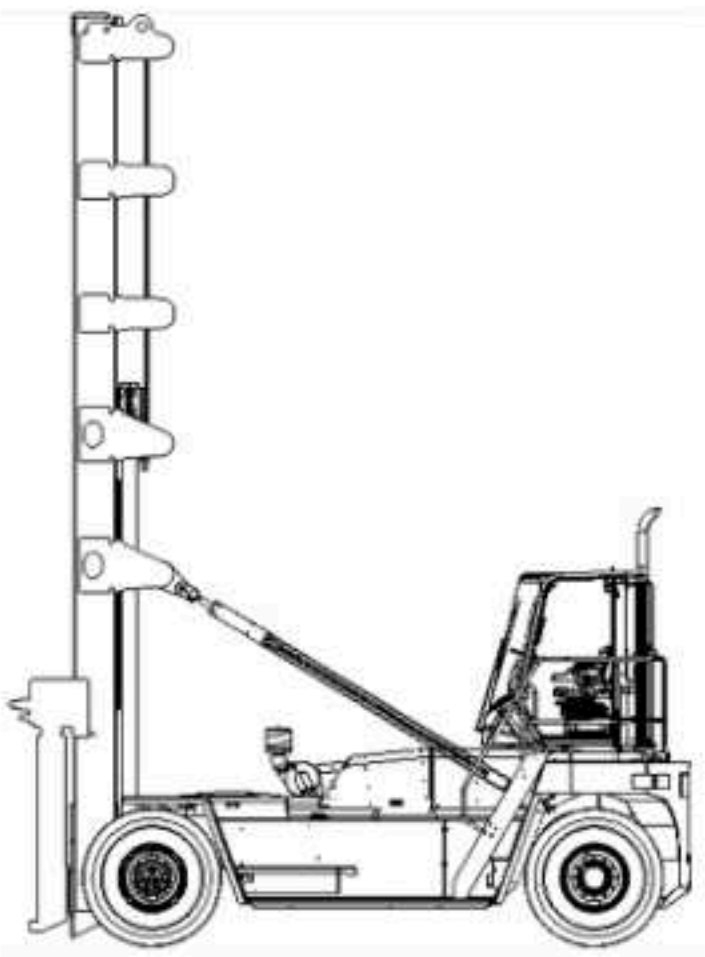
SERVICE MANUAL

D214 (H400HD-EC, H450HD-EC, H450HDS-EC, H500HD-EC)



Rev. 08/14

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This section is for the following models:

H14.00-20.00XM [A214];
H16.00-18.00XM-12EC (H400-450H-EC) [A214];
H16.00-18.00XM/XMS-12 (H400-450HD/HDS) [A236];
H16.00-22.00XM-12EC (H400-500HD/HDS-EC) [B214];
H16XM-12, H18XM-12, H20XM-12, H22XM-12 (H400HD, H450HD, H500HD, H550HD) [B236];
H16XM-12EC, H18XM-12EC, H22XM-12EC (H400HD-EC, H450HD-EC, H500HD-EC) [C214]

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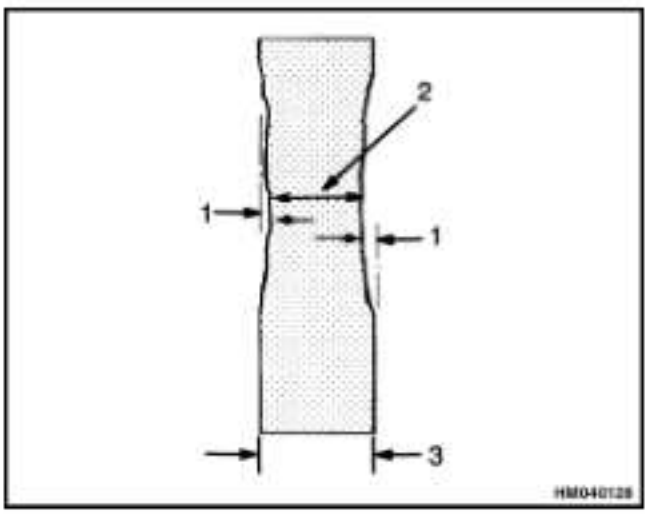
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DISASSEMBLE

Disassemble caliper to remove and service as necessary.

INSPECT

Inspect parts and bores for scratches. If there are scratches or other damage, replace damaged parts. Inspect rotor as shown in Figure 7.



1. MAXIMUM ROTOR WEAR 1.5 mm (0.06 in.)
2. MINIMUM ROTOR THICKNESS 11.0 mm (0.43 in.)
3. ROTOR THICKNESS 13.0 mm (0.51 in.)

Figure 7. Inspect Rotor for Parking Brake Caliper

INSTALL

NOTE: Brake setting is required after mounting new brake pads or brake disc, as well as during all repair stages and in the event of insufficient braking performance.

NOTE: All mounting and setting work must be carried out on the brake when cold.

1. Remove cap.
2. Release lock nut and turn setscrew counterclockwise until ram comes to rest against face of piston.
3. Mount caliper to bracket and secure with bolts.
4. Mount pressure connection and apply the necessary release pressure to brake until bank of disc springs are completely pretensioned.
5. Adjust brakes.

ADJUST

NOTE: During this adjustment process, the parking brake must be released and the disc springs pretensioned.

1. Put blocks in front and back of tires so the vehicle cannot move.
2. Remove cap.
3. Release lock nut and turn setscrew clockwise until brake pads touch brake disc.
4. Turn setscrew counterclockwise and set clearance specified. See Table 1.
5. Hold setscrew in position and tighten lock nut.
6. Replace cap and tighten.
7. Bleed piston chamber using bleeder. See Figure 6.
8. Operate brake valve several times and check braking efficiency of parking brake on a slope.

Table 1. Brake Pad Adjustment

Type	Adjustment Screw	Clearance mm (in.)		Revolutions
Small	M16 (size 8)	Minimum	0.5 mm (0.020 in.)	1/4
		Rated Clearance	**1.0 mm (0.039 in.)**	**1/2**
		Maximum	1.5 mm (0.059 in.)	3/4
Large	M20 (size 10)	Minimum	1.0 mm (0.039 in.)	2/5
		Rated Clearance	**2.0 mm (0.079 in.)**	**4/5**
		Maximum	3.0 mm (0.118 in.)	1-1/5

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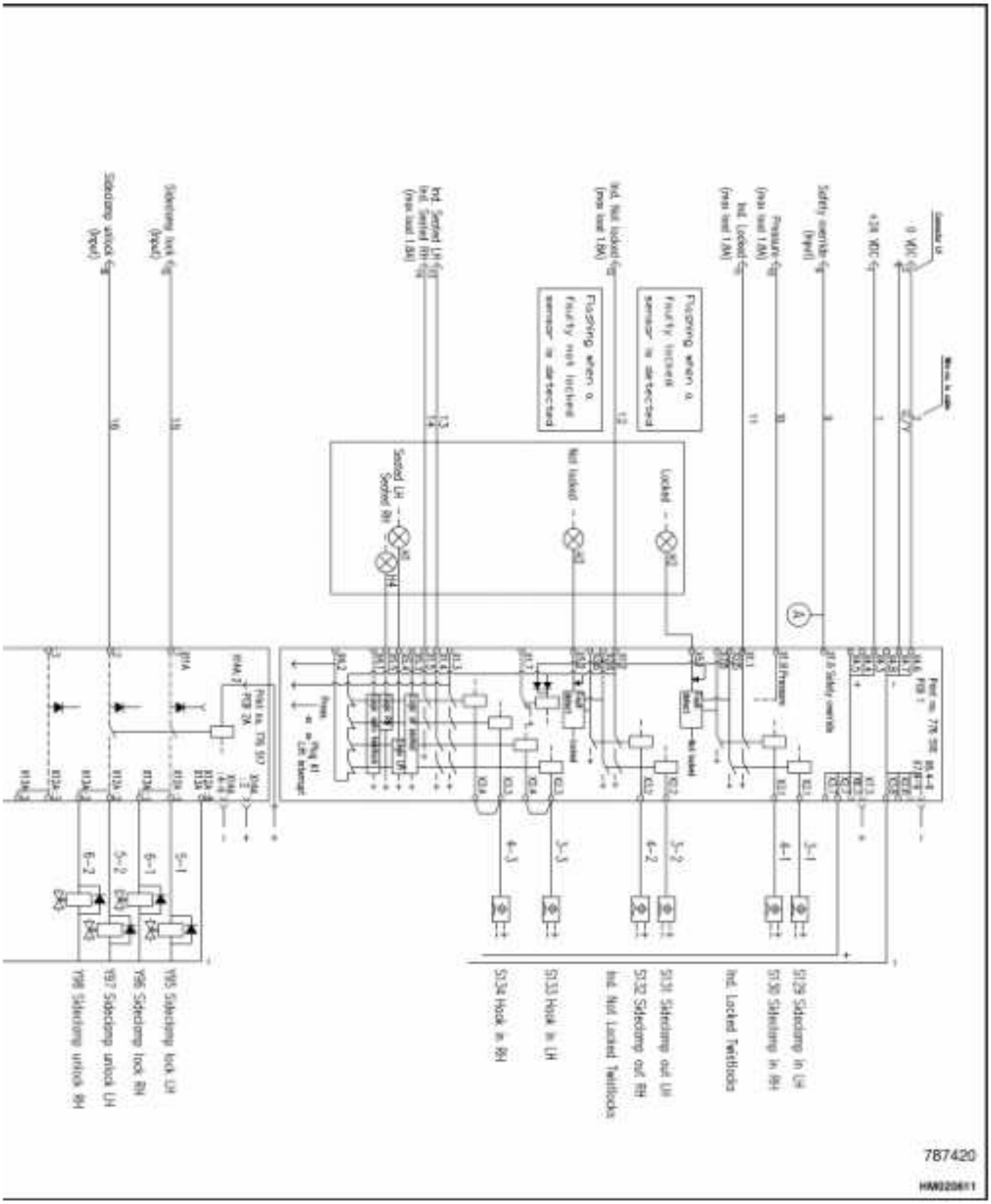


Figure 77. Elme Electrical Schematic 787420

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General

This manual provides an explanation of the transmission fault codes that are generated by the APC200 family transmission controllers. Transmission controller APC211 is used for transmissions with intensifier valves. Transmission controller APC216 is used for transmissions with Full Flow control valves, as used on TE-10 and TE27-32 transmissions starting 2011. The terms used are generic for these controllers. Component locations and electrical schematics are in the Transmission Description SRMs for each different truck series. There are four different groups of fault codes, which are explained in this section.

For F008 and G008 trucks the indication "Forward" and "Reverse" needs to be considered for the transmission and for the truck separately. The truck moves according the position of the shift lever or MONOTROL pedal, but the signals forward and reverse have been interchanged with the transmission functions forward and reverse. The indication "forward" and "reverse" for transmission components is still identical to the original nomenclature of the manufacturer. This means that an indicated forward clutch has the function to move the F008 and G008 truck in reverse. The same interpretation applies for the explanation of fault codes and for the Dana Dashboard system, where the indication forward relates to transmission components with the same indication forward like for a clutch, pressure port or solenoid. When doing repairs or ordering spare parts, remember that activating the forward clutch on F008 and G008 trucks causes the lift truck to move in reverse direction, and activating the reverse clutch causes the F008 and G008 truck to move in forward direction.

TRANSMISSION EXCEED CODES

During operation of the truck, the APC200 controller may display transmission exceed codes on the hourmeter/fault code display. These exceed codes reflect that the request made by the operator will not be executed because of certain circumstances.Table 1 lists the exceed codes with a description of the encountered circumstances.

CLUTCH CALIBRATION CONDITION MESSAGES

During clutch calibration, codes may be displayed that indicate incorrect circumstances for proper clutch calibration. The explanation of these codes are in Table 4.

FAULT CODES DURING CLUTCH CALIBRATION

During clutch calibration, fault codes with a preceding "E" may be displayed. For example E1.25. The first digit after the "E" can be a "1" or a "2". "1" relates to faults during clutch filling time. "2" relates to faults during clutch engagement. The last two digits indicate calibration faults, which are listed and explained in Table 6.

APC200 FAULT CODES

Each fault code represents a specific defect or malfunction. The suggested rectification is by checking electrical functionality between the APC200 and the components connected. See Table 7.

In the explanation of the fault codes are references to electrical functions, signals and pin numbers, which are listed in Table 2 for APC211, controllers and in Table 3 for APC216 controllers.

The pin codes A1 until S3 refer to the terminals in the APC200 connector, also referred to as connectors J1 and J2. These terminal references are shown on the electrical schematic to provide a link with the Hyster wire number. Not all terminals are used for the different truck applications.

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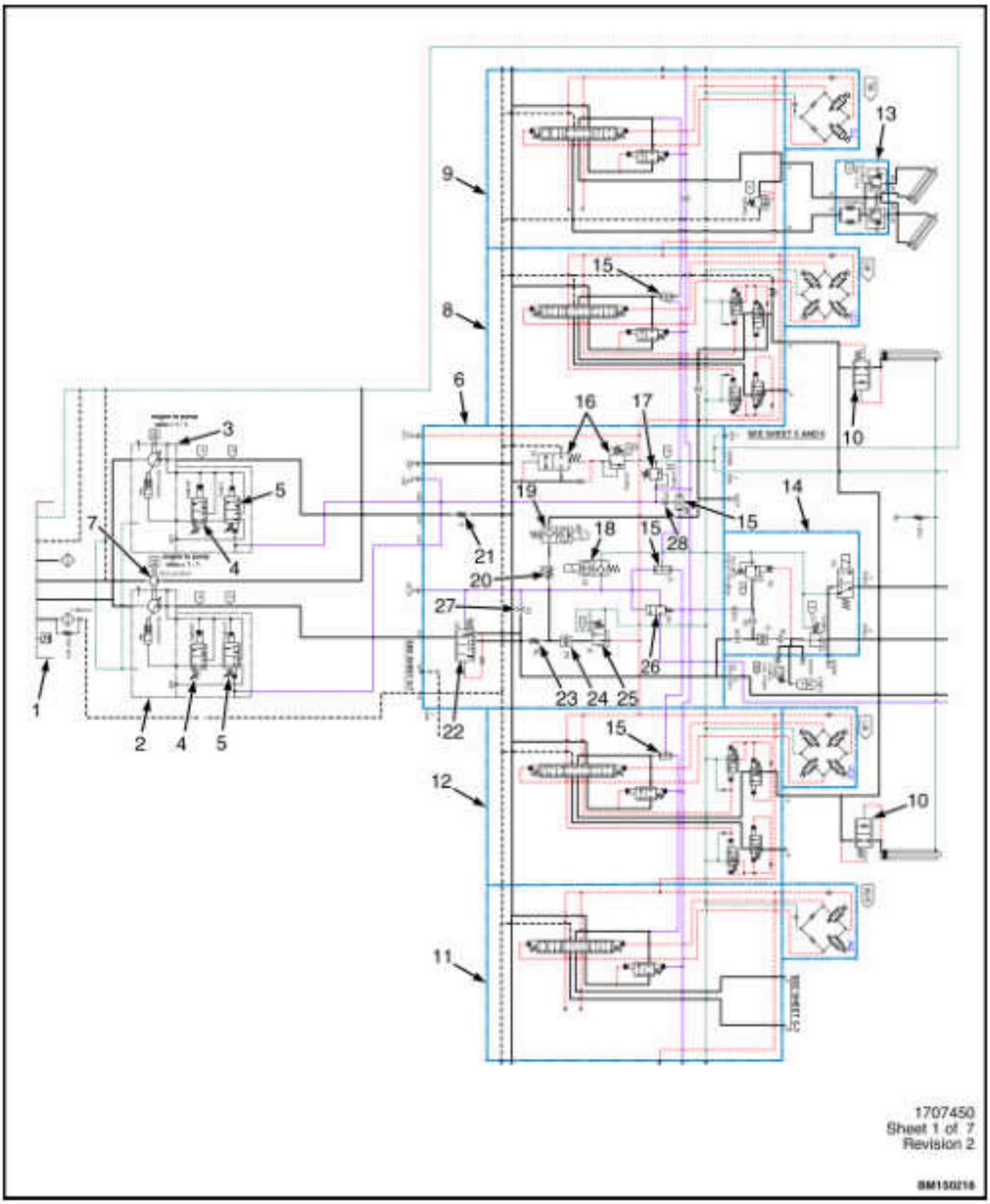


Figure 16. Hydraulic Component Location, Wet Brakes, Dual Pump Configuration

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