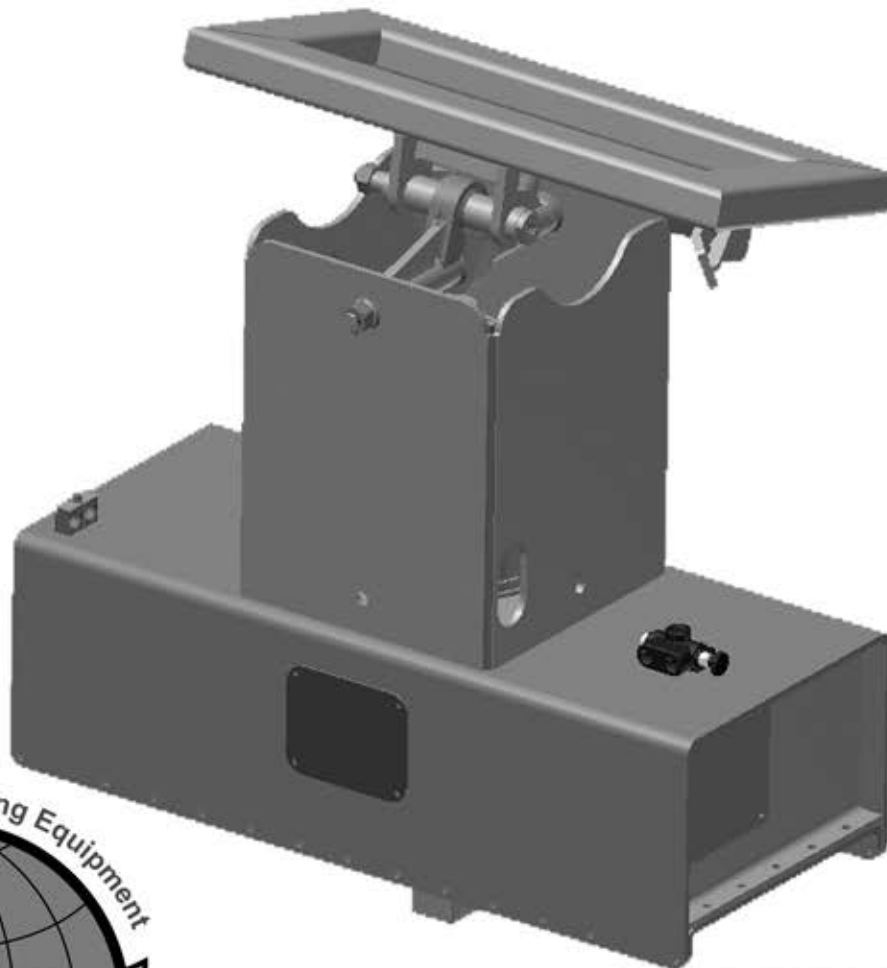


Harleman Manufacturing

Vibratory Drill

Model 10

Operation and Safety Manual



**BULLET PROOF GLASS
DOOR REQUIRED ON
MACHINE**

Harleman Manufacturing
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El Dorado Springs, MO 64744
(office) 417-876-3011
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GROUND FORCE VIBRATORY DRILL



PATENT #
8336643

MODEL # MD200-3B

Hydraulic Recommendations.....	18 - 35 GPM
Strokes/Minute.....	1,100
Torque.....	3,645 FT/LB
Output Shaft.....	3.5" SQUARE
Augers Sizes.....	6" - 20" DIAMETER
Drilling Conditions.....	Solid Rock, Chunk Rock, Soil
Attachment.....	Skid Steers, Excavators



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ALL MAJOR CREDIT CARDS ACCEPTED

Safety Symbols & Equipment Signs



This is the safety alert symbol. When you see this symbol on your equipment or in this manual, be alert to the potential for personal injury or injury to others.



This symbol means to take notice. Following this symbol is useful and important information.

Warning



Before using your new machine, you and all other operators should completely read through this manual. Failure to fully understand how to operate this machine and take safety precautions could lead to serious injury and death.



These signs should remain on the machine always, **DO NOT** remove. If the signs ever become lost or damaged they should be replaced.

DANGER

SAFETY INSTRUCTIONS

1. READ OPERATOR'S MANUAL BEFORE USING MACHINE.
2. CHECK DRIVE SHAFT SAFETY SET SCREW BEFORE EACH USE.
3. KEEP ALL SPECTATORS AWAY FROM AUGER WHEN IN OPERATION.
4. SET BRAKES OR AUTOMATIC TRANSMISSION IN "PARK" BEFORE AUGERING HOLES.
5. DISENGAGE PTO BEFORE GETTING OFF TRACTOR.
6. **FAILURE TO HEED WILL RESULT IN PERSONAL INJURY OR DEATH.**



General Safety Instructions



Read through entire manual



Always keep the manual in a safe and easily accessible place.



Check bolts for tightness periodically.



Make sure to replace all missing or damaged decals.



Do not make unauthorized modifications to machine which could decrease its stability and life or cause injury and possibly death. We also encourage you to only use authorized replacement parts from Harleman Mfg. which were made specifically for this machine.



If there is any part of this guide you do not understand feel welcome to call our shop any time during normal business hours Mon-Fri 8am-4:30pm. The number is 417-876-3011.



Never use alcohol or drugs while using this machine, doing so could lead to serious injury or death.



Anyone under the age of 18 should not operate this machine.



Always wear relevant safety apparel. If using a skid steer with an open cab you should always wear safety glasses and protective head gear. You never know when stray debris may ricochet your way.

Attaching the machine

Part A



Attaching the machine

Part B



The skid steer must be equipped with a compatible Standard Universal Quick Mount Hitch and Front Auxiliary Hydraulics to connect and operate the machine.

- 1. With the engine completely shut down and the parking brake set, rotate the skid steer latch handles upward to the unlatched position. The latch handles must be completely raised to fully retract the hitch lock pins.**
- 2. Start the skid steer and tilt the hitch mounting plate forward while guiding the mounting plate crest under the attachment saddle of the Vibratory Drill. Raise and roll back the mounting plate until the drill hitch plate is securely seated flat against the skid steer mounting plate.**
- 3. With the Vibratory Drill fully supported by the skid steer boom, lower it to ground level. Slightly tilt the front of the drill head upward about 2" from ground level. Turn off the engine, set the parking brake, and exit the skid steer. Push both latch handles downward to engage the hitch pins into the drill hitch retaining tabs. Now the drill hitch is securely attached to the mounting plate of the skid steer.**



The skid steer must be equipped with an Operator Front Protective Door. Serious injury or death can result from a thrown object hitting an unprotected operator.

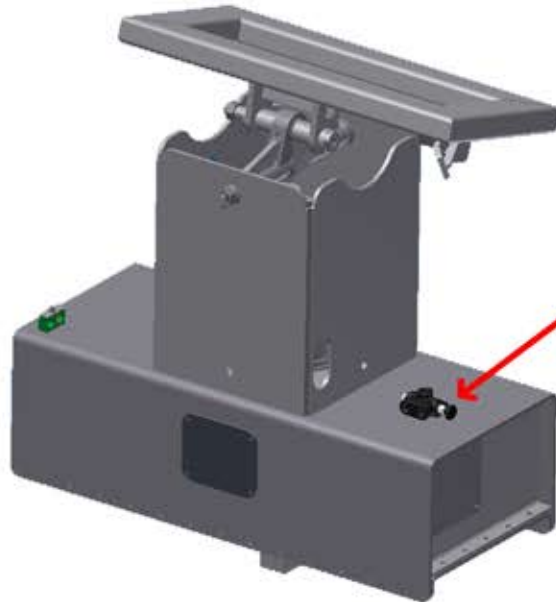
Attaching the machine

Part C

1. Before you connect hydraulic lines to the skid steer be sure that the hydraulic lines and quick couplers are of the same size and type.
2. With the skid steer completely shut down and secured in position and the Vibratory Drill resting at ground level, relieve auxiliary hydraulic pressure by moving the control levers back and forth several times.
3. When connecting the skid steer hydraulic lines to the Vibratory Drill, keep hoses, quick couplers, and swivels free of contamination. Clean dirt and other debris from the connections with a clean rag to prevent contamination of the hydraulic oil.
4. The Vibratory Drill will only operate with oil fed through the Drill in one direction. If the Drill does not operate when the auxiliary hydraulics are engaged, oil is probably being fed through the motor in the reverse direction. To correct this problem, reverse the hydraulic line connection between the drill and skid steer and engage the hydraulics again or try engaging the auxiliary hydraulic lever in the opposite direction.

How to operate

1. After thoroughly reviewing the safety manual and the attachment procedures are complete, your Vibratory Drill is ready to use.
2. The vibration function is optional therefore you can keep it off and use the drill as a standard auger drive or turn it on and use the vibratory drill to its full potential.



This is the Selector Valve which is used to turn on or off the vibratory function.

Push the valve in to put the drill into standard drilling mode. Pull the valve outward to put the drill into vibratory mode.

3. You will have to find a suitable RPM for the work you have planned. The most efficient RPM will depend on what is being drilled. A higher RPM will be most effective in soft, less dense drilling situations while a lower RPM is more effective in dense rocky areas.
4. Lower the auger to ground level and initiate the control valve.
5. Apply enough down pressure to penetrate the ground. Keep the auger in a vertical position as much as possible to get maximum down pressure on the center point.
6. If the auger is slowing or stalling you should pull it out of the hole to clear the debris from the auger itself as well as the hole. If the auger becomes lodged and cannot be lifted out turn it on in reverse motion to release it.

Storage



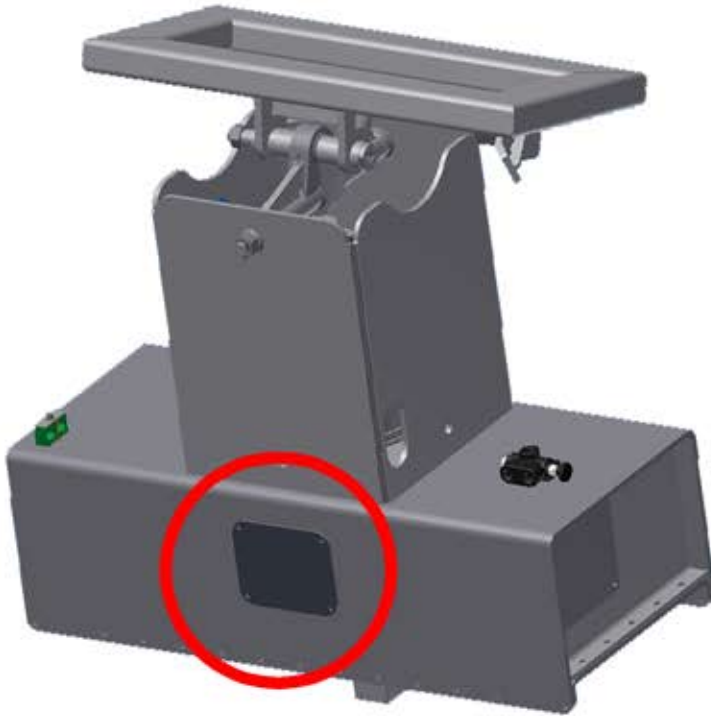
Properly Cleaning and Storing your new machine is critical to maintaining its appearance and ensuring years of service.

1. Thoroughly clean all debris off the Vibratory Drill to prevent damage.
2. Check the Vibratory Drill for worn and damaged parts periodically. Perform repairs and make replacements immediately to prevent potential hazards.
3. Make sure to store the Vibratory Drill in a clean, dry place.
4. Keep the hydraulic hose ends from sitting in water, dirt and other contaminants. Connect the drill's hydraulic lines together to prevent dirt and other contamination from entering the hydraulic system.
5. You can use spray touch-up enamel where necessary to prevent rust and to maintain the appearance of the drill.



When not in use **always** make sure the machine is positioned flat on the ground.

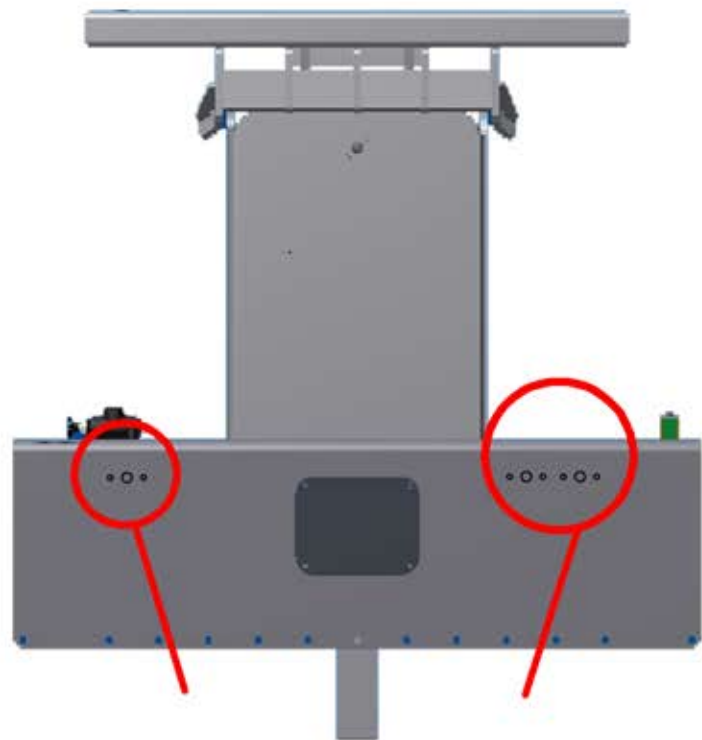
Changing Oil



If the oil needs to be changed you must first remove the front cover plate.

Since our equipment ships ready to use there is no need to fill the drive with oil. The drive is prefilled prior to shipping.

Lubricating Grease Zerks



These should be greased every 4 hours.



Model 200
Power Wheel®
Planetary Gear Drive

Model 200 Wheel Drives -
Double Reduction

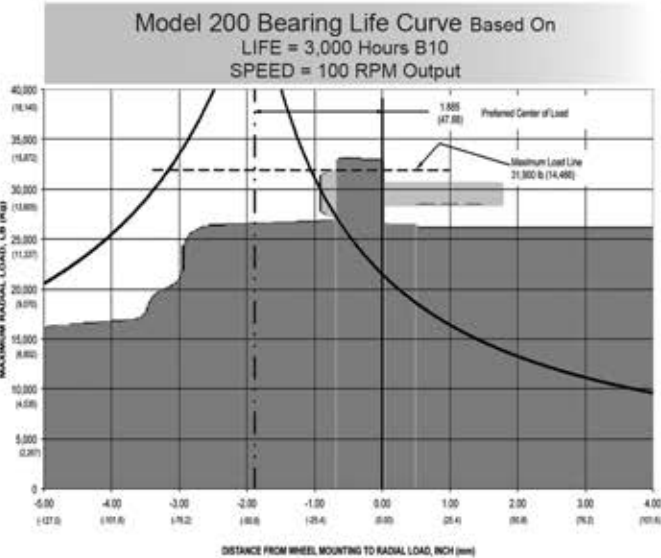
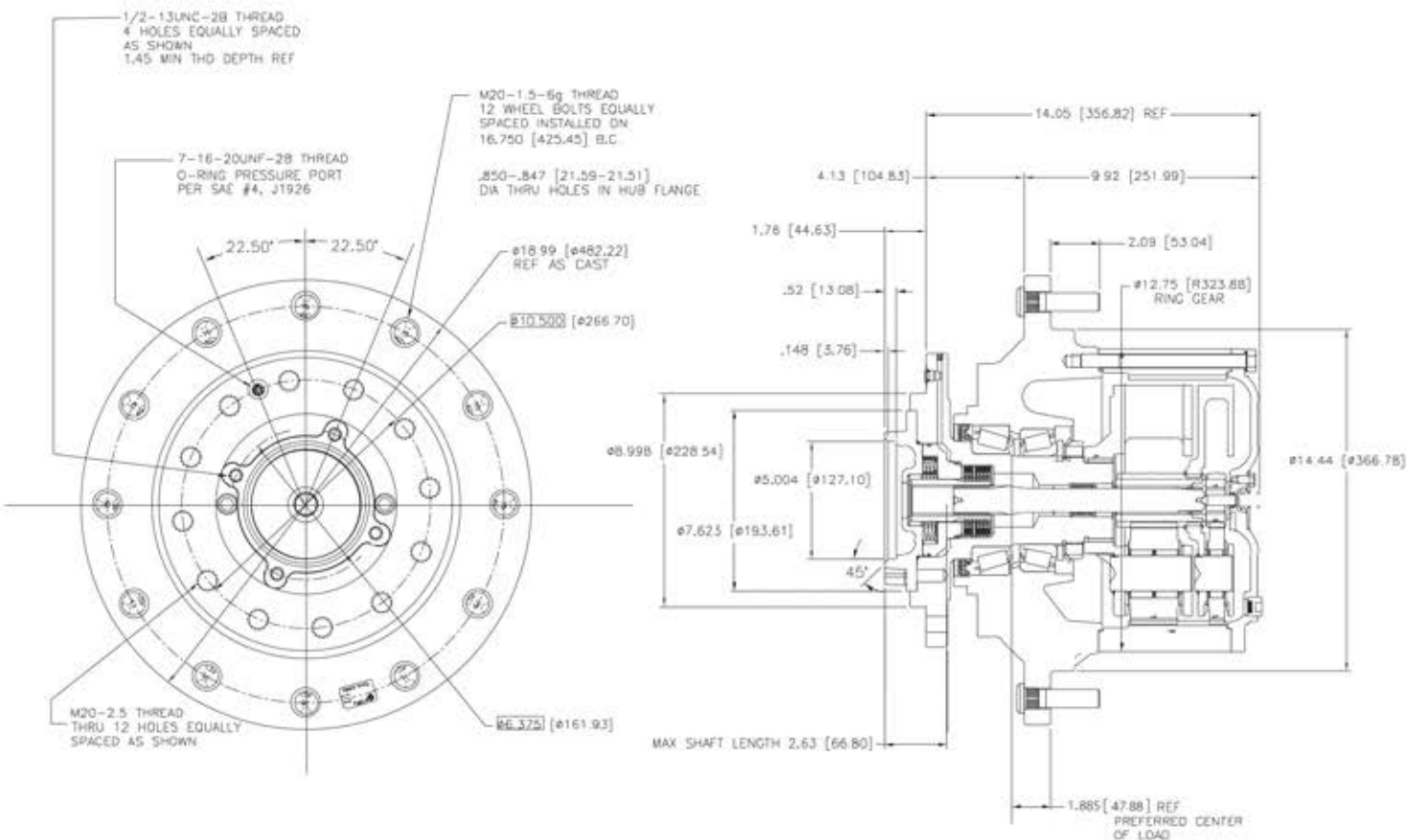
Power Wheel®

GENERAL SPECIFICATIONS

Max. intermittent output torque ¹ : 200,000 lb-in (22,600 N-m)	Approximate weight: 385 lbs (175 kg)
Max. input speed ² : 5,000 RPM	Oil capacity: 110 oz (3,250 cc)

¹ Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

² For N and Bolt-on series brakes, please contact Auburn Gear for input speeds above 4,000 rpm for application analysis.



Model 200 Wheel Drives					
Options	Description	Make all selections within one column			Use option order codes to build order code number
MOTOR PILOT / HUB	SAE A SAE B SAE C	*	*	*	200W3C
INPUT SPLINE	13T 16/32 14T 12/24	*	*	*	14
RATIO OPTIONS	36.82:1 44.58:1 51.35:1	*	*	*	36
WHEEL STUDS	3/4" x 3.21" M20 x 1.5 x 80mm None	*	*	*	19
PARKING BRAKE	2800 lb-in/125 psi	*	*	*	N7
SPECIAL FEATURES	Multi-Lip Seal Brake Disc Holes Boot Seal Pipe Plugs/ Spindle Side Quick Disconnect	*	*	*	T
200W3C 14 36 19 N7 T					

Model 200 Shaft - Spindle Output - Swing Drives

Double Reduction

Power Wheel®

GENERAL SPECIFICATIONS

Max. intermittent output torque¹: 200,000 lb-in (22,600 N-m)

Approximate weight: 300 lbs (136 kg)

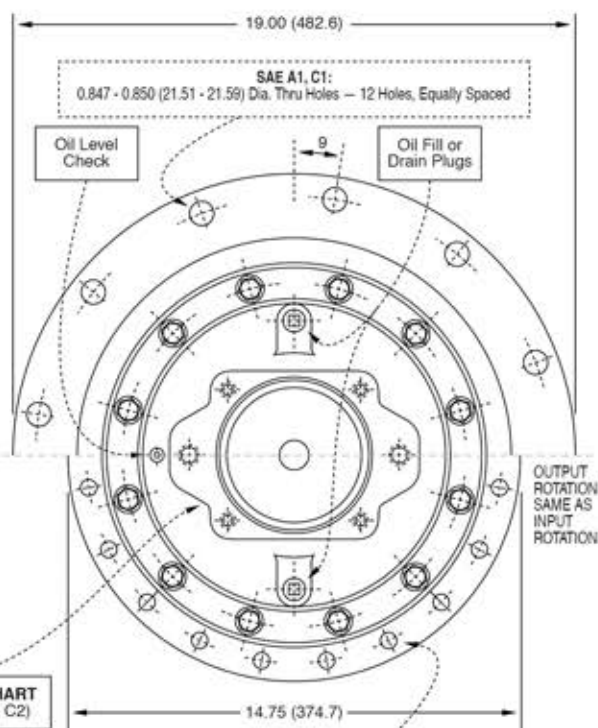
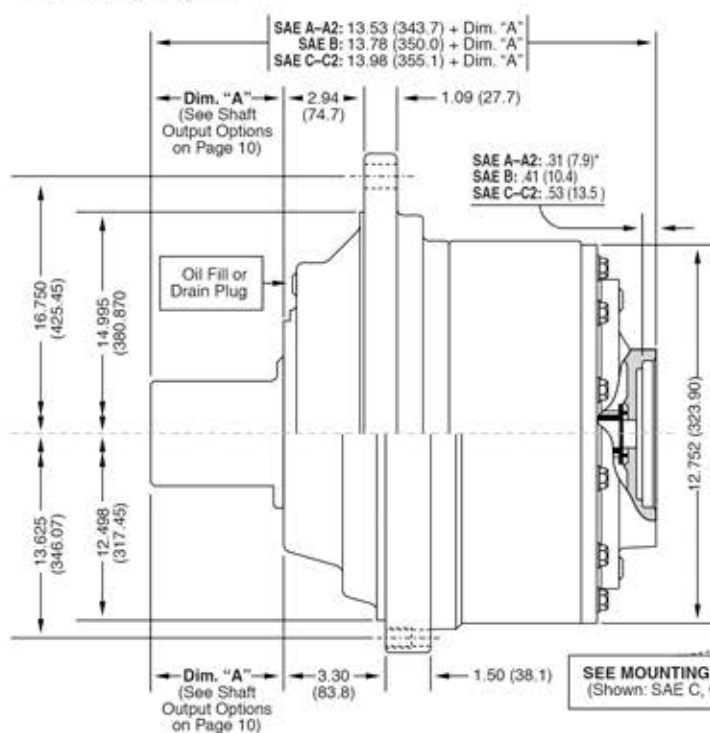
Max. input speed²: 5,000 RPM

Oil capacity: 96 oz (2,850 cc)

¹ Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

² For N and Bolt-on series brakes, please contact Auburn Gear for input speeds above 4,000 rpm for application analysis.

SAE A1, B1, C1

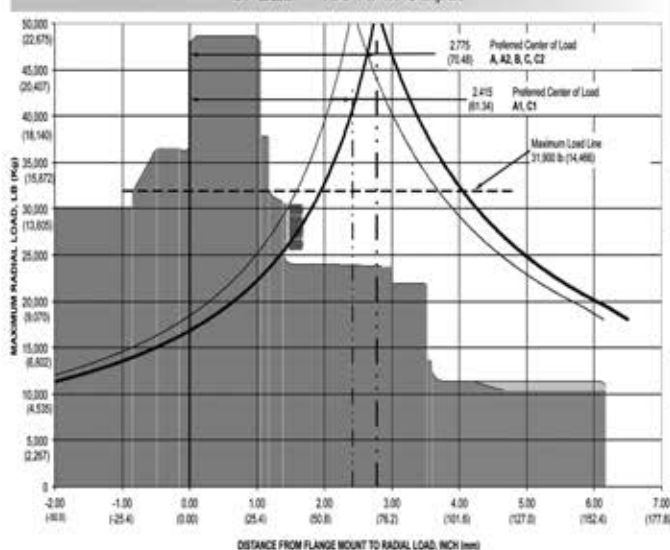


SAE A, A2, B, C, C2

*Spacer plate required when 52.35:1 ratio is used with any "A" mount and the 14T input spline. Spacer adds .600 (15.24) to overall length of drive

SAE A, B, C:
0.625 (15.88) - 11 UNC-2B Thd. 1.50 (38.1) Full Thd. - 20 Holes, Equally Spaced
SAE A2, C2:
.531 (13.50) Dia. Thru Holes - 20 Holes, Equally Spaced
.875 (22.3) Spotface - .06 (1.5) Deep

Model 200 Bearing Life Curve Based On
LIFE = 3,000 Hours B10
SPEED = 100 RPM Output



Model 200 Shaft & Spindle Out & Swing Drives*

Options	Description	Make all selections within one column	Order Codes	Use option order codes to build order code number
MOTOR PILOT / HUB*	SAE A A1 A2 SAE B B1 SAE C C1 C2	* * * * * * *	200S3A 200S3A1 200S3A2 200S3B 200S3B1 200S3C 200S3C1 200S3C2	200S3C1
INPUT SPLINE	13T 16/32 14T 12/24	* *	13 14	14
RATIO OPTIONS	37.82:1 45.58:1 52.35:1	* * *	37 45 52	37
OUTPUT SHAFTS & SPINDLES**	20T - 8/16 23T - 8/16 3.00" Keyed 3.75" Keyed 2.50" Hex (12) 3/4"-16 holes on a 10-1/2" B.C.	* * * * * *	20 23 K1 K2 H1 F1	K2
BOLT ON PARKING BRAKE	5,400lb-in/150psi 7,200 lb-in/190psi	* *	A1 A2	A2
SPECIAL FEATURES	Boot Seal w/F1 Spindle Debris Guard w/F1 Spindle	* * * *	Z G	
200S3C1 14 37 K2 A2				

- * Swing Drive Hub arrangements available - contact Auburn Gear
- ** Output Pinion Gears for swing drives also available - contact Auburn Gear

Model 200 Features

- Enhanced gear technology provides more power density without increasing external dimensions
- Precision computer-aided bearing setting allows for optimal bearing life
- Optimized carrier designs provide for greater resistance to shock and torsional loads, hence increasing gear box life
- Increased bearing capacity allows for additional radial load



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Model 200
Power Wheel®
Planetary Gear Drive

