HT100V

HYDRAULIC SYSTEM

CHAPTER 4

HYDRAULIC SYSTEM

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1. SPECIFICATIONS

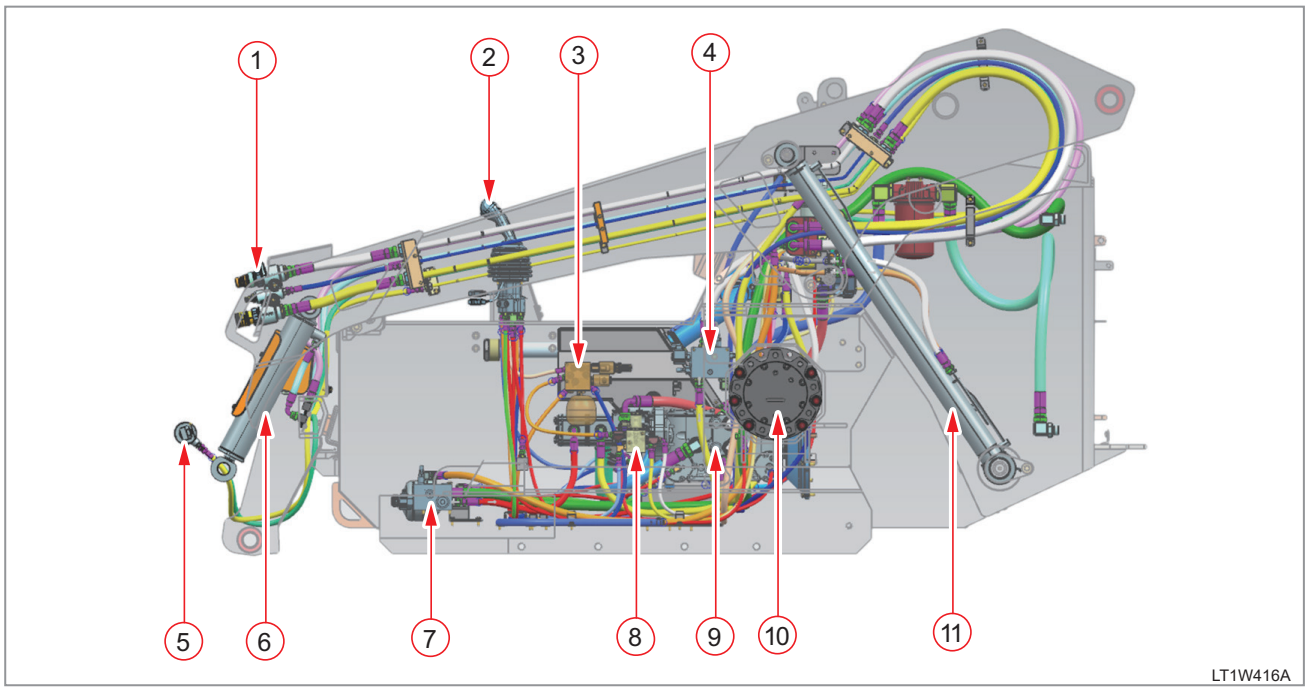
ITEM		SPECIFICATIONS
Hydraulic oil		• Hydraulic oil capacity : 38 ℓ (10.0 u.s.gal.) • Used oil : ISO VG46
Loader pressure	Standard	• Loader pressure : 230 bar (3,335 psi) • Loader flow : 82.9 lpm (21.9 gpm)
	High flow	• Loader pressure : 150 bar (2,176 psi) • Loader flow : 128.8 lpm (34.0 gpm)
2-Speed track motor		• Capacity : Lo 31.5 cm³ Hi 20.6 cm³ • Max. system pressure : 34.3 MPa • Max. speed (At Min. capacity) : 4,170 rpm • Brake pressure : 1.5 (Min) ~ 4.9 (Max) MPa 11 ~ 15 bar ((At 2,200 N·m) • Maximum pressure applied to brake port (Z) : 40 bar
Pilot lock valve		• Max. flow : 10 lpm • Max. pressure : 40 bar • Accumulator capacity : 0.32 ℓ • Free charge pressure : 11 bar
Self level valve		• Max. flow : A-port (Boom down) 69 lpm B-port (Boom up) 41 lpm • Max. pressure : 250 bar
High flow valve		• Max. flow : 150 lpm • Max. pressure : 250 bar
Shift valve		• Max. flow : 20 lpm • Max. pressure : 210 bar
Parking valve		• Max. flow : 20 lpm or more • Max. pressure : 280 bar or more
Ride control valve (Option)		• Max. flow : 0.5 ~40 lpm • Max. operating pressure : 350 bar or more
Main control valve (MCV)		• Rated flow : 80 lpm • Max. pressure : 250 bar • Max. back pressure : 25 bar
Cylinder	Quick attachment cylinder (mm)	• Size : Ø30 × Ø60 × 209
	Tilt cylinder (mm)	• Size : Ø40 × Ø75 × 364
	Lift cylinder (mm)	• Size : Ø45 × Ø65 × 992

ITEM		SPECIFICATIONS
Filter	Return filter	• Fineness : 10 ㎛ • Filtering dimension : 4,410 cm² • Flow : 125 lpm • Bypass valve setting pressure : 1.7 bar • Operating pressure : 12 bar
	HST filter	• Fineness : 10 ㎛ • Filtering dimension : 415 cm² • Flow : 35 lpm • Bypass valve setting pressure : 6 bar • Operating pressure : 310 bar
Quick attachment valve		• Max. flow : 20 lpm or more, • Max. operating pressure : 280 bar or more
Main pump		• Capacity : 34.555 cm³/rev • Continuous pressure : 280 bar • Peak pressure : 320 bar • Rotation speed : 500 ~ 3,000 rpm
Charge pump		• Capacity : 19.091 cm³/rev • Continuous pressure : 200 bar • Peak pressure : 240 bar • Rotation speed : 500 ~ 3,000 rpm
High flow pump		• Capacity : 19.091 cm³/rev • Continuous pressure : 200 bar • Peak pressure : 240 bar • Rotation speed : 500 ~ 3,000 rpm
HST pump		• Charge relief valve setting pressure : 2.4 MPa at 37.9 lpm • High-pressure relief valve setting pressure : 34.5 MPa at 3.8 ~ 5.6 lpm • Rated speed at maximum capacity : 3,200 rpm • Oil flow at rated speed : 59.4 lpm at 1,800 rpm • Capacity : 2 x 33.0 cm3/rev • Direction of rotation : Clockwise
Quick coupler (External hydraulic)	Male Drain Female	• Size : 12.5 mm • Max. Operating pressure : 35 MPa • Rated flow : 100 lpm
RCV assembly (LH, RH)		• Min. initial pressure : 30 bar • Max. initial pressure : 100 bar • Min. rated flow : 5 lpm • Max. rated flow : 20 lpm

2. HYDRAULIC SYSTEM OVERVIEW

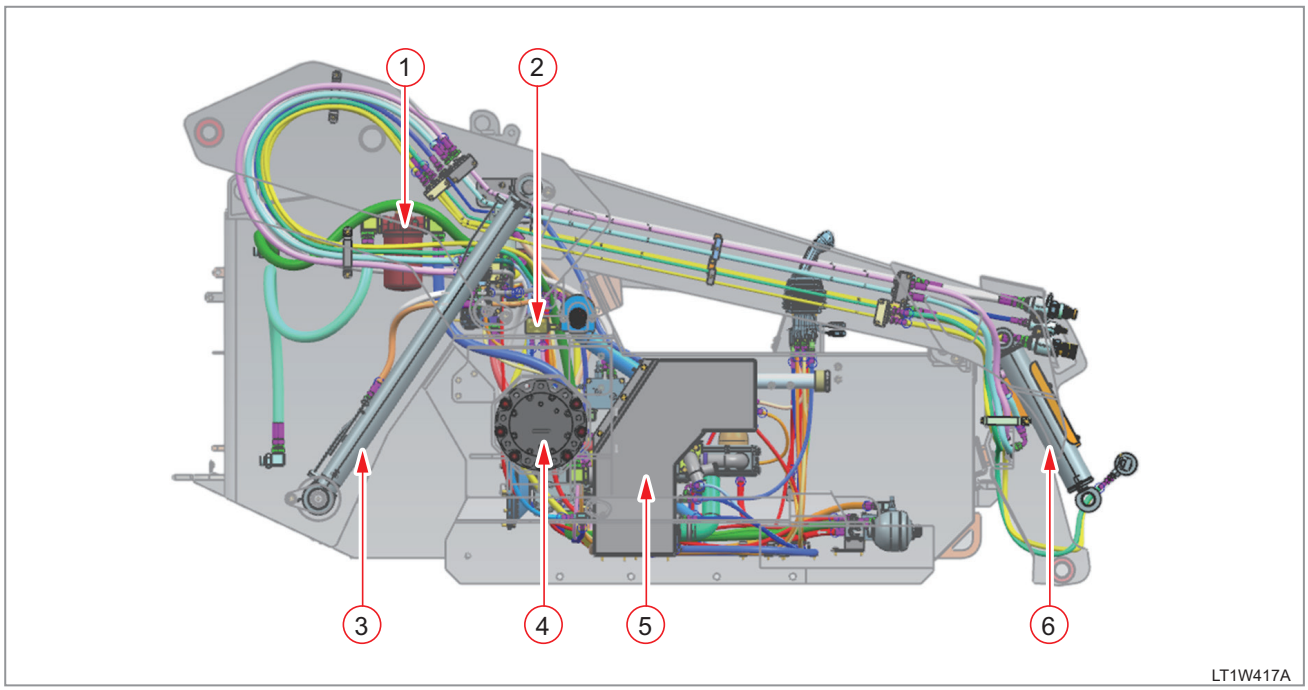
2.1 HYDRAULIC SYSTEM LAYOUT

LH



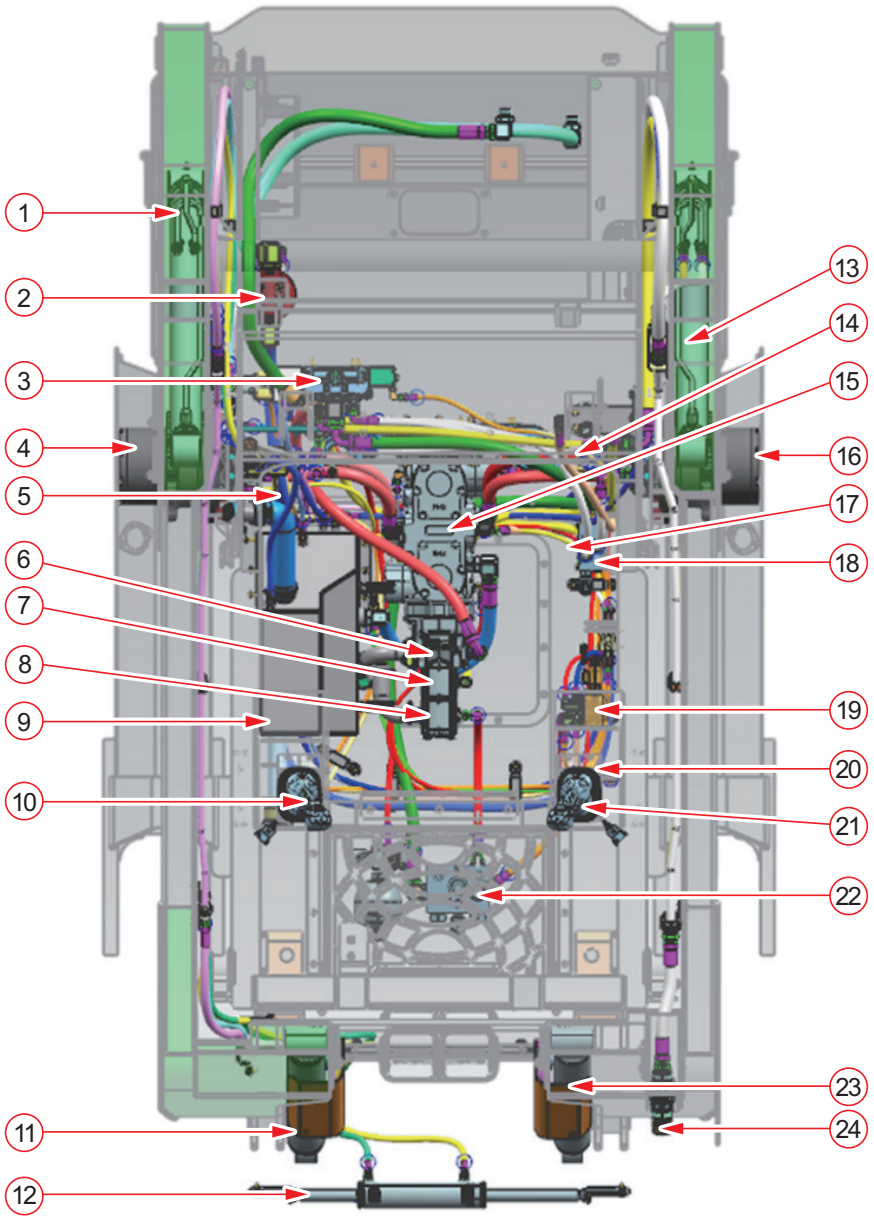
(1) Quick coupler
(2) RCV assembly
(3) Pilot lock valve
(4) Selt level valve
(5) Quick attachment cylinder
(6) Tilt cylinder
(7) High flow valve
(8) Shift valve
(9) Parking valve
(10) Track motor
(11) Lift cylinder

RH



(1) Return filter
(2) Quick attachment valve
(3) Lift cylinder
(4) Track motor
(5) Oil tank
(6) Tilt cylinder

OVER VIEW



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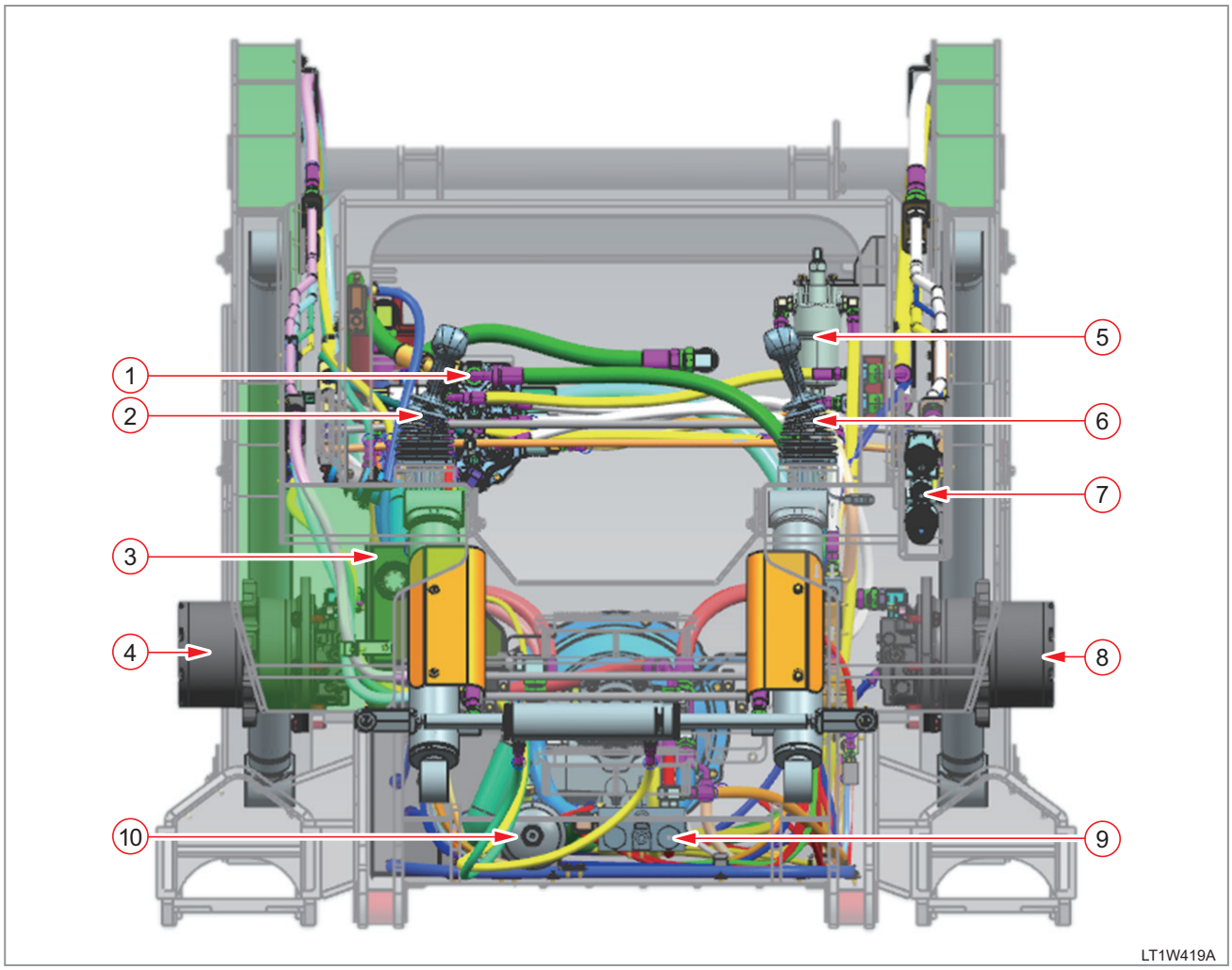
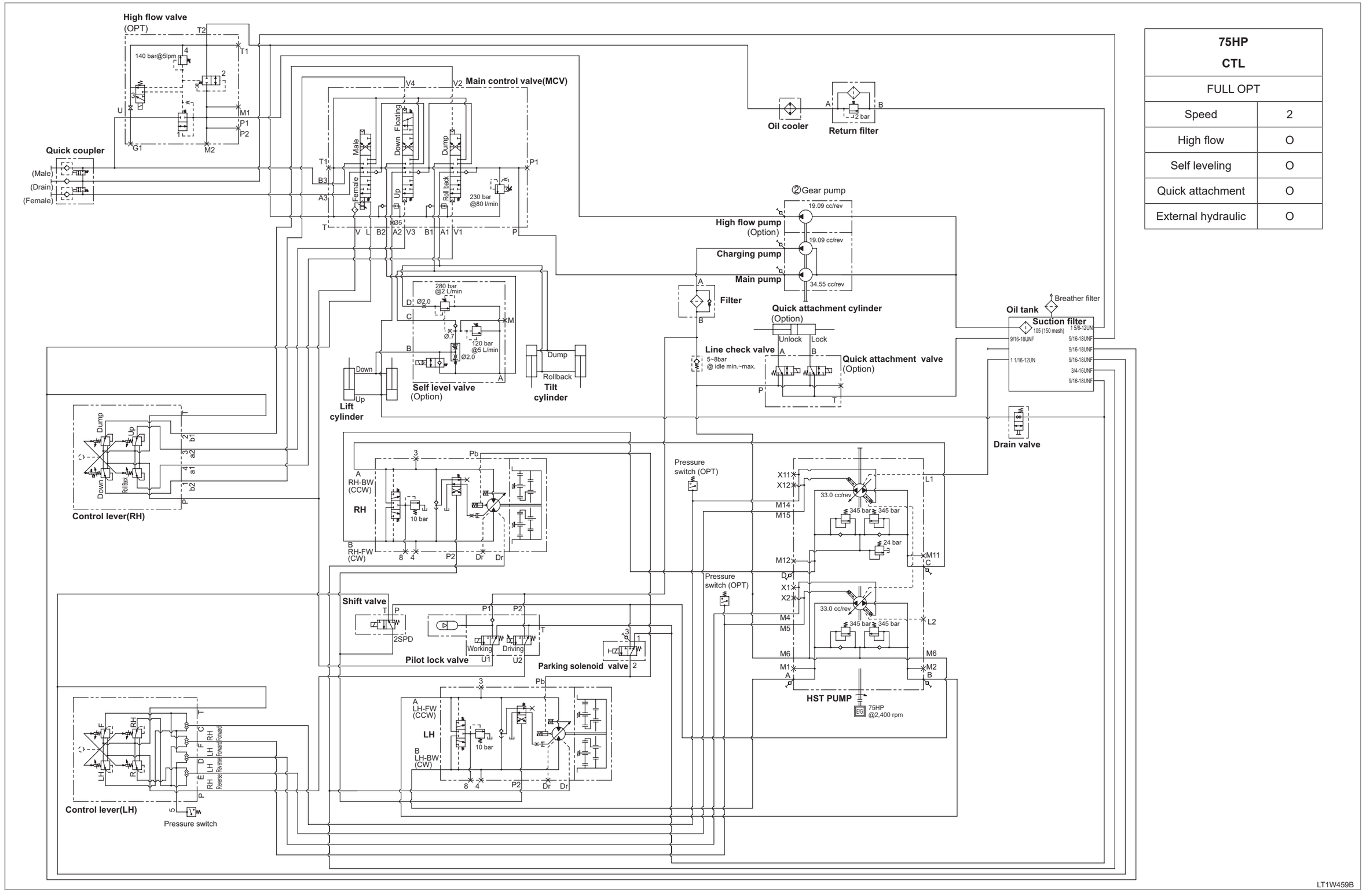
(1) Lift cylinder (RH)
(2) Return filter
(3) Main control valve (MCV)
(4) Track motor-RH
(5) Quick attachment valve
(6) Main pump
(7) Charge pump
(8) High flow pump
(9) Oil tank
(10) RCV assembly (RH-Working)
(11) Tilt cylinder (RH)
(12) Quick attachment cylinder
(13) Lift cylinder (LH)
(14) HST filter
(15) HST pump
(16) Track motor-LH
(17) Parking valve
(18) Selt level valve
(19) Shift valve
(20) Pilot lock valve
(21) RCV assembly (LH- Driving)
(22) High flow valve
(23) Tilt cylinder (LH)
(24) Quick coupler (External hydraulic)

FRONT VIEW



(1) Main control valve (MCV)
(2) RCV assembly (RH-Working)
(3) Oil tank
(4) Track(HST) motor (RH)
(5) HST filter
(6) RCV assembly (LH-Driving)
(7) Quick coupler (External hydraulic)
(8) Track(HST) motor (LH)
(9) High flow valve
(10) Ride control valve

2.2 CIRCUIT DIAGRAM FOR HYDRAULIC SYSTEM



75HP CTL	
FULL OPT	
Speed	2
High flow	O
Self leveling	O
Quick attachment	O
External hydraulic	O

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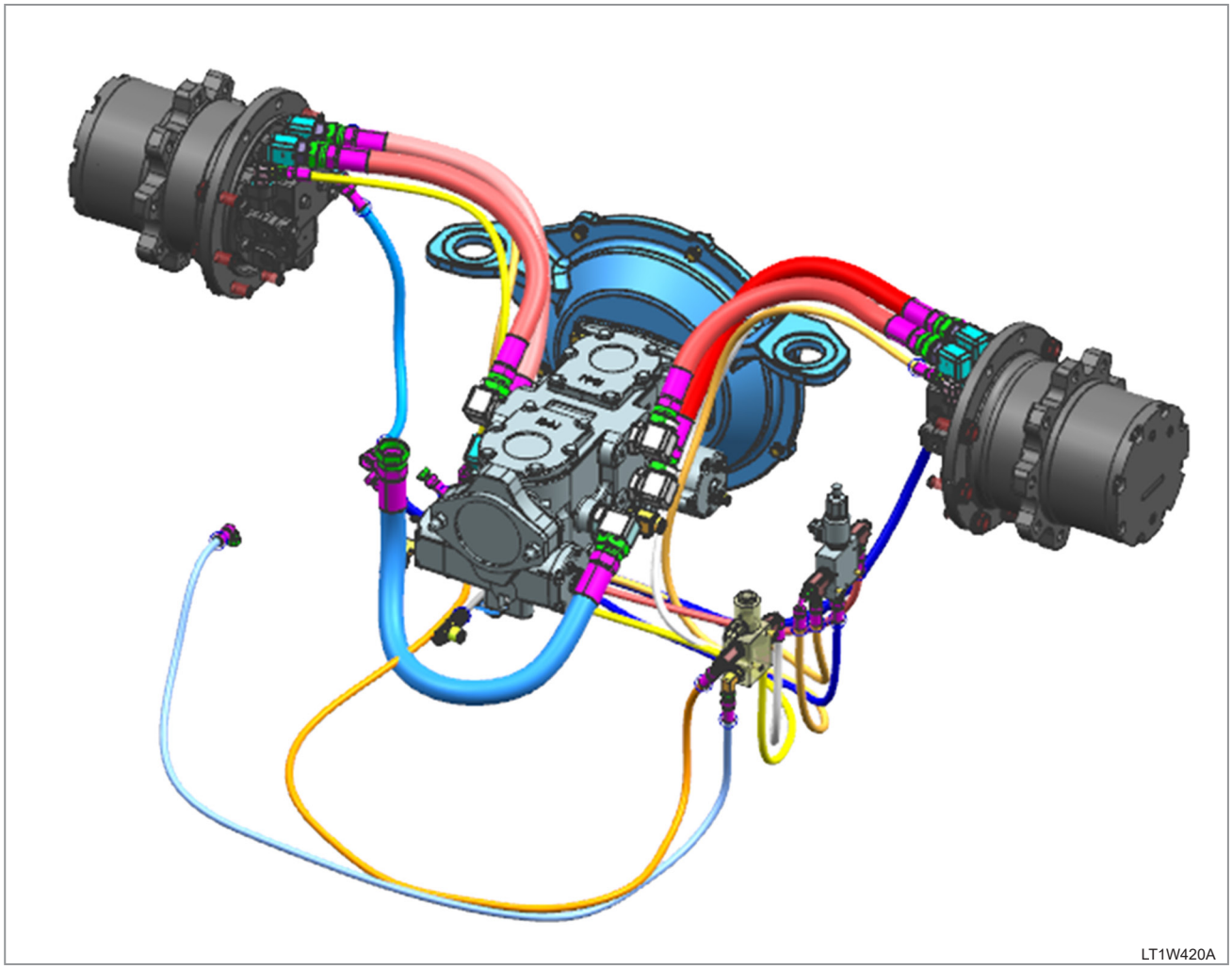
2.3 CONNECTING LINES BY HYDRAULIC SYSTEM GROUPS

2.3.1 HST GROUP



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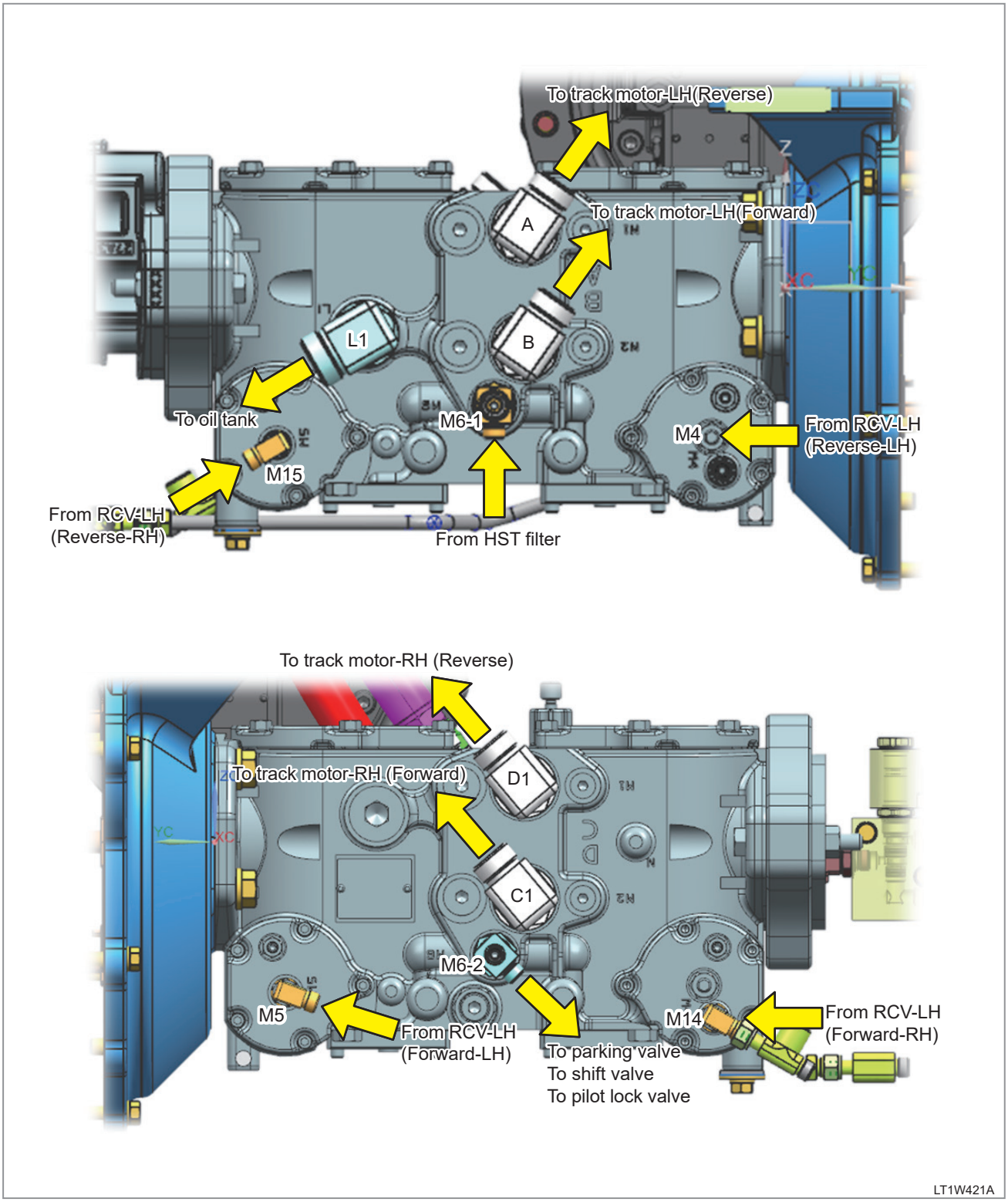
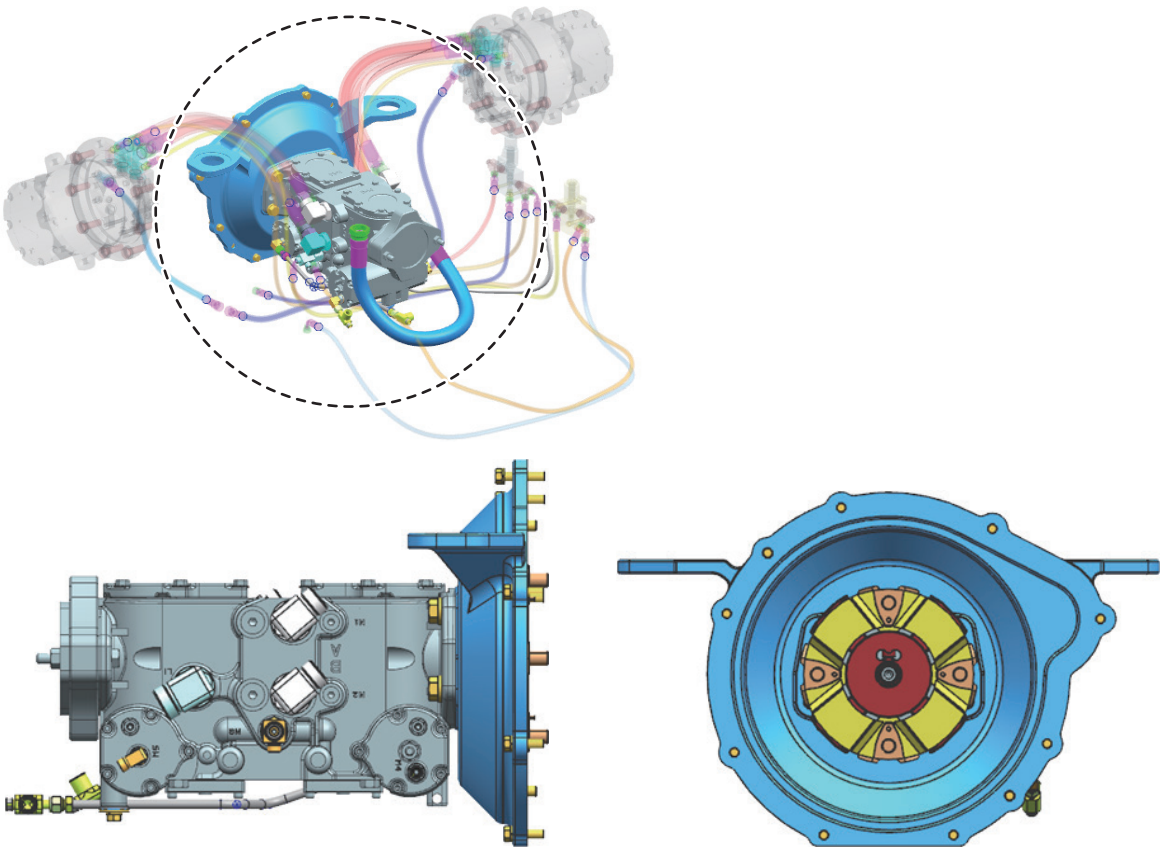
HST PUMP


To track motor-LH(Reverse)
To track motor-LH(Forward)
A
B
L1
To oil tank
M15
From RCV-LH
(Reverse-RH)
M6-1
From HST filter
M4
From RCV-LH
(Reverse-LH)
To track motor-RH (Reverse)
To track motor-RH (Forward)
D1
C1
M6-2
M5
From RCV-LH
(Forward-LH)
M14
From RCV-LH
(Forward-RH)
To parking valve
To shift valve
To pilot lock valve
LT1W421A

LH



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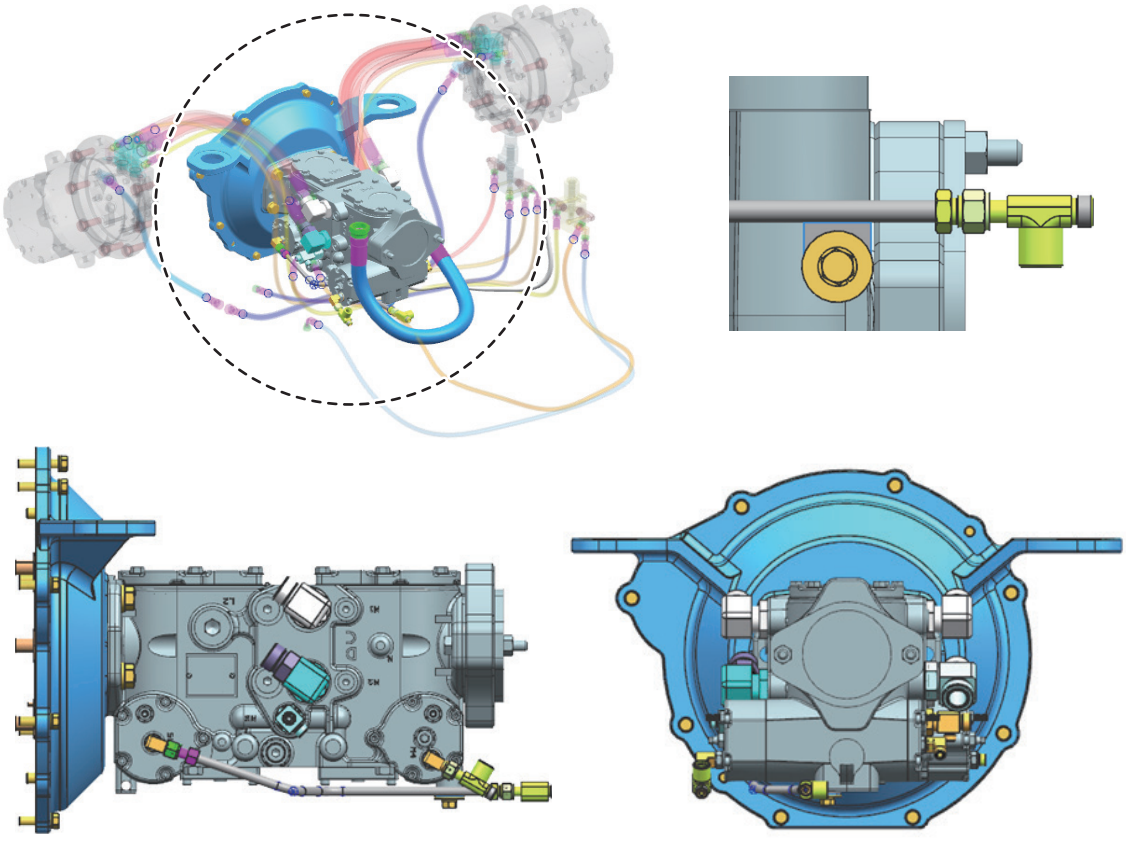
RH



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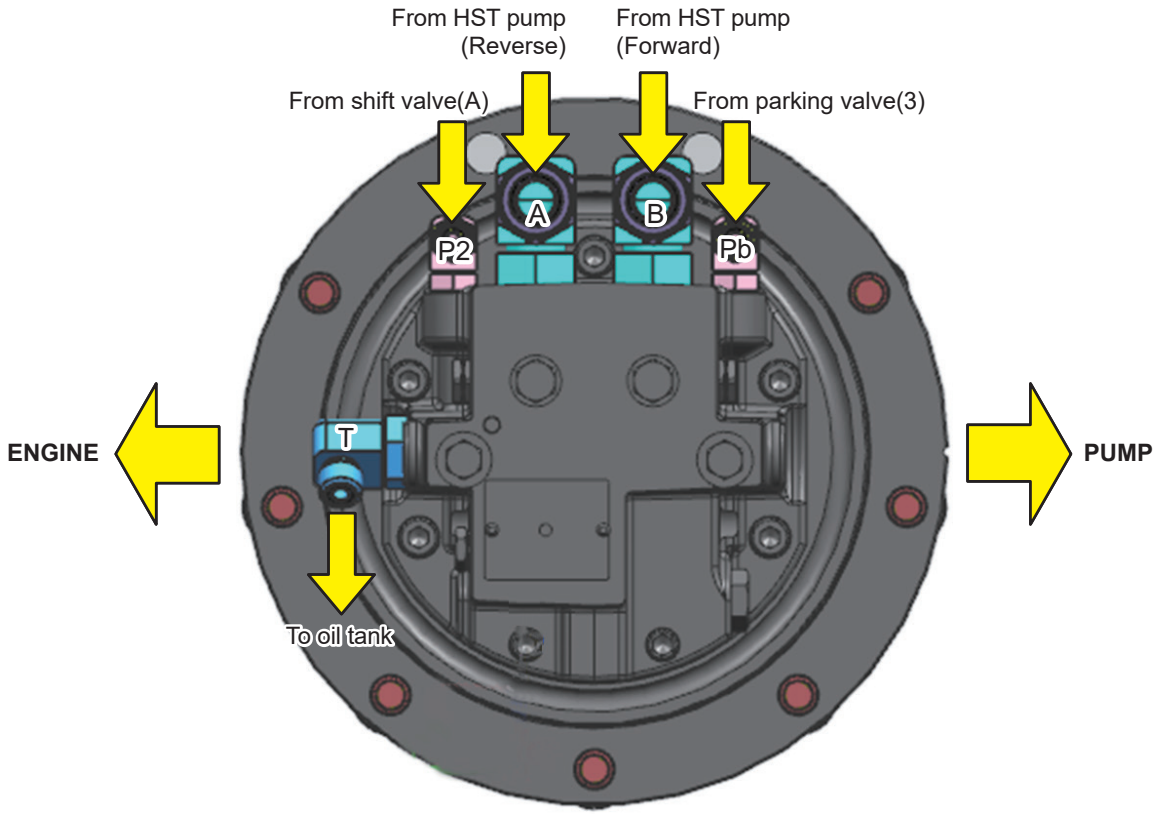
TRACK MOTOR

Track motor (LH)
*** The track motor (RH) is symmetrical for the track motor (LH)**



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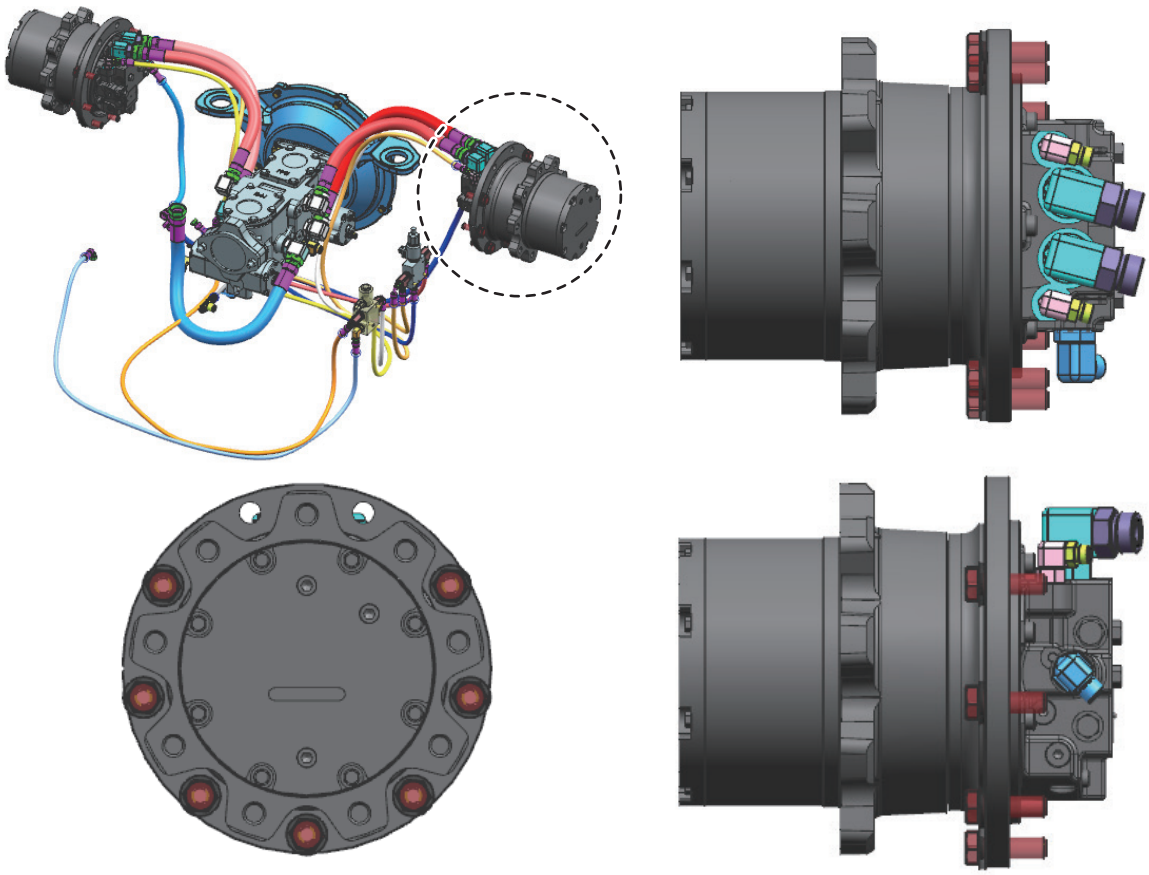
LH



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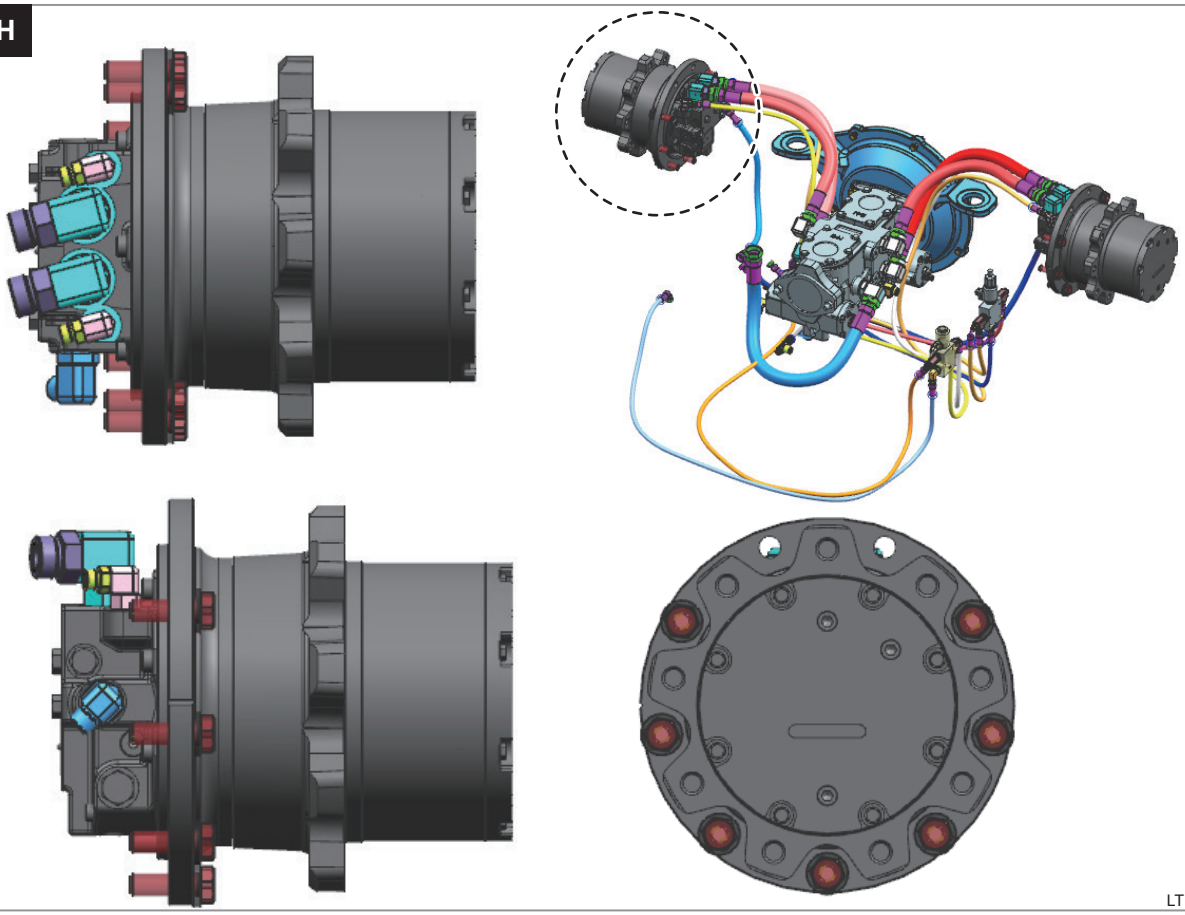
RH



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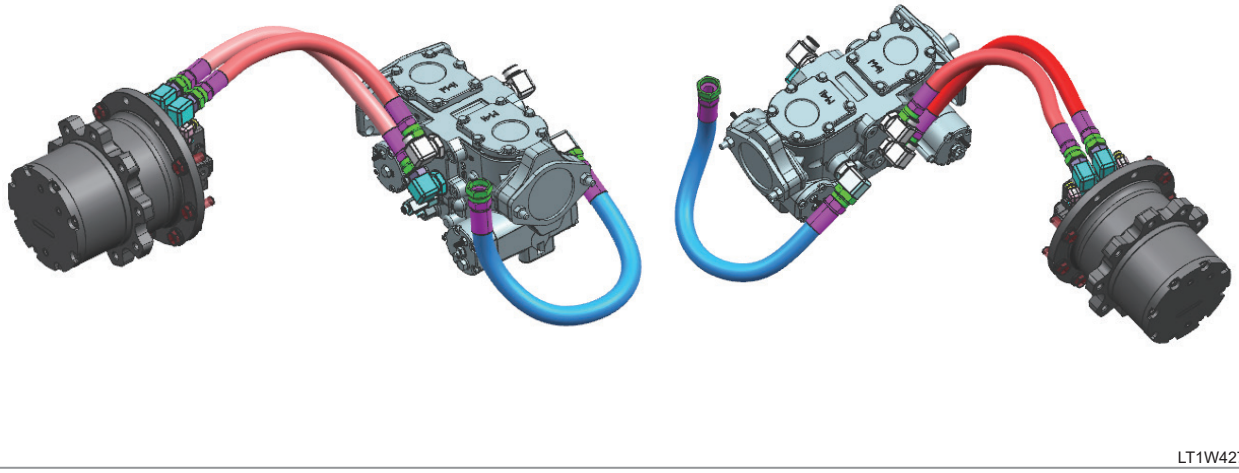
HYDRAULIC HOSE



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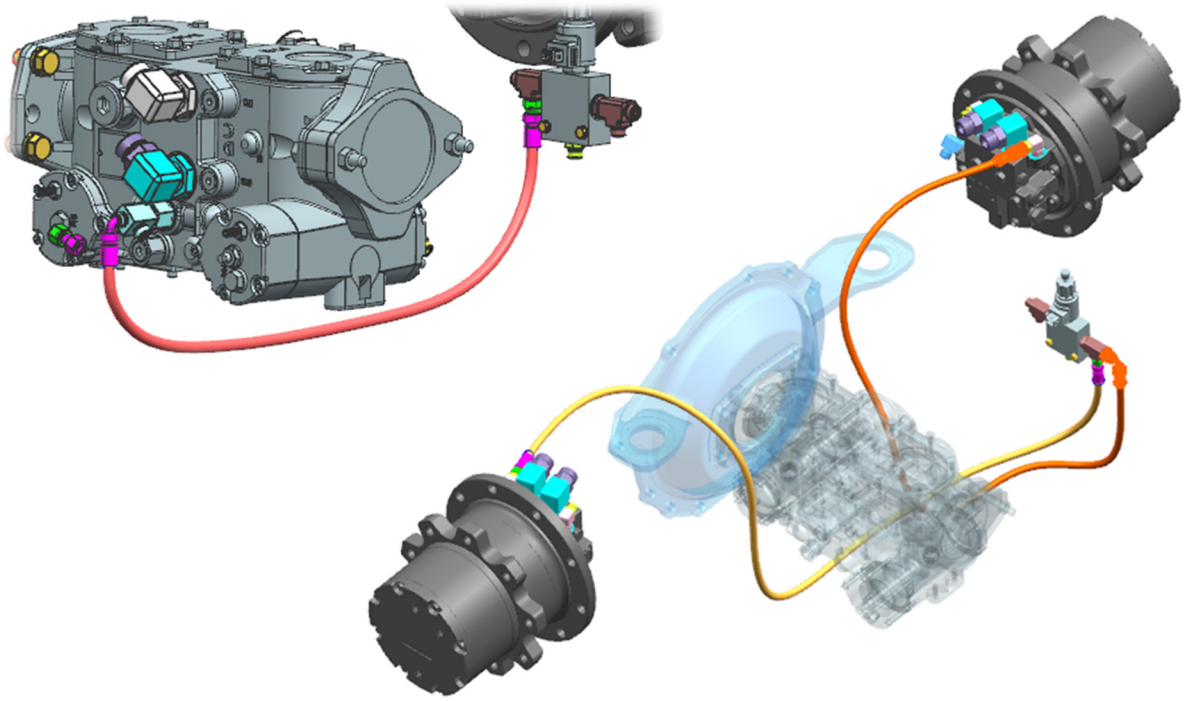

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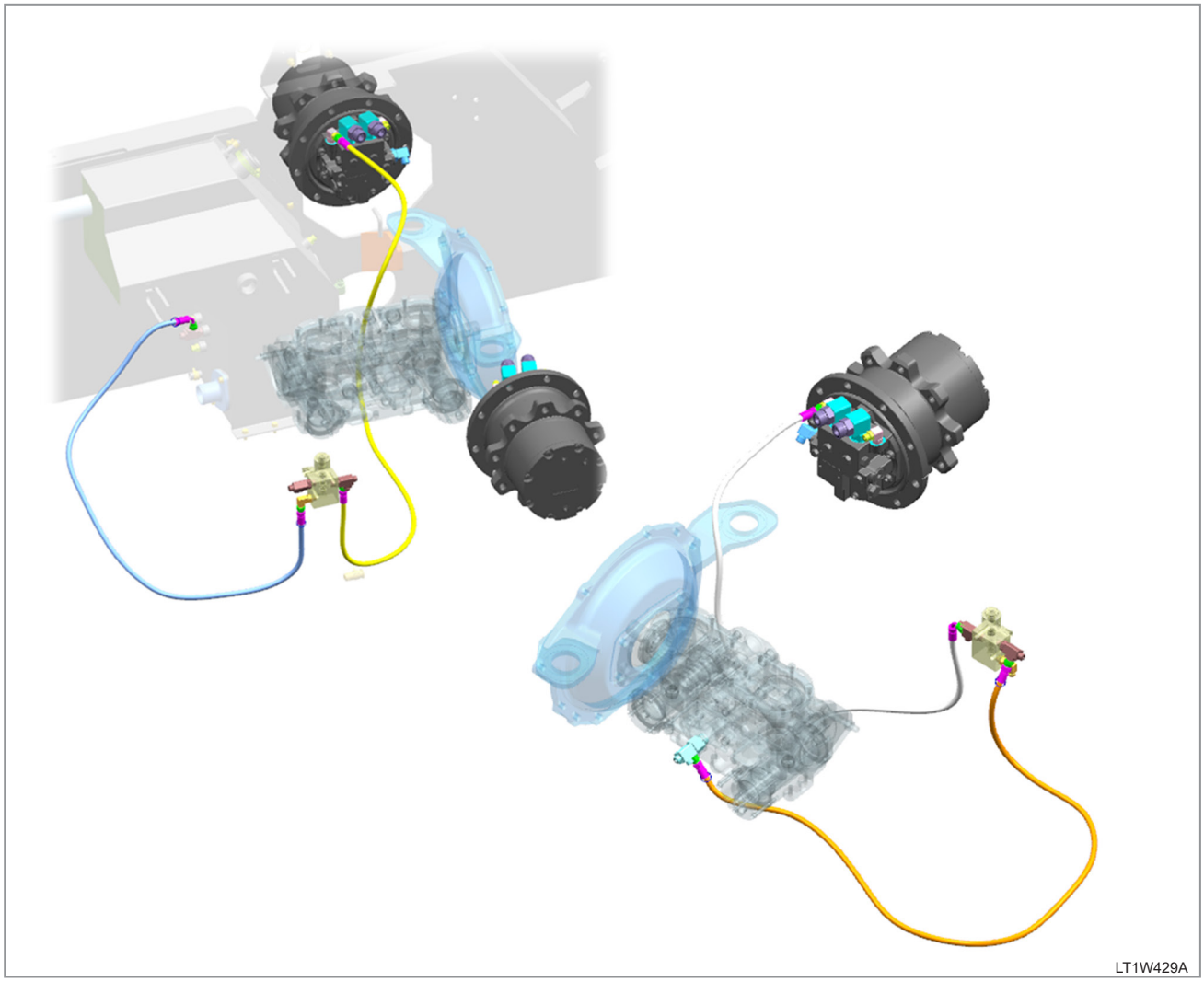

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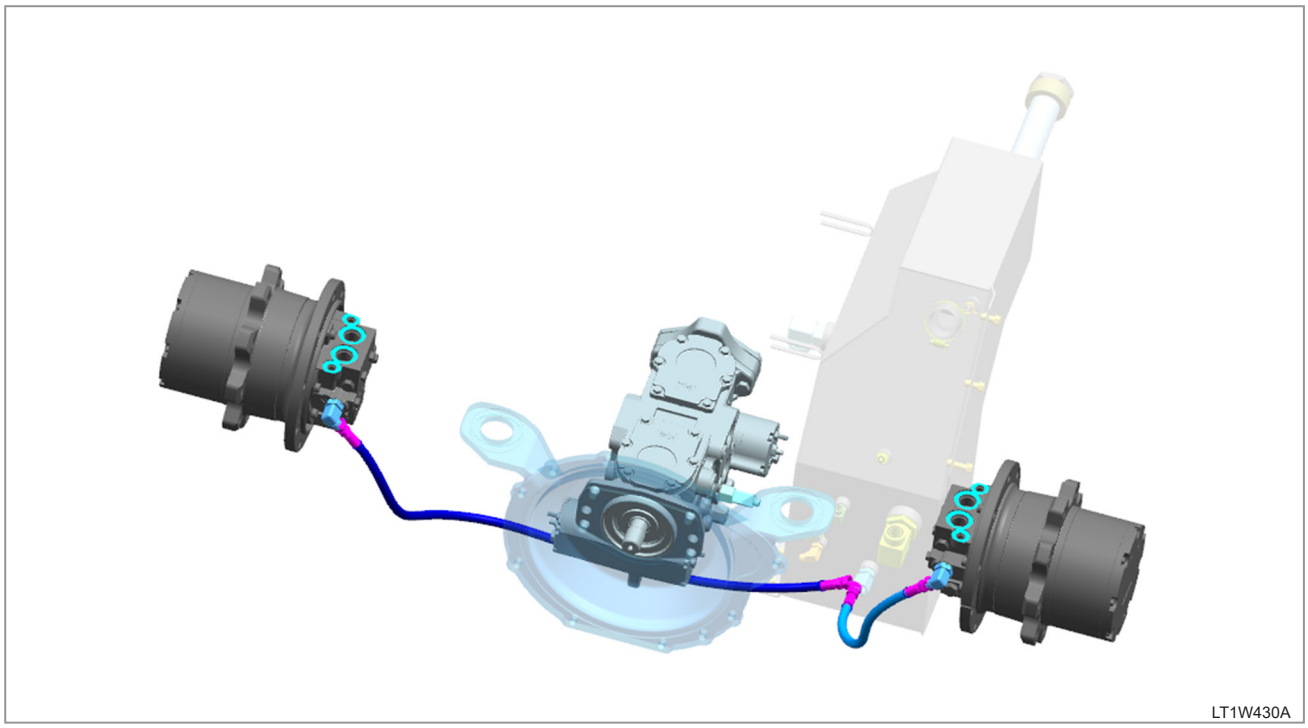

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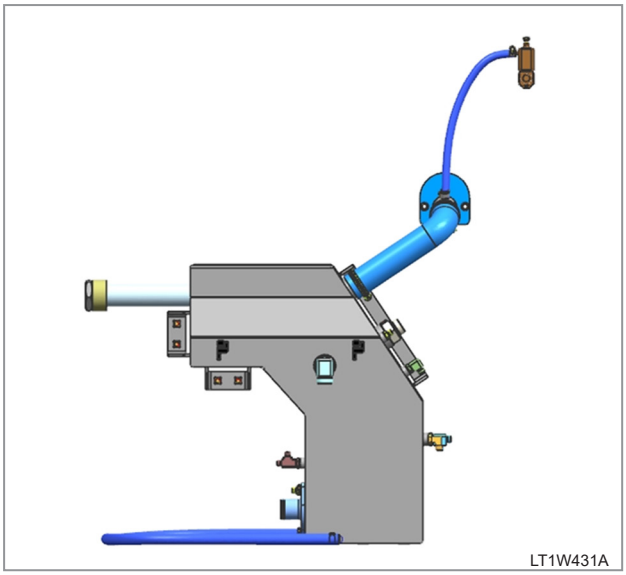
2.3.2 OIL TANK GROUP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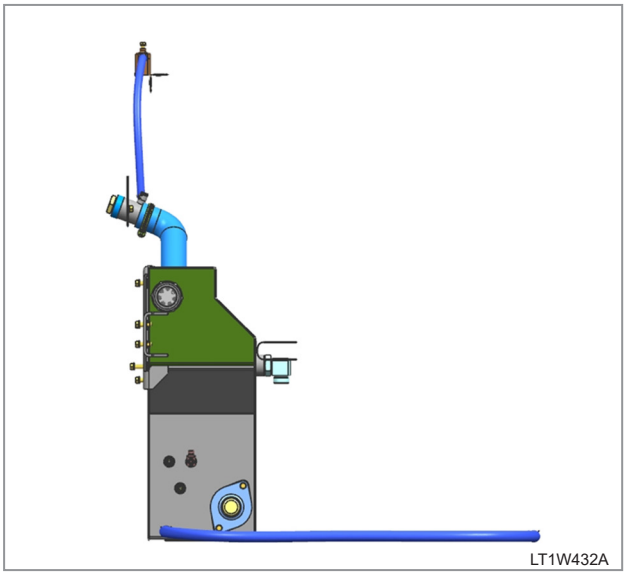
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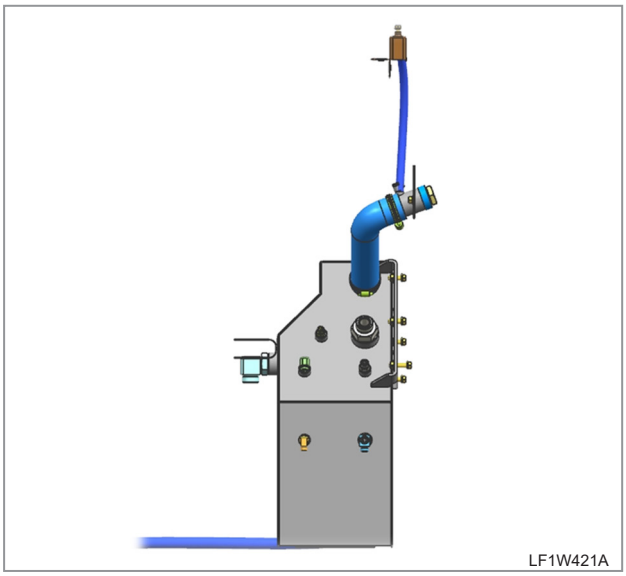
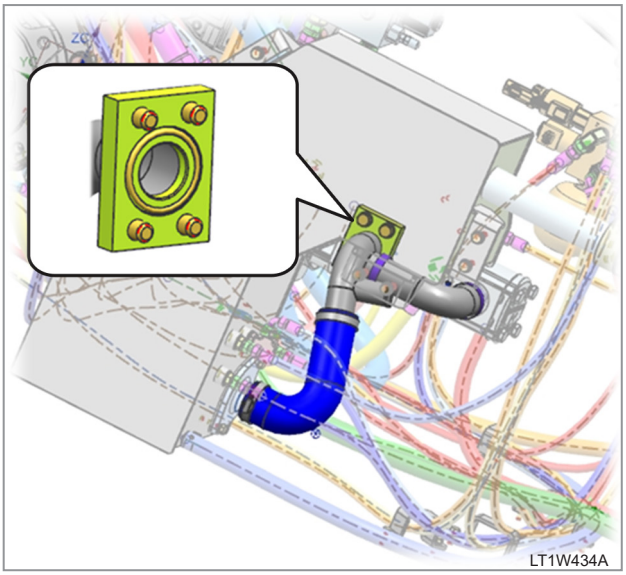

LF1W421A

2.3.3 SUCTION LINE GROUP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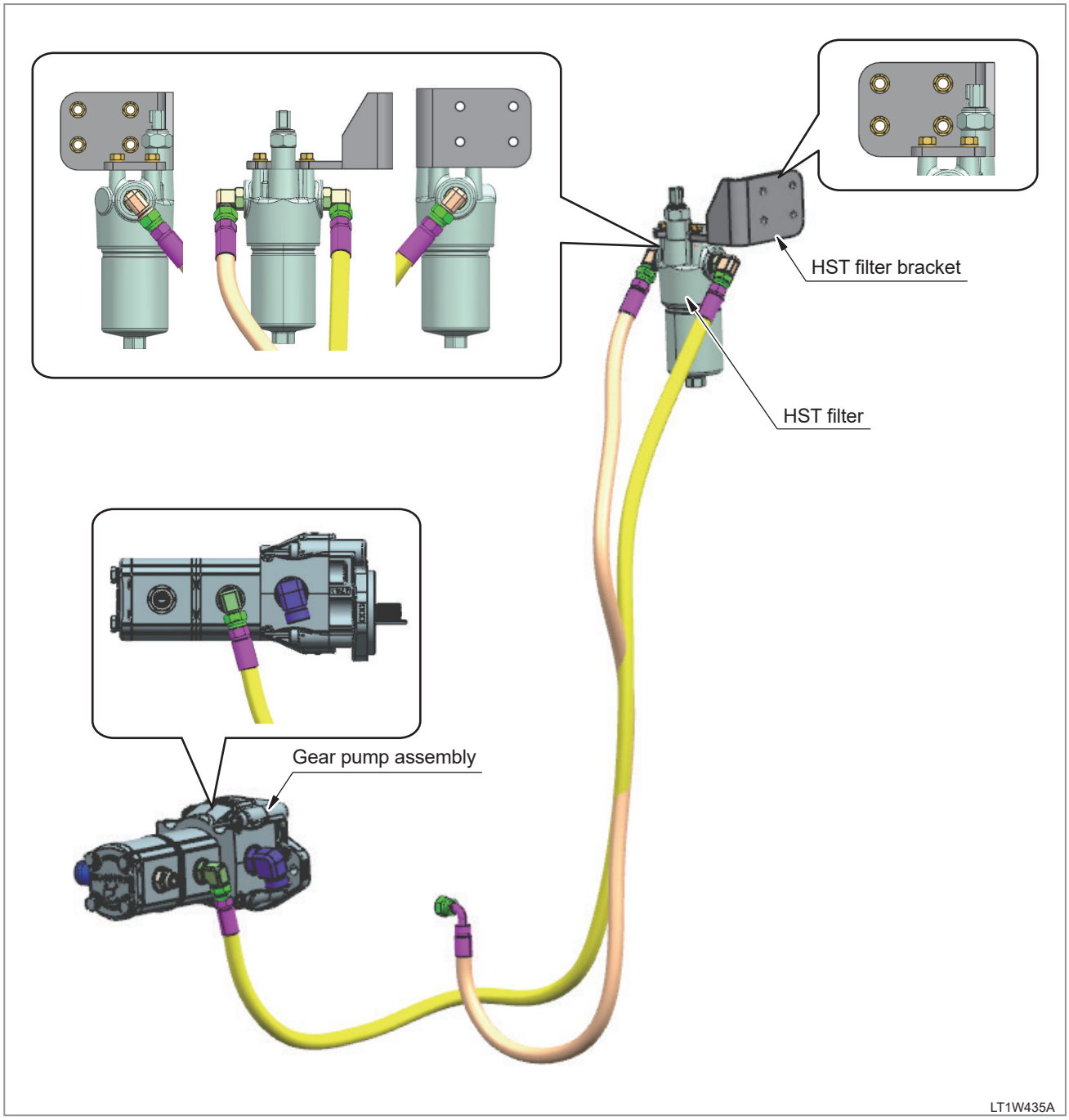
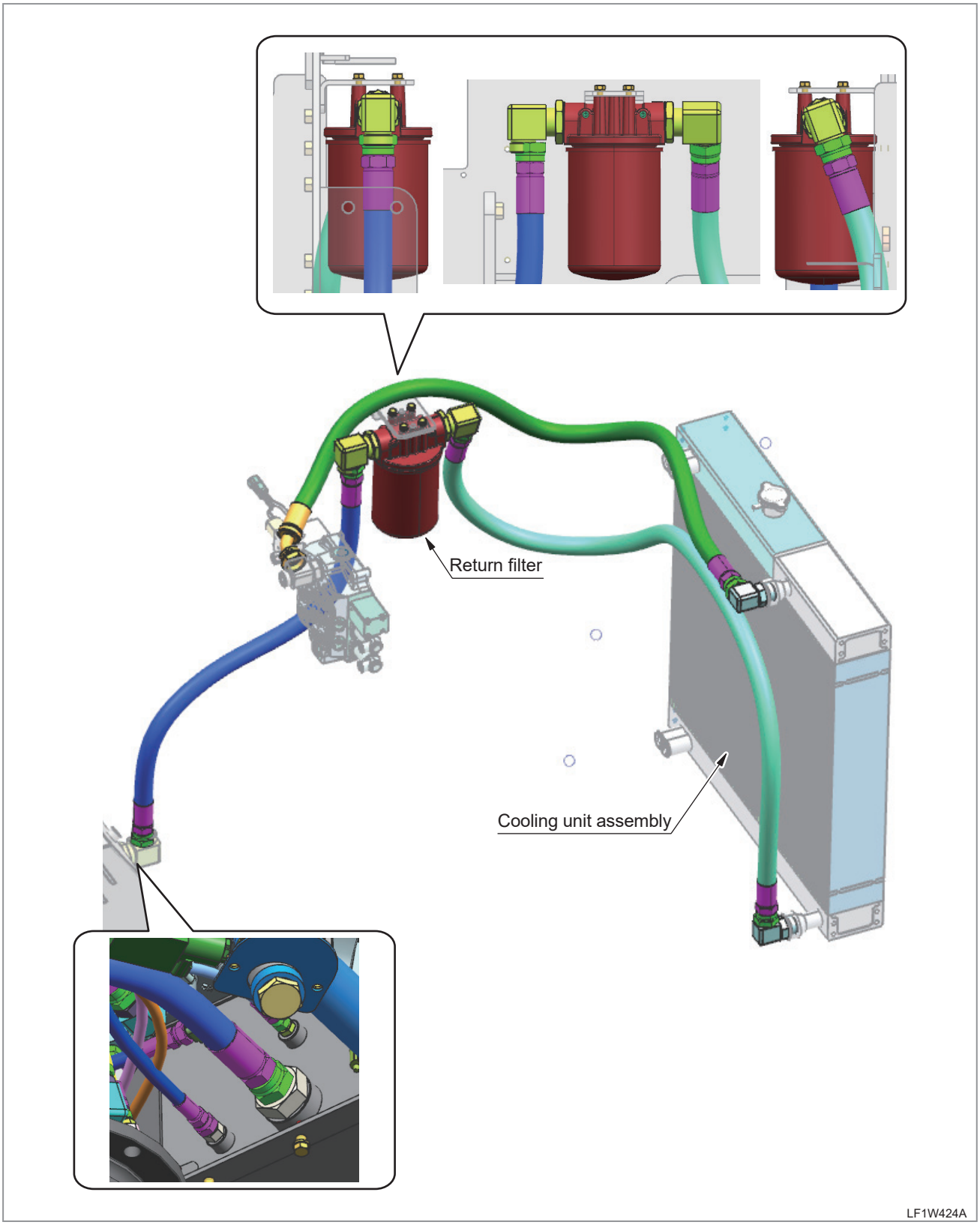
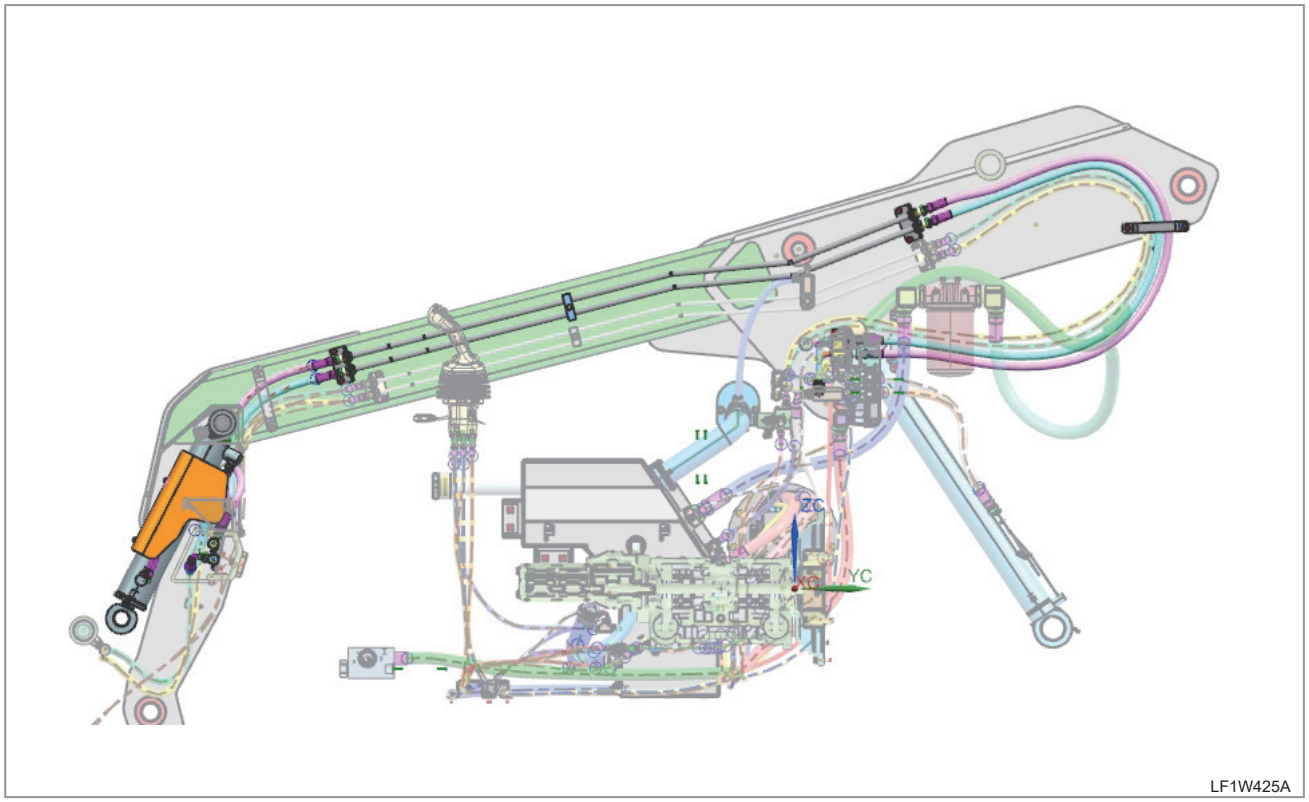
2.3.4 HYDRAULIC PUMP GROUP



2.3.5 OIL COOLER GROUP



2.3.6 TILT CYLINDER GROUP



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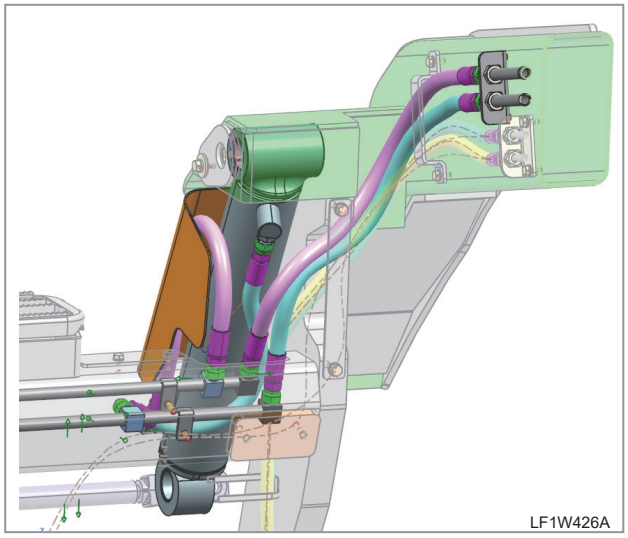
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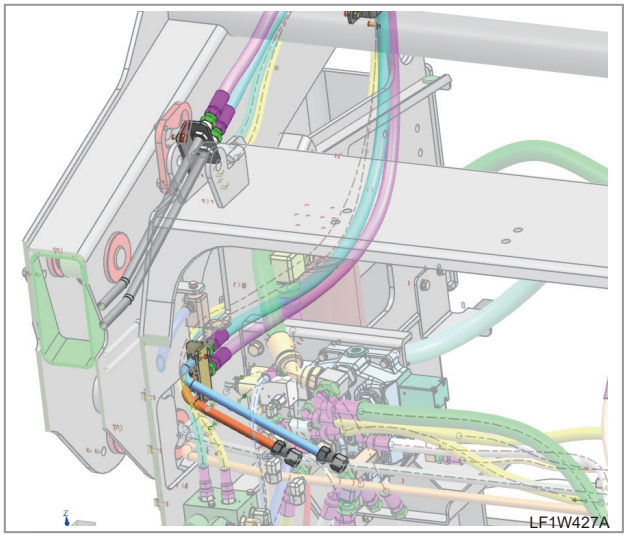
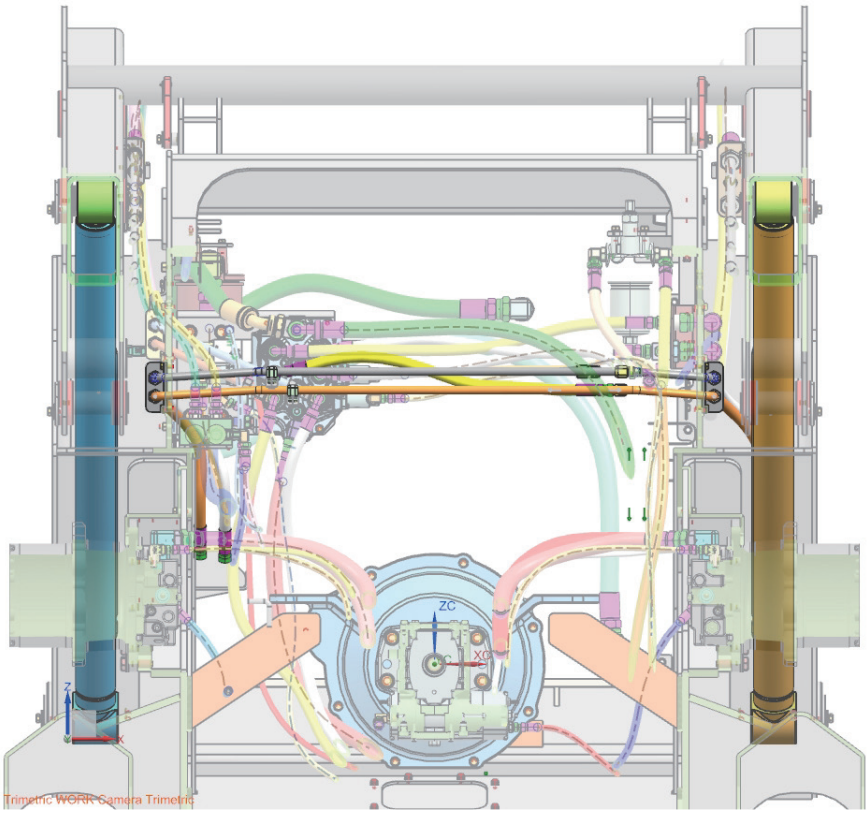

LF1W427A

2.3.7 LIFT CYLINDER GROUP



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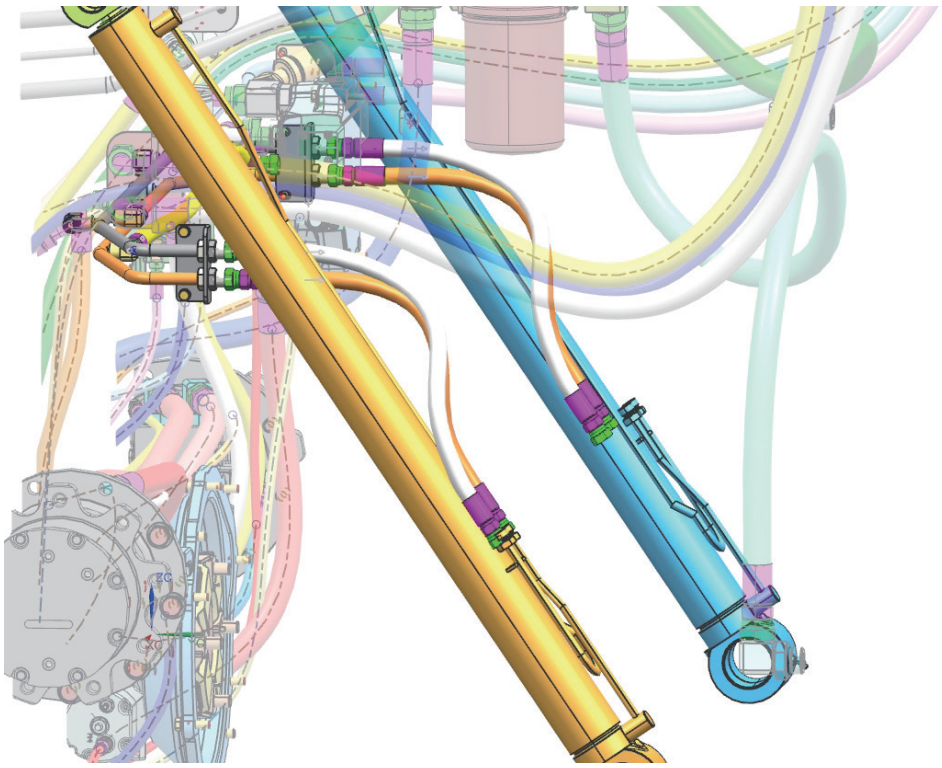

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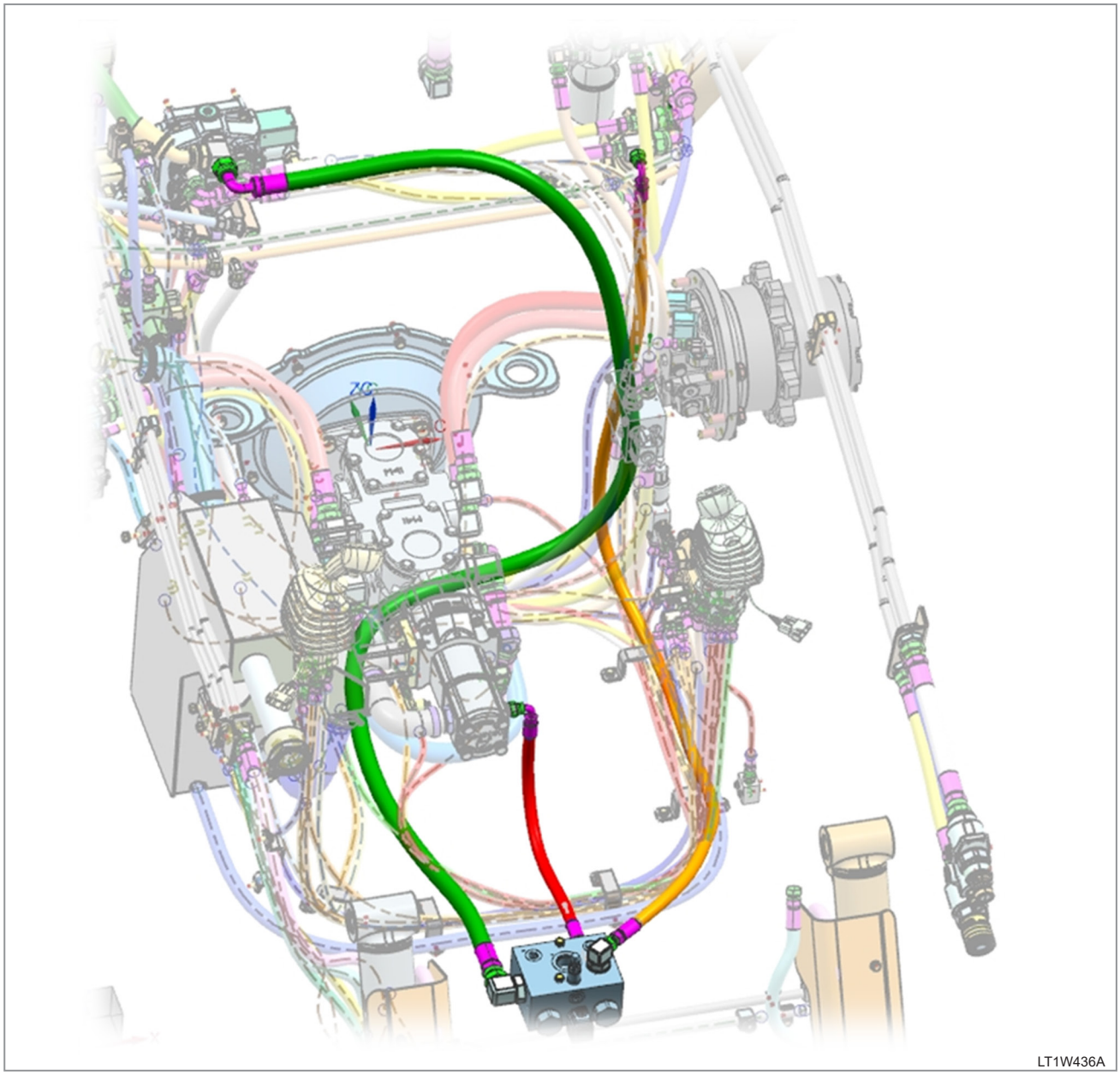
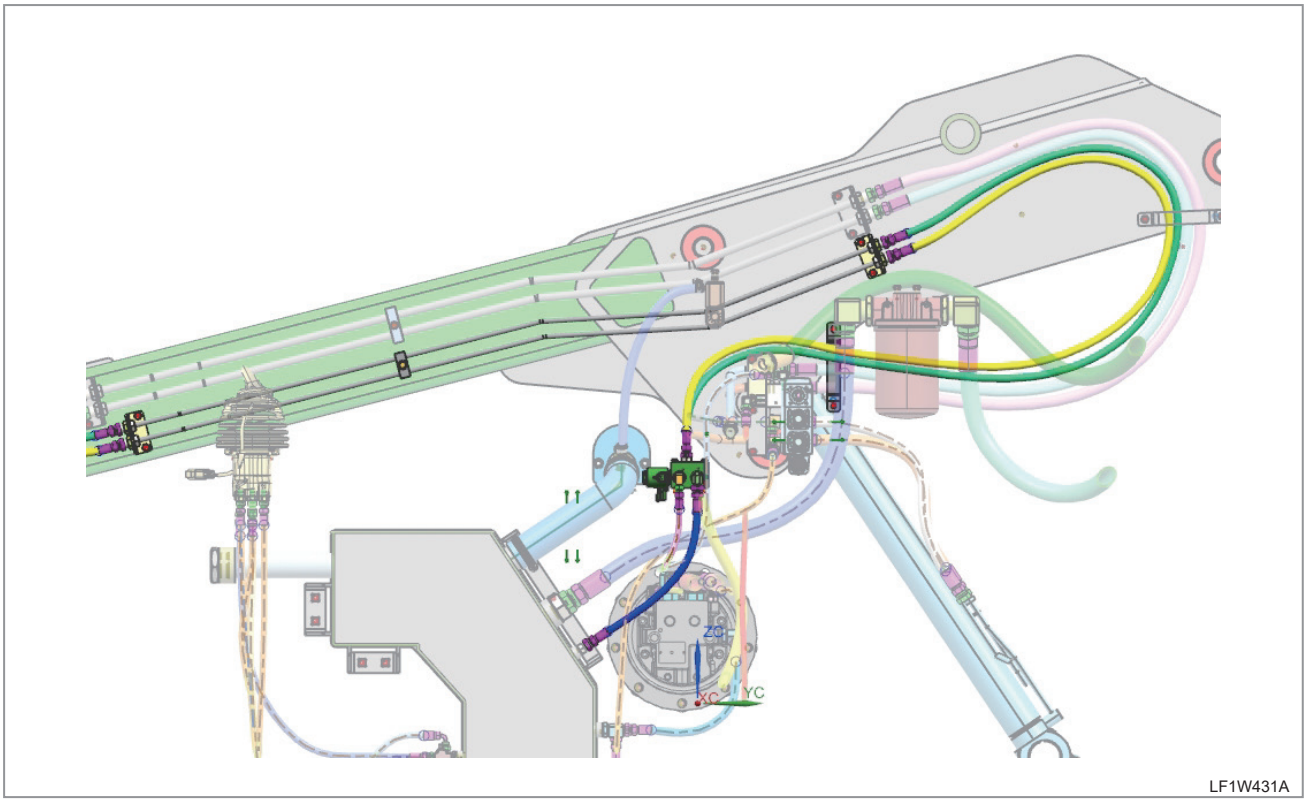
2.3.8 HIGH FLOW GROUP



2.3.9 QUICK ATTACHMENT CYLINDER GROUP



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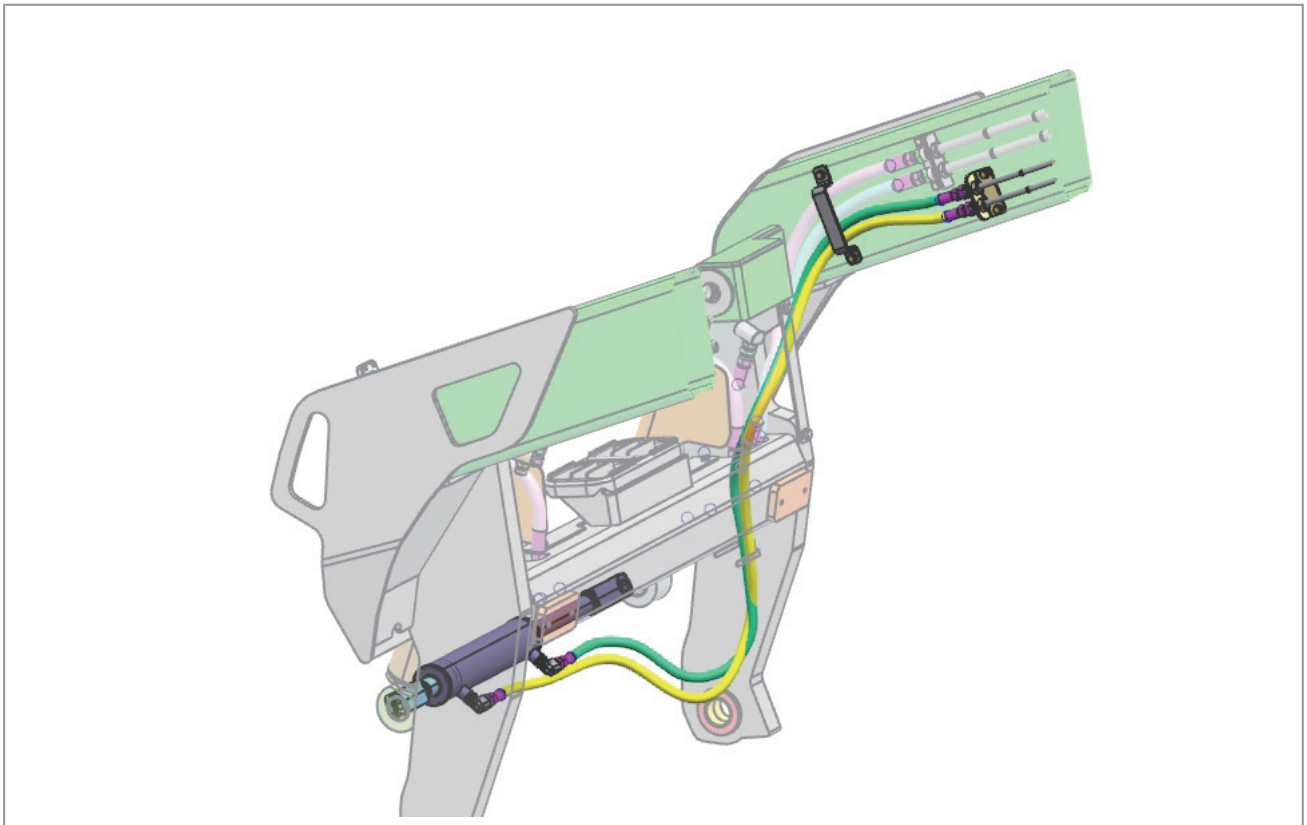

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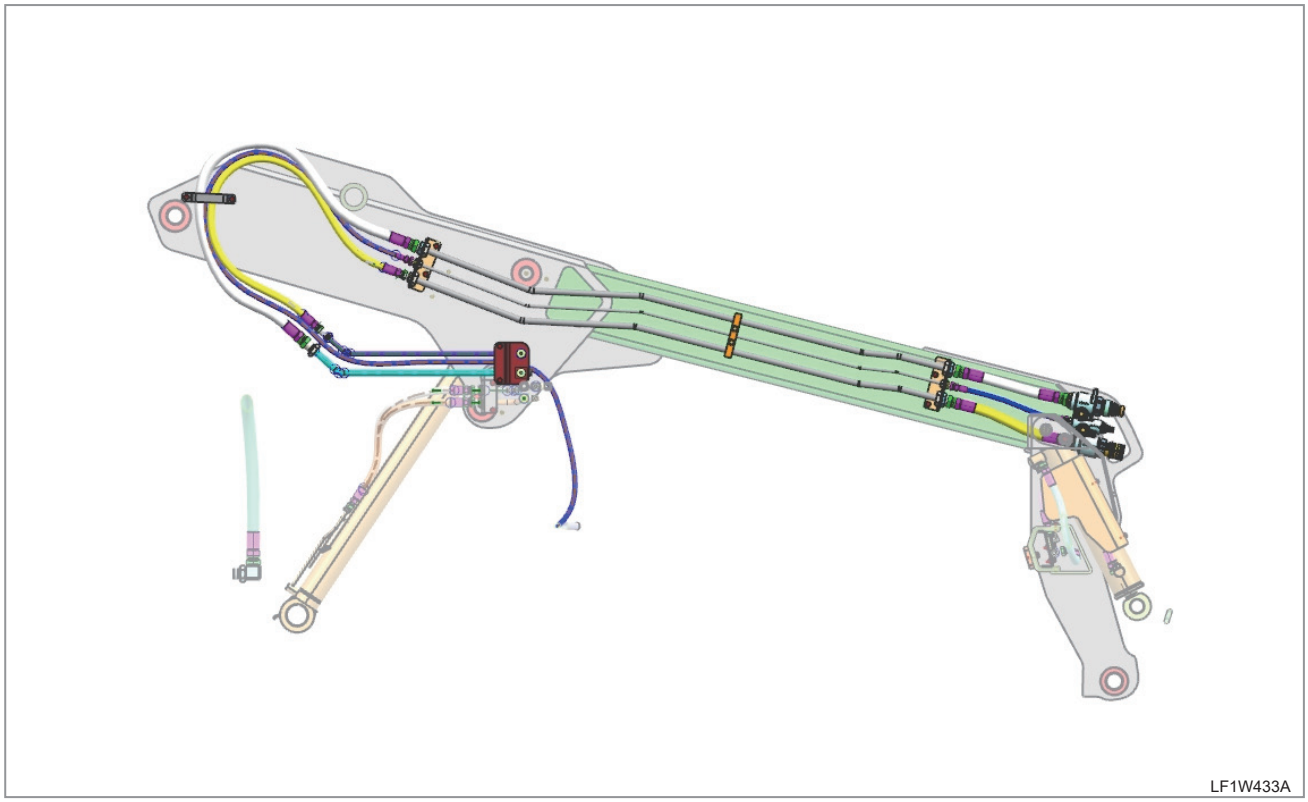
2.3.10 EXTERNAL HYDRAULIC GROUP



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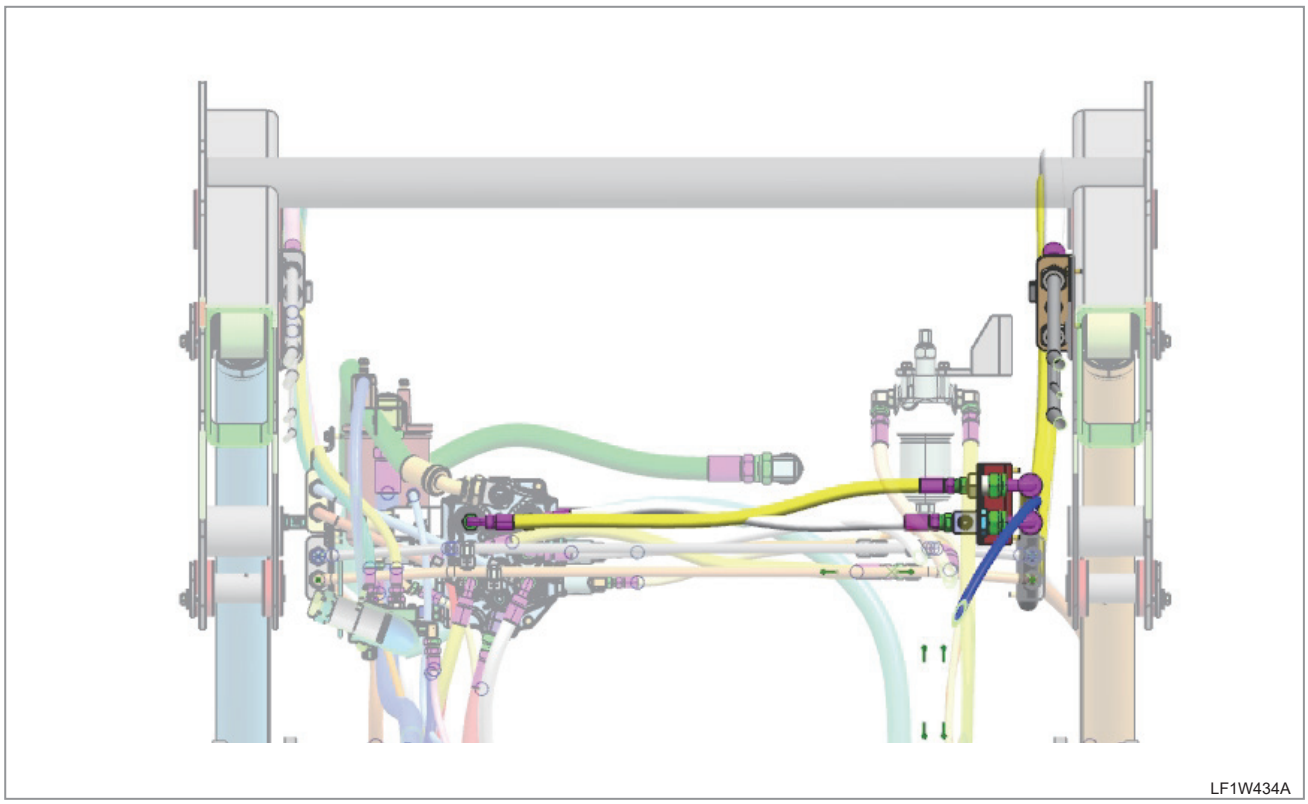

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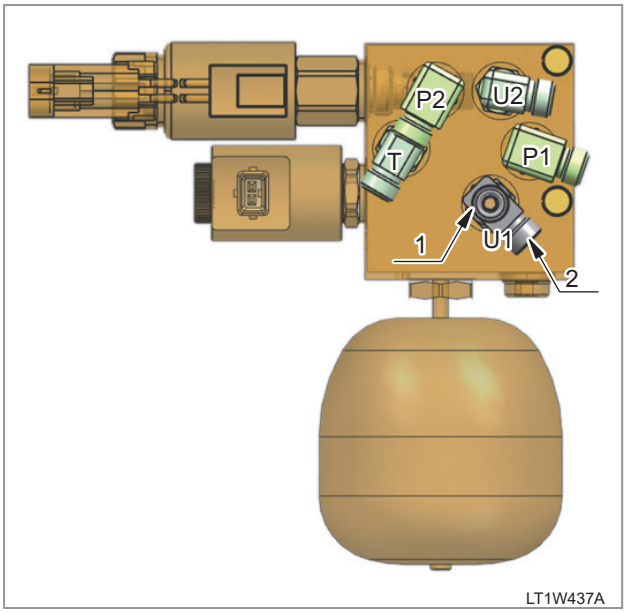
2.4 CONNECTING LINES FOR HYDRAULIC VALVES

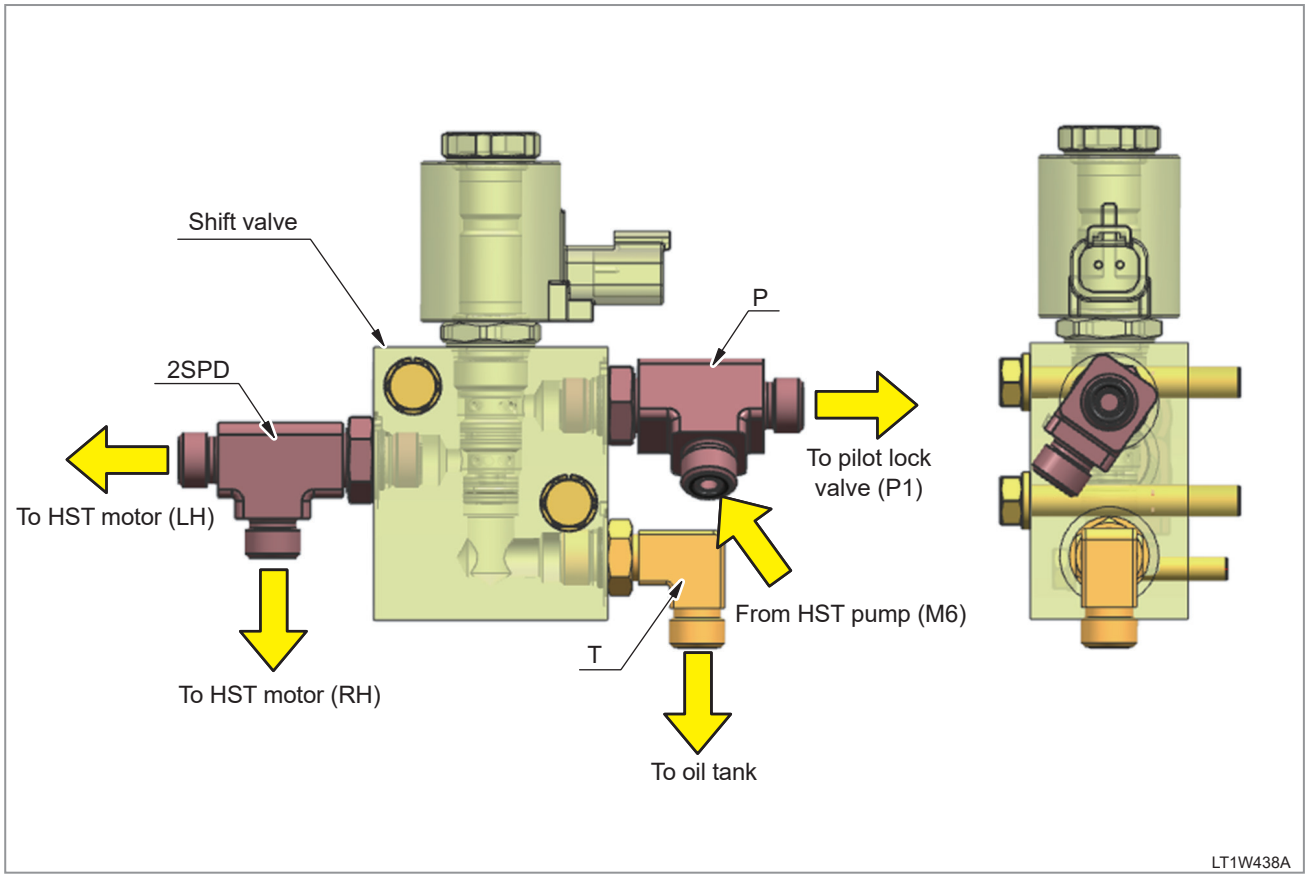
2.4.1 PILOT LOCK VALVE (LF13-0284)



(P1) (Working)
Thru shift valve elbow
(P2) To parking valve elbow (Driving)
(T) To oil tank
(U2) From RCV assembly-LH (Driving)
(U1) (fitting)
(1) To main control valve (V)
(2) To RCV assembly-RH (Working)

PORT	FITTING	HOSE
T	LF13-0029	LF13-0109
P2	LF13-0095	LF13-0342
U2	LF13-0029	LF13-0522
P1	LF13-0095	LF13-0339
U1	LF13-0445	LF13-0100 To MCV
		LF13-0060 To RCV

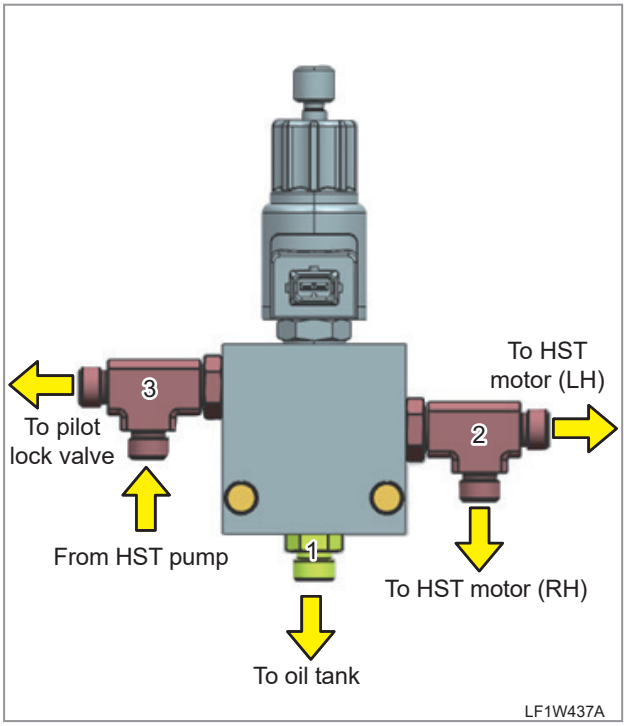
2.4.2 SHIFT VALVE (LF13-0286)



PORT	FITTING	HOSE
P	LF13-0092	LF13-0339, To pilot lock valve
		LF13-0340, To HST pump
T	LF13-0045	LF13-0467
2SPD	LF13-0092	LF13-0407, To HST motor-LH
		LF13-0408, To HST motor-RH

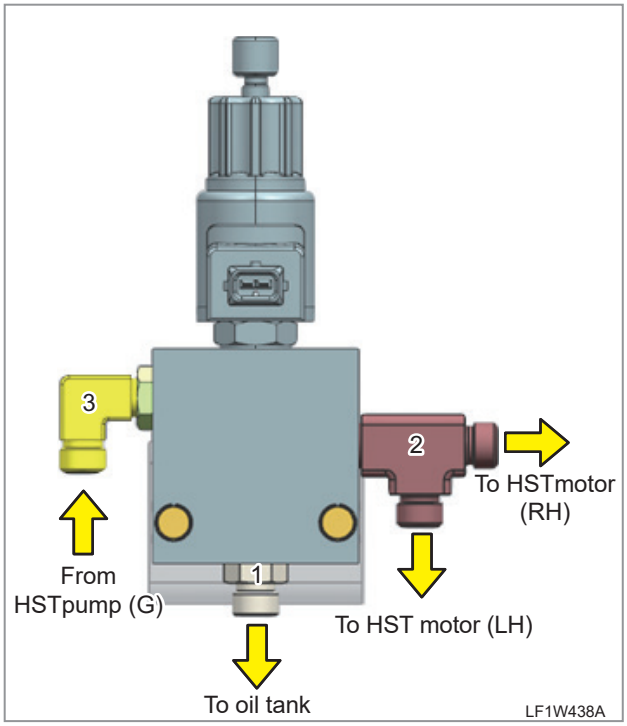
2.4.3 PARKING VALVE (LF13-0090)

CTL



PORT	FITTING	HOSE
1	LF13-0108	LF13-0338
2	LF13-0092	LF13-0337, To HST motor-LH
		LF13-0336, To HST motor-RH
3	LF13-0092	LF13-0342, To pilot lock valve
		LF13-0341, From HST pump

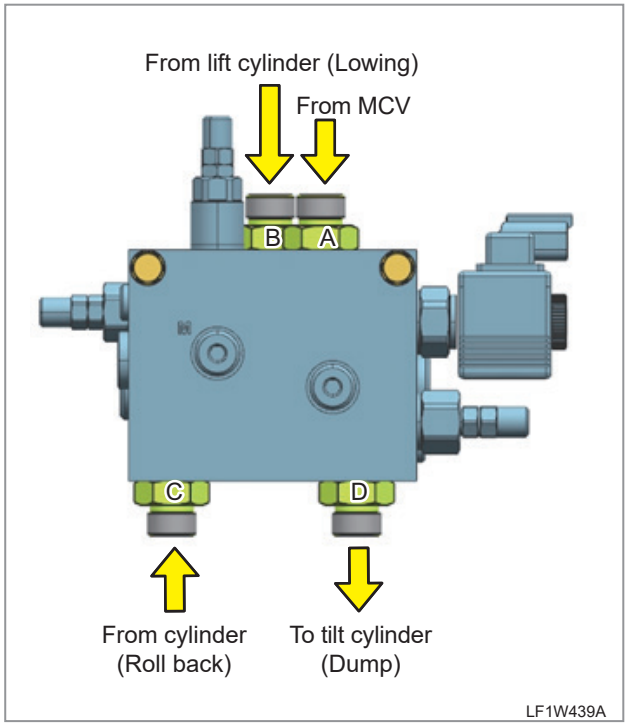
SSL



PORT	FITTING	HOSE
1	LF13-0376	LF13-0089
2	LF13-0092	LF13-0088, To HST motor-RH
		LF13-0087, To HST motor-LH
3	LF13-0045	LF13-0102

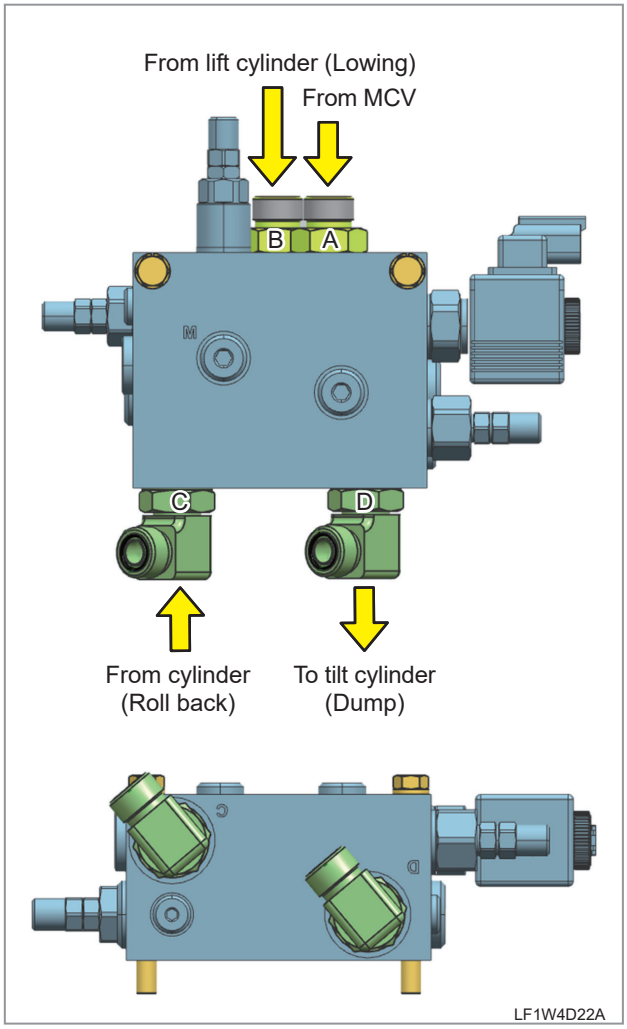
2.4.4 SELF LEVEL VALVE (LF13-0218)

CTL



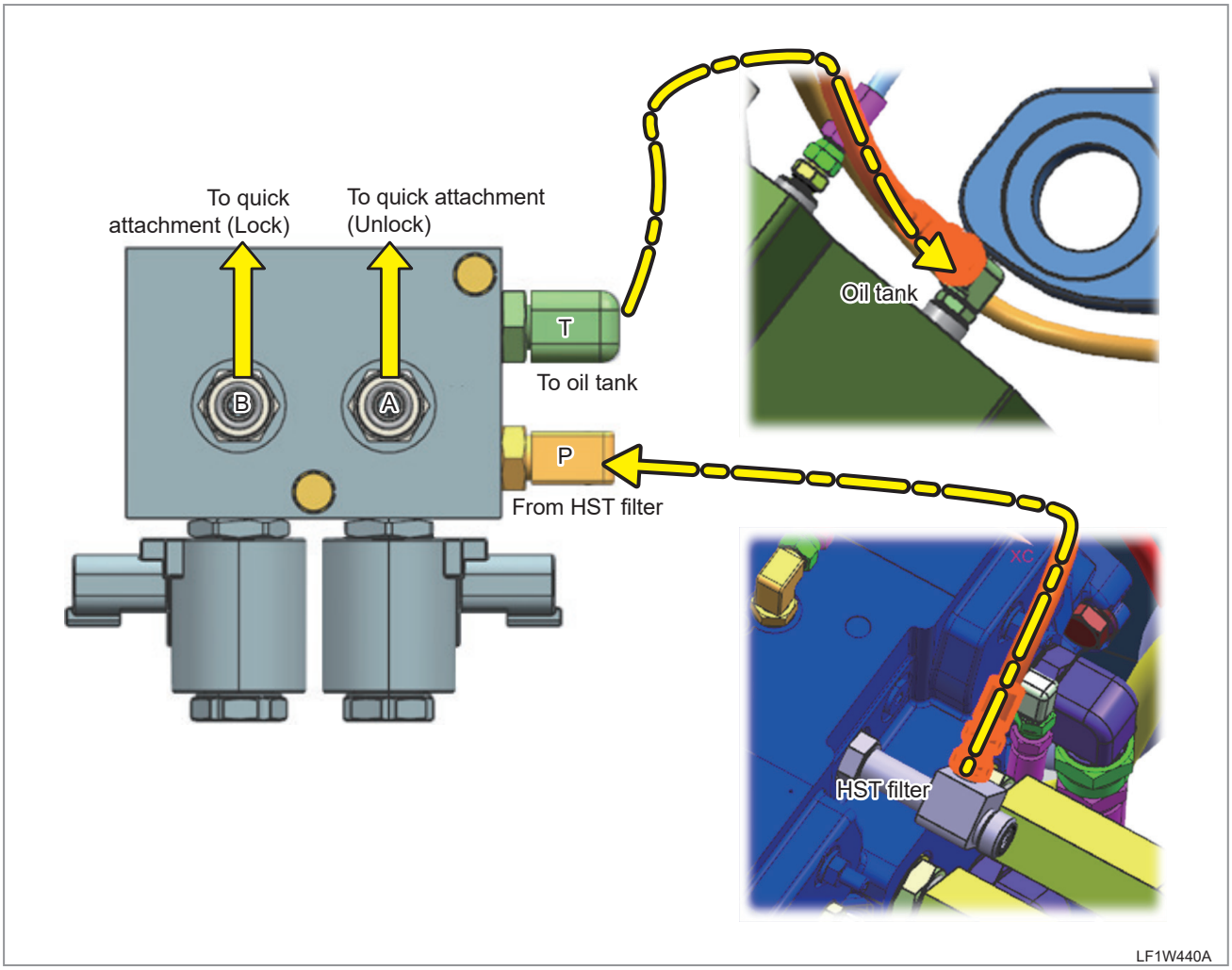
PORT	FITTING	HOSE
A	LF13-0141	LF13-0350
B	LF13-0141	LF13-0351
C	LF13-0141	LF13-0353
D	LF13-0141	LF13-0352

SSL



PORT	FITTING	HOSE
A	LF13-0141	LF13-0350
B	LF13-0141	LF13-0351
C	LF13-0276	LF13-0556
D	LF13-0276	LF13-0570

2.4.5 QUICK ATTACHMENT VALVE (LF13-0307)



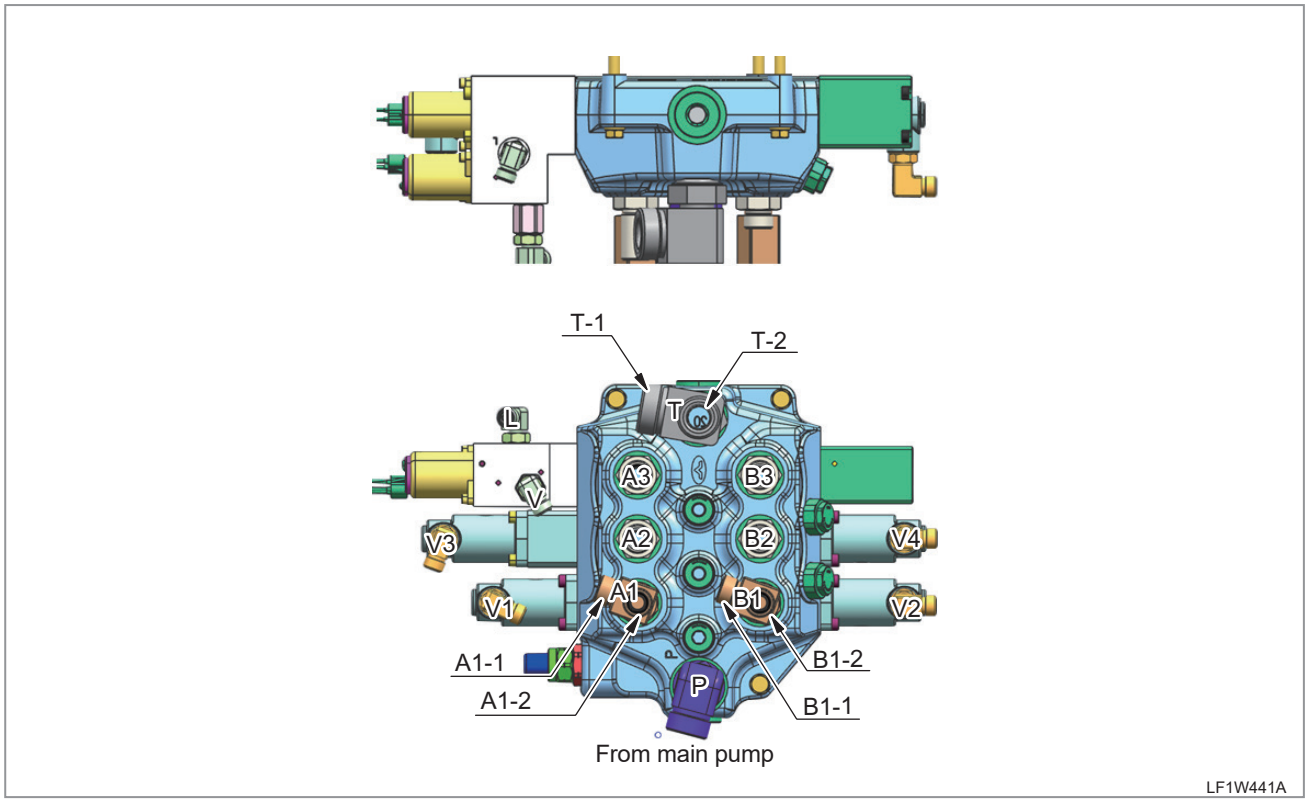
CTL

PORT	FITTING	HOSE
A	LF13-0374	LF13-0370, To LF13-0373 hydraulic tube
B	LF13-0374	LF13-0371, To LF13-0372 hydraulic tube
P	LF13-0045	LF13-0375, To HST pump
T	LF13-0426	LF13-0377, To hydraulic oil tank

SSL

PORT	FITTING	HOSE
A	LF13-0374	LF13-0370, To LF13-0373 hydraulic tube
B	LF13-0374	LF13-0371, To LF13-0372 hydraulic tube
P	LF13-0045	LF13-0375, To HST pump
T	LF13-0426	LF13-0463, To hydraulic oil tank

2.4.6 MAIN CONTROL VALVE (LF13-0028)

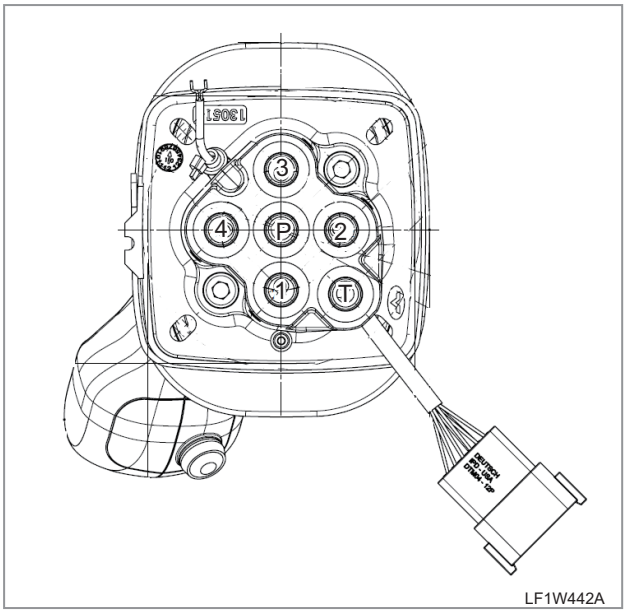


(L) To oil tank
(V) From pilot lock valve U1
(V3) From RCV (Boom up)
(V1) From RCV (Roll back)
(V4) From RCV (Boom down)
(V2) From RCV (Dump)

(A1) To tilt cylinder (Roll back)
(A2) To lift cylinder (Lift)
(A3) To external hydraulic (Female)
(B1) To tilt cylinder (Dump)
(B2) To self level (A)
(B3) To external hydraulic (Male)

PORT	FITTING	HOSE		PORT	FITTING	HOSE (TUBE)	
		CTL	SSL			CTL	SSL
L	LF13-0029	0567	0556	A1	0358	0505 To tilt (A1-1)	
						0353 From self level (A1-2)	0556 From self level (A1-2)
V	0029	0551	0551	A2	0324	0303	
V1	0045	0069	0558	A3	0356	0392	0558 FROM RCV-RH 4번
V2	0045	0062	0560	B1	0358	0507 to tilt (B1-1)	
						0352 From self level (B1-2)	0570 From self level (B1-2)
V3	0045	0068	0559	B2	0324	0350	
V4	0045	0067	0561	B3	0324	0394	
P	0428	0553	0553	T	0440	0158 to oil cooler (T-1)	0158 to oil cooler (T-1)
						0448 From high flow (T-2)	0562 From high flow (T-2)

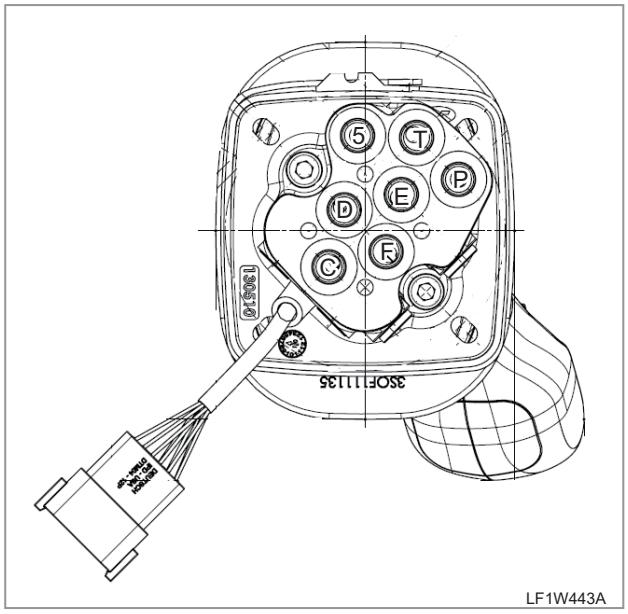
2.4.7 RCV ASSEMBLY (RH) (LF13-0056)



LF1W442A

PORT	LINE	FITTING	HOSE	
			CTL	SSL
1	MCV (Boom down)	Short LF13-0070	LF13-0067	LF13-0561
2	MCV (Dump)	Short LF13-0070	LF13-0062	LF13-0560
3	MCV (Boom up)	Short LF13-0070	LF13-0068	LF13-0559
4	MCV (Roll back)	Short LF13-0070	LF13-0069	LF13-0558
P	Pilot lock valve	Long LF13-0057	LF13-0060	LF13-0557
T	Oil tank	Long LF13-0057	LF13-0053	LF13-0566

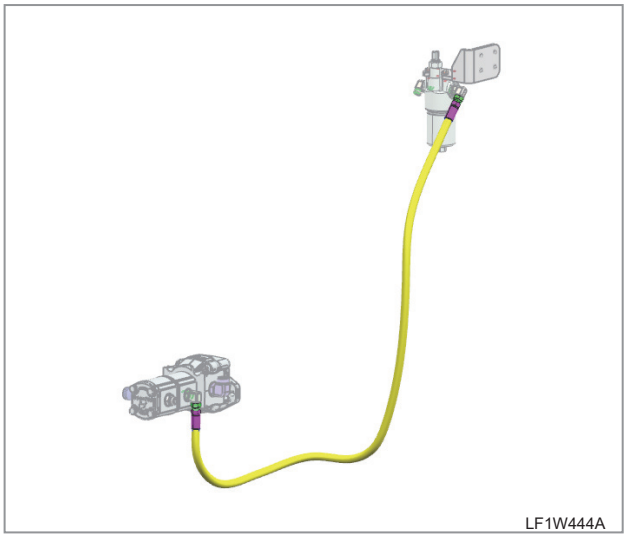
2.4.8 RCV ASSEMBLY (LH) (LF13-0055)



PORT	LINE	FITTING	HOSE	
			CTL	SSL
5	Hydraulic block	Short LF13-0070	LF13-0331	LF13-0058
C	HST pump (Forward-RH)	Short LF13-0070	LF13-0329	LF13-0063
D	HST pump (Reverse-LH)	Long LF13-0057	LF13-0327	LF13-0064
E	HST pump (Reverse-RH)	Long LF13-0057	LF13-0328	LF13-0066
F	HST pump (Forward-LH)	Short LF13-0070	LF13-0330	LF13-0065
P	Pilot lock valve	Short LF13-0070	LF13-0522	LF13-0061
T	Oil tank	Long LF13-0057	LF13-0052	LF13-0565

2.5 HOSE CONNECTING LINES FOR A DRIVING SYSTEM AND CIRCULATION SYSTEM

2.5.1 HYDRAULIC HOSE (LF13-0022A)



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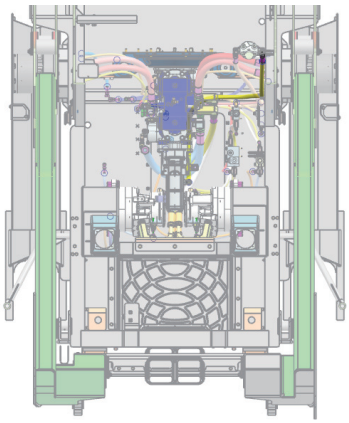
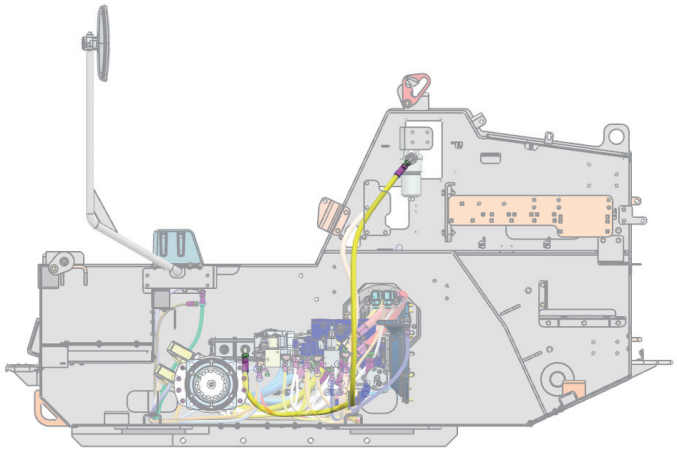
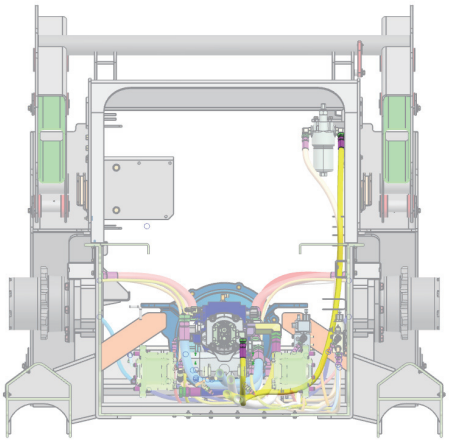
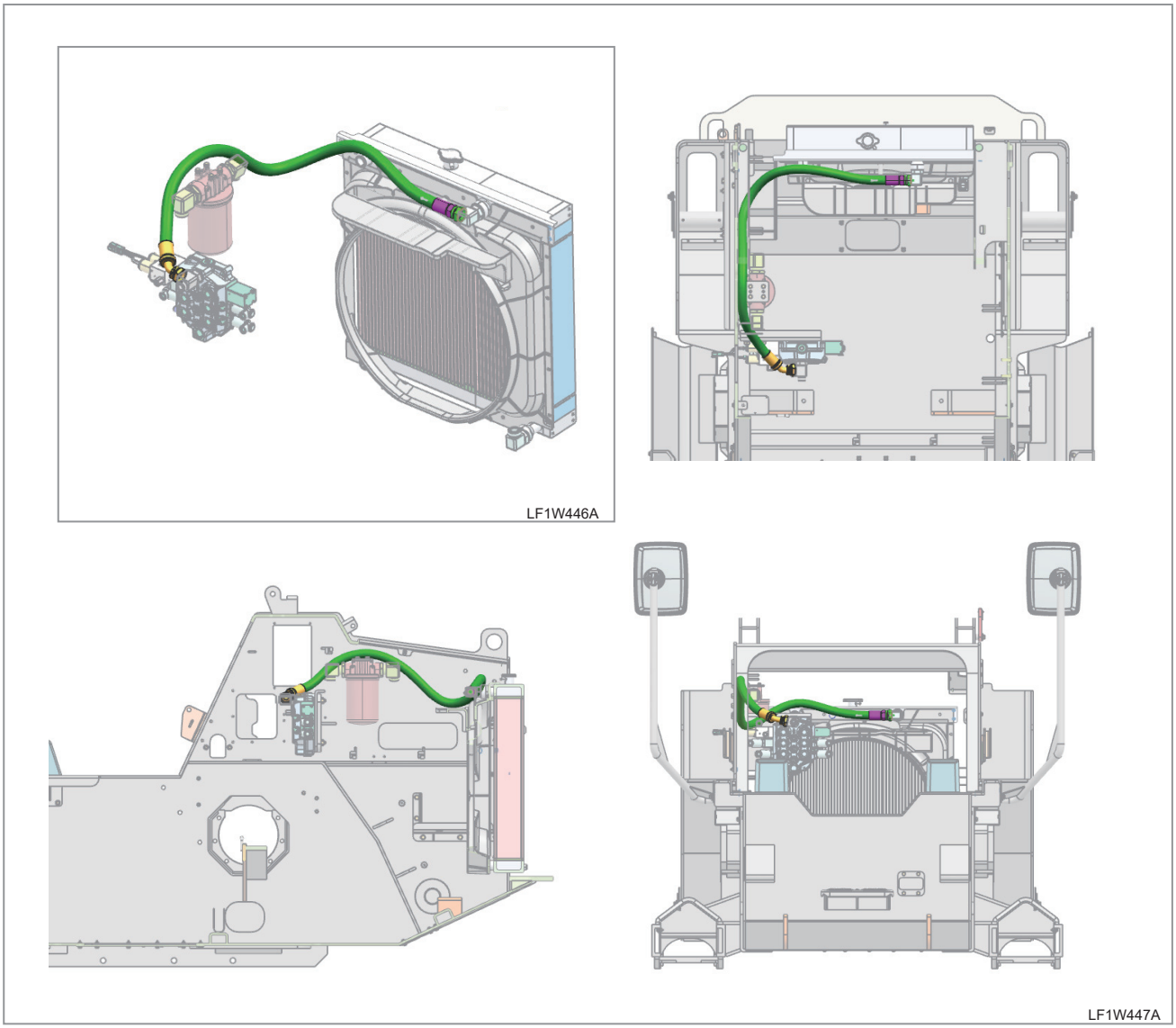




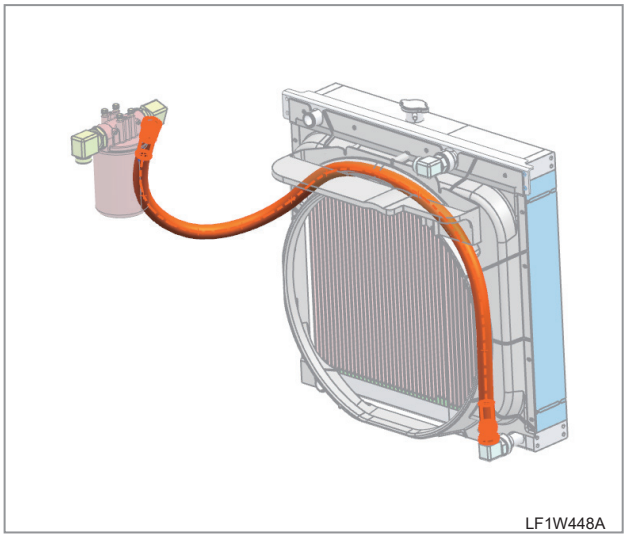


LF1W445A

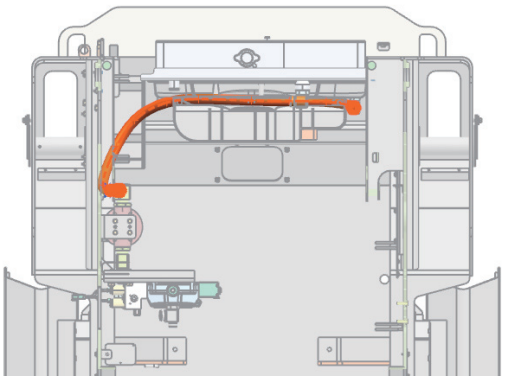
2.5.2 HYDRAULIC HOSE (LF13-0158A)

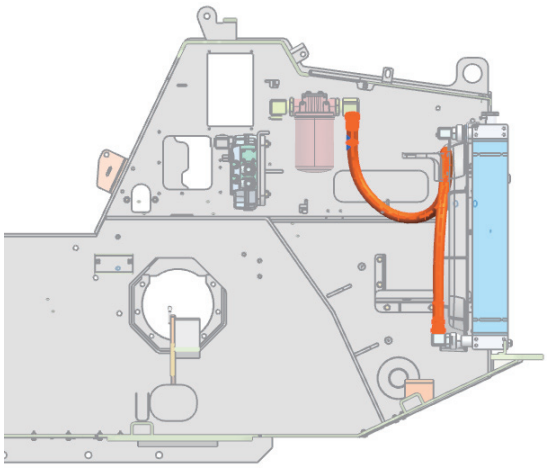


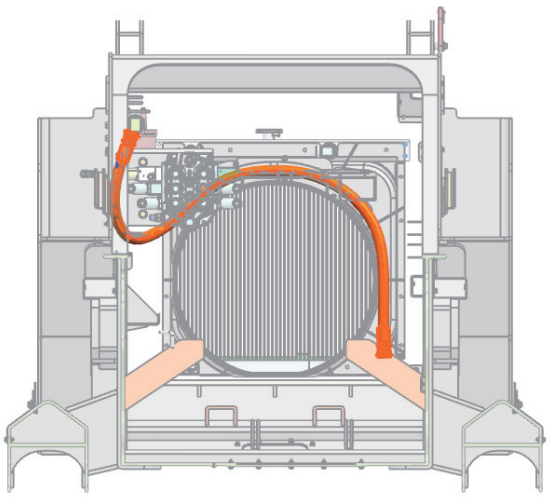
2.5.3 HYDRAULIC HOSE (LF13-0160A)



LF1W448A

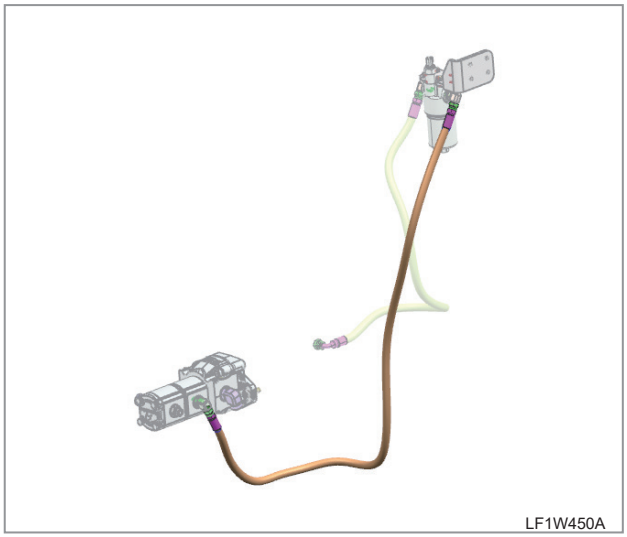






LF1W449A

2.5.4 HYDRAULIC HOSE (LF13-0323A)



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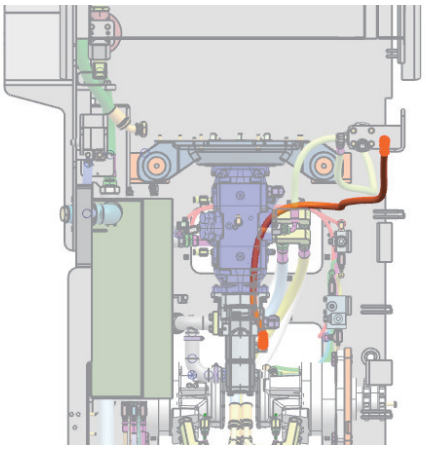
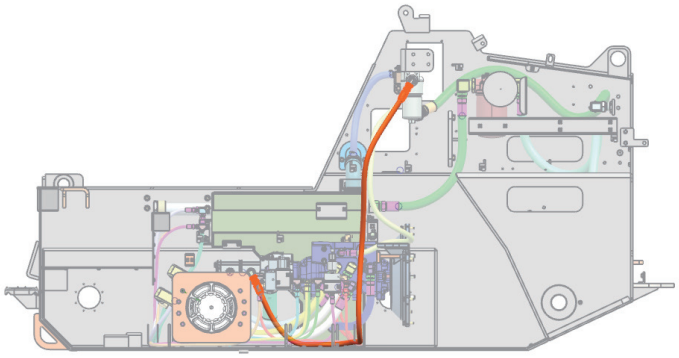
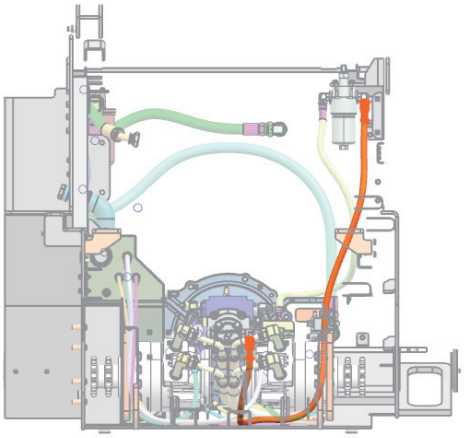
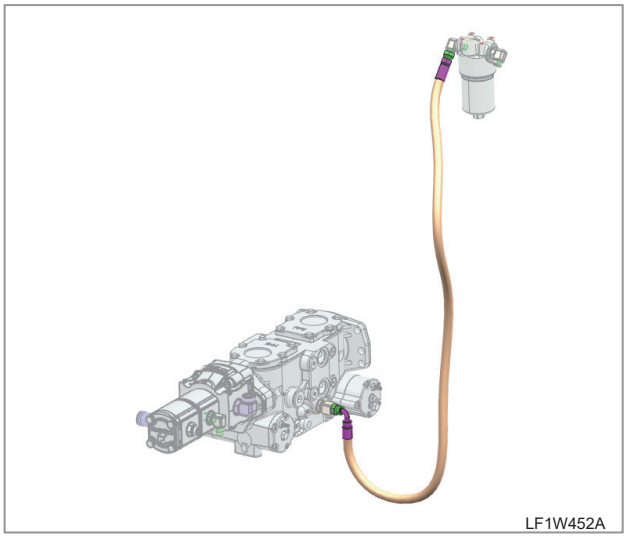


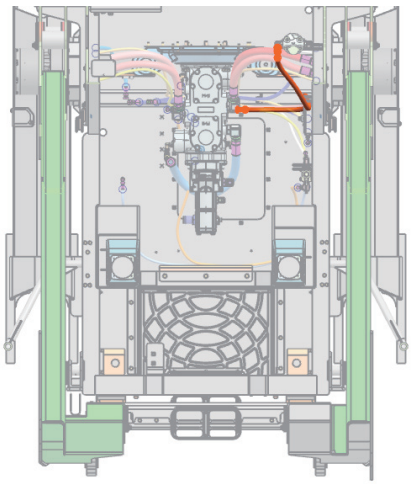


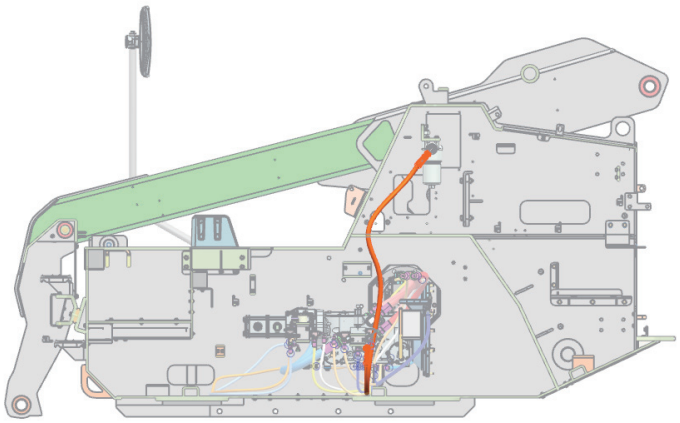


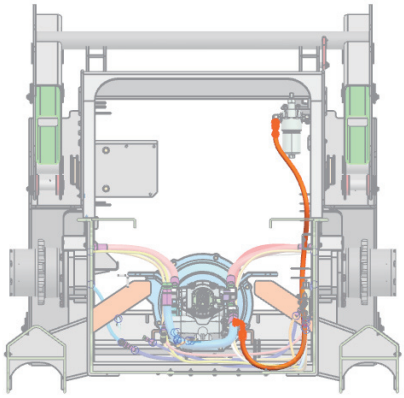
LF1W451A

2.5.5 HYDRAULIC HOSE (LF13-0325A)


LF1W452A

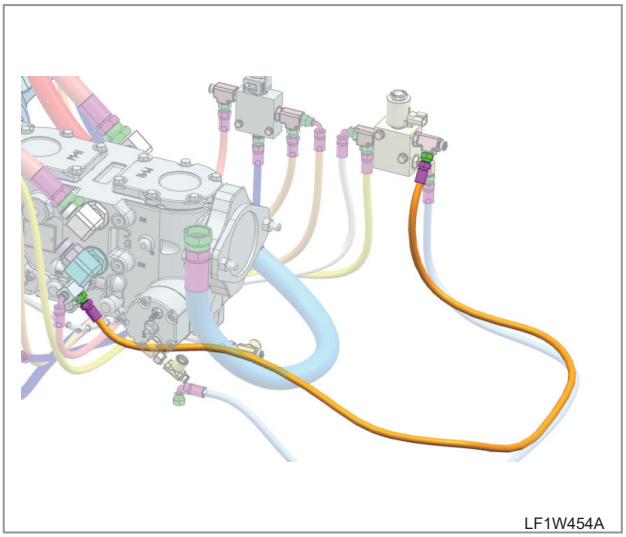






LF1W453A

2.5.6 HYDRAULIC HOSE (LF13-0340A)



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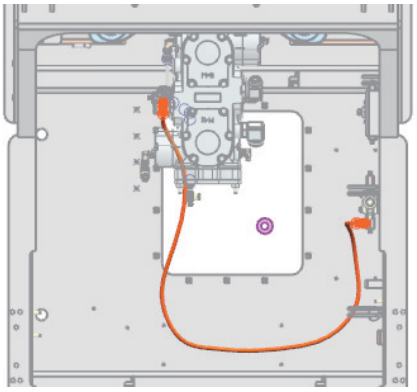
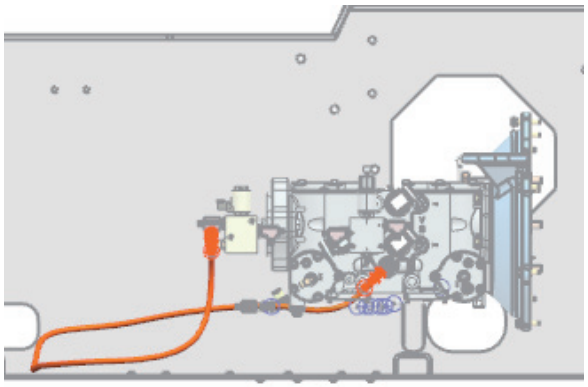
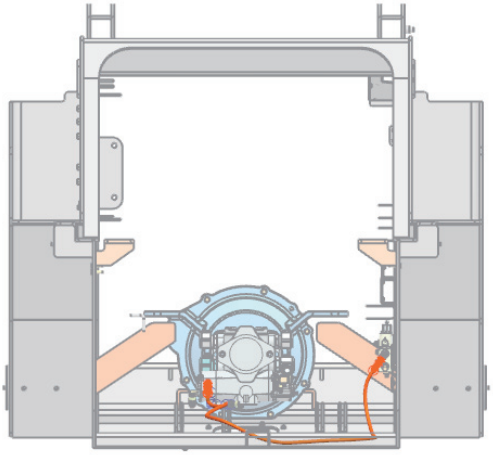
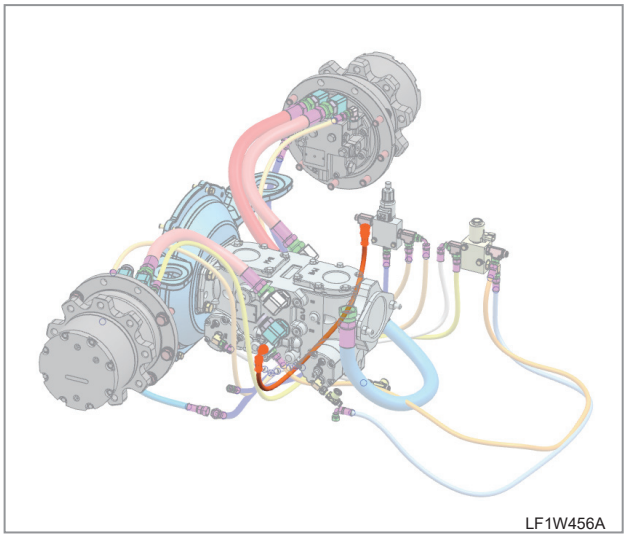






LF1W455A

2.5.7 HYDRAULIC HOSE (LF13-0341A)



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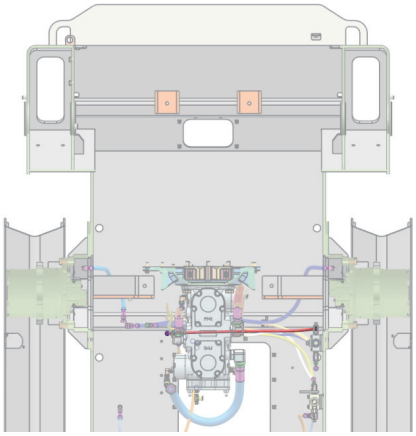
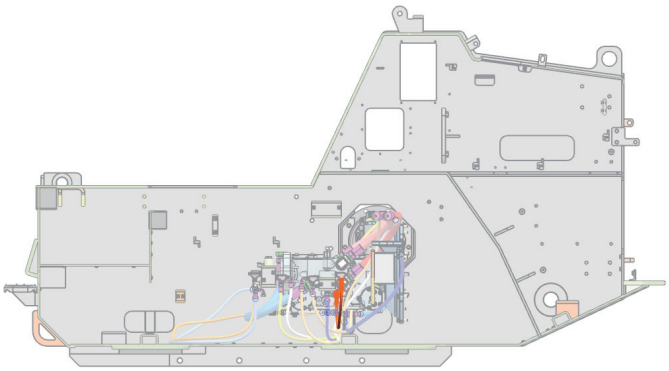
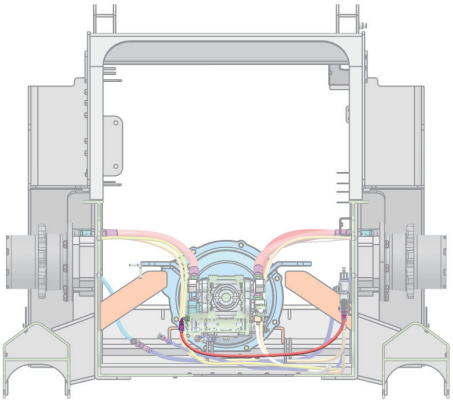
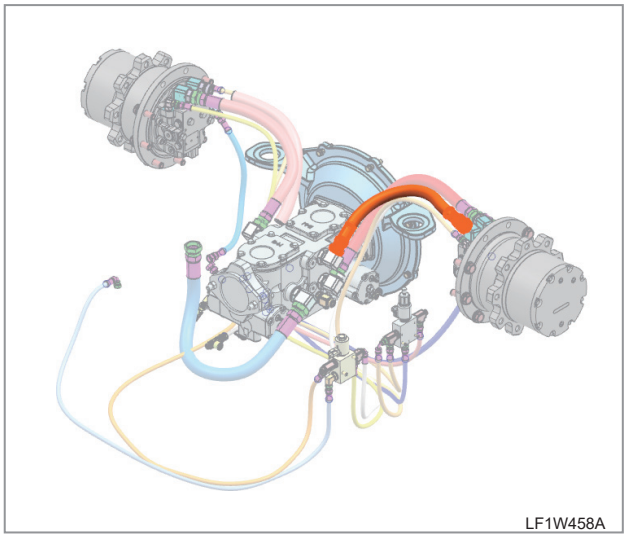






LF1W457A

2.5.8 HYDRAULIC HOSE (LF13-0402A)



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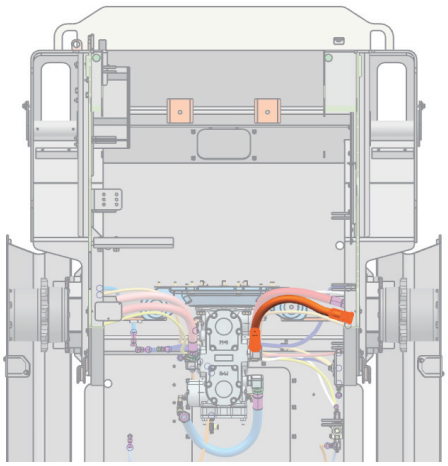
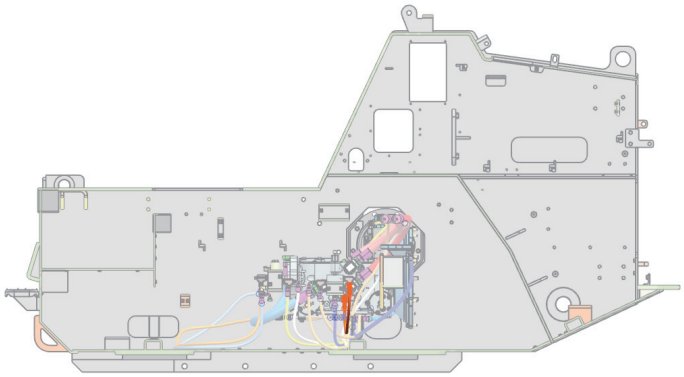
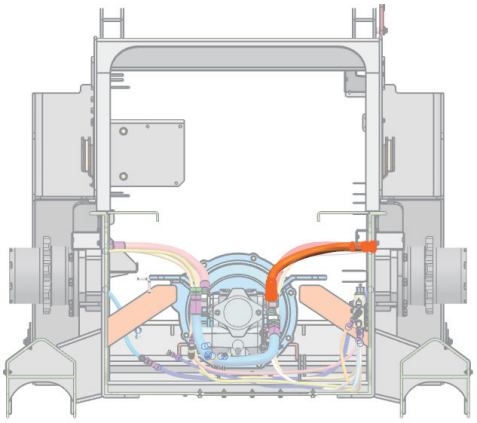
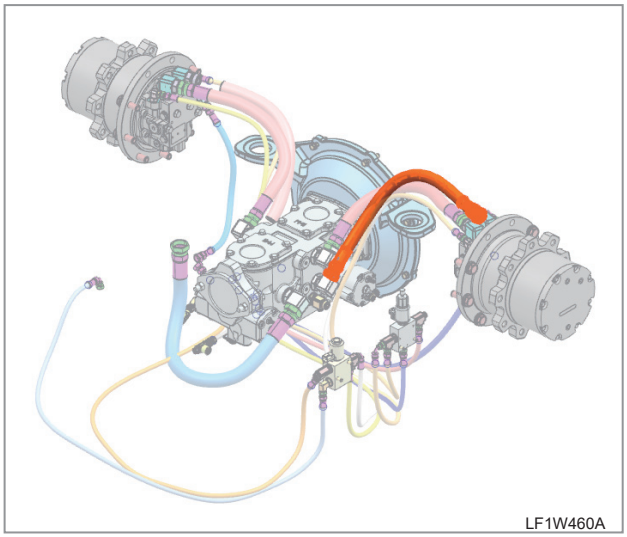






LF1W459A

2.5.9 HYDRAULIC HOSE (LF13-0403A)



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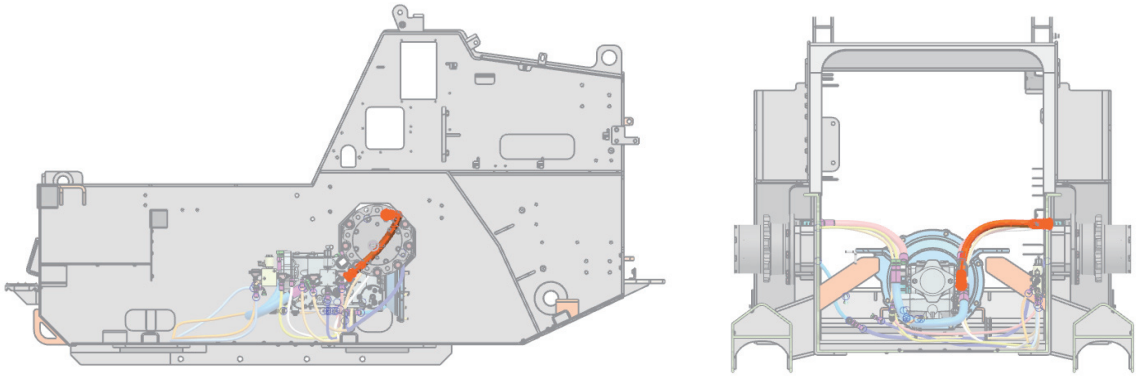
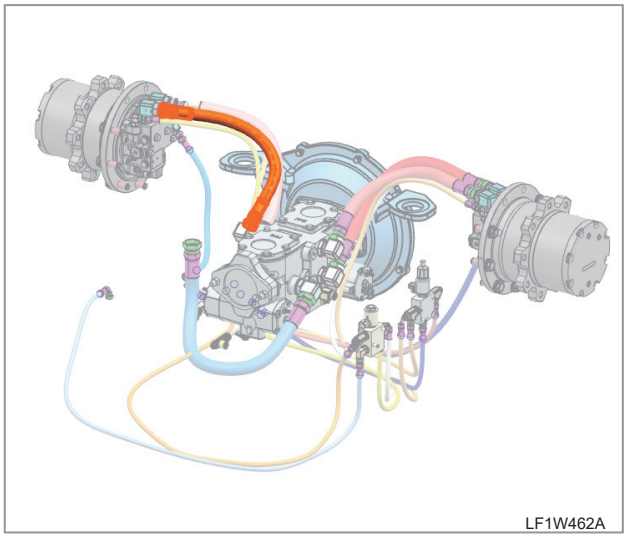


LF1W461A

2.5.10 HYDRAULIC HOSE (LF13-0404A)



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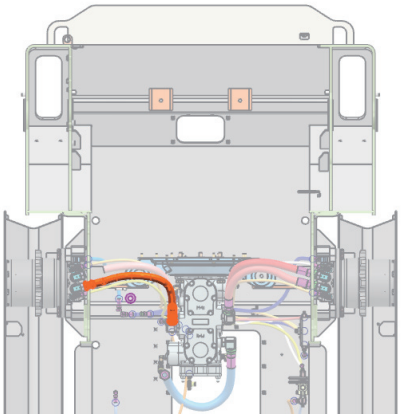
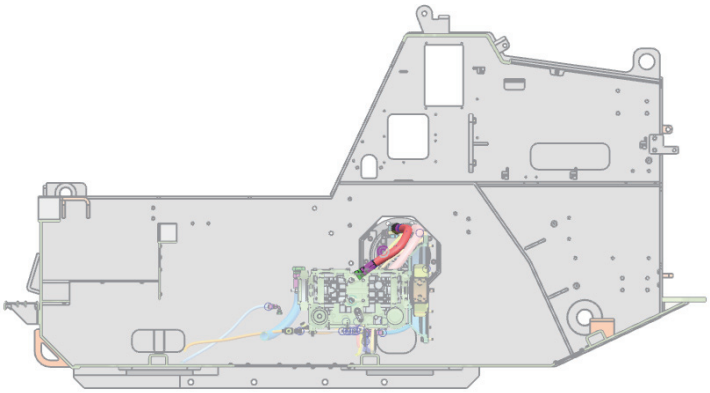
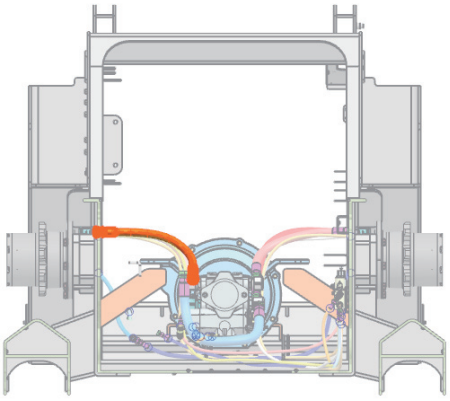
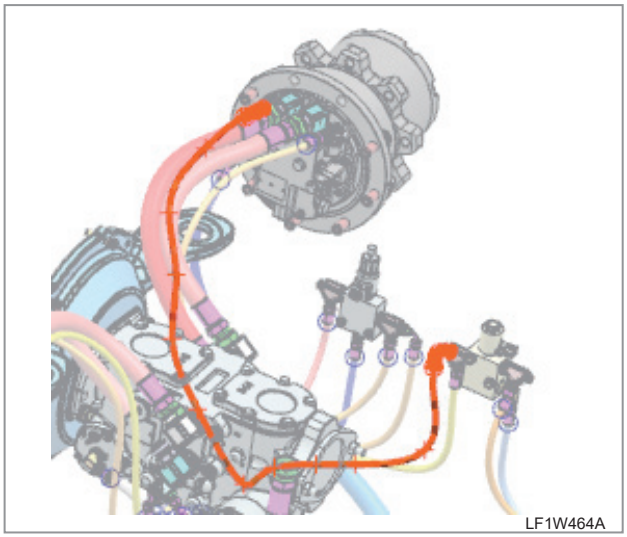






LF1W463A

2.5.11 HYDRAULIC HOSE (LF13-0407A)



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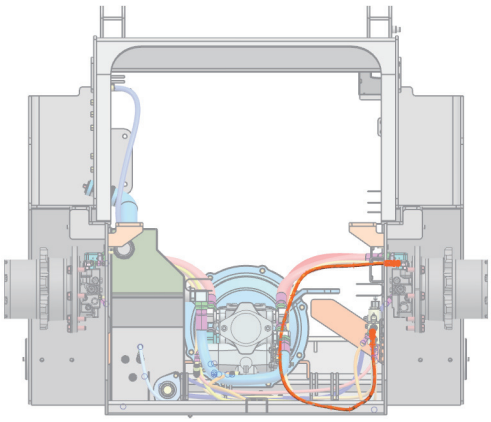
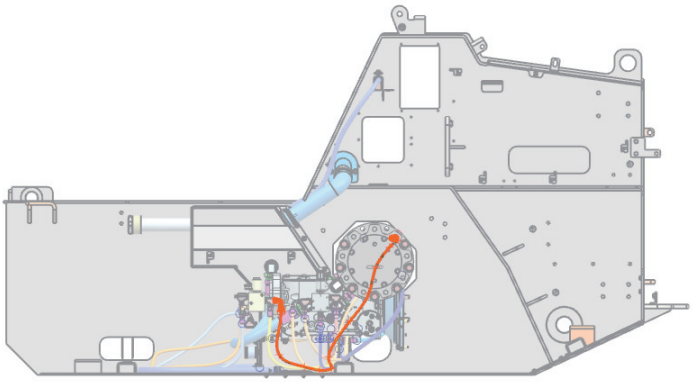
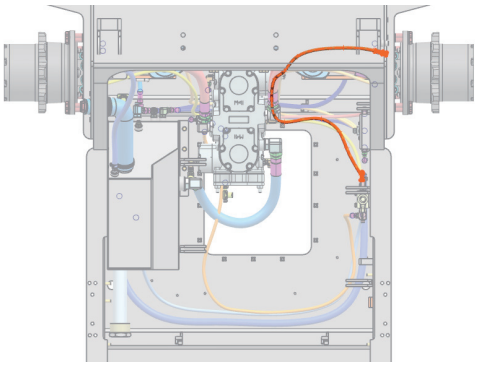
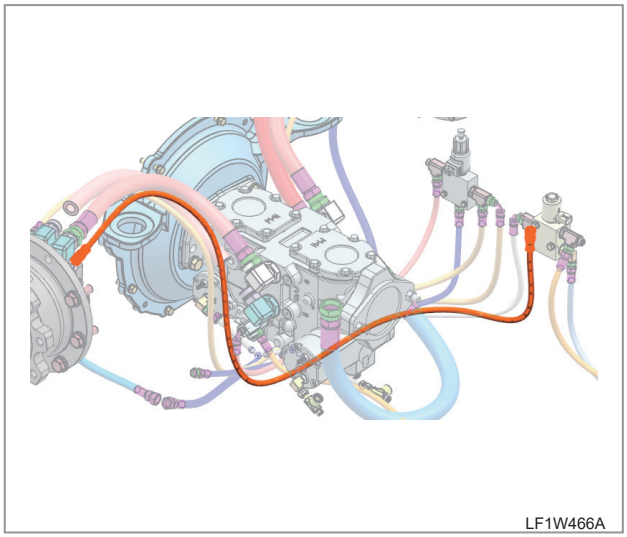




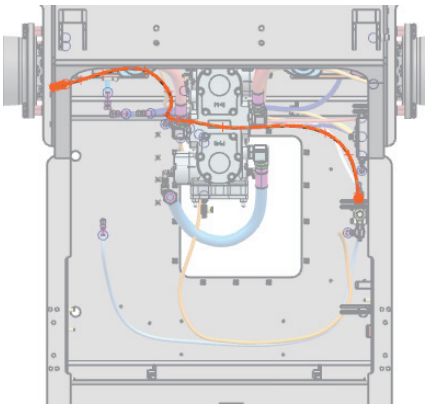


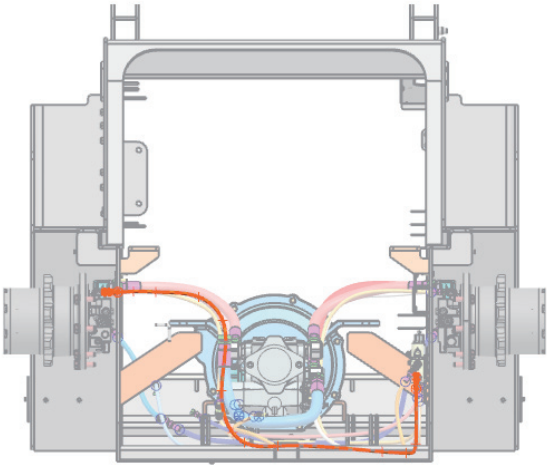
LF1W465A

2.5.12 HYDRAULIC HOSE (LF13-0408A)



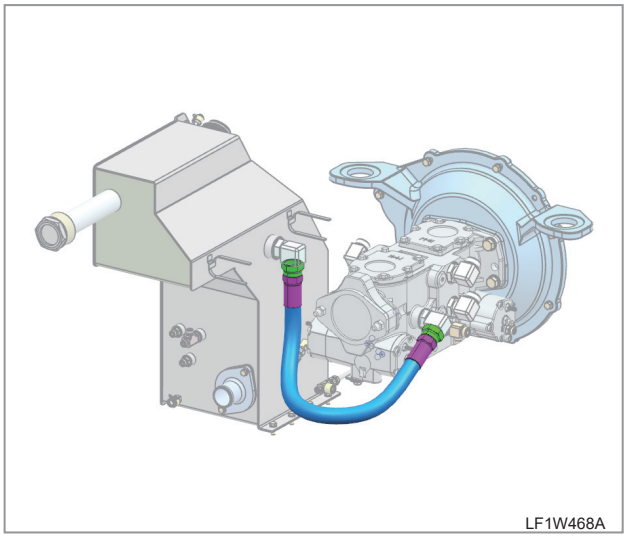
LF1W466A





LF1W467A

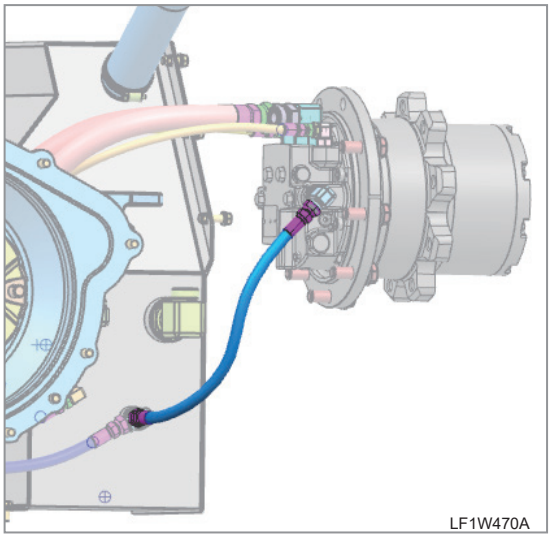
2.5.13 HYDRAULIC HOSE (LF13-0412A)

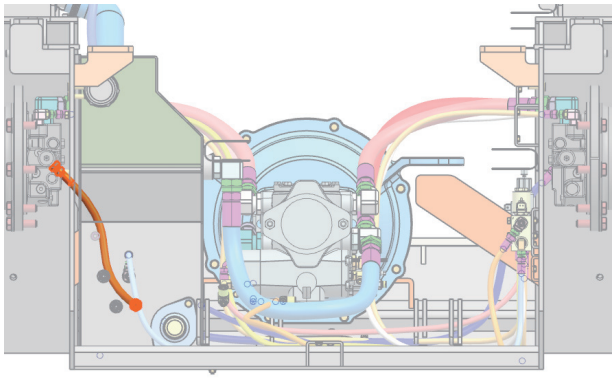


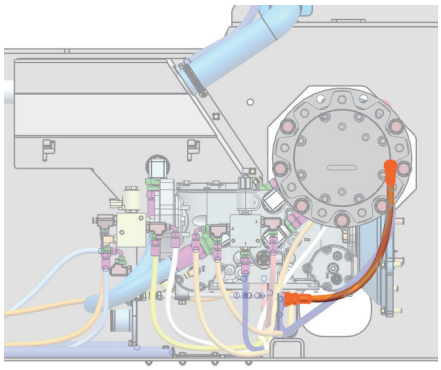
LF1W468A

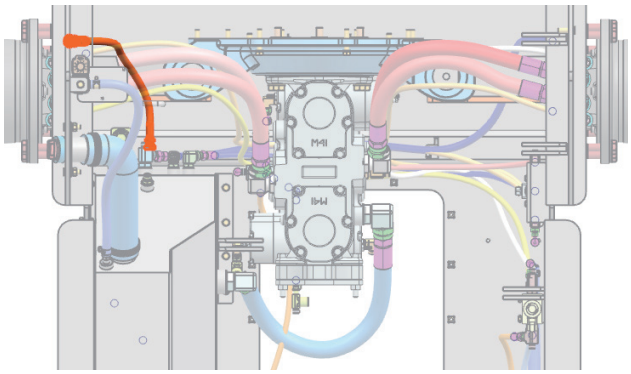
LF1W469A

2.5.14 HYDRAULIC HOSE (LF13-0414A)


LF1W470A

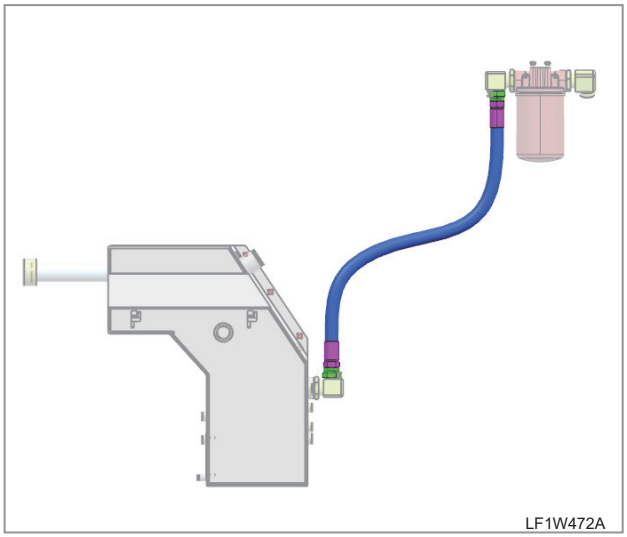




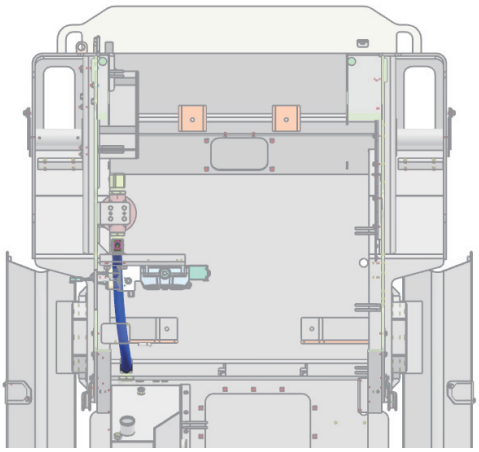


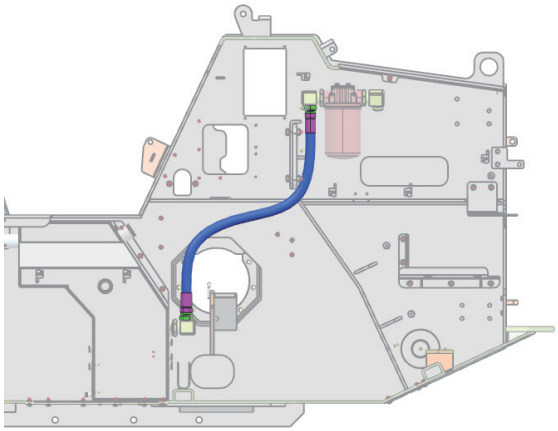
LF1W471A

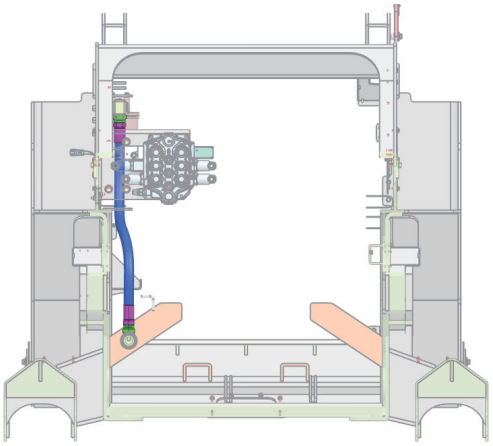
2.5.15 HYDRAULIC HOSE (LF13-0439A)



LF1W472A

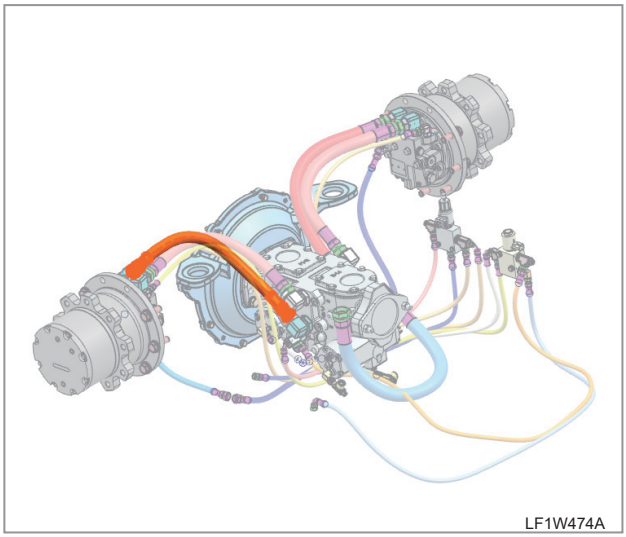






LF1W473A

2.5.16 HYDRAULIC HOSE (LF13-0576A)



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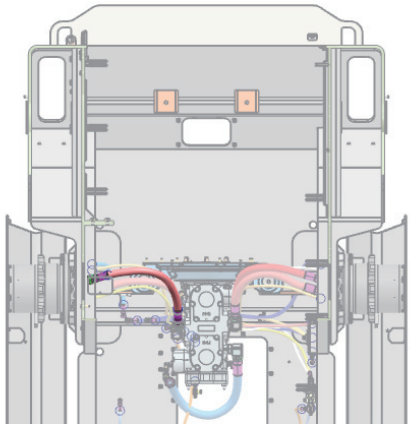
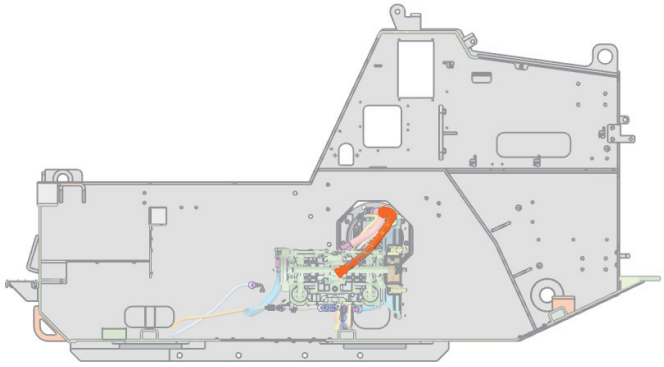
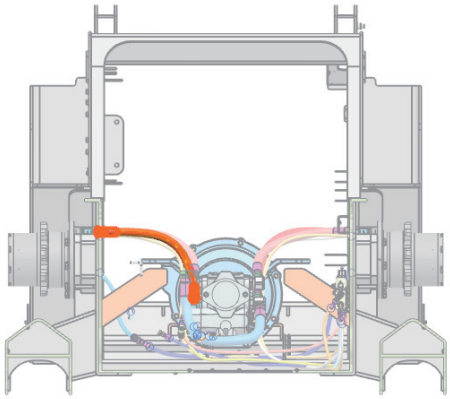


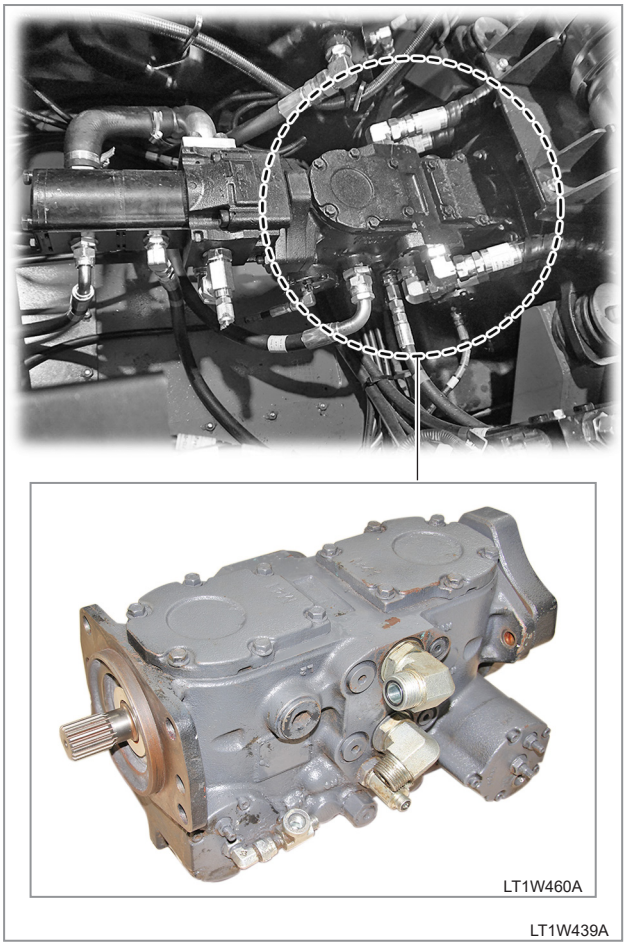




LF1W475A

3. MAIN COMPONENTS

3.1 HST PUMP (DRIVING PUMP)



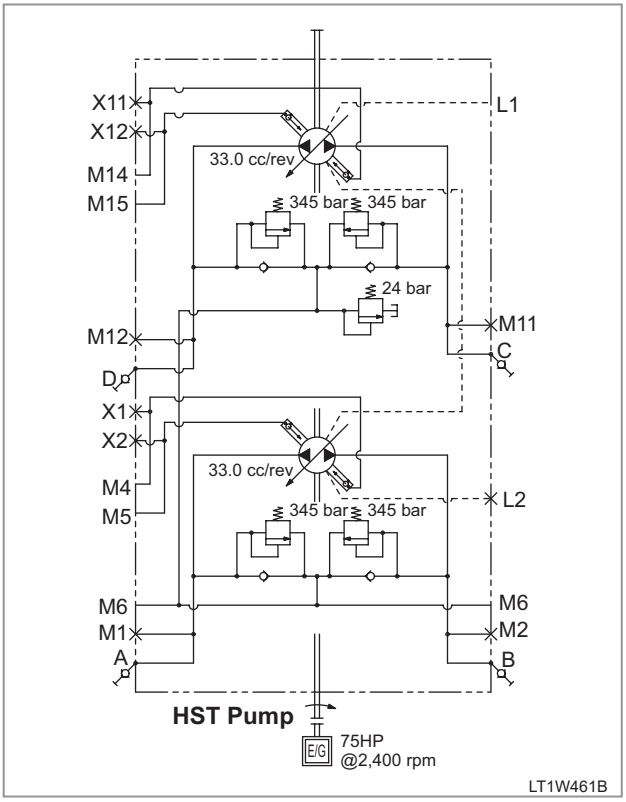
The HST pump is assembled with the engine flywheel with the coupling engagement so that the rotating power from the engine is directly delivered to the inside of the HST pump.

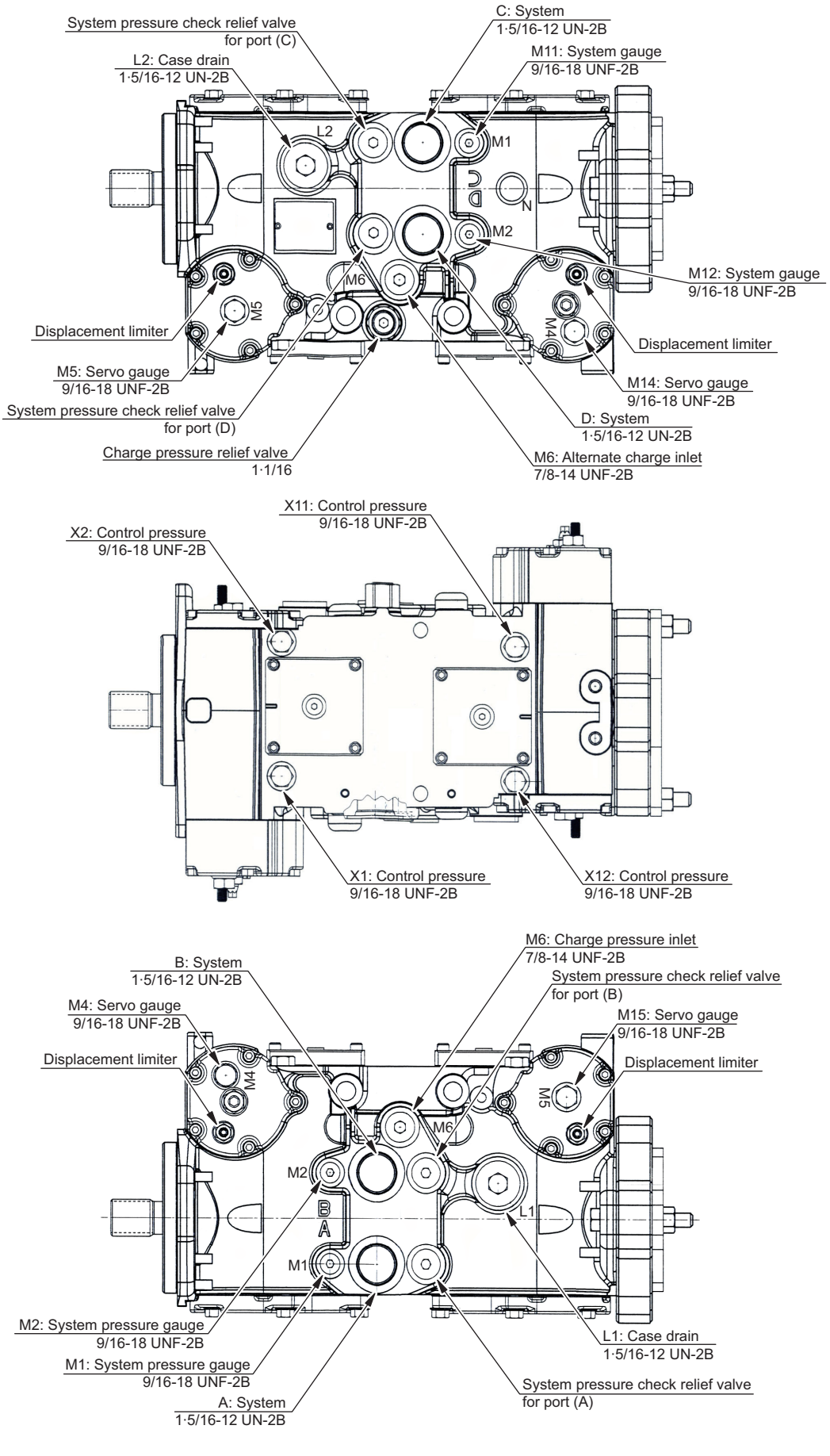
This HST pump is a hydraulic tandem piston pump which has three different types of gear pumps mounted on its inlet in a row. The HST pump is connected to the RCV (LH), being involved in controlling hydraulic flow for driving, and it also supplies hydraulic flow to the track motors (LH/RH) for forward/reverse driving of the vehicle.

SPECIFICATIONS

Type	Axial piston unit, Closed circuit, Double pump, Variable swash plate
Flow (at rated rpm)	59.4 ±0.4 L/min at 1,800 rpm
Rated pressure limit	35.0 MPa
Capacity	2 x 33.0 cm³/rev
Input shaft rotation direction	Clockwise
High pressure relief pressure	34.5 MPa at 3.8 ~ 5.6 lpm
Rated rpm limit	3,200 rpm (at Max. Capacity)
Charging relief setting pressure	2.4 ±0.07 MPa at 37.9 lpm

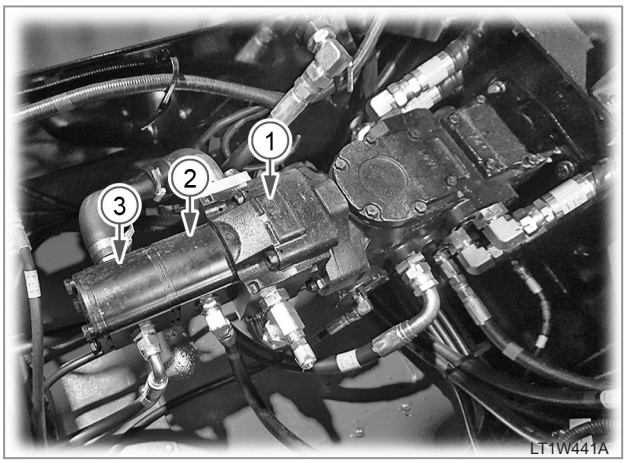
CIRCUIT DIAGRAM & EXTERIOR




System pressure check relief valve for port (C)
L2: Case drain 1·5/16-12 UN-2B
C: System 1·5/16-12 UN-2B
M11: System gauge 9/16-18 UNF-2B
L2
M1
N
M2
M12: System gauge 9/16-18 UNF-2B
M6
M5
M4
Displacement limiter
Displacement limiter
M5: Servo gauge 9/16-18 UNF-2B
M14: Servo gauge 9/16-18 UNF-2B
System pressure check relief valve for port (D)
D: System 1·5/16-12 UN-2B
Charge pressure relief valve 1·1/16
M6: Alternate charge inlet 7/8-14 UNF-2B
X11: Control pressure 9/16-18 UNF-2B
X2: Control pressure 9/16-18 UNF-2B
X1: Control pressure 9/16-18 UNF-2B
X12: Control pressure 9/16-18 UNF-2B
M6: Charge pressure inlet 7/8-14 UNF-2B
B: System 1·5/16-12 UN-2B
System pressure check relief valve for port (B)
M4: Servo gauge 9/16-18 UNF-2B
M15: Servo gauge 9/16-18 UNF-2B
Displacement limiter
Displacement limiter
M4
M5
M6
M2
B
A
L1
M1
M2: System pressure gauge 9/16-18 UNF-2B
L1: Case drain 1·5/16-12 UN-2B
M1: System pressure gauge 9/16-18 UNF-2B
System pressure check relief valve for port (A)
A: System 1·5/16-12 UN-2B

LT1W440B

3.2 GEAR PUMP (MAIN+CHARGE+HIGH FLOW PUMP)

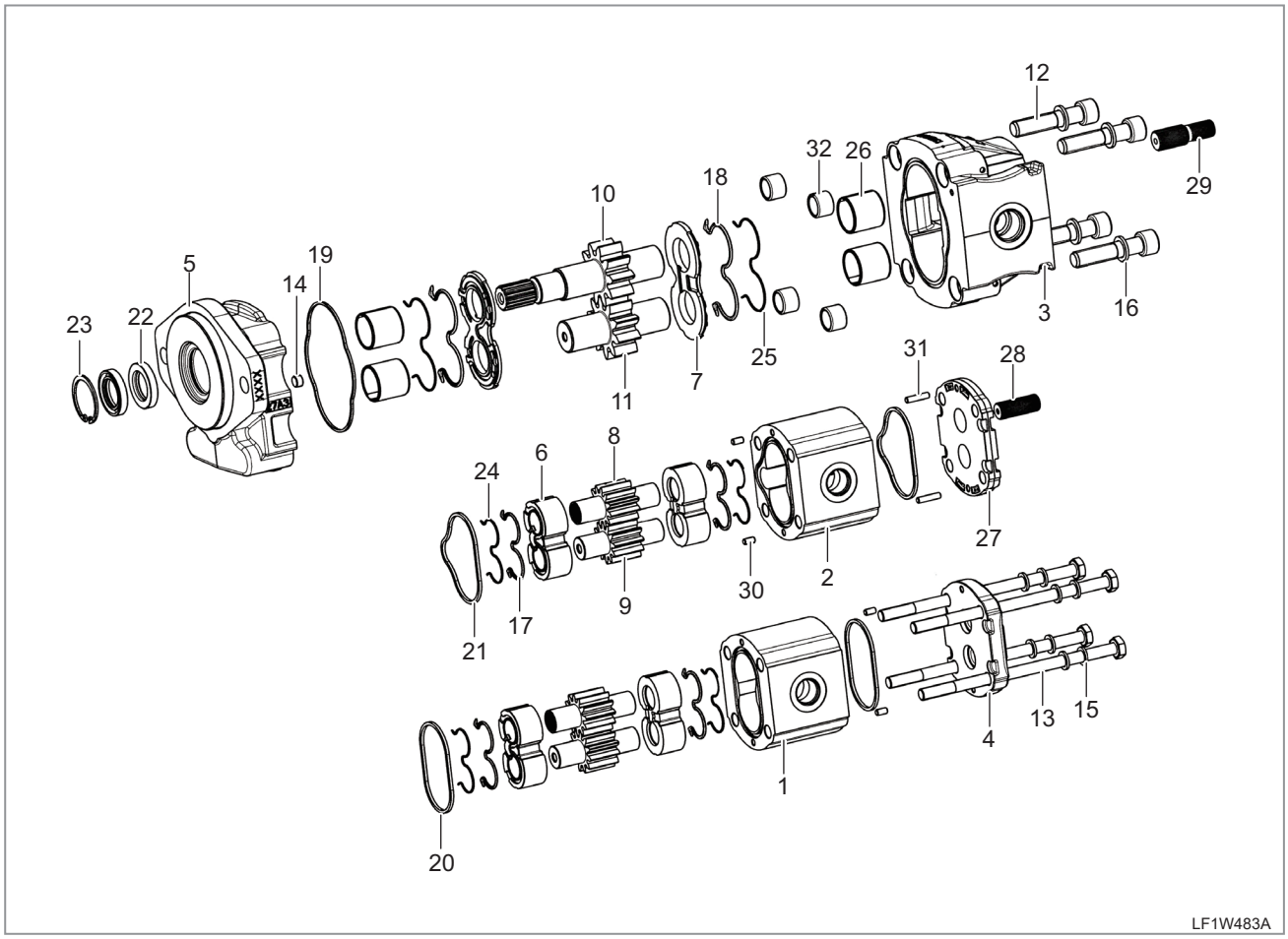


The gear pumps are connected to the HST pump in a row and receives the rotating power from the engine through the HST pump. The main pump (1), charge pump (2), and high-flow pump (3) are mounted in order when seen from the HST pump side.

SPECIFICATIONS

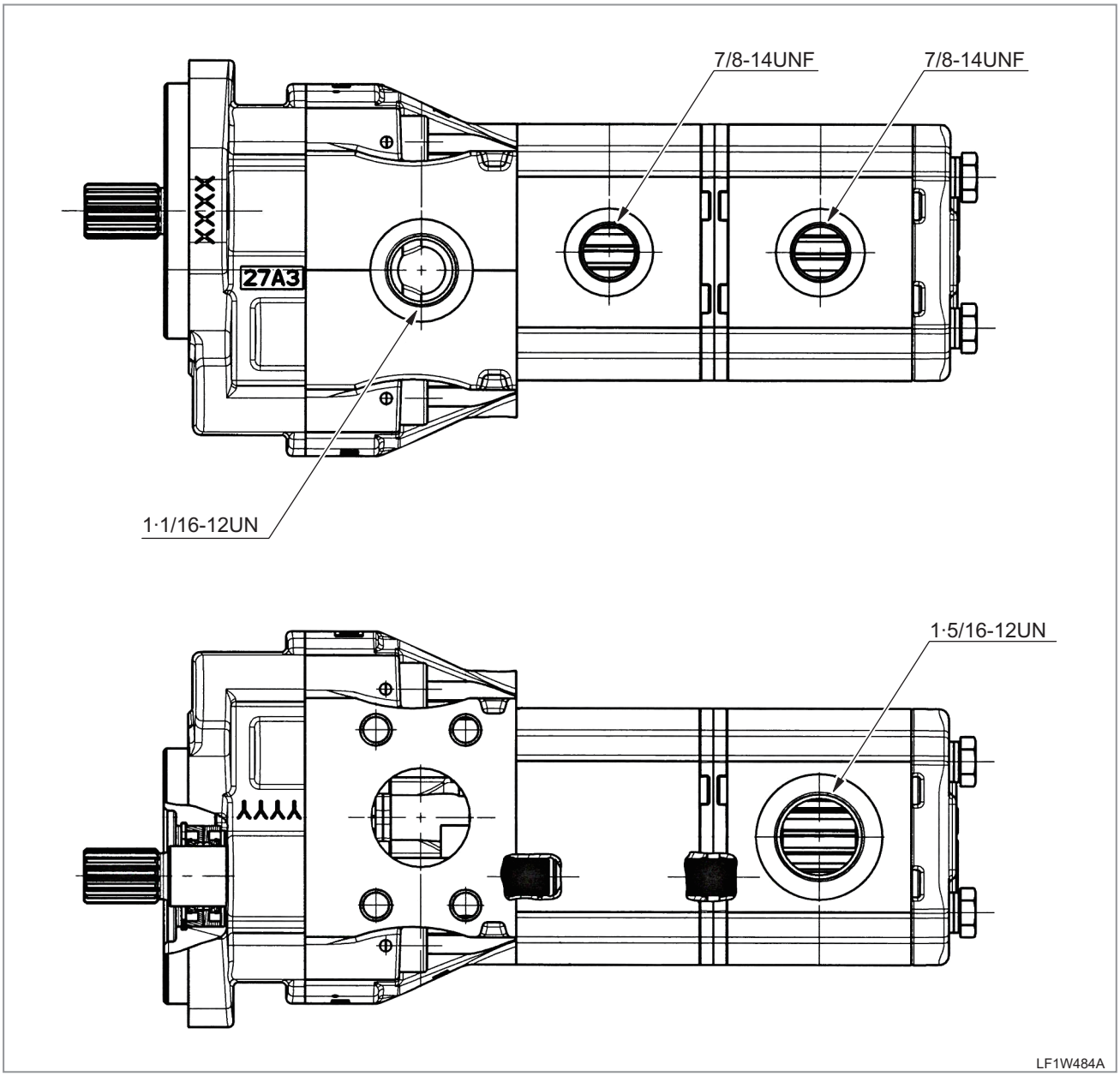
ITEM	MAIN PUMP (1)	CHARGE PUMP (2)	HIGH FLOW PUMP (3)
Capacity (cm³ / rev)	34.555	19.091	19.091
Maximum continuous pressure (bar)	280	200	200
Maximum peak pressure (bar)	320	240	240
Speed (rpm)	500 ~ 3,000		
Temperature (°C)	-25 ~ 80 (Continuous / 100 (Peak)		
Rotation driction	Clockwise (View from drive shaft)		

COMPONENTS

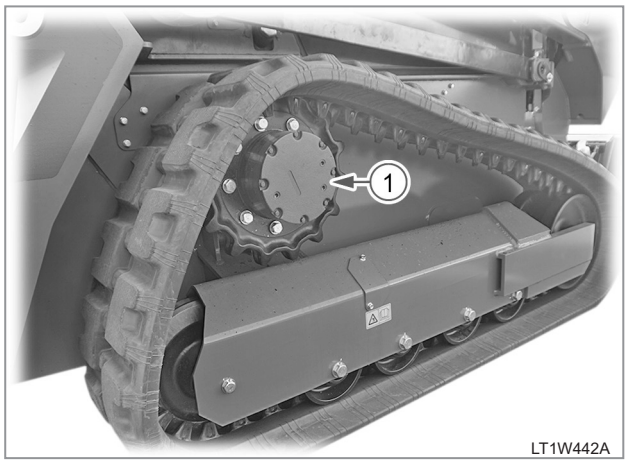


(1) Housing 1
(2) Housing 2
(3) Housing 3
(4) Rear Cover
(5) Front Cover
(6) Thrust Block
(7) Thrust Plate
(8) Drive Gear
(9) Driven Gear
(10) Drive Shaft
(11) Driven Gear
(12) Bolt
(13) Bolt
(14) Glove Screw Seal
(15) Washer
(16) Washer
(17) Seal
(18) Seal
(19) Square O-Ring
(20) Square O-Ring
(21) Square O-Ring
(22) Shaft Seal
(23) Snap Ring
(24) Backup Ring
(25) Backup Ring
(26) Sleeve
(27) Flange
(28) Hub
(29) Hub
(30) Dowel Pin
(31) Dowel Pin
(32) Bush

EXTERIOR



3.3 TRACK(HST) MOTOR



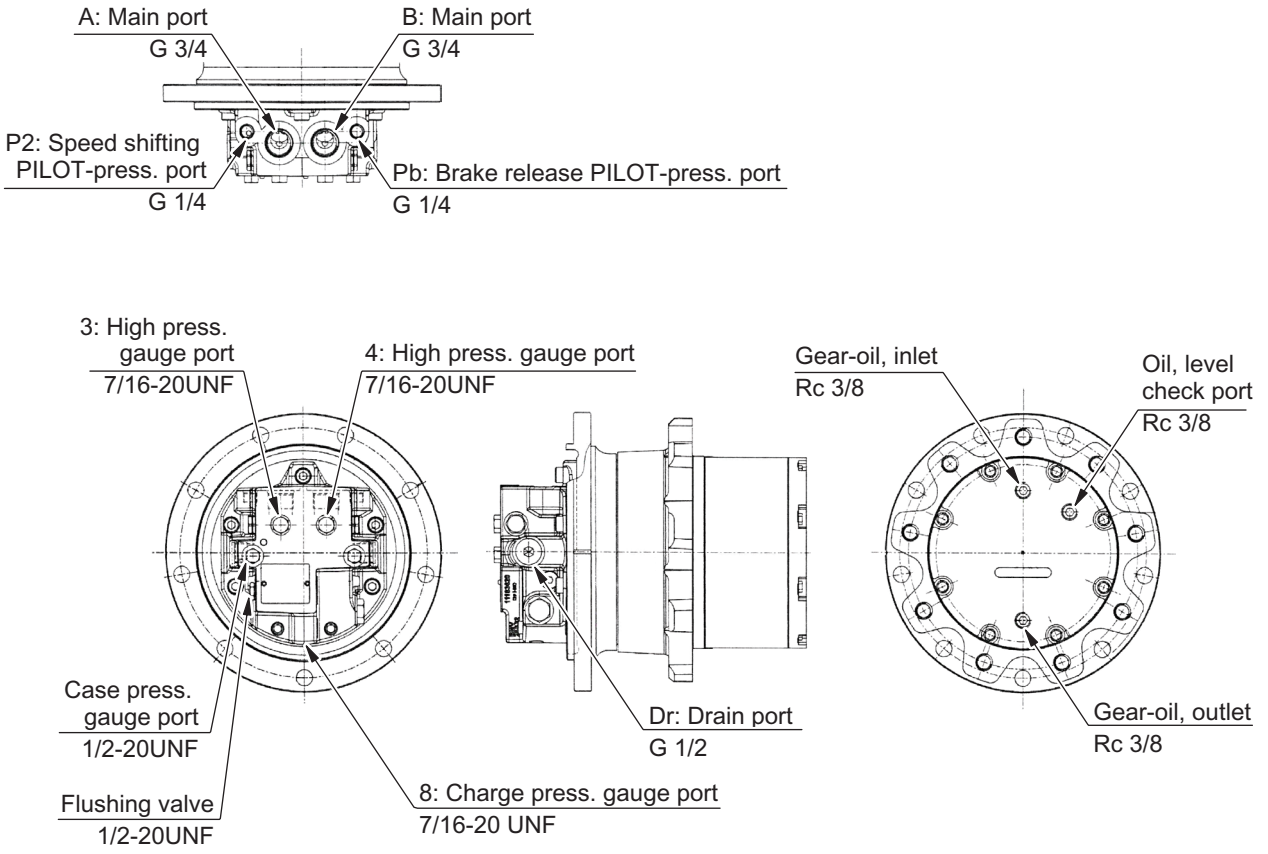
The track motors (1) are mounted on the left and right sides of the main frame.

It consists of the 2-speed variable axial piston motor and 2-speed planetary gearbox, and it is integrated with the parking brake package.

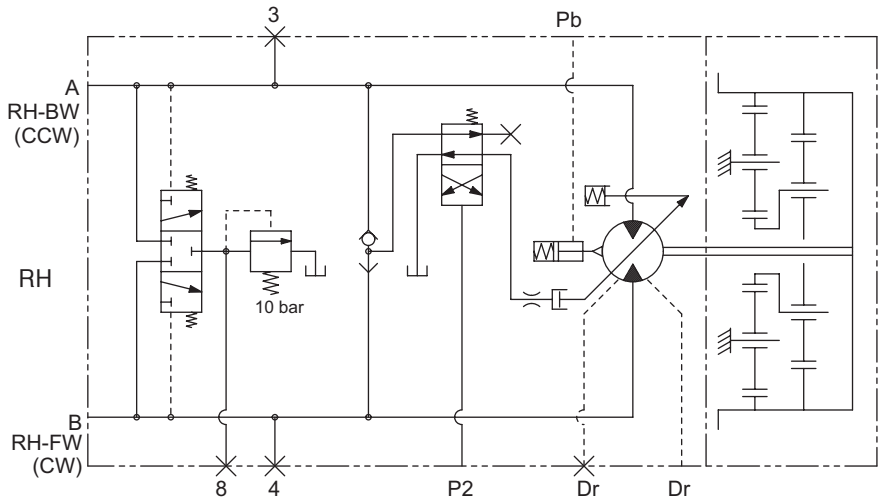
SPECIFICATIONS

Type		2 speed variable capacity shaft type piston motor
Capacity (2 speed)		LO : 31.5 cc/rev HI : 20.6 cc/rev
Max. system pressure		34.3 MPa
Max. speed (at min. capacity)		4,170 rpm
Parking brake	**Torque (Calculation)**	223 N·m
	Release pressure	Min 1.5 MPa Max 4.9 MPa
Gear box	**Gear ratio**	1/25.68
	Max. output torque (Calculation)	4,442 N·m
	Gear oil	API GL-4 Grade, SAE90 1.0L
	Weight	57kg

EXTERIOR & CIRCUIT DIAGRAM

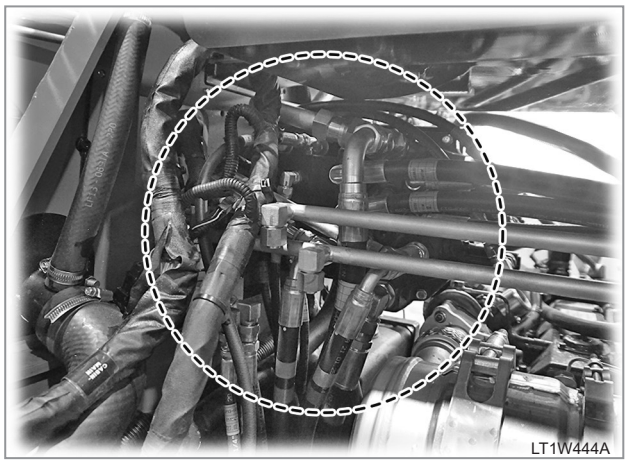


LT1W443B



LT1W494B

3.4 MAIN CONTROL VALVE (MCV)

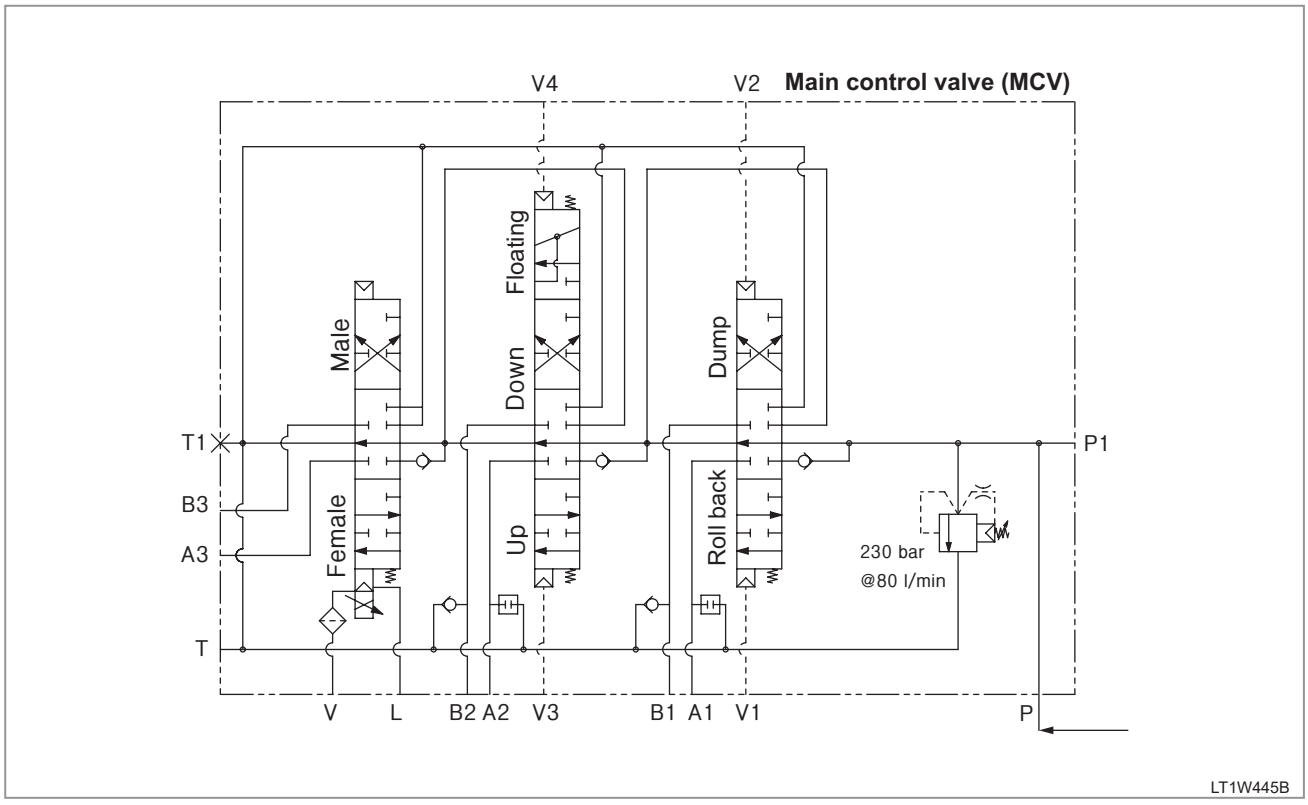


The main control valve is located on the right upper section in the engine compartment and it receives hydraulic flow from the main pump. The main control valve is designed to control the area related to the attachment of the vehicle, and it is connected to the RCV (RH). Basically, it controls the loader's boom and bucket operation, supplying the lift cylinder and tilt cylinder with hydraulic flow. It is also connected to the self-leveling valve, ride control valve, and auxiliary output port.

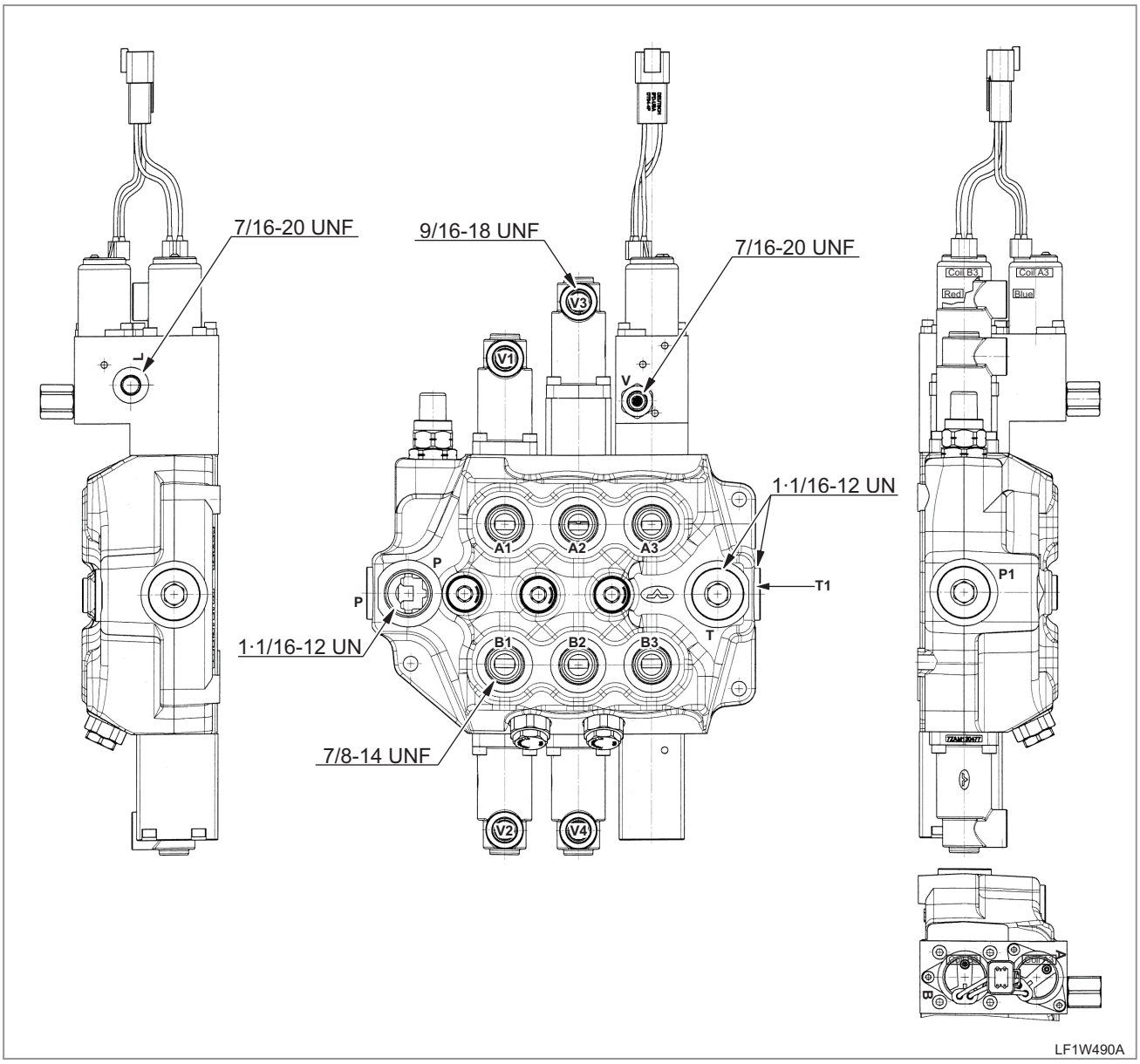
SPECIFICATIONS

ITEM	SPECIFICATION
Rated flow	80 ℓ/min
Max. pressure	250 bar
Max. back pressure	25 bar
Operating temperature	-20°C ~ 80°C

CIRCUIT DIAGRAM



EXTERIOR


7/16-20 UNF
9/16-18 UNF
7/16-20 UNF
1·1/16-12 UN
1·1/16-12 UN
7/8-14 UNF
V1
V2
V3
V4
V
P
P
A1
A2
A3
B1
B2
B3
T
T1
P1
Coil B3
Coil A3
Red
Blue
A
B
LF1W490A

3.5 PILOT LOCK VALVE

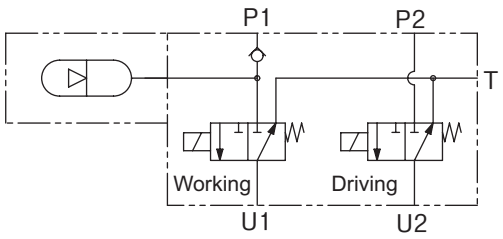

LT1W446A

The pilot lock valve is mounted on the left middle section of the main frame. When the seat bar is raised, this valve blocks the main oil gallery in order to stop the whole hydraulic operation. When the seat bar is lowered and the reset switch is turned on, the main oil gallery is restored for normal operation.

SPECIFICATIONS

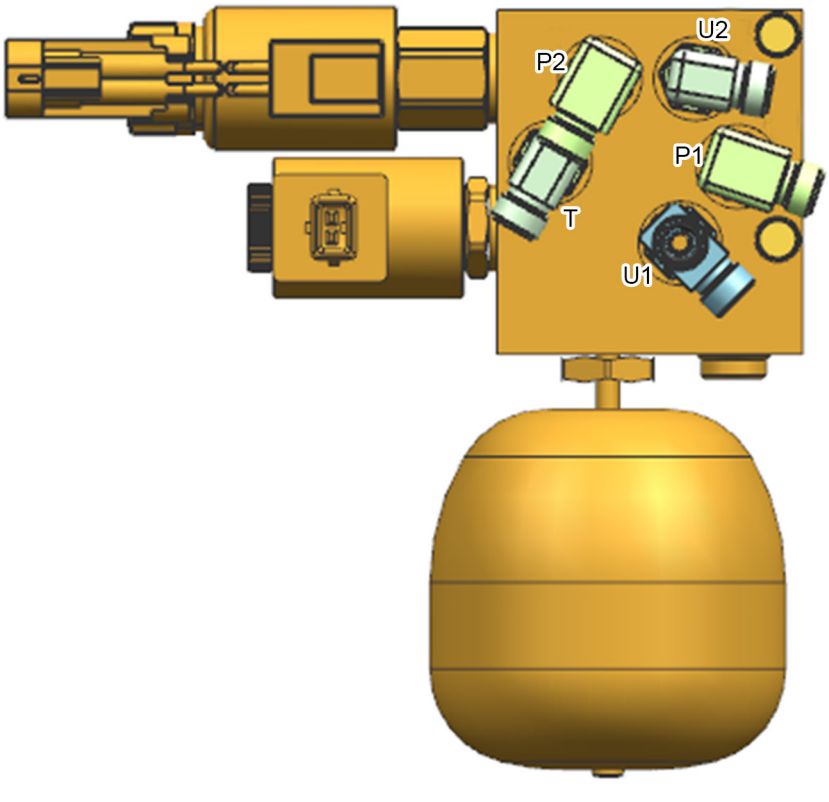
ITEM	SPECIFICATION
Max. flow	10 ℓ/min
Max. pressure	40 bar
Accumulator capacity	0.32 ℓ
Free charge pressure	11 bar

CIRCUIT DIAGRAM



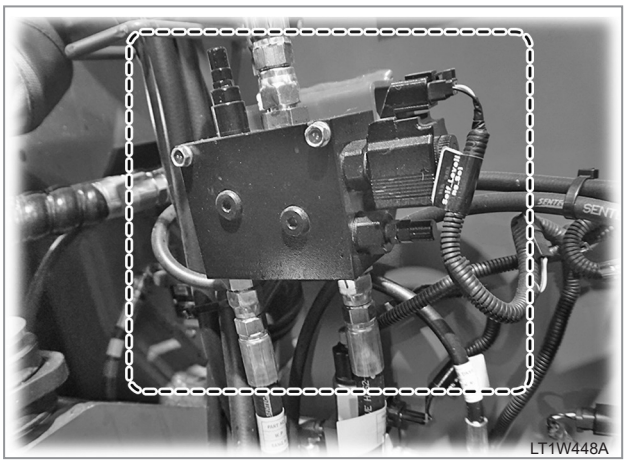
LF1W493C

EXTERIOR



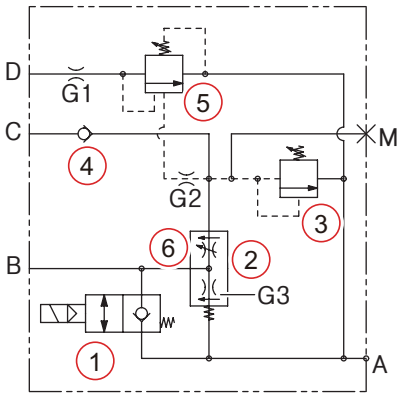
LT1W447A

3.6 SELF LEVEL VALVE



The self-leveling valve is located on the left rear section of the main frame. This valve is designed to maintain the bucket parallel to the ground regardless of the lifting height of the bucket in order to prevent the falling of objects in the bucket as the angle of the bucket changes along with the lifting height of the boom while the boom is being raised.

CIRCUIT DIAGRAM



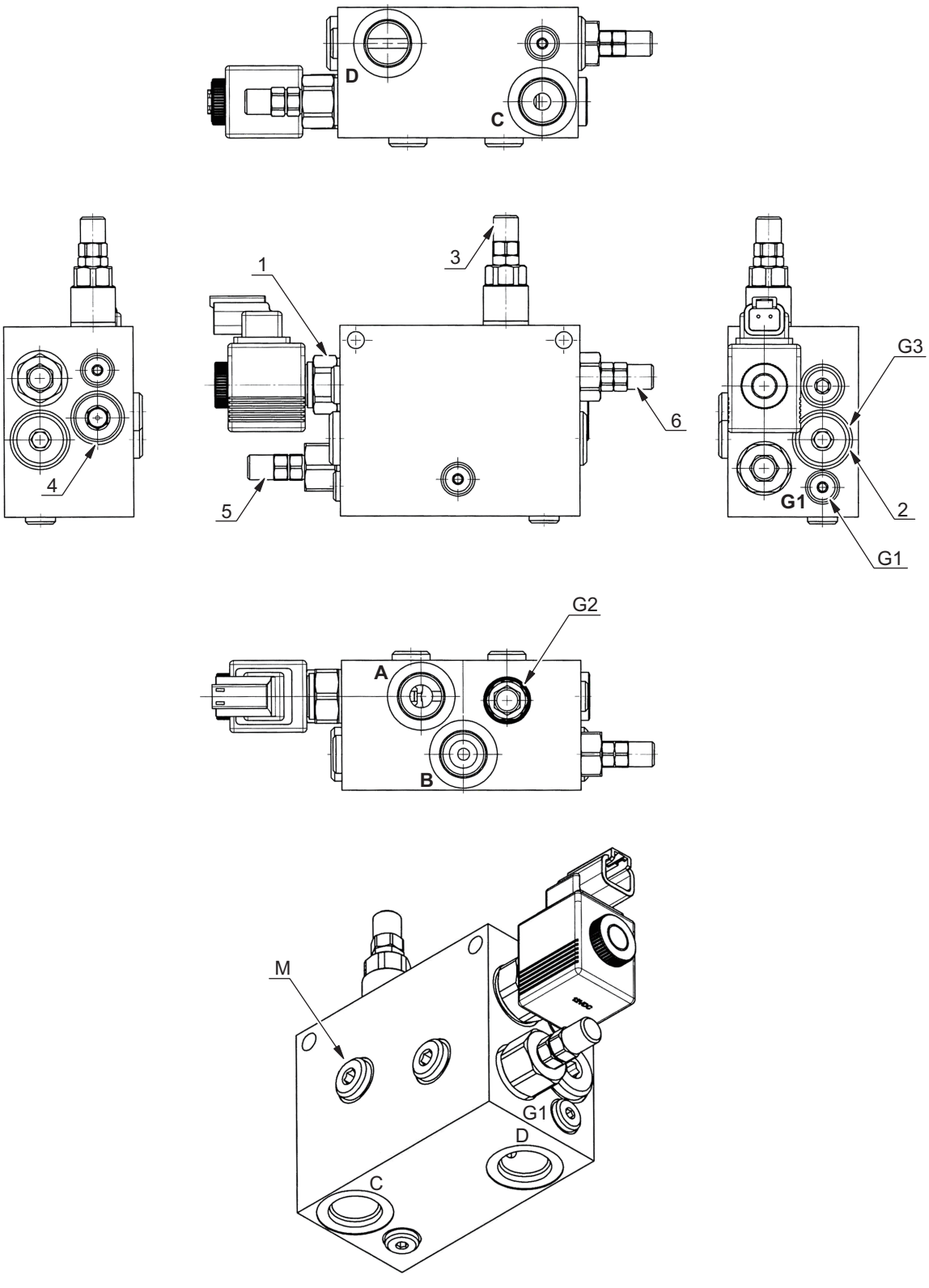
Self level valve (Option)

LF1W497B

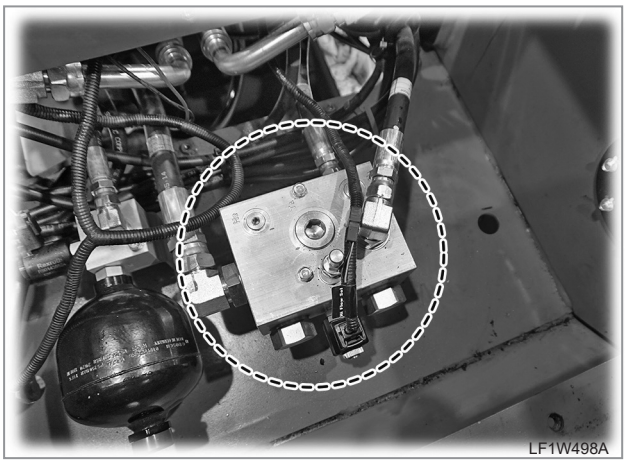
SPECIFICATIONS

ITEM	SPECIFICATION
A-port max. flow (Boom down)	69 ℓ/min
B-port max. flow (Boom up)	41 ℓ/min
Max. pressure	250 bar
Operating temperature	-20°C ~ 80°C

EXTERIOR



3.7 HIGH FLOW VALVE

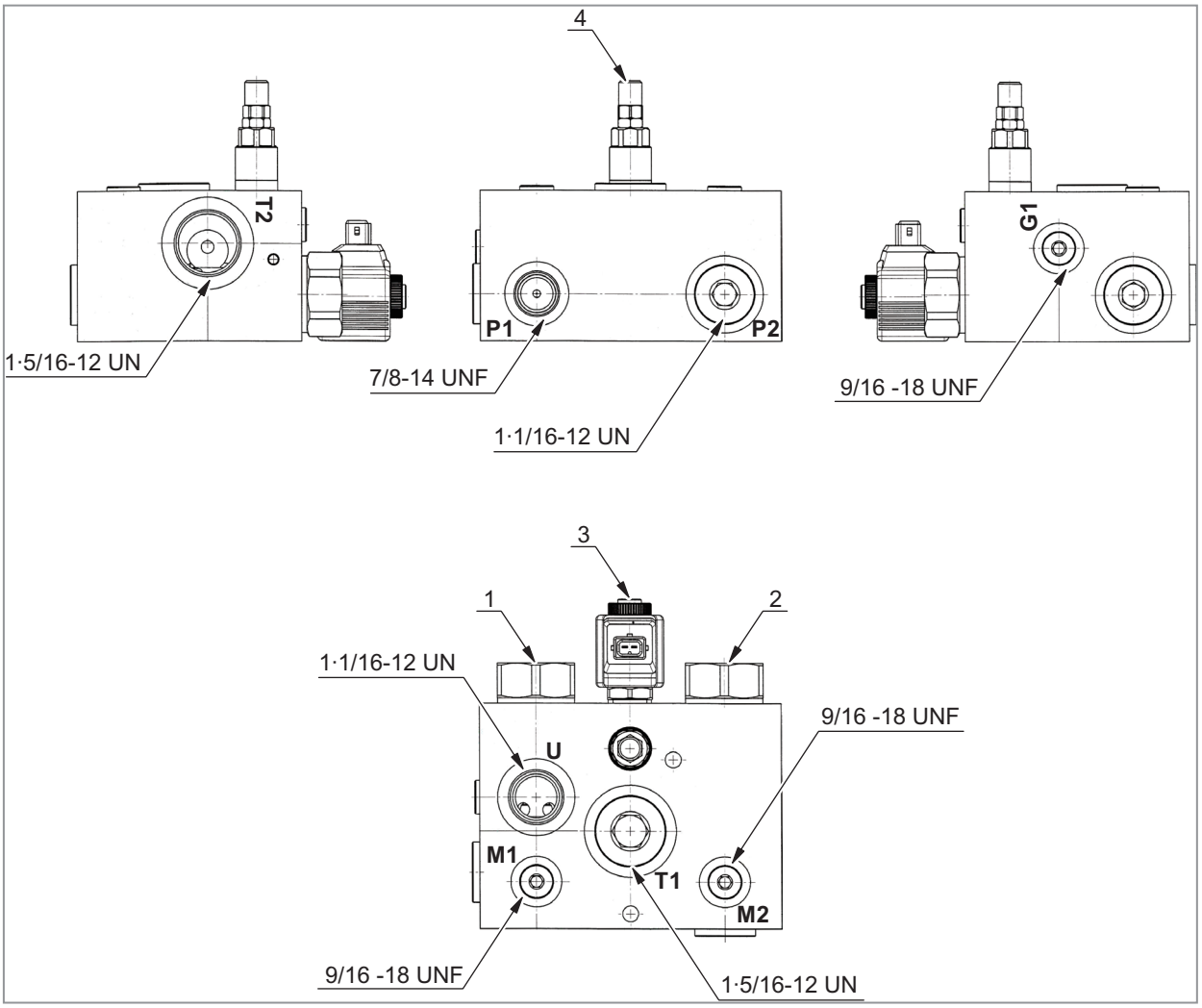


The high-flow valve is located under the floor of the cabin. When the switch is turned on to operate the high-flow valve, additional flow is supplied to the male side of the quick coupler for the external use of hydraulic pressure and this flow is used solely for the necessary operation.

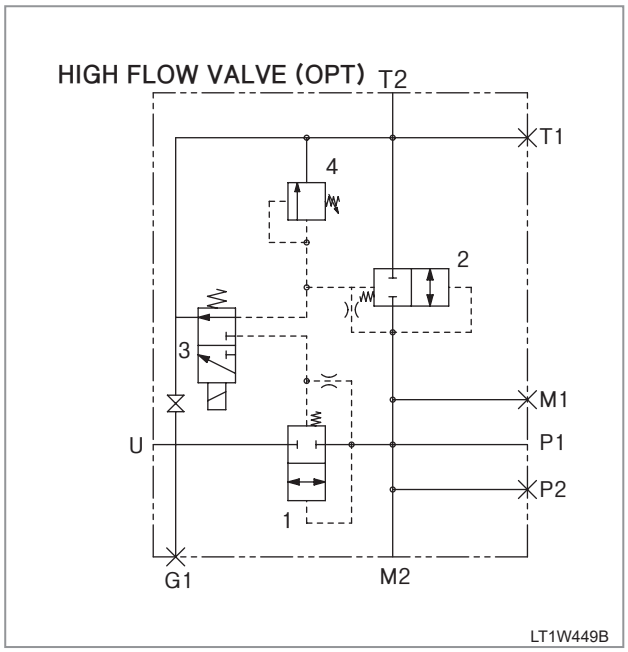
SPECIFICATIONS

ITEM	SPECIFICATION
Max. flow	150 ℓ/min
Max. pressure	250 bar
Oil operating temperature	-20°C ~ 80°C

EXTERIOR & CIRCUIT DIAGRAM

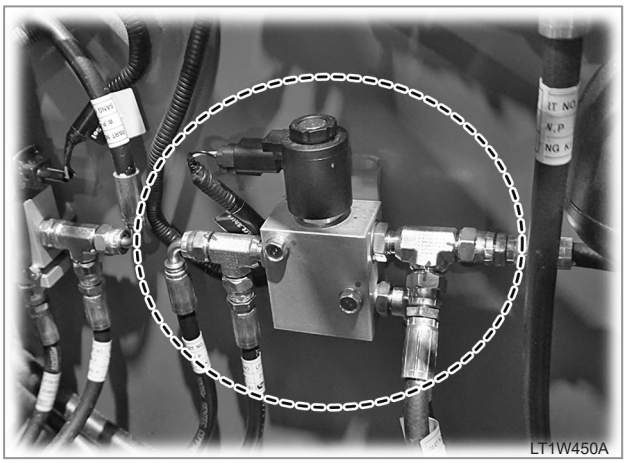


LF1W499A



LT1W449B

3.8 SHIFT VALVE

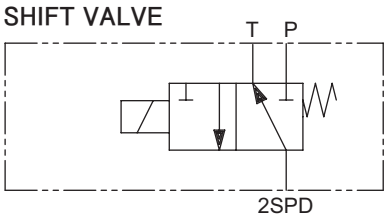

LT1W450A

The shift valve is located on the left lower section of the main frame. This valve is for the 2-speed shift driving motor and is used to shift between the 1st gear speed and the 2nd gear speed.

SPECIFICATIONS

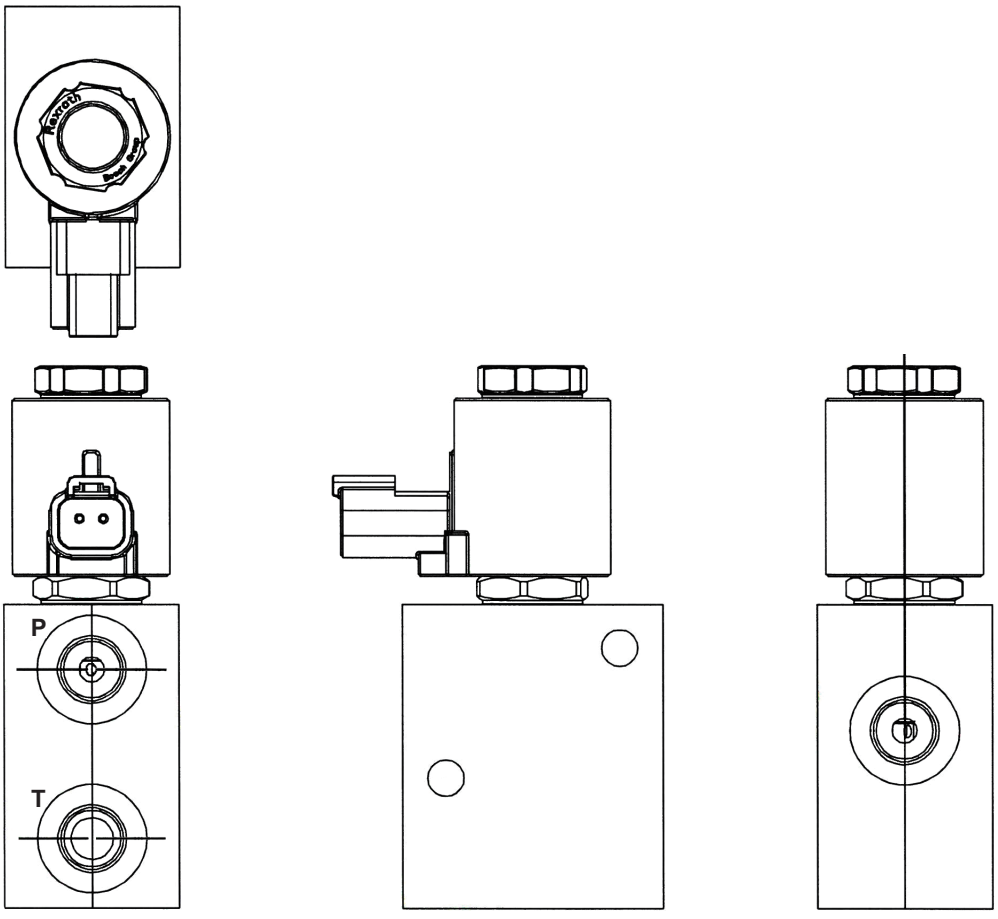
ITEM	SPECIFICATION
Max. operating pressure	280 bar or more
Max. flow	20 ℓ/min or more
Port size	9/16 -18 UNF
Oil operating temperature	-20°C ~ 80°C

CIRCUIT DIAGRAM



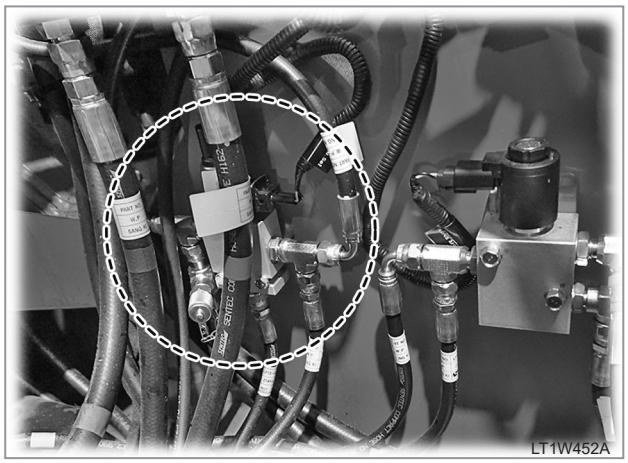
LT1W463B

EXTERIOR



LT1W451A

3.9 PARKING VALVE

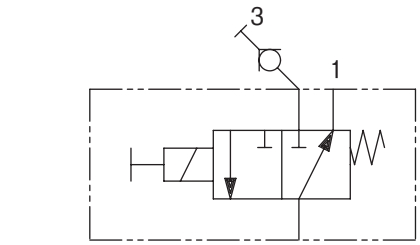

LT1W452A

The parking valve is located behind the shift valve on the left section of the main frame. The parking valve controls the parking brake located on the HST motor (track motor). When the hydraulic system normally operates with the key in the ON position, it discharges the hydraulic flow through the parking brake oil passage to compress the parking brake spring toward the release side, disengaging the parking brake.

SPECIFICATIONS

ITEM	SPECIFICATION
Max. operating pressure	280 bar or more
Max. flow	20 ℓ/min or more
Oil operating temperature	-20°C ~ 80°C

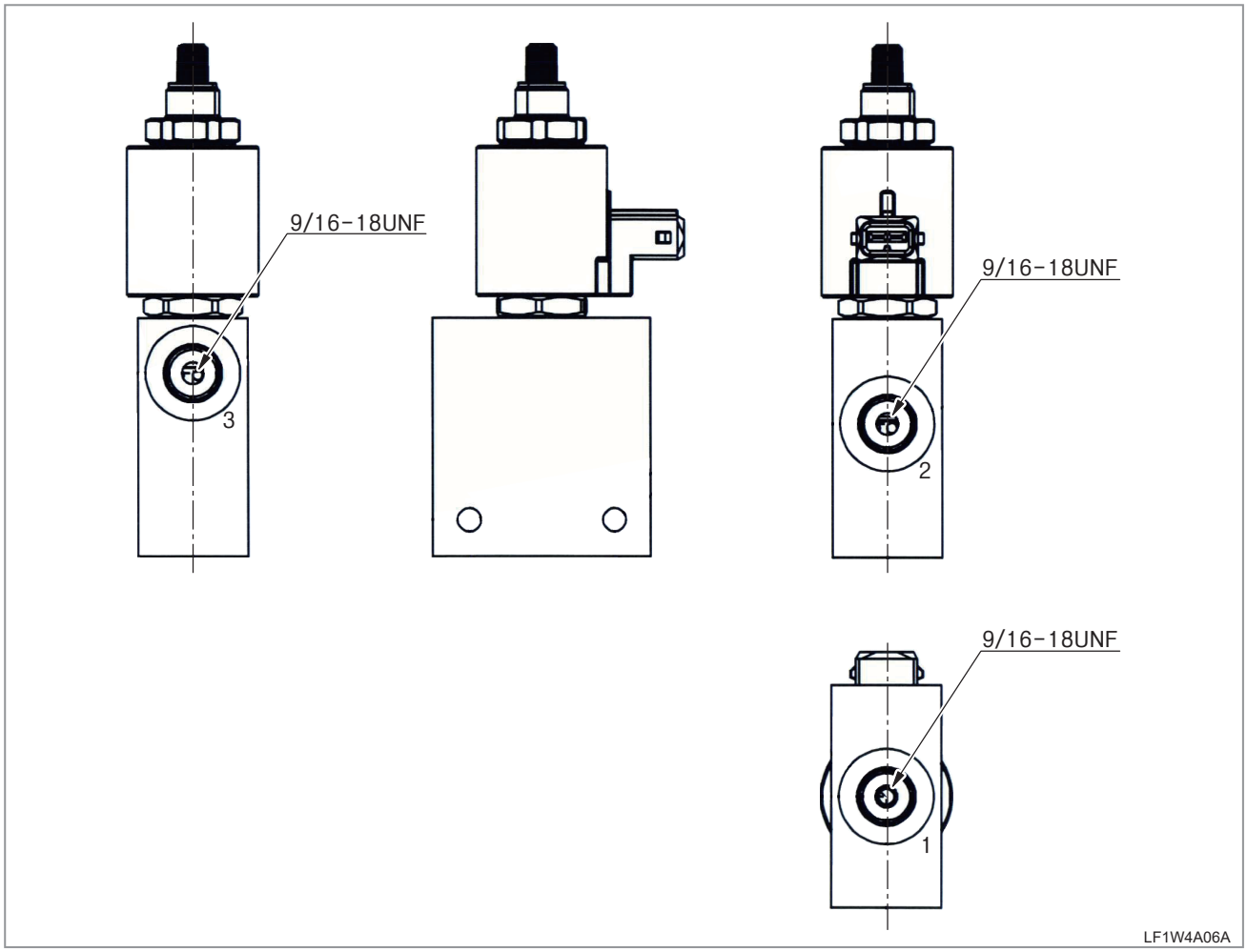
CIRCUIT DIAGRAM



Parking solenoid valve

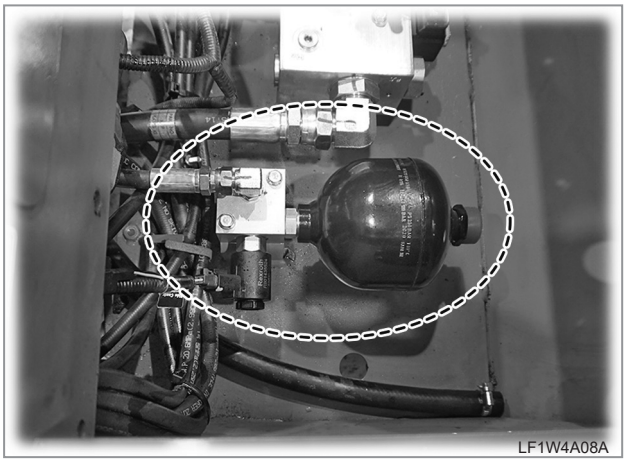
LF1W4A07B

EXTERIOR



LF1W4A06A

3.10 RIDE CONTROL VALVE [OPTION]

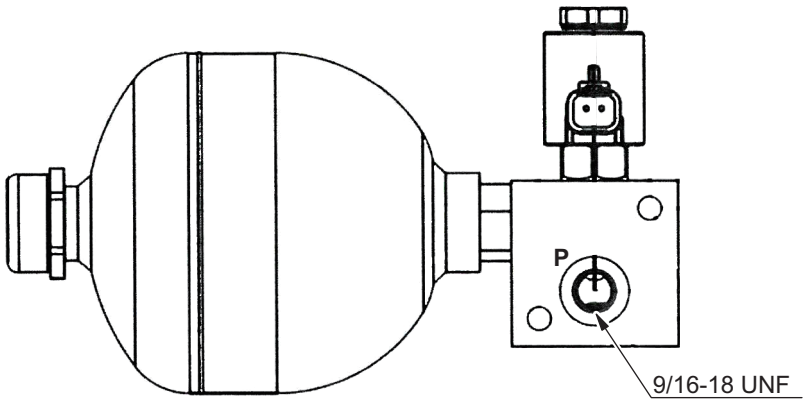

LF1W4A08A

The ride control valve is located under the front section of the cabin floor. The ride control valve helps stabilize the driving condition on a bumpy road by canceling some of the vibration coming from the road surface to the vehicle through its operation with the hydraulic flow control of the accumulator.

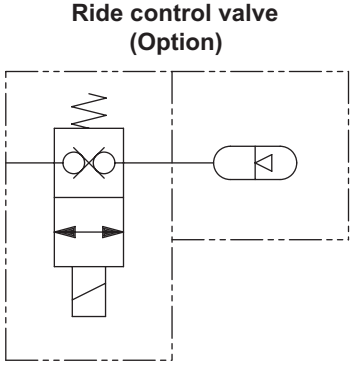
SPECIFICATIONS

ITEM	SPECIFICATION
Max. operating pressure	350 bar or more
Max. flow	0.5 ~ 40 ℓ/min
Switching time	Opening ≤ 50 ms Closing ≤ 100 ms
Accumulator capacity	0.75 ℓ
Max. allowable pressure	250 bar
Max. Free charge pressure	130 bar

EXTERIOR & CIRCUIT DIAGRAM

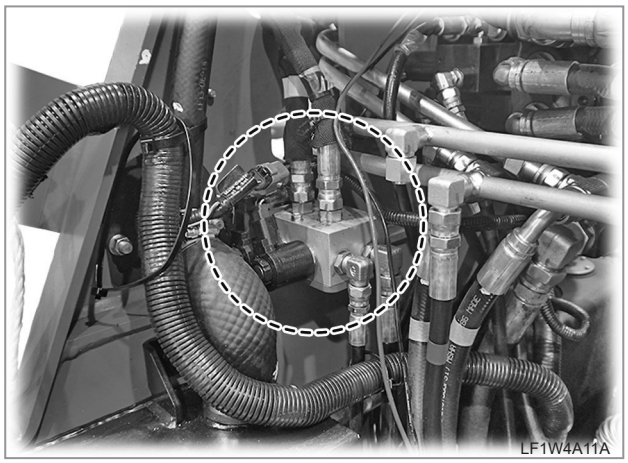


LF1W4A09A



LF1W4A10B

3.11 QUICK ATTACHMENT VALVE

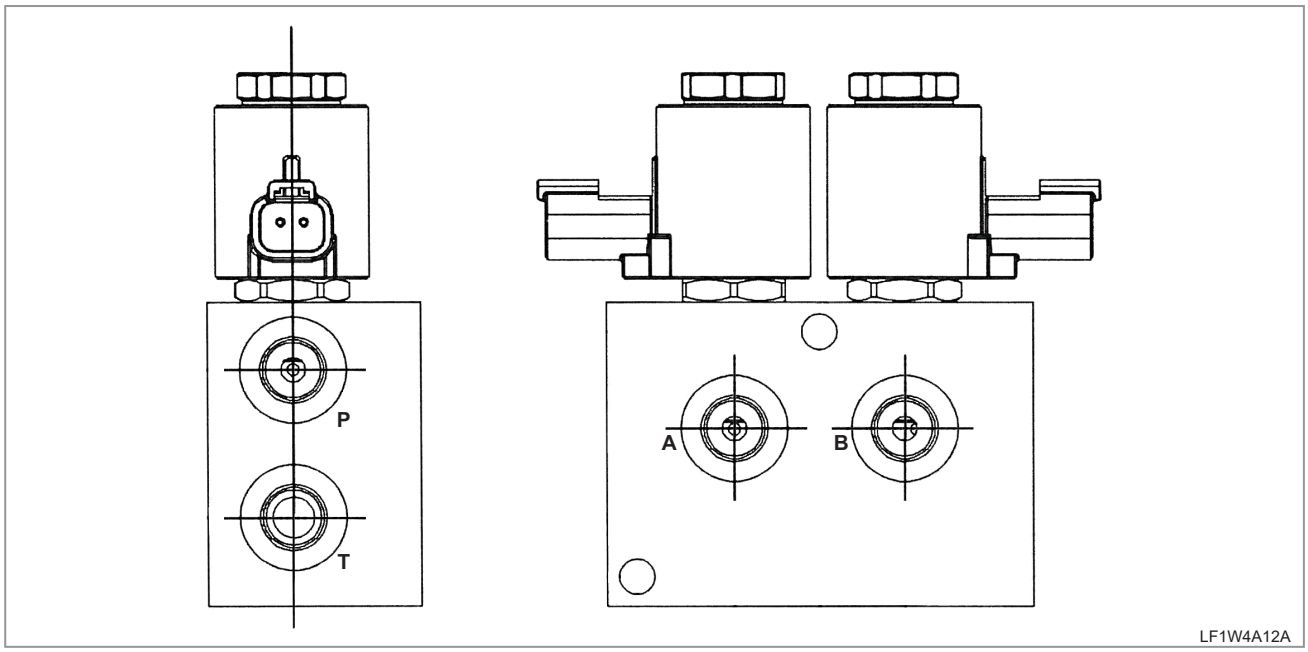

LF1W4A11A

The quick attachment valve is located in front of the main control valve on the right rear section of the main frame. The quick attachment valve controls the operation of the quick attachment cylinder with hydraulic flow when attaching and detaching the bucket to/from the equipment.

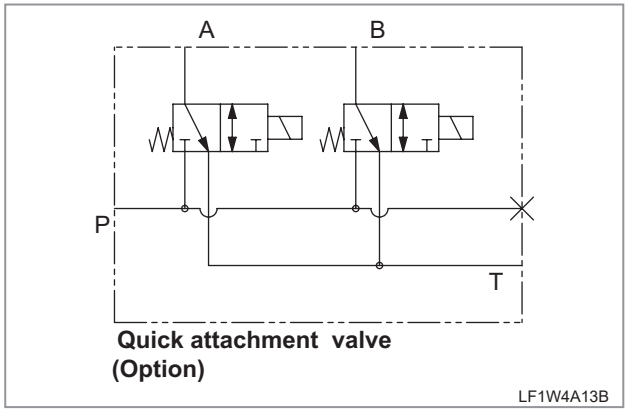
SPECIFICATIONS

ITEM	SPECIFICATION
Max. operating pressure	280 bar or more
Max. flow	20 ℓ/min
A, B, P, T port size	9/16 - 18 UNF

EXTERIOR & CIRCUIT DIAGRAM



LF1W4A12A



Quick attachment valve (Option)
LF1W4A13B

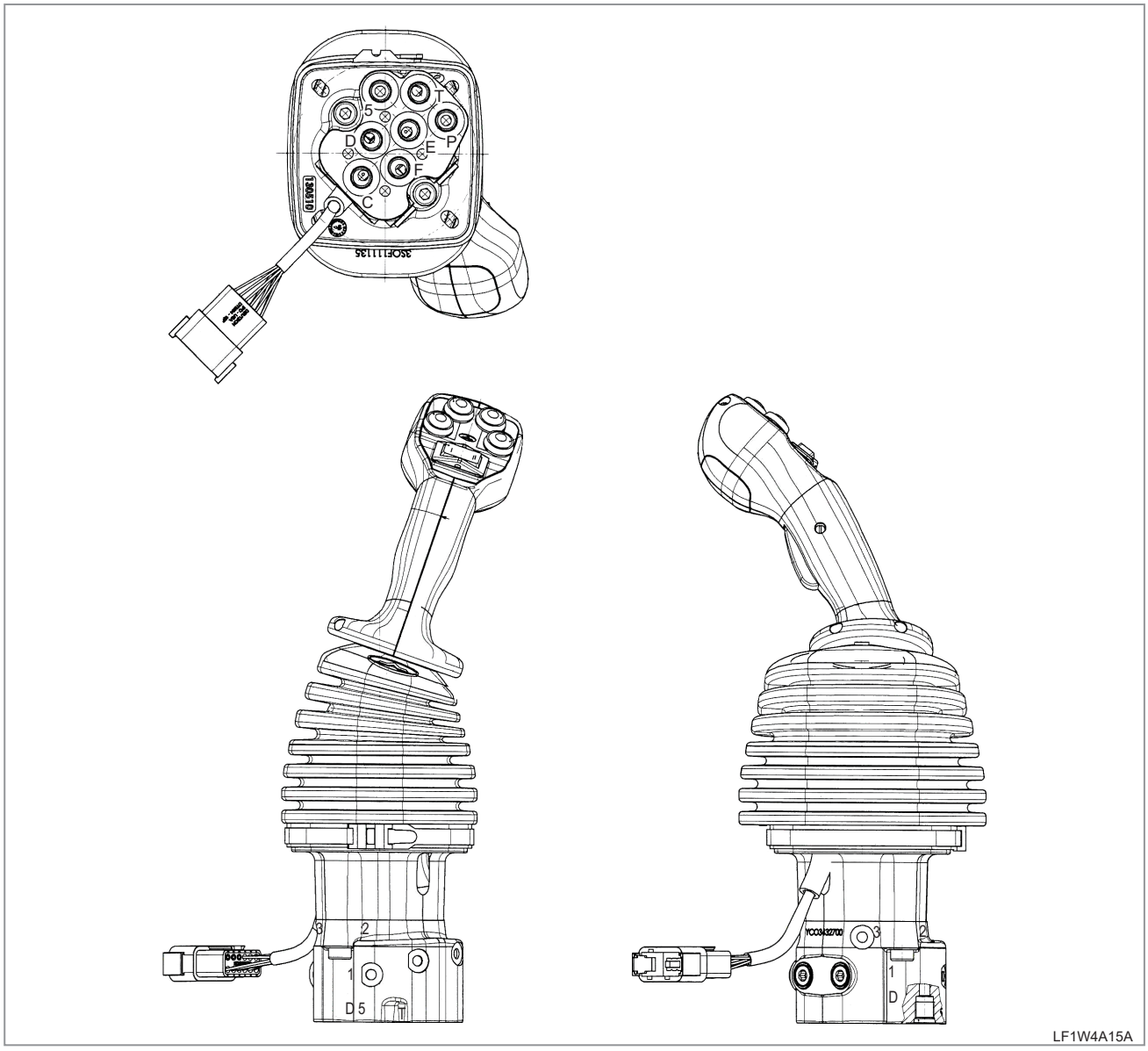
3.12 RCV ASSEMBLY (LH)

The RCV assembly (LH) is located on the left side of the driver's seat. It is used to control not only the major driving functions such as the forward driving, reverse driving, left turn, and right turn, but also the auxiliary power operation, ride control, 2-speed shift, and horn.

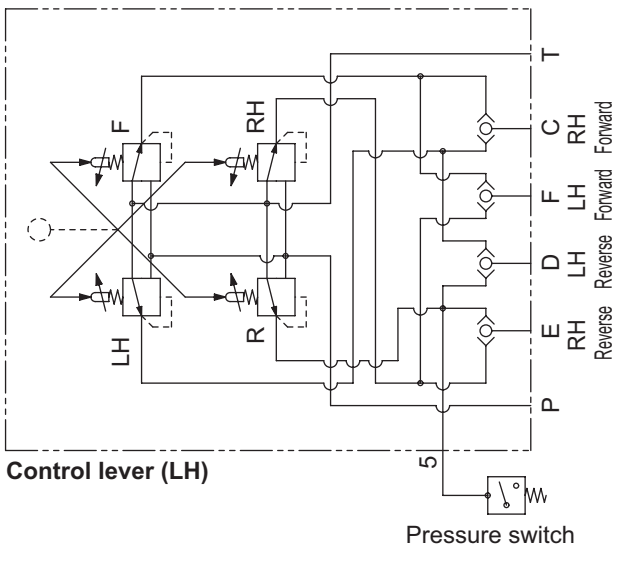
SPECIFICATIONS

ITEM	SPECIFICATION
Min. initial pressure	30 bar
Max. initial pressure	100 bar
Max. back pressure	3 bar
Min. rated flow	5 ℓ/min
Max. rated flow	20 ℓ/min
Oil operating temperature	-10°C ~ 80°C

EXTERIOR & CIRCUIT DIAGRAM



LF1W4A15A



LF1W4A16B

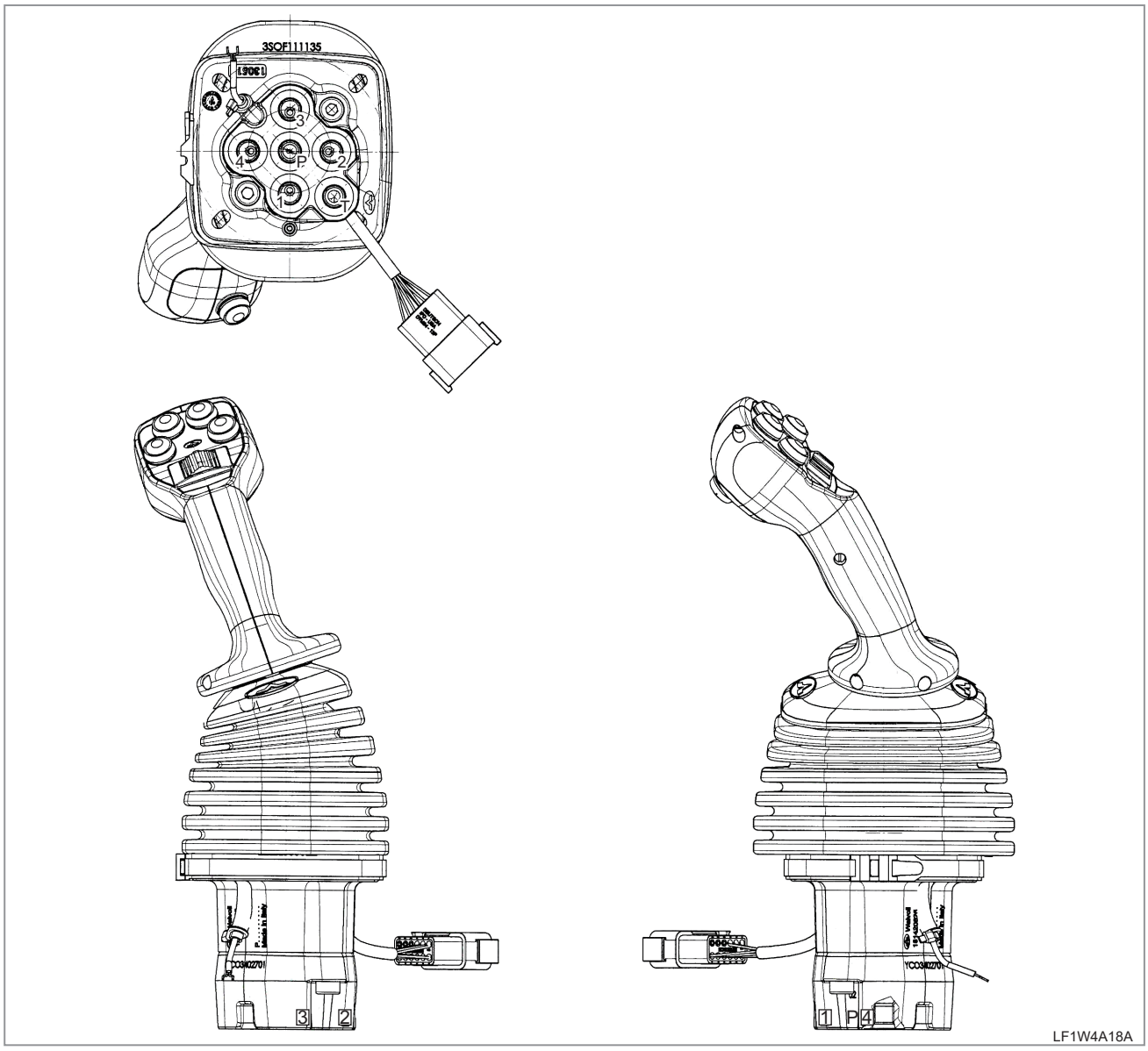
3.13 RCV ASSEMBLY (RH)

The RCV assembly (RH) is located on the right side of the driver's seat. This is used to control not only the operation of the attachment, such as boom up, boom down, bucket rollback, and bucket dump, but also auxiliary hydraulic operation and electric operation.

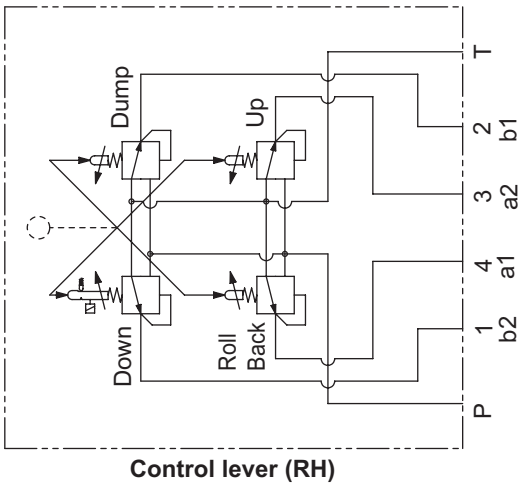
SPECIFICATIONS

ITEM	SPECIFICATION
Min. initial pressure	30 bar
Max. initial pressure	100 bar
Max. back pressure	3 bar
Min. rated flow	5 ℓ/min
Max. rated flow	20 ℓ/min
Oil operating temperature	-10°C ~ 80°C

EXTERIOR & CIRCUIT DIAGRAM



LF1W4A18A

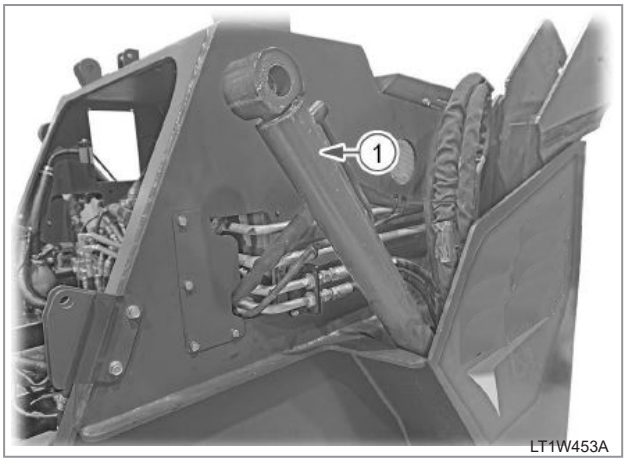


Control lever (RH)

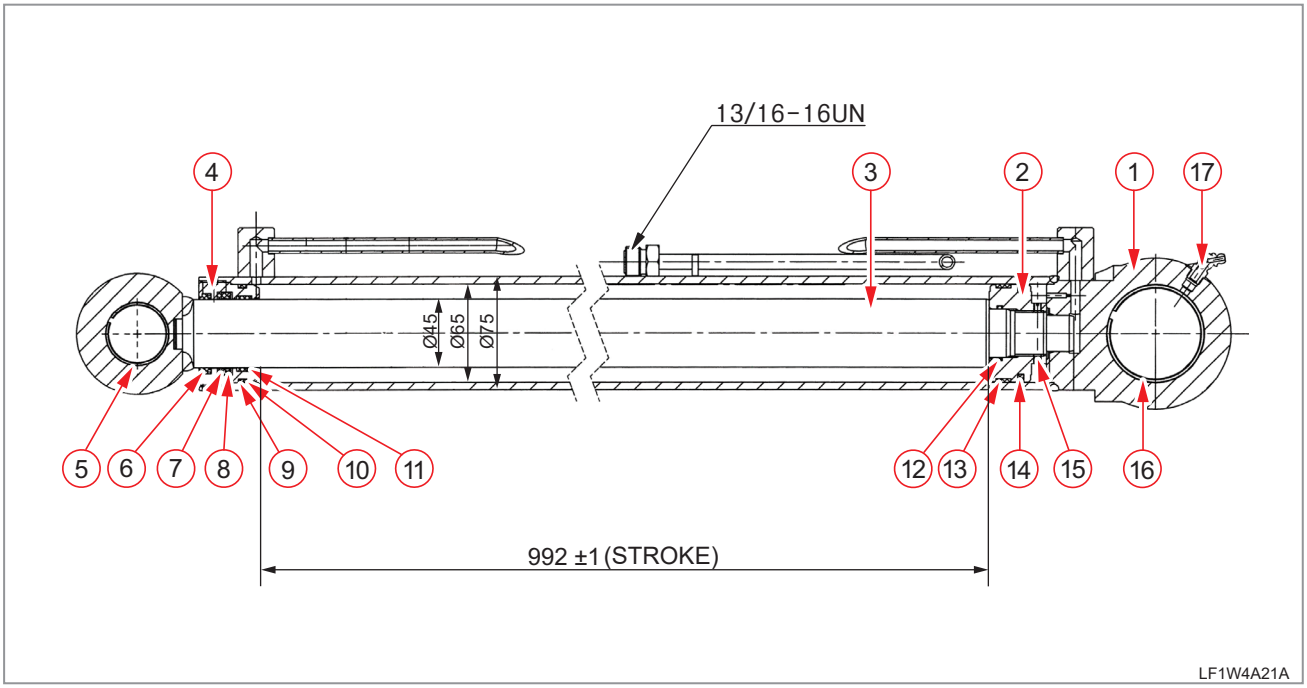
LF1W4A19B

3.14 HYDRAULIC CYLINDER

3.14.1 LIFT CYLINDER



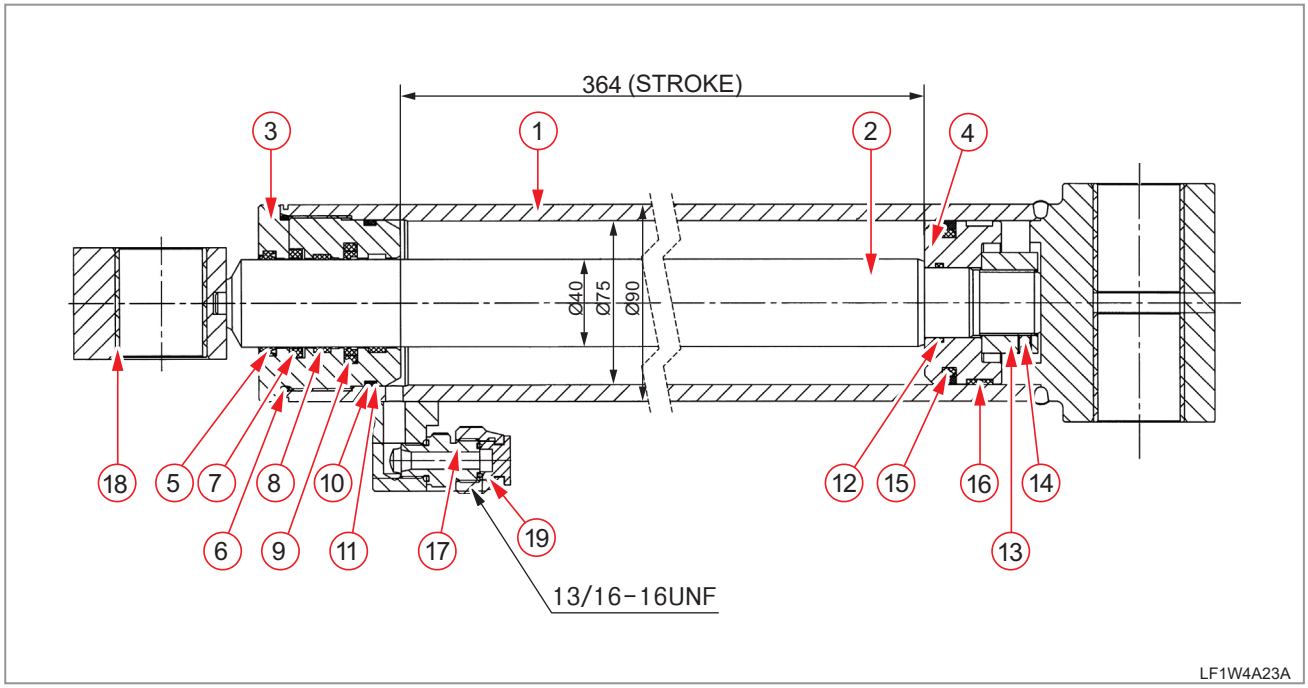
The lift cylinders (1) are located on the left and right sides of the main frame. These are single rod, double acting cylinders that are used to raise and lower the loader's boom.



(1) Rear Cover & Tube
(2) Piston
(3) Rod Assembly
(4) Front Cover
(5) Composite Bushing
(6) 839N Dust Ring
(7) Seal & Retaining Ring 55X45X3
(8) 605 Shaft Ring
(9) O-Ring retaining ring
(10) O-Ring
(11) PFC Support Ring
(12) O-Ring
(13) PFC Support Ring
(14) 754 Glyd Ring
(15) Slotted Taper End Set Screw
(16) Composite Bushing
(17) Joint Type Oil Cup 45°

3.14.2 TILT CYLINDER

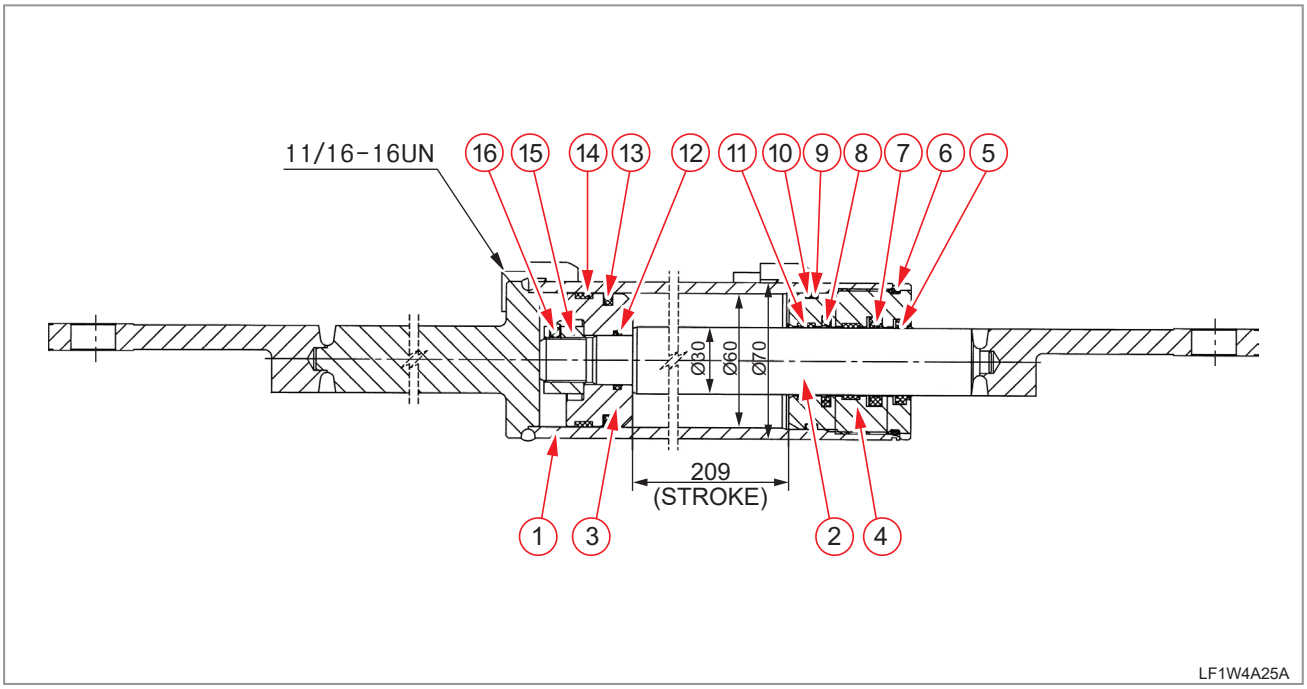
The tilt cylinders (1) are located on the left and right sides of the quick coupler for the bucket. These are single rod, double acting cylinders that are used for rollback and the dump operation of the bucket.



(1) Rear Cover & Tube
(2) Rod Assembly
(3) Front Cover
(4) Piston
(5) 839N Dust Ring
(6) O-Ring
(7) 605 Shaft Ring
(8) PFC Support Ring
(9) GSJ Step Ring
(10) O-Ring
(11) O-Ring
(12) O-Ring
(13) Lock Nut
(14) Hexagon Socket Taper Set Screw
(15) 754 Glyd Ring
(16) PFC Support Ring
(17) Threaded O-Ring Flat Seal Joint
(18) Composite Bushing
(19) O-Ring

3.14.3 QUICK ATTACHMENT CYLINDER

The quick attachment cylinder (1) is on top of the quick coupler for the bucket, and it is a single rod, double acting cylinder used for automatic operation of attachment and detachment of the bucket using hydraulic flow.



(1) Rear Cover & Tube
(2) Rod Assembly
(3) Piston
(4) Front Cover
(5) 839 Dust Ring
(6) O-Ring
(7) 605 Shaft Ring
(8) Gsj Step Ring
(9) O-Ring
(10) O-Ring
(11) PFC Guide Ring
(12) O-Ring
(13) 754 Glyd Ring
(14) PFC Support Ring
(15) Lock Nut
(16) Cross Recessed Set Screw With Tappered End
(17) O-Ring

3.15 HYDRAULIC FILTER

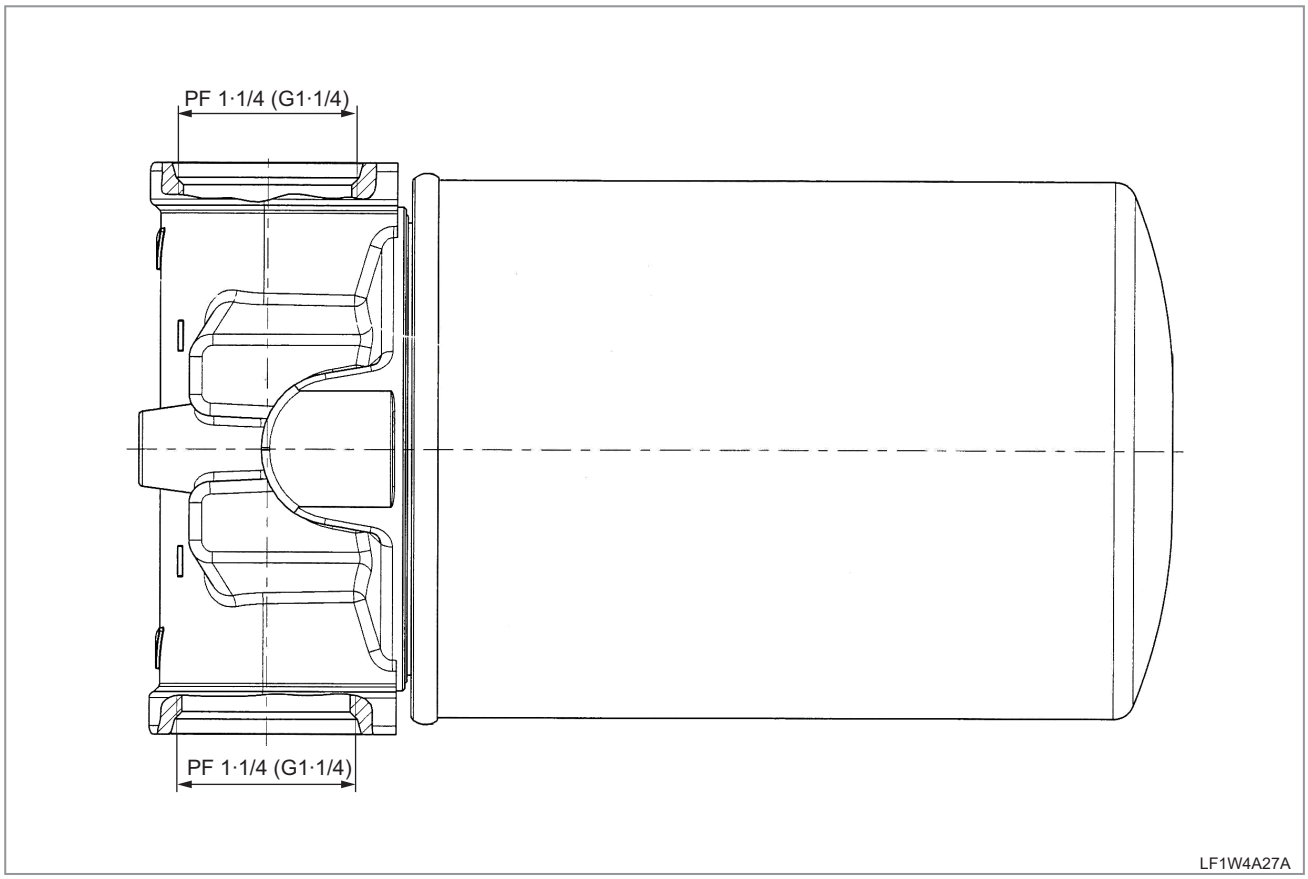
3.15.1 RETURN FILTER

The return filter is located on the right upper section in the engine compartment. It is used to filter the oil after it is cooled down through the oil cooler before it is returned to the oil tank.

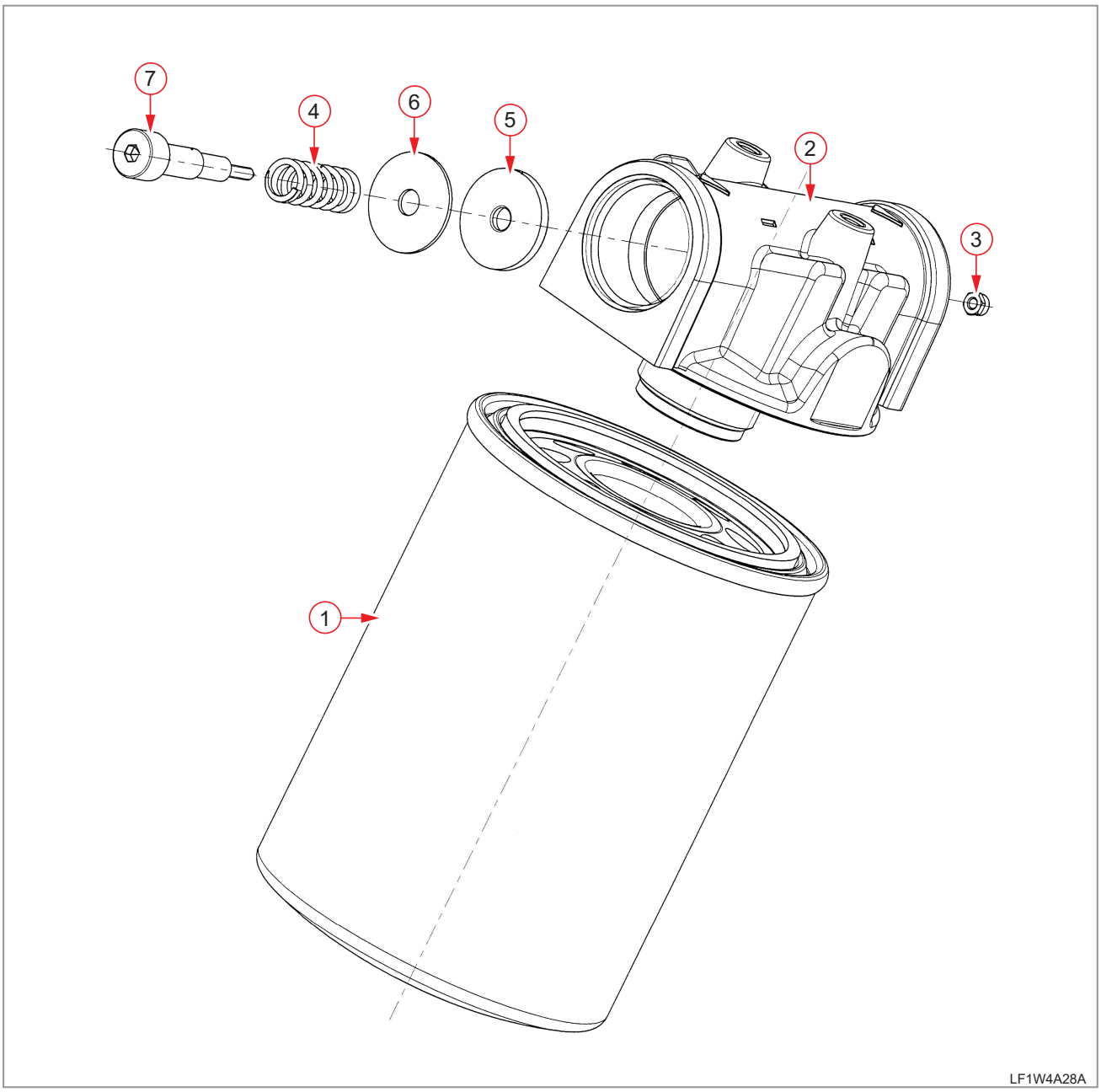
SPECIFICATIONS

ITEM	SPECIFICATION
Fineness	10 μm
Filtering dimension	4,410 cm²
Rated flow	125 ℓ/min
By-pass valve setting pressure	1.7 bar (25 psi)
Operation pressure	12 bar (174 psi)
Oil operating temperature	-20°C ~ 110°C

EXTERIOR

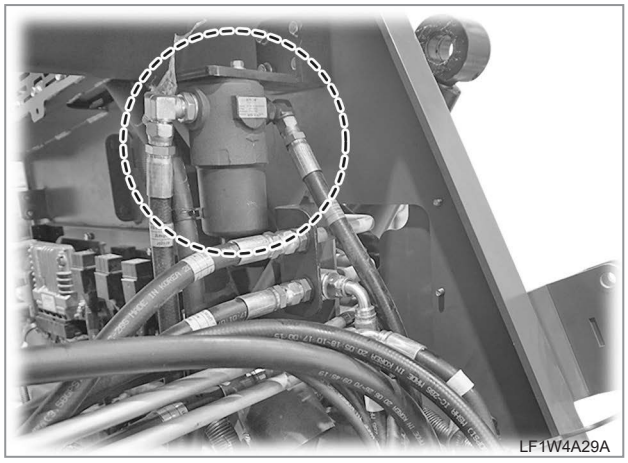


COMPONENTS



(1) Filter case
(2) Head
(3) Nut
(4) Spring
(5) Sealing plate
(6) Bakup washer
(7) By-pass valve

3.15.2 HST FILTER

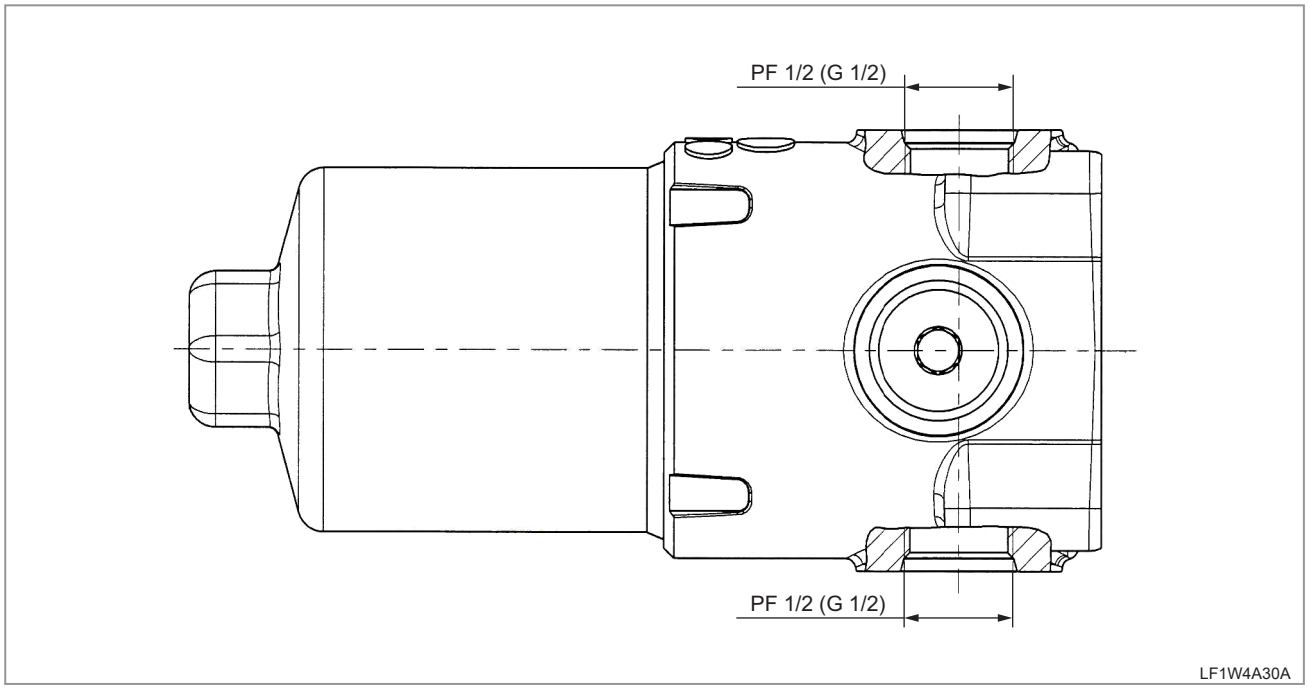


The HST filter is located on the left upper section of the main frame, and it filters the hydraulic oil discharged from the charge pump to the quick attachment valve and HST pump.

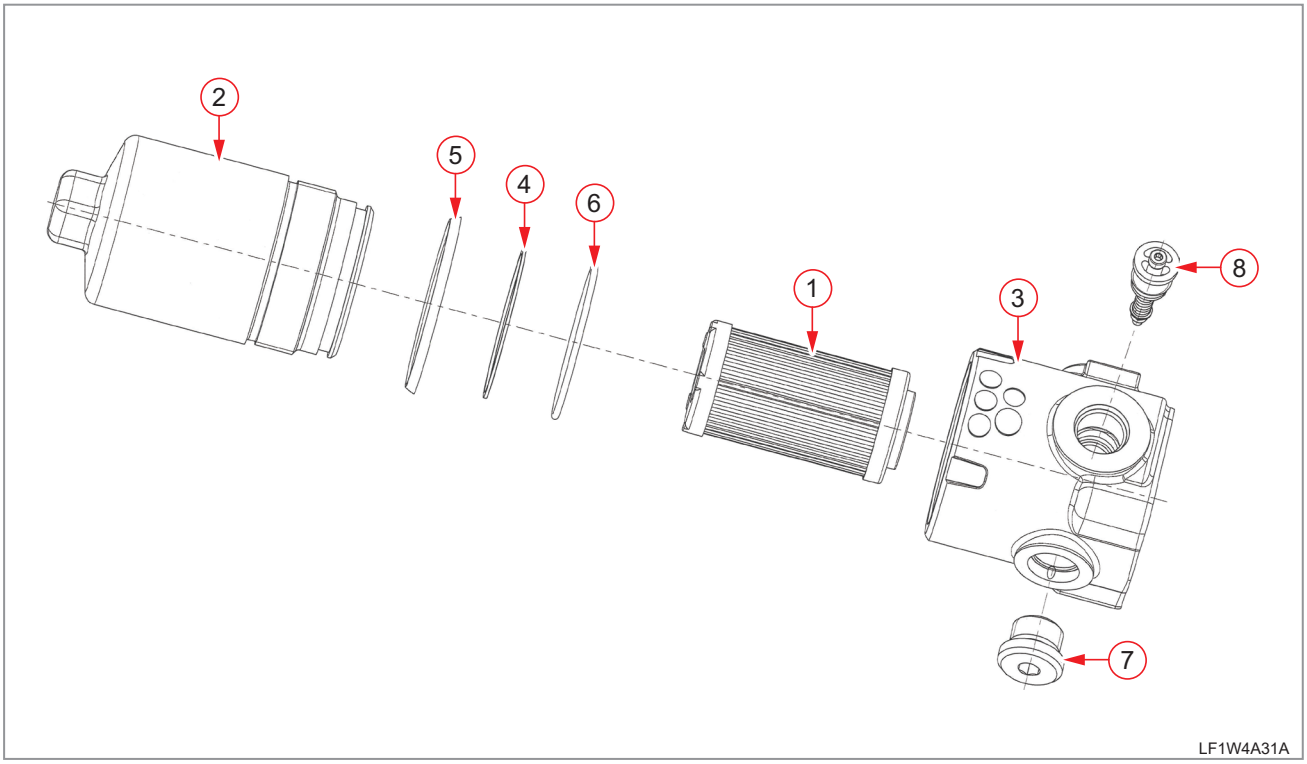
SPECIFICATIONS

ITEM	SPECIFICATION
Fineness	10 μm
Filtering dimension	415 cm²
Rated flow	35 ℓ/min
By-pass valve setting pressure	6 bar (87 psi)
Operation pressure	310 bar (4,496 psi)
Oil operating temperature	-30°C ~ 90°C

EXTERIOR

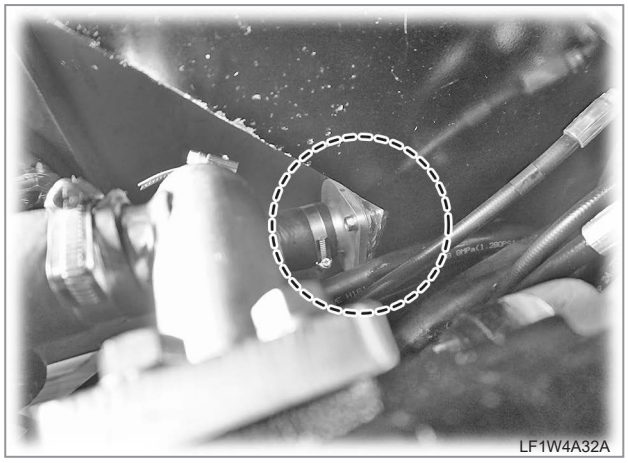


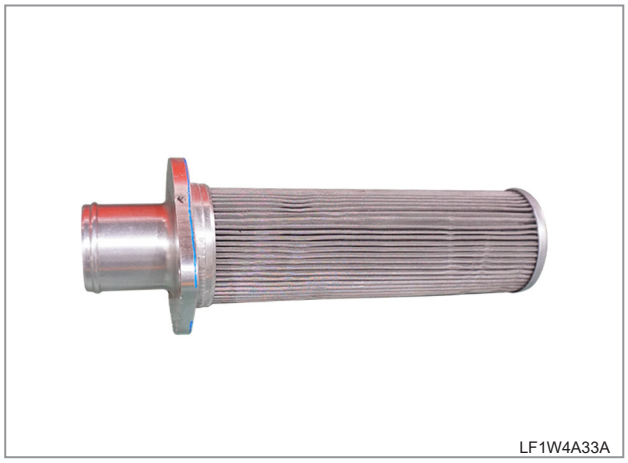
COMPONENTS



(1) Filter element
(2) Filter case
(3) Body
(4) Backup ring
(5) Filter gasket
(6) O-Ring
(7) Steel plug
(8) By-pass valve

3.15.3 OIL STRAINER


LF1W4A32A


LF1W4A33A

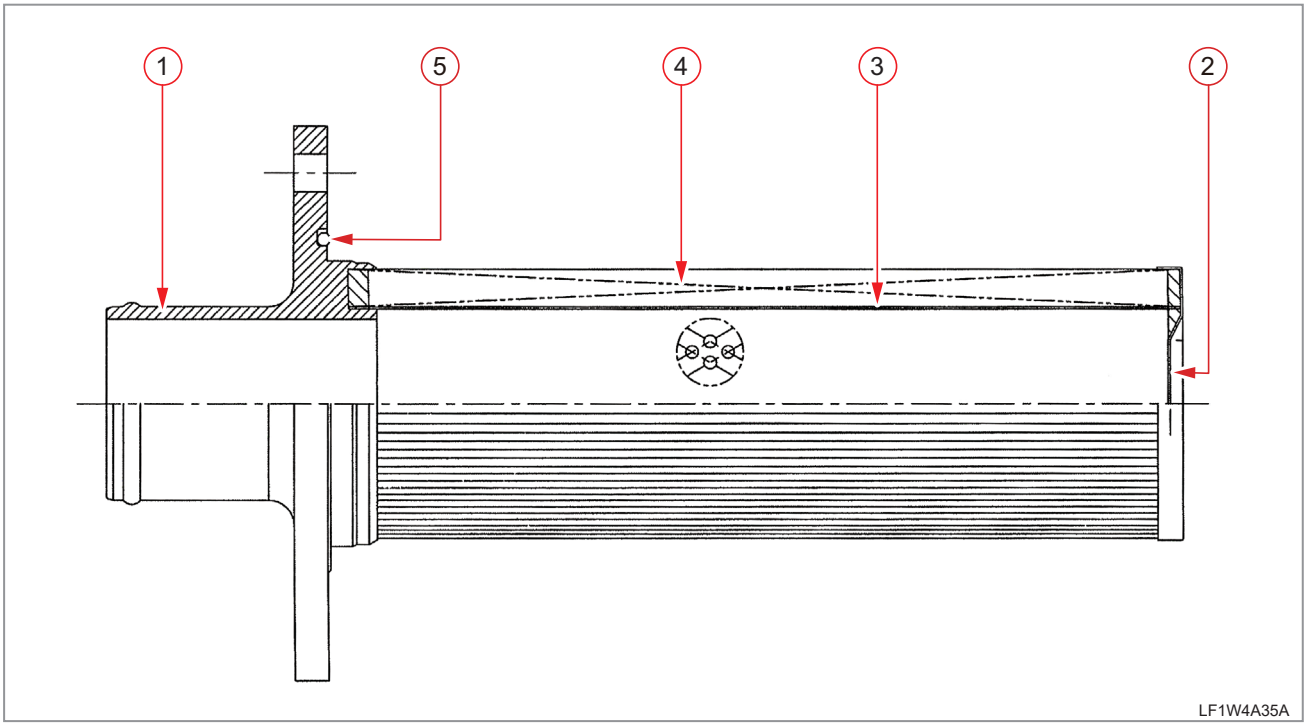

LF1W4A34A

The oil strainer is a suction filter located on the inlet on the front bottom section of the oil tank. It filters the oil before it is delivered to the main pump and high-flow pump.

SPECIFICATIONS

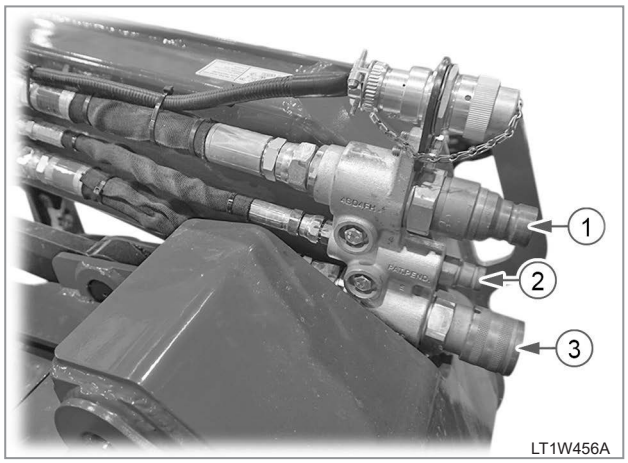
ITEM	SPECIFICATION
Number of folds	57
Effective filtering dimension	0.157 m^2

EXTERIOR

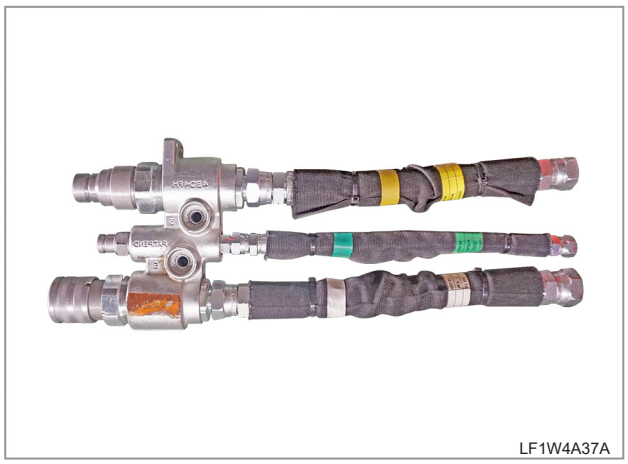


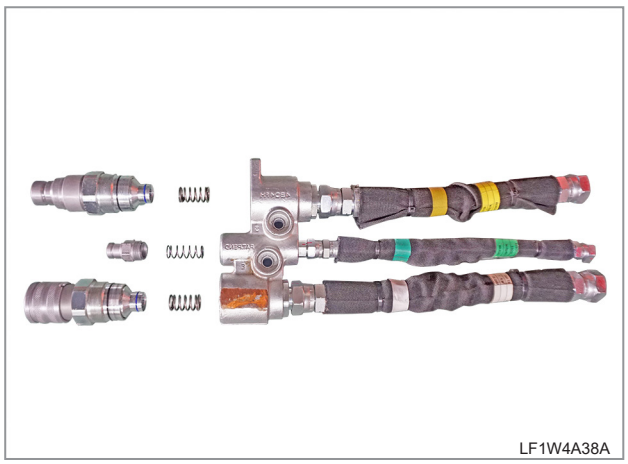
(1) Head
(2) End plate
(3) Inner core plate
(4) Filter
(5) O-Ring

3.16 QUICK COUPLER (EXTERNAL HYDRAULIC)



LT1W456A


LF1W4A37A

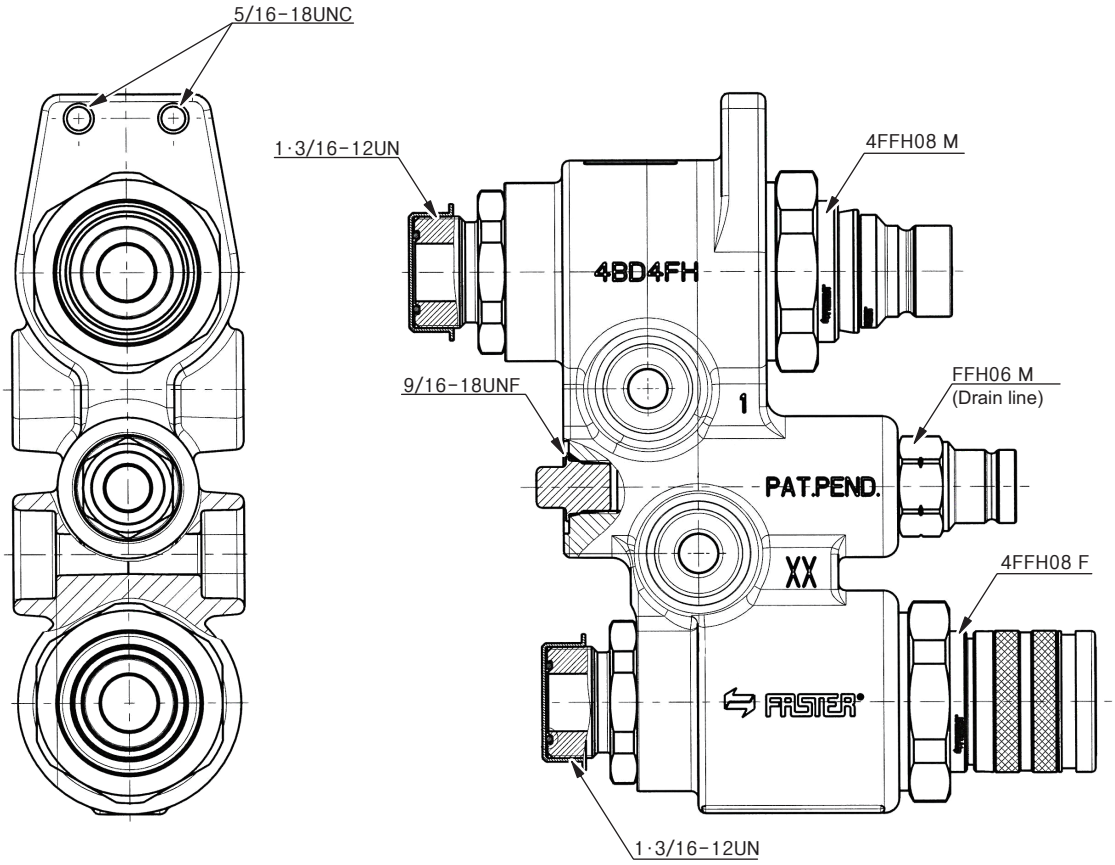

LF1W4A38A

The quick coupler is located on the front left section of the boom structure and consists of the male (1), drain (2), and female (3) couplings.

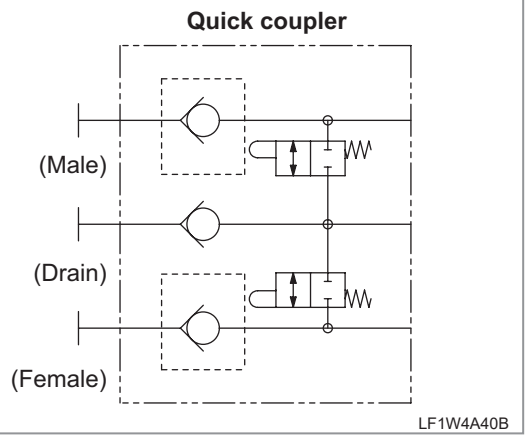
SPECIFICATIONS

ITEM	SPECIFICATION
Max. operating pressure	35 MPa
Rated flow	100 ℓ/min
Oil operating temperature	-25°C ~ 100°C

EXTERIOR & CIRCUIT DIAGRAM

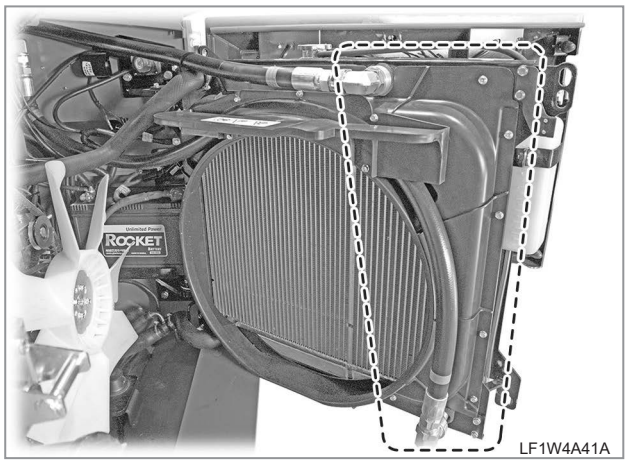


LF1W4A39B



LF1W4A40B

3.17 OIL COOLER

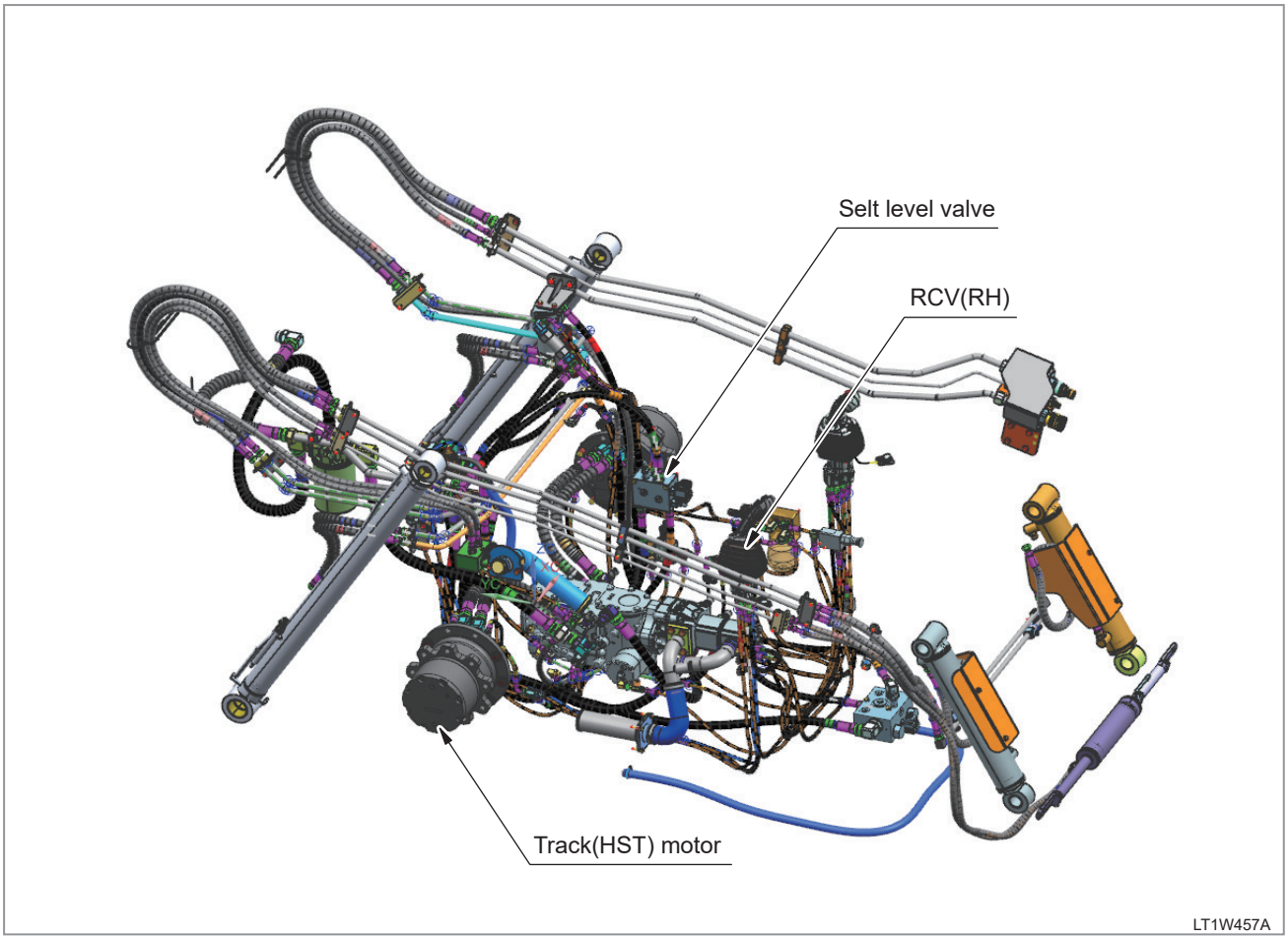


The oil cooler is located next to the radiator on the cooling unit. The oil cooler is used to cool the oil returned from the high-flow valve (optional) and MCV (Main Control Valve) before it is delivered to the oil tank.

SPECIFICATIONS

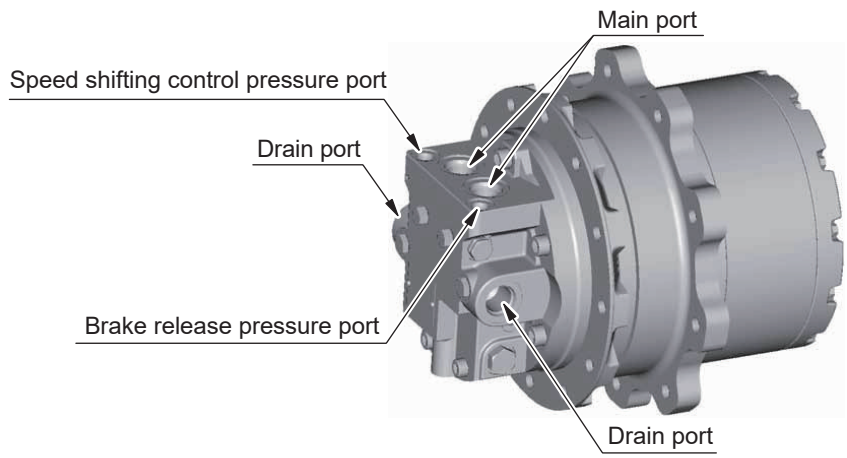
ITEM	SPECIFICATION
Heat rejection rate	24,000 kcal -5%
Flow	165 ℓ/min
Pressure drop	96.5 kPa
Core type	BAR PLATE
Core size	113(W) × 595(H) × 269(L) mm
Capacity	4.7 ℓ

4. OPERATING PRINCIPLE



4.1 TRACK(HST) MOTOR

OVERVIEW



This track (HST) motor is a 2-speed variable displacement axial piston hydraulic motor, and it functions as a hydrostatic motor to convert oil flow into mechanical rotation.

The hydrostatic motor converts hydraulic power into torque and velocity.

As the hydraulic oil under high pressure enters the input main port, it applies pressure on the rear section of the piston which then moves downward along the swash plate.

When the piston is returned onto the swash plate again, the hydraulic oil is discharged through the output main port.

This rotating piston is located in and connected to the cylinder block with its shaft, and its output torque is delivered to the 1st sun gear of the gearbox.

The swash plate of this motor can be switched between the minimum angle (12°) and the maximum angle (18°) to increase the torque and velocity. While there is no control pressure applied on the piston, the motor operates at full displacement (capacity) and delivers the full output torque.

When the control pressure is applied on the piston, its spool is moved and high system pressure is transferred to the servo piston, thereby changing the motor's displacement to the minimum.

The motor in the minimum displacement state delivers the highest velocity. If the shift orifice is selected under this state, the shift operation can be retarded.

On the other hand, the gearbox adopted for the tractor motor is designed to increase the torque and decrease the speed, and it consists of the 2-speed planetary gear assembly that has the two gears connected in series.

The planetary gear assembly consists of the sun gear, ring gear, and planetary gear set that is installed on the carrier. The load is uniformly distributed at the engagement points of the planetary gears and ring gear with the sun gear located in the center.

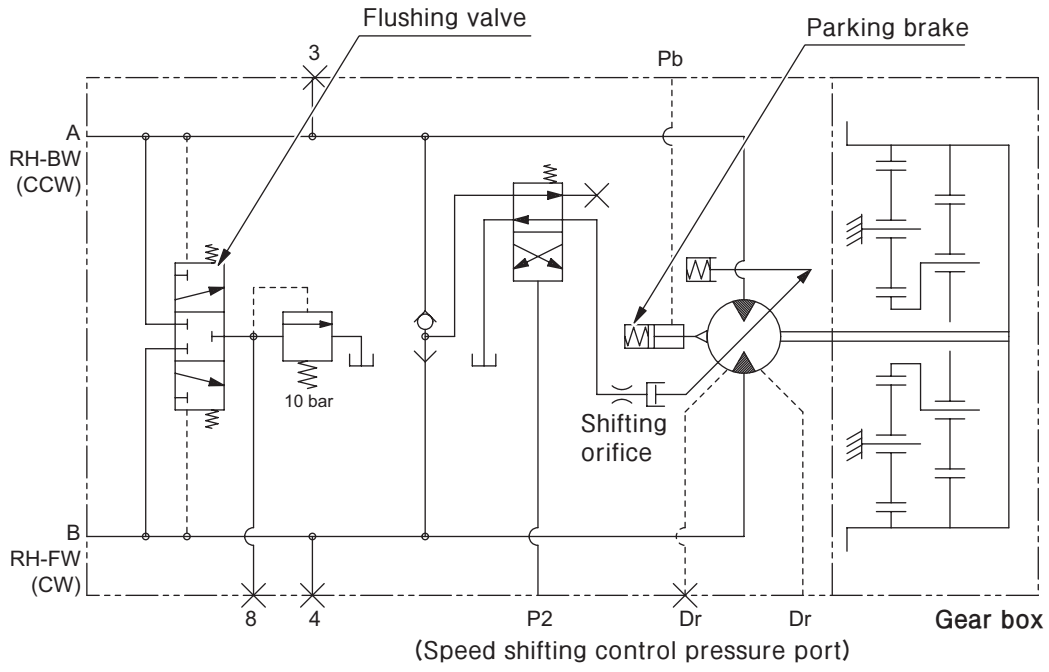
The hydrostatic track motor runs the 1st sun gear first, and then runs the 1st planetary gears inside the ring gear to rotate the 1st gear carrier.

In addition, the 1st gear carrier is directly connected to the 2nd sun gear, the 2nd gear carrier is a part of the motor housing, and the 2nd planetary gears deliver the torque to the ring gear.

As a result, the hub is rotated in the reverse rotating direction of the input. The planetary gears are supported by the bearings and the final output hub is also supported by the bearing to process massive external load.

REMARK

- **Do not use the shift control pressure function in the range between 3 bar and 15 bar to prevent the unstable position of the swash plate.**



The motor can be switched into the low-torque high-speed mode in case that the equipment needs to be operated at a high speed with low motor load. This function is achieved by the functioning valve inside the motor that cuts the flow required to rotate the motor in half.

- Loop flushing valve

The loop flushing valve is used to change the hydraulic oil in the system circuit to decrease the transmission temperature or remove excessive contamination in the closed circuit.

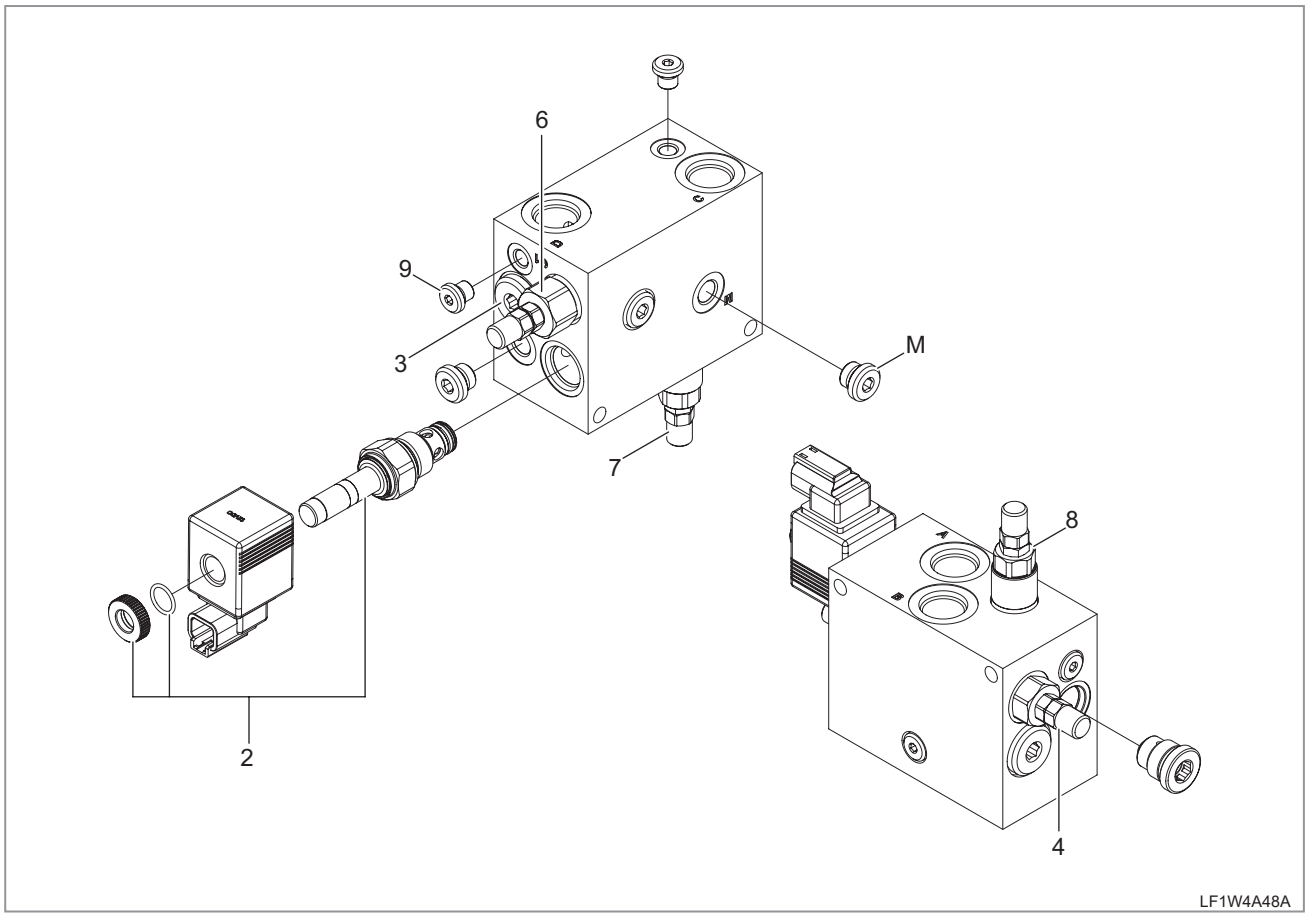
The end cap is equipped with the shuttle spool and charge relief valve to provide the loop flushing function.

The shuttle valve selects the low system pressure, and the charge relief valve adjusts the charge pressure level.

In addition, the shuttle valve is centered by its spring, so the loss of the high-pressure flow does not occur in the circuit.

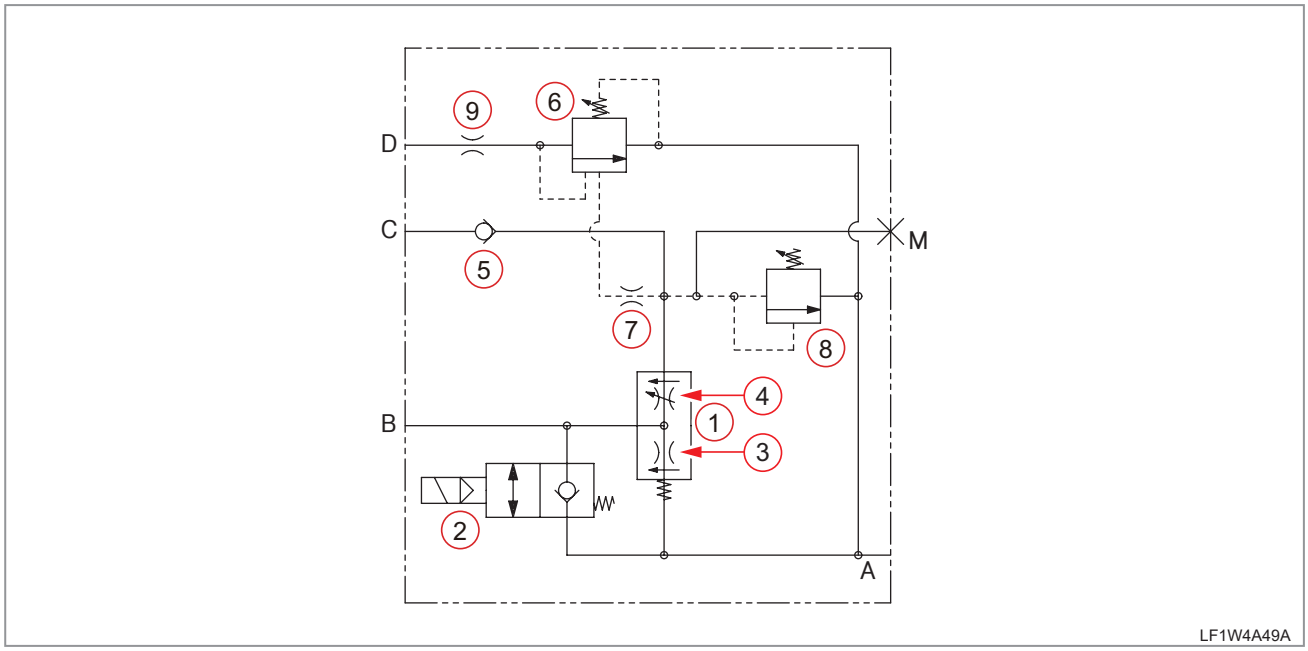
4.2 SELF LEVEL VALVE

COMPONENTS

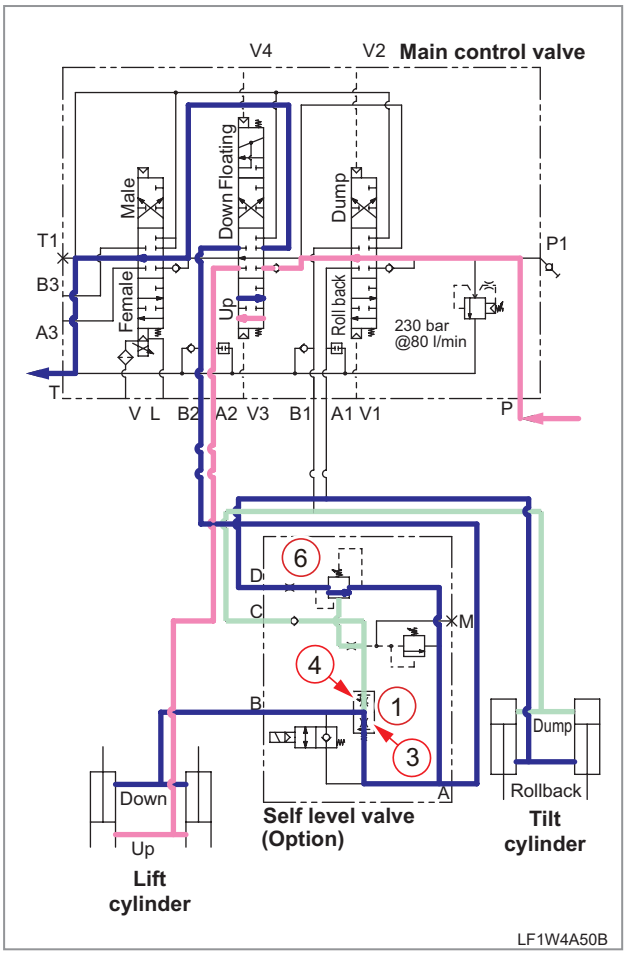


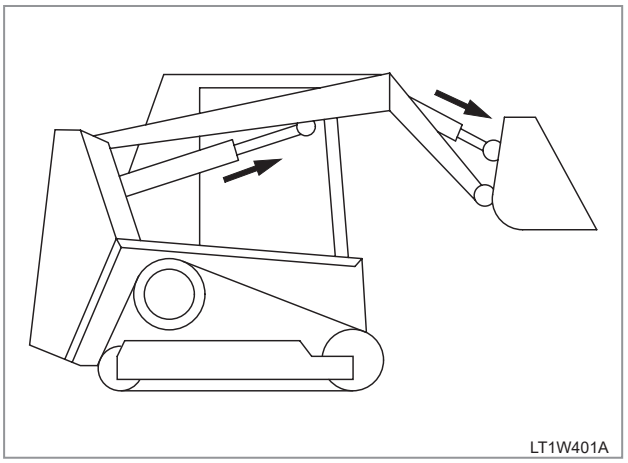
(1) Flow divider spool
(2) solenoid valve
(3) Fixed orifice (Ø2.0)
(4) Control orifice
(5) Flow check valve
(6) Cylinder lock valve
(7) Lock valve damping orifice (Ø0.7)
(8) Main relief valve
(9) Anti-chattering orifice (Ø2.0)

CIRCUIT DIAGRAM



SELF LEVELING





To activate this function, press the self-leveling switch first.

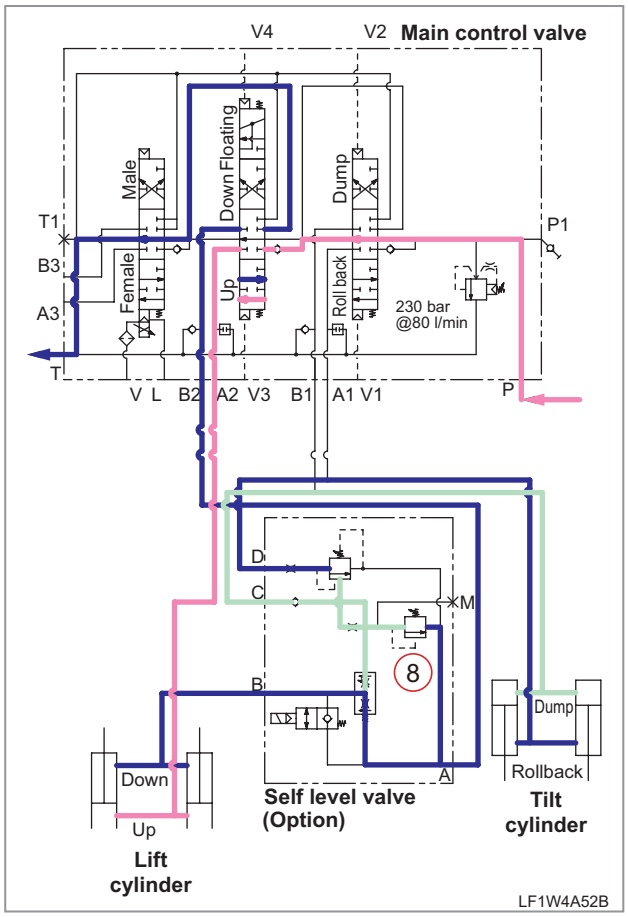
When the boom spool is pulled, the hydraulic oil from the control valve is led into the head port of the lift cylinder.

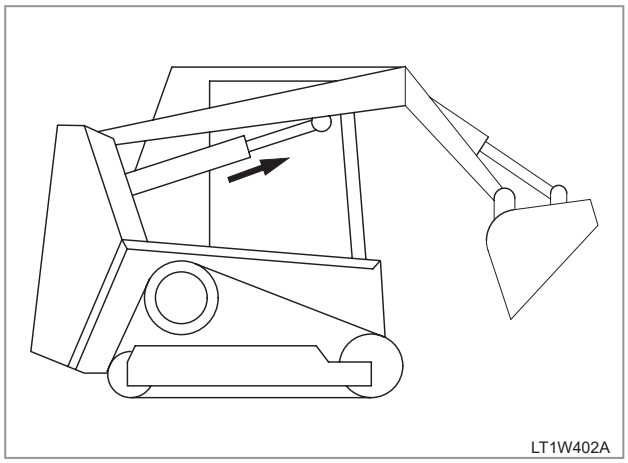
As the lift cylinder expands, the oil from the rod port flows directly to port B of the self-leveling valve. The oil entering port B passes through the fixing orifice (3) and adjusting orifice (4) in the flow divider spool (1).

The split ratio of the hydraulic oil is determined by the setting of the adjusting orifice (4). The remaining oil is returned to the tank after it is returned to the control valve through the fixing orifice (3) and out port A. The oil passing through the adjusting orifice (4) flows to out port C, and then it is led to the head port of the tilt cylinder in a T form in order to extend the tilt cylinder.

The resistance from the tilt cylinder operation builds enough pressure to open the cylinder lock valve (6) of the self-leveling valve. When the tilt cylinder is extended, the oil from the rod port of the tilt cylinder flows to port D and passes through the cylinder lock valve (6) that is open. Then, it is returned to the control valve through out port A before it is finally returned to the tank.

RAISING THE BOOM WITH THE TILT CYLINDER FULLY EXTENDED

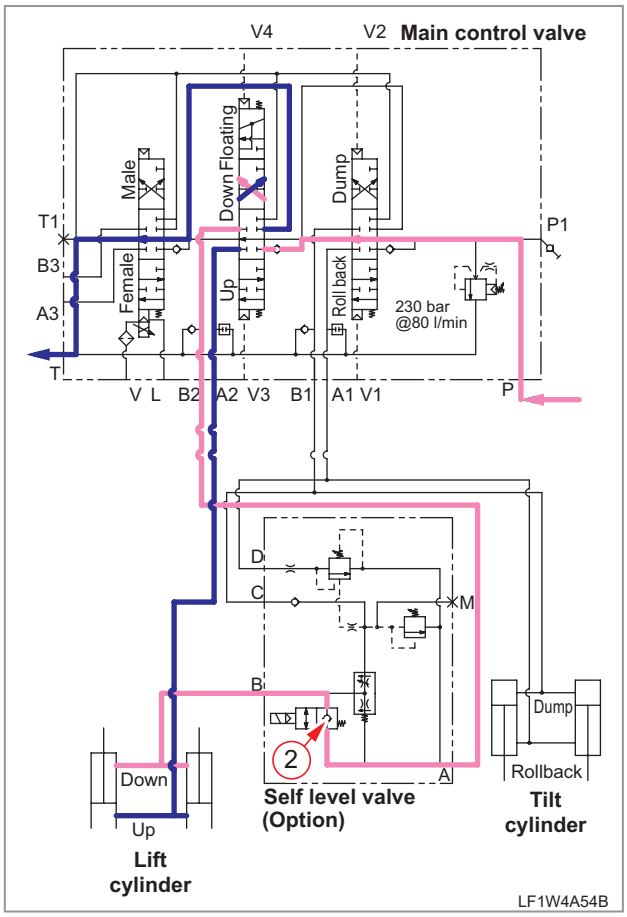


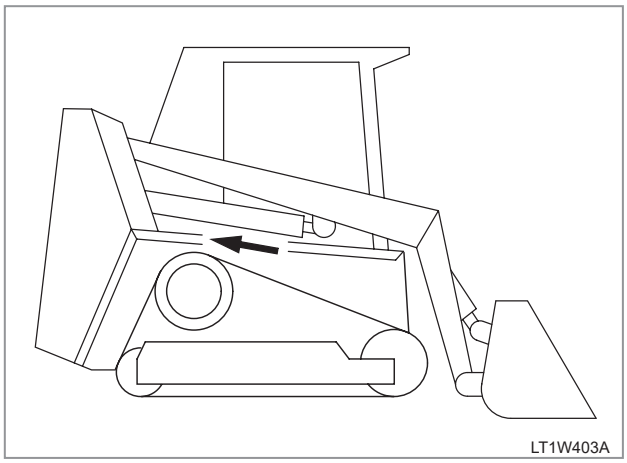


In the self-leveling state, the lift cylinder continues to rise even when extending it fully or moving the bucket spool to the dump position.

This is because the main relief valve (8) opens and the oil supplied to the tilt cylinder head port is returned to the tank, preventing the lift cylinder from stopping during the lift operation.

RETRACTING THE LIFT CYLINDER

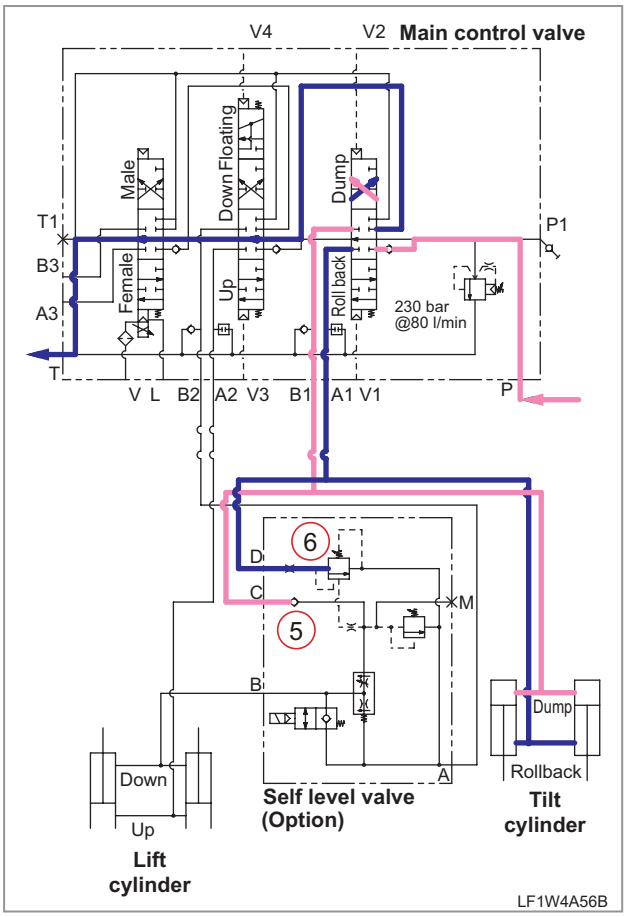


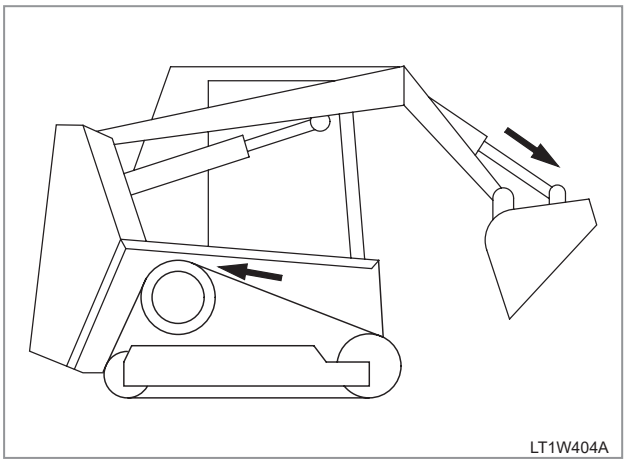


As the boom spool is pushed, the hydraulic oil is directly led into port A of the self-leveling valve.

This hydraulic oil enters the self-leveling valve and opens the lift check valve (2). Then, it flows into the rod port of the lift cylinder due to the pressure difference between port B and flow divider spool, resulting in no extension of the tilt cylinder.

EXTENDING THE TILT CYLINDER



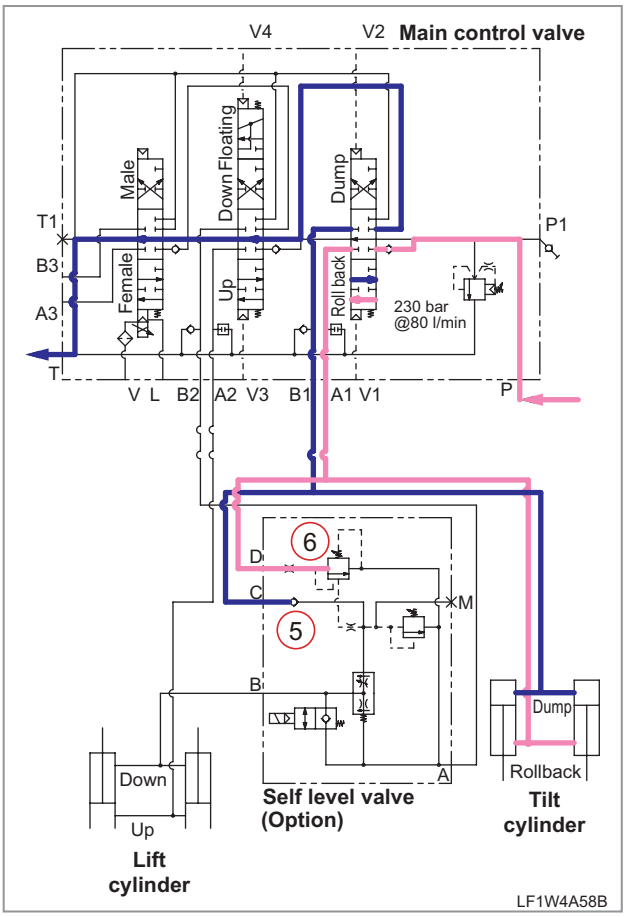


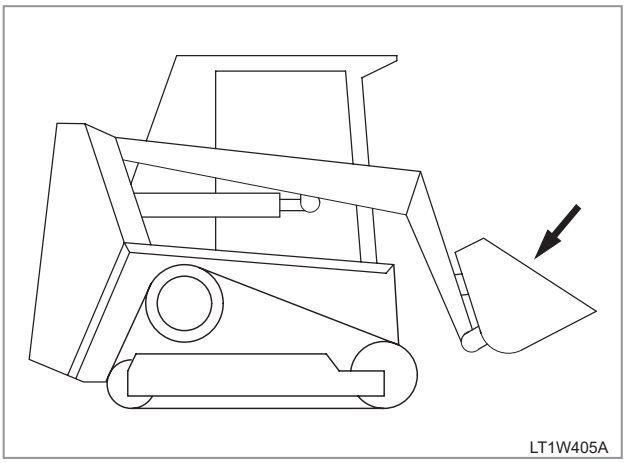
As the bucket spool is pulled, the hydraulic oil is directly led to the head port of the tilt cylinder from the control valve. The hydraulic oil flows to port C, but it is also blocked by the flow check valve (5).

The oil from the rod port flows directly to the control valve and returns to the tank.

The returned oil goes to port D of the self-leveling valve, but it is blocked by the cylinder lock valve (6).

RETRACTING THE TILT CYLINDER





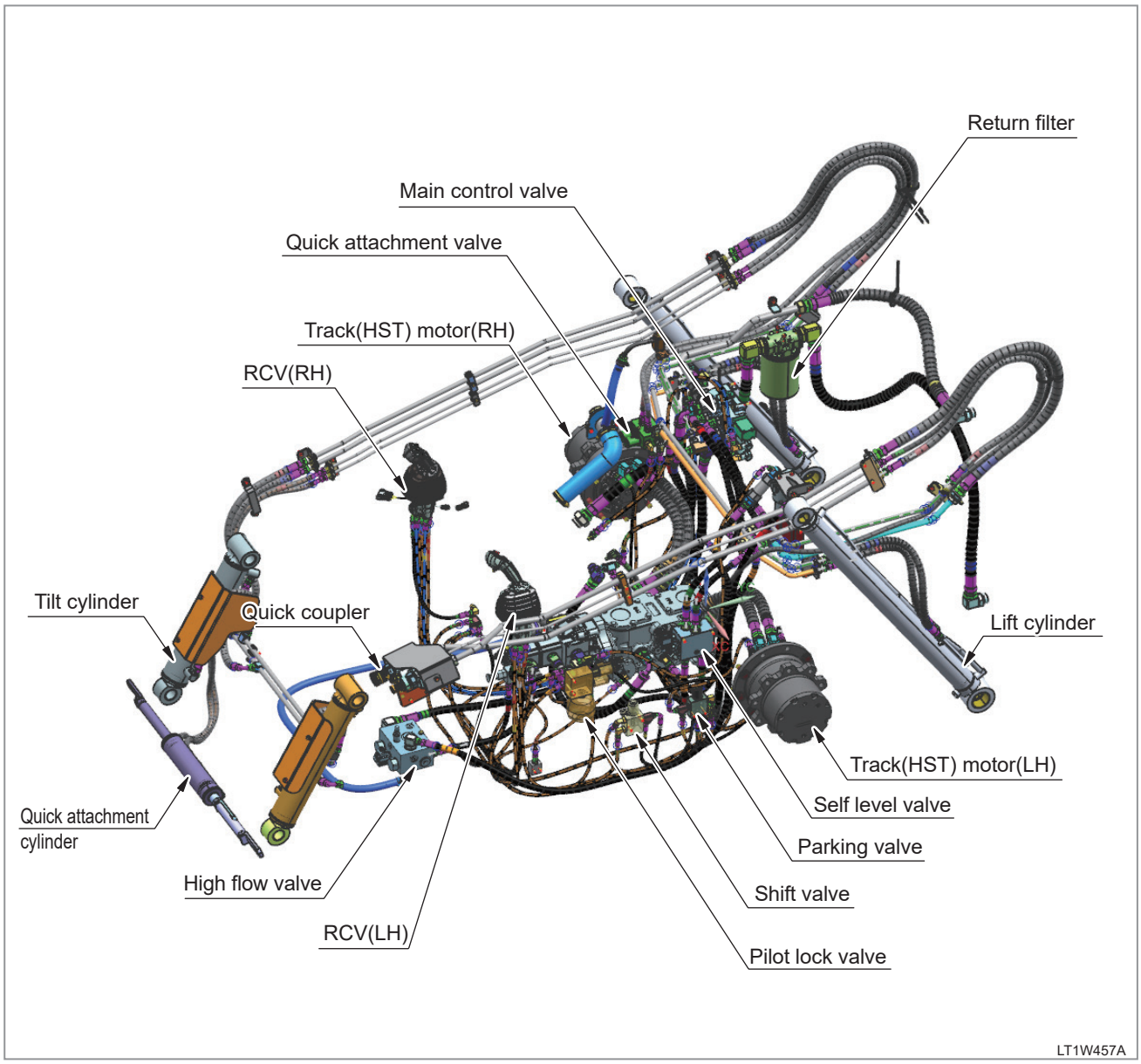
As the bucket spool is pushed, the hydraulic oil is directly led into the rod port of the tilt cylinder.

The hydraulic oil also flows to port D of the self-leveling valve through the connection T, but it is blocked by the cylinder lock valve (6).

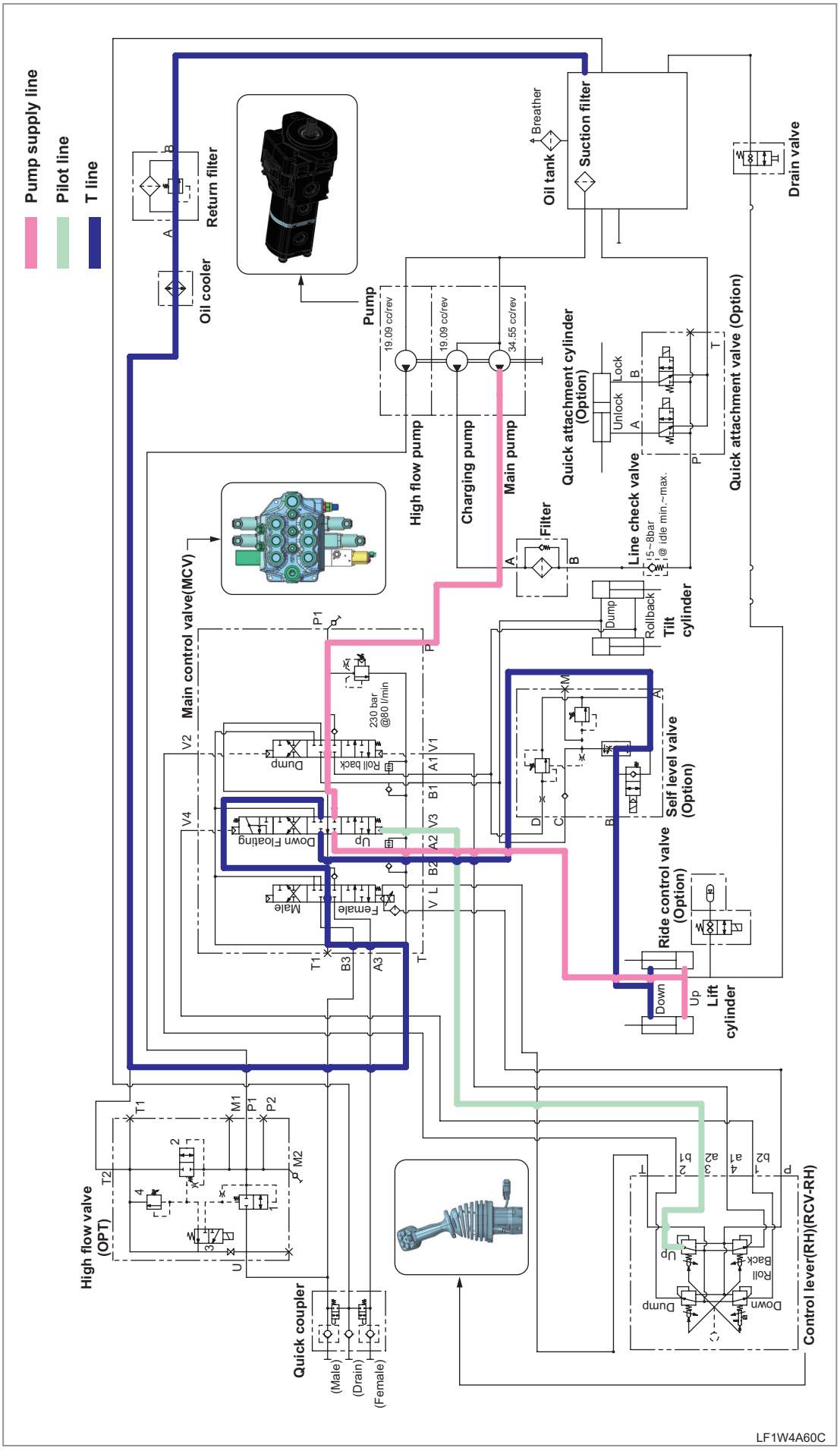
The oil that has returned from the head port flows directly to the control valve and returns to the tank.

The oil from the head port also flows to port C of the self-leveling valve through the connection T, but it is blocked by the flow check valve (5).

4.3 RCV (R/H)


Return filter
Main control valve
Quick attachment valve
Track(HST) motor(RH)
RCV(RH)
Tilt cylinder
Quick coupler
Lift cylinder
Track(HST) motor(LH)
Quick attachment cylinder
Self level valve
Parking valve
High flow valve
Shift valve
RCV(LH)
Pilot lock valve
LT1W457A

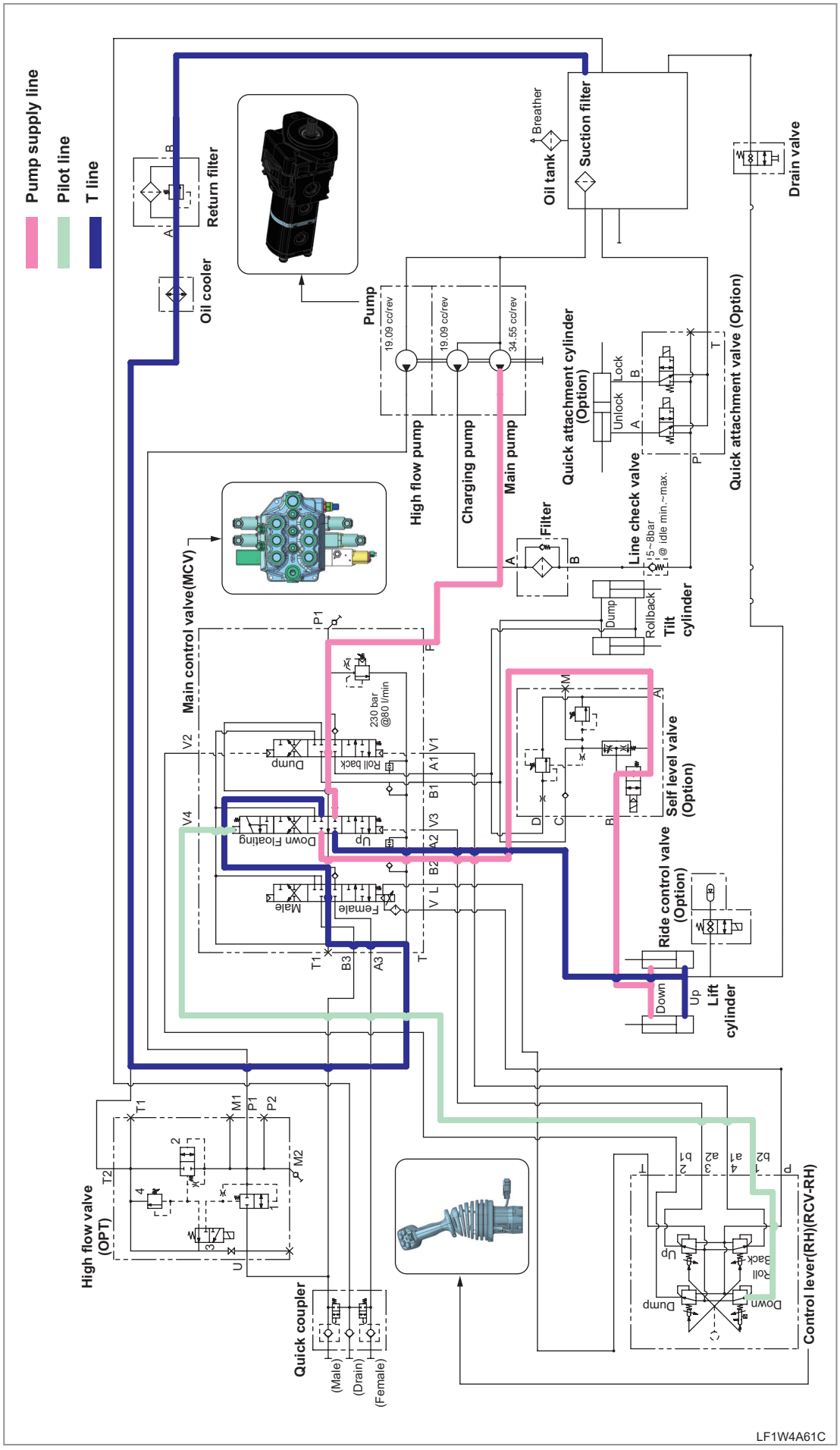
4.3.1 BOOM OPERATION (UP)



RCV(RH)(Joystick lever) pulled backward

1) Pilot line : RCV-RH → MCV (switches to UP direction)
2) Pump supply line : Gear pump → MCV → Lift cylinder head → Boom up
3) T line : Lift cylinder rod → Self-leveling valve port A → MCV → Oil tank

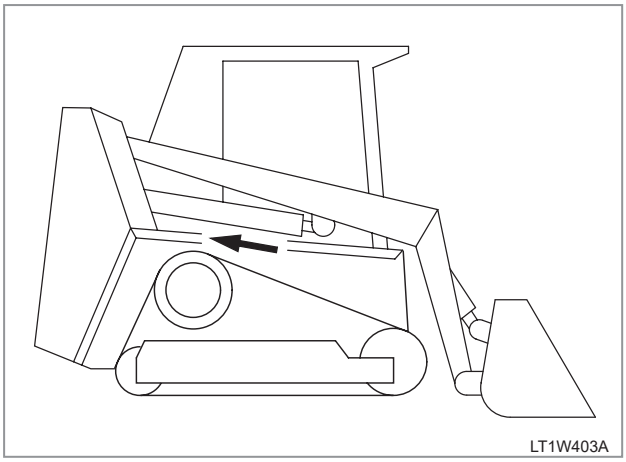
4.3.2 BOOM OPERATION (DOWN)

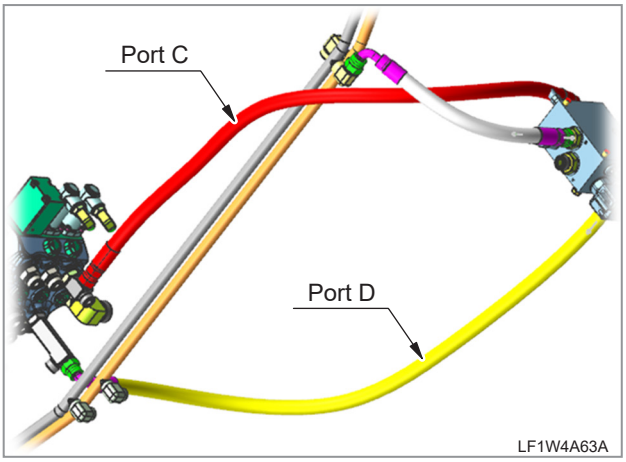


RCV(RH)(Joystick lever) pulled forward

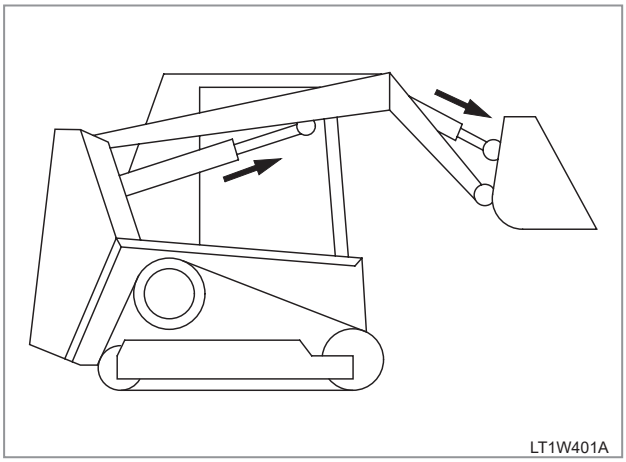
1) Pilot line : RCV-RH → MCV (switches to DOWN direction)
2) Pump supply line : Gear pump → MCV → Lift cylinder rod → Boom down
3) T line : Lift cylinder head → MCV → Oil tank

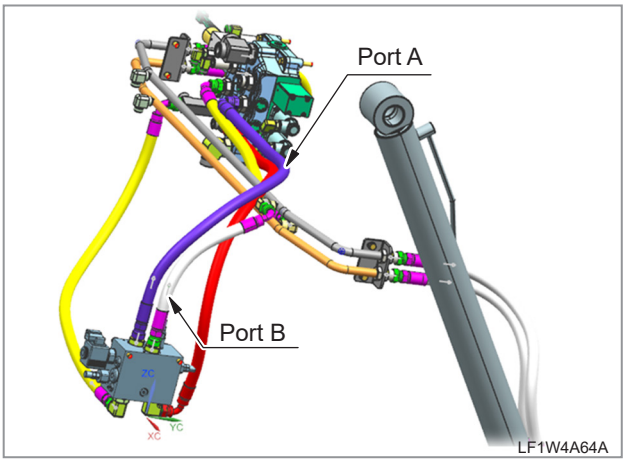
4.3.3 SELF LEVELING


LT1W403A

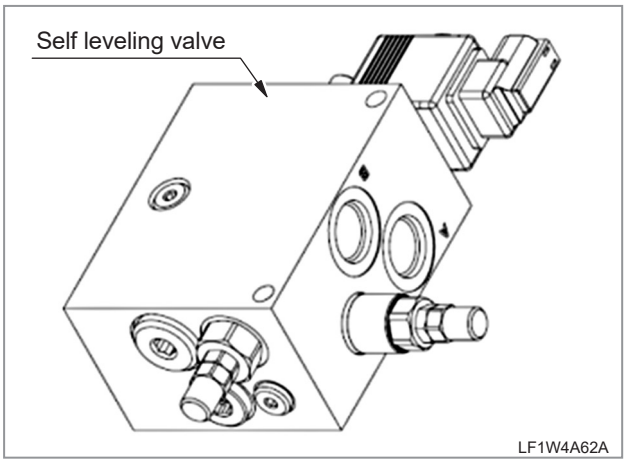


LF1W4A63A


LT1W401A



LF1W4A64A

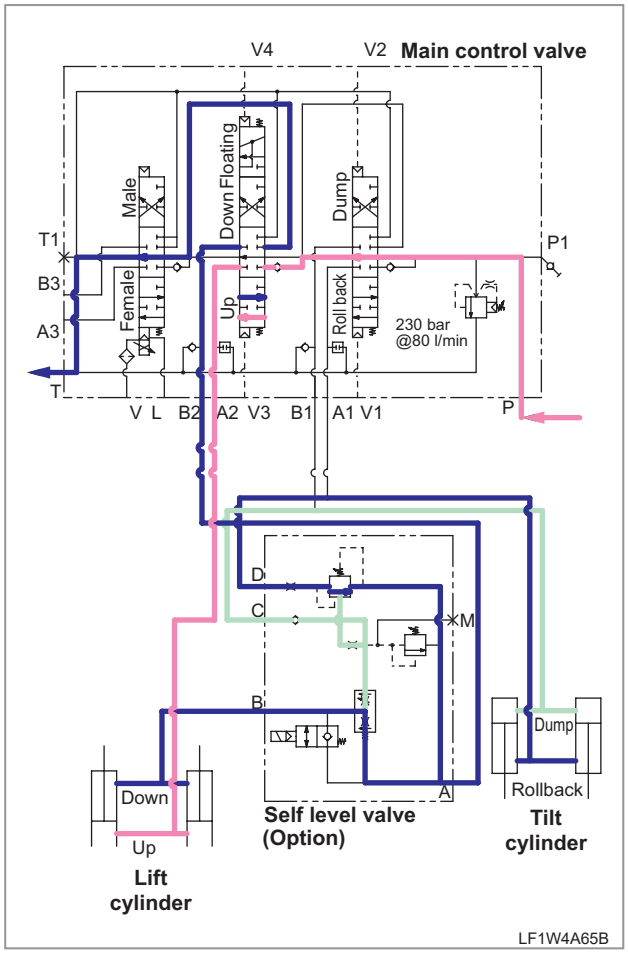


LF1W4A62A

▶ SELF LEVELING FUNCTIONS

The rollback of the bucket during boom up operations reduces work efficiency. The self-leveling valve diverts some of the flow from the lift cylinder toward the tilt cylinder in order to maintain the horizontal position of the bucket. This function is known as self-leveling.

- Type : Hydraulic (Boom up leveling)
- Flow rate : 49 ℓ/min (Boom up)
- Maxumum operation pressure : 210 bar



▶ BUCKET LOWERED ON THE GROUND

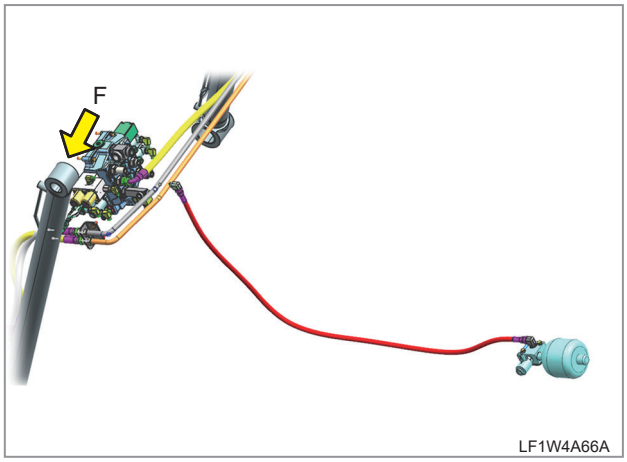
Boom up → Port B → Port A, Port C → Bucket dump

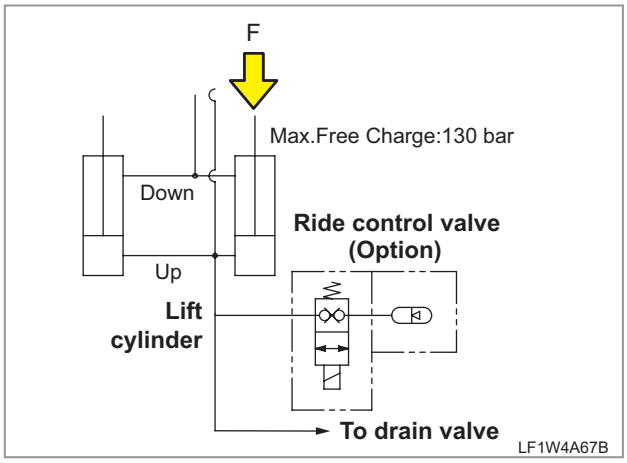
▶ TILT CYLINDER BEING FULLY EXTENDED

Boom up → Port B → Port A → MCV → Oil tank

* The proportion of the division of the flow rate is determined by the setting of the adjustment orifice (4).

4.3.4 RIDE CONTROL [OPTION]

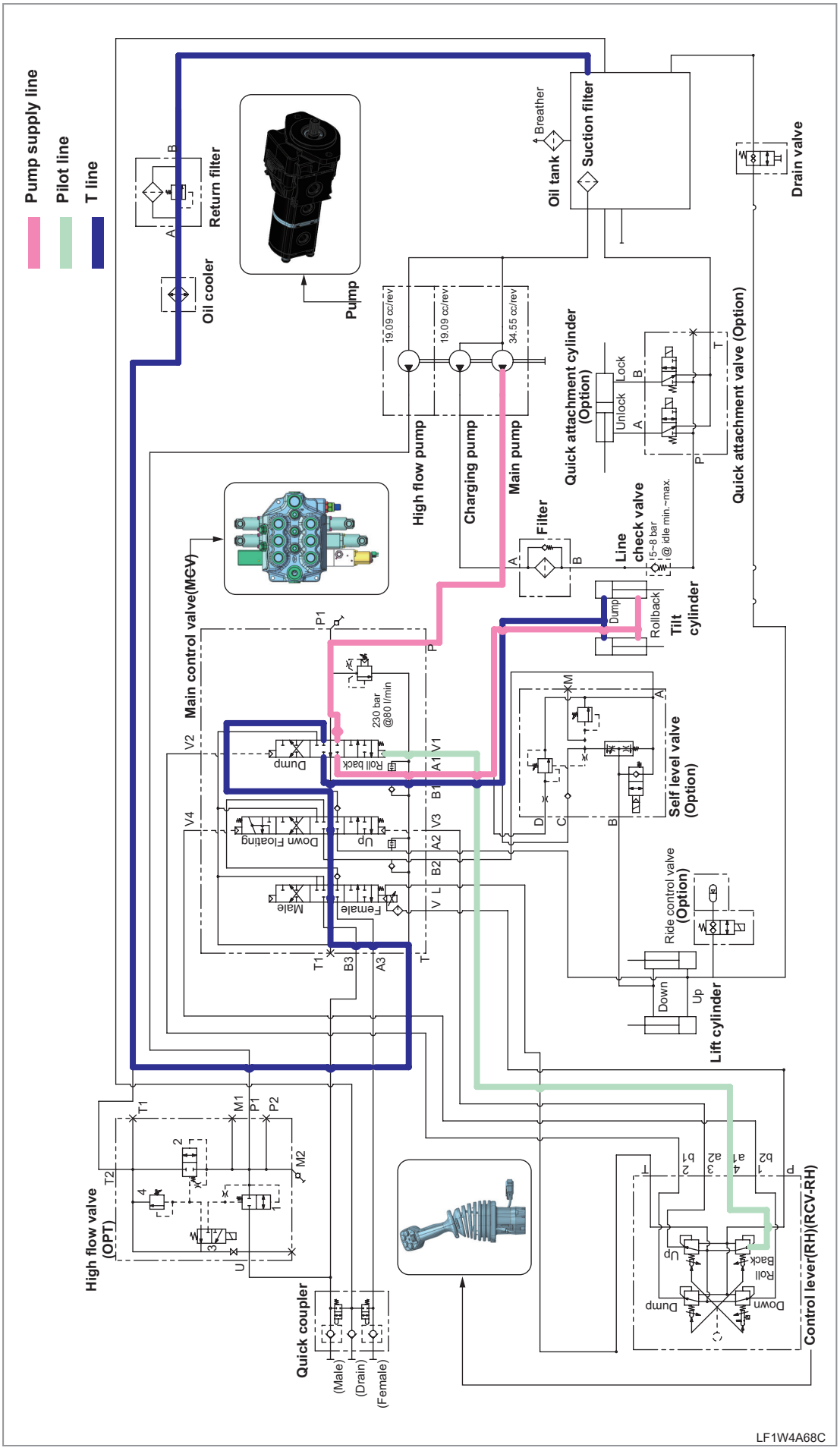




▶ RIDE CONTROL FUNCTIONS

When driving on uneven ground, the gravel in the bucket may pour out as the machine shakes due to the force applied to the lift cylinder. When the ride control function is used, the accumulator absorbs this force to enable more stable operation while the skid loader is traveling.

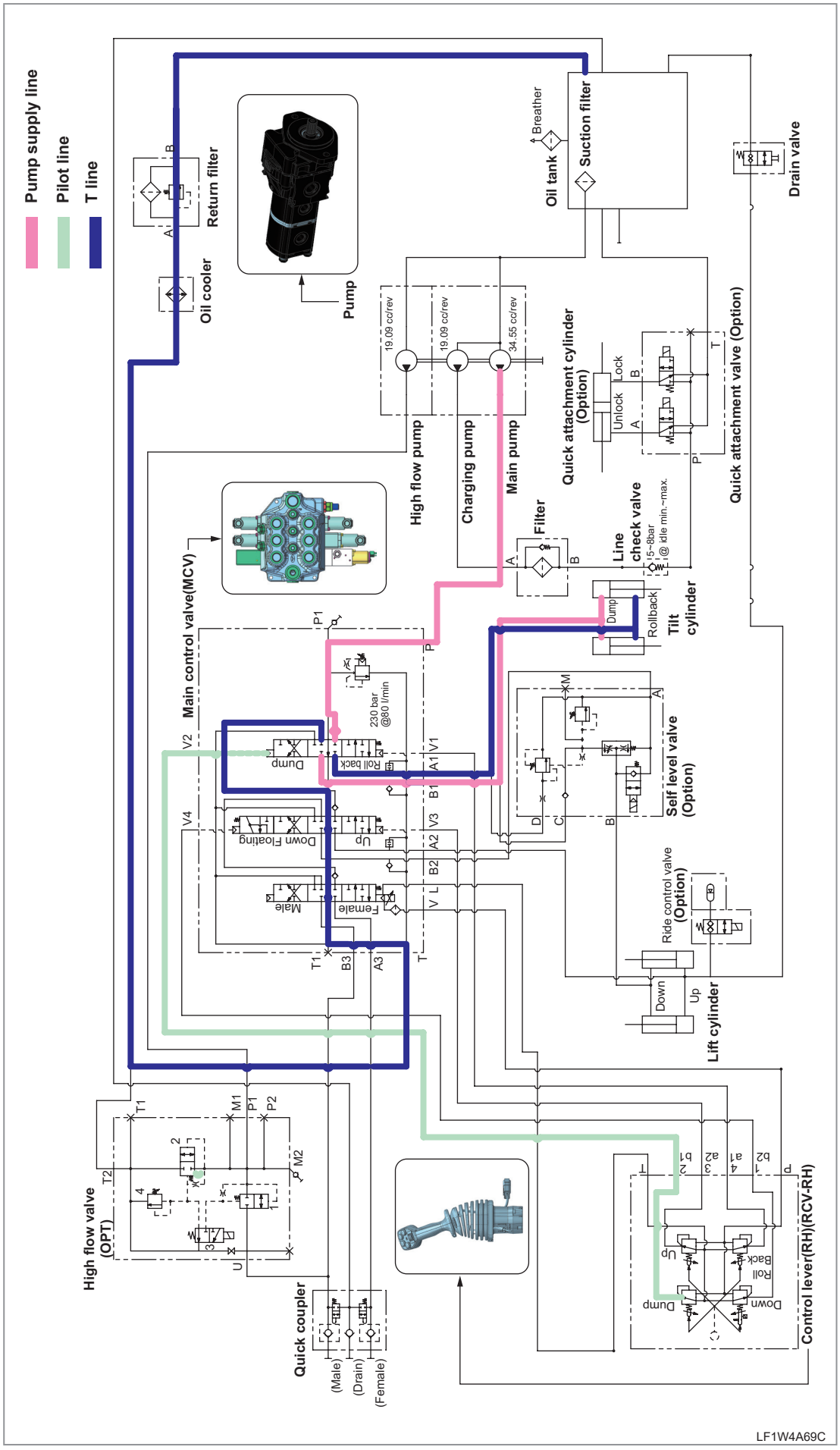
4.3.5 BUCKET OPERATION (ROLL BACK)



RCV(RH)(Joystick lever) pushed to the left

1) Pilot line : RCV-RH → MCV (switches to rollback direction)
2) Pump supply line : Gear pump → MCV → Tilt cylinder rod → Bucket roll back
3) T line : Tilt cylinder head → MCV → Oil tank

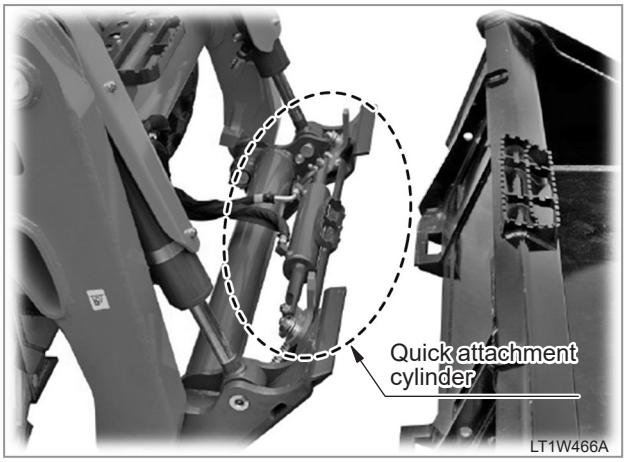
4.3.6 BUCKET OPERATION (DUMP)

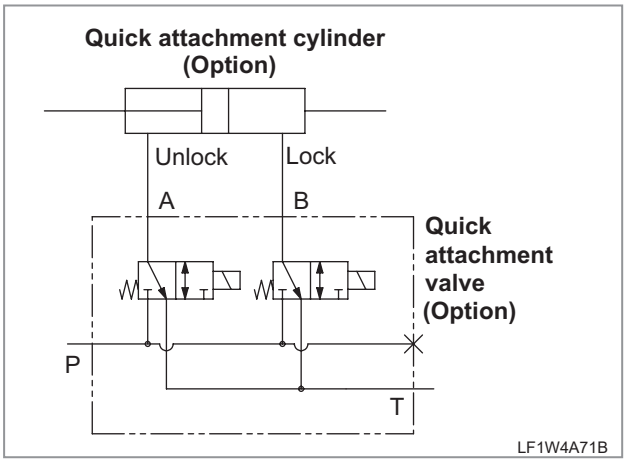


RCV(RH)(Joystick lever) pushed to the right

1) Pilot line : RCV-RH → MCV (switches to dump direction)
2) Pump supply line : Gear pump → MCV → Tilt cylinder head → Bucket dump
3) T line : Tilt cylinder rod → MCV → Oil tank

4.3.7 QUICK ATTACHMENT



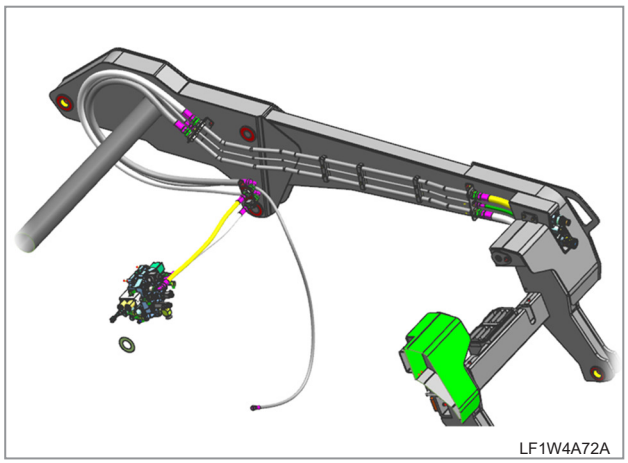


▶ QUICK ATTACHMENT FUNCTIONS

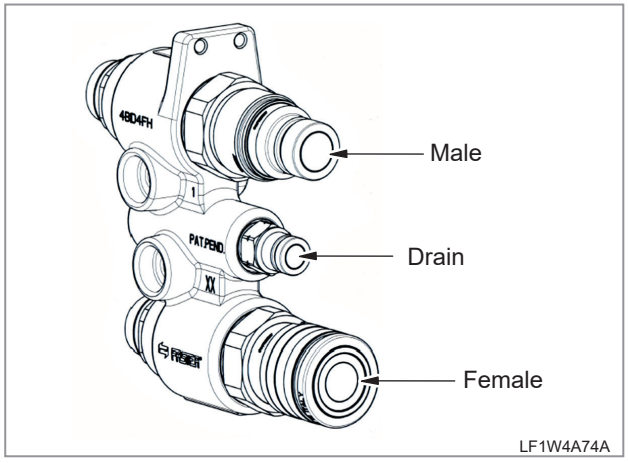
Previously, in order to mount the bucket on the skid loader, the attachment lever had to be locked manually. As a result, there was the inconvenience of having to leave the machine in order to mount the bucket. As shown in the figure above, the quick attach cylinder and valve enable the operator to mount the bucket with a single button without having to leave the machine itself.

4.3.8 EXTERNAL IMPLEMENT

GENERAL


LF1W4A72A


LT1W4A74A

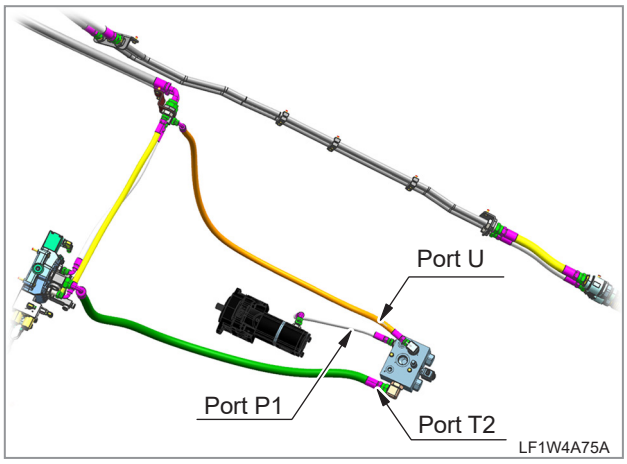


LF1W4A74A

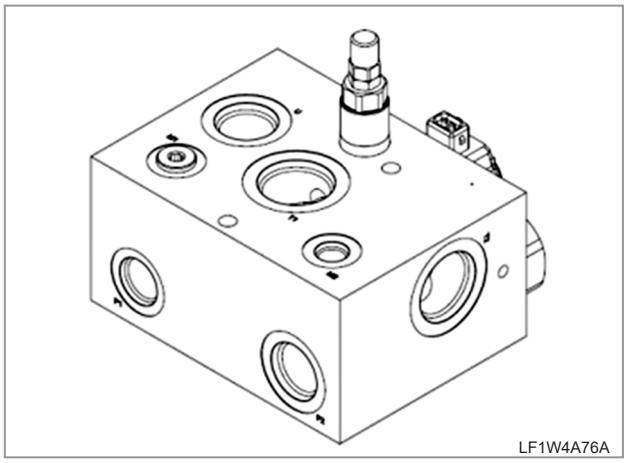
▶ EXTERNAL IMPLEMENT FUNCTIONS

Necessary when using an implement aside from the bucket, this function actuates the implement with hydraulics by connecting the quick coupler and implement with hydraulic hoses

HIGH FLOW



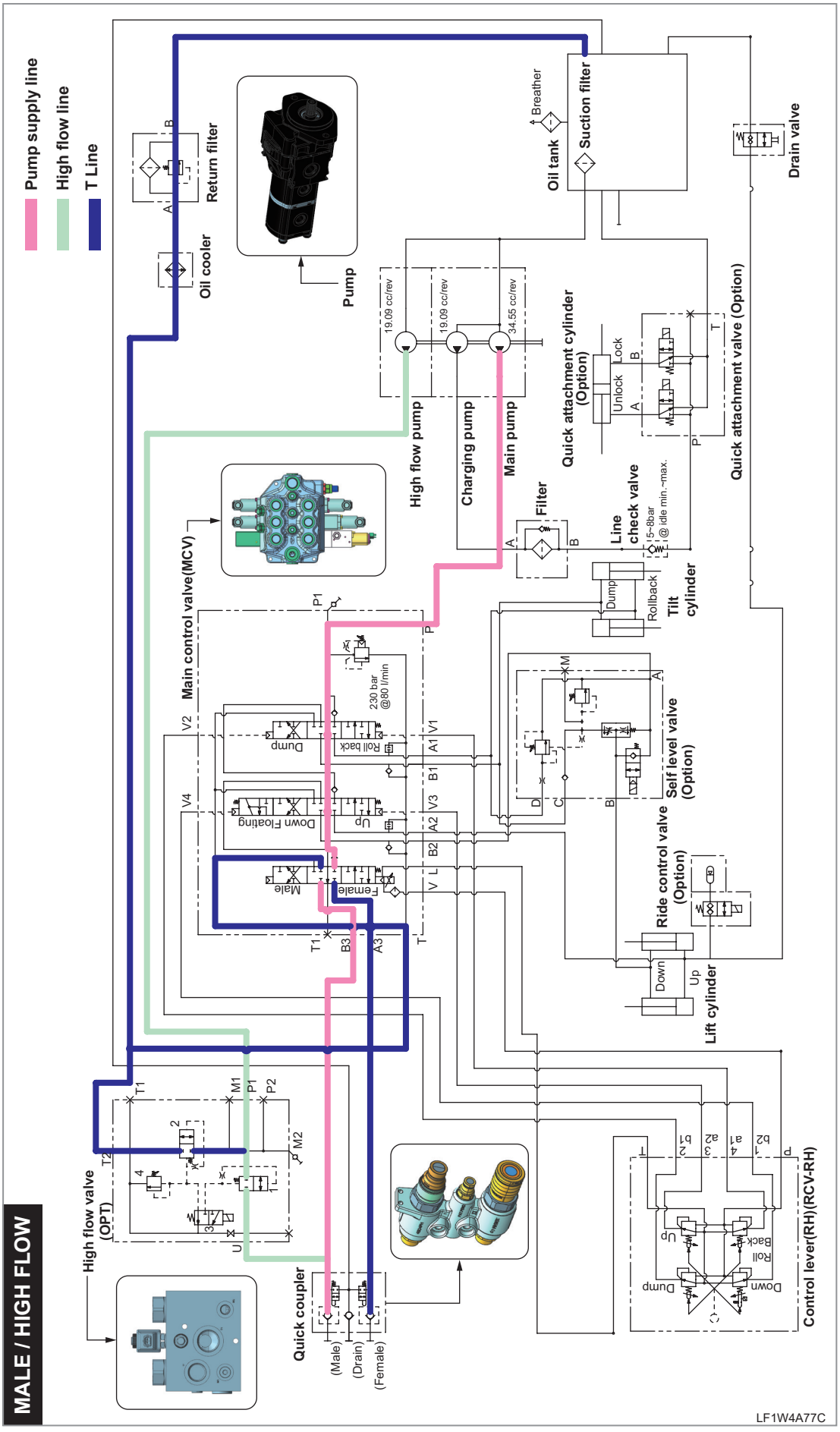
LF1W4A75A


LF1W4A76A

▶ HIGH FLOW VALVE FUNCTIONS

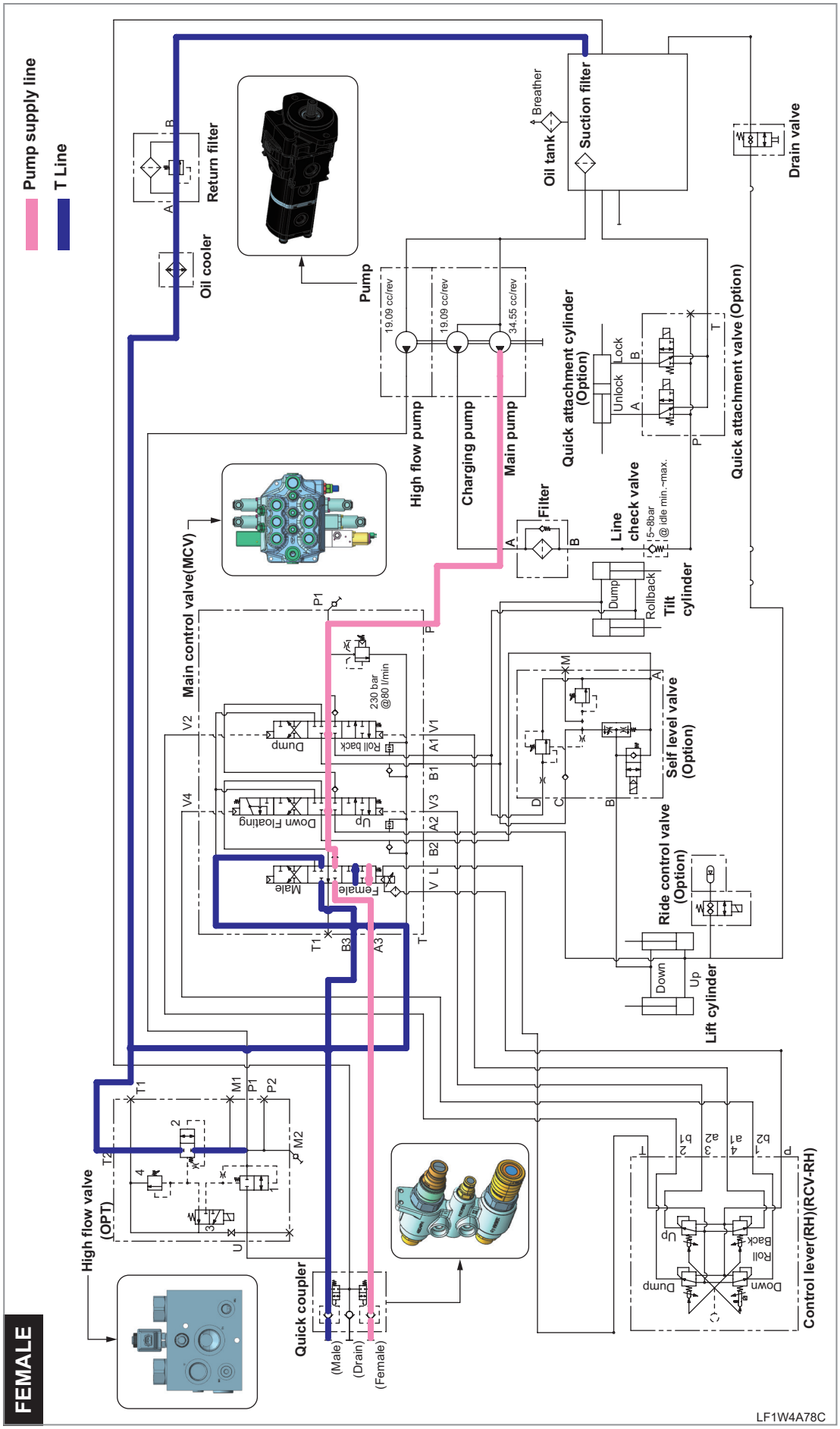
This option is necessary when using an implement which requires a relatively high flow rate. It increases the flow rate to the quick coupler by means of a high-flow pump and valve.

- Max. operating pressure : 210 bar
- Max. flow : 150 ℓ/min



RCV(RH)(Joystick lever) "male" button pushed

1) MCV solenoid "On" → Switches to Male
2) Pump supply line : Gear pump → MCV → Quick coupler (male)
3) T line : Quick coupler (female) → MCV → Oil tank



REMARKS

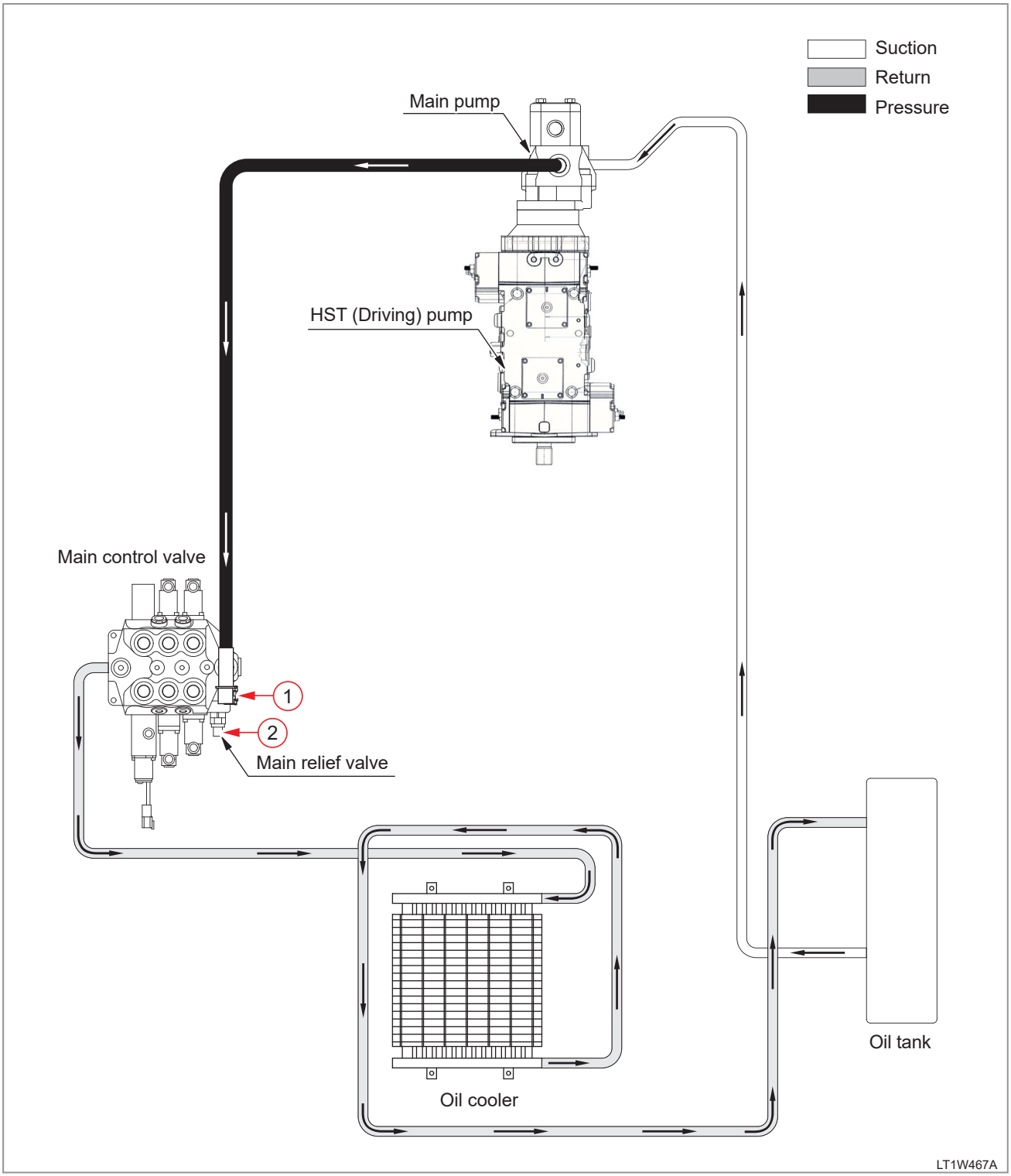
- **The female coupler shuts off the high-flow function electrically, so pressing the high-flow switch does not activate the high-flow function.**

RCV(RH)(Joystick lever) "Female" button pushed

1) MCV solenoid "On" → Switches to Female
2) Pump supply line : Gear pump → MCV → Quick coupler (female)
3) T line : Quick coupler (male) → MCV → Oil tank

5. CHECK & ADJUSTMENT

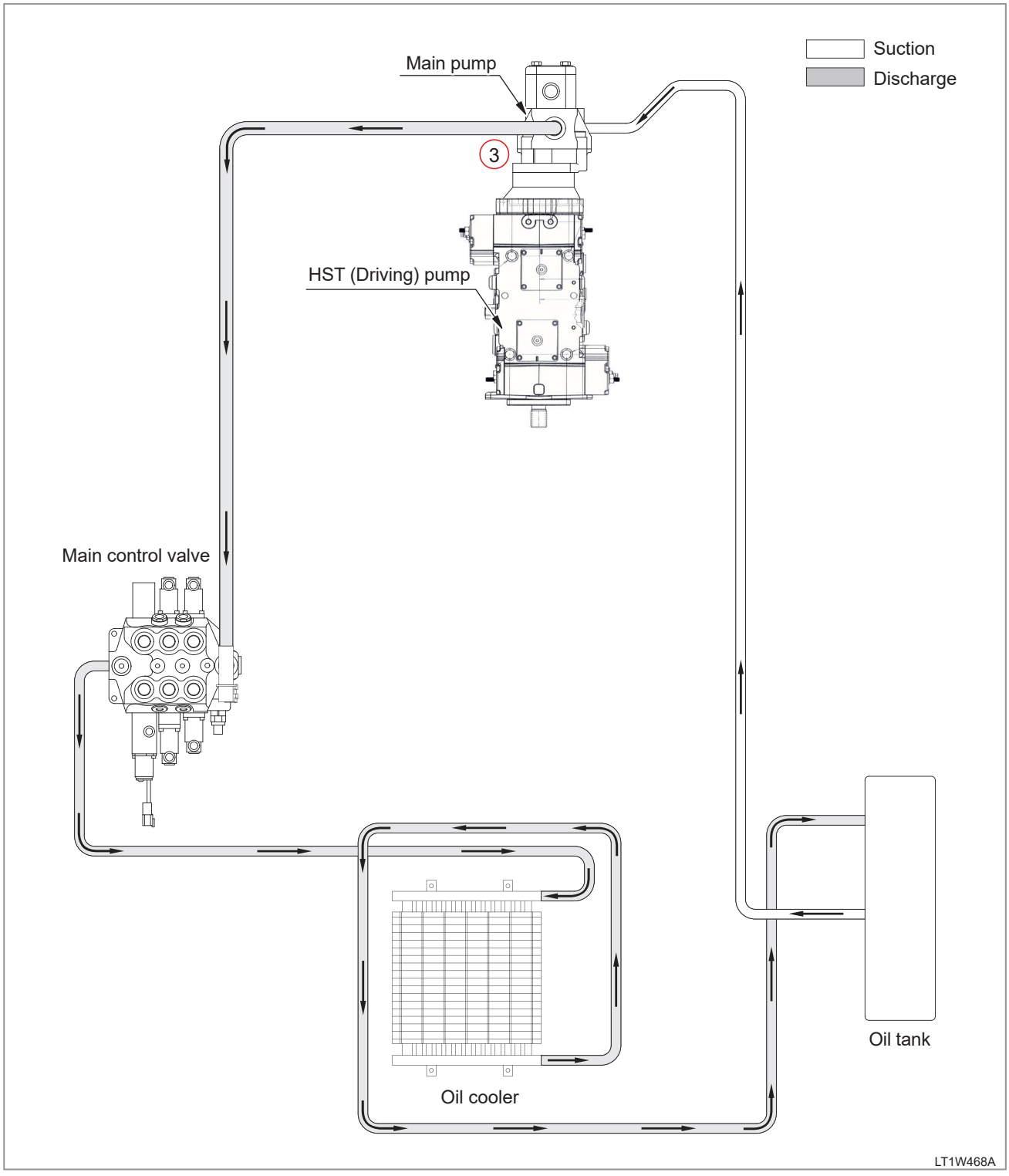
5.1 MAIN CONTROL VALVE (MCV) SYSTEM PRESSURE



Install a pressure gauge on the position (1), and then move the RCV (RH) (joystick lever) to the right with the engine running at 2,550 RPM. The pressure gauge should indicate 230 bar. If not, adjust or replace the main relief valve on the position (2).

(Port size (1) : M16 x 2.0)

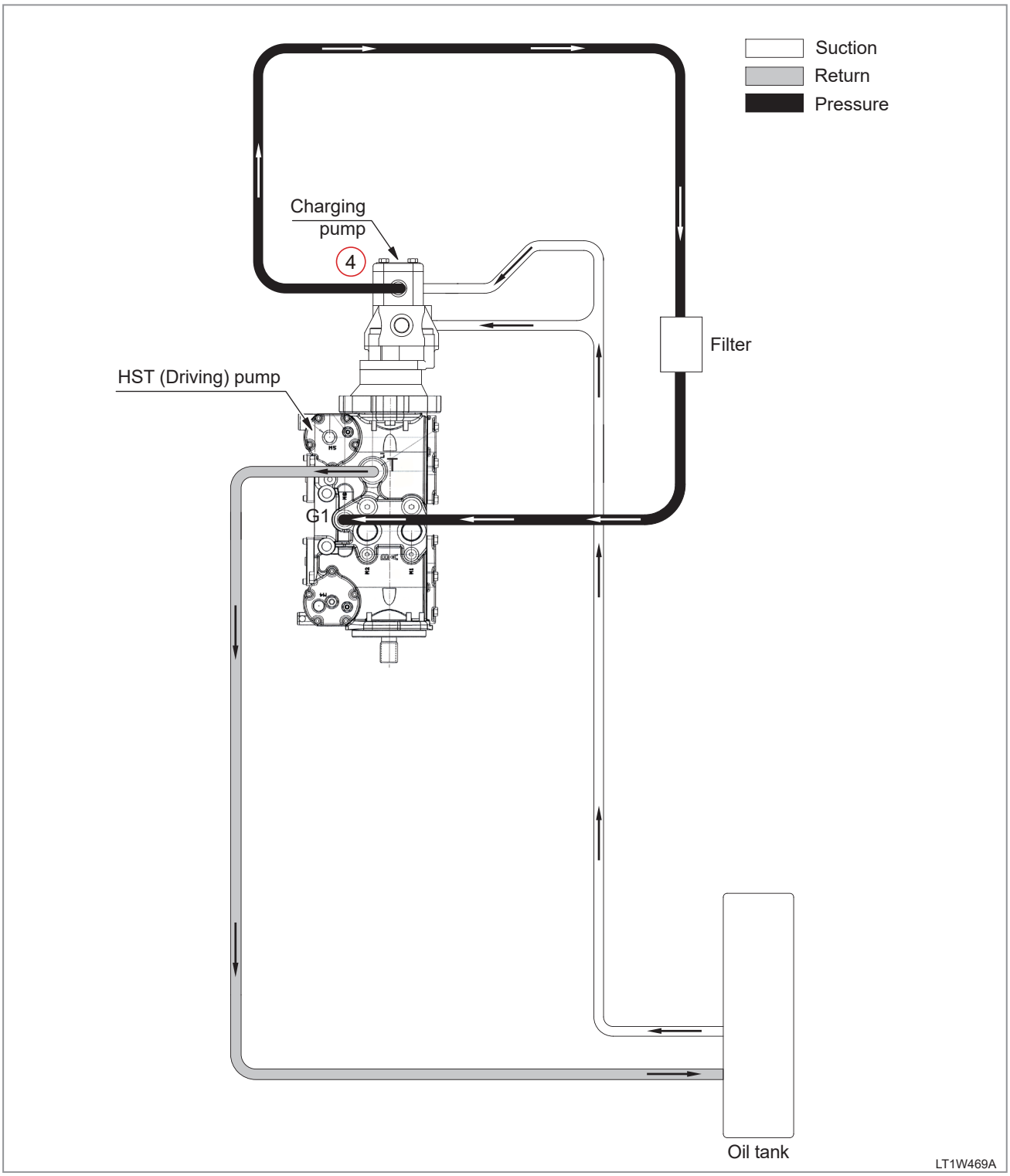
5.2 MAIN PUMP FLOW RATE



Install a flowmeter on position (3) and measure the flow with the engine running at 2,550 RPM. The flowmeter should indicate 66 lpm. If the measured flow is below 52.8 lpm, the main pump is excessively worn. In this case, repair or replace it.

(Port size (3) : O-ring boss elbow SAE 1·1/16-12UN)

5.3 CHARGING PUMP PRESSURE

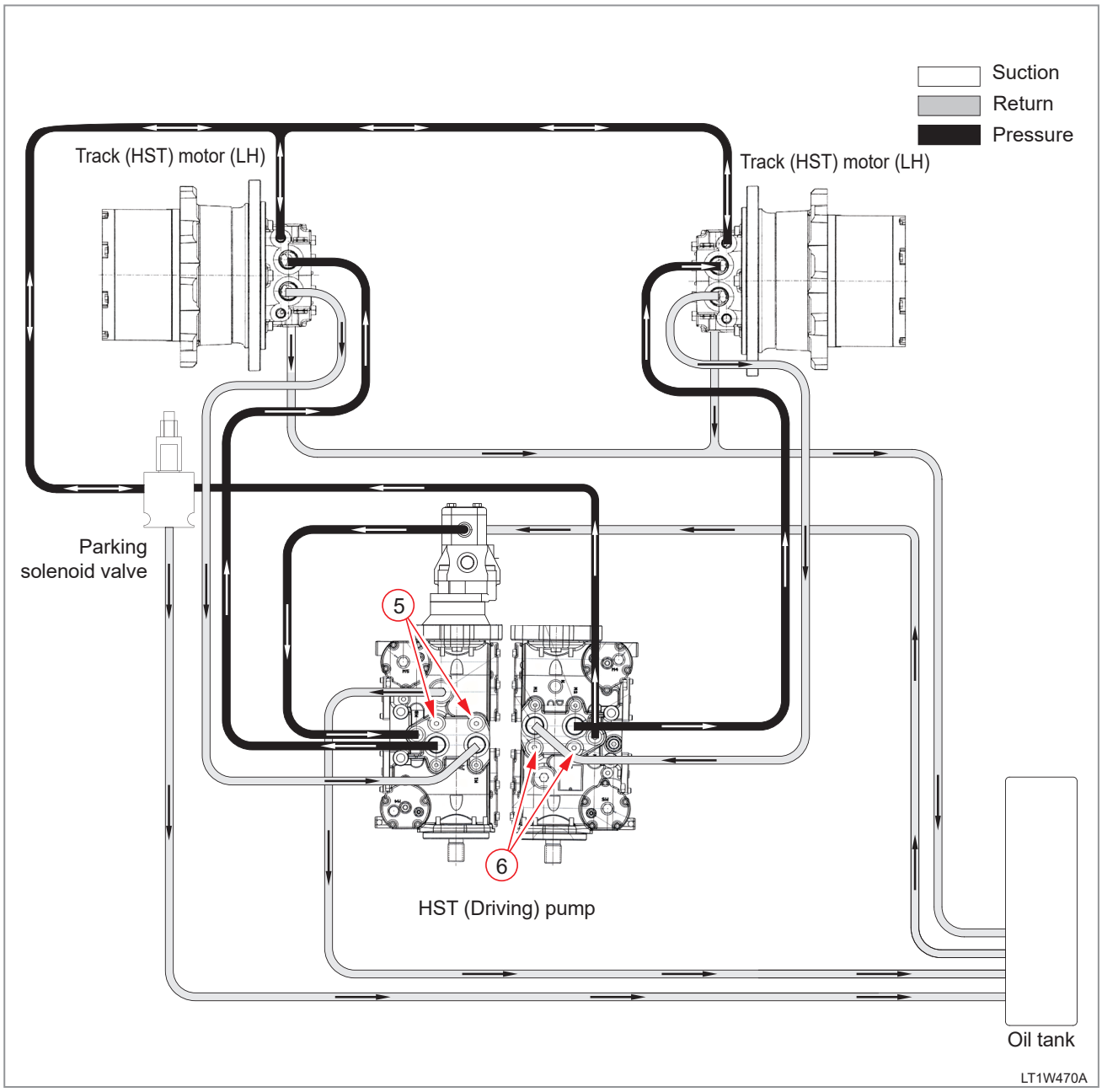


Install a pressure gauge on the position (4) and measure the pressure with the engine idling at a low speed. The gauge should indicate 23-25 bar. If not, replace the relief valve of the charge pump as it cannot be adjusted.

(Port size (4) : O-ring boss connector 7/8-14UNF)

(Almost identical pressure is measured at the parking solenoid valve supply section that has a pressure port.)

5.4 HST (DRIVING) PUMP PRESSURE



For the HST (driving) pump valve block, the four relief valves should be inspected. All of the relief valves have the same setting and they are located as shown in the above figure.

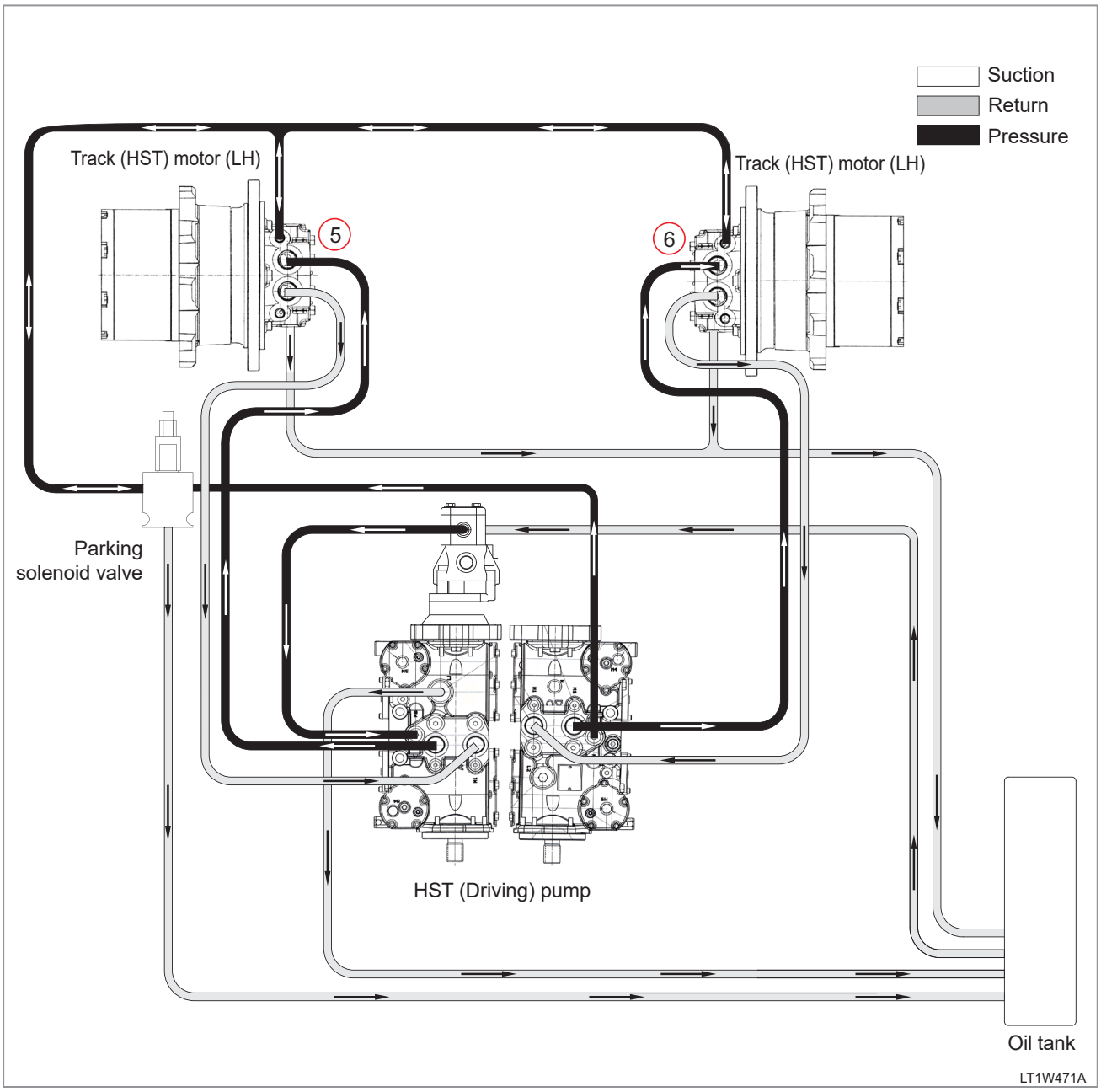
Example: The shaded area in the above figure for the driving circuit hydraulic oil flow diagram shows the flow of the hydraulic oil for the inspection of the relief valve cartridge when the right-hand track (HST) motor moves in the forward driving direction.

Install a pressure gauge on the position (6), run the engine at 2,550 RPM, and then raise the seat bar to apply the parking brake. Push the RCV (RH) (joystick lever) forward slowly to bring driving to a stop. The gauge should indicate 360 bar at this moment. If the measured pressure is incorrect, replace the relief valve cartridge under the port, as it is not adjustable.

According to the hydraulic oil flow diagram above, install pressure gauges on the positions (5 & 6) and test the three relief valve cartridges. With the engine running at 2,550 RPM, raise the seat bar to apply the parking brake. Then, move the RCV (LH) and RCV (RH) (joystick levers) forward/backward slowly to bring driving to a stop.

(Port size (5), (6) : O-ring boss connector 9/16-18UNF)

5.5 HST (DRIVING) PUMP FLOW RATE

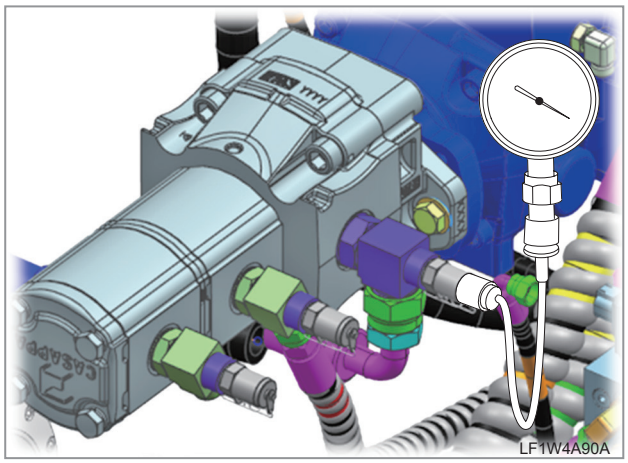


Before performing the pump oil flow test, lift up the loader and use jack stands or chocks to keep the crawler off the ground.

Perform the oil flow test to measure the oil flow of the left-hand and right-hand HST (driving) pumps. According to the above HST (driving) circuit oil flow diagram, install flowmeters on the positions (5 & 6) and test the forward driving oil flow of the track (HST) motors (LH/RH). With the engine running at 1,800 RPM, the gauge should indicate 60 lpm. At this moment, fully push the RCV (LH) joystick lever forward/backward to a stop.

If the flow is less than the specified capacity, the HST (driving) pump is worn, so repair or replace it with a new one.

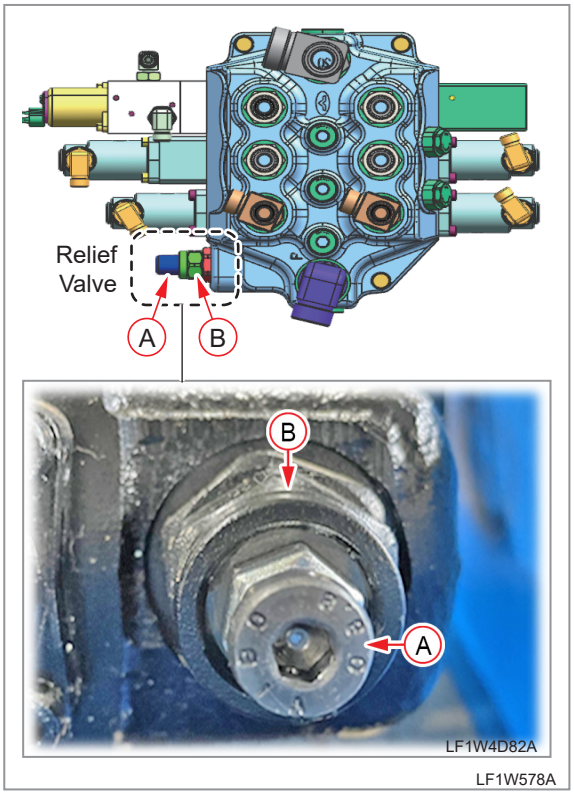
5.6 RELIEF PRESSURE SETTING



1. Install a pressure gauge (300 bar or higher) on the pressure gauge port (M16 P2.0) of the main pump.
2. After starting the engine, run it at 2,550 ± 50 rpm and move the bucket to the lowest position.
3. Raise the oil temperature up to 50° ± 5°. Then, check the pressure when the main relief valve is activated while lowering the boom.
4. If the measured pressure is not 230 ± 5 bar, adjust the relief valve of the MCV (Main Control Valve) for correct specified pressure.

REMARKS

RELIEF VALVE ADJUSTMENT



- **After securing the adjusting bolt (A) from rotating, unscrew the mounting nut (B) and turn the adjusting bolt to set the relief valve pressure. (Clockwise: increasing pressure, Counterclockwise: decreasing pressure)**
- **After setting the correct pressure, tighten the mounting nut (B) fully with the adjusting bolt (A) fixed.**
- **Tools needed**
  - Adjusting bolt (A) : 5 mm L Wrench
  - Mounting nut (B) : 13 mm or 1/2 inch Spanner

6. TROUBLESHOOTING

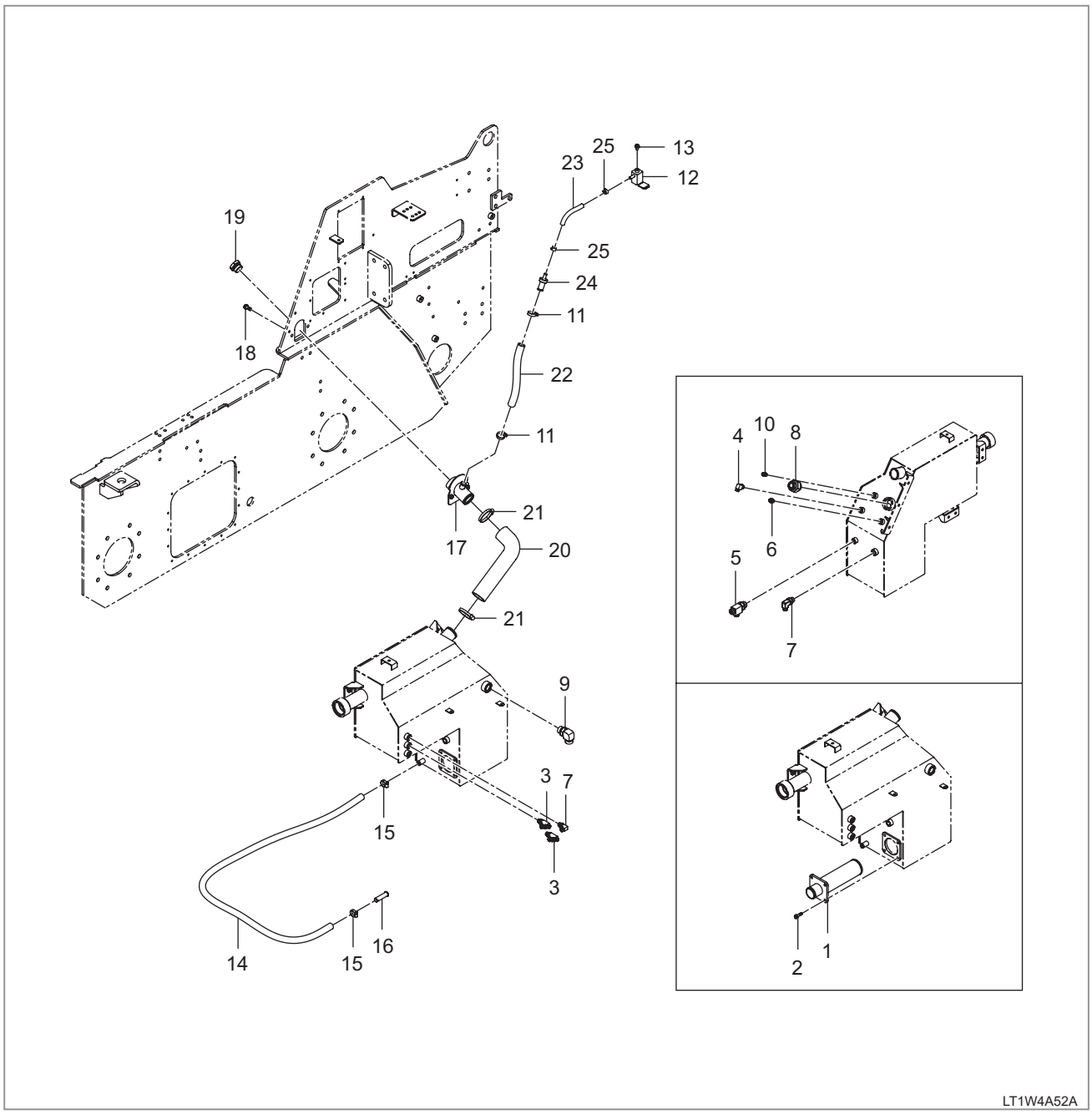
SYMPTOM	CAUSES	REMEDY
The hydraulic oil pressure is weak. (The oil does not flow in the charge and main pumps.)	• Insufficient oil in the tank	• Check for leakage and add the oil to the tank.
	• Damaged coupling between the engine and pump	• Check for any damaged part and replace it as necessary. Check for proper alignment.
	• Malfunctioning main pump	• Check for any damaged part, and replace it as necessary.
	• Defective main pump shaft	• Check for any damaged part, and replace it as necessary.
	• Faulty spline coupling between front/rear pumps	• Check for any damaged part, and replace it as necessary.
The hydraulic oil pressure is weak. (The oil flows in the charge and main pumps.)	• Locked auxiliary valve spool	• Unlock it.
	• Disconnected or stuck component linkage	• Check and adjust or repair it.
	• Defective relief valve and repair impossible	• Check the pressure and repair as necessary.
The hydraulic operation is not smooth, but intermittent.	• Insufficient oil in the tank	• Check for leakage and add oil to the tank.
	• Worn or loose component linkage	• Check and adjust or replace any damaged part.
	• Air in the hydraulic system	• Check for oil leakage between the oil tank and pump. Operate the lift cylinder several times to bleed the system.
	• Rod check valve inoperable	• Check and replace any damaged part.
	• The control valve spool spring won't return	• Check and replace any damaged part.
The boom rises slowly.	• Insufficient oil in the tank	• Check for leakage and add the oil to the tank.
	• Defective component linkage	• Check and adjust it.
	• Locked auxiliary switch	• Unlock the auxiliary switch.
	• Exceeding rated capacity	• Reduce the load.
	• Excessively low engine RPM	• Check and readjust the engine RPM.
The boom rises slowly at the maximum RPM.	• Defective or incorrectly adjusted relief valve	• Check the pressure and adjust or repair it.
	• Leakage from the lift cylinder piston seal	• Check for leakage of the piston seal and repair it as necessary.
	• Internal leakage from the main pump	• Test and repair the main pump.
	• Internal leakage from the control valve	• Check and repair the control valve.
The boom and bucket cylinder cannot overcome the load.	• External oil leakage between the control valve and cylinder	• Check and repair it.
	• Incorrectly centered control valve spool	• Check if the control lever is stuck and repair it.
		• Check if the spring return device of the control valve spool is damaged.
	• Oil leakage from one or both lift cylinder piston seal(s)	• Check for leakage of the piston seal and repair it as necessary.
	• Internal leakage from the control valve	• Check and repair the control valve.
The hydraulic oil warning lamp is turned on. The hydraulic oil is overheated.	• Insufficient oil in the tank	• Check for leakage and add the oil.
	• Clogged or contaminated oil cooler or engine radiator	• Clean the oil cooler fins.
	• Locked auxiliary switch	• Unlock the auxiliary switch.
	• Excessively low engine RPM	• Check and readjust the engine RPM.
	• Engine cooling fan rotating in the opposite direction	• Check and reinstall the fan.
	• Defective or incorrectly adjusted relief valve	• Check and adjust the pressure.
	• Defective temperature sensor switch	• Replace
	• Faulty hydraulic oil	• Replace

7. EXPLODED VIEW

REMARKS

- **The manufacturing parts are subject to change without notice. Therefore, check the parts catalog or electronic manual for latest information.**

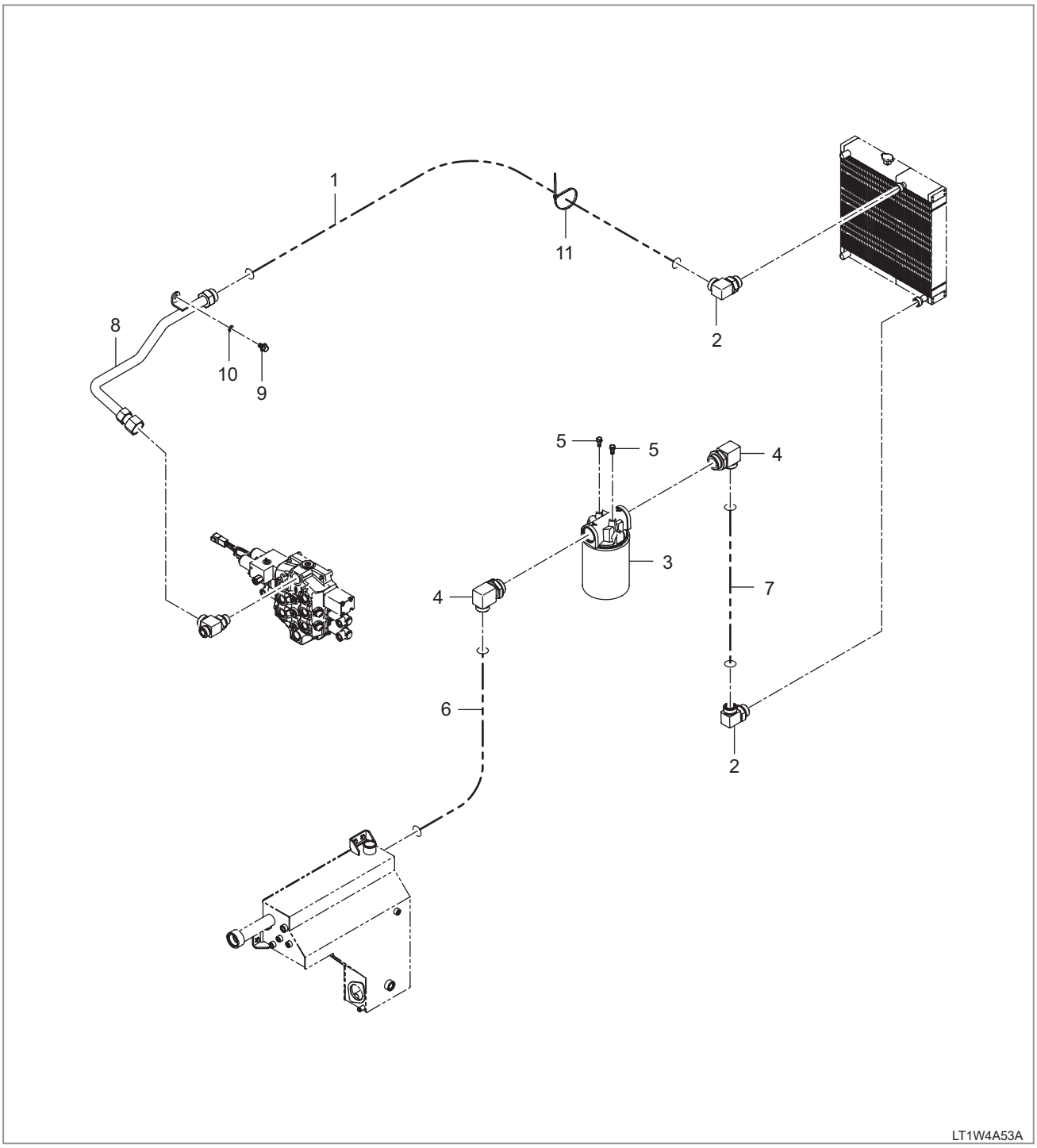
7.1 LF1-G211003 OIL TANK SUB GROUP



COMPONENTS

(1) Strainer, Oil
(2) Bolt, Washer
(3) Elbow-T Type
(4) Elbow
(5) Elbow-T Type
(6) Connector
(7) Elbow
(8) Connector
(9) Elbow
(10) Connector
(11) Band, Hose
(12) Air Breather
(13) Bolt
(14) Hose
(15) Band, Hose
(16) Joint Pin
(18) Bolt
(17) Tube, Oiling
(19) Plug, Oil
(20) Hose
(21) Hoseclamp
(22) Hose, Air Breather 1
(23) Hose, Air Breather 2
(24) Connector
(25) Clmap, Hose

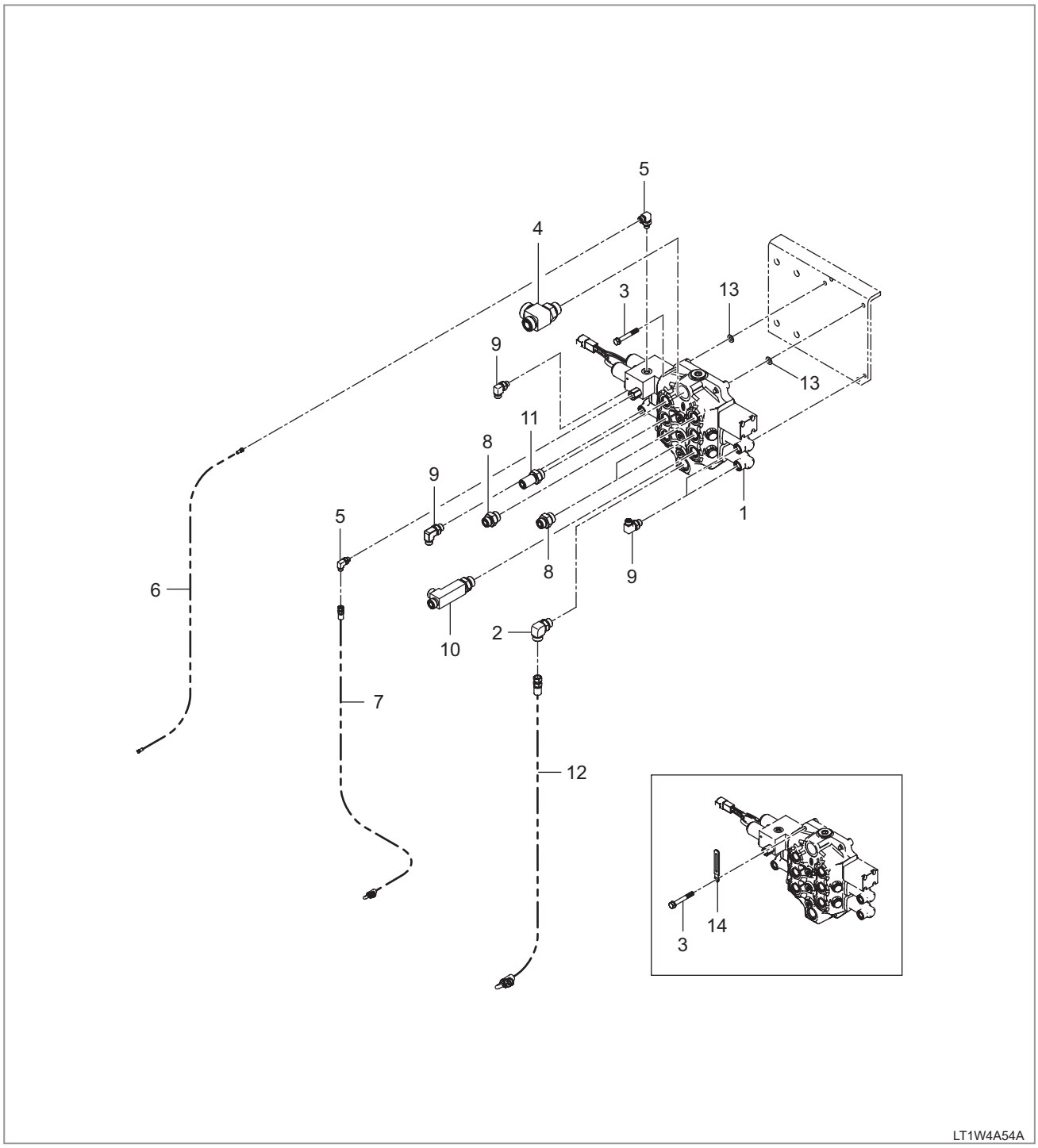
7.2 LF1-G214003 OIL COOLER GROUP



COMPONENTS

(1) Hose, HYD-MCV
(2) Elbow
(3) Return-Filter
(4) Elbow-PF 1 1 7/16-12 UN
(5) Bolt
(6) Hose, HYD-Filter OT
(7) Hose, HYD-OC Filter
(8) Tube, HYD-MCV OC
(9) Bolt, Washer
(10) Washer, Seal
(11) Band, Cord

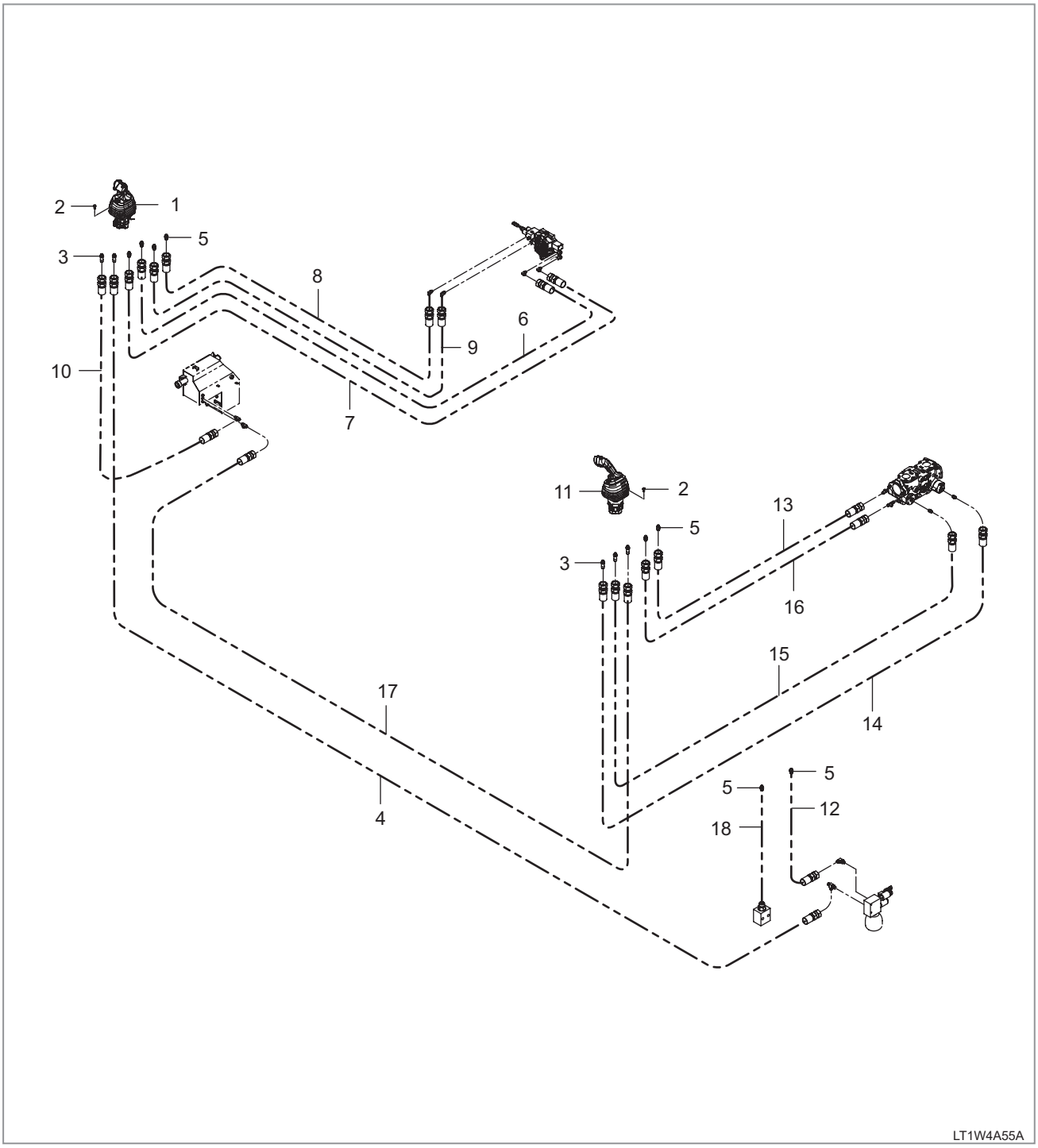
7.3 LF1-G221002 MAIN CONTROL VALVE GROUP



COMPONENTS

(1) MCV
(2) Elbow
(3) Washer Bolt
(4) Elbow-T Type
(5) Elbow
(6) Hose, HYD-OL Pilot T
(7) Hose, HYD-OL Pilot V
(8) Connector
(9) Elbow
(10) Connector
(11) Connector
(12) Hose, HYD-Pump MCV
(13) Washer, Seal
(14) Wir'g Clamp

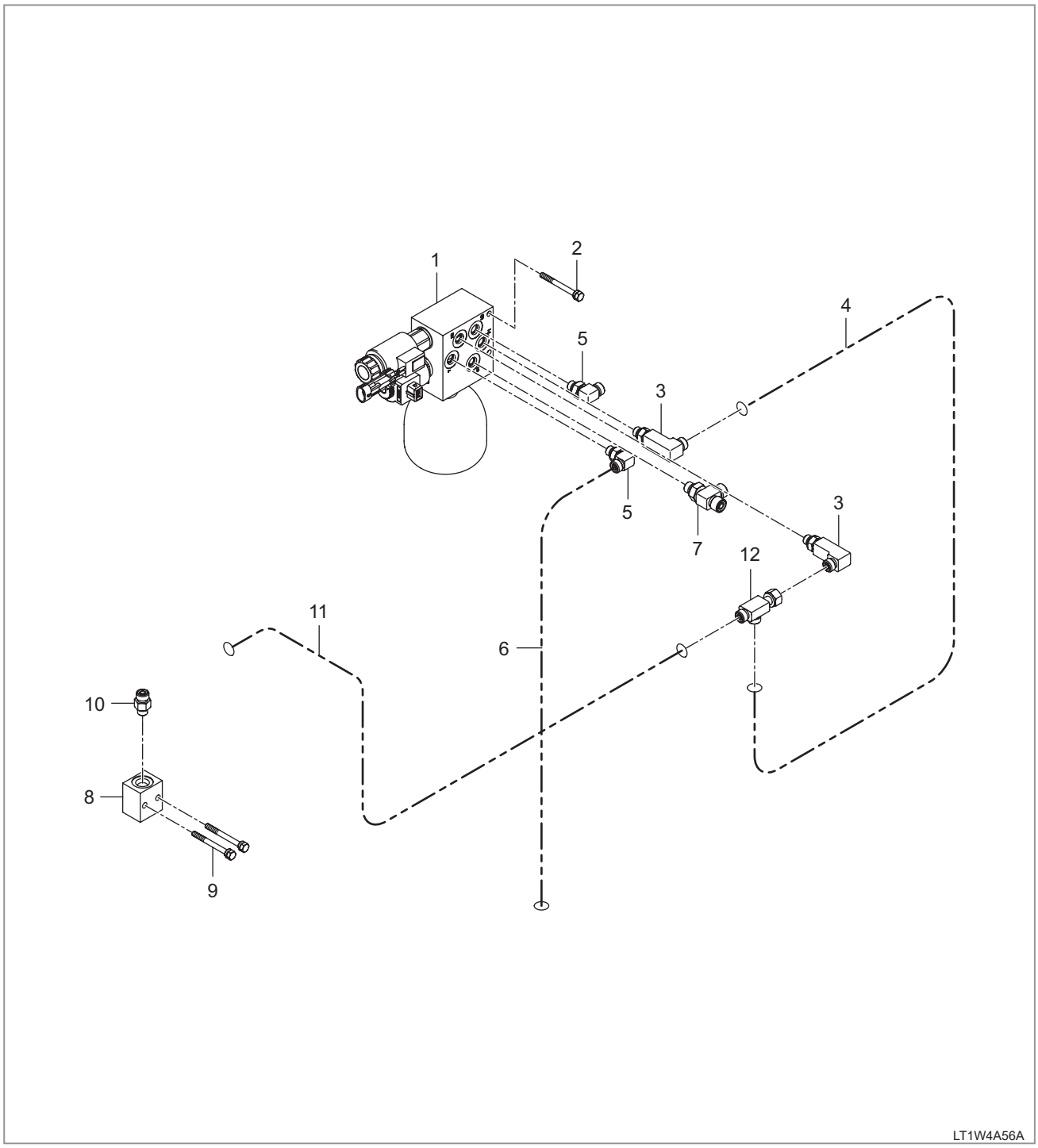
7.4 LF1-G221503 JOYSTICK GROUP



COMPONENTS

(1) Lever, Joystick-RH
(2) Bolt, Flange
(3) Connector
(4) Hose, HYD-RCV(RH) P
(5) Connector
(6) Hose, HYD-RCV(RH) 1
(7) Hose, HYD-RCV(RH) 2
(8) Hose, HYD-RCV(RH) 3
(9) Hose, HYD-RCV(RH) 4
(10) Hose, HYD-RCV(RH) T
(11) Lever, Joystick-LH
(12) Hose, HYD-RCV(LH) P
(13) Hose, HYD-RCV(LH) C
(14) Hose, HYD-RCV(LH) D
(15) Hose, HYD-RCV(LH) E
(16) Hose, HYD-RCV(LH) F
(17) Hose, HYD-RCV(LH) T
(18) Hose, HYD-RCV(LH) 5

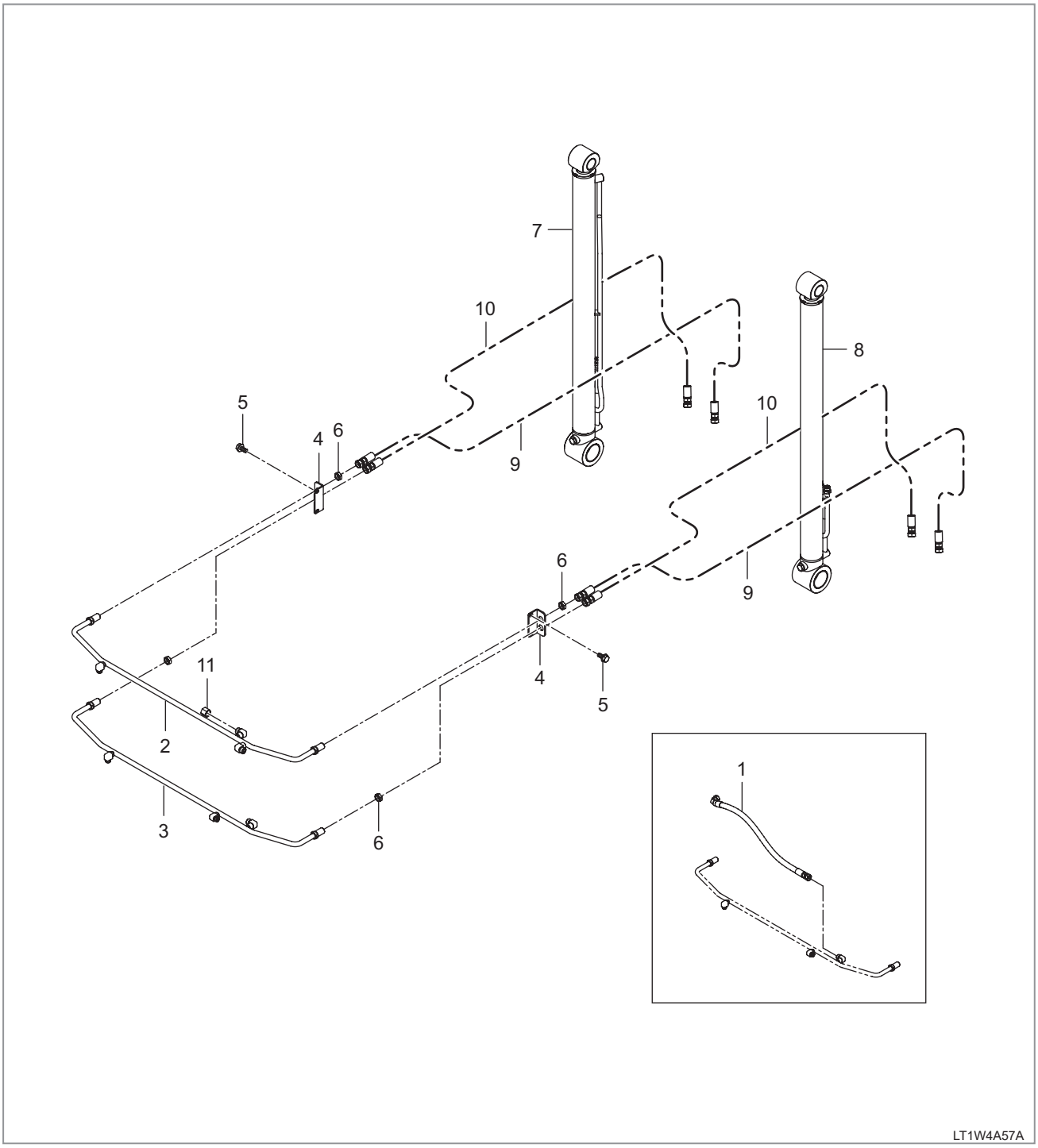
7.5 LF1-G222003 AUXILIARY HYDRAULIC GROUP



COMPONENTS

(1) Pilot Lock Valve
(2) Bolt, Washer
(3) Elbow
(4) Hose, HYD-Pilot Lock P1
(5) Elbow
(6) Hose, HYD-Pilot Lock T
(7) Elbow-T Type
(8) Plate-Port
(9) Bolt
(10) Connector
(11) Hose, HYD-Pilot Lock P2
(12) Elbow-T Type

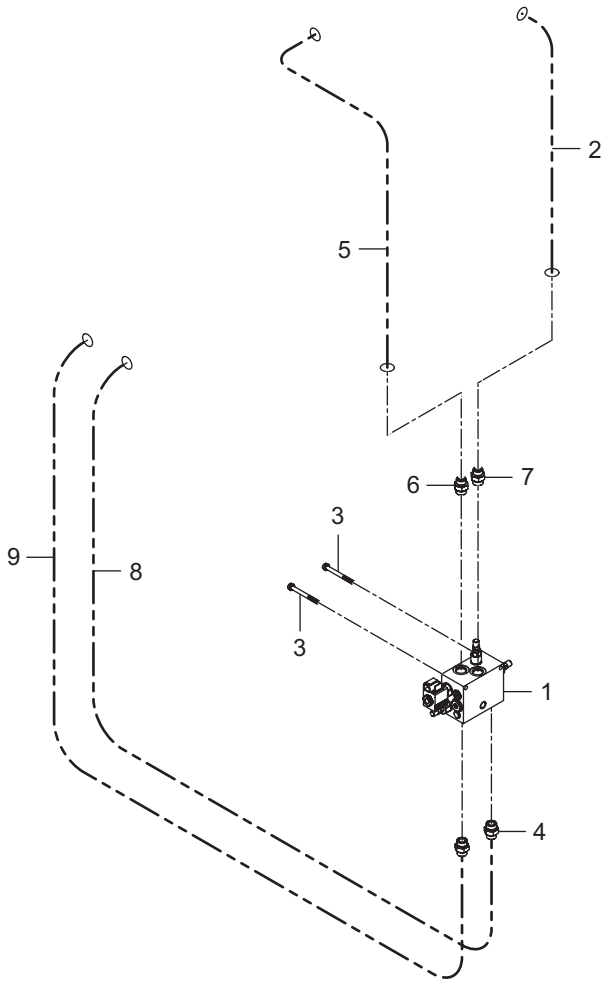
7.6 LF1-G223002 LIFT CYLINDER GROUP



COMPONENTS

(1) Hose, HYD-MCV Lift
(2) Tube, HYD
(3) Tube, HYD-Up
(4) Bracket
(5) Bolt, Washer
(6) Nut
(7) Cylinder, Lift-RH
(8) Cylinder, Lift-LH
(9) Hose, HYD-Lift CYL(Down)
(10) Hose, HYD-Lift CYL(Up)
(11) Cap, Plug-13_16

7.7 LF1-G223504 SELF LEVELING GROUP

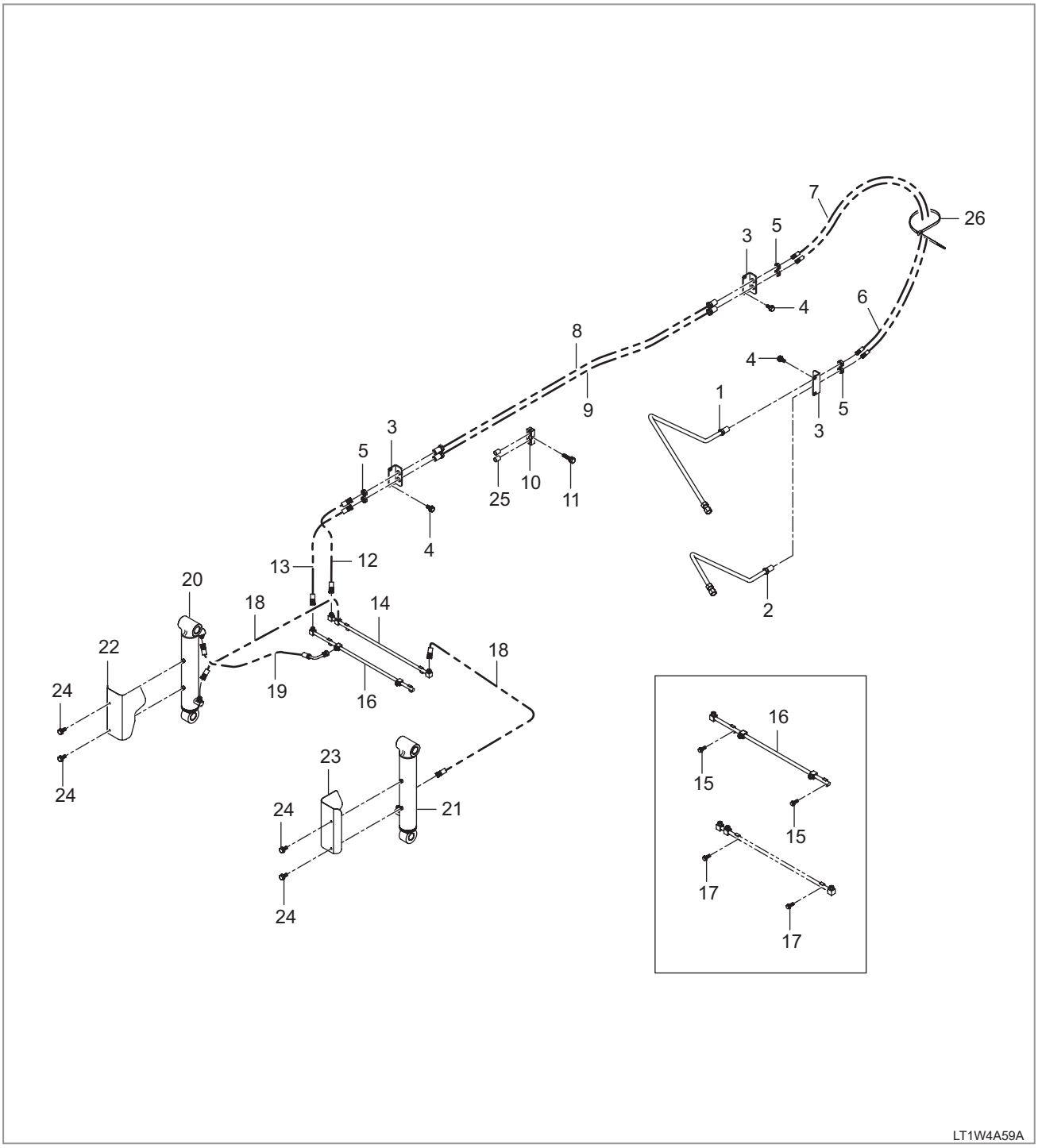


LT1W4A58A

COMPONENTS

(1) Valve, Selfe Leveling
(2) Hose, HYD-SL B
(3) Washer Bolt
(4) Connector
(5) Hose, HYD-SL A
(6) Connector
(7) Connector
(8) Hose, HYD-SL C
(9) Hose, HYD-SL D

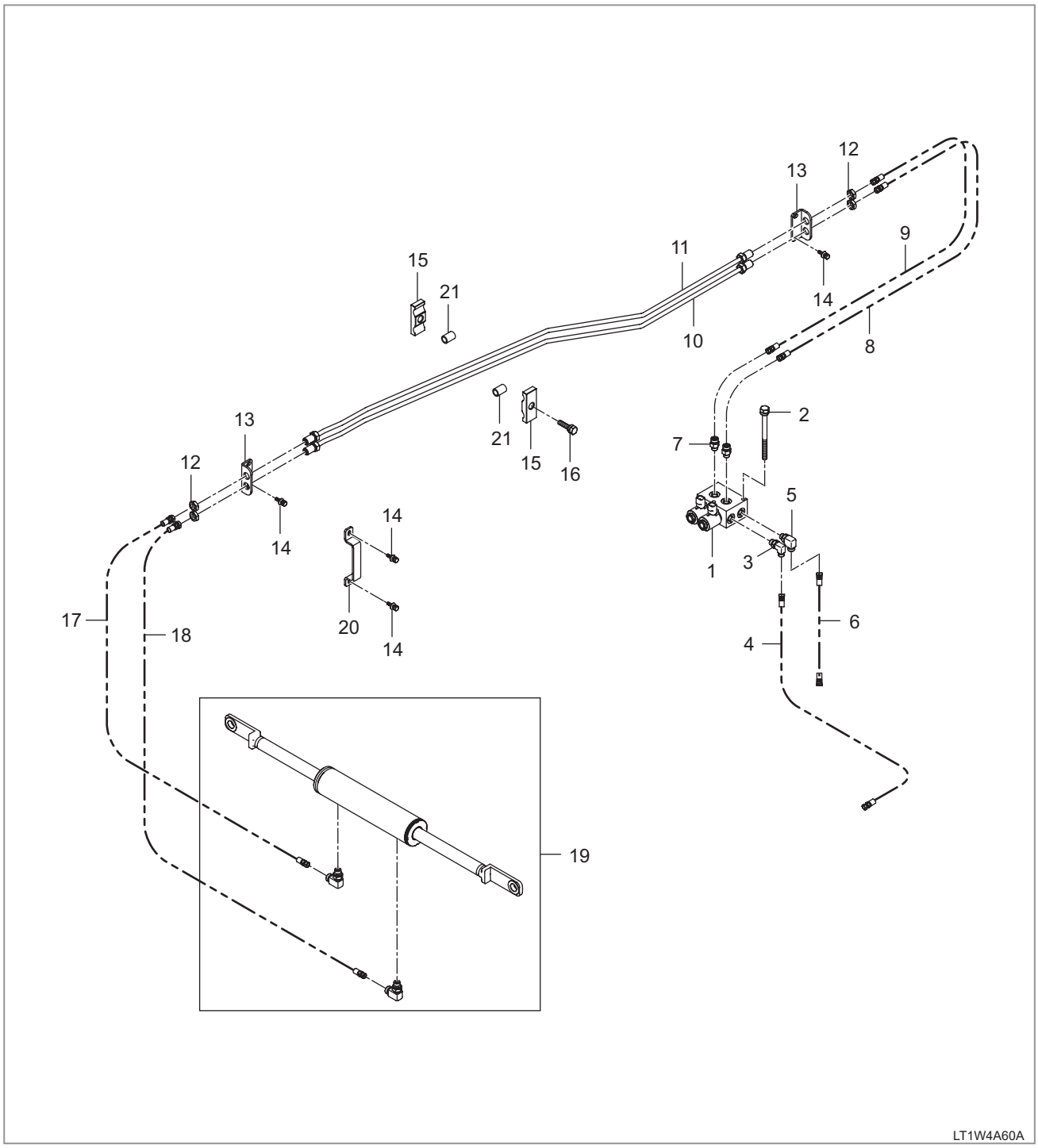
7.8 LF1-G224502 TILT CYLINDER GROUP



COMPONENTS

(1) Tube, HYD
(2) Tube, HYD
(3) Bracket
(4) Bolt, Washer
(5) Nut
(6) Hose, HYD-BK Dump 1
(7) Hose, HYD-BK Rollback 1
(8) Tube, HYD
(9) Tube, HYD
(10) Clamp, Pipe
(11) Bolt
(12) Hose, HYD-BK Rollback 2
(13) Hose, HYD-BK Dump 2
(14) Tube, HYD
(15) Bolt, Flange
(16) Tube, HYD
(17) Bolt Flange
(18) Hose, HYD-BK Rollback 3
(19) Hose, HYD-BK Dump 3
(20) Cylinder, Tilt-RH
(21) Cylinder, Tilt-LH
(22) Cover, Cyl-RH
(23) Cover, Cyl-LH
(24) Bolt, Flange
(25) Holder, Pipe-Rubber 2
(26) Band, Cord

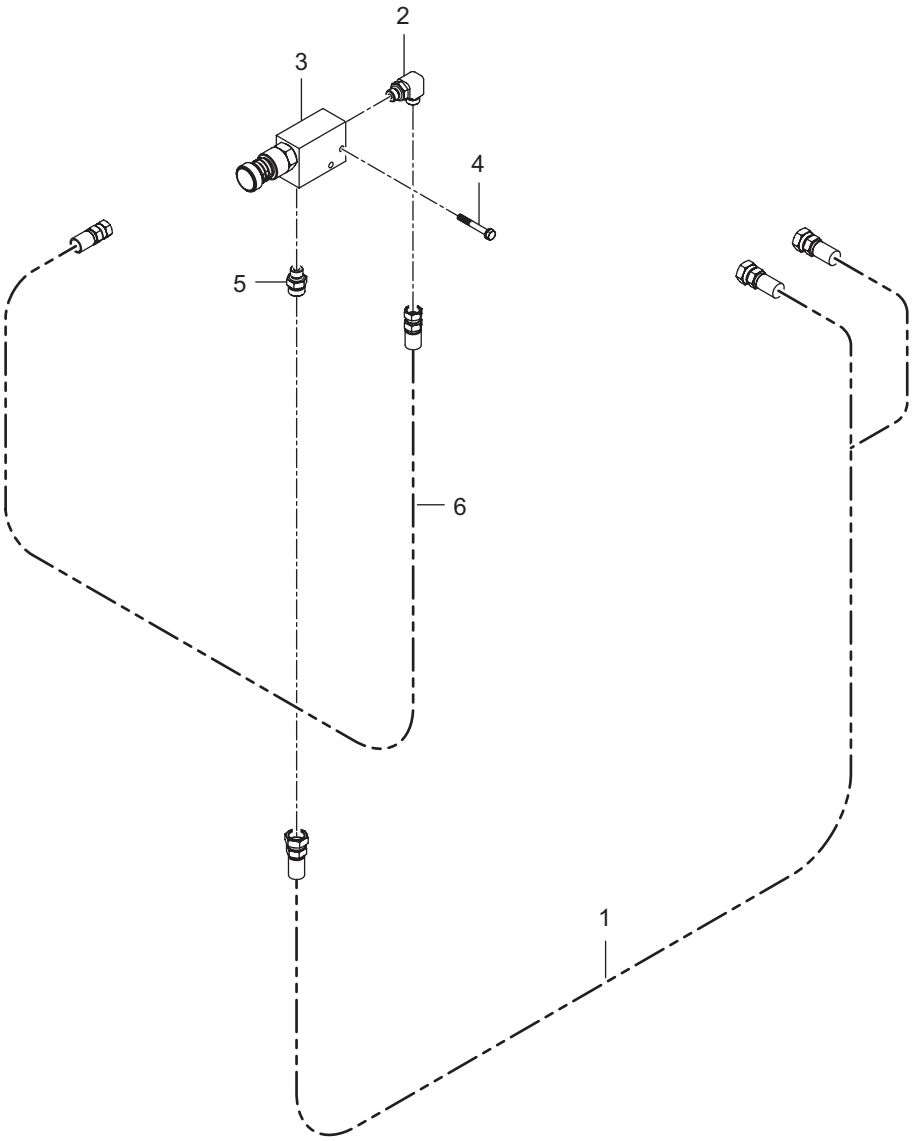
7.9 LF1-G225003 QUICK ATTACH CYLINDER GROUP



COMPONENTS

(1) Valve, Quick Attatch
(2) Washer Bolt
(3) Elbow
(4) Hose, HYD-QA P
(5) Elbow
(6) Hose, HYD-QA T
(7) Connector
(8) Hose, HYD-QA A(Unlock) 1
(9) Hose, HYD-QA B(Lock) 1
(10) Tube, HYD
(11) Tube, HYD
(12) Nut
(13) Bracket
(14) Bolt, Washer
(15) Clamp
(16) Bolt, With Washer
(17) Hose, HYD-QA B(Lock) 2
(18) Hose, HYD-QA A(Unlock) 2
(19) Quick Attach Cylinder
(20) Bracket
(21) Holder, Pipe-Rubber 1

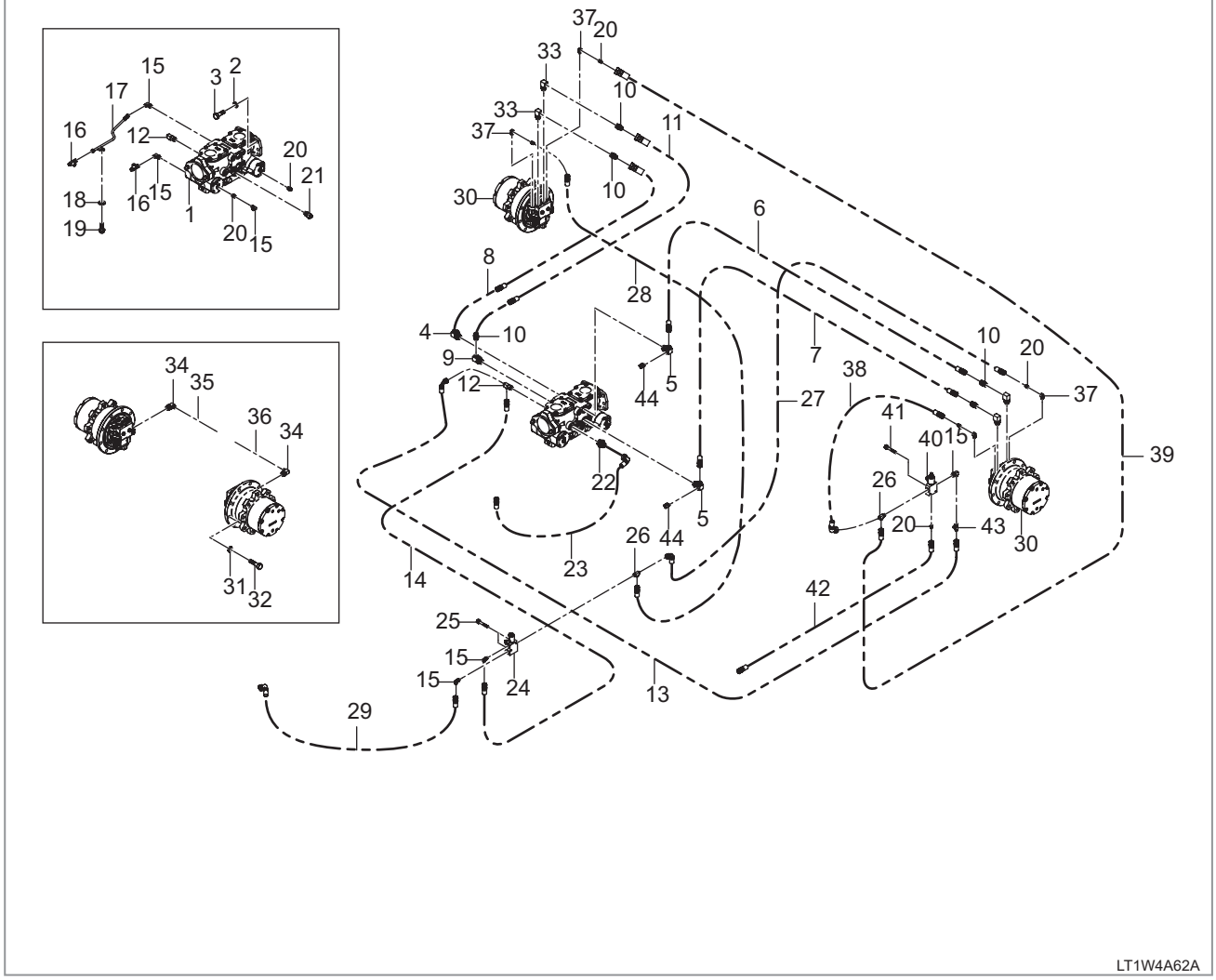
7.10 LF1-G226002 DRAIN VAVLE GROUP



COMPONENTS

(1) Hose, HYD -DV A
(2) Elbow
(3) Valve, Drain
(4) Bolt
(5) Connector
(6) Hose, HYD -DV B

7.11 LF1-G231003 HST GROUP

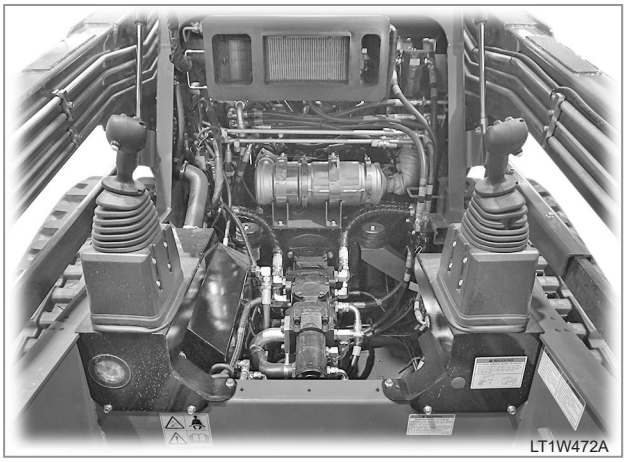


COMPONENTS

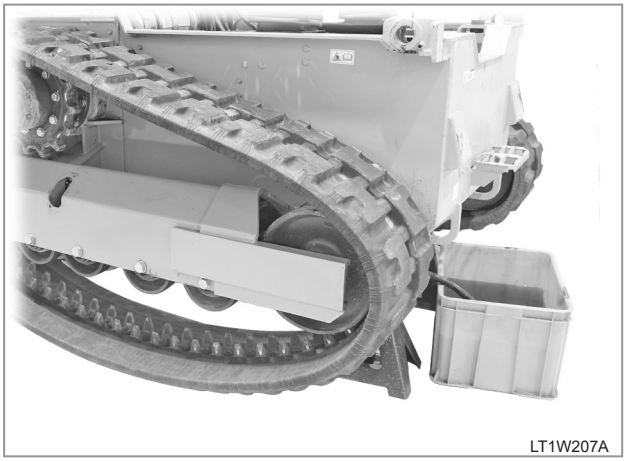
(1) Pump, HST
(2) Washer, Spring
(3) Bolt
(4) Elbow
(5) Elbow
(6) Hose, HYD-HST A(LH)
(7) Hose, HYD-HST B(LH)
(8) Hose, HYD-HST C(RH)
(9) Elbow
(10) Connector
(11) Hose, HYD-HST D(RH)
(12) Elbow-T Type
(13) Hose, HYD-Parking P
(14) Hose, HYD-HST Shift P
(15) Elbow
(16) Elbow-T Type
(17) Tube, HYD
(18) Washer, Plain
(19) Bolt
(20) Connector
(21) Elbow-T Type
(22) Connector
(23) Hose, HYD-HST T
(24) Valve, Shift
(25) Bolt, Washer
(26) Elbow-T Type
(27) Hose, HYD-Shift Motor(LH)
(28) Hose, HYD-Shift Motor(RH)
(29) Hose, HYD-Shift T
(30) Motor, HST 2-Speed Track
(31) Washer
(32) Bolt
(33) Elbow
(34) Elbow
(35) Hose, HYD-Motor T(RH)
(36) Hose, HYD-Motor T(LH)
(37) Elbow
(38) Hose, HYD-Parking(LH)
(39) Hose, HYD-Parking(RH)
(40) Valve, Parking
(41) Bolt
(42) Hose, HYD-Parking T
(43) Elbow-T Type
(44) Adapter -Port PF1_4

8. HYDRAULIC SYSTEM MAINTENANCE

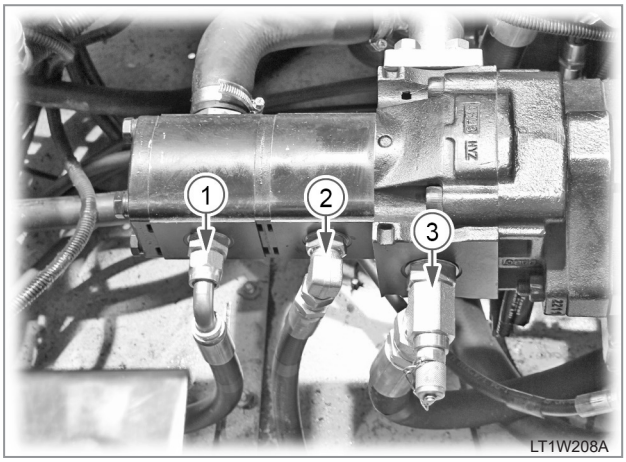
8.1 MAIN PUMP DETACH


LT1W472A

1. Open or remove the cabin.

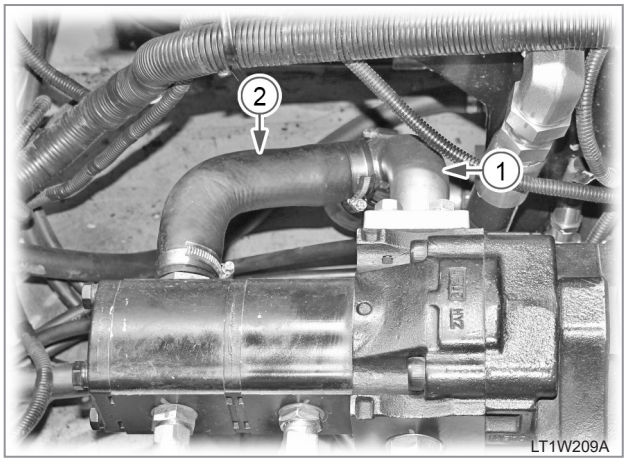

LT1W207A

2. Drain the hydraulic oil from the oil tank.



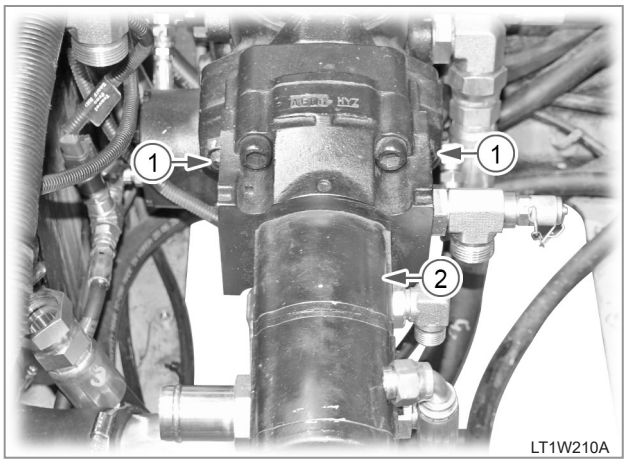
LT1W208A

3. Disconnect the high-flow pump hydraulic hose (1), charge pump hydraulic hose (2), and main pump hydraulic hose (3).

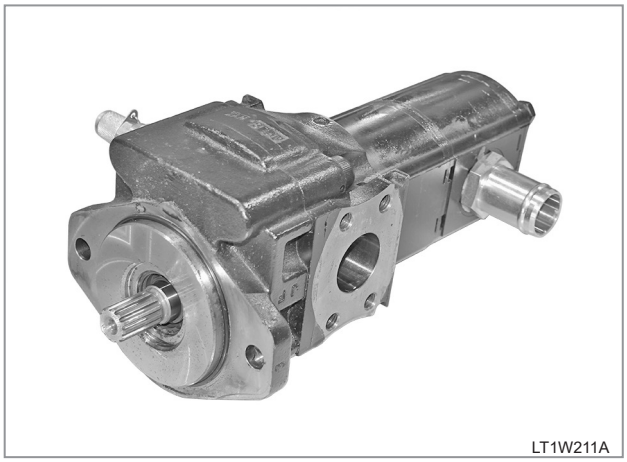


LT1W209A

4. Disconnect the suction hose (1) from the main pump and the suction hose (2) from the high-flow pump.



LT1W210A

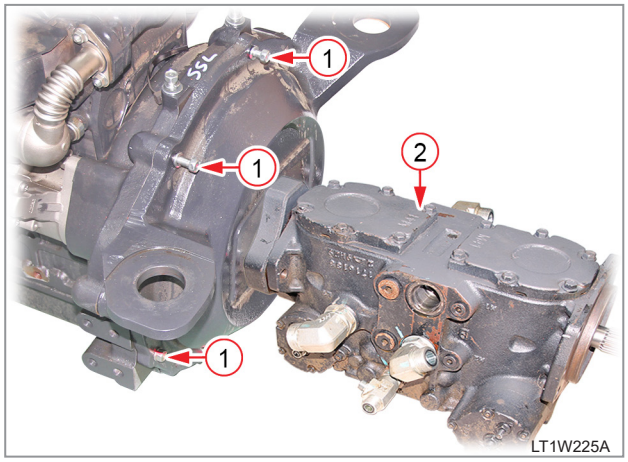

LT1W211A

5. Unscrew the main pump mounting bolts, nuts (1)(2EA) to remove the main pump assembly (2).

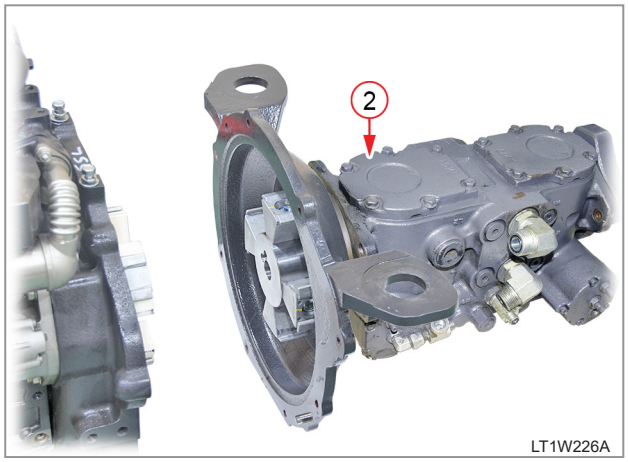
Mounting bolt (nut)
tightening torque..... 102.9 ~ 117.6 N·m
10.5 ~ 12.0 kgf·m
75.6 ~ 86.4 lb·ft

8.2 HST PUMP DETACH

1. Remove the engine assembly. (See the engine removal instructions)

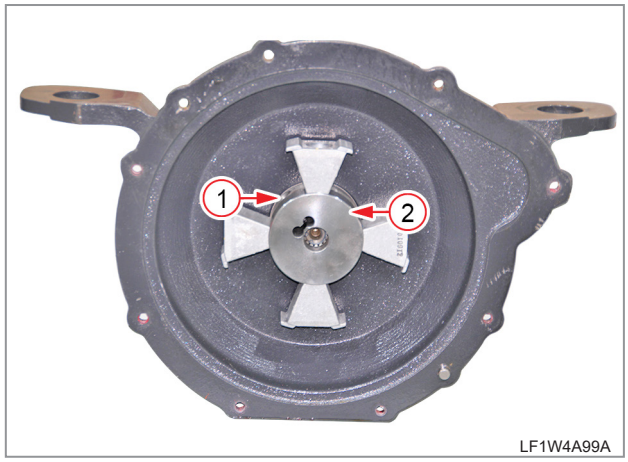


LT1W225A

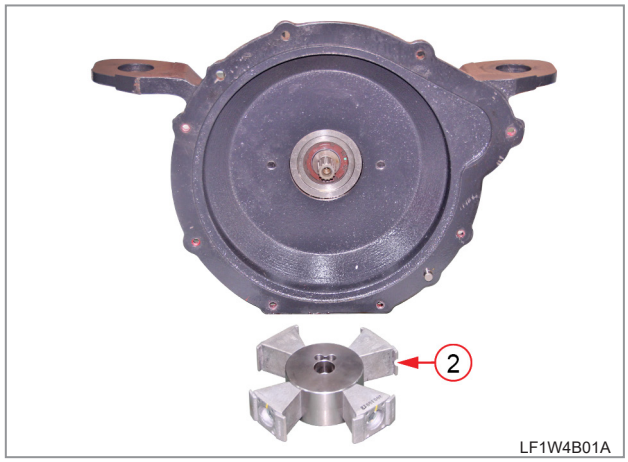


LT1W226A

2. Unscrew the engine flywheel housing mounting bolts (1)(7EA) to remove the HST pump assembly (2).



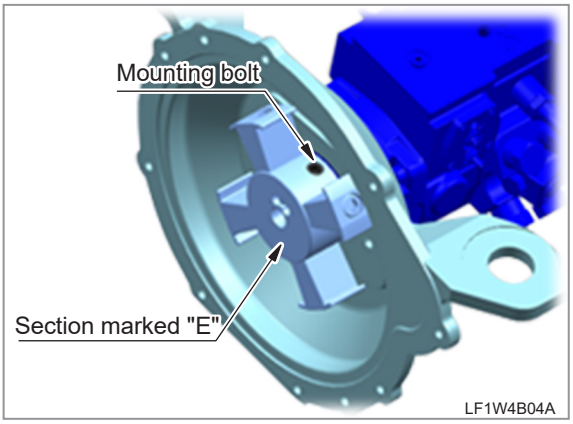
LF1W4A99A



LF1W4B01A

3. Unscrew the hub mounting bolts (1) on the HST pump assembly housing section to remove the hub assembly (2).

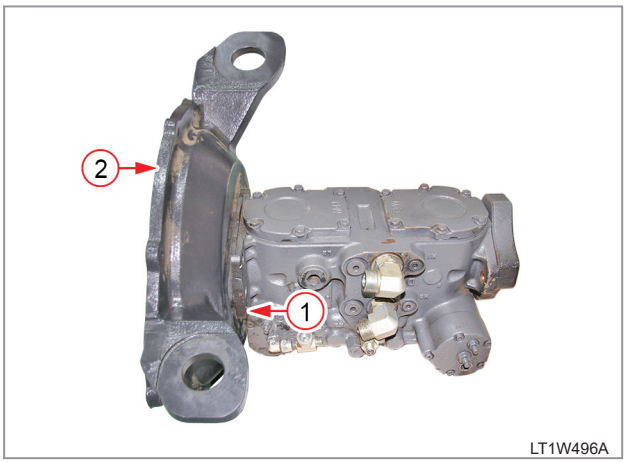
REMARKS



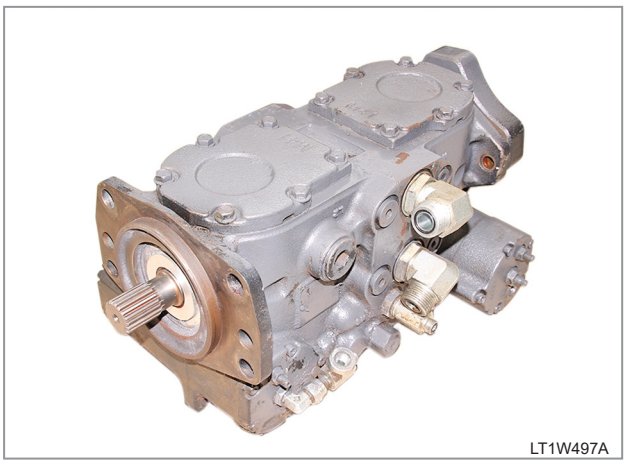
LF1W4B04A

- **When installing the hub on the pump housing, its section marked "E" should face the engine. In addition, tighten the mounting bolts to the specified torque.**

  Mounting bolt
  tightening torque .....196.0 ~ 215.6 N·m
  20.0 ~ 22.0 kgf·m
  144.0 ~ 158.4 lb·ft



LT1W496A


LT1W497A

4. Unscrew the housing mounting bolts (1) on the HST pump assembly to remove the housing (2).

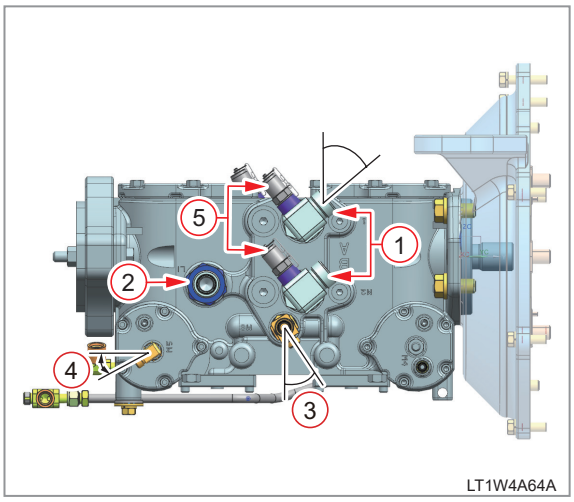
REMARKS

- **When reinstalling the housing mounting bolt, apply the sealant (LOCTITE 271 or equivalent) on its threads and tighten it to the specified torque.**

  Mounting bolt
  tightening torque ..... 196.0 ~ 225.4 N·m
  20.0 ~ 23.0 kgf·m
  144.0 ~ 165.6 lb·ft

REMARKS

ELBOW ASSEMBLY

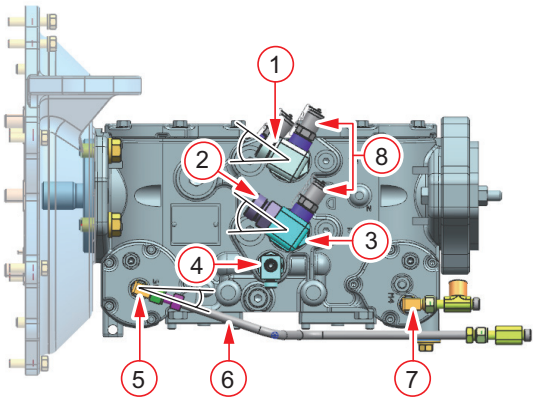


LT1W4A64A

- **Tightening torque**
  - **① , ② (1·5/16-12 UN) : 270.0 ~ 300.0 N·m**
    27.55 ~ 30.61 kgf·m
    198.4 ~ 220.4 lb·ft
  - **③ (7/8-14 UNF) : 98.0 ~ 110.0 N·m**
    10.0 ~ 11.22 kgf·m
    72.0 ~ 80.8 lb·ft
  - **④ (9/16-18 UNF) : 33.0 ~ 35.0 N·m**
    3.37 ~ 3.57 kgf·m
    24.3 ~ 25.7 lb·ft
  - **⑤ (PF1/4) : 34.3 ~ 39.2 N·m**
    3.5 ~ 4.0 kgf·m
    25.2 ~ 28.8 lb·ft
- **Assembly angle**
  - **① : 40°**
  - **③ : 30°**
  - **④ : 35°**

REMARKS

ELBOW ASSEMBLY

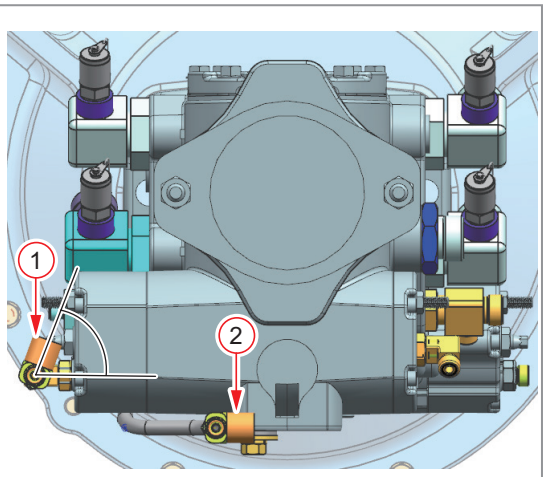


LT1W4A65A

- **Tightening torque**
  - ①, ③ **(1·5/16-12 UN) : 270.0 ~ 300.0 N·m**
    27.55 ~ 30.61 kgf·m
    198.4 ~ 220.4 lb·ft
  - ② **(1·1/16-12 UN) : 170.0 ~ 183.0 N·m**
    17.35 ~ 18.67 kgf·m
    124.9 ~ 134.4 lb·ft
  - ④ **(7/8-14 UNF) : 98.0 ~ 110.0 N·m**
    10.0 ~ 11.22 kgf·m
    72.0 ~ 80.8 lb·ft
  - ⑤, ⑥, ⑦ **(9/16-18 UNF) : 33.0 ~ 35.0 N·m**
    3.37 ~ 3.57 kgf·m
    24.3 ~ 25.7 lb·ft
  - ⑧ **(PF1/4) : 34.3 ~ 39.2 N·m**
    3.5 ~ 4.0 kgf·m
    25.2 ~ 28.8 lb·ft
- **Assembly angle**
  - ①, ③ **: 30°**
  - ④ **: 90°**
  - ⑤ **: 20°**

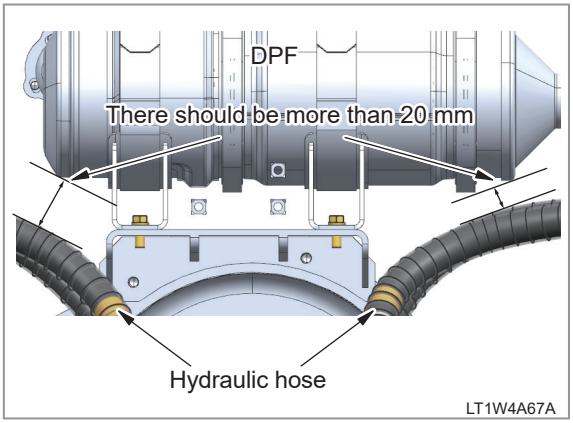
REMARKS

ELBOW ASSEMBLY



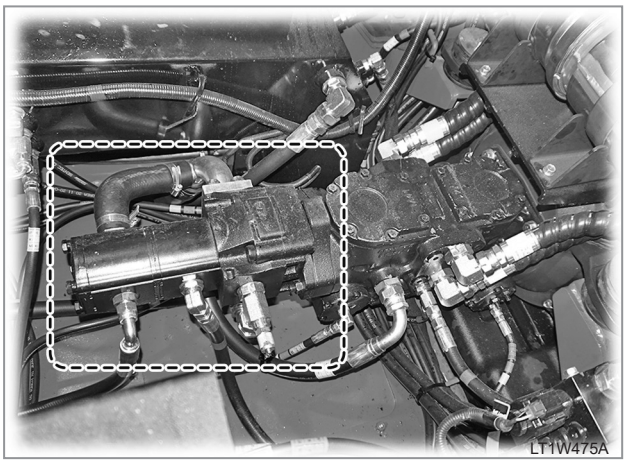
LT1W4A66A

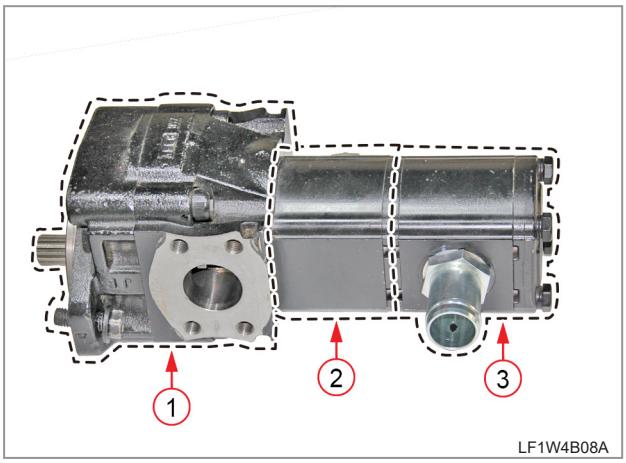
- **Tightening torque**
  - ①, ② **(1·5/16-12 UN) : 270.0 ~ 300.0 N·m**
    27.55 ~ 30.61 kgf·m
    198.4 ~ 220.4 lb·ft
- **Assembly angle**
  - ① **: 70°**



LT1W4A67A

8.3 MAIN PUMP, CHARGE PUMP, HIGH FLOW PUMP DISASSEMBLY


LT1W475A



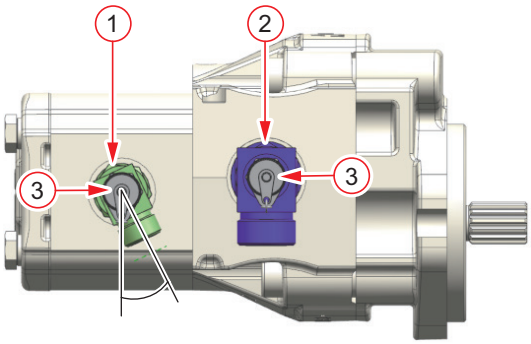
LF1W4B08A

(1) Main pump
(2) Charge pump
(3) High flow pump

REMARKS

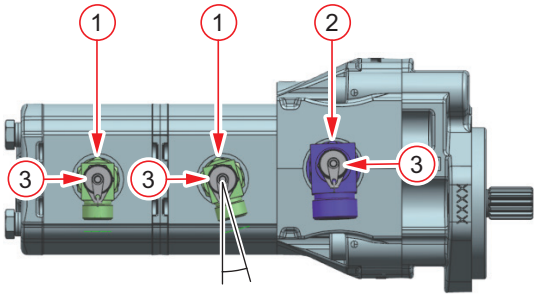
ELBOW ASSEMBLY

L, LQ MODEL



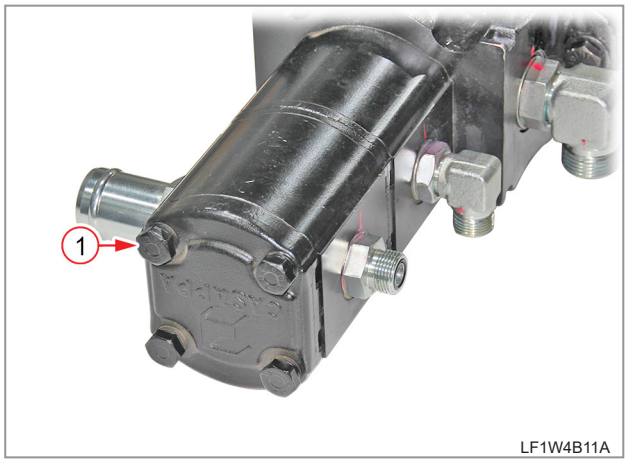
LT1W4A68A

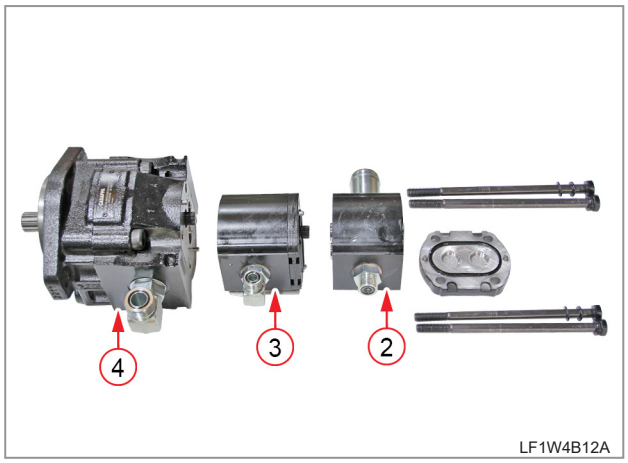
LQF MODEL



LT1W4A69A

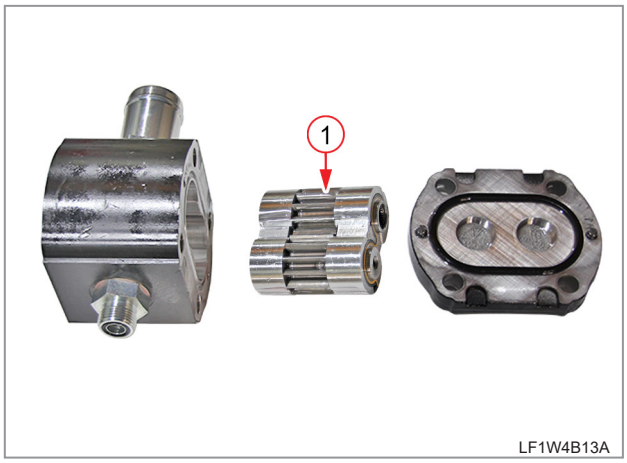
- **Tightening torque**
  - ① **(7/8-14 UNF) : 98.0 ~ 110.0 N·m**
    10.0 ~ 11.22 kgf·m
    72.0 ~ 80.8 lb·ft
  - ② **(1·1/16-12 UN) : 170.0 ~ 183.0 N·m**
    17.35 ~ 18.67 kgf·m
    124.9 ~ 134.4 lb·ft
  - ③ **(PF1/4) : 34.3 ~ 39.2 N·m**
    3.5 ~ 4.0 kgf·m
    25.2 ~ 28.8 lb·ft
- **Assembly angle**
  - ① **: 15°**
  - ② **: 90°**



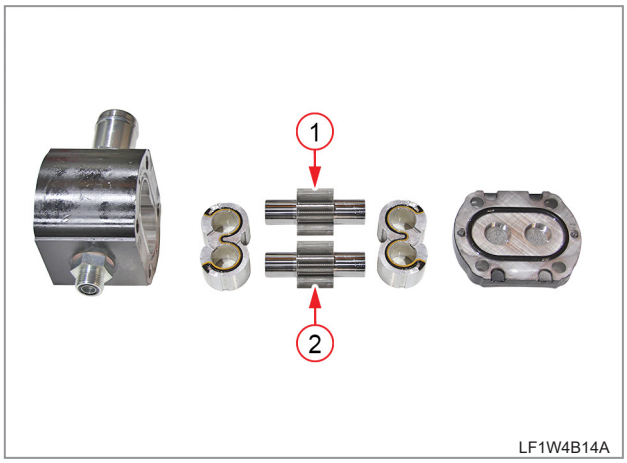


1. Unscrew the rear cover mounting bolts (1)(4EA), and then remove the high-flow pump (2) and charge pump (3) from the main pump (4).

▶ HIGH FLOW PUMP DISASSEMBLY

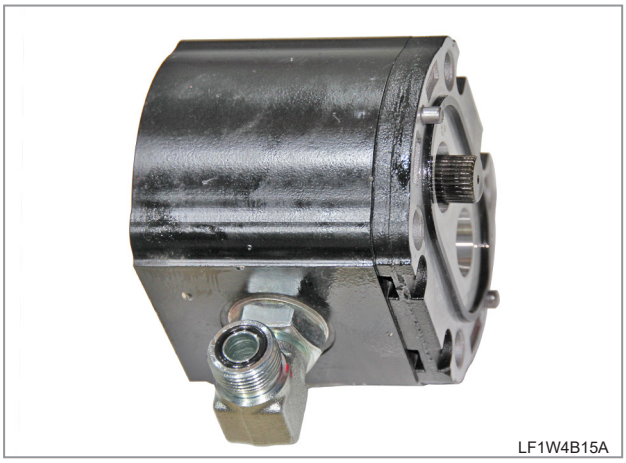


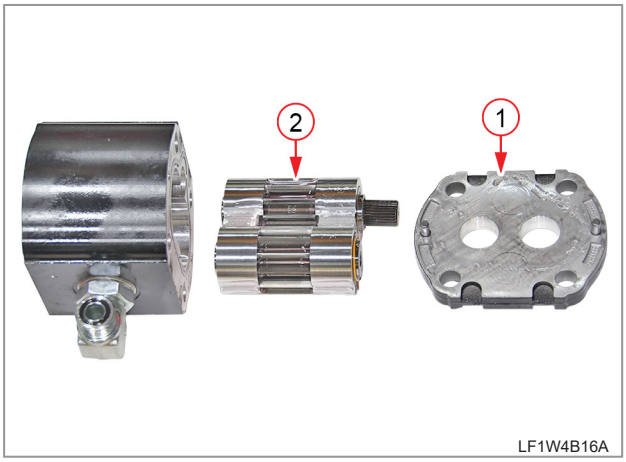
1. Remove the thrust plate assembly (1) from the pump housing.



2. Remove the drive gear (1) and driven gear (2) from the thrust plate.

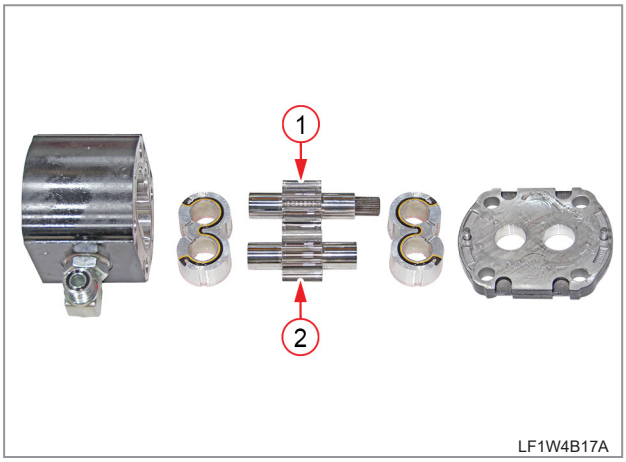
▶ CHARGE PUMP DISASSEMBLY


LF1W4B15A



LF1W4B16A

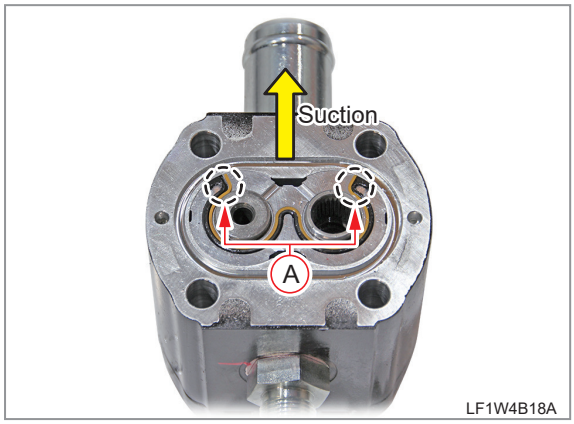
1. Remove the cover (1) and thrust plate assembly (2) from the charge pump housing.



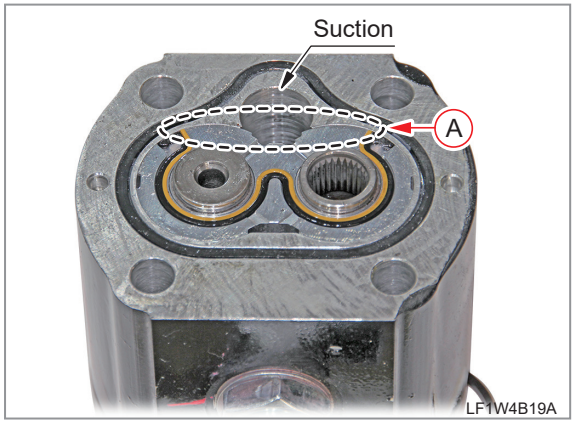
LF1W4B17A

2. Remove the drive gear (1) and driven gear (2) from the thrust plate.

REMARKS



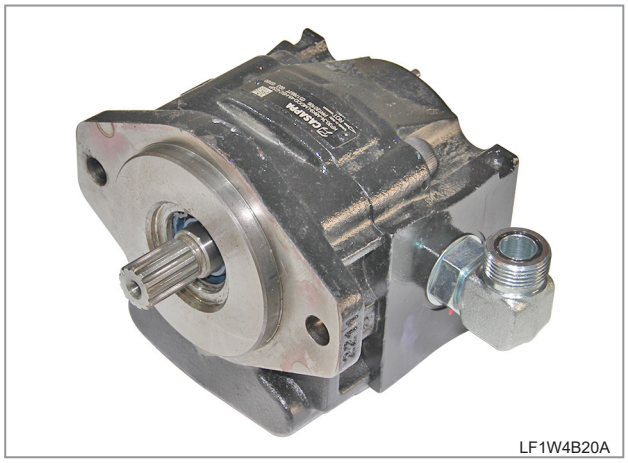
LF1W4B18A

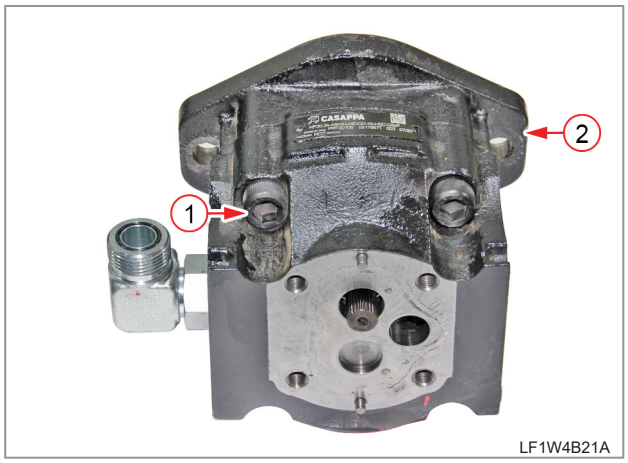


LF1W4B19A

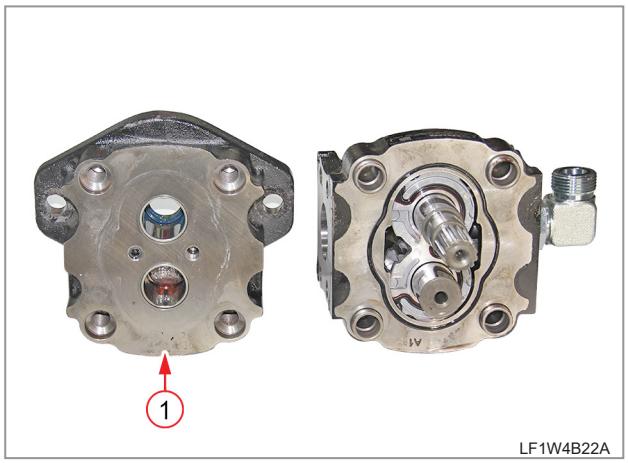
- **When installing the charge pump and high-flow pump, the thrust plate seal opening (A) should face the suction side.**

▶ MAIN PUMP DISASSEMBLY


LF1W4B20A

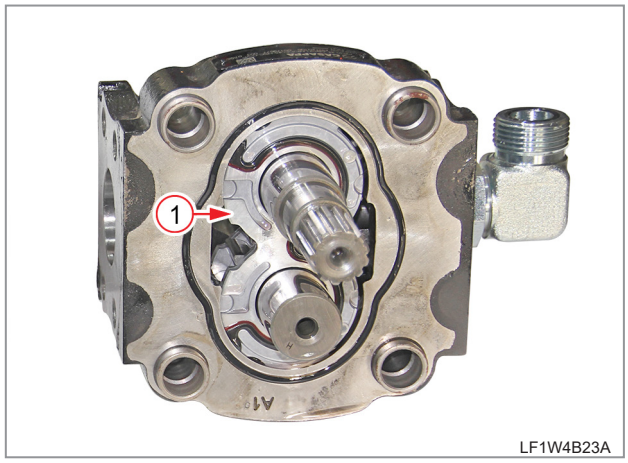


LF1W4B21A

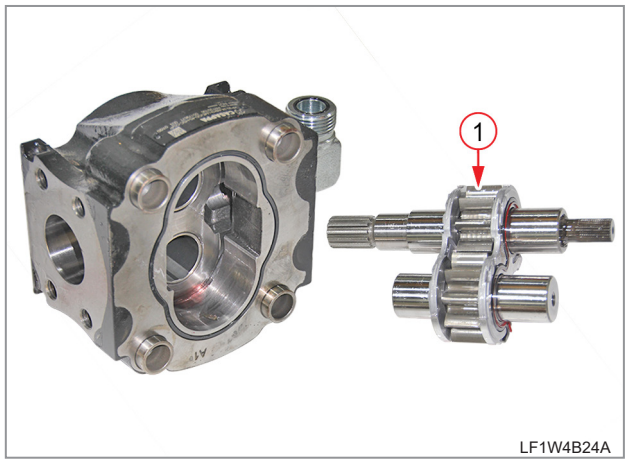


LF1W4B22A

1. Unscrew the hex wrench bolts (1)(4EA) and then remove the front cover (2).

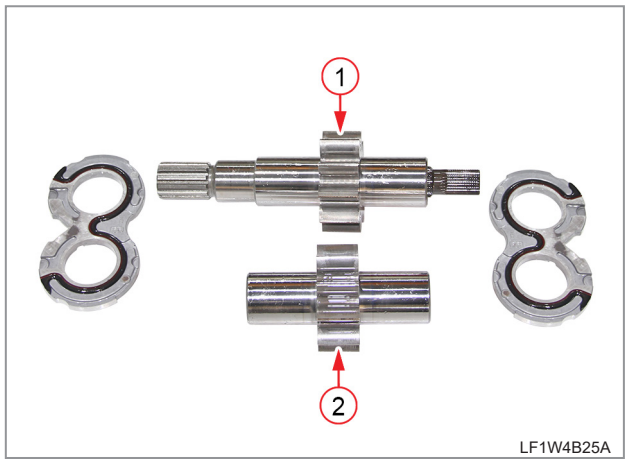


LF1W4B23A



LF1W4B24A

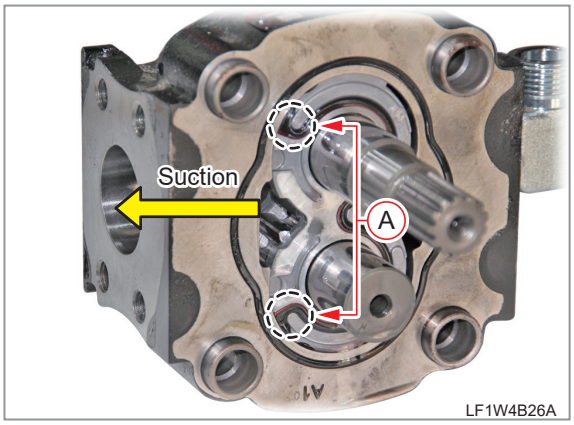
2. Remove the thrust plate assembly (1) from the main pump body.



LF1W4B25A

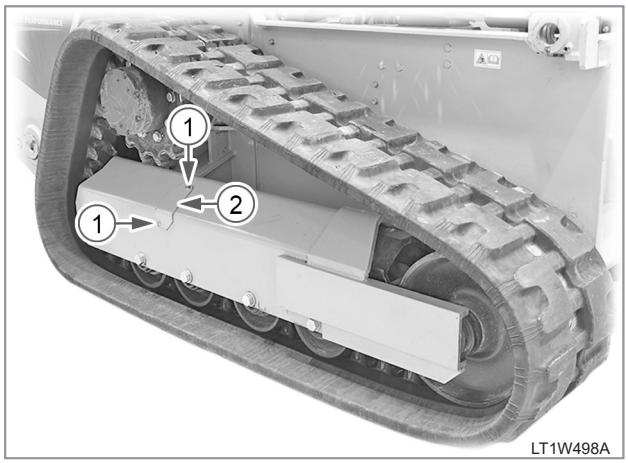
3. Remove the drive gear (2) and driven gear (3) from the thrust plate.

REMARKS

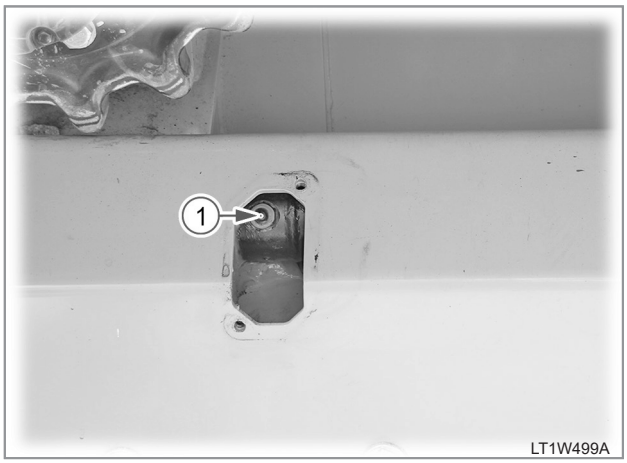


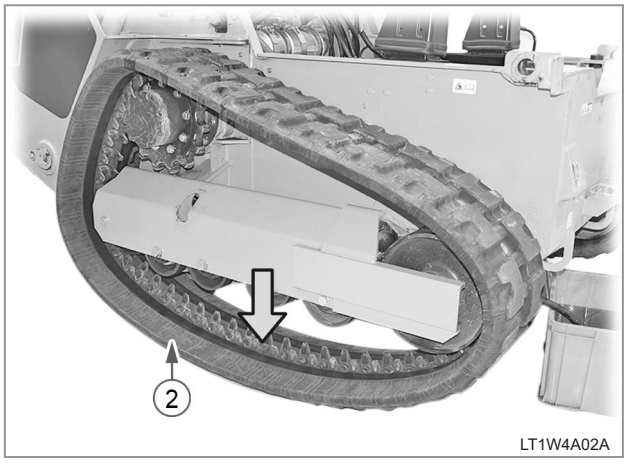
- **The seal opening (A) should face the suction side.**

8.4 TRACK(HST) MOTOR DISASSEMBLY

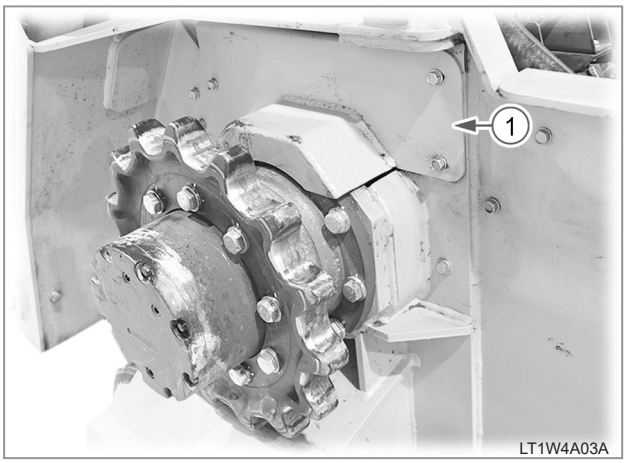


1. Unscrew the cover mounting flange bolts (1)(2EA) on the top of the track frame to remove the cover (2).

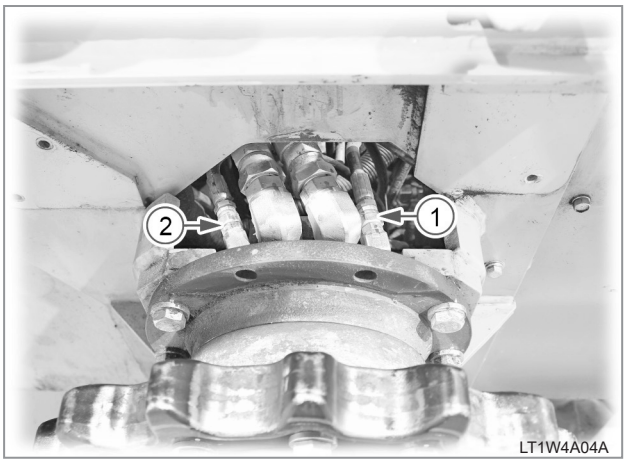




2. Release the tension of the crawler tension adjuster by unscrewing the grease nipple valve (1) of the tension adjuster and draining the grease from the inside. Then, loosen the crawler (2) to remove it.



3. Remove the cover frame (1).

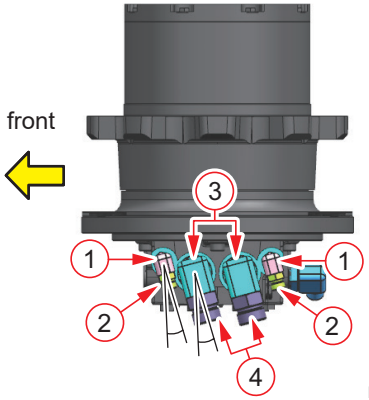


4. Disconnect the parking valve hydraulic hose (1) and shift valve hydraulic hose (2) of the track motor.

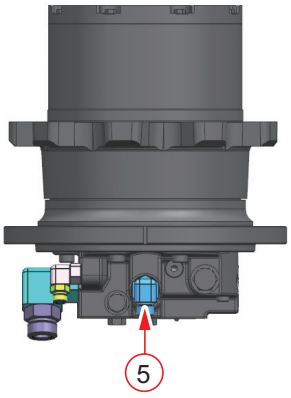
REMARKS

ASSEMBLY ANGLE AND TIGHTENING TORQUE WHEN INSTALLING THE ELBOW

TRACK(HST) 2-SPEED MOTOR(RH)]



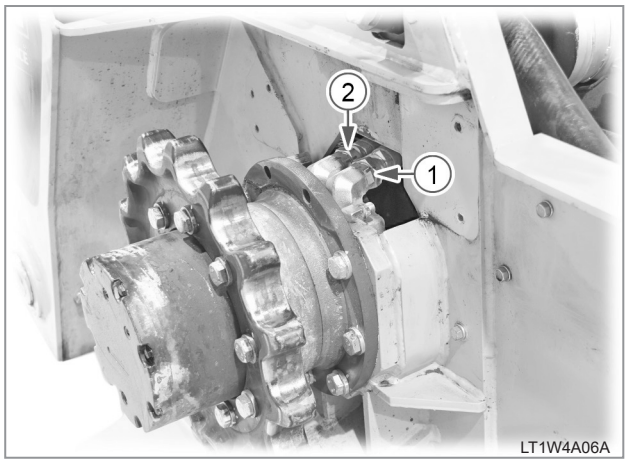
TRACK(HST) 2-SPEED MOTOR(RH)]



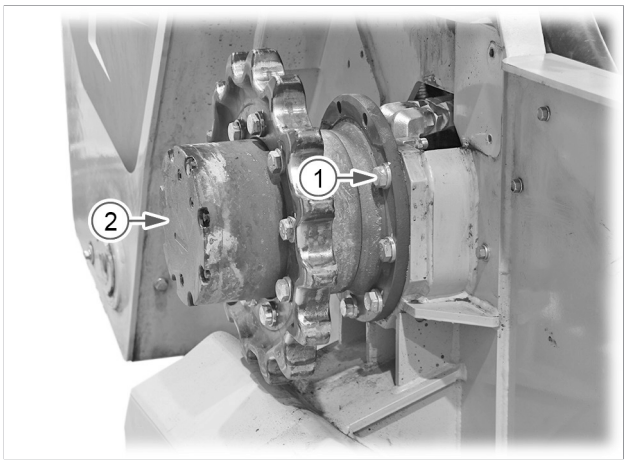
- **Tightening torque**
  - ① **(PF 1/4) : 25.0 ~ 30.0 N·m**
    2.55 ~ 3.06 kgf·m
    18.4 ~ 22.0 lb·ft
  - ② **(9/16-18 UNF) : 33.0 ~ 35.0 N·m**
    3.37 ~ 3.57 kgf·m
    24.3 ~ 25.7 lb·ft
  - ③ **(PF1/4) : 140.0 ~ 160.0 N·m**
    14.29 ~ 16.33 kgf·m
    102.9 ~ 117.6 lb·ft
  - ④ **(1 1/16-12 UN) : 170.0 ~ 183.0 N·m**
    17.35 ~ 18.67 kgf·m
    124.9 ~ 134.4 lb·ft
  - ⑤ **(PF 1/2) : 75.0 ~ 95.0 N·m**
    7.65 ~ 9.69 kgf·m
    55.1 ~ 69.8 lb·ft
- **Assembly angle**
  - **①, ④ : 15°**
  - **⑤ : 90°**

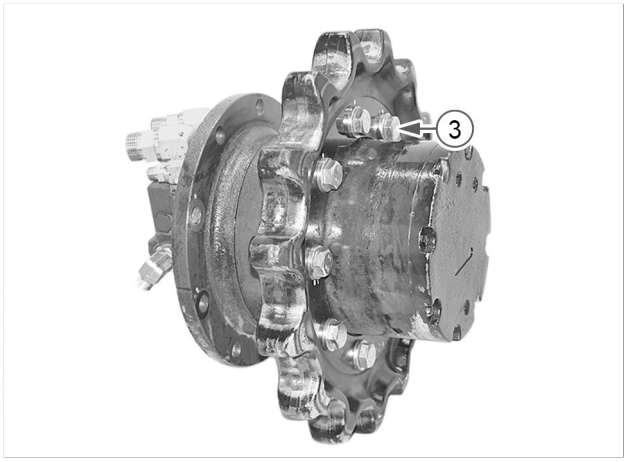
※ The track motor (LH) is symmetrical for the track motor (RH)

5. Disconnect the oil tank hydraulic hose (1).



6. Disconnect the hydraulic hose (1) of the HST pump (forward driving) and hydraulic hose (2) of the HST pump (reverse driving).

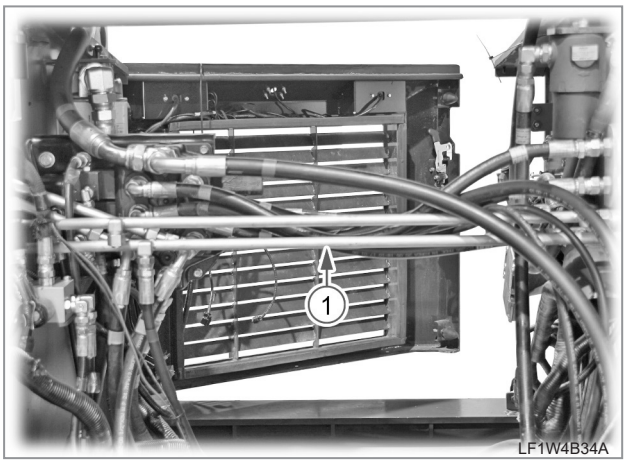




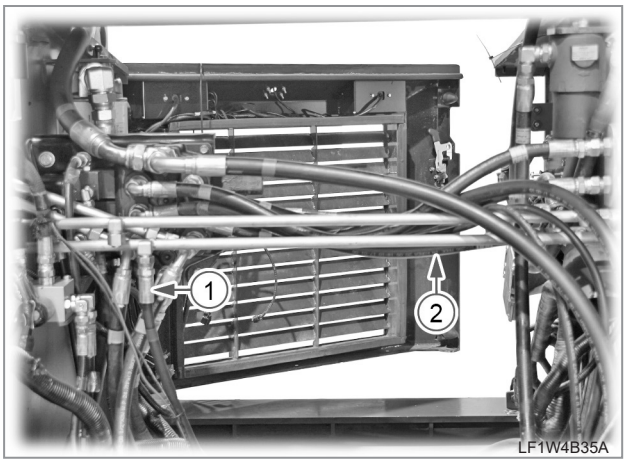
7. Unscrew the track motor mounting bolts (1)(7EA) to remove the track motor assembly (2). If necessary, unscrew the sprocket mounting bolts (3) from the track motor assembly to remove the sprocket.
When installing the track motor and sprocket, apply LOCTITE 271 or equivalent to mounting bolts (1, 3) and tighten them to the specified torque.

Mounting bolt (M16 P2.0)
tightening torque..... 308.7 ~ 340.1 N·m
31.5 ~ 34.7 kgf·m
226.8 ~ 249.8 lb·ft

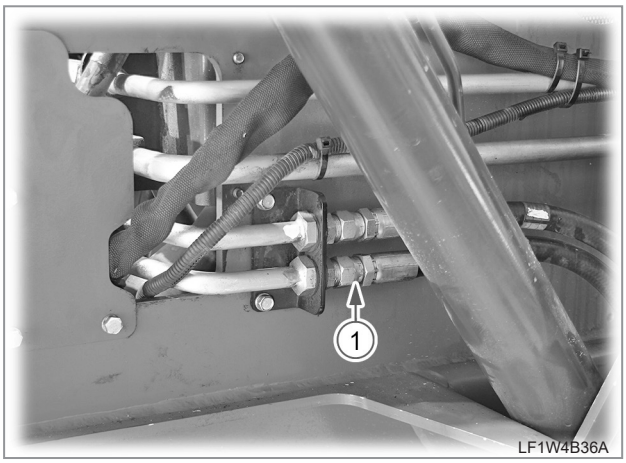
8.5 MAIN CONTROL VALVE DETACH & DISASSEMBLY



1. Disconnect the hydraulic tube (LF13-0365) (1).

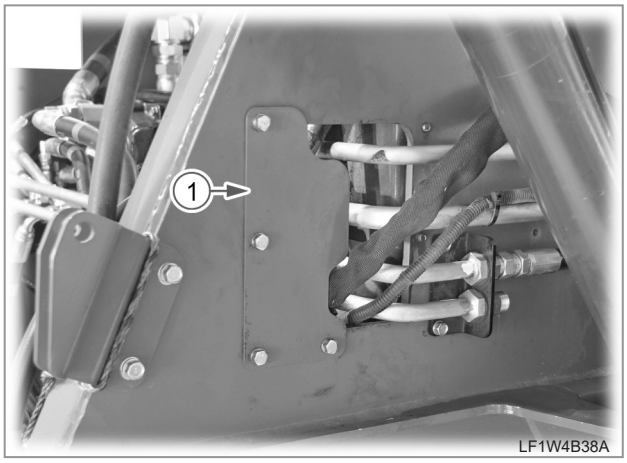


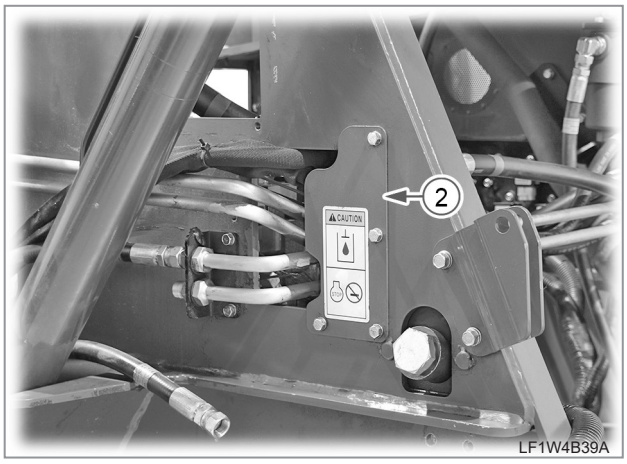
1-1. Disconnect the hydraulic hoses (1 & 2) to the hydraulic tube from the inside of the main frame.



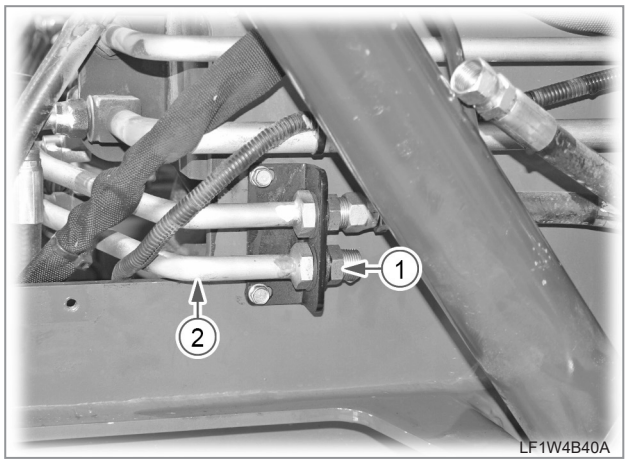
1-2. Disconnect the hydraulic hose (1) to the hydraulic tube from the outside of the left section of the main frame.

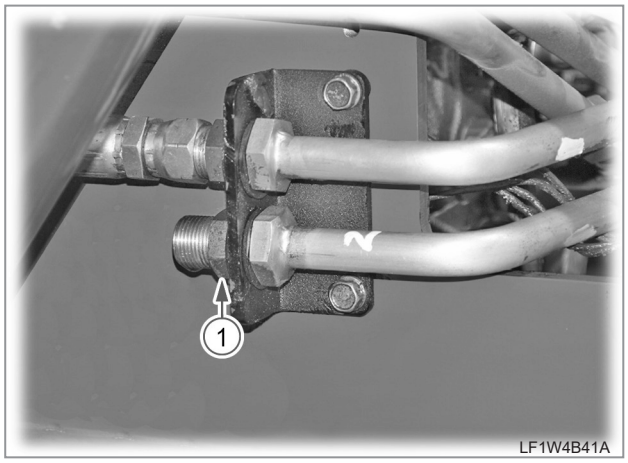
1-3. Disconnect the hydraulic hose (1) to the hydraulic tube from the outside of the right section of the main frame.



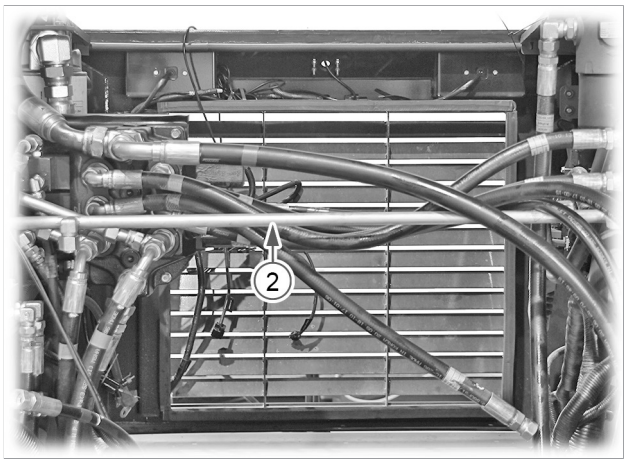


1-4. Remove the covers (1 & 2) from the left and right sides of the main frame.

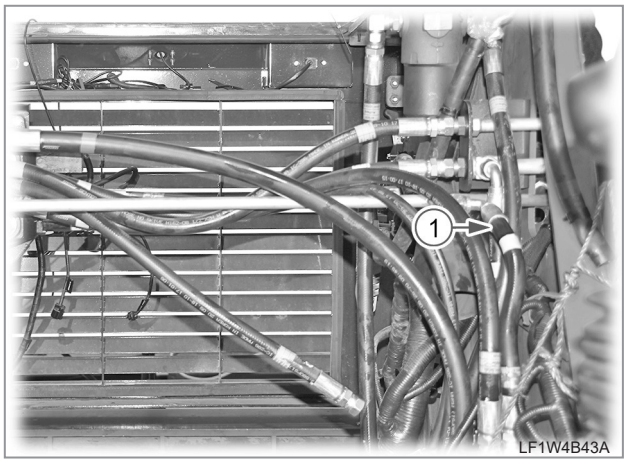




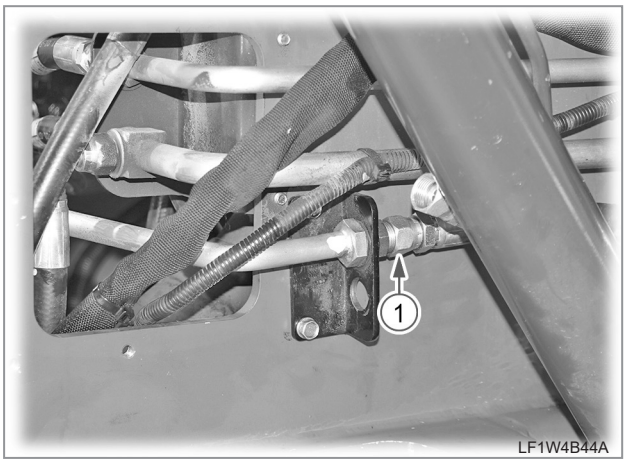
1-5. Unscrew the left-hand and right-hand hydraulic tube mounting nuts (1) to disconnect the hydraulic tubes (2).

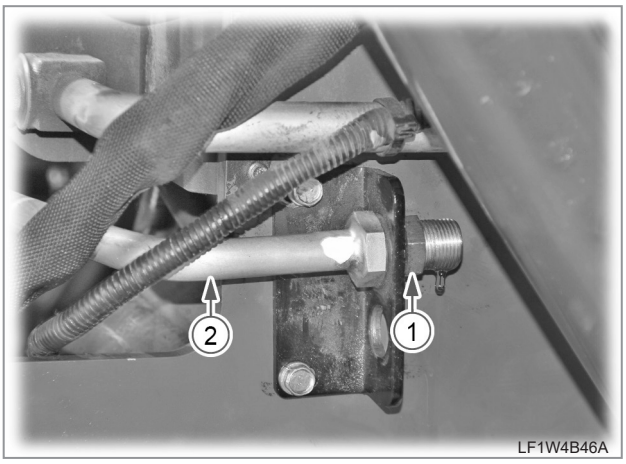


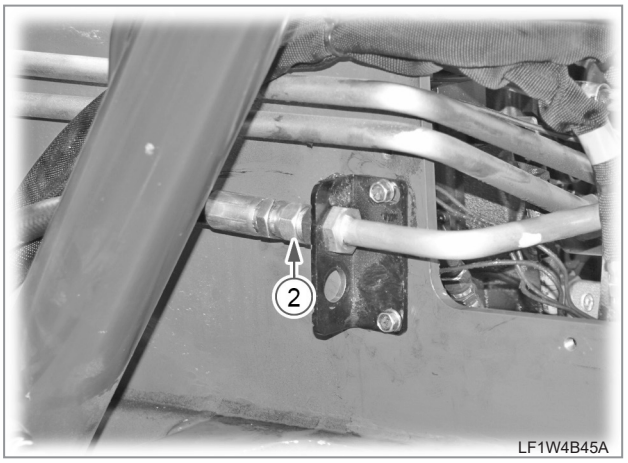
2. Hydraulic tube (LF13-0363)(2) detach

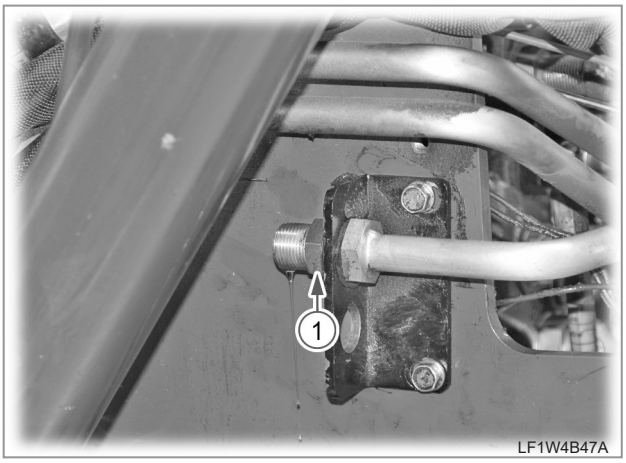


2-1. Disconnect the hydraulic hose (1) to the hydraulic tube from the inside of the main frame.



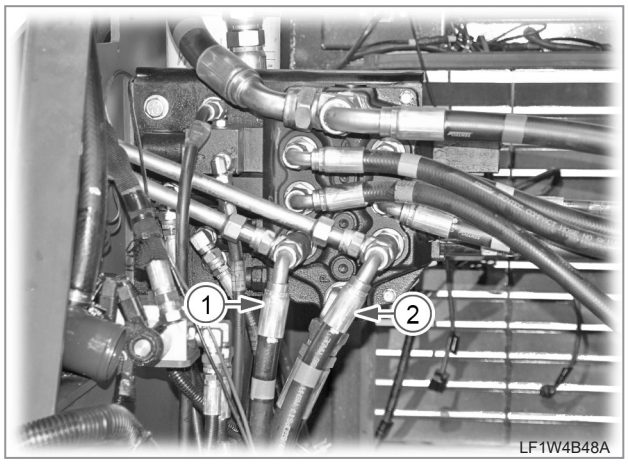




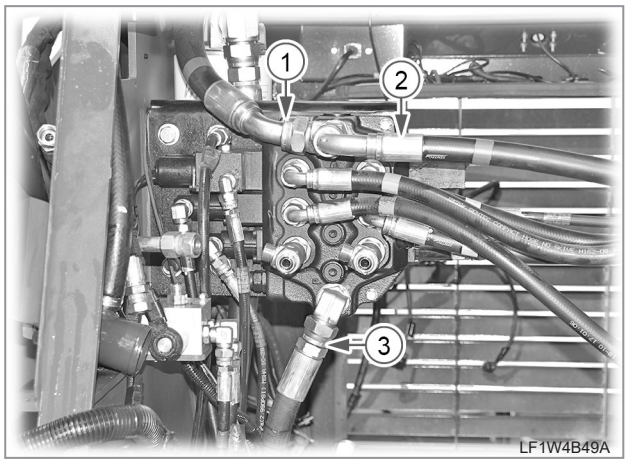


2-2. Disconnect the hydraulic hoses from the left section (1) and right section (2) of the main frame.

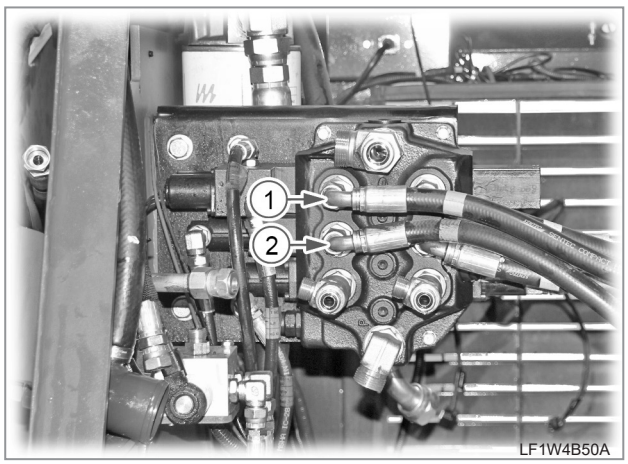
2-3. Unscrew the left-hand and right-hand hydraulic tube mounting nuts (1) to disconnect the hydraulic tubes (2).



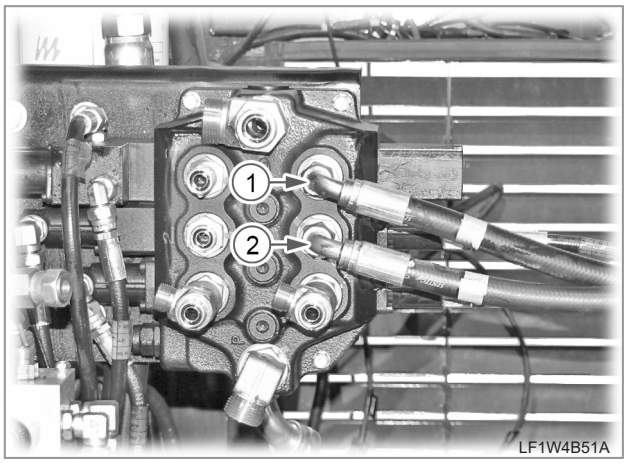
3. Disconnect the tilt cylinder rollback hydraulic hose (1) and tilt cylinder dump hydraulic hose (2) from the main control valve.



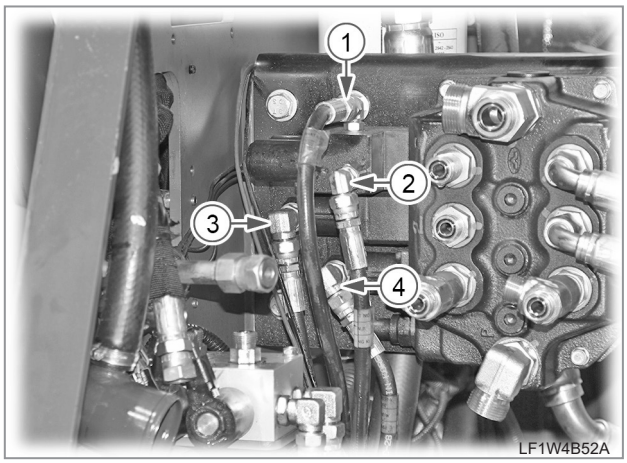
4. Disconnect the oil cooler hose (1), high-flow valve hose (2), and oil cooler hydraulic hose (3).



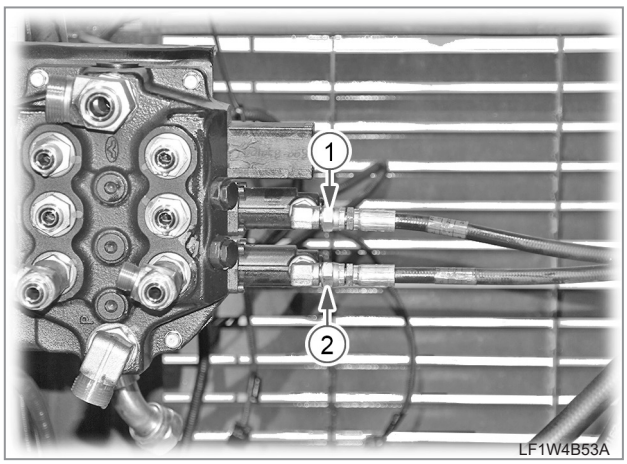
5. Disconnect the external hydraulic (female) hose (1) and lift cylinder (lifting) hydraulic hose (2).



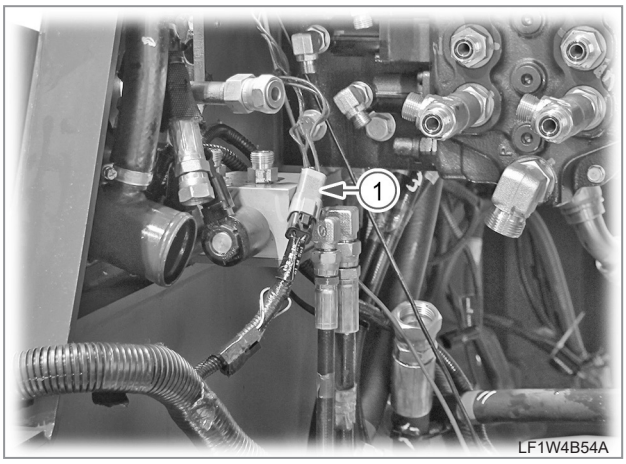
6. Disconnect the external hydraulic (male) hose (1) and self-leveling hydraulic hose (2).



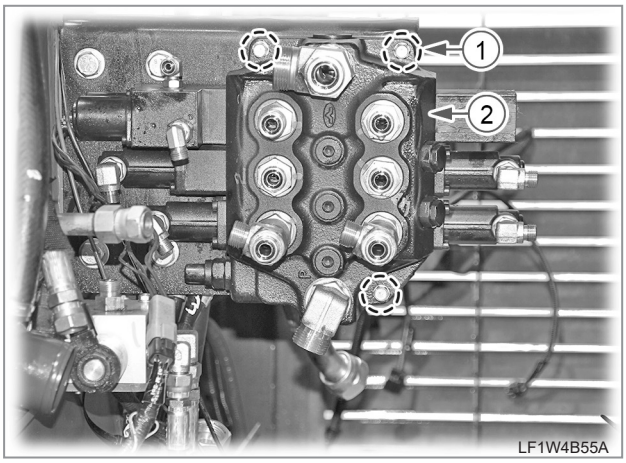
7. Disconnect the oil tank return hose (1), pilot lock valve UI hose (2), RCV boom up hose (3), and RCV rollback hose (4).

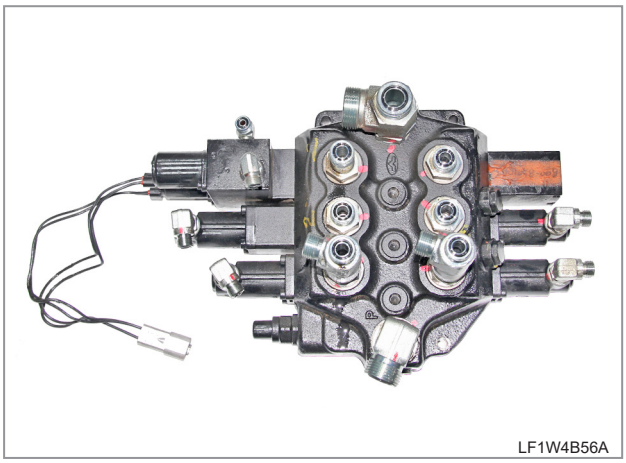


8. Disconnect the RCV boom down hose (1) and RCV dump hose (2).



9. Disconnect the main control valve connector (1).

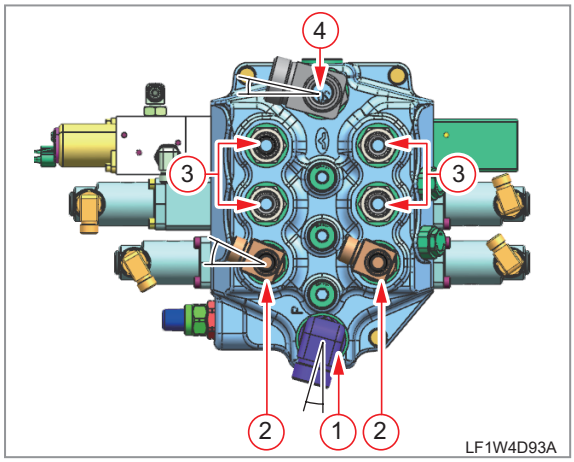




10. Unscrew the three main control valve mounting bolts and nuts (1)(3EA), and then remove the main control valve assembly (2).

REMARKS

ELBOW ASSEMBLY



- **When installing the elbow, install it according to the direction and specified torque.**

Mounting section tightening torque

- ① (1·1/16-12 UN) : 170.5 ~ 183.3 N·m
17.4 ~ 18.7 kgf·m
125.3 ~ 134.6 lb·ft

- ②, ③ (7/8-14 UNF) : 98.0 ~ 109.8 N·m
10.0 ~ 11.2 kgf·m
72.0 ~ 80.6 lb·ft

- ④ (1·1/16-12 UN) : 170.5 ~ 183.3 N·m
17.4~18.7 kgf·m
125.3 ~ 134.6 lb·ft

Hose tightening torque

- ① (1·3/16-12 UN) : 117.6 ~ 127.4 N·m
12.0 ~ 13.0 kgf·m
86.4 ~ 93.6 lb·ft

- ②, ③ (13/16-16 UN) : 58.8 ~ 63.7 N·m
6.0 ~ 6.5 kgf·m
43.2 ~ 46.8 lb·ft

- ④ (1·3/16-12 UN) : 117.6 ~ 127.4 N·m
12.0 ~ 13.0 kgf·m
86.4 ~ 93.6 lb·ft

and (1·7/16-12 UN) : 181.3 ~ 191.1 N·m
18.5 ~ 19.5 kgf·m
133.2 ~ 140.4 lb·ft

Assembly angle

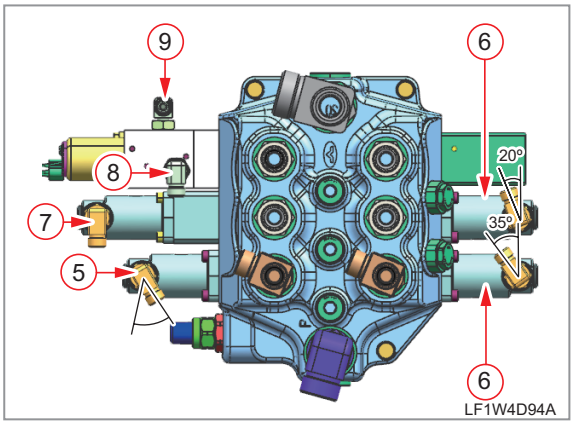
- ① : 15°

- ② : 20°

- ④ : 15°

REMARKS

ELBOW ASSEMBLY



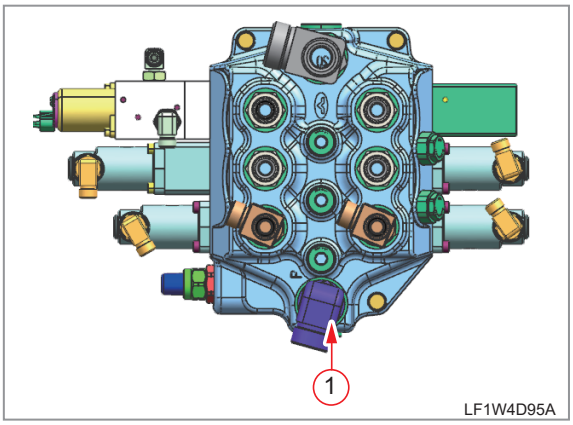
Mounting section tightening torque

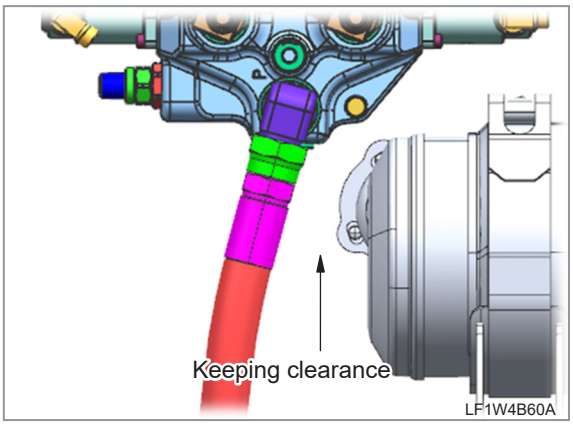
- ⑤, ⑥, ⑦ (9/16-18 UNF) : 33.3 ~ 35.3 N·m
  3.4 ~ 3.6 kgf·m
  24.5 ~ 25.9 lb·ft
- ⑧, ⑨ (7/16-20 UNF): 19.6 ~ 21.6 N·m
  2.0 ~ 2.2 kgf·m
  14.4 ~ 15.8 lb·ft

Hose tightening torque

- ⑤, ⑥, ⑦ (9/16-18 UNF) : 24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft
- ⑧, ⑨ (9/16-18 UNF) : 24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft
- ⑤ : 45°

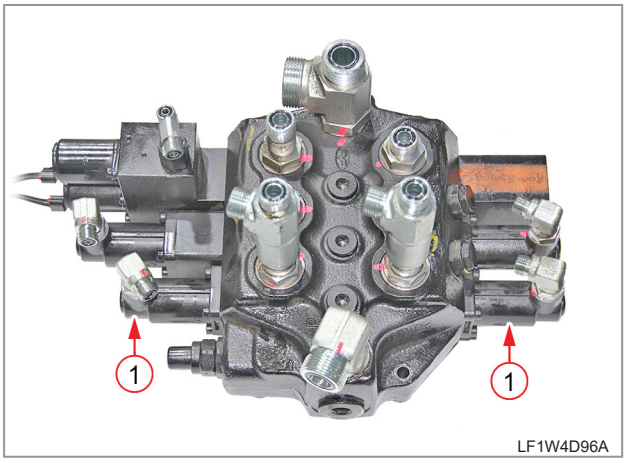
CAUTION



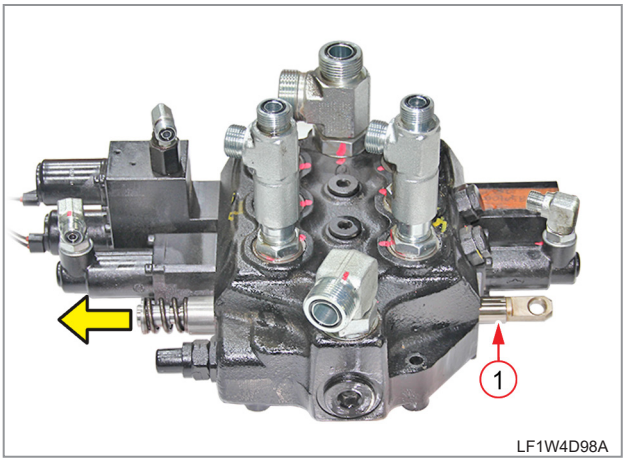


- ① When connecting the hydraulic hose to the elbow, keep the clearance from the CCRT for at least 50 mm to prevent any interference.

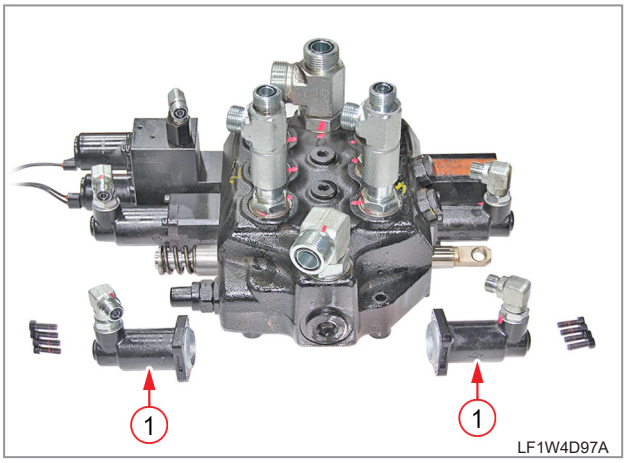
DISASSEMBLY



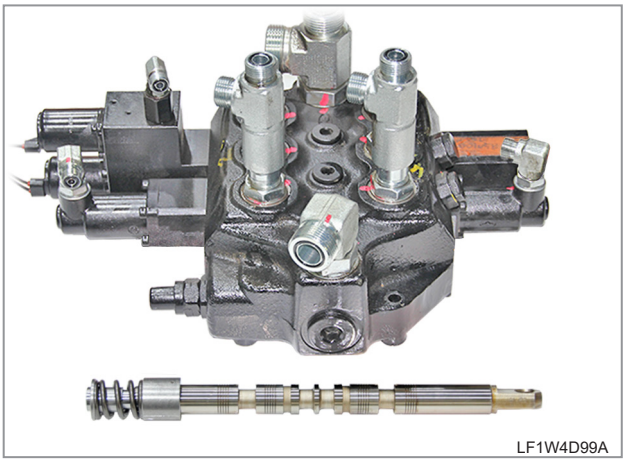
LF1W4D96A



LF1W4D98A



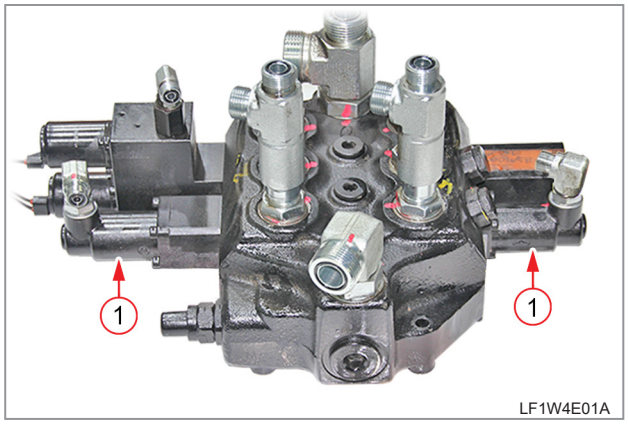
LF1W4D97A


LF1W4D99A

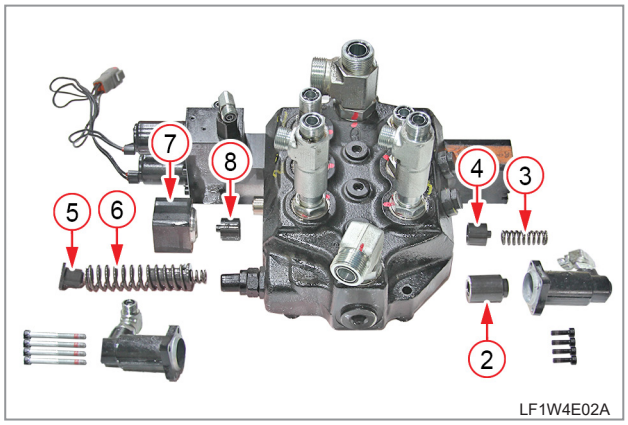
1. Remove the left-hand and right-hand bucket spool covers (1) of the control valve.


LF1W4B65A

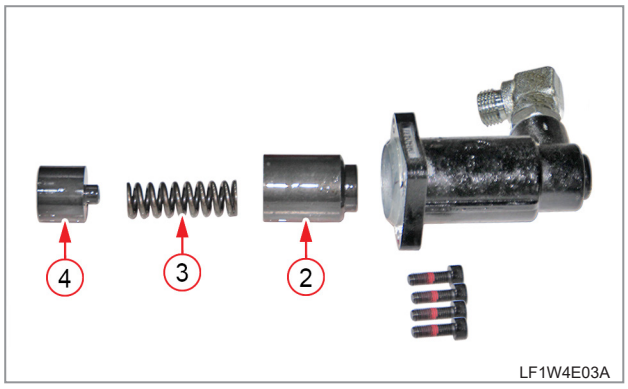
2. Pull out the bucket spools (1).



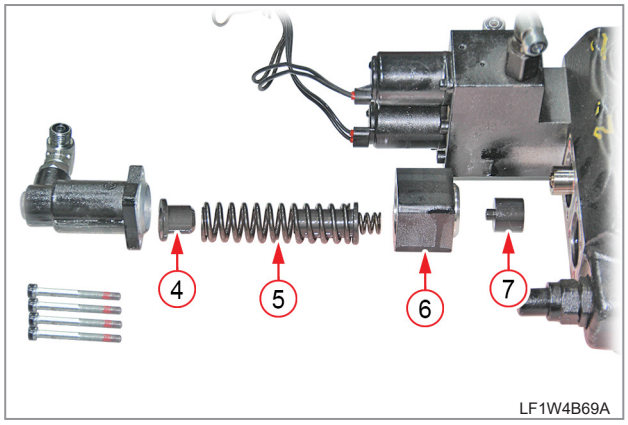
LF1W4E01A



LF1W4E02A

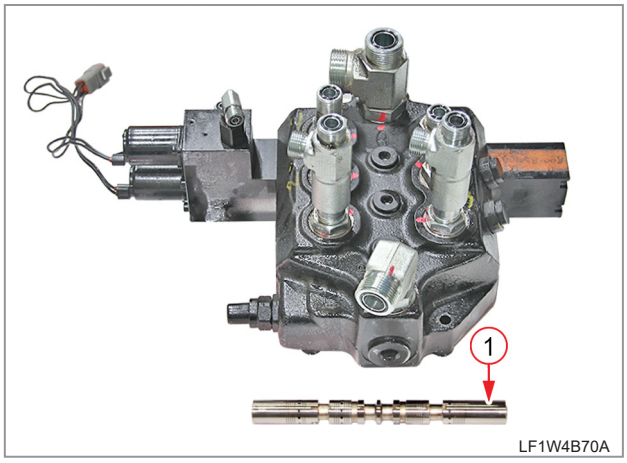


LF1W4E03A



LF1W4B69A

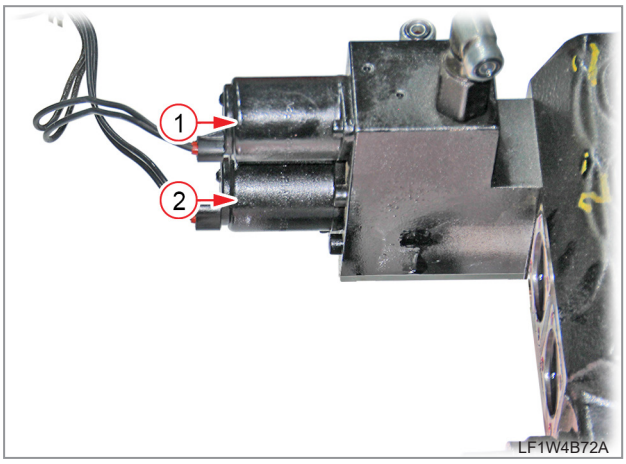
3. After removing the boom spool covers (1), remove the components (2, 3, & 4) from the left side as well as the components (5, 6, 7, & 8) from the right side.

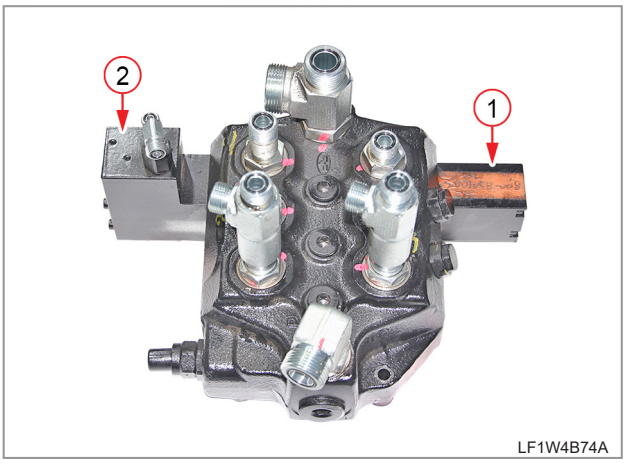


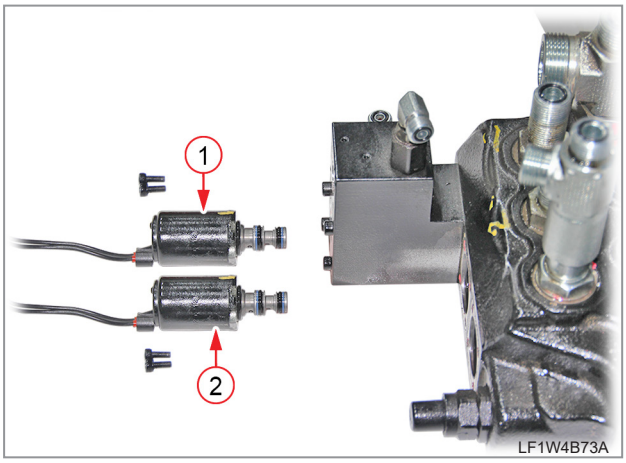
LF1W4B70A

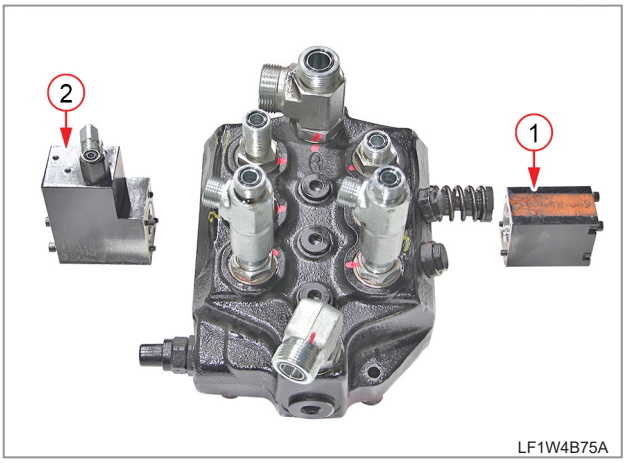

LF1W4B71A

4. Pull out the boom spool (1).



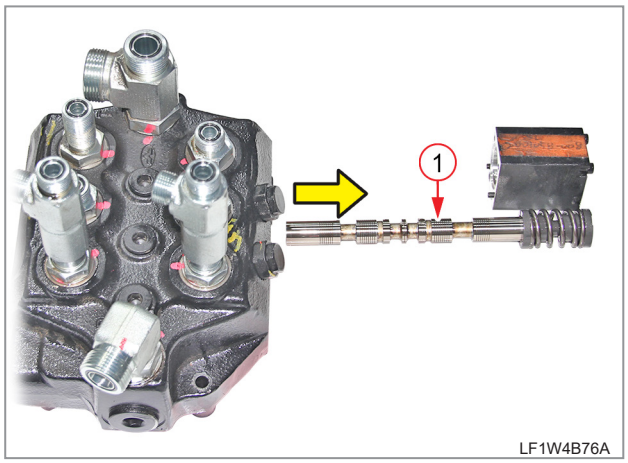


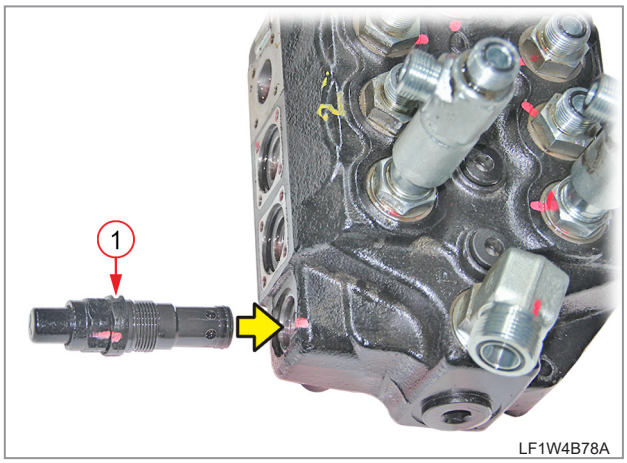


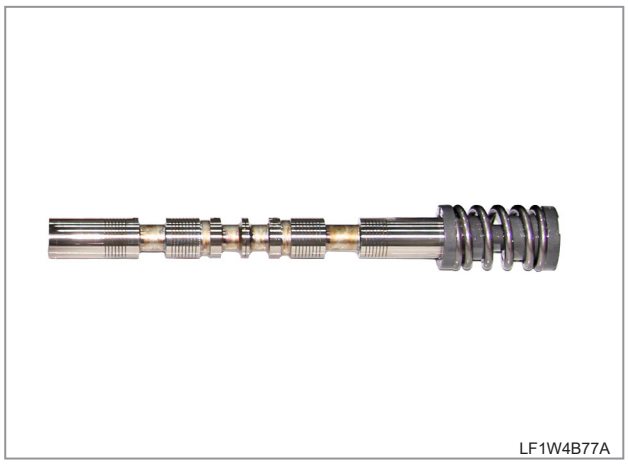


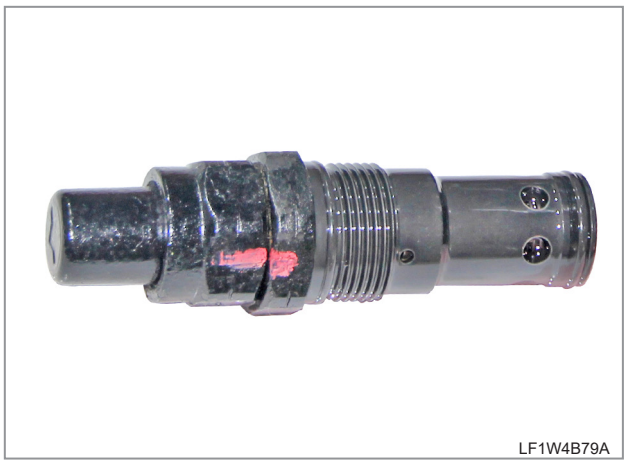
5. Remove the solenoid valves (1 & 2).

6. Remove the left-hand cover (1) and right-hand cover (2) from the main control valve body.





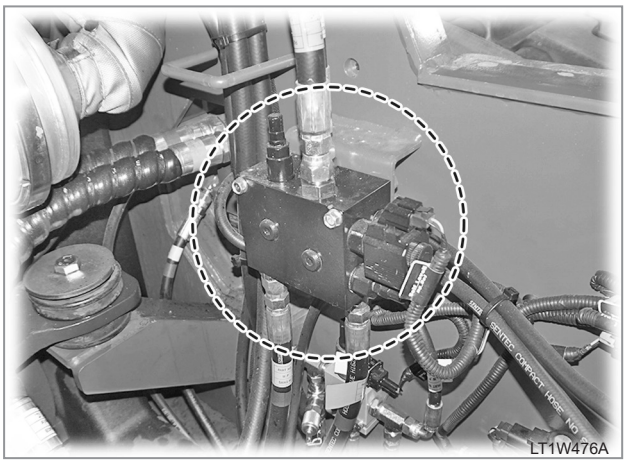


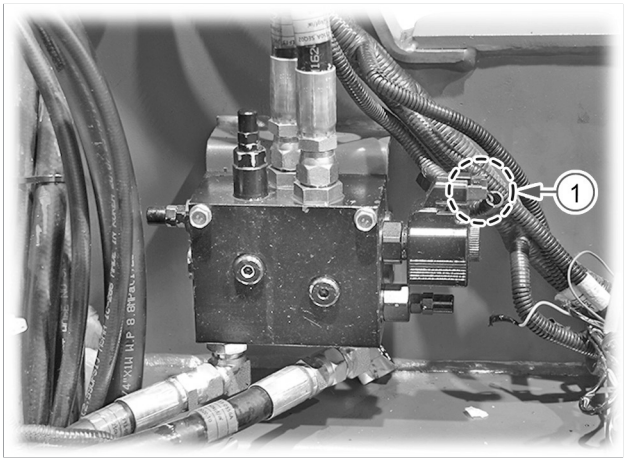


7. Pull out the external hydraulic flow spool (1) from the main control valve body.

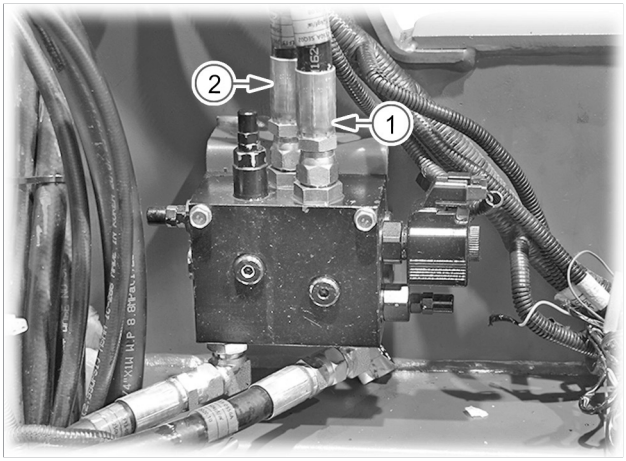
8. Remove the relief valve assembly (1).

8.6 SELF LEVEL VALVE DETACH & DISASSEMBLY





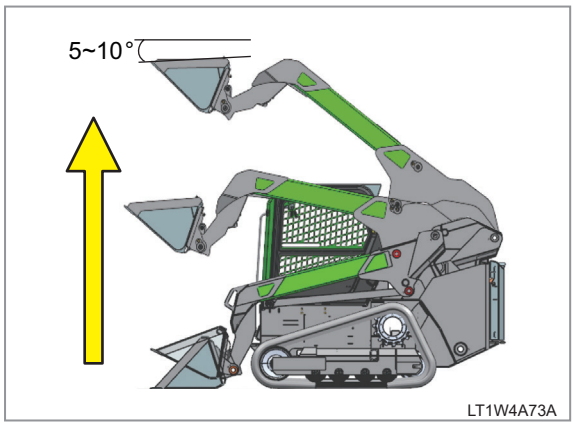
1. Disconnect the solenoid valve connector (1).



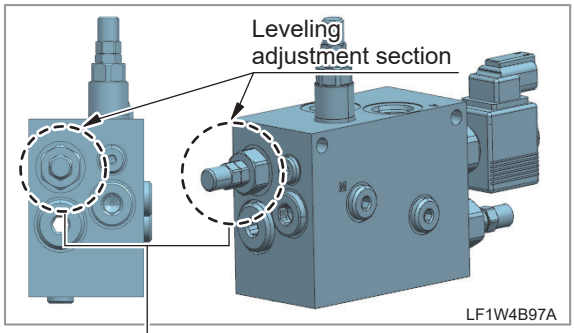
2. Disconnect the MCV hydraulic hose (1) and lift cylinder (lowering) hydraulic hose (2) from the top of the self-leveling valve body.

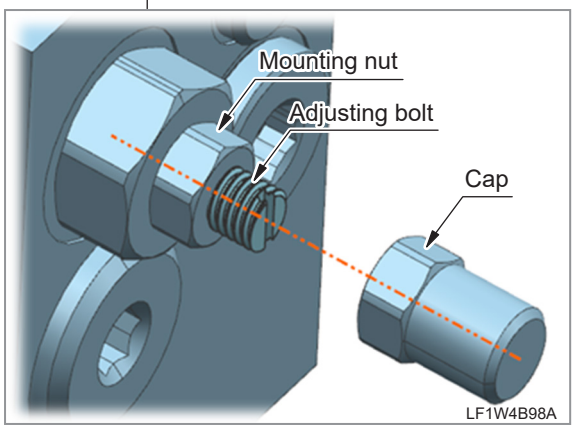
REMARKS

SELF-LEVELING ADJUSTMENT

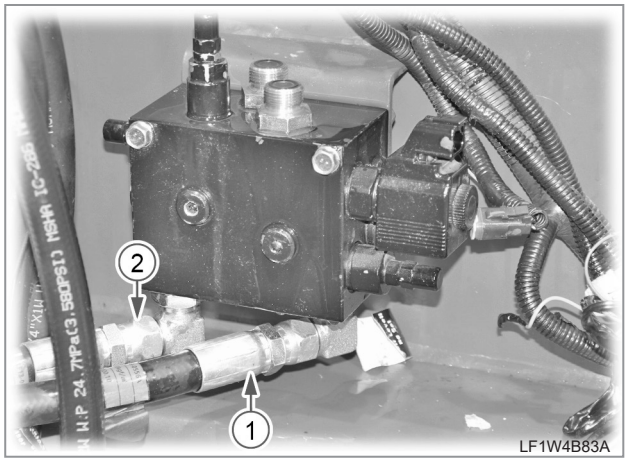


1. **Set the machine with the boom in the lowest position and the bucket in the maximum rollback position.**
2. **Run the engine at its maximum rpm (2,550 ± 50) to check the angle of the bucket after the boom is raised up to the highest position.**
   Bucket angle : 5~10 °
3. **If the angle of the bucket is abnormal.**

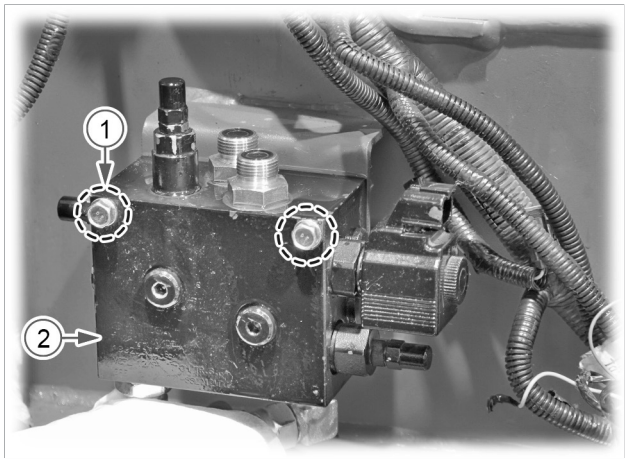


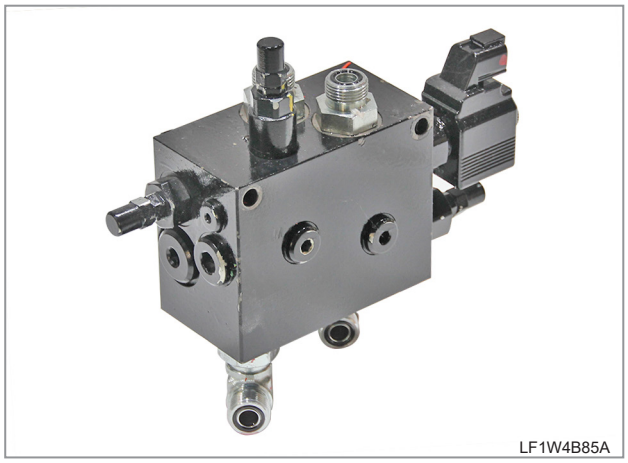


- **Remove the cap.**
- **Unscrew the mounting nut.**
- **Turn the adjusting bolt clockwise or counterclockwise to adjust it.**
  (Adjustment should be done within 1 and a half turns.)
  - Clockwise direction: decreasing bucket dump ratio
  - Counterclockwise direction: increasing bucket dump ratio
- **After setting the adjusting bolt, lock it with the mounting nut.**
- **Install the cap again.**



3. Disconnect the tilt cylinder (dump) hydraulic hose (1) and tilt cylinder (rollback) hydraulic hose (2).

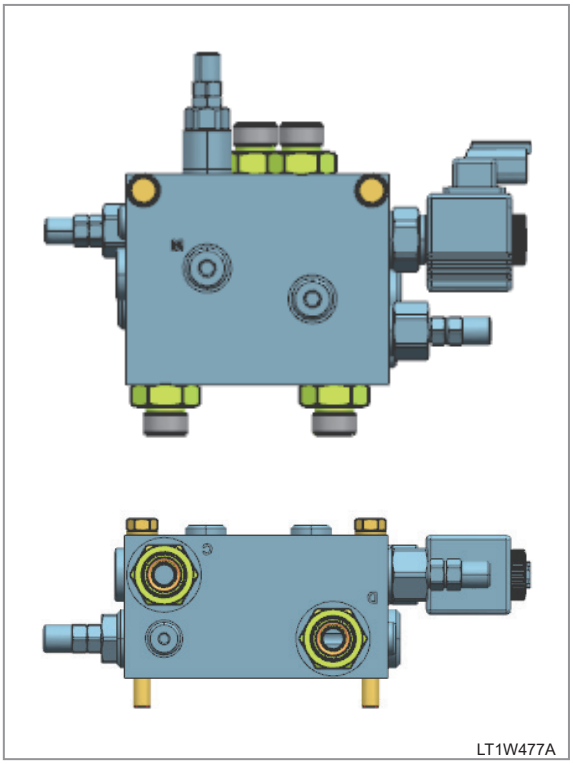




4. Unscrew the self-leveling valve body mounting bolts (1)(2EA), and then remove the self-leveling valve (2).

REMARKS

ELBOW ASSEMBLY

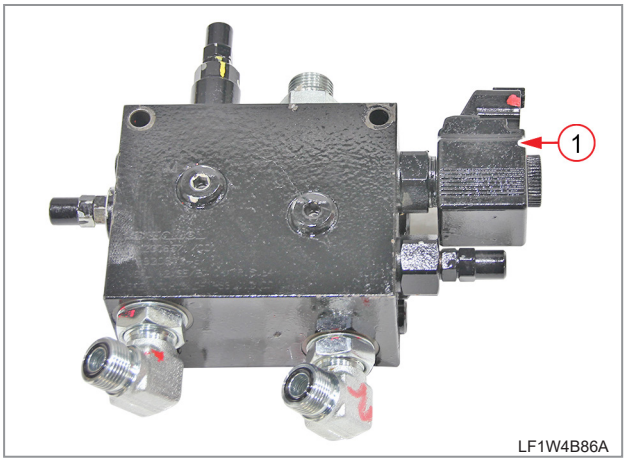


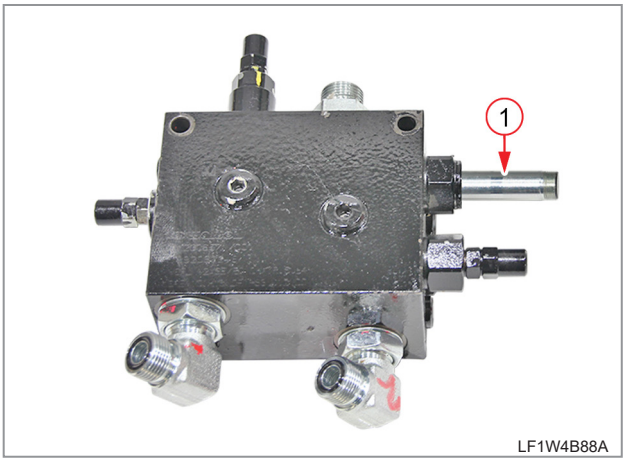
- **When installing the elbow, be careful with its tightening torque.**

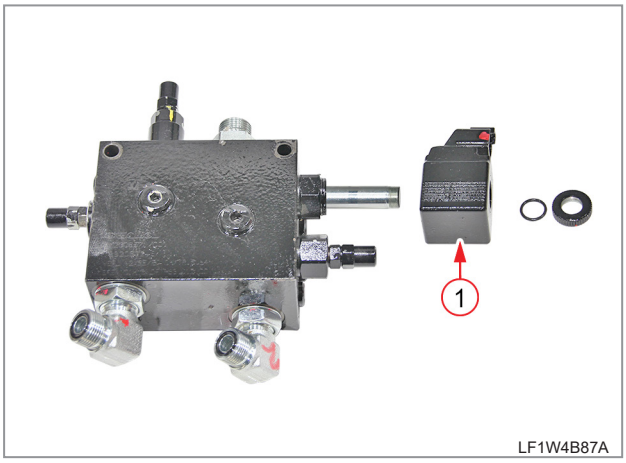
  Mounting section (7/8-14 UNF)
  tightening torque .....98.0 ~ 109.8 N·m
  10.0 ~ 11.2 kgf·m
  72.0 ~ 80.6 lb·ft

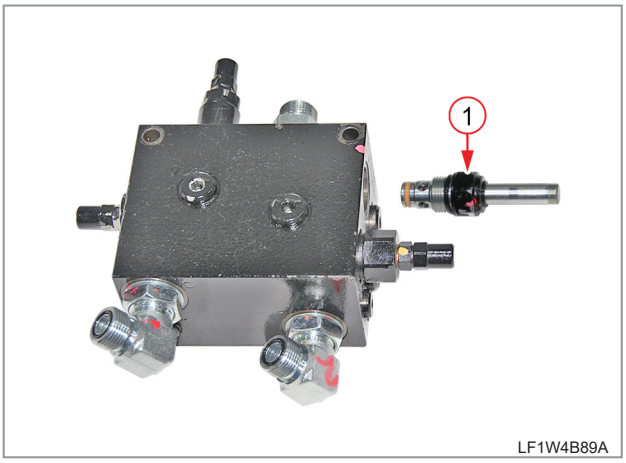
  Hose (1·3/16-12 UN)
  tightening torque .....117.6 ~ 127.4 N·m
  12.0 ~ 13.0 kgf·m
  86.4 ~ 93.6 lb·ft

DISASSEMBLY



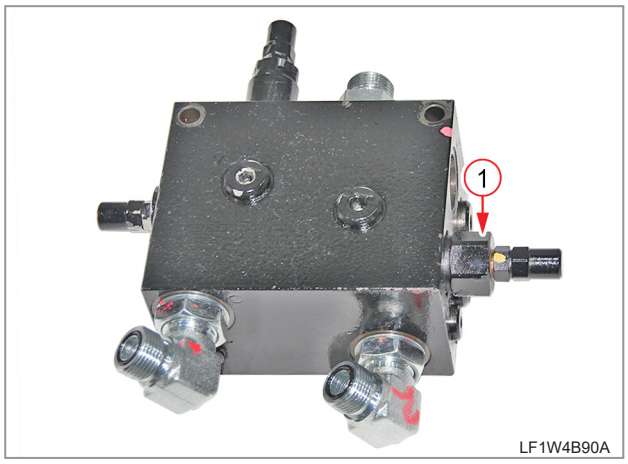


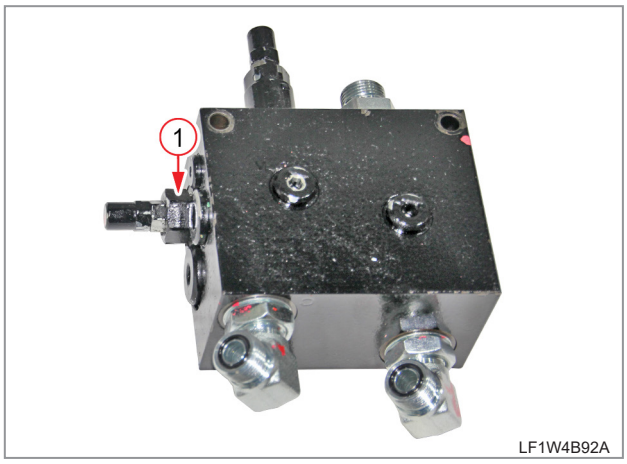


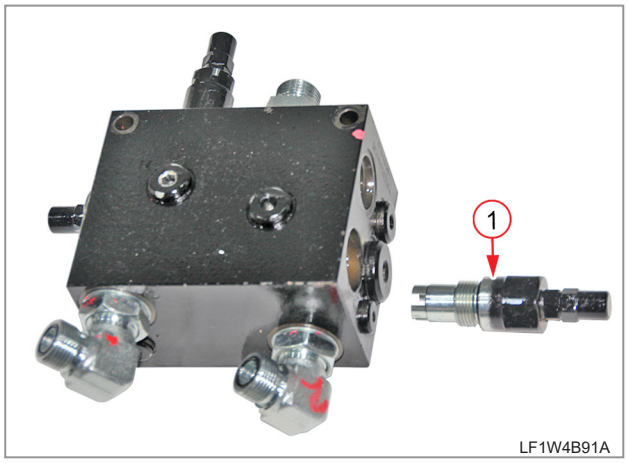


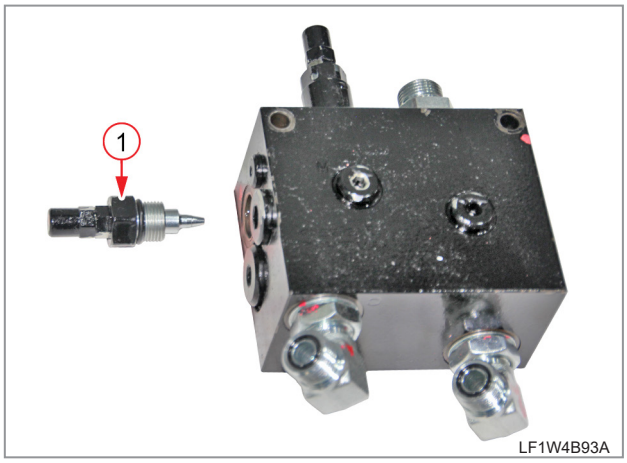
1. Remove the solenoid magnet (1) from the valve body.

2. Remove the solenoid valve (1).



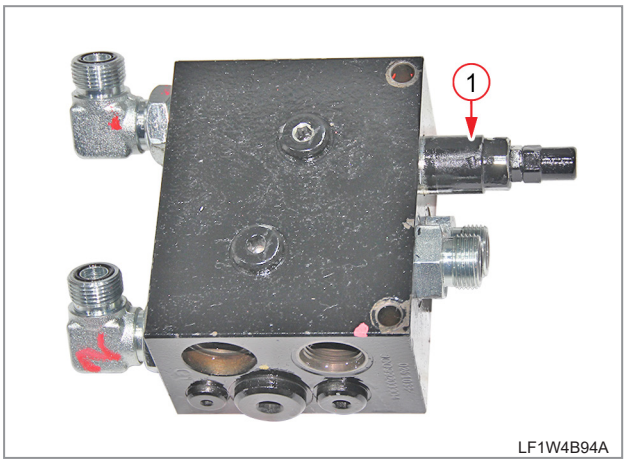


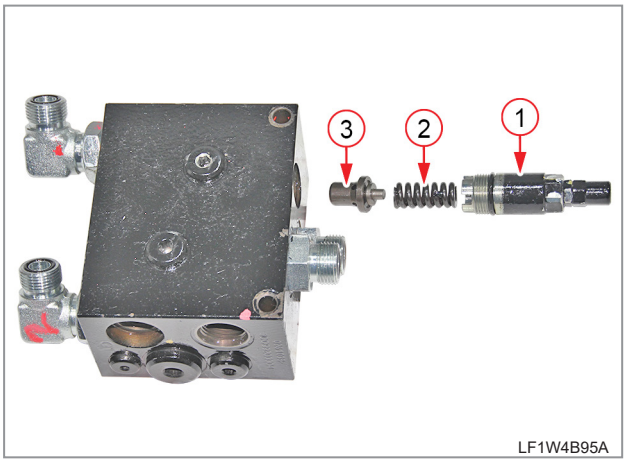




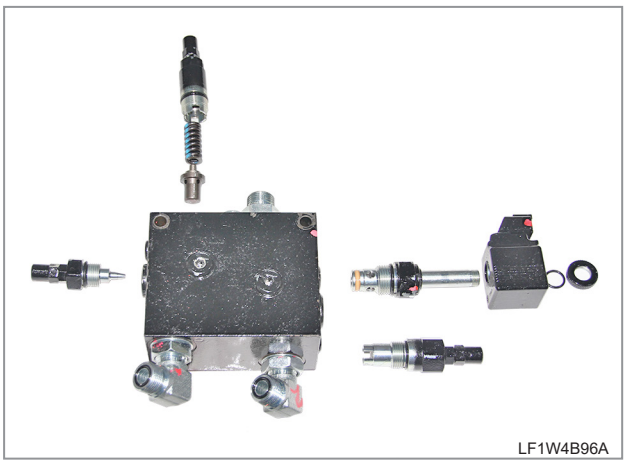
3. Remove the relief valve (1).

4. Remove the horizontal balance control valve (1).



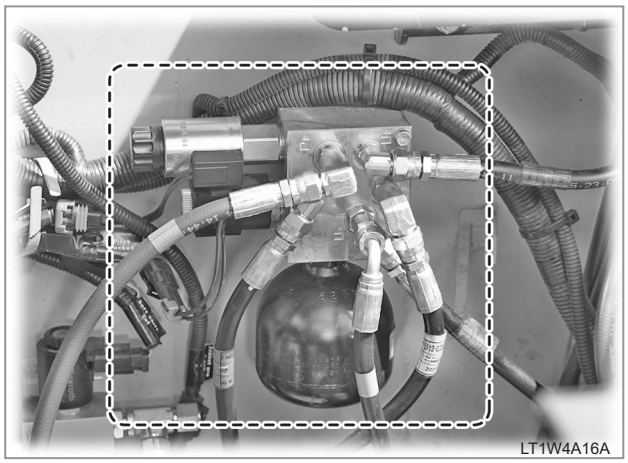


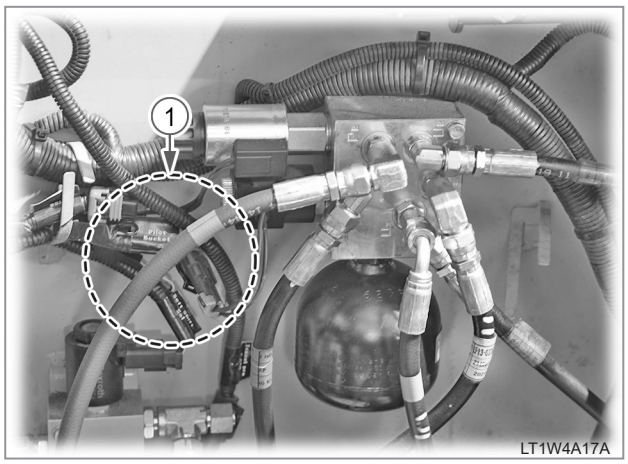
5. Unscrew the holder (1) on top of the valve body to remove the spring (2) and valve (3).



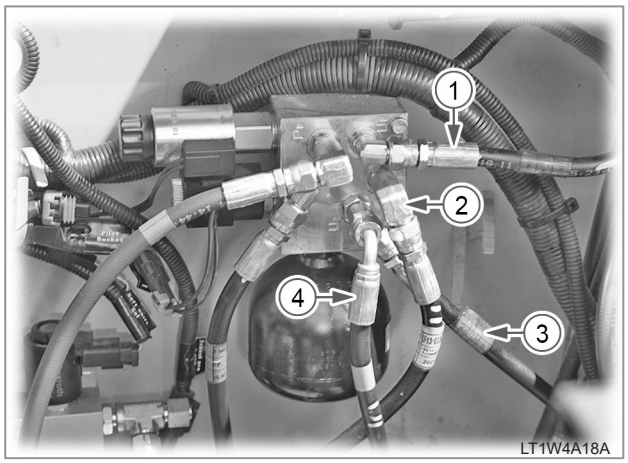
6. Assemble in the reverse order of disassembly.

8.7 PILOT LOCK VALVE DETACH & DISASSEMBLY

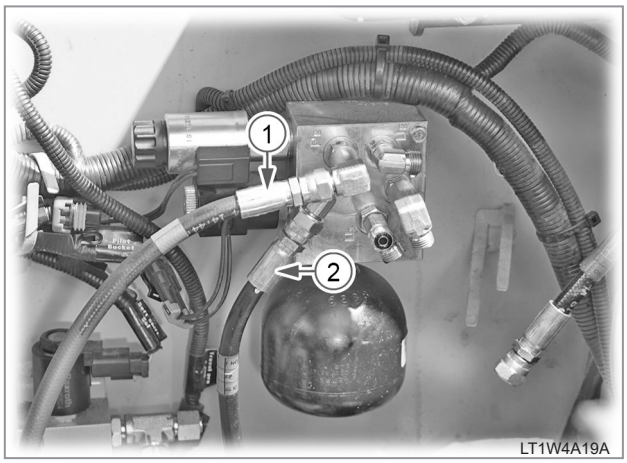




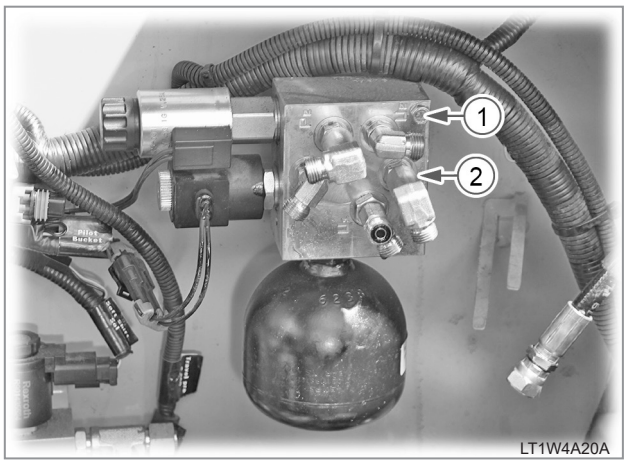
1. Disconnect the solenoid connector (1).

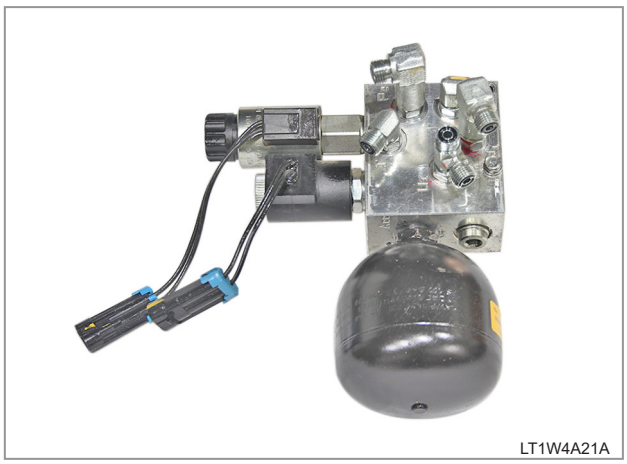


2. Disconnect the HST pump driving hose (1) and HST pump shift valve hose (2), RCV assembly (RH) hose (3) and main control valve hose (4).



3. Disconnect the parking valve hose (1) and oil tank hose (2).

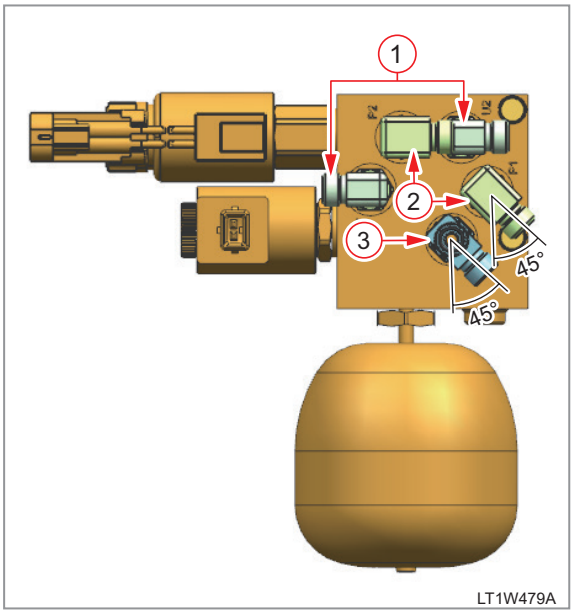




4. Unscrew the two pilot lock valve body mounting bolts (1) and then remove the pilot lock valve assembly (2).

REMARKS

ELBOE ASSEMBLY



LT1W479A

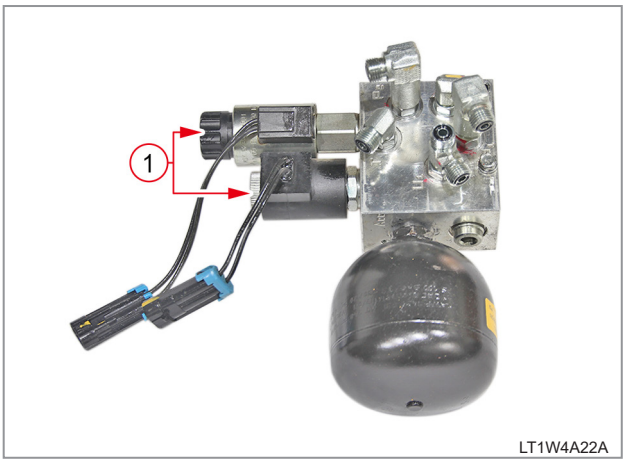
- **When installing the elbow, install it according to the direction and specified torque.**

  ①, ②, ③, ④

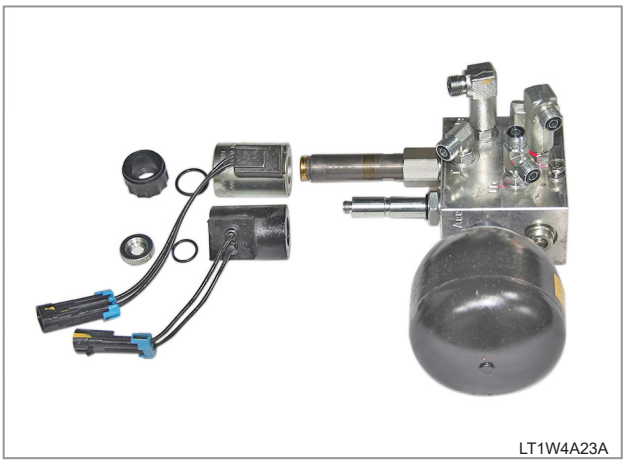
  Mounting section (7/16-20 UNF)
  tightening torque .....19.6 ~ 21.6 N·m
  2.0 ~ 2.2 kgf·m
  14.4 ~ 15.8 lb·ft

  Hose (9/16-18 UNF)
  tightening torque .....24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft

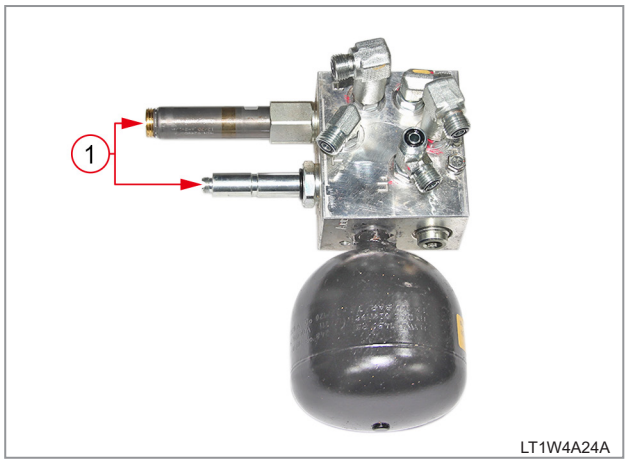
DISASSEMBLY



LT1W4A22A

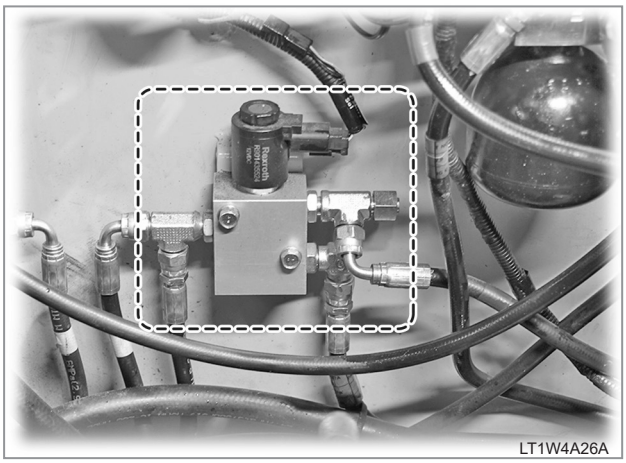

LT1W4A23A

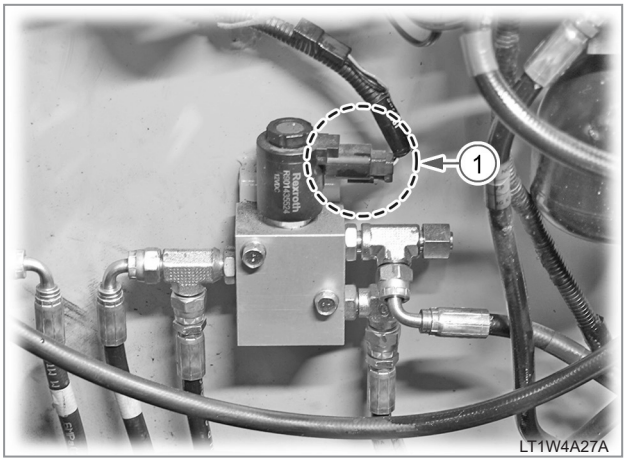
1. Remove the solenoid magnets (1) from the pilot lock valve body.



2. Remove the solenoid valves (1).

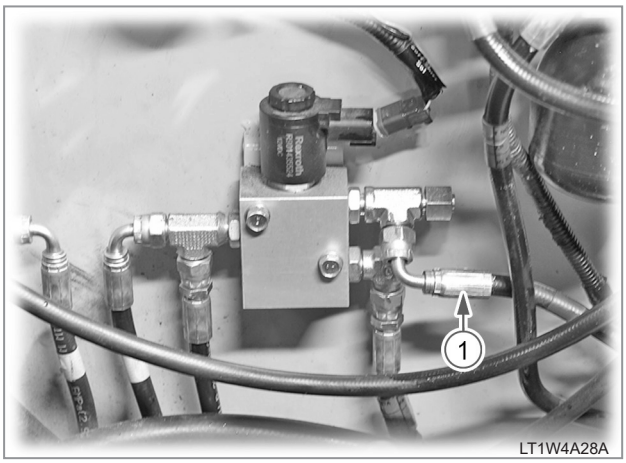
8.8 SHIFT VALVE DETACH & DISASSEMBLY


LT1W4A26A



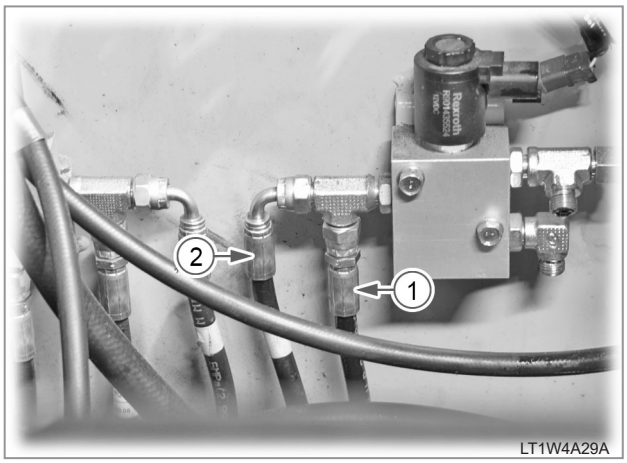
LT1W4A27A

1. Disconnect the solenoid magnet connector (1).



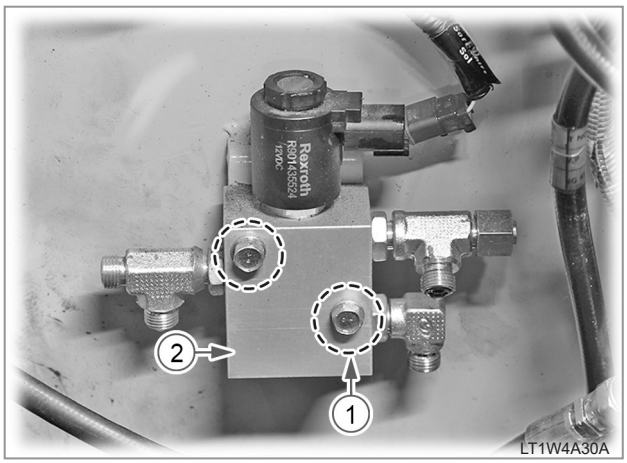
LT1W4A28A

2. Disconnect the HST pump hose (1), oil tank return hose (2) from the valve assembly.

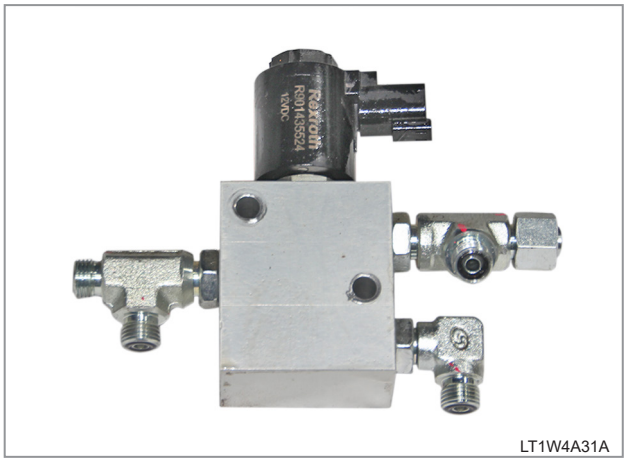


LT1W4A29A

3. Disconnect the HST motor (RH) hose (1) and HST motor (LH) hose (2).



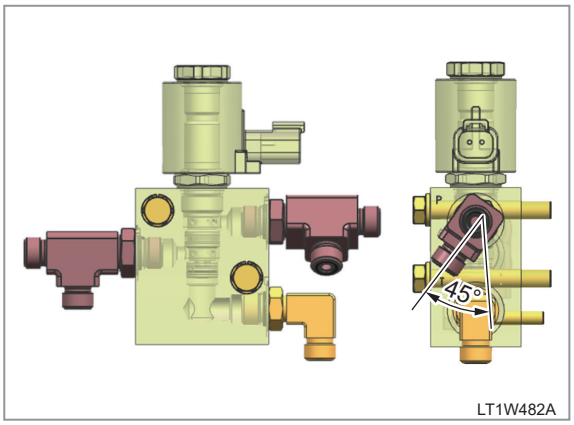
LT1W4A30A


LT1W4A31A

4. Unscrew the shift valve mounting bolts (1)(2EA) to remove the shift valve (2).

REMARKS

CONNECTOR ASSEMBLY



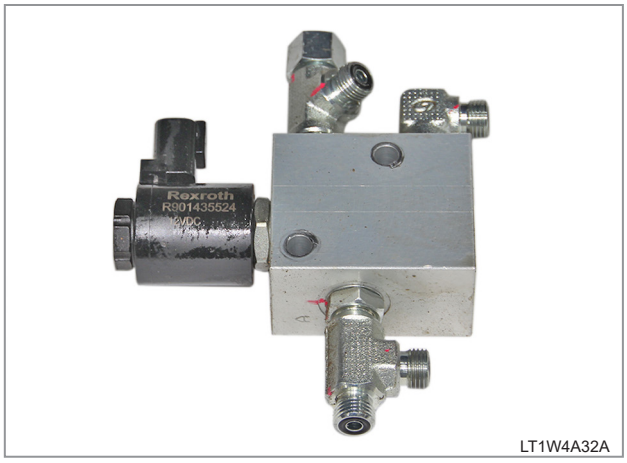
LT1W482A

- **When installing the connector, install it according to the specified torque.**

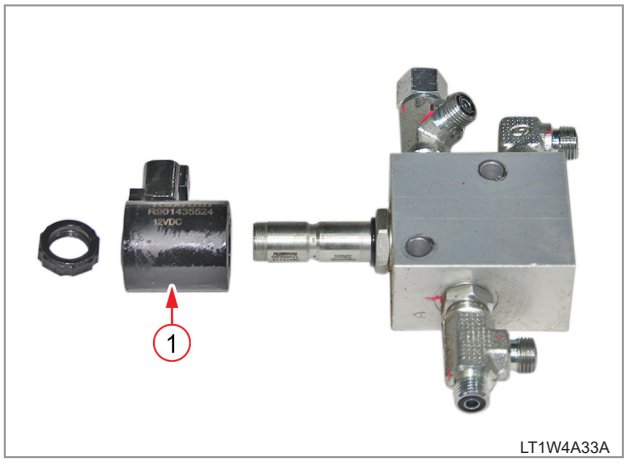
  Mounting section (9/16-18 UNF)
  tightening torque ..... 33.3 ~ 35.3 N·m
  3.4 ~ 3.6 kgf·m
  24.5 ~ 25.9 lb·ft

  Hose (9/16-18 UNF)
  tightening torque .....24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft

DISASSEMBLY

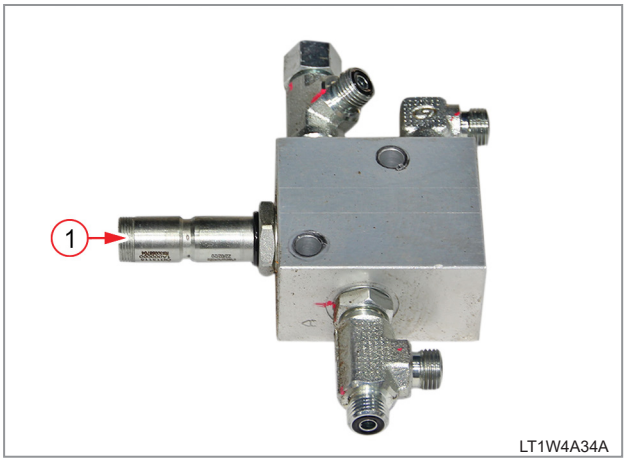


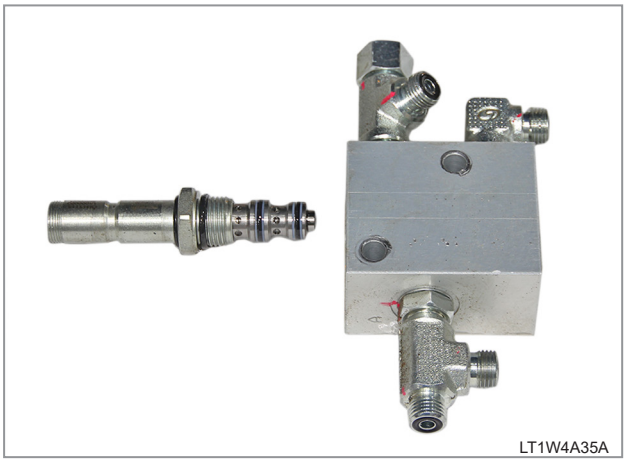
LT1W4A32A



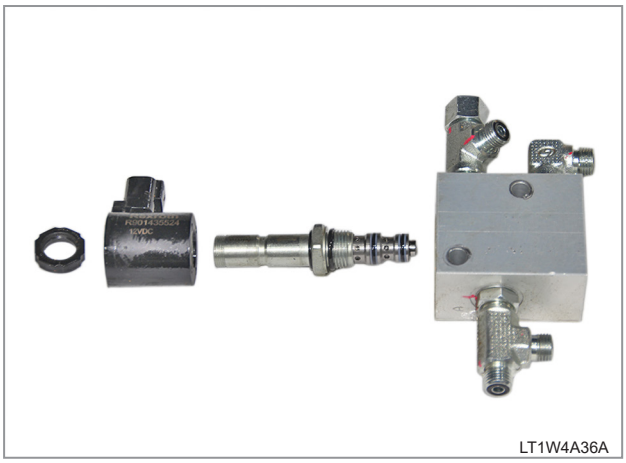
LT1W4A33A

1. Remove the solenoid magnet (1).



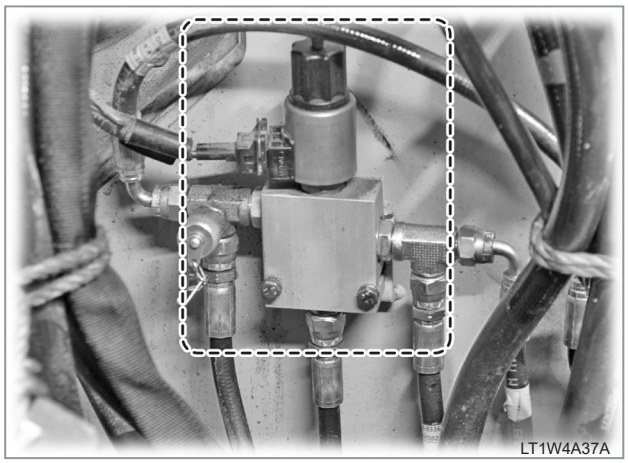


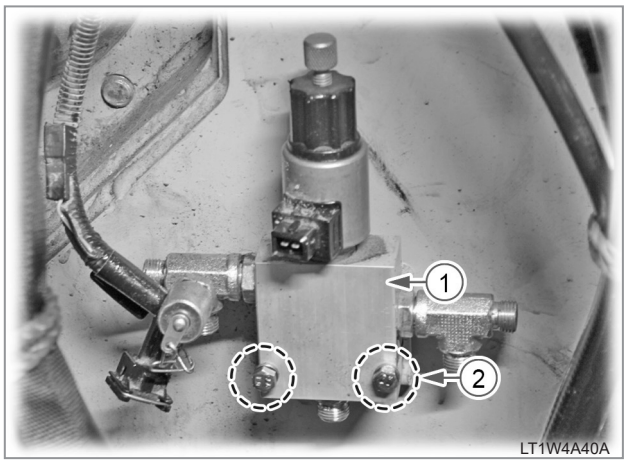
2. Remove the solenoid valve (1).



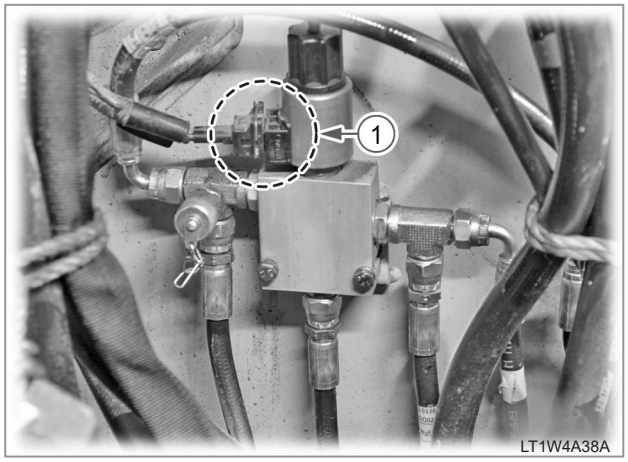
3. Assemble in the reverse order of disassembly.

8.9 PARKING VALVE DETACH & DISASSEMBLY

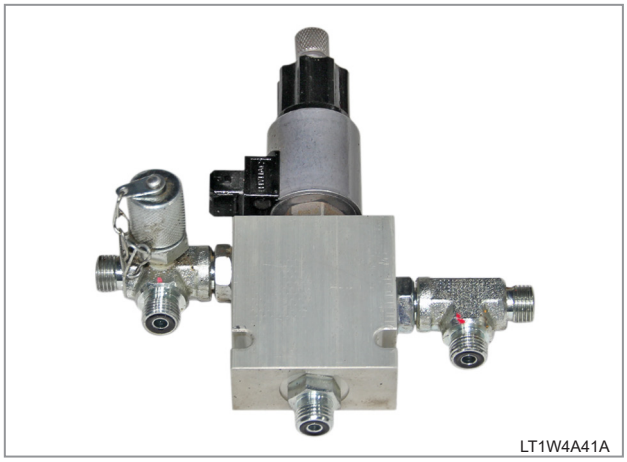

LT1W4A37A



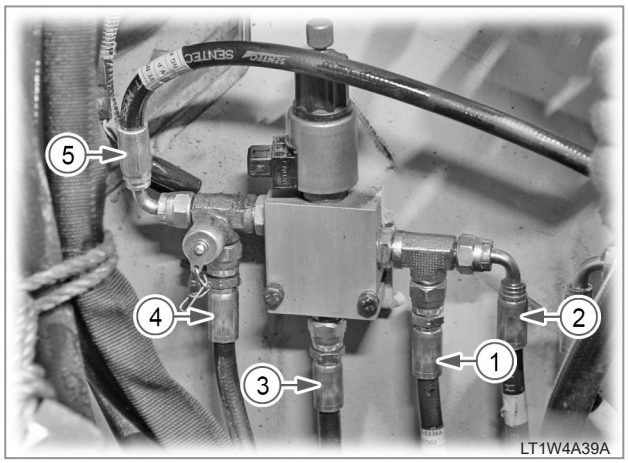
LT1W4A40A



LT1W4A38A


LT1W4A41A

1. Disconnect the solenoid magnet connector (1).

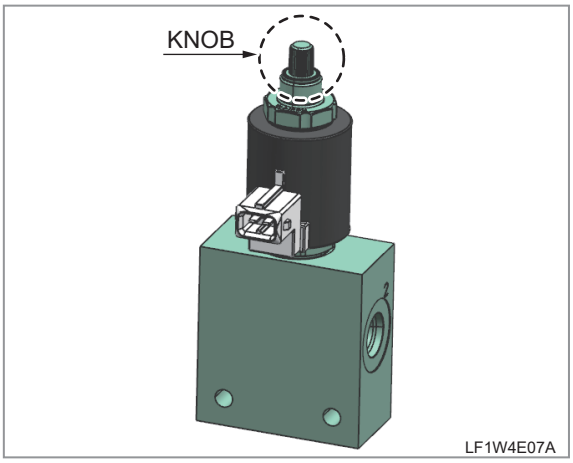


LT1W4A39A

2. Disconnect the HST motor (RH) hose (1), HST motor (LH) hose (2), oil tank return hose (3), HST pump hose (4), and pilot lock valve (5).

3. Unscrew the two parking valve mounting bolts (1) to remove the parking valve assembly (2).

REMARKS

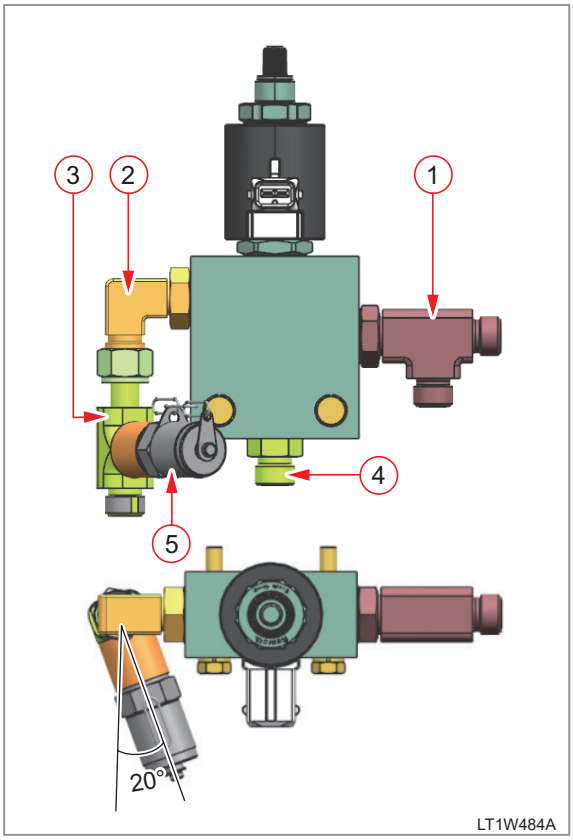


LF1W4E07A

- **Check the knob is in the full lock position before temporary assembly of the parking valve. (Full lock position: knob turned clockwise completely with a hand)**

REMARKS

CONNECTOR ASSEMBLY



LT1W484A

- **When installing the connector, install it according to the specified torque.**

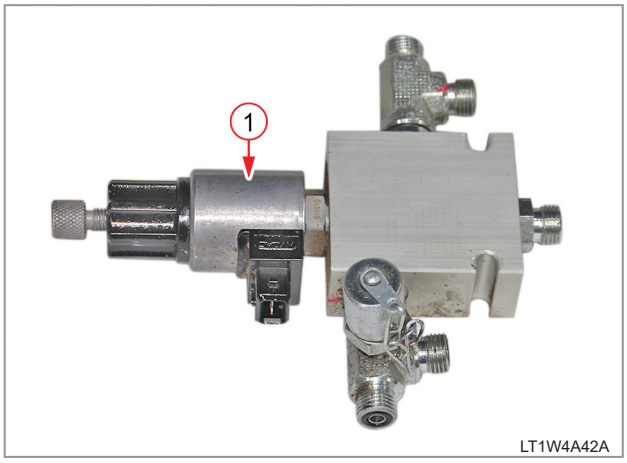
  Mounting section tightening torque :
  ①, ②, ④ (9/16-18 UNF) : 33.3 ~ 35.3 N·m
  3.4 ~ 3.6 kgf·m
  24.5 ~ 25.9 lb·ft

  ③ (9/16-18 UNF) : 24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft

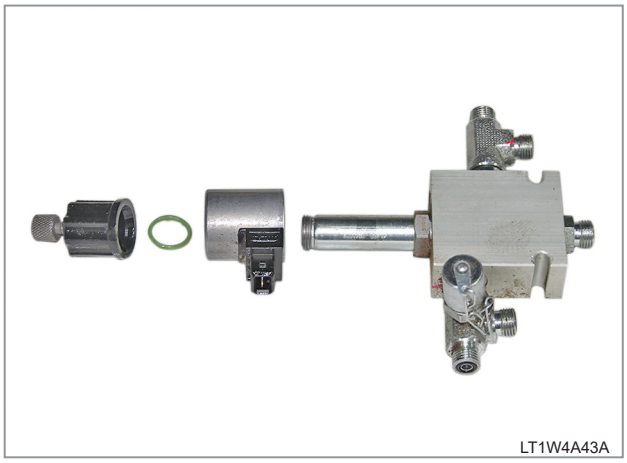
  ⑤ (PF1/4) : 24.5 ~ 30 N·m
  2.5 ~ 3.06 kgf·m
  18.0 ~ 22.0 lb·ft kgf.m

  Hydraulic hose tightening torque :
  (9/16-18 UNF) : 24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft

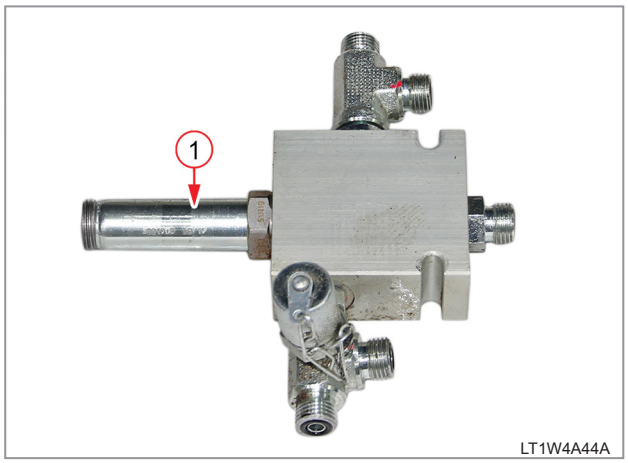
DISASSEMBLY

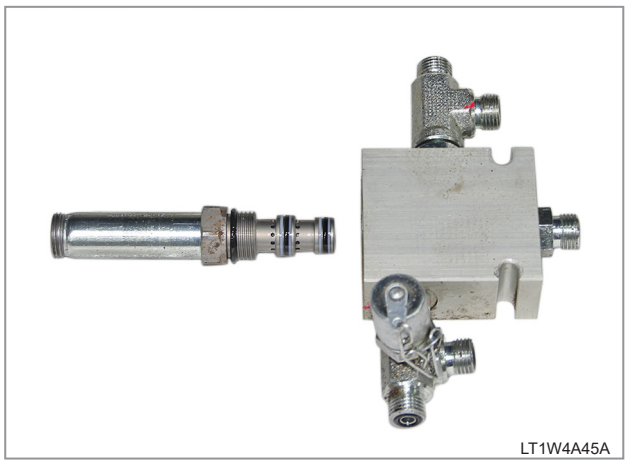


LT1W4A42A


LT1W4A43A

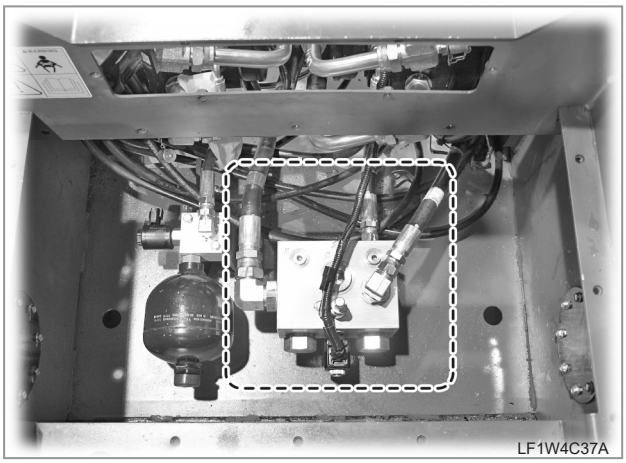
1. Remove the solenoid magnet (1).

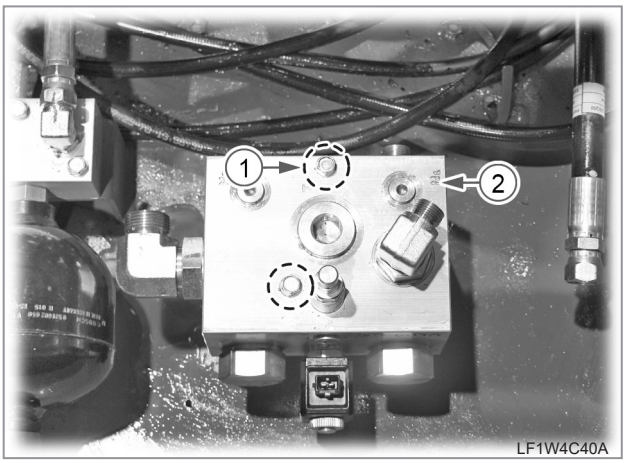




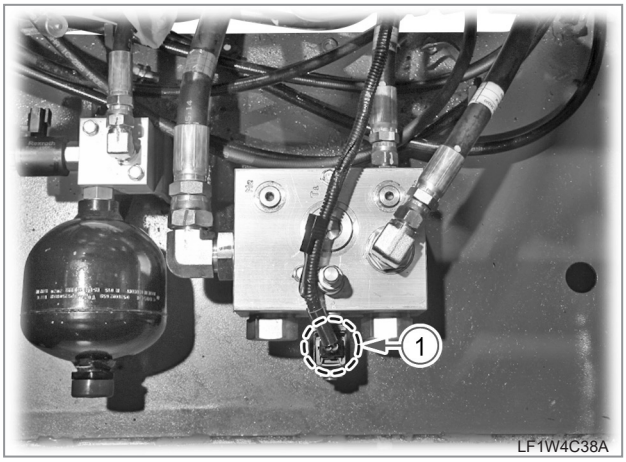
2. Assemble in the reverse order of disassembly.

8.10 HIGH FLOW VALVE DETACH & DISASSEMBLY


LF1W4C37A

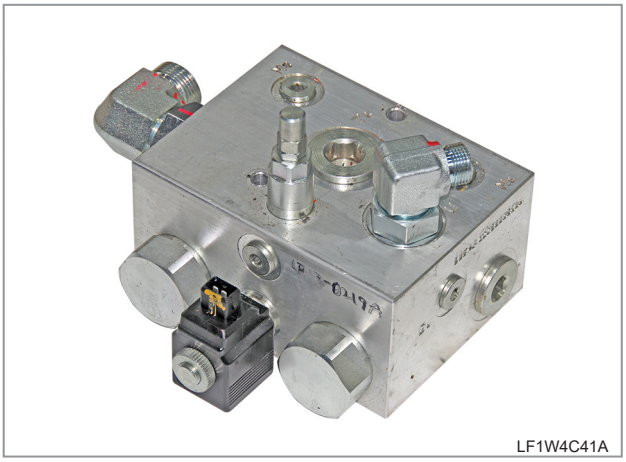


LF1W4C40A

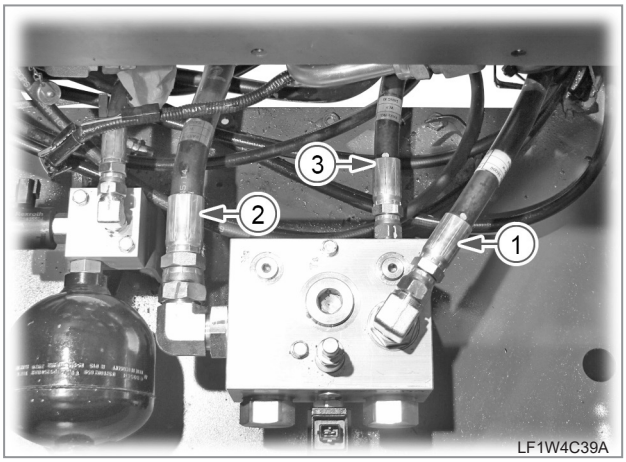


LF1W4C38A

1. Disconnect the solenoid magnet connector (1).


LF1W4C41A

3. Unscrew the two high-flow valve mounting bolts (1) and remove the high-flow valve assembly (2).

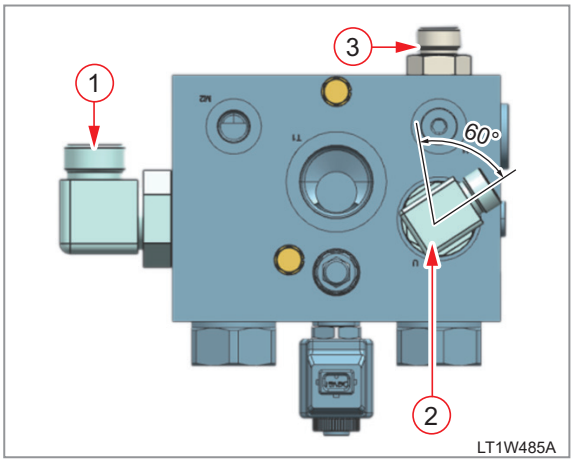


LF1W4C39A

2. Disconnect the hydraulic hoses (1, 2, & 3) from the high-flow valve body.

REMARKS

CONNECTOR ASSEMBLY



- **When installing the connector, install it according to the specified torque.**

  Mounting section tightening torque :

  ① (1·5/16-12 UN) : 270.5 ~ 299.9 N·m
  27.6 ~ 30.6 kgf·m
  198.7 ~ 220.3 lb·ft

  ② (1·1/16-12 UN) : 170.5 ~ 183.3 N·m
  17.4 ~ 18.7 kgf·m
  125.3 ~ 134.6 lb·ft

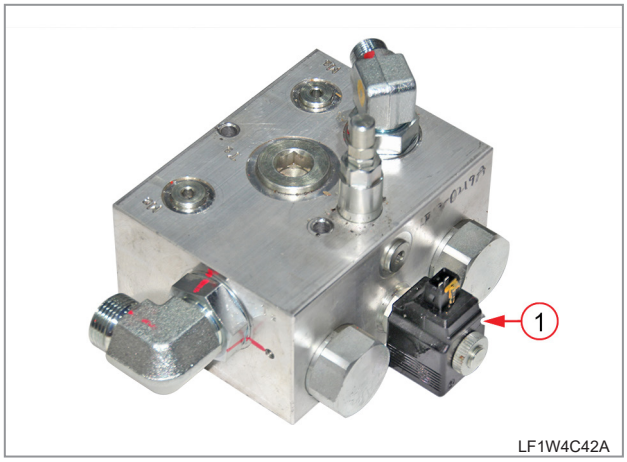
  ③ (7/8-14 UNF) : 98.0 ~ 109.8 N·m
  10.0 ~ 11.2 kgf·m
  72.0 ~ 80.6 lb·ft

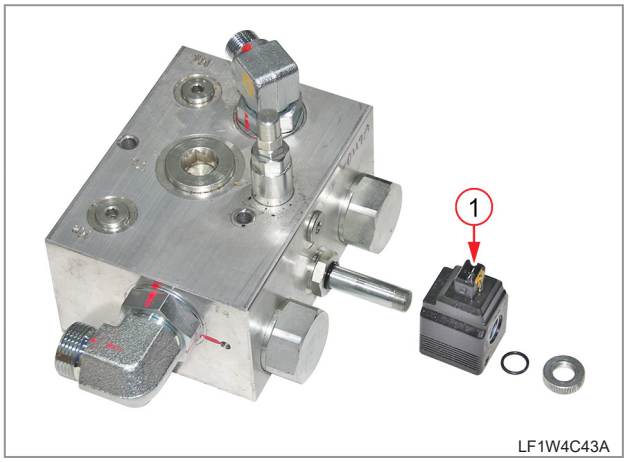
  Hose tightening torque :

  ① (1·3/16-12 UN) : 117.6 ~ 127.4 N·m
  12.0 ~ 13.0 kgf·m
  86.4 ~ 93.6 lb·ft

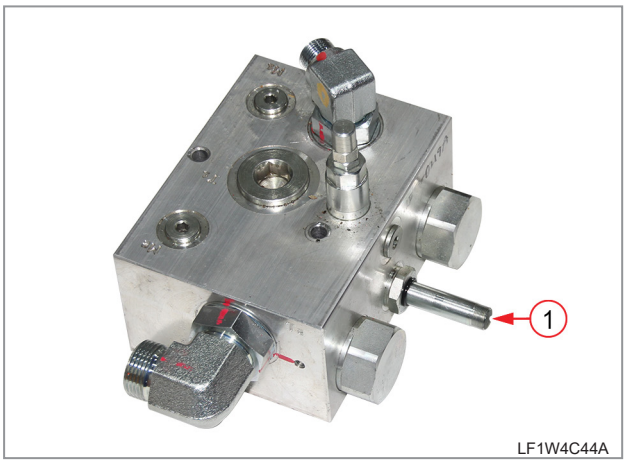
  ②, ③ (13/16-16 UN) : 58.8 ~ 63.7 N·m
  6.0 ~ 6.5 kgf·m
  43.2 ~ 46.8 lb·ft

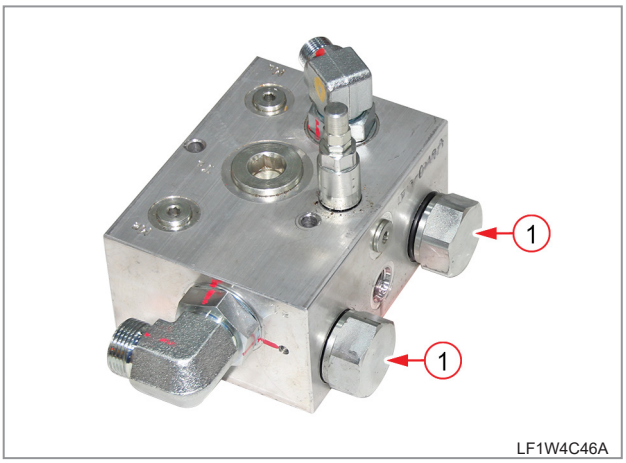
DISASSEMBLY

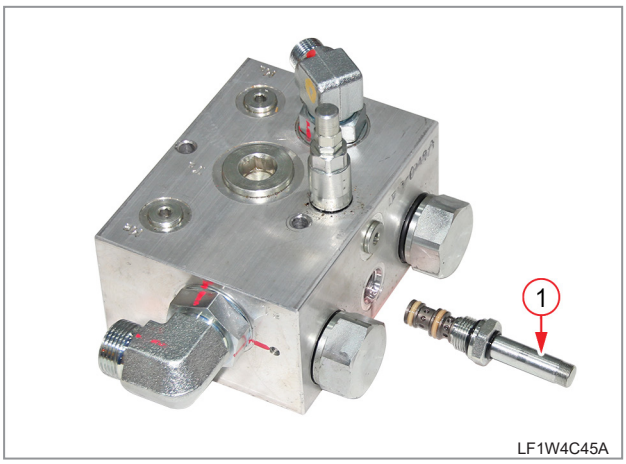


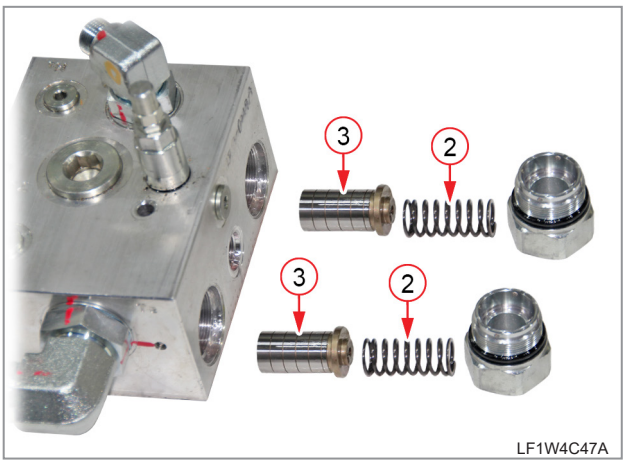


1. Remove the solenoid magnet (1).



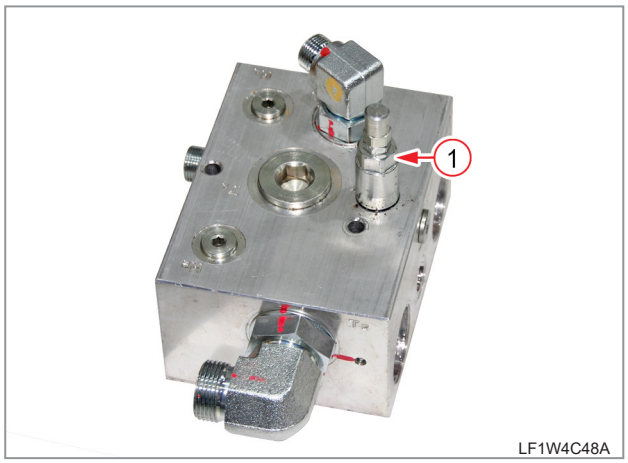


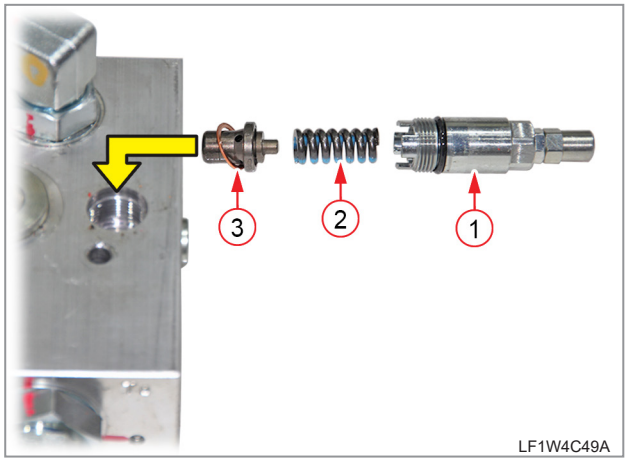




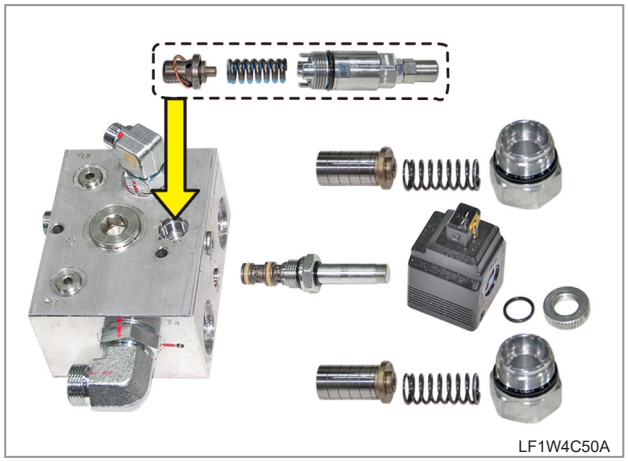
2. Remove the solenoid valve (1).

3. Unscrew the plugs (1) and remove the springs (2) and spools (3).



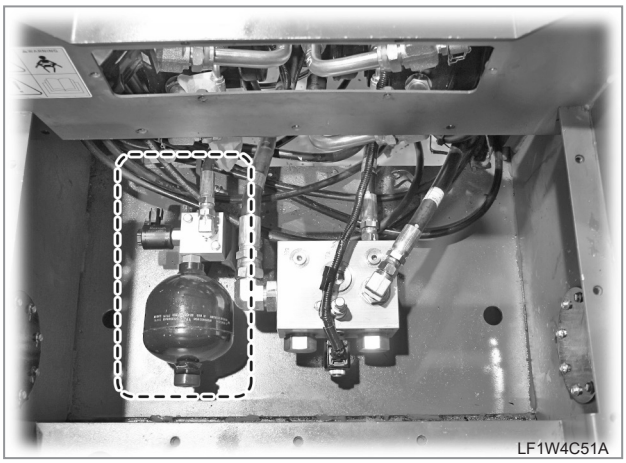


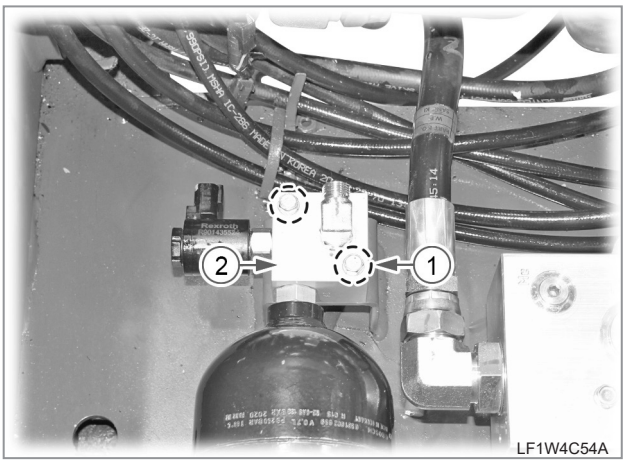
4. Unscrew the cap (1) on top of the valve body to remove the spring (2) and valve (3).



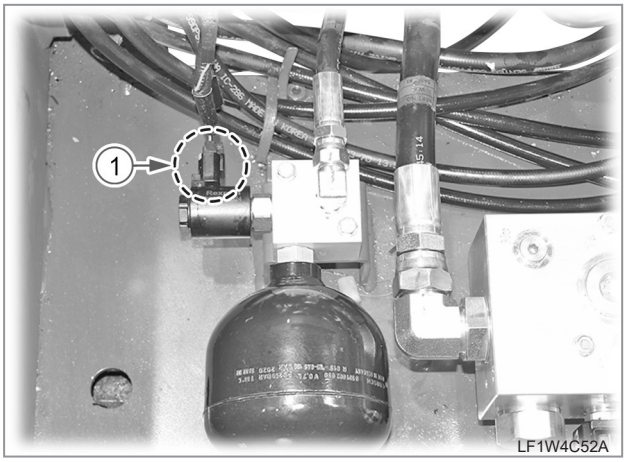
5. Assemble in the reverse order of disassembly.

8.11 RIDE CONTROL VALVE DETACH & DISASSEMBLY [OPTION]


LF1W4C51A



LF1W4C54A

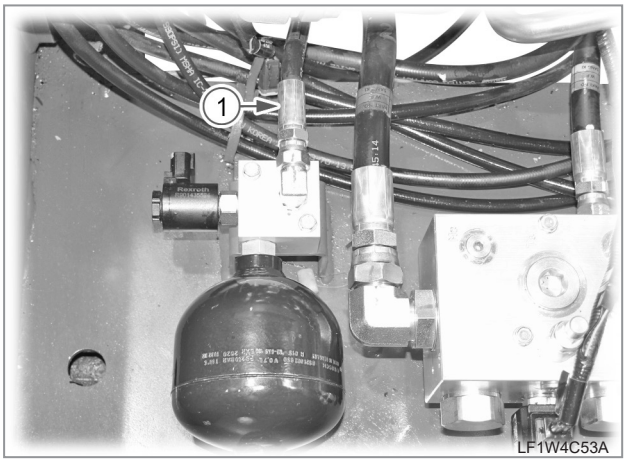


LF1W4C52A

1. Disconnect the solenoid valve connector (1).


LF1W4C55A

3. Unscrew the two valve body mounting bolts (1) and then remove the ride control valve assembly (2).

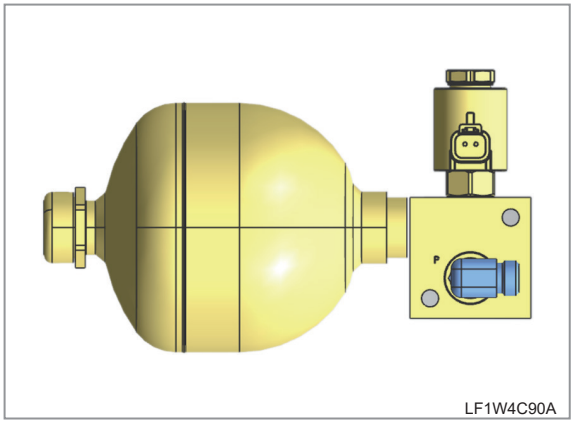


LF1W4C53A

2. Disconnect the lift cylinder (lifting) hydraulic hose (1).

REMARKS

CONNECTOR ASSEMBLY


LF1W4C90A

- **When installing the connector, install it according to the specified torque.**

  Mounting section (9/16-18 UNF)
  tightening torque .....33.3 ~ 35.3 N·m
  3.4 ~ 3.6 kgf·m
  24.5 ~ 25.9 lb·ft

  Hose (11/16-16 UN)
  tightening torque .....37.2 ~ 42.1 N·m
  3.8 ~ 4.3 kgf·m
  27.4 ~ 31.0 lb·ft

DISASSEMBLY

LF1W4C56A


LF1W4C57A

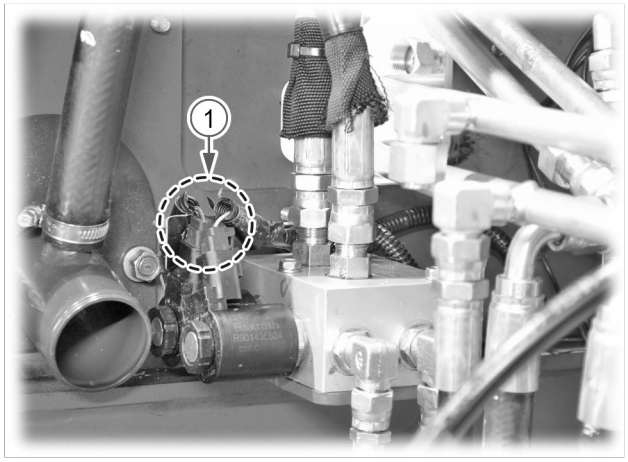
1. Remove the solenoid magnet (1).

2. Remove the solenoid valve (1).

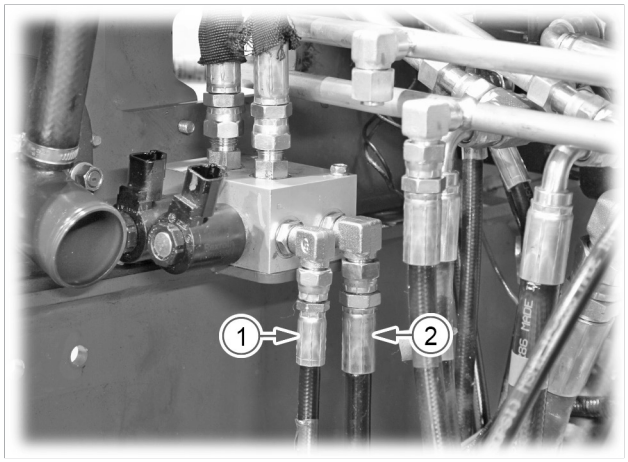
3. Remove the accumulator (1).

4. Assemble in the reverse order of disassembly.

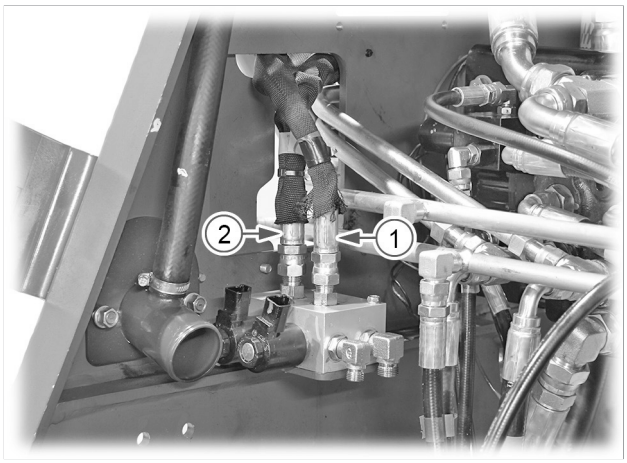
8.12 QUICK ATTACHMENT VALVE DETACH & DISASSEMBLY



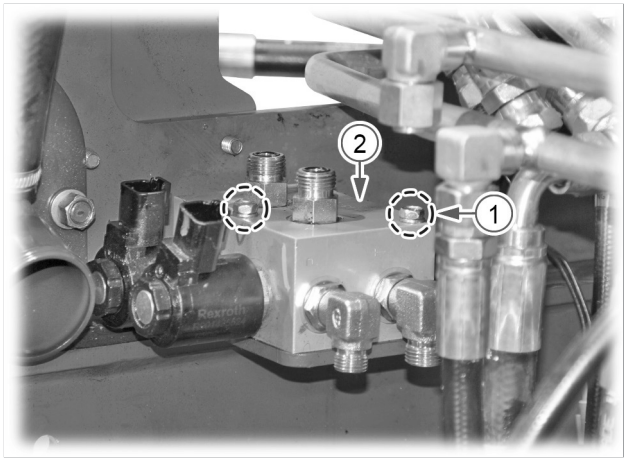
1. Disconnect the solenoid connector (1).

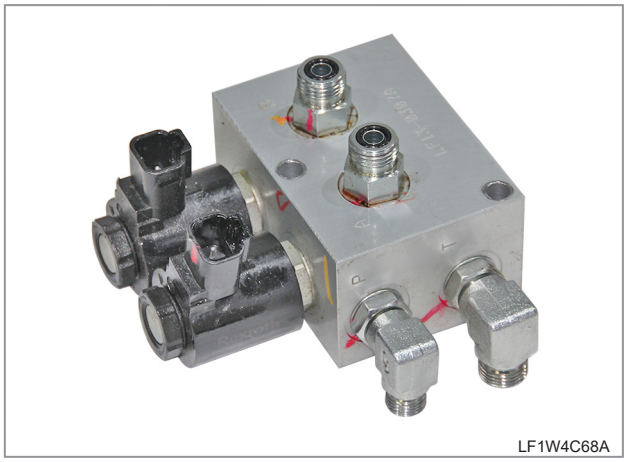


2. Disconnect the hydraulic hoses (1 & 2).



3. Disconnect the quick attachment cylinder hydraulic hoses (1 & 2).

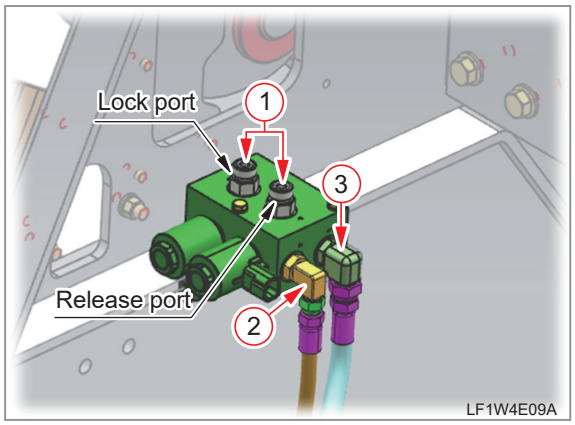




4. Unscrew the two valve body mounting bolts (1) and then remove the quick attachment valve assembly (2).

REMARKS

CONNECTOR ASSEMBLY



- **When connecting the hoses, ensure to connect them correctly to the "lock" and "release" ports and tighten them to the specified torque.**

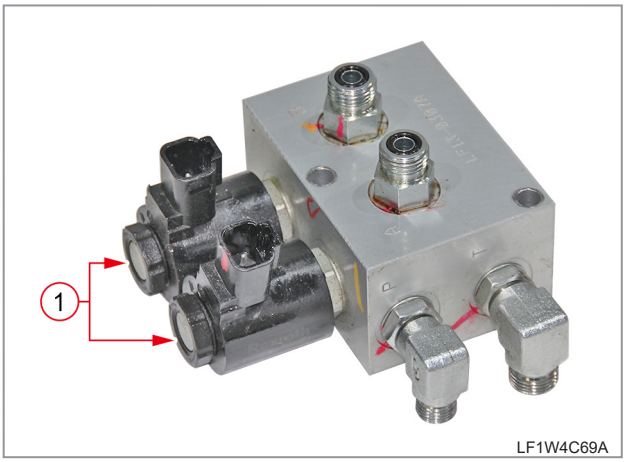
  Mounting section (9/16-18UNF)
  tightening torque : 33.3 ~ 35.3 N·m
  3.4 ~ 3.6 kgf·m
  24.5 ~ 25.9 lb·ft

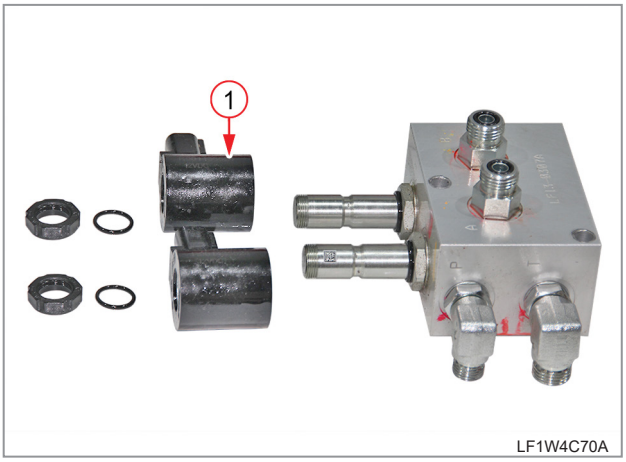
  Hose tightening torque :

  ①, ③ (11/16-18UN) : 37.2 ~ 47.0 N·m
  3.8 ~ 4.8 kgf·m
  27.4 ~ 34.7 lb·ft

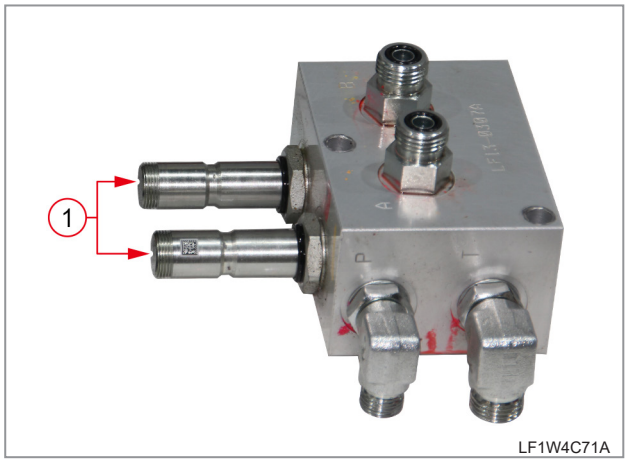
  ② (9/16-18UNF) : 24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft

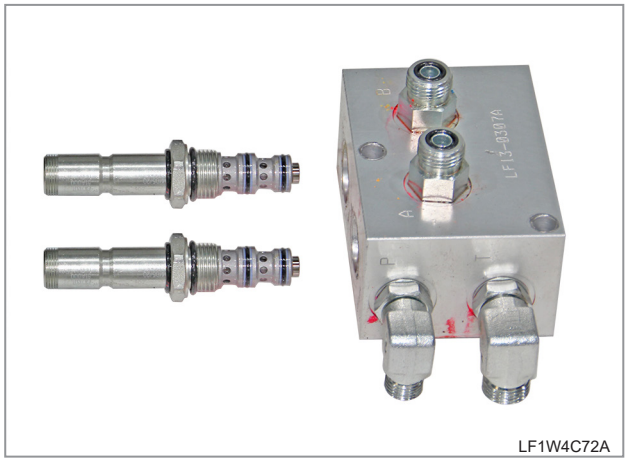
DISASSEMBLY



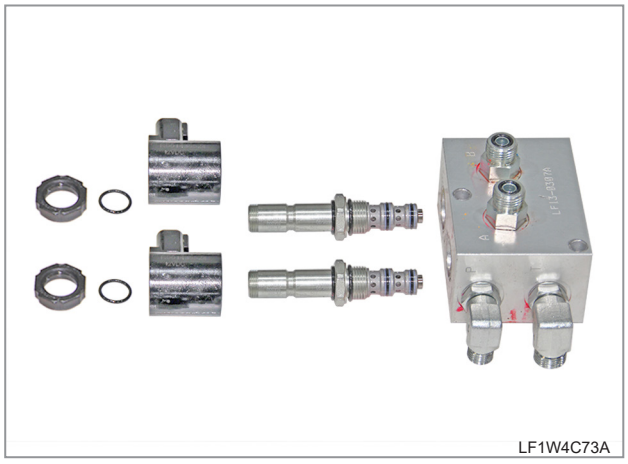


1. Remove the solenoid magnets (1).



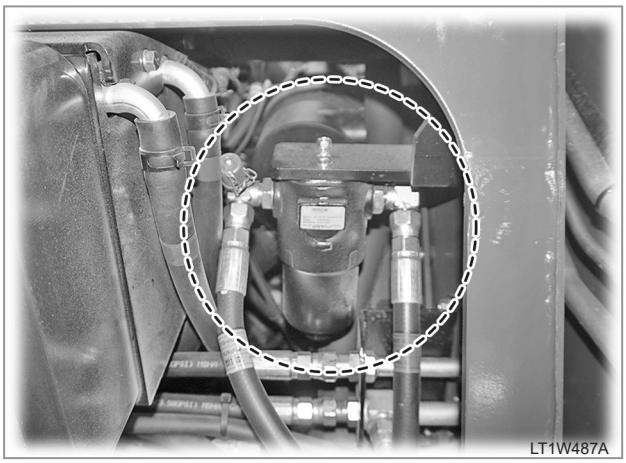


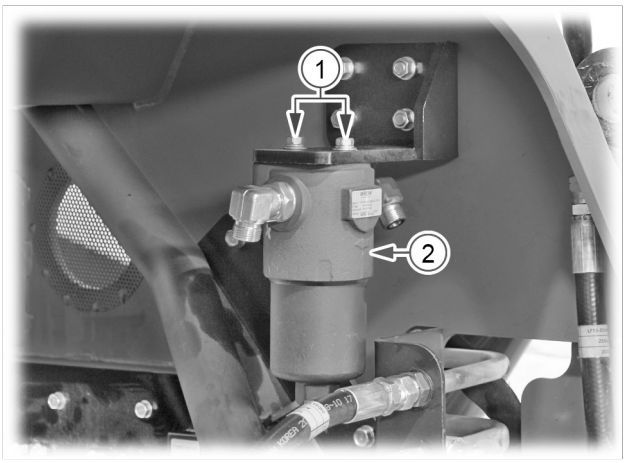
2. Remove the solenoid valves (1).

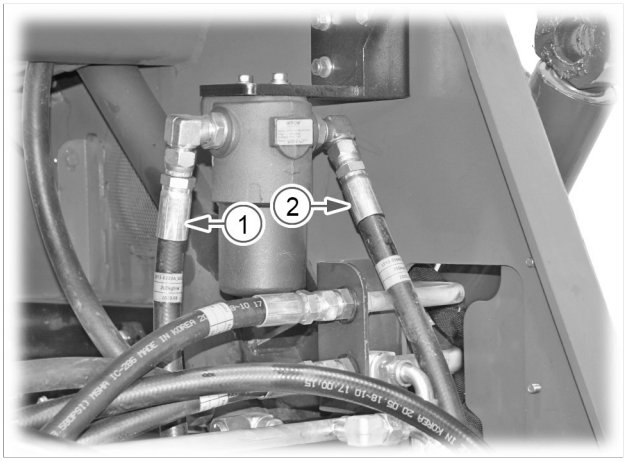


3. Assemble in the reverse order of disassembly.

8.13 HST FILTER REPLACEMENT

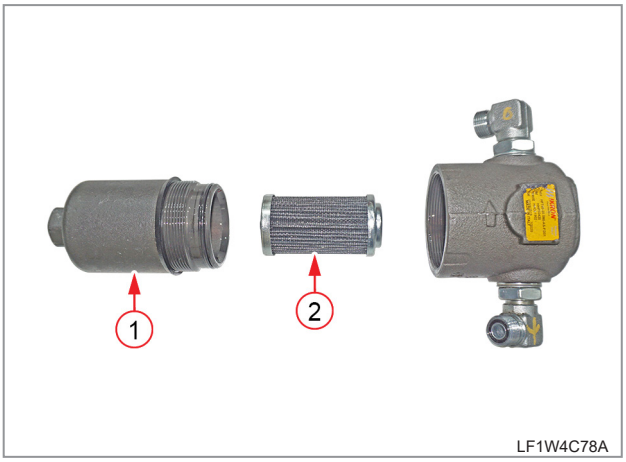






1. Disconnect the hydraulic hoses (1 & 2).

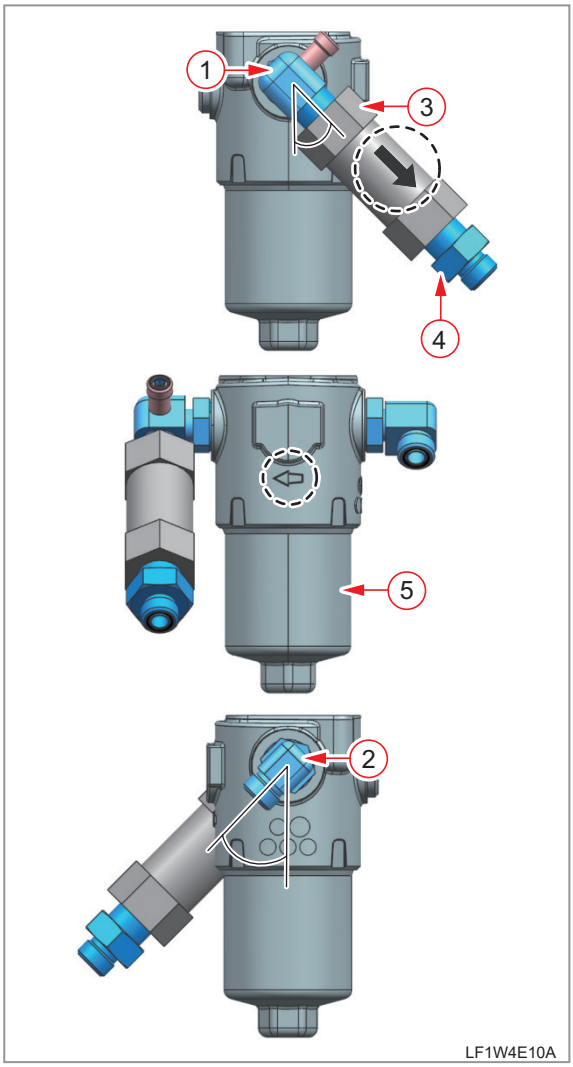
2. Unscrew the filter support mounting bolts (1)(2EA) to remove the HST filter assembly (2).



3. Unscrew the HST filter case (1) and remove the filter element (2) from the inside. Then, replace the element with a new one as necessary.

REMARKS

ASSEMBLY ANGLE AND TIGHTENING TORQUE WHEN INSTALLING THE ELBOW



- **Tightening torque**
  - **①, ② (PF1/2) : 58.8 ~ 63.7 N·m**
    6.0 ~ 6.5 kgf·m
    43.2 ~ 46.8 lb·ft
- **Assembly angle**
  - **①, ② : 40°**
- **When installing ③ and ⑤, make sure to follow the stamped arrow mark.**
- **Apply LOCTITE 577 or equivalent on the threads of ① and ④ and install them on ③.**

8.14 RETURN FILTER REPLACEMENT

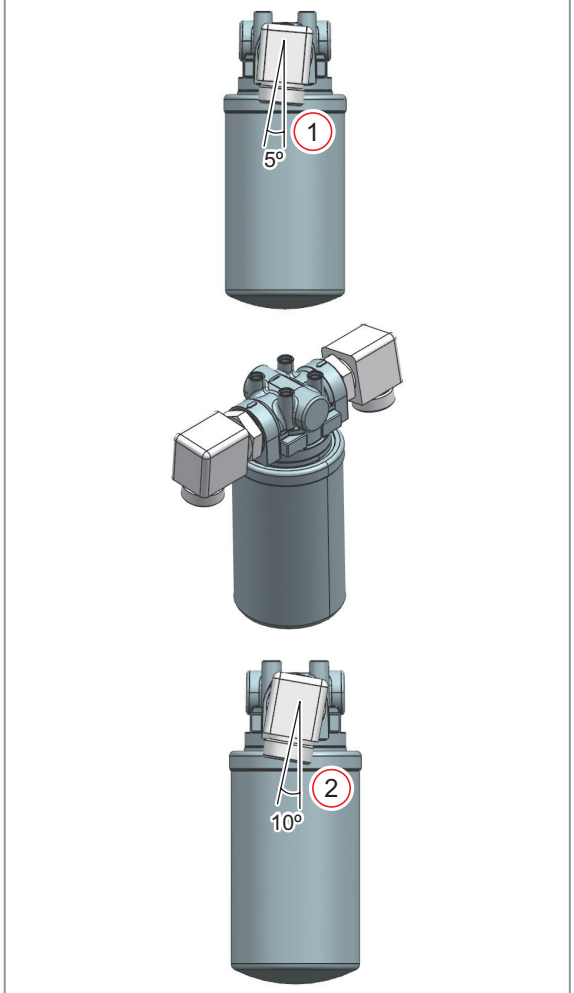

LT1W488A

LF1W4C81A

1. With a filter wrench completely engaged with the filter, turn the wrench counterclockwise to remove the return filter (1). After inspection, replace it with a new one as necessary.

REMARKS

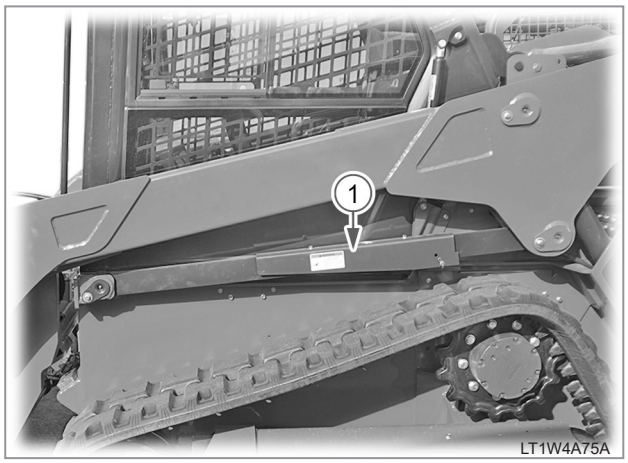
ASSEMBLY ANGLE AND TIGHTENING TORQUE WHEN INSTALLING THE ELBOW



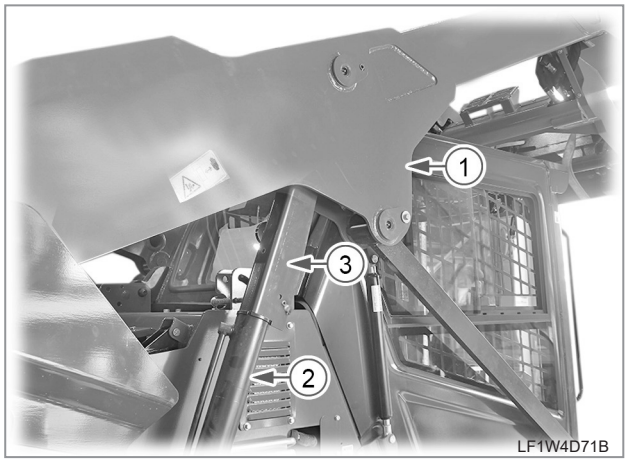
LF1W4E11A

- ①, ② **Elbow Mounting section (PF1)**
  : 181.3 ~ 191.1 N·m
  18.5 ~ 19.5 kgf·m
  133.2 ~ 140.4 lb·ft
- **Hydraulic hose tightening (1·5/16-12 UN)**
  : 181.3 ~ 191.1 N·m
  18.5 ~ 19.5 kgf·m
  133.2 ~ 140.4 lb·ft

8.15 LIFT CYLINDER DISASSEMBLY

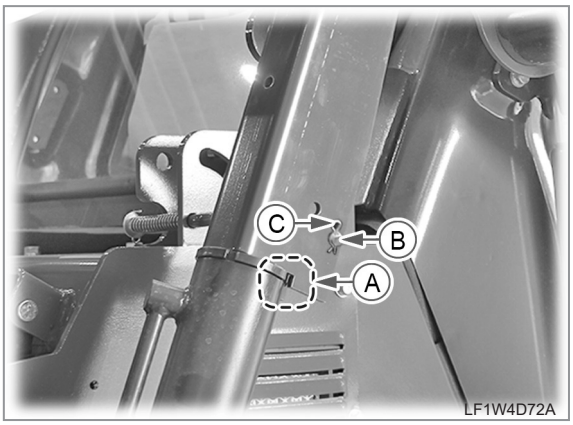


1. Remove the boom support (1) that is attached on the bar on the opposite side of the lift cylinder to be disassembled.



2. Raise the boom assembly (1) with the lift cylinder (2). After installing the boom support (3), that was previously removed, on the lobe section of the lift cylinder, lower the lift cylinder until the boom support makes contact with the boom assembly.

REMARKS

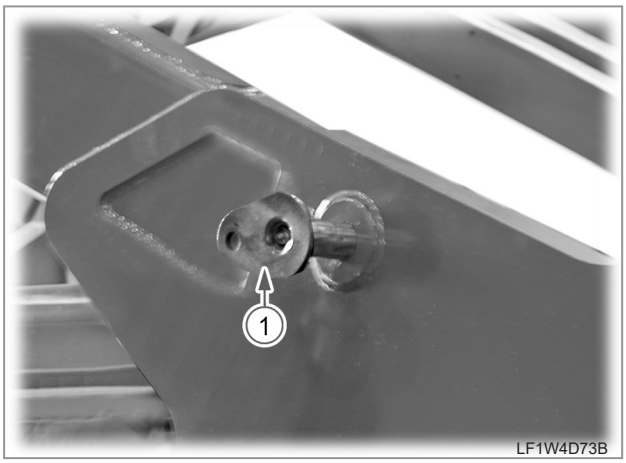


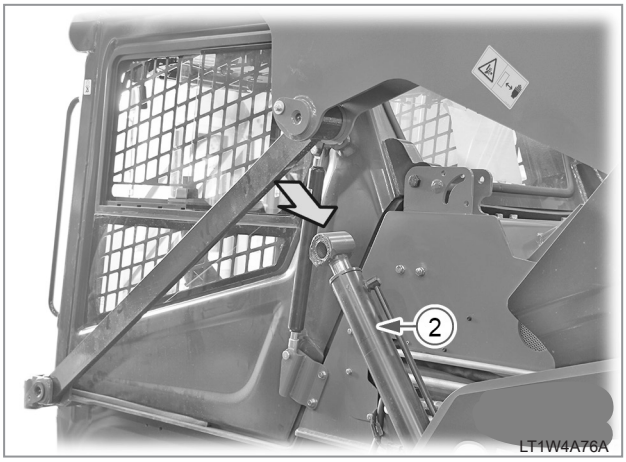
- **After inserting the boom support ("L" shape) into the lift cylinder section (A), fit the head pin (B) into the boom support hole and fix it with the snap pin (C).**

REMARKS

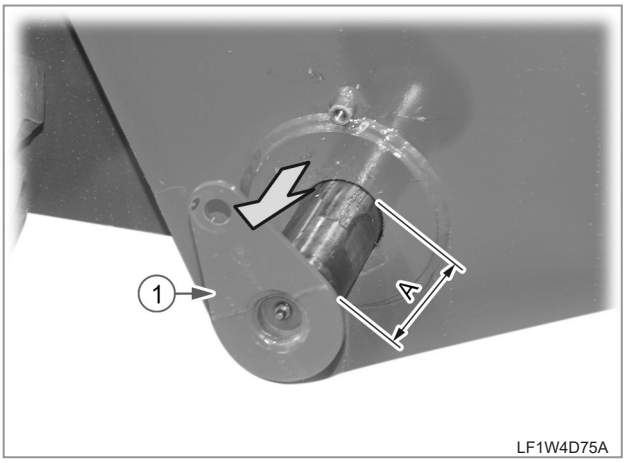
TIP FOR INSTALLING THE BOOM SUPPORT

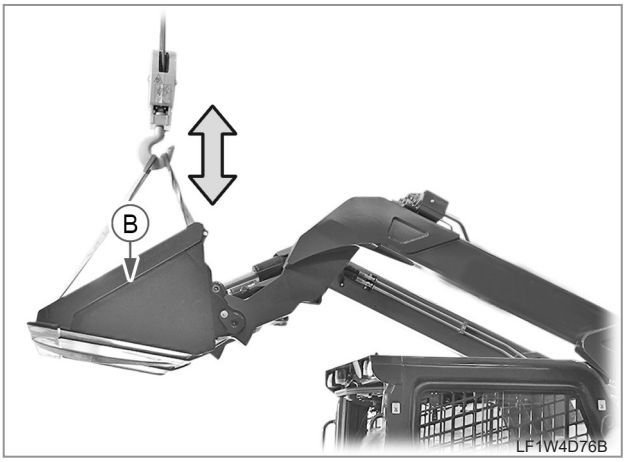
- **Install it on the lift cylinder on the opposite side of the lift cylinder to be serviced.**





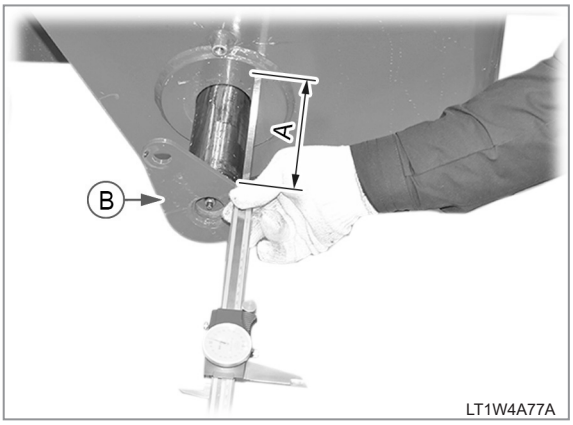
3. Remove the top pin (1) from the lift cylinder to be disassembled. Then, lower the lift cylinder (2).



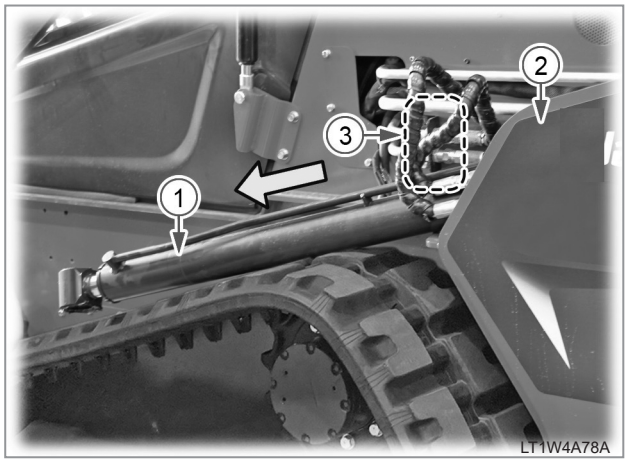


4. Pull out the lower pin (1) of the lift cylinder for a proper amount. The cylinder lower pin may be stuck so may not be pulled out easily. In this case, support the bucket (B) with a hoist and pull out the pin little by little while moving the bucket up and down.

REMARKS



- **Do not pull out the cylinder lower pin (B) completely.**
  A (pulling out amount) : approx. 156 mm (6.14 in.)

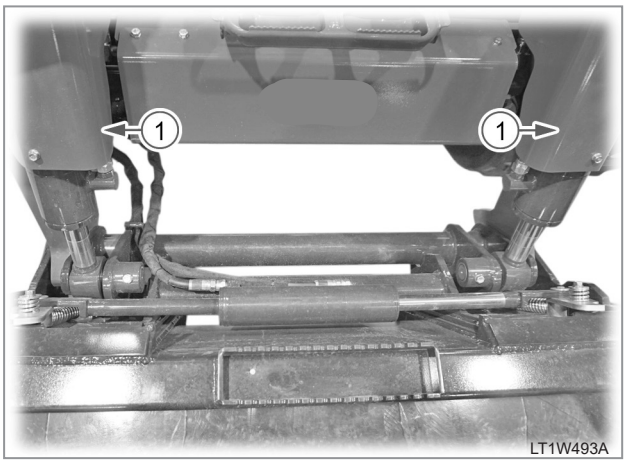


5. Lift the lift cylinder (1) out of the main frame (2), disconnect the hydraulic hose (3), and remove the cylinder.

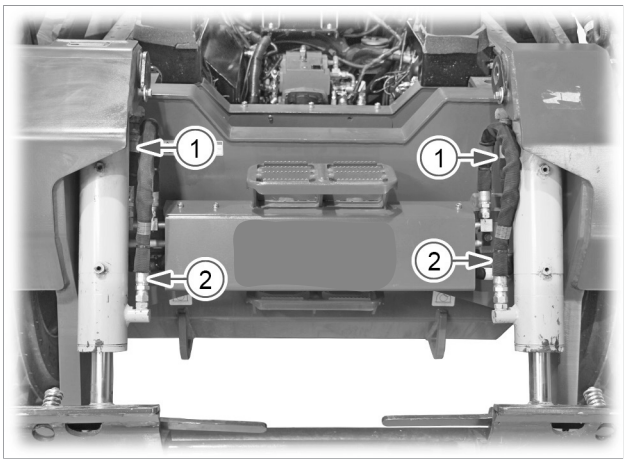
   Hydraulic hose
   tightening torque..... 58.8 ~ 63.7 N·m
   6.0 ~ 6.5 kgf.m
   43.2 ~ 46.8 lb·ft

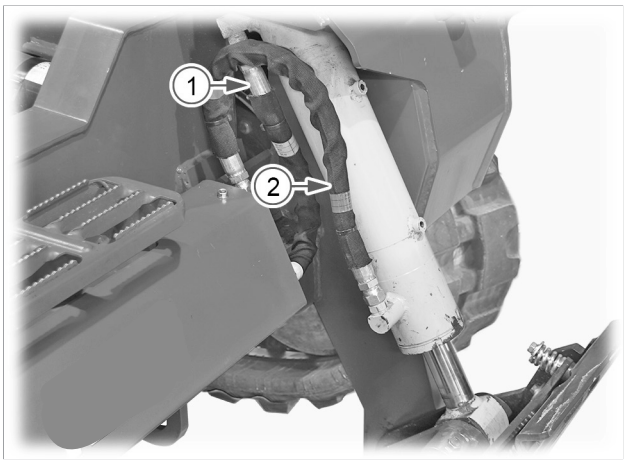
6. Assemble in the reverse order of disassembly.

8.16 TILT CYLINDER DISASSEMBLY

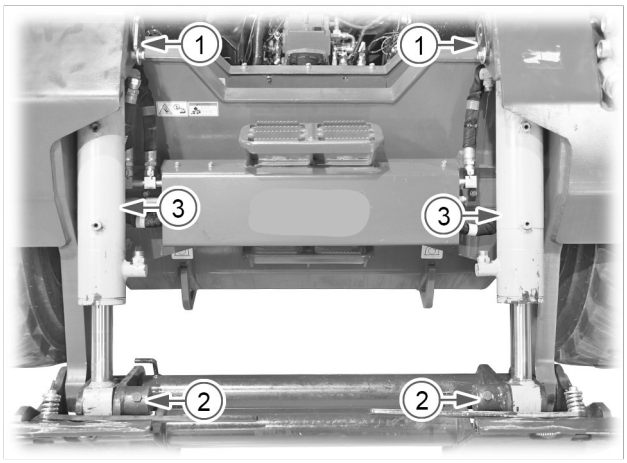


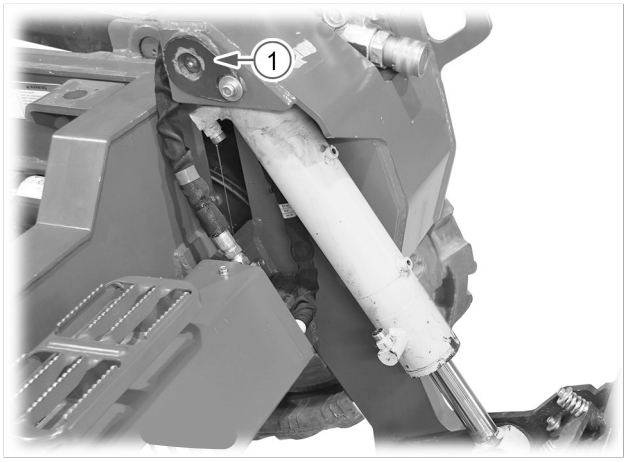
1. Remove the tilt cylinder covers (1).

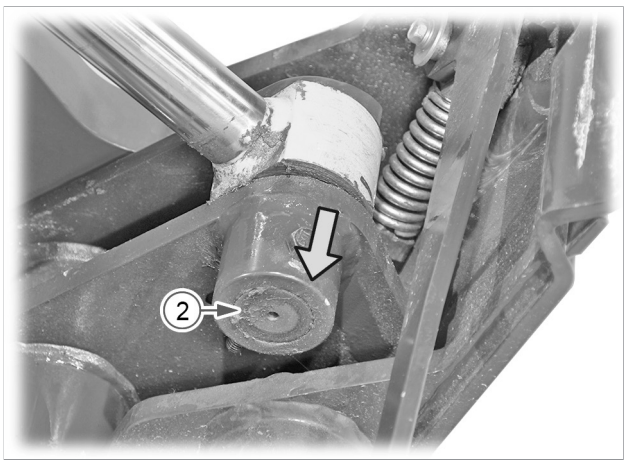


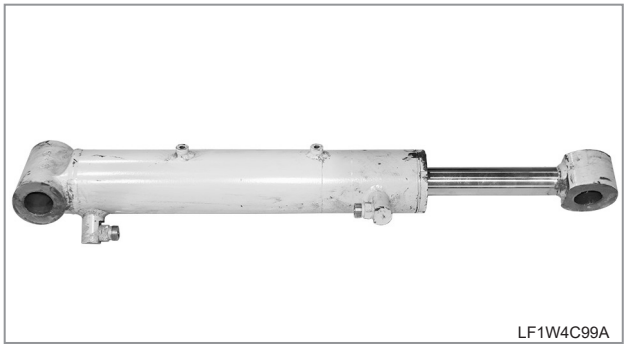


2. Disconnect the tilt cylinder hydraulic hoses (1 & 2).



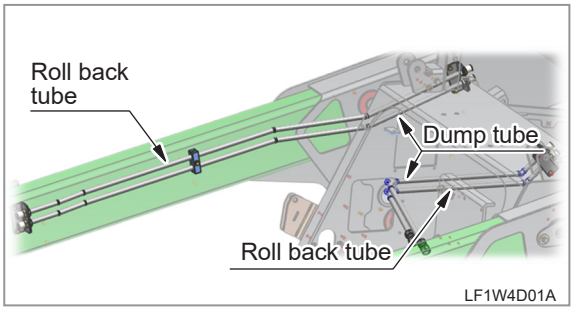






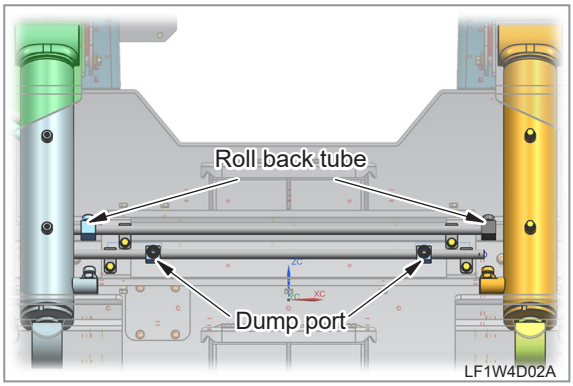
3. Remove the tilt cylinder retaining pins (1 & 2) through the inside in order to remove the tilt cylinders (3).

REMARKS



- **When connecting the hydraulic tube connecting hose, check the port location and tighten it with the specified torque.**

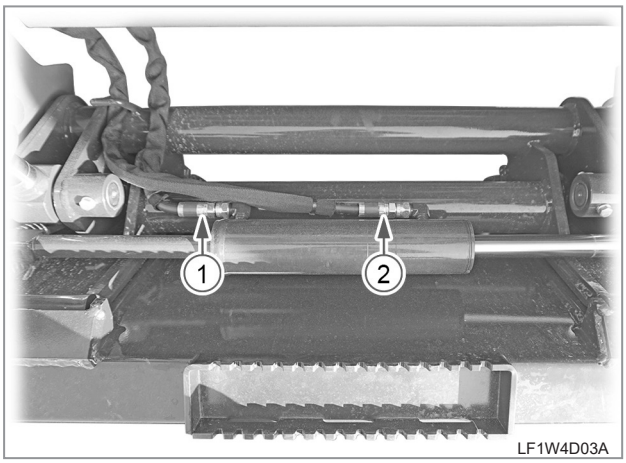
  Hose (13/16-16 UN)
  tightening torque .....58.8 ~ 63.7 N·m
  6.0 ~ 6.5 kgf·m
  43.2 ~ 46.8 lb·ft



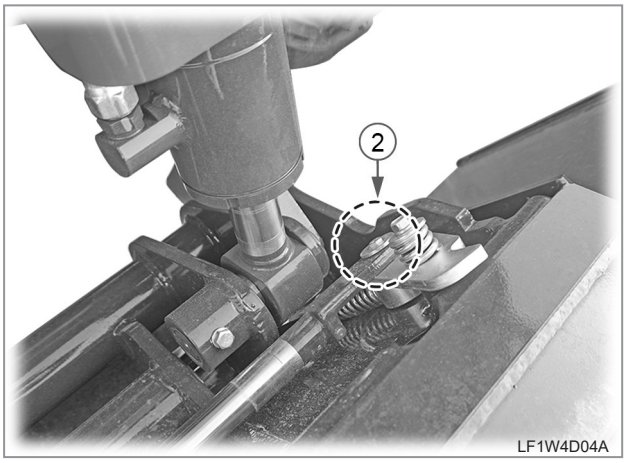
- **When connecting the hose between the hydraulic tube and tilt cylinder, check the port location and tighten it with the specified torque.**

  Hose (13/16-16 UN)
  tightening torque .....58.8 ~ 63.7 N·m
  6.0 ~ 6.5 kgf·m
  43.2 ~ 46.8 lb·ft

8.17 QUICK ATTACHMENT CYLINDER DISASSEMBLY



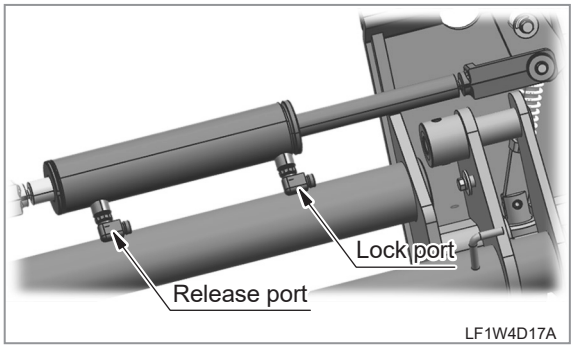
1. Disconnect the quick attachment cylinder hydraulic hoses (1 & 2) from the back of the bucket.



2. Separate the left-hand and right-hand quick attachment operating lever connections (2) and then remove the quick attachment cylinder.

REMARKS

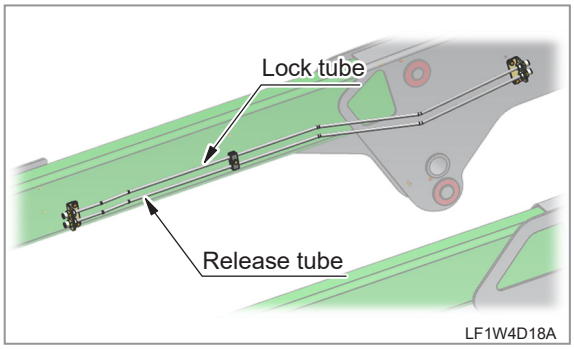
QUICK ATTACHMENT ASSEMBLY PORT



- **When connecting the hose, make sure to check the "Lock" and "Release" ports.**

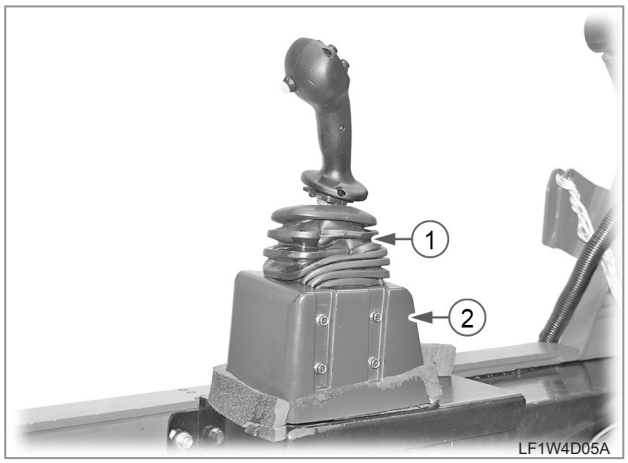
  Hose (11/16-18 UN)
  tightening torque ..... 37.2 ~ 47.0 N·m
  3.8 ~ 4.8 kgf·m
  27.4 ~ 34.7 lb·ft

QUICK ATTACHMENT HYDRAULIC TUBE

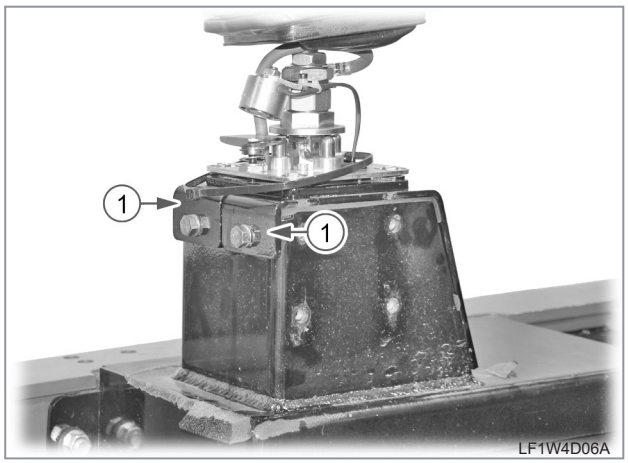


Hose (11/16-18 UN)
tightening torque ..... 37.2 ~ 47.0 N·m
3.8 ~ 4.8 kgf·m
27.4 ~ 34.7 lb·ft

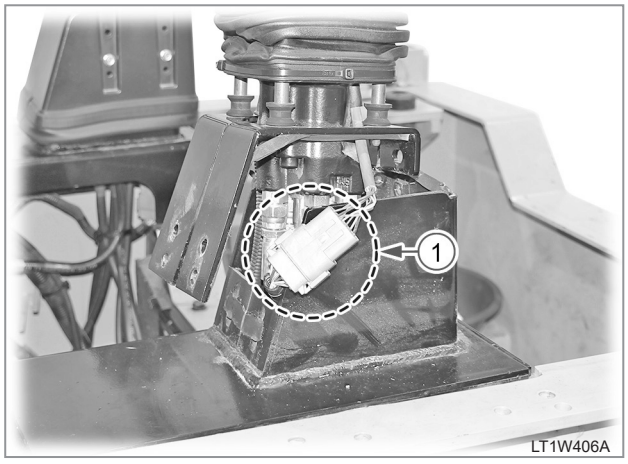
8.18 RCV ASSEMBLY & OIL TANK DISASSEMBLY



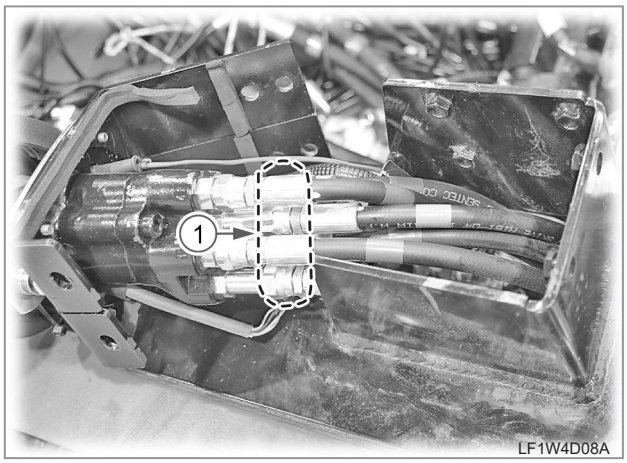
1. Remove the rubber bellows (1) of the joystick lever and then remove the RCV assembly cover (2).

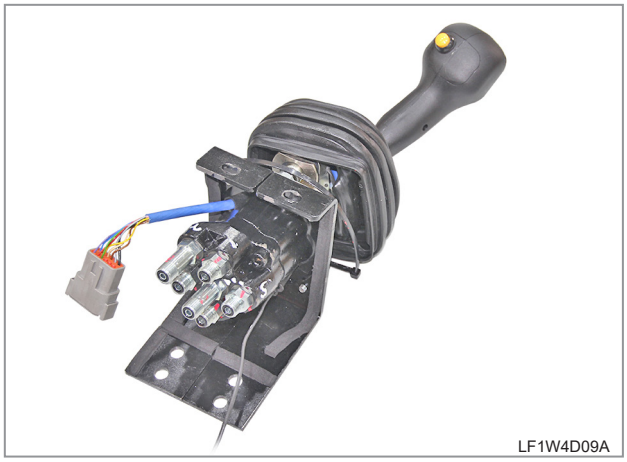


2. Remove the RCV assembly kit brackets (1).



3. Pull out the RCV assembly and disconnect the wiring connector (1).



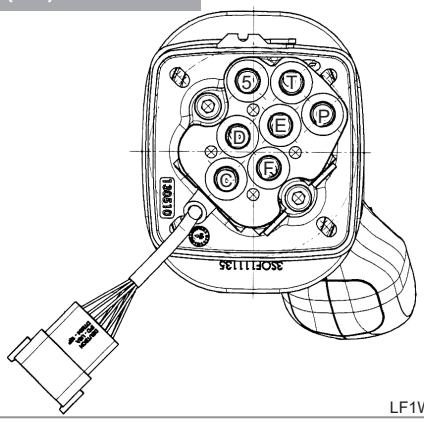


4. Disconnect the hydraulic hoses (1) from the RCV assembly.

REMARKS

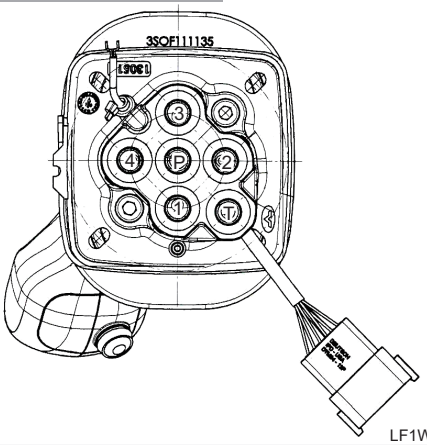
CONNECTOR ASSEMBLY

RCV (LH) - DRIVING



LF1W4D19A

RCV (RH) - WORKING

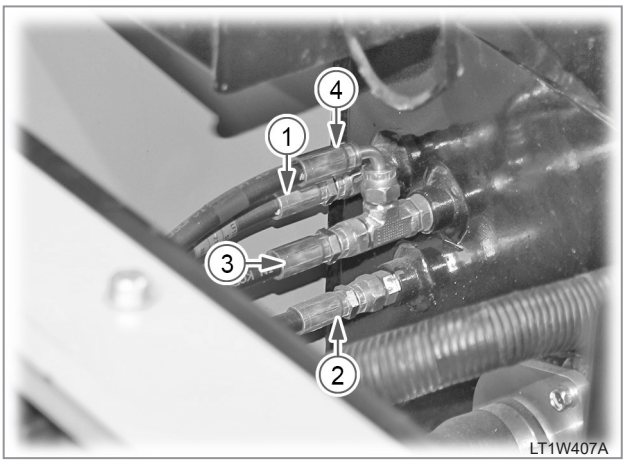


LF1W4D20A

- **When installing the connector, install it according to the specified torque.**

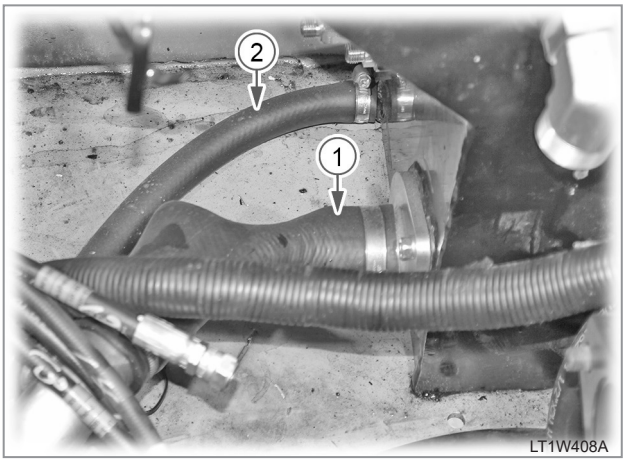
  Mounting section (7/16-20 UNF)
  tightening torque .....19.6 ~ 21.6 N·m
  2.0 ~ 2.2 kgf·m
  14.4 ~ 15.8 lb·ft

  Hose (9/16-18 UNF)
  tightening torque .....24.5 ~ 29.4 N·m
  2.5 ~ 3.0 kgf·m
  18.0 ~ 21.6 lb·ft



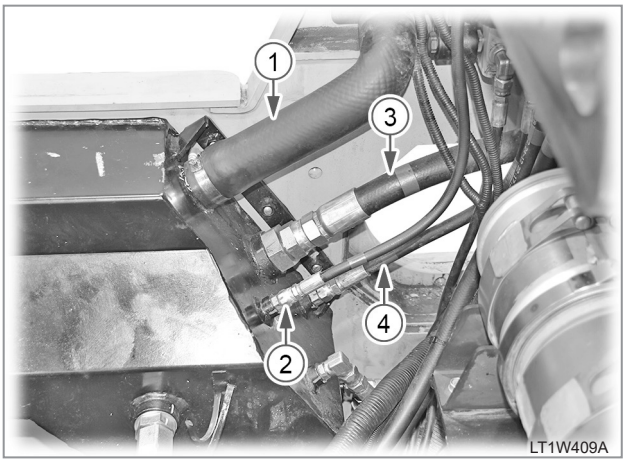
LT1W407A

5. Disconnect the RCV (RH)(1) and aux. hydraulic (2), HST pump (3) and left-hand RCV (4) hydraulic hose from the oil tank.



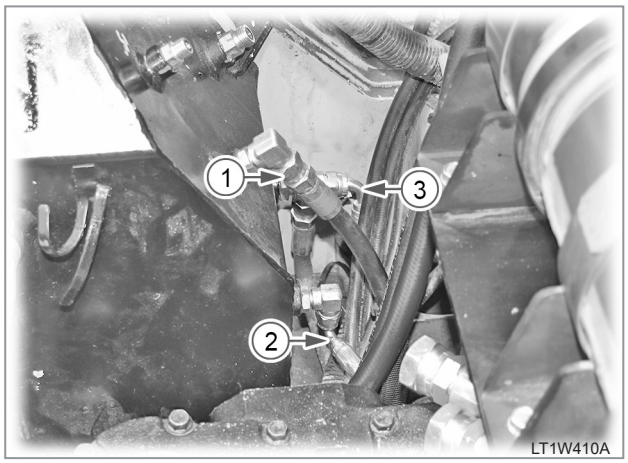
LT1W408A

6. Disconnect the suction hose (1) and drain hose (2) from the oil tank.

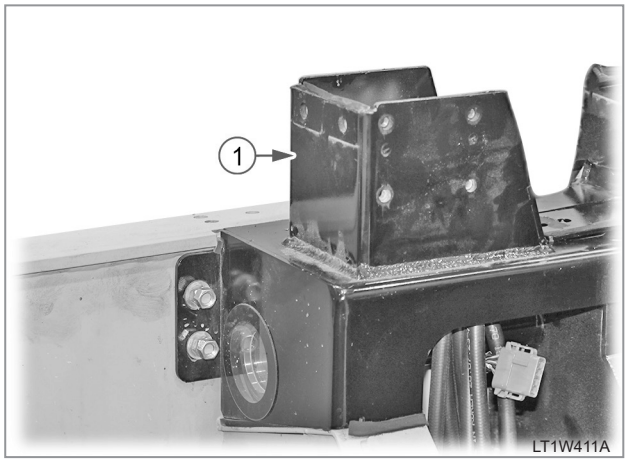


LT1W409A

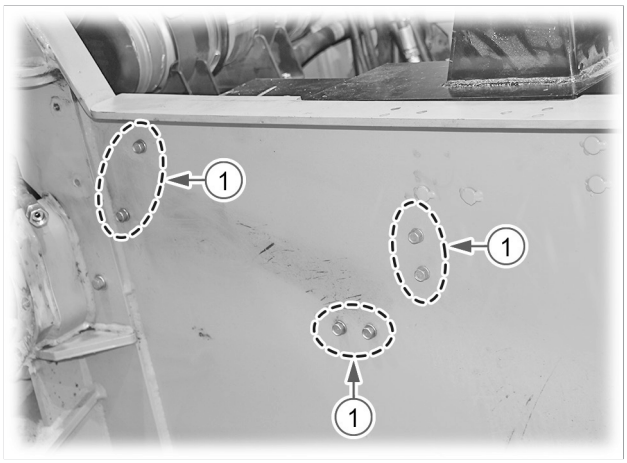
7. Disconnect the oil tank hose (1), main control valve hose (2), oil cooler hose (3) and quick-attachment cylinder hose (4).

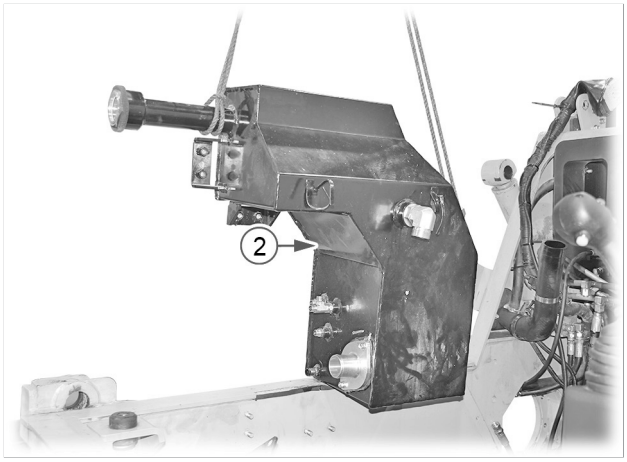


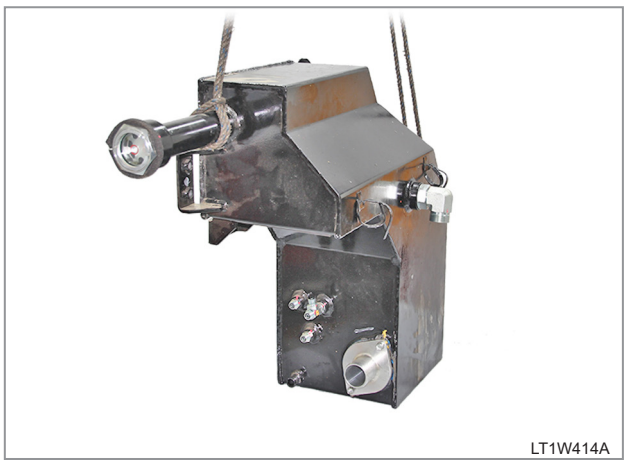
8. Disconnect the external hydraulic hose (1), HST pump hydraulic hose (2) and track (HST) motor hose (3).



9. Remove the right-hand RCV assembly support (1).

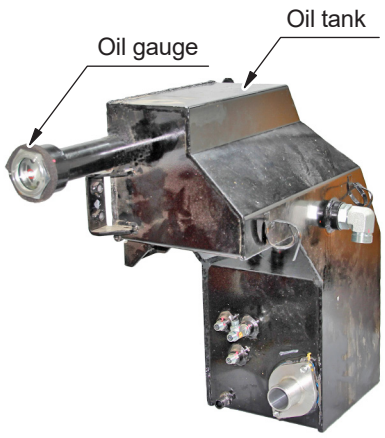






10. Unscrew the oil tank mounting bolts (1)(6EA) and then remove the oil tank (2) from the main frame.

REMARKS



LT1W415A

- **When installing the oil gauge, install it according to the specified torque.**

  Oil gauge bolt (M52 P2.0)
  tightening torque .....61.7 ~ 75.5 N·m
  6.3 ~ 7.7 kgf.m
  45.4 ~ 55.4 lb·ft