SERVICE MANUAL

SP3500

Defensor

Part number 48149953

English

June 2018

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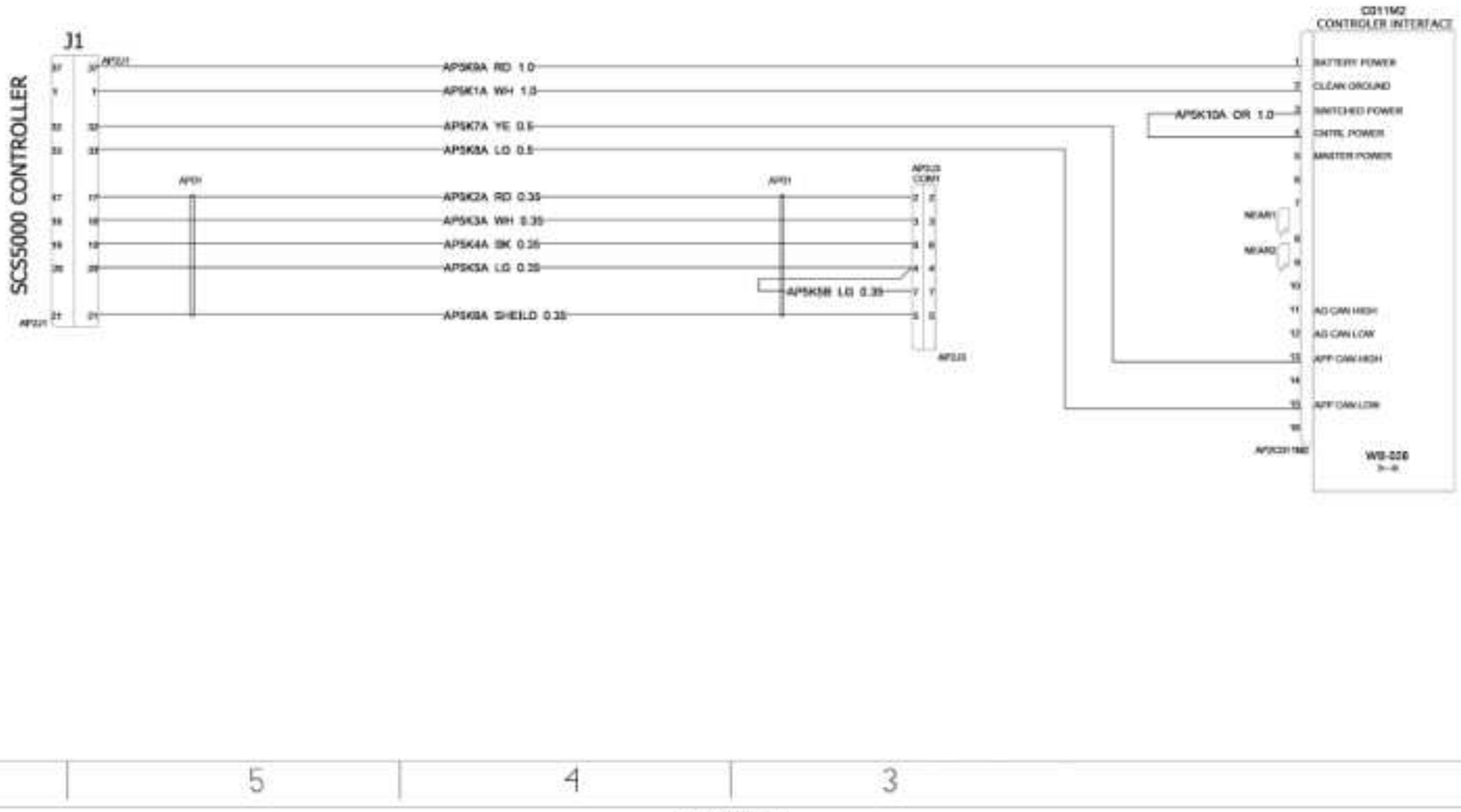
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SCS5000 A-POST HARNESS IS RAVEN DESIGN.



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3628 - Crankcase pressure too low

Context:
The Electronic Control Unit (ECU) A-9000 monitors crankcase pressure by the crankcase pressure sensor B-9009. If the A-9000 determines that crankcase pressure is lower than **–0.05 bar**, this fault will occur.

Cause:
The A-9000 has determined that crankcase pressure is too low.

Possible failure modes:

1. Faulty B-9009, wiring.
2. Faulty, B-9009, internal failure..
3. Faulty A-9000, software.

Solution:

1. Verify that fault is present and active.

   Use the Electronic Service Tool (EST) to verify the status of this fault.

   A. If the fault is present and active, continue with step **2**.

   B. If the fault is no longer present or in an inactive state, the fault may be intermittent and not currently active. Continue with step **4**.

2. Check the status of the following related faults:

   DTC 24A3 – Crankcase pressure sensor voltage is lower than expected

   DTC 3DA3 – Crankcase pressure sensor value is not plausible

   DTC 13A3 – Crankcase pressure sensor voltage is higher than expected

   A. If any of the related faults are active, diagnose them first and then return to this fault, **DTC 22A3 – Crankcase pressure too low**.

   B. If none of the related faults are active, continue with step **3**.

3. Replace the B-9009.

   Use the EST to verify the status of **DTC 22A3 – Crankcase pressure too low**.

   A. If the fault has been resolved, then return the machine to service.

   B. If the fault has been not resolved, check the ECU A-9000 for the appropriate software and re-flash, if necessary.

4. Visually inspect the relevant harnesses and connectors for damage, bent, or dislocated pins, corroded terminals or broken wires. Verify 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 displa y 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, erase the error code and continue operation.

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Liquid fertilizer system - Test - PWM product pump control valve relief valve

Equipment needed:
200 bar (**3000 psi**) pressure gauge.

NOTICE: *Do not run the product pump without liquid in the product tank.*

NOTE: *Port identification is stamped in the valve body.*

The adjustable relief valve **(2)** is set at **172.3 bar** (**2498 psi**) and a torque of **50.2 N·m** (**37 lb ft**). The relief valve is responsible for the product pump circuit protection from over-pressure. The setting can be verified by installing a "T" and a **200 bar** (**3000 psi**) gauge in the "P" port and closing or capping the "M1" port. As the duty cycle is increased the gauge should increase in pressure to **172 bar** (**2494 psi**).

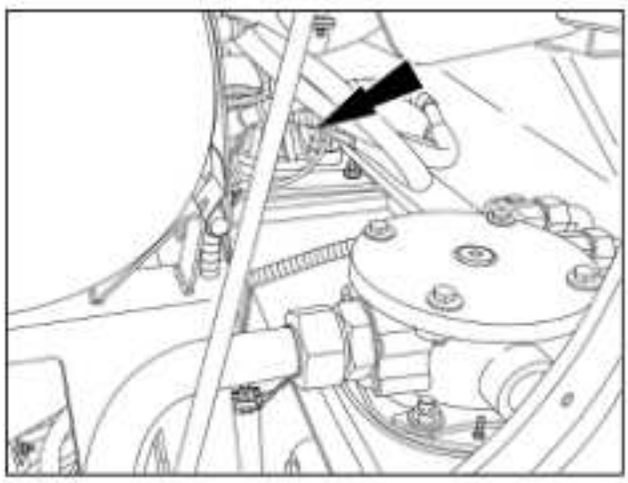
NOTICE: *Before opening any hydraulic connections, the area must be thoroughly cleaned of any possible contaminant. Use great care not to introduce contaminants into the hydraulic system.*

1. **⚠ WARNING**

   Escaping fluid!
   The hydraulic tank is a pressurized system. Vent tank slowly by loosening the breather before performing work on the hydraulic system. Failure to comply could result in death or serious injury.

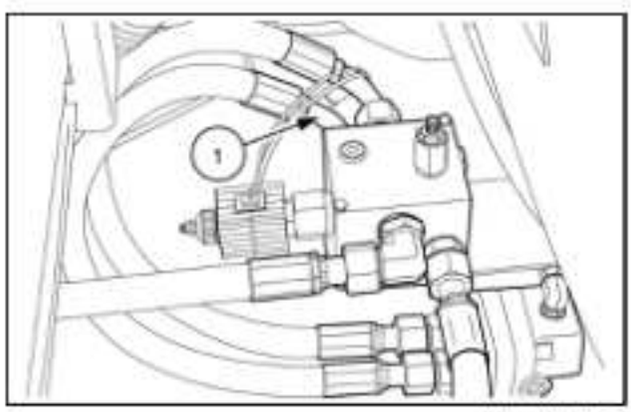
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NOTE: *Depressurize the hydraulic tank by slowly loosening the breather cap until pressure is bled from the hydraulic tank. Tighten breather.*



RAIL13SP9467AA 1

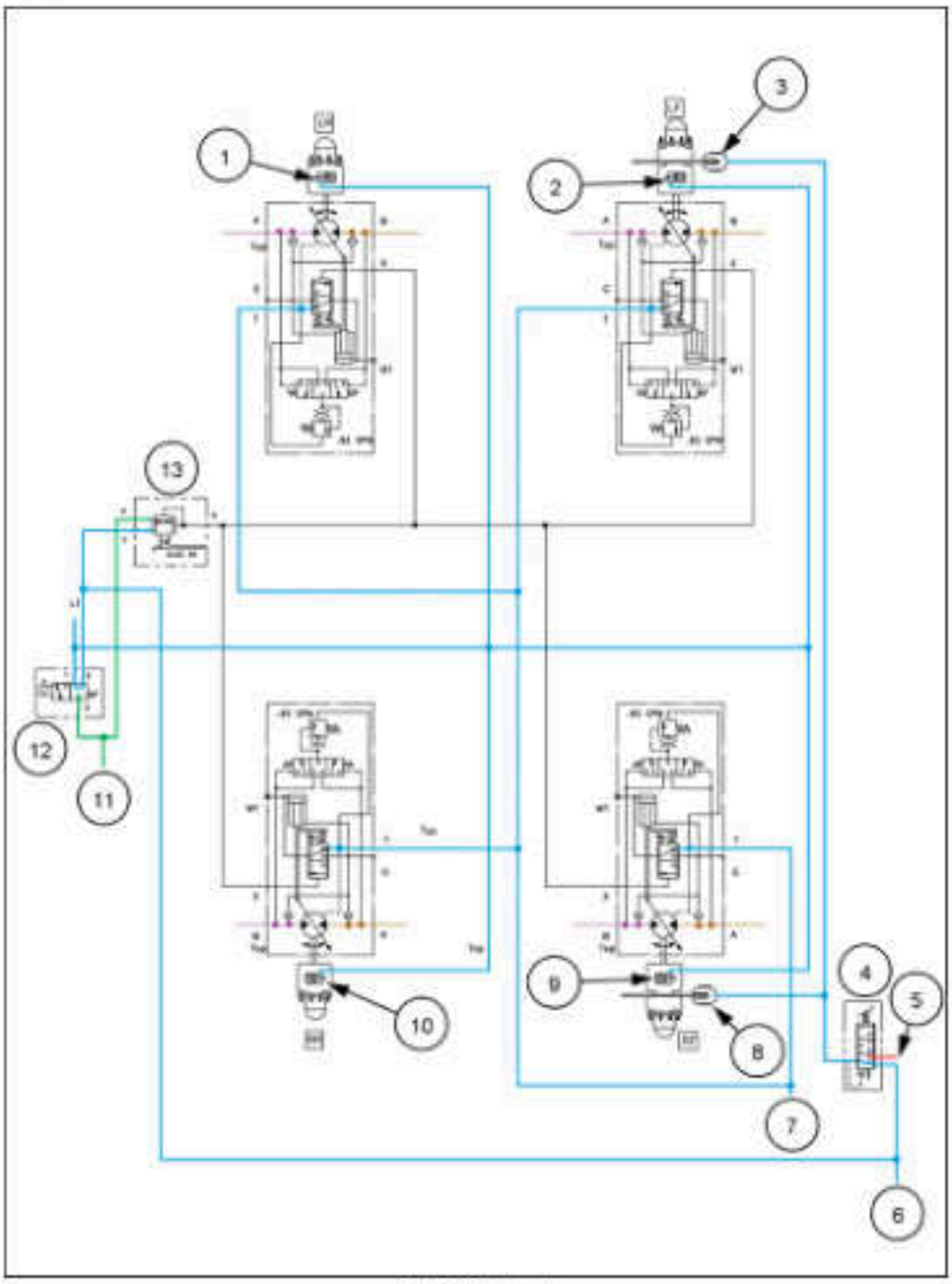
2. Remove the line from the "M1" port **(1)** on the product pump control valve going to the hydraulic motor. Plug the line going to the hydraulic motor.
   Install a **200 bar** (**3000 psi**) pressure gauge in the "M1" port **(1)** on the product pump control valve.
3. Engage park brake and start the engine. Allow the hydraulic oil to warm to **49 °C** (**120 °F**).
4. On the pump station remote box, place the auto/manual switch to the manual position.
5. Turn the pump switch to the "ON" position and hold the increase/decrease switch towards the increase position. Increase the engine to **2200 RPM**.
6. Record the reading on the gauge.
   If the reading is not **172 bar** (**2494 psi**), the product pump control adjustable relief valve needs to be adjusted.



RAIL13SP9146AA 2

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General Information



RAIL13SP0303HA 3

Item	Description
1	Wheel hub parking brake – left rear
2	Wheel hub parking brake– left front
3	Service brake calipers – left front
4	Service brake valve assembly
5	Pressure compensation pump supply
6	Suction side of the gear pump
7	Return to hydraulic tank
8	Service brake calipers – right front
9	Wheel hub parking brake – right front
10	Wheel hub parking brake – right rear
11	Charge pump supply
12	Parking brake valve
13	Motor control valve

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Diagrama	Diagrama	Diagrama
SH001 - PÁGINA DE ROSTO	SH027 - JUNÇÕES DOS CHICOTES DO CONSOLE	SH053 - MARCADOR LTS, EMISSOR DE COMBUSTÍVEL, SENSOR DE WIF
SH002 - INFORMAÇÕES GERAIS	SH028 - RÁDIO	SH054 - LAVADOR, ESPELHO, MIDSHIP WKLT
SH003 - CÓDIGOS OPCIONAIS	SH029 - SEÇÃO 1-4 DA BARRA	SH055 - VÁLVULAS DE PROPULSÃO
SH004 - BATERIAS / DISTRIBUIÇÃO / PARTIDA	SH030 - SEÇÃO 5-7 DA BARRA / SELEÇÃO DE FAIXA	SH056 - MÓDULO DE CONTROLE REMOTO
SH005 - FUSÍVEIS UNSWITCHED	SH031 - INTERRUPTORES DE PRESSÃO DO PRODUTO / MISTURA	SH057 - INTERFACE DO MOTOR TIER 3
SH006 - FUSÍVEIS SWITCHED	SH032 - MÓDULOS DO PRODUTO / ALIMENTAÇÃO	SH058 - ECM DO MOTOR TIER 3
SH007 - FUSÍVEIS SWITCHED 2	SH033 - CONEXÕES DA ESTRUTURA HIDRÁULICA	SH059 - RESERVA
SH008 - FUSÍVEIS SWITCHED 3	SH034 - INTERRUPTOR DE ALIMENTAÇÃO PRINCIPAL / RELÉ DA VÁLVULA ESFÉRICA	SH060 - INTERRUPTOR DA ESTRADA / INTERFACE DA CABINE AG
SH009 - FUSÍVEIS SWITCHED 4	SH035 - CONTROLES DA BARRA LE	SH061 - CONTROLADOR DE NAV
SH010 - INTERRUPTOR DE IGNIÇÃO	SH036 - CONTROLES DA BARRA LD	SH062 - RECEPTOR DO GPS / BARRAMENTO DA REDE CAN AG (EST)
SH011 - FUSÍVEIS WKLTS	SH037 - CONTROLES DE ALTURA / DOBRA	SH063 - COMANDO DA DIREÇÃO
SH012 - CABO MASSA DA CABINE / CABO MASSA DO TETO	SH038 - INTERFACE DO CONTROLADOR	SH064 - ANTENA DO GPS
SH013 - CABO MASSA DO SISTEMA DE LIMPEZA	SH039 - MÓDULO DE CONTROLE COM UM TOQUE	SH065 - BARRA LE - SEÇÃO 9
SH014 - NEUTRO / RÉ / TPS / PRESSÃO DA CABINE	SH040 - APLICAÇÃO DO BARRAMENTO 1 DA REDE CAN	SH066 - BARRA LD - SEÇÃO 9
SH015 - FREIO DE ESTACIONAMENTO / FREIO	SH041 - APLICAÇÃO DO BARRAMENTO 2 DA REDE CAN	SH067 - INJEÇÃO DIRETA 1
SH016 - INTERRUPTOR DAS LUZES DE SERVIÇO / FARÓIS	SH042 - RESERVA	SH068 - INJEÇÃO DIRETA 2
SH017 - PONTOS DE ALIMENTAÇÃO	SH043 - CAN DO VEH / ENTRADA DE SERVIÇO	SH069 - NIVELAMENTO AUTOMÁTICO 1
SH018 - AJUSTE DO EIXO / MISTURADOR / SEPARADOR DE FLUXO	SH044 - BARRAMENTO DA REDE CAN DO PRODUTO - CHASSI / ALIMENTAÇÃO DE CONTROLE / ENTRADA ACC	SH070 - NIVELAMENTO AUTOMÁTICO 2
SH019 - HVAC	SH045 - TRAÇÃO, LIMITE DE ROTAÇÃO, DESVIO, EIXO, ALARME DE RÉ	SH071 - Autofold 1
SH020 - LIMPADOR / BANCO / PRESSURIZADOR	SH046 - JUNÇÕES DO CHICOTE DA ESTRUTURA E CABO MASSA DO SISTEMA DE LIMPEZA	SH072 - Autofold 2
SH021 - LUZES DA CABINE	SH047 - ANTEPARO DA CABINE PRINCIPAL - PARTE INTERNA DA CABINE	SH073 - Autofold 3
SH022 - CONTROLE REXROTH	SH048 - ANTEPARO DA CABINE PRINCIPAL - PARTE EXTERNA DA CABINE	SH074 - BARRA DE PULVERIZAÇÃO
SH023 - RELÉS DAS LUZES	SH049 - INTERFACE DO CHASSI DO MOTOR	SH075 - VIPER DA COLUNA A
SH024 - ICU2	SH050 - LUZES DO CAPÔ	SH076 - COLUNA A SCS5000
SH025 - INTERFACE DE CONTROLE DE FNR / BLOQUEIO	SH051 - EXTENSÃO DA LANTERNA	SH077 - AFS DA COLUNA A
SH026 - LUZES DE DIREÇÃO / UNIDADE DO SINALIZADOR	SH052 - SENSORES HIDRÁULICOS, RADAR, PSI DE CARGA	SH078 - DIAGRAMA DO BLOCO

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