

Why You Should Extend Slides at Ride Height

Caution: Always follow the instructions provide in the Owner's Manual for your specific coach.

~

Failure to follow the instructions may result in damage to your windshield or chassis.

A frequent discussion on various forums is around the question.....

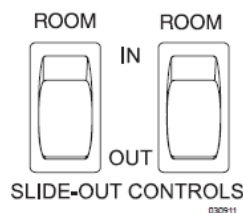
“Should I level my motorhome before extending the slides?”

For example on a 2006 Monaco 42-DSQ, the manual instructs the owner to extend or retract the slides with the air suspension fully pressured and the coach at ride height.

Main Room Slide-out

To Extend the Main Slide-out Room:

- Move the cab seat(s) forward.
- Confirm that there is at least 5' of clearance outside the motorhome for the slide-out room to extend.
- Be sure the bay doors under the slide-out room are closed.
- Ensure the ignition key is **OFF**.
- The park brake must be applied.
- The house batteries are fully charged.
- Be sure all people, pets and objects are clear of slide-out room path.
- The control switch for the slide-out room is on the system monitor panel.
- Press and hold the front slide-out room switch **OUT**. The slide-out room slowly moves **OUT**. Release the switch to stop room movement. To continue the room movement, push and hold the switch in.
- Release the slide-out switch when the room is fully extended (a change in motor sound indicates extension). The slide-out drive motor will not stop automatically; the switch must be released.
- If equipped, extend additional slide-out rooms.
- Level the motorhome with the leveling system.



NOTE: Perform the slide-out room operation with the air suspension system full. Extensive damage could occur to the slide-out room and awning when extending the slide-out room in snow, sleet, ice or freezing rain. In such conditions, if the slide-out room is extended, clear the awning and ensure free movement prior to operating the slide-out room.

CAUTION: Dirt and grit trapped under the slide-out room could result in damage to the floor. Continuous operation of the slide-out could cause a drain on the house batteries and damage to the slide-out motor from overheating.

To Retract the Main Slide-out Room(s):

- Check for sufficient clearance inside the motorhome before retracting the slide-out room.
- Clean the floor, if applicable, to ensure there is no dirt that could result in floor damage during operation.
- Move the cab seat(s) forward.
- Inspect the exterior to ensure there are no sags in the awning material.
- Remove any debris from the top of the slide-out room.
- Be sure the bay doors under the slide-out room are closed.
- Start the motorhome before retracting the slide-out room. Allow air bags to inflate to normal travel height.
- Retract the leveling jacks prior to operating the slide-out.
- Turn the ignition switch **OFF**. The slide-out room will not operate with the engine running.
- The house batteries should be fully charged.
- The park brake must be applied.
- Ensure all people, pets and objects are clear of slide-out room path.

CAMELOT 2006

EQUIPMENT — SECTION 5 • 143

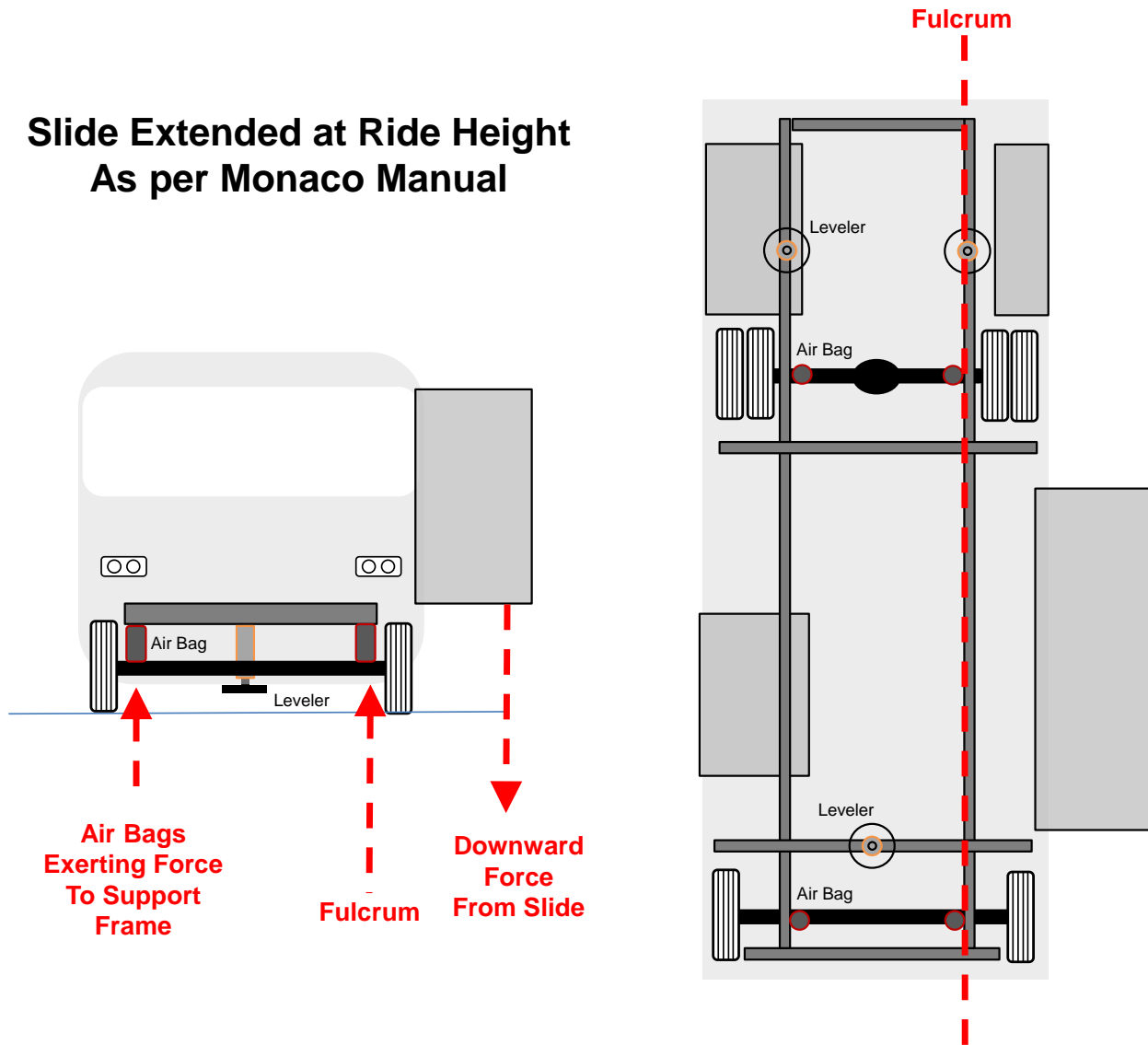
It seems intuitive that it would be better to level the motorhome first, and then extend the slides.

Applying some basic engineering however, it becomes clear why Monaco says to extend slides first. And... it *does not* appear to be the often mentioned reason that the “*slides where installed on a level floor*”.

To understand the issue, it is necessary to look at the balance point (Fulcrum) acting on the chassis/frame when the slides are extended.

Referring to the following illustration:

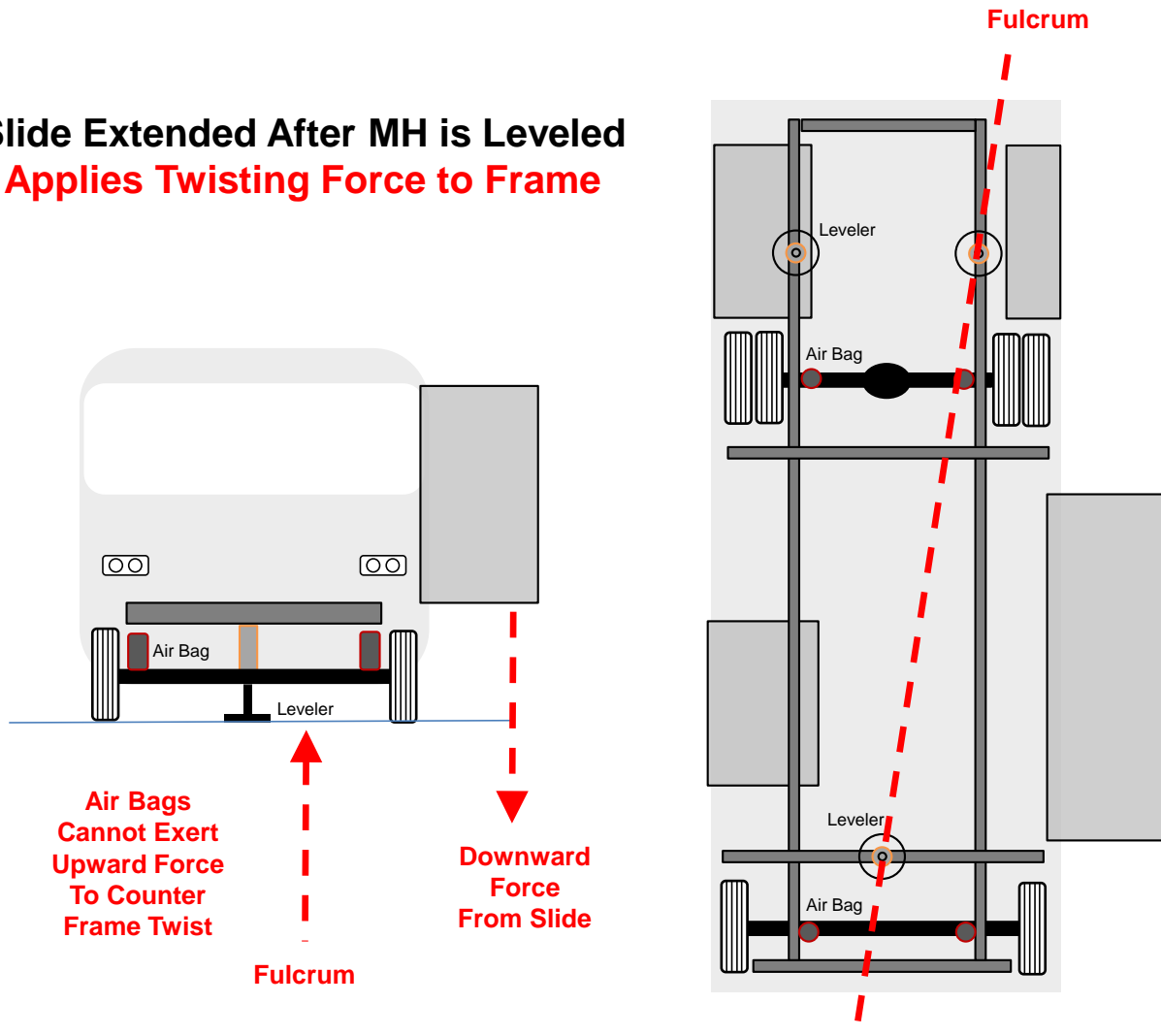
Slide Extended at Ride Height As per Monaco Manual



- ❑ When the air bags are fully pressured and the hydraulic levelers are retracted, the frame is balanced on the wheels/suspension at the outside edges.
- ❑ Even on uneven ground, the frame is balanced. There might be some minor twisting forces, but the air bags share the load and minimize it to a large extent.
- ❑ As the slide is extended, it applies a downward force on that side (*in this case the right side*).
- ❑ The frame pivots on the effective **Fulcrum** which is parallel to the frame. **Therefore, no twisting force is applied to the frame.**
- ❑ The air bags on the other side (curb side) are exerting a force upwards that reduces the strain on the frame. Depending on the weight of the slide, and its center of gravity, there may be some minor imbalance, but it is mitigated by the air bags.

On the other hand, extending the slide after the coach is levelled is shown on the next illustration.

Slide Extended After MH is Levelled Applies Twisting Force to Frame



- ❑ With the hydraulic levelers extended and the air bags deflated by the levelling system, the frame is now held rigidly in position.
- ❑ The air bags can no longer exert any upward force.
- ❑ The balance point or **Fulcrum** moves diagonally across the frame, forming a line defined by the front center jack and the rear roadside jacks.

Note: This would also be true for many 4 jack systems that have the 2 front jacks interconnected. These units would work the same as the single front jack forming a balance point in the center.
- ❑ The rear jacks prevent any lateral (left / right) movement of the rear of the coach.
- ❑ The single front jack (or interconnected dual jacks) does not offer the same lateral support as the rear jacks. The chassis can potentially twist if weight is added to one side without either additional support, or a counterbalancing force on the other side.
- ❑ Therefore, as the slide is extended, it exerts a downward force on one side. However, now it would tend to twist the frame because there is no counter balancing force on the opposite side, as the air bags are no longer exert any upward forces.

The frame will Twist as the slide pushes down on one side and the dead weight of the curb side rear 3/4 pushes down on the other side. This twist can result in the windshield separating from the frame on one corner or in some cases cracking.

To resist this, the frame would have to be much stronger which would have added both weight and costs which is something Monaco would have avoided. The simple answer of course would be to provide instructions to extend slides before levelling.

This really applies more to the heavier front slides than the rear slides which are both lighter and have their center of gravities over the rear jacks. I would not expect Monaco to provide different instructions for front and back slides so their instructions make sense.

Now that physics are better understood and if your Owner's Manual instructs you to extend slides before leveling the coach, it is strongly recommended that you:

When arriving in your site:

1. Park in as level a spot as possible. If it is too far out of level, place blocks under the lowest wheel(s) to provide some semblance of level to the coach.
2. Shut down the engine, pull the park brake and then extend the slides.
3. Level the coach as normal.

When getting ready to leave:

1. Start the engine and air up to normal pressure. Limit running the engine so as not to disturb your neighbors.
2. Shut down the engine as soon as possible and then retract the levelling jacks.
3. Retract the slides.

Coaches with 2 front jacks that are interconnected.

- ❑ Although a coach may have 2 front slides, they may be interconnected such that when one goes up, the other goes down, they will behave the same as a single front jack.
- ❑ This is done to increase the load capacity of the front jacks.
- ❑ This creates an “effective fulcrum” which is in the same position as with a single front jack.

