OPERATOR'S AND PARTS MANUAL

MAGNUM MULCHER SERIES II
FOR SKID STEER AND EXCAVATOR

EARTHMOVING WAREHOUSE

SERIAL NUMBER:_____

MODEL NUMBER:_____

PM-000102-B

READ ENTIRE OPERATOR'S & PARTS MANUAL BEFORE OPERATING!

DANGER! **ROTATING DRUM HAZARD! STAY BACK! OBJECTS CAN BE THROWN! DO NOT OPERATE NEAR BY STANDERS.**

DANGER! **TO AVOID SERIOUS PERSONAL INJURY OR DEATH THE DIGGA MAGNUM MULCHER MUST NOT BE ATTACHED TO ANY POWER UNIT THAT DOES NOT HAVE A FORESTRY GUARD PACKAGE INSTALLED.**

DANGER! **FLYING DEBRIS HAZARD. CLEAR AREA OF BY STANDERS AND LIVESTOCK BEFORE OPERATING. THE MULCHER IS CAPABLE OF PRODUCING LARGE AMOUNTS OF FLYING DEBRIS IN ALL DIRECTIONS.**

WARNING! **BEFORE LEAVING THE OPERATOR'S SEAT: LOWER THE LIFT ARMS AGAINST FRAME AND PLACE UNIT ON THE GROUND. DISENGAGE AUXILIARY HYDRAULICS. ENGAGE PARKING BRAKE. STOP ENGINE. REMOVE THE KEY.**

WARNING! **THE DIGGA MULCHERS SHOULD NEVER BE OPERATED MORE THAN 18" ABOVE THE GROUND.**

NOTE: If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer.

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PREFACE

GENERAL COMMENTS

Congratulations on the purchase of your new DIGGA product! This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance, such as cleaning and lubricating, is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted. This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with its contents.

WARNING!  **NEVER LET ANYONE OPERATE THIS UNIT WITHOUT READING THE "SAFETY PRECAUTIONS" AND "OPERATING INSTRUCTIONS" SECTIONS OF THIS MANUAL. ALWAYS CHOOSE HARD, LEVEL GROUND TO PARK THE VEHICLE ON AND SET THE BRAKE SO THE UNIT CANNOT ROLL.**

Unless noted otherwise, right and left sides are determined from the operator's control position when facing the attachment.

NOTE: The illustrations and data used in this manual were current according to the information available to us at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

BEFORE OPERATION

Perform a "Hazard Assessment" of the job site and remove any possible hazards. The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer to obtain further assistance. Keep this manual available for reference. Provide the manual to any new owners and/or operators.

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

SERVICE

Use only manufacturer replacement parts. Substitute parts may not meet the required standards. Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

SOUND AND VIBRATION

Sound pressure levels and vibration data for this attachment are influenced by many different parameters: some items are listed below (not inclusive):

- prime mover type, age, condition, with or without cab enclosure and configuration
- operator training, behavior, stress level
- job site organization, working material condition, environment

Based on the uncertainty of the prime mover, operator, and job site, it is not possible to get precise machine and operator sound pressure levels or vibration levels for this attachment.

SAFETY STATEMENTS

THIS SYMBOL BY ITSELF OR WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

DANGER **THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.**

WARNING **THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.**

CAUTION **THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.**

NOTICE Notice is used to address practices not related to physical injury.

GENERAL SAFETY PRECAUTIONS

WARNING!

READ MANUAL PRIOR TO INSTALLATION

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**

WARNING!

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all WHS regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.

WARNING!

KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions, and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn or hard to read.

GENERAL SAFETY PRECAUTIONS

WARNING! HAZARD ASSESMENT

Evaluate the work space for potential hazards you may encounter whilst operating the Mulcher.

WARNING! PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles, or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

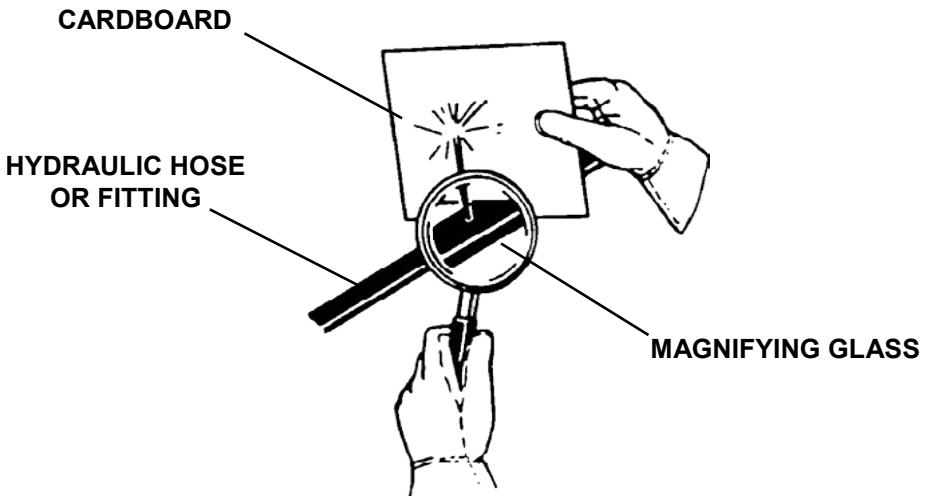
WARNING! LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels, or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or on blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

WARNING! USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime mover's operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE ILLUSTRATION.**



GENERAL SAFETY PRECAUTIONS

WARNING! **DO NOT MODIFY MACHINE OR ATTACHMENTS**

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protective Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

WARNING! **SAFELY MAINTAIN AND REPAIR EQUIPMENT**

- Do not wear loose clothing or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tools for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.

WARNING! **SAFELY OPERATE EQUIPMENT**

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operator's position.
- Never leave equipment unattended with the engine running, or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

EQUIPMENT SAFETY PRECAUTIONS

WARNING!

KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

WARNING!

EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.

WARNING!

REMOVE PAINT BEFORE WELDING OR HEATING

Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all the work outside or in a well ventilated area and dispose of paint and solvent properly. Remove paint before welding or heating.

When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

WARNING!

END OF LIFE DISPOSAL

At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.

WARNING!

OPERATING THE MULCHER

- Block off work area from bystanders, livestock, etc. Flying debris can cause severe injury or death. The mulcher is capable of producing large amounts of flying debris in all directions.
- Do NOT operate without a forestry guard package installed on the prime mover.
- Operate only from the operator's station.
- Be aware when mulching standing trees, there is a danger of the treetop falling back onto the operator's cab.
- Do not engage or disengage the drum while the engine rpm's are above.
- When mounted onto a skid steer loader, do not operate the mulcher with the attachment over 18" above the ground.
- Do not lift loads in excess of the capacity of the prime mover. Lifting capacity decreases as the loader is moved further away from the unit.
- When operating on slopes, drive up and down, not across. Avoid steep hillside operation, which could cause the prime mover to overturn.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Before exiting the prime mover, roll the attachment back and lower it to the ground, apply brakes, turn off the prime mover's engine, and remove the key.

EQUIPMENT SAFETY PRECAUTIONS

WARNING!

TRANSPORTING THE MULCHER

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes.
- When transporting on a trailer: Secure attachment at recommended tie down locations using tie down accessories that are capable of maintaining attachment stability.
- When driving on public roads use safety lights, reflectors, and Slow Moving Vehicle signs etc. to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., cave in could result.
- Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.

WARNING!

MAINTAINING THE MULCHER

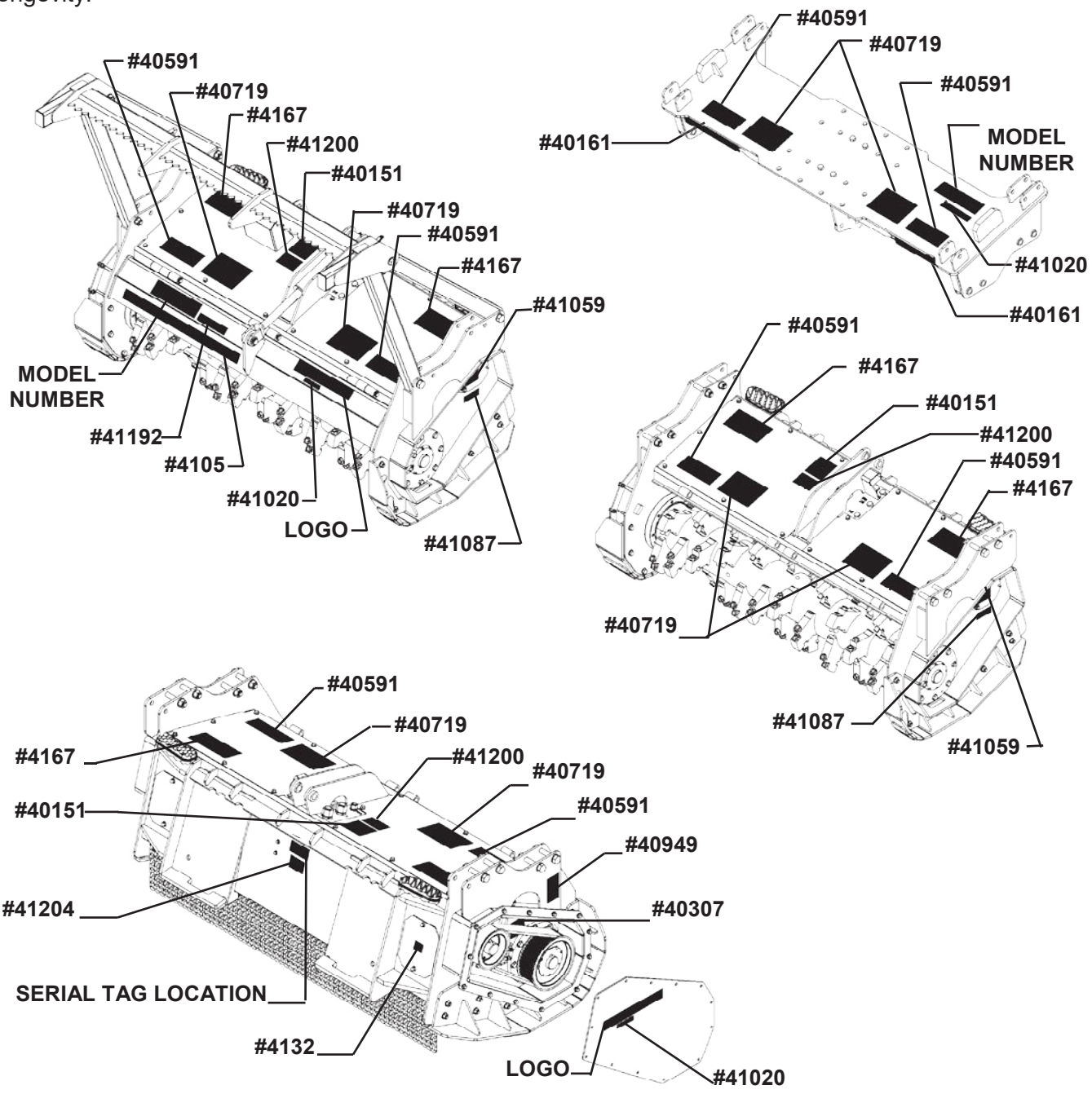
- Before performing maintenance, disengage auxiliary hydraulics, lower the attachment to the ground, turn off the engine, remove the key and apply the brakes.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator manual's before any repair is made. After completing maintenance or repair, check for correct functioning of the attachment. If not functioning properly, always tag "DO NOT OPERATE" until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from DIGGA.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.

DECALS

DECAL PLACEMENT

GENERAL INFORMATION

The diagram on this page shows the location of the decals used on the DIGGA Mulchers. The decals are identified by their part numbers, with reductions of the actual decals located on the following pages. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the attachment. They contain information you need to know for both safety and longevity.



IMPORTANT: Keep all safety signs clean and legible. Replace all missing, illegible, or damaged safety signs. When replacing parts with safety signs attached, the safety signs must also be replaced.

REPLACING SAFETY SIGNS: Clean the area of application with nonflammable solvent, then wash the same area with soap and water. Allow the surface to fully dry. Remove the backing from the safety sign, exposing the adhesive surface. Apply the safety sign to the position shown in the diagram above and smooth out any bubbles.

DECALS

DANGER! FLYING DEBRIS
PART #40719

WARNING! HIGH PRESSURE FLUID
PART #40151

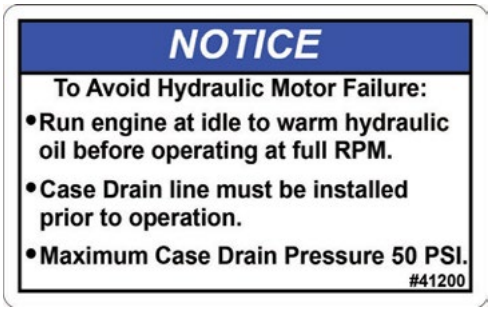
DANGER! ROTATING DRUM
PART #40591

WARNING! GUARDS
PART #40949

DANGER! STAND CLEAR
PART #4105

CLEAN DEBRIS - 40 HOURS
PART #41087

DANGER! GUARD MISSING
PART #40307



NOTICE! MOTOR FAILURE
PART #41200

DECALS

NO STEP
PART #4167

MANUAL STORAGE INSIDE
PART #41059

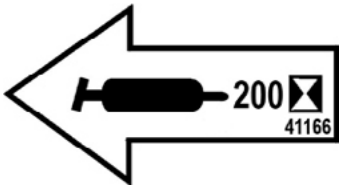
STAND CLEAR
PART #40161

MULCHER LOGO
PART #41020

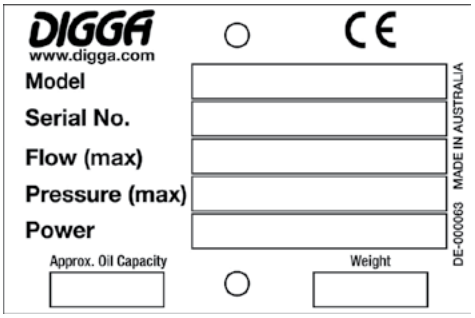
SERIES II
PART #41192

CHECK OIL LEVEL
PART #4132

DIGGA LOGO



GREASE EVERY 200 HOURS
PART #41166



SERIAL TAG
PART #DE000063

NOTE: Contact your local dealer for model number and logo decals.

SETUP

MOTOR DISPLACEMENT

Due to the range of prime movers the DIGGA Series II Magnum Mulcher is designed for, the motor minimum displacement is adjustable to various LPM and rotor RPM to give you optimum productivity for your particular application. The displacement must be adjusted and then “locked in”. For optimum productivity and proper operation the minimum displacement on the mulcher motor needs to be adjusted for the “ACTUAL” LPM of your prime mover and the desired RPM of the mulcher rotor. With the engine at full throttle, set the rotor RPM between 1800 - 2000 RPM. (Factory settings are 50 CC on all skid steer loader mulchers, 66 CC on the combination and excavator mulchers and 76 CC on the forestry mulchers.)

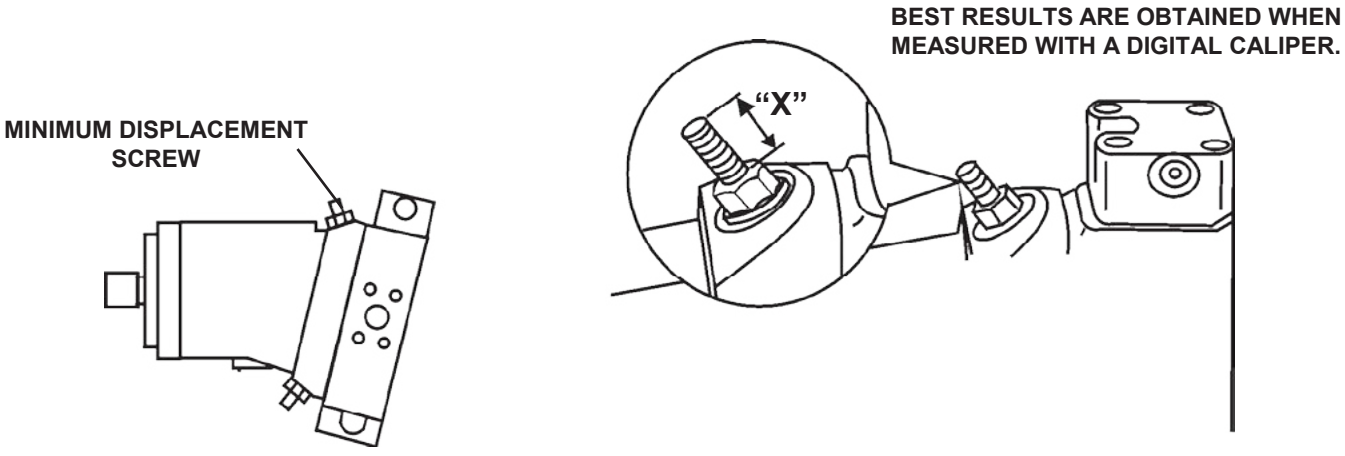
NOTICE: Insufficient RPM (below 1800) will greatly reduce the productivity of your unit while over speeding (above 2000) can cause serious damage to the motor and teeth.

See the following charts for correct adjustment of the minimum displacement screw for the motor minimum displacement.

NOTE: To Adjust Minimum Displacement Screw, loosen and hold the locking nut while turning the minimum displacement screw to the desired dimension and then hold the limit screw while turning the locking nut and therefore locking it in place.

It is recommended that the drum RPM be checked with a tachometer after adjustments have been completed. To increase RPM, increase “X” dimension. To decrease RPM decrease the “X” dimension. The maximum displacement limit screw is adjusted at the factory.

IMPORTANT: Prime mover must be at operating temperature prior to checking the rotor RPM with tachometer.



NOTE: These mulchers include a 6mm allen wrench and 19mm wrench to adjust the displacement screws.

SETUP

60” SKID STEER ONLY MULCHERS 113.5-170.3 LPM / 80CC (107251 HYDRAULIC MOTOR / 35T & 50T SPROCKETS)						
	1800 ROTOR RPM		1900 ROTOR RPM		2000 ROTOR RPM	
LPM	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)
113.55	44.20	30.73	41.80	32.00	39.70	33.27
117.34	45.60	29.97	43.20	31.24	41.10	32.51
121.12	47.10	29.21	44.60	30.48	42.40	31.75
124.91	48.60	28.19	46.00	29.72	43.70	30.99
128.69	50.10	27.43	47.40	28.96	45.00	30.23
132.48	51.50	26.67	48.80	28.19	46.40	29.46
136.26	53.00	25.65	50.20	27.43	47.70	28.70
140.05	54.50	24.89	51.60	26.42	49.00	27.94
143.83	55.90	24.13	53.00	25.65	50.30	27.18
147.62	57.40	23.11	54.40	24.89	51.70	26.42
151.40	58.90	22.35	55.80	24.13	53.00	25.65
155.19	60.40	21.59	57.20	23.37	54.30	24.89
158.97	61.80	20.57	58.60	22.61	55.60	24.13
162.76	63.30	19.81	60.00	21.84	57.00	23.37
166.54	64.80	19.05	61.40	20.83	58.30	22.61
170.33	66.30	18.03	62.80	20.07	59.60	21.84

60” FORESTRY MULCHERS 132.48-170.33 LPM / 107CC (200-169 HYDRAULIC MOTOR / 40T & 45T SPROCKETS)						
	1800 ROTOR RPM		1900 ROTOR RPM		2000 ROTOR RPM	
LPM	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)
132.48	65.40	30.48	62.00	32.26	58.90	33.53
136.26	67.30	29.72	63.70	31.24	60.60	32.77
140.05	69.20	28.96	65.50	30.48	62.20	32.00
143.83	71.00	27.94	67.30	29.72	63.90	31.24
147.62	72.90	27.18	69.10	28.96	65.60	30.48
151.40	74.80	26.16	70.80	28.19	67.30	29.72
155.19	76.60	25.40	72.60	27.18	69.00	28.96
158.97	78.50	24.64	74.40	26.42	70.70	28.19
162.76	80.40	23.62	76.10	25.65	72.30	27.43
166.54	82.30	22.86	77.90	24.89	74.00	26.67
170.33	84.10	21.84	79.70	23.88	75.70	25.91

SETUP

60” SKID STEER ONLY MULCHERS 113.55-170.3 LPM / 107CC AND 60” COMBINATION AND EXCAVATOR ONLY MULCHERS 113.6-227.10 LPM / 107CC (200-169 HYDRAULIC MOTOR / 35T & 50T SPROCKETS)						
	1800 ROTOR RPM		1900 ROTOR RPM		2000 ROTOR RPM	
LPM	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)	DISPLACEMENT (CC)	*SCREW (M12X100)* DIMENSION X (mm)
113.55	44.20	40.39	41.80	41.40	39.70	42.42
117.34	45.60	39.62	43.20	40.89	41.10	41.91
121.12	47.10	39.12	44.60	40.13	42.40	41.15
124.91	48.60	38.35	46.00	39.62	43.70	40.64
128.69	50.10	37.59	47.40	38.86	45.00	39.88
132.48	51.50	37.08	48.80	38.35	46.40	39.37
136.26	53.00	36.32	50.20	37.59	47.70	38.86
140.05	54.50	35.56	51.60	37.08	49.00	38.10
143.83	55.90	35.05	53.00	36.32	50.30	37.59
147.62	57.40	34.29	54.40	35.56	51.70	36.83
151.40	58.90	33.53	55.80	35.05	53.00	36.32
155.19	60.40	33.02	57.20	34.29	54.30	35.81
158.97	61.80	32.26	58.60	33.78	55.60	35.05
162.76	63.30	31.50	60.00	33.02	57.00	34.54
166.54	64.80	30.99	61.40	32.51	58.30	33.78
170.33	66.30	30.23	62.80	31.75	59.60	33.27
174.11	67.70	29.46	64.20	31.24	60.90	32.77
177.90	69.20	28.96	65.60	30.48	62.30	32.00
181.68	70.70	28.19	66.90	29.97	63.60	31.50
185.47	72.10	27.43	68.30	29.21	64.90	30.73
189.25	73.60	26.67	69.70	28.70	66.20	30.23
193.04	75.10	26.16	71.10	27.94	67.60	29.46
196.82	76.60	25.40	72.50	27.18	68.90	28.96
200.61	78.00	24.64	73.90	26.67	70.20	28.45
204.39	79.50	24.13	75.30	25.91	71.50	27.69
208.18	81.00	23.37	76.70	25.40	72.90	27.18
211.96	82.50	22.61	78.10	24.64	74.20	26.42
215.75	83.90	22.10	79.50	24.13	75.50	25.91
219.53	85.40	21.34	80.90	23.37	76.80	25.40
223.32	86.90	20.57	82.30	22.86	78.20	24.64
227.10	88.30	20.07	83.70	22.10	79.50	24.13

INSTALLATION

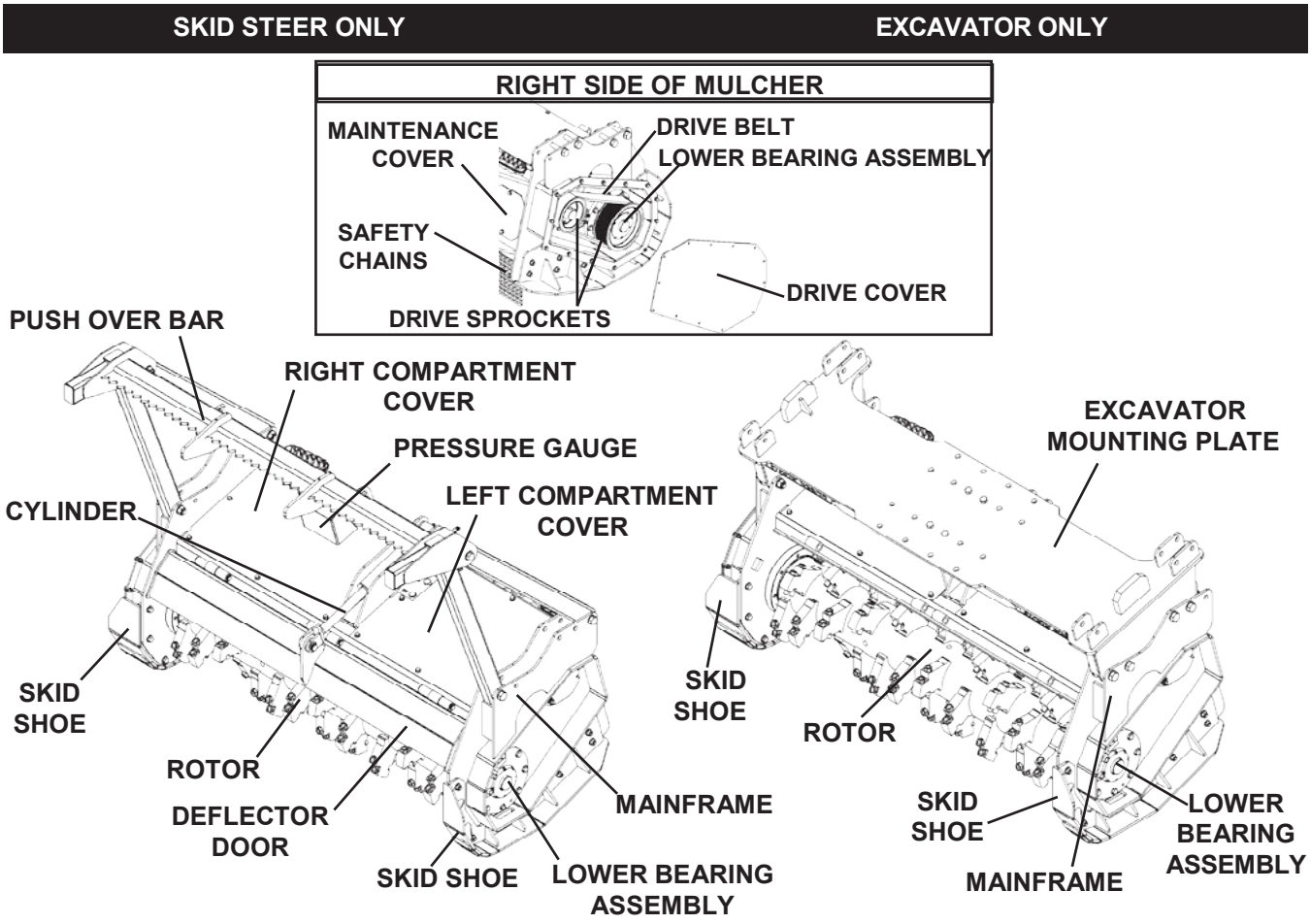
GENERAL INFORMATION

The DIGGA Series II Magnum Mulchers were designed to be easy to use and maintain. The 60” mulchers are available with skid steer only mounting, excavator only mounting or a combination mulcher that can be easily changed from skid steer mounting to excavator mounting. A special 60” mulcher is designed for a universal skid steer hitch forestry vehicle. When installing a hydraulic 3-line mulcher onto your prime mover a control box assembly #15754 or a pigtail adaptor harness for in-cab controls is required to operate the deflector door.

NOTICE: Do not operate the Digga Series II mulchers on standard flow hydraulic systems.

NOMENCLATURE

Throughout this manual, reference is made to various mulcher components. Study the following diagrams to acquaint yourself with the various names of these components. The combination mulcher is not shown but has components from both attachments shown below. This knowledge will be helpful when reading through this manual or when ordering service parts. There is a complete parts breakdown for each mulcher at the back of this manual.



INSTALLATION

NOTE: Before attaching the mulcher to your prime mover, make sure a forestry guard package has been installed onto the prime mover. This is required to protect the operator from possible thrown objects.

ATTACHING - UNIVERSAL SKID STEER MOUNTING

Install the DIGGA Series II Mulcher by following your prime mover operator's manual for proper installation of an attachment. When attaching the hoses to the prime mover, the case drain line ("CD" port) must be connected first, then the power ("P" port) and return ("T" port) hoses.

When disconnecting the hoses, it is recommended to disconnect the case drain line last. This will prevent any over pressurization of the motor case on the mulcher head. For operation of the deflector door on 3-line hydraulic mulcher, install control box #15754 to electrical harness on mulcher or install a pigtail adapter to adapt the wiring harness on the mulcher to your in-cab controls (if so equipped).

IMPORTANT: Over pressurization of motor case can be caused by a kinked or pinched hose, improper connection and obstruction or damaged coupler on the case drain line.
Make any necessary adjustments and/or reroute hoses before operating. Route hoses in such a fashion to prevent pinching or chafing.

WARNING! TO AVOID SERIOUS PERSONAL INJURY, MAKE SURE THE MULCHER IS

SECURELY LATCHED TO THE ATTACHMENT MECHANISM OF YOUR UNIT. FAILURE TO DO SO COULD RESULT IN SEPARATION OF THE ATTACHMENT FROM THE UNIT. CLEAR THE AREA OF ALL BYSTANDERS DURING INSTALLATION.

ATTACHING - EXCAVATOR

A separate mounting kit is required to install the DIGGA Series II Mulcher onto your excavator. Install the mounting bracket to the mulcher mounting plate. Install the mulcher to your excavator by following your prime mover operator's manual for proper installation of an attachment. When attaching the hoses to the excavator, the case drain line ("CD" port) must be connected first, then the power ("P" port) and return ("T" port) hoses. When disconnecting the hoses, it is recommended to disconnect the case drain line last. This will prevent any over pressurization of the motor case on the mulcher head.

NOTE: The case drain line must be installed from the mulcher head to the excavator hydraulic tank. The case drain line must be unrestricted all the way to the tank.

IMPORTANT: Over pressurization of motor case can be caused by a kinked or pinched hose, improper connection and obstruction or damaged coupler on the case drain line. Make any necessary adjustments and/or reroute hoses before operating. Route hoses in such a fashion to prevent pinching or chafing.

WARNING! TO AVOID SERIOUS PERSONAL INJURY, MAKE SURE THE MULCHER IS

SECURELY LATCHED TO THE ATTACHMENT MECHANISM OF YOUR UNIT. FAILURE TO DO SO COULD RESULT IN SEPARATION OF THE ATTACHMENT FROM THE UNIT. CLEAR THE AREA OF ALL BYSTANDERS DURING INSTALLATION.

INSTALLATION

ATTACHING - COMBINATION MULCHER

The combination mulcher can be mounted to a skid steer loader or excavator.

NOTE: The attachment ships skid steer ready. See “CHANGING COMBINATION MULCHER MOUNTING” for changing from skid steer mounting to excavator mounting and back again.

Install the mulcher to your skid steer or excavator by following your prime mover’s operator’s manual for proper installation of an attachment. When attaching the hoses, the case drain line (“CD” port) must be connected first, then the power (“P” port) and return (“T” port) hoses.
When disconnecting the hoses, it is recommended to disconnect the case drain line last. This will prevent any over pressurization of the motor case on the mulcher head.

NOTE: If installing onto an excavator the case drain line must be installed from the mulcher head to the excavator hydraulic tank. The case drain line must be unrestricted all the way to the tank.

IMPORTANT: Over pressurization of motor case can be caused by a kinked or pinched hose, improper connection and obstruction or damaged coupler on the case drain line. Make any necessary adjustments and/or reroute hoses before operating. Route hoses in such a fashion to prevent pinching or chafing.

WARNING! **TO AVOID SERIOUS PERSONAL INJURY, MAKE SURE THE MULCHER IS SECURELY LATCHED TO THE ATTACHMENT MECHANISM OF YOUR UNIT. FAILURE TO DO SO COULD RESULT IN SEPARATION OF THE ATTACHMENT FROM THE UNIT. CLEAR THE AREA OF ALL BYSTANDERS DURING INSTALLATION.**

DETACHING

On firm, level ground. Lower the mulcher to the ground. Follow your prime mover operator’s manual to relieve pressure in the hydraulic lines. Disconnect couplers. When disconnecting the hoses, it is recommended to disconnect the case drain line last. This will prevent any over pressurization of the motor case on the mulcher head.

NOTE: Connect couplers together or install dust caps and plugs to prevent contaminants from entering the hydraulic system. Store hoses on attachment off the ground.

Disconnect the auxiliary electrical connection or the control box from the prime mover and secure the wire harness to the attachment (if so equipped).Follow your prime mover operator’s manual for detaching (removing) an attachment.

WARNING! **CLEAR THE AREA OF ALL BYSTANDERS DURING REMOVAL.**

IMPORTANT: Disengage the auxiliary hydraulics, stop the engine, engage parking brake and remove key before leaving the operator’s station.

INSTALLATION

CHANGING COMBINATION MULCHER MOUNTING

The combination mulcher can be mounted to a skid steer loader or excavator with very few changes. The attachment ships skid steer ready.

TO CHANGE FROM SKID STEER LOADER TO EXCAVATOR MOUNTING:

1. Install the excavator mount(s).
2. Retract the cylinder and remove the deflector door.

NOTE: The cylinder can remain on the unit.

3. Disconnect electrical connection. (Disconnect mulcher electrical harness from control box #15754 or pigtail adaptor going to in-cab electrical outlet.)
4. Remove the push over bar.
5. Adjust motor displacement for correct rotor RPM. See Set-Up instructions.

TO CHANGE FROM EXCAVATOR MOUNTING TO SKID STEER LOADER MOUNTING:

1. Remove the excavator mount(s).
2. Install the deflector door.
3. Connect the cylinder to the deflector door.
4. Reinstall the push over bar using the existing hardware.
5. Reinstall electrical connection. (Connect mulcher electrical harness to control box #15754 or pigtail adaptor going to in-cab electrical outlet.)
6. Adjust motor displacement for correct rotor RPM. See Set-Up instructions.

OPERATION

INTENDED USE: This unit was designed to mulch brush and small trees (up to 8” in diameter), and mulching and/or mixing debris approximately 1.50” below ground level while traveling in forward or reverse. Use in any other way is considered contrary to the intended use.

GENERAL INFORMATION

The DIGGA Series II Mulchers are perfect for clearing tall weeds, heavy brush and hardwood tree’s up to 8” in diameter. There are three 60” models of the mulcher available, one attaches to the toolbar/quick-attach mechanism of your skid steer loader and forestry vehicle, one installs onto your excavator with the addition of a mounting kit and the third unit is a combination mulcher which is equipped for skid steer loaders and excavators. Read and understand your prime mover’s operator’s manual before attempting to use the mulcher. Follow the installation instructions for installing the mulcher onto your prime mover.

WARNING!  **BLOCK OFF THE WORK AREA FROM BYSTANDERS AND LIVESTOCK. FLYING DEBRIS CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. THE MULCHER IS CAPABLE OF PRODUCING LARGE AMOUNTS OF FLYING DEBRIS IN ALL DIRECTIONS. DO NOT OPERATE WITHOUT A FORESTRY GUARD PACKAGE INSTALLED ON YOUR PRIME MOVER. DO NOT ENGAGE OR DISENGAGE THE ROTOR WHILE THE ENGINE RPM’S ARE ABOVE A LOW IDLE.**

WARNING!  **BEFORE EXITING THE PRIME MOVER, ROLL THE ATTACHMENT BACK, LOWER IT TO THE GROUND, DISENGAGE AUXILIARY HYDRAULICS, ENGAGE PARKING BRAKE, TURN OFF THE ENGINE AND REMOVE THE KEY.**

CASE DRAIN

NOTE: The maximum case drain pressure is 50 psi. (345kPa)

The case drain hose coming from the mulcher to the prime mover must never become pinched, removed from the machine while in operation, or have any type of restriction at any time. Any quick connect fitting used on the case drain line should be bi-directional, with no check valve or flow restrictions. Any type of restriction in this line will cause severe hydraulic system damage and could void warranty. When connecting the mulcher onto your unit you should always connect the case drain line first, and when disconnecting the mulcher you should always disconnect the case drain line last.

NOTE: Oil leaking out of the optional case drain relief valve can be caused by a kinked hose, improper connection, obstruction or a damaged coupler on the case drain line. Make any necessary adjustments before operating the mulcher. If your unit is not equipped with an optional case drain relief valve, check for kinked hoses, improper connections, obstructions or damaged couplers before operating to prevent over pressurization of the motor case causing severe hydraulic system damage which is not covered by warranty.

OPERATION

PUSH OVER BAR

The push over bar is standard from the factory on all units except for the excavator models. The push over bar is used for pushing over brush, saplings and standing trees. When mulching the larger standing trees, you may need to tilt the mulcher back slightly to prevent bending of the push over bar as the mulcher progresses through the tree. Although the push over bar should never need adjusting, some operator's prefer to move the push over bar to the front position when mulching strictly brush and small saplings. The push over bar is easily adjusted by removing the two bolts at the back mounting ears. Move the bar to the desired location and reinstall the bolts. Torque to 250 ft. lbs.

HYDRAULIC DEFLECTOR DOOR

The hydraulic deflector door is used on all mulchers except when operating on an excavator. The deflector door is operated using the optional electrical control box, your skid steer loaders in-cab electrical controls. The deflector door is designed to deflect debris and mulched material towards the ground. Extreme caution should be used when operating this attachment and should never be used with bystanders or any other personnel present.

DANGER! **TO PREVENT PERSONAL INJURY OR DEATH. DO NOT OPERATE WITH BYSTANDERS OR OTHER PERSONNEL PRESENT. FLYING DEBRIS FROM THE FRONT OR REAR OF THE MACHINE IS POSSIBLE EVEN IF THE DEFLECTOR DOOR IS CLOSED.**

The deflector door can be open or closed when operating in either direction. However, we recommend that the door be open when operating in a forward motion with the mulcher engaged. This will prevent brush or standing trees from pushing on the deflector door and bending it in towards the rotor and therefore causing damage to the door and/or teeth. When traveling in reverse we recommend closing the deflector door to direct the debris and mulch down to the ground and produce a smooth clean looking finished product. Ultimately, safety is the responsibility of the operator and he should be aware of his surroundings at all times.

HYDRAULIC PRESSURE SITE GAUGE

The hydraulic pressure gauge on the skid steer loader and the combination models is visible from the operator's seat and will show the operator what the hydraulic system pressure is during operation of the mulcher. Each prime mover has a different maximum operating pressure and the operator should know what that is prior to operating the mulcher. As the gauge approaches the maximum pressure the operator should slow down the ground speed or raise the mulcher slightly so the unit is not operating at maximum operating pressure for an extended amount of time. Running the mulcher at maximum pressure levels can shorten the life of the hydraulic components. Operating the unit slightly below maximum pressure will create less heat and allow for better productivity and more efficient operation.

OPERATION

OPERATION

DANGER! **TO AVOID SERIOUS PERSONAL INJURY OR DEATH THE DIGGA MULCHER MUST NOT BE ATTACHED TO ANY PRIME MOVER THAT DOES NOT HAVE A FORESTRY GUARD PACKAGE INSTALLED**

Read and understand all warnings and precautions in this manual and on the machine before operating the mulcher. The Digga mulcher is relatively simple to use, and with the help of the information in this manual and a little practice you should become proficient in its operation and able to develop procedures suitable to your particular situation.

STARTING THE MULCHER

1. Start the attachment with the engine at an idle only.
2. Run the engine at an idle to warm hydraulic oil before accelerating to avoid hydraulic motor failure.
3. Engage high flow switch (if operating on a skid steer loader).

NOTE: The rotor will only turn in one direction. If rotor is not turning check for proper hydraulic hose hook up. (See Installation Instructions.) If you have the correct hydraulic hook up and rotor is still not turning, idle the engine all the way down as far as it will go and disengage the high flow switch. (You must never change the direction of the high flow switch while the rotor is in motion.) Failure to follow this shut down and restart procedure will cause severe damage to the hydraulic system of the attachment and void all warranties. Care must be taken when shutting the high flow switch to the off position not to inadvertently switch the direction of the flow to the attachment.

4. Check position of the deflector door (if so equipped) and push over bar. Make sure they are in the correct position for your prime mover and the job at hand.
5. Position the prime mover, check that all personnel and bystanders are out of the area, start rotor and increase engine speed.
6. Be sure the mulcher is operating smoothly at full throttle and then start forward travel while monitoring hydraulic pressure and rotor rpm.

NOTICE: Continual monitoring of hydraulic oil temperature and water temperature of the prime mover is required during mulcher operation. If temperature rises too high the mulcher must be removed from the brush/debris and the prime mover returned to an idle until it has cooled down sufficiently to continue operation.

STOPPING THE ROTOR

Disengage the rotor by first idling the engine all the way down and allow the rotor to slow down as far as it will go and then disengage the auxiliary hydraulics. Failure to follow this shut down procedure will cause severe damage to the hydraulic and drive systems of the attachment.

OPERATION

GENERAL OPERATING TIPS

DANGER! **WHEN OPERATING WITH A SKID STEER LOADER, NEVER RAISE THE MULCHER HIGH ENOUGH THAT YOU SEE THE SAFETY CHAINS. IF THE SAFETY CHAINS ARE VISIBLE DEBRIS CAN BE DISCHARGED BACK TOWARDS THE OPERATOR CAUSING SEVERE BODILY INJURY OR DEATH.**

GROUND SPEED: Ground speed can be determined by watching the pressure gauge and slowing down whenever the gauge approaches maximum operating pressure. Operating at ground speed that is too fast will cause the rotor to engage too much material and stall. As you slow down the ground speed and reduce the amount of material going through the mulcher the pressure gauge will go down.

NOTE: Excavator's must be stationary during mulching operations. Do not mulch while the excavator is in motion.

STALLING: If the attachment stalls, the operator will have to stop and remove the mulcher from the material and allow the rotor to regain speed. Slow down your ground speed to prevent further stalling on skid steer loader applications and reduce the load on the mulcher on excavator applications.

JAM: When a jam occurs, shut off the hydraulics. Move the mulcher to a clear area, set the mulcher down and drive in reverse to force the drum to rotate without hydraulics and therefore discharging the jam. Setting the center of the rotor down on a log or felled tree and driving in reverse will help to clear even the biggest jams.

BRUSH:
Skid Steer Loader: When clearing brush set the skid shoes down and travel forward through the brush at a pace that will not decrease the rotor rpm. Once you are completely through, stop and travel back over the brush in reverse. This will re-mulch the brush and produce a more finished surface.
Excavator: When clearing brush, start at the top and using a sweeping action, swing the unit back and forth through the brush while lowering at a pace that will not decrease the rotor rpm. Once you are completely through the brush, continue sweeping, this will re-mulch the brush and produce a more finished surface.

NOTE: Traveling too fast will not properly mulch the material.

TREES:

Skid Steer Loader: Start at the trunk with the mulcher tilted back slightly and the deflector door open (if so equipped). When you are half way through the tree, tilt the mulcher forward and use the push over bar to push the tree over. Grind down the remainder of the trunk to prevent the prime mover from getting "hung up". Position the mulcher on top of the tree and travel forward removing the limbs. Lower the unit and travel back and forth over each section of the trunk until gone. This may take many passes depending on the diameter of the tree.
Excavator: Start at a safe operating height for your excavator and cut off the top of the tree. Position the mulcher over the tree trunk and slowly lower the mulcher.

CAUTION! **TAKE EXTRA CARE WHEN MULCHING DEAD STANDING TREES. THERE IS A DANGER OF THE TOPS FALLING BACK ONTO THE OPERATOR'S CAB, CAUSING INJURY OR PROPERTY DAMAGE.**

GROUND MULCHING / MIXING: The mulcher head is capable of mulching and mixing debris approximately 1.50" below ground level. Keep in mind that excessive ground engaging will rapidly decrease the life of the cutting teeth, sometimes up to as much as 50%. When doing excessive ground engaged mulching, inspect the cutting teeth more often to ensure the teeth are not worn to the point that the holders are wearing down also.

OPERATION

STORAGE

- Clean the unit thoroughly, removing all mud, dirt, and grease.
- Inspect for visible signs of wear, breakage or damage. Order any parts required and make the necessary repairs to avoid delays upon removal from storage.
- Tighten loose nuts, cap screws and hydraulic connections.
- Coat exposed portions of the cylinder rods with grease (if so equipped).
- Seal hydraulic system from contaminants and secure all hydraulic hoses off the ground to help prevent damage.
- Replace decals that are damaged or in unreadable condition.
- Store unit in a dry and protected place. Leaving the unit outside will materially shorten its life.

NOTE: When placing into storage for two months or more, change oil in overhung load adapter. See Maintenance instructions.

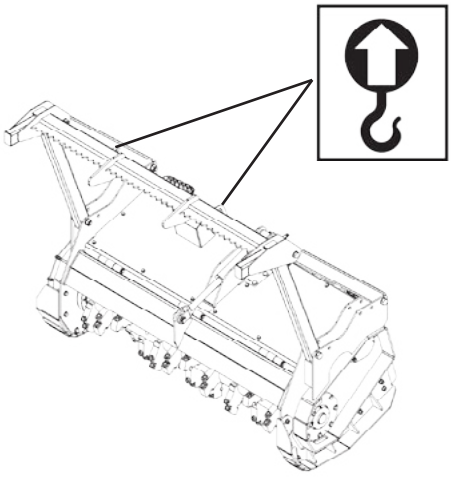
NOTE: Additional precautions for long term storage would be to touch up all unpainted surfaces with paint to prevent rust.

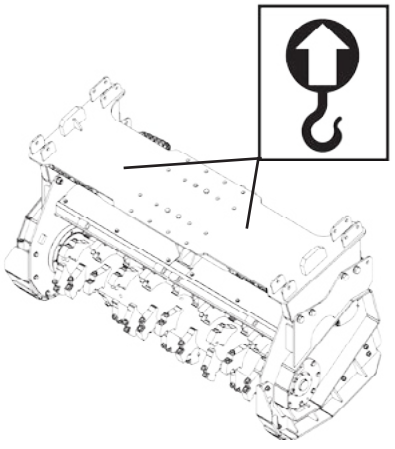
REMOVAL FROM STORAGE

- Wash unit and replace any damaged and/or missing parts that were not already replaced.
- Check hydraulic hoses for damage and replace as necessary.

LIFT POINTS

Lifting points are identified by lifting decals where required. Lifting at other points is unsafe and can damage attachment. Do not attach lifting accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram





LIFT EXCAVATOR MULCHERS BY THE BRIDGE PLATE OR EXCAVATOR MOUNT

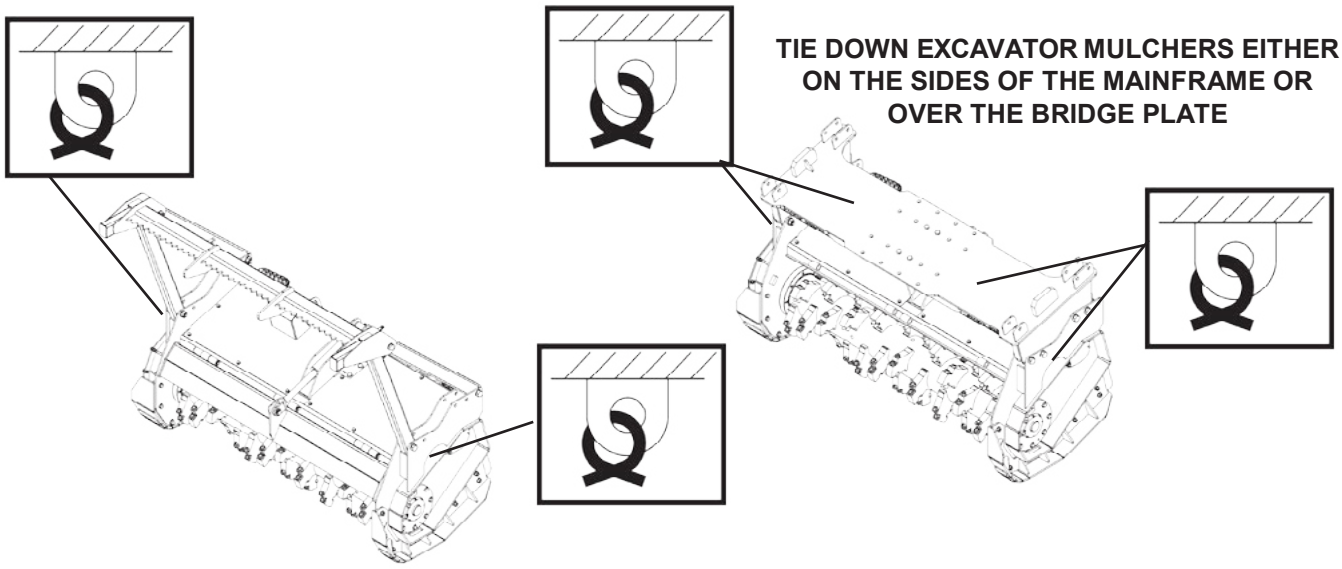
- Attach lifting accessories to unit at recommended lifting points.
- Bring lifting accessories together to a central lifting point.
- Lift gradually, maintaining the equilibrium of the unit.

OPERATION

WARNING! USE LIFTING ACCESSORIES (CHAINS, SLINGS, ROPES, SHACKLES AND ETC.) THAT ARE CAPABLE OF SUPPORTING THE SIZE AND WEIGHT OF YOUR ATTACHMENT. SECURE ALL LIFTING ACCESSORIES IN SUCH A WAY TO PREVENT UNINTENDED DISENGAGEMENT. FAILURE TO DO SO COULD RESULT IN THE ATTACHMENT FALLING AND CAUSING SERIOUS PERSONAL INJURY OR DEATH.

TIE DOWN POINTS

Tie down points are identified by tie down decals where required. Securing to trailer at other points is unsafe and can damage attachment. Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram



- Attach tie down accessories to unit as recommended.
- Check unit stability before transporting.

WARNING! VERIFY THAT ALL TIE DOWN ACCESSORIES (CHAINS, SLINGS, ROPES, SHACKLES AND ETC.) ARE CAPABLE OF MAINTAINING ATTACHMENT STABILITY DURING TRANSPORTING AND ARE ATTACHED IN SUCH A WAY TO PREVENT UNINTENDED DISENGAGEMENT OR SHIFTING OF THE UNIT. FAILURE TO DO SO COULD RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

TRANSPORTING

Follow all local government regulations that may apply along with recommended tie town points and any equipment safety precautions at the front of this handbook when transporting your attachment.

MAINTENANCE & SERVICE

GENERAL INFORMATION

Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to an absolute minimum. However it is very important that these maintenance functions be performed as described below.

WARNING! NEVER DO ANY MAINTENANCE TO THE MULCHER WHILE IT IS RUNNING. EXERCISE THE MANDATORY SAFETY SHUTDOWN PROCEDURE BEFORE WORKING ON OR AROUND THE MULCHER.

Procedure	Daily	Every 40 Hours	Every 120 Hours	Every 200 Hours	Every 1000 Hours
Case Drain Coupler - Check for complete engagement of coupler.	✔				
Check for kinked or pinched hoses. Reroute as required.	✔				
Hydraulic Oil - Check prime mover hydraulic system for adequate oil levels.	✔				
Hardware - Check for tightness (see Bolt Torque Specifications)	✔				
Hardware - Replace any missing or damaged bolts or nuts with approved replacement parts.	✔				
Hydraulic System - Check for leaks and tighten as necessary. Check for damage and replace as needed.	✔				
Decals - Check for missing or damaged safety decals and replace as necessary.	✔				
Teeth - Replace worn, damaged or missing teeth.	✔				
Inspect attachment for any worn parts or cracked welds. Repair as required.	✔				
Clean rotor of any accumulated debris and dirt.	✔				
Clean internal mulcher compartments, including drive belt housing area.		✔			
Check drive belt tension.			✔		
Check oil level in overhung load adapter. (See maintenance instructions.)			✔		
Lubricate rotor bearings 2-3 pumps. ***Over lubricating will cause premature bearing failure.***				✔	
Change oil in overhung load adapter. (See maintenance instructions.)					✔

IMPORTANT: When replacing parts, use only factory approved replacement parts. The Manufacturer will not claim responsibility for use of unapproved parts or accessories and or other damages as a result of their use.

MAINTENANCE & SERVICE

BREAK-IN PERIOD

Procedure	After First 8 Hours	After First 16 Hours	After First 40 Hours	After First 120 Hours
Check drive belt tension.	✔	✔	✔	✔
Check torque on taper-lock bushing set screws. (#113757 to 67 ft. lbs. and #113594 to 84 ft. lbs.)	✔			✔
Change oil in overhung load adapter.				✔

NOTE: Repeat Break-In Period whenever belt, sprockets or overhung load adapter is replaced.

LUBRICATION SPECIFICATIONS

Lower bearings	NLGI grade 2 lithium grease without graphite or molybdenum additives.
Overhung load adapter	Synthetic ISO 150 gear lube without graphite or molybdenum additives. (approximately 16 oz. capacity)

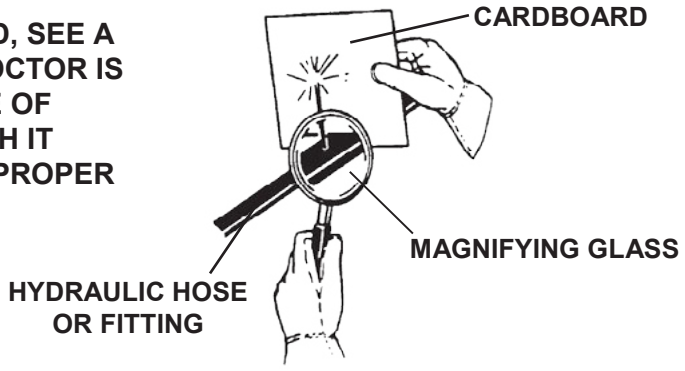
LUBRICATING LOWER BEARINGS
Lubricate lower bearings with 2-3 pumps of grease every 200 hours. Over lubricating will cause premature bearing failure.

NOTE: The right bearing lubrication fitting is located on the top of the drive belt housing compartment along with a grease relief vent plug. The left bearing lubrication fitting is located on the bearing housing along with a grease relief vent plug. Normal pressure build-up during operation may result in grease escaping from relief vent plugs. Continue lubricating at specified intervals.

WARNING! **ESCAPING FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE THE SKIN, CAUSING SERIOUS PERSONAL INJURY. FLUID ESCAPING FROM A VERY SMALL HOLE CAN BE ALMOST INVISIBLE. USE A PIECE OF CARDBOARD OR WOOD, RATHER THAN HANDS, TO SEARCH FOR SUSPECTED LEAKS.**

KEEP UNPROTECTED BODY PARTS, SUCH AS FACE, EYES, AND ARMS AS FAR AWAY AS POSSIBLE FROM A SUSPECTED LEAK. FLESH INJECTED WITH HYDRAULIC FLUID MAY DEVELOP GANGRENE OR OTHER PERMANENT DISABILITIES.

IF INJURED BY INJECTED FLUID, SEE A DOCTOR AT ONCE. IF YOUR DOCTOR IS NOT FAMILIAR WITH THIS TYPE OF INJURY, ASK HIM TO RESEARCH IT IMMEDIATELY TO DETERMINE PROPER TREATMENT.



MAINTENANCE & SERVICE

WARNING! **BEFORE PERFORMING MAINTENANCE OR SERVICE LOWER THE ATTACHMENT TO THE GROUND, DISENGAGE AUXILIARY HYDRAULICS, TURN OFF THE ENGINE, REMOVE THE KEY AND APPLY THE BRAKES.**

WARNING! **NEVER PERFORM ANY WORK ON THIS ATTACHMENT UNLESS YOU ARE AUTHORIZED AND QUALIFIED TO DO SO. ALWAYS READY THE OPERATOR'S MANUALS BEFORE ANY REPAIR IS MADE. AFTER COMPLETING MAINTENANCE OR SERVICE, CHECK FOR CORRECT FUNCTIONING OF THE ATTACHMENT. IF NOT FUNCTIONING PROPERLY, ALWAYS TAG "DO NOT OPERATE" UNTIL ALL PROBLEMS ARE CORRECTED.**

REPLACING TEETH

Worn, broken or missing teeth will cause excessive machine vibration and reduce productivity. It is important that all teeth are attached properly. Double sided, reversible teeth can be rotated when worn or if carbide points are broken or missing.

1. Remove existing tooth.
2. Check to make sure the mounting surface and bolt holes are clean and free of debris. Any accumulation of debris can cause the tooth not to seat properly in the slot resulting in unsafe operation.
3. Position the new tooth onto the holder and after both bolts have been started, push the tooth up into the mounting slot and tighten with an impact wrench. Torque to 150 ft.lbs.

NOTE: Replace any damaged bolts. Always replace lock washers when installing a new tooth. Install washers with the side that is higher in the center towards the bolt head.

NOTICE: Failure to start both bolts into the tooth first before tightening a bolt, can bind the other bolt, and damage the bolt and possibly the cutting tooth, rendering the tooth and bolt unusable.

WARNING! **IMPROPER MOUNTING CAN VOID WARRANTY AND CAUSE SERIOUS INJURY AND/OR DEATH. USE ONLY MANUFACTURER REPLACEMENT PARTS.**

DRIVE BELT TENSIONING AND/OR REMOVAL

Due to thermal expansion of the sprockets during operation the belt tension will vary between a cold unit and one that has just been in operation. We recommend checking tension after operation when the belt and sprockets are still warm. Although there are various ways of checking belt tension we recommend using a single barrel (pencil type) belt tension tester which can be purchased locally.

CAUTION! **DUE TO THE HOT TEMPERATURES OF THE COMPONENTS WHEN CHECKING THE BELT TENSION ON A MULCHER THAT HAS BEEN IN OPERATION, GLOVES ARE REQUIRED TO PREVENT PERSONAL INJURY.**

CHECKING BELT TENSION

1. Remove the belt tension access cover from the top of the drive housing or the drive belt cover from the side of the drive housing to check belt tension. Depending on the type of tension tester being used. See tension chart.
2. If using a pencil type tension tester, insert through hole in top of drive housing compartment and check belt tension. Check belt tension half way between the two sprockets and in the center of the belt. See tension chart.

MAINTENANCE & SERVICE

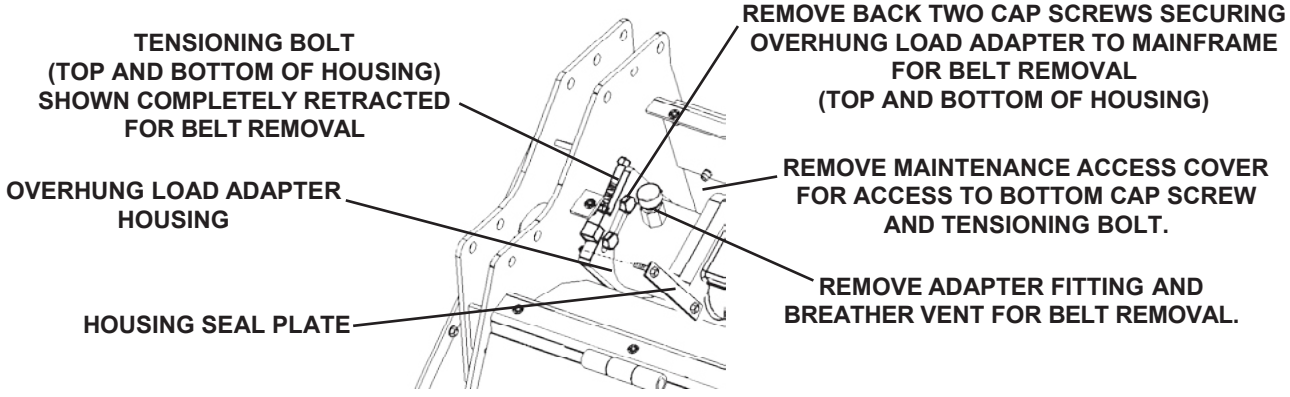
NOTE: Belt tension should be checked in four places evenly spaced around one full rotor rotation. Take the average of the four readings. Test the tension of the belt by checking the deflection in the belt halfway between the two sprockets. A new belt on a standard mulcher should not move more than 6.35mm with 24.95 kg of pressure (when warm) or 15.87 kg of pressure (when cold).

MODELS	NEW BELT		USED BELT (24 + HOURS OF USE)	
	WARM TENSION	COLD TENSION (21°C)	WARM TENSION	COLD TENSION (21°C)
ALL STANDARD 60" MULCHERS (NOT INCLUDING FORESTRY MULCHERS)	90-94 HZ	65-69 HZ	77-82 HZ	49-54 HZ
	6.35mm Deflection @ 24.04-25.85 kg	6.35mm Deflection @ 15.42-16.78 kg	6.35mm Deflection @ 19.5-20.86 kg	6.35mm Deflection @ 9.98-11.34 kg
	3.81mm Deflection @ 12.25-13.61 kg	4.76mm Deflection @ 9.97-10.89 kg	3.81mm Deflection @ 9.53-10.43 kg	4.76mm Deflection @ 5.44-6.35 kg
60" FORESTRY MULCHERS ONLY	115-120 HZ	72-77 HZ	98-104 HZ	60-65 HZ
	6.35mm Deflection @ 39.83-38.55 kg	6.35mm Deflection @ 17.69-19.05kg	6.35mm Deflection @ 27.67-30.39 kg	6.35mm Deflection @ 12.70-14.52 kg
	2.54mm Deflection @ 12.25-13.61 kg	4.76mm Deflection @ 11.79-13.15 kg	3.18mm Deflection @ 11.79-13.15kg	4.76mm Deflection @ 8.62-9.98 kg

ADJUSTING BELT TENSION AND/OR REMOVAL

1. Remove the drive belt cover, top right compartment cover and right maintenance access cover on the back of the mulcher.

NOTE: Either support the top right cover to prevent strain on the gauge hose or be sure that there is no pressure in the system and disconnect the hose going to the gauge from the motor. (If so equipped.)



2. After testing the tension of the belt (See "CHECKING BELT TENSION") loosen the two cap screws on the housing seal plate (completely remove seal plate for belt removal) and the four cap screws securing the overhung load adapter to the mainframe.
3. Back off the hex nuts on the top and bottom tensioning bolt. If adjusting belt tension go to Step #9. Go to Step #4 to remove drive belt.
4. Clean area around breather vent and fitting on overhung load adapter assembly. Remove adapter fitting and vent and plug housing port to prevent contaminants from entering the system.
5. Remove the back two cap crews (one on top and bottom) that secure the overhung load adapter to the mainframe.

6. Back off the hex nuts on the top and bottom tensioning bolts and rotate the tensioning bolts counter-clockwise to allow approximately 38.1mm forward travel of the overhung load adapter.
7. Slide overhung load adapter and motor forward to remove tension from drive belt. Remove belt from sprockets.

   NOTE: Do not force the drive belt off sprocket flanges as belt damage can occur.

8. Install new belt and position overhung load adapter and motor to approximate location when belt was tensioned and reinstall the two back cap screws securing the overhung load adapter to the mainframe. Reinstall the breather vent and adapter fitting to the overhung load adapter. Adjust belt tension using cold tension specifications.
9. The two tensioning bolts take a 3/8" allen wrench to adjust. Adjust the belt tensioning bolts alternately until the proper tension is achieved. Turn the tensioning bolts clockwise to increase belt tension and counter-clockwise to decrease belt tension.
10. Retighten the cap screws securing the overhung load adapter to the mainframe.
11. Recheck belt tension and adjust as required.
12. Once the proper tension has been achieved, torque the cap screws securing the overhung load adapter to the mainframe. Torque to 250 ft. lbs.
13. Check to ensure the tensioning bolts are snug and then tighten the hex nuts.
14. Install the housing seal plate so that it is against the overhung load adapter and tighten cap screws.

NOTE: Housing seal plate is in place to minimize debris from entering the drive belt compartment and therefore reducing belt life.

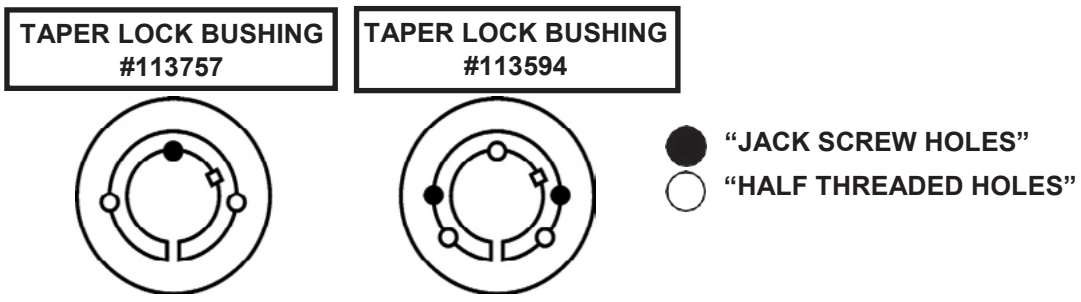
15. Install drive belt cover and maintenance access cover using existing hardware.
16. If so equipped, reconnect the gauge hose if removed and reinstall the top right compartment cover.

NOTE: Belt damage can occur if belt is too loose, too tight or if debris is present. Do not operate without drive cover installed.

SPROCKET REMOVAL AND INSTALLATION

TAPER LOCK BUSHING IDENTIFICATION AND ORIENTATION

When replacing sprockets, it is recommended to update both sprockets at the same time.



REMOVAL

1. Remove the drive belt. See "DRIVE BELT TENSIONING AND/OR REMOVAL"
2. Loosen the taper lock assembly (bushing) in the sprocket by removing all mounting screws.
3. Insert screws into all jack screw holes indicated in the diagram for the Taper Lock Bushing for your mulcher.
4. Loosen the bushing by alternately tightening the screws in small but equal increments until the taper sprocket and bushing surfaces disengage.

MAINTENANCE & SERVICE

INSTALLATION

1. Position the overhung load adapter housing, in approximately the same location it was in before the belt was removed, and tighten all four of the .75” cap screws on the overhung load adapter to ensure proper alignment of the shaft and housing.

NOTE: The overhung load adapter housing must be properly seated flat against the mainframe of the mulcher for proper alignment of the sprockets. If there are any gaps along this surface, remove the housing and clean any debris from the surface. Reinstall and tighten.

2. The taper lock bushing assembly needs to be reassembled for proper installation. DO NOT use “Never Seize” on bushing or bolts.
3. Clean the shaft, bore of bushing, outside of bushing and the sprocket hub bore of all oil, paint and dirt. File away any burrs.

NOTE: The use of lubricants can cause sprocket breakage. Use no lubricants in this installation.

4. Insert the bushing into the sprocket hub. Match the hole pattern, not the threaded holes (each complete hole will be threaded on one side only.)
5. LIGHTLY oil the set screws and thread them into the half-threaded holes indicated on the diagram.

NOTE: Do not lubricate the bushing taper, hub taper, bushing bore or the shaft. Doing so could result in sprocket breakage.

NOTE: If both sprockets were removed, install the larger driven sprocket first making sure that it will clear the grease lines and drive belt cover.

6. With the key in the shaft keyway, position the assembly onto the shaft allowing for small (.03” - .06”) axial movement of the sprocket, towards the outside of the unit, which will occur during the tightening process. Make certain the shaft is completely through the bushing.

NOTE: If the locking assembly will not slide onto the shaft, you may have the locking assembly too tight or you may need to drive a wedge into the slot of the taper lock bushing which will therefore increase the bushing bore.

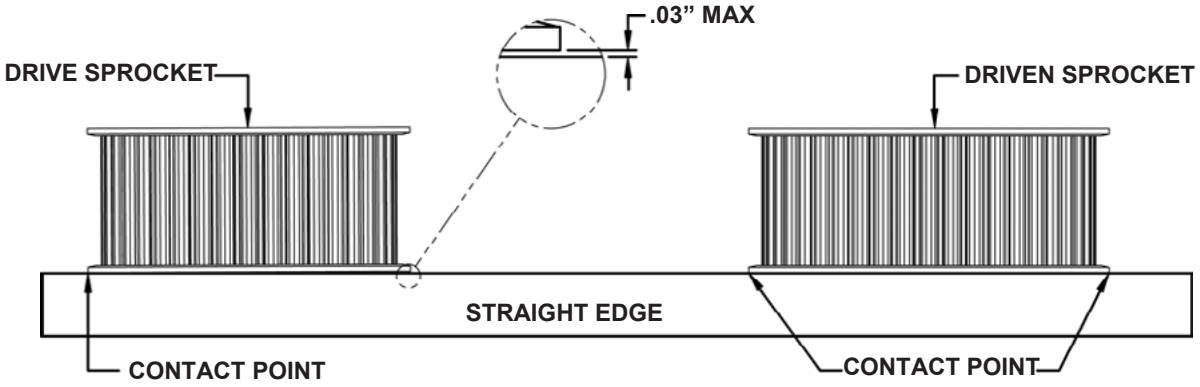
7. Alternately tighten the set screws until the sprocket and taper lock bushing are seated together. Apply only enough torque to the set screws so that the sprocket and taper lock bushing will slide on the shaft for alignment purposes.

NOTE: Do not use worn hex key wrenches. Doing so may result in a loose assembly or may damage screws.

8. If both sprockets were removed, install the second one using the same procedure.
9. Align the sprockets using a straight edge. The outside edge of both sprockets must be aligned. Torque the set screws to approximately one-half of the recommended torque to lock the bushings onto the shaft. See torque table on the following page. Recheck sprocket alignment.

NOTICE: Failure to align the sprockets correctly will decrease the life of the belt.

10. Install the drive belt and tension just enough to prevent the sprockets from rotating.



NOTICE: Never force the belt over the sprocket flange as internal damage to the belt will occur.

11. Continue to alternate tightening of the cap screws on the bushings to the recommended torque value shown in table.
12. To increase the bushing gripping force, hammer the face of the bushing using a drift or sleeve (do not hit the bushing directly with the hammer).
13. Re-torque the bushing screws after hammering.
14. Recheck all screw torque values after the initial drive run-in, and periodically thereafter. Tighten as required.
15. Follow instructions for retensioning the drive belt and cover installation. See "DRIVE BELT TENSIONING AND/OR REMOVAL".

BUSHING	BOLTS		TORQUE WRENCH	
PART NUMBER	QTY	SIZE	LBS - FT.	LBS - IN.
113757	2	.62" UNC X 1.25"	66.7	800
113594	3	.50" UNC X 1.50"	83.3	1000
NOTICE: Excessive bolt torque can cause sprocket and/or bushing breakage. **NOTE:** To insure proper bushing/sprocket performance, full bushing contact on the shaft is recommended.				

ROTOR REMOVAL AND INSTALLATION

An overhead hoist is required when removing or servicing the rotor.

WARNING! **BEFORE REMOVAL OF THE LOWER BEARING ASSEMBLIES IN PREPARATION OF REMOVING OR SERVICING THE ROTOR, DISCONNECT THE MULCHER FROM THE PRIME MOVER AND POSITION THE MULCHER FLAT ON THE UNIVERSAL SKID STEER HITCH.**

1. Support the rotor with the overhead hoist.

WARNING! **USE LIFTING ACCESSORIES (CHAINS, SLINGS, ROPES, SHACKLES AND ETC.) THAT ARE CAPABLE OF SUPPORTING THE SIZE AND WEIGHT OF THE ROTOR. SECURE ROTOR IN SUCH A WAY TO PREVENT UNINTENDED DISENGAGEMENT. FAILURE TO DO SO COULD RESULT IN THE ROTOR FALLING AND CAUSING SERIOUS PERSONAL INJURY OR DEATH.**

2. Follow Steps #1 through #8 under "REPLACING AND/OR SERVICING THE LOWER BEARINGS".

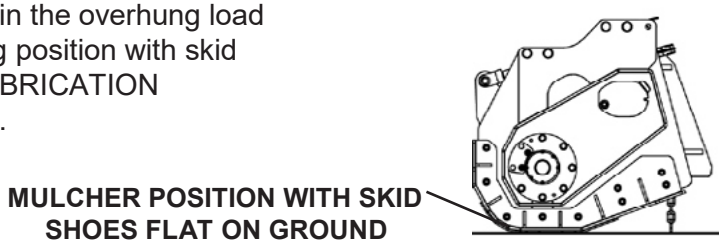
3. Remove the right and left skid shoes along with the left side filler plate.
4. Remove the dirt rings by removing the four .25” flat head screws.
5. With the dirt rings free to “float”, begin rotor removal by first gently swinging the left end of the rotor through the slot in the mulcher mainframe. With the left end of rotor free from the mainframe, pull right side of rotor out of mainframe, completely freeing the rotor from the mainframe.

NOTICE: Be careful not to let rotor shaft ends come into contact with the mainframe which could cause damage to the rotor shaft threads or create dents or burrs in the shaft.

6. Reverse process for installing the rotor back into the mainframe.
7. Follow Steps #15 and #17 through #25 under “REPLACING AND/OR SERVICING THE LOWER BEARINGS”.

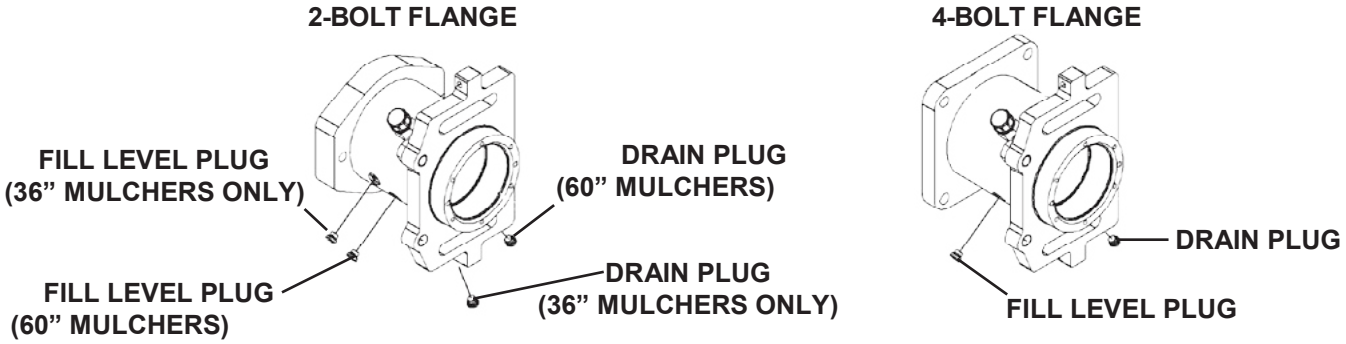
CHECKING AND/OR CHANGING OIL IN OVERHUNG LOAD ADAPTER

Before checking, adding or changing the oil in the overhung load adapter, mulcher must be sitting in operating position with skid shoes flat on the ground as shown. See “LUBRICATION SPECIFICATIONS” for oil type and capacity.



CHECKING AND/OR ADDING OIL

1. Remove right side maintenance cover from the back of the mulcher. Clean around the appropriate fill level plug and remove plug. Check to make sure oil level is at fill level plug.



NOTICE: The Overhung Load Adapter assembly is a sealed system. If oil level is low, check all seals for damage.

2. If oil is required, replace fill level plug and remove the top right compartment cover. Clean around vent breather cap to prevent contaminants from entering the bearing assembly, and remove cap.
3. Add oil. (See Lubrication Specifications)
4. Wait a few minutes to allow oil to settle, filling all voids of the overhung load adapter assembly. Place a container below the fill level plug and remove the fill level plug, allowing all excess oil to drain into the container.

NOTICE: Do not over lubricate the overhung load adapter assembly as this will cause excess heat generation and all excess oil will be purged from the breather cap.

5. Replace fill level plug, vent breather cap and all covers.

CHANGING OIL

To maximize the life of the overhung load adapter bearings, it is recommended to change oil after the initial 120 hours of operation of a new mulcher or replacement overhung load adapter assembly. Follow maintenance schedule after the break in period as oil will break down over time.

NOTICE: Oil should be drained while it is warm and therefore has a low viscosity. If changing oil after the mulcher has been in operation, allow time for the oil and housing to cool down. If changing oil prior to operating, engage mulcher hydraulics at a low engine idle and run for approximately 5 minutes to warm the oil. Take extra precautions to avoid burns when doing maintenance on a mulcher after it has been in operation. Components can be very hot.

1. Remove right side maintenance cover from the back of the mulcher and top right compartment cover.
2. Clean around the appropriate drain plug and vent breather cap and then remove the vent breather cap. (Removing the vent breather cap will allow the oil to drain faster.)
3. Place a container under the drain plug to catch the oil and then remove the drain plug. Allow time for all oil to drain from the overhung load adapter and then reinstall the drain plug.
4. Add approximately 16 oz. of recommended oil (See Lubrication Specifications). Wait a few minutes to allow oil to settle, filling all voids of the overhung load adapter assembly. Place a container below the fill level plug and remove the fill level plug, allowing all excess oil to drain into the container.

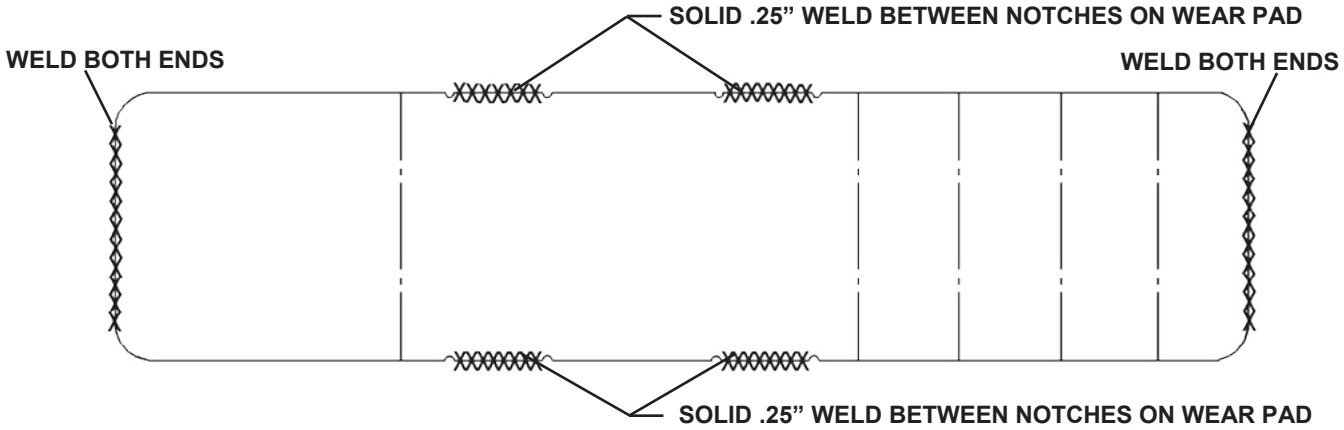
NOTICE: Do not over lubricate the overhung load adapter assembly as this will cause excess heat generation and all excess oil will be purged from the breather cap.

5. Replace fill level plug, vent breather cap and all covers.

REPLACING SKID SHOE WEAR PADS

The weld-on wear pads on your mulcher left and right skid shoe is replaceable. Refer to the parts diagram for your mulcher to order replacement wear pads.

1. Position the mulcher in a well ventilated area and remove the skid shoe(s) from the mainframe.
2. Remove any existing wear pad that is still on the skid shoe along with any paint that is around the weld area. Follow all safety precautions listed in the front of this manual for removing paint before welding.
3. Position the new wear pad onto the skid shoe. Place a .25” weld at the locations shown on the diagram below.



4. Prime and paint the new wear pad and skid shoe.
5. Reinstall skid shoe onto mainframe using existing hardware.

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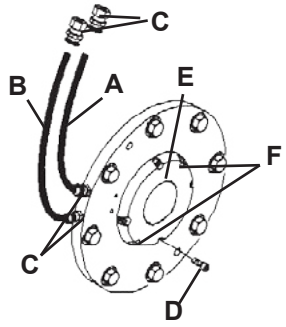
WARNING! **BEFORE PERFORMING MAINTENANCE OR SERVICE, LOWER THE ATTACHMENT TO THE GROUND, DISENGAGE AUXILIARY HYDRAULICS, TURN OFF THE ENGINE, REMOVE THE KEY AND APPLY THE BRAKES.**

WARNING! **NEVER PERFORM ANY WORK ON THIS ATTACHMENT UNLESS YOU ARE AUTHORIZED AND QUALIFIED TO DO SO. ALWAYS READ THE OPERATOR'S MANUAL BEFORE ANY REPAIR IS MADE. AFTER COMPLETING MAINTENANCE OR SERVICE, CHECK FOR CORRECT FUNCTIONING OF THE ATTACHMENT. IF NOT FUNCTIONING PROPERLY, ALWAYS TAG "DO NOT OPERATE" UNTIL ALL PROBLEMS ARE CORRECTED.**

REPLACING AND/OR SERVICING THE LOWER BEARINGS

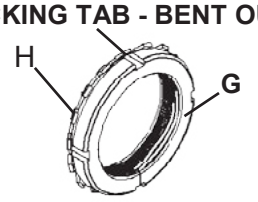
An overhead hoist and the optional bearing socket assembly #116125 is recommended when servicing the lower bearing assemblies.

RIGHT LOWER BEARING ASSEMBLY



1. Remove the drive belt. (Right side bearing only.) See "DRIVE BELT TENSIONING AND/OR REMOVAL"
2. Remove the lower sprocket on rotor shaft. (Right side bearing only.) See "SPROCKET REMOVAL AND INSTALLATION".
3. Disconnect grease line (A) and relief line (B). (Right side bearing only.) (Push gray extrusions on straight connector's (C) inward while pulling hose lines outward.) Plug or cap fittings and hoses to prevent contaminants from entering the lubrication system.
4. Remove the four socket head cap screws (D) and the outer seal cap (E). (You may have to install two of the socket head cap screws into the push off holes (F) to remove the outer seal cap.)

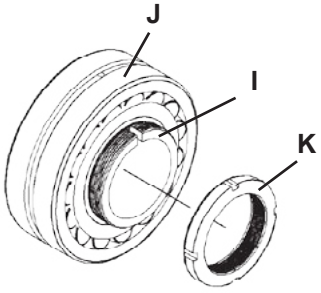
LOCKING TAB - BENT OUT



5. Clean any visible grease from the lower bearing assembly.
6. Remove the bearing lock nut (G) and bearing lock washer (H).

NOTE: Be sure the rotor is properly supported before lower bearing removal. The locking tab must be bent out of the bearing lock nut (G) prior to removal of the nut. Failure to bend out the locking tab can result in damaging the locking washer (H).

7. It is recommended to use the bearing lock nut provided in the bearing socket assembly #116125 to remove the withdrawal sleeve (I) which is locking the bearing (J) to the rotor shaft. Install the bearing lock nut (K) with the chamfer side of the lock nut towards the bearing to prevent damage. Tighten the lock nut (K) onto the withdrawal sleeve
(I) Using the bearing socket and a .75" drive ratchet or breaker bar to "pull" the withdrawal sleeve out of the bearing inner race. Do not completely remove the withdrawal sleeve from the bearing.



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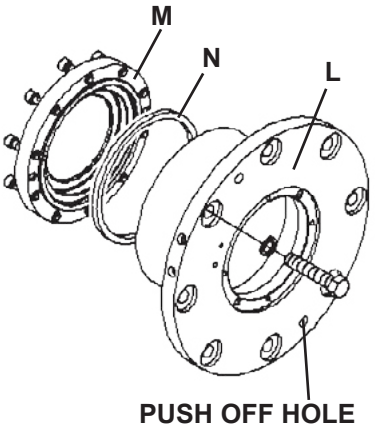
8. Remove the eight .50” cap screws from the bearing housing (L) and install two of them into the push off holes to aid in the removal of the bearing housing. Remove the bearing housing.



PUSH OFF HOLE

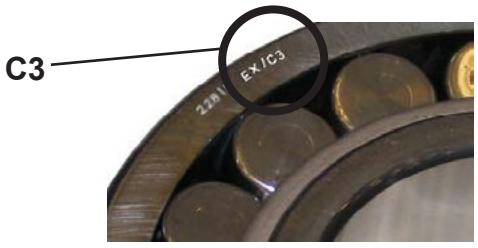
NOTE: When removing the cap screws on the left lower bearing housing the grease fitting protection guard will also be removed.

9. Remove the ten socket head cap screws from the inner seal cap (M) and remove the inner seal cap and spacer ring (N - right side bearing only).

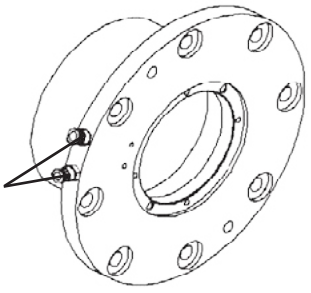
NOTE: Two of the cap screws may need to be installed into the push off holes in the inner seal cap for removal.

10. Slide or press the bearing out the back of the housing (L).
11. Inspect the inside of the bearing housing, the withdrawal sleeve and rotor shaft for defects, such as burrs, worn surfaces or any surface imperfections. Inspect the rotor shaft seals for damage.

NOTE: It is recommended to replace rotor shaft seals when replacing bearings.



LOWER RIGHT BEARING IDENTIFICATION


LOWER RIGHT HOUSING IDENTIFICATION

NOTICE: Although the left and right bearings look alike they are different. Be sure to identify and install the correct bearing during replacement. The right side bearing #600-158 will have a “C3” on the bearing rim while the left bearing #115439 will not. All other identification marks, letters and numbers are related to manufacturer and do not have any significance in distinguishing between the two bearings. Take extra care to install the correct bearing into the correct housing. The right bearing housing will have the grease and relief ports on the outside flange diameter of the housing while the left side bearing housing will have the grease and relief ports on the outside flange face of the bearing housing.

12. Clean all lower bearing components and rotor shaft, removing all grease and contaminants. Apply a light coat of machine oil to the inside of the bearing housing and install the new bearing with the smaller side of the taper in the bearing inner race to the inside of the housing. Check diagram for correct bearing orientation.
    a. Position the bearing as straight as possible with the bearing housing.
    b. Position a tube over the bearing, contacting the outer race of the bearing only, and lightly tap until the bearing is aligned with the housing.
    c. Once alignment has been achieved the left side bearing will easily slide into place while the right side bearing will need a press. Ensure right bearing is fully seated into the housing.

NOTE: Apply force to the outer race of the bearing only to prevent damage.

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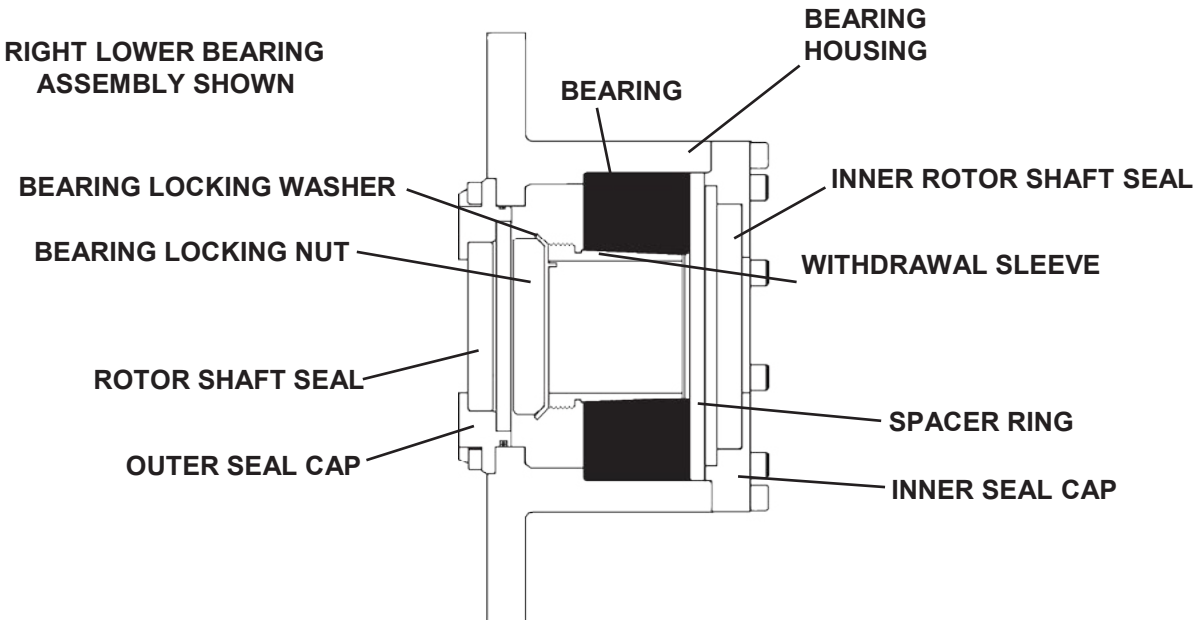
13. Pack the bearings with grease and install the bearing spacer ring (right lower bearing assembly only).
14. Apply a light film of grease to the inside of both seal cap shaft seal bores and install the rotor shaft seals.

NOTE: Apply force to the outer rim of the rotor shaft seals to prevent seal damage.



15. Apply light film of grease between the dual lips of the inner rotor shaft seals and on the rotor shaft itself where the shaft seal will be located taking extra care not to apply too much. Excessive grease will be wiped off of the seal during installation onto the rotor shaft and become trapped between the bearing inner race and the shoulder on the rotor shaft. This can wear away during operation resulting in a loose bearing.
16. Position the inner seal cap onto the housing with the push off holes aligned with the counter bore holes in the housing to prevent damage during future maintenance. Install the inner seal cap using the existing cap screws and loctite 271. Torque to 25 ft. lbs.
17. Clean the inner bore surfaces of the bearing of all protective oil coating and apply a light coat of machine oil to the inner race of the bearing and all surfaces of withdrawal sleeve and rotor shaft. Loosely install the withdrawal sleeve into the bearing.
18. Position the bearing assembly onto the rotor shaft and secure in place using the existing .50” hardware and loctite 271. Check that the left and right lower bearing assemblies are correctly oriented and that the grease fitting guard is reinstalled onto the left lower bearing assembly with the 3.00” long cap screws. Torque all cap screws to 80 ft. lbs.
19. Install the bearing lock washer. Apply a coat of machine oil to the threads on the bearing lock nut and install the lock nut onto the rotor shaft. Lightly torque to approximately 50 ft. lbs.

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NOTE: Tighten the right side bearing lock nut first since it provides axial location of rotor.

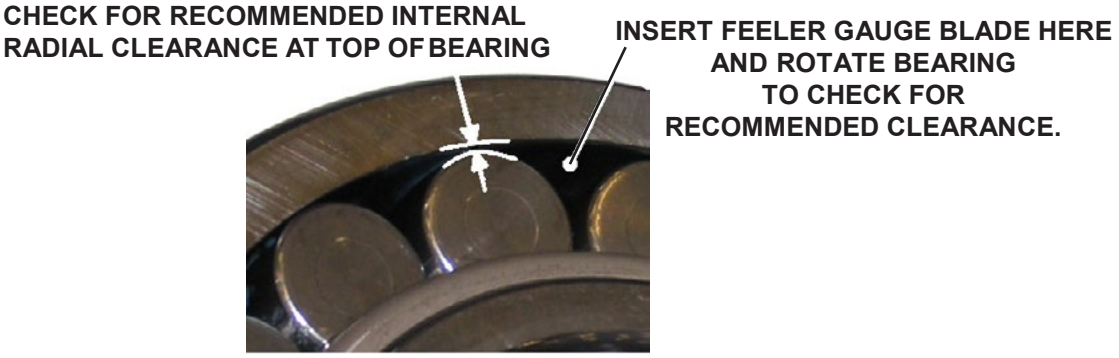
20. RIGHT LOWER BEARING ASSEMBLY - ONLY
Torque bearing lock nut to 400 ft. lbs. A bearing lock washer tab must align with a slot in bearing lock nut.

NOTE: It is recommended to check internal radial clearance of bearings with a feeler gauge.

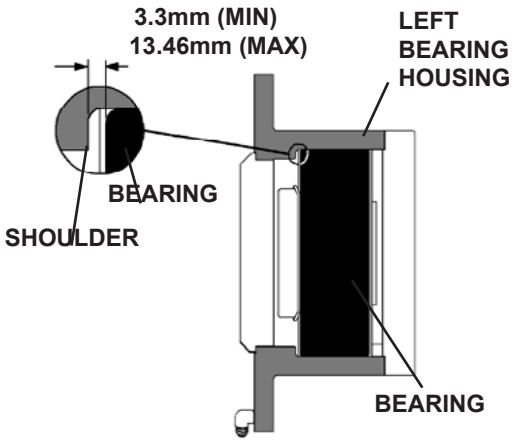
a. Rotate rotor several times to seat bearing rollers. Right side bearing should be mounted with minimum 0.0015” of internal radial clearance.
b. Using a feeler gauge, insert a 0.0015” blade between two unloaded rollers at top of bearing. Rotate rotor until blade is over a roller. The feeler gauge blade should pull out with minimal force. Continue to rotate rotor and check in four different places.
c. If feeler gauge blade cannot be pulled from bearing at all four locations the bearing lock nut is too tight. Remove bearing lock nut and pull withdrawal sleeve out slightly. Repeat process at less torque.

NOTE: If a minimum of 300 ft. lbs. of torque cannot be achieved, contact your local Digga dealer.

d. Remember a bearing lock washer tab must align with a slot in bearing lock nut.



20. LEFT LOWER BEARING ASSEMBLY - ONLY
Torque bearing lock nut to 500 ft. lbs.
A bearing lock washer tab must align with a slot in bearing lock nut.
Check gap between bearing and shoulder on left lower bearing housing. A gap of 3.3mm min. to 13.46mm max. should remain to allow for thermal expansion and contraction of rotor shaft.



NOTE: It is recommended to check internal radial clearance of bearings with a feeler gauge.

a. Rotate rotor several times to seat bearing rollers. Left side bearing should be mounted with minimum 0.0010” of internal radial clearance.
b. Using a feeler gauge, insert a 0.0010” blade between two unloaded rollers at top of bearing. Rotate rotor until blade is over a roller. The feeler gauge blade should pull out with minimal force. Continue to rotate rotor and check in four different places.
c. If feeler gauge blade cannot be pulled from bearing at all four locations, the bearing lock nut is too tight. Remove bearing lock nut and pull withdrawal sleeve out slightly. Repeat process at less torque.

NOTE: If a minimum of 400 ft. lbs. of torque cannot be achieved, contact your local Digga dealer.

d. Remember a bearing lock washer tab must align with a slot in bearing lock nut.

21. Remove rotor supports. After verifying that rotor spins freely, bend lock washer tab over to lock bearing lock nut in place. Never back the bearing lock nut off to align lock washer tab, always tighten bearing lock nut to achieve tab alignment.
22. Reconnect the relief and grease lines (right lower bearing assembly only). Pump grease into the bearing assemblies to be sure grease is coming out through the rollers of the bearing.

NOTE: Use NLGI Grade 2 Lithium grease only. Grease must not contain any graphite or molybdenum additives which will cause premature bearing failure.

23. With outer seal cap removed, pump grease into bearing housing until it is approximately half full. Do not over grease since this will cause excess heat generation during operation.
24. Apply a light film of grease to o-ring and install on outer seal cap. Pack grease between dual lips of shaft seal. Install outer seal cap onto bearing assembly.

NOTE: Push off holes in the outer seal cap should be aligned with counter bore holes in housing to prevent damage to housing during future maintenance. Secure in place using existing .25” socket head cap screws and loctite 271. Torque to 12 ft. lbs.

25. **RIGHT LOWER BEARING ASSEMBLY**: Reinstall the belt, sprocket & covers following the belt and sprocket installation procedure.

REPLACING AND/OR SERVICING THE OVERHUNG LOAD ADAPTER AND HYDRAULIC MOTOR

NOTE: An overhead hoist is recommended when removing the hydraulic motor and overhung load adapter assembly.

NOTICE: Due to the complexity of servicing the drive shaft, bearings and housing, these parts are not replaceable. Hydraulic motor and overhung load adapter maintenance and service is limited to replacing the gasket, seals and o-rings. All other field service will void warranty.

Remanufactured overhung load adapters are available from the factory. (Part #115443r = 2-bolt flange overhung load adapter and part #115444r = 4-bolt flange overhung load adapter.) Contact customer service for detailed instructions. Do not disassemble.

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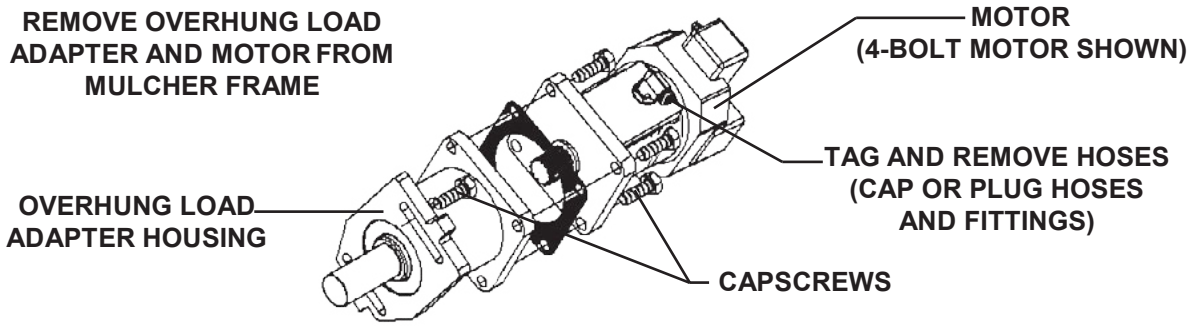
REMOVAL - OVERHUNG LOAD ADAPTER

1. Remove the drive belt. See “DRIVE BELT TENSIONING AND/OR REMOVAL”
2. Securely attach hoist to the motor and overhung load adapter housing to support it for removal.
3. Remove the upper sprocket. See “SPROCKET REMOVAL AND INSTALLATION”.
4. Tag and remove hoses from the hydraulic motor. Cap or plug hoses and fittings to prevent contaminants from entering the hydraulic system.
5. Remove the .75” cap screws securing the overhung load adapter to the side of the mulcher mainframe.
6. Slide the motor and housing assembly out of the mulcher mainframe. Drain oil from housing by removing the appropriate plug for your mulcher.
7. Place overhung load adapter housing and motor assembly on a clean surface. Remove the cap screws securing the motor to the housing and separate the housing from the motor.
8. Remove motor gasket (4-bolt flange motor) or motor o-ring (2-bolt flange motor) and inspect for damage. Replace as required.
9. Inspect motor shaft seal for damage and replace as required.

NOTE: Field service of internal motor seals will void warranty.



IMPORTANT: If installing a remanufactured overhung load adapter, the old overhung load adapter assembly must be returned to the factory with the seal cap removed from the remanufactured assembly and installed on the assembly to be returned to receive maximum credit.

INSTALLATION - OVERHUNG LOAD ADAPTER

1. After replacing motor gasket and/or seals (if required) install overhung load adapter over the output shaft on the hydraulic motor and reinstall the existing cap screws. Torque .62” cap screws (2-bolt flange) to 250 ft. lbs. and .75” cap screws (4-bolt flange) to 230 ft. lbs.
2. Using an overhead hoist, install motor and overhung load adapter assembly into mulcher mainframe using the existing front two .75” cap screws and washers.
3. Install upper sprocket and drive belt. See “SPROCKET REMOVAL AND INSTALLATION”.
4. Fill overhung load adapter assembly with oil. All adapter assemblies are shipped from factory without oil. See “LUBRICATION SPECIFICATIONS”.
5. Reconnect hydraulic hoses to motor. Torque manifold/hose clamp cap screws to 45 ft. lbs.

OVERHUNG LOAD ADAPTER SEAL REPLACEMENT

1. Remove the drive belt. See “DRIVE BELT TENSIONING AND/OR REMOVAL”
2. Remove the upper sprocket. See “SPROCKET REMOVAL AND INSTALLATION”.
3. Drain oil from housing by removing the appropriate plug for your mulcher.

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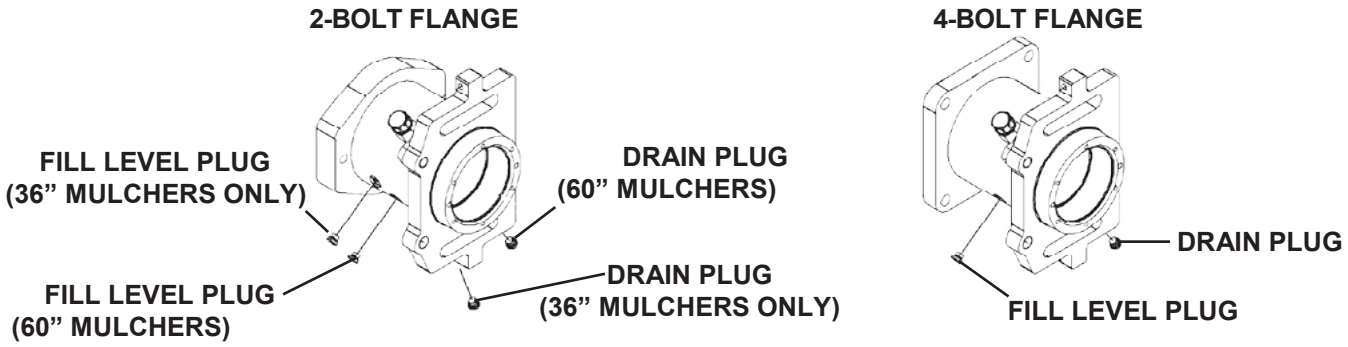
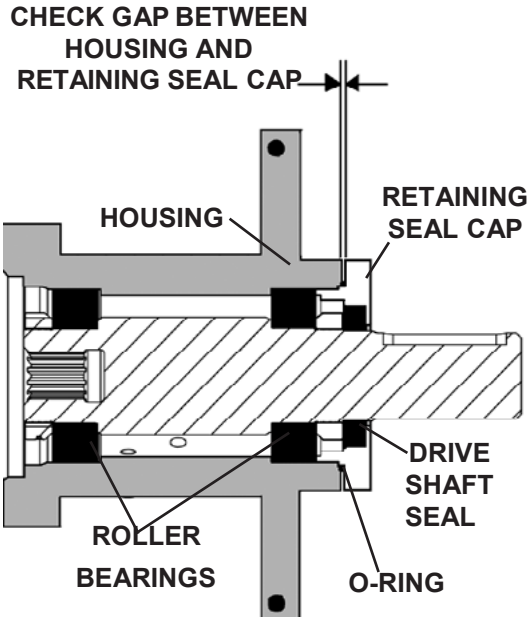


4. After ensuring that the cap screws securing the retaining seal cap to the overhung load adapter remain at 25 ft. lbs., check the gap between the retaining seal cap and the adapter housing between cap screws using a feeler gauge. This gap should be between 0.0015" and 0.010".
5. Remove the retaining seal cap. To assist in removal, two cap screws may be installed into the push off holes in the retaining seal cap.
6. If a minimum gap of 0.0015" did not exist between the retaining seal cap and bearing housing inspect the bearing for signs of "creeping". If any signs of bearing creep have been detected, the retaining seal cap should be replaced.



NOTE: When the bearing is trying to "creep" out of its normal location and pushing out on the retaining seal cap, there will be signs of wear on the outer rim of the bearing where it comes into contact with the retaining seal cap.

7. Remove drive shaft seal from the retaining seal cap and inspect o-ring for damage. Replace as required.
8. Lubricate drive shaft seal bore of retaining seal cap with light film of grease and install new drive shaft seal.

NOTE: Apply force to the outer rim of the drive shaft seal to prevent seal damage.

9. Lubricate o-ring with a light film of grease and install into retaining seal cap.
10. Apply grease to the dual lips of the drive shaft seal and install retaining seal cap onto overhung load adapter assembly. Be careful to not "roll" lips of drive shaft seal during installation.

NOTE: Push off holes in the retaining seal cap should be aligned with counter bore holes in housing to prevent damage to housing during future maintenance. Secure in place using existing .31" socket head cap screws and loctite 271. Torque to 25 ft. lbs.

11. Repeat step #4 to assure a minimum gap of 0.0015" and a maximum gap of 0.010" remains.
12. Install upper sprocket and drive belt. See "SPROCKET REMOVAL AND INSTALLATION".
13. Fill overhung load adapter assembly with oil. See "LUBRICATION SPECIFICATIONS".
14. Replace all covers.

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CYLINDER SEAL REPLACEMENT

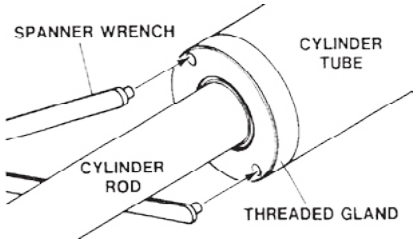
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic cylinders. Always protect the active part of the cylinder rod (the chrome section). Nicks or scratches on the surface of the rod could result in cylinder failure. Clean all parts thoroughly with a cleaning solvent before reassembly.

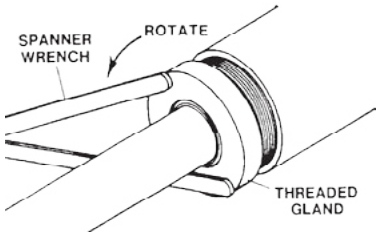
DISASSEMBLY PROCEDURE

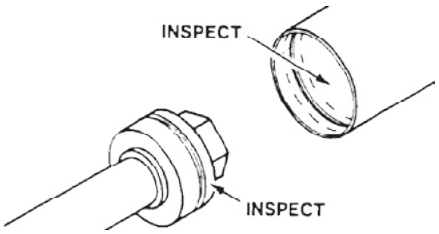
IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

THREADED TYPE GLAND

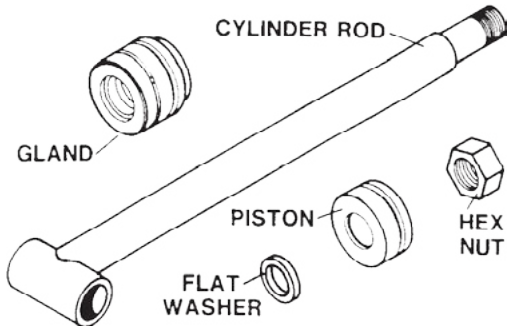
1. Rotate the gland with a spanner wrench counter clockwise until the gland is free of the cylinder tube.
2. Pull the cylinder rod from the cylinder tube and inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston AND the cylinder tube must be replaced.

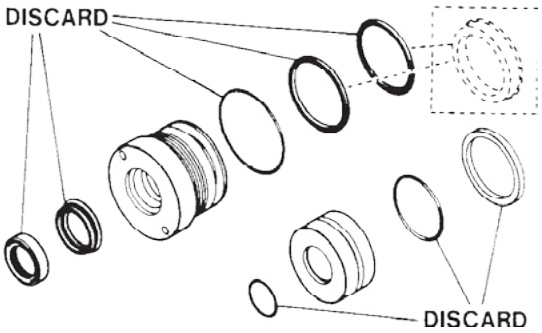






3. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.
4. Remove and discard all the old seals.





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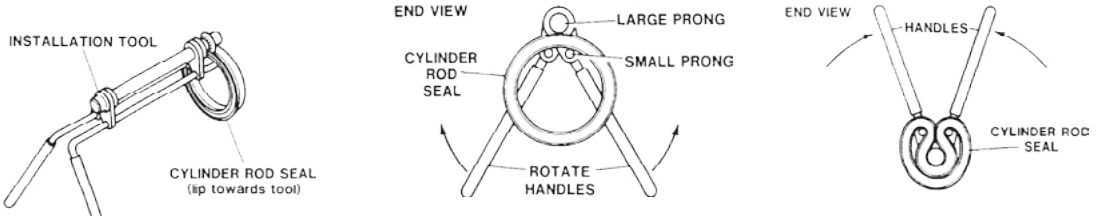
ASSEMBLY PROCEDURE

IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure.

NOTE: Seal kits will service most cylinders of similar bore size and rod diameter.

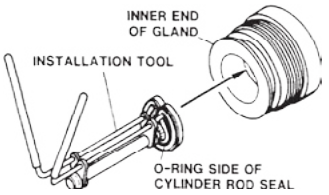
1. Install the cylinder rod seal in the gland first. Be careful not to damage the seal in the process, as it is somewhat difficult to install.

NOTE: A special installation tool (Part #65349) is available to help with installing the seal. Simply fit the end of the tool over the seal so that the large prong of the tool is on the outside of the seal, and the two smaller prongs on the inside. The lip of the seal should be facing towards the tool. Rotate the handles on the tool around to wrap the seal around the end of the tool.

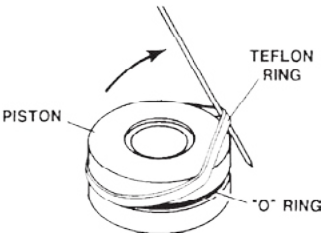


Rotate the handles on the tool around to wrap the seal around the end of the tool.

Now insert the seal into the gland from the inner end. Position the seal in its groove, and release and remove the tool. Press the seal into its seat the rest of the way by hand.

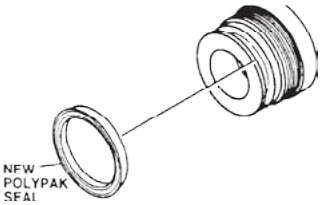


2. Install the new piston ring, rod wiper, o-rings and backup washers, if applicable, on the piston.
   Be careful not to damage the seals. Caution must be used when installing the piston ring. The ring must be stretched carefully over the piston with a smooth, round, pointed tool.



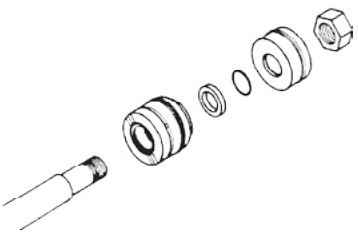
3. After installing the rod seal inside the gland, as shown in step #1, install the external seal.

NOTE: Threaded glands may have been equipped with a separate o-ring and backup washer system or a polypak (all in one) type seal. Current seal kits contain a polypak (all in one) type seal to replace the discarded seal types on all threaded glands.



4. Slide the gland onto the cylinder rod, being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small o-ring, piston, and hex nut onto the end of the cylinder rod.

5. Secure the cylinder rod (mounting end) in a vice with a support at its center. Torque the nut to the amount shown for the thread diameter of the cylinder rod (see chart).



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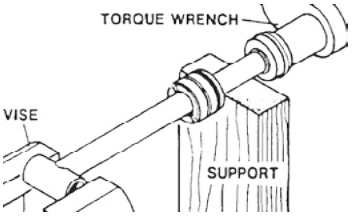
Thread Diameter	POUNDS - FEET
7/8"	150-200
*1"	230-325
1-1/8"	350-480
1-1/4"	490-670
1-3/8"	670-900
*** 1" Thread Diameter WITH 1.25" Rod Diameter Min. 230 ft. lbs. Max. 250 ft. lbs.**	



IMPORTANT: Do not contact the active surface of the cylinder rod with the vice. Damage to the rod could result.

6. Apply a lubricant (such as Lubriplate #105) to the piston and teflon ring. Insert the cylinder rod assembly into the cylinder tube.

IMPORTANT: Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.

7. Use a spanner wrench to rotate the gland clockwise into the cylinder. Continue to rotate the gland with the spanner wrench until it is tight.

WARNING! **CYLINDERS SERVICED IN THE FIELD ARE TO BE TESTED FOR LEAKAGE PRIOR TO THE ATTACHMENT BEING PLACED IN WORK. FAILURE TO TEST REBUILT CYLINDERS COULD RESULT IN DAMAGE TO THE CYLINDER AND/OR THE ATTACHMENT, CAUSE SEVERE PERSONAL INJURY OR EVEN DEATH.**

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Rotor not turning.	Auxiliary hoses not hooked up to the prime mover.	Check coupler engagement.
	Obstruction in hydraulic lines.	Remove obstruction. Replace if necessary.
	Hydraulic motor damaged or seals blown.	Call Digga service department for instructions.
	Auxiliary control valve not engaged.	Verify hydraulic flow using inline flow meter or other attachment.
	Rocks and debris caught between rotor and mainframe.	Remove debris. (See “General Operating Tips”)
	Damaged quick coupler.	Replace if necessary.
	Drive belt broken.	Replace if necessary.
	High flow not properly engaged.	Engage high flow.
	Auxiliary hoses not hooked up correctly.	Reverse hoses to prime mover.
	Check valve cartridge in hydraulic motor manifold block is damaged.	Inspect and replace if necessary.
Rotor rotates sluggishly.	Insufficient hydraulic flow from the prime mover.	Refer to prime mover owner’s manual and verify hydraulic flow using an inline flow meter or other attachment.
	Damaged quick coupler.	Replace if necessary.
	Hydraulic motor damaged or seals blown.	Call Digga service department for instructions.
	Oil or fuel filter on prime mover needs replaced.	Refer to prime mover owner’s manual.
	Check valve cartridge in hydraulic motor manifold block is damaged.	Replace if necessary.
	Relief valve setting on mulcher adjusted too low. (Refer to prime mover owner’s manual for relief pressure of prime mover. Relief pressure on mulcher should be higher. Prime mover should always relieve pressure before the mulcher.)	Check pressure at hydraulic motor by the existing pressure gauge on mulcher or with a pressure gauge at #4 port on pressure side of hydraulic manifold block. Replace if necessary.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Insufficient power.	Insufficient hydraulic flow from the prime mover.	Refer to prime mover owner's manual and verify hydraulic flow using an inline flow meter or other attachment.
	Relief valve setting on prime mover adjusted too low.	Refer to prime mover owner's manual.
	Hydraulic motor damaged or seals blown.	Call Digga service department for instructions.
	Oil or fuel filter on prime mover needs replaced.	Refer to prime mover owner's manual.
	Incorrect motor displacement setting.	Reset motor displacement for your prime mover. See Set-Up instructions.
	Operating mulcher on a standard flow hydraulic system.	Activate high flow system on your skid steer loader.
	Damaged quick coupler.	Replace if necessary.
	Check valve cartridge in hydraulic motor manifold block is damaged.	Inspect and replace check valve if necessary.
	Relief valve setting on mulcher adjusted too low. (Refer to prime mover owner's manual for relief pressure of prime mover. Relief pressure on mulcher should be higher. Prime mover should always relieve pressure before the mulcher.)	Check pressure at hydraulic motor by the existing pressure gauge on mulcher or with a pressure gauge at #4 port on pressure side of hydraulic manifold block. Replace if necessary.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Excessive oil temperature.	Hydraulic oil level too low.	Refer to prime mover owner's manual.
	Obstruction in hydraulic lines.	Remove obstruction and replace if necessary.
	Hydraulic oil or oil filter in prime mover needs replaced.	Refer to prime mover owner's manual.
	Relief valve setting on prime mover adjusted too low.	Refer to prime mover owner's manual.
	Obstructed radiator/cooler on prime mover.	Clean radiator/cooler.
	Incorrect motor displacement setting.	Reset motor displacement for your prime mover. See Set-Up Instructions.
	Operating the mulcher at maximum pressure for an extended amount of time.	Slow down the speed and/or the down pressure on the mulcher until operating below maximum pressure.
	Relief valve setting on mulcher adjusted too low. (Refer to prime mover owner's manual for relief pressure of prime mover. Relief pressure on mulcher should be higher. Prime mover should always relieve pressure before the mulcher).	Check pressure at hydraulic motor by the existing pressure gauge on mulcher or with a pressure gauge at #4 port on pressure side of hydraulic manifold block. Replace if necessary.
Leaking Oil.	Loose or damaged hydraulic line.	Tighten or replace.
	Upper bearing failure.	Replace if necessary.
	O-Rings on hydraulic fittings damaged.	Replace if necessary.
	Hydraulic motor damaged or seals blown.	Call Digga service department for instructions.
	Hydraulic fittings loose or damaged.	Tighten or replace.
	Cylinder seals damaged.	Replace cylinder seals.
	Case drain not properly connected or coupler damaged.	Engage coupler or replace.
	Case drain hose pinched.	Check hose routing and adjust if necessary.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Hydraulic cylinder not operating.	Insufficient hydraulic flow from the prime mover.	Refer to prime mover owner's manual and verify hydraulic flow using an inline flow meter or other attachment.
	Cylinder rod bent.	Visually inspect the cylinder for damage.
	Cylinder seals damaged.	Replace cylinder seals.
	Obstruction in hydraulic lines.	Remove obstruction and replace if necessary.
	Blown fuse on skid steer.	Refer to skid-steer's owner's manual.
	Damaged electrical wiring.	Test and replace if necessary.
	Faulty switch or electrical connection.	Repair or replace if necessary.
	Solenoid valve spool bent.	Replace spool.
	Faulty control valve coil.	Replace coil.
Hydraulic cylinders only operating in one direction.	Contaminants in the hydraulic system and solenoid valve.	Remove spool from solenoid valve and check for foreign material. Clean or replace.
		Remove spool from solenoid valve and check seals for damage. Replace if necessary.
	Damaged electrical wiring.	Test and replace if necessary.
	Solenoid valve spool bent.	Replace spool.
	Faulty control valve coil.	Replace coil.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Excessive vibration during operation.	Teeth are worn, broken or missing.	Inspect and replace if necessary.
	Bearing failure.	Inspect and replace if necessary.
	Rotor obstruction.	Clear all debris from rotor and teeth. (See General Operating Tips)
	Incorrect tensioning of belt.	Retention belt. See Belt Tensioning.
Excessive or uneven tooth wear on drive belt	Incorrect tensioning of belt.	Retention belt. See Belt Tensioning.
	Sprockets misaligned.	Align sprockets using a straight edge.
	Sprockets worn.	Replace if necessary.
	Debris in drive assembly.	Remove debris and replace covers.
Drive belt skipping or ratcheting.	Belt under tensioned.	Retention belt. See Belt Tensioning.
	Sprocket worn.	Replace worn sprocket.
	Debris in drive assembly.	Remove debris and replace covers.
	Insufficient warm up time.	Follow correct warm up procedure.
Drive belt cracking.	Excessive low temperatures.	Moderate temperatures, especially at start up.
	Exposed to oil solvents/chemicals.	Eliminate exposure to chemicals and shield drive.
	Incorrect tensioning of belt.	Retention belt. See Belt Tensioning.
	Sprockets misaligned.	Align sprockets using straight edge.

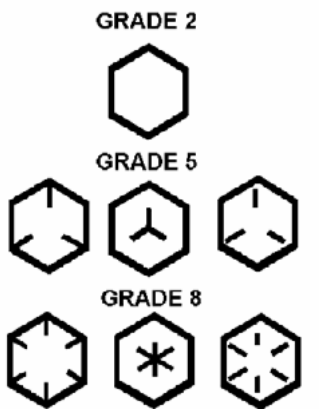
BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLES

Use the following charts when determining bolt torque specifications when special torques are not given. Always use grade 5 or better when replacing bolts.

SAE BOLT TORQUE SPECIFICATIONS

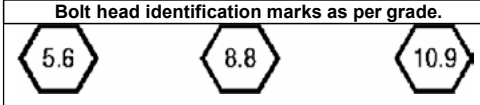
NOTE: The following torque values are for use with extreme pressure lubricants, plating or hard washer applications Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

Bolt Size		SAE GRADE 5 TORQUE Pounds Feet		SAE GRADE 5 TORQUE Newton-Meters		SAE GRADE 8 TORQUE Pounds Feet		SAE GRADE 8 TORQUE Newton-Meters		Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
Inches	Millimeters	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6.35	8	9	11	12	10	13	14	18	
5/16	7.94	14	17	19	23	20	25	27	34	
3/8	9.53	30	36	41	49	38	46	52	62	
7/16	11.11	46	54	62	73	60	71	81	96	
1/2	12.70	68	82	92	111	94	112	127	152	
9/16	14.29	94	112	127	152	136	163	184	221	
5/8	15.88	128	153	174	207	187	224	254	304	
3/4	19.05	230	275	312	373	323	395	438	536	
7/8	22.23	340	408	461	553	510	612	691	830	
1	25.40	493	592	668	803	765	918	1037	1245	
1-1/8	25.58	680	748	922	1014	1088	1224	1475	1660	
1-1/4	31.75	952	1054	1291	1429	1547	1700	2097	2305	
1-3/8	34.93	1241	1428	1683	1936	2023	2312	2743	3135	
1-1/2	38.10	1649	1870	2236	2535	2686	3026	3642	4103	

METRIC BOLT TORQUE SPECIFICATIONS

NOTE: The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.

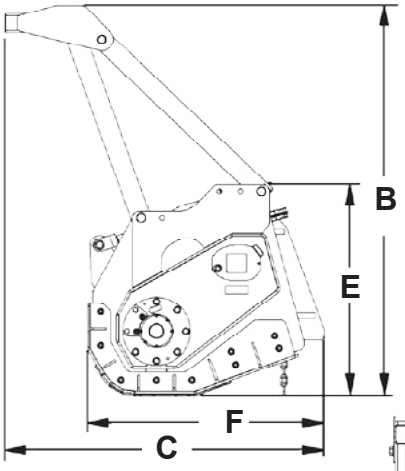


Size of Bolt	Grade No.	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
	5.6		3.6-5.8	4.9-7.9		-	-
M6	8.8	1.0	5.8-.4	7.9-12.7	-	-	-
	10.9		7.2-10	9.8-13.6		-	-
	5.6		7.2-14	9.8-19		12-17	16.3-23
M8	8.8	1.25	17-22	23-29.8	1.0	19-27	25.7-36.6
	10.9		20-26	27.1-35.2		22-31	29.8-42
	5.6		20-25	27.1-33.9		20-29	27.1-39.3
M10	8.8	1.5	34-40	46.1-54.2	1.25	35-47	47.4-63.7
	10.9		38-46	51.5-62.3		40-52	54.2-70.5
	5.6		28-34	37.9-46.1		31-41	42-55.6
M12	8.8	1.75	51-59	69.1-79.9	1.25	56-68	75.9-92.1
	10.9		57-66	77.2-89.4		62-75	84-101.6
	5.6		49-56	66.4-75.9		52-64	70.5-86.7
M14	8.8	2.0	81-93	109.8-126	1.5	90-106	122-143.6
	10.9		96-109	130.1-147.7		107-124	145-168
	5.6		67-77	90.8-104.3		69-83	93.5-112.5
M16	8.8	2.0	116-130	157.2-176.2	1.5	120-138	162.6-187
	10.9		129-145	174.8-196.5		140-158	189.7-214.1
	5.6		88-100	119.2-136		100-117	136-158.5
M18	8.8	2.0	150-168	203.3-227.6	1.5	177-199	239.8-269.6
	10.9		175-194	237.1-262.9		202-231	273.7-313
	5.6		108-130	146.3-176.2		132-150	178.9-203.3
M20	8.8	2.5	186-205	252-277.8	1.5	206-242	279.1-327.9
	10.9		213-249	288.6-337.4		246-289	333.3-391.6

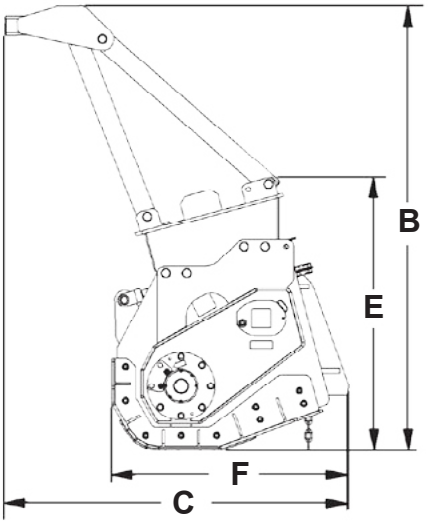
SPECIFICATIONS

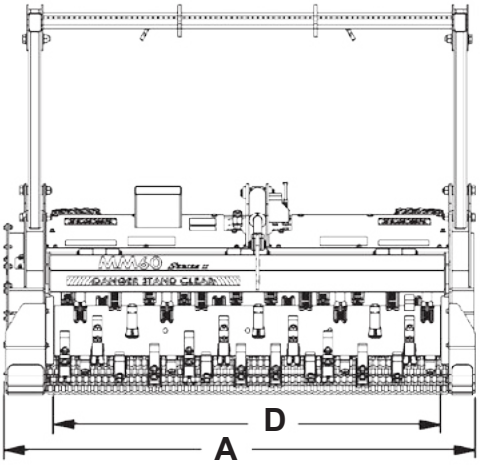
60” MULCHERS

(SKID STEER LOADER APPLICATIONS)



(EXCAVATOR AND COMBINATION APPLICATIONS)





MM60S = 60” SKID STEER LOADER
MM60E = 60” EXCAVATOR
MM60C = 60” COMBINATION
MM60H = 60” FORESTRY

DESCRIPTION	60” MULCHERS			
	MM60S	MM60E	MM60C	MM60H
A. Overall Width	1854mm	1854mm	1854mm	1854mm
B. Overall Height	1535mm	N/A	1750mm	1535mm
C. Overall Length	1257mm	N/A	1355mm	1257mm
D. Cutting Width	1524mm	1524mm	1524mm	1524mm
E. Height Without Push Over Bar	829mm	1074mm	1074mm	829mm
F. Length Without Push Over Bar	932mm	932mm	932mm	932mm
Operating Pressure (PSI)	3000-4000	3000-5800	3000-5800	4500-5800
Hydraulic Flow (LPM)	114-170	114-227	114-227	133-170
Required Hydraulic Horsepower (HP)	60-90	60-90	60-90	90-130
Number of Teeth	44	44	44	44
Weight (Kg)	1148#	1230	1352#	1157#
Cylinder Specifications				
Bore	2.00”	N/A	2.00”	2.00”
Stroke	8.75”	N/A	8.75”	8.75”
Rod Diameter	1.25”	N/A	1.25”	1.25”

NOTE: Specifications and design are subject to change without notice and without liability therefore.

For further information on spare parts please contact one of the Digga sales office below your closest authorised Digga Dealer.

DIGGA INTERNATIONAL SALES OFFICES

ASIA PACIFIC

DIGGA HEAD OFFICE - BRISBANE
4 Octal St, Yatala QLD 4207

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Limited Warranty

Except for the Excluded Products as described below, all new products are warranted to be free from defects in material and/or workmanship during the Warranty Period, in accordance with and subject to the terms and conditions of this Limited Warranty.

1. Excluded Products. The following products are excluded from this Limited Warranty:
   (a) Any cable, part that engages with the ground (i.e. sprockets), digging chain, bearing, teeth, tamping and/or demolition head, blade cutting edge, pilot bit, auger teeth and broom brush that either constitutes or is part of a product.
   (b) Any product, merchandise or component that, in the opinion of Digga Australia, has been (i) misused; (ii) modified in any unauthorized manner; (iii) altered; (iv) damaged; (v) involved in an accident; or (vi) repaired using parts not obtained through Digga Australia.

2. Warranty Period. The Limited Warranty is provided only to those defects that occur during the Warranty Period, which is the period that begins on the first to occur of: (i) the date of initial purchase by an end-user, (ii) the date the product is first leased or rented, or (iii) the date that is six (6) months after the date of shipment by Digga Australia as evidenced by the invoiced shipment date (the "Commencement Date") & ends on the date that is twelve (12) months after the Commencement Date.

3. Terms and Conditions of Limited Warranty. The following terms and conditions apply to the Limited Warranty hereby provided:
   (a) Option to Repair or Replace. Digga Australia shall have the option to repair or replace the product.
   (b) Timely Repair and Notice. In order to obtain the Limited Warranty, (i) the product must be repaired within thirty (30) days from the date of failure, and (ii) a claim under the warranty must be submitted to Digga Australia in writing within thirty (30) days from the date of repair.
   (c) Return of Defective Part or Product. If requested by Digga Australia, the alleged defective part or product shall be shipped to Digga Australia at its manufacturing facility or other location specified by Digga Australia, with freight PRE-PAID by the claimant, to allow Digga Australia to inspect the part or product.

   Claims that fail to comply with any of the above terms and conditions shall be denied.

LIMITATIONS AND EXCLUSIONS.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY BASED ON A COURSE OF DEALING OR USAGE OF TRADE. IN NO EVENT SHALL DIGGA AUSTRALIA BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES. IN NO EVENT SHALL DIGGA AUSTRALIA BE LIABLE FOR ANY LOSS OR CLAIM IN AN AMOUNT IN EXCESS OF THE PURCHASE PRICE, OR, AT THE OPTION OF DIGGA AUSTRALIA, THE REPAIR OR REPLACEMENT, OF THE PARTICULAR PRODUCT ON WHICH ANY CLAIM OF LOSS OR DAMAGE IS BASED. THIS LIMITATION OF LIABILITY APPLIES IRRESPECTIVE OF WHETHER THE CLAIM IS BASED ON BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHER CAUSE AND WHETHER THE ALLEGED DEFECT IS DISCOVERABLE OR LATENT.

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