

# MCMILLEN®



MODEL  
X14K2

PATENT PENDING

## HYDRAULIC EARTH AUGER ATTACHMENT OPERATOR'S MANUAL

SERIAL NUMBER \_\_\_\_\_

**CAUTION!**  
Maximum Pressure  
2,400 PSI



**WARNING!**

**AVOID INJURY OR DEATH**

**READ AND UNDERSTAND THIS ENTIRE MANUAL BEFORE  
INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT**

M-209  
12-3-04-2

PPART NO. 22674  
REV. 12-3-04



# TO THE OWNER

## GENERAL COMMENTS

Congratulations on the purchase of your new McMillen Earth Auger Attachment. Your earth auger was carefully designed and manufactured to give you many years of dependable service. Your earth auger will require some minor maintenance (such as cleaning and lubricating) to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual, on the safety decals located on the attachment, and on any equipment on which the earth auger is mounted.

## ABOUT THIS MANUAL

This manual has been designed to help you to do a better, safer job. Read this manual carefully, and become familiar with the operating procedures before attempting to operate your earth auger. Remember, never let anyone operate this earth auger without them having read and completely understand the "Safety Precaution" and "Operating Instructions" sections of this manual, or having them be fully trained by an experienced, qualified person who has read and completely understands the "Safety Precautions" and Operating Instructions".

After reading this manual, if you have any questions about your attachment please contact us immediately as follows:

**NORTH AMERICAN TOLL FREE: (800) 922-2981**  
Outside North America: (563) 922-2981  
Fax: (563) 922-2700

## SERVICE

When servicing this product, remember to use only manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering, record the model and serial number of your unit in the space provided on this page. This information may be obtained from the identification plate located on the product.

**MODEL:** \_\_\_\_\_ **SERIAL NO.** \_\_\_\_\_

Your parts department needs this information to insure that you receive the correct parts or attachments for your specific earth auger.

**McMILLEN®**

P.O. Box 266 • Delhi, Iowa 52223 • Phone (563) 922-2981 • Fax (563) 922-2700  
North American Toll Free (800) 922-2981

M-102  
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# SAFETY INFORMATION

## TO THE OPERATOR

Your personal safety is a concern of ours. It should also be of concern to you. It is the responsibility of all operators to read and understand this entire manual before installing, operating or servicing this equipment. Pay particular attention to cautions, warnings and safe operating procedures. Be a safe and qualified operator. Operate your equipment with care and good judgement and see to it that it is properly maintained.

## SAFETY ALERT SYMBOL



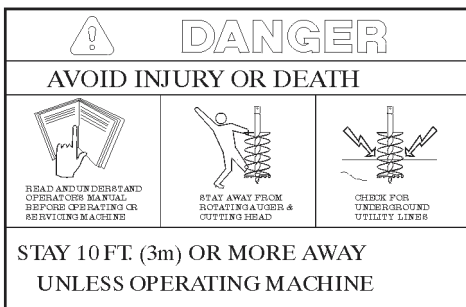
This Safety Alert Symbol Means:  
**ATTENTION! BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**

When you see it pay attention and follow the instructions in the safety message.

The safety alert symbol is generally used in conjunction with a key signal word to emphasize special information. The signal words listed below carry a specific meaning and should be carefully read and understood:

- DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
- WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

## REPLACEMENT SAFETY DECALS














### WORN, DAMAGED OR ILLEGIBLE SAFETY DECALS MUST BE REPLACED.

New safety decals can be ordered from McMillen. Two (2) #22680 (89-P2-237A) Safety Decals must be displayed on each McMillen Hydraulic Earth Auger Drive Unit. Decals should be located on opposite sides of the drive unit from each other.



## SAFETY INFORMATION

THE USE OF THIS EQUIPMENT IS SUBJECT TO CERTAIN HAZARDS WHICH CANNOT BE PROTECTED AGAINST MECHANICAL MEANS OR PRODUCT DESIGN. ALL OPERATORS OF THIS EQUIPMENT MUST READ AND UNDERSTAND THIS ENTIRE MANUAL, PAYING PARTICULAR ATTENTION TO SAFETY AND OPERATING INSTRUCTIONS, PRIOR TO USING THE MCMILLEN HYDRAULIC EARTH AUGER. IF THERE IS SOMETHING IN THIS MANUAL YOU DO NOT UNDERSTAND, ASK YOUR SUPERVISOR TO EXPLAIN IT TO YOU. FAILURE TO OBSERVE THESE SAFETY PRECAUTIONS CAN RESULT IN DEATH OR SERIOUS INJURY OR SERIOUS EQUIPMENT DAMAGE.

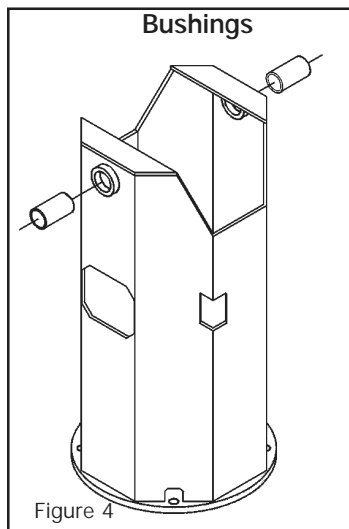
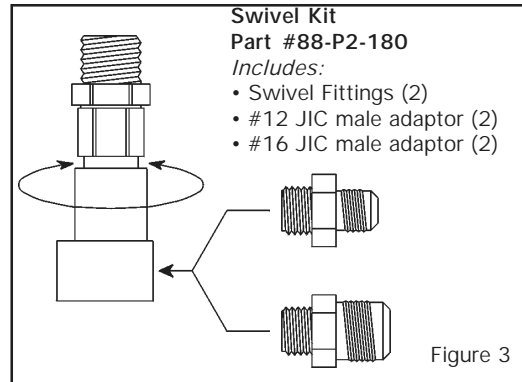
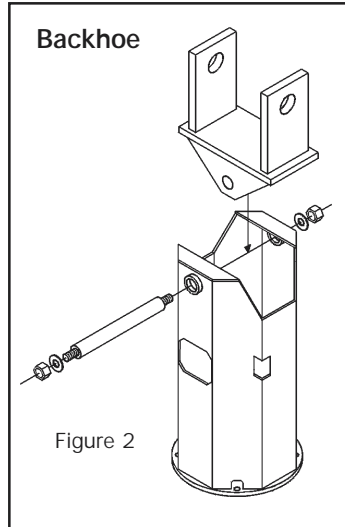
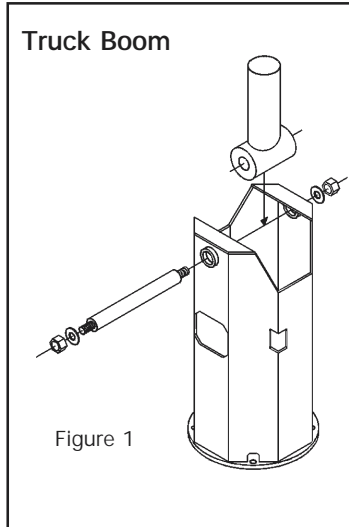
-  All bystanders should be kept a minimum of 10 feet (3 meters) away from working area of the earth auger.
-  Always wear an OSHA approved hard hat and safety eye protection when operating or servicing this equipment. Do not wear loose fitting clothing, flopping cuffs, dangling neckties and scarves, or rings and wrist watches that can catch moving parts.
-  An operator must not use drugs or alcohol which can change his alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advise on whether or not he can safely operate equipment.
-  Always locate underground electrical wires, telephone cables, gas, water and sewer lines before digging. Maintain safe clearance and avoid contact with any underground or overhead utility lines or electrically charged conductors.
-  Never alter or remove any safety decals or shields. Replace all missing or damaged safety decals or safety shields. Check this manual for location of these items and replace immediately if damaged or illegible.
-  Never adjust a relief valve for pressure higher than recommended by vehicle manufacturer.
-  Whenever changing or installing this or other attachments, make sure all connections are securely fastened.
-  Travel only with the earth auger in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes. Tether earth auger with a chain, if necessary, to prevent uncontrolled swinging of earth auger when moving from hole to hole. Remove earth auger from vehicle when transporting to and from job site.
-  Before exiting vehicle, lower earth auger to ground, turn off vehicle engine and lock vehicle brakes.
-  Never check a pressurized system for leaks with your bare hand. Oil escaping from pinhole leaks under pressure can penetrate skin and could cause serious infection. Hold a piece of cardboard up next to suspected leaks and wear a face shield or safety eye protection. If any fluid is injected into the skin, it must be removed immediately by a doctor familiar with this type of injury.
-  Before disconnecting hydraulic lines or fittings be sure to relieve all pressure by cycling all hydraulic controls after shutdown. Remember hydraulic systems are under pressure whenever the engine is running and may hold pressure after shutdown. Before applying pressure to the system make sure all connection are tight and that there is no damage to lines, fittings and hoses.
-  Flow and pressure gauges, fittings and hoses must have a continuous operating pressure rating of at least 25% higher than highest pressures of the system.
-  Avoid steep hillside operation which could cause the vehicle to overturn. Consult your vehicle operator's and safety manuals for maximum incline allowable.
-  Never perform any work on an earth auger unless you are authorized and qualified to do so. Always read the operator service manual(s) before any repair is made. After completing maintenance or repair, check for correct functioning of the earth auger. If not functioning properly always tag "DO NOT OPERATE" until all problems are corrected.
-  This manual covers the safe use, installation, operation and service instructions for the earth auger only. Always read the operating and safety manuals prepared for your vehicle and any other attachments before using them.



## X14K2 HYDRAULIC DRIVE UNIT Hook-Up Procedures

1. Pin the Hydraulic Drive Unit to your vehicle (See Figures 1 & 2).

**NOTE:** A Utility Swivel Fitting Kit is available for the X14K2 (Figure 3). For details, contact your Equipment Dealer, or McMillen's Sales department at the numbers listed on the first page of this manual.



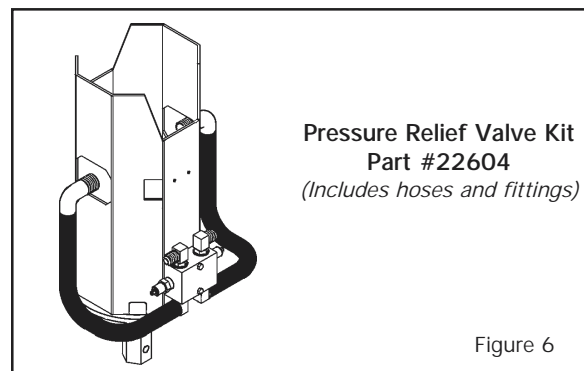
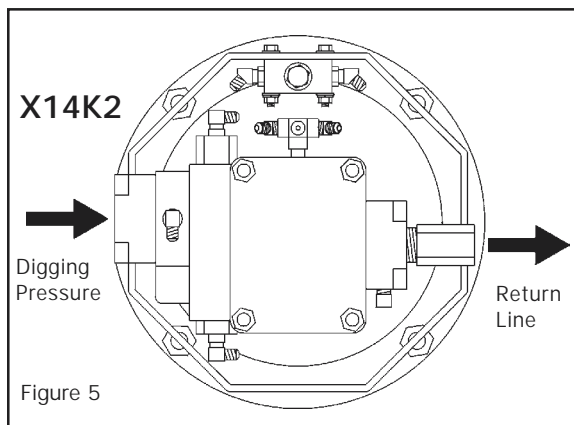
Both 1-1/2" diameter and 1-1/4" dia. pins are supplied with the drive unit. When the 1-1/4" diameter pin is used, insert one of the supplied bronze bushings into each of the pivot holes on the Hydraulic Drive Unit (Figure 4).  
**NOTE:** No bushing is necessary when the 1-1/2" diameter pins are used.

**NOTE:** A variety of Backhoe Adaptors are available through McMillen. For details, contact your Equipment Dealer, or McMillen's Sales department at the numbers listed on the first page of this manual.

2. Attach the Hydraulic Hoses to the Drive Unit (Figure 5).

The X14K2 Hydraulic Drive Unit is supplied with 1-1/4" female pipe thread ports. Attach the adaptors to fit your hoses. In order for the X14K2 Drive Unit to function properly, the digging pressure hose must be connected to the valve side of the motor (Figure 5).

**CAUTION!** Model X14K2 is designed for a maximum pressure of 2,400 psi. A Pressure Relief Valve Kit is available for pressures over 2,400 psi (Figure 6). For details, contact your Equipment Dealer, or McMillen's Sales department at the numbers listed on the first page of this manual.







## X14K2 HYDRAULIC DRIVE UNIT Specifications

MODEL X14K2					
Maximum Auger Diameter: ..... 48" (1219 mm)					
Minimum Hydraulic Flow: ..... 30 gpm (114 lpm)					
Maximum Hydraulic Flow: ..... 60 gpm (227 lpm)					
Maximum System PSI: ..... 2400 psi (211 kg/cm <sup>2</sup> )					
Maximum Back Pressure ..... 500 psi (35 kg/cm <sup>2</sup> )					
<b>Output Shaft Options:</b> ..... 2-1/2" (64mm) Hexagon					
..... 2-5/8" (67mm) Hexagon					
OUTPUT SPEED			OUTPUT TORQUE		
FLOW	LOW SPEED	HIGH SPEED	PRESSURE	HIGH TORQUE	LOW TORQUE
<u>GPM (LPM)</u>	≡ <u>RPM</u>	<u>RPM</u>	<u>PSI (kg/cm<sup>2</sup>)</u>	≡ <u>Lb•Ft (N•m)</u>	<u>Lb•Ft (N•m)</u>
30 (114)	= 13	28	1800 (127)	= 10,830 (14,680)	5270 (7143)
40 (151)	= 18	38	2100 (148)	= 12,640 (17,133)	6149 (8335)
60 (227)	= 28	59	2400 (169)	= 14,000 (18,978)	6600 (8946)



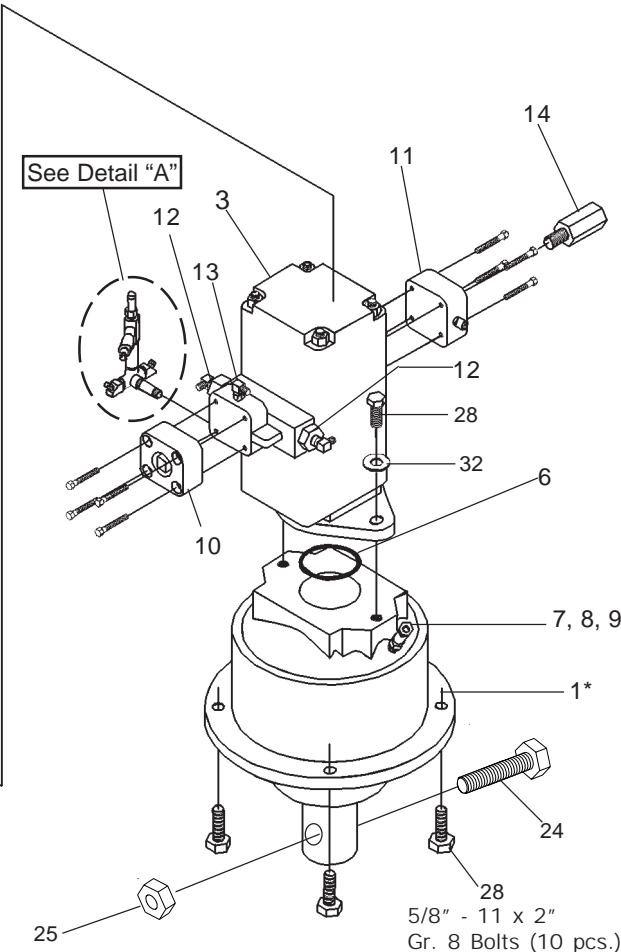
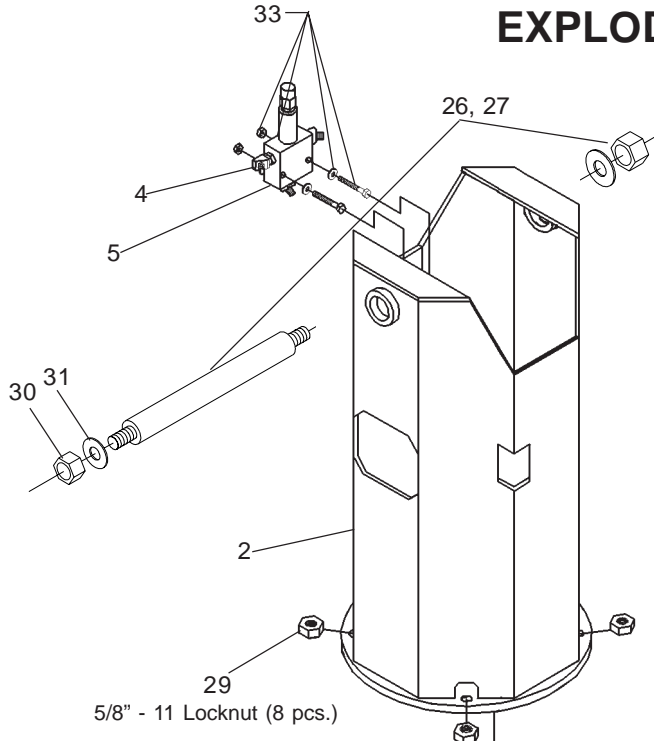
## X14K2 HYDRAULIC DRIVE UNIT Operation Tips

The X14K2 Hydraulic Drive Unit is designed to automatically shift to a higher torque/lower rpm upon sensing a certain degree of pressure from the augering function.

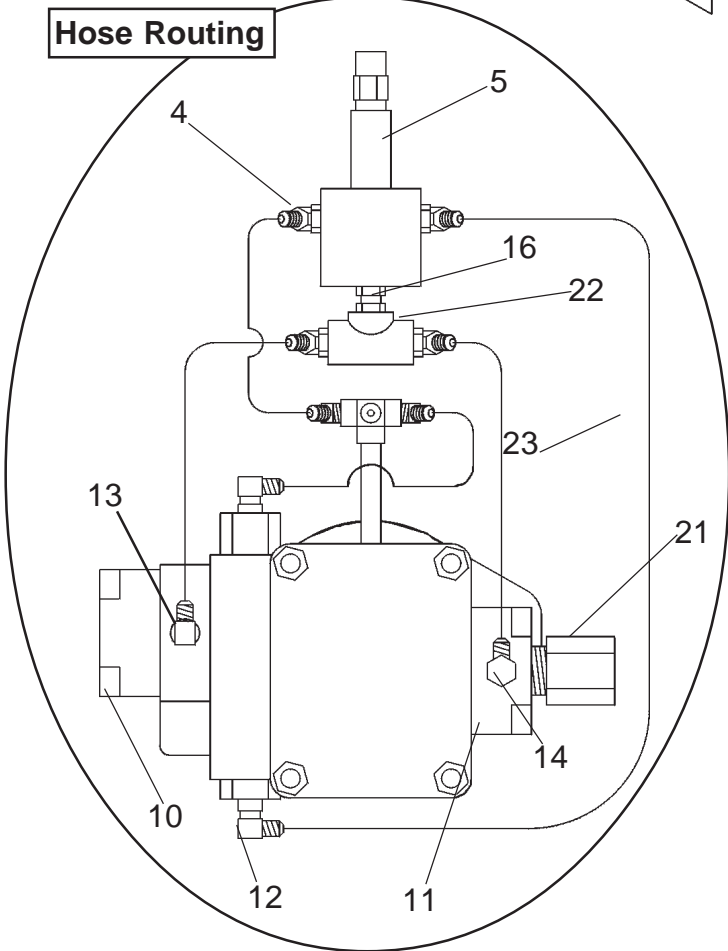
The motor will always start in Low Torque/High rpm. When tough ground conditions are encountered, the hydraulic pressure will rise and at a pre-set point, the motor will shift to High Torque/Low rpm. The motor will remain at this speed until the line pressure drops below 200 psi or the motor stops, at which time it will return to Low Torque/High rpm.

The point at which the motor shifts to High Torque/Low rpm has been factory pre-set. It can be changed by adjusting the pressure sensing valve on the inside edge of the motor housing. To cause the motor to shift sooner, loosen the set screw in the pressure sensing valve. To cause the motor to shift later, tighten the set screw more than 1/2 turn at a time.

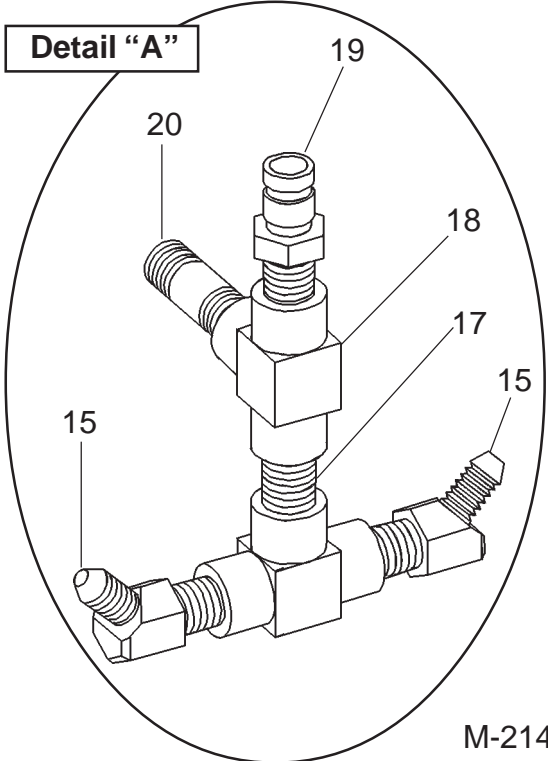
# 2-SPEED HYDRAULIC DRIVE UNIT EXPLODED VIEW



### Hose Routing



### Detail "A"



## 2-SPEED HYDRAULIC DRIVE UNIT PARTS LIST

<u>REF.#</u>	<u>REQ'D</u>	<u>PART #</u>	<u>DESCRIPTION</u>
*1	1	22499	#9 Planetary, 2-1/2" Hex for X14K2H250 Unit
*1	1	22500	#9 Planetary, 2-5/8" Hex for X14K2H263 Unit
2	1	21686	Utility Housing Weldment
3	1	21947	2-Speed 14000 Utility Motor
4	4	22551	#6 SAE / #4 JIC 45° Fitting
5	1	22548	Pressure Sensing Valve
6	1	22609	"O" Ring
7	1	22610	Reducer Fitting, 1/2" NPT - 1/4" NPT
8	1	22589	Check Valve
9	1	22588	Breather, 1/4" NPT
10	1	22549	#20 Flange Block Kit, Plain
11	1	22550	#20 Flange Block Kit, 1/4" NPT Female Port
12	2	22556	#4 SAE Male / #4 JIC Male 90° Fitting
13	1	22535	#4 SAE Male / #4 JIC Male 45° Fitting
14	1	22557	1/4" NPT Male / #4 JIC Male 90° Fitting
15	2	22558	1/4" NPT Male / #4 JIC Male 45° Fitting
16	1	22546	#6 SAE Male / #6 SAE Male Straight Fitting
17	1	22559	1/4" NPT Close Nipple
18	2	3191	1/4" NPT Female Tee Fitting
19	1	22561	1/4" NPT Male / PD342 Quick Disconnect
20	1	22562	1/4" NPT Nipple, 1-1/2" long
21	1	22563	1-1/4" NPT Extension, Male/Female
22	1	22547	Shuttle Valve
23	5	22565	Hose, #4 JIC Female ends, 17" long
24	1	1151	3/4 -10 x 6" ,HHCS, Z, Gr. 5 Bolt
25	1	1231	3/4 - 10 Hex Nut, Z, Gr.2
26	1	21219	1-1/2" Drive Unit Pin Kit
27	1	21220	1-1/4" Drive Unit Pin Kit
28	10	1895	.62" X 2.00" NCX Hex Capscrew GR 8
29	8	1839	.62" NC Locknut GR 5
30	2	1233	1.00" Hex Nut, GR 5
31	8	1839	.62" Lock Nut GR 5
32	2	1506	.62" Lock Washer
33	2	1007	.25" x 2.00" Hex Capscrew
---	2	1512	.25" Fat Washer
---	2	1224	.25" Hex Nut, GR 5
---	2	1501	.25" Lock Washer
(Not Shown)	2	22680	Safety Decal (Danger Avoid Injury)
(Not Shown)	1	22683	McMillen Extreme™ Decal
(Not Shown)	2	22661	Caution Decal, Max Pressure 2400 psi

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