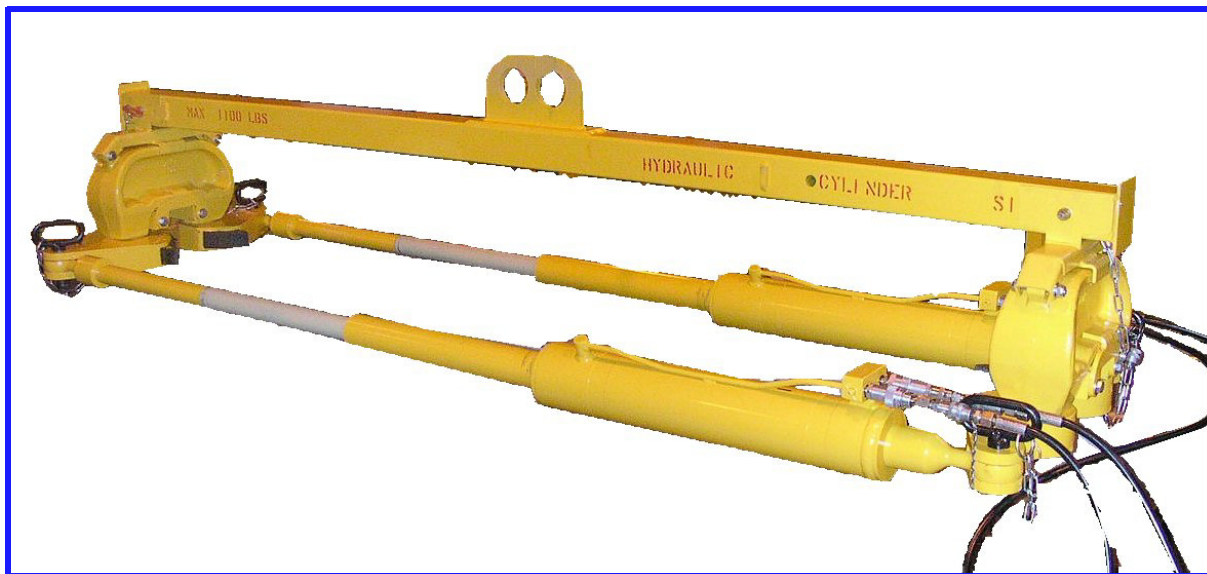


INSTRUCTIONS FOR USE AND MAINTENANCE



Model **HYDRAULIC RAIL TENSOR**

Type **TH 70 STP**

GB

Code :

H77646_1017

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HYDRAULIC RAIL TENSOR

TYPE TH 70 STP

SUMMARY

H77646_1017

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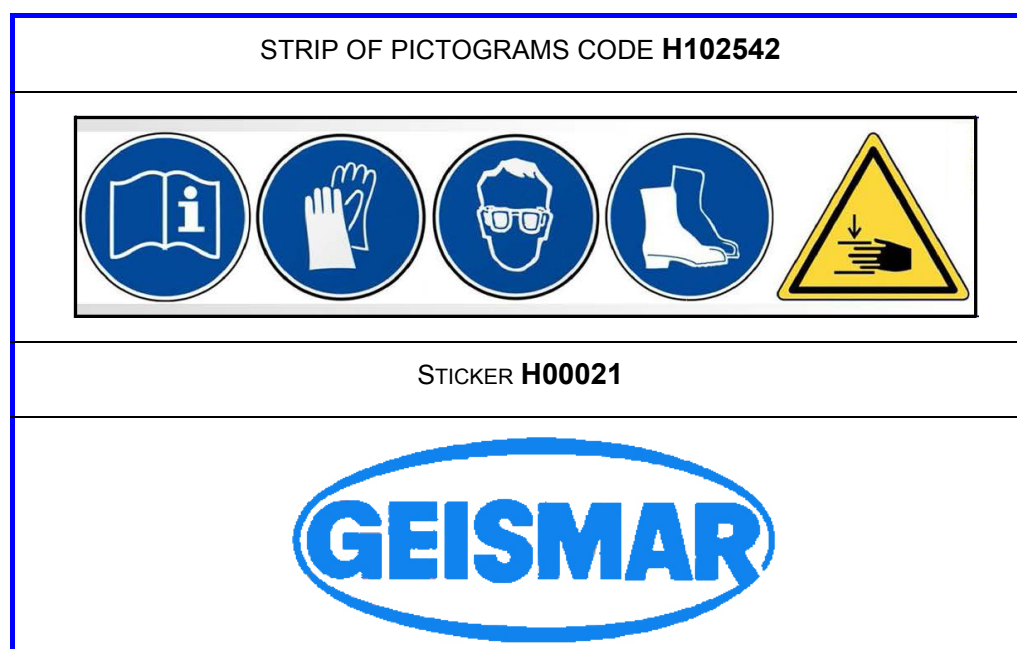
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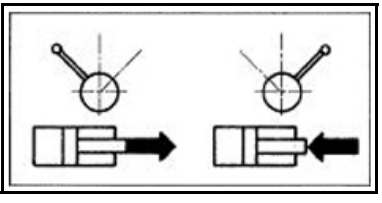

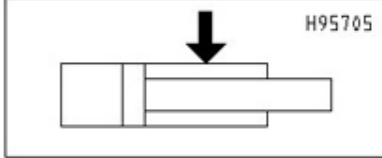
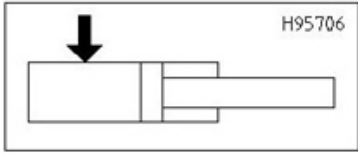
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H77646_1017	HYDRAULIC RAIL TENSOR TYPE TH 70 STP SUMMARY
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Tensor Marking

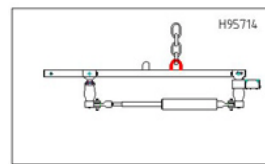
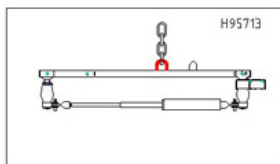


Lifting Beam Marking

STRIP OF PICTOGRAMS CODE H102541		
		
STICKER H00019	STICKER H96529	
	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> vanne d'isolement isolation cock Absperrventil </div>	
STICKER H102546		
<div style="border: 2px solid black; padding: 10px; font-size: 24px; font-weight: bold;">MAX 390 KG / 860 LBS</div>		
STICKER H102545		
<div style="border: 2px solid black; padding: 10px;"> COTE VERIN HYDRAULIQUE HYDRAULIC CYLINDER SITE HYDRAULIKZYLINDERSEITIGEN </div>		
STICKERS H40179	H96525	H83014
	<div style="border: 1px solid black; padding: 5px; font-size: 24px; font-weight: bold;">P T</div>	
STICKERS: H95705		H95706
		

STICKERS: **H95713**

H95714



STICKERS: **D15083**





Warnings

THE MANUFACTURER WILL ACCEPT NO LIABILITY IN THE FOLLOWING CASES

- Improper machine use, contrary to the instructions given in the operation and maintenance manual.
- Failure to comply with the periodical checking requirements stipulated by the manufacturer.
- Use by unauthorised persons and/or persons lacking the requisite professional skills.
- Consequences resulting from a misunderstanding of the operation and maintenance manual by the user.
- Failure to comply with the maintenance rules specified herein.
- Modifications or repairs not authorised by the manufacturer
- Use of spare parts whose quality and reliability do not match those of parts supplied by the manufacturer
- Use of lubricants, fuels and consumables different from those recommended in this maintenance manual.
- Exceptional or unforeseeable events.

USE OF THE OPERATION AND MAINTENANCE MANUAL

- The operation and maintenance manual is intended for heads of operations and staff in charge of servicing the machine as well as all workers having to carry out repairs. Their attention is drawn in particular to the chapters dealing with safety at work.
- The operation and maintenance manual provides the necessary information for correct use of the work equipment as intended by the manufacturer.
- The manual provides operation and maintenance instructions for the work equipment. It does not exempt the staff using the equipment from a proper training.
- The operation and maintenance manual is an integral part of the work equipment. It must be kept until the decommissioning of the machine.
- The operating and maintenance manual must be kept in a safe place inside the control station in order to always be at hand when needed.
- In case of loss or destruction of this manual, the user is bound to order a copy from the manufacturer.
- Users may ask the manufacturer to provide additional information and supplement the operation and maintenance manual in their possession with updates. Once provided, these items will become integral part of the operation and maintenance manual.
- If the work equipment is transferred, the user is requested to inform the manufacturer of the new owner's details.
- The user is required to deliver this operation and maintenance manual with the work equipment to the new owner.

In order to ensure permanent compliance with the legislation in force, the manufacturer reserves the right to make improvements to the work equipment and to the operating and maintenance manual without having to update previous editions.

Non contractual photographs illustrations



Dear customer,

Thank you for purchasing this equipment which has been manufactured by the **GEISMAR** group of companies.

We trust your confidence in us is rewarded and that you are completely satisfied with the equipment.

In order to guarantee the quality of its products and in accordance with its commitment to respect the Quality Assurance Procedures ISO 9001, the **GEISMAR** group tests all its products.

If the machine that you have just received is fitted with an hour meter which already displays a number of operating hours, this is due to all the tests and trials which have been carried out prior to its delivery.

Please pay detailed attention to the recommendations contained in this document.

To ensure this equipment continues to provide satisfaction care should be taken to use and maintain it in accordance with the instructions in this manual.

GEISMAR draws your attention to these essential points

- Respect the maintenance periods and use the lubricants recommended
- Use only original parts and do not make any modifications

Failure to do so may affect your warranty rights.

Furthermore, **modification of the machine without our written authorization** could result in the loss of conformity with the relevant standards.

The Group "**GEISMAR**" reminds you that accuracy in ordering of spare parts will enable prompt supply, and consequently ensure the productivity of your equipment.

Our equipment is designed and manufactured in accordance with the latest advanced techniques, and should provide you with the services that you expect.

We remain fully at your disposal.

Société des Anciens Établissements L. GEISMAR

Chapter 1 – Safety

1 – 1 Foreword

The official regulations applied in the user country take priority over the safety regulations and usages described in this chapter. It is up to the person in charge of the equipment to make sure that these instructions are in line with legislation.

The "customer" safety manager will complete these instructions with any safety regulations he judges to be useful in application.

Respecting these regulations will ensure the safety of personnel and property during operations using the equipment. Three types of pictogram are provided to draw your particular attention to specific points:

This symbol identifies a potentially hazardous situation which could have serious or even fatal consequences if the precautions given are not respected.



This pictogram identifies a situation which can lead to personal accident if the precautions given are not taken.



This pictogram is a reminder of safety practices or warns of the consequences that carelessness during an intervention can generate.



Everyone concerned with using, maintaining, storing or keeping this working equipment must be familiar with these rules.

Any user who is the cause of an accident due to failure to respect these rules, will be held fully responsible.

This manual is designed for users and maintenance personnel. It may include details of the various options available. The notes and illustrations provided in this manual may show details and accessories which differ from your equipment.

Indeed, the basic characteristics may be identical, but **GEISMAR** reserves the right to make improvements.

Please contact **GEISMAR** for further information about your equipment working or this manual. For orders of spare parts, requests for information or intervention, please provide the type reference, code and serial number of your equipment.

This information is on the manufacturer's plate. It must be kept legible.

1 – 2 Warning

Before using the working equipment, including maintenance, please read this operating and maintenance manual and its appendices and current workplace safety regulations. You must have the training, skills and tools required to use, maintain and repair this working equipment properly.

General site safety regulations provided by the site manager, must be followed scrupulously, particularly if work is taking place without halting traffic.

The technical documentation and instructions of this equipment will complete the knowledge acquired during training courses. But they can in no way replace theoretical and practical training for a qualification, provided in accordance with professional regulations.

If the company is unable to provide this training adequately for its personnel, The **GEISMAR** Group is ready to provide any support required concerning this training programme. Training

must include explanations of the various working equipment functions, operating and maintenance instructions and safety regulations to be respected, as well as practical exercises.

1 – 3 General safety regulations

The working equipment must be used under normal conditions and must be properly maintained.

We recommend a period of familiarisation with the working equipment before using it operationally.

Do not use the equipment before you are sure of being able to do so under optimal safety conditions.

If in doubt, whether concerning the working equipment or the work to be carried out, ask a qualified person.

Never use the working equipment for any purpose other than that for which it is intended. To prevent any risk of accident or injury, you must wear the clothing or Personal Protective Equipment which meets current safety standards applied in the workplace (see "Marking" chapter).

Do not touch moving parts directly or indirectly as long as the working equipment has not been decommissioned or is in a non-hazardous configuration.

Risk of crushing or shear from all the moving parts of this equipment.

The working equipment must be cleaned regularly. All traces of excess liquid or grease must be removed.

All markings must remain legible and present on the working equipment. Replace any illegible, damaged or missing pictograms.

IMPLEMENTATION / MAINTENANCE / INTERVENTIONS

Maintenance operations must be carried out by qualified personnel who are familiar with the safety regulations applied to the operations concerned.

Draw up an inspection schedule and record all maintenance operations.

Replace any damaged or worn parts.

Never modify the working equipment without a study and the manufacturer's written authorisation.

DURING OPERATION

Know the working area and its particularities; only authorized persons may enter this area.

Respect the general and particular safety regulations applicable to the working area and maintain constant safety vigilance throughout all phases of the operations.

Be familiar with the intervention plans in the event of an incident or accident and the prevention instructions to be respected during different manoeuvres.

Never use equipment in poor condition (wear, deformation...).

In the event of abnormal behaviour, inform the competent personnel.

Never use the equipment to carry people.

Never neutralise the safety devices or limiting equipment.

Make sure that nobody is within the working equipment work zone.

Do not park the machine on a track section with slope.

The track clearance profile must be large enough for the equipment

Traffic routes must be maintained in adequate condition for the working equipment to move around without risk.

Use this working equipment only when visibility conditions make it easy to see the areas in which people are moving and working.

Unless otherwise indicated, this working equipment is not equipped with a lightning protector, so do not use it when meteorological conditions are adverse.

FOLLOWING A PROLONGED PERIOD OF NON-USE OR DURING A PERIODIC INSPECTION

Check tightness and connections between assembly components.

If deformation or abnormal wear is noted, the parts must be replaced.

Chapter 2 – Description

2 – 1 General presentation

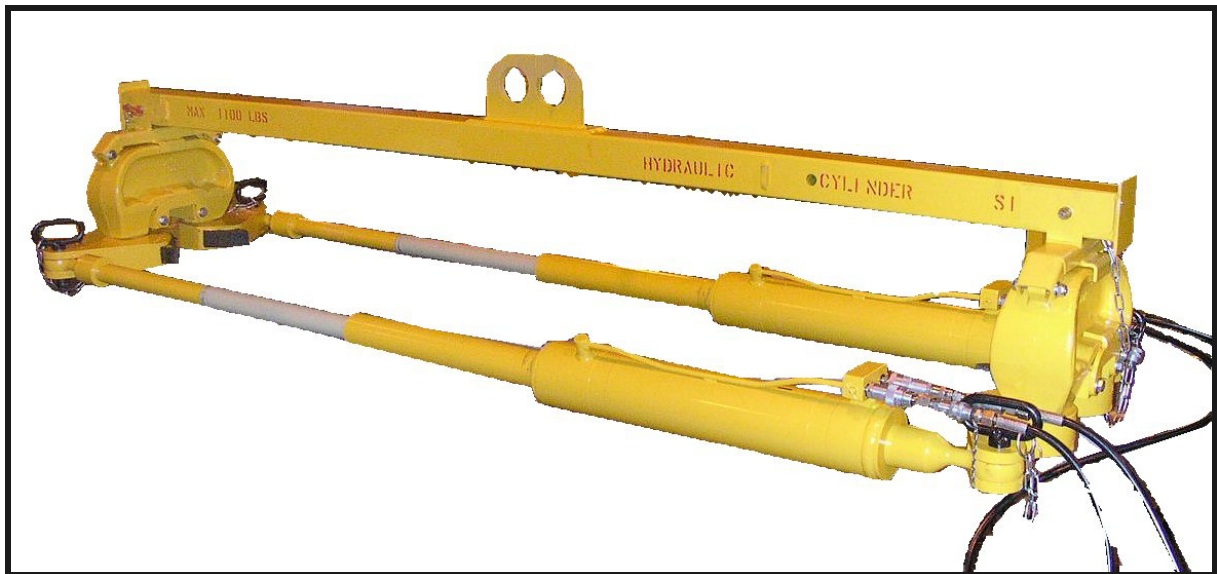
Manufacturer

Société des Anciens Établissements L. GEISMAR
PO Box 50327
5 rue d'Altkirch
68006 COLMAR CEDEX FRANCE

Name of the equipment

Model HYDRAULIC RAIL TENSOR

Type TH 70 STP



2 – 2 General

Hydraulic tensor TH 70-STP (the machine) is intended for use in railway trackside works.

It is designed to release LWRs (Long Welded Rails). These replace thermal expansion by mechanical distortion which remains within the elastic range.

2 – 3 Operating conditions

The TH 70 STP hydraulic tensor can be used to:

- reduce gaps when repairing rails or broken welds
- prevent rail retraction when replacing a defective, but not broken, weld, or when creating a bonded joint in the track.

The tractive force can be modified at any time according to variations in ambient temperature, therefore that of the rail, by adjusting the hydraulic pressure.

The traction exerted on the ends of the rails helps keep them in the correct position, horizontally and vertically, thus preventing any deformation during welding operations and eliminating shrinkage tension in the weld.

The TH 70 STP hydraulic tensor is designed to work on 60E1 (UIC 60) rails or rails with a similar height (please contact us for other profiles.)



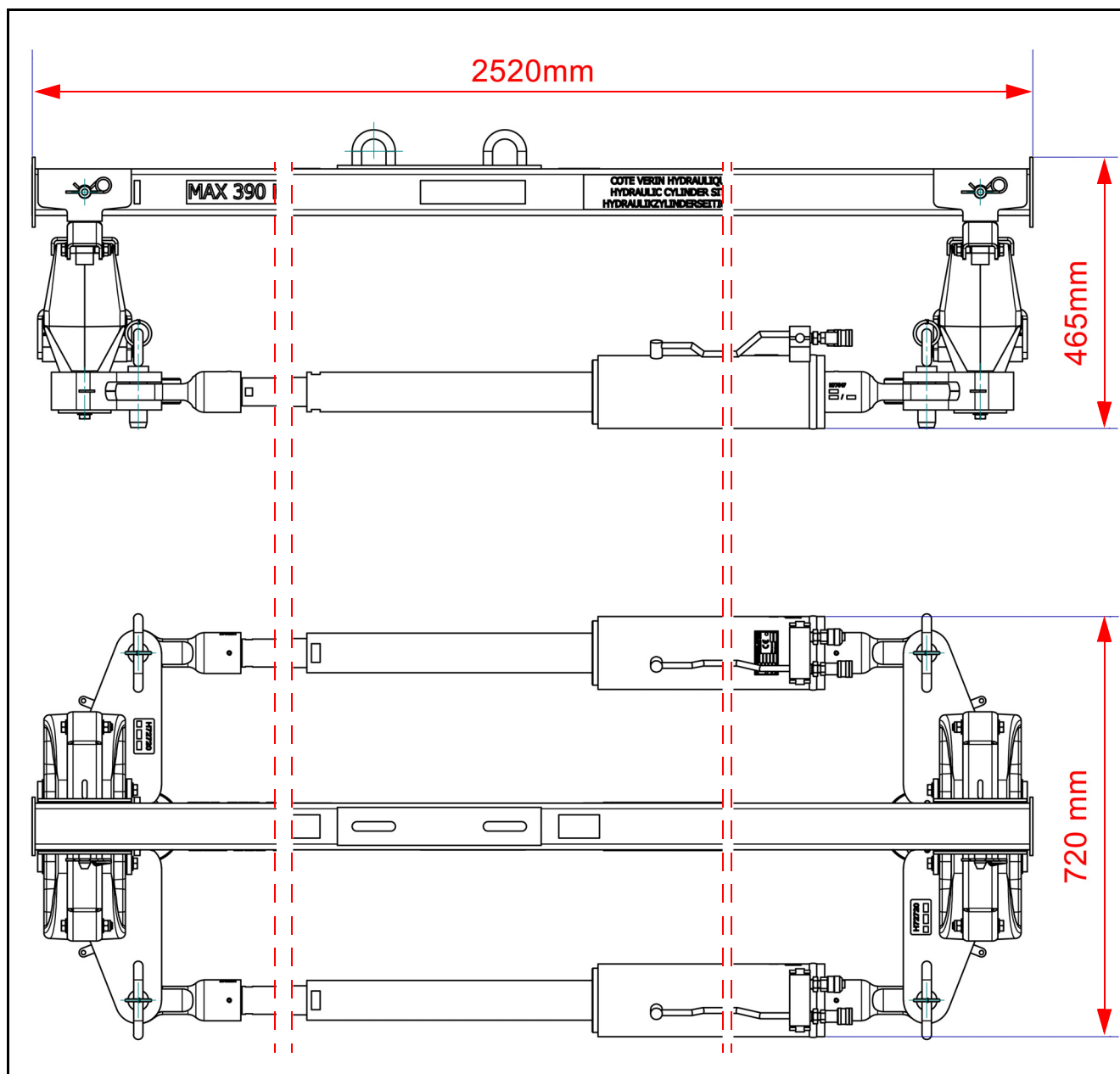
The machine must work only in traction mode and on unreleased track (from the top). It is essential to prohibit traffic movement while work is being carried out

Chapter 3 – Technical characteristics

3 – 1 General characteristics

Manufacturer	Société des Anciens Etablissements L.GEISMAR
Adress	5, Altkirch Street 68000 COLMAR
Machine	HYDRAULIC RAIL TENSIONER
Type	TH 70 STP
GENERAL CHARACTERISTICS	
Maximum pressure (bottom side)	100 b - 3000kN (~30t)
Maximum pressure (stem side)	595 b - 7000kN (~70t)
Cylinders stroke	460 mm
WEIGHTS	
Cylinder (unit)	~ 83.5 kg
Clamping set (unit)	~ 61 kg
Lifting beam	~ 35 kg
Total Weight	~ 325 kg
Cylinder (unit)	~ 183,5 Lbs
Clamping set (unit)	~ 134 Lbs
Lifting beam	~ 79 Lbs
Total Weight	~ 714 Lbs

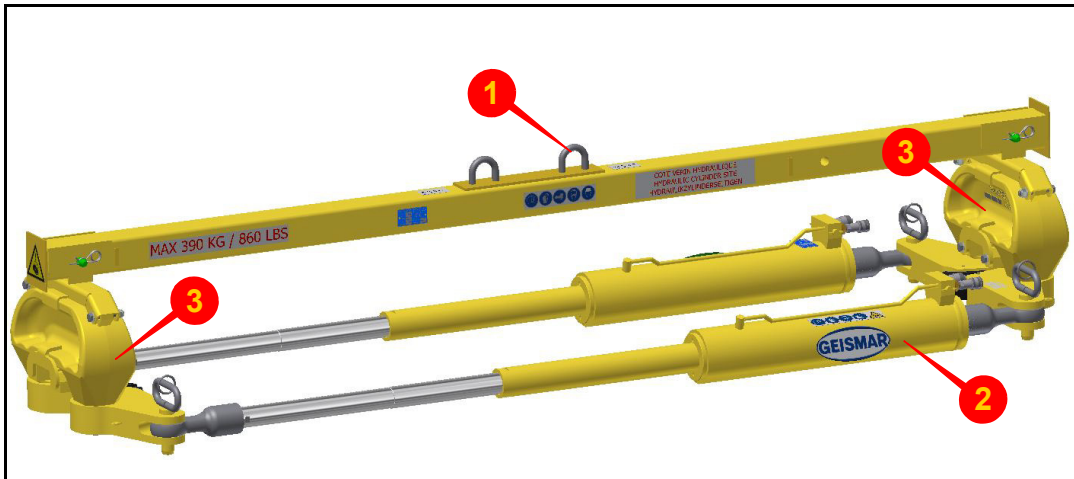
3 – 2 Overall size



Chapter 4 – Tensor equipment

4 – 1 Location of the main units

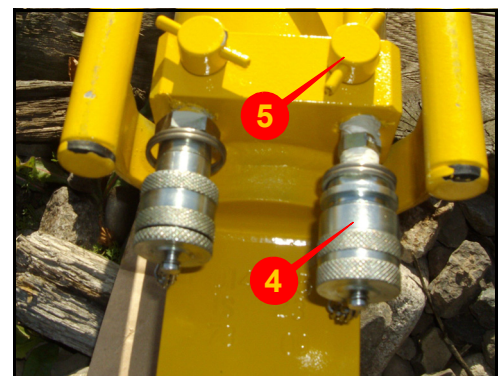
The TH70 STP rail tensor comprises



- 1 lifting beam (1)
- 2 hydraulic cylinders (2)
- 2 clamping assemblies (3)

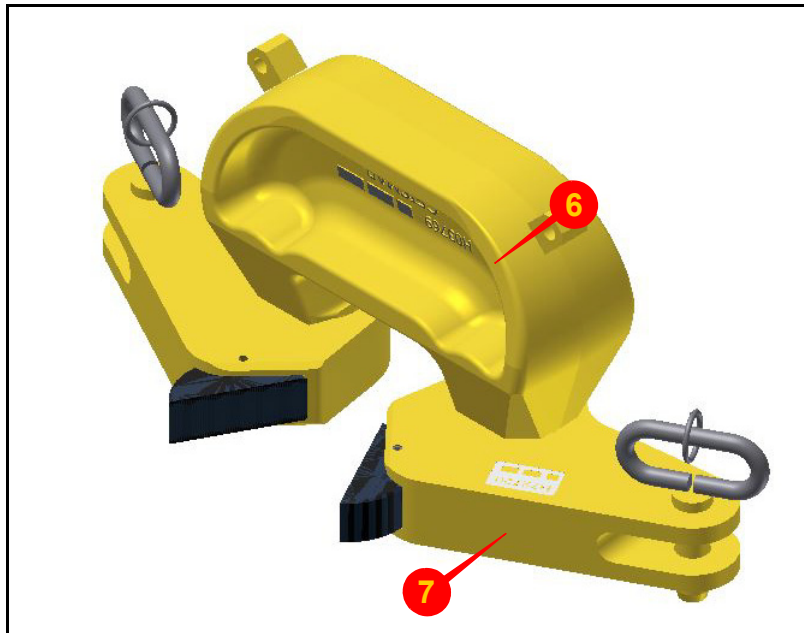
HYDRAULIC CYLINDERS

These are double acting allowing either a traction force or thrust to be exerted on the rail. They are fitted with screwed quick-release couplings (4) and 2 bleed screws (5).



CLAMPING ASSEMBLIES

These are made up of 3 sections which may be dismantled without using tools



:

- 1 mounting bracket (6)
- 2 eccentrics equipped with striated jaws (7)

The rail is grasped by the eccentrics, the action of which, resulting from the force transmitted by the cylinders is exerted on the rail web.

Chapter 5 – Operating instructions

5 – 1 Handling instructions

Before use, we recommend that you read chapters:

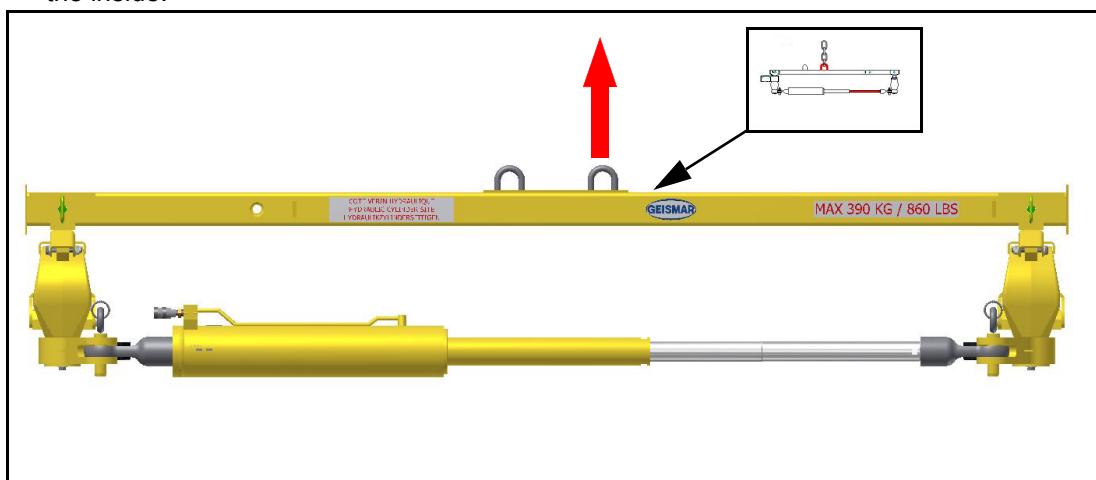
1-3 - General safety regulations

1-4 - Particular safety regulations

5 – 2 Installing the tensor

5 – 2 – 1 Installing the tensor in traction mode

Working in Traction mode to reduce the gap between 2 rails, the jaws are directed towards the inside.

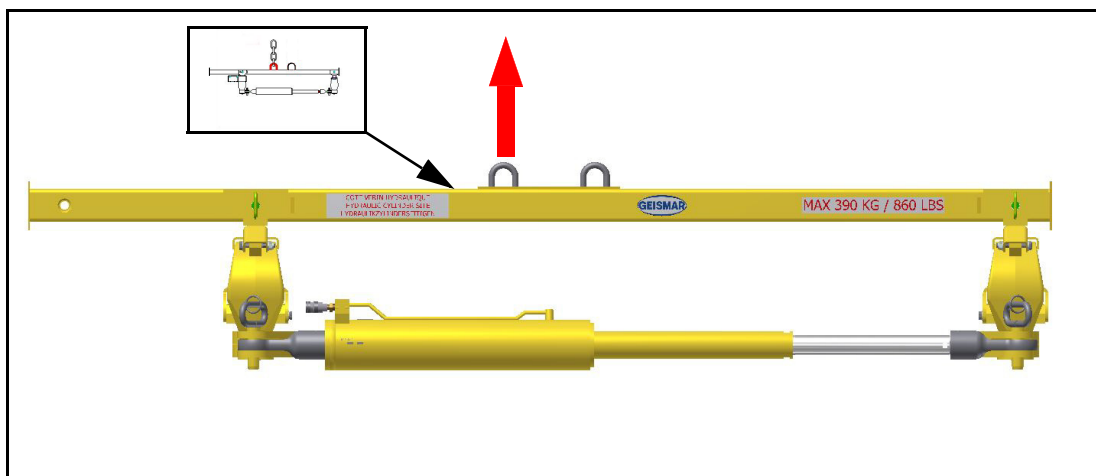


The cylinder rods are extended, the lifting beam is pinned and secured (axle pin). The tensor is suspended from the lifting beam (select the lifting bail according to the pictogram shown on the top of the lifting beam to ensure the assembly is balanced):

- Place the tensor on the rail
- Detach the lifting beam and release the tensor

5 – 2 – 2 Installing the tensor in thrust mode

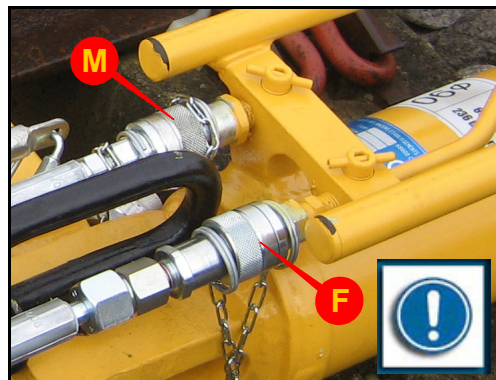
First retract the cylinder rods, then proceed in the same way as for traction mode reversing the directions of the clamping assemblies, (striated jaws to the outside), select the lifting bail according to the pictogram shown on the top of the lifting beam to ensure the assembly is balanced.



5 – 3 Connecting to the energy unit

The hydraulic tensor is used in combination with a motor-driven hydraulic unit or a manual pump.

The hydraulic connections are quick and easy to operate thanks to the quick-release couplings fitted to each end of the hoses. The supply pipe on the cylinder base end for extending the piston rods is fitted with male half-couplings (**M**), the supply pipe on the cylinder rod end for retracting the piston rods is fitted with female half-couplings (**F**). This prevents any accidental reversal of connections.



– Connect the hoses to the cylinders and tighten the knurled bush fully home.

For handling the hydraulic tensor with its energy unit, refer to the user and maintenance manuals for the unit.

5 – 4 Railway environment

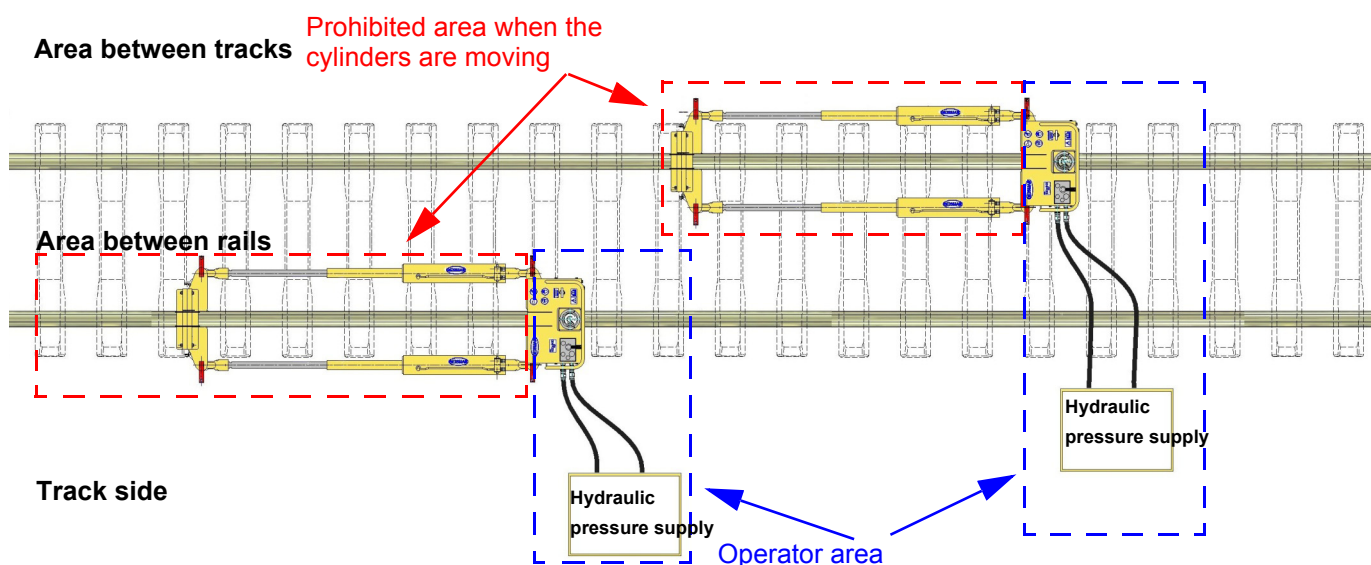
The tensor is placed on one rail of the track.



It is essential to prohibit traffic movement on the track involved while work is being carried out.



The usual safety rules for track working must be applied and complied with.



When the track is located between two other tracks, install the hydraulic pressure supply between the rails.

Chapter 6 – Maintenance

6 – 1 General maintenance instructions

Before starting operations, the parts which will be in contact with the machine must be cleaned carefully as well as the neighbouring zones, to prevent impurities from getting into the machine's mechanisms.

6 – 1 – 1 Rules to be followed

- Draw up an inspection schedule and record all maintenance operations;
- Replace any suspicious or worn parts;
- Never neutralise the prevention or limiting equipment;
- Never use the machine as an "earth" for welding operations.

To take care to maintain this equipment in good state, it conditions the safety of the users.



6 – 2 Controls

6 – 2 – 1 Flexible hoses

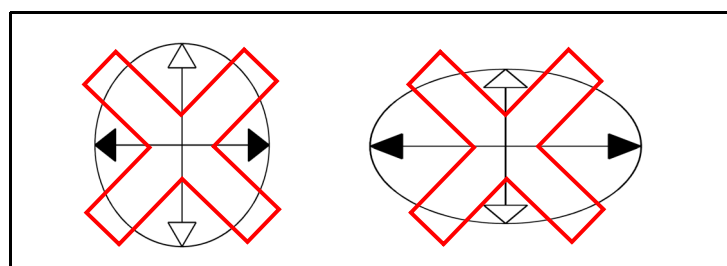
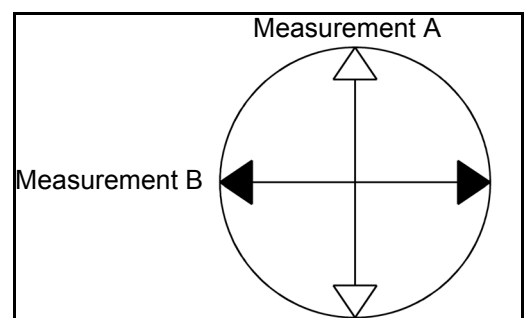
- Check tightness and connection tightening;
- If any flexible hose has been damaged in any way, it must be replaced by a new one.

6 – 2 – 2 Stirrups

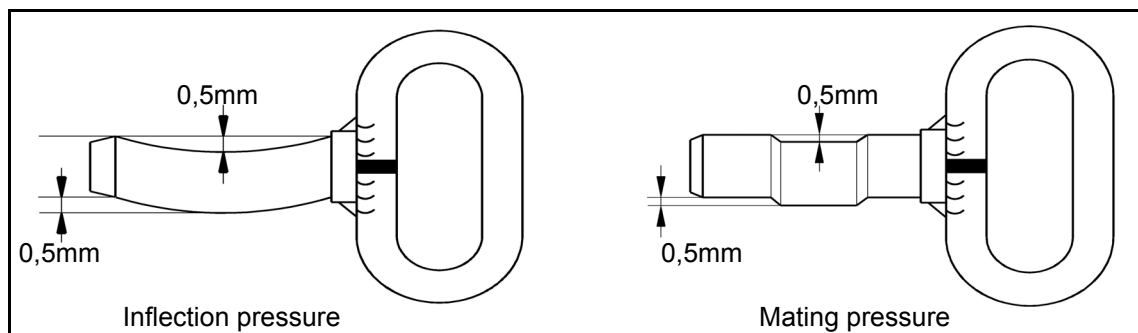
- To check bores of : clevises, tenons and eccentrics (ovalization defect);
- To check the pins (deformation defect);
- To check the Stirrup (search for cracks, deformation).

MEASURE OF OVALIZATION DEFECT

When the difference between 2 dimensions measured (A and B) at 90° in the same bore exceeds 0.5 mm, it is essential to replace the part having this ovalization defect.

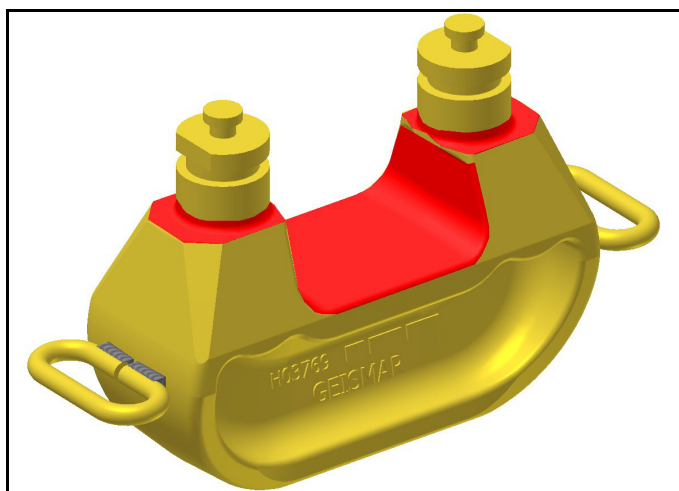


MEASURE OF DEFORMATION DEFECT



Any pin having a straightness defect equal to or greater than 0.5 mm must be replaced by an original part.

PERIODIC CHECKING OF STIRRUP



Carry out a visual check to detect any cracks. This check may be limited to the areas shown in red.

If cracks are found, please contact us to determine the procedure to be followed.

6 – 3 Maintenance

6 – 3 – 1 Controls

- Check the fluidtightness and general state of the cylinders periodically;
- Replace the oil in the cylinders every year by disconnecting one coupling on the cylinder;
- Check that the couplings are fluidtight and properly tightened;
- Replace the hoses as soon as damage to or a tear on the hose has been noticed. Ensure that they are maintained in good condition since the safety in use of the tensioner depends on this equipment.

6 – 3 – 2 Cleaning

As far as maintenance is concerned, the term cleaning is to be taken in its widest sense and it includes all routine maintenance operations, such as lubrication and tightening. Regular cleaning is a form of inspection, during which those involved can discover leaks, irregularities and damage at an early stage and will be able to deal with them before these deteriorations lead to a breakdown or an incident.

6 – 3 – 3 Greasing

To lubricate, using a brush, them: axes, pins, covers and screw.

6 – 3 – 4 Table of equivalences for greases

IMPERATOR	LC 3002
TOTAL	MULTIS COMPLEXE EP2
ELF	MULTIPLEX
BP	ENERGREASE LC 2
SHELL	ALBIDA HD 2
CASTROL	LM GREASE

6 – 3 – 5 Hydraulic oil

Approved hydraulic oil : TOTAL EQUIVIS ZS 32.

Technical features : - Viscosity à 40° : 32,3 Cst - Viscosity index 160 - Flow point 39°C.

6 – 3 – 6 Table of equivalences for hydraulic oils

TOTAL	EQUIVIS ZS32
ELF	VISGA 32
TEXACO	RANDO OIL HD Z-32
SHELL	TELLUS T 32
CASTROL	CASTROL HYSPIN AWH M32
BP	BARTRAN HV32
MOBIL	MOBIL DTE 13M

Chapter 7 – Storage and recycling

7 – 1 General storage instructions

During periods when work equipment is not being used, it is essential to store it so as to maintain its integrity. Badly stored equipment risks being damaged when commissioned. It is therefore important for the staff in charge of storage operations to carry out this storage carefully and to abide by the measures laid down.

7 – 1 – 1 Choice of storage conditions

The choice of storage conditions depends on 2 main factors

- the storage duration and the storage type ("sheltered" storage building, closed shed, open shed, canopy, etc...).

7 – 1 – 2 Storage premises

As a general rule, premises intended for storage of work equipment must provide full protection against

- dusts, exhaust gases, dampness;
- direct sunlight;
- rapid temperature variations.

7 – 1 – 3 Putting into storage

The condition of the work equipment when put to work after storage depends on how well it was prepared and protected before being placed in storage

Before resuming work after storage, clean the equipment (when cleaning, protect the moving parts with grease).

A technical inspection should be carried out to uncover any possible anomalies.

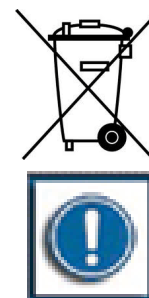
7 – 2 Decommissioning - Disassembly - Disposal

When work equipment presents a state of aging that may cause risks, there is a requirement for the user to ensure the disposal of this equipment, namely putting out of work.

Decommissioning or disposal requires to remove used fluids which will be given to a relevant department.

IMPORTANT In addition to those listed in the instruction manual, some precautions must be taken into account when decommissioning this work equipment to avoid any risk during dismantling and transport, and to minimize a possible environmental impact of its sub-parts or products.

The equipment must be disposed of by an approved body complying with the local standards in force for recovery of waste.



Chapter 8 – Spare parts

8 – 1 Foreword

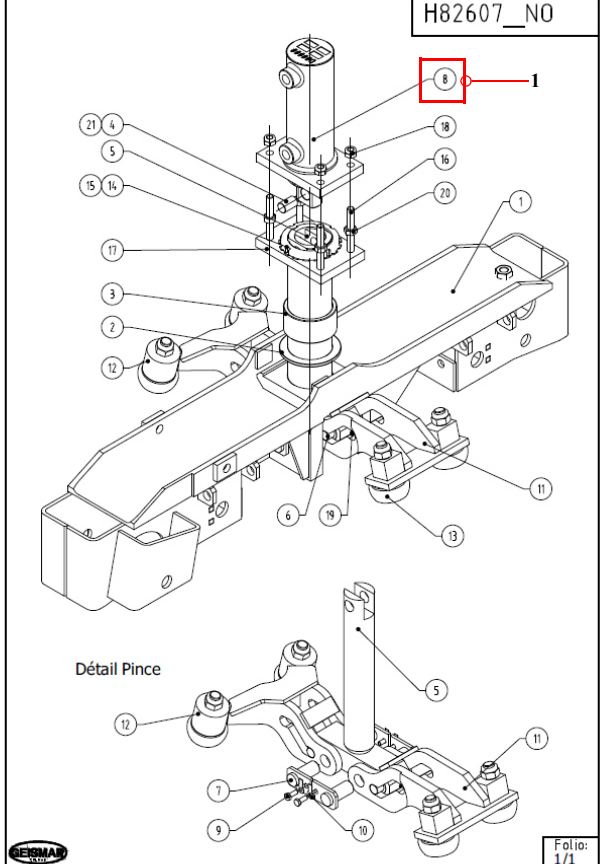
The spare parts catalogue is made up of coded plates comprising a list and a drawing.

IN THIS EXAMPLE

We wish to replace **Cylinder 8 (1)** of subassembly **H82607_NO**

Rep	Qté	Désignation	Code	Éa : 12/11
CHARIOT DE TRANSLATION				
1	1	CHÂSSIS	H72576	
2	1	RONDELLE	H00721	
3	2	BAGUE	H00722	
4	1	AXE	H00723	
5	1	TIRANT AVEC BAGUES	H29911	
6	2	AXE	H02030	
7	4	AXE	H09091	
8	1	VÉRIN DE PINCE À RAILS	V10016_NO	
9	4	VIS	C00331	
10	4	RONDELLE	C02221	
11	1	BRAS DE PINCE INTERIEUR	H54214	
12	1	BRAS DE PINCE EXTERIEUR	H54215	
13	4	GALET Ø 60 MONTÉ	H20037	
14	1	RONDELLE	D03505	
15	1	ÉCROU	D03485	
16	4	GOIJON	H71641	
17	1	SUPPORT VÉRIN	H12526	
18	4	ÉCROU	C00143	
19	2	VIS	C00802	
20	4	ÉCROU	C00120	
21	1	VIS	C02088	

H82607_NO



Détail Pince

GEISMAR IMPORTANT : Afin que votre commande de pièces de rechange soit suivie d'une livraison prompte et correcte, il faut indiquer le N° et année de fabrication de la machine, le N° de série, la désignation ainsi que le Code des pièces de rechange

Page – 20

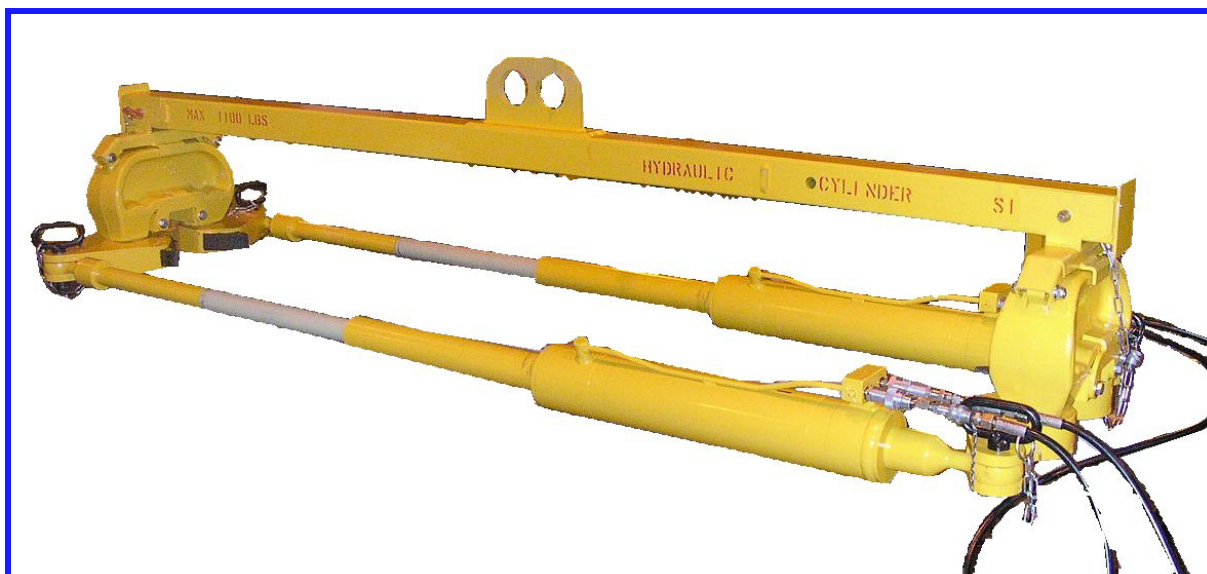
GEISMAR Folio: 1/1

You will find the code for this cylinder (**V10016_NO**) in parts list (2).
Enter this information on your parts replacement request.

8 – 2 After-sales service contact details

Tel **+33 (0) 3 89 80 41 90**
Fax **+33 (0) 3 89 80 42 28**
e-mail **sav@geismar.com**

SPARE PARTS CATALOG



Model **HYDRAULIC RAIL TENSOR**
Type **TH 70 STP**

Code: **H77646_1017**

Description	Code	Page
SECTION A—MECHANICAL COMPONENTS		
HYDRAULIC RAIL TENSOR TH70 STP	H77646_NO	6
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HYDRAULIC CYLINDER TH 70 STP	V10014_NO.....	10
LIFTING BEAM	H72695_NO	12
SHIM ASSEMBLY	H72696_NO	14

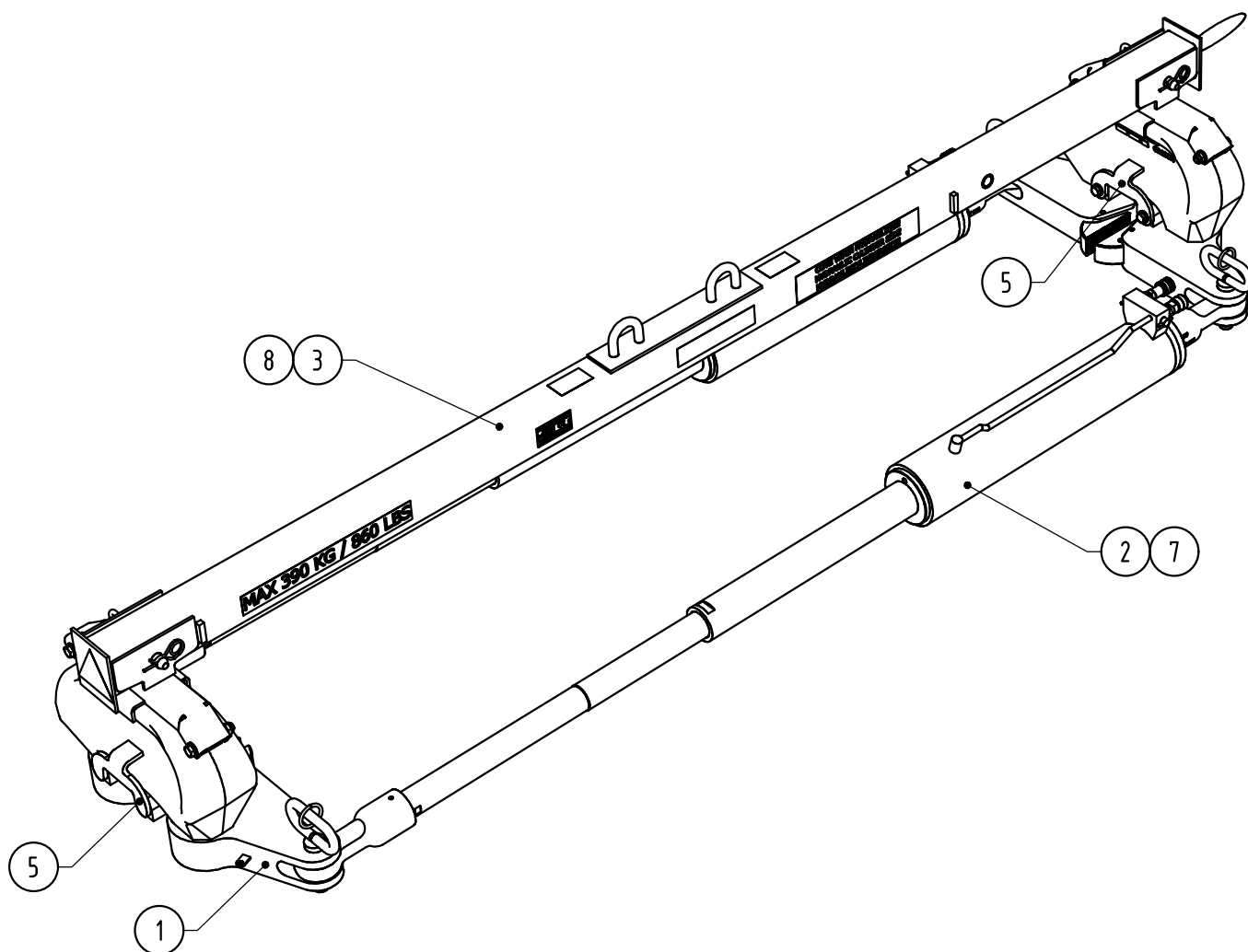
HYDRAULIC RAIL TENSOR TYPE TH 70 STP SUMMARY	H77646_1017
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Section A–Mechanical Components

Item	Qty	Description	Code	Ed 10/17
		HYDRAULIC RAIL TENSOR TH70 STP	H77646_NO	
1	2	CLAMPING DEVICE ASSEMBLY	H72694_NO	
2	2	HYDRAULIC CYLINDER.....	H83705_NO	
3	2	LIFTING BEAM.....	H72695_NO	
5	2	SHIM ASSEMBLY	H72696_NO	
7	1	TENSOR MARKING	H102542	
8	1	LIFTING BEAM MARKING	H102544	

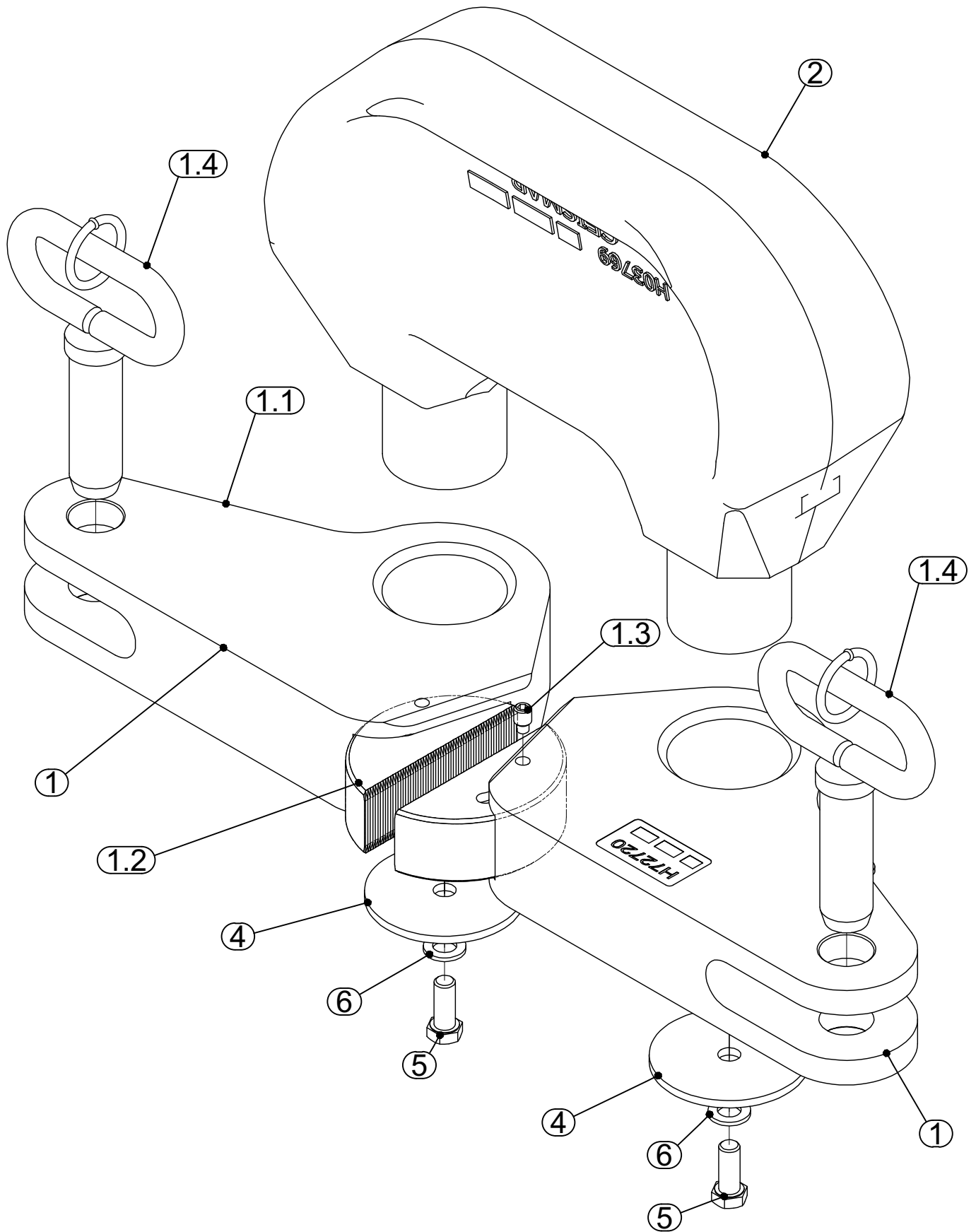


IMPORTANT : To allow prompt and correct delivery of spare parts, always state : Fabrication year and n° of the machine - Serial number - Order n° and description of spare parts



Item	Qty	Description	Code	Ed 06/15
CLAMPING DEVICE ASSEMBLY			H72694_NO	
1	2	MOUNTED ECCENTRIC.....	H72697	
1.1	1	ECCENTRIC.....	H72700	
1.2	1	JAW WITH TIP	H00230	
1.3	1	SCREW	C01636	
1.4	1	PIN.....	H03264	
2	1	STIRRUP	H72719	
4	2	WASHER.....	H72699	
5	2	SCREW	C00370	
6	2	WASHER.....	C01038	

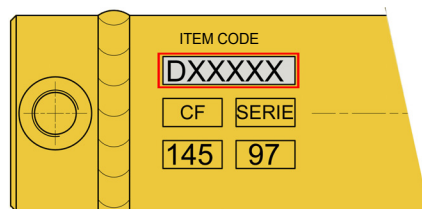




HYDRAULIC CYLINDER TH 70 STP

V10014_NO

NOTA : for cylinders spare parts give the indication of the code number incrustated on the cylinder body, then refer to the following table for reference batches of parts (A, B, C,...)

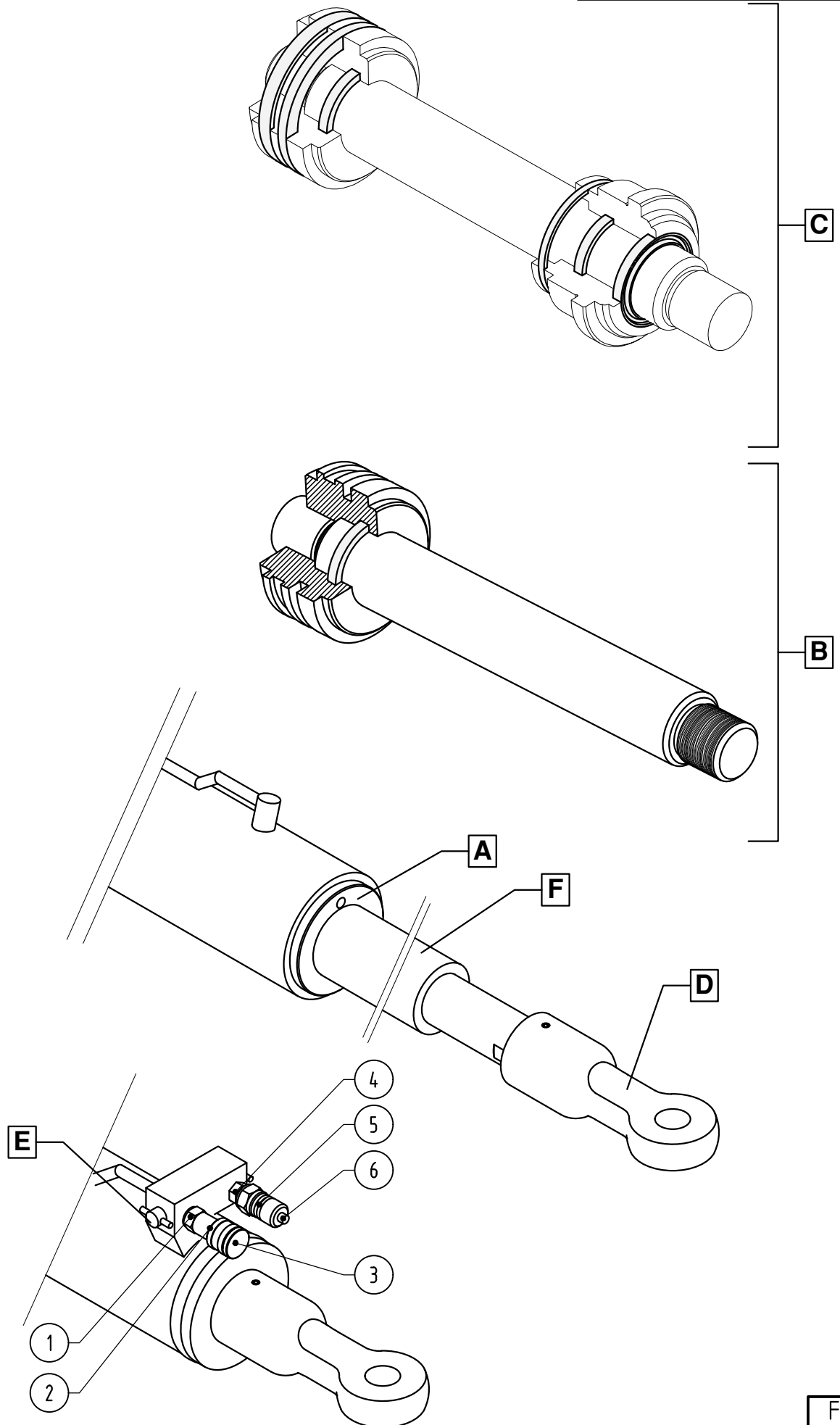


CODE CYLINDER	GUIDING BUSH CODE A	PISTON KIT CODE B	SET OF SEALS CODE C	ARTICULATION FORK CODE D	DRAIN SCREW CODE E	PROTECTION CODE F
D19322	D19978	D19981	D19980	H77643 (2X) C00778 (2X)	D19982	D19979
D17588	D18281	D18283	D18282	H77647 (2X) C00777 (2X)		
D18930						

1	1	ADAPTER.....	D10882
2	1	FEMALE HALF COUPLING	D00472
3	1	PLUG	D00486
4	1	ADAPTER.....	D15679
5	1	MALE HALF COUPLING	D00470
6	1	CAP	D00492



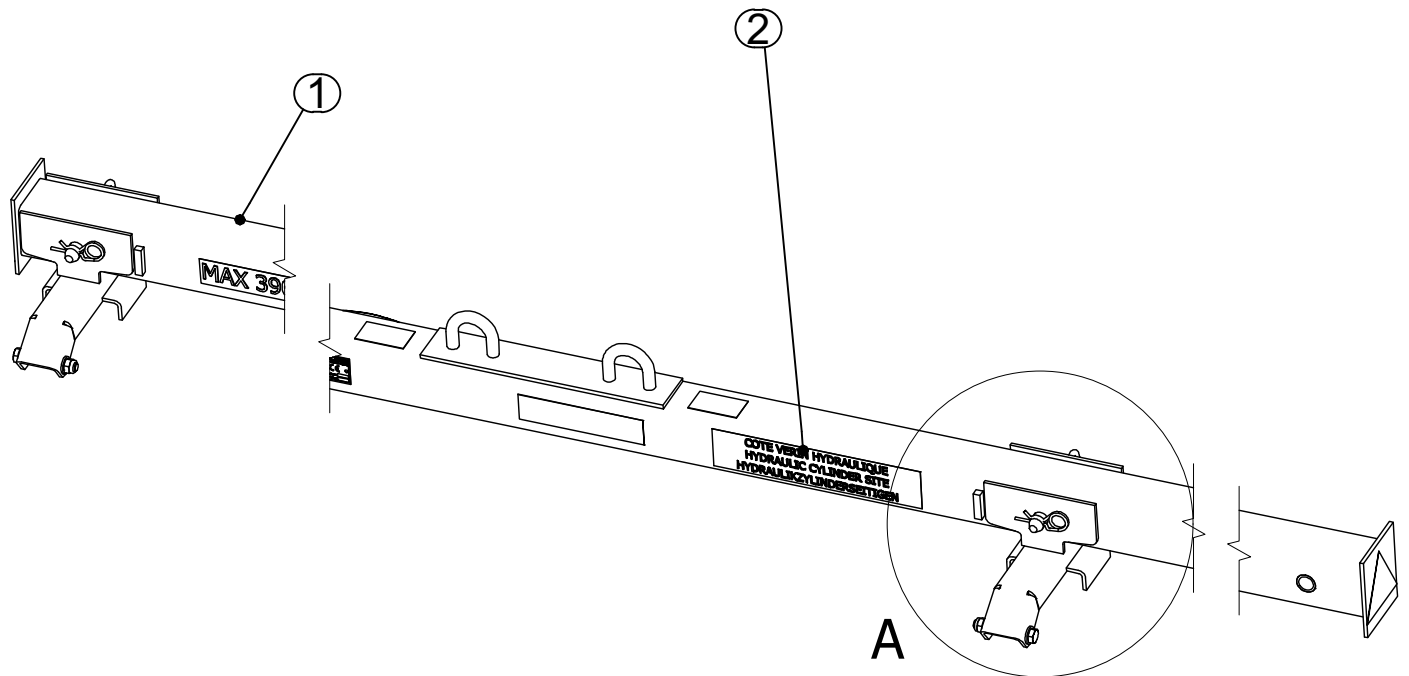
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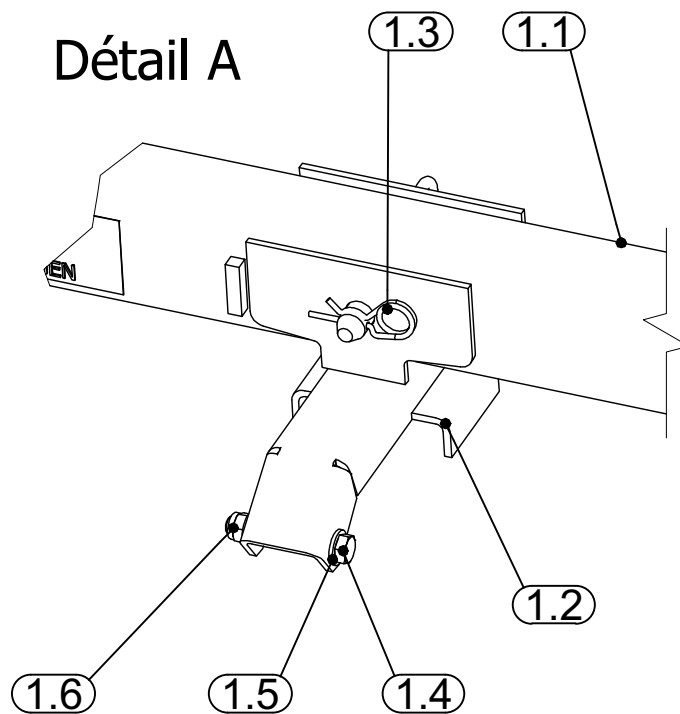
Item	Qty	Description	Code	Ed 06/15
		LIFTING BEAM	H72695_NO	
1	1	LIFTING BEAM.....	H103494	
1.1	1	BEAM.....	H72713	
1.2	2	SUPPORT	H72712	
1.3	2	PIN COMPLETE	H61331	
1.4	4	SCREW	C00379	
1.5	8	WASHER	C01038	
1.6	4	NUT	C00144	
2	1	IDENTIFICATION PLATE SET	H103493	



IMPORTANT : To allow prompt and correct delivery of spare parts, always state : Fabrication year and n° of the machine - Serial number - Order n° and description of spare parts



Détail A



Item	Qty	Description	Code	Ed 11/12
		SHIM ASSEMBLY	H72696_NO	
1	1	SHIM.....	H72704	
2	1	BRACKET.....	H72705	
3	2	WASHER.....	C01038	
4	2	SCREW	C00369	



IMPORTANT : To allow prompt and correct delivery of spare parts, always state : Fabrication year and n° of the machine - Serial number - Order n° and description of spare parts

