O M

OPERATOR MANUAL

Includes Safety, Service and Replacement Part Information

Model 130 and 190 Series
CUT-R-TACH®

Form: GOM-529810-388
Version 1.1

Do not discard this manual. Before operation, read and comprehend its contents. Keep it readily available for reference during operation or when performing any service related function. When ordering replacement parts, please supply the following information: model number, serial number and part number. For customer service assistance, telephone 800.533.0524, +507.451.5510. Our Customer Service Department telefax number is 877.344.4375 (DIGGER 5), +507.451.5511. There is no charge for customer service activities .

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General®
EQUIPMENT COMPANY

Manufacturers of light construction equipment

Congratulations on your decision to purchase a General light construction product. From our humble beginnings in 1955, it has been a continuing objective of General Equipment Company to manufacture equipment that delivers uncompromising value, service life and investment return. Because of this continuous commitment for excellence, many products bearing the General name actually set the standards by which competitive products are judged.

When you purchased this product, you also gained access to a team of dedicated and knowledgeable support personnel that stand willing and ready to provide field support assistance. Our team of sales representatives and inhouse factory personnel are available to ensure that each General product delivers the intended performance, value and investment return. Our personnel can readily answer your concerns or questions regarding proper applications, service requirements and warranty related problems.

General Equipment Company places great emphasis upon not only product performance, but also on product safety. It is important to remember that this product will only be as safe as the operators which utilize it. It just makes good, common sense to take the time to read and fully understand the contents of this manual before attempting to utilize this product in service. If you ever do have any questions or concerns about this product, please feel free to contact our Customer Service Department at the telephone numbers listed below for assistance.

If there is anything that I can do to assist your efforts when utilizing this product, please do not hesitate to contact me. For assistance after normal business hours, telephone me at 507.451.9409 or 507.363.1033. If I am not immediately available, I will attempt to return your call as soon as possible.

Sincerely,

GENERAL EQUIPMENT COMPANY

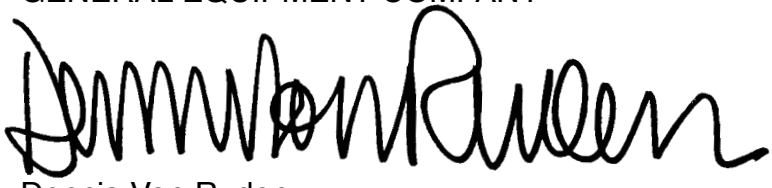

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Table of Contents

Notice to Operators

IF YOU CAN NOT READ OR DO NOT FULLY UNDERSTAND THE CONTENTS OF THIS MANUAL, PLEASE CONTACT THE FACTORY FOR PROPER ASSISTANCE BEFORE ATTEMPTING TO OPERATE THIS PRODUCT.

SI TU NO PUEDES LE'ER O NO COMPRENDES EL CONTENIDO DE ESTE MANUAL FAVOR DE PONERSE EN CONTACTO CON LA. FABRICA PARA ASSISTENCIA- A PROPIA ANTES DE INTENTAR PARA OPERAR ESTE PRODUCTO.

SOLLTEN SIE DIESE GEBRAUCHSANWEISUNG NICHT LESEN KOENNEN ODER ES NICHT VOLLKOMMEN VERSTEHEN, WENDEN SIE SICH BITTE AN DEN HERSTELLER FUER RICHTIGE HILFE EHE SIE VERSUCHEN DIESES PRODUKT ZU OPERIEREN.

SI VOUS NE LISEZ OU NE COMPRENDRE ENTIEREMENT LES MATIERES DE CE MANUEL, S'IL VOUS PLAIT, CONTACTEZ L'USINE POUR L'ASSISTANCE APPROPRIEE AVANT D'UTILISER LE PRODUIT.

⚠ DANGER

⚠ CAUTION

These safety alert symbols identify important safety messages in this manual. When you see these symbols, be alert to the possibility of personal injury and carefully read the message that follows.

Do not allow anyone to operate the Asphalt Cutter without first reading this Operator's Manual and becoming familiar with its operation. The manufacturer of this Asphalt Cutter has gone to great extremes to provide the owner(s) and/or operator(s) with the finest equipment available for its intended job function of cutting asphaltic type road materials. Yet, the possibility exists that the Asphalt Cutter can be utilized in and/or subjected to job applications not perceived and/or anticipated by the manufacturer. Such misuse and/or misapplication of the Asphalt Cutter can lead to the possibility of serious damage, injury or even death. It is the responsibility of the owner(s) and/or operator(s) to determine that the Asphalt Cutter is being utilized and/or operated within the scope of its intended job function. It is the responsibility of the owner(s) and/or operator(s) to establish, monitor and constantly upgrade all safety programs and/or practices utilized in and for the operation of the Asphalt Cutter. The purpose of such programs is to provide for owner(s') and/or operator(s') safety. Operators must be instructed to recognize and avoid unsafe conditions associated with their work (29 CFR 1926.21 (b)(2)) and/or applicable updated revisions. It is the responsibility of the owner(s) and/or operator(s) to determine that no modifications and/or alterations have been made to the Asphalt Cutter. Modifications and/or alterations can lead to the possibility of serious damage, injury or even death. It is the responsibility of the owner(s) and/or operator(s) to make this Operator's Manual available for consultation during all phases of operation. Refer to OSHA 2207 which contains all OSHA job safety and health rules and regulations (1926 and 1910) covering construction.

Record the CUT-R-TACH serial numbers in the spaces provided below.

_____ Model Number _____ Date of Purchase _____ Serial Number

Specifications and design are subject to change without notice or obligation. All specifications are general in nature and are not intended for specific application purposes. General Equipment Company reserves the right to make changes in design, engineering or specifications and to add improvements or discontinue manufacture at any time without notice or obligation. General Equipment Company and its agents accept no responsibility for variations which maybe evident in actual products, specifications, pictures and descriptions contained in this publication.

Operator Instructional Data Sheet

The following undersigned operators of the Asphalt Cutter described and/or pertaining to this Operator's Manual have received formal safety and operational information/instruction from the undersigned owner(s)/instructor(s) in accordance to OSHA 29 CFR 1926.21 (b)(2) and/or applicable updated revisions pertaining to, but not ne
cessarily limited to the:

1) READING, COMPREHENSION AND ACKNOWLEDGEMENT OF THE MATERIAL COMPRISING THE ENTIRE CONTENTS OF THE APPLICABLE OPERATOR'S MANUAL FOR THE ASPHALT CUTTER.

2) FORMALIZED OPERATOR'S SAFTEY PROGRAM TO BE DEVISED BY THE OWNER OF THE ASPHALT CUTTER IN CONJUNCTION WITH THE CONTENTS OF THE APPLICABLE OPERATOR'S MANUAL FOR THE ASPHALT CUTTER.

3) OSHA RULES AND REGULATIONS RESEARCHED FOR AND/OR BY THE OWNER OF THE ASPHALT CUTTER AND DEEMED APPLICABLE TO THE SAFE AND PROPER USE AND/OR OPERATION OF THE THE ASPHALT CUTTER FOR ANY SPECIFIC JOB APPLICATION.

4) LOCAL LAWS, REGULATIONS AND CUSTOMS RESEARCHED FOR AND/OR BY THE OWNER OF THE ASPHALT CUTTER AND DEEMED APPLICABLE TO THE SAFE AND PROPER USE AND/OR OPERATION OF THE ASPHALT CUTTER FOR ANY SPECIFIC JOB APPLICATION.

5) FORMALIZED MAINTENANCE PROGRAM FOR THE ASPHALT CUTTER TO BE DEVISED BY THE OWNER OF THE ASPHALT CUTTER IN ACCORDANCE WITH, BUT NOT NECESSARILY LIMITED TO, THE SPECIFICATIONS, GUIDELINES AND OPERATIONAL INFORMATION CONTAINED IN THE APPLICABLE OPERATOR'S MANUAL.

6) COMPREHENSIVE OPERATIONAL INSTRUCTIONS FOR THE CORRECT AND PROPER USE OF THE ASPHALT CUTTER AS PER THE CONTENTS OF THE APPLICABLE OPERATOR'S MANUAL.

_____ Operator _____ Owner/Instructor _____ Date

_____ Operator _____ Owner/Instructor _____ Date

_____ Operator _____ Owner/Instructor _____ Date

NOTE: INSERT COPIES OF THIS PAGE WITHIN THE OPERATOR'S MANUAL IF SPACE FOR ADDITIONAL OPERATORS IS REQUIRED.

Safety Precautions

⚠ DANGER

THE FOLLOWING SAFETY PRECAUTIONS PROVIDE SOME COMMON SENSE GUIDES TO PROMOTE SAFETY AND EFFICIENCY WITH THE ASPHALT CUTTER. NO WARRANTY, GUARANTEE OR REPRESENTATION IS MADE BY THE FACTORYAS TO THE ABSOLUTE CORRECTNESS OR SUFFICIENCY OF ANY INFORMATION OR STATEMENT. THESE SAFETY PRECAUTIONS ARE INTENDED TO DEAL PRINCIPALLY WITH COMMON PRACTICES AND CONDITIONS ENCOUNTERED IN THE USE OF THE ASPHALT CUTTER AND ARE NOT INTENDED TO BE ALL INCLUSIVE. PROPER LEVELS OF OPERATOR EXPERIENCE, SKILL AND COMMON SENSE ARE ESSENTIAL FOR SAFE AND EFFICIENT OPERATION.

⚠ DANGER

INCORRECT USE OF THE ASPHALT CUTTER CAN RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR EVEN DEATH. TO REDUCE THIS POSSIBILITY, GIVE COMPLETE AND UNDIVIDED ATTENTION TO THE JOB AT HAND AND FOLLOW THESE SAFETY PRECAUTIONS:

PREPARATION.

1) This Asphalt Cutter is a specialized type of equipment, designed for a specific job function and requires adequate and thorough instruction BEFORE it is operated. The size, appropriate prime mover, complexity and operating characteristics of this type of equipment would dictate that each operator must receive adequate, professional instruction regarding the proper operation of this Asphalt Cutter before being allowed to utilize it. BEFORE attempting to utilize this Asphalt Cutter, read this Operator's Manual and the appropriate material supplied by the manufacturer of the prime mover to familiarize each operator with their correct operating procedures. When you are going to cut asphalt DO IT RIGHT, avoid the urge not to take the necessary time to read this Operator's Manual before utilizing the Asphalt Cutter. DO NOT OPERATE THIS ASPHALT CUTTER UNTIL EACH OPERATOR COMPLETELY COMPREHENDS THE CONTENT OF THIS MANUAL.

2) Develop a comprehensive program for the safe operation of the Asphalt Cutter by its owner(s) and/or operator(s). Such a program will include, but is not limited to: instructional requirements for operation of the prime mover, instructional requirements for operation of the Asphalt Cutter, applicable OSHA requirements, local laws and regulations, job site safety and an Asphalt Cutter maintenance program. Constantly examine and upgrade this program to guarantee owner(s') safety. Each operator must be fully instructed regarding the specifics of this safety program.

3) Determine that the Asphalt Cutter is in its original, factory configuration and has not been modified in any manner. Many modifications can result in potentially dangerous configurations that can lead to property damage and/or personal injury. If there are any questions about possible modifications made to the Asphalt Cutter, contact the Customer Service Department BEFORE utilization. There is no charge for this service.

4) Minors should never be allowed to operate the prime mover and/or the Asphalt Cutter. Bystanders, especially children and animals should not be allowed in the area where an Asphalt Cutter is in use.

5) Operators must be in adequate physical condition, mental health and not under the influence of any substance (drugs, alcohol, etc.) which might impair vision, dexterity or judgment. Installing and/or working with the Asphalt Cutter is strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before utilizing the Asphalt Cutter. Guard against the possibility of back related injuries. Always lift and/or position the Asphalt Cutter with leg muscles and not with the back.

6) Clothing must be sturdy and snug fitting, but allow complete freedom of movement. Never wear loose fitting jackets, scarves, neckties, jewelry, flared or cuffed pants or anything that could become caught on controls or moving parts of the prime mover. Wear long pants to protect your legs. Protect your hands with heavy duty, nonslip gloves to improve your grip. Wear sturdy boots with nonslip soles. Steel-toed safety boots are highly recommended. Never wear tennis shoes or other similar type shoes which afford

little or no protection. Wear an approved safety hard hat to protect the operator(s') head(s) where there is a danger of head injuries. Noise, generated by the engine of the prime mover, can damage your hearing. Wear sound barriers (ear plugs or ear mufflers) to protect your hearing. Continuous and regular operators should have their hearing checked regularly.

7) Visually inspect the Asphalt Cutter for damaged or worn parts. Check for loose and/or broken parts. Determine that the operator controls of the prime mover work freely, all applicable safety devices are operative and information decals are readable. Check to see that the prime mover, Asphalt Cutter and all related accessories are in good mechanical condition BEFORE utilization.

8) Contact appropriate representatives to determine if/where electrical cables, gas lines and other hazardous items are buried under the job site BEFORE utilization. The Asphalt Cutter and related accessories are not insulated. Contact with buried electrical cables and/or gas lines can result in electrocution and/or an explosion.

9) Know how the controls of the prime mover operate. Be fully aware of its rules for safe operation, specific operation characteristics and/or limitations. Use of an Asphalt Cutter with any specific prime mover can affect the prime mover's operating characteristics and/or limitations. Be aware of these possible changes to its operating characteristics and/or limitations. Know how to stop the engine quickly in an emergency.

10) Never exceed the recommended applied down force and cutting depth limits of the Asphalt Cutter. Refer to the SPECIFICATIONS section of this manual for more detailed information. Exceeding the stated limitations can result in property damage, loss of operator control and/or personal injury.

11) Because the Asphalt Cutter is classified as an accessory attachment designed to be utilized by a wide range of prime movers, it can be subject to a number of operating limitations. As with any accessory attachment, it can be limited to the number of practical prime mover vehicles and/or the number of practical and/or suitable job applications for this type of equipment. A particular job site, actual asphalt conditions, job specifications and operator experience/skill/common sense may dictate that a different type of prime mover or cutting method and/or process be utilized to properly complete the job with the degree of efficiency and safety required. Contact the Customer Service Department for specific information regarding suitable prime mover vehicles, job applications, job sites, asphalt conditions and operator experience/skill/common sense recommendations for the Asphalt Cutter BEFORE utilization. There is no charge for this service.

OPERATION.

1) Give complete and undivided attention to the job at hand. Use of the Asphalt Cutter is strenuous and causes fatigue. Help prevent the cause of an accident. Plan to take work breaks as required to help insure proper mental and physical alertness.

2) Do not operate the Asphalt Cutter with onlookers close by. Caution all onlookers to stand clear. Keep all body parts, loose clothing and foreign objects clear of the moving prime mover and Asphalt Cutter. Do not utilize a shovel and/or foreign object to remove loose asphalt and/or other matter from the immediate cutting area. Such a practice can cause the shovel and/or foreign object to become entrapped by the moving prime mover and/or rotating cutting wheel of the Asphalt Cutter. The result can be property damage and/or personal injury.

3) Start the prime mover and utilize the Asphalt Cutter only in a well ventilated, outdoor area. Operate the Asphalt Cutter only when/where visibility and light are adequate for the job at hand. Work carefully. The normal use of the Asphalt Cutter is on level ground. Other cutting terrains can be dangerous and should be avoided. Only properly trained operators should attempt these techniques. Always operate the prime mover within its center of gravity envelope as defined by its manufacturer. Contact the manufacturer of the prime mover for more specific information regarding the use of accessory attachments such as the Asphalt Cutter.

MAINTENANCE, REPAIR AND STORAGE.

1) Use only genuine, approved replacement parts for maintenance and repair. Use of parts manufactured by others can result in property damage and/or personal injury.

2) Follow the REPAIR instructions as outlined in the appropriate section of the Operator's Manual.

3) Always stop the engine of the prime mover and properly secure (blocking the blade or bucket, if required) the Asphalt Cutter and prime mover BEFORE checking or performing any service work on the prime mover and/or Asphalt Cutter. The accidental lowering of a boom, blade or bucket can result in property damage and/or personal injury.

4) Always properly maintain the Asphalt Cutter. Frequently check all fasteners and individual parts. Replace any questionable part or assembly with a genuine, approved replacement part. Do not forsake proper maintenance for the price of a few replacement parts. Proper maintenance does not cost – it actually pays dividends. Do not attempt any maintenance or repair work not described in the Operator's Manual. Have such work performed at your dealer's servicing shop.

Assembly

The various models of Asphalt Cutters are normally shipped by common carrier motor freight. All units are shipped from the factory completely assembled and require no further assembly before installation. Visually inspect the shipment for freight damage and/or missing parts. If shipping damage is evident, contact the delivering carrier immediately to arrange for an inspection of the damage by their claims representative. Federal law requires that a claim be filled within a specified time period. If missing parts are detected, notify your dealer who will assist you in obtaining them.

Asphalt Cutters are sometimes bound to a wooden pallet by steel strapping for shipping purposes. Remove the strapping.

⚠ CAUTION

Exercise caution when cutting the steel straps. Always wear suitable safety eyewear and protective clothing. Wear gloves to protect your hands from the sharp edges of the strapping. Caution all onlookers to remain clear of flying steel straps when the tension is relieved while cutting them.

INSTALLATION.

INSTALLING THE 190C CUT-R-TACH CLAMP MOUNT ASPHALT CUTTER.

Tools Required:

1 each, adjustable wrench of 1-3/8 inch (35mm) capacity

or

1 each, 1-3/8 inch (35mm) deep dish socket with suitable ratchet or drive bar.

The 190C CUT-R-TACH Asphalt Cutter is designed to be mounted directly to the buckets of conventional wheel/track type loaders of 1 cubic yard and larger and tractor-loader-backhoes of 12,000 pounds (5455 kg) weight and larger. These weight figures are given as a reference only and do not guarantee satisfactory cutting performance for any prime movers of these or any other sizes.

1) Clean all dirt and debris from the top and bottom of the bucket.

2) Clamp the unit to the center of the bucket. This arrangement will distribute the stresses encountered during the cutting process evenly to the loader arms and/or dipper stick of the prime mover.

3) The 190C CUT-R-TACH incorporates left and right hand threaded screws to secure it to the bucket. These pivoting, counter-rotating screws help the clamping assembly conform to differences in bucket shapes and sizes. The screw assemblies feature a dichromate finish for corrosion protection. Before each usage, spray the screw assemblies thoroughly with a dry film lubricant.

⚠ CAUTION

When lubricating the screw assemblies, utilize a dry film lubricant containing molybdenum disulfide. This type of lubricant is readily available from most industrial supply sources. Use of conventional oils and/or greases will attract dirt and debris that will promote premature wear of the clamping mechanism.

4) Slide the unit over the bucket lip and teeth (if so equipped) until the cutting edge of the bucket comes in contact with the frame side members, FIGURE 1.

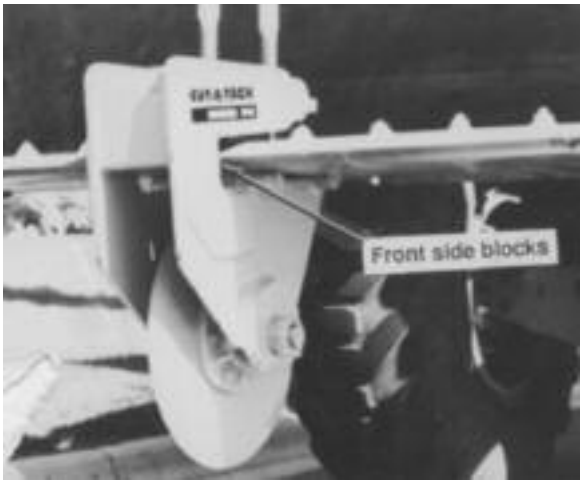


FIGURE 1

⚠ CAUTION

Installing the 190C CUT-R-TACH on a bucket requires strenuous work activity. If you have any condition that might be aggravated by strenuous work, check with your doctor before attempting to mount the Asphalt Cutter.

5) Tighten the two locking screws evenly and perpendicular to the bucket until the round shaped pivot blocks of the CUT-R-TACH frame are in solid contact with the underside of the bucket. Both screw assemblies should be torqued to the same approximate value. Tighten both screws to approximately 150-175 foot pounds (203-236 N.m.) torque. This torque range is to be utilized as a guide only. Variances in prime mover type, size and bucket size and configuration will affect the amount of torque required to properly secure the unit to a specific bucket, FIGURE 2. Experience has shown that alternately tightening the screws to a predetermined value will produce satisfactory results. Arrange for the left hand threaded screw assembly to be the final screw in the tightening sequence, FIGURE 3.

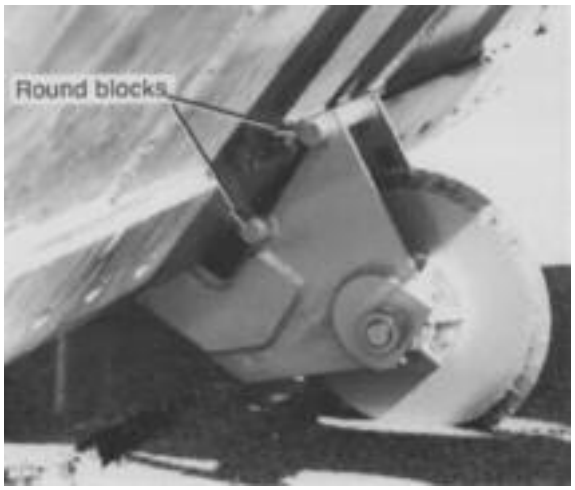


FIGURE 2

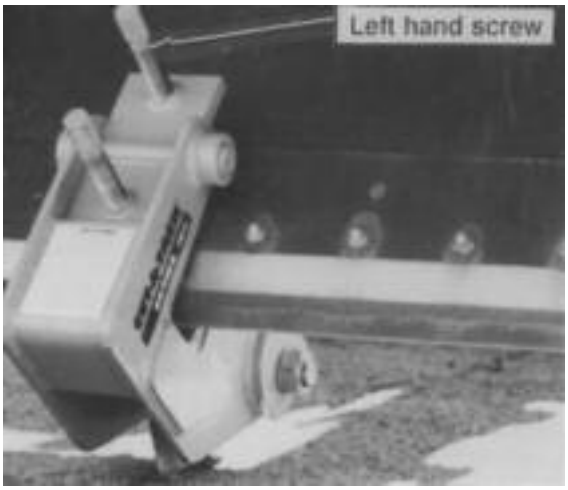


FIGURE 3

⚠ CAUTION

Failure to torque the screw assemblies evenly and perpendicular to the bucket can result in damage to the clamping mechanism.

6) Complete the installation process with a final torquing of the left hand threaded screw to draw the 190C CUT-R-TACH tight against the bucket.

⚠ CAUTION

Determine that the cutting edge of the bucket is in full contact with the unit's side frame members. The cutting edge of the bucket must be in constant and full contact against the frame side members at all times to minimize the possibility of damage to the clamping mechanism. If this is not occurring, loosen the 190 C CUT-R-TACH from the bucket and again follow the installation instruction as described above.

7) During the cutting process, check to determine that the clamping mechanism is tight against the bucket and that the cutting edge is in full contact with the unit's frame side members.

INSTALLING THE 190M MOLDBOARD MOUNT ASPHALT CUTTER.

Tools Required:

1 each, steel bar, 1-3/8 inch (35mm) maximum diameter and approximately 3 feet (914 mm) in length.

The 190M CUT-R-TACH is designed to be mounted directly to standard motor grader moldboards (including hydraulic side shift) or dozer blades having a minimum lift height of 13 inches (330 mm) above level ground.

1) Clean all dirt and debris from the moldboard area where the unit is to be attached.

2) Before each usage, spray the threaded, screw assembly thoroughly with a dry film lubricant.

⚠ CAUTION

When lubricating the threaded screw assembly utilize a dry film lubricant containing molybdenum disulfide. This type of lubricant is readily available from most industrial supply sources. Use of conventional oils and/or greases will attract dirt and debris that will promote premature wear of the clamping mechanism.

3) By rotating the threaded, screw assembly, move the upper, moveable jaw assembly to yield an opening between it and the lower, fixed jaw greater that that of the moldboard height. Experience has shown that this is best accomplished with the unit positioned on the ground against the jaw assemblies, FIGURE 4.

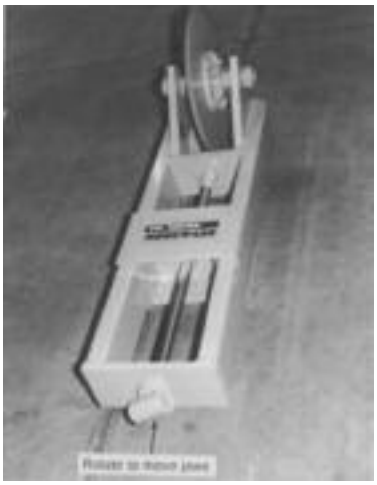


FIGURE 4

4) Attach the unit to an auxiliary lifting device such as a loader, knuckle boom crane, engine lift, all terrain fork lift, etc. Lift the 190M CUT-R-TACH vertical and drive the motor grader forward until the moldboard fits into the space between the upper and lower jaw assemblies, FIGURE 5.

FIGURE 5

⚠ DANGER

THE PHYSICAL SIZE AND RESULTING GEOMETRY OF THE 190M CUT-R-TACH REQUIRES THE USE OF AN AUXILIARY LIFTING DEVICE SUCH AS A LOADER, KNUCKLEBOOM CRANE, ENGINE LIFT, ETC. TO HELP FACILITATE MOUNTING THE UNIT TO A MOLDBOARD. DO NOT ATTEMPT TO MOUNT

THE UNIT WITHOUT THE AID OF SUCH A DEVICE. FOLLOW THE OPERATING PROCEDURES FOR USE OF THE LIFTING DEVICE AS PROVIDED BY ITS MANUFACTURER. LEAVE THE LIFTING DEVICE ATTACHED TO THE 190M CUT-R-TACH UNTIL THE ASPHALT CUTTER IS PROPERLY SECURED. IMPROPER AND/OR INADEQUATE MOUNTING PROCEDURES CAN REAULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.

⚠ CAUTION

Installing the 190M CUT-R-TACH on a moldboard requires strenuous work activity. If you have a condition that might be aggravated by strenuous work, check with your doctor before attempting to mount the unit.

5) Position the 190M CUT-R-TACH on the front of the moldboard at a position where visibility is adequate for the motor grader operator.

⚠ CAUTION

Determine that the mounting position selected for the 190M CUT-R-TACH will not allow the unit to come into contact with any frame structure of the motor grader throughout the anticipated operating range of the moldboard. This is especially important when mounting the unit to a hydraulic side shift controlled moldboard. Inadvertent damage to the motor grader and/or Asphalt Cutter can result.

6) Raise the moldboard until the cutting blade of the 190M CUT-R-TACH is clear of the ground. This procedure should “cradle” the upper, moveable jaw assembly into the top of the moldboard.

7) Remove the auxiliary lifting device and secure properly.

8) Rotate the threaded, screw assembly to close the lower, stationary jaw assembly tight against the bottom of the moldboard. Tighten the screw to approximately 150-175 foot pounds (203-236 N.m.) torque. This torque value is to be utilized as a guide only. Variances in prime mover type, size and configuration will affect the amount of torque required to properly secure the unit to a specific moldboard, FIGURE 6.

FIGURE 6

9) Determine that both jaw assemblies are in full contact with the upper and lower sections of the moldboard. Determine that the 190M CUT-R-TACH is positioned perpendicular to the moldboard.

10) Tighten the screw locking device against the lower cross member plate to prevent accidental unlocking of the jaw assemblies during usage, FIGURE 7.

FIGURE 7

11) The 190M CUT-R-TACH requires that the moldboard have at least 13 inches (330 mm) of blade lift above the surface during transit to/from or while on the job site. This is to prevent accidental cutting blade contact with the surface. If the moldboard does not

have adequate blade lift for the specific job function, unsatisfactory product performance and/or service life can be expected. Inadvertent damage to the motor grader and/or Asphalt Cutter can result.

INSTALLING THE 190S CUT-R-TACH SCARIFIER MOUNT ASPHALT CUTTER.

Tools Required:

2 each, adjustable wrenches of 2-5/8 inch (67 mm) capacity

or

2 each, 2-5/8 inch (67 mm) deep dish sockets with suitable ratchets or drive bars.

The 190S CUT-R-TACH Asphalt Cutter is designed to be mounted to industry standard, 1 inch x 3 inch (25 mm x 76 mm) slotted, scarifier blocks of motor graders. The slots for this particular size of scarifier block are usually on 9 inch (229 mm) centers. The unit can also be mounted directly to buckets, moldboards and bulldozer blades when utilized in conjunction with the 190MB Mounting Block. Wheel loaders and tractor-loader-backhoes must be of 12,000 pounds (5455 kg) weight and larger. The weight figure is given as a reference only and does not guarantee satisfactory performance for any prime mover of this or any other size. When mounting the unit to a motor grader scarifier block, determine that adequate cutting blade clearance to the ground exists with the scarifier block in the uppermost, raised position.

1) Loosen the hexagon shaped nuts on each side of the cutting blade axle. This will facilitate easier installation of the 190S CUT-R-TACH into the scarifier block.

2) Install the 190S CUT-R-TACH into the slots of the scarifier block. Determine that the notches on the shanks properly engage the scarifier block. Secure with universal type, locking wedges, General Equipment Company PN K341 or similar type units. These wedges can also be obtained from the dealer for the particular motor grader, FIGURE 8.

⚠ CAUTION

Installing the 190S CUT-R-TACH in a scarifier block requires strenuous work activity. If you have a condition that might be aggravated by strenuous work, check with your doctor before attempting to mount the unit.

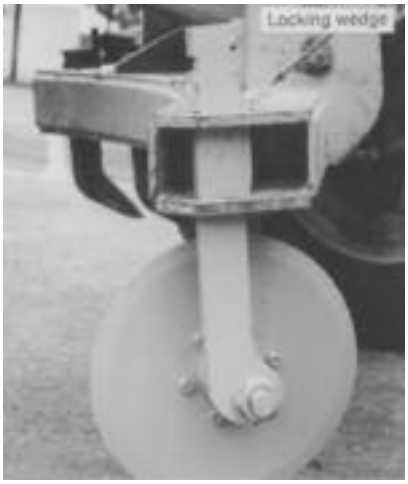


FIGURE 8

3) Tighten the hexagon shaped nuts on each side of the cutting blade axle.

4) An offset installation in the scarifier block can be accomplished by reversing one of the 1 inch x 3 inch (25 mm x 76 mm) shanks on the cutting blade axle. This installation allows for utilizing 2 or 3 units mounted to a common scarifier block, FIGURE 9.

FIGURE 9

Along with the 190MB Mounting Block, the 190S CUT-R-TACH can be mounted to many other prime movers, including: backhoes, loaders, dozer blades and motor grader moldboards.

⚠ CAUTION

Any given mounting position may allow the 190S Asphalt Cutter to come in contact with the main frame of the prime mover. This is especially important when cycling buckets and blades to their extreme limits. Damage to the prime mover and/or Asphalt Cutter can result. Be aware of the specific operating limitations for any given mounting installation.

The 190MB Mounting Block incorporates a straight, perpendicular surface and an offset, angled surface. The straight, perpendicular surface facilitates welding the block to flat surfaces. The offset, angled surface can be custom ground or cut to conform to the contours of buckets and blades. Always follow established and accepted practices for welding rod and/or wire selection and procedures. Consult applicable material published by the American Welding Society, FIGURE 10

FIGURE 10

OPERATION.

The 190 Series CUT-R-TACH rotary asphalt cutting attachments offer a simple and low cost alternative to the conventional methods of sawing and/or jack hammering asphaltic materials for a wide range of job applications. No one method – sawing, jack hammering or even rotary asphalt cutting attachments offers a totally complete and definitive solution to al asphalt cutting applications. Each method has inherent advantages and disadvantages that must be considered before a particular method is chosen for any specific job function. Given the proper operating environment, 190 Series CUT-R-TACH rotary asphalt cutting attachments have consistently demonstrated their ability to cut up to 6000 feet per hour in high density asphalt.
190 Series CUT-R-TACH rotary asphalt cutting attachments all work on a simple principle of the static weight (force) of a prime mover being concentrated over a minimum, projected area (circular blade) directly to the asphalt. As the principle would suggest, there are five factors that govern the effectiveness and overall productivity for this method of cutting asphalt:

1) STATIC WEIGHT OF THE PRIME MOVER
2) AMBIENT ASPHALT TEMPERATURE
3) ASPHALT COMPOSITION
4) GENERAL CONDITION OF THE CUTTING BLADE
5) OPERATOR EXPERIENCE, SKILL AND COMMON SENSE

Key information is highlighted in each section.

STATIC WEIGHT OF THE PRIME MOVER.

The prime mover must be of sufficient size and weight to provide the necessary down force for the cutting blade to initially penetrate the asphalt and then provide the forward motive force for the actual cutting process. Operation with a skid steer loader or similar sized equipment will provide unsatisfactory results because of their lower operating weights and general weight distribution. As a generalization, the greater the weight of the prime mover, the greater the overall productivity associated with the process.

AMBIENT ASPHALT TEMPERATURE.

All rotary asphalt cutting attachments are temperature sensitive devices. Both the ease of initial blade

penetration and actual cutting speed are directly proportional to the temperature of the asphalt. The higher the ambient temperature, the greater will be the cutting speed and resulting productivity. E**xperience has shown that satisfactory asphalt cutting rates require a minimum temperature of 50° F (10° C).** Utilizing a 190 Series CUT-R-TACH Asphalt Cutter in 30° F to 40° F (-1° C to 5° C) ambient temperatures will produce productivity rates that may not be satisfactory in comparison to conventional sawing and jackhammer methods. Asphalt at these temperatures is cold and stiff, requiring significantly greater forces for both initial blade penetration and actual cutting. Likewise, cutting asphalt on a warm spring day may not produce satisfactory results unless direct radiation from the sun has had time to sufficiently warm the asphalt to 50° F (10° C).

ASPHALT COMPOSITION.

All 190 Series CUT-R-TACH rotary asphalt cutting attachments are designed to cut modern asphaltic materials. **Lower productivity rates will be obtained from cutting through old, crystallized asphalt that contains a proportion of larger aggregate.** The size and type of aggregate utilized in resealing or topcoating procedures will also directly affect the ease of initial blade penetration into the asphalt and the resulting cutting productivity. Asphaltic concrete materials can generally be cut with satisfactory productivity. Since these attachments will not cut through conventional concrete, bricks or stone, they find limited usage for cutting asphalt that has been overlaid on the above mentioned materials. For these applications, conventional sawing and/or jackhammer techniques must be utilized.

GENERAL CONDITION OF THE CUTTING BLADE.

The 190 Series CUT-R-TACH rotary asphalt cutting attachments utilize a blade manufactured from steel that is specifically intended for cutting asphalt. The cutting edge is precision machined to exacting tolerances. With normal operation, the cutting edge actually self-sharpens as it wears. Its service life is directly proportional to the asphalt composition and cutting procedures. Normally, a life expectancy of 25,000 to 30,000 lineal feet (7620 to 9144 meters) can be expected. **As a cutting blade wears beyond its normal service (usually approximately 18 inches or 458 mm outside diameter), the actual cutting rate will usually drop to unsatisfactory regardless of the ambient temperature.** The cutting blade should then be replaced. Refer to the REPAIR section for more specific information.

OPERATOR EXPERIENCE, SKILL AND COMMON SENSE.

An informed, safe and experienced operator will always optimize overall productivity for any given prime mover and actual job site conditions.

1) Do not attempt to cut thick, overlaid asphalt with a single pass. **Generally, in most normal job applications, a scoring cut of 2 inches (51 mm) to 3 inches (76 mm) is the necessary depth of cut. The asphalt will then break away clean at the scored edges when excavated.**

Thick and/or overlaid asphalt (of 5 inches, 27 mm depth, or greater) should utilize a multiple pass cutting procedure that produces 1 to 3 (25 to 76 mm) inches cutting depths per pass. This method will also produce a finish cut with a surface that is more conducive to bonding with the patching material. This process is dependent upon the type and size of prime mover, asphalt composition and operator experience, skill and common sense.

2) Proper cutting procedures will not require that the operator apply the full weight of the prime mover to the cutting blade in an attempt to maximize the delivered down force. Forward, motive forces must still be supplied by the prime mover for the actual cutting process.

⚠ CAUTION

The resulting prime mover configurations (wheels suspended in the air, articulated joints actuated to their extreme limits, etc.) may significantly reduce and/or limit operator control during the cutting process. Traction and stability forces must be supplied by the prime mover during the cutting process. Such operating configurations may limit the center of gravity operating envelope for the prime mover, resulting in the possibility of property damage and/or personal injury.

3) **When utilizing the 190C CUT-R-TACH mounted to a backhoe dipperstick bucket, coordinate the bucket curl and dipperstick movement to keep the Asphalt Cutter on the same plane relative to the asphalt being cut.** This will maintain a constant cutting force throughout the arc swing of the dipperstick. When operating conditions permit, the 190C CUT-R-TACH can also be mounted to the loader bucket of the tractor-loader-backhoe. This installation will generally not provide the same overall productivity as mounting the unit to the backhoe bucket. **The weight distribution of a typical tractor-loader-backhoe will always favor mounting the asphalt cutter to the backhoe bucket.** Supplemental weight can be added to the loader bucket to increase the weight applied to the cutting blade, FIGURE 11.

FIGURE 11

4) In many job applications it may be advantageous to cut the asphalt at an angle off vertical. This procedure exposes a greater amount of surface area to bond the old asphalt to the new patching material. The 190M CUT-R-TACH can be utilized to cut asphalt at an angle off vertical. Position the unit where the moldboard can be effectively raised and then tilted off vertical. This procedure will increase the applied loads to the axle hub bearings and may decrease operator control of the motor grader.

Repair

CUTTING BLADE REPLACEMENT.

Tools Required:

2 each, adjustable wrenches of 2-5/8 inch (67 mm) capacity

or

2 each, 2-5/8 inch deep dish sockets with suitable ratchets or drive bars

1 each, 1/2 inch wrench
1 each, 9/16 inch wrench
1 each, torque wrench, 120 foot pounds (162 Nm) capacity with 1/2 inch deep dish socket
1 each, powered impact wrench with 1/2 inch deep dish socket
1 each, bench mounted shop vise

Parts Required:

1 each, PN 190C-0010 cutting blade
6 each, PN 1508161 screw, cap, 1/2 inch-20 UNF x 2 inches long, plain finish, grade 8 (if required)
6 each, PN 4108001 nut, hex high, 1/2 inch UNF, plain finish (if required)
6 each, PN 1608000 washer, lock, 1/2 inch, plated (if required)
4 each, PN 1506160 screw, cap, 3/8 inch-16 UNC x 2 inches long, plated, grade 5 (if required)
4 each, PN 1606000 washer, lock, 3/8 inch, plated (if required)

1) Clean the Asphalt Cutter frame with an appropriate solvent.

⚠ CAUTION

Observe all applicable safety precautions for the solvent.

2) Loosen (remove the Model 190S) the outside jam nuts on the cutting blade axle.

3) Remove the PN 190C-0070 axle retaining caps

(Models 190C and 190M only).

4) Remove the cutting blade/hub assembly from the main frame (Models 190C and 190M only).

5) Position the cutting blade/axle hub assembly on a suitable work bench. The fasteners utilized to secure the cutting blade to the axle hub assembly are of a high strength type and will require the use of a suitable impact wrench to facilitate disassembly. After removing the cap screws, separate the cutting blade from the axle hub assembly, FIGURE 12.

FIGURE 12

6) Check the axle bearings for proper set and free play. Refer to the BEARING MAINTENANCE/REPLACEMENT section if it is determined that the axle bearings will require further servicing.

7) Position the axle hub in the bench vise. Assemble the replacement cutting blade, PN 190C-0010 to the axle hub and retorque the retaining fasteners to 120 foot pounds (162 Nm). The PN 1508160 Grade 8 cap screws are intentionally designed to be countersunk in the PN 4108000 high nuts, FIGURE 13.

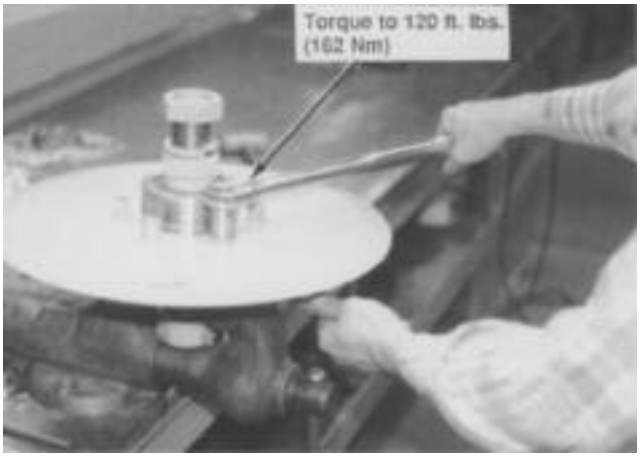


FIGURE 13

⚠ CAUTION

Exercise caution when torquing the retaining fasteners. The torque value specified will require that the cutting blade/axle hub assembly be properly secured to the bench vise as each fastener is torqued. Wear appropriate clothing and safety eye wear. Caution all onlookers about the possibility of flying debris and the potential for injury.

8) Assemble the cutting blade/axle hub assembly to the main frame. Reinstall the axle retaining caps and torque the fasteners to 35 foot pounds (47Nm) (Models 190C and 190M). For the Model 190S, reinstall the shanks to the cutting blade axle.

9) Tighten the outside jam nuts on the cutting blade axle until firmly seated against the main frame. For the Model 190S, leave the outside jam nuts loose to facilitate installation into the scarifier block.

BEARING MAINTENANCE AND REPLACEMENT.

Tools Required:

2 each, adjustable wrenches of 1-5/8 inch (67 mm) capacity

or

2 each, 2-5/8 inch deep dish sockets with suitable ratchets or drive bars.

1 each, 1/2 inch wrench
1 each, 9/16 inch wrench
1 each, torque wrench, 120 foot pounds (162 Nm) capacity with 1/2 inch deep dish socket.
1 each, powered impact wrench with 1/2 inch deep dish socket
1 each, bench mounted shop vise
1 each, 2 inch (52 mm) capacity micrometer

Parts Required:

6 each, PN 1508161 screw, cap, 1/2 inch-20 UNF x 2 inches long, plain finish, grade 8 (if required)
6 each, PN 4108001 nut, hex high, 1/2 inch UNF, plain finish (if required)
6 each, PN 1608000 washer, lock, 1/2 inch plated (if required)
2 each, PN HM803149 cone, bearing (if required)
2 each, PN HM803110 cup, bearing (if required)
1 each, PN 190C-0040 axle, Models 190C and 190M (if required)
1 each, PN 190S-0020 axle, Model 190S (if required)
2 each, PN 25028 CR® grease seal or industry equivalent
1 each, container of bearing & shaft locking grade, anaerobic adhesive/sealant
1 each, container of Barium of Lithium based, lubricating grease
1 each, container of wheel bearing grease

1) Clean the Asphalt Cutter frame with an appropriate solvent.

⚠ CAUTION

Observe all applicable safety precautions for the solvent.

2) Remove the cutting blade/axle hub from the main frame. Refer to the CUTTING BLADE REPLACEMENT section for more detailed information.

3) Position the axle/hub assembly in the bench vise. Remove both inner jam nuts PN 4028000 from the axle, FIGURE 14

FIGURE 14

4) Remove the axle, PN 190C-0040 (Models 190C and 190M) or PN 190S-0020 (model 190S), from the axle hub.

5) Remove both axle spacers, PN 190C-0030 (Models 190C and 190M), or PN 190S-0010 (Model 190S), from the axle hub.

6) Utilizing a suitable drift, apply pressure to each bearing cone. The grease seals will also press out at this time, FIGURE 15. It is highly recommended that this procedure be accomplished with an arbor press. If an arbor press is not available, utilize a plastic tipped hammer to provide the necessary blow force.

FIGURE 15

⚠ CAUTION

Wear safety glasses and other appropriate safety equipment when pressing on the bearings/grease seals. Caution all onlookers about the possibility of flying debris and the potential for personal injury.

7) Inspect the cutting blade axle for cracking and signs of excessive wear. The minimum allowable axle diameter is 1.740 inches (44.2 mm). If damage or out of limit wear is detected, replace the axle.

8) Clean the interior of the axle housing and the bearing cones with an appropriate solvent.

⚠ CAUTION

Observe all applicable safety precautions for the solvent.

9) Inspect both bearing cones. Replace if excessive wear is evident. Repack both bearings with a suitable wheel bearing grease.

10) Inspect the replacement grease seals for cuts or other imperfections around the sealing members. Pack the cavity between the inner and outer sealing members with a Barium or Lithium based, lubricating grease. LUBRIPLATE 105 is an approved lubricant. This precautionary measure eliminates the possibility of a grease seal from operating on a dry shaft, FIGURE 16.

FIGURE 16

11) Place a bearing cone into the axle housing against the bearing cup.

12) Place the replacement grease seal into the axle housing. The side marked, “BEARING SIDE” faces towards the bearing. Press the grease seal into the axle housing until it is seated. If an arbor press is available, press the grease seal into the axle housing with Service Tool PN 190C-7010. This tool is approximately 2.490 inches (63.2 mm) in diameter. Apply the pressing tool to the crimped bead of the grease seal, inasmuch as pressure too close to the center of the seal will distort or damage it. If an arbor press is not available, the grease seal may be tapped into place with the same service tool or a wooden block and plastic hammer. Take care to position the grease seal flush with the bore and at right angles to the shaft. Cocking the seal in the housing contributes to eventual seal failure. UNDER NO CIRCUMSTANCES SHOULD THE GREASE SEAL RECEIVE DIRECT HAMMER B LOWS, FIGURE 17.

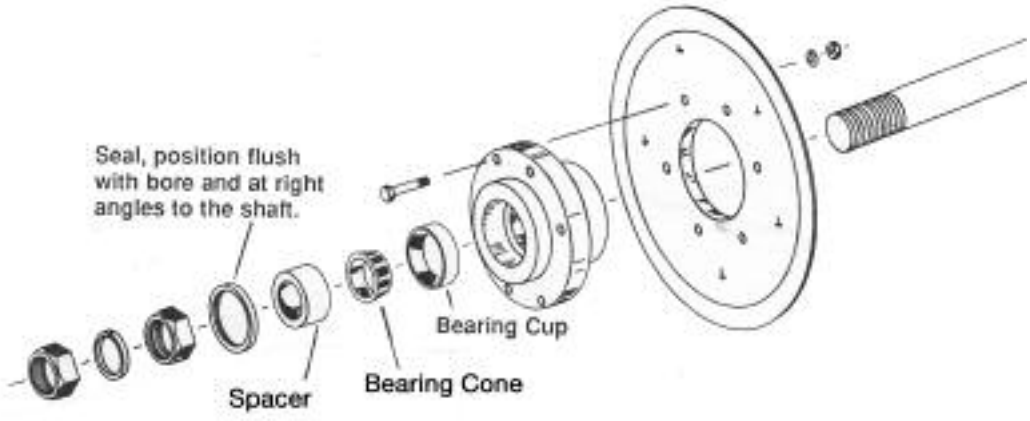


FIGURE 17

13) Repeat steps 9 and 10 for the remaining side of the axle housing.

14) Install the axles spacers PN 190C-0030 (Models 190C and 190M) or PN 190S-0010 (Model 190S) into the axle housing. Slide the spacers past the sealing members of the grease seals with a circular, twisting motion. Use caution not to cut or nick the sealing members when installing the grease seals.

15) Center the cutting blade axle PN 190C-0040 (Models 190C and 190M) or 190S-0020 (Model 190S) on the axle housing so that approximately 3-5/8 inches (92.1 mm) of axle length protrudes from each spacer. Tighten a jam nut, PN 4028000 against each spacer. Clamp the cutting blade in a suitable bench vise. Attach Service Tool PN 190C-7020 to the cutting blade axle. Attach the torque wrench to the service tool and rotate slowly. The resulting value registered on the torque wrench is a drag torque (usually referred to as a force) produced by the bearings. A bearing drag range of 55 to 65 INCH POUNDS (6.3 to 7.4 Nm) torque is permitted. This torque range should allow a maximum of .003 inch (0.076 mm) axial free play in the bearings. A greater amount of bearing drag will significantly decrease the load capacity of the bearings and contribute to eventual bearing failure. Adjust the torque value of each jam nut to yield a bearing drag within the allowable limit, FIGURE 18.

FIGURE 18

16) Assemble the cutting blade/axle hub assembly to the main frame. Reinstall the axle retaining caps and torque the fasteners to 35 foot pounds (47 Nm) (Models 190C and 190M). For the Model 190S, reinstall the shanks to the cutting blade axle.

Storage

Proper procedure for long term storage of the Asphalt Cutter will protect it against the effects of corrosion and damage. When storing the Asphalt Cutter between each job, follow these guidelines:

1) Clean the Asphalt Cutter frame with and appropriate solvent.

⚠ CAUTION

Observe all applicable precautions for the solvent.

2) Check all visible parts for wear, breakage or damage. Order any part required to make the necessary repair. This will avoid a needless delay when next utilizing the Asphalt Cutter.

3) Spray the threaded screw assemblies (if applicable) and all other exposed and/or wear parts thoroughly with a dry film lubricant.

4) Store the Asphalt Cutter inside. If the Asphalt Cutter must be stored outside, protect it with a suitable covering.

Specification

190C CUT-R-TACH

FRAME	Unitized, welded steel plate
BEARINGS	Twin tapered roller
MAXIMUM CUTTING DEPTH	5-1/2 inches (140 mm)
WEIGHT	245 lbs (105 kg)

STANDARD PRIME MOVER Tractor-loader-backhoe or wheel/track type loader of 12,000 lbs (5455 kg) minimum weight

190M CUT-R-TACH

FRAME	Unitized welded steel plate and structural tubing
BEARINGS	Twin tapered roller
MAXIMUM CUTTING DEPTH	5-1/2 inches (140 mm)
WEIGHT	315 lbs (141 kg)

STANDARD PRIME MOVER Motor grader having a minimum moldboard lift height of 13 inches (330 mm) above level ground.

190S CUT-R-TACH

FRAME	Two heat treated steel shanks
BEARINGS	Twin tapered roller
MAXIMUM CUTTING DEPTH	5-1/2 inches (140 mm)
WEIGHT	112 lbs (51 kg)

STANDARD PRIME MOVER 1 inch x 3 inch (25 mm x 76 mm) motor grader scarifier block or can be utilized with the 190MB Mounting Block

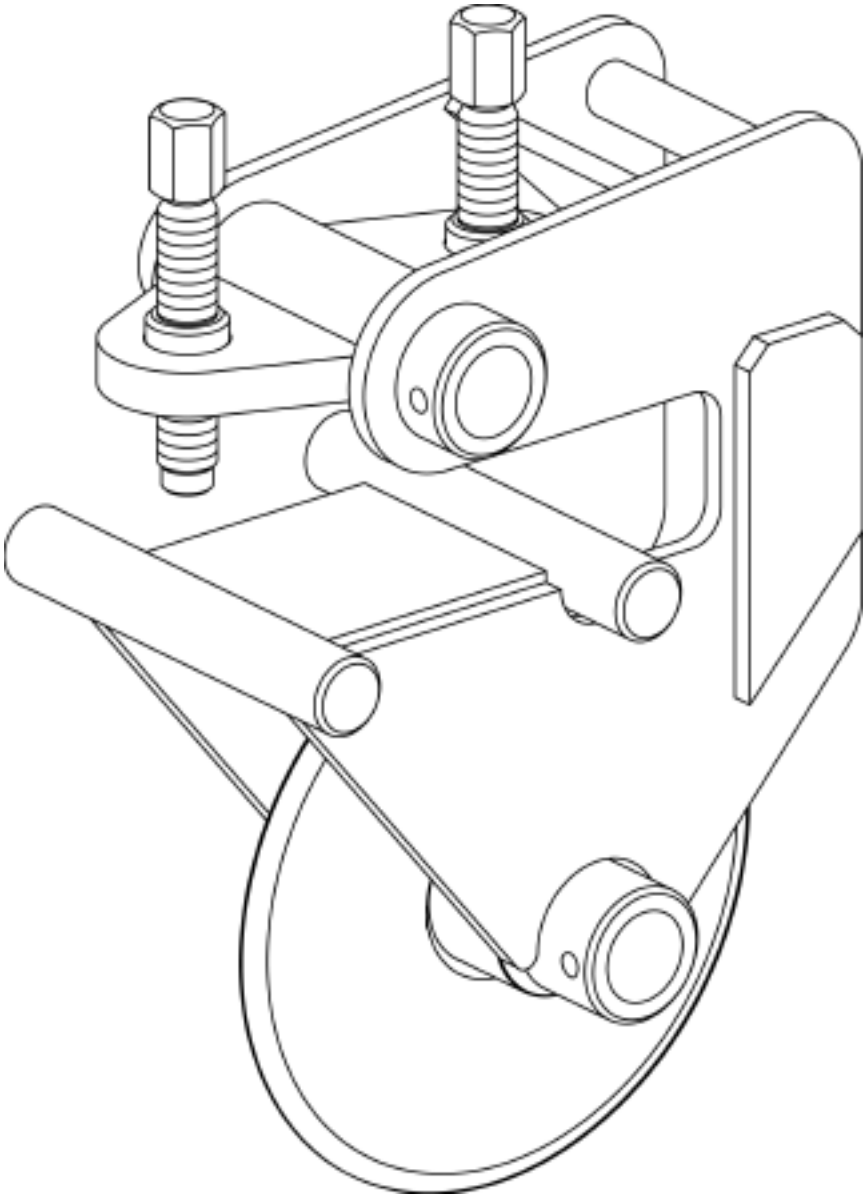
190MB MOUNTING BLOCK

FRAME	Unitized welded steel plate
WEIGHT	65 lbs (30 kg)

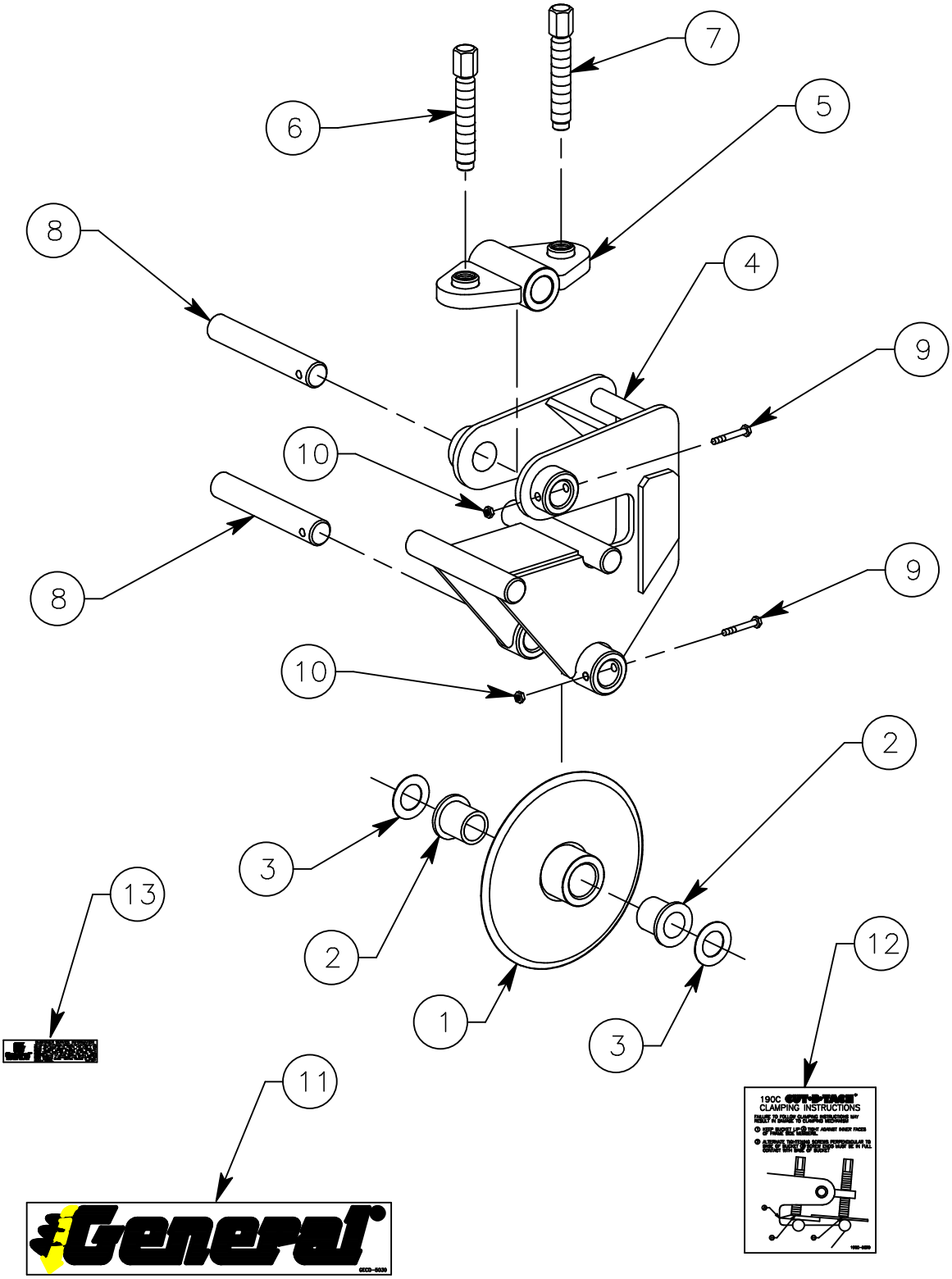
APPLICATION Used in conjunction with 190S CUT-R-TACH. Welded to moldboard, bucket or blade

Note: weight specifications are given for reference only and do not guarantee satisfactory cutting performance for any prime mover of these or any other sizes.

Replacement Parts Diagrams
CUT-R-TACH Series



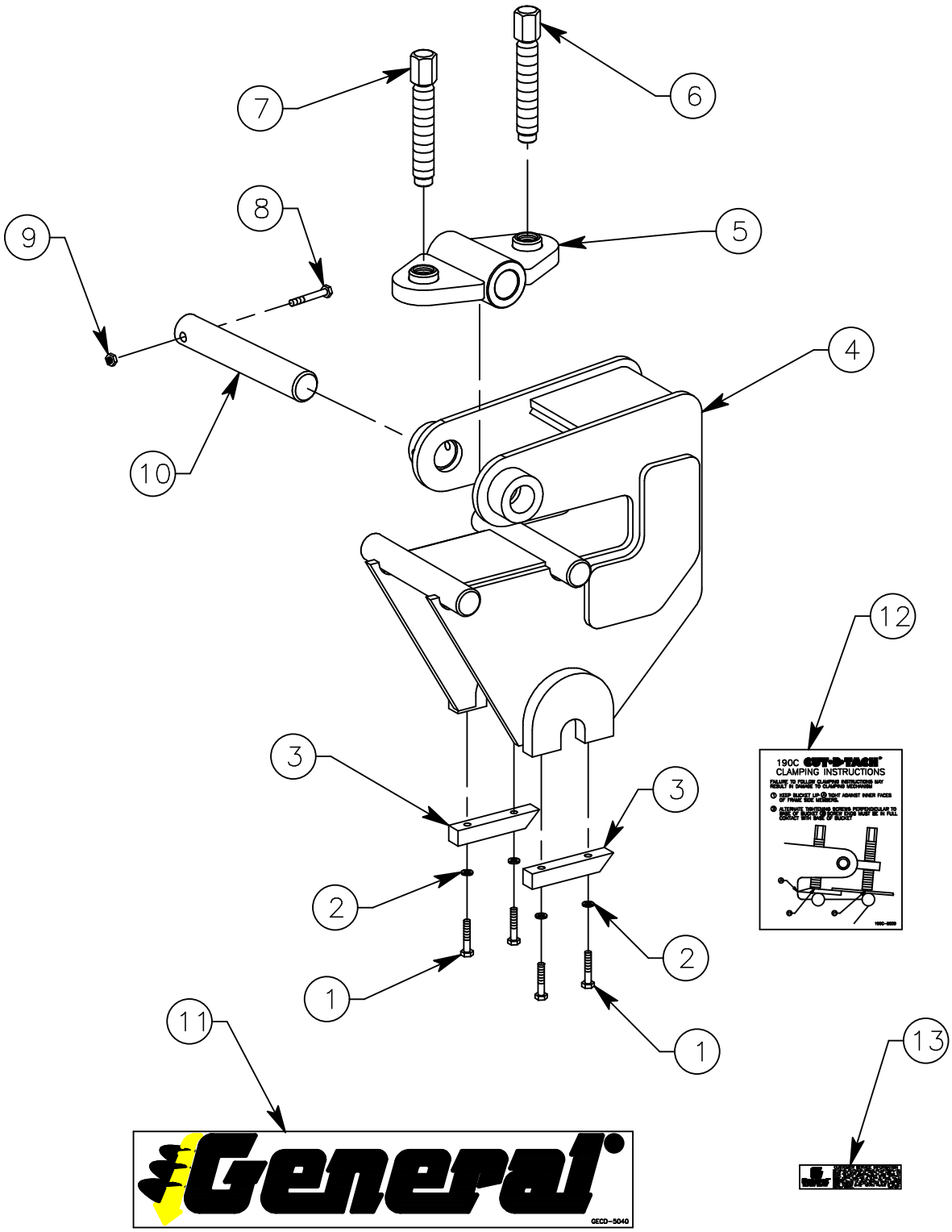
130 SERIES CUT-R-TACH FRAME ASSEMBLY



130 SERIES CUT-R-TACH FRAME ASSEMBLY

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	130C-0020	Wheel and Hub Assembly with Oilite Bearing	1
2	FF-2204-3	Bearing, Oilite	2
3	130C-0030	Washer, Thrust, 3” O.D. x 1 3/4” I.D. x 1/16” Thick, Nylatron GS	2
4	130C-0010	Main Frame	1
5	190C-0061	Assembly Clamp	1
6	190C-0080	Screw, Left Hand Threaded	1
7	190C-0090	Screw, Right Hand Threaded	1
8	190C-0100	Shaft	2
9	15082800	Screw, Cap, 1/2”-13NC x 3 1/2”, Plated, Grade 5	2
10	18080000	Nut, Hex, Self Locking, 1/2”-13NC, Plated	2
11	GECD-5020	Decal, GENERAL	2
12	190C-5020	Decal, Clamping	2
13	SG24-5072	Decal, Assistance	1

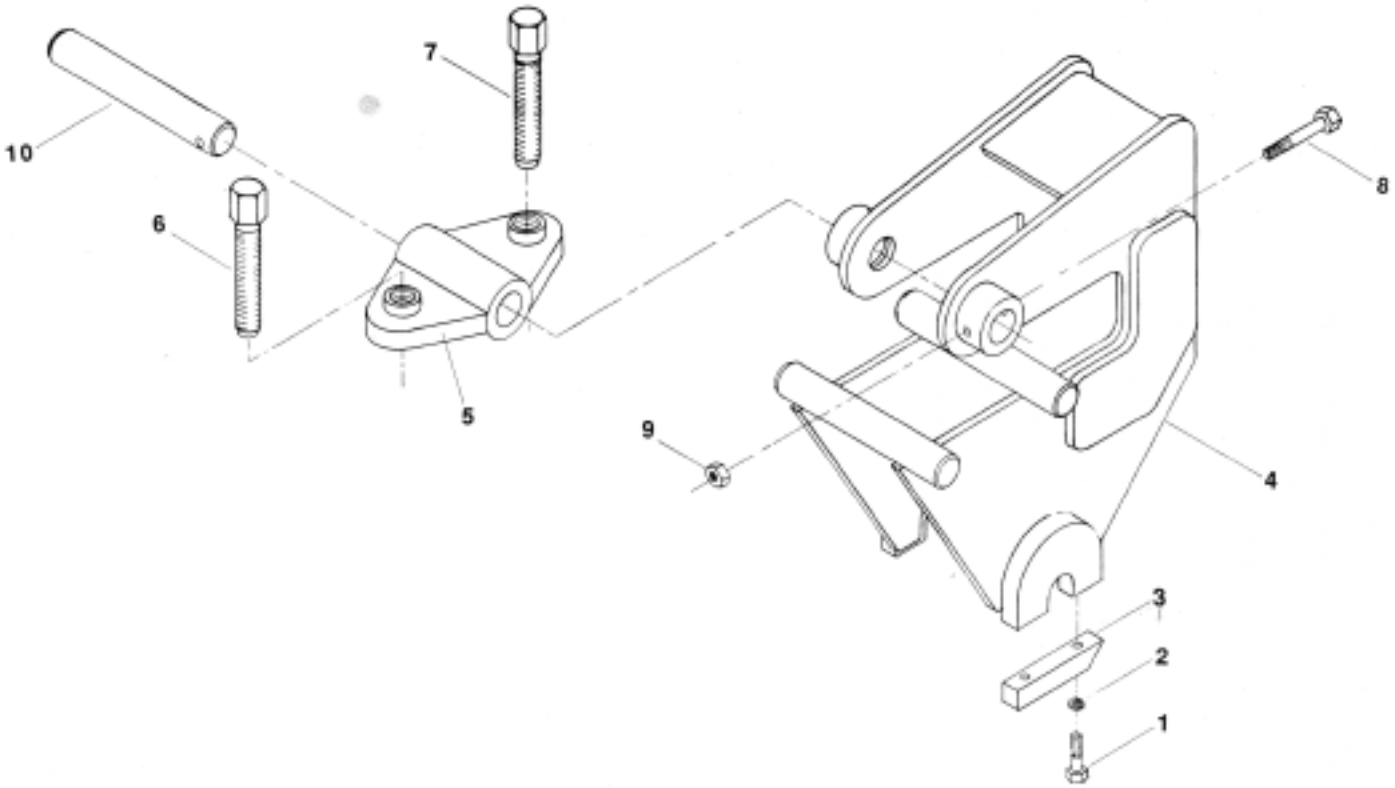
190C CUT-R-TACH
[To Serial Number 26037 (Execpt 25996)]



190C CUT-R-TACH
[To Serial Number 26037 (Execpt 25996)]

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	1506160	Screw, Cap, 3/8”-16 UNC x 2” Long, Plated, Grade 5	4
2	1606000	Washer, Lock, 3/8”, Plated	4
3	190C-0070	Cap, Axle Retaining	2
4	190C-0050	Frame	1
5	190C-0060	Assembly, Clamp	1
6	190C-0080	Screw, Left Hand Threaded	1
7	190C-0090	Screw, Right Hand Threaded	1
8	15082800	Screw, Cap, 1/2-13 UNC x 3-1/2”, Grade 5, Plated	1
9	18080000	Nut, hex, Self Locking, 1/2-13 UNC, Plated	1
10	190C-0100	Shaft	1
11	GECD-5040	Decal, General	1
12	190C-5020	Decal, Clamping	1
13	SG24-5072	Decal, Assistance	1

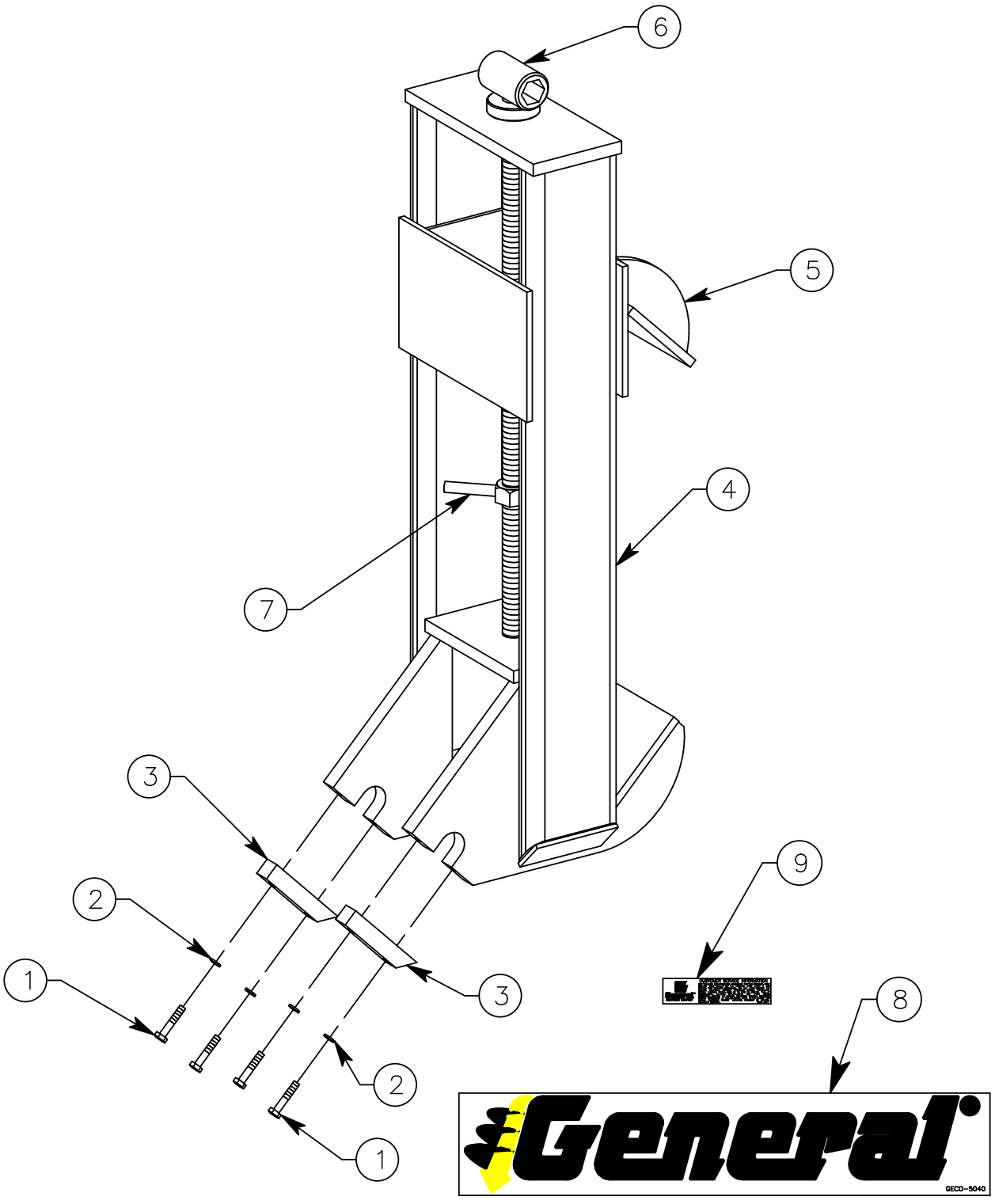
190C CUT-R-TACH
[Serial Number 26038 and up (Including 25996)]



190C CUT-R-TACH
[Serial Number 26038 and up (Including 25996)]

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	1506160	Screw, Cap, 3/8”-16 UNC x 2” Long, Plated, Grade 5	4
2	1606000	Washer, Lock, 3/8”, Plated	4
3	190C-0070	Cap, Axle Retaining	2
4	190C-0051	Frame	1
5	190C-0061	Clamp	1
6	190C-0080	Screw, Left Hand Threaded	1
7	190C-0090	Screw, Right Hand Threaded	1
8	1808320	1/2”-16 UNC x 4” Long, Plated, Grade 5	1
9	1508000	Nut, Hex, 1/2” UNC, Plated	1
10	190C-0050-041	Shaft	1
11	GECD-5040	Decal, General	1
12	190C-5020	Decal, Clamping	1
13	SG24-5072	Decal, Assistance	1

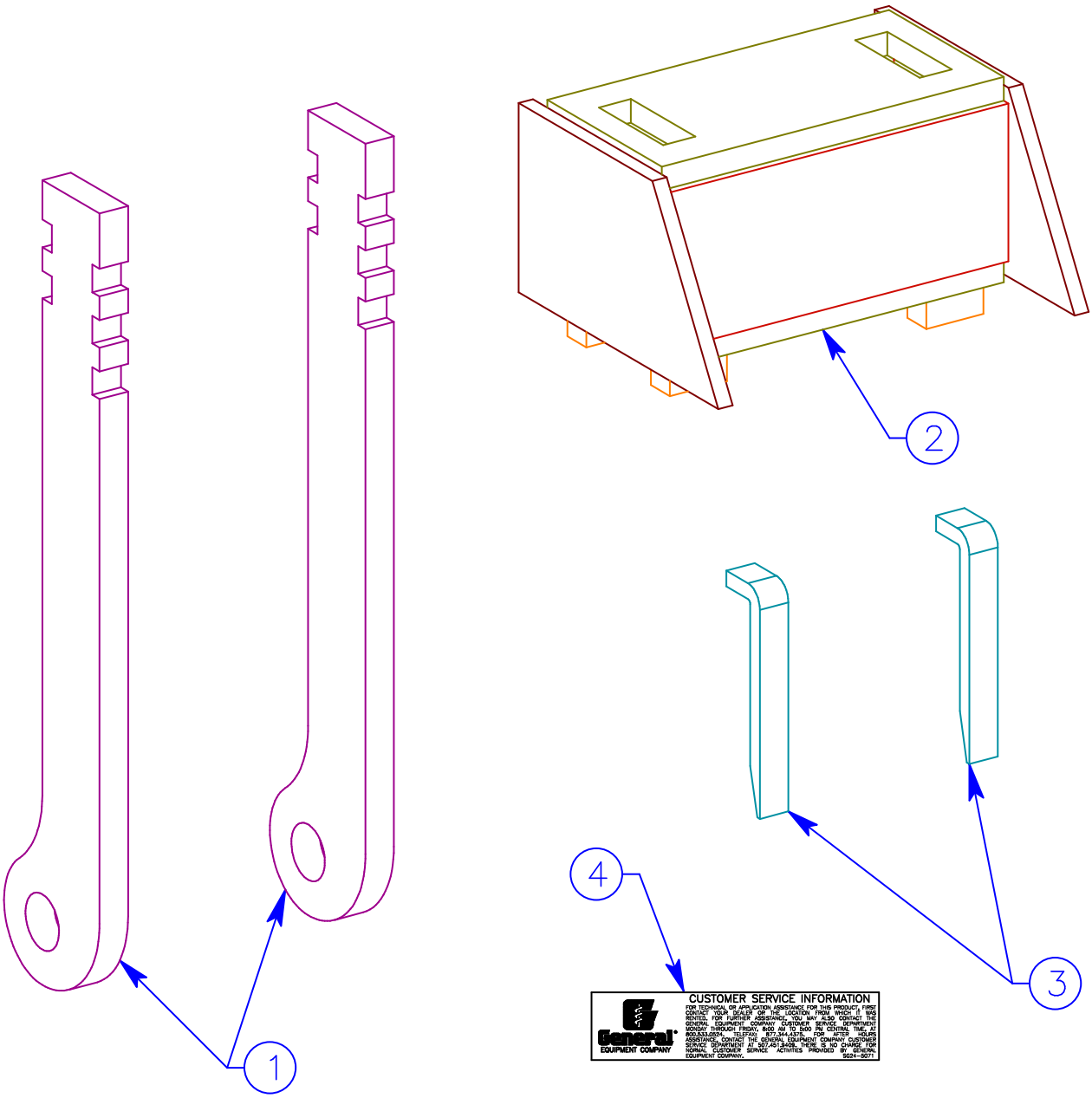
190M CUT-R-TACH
Frame Assembly



190M CUT-R-TACH
Frame Assembly

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	1506160	Screw, Cap, 3/8”-16 UNC x 2” Long, Plated, Grade 5	4
2	1606000	Washer, Lock, 3/8”, Plated	4
3	190C0070	Cap, Axle Retaining	2
4	190M-0010	Frame	1
5	190M-0030	Jaw, Upper, Complete	1
6	190M-0020	Screw, Complete	1
7	550-0610	Nut, Adjustment	1
8	GECD-5040	Decal, General	1
9	SG24-5072	Decal, Assistance	1

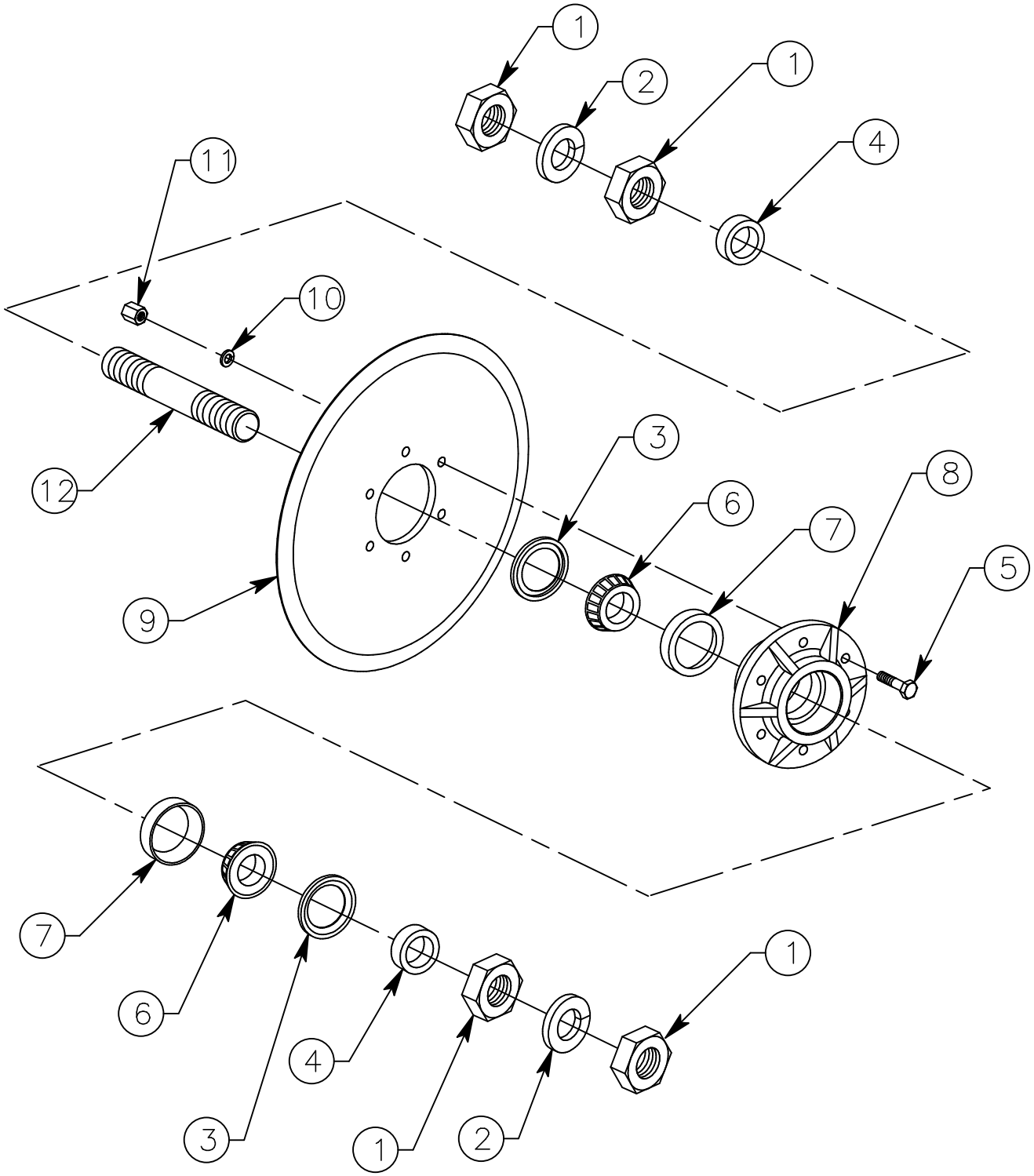
190S CUT-R-TACH
Shank and Mounting Block Assembly



190S CUT-R-TACH
Shank and Mounting Block Assembly

Referance Number	PART NUMBER	DESCRIPTION	QTY
1	190S-0030	Shank	2
2	190MB	Block, Mount	1
3	K341	Wedge, Lock	2
4	SG24-5072	Decal, Assistance	1

190 SERIES CUT-R-TACH
CUTTING BLADE/AXLE



190 SERIES CUT-R-TACH
CUTTING BLADE/AXLE

Reference Number	PART NUMBER	DESCRIPTION	QTY
1	40280000	Nut, Hex, Jam 1 3/4”-12	4
2	16280000	Washer, Lock, 1 3/4” Plain Finish	2
3	25028	Seal, Grease	2
4	190C0030	Spacer (190C and 190M)	2
	190S-0010	Spacer (190S)	2
5	15081601	Screw, Cap, 1/2”-20 UNF x 2”, Plain Finish, Grade 8	6
6	HM803149	Cone, Bearing	2
7	HM803110	Cup, Bearing	2
8	190C-0020	Hub, Wheel	1
9	190C-0010	Blade, Cutting	1
10	16080000	Washer, Lock, 1/2”, Plated	6
11	41080001	Nut, Hex, High, 1/2”, Plain Finish	6
12	190C-0040	Axle (190C and 190M)	1
	190S-0020	Axle (190S)	1