



Lubecore Technical Announcement

1 Introduction

This memo introduces the new 12.080 pump mounted timer kit featuring the new 12.079 timer for pneumatic systems. This timer has broad applications as it is suitable for use on trailers as well as trucks and other equipment with pneumatic systems. A pump mounted timer is shown below in Figure 1.



*Figure 1
Pump Mounted Timer*

2 Product Description

2.1 Basic Overview

The new timer module is Lubecore part number 12.079. The circuit board featured in this timer is the same as is featured in modular electric pumps and 12.072 trailer timers. The new 12.079 mounts directly to the pump via a mounting interface on the pump port typically used for a pressure gauge. The advantages of this system are as follows:

1. Simpler Installation: No need to mount a separate bracket.
2. Shorter simpler harness configuration.
3. Simplified air supply line routing.
4. Integrated pressure gauge simplifies service and troubleshooting right at the pump.
5. Integration with latest solenoid configuration for greater installation commonality.
6. Reduced cost compared with existing 12.016 in cab timer.
7. The controller is 10 – 30 VDC and is separate from the solenoid, meaning that this unit is suitable for use in 12VDC or 24VDC systems, as long as the proper solenoid is selected to match the system voltage.

2.2 Timer Physical Features

The features of the timer are outlined in Figure 2. Figure 3 shows the timer with the solenoid jumper harness.

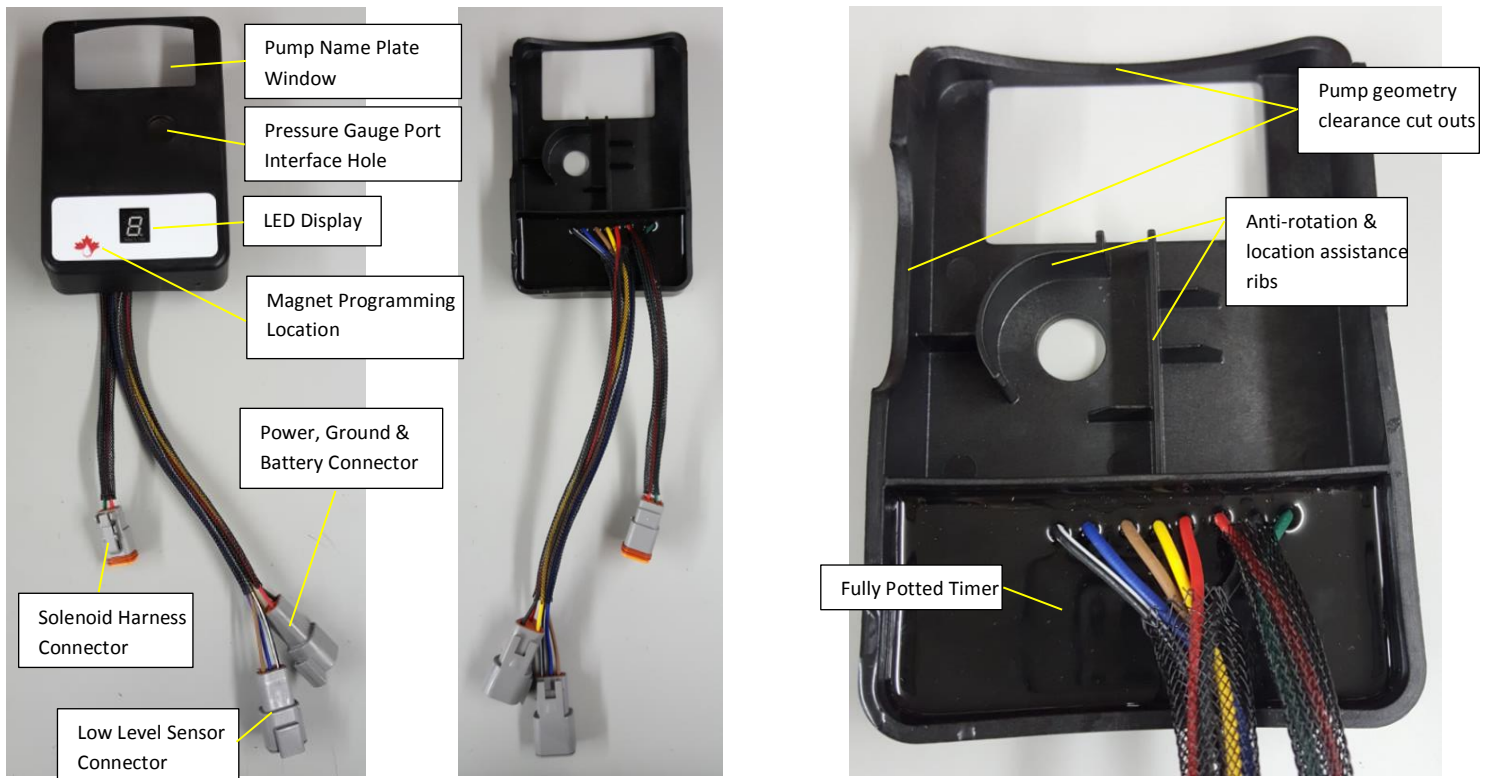


Figure 2
Timer Features

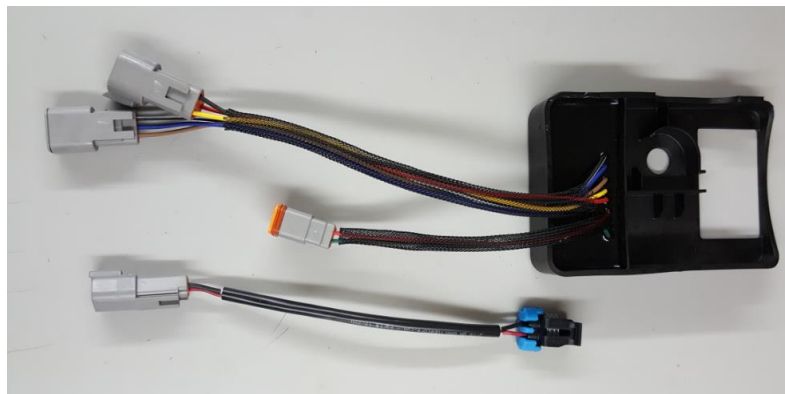


Figure 3
Timer Shown with Solenoid Jumper

2.3 Electrical Operation

The circuit board on this pump mounted timer has the same functionality as the modular pumps and the 12.072 trailer timer. It is a 10 - 30VDC board with Running Time intervals of 2, 4, 6, 8, and 10 minutes and Pause Time intervals of 15, 30, 60, 120, and 240 minutes. The standard method of programming the timer remains the same.

2.4 Assembly

In order to install a 12.079 timer onto a pump the following steps must be taken:

1. Mount the pump to the equipment.
2. Remove the front plug on the pump below the name plate.



3. Install the timer interface fitting – part # 21.266. A 6mm Allen key or hex driver is used to tighten the 21.266 fitting to the pump.



4. Place timer and washer over the 21.266 fitting followed by the nut to hold the timer to the pump. Snug the nut into place but do not tighten excessively. The washer in the installation is a wedge lock washer. Over torquing the nut will cause nut removal to be very difficult if a heavy torque load is applied at first installation.

Install the nut with a torque wrench set to 160 in/lbs. or 18Nm.



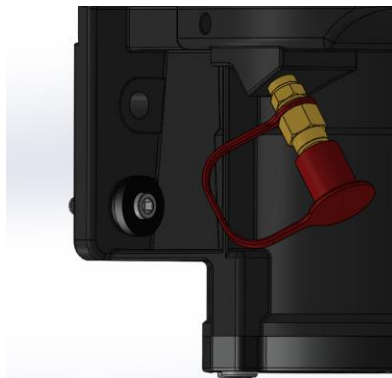
5. Install the pressure gauge onto 21.266 fitting.



6. Connect the low level sensor and solenoid to the appropriate timer connectors.



7. The kit also contains a socket head cap screw and magnet. These are to be used in one of the mounting bolt locations of the pump housing as a place to keep the magnet.



2.5 Two Wire Operation

In applications such as a trailer install where there is no constant battery power available, the three wire connection to the platform must be modified. The best practices for completing these connections were outlined in LCC2017-020. The instruction from this technical memo have been included in subsequent pages for easy reference.

2.5.1 Trailer Installations with 3 Wire Timers

Lubecore Modular pumps and Trailer timers now include 3 inbound wires; Red: Battery Constant (+), Yellow: Ignition (+), and Black: Ground (-). Trailers with ABS have a constant power (+) when connected to a tractor, but they do not carry an ignition (+) signal, and the Yellow wire on the timer seemingly has no connection. This document illustrates installation best practices for different connection scenarios, with the goal of maintaining proper wire sealing throughout all connections. Since trailers only receive power when connected to a tractor, the timer will not maintain pause time memory when powered down. Adjust timer settings accordingly.

2.5.1.1 Connection Direct to Trailer Junction or Nose Box

When there is access to a sealed junction/nose box (Figure 1), the standard 3 core harness (Part Number: 54.976) can be connected directly from the timer to the electrical sources in the box. Ensure that the cable is installed into the box using a sealed strain relief connector. Both the Red and Yellow wires should be connected to Constant Battery (+), while Black is connected to Ground (-). In this way, all three wires are connected to a sealed source.



Figure 1. Example of Trailer Nose Box

2.5.1.2 Connection to Trailer ABS connection via ABS Tee – Field Connection kits 13.359 & 13.360

When there is no easy access to a sealed junction/nose box it is recommended to use the Lubecore ABS Tee Harness (Figure 2). This harness connects into the standard ABS harness and provides connection to Constant Battery (+) and Ground (-), which are delivered on Blue and White wires respectively.

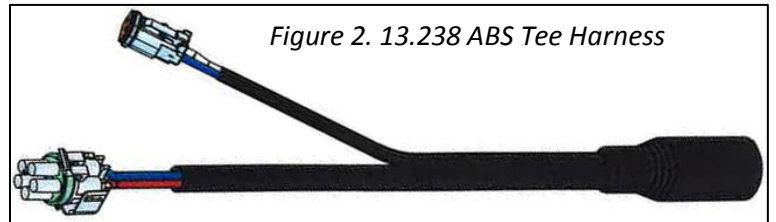
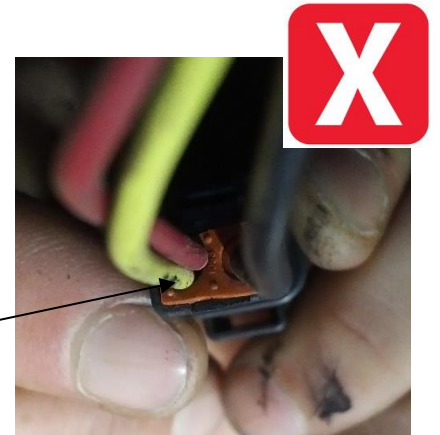


Figure 2. 13.238 ABS Tee Harness

What Not to Do!

Since the timer has three leads and the ABS tee has two, it can be tempting to crimp two wires together on the same pin and fit three wires into a single 2 position connector. ***This should never be done as it compromises the sealing of the connection and will cause contact corrosion and failure.***

Red and Yellow wires both within same seal will allow water ingress

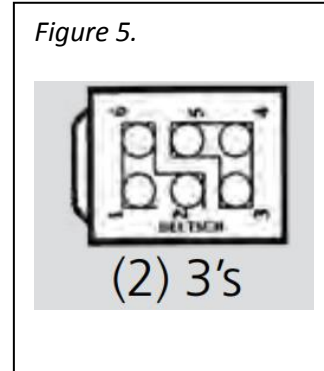
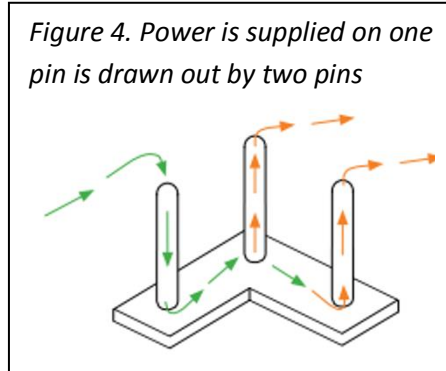
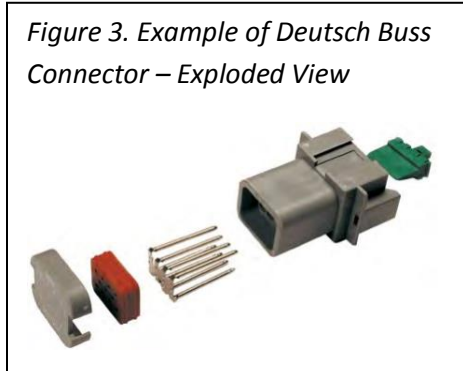


ABS Connection - Sealed

Seeing as the timer requires both Red and Yellow wires to be connected to positive sources, Lubecore recommends the use of a Deutsch Buss connection in order to maintain a sealed connection for all wires. Deutsch Industrial defines this type of connection as follows:

“A bussbar, or buss, is a thin conductive strip connecting two or more contacts within the body of a connector. Bussbars allow power or data to be fed into a connector through one or more terminals and drawn out as needed through the other contacts on the same buss. Connectors can carry one or more bussbars, creating multiple independent electrical circuits within the same connector body and distributing power or data to many components.”

Since the buss is contained within a sealed Deutsch connector, multiple connections are made within a sealed environment (Figure 3). Power is input on one of the bussed pins and supplied out on two other pins connected to the Red and Yellow Leads of the timer (Figure 4). By using a Deutsch Buss with two buss bars with 3 connections each (Figure 5), we can manage supply Power (+) and Ground (-) as well as the three leads to the timer.



Connection Kit 13.359

This kit contains the components needed to complete a field connection of the five wires when using the 13.238 ABS Tee. Wires are terminated in a six position Deutsch plug connector with is then connected to the 2 x 3 Buss Connector. Lubecore recommends to run the standard 54.976 harness from the timer to the location of the 13.238 ABS tee and complete the following connection near it. (See Figure 6 and Table 1)

Figure 6. 13.359 Wire

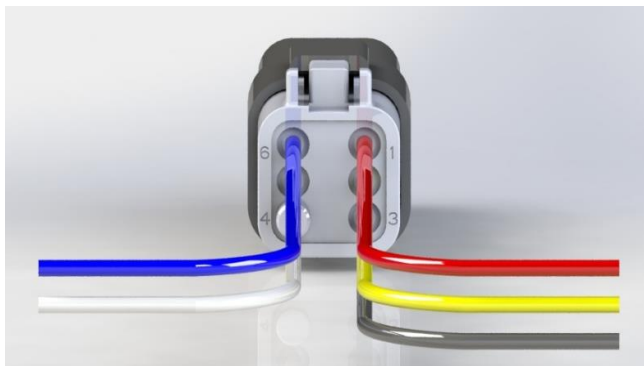


Table 1. 13.359 Wire Position Guide

Polarity (Buss)	Wire Colour	Position in Plug	Origin	Function
Pos. (+)	Blue	6	13.238	Supply Constant (+)
	Red	1	54.976	Timer Constant (+)
	Yellow	2	54.976	Timer Switched (+)
Neg. (-)	White	5	13.238	Supply Ground (-)
	Black	3	54.976	Timer Ground (-)
	Plug	4	13.185	Seals Connector

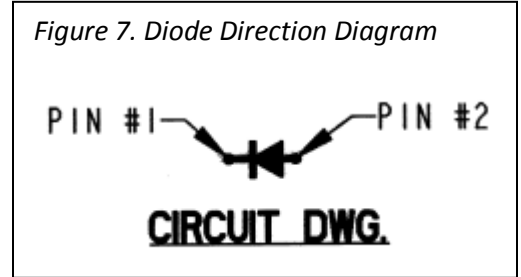
Connection Kit 13.360 Diode Option

The blue power wire on the trailer is used to supply power to several circuits on some trailers, such as: ABS, Automatic Tire Inflation, Overfill Protection on fuel trailers, Scale systems, Lift Axles, Automated Lubrication, Interior Cargo Lights, etc. In addition to all this, the blue wire is also used to feed fault codes from the ABS ECU back to the dash of the tractor or to an ABS diagnostic reader when connected. In order to eliminate any possible feedback from the Lubecore System back on the blue wire, a diode is used. This removes the lube system from the suspect list when a fault code is detected.

The 13.360 kit is similar to the 13.359 kit, but also includes a diode connection – within a sealed Deutsch receptacle. The diode is put inline on the Constant Positive (+) supply from the ABS tee. Please take note that diodes are directional and

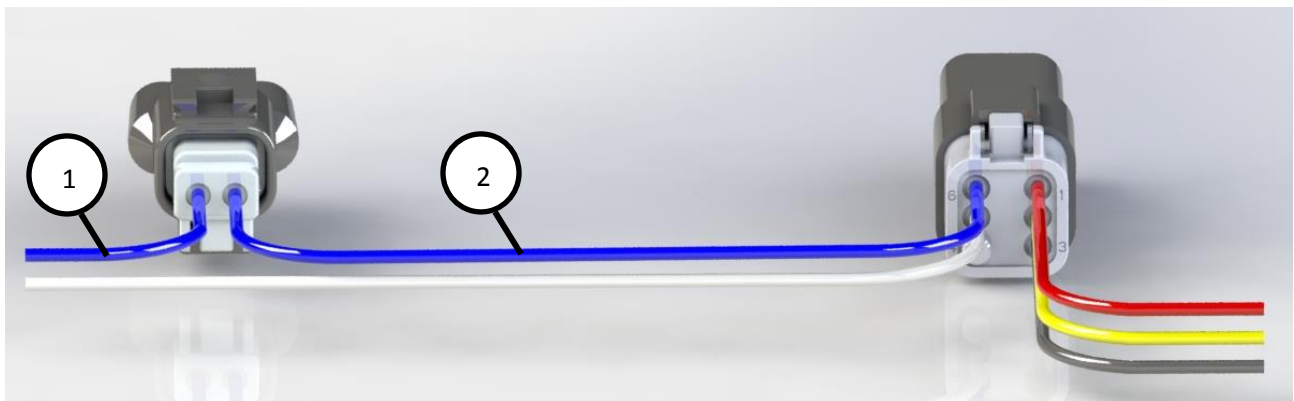
require the proper orientation. Incorrect connection can cause the diode to fail, opening the circuit, which will prevent the pump from running.

A simple way to remember what direction to place the diode is the diagram for a diode. It is shaped like an arrow pointing in the direction of the flow. In this Deutsch connection, positive supply (+) is connected to pin 2, and flows out of pin 1 (Figure 7).



Proper installation of 13.360 is shown in the Figure 8 and Table 2 below:

Figure 8. 13.360 Wire Positions



Following the best practices outlined on this document allows for sealed power delivery to the timer and pump and ensuring trouble-free operation of the Lubecore system.

Polarity (Buss)	Wire Colour	Position in 2 Pos. Plug (Diode)	Position in 6 Pos. Plug (Buss)	Origin	Function
Pos. (+)	Blue 1	2	N/A	13.238	Supply Constant (+) to diode
	Blue 2	1	6	Diode	Supply Constant (+) from diode
	Red	N/A	1	54.976	Timer Constant (+)
Neg. (-)	Yellow	N/A	2	54.976	Timer Constant (+)
	White	N/A	5	13.238	Supply Ground (-)
	Black	N/A	3	54.976	Timer Ground (-)
	Plug	N/A	4	13.185	Seals Connector

Purchasing Part Numbers

Part Number	Contents
12.079	Timer enclosure with timer sealed in with Epoxy.
12.080	12.079 along with mounting bolt, magnet, pressure gauge, gauge adapter, washer and nut
54.538	12.080 kit with 54.976 – 30' 3 wire power harness for connection to power source