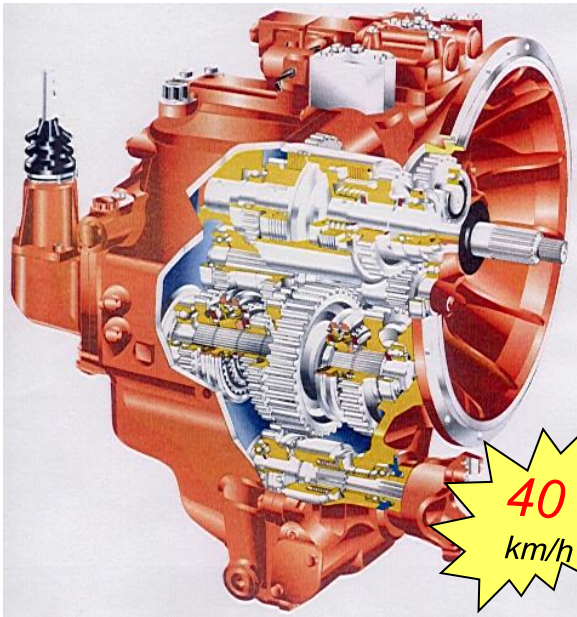


Transmission

WB93R-5

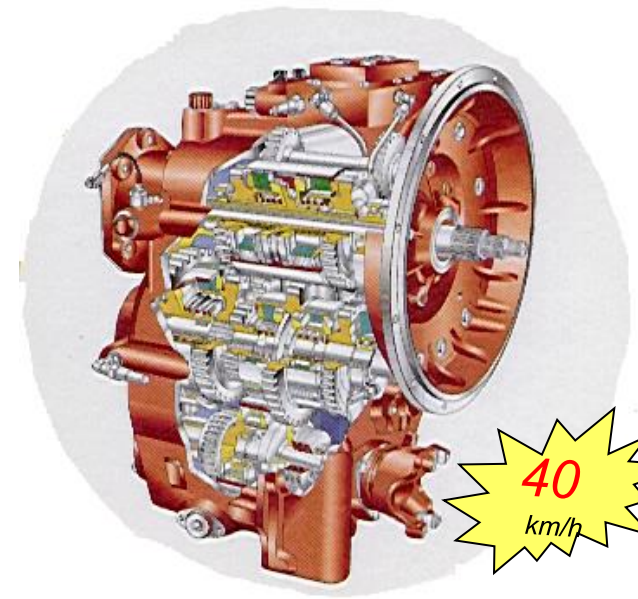
TLB1 4WD **POWER SHUTTLE Transmission**



40
km/h

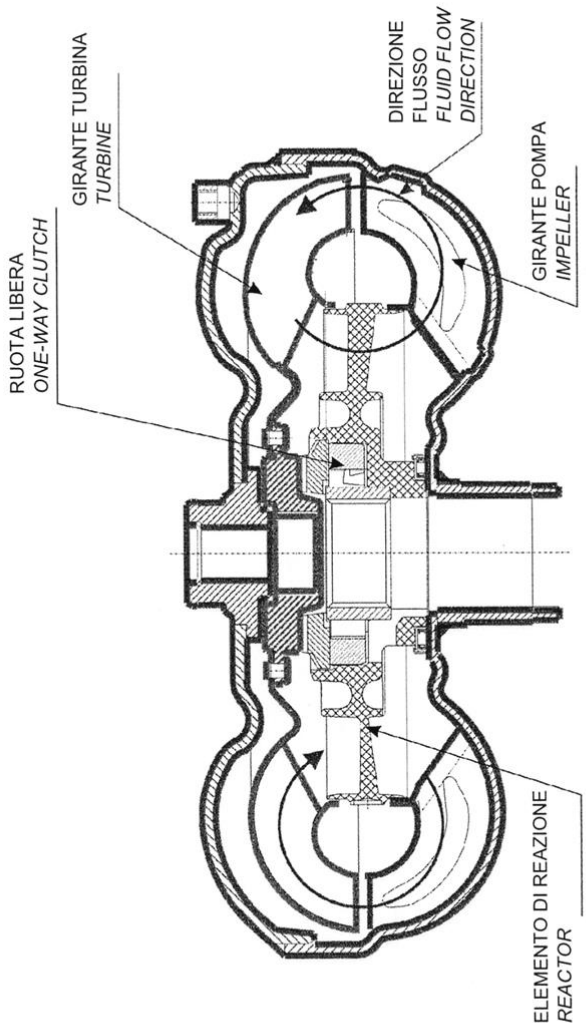
WB97R-5

TLB2 ATC26 **POWER SHIFT Transmission**

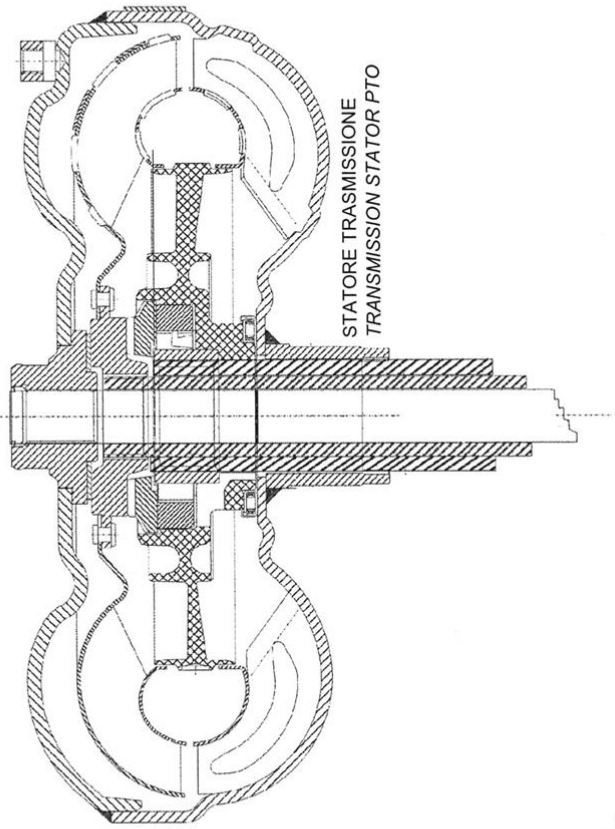


40
km/h

Transmission : Torque Converter - View



ACCOPPIAMENTO ALBERI CONVERTITORE DI COPPIA
TORQUE CONVERTER TRANSMISSION SHAFT JOINT



**POWER-SHUTTLE
FORWARD AND REVERSE
CLUTCH PACK**

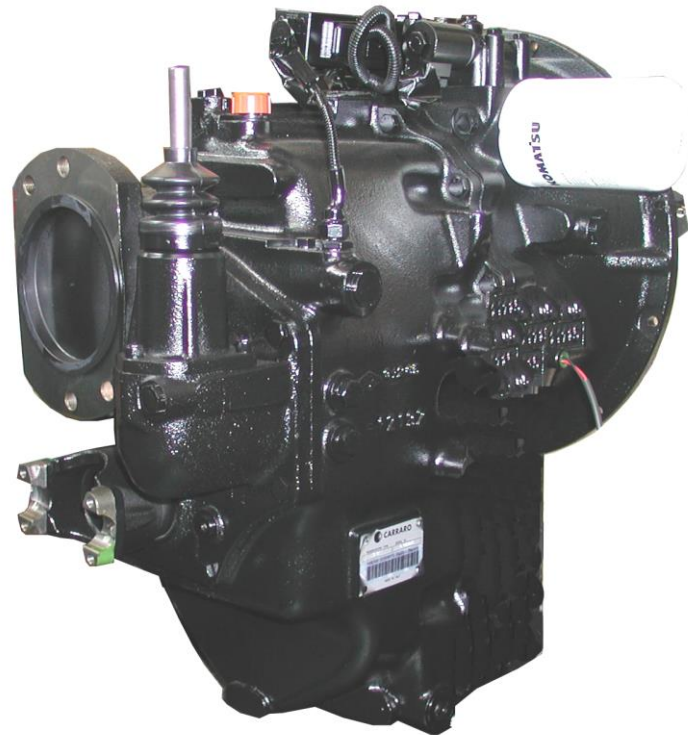
+

**FULLY SYNCHRONIZED
4 GEARS**

<p>WORKING SPEED Km/h 6,5-12</p> <p>TRAVEL SPEED Km/h 23-40</p>

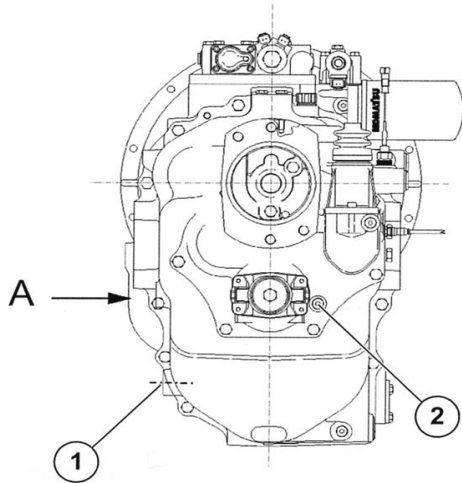
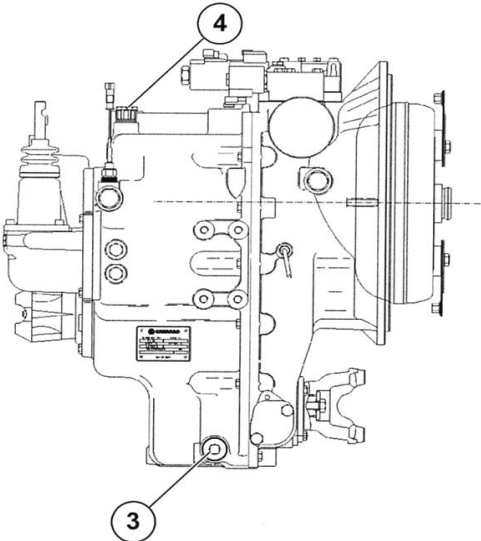
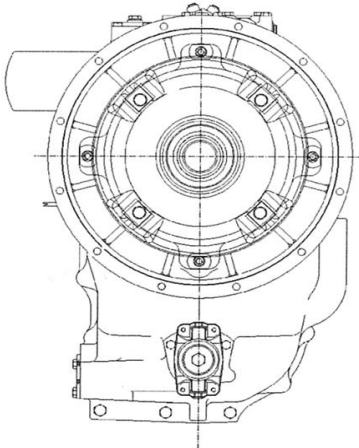
	Gears			
	1°	2°	3°	4°
Automatic Integral Braking System	No	No	No	Yes
Differential Lock System	Yes	Yes	Yes	No

POWER SHUTTLE



TLB1

Transmission TLB1 (4WD)

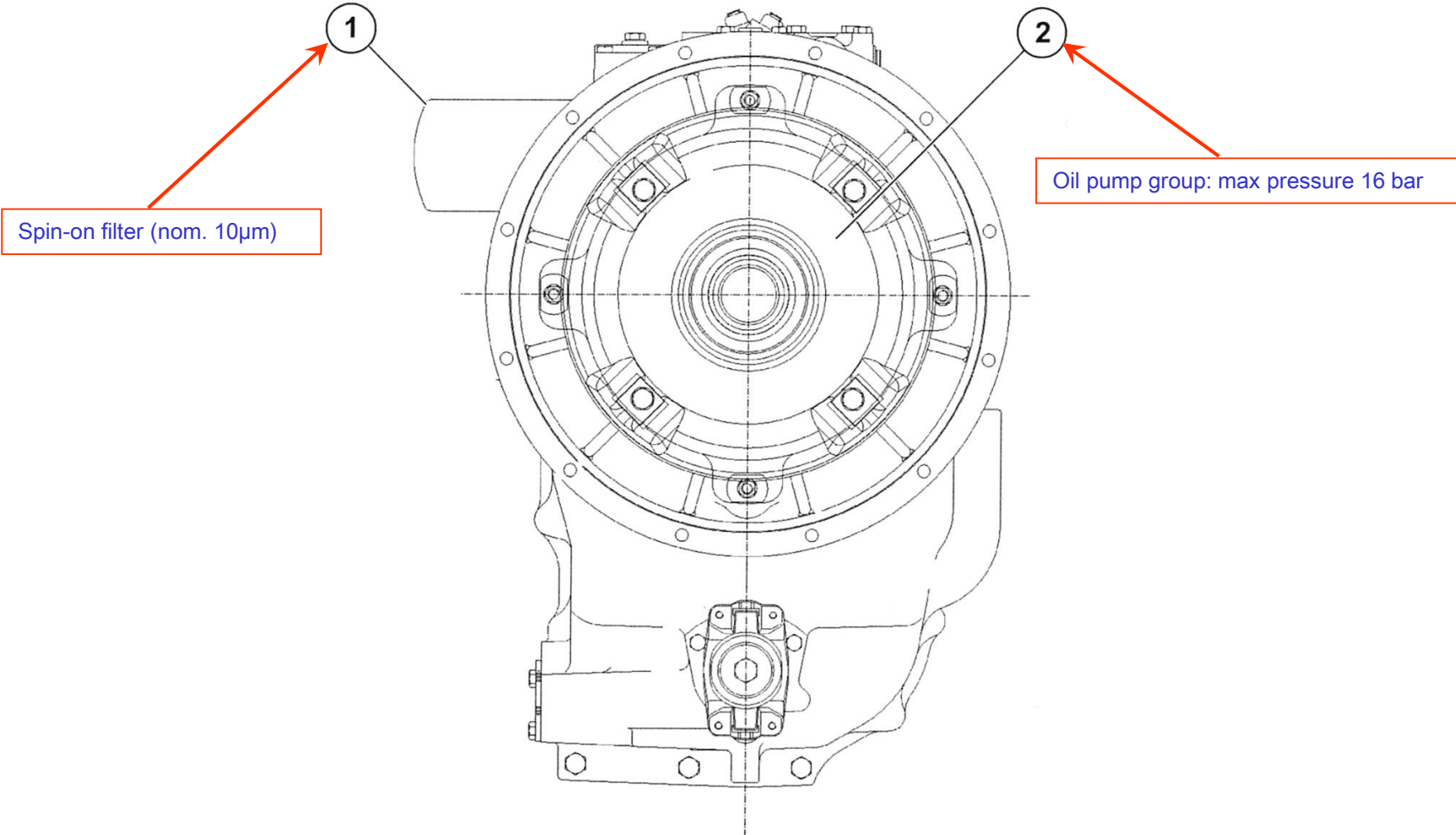


VIEW FROM -A-

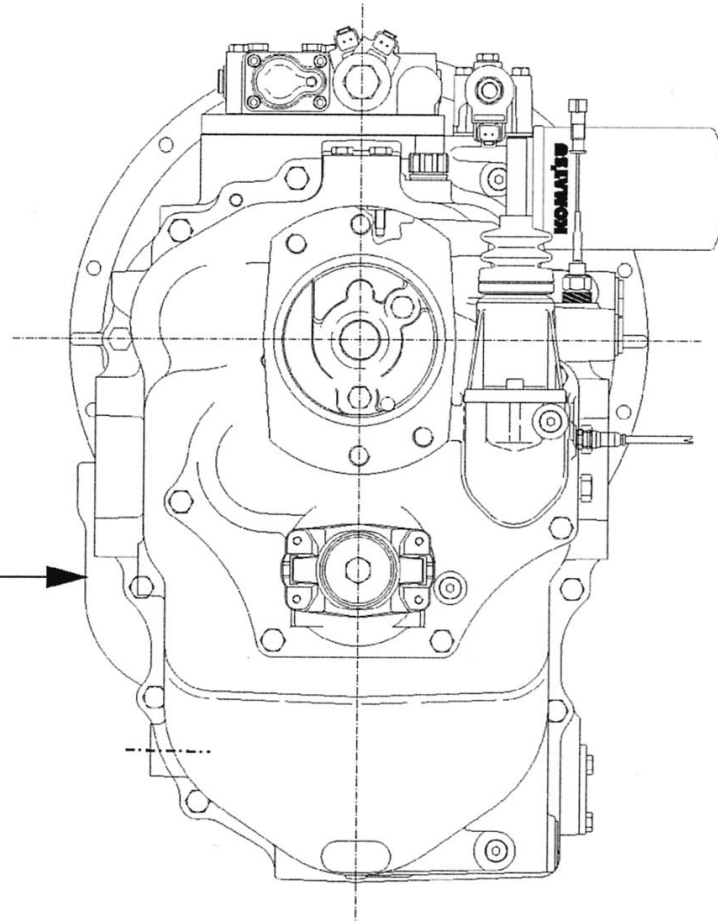


DESCRIZIONE	POSIZIONE / POSITION	DESCRIPTIONS
Interfaccia tubo riempimento olio	1	Pipe oil fill interface
Tappo livello olio	2	Oil level plug
Tappo scarico olio	3	Oil drain plug
Sfiato	4	Breather

Transmission TLB1 (4WD) : Front View



Customer Service Department



VIEW FROM -A-

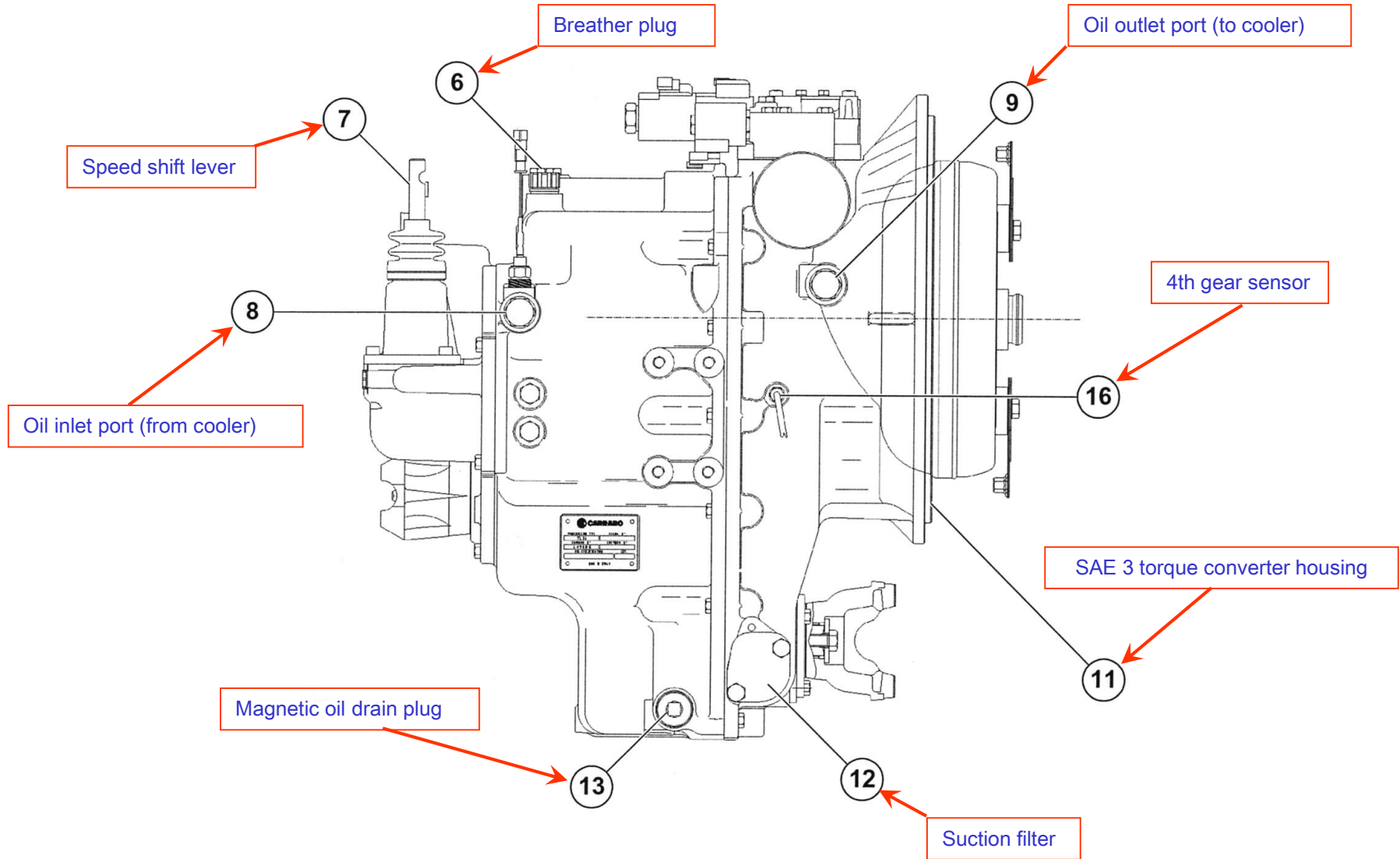
Dipstick pipe
connecting line

14

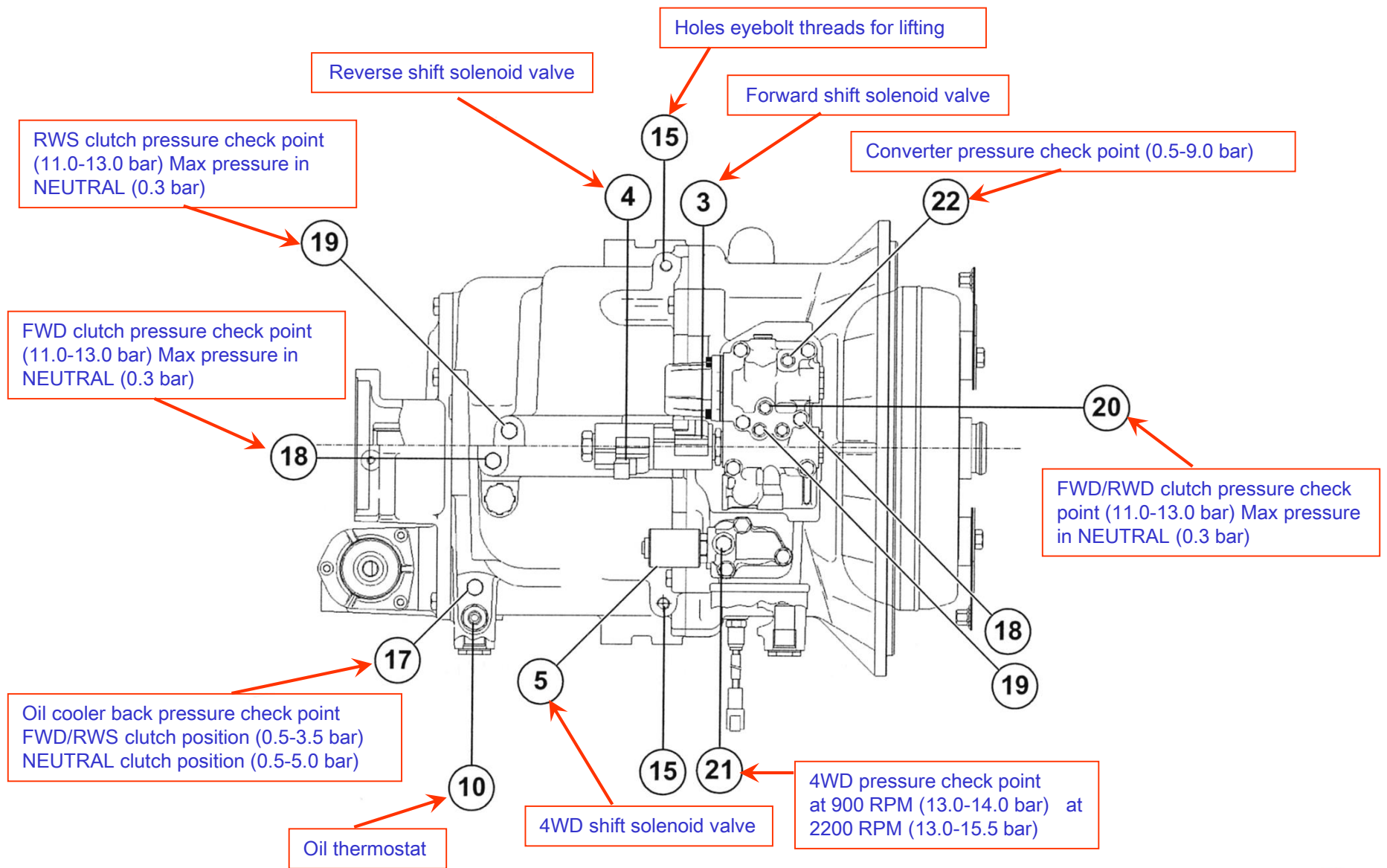
 CARRARO



Transmission TLB1 (4WD) : Right Side View



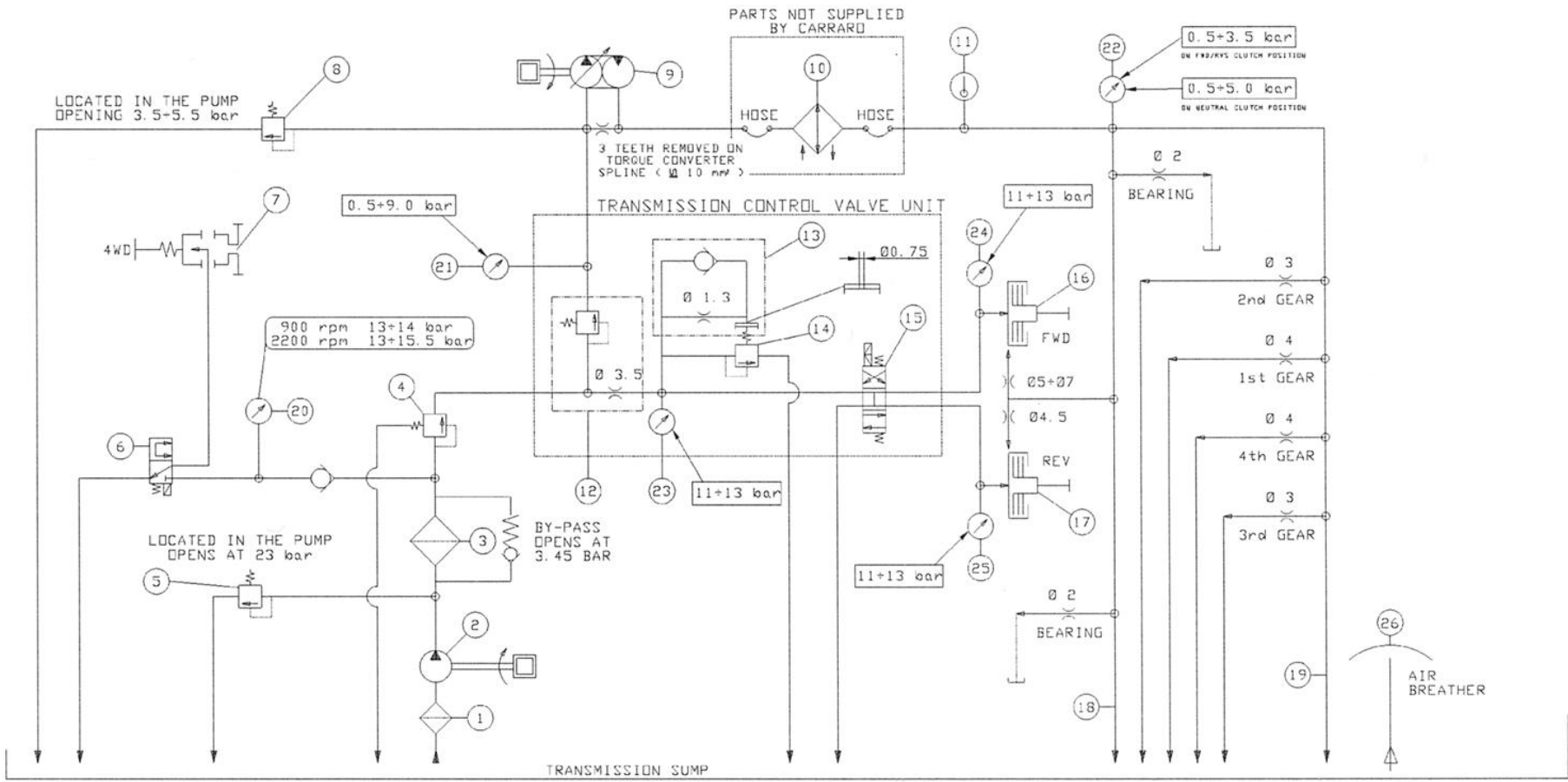
Transmission TLB1 (4WD) : Top View



Customer Service Department



Transmission TLB1 (4WD) : Hydraulic Scheme



Transmission TLB1 (4WD) : Hydraulic Scheme Ref. Table

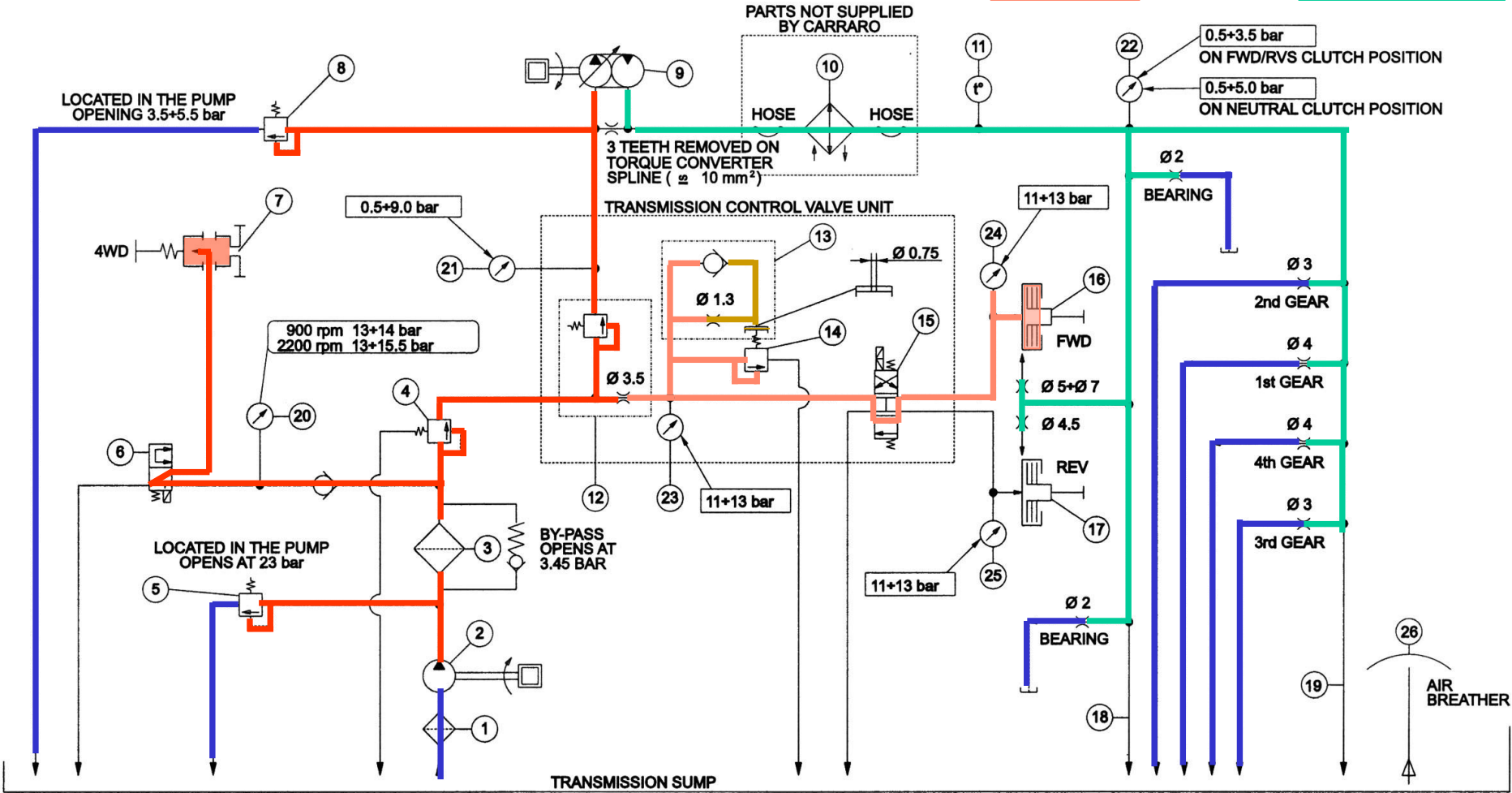
SCHEMA IDRAULICO (fig.successiva)		HYDRAULIC SCHEME (next fig.)
Filtro aspirazione (250 µm)	1	Suction filter (250 µm)
Pompa olio trasmissione (36cc/REV.)	2	Transmission oil pump (36cc/REV.)
Filtro mandata (10 µm)	3	Spin-on delivery filter (10 µm)
Regolatore di pressione	4	Pressure regulator
Valvola scarico filtro olio	5	Oil filter relief valve
Elettrovalvola disinnesto 4WD	6	4WD disengagement solenoid valve
Innesto/disinnesto "marcia" 4WD	7	"Easy-shift" 4WD eng./disengagement
Valvola scarico pressione convertitore di coppia	8	Torque converter pressure relief valve
Convertitore di coppia SACHS W300-204-2.64	9	Torque converter SACHS W300-204-2.64
Radiatore olio	10	Oil cooler
Porta termostato temperatura olio da scambiatore	11	Oil cooler back temperature thermostat port
Valvola divisore di flusso/regolatore pressione	12	Oil flow divider/pressure regulator valve
Valvola modulatrice innesto AVANTI/INDIETRO	13	FWD/REV modulating valve
Valvola di regolazione e sicurezza	14	Modulation relief valve
Elettrovalvola selezione AVANTI/INDIETRO	15	FWD/REV selection valve
Innesto marcia AVANTI	16	FORWARD clutch
Innesto marcia INDIETRO	17	REVERSE clutch
Lubrificazione albero marce AVANTI/INDIETRO	18	FWD/REV shaft lubrication
Lubrificazione albero 1 ^a , 2 ^a , 3 ^a , 4 ^a marcia	19	1 st , 2 nd , 3 rd , 4 th gear shaft lubrication
Punto di controllo pressione 4WD	20	4WD pressure check port
Punto di controllo pressione convertitore di coppia	21	Torque converter pressure check port
Punto di controllo pressione e ritorno olio dal radiatore	22	Oil cooler back shaft lubrication press. check port
Punto di controllo pressione innesto AVANTI/INDIETRO	23	FWD/REV main pressure check port
Controllo pressione innesto marcia AVANTI	24	FORWARD pressure check port
Controllo pressione innesto marcia INDIETRO	25	REVERSE pressure check port
Sfiato aria	26	Air breather

Customer Service Department

Transmission TLB1 (4WD) : Hydraulic Scheme

FORWARD

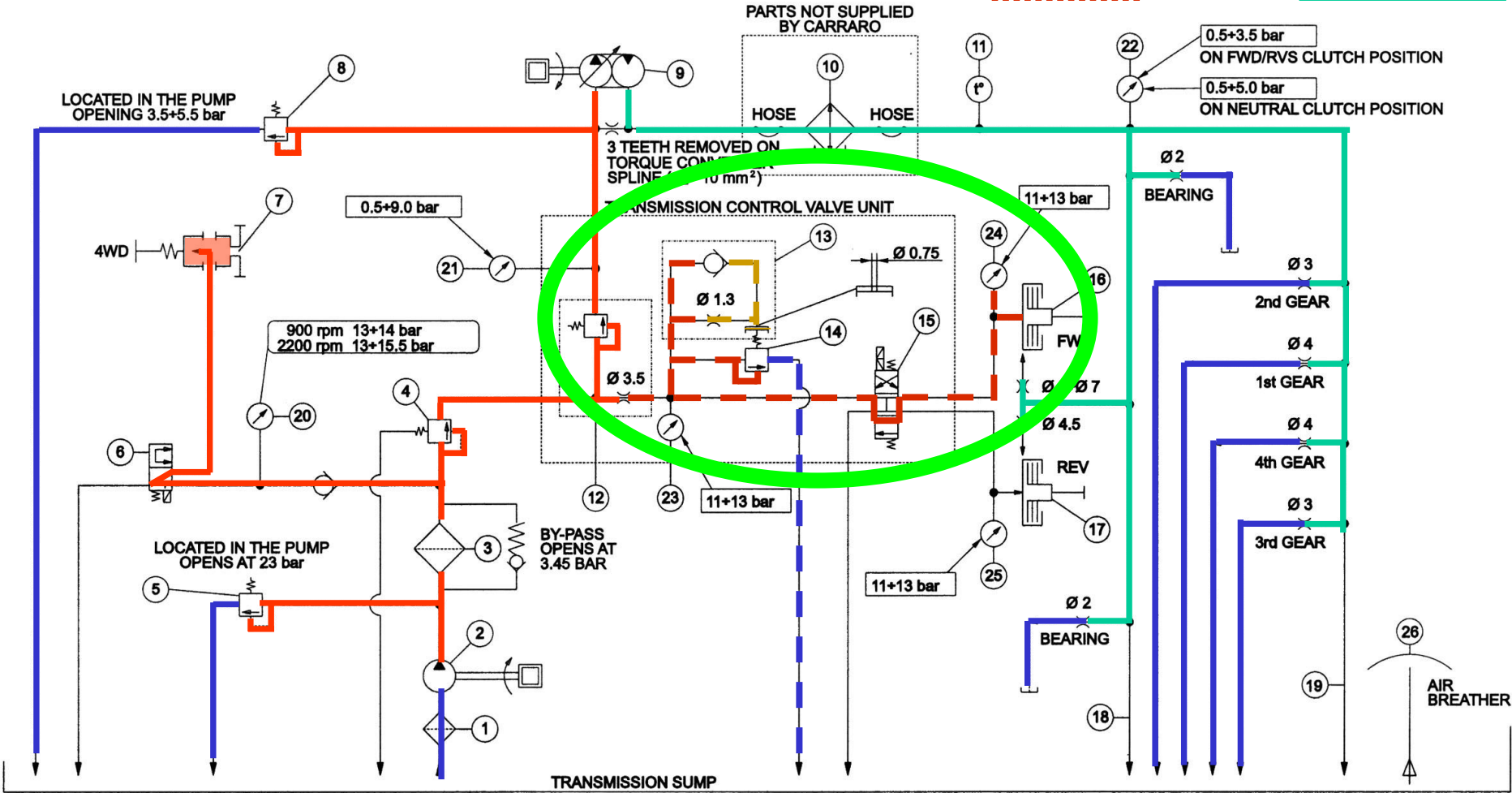
- Low pressure
- Pump pressure
- Pump pressure
- Modulating pressure
- Lubricating pressure



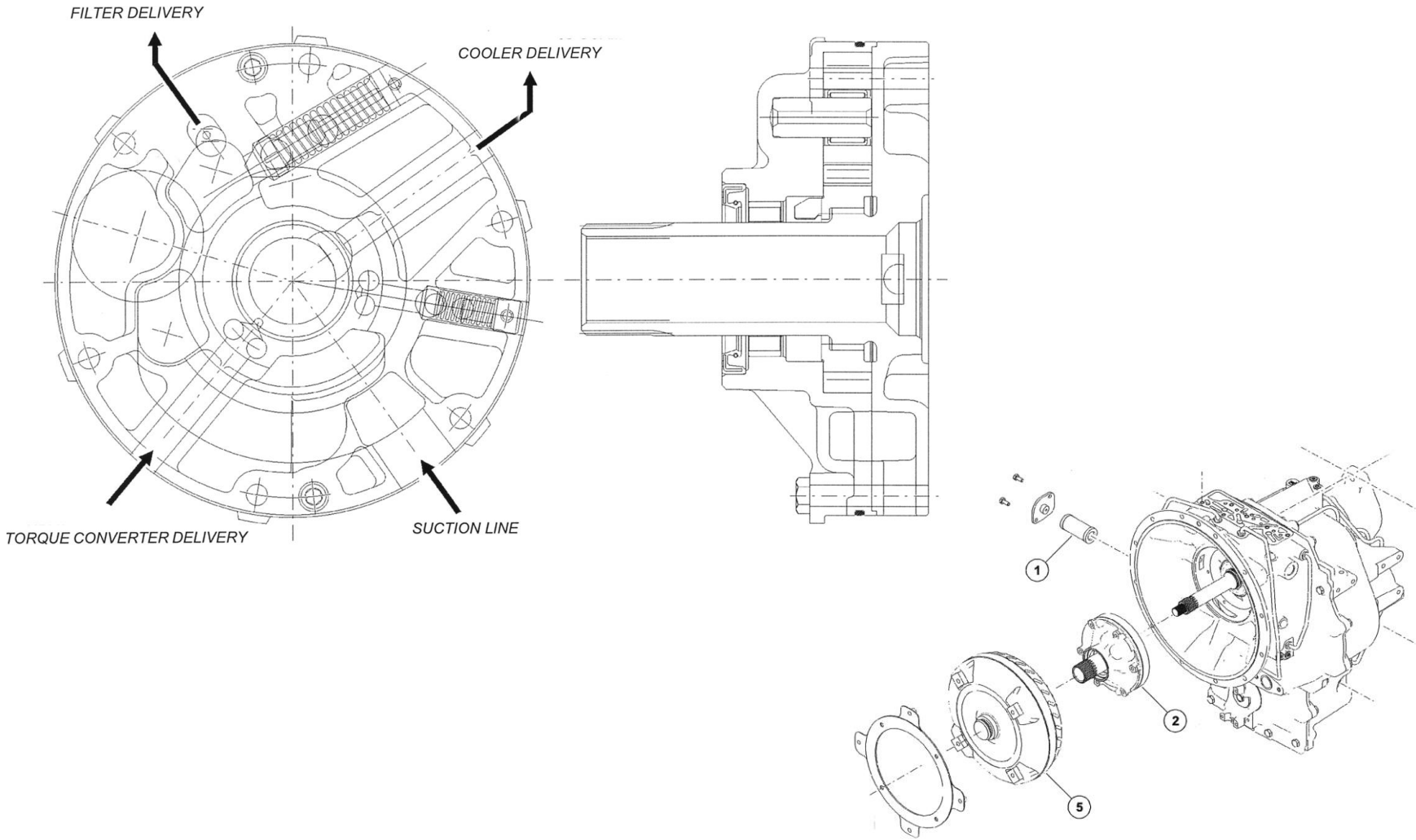
Transmission TLB1 (4WD) : Hydraulic Scheme

CHANGING DIRECTION FROM FWD TO REV.

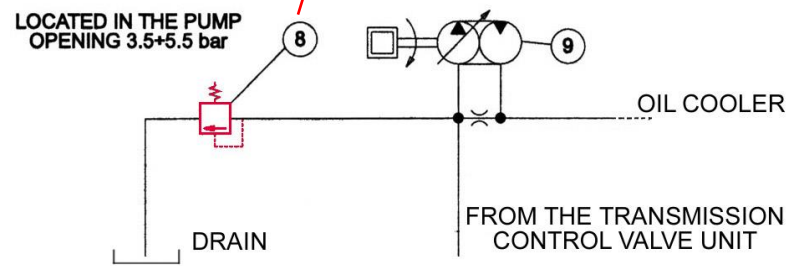
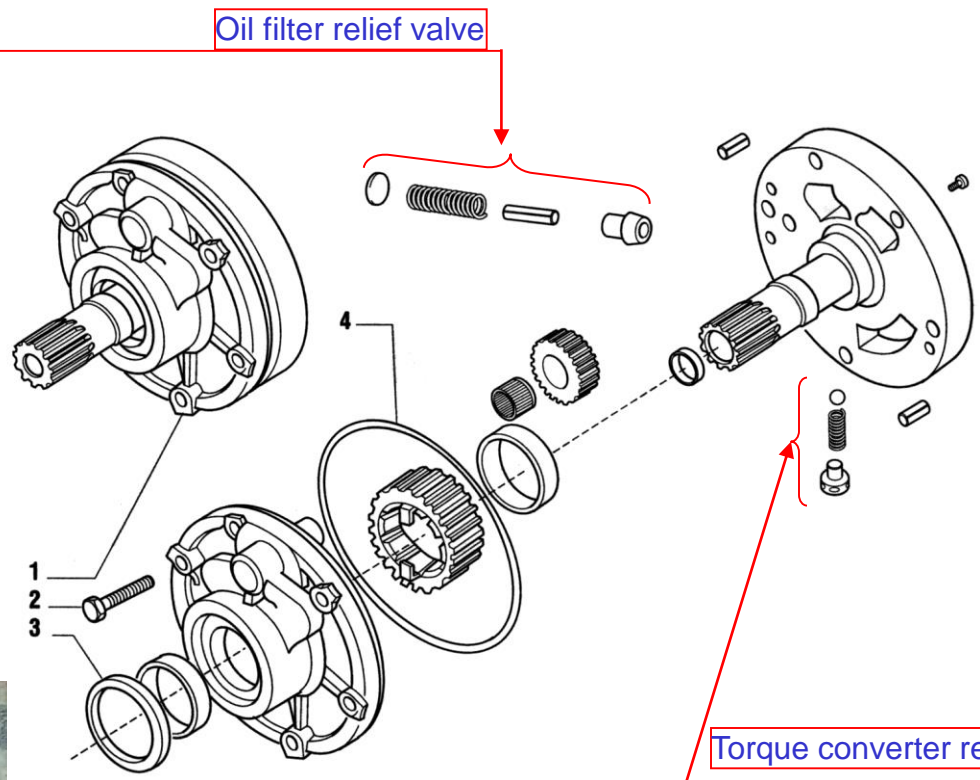
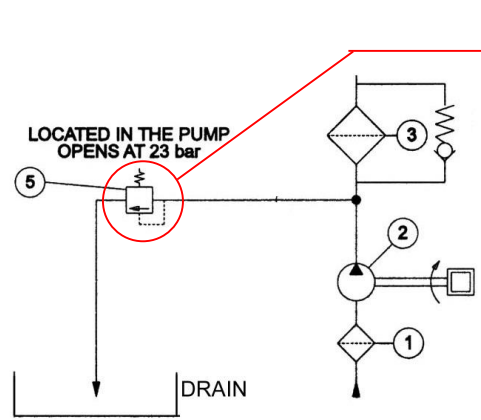
- Low pressure
- Pump pressure
- Pump pressure
- Modulating pressure
- Lubricating pressure



Transmission TLB1 (4WD) : Transmission Charge Pump



Transmission TLB1 (4WD) : Transmission Charge Pump

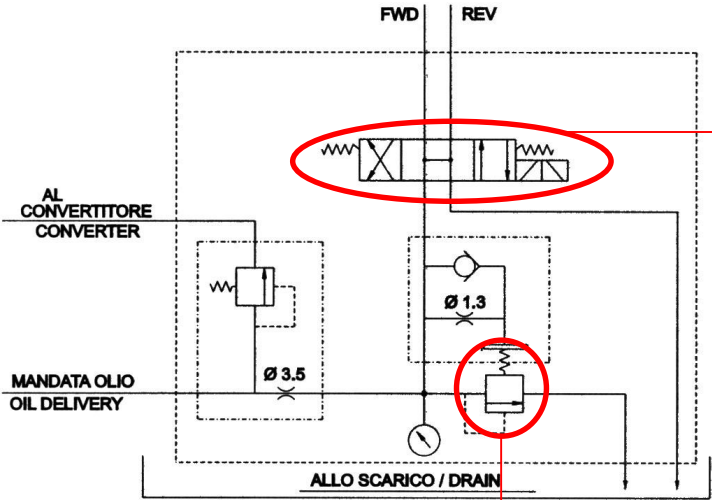


Customer Service Department

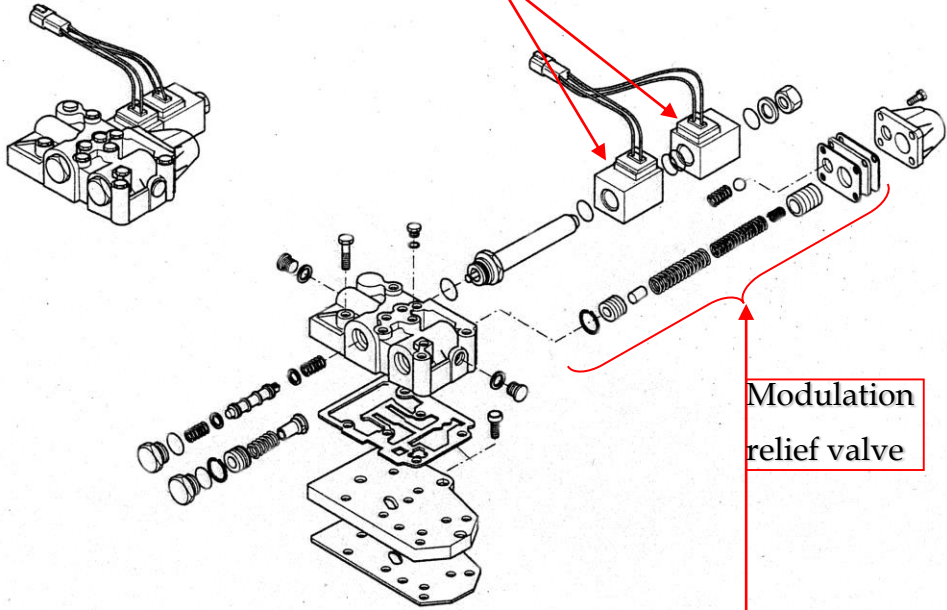


Transmission TLB1 (4WD) : Control Valve

SCHEMA IDRAULICO / HYDRAULIC SCHEME

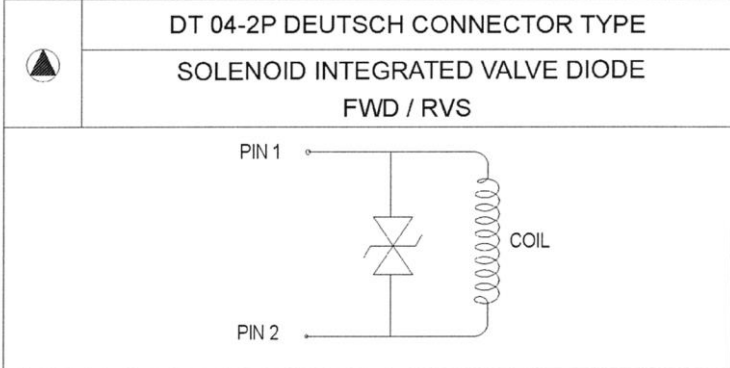
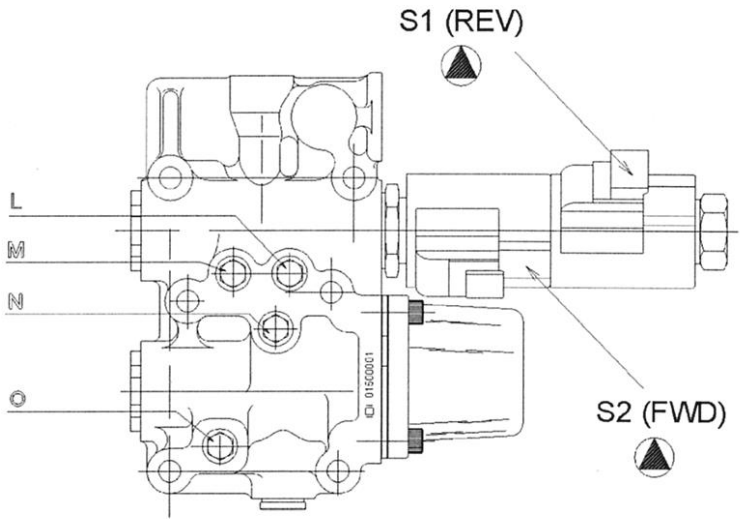
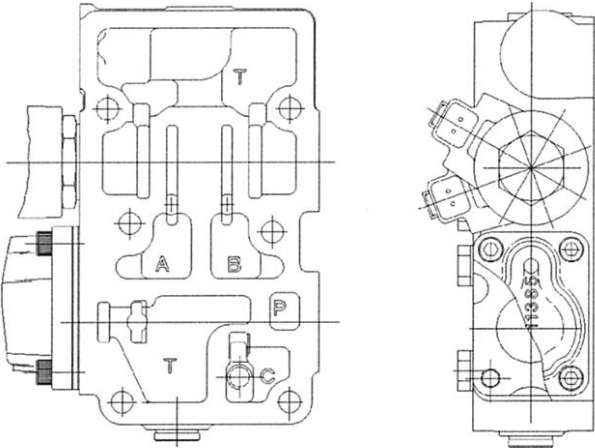


FWD/REV selection valve



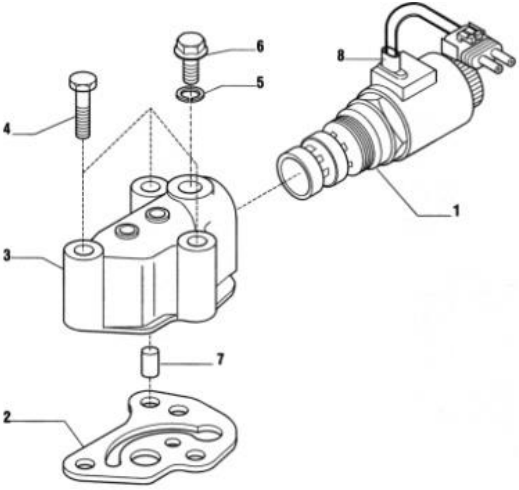
Modulation relief valve

Transmission TLB1 (4WD) : Control Valve

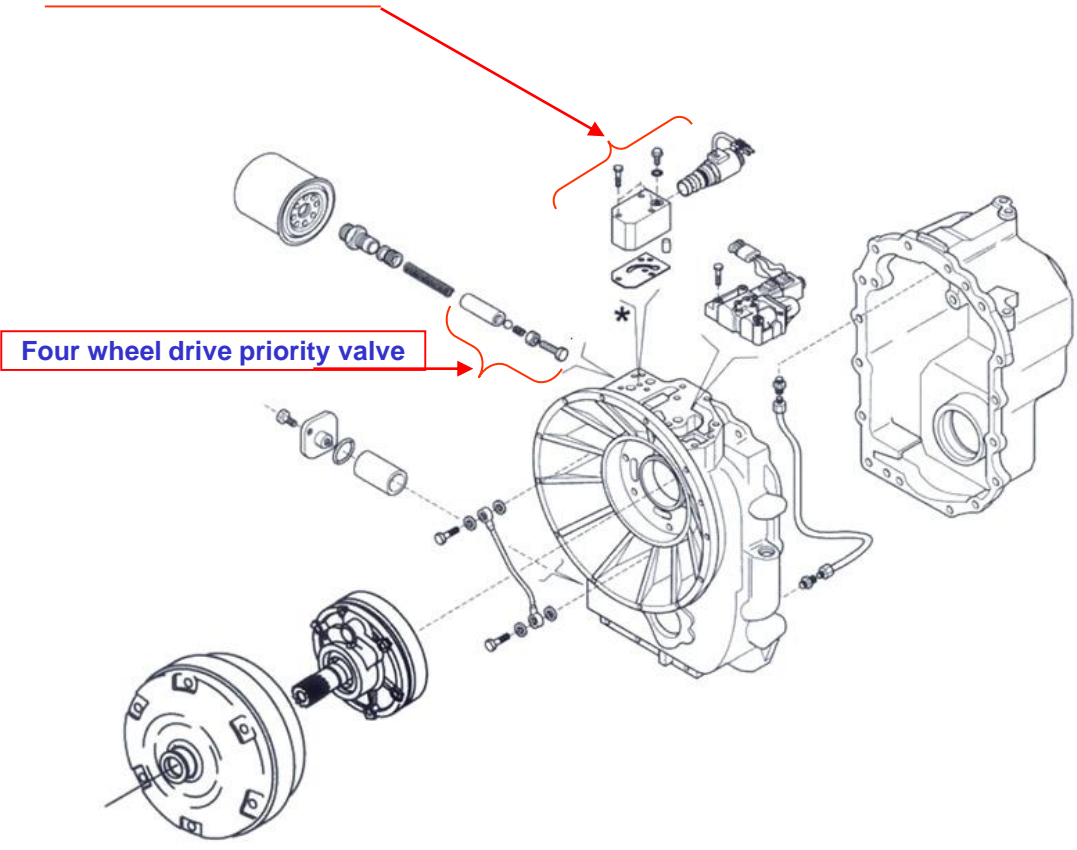


SCHEMA DISTRIBUTORE (figura successiva)		CONTROL VALVE SCHEME (next figure)
Presenza pressione frizione A	L	Clutch A pressure check point
Presenza pressione frizione B	M	Clutch B pressure check point
Presenza pressione frizione AB	N	Clutch AB pressure check point
Presenza pressione convertitore	O	Converter pressure check point
Alle frizioni	AB	To clutches
Al convertitore	C	To converter
Dalla pompa e filtro	P	From pump and filter
Scarico (al serbatoio)	T	Drain (to sump)

Transmission TLB1 (4WD) : 4WD Solenoid Valve

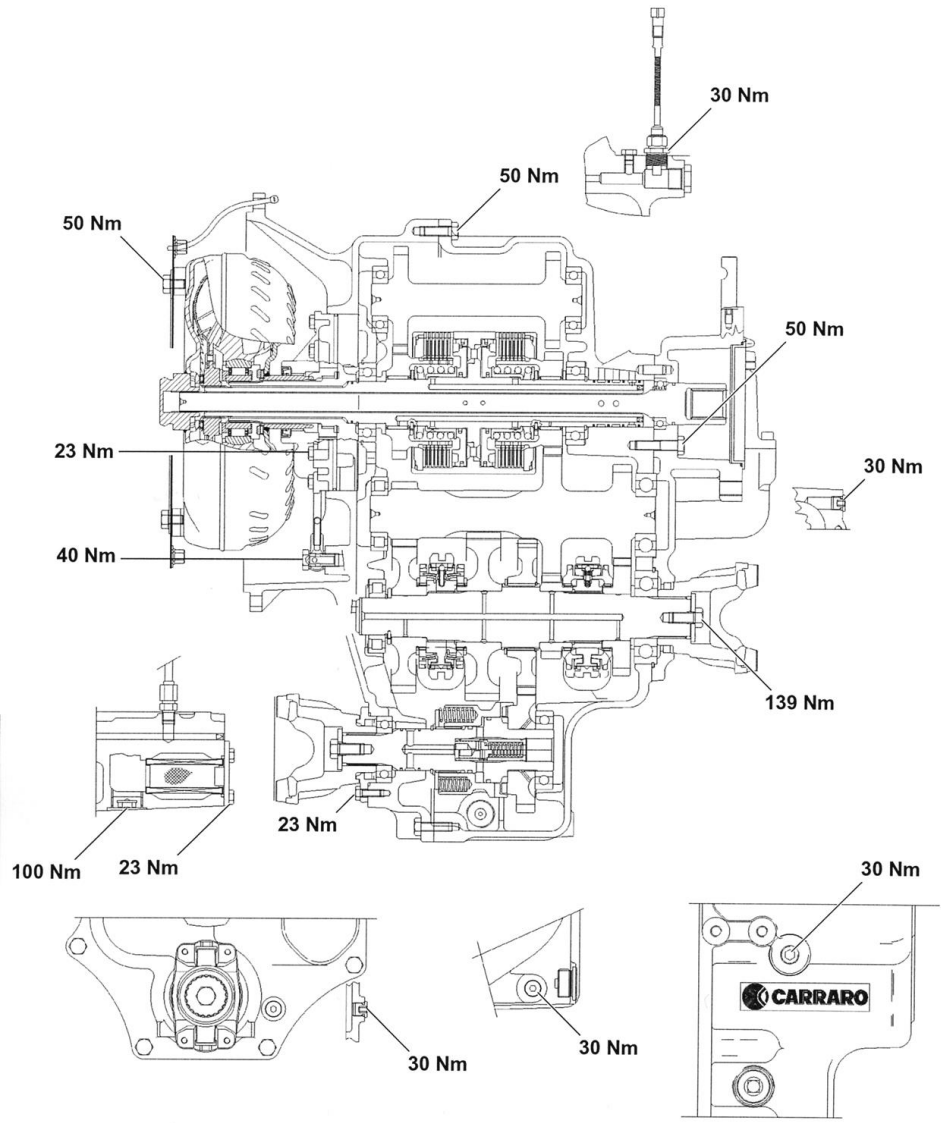


- 1 4WD Electro valve
- 2 Gasket
- 3 Housing
- 4 Bolt M8x60
- 5 Copier washer 10x14x1,5
- 6 Plug
- 7 Valve
- 9 Protective covering

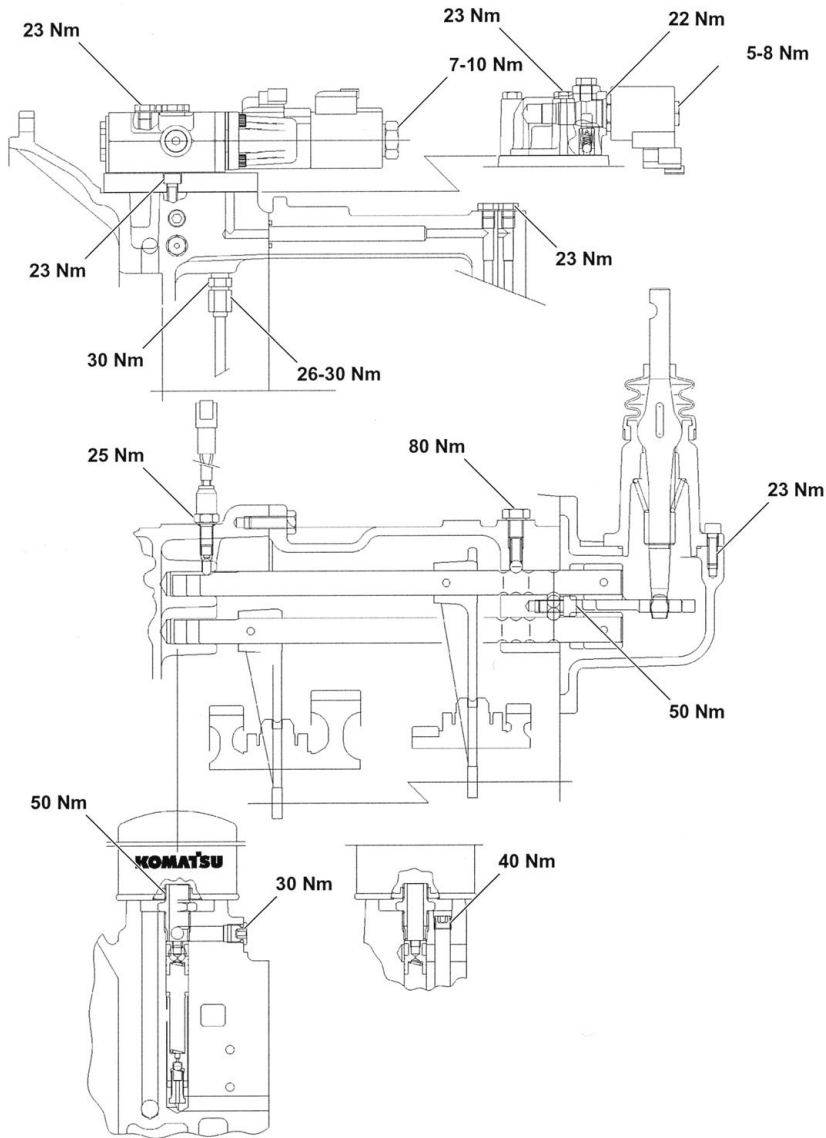


Customer Service Department

Transmission TLB1 (4WD) : Workshop Data



Transmission TLB1 (4WD) : Workshop Data



Customer Service Department



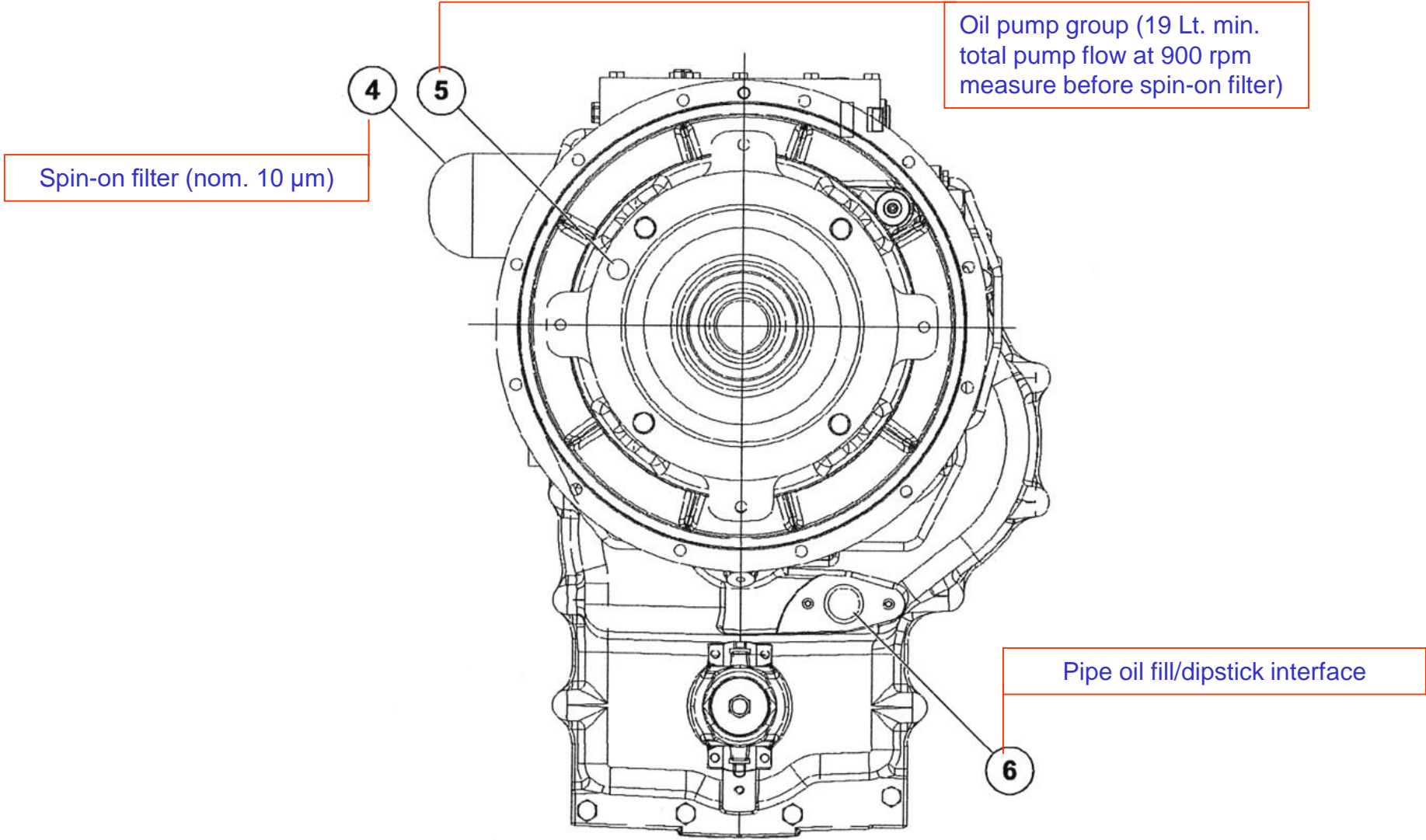
POWER SHIFT



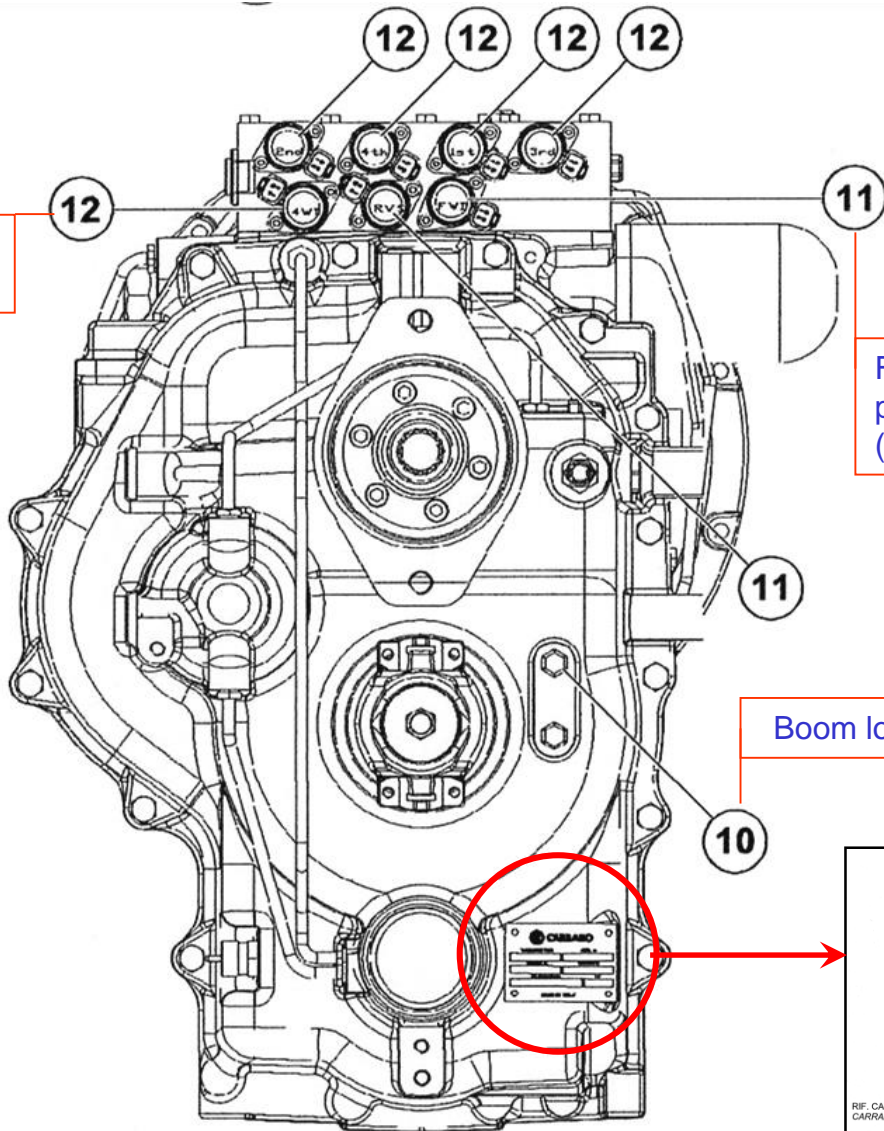
TLB2

ATC26

Transmission TLB2 : Front View



Transmission TLB2 : Rear View



On/off solenoid valve
(12V DC – 20 W)

FWD/RWS proportional
pressure reducing valves
(12V DC – 7 Ohm)

Boom lock oil return

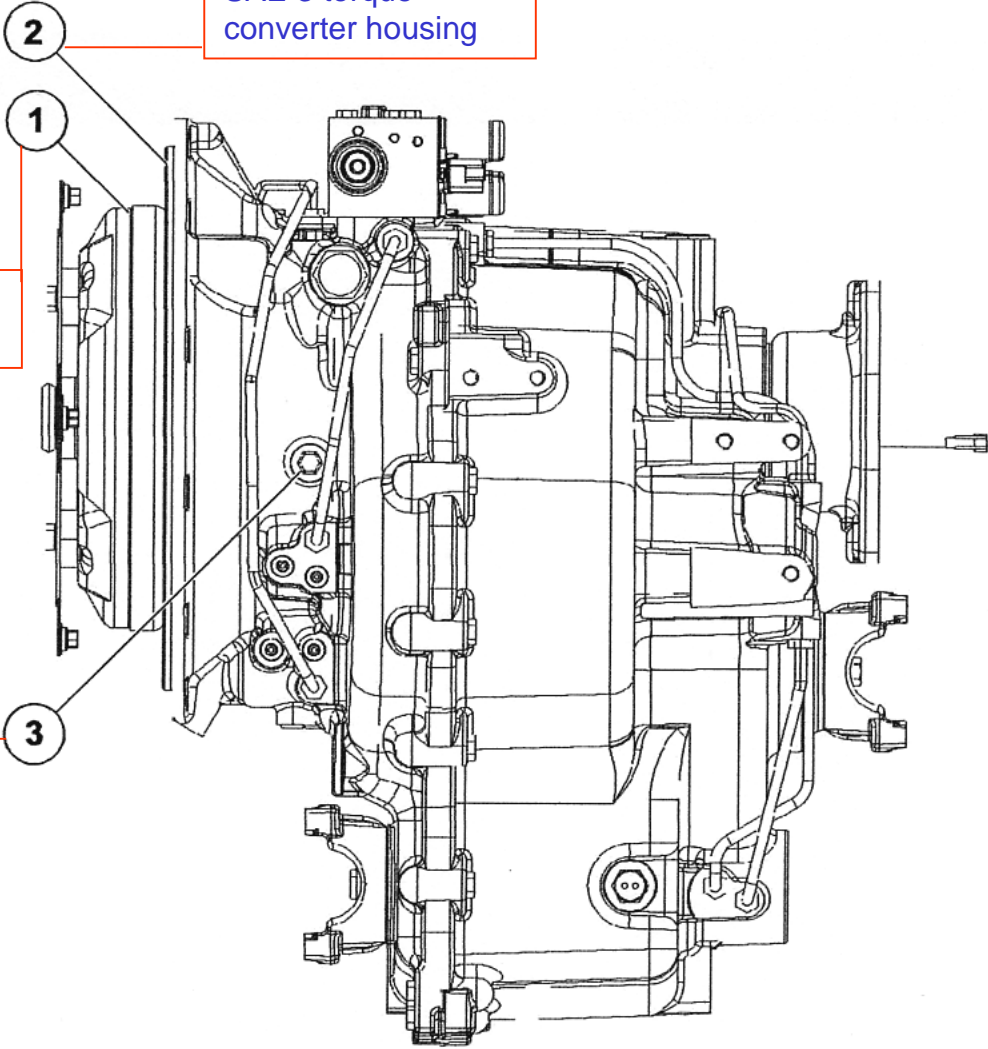
TIPO DI TRASMISSIONE TRANSMISSION TYPE	N/S CARRARO CARRARO SIN	
CARRARO		
TRANSMISSION TYPE	SERIAL N°	
TLB2 4WD-2WS		
CARRARO N°	CUSTOMER N°	
CA149526	42N-15-11500	
OIL SPECIFICATION	LIT.	
MADE IN ITALY		
TIPO OLIO OIL TYPE	COD. CLIENTE CUSTOMER REF.	QUANTITA' OLIO OIL CAPACITY
REF. CARRARO CARRARO PIN		

Transmission TLB2 : Right Side View

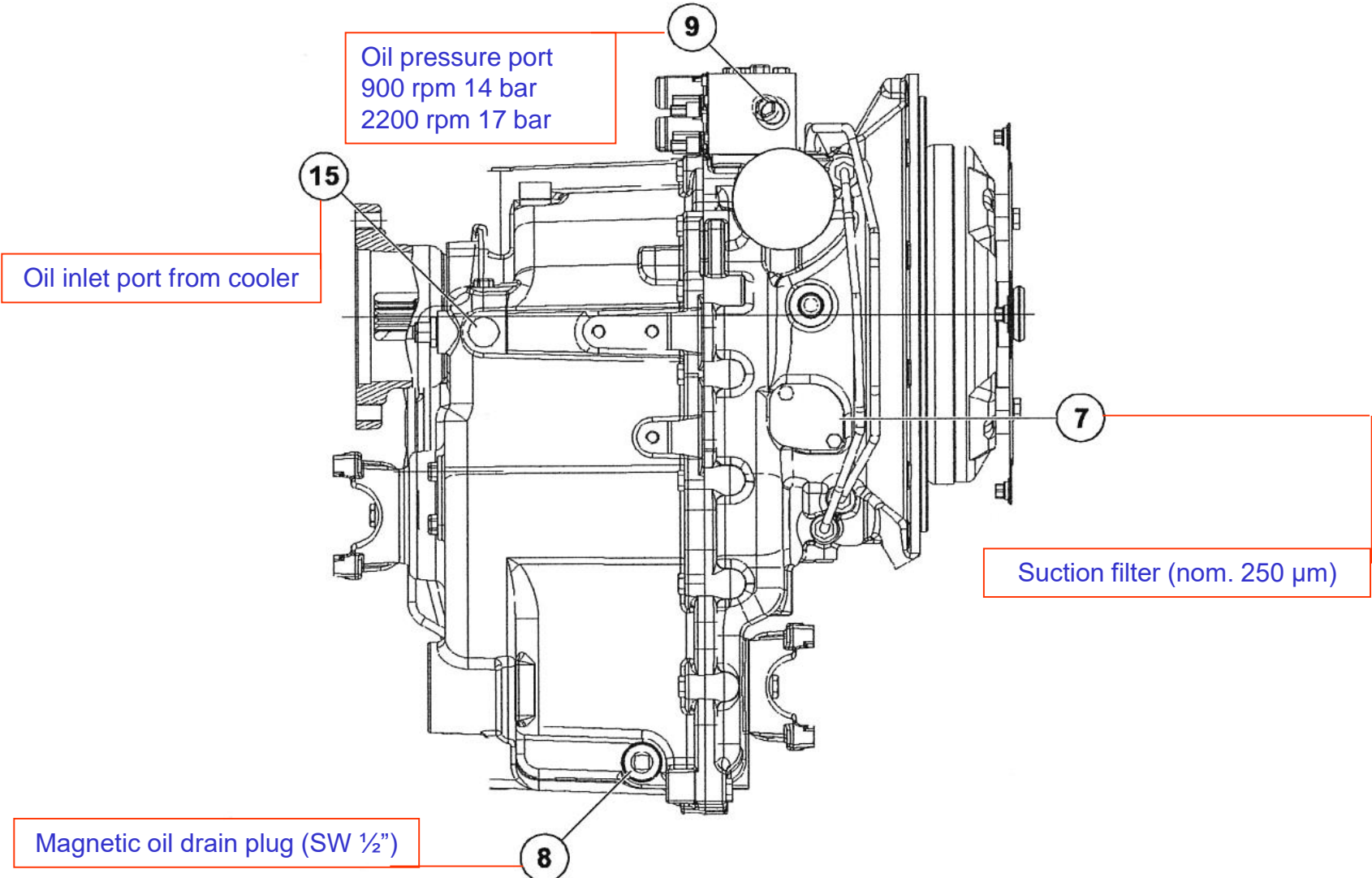
SAE 3 torque converter housing

Torque converter SACHS W300

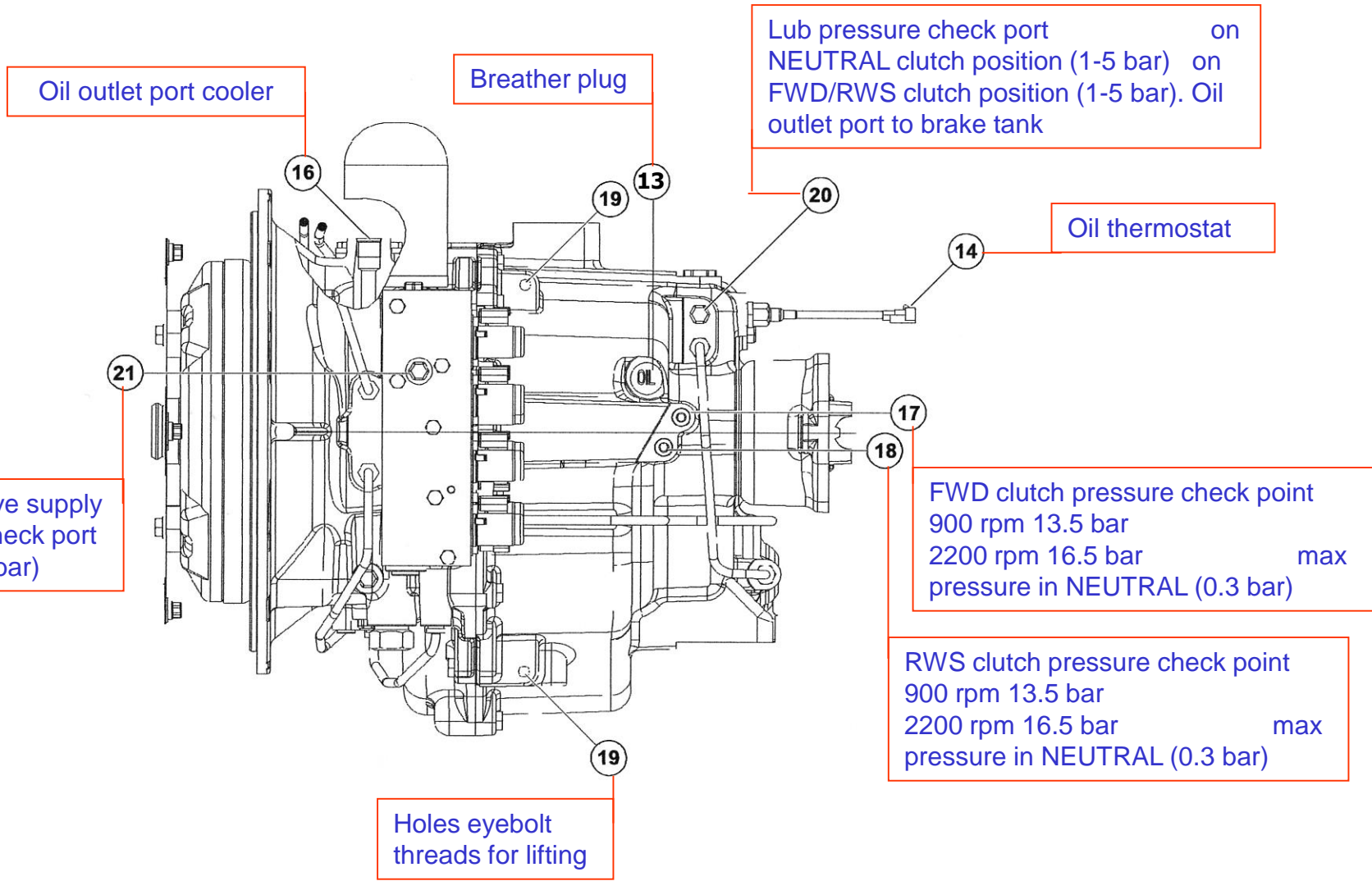
Torque converter inlet press. check port
900 rpm 3.0 bar
2200 rpm 9.0 bar



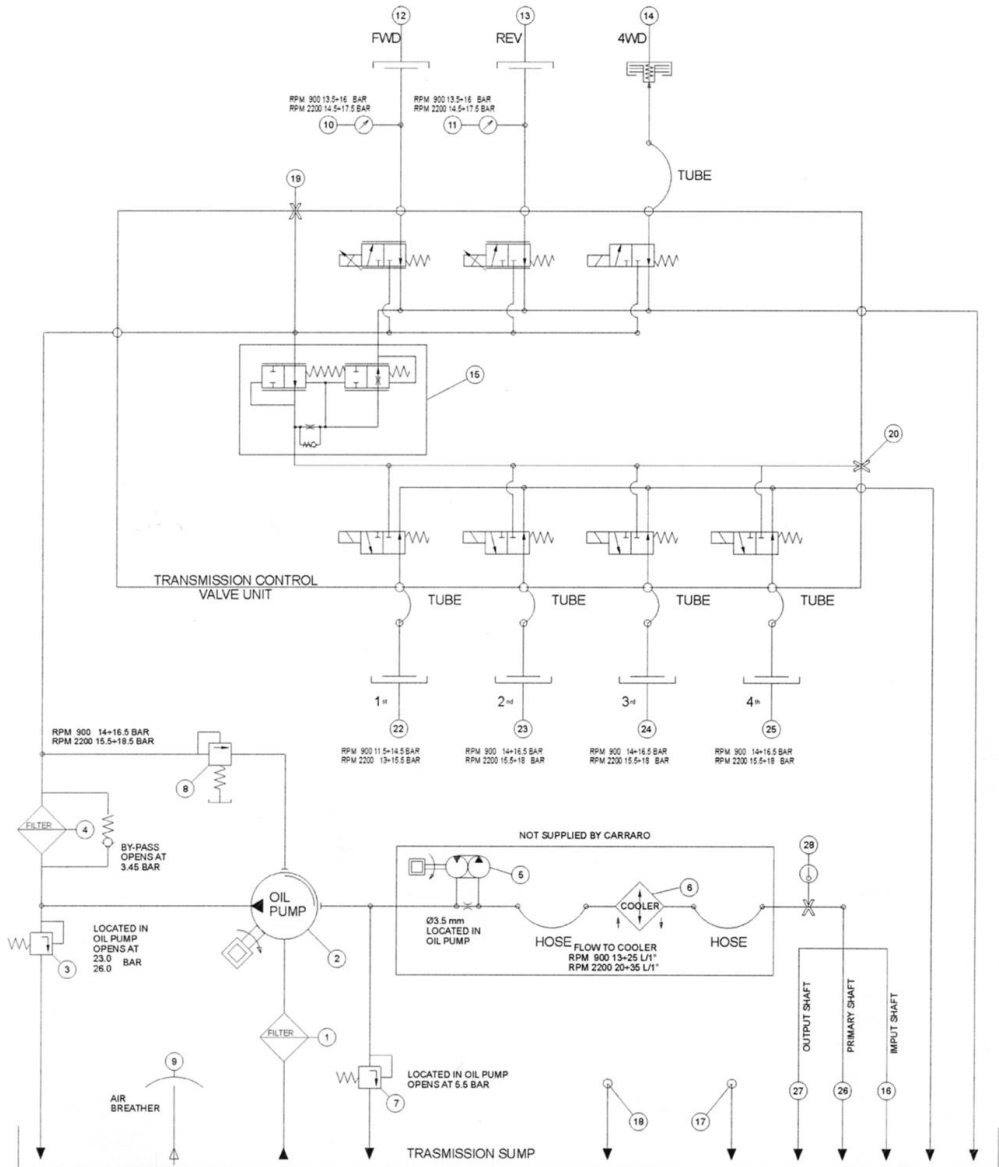
Transmission TLB2 : Left Side View



Transmission TLB2 : Top View



Transmission TLB2 : Hydraulic Scheme



Customer Service Department



Transmission TLB2 : Hydraulic Scheme Ref. Table

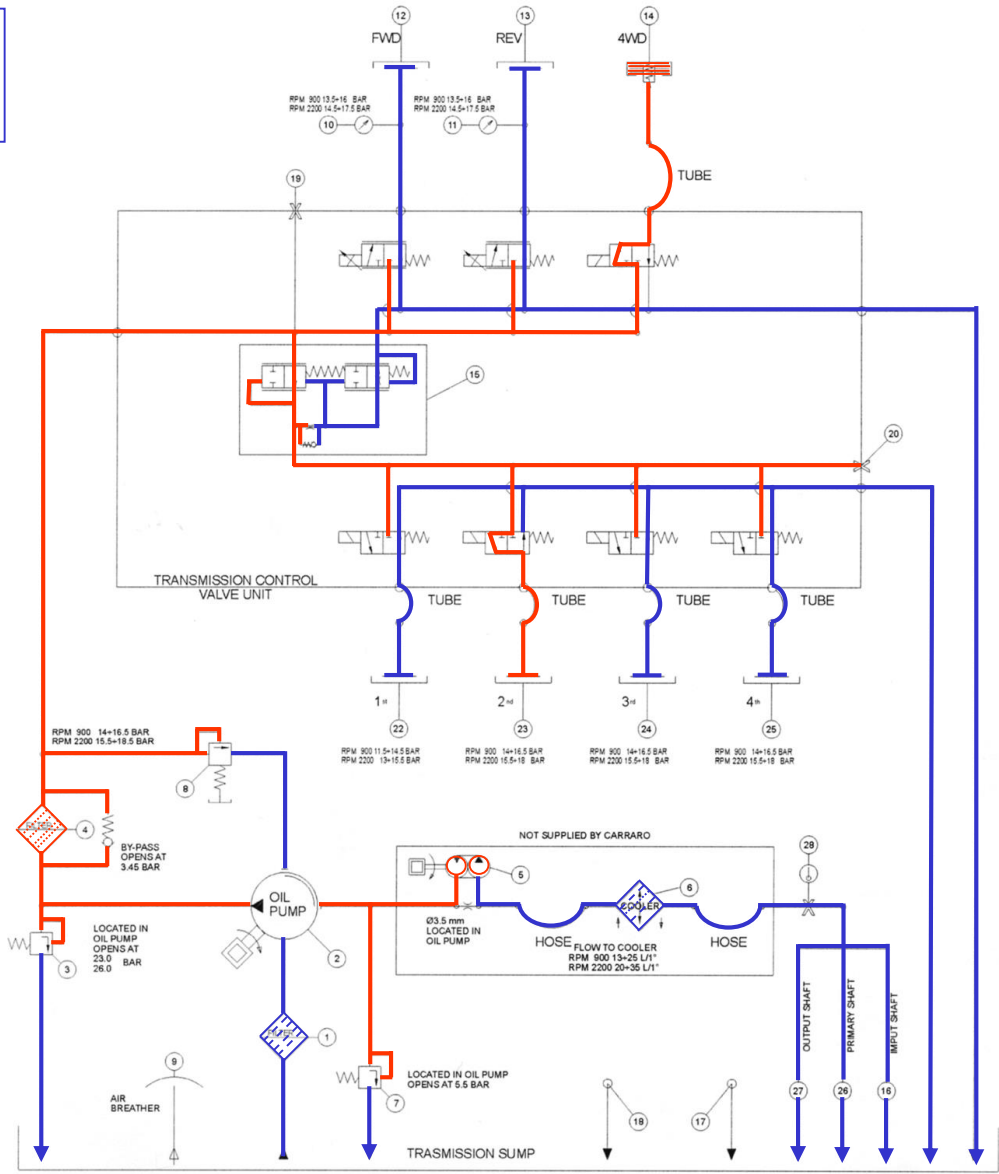
SCHEMA IDRAULICO (fig.successiva)		HYDRAULIC SCHEME (next fig.)
Filtro aspirazione (250 µm)	1	Suction filter (250 µm)
Pompa olio trasmissione (36cc/REV.)	2	Transmission oil pump (36cc/REV.)
Valvola scarico filtro olio	3	Oil filter relief valve
Filtro mandata (10 µm)	4	Spin-on filter (10 µm)
Convertitore di coppia SACHS W300-204-2.64	5	Torque converter SACHS W300-204-2.64
Radiatore olio	6	Oil cooler
Valvola scarico pressione convertitore di coppia	7	Torque converter pressure relief valve
Valvola divisore di flusso/regolatore pressione	8	Oil flow divider/pressure regulator valve
Sfiato aria	9	Air breather
Controllo pressione innesto marcia AVANTI	10	FORWARD clutch pressure check port
Controllo pressione innesto marcia INDIETRO	11	REVERSE clutch pressure check port
Innesto marcia AVANTI	12	FORWARD clutch
Innesto marcia INDIETRO	13	REVERSE clutch
Innesto/disinnesto 4WD	14	4WD engagement/disengagement
Valvola modulatrice	15	Ramp valve
Lubrificazione albero ingresso (Asse A)	16	Input shaft lubrication (Axis A)
Porta scarico olio freni	17	Brake oil port return to sump
Porta scarico olio bloccaggio "trasporto"	18	Transport lock oil port return to sump
Porta alimentazione olio retroescavatore	19	Oil outlet port to boom lock
Controllo pressione innesto marcia	20	Gear clutch pressure check port
-	21	-
Innesto 1 ^a marcia	22	1 st gear clutch
Innesto 2 ^a marcia	23	2 nd gear clutch
Innesto 3 ^a marcia	24	3 rd gear clutch
Innesto 4 ^a marcia	25	4 th gear clutch
Lubrificazione albero primario (Asse B)	26	Primary shaft lubrication (Axis B)
Lubrificazione alberi uscita (Asse C/E)	27	Output shafts lubrication (Axis C/E)
Porta termostato temperatura olio da scambiatore	28	Oil cooler back temperature thermostat port

Customer Service Department

Transmission TLB2 : Hydraulic Scheme

Transmission in
"NEUTRAL"

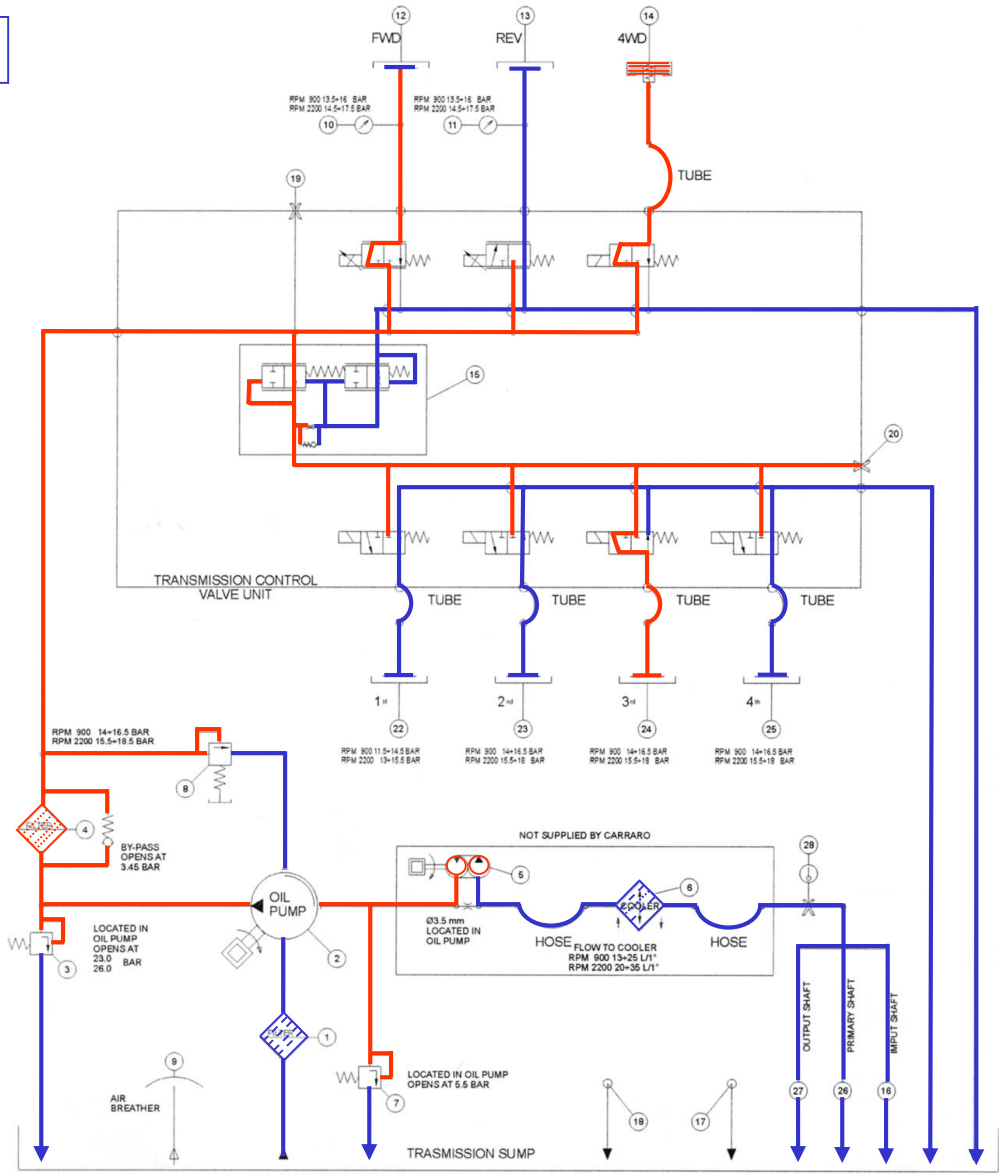
- Low pressure
- Pump pressure



Customer Service Department

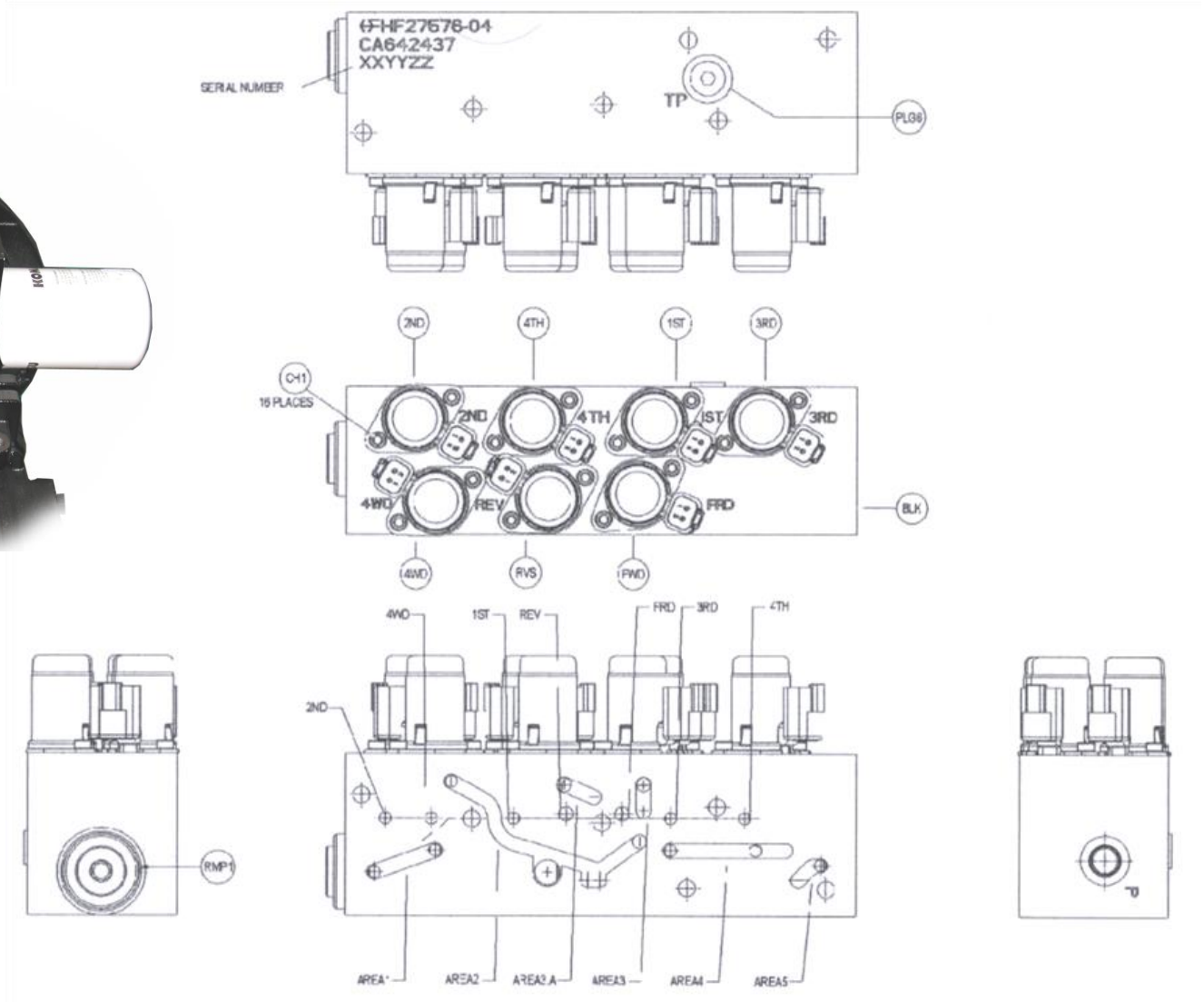
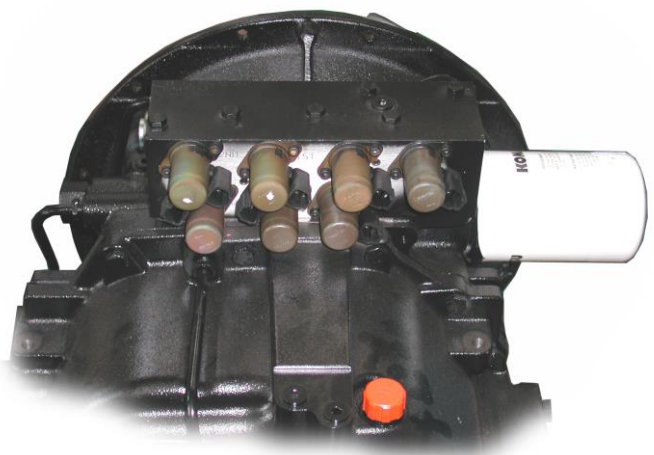
Travelling 3rd - FWD

- Low pressure
- Pump pressure



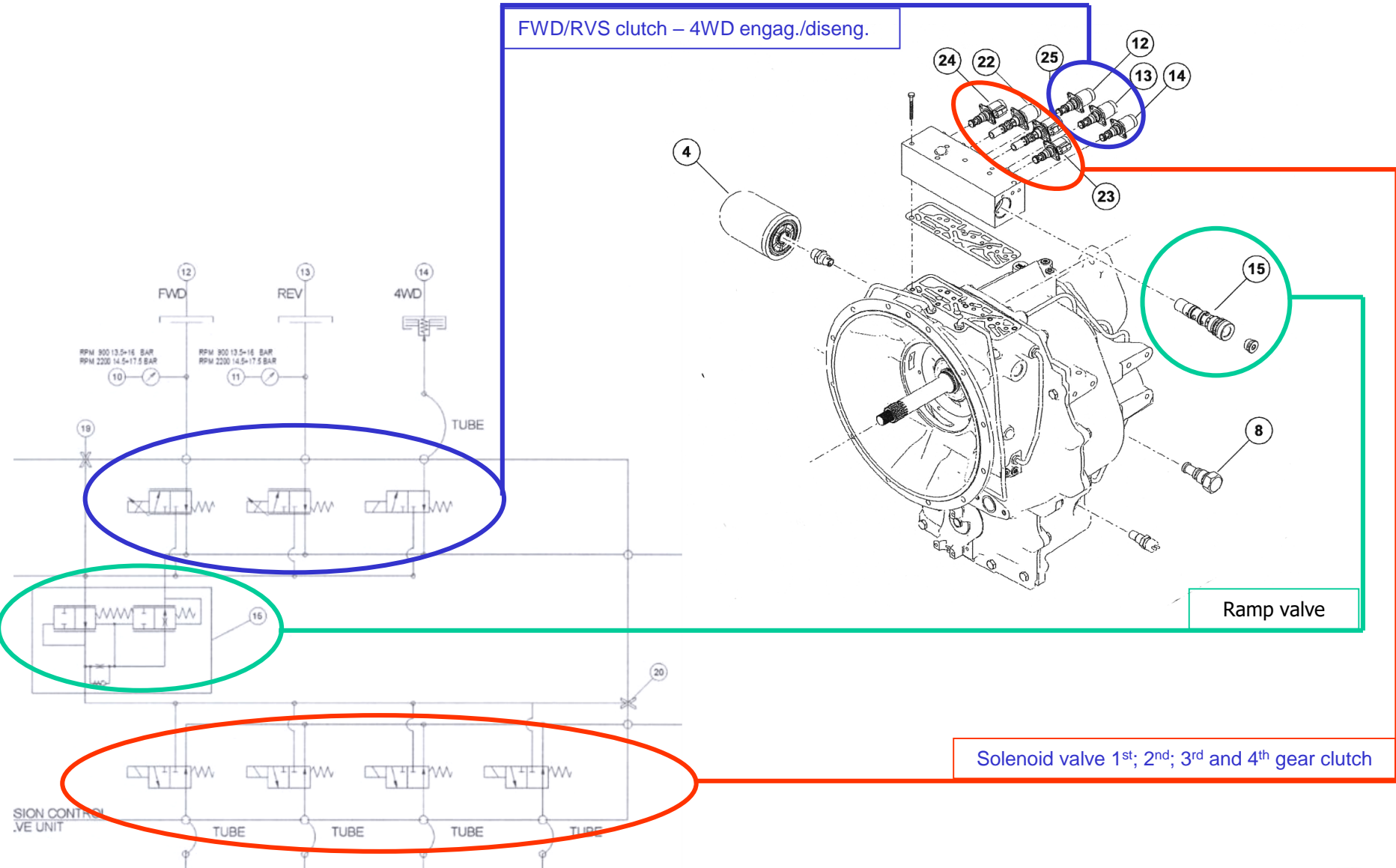
Customer Service Department

Transmission TLB2 : Control Valve Group



Customer Service Department

Transmission TLB2 : Control Valve Group



FWD/RVS clutch – 4WD engag./diseng.

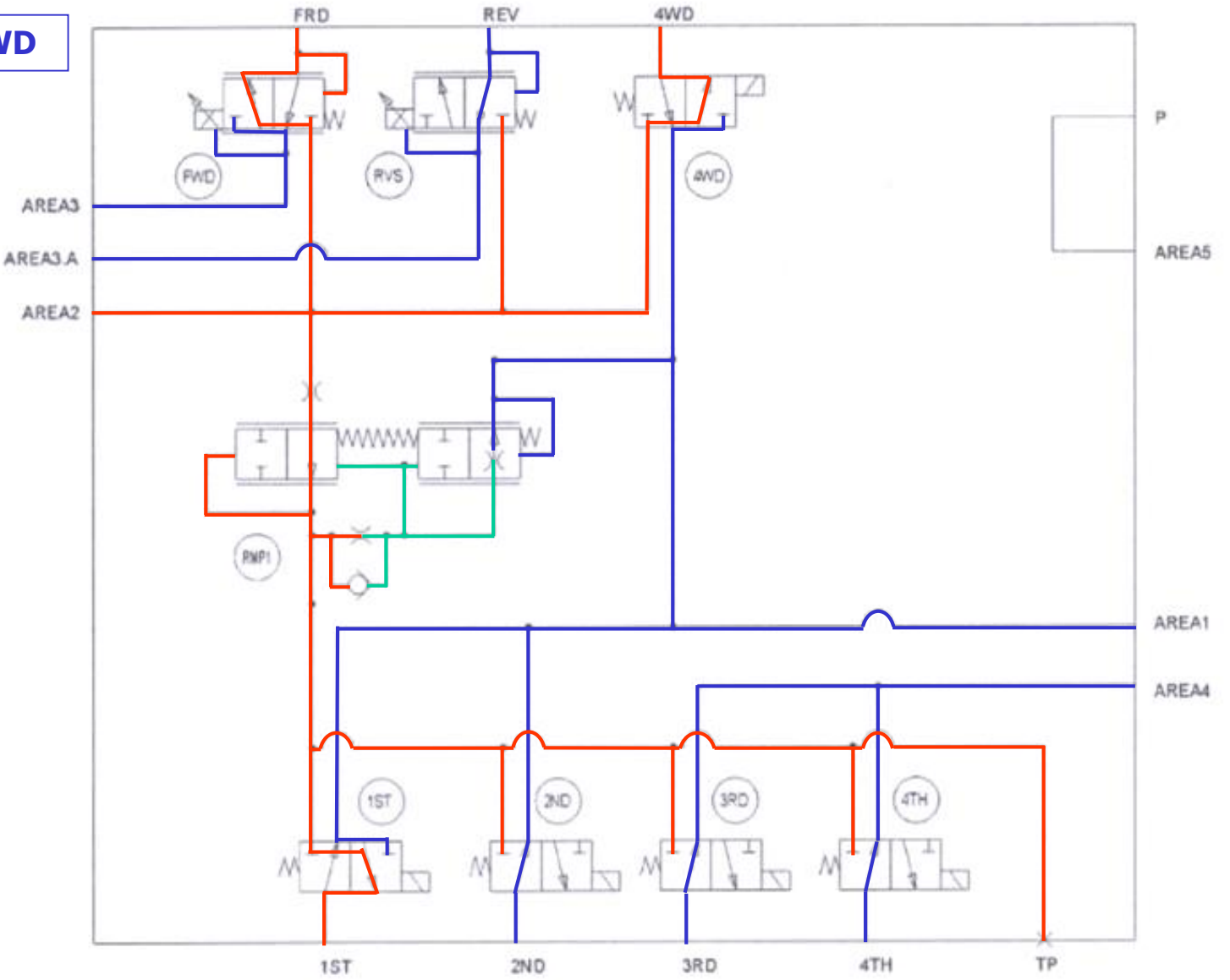
Ramp valve

Solenoid valve 1st; 2nd; 3rd and 4th gear clutch

Transmission TLB2 : Control Valve Functionality

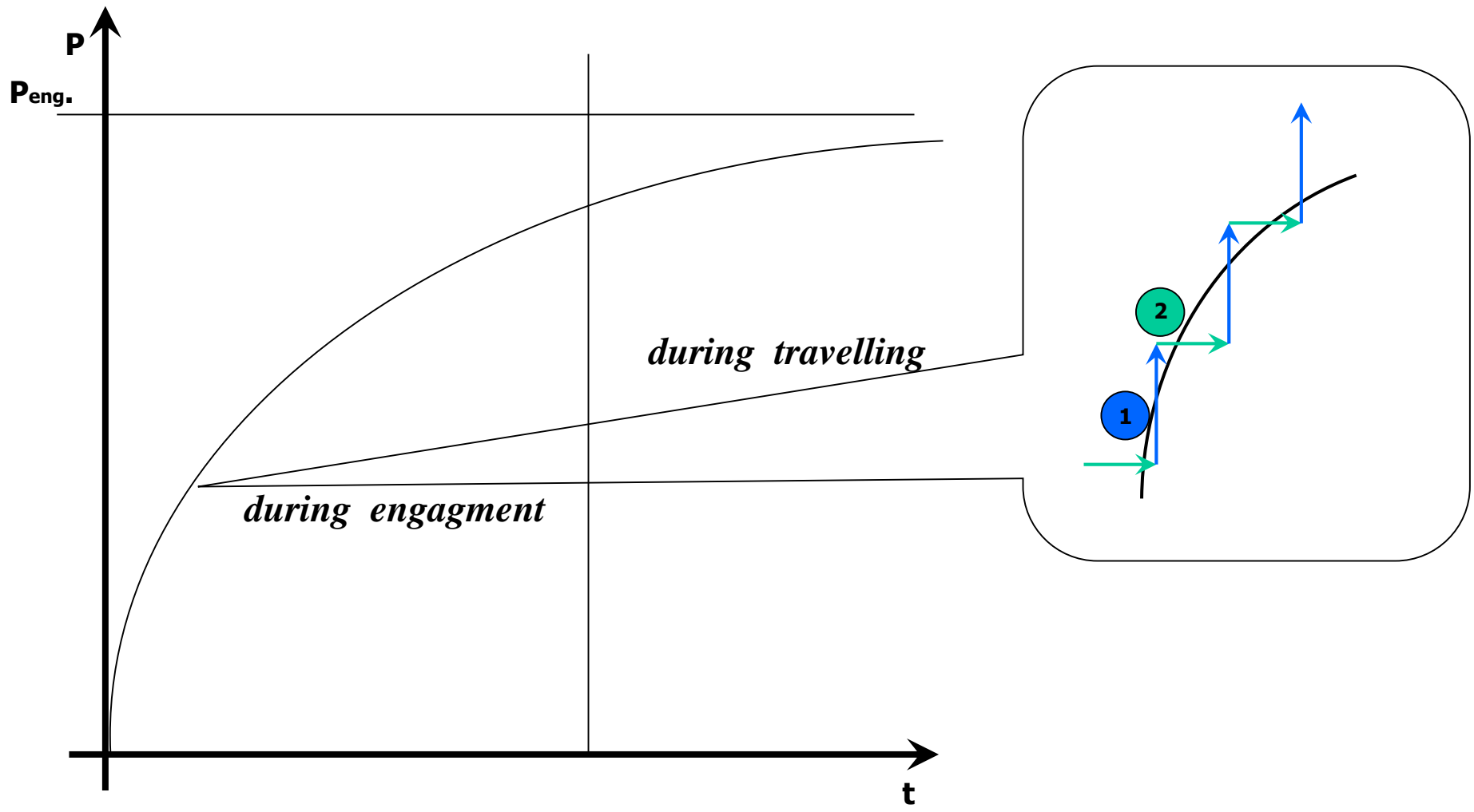
Travelling 1st - FWD

- LOW PRESSURE
- MAIN PRESSURE
- BALANCED PRESSURE



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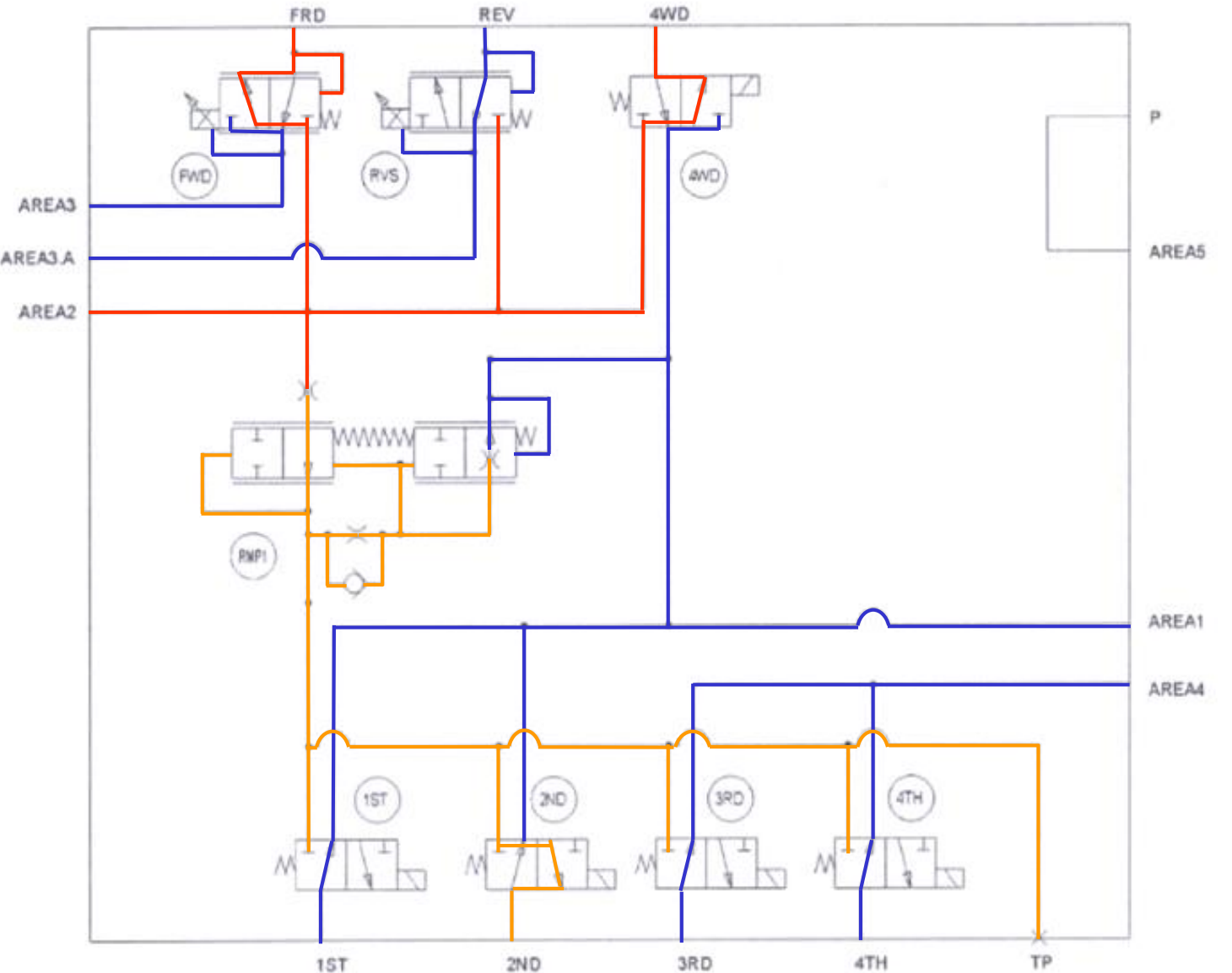




Transmission TLB2 : Control Valve Functionality

1

- LOW PRESSURE
- MAIN PRESSURE
- INCREASING MAIN PRESSURE



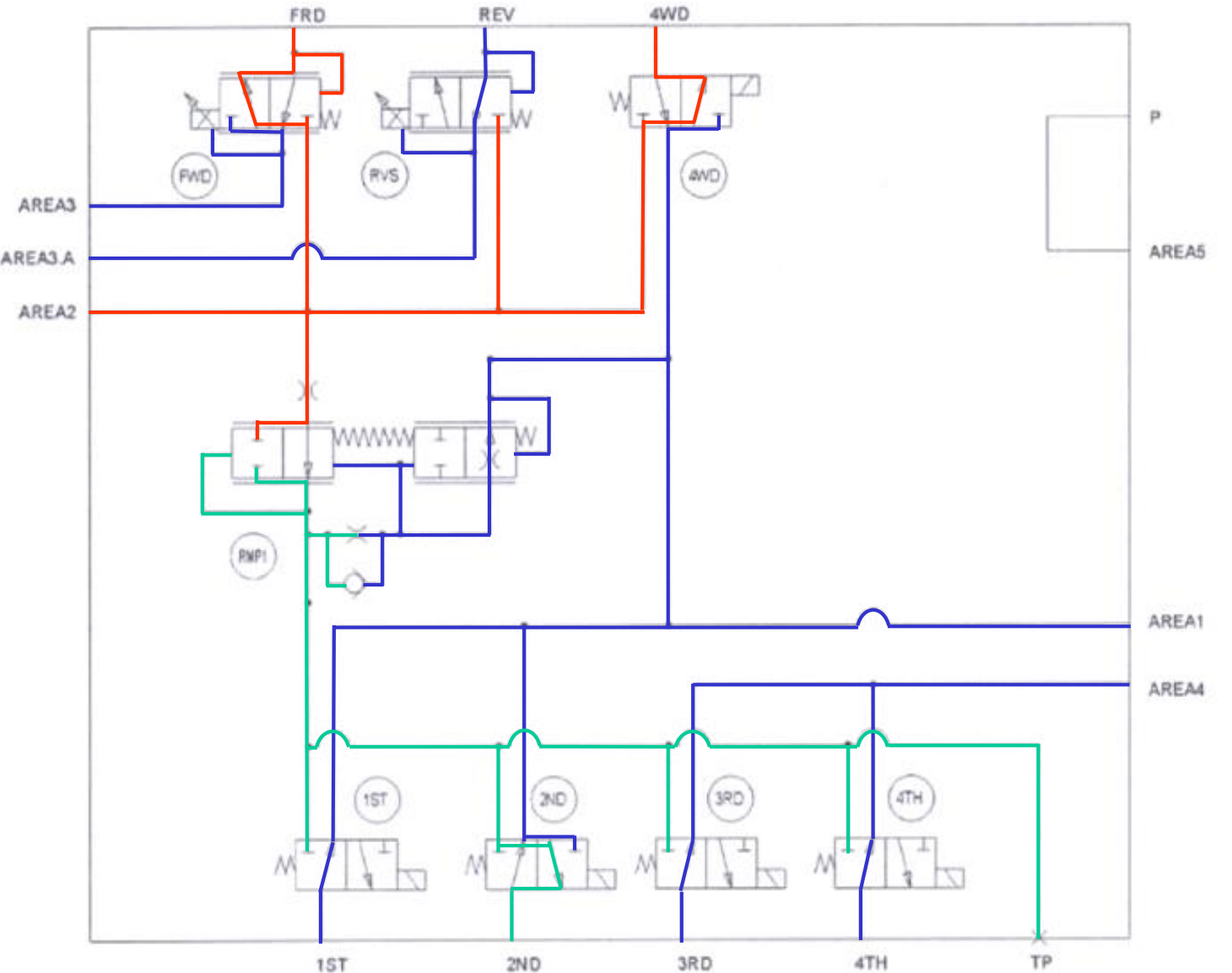
Customer Service Department



Transmission TLB2 : Control Valve Functionality

2

- LOW PRESSURE
- MAIN PRESSURE
- BALANCED PRESSURE



Customer Service Department



Transmission TLB2 : Transmission Pump

