CRAWLER EXCAVATOR

SERVICE MANUAL

HX480, HX520A L

HYUNDAI

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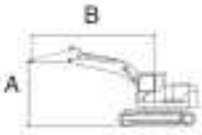
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Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outtriger	
HX520A L	MONO BOOM	Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
		7060	2550	10200	600	-	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B)										At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		9.0 m (29.5 ft)		Capacity		Reach
														m (ft)
9.0 m (29.5 ft)	kg											*12280	*12280	6.71
	lb											*27070	*27070	(22.0)
7.5 m (24.6 ft)	kg							*11560	*11560			*11490	11020	7.94
	lb							*25490	*25490			*25240	24290	(26.1)
6.0 m (19.7 ft)	kg					*13750	*13750	*11880	*11880			*11080	9300	8.75
	lb					*30310	*30310	*26190	*26190			*24430	20500	(28.7)
4.5 m (14.8 ft)	kg					*15380	*15380	*12620	11550	*11070	8750	*10910	8370	9.25
	lb					*33910	*33910	*27820	25460	*24410	19290	*24050	18450	(30.3)
3.0 m (9.8 ft)	kg					*16910	15190	*13390	11120	*11340	8560	*10840	7920	9.48
	lb					*37280	33490	*29520	24520	*25000	18870	*23900	17460	(31.1)
1.5 m (4.9 ft)	kg					*17700	14640	*13880	10780	*11470	8380	*10810	7810	9.47
	lb					*39020	32280	*30600	23770	*25290	18470	*23830	17220	(31.1)
0.0 m (0.0 ft)	kg					*17530	14400	*13850	10580	*11160	8290	*10760	8050	9.21
	lb					*38650	31750	*30530	23320	*24600	18280	*23720	17750	(30.2)
-1.5 m (-4.9 ft)	kg			*20350	*20350	*16450	14390	*13080	10550			*10600	8730	8.69
	lb			*44860	*44860	*36270	31720	*28840	23260			*23370	19250	(28.5)
-3.0 m (-9.8 ft)	kg	*18970	*18970	*17470	*17470	*14320	*14320	*11040	10730			*10090	*10090	7.84
	lb	*41820	*41820	*38510	*38510	*31570	*31570	*24340	23660			*22240	*22240	(25.7)
-4.5 m (-14.8 ft)	kg			*12820	*12820	*10190	*10190					*8660	*8660	6.55
	lb			*28260	*28260	*22470	*22470					*19090	*19090	(21.5)

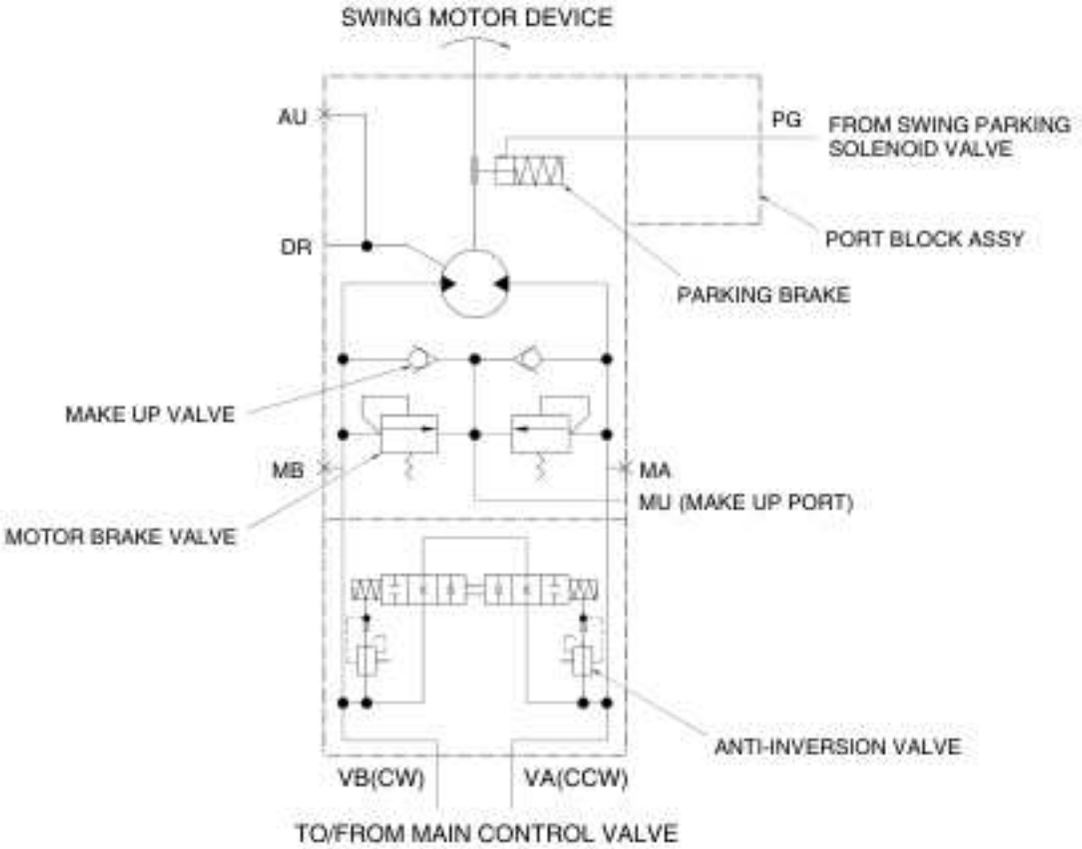
Note 1. Lifting capacity are based on ISO 10567.
2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The Lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.
Lifting capacities will vary with different work tools, ground conditions and attachments.
The difference between the weight of a work tool attachment must be subtracted.
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

⚠ Failure to comply to the rated load can cause serious injury, death, or property damage.
Make adjustments to the rated load as necessory for non-standard configurations.

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SWING CIRCUIT OPERATION



480A3HC17

1) MOTOR BRAKE VALVE

Motor brake valve for the swing motor limits to cushion the starting and stopping pressure of swing operation and controls the swing motor operating pressure to 285 kgf/cm² (4054 psi).

2) MAKE UP VALVE

The make up valves prevent cavitation by supplying return oil to the vacuum side of the motor.

3) PARKING BRAKE

This is function as a parking brake only when the swing control lever is not operated.

PARKING BRAKE "OFF" OPERATION

When the swing control lever is tilted, the swing parking solenoid valve is energized by the MCU that senses the pilot oil pressure of the swing control lever.

The discharged oil from pilot pump flows to swing motor PG port through the swing parking solenoid valve. This pressure is applied to swing parking brake piston, thus the brake is released.

PARKING BRAKE "ON" OPERATION

When the swing control lever is set in the neutral position, the swing parking solenoid valve is de-energized, oil in the swing parking brake chamber is drained through the the swing parking solenoid valve, thus the brake is applied by spring force.

4) ANTI-INVERSION VALVE

This anti-inversion valve absorbs shocks produced as swing motion stops and reduced oscillation cause by swing motion.

※ The circuit diagram may differ from the equipment, so please check before a repair.

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Fault code J1939 SPN J1939 FMI	Reason	Effect (only when fault code is active)
3714 1569 31	Engine protection torque derate - Condition exists. Critical fault codes related to engine operation are active.	Possible reduced engine performance.
3715 188 16	Engine speed at idle - Data valid but below normal operating range - Moderately severe level. The engine speed at idle has exceeded the governed idle speed.	Possible reduced engine performance.
3716 188 18	Engine speed at idle - Data valid but below normal operational range - Moderately severe level. Engine is not maintaining the governed idle speed.	None on performance.
3717 3226 13	Aftertreatment outlet NOx sensor - Out of calibration. A calibration mismatch between the aftertreatment outlet NOx sensor and the ECM has been detected.	None on performance.
3718 3216 13	Aftertreatment intake NOx - Out of calibration. A calibration mismatch between the aftertreatment intake NOx sensor and the ECM has been detected.	None on performance.
3724 168 17	Battery 1 voltage - Data valid but below normal operating range - Least severe level. Low voltage to the EGR valve device driver has been detected.	Possible reduced engine performance.
3725 3216 10	Aftertreatment Intake NOx sensor - Abnormal rate of change. The aftertreatment intake NOx sensor reading is not valid.	None on performance.
3727 5571 7	High pressure common rail fuel pressure relief valve - Mechanical system not responding or out of adjustment. The fuel rail high-pressure relief valve has opened at a lower than expected pressure.	Possible reduced engine performance.
3737 1675 31	Engine starter mode overcrank protection - Condition exists. The starter motor has been temporarily disabled in order to prevent starter damage.	Starter operation is prohibited until the starter motor has adequately cooled.
3741 5571 0	High pressure common rail fuel pressure relief valve - Data valid but above normal operational range - Most severe level. The fuel rail pressure relief valve has opened due to high fuel rail pressure.	Engine may run rough, may stop running, may not start, or may be difficult to start.
3749 3226 20	Aftertreatment outlet NOx sensor - Data not rational - Drifted high. An offset in the outlet NOx sensor reading has been detected.	None on performance.
3838 2978 9	Estimated engine parasitic losses - Percent torque - Abnormal update rate. A loss of communication has been detected.	None on performance.
3843 5603 9	Cruise control disable command - Abnormal update rate. No communication or an invalid data transfer rate has been detected on the J1939 data link between the ECM and the cruise control.	None on performance.

※ Some fault codes are not applied to this machine.

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(4) Assembling pinion gear sub assy

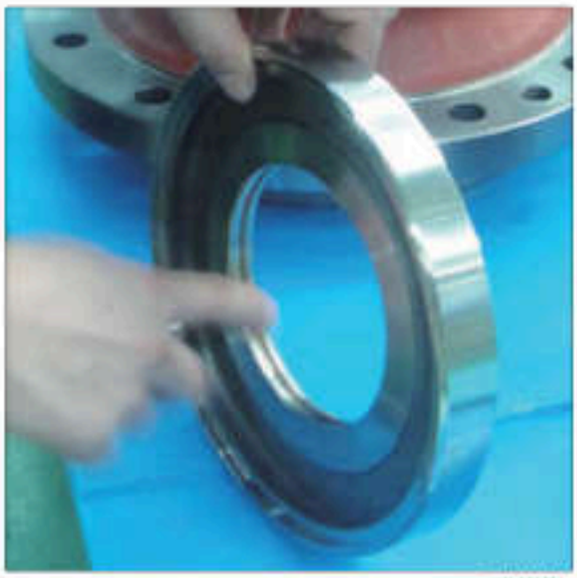
① Prepare drive shaft pinion gear vertical with ground.



480L25M70

② Fully apply grease (albania ep02) to sleeve's O-ring gutter.
(Be sure to maintain it vertical with ground when assembling it.)

③ Put O-ring into sleeve's O-ring gutter.
(Fully apply grease on O-ring.)



480L25M71

④ Assemble taper roller bearing and sleeve into drive shaft using press jig.
(Use special jig for pressing. Leave no space between sleeve and taper roller bearing.)



480L25M72

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(3) Check whether the can gateway function abnormality.

① Check CAN data of attachment sensor line.

a. Disconnect the Deutsch 4-pin connector near the laser catcher and connect a CAN data collector (PCAN, CANoe, etc.)

b. Check whether the CAN ID data in the table below is being output.

c. If it is output at a period of 20 ms, suspect a malfunction of the CAN gateway itself.



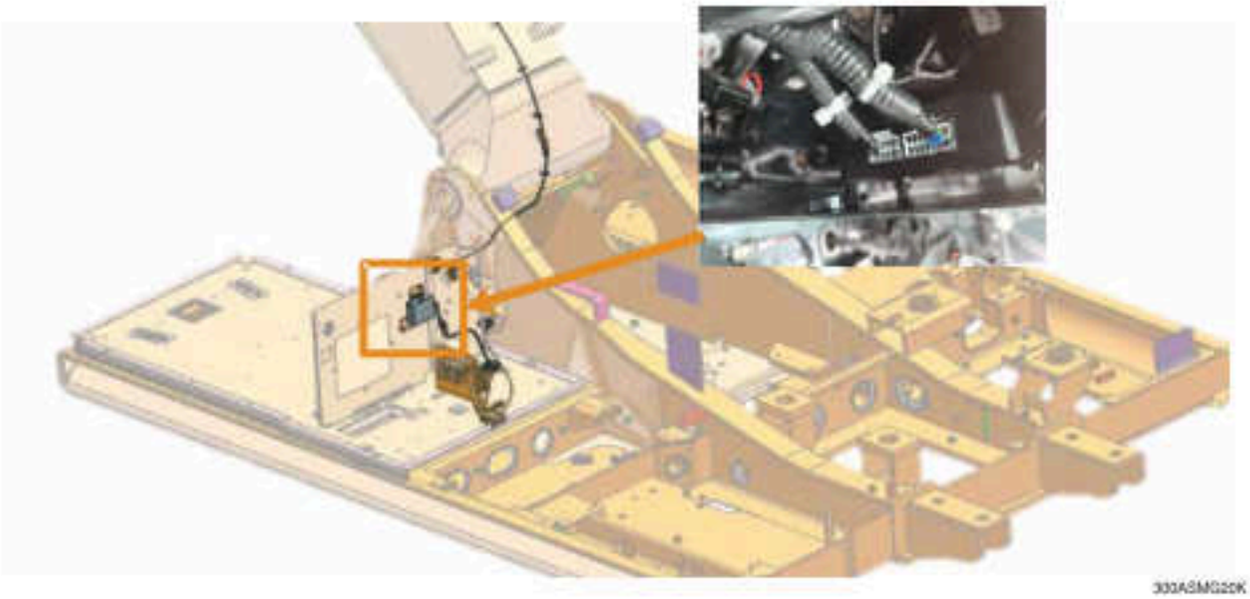
300ASMG19EC

※ CAN ID matching information for each sensor

Sensor	CAN ID
Boom sensor	0x18F029C1
Arm sensor	0x18F029C2
Bucket sensor	0x18F029C3
Body sensor	0x18F029C4

② Mounting location of CAN gateway

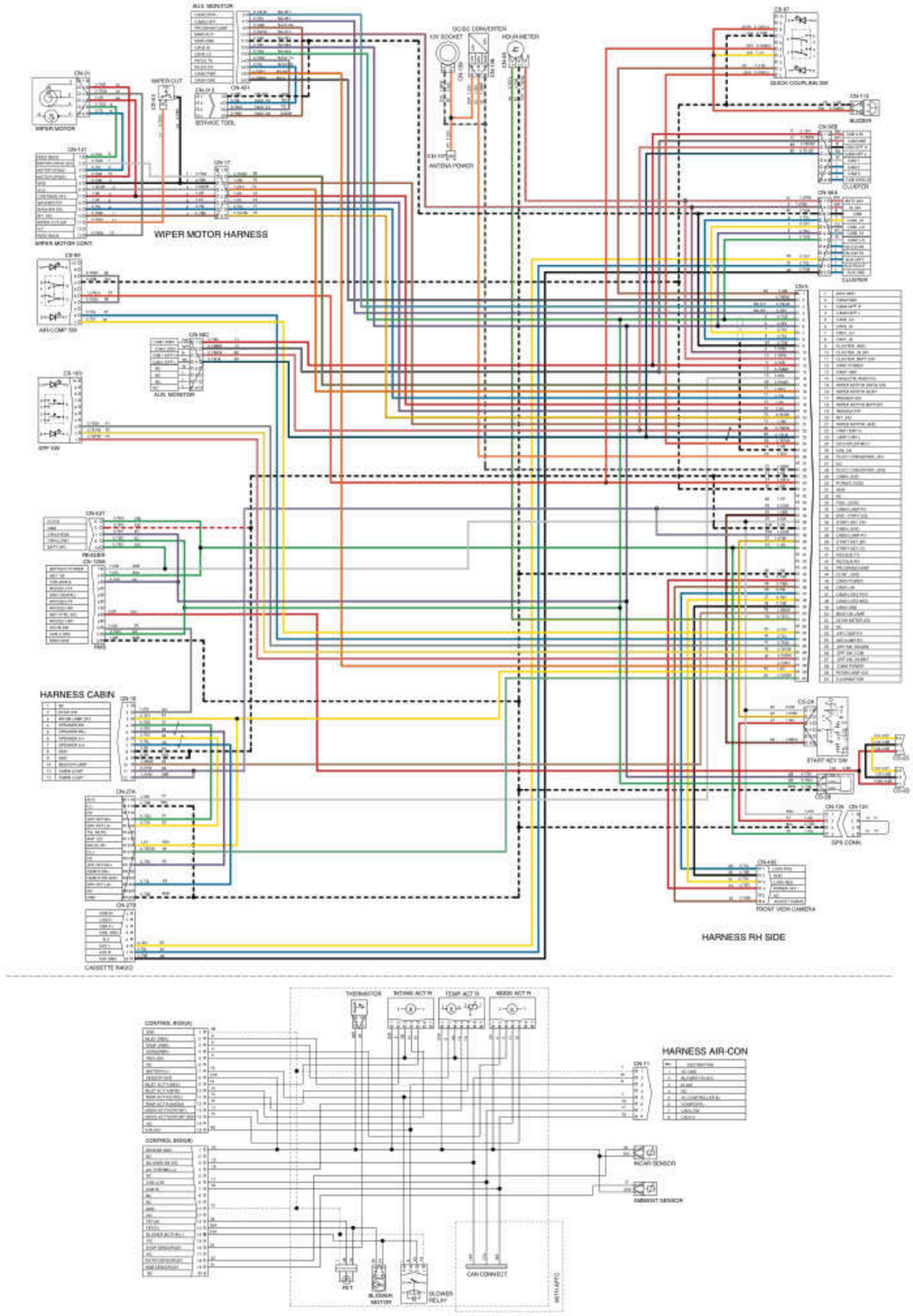
It is located near the RMCU at the bottom behind the seat in the cab.

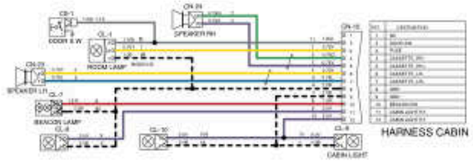


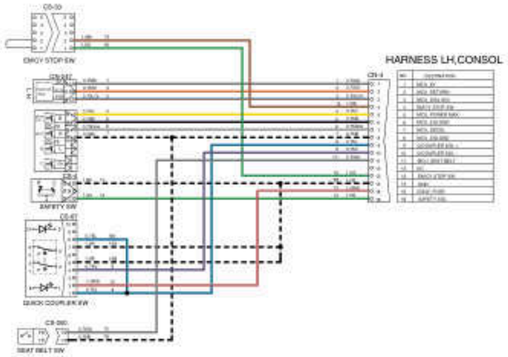
300ASMG20K

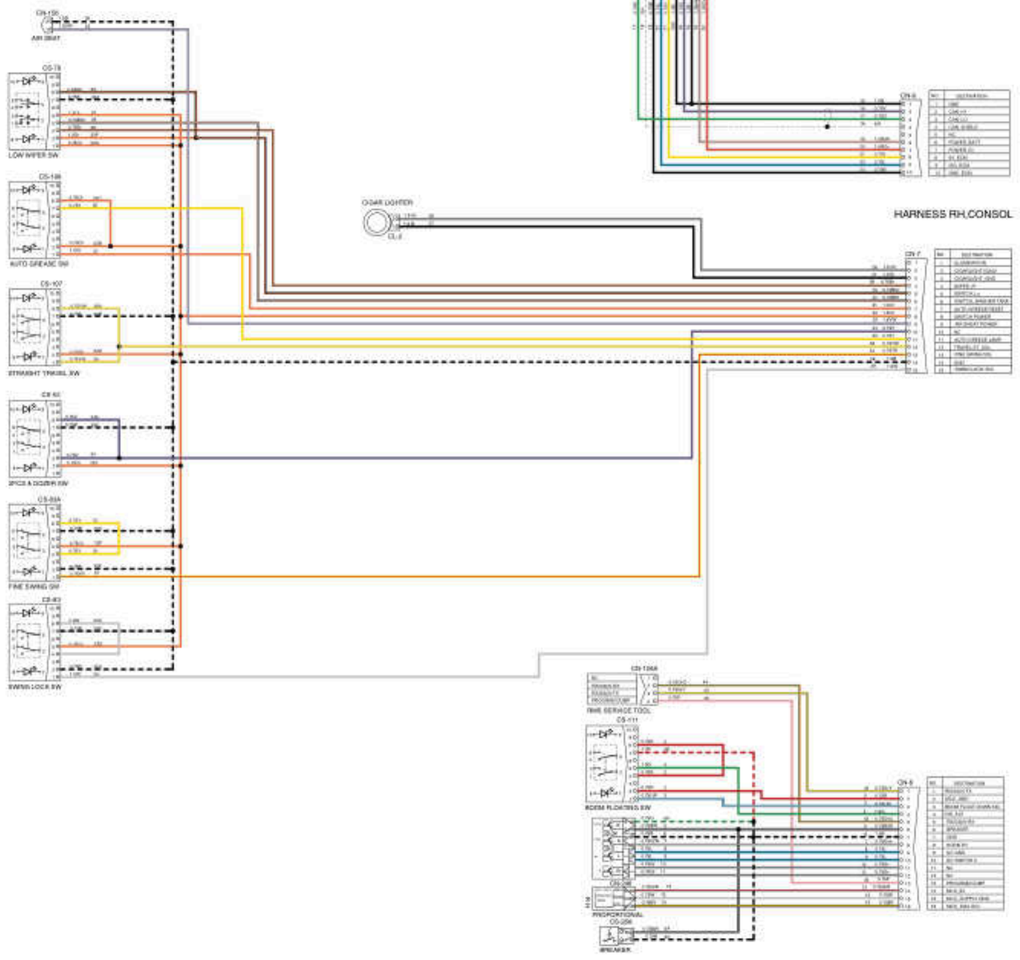
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- MACHINE SERIAL NO. : CURRENT









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