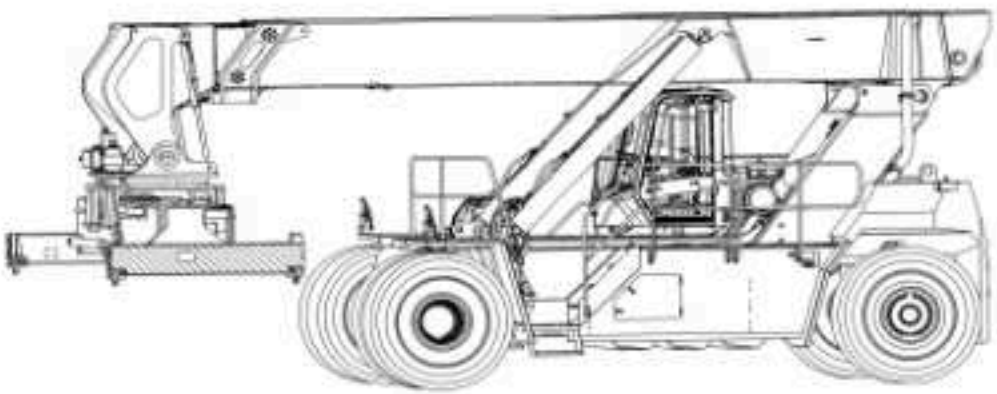
SERVICE MANUAL

A289 (RS45-27CH, RS45-31CH)



Rev. 07/14

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This section is for the following models:

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Counterweight Repair

GENERAL

The shape of the main counterweights is the same, however, the weight will be different for each model. The model weights are shown in Table 1.

Table 1. Counterweight Weights

Model	Main Weight	Additional Weight
RS45-27CH, RS45-24IH, HR45-27	14,400 kg (31,747 lb)	N/A
RS45-31CH, RS45-28IH, HR45-31	18,300 kg (40,352 lb)	N/A
RS46-36CH, RS46-33IH, HR45-36	19,300 kg (42,549 lb)	N/A
RS46-40CH, RS46-37IH, HR45-40	22,700 kg (50,054 lb)	N/A
RS46-41S-CH, RS46-38S-IH, HR45-41S	23,800 kg (52,479 lb)	N/A
RS46-41L-CH, RS46-38L-IH, RS46-41LS-CH, RS46-38LS-IH, HR45-41L, HR45-41LS	20,000 kg (44,100 lb)	3,150 kg (6,946 lb)

REMOVE

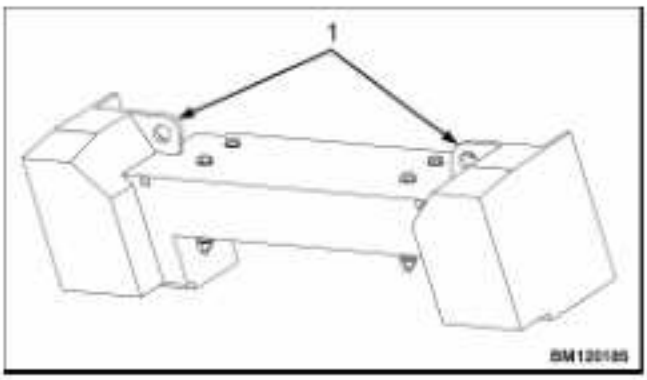
WARNING

The main counterweight is very heavy. Make sure that the lifting device has the capacity to lift the main counterweight. See Table 1 for counterweight weights.

1. Place truck on solid, level surface.
2. Lower the boom completely.
3. Shut down the engine.
4. Apply parking brake.
5. Disconnect the electrical connector between the rear lights and the main wire harness, located at the right side of the frame.
6. Put tags on the connectors for identification.

NOTE: Follow Step 7 through Step 12 when an additional counterweight is attached.

7. Disconnect the electrical wire at the left and the right rear light and remove the electrical wires out of the counterweight and additional counterweight.
8. Put tags on the electrical wires for identification.
9. Attach a lifting device to the two lift points of the additional counterweight. See Figure 2.
10. Remove the four capscrews, nuts, and eight washers that hold the additional counterweight to the frame. See Figure 3.



1. LIFT POINTS

Figure 2. Lift Points Additional Counterweight

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Troubleshooting

PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
Oil leaks at the end caps of the spools.	End cap seals have defects.	Replace seals.
	Valve body has a defect.	Replace control valve section.
Spool will not move.	No pilot pressure.	Check and repair pilot valve if necessary.
	Spool is bent or damaged.	Replace defective spool.
	No electrical signal (auxiliary section only).	Check electrical system and repair.
Spool will not return to **NEUTRAL**.	Return spring is damaged.	Replace damaged spring.
	Spool is bent or damaged.	Replace defective spool.
Cylinders move slowly or do not move.	Pressure relief valve has a defect.	Repair or adjust relief valve.
	Hydraulic pump has a defect.	Repair or replace hydraulic pump.
	Cylinder seal has defects.	Repair or replace cylinder.
Hydraulic pressure is high.	Pressure relief valve has a defect.	Repair or replace relief valve.
	Pressure relief valve is not adjusted correctly.	Adjust relief valve.
	Restriction in return line.	Replace hydraulic line.
Delay occurs between command and movement.	Pilot return line is blocked.	Repair or replace hydraulic lines.
	Air in system.	Bleed the system.

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Test

Dana Dashboard software shows functionality of each of the speed sensors under Speed Monitor'. Electrical functionality can be tested by using the schematic shown in Figure 13. Observe the correct sensor polarity. Pin 1 must be connected to 12 Volt +. Pin 2 must be connected to 12 Volt-. For the engine speed sensor, pin A must be connected to 12 Volt+. Pin C must be connected to 12 Volt-. Figure 13 shows the connectors which are used to connect to the speed sensors. Connecting the sensor with an incorrect polarity will destroy the sensor. Table 3 shows the acceptable test values. Replace the sensor if it fails the test.

Speed sensors should be installed as close as possible to the gear. The speed signal will fail if the distance exceeds 1.8 mm (0.07 in.). The sensor mounting bracket normally ensures correct sensor installation.

Table 3. Speed Sensor Test Values

	Voltage Reading	Current Level
Gear tooth sensed	1.2 volt	6 to 8 mA
No gear tooth sensed	2.6 to 3.0 volt	13 to 15 mA

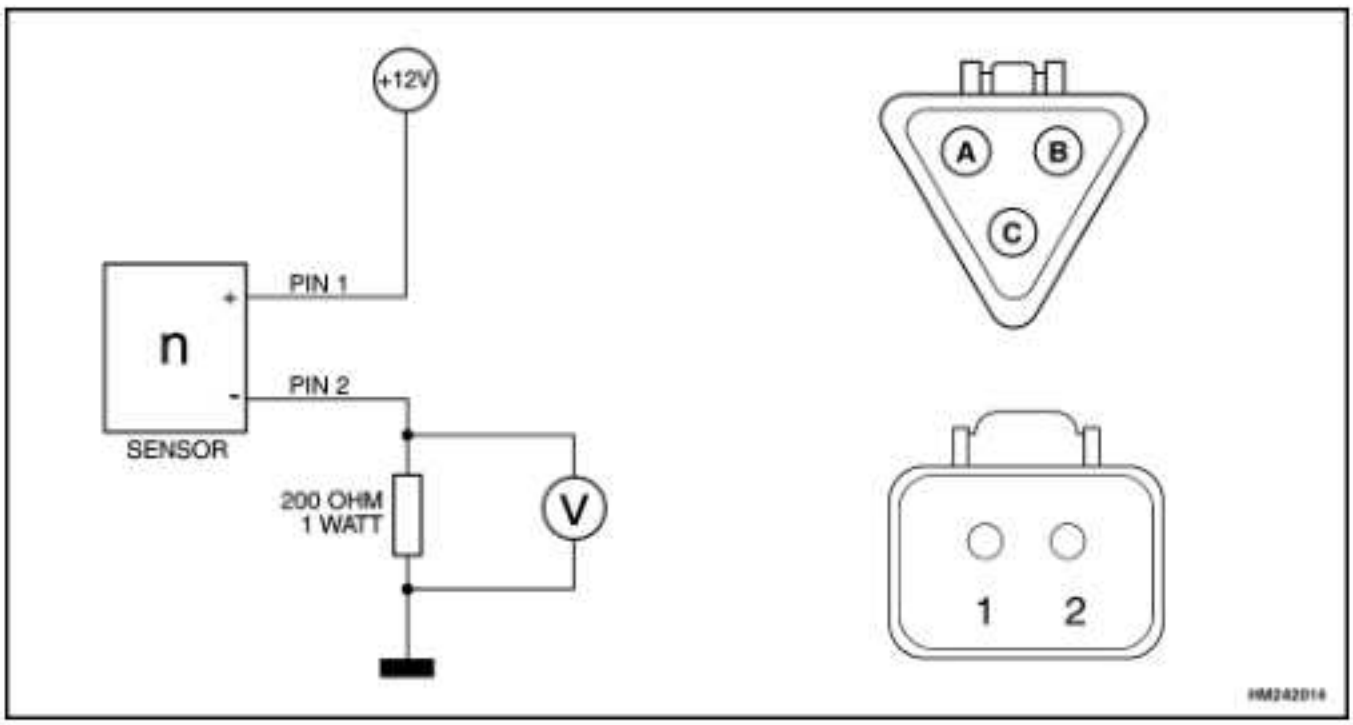


Figure 13. Speed Sensor Test

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