SERVICE MANUAL

E18C

Mini Excavator

Part number 48139720
English
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NEW HOLLAND CONSTRUCTION

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Hand control - Test

CONTROL LEVER OPERATING FORCE

Use a spring scale to measure the maximum resistance of each control lever at the middle of the grip.

Preparation

1. Keep the hydraulic oil temperature at **45 – 55 °C (113 – 131 °F)**.

Measurement

1. Start the engine.
2. Operate each boom, arm, bucket and swing lever at full stroke and measure the maximum operating force for each.
3. Lower the bucket to the ground to raise one track off the ground. Operate the travel lever at full stroke and measure the maximum operating force required. When finished, lower the track and then jack-up the other track.
4. Repeat steps 2 and 3 three times and calculate the average values.

Evaluation

The measured operating force should be within the following specifications.

Kind of lever	Standard value	Maximum allowable
Boom lever	**13.7 N (3.1 lb)** or below	**18.6 N (4.2 lb)**
Arm lever	**13.7 N (3.1 lb)** or below	**18.6 N (4.2 lb)**
Bucket lever	**13.7 N (3.1 lb)** or below	**18.6 N (4.2 lb)**
Swing lever	**13.7 N (3.1 lb)** or below	**18.6 N (4.2 lb)**
Travel lever	**19.6 N (4.4 lb)** or below	**24.5 N (5.5 lb)**

CONTROL LEVER STROKE

Measure each lever stroke at the lever top using a ruler.

NOTE: *when the lever has play, take a half of this value and add it to the measured stroke.*

Preparation

1. Keep the hydraulic oil temperature at **45 – 55 °C (113 – 131 °F)**.

Measurement

1. Stop the engine.
2. Measure each lever stroke at the lever top from neutral to the stroke end using a ruler.
3. Repeat step 2 three times and calculate the average values.

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CONNECTOR CN-79: SOLENOID VALVE (ETS) (Female)

Pin	From	Wire	Description	Color-Size	Frame
1	CR-77-P-4	44		BL-2.0	SHEET 12
2	CR-77-P-3	43		RD-2.0	

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Coolant high temperature sensor - Service instruction - Troubleshooting

Coolant overheat warning lamp lighting up

- Before disconnecting the connector, always turn OFF the starter switch.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



1

A. Cluster
B. Coolant high temperature sensor

Turn ON the starter switch.
Start the engine.

1. Disconnect the harness connector **CD-9**.
   A. If the display goes off, proceed to step 2.
   B. If the display does not go off, proceed to step 3.

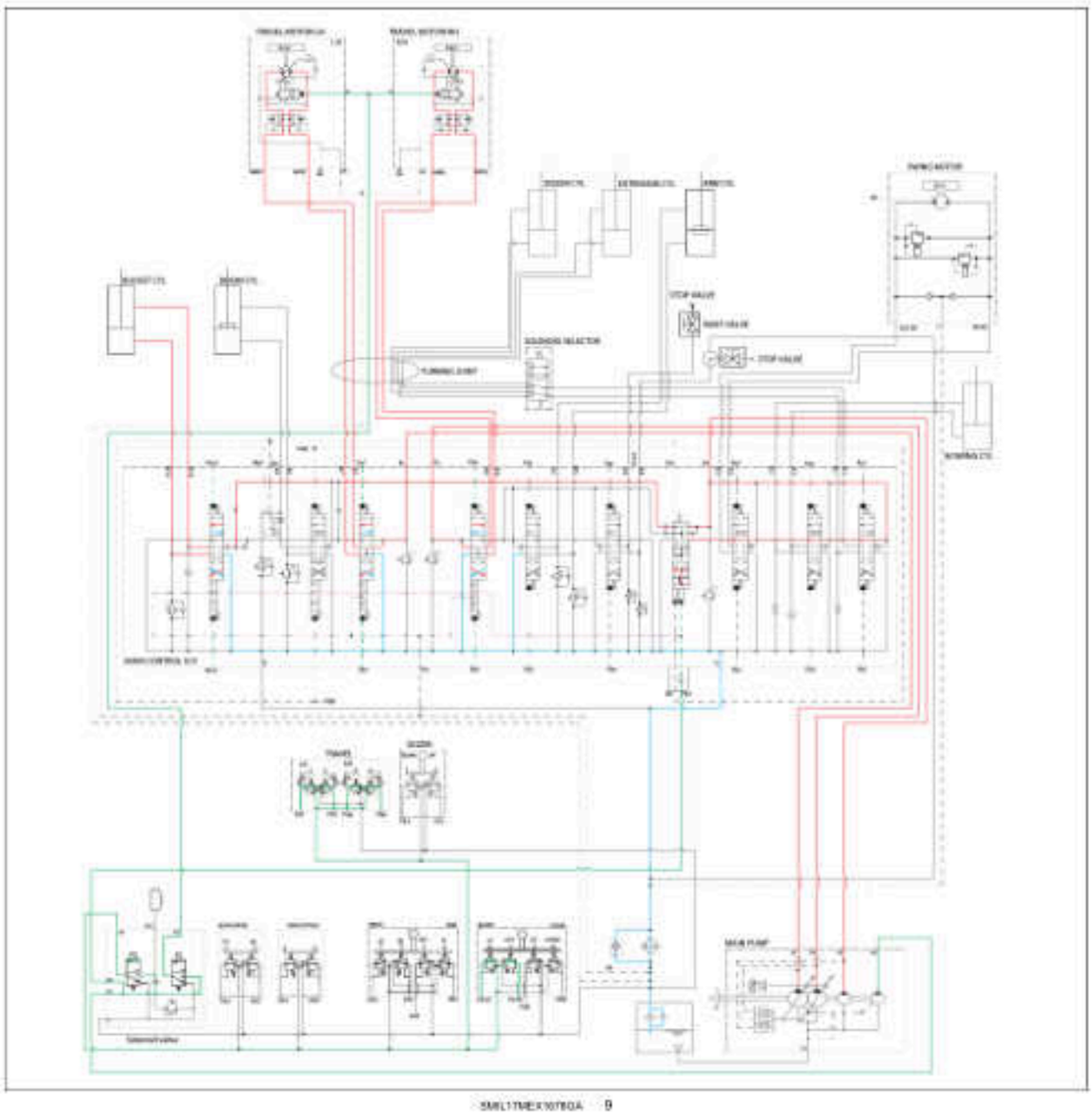
2. Measure the resistance between the coolant high temperature sensor and the ground.
   A. If the resistance is equal or lesser than **1.1 Ω**, the temperature of the coolant is abnormally high (**108 – 112 °C** (**226 – 234 °F**)). Check the engine cooling system or replace the engine coolant temperature sensor (refer to **Engine coolant temperature sensor - Remove (55.012)**).
   B. If the resistance is more than or equal to ∞ **Ω**, the coolant high temperature sensor is defective. Repair or replace the coolant high temperature sensor (refer to **Coolant high temperature sensor - Remove (55.012)**).

3. Disconnect the harness connector **CN-56**.
   Measure the resistance between terminal 2 of the connector **CN-56** and the ground.
   A. If the resistance is equal or lesser than **1.1 Ω**, there is a short circuit in the wiring harness. Repair or replace it, after clean.
   B. If the resistance is more than or equal to ∞ **Ω**, the cluster is defective. Replace the cluster (refer to **Instrument cluster - Remove (55.408)**).

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Combined bucket and travel circuits

When the bucket and travel functions are operated, simultaneously the bucket spool and travel spools in the main control valve are moved to the functional position by the pilot oil pressure from the remote control valve, and the travel selector spool is pushed to the up by the oil pressure from pilot pump. The oil from the A1 and A2 pumps flows into the travel motors. The oil from the A3 pump flows into the bucket cylinder through bucket spool via the travel selector spool. The bucket is operated and the machine travels straight.



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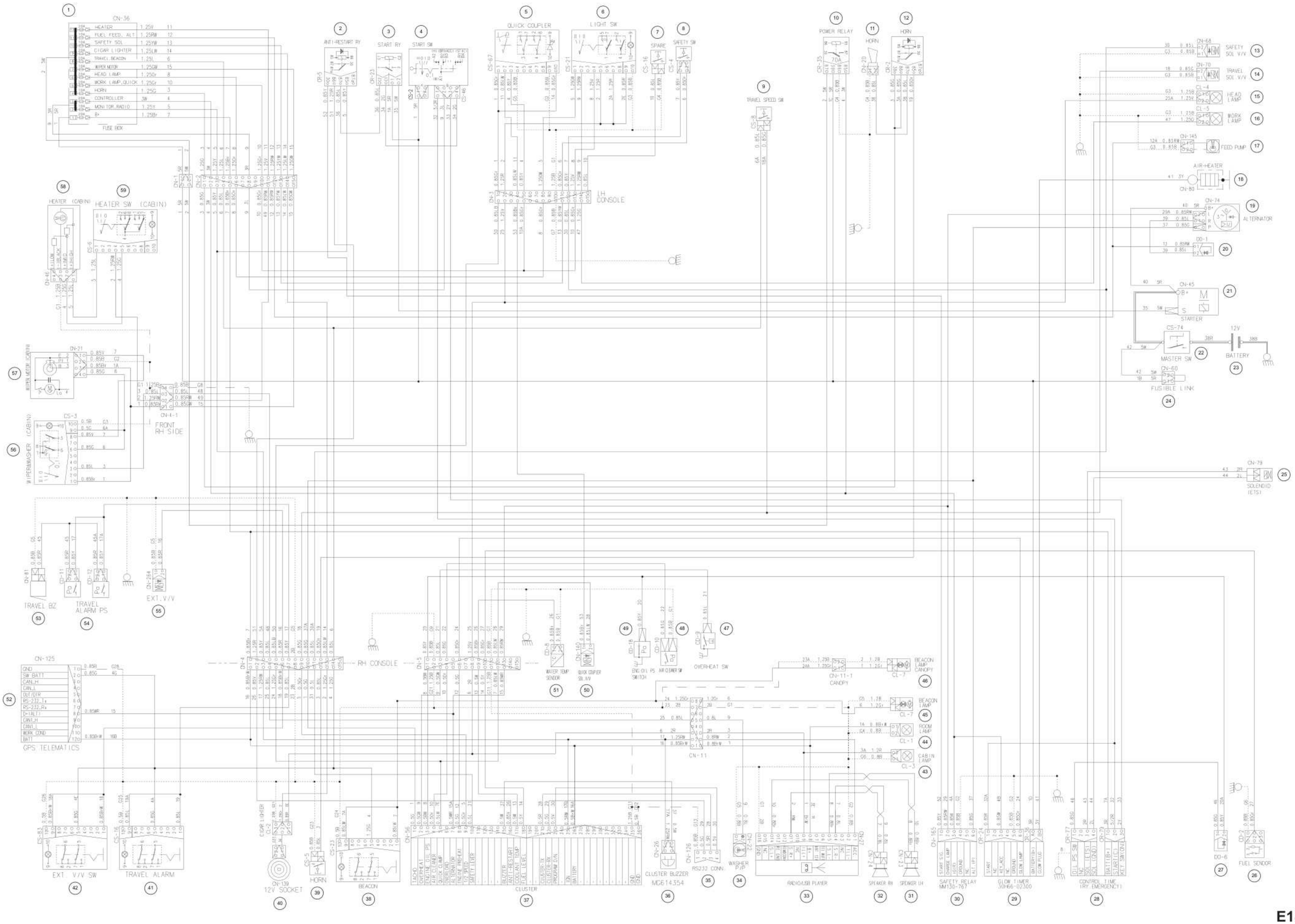
Pressure line

Pilot pressure line

Tank line

Secondary pilot pressure line

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LEGEND

1. Fuse box
2. Anti-restart relay
3. Start relay
4. Starter switch
5. Quick coupler switch
6. Light switch
7. Spare
8. Safety switch
9. Travel speed switch
10. Power relay
11. Horn
12. Horn relay
13. Safety solenoid valve
14. Travel solenoid valve
15. Head lamp
16. Work lamp (boom)
17. Fuel feed pump
18. Air-heater
19. Alternator
20. Diode
21. Engine starter
22. Master switch
23. Battery
24. Fusible link
25. Engine stop solenoid valve
26. Fuel sensor
27. Diode
28. Control time (emergency relay)
29. Glow timer
30. Safety relay
31. Speaker (left)
32. Speaker (right)
33. Radio and USB player
34. Washer pump
35. RS232 connector
36. Cluster buzzer
37. Cluster
38. Beacon switch
39. Horn switch
40. Cigar lighter and 12 V socket
41. Travel alarm switch
42. Extension/Dozer switch
43. Cab lamp
44. Room lamp
45. Beacon lamp (Cab version)
46. Beacon lamp (Canopy version)
47. Overheat switch
48. Air cleaner switch
49. Engine oil pressure switch
50. Quick coupler solenoid valve
51. Engine coolant temperature sensor
52. GPS telematics
53. Travel buzzer
54. Travel alarm pressure switch (quantity 2)
55. Extension/Dozer solenoid valve
56. Wiper and washer switch
57. Wiper motor
58. Heater
59. Heater switch

E18C EXCAVATOR ELECTRICAL SCHEMATIC

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