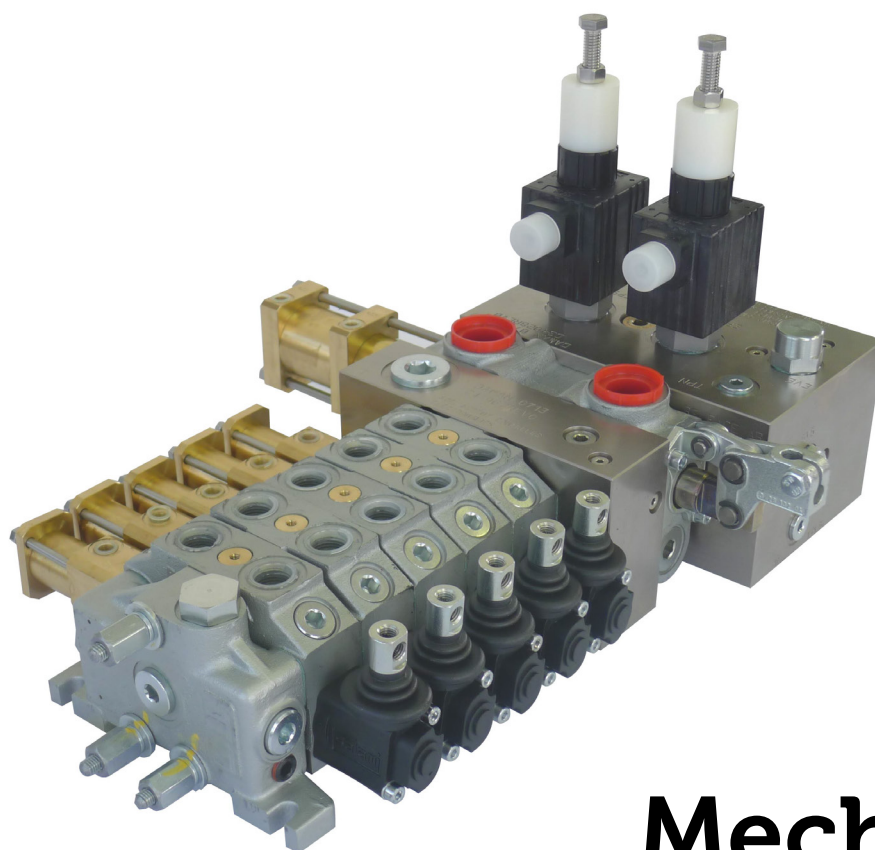


OPTIVALVE II

**MODULE
800 VALACEOPS V.14C**



Mechanic's manual

R.14.10



HYDRAULICS

CONTENTS

PRODUCT DESCRIPTION	5
FACE IDENTIFICATION	6
COMPONENTS	7
INLETS/OUTLETS	9
OPERATION	10
NEUTRAL OPERATION	10
OPERATION OF THE SPREADER	10
OPERATION OF THE PLOWS OR THE HOPPER	11
COMBINED OPERATION OF THE PLOWS AND THE SPREADER	12
TECHNICAL SPECIFICATIONS	13
RECOMMENDATIONS	14
INSTALLATION	15
HOPPER COUNTERBALANCE VALVE	17
SIDE WING COUNTERBALANCE VALVE OPTION	18
SPLIT BLOCK OPTION	19
RECOMMENDED REGULAR MAINTENANCE	21
DIAGNOSIS AND TROUBLESHOOTING	22
ESSENTIAL PRELIMINARY VERIFICATIONS	22
APPENDIX	24
APPENDIX A1 : GENERAL DIMENSIONS	24
APPENDIX A2 : FRONT FACE ASSEMBLY TEMPLATE	25
APPENDIX A3 : BOTTOM FACE ASSEMBLY TEMPLATE	26
APPENDIX B1 : HYDRAULIC DIAGRAM	27
APPENDIX B2 : SPLIT-BLOCK DIAGRAM	28
APPENDIX C : PARTS LIST	29
APPENDIX D : TROUBLESHOOTING	32

IMPORTANT WARNING

© 2013 ACE, Accent Contrôles Électroniques Inc. («ACE») or its subsidiaries.

All of the copyrights are reserved, except as provided herein. No part of this manual may be reproduced, copied, transmitted, disseminated, downloaded or saved in any backup media, for any purpose, without prior written approval from ACE.

Hereby, ACE authorises the download of a single copy of this document on a hard disk or on any other electronic backup media so that it may be consulted at will.

Hereby, ACE authorises printing of a single copy of the manual or of any related revision, as long as any copy, electronic or paper, contains the entire text of this copyright notice.

Any unauthorised commercial distribution of this manual or of its revisions is strictly prohibited.

The information in this document is subject to change without prior notice. ACE reserves the right to modify or improve its products and to modify its content without obligation to advise anyone.

Please consult ACE's website, www.aceelectronic.ca for updates and supplementary information concerning the use and operation of this product.

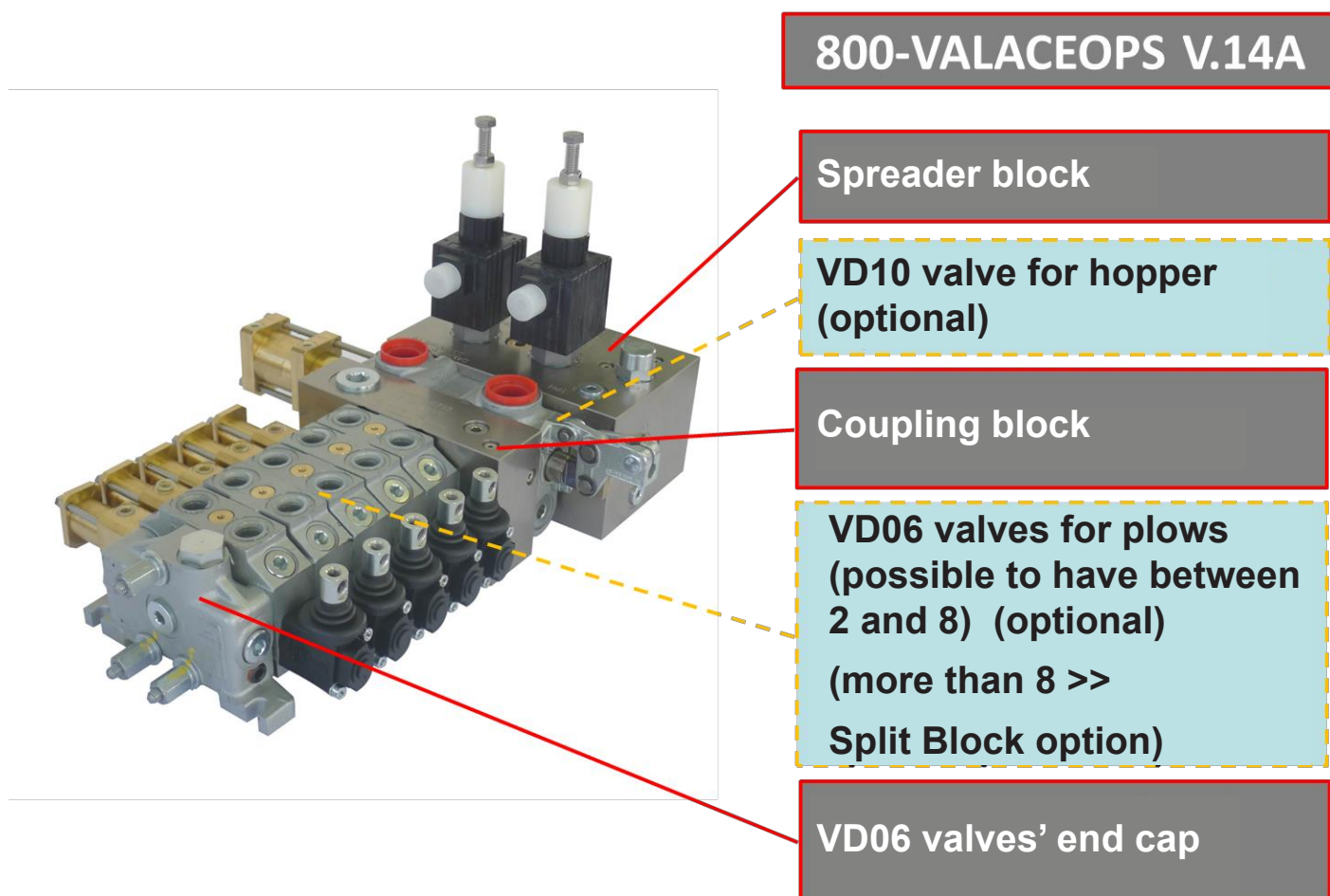
ACE, Optivalve, Ecovalve, Manimax, Chlorobite, Chlorocom, Ecobite, Infobite can be trademarks registered by ACE or by one of its subsidiaries in Canada or in any other country. These trademarks cannot be used by anyone without prior written permission from ACE.

PRODUCT DESCRIPTION

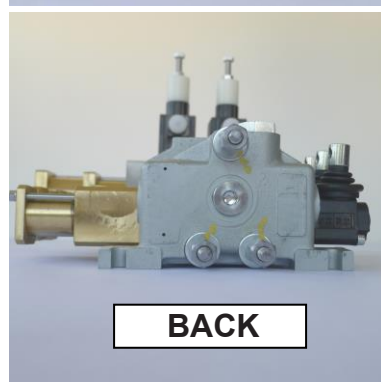
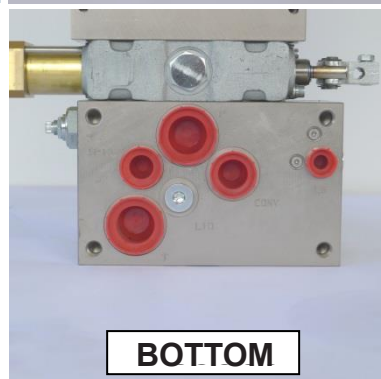
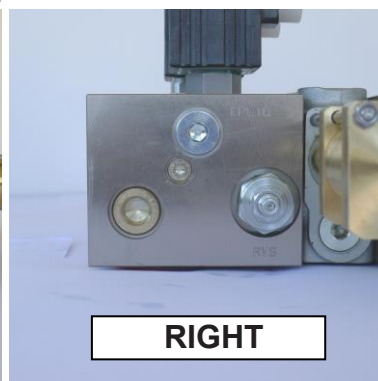
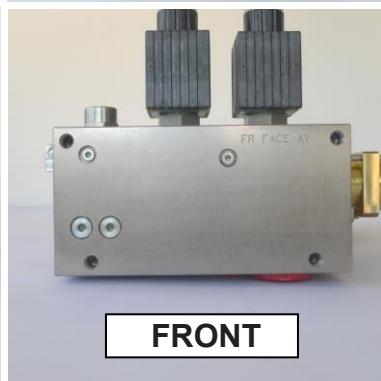
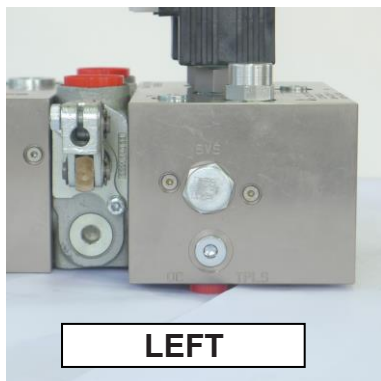
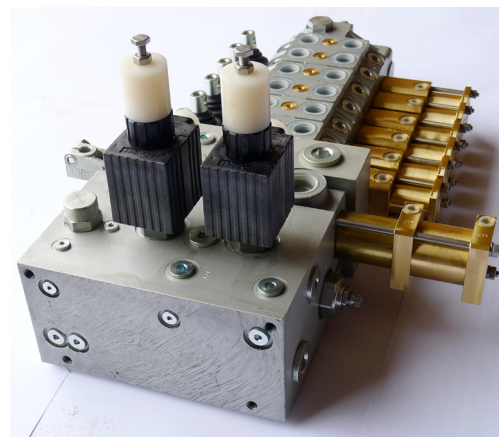
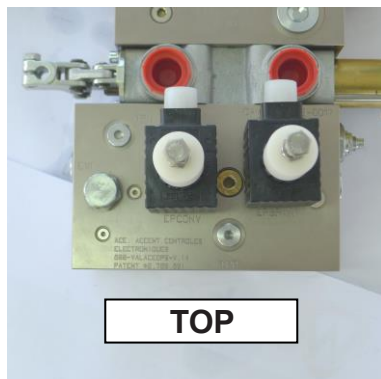
OPTIVALVE II 800-VALACEOPS is a modular block conceived to operate spreaders, plows and hoppers from a Load Sensing pump. It is built from steel with nickel treatment. It combines Load Sensing for use of the spreader with a pressure-compensated principle for intermittent functions such as plows and hoppers. Hence, OPTIVALVE offers the advantages of a Load Sensing circuit while maintaining the simplicity of standard mobile hydraulic valves.

The product delivered with the reference 800-VALACEOPS features :

- a spreader block, which ensures spreader functions and pilots the other module functions
- a coupling block for the VD10 valve (for the hopper) with VD06 valves (for plows). These valves are delivered as an option according to the number required for specific applications.
- an end cap for the module that closes the ensemble of VD06 valves.



FACE IDENTIFICATION



All of ACE's hydraulic blocks can be identified in the same way :

- **Top face** : coils and cartridges for conveyor and spinner
- **Front face** : recommended for assembly. FR FACE AV marked.
- **Bottom face** : opposite from top face - all of the inlets/outletss regrouped - possible assembly face
- **Back face** : with VD06 valve end cap. RE FACE AR marked. Used to assemble the module's valves
- **Left and right faces** : seen from front face

COMPONENTS

The OPTIVALVE II block integrates the following components :

EPCONV

Electro-proportional cartridge for controlling conveyor speed

EPSPIN

Electro-proportional cartridge for controlling spinner speed

EVE

Cylinder engaging valve

EPLIQ

Location for valve and electro-proportional cartridge (800-OOPR) for controlling (LIQ) auxiliary outlet (like a pump for liquid) (optional)

TOP

LEFT

FRONT

RIGHT

SVS shuttle valve

SVS relief valve (2500 psi factory set)

BOTTOM

BACK

NATURE OF THE COMPONENTS IN AN 800-VALACEOPS CIRCUIT

VARIABLE RATE LS PUMP

A piston pump that varies its rate to maintain a pressure differential between the pressure of the LS piloting line and the pressure of the (P) outlet. In this application, the recommended differential is between 275 and 400 psi, depending on the pump. We will maintain a value of 350 psi for the remainder of this text. In this application, it is also recommended to adjust the pump pressure compensator to 2 200 psi.

RVS) RELIEF VALVE

Allows to limit a circuit's pressure to an adjustable maximum. In this application, the recommended adjustment of the relief valve is of 2500 psi.

EVE) ENGAGING VALVE

The EVE) engaging valve blocks or allows passage between the (P) pump's pressure and the LS piloting line according to the gears' demand (plows or hoppers).

SVS) SHUTTLE VALVE

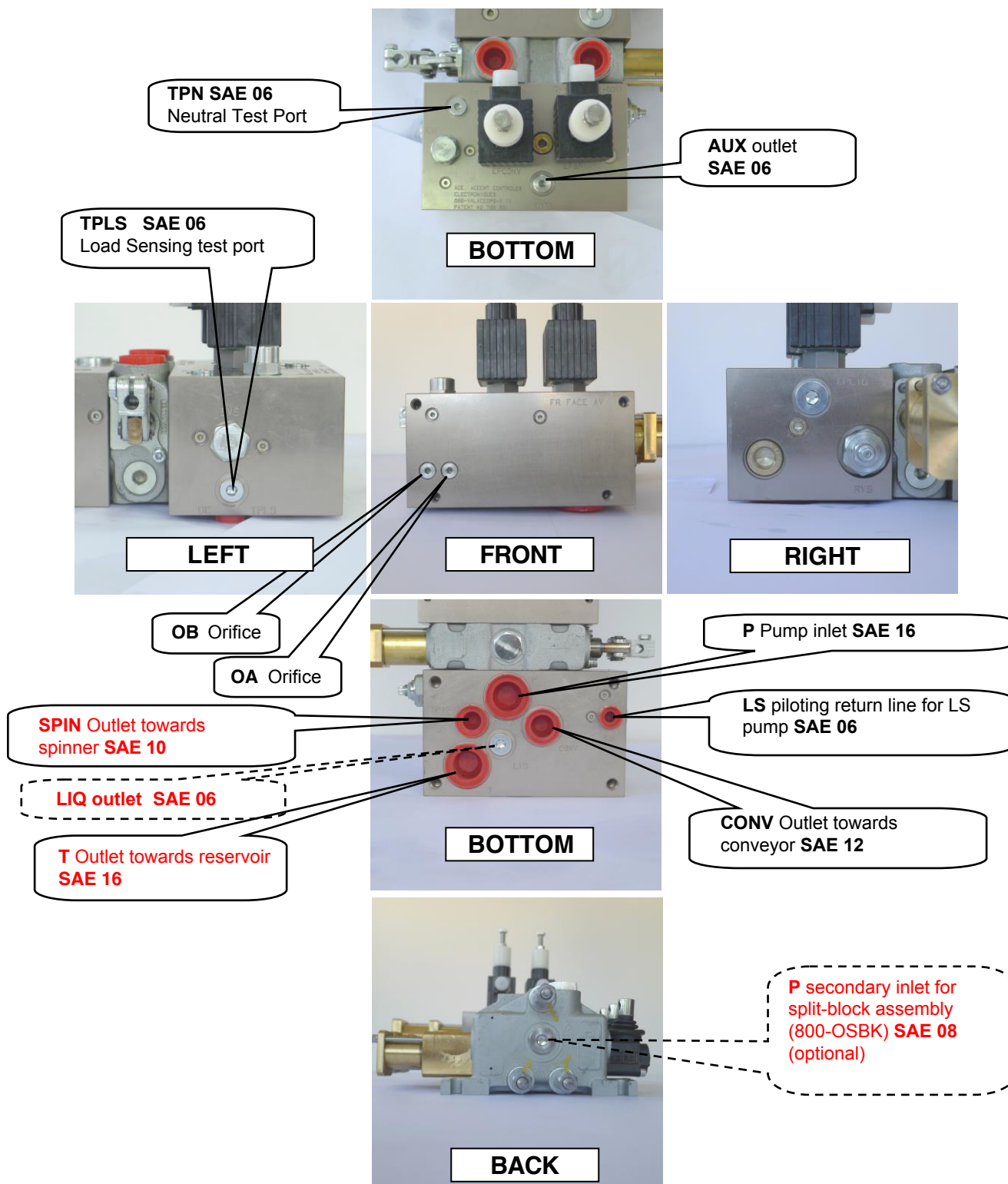
«T» shaped component with two inlets and one outlet that allows the highest pressure between the CONV and P pressures to flow.

EPCONV AND EPSIN ELECTRO-PROPORTIONAL CARTRIDGE

Allows to control the oil flow from an electro-proportional signal sent from the electronic controller. Both conveyor and spinner cartridges are identical.

INLETS/OUTLETS

The OPTIVALVE II block features the following inlets and outlets :



OPERATION

NEUTRAL OPERATION

OPERATION	TPP	TPN	EVE	TPLS	CONV	CYL
IN NEUTRAL	350*	350*	piloted	0	0	0

* Value according to LS pump's differential setting

- The variable flow LS pump is activated either by starting the vehicle's engine or by clutching the drive shaft. During startup, it is in its maximal displacement position.
- The pump creates an oil flow in the module that goes through the engaging valve's parallel passage then returns through all of the slide valves via the neutral channel to pressurize the (EVE) engaging valve.
- The neutral pressure (TPN) being superior to 160 psi, the (EVE) engaging valve blocks the passage between the pump's pressure and the LS piloting line.
- Since the LS piloting line is not being powered, the pump regulates its flow to maintain neutral pressure (LS differential of about 350 psi), which is maintained until any function is activated.

OPERATION OF THE SPREADER

WHEN THE SPREADER STARTS

OPERATION	TPP	TPN	EVE	TPLS	CONV	CYL
IN NEUTRAL	1350	1350	piloted	1000	1000*	0

* Value given as an example, depending on corresponding mechanical demand

- When receiving the controller's signal, the (EPCONV) and (EPSPIN) cartridges open to allow oil to flow towards their respective outlets (CONV and SPIN).
- The pressure builds in proportion to the resistance of the motor and conveyor.
- The conveyor outlet (CONV) is linked to one of the (SVS) shuttle valve's inlets. This valve transmits this pressure via the LS line by going through an (OC) excess flow orifice of 0.0625», towards the LS pump compensator. The pump increases its flow to maintain a differential of 350 psi between the pump's release pressure and the entrance of the LS signal (conveyor labour pressure).

- Since the spinner (SPIN) and liquid (LIQ) outlets are not linked to the LS piloting line, their pressure does not impact the pump's piloting. The spinner's exiting pressure (SPIN) and (LIQ) will hence never be greater than the conveyor's pressure.

 *In order to operate spinner and liquid, the conveyor must be activated.*

- If the pressure demand exceeds the pump regulator's adjustment pressure (2 200 psi recommended), the pump's flow is then limited to maintain the maximum regulated pressure.
- If the adjustment of the pump were to be defective, the pressure would be limited by the RVS) relief valve (adjusted to 2 500 psi).

 *Note : While allowing pressure to flow, the OC orifice limits the maximal oil flow sent towards the pump via the LS piloting line. This is necessary for certain pumps.*

WHEN THE SPREADER STOPS

- The EPCONV) cartridge stops the flow going towards (CONV). The LS piloting line's residual pressure evacuates through the OA orifice (0.018"), the LS signal drops down to 0 psi and the circuit returns to neutral.

OPERATION OF THE PLOWS OR THE HOPPER

WHEN A PLOW OR HOPPER CYLINDER IS ACTIVATED

OPERATION	TPP	TPN	EVE	TPLS	CONV	CYL
PLOW OR HOPPER	2200	0	non piloted	2200	0	500*

* Value given as an example, depending on corresponding mechanical demand

- First of all, the movement initiation of the corresponding slide valve cuts the neutral passage.
- The residual pressure of the neutral line is evacuated through the OB orifice (0.0625") and decreases.
- Once the pressure becomes inferior to 160 psi, the EVE) engaging valve allows the pressure to flow from the pump towards the SVS) shuttle valve and the pump's LS piloting line.
- The pump operates with a command pressure equal to that of the circuit. Hence, it quickly increases the flow to activate the cylinder.
- The circuit's pressure is regulated by the LS pump's compensator.

- Secondly, if the slide valve's movement continues, the activated cylinder's parallel passage links itself to an outlet (A or B). The slide valve's action determines the oil flow that goes through the cylinder.
- As long as the slide valve does not return into neutral, the pump maintains its maximum pressure.

WHEN THE CYLINDER IS DEACTIVATED

- The same operations are done in reverse order and the circuit returns into neutral.
- ☞ *Note : by maintaining a small circulation in the neutral line, the OB orifice allows you to maintain the whole module at an equal temperature.*

COMBINED OPERATION OF THE PLOWS AND THE SPREADER

OPERATION	TPP	TPN	EVE	TPLS	CONV	CYL
IN NEUTRAL	2200	0	non piloted	2200	1000*	500*

* Value given as an example, depending on corresponding mechanical demand

- The pump provides the required flow for the operation of the spreader on its own (conveyor, spinner and liquid) according to the demand of LS piloting.
- During the activation of a plow cylinder, the pump goes up to its maximum. Since the spinner and conveyor cartridges work with compensated pressure, their flow varies little.
- As long as the pump's capacity exceeds the sum of oil demands, the pressure remains at its maximum. If the pump is unable to supply enough flow to match the pressure demand, the functions demanding the most pressure will be the first ones to slow down.
- If the pump is ever defective and does not reduce its flow as supposed to, the relief valve will protect the system from overpressure.

TECHNICAL SPECIFICATIONS

800-VALACEOPS		S.I.	CDA - US
Module's weight without VD10 or VD06		29.8 kg	65.6 lbs.
Pressure differential			ΔP 150 psi ΔP 300
Spinner/conveyor flow			14 gpm 20 gpm
Liquid flow			0 to 10 gpm
Reserve pressure (according to the pump's setting)			250-300 psi
Maximal work pressure			3000 psi
Security clearing pressure			2500 psi
Orifice dimensions :			
- Pressurised inlet (P)		SAE 16	
- Reservoir return (T)		SAE 16	
- Drain		SAE 06	
- LS line		SAE 06	
- Conveyor (CONV)		SAE 12	
- Spinner (SPIN)		SAE 10	
- Auxiliary outlet (LIQ)		SAE 06	
Oil type		See pump manufacturer's specifications	
Filtration & oil purity		12 VDC	
Coil voltage		42 W - 3,54 A – 3,8 Ohms	
Current for coil (conveyor and spinner)		22 W - 1,8 A – 3,7 Ohms	
Current for coil (liquid)			
Hopper valve (VD10)	Dimensions (W x H x D with pneumatic cylinder)	4.6 x 26.6 x 10.9 cm	1.81" x 10.45" x 4.29"
	Weight	5 kg	11 lbs.
	Flow		0 to 40 gpm
	Maximal pressure		4560 psi
	Leak rate (at 2800 psi)	35 cm ³ /min.	2.13" ³ /min.
	Maximal number of modules	2	2
	Dimensions of work orifices	SAE 12 (1-1/16-12UN)	SAE 12 (1-1/16-12UN)
Hopper valve (VD10)	Dimensions (W x H x D with pneumatic cylinder)	3.5 x 11.6 x 10.3 cm	1.4 x 4.6 x 4.1"
	Weight	2.1 kg	4.7 lbs.
	Flow		0 to 20 gpm
	Maximal pressure		5100 psi
	Leak rate (at 2800 psi)	18 à 25 cm ³ /min.	1.1-1.5" ³ /min.
	Maximal number of modules*	8	
	Dimensions of work orifices	SAE 8 (3/4-16 UNF)	
*for a greater number, see Split Block option			

*for a greater number, see Split Block option

For general dimensions, see Appendix A1 on page 24.

RECOMMENDATIONS

RECOMMENDATIONS FOR PNEUMATIC LINES AND HYDRAULIC CONNECTIONS

- All pneumatic lines must be cleaned before being installed.
- All connections going to valves motors, cylinders, etc. must conform to SAE 514 (O-ring boss) standard specifications.
- All pneumatic lines must meet or surpass the SAE100-R2AT standard.
- All pneumatic lines and connections should come from the same manufacturer.
- All connections should meet SAE-J514 (JIC 37o) standard specifications.

FILTRATION RECOMMENDATIONS

Filtration, of which the importance is often underestimated, removes contaminants from oil.

These contaminants enter into the oil by two ways :

- from the outside, via the cylinders' rods or by the reservoir's breather;
- from the inside, due to the hydraulic system's worn out internal components. Impurities in the oil contribute to this wear. Thus, the cleaner the oil, the lesser the contamination. An effective filter will have a longer life expectancy.

RECOMMENDED FILTERS

In the OPTIVALVE hydraulic system, the following filters are recommended :

- Reservoir with **breather filter**
with silica gel (Parker Triceptor or equivalent). Such a breather ensures superior protection from particle or humidity-related contamination. It is easy to maintain since a color change indicates the necessity to change the gel cartridge.



- A **high pressure filter** installed between the pump and the spreader block's P inlet.
Parker WPF310QEVMS2KS161 or equivalent.



- A **low pressure filter** installed on the reservoir's inlet.
Parker KLT710QBGGSS241 or equivalent.



REPLACING THE FILTERS

It must be possible to change all the hydraulic filters without emptying out the reservoir, allowing to reduce as much as possible oil loss. They must be changed regularly according to prescribed intervals or when indicated by the visual indicator.

INSTALLATION

PLANNING

- Determine if you need to install an enclosure or a protective box.
- Choose where to install the OPTIVALVE II module in order to allow ease of access for inspections and maintenance.
- Choose the assembly face. This block offers two assembly surfaces : the front face or the bottom face.
- The bottom assembly requires to free the pneumatic line inlets. However, it liberates the OA and OB orifices.
- The front face assembly is recommended because it allows a vertical assembly with weight on the block, which eliminates all cantilever problems. However, this limits access to the OA and OB orifices which must absolutely be free.
- The assembly must allow access to all the components and orifices indicated on pages 7 and 9 for maintenance.

IMPORTANT PRECAUTION

The complete module is heavy. Always use appropriate lift and support tools to keep it in place until it is solidly attached to the vehicle.

**EXECUTION**

Choose the most appropriate one and pierce the holes with the corresponding pattern (see appendices A2, page 25 or A3, page 26).

Note : it is recommended to leave a cleaning space between the valve's case and the truck's assembly surface by adding a stainless steel spacer (for example, 3/8 SS nuts).

Hook up the cleaned and rightly-dimensioned pneumatic lines to their respective orifices. see Bottom face photo on page 9.

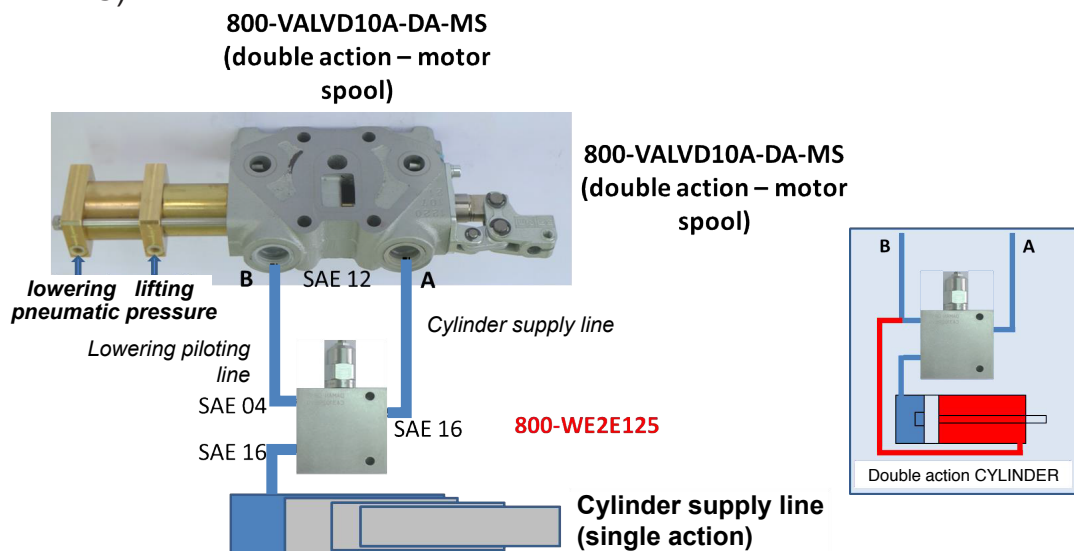
INITIAL HYDRAULIC SYSTEM STARTUP PROCEDURE

See standard WAINBEE procedure on the INITIAL STARTUP AND MAINTENANCE tab.

HOPPER COUNTERBALANCE VALVE

This version of Optivalve is delivered with a counterbalance valve for the hopper (CVE). Its reference is 800-WE2E125.

Its use is ensure protection in case of hopper hose breakage or of valve dysfunction. The valve controlling the hopper's movements must be a double action motor spool (800-VALC10A-DA-MS).



ADJUSTING THIS VALVE

The valve is delivered with a factory adjustment of 3120 psi. The 3.0/1.0 piloting ratio engages the hopper's descent with a pressure of 2080 psi ($3120/3.0=1040$). With an adjustment of the pump's compensator of 2200 psi, the hopper's lowering should operate normally without having to adjust the counterbalance valve.

Note 1 : there is no adjustment for lifting. Lifting is proportional as for a hopper without a counterbalance valve.

Note 2 : the lowering's piloting requires the pump to be functioning (the truck must be operating in order to descend the hopper). In case of motor breakdown, you must loosen the counterbalance valve's adjustment to lower the hopper.

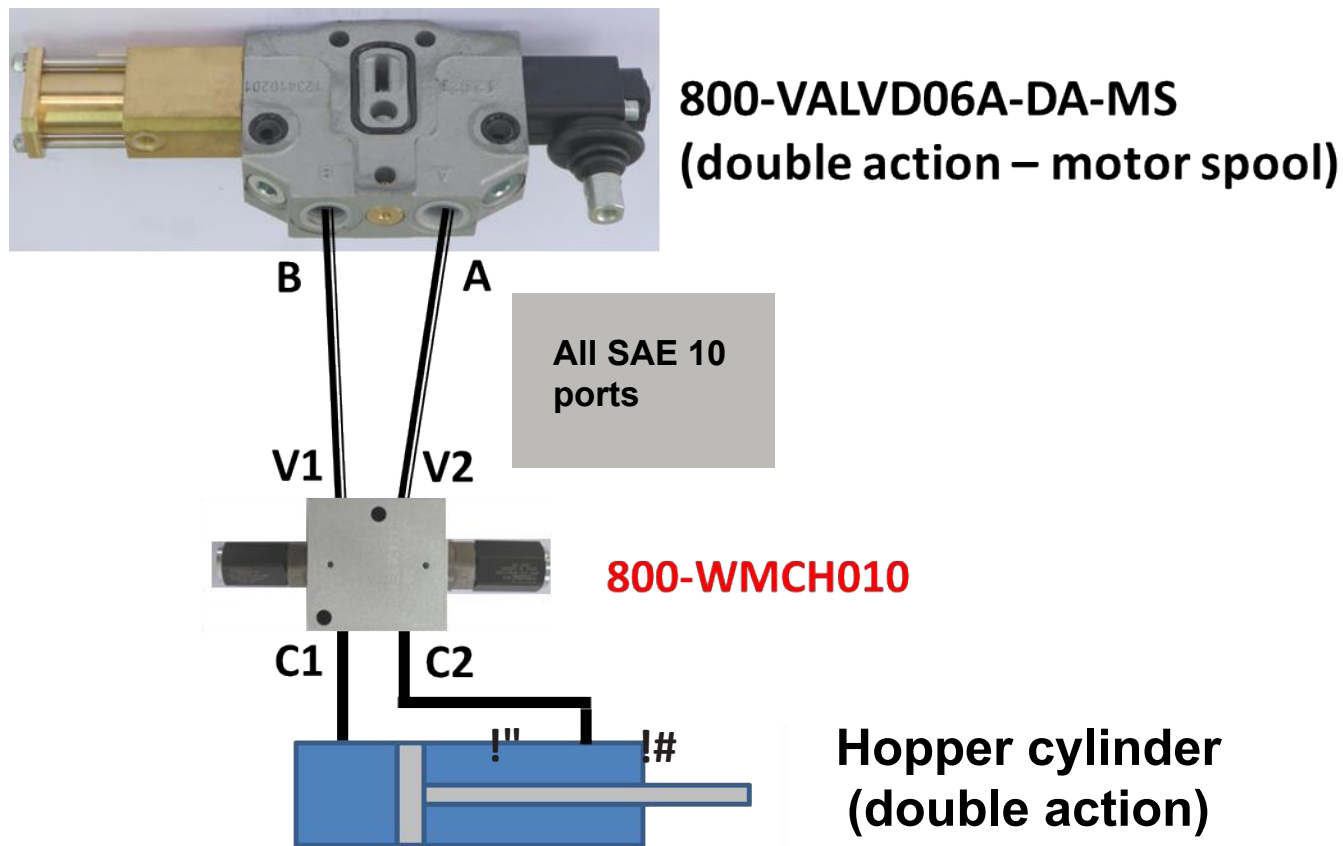
ADJUSTMENT PROCEDURE IF NEEDED

1. Fill up the hopper to full capacity
2. Tighten the valve's adjustment to its maximum (turn clockwise)
3. Lift the hopper 1 meter above the chassis
4. Loosen the valve's adjustment (turn counterclockwise) until the hopper begins to lower
5. Tighten the adjustment by one full turn and block the nut to maintain the adjustment.

SIDE WING COUNTERBALANCE VALVE OPTION

Another counterbalance valve (CVE) may be provided optionally to ensure protection in case of side wing cylinder hose breakage or of valve dysfunction. This valve's reference is 800-WMCH010

Diagram of assembly on the side wing's VD06 valve



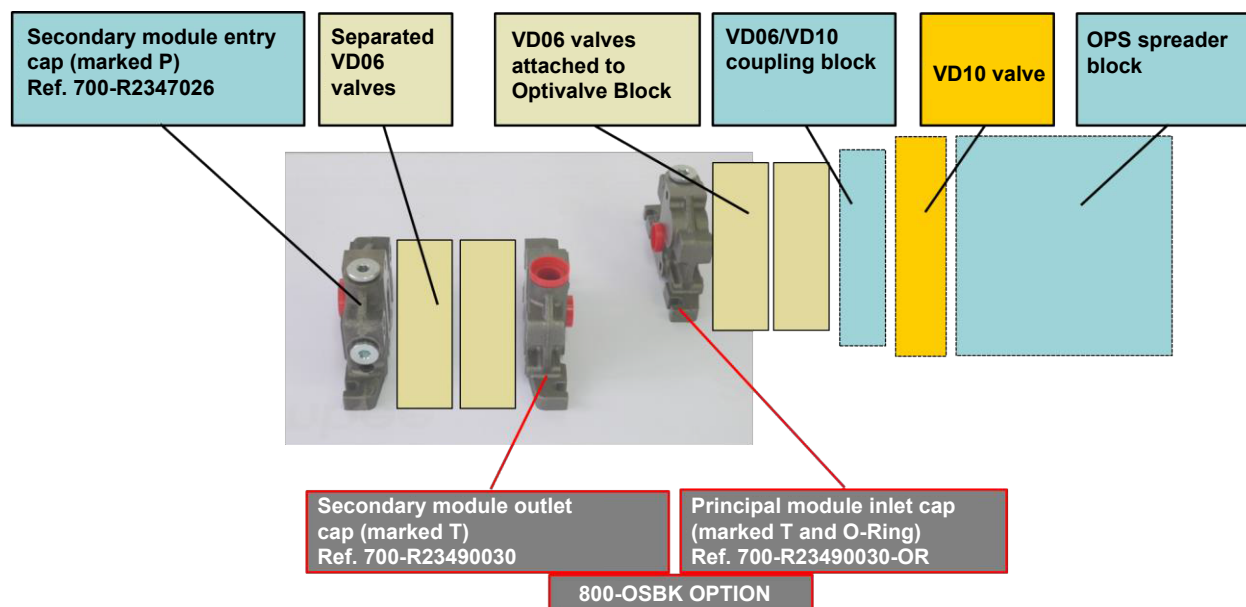
SPLIT BLOCK OPTION

INTEREST OF A SPLIT BLOCK ASSEMBLY

OPTIVALVE II can be assembled into two separate modules. This split block option is to be considered :

1. if you want to limit the pneumatic lines of part of the plow cylinders (particularly the front cylinders);
2. to operate a quick attachment;
3. if you want to force the operator to disembark from the cabin to unplug hydraulic pneumatic lines before reversing the truck;
4. if you need more than 8 VD06 valves.

SPLIT BLOCK ASSEMBLY PRINCIPLE

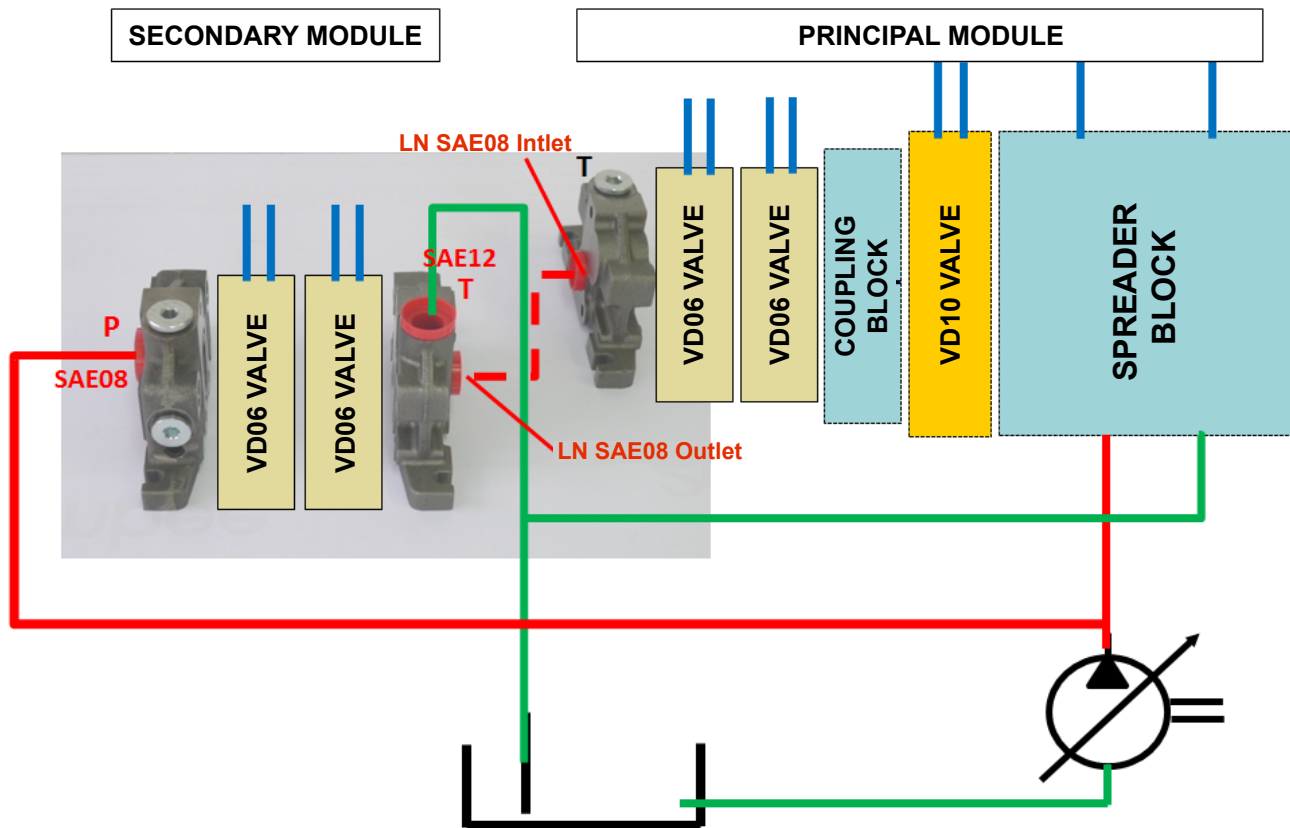


INSTALLATION WITH SPLIT BLOCK CONFIGURATION

The assembly of two separate parts (principal and secondary modules) consists in assembling certain VD06 plow cylinders separately from the principal module, generally close to associated functions. It is possible to mount up to 8 VD06 valves on a split block. Separating them is quite easy (see Appendix B2 on page 28) :

- Separate the VD06 valves in desired location
- Place two 800-OSBK option caps (Outlet T) on uncovered parts (secondary module outlet and principal module inlet). The O-ring joints are on the principal module's inlet.
- Connect the P pump to the secondary block's (SAE 08) inlet with a Y from the pump-block line.
- Connect the secondary module's outlet cap's lateral outlet (LN SAE 08 outlet) to the principal module cap's (LN SAE 08 inlet) lateral inlet.
- Connect the secondary block cap's T outlet (on top) to the reservoir's return line.

The operation, maintenance and troubleshooting are exactly the same for a split block configuration as for a unique module.

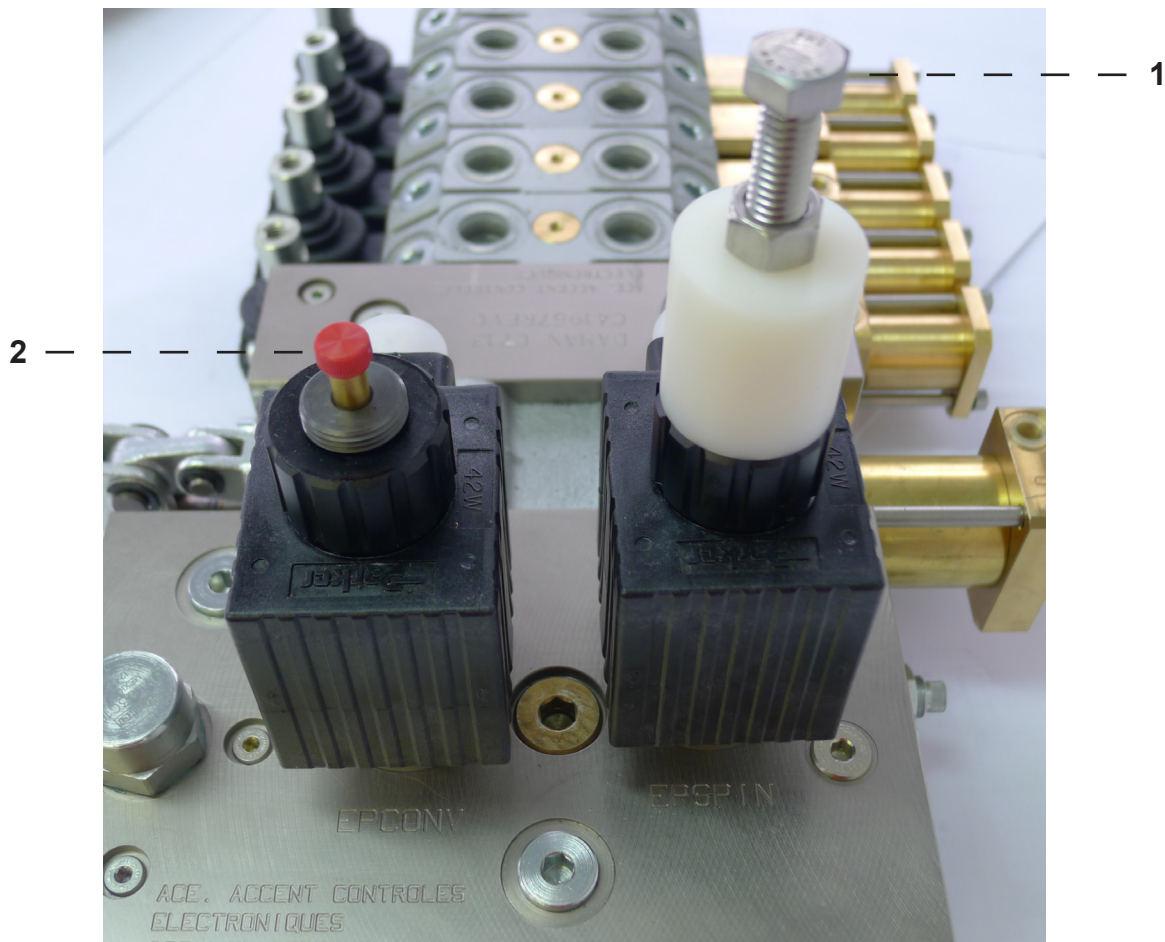


RECOMMENDED REGULAR MAINTENANCE

1. Make sure that all coils remain detachable from their respective cartridges
 - For this, separate both components, clean them and reassemble them with anticorrosive grease.
2. Make sure that the manual activation does not rust, preventing you from using this useful diagnostic tool :
 - unblock and unscrew the white cylinder. Cover the cartridges in a layer of anticorrosive grease.

Manual activation is ensured by :

1. softly tightening the hex. bolt after having unblocked the locking nut from its upper position
2. unscrewing the white nylon protection sleeve and by pressing on the red cap.



DIAGNOSIS AND TROUBLESHOOTING

ESSENTIAL PRELIMINARY VERIFICATIONS

When you have an operation malfunction, start by verifying and correcting if needed the following :

- PV1.** Make sure no mechanical element blocks the conveyor or spinner.
- PV2.** Make sure the hydraulic oil level is normal.
- PV3.** Make sure the hydraulic pump's drive shaft is connected as it should be and that it can turn freely when the motor is running. Particularly for automatic transmissions, verify that the PTO is engaged. Make sure that the VD06 and VD10 levers function normally and return to their neutral position.
- PV4.** Make sure that the VD06 and VD10 levers function normally and return to their neutral position.
- PV5.** Proceed to a visual inspection of the pneumatic lines and all of the hydraulic system's components to detect oil leaks.
- PV6.** Make sure the electronic spreader is fed with 12 VDC current and that it is properly grounded.

For troubleshooting, see appendix D on page 32.

REPAIR SERVICES

Customer Service can be reached during regular business hours (8am to 5pm EST) either by phone at 416-907-0915 or by email at acesupportdesk@gmail.com. For an up-to-date list of authorized field repair and service depots, visit www.aceelectronic.ca.

WARRANTY

Accent Electronic Controls Inc. (ACE) warrants to the buyers of electronic products and accessories manufactured by ACE that they are free of defects in material and workmanship. ACE's sole obligation under this warranty is to repair or replace, at ACE's option, any products or parts thereof, which under normal use and proper maintenance have proven defective in material or workmanship.

No claim under this warranty will be valid unless the claimant notifies ACE in writing within a reasonable time of the discovery of such defects, but under no circumstances later than twelve (12) months from the date of shipment of such product by ACE.

As requested by ACE, products or parts for which a warranty claim is made must be returned prepaid to the factory or a designated repair depot.

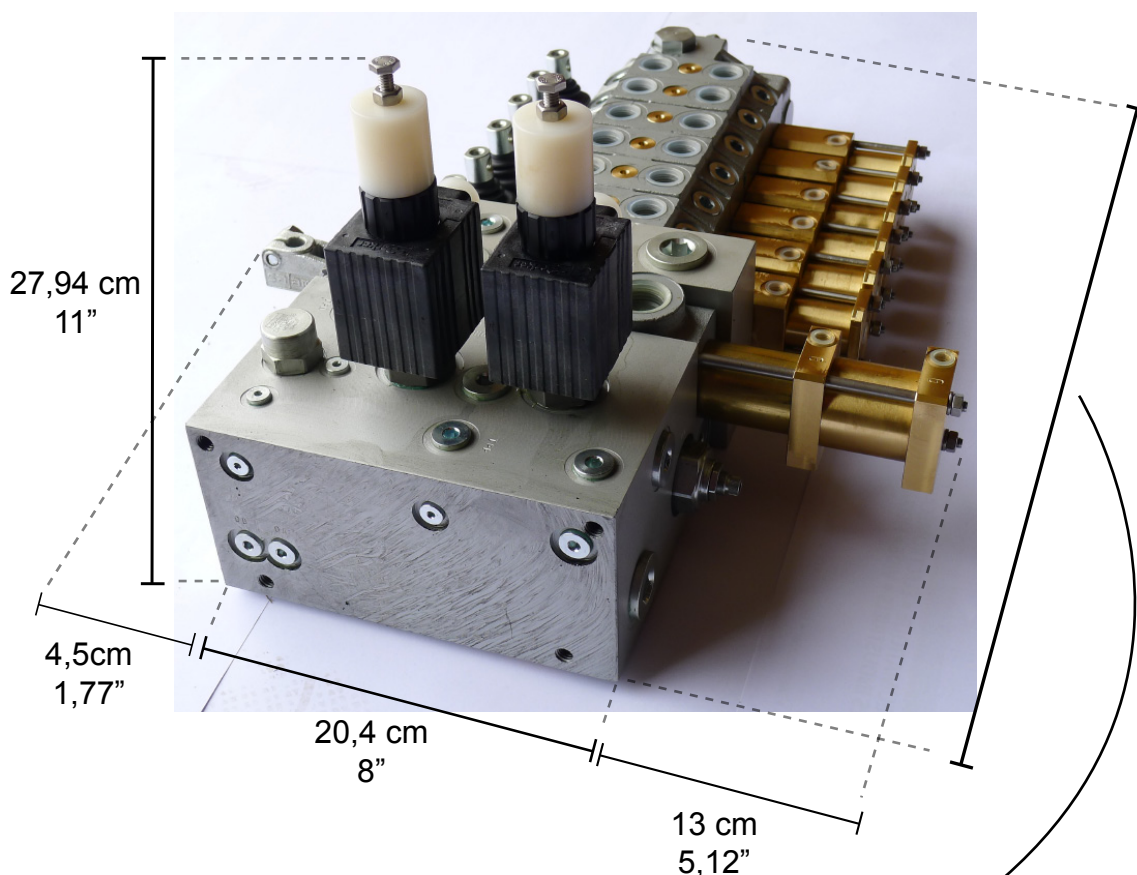
The risk of loss or damage of any returned product or part thereof will be born by the buyer.

For approved warranty claims, ACE will cover the transport costs to return the equipment to the claimant. ACE is not liable in any way nor will bear any costs related to :

- wear and tear, abuse, misuse, overloading or alterations
- transportation charges or costs of installation, replacement, field repair or other charges related to returning products to ACE or its designated repair depots
- any liability for direct, indirect or consequential damage or delay

No employee or representative of ACE is authorized to change any warranty in any way or grant any other warranty unless such is made in writing and signed by any officer of ACE.

APPENDIX A1 : GENERAL DIMENSIONS



Depth according to number of VD10 et VD06 valves

In inches : $5 + (N \times 1,81) + 2 + (M \times 1,40) + 1,75 = \text{depth}$

In cm : $10,1 + (N \times 4,6) + 5 + (M \times 3,55) + 4,5 = \text{depth}$

N = Number of VD10s, M = Number of VD06s

Technical drawing of a mechanical part showing two views: **FR FACE AV** (Front Face) and **FACE 2** (Side Face).

FR FACE AV:

- Overall width: 8,000 mm.
- Overall height: 4,000 mm.
- Feature **UNCO. 375-16x0.500 (4x)** is located on the right side, with a vertical dimension of 7,000 mm from the top edge.
- Feature **FR FACE AV** is located on the left side, with a vertical dimension of 3,625 mm from the top edge.

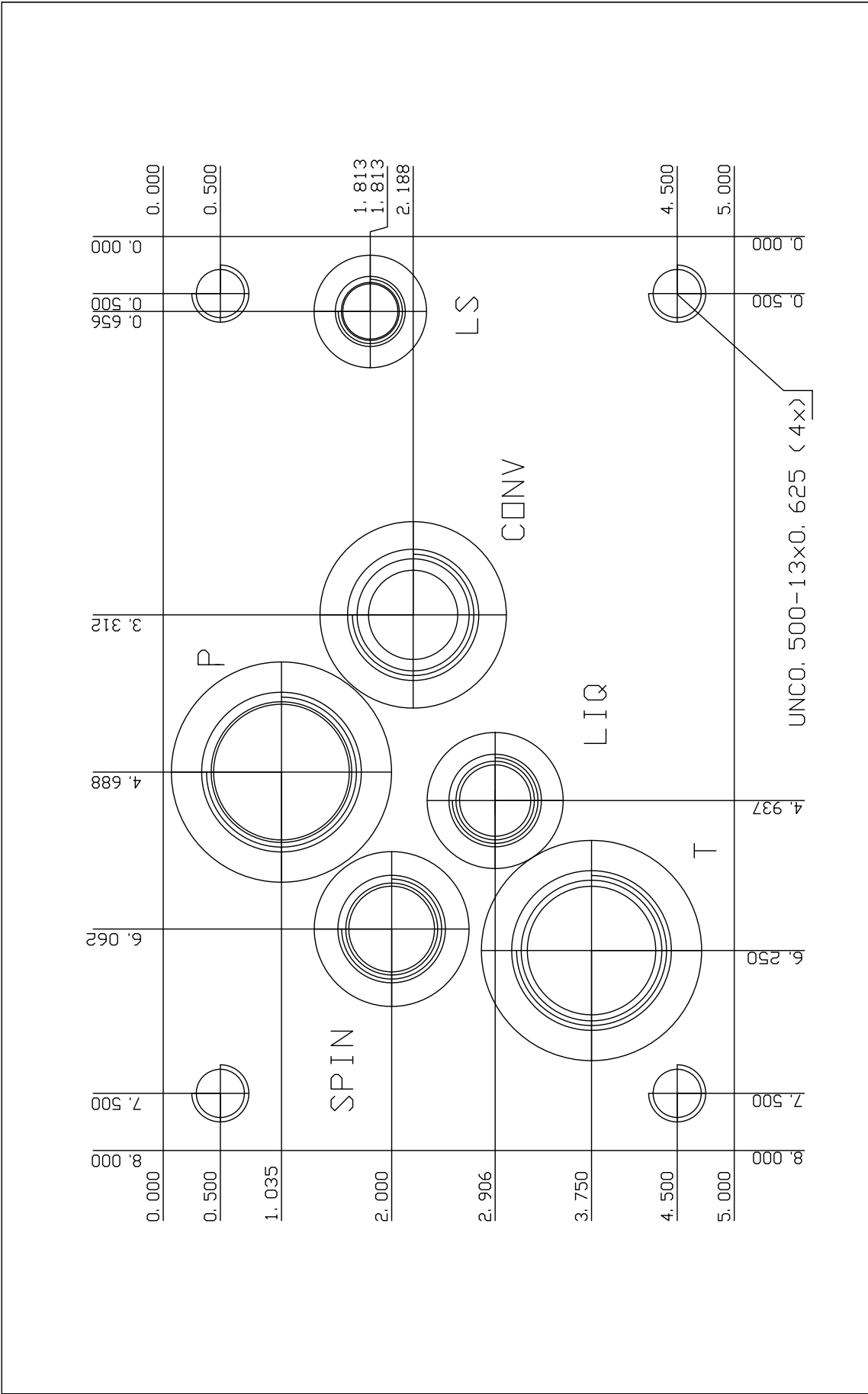
FACE 2:

- Overall width: 8,000 mm.
- Overall height: 4,000 mm.
- Feature **UNCO. 375-16x0.500 (4x)** is located on the right side, with a vertical dimension of 7,000 mm from the top edge.
- Feature **FR FACE AV** is located on the left side, with a vertical dimension of 3,625 mm from the top edge.

Dimensions are given in millimeters (mm).

REV	DATE	PAR	VÉR.	DESCRIPTION	Ces dessins et/ou ces données sont réservés et sont confidentiels ; et ne peuvent être utilisés, copiés ou reproduits sans le consentement écrit de Wainbee Limited.	 ACE	 Wainbee Hydraulique * Pneumatique * Électromécanique * Vacuum * Contrôle * Filtration www.wainbee.com	# Dessin:		
14 A	2013/06/18	RS	RJ	14 A acier nickelé				Dessiné par: RS	Conçeu. RS	800-VAlACEOPS-V.14
								Date: 2010/06/11	Date:	
								Vérifié par: RJ	Échelle:	FACE DE FIXATION
								Date:		Révision R. 14A

APPENDIX A3 : BOTTOM FACE ASSEMBLY TEMPLATE



REV	DATE	PAR	VÉR.	DESCRIPTION	ACE ACCENT CONTRÔLES ÉLECTRONIQUES				wainbee		#DESSIN:
14A	2013/06/18	RS	RJ	R.14A ACIER ELECTROLESS NICKEL	Dessiné par: RS	Concept: RS	Hydraulique * Pneumatique * Electronique * Vacuum * Control *		800-VALACEOPS-V.14		BASE DE FIXATION
					Date: 2010/06/11	Date:	www.wainbee.com		Revision R.14B		
					Verifié par: RJ	Échelle:					
					Date:						

REV	DATE	PAR	VER.	DESCRIPTION
14A	2013/06/18	RS	RJ	R.14A ACIER ELECTROLESS NICKEL
14B	2013/10/25	RS	RJ	ORIFICE B - PERÇAGE 0.0625 PO
14C	2014/05/21	RS	RS	MODIFICATION DES COUPLES DE SERRAGE

Ces données et/ou les informations sont réservées exclusivement de Wainbee Limitée. Toute réimpression ou reproduction sans la permission écrite de Wainbee Limitée.

ACE. ACCENT CONTRÔLES ÉLECTRONIQUES	Dessiné par: RS	Concept: RS
	Date: 2010/06/11	Date:
	Vérifié par: RJ	Échelle:
	Date:	

ACE

DESSIN:

800-VALACEOPS-V.14

Wainbee

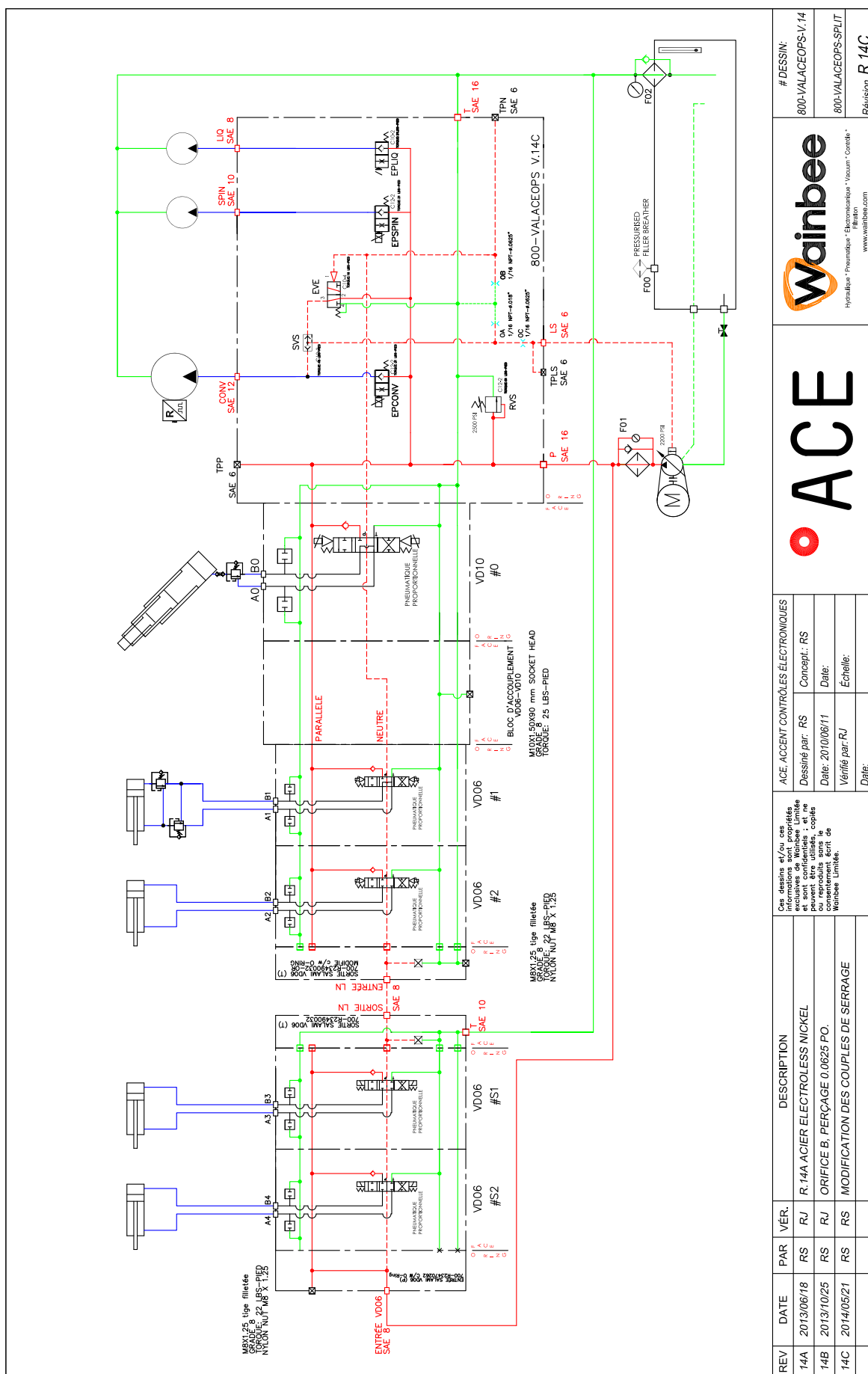
Hydraulique • Pneumatique • Électronique • Vacuum • Contrôle •

www.wainbee.com

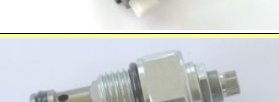
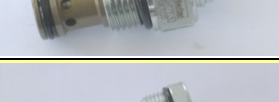
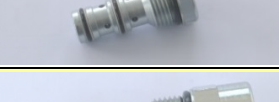
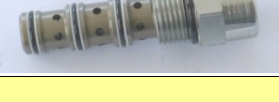
800-VALACEOPS-KIT

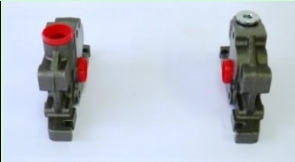
Revison R.14C

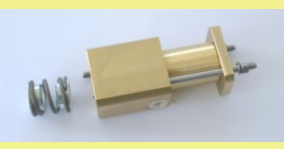
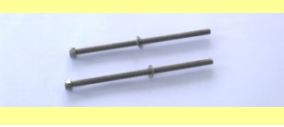
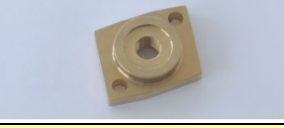
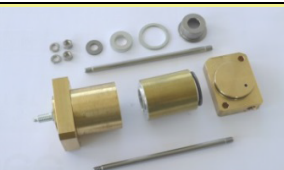
APPENDIX B2 : SPLIT-BLOCK DIAGRAM



APPENDIX C : PARTS LIST

Abbrev.	Piece n°	Photo	Descriptions
	800-VALACEOPS		Spreader block with 2 Load Sensing electro-proportional sections + VD10/VD06 coupling block + VD06 end cap.
VD06A-SA	800-VALVD06A-SA		Simple action valve commanded by pneumatic cylinder for plow cylinder
VD06A-DA	800-VALVD06A-DA		Double action valve commanded by pneumatic cylinder for plow cylinder
VD06A-DA-MS	800-VALVD06A-DA-MS		Double action motor spool valve commanded by pneumatic cylinder for plow cylinder
VD10A-DA-MS	800-VALVD10A-DA-MS		Double action motor spool valve commanded by pneumatic cylinder for hopper cylinder
EPCONV or SPIN	700-PASPABBCA		Electro-proportional cartridge to command spinner or conveyor function
EPCONV or SPIN	700-PAHEAOEH		PK 42 electrical coil for conveyor or spinner
RVS	700-RAH121S30		0-3000 psi adjustable relief valve
SVS	700-PAVLAOAB		Shuttle valve
EVE	700-DH103C16		Cylinder engaging valve
OA	700-ORI-0180		0.0180" orifice PLUG 1/16" NPT
OB	700-ORI-0280		0.0625" orifice PLUG 1/16" NPT
OC	700-ORI-0625		0.0625" orifice PLUG 1/16" NPT

	700-R23400563 (Option)		Relief valve for VD06A valve – adjustable between 500 and 1200 psi
	700-R23400573 (Option)		Relief valve for VD06A valve – adjustable between 1100 and 1800 psi
EPLIQ	800-OOPR (Option)		Electro-proportional cartridge valve ensemble to command liquid function (auxiliary)
EPLIQ	700-M19P-12D		Electrical cartridge for liquid function cartridge 12V 22W
	700-PFC10-RC		Electro-proportional cartridge for liquid
OSBK	800-OSBK (Optional)		Ensemble of Optivalve separation 2 extremities (T outlet) to close a module separated by VD06 valves and the principal module.
CVE Hopper	800-WE2E125		Hopper counterbalance valve Works with 800-VALVD10A-DA-MS valve (double action motor spool type)
CVE Wing	800-WMCH010 (Optional)		Side wing counterbalance valve Works with 800-VALVD06A-DA-MS valve (double action motor spool type)
CVE Wing + Spool for retrofit	800-WMCH010R (Optional)		Ensemble : Side wing counterbalance valve + Spool for 800-VALVD06A valve transformation into 800-VALVD06A-DA-MS valve (double action motor spool type)

	700-R23400105 (Reparation piece)		Pneumatic ensemble for VD06A
	700-R22176000 (Reparation piece)		PP piston for VD06A
	700-322114933 (Reparation piece)		Tie rod with nut and washer (for VD06A) PNEUMATIC
	700-R10-FLVD06S (Reparation piece)		Flange with O-ring for VD06A PP
	700-R23400200 (Reparation piece)		Seal kit for VD06A section
	700-R16-SLVD06S (Reparation piece)		VD06A PP sleeve
	700-R22176332 (Reparation piece)		VD10A pneumatic ensemble
	700-R16-SLVD10S (Reparation piece)		VD10 PP sleeve
	700-R22072500 (Reparation piece)		Seal kit for VD10A section
	135-CAPUCHON		End cap for solenoids

APPENDIX D : TROUBLESHOOTING

NO TROUBLE

COMMAND	OBSERVATION	TPP	TPN	TPLS	CONV
Neutral	Neutral	350**	350**	0	0
Controller CONVEYOR 100%	Active conveyor	CONV+350	CONV+350	CONV	800-1500

DEFECTIVE SPREADER TESTS Note : the conveyor must be operating for the spinner or liquid to work (see page 11)

COMMAND	OBSERVATION	POSSIBLE CAUSES	PROCEDURE
CONV TEST	Manually CONVEYOR 100%	Conveyor active Electrical	Apply CE01 to CE04 (see page 32)
		Conveyor inactive Mechanical or hydraulic	Apply CM01 and CH01 to CH06 (see pages 32 and 34)
SPIN TEST (or LIQ)	Manually CONVEYOR 100%	Conveyor active Spinner (or Liquid) active Electrical	Maintain conveyor active and apply conveyor troubleshooting steps CE01 to CE03 (see page 32) to SPINNER (or to LIQUID). Remark : different coil for liquid
	Manually SPINNER (or LIQUID) 100%	Conveyor active Spinner (or Liquid) active Mechanical or hydraulic	Maintain conveyor active and apply conveyor troubleshooting steps CM01, CH01 and CE04 to SPINNER (or to LIQUID). Remark : different coil for liquid

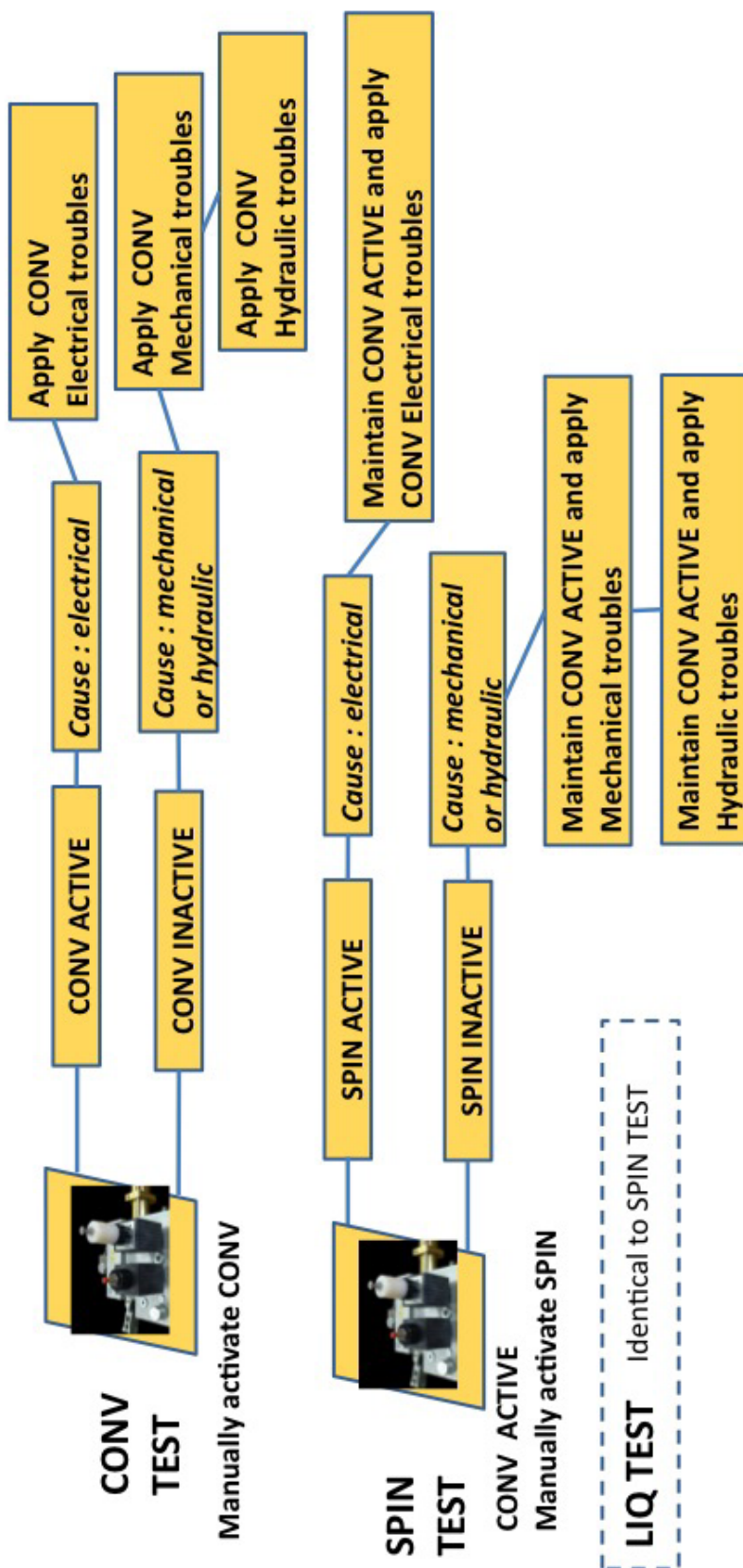
DEFECTIVE PLOW OR HOPPER TEST

COMMAND	OBSERVATION	POSSIBLE CAUSES	PROCEDURE
CYLIN- DER TEST	Engage manually (lever on the valve) more than one section	Only one section is not working This section is in trouble	Disassemble, clean and reassemble section. Replace it if needed
		All sections are working	Pneumatic piloting problem Verify that the air pressure from the pneumatic levers or from the Manimax is between 40 and 90 psi
		No section is working or at least not at 100%	Hydraulic problem See GH01 to GH07 (see page 36)

PUMP TEST

COMMAND	OBSERVATION	CAUSES	TPP	TPN	TPLS	CONV	PROCEDURE
CONV controller 100% + manually engage a VD06 section (ex. lock) until the cylinder runs its course and maintain it engaged long enough to measure pressure	VD06 function operates but not at 100%	Pump compensator wrongly adjusted or defective pump	Does not go up to pump compensator's pressure adjustment (normally 2200)	TPP	CONV	TPP	Verify pump

The spreader is defective : tests to do



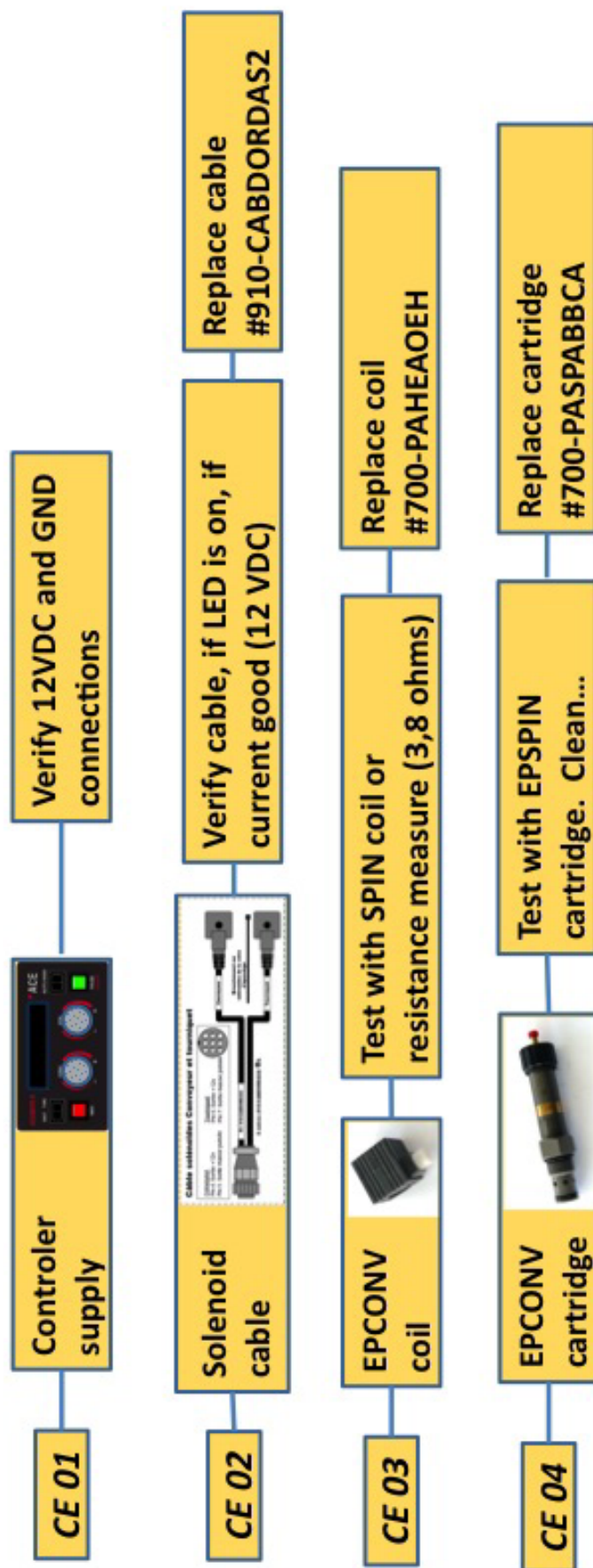
MODULE 800-VALACEOPS V.14C TROUBLES (2)

ELECTRICAL OR MECHANICAL CONVEYOR MALFUNCTION

POSSIBLE CAUSES		VERIFICATIONS	PROCEDURE
CE01	Controler supply	Verify connection (12VDC & GND)	
CE02	Solenoid cable	Verify cable, if LED on and if current good (12 VDC)	Replace if needed #910-CABDORDAS2

CM01	Mechanical blockage of conveyor	Mechanical obstruction of CONV, CONV chain too tight, CONV motor breakage, reducer breakage	
------	---------------------------------	--	--

Conveyor electrical troubles (idem for SPIN)



MODULE 800-VALACEOPS V.12C TROUBLES (3)

CONVEYOR HYDRAULIC TROUBLES

CONV controller 100% Conveyor inactive

	POSSIBLE CAUSES	TPP	TPN	TPLS	CONV	PROCEDURE
CH01	CONV hydraulic loss	1150	1150	CONV	< TPP Ex.800	CONV motor leak. Leak in the circuit between the spreader block's CONV outlet and the CONV motor (ex. leak in a selector valve)
CH02	Obstructed OC orifice	1050	1050	< CONV Ex. 700	<Minimum pressure required for start-up	Remove and clean OC. Replace OC if needed #700-ORI-0625. It is possible to let the system run for 30 seconds without OC to clean the LS piloting line. Turn the LS outlet towards a container in order to eliminate system contaminants. (Beware of accidents)
CH03	RVS open or wrongly adjusted	Ex. 1000 (+ RVS heats)	1000	1000	< Minimum pressure required for start-up Ex 1000*	Remove, clean and adjust RVS. TEST PUMP. IF PUMP TEST OK, Replace RVS #700-RAH121S30
CH04	SVS does not close air-tight (this creates a leak towards the reservoir through EVE)	1100	1100	CONV	< TPP (causes leak in SVS) Ex.750	Remove and clean SVS. Replace SVS if needed #700-PAVLAOAB
CH05	Pump compensator wrongly adjusted or defective	TPP-TPLS close to 0 (compensator wrongly adjusted)	1000	1000	< Minimum pressure required for start-up Ex 1000*	TEST PUMP (see page 30)

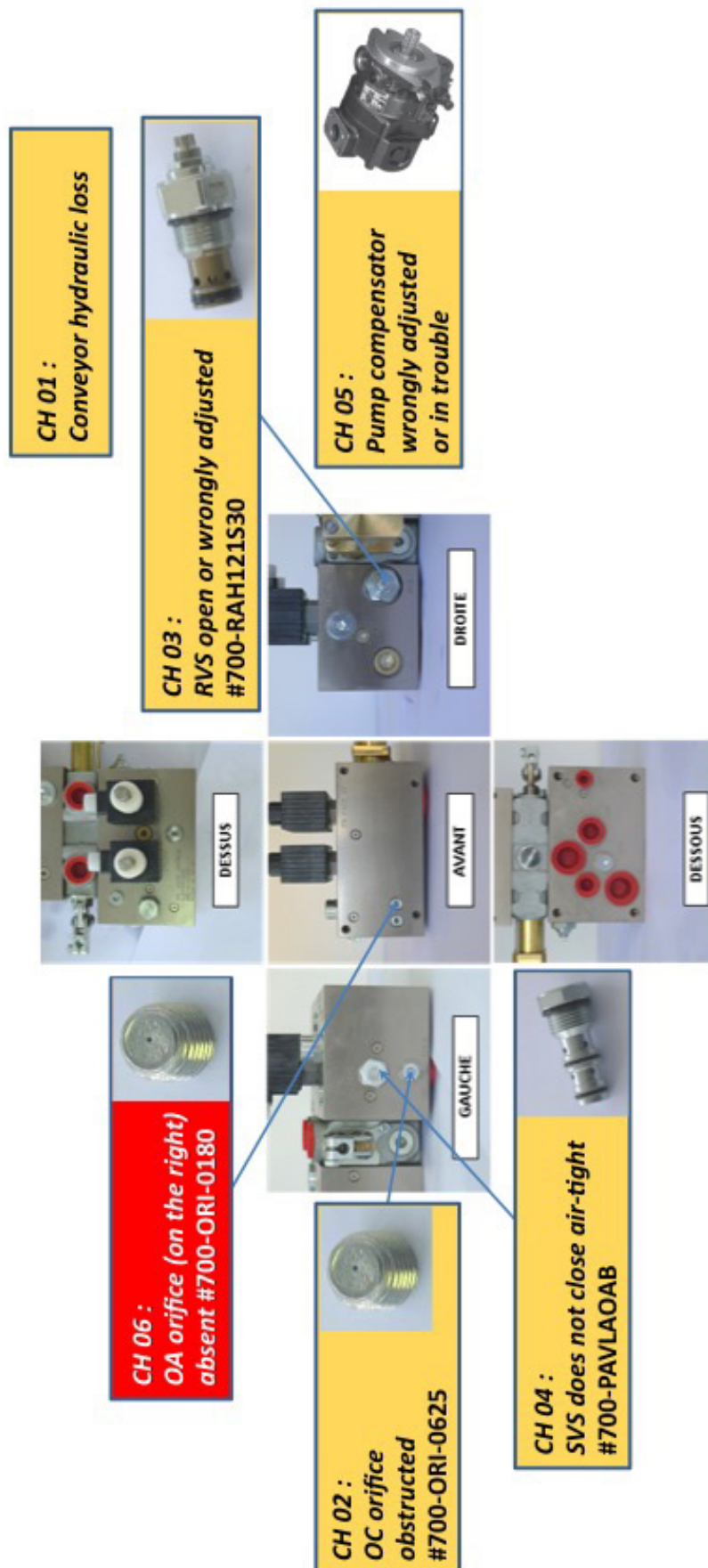
CONV controller 100% Conveyor inactive or insufficient power

CH06	Absent orifice OA	1100	1100	Ex. 750 (causes leak in OA)	Ex. 750 (causes leak in OA)	Verify the presence of the OA orifice #700-ORI-0180
------	-------------------	------	------	--------------------------------	-----------------------------	---

Notes on pressure Suggested adjustments : *Pump compensator 2200 psi **Pressure differential 350 psi , ***RVS 2500 psi,

Note 1 : The LS line's pressure will be taken on a "T" installed on the LS outlet of the Optivalve block

Conveyor hydraulic troubles



MODULE 800-VALACEOPS V.14C TROUBLES (4)

DEFECTIVE PLOW OR HOPPER

Manually engage a VD06 section (ex. lock) until the cylinder runs its course and maintain it engaged long enough to measure its pressure

The VD06 function does not operate at all

	POSSIBLE CAUSES	TPP	TPN	TPLS	PROCEDURE
GH01	OB orifice obstructed	350	160-350*	0	Remove and clean OB. Replace if needed #700-ORI-0280 It is possible to let the system run for 30 seconds without OB to clean the OB orifice's passage. (Beware of accidents)

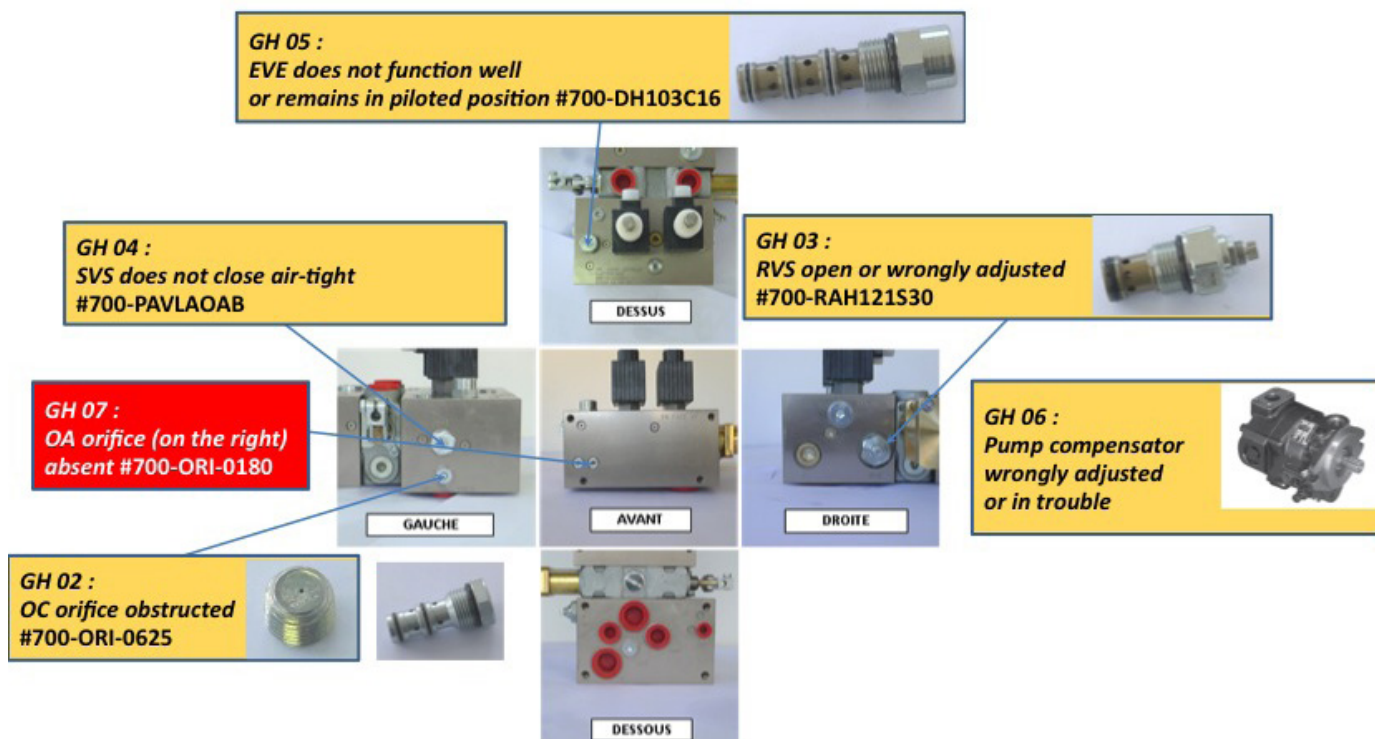
The VD06 function operates but not at 100%

GH02	OC orifice obstructed	<2200* Ex. 750	0	TPP-350** Ex. 400	Remove and clean OC. Replace if needed #700-ORI-0625 It is possible to let the system run for 30 seconds without OC to clean the LS piloting line. Turn the LS outlet towards a container in order to eliminate system contaminants. (Beware of accidents)
GH03	RVS open or wrongly adjusted	<2200* Ex. 750	0	TPP Ex. 750	Remove, clean and adjust RVS. Replace if needed #700-RAH121S30
GH04	SVS does not close air-tight (leak towards the reservoir through the conveyor's motor)	<2200* Ex. 900	0	< TPP-350**	Remove and clean SVS. Replace if needed #800-PAVLAOAB
GH05	EVE does not function well or stays in piloted position	TPLS + 350	0	< 2200*	Remove and clean EVE. Replace if needed #700-DH130C16
GH06	The pump's compensator is wrongly adjusted or the pump is defective	<2200* Ex. 750	0	TPP-350** Ex. 400	see PUMP TEST (Voir page 30)
GH07	Absent OA orifice	<2200* Ex. 750	0	< 2200* Ex. 400	Verify the presence of the OA orifice #700-ORI-0180

Plow hydraulic troubles : the function does not operate at all



Plow hydraulic troubles : the function operates **but not at 100%**



MODULE 800-VALACEOPS V.12C TROUBLES (5)

THE HYDRAULIC SYSTEM REMAINS PRESSURIZED

when the spreader is stopped

	POSSIBLE CAUSES	TPP	TPN	TPLS	PROCEDURE
SH01	Clogged OA orifice	350**-2200	TPP	TPP-350	Remove and clean OA. Replace OA if needed #700-ORI-0180. <i>It is possible to let the system run for 30 seconds without OA to clean the OA orifice's passage. (Beware of accidents)</i>
SH02	EPCONV does not close air-tight	350**-2200	TPP	TPP-350	Remove and clean EPCONV. Replace if needed #700-PASPABBCA

when all functions stop

SH03	A VD06 or VD10 section remains in operation	350**-2200	0	TPP-350	Verify that all sections return into neutral. If needed, disassemble, clean and reassemble the section or replace defective section.
------	---	------------	---	---------	---

when a plow stops

SH04	OB absent	2200	< 160	2200	Verify the presence of the OB orifice #700-ORI-0.625
------	-----------	------	-------	------	--

... when the spreader stops
SH 02 :
EPCONV does not close air-tight
#700-PASPABBCA

... when all functions stop
SH 03 :
A VD06A
or VD10A section remains
in operation

... when a plow stops
SH 04 :
OB orifice (on the left)
absent #700-ORI-0280

... when the spreader stops
SH 01 :
OA orifice (on the right)
obstructed #700-ORI-0180

DROITE

DROITE

AVANT

DESSUS

GAUCHE

DESSOUS