Diagram of drum brakes

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Two-wheelers such as scooters , commuter bikes , three-wheelers including auto-rickshaws widely use the Drum Brake system for braking. This type of brake got its name from the drum structure of cylindrical-shape. Hence, the name. How does Drum Brake work? When you press the brake pedal, the cam turns. Thus, it causes the brake shoes to expand outwards and rub against the drum. The friction between the brake linings and the drum causes the drum to stop rotating; thereby stopping the wheel. When you release the brake pedal, the retracting springs bring the brake shoes back to their original position. This results in a gap between them and the drum and to again spin it freely. The hydraulic brake system such as in cars is a bit superior to the mechanical one. In this design, the hydraulic wheel cylinder replaces the cam. The brake shoes fit on the anchor plate or braking plate. When you press the brake pedal, the oil in the brake master cylinder multiplies the hydraulic force sent to the wheel cylinders. Thus, it causes its pistons to push outwards. The pistons, in turn, cause the brake shoes to expand and rub against the drum. The friction between the brake linings and the drum causes the drum to stop rotating, thereby the wheel to stop. Furthermore, the third type is the pneumatic-assisted brake system. It is actuated by air-pressure which works on the same principle of that of the mechanical brake system. However, high-pressure compressed air actuates a pneumatic piston that turns the cam. Mostly the medium to heavy commercial vehicles use this type of brake system. For more information, please click here. Read More: How Disc Brakes work? CarBikeTech is a technical blog. Its members have an experience of over 20 years in the automobile field. CarBikeTech regularly publishes specific technical articles on automotive technology. View all posts by CarBikeTech. Drum Brake Working Principle: Two-wheelers such as scooters , commuter bikes , three-wheelers including auto-rickshaws widely use the Drum Brake system for braking. Get Car Bike Tech directly in your inbox. How Drum Brake Works? You May Also Like. How A Gear box Transmission works? Don't miss out on Automotive Knowledge. The parts pile, excl. NOTE: colors are random paints I had on hand. Not "color-coded". Place pushrods in cylinder place strut and spring between shoes. Note position! It is installed in this pic exactly as it is shown in the parts pile above Lube contact areas on SA arm and pivot put guide on anchor. Install front shoe return spring to anchor. Install rear shoe spring to link as shown. Enter an optional name and contact email address. Name Name Email help private comment. Don Jun Absolute brilliant, thank you for taking the time to create and post! Guest May Very Helpful. Thank you. Guest Mar Am replacing brake cylinders and brakes on my Chevy K10 after discovering a leaking cylinder during State inspection. This picture and color coded piece you have prepared is absolutely the best i have ever had the pleasure of using. Thank you for your excellent guide! I tore down my 71 C some time ago, and until today I'd never installed brakes. Guest Jun Love this mate. Guest Apr All self adjuster pieces were gone when I dove in. Thanks a ton. I just wasn't holding my mouth quite right. Guest Mar DO you have the photo gallery for the Chevrolet rear brakes. R Slaughter Mar Robert, the strut spring tang position is of no importance as long as the spring is on the correct end of the strut. It simply doesn't matter whether the spring is oriented tang left or tang right, or on top or bottom. Robert Feb What is the correct position for the "tang" on the "strut spring". The pics are great and very helpful, but this spring tang is shown in conflicting positions. Billy Jan Very nice! If anyone wants a word doc with all these images and instructions in one printable document email me at veloce yahoo. The color coding really helped me with my 68 Chevy. I took pictures but with all the rust it all looks the same. It was hard to distinguish between the smaller parts and their orientation. Really well done thank you! Daryl Oct Thank you very much for such an awesome layout! Very helpful with my '69! Took the old ones apart a year ago and got sidetracked putting it all back together. You have been a lifesaver! Mike D. This will help me with my parking brake repairs now that I can see the parts still needed. Kevin Apr This was my first solo drum brake job. I couldn't have done it without these pics and info. Guest Mar What is the part number for the backing plate? Need one to fit the 11" drum brakes on an '86 k10 with the regular GM 8. JohnG May this is the best help and diagram I have found for working on the rear brakes on my '99 tahoe, I couldnt have done it without this. Guest Apr Just another person saying thanks for posting this. Helped a first time drum brake guy put together drums from scratch on a '66 C John Apr Wow. The problem is my Chevy truck is a '49, which came with the old style huck brakes. Having no luck finding detailed instructions or a complete hardware list to verify that I actually have all the parts I need for the rear drums disc kit installed up front. Hoping you might be able to point me in the right direction Guest Aug Does anyone have a diagram for Metropolitan front brakes? Guest Jul Another guy that thank you superb job and let me finish mine. Tony Jun Adding my thanks to all those already received. This was a great help! Previously, I have struggled with the firstt wheel, and by the end of the second, worked out the sequence, and could do the next one pretty quickly: however, the next brake job occurs so many years later, I have forgotten what to do. This time, it was a breeze although the second

wheel seemed to be even easier than the first! Dave Wellman Apr Thanks a lot. I really needed the refresher I haven't done a brake job in about 20 years, and at 67 my memory seems to playing games with me BUT with your help, I won! If ever in Cleveland, Ohio look me up I owe you at least a dinner. Thanks again. Hugo Apr Thanks for your excellent photo work. Repairing the rear brakes on my '64 Corvair and piece dropped out on the ground. Took pictures before disassembly but of course that particular piece didn't show up. Saved me!! Joe Mar I searched all over for photos like these. You have saved me a world of trouble. So clear! Thank you! My brakes had fallen apart in the drum and I couldn't tell what parts, if any were missing, or even where everything went. At 32F it's too cold to take apart more than I absolutely have to. David Dec From David Just wanted to say thanks. Your painting of the parts and pictures are a great help. Keep up the good work. Karma Sep Thanks This really helped out a lot its been a while since I've dealt with drum brakes at times they can be complicated but it just takes time and patience the pics really helped out a lot. Guest Sep 67chevellejn gmail. Guest Sep Can you tell me ,would the front be like the rear minus the park lever 67chevelle thanks for site. Didn't have them when I bought the car 7 years ago. Just found this out while now doing a front brake job. Woogeroo Jul For those of you that are confused, everything on the other side of the vehicle is backwards. You can always buy the manual, but then you'll still have to think backwards as well. Richard Jul Just one thing, you didn't mention: The lining on the front shoe is slightly shorter and thinner that the rear. Other than that the spread is great. Richard Jul Glad I found this, I have an 83 30 series apart. Your spread will be very helpful. Ross Jun Great work and many thanks. Had to do some searching to find all the exact parts. Ed Jun Thank you. No more extra parts at the end of the job. Sheldon M Christo Jun photo of dually, both sides please. Guest May need diagram of right side. Guest Apr need help for 58 pontiac bonneville brake cable that goes through the tunnel has loop and spring but has a inch rod loop one end and carve other end can someone tell me it goes please. Guest Apr Thank You! Thank you again. Guest Feb need it for a 98 and yes memory fading here too. Woogeroo Jan still an amazing tech article! Frank Rizzo Oct Excellent!! Thank You. Guest Oct best directions very easy thanks a million my 12yr old helped. Guest Jul thanks for the info. Tom May The park brake cable is shown attached on the "Where it all goes" image and on the "Park brake lever on the cable" image. Guest May You are why the internet is great. Guest Apr I really appreciate this site. Took 30 mins to reassemble after changing wheel cylinder. Great, especially with the pics. Guest Mar The painted parts were a blessing in seeing how to assemble the rear brake syste. Thank you for taking the time for putting everything together. Guest Mar this was great, but where does the parking brake cable attach? Guest Mar great site! Donald J Hosier Feb This site is better then great. Pictures are worth words apply here. Guest Feb Thank you very much I did rear brakes on 99 Gmc. Brakes were locking up. Thanks to your diagram I notice I had a bent actuator spring. Guest Feb Thank you for this post it was very helpful,and answered some questions I had. Also showed me a missing spring. Guest Jan Thanks so much for taking your time and effort to help us all. Bill Jan Thanks for hosting this sequence. I am working on a '61 Greenbrier which shares brakes with the C10 series. I have upgraded to "self adjusting" by adding the SA arm but did not know how to assemble it until finding your page. Terry Jan I am installing rear drum replacement brakes on my 55 hot rod. I have disc on front. Your pictures and advice have been great. One comment, on all info I have read, the secondary brake with longer pad has been identified as being the rear shoe, with the shorter pad being the primary and being the front shoe. Your diagram indicates the opposite calling the shoe toward the front of the car as the secondary. Can you clear this up for me? I brought an entire kit from Ecklers that provided all new springs but it is almost like the hook part of the spring is turned the wrong way and will not grab when I stretch the spring to anchor. Please help. Thank you, Terry Rankin. Guest Dec Last person to work on my van brakes had them assembled wrong and they weren't self adjusting. SA assembly was on the wrong shoe!!!! The starwheel was contracting instead of expanding. Thanks a million for your info. Guest Nov Thank you so much for this thread. It has saved me and my dad a lot of time on figuring out how a previous owner put the brakes back together wrong. Guest Oct Thanx for this site man u saved me a huge headache. Guest Aug Squeak free for the first time in ten years. Thanks to this post. I'm very happy. Guest Jul Thank you, very, very helpful, great job. This puts a repair manual to shame. Jim May Very Nice! Certainly helped me out. Mike Hubbert Feb These pictures are very helpful. Would you post pictures for the right rear assembly as well? I was wondering where was it that you bought that parts for your truck. I tried different autoparts autozone, o'reilly and napa. Edwin Oct Working on a C10 "Silverado" and your diagram was very helpful and the only detailed description on the entire world wide web. Tony McCoy Sep i fprgot to mention it says here you were showing the assy. Tony McCoy Sep I must say that is the best parts assy demastration i have seen you. I must thank you again and again , now if we only can get the repair books to be that descriptivelol, again great job it

really helped me out. Guest Aug Thanks a lot. I just tore down my C10 Rear Drum Brakes and was digging through the Service Manual for info on reinstalling all the pieces. This will save me a lot of time. Very well done. Weldman Aug Best layout and info available that I've ever come across. Nicely done! Jonathan May this is more helpful than my 78 camaro Haynes manual, tried to read the instructions then tried to remove 2 parts and the whole assembly fell in my lap! LOL Thanks abunch! Guest Apr i would like to say this is an awesome post. Guest Apr I put everything together but did not remember which way the strut spring went on. All I can say is Thank you. My Chevy truck is one my Dad bought new and now I have it now and want to someday pass it on to my son. Thanks again! Thank you for showing the pictures for guys like me, I am rebuilding the whole rear end on my truck,and whould have been lost in this step. I have adjusted the screw adjuster all the way in and still cannot get it back on!! I've tried everything I could think of. Guest Mar Thanks much!! I had completed the job on one side of my 99 Suburban and found an extra spring on the floor. It wasn't obvious at all as to where it came from, but from viewing your pictures, I could see it belonged on the self adjuster. You saved me alot of time and having to disassemble the other side to have a reference! Guest Mar Thanks for posting this. Have a '69 Chevy C,and I would have been lost without these great instuctions. Guest Mar same guest as the previous comment, just wanted to say the car i have is a PONTIAC GTO, just letting y'all know this in case you're doubtful if these pics would match a car similar to mine. Guest Mar thank you for this. Guest Feb This is better than my Buick service manual. These pictures made it easy! Guest Dec thank you very much this is what i was lokking for. Guest Jun pull hard it comes easy. Guest May thanks this is very helpful but i have a blown cylinder are their any tricks to replacing this? I cant seem to get it loose from the backing plate. Really helps if you need a great step-by-step for reassembling drum brakes. Thanks for taking the time to take pics and lay it out so clearly. Guest Sep Just what I needed. Thanks for taking the time. My regards! Guest Aug Great pics. Got it done. Bought a spring kit and it had other stuff you didn't show. I'll ask around about the extra stuff, but even if I have to redo it, I know how now. Thanks for taking the time to write up the instructions. Don Jun need to know how to do rear brakes on pontiac montana only hardware is a C sping. I am assembling a 71 camaro and thought the orig was on the front shoe. Bear May Just wanted to say that you are the man. Found these instructions through google search and it was exactly what I needed. Saved tons of time. Guest May Nice work. Thanks a bunch. John Mar Awsome, well explained and the pics are great!! Thanks you saved me alot of time. Jack Feb Could not be any easier. Any other auto related topics? Guest Jan Pictures worked for my 97 suburban, thanks for the help. Guest Jan I pray and you show up. Thanks so verrrry much. Dave Oct Thank you for an excellent pictorial assembly. It has really helped me a lot! Guest Sep Thanks for a superb pic-show. Self adjuster SA arm group. Adjuster wheel group. Where it all goes. Park brake lever on the cable. Start here: lube park lever pin and wavy washer, install thru rear shoe, add the "Jesus clip". Place pushrods in cylinder. It is installed in this pic exactly as it is shown in the parts pile above. Lube contact areas on SA arm and pivot. Add actuator link, follow with overide spring from arm to pivot next pic. Place return spring under SA arm. Press shoes against anchor. It is best to login or register first but you may post as a guest. Name Email. Absolute brilliant, thank you for taking the time to create and post! Am replacing brake cylinders and brakes on my Chevy K10 after discovering a leaking cylinder during State inspection. Sure a lot of rear drums brakes information on the web. All self adjuster pieces were gone when I dove in. DO you have the photo gallery for the Chevrolet rear brakes. Robert, the strut spring tang position is of no importance as long as the spring is on the correct end of the strut. What is the correct position for the "tang" on the "strut spring". Very nice! Thank you for this tutorial. Thank you very much for such an awesome layout! Very nice detailed pics. This was my first solo drum brake job. What is the part number for the backing plate? The best info for my Chevy Nova rear drum brakes Just another person saying thanks for posting this. I have a problem my GMC Sonoma rear brake shoes do not line up correctly and will not allow me to place the drum over the brake shoes. Does anyone have a diagram for Metropolitan front brakes? Another guy that thank you superb job and let me finish mine. Adding my thanks to all those already received. Thanks a lot. Thanks for your excellent photo work. I searched all over for photos like these. From David Just wanted to say thanks. Can you tell me ,would the front be like the rear minus the park lever 67chevelle thanks for site. Do you have photos for the front Drum brakes For those of you that are confused, everything on the other side of the vehicle is backwards. Just one thing, you didn't mention: The lining on the front shoe is slightly shorter and thinner that the rear. Glad I found this, I have an 83 30 series apart. Great work and many thanks. Thank You! The park brake cable is shown attached on the "Where it all goes" image and on the "Park brake lever on the cable" image. I really appreciate this site. The painted parts were a blessing in seeing how to assemble the rear brake syste. This site is better then great. Thank you very much I did rear

brakes on 99 Gmc. Thank you for this post it was very helpful,and answered some questions I had. Thanks so much for taking your time and effort to help us all. Thanks for hosting this sequence. I am installing rear drum replacement brakes on my 55 hot rod. Last person to work on my van brakes had them assembled wrong and they weren't self adjusting. Thank you so much for this thread. Thanx for this site man u saved me a huge headache. DOR hey, hey, hey, we learn something every day. Squeak free for the first time in ten years. Thank you, very, very helpful, great job. Very Nice! These pictures are very helpful. Working on a C10 "Silverado" and your diagram was very helpful and the only detailed description on the entire world wide web. I must say that is the best parts assy demastration i have seen you. Best layout and info available that I've ever come across. Worked for my GMC Suburban 4x4 saved me time and money thx! I put everything together but did not remember which way the strut spring went on. Do anyone know any tricks to get your drum back over the brakes?? Thanks much!! Thanks for posting this. This is better than my Buick service manual. Very helpful much better than anything I have in books. Thank you very much, this is perfect!!!!! Nearly identical to my Chevy Tahoe Z71 5. Just what I needed. Great pics. Hey, does the automatic clicker arm always tend to be on the rear shoe. Just wanted to say that you are the man. Awsome, well explained and the pics are great!! Could not be any easier. Pictures worked for my 97 suburban, thanks for the help. I pray and you show up. Thank you for an excellent pictorial assembly. Thanks for a superb pic-show. This diagram shows a typical street rod brake system. This diagram illustrates the 2 most common types of fittings used in street rod brake systems. The first is the inverted flare type, which is used by most domestic production cars and trucks, and on the bottom is the -3 AN which is pronounced as dash three A N or number three A N. Due to the opposing flare styles and angles, the two systems will not seal to each other unless an adapter is used. Obviously, the more adapters, splices, and fittings a given system has, the greater the chance for leaks and the more expensive it will be. With that in mind, you need to choose which system you intend to use AN or inverted flare and use it throughout, with the least number of splices and fittings possible. Products to Compare max of 3 X. Videos All Videos. Tags: Brakes , Tech. Brake System Builder Tip. Related Articles. Manual brake bleeding can be one of the most efficient ways to bleed the air out of your brake lines. Speedway Motors has created a guide to show you step-by-step how to manually bleed your brakes. Learn about the different types of brake valves. Our guide covers Metering, Residual, Proportioning, and Combination valves to understand your brake system. We offer a guide to follow when selecting a new set of brake pads for your race car. It's important to know the friction quality and pad size before selecting a new set of racing pads. Learn how to bed in or burnish your brake pads. Our quick guide and video will teach you the proper procedure to get the best performance out of your brakes. Learn how to bench bleed a new master cylinder. Removing the air before installation is critical. Our video tutorial will walk you through the process. Looking for a performance or custom brake set-up? Whether you're replacing components or building your brakes from scratch, you may wonder what size master cylinder or booster to use. No need to worry, just follow our handy guide. We get a lot of questions about brake kits so Tim gives a brief overview of disc brake setups. Having trouble with a spongy brake pedal? We can show you how to test your brake booster or dual feed master cylinder so you can fix that soft brake pedal. Steve explains the process of installing Speedway calipers. Speedway Motors employee Pat O. Your browser's Javascript functionality is turned off. Please turn it on so that you can experience the full capabilities of this site. When it comes to driving safety, nothing is more critical than your tires and brakes. Disc and drum brakes are both based on a hydraulic pressure system. Braking starts with a mechanical force â€" your foot pressing the brake pedal. Disc brakes are found on most vehicles today. They are mounted on the front axle and often the rear as well. To stop a wheel and your car , a disc brake uses a caliper fitted with brake pads to grab a spinning disc, or rotor. The caliper is an assembly mounted to the vehicle with a bracket so it frames the rotor. It looks and functions like a c-clamp. It contains:. When you step on the brakes, pressurized brake fluid pushes against the pistons inside the caliper, forcing the brake pads against the rotor. Rotors can either be solid or vented. Vented ones have more surface area and can more easily dissipate heat. There are two types of disc brakes, named after the type of brake caliper used: floating and fixed. A floating caliper also called sliding is the most common type. It has one or two pistons. When the brakes are applied, the inner brake pad is forced against the disc while, at the same time, the caliper body moves closer to the rotor. This action forces the outer brake pad against the rotor. The fixed caliper design has one or more pistons mounted on each side of the rotor. When the brakes are applied, only the caliper pistons move, pressing the brake pads against the disc. When they are used it is only on the rear axle. Instead of a caliper that clamps brake pads against a rotor, a drum brake system has a wheel cylinder with pistons that push brake shoes out against the inside of a spinning drum. This contact slows and stops the

rotation of the brake drum and the wheel. Although they both operate with the same basic hydraulics, the two types of brakes perform differently. Disc brakes are more efficient, provide better stopping power, dissipate heat easier and work better in wet conditions, all while being less complex. Some base models have disc on the front axle and drum on the rear, to keep costs down. In these models, why are disc put on the front and drum on the rear? A typical, unloaded vehicle is already about 10 percent heavier in front due to the engine. Then when you hit the brakes, the weight of the car transfers to the front. More braking power is needed there, making it a job for disc brakes. Stopping power. Disc brakes apply more braking force faster, resulting in shorter stopping distances. Heat management. Since they are exposed to air, disc brakes cool better. This can cause brake fade, a loss of stopping power when friction material overheats. Wet performance. Disc brakes perform better in wet conditions because they are open to the air and can sling water off easily. Plus, the rotors get dried by the pads dragging across them. When water gets inside a drum brake it tends to get trapped inside the drum, so it takes longer for the friction material to dry out. Emergency brake. This feature is easier to install on a drum brake than to a caliper or inside the hub of a disc brake rotor. Disc brakes are self-cleaning. Drum brakes are closed and are prone to brake dust collecting from the shoes, so they need periodic cleaning. Drum brakes have more hardware and can be more complex to service. But drum brake shoes and wheel cylinders typically cost less to replace than disc brake pads and calipers. Since a lot of heat is generated by the braking system, plenty can go wrong. The act of braking converts kinetic moving energy of the vehicle into thermal energy heat , subjecting many parts to very high temperatures. This means a lot of wear and tear even in normal conditions. Some brake components will need to be replaced over the life of a vehicle. The solution is simply to get regular checks and replace pads, shoes and other components before braking is compromised or other parts get damaged. Disc brake pads slow the rotor through friction and they wear with normal use. Eventually, they become too thin to function properly. Same thing for drum brake shoes. The friction material on the shoe gets worn out and braking is compromised. These components should be inspected regularly. Other items in the braking system are just as important to keep in good repair. Routine brake service should also include the following. The brake system should be checked regularly for leaks and fluid should be replaced every few years usually when the brakes are serviced. Changing out brake fluid occasionally is also essential. This liquid is specifically formulated to prevent corrosion of the brake hydraulic components. But time and moisture contamination can damage its ability to do this important job. Moisture that infiltrates the fluid will mix with the brake fluid, lowering the boiling point. Even though it resists evaporation, brake fluid will then be more likely to boil and turn into vapor when it gets hot. There will be less pressure in the hydraulic system, causing a low â€" possibly very low â€" brake pedal. These rubber rings keep the hydraulic fluid from leaking and protect it from moisture and contaminants. They also cause the piston to return to its off position so the brake pads disengage properly when you release the brake pedal. Brake lines are steel tubes that connect the master cylinder to the brake hoses. A spongy brake pedal could mean air has gotten into a line. Brake hoses carry the hydraulic pressure from the brake lines to the wheel cylinders and calipers. The rubber brake hoses flex, allowing the wheel cylinders and calipers to move up and down with the wheels in relation to the vehicle's frame. If the rubber wears out, your vehicle may pull to one side during braking or you may even get fluid loss and brake failure. Brake components are constantly exposed to road debris and brake dust. The dust boot prevents grime from entering the caliper piston. Failing master cylinders can leak internally. In this case, you may get a low or fading pedal without visible fluid loss. Regular fluid maintenance is important for prolonging cylinder life. NOTE: There are different approaches to brake service. Disc and drum brakes are built differently, with somewhat different advantages. Your vehicle may have both or just disc brakes. Both work as part of the hydraulic brake system. Remember that funny brake sounds, smells or performance are indicators you need to get your vehicle to the shop right away. Schedule an Appointment. Learn more. Complete Guide to Disc Brakes and Drum Brakes When it comes to driving safety, nothing is more critical than your tires and brakes. Braking System Basics Disc and drum brakes are both based on a hydraulic pressure system. This creates a lot of hydraulic pressure, generating a much bigger force than that of the small effort of pressing down on the pedal. The pressure is transferred via the brake fluid through the brake lines then through brake hoses flexible tubes that connect the lines with brake assemblies at each wheel. There, wheel cylinders convert that hydraulic pressure back to mechanical force. Brake friction material is pushed against the brake disc or drum, slowing or stopping your vehicle. Basics of Disc Brakes Disc brakes are found on most vehicles today. It contains: Brake pads: metal plates bonded with material that provides stopping friction. One or two pistons to push the brake pads against the rotor when you brake. A bleeder screw to allow for servicing the brakes and replacing the fluid. A rubber piston seal

that prevents brake fluid leakage and retracts the piston when the brakes release. A dust boot to keep contaminants out of the cylinder. Anti-rattle clips that keep the brake pads stable. Two Types of Disc Brakes There are two types of disc brakes, named after the type of brake caliper used: floating and fixed. Which Is B

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etter? Efficiency Stopping power. Discs are lighter than drum brakes designed to apply the same force. Servicing Cleaning. Maintenance Since a lot of heat is generated by the braking system, plenty can go wrong. Friction material Disc brake pads slow the rotor through friction and they wear with normal use. Brake fluid The brake system should be checked regularly for leaks and fluid should be replaced every few years usually when the brakes are serviced. Seals These rubber rings keep the hydraulic fluid from leaking and protect it from moisture and contaminants. Brake Lines Brake lines are steel tubes that connect the master cylinder to the brake hoses. Hoses Brake hoses carry the hydraulic pressure from the brake lines to the wheel cylinders and calipers. Dust Boots Brake components are constantly exposed to road debris and brake dust. Master Cylinder Failing master cylinders can leak internally. Takeaways Disc and drum brakes are built differently, with somewhat different advantages.