



Automated Lubrication System

Installation/Operation Manual

**Case IH Combine
Models 2144, 2166, 2188,
2344, 2366, 2377 and 2388**

Revised 2-4-5

System Overview

Thank you for purchasing the Quicklub® On Board Grease System for your Case IH Combine.

The system has been designed to increase the component life and overall productivity of your equipment, while reducing labor costs related to the traditional method of point-by-point manual lubrication. The system consists of the Quicklub® progressive metering valves that positively displace and meter precise amounts up to N.L.G.I. #2 shop grease down to -13°F temperature. Grease is distributed to each connected point through high-pressure tube and hose.

This Quicklub® kit is designed to work with your Case IH Combine models 2144, 2166, 2188, 2344, 2366 2377 and 2388. There are subtle differences between models and years and this kit will accommodate all changes. Please note that the 2002 model year incorporates grease banks for ease of installation of ten grease points. You may simply remove the grease zerks on the banks and connect the tubing with fittings included in the kit. Also, the kit was designed with excess lengths of tubing. Simply cut your tubing to length and install.

This is a fully automated lubrication system utilizing a 12 volt DC heavy duty electric pump with integrated timer that dispenses lubricant to the progressive metering valves at timed intervals. The lubricant is pumped to the primary metering valve, which distributes it to secondary metering valves in specific zones of service. The secondary metering valves deliver measured amounts of lubricant proportional to each lube point in its zone.

The components are connected with lengths of high-pressure hose and tubing that are included in the kit. Contents of the kit are specifically marked to coincide with this instruction manual to achieve a consistent and quality installation.

This manual has been included with the system as an easy-to-follow guide for installation and operation. Keep it with the equipment, as it is also a trouble-shooting manual to keep your automated lubrication system working properly.

This kit also contains Installation and Operation Instructions for the QLS 401 system supply pump. Please refer to this manual for detailed information on operations, maintenance, trouble shooting and technical data. If missing, please contact Lincoln and request service page Q3-9, form #402865.

Durable and reliable, the Quicklub® On Board Grease System has been carefully designed using industry proven products to provide long and trouble-free life under the most severe farming conditions.

For further information on this system please contact Lincoln Technical Services at 1-314-679-4200 ext. 4782# or fax 1-314-679-4357.

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LIMITED WARRANTY

The following warranty relates to material and workmanship defects for components supplied in this kit however, standard maintenance is required for upkeep and reliability. In addition standard hose & tube routing practices will be needed, as described in this installation manual, to assure proper performance.

The installed system must be inspected periodically to correct any chaffing, rubbing or binding of the supply and feed lines. Connections must also be checked to insure continuity. Key point, is that due to the environment these combines operate in, normal wear and maintenance will be required.

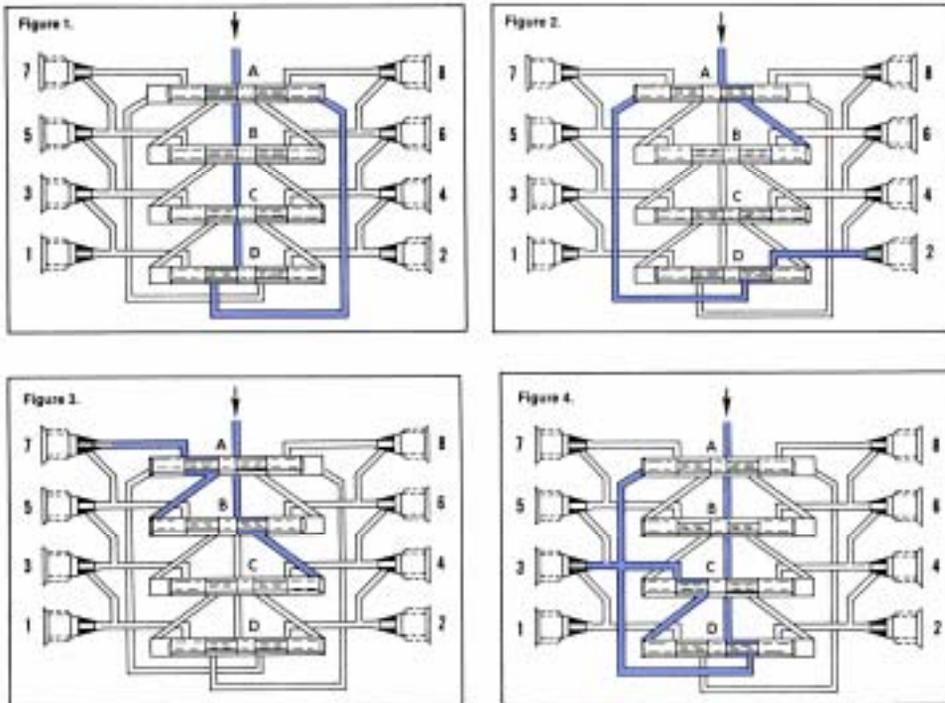
LINCOLN warrants the equipment it supplies to be free from defects in material and workmanship for one (1) year following the date of purchase. If equipment proves to be defective during this warranty period it will be repaired or replaced, at Lincoln's discretion, without charge provided that factory authorized examination indicates the equipment to be defective. To obtain repair or replacement, you must ship the equipment, transportation charges prepaid, with proof of date of purchase to a Lincoln authorized Warranty and Service Center, within the one (1) year following the date of purchase.

This warranty is extended to the original retail purchaser only. It does not apply to equipment damaged from accident, overload, abuse, misuse, negligence, faulty installation or abrasive or corrosive materials, or to equipment repaired or altered by anyone not authorized by Lincoln to repair or alter the equipment. This warranty applies only to equipment installed and operated according to the recommendations of Lincoln or its authorized field personnel. No other express warranty applies. Any implied warranties applicable to equipment supplied by Lincoln, including the warranties of merchantability and fitness for a particular purpose, will last only for (1) year from the date of purchase. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

In no event shall Lincoln be liable for incidental or consequential damages. Lincoln's liability on any claim for loss or damage arising out the sale, resale or use of equipment it supplies shall in no event exceed the purchase price. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights. You may also have other rights that vary by jurisdiction.

THE HEART OF THE QUICKLUB SYSTEM:

At the heart of every Quicklub System is the metering valve or progressive distributor block, designed to positively meter the input of lubricant (oil up to NLGI #2 greases) out to the connected number of lubrication points irrespective of distance and back pressure. The inlet passageway is connected to all piston chambers at all times with only one piston free to move at any one time. With all pistons at the far right, lubricant from the inlet flows against the right end of piston A (fig. 1).



Lubricant flow shifts piston A from right to left, dispensing piston A output through Connecting passages to outlet 2. Piston A shift directs flow against right side of piston B (fig. 2).

Lubricant flow shifts piston B from right to left, dispensing piston B output through valve ports of piston A and through outlet 7 (fig. 3).

Lubricant flow shifts piston C from right to left dispensing piston C output through valve ports of piston B and through outlet 5. Piston C shift directs lubricant flow against right side of piston D (not illus.)

Lubricant flow shifts piston D from right to left, dispensing piston D output through valve ports of piston C and through outlet 3. Piston D shift directs lubricant through connecting passage to the left side of piston A (fig. 4).

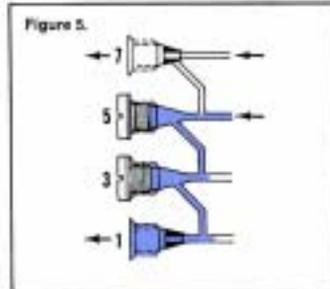
Lubricant flow against left side of piston A begins the second half cycle which shifts pistons from left to right, dispensing lubricant through outlets 1, 8, 6 and 4 of the divider valve.

Cross-porting (Divider Valve)

Installing a closure plug in one or more outlets may combine outputs from adjacent outlets. Lubricant from a plugged outlet is redirected to the next adjacent outlet in descending numerical order.

Outlets 1 and 2 must not be plugged since they have no cross-port passage to the next adjacent outlet.

In figure 5 outlets 5 and 3 are cross-ported and directed through outlet 1. In this example, outlet 1 will dispense three times as much lubricant as outlet 7. The tube ferrules in outlets 1 and 7 block the cross-port passage so that lubricant flow is directed through the outlets.



Installation Steps:

The following steps will assist the installer with a systematic approach for installing the Quicklub Automated lube system on Case IH Combines. By following the steps outlined, a successful installation will be realized and will increase the service life of all pins and bearings connected to the lube system.

- Remove all grease fittings from lube points that will be connected to the lube system.
- Install appropriate adapters and tube fittings in lube points.
- Position valve mounting brackets to machine.
- Attach metering valves to previously mounted brackets.
- Use tubing cutters, cut to length individual tubing feed lines from secondary valves to lube points and make connections.
- When installing feed line tubing into the Quickline fittings, push until firmly seated.
- Neatly bundle, loom with spiral wrap provided and tie strap feed lines wherever possible to protect from abrasion.
- Size, cut and attach appropriate hose ends to all supply lines. The high pressure hose is used as supply lines from the pump to the primary, the primary to the secondary. It is recommended that the supply lines be routed and cut only after all valves and the electric pump have been attached to the machine. This assures the supply line is cut to the proper length. Also, allow for unrestricted movement while the machine is in motion.
- Route supply lines from the pump to primary valve and from the primary valve to the secondary valve and make connections.
- Secure supply/feed lines with tie straps, so not in harms way.
- Mount pump and make electrical connections (electrical diagram included with the pump).

Zerk-Lock Assembly Instructions



1. Place a Zerk-lock onto the grease fitting.



2. Tap Zerk-lock onto fitting. Position Zerk-lock on grease fitting and secure by gently tapping with hammer and staking tool.



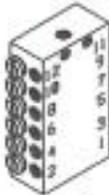
3. Thread a Quickline completely into the Zerk-lock.



4. Push the tube into the Quickline adapter.

CASE IH COMPONENT GLOSSARY

CASE IH PART NUMBER (LINCOLN) and DESCRIPTION



429614A1 (619-26648-2) - Divider valve SSV12 with 12 port outlets.



432870A1 (619-26645-2) - Divider valve SSV10 with 10 port outlets.



429617A1 (619-26646-2) - Divider valve SSV8 with 8 port outlets



700706835 (619-27121-1) - Divider valve SSV6 with 6 port outlets.....



419-412 (20026) - 1/4-28 X 1/8 Adapter, 90 Degree.....



429352A1 (244047) - QL Fitting 1/4 X 1/8 Straight.....



429349A1 (243899) - 90° Swivel quicklink fitting.....



219-82 (20029) - 1/8" NPT 90° Adapter.....

CASE IH COMPONENT GLOSSARY

CASE IH PART NUMBER (LINCOLN) and DESCRIPTION



B96365 (249520) - Mounting bracket assembly.....



432860A1 (246416) - Valve mounting bracket.....



B96367 (P40161202573) - QLS301 With Back Mounted SSV12.....



219-57 (5410) - Grease Fitting (90 Degree).....



B96368 (241110) - Feed Line Bundling Spiral Wrap (10ft.).....



87297502 (270784) - ZERK-LOCK FITTING



87297502 (13154) -ADAPTER FITTING

CASE IH COMPONENT GLOSSARY

CASE IH PART NUMBER (LINCOLN) and DESCRIPTION



B96361 (270931) - .750 P-style clamp for 12mm bolt.....



B963362 (244054) - QL Fitting 1/4 X 1/4 90 Degree.....



B96363 (244055) - QL Fitting 1/4 X 1/4 Straight.....



B96364 (244058) - 1/4 Tube X 1/4 Tube Splicer Union.....



430133A1 (241288) - 1/8" Grease filled high pressure hose (40 ft. c



430134A1 (242050) - 1/4" grease filled black nylon tubing (50 ft coil)



429353A1 (246002) - 1/8" NPT field installable hose coupling.....



LI8331 (241054) - Nylon Ties (100 count poly bag) 7" Length....

CASE IH COMPONENT GLOSSARY

CASE IH PART NUMBER (LINCOLN) and DESCRIPTION



B96369 (14562) - Two Station anchor block.....



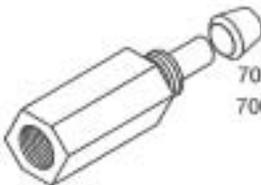
217-1061 (67448) - Male run tee.....



B96370 (5045) - Straight leak-proof grease fitting.....



429343A1 (66649) - 1/8" NPT Straight swivel.....



700706678 (404-22581-2) - Clamping ring (ferrule).....
 700720095 (239857) - Valve outlet adapter.....



B96371 (10182) - 1/8" Straight adapter.....



700714008 (244883) - 1/4" tube Quicklinc valve outlet fitting.....



429615A1 (303-17499-3) - Valve closure plug for Black divider valves

CASE IH COMPONENT GLOSSARY

CASE IH PART NUMBER (LINCOLN) and DESCRIPTION



(11337)

- AIR PISTON NUT



(14054)

- ADAPTER FITTING



(50057)

- BOLT



(246849)

- BOLT



(270784)

- ZERK-LOCK FITTING



(13154)

-ADAPTER FITTING



(50025)

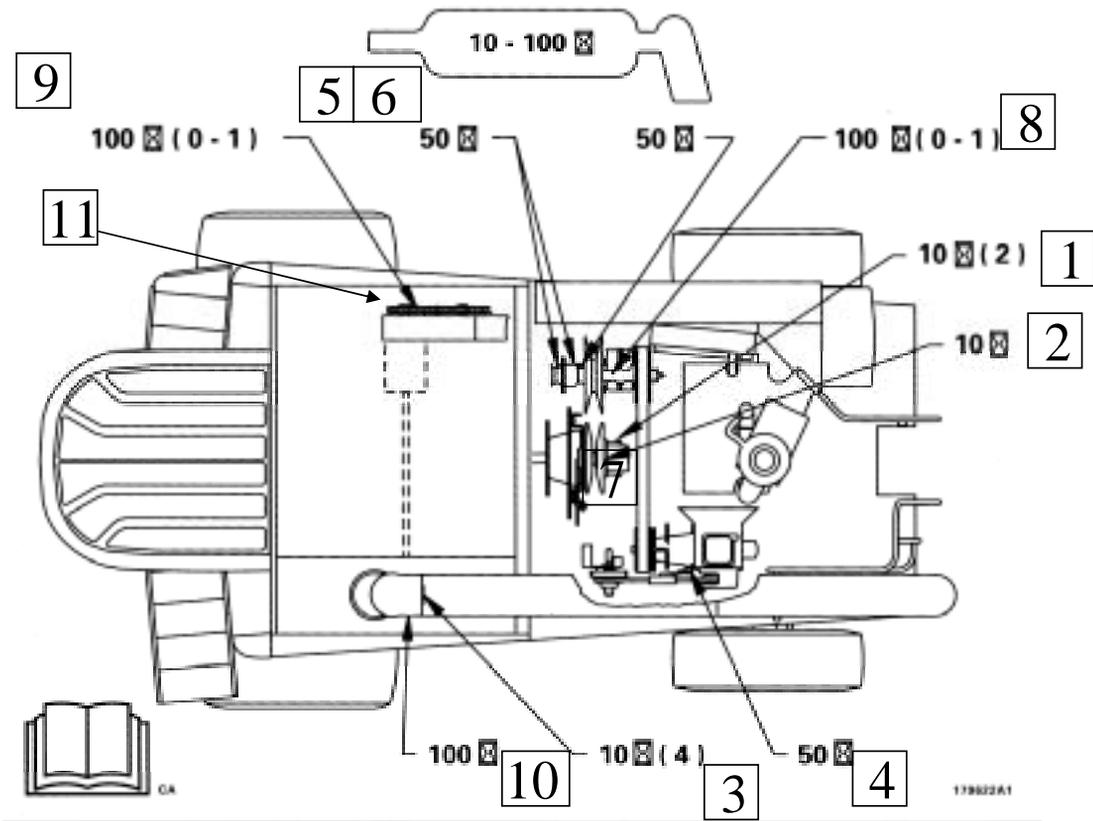
-BOLT



(51055)

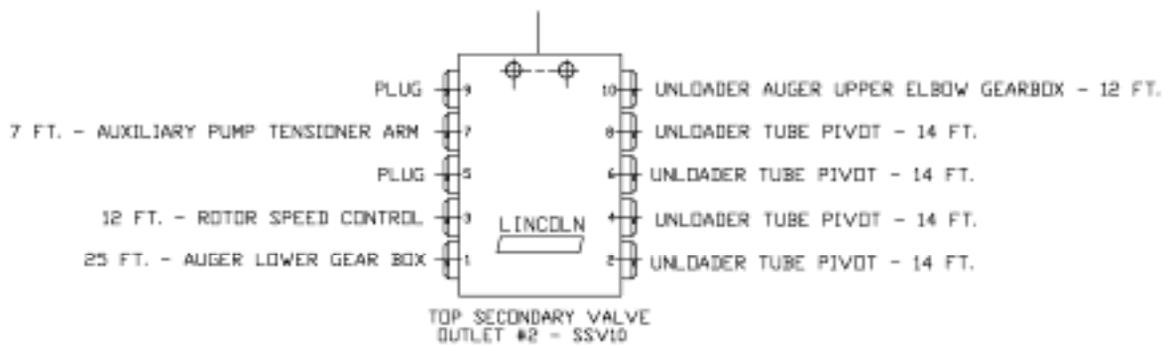
-NUT

Grease Fittings - Top

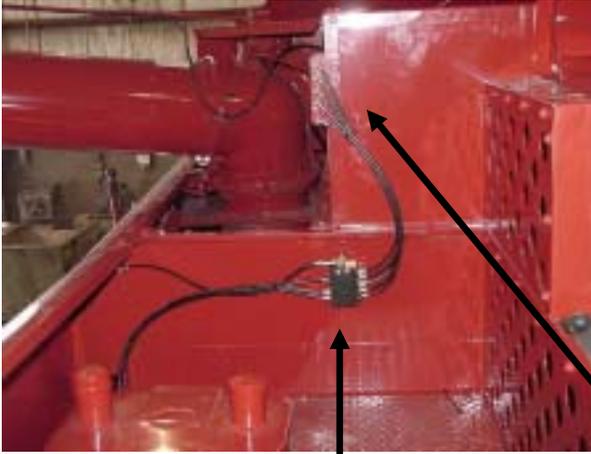


Lube Chart Service Points

1. Rotor Driven Pulley (Rotating). Cannot be serviced by automatic system.
2. Rotor Drive Cam Bearing (Rotating). Cannot be serviced by automatic system.
3. Unloader Tube Pivot (4 points).
4. Auxiliary Pump Tensioner Arm.
5. Rotor Speed Control.
6. Rotor Drive Pulley (Rotating). Cannot be serviced by automatic system.
7. Rotor Speed Control (Rotating). Cannot be serviced by automatic system.
8. Separator Jackshaft Rotating). Optional - Can be picked up through outlet 9.
9. Not used.
10. Unloader Auger Upper Elbow Gearbox.
11. Auger Lower Gearbox.



Top Grease Fittings



Mount Top Secondary Valve and mounting bracket on wall below unloader chute, at end of walkway.



2003

2002 and prior.

Install five of #243699 (2003) or five of #244054 (2002 and prior) fittings, replacing grease zerks for Unloader tube pivots and Unloader Auger upper Gearbox. Route/install lines from **Outlets 2, 4, 6 & 8** of valve.



Install one of #20026 adapter and #244047 fitting, replacing grease zerk for Inclined Auger Lower Gearbox. Route/install tubing from **Outlet 1** of valve to bulkhead fittings #51055 and 13154, installed in side panel as shown in top left picture. This bulkhead fitting will require a 5/16" drilled hole. Install one 244047 into the outer end of bulkhead and a 244054 in the inner end of bulkhead. Route/install tubing (routing as shown to the right) to grease point fitting (fitting above).



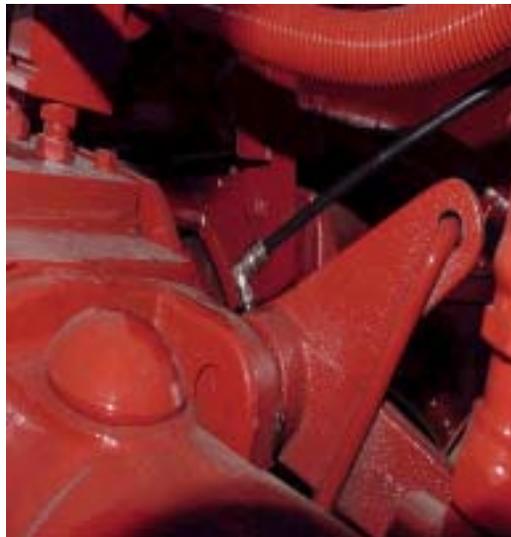
(Routing as shown above 15 in both pictures).



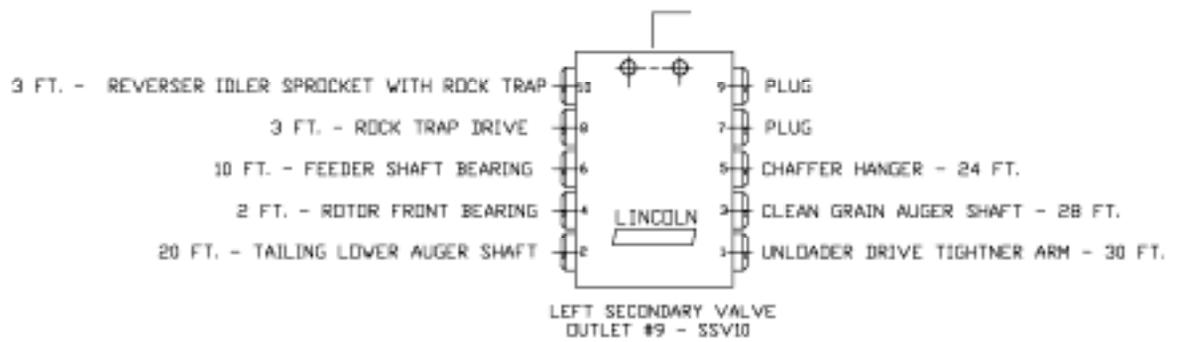
2002 and prior. Install one of #244054 Fitting, replacing grease zerk or Unloader Auger Upper Elbow Gearbox. Route/install tubing from **Outlet 10** of valve.



Install one of # 244055 fitting, replacing grease zerk for Rotor Speed Control. Route/install tubing from **Outlet 3** of valve.



Install one of # 244054 fitting, replacing grease zerk for Auxiliary Pump Tensioner Arm. Route/install tubing from **Outlet 7** of valve.



Left Grease Fittings



Mount Left Secondary Valve and bracket behind left front wheel, behind cab entry ladder.



Install one # 244055 fitting, replacing grease zerk for Chaffer Hanger. Route/install tubing from **Outlet 5** of valve.



Install one # 244055 fitting, replacing grease zerk for Unloader Drive Tightener Arm. Route/install tubing from **Outlet 1** of valve.



Install one # 244055 fitting, replacing grease zerk for Rock Trap Idler Gear. Route/install tubing from **Outlet 10** of valve. If option is not included, remove tubing and Quickline fitting from valve and replace with closure plug #303174993.



Install one #244055 fitting, replacing grease zerk for Tailings Lower Auger Shaft. Route/install tubing from **Outlet 2** of valve.



Install one #244055 fitting, replacing grease fitting for Rotor Front Bearing. Route/install tubing from **Outlet 4** of valve.



Install one # 244055 fitting, replacing grease zerk for Clean Grain Auger Shaft. Route/install tubing from **Outlet 3** of valve.

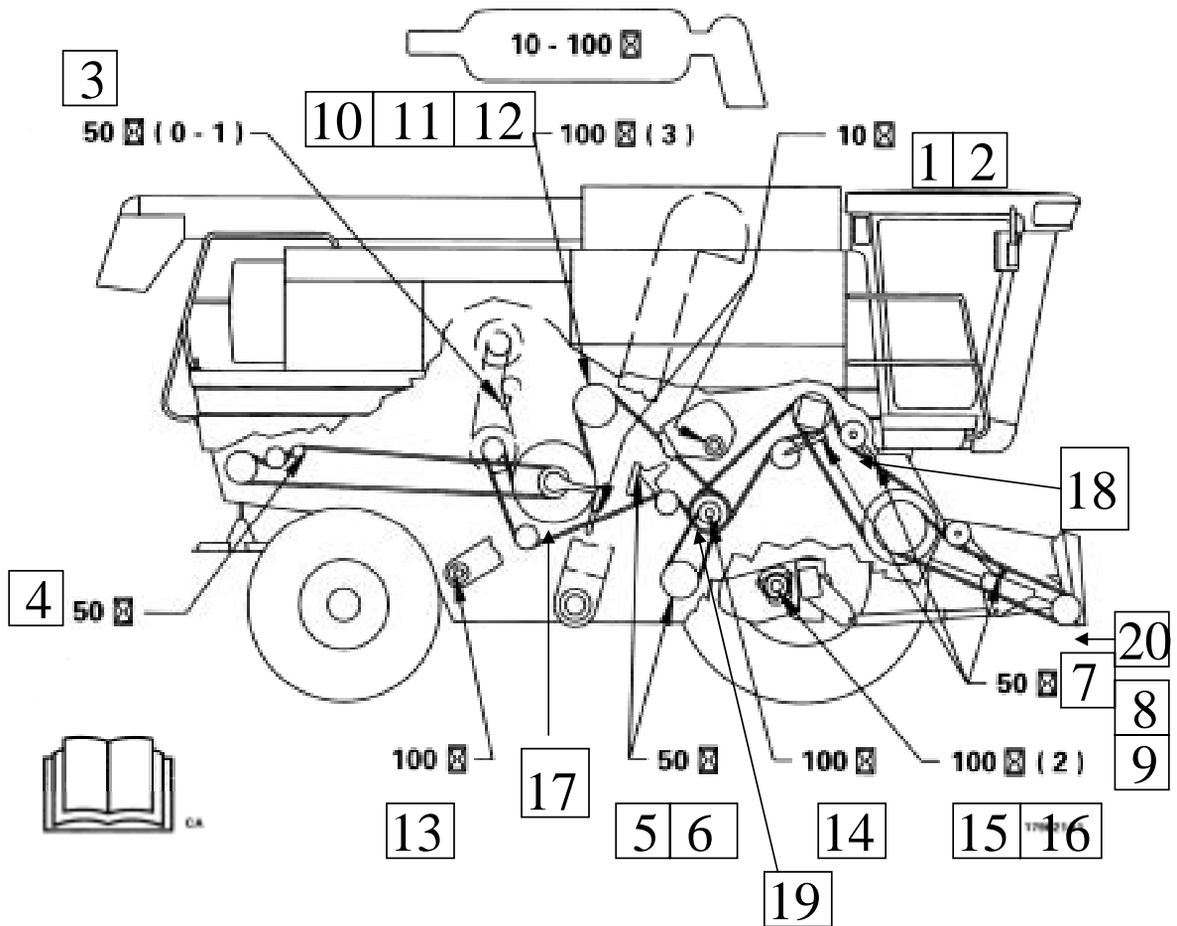


Install one # 244055 fitting, replacing grease zerk for Feeder Shaft Bearing. Route tubing from **Outlet 6** of valve.



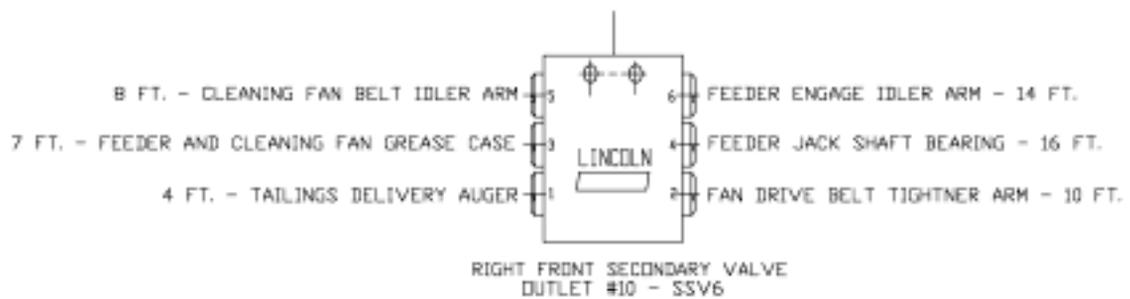
Install one # 20026 adapter and # 244047 fitting, replacing grease zerk for Rock Trap Drive. Route tubing from **Outlet 8** of valve. If option is not included, remove tubing from valve and replace with closure plug, # 303174993.

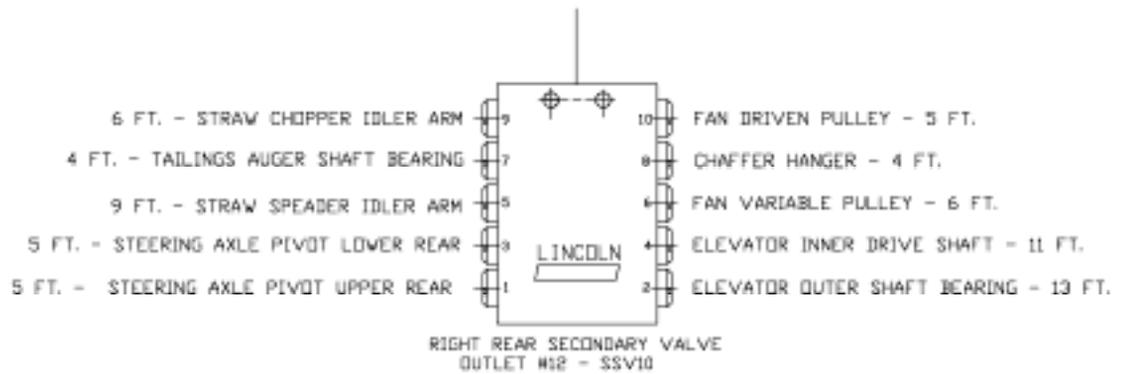
Grease Fittings - Right Side



Lube Chart Service Points

- | | |
|---|---|
| 1. Chaffer Hanger | 15. Drive Wheel Coupling (Rotating) |
| 2. Tailings Delivery Auger Bearing | 16. Drive Wheel Coupling (Rotating) |
| 3. Straw Chopper Idler Arm | 17. Shaker Shaft Drive Slip Clutch (Rotating) |
| 4. Straw Spreader Idler Arm | 18. Feeder and Cleaning Fan Grease Case |
| 5. Fan Driven Pulley | 19. Fan Variable Pulley |
| 6. Clean Fan Pulley (Rotating) | 20. Feeder Jackshaft Bearing |
| 7. Cleaning Fan Belt Idler Arm | |
| 8. Feeder Engage Idler Arm | |
| 9. Fan Drive Belt Idler Arm | |
| 10. Elevator Inner Shaft Bearing | |
| 11. Elevator Drive Slip Clutch (Rotating) | |
| 12. Elevator Outer Shaft Bearing | |
| 13. Tailings Auger Shaft Bearing | |
| 14. Fan Drive Trust Bearing (Rotating) | |





Right Grease Fittings



Mount **Right Rear Secondary Valve** and bracket as shown above.



Mount **Right Front Secondary Valve** and bracket behind right front wheel.

Right Rear Secondary Valve Lube Points



Install two # 244054 Fitting, replacing grease zerk for Steering Axle Pivot Rear Upper and Lower. Route/install tubing from **Outlets 1 and 3** of Right Rear Valve.



Install one # 20026 Adapter and # 244047 Fitting, replacing grease zerk for Tailings Auger Shaft Bearing. Route/install tubing from **Outlet 7** of Right Rear Valve.



Install one # 244055 Fitting, replacing grease zerk for Chaffer Hanger. Route/install tubing from **Outlet 8** of Right Rear Valve.



Install one # 244055 Fitting, replacing grease zerk for Straw Chopper Idler Arm. Route/install tubing from **Outlet 9** of Right Rear Valve. If option is not included, remove tubing from valve and replace with closure plug # 303174993.



Install one # 244055 fitting, replacing grease zerk for Fan Driven Pulley. Route/install tubing from **Outlet 10** of Right Rear Valve.



Install one # 270784 Zerk-lock adapter and # 244047 fitting, replacing grease zerk for Tailings Auger Shaft Bearing. Route/install tubing from **Outlet 7** of Right Rear Valve.



Install one of 270784 Zerk-Lock and # 243699 Swivel Fitting, replacing grease zerk for Elevator Outer Shaft Bearing. Route/install tubing from **Outlet 2** of Right Rear Valve.



Install one # 244055 fitting, replacing grease zerk for Straw Spreader Idler Arm. Route/install tubing from **Outlet 5** of Right Rear Valve.



Install one # 244055, replacing grease zerk for Elevator Inner Drive Shaft. Route tubing from **Outlet 4** of Right Rear Valve.



Install one # 244055 Fitting, replacing grease zerk from Fan Variable Pulley. Route/install tubing from **Outlet 6** of Right Rear Valve.

Right Front Valve Lube Points



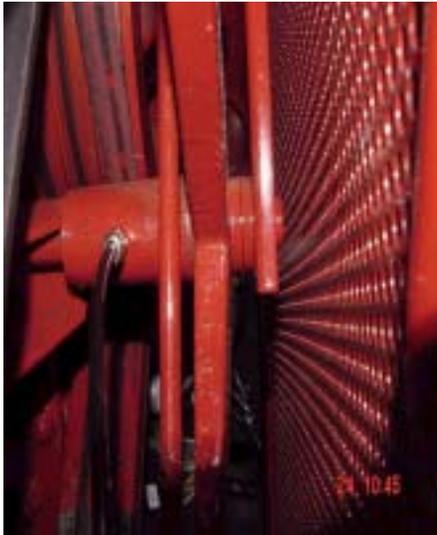
Install one of 243699, replacing grease fitting for Feeder Shaft.



Install one of 244054, replacing grease zerker for Feeder Engage Idler Arm.

Install one # 14562 Block, two # 244047 Fittings and two # 422048 Fittings for Feeder Drive Quick Removal. Locate at upper right hand of rear feeder housing as shown. Route tubing to the Feeder Engage Idler Arm and Feeder Shaft. This is block is required for quick release of tubing when feeder housing is removed (Note quick release fittings should be installed on the bottom for quick disassembly). Route/install tubing from **Outlet 4 and 6** of the Right Front Valve.





Install one # 244055 Fitting, replacing grease zerk for Fan Drive Belt Tightener Arm. Route tubing from **Outlet 2** of Right Front Valve.



Install one # 244055 Fitting, replacing grease zerk for Feeder and Cleaning Fan Gear Case. Route/install tubing from **Outlet 3** of Right Front Valve.

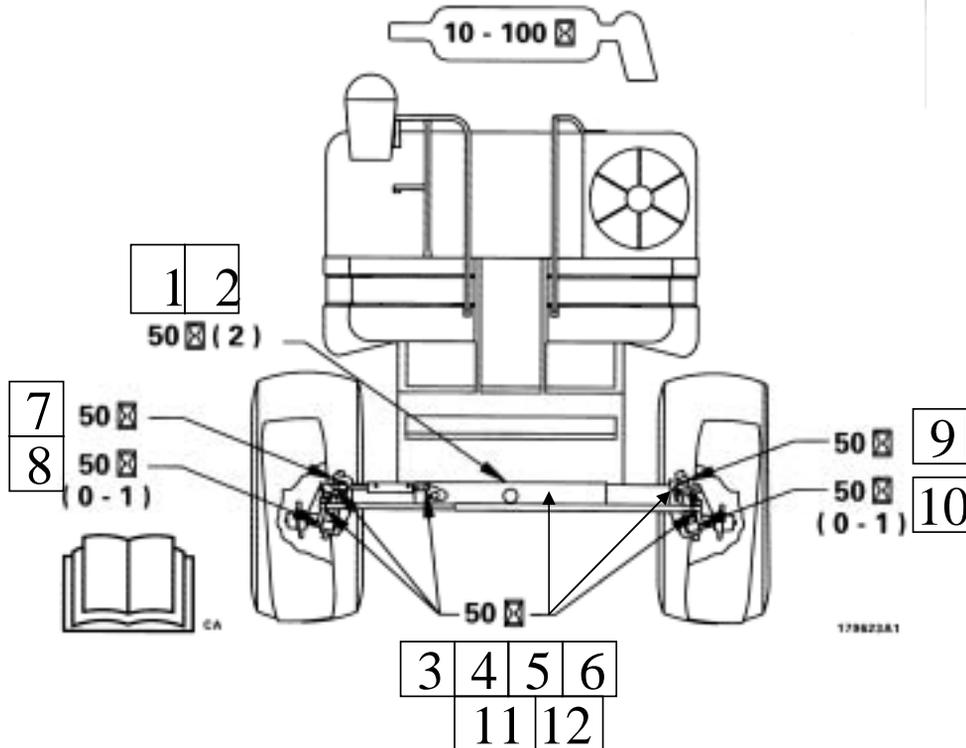


Install one # 243699 fitting, replacing grease zerk for Cleaning Fan Belt Idler Arm. Route/install tubing from **Outlet 5** of Right Front Valve.



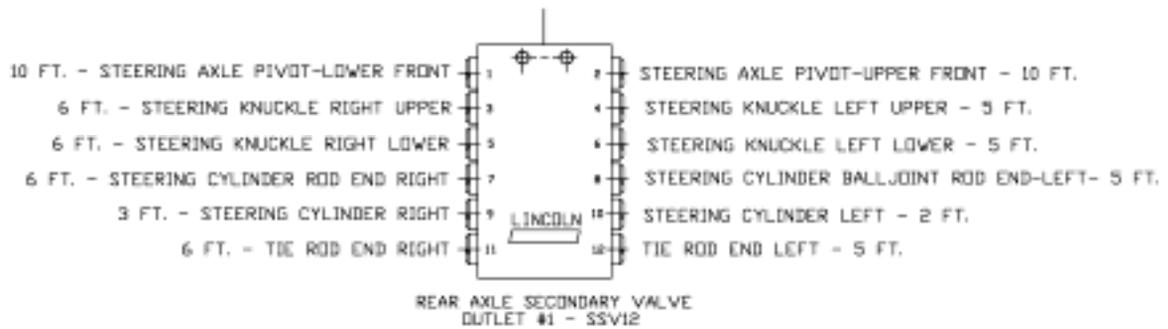
Install one # 244055 Fitting, replacing grease zerk for Tailings Delivery Auger. Route/install tubing from **Outlet 1** of Right Front Valve.

Grease Fittings - Rear Axle



Lube Chart Service Points

1. Steering Axle Pivot - Lower - Front & Rear (2)
2. Steering Axle Pivot - Upper - Front & Rear (2)
3. Tie Rod End Left
4. Steering Cylinder Ball Joint Rod End - Left
5. Steering Cylinder Ball Joint Cylinder - Left
6. Tie Rod End - Right
7. Steering Knuckle - Left - Upper
8. Steering Knuckle - Left - Lower
9. Steering Knuckle - Right - Upper
10. Steering Knuckle - Right - Lower
11. Steering Cylinder Ball Joint Rod End - Right
12. Steering Cylinder Ball Joint Cylinder - Right



Rear Axle Fittings



Mount Rear Axle Secondary Valve and valve bracket on beam over tie-rod.



Install two # 244054 fittings, replacing grease zerks from Steering Axle Pivot Rear Upper and Lower. Route/install tubing from **Outlets 1 and 2** of Rear Axle Valve.



Install one of 244054 Fitting, replacing grease zerk from Tie Rod End Right. Route/install tubing from **Outlet 11** of Rear Axle Valve. Not shown with guarding. Plastic guarding is supplied in kit. Install using tie straps, also supplied in kit.



Install one of 244054 Fitting, replacing grease zerk from Tie Rod End Left. Route/install tubing from **Outlet 12** of Rear Axle Valve. Not shown with guarding. Plastic guarding is supplied in kit. Install using tie straps, also supplied in kit.



Install one 244054 fitting, replacing grease zerk from Steering Cylinder Ball Joint Left. Route/install tubing from **Outlet 8** of Rear Axle Valve.



Install one 244054 fitting, replacing grease zerk from Steering Cylinder Ball Joint Right. Route/install tubing from **Outlet 7** of Rear Axle Valve.



Install one # 244048 or 244047 and 20026 fittings, replacing grease zerk from Steering Knuckle Left Lower. This may require drilling and tapping to 1/8" NPT. Route/install tubing from **Outlet 6** of Rear Axle Valve.



Install one # 244048 or 244047 and 20026 fittings, replacing grease zerk from Steering Knuckle Right Lower. This may require drilling and tapping to 1/8" NPT. Route/install tubing from **Outlet 5** of Rear Axle Valve.



Install one # 244048 fitting, replacing grease zerk from Steering Knuckle Left Upper. This may require drilling and tapping to 1/8" NPT. Route/install tubing from **Outlet 4** of Rear Axle Valve.



Install one # 244048 fitting, replacing grease zerk from Steering Knuckle Right Upper. This may require drilling and tapping to 1/8" NPT. Route/install tubing from **Outlet 3** of Rear Axle Valve.



Install one # 244054 fitting, replacing grease zerk from Steering Cylinder Left Upper. Route/install tubing from **Outlet 10** of Rear Axle Valve.

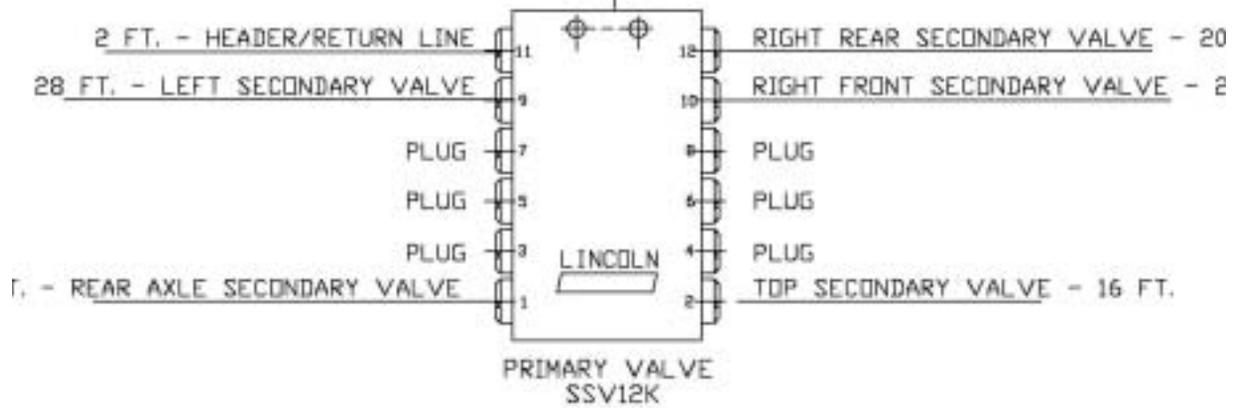


Install one # 244054 fitting, replacing grease zerk from Steering Cylinder Right. Route/install tubing from **Outlet 9** of Rear Axle Valve.



Additional line routing pictures from **Outlets 1 and 2** of the Rear Axle Valve to the right side lube bank for Steering Axle Pivot Front (Upper and Lower)

MODEL 401/1 LITER RESERVOIR PUMP





Install hose assemblies that feed the secondary valves into the primary valve located on the back of the QLS401 pump. Install hoses as described on the primary valve schematic, from the previous page. It is important to install hoses prior to the installation of the pump to the deck.



Note that the valve outlets are staggered in height for ease of installation. Route lines from this primary valve to the secondary valves as described on the following pages.



Install hose from **Outlet 2** of Primary Valve to inlet of Top Secondary Valve.



Install hose from **Outlet 9** of Primary Valve to inlet of Left Secondary Valve.



Install hose from **Outlet 1** of Primary Valve into inlet of Rear Axle Secondary Valve.



Install hose from **Outlet 10** of Primary Valve into inlet of Right Front Secondary Valve.



Install hose from **Outlet 12** of Primary Valve into inlet of Right Rear Secondary Valve.

Mounting Pump and Bracket



Mount the QLS-401 pump to pump mounting bracket, using hardware supplied in the pump box. Mount pump and bracket to the deck with two 247023 bolts. To accomplish this, you will need to drill two holes through the rear deck to the left of the walkway and just outside the hand rail. This pump incorporates the primary valve that will feed all the secondary valves, that in turn supply the lubrication points.

Note: Use caution when drilling to avoid damage to fuel tank or other objects below rear deck.

Electrical installation and requirements for QLS 401 Pump.

Safety note: Be sure to disconnect the combine battery wires before proceeding.

The Lincoln Quicklub System utilizes two wires from the pump. The BLACK wire is "positive" and is to be connected to the positive lead at the ignition solenoid. The BROWN wire is the system ground and is to be connected to the chassis ground at the PTO housing. All other wires are not used for the electrical requirements of this system.

Locate the BROWN wire at the lube pump and connect it to the ground cable at the rear of the PTO housing or main chassis. See photo 1.

Locate the BLACK wire and route it towards the engine starter. Be sure to route it away from the rear deck where it may be stepped on.. Connect it to the positive lead at the ignition solenoid.

Reassemble as necessary.

Note: Avoid routing/attaching the wire to fuel lines.



Connect **BROWN** ground wire as shown above.



Wire routing from pump, in hose bundle on deck.



The **BLACK WIRE** is positive. This wire should be connected to the Ignition Solenoid, as shown above left, with a # 321061 terminal ring. Insert a # 241053 Fuse Holder and a # 241052 7 1/2 amp Fuse into the black positive wire as shown above.

Programming the Pump

Recommended setting is for the pump to run one cycle every 20 minutes or 3 cycles/hour.

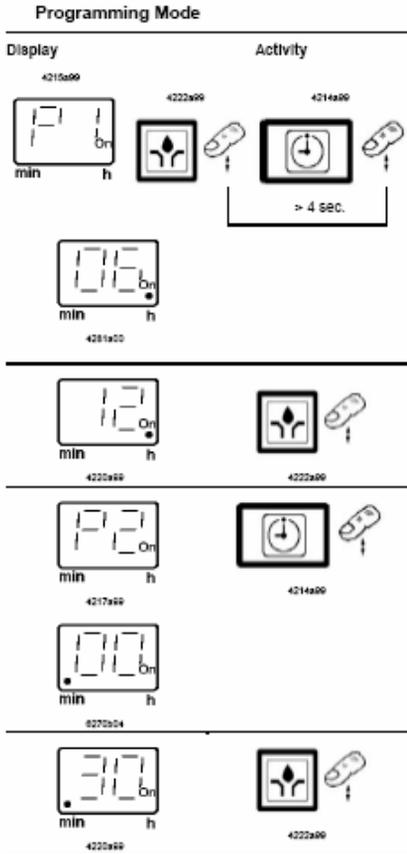
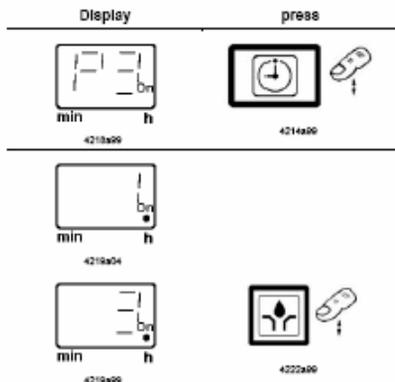


Fig. 31 Programming Mode (continuation next page)

P3: Setting number of cycles

If lube points are divided via sub-divider valves (SSV 6) and a main divider valve (SSV 6, SSV 8), a maximum of 18 (24) lube points must not be exceeded.



Programming directions - Pause time (time between cycles):

1. Power must be on to the pump
2. To access the programming mode, **press both buttons** at the same time for **4 seconds**.
3. After this is done, **P1 will flash** on the screen and a **number**.

This is the current **hour** setting of the controller.
P1 controls the hour setting (0 - 99 hrs.)
P2 controls the minute setting (0 - 59 min.)
Pause time- Min- 0 hrs. 20 min. Max- 99 hrs. 59 min.
The fields "hour" and "minutes" are indicated by a decimal point on the right-hand for the hours, on

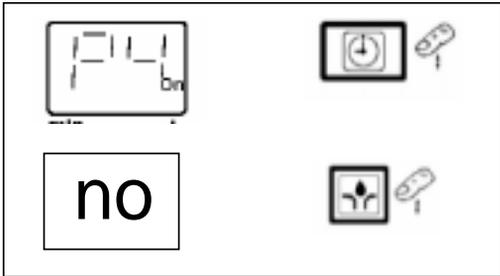
the left-hand for the minutes.

4. Press the green button to set P1 (hours) to 0.
 Settings are made in one direction: 0, 1, 2, 3, 99 h
 Button pressed once.....increases by 1 hour
 Button pressed continuously.....quick sequence

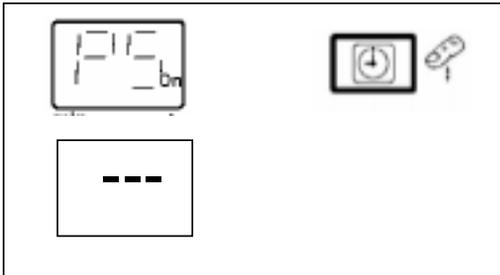
5. Press the red button to set P2 (minutes).
6. Press the green button to set the time (minutes) to 20.
 Settings are made in one direction: 0,1, 2, 3....59 min
 Button pressed once.....increases by 1 minute
 Button pressed continuously.....quick sequence

Note: If hours are set to zero, the minimum pause time begins with 20 minutes. When pause times < 20 minutes are programmed, the display automatically shows **.20**.

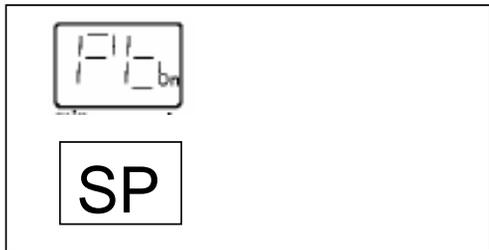
7. Press the red button to set P3 (number of cycles).
8. Press the green button to set number of cycles to 1. You have the option to set the number of cycles from 1 to 5.



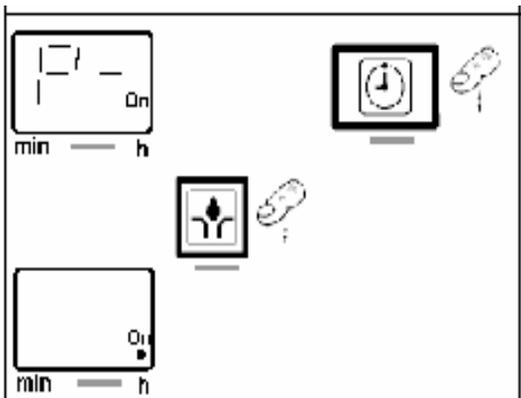
9. Press the red button to set P4 for output signal.
10. When releasing the button, the display “no” for normally open appears in the display.



11. Press the red button to set P5 for fault indications.
12. When releasing the button, the display “- -” for permanent signal appears in the display.



13. Press the red button to set P6 for starting/pause time.
14. Press the green button to read “SP”. This allows the timer to determine the status of run time when starting the pump. Another option is “SO”, which allows the pump to run every time the pump power is turned on.



Completing the programming

5. Press the red button. “P-” is displayed.
 - There are two ways to complete the programming:
 - by pressing the green button,
 - or
 - if the button is not pressed within 30 seconds, programming mode is closed automatically.

Verifying the programming

8. Hold down the red button. In sequence:
 - PP The Programmed setting will be displayed.
 - RP The Remaining Time until a lube cycle will be displayed.

System Checkout

The following checklist has been developed as an aid in verifying proper installation and operation of the Quicklub® Onboard Grease System. By completing the steps outlined below, the operational readiness of the system and resulting extension of the component life of all points connected to the system will be insured.

- Apply grease gun (manual or pneumatic) to the grease fitting located on the Primary valve and each secondary valve inlet. While pumping grease through the system, cycle the indicator pin on the primary metering valve a minimum of 15 times. NOTE: Grease gun nozzle and grease fitting should be thoroughly cleaned before lubricating to prevent flow of contaminants into the lube system.
- Inspect primary valve supply and outlets for grease discharge. If leakage is detected, tighten the fittings.
- Continue to cycle the system until fresh grease appears at each lube point.
- Inspect each lube point fitting for leaks. Correct any leaks by firmly pushing tube into the fitting until seating occurs, or tighten the threaded fittings for components connected with hose.
- Operate the equipment through its complete range of motion, inspecting for unrestricted movement of tube and hose. Correct any problems of rubbing, chaffing or kinking.
- Inspect all hose and tube that is not covered with some type of protective wrap. Wrap any tube or hose that would be susceptible to damage from rubbing or chaffing.
- Inspect all hose and tube connected to moving components. Insure that adequate hose or tube is provided to allow unrestricted movement to these moving lube points.
- Verify proper pump operation and verify time setting by activating pump with the green activation button located on the face of the pump control panel. Activate the pump at least three times to insure proper operation.
- After the Combine is in operation for a period of time (approx. 80 hours), you may find you need to adjust timing to a shorter or longer period based on the operating conditions.
- Fill the reservoir with selected grease by filling at the grease fitting located on the face of the pump reservoir.

Daily Walk-Around Inspection

The Lincoln Industrial Quicklub automated lube system components are designed, engineered, manufactured and assembled to the highest quality standards. This lube system requires little maintenance, however, to ensure maximum reliability and to realize maximum service life of all components, it is highly recommended that a **daily walk-around inspection** be performed.

The daily walk-around inspection should include the following:

NOTE: Operator to confirm operation of electric pump while machine is in service.

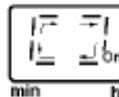
- Observe lubricant level in reservoir. Fill reservoir if it is low.
- Inspect the display for error or low level messages. If panel indicates error, refer to the trouble shooting guide on next page.

Inspect all valves and lube point connections to verify that no leaks are occurring.

- Inspect supply/feed lines to insure that no breaks or leaks have occurred.
- Inspect lube points so that all lube points have a **“fresh grease appearance.”**

Troubleshooting

Pump of the QLS 401 system



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- The green rotating display indicates that the pump operates properly.

Fault: Pump motor doesn't run

Cause:

- Power supply interrupted. Green decimal point On/h on display is not lit.
- Power supply from printed circuit board to motor interrupted. Electric motor defective.
- Printed circuit board defective
- Keypad or button is defective. "EP" display at the keypad flashes.

Remedy:



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WARNING!

In case of pumps with 120 VAC and 230 VAC, disconnect the power supply before starting any maintenance or repair works.

- Check the voltage supply to the pump/fuses. If necessary, eliminate the fault or replace the fuses.
- Check the feedline from the fuses to the plug of the pump and then to the printed circuit board.
- Trigger an additional lube cycle. Check voltage supply from the printed circuit board to the motor.
- Replace printed circuit board.
- Replace housing with keypad.

Fault: Pump does not deliver lubricant

Cause:

- Reservoir is almost empty. "Er" display at the keypad is flashing.
- Pump lost prime and "Er" display at the keypad is flashing.
- Air pockets in lubricant.
- Improper lubricant has been used.
- Suction hole of pump element clogged.
- Pump piston is worn.
- Check valve in pump element defective or clogged.

Remedy:

- Fill up the reservoir with clean grease. Let the pump run (initiate an additional lube cycle, see page 18) until lubricant shows at all lube points.



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NOTE

Dependent on the ambient temperature and/or sort of lubricant output. Therefore, trigger several additional lube cycles.

- Trigger an additional lubrication cycle. Lubricant must dispense without air bubbles.
- Change the lubricant, see page 39.
- Remove pump element. Check suction hole for foreign particles. If there are any, remove them.
- Replace pump element.
- Replace pump element.

Troubleshooting, continuation

Fault: Pump either does not switch off at all or only after the monitoring time of 15 min.

Cause:

- Proximity switch is not dampened, i.e. the control pin does not move within the switching range of the proximity switch, or the distance between the control pin and the proximity switch surface is more than 0.5 mm (0.02 in.).

Remedy:

- Trigger additional lubrication (see page 18). Check whether the control pin moves centrally over the switching surface of the initiator. In case the adjustments do not correspond to the indications, the fixing position of the metering device has to be corrected.
- Check the distance.
 - Between the control pin and the switching surface of the initiator (max. 0.5 mm; 0.02 in.)In case the adjustments do not correspond to the indications, the fixing position of the proximity switch has to be corrected.
 - Distances between the switching surface of the initiator and the upper edge of the fixing nut:
When the divider block is mounted at the back: 16+/-0.2 mm (0.62+/-0.08 in.)
When the divider block is mounted at the bottom: 12,7+/-0,1 mm (0.5 +/-0.004 in.).
- Tightening torque of the nut: 1,5 NM (1.10 ft-lb.).

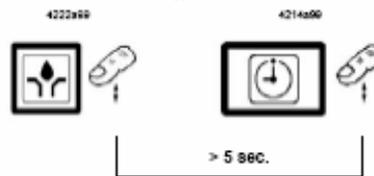
Fault: Pump runs continuously

Cause:

- Programming of pause time in step P1 was set to '00'. Programming of further steps P2, P3 and P- was not carried out. Pump starts running immediately. The proximity switch switches off the cycle for two minutes. Then, pump runs continuously.

Remedy:

- Switch off pump (power supply) by removing left-hand socket from plug.
- Press both buttons of keypad:



- Switch on pump (power supply) by replugging left-hand socket.
- Release both pushbuttons after five seconds.
- The factory-set pause time of 6 hours is automatically reset.
- Afterwards new setting of pause time is possible.

Troubleshooting, continuation

SSV divider block

Fault: Blockage in the downstream progressive system

Cause:

- Bearings, lines or divider block clogged
 - Mounting position of divider block : bottom
 - In the case of the divider block SSV 8,12 and 18 the outlet ports 1 and/or 2 are closed.
 - Mounting position of divider block : back-side
 - In the case of the divider block SSV 6, 12 and SSV 18 the outlet 1 is closed and outlet 2 is feed to a lube point.
- The fault can be identified as follows:
a) Fault indication "Er" flashing on the keypad display.
b) Fault indication "Er" flashing on the keypad piston does not move.

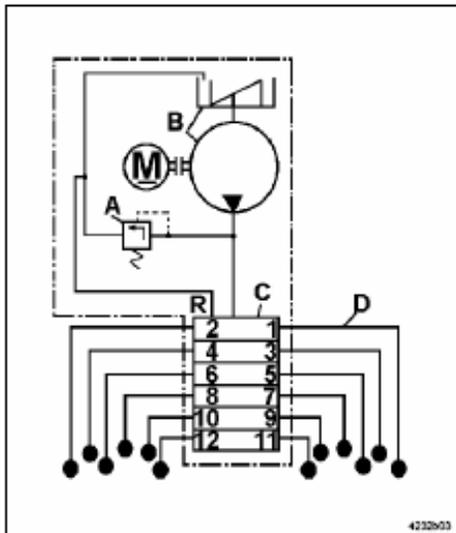


Fig. 34 Example of a QLS 401

- A pressure relief valve
- B pump
- C SSV 12 divider block
- D feedlines
- R return line

Remedy:

- Determine the cause of the blockage as described in the following example and eliminate it.
- ➔ Let the pump run (refer to "trigger an additional lube cycle", see page 18).
- ➔ Disconnect all feedlines (fig. 34, pos. D) of the divider block one after the other. If grease shows under pressure (i. e. at outlet 3) the blockage is located in the line of outlet 3 or in the connected bearing point.
- ➔ Pump through the blocked line or bearing point using a hand pump.



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NOTE

To check the individual outlets, leave all outlets disconnected for a while, since only one piston stroke is executed with each motor revolution. Several strokes are required for a full cycle of all divider blocks.

- ➔ Check pressure relief valve (page 15, fig. 18). Replace it, if necessary.