

EUCLID

HAULERS: MODELS R25, R35, R50, R85 B
R100, R130, R170, R190



A PROUD HISTORY.

A WORLDWIDE STANDARD FOR MORE THAN HALF A CENTURY.

Think about it – for as long as you can remember, a hauler has always been a Euclid.

Since 1926, Euclid haulers have earned a reputation as one of the strongest, most durable haulers in the industry. At the heart of this legendary durability you'll find a tough Euclid frame. To this frame, we've added a wide range of powertrains and one of the world's most sophisticated suspension systems.

The result – today's Euclid haulers continue to be a prime mover in the mining industry. Now, as ever, Euclid haulers fit every modern concept of strength, speed, stamina and service.

A monument to Euclid haulers in the South Pacific.

We could list a long menu of "1st's" since 1926, everything from crawler wagons in the '20's to the first 150 ton coal haulers in the '70's.

But a better way to underline our commitment to mining is to mention a tribute to Euclid haulers that appeared recently on a remote South Pacific Island in Papua, New Guinea.

An aged Euclid 105 ton hauler stands proudly near the entrance of the Bougainville Copper Limited open pit mine. A bronze plaque in front of it commemorates it's being one of 54 Euclid 105 ton haulers that opened the mine in 1970 and produced reliably until 1977.

In 1985, another fleet of 45 Euclid 170 ton haulers had worked over 3 million hours. Euclid haulers continue to reliably work this mine as they have for over the past 18 years.

At Bougainville and all over the world, the name "Euclid" has come to mean rugged, dependable haulers. It's a reputation that VME is proud to maintain.

Euclid invented the off-highway hauler and continues to innovate.

Every inch of a Euclid hauler has been engineered for heavy duty performance. Find the toughest jobs in the world, and you'll find that Euclid haulers are there, around the clock, day after day, month after month, year after year.



A PROUD LINE.

R190 Nominal capacity,
190 tonnes (209.4 tons)



R85 B Nominal capacity,
85 tonnes (93.7 tons)



R170 Nominal capacity,
170 tonnes (187.4 tons)



R50 Nominal capacity,
50 tonnes (55.1 tons)



R130 Nominal capacity,
130 tonnes (143.3 tons)



R35 Nominal capacity,
35 tonnes (38.6 tons)



R100 Nominal capacity,
100 tonnes (110.2 tons)



R25 Nominal capacity,
25 tonnes (27.6 tons)



BEFORE YOU EXAMINE OUR HAULERS, EXAMINE OUR ENGINEERING.

The value of a hauler is measured in the work it produces for the money invested. Value means a competitive initial price, followed by productivity, reliability, minimal maintenance and repair, and dependable after-sale support from the manufacturer.

That value is assured by our attention to detail when we engineer our Euclid haulers.

At VME, the Euclid hauler engineering philosophy can be summarized in a single sentence: "Consistent, superior design results in efficient, reliable and cost effective haulers." This approach allows them to operate 24 hours per day with minimum downtime for maintenance and scheduled service.

Euclid hauler quality covers all the fine points.

The Euclid hauler plant in Guelph, Ontario, is equipped with some of the best automated production equip-



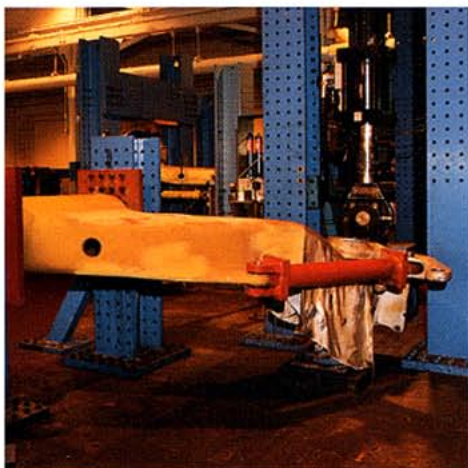
New Tech Center Building



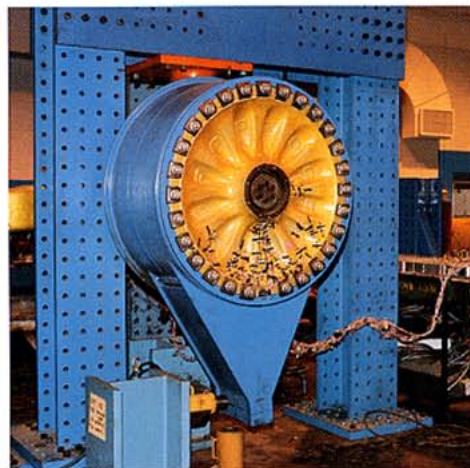
Robotic Welding at Guelph

ment in the industry, including computer controlled robotic welding systems.

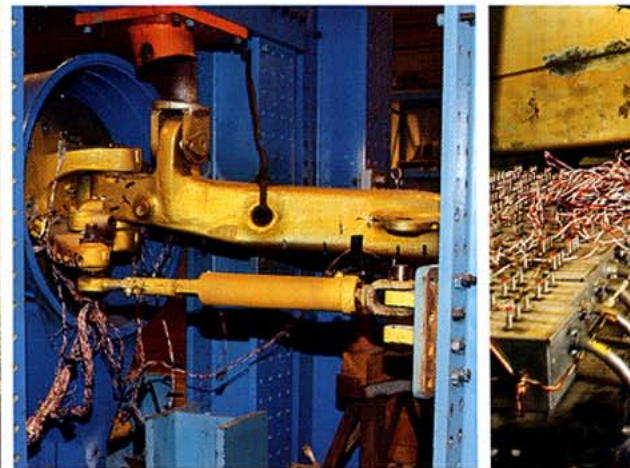
But we've never forgotten that experienced, motivated humans are still the most important factor in building quality Euclid haulers. At Guelph, each Euclid hauler is built individually, one at a time, using the "stall concept" of construction. Onto a basic frame and body, our workers add all the details and systems that make up a Euclid hauler. The experience that our engineering and production people have gained over the years shows up in their attention to detail and desire for perfection.



R-190 Axle



Component Fatigue Testing



R-190 Front Trailing Arm



Guelph Facility

Our continued hard work in research and development, engineering and manufacturing can assure you that today's haulers will be continually refined – and that quality new haulers will be available when our customers need them.

The R & D advantage.

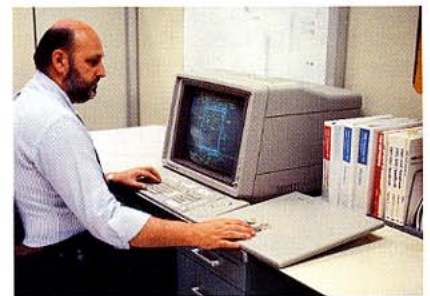
Our research and development program, now drawing on the combined resources of the VME Group, constantly strives to keep product quality

in the forefront. Our philosophy is to build in quality from the start, rather than inspecting for it later.

We do this in a variety of ways. At the VME Technical Center in Euclid, Ohio, haulers are designed, refined, updated, prototyped, and tested using advanced CAD-CAM systems, environment and load simulations,

and extensive computer-based modeling and statistical analysis.

Data from haul cycle field studies at customer sites is also factored in, along with hauler performance at the VME Proving Grounds (another part of the Technical Center). Typically, VME has found that the combination of Proving Ground and simulation testing is often far more demanding than conditions at any job site.

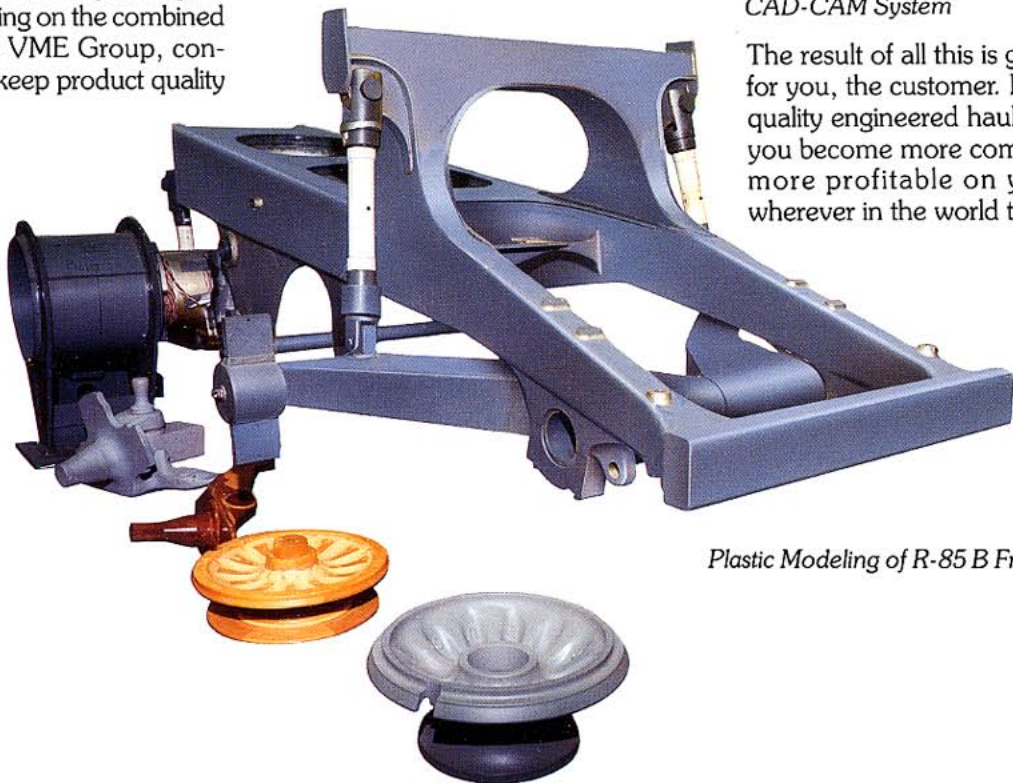


CAD-CAM System

The result of all this is greater value for you, the customer. By providing quality engineered haulers, we help you become more competitive and more profitable on your jobs – wherever in the world they may be.



Fatigue Testing of R-85



Plastic Modeling of R-85 B Frame

THE INSIDE STORY.

WHAT YOU DON'T SEE IS WHAT'S SO IMPORTANT.

VME engineers have combined the best possible components to offer a hauler of the highest quality.

The structural integrity and true serviceability.

The R50 box section frame is constructed to withstand real world job-site conditions. The suspension is designed to protect the frame and offer a stable, comfortable ride. The body matches a wide range of loading equipment and is made of high strength steel.

Field experience proves it – VME haulers produce.

Look at what separates the men from the boys.

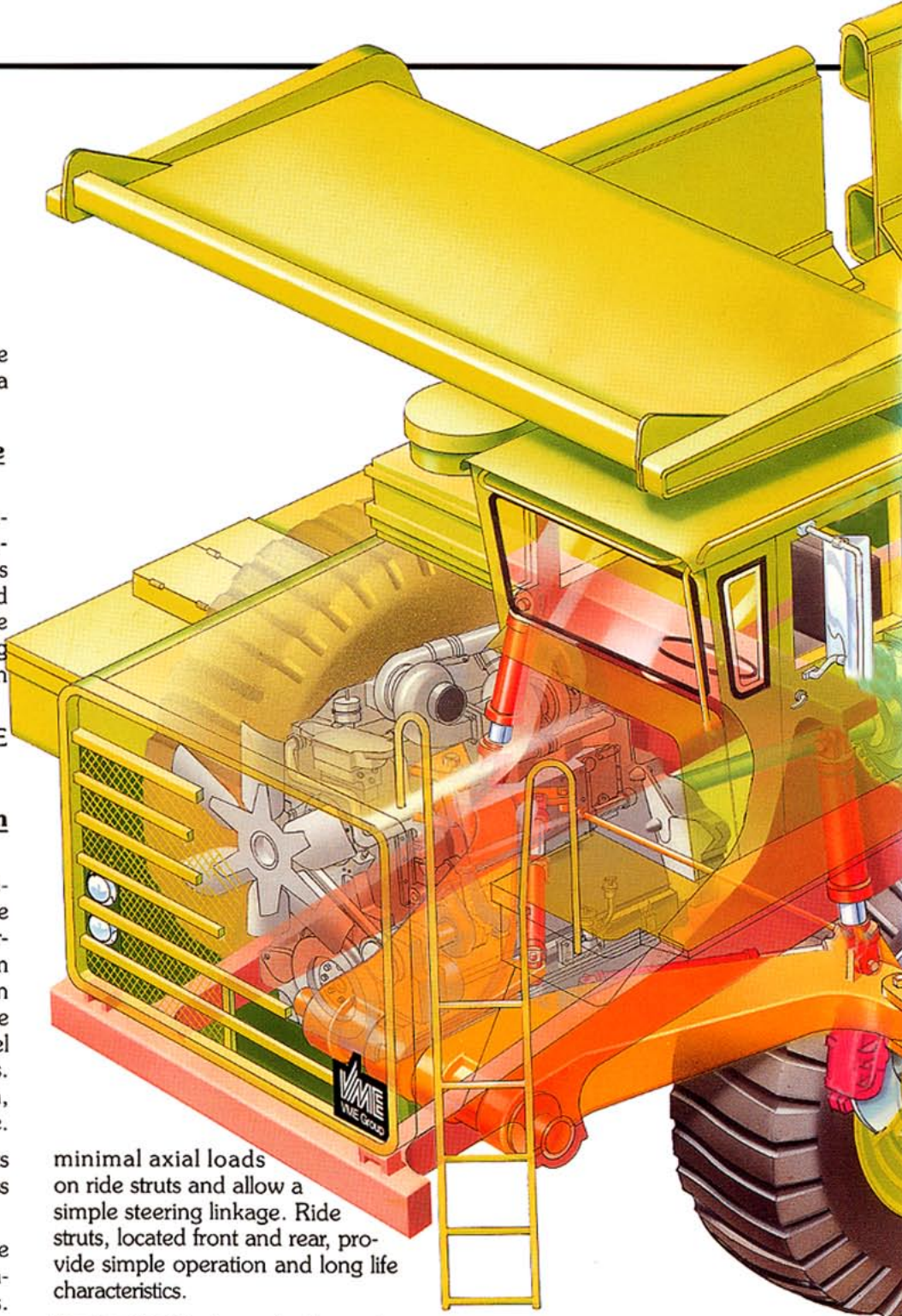
Frame – rugged, meticulously designed and fabricated with extreme care. The design allows good powertrain accessibility and maximum durability. Welded joints between frame components, for example, are designed so that welds are parallel to the direction of principle stresses. The result is less stress concentration, which means a more durable frame.

Powertrain – efficiently transmits horsepower and affords easy access for economical serviceability.

Suspension – incorporates the proven independent trailing arm concept pioneered on Euclid haulers. The suspension front trailing arms maintain vertical tire motion for

minimal axial loads on ride struts and allow a simple steering linkage. Ride struts, located front and rear, provide simple operation and long life characteristics.

Hydraulic Systems for transmissions, steering and hoists are separate to insure against cross contamination.





EUCLID R50

Body—efficient and exceptionally durable. Through the use of Computer Aided Design, VME engineers refined the body's floor configuration, front-plate and floor stiffeners, main rails, body sides and exhaust collector box. By increasing the width of the new bodies, tires and components are better protected for longer life. Horizontal stiffeners stretching the length of the body provide uniform distribution of impact loads along the side. The body design permits loader operators to work from one spot and easily hit the large target area.

Wet Disc Brakes—featured on selected models, this system uses separate pedals to control the service brakes and the retarder. Each system is designed by Euclid to match the needs of the hauler. These brakes are sealed against the environment. The brake cooling system uses its own filtration system and heat exchanger to lower system pressure and reduce wear on seals.

ROPS / FOPS designed to meet SAE and ISO criteria.

Front suspension. Caster and camber are built in. Toe-in is the only adjustment required.

ATEC automatic shifting and diagnostics.

Park brake interlock prevents driving through park brake.

Simple steering system with fewer moving parts.

Heated body—continuous closed loop exhaust suppresses noise, emits at furthest point from operator, and helps material shedding.

Optional differentials to meet your needs and match your job site conditions.

Remote mounted transmission for easy serviceability. Transmission can be removed from below or from on top of the frame.

Minimal drive line angles for efficient horsepower transfer.

Abrasive resistant "high-hardness" steel gives added strength and impact resistance.

STRENGTH AND DURABILITY: IT STARTS WITH THE FRAME AND BUILDS FROM THERE.

DETAILS MAKE THE DIFFERENCE.

The frame is one of the most important component's. It supports the body and its load, and transfers this load through the suspension, to the wheels and axles. It must withstand the impact of loading, and the inertial effects of the load, body and other attached masses while the hauler is in motion.

To do its job right, a frame must be durable and lightweight, and facilitate the servicing of all components attached.

The Euclid hauler frame is clearly better.

A Euclid hauler's frame is acclaimed to be the most durable in the industry. The frame design is simple, clean and open for ease of accessibility to components.

The frame consists of two fabricated frame rails bridged by crossmembers. The frame rails are oriented on a taper from front to rear.

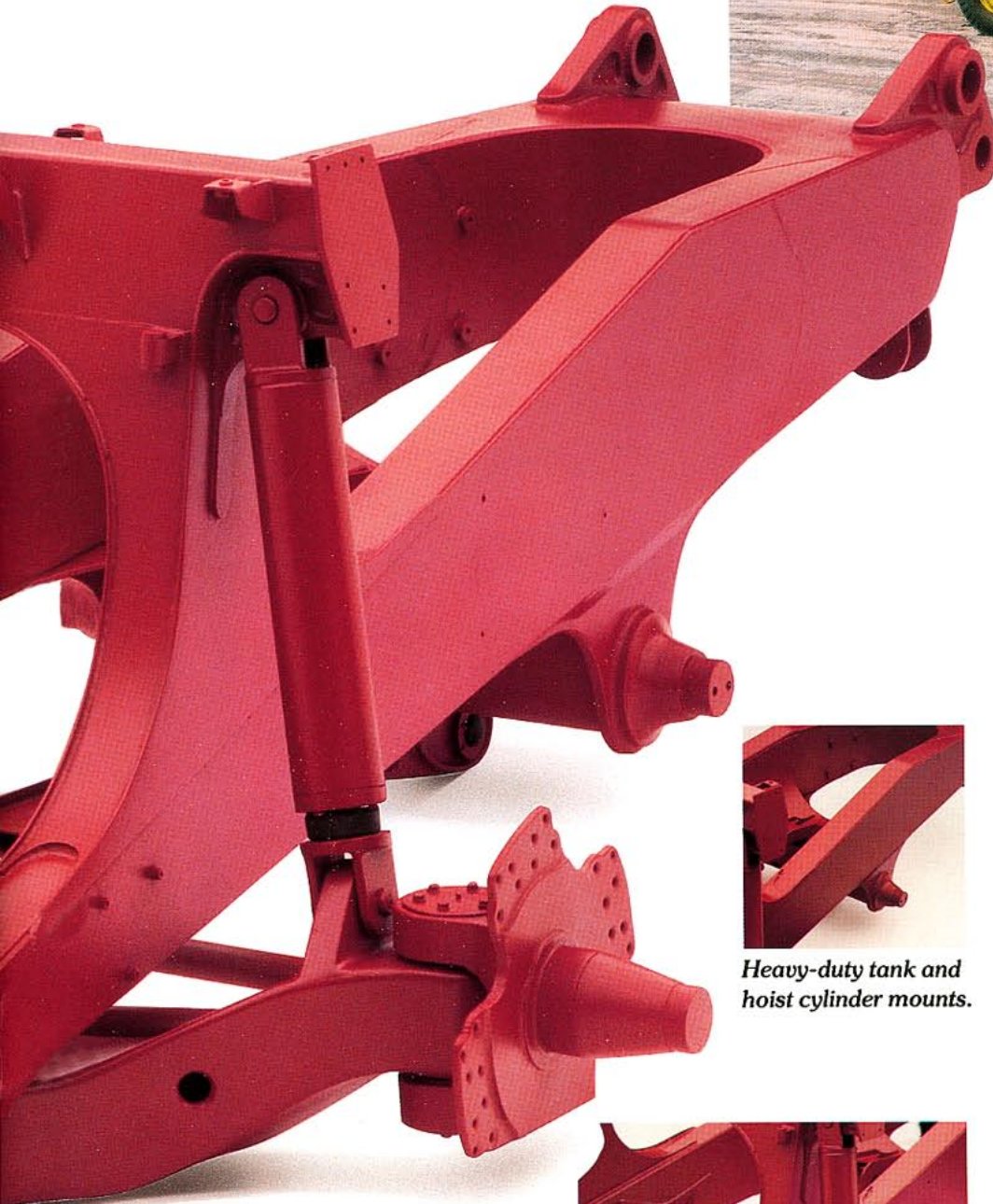
Attention to detail in the Euclid hauler frame is evident in the way welds are

made on the frame sections. The welds are made longitudinal to the direction of the principle stress. This type of weld positioning provides a stronger weld and avoids a physical, metallurgical or mechanical notch across the direction of stress found in other methods.



Alternator mount.





The Euclid hauler frame and suspension design eliminates the obtrusive "Horse Collar" found in other designs and allows easy access to engine and powertrain components.

The pride of craftsmanship.

For over 50 years, Euclid haulers have led the industry in welding fabrication technology. From manual welds to robotic welding systems consistent, quality welds are of major importance. Our people know how important critical welds are, and that's why they work so hard to make those welds absolutely perfect.

When it was installed in 1987, the VME Euclid hauler plant in Guelph, Ontario, had the largest robotic welding system in North America. For large components, it has improved productivity with more consistent quality and reduced set-up time.

Extensive testing assures frame durability.

Our comprehensive testing program of static and dynamic testing is performed both in the laboratory and in actual field conditions.

Stress coat/strain gauge techniques are used to test frame designs by locating areas of high stress. "Racking" stress is produced in the lab by inputting torsion to the frame loaded with the body and a full payload.



Heavy-duty tank and hoist cylinder mounts.



High-arch crossmember.

WHETHER YOU'RE HAULING NEARLY 200 TONS, YOU BETTER HAVE A STRONG SUSPENSION.

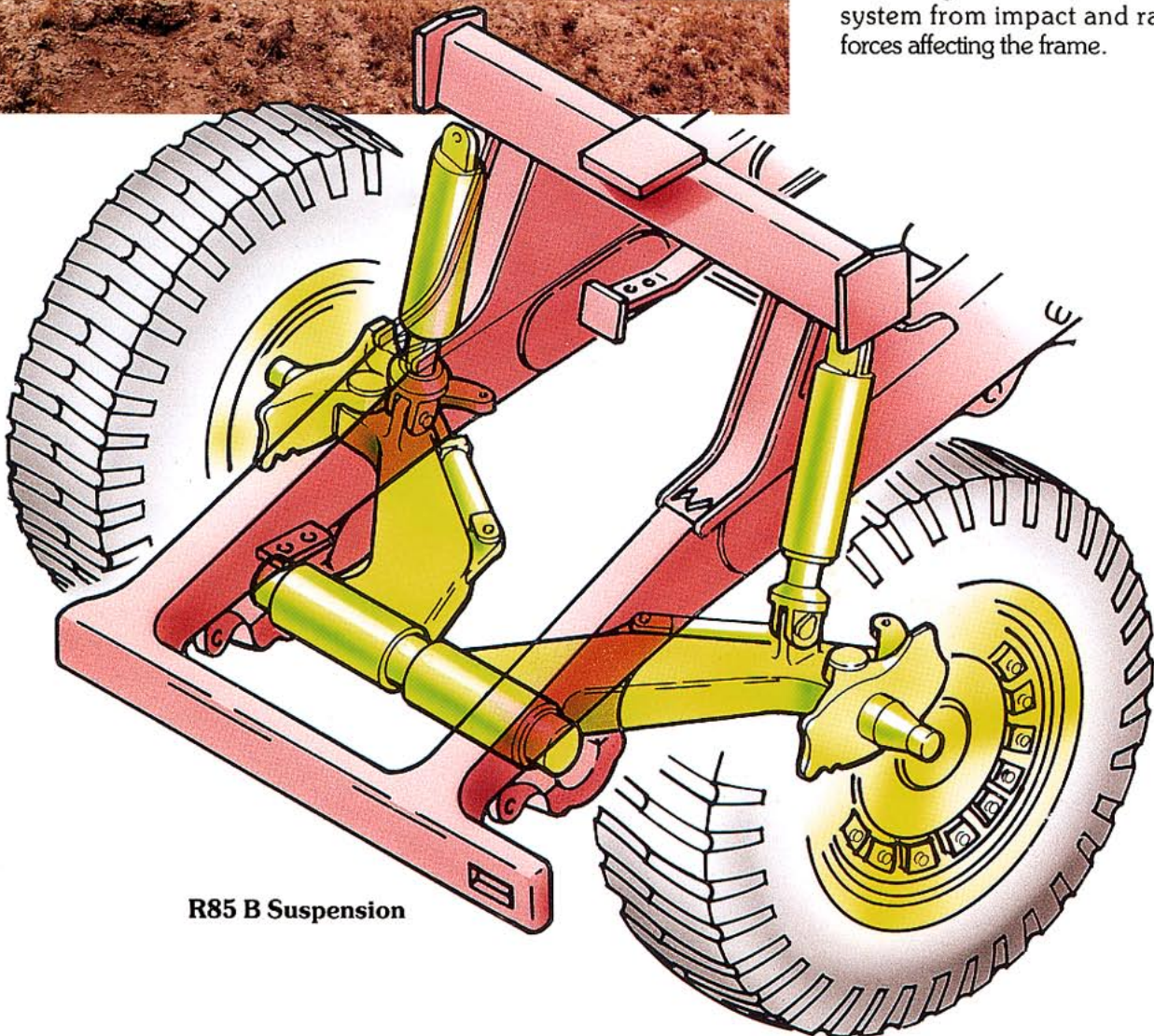
YOUR BUSINESS IS RIDING ON YOUR SUSPENSION.



A stable ride, operator comfort, maximum component life and easier maintenance all depend on a strong suspension.

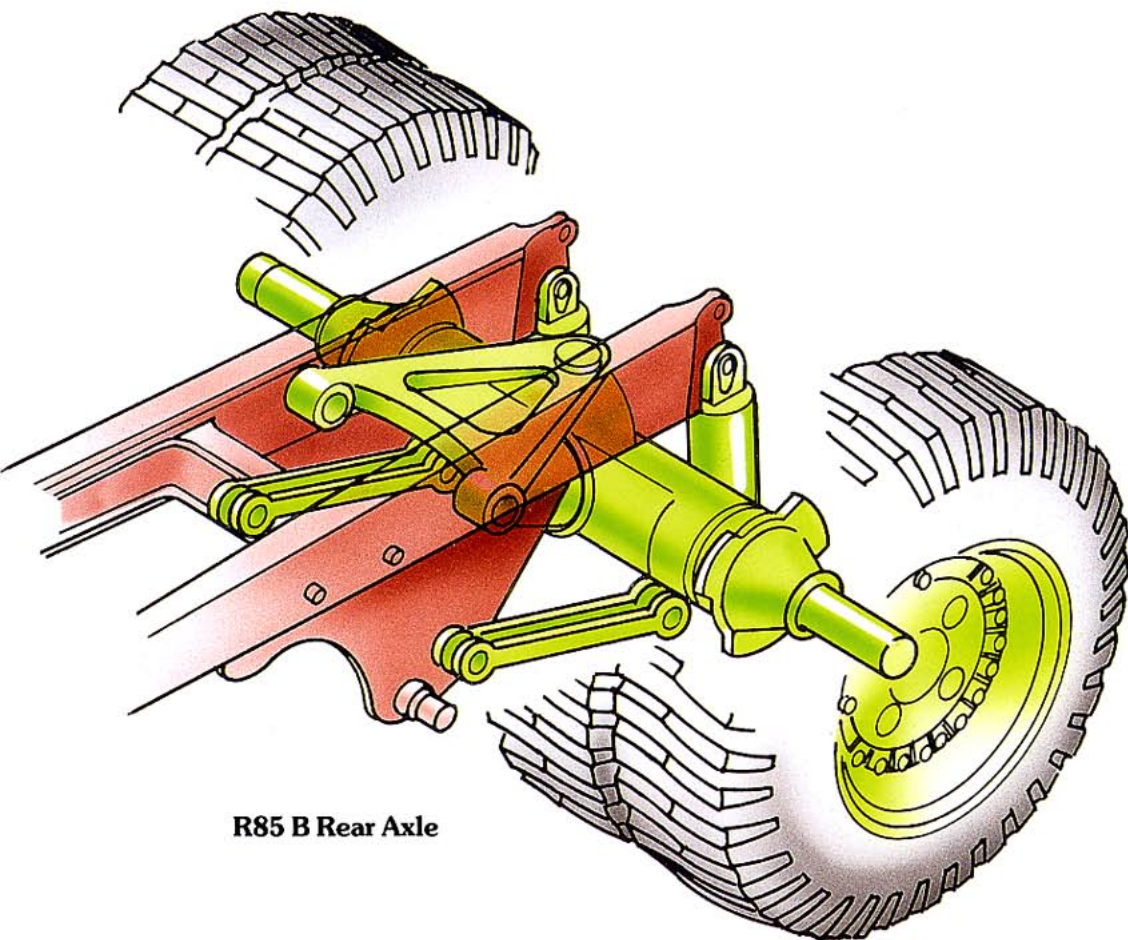
The Euclid hauler's independent trailing arm makes a big difference.

Euclid haulers feature an independent trailing arm for each wheel. This allows for a purely axial input into the suspension members. The independent trailing arm isolates the steering system from impact and racking forces affecting the frame.



R85 B Suspension

OR 25 TONS,



R85 B Rear Axle

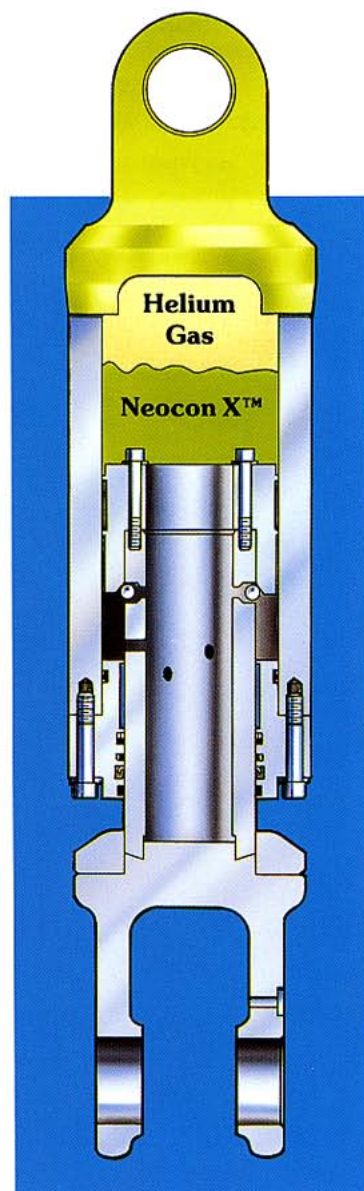
Our frame and suspension work in unison to provide maximum structural integrity and operator comfort.

The advantages add up.

Our independent trailing arm suspension provides true tracking, eliminating lateral tire scuffing inherent in suspended king pin designs. The vertical tire motion simplifies the steering system with one tie rod design. Caster and camber are built-in. Toe-in is the only adjustment required.

The Euclid hauler Neocon™ suspension offers superior energy absorbing capabilities.

Our new Neocon suspension system, available in most models, combines the energy absorption characteristics of two different compressible media: NEOCON X liquid and helium gas. The result is more comfort for your operator, maximum protection for the hauler frame, and excellent stability and control.

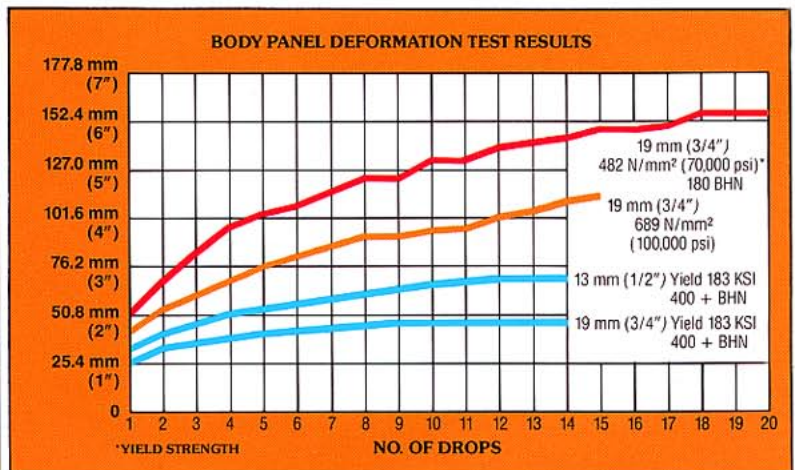
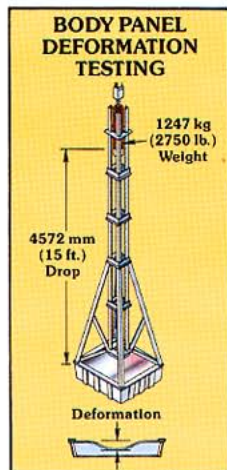
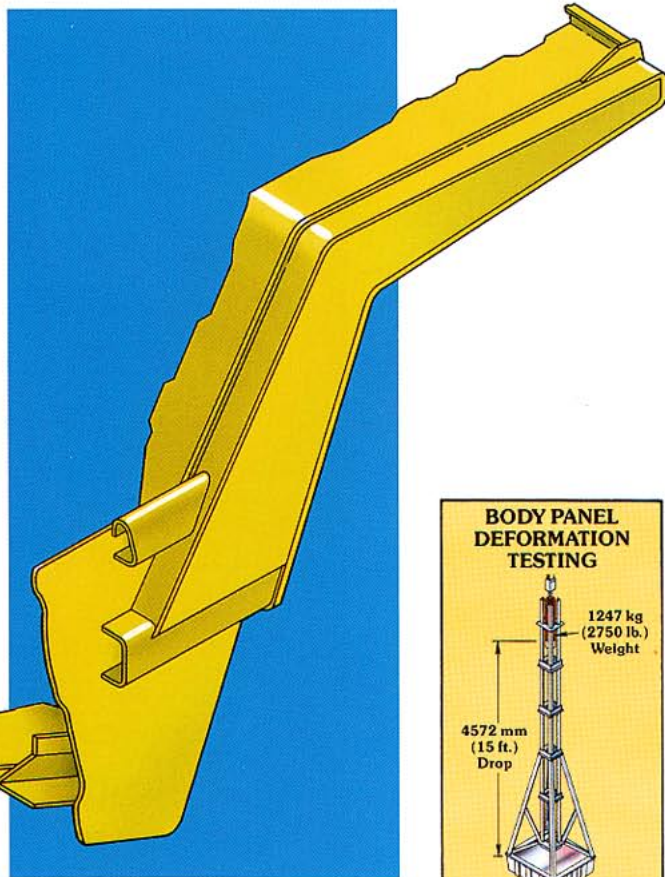
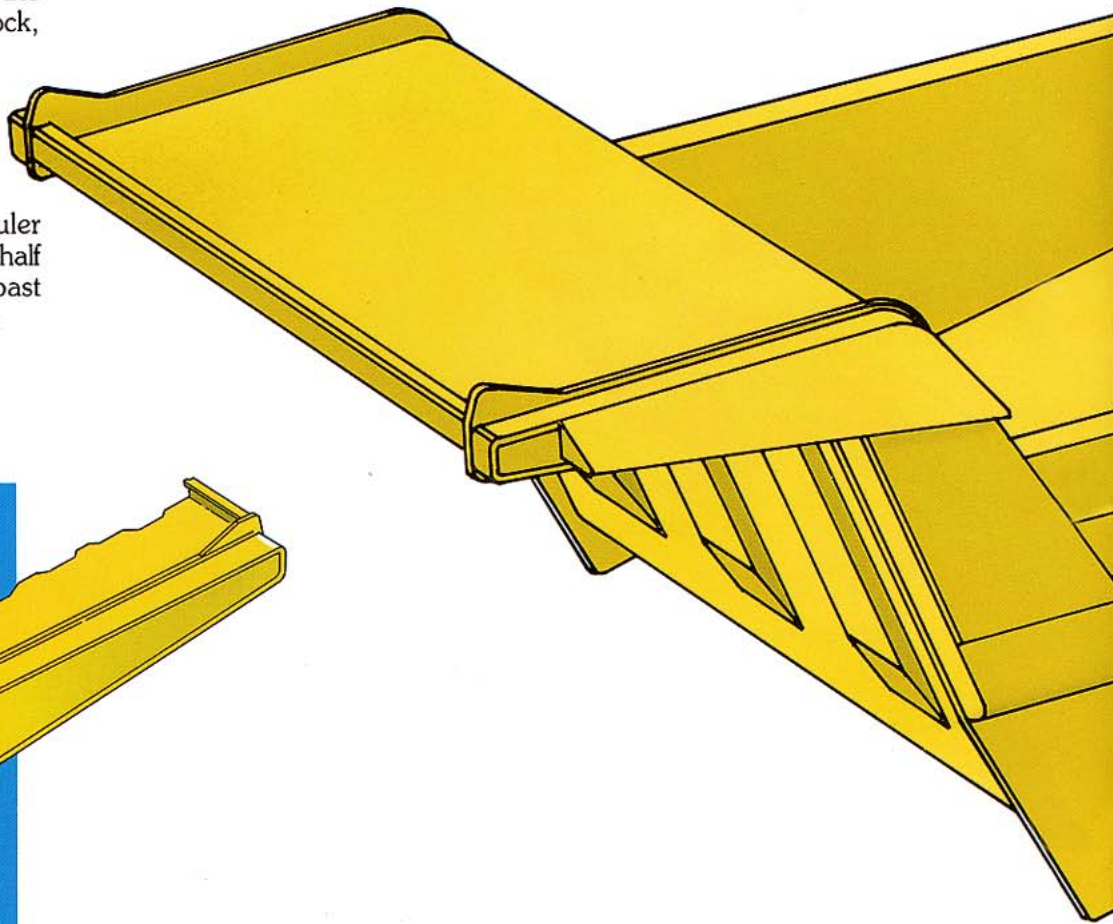


TOUGH BODIES FOR THE TOUGHEST JOBS.

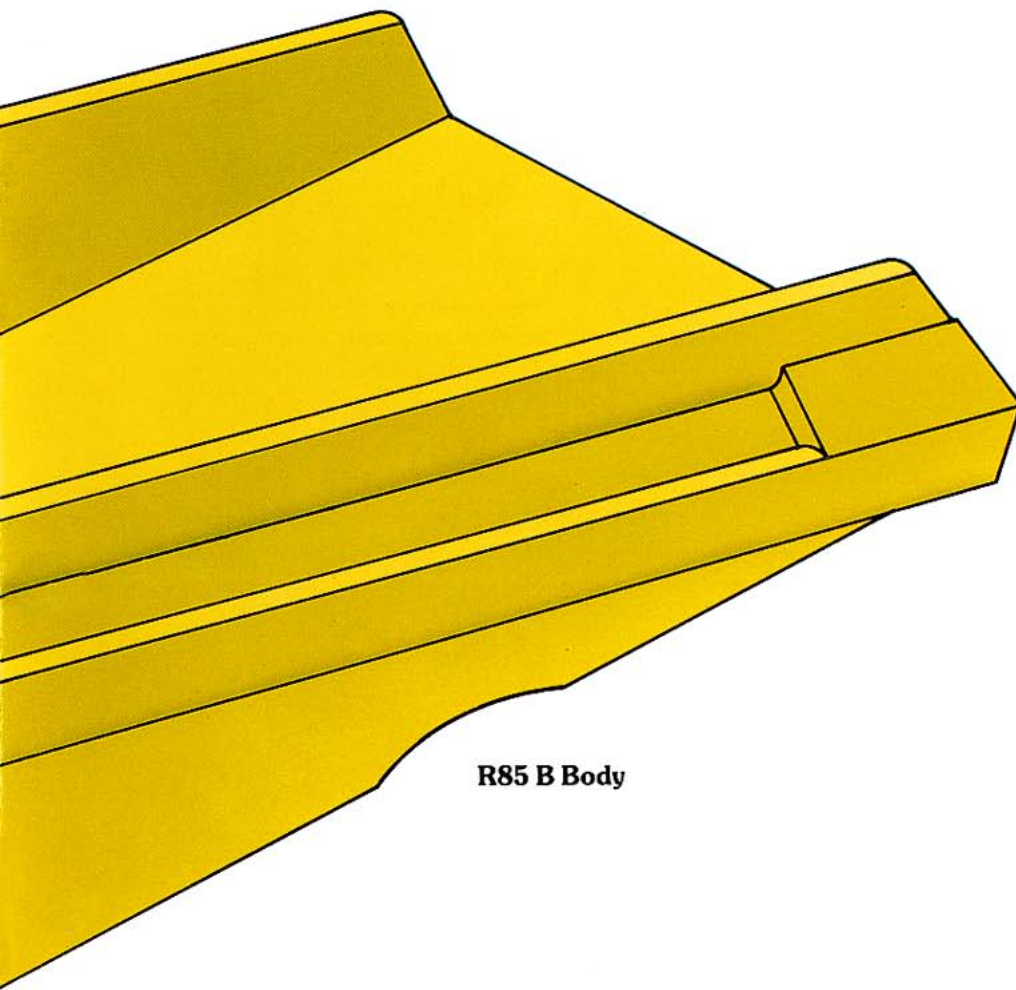
HIGH HARDNESS STEEL BODIES PROVIDE ADDED STRENGTH AND

A hauler body must stand up to the battering of tons of earth and rock, day after day, year after year. Its design must dissipate load shocks over the entire body length, minimizing stress concentration in any one area.

When you inspect a Euclid hauler body, you'll see why more than half the haulers we've built in the past 50+ years are still working today.



DURABILITY.



R85 B Body

CAD technology makes us even better.

Through the use of Computer Aided Design, VME engineering has created three dimensional body prototypes which allow our designs to be highly accurate and eliminate fit-up problems. Through CAD, potential areas of high stress are immediately recognized and eliminated by further design enhancement.

Look at the advancements we've made on the Euclid hauler body. They mean improved strength and durability.

Euclid haulers feature advanced body design and high hardness steel.

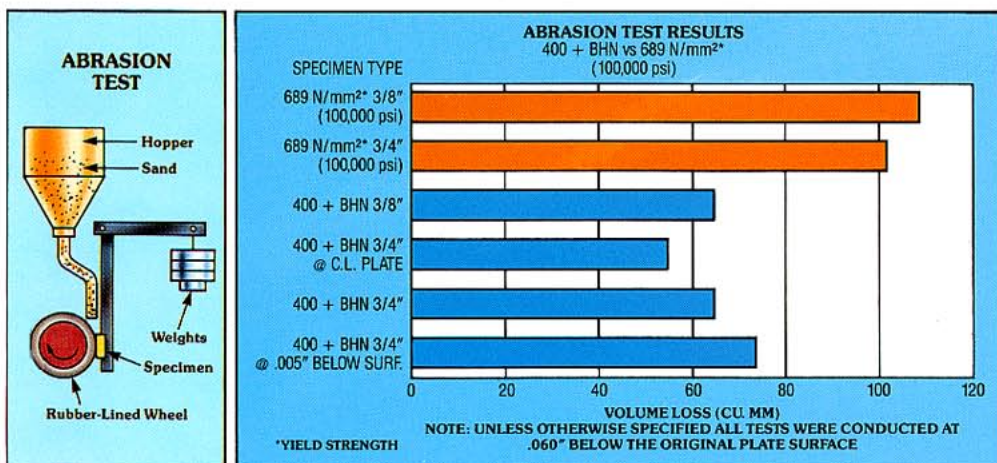
Euclid hauler bodies have always featured low loading heights and presented a large target area for even the biggest loaders.

Today's Euclid hauler bodies feature a flat sloped floor that utilizes vertical front plate stiffeners for superior panel strength and less weight. And the body has a redesigned weld-on exhaust collector providing better sealing and less maintenance than the previous bolt-on configuration.

The Euclid hauler body is designed to provide roll-over protection (ROPS) to meet criteria in SAE J1040, ISO 3471, and falling object protection (FOPS) criteria in SAE J231 and ISO 3449.

Horizontal stiffeners spread out the load shock.

Euclid hauler's original horizontal stiffener configuration is designed to minimize stress concentrations in any one area. These horizontal side rails dissipate load shocks over the entire body length.



R170/R190: WORLD CLASS HAULERS.

BRAKES, FRAME AND SUSPENSION THAT CAN HANDLE THE BIGGEST LOADS.

The innovations you'll find on our two largest haulers make them superb mining machines that are highly efficient, durable and cost effective.

Innovative differences that bring better performance.

The quality begins with a time proven Euclid hauler frame. The trailing arm front axle design provides a comfortable, stable ride, protects the frame from impact and racking forces, and features simple steering linkage consisting of just two steering cylinders and a tie rod.

The horizontal body design incorporates horizontal stiffeners. When material impacts the side walls, the stiffeners transmit and dissipate the impact over the entire length of the body.

Neocon™ suspension is standard equipment.

Neocon suspension combines the energy absorption characteristics of compressible Neocon X fluid and helium gas. The benefits are considerable: optimum protection for the frame, the best control in cornering situations, and maximum stability over a wide range of conditions.

Operator comfort means more productivity.

The surrounding safety glass provides good visibility. A wrap-around dashboard puts controls within easy reach. Large rubber mounts isolate the cab

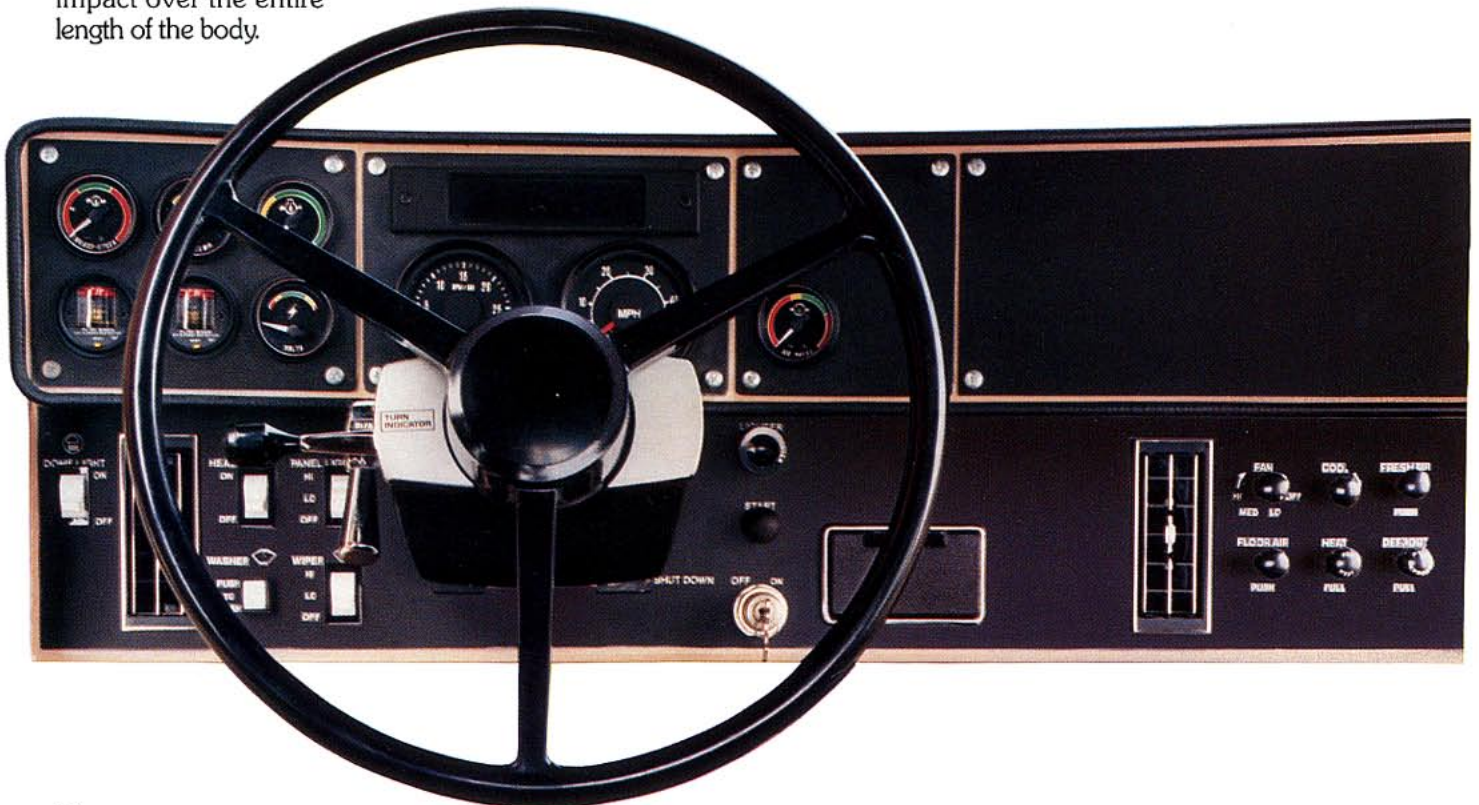
and driver from high frequency superstructure vibrations.

Serviceability is enhanced in the Command Cab II. Just as the ergonomic features were refined, so were the serviceability aspects.

Serviceability starts with a removable front closure that allows easy access to all the important cab systems.

The cab filter location is easy to get to and requires only two bolts to be removed.

It all means a superior combination of human engineering and serviceability.



**R170
R190**



R100/R130: STRONG, RUGGED MINING MACHINES.

A RECORD THAT SPEAKS FOR ITSELF.

Over the past half century, Euclid haulers have earned their reputation in thousands of quarries and mines all over the world.

R100 and R130 haulers deliver the performance, serviceability and low operating costs demanded by the world's mining industry.

We give your operators more than just comfort – we give them a mining machine!

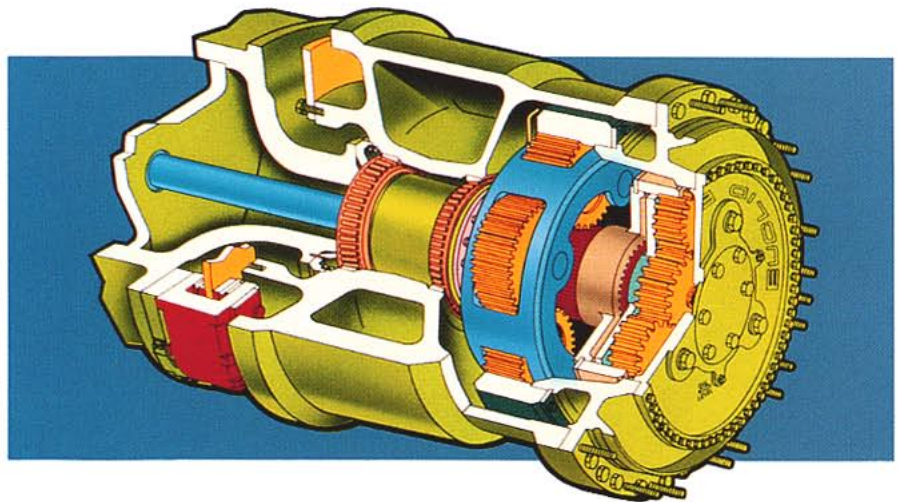
VME designed frame suspension, power train, steering, and brakes all work together to insure short cycle time, high volume production and low cost per ton operation. Euclid R100 and R130 handle easily – they get in, get around and get out quickly. That's why Euclid haulers are setting the pace on mine sites worldwide.

A fuel saving transmission.

The R100 and R130's high horsepower engines are matched to Allison transmissions equipped with Allison's electronically controlled shift system. This ATEC system provides shifting precision and tailored lock-up points in each gear, resulting in top efficiency, fuel savings and ease of operation.

A drivetrain designed for long component life.

Further evidence of VME's innovative engineering is the coupled planetary reduction system in the R130. The Euclid design multiplies the greatest portion of torque in the planetaries allowing components upstream of the planetaries to be sized smaller because of their reduced torque loads.



The Euclid coupled planetary delivers 25% of the torque to the wheel through the first reduction and the remaining 75% to the wheel through the second reduction. This is unlike a tandem planetary arrangement consisting of two planetary systems arranged in tandem with both seeing 100% of the torque. Because Euclid's first reduction planet carrier turns at wheel speed, this axle does not experience problems normally associated with high speed planet carrier designs.

The low numerical ratio of 1.56:1 results in high speed. Lubrication is critical to any low numerical ratio differential and the Euclid design assures a constant flow of oil to all components within the differential through the use of collectors and the natural pumping abilities of the differential.

The R130 tractor is the prime mover in the CH-210, one of the most efficient coal haulers in operation today. At its time of commission, the CH-210 was the largest mechanical drive coal hauler in existence. It combines dependability, performance and easy loading for maximum productivity.





R100
R130



DURABLE, STRONG, SERVICEABLE.

R35/R50: FIELD EXPERIENCE PROVES IT— LESS SHOP TIME. MORE JOB TIME.

Euclid haulers have amassed millions of hours of world-wide mining and construction experience. Power-trains carefully matched to payloads enable Euclid R35 and R50 haulers to operate at optimum speeds.

Not only do they haul more and earn more return on investment but Euclid haulers historically sell for more at resale—a true test of acceptance and credibility.

Dependable. Long Life Wet Disc Brakes.

The VME designed wet disc brake features a hydraulic actuation and retraction system as well as automatic adjustment. Retarder response is immediate and efficiency is augmented through the use of Allison Transmission Electronic Control (ATEC) that maintains proper engine speed and brake cooling pump output.

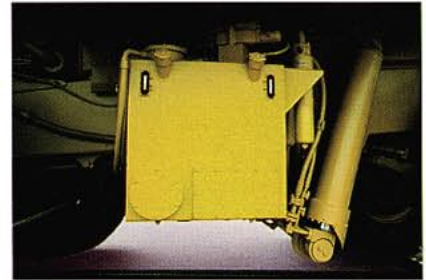
Serviceability is critical.

No other haulers in the R35 and R50 class can be serviced as easily or quickly. Hours saved in maintenance time add up to thousands of dollars over the life of a hauler. Power-trains are arranged to offer excellent access to all areas. The suspension configuration reduces the number of components requiring service. All systems components are accessible to simplify serviceability and reduce downtime.

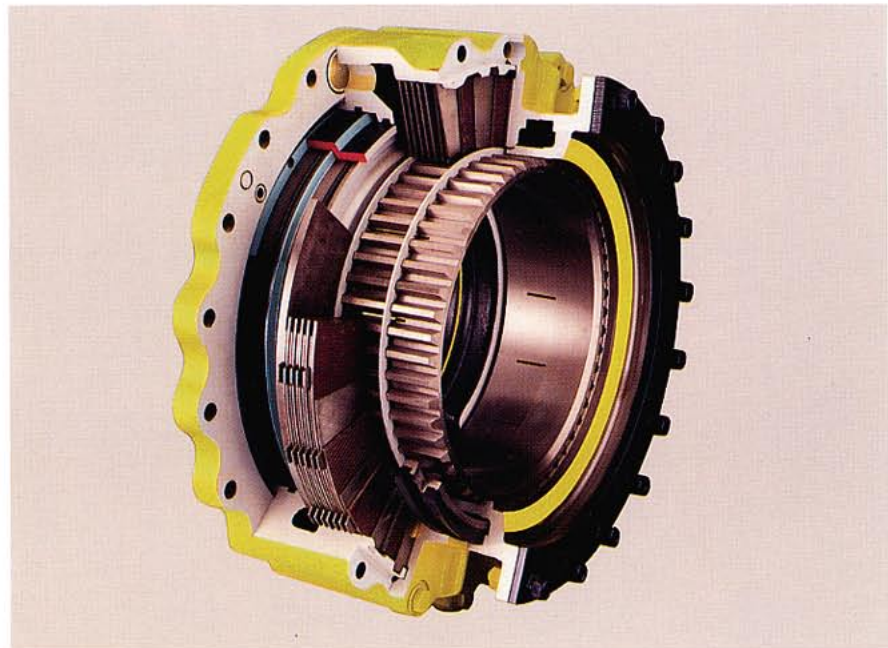
Euclid haulers can increase your profitability.

R35 and R50 haulers consistently turn a better profit because they have a good weight to horsepower ratio, low loading height, outstanding maneuverability, durable bodies, increased visibility and greater serviceability.

Euclid haulers have clean, efficient hydraulic systems. Built in to the systems are disposable filters designed to keep them performing at original specifications. It only takes regular maintenance and the right replacement filters to keep our haulers on the job.



For simple, time-saving serviceability, the lube and fill points on Euclid haulers are positioned for convenient ground level servicing.



VME designed wet disc brake is engineered for long service life, even in the most extreme environments. Multi-plate, sealed design protect the brakes from environmental contamination.



R85 B: TIME PROVEN PERFORMANCE.

THE EUCLID HAULER'S FAMOUS FUNCTIONAL SIMPLICITY EVERY STEP OF THE WAY.

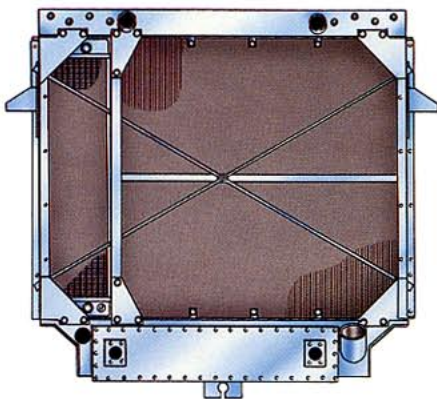
Over the years, we've built more than 40,000 Euclid haulers. All that we've learned manufacturing and maintaining these haulers we've put to use on the R85 B.

Serviceable "cooling center".

The radiator "cooling center" of the R85 B consists of 3 sections:

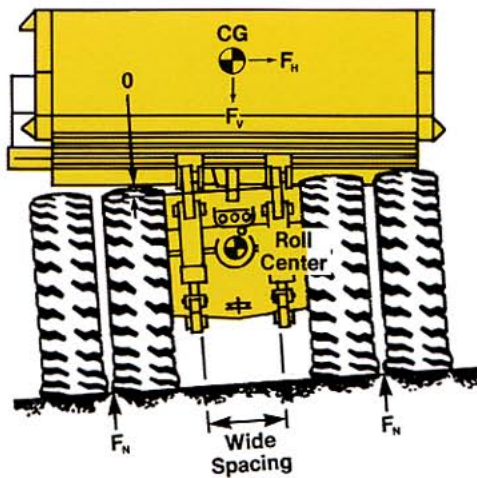
- A radiator for engine cooling.
- A radiator bottom tank heat exchanger for wet disc brake cooling.
- Separate air to oil heat exchanger for transmission cooling.

This system segregation prevents any possibility of Glycol contamination of transmission cooling oil. The combination means improved system performance and reduced servicing downtime.



Rear axle mounting stabilizes the ride.

The parallel link type mounting on the R85 B reduces "roll-steer" effect and payload-induced frame bending moment, and increases frame life.



All hydraulically controlled service brakes.

The R85 B braking system features dry disc front brakes and wet disc rear

brakes. An all-hydraulic actuated braking system provides variable front-to-rear brake proportioning that maximizes braking performance under all conditions. An all-hydraulic control system eliminates half of the components used in air over oil systems.

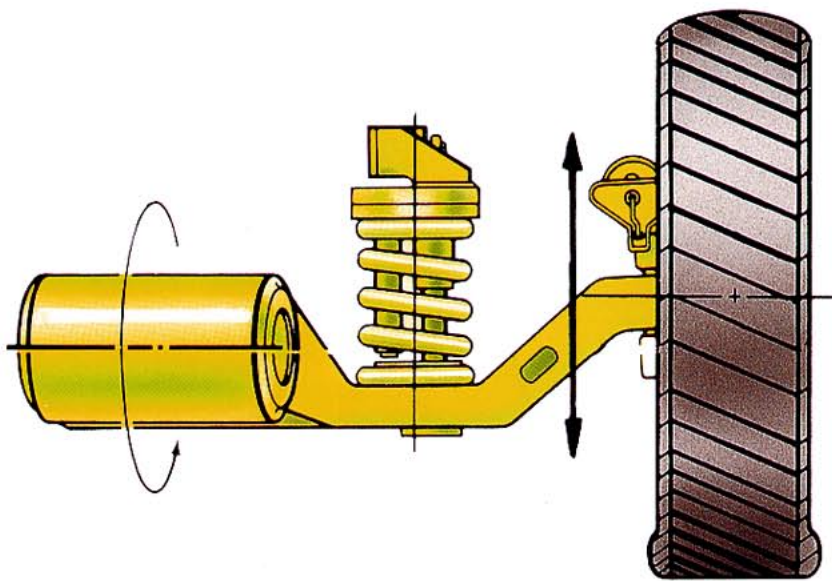
The R85 B is easy to live with.

Elimination of the frame horsecollar heightens accessibility to the R85 B engine and drivetrain. Front ride struts can be changed without wheel/tire removal. Lubrication and fill points are at ground level. These and many other features make the R85 B easy to maintain and service.



R25: THERE ARE BIGGER HAULERS BUT NONE THAT WORK HARDER.

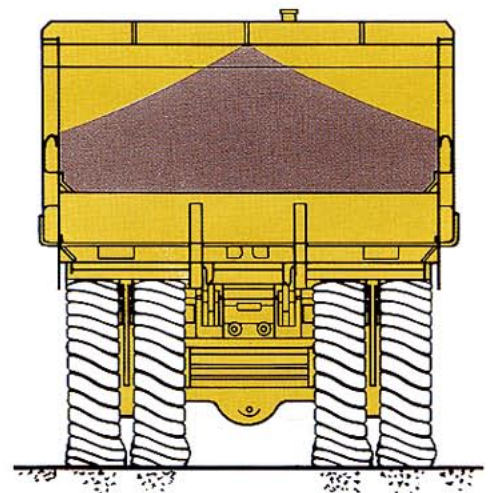
DAY-IN, DAY-OUT RELIABILITY.



The R25 has earned its place in the Euclid hauler line with its proven reliability. Power train components and structural strength provide exceptional on-the-job availability.

Agile, mobile, versatile.

The R25's trailing arm provides a very simple, accurate steering linkage. This is because vertical plane movement of the tire/spindle assembly causes no track change or side motion of the tire. And its front suspension/steering configuration contributes to greatly improved steering cylinder life and a stable, maneuverable machine.



Long, low-profile matches popular loader sizes.

The R25's "constant volume" horizontal floor configuration matches the constant volume bucket of front-end loaders. It permits single spot loading and hereby reduces cycle times and increases overall productivity.



EUCLID HAULERS ARE DESIGNED TO BE WORKED ON BY HUMAN BEINGS.

SERVICEABILITY AND EASE OF MAINTENANCE MEANS LIMITED DOWNTIME.

Serviceability of Euclid haulers is of prime consideration today as it has been throughout our long history. How does the VME design philosophy reflect serviceability? Our entire hauler line exemplifies a basic engineering truth: the simpler the machine, the more efficient and effective it is.

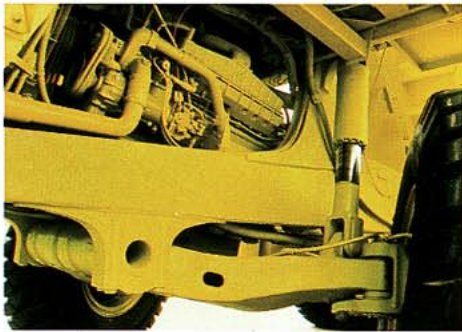
Uncomplicated, low cost, time saving serviceability.

The lube and fill points on Euclid haulers are positioned for convenient

ground level servicing. Hydraulic lines, wiring harnesses and air lines are segregated and routed to maintain clear, uncongested service areas.

Quick transmission work.

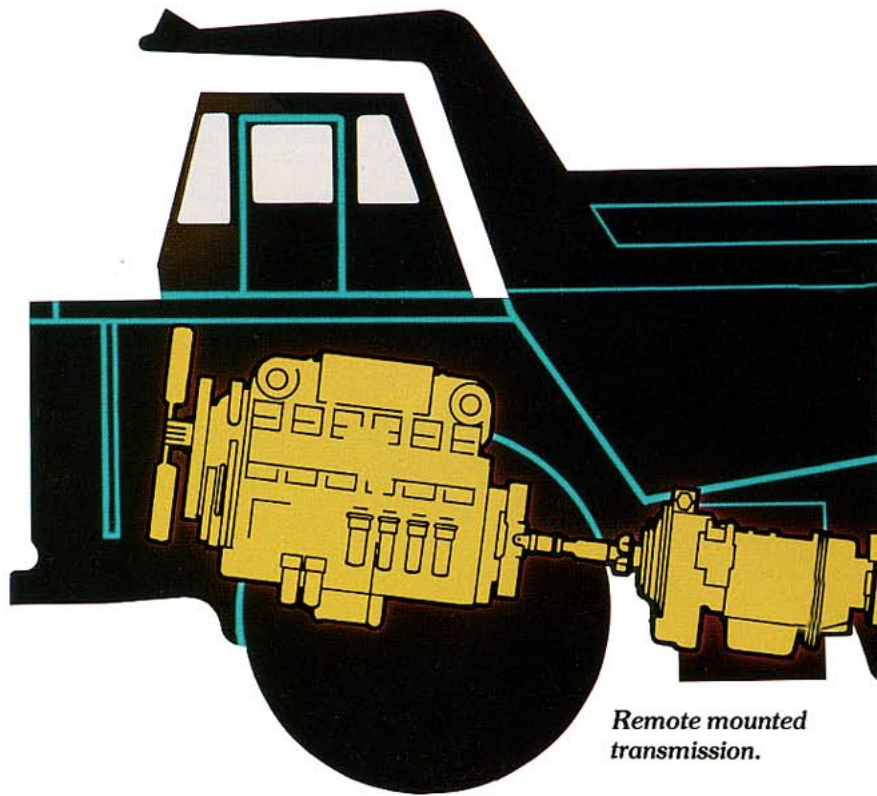
On all Euclid haulers, the transmission is remote mounted. This means that servicing is independent of the engine, minimizing transmission removal and replacement time.



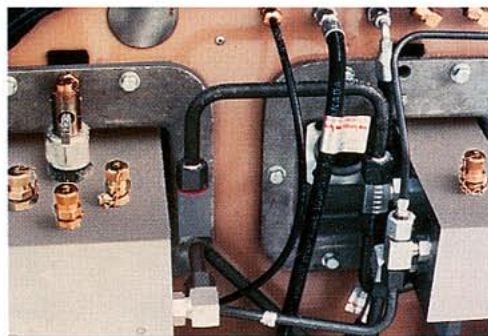
Access to engine components.



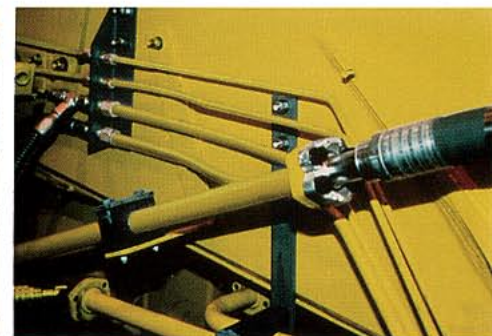
Ground level access to brake valve pack and test ports.



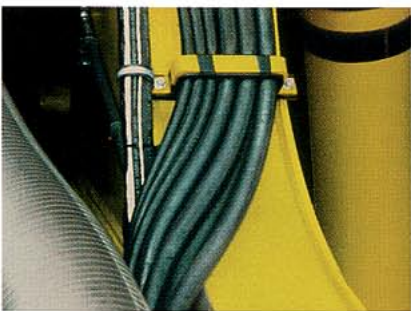
Remote mounted transmission.



Quick disconnects for fast and accurate pressure checks.



Hydraulic – left hand frame rail.



*Segregated electrical hydraulic lines.
Electrical – right hand frame rail.*

The Euclid hauler engine compartments are open, accessible and placed within wide spaced frame rails and highmounted decking.

Unobstructed drive axle components.

Differentials can be removed without removing other major drive axle

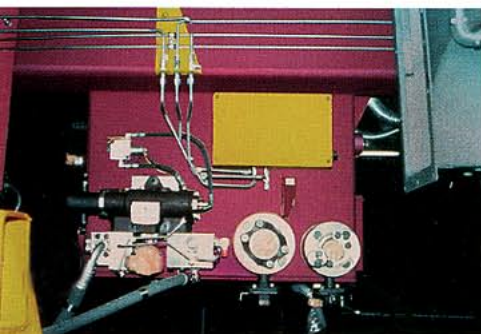
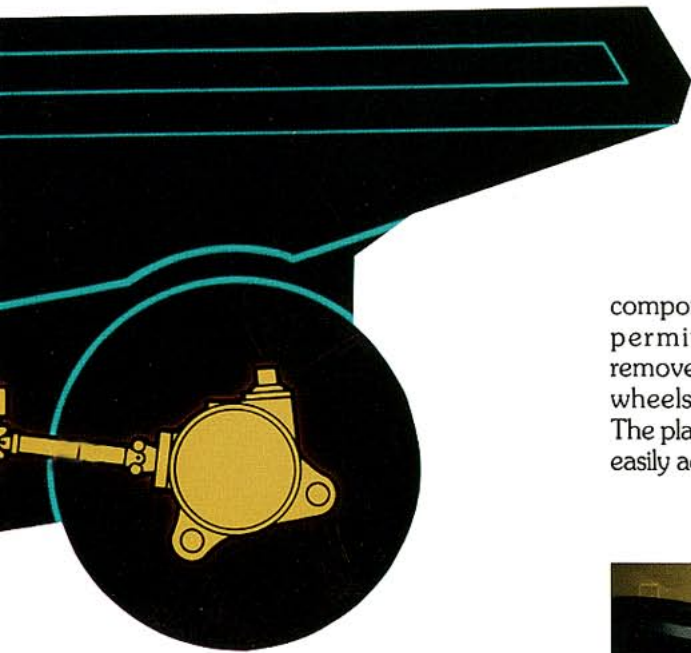
The first step in solving a service problem is a quick and accurate diagnosis.

The segregation and separation of systems on the Euclid hauler keeps service problems to a minimum. Should a problem occur, the ATEC (Allison Transmission Electronic Control) quickly diagnoses what is wrong.

Any malfunctions which occur in the transmission during operation are recorded in the ATEC memory, and can be recalled at the end of the shift. Without using any special tools, ATEC can then be made to flash out a total of two trouble codes on the “check transmission” light.

In addition to being able to recall trouble codes on the “check transmission” light, a diagnostic scanner can also be plugged into ATEC to recall them more conveniently. This diagnostic tool can also measure a number of available parameters to assist you in checking out the condition of the transmission.

components. The drive axle design permits either axle shaft to be removed without removing the rear wheels or the planetary gear sets. The planetary final drive gear sets are easily accessible.



Hoist controls located at rear of hydraulic tank for ground level accessibility.



Simple ride strut removal.



Drive axle.

A message from Chris Barnard.

At VME, we realize how much a company's bottom line ultimately depends on the daily production of its machines. Your profitability literally rides on our Euclid haulers, day after day. That's why the consistent performance of all our products is so important to VME.

As president of VME, I have personally taken a lead role in ensuring that quality and customer satisfaction is given top priority throughout every part of our organization.

When you examine Euclid haulers on the job, you will be impressed by our engineering, our attention to detail, our strength and reliability. It is this uncompromising craftsmanship which allows Euclid haulers to operate around the

clock, with minimum downtime for maintenance and scheduled service—a tradition for which these machines have long been known and respected.

We also recognize that good design is not enough. That is why VME distributors are dedicated to after-sale support, including both replacement parts and on-the-job service.

In short, we fully support every Euclid hauler sold, anywhere in the world. That is our commitment to you.

*Chris Barnard
President and Chief Executive Officer
VME Americas*



Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

VME Americas Inc.

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