

iLACM™

Engineering GREAT Solutions!





To reduce the risk of SERIOUS INJURY or DEATH, ALWAYS read and understand these instructions before starting work.



Parts Inc	luded in Kit1
ilacn	I™ Installation Kits1
ilacn	I™ Fitting Kits1
1 Inte	ended Use and Warranty2
1.1	Intended Use2
1.2	Modifications2
2 Imp	ortant Safety Information2
2.1	Safety Messages2
2.2	Compressed Air Hazard3
2.3	Service Training
2.4	Repair Person Qualifications
2.5	Personal Protective Equipment (PPE)
2.6	Personal Safety Measures4
2.7	Symbols and Meaning4
3 Inst	allation5
3.1	Pre-Installation Preparation5
3.2	Electrical Installation Diagram6
3.3	Pneumatic Installation Diagram7
3.4	Installation8
4 Pro	gramming iLACM™19
4.1	Overview
4.2	Connecting to iLACM™ Lift Axle System20
4.3	Basic Setup22
4.4	Advanced Setup
4.5	Control and Monitor
4.6	Log Setting Data
5 Ope	eration
6 Tro	ubleshooting
6.1	Lift Axle System Does Not Function
6.2	Air Leaks
6.3	Lift Axle Deploys Then Lifts Immediately
6.4	Override Down Does Not Function



6.5	Auto deploy Does Not Function	31
6.6	Override Deploy Pressure Under Target	31
6.7	Override Deploy Pressure Over Target	31
6.8	Axle Lifts Then Deploys Unnecessarily	31
6.9	No Overload Warning Light	32
6.10	App Error Codes	32





This page left intentionally blank.



iLACM™	Installation Ki	ts
--------	-----------------	----

		5080-01	5080-02
Part Number	Description	Q ⁻	ГҮ
5040-111-06	Lift Axle Control Module (LACM)	0	1
50311-01	Electronic Control Unit	1	1
223-685V	Pressure Protection Valve (PPV)	1	1
50313-01	Override Switch Connector	1	1
50309-01	Override Switch	1	1
50310-01	Wiring Harness	1	1
12876-01	Warning Label	2	2
12888-01	Installation Manual	1	1
12877-01	Operator Tag	1	1
12878-01	Fitting Kit, 5080-01	1	0
12878-02	Fitting Kit, 5080-02	0	1

iLACM™ Fitting Kits

Fitting Kit 5080-01

Part Number	Description	Qty
95433110M	DOT Male Elbow, 1/4" tube O/D, 1/4" NPT thread with thread sealant	1
94458801M	Connector, Tee, Reducing, 3/8-1/4	1
95411404M	DOT Male Swivel elbow, 1/4" O/D tube, 1/8" NPT thread with thread sealant	1

Fitting Kit 5080-02

Part		
Number	Description	Qty
95433130M	DOT Male Elbow, 1/2" tube O/D, 1/2" NPT thread with thread sealant	1
95433110M	DOT Male Elbow, 1/4" tube O/D, 1/4" NPT thread with thread sealant	1
95453020M	DOT Male Connector, 3/8" tube O/D, 3/8" NPT thread with thread sealant	2
95453030M	DOT Male Connector, 1/2" tube O/D, 1/2" NPT thread with thread sealant	2
95453004M	DOT Male Connector, 1/2" tube O/D, 1/8" NPT thread with thread sealant	2
94458801M	Connector, Tee, Reducing, 3/8-1/4	1
95433113M	DOT Male Elbow, 1/2" tube O/D, 1/4" NPT thread with thread sealant	1



1 Intended Use and Warranty

1.1 Intended Use

This iLACM[™] lift axle system is specifically designed for the heavy-duty truck industry. The system consists of a Lift Axle Control Module (LACM), an Electronic Control Unit (ECU), wiring harness, control switch, assorted push-to-connect fittings, and a pressure protection valve. Locally obtain any additional parts required to properly install the iLACM[™] lift axle system.

The LACM's core design is based on two brake-style relay valves integrated into a single unit. The LACM provides rapid axle actuation controlled by the ECU, allowing for automatic lift axle deployment on vehicles with primary air suspension. The ECU can be programmed to automatically raise and lower the lift axle under selected conditions, such as weight limits and/or when the vehicle is in reverse. The system can also be used on vehicles with primary mechanical suspension with reduced functionality. The setup is done through an application on a smart phone, tablet, or compatible device.

1.2 Modifications



Modification to the iLACM[™] lift axle system may only be carried out by the manufacturer's personnel. If the system requires repairs or servicing beyond the scope of the activities described in these instructions, this work may only be carried out by the manufacturer of the system or by qualified repair persons who have been expressly authorized and trained by the manufacturer.

2 Important Safety Information

These instructions will enable you to install, set up, and operate the iLACM[™] lift axle system. These instructions are an integral part of the product and must be accessible to personnel. You must carefully read through and understand these instructions before starting work of any kind on the lift axle system. Following all safety and handling instructions contained in these instructions is a fundamental requirement to safely install and operate the iLACM[™] lift axle system.

Knowledge of the procedure to be performed and safe work habits are essential to preventing death, personal injury, or property damage. Use the following statements as a common-sense guide to proper work and tool-use habits.

2.1 Safety Messages

Throughout this manual DANGER, WARNING, CAUTION, NOTICE and the Safety Alert Symbol will be used.



The Safety Alert Symbol is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible serious injury or death. The Safety Alert Symbol precedes safety messages about risk of personal injury and may be used in conjunction with a signal word.



DANGER: Indicates a hazardous situation that, if not avoided, will result in death or serious injury.





WARNING: Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



NOTICE: Indicates a hazardous situation that, if not avoided, could result in property damage.

2.2 Compressed Air Hazard



Compressed air can cause SERIOUS INJURY. ALWAYS depressurize systems and confirm pressure has been removed from the system prior to starting work.

2.3 Service Training

- Only qualified repair persons shall install, troubleshoot, or repair the iLACM™ lift axle system.
- Read and understand the instructions contained in all manuals delivered with the vehicle and iLACM[™] lift axle system.
- Familiarize yourself with the location and proper use of all controls and safety devices.

2.4 Repair Person Qualifications



Work on the vehicle's electrical system, equipment on the chassis, and the pneumatic/brake systems must be performed only by skilled individuals who have been specially trained to perform these activities.

2.5 Personal Protective Equipment (PPE)

Wear the following PPE while installing or maintaining the iLACM[™] lift axle system:

- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields
- Hearing protection
- Safety-toed footwear

Before servicing or maintaining the machine:

Tie back long hair



• Remove all jewelry (including rings)

2.6 Personal Safety Measures

- Follow the specific safety instructions in this manual.
- Block or support the vehicle and parts that may move or fall prior to performing installation or repairs.
- Engine block and muffler system become very hot during operation and require cool down time after the vehicle is shut off.



• Never use attachments/superstructures as a climbing aid.

2.7 Symbols and Meaning

Symbol	Meaning
	Qualified Repair Personnel ONLY. Work on the vehicle's electrical system, equipment on the chassis, and the pneumatic/brake systems must be performed only by skilled individuals who have been specially trained to perform these activities
0	Lift axle may move up or down.
□ ↔ Î	Keep away from Lift Axle.



3 Installation

To prevent SERIOUS INJURY or DEATH:

- NEVER attempt to defeat any safety devices or safety features.
- ALWAYS contact vehicle manufacturer before making any modifications to the vehicle's pneumatic brake system.

3.1 Pre-Installation Preparation

The iLACM[™] intelligent lift axle control module automatically deploys and retracts lift axles based upon primary air suspension.



Prior to installation please have the following information for set up.

Primary Suspension Pressure at Maximum Legal Load:

Lift Axle Maximum Pressure at Maximum Legal Load:



NOTE: Before you disconnect the vehicle battery and drain the air from the truck air tanks, find ignition power and switched reverse light power (steerable lift axles with reverse lift function requirement).

NOTE: On a new vehicle installation where operational pressure settings of lift axle and primary suspension pressures are not yet available, the basic installation settings for maximum lift axle pressure and primary suspension pressure will require adjustments by the end customer. These pressures are obtained on a legally fully loaded vehicle and must be changed in the setup app prior to taking the vehicle into operation to ensure correct functionality of the system and features.



3.2 Electrical Installation Diagram



Figure 1. iLACM™ Electrical Installation Diagram



3.3 Pneumatic Installation Diagram



Figure 3. iLACM[™] Pneumatic Installation Diagram



3.4 Installation

NOTE: All figures represent a typical iLACM[™] installation. The routing, mounting, and installation may vary depending on the vehicle make, model, and configuration.

- 1. Clean any interface surfaces on the vehicle before starting installation work.
- 2. Park vehicle on flat level surface.



To prevent personal injury or death, ALWAYS make sure the parking brake is set, the transmission is in neutral or park, and the wheels are blocked.

3. Ensure the lift axle is in the lifted position.



To prevent personal injury or death, ALWAYS support the machine using properly rated jack stands. NEVER work under a machine supported only by a jack.

- 4. Remove air tubing to load bags.
- 5. Lower lift axle on the ground, support with stands if wheels are removed.
- 6. Drain air from vehicle's main suspension.
- 7. Drain air tanks until pressure is removed from air system.
- 8. Disconnect negative battery cable at battery.
- 9. If vehicle is currently equipped with another Lift Axle System, remove the following components:
 - Quick release valve(s)
 - Pressure protection valve if dedicated to lift axle
 - Pressure regulator
 - External pressure gauge
 - Any unneeded airlines

AWARNING

To prevent SERIOUS INJURY, DEATH or PROPERTY DAMAGE:

- DO NOT route wiring harness near heat sources, moving objects, or sharp edges.
- DO NOT modify wiring harness without consent from Norgren GT Development.
 The wiring harness contains fuses, diodes, and other components that cannot be eliminated or defeated.





Figure 4

- 10. Route wiring harness (Figure 4, Item 1) into cab through suitable location in front wall (Figure 4, Item 2) and secure with wire ties as needed.
- 11. Install override switch connector (Figure 6, Item 2) on wiring harness (Figure 6, Item 1) by inserting the wires to the indicated pin positions. Orient the pins as shown when inserting into the connector (Figure 5).

Pin position	Wire Color	Function
2	Pink	IGN
7	White	GND
9	Blue	SWITCH INPUT
10	Brown	LED POWER
12	White	GND







NOTE: Ensure an audible click is heard to confirm wires are properly installed to the retention tabs in the connector (Figure 5)



Figure 6

 Mount override switch (Figure 7, Item 1) to desired location in cab. Reference panel opening: 22mm x 44mm Panel thickness: 1/16" – 1/8"





Figure 7

- 13. Connect override switch body (Figure 6, Item 2) to override switch (Figure 7, Item 1).
- 14. Connect ignition wire (pink) from harness to ignition switched power. Refer to vehicle wiring harness for switched power circuit.

NOTE: On vehicles where the reverse circuit is not easily accessible from the cab, the reverse wire may need to be routed outside of the cab to a location where the reverse circuit is accessible.

- 15. For vehicles with steerable axles, connect reverse wire (orange) from harness to switched positive vehicle reverse backup light circuit. Refer to vehicle wiring schematics for backup light circuit. On some vehicles you may find a connection inside the cab or outside on the chassis. The orange wire can be pulled out of the harness to make the outside connection if needed. Protect the wire with wire loom and secure with zip ties every 12". If not used, the reverse wire may be left disconnected.
- 16. Route wiring harness to vehicle battery box. Secure with wire ties as needed. **Do not connect wiring harness to battery at this time**.

NOTE: Ensure enough slack is left in wiring harness so the wiring harness connector will reach iLACM[™] Electronic Control Unit (ECU) electrical connector.





17. Route wiring harness (Figure 8, Item 1) along chassis to desired iLACM[™] ECU location, and secure with wire ties as needed.

Figure 8



To prevent damage to equipment, the iLACM[™] ECU must be mounted on a flat surface with the logo out. If mounting vertically, air lines should face down. If mounting horizontally, ensure it is positioned in a way that water will not collect around wiring harness or air lines.

18. Using the iLACM[™] ECU (Figure 9, Item 1) as a template, mark mounting bolt location for iLACM[™] ECU.

NOTE: Once the ECU is mounted and powered, any change in the orientation will require cycling of power by disconnecting from the battery or removing the fuse from the harness.





Figure 9

19. Drill 13/64 holes for iLACM[™] ECU #10 or M5 socket head bolts (Figure 9, Item 2).

NOTE: Mounting bolts are NOT provided with installation kit. Suitable mounting bolts must be locally obtained.

- 20. Mount iLACM[™] ECU (Figure 9, Item 1) and secure with #10 or M5 socket head bolts (Figure 9, Item 2). Torque bolts to 20 in-lbs or 2.3 Nm.
- 21. Connect wiring harness (Figure 9, Item 3) to iLACM[™] ECU (Figure 9, Item 1).



To prevent SERIOUS INJURY or PROPERTY DAMAGE:

- ONLY use a minimum of soft setting anaerobic compound (e.g., Loctite Hydraulic Seal 542).to seal ports, valves, or fittings.
- DO NOT use polytetrafluoroethylene (PTFE) tape or similar material.

NOTE:

- If LACM is currently installed on vehicle, DO NOT perform steps 22 through 33.
- If installed LACM is equipped with control solenoid (NO or NC), the solenoid must be removed, and a DOT male swivel elbow, a 1/4 in. outside diameter tube, and an 1/8 in. NPT thread fitting must be installed in its place.
- If possible, position fittings so the fittings are facing down. This helps prevent water from entering the fittings.

22. Install fittings (Figure 10, Item 2) in new pressure protection valve (Figure 10, Item 3).





Figure 10

- 23. Install supplied pressure protection valve (Figure 10, Item 3) in air tank (Figure 10, Item 1).
- 24. Install fittings (Figure 11, Item 2) in LACM (Figure 11, Item 1).



Figure 11

NOTE: Pipe threads are coated with thread seal. Tighten fittings two to three turns after finger tight. Fittings should not be backed up to achieve desired fitting orientation.

25. Mount LACM (Figure 11, Item 1) in a suitable location on vehicle.



To prevent injury or equipment damage, DO NOT mount LACM near any heat sources or where there is a potential for direct water splash.

NOTE: LACM should be mounted near the lift axle. A mounting bracket may need to be fabricated so LACM can be mounted in a suitable location.

Mount the LACM to an adequate flat surface using 1/2" (M12) or 5/16" (M8) fasteners.

Mount the LACM ONLY with the quick exhaust vent facing downward (Figure 12). Failure to do so will prevent contaminants from exiting the valve and may cause valve failure



Figure 12

26. Ensure airlines are propery cut and installed at all connections (Figure 13). Tube Connection / Disconnection





- 27. Connect supply air line to pressure protection valve and route to LACM (refer to pneumatic schematic on page 7).
- 28. Connect supply air line to LACM and secure with wire ties as needed.
- 29. Connect lift bag air lines to lift bags and route to LACM (refer to pneumatic schematic on page 7).
- 30. Connect lift bag air lines to LACM and secure with wire ties as needed.
- 31. Connect load bag air lines to load bags and route to LACM (refer to pneumatic schematic on page 7).
- 32. Connect load bag air lines to LACM and secure with wire ties as needed.
- 33. Connect air line (Figure 14, Item 2) to LACM (Figure 14, Item 1) and route to gauge (Figure 14, Item 3).







Figure 14

34. Connect air line (Figure 14, Item 2) to gauge (Figure 14, Item 3) and secure with wire ties as needed.



- 35. Connect supply air line to pressure protection valve and route to iLACM[™] ECU. (Refer to the pneumatic schematic on page 7)
- 36. Connect supply air line to iLACM[™] ECU port 2.
- 37. Measure the length of the air line needed from LACM pilot port to iLACM[™] ECU port 1. This length will be needed during ECU set up.



- 38. Connect pilot air line to the LACM pilot port and route to iLACM[™] ECU. (Refer to the pneumatic schematic on page 7)
- 39. Connect pilot air line to iLACM[™] ECU port 1 and secure with wire ties as needed.
- 40. Using T fitting and connect to vehicle air ride suspension supply line. (Refer to the pneumatic schematic on page 7).
- 41. Connect air line to T-fitting and route to iLACM[™] ECU.
- 42. Connect air line to iLACM[™] ECU port 3 and secure with wire ties as needed.



Figure 15

- 43. Connect positive wire (Figure 15, Item 2) on wiring harness to battery (Figure 15, Item 3).
- 44. Connect negative wire (Figure 15, Item 1) on wiring harness to battery (Figure 15, Item 3).
- 45. Connect vehicle ground cable to battery.

NOTE: Once the ECU is mounted and powered, any change in the orientation will require cycling of power by disconnecting from the battery or removing the fuse from the harness.

- 46. Start vehicle and allow air pressure to build.
- 47. Turn off engine but keep key in ignition position.
- 48. Use the override switch in the cab to lift and lower the lift axle to check all air lines connections and fittings for leaks in each position. Repair as needed.



49. Thoroughly clean the surface to ensure adhesion and install warning labels visibly on each side of the chassis or vehicle body near the lift axle (Figure 16).



Figure 16

- 50. Place "Operator Instruction" card in vehicle cab.
- 51. Using the iLACM[™] app to program iLACM[™] ECU according to vehicle specs and intended use. (Refer to Section 4 for Programming instructions).



4 Programming iLACM™

4.1 Overview

The following procedure is a basic guide to program the iLACM™ lift axle system.

After the iLACM[™] is programed, the vehicle will need to be driven with a load while the primary suspension pressures are monitored. The settings may need to be revised in real time to ensure the system operates as desired. Always follow safety laws and regulations while driving. Do not operate a phone or tablet while driving, get assistance from a passenger.

The iLACM[™] app defaults to "Basic" setup, where many system parameters are automatically assigned. If desired, the system parameters can be adjusted by using the "Advanced Control" options:

- Load Following[™] Best for partially loaded, driven applications
- Pressure Following Best for partially loaded applications
- Deploy to Target Pressure best for fully loaded only applications

For more information, see Operation (Section 5).



4.2 Connecting to iLACM[™] Lift Axle System

 Download iLACM[™] app by going to <u>https://www.imi-precision.com/iLACM</u> or scanning the QR code:



- 2. Open iLACM[™] app in compatible smart phone or tablet.
- 3. Make sure the app has the latest software revision and update the module to the latest software revision to ensure full functionality (Figure 17).



Figure 17

4. Touch or swipe to **DEVICES** tab (Figure 18, Item 1).





Figure 18

5. Touch CHANGE DEVICE (Figure 18, Item 2).

NOTE: The last six digits of the iLACM[™] Electronic Control Unit (ECU) serial number should match the iLACM[™] device number.

If you can't establish a Bluetooth connection out of the iLACM™ app, go to tablet "Settings"

Select "Bluetooth" and look in Available Devices for the iLift with the correct serial number.

- 6. Touch the device to connect the iLACM[™] app.
- 7. Verify the iLACM[™] app has connected.
- 8. Enter the following information in the appropriate fields (Figure 18, Item 3):
 - Vehicle Identification Number (VIN)
 - Assigned fleet truck number or serial number
 - Installation date
 - Installer's name
 - Email: While the tablet or phone is connected to the internet, the app can generate a summary of selected settings for your records. This information will not be retained by the app or ECU after setup is complete.



4.3 Basic Setup



Figure 19

- 1. Touch or swipe to **SETTINGS** tab (Figure 19, Item 1).
- 2. Touch to select the features that apply to the vehicle (Figure 19, Item 2).
- 3. Touch to select the appropriate controls (Figure 19, Item 3). (See 4.1 Overview).
 - LOAD FOLLOWING[™]
 - PRESSURE FOLLOWING
 - DEPLOY TO TARGET PRESSURE

NOTE: It is best to set lift axle maximum pressure after gathering vehicle weight data from a scale. To determine accurate suspension weight, calibration with a certified scale is recommended.

 Touch Lift axle maximum pressure window (Figure 19, Item 4), and set maximum pressure when fully loaded. Refer to lift axle manufacturer load/ pressure chart for estimated values on initial setting. Reference table below for example:

Estimated Load Per Axle (lbs)	Air Spring Required (psig)
13,100	73
12.575	70
10,775	60
9,125	50
7,475	40
5,825	30

5. Touch to toggle on/off warning light functions (Figure 19, Item 5) as desired.



NOTE: It is best to set **Primary maximum pressure** after gathering vehicle weight data from a scale. To determine accurate suspension weight, calibration with a certified scale is recommended.

6. Touch **Primary maximum pressure** window (Figure 19, Item 6), and set maximum pressure. Refer to axle manufacturer PSI/ load scale for estimated values on initial setting. Reference table below for example:

Required Pressure (psi)	Load Per Axle (lbs)	Load Per Axle (kg)
99	30,000	13,608
92	28,000	12,701
85	26,000	11,793
78	24,000	10,886
71	22,000	9,979
64	20,000	9,072
58	18,000	8,165
51	16,000	7,257
44	14,000	6,350
37	12,000	5,443
30	10,000	4,536

- 7. Select desired Key-Off State (Figure 19, Item 7).
- 8. Select desired System On/Off (Figure 19, Item 8).

If Off is selected, the system will not function.

- 9. Touch Pilot Length window (Figure 19, Item 9), and set measured pilot line length.
- 10. Verify the following functions are working properly by following the steps in section 4.5.
 - Toggle override switch
 - Key-off state
 - Auto deploy



4.4 Advanced Setup

If desired, settings in Advanced Control can be used to modify the defaults as described by basic setup.

1	
	* 🌹 52% 🛢 12:23 PM
AKTVB	
Intelligence In Motion	
CONTROL SETTIN	IGS DEVICES
	2
Advanced Control	
Primary Suspension	AIR O MECHANICAL
Vehicle Type	CONCRETE 3
Pusher or Tag	PUSHER () TAG
Auto Deploy and Lift	4
Load following	LOAD FOLLOWING
System Response	30 S
Primary deploy trigger	104 PSI 6
Primary lift trigger	31 PSI 7
Lift axle maximum pressure	120 PSI 8
Lift axle minimum pressure	29 PSI
Overload Warning	9
Dash overload light	10
Warning flash	
Primary maximum pressure	110 PSI 11
Key-Off State	NONE O UP O DOWN
System On/Off	ON O OFF
Pilot Length	0 FT 13
00-00-00	-00-00-00

Figure 20

- 1. Touch or swipe to **SETTINGS** tab (Figure 20, Item 1).
- 2. Touch to toggle on Advanced Control (Figure 20, Item 2).
- 3. Touch to select the features (Figure 20, Item 3) that apply to the vehicle.
- 4. Touch to select the appropriate controls (Figure 20, Item 4):
 - LOAD FOLLOWING™
 - PRESSURE FOLLOWING
 - DEPLOY TO TARGET PRESSURE

NOTE: The system response depends on the height control valve speed.

- 5. Touch **System Response** window (Figure 20, Item 5), and set system response (typically 20 to 60 seconds).
- 6. Touch **Primary deploy trigger** window (Figure 20, Item 6), and set pressure for the primary deploy trigger.
- 7. Touch **Primary lift trigger** window (Figure 20, Item 7), and set pressure for the primary lift trigger.





NOTE: It is best to set **lift axle maximum pressure** after gathering vehicle weight data from a scale. To determine accurate suspension weight, calibration with a certified scale is recommended.

- 8. Touch Lift axle maximum pressure window (Figure 20, Item 8), and set maximum pressure when fully loaded.
- 9. Touch Lift axle minimum pressure window (Figure 20, Item 9), and set minimum pressure when lift axle will deploy.
- 10. Touch to toggle on/off warning light functions (Figure 20, Item 10) as desired.

NOTE: It is best to set **Primary maximum pressure** after gathering vehicle weight data from a scale. To determine accurate suspension weight, calibration with a certified scale is recommended.

- 11. Touch **Primary maximum pressure** window (Figure 20, Item 11), and set maximum pressure.
- 12. Touch to select desired Key-Off State (Figure 20, Item 12).
- 13. Touch to select desired System On/Off (Figure 20, Item 13).

If Off is selected, the system will not function.

14. Touch Pilot Length window (Figure 20, Item 14), and set measured pilot line length.

4.5 Control and Monitor



- 1. Start engine and allow air pressure to build.
- 2. Keep dash switch (Figure 22) in the AUTO position.



Figure 22



3. Touch or swipe to **CONTROL** tab (Figure 21, Item 1).

NOTE: The status of the lift axle is displayed using the image on the right side of the CONTROL screen (Figure 21, Item 2).

- 4. Touch **OVERIDE UP** (Figure 21, Item 7) to raise axle.
- 5. Touch AUTO MODE (Figure 21, Item 6) to enable automatic control functions.
- 6. Touch **OVERRIDE DOWN** (Figure 21, Item 5) to deploy axle.
- 7. Touch AUTO MODE, and test override switch function.
- 8. Place override switch (Figure 22) in the axle down position
- 9. If reverse lift is installed, place transmission in reverse. Ensure the reverse lift function is operating properly.
- 10. Take transmission out of reverse gear. Ensure the lift axle deploys.
- 11. Place override switch in the AUTO position.
- 12. Turn off vehicle.
- 13. The zone display (Figure 21, Item 3) indicates the status of the vehicle's axle status as follows:

Primary Load OK – Green Load Warning – Yellow Overload – Red

14. The following data (Figure 21, Item 4) can be monitored from the CONTROL screen.

- Lift Axle Pressure displays air pressure provided to the lift axle (checked every 60 seconds)
- Primary Pressure displays the primary suspension pressure
- Max Primary Pressure displays the pressure when the overload warning will illuminate
- Supply Pressure displays air pressure in the air system
- Battery voltage displays vehicle battery voltage



4.6	Log	Setting	Data

	3 🚳 IN	* 7 52% 12:23 PM	-1	
CONTROL	SETTINGS	DEVICES		
il	.ift-000090			
VIN Serial Number Installation Date Installer				
			2	
	IND SETTINGS EMAIL			
CALIBRATE				
	FORCE UPDATE			
00-	00-00-00-00-00-00			

Figure 23

The following procedure is to record settings for future reference.

- 1. Touch or swipe to **DEVICES** tab (Figure 23, Item 1).
- 2. Ensure all fields are correctly filled out and that your phone or tablet is connected to wifi. Touch **SEND SETTINGS EMAIL** (Figure 23, Item 2).



5 Operation

The iLACM™ lift axle system can be programmed depending on the vehicle's needs/application.

The iLACM[™] Lift Axle System is a fully automated lift axle system on vehicles with primary air suspension. The system can be operated in three modes that offer different control features depending of the vehicle's needs and/or application.

• Load Following[™] is best used for vehicles that are frequently operated with a partial load. This feature keeps primary drive axles maximally loaded for optimal traction.



Pressure Following is best used for trailers and other non-driven applications that frequently
operate with a partial load. This feature will keep the lift axle pressure the same as the primary
suspension pressure.





 Deploy to Target Pressure is best used for vehicles that operate in fully loaded applications, such as a dump truck. This is where the vehicle operates in only fully unloaded or fully loaded states. This setting for can also be used on vehicles with mechanical suspension, at limited functionality.



The iLACM[™] Lift Axle System can be programed to raise or lower the lift axle when the ignition key is in the OFF position, depending on the operator's desired setting.

The iLACM[™] Lift Axle System is equipped with an overload warning setting. This feature can be enabled and disabled using the iLACM[™] app. This setting alerts the operator of a primary suspension overload. The feature provides primary suspension load feedback that can be monitored through a warning light in the dash switch and through the app. This feature is not functional on vehicles with primary mechanical suspension.

- The dash switch LED is illuminated when the lift axle is in the down position.
- A blinking LED indicates when maximum axle load is reached or exceeded.

The iLACM[™] Lift Axle System also allows the operator to override the automatic lift and deploy feature through both the app and dash switch (See Control and Monitor).



6 Troubleshooting

6.1 Lift Axle System Does Not Function

- 1. Verify app "System On/Off" is set to ON.
- 2. Verify app and dash switch are set o to Auto mode.
- 3. Check wiring:
 - Verify 12V supply.
 - Verify Switch wiring is correct.
 - IGN wire has 12V when vehicle key switch is in the ON position.
 - Verify ground connection.
- 4. Ensure air system has more than 70 psi.
- 5. Ensure air lines are properly plumbed with no kinks, breaks, or damage.
- 6. If ECU has been moved or remounted, power cycle the system by disconnecting the harness rom the battery or removing the fuse from the harness.

6.2 Air Leaks

- 1. Ensure galley plug is properly installed and is not leaking.
- 2. Ensure air lines are properly plumbed with no kinks, breaks, or damage.
- 3. System LED blinking ... --- ... Pilot air leak or manifold leak.
 - To reset the LED once the leak is addressed, power cycle the system by disconnecting the harness rom the battery or removing the fuse from the harness.

6.3 Lift Axle Deploys Then Lifts Immediately

- 1. Ensure pilot line is properly plumbed with no kinks, breaks, or damage.
- 2. Ensure there are no air leaks at the lift axle ECU or LACM.

6.4 Override Down Does Not Function

- 1. Ensure air system has more than 70 psi.
- 2. Verify switch wiring is correct.

6.5 Auto deploy Does Not Function

- 1. Ensure the primary pressure is above the deploy trigger threshold (5 percent less than primary maximum pressure defined in the app). Wait the amount of time set as system response time in the app. Ensure Auto deploy is functioning.
- 2. Ensure air system has more than 70 psi.
- 3. Verify primary suspension pressure is plumbed to port 3.
- 4. Plumb hand pump into port 3 and manually inflate to check Auto deploy.

6.6 Override Deploy Pressure Under Target

Increase pilot line length in the app.

6.7 Override Deploy Pressure Over Target

Decrease pilot line length in the app.

6.8 Axle Lifts Then Deploys Unnecessarily



- 1. Ensure lift trigger pressure is not too close to deploy trigger pressure. Reduce lift trigger pressure as needed.
- 2. Increase system response time, to reduce system sensitivity to the main suspension height control valve fluctuations.

6.9 No Overload Warning Light

- 1. Ensure the app's overload warning settings are toggled ON.
- 2. Verify the primary suspension pressure is greater than the primary max pressure.
- 3. Check for faulty override switch. Replace as necessary.

6.10 App Error Codes

Please refer to <u>https://www.imi-precision.com/iLACM</u> for most current error code actions.

Error Code	Name	Description	What to do
1	Battery Low	Battery voltage below limit	Check harness connection to battery, vehicle electrical supply
2	Battery High	Battery voltage above limit	Check vehicle electrical supply
3	Temperature Low	Temperature below limit	Wait to operate till temp rises
4	Temperature High	Temperature above limit	Wait to operate till temp falls
5	VCC5 Low	Internal VCC5 supply below voltage limit	Internal fault, call IMI to replace module
6	VCC5 High	Internal VCC5 supply above voltage limit	Internal fault, call IMI to replace module
7	VCC33 Low	Internal VCC33 supply below voltage limit	Internal fault, call IMI to replace module
8	VCC33 High	Internal VCC33 supply above voltage limit	Internal fault, call IMI to replace module
9	VCC33AO Low	Internal VCC33AO supply below voltage limit	Internal fault, call IMI to replace module
10	VCC33AO High	Internal VCC33AO supply above voltage limit	Internal fault, call IMI to replace module
11	PRESSURE SENSOR A CALIBRATION	Pressure sensor is not calibrated or calibration is not valid or is corrupt	Call IMI to replace module
12	PRESSURE SENSOR A STATUS	Pressure sensor is reporting a fault	Internal fault, call IMI to replace module
13	PRESSURE SENSOR B CALIBRATION	Pressure sensor is not calibrated or calibration is not valid or is corrupt	Call IMI to replace module
14	PRESSURE SENSOR B STATUS	Pressure sensor is reporting a fault	Internal fault, call IMI to replace module
15	LED Driver Stuck On	LED driver is flowing current even after it has been commanded to be off	Internal fault, call IMI to replace module



-			
16	LED Open	LED current is not flowing current after it has been commanded to be on	Check harness
17	LED Short	LED current exceed a current limit	Check harness
18	VALVE1 DRIVER STUCK ON	Valve driver drain voltage indicates it is on even though it has been commanded to be off	Internal fault, call IMI to replace module
19	VALVE1 DRIVER STUCK OFF	Valve driver drain voltage indicates it is off after it has been commanded to be on	Internal fault, call IMI to replace module
20	VALVE2 DRIVER STUCK ON	Valve driver drain voltage indicates it is on even though it has been commanded to be off	Internal fault, call IMI to replace module
21	VALVE2 DRIVER STUCK OFF	Valve driver drain voltage indicates it is off after it has been commanded to be on	Internal fault, call IMI to replace module
22	VALVE3 DRIVER STUCK ON	Valve driver drain voltage indicates it is on even though it has been commanded to be off	Internal fault, call IMI to replace module
23	VALVE3 DRIVER STUCK OFF	Valve driver drain voltage indicates it is off after it has been commanded to be on	Internal fault, call IMI to replace module
24	VALVE FAIL	Valve electrical current is detected but the valve cannot exhaust the pressure	Check exhaust port for blockage. May also be the valves are frozen.
25	Fast Pilot Leak	Leak too large, Control cannot maintain pressure setpoint	Check Pilot line and fittings, leak check both Module and LACM
26	Slow Pilot Leak	Leak small, Control periodically adding air to maintain pressure setpoint	Check Pilot line and fittings, leak check both Module and LACM

Norgren GT Development Corporation 425 C Street NW Suite 100 Auburn, WA 98001

Tel.: +206 436 1305

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of exercising judgement and verification. It must be remembered that our products are subject to a natural process of wear and ageing.

iLACM[™] is a trademark of Norgren GT Development Corporation

Load Following[™] is a trademark of AKTV8, LLC

© 2019-Norgren GT Development Corporation. This document, as well as the data, specifications and other information presented in it are the sole property of Norgren. It may not be reproduced or given to third parties without their consent.

