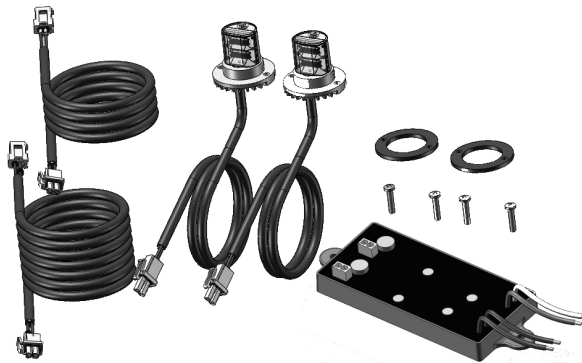

INSTALLATION AND INSTRUCTION MANUAL

Hideaway Undercover Remote Flashing LED Kits



LDK302 and LDK304

Unidirectional Head LED Kits



LDK312 and LDK314

Spherical Head LED Kits



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PLIT423 REV. C 2/9/10

NOTICE

Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice. Star Headlight & Lantern Co., Inc. makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Star Headlight & Lantern Co., Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

WARNING: This device may be regulated by Federal, State, and/or Local ordinances. These devices may be used **ONLY** on approved vehicles. It is the sole responsibility of the user to ensure compliance.



This light utilizes high-intensity LED Lamps. **DO NOT** stare directly into the light while it is on, as momentary blindness and/or permanent eye damage may occur.

IMPORTANT: *Please read all of the following instructions before installing your new light. Failure to follow these safety precautions may result in damage to your light or vehicle and may result in serious injury or death to you and your passengers.*

Please Note: These instructions are provided as a general guideline only. *Some vehicles may require special mounting, wiring, and/or weather-sealing. This is the sole responsibility of the installer.* Star Headlight & Lantern Co., Inc. assumes no responsibility for the integrity of the installation for this or any of its products.

Parts

Contents:

<u>LDK302</u>	<u>LDK304</u>	<u>LDK312</u>	<u>LDK314</u>	<u>Part Number</u>	<u>Description</u>
1	2	1	2	LDF300	2-Head Flasher Unit
2	4	2	4	P30053-46	3/8" Phillips Hex Screw (for Flasher)
2	4	0	0	LDH300C-*	Unidirectional LED Head (*=color)
0	0	2	4	LDH310C-*	Spherical LED Head (*=color)
2	4	2	4	P30052-46	5/8" Phillips Head Screw (for Heads)
2	4	2	4	P30047-118	Gasket for LED Head
1	2	1	2	SWH-L4	4' Cable with Connectors
1	2	1	2	SWH-L8	8' Cable with Connectors

Optional Parts:

<u>Part Number</u>	<u>Description</u>
LSF300-*	Colored Filter for Unidirectional LED Head (*=color)
LSF310-*	Colored Filter for Spherical LED Head (*=color)
SWH-L4	4' Extension Cable for LED Heads
SWH-L8	8' Extension Cable for LED Heads
SWH-L15	15' Extension Cable for LED Heads
SWH-L20	20' Extension Cable for LED Heads
SWH-L25	25' Extension Cable for LED Heads
SWH-L30	30' Extension Cable for LED Heads
SWH-L35	35' Extension Cable for LED Heads

Installation Notes

Proper installation of the unit is essential for years of safe, reliable operation. Please read all instruction **before** installing the unit. Failure to follow these instructions can cause serious damage to the unit or vehicle and may void warranties.

- The installer must have a firm knowledge of basic electricity, vehicle electrical systems, and emergency equipment.
- If you need to drill any holes when installing this product, please take care to check that BOTH SIDES of your drilling surface are clear from obstructions, to ensure that you do not damage your vehicle and or pre-existing wiring.
- Controls should be placed within convenient reach of the driver.

Before beginning the installation:

- Determine where the heads are to be mounted.
- Determine where you will mount the switch.
- Determine if you will be synchronizing your LDF300 flasher with any other LDF300 flashers or any other synchronizable products.
- Verify that you have a clear path to run your wires between the heads, flasher unit(s), switch, and any other lights that the flasher will be synchronized with.

Keep These Instructions - Keep these instructions in the vehicle or other safe place for future reference. Advise the vehicle operator of the location.

Installation

- Each flasher can control 2 LED heads
- The LED light heads must be installed inside an existing light assembly on the vehicle.
- **Unidirectional** LED light heads must be vertical to ensure proper light distribution.
- **Spherical** LED light heads can be installed in any direction.
- **Unidirectional** LED light heads should only be installed in a 1" hole on a **top** or **bottom** surface that allows the base of the head to be **horizontal**. **Both** the Unidirectional and Spherical LED light heads should have 3" diameter *total* clearance inside the housing (allows 1" clearance on all sides of the head).

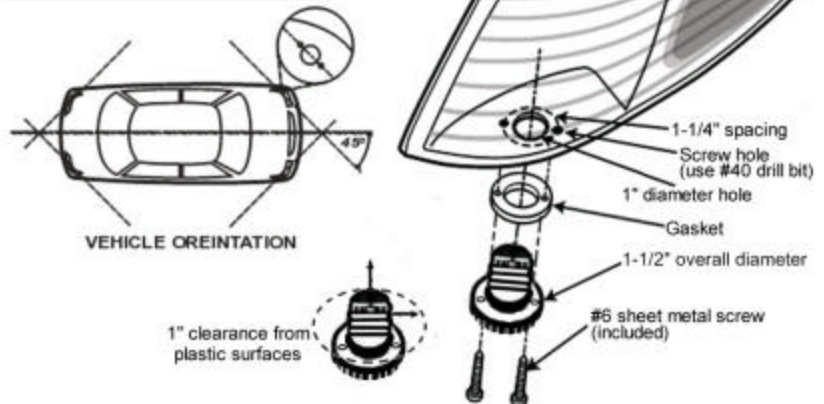
1. Establish a location for each flasher unit that is close to the LED heads it will operate. The location should have limited exposure to the environment (e.g. trunk, engine compartment, cab, etc.). Use the enclosed hex head screw (P30053-46) to attach the flasher to the vehicle.
2. Determine a path for the Power and Ground wires from each unit (as well as the WHITE sync wires if installing and synchronizing multiple flashers or other synchronizable heads).
3. Remove the headlight or taillight assembly according to the vehicle manufacturer's instructions.

4. Find a location on each light assembly that will accommodate the light head, as well as not interfere with other components.



WARNING!! The heat output of the LED head can melt plastic if it is not installed with adequate space around the unit. A minimum of 1" clearance is recommended.

- Remember that Unidirectional LED heads must be installed on a horizontal surface.
5. Using a #40 bit, drill your holes according to the diagrams below. For the **Unidirectional LED light heads**, take care to drill the screw holes so that when installed, the heads will be directed out of the corners at a 45° angle to the vehicle (see diagram below).
6. Place a gasket over each head and install the heads using the 5/8" Philips head screws included.
7. Re-assemble the light housings on your vehicle.



Wiring

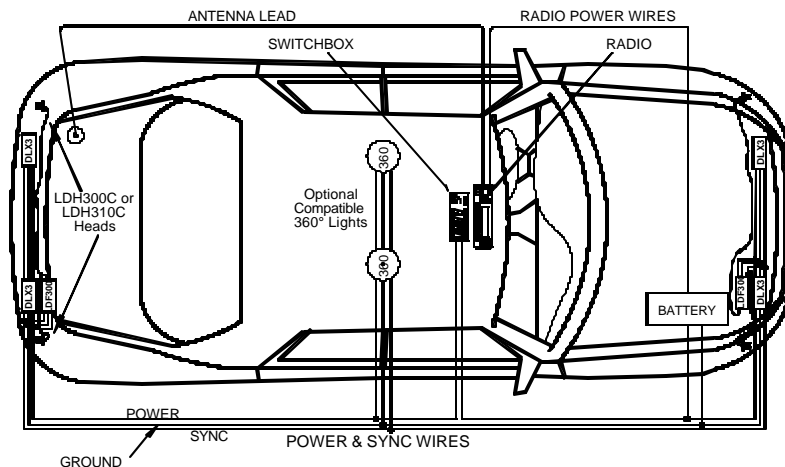


When wiring your LED Kit(s) (and compatible) lights, **YOU MUST** take the following precautions to eliminate Electromagnetic Interference (EMI).



- The LED modules and the radio (or other sources of EMI) should be kept as far away from each other as possible.
- Separate the radio wires and the LED wires:
 - ▲ *The radio antenna wire should make a right angle from the back of the radio and run down one side of the vehicle.*
 - ▲ *The LED wires should make a right angle out of the back of the switchbox and exit in the opposite direction of the antenna wire and/or radio power wires.*
- Any excess wires should be cut short.
- The Ground wire, Power wire, Synchronization wire, and High/Low wire (if used) should be bound tightly together as they run from light to light, through your switchbox, and finally to the battery.
- Do not ground each unit independently to the chassis. Run the ground for each unit as shown below in a "bus" like structure, to the negative terminal on the battery.

BEFORE installing your lights and running your wires, please review the diagram below showing an example of how the wires should be run.



1. Connect the **Black** wire to the negative terminal of your battery.
2. Connect the **Red** wire to your switch that supplies +12-24 VDC.
3. If you are synchronizing two or more flasher units, run the **White** wires along with the **Red** and **Black** wires to each unit (as shown above), but **DO NOT CONNECT THE WHITE WIRES UNTIL PROGRAMMING HAS BEEN COMPLETED** (see next two pages). **Note:** The total distance between the two farthest units should be no more than 40 feet. If you are NOT synchronizing units, cut this wire short and tape it off.
4. The **Green** is used for Pattern Programming (see next page).

Black: Battery Negative
Red: +12-24 VDC
White: Synchronization
Green: Pattern Select

Pattern Programming

The LDF300 flasher unit has twenty different **Flash Patterns** to select from. (see chart to right)

These patterns include:

- 11 different alternating patterns (the two heads flash back and forth)
- 4 different simultaneous patterns in each of 2 phases (the two heads flash at the same time)
- A Cycle All pattern (continuously cycles through patterns 1-19)

Programming Procedure:

1. If you are NOT synchronizing your LDF300 with another LDF300 or approved light, tape the WHITE wire off so that it does not come into contact with anything.
2. The GREEN wire is used to program the desired flash pattern. **After the BLACK and RED wires are connected** (see previous page), you may set the flash pattern. The LDF300 flasher is programmed at the factory for Pattern 6 (Pattern Type F – Alternating Quadflash). To change the pattern, proceed below:

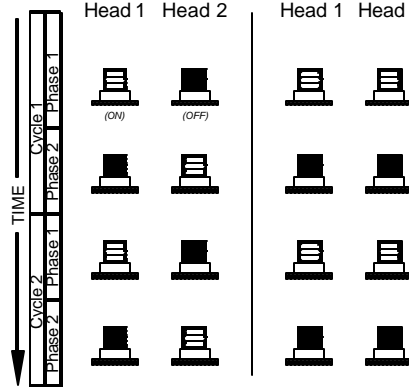
- Touch and hold the green wire to ground until the light blinks once (approximately 3 seconds), then release it. This will reset the light to Pattern 1 (Pattern Type K – Alternating Flicker).
- Touch the green wire to ground for approximately 1 second and release it to cycle through Patterns 1-20 shown to the right. After Pattern 20, the light will cycle back to Pattern 1.



Pattern #	Pattern Type	Pattern Description	CPS
1	K	Alternating Flicker †	1.0
2	L	Alternating Fast Doubleflash	3.3
3	M	Alternating Tripleflash	2.5
4	N	Alternating PSU Flicker	0.7
5	O	Alternating PSU Random	0.6
6	F	Alternating Quadflash ††	1.0
7	G	Alt. Quadflash w/Post-Pop	1.0
8	H	Alternating Singleflash	1.0
9	I	Alternating Doubleflash	1.0
10	J	Alternating Variable	0.3
11	P	Alternating Quintflash †††	1.2
12	K	Simultaneous Flicker (Phase 1)	1.0
13	K	Simultaneous Flicker (Phase 2)	1.0
14	I	Sim. Doubleflash (Phase 1)	1.0
15	I	Sim. Doubleflash (Phase 2)	1.0
16	G	Simultaneous Quadflash w/Post-Pop (Phase 1) ††††	1.0
17	G	Simultaneous Quadflash w/Post-Pop (Phase 2)	1.0
18	F	Simultaneous Quadflash (Phase 1)	1.0
19	F	Simultaneous Quadflash (Phase 2)	1.0
20	NONE	Cycle All	N/A

† = Programming Shortcuts 1, 2, 3, and 4 (see table below)

Alternating Pattern Simultaneous Pattern




Programming Shortcuts

<u>Touch the Green Wire to Ground For:</u>	<u>Unit Blinks</u>	<u>Jumps To</u>
3 seconds	1 time	Pattern 1
6 seconds	2 times	Pattern 6
9 seconds	3 times	Pattern 11
12 seconds	4 times	Pattern 16

- Once you have found the desired pattern, tape off or place a wirenut over the end of the green wire to prevent it from coming into contact with ground again. The light will “remember” the pattern when switched off and that pattern will be displayed the next time the light is switched on.


If you ARE NOT synchronizing two units, you are finished programming.

Synchronizing Multiple Lights


You can synchronize two flashers and/or other lights that use the  system.



If you will be synchronizing two or more units together, leave the white wires disconnected until programming for each has been completed. Connect the white wires from the units together **ONLY AFTER PROGRAMMING** them all for the same **Pattern Type** (Phase MAY differ).

If you will be synchronizing your LDF300 flasher with another LDF300 flasher, or synchronizing it with any of our other  products (i.e. DLX units, 9016LED minibars, and 255HTCL beacons), please note the following:

- All units that are to be synchronized **MUST** have the same **Pattern Type**.
- To check pattern compatibility with other “synchronizable” products, review the **Pattern List** for each product, noting the **Pattern Type**. Certain patterns are compatible with some lights, but not compatible with others.
- Although the programmable **Flash Patterns** can vary in each of our different lights, Flash Patterns 6-10 (Pattern Types F, G, H, I, & J) are the patterns fully compatible with ALL of our other “synchronizable” products.

 PATTERN COMPATIBILITY	
LDF300:	All Patterns
DLX Series:	Pattern Types F, G, H, I, J
9016LED:	Pattern Types F, G, H, I, J, K, L, M, N, O
255HTCL:	Pattern Types F, G, H, I, J

- Determine whether you want the two heads attached to your LDF300 flasher unit to flash alternately or simultaneously (*Review the diagram on the bottom of the previous page for examples of Alternating and Simultaneous flashing*).
- Review the **Pattern List** for each product you will be synchronizing, noting the **Pattern Type** for each product.
- Select a Pattern Type that is compatible with all of the flasher units/lights you will be synchronizing.
- Program each light according to the instructions enclosed with each. For lights that have patterns with a Phase: All lights programmed for the same Phase will flash ON and OFF at the same time (flash simultaneously). Lights that are programmed for different phases will flash opposite one another (alternate).
- After** you have the correct patterns programmed in for ALL of the lights you wish to synchronize, **turn all of the lights off** and connect the white wires from all units together.
- Power all of the lights up **at the exact same time** to verify they are flashing in the desired pattern. **Power MUST be applied to all synchronized lights simultaneously. Excessive switch bounce or attempting to power the units up independently will result in erratic operation.**

The heads in these kits use state-of-the-art Light Emitting Diode (LED) technology. These warning lights are comprised of ultra-high intensity LEDs that are controlled by a solid state flasher unit to efficiently produce light output with lifetimes up to 100,000 hours. Under normal circumstances, you will not need to replace any LEDs in this light. If any of the LED's in your light do fail, please contact Star Headlight for arrangements to have them repaired. The flasher unit and heads CANNOT be serviced in the field and any attempt to do so will void the warranty.

LED FIVE YEAR LIMITED WARRANTY

The manufacturer warrants this LED light against factory defects in material and workmanship for five years after the date of purchase. The owner will be responsible for returning to the Service Center any defective item(s) with the transportation costs prepaid. The manufacturer will, without charge, repair or replace *at its option*, products, or part(s), which its inspection determines to be defective. Repaired or replacement item(s) will be returned to the purchaser with transportation costs prepaid from the service point. A copy of the purchaser's receipt must be returned with the defective item(s) in order to qualify for the warranty coverage. Exclusions from this warranty include, but are not limited to, domes, and/or the finish. This warranty shall not apply to any light, which has been altered, such that in the manufacturer's judgment, the performance or reliability has been affected, or if any damage has resulted from abnormal use or service.

There are no warranties expressed or implied (including any warranty of merchantability or fitness), which extend this warranty period. **The loss of use of the product, loss of time, inconvenience, commercial loss or consequential damages, including costs of any labor, are not covered.** The manufacturer reserves the right to change the design of the product without assuming any obligation to modify any product previously manufactured.

This warranty gives you specific legal rights. You might also have additional rights that may vary from state to state. Some states do not allow limitations on how long an implied warranty lasts. Some states do not allow the exclusion or limitation of incidental or consequential damages. Therefore, the above limitation(s) or exclusion(s) may not apply to you.

If you have any questions concerning this or any other Star product, please contact our **Customer Service Department** at (585) 226-9787.

If a product must be returned for any reason, please contact our Customer Service Department to obtain a Returned Goods Authorization number (RGA #) before you ship the product to Star. Please write the RGA # clearly on the package near the mailing label.



PROUDLY MADE IN THE USA
An ISO 9001-2000 Certified Company

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