

# Manual for VTF-series Imatrans Winches

Type : VTF xxxx  
Imatrans serial number : xx/xxxx  
Customer ref number :

These data also need to be present on the type plate on the winch

## Read this manual before using these products

This manual contains important safety, installation operation and maintenance information. Make this manual available to all persons responsible for the operation, installation and maintenance of these products.

Do not use this winch for lifting or transporting people or lifting or supporting over people. Always use, inspect and maintain this winch in accordance with the European Machine Directives and any other applicable safety codes and regulations.

## Guarantee and Liability

Imatrans warrants its products to be free of defects in material and workmanship for one year from the date of purchase. Imatrans will repair, without cost, any product found to be defective, including parts and labour charges, or at its option, will replace such products or refund the purchase price. Repairs or replacements are warranted for the remainder of the original warranty period. If any product proves defective within its original one year warranty period, it should be returned to any Authorised Tool Service Distributor, transportation prepaid with proof of purchase.

This warranty does not apply to products which Imatrans has determined to have been misused or abused, improperly maintained by the purchaser or where the malfunction or defect can be attributed to the use of non-genuine Imatrans repair parts. Warranty is also not applied when malfunction is caused by wear. Seals cannot be claimed under guarantee. Unless agreed otherwise, no guarantee is provided for goods that were (in the main) not new at the time of delivery.

IMATRANS MAKES NO OTHER WARRANTY, AND IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

Imatrans' liability is limited to the purchase price of the product and in no event shall Imatrans be liable for consequential, indirect, or special damages of any nature arising from the sale or use of Imatrans products.

For more delivery and payment conditions see your invoice.

**IMATRANS**  
WINCHES AND CAPSTANS

's Gravendamseweg 53  
2215 TC Voorhout—Holland  
Tel.+31 (0) 252 24 10 60  
Tel.+31 (0) 252 24 10 69  
[mail-info@imatrans.nl](mailto:mail-info@imatrans.nl)

Release 1.0

## 1.0 WINCH DESCRIPTION AND IDENTIFICATION

### 1.1 General description of VTF winches

VTF winches are industrial quality winches of very compact dimensions. The VTF winches are executed with a drum suspended only on the transmission side.

Depending on the customers choice the winch can be driven by electric (VTF.../E), pneumatic (VTF.../P) or hydraulic (VTF.../H) motors.

Depending on the motor type fitted to the winch an electro magnetic motor brake, or an air or hydraulic operated transmission brake is fitted.

Refer to section 'Technical Data' to see what motor brake combination is fitted to your particular winch.

The winches can be fitted with a number of options most commons are:

Grooved drum	Limit switches
Pressure roller	Special paint systems

If special equipment is fitted to your winch, this is listed in section "Technical Data"

If no special equipment was fitted to your winch this will be stated as such

Fig. 1. Basic VTF winch (electric) with identification of main components

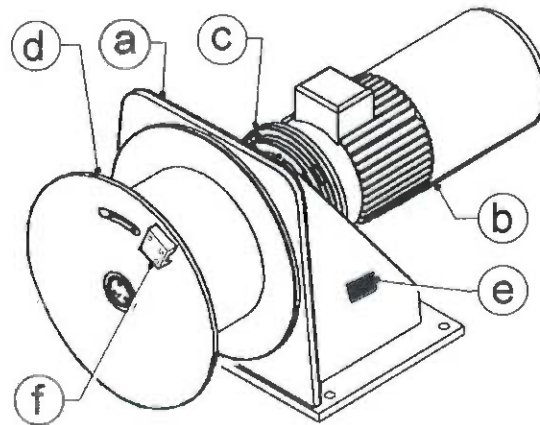


Fig. 1. Identification of main components

a) frame	c) gearbox	e) type plate
b) motor with brake	d) drum	f) cable clamp

### 1.2 Location of identification plates

To enable the winches to be identified name plates are fitted to the winch.

The information on the name plates is of great importance when asking for technical assistance about the winches or ordering spare parts. See fig. 1 for location of name plate (typical).

## 2.0 GENERAL SAFETY INFORMATION



- 1 The use of the VTF winches without securing the winch properly to the mounting surface is dangerous and is not permitted.
- 2 If the winch is not certified for 'Man riding' it is not permitted to lift or support people with it.
- 3 Make sure that no bystanders or objects are present in the immediate vicinity of the winch before operating the winch.
- 4 Make sure any transport and lifting operation of the winch or its parts is carried out in safety.
- 5 Pay attention to the trajectory of the load (overhead power cables, hydraulic lines etc.)
- 6 Observe the wind speed and direction while lifting and stop work if control of the load can no longer be guaranteed.
- 7 If during operations with the winch a thunderstorm is imminent the work should be stopped, all electrical connections should be removed and a safe cover should be sought for all staff.
- 8 Make sure that during maintenance of the winch all power is sufficiently shut down
- 9 Do not allow non authorised staff to work with or on the winch.
- 10 Repair damage or malfunctions of the winch immediately and do not operate the winch until the winch will function correctly again.
- 11 Discard used lubricants, solvents , parts and cleaning materials in keeping with the local environmental legislation, or if possible better.

And to conclude, use your common sense.

### 3.0 INSTALLING THE WINCHES

#### 3.1 Mechanical Installation

Make sure the winch is positioned correctly.

Make sure the winching direction corresponds with the rope run off for which the winch is designed.

The surface to which the winches are being mounted should be absolutely flat, either by construction or by filling out low spots between winch and mounting surface. Failure to observe this can lead to distortion of the winch frame and may lead to premature failure of the winch.



**Warning: Make sure the mounting surface is strong enough to support the combined weight of the winch, the rope and the load**

If the mounting surface is suitably prepared depending on the winch execution the winch is either bolted (advised) or welded to the mounting surface.

Always use bolts that correspond with the mounting hole in the frame, use the correct grade (8.8) and torque the bolts evenly to the applicable torque figures.

#### 3.2 Electrical Installation (if applicable)



**WARNING : Only a qualified electrical engineer should perform installation or modifications**

The motor must be connected to a control box that is fitted as a minimum with control relays of sufficient capacity for the following functions:

up, down, emergency stop in main supply and a thermal relay to protect the motor

For lifting applications over one tonne capacity to be used within the EC area an electronic load limiter must be installed in the control circuit.

Before connecting the electric cable from the control box to the motor make sure the cable free of power. then verify that the current available from the mains is the same as that indicated on the tag-plate on the electric motor. If not, contact your supplier and stop further installation. Also verify if the electric motor runs in delta or in star connection (indicated on the tag plate).

On the inside of the junction box a diagram is provided that shows the different connections that can be made inside the junction box (delta or star). If any doubt, please contact your supplier. Be sure that the wire cross section corresponds with the current drawn by a motor starting up (ca 3 times the nominal power) and that the cable diameter corresponds with the gland diameter in the junction box

After a thorough check of connections, then close the junction box.

If so required an Imatrans control box can be supplied at extra cost with the winch:  
If a control box is delivered with your winch the control box in most cases will be connected to the winch either with unit-colour installation wire or with the final electrical cable if so ordered..  
In the latter case only the connections to the mains will have to be made inside the control box.

In the other case the connections between the control box and the winch motor have to be replicated with the proper cross section colour coded cable.

The electrical diagram for the control box is fitted to the inside of the control box cover.  
See section "Technical Data" for controls delivered with your winch.



**Warning :Do not change the settings of the relays installed in the control box**

### 3.3 Pneumatic or hydraulic installation (if applicable)



**WARNING : Only a qualified engineer should perform installation or modifications**

VTF...../P winches are most common fitted with pneumatic vane motors.  
VTF...../ H winches are most common fitted with hydraulic orbit motors  
If no controls are ordered with the winch the motor ports will be blanked off for installation of supply piping by the customer.

The installation of VTF /P winches by the customer should at least include a control valve and a lubricator filter unit.

The distance between motor and the lubricator must be less than 2-3 meters to achieve a satisfactory lubrication of the motor.

Supply lines and control valve size should be at least the size of the motor ports preferably bigger.

The air hoses fitted between the motor and the control valve should be routed in such a way that no acute bends are present and that the supply lines do not exert a force on the motor and the piping

Pipes, hoses and fittings should be thoroughly cleaned before installation and open ends should be blanked off after cleaning.

As an extra cost option the winches can be supplied with a pre-fitted control valve pneumatic as well as hydraulic.

If so delivered the piping between the control valve and the motor is already fitted at the factory.

The customer has to make the connections between the air /oil supply and the valve.

The above section about lubrication and diameter of hoses and their routing is also fully applicable to installation of the supply lines.

### 3.4 Installation of steel wire rope

The winches are intended for use with right hand lay rope which is to be fitted by the end user. Inspect the wire rope at regular intervals for damage, and replace when necessary. For a safe operation of the winch at least 3 safety windings should always remain on the drum, this in addition to the rope anchors provided.

Two types of rope anchors are in common use on Leopard winches

- clamps fitted with bolts to the drum
- wedge in chamber

See fig. 3-1 for their identification.

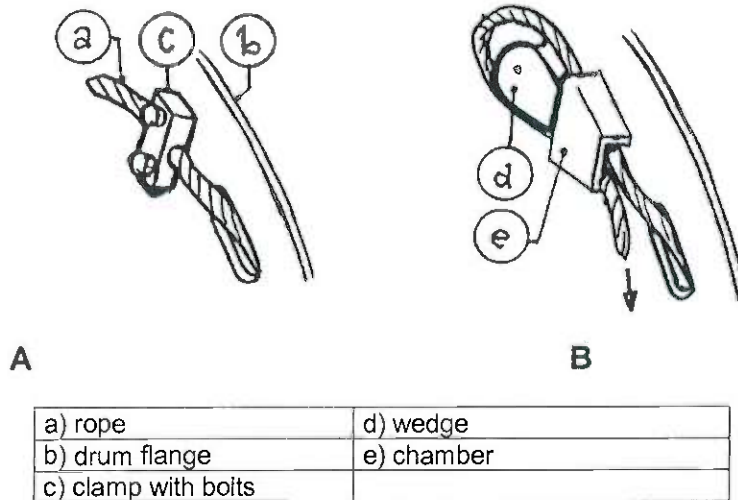


Fig. 3-1 different cable terminations on drum



#### **Safety Note**

Before operating the winches, make sure they are installed safely and securely. Make sure that the winch and ropes are clear and nobody is working on or near moving parts of the winch.

**Failure to observe this can lead to serious injury or damage**

### 3.5 Test run

After installing the winches (or after major maintenance or repair work) carry out a test run.

First make sure that all connections are made properly and are tight.

Make sure all oil levels are checked and are in correct, and only then attempt the test run.

Check that the winch operates without undue mechanical noise and vibration.

Stop the winch when noise or vibration is observed, and establish the cause.

The criteria for noise and vibration are:

#### **Gearbox**

Grinding noises are not permitted, housing temperature should be the same as the ambient temperature or slightly above.

## 4.0 MAINTENANCE OF WINCH AND LUBRICATION OF PLANETARY GEARBOX

### 4.1 Maintenance of winch

#### 4.1.1 Structure

Periodically check tightness of nuts and or bolts on the winch especially during the first period of operation.

Clean the winch at regular intervals

#### 4.1.2 Planetary gearbox

Check the oil level in the gear box at regular intervals (see section 4.2)

Clean the gearbox at regular intervals, and check for oil loss.

If oil loss is observed remedy the cause and refill the gearbox.

#### 4.1.3 Motor

The motor requires no special attention from the operator other than cleaning of the exterior.

Refer for motor details to section 'Technical Data'

### 4.2 Oil change intervals of planetary boxes

The first oil change of the gearbox should be made after running in time i.e. 20-50 working hours. Subsequent oil changes should be made every 2000 – 2500 working hours, or at least once a year. If synthetic oil is used the oil only needs to be changed after 2500 hours of operation. The annual oil change is not needed.

### 4.3 Checking the oil level in the gearbox (imperative before starting up)



**Warning: The oil in the gearbox should be checked before commissioning, and every 6 months thereafter, or as soon as oil loss is suspected.**

In most cases only a planetary gearbox is fitted but occasionally also a worm gear box can be fitted (to get a better gear ratio or for emergency operations). Oil level of both gearboxes should be checked before commissioning, and every 6 months, or sooner in case oil loss is suspected.

Most gearboxes are fitted with a level glass trough which the oil level can be checked. The oil level should be in the bottom of the glass or slightly above. If no level glass is fitted the level must be checked by removing the level plug.

#### 4.3.1 Checking oil level in the planetary gearbox

Place a suitable container (volume at least 20% greater than gearbox volume) under the gearbox. Remove the level plug on the side of the gearbox and check if oil can be seen in the bottom of the hole or runs out. If not, fill to the required level. see Fig. 4-1 for location of plugs (typical).

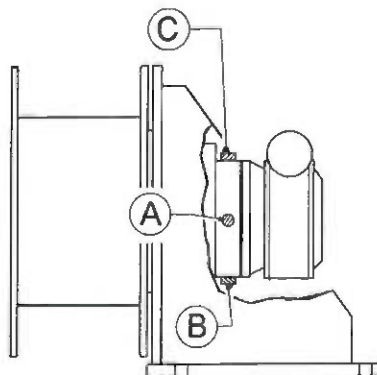


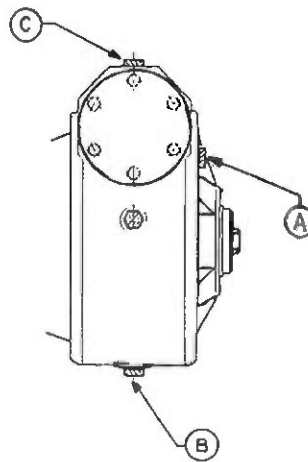
Fig. 4-1 Location of gearbox plugs

A) Level plug	B) Drain plug	C) Filler plug
---------------	---------------	----------------

#### 4.3.2 Checking the oil level in the worm gearbox

Place a suitable container (volume at least 20% greater than gearbox volume) under the gearbox. Remove one of the level plugs on the side of the gearbox and check if oil can be seen in the bottom of the hole.

If not, fill to the required level, alternatively let access oil drain out. see fig. 4-2 for location of worm gearbox plugs,



A) Level plug	B) Drain plug	C) Filler plug
---------------	---------------	----------------

#### 4.4 Changing the oil in the planetary or worm gearbox

Place a suitable container, that should be able to hold 20% more than the gearbox volume under the gearbox drain plug. (see section 'Technical data' for oil volume).

Remove the filler plug and the drain plug from the unit, and allow the gearbox to drain completely. Preferably drain the oil when warm. Refit the drain plug and tighten.

Remove the level plug on the side of the gearbox to observe the oil level, and fill the box through the filler plug.

The required level is reached when oil can be seen in the bottom of the level plug hole.

See fig. 4 -1 and fig 4-2 for location of plugs, See section 'Technical Data' for filling volume(s). Correct volume can only be established with by means of the level plug.

#### 4.5 Oil specification

The gear box should be filled to the required level with the oil shown below or an equivalent. See section 'Technical Data' for filling volume

##### Mineral lubricant (standard filling)

Ambient temperature	-10°C + 30°C	+20°C + 45°C
ISO class	VG 150	VG 220
First oil fill at factory	BP Energol GR XP 150	BP Energol GR XP220

##### Synthetic lubricant (extra cost option)

Ambient temperature	-10°C + 30°C	+20°C + 45°C
ISO class	VG 150	VG 220
First oil fill at factory	-----	BP Enersyn HTX220





**IMPORTANT:** Synthetic lubricants can not be mixed with and are not compatible with conventional mineral base lubricants

If the oil is changed from mineral to synthetic the gearbox should be thoroughly flushed before refilling.

For temperatures outside the above ranges our technical department should be consulted.

**4.6 Lubrication of radial piston motor (when fitted)**

If a radial piston motor with brake is fitted to the winch, observe the following.

Radial piston air motors have a separate oil reservoir of which the oil must be checked at regular intervals. Refer for motor details and motor lubrication to section 'Technical data'

See fig 4-2 for location of plugs, See section 'Technical Data' for filling volume. Make sure that the motor is as horizontal as possible during checking the oil level.

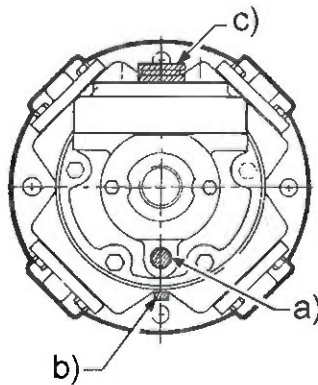


Fig. 4-1 Location of gearbox plugs

A) Level plug	B) Drain plug	C) Filler plug
---------------	---------------	----------------

## 5.0 Storage and handling

### 5.1 Long term storage

When storing the units for a prolonged period time (more than two months), special care should be taken to avoid corrosion damages especially to air motors when fitted.

The storage facility should be dry, with a constant temperature, not lower than 5 deg C and not higher than 40 deg C.

Additionally air motors should be generously lubricated on the inside with light lubrication oil.

If outdoor-storage can not be avoided, place the winch on blocks, or shelves, out of contact with the ground, carefully covered with a waterproof cover. The gearbox should be completely filled with oil in those cases.

The unpainted metal parts should be protected with a suitable dry lubricant film or similar corrosion protection agent.

This corrosion preventive film should be removed before the winch is being commissioned. Also the excess oil in the gear box if present must be drained off according to section 4.0

In some cases the winches are shipped with a closed filler plug fitted to the gearbox. Before the winches are being commissioned make sure this plug is replaced with a breather/filler plug to prevent damage to the gearbox.

In most cases the breather plug should be installed on the top of the gearbox. In cases where the winch is mounted in a position other than "feet down" the breather plug should be in the position that will be on top of the winch after installation.

### 5.2 Handling and lifting instructions

The winches are most times shipped screwed to wooden pallets with special attention that no parts of the winch are outside the contour of the pallet.

These pallets can not be stacked when the winches are on them.

Depending on the winch size and weight the winches can be man handled or should be moved using suitable equipment and pallets.

For the bigger winches a forklift with adequate capacity should be used, making sure the winch is properly balanced on the forks when lifting.



**Safety note: Always take great care lifting or hoisting machinery, and take all necessary precautions to prevent damage or injury to man and material.**

## 6.0 TECHNICAL DATA SHEET

Manual collating list:

Sections: 0, 1, 2, 3, 4, 5, 6, 7

### 6.1 Basic data

Type of winch : VTF  
Serial number of winch : xx/xxxx  
Production date : xx-xxxx

### 6.2 Winch data

Line pull : kg 1<sup>st</sup> layer  
Speed : ca. 7 m/min  
Drum diameter :  $\varnothing$ 406 mm  
Drum length : 310 mm  
Drum capacity : .....metres of ... mm steel wire in . layers  
Weight of winch with oil : ca. ....0 kg  
Surface protection : 2 component paint Ral 5010 (C4)

### 6.3 Planetary gear box:

Trasmittal 307 L3 HZ E0AG i=284

Oil capacity ca. 5,0 litres

### 6.4 Motor

IEC 132 7,5 kW S2 – 400 V - 50 Hz – 3 phase –IP56 TENV

Motor brake: K7, 80 Nm

### 6.5 Controls

Control box with load limiter fitted on the winch

Pendant control with 3 m' of cable and pushbuttons: Up – down – Emergency stop

### 6.6 Other equipment fitted to the winch

Drum guard

## 7.0 GENERAL ASSEMBLY AND SPARE PARTS VTF- WINCHES

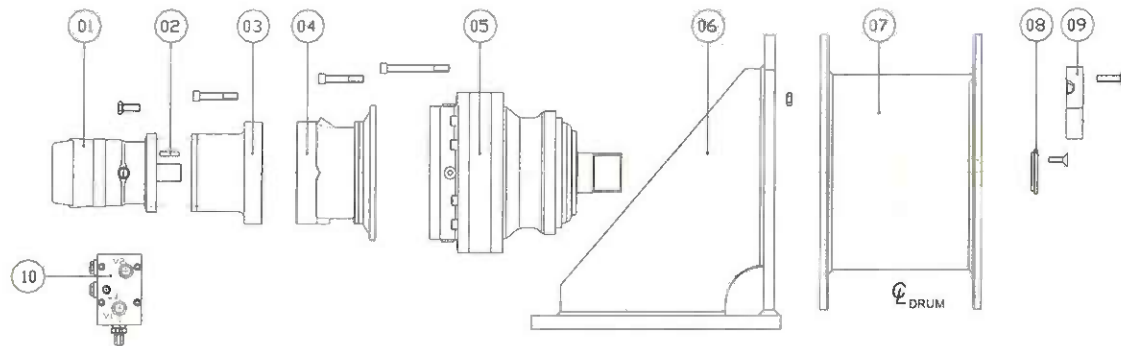


Fig. 7-1 Parts drawing (typical winch hydraulic)

Index	name	qty	remarks
01	Hydraulic motor	1	Hydraulic or Pneumatic optional
02	Key	1	Between motor and transmission
03	Adapter flange	1	
04	Transmission brake	1	Hydraulic or Pneumatic motors only
05	Transmission	1	Planetary only, worm gearbox n.i.
06	Frame	1	
	Spline flange (W0A) Not indicated	1	Welding version (M0A) is part of the drum construction
07	Drum	1	Optionally grooved
08	Locking plate	1	
09	Cable clamp (or cable wedge)	1 or 2	Execution depending on winch size
10	Brake valve	1	Single acting valve is drawn