COMMANDER™

CUSTOM FIRE SERVICE CHASSIS

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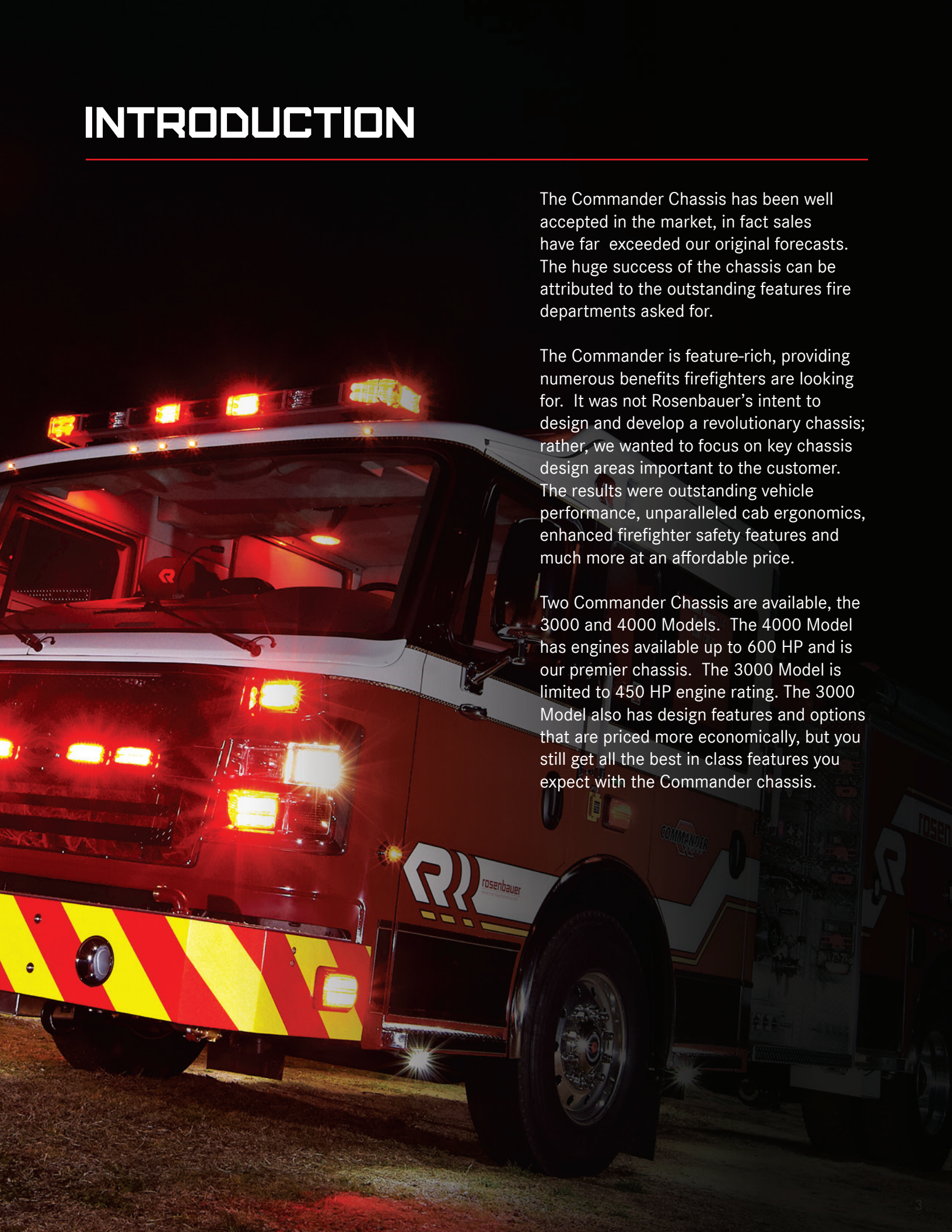
INTRODUCTION



The Commander Chassis has been well accepted in the market, in fact sales have far exceeded our original forecasts. The huge success of the chassis can be attributed to the outstanding features fire departments asked for.

The Commander is feature-rich, providing numerous benefits firefighters are looking for. It was not Rosenbauer's intent to design and develop a revolutionary chassis; rather, we wanted to focus on key chassis design areas important to the customer. The results were outstanding vehicle performance, unparalleled cab ergonomics, enhanced firefighter safety features and much more at an affordable price.

Two Commander Chassis are available, the 3000 and 4000 Models. The 4000 Model has engines available up to 600 HP and is our premier chassis. The 3000 Model is limited to 450 HP engine rating. The 3000 Model also has design features and options that are priced more economically, but you still get all the best in class features you expect with the Commander chassis.

VEHICLE STYLING

APPEARANCE

The Commander appearance provides a fresh, new style and look that distinguishes the cab as a
Rosenbauer product, the world's leading manufacturer of fire and emergency apparatus.

The cab boasts a dramatic grill that's available with a variety of options including flag images and a laser cut fire department name that is back lit. Either traditional quad-style headlights or more modern round headlights can be selected. Flexibility in the grill and headlight assembly designs allows the customer to select the appearance they desire.

VEHICLE PERFORMANCE

VEHICLE PERFORMANCE

The performance of the chassis is critical for safety of the passengers and we are confident that when you drive and ride in the Commander you will be impressed with the vehicle handling and ride characteristics. Responsive steering and exceptional maneuverability give the driver total control behind the steering wheel. Drive a Commander and experience outstanding performance for yourself!

VEHICLE PERFORMANCE

CAB TILT DESIGN

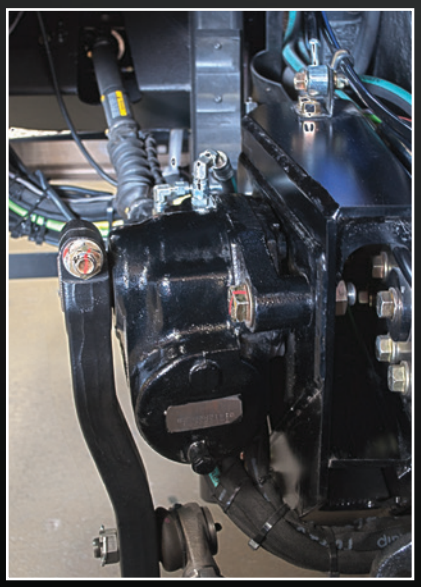
Heavy-duty cab lift cylinders are mounted are mounted on each side of the frame rails and provide a smooth and stable operation when lifting and lowering the cab.

The cylinder mounting design facilitates easy engine service as the cab can be tilted 45° to the ground.

Two, specially designed cab lock down mounts made of a soft metal-bonded natural rubber compound. The cab mounts are to isolate the cab from the chassis frame rails, reducing noise and vibration. The mounts allow slight movement to control cab motion reliability. Surface-effect dampers absorb resistance at both low and high velocities equally, Thereby minimizing vibration and enhancing the quality of the ride.

STEERING SYSTEM

The vehicle's steering features are vital to the operation of the fire apparatus. The duty-cycle of a fire apparatus is unique; it has to get to the scene as fast as it can without compromising safety.



Rosenbauer has designed a superior steering system. By streamlining the steering arm geometry, we have to reduced miter boxes and severe angles of the arm locations. This results in more responsive vehicle handling and control during all driving conditions.

The steering system is designed to eliminate additional driver effort through full range of steering rotation. It has reserve torque capacity at the limits of travel. The steering system pulls the truck out of sharp turnsimproving safety during and reducing driver stress.

Not only have we optimized the steering design for vehicle handling, but we also increased the cramp angles to improve vehicle maneuverability. We have achieved an industry "Best in Class" steering cramp angle of a minimum of 46 degrees right and left for all axle and tire applications, and we have third party certification to prove it.


A

ENGINE COOLING

A key objective in designing the Commander chassis was to move the engine/power train in a more rearward and down position on the chassis frame assembly. We achieved approximately 11” of space between the front of the fan and back of the radiator. This allowed us to design an aerodynamic fan shroud that increases air flow to the radiator. (Photo B) The results are a much more efficient cooling system, even when using the Cummins ISX 600 HP engine. The cooling test data supports this fact. Other manufacturer have closer fan-to-radiator positions which limits their shroud design, limits air flow and results in a less efficient cooling system.

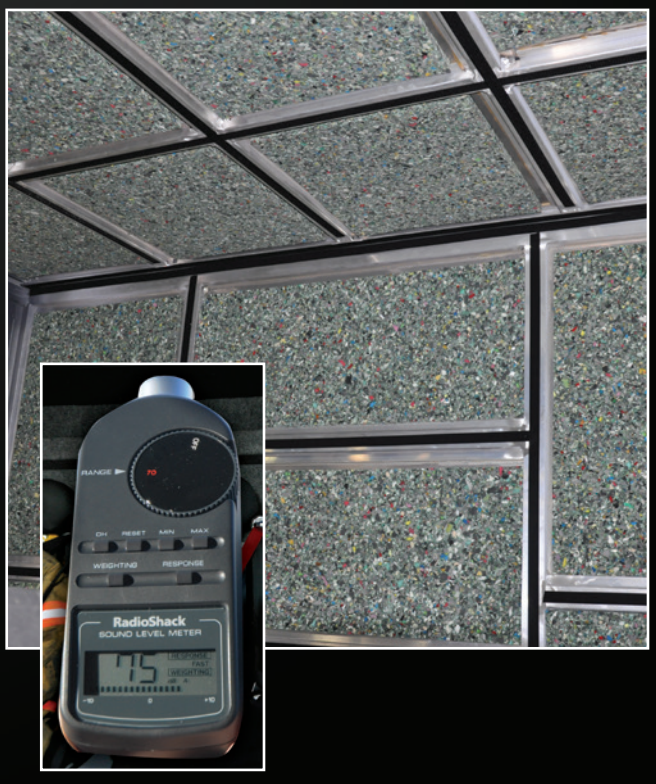
Another design feature that promotes engine cooling is the vertically stacked charge air cooler mounted above the radiator (Photo A). A reduced core size in the stacked design provides maximum cooling capacity for the engin


B

CAB INSULATION AND NOISE LEVELS

A dampening insulation between the cab skin and all surfaces of the interior ceiling and walls completely insulates the cab from exterior sound and heat intrusion. All insulation used in the construction of the cab is marine-grade, featuring longevity and resistance to degradation.

The result is an extremely quiet cab. Decibel readings inside measure in the low 70s dB at 45 MPH and mid 70s at 65 MPH. Some fire departments even question the need for intercom headsets.



VEHICLE PERFORMANCE

FRAME ASSEMBLY

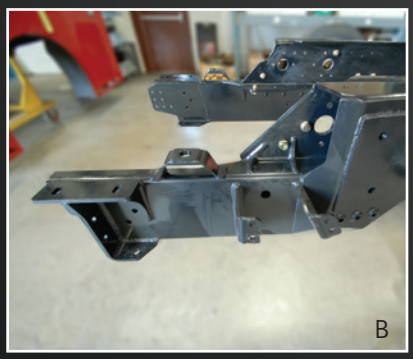
The back bone of a chassis is the frame assembly design. Reducing frame flex translates to improved vehicle handling, stability and safety. Rosenbauer achieves frame assembly rigidity in several ways:

- Domex 10.19” x 3.63”x .38”; 110 PSI minimum yield strength, high-strength, low-alloy steel, minimum Resisting Bending Moment (RBM) of 1,860,000 inch pounds per rail
- Unique “belly band” support under the transmission *(Photo A)*
- Single piece 80,000 PSI heavy-duty front frame extension, 4000 Model *(Photo B)*
- Up to seven 50,000 PSI cross members *(Photo C)*

A life-time warranty backs our frame assembly components.

Couple the strength of the frame assembly design with Rosenbauer’s body designs that are self supportive and don’t rely on frame rail support, and you have a winning combination. Rosenbauer offers body designs with life-time warranties matching the frame assembly warranty.


A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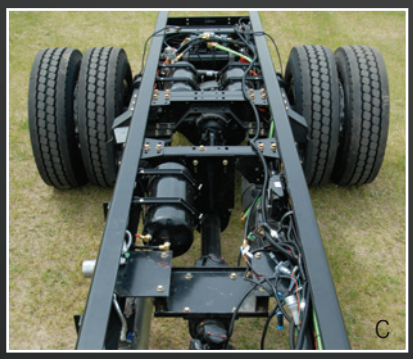
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FRONT AXLE AND SUSPENSION

A variety of Meritor front axleswith ratings up to 22,800 pounds and high performance EX225 17” brakes are available. Standard front suspension consists of Hendrickson multi-leaf spring suspension with ratings up to 22,800 pounds (specifically designed for fire service duty cycles). Bushings are case-hardened, and threaded with lubricated counter bore and cross bore pins for extended life.

Independent Front Suspension (IFS)
Optional independent front suspension is available on the Commander with a GVW rating up to 24,000 pounds. The IFS is equipped with an air spring design that lowers vibration and natural frequencies, thus providing an overall better ride. Bendix 17” disc brakes are standard with the IFS.

Bilstein high performance nitrogen gas-filled shock absorbers are standard. These include a digressive working piston assembly allowing independent tuning of the compression and rebound forces that provide optimum ride and comfort. Shocks are tuned to the ride characteristics of the Commander chassis.

Readily available parts and service can be performed by any suspension repair facility or your Rosenbauer dealer.

- Independent Front Air Suspension

CAB ENVIRONMENT & ERGONOMICS

CAB AND ENVIRONMENT

Cab room and comfort for all occupants was a key initiative from the early design stages. The following features highlight the impressive results.

CAB ENVIRONMENT & ERGONOMICS

ENGINE TUNNEL INSIDE CAB

The size of the engine tunnel, has the most impact on room inside the cab. The size of the engine tunnel is dictated by the design of the engine installation and cooling package. The engine power train is moved rearward and down allowing us to keep the cooling package lower without compromising ground clearance.

The result is an engine tunnel inside the cab that's only 21" high with tapered corners that measure 42" wide. When sitting in the driver's or officer's seat, hips are above the sides of the engine tunnel, providing ample room for firefighters of any size.

The engine tunnel height of only 21" is "Best-in-Class" and something you will immediately identify when you take a seat.

ROOM FOR DRIVER & OFFICER

Occupants seated in the driver's or officer's position have excellent maneuverability thanks to ample hip room, floor space and knee room. Because the engine tunnel is low and tapered, the occupant can easily turn to communicate with other personnel inside the cab. Side to side and front-to-rear space in both seating positions provide "Best-in-Class" room and comfort for the occupants.

CAB ENVIRONMENT & ERGONOMICS

CAB INTERIOR DESIGN

The cab's instrument panel is ergonomically designed to give the driver the feeling of sitting behind the wheel of a luxury car. The cab dash is constructed of a single contoured piece of RTM composite with a rugged scratch resistant coating. This construction allows for a clean, seamless area that reduces unnecessary joining of dash components.

The layout of the instruments and controls gives the driver a comfortable and confident feeling when driving and operating the vehicle. Controls are within easy reach resulting in minimal distractions while at the wheel. Gauge and switch backlighting is set at the optimum intensity for night-time driving.

The gauge cluster provides the driver with a clear unobstructed view.The three-gauge layout is simple and easy-to-read so the driver can watch the road.

A digital information screen, located in the left dash gauge, has a wealth of information. Fuel economy, trip distance, engine hours, exhaust temp, turbo boost PSI, DEF level and much more are available by simply scrolling through.

COLOR OPTIONS

Gauge cluster panel paint color to match primary cab exterior color or black as an option

CREW CAB FLOOR SPACE

Crew cab space is also important and was not over looked in the design of the Commander cab.

The crew cab floor is flat, no large hump in the middle- with a one o'clock PTO, eliminating safety concerns. The floor is extended to the doors below the rear facing seats to provide an area for the firefighters boots.

Different cab lengths with a variety of seating configurations provide options to your needs.

STEERING WHEEL

Two steering wheel styles are available (both 18" 4-spoke design). You can choose from the standard 4-spoke wheel or the VIP Smart Wheel. The VIP Smart Wheel has controls for wipers, air horn, engine brake and fog lights.

CUSTOM CENTER COUNCIL

A customizable center console is standard and mounted on the top forward area of the engine tunnel. The console can accomodate radios, siren heads, brackets for lap tops, etc. Even cup holders are provided. The console provides flexibility and is easily modified when equipment needs and changes occur.

STORAGE COMPARTMENT

Additional storage compartments are available on extended cabs

SAFETY

STATE-OF-THE-ART

Uncompromised safety was a cab design goal from the beginning. Through past experience, cab engineers knew how to enhance the structural integrity of the cab. The design efforts were validated through third party testing as the cab exceeded the test criteria.

WINDSHIELD

A single piece windshield, provides excellent visibility and a panoramic view for the driver and officer. A low-profile dash enhances a forward line of sight downward to the road, and the view upwards is not obstructed by an overhead HVAC unit. The center windshield post is eliminated also improving visibility.

The automotive-style windshield can be easily replaced, and is surprising affordable.

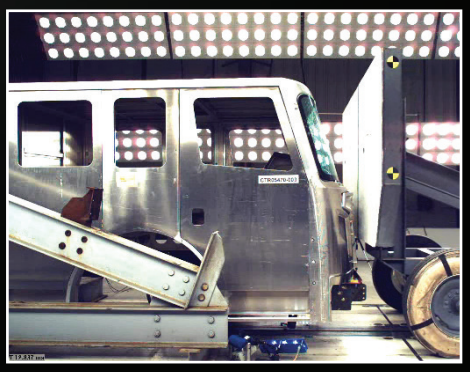
CAB DOOR DESIGN

The cab doors opening to 85° are the widest in the industry making it easy to enter and exit. Door hinges are heavy-duty stainless steel and hidden to prevent dirt and debris from becoming trapped in the hinge.

THIRD-PARTY TESTING AND EVALUATION

Before we offered the chassis for sale in the market, we determined it was important to validate the design of our cab through third party testing. We were pleased with the results. We passed all the requirements of NFPA 1901, SAE J2420 and J2422. Here are a few highlights of the test results:

- J2420 front strength , dynamic load test, required 44.13kj of force, achieved 100kj or 2.27 times the requirement
- J2422 cab roof strength, required 24,130 pounds, achieved 120,000 pounds, almost five times the requirement



SAFETY

CAB STRUCTURE DESIGN

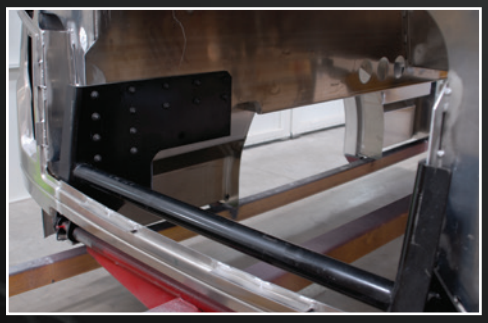
Our experienced team of engineers set out to design the strongest and safest cab in our industry. From past experience, they understood the design criteria needed to accomplished this goal. All third party testing validated the achievement of our goal.

The “A” pillar is a closed section, one-piece extrusion extending from the cab header to the bottom of the cab. The “D” pillar is a closed section, dual extrusions. This design ensures strength and superior resistance to buckling in the event of a frontal impact or rollover. Additional cab strength is provided in the construction of the “B & C” pillars.

In the design of the cab, stamped aluminum cab fascia and roof corners are used. Stamped components alleviate a higher tendency of fractures through the fusing of dissimilar metal compositions that may occur when using casting pieces that are dissimilar compositions of aluminum.

The cab is constructed out of 3/16” 5052 aluminum sheet metal providing added strength to the aluminum extruded sub structure resulting in a stronger and safer cab.

Incorporated into the cab design is a heavy-duty cab pivot super structure support made of ½” A36 steel plate with a .31” thick 2-1/2” diameter tube cross-member mechanically attached to the cab and frame. The super structure provides support in cab pivoting and also provides additional cab integrity in the event of frontal or corner impacts.



OPTIONAL OCCUPANCY ROLLOVER AND AIR BAG PROTECTION

The drivers, officers and outboard crew cab seats can be equipped with the RollTek™ rollover occupant protection system. RollTek will secure occupants, increase the survivable space within the cab and protect against head/neck injuries in the event of a rollover accident. The system functions by using a microprocessor-controlled, solid-state sensing device which, when the system detects a side roll, provides instantaneous occupant protection (less than 0.3 seconds from trigger to total deployment) by automatically initiating the following sequence:

- The seat belt tightens around the occupant.
- An inflatable tube/curtain deploys. This includes an air-filled bag to protect and cushion the head and neck of the occupant, hereby reducing movement and the chance of head contact with the side of the vehicle.

For added protection in the event of a frontal impact, frontal impact air bags are available for the driver's and officer's position.

- Rolltek and Air Bags are optional equipment

CAB STEPS

The cab are be designed with wide-step surfaces. The intermediate step is equidistant to the cab floor and the lower step extends out 5" providing a "staircase" design for easy entrance and exit.

HVAC

KEEPING COOL

During our marketing research we heard constant feedback on the performance of the HVAC system. Fire departments wanted better systems that provided sufficient heat in cold climates and high performance air conditioning when temperatures rise. Rosenbauer made the HVAC system a high design priority when developing Commander chassis.

AIR CONDITIONING SYSTEM

A high performance A/C system with a total rating of 96,000 BTU is provided inside the cab. It is capable of cooling the cab from 110° to 70° within 30 minutes. The cooling test was performed after the cab was heat soaked at 100° for three hours.

The air conditioning system is an integral design built into the dash panel.

No forward overhead heating unit blovking windshield visibility is installed in the ceiling area. The evaporator drains for the crew cab units are a gravity fed design with routing down the side cab walls. Water will not leak into the cab.

CAB HEATING SYSTEM

The heating system is also an integral dash panel design, and not an add on auxiliary system.
The rating of the system for the entire cab is an impressive 82,000 BTU. Six adjustable louvers, three each side, are positioned next to the driver and officer. Heat is also routed through vents in the floor. Heater controls are incorporated into the V-MUX Vista screen. This high-performance system provides heat where it's needed. A 880 CFM air flow directed to the upper body and boot area for the driver and officer eliminates the need for auxiliary heaters.

Competitor's overhead mounted HVAC unit.

CREW CAB HVAC SYSTEM

Dual heater and A/C units are installed outboard in the crew cab ceiling. Total air flow rating is 3160 CFM. Each heating and A/C unit has five adjustable louvers to direct air flow to the passengers. Controls are centered within easy reach from either seat position. The HVAC units are built into the overhead console providing an attractive automotive style.

HVAC

WINDSHIELD DEFROSTING SYSTEM

The windshield defrosting system provides maximum defrost and heating performance, a 30,000 BTU heater-defroster unit with 780 CFM of air flow is provided inside the cab. The defroster unit is strategically located under the center forward portion of the instrument panel. Hot-air flow naturally rises across the windshield and a fresh air intake is utilized. Six defrosting vents are provided on top of the dash panel. Excellent defrosting capability is provided across the entire windshield.

OPTIONAL EQUIPMENT

A formed aluminum dash assembly with a rugged finish is standard on the 3000 Model and is an option on the 4000 Model.

A high performance tunnel mount HVAC unit is standard on the 3000 Model and is available as on option on the 4000 Model.

- Hot-dipped galvanized frame rails are a popular option and includes a 20 year warranty against corrosion

DURABILITY & RELIABILITY

DRAWING ON EXPERIENCE

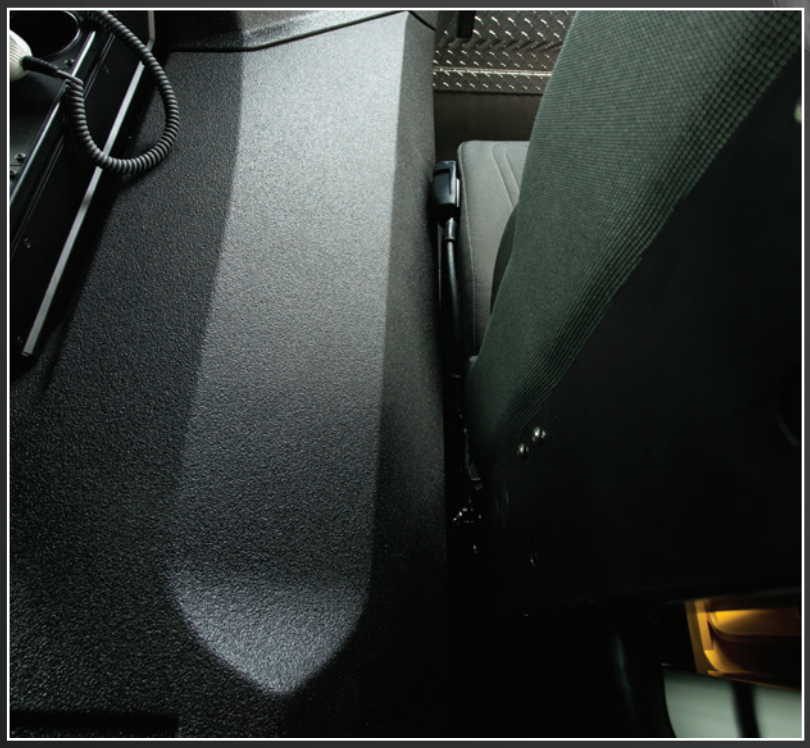
Durability and reliability are very important to cab interiors. They need to be rugged, durable and suited to the wear and tear it's exposed to on a regular basis. Chassis components need to be of rugged design for long lasting service life. Service and maintenance tasks need to be simplified through easy access to chassis components and electrical systems for diagnostics and service.

DURABILITY & RELIABILITY

INTERIOR CAB LINING

The cab interior panels - the dash, engine tunnel, and console - utilize a heavy duty, durable construction from a resin transfer molding (RTM) technology composite material. For improved resistance and military type strength, the composite material is .28” thick. The RTM material is provides a robust interior finish that will endure heavy use by even the busiest fire departments.

The cab and dash is finished with a urethane coating. This coating offers durability, scratch resistance, chemical and abrasion resistance. The material is similar to bed liners installed in pick-up trucks. No plastic is used for panels, engine tunnel, instrument panel, etc., inside the cab.



DURABILITY TEST

In addition to the cab crash tests successfully performed, the entire chassis was run through an actual durability test. The chassis was subject to an accelerated 100,000 mile road test on the Bosch proving ground in Indiana. The test essentially validates the design of the chassis through extreme conditions. If there are weaknesses in component design, they become evident during the test. No major defects or design flaws were detected, real testament to the design of the product.

FRONT GRILL ACCESS

The front upper grill assembly is hinged and fastened with latches to provide access to the engine oil for checks, oil fills, power steering fluid and windshield wash fluid fills without tilting the cab.

AFTERMARKET PARTS

The Commander chassis was designed to utilize as many brand names off the shelf parts as possible. The customer can purchase brand name components readily available from multiple sources at economical prices. It's not Rosenbauer's strategy to design and create proprietary components. It's our goal to reduce down time of the apparatus, so when a part does fail, the customer has the option to buy parts quick and economically priced.

ELECTRICAL SYSTEM

Two types of electrical systems are available; a traditional point-to-point hard wired system or a Weldon V-Mux electrical system. The Weldon V-Mux system is commonly used in the industry and has proven design and readily accessible components.

The Weldon V-Mux system includes a Vista IV display with an option to install the display on the passenger side. The Vista IV provides ease of use and flexibility in the selection of switches and controls. The display is within easy reach of the driver.

DURABILITY & RELIABILITY

EXTENSIVE EXPERIENCE

Rosenabuer is not new to the design and manufacturing of chassis. We have been manufacturing custom chassis for the ARFF and specialty vehicles market for over 20 years. In 2003, Rosenbauer Motors was started in Wyoming, Minnesota, and through this South Dakota facility hundreds of chassis' have been manufactured and delivered to customers through-out the world.

The Commander design team is made up of some of our industry's most seasoned veterans. On this team, the average years of individual experience is 20+. Rather than reworking an old or existing design, our team was given a 'blank piece of paper'. Relying on their extensive experience, and listening to the needs and desires of fire departments and mechanics through-out the country, Rosenbauer has created a chassis that we truly believe is "Best-in-Class".

GALLERY


OAKDALE FIRE
ENGINE


HERCULANEUM
FIRE DEPARTMENT


ENGINE 1


78' SMART AERIAL


1
AERIAL
SIOUX CENTER

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