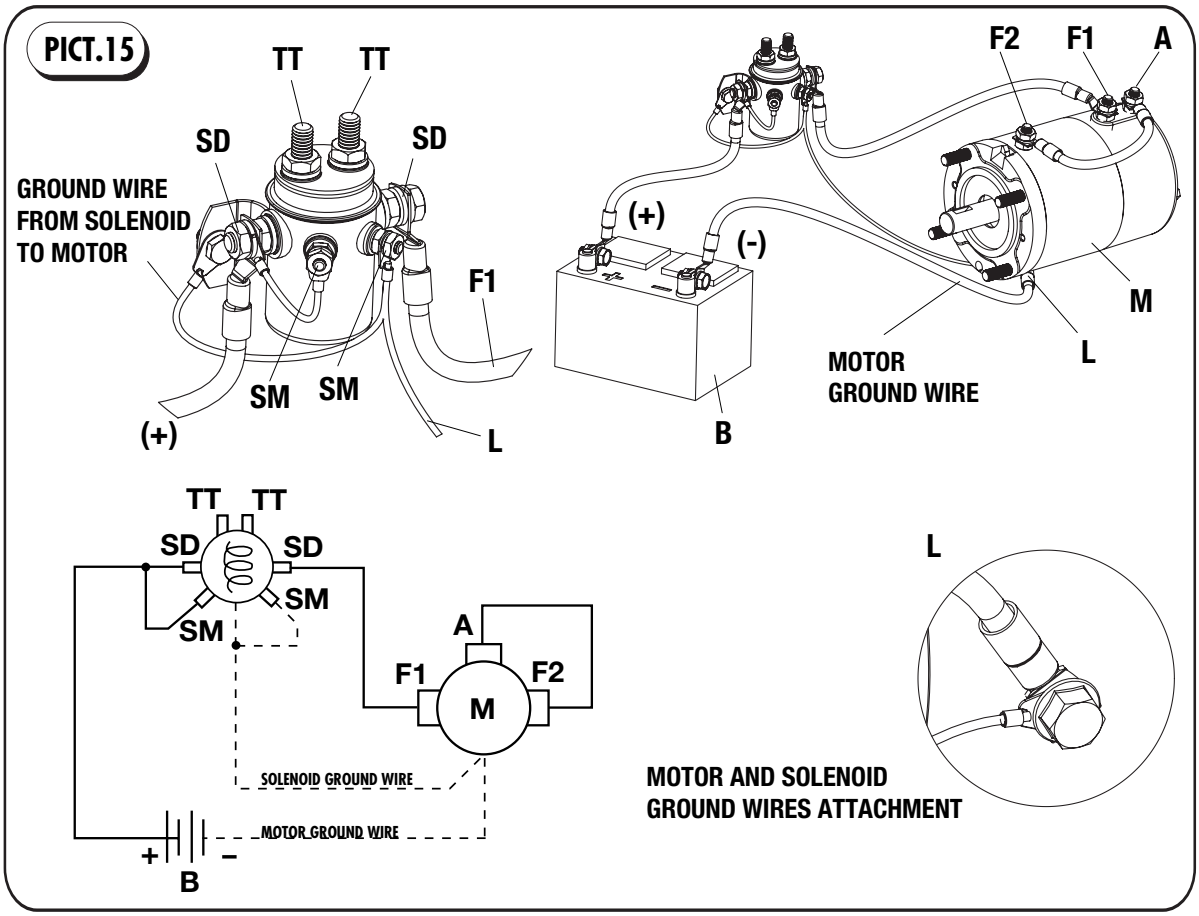
Steps to follow when testing current flow through 24V DC solenoids.

It should be noted that when testing a 24 volt solenoid, the DC motor (M) and battery (B) must be of the same voltage (24V).

To test the solenoids (pict.15):

1. Securely clamp a motor (M) to a bench or work surface.
2. Attach a jumper wire from (A) terminal on the motor (M) to one of the field terminals (F2) on the motor.
3. Attach the other motor field terminal (F1) to one of the side terminals (SD) of the solenoid.
4. Attach one of the small side terminals (SD) of the solenoid to the solenoid ground wire.
5. Attach the same small side terminals (SD) of the solenoid to the motor housing (M) with a wire as shown (pict.13, ref. L).
6. Attach positive (+) battery (B) wire to the opposite side terminal (SD) of the solenoid. Ground the negative (-) battery (B) wire to the motor housing (M), (pict.15, ref. L).
7. Attach a jumper wire from the opposite side terminal (SD) to the small side terminal (SM) of the solenoid.
8. The motor (M) should now be running if the solenoid is good.

PICT.15



MOTOR AND SOLENOID
GROUND WIRES ATTACHMENT

8. To test the upper contacts (TT) of the solenoid use the same hook-up except use the top terminals (pict.14). If the solenoid is good, the motor will stop operating. Disconnecting the jumper wire from (TT) to (SM) terminals, the motor must be running.

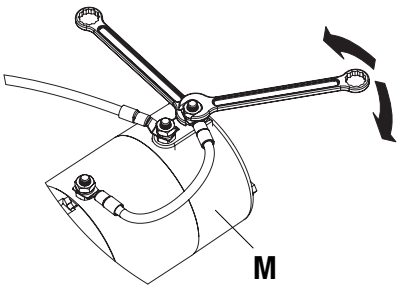
The top terminals (TT) are normally closed (connected); the side terminals (SD) are normally open (not connected). When the solenoid operates, the top terminals are disconnected and the side terminals are connected.

WARNING

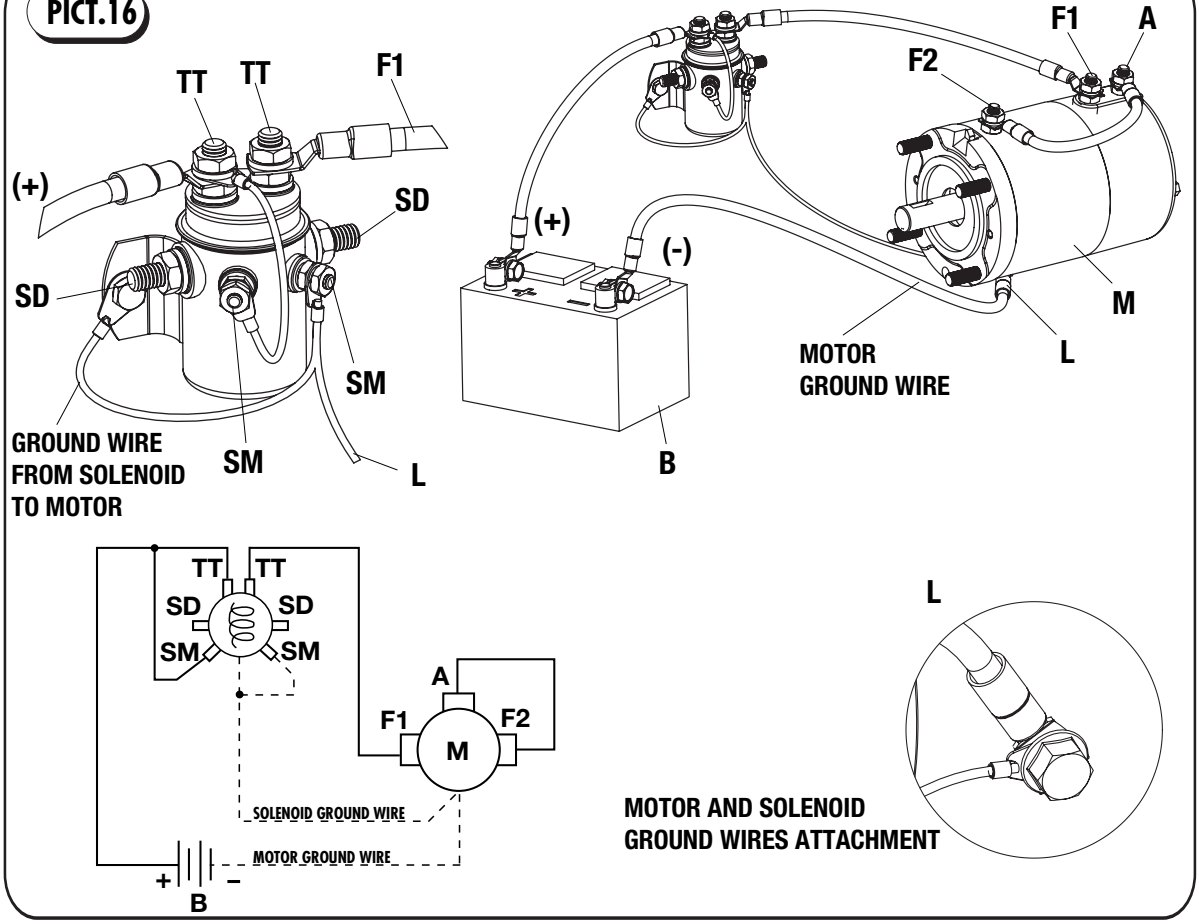
Take care not to bring hot wires (+) into contact with ground (-) in order to prevent electrical arcing.

WARNING

When attaching wires to the motor and solenoids terminals, hold the inner nut when tightening the outer nut. Do not allow the motor terminals to rotate causing internal wire breakage. Be especially careful in preventing the solenoid terminals from rotating. Any rotation can damage the solenoid.



PICT.16



2.5.4 TEST PROCEDURE FOR MOTOR (12V-24V)

The VIME electrical winch motor is a 4 pole, 4 coil series wound.

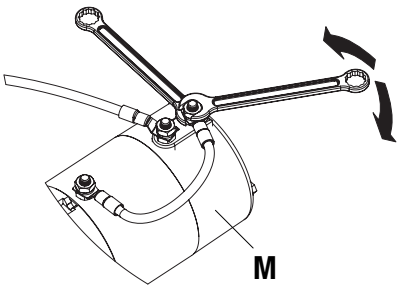
The 4 pole, 4 coil feature provides high torque at low speeds.

To test the motor to determine if is functioning properly, first securely fasten the motor to a bench or work surface so it will not jump or move around during test procedure (the starting torque of motor is high).

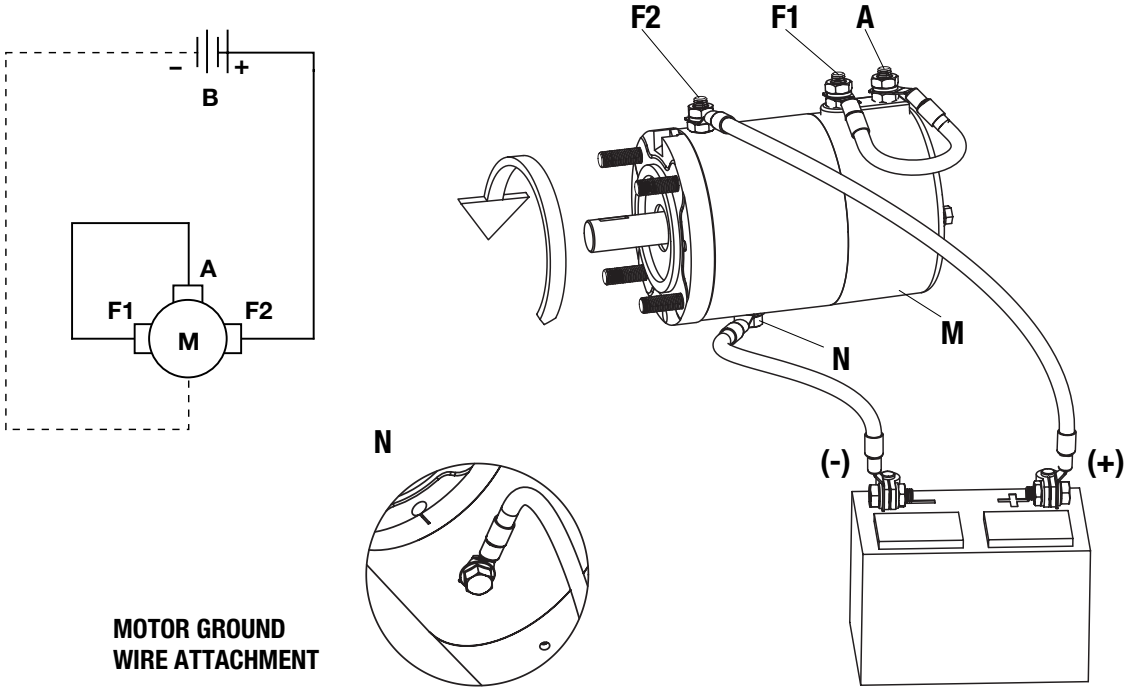
1. Connect a jumper wire (at least 16 mm²) from (F1) to (A) motor terminals.
2. Attach a wire (at least 16 mm²) from positive (+) battery terminal to (F2) motor terminal. Ground negative (-) battery terminal to motor housing (pict.17, ref.N). Motor should now run.

WARNING

When attaching wires to the motor and solenoids terminals, hold the inner nut when tightening the outer nut. Do not allow the motor terminals to rotate causing internal wire breakage. Be especially careful in preventing the solenoid terminals from rotating. Any rotation can damage the solenoid.



PICT.17



MOTOR GROUND WIRE ATTACHMENT

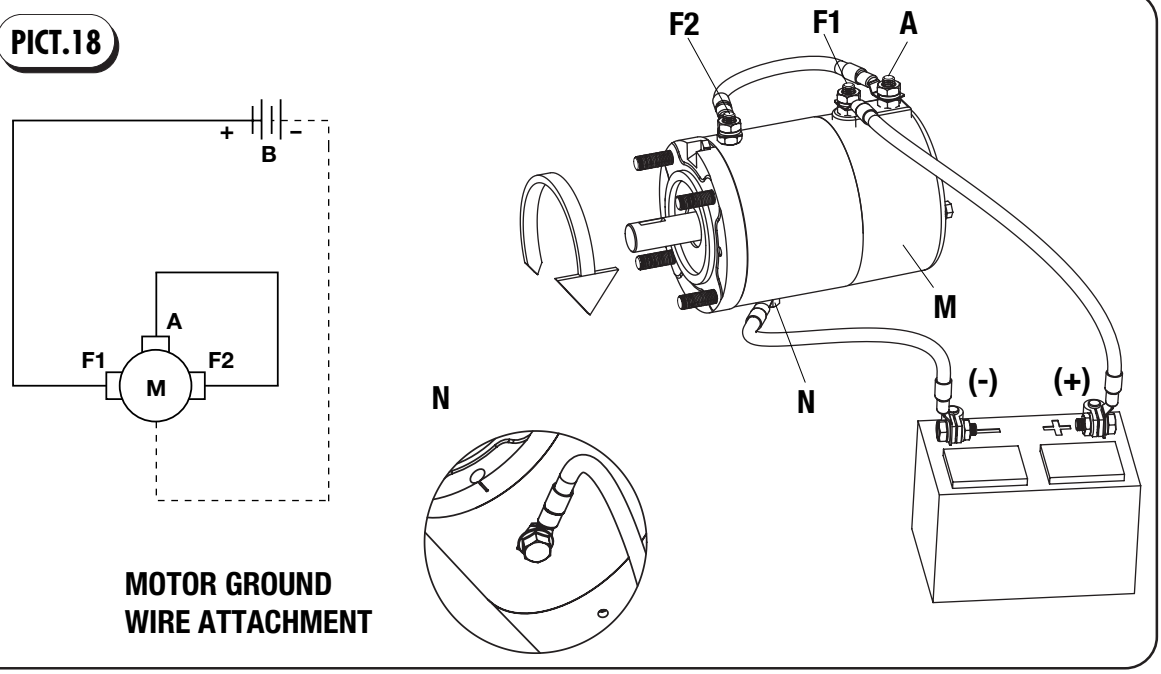
To reverse the direction of rotation :

1. Connect a jumper wire (at least 16 mm²) from (F2) to (A) motor terminals.
2. Attach a wire (at least 16 mm²) from positive (+) battery terminal to (F2) motor terminal. Ground negative (-) battery terminal to motor housing (pict.18, ref.N). Motor should now run.

WARNING

When attaching wires to the motor and solenoids terminals, hold the inner nut when tightening the outer nut. Do not allow the motor terminals to rotate causing internal wire breakage. Be especially careful in preventing the solenoid terminals from rotating. Any rotation can damage the solenoid.

PICT.18



MOTOR GROUND WIRE ATTACHMENT

The motor running idle on the bench will draw 55 amperes for 12V or 23 amperes for 24V and must run free and easy. If the ampere draw is more than 60 amperes for 12V or 30 amperes for 24V and the motor runs rough or has a strange sound, it should be replaced.

With the motor attached in place on a winch (less cable on drum) the ampere draw should be approximately 65 to 70 amperes for 12V or 32 to 35 amperes for 24V.

If after following the procedure outlined, the test on the winch significantly exceeds 70 amperes for 12V or 35 amperes for 24V refer to section 6 (Trouble shooting guide).

2.6 AIR-OPERATED FREESPOOL LINKAGE

The winches mod. JE can be equipped (on request) with air clutch shifter for drum freespooling DUAL ACTION. **The pneumatic system works if air system is available on vehicle only.**

Connect the air cylinder ports size G 1/8" as shown (ref. E pict.19) to the lever valve (see lay out pict.20).

HOW IT WORKS:

Air flow through (X) port **disengages** the drum.

Air flow through (Y) port within spring returns **engages** the drum.

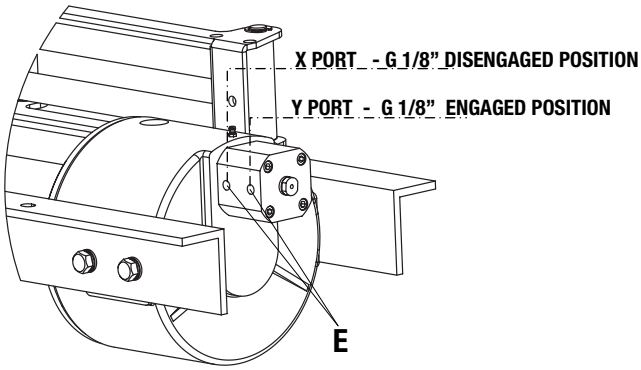
IMPORTANT

For efficient operation of air-cylinder clutch shifter , utilize air pressure filtered and dried. It is important to keep moisture from entering the winch. Moisture could cause corrosion. If temperature fall down below 0°, moisature could freeze and render the component inoperable. System works at the minimum pressure 6 bar. Pressure must not exceed 10 bar. The pneumatic system can works with temperature between –20°C and + 80°C .

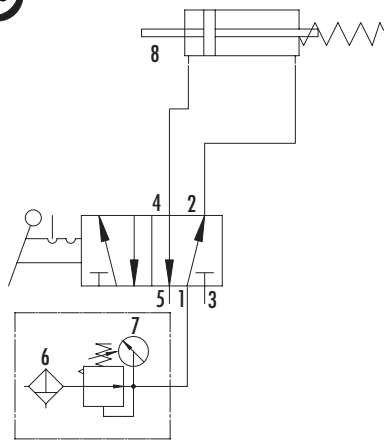
WARNING

Not utilize the proper air filters, could damage the pneumatic clutch, and compromise its function.

PICT.19



PICT.20



NOTE
The dual action pneumatic lever valve and filter shown (see pict.20), are not included in the winch standard equipment.

Dual action pneumatic lever valve:

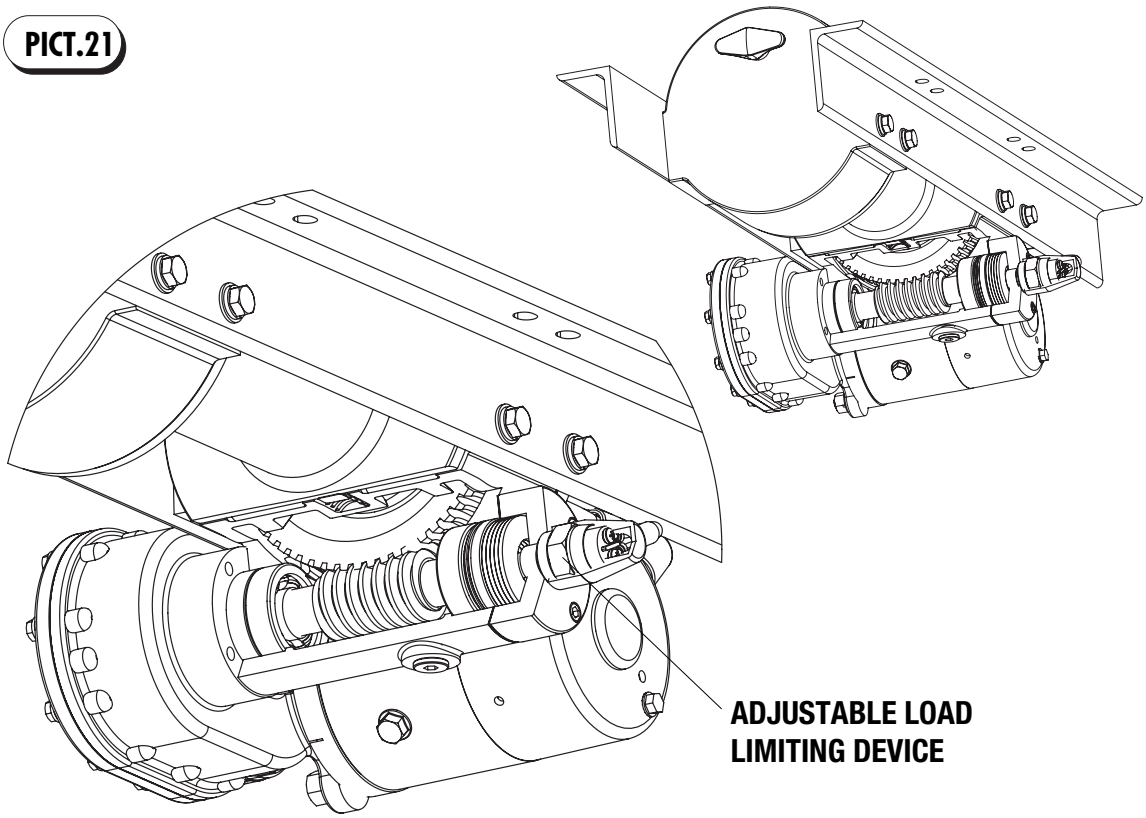
1. In let air pressure G 1/8"
2. Out let G 1/8"
3. Exhaust G 1/8"
4. Out let G 1/8"
5. Exhaust G 1/8"
6. Filter 50 µm
7. Pressure regulator (min.6 bar-max.10 bar)
8. Air cylinder for drum free spooling

2.7 LOAD LIMITING DEVICE

JE electrical winches are current equipped with limiting load device pre set in according with EN 14492-1.

Load limiting device is adjusted according to the winch max rated line pull at first layer as indicated on the decal.

PICT.21



Load limiting device (pict.21) operates in one cable direction only (reel in rotation). For a correct load limiting device operations, cable must be necessary winded onto the winch drum as previous spooling direction (chapter 2.9).

WARNING

Load limiting device is installed to provide mechanical overload protection as a safety measures. Never attempt to adjust load limiting device set screw. Changing its set by loosening set screw is not a proper winch use and not authorized by VIME.

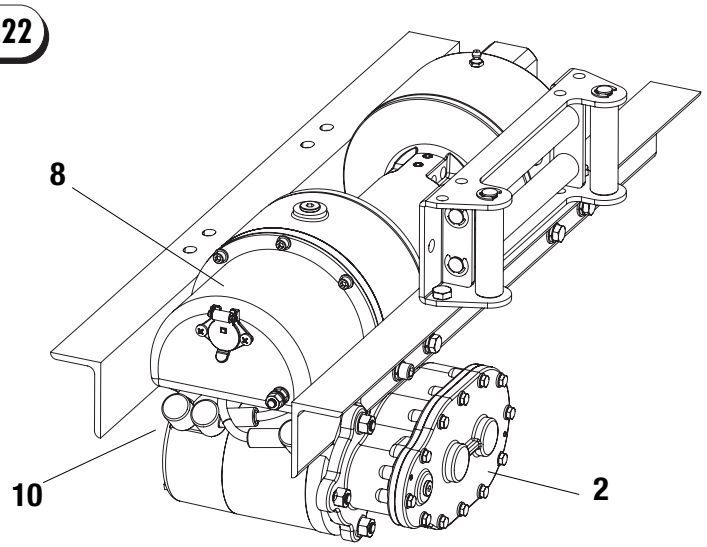
WARNING

VIME has no responsibility for winch, rope damages or serious injures given by modifications made to the load limiting device.

2.8 WINCH CONFIGURATION

JE electrical winches are supplied in standard configuration as shown (pict.22). Looking at the winch side from cover solenoids (8), spure gear housing (2) is mounted on the right and load limiting device (10) is mounted to the opposite side, on the left. This configuration is defined "**DX MOUNTING**" and the winch drum rotation is "**A**" (chapter 2.9.1-2.9.2).

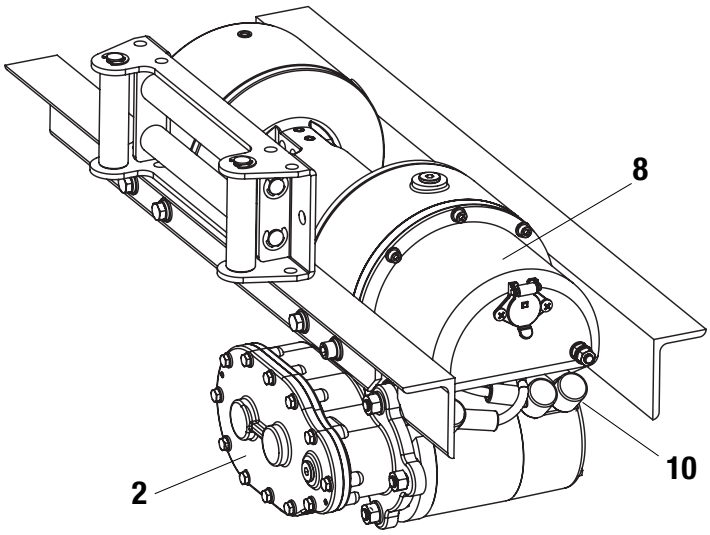
PICT.22



DX MOUNTING
(STANDARD CONFIGURATION)

On request only, is possible to configure the winch as shown (pict.23). Looking at the winch side from cover solenoids (8), spure gear housing (2) is mounted on the left and load limiting device (10) is mounted to the opposite side, on the right. This configuration is defined "**SX MOUNTING**" and the winch drum rotation is "**B**" (chapter 2.9.3-2.9.4).

PICT.23



SX MOUNTIG
(ON REQUEST)

2.9 WINCH DRUM ROTATION

Worm gear electric winches JE are available with two different drum rotations to indicate the different spooling direction of the rope, “A” (pict.24-25) or “B” (pict.26-27). If not indicated in the purchase order it is always intended as “A” rotation. It is possible change from “A” rotation to “B” rotation (and vice versa) by contacting VIME; drum rotation can be changed by authorized personnel only .

2.9.1 “A” ROTATION (over drum)

WARNING

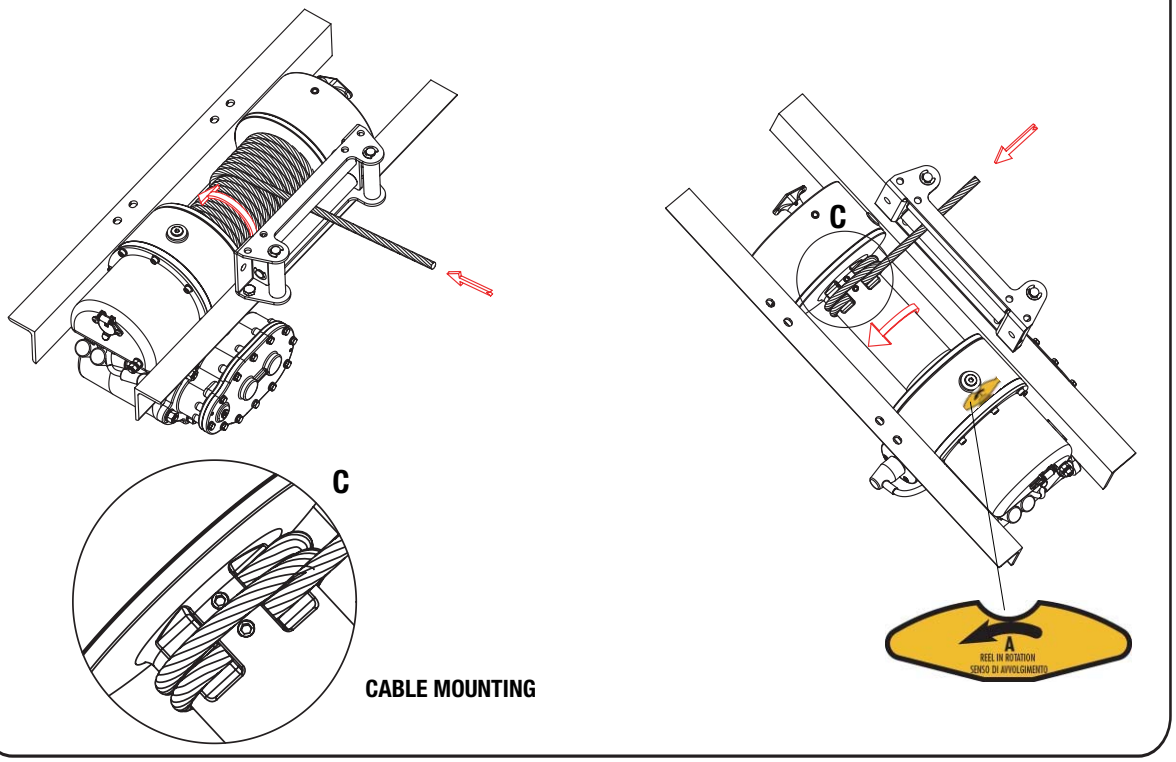
Cable must be winded onto the winch drum (A rot.) as shown in (pict.24). Cable mounting must be executed as shown in detailed view (C) and by following instructions in chapter 2.10.

WARNING

Utilize the winch with the cable winded in the wrong way not enable to operate the load limiting device or could stop the winch in pay out direction.

PICT.24

“A” ROTATION - CABLE SPOOLING OVER DRUM (EQUIPPED WITH ROLLER FAIRLEAD)



CABLE MOUNTING

2.9.2 “A” ROTATION (under drum)

WARNING

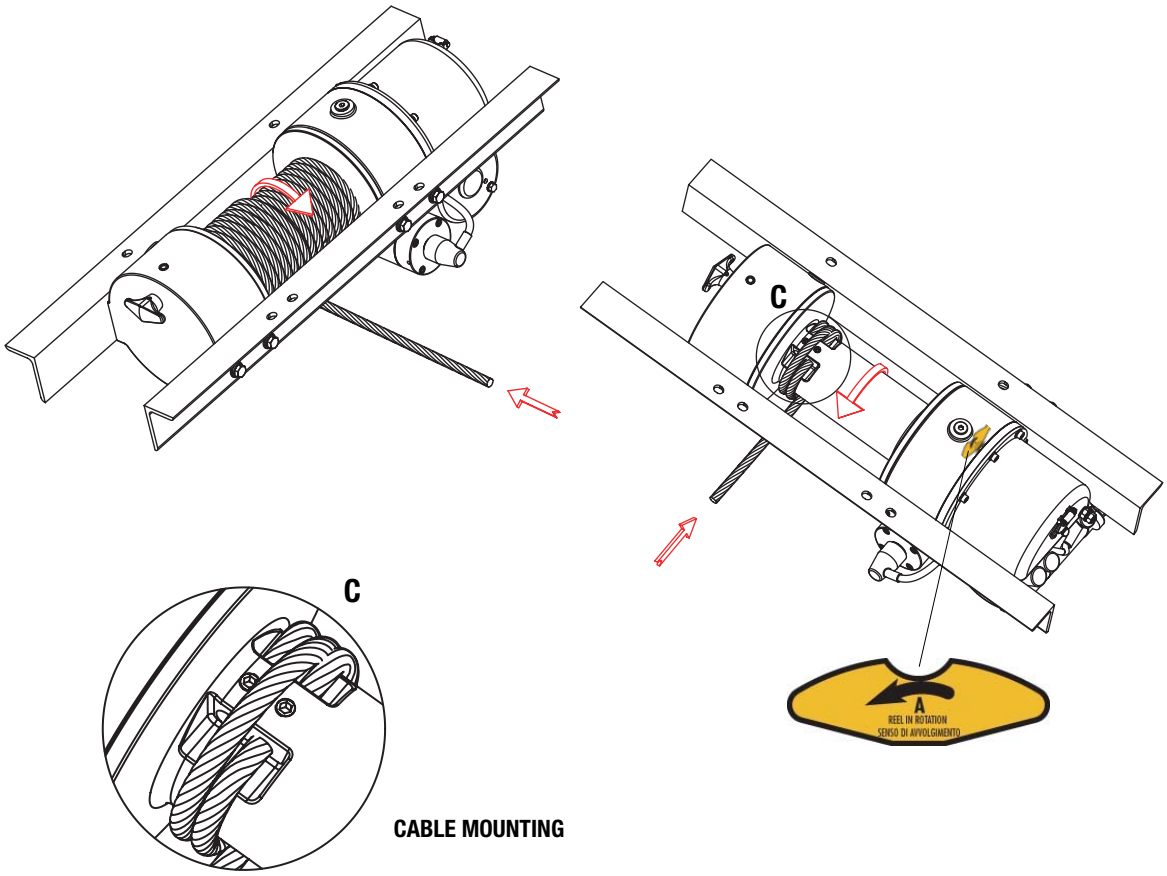
Cable must be winded onto the winch drum (A rot.) as shown in (pict.25). Cable mounting must be executed as shown in detailed view (C) and by following instructions in chapter 2.10.

WARNING

Utilize the winch with the cable winded in the wrong way not enable to operate the load limiting device or could stop the winch in pay out direction.

PICT.25

“A” ROTATION - CABLE SPOOLING UNDER DRUM (EQUIPPED WITHOUT ROLLER FAIRLEAD)



CABLE MOUNTING

2.9.3 “B” ROTATION (over drum)

WARNING

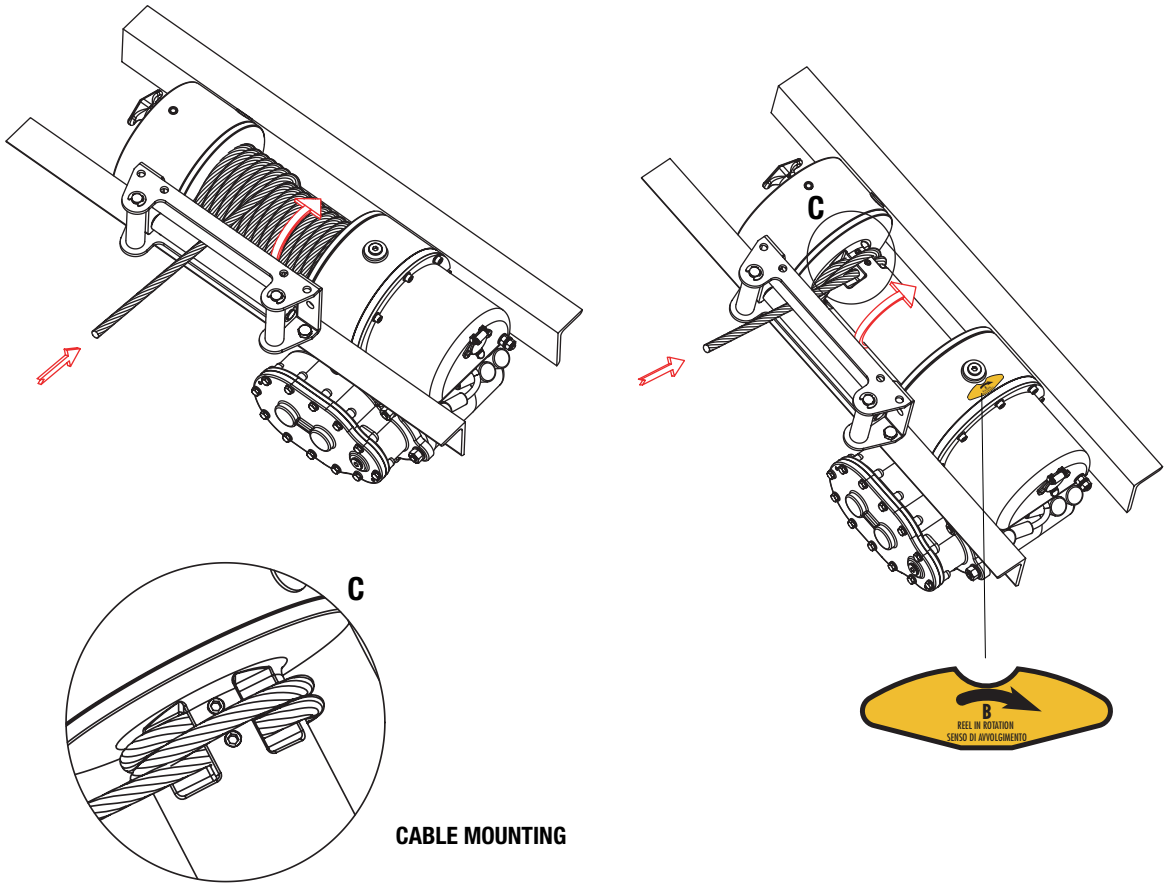
Cable must be winded onto the winch drum (B rot.) as shown in (pict.26). Cable mounting must be executed as shown in detailed view (C) and by following instructions in chapter 2.10.

WARNING

Utilize the winch with the cable winded in the wrong way not enable to operate the load limiting device or could stop the winch in pay out direction.

PICT.26

“B” ROTATION - CABLE SPOOLING OVER DRUM (EQUIPPED WITH ROLLER FAIRLEAD)



CABLE MOUNTING

2.9.4 “B” ROTATION (under drum)

WARNING

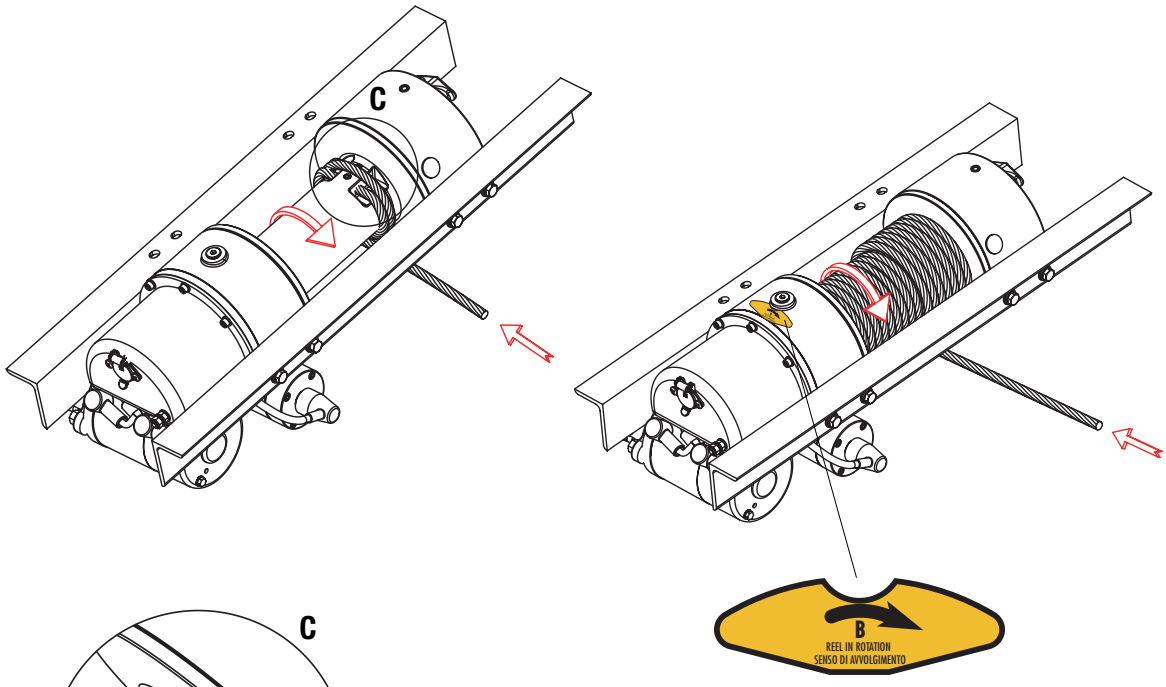
Cable must be winded onto the winch drum (B rot.) as shown in (pict.27). Cable mounting must be executed as shown in detailed view (C) and by following instructions in chapter 2.10.

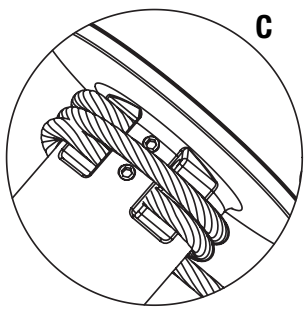
WARNING

Utilize the winch with the cable winded in the wrong way not enable to operate the load limiting device or could stop the winch in pay out direction.

PICT.27

“B” ROTATION - CABLE SPOOLING UNDER DRUM (EQUIPPED WITHOUT ROLLER FAIR LEAD)





CABLE MOUNTING

2.10 CABLE INSTALLATION EN 14492-1

In the choice of cable to be fitted on drum for first time or to replace the old one, follow what is recommended by EN 14492-1:

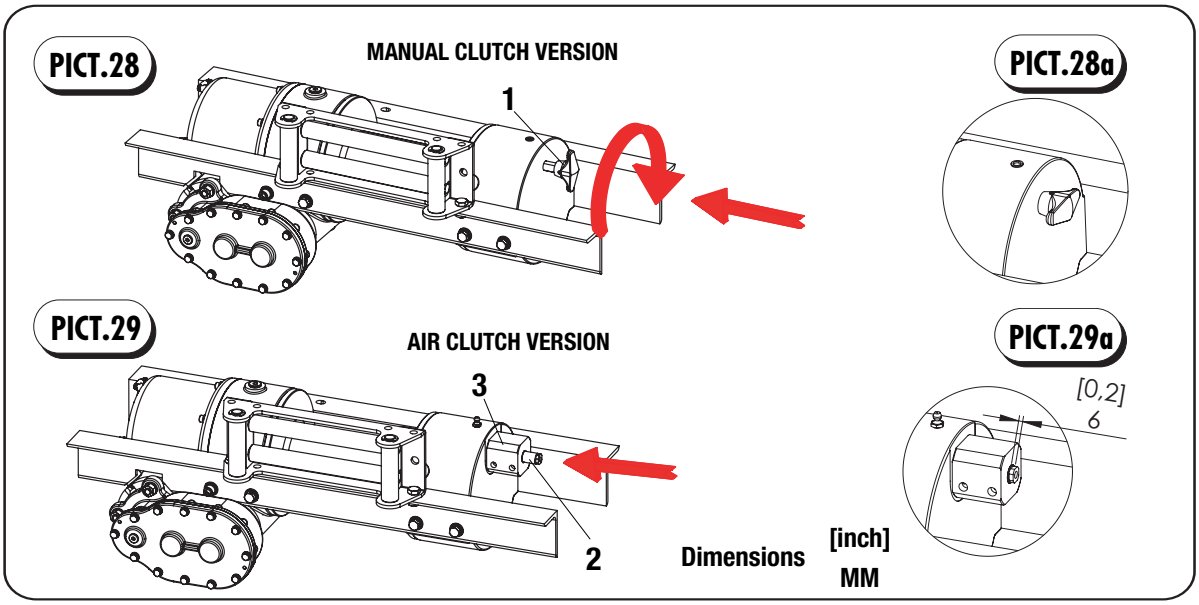
Cable breaking load double to winch max. rated capacity, cable diameter equal to VIME recommended and according to EN 14492-1. Cable anchor on drum has been designed EN 14492-1 compliant.

WARNING

Recommended wire rope min. tensile strength 2160 N/mm². Wire rope minimum breaking load must be at least double of winch max. pulling capacity.

WARNING

VIME has no responsibility for damages to the winch, to the rope or for physical injury to persons, animals or property damages given by unqualified cable use.



1. Check wire rope mounting has been respected as yellow sticker indicates (ref.5, pict.2, chapter.1.5) and as shown on chapter 2.9.
2. Check clutch be fully engaged, by inspecting:

MANUAL CLUTCH VERSION

The handle (1) must be in (pict.28a). Differently operate the handle to engage clutch (chapter.3.1, page 55).

AIR CLUTCH VERSION

Air-cylinder shaft (2) must be in position shown (pict.29a). Differently operate the air-cylinder to engage clutch (chapter 3.1, page 55) while running slowly the winch drum.

3. Unwind cable by rolling it out along the ground to prevent kinking
4. If the end of cable opposite hook has not been machined, wrap end of cable opposite hook with plastic or similar tape to prevent fraying. Follow steps indicated:

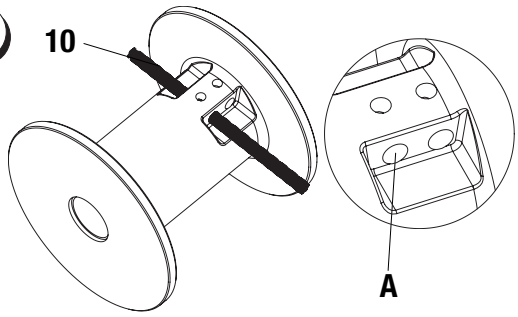
STEP 1

Insert the end of the rope (10) opposite the hook, into proper slot (A) as shown in pict.30.

WARNING

Wire rope winding direction onto the drum must be respected as indicated in chapter 2.10.

PICT.30



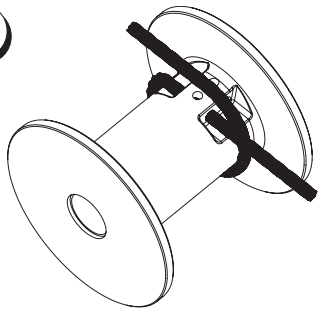
DANGEROUS

When winching is obligatory wear working gloves.

STEP 2

By bringing the end of rope (10) opposite to hook, wrap wire rope around drum barrel as shown in pict.31.

PICT.31



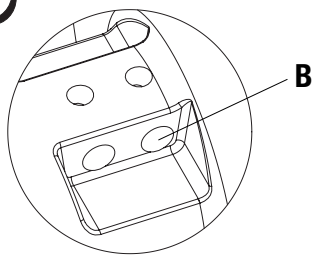
DANGEROUS

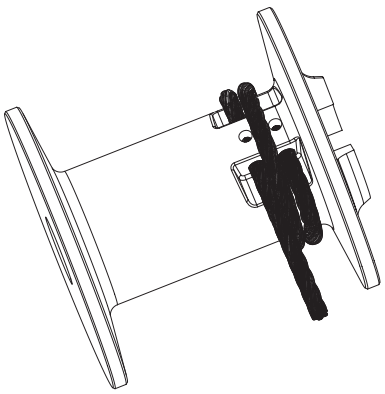
In rope winding be careful especially when hands are closed to drum and roller fairlead.

STEP 3

The end of rope (10) opposite to hook, must be insert in the second slot (B) as shown in pict.32.

PICT.32

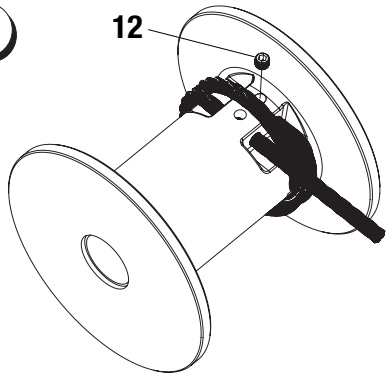




STEP 4

Thread set screw (12) into threaded hole to secure the end rope (10) opposite to hook as shown in pict.33.

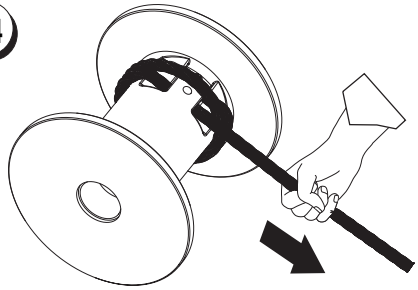
PICT.33



STEP 5

Manually pull the rope out as shown in pict.34 till rope will wrap onto the drum barrel.

PICT.34



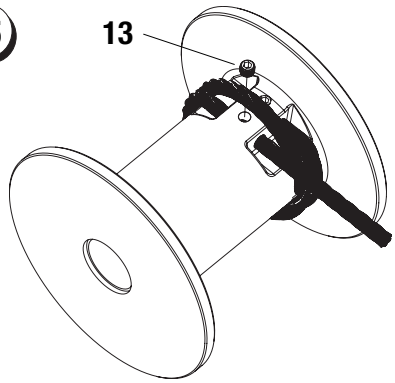
WARNING

When winching is obligatory wear working gloves.

STEP 6

By keeping rope tensioned as shown in pict.34 tighten safety set screw (13) as shown in pict.35.

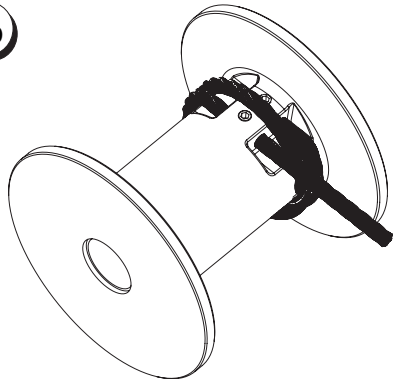
PICT.35



STEP 7

After having tightened safety set screw, start winding the wire rope.

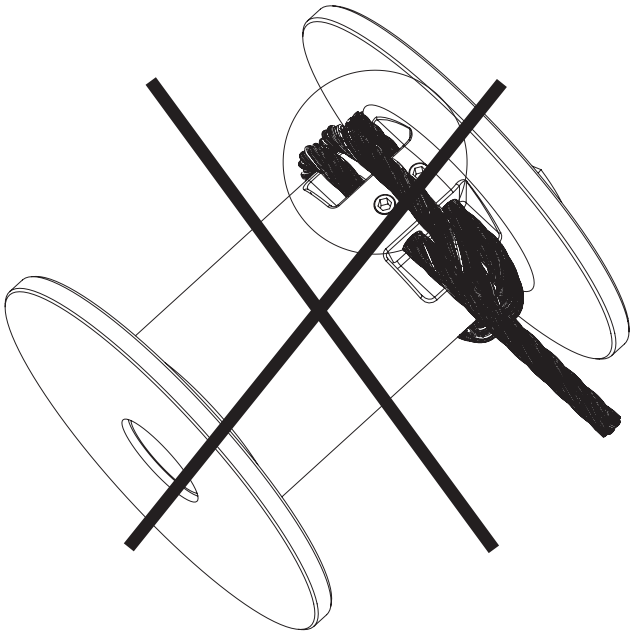
PICT.36



ROPE NOT PROPERLY MOUNTED

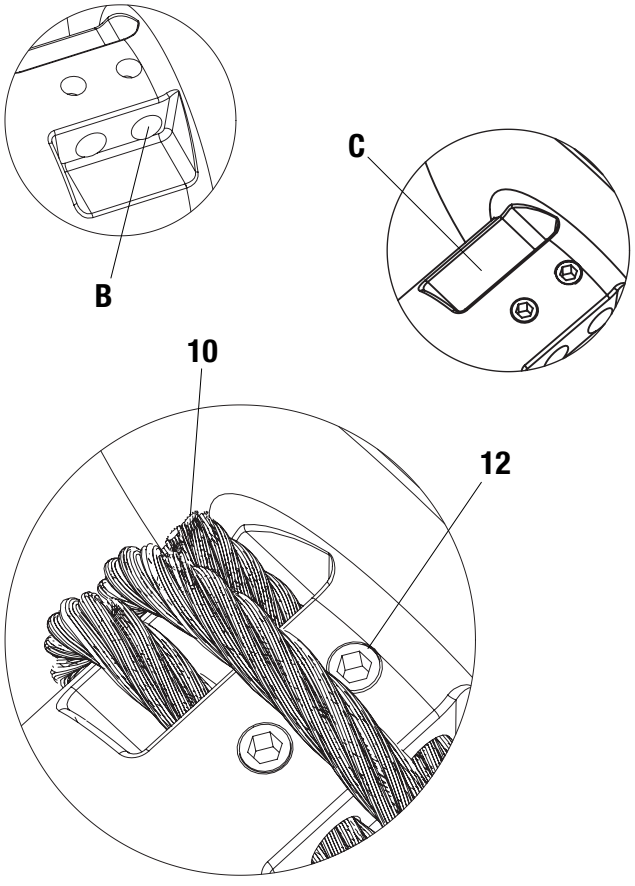
While mounting the end rope (10) opposite to hook, throughout (B) by using set screw (12), take care do not allow wire rope to extend past seat (C) of drum as shown in pict.37.

PICT.37



DANGEROUS

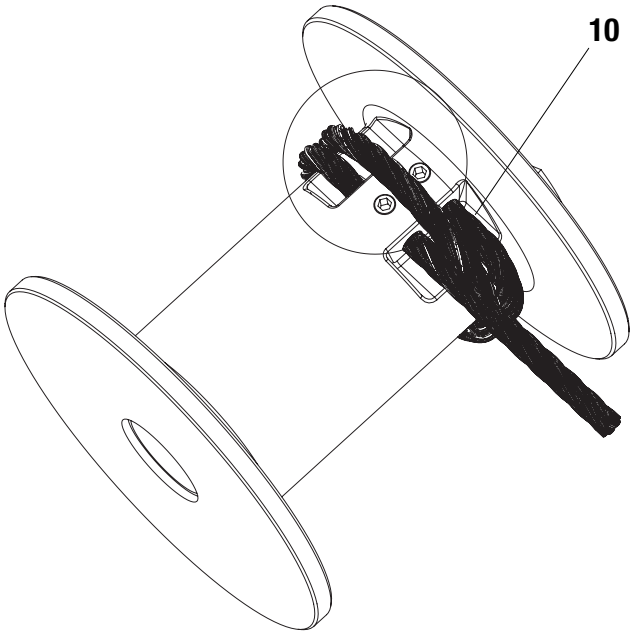
Never try to enlarge drum rope slots. VIME cannot be held responsible of failure to the drum, wire rope caused by this unauthorized intervention.



CORRECT WIRE ROPE MOUNTING

While mounting the end rope (10) opposite to hook, through hole (B) by using set screw (12), take care do not allow cable to extend past seat (C) of drum, as shown in pict.38.

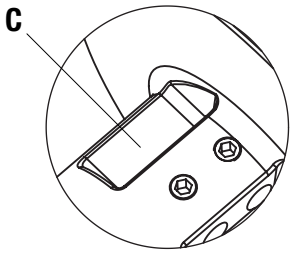
PICT.38



DANGEROUS

In case of installing of a wire rope with end opposite to hook cone tapered, is necessary to use the whole drum seat depth to allow set screw (12) clamp onto the wire rope and not onto the cone tapered.

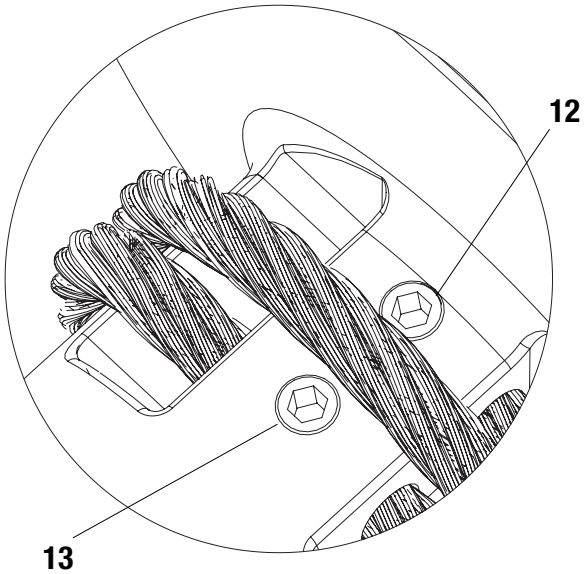
5. Runs winch in the reel in direction (par.2.9). Keeping tension end of cable, spool the cable onto the cable drum taking care to form neatly wrapped layers.



DANGEROUS

When winding all cable onto the cable drum keeping tension on it by hand, when the end of cable is near to the drum, stop winch, disengage drum (chapter 3.1, pict.41 or pict.42) . When the drum is disengaged, turn the drum by hands till the cable is completely winded. Take great care, when hands approach to the drum and roller fairlead..

6. Winch is ready.

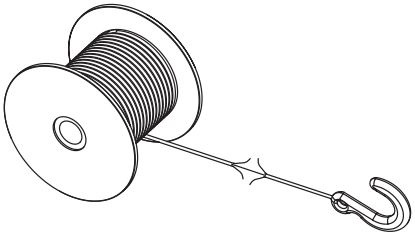


SECTION 3
OPERATION

3.1 OPERATION

DANGEROUS

Before starting winch check cable conditions, if cable becomes frayed with broken strands, replace immediately as described on chapter 2.10.



DANGEROUS

When winching is obligatory wear working gloves.

WARNING

Before operating check oil level and add oil, if necessary as shown in chapter 5.1.1.

WARNING

Before start winching, check conditions of manual or air clutch system for drum freespooling.

NOTE

A warm up procedure is recommended at each start up and is essential at ambient temperatures below +40°F (4°C). The prime mover should be run the electrical motor, with manual or air clutch shifter disengaged, sufficient time to warm up the system . The winch should be operated at low speeds, forward and reverse, several times to circulate gear lubricant through the worm gear.

IMPORTANT

Run the vehicle engine during winching operation to keep battery charged. Otherwise high electrical motor absorption, could drain battery. A weak battery could damage the electrical motor.

IMPORTANT

Causing the electrical motor heating use the winch with short duty cycle, giving the electrical motor time to disperse the heat, and to vehicle battery time to recharge itself.

WARNING

In case of winching long cycle, check the electrical motor heating by touching the electrical motor with hand. If the electrical motor is over-heating, stop winching for a few minutes.

IMPORTANT

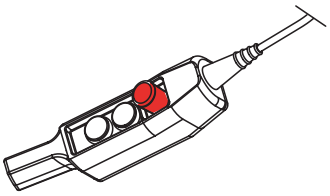
Make sure the winch motor has stopped fully before reversing. Quick winch reversals can lead to solenoids failure.

DANGEROUS

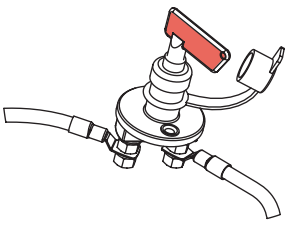
When winching with the remote control switch by standing in the vehicle pass, the remote control cable through the window, by avoiding to damage the remote control cable with the vehicle door.

DANGEROUS

While winching in case of electrical contact in the remote control, that gives no possibility to stop the winch or a solenoids short-circuits, push the RED safety stop button on the remote control, to stop electrical flow to solenoids.



In case of power supply short-circuits from battery to winch, it needs to operate with urgency on the battery switch.



The low winch speed line eases this operation, provided that battery switch has been placed in a truck area easily attainable.

IMPORTANT

After winching operations, switch off power supply with battery switch and disconnect the remote control switch from winch, placed it in a dry place.

DANGEROUS

Do not leave the remote control switch plugged into the winch when not in use. Leaving the remote control switch plugged in, may result in a dangerous condition and/or battery drain.

DANGEROUS

Do not leave the remote control switch plugged into the winch and drum engaged when work with hands around roller fairlead and drum.

To power the winch:

1. Power on battery switch: rotate the red key from **Off** position to **On** position as shown (pict.39).
2. Connect the plug (6) on remote control switch cord, to the socket (5) (pict.40).
3. Lift the spring loaded cover (A) on the socket receptacle (5). Connect plug (6) according black arrow direction with latch (C) facing up, to key in the socket seat (A). To disconnect plug (6) lift the spring loaded cover (A) to release the latch (C).
4. On remote control switch (7) push the button "WINDING" for winding rope onto the winch drum.

WARNING

Winch operator start pulling slowly and only after having keep tensioned cable and verified cable/hook has been securely fastened to the vehicle/load.

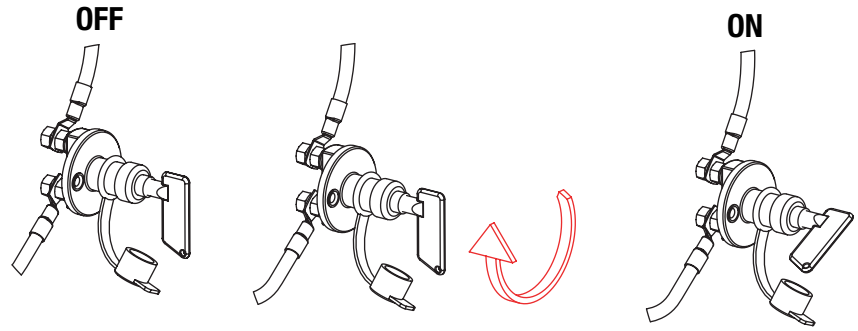
IMPORTANT

Make sure the winch motor has stopped fully before reversing. Quick winch reversals can lead to solenoids failure.

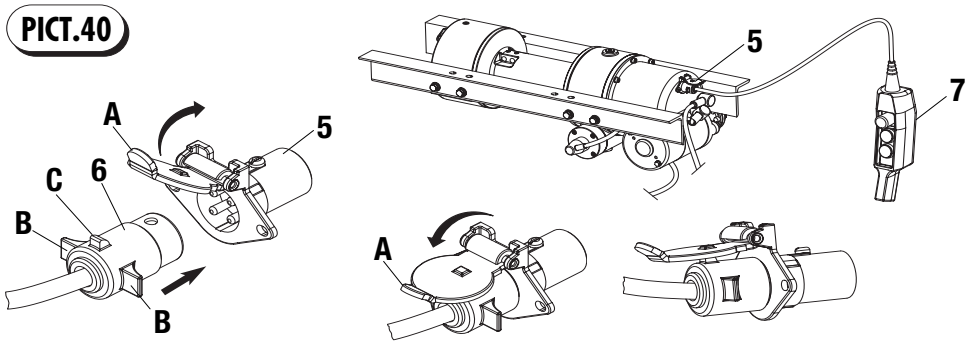
DANGEROUS

The suddenly under load wire rope breaking or any yielding who involve an hook release, causing a dangerous rope stroke. Winch operator or other persons have to keep a safe distance from the working length of the wire rope.

PICT.39



PICT.40



A) For hooking onto the load rapidly:

1. Check drum clutch be fully disengaged:

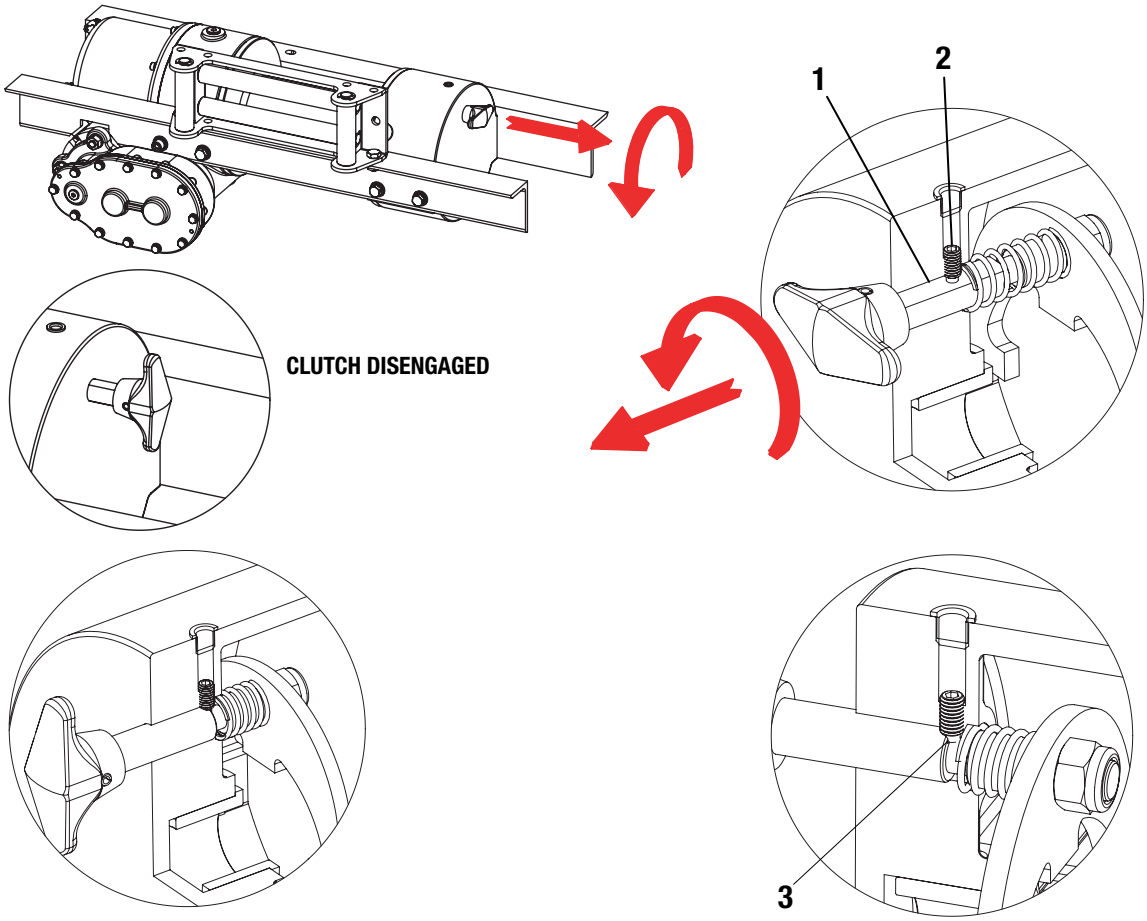
a. **VERSION WITH MANUAL CLUTCH SHIFTER:** the handle must be in vertical position (pict.41). Differently pull the handle fully out, rotating 90° counterclockwise and lock in place as shown (pict.41).

IMPORTANT

Onto the clutch axe (1) there is a seat (3) for dog point set screw (2) to hold the handle in the disengaged position. When disengaging rotate the handle in counter clockwise direction to let the dog point set screw (2) fit into the seat (3).

PICT.41

MANUAL CLUTCH VERSION



NOTE

Pictures shown are just as demonstration. Dog point setscrew is not visible while winch is assembled.

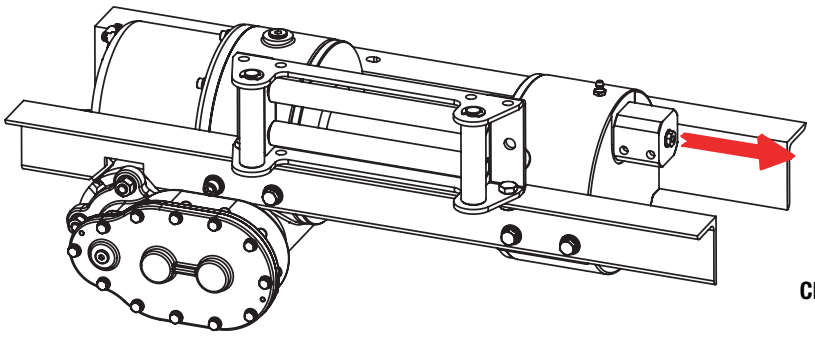
b. **VERSION WITH AIR-CYLINDER CLUTCH SHIFTER:** checking the air-cylinder shaft (ref.3 pict.42a) being fully out as shown. Differently act air lever valve, air flow through X port G1/8" disengages drum.

IMPORTANT

To insure an efficient drum clutch operation (air-clutch version) a proper connection to the vehicle air circuit must be provided (chapter 2.6) by planning filters and pressure regulator as well as their own maintenance.

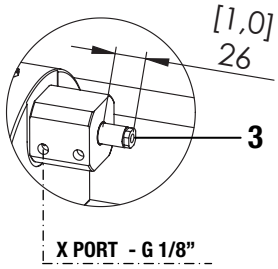
PICT.42

AIR CLUTCH VERSION



PICT.42a

CLUTCH DISENGAGED

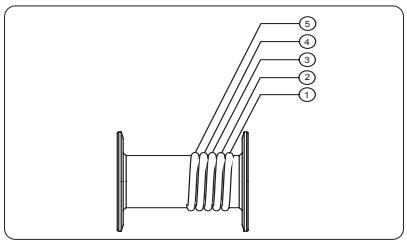


Dimensions [inch]
MM

2. Now freespool by manually pulling out enough wire rope for the winching operation, hook the load in a point who can resist to the traction.

DANGEROUS

A minimum of 5 wraps of cable around drum barrel is recommended.



DANGEROUS

When winching is obligatory wear working gloves.

B) To pull the load:

WARNING

Do not exceed maximum line pull ratings.

1. Engage the drum :

a. **VERSION WITH MANUAL CLUTCH SHIFTER:** by pulling out the handle, rotate it of 90°clockwise and release it (pict.43). Checking the handle must be fully in as shown (pict.43a).

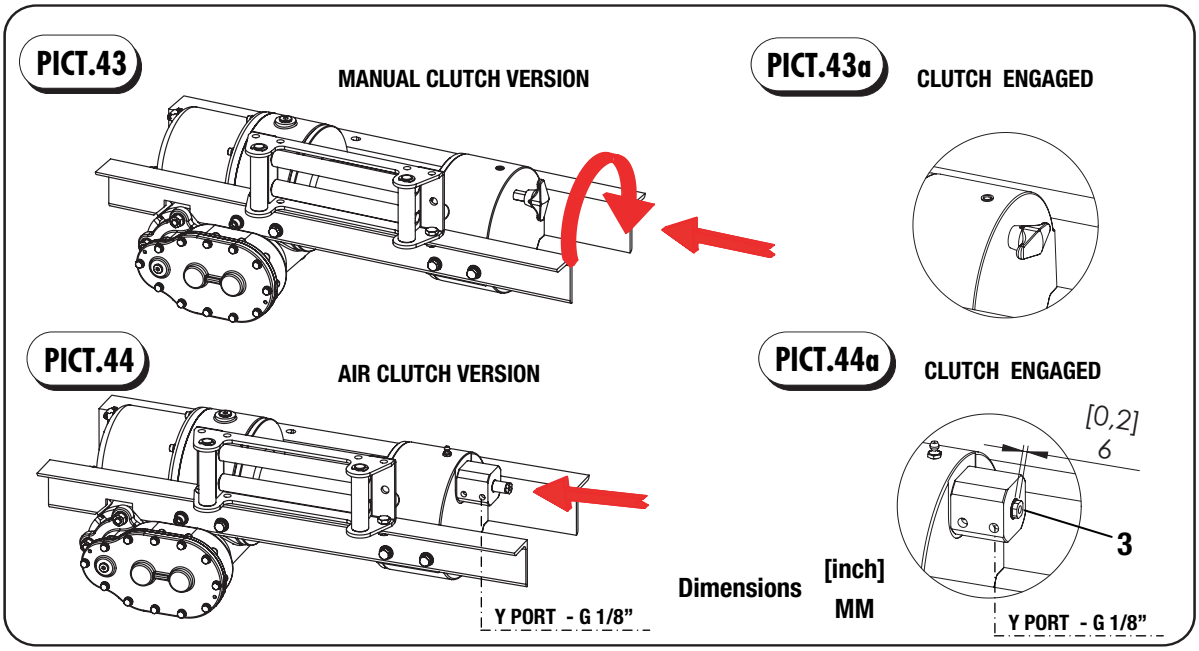
WARNING

Check the action of the sliding clutch, making sure it is fully engaging with cable drum. Clutch is fully engaged when jaw clutch perfectly match jaw drum. To let jaws match together it could be necessary runs drum manually or by spooling out the cable till engaging or powering drum with handle remote control (short intermittence) in winding or unwinding direction.

b. **VERSION WITH AIR-CYLINDER CLUTCH SHIFTER:** act air lever valve, air flow through Y port G1/8" (pict.44) engages drum. Checking the air-cylinder shaft (3) being in as shown (pict.44a).

WARNING

Check the action of the sliding clutch, making sure it is fully engaging with cable drum. Clutch is fully engaged when jaw clutch perfectly match jaw drum. To let jaws match together it could be necessary runs drum manually or by spooling out the cable till engaging or powering drum with handle remote control (short intermittence) in winding or unwinding direction. All these operations must be ran with no load.



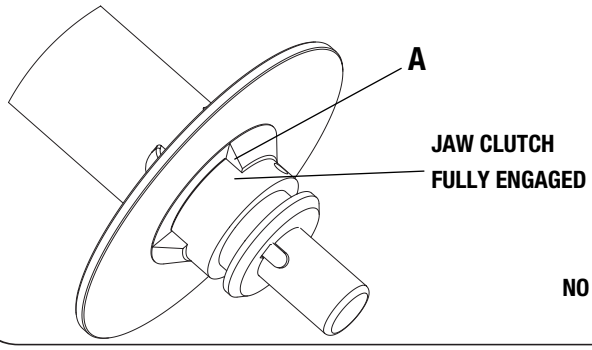
DANGEROUS

If clutch has not been fully engaged (pict.46), in winching operation while is pulling a load, can cause the suddenly drum disengagement and as a consequence the load drifts.

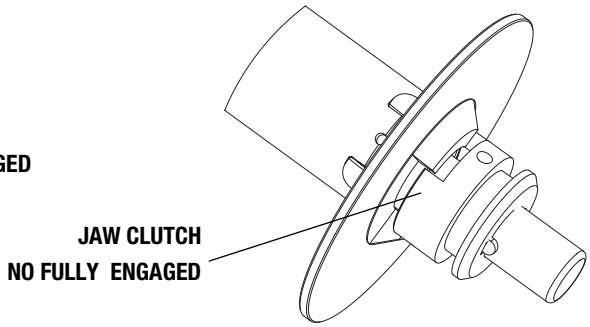
WARNING

Check clutch must be fully engaged as shown (pict.45).

PICT.45



PICT.46



NOTE

Illustrations shown (pict.45-46) are just as demonstration. This side of drum is fully hidden when winch is in use.

WARNING

Not proper extended clutch operation (manual or air system), even if doesn't cause a load drifts in a short period, could cause edge wear of sliding jaw clutch an drum clutch (ref.A), till moment where would be impossible engage drum anymore, or will be not capable to hold the load.

IMPORTANT

To insure an efficient drum clutch operation (air-clutch version) a proper connection to the vehicle air circuit must be provided (chapter.2.6 pict.19-20) by planning filters and pressure regulator as well as their own maintenance.

IMPORTANT

Maintenance exigency increase according to the winch working conditions and in case of its occasional use as well.

2. On remote control switch push the button “WINDING” for winding rope onto the winch drum.

WARNING

Winch operator start pulling slowly and only after having keep tensioned cable and verified cable/hook has been securely fastened to the vehicle/load.

DANGEROUS

The suddenly under load wire rope breaking or any yielding who involve an hook release, causing a dangerous rope stroke. Winch operator or other persons have to keep a safe distance from the working length of the wire rope.

WARNING

In car carrier applications after pulling vehicle on carrier, be sure to secure vehicle to carrier bed. Do not maintain load on winch cable while transporting vehicle, do not use winch as a tie down (pict.47).

DANGEROUS

Do not disengage clutch under load.

DANGEROUS

Never attempt to pull more than the winch is rated for.

DANGEROUS

Never try to guide cable when winching.

DANGEROUS

Do not move your vehicle to assist the winch in pulling a load. Winch failure, may cause serious injuries

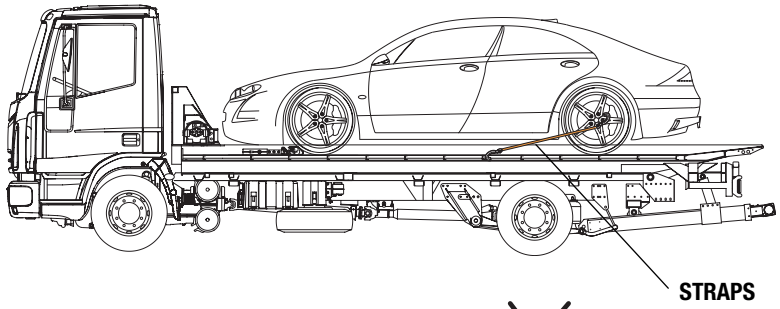
DANGEROUS

Never try to attempt lateral pullings, in reference to the centreline of the vehicle where the winch is installed (pict. 48). Winch and vehicle where the winch is installed could be damaged, and result in serious injury.

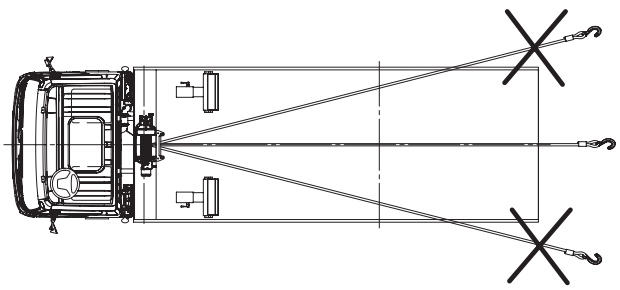
WARNING

Do not use winch to lift, support or otherwise transport personnel.

PICT.47



PICT.48



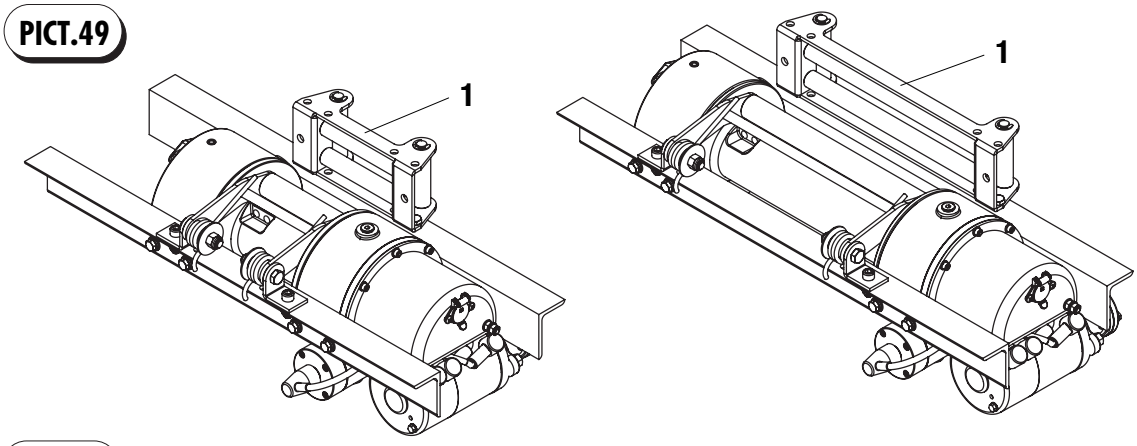
SECTION 4
ACCESSORIES

4.1 ACCESSORIES

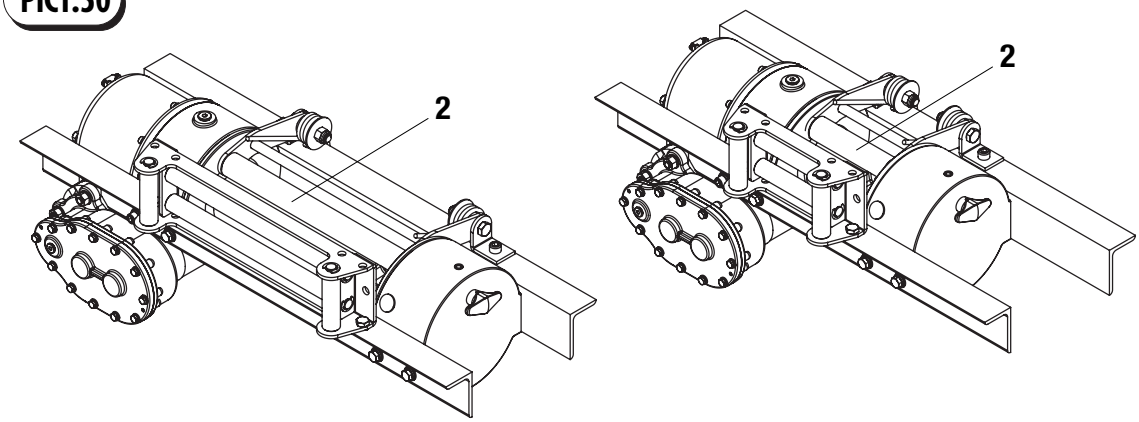
JE winches have been designed to be equipped with several accessories such as :

- Standard roller fairlead (ref.1, pict.49)
- Cable tensioner (ref.2, pict.50)

PICT.49



PICT.50



4.1.1 ROLLER FAIRLEAD

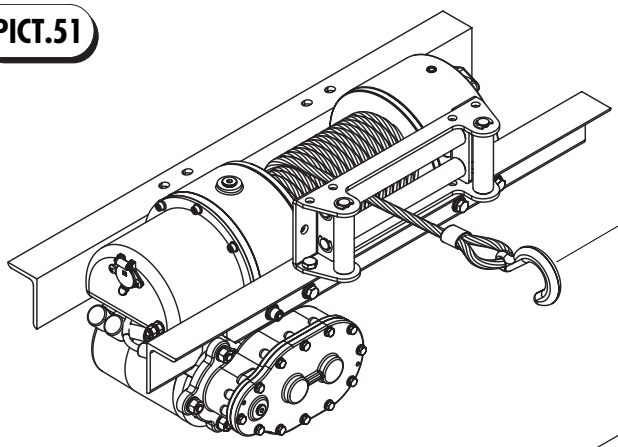
Roller fairlead is made up by 2 horizontal rollers and 2 vertical rollers, used for lateral pullings to avoid cable damages to the vehicle where the winch is installed.

4.1.2 CABLE TENSIONER

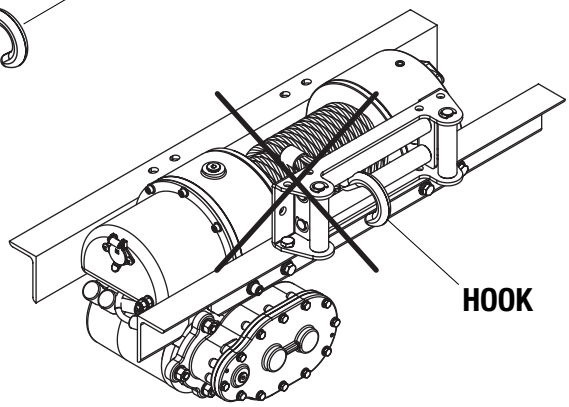
Cable tensioner is used to keep cable tightened on the drum, while the winch is in freespool mode. Cable tensioner does not insure that the cable will wind onto the drum in orderly manner.

4.2 RECOMMENDATIONS FOR USE

PICT.51



PICT.52



4.2.1 ROLLER FAIRLEAD

IMPORTANT

The use of roller fairlead does not insure that the cable will wind onto the drum in an orderly manner.

IMPORTANT

The proper fleet angle must be maintained for the cable to wind onto the drum in an orderly manner as shown in chapter 2.3.

DANGEROUS

Stop reel-in of cable before hook enters fairlead rollers, as shown in pict.51. Failure to do so, may cause damage or breakage to the rope, winch, vehicle and serious injuries.

DANGEROUS

Do not put hands or feet near rotating parts or moving wire rope. Wire rope under tension can cause serious personal injury. Before operator power a winch, he is required to check that the area around the winch and load being hauled is clear.

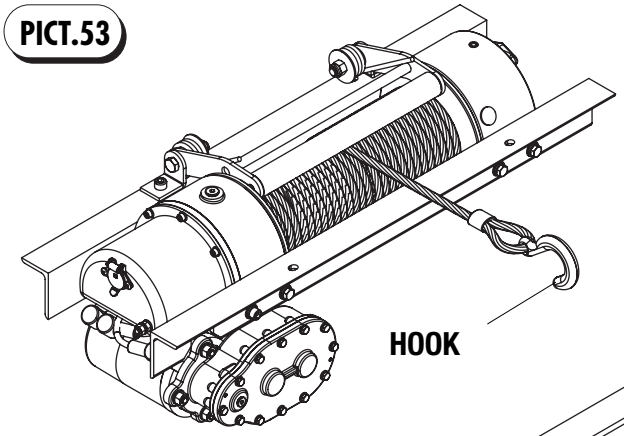
DANGEROUS

Never try to guide cable while winching.

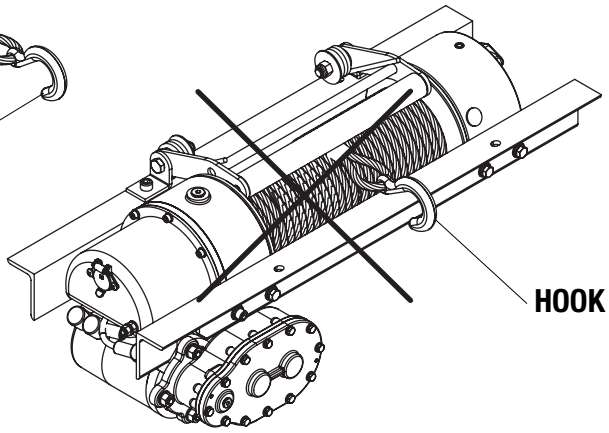
IMPORTANT

In order that accessories such as roller fairlead and cable tensioner, can work properly a maintenance is recommended , as shown in chapter 5.1.1.

PICT.53



PICT.54



4.2.2 CABLE TENSIONER

IMPORTANT

The use of cable tensioner does not insure that the cable will wind onto the drum in an orderly manner.

IMPORTANT

The proper fleet angle must be maintained for the cable to wind onto the drum in an orderly manner as shown in chapter 2.3.

DANGEROUS

Stop reel-in of cable before hook enters rope tensioner roller, as shown in pict.53. Failure to do so, may cause damage or breakage to the rope, winch, vehicle and serious injuries.

DANGEROUS

Do not put hands or feet near rotating parts or moving wire rope. Wire rope under tension can cause serious personal injury. Before operator power a winch, he is required to check that the area around the winch and load being hauled is clear.

DANGEROUS

Never try to guide cable while winching.

IMPORTANT

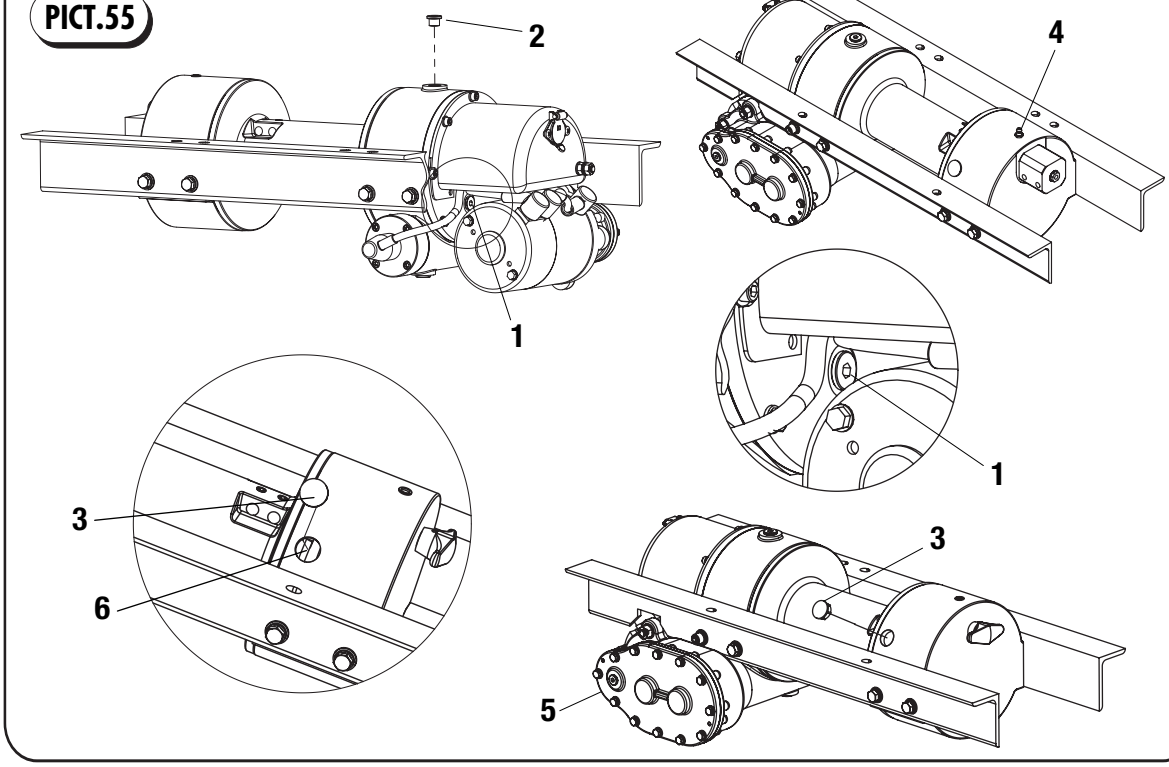
In order that accessories such as roller fairlead and cable tensioner, can work properly a maintenance is recommended , as shown in chapter 5.1.1.

SECTION 5
MAINTENANCE

5.1 MAINTENANCE

Winches mod. JE are designed to reduce maintenance to wire rope and gear housing oil level only.

PICT.55

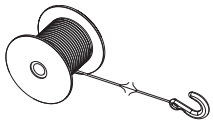


5.1.1 MONTHLY MAINTENANCE

Technical staff required :
Technician or user

Procedure:

1. Inspect the cable for damage and lubricate frequently with viscous oils or light grease with additive adhesive with graphite or bisulfure molybdenum. **If cable becomes frayed with broken strands, replace immediately by following procedure indicated on chapter 2.10.**



2. Worm and gear are bathed in oil. Keep oil to level hole.

3. To check oil level: remove oil level plug (1) and check oil level. Oil level should be kept up to oil level hole. If oil level is below level hole, remove breather plug (2) and add oil **ESSO Spartan EP320** or **IP Mellana 320.** Tightening plugs.

MONTHLY MAINTENANCE

4. Spure gear housing (5) is lubricated for the entire life with grease **SHELL OSSAGOL V.**

IMPORTANT

Keep lubricated drum clutch through inspection hole(6). For air clutch version, lubricate drum clutch through grease fitting (4). Never utilise high pressure grease system.

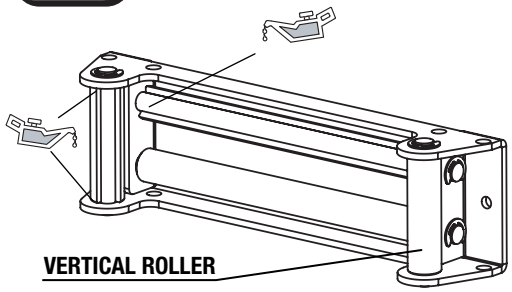
WARNING

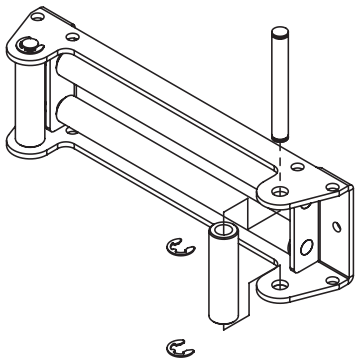
Remove the plastic plug (ref.3 pict.55) and inspect the clutch shifter (ref.40, part list chapter 7.2-7.7, pages 72-79), check for damage or excessive wear. Observe the jaws on the clutch, checking for rounding of the driving faces. If rounding has occurred it should be replaced.

WARNING

Periodically inspect rope mounting setscrews and tighten if necessary. (ref.12 - 13 page 49).

PICT.56 **ROLLER FAIR LEAD GREASING**





5. The Roller fairlead rollers must roll free to let wire rope slide perfectly. Elements such as: salt, water, oxidation and a bad maintenance can cause the rollers locking, and excessive wire rope wear. The Roller fairlead rollers bad operation, can cause their own rapid wear. We recommend to keep rollers lubricated, with medium dense oil, between axe and roller as shown on pict.56.

IMPORTANT

Fairlead rollers are zinc plated. Treatment with time will be removed by rope sliding.

IMPORTANT

Fairlead rollers sliding on wire rope, when show an excessive wear must be replaced.

WARNING

A roller excessively worn , particularly if it has deep stripes, could damage the wire rope.

MOUNTHLY MAINTENANCE

WARNING

At least every three months check battery cables, electrical connections and mounting bolts. Tighten if necessary.

WARNING

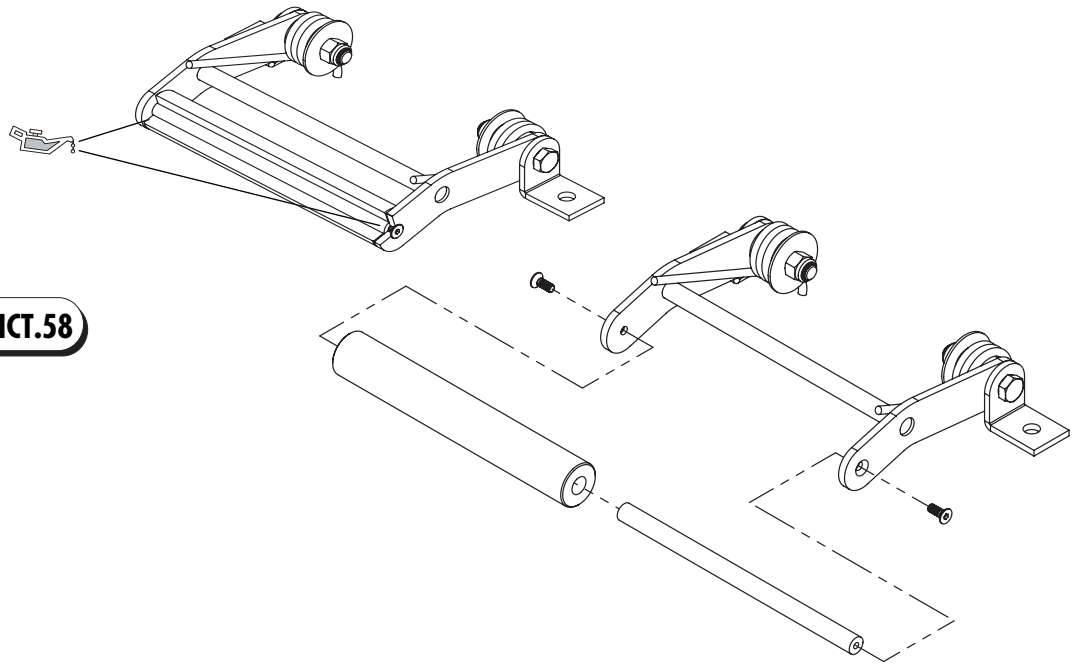
Thoroughly clean salt residue from the winch as soon as possible to minimize corrosion

IMPORTANT

Avoid using chemicals cleaning that made damage the finish.

6. Cable tensioner roller is made in copolymer acetate. This material reduces maintenance. In very dirty environments, we recommend to keep maintenance and roller lubricated, with medium dense oil as shown in (pict.57). In case of excessive locking, cable tensioner roller can be disassembled as shown on pict.58.

PICT.57 CABLE TENSIONER GREASING



PICT.58

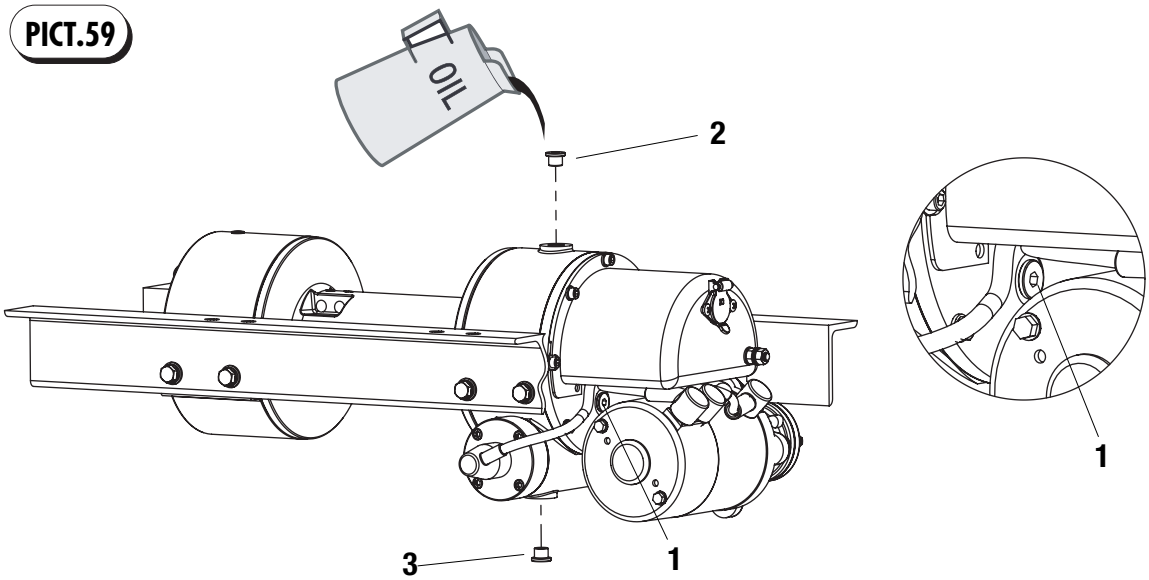
IMPORTANT

Cable tensioner roller sliding on wire rope, when shows an excessive wear must be replaced.

WARNING

A roller excessively worn , particularly if it has deep stripes, could damage the wire rope.

PICT.59



5.1.2 ANNUAL MAINTENANCE

Technical staff required :
Technician or user

Procedure:

At least once a year, it is necessary inspect oil level. To inspect oil level follow instruction as indicated in chapter 5.1.1 step 3. To fully replace the oil do as follow :

1. Remove plug (2) and oil level plug (1).
2. Drain oil from winch by removing drain plug (3) taking care to put the oil drained in a container (approx. 1 Lt. capacity).
3. Tighten drain plug (3) and fill up worm gear housing with new oil through oil hole (2) till reach oil level hole (1) (see table beside for oil quantity).
4. Tighten oil level plug (1) and plug (2).

Model	Q.ty
JEC JEM	Worm gear housing gr.500 oil
JEL	Spure gear housing, gr. 350 grease

IMPORTANT

To avoid pollution, the oil drained from the winch, must be carried off in compliance with regulation.

WARNING

Inspect mounting capscrews and tighten if necessary.

SECTION 6
TROUBLE SHOOTING GUIDE

6.1 TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Winch will not operate	- No power	- Check battery switch is **On** position chap. 3.1, pict.39, page 52. - Loose connections. Inspect solenoids and motor contacts tighten, see chap.2.5 pages 33-35. - Weak battery. Recharge or replace battery. Check charging system. - Damaged motor. Check motor operation, chap. 2.5.4 page 36.
	- Remote control switch inoperative	- Check handle remote control's plug be fully in. Inspect contacts chap. 3.1, pict. 40, page 52. - Check the fuse 15A ref.100 parts drawing chap. 7.3 page 73, chap.7.4 page 74, chap.7.8 page 80, chap.7.9 page 81. Replace it if necessary.
	- Damaged solenoids	- Check solenoids assembly or single solenoid, see chap.2.5.2 page 32, chap.2.5.3 page 34.
Remote control switch activates solenoids but motor does not run or runs in one direction only	- Damaged or stuck solenoids	- Disassemble cover solenoids ref.80 parts drawing chap. 7.2 page72, chap.7.7 page79 and tap gently with an hammer on solenoids. If solenoids are stalled only, winch will run again. If not replace one or both solenoids.
	- Single solenoid damaged	- To identify solenoid damaged, follow instructions on chap.2.5.2 page 32, chap.2.5.3 page 34. Replace it.

TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Motor runs with low line speed, with insufficient power or is extremely hot	- Long period of operation	- Cooling-off periods chap.3.1 page 50.
	- Insufficient battery or insufficient charging system	- Replace the battery or check alternator conditions
	- Electrical cable from battery to winch too long or too small	- The electrical cable is 2 mt. length with 35mm² section. Extending the electrical cable length, the cable section must be increased.
	- Ground wire too long or too small	- Ground wire (**not supplied with the winch**) must have a length of 2 mt. and a minimum section of 35 mm². Extending the ground wire length, the wire section must be increased.
	- Bad or loose electrical connections. Bad ground wire	- Check electrical terminals, if necessary spray with apposite products and tighten connections chap.2.5 page 33-35. Check if ground has been attached, wiring capscrew 3/8" (chap.2.5.1, page 31, pict.12, ref.A) onto the electrical motor, to the negative battery pole.
	- The winch is misaligned	- Check winch mounting (chap.2.2 page 25, chap.2.3-2.4 page 28).

TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Motor runs but drum does not turn	- Clutch not engaged	- Follow instructions how to engage/ disengage drum chap. 3.1 pages 53-56.
	- Shaft keys damaged	- Replace keys ref.21-22 parts drawing chap.7.2-7.7 pages 72-79.
	- Drum shaft damaged	- Replace drum shaft ref. 20C, 20M, 20L parts drawing chap.7.2-7.7 pages 72-79.
	- Bronze Gear damaged	- Replace bronze gear ref.6 parts drawing chap.7.2-7.7 pages 72-79.
- Drum will not free spool	- Clutch doesn't disengage	- Check chapter 3.1 on pages 53-56. - Check shaft ref.26/1 parts drawing chap.7.2-7.7 pages 72-79 doesn't lock for a bad maintenance - Check dog point setscrew too tight chapter 3.1, page 53, pict.42, ref.2. - For air-clutch shifter, check air cylinder has not been damaged and has been right connected par. 2.6 page 38. - Check keys ref.22 parts drawing chap.7.2-7.7 pages 72-79 are pulled out of shape by overload.
	- The winch is misaligned	- Check winch mounting (chap.2.2 page.25, chap.2.3-2.4 page 28).
Clutch inoperative or binds up	- Dry or rusted shaft	- Replace or lubricate, ref.26/1 parts drawing chap.7.2-7.7 pages 72-79.
	- Dog point setscrew too tight	- Adjust it as shown chap. 3.1 page 53, pict.42, ref.2.
	- Bent clutch fork	- Replace clutch fork ref.39 parts drawing chap.7.2-7.7 pages 72-79.
	- Keys damaged	- Replace keys ref.22 parts drawing chap.7.2-7.7 pages 72-79.

TROUBLE SHOOTING GUIDE

CONDITIONS	POSSIBLE CAUSE	CORRECTION
Clutch spring does not operate	- Broken spring	- Replace spring, ref.42 parts drawing chap.7.2-7.7 pages 72-79.
Clutch does not lock at disengaged position	- Capscrew loose or worn	- Remove teflon plug ref.46 and tighten capscrew ref.45, parts drawing chap.7.2-7.7 pages 72-79. Replace plug.
Oil leakage	- Damaged oil seals, O-ring or gasket.	- Replace gasket ref.5-13-52, oil seals ref.19-62-67 , O-ring ref.101, parts drawing chap.7.2-7.7 pages 72-79.
	- Oil plugs loosens.	- Tighten oil plugs chap.5.1.1 page 61, chap. 5.1.2 page 64.
	- Excessive oil quantity in gear housing	- Chap.5.1.1 page 61, chap.5.1.2 page 64.
Load drifts	- Bronze Gear worn out	- Replace bronze gear ref.6 parts drawing chap.7.2-7.7 pages 72-79.
	- Excessive heavy-duty operation	- Check performance charts, chap.1.4.14 -1.4.15 page 19, chap.1.4.16 -1.4.17 page 20, chap.1.4.18 -1.4.19 page 21.
	- Drum clutch worn out	- Replace the clutch ref.40 parts drawing chap.7.2-7.7 pages 72-79.
	- Drum shaft failure	- Replace drum shaft ref. 20C,20M,20L parts drawing chap.7.2-7.7 pages 72-79.
Excessive noise	- Oil level too low	- Check oil level, through oil level plug according instructions chap 5.1.1 on page 61.
Cable birdnests when clutch is disengaged.	- Teflon discs worn out	- Replace teflon discs and springs, ref.16-17 parts drawing chap.7.2-7.7 pages 72-79.
	- Wire rope too hard	- Replace wire rope. Mount a cable tensioner.

SECTION 7
PARTS LIST

7.1 JE 2700/3600 12V/24V CE WINCH PARTS LIST (dx mounting)

COD.	REF.	DESCRIPTION	Q.TY
01.0022	1	GEAR HOUSING	1
01.0091	2	MANUAL CLUTCH HOUSING	1
01.0052	3C	SHORT DRUM	1
01.0093	3M	MEDIUM DRUM	1
01.0021	3L	LONG DRUM	1
01.0024	4	GEAR HOUSING COVER	1
01.0074/03	5	GEAR HOUSING COVER GASKET (0,3)	1
01.0074/05	5	GEAR HOUSING COVER GASKET (0,5)	1
01.0046	6	GEAR RING Z=46 (JE 2700)	1
01.0047	6	GEAR RING Z=60 (JE 3600)	1
01.0007	7	GERA RING HOUSING	1
*VTTE8X20	8	CAPSCREW M8x20 UNI 5739	6
*RSTELR8	9	LOCK WASHER UNI 9195B D8	6
01.0155	10	WORM SCREW (FOR GEAR RING Z=46)	1
01.0151	10	WORM SCREW (FOR GEAR RING Z=60)	1
*CHVSF05X05X15	11	SPLINE 5x5x15	1
*CSC7304	12	BEARING 7304	2
01.0067/03	13	GASKET (0,3)	2
01.0067/05	13	GASKET (0,5)	2
01.0010	15	BUSHING	3
01.0040	16	TEFLON DISC	2
*MLL008	17	TEFLON DISC SPRING	2
01.0009	18	BUSHING	1
*PRL32X42X7	19	OIL SEAL 32x42x7	1
01.0146	20C	SHORT SHAFT	1
01.0143	20M	MEDIUM SHAFT	1
01.0144	20L	LONG SHAFT	1
01.0006	21	SPLINE 8x8x25	2
01.0008	22	SPLINE 8x8x45	2
*VTSTEIPC10X12Z	23	CAPSCREW UNI 5927 M10x12	2
*TPPESINC3/8	24	PLUG 3/8" G	4
01.0559	26	CLUTH HANDLE	1
	26/1	SHAFT	1
	26/2	PIN	1

COD.	REF.	DESCRIPTION	Q.TY
01.0032	28C	SHORT MOUNTING ANGLE (ROLLER FEARLEAD SIDE)	1
01.0033	28M	MEDIUM MOUNTING ANGLE (ROLLER FAIRLEAD SIDE)	1
01.0034	28L	LONG MOUNTING ANGLE (ROLLER FAIRLEAD SIDE)	1
01.0014	29C	SHORT MOUNTING ANGLE	1
01.0015	29M	MEDIUM MOUNTING ANGLE	1
01.0016	29L	LONG MOUNTING ANGLE	1
*VTTE3/8X1Z	31	CAPSCREW 3/8"x1"-16UNC ANSI B.18.2.1	7
*RSTEL3/8"Z	32	LOCK WASHER 3/8"	11
*VTTCE3/8"X1"Z	33	CAPSCREW 3/8"x1"	1
*RSMFE32,5X41X2	37	THRUST WASHER 32,5x41x2	1
01.0028	39	CLUTCH FORK	1
01.0050	40	CLUTCH	1
*DD10AUTZ	41	LOCK NUT UNI7473 M10	1
*MLL019	42	CLUTCH SPRING	1
*RND10ZUNI6592	43	WASHER UNI 6592 D10	8
*VTSTEIPC06X10Z	45	CAPSCREW UNI ISO 7435 M6x10	1
*TPPPLD8,5	46	TEFLON PLUG D8,5	1
*TPPNYLD22	47	NYLON PLUG D22	1
*VTTE06X20Z	48	CAPSCREW UNI 5931 M6x25	3
*RND6ZUNI6592	49	WASHER UNI 6592 D6	22
01.0055	50	SPUR GEAR HOUSING	1
01.0054	51	SPUR GEAR HOUSING COVER	1
01.0098/05	52	SPUR GEAR HOUSING GASKET	1
*SGRE19	53	SNAP RING D19	1
*VTTCE06X40Z	54	CAPSCREW UNI 5931 M6x40	4
*CHPRNINGRO5X05X4	55	SPLINE 5x5x40	1
01.0003	56	SHAFT	1
01.0019	57	SPUR GEAR Z=56	2
01.0020	58	IDLER GEAR Z=20	1
01.0464	59	BRASS THRUST WASHER 19,2x35x2,5	2
01.0423	60	BUSHING 19x25x12,5	3

JE 2700/3600 12V/24V CE WINCH PARTS LIST (dx mounting)

COD.	REF.	DESCRIPTION	Q.TY
*DD080T	61	BRASS NUT M8	15
*PRL19X32X7	62	OIL SEAL 19x31x7	3
*RND80T	63	BRASS WASHER D8	1
*VTTE06X20Z	64	CAPSCREW M6x20 UNI 5739	1
*DD3/8Z	65	NUT 3/8" UNF	3
*PRL38X52X7	67	OIL SEAL 38x52x7	1
*CHMTR4,75X7,5	68	ELECTRICAL MOTOR SPLINE 4,75x7,5	1
*MTREL12V	69	ELECTRICAL MOTOR 12V	1
	69/1	NUT	3
	69/2	LOCK WASHER	3
	69/3	GROUND CAPSCREW	1
*MTREL24V	69	ELECTRICAL MOTOR 24V	1
	69/1	NUT	3
	69/2	LOCK WASHER	3
	69/3	GROUND CAPSCREW	1
*VSTEIPC06X8Z	72	CAPSCREW UNI 5927 M6x8	1
01.0042	73	PINION GEAR Z=20	1
*VTTCE06X20Z	74	CAPSCREW UNI 5931 M6x20	2
01.0058	75	SOLENOID BRACKET	1
01.0057	76	COPPER STRAP	1
01.0051	77	COPPER LONG STRAP	1
*VTTE6X16	78	CAPSCREW M6x16 UNI 5739	2
01.0465	79	BRASS THRUST WASHER 19,2x35x3,5	1
01.0068	80	COVER	1
*SPNF11409	82	PLUG	1
*SPNM11410	83	SOCKET	1
*VTAUT5,5X16Z	84	SELF-TAPPING SCREW 5,5x16	2
*PRSCILRSF461305	85	SOCKET RS.F4	3
01.0053	90	COPPER STRAP	2
*PRSTLRPS006	91	LOCK WASHER EXTERNAL	2
01.0275	94	WIRE-ELECTRICAL MOTOR	3
01.0048	95	COPPER STRAP	1
01.0555	96	GROUND WIRE (ONLY 24V)	1
01.0553	97	YELLOW WIRE	1

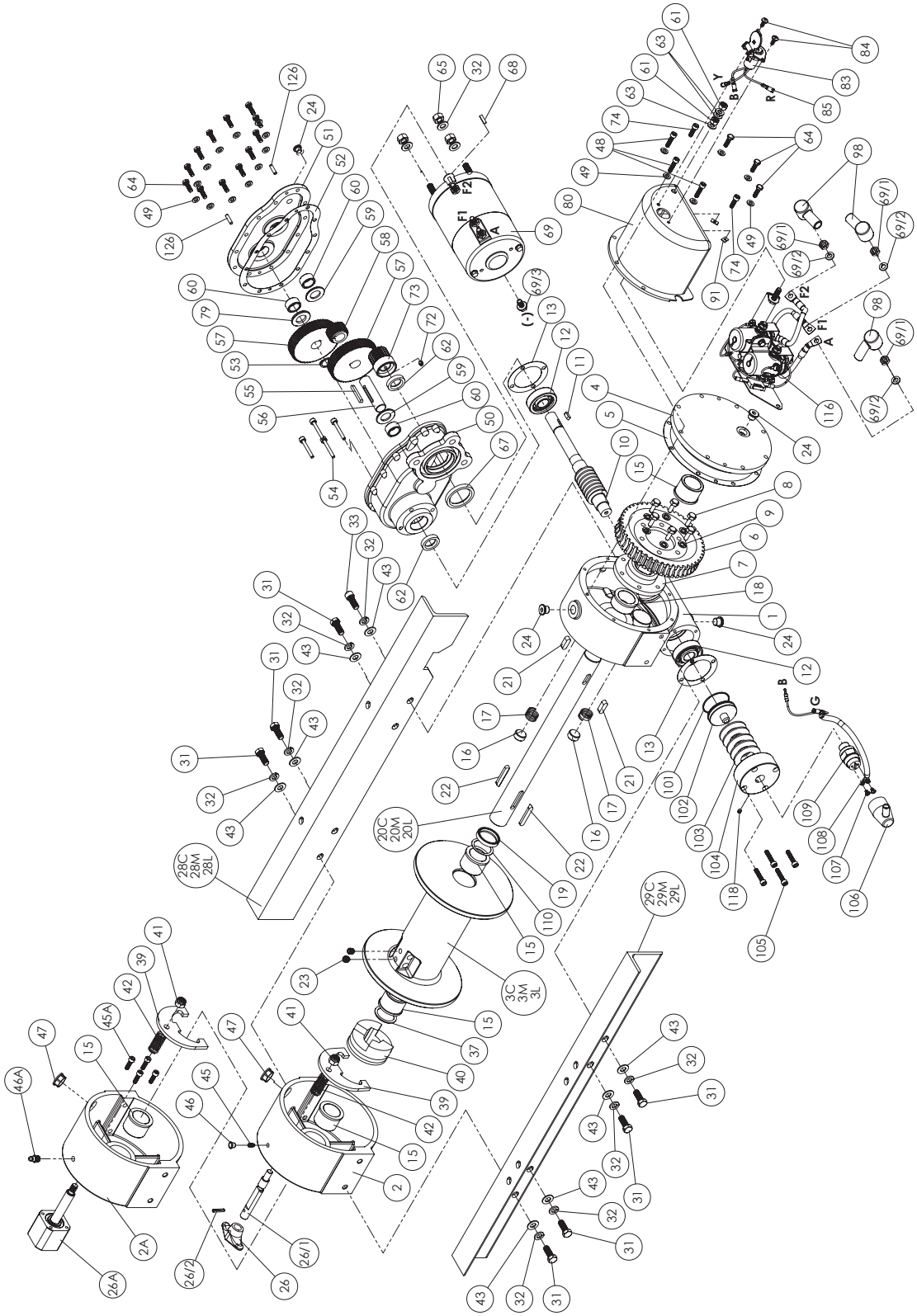
COD.	REF.	DESCRIPTION	Q.TY
*PPTM21107	98	RUBBER BOOT	4
01.0554	99	BLACK WIRE	1
*FSBL15ADIN75281	100	FUSE 15A DIN 75281	1
*OR2187	101	O-RING 47,37x1,78	1
01.0313	102	THRUST ACTUATOR	1
*MLL50X25,4X2,4	103	DISC SPRING 50x25,4x2,5	5
01.0312	104	LIMITING SWITCH FLANGE	1
*VTTCEI6X30Z	105	CAPSCREW UNI 5931 M6x30	4
*17.122.004.01	106	RUBBER CAP	1
*VTTSEI4X10Z	107	CAPSCREW M4x10 UNI 5933	2
01.0552	108	LIMITING SWITCH ELECT. CABLE	1
*17.176.000.01	109	LIMITING SWITCH BUTTON	1
*RSMFE32,5X41X0,2	110	THRUST WASHER 32,5x41x0,2	1
01.0292	111	LIVE WIRE (0,5 MT)	1
*SLND12V	112	SOLENOID 12V	2
	112/1	LOCK WASHER	2
	112/2	NUT	2
	112/3	LOCK WASHER	8
	112/4	NUT	8
01.0293	113	LIVE WIRE (1,5 MT)	1
*PLSTCE	114	CE REMOTE CONTROL SWITCH	1
*CV3X1FROR	115	WIRE-CE REMOTE CONTROL SWITCH	1
*DD6Z	117	NUT M6 UNI 5587	2
*VTSTEIPC5X10Z	118	SET SCREW UNI 5927 M5x10	1
*SLND24V	124	SOLENOID 24V	2
	124/1	LOCK WASHER	4
	124/2	NUT	4
	124/3	LOCK WASHER	8
	124/4	NUT	8
*SP5X20	126	PIN D5X20	2

JE 2700/3600 12V/24V CE WINCH PARTS LIST (dx mounting)

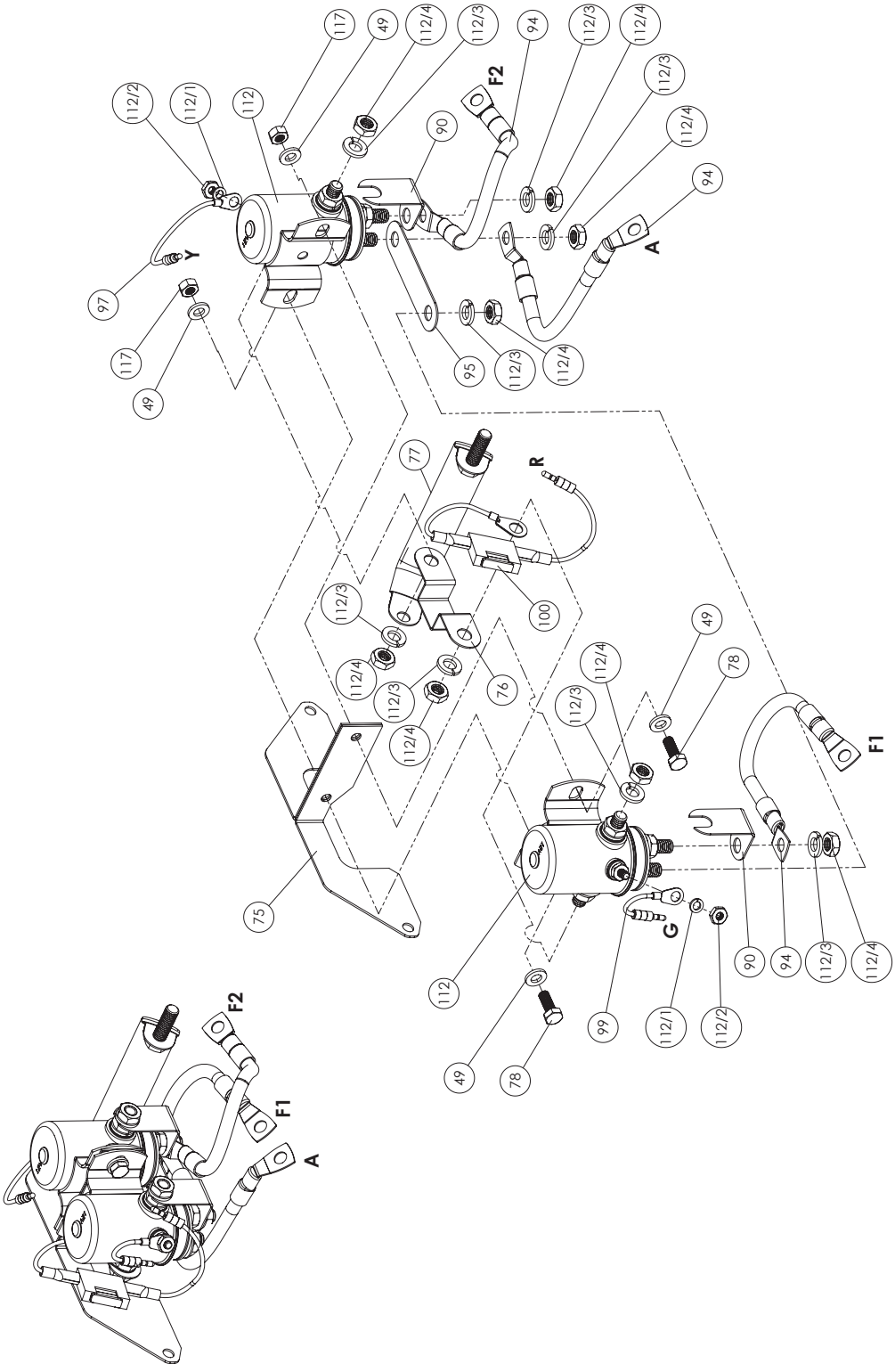
COD.	REF.	DESCRIPTION	Q.TY
	127	BATTERY SWITCH	1
	127/1	NUT M8 UNI 5587	2
*STCBTTR 08.099.000	127/2	LOCK WASHER D8 UNI 1751	2
	127/3	PLUG	1
	127/4	RUBBER CAP	1
	127/5	POWER KEY	1
01.0091/P	2A	AIR CLUTCH HOUSING	1
01.0010	15	BUSHING	1
01.0279	26A	AIR CYLINDER	1
01.0028	39	CLUTCH FORK	1
*DD10AUTZ	41	LOCK NUT UNI 7473 M10	1
*MLL019	42	CLUTCH SPRING	1
*VTTCEI6X20Z	45A	CAPSCREW UNI 5931 M6x20	4
*INGS10X01D	46A	LUBRICATOR M10X1 UNI 7663-A	1
*TPPNYLD22	47	NYLON PLUG D22	1
01.0237		GROUND WIRE (BLACK 2 MT)	1
*ADE004		STICKER ("A" ROTATION)	1
*ADF002		MOTOR STICKER	1
*ADE009		STICKER (12V)	1
*ADE009		STICKER (24V)	1
01.0428		CE REMOTE CONTROL SWITCH WITH WIRE AND PLUG	1
		12V CE SOLENOIDS ASSEMBLY	1
		24V CE SOLENOIDS ASSEMBLY	1
01.0556		12V CE SOLENOIDS ASSEMBLY WITH COVER AND SOCKET	1
01.0557		24V CE SOLENOIDS ASSEMBLY WITH COVER AND SOCKET	1
*TRG001		LABEL	1

COD.	REF.	DESCRIPTION	Q.TY

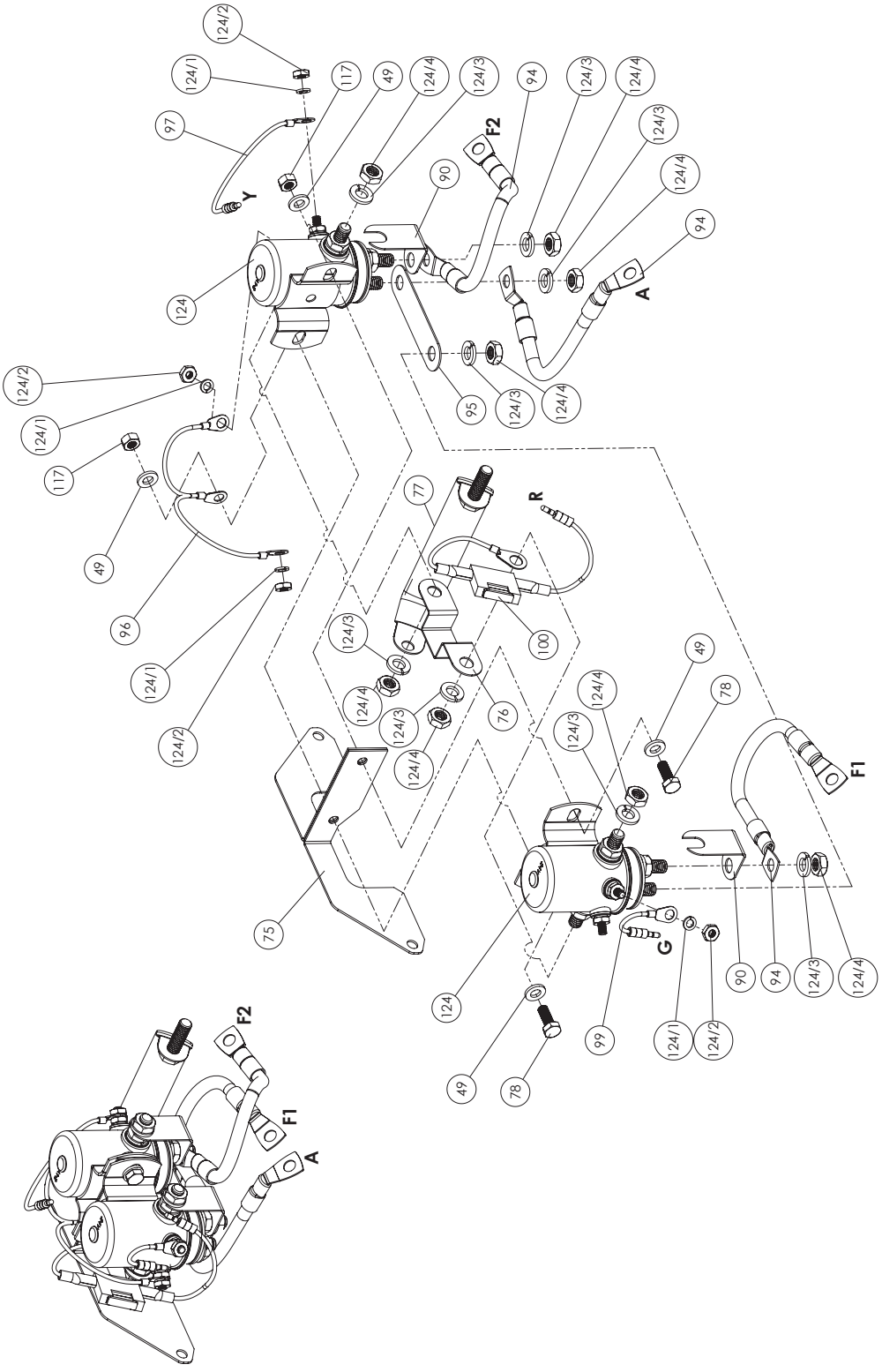
7.2 JE 2700/3600 12V/24V CE WINCH PARTS DRAWING (dx mounting)



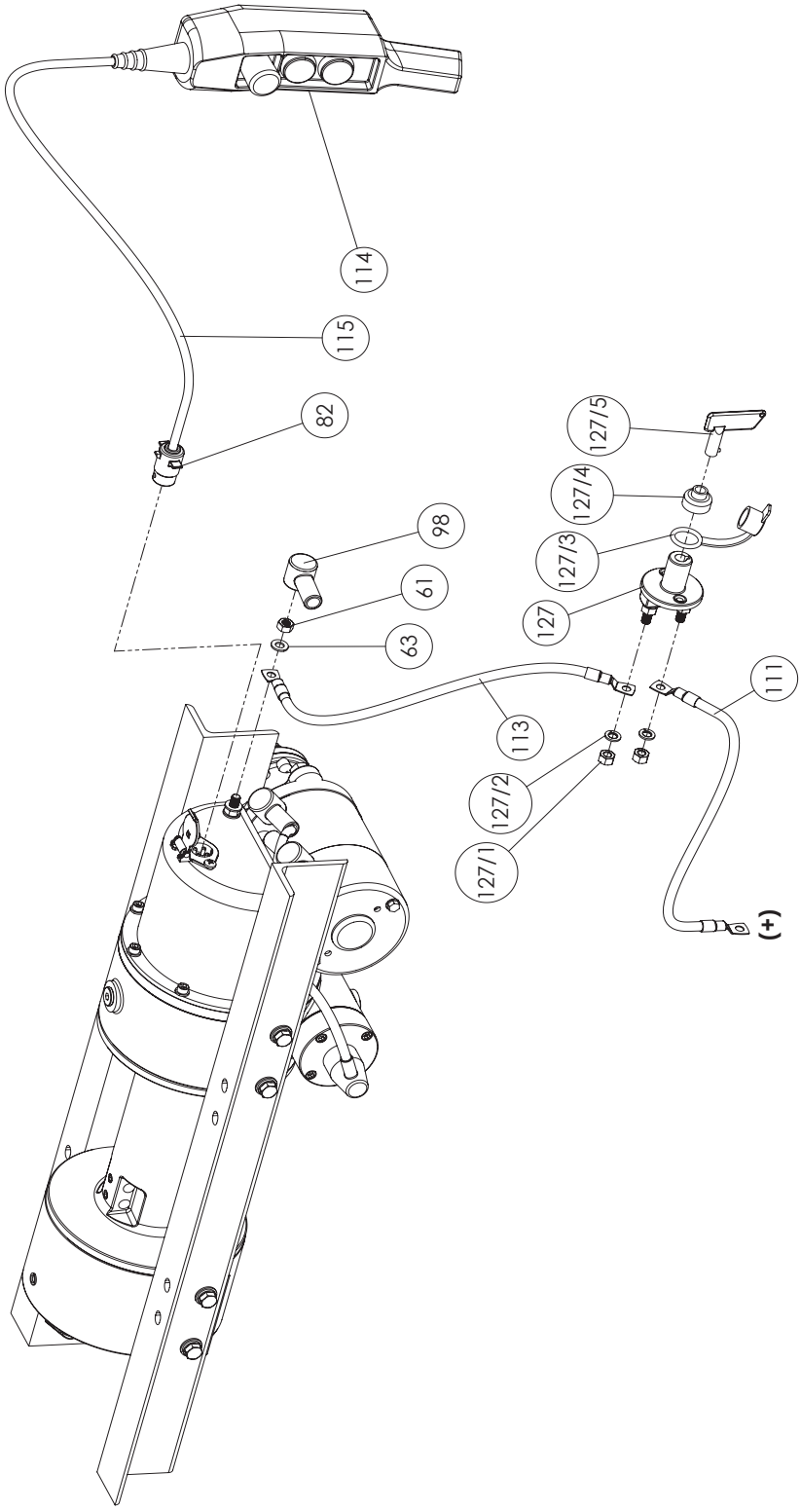
7.3 JE 2700/3600 12V CE SOLENOIDS ASSEMBLY PARTS DRAWING (dx mounting)



7.4 JE 2700/3600 24V CE SOLENOIDS ASSEMBLY PARTS DRAWING (dx mounting)



7.5 JE 2700/3600 12V/24V CE REMOTE CONTROL SWITCH AND BATTERY SWITCH PARTS DRAWING (dx mounting)



7.6 JE 2700/3600 12V/24V CE WINCH PARTS LIST (sx mounting)

COD.	REF.	DESCRIPTION	Q.TY
01.0022	1	GEAR HOUSING	1
01.0091	2	MANUAL CLUTCH HOUSING	1
01.0052	3C	SHORT DRUM	1
01.0093	3M	MEDIUM DRUM	1
01.0021	3L	LONG DRUM	1
01.0024	4	GEAR HOUSING COVER	1
01.0074/03	5	GEAR HOUSING COVER GASKET (0,3)	1
01.0074/05	5	GEAR HOUSING COVER GASKET (0,5)	1
01.0046	6	GEAR RING Z=46 (JE 2700)	1
01.0047	6	GEAR RING Z=60 (JE 3600)	1
01.0007	7	GERA RING HOUSING	1
*VTTE8X20	8	CAPSCREW M8x20 UNI 5739	6
*RSTELR8	9	LOCK WASHER UNI 9195B D8	6
01.0155	10	WORM SCREW(FOR GEAR RING Z=46)	1
01.0151	10	WORM SCREW(FOR GEAR RING Z=60)	1
*CHVSF05X05X15	11	SPLINE 5x5x15	1
*CSC7304	12	BEARING 7304	2
01.0067/03	13	GASKET (0,3)	2
01.0067/05	13	GASKET (0,5)	2
01.0010	15	BUSHING	3
01.0040	16	TEFLON DISC	2
*MLL008	17	TEFLON DISC SPRING	2
01.0009	18	BUSHING	1
*PRL32X42X7	19	OIL SEAL 32x42x7	1
01.0146	20C	SHORT SHAFT	1
01.0143	20M	MEDIUM SHAFT	1
01.0144	20L	LONG SHAFT	1
01.0006	21	SPLINE 8x8x25	2
01.0008	22	SPLINE 8x8x45	2
*VTSTEIPC10X12Z	23	CAPSCREW UNI 5927 M10x12	2
*TPPESINC3/8	24	PLUG 3/8" G	4
01.0559	26	CLUTH HANDLE	1
	26/1	SHAFT	1
	26/2	PIN	1

COD.	REF.	DESCRIPTION	Q.TY
01.0569	28C	SHORT MOUNTING ANGLE	1
01.0570	28M	MEDIUM MOUNTING ANGLE	1
01.0571	28L	LONG MOUNTING ANGLE	1
01.0572	28C	SHORT MOUNTING ANGLE (ROLLER FEARLEAD SIDE)	1
01.0574	28M	MEDIUM MOUNTING ANGLE (ROLLER FAIRLEAD SIDE)	1
01.0574	28L	LONG MOUNTING ANGLE(ROLLER FAIRLEAD SIDE)	1
*VTTE3/8X1Z	31	CAPSCREW 3/8"x1"-16UNC ANSI B.18.2.1	7
*RSTEL3/8"Z	32	LOCK WASHER 3/8"	11
*VTTCE3/8"X1"Z	33	CAPSCREW 3/8"x1"	1
*RSMFE32,5X41X2	37	THRUST WASHER 32,5x41x2	1
01.0028	39	CLUTCH FORK	1
01.0050	40	CLUTCH	1
*DD10AUTZ	41	LOCK NUT UNI7473 M10	1
*MLL019	42	CLUTCH SPRING	1
*RND10ZUNI6592	43	WASHER UNI 6592 D10	8
*VTSTEIPC06X10Z	45	CAPSCREW UNI ISO 7435 M6x10	1
*TPPPLD8,5	46	TEFLON PLUG D8,5	1
*TPPNYLD22	47	NYLON PLUG D22	1
*VTTE06X20Z	48	CAPSCREW UNI 5931 M6x25	3
*RND6ZUNI6592	49	WASHER UNI 6592 D6	22
01.0055	50	SPUR GEAR HOUSING	1
01.0054	51	SPUR GEAR HOUSING COVER	1
01.0098/05	52	SPUR GEAR HOUSING GASKET	1
*SGRE19	53	SNAP RING D19	1
*VTTCE06X40Z	54	CAPSCREW UNI 5931 M6x40	4
*CHPRNINGRO5X05X4	55	SPLINE 5x5x40	1
01.0003	56	SHAFT	1
01.0019	57	SPUR GEAR Z=56	2
01.0020	58	IDLER GEAR Z=20	1
01.0464	59	BRASS THRUST WASHER 19,2x35x2,5	2
01.0423	60	BUSHING 19x25x12,5	3

JE 2700/3600 12V/24V CE WINCH PARTS LIST (sx mounting)

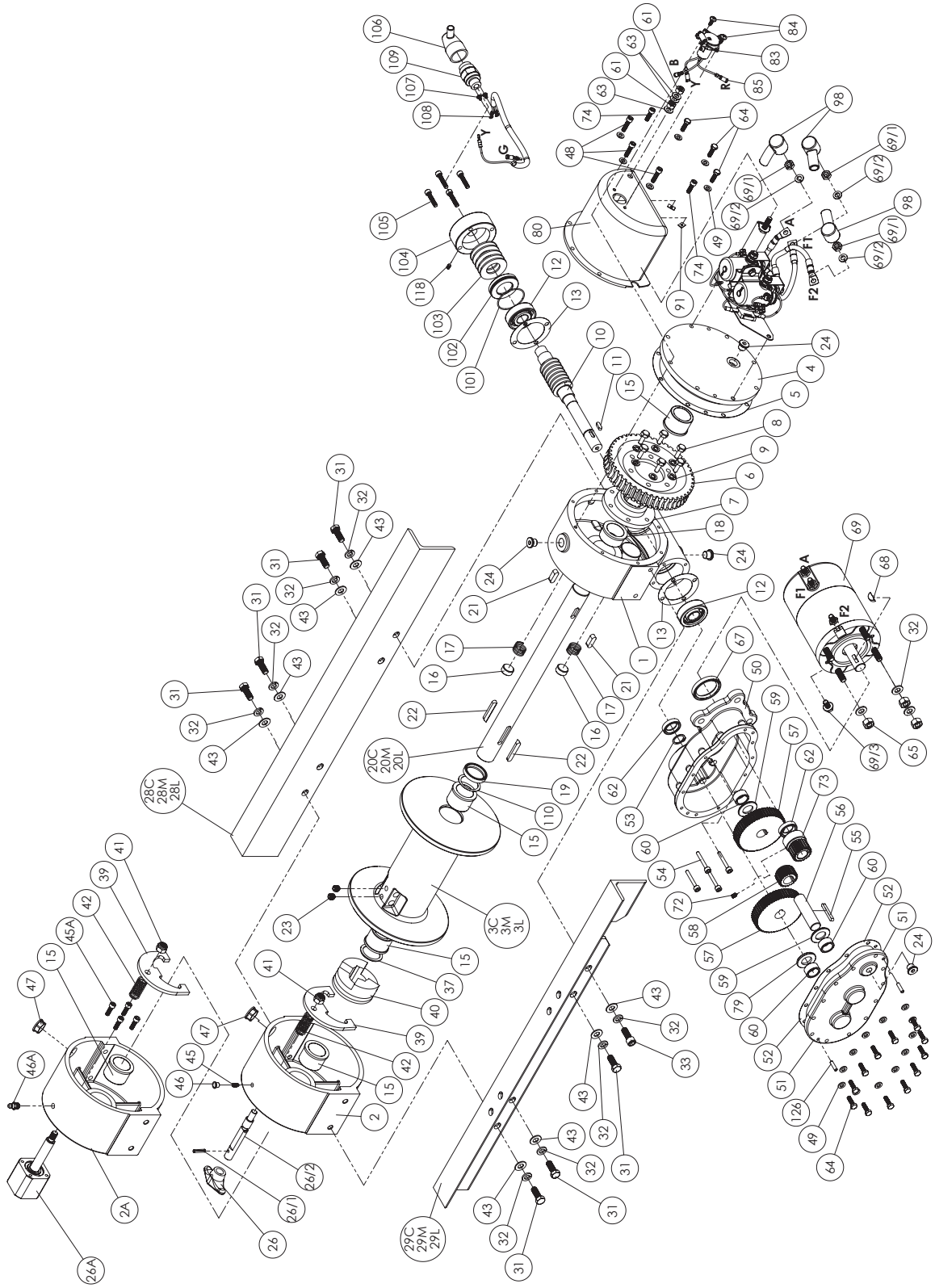
COD.	REF.	DESCRIPTION	Q.TY
*DD080T	61	BRASS NUT M8	2
*PRL19X32X7	62	OIL SEAL 19x31x7	2
*RND80T	63	BRASS WASHER D8	3
*VTTE06X20Z	64	CAPSCREW M6x20 UNI 5739	15
*DD3/8Z	65	NUT 3/8" UNF	3
*PRL38X52X7	67	OIL SEAL 38x52x7	1
*CHMTR4,75X7,5	68	ELECTRICAL MOTOR SPLINE 4,75x7,5	1
*MTREL12V	69	ELECTRICAL MOTOR 12V	1
	69/1	NUT	3
	69/2	LOCK WASHER	3
	69/3	GROUND CAPSCREW	1
*MTREL24V	69	ELECTRICAL MOTOR 24V	1
	69/1	NUT	3
	69/2	LOCK WASHER	3
	69/3	GROUND CAPSCREW	1
*VSTEIPC06X8Z	72	CAPSCREW UNI 5927 M6x8	1
*01.0042	73	PINION GEAR Z=20	1
*VTTCE06X20Z	74	CAPSCREW UNI 5931 M6x20	2
01.0058	75	SOLENOID BRACKET	1
01.0057	76	COPPER STRAP	1
01.0051	77	COPPER LONG STRAP	1
*VTTE6X16	78	CAPSCREW M6x16 UNI 5739	2
01.0465	79	BRASS THRUST WASHER 19,2x35x3,5	1
01.0068	80	COVER	1
*SPNF11409	82	PLUG	1
*SPNM11410	83	SOCKET	1
*VTAUT5,5X16Z	84	SELF-TAPPING SCREW 5,5x16	2
*PRSCILRSF461305	85	SOCKET RS.F4	3
01.0053	90	COPPER STRAP	2
*PRSTLRPS006	91	LOCK WASHER EXTERNAL	2
01.0275	94	WIRE-ELECTRICAL MOTOR	3
01.0048	95	COPPER STRAP	1
01.0555	96	GROUND WIRE (ONLY 24V)	1
01.0554	97	BLACK WIRE	1

COD.	REF.	DESCRIPTION	Q.TY
*PPTM21107	98	RUBBER BOOT	4
01.0553	99	YELLOW WIRE	1
*FSBL15ADIN75281	100	FUSE 15A DIN 75281	1
*OR2187	101	O-RING 47,37x1,78	1
01.0313	102	THRUST ACTUATOR	1
*MLL50X25,4X2,4	103	DISC SPRING 50x25,4x2,5	5
01.0312	104	LIMITING SWITCH FLANGE	1
*VTTCEI06X30Z	105	CAPSCREW UNI 5931 M6x30	4
*17.122.004.01	106	RUBBER CAP	1
*VTTSEI4X10Z	107	CAPSCREW M4x10 UNI 5933	2
01.0552	108	LIMITING SWITCH ELECT.CABLE	1
*17.176.000.01	109	LIMITING SWITCH BUTTON	1
*RSMFE32,5X41X0,2	110	THRUST WASHER 32,5x41x0,2	1
01.0292	111	LIVE WIRE (0,5 MT)	1
*SLND12V	112	SOLENOID 12V	2
	112/1	LOCK WASHER	2
	112/2	NUT	2
	112/3	LOCK WASHER	8
	112/4	NUT	8
01.0293	113	LIVE WIRE (1,5 MT)	1
*PLSTCE	114	CE REMOTE CONTROL SWITCH	1
*CV3X1FROR	115	WIRE-CE REMOTE CONTROL SWITCH	1
*DD6Z	117	NUT M6 UNI 5587	2
*VTSTEIPC5X10Z	118	SET SCREW UNI 5927 M5x10	1
*SLND24V	124	SOLENOID 24V	2
	124/1	LOCK WASHER	4
	124/2	NUT	4
	124/3	LOCK WASHER	8
	124/4	NUT	8

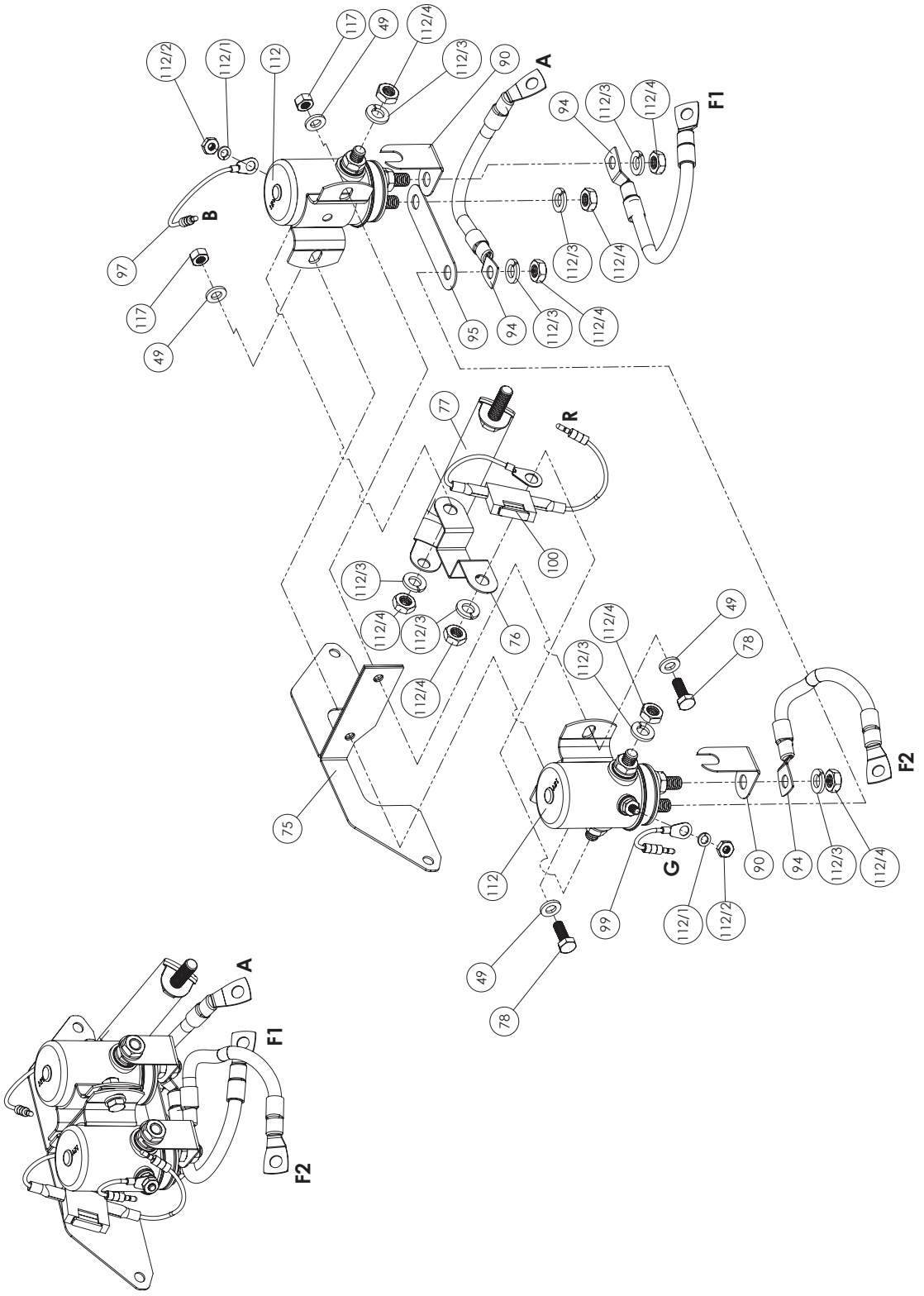
JE 2700/3600 12V/24V CE WINCH PARTS LIST (sx mounting)

COD.	REF.	DESCRIPTION	Q.TY
	127	BATTERY SWITCH	1
	127/1	NUT M8 UNI 5587	2
	127/2	LOCK WASHER D8 UNI 1751	2
*STCBTTR 08.099.000	127/3	PLUG	1
	127/4	RUBBER CAP	1
	127/5	POWER KEY	1
01.0091/P	2A	AIR CLUTCH HOUSING	1
01.0010	15	BUSHING	1
01.0279	26A	AIR CYLINDER	1
01.0028	39	CLUTCH FORK	1
*DD10AUTZ	41	LOCK NUT UNI 7473 M10	1
*MLL019	42	CLUTCH SPRING	1
*VTTCEI6X20Z	45A	CAPSCREW UNI 5931 M6x20	4
*INGS10X01D	46A	LUBRICATOR M10X1 UNI 7663-A	1
*TPPNYLD22	47	NYLON PLUG D22	1
01.0237		GROUND WIRE (BLACK 2 MT)	1
*ADE005		STICKER ("B" ROTATION)	1
*ADF002		MOTOR STICKER	1
*ADE009		STICKER (12V)	1
*ADE009		STICKER (24V)	1
01.0428		CE REMOTE CONTROL SWITCH WITH WIRE AND PLUG	1
		12V CE SOLENOIDS ASSEMBLY	1
		24V CE SOLENOIDS ASSEMBLY	1
01.0556		12V CE SOLENOIDS ASSEMBLY WITH COVER AND SOCKET	1
01.0557		24V CE SOLENOIDS ASSEMBLY WITH COVER AND SOCKET	1
*TRG001		LABEL	1

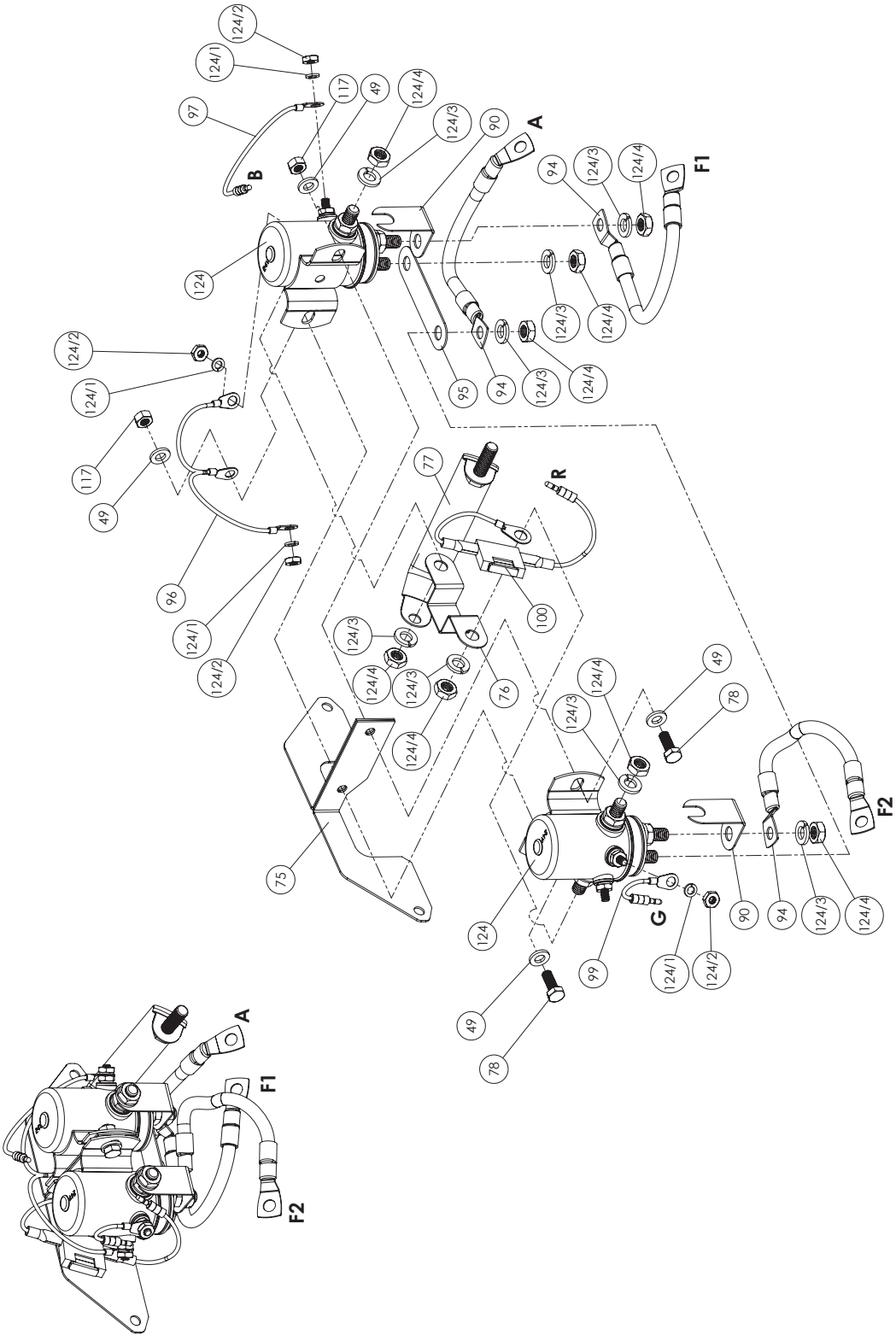
7.7 JE 2700/3600 12V/24V CE WINCH PARTS DRAWING (sx mounting)



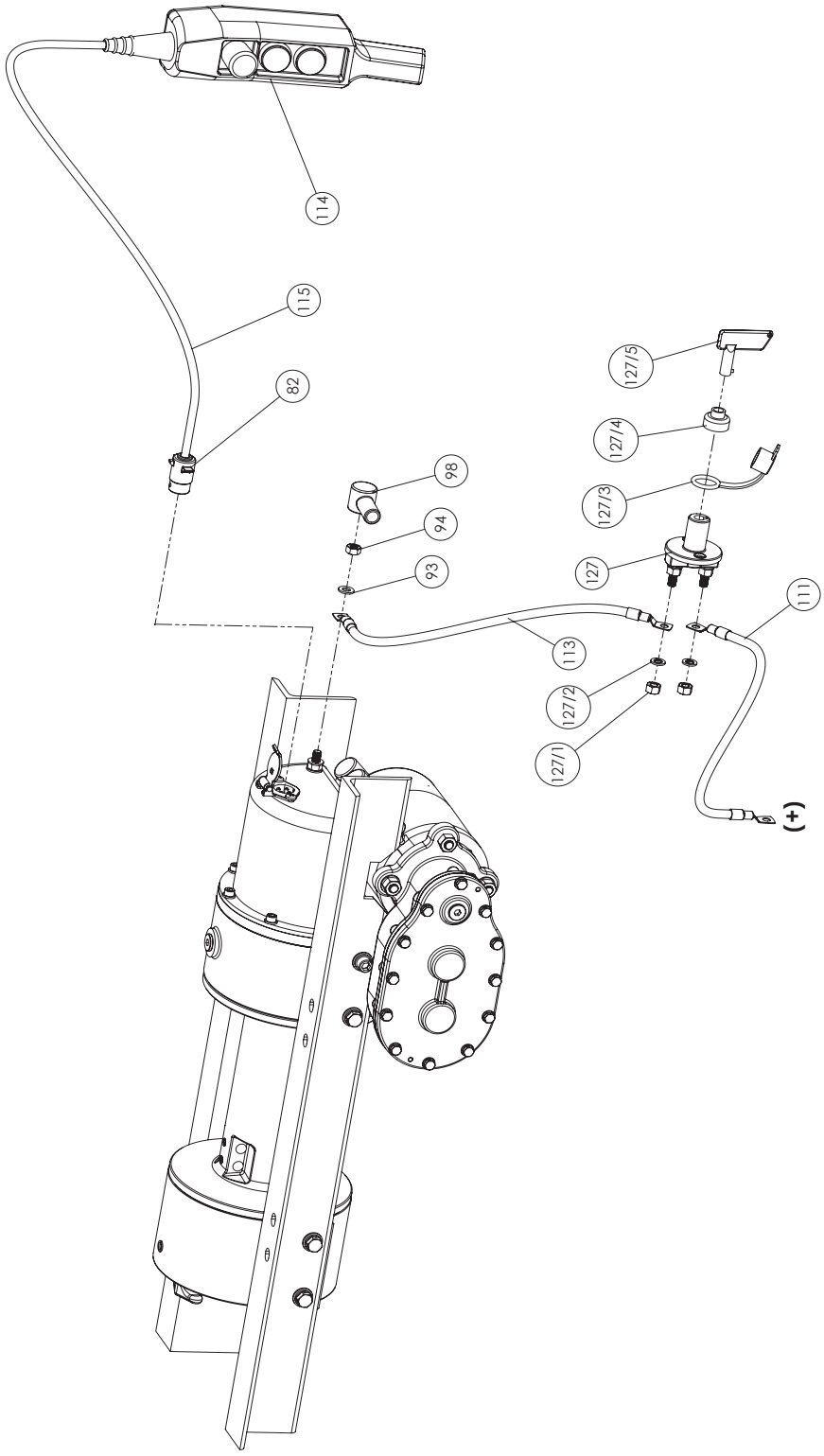
7.8 JE 2700/3600 12V CE SOLENOIDS ASSEMBLY PARTS DRAWING (sx mounting)



7.9 JE 2700/3600 24V CE SOLENOIDS ASSEMBLY PARTS DRAWING (sx mounting)



7.10 JE 2700/3600 12V/24V CE REMOTE CONTROL SWITCH AND BATTERY SWITCH PARTS DRAWING (sx mounting)

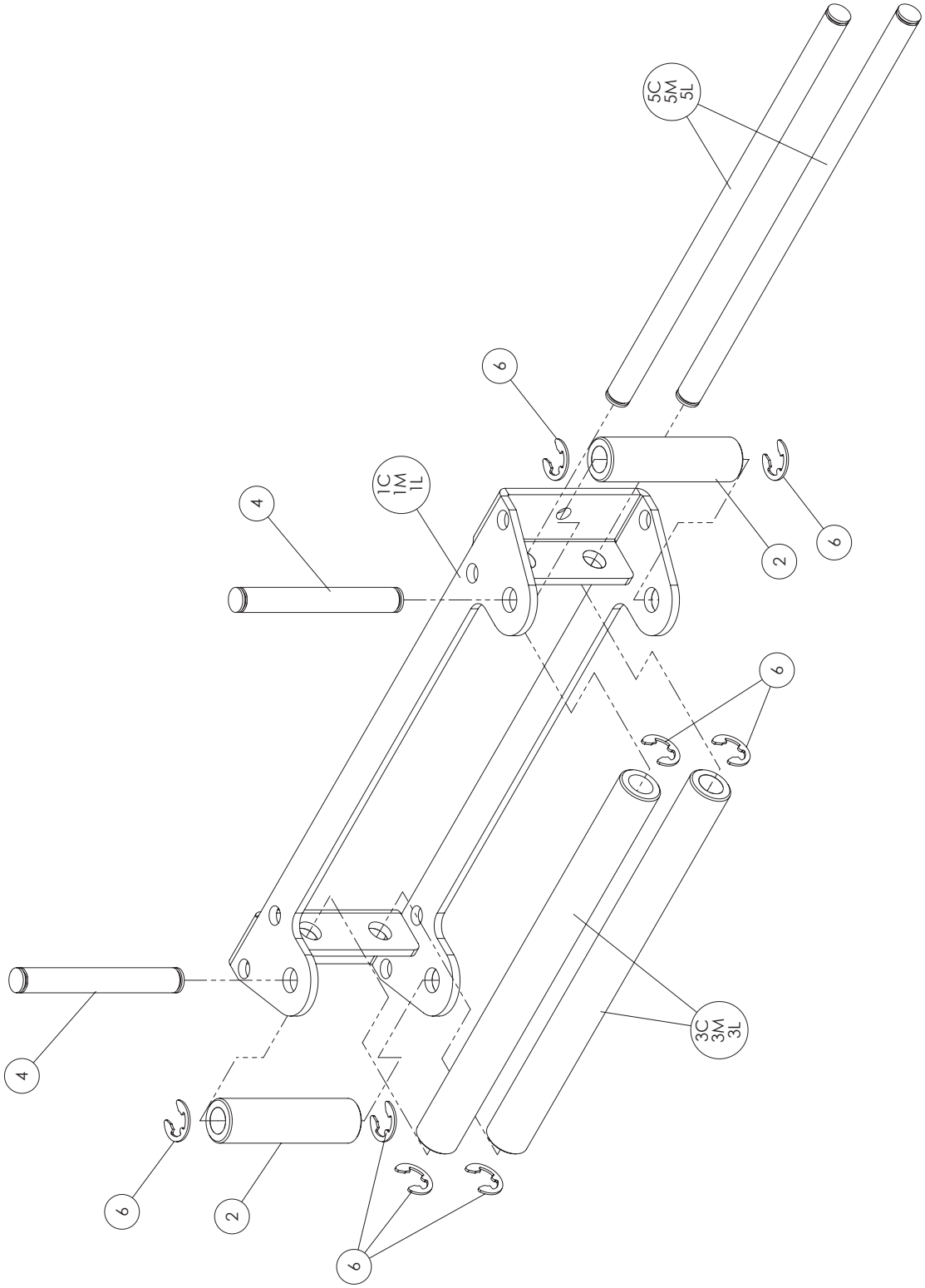


7.11 JEC JEM JEL STANDARD ROLLER FAIRLEAD PARTS LIST

COD.	REF.	DESCRIPTION	Q.TY
01.0157	1C	SHORT FRAME	1
01.0158	1M	MEDIUM FRAME	1
01.0159	1L	LONG FRAME	1
01.0161	2	VERTICAL ROLLER	2
01.0162	3C	SHORT HORINZONTAL ROLLER	2
01.0225	3M	MEDIUM HORINZONTAL ROLLER	2
01.0246	3L	LONG HORINZONTAL ROLLER	2
01.0163	4	VERTICAL ROLLER SHAFT	2
01.0164	5C	SHORT HORIZONTAL ROLLER SHAFT	2
01.0224	5M	MEDIUM HORIZONTAL ROLLER SHAFT	2
01.0245	5L	LONG HORIZONTAL ROLLER SHAFT	2
*SGRE12	6	SNAP RING D12	8
		BOLTS AND NUTS MOUNTING	
*VTTE10X20Z		CAPSCREW TE UNI 5739 M10x20	2
*DD10BZ		THIN NUT UNI 5589 M10	2
*RSTELR10Z		LOCK WASHER UNI 9195B D10	2

COD.	REF.	DESCRIPTION	Q.TY

7.12 JEC JEM JEL STANDARD ROLLER FAIRLEAD PARTS DRAWING



7.13 JEC JEL ROPE TENSIONER PARTS LIST

COD.	REF.	DESCRIPTION	Q.TY
01.0389	1C	SHORT FRAME	1
01.0376	1L	LONG FRAME	1
01.0502	2C	SHORT ROLLER	1
01.0504	2L	LONG ROLLER	1
01.0561	3C	SHORT ROLLER SHAFT	1
01.0562	3L	LONG ROLLER SHAFT	1
*VTTSE6X16Z	4	CAPSCREW UNI 5933 M6x16	2
01.0372	5	SUPPORT	2
11.0373	6	BUSHING	1
11.0215	7	DX SPRING	1
	8	WASHER 12,5x48x2,5	2
*DD12AUTZ	9	LOCK NUT UNI 7473 M12	2
11.0215	10	SX SPRING	1
*VTTE12X60Z	11	CAPSCREW 5737 M12x60	2
		BOLTS AND NUTS MOUNTING	
*VTTCE10X30Z		CAPSCREW UNI 5931 M10x30	2
*RND10ZUNI6592		WASHER UNI 6592 D10	2
*DD10AUTZ		LOCK NUT UNI 7473 M10	2

COD.	REF.	DESCRIPTION	Q.TY

7.14 JEC JEL ROPE TENSIONER PARTS DRAWING