SR210 / SR240 / SV280
Tier 4B (final)
Alpha Series Skid Steer Loader
PIN NGM418237 and above; PIN NHM435463 and above

TR270 / TR310 / TV370
Tier 4B (final)
Alpha Series Compact Track Loader
PIN NGM418237 and above; PIN NHM435463 and above

SERVICE MANUAL

Part number 48068130
1st edition English
January 2018

CASE CONSTRUCTION

MidWestTech | Case SR210, SR240, SV280, TR270, TR310, TV370 Skid Steer Loader Service Manual | Publication 48068130
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1064 - Hydraulic Oil Temperature Is Above Normal

Context:
The instrument cluster monitored a hydraulic oil temperature that is greater than **102 °C** (**216 °F**) but less than or equal to **110 °C** (**230 °F**) for a period greater than **3 s**.

Cause:
The hydraulic oil temperature is above **102 °C** (**216 °F**) but less than or equal to **110 °C** (**230 °F**) for a period greater than **3 s**.

Possible failure modes:

1. Low hydraulic oil level.
2. Faulty fan operation.
3. Clogged cooling core.
4. Faulty reading from sensor.
5. Faulty instrument cluster.

Solution:

1. Verify that the fault code is active.

   Connect the Electronic Service Tool to the service tool connector.

   To check for fault codes: Start and operate the machine.

   A. The fault code is not recorded again. OK to return the machine to service.

   B. Fault code 1064 is recorded again. Go to step **2**.
2. Verify hydraulic oil level.

   Check the hydraulic oil level, add oil as required. Refer to the Operator's Manual for more details.

   A. The oil level is correct and the fault is not recorded again. Return the machine to service.

   B. The oil level is correct, but the fault is recorded again. Go to step **3**.
3. Check fan operations.

   Operate the engine at **1500 RPM**.

   Check the fan operation.

   Check the cooling core for clogs.

   A. The cooling system is operating properly. Go to step **4**.

   B. The cooling system is not operating properly or the cooling core is clogged. Repair the fan or clear the clogs from the cooling core. Repair as required. Return to step **1** to confirm elimination of fault.
4. Check the temperature sender.

   Disconnect the terminal connector from the hydraulic oil temperature sender.

   Measure the resistance between the hydraulic oil temperature sender ground connection and chassis ground. The resistance should be less than **10 Ω**. Wiggle the harness during measurement to reveal an intermittent condition.

   Measure the resistance across the temperature sender terminals.

Hydraulic Oil Temperature Sensor Open Circuit Resistance Measurements	
Temperature	Resistance in ohms (± 10%)
110 °C (**230 °F**)	**130 Ω**

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5. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

   A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

   B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 06 SH06-ENGINE F5C T4 (55.100.DP-C.20.E.06)
Wiring harnesses - Electrical schematic sheet 10 SH10-ENGINE F5C T4 (55.100.DP-C.20.E.10)

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Monitor the active diagnostic screen. Fault code **4731 – Right Swash Plate Angle Sensor - Pin A Short to Ground/ Open Circuit** should no longer be active. Fault code **4744 – Left Swash Plate Angle Sensor Pin B Open Or Shorted To Ground** is active.

A. Fault code **4731 – Right Swash Plate Angle Sensor - Pin A Short to Ground/ Open Circuit** is no longer active. Fault code **4744 – Left Swash Plate Angle Sensor Pin B Open Or Shorted To Ground** is active. Replace the Swash Plate Angle sensor and retest. Return to step **1** to confirm elimination of the fault.

B. Fault code **4731 – Right Swash Plate Angle Sensor - Pin A Short to Ground/ Open Circuit** is still active. Fault code **4744 – Left Swash Plate Angle Sensor Pin B Open Or Shorted To Ground** did not become active. Replace the UCM and retest. Return to step **1** to confirm elimination of fault.

Wiring harnesses - Electrical schematic sheet 20 SH20-UNIVERSAL CONTROL MODULE (55.100.DP-C.20.E.20)

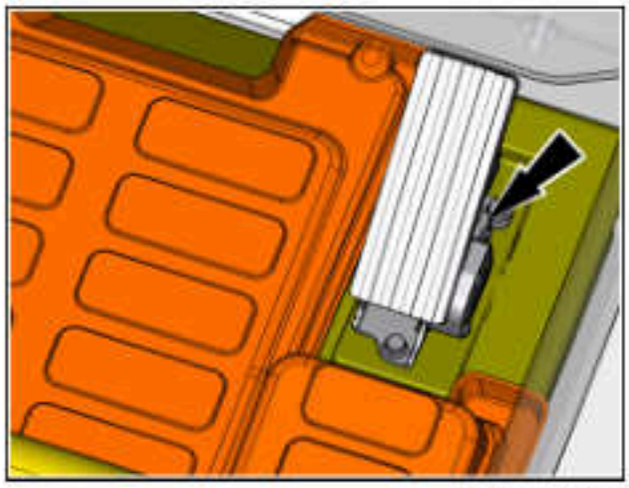
Wiring harnesses - Electrical schematic sheet 10 SH10-EH PUMP/HYDRAULICS (55.100.DP-C.20.E.10)

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Throttle pedal - Remove

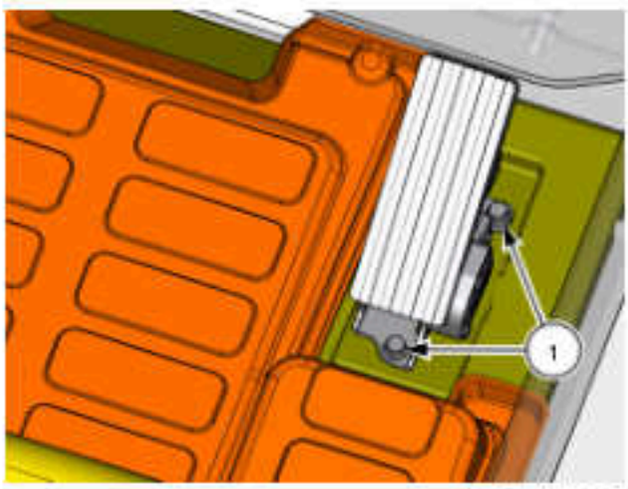
Prior operation:
Battery - Disconnect (55.302)

1. Disconnect the electrical harness from the foot pedal assembly.



RAPH175SLE176DA 1

2. Remove the two bolts **(1)** that secure the foot pedal assembly to the floor plate.
3. Remove the foot pedal assembly from the machine.



RAPH175SLE176DA 2

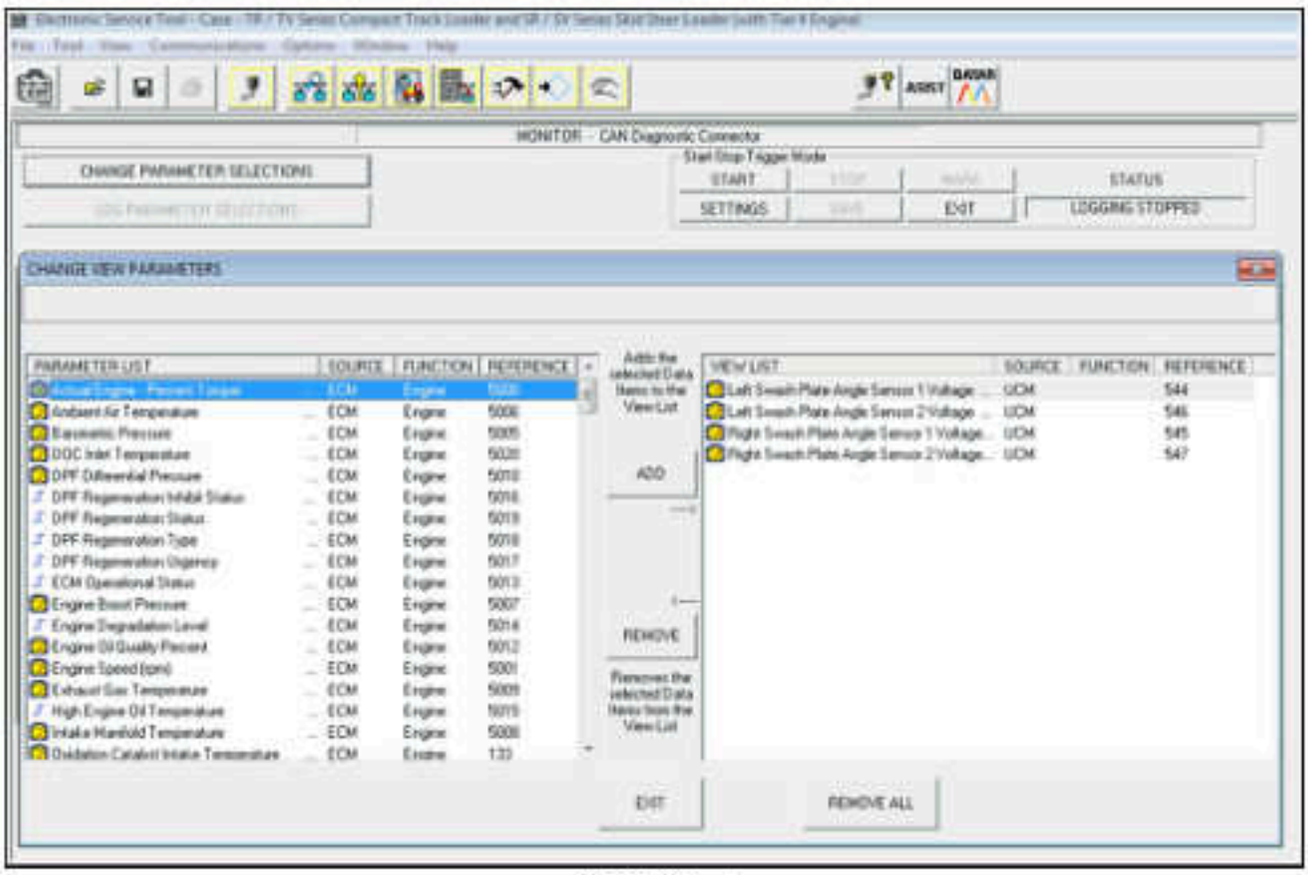
Next operation:
Throttle pedal - Install (55.525)

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Hydrostatic drive control sensors - Test - Swash plate angle sensor test and centering procedure

Prior operation:
Confirm that the joysticks are returning to the neutral position and there are no electrical issues with the joystick harness before checking the swash plate angle sensors.
Prior operation:
Place the machine on blocks or ensure that the machine is in an open area with adequate clearance to other objects.

NOTE: *This procedure is done using the Electronic Service Tool (EST) 'monitor' function.*



RAPH10SSLG270A 1

EST View Parameters List

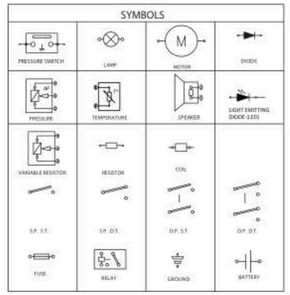
1. Connect the EST diagnostic connector to the test port of the machine to monitor the four Electro-Hydraulic (EH) parameters shown in the right-hand column of Figure **1**.

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Diagram
SH01 - TITLE PAGE
SH02 - MAIN POWER DISTRIBUTION
SH03 - ACCESSORY POWER DISTRIBUTION
SH04 - IGNITION / CHARGING SYSTEM
SH05 - GROUNDING SYSTEM
SH06 - ENGINE F5C T4
SH07 - ENGINE F5C T4
SH08 - ENGINE F5C T4
SH09 - THROTTLE SENSORS
SH10 - ET PUMP / HYDRAULICS
SH11 - HYDRAULIC INTERLOCKS
SH12 - LOADER VALVE AND SENSORS
SH13 - BULKHEAD CONNECTION
SH14 - BULKHEAD CONNECTION
SH15 - BULKHEAD CONNECTION
SH16 - LEFT-HAND CAB CONSOLE
SH17 - LEFT NH CONTROL HANDLE
SH18 - RIGHT NH CONTROL HANDLE
SH19 - RIGHT NH CONTROL HANDLE
SH20 - UNIT CONTROL MODULE

Diagram
SH21 - UNIT CONTROL MODULE
SH22 - LAMPS
SH23 - INDICATORS
SH24 - EU LIGHT ADAPTER
SH25 - BOOM ROAD LIGHTS
SH26 - WIPERS / WASHERS
SH27 - INSTRUMENT CLUSTER
SH28 - HVAC
SH29 - RADIO
SH30 - UJM CONNECTORS
SH31 - MULTIFUNCTION CONNECTOR
SH32 - TELEMATICS
SH33 - MULTIFUNCTION JUMPER
SH34 - 2ND AUX
SH35 - DIAGNOSTIC CONNECTOR
SH36 - FUEL FILTER JUMPER
SH37 - CHASSIS INTERFACE X-900 / X-901
SH38 - CHASSIS INTERFACE
SH39 - CHASSIS INTERFACE X-900 / X-901 MD

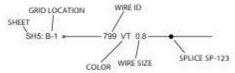
SYMBOLS



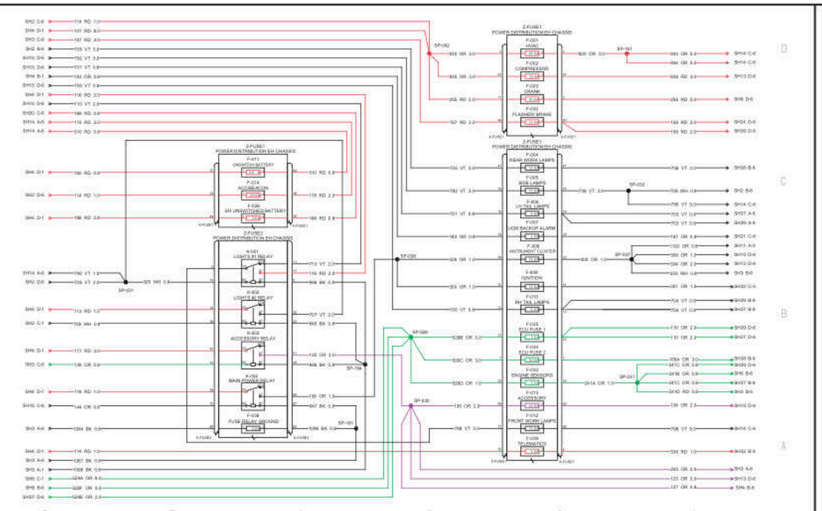
COLOR	ABBREVIATION
BLACK	BK
BLUE	BL
LIGHT BLUE	LB
BLACK/WHITE	BK/WH
GREEN	GN
LIGHT GREEN	LG
ORANGE	OR
PINK	PK
VIOLET	VT
RED	RD
GREY	GY
TAN	TN
WHITE	WH
YELLOW	YE

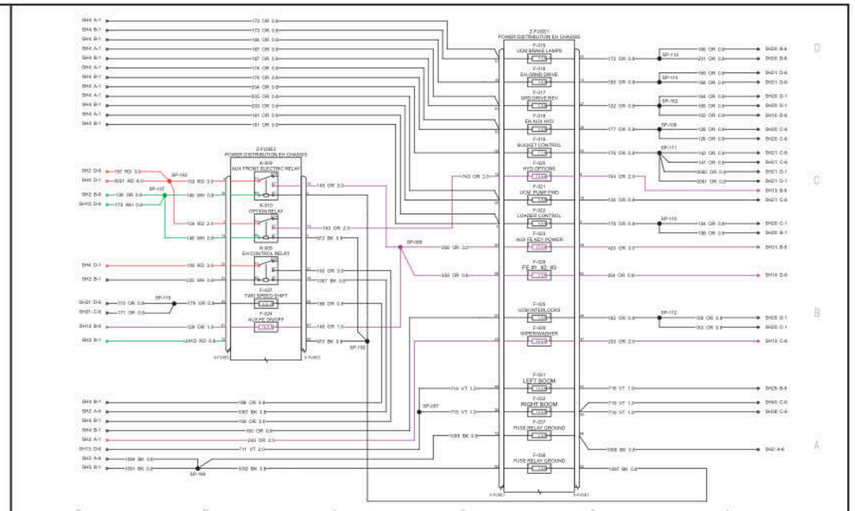
WIRE SIZE CHART	
Sq. mm	AWG
0.5	20
0.8	18
1.0	16
2.0	14
3.0	12
5.0	10
8.0	8

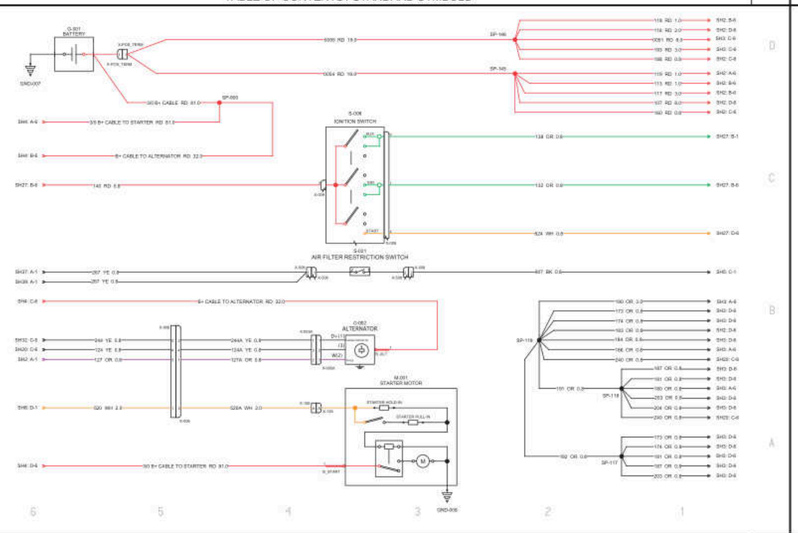
CIRCUIT DIAGRAM LEGEND

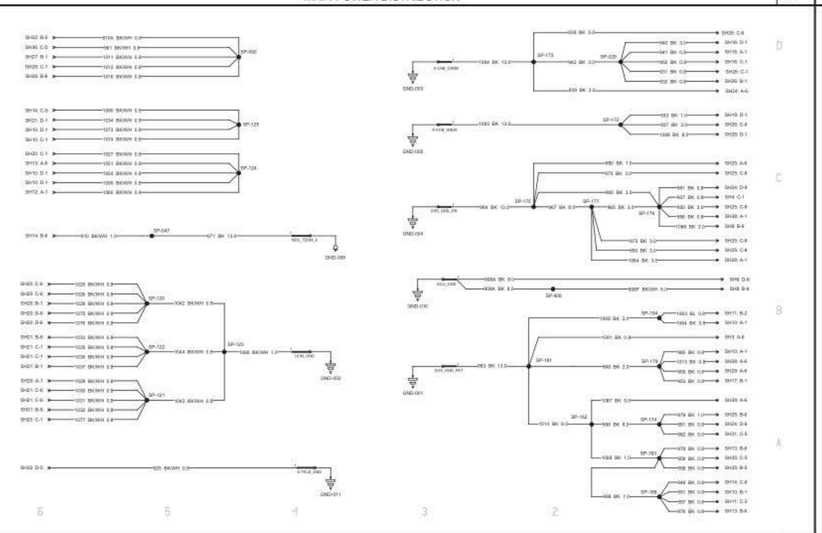


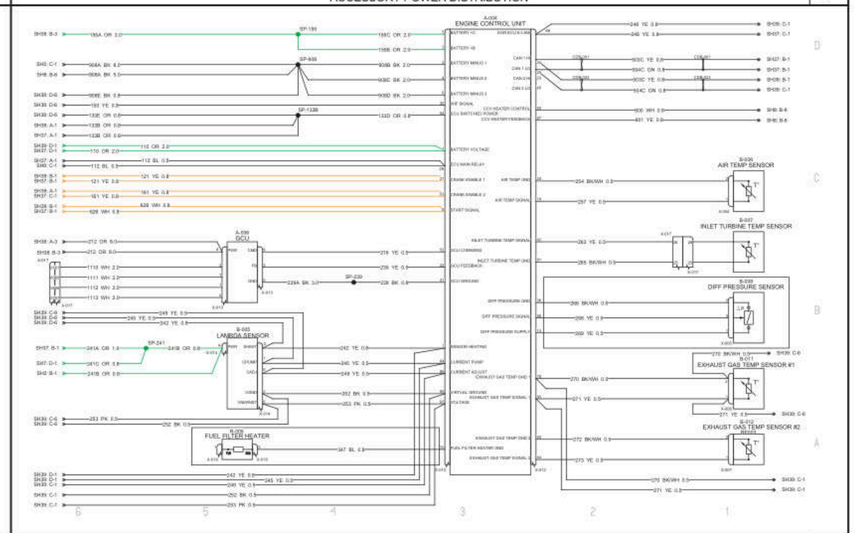
NOTE:
DIAGRAM SHOWN WITH VEHICLE PARKED & POWER OFF

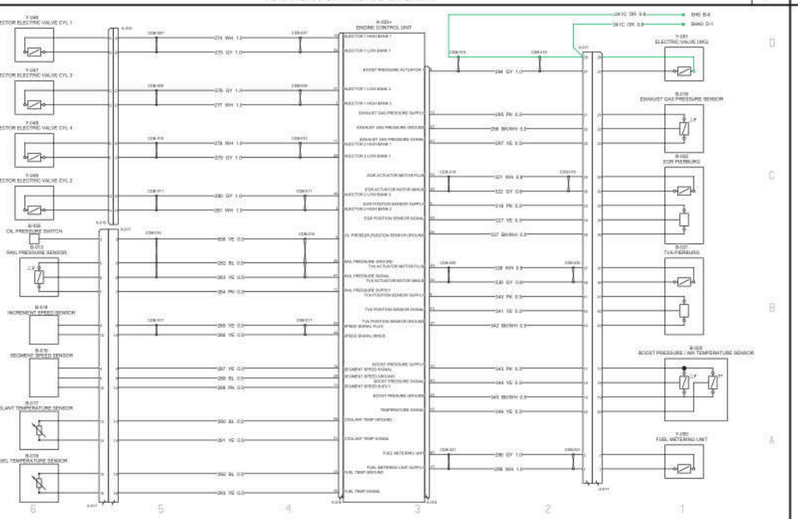


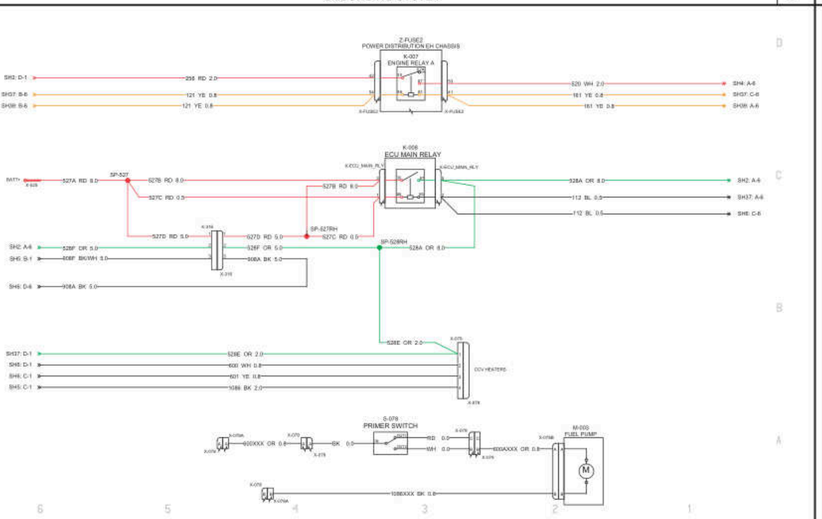












ELECTRICAL SCHEMATIC

TIER 4B (FINAL)
ELECTRO-HYDRAULIC (EH) CONTROLS

Skid Steer Loaders:
SR210 - NGM418237 and above
SR210 - NHM435463 and above
SR240 - NGM418237 and above
SR240 - NHM435463 and above
SV280 - NGM418237 and above
SV280 - NHM435463 and above

Compact Track Loaders:
TR270 - NGM418237 and above
TR270 - NHM435463 and above
TR310 - NGM418237 and above
TR310 - NHM435463 and above
TV370 - NHM435453 and above

BATTERY POWER
STARTING SEQUENCE
SWITCHED POWER
POWER RELAY OUTPUT

RAC 48144044

RAC 48144044 S1S1

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