

General Information

Performing scheduled maintenance is key to extending the life of a vehicle. During inspection, ensure proper attachment hardware is present to secure the lines and/or wiring. See [Fig. 1](#), [Fig. 2](#), [Fig. 3](#), [Fig. 5](#), [Fig. 4](#), and [Fig. 6](#) for examples of attachment hardware. Inspection should take place as follows:

- after every repair where surrounding lines and/or wiring may have been disturbed from their original condition, or removed and replaced to access the repair area;
- after a third party installation for optional components such as air conditioning;
- during every scheduled maintenance;
- according to state or federal guidelines;
- during an annual inspection;
- as directed in the *Saf-T-Liner C2 School Bus Maintenance Manual*, available on www.AccessFreightliner.com.

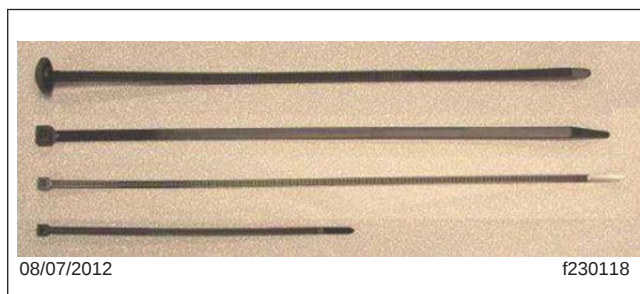


Fig. 1, Small and Large Nylon Tie Straps

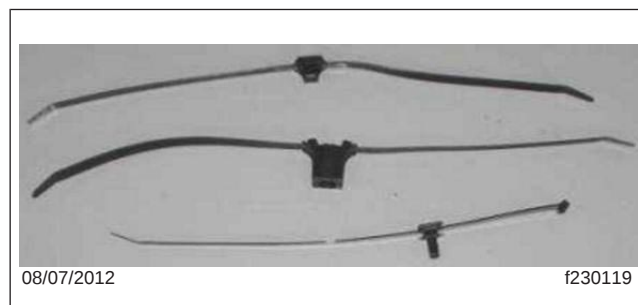


Fig. 2, Butterfly and Fir Tree Tie Straps

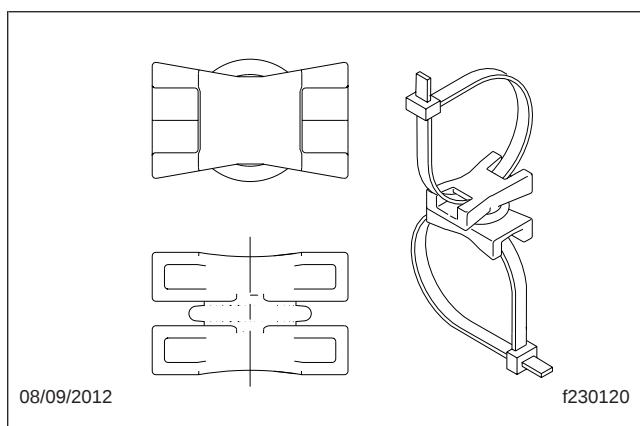


Fig. 3, Swivel Block

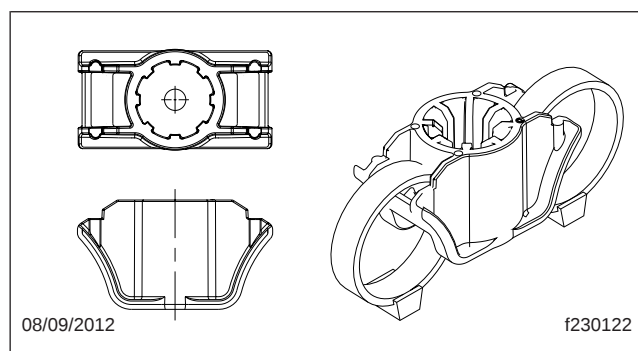
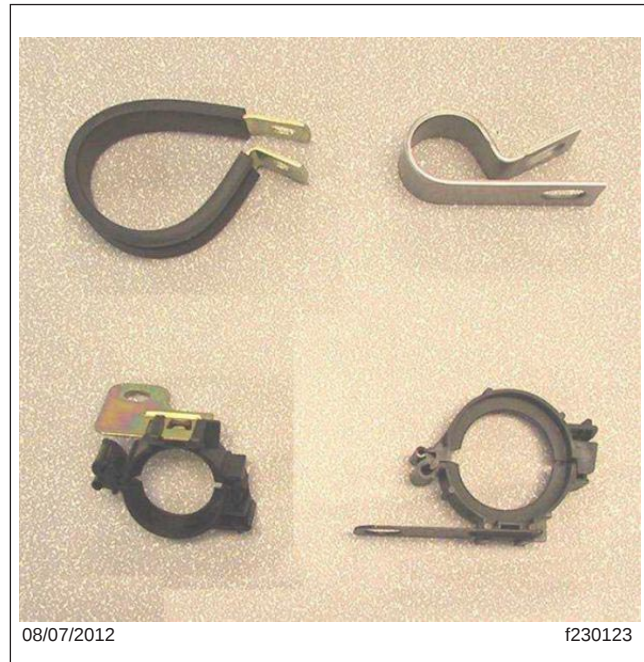


Fig. 4, Stud Blocks

**Fig. 5, Cable Clamps****Fig. 6, P-Clips**

Keep the following information in mind when working on the vehicle.

1. Protect components, wires, and hoses.
 - Keep parts in their original packaging prior to installation.
 - Grasp a component by its body.
 - Replace kinked hoses, including but not limited to heating, ventilating, and air conditioning (HVAC), fuel, hydraulic, and power steering lines.
 - Do not let hoses become contaminated by dragging them in dirt, oil, or water.
2. Provide the proper amount of slack to allow for movement of nearby components.
 - Ensure a good connection.
 - Provide strain relief to wiring at connectors and ensure a good connection without creating a leak at the wire seal.
 - Provide a drip loop.
 - Do not fold lines in order to take up slack. This will cause lines to kink, and require replacement of the line(s).
3. Avoid cuts and abrasions to lines and wiring.
 - If lines or wiring appear to touch an area where abrasion can result, move the lines or wiring away and perform a visual inspection. Replace any damaged lines or wiring as soon as possible, and move the lines or wiring to eliminate the abrasion point.
 - Avoid routing lines and wiring over rough or sharp edges. Use standoff brackets or P-clips to position the line or wiring. Use rubber grommets or other approved edge protection where possible.

- Replacement tie straps (also referred to as cable ties) should be the equivalent size, type, length, and strength as the original equipment. Tie straps from discount part stores may not have the same weight capacity or temperature rating.
 - Ensure nylon/plastic convoluted tubing does not rub other components such as steel brake lines or fuel lines. In certain conditions, convoluted tubing can cut through these lines.
4. Ensure correct use of clamps and tie straps.
 - Use proper spanning to fixed components to prevent excessive bundle sagging.
 - Never clamp or tie a power wire to a ground or fuel source.
 - Cut excess tie strap off flush—do not leave sharp or pointed edges.
 5. Avoid high temperature heat sources.
 - Maintain at least 6 inches of clearance for hoses and wiring.
 - If ample space is not available, use a heat shield, heat sleeve, reflective convoluted tubing, or a combination of these items.
 - Keep cold air conditioning lines away from heat sources.
 6. Avoid moving parts, including:
 - suspension components
 - drive shaft
 - axle
 - engine and engine-mounted components
 - windshield wiper mechanism
 - optional equipment
 7. Maintain access clearance when routing and clipping lines and wires near serviceable components, including:
 - filters
 - dip sticks
 - belts
 - battery slides
 - drains
 - fill covers
 8. Keep the following cables and lines routed separately from other wiring, air, and hydraulic lines:
 - positive power cables
 - negative ground cables
 - fuel lines
 - HVAC lines

Warranty

This is an informational bulletin only; warranty does not apply.