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Shakopee, MN [redacted]
14 June 2018

US Department of Transportation
NHTSA
Office of Defects Investigation
(NVS-210)
1200 New Jersey Ave SE
West Building
Washington DC 20590

Greetings, Madam, Sir,

I am writing to create an awareness of possible safety defects in design and/or construction of a MOTORHOME (also called an "RV" for brevity).

Specifics of this motorhome:
2017 Fleetwood Pace Arrow
Model 33D
VIN 4UZAAJDT9HC[redacted]
Purchased NEW, April 2017 from a local authorized dealer

First, a brief, concise listing of 3 items that may constitute defects in design and/or construction.

1) This unit had a Washer- Dryer (WD) placed by the factory on a shelf over 2 feet above the floor in the back of the RV. The WD was not secured to the RV.
2) There are 2 LP gas lines snaked around under the kitchen slide-out. They were not well secured and had other issues.
3) There is an exhaust port from the bedroom furnace at the back of the RV located within a few feet of the vehicle diesel engine exhaust outlet.

DETAILS OF THE POSSIBLE SAFETY DEFECTS

(photos included at the end of this document)

WASHER-DRYER

The WD sat on a shelf over 2 feet above the floor in the very back of the RV. The "shelf" is the bottom of the center "wardrobe" cabinet. Please see a copy of the manufacture's sales brochure included here as photo FP-1 (floor plan – 1). I discovered 2 issues.

After a short (100 mile) shake-down "cruise" I observed the WD had shifted in this closet and was scraping against one of the hinges of the louvered door of the wardrobe closet. Please see photo WD-1. Not being as aware as I am now of the possible implications, I simply shoved it

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back and installed 3 small blocker boards to prevent the WD from striking the door hinge and further cracking the door frame. See photo WD-2

Further driving resulted in the WD resting firmly against the block-boards I had installed. This caused me to look for the restraint straps and determine why they were not doing their job. RESTRAINT STRAPS COULD NOT BE FOUND. THERE ARE NO RESTRAINT STRAPS. We have a situation of a heavy (145#), tall, WD unit sitting on the floor of a wardrobe cabinet (designed for clothing), free to roam around.

Later investigation showed that the floor of the wardrobe was collapsing under the moveable weight of the WD. Please see photo WD-2 again. The right front corner of the floor is down ½ - ¾ inch from where it should be. Pushing lightly toward the top of the WD caused the floor to drop more and less. After several e-mail discussions with Mr. David Matzenger, Dispute Resolution Administrator, REV Group (parent of Fleetwood), I was able to convince Fleetwood to authorize the dealer to remove the WD. I was compensated for the cost of the WD. We never used the WD. Fortunately, we never ran water into the unit.

I am including a copy of the securing recommendations of the WD manufacturer as stated in their instruction book as IB-1 (instruction book-1).

It is my belief that in the event of a sudden stop (worse yet, an accident) the WD could depart the wardrobe cabinet (over 2 feet above the floor of the RV), tumble down the center aisle causing significant property damage and possibly injuring an occupant.

There is some reason to believe there may be many other Fleetwood Pace Arrow RVs with a similar WD situation.

LP GAS LINES

This issue is a little more complex. I'll do my best to explain.

RVs typically have a stove and one or more "furnaces" powered by LP Gas. I believe the distribution lines are typically some reinforced rubber material.

The kitchen stove and kitchen furnace in the Pace Arrow 33D are located on a "slide-out". This makes getting LP gas to the units somewhat more complicated. The hoses must have some "slack" to allow for slide movement and must be fairly flexible to allow for hundreds to thousands of slide deployments yet hopefully, not be kinked by the slide.

I removed one of the kitchen drawers in an attempt to locate the entry point for the mice we were finding (or indications that mice had been there) in the RV. At the back of the drawer I observed the 2 LP gas lines – one going to the kitchen furnace, the other to the stove. I was a little surprised at the mess behind this drawer. Please see photo GL-1. A wide-view is shown here to give a sense of location.

Photo GL-2 gives a closer look at the routing of the LP gas lines just above the furnace and the associated bundle of spare gas line and building wire. Photo GL-3 gives a view of the gas line bundle resting on the gas line and brass compression fitting as it enters the furnace. My first concern is for the line terminating at the brass compression fitting of the furnace. The "bundle" of surplus gas line bounces up and down perhaps hundreds of times per mile. THE BUNDLE IS NOT SUPPORTED IN ANY WAY (other than by resting on the portion of gas

line at the brass fitting). While the rubber gas line may be flexible, it may be fairly vulnerable at the edge of the sharp brass compression fitting.

I was able to convince Mr. Matzenger to authorize the dealer service department to fasten the gas lines to structure at the back of the drawer.

The LP gas lines must make their way from the large LP gas tank bolted to the chassis to the slide-out. In the case of the Pace Arrow 33D, the LP gas line is routed under and eventually through a hole in the fixed floor, then under the slide-out, up into the **owner's storage area** under one of the dinette seats – photo GL-4. The under-seat area is typically considered "owner's storage space". I am concerned about potentially placing objects of somewhat arbitrary weight on the sharp bend of the LP gas line as it enters the storage area (we placed boards around the plastic port and lines to prevent material stored from crushing the LP gas lines).

The LP gas lines then travel the width of the storage compartment (owner's space) and exit where they appear to pass within the base of the slide to finally terminate at the kitchen furnace and stove. At the exit point, the LP gas lines make a 90 degree bend and head to the back. See photo GL-5. A wide-view photo is shown in GL-6.

My feelings are that LP gas lines should not pass through an owner's storage space, especially when the gas lines make sharp bends at entry and exit. I also question allowing the LP gas lines to drag across the fixed floor of the RV as the slide is moved in and out. Again, photos GL-4 and GL-6.

My concern is these lines could be vulnerable to pinching and chafing. As with the WD, there is some reason to believe there may be many other Fleetwood Pace Arrow RVs with a similar routing of LP gas lines.

ENGINE EXHAUST INTO PASSENGER CABIN

The bedroom of the Pace Arrow 33D is located at the very back, has a furnace on the passenger side of the vehicle. The furnace draws make-up air from the bedroom through a louvered panel located near the head of the bed, please see photo Louv-1 (panel was being removed in an attempt to locate source of rodent infestation). It is important to note that in these simple furnaces, air is drawn in from the living space, goes through the combustion part of the furnace and out through a vent, or port on the side of the RV. The path air-in to air-out is bi-directional when the furnace isn't running. There is no mechanism to close off the input or output port when not in use. Pretty similar to residential low-efficiency furnaces prior to high-efficiency furnaces.

The owner's manual for a diesel engine strongly urges running the engine for at least 5 minutes at start-up. This isn't typically an inconvenience as slides must be electrically pulled in – running the engine is required because of the current draw and there are additional items to stow, things to check. In cool weather a longer warm-up is suggested.

The furnace exhaust for the bedroom furnace on the 33D is located toward the rear and on the passenger side. The diesel exhaust is located at the back of the RV on the same passenger side.

One morning we were preparing to leave the RV park. Engine running, ceiling vent open. I went into the bedroom to operate the switch to retract the slide. I smelled diesel exhaust – pretty easy to identify. I left the bedroom, turned off the engine, leaving the fan in the ceiling vent running for 5+ minutes to pull any remaining exhaust fumes out. Closed ceiling vent, started engine, retracted slide without smelling exhaust again.

We made a resolution. From that point on we never ran the engine with ceiling vents open or with the door open. We stayed away from the bedroom during the warm-up, entering only to press the switch to retract the slide. As this incident was on the way home after a lengthy trip, and as we had decided to rid ourselves of this vehicle once we were home, this has not been reported to Fleetwood.

I believe a valid analysis is as follows. The engine exhaust pipe is fairly close to the exhaust exit (entry) port of the bedroom furnace. Unless the RV is moving forward, or unless there is a breeze from the direction of the front, or unless the furnace is operating (unlikely during prep for departing), exhaust gas can be present near the furnace outside port. With roof vents open, there can be a chimney effect allowing exhaust gas to be pulled into the bedroom. Remember, the airflow for the combustion chamber of this simple furnace is bi-directional when the furnace isn't running. I was later able to prove this using a Halloween smoke generator. Photo E-1 shows the relative positions of the engine and furnace exhaust stacks. I have added lettering. The original untouched digital photo is available.

Finally, why write this letter? We have sold the RV back to the dealer. We no longer have to be concerned with its deficiencies and our safety. However, there are possibly hundreds of Pace Arrows on the roads. Some could have these same issues. At this point, my conscience is clear. I have reported my observations. If the safety engineers at NTSB find there are safety concerns, I'm certain there will be some questions raised. If I am entirely wrong, well, the worst is that I have wasted a few hours.

If clearer photos would help, I can e-mail the set to an address you provide.

STATEMENT OF AUTHENTICITY

> I have personally taken the photos of objects inside and outside of the RV we owned. I release these photos to the NTSB should they need them for defect investigation.

> I have not materially altered these photos in any way, other to add some words of explanation to a few. The originals are available, should they be needed.

> The text describing my observations is accurate to the best of my ability.

Respectfully, [redacted]

WASHER-DRYER ISSUE PHOTOS

WD-1

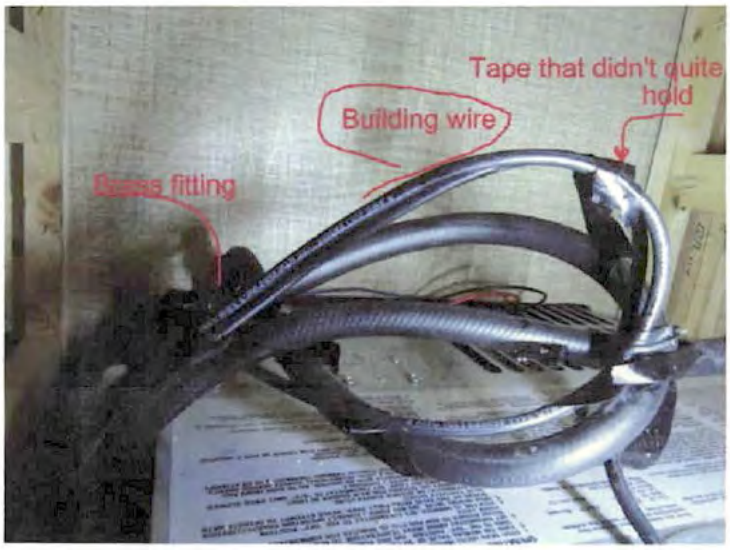
WD-2

- Floor - Must support at least 280 lbs. and be a solid, level surface. DO NOT install on carpet.
- RV/Marine Installations - When locating the appliance in a towable trailer or watercraft, position the machine over the axles or mid-ship where movement is at a minimum. Block the machine to prevent extreme movement.

IB-1

LP GAS LINES

GL-1



GL-2

GL-3

GL-4


gas lines into base
of slide

GL-5


kitchen table slide
LP gas lines &
building wire

GL-6

ENGINE EXHAUST

E-1

E-2

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