



English



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# QUADRA

**493 9021**

**493 9023**

**493 9031**

## VEHICLE LIFT 4 COLUMNS 3,5 TONNE (AUXILIARY LIFT 3 TONNE)



Installation  
Operation  
Maintenance



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## I HEALTH AND SAFETY PRECAUTIONS

In order to comply with your responsibilities under the Health and Safety at Work Act 1974, it is essential that the Quadra and any optional accessories are sited, installed, operated, and maintained by \*competent persons in accordance with the instructions in this manual.



\* A competent person should be a minimum of 18 years of age and have a minimum qualification of NVQ 3 (or an equivalent qualification) and / or experience within their own field of responsibility, e.g. installation engineering, automobile engineering etc.



It is important that all persons installing, operating or maintaining the Quadra and optional accessories must also be familiar with the layout of the equipment, safety precautions and vehicle lifting points. Appropriate training will be required, *prior* to installing, using or maintaining the lift

## WARNINGS, CAUTIONS AND NOTES

'WARNING' is used in the text of this manual to identify specific hazards which can cause injury or death.



'CAUTION' is used in the text of this manual to identify incorrect procedures which can cause damage to the Quadra.

'NOTE' is used in the text of this manual to draw attention to specific points of importance.

## WARNING SYMBOLS





Type Typ	[REDACTED]		Année Year Jahr
N° de série Serial N° Fabrik Nr	[REDACTED]	[REDACTED]	[REDACTED]
Date d'installation Installation Date Einrichtungsdatum	[REDACTED]		
Alimentation électrique Electrical supply Elektr. Anschluß		230V	[REDACTED]
		3 x 400 + E (50Hz)	[REDACTED]
Puissance Power Leistung	Kw [REDACTED]	A [REDACTED]	3 x 400 + N + E (50Hz) [REDACTED]
(Bar)	Max.	Min.	Bar
Pression d'air Air pressure Druckluftversorgung	[REDACTED]	[REDACTED]	Pression hydraulique Max. working pressure Max. Betriebsdruck
MAX. - principal - main lift - Hebebühne -			
CHARGE NOMINALE CAPACITY TRAGFAHIGKEIT	[REDACTED]		Kg
MAX. - Auxiliaire - Wheel free lift - Abhub -			
CHARGE NOMINALE CAPACITY TRAGFAHIGKEIT	[REDACTED]		Kg
 Rue du Pré Neuf 58440 MYENNES FRANCE			

**CE IDENTIFICATION PLATE**

Changes to this manual are as shown below. Revised or additional issues of this manual are available from **F.F.B. S.A. Rue du Pré Neuf 58440 MYENNES - FRANCE.**

Minor changes are indicated by the use of a broad line adjacent to the affected text.

PUBLICATION	ISSUE CHANGES	TEXT AFFECTED
26/08/97	Artwork Layout	
05/99	2 euro	
12/01	3	Modifications of the references in all the doc. 493 9001 -> 493 9021; 493 9003 -> 493 9023 493 9011 -> 493 9031 + insertion of additives 493 9021 & 493 9031.
05/02	4	Specificity of single phase wiring diagram and Procedure adjustment of the flow control valve added, CE identification plate updated, modifications of Fig. 7 p.17, Fig. 19 p.27, Fig. 19, 20 and 21 p.37, and suppression of the paragraph "Re-fitting the lever" p. 42 and of the Fig. 20 p. 43.
07/02	5	Suppression of the paragraph "Checking the upper limit switch" p. 34, some modifications p. 36 and more precise wiring diagram p. 2 of the additive 493 9031.
02/03	6	Warranty return form now included and EC declaration of conformity updated.

MODEL NO:

SERIAL NO:

DATE OF INSTALLATION: .....

DATE OF LOAD TESTS: .....

INSTALLED BY: .....

## INSTALLATION

### Location and site layout

This lift should be installed so that:

- It is sheltered from the elements.
- There is sufficient headroom.
- The "motor column" that houses the power-pack, control box etc. is positioned at the rear on the left-hand side.
- A three-phase power supply is available nearby (400 V, 1.85 kW). This must have fused circuit protection. NOTE: With 400 V, a neutral conductor is not required to operate the lift, but it will allow any accessories requiring a 230 V supply e.g. lighting to be fitted.
- The front or rear of the vehicle must not come into contact with walls, doors or any other obstructions, and all minimum safety clearances must be observed (Fig. 1).

### Floor Specification

With regard to the area on which the four column base plates are to be positioned :

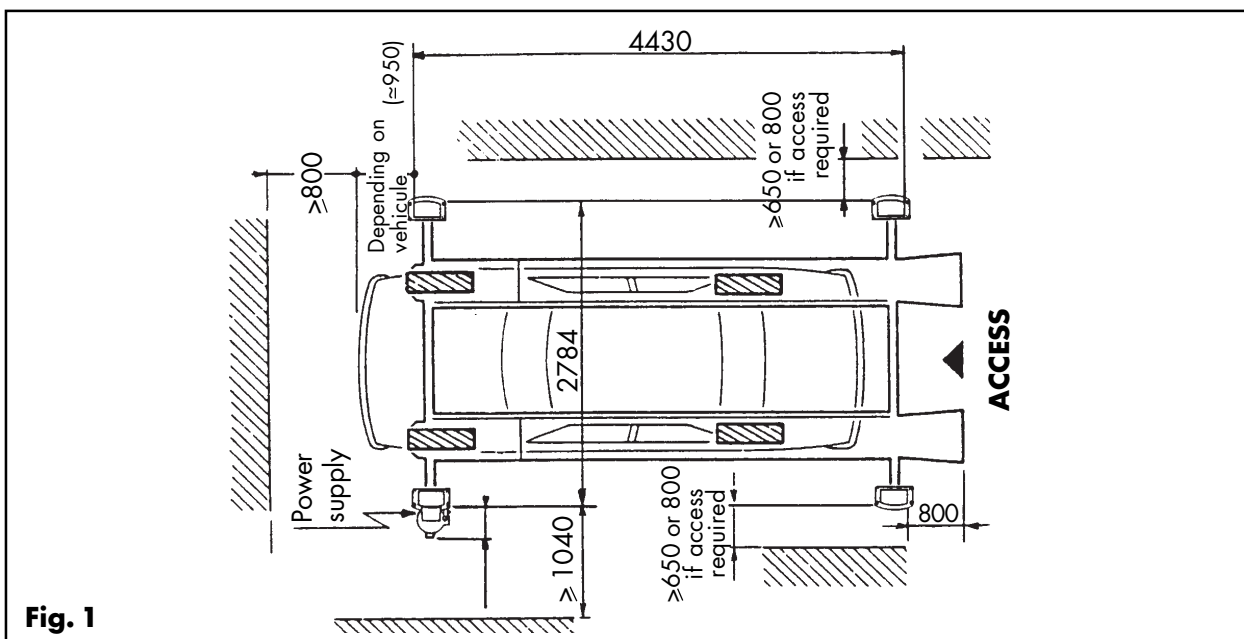
- The floor must be on a common horizontal plane (within +/- 4mm) including that up to 2000mm in front of the cross-member(s) so that vehicles with restricted ground clearance can drive onto the platform. A slight downward slope towards the front of the lift is acceptable, provided that it is compensated for by placing shims under the columns.
- The pads must be constructed from C:30 concrete extending over a minimum area of 800 x 650 mm and at least 160mm thick, excluding the thickness of any screed or paving that may be added. In the case of an existing floor, check its suitability with qualified person e.g. structural engineer, architect etc.

Where the lift is to be installed on an upper storey, the floor should be able to withstand the stresses given below. This should be checked by a qualified person e.g. structural engineer, architect etc.

	<b>493 9021</b>	<b>493 9031</b>
Uniformly distributed loading	242 kg/m <sup>2</sup>	266 kg/m <sup>2</sup>
Point loading	1.6 kg/cm <sup>2</sup>	1.8 kg/cm <sup>2</sup>



**CAUTION: THE OVERLOAD FIGURES GIVEN ABOVE DO NOT TAKE INTO ACCOUNT ANY DYNAMIC OR STATIC OVERLOAD TESTS OR THE PARKING OF A VEHICLE UNDER A LOADED PLATFORM.**



**Fig. 1**

## Electrical supply

Provision may be made for a conduit in the floor (minimum 20mm internal diameter) which exits either outside the base plate or in the column through the 25mm diameter hole (Fig. 2).

## Columns

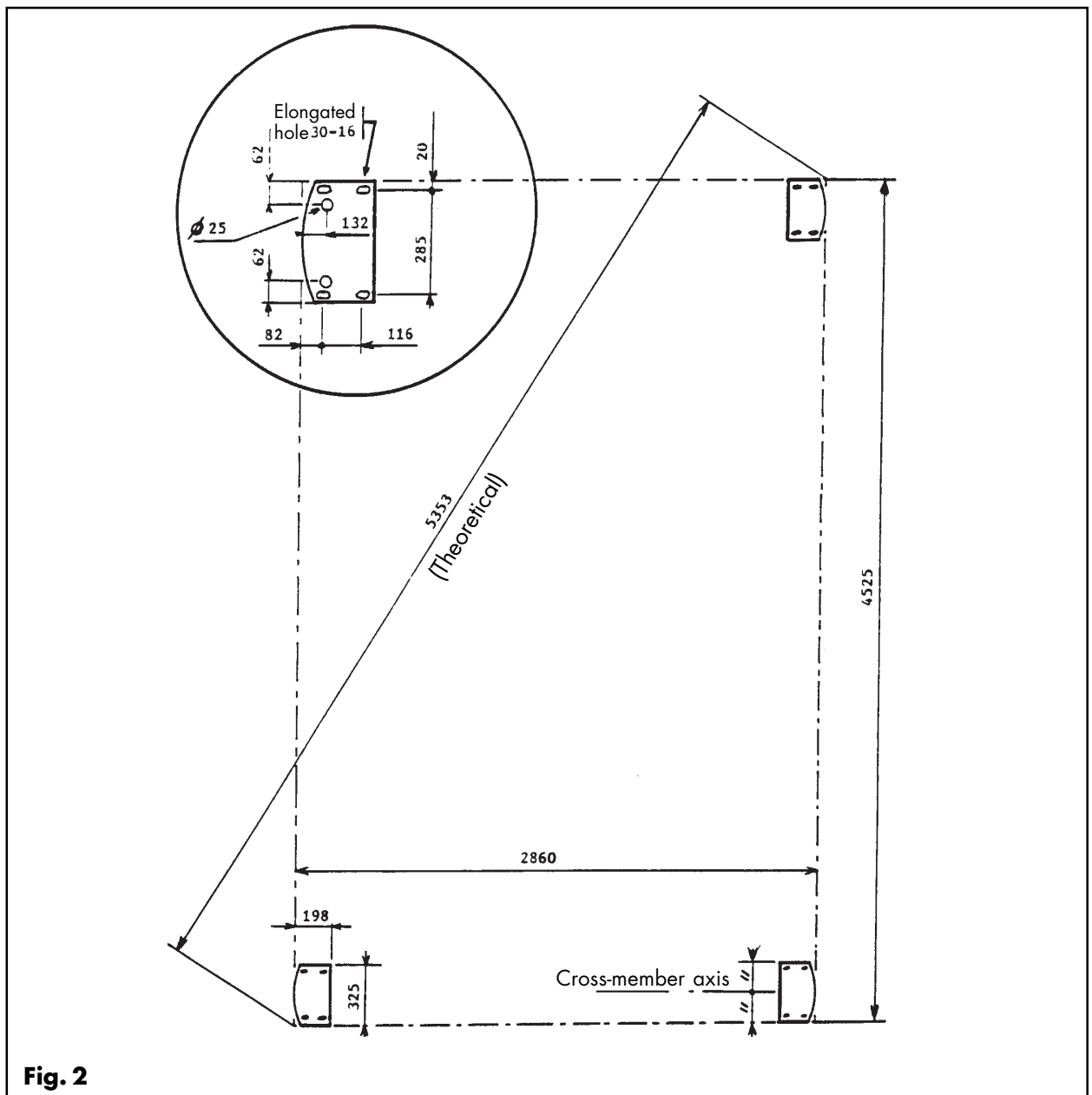
The columns are secured to the concrete pads with the anchor bolts supplied.



**CAUTION: IF THE FLOOR IS SCREEDED OR TILED, THE LENGTH OF THE ANCHOR BOLTS SHOULD BE INCREASED PROPORTIONALLY - CUSTOMER RESPONSIBILITY.**

## Floor Plan

Mark clearly around the outside contour of the column base plates. (See Fig. 2)



**Fig. 2**

## ASSEMBLING THE SUPERSTRUCTURE

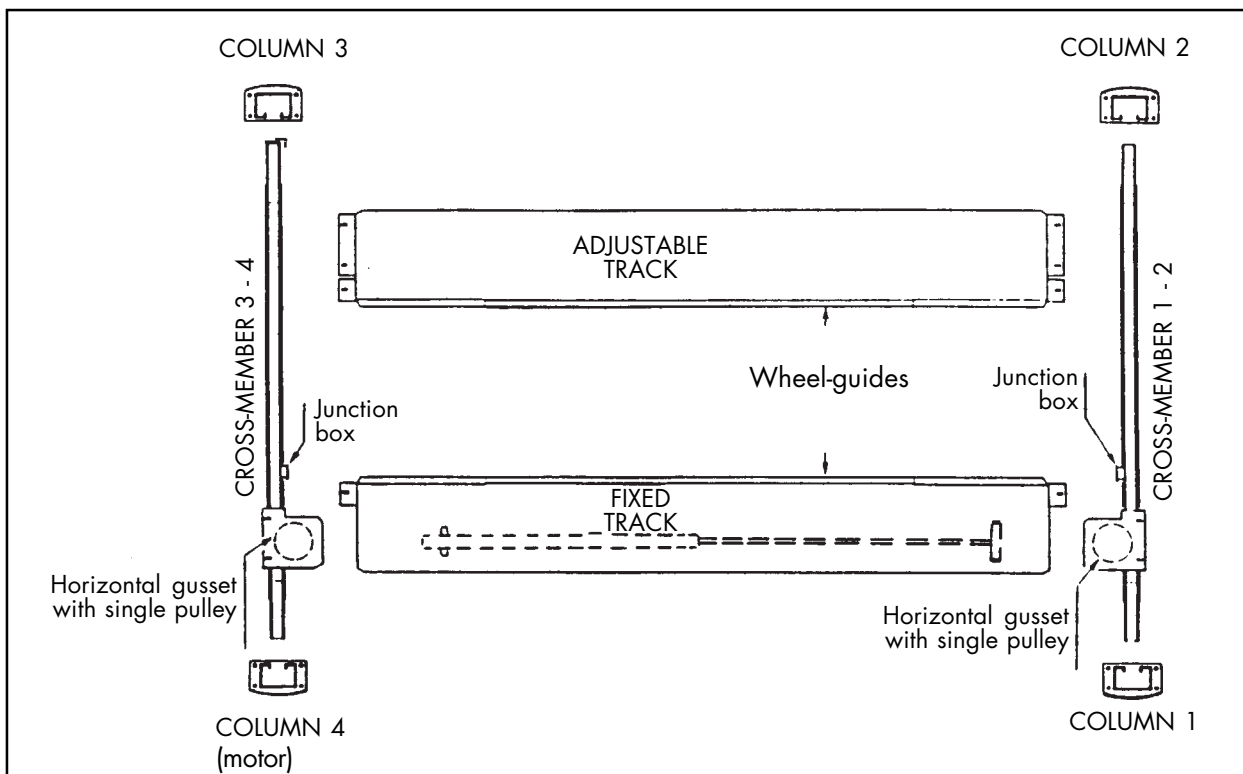
### Identification of the main components

Unpack the component parts and identify them in accordance with Fig. 3.  
The motor column (4) has several holes on its main face as well as the identification and instruction plates.  
Columns 1, 2 and 3 are all similar, but the one that has a large vertical 'Fog' logo must be positioned on the 'drive on' side on the left.

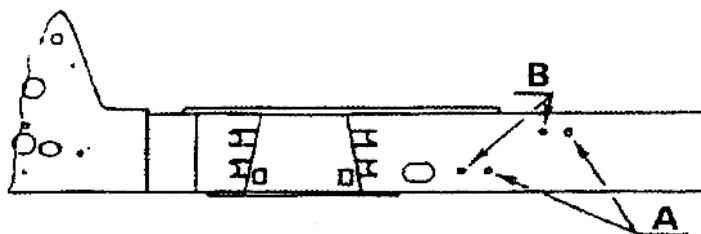
### Preparing the cross members

Position the junction boxes correctly according to the type of lift (see Fig.4):

- in holes (A) for lift 493 9021
- in holes (B) for lift 493 9031



**Fig. 3**



**Fig. 4**



## Component position

Position on the floor plan all of the components that make up the lift, in the following order:

- Cross-members: Place a suitable support under the cross-members, and under the horizontal gusset.
- Columns: Engage the columns as far as possible onto the vertical cheek-plates of the cross members and position them correctly on the floor, move the cross-members if necessary.
- Fixed track: Place the fixed track on the cross-member horizontal gussets, with its wheel guide flange facing inwards. Locate the connecting screws (Fig. 5) but do not tighten them. Pay attention to the position of the wire rope guide screws.
- Adjustable track: Place the adjustable track on the cross-members as far as possible from the fixed track and with its wheel guide flange facing inwards. Move the ends of the cross-members so the track can fit in-between them in order to give 2 to 3 mm clearance between the cross-member beam and the bosses at each end (Fig. 6). Tighten the connecting screws to secure the horizontal gusset onto the fixed track.

## Platform level adjustment

Adjusting the amount of shims under the cross-members. To ensure that the platform is level. This can be verified as follows:

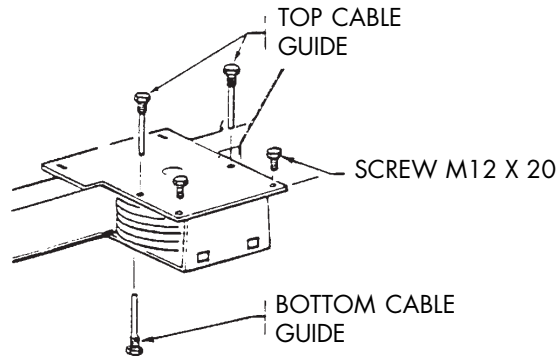
- laterally, using a spirit-level on the cross-members.
- longitudinally, using a spirit-level in the centre of the track.

## Column adjustment

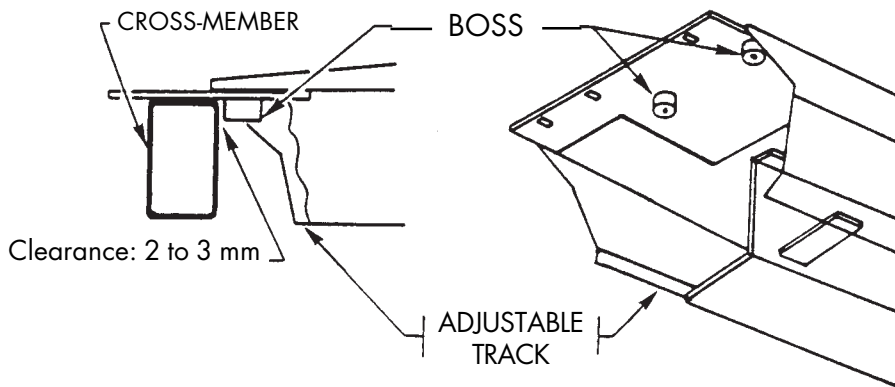
Measure and compare the distances between the column base plates and the ends of the cross-members. A difference of 15 mm can be accommodated by adjusting the ladder rack in the column. If the difference is greater than this, the lowest column(s) should be raised by placing shims under the base plate(s) or by using the lifting screws.

Maintain the position of the base plate on the floor plan, then check each column in succession as follows:

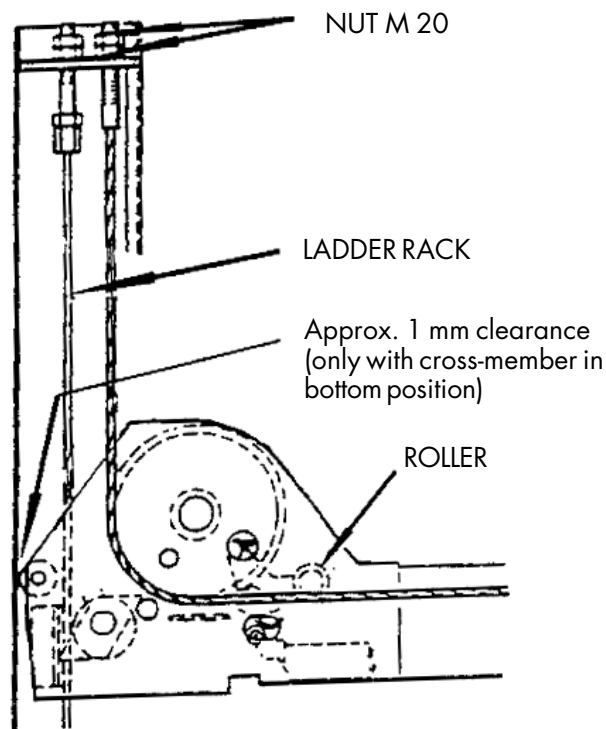
- Whether it is vertical, using a plumb-line. If not, place shims under the base plate or adjust the lifting screws.
- Whether it is square, using a rule placed on the main inside face of the column and sighting the column opposite.
- Whether there is clearance of 1mm between the roller on the end of the cross-member and the inside of the column (Fig. 14).



**Fig. 5**



**Fig. 6**



**Fig. 14**

## Anchoring the columns

Drill the holes for the anchor bolts using the base plates as templates. Ensure that the columns are as vertical as possible and concentric in relation to the base plate holes in order to allow column adjustment. If drilling cannot be completed with the column in place, trace the position of the holes on the floor as accurately as possible, remove the column and its shims, noting their positions.

Fit a large washer in position under the bolt head, locate the anchor bolts in position and tighten them. Before anchoring the motor column, ensure all the necessary parts are fitted. Check the column adjustments (verticality, squareness and 1 mm clearance), alter the shims if necessary.

## Motor column assembly

While it is more convenient to assemble the motor column when it is positioned at bench height, it is also possible to do this with the column in an upright position, secured to the ground (See Fig. 7).



**CAUTION: THE MOTOR COLUMN ASSEMBLY WILL NOT STAND UPRIGHT BY ITSELF. THE RESERVOIR FOR THE MOTOR PUMP UNIT IS MADE OF PLASTIC.**

- Attach the control panel mounting plate using four TH M8 x 16 screws and serrated lock washers.
- Attach the power-pack using four TH 8 x 16 screws and serrated lock washers between the 'U' bracket and the column and four M8 x 20 screws, serrated lock washers and M8 nuts between the motor and the 'U' brackets).
- Position the motor coupling links as appropriate and connect the cable, route it to the left of the motor.
- Attach the upper limit switch to its bracket using two C M4 x 25 screws and serrated lock washers. Fit the bracket to the top of column on the inside with two TH M6 x 10 screws and serrated lock washers.
- Feed the cable through the column and connect it onto the control panel.

## Fitting the wire ropes

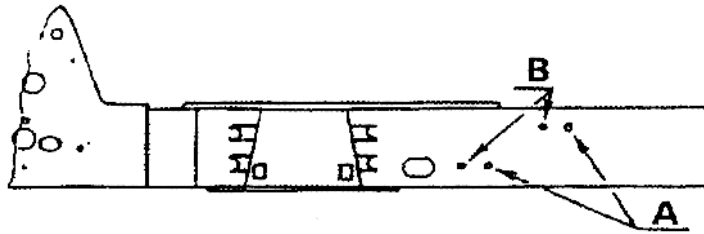
- Bring the platform to rest on the latches at about 1000 mm from the floor, by alternately raising each cross-member 2 or 3 slots, using a crane, jack or a lever engaged in one slot of the ladder rack and a wooden block inserted between the lever and the bottom of the vertical cheek plate.
- At each end of the fixed track, remove the wire rope guide screws (Fig. 4).
- Unwind the wire ropes over a clean floor, they have a steel core and must not be subjected to any kinking or bending during their installation. The ends of the wire ropes are colour-coded and should be threaded over pulley grooves of the same colour as the rope.

Insert the following into the rectangular aperture on the cross-member beam 1-2:

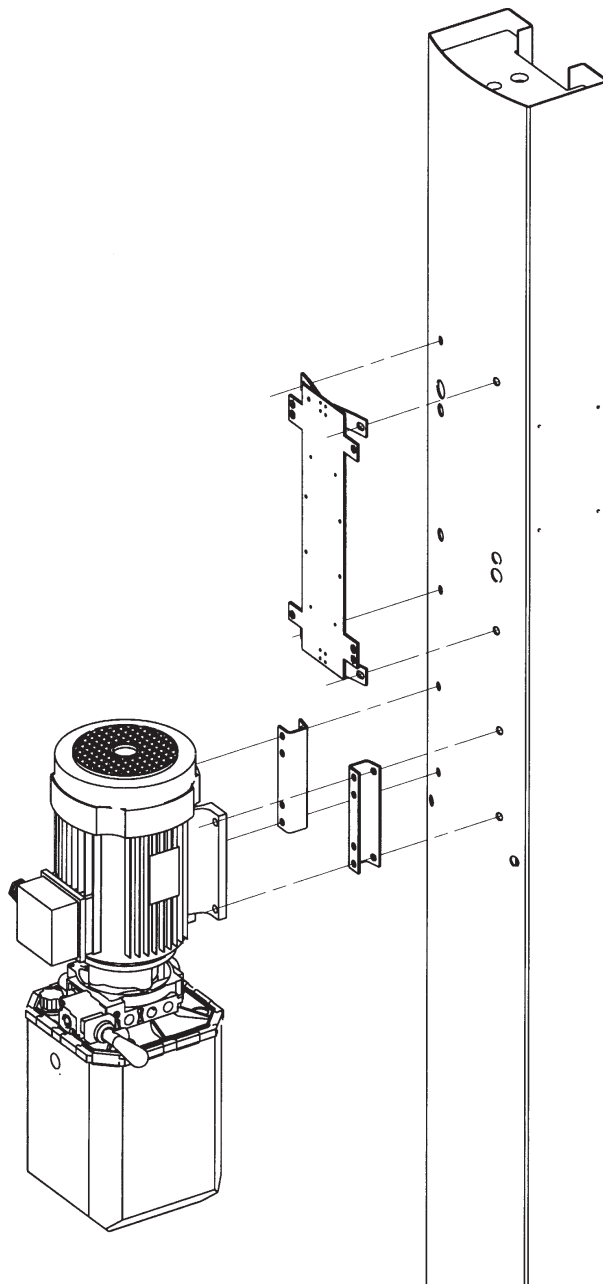
- The loop of the white and yellow wire ropes to the left of the twin pulleys and then route it over the crossbar, so that the yellow wire rope (the shortest) is uppermost.
- The end of the white wire rope to the right of the twin pulleys and then bring it along the track and out through the rectangular aperture in the side of the cross-member 3-4.
- The loop of the red and blue wire ropes to the right of the twin pulleys and then route it over the crossbar so that the red wire rope (the shortest) is uppermost.
- The end of the blue wire rope to the left of the twin pulleys and then in a similar way as the white wire rope and out through the other end of the track.
- Attach the nylon roller by its shoulder screw onto the end of the crossbar, on the side of the red and blue wire ropes (inner side of the platform).
- Remove the vertical pulleys from cross-member 1-2 and then feed the end of the red and yellow wire ropes in through the beam until they reach their respective columns. Ensure that the wire ropes are correctly positioned in the grooves of the twin pulleys and replace the three wire rope guide screws.

At each end of the cross-member, feed the wire rope under the sensing roller which should always be kept in the upper position, then insert it into the groove of the vertical pulley and then insert the end of each wire rope through the top of the column, fit the shoulder collar and the two nuts.

In a similar way, route the white and blue wire ropes in cross-member 3-4 and fit them to their respective columns.



**Fig. 4**



**Fig. 7**

## Fitting the ladder racks



**CAUTION: UNDER NO CIRCUMSTANCES SHOULD THE LADDER RACKS BE PAINTED. IF NECESSARY, CLEAN THEM, SCRAPE OFF ANY EXCESS RUST AND THEN COAT WITH THICK OIL.**

The top of the platform must not be more than 300mm from the ground, when fitting the ladder racks.

On each column:

- Raise the wire rope sensing roller and retain in elevated position.
- Insert the ladder rack into the vertical cheek plate of the cross-member.
- Insert a stud bolt into the top of the column, screw a M16 locknut onto its lowest end, before screwing it fully into the ladder rack. Then lock the nut into position.
- Fit the shoulder screw through the ladder rack then into the threaded hole at the base of the column.
- Screw an M16 nut onto the top end of the bolt until the ladder rack no longer rests on the shoulder screw at the bottom of the column, then add an M16 locknut.

## Fitting the hydraulic hose and electrical connections - 493 9021

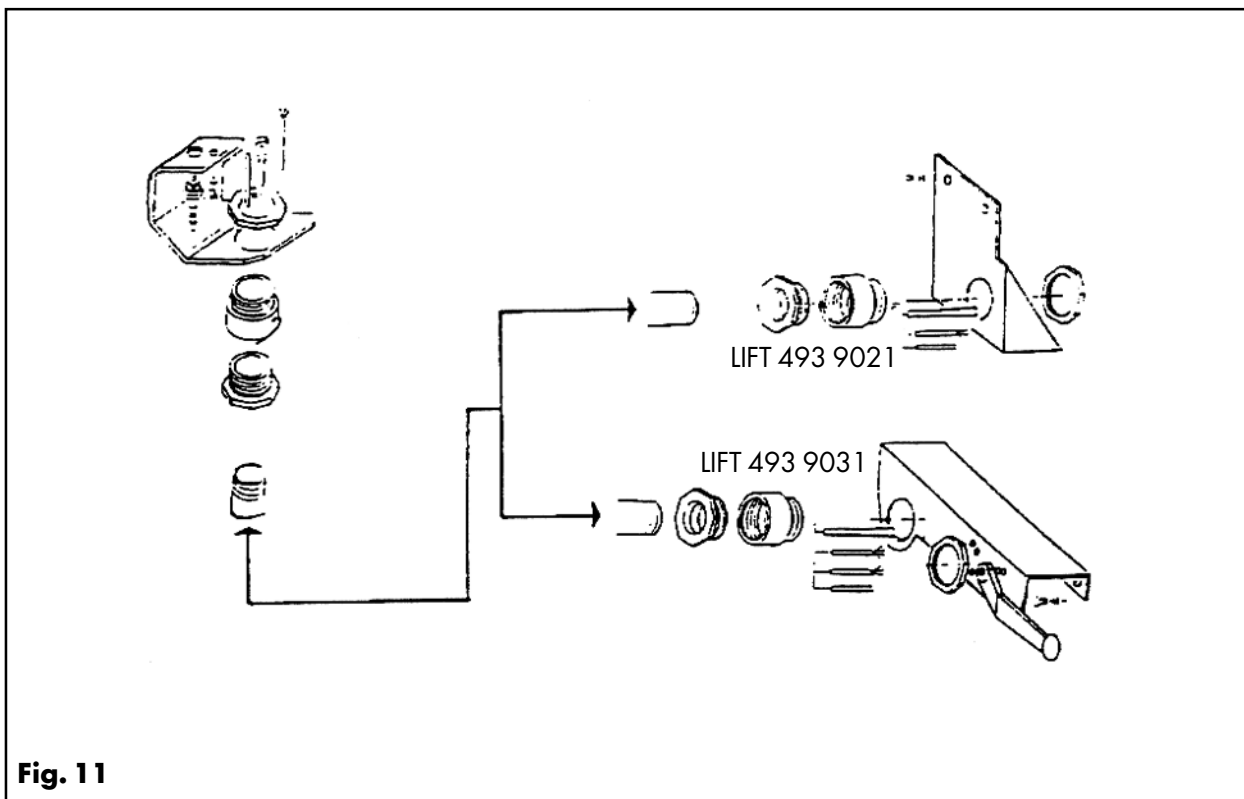
- Connect the high pressure hose onto the ram, forming a large loop around the horizontal pulleys.
- Connect the oil return hose onto the ram.
- Bring the coiled electrical cable into the cross-member.
- Fit the conduit entry fittings at each end and fit them onto their respective brackets.
- Thread the two hoses and the electrical cable through the conduit.
- Attach the conduit support lug onto the track using two M8 x 16 screws with serrated lock washers.
- Connect both the high pressure hoses and oil return hose onto the power-pack.
- Fix the conduit support lug onto the power-pack using a screw and serrated lock washer.
- Connect the electrical cable onto the mounting plate.
- Check that the circuit breaker has been set correctly as follows:  

6.3 A in 400 V  
10 A in 230 V
- Connect the two junction boxes mounted on the cross-members, using the designated cable.

## Fitting the hydraulic hose and electrical connections - 493 9031

- Connect the high pressure hose onto the auxiliary lifting ram in the adjustable track. The oil return hose must be attached as soon as the auxiliary unit is mounted in position.
- Route the hoses into the chain and secure the chain along the cross-member using two M6 x 16 screws with serrated washers. Fit the angle bracket using two M8 x 16 screws with serrated lock washers.
- Fit the inversion valve angle bracket onto the track using three M8 x 16 screws with serrated lock washers.
- Connect the conduit and glands onto these two angle brackets.
- Connect the electrical cables into the junction boxes on the cross-members.
- Connect the HP hoses according to Fig. 11.
- Thread the HP and oil return hoses together with the electrical cable into the conduit and connect them onto the power-pack.
- Fit the conduit angle bracket onto the power-pack using one M8 x 16 screw with serrated lock washers.
- Connect the electrical cables onto the control panel.
- Check the settings of the circuit breaker are as follows:

6.3 A for 400 V  
10 A for 230 V



**Fig. 11**

## CONNECTING TO THE ELECTRICITY SUPPLY



**IMPORTANT: THE ELECTRICAL SUPPLY MUST CONFORM WITH THE CURRENT EDITION OF THE IEE REGULATIONS.**

The rating [SIZE] of the supply control fuses should be as follows:

- 230 V                      Three phase 10 A aM
- 400 V                      Three phase 6 A aM

The conductor section for the supply should be as follows:

VOLTAGE	LENGTH OF LINE	CONDUCTOR CROSS-SECTION
400 V	less than 100 m	1.5 mm <sup>2</sup>
	100 to 150 m	2.5 mm <sup>2</sup>
230 V	less than 35 m	1.5 mm <sup>2</sup>
	35 to 55 m	2.5 mm <sup>2</sup>

- Check that the transformer voltage and the circuit breaker rating and its settings all correspond to the voltage. Connect the electrical supply to the control panel.
- Check that the fuse-holder mounted on the terminal block carries the correct fuse.
- Check the direction of rotation of the motor: rotate the circuit breaker to position 1, then observe the direction of rotation of the motor fan by briefly rotating the control knob towards RAISE. If the fan does not turn in a clockwise direction, isolate the electrical supply. Interchange two of the phases in the electrical supply and re-check.

## COMMISSIONING THE PUMP

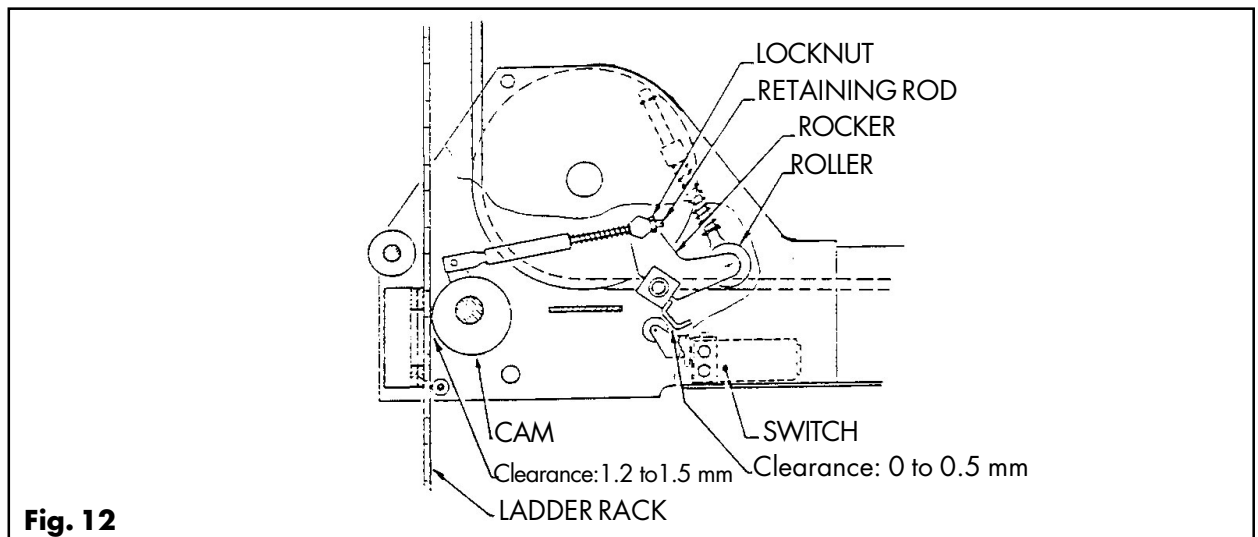
Fill the pump unit reservoir with the correct grade of oil as follows:

- 493 9021**      8 litres of S.A.E.: 10W30, 10W40 oil or hydraulic oil Ref. 4939031
- 493 9031**      8 litres of hydraulic oil - ONLY USE that supplied with the lift (Ref. 256 8011)  
Engler viscosity at 20 C : 4 to 4.5

NOTE: An extra two litres of oil will be required after the rams have been bled.

Tension the wire ropes by turning the control knob towards 'RAISE', checking regularly that none of the wire ropes have slipped out of the pulley grooves. Raise the platform by about 100mm and check the following:

- That none of the wire ropes are fouling a metal part or an electrical cable.
- That the latches retract simultaneously when the control knob is turned towards 'LOWER'.
- At each end of the cross-member, check that there is clearance of between the limit switch roller and the rocker arm cam (Fig. 12).



**Fig. 12**

## Fitting accessories

- Fit the blanking (inspection) plate to the end of each cross-member in the (fixed track) axis.
- Hang the access ramps onto the end of the tracks on the 'drive on' side, and then insert the retaining rod into the hooks and locate and fit the split pins in position.
- Attach the end stops onto the tracks at the opposite end to the drive on direction. (Fig. 19).
- Fit the blanking plates onto the tracks.

## Adjusting the level of the platform

Rest the platform on the latches at about 500mm from the ground and fully slacken the wire ropes by operating the 'LOWER' lever for a short period, after the platform comes to a stop.

By adjusting the nuts on the ladder suspension stud bolts, check that the platform is level:

- laterally, using a spirit level on each of the cross-members
- longitudinally using a spirit level in the centre of a track



**CAUTION: WHEN ADJUSTING THE NUTS ON THE LADDER SUSPENSION BOLTS, CHECK THAT THE RETAINING SCREW ON THE LOWER END OF THE LADDER RACK IS NOT CLAMPED IN ITS ELONGATED HOLE AND THAT THE WIRE ROPE IS KEPT SLACK, IF NECESSARY, OPERATE THE 'LOWER' LEVER FOR A MOMENT.**

## Adjusting the wire ropes

This adjustment is necessary in order to:

- prevent one or more of the wire rope safety switches from operating when the platform is in its lowest position.
- allow the latches to be engaged simultaneously, by eliminating any stretch in the wire ropes under load. NOTE: a long wire rope should be shortened more than a short one to compensate for 'elastic' stretch.



**CAUTION: WHEN ADJUSTING A WIRE ROPE NUT, ALWAYS HOLD THE END OF THE WIRE ROPE FERRULE TO PREVENT THE ROPE TWISTING.**

- Lower the platform to the ground. Release the button that unlocks the latches and then the 'LOWER' lever, after having pulled on the wire rope in column 4 (Fig. 13) so that the ram is fully extended.
- Adjust each wire rope end in turn until a measurement of 62 +/- 2 mm is obtained between the bottom of the cross-member cheek plate and the top of the column base plate. A clearance of 7 to 10 mm is to be obtained between the bottom of the cheek plate and the lower column stop (1 turn of the nut = 2 mm).
- Position a vehicle weighing approx. 2,500 kg on the platform and raise it to eye level, leaving it suspended on the wire ropes.
- Measure the dimension 'X' (See Fig. 13) for each column and identify the highest cross-member end in relation to the ladder slots.
- Raise the other ends by turning the nut on the wire rope end fitting until they are brought to the same level as the highest end (1 turn of the nut = 2 mm).
- Fit a and fully tighten locknut onto each wire rope.
- Fit the column covers in position.

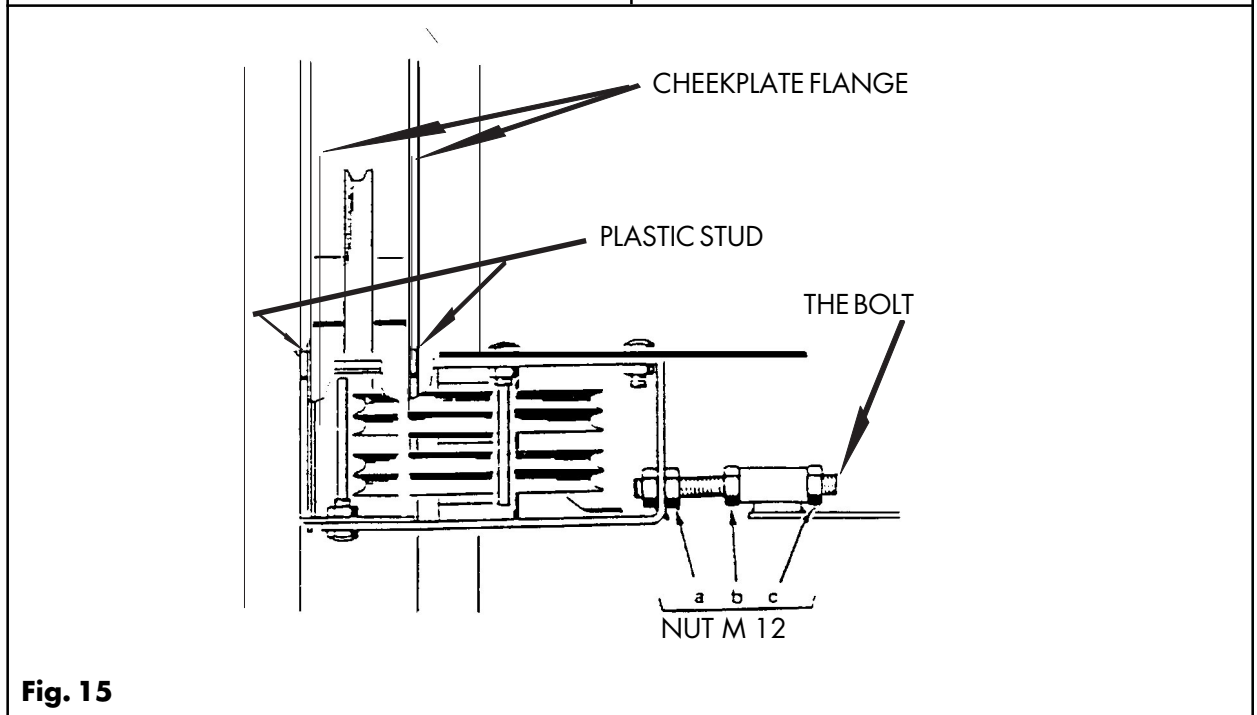
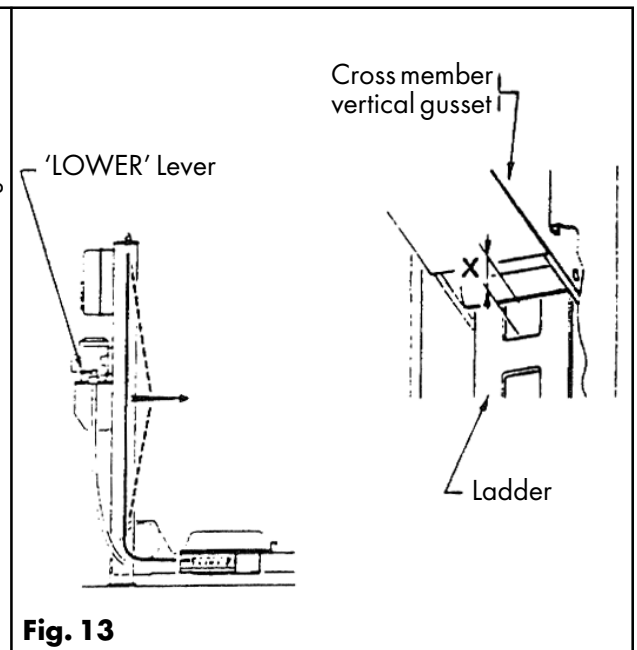
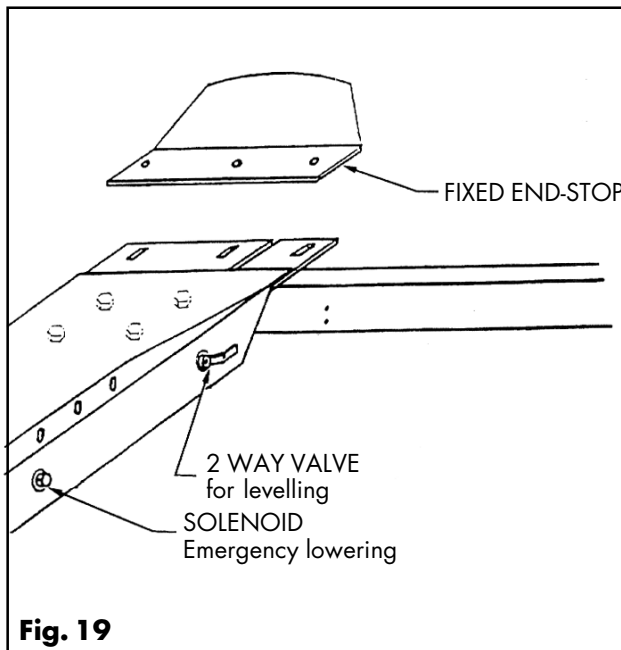




## Fitting and adjusting the tie rods

Raise the platform, without letting it rest on its latches. At each end of the fixed track:

- Insert the threaded rods into the tubes located in the track (Fig. 15).
- Screw two M12 nuts (a) and (b) onto the rod.
- Position an M12 nut in the cross-member cheek plate. Tighten the M12 nut (a) fully against the bracket.
- Screw a M12 nut (c) onto the other end.
- Adjust nuts (b) and (c) until the flanges of the vertical cheek plate are parallel in the column and tighten them fully.



## Checking the column adjustment

Raise the unloaded platform to 300mm from the ground, suspended by the wire ropes.

Check the following:

- That each column is square, using a rule placed firmly on the outer surface, and which is then used to sight the opposite column.
- That each column is centred on its cross-member cheek plate to prevent excessive friction on the plastic studs on the column aperture.
- That the clearance between each cross-member and column is between 1 to 3 mm.
- That each column is vertical, by means of a plumb line. In order to eliminate any clearance between cross-members when the platform is in its operating position, the distance between the tops of the columns of one particular cross-member must be slightly less (5 to 15 mm).

NOTE: If a cross-member is too tight between columns, an unladen platform could jam when being lowered, causing the wire rope to slacken and the latches to engage in the ladders.

If necessary, adjust the position or the vertical plane of one or more columns, by placing shims under the base plate and adjusting one or more of the tie-rods under the ends of the fixed track.

Check inside the columns with the platform at three different heights e.g. low, medium, high, that the ladder edges do not rub on the inner surfaces of the cheek plate flanges.

## Checking the latches

With the platform raised and suspended on the wire ropes, check at each end of the cross-members that the latch operates freely without sticking. If necessary, identify the cause of the problem and rectify (e.g. rust, using too thick an oil to lubricate it, latching solenoid sticking due to ingress of dirt etc.)

## Checking the rocker arm retaining system

With the unloaded platform raised and suspended on the wire ropes, proceed as follows at each cross-member end:

- Pull on the retaining rod to check that the bush turns freely.
- Check the rod clearance (Fig. 17). This clearance must be 6 mm. Correct if necessary by adjusting the stop nut on the end of the rod.

## Checking the safety brake cam

With the unloaded platform raised and suspended on the wire ropes, proceed as follows at each cross-member end:

- Measure the clearance between the cam and the ladder rack. This should be between 1.2 and 1.5 mm. If necessary, release the locknut and adjust the cam retaining rod (See Fig. 12) and check that the cam turns freely.

## Checking the wire rope safety switches

The tension of each platform suspension wire rope is monitored at each end of the cross-member by a sensing roller mounted on a rocker arm.

If one of the wire ropes becomes slack because of an obstacle under the platform or a broken wire rope, the corresponding rocker arm pivots and activates the first contact on the switch which in turn causes the latches to become engaged, thereby stopping the platform. The second contact is also activated and this prevents the platform from being raised again.

If, when the platform is being lowered onto the latches, these do not engage in the same ladder slots on the same horizontal plane, or if one of the latches engages unintentionally when the lift is being lowered, the supporting latch retaining system restricts the rotation of the rocker arm in such a way, that only the first electrical contact on the switch is actuated. This causes the other latches to engage.

NOTE: It is still possible to raise the platform again in order to re-adjust the platform so that it is level.

### Checking the adjustment of the wire rope safety switch

With the unladen platform raised and suspended on the wire ropes, check at each cross-member end that there is a clearance of approx. 0 to 0.5 mm between the switch roller and the cam that is part of the sensor. If necessary, adjust the position of the switch in order to obtain this clearance (Fig. 12).

### Checking the obstruction/wire rope failure sensor

- Place an obstruction under one end of a cross-member.
- Lower the platform until the latches fall back against the ladders and the lift stops.
- Check that it is no longer possible to operate the RAISE control. If necessary, check the switch position and electrical circuit.
- In order to free the obstruction, raise the sensing roller, then whilst keeping it raised, rotate the control knob towards RAISE, until this obstruction can be removed.
- Repeat this sequence for all of the cross-member ends.

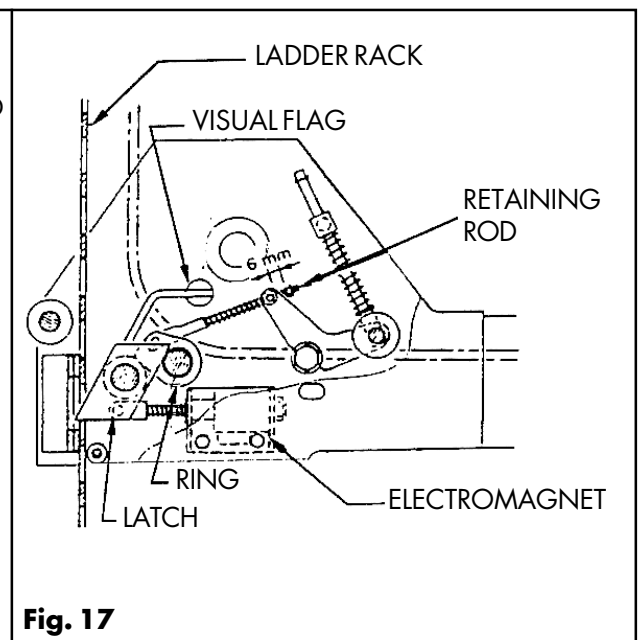
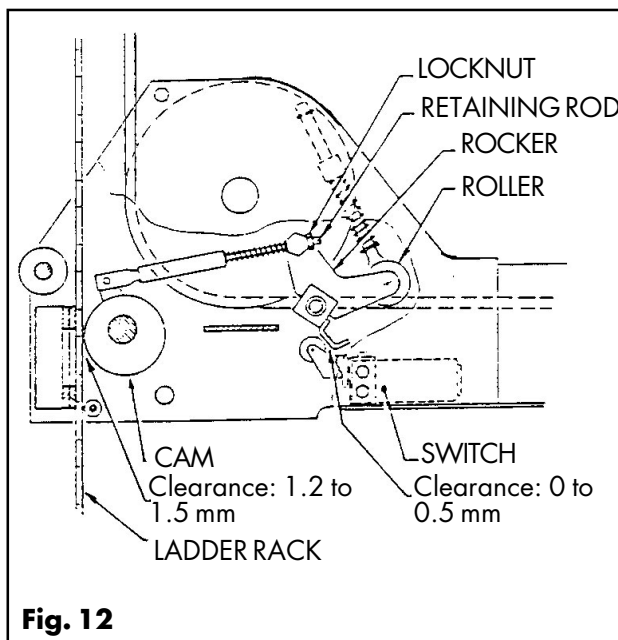
### Checking the ladder latching

With the unloaded platform raised and suspended on the wire ropes, check each cross-member end as follows:

- Disconnect one conductor from the latch solenoid and then start to lower the platform until the latches fall back against the ladders and the platform is stopped. The latter must occur before there is a 100 mm maximum offset between the heights of the cross-member ends. Ensure that this is correct and check that the 'RAISE' command is still possible.

If the results of one of these tests are not satisfactory, bring the platform back to level, suspended on the wire ropes and then check the 6 mm clearance of the retaining rod (see Fig. 17), as well as the switch position and electrical circuit.

Reconnect the solenoid and then check another end.



## Checking the ram safety valve

Should a hose fail, this valve stops the lift from lowering by locking up the fluid in the ram. Correct operation of this valve depends on the correct oil grade/viscosity, it should be checked whether the oil is of the correct grade before carrying out this test. If it is too cold, fully raise the loaded platform a few times. In order to check the valve setting:

- Place a FOUR Tonne load onto the platform and then raise it.
- Slowly move the 'LOWER' lever and mark its position as soon as the valve operates (about 3/4 of the way).
- Raise the platform again to its uppermost position.
- Move the 'LOWER' lever until it is brought slightly in front of the previously marked position so that the valve is not made to function. Record the time it takes to lower the platform fully. This should be between 23-26 secs.
- If it is necessary to adjust its setting, refer to Fig. 16.

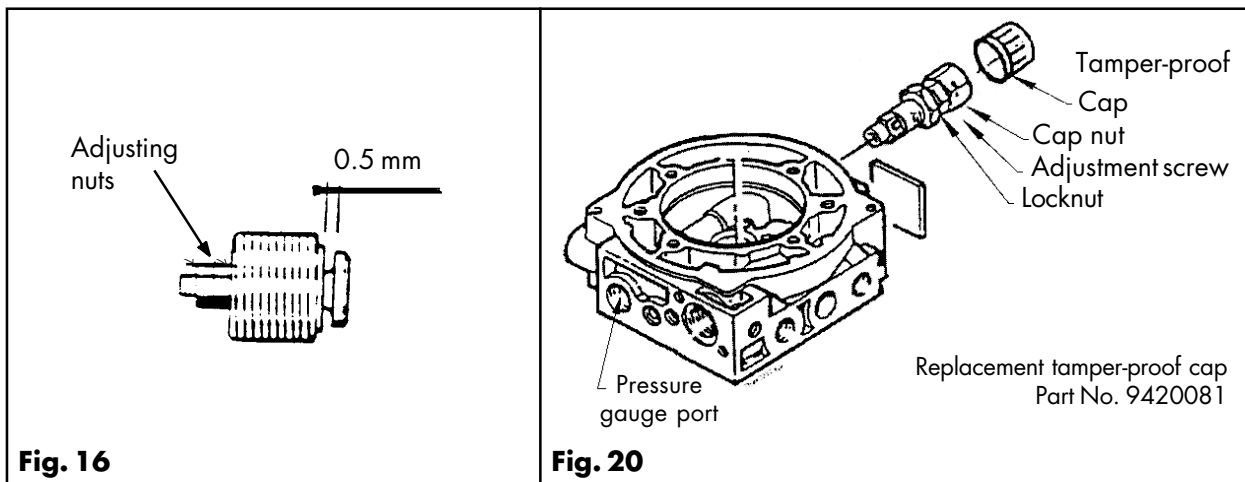
NOTE: This valve must function with a load of 300 kg on the platform. The bursting of a hose can be simulated by opening a valve that has been fitted between the hose and the power-pack.

## Lubrication

Lubricate as following parts:

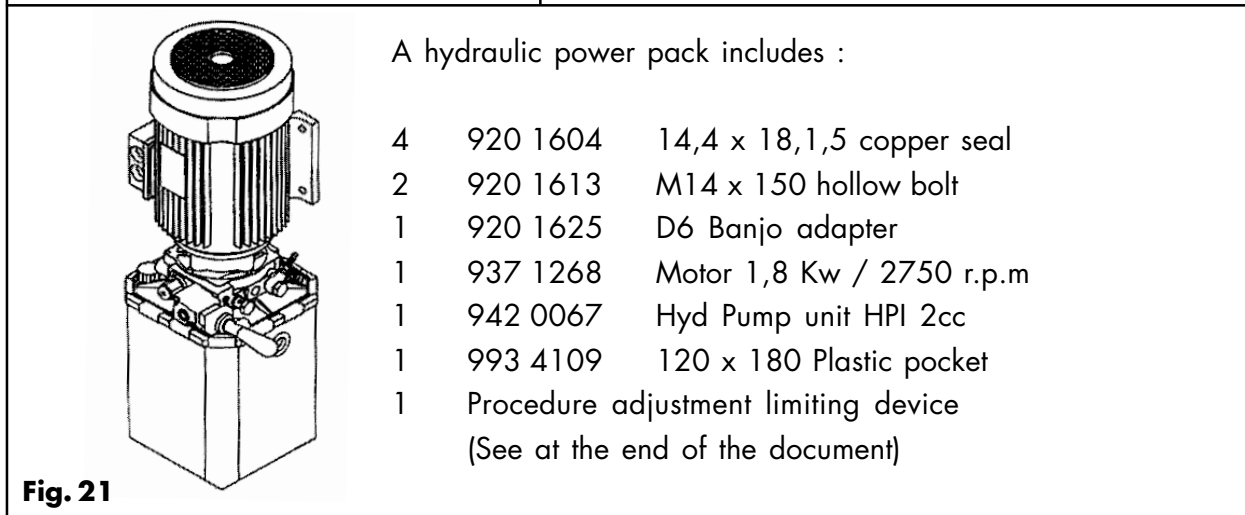
- The platform load bearing wire ropes with the special grease supplied.
- The cam, latch and wire rope sensor pins.

Fit the cheek plate covers onto the cross-member ends.



**Fig. 16**

**Fig. 20**



**Fig. 21**

## COMMISSIONING THE AUXILIARY LIFT

- Turn the handle on the three way valve to 'AUXILIARY'.
  - In the enclosure (X5), put a link wire between terminals 8 and 9 in order to deactivate the photo cell.
  - Rotate the control knob towards RAISE so that the drive ram fills with oil.
  - Open bleed screw (A Fig. 18) on the drive ram to expell any air in the system, when this is completed re-tighten the bleed screw and check for leaks.
  - Open the two way valve located on the inside of the fixed track (Fig. 19).
  - Rotate the control knob towards RAISE, so that the slave ram fills with oil.
  - Connect the oil return hose onto the ram.
  - As above, open the two bleed screws (B) and (C), on the rams, to expell any air in the system, when this is completed, re-tighten them and check for leaks. Operate the system, to fully extend the slave ram.
  - Close the two way valve again on the inside of the fixed track and lower the platform by rotating the control knob to LOWER and opening the bypass valve.
  - At about 150mm from the track upper surface, the auxiliary will stop lowering and the buzzer will sound.
  - Release the rotary control knob and activate it again in order to start lowering the auxiliary again.
  - Raise and lower the auxiliary several times and check if the two platforms are at the same height (a slight offset under load is acceptable).
- If correction is necessary, this can be achieved by increasing or decreasing the spare oil capacity between the two rams by means of the two way valve.
- Adjust the light beam of the photo cell onto the reflector (taking into account a slight offset under load).
  - Remove the link (8 - 9) wire in (X5).

NOTE: The buzzer sounds as soon as the auxiliary lift reaches its lower limit switch. It is also normal for it to operate whilst the lift is lowering.

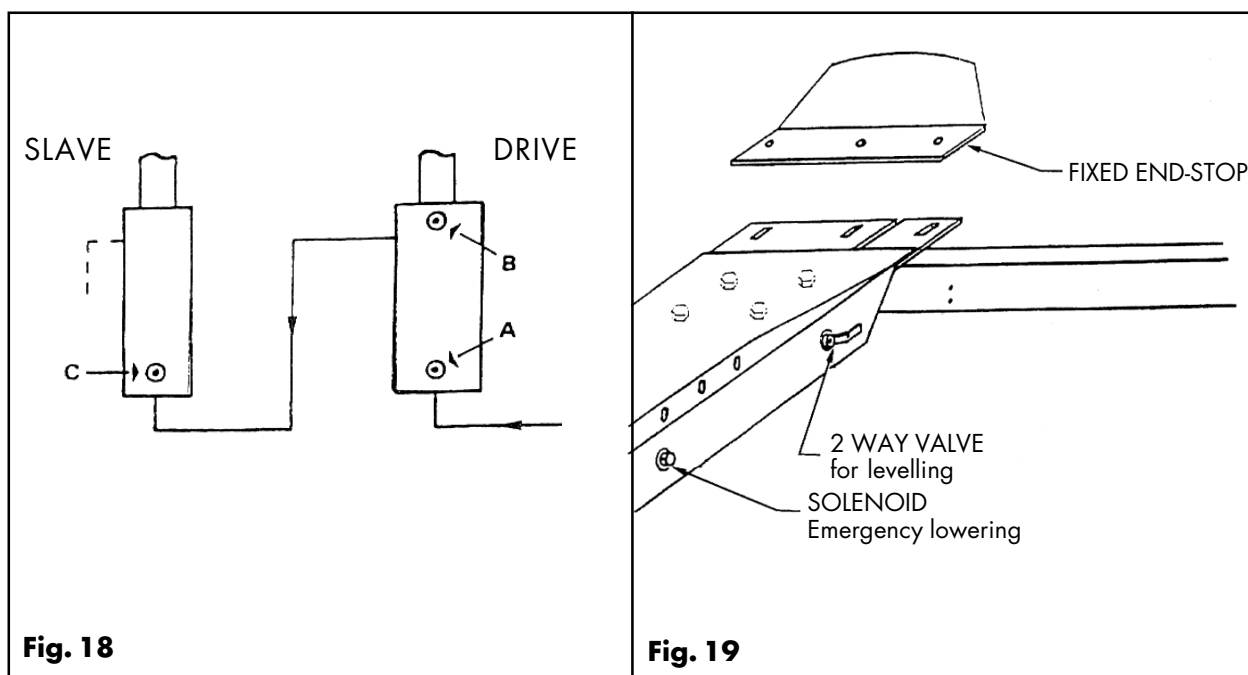


Fig. 18

Fig. 19

## OPERATION

### Safety instructions

(The following information must be displayed on a label on the control column)

- The danger zone is the area around and including the lift. This can be defined by a 50mm wide 45° yellow/black line or self-adhesive tape, a minimum of 600mm around the outer edges of the lift column bases and access ramps.
- The tracks and floor within the danger zone must always be kept perfectly clean.
- The vehicle must be effectively secured using chocks if applicable.
- Ensure that the vehicle is structurally able to be lifted at points specified by the vehicle manufacturer.
- Only authorised competent persons can use the lift.
- The operating instructions should be referred to, particularly in the case of a breakdown.
- The operator must ensure that the displacement area (danger zone) for the lift and the load, is clear of any personnel tools and equipment before the lift is operated.
- The operator must ensure that the methods used for lifting the vehicle comply with the requirements of the vehicle manufacturer and does not present any risks. The operator must also check that the vehicle is correctly and securely positioned and structurally suitable to be lifted on the points specified by the vehicle manufacturer.
- The operator must stop the lift after the platform has risen about 250mm and re-check the vehicle stability, lifting points/security etc. before continuing to raise the platform to the desired height.
- The operator must supervise the entire lifting operation and is responsible for safety of the lift and the load, each time the lift is operated.
- Do not enter the displacement area (danger zone) when the lift is operated.
- Check that the latches are engaged in the ladder racks before going beneath the platform.  
**DO NOT WORK UNDER AN UNLATCHED PLATFORM.**
- It is forbidden for persons to ride on the platforms.
- Do not carry out any work to a vehicle that may cause it to become unstable, slide or fall from the platforms i.e. remove heavy components or apply an undue force.
- Keep all children and animals away from the displacement area (danger zone).
- During prolonged shut-down periods (e.g. nights, weekends, holidays) it is advisable to turn on the emergency stop switch housed in the electrical enclosure (position 0). The switch can be locked in this position, in order to prevent the lift from being used by non-competent persons.
- The use of personal protective equipment e.g. gloves, goggles etc. may be necessary when working within the danger zone.

### Positioning the vehicle

- Position the vehicle and check that the track width corresponds to the track of the vehicle.
- Drive the vehicle onto the platform and secure it using chocks placed on both sides of at least one wheel (see 'Accessories').

### Raising the platform

- Set the three way valve to 'LIFT' (493 9031).
- If necessary, turn off the emergency stop switch (position I).
- Rotate the control knob towards 'RAISE'. Hold it there, until the platform is at the desired height.
- Actuate the 'LOWER' lever so that the latches engage in the ladder slots; only release it when the platform is secured. If the platform starts to tilt, due to a latch not being able to engage in the ladder, raise the platform and then lower it again.

## Lowering the platform

- Check that there are no personnel, tools or equipment in the danger zone.
- Raise the platform 20-30mm to allow the latches to be released.
- Turn the control knob towards 'LOWER' and whilst holding it there, progressively operate the 'LOWER' lever. NOTE: Whilst the platform is being lowered, it is normal for the buzzer to be heard if the auxiliary is in its bottom position.

Stopping the platform before the reaching the floor.

- Release the control knob and then the lever when the platform is latched. Ensure the platforms have latched correctly if required (See above).

Stopping the platform at ground level.

- Wait for the platform to come to rest before releasing the control knob and the lever.

NOTE: If, whilst being lowered, the platform comes to rest without the latches being engaged in the ladder slots - the lower lever has been operated 'excessively' causing the ram safety valve to operate. If this happens, raise the platform for a few seconds and then recommence lowering the platform by operating the lever more moderately, so that this problem is not repeated. If this locking occurs when the platform is at its highest point and cannot be raised any further, remove the upper limit switch so that it does not operate.



**CAUTION: WHEN THE PLATFORM COMES TO REST AT FLOOR LEVEL, THE LATCHES SHOULD NOT ENGAGE WITH THE LADDER RACK (BEFORE THE BUTTON IS RELEASED). WIRE ROPES THAT ARE INCORRECTLY ADJUSTED MAY ALLOW THE SAFETY SWITCHES IN THE CROSS-MEMBERS TO OPERATE. IF THIS HAPPENS, THE WIRE ROPES MUST BE CORRECTLY ADJUSTED BEFORE POSSIBLE TO RAISE THE PLATFORM.**

## RAISING THE AUXILIARY PLATFORMS (493 9031)

- Ensure that the vehicle is 'structurally suitable' to be lifted at the points recommended by the vehicle manufacturer.
- Set the three way valve to 'AUXILIARY'.
- Insert the rubber blocks between the auxiliary plate and the vehicle body. (See 'Safety Precautions')
- Turn the control knob towards 'RAISE' and hold it there until the desired height is reached.

IMPORTANT: If the motor does not operate, check that the upper limit switch has not been actuated by the platform. Similarly the upper limit switch of the auxiliary lift prevents the platform from being raised.

## LOWERING THE AUXILIARY PLATFORMS (493 9031)

- Check that there the danger zone is clear of personnel, tools and equipment.
- Check that there are no obstructions or tools are left under the auxiliary platform.
- Turn the control knob towards 'LOWER'. Whilst holding it there, progressively operate the 'LOWER' lever. The lift stops 150mm from the bottom and the buzzer operates.
- Release the control knob and check that it is safe to lower the platform completely.
- Continue lowering.

## 'LOWER' CONTROL

### Changing the position of the lever

After being in use for some time, the end of the 'LOWER' lever may start to touch the motor. In order to change its position, ensure that the needle is locked in place on its seat, unscrew the lever a few turns then turn it to the correct position, then re-screw and firmly tighten the lever in position.



**CAUTION: CHECK THAT THERE IS CLEARANCE OF 1 TO 2 MM BETWEEN THE UPPER END OF THE SPRING TUBE AND THE SUPPORT, WHEN THE NEEDLE IS LOCKED ONTO ITS SEAT.**

## RAM SAFETY VALVE

This valve is located in the hydraulic supply in the base of each of the rams. Should the supply hose rupture, the valve stops the platform from being lowered by trapping the oil in the ram.

NOTE: If the valve in the slave ram is operated (in the right-hand track), the solenoid valve causes the left-hand track to be brought to rest (this solenoid is controlled by the photoelectric control sensor).

Before replacing this valve, check the following:

- Poor adjustment of the flow rate controller causing the platform being lowered too quickly.
- An incorrect grade of oil has been used.

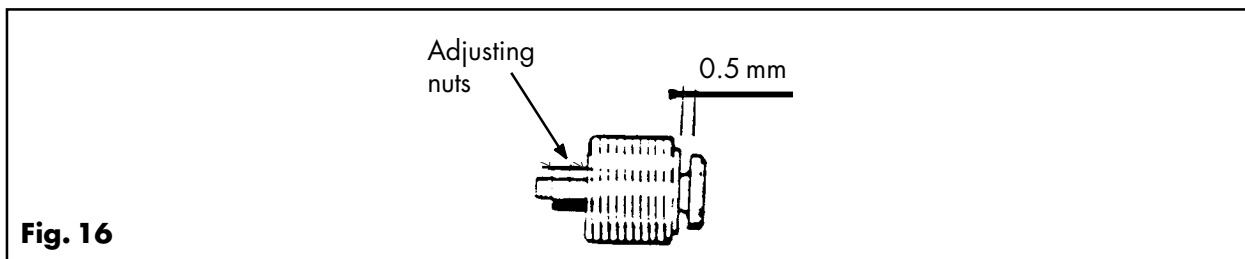
## Check and adjustments

- Raise the platform half-way.
- Unscrew the hose and its connector see following warning.



**WARNING: CARE SHOULD BE TAKEN DUE TO THE RESIDUAL OIL PRESSURE IN THE RAMS. THE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT E.G. GLOVES AND GOGGLES SHOULD BE WORN.**

- Unscrew the valve using a special tool (Ref. 150031).
- Check that the clearance is 0.5 mm. If necessary, adjust the nuts to obtain this clearance (Fig. 16).
- Replace the valve in the ram, screw it in fully and then re-fit the hose and its connector.



**Fig. 16**

## Thread torque

- The inside screws of the banjo connector must be tightened to a torque of 3 to 4 m/kg.
- Whenever the parts are re-assembled, it is important to always replace the copper seals.

## LOWERING THE PLATFORM without electrical power

If the electrical supply has been interrupted, it is still possible to lower the platform by proceeding as follows:

- Remove the upper and lower covers on the vertical cross-member cheek plates.
- Raise one cross-member end with a crane or a jack until it is possible to manually extract the latch from the ladder slot.
- Use steel wire to keep the latch retracted. Raise the sensing roller in order to unlock the cam (check it) and whilst keeping it raised, re-lower the cross-member end. Repeat this procedure for the other cross-member ends.
- Operate the 'LOWER' lever moderately so as not to cause the safety valve to function again.



**CAUTION: STOP LOWERING THE PLATFORM IMMEDIATELY IF A CROSS-MEMBER END, STOPS MOVING BECAUSE THE SAFETY BRAKE CAM HAS OPERATED.**

If the safety brake cam of one of the cross-member ends is actuated, lift the end using a shop crane or a jack, and then manually lift the wire rope sensing roller. Unlock the cam and lower the cross-member whilst keeping the sensing roller raised. As soon as the platform reaches the ground, drive the vehicle off and at each end of the cross-member, release the latches and re-fit the cheek plate covers.



## LOWERING THE AUXILIARY (493 9031) platforms without electrical power

### HYDAC solenoid valve

- On the inside of the fixed track there is a manual control for the oil solenoid valve for the auxiliary (Fig. 19).
- Insert a 4 mm diameter pin into the end of the solenoid core.
- Using a large screwdriver to push on the pin, pull out the core and hold it locked in this position.

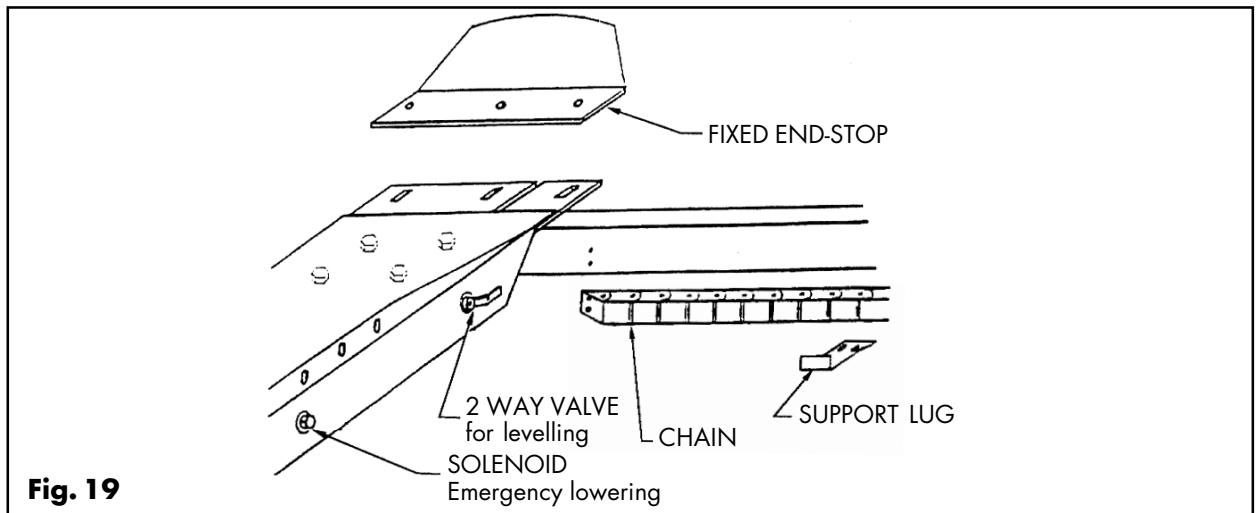


**DANGER: CHECK THAT THERE ARE NO PERSONNEL, TOOLS OR EQUIPMENT IN THE DANGER AREA, AS THE BUZZER WHICH NORMALLY SOUNDS TO WARN OF THE RISK OF HANDS BEING TRAPPED, WILL NOT OPERATE.**

- Remove the screwdriver and the pin.

### EV HPI Solenoid valve

- Using a 6 x 4 Allen key, remove the screw situated on the end of the solenoid core through the 25 mm diameter hole on the inside of the fixed track.
- Replace the screw and tighten it to a torque of 0.3 m/kg.



## MAINTENANCE

### General

The lift and suspension parts (wire ropes) and safety systems must be examined at least every six months by an authorised competent person. More frequent checks will be necessary if the lift is continual use.

The lift must be thoroughly examined following any major repair or modification involving its main components.

These tests and examinations must only be carried out by an authorised competent person. The result and date of this test or examination as well as the name, occupation and address of the person who has carried it out, must be recorded in a log or notebook that includes the identification details of the lift.

### Monthly Maintenance (or three-monthly if the lift is used infrequently)

- With the platform on the ground, check the oil level, or once a year, drain the oil reservoir. Use the following types of oil:
  - 493 9031 (including auxiliary lift)  
Only use hydraulic oil ref. 256 8011, 5 litres Engler viscosity = 4 to 5 degrees at 20° C.
  - 493 9021 (without auxiliary lift) hydraulic or engine oil S.A.E. 10 W 30.
- Lubricate the cam, latch and wire rope sensor pins with a light oil.
- Clean the platform suspension wire ropes. Check that no wire rope has come out of the pulley grooves and inspect each rope over its entire length.  
NOTE: a thin or frayed wire rope must be replaced.
- Check that there are lock nuts on the wire rope end fittings. Using the appropriate personal protective equipment e.g. gloves, generously grease the wire ropes with the recommended grease.

### Annual lift test

Check the wire rope adjustment as follows:

- Place the unloaded platform in its bottom position and ensure that no cross-member end is resting and causing mechanical wear on the column base plate. (NOTE: The distance between the bottom of the cheek plate and the top of the base plate must at least 60 mm).
- Position a vehicle weighing between 1500 kg and 2200 kg on the platform. Raise the platform to eye-level, suspended on the wire ropes and check that dimension X (Fig. 13) is more or less the same for all four columns. If necessary, adjust the wire ropes.

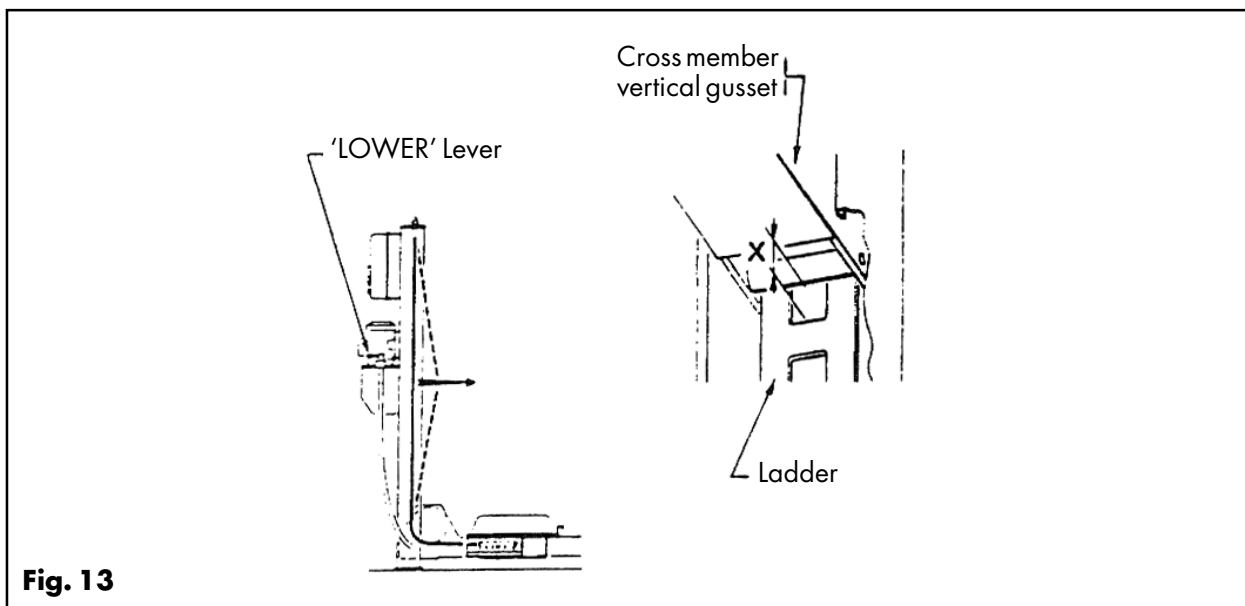


Fig. 13

- Check the columns and the tie-rods under the ends of the fixed track.
- Replace the plastic studs that guide the vertical cross-member cheek plates into the columns, if they are worn.
- Clean and wipe dry the ladders, then rub them with an oiled rag to protect them from rust.
- Check torque setting of the column anchor bolts.
- Check that the platform is level.



**CAUTION: IT IS IMPERATIVE THAT THE WIRE ROPE IS READJUSTED WHENEVER A MAINTENANCE OPERATION IS CARRIED OUT ON A LADDER RACK.**

- Check the pulleys for wear.
- Turn the control knob towards 'RAISE' until the wire ropes are taut and then check that none of the wire ropes have come out of their pulleys.

Check the following on the power-pack unit:

- The tension and condition of the return spring for the LOWER lever. If it is weakened or has deteriorated, its return will no longer be automatic. If necessary, re-tension or replace the spring.
- The presence of a lead seal on the pressure relief valve. If necessary check its settings.
- In each cross-member end, raise the wire rope sensing roller using a hook to check that it turns freely and does not have any flats.

Check whether the following parts of the rope safety system are operating correctly:

- The rocker retaining system and adjustment.
- The latches and cams together with their adjustment.
- The wire rope safety switches.
- The upper limit switch.
- The setting and operation of ram safety valve.

Check the following:

- Condition of the flexible conduit.
- Condition and operation of the access ramps.
- Condition and cleanliness of the tracks.

Check that the following are available:

- Moveable chocks (for securing the vehicle onto the platform).
- Safety sign notice.
- Maximum lift load notice.

Lift 493 9031

- Check that the auxiliary lift is level.
- Check that the photocell is adjusted and operates correctly.
- Check the condition of the auxiliary lifting pads.

## OVERLOAD TESTS

The European Machinery Directive requires that all lifts are tested under dynamic (+10%) and static (+25%) overload conditions prior to their commissioning. These tests must be carried out only an authorised competent person. The result and date of these tests as well as the name, occupation and address of the person who has carried them out, must be recorded in a log or notebook that includes the identification details of the lift.



**CAUTION: DURING THESE TESTS, THE SETTING OF THE PRESSURE RELIEF VALVE SHOULD BE ALTERED FOR THE DYNAMIC TEST AND THEN RE-SET. THE LIFT MUST NOT BE OPERATED DURING THE STATIC TEST.**

## FAULT FINDING

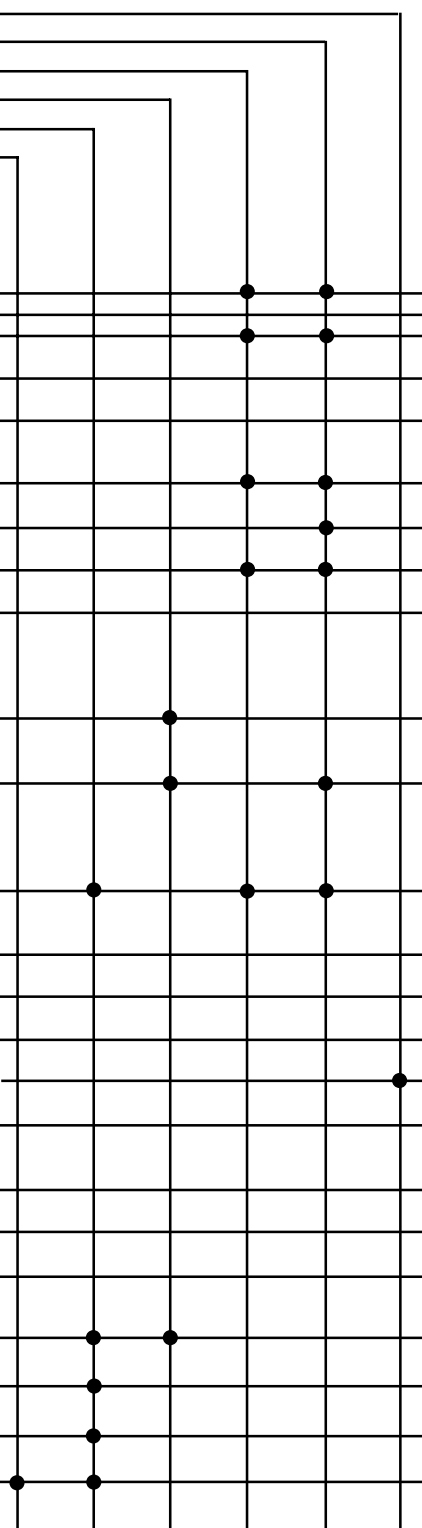
### FAULTS

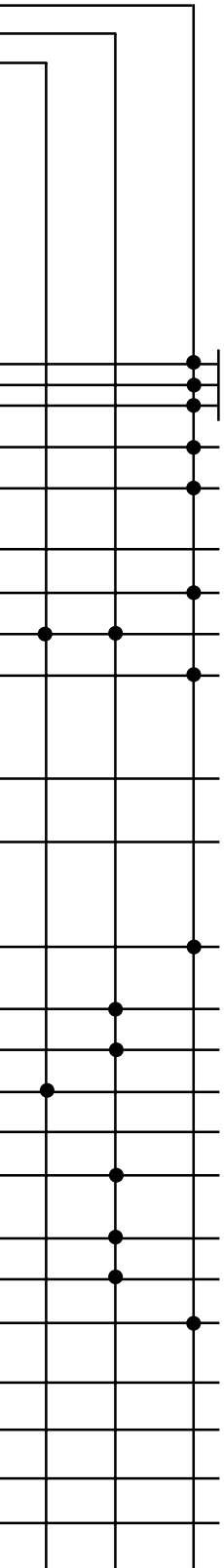
On turning the control knob towards 'RAISE':

- The pump does not operate \_\_\_\_\_
- The pump works but the platform or the auxiliary raises slowly or not at all \_\_\_\_\_
- The platform or the auxiliary does not lift to its full height \_\_\_\_\_
- An unusual sound occurs when the deck or the auxiliary reaches its upper limit \_\_\_\_\_
- When the deck is being lowered, it stops unexpectedly \_\_\_\_\_
- When the auxiliary is being lowered, it stops unexpectedly \_\_\_\_\_
- Unable to start to lower the deck \_\_\_\_\_
- Unable to start to lower the auxiliary \_\_\_\_\_
- When the auxiliary is being lowered, it moves very slowly \_\_\_\_\_

### CAUSES

- 1) No electricity supply to the lift due to
  - a power cut \_\_\_\_\_
  - the position of the emergency stop button \_\_\_\_\_
  - damage to a fuse or the line \_\_\_\_\_
- 2) Tripping of the motor circuit breaker (emergency stop) \_\_\_\_\_
- 3) The platform is at ground level and poor adjustment of the wire ropes has allowed the rocker arm to activate the safety switch. \_\_\_\_\_
- 4) The 'LOWER' lever has been moved too far which has caused the ram safety valve to function. \_\_\_\_\_
- 5) Failure of a platform support wire rope \_\_\_\_\_
- 6) Failure of the ram supply hose \_\_\_\_\_
- 7) The platform is resting on its latches. One or more of the wire rope safety switches have been activated due to poor adjustment of the rocker retaining system clearance and the clearance of the switch. \_\_\_\_\_
- 8) A latch will not unlock and the functioning of the electrical safety device has caused the other latches to fall back against the ladder racks. \_\_\_\_\_
- 9) An obstruction under the platform or the safety brake cam on one of the cross-member ends unexpectedly operates. \_\_\_\_\_
- 10) A component in the electrical circuit is faulty (e.g. fuse, transformer, contactor coil, switch) or one of the conductors is disconnected or poorly connected. \_\_\_\_\_
- 11) The vehicle is too heavy (unusual noise) \_\_\_\_\_
- 12) Due to work on the power supply line, the pump rotates in the wrong direction. \_\_\_\_\_
- 13) Lack of oil in the reservoir. \_\_\_\_\_
- 14) the upper limit switch has not been actuated by the cam fixed on the cross-member cheek plate or is faulty. \_\_\_\_\_
- 15) Poor sealing of the 'LOWER' valve (lack of tension in the lever return spring, damage to its seat or its needle). \_\_\_\_\_
- 16) The pressure relief valve is faulty. \_\_\_\_\_
- 17) The geared pump in the motor pump unit is worn. \_\_\_\_\_
- 18) The lift or auxiliary deck has reached its upper limit. \_\_\_\_\_
- 19) The three-way valve is poorly positioned \_\_\_\_\_
- 20) The cell is faulty or the beam is not returned due to an obstruction or the reflector is damaged or missing. \_\_\_\_\_
- 21) the solenoid valve does not work. \_\_\_\_\_
- 22) Hydraulic oil grade incorrect \_\_\_\_\_

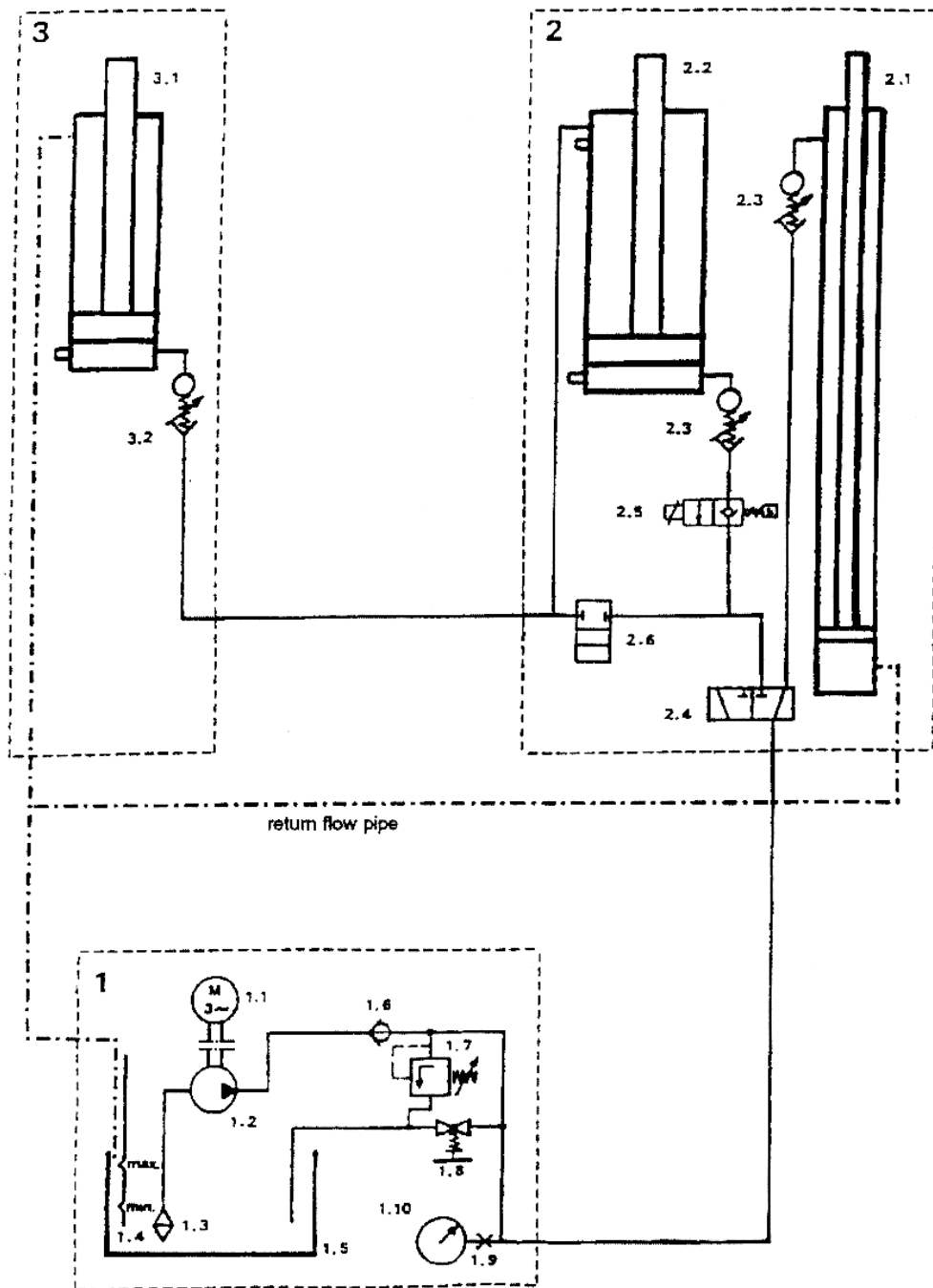




## REMEDIAL MEASURES

- A) Check and if necessary consult a competent person. To lower the platform without electrical power, refer to page opposite.
- B) The electrical supply must be checked by a competent person.
- C) If necessary, unload the platform and check that none of the cross-member ends are resting against the column base plates. If necessary, adjust the nuts on the wire rope end fittings until the cross-member end is lifted, and then adjust the wire ropes.
- D) Briefly raise the platform and then lower it again more slowly so as not to repeat this problem. Check and adjust its setting.
- E) Check. If necessary, call F.F.B. Service Department for a replacement.
- F) Check and remedy.
- G) Examine each cross-member end. If the retaining system clearance and switch clearance are non-existent, lift the sensing roller so that it no longer actuates the safety switch. Then, with it still up, operate the control knob towards RAISE, until the wire ropes are taut. If the pump does not work, the breakdown is not due to this fault but to the next one (10). So as not to repeat this incident, adjust the retaining system clearance and the switch clearance.
- H) Raise the platform in order to release the latches from the ladder racks and check that they are working correctly. If necessary check the control circuit and replace the faulty latch solenoid.
- I) Check and identify the cross-member end that is not resting on its latch, then lift its sensing roller so that it no longer actuates the safety switch. With it still elevated, operate the control knob towards RAISE until the obstruction can be removed or the sound of the ladder rack dropping back can be heard (cam unlocking). If this incident is not due to an obstruction and happens frequently, check the condition of the ladder rack, the squareness of the column and the adjustment of the cam.
- J) Contact the F.F.B. Service Department.
- K) Check the weight of the vehicle and if necessary, test with a lighter one.
- L) Check in a clockwise direction watching the motor fan. If incorrect contact the F.F.B. Service Department.
- M) Lower the platform back down and check the oil level. If this is not correct, top up with more oil.
- N) Check and remedy the fault.
- O) Check and remedy the fault.
- P) This valve is factory set for replacement contact the F.F.B. Service Department.
- Q) Check the pressure and the time taken to raise the platform: replace it if necessary.
- R) Lower the platform or the auxiliary slightly.  
NOTE: the auxiliary upper limit switch prevents the platform from being raised and vice versa.
- S) Correctly position the three-way valve on the platform or auxiliary lift.
- T) Adjust the photo cell or replace it. Re-adjust the level using the two-way valve.
- U) Check its power supply. Lower the vehicle using the method to lower the auxiliary without electrical power.
- V) Check the viscosity. Important this must be hydraulic oil 4 to 5 - Engler at 20° C.

### LIFT 493 9031





## 1. POWER PACK UNIT

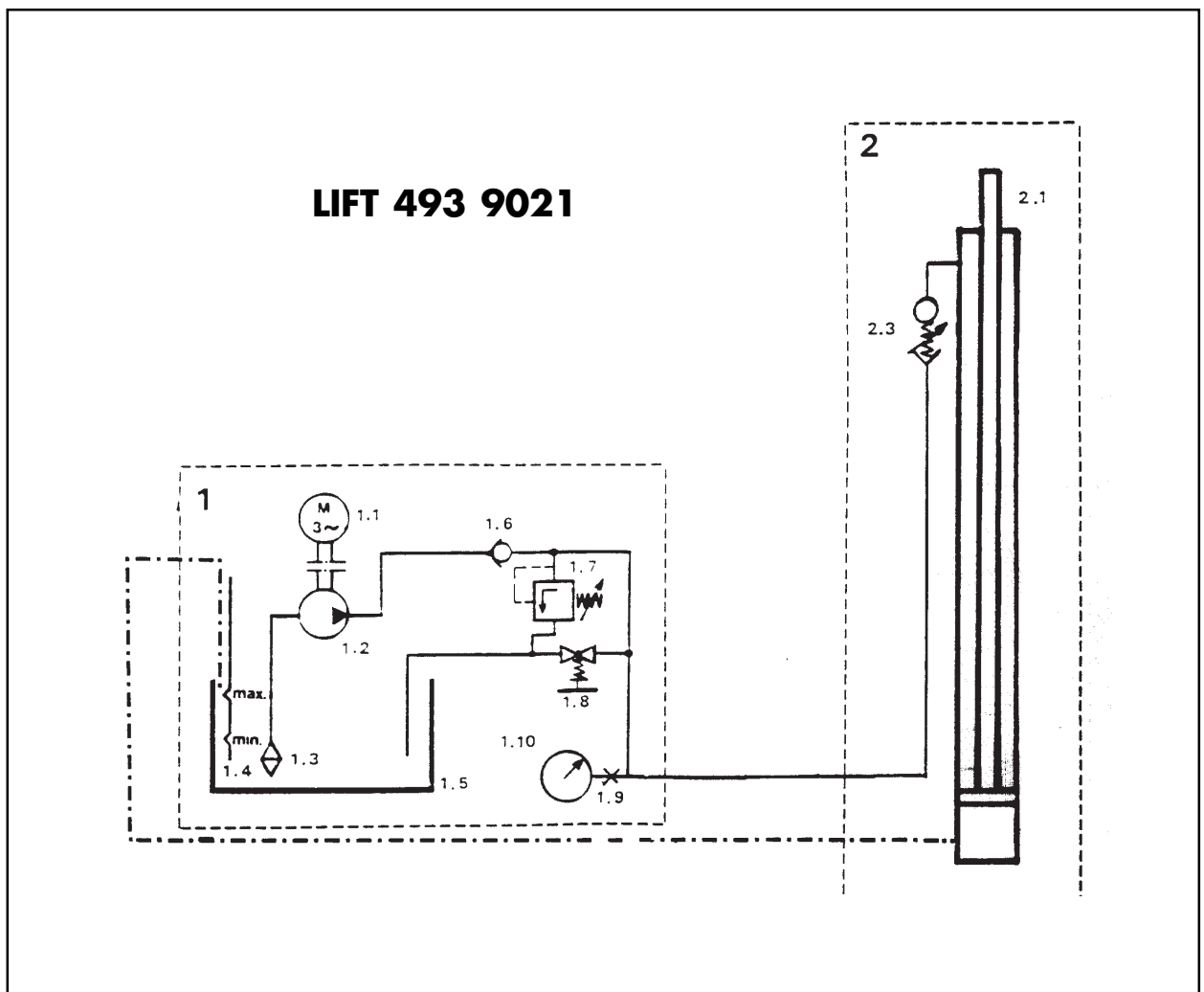
- 1.1 Motor
- 1.2 Pump
- 1.3 Suction filter
- 1.4 Oil dipstick
- 1.5 Oil reservoir
- 1.6 Non-return valve
- 1.7 Pressure relief valve
- 1.8 'LOWER' control
- 1.9 Gauge connector
- 1.10 Control gauge

## 2 - FIXED TRACK

- 2.1 Deck platform ram
- 2.2 Auxiliary emission ram
- 2.3 Safety valve - Hose failure
- 2.4 Three-way valve
- 2.5 Solenoid valve
- 2.6 Two-way valve

## 3. ADJUSTABLE TRACK

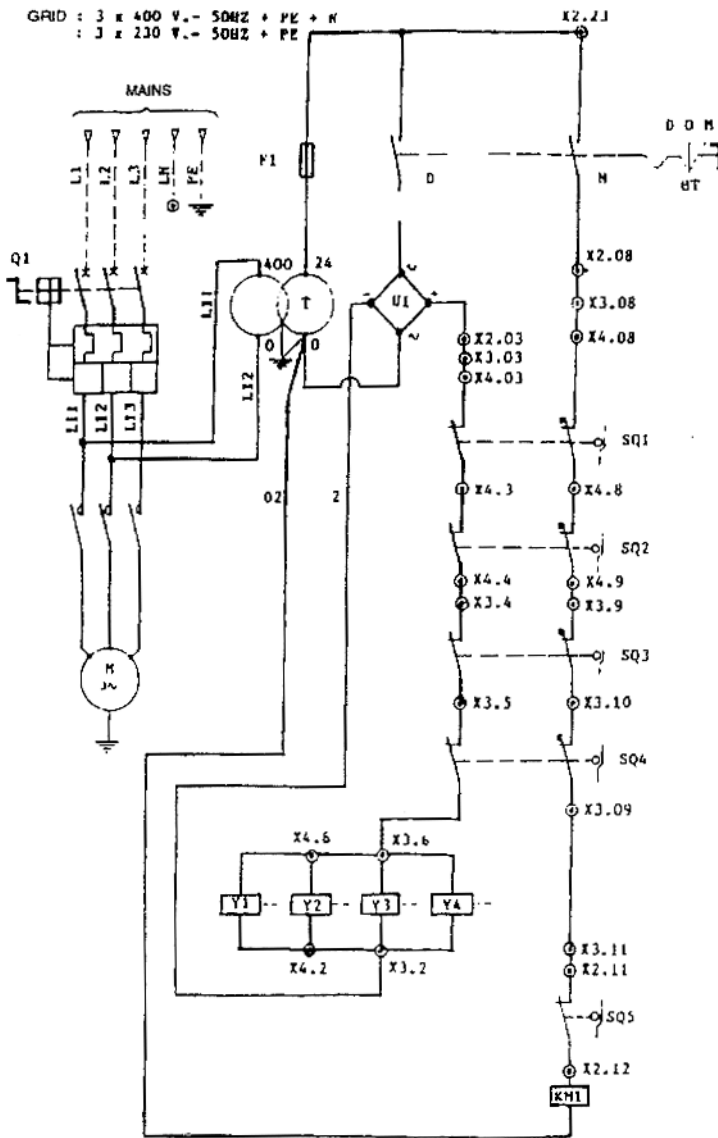
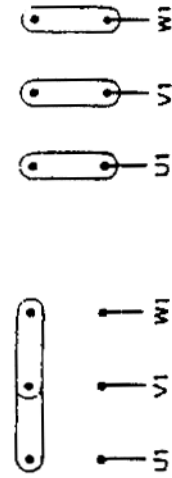
- 3.1 Auxiliary slave ram
- 3.2 Safety valve - pipework rupture



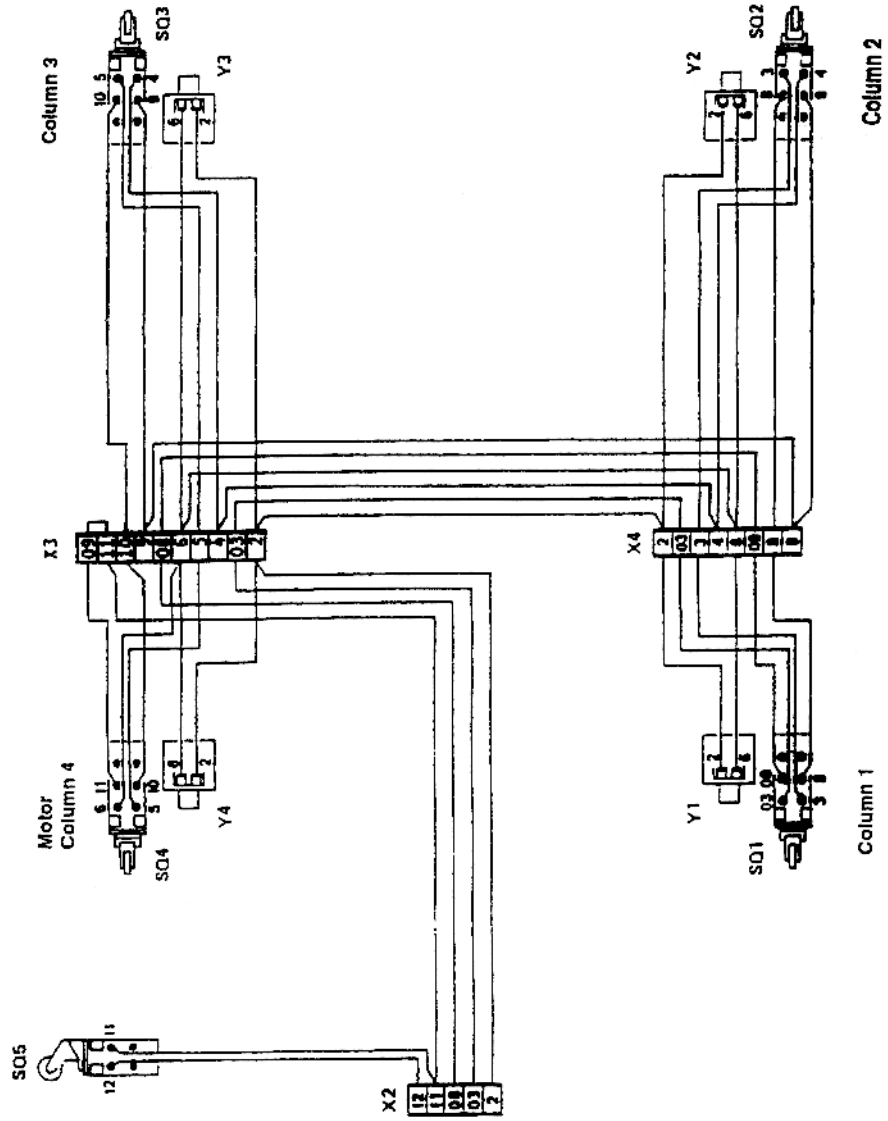


- Q1 Circuit Breaker - Lockable Emergency Stop Switch
- KM1 Motor contactor
- M Induction motor 1.8 KW / 1450 RPM
- T Isolating transformer 160 VA 400 / 24 Volts or 230 / 24 Volts
- F1 Fuse 10.3 x 38.8 A fast-acting
- U1 Bridge Rectifier
- BT 2 position rotary button Central return
- SQ 1-4 Cross-member limit switch
- SQ 5 Lift upper limit switch
- Y 1-4 Solenoid valve 40 W 16 V continuous
- ⊙ Connecting terminals

400 Volts 230 Volts







**MAINS SUPPLY**

1) **THREE PHASE 400 Volts**  
Originally designed for this voltage.

**Check:**

- that the transformer input voltage is in fact 400 V
- the setting of the thermal relay is 5A.

**NOTE:** The neutral conductor is not necessary for the lift to operate but it does allow accessories to be connected that require 230 V supply (e.g. lighting etc.)

2) **THREE PHASE 230 Volts**

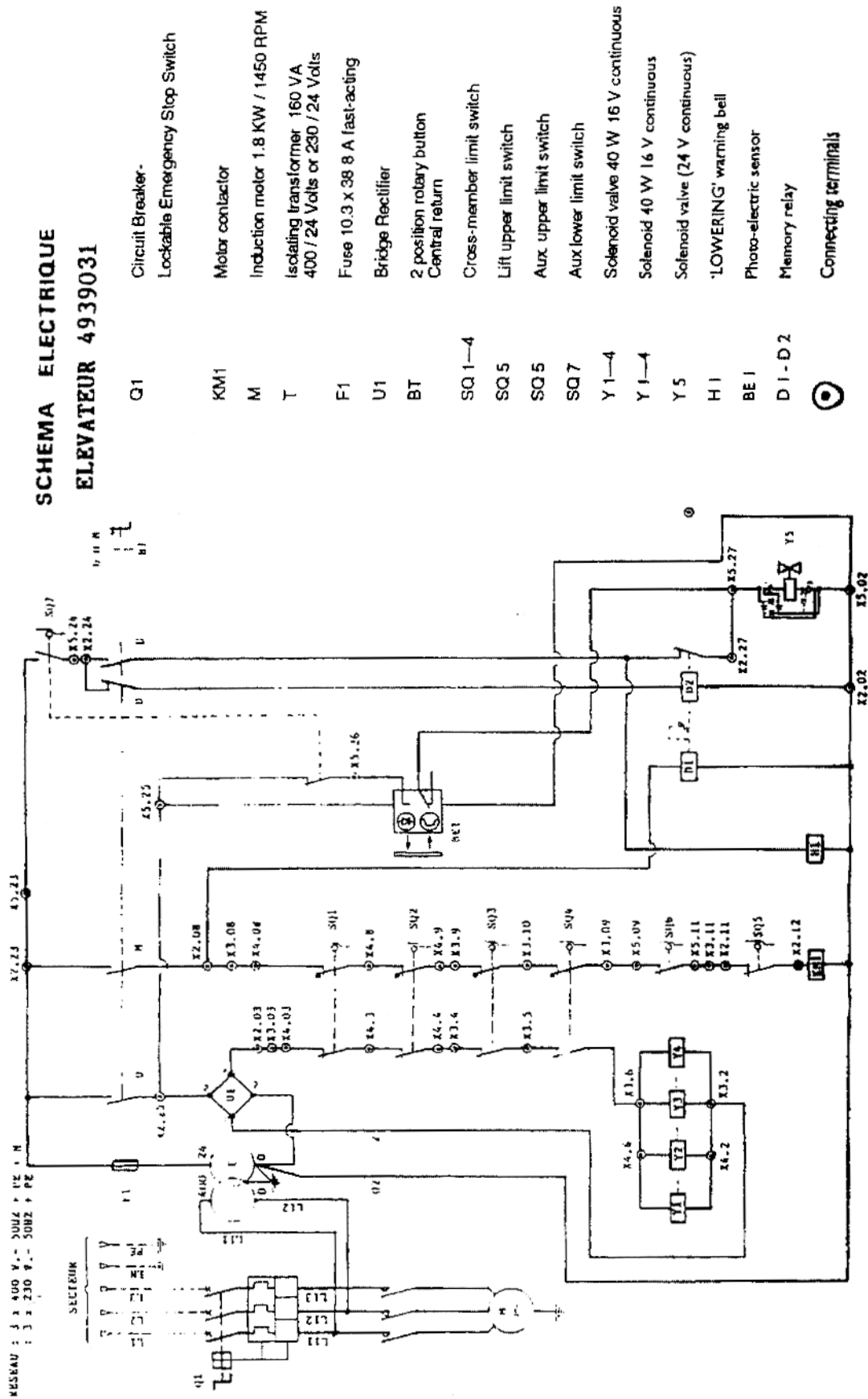
Carry out the following operations:

- Replace the transformer
- Set the circuit breaker to 8.5 A

**POSITION OF THE MOTOR CONNECTION LINKS**



**SCHEMA ELECTRIQUE  
ELEVATEUR 4939031**





MAINS SUPPLY

- 1) THREE PHASE 400 Volts

Originally designed for this voltage.

Check:

- that the transformer input voltage is in fact 400 V
- the setting of the thermal relay is 5A.

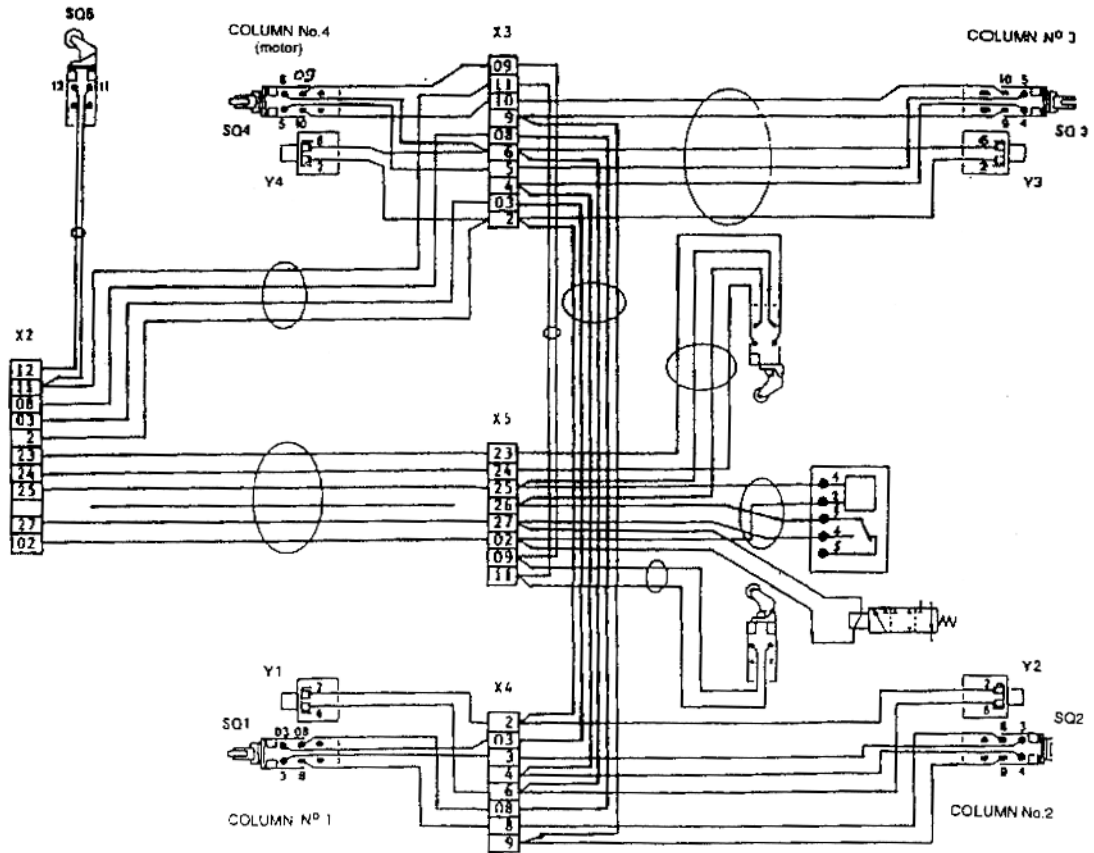
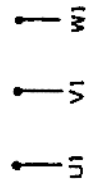
NOTE: The neutral conductor is not necessary for the lift to operate but it does allow accessories to be connected that require 230 V supply (e.g. lighting etc.)

- 2) THREE PHASE 230 Volts

Complete the following operations:

- Replace the transformer
- Set the circuit breaker to 8.5 A

400 Volts



**TECHNICAL SPECIFICATION**

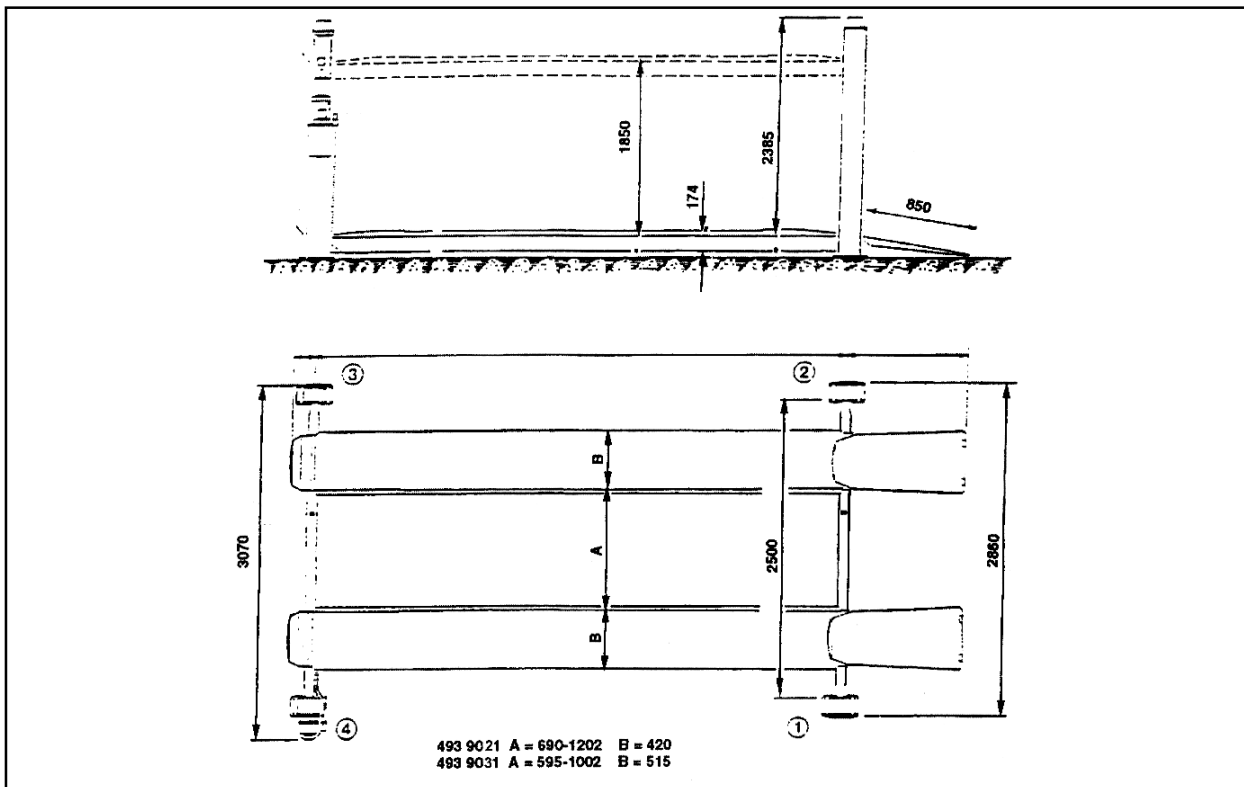
Load capacity (platform)	3500 kg
Load capacity (auxiliary)	3000 kg
'Raise' time	approx. 35 secs
'Lower' time	28 secs minimum
<b>Hydraulic Circuit</b>	
Capacity	10 litres
Oil type	hydraulic oil 256 8011
Engler viscosity at 20°C	= 5
Max. working pressure	250 bar
<b>Electrical Supply</b>	
Voltage	400 V 3 phase+earth (Can also be changed to 230V three phase)
Power	1.85 KW
<b>Weight</b>	
493 9021	655 kg
493 9031	1015 kg

**Weight of the Individual Component Parts**

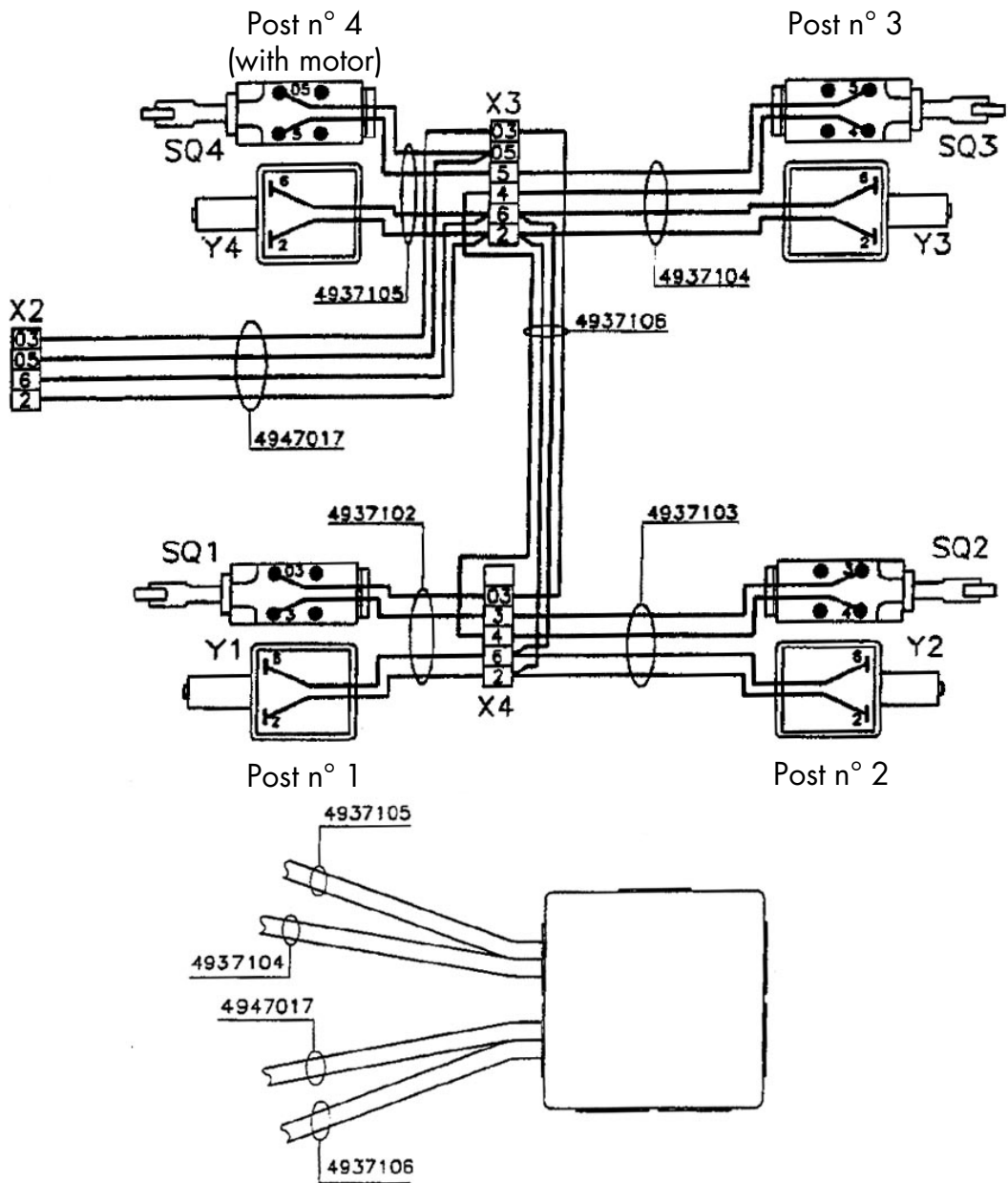
Description	Weight (kg)	Dimensions (mm)
Set of columns	150	2360 x 570 x 390
Set of cross-members	145	2800 x 350 x 320
Set of ramps	50	1040 x 450 x 130
Set of tracks :		
493 9021	250	4400 x 440 x 250
493 9031	610	4400 x 520 x 470
Accessories	60	720 x 540 x 430

Maximum platform capacity	3500 kg
Minimum wheelbase	2.50 m
Minimum track	1.5 m
Load distribution	2/5 - 3/5

Equipment lifting strap capacity      1000 kg (minimum)



## Wiring diagram



### POWER SUPPLY :

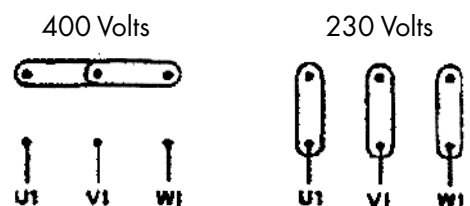
**1) 3 phases 400V :**

- The lift can be directly wired.
- No modification required.
- Check the input voltage of the transformer which must be 400V.

NOTA : The neutral wire is not necessary for the lift itself. However, it is necessary for 230V accessories (lighting kits, wheel alignment device, ...)

**2) 3 phases 230V :**

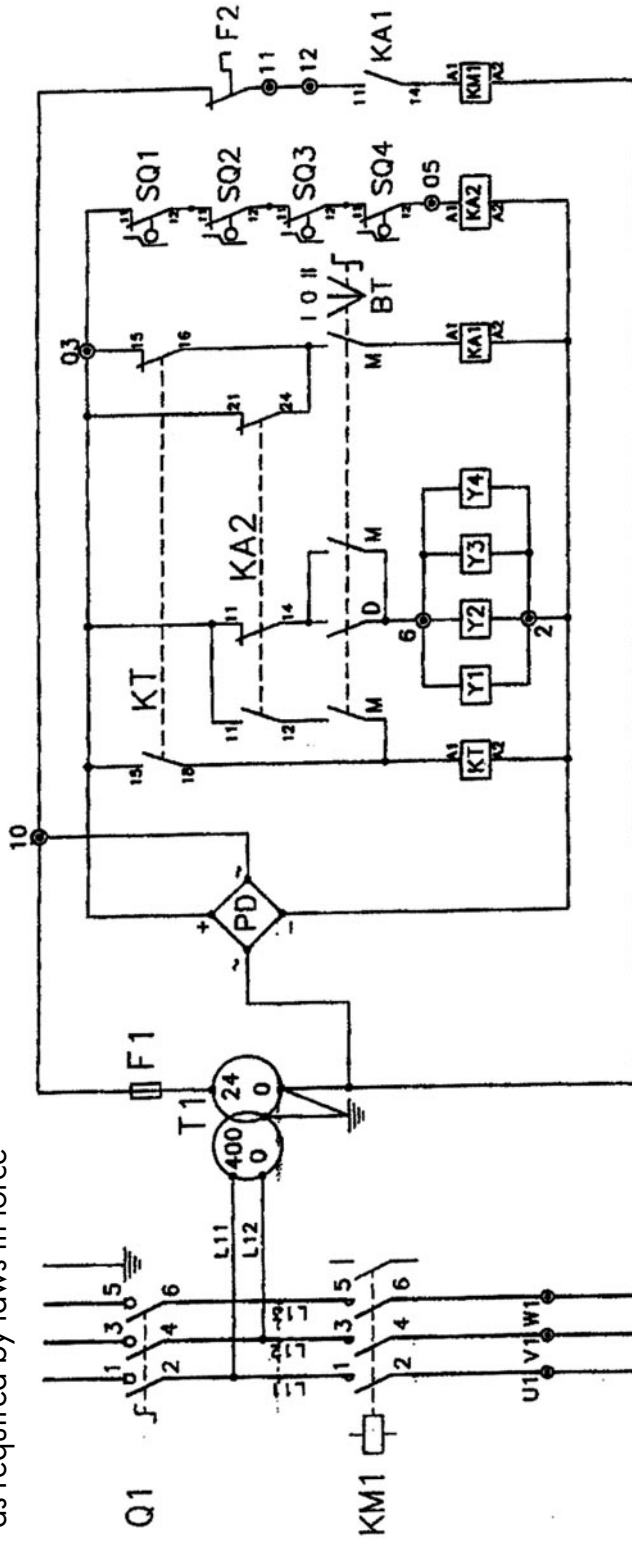
- Make the following adjustments.
- Change the transformer.
- Change the position of the electric coupling 6 terminals of the motor as follow :





### Electric wiring diagram Lift 493 9021

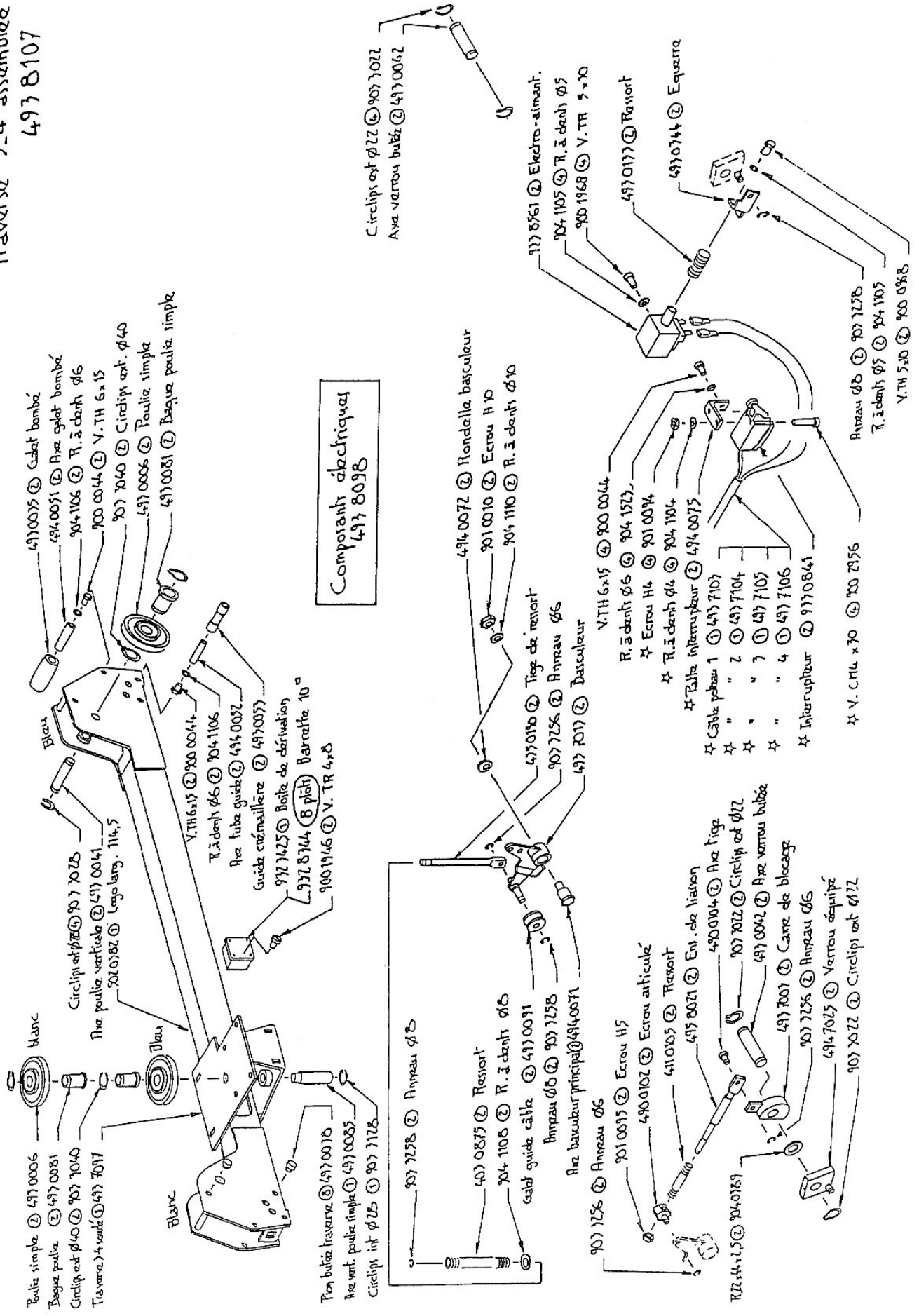
Power supply 400V  
as required by laws in force



- Q1** : 3 phase main switch
- KM1** : 3 phase motor switch
- M1** : Motor 1,8 Kw / 2850 rpm
- T1** : Transformer 400V / 24V - 160 VA
- F1** : Fuse 10A Am (slow)
- PD** : Diode bridge
- BT** : Ascent/ Descent Button  
(automatic return to "O")
- F2** : Motor overheating safety switch (Qty : 2)
- KT** : Timing relay 3 sec. (switch-on delayed)
- Y1...Y4** : Electric solenoid 40W 16V (direct current)
- SQ1...SQ4** : Cable break / loosening detector switch
- KA1** : Auxiliary relay 24V d.c. (ascent)
- KA2** : Cable break detectors relay 24V-d.c.-2 reversers

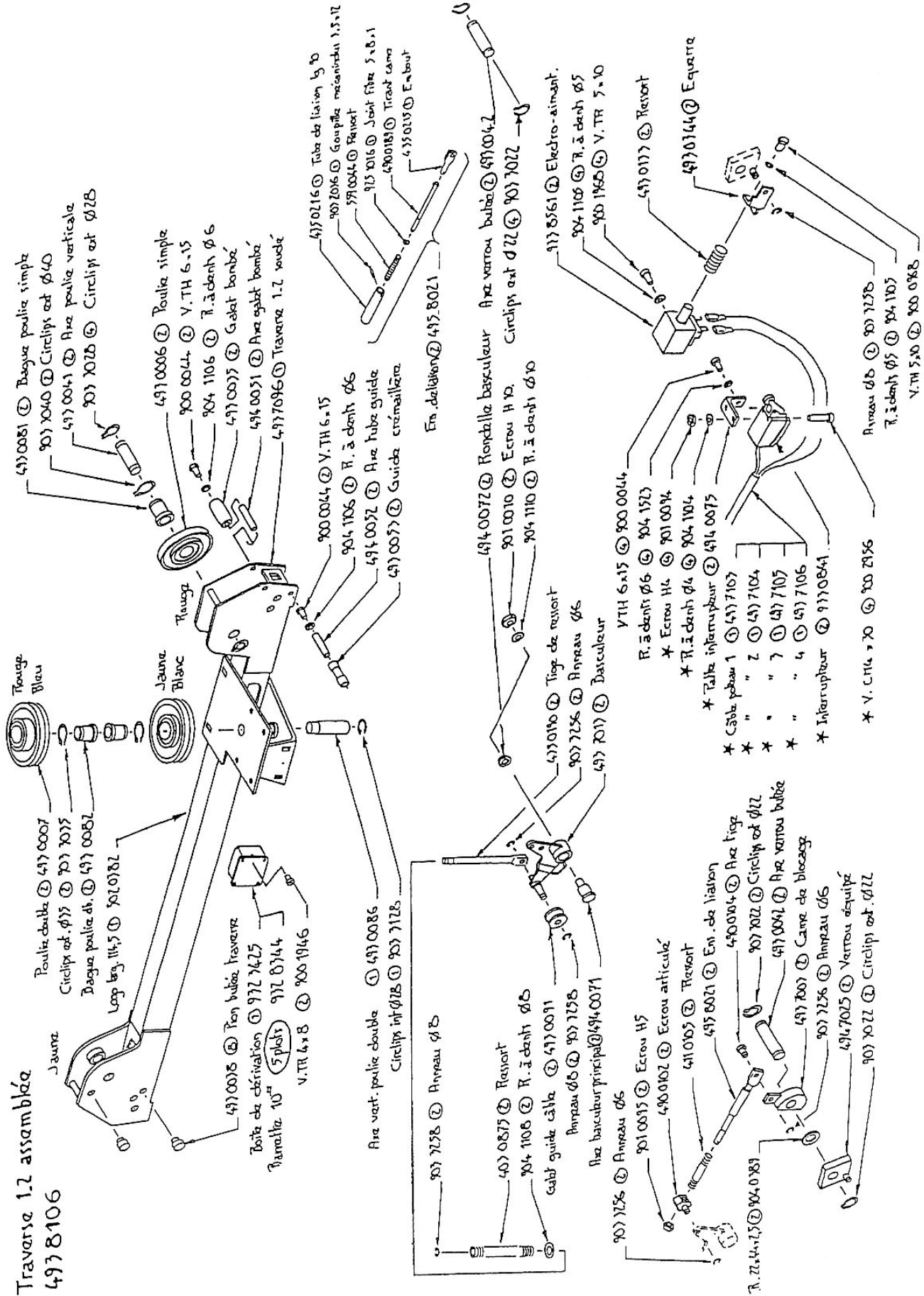


Traverse 3-4 assemblage  
493 8107

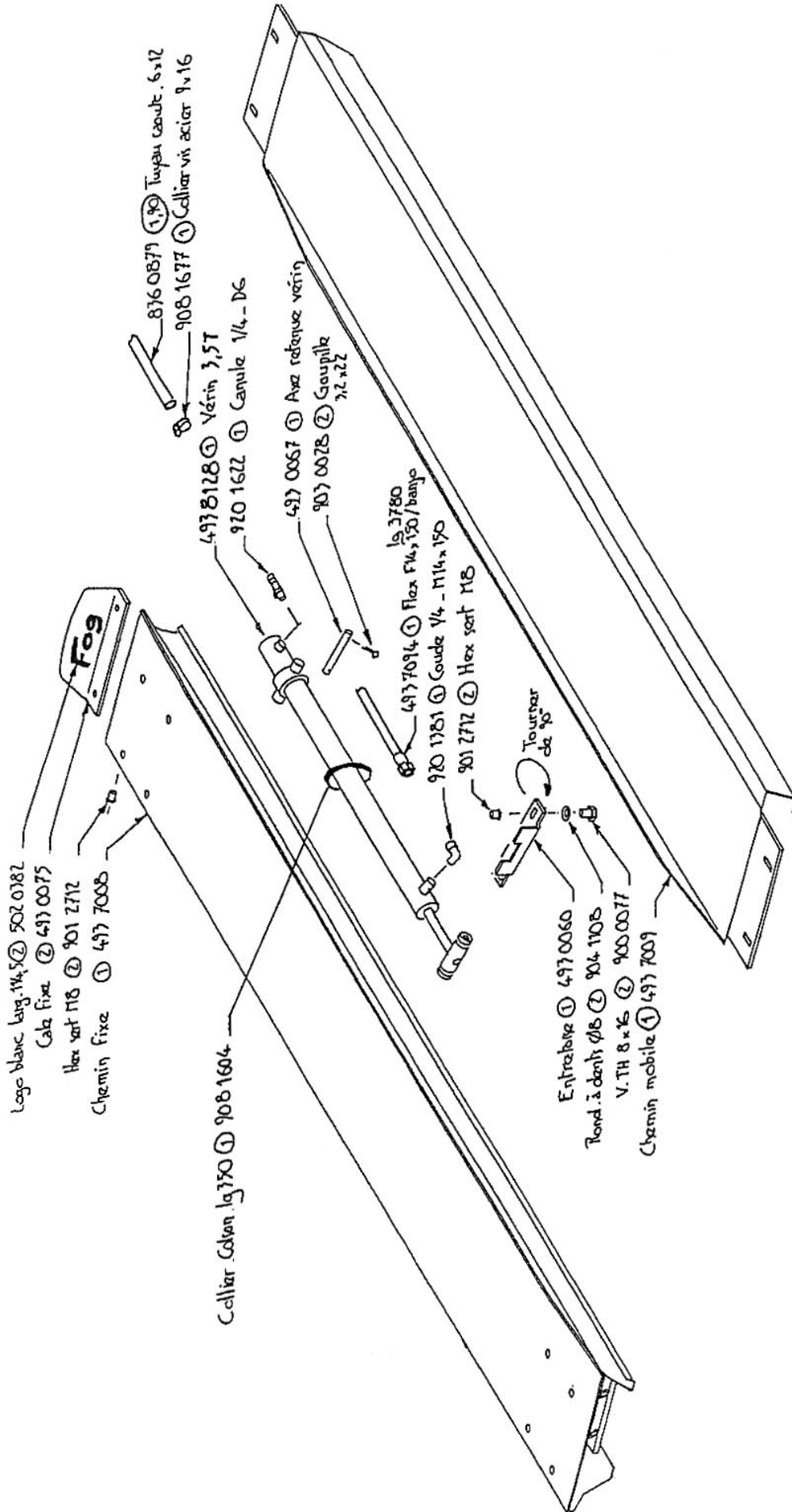




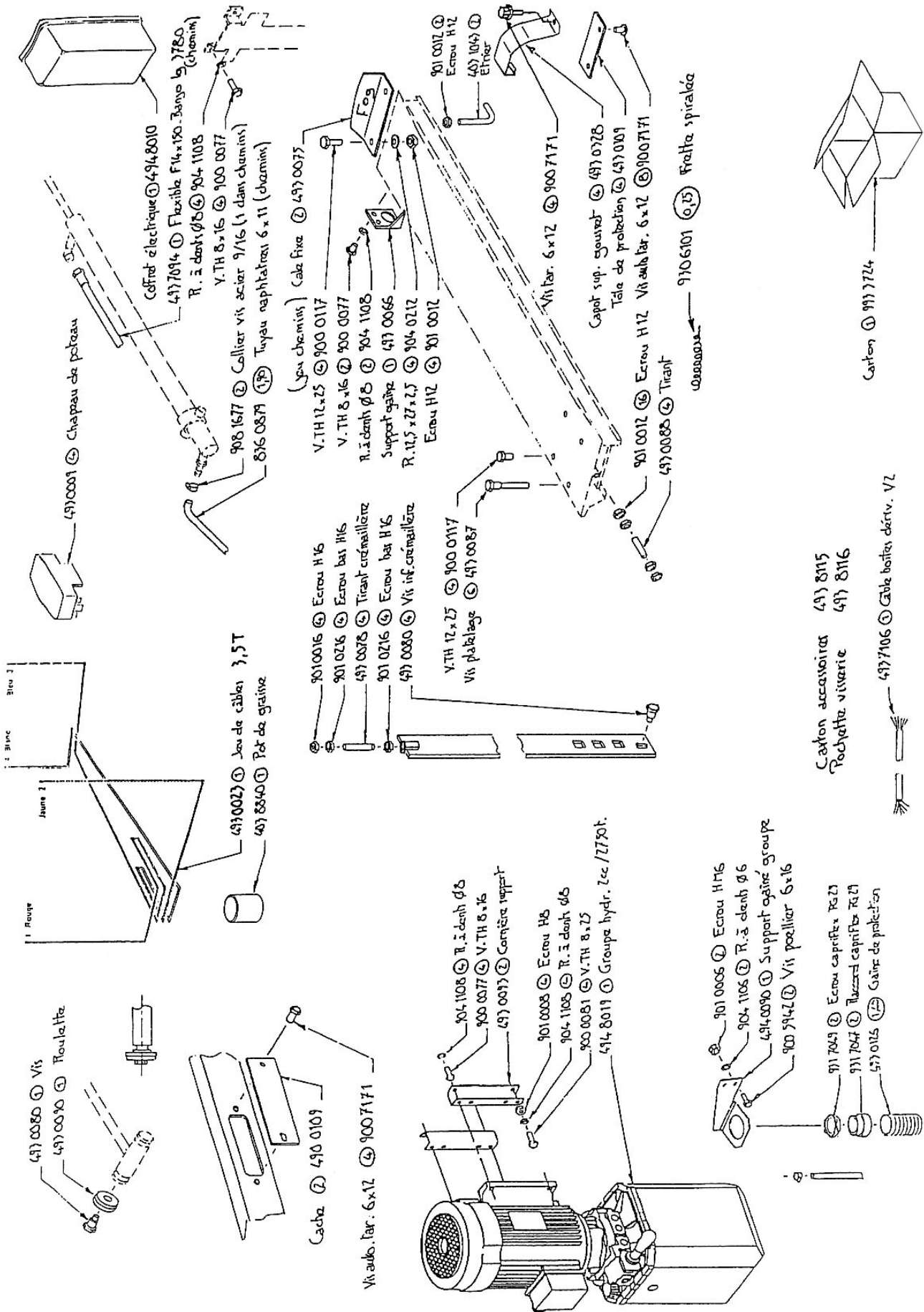
Traverse 1.2 assemblée  
493 8106

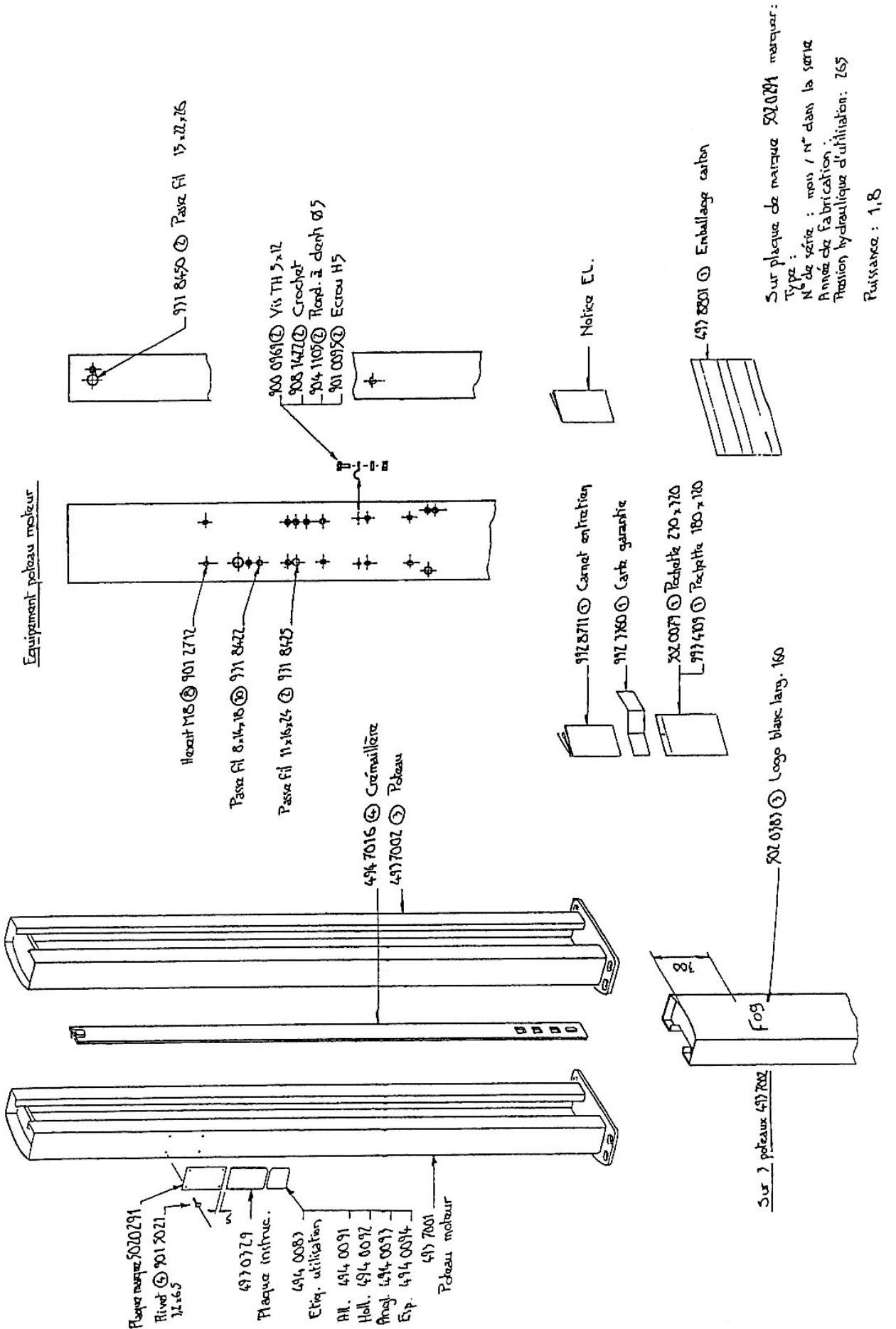


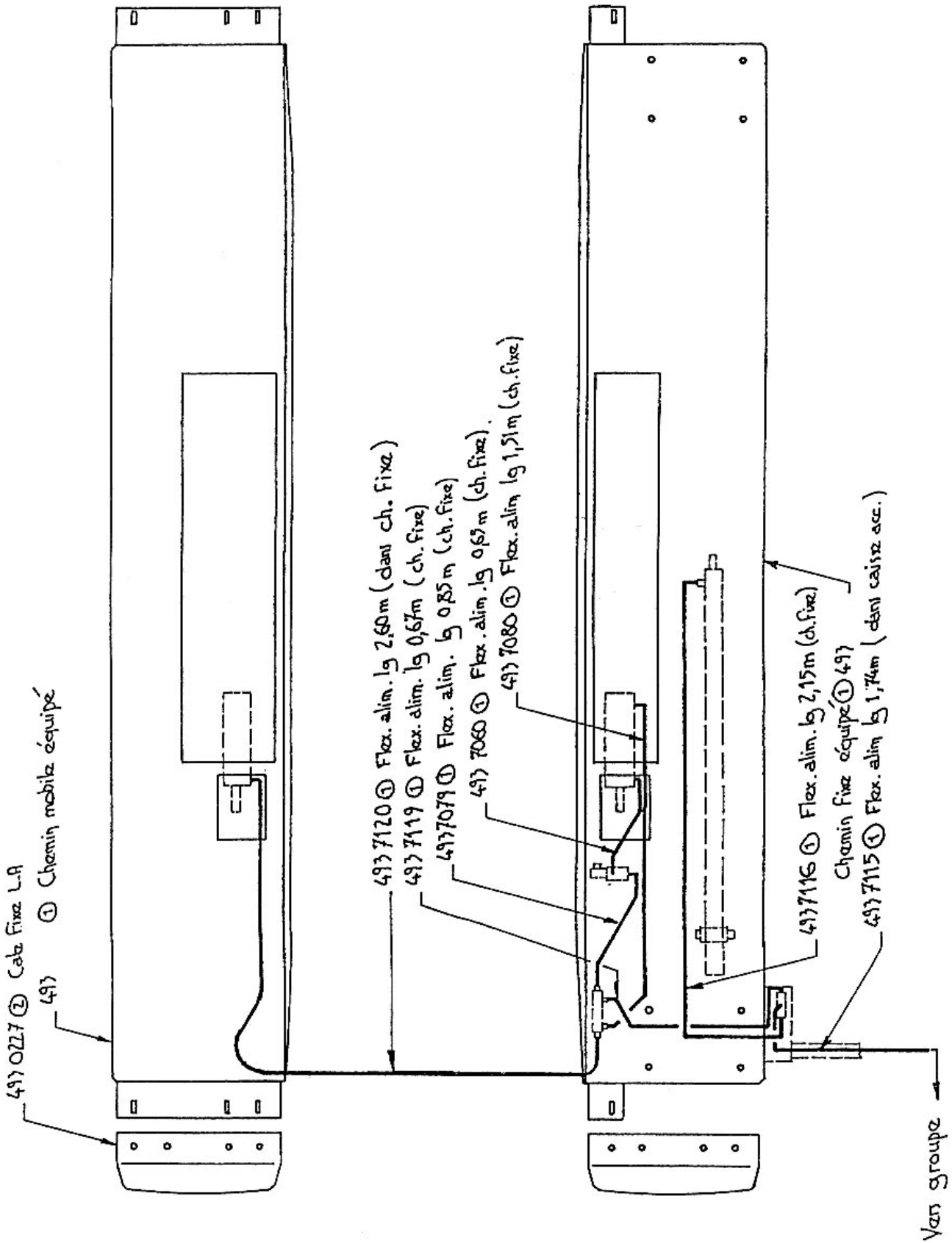




ATTENTION: le trou M12 du palonnier doit être monté vers l'intérieur du chemin.

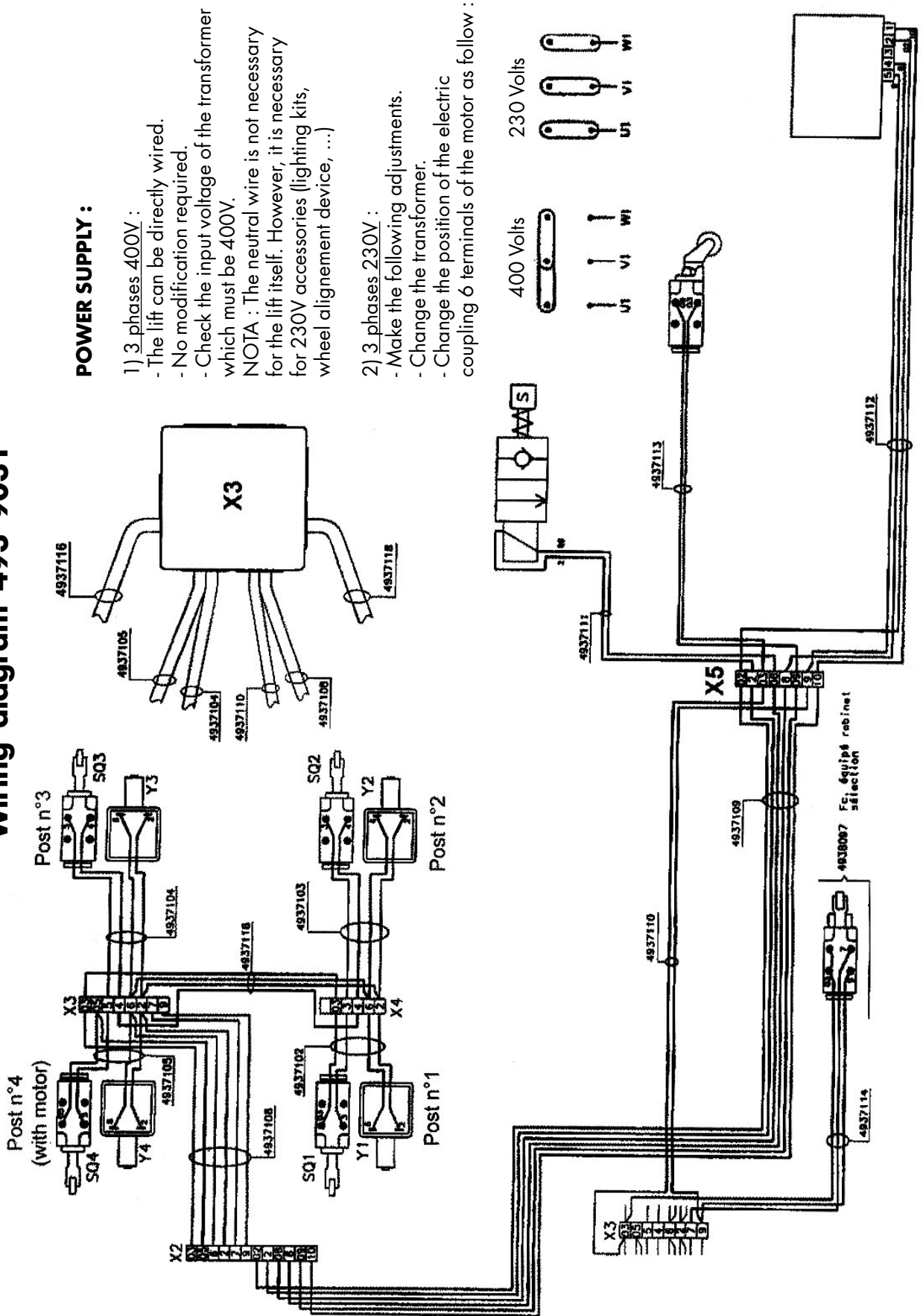








# Wiring diagram 493 9031



### POWER SUPPLY :

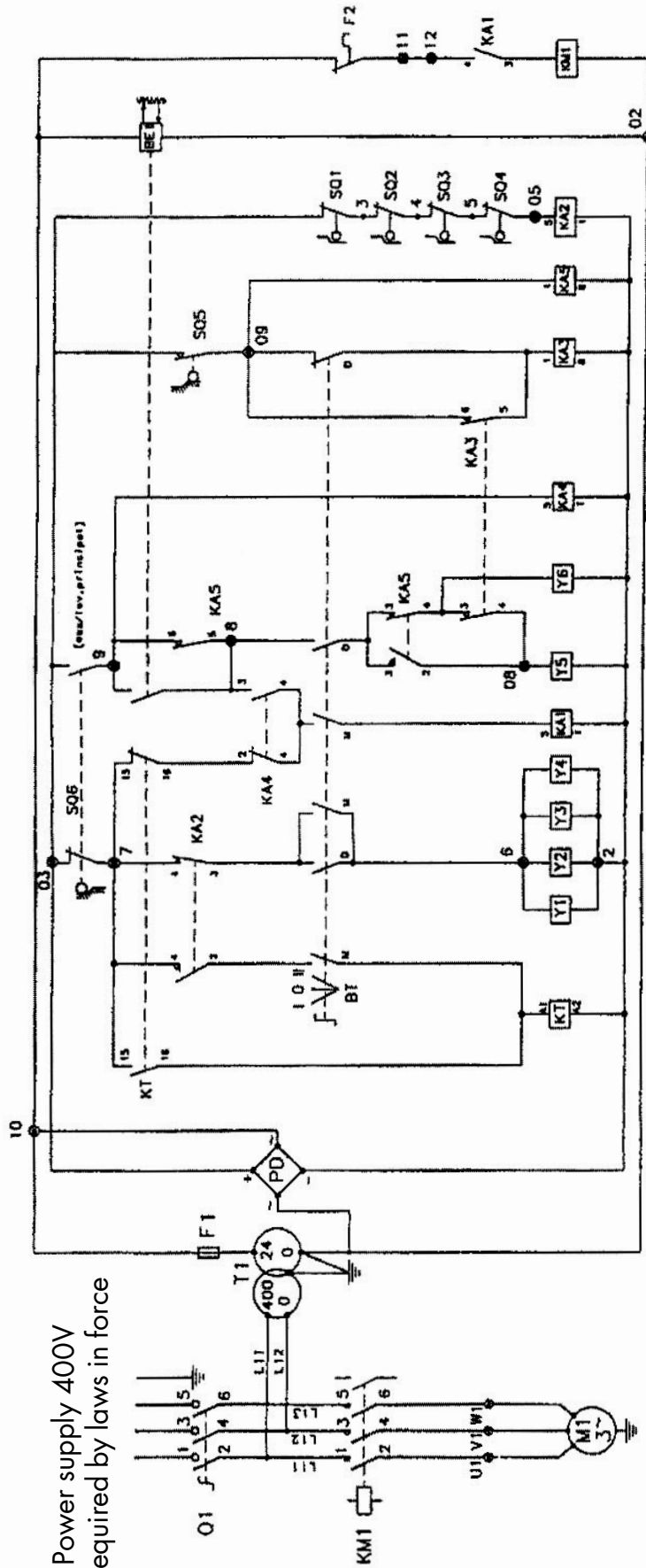
- 1) 3 phases 400V :
  - The lift can be directly wired.
  - No modification required.
  - Check the input voltage of the transformer which must be 400V.

NOTA : The neutral wire is not necessary for the lift itself. However, it is necessary for 230V accessories (lighting kits, wheel alignment device, ...)

- 2) 3 phases 230V :
  - Make the following adjustments.
  - Change the transformer.
  - Change the position of the electric coupling 6 terminals of the motor as follow :

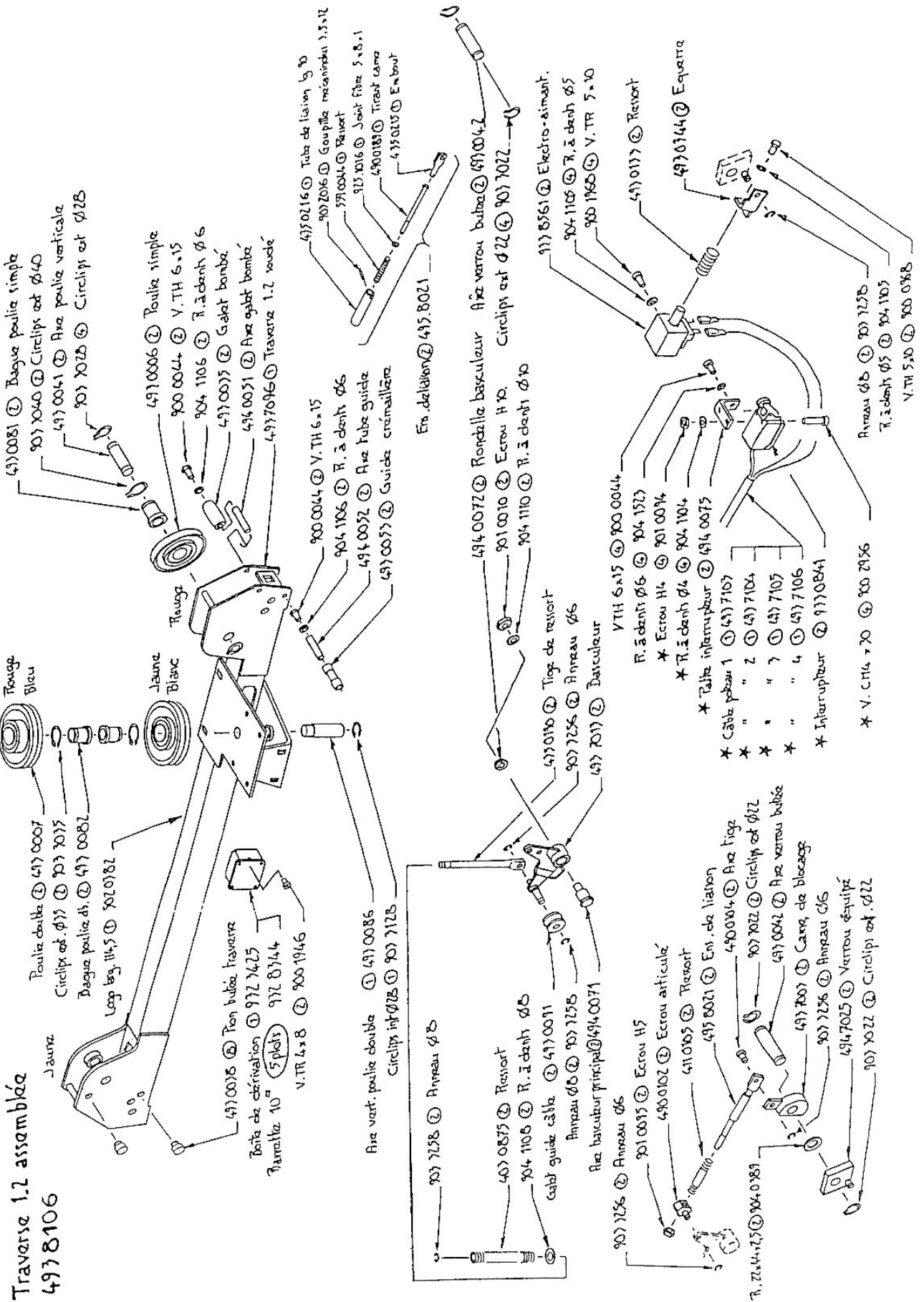


# Wiring diagram lift 493 9031



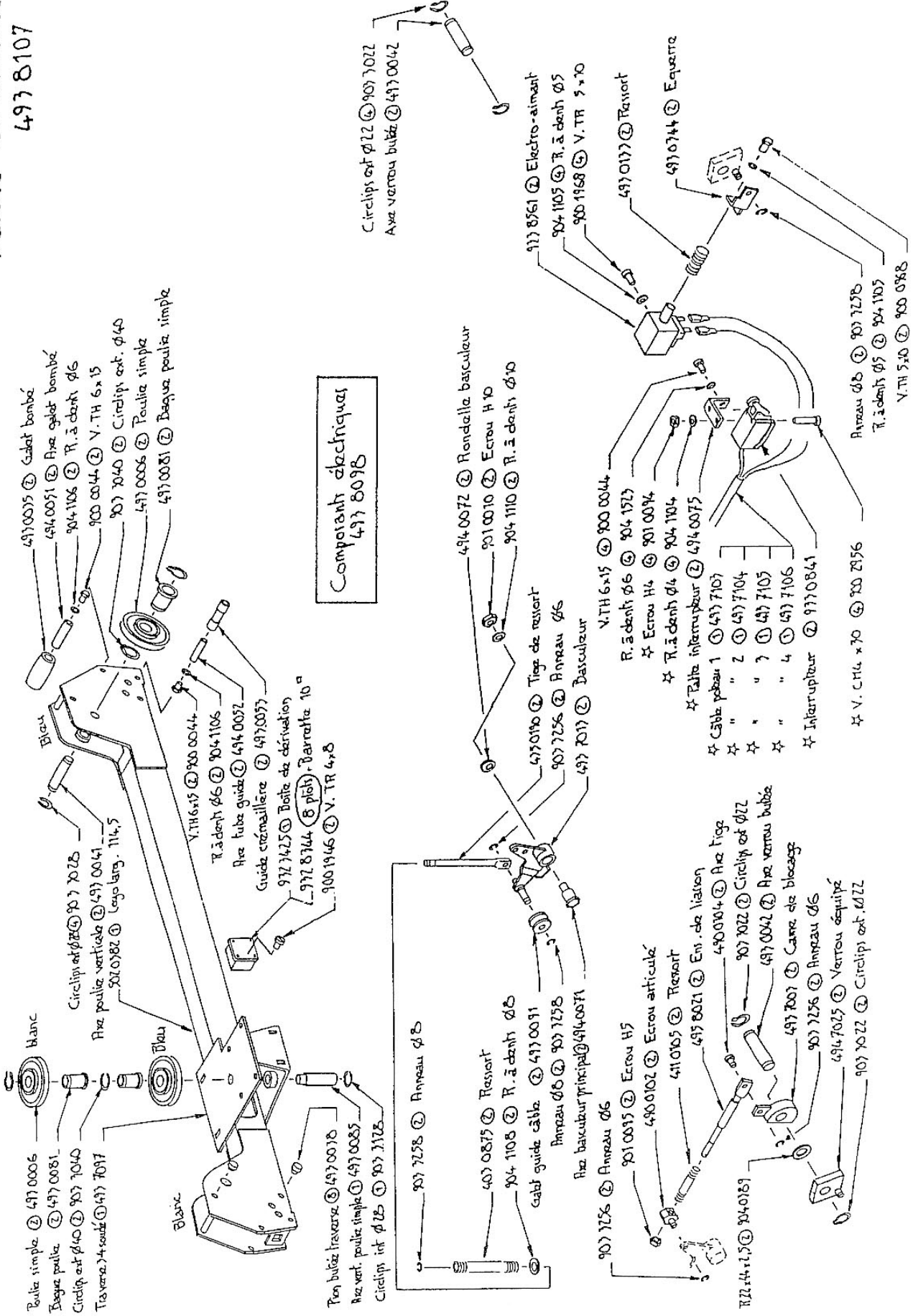
Power supply 400V  
as required by laws in force

- Q1** : 3-ways main switch
- KM1** : 3-ways motor switch 24V a.c.
- M1** : Motor 1,8 Kw 2850 rpm
- T1** : Transformer 400V / 24V - 160 VA
- F1** : Fuse 10A Am (slow)
- PD** : Diode bridge 10A
- BT** : Ascent/ Descent Button (automatic return to "O")
- F2** : Ascent : 1NO - Descent : 2NO / 1NF
- KT** : Motor overheating switch (Qty : 2)
- KA1** : Timing relay 3 sec. (switch-on delayed)
- KA2** : Auxiliary relay ascent 24V d.c. - reverser
- KA3** : Auxiliary relay (cable break) 24V d.c. - reverser
- KA4** : Auxiliary relay (upholding) 24V d.c. - 2 reversers
- KA5** : Auxiliary relay (selection) 24V d.c. - 1 reverser
- KA6** : Auxiliary relay (bottom limit switch) 24V d.c. - 2 reversers
- Y1...Y4** : Solenoid magnet 40W - 16V d.c.
- Y5** : Solenoid valve oil for lowering wheel free lift 24V d.c.
- Y6** : Sounder 24V d.c.
- SQ1...SQ4** : Cable break / loosening detector switch 1NF (normally closed)
- SQ5** : Bottom limit detector (auxiliary lift) 1NO (normally open)
- SQ6** : Selection main (auxiliary lift) detector 1NF - 1NO
- BE1** : Photocell 1 reverser (adjustment L-ON)

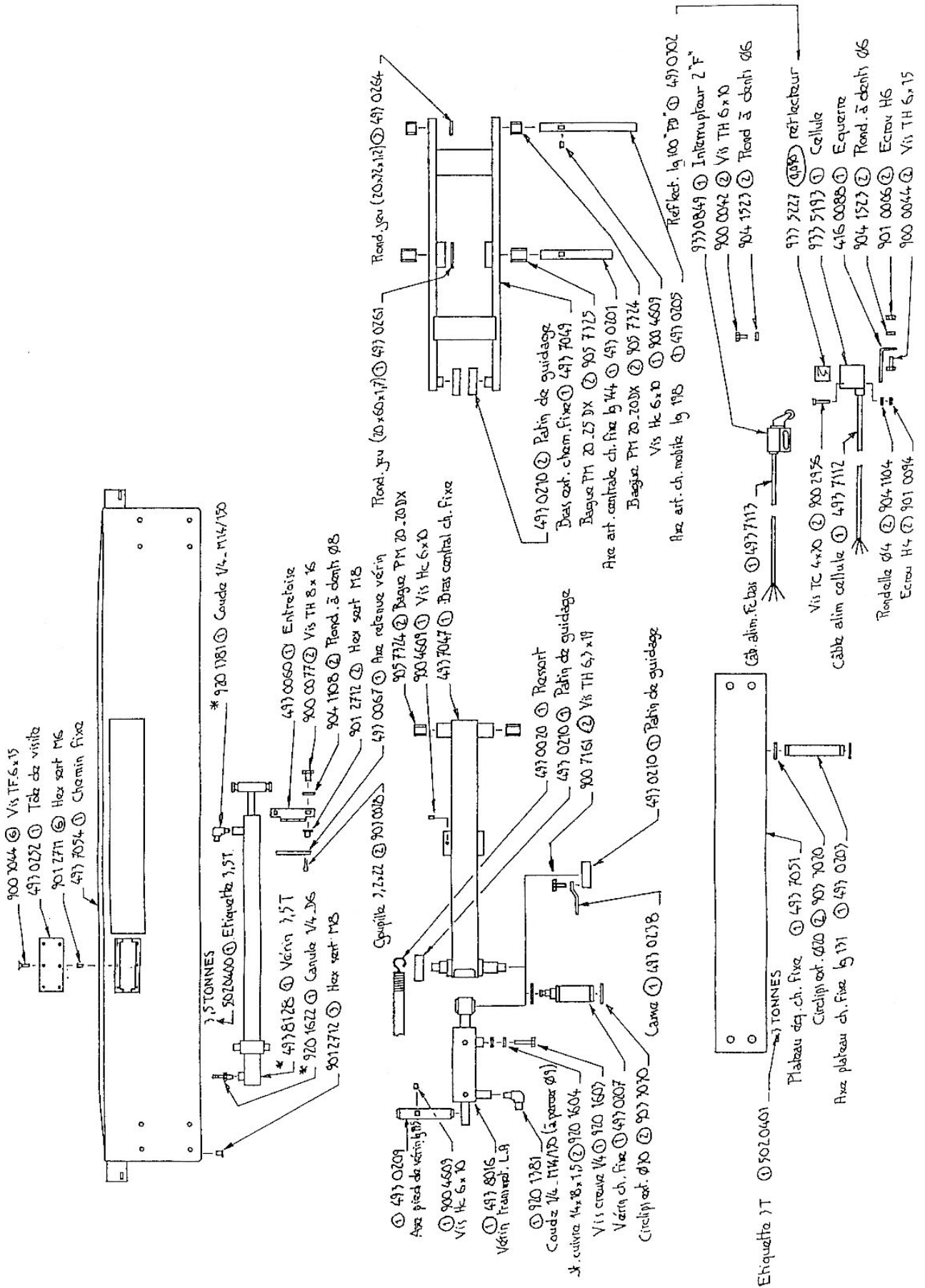




Traverse 3\_4 assemblée  
493 8107

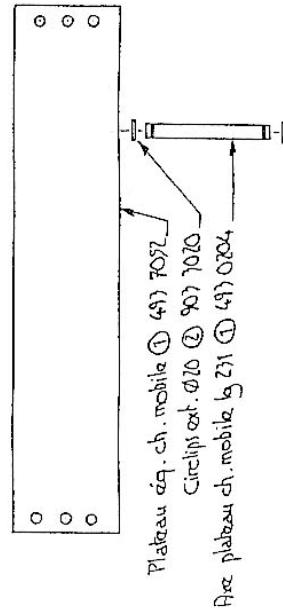
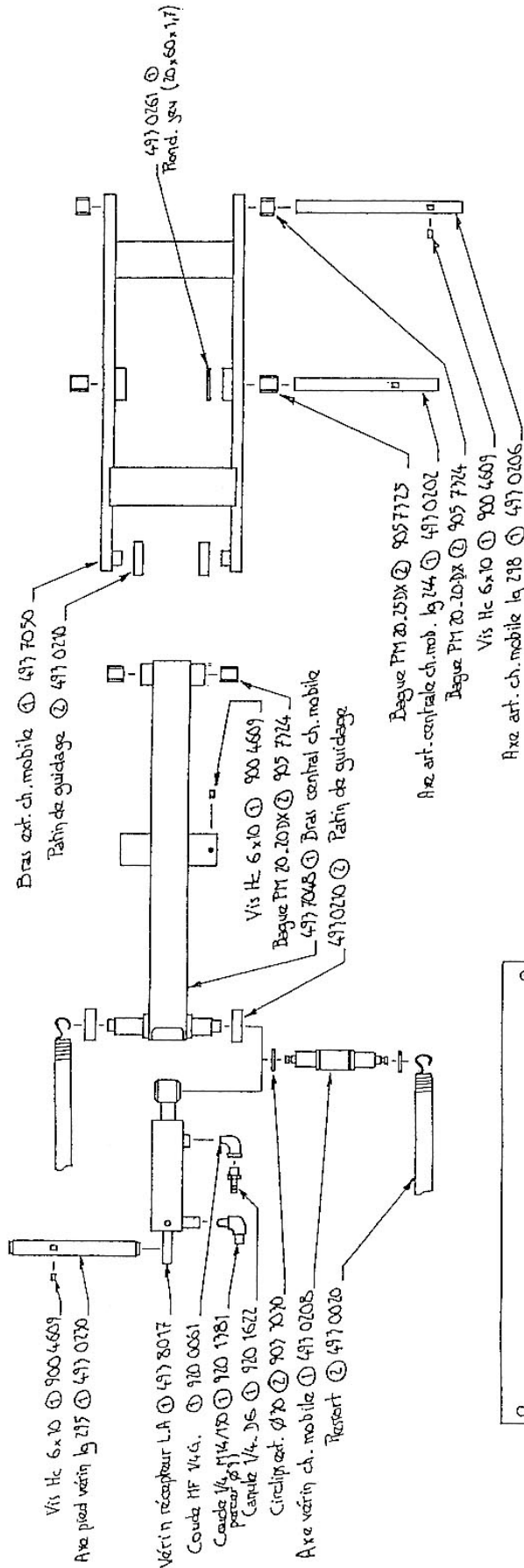
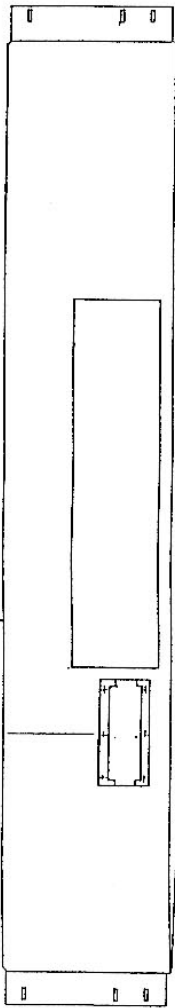




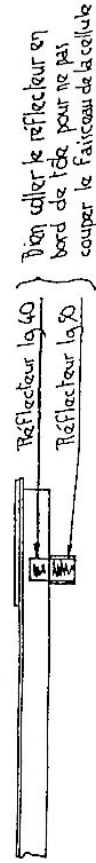


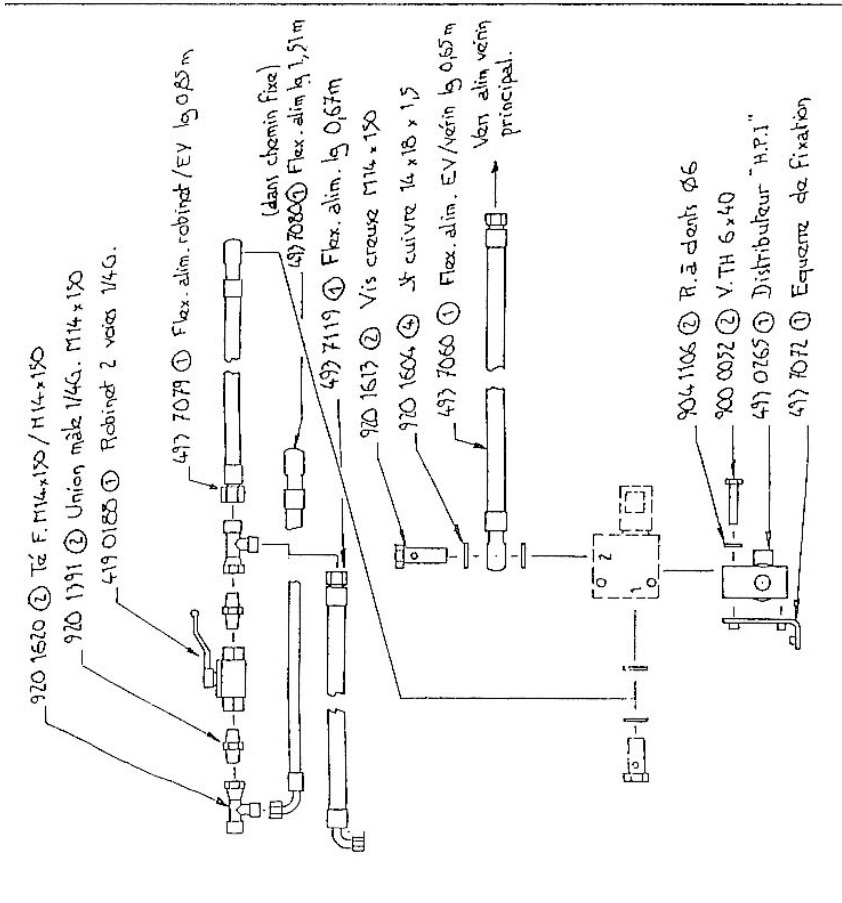


- 900 7044 ⑤ Vis TF 6x15
- 497 0252 ① Tête de visite
- 901 2711 ⑥ Hex sert MF6
- 497 7055 ① Chemin mobile



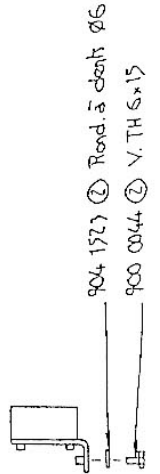
Position du réflecteur



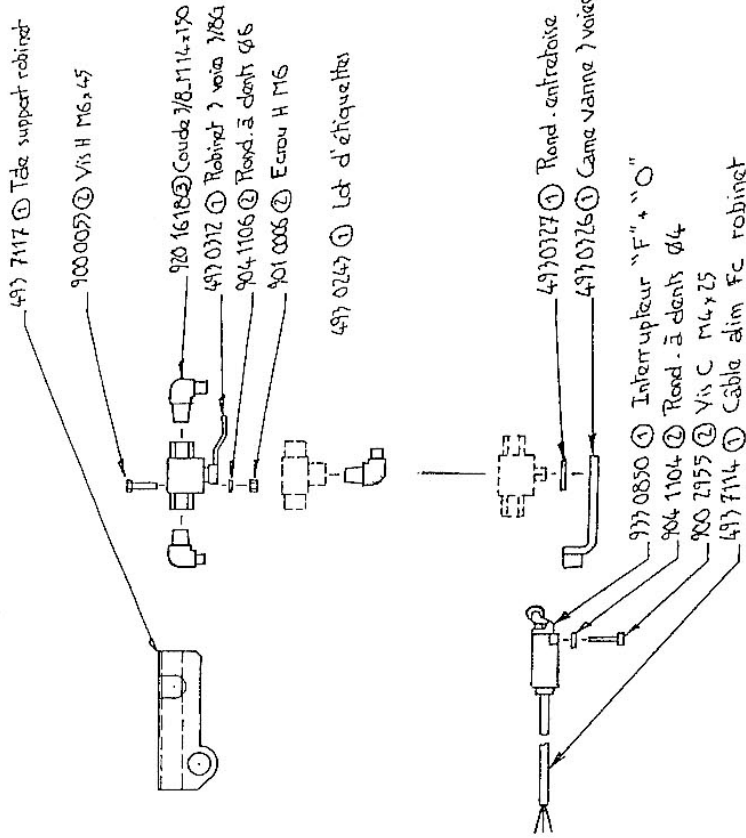


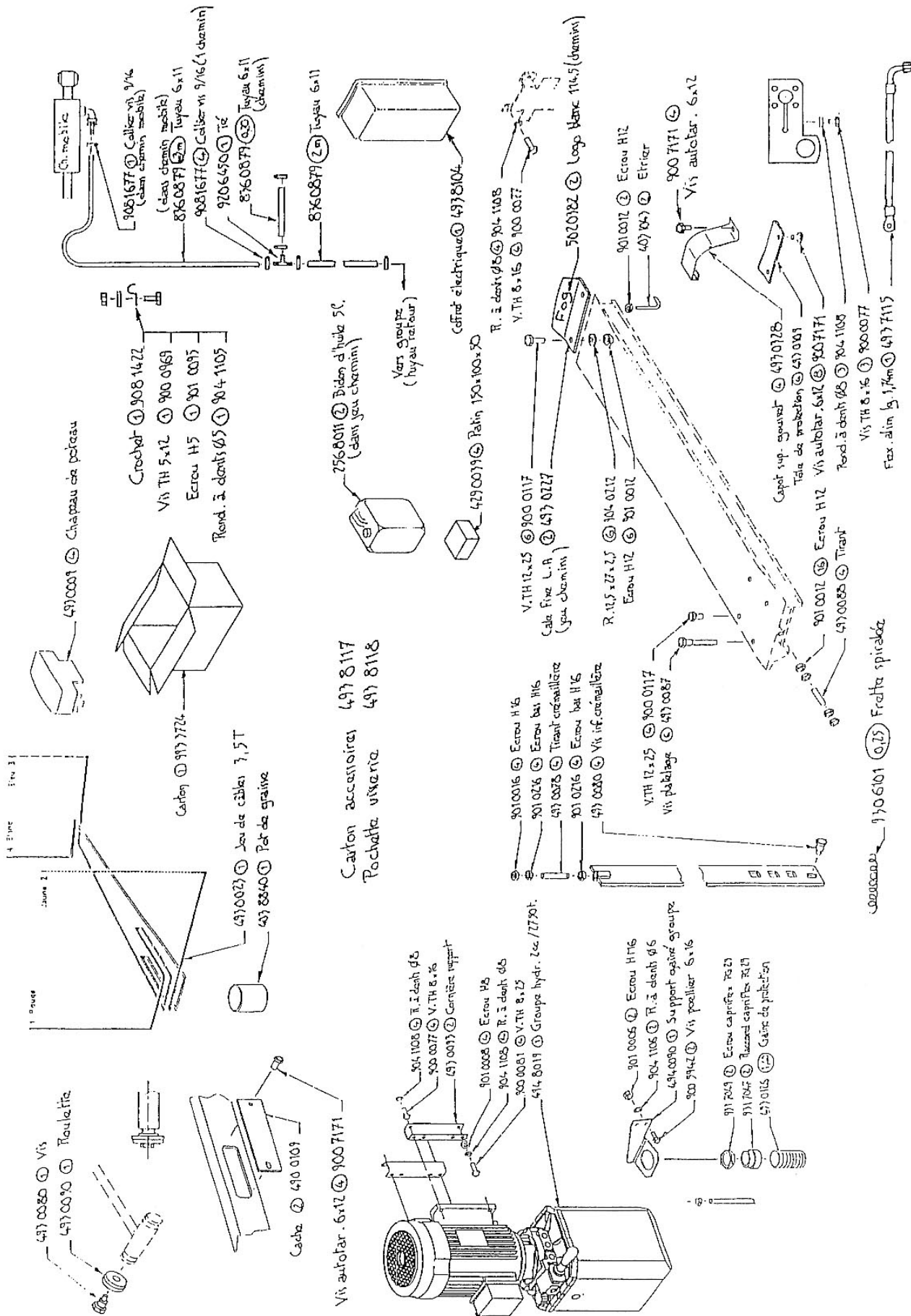
Fixation 497 8024  
 dans chemin fixe

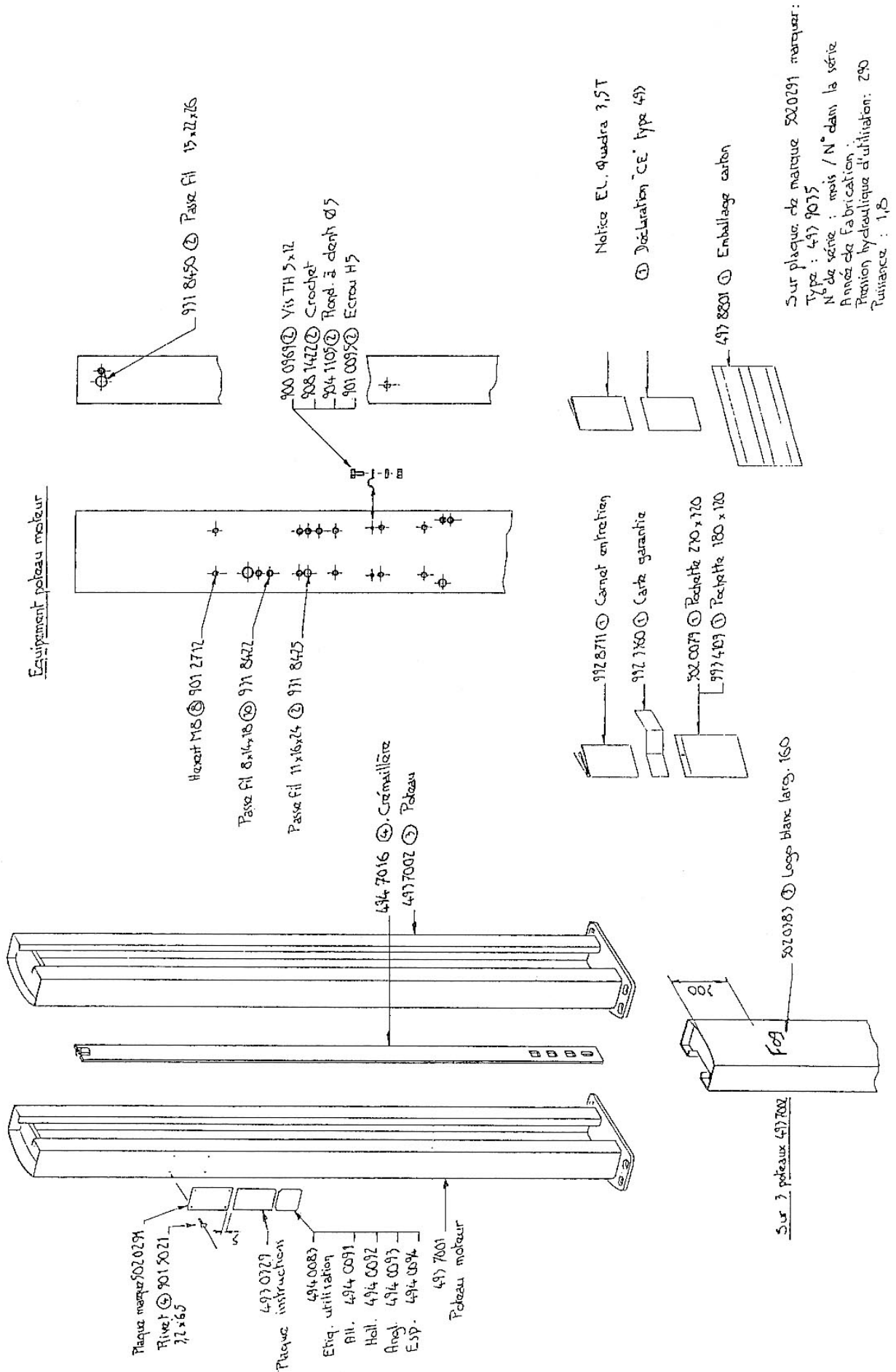
900 0074 ④ V. TH 6x50  
 904 1106 ④ Rond. à dents Ø6  
 Couper la manivelle à 52mm  
 497 7071 ① Plaque de fixation



LEVAGE PRINCIPAL  
 LEVAGE AUXILIAIRE









LIFT 493 9031

N°	Reference	Qty	Description
1	4940115	1	Chassis
2		4	Screw M6
3		1	Rail lenght 106
4		1	Rail lenght 145
5	9332498	1	Main switch
6	9332501	1	Handle
7	9332502	1	Shaft
8	9338500	1	Timer
9	9332512	1	Power switch (400V and 230 V)
10	9338223	3	Relay OMRON 2C. 24VCA
11	9338224	3	Relay socket OMRON 1C.
12	9338228	2	Relay OMRON 2C. 24VCA
13	9338229	2	Relay socket OMRON 2C.
14	9332474	1	Transformer 400V / 24V - 160VA
	9332475	1	Transformer 230V / 24V - 160VA
15	9332458	1	Revolving button 3 positions 2 "F"
16	9332511	3	Switch element "F"
17	9332563	1	Switch element "O"
18	9332162	1	Sounder
19	9338562	1	Diode bridge
20	9335112	1	Fuse holder
21	9332513	1	Fuse 5 x 20 10A Am
22	9328429	7	Linking bloc double
23	9328424	1	Linking bloc
	4930008	1	Cover box

LIFT 493 9031

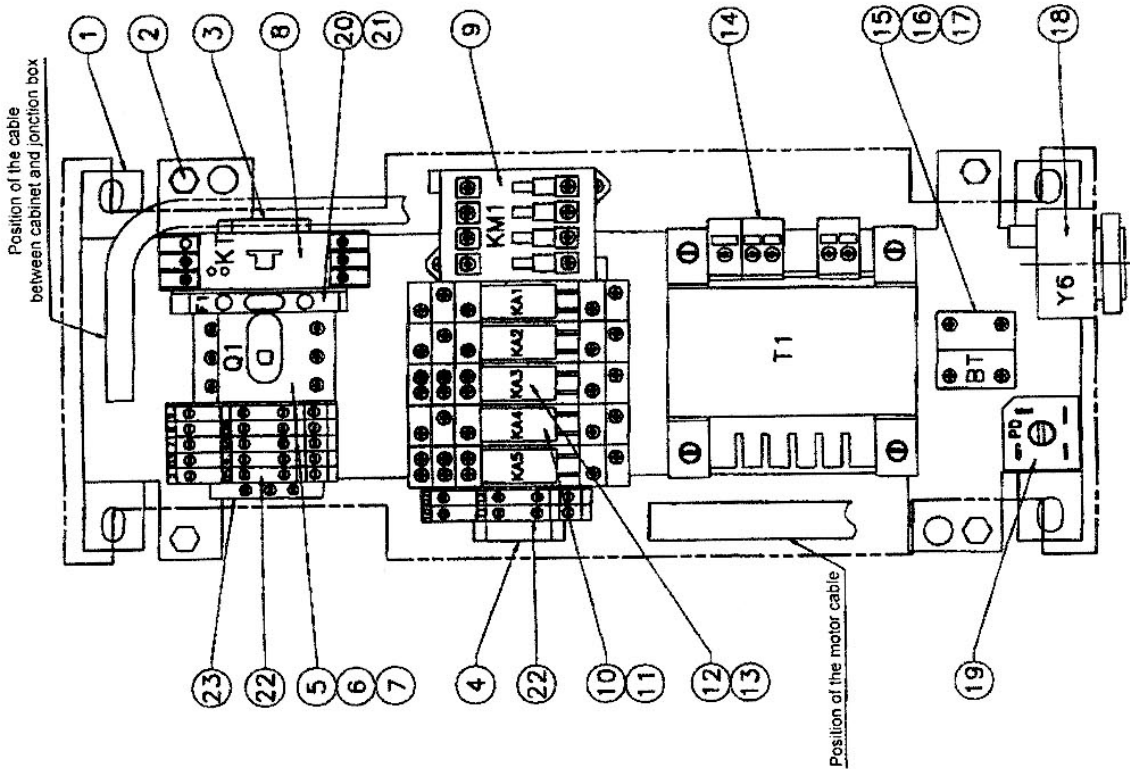
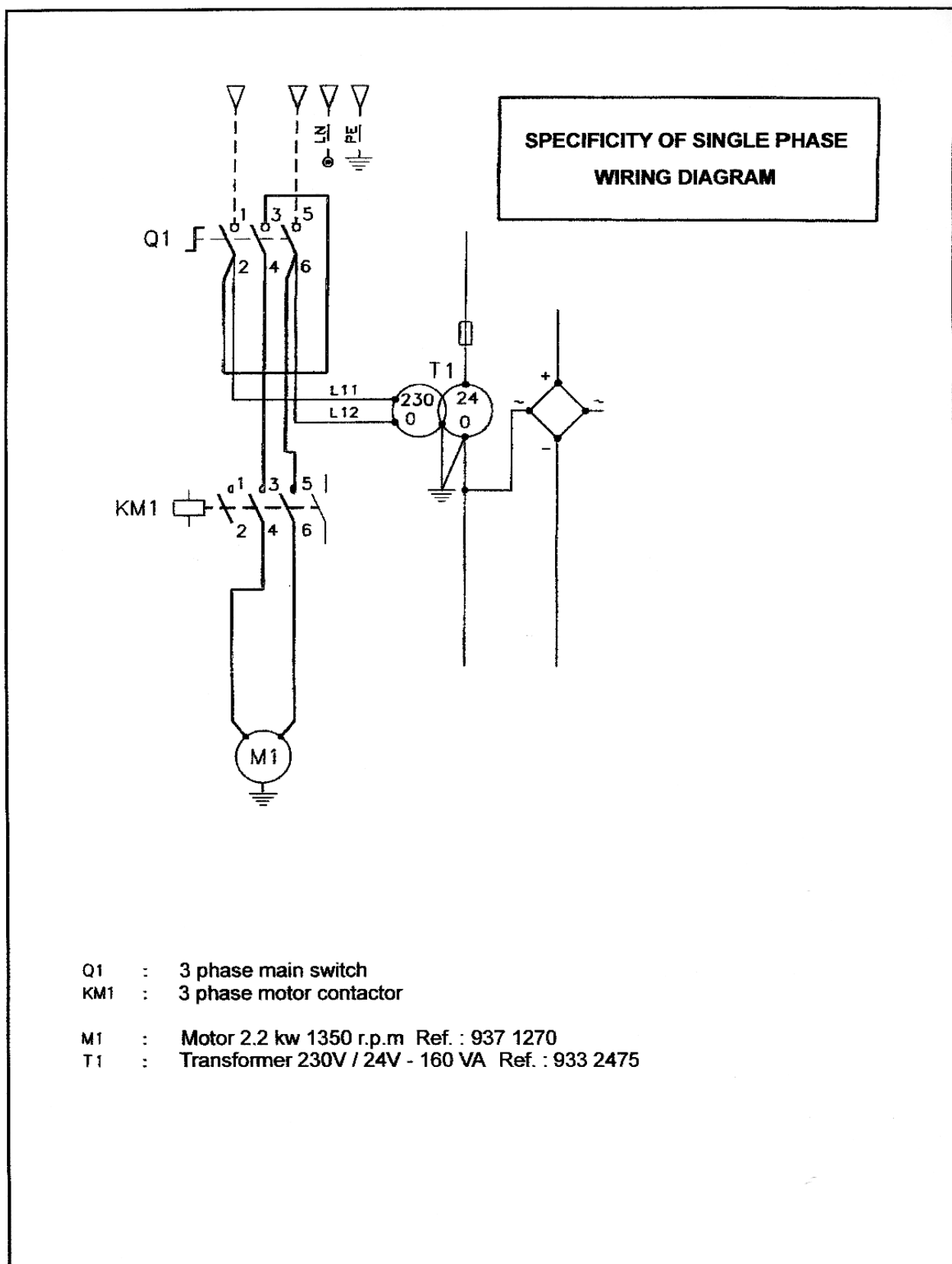
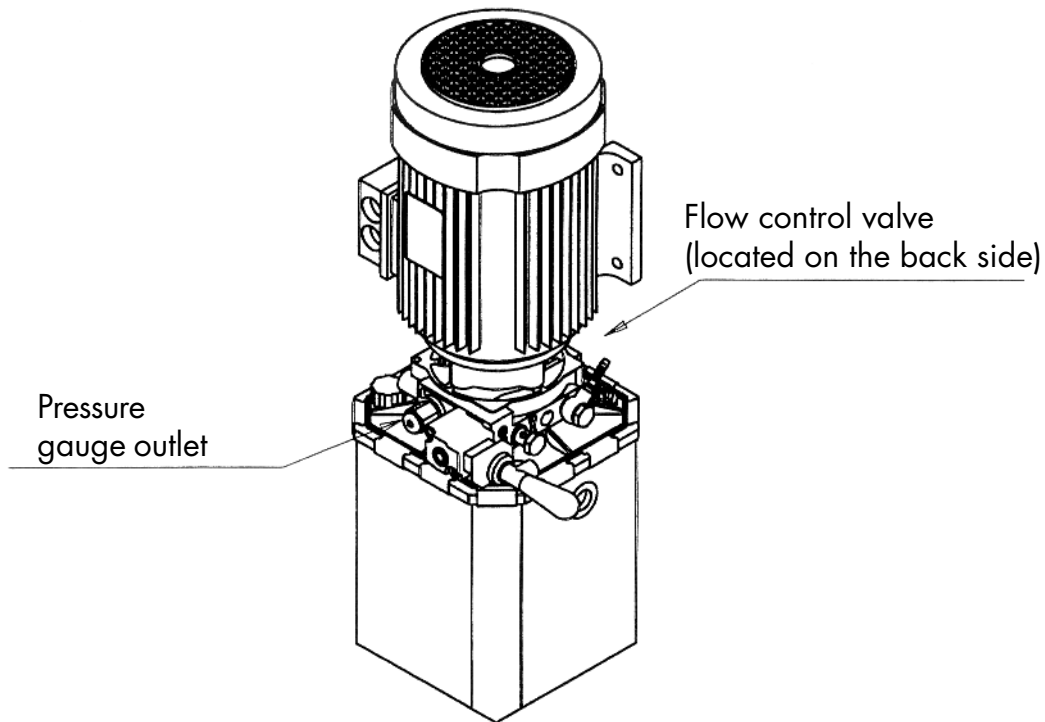


Planche 1/2

Version révisé	Version approuvée
Établi le	Approuvé le
Établi par	Approuvé par
Cellule électrique L-4 <b>493_8104.d</b>	



## Adjustment of the flow control valve (Power unit HPI)



To adjust the flow control valve, proceed as follows :

- Remove the cap.
- Remove the cap nut.
- Release the lock nut.
- Operate the adjusting screw (6 mm hexagon key), see table.
- Adjust with pressure gauge: raise the lift at the top limit stop and operate the screw to modify the pressure.

NOTA : To increase the pressure turn the screw clockwise (CW).

After test, reset the initial adjustment.

	Initial adjustment	Adjustment for dynamic test
Lift 3T STD	265 bars	285 bars
Lift 3T (Aux.)	290 bars	310 bars
Lift 3,5T STD	265 bars	285 bars
Lift 3,5T (Aux.)	290 bars	310 bars
Lift 4T	245 bars	265 bars
Lift 5T	240 bars	270 bars

NOTA : The power unit is delivered for an initial adjustment of 245 bars.

**IMPORTANT :** Put a new cap after each intervention on the flow control valve (Ref. : 942 0081).





### F.F.B. CONTRACT GUARANTEE

Your F.F.B. equipment is guaranteed against any operating defects resulting from material or design faults under the following conditions:


The operating defect must appear within a period of one year from when the equipment specified in the order is first made available for use. The guarantee is excluded if the material or design fault is the purchaser's responsibility or if the operating defect results from work carried out on the equipment without our authorisation. The same applies if any of the components used by the purchaser are not original F.F.B. spares, if the operating defect stems from normal wear and tear on the equipment or from negligent or insufficient maintenance or stocking on the part of the purchaser, if the operating defect results from poor installation or if the operating defect is the result of a *force majeure* or any other occurrence outside of our control.

Under the guarantee, we will replace or repair, free of charge, the items or materials identified by our technical department as being faulty. Any parts or accessories obtained from external sources and bearing a proper brandname, are included under our guarantee only to the same extent as the guarantee given by the suppliers of these items.

The repair, modification or replacement of any parts or equipment during the guarantee period cannot result in the length of the guarantee being extended.

If, under the terms of the guarantee, the equipment must be returned to F.F.B., it must be suitably packaged. The application of the guarantee cannot, under any circumstances, give rise to damages or interest being claimed. The F.F.B. contract guarantee is in addition to the statutory guarantee against hidden defects provided under current legislation.

For any claims made under the terms of the F.F.B. guarantee, the guarantee slip duly completed by your distributor will be required, or failing that, proof of purchase of the equipment concerned.

**GUARANTEE**

REF N°	SERIAL N°
_____	_____

**DATE OF PURCHASE**

---

**PURCHASED BY**


---

**SOLD BY**

---

Distributor's stamp

**PART TO BE RETAINED**



**GUARANTEE**

REF N°	SERIAL N°
_____	_____

**DATE OF PURCHASE**

---

**PURCHASED BY**

---

**SOLD BY**

---

Distributor's stamp

**COUPON TO BE RETURNED WITHIN 15 DAYS TO :**  
**F.F.B.**  
**Export Department**  
**Rue du Pré Neuf**  
**58440 MYENNES - FRANCE**



# DECLARATION DE CONFORMITE

*EC Declaration of conformity  
EG-Konformitätserklärung*

**F.F.B. S.A.**

Rue du Pré-Neuf  
58440 Myennes (France)  
Tel. 03 86 39 50 50  
Fax 03 86 39 50 60

déclare en application de la directive 89/392/CEE modifiée en dernier lieu par la directive 98/37/CEE que la machine décrite :

*declares according to the 89/392/EEC Directive lastly amended by 98/37/EEC Directive that the machinery described :*

*erklärt gemäss der Richtlinie 89/392/EWG, geändert durch Richtlinie 98/37/EWG an letzter Stelle, dass der beschriebene Apparat :*

## **ELEVATEUR à 4 COLONNES à prise sous roues, électrohydraulique**

*Four post lift, electrohydraulic,  
Vier-Säulen Hebebühne, elektrohydraulisch*

**Identification commerciale :** QUADRA  
*Commercial name, Geschäftsname*

**Capacité :** 3,5 tonnes  
*Capacity, Tragfähigkeit*

**Type :** 493 90 - -  
*Typ*

4939001A-4939002A-4939003A-4939004A-4939005A-4939011A-4939012A-4939013A-4939014A  
4939015-4939021-4939022-4939023-4939024-4939025-4939031-4939032-4939033-4939034-4939035  
4939036-4939037-4939038-4939039

**Numéro de série :**  
*Serial number, Fabrik-Nr*

est conforme à l'exemplaire qui a reçu l'attestation d'examen  de type numéro 69.150X.0061.03.00 délivrée par :

## UTAC

Union Technique de l'Automobile, du Motocycle et du Cycle  
Autodrome de Linas - Monthléry  
91310 Monthléry (France)

*conforms to the machinery example of the EC Type examination Certificate number : 69.150X.0061.03.00  
which has been issued by UTAC.*

*übereinstimmt mit derjenigen Maschine für die eine EG Typ Abnahmebescheinigung Nr : 69.150X.0061.03.00  
durch UTAC durchgeführt wurde.*



**Date :** 31 juillet 2001  
*Date, Datum*

**Olivier GAC**  
Responsable Qualité



<b>F. F. B. - France</b>	<b>58 440 MYENNES</b>	<b>Tel. 33 3 86 39 50 50</b>
<b>AUTO CONSULT - Allemagne</b>	15236 FRANKFURT ODER	Tel. 00 49 335 55 55 150
<b>FACOM - Belgique</b>	B-1930 ZAVENTEM	Tel. 00 32 2 714 09 00
<b>FACOM NORDEN A/S - Danemark</b>	7451 SUNDS	Tel. 00 45 971 444 55
<b>FFB IBERICA - Espagne - Portugal</b>	28709 S.S. de los Reyes Madrid	Tel. 00 34 91 659 16 77
<b>SUOMEN TYÖKALU OY - Finlande</b>	FIN-04300 TUUSULA	Tel. 00 358 9 7288 100
<b>TECALEMIT Garage Equipment - Grande-Bretagne</b>	PL7 5JY PLYMOUTH DEVON	Tel. 00 44 1 752 219 137
<b>VARELAS - Grèce</b>	54012 THESSALONIKI	Tel. 00 30 31 528 967
<b>ALLTEC - Luxembourg</b>	L-1020 LUXEMBOURG	Tel. 00 352 40 48 49
<b>OSKAMP Equipment - Pays-Bas</b>	3824 MT AMERSFOORT	Tel. 00 31 33 45 45 900
<b>HIDROLIFT - Bulgarie</b>	1614 SOFIA	Tel. 00 359 2 920 02 53
<b>VERKTOY PARTNER - Norvège</b>	N-1262 OSLO 12	Tel. 00 47 66 79 83 00
<b>W. S. O. P. Sp z o.o - Pologne</b>	PL-44100 GLIWICE	Tel. 00 48 32 331 30 56
<b>R.P.J. International s.r.o. - République Tchèque</b>	1555 00 PRAHA 5	Tel. 00 420 2 651 88 04
<b>SE-MA d.o.o. - Slovénie</b>	SLO-8000 NOVO MESTO	Tel. 00 386 733 80 156-157
<b>BEIJING AUTOPRO A. A. T. Co. Ltd. - Chine</b>	BEIJING-100004	Tel. +86 10 64 30 10 12/10 13
<b>CORVETTE ENGINEERING CO Ltd - Hong-Kong</b>	Kwai Fong, N.T. HONG-KONG	Tel. 00 852 2525 0061
<b>KINCLER BROS Ltd - Israël</b>	BNEI - BRAK 51549	Tel. 00 972 3 677 30 44
<b>S.F.M. - Guadeloupe</b>	97192 POINTE A PITRE	Tel. 05 90 38 37 27
<b>EQUIP AUTO - Guyanne Française</b>	97326 CAYENNE	Tel. 05 94 31 90 50
<b>MECADIS - Martinique</b>	97286 LAMENTIN	Tel. 05 96 51 68 18
<b>ETS BALBINE REUNION - Réunion</b>	97491 STE CLOTILDE	Tel. 00 262 28 00 03
<b>SOPROTEC - Nouvelle Calédonie</b>	98846 NOUMEA	Tel. 00 687 24 95 77
<b>POLYNESIE PNEUS - Polynésie Française</b>	BP 4616 PAPEETE - TAHITI	Tel. 00 689 54 59 99
<b>AUTOTECH - Algérie</b>	DELY-BRAHIM - ALGER	Tel. 00 213 21 36 12 00
<b>UNIVERS PROCESS - Maroc</b>	20100 CASABLANCA	Tel. 00 212 22 99 17 92
<b>Equipements Industriels Pétroliers - Tunisie</b>	2042 TUNIS	Tel. 00 216 71 516 053
<b>COGENIE - Bénin</b>	08 BP 804 COTONOU	Tel. 00 229 32 56 46
<b>CAMI - Cameroun</b>	BP 1217 DOUALA	Tel. 00 237 42 61 00
<b>CIDP BRIDGESTONE - Côte d'Ivoire</b>	15 BP 720 ABIDJAN 15	Tel. 00 225 21 75 19 00
<b>Agence de Promotion et de Commerce - Gabon</b>	BP 1018 LIBREVILLE	Tel. 00 241 72 92 56
<b>HERTOGS - Ile Maurice</b>	BELL VILLAGE	Tel. 00 230 212 94 37
<b>OCEAN TRADE - Madagascar</b>	101 ANTANANARIVO	Tel. 00 261 20 22 303 03

**Pour nous joindre veuillez consulter la liste ci-dessus**

FFB. a le souci de faire profiter tous ses clients des derniers perfectionnements que la technique peut apporter. C'est pourquoi FFB. se réserve le droit de modifier à tout moment les caractéristiques indiquées dans cette notice.

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Da FFB. onsker, at kunderne skal nyde godt af den seneste teknologiske udvikling, forebeholder FFB. sig retten til at ændre de tekniske specifikationer idenne brochure.



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 Fax.: + 33 3 86 39 50 60