

. Question: "The locomotive fuel contactor C121 is not pulling? answer: "To solve the C121 fuel contactor problem, here are the steps you should follow: 1. Check the BPA, which is the emergency stop button, and the QTSD fire guard entrance for input signals. 2. If there are input signals in both of them but C121 still doesn't work, check the electronic card fuse and cables.

question: The Starter Contactor (CLD) is not working? Answer : 1. Check the BPA emergency stop signal, QTSD fire guard entrance signal, and BPL starter button signal. 2. If there is power in the BPA emergency stop signal, QTSD fire guard entrance signal, and BPL starter button signal, then check the QSDVM340 RPM detection guard, CEXA9 warning connector, QL lam connector, and CPPG pre-lubrication input. If there is no power in the QSDVM340 RPM detection guard, CEXA9 warning connector, QL lam connector, and CPPG pre-lubrication input, the CLD starter contactor is expected to receive power, or it indicates that the VECP compressor is in idle and the air channel is closed.

Question : The locomotive starter contactor CLD is not engaging? Answer: To solve the CLD starter contactor problem, here are the steps you should follow: 1. Check that there is power in the BPA, which is the emergency stop button, QTSD fire guard entrance, and BPL starter button signal. None of the CEXA9 and OC input signals should be active. Answer: "2. If these conditions are met but the starter does not engage, check in the settings page that the locomotive's pre-lubrication time is set to 20 seconds. Answer: "3. In some cases, the CLD starter contactor may operate but still not engage. The reason for this is that the starter main contactor coil is connected in series to MD1 and MD2 contacts. Check that these contacts are closed .

Question: The locomotive starts but stops without warning? Answer: "The locomotive diesel engine may stop for these reasons: Answer: "1: NE water valve energy signal is cut off. Answer: "2: QSV overspeed guard energy signal is cut off. Answer: "3: TSTH oil temperature guard energy signal is cut off. Answer: "4: PSH 1.6 bar idle oil pressure energy signal is cut off. Answer: "5: BPA, which is the emergency stop signal, and QTSD fire guard entrance signals that enable the C121 contactor condition are cut off. Answer: "When any of these conditions occur, it is reported on the alarm page. Answer: "Only in the 5th case, the user receives this information with the message motor stopped by the user. Question: No alarms are occurring? Answer: "If no alarms are occurring, the system does not know that the locomotive is running. Answer: "In this case, the QSDVM 340 RPM detection guard signal is cut off, and there is no diesel RPM information on the screen. Answer: "If there is RPM information and the system is not providing information on the alarm page, then to identify the fault, 72 Volt shunting should be applied to the BPA, which is the emergency stop signal, and QTSD fire guard entrances. Answer: "Then, with the engine running, the NE, QSV, TSTH, and PSH cables are disconnected one by one to find out which one generates an instantaneous energy surge. Answer: "In locomotives with a data monitoring system, a secondary PT100, which is the fire guard sensor, is connected. Answer: "If the main

screen shows a QSD temperature value above 225 degrees or the sensor tips are not connected, the system stops the locomotive. Answer: "In some cases, sensor connections may be normal, but there may be an electronic card failure. In this case, replace the card .

Question: CPPG Pre-lubrication contactor not working? Answer: "CPPG, which means the pre-lubrication contactor, lubricates the diesel engine for a specified duration before starting and after stopping. Answer: "If the set time is too short or 0, it can't perform pre-lubrication and post-lubrication. Answer: "The pre-lubrication condition is completely identical to the CLD contactor conditions. Answer: "If the CLD is not working, pre-lubrication will never start .

Question: The locomotive cranks, but it doesn't stop without lowering the battery switch? Answer: "The EAM fuel regulator coil may have been connected incorrectly. Answer: "Since the regulator remains in continuous supply, the locomotive does not stop. Answer: "The coil should be corrected and connected correctly. Answer: "The crane, which is the CER motors, receives power, and the diesel engine stops .

Question: The electronic card is freezing? Answer: "If the electronic card is freezing, you should check the input and output signals on the screen. Answer: "If there is no change, the relevant card should be replaced .

Question : The locomotive is cranking, but the fans are not coming on through the fan switch or the T101, T102 thermostats? Answer: "If there is no power from the QSDVM 340 RPM guard or if the motor speed is not displayed on the screen, the system cannot confirm that the locomotive is running, and the fans won't operate. Answer: "If there is no power to the ZTVA, which is the output for fan operation, and at the same time, the air conditioning inverter does not engage .

Question: The locomotive diesel engine speed is increasing but not staying constant? Answer: "It is due to the lack of energy in the VEICH fuel cut-off valve. Answer: "When this valve operates in reverse, it sets the diesel speed to idle, which is 650 RPM, when it does not receive power. Answer: "It considers both MPL3, which is the manipulate direction lever signal, and VALSE11 and VELSE15, which are valve signals, for energization. Answer: "If the locomotive's Q60 fault lamp is lit and the totman overspeed event has occurred, VEICH energy is cut off regardless of input signals. "}}}

Question: The locomotive direction change inverter is not working? Answer: "The locomotive makes its forward and reverse selection based on the signals from the MPL-15 and MPL-17 control levers. Answer: "Through two air-flow valves, the mechanical mechanism switches the poles of the CER motor windings. Answer: "If there is no problem with the direction selection signals coming from the control lever, check the power lines of the VEJ-1 and VEJ-2 valves at the outputs. Answer: "If both valves are receiving power, there might be a jam in the mechanical parts. In cold weather, the valves can freeze .

Question: What is a Totman failure? Answer: "It's the verification of the driver being in control by periodically powering a signal based on the PDHM input signal through a pedal and then cutting off the power after a certain duration. Answer: "If the driver does not power the signal within this time frame, or if he/she presses it for longer than the defined intervals for pressing and releasing, then it is considered a Totman failure .

Question: The locomotive's deadman horn (SONHM) keeps sounding continuously and the locomotive is missing the deadman signal. Why? Answer: "For the deadman's working principle, the driver must periodically provide power to the PDHM input signal through the settings page. Answer: "This period is set to 14 seconds. The driver can rest his foot during this time. Answer: "When there are 7 seconds left until the time is up, the driver is warned to press again through the SONHM horn. Answer: "If the driver does not provide power again via the pedal within this 7-second timeframe, the locomotive discharges the main reservoir and auxiliary air through the VEICH valve, stopping the locomotive. Answer: "If it is pressed longer than the set time, after about 1 minute, the VEICH energy is cut off in the same way, stopping the locomotive. Answer: "Brakes are continuously disabled from the deadman circuit by providing power to the 2HM input signal, which is the deadman cancel signal, in addition to the PDHM signal. Answer: "In coupled use, this signal is used to prevent the locomotive from missing the deadman signal and braking or in hot parking situations .

Question: The locomotive is not pirjÃ¶r? Answer: "PirjÃ¶r is an air valve called VEF, used to release the locomotive's own brake air when air is sent to the series of wagons being pulled by the locomotive to apply brakes, preventing wear on the locomotive's own brake shoes and wheels. Answer: "It engages when the BPIF input signal is energized. Answer: "If it's not working, make sure that the totman is not in overspeed, or check the input and output cable connections .

Question: Does the locomotive perform sanding or does it only work in one direction? Answer: "Using two valves named VESAT and VESAZ, sand is poured in front of the wheels of the locomotive depending on its direction of movement to increase friction. Answer: "The electronic system activates a single output for this process, and the relevant valve receives energy through the connections in the direction lever. Answer: "When the BPSA input signal receives energy, energy is sent to the direction lever for sanding. Answer: "During slippage, the sanding output is automatically activated for the duration set on the settings page. Answer: "The slippage condition is detected with the OPAT input signal. If sanding doesn't work or if it sands continuously, check the energy states of the OPAT and BPSA inputs in the settings .

Question: The locomotive is not performing CER shunting? Answer: "If the CER shunting mechanism is not working, please check the EV1, S1, EV2, S2 cables. Answer: "If there is no issue with these cables, perform a resistance measurement to check if there's a problem in the resistance groups .

Question: What is the CER shunting of a locomotive? Answer: "The shunting mechanism operates with two connectors S1 and S2, which parallel the motor windings in two stages with resistance groups, and two speed information inputs defined as signals EV1 44km and EV2 67km. Answer: "Based on signals coming from the kilometer speed counter device, external resistances perform shunting to present a smaller resistance to the stator. It's connected .

Question: The locomotive is getting a warning, but the Q60 lamp lights up and clears the warning. Answer: "The Q60 fault warning light can be activated due to four different reasons: Answer: "1: If the current passing through the main alternator rectifier exceeds the 3600 ampere threshold. Answer: "2: If there's a leak warning from the Main Alternator or CER motor to the body. Answer: "3: When the PSH-PSVD stepped oil pressure guardian is powered. Answer: "4: It activates when a signal comes from the TSTE water temperature guardian indicating cooling water temperature. Answer: "Any of these four situations will cut off the field warning currents of the locomotive and throttle the diesel cycle to idle. Answer: "The Q60 light coming on without a warning occurs when there isn't any alarm displayed on the alarm page. Answer: "The main reason for this is the malfunction of the electronic card, which is the 3rd module. Answer: "The real issue is whether the mechanical guardians like TSTE, PSH, PSVD are isolated from the system, and if the problem is in the Q0 leak circuit or if it's about exceeding the current limit .

. Question Is the locomotive jumping when it starts or does it give a warning? Answer: "The relay that shorts the cables with codes 0T1, 3520, and 3521 connected to the field warning panel might not be functioning. Or if no power is supplied, the coil named JHY on the rheostat that

sets the current is always de-energized, and it is positioned to give maximum current when de-energized. Answer: "With the turning off of the crane lamp warning, the de-energized JHZ coil opens the oil path from the zero position to the maximum on the rheostat, and it adjusts the increase and decrease movements with the pressure coming from the diesel fuel regulator according to the field warning. The field warning also reflects the movement with the main motor .

. Question: What is on the device's startup page? Answer: "On the startup page, or the main page, you can monitor in real-time: diesel engine speed, current value of the main alternator, CER group currents, CTHDL engine operating hours, fan operating hours, diesel oil pressure, cooling water temperature, oil temperature, and battery voltage value .

. Question: Which channels are available on the device's main page? Answer: "Channel 1: Displays diesel engine control and safety circuits. Answer: "Channel 2: Displays auxiliary safety circuits like Shunt, direction, and Totman. Answer: "Channel 3: Displays control and safety circuits related to CER warning. Answer: "Additionally, control parameters settings page and alarm status pages are also available on the main page .

. Question: What's available in the diesel engine control channel? Answer: "In the left section, there are outputs related to the fuse status of the diesel control contactor and electro-valve's virtual and physical values. In the right section, the instant physical values of the control and safety signals are displayed. Answer: "In the lower right section, the instant numeric values of diesel parameters and the current value drawn from 72v dc outputs can also be monitored. Answer: "Labels such as CCU2, CCU3, CCU4, ANLG, A.SKIP indicate the modules connected to the system at that moment. Answer: "With the output test, energy is given one by one, and with the self-test, the diesel engine can be started and stopped .

. Question: What is available in the auxiliary control channel? Answer: "Directional valves, totman, and horn, shunting, sanding, pirjor and gas cut-off valves, and input signals are shown on this page .

. Question: What's available in the CER alert control channel? Answer: "For the CER alert, the valve, safety signals, and contactor statuses are shown on this page. Answer: "In the bottom right, you can also monitor real-time diesel parameters' numerical values and the current drawn

from the 72v dc outputs. Answer: "With the self-test, the main alternator excitation can be given independent of the valve input signals .

. Question :What is available on the parameter settings page? Answer: "Main alternator overcurrent upper limit value. Answer: "Cutting and sanding time during wheel slip. Answer: "Diesel pre-lubrication time. Answer: "Totman circuit pedal push-pull period. Answer: "Upper limit value of current difference for the wheel slip module group. Answer: "Total output current drawn from I/O modules. Answer: "Temperature (pt100) sensor calibration. Answer: "Correction factor for reading diesel rpm. Answer: "Correction factor for main alternator current error. Answer: "Fan operating hour initial value input. Answer: "Diesel engine operating hour initial value input. Answer: "Locomotive license plate number and backup input and output selection page .

. Question : What is available on the backup input-output page? Answer: "There are 8 physical inputs on the top section, and 8 physical outputs aligned at the bottom section. Answer: "For a randomly selected backup input or output, write the cable number of the faulty ones in the boxes and touch the save tab to complete the process. Answer: "The cables of the activated pin of the backup module and the input or output it replaces must physically be swapped. Answer: "For output backups, value entries in the range of 1-30 are accepted; for input backups, value entries in the range of 1-42 are accepted. The value 0 (zero) and different values mean no selection .

. Question: The locomotive is not taking the crane? Answer: "If the locomotive is not taking the crane, there can be several reasons for it. Answer: "First, check the following connections: CEXA, VALSE3, VALSE11, VALSE15, LAM contacts, B2216, A203, A206, and A208 cables. Answer: "If there is no power to the CEXA warning connector, it will receive power when VALSE3, VALSE11, and VALSE15 are switched to the valves position. Answer: "Especially, the VALSE3 signal receives power when the direction is selected from the forward or reverse contactor on the locomotive due to the direction selected signal. Answer: "This input signal does not come when the reverser (reverser) is not fully engaged. Answer: "When the Kondevit air pressure is above 3.5 bar, this direction selected signal affects through a pressure-sensitive contact. Answer: "If there are no issues with the signals, check the CEXA switch on the markiz (control panel). If the switch is off, CEXA won't receive power. Answer: "If there is no power to LAM contact types with VEL1, VEL2, VEL3 outputs, it means there is a problem with CEXA and CEXA-9 input-output. Answer: "After the locomotive starts moving, bringing the Vals (+) position makes the valve inputs active, and power goes to LAM contact types. Answer: "LAM contact types are sealed when the power draw signal comes, otherwise, LAM contact types release the power, and the crane light goes out. Question CEXA, LAM (VEL1, VEL2, VEL3) contact types are fine, and the crane lights are going out, but the CER ammeter is not increasing? Answer: "Check the warning fuse in the lower right corner of the control panel. Answer: "This fuse supplies the

warning panel, which feeds the main alternator and the field warning regulator. Answer: "If there is no problem with the warning panel supply, then if the system, B2216 and A203 labeled cables at the ends of the warning panel become open-circuit and omaj (short-circuit) between each other. Answer: "This omaj should show 7-9 ohms, and A208-A206 labeled cables should short-circuit with each other, and this happens when crane conditions are met. Answer: "If the Q60 lamp is on, if the totman is in overspeed, or if there is no air, the locomotive will not receive a warning .

. Question: What does the microprocessor control and management system consist of for DE24000 locomotives? Answer: "Its structure includes 4 IO cards, 1 analog card, 1 carrier card (backplane), and one HMI screen .

. Question: What are the features of the microprocessor control and command system's IO card used in DE24000 locomotives? Answer: "The IO card contains 10 relays that can output 72V DC and 15 Amps, and 10 auto fuses in series with these relays. Answer: "It reads the 72V DC electrical signals coming from the locomotive with its 14 input hardware and activates the outputs associated in its software. Answer: "In addition to these control inputs, there are 10 relay outputs, feedback receiving 72V DC input, and 8 pieces of 5V DC input reading hardware. Answer: "The 8 units of 5V DC inputs are used to determine which position the carrier card is in and which locomotive operations it will perform .

. Question: What is the function of Card No. 1? Answer: "It performs the start and stop operations of the 2400 HP diesel engine. It also communicates continuously using CANBUS communication with the other 3 IO cards and RS485 (MODBUS) communication hardware with the HMI screen, acting as a master card. Answer: "It scans all the signals of the locomotive and informs the user via the screen. Answer: "It controls the fuel pump contactor (C121), the starter motor contactor (CLD), the diesel engine pre-lubrication contactor (CPPG), the emergency fuel dumping valve (VESV) in case of over-speed, and the diesel engine cooling fan contactors, as well as the oil pressure (LSH) and oil temperature (SONDL) alarm lights. Answer: "It continuously tracks guardian signals such as oil temperature (TSTH), oil pressure (PSH), absence of cooling water information (NE), over-speed signal (QSV), and cooling water temperature (TSTE) to ensure the safe operation of the diesel engine. Answer: "All inputs and outputs can be seen on the screen by touching the diesel engine button on the page that appears, and by touching the lamp symbols arranged on the far left in the output section, the input signal combination indicating how that output should be activated is shown .

. Question: What is the function of the No. 2 card?Answer: "The No. 2 card is an IO card. It is a module that controls the reverser that selects the direction of the locomotive, the safety system called totman, the sanding valves that activate during wheel slippage, and the contactors that introduce parallel resistance to the CER motor (TRACTION) windings at 47 km/hour and 66 km/hour.Answer: "On the screen, by touching the locomotive button signal, a page is opened showing the status of all inputs and outputs.Answer: "Again, by touching the output lamps on the far left, a window opens showing the input relation of the relevant output. It is continuously monitored by the Master card (No. 1 IO card) .

. Question: What is the function of card number 3?Answer: "It's the module that allows the locomotive to move.Answer: "A main alternator connected to the diesel engine shaft produces energy for the CER motors that drive the wheels.Answer: "The amount of energy produced is determined by the locomotive CER warning (excitation) circuits.Answer: "This IO card functionally controls contactors and valves that are bridges in the alternator excitation current path.Answer: "They are named as CEXA, LAM1, LAM2, LAM3 contactors, throttle gas valve (VEADH) and cut-off gas valve (VEICH).Answer: "Lam contactors close the current path of 6 CER motors, while CEXA combines the main alternator excitation path.Answer: "Another hardware named warning panel also becomes functional through this module and activates to produce the necessary main alternator excitation current for an auxiliary alternator.Answer: "The amount of energy produced is determined by a throttle on the control desk in the cab. This throttle sends signals about diesel engine speed increase and decrease and CER motor energizing stages to the IO module.Answer: "Leakage current or short circuit conditions occurring in the main alternator and CER motor windings, as well as diesel engine temperature and oil pressure information, are evaluated by this module to ensure safe movement.Answer: "On the screen, by touching the electric motor button, a page appears showing the input and output combinations related to all inputs and outputs. It is constantly monitored by the Master card (IO card number 1) .

. Question: What is the function of card number 4?Answer: "It serves both as a switching circuit with 6 dry contact relays and the EAM coil, which is a diesel engine governor valve, and enables 3 separate contacts to activate the warning panel, and also plays a role in the conversion process of analog voltage and currents coming from the locomotive to digital.Answer: "Overcurrent, leakage current, motor speed, battery voltage electrical signals are processed here, but it does not contain a processor.Answer: "It operates to provide information to IO cards through the carrier card .

. Question: What is the function of the IO card number 5?Answer: "It's a backup module that can easily be addressed from the HMI screen with 8 inputs and 8 outputs, which can be brought



into the circuit as any input or output of any module. Answer: "In addition, in locomotives with a sofa unit, it enables the sofa to be activated with its 6 inputs and 4 active outputs .

. Question:

Can you provide general information about the IO cards found in the microprocessor control and command system used in DE24000 locomotives? Answer: "All IO cards have the exact same hardware and software. Answer: "Thanks to the addressing made from the carrier card, they can choose the program, and in the case of incorrect or no address information, they are completely inactive. Answer: "All slave cards can only be read and displayed on the HMI screen through the master card. If the master card is defective, the other cards continue their operations as they are, but their data is not visible on the HMI screen. Answer: "Also, when you want to access any IO card page on the HMI screen, if the relevant card is defective, that page will open in a frozen state. Answer: "The relevant card must definitely be replaced. Answer: "It is generally replaced with module number 5, but the important point to note here is that the first 3 numbers' task distribution has left the EEPROM memories to the user interface. Answer: "When the cards are replaced, the configurations on the settings page must definitely be updated by tapping the save again tab .

. Question: How can I conduct test procedures in the microprocessor control and command system used in DE24000 locomotives? Answer: "A test program is defined on the HMI screen for all IO card pages. Answer: "When the test is activated, the output statuses of the first 3 cards can be activated with the help of M1-M10 buttons and it can be determined if their fuses have blown. Answer: "While in test mode, the active program of the relevant card is disabled, so care should be taken that the diesel engine is in the stop position. Answer: " The testing of the inputs can be understood by supplying 72V electricity to the relevant cable." } }

. Question: The locomotive's CPPG is giving an error, it's not pre-lubricating. Answer: "First, check if there is power on the BPL start button. If there's no power, it might not pre-lubricate. If there is power, then check the QSDVM340 rotation detection watchdog; if it has power, it might not pre-lubricate. Answer: "If there is power on the BPL start button, there should be no power on the QSDVM340 rotation detection watchdog. Answer: "If there is power on the QSDVM340 rotation detection watchdog, there should be power on the NE water float, or the TSTH oil temperature watchdog, or the PSH oil pressure, or the QSV overspeed watchdog, or there should be no power on the BPA emergency stop signal." } }

. Question: The C121 fuel pump contactor is not working Answer: "Check the BPA emergency stop signal and the QTSD fire watch input. Answer: "If there is power in the BPA emergency stop signal and the QTSD fire watch input, the C121 fuel pump will operate .

. Question: The CLD Start Contactor or VECP Contactor is not working Answer: "Check the BPA emergency stop signal, the QTSD fire watcher input, and the BPL start button signal. Answer: "If there is power in the BPA emergency stop signal, the QTSD fire watcher input, and the BPL start button signal, then check the QSDVM340 speed detection guard, CEXA9 warning connector, QL lam connector, and CPPG pre-lubrication input. Answer: "If there is no power in the QSDVM340 speed detection guard, the CEXA9 warning connector, the QL lam connector, and the CPPG pre-lubrication input, it is expected that the CLD start contactor will receive power or the VECP compressor will indicate that it is idling, and the air duct will close." } }

. Question: The VESV over-speed fuel dump valve is not working Answer: "Check the QSV over-speed guard. Answer: "If there's power in the QSV over-speed guard, the VESV over-speed fuel dump valve will operate .

. Question: The locomotive's CPPG is giving an error, it's not pre-lubricating. Answer: "First, check if there is power on the BPL start button. If there's no power, it might not pre-lubricate. If there is power, then check the QSDVM340 rotation detection watchdog; if it has power, it might not pre-lubricate. Answer: "If there is power on the BPL start button, there should be no power on the QSDVM340 rotation detection watchdog. Answer: "If there is power on the QSDVM340 rotation detection watchdog, there should be power on the NE water float, or the TSTH oil temperature watchdog, or the PSH oil pressure, or the QSV overspeed watchdog, or there should be no power on the BPA emergency stop signal." } }

. Question: FAN.AKTIF The fans are not working. Answer: "Check the QSDVM340 overspeed watchdog input and the DIZEL.STOP diesel stop contactor. Answer: "If there is power at the QSDVM340 overspeed watchdog input and no power at the DIZEL.STOP diesel stop contactor, the fans are expected to work .

. Question: The LSH oil pressure lamp is not working. Answer: "Check the PSH oil pressure or the TSTH oil temperature guard. Answer: "If there is power in the PSH oil pressure or TSTH oil temperature guard, the LSH lamp is expected to work .

. Question: The SONDL motor stop light is not on. Answer: "Please check the PSH-PSVD stepped oil pressure guard, TSTE water temperature guard, DIZEL.STOP diesel stop, and CEXA-9 warning connector. Answer: "If the PSH-PSVD stepped oil pressure guard or TSTE water temperature guard or DIZEL.STOP diesel stop and CEXA-9 warning connector are receiving power, the SONDL motor stop light is expected to work." } }

. Question: The VEHIM.TOTV totman air release valve is not working. Answer: "Check the PDHM.TOTPD totman pedal and ZHM totman cancel. Answer: "If the PDHM.TOTPD totman pedal receives power and the 14-second wait controller does not receive power, or if the ZHM totman cancel receives power, the operation of the VEHIM.TOTV air release valve is expected .

. Question: The SONHM.TOTL deadman's warning horn is not working. Answer: "Check the ZHM deadman's cancel and the PDHM.TOTPD deadman's pedal. Answer: "If there's no power in the ZHM deadman's cancel and the PDHM.TOTPD deadman's pedal receives power and the 7-second wait controller receives power, the operation of the SONHM.TOTL deadman's warning horn is expected .

. Question: The VEJ1 valve is not working. Answer: "Check the MPL17 manipulate 17 arm, QL lam connector, and the VEJ2 valve. Answer: "If there is power in the MPL17 manipulate 17 arm, and there is no power in the QL lam connector and VEJ2 valve, the VEJ1 valve is expected to work .

. Question: The VEJ2 valve is not working. Answer: "Check the MLP15 manipulator 15 arm, QL lam connector, and the VEJ2 valve. Answer: "If there is power in the MLP15 manipulator 15 arm,

and there is no power in the QL lam connector and VEJ1 valve, then the VEJ2 valve is expected to operate .

. Question: The S1 shunt contactor is not working. Answer: "Please check the Q60 light and the EV1 47 km/hour information. Answer: "If there is no power in the Q60 light and the EV1 47 km/hour information is receiving power, it is expected that the S1 shunt contactor will work." } }

. Question: The S2 shunt contactor is not working. Answer: "Please check the Q60 lamp and the EV2 64 km/hour information. Answer: "If there's no power in the Q60 lamp and the EV2 64 km/hour information is powered, it is expected for the S2 shunt contactor to operate .

. Question: The locomotive is not sanding. Answer: "First, check the VEHIM.TOT totman air release valve and the BPSA.BTN sanding switch. Answer: "If the VEHIM.TOT totman air release valve has no power or the BPSA.BTN sanding switch is powered, the locomotive is expected to sand. Answer: "Also, check QAPAT, S1 SHUNT, and S2 SHUNT. Answer: "If QAPAT, S1 SHUNT, and S2 SHUNT are powered, the locomotive is expected to sand." } }

. Question: The locomotive isn't releasing its brakes. Answer: "Please check the BPIF.BTN input of the brake release valve for locomotives and wagons and the VEHIM.TOT exhaust valve for totman air. Answer: "If the BPIF.BTN input of the brake release valve for locomotives and wagons and the VEHIM.TOT totman air exhaust valve are energized, the VEF.PIRJÃ-R locomotive brake release valve gets energized .

. Question: The VEICH GAS CUT isn't working. Answer: "Please check the Q60 light, MPL3 manipulate 3 lever on VLS11, and VEHIM.TOT. Answer: "If the Q60 light isn't receiving power, and if (MPL3 manipulate 3 lever is receiving power or (VLS11 and VEHIM.TOT) are receiving power), the VEICH gas cut valve gets power." } }

. Question: The SONPAT light is not on. Answer: "Check QAPAT, S1 ĀžĀ–NT and S2 ĀžĀ–NT. Answer: "If QAPAT skidding or S1 ĀžĀ–NT or S2 ĀžĀ–NT receive power, the SONPAT light will turn on .

. Question: The KRAN1 light doesn't go out. Answer: "Check the CEXA-9 warning connector, Q60 light, VLS15, and KRAN2. Answer: "If (CEXA-9 warning connector receives power and Q60 light doesn't receive power) and (VSL 15 or KRAN2 is powered) and ((QL lam connectors are powered and VSL3 is powered) or (VLS5 is powered and QL lam connectors aren't powered)), the KRAN1 light will go out." } }

. Question: The KRAN2 light does not go off. Answer: "Please check the QL lam connector, PSVD.825 at 825 RPM for KRAN2 sealing, and VLS15. Answer: "If the QL lam connectors are powered and (PSVD.825 at 825 RPM for KRAN2 sealing or VSL15 is powered) and KRAN1 is powered and (VLS5 or KRAN2 is powered), the KRAN2 light will turn off .

. Question: The SONQ60 light is not on. Answer: "Please check BPEFA.ĀžZ fault clearance button, VLS15, TTSE, PSH-PSVD, SONQ0.LEAK, and OVER.CURRENT. Answer: "If the BPEFA.ĀžZ fault clearance button or VSL15 is powered and (SONQ60 light or TTSE or PSH-PSVD or SONQ0.LEAK light or OVER.CURRENT light) is powered, then the SONQ60 light will be powered." } }

. Question: QL LAM connectors are not getting power. Answer: "Check KRAN1, VEHIM.TOTV, VEL1, VEL2, and VEL3. Answer: "If KRAN1 and VEHIM.TOTV are powered, then VEL1, VEL2, VEL3 lam connectors get power, and QL lam connectors will also get power .

. Question: CEXA is not getting power. Answer: "Please check VEHIM.TOTV, SONQ60 lamp, VLS3, CEXA-9, QL lam connectors, and VLS11. Answer: "If VEHIM.TOTV is getting power and the SONQ60 lamp is not, and if VLS3 is getting power and CEXA-9 is getting power or (if QL lam connectors are not getting power and VLS11 is getting power), then CEXA will get power." } }

. Question: JHY REOSTA is not getting power. Answer: "Check KRAN2 and QAPAT. Answer: "If KRAN2 is not getting power or if QAPAT is getting power, then JHY REOSTA will get power .

. Question: VEADH THROTTLE isn't receiving power. Answer: "Check VLS7 and KRAN2. Answer: "If VLS7 and KRAN2 are powered, VEADH THROTTLE will receive power .

. Question: VEICH GAZ KES is not getting power. Answer: "Check the VLS11, KRAN2, and SONQ60 lights. Answer: "If VLS11 and KRAN2 are powered and SONQ60 is not, then VEICH GAZ KES will get power .