

PARTS & SERVICE NEWS

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SUBJECT: AUTO-GREASE SYSTEM

PURPOSE: Provide a parts list, troubleshooting guide and services instructions for the Auto-grease system.

APPLICATION: WA600-3L Wheel Loader Serial Number A52001 and UP

FAILURE CODE: 880099

DESCRIPTION: The Auto-grease system has little or no information provided to perform service to the equipment. This Parts and Service News provides service instructions and a Parts List.

INTRODUCTION:

The following information is related to a Daikin Auto-Greasing System. The parts are given with a figure and corresponding parts list. Following the parts list is a section on operation, troubleshooting and repairing the auto-grease system.

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1 PARTS LIST:

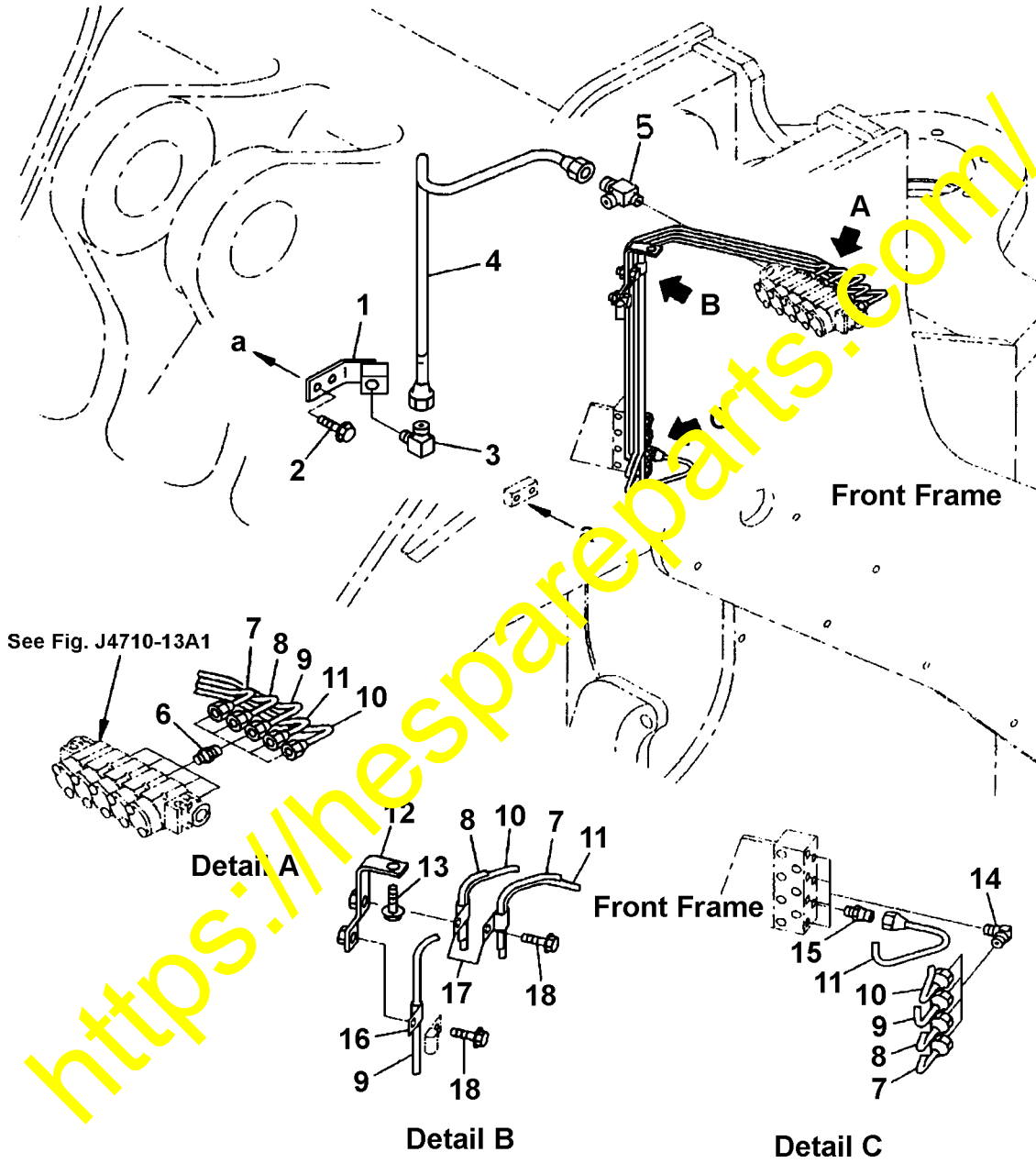


Figure J471-01A1 (Grease Valve 1 Piping)

PARTS LIST**Figure 4710-01A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	426-S95-2480	BRACKET	1	
2	01435-01020	BOLT	2	
3	421-09-12550	ELBOW	1	
4	426-S95-2491	TUBE	1	
5	423-S95-2270	TEE	1	
6	423-09-12110	CONNECTOR	5	
7	426-S95-2512	TUBE	1	
8	426-S95-2522	TUBE	1	
9	426-S95-2532	TUBE	1	
10	426-S95-2542	TUBE	1	
11	426-S95-2542	TUBE	1	
12	426-S95-2930	BRACKET	1	
13	01435-01020	BOLT	1	
14	421-09-12540	ELBOW	4	
15	423-09-12540	CONNECTOR	1	
16	04434-50610	CLIP	1	
17	04435-50610	CLIP	2	
18	01435-01016	BOLT	2	

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PARTS LIST

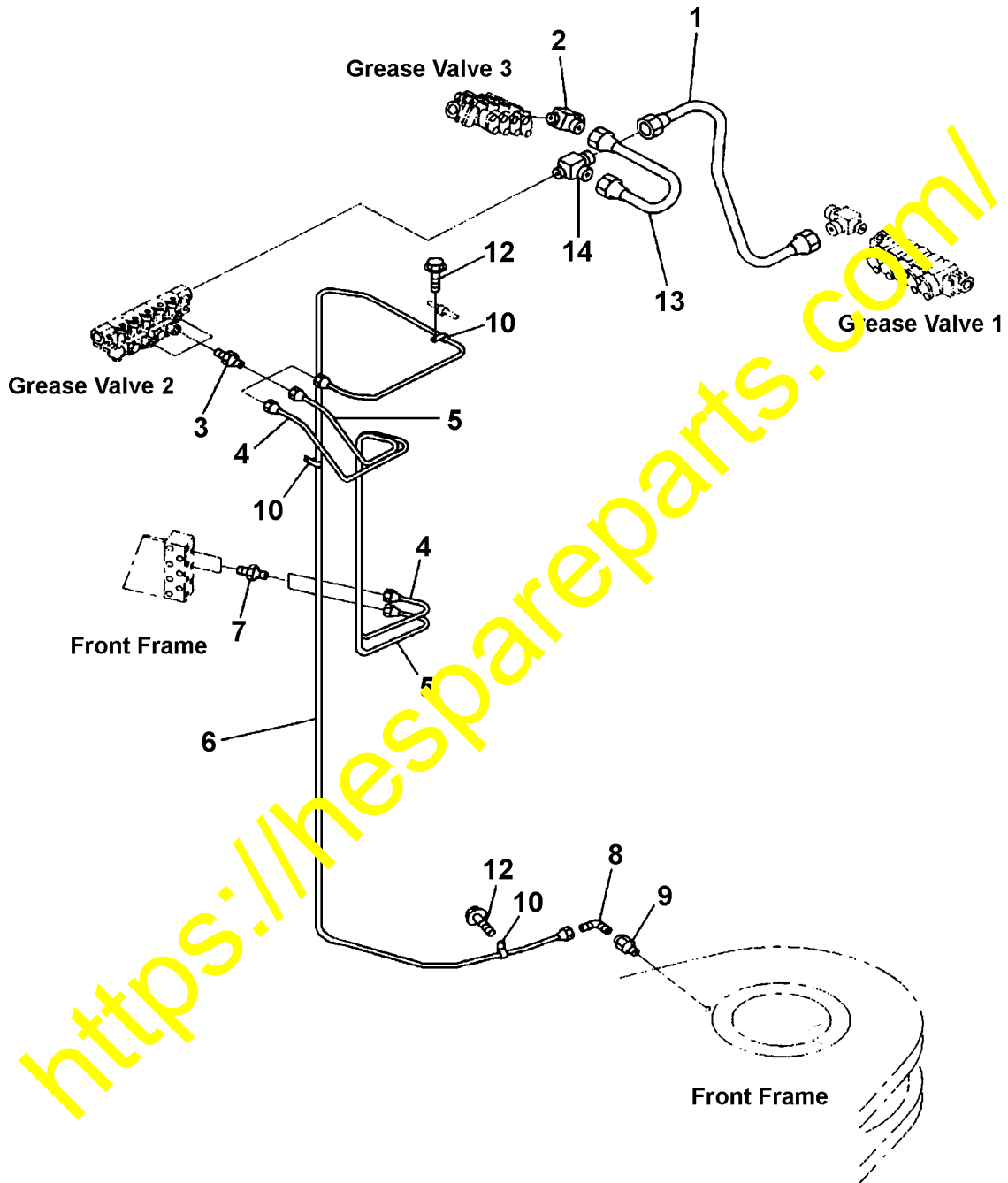


Figure 4710-02A1 (Grease Valve 2 Piping)

PARTS LIST**Figure 4710-02A1 Parts List:**

Item	Part Number	Description	Qty	Remarks
1	426-S95-2560	TUBE	1	
2	423-S95-2270	TEE	1	
3	423-09-12110	CONNECTOR	3	
4	426-S95-2572	TUBE	1	
5	426-S95-2582	TUBE	1	
6	426-S95-2591	TUBE	1	
7	423-09-12110	CONNECTOR	2	
8	421-09-12540	ELBOW	1	
9	423-70-11160	NIPPLE	1	
10	04434-50610	CLIP	4	
12	01435-01016	BOLT	3	
13	426-S95-2610	TUBE	1	
14	423-S95-2270	TEE	1	

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PARTS LIST

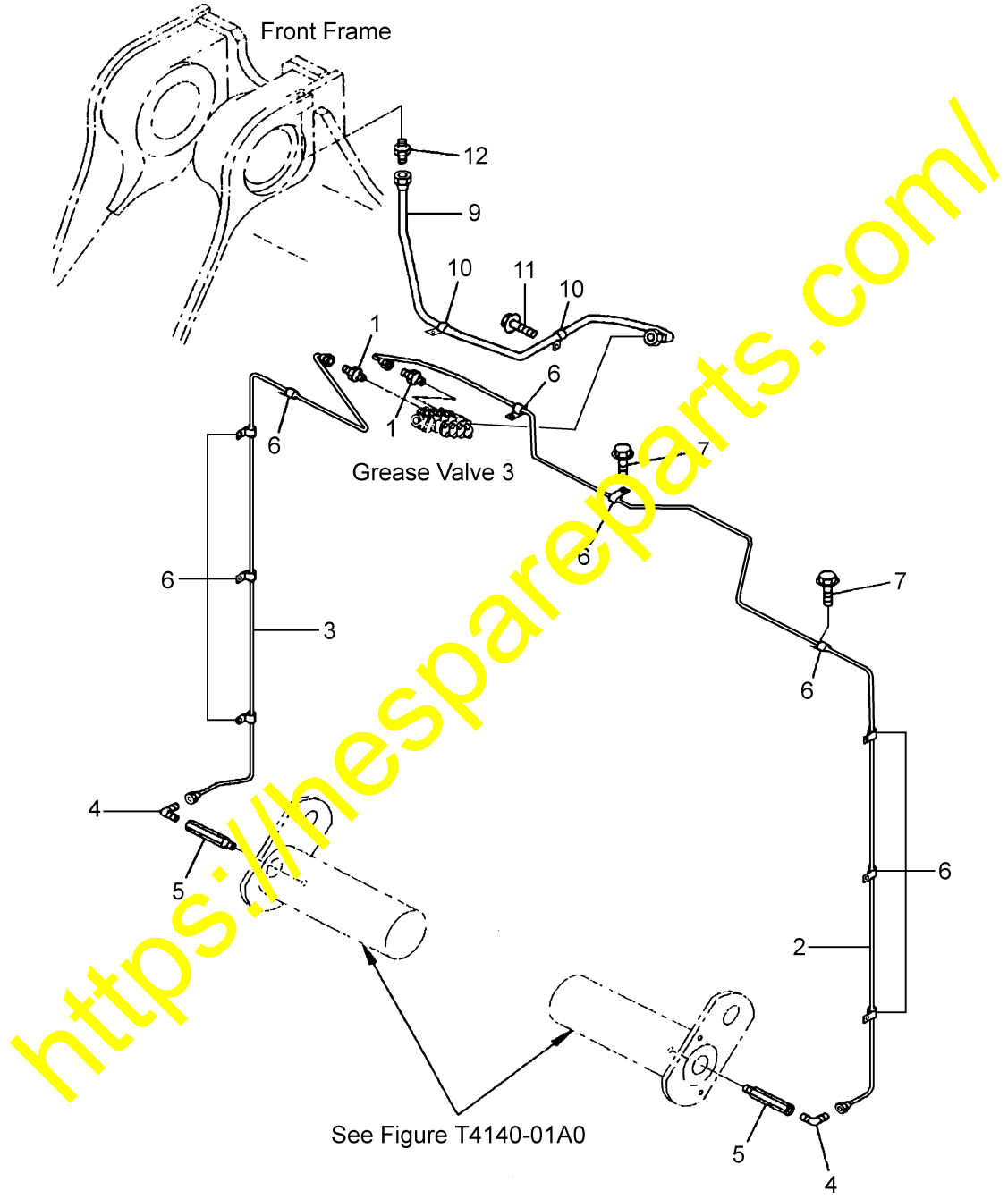


Figure 4710-03A1 (Grease Valve 3 Piping)

PARTS LIST**Figure 4710-03A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	423-09-12110	CONNECTOR	2	
2	426-S95-2622	TUBE L.H.	1	
3	426-S95-2631	TUBE R.H.	1	
4	421-09-12540	ELBOW	2	
5	21T-72-17580	NIPPLE	2	
6	04434-50610	CLIP	11	
7	01435-01016	BOLT	9	
9	426-S95-2640	TUBE	1	
10	04434-51510	CLIP	2	
11	01435-01016	BOLT	2	
12	421-09-12730	CONNECTOR	1	

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PARTS LIST

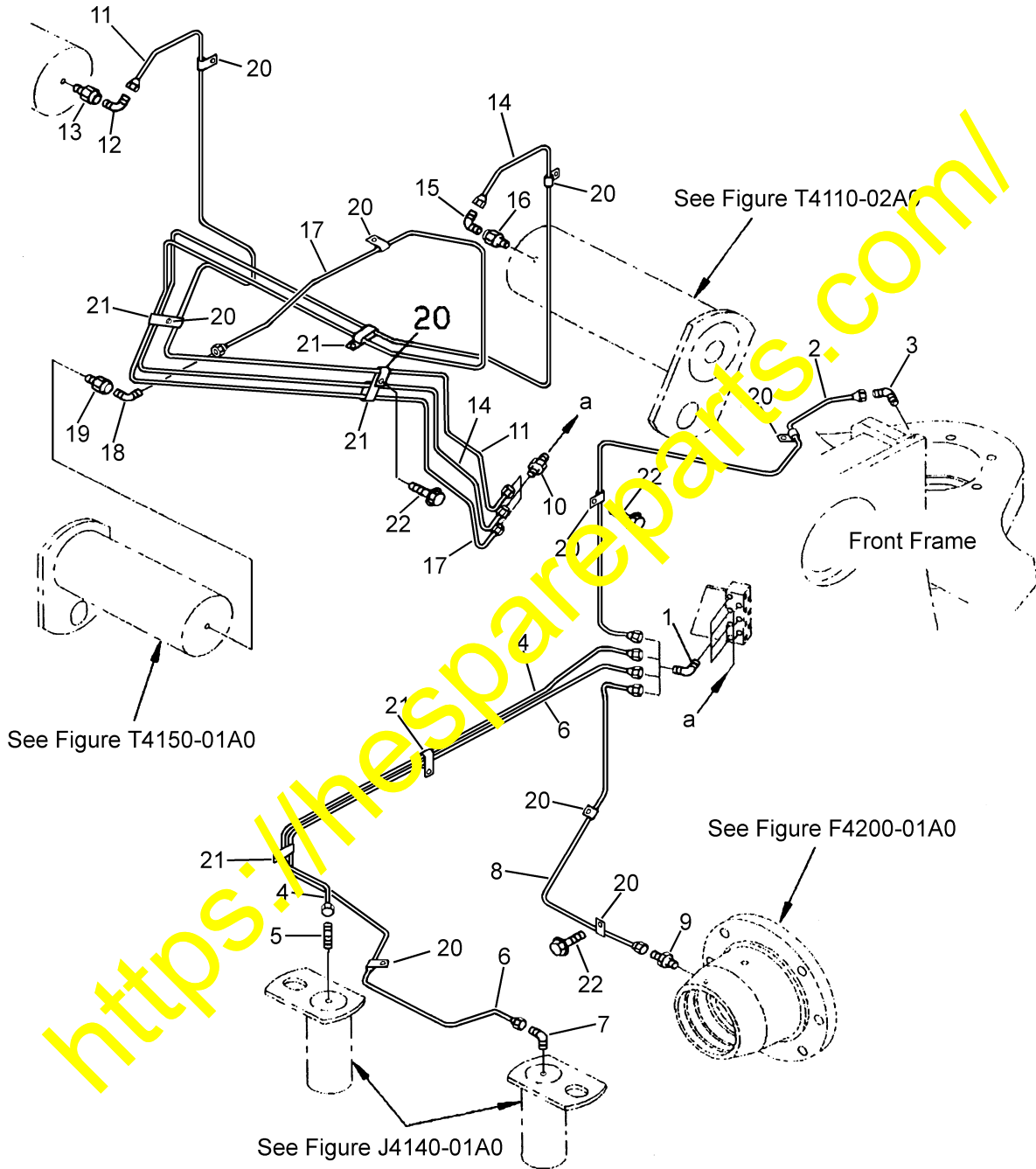


Figure 4710-04A1 (Grease Piping for Dump and Steering Cylinder Lower Pin)

PARTS LIST**Figure 4710-04A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	421-09-12540	ELBOW	4	
2	426-46-26180	TUBE	1	
3	421-09-12540	ELBOW	1	
4	426-46-26170	TUBE	1	
5	421-09-12540	ELBOW	1	
6	426-46-26161	TUBE	1	
7	421-09-12540	ELBOW	1	
8	426-46-26151	TUBE	1	
9	423-09-12110	CONNECTOR	1	
10	423-09-12110	CONNECTOR	3	
11	426-46-26220	TUBE	1	
12	421-09-12540	ELBOW	1	
13	423-70-11160	NIPPLE	1	
14	426-46-26211	TUBE	1	
15	421-09-12540	ELBOW	1	
16	423-70-11160	NIPPLE	1	
17	426-46-26192	TUBE	1	
18	421-09-12540	ELBOW	1	
19	423-70-11160	NIPPLE	1	
20	04434-50610	CLIP	10	
21	04434-50610	CLIP	5	
22	01435-01016	BOLT	13	

PARTS LIST

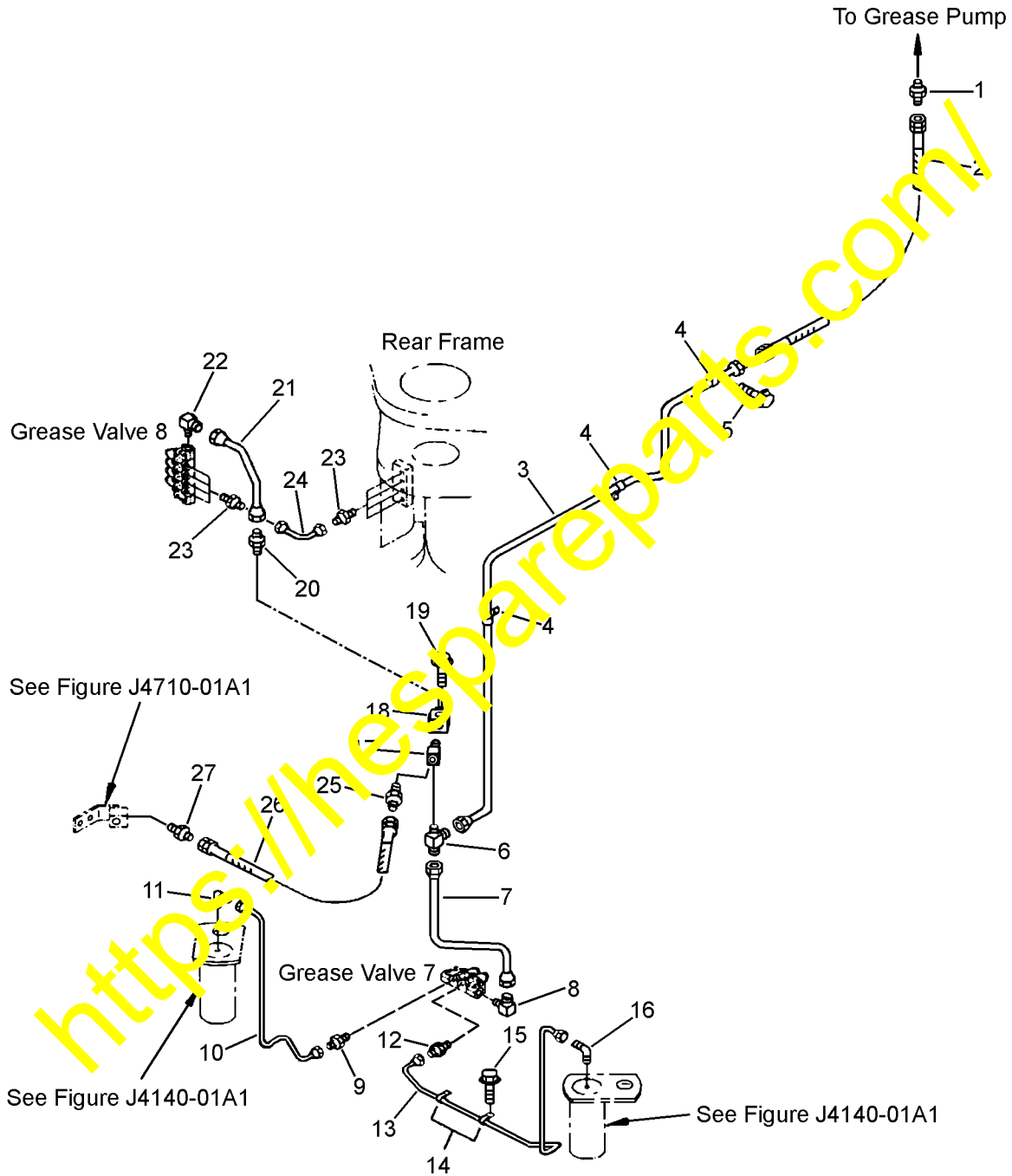


Figure 4710-05A1 (Grease Valves 7 and 8 Piping)

PARTS LIST**Figure 4710-05A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	07238-10315	CONNECTOR	1	
2	363-62-25260	HOSE	1	
3	426-S95-2690	TUBE	1	
4	04434-51510	CLIP	3	
5	01435-01016	BOLT	1	
6	423-S95-2270	TEE	1	
7	423-S95-2430	TUBE	1	
8	421-09-12550	ELBOW	1	
9	423-09-12110	CONNECTOR	1	
10	426-S95-2441	TUBE	1	
11	421-09-12540	ELBOW	1	
12	423-09-12110	CONNECTOR	1	
13	426-S95-2451	TUBE	1	
14	04434-50610	CLIP	2	
15	01435-01016	BOLT	2	
16	421-09-12540	ELBOW	1	
17	426-S95-2460	TEE	1	
18	426-S95-3440	ELBOW	1	
19	01435-01016	BOLT	2	
20	421-09-12730	CONNECTOR	1	
21	426-S95-2421	TUBE	1	
22	421-09-12550	ELBOW	1	
23	423-09-12110	CONNECTOR	8	
24	426-S95-2470	TUBE	4	
25	07238-10315	CONNECTOR	1	
26	415-62-11590	HOSE	1	
27	07238-10315	CONNECTOR	1	

PARTS LIST

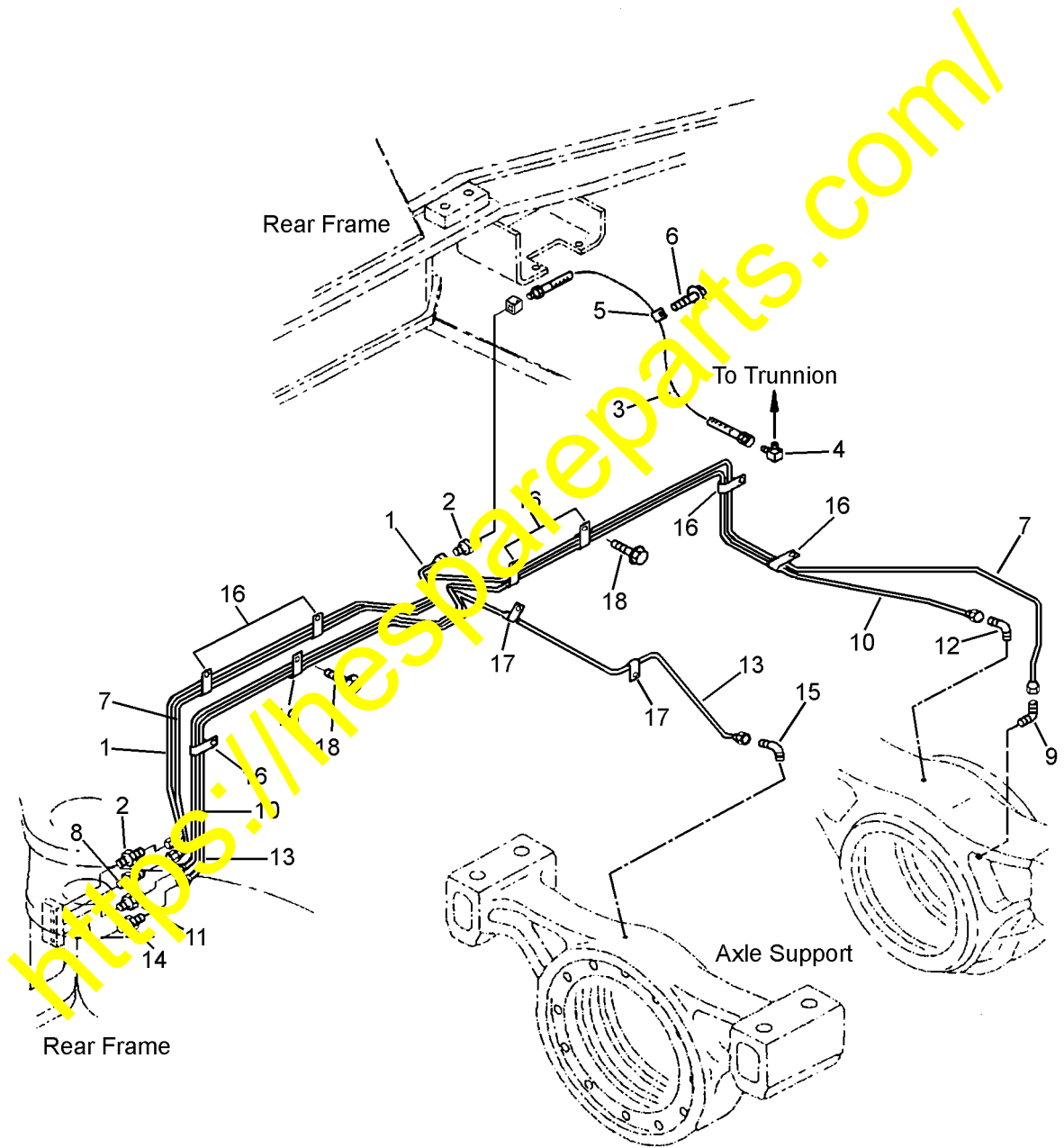


Figure 4710-06A1 (Rear Axle Support Piping)

PARTS LIST**Figure 4710-06A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	426-46-26110	TUBE	1	
2	423-09-12110	CONNECTOR	2	
3	425-70-13180	HOSE	1	
4	426-70-13270	ELBOW	1	
5	04434-51210	CLIP	1	
6	01435-01016	BOLT	1	
7	426-46-26121	TUBE	1	
8	423-09-12110	CONNECTOR	1	
9	421-09-12540	ELBOW	1	
10	426-46-26130	TUBE	1	
11	423-09-12110	CONNECTOR	1	
12	421-09-12540	ELBOW	1	
13	426-46-26140	TUBE	1	
14	423-09-12110	CONNECTOR	1	
15	421-09-12540	ELBOW	1	
16	04435-50610	CLIP	8	
17	04434-50610	CLIP	2	
18	01435-01016	BOLT	10	

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PARTS LIST

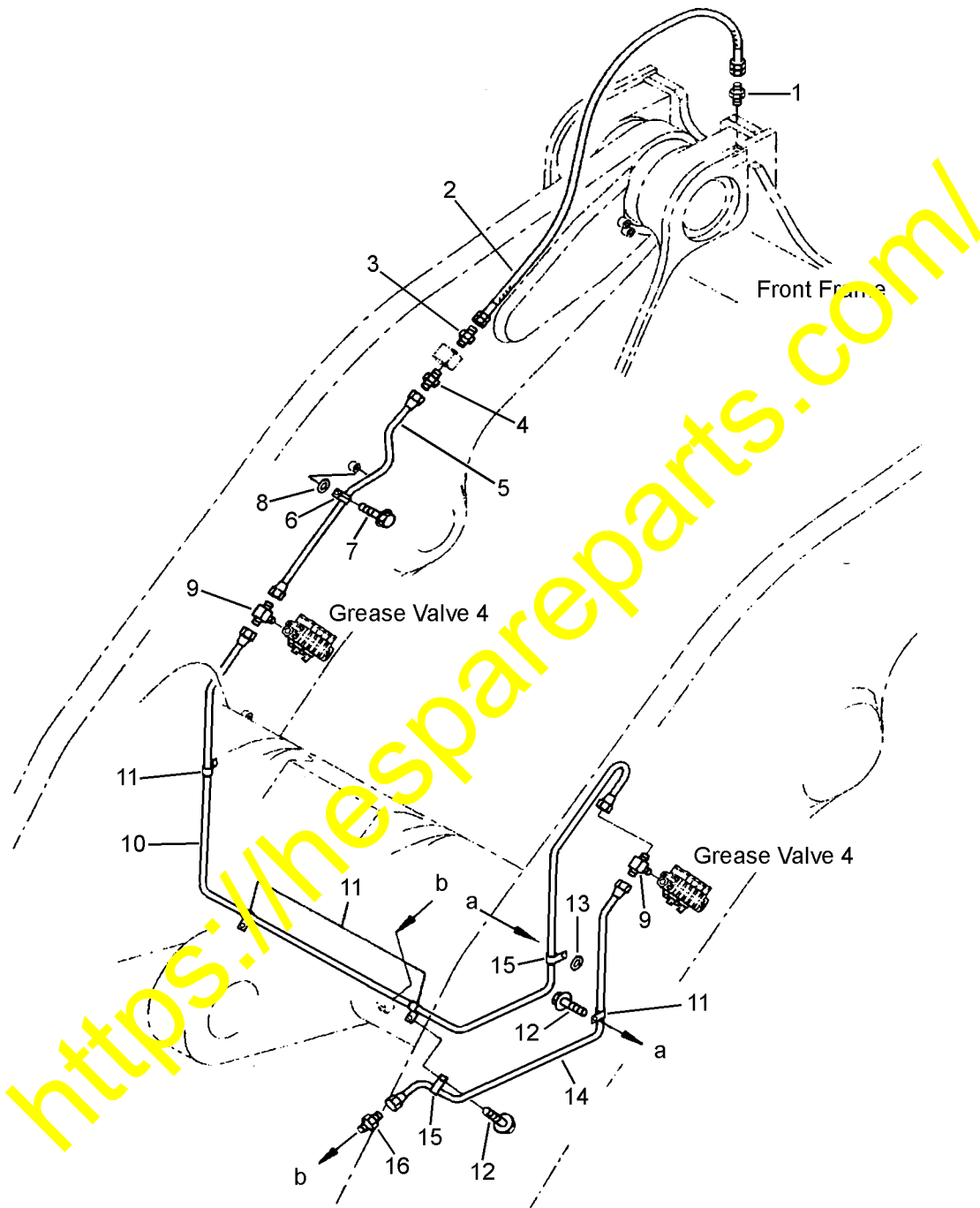


Figure 4710-07A1 (Grease Valve 4 Piping- 1 of 2)

PARTS LIST**Figure 4710-07A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	07238-10315	CONNECTOR	1	
2	07123-20311	HOSE	1	
3	07238-10315	CONNECTOR	1	
4	421-09-12730	CONNECTOR	1	
5	426-S95-2711	TUBE	1	
6	04434-51510	CLIP	1	
7	01435-01016	BOLT	1	
8	01641-21223	WASHER	1	
9	421-S95-2471	TEE	2	
10	426-S95-2720	TUBE	1	
11	04434-51510	CLIP	1	
12	01435-01016	BOLT	4	
13	01641-21223	WASHER	2	
14	426-S95-2730	TUBE	1	
15	04434-51510	CLIP	2	
16	421-09-12730	CONNECTOR	1	

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PARTS LIST

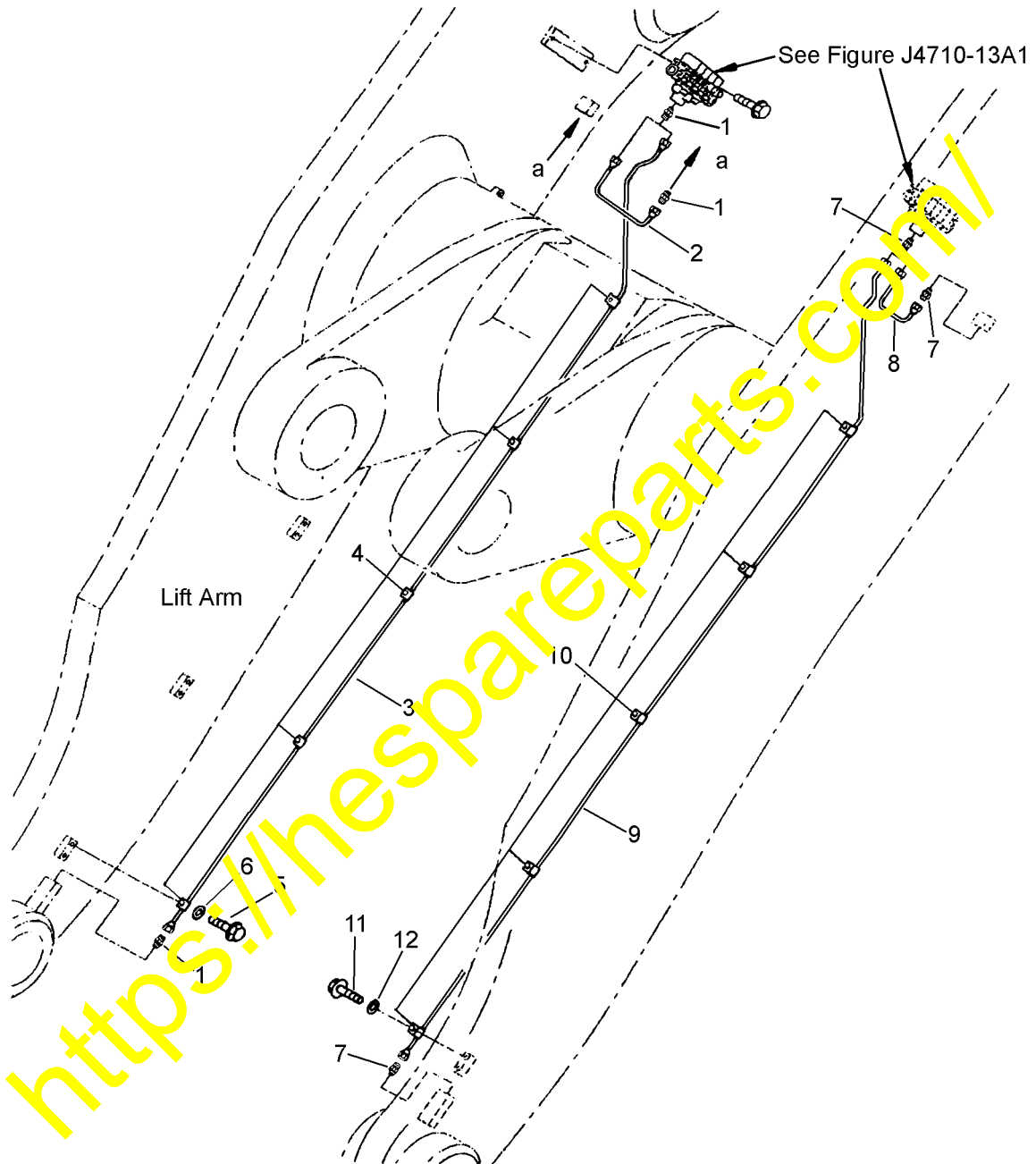


Figure 4710-08A1 (Grease Valve 4 Piping- 2 of 2)

PARTS LIST**Figure 4710-08A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	423-09-12110	CONNECTOR	4	
2	426-S95-2751	TUBE	1	
3	426-S95-2771	TUBE	1	
4	04434-50610	CLIP	5	
5	01435-01016	BOLT	5	
6	01643-51032	WASHER	5	
7	423-09-12110	CONNECTOR	4	
8	426-S95-2741	TUBE	1	
9	426-S95-2761	TUBE	1	
10	04434-50610	CLIP	5	
11	01435-01016	BOLT	5	
12	01643-51032	WASHER	5	

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PARTS LIST

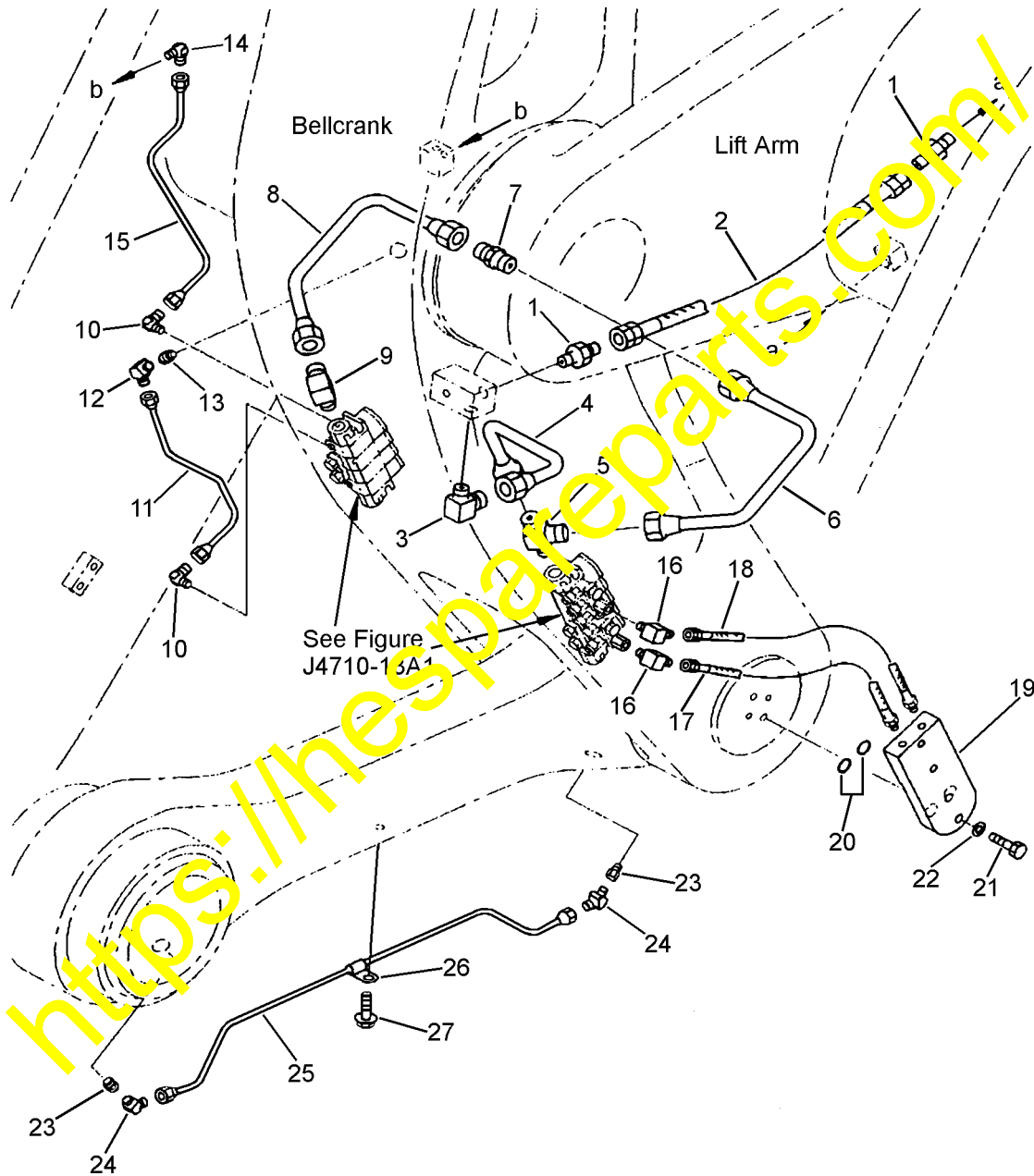


Figure 4710-09A1 (Grease Valves 5 and 6 Piping)

PARTS LIST**Figure 4710-09A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	07238-10315	CONNECTOR	2	
2	07123-20308	HOSE	1	
3	421-09-12550	ELBOW	1	
4	426-S95-2780	TUBE	1	
5	426-S95-2270	TEE	1	
6	426-S95-2790	TUBE	1	
7	421-09-12830	CONNECTOR	1	
8	426-S95-2810	TUBE	1	
9	421-09-12550	ELBOW	1	
10	421-09-12540	ELBOW	2	
11	426-S95-2820	TUBE	1	
12	423-S95-2840	ELBOW	1	
13	423-70-11160	NIPPLE	1	
14	421-09-12540	ELBOW	2	
15	426-S95-2831	TUBE	1	
16	426-70-13270	ELBOW	2	
17	426-S95-2911	HOSE	1	
18	426-S95-2941	HOSE	1	
19	425-S95-3730	PLATE	1	
20	07000-12015	O-RING	2	
21	01010-81040	BOLT	2	
22	01643-31032	WASHER	2	
23	423-70-11160	NIPPLE	2	
24	423-S95-2840	ELBOW	2	
25	426-S95-2840	TUBE	1	
26	04434-50510	CLIP	1	
27	01435-01010	BOLT	1	

PARTS LIST

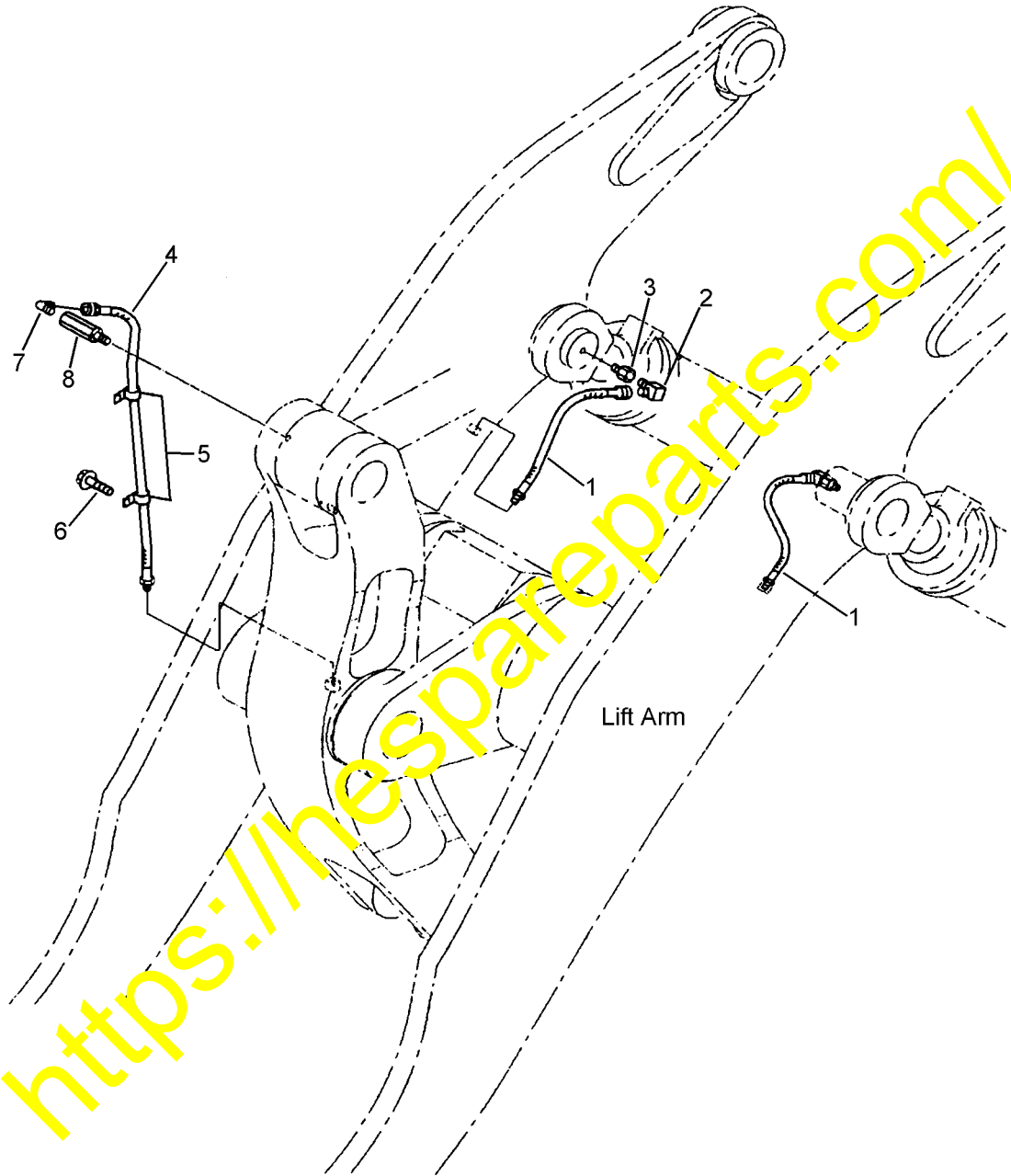


Figure 4710-10A0 (Lift and Dump Cylinder Head Pin Piping)

PARTS LIST**Figure 4710-10A0 Parts List**

Item	Part Number	Description	Qty	Remarks
1	426-70-13280	HOSE	2	
2	426-70-13270	ELBOW	2	
3	423-70-11160	NIPPLE	2	
4	426-70-13291	HOSE	1	
5	198-904-4280	CLIP	2	
6	01435-01016	BOLT	2	
7	421-09-12540	ELBOW	1	
8	2IT-72-17580	NIPPLE	1	

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PARTS LIST

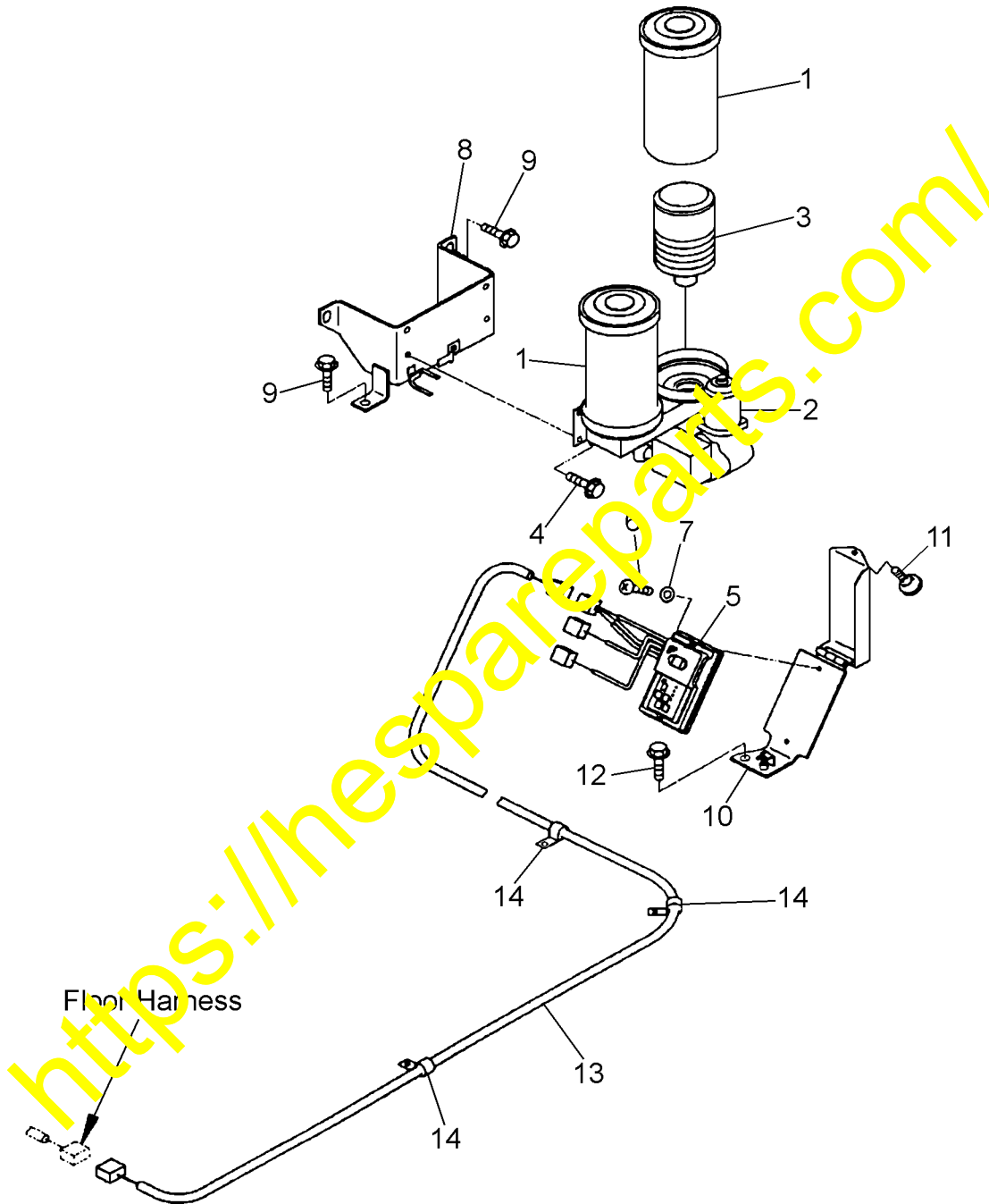


Figure 4710-11A1 (Auto Grease Pump and Controller)

PARTS LIST**Figure 4710-11A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	426-S95-3320	TANK, GREASE	2	
2	426-S95-3330	MOTOR, PUMP	1	
3	426-S95-3340	CARTRIDGE, GREASE	2	
4	01435-00816	BOLT	4	
5	426-S95-3310	CONTROLLER	1	
6	01220-40516	SCREW	2	
7	01641-20508	WASHER	2	
8	426-S95-2210	BRACKET	1	
9	01435-01225	BOLT	4	
10	426-S95-2221	BRACKET	1	
11	416-09-12210	HINGE	1	WELDED
12	01435-01225	BOLT	2	
13	426-S95-2131	WIRING HARNESS	1	
14	08036-01014	CLIP	3	
	426-S95-2110	PUMP ASSEMBLY, COMPLETE	1	

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PARTS LIST

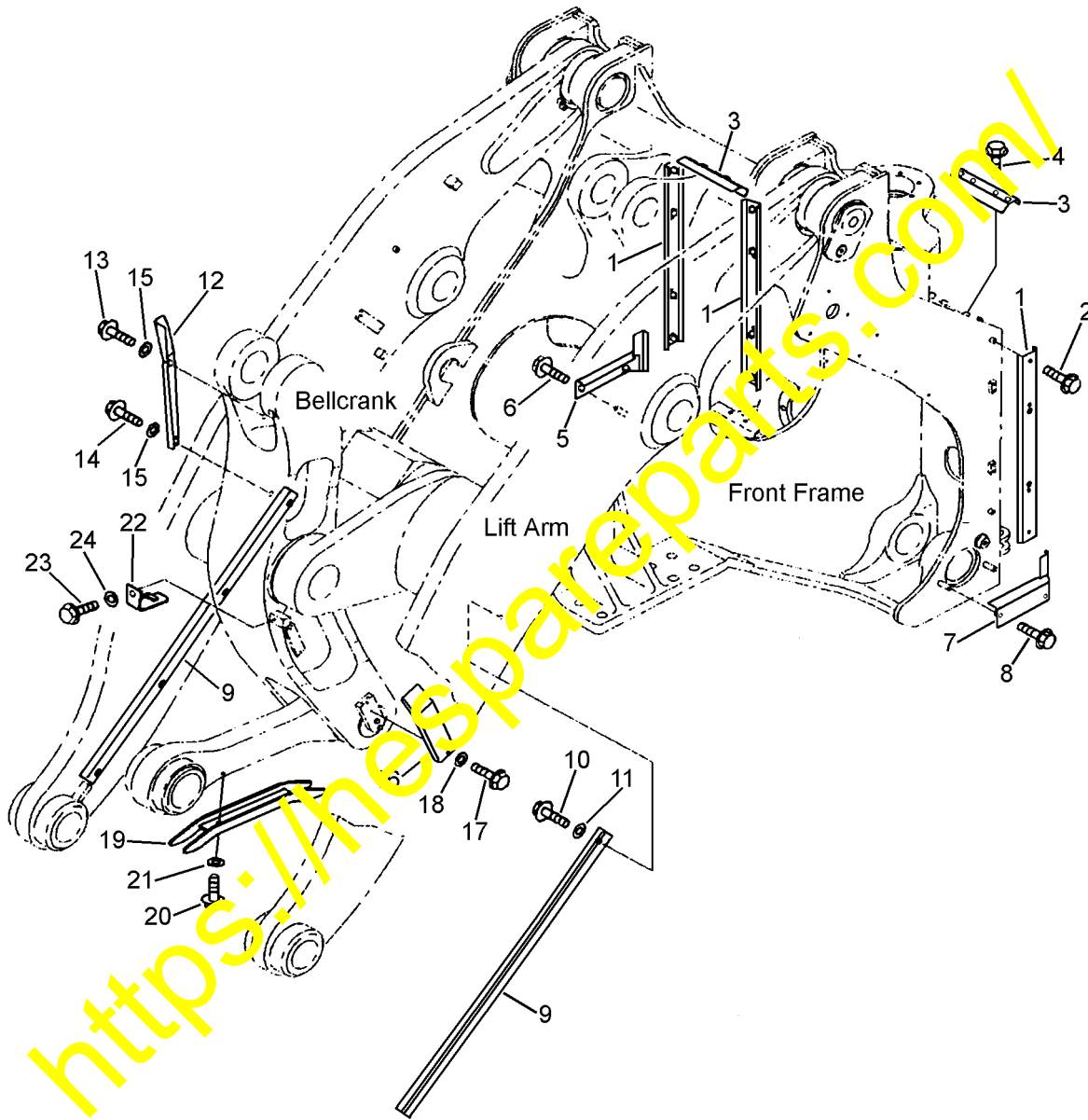


Figure 4710-12A1 (Grease Piping Covers)

PARTS LIST**Figure 4710-12A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	426-S95-2652	COVER	3	
2	01435-01030	BOLT	12	
3	426-S95-2662	COVER	2	
4	01435-01030	BOLT	4	
5	426-S95-2671	COVER, R.H.	1	
6	01435-01035	BOLT	2	
7	426-S95-2681	COVER, L.H.	1	
8	01435-01035	BOLT	2	
9	426-S95-2861	COVER	2	
10	01435-01040	BOLT	8	
11	01643-31032	WASHER	8	
12	426-S95-2870	COVER	1	
13	01435-01035	BOLT	1	
14	01435-01045	BOLT	1	
15	01643-31032	WASHER	2	
16	426-S95-2881	COVER	1	
17	01435-01020	BOLT	2	
18	01643-31032	WASHER	2	
19	426-S95-2890	COVER	1	
20	01435-01230	BOLT	2	
21	01643-31232	WASHER	2	
22	426-S95-2921	COVER	1	
23	01435-01020	BOLT	2	
24	01643-31032	WASHER	2	

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PARTS LIST

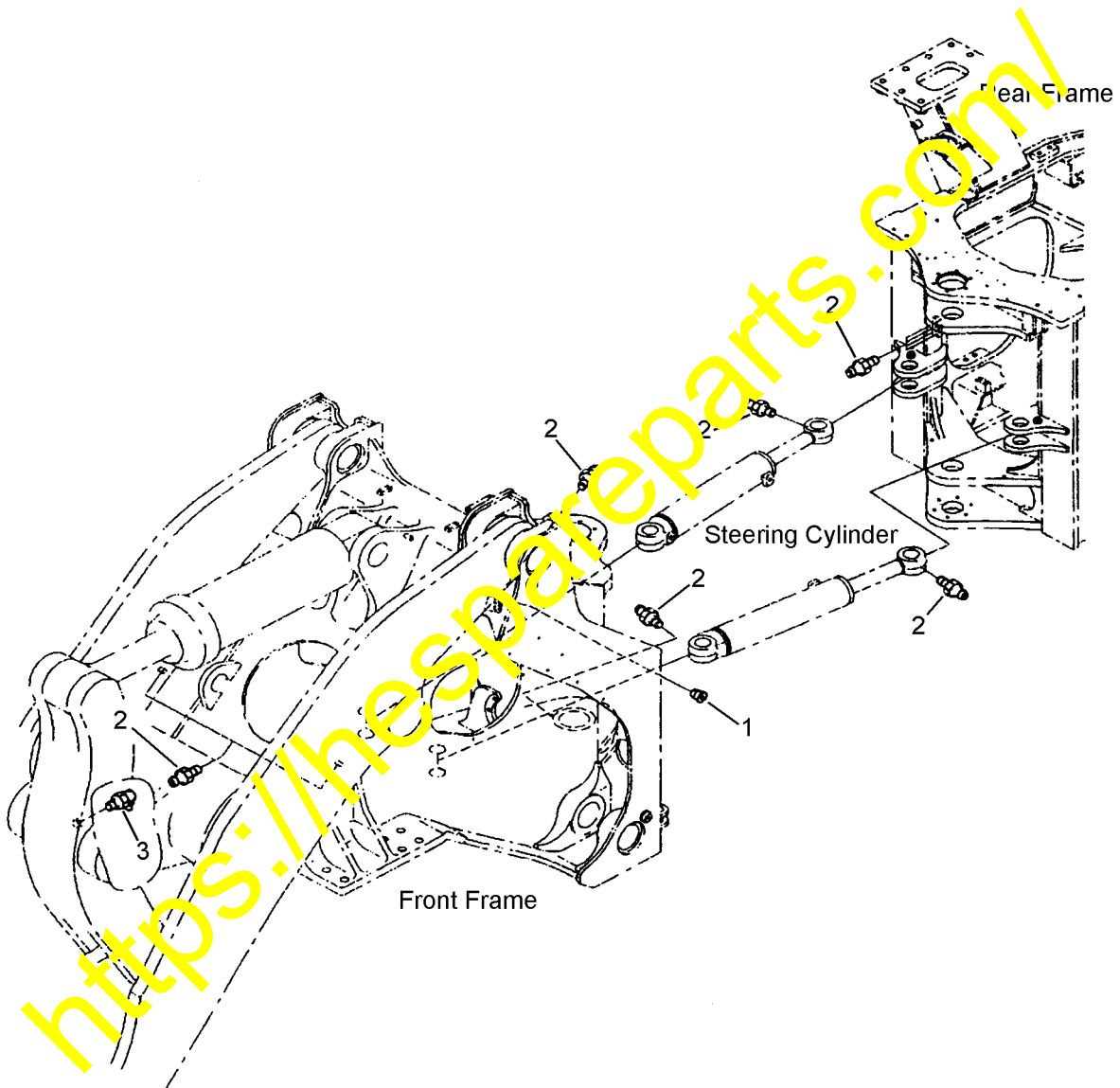


Figure 4710-13A0 (Manual Grease Fittings)

PARTS LIST**Figure 4710-13A0 Parts List**

Item	Part Number	Description	Qty	Remarks
	07043-70108	PLUG	7	50001-
	07020-00000	FITTING, GREASE	15	50001-
	07020-00900	FITTING, GREASE	1	50001-

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PARTS LIST

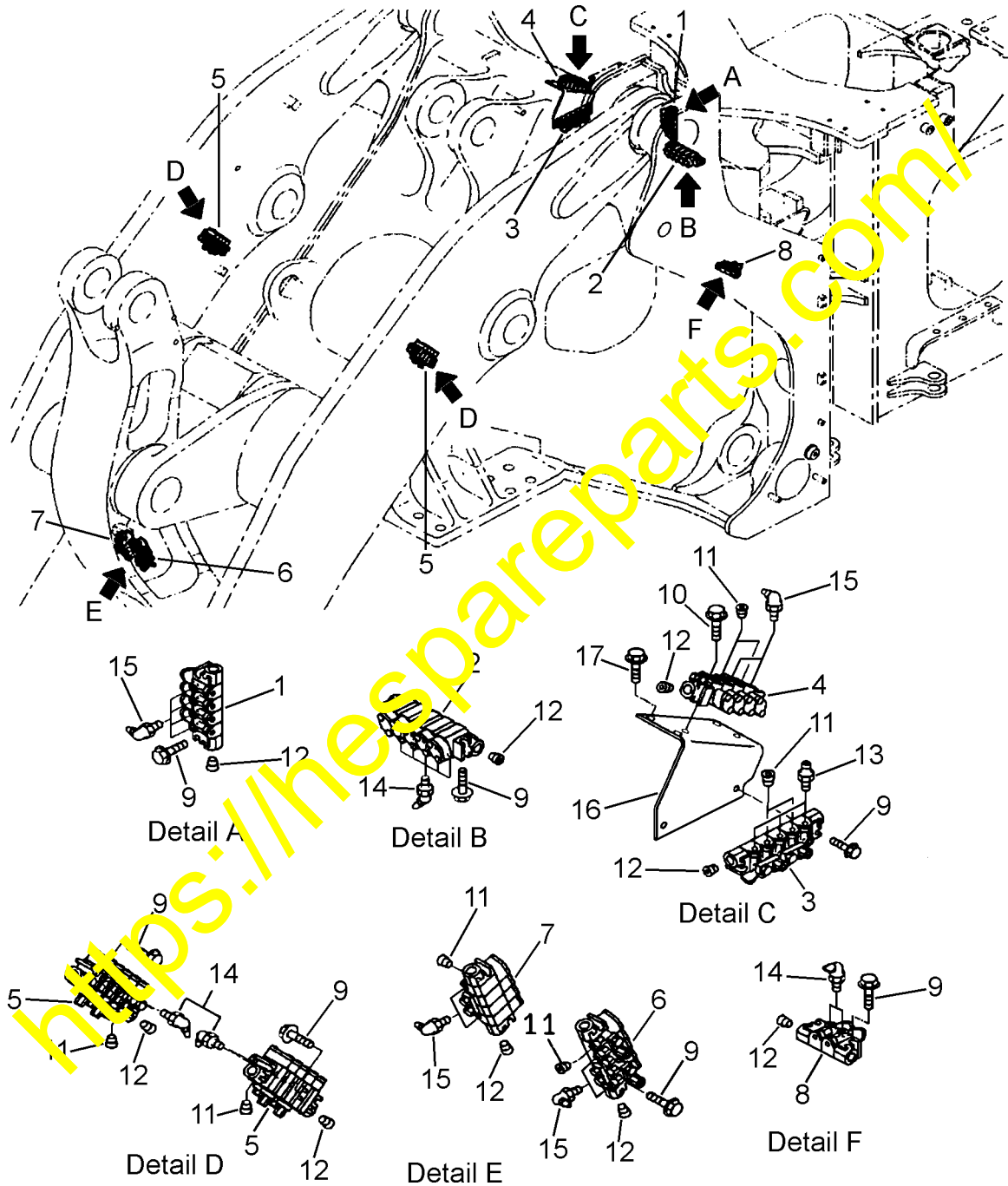


Figure 4710-13A1 (Grease Valves and Related Parts)

PARTS LIST**Figure 4710-13A1 Parts List**

Item	Part Number	Description	Qty	Remarks
1	426-S95-2120	VALVE, 8	1	
2	426-S95-3111	VALVE, 1	1	
3	426-S95-3121	VALVE, 2	1	
4	426-S95-3131	VALVE, 3	1	
5	426-S95-3140	VALVE, 4	2	
6	426-S95-3150	VALVE, 5	1	
7	426-S95-3161	VALVE, 6	1	
8	426-S95-3170	VALVE, 7	1	
9	01435-00840	BOLT	14	
10	01435-00845	BOLT	4	
11	07043-70108	PLUG	11	
12	07043-70312	PLUG	9	
13	07020-00000	FITTING, GREASE	12	
14	07020-00675	FITTING, GREASE	6	
15	07020-00900	FITTING, GREASE	10	
16	426-S95-2230	BRACKET	1	
17	01435-01020	BOLT	3	

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2. AUTO-GREASING SYSTEM

2.1 FUNCTION

The auto-greasing system supplies grease to many of the moving parts of the machine. This ensures the moving parts are well lubricated to help prevent wear and damage. The use of an automatic system also reduces the number of man-hours required to manually lubricate the machine.

The main components of the auto-greasing system are the electric pump, valves and controller with micro computer. The computer controls the pump, while the valves distribute the grease to the appropriate components. The pump and controller are located in a box mounted behind the cab. The valves are strategically located throughout the machine.

2.2 GENERAL

1. Inspect the machine for grease leaks or broken grease lines, as required make repairs.
2. Ensure there is enough grease in grease tanks for operation, if necessary refill tanks.

2.3 PRECAUTIONS WHEN HANDLING THE SYSTEM

1. The power source input to the lubrication controller should be DC24V, but up to a maximum limit of 30V may be used.
2. The grease fitting installed at the service port of the divider valve is used for initial charging and is of a ball check design. If dirt gets stuck in the ball area the fitting may leak grease.

Check the fitting on a regular basis for leakage, if leakage occurs replace the fitting.

3. When beginning initial operation or when the grease tank is empty, air may get trapped in the piston portion of the pump. If during operation of the pump, the pressure does not rise during the specified time and an error is displayed on the controller, bleed the system of air.
4. If the divider valve or grease piping is removed from the machine, handle with care to prevent damage. When storing or reinstalling, be extremely careful to prevent air and dirt from entering the components. If air does enter the system, bleed the system immediately.

2.3 METHOD OF OPERATION

1. Turning the starting switch ON will start the auto-greasing system.

NOTE

Immediately after the power is turned on, all of the display lamps on the lubrication controller light up for several seconds. This is a self check and does not indicate any abnormalities. Only the display portion for starting the calculation of the greasing interval will remain on and flashing after the initial few seconds.

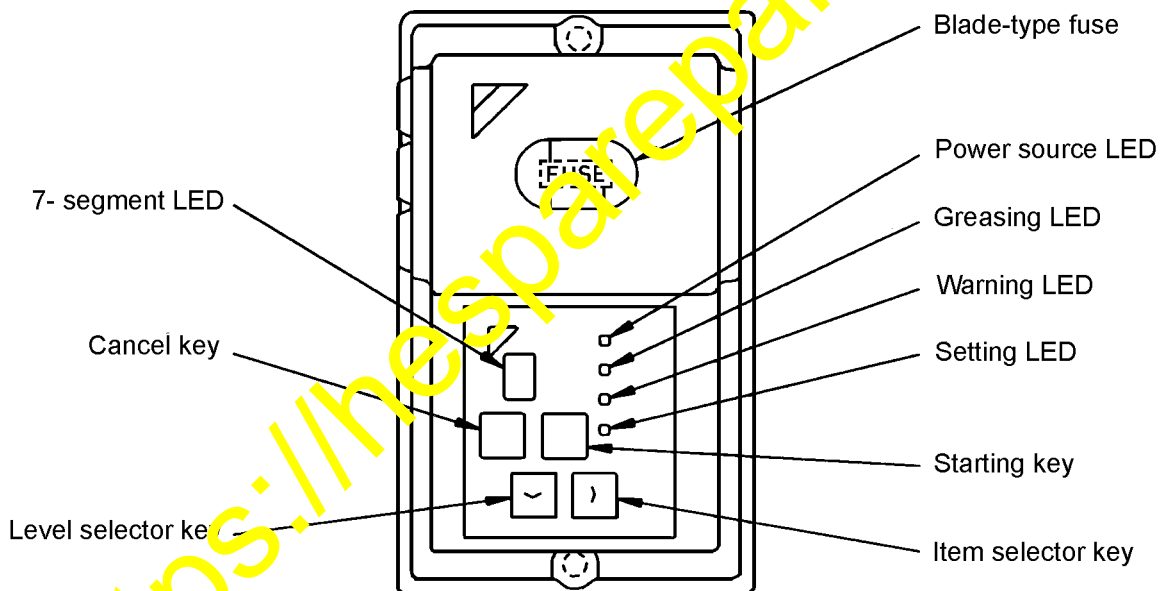
If the starting switch is turned ON/OFF repeatedly, even if the greasing interval has not been reached, greasing will automatically start as a function of the supplemental circuit immediately after the switch is turned ON. After the display of the 7-segment LED and the greasing in progress LED, the above condition will be returned (see "LUBRICATION CONTROLLER DISPLAY TABLE" on page 32).

2. After the starting switch is turned ON, centralized greasing is performed in accordance with the set time and frequency limit for greasing.












NOTE

If the starting switch is turned ON/OFF frequently, the action of the lubrication compensation circuit may cause the grease level warning to be given, even if the greasing interval has not been reached. This is not a defect.

LUBRICATING CONTROLLER



LUBRICATION CONTROLLER DISPLAY TABLE

Type	Item	Symptom	LED Display	7-segment display
When Normal	Counting	When Normal	Power Source LED lights up	Flashes or numeral flashes
	Greasing	I Pump Operating	Greasing LED lights up	Rotating display 
		II Maintaining Pressure	Greasing LED flashes slowly (1 time/sec.)	Stop display 
		III Releasing Pressure	Greasing LED flashes rapidly (2 times/sec.)	Reverse rotation display 
Setting	Set mode	Set LED flashes	Depends on each set mode	
When Abnormal	Abnormality in pump pressure	Pressure does not rise within greasing time	Warning LED flashes	(E) (a)   Flashes alternately
	Abnormality in release of grease pressure	Pressure still remains after pressure is released (reverse rotation)		(E) (b)   Flashes Alternately
	Abnormality in pressure detection	Limit switch for pressure detection is already actuated before system is started		(E) (c)   Flashes Alternately
	Tank Empty	No. of times greasing has reached greasing frequency limit.		(E) (0)   Flashes Alternately

2.4 ACTUATION OF AUTO-GREASING

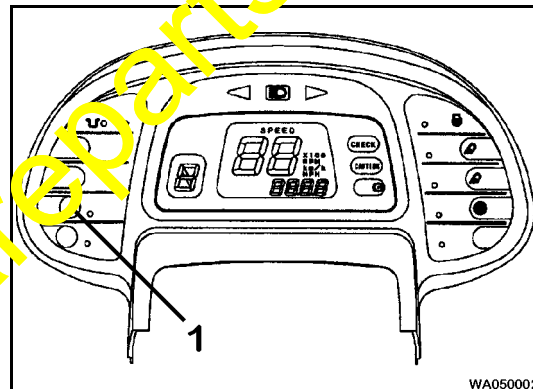
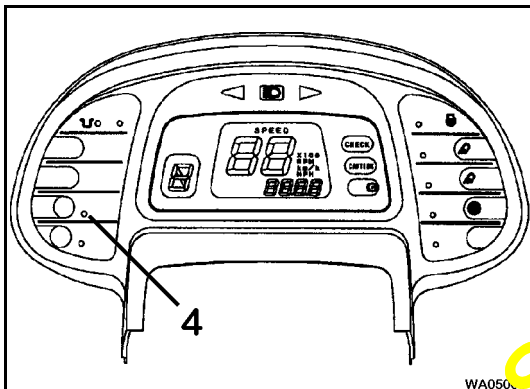
NOTE

It is possible to start the system and perform one manual cycle of greasing regardless of the time count. To do this, press the auto-greasing switch on the main monitor or the starting button on the lubrication controller. This cancels the greasing time count, then after the electric pump finishes the manual cycle the timer will restart automatically. Avoid pressing the auto-greasing switch as much as possible.

- When the engine starting switch is turned one stage, the auto-greasing system is automatically set to begin actuation and the lamp (4) on the monitor panel will light up. Each time the auto-greasing switch (1) is pressed, the system manually forces grease to the machine.

Pilot lamp indications:

- Lamp illuminated- Normal operation.
- Lamp flashes at 1 second interval- grease cartridge empty.
- Lamp flashes at 0.5 second interval- improper release of pressure, pump pressurized, pressure detected in system or a fuse is blown.



2.5 SETTING THE GREASING TIME

- The set time and greasing frequency limit differ according to the operating condition and greasing plan for the machine. Set the following items to carry out suitable centralized greasing.
 - Greasing interval (hour): greasing interval for automatic operation.
 - Greasing time (minute): The length of time pump is operated for each greasing cycle.
 - Greasing frequency limit (times): Number of times the pump is operated until the 1000cc grease cartridge is empty.

The factory settings when shipped are as follows:

- Greasing interval: 2 hours
- Greasing time: 7 minutes
- Greasing frequency limit: 100 times

The grease level alarm is set to sound after 170 hours on the hourmeter (under normal operation).

2.5.1 Method of Setting Greasing Time

When setting greasing operations, the value is not input directly. Select the desired code from the table and reset the cycle as follows.

Code Number	0	1	2	3	4	5	6	7	8	9
Greasing Interval (hour) (a)	/	1	1.5	2	3	4	5	6	8	/
Greasing Time (minutes) (b)	/	2	3	5	7	10	15	20	25	/
Greasing Frequency Limit (c)	/	25	50	75	100	150	200	250	/	/

NOTE

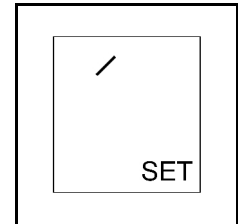
When using the machine at ambient temperatures below -20°C, set greasing time to (b) at code number 7.

- Turn the starting switch ON and start the engine.
- Press the LEVEL and ITEM keys at the same time to activate the setting mode.
- Press the ITEM key one or more times to select the item to be set.
 - ★ Each time the item key is pressed, the setting item is changed: a → b → c → a.

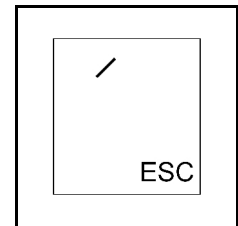


- When the item to be set flashes, press the LEVEL key.
 - ★ The set item and number are displayed alternately:
a → 0 → a → 0
- Refer to the setting code table and press the ITEM key one or more times to select the code number to be entered.
 - ★ Each time the ITEM key is pressed, the code number (numeric portion) goes up by one.

- When the desired code number is flashing, press the SET key to enter the setting.
- Repeat steps 2 through 6 to change all desired items. After all changes are complete, press the ESC key to leave the setting mode and return to normal mode.
 - ★ Even if only one item is being changed, always make changes according to steps 2 through 6 and press the ESC key to leave the setting mode.



- ★ If the power is turned ON, the count for greasing interval will start immediately after the ESC key is pressed. Part of the display segment flashes to indicate the system is counting. After setting, the set value is retained in memory even if the power is turned OFF.



2.5.2 Setting Greasing Time in Cold Weather

- Cold temperatures cause the viscosity of the grease to increase, which creates greater resistance inside of the piping. Because of this it becomes necessary to extend the length of greasing operations to ensure adequate grease reaches the components.

- If the machine is used in ambient temperatures below -20°C, set the greasing time to 20 minutes (code No. 7). In addition, use lithium based grease No. 0.

When changing the set value, please contact your Komatsu distributor.

2.6 REPLACEMENT OF GREASE CARTRIDGE

NOTE: Two cartridges are installed on the WA600.
Do not replace only one cartridge, wait until both cartridges are empty.

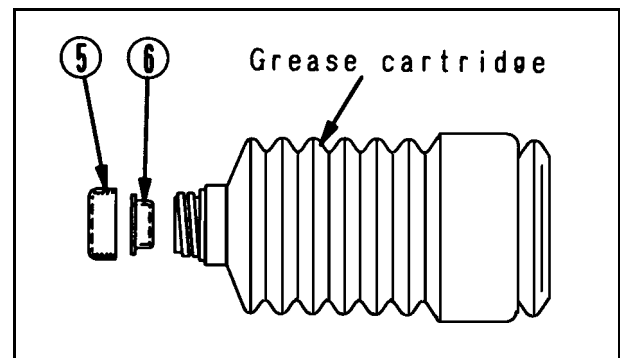
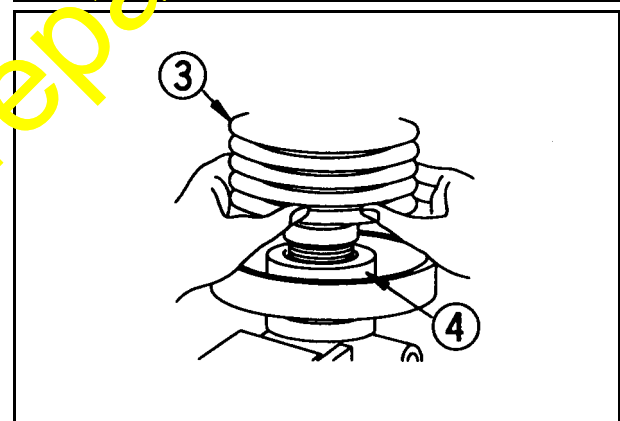
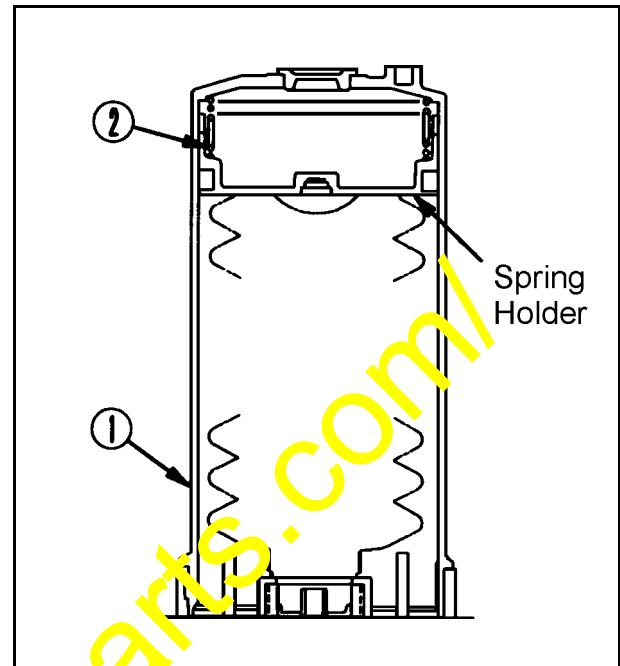
After replacing grease cartridge, make sure to reset number counter on controller.

Replace grease cartridges as follows:



CAUTION The cartridge cover is spring loaded, use extreme care when removing cover.

1. Remove cover by turning cartridge cover (1) approximately 60° to the left. Remove spring (2) from cover.
2. Remove grease cartridge (3) by turning to the left, do not detach seal cap (4) at this time.
3. Install NEW grease cartridge as follows:
 - A. Detach cap (5) and middle plug (6) from NEW grease cartridge.
 - B. Force a small quantity of grease from the cartridge into the suction port.
 - C. Thread (approx. 5 turns max) into place.
 - D. Cap must be threaded in tightly to ensure no air enters cartridge.
4. Ensure spring (2) is in place, then install cartridge cover (1) and tighten to the right until secured. If not tightened well, machine vibrations may cause cover to work loose.
5. If installed, repeat steps 1 thru 4 to replace second grease cartridge.
6. After all cartridges have been replaced, reset the number counter, see "2.8 Troubleshooting" on page 39).



Type	Name	Grease to Use	Capacity	Manufacturer
GSL-2-100	Reservoir grease No. 2	Albania EP No. 2	1000cc	Showa Shell Sekiyu
GKL-2-100	Uni reservoir grease DL-2	Unilube DL No. 2T	1000cc	Kyodo Yushi

2.7 FILLING THE AUTO-GREASE SYSTEM WITH GREASE

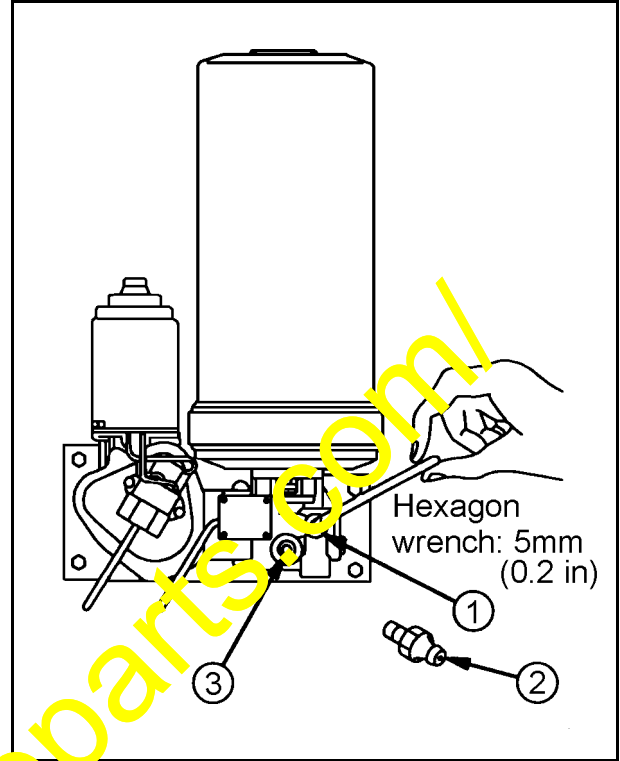


WARNING! Do not remove plug (3). If grease is added from here, the grease cartridge assembly inside the pump will be damaged.

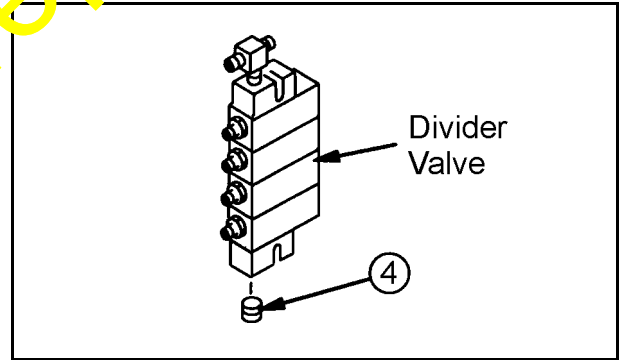
NOTE:

Two people shall perform the following steps.

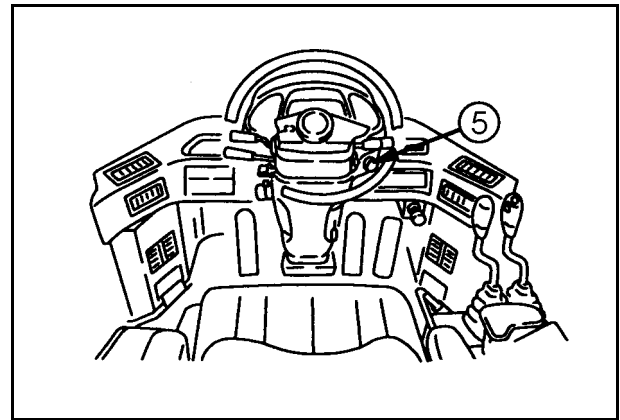
1. Fill main piping with grease as follows
 - A. Remove plug (1) from the bottom of the grease pump assembly and install a grease fitting (2).



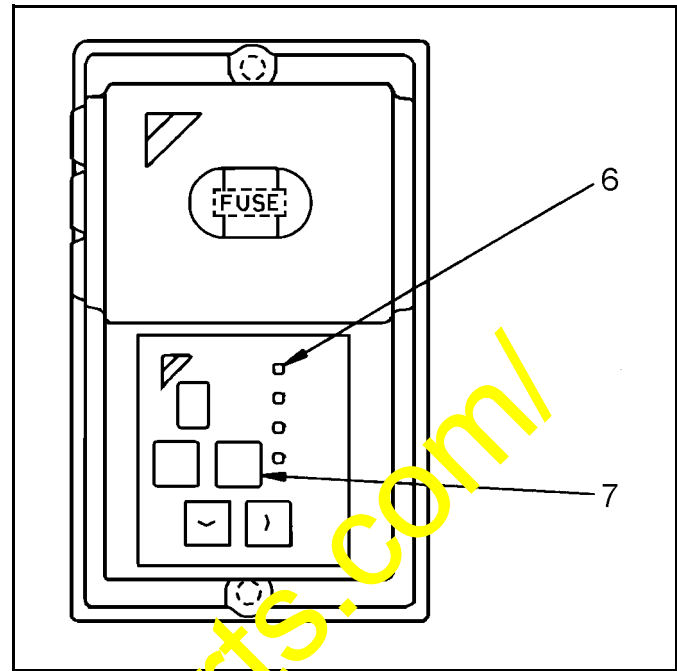
- B. Remove plugs (4) from all divider valves (9 used).



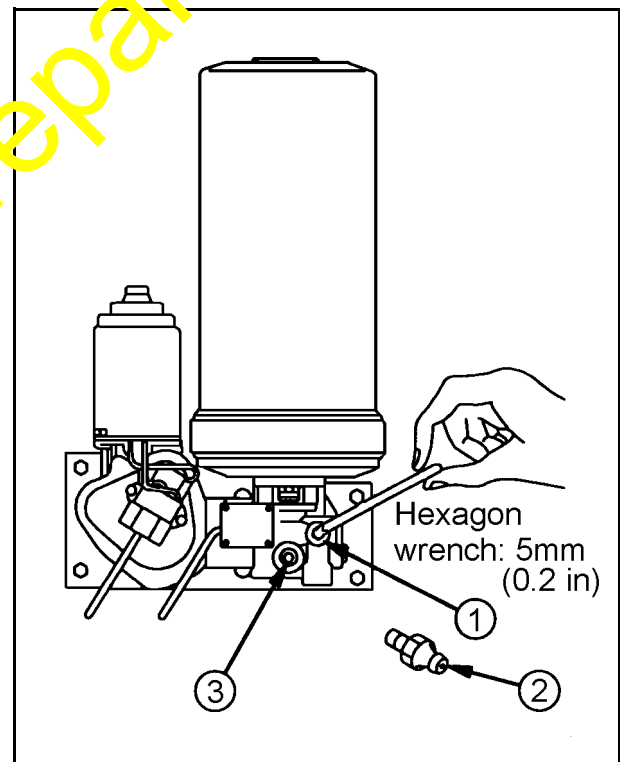
- C. Turn starting switch (5) on.




- D. Check that the power source LED (6) on the controller is on, then press the start button (7) to operate the pump.



- E. As the pump is operating, manually add grease with a grease gun through grease fitting (2). When adding grease, ensure the grease in the case does not flow backwards.



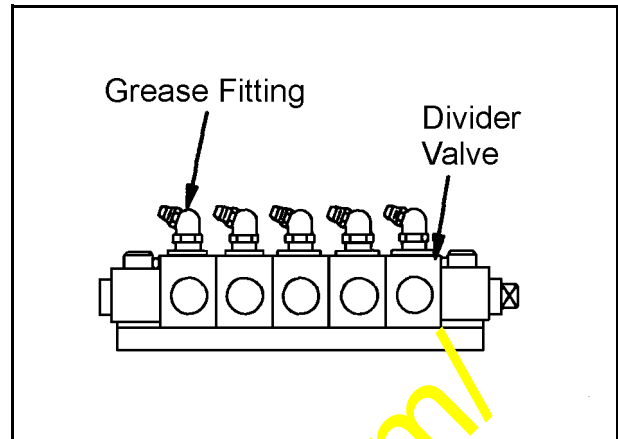
- F. When air no longer bleeds from the divider valve blind plug holes and starting from the valve closest to the pump, reinstall the divider valve blind plugs and torque to 31.1 to 34.4 ft. lbs. (42.2 to 47.5 Nm).

 **Valve Blind Plugs:** 31.1 to 34.4 ft. lbs. (42.2 to 47.5 Nm)

- G. Turn starting switch OFF, then remove grease fitting (2) from bottom of pump and reinstall plug (1).

2. Fill the Branch Piping with Grease as follows:

- A. Using a grease gun, pump grease into all of the grease fittings on each divider valve (9 valves used).
- B. Continue to add grease until it comes out at the pin area at the end of the branch line.



3. Bleed air from the auto-greasing system as follows

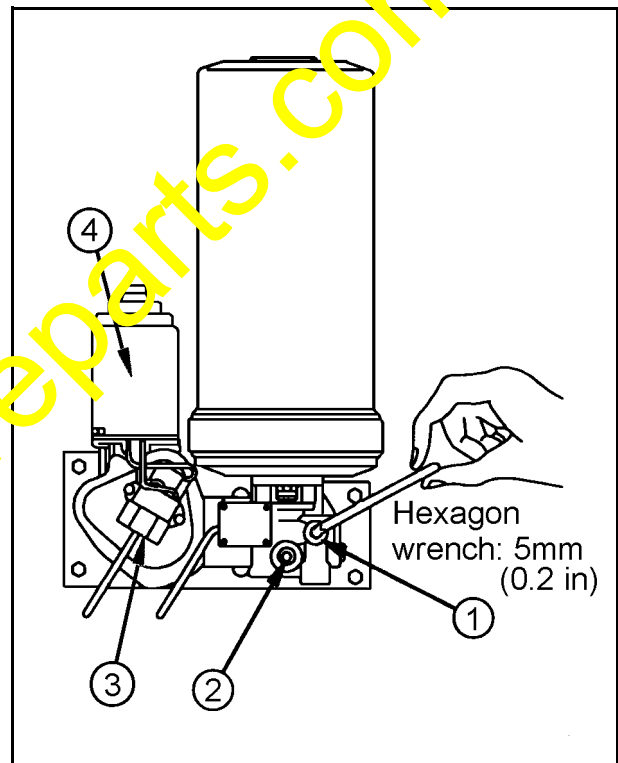


WARNING! Do not remove plug (2). If grease is added from here, the grease cartridge assembly inside the pump will be damaged.

- A. Remove plug (1) from the grease pump assembly.
- B. Turn the starting switch to ON.
- C. Check that the power source LED on the controller is on, then press the start button to operate the pump.

NOTE:

- Do not turn the starting switch OFF and stop the engine before plug (1) is reinstalled.**
- D. When air bubbles stop coming out with the grease from plug (1) opening, disconnect connection (3) to the motor (4) and stop the pump.
- E. Install plug (1).
- F. Turn starting switch OFF.
- G. Reconnect connector (3) for motor (4).



4. Checking operation during cold conditions

Cold temperatures may cause the grease not to flow if the pump is operated only once. If grease continues to come out after the pump is operated 2 to 3 times, the system is running normally, but should be checked regularly for operation.

5. Manually greasing the machine.

If the auto-greasing system is malfunctioning and not supplying grease, greasing can be accomplished by using a grease gun and greasing all of the fittings on the divider valves.

2.8 TROUBLESHOOTING

If there is a problem in the greasing system, an error code will flash on the controller. Use the table to determine the appropriate course of action.

Error Code	Item	Cause	Remedy
E → a	Pump does not pressurize	Air in main piping	Run pump as required to bleed air from end of piping
		Air inside of pump	See "Bleed air from the auto-greasing system as follows" on page 38.
		Grease tank is empty	See "2.6 replacement of grease cartridge" on page 35.
		Grease leak in main piping	Check and tighten piping connections, replace any damaged or broken lines.
E → b	System pressurizes, but does not release pressure	Defective pressure release components in pump	Repair or Replace Pump
		Defective pressure sensing components in pump	Check limit switch for pump
E → c	System pressure sensing malfunction	Defective pressure release components in pump	Check limit switch
		Defective pressure sensing components in pump	Check limit switch at pressure detection portion
E → 0	Empty tank	Greasing frequency limit has been reached	See "2.6 replacement of grease cartridge" on page 35.
		Grease was added during frequency count	Refill grease cartridge, then reset number count on controller

2.9 SPECIFICATIONS

ELECTRIC PUMP

Model: LD10CP-22

Delivery Pressure: 245 kgf/cm² (510800 lb/ft²) max

Tank type: 1000cc x 2 cartridges

Temperature range: -20 to 60°C. (-4 to 140°F.)

Applicable grease: NLGI No. 2 to No. 0 lithium based

Rated voltage: DC24V

Rated current: 3A (Note- 6.5A when temp. is -20°C)

DIVIDER VALVE

Model: LL1

Discharge adjustment method: fixed type

Available pressure: 245 kgf/cm² (510800 lb/ft²) max

Discharge amount: 0.6 - 0.1 cc/st

No. of valves (discharge ports): 1 - 5

Temperature range: -20 to 60°C. (-4 to 140°F.)

Applicable grease: NLGI No. 2 to No. 0 lithium based

2.10 ELECTRICAL SCHEMATICS

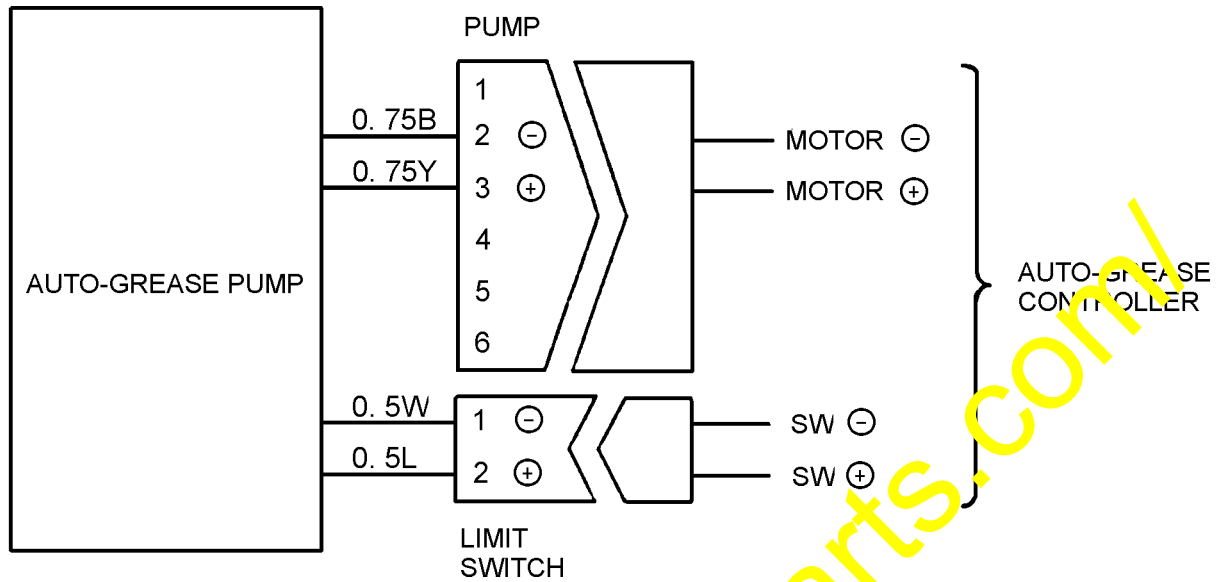


Figure 19 Auto-Grease Pump Connections

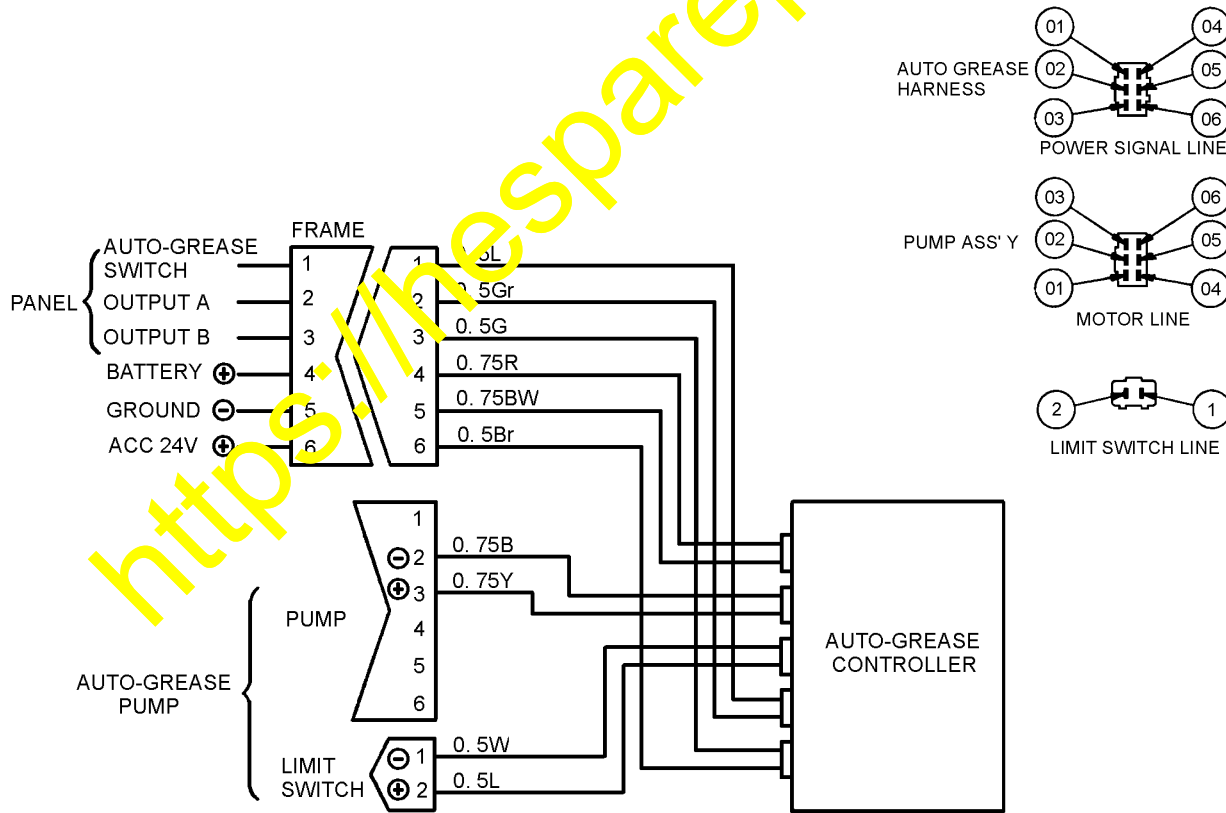


Figure 20 Auto-Grease Controller Connections