PART 573 Defect and Noncompliance Report

Date: 02/22/2019

This report serves as ASA Electronics LLC's ("ASA") notification to the U.S. Department of Transportation, National Highway Traffic Safety Administration ("NHTSA") pursuant to 49 CFR § 573 regarding its Voyager brand VOM74MM Mirror Monitor.

I. Manufacturer, Designated Agent, and Other Chain of Distribution Information

Fabricating manufacturer's corporate name:

Shenzhen Luview Co LTD
2nd Florr 1 Building Industrial Park
Shunchengii Dalang Longhua
Shenzhen, China

Equipment's brand or trademark name owner(s):

ASA Electronics LLC
2602 Marina Drive
Elkhart, IN 46514

Designated Agent (imported equipment):

ASA Electronics LLC
2602 Marina Drive
Elkhart, IN 46514

If this notification concerns equipment that was installed in new motor vehicles or new items of motor vehicle equipment, identify by name, address, and telephone number each vehicle manufacturer and equipment manufacturer who purchased that equipment:

Please see the attached list. This list has been designated as confidential business information pursuant to 49 CFR § 512 and 5 U.S.C. § 552(b)(4).

Name, address, email, phone and fax numbers for the person(s) to whom inquiries about this report should be directed:

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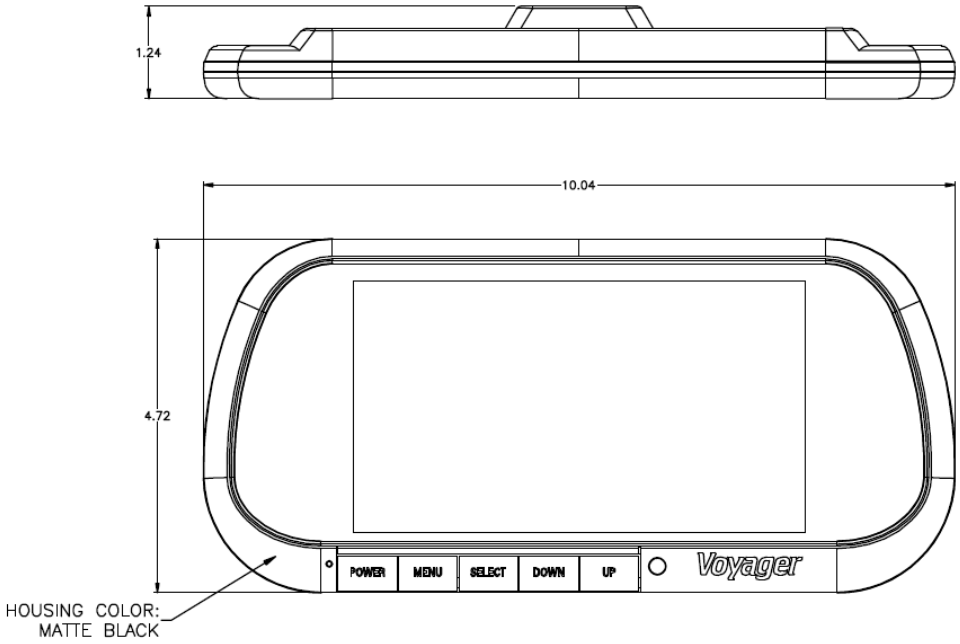
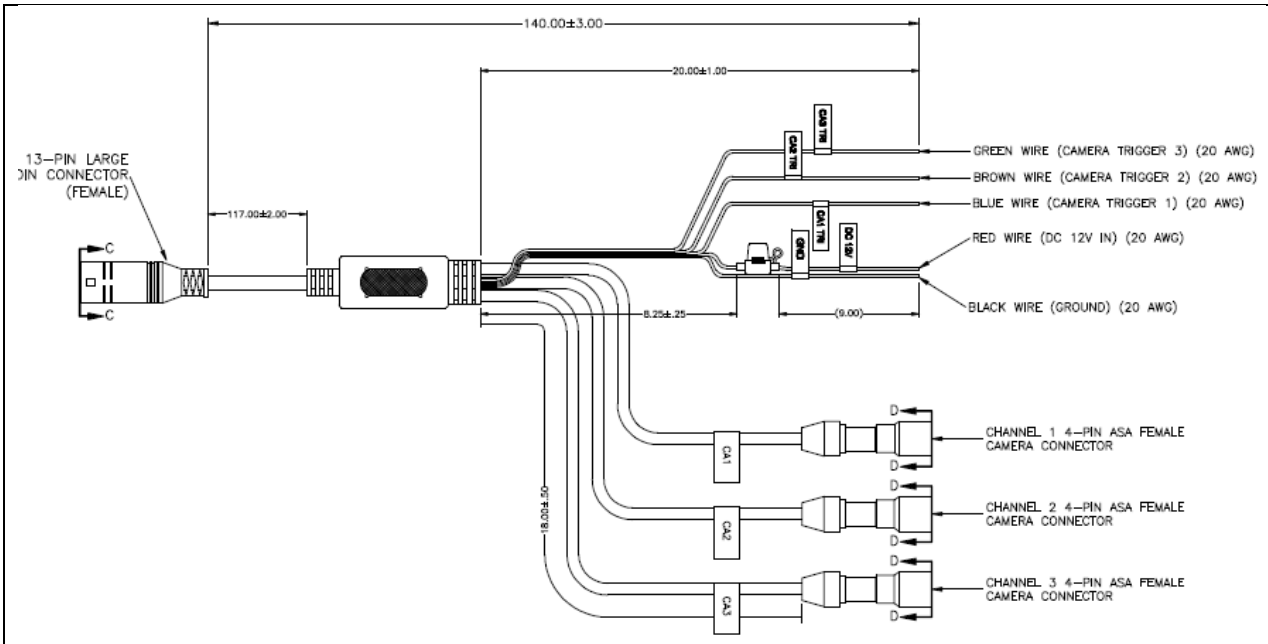
Manufacturer's assigned campaign number (where applicable): 19E-009

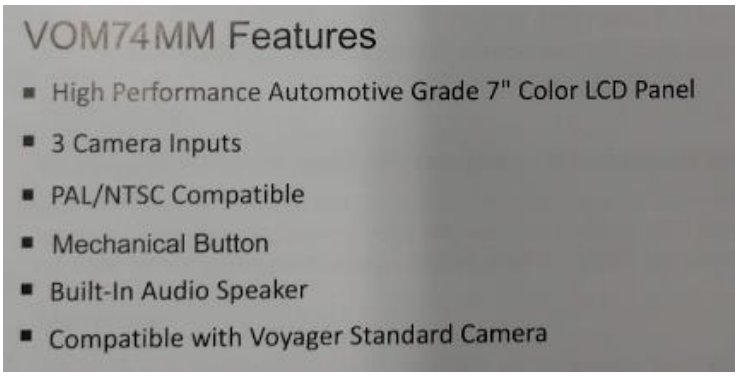
II. Identification of the Recall Population and Its Size

Complete the tables below for each item of equipment subject to this notification.

Type of Equipment: 7" Color Mirror Monitor
Part/Model Number: VOM74MM
Size and function (where applicable):







Inclusive dates of manufacturer (month and year):
5/2017 thru 11/2018 (serialized Rev A thru C)

Total number of these items of equipment: 18,225 affected monitors were manufactured. 15,290 were distributed. The remaining 2,935 units are in the possession of ASA or the fabricating manufacturer. Some uninstalled units are in the process of being returned.

Provide the following information as to <u>all</u> the items of equipment ("the recall population") identified above:

Grand total number of items of equipment in the recall population: 15,290

The percentage of the recall population you estimate actually contain the defect: 100%
NOTE: 100% are possible, however, it does take a voltage drop of the vehicle at a specific timeframe during the power-up of the monitor for it to occur.

Identify and describe how the recall population was determined (e.g., on what basis the recalled models were selected and how the inclusive dates of manufacturer were determined):

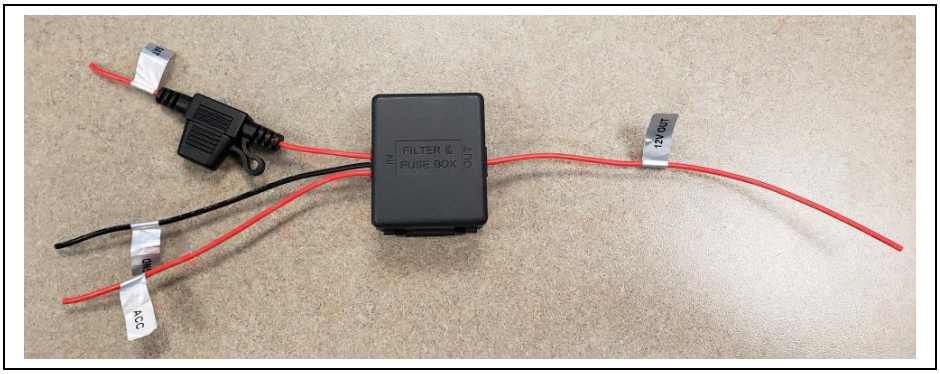
ASA performed a root cause analysis in cooperation with the fabricating manufacturer. ASA determined that the conditions causing the recall can be replicated on all revision A thru revision C. If a voltage drop (below 7 volts) takes place at a precise moment during powerup of the monitor (such as vehicle start) the monitor can skip the user defined settings and load the factory default settings which can invert the camera image on the monitor

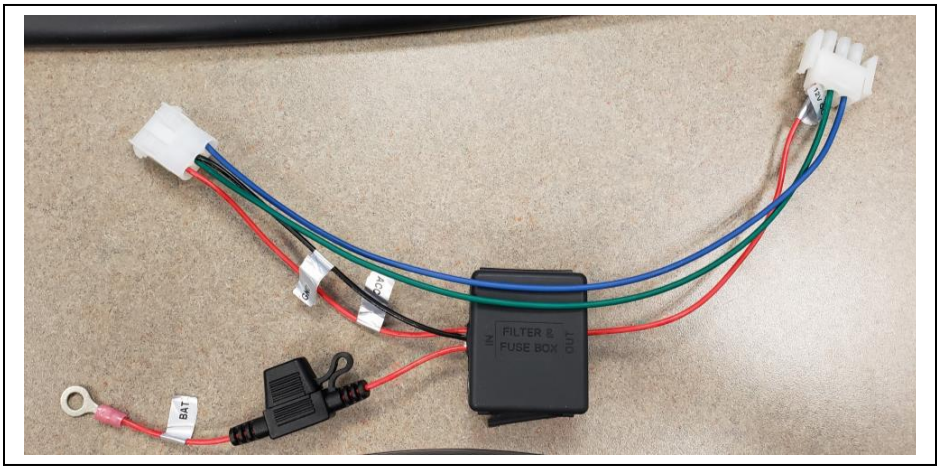
Revision D changed the default settings for the image to match the user setting preventing this image from inverting.

The alphanumeric serial code at the bottom of the label can be used to identify the affected items. As an Example (C1118SLCN02142) the first letter is the revision "C." The following four numbers are a date code in MMYY format. The affected products will have serial number starting with A, B, or C.

Describe how the recall population is different from any similar items of equipment not subject to this notification:

The recall population is different than similar items because <u>after Rev C</u> the default image setting matches the user image setting (starting at Rev D). Certain revision C units are quarantined at ASA Electronics. Any Revision C that are yet to be shipped will have an external capacitor/relay added into the wiring to prevent a voltage drop to the monitor (fix to be used in the field).





III. <u>Description of the Defect or Noncompliance and Chronology of Events</u>

Describe the defect, including a summary and detailed description of the nature and physical location (if appropriate) of the defect. Graphic aids should be provided where necessary.

The monitor has factory DEFAULT and User-defined defaults within the monitors software. The details below describe how the monitor can "Miss" the loading of the User-defined settings and revert to the factory default settings.

Mirror monitor image setting:

a. DEFAULT setting for the camera image is “MIRROR” mode
b. User-defined camera image setting for the vehicle application is “NORMAL” mode

Monitor simplified power up sequence:

1. Keypad illumination
2. User- defined programmed settings loaded (includes camera image load of NORMAL)
3. LCD panel activation

If the power up sequence is interrupted by a power drop at a precise time during the loading of the programmed settings the monitor uses the DEFAULT settings which would invert the image. The default settings are now the user-defined settings until manually changed.

Application specific contribution to the cause: (Key from off/run/start/run)

1. Driver turns key from OFF to RUN (starts power up sequence of the monitor)
2. Driver turns key from RUN to Start as engine cranks. At a specific moment voltage can drop below 7 volts to the monitor which can disrupt the loading of the User-defined settings.
3. Driver releases the key to the run position as the monitor has loaded the factory default settings which can put the image in “Mirror” mode.
4. In some conditions it is noted that Power/Trigger wires were tied to reverse so the unit would power up and down every time the truck is put in reverse. This can increase the occurrence and is not ideal.

NOTE: This has to happen at a specific point of the boot-up sequence of the monitor. Monitor startup should only happen at startup of vehicle (t. The image inverting will not happen during in-use driving. It will, however, stay inverted until the setting is manually changed. This also loads other default settings such as volume and brightness and auto Turn-ON.

Describe the cause(s) of the defect:

Cause 1: Mirror Monitor tries one time during the startup process to load user settings, if interrupted it can load default the settings and then continue with startup.
Cause 2: Vehicle voltage dropping at a precise time during the monitor being powered up leading to an interruption of the startup.

Describe the consequence(s) of the defect:

The rear view monitor image, as displayed to the driver is a mirror image of the normal image (left and right are reversed). This could influence the driver to make a decision that could lead to an accident.

Identify any warning(s) that may precede the defect:

1. When the unit powers up using the factory default settings the mirror monitor Auto On will be OFF. The Monitor, if the factory default settings are loaded, has to be manually turned ON instead of coming on by itself.
2. When the user manually turns ON the unit the factory default for volume will be at 50% instead of 0 (user-defined) which allows outside noise, which is a nuisance.
3. At this point the default of the image is inverted or put into Mirror mode (Safety issue).
4. This would all happen before the driver puts the vehicle in Drive (if they notice the monitor is actually OFF)

For defects, provide a dated, chronological summary of all the principle events that were the basis for the determination that the defect is related to motor vehicle safety, including a summary of all warranty claims, field or service reports, and other information such as number of crashes injuries and fatalities.

No related incidents, accidents, injuries, or fatalities have been reported to ASA. The first incident of a reverse image occurring was reported on Nov 5, 2018.

11/05/18 – Rockport complaint of possible image inverting on mirror monitor
11/05/18 – Complaint from Frito customers having an inverting image issue. Jonathan from Utilimaster is investigating.
11/10/18 – ASA requested and waiting (during November) for details with assumption of installation issue.
12/10/18 – Received a call about a set of vehicles with images inverting on Amazon Mercedes Sprinters. Paul Klemm from Utilimaster was going to customer to investigate.
12/12/18 – Conference call between Utilimaster (Paul Klemm) and ASA. Sample being sent overnight.
12/13/18 - ASA able to recreate image inverting with sample from Utilimaster
12/14/18 – New Software to change default setting from Mirror to Normal and Auto-ON to ON to create rev D.
12/14/18 – A SCAR (18-1358) assigned to Luview in regard to image mode changing, AutoON changing, and Volume changing during cranking at startup of vehicles.
12/18/18 – ASA Tested samples that were sent
12/18/18 – LuView to try to supply 1000 Rev D units by the end of this week

12/21/18 – All rev C product put on hold at ASA
12/27/18 – Rev D product received at ASA
1/11/19 - Conference Call with customer (Utilimaster) – Requesting root cause with LuView
1/14/19 – Determined software fix on Rev D corrects image inverting, however does not fix the default to factory settings
1/16/19 – LuView working on a software fix to correct the drop to default settings. Also LuView working on field fix options.
1/17/19 – LuView working on a solution for a field fix that involves a relay and capacitor circuit. Could send sample UPS Express early next week (22nd)
1/19/19 – ASA approved software/hardware evaluation of Rev E to prevent the software from reverting to the default settings
1/20/19 – Samples of field fix modules shipped from China to ASA by UPS express
1/24/19 – ASA approved the field fix modules and asked for some to be made ASAP.
1/25/19 – ASA Product Safety Investigation/Notification Report started (HS001)
1/30/19 – Corrective Action (SCAR 913) issued to ASA from Spartan Motors (Ulilimaster) – Shane Shance
2/4/19 – Received 200 field fix modules, 2000 more coming later in the week
2/4/19 – ASA Executive/Management meeting to discuss and determine next steps to gather customer information, supplier information, part information, and start to fill out a 573 Report
2/6/19 - A field fix (relay module to prevent voltage drop during startup) was implemented on 103 Spartan (Frito Lay trucks). ASA sent 3 people to install the modules. The root cause analysis was validated through lab testing.

IV. The Remedy Program and Its Schedule

Describe the program for remedying the defect, including the plan for reimbursing those owners and purchasers who may have incurred costs to remedy the defect before receiving the manufacturer's notification concerning that defect. Also include, where applicable, details with dates concerning any production remedy that was conducted or will be conducted.

Provide the estimated date(s) on which owner and purchaser notifications will be issued and the estimated date(s) for completion of those notifications.

ASA will work with vehicle manufactures and NHTSA to timely provide owner and purchaser notifications.

Provide the estimated date(s) on which dealer and distributor notifications will be issued and the estimated date(s) for completion of those notifications.

Describe the distinguishing characteristics of the remedy component/assembly versus the recalled component/assembly:

The field fix (relay/capacitor) module, which is approximately 1” x 1.5” x 1.5” is added to the wiring of the mirror monitor (mostly under the seat of the truck). See picture in section two above. Also, Rev D serial number will not invert the image if loading default settings.