UNDERCARRIAGE SYSTEMS AND COMPONENTS

CATERPILLAR®

UNDERCARRIAGE SYSTEMS AND COMPONENTS

To keep your business on firm footing, you need undercarriage systems and components that propel your machines over any type of terrain—and through every operational challenge.

If you're looking for superior performance in your OEM products, look to the company that built the world's first track-type tractor over a century ago and continues to lead the industry in undercarriage design, engineering and manufacturing…Caterpillar.

Caterpillar designs, engineers, tests and manufactures undercarriage systems and components—delivering the quality you expect and your customers demand.

With decades of experience in logging/forestry, mining, agriculture, material handling and other challenging industries, we build undercarriage components to work within integrated systems, provide exceptional reliability and durability, and wear at a balanced rate.

As a result, you will be able to meet your customers' requirements and gain a competitive edge by providing:

- longer equipment life
- lower operating and maintenance costs, and increased lifecycle value
- superior performance in the most challenging conditions

ASSEMBLED ARRANGEMENTS

Assembled Track Arrangements

Cat® track arrangements incorporate proven quality and integrated design that give you the economic advantage of purchasing an already assembled system or a custom arrangement designed to suit your specific needs. Assemblies include frames, track groups, final drives/motors, sprockets, rollers, and front idler groups with track adjusters and recoil spring groups.

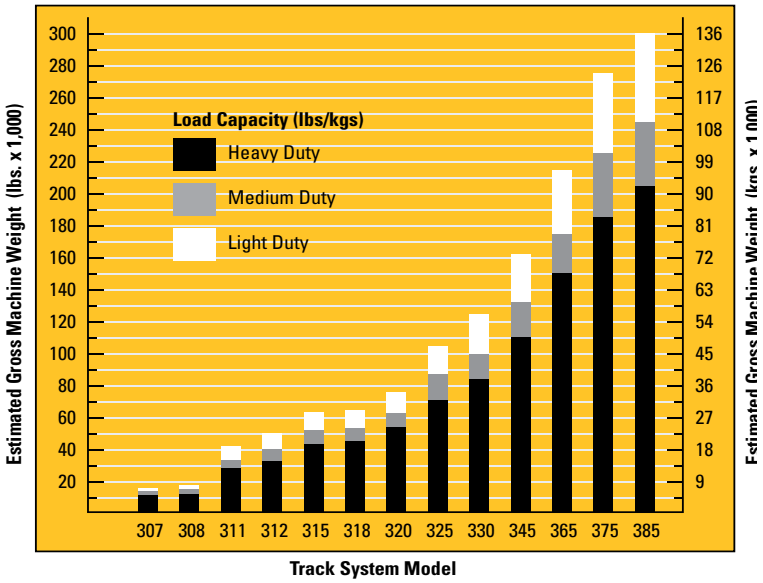
Assembled Track Arrangements with Carbody

The Cat 300 Series Track Arrangement with carbody can include the hydraulic swivel, all hydraulic lines from swivel to travel motor, and the swing bearing and gear group.

Custom-Designed Arrangements

Caterpillar can customize these systems to your specific needs—putting our design, engineering and manufacturing to work on your behalf. A full range of track arrangements can be custom-built to your specifications, including:

- optional final drives that meet specific application requirements, such as increased drawbar pull, open or closed loop motors, and final drive towing disconnects
- variable gauge lowers that use expandable carbodies to provide stable work platforms
- track roller frames that offer different mounting options, including bolting or welding to the frame, or an oscillating design that can be mounted to the upper structure



Standard & Custom Model Size Selection Guide*
Standard and custom models accommodate gross machine weights from 12,000 lb/5 400 kg to 300,000 lb/136 000 kg, while custom models can accommodate up to 750,000 lb/340 000 kg.

*For sizing information more specific to your application, complete and submit an Undercarriage Data Sheet.

VH Style—Extended

VH Style—Retracted

VARIABLE GAUGE UNDERCARRIAGE

These unique arrangements can be extended to wide-gauge configurations for increased stability in applications such as box boom cranes, lattice cranes or foundation drills—and retracted to a narrow-gauge configurtion for easier transport.

- VH style undercarriage feature an “H” style carbody that allows the individual track-side frames to be extended/retracted through the use of four hydraulic cylinders mounted inside the “H” legs.

- VM style undercarriage feature a “square” style carbody that extends/retracts using legs that are welded to the track-side frames and actuated through two hydraulic cylinders.

Both arrangements can accept a wide variety of track shoes. Additionally, they can be configured to accept standard Cat swing bearings and upper structures—or be customized to suit most OEM requirments. We can also adapt a range of Cat final drives and travel motors to help ensure your arrangement will meet your particular needs.

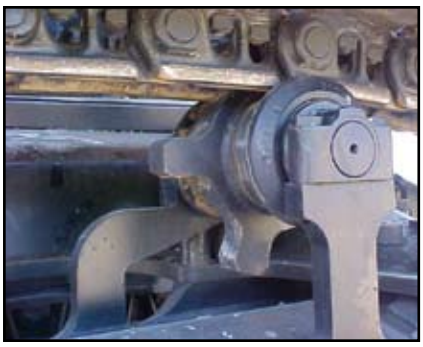
COMPONENTS/ TRACK GROUPS

ROLLERS

Hardened for long wear life, unmatched structural support and resistance to deformation. Sealed and Lifetime Lubricated with Cat Duo-Cone® Seals.

Track Rollers
Available with single or double flange in both excavator and track-type tractor styles. Wide flanges resist rollover. High-strength steel and deep hardening virtually eliminate wear, shock loads and bell mouthing. Sleeve bearings and large, hardened shafts absorb impacts and deflection.

Carrier Rollers
Incorporate large shafts and bearings to promote longer component life. Cantilever-mounted to minimize material build-up and provide easier cleaning. Hardened rims resist cracking and chipping.



STAR ROLLERS

These optional rollers will continue turning in applications where materials build up, or freezing and thawing conditions exist, eliminating flat spots that can occur on traditional carrier rollers.

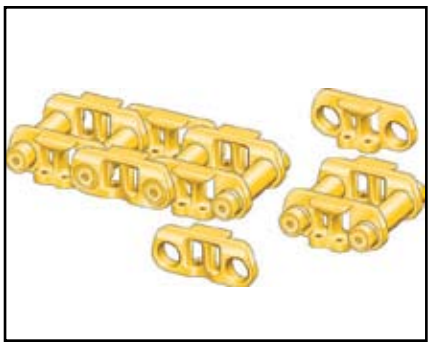
SPROCKETS

Superior surface hardness, hardened depth and core hardness provide long wear life, resistance to bending/breakage and maximum hardware retention. Available in three styles.

IDLERS

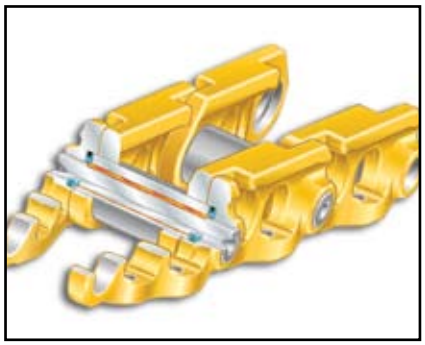
Cast or fabricated with internal reinforcing plates for superior strength and durability. Sealed and Lifetime Lubricated with Cat Duo-Cone Seals.

Track Adjusting & Recoil Spring Groups
Heavy-duty recoil springs reduce shock loads. Hydraulic track adjusters can be set with a grease gun (no special service tools or high-pressure gas-charging cylinders required).



LINKS

Manufactured for excellent wear resistance, strength and durability. Special heat-treatment processes produce consistent surface hardness, superior hardened depth and strong core hardness.

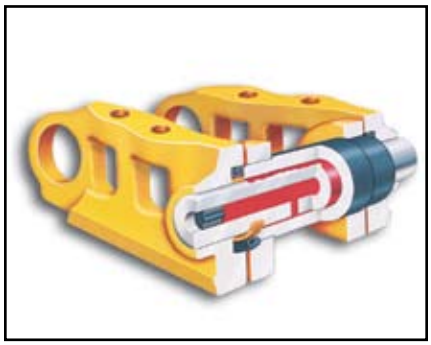


GREASE LUBRICATED TRACK (GLT)

Providing high wear life with low maintenance costs, Cat tracks and track components continue to perform in the field—year after year, decade after decade.

Grease Lubricated Track
Resin seals retain a protective layer of grease between the pin and bushing. GLTs provide 30% longer wear life than other sealed track assemblies, allowing for longer sprocket life, lower risk of frozen or seized track joints and reduced undercarriage noise. Available on most 300 Series hydraulic excavators, GLTs can be used to replace link assemblies on earlier models.

Sealed Tracks
Use belleville-type washers between the bushing and link counterbore, and offer longer life of the pins and bushings than unsealed systems. Heavily strutted links, cold-extruded bushings, induction-hardened pins, and other features contribute to durability and dependability.



SEALED & LUBRICATED TRACKS

Provide longer bushing wear life than sealed non-lubricated systems, eliminating iternal pin wear, reducing noise and lowering operational and maintenance costs. These tracks are available in standard and heavy-duty configurations.

Heavy-Duty Tracks
These tracks are built to meet the challenges of"underfoot" conditions created by side-sloping, rocky or uneven terrain. Specially designed links, pins and bushings handle high-impact load and stresses, and feature more rail wear material for approximately 20% longer extended system life than the GLT assembly and 50% more than the sealed track assemblies.

Pins & Bushings
Dimensionally matched to the links, and manufactured to provide excellent track joint integrity and sealability. High surface and core hardness increase strength and wear resistance.

TRACK SHOES

Rolled from modified medium carbon steel and deep-hardened for long wear life. Heavy cross-sections with curved leading and trailing edges resist bending. Available in a wide range of styles and widths.

Track Shoe Hardware
Includes self-locking track nuts and bolts that match shoe strength, exceeding SAE Grade 8 standards. Rolled threads resist stripping and cross-threading. Controlled stretch allows uniform tightening procedure.

SELECTION AND APPLICATION

Initial Considerations
Appropriate components must be suited to the machine size (gross vehicle weight) and intended application (underfoot conditions, machine speeds, travel distances and maneuverability requirements). Additionally, components that provide balanced wear rates and lower operating/maintenance costs will help to enhance the lifecycle value of the equipment.

Selecting Track Shoes
- Single Grouser Shoes provide good penetration and traction.
- Double Grouser Shoes offer less turning resistance for greater maneuverability.
- Triple Grouser Shoes offer the lowest penetration and resistance and best maneuverability.
- Special Use Shoes, such as flat, self-cleaning, and rubber/polyethylene-bonded, are available in some sizes.
- Extreme Service Shoes provide longer wear in high-impact and abrasive conditions.

Make Those Tracks Last
To help your customers gain the best performance from your machines, encourage them to:
- Minimize high operating speeds in nonproductive situations.
- Adjust the track for correct tension in the working environment.
- Make daily visual inspections of the equipment.
- Keep the undercarriage clean of mud and debris.

Selecting Rollers

- Excavator-style rollers feature a straight, large-diameter shaft. Recommended for machines that must operate in high-impact conditions and travel at slow speeds.
- Track-type tractor rollers are recommended for higher speed applications and offer increased wear life over excavator-style rollers.

Selecting Sprockets

To equalize sprocket wear, select sprockets that utilize an odd number of sprocket teeth. The resulting "hunting tooth" design ensures that teeth contact a bushing on every other revolution.

- Bolt-on rims are easy to replace, reducing downtime and maintenance. Replacement usually requires removal of the track group.
- Bolt-on segments are also easy to replace, further reducing service-related costs. Replacement can usually be performed without removal of the track group. Recommended when high sprocket wear is anticipated.
- Weld-on rims offer a lower initial cost, allowing you to balance machine performance and value. Used where sprocket life is not critical.

Selecting Idlers and Recoil Spring Groups

- Size components to match drawbar pull and related undercarriage components.

UNDERCARRIAGE APPLICATION DATA SHEET

Identification

Name_____Date _____
Manufacturer name_____
Address_____
City_____State/Province_____Country_____Zip/Postal code_____
Phone #_____E-mail address_____

Application

Vehicle model #_____Type of vehicle:_____
Describe how machine operates and machine duty cycle in detail:_____

_____

_____

_____

Underfoot conditions (e.g. rock, logs, sand, etc.):_____
Working speed range:_____mph (km/h) Travel speed range:_____mph (km/h)
Maximum slope anticipated: Side_____° or_____% Fore/Aft_____° or_____%
Spot-turning of machine is required: ❒ Yes ❒ No If no, specify turn radius:_____feet (meters)
Outriggers or leveling jacks are used during work cycle: ❒ Yes ❒ No
Undercarriage size now used:_____
Expected or desired undercarriage life to service replacement:_____hours based upon_____hours/year of operation

Requirements

Please select the components you desire:

❒ Loose undercarriage components only (track groups, rollers, idlers, sprockets)

❒ Assembled lower arrangements—excluding carbody (in general, LH and RH track roller frames completely assembled with tracks, rollers, idlers with track adjuster and recoil spring group, sprockets, final drives and hydraulic track motors)

Options

Carbody:

❒ Weld-on

❒ Bolt-on

❒ Track motor lines group

Track guiding guards:

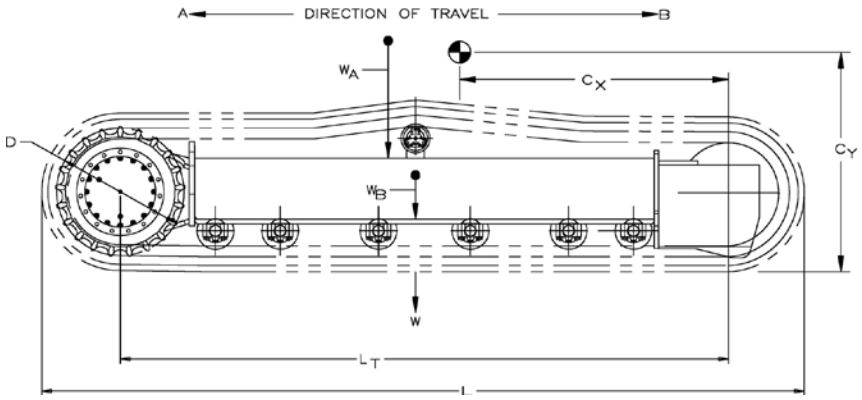
❒ Standard (usually in center around one roller)

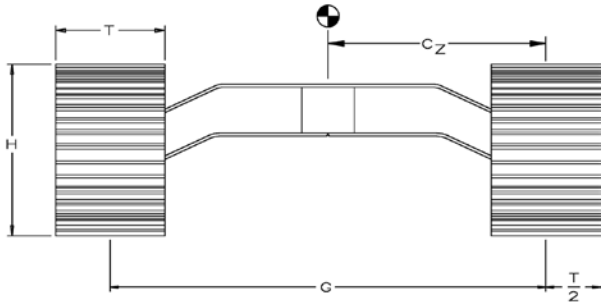
❒ Full length

❒ Shoe ski (forestry)

An electronic version of this Undercarriage Application Data Sheet can be found at: http://www.cat.com/oemsolutions

Design Specifications





Undercarriage Data

Please provide the desired machine specifications.

Normal direction of travel: Working ❒ A ❒ B Traveling ❒ A ❒ B

W_A = Total machine upper weight (all OEM-manufactured components above the track frames):_____lb (kg)

W_B = Undercarriage weight (leave blank if purchasing lowers):_____lb (kg) Manufacturer: ❒ Caterpillar ❒ OEM

W = Gross vehicle weight - W_A + W_B (include additional components that may increase machine operating weight):
Empty_____lb (kg) Loaded_____lb (kg)

L = Overall track length desired:_____in (mm)

L_T = Distance between sprocket and idler centerlines:_____in (mm)

G = Track gauge (centerline distance between sprockets):_____in (mm)

C_X = Horizontal center of gravity (location measured from idler centerline):
Empty_____in (mm) Loaded_____in (mm)

C_Y = Vertical center of gravity (location measured from ground line):
Empty_____in (mm) Loaded_____in (mm)

C_Z = Lateral center of gravity (location measured from right track when viewing machine from sprocket end):
Empty_____in (mm) Loaded_____in (mm)

D = Sprocket pitch diameter:_____in (mm)

H = Track height:_____in (mm)

T = Track shoe width:_____in (mm) Ground pressure:_____psi (kPa)

Track shoe style: ❒ Single grouser ❒ Double grouser ❒ Triple grouser ❒ Clipped ❒ Mud slot

Track roller frame mounting: ❒ Bolt-on ❒ Oscillating ❒ Weld-on

Power Train Data

Gross engine power:_____hp (kW) Rated engine speed:_____rpm

Hydraulic system: ❒ Open loop ❒ Closed loop Flushing valve: ❒ Yes ❒ No

Counterbalance valves: ❒ Yes ❒ No

Other motor controls (describe):_____

No. of pumps:_____ Pump displacement:_____in (cc) Pump relief pressure:_____psi (bar) Pump speed:_____rpm

Charge pressure:_____psi (bar) Track motor displacement: Max_____in (cc) Min_____in (cc)

Final drive ratio:_____ Desired machine drawbar pull:_____lb (kg)

(Please attach any miscellaneous drawings or related information that may affect the vehicle design.)

MOBILE CRANE UNDERCARRIAGE DATA SHEET

Manufacturer _____ Date _____
Address _____ Questionnare arranged by _____
Phone _____ Fax _____ E-mail _____

Main Machine Data

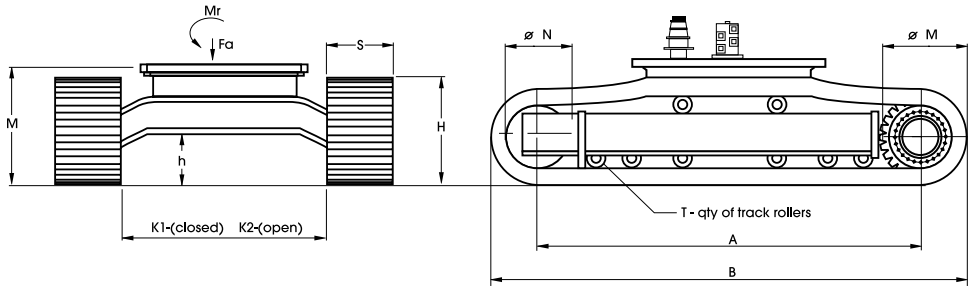
Type of vehicle _____ Machine model _____
Total machine weight _____ Total machine weight _____
without payload (mton) _____ without payload (mton) _____
Pick and carry load (mton) _____ Upper structure weight (mton) _____
Gradeability (%) _____ Max travel speed (Km/h) _____
Engine HP _____ Swing torque (daNm) _____
Ring gear date (type/description) _____

Hydraulic System Data

Travel pressure (bar) _____ Oil flow per track (l/min) _____
Hydraulic pumps description _____
Open or close loop _____ Pumps rpm _____

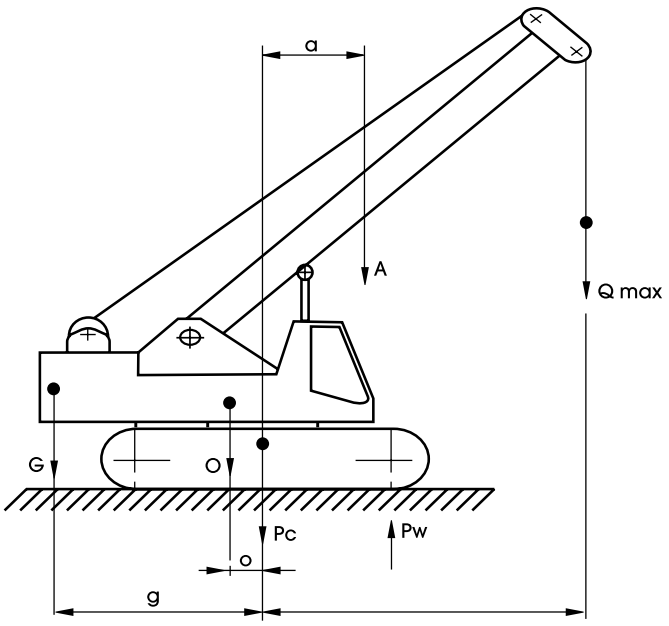
Design Specifications (write desired values in mm)

A	B	h	H	M	S	K1	K2	T	Diam M	Diam N	Chain pitch



Mr (ton.m) _____

Fa (ton.m) _____



Counterweight data	
G (mton)	**g (mm)**

Boom data	
A (mton)	**a (mm)**

Upper weight data (w/out counterweight)	
Qmax (mton)	**o (mm)**

Max lifting capacity data	
Qmax (mton)	**L (mm)**

Pw=Max ground load on one idler (sprocket) due to 360° upper rotation (with lifting capacity value determining the maximum Pw value): _____

RMK: please detail already used components _____

NOTE: Please enclose specific inquiry with any other technical datum and drawing. NOTE: Please provide information about forecasted quantities and required delivery times.

VARIABLE GAUGE UNDERCARRIAGE DATA SHEET

Manufacturer_____ Date _____
Address_____ Questionnare arranged by_____
Phone_____ Fax_____ E-mail_____

Main Machine Data

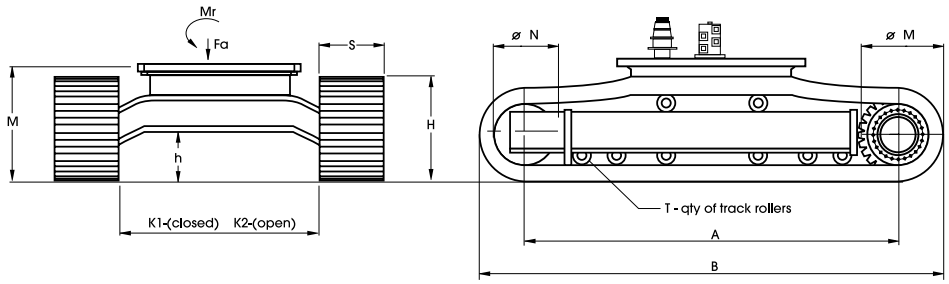
Type of vehicle_____ Machine model_____
Total machine weight_____ Total machine weight_____
without payload (mton)_____ without payload (mton)_____
Pick and carry load (mton)_____ Upper structure weight (mton)_____
Gradeability (%)_____ Max travel speed (Km/h)_____
Engine HP_____ Swing torque (daNm)_____
Ring gear date (type...description...)_____

Hydraulic System Data

Travel pressure (bar)_____ Oil flow per track (l/m In)_____
Slew motor pressure (bar)_____ Slewing oil flow (l/m In)_____
Hydraulic pumps description_____
Open or close loop_____ Pumps rpm_____
Others_____

Design Specifications (write desired values in mm)

A	B	h	H	M	S	K1	K2	T	Diam **M**	Diam **N**	Chain pitch



Mr (ton.m)_____

Fa (ton.m)_____

Arrangement

❒ Single track sides
❒ Undercarriage with cross members
❒ Fixed U/C with carbody
❒ Fixed U/C with carbody and front blade
❒ Variable gauge undercarriage
❒ Slewing gearbox + motor
❒ Slewing gearbox + motor
❒ Swivel joint
❒ Other (specify)_____

RMK: please detail already used components_____

NOTE: Please enclose specific inquiry with any other technical datum and drawing.
NOTE: Please provide information about forecasted quantities and required delivery times.

Cat Dealers offer a variety of specialized services for OEMs and machine operators, including bushing turns, roller reshelling, roller swapping, idler resurfacing and track shoe regrousering.

You can count on Caterpillar's global distribution and support system—no matter where you, your machines or your customers are located.

CUSTOM TRACK SERVICE

Our specialized Custom Track Service (CTS) team can provide in-depth assistance by monitoring performance, providing wear-rate calculations, planning maintenance and identifying the most economical repair options.

CONTACT CATERPILLAR

Putting your machines—and business—on firm gound can begin with a single phone call. For more information about Cat undercarriage systems and components for OEM customers, please contact us via e-mail at OEMSolutions@cat.com or by calling 800.OEM.SOLU.

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