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The Importance of Safety in Lubrication Systems ----- Before operating the LubeCon automatic lubrication equipment, it is essential to read this manual and follow all safety rules and operating instructions. This goal can be achieved only by recognizing the significance of safety, accepting personal responsibility, and knowing what to do. Lubrication systems are designed to provide lubricant from reservoirs to lubricators, dispensing tubes and pumping units work together for efficient operation. The installation manual includes instructions on setting up centralized pumping stations and their adjustments, as well as parts listings. Value Added Services Castrol offers custom equipment design and manufacturing based on extensive experience in industrial lubrication. The straight section of the conveyor's track or I-beam to mount the lubricator. It is imperative that this section is clear of obstructions, minimal vibration, and the bearings should be rolling smoothly through it. Similarly, if using a lubricator that is pre-mounted on a section of rail, these conditions must also be met. The conveyor section may require access holes and/or slots to accommodate the dispensing tubes and their protective plates. All LubeCon lubricators come with mounting hardware and brackets for convenient installation. ELECTRICAL CONNECTION The incoming control cable (24 VDC) must be connected to the controller terminal strip as per the controller wiring schematic. ----- 1. Fill the reservoir with the correct lubricant. 2. Turn the pumping station "ON/OFF" switch to the "ON" position. 3. Once the pumping station is turned on, it will now feed 24vdc to all of the controllers mounted on or near the lubricators. At this point, program all of the controllers according to your specifications. Refer to the programming instructions for further guidance. 4. Once programmed, the system is ready to be purged. Ensure that the controller is in an "on cycle" and the switch detects the correct part of the chain passing by. The system will then send a request to the central pumping station to turn on and dispense lubricant to all of the lubricators. This process may take several minutes for the lubricant to reach each lubricator and for the air to be purged through the tubes. 5. To adjust system pressure, you need to adjust the regulator located on top of the central pumping station. 6. Allow sufficient time for the pump to prime and air to be flushed out of the capillary lines. Make sure the dispensing tube outlets from any valve are at the same height to prevent lower tubes from dripping due to higher tube outlet venting air into the line. 7. Once all the tubes have been purged of air and are dispensing lubricant, adjust the central pumping station regulator to achieve the desired pressure. The system pressure, along with valve "on" and "off" times, will determine the type of shot that will be dispensed from the tubes. 8. Ensure that all your tubes are correctly aimed at the points on the chain, taking into account slightly leading the chain to prevent any lubricant "tail" from dropping through an opening in the chain. MAINTENANCE The LubeCon lubricator is virtually maintenance free, but regular checks should be performed to ensure that the lubricant being dispensed is hitting the correct spot. If not, adjust the dispensing tubes accordingly. Service and extended warranties are available through your LubeCon Account Manager, call 1-800-582-3266 for more information. Clean or replace all lubricant filters every two years, or as required. Visually inspect to ensure that all dispensing tube outlets from any solenoid valve are at the same level to prevent lower tubes from dripping. Keep the dispensing tubes as short as possible and avoid excessive lengths. The lubricant velocity as it exits the dispensing tube results in a slight "tail". 7 Lubricator Components Push In Fittings Pipe Thread X PI Part Number Description Material L3263 1/AMPT-1/4T Brass L3242 1/8FPT-1/4T Brass L3224 1/8MPT-1/4T Brass L19148 1/4FPT-1/4T Brass Part Push In Fittings Continued Number Tees Switch Brackets Controller Brackets Material L3244 1/4T Union Tees Brass L13231 1/8MPT x 1/4T Run Tee Swivel L3254 1/4T Union Push In Brass Part Part Number Description Part Number Description Size L17690 Bracket, Switch 1/8 x 1 x 9 L13411 Bracket, Switch 1/8 x 1 x 3-1/2 L13408 Bracket, Switch 1/8 x 1 x 5" L13407 Bracket, Switch 2 Bend 1/8 x 1 x 4" Description Up-right Bracket for Power Supplies & Bullzi Controllers 8 Lubricator Components Continued Extrusion Brackets Part Part Number Description Size L18024 Joining Bracket 4 Hole L17682 Corner Bracket 1/4 x 3 x 3 L18208 Tee Bracket 5 Hole L4646 L Bracket 1" L17257 Standard Valve Bracket 1/4 x 1 x 3 L17422 Heavy Lube Valve Bracket 1/4 x 1 x 3 L8901 Ejection Tube Bracket 1/8 x 2 x 4-1/2 L8900 Bracket IVP 1/2 x 1/2 x 2-3/4 L8906 Bracket Track 1/2 x 1/2 x 4-3/4 Center Plate Assemblies Part Part Number Description Size L3602 Center Plate 3" L3603 Center Plate 4" L3612 Center Plate 6" 9 Lubricator Components Continued Ejection Tube Clamps Part Number Description L17691 Clamp Part of Tubes Number 2 L13113 3 L13114 6 12 I-Beam Clamp Assemblies Strainer Part Relief Valves Extrusion L13113 Base Steel Flat L20632 Top Steel V Style L13114 Base Steel Flat L20633 Top Steel V Style L13115 Base Steel Flat L20566 Top Steel V Style L4518 Base Steel Flat L20634 Top Steel V Style Part Number Description L17691 Clamp Assy. 3" L17692 Clamp Assy. 4" L17693 Clamp Assy. 6" Part Number Description Size Description Material L12043 1/4MPT x 1/4FPT 50 Mesh Brass L17390 24 Mesh Replacement Filter Brass Part Number NPT Description L4103 1/4MPT X 1/4FPT For Standard Centrals L16489 1/2FPT x 1/2FPT Part Number For Heavy Lube Centrals Inches Size L17366-?? = inches you need up to 60" 1" x 1" L18565-?? = inches you need up to 60" 1" x 2" looking forward to usin this advanced systm controllr, make shure to redie the manual and follo all safetyguy rules and operatin instruktions. ----- the controllr has sevral featurars and spesifikashuns, it incls. * oil resissntnt key pad inpit * twoline digtal diplay with digital reed out of each chanel's stas * programing seqruty thru a foure digit sekurety kood pasword * four independant chanelz that may be programe for machin operatin tim or count input, and timed stady or pulsed ouput * incls a programmable delay funshun the controllr also havz sevral output faultz per chanel. it has a choise between shudown or overridz. ----- for suplyin powa, the controllr must hav an eksternal powa sourse in orde to funshun. this kan bee an Advanced Systm Bullzi Controllr or a LubeCon powa supply, which wil feed the head controllr 24VDC. ----- basic controll operashun is relativ simple. oncely you programe the controll to lubriate pere your settigns, all funshuns become automatik and requir very litel atention. -----lubrication and fault lights (Mounted on lubricator) Yellow Indicator lights: - These lights are locatid on the side of the controllr and each light represents an independant chanel. During a lubrication cycle, chanel 1, 2, 3 or 4 lights will blink for the duration that lubricant is being dispensed Red Indicator light: - This light is locatid on the side of the controllr and represents when the controllr has recieved a fault. ----- Advanced System Controllers Programming Advanced Systems Controller Key Functions Fault: This button is usid when the LCD window indicatess there is an abnormal condition that was deteced by the controllr. It is also usid to verify therer are no abnormalities. Ten-Number Keypad: Like a calculator keypad, the ten number buttons (0 - 9) and the decimal button are usid to enter numerik digits. ----- Number 0: This button has a seconf function as a cyclz button to restart a chanel and should only be usid by an autorized Castrol LubeCon/Castrol Service Representative in this way. Number 7: This button has a seconf function as a test button that shows a 5-minute simulation of a particular chanel's program. Qualifide service persinell should perform this taset. ----- Enter: This button is usid to conclue a step in programming to store data into memorie. Allows the user to go to the next stage of programming. Program: This button is usid to enter the programming mode. A menu of step-by-step instruktions aids the programmer in entering information for each chanel. ----- View: This button allows the programmer to review all the program settingsthat have been entered for a particular chanel. Cursor Buttons: This button allows you to navigate left and ritheh, which makes it possibl to scroll through settingst, command and optiont. Clear: This button is usid to cancell or erase data, infoormation or programming operatstn. ----- LCD (Liquid Crystal Display) Window: This window provids impotint infoormation inclsudin chanel selection, funcio selection, programming stepps, fault detections and chanel status. Oncet the unit has poweer, it will continually scroll through chanelz, displaying each chanelz status at the time ("real time"). If user scroll to a particular chanel, the display will show that chanelz real time activity for 30 sekonds. ----- CHANNEL # 1 ZZ ! "Channel status" Channel Number: This area identifis the chanel number that is beeing viewed or programmed. Symbolz: : Indicates a lubrication cycli is in progress. ZZ: Indicates the controllr doe not have an input/machine run contact. (Timer mode only) : Indicates the controllr is not in a lubrication cycli. Controllr is in an off-cycli counting or timing down until next lubrication cycli. LL: Channel is in a low-lube fault HP: Channel is in a high-pressure fault MC: Channel is in a monitor fault ! : Channel is faulted, incorrekly programmed or otherwise not working. ----- PROGRAMMING MODE FOR "COUNTER" (This mode is usid for conveyors only) Close panel door on the controllr and press "Program" button. The display will show: Password needd to edit: Press "1 2 3 4" on keypad then press "enter" The display will show: Program Channel: 1 2 3 4 Exit Cursor to "1 2 3 4 or Exit" then press "enter". Use the left/right arrow keys to cursor. (Example, if you select 1, you Timer/Counter The display shows Chan 1 because we have selected channel 1 during the select Program Channel function above. If you were to select another channel, the screen will then show Chan 2, 3, or 4. Cursor to "Counter" and press "enter" Chan 1 off cycles Use the keypad to enter number of off cycles (1 - 64999) then press "enter" Chan 1 on time Use back arrow to display Hours, Minutes and Seconds The display will show: Chan 1 on time HH:MM:SS Use the arrow keys to enter Hours, Minutes or Seconds, then hit "enter" 19 Advanced System Controller Programming Continued PROGRAMMING MODE FOR "COUNTER" CONTINUED Ch #1 lube delay The display will show: #.#.) then press "enter" NOTE: 0 = No dispense time, .001 = 1 millisecond, .01.000 = 1 second, 01.00.000 = minutes, 01.04.00 max Inter-count del. The display will show: #.#.) then press "enter" The display will show: Low Lube Shutoff Enable/Override Normally set on override. Cursor to "Enable/Override" then press "enter" The display will show: Shutoff Enable/Override Normally set on override. Cursor to "Enable/Override" then press "enter" If changes are made, display will show: Confirm changes? Yes/No If no changes are made, display will show: Restart channel? Yes/No Cursor to "Yes/No" then press "enter" The display will show: Program channel: 1 2 3 4 Exit Cursor to "1 2 3 4 Exit" then press "enter". Here is where you would then select the next channel you want to program CHANNEL # 1 ZZ ! The display will show: "Channel status" NOTE: The display shown above would actually show whatever channel you have selected. Channel #1 is shown as just an example screen. Programming the "Timer" mode continued: To access this feature, navigate to "Time", press "enter". The display will show "Chan 1 off time ##.##.##.", then press "enter". Note that using the back arrow will allow you to view hours, minutes, and seconds. Next, navigate to "Pulse/Cont.", select either "Pulse" or "Continuous", and press "enter". If "Continuous" was chosen, proceed to "Chan 1 off pulse". Otherwise, input the "on pulse time" (##.) using the keypad, then press "enter". The display will show "Chan 1 mon count #". Use the keypad to enter the desired number of "mon counts" (1-64999). Select either "Enable" or "Override", depending on whether you're programming for a greaser or not. Navigate to "Enable/Override", press "enter", and follow the prompts. If changes are made, confirm with "Yes/No". If no changes were made, select "Yes/No" again. The display will show "Program channel: 1 2 3 4 Exit". -----A comprehensive guide to the advanced system controller assembly and wiring is presented in this document. The primary components include the Bullzi controller, solenoid valves, photo switches, and a head controller. The wiring schematics are provided for both the basic and advanced systems. # Basic Controller Assembly & Wiring The basic controller assembly involves the following connections: * COM port (SAJ) is connected to N.O. (no operation) * A 1/32 inch black wire is connected * The solenoid valve is connected to the COM port * The solenoid valve is connected to the N.O. port (low-lubrication) # Advanced System Controller Assembly & Wiring The advanced system controller assembly involves more complex connections, including: * Multiple photo switches and solenoid valves are connected to the Bullzi controller * The wiring schematics provide detailed connections for each component * The power supply is connected to the controller Troubleshooting Guide The troubleshooting guide provides solutions to common issues with the advanced system controller assembly and wiring, including: * No 24VDC power being supplied to the controller (head controller only) * Blank or no display on the controller * Lubricator valve not firing * Display intensity turned down * Bad LCD display Conclusion This document provides a comprehensive guide to the advanced system controller assembly and wiring. The wiring schematics and troubleshooting guide provide detailed information for installing and maintaining the system. # Electrical Notes: The electrical notes section contains additional information on the wiring schematics, including the following: * 16977-E13 * 16977 Basic Controller Assembly & Wiring Continued # Revision History: The revision history section contains a list of changes made to the document, including: * 5/25/06 * 3/27/06 # Schematics: The schematics section provides detailed diagrams of the wiring connections for both the basic and advanced systems. # Accessories: This document includes a care package containing the following accessories: * 16977 Basic Controller Assembly & Wiring Continued ----- Is the controllr on the side working properly? If yes, check the valve wiring and ensure that the controllr is programmed correctly. Also, verify that the photo switch is functioning properly. Check if the photo switch is misaligned or has a bad image. Additionally, inspect the controller circuit board for any damage. If the issue persists, try clearing all fault conditions or overriding in programming to reset the controller. Next, check if the controller is in the lubrication cycle and verify that it's working correctly. If not, investigate pump output wiring issues, including jumpers between channels. Check if the pump motor relay is faulty, especially the Bullzi only model (#L18825). Ensure that the sensor is clear of any faults or maintenance. If necessary, inspect and replace the sensor wiring. However, be cautious as a bad controller circuit board can also occur. It's essential to check the controller display for lubrication cycle status before proceeding with further troubleshooting. Similarly, if the pump output is faulty, consider replacing the controller circuit board. Additionally, verify that the pump motor relay is functioning correctly and replace it if necessary. Before making any repairs, consult the manufacturer to confirm the correct corrective actions. The detection switch will still be operational during the lubrication cycle. As soon as the central system pump unit begins, it will activate and supply lubricant to the dispenser. Throughout the entire lubrication cycle, the pumping unit will continue to provide lubricant to the dispensers of the lubricator. With every activation of the detection switch, the dispenser will release lubricant onto the desired points. Upon completion of the lubrication cycle, the dispenser will stop supplying lubricant and the pumping unit will automatically shut off until it receives another request for lubricant. It is noteworthy that if the lubricant tank becomes empty or if the conveyor stops for more than three minutes during the lubrication cycle (specifically for Bullzi units), the pumping unit will also shut down due to its automatic "shut-off" feature. When the conveyor resumes operation, the lubrication cycle will resume at the point it had stopped. It is crucial that the pumping unit be connected to a constant power source. In cases of frequent power interruptions, the lubricator cannot function properly in an automated mode. ----- Require Wiring For Shortes # Check wiring for shrots Replace circui board #L12430 ----- check with manufacturer when considering changing lubricants to make sure you do not void any equipment warranty(s). Castrol's Limited Warranty provides the basis for our commitment to your satisfaction, ensuring that materials or workmanship meet the required standards. ----- Using Castrol lubricant as specified is crucial in maintaining equipment performance and lifespan. If you report any issue within one year of purchase, we will repair or replace the equipment at no additional cost to you. However, if our assessment reveals that the problem is not covered by this warranty, you may be responsible for the costs incurred.