GMS Industries Inc.

OPERATING AND MAINTENANCE MANUAL   AMP-Air Motor Power Group Model: AMP 200

Read this Owner's Manual thoroughly before operating the equipment. Keep it with the equipment at all times and make a copy to put on office file.
Replacements are available from GMS Industries, Inc.
PO Box 167,Buchanan MI, 49107
Tele. 269.695.2244
www.joywinch.com

IMPORTANT SERIAL # INFORMATION:

Please record all product information from the serial tag in the space below and have the information available when calling the GMS plant for information regarding your equipment.

RECOMMENDED SAFETY PROCEDURES:

- **This equipment and its accessories are NOT to be used for lifting or lowering people**
- **Operation should be restricted to designated trained personnel only.**
- **Always check equipment and accessories before operating**
- **Never exceed rated PSIG capacity.**
- **Always keep hands away from any nip points of especially holes and any other moving parts.**
- **Never leave motor or unit unattended while running.**
- **Check lubrication before each use.**
- **Always disconnect the air supply before servicing the equipment.**
- **Do not modify the equipment in any way. To do so could cause equipment failure.**

FAILURE TO COMPLY WITH THESE AND OTHER IMPORTANT INFORMATION OUTLINED IN THIS MANUAL MAY CAUSE SERIOUS BODILY HARM, EQUIPMENT DAMAGE AND OR PROPERTY DAMAGE.

The Occupational Safety and Health Act of 1970 states that it is the employer's responsibility to provide a workplace free of hazard. To this end, all equipment should be installed, operated, and maintained in compliance with applicable trade, industrial, federal, state, and local regulations. It is the equipment owner's responsibility to obtain copies of these regulations and to determine the suitability of the equipment to its intended use.
This Owner's Manual, and any warning labels attached to the equipment, are to serve as guidelines for hazard-free installation, operation, and maintenance. These guidelines should not be understood to prepare you for every possible situation. The information contained in this manual is applicable only to the GMS AMP series of Air Motors. Do not use this manual as a source of information for any other equipment.

STATEMENT OF WARRANTY:

GMS Industries, Inc. warrants each new products to be free from defects in material and workmanship under normal use and service for a period of 12 months from the date of purchase by the original using buyer. Genuine GMS Industries, Inc. replacement parts and components will be warranted for 30 days from the date of purchase, or the remainder of the original equipment warranty period, whichever is longer.

Under no circumstances will this warranty cover a product or component thereof, which, in the opinion of the company, has been subjected to misuse, unauthorized modifications, alteration, an accident or shipping damage. It is the responsibility of the purchaser to ensure that adequate insurance is purchased with shipping company. Once the product leaves the GMS factory it becomes the responsibility of the buyer to negotiate any damages with the shipping company and their respective insurance carrier. All invoices should be paid within stated terms.

This warranty also shall not apply to products that are operated improperly, improperly maintained, improperly stored or operated with parts or components not manufactured by GMS Industries, Inc. This warranty does not cover any costs for removal of our product, downtime, or any other incidental or consequential costs or damages resulting from the claimed defects. Brake discs, piston rings, brake material, gaskets or other wear components are not covered under this warranty, as their life is subject to use conditions which vary between applications.

Any alteration, repair or modification of the product outside the GMS Industries Inc. factory shall void this warranty. GMS Industries, Inc. in no way warrants pneumatic, hydraulic or electric motors and control valves or other trade accessories since these items are warranted separately by their respective manufacturers. The use of any trade accessory without the written signed consent of GMS Industries, Inc. will void the warranty on any GMS Industries, Inc product.

FACTORY AUTHORIZED REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY TO THE CONSUMER. GMS INDUSTRIES, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY. *

**Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.*

To make a claim under this warranty, contact the factory for an RGA number. The product must be returned, prepaid, directly to GMS Industries, Inc. A completed warranty claim form must accompany the product. If the product is found to be defective, it will be repaired or replaced free of charge, and GMS Industries, Inc. will return the product prepaid in similar fashion to the way it was received whenever possible.

When calling in to the factory for any reason please write down the specific unit information here for easy reference.

Model Number	Serial Number	Date of Purchase	Customer PO#	GMS Invoice#

Note: GMS Industries, Inc. reserves the right to change the design or discontinue the production of any product without prior notice.

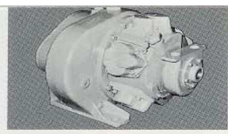
GMS Industries Inc.

PRODUCT & OPERATING DESCRIPTION:

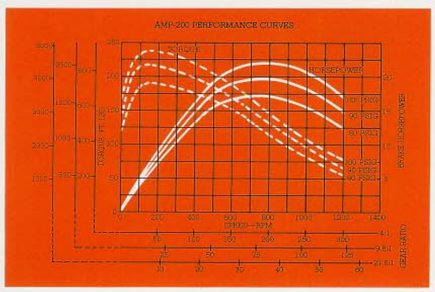
OVERVIEW & OPTIONS:

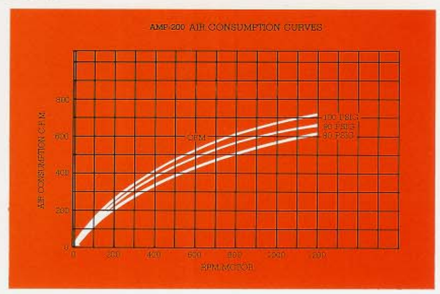
The GMS AMP 200 is a radial five cylinder design motor creating high torque air power at variable reversible speeds. It can be operated via direct air supply piped to the valve housing or via piping to a specially designed control valve made by GMS. Standard applications for this motor include the powering of specialty cable winches, pumps of various types, refinery bundler pullers, winches and hoists, and refinery drill stem operations. Optional equipment includes a specialty control valve, air strainer, line oiler and muffler.

SPECS & RATINGS:



AMP 200 Series



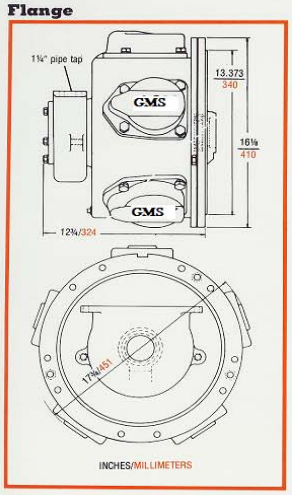


General Specifications

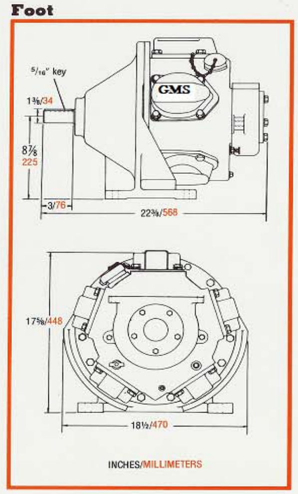
Mounting	Gear Ratio	Max. HP @ 90 PSI	Performance @ Max. HP RPM	Torque (Ft/Lbs)	Air Cons. (CFM)	Stall Torque (Ft/Lbs)	Starting Torque (Ft/Lbs)	Net Weight Lbs.
Flange or Foot	None	20.0	780	135	580	215	165	200/270
Geared Foot	4:1	18.8	195	506	580	808	620	615
Geared Foot	9.8:1	18.8	80	1234	580	1980	1520	615
Geared Foot	13.4:1	18.8	58	1702	580	2708	2077	615
Geared Foot	21.5:1	18.8	36	2742	580	4345	3333	615

Dimensions

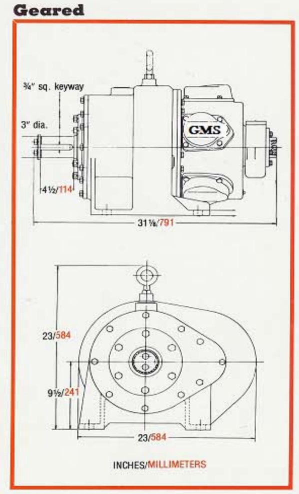
Flange



Foot



Geared



INSTALLATION:

Prior to installing the motor it is important that you inspect the unit for any damage that may have occurred during the shipping process. GMS is not responsible for damage incurred during shipping or any time after it leaves our facility. It is the responsibility of the buyer to be sure that insurance is sufficient to cover any damage that occurs as a result of a freight carrier's transportation or as a result of damage onsite at your facility. All invoices are expected to be paid within stated credit terms.

WARNING

- Buyers are advised to examine specific local or other regulations including the American National Standards Institute and/or OSHA regulations which may apply to a particular type of use of this product prior to installing or turning on the motor.
- All supporting structure, mounting hardware and attaching hardware must be in accordance with all applicable standards codes and regulations.
- Ensure proper selection and installation equipment as motors are heavy. Use adequate support when installing the air motor to the application it is meant to power. Additional personnel and equipment may be required to install the motor effectively.
- Do not install the motor in an area defined as hazardous by the National Electric Code, unless installation in such an area has been thoroughly approved.
- Do not install the motor near corrosive chemicals, flammable materials, explosives, or other elements that may damage the motor or injure the operator. Adequately protect the motor and the operator from such elements.
- Position the motor so the operator can stand clear of the load, and out of the path of any potential danger that could cause injury.
- Be sure that the motor is mounted appropriately as directed in this manual.

IMPORTANT

- ✓ Consult applicable codes and regulations for specific rules on installing the equipment.
- ✓ Fasten the motor securely to the foundation of the unit to be powered. Use coarse thread fasteners, grade 8 or better. Be sure to check the torque required for your fastener selection before mounting the winch. Make sure the motor is secured to a solid foundation as mentioned above under all conditions with design factors based on accepted engineering practices.
- ✓ Inspect the motor immediately following installation according to the Instructions for Inspection section of this manual. This will give you a record of the condition of the motor with which to compare future inspections.
- ✓ A qualified professional should inspect the foundation to insure that it will provide adequate support and that it complies with local codes.
- ✓ Do not weld the motor to any application use fasteners as instructed above.
- ✓ Motor is shipped from GMS WITH**OUT** oil or lubrication of any kind. Before you turn on the air motor it is imperative that the motor be filled with the appropriate type and quantity of oil as recommended in the "lubrication" section of this manual.
- ✓ Motor is shipped without oil, add prior to start up. See "start up instructions" section of this manual.
- ✓ Be sure to run the motor under low PSI and RPM for several minutes upon initial installation and after any subsequent oil changes. NEVER power up the air motor under maximum PSI upon start up or after any maintenance has been performed.

GENERAL START UP & INSTALLATION INSTRUCTIONS:

1. A bearing must be used on the outer end of the motor shaft pinion or shaft extension. Locate it as far from the motor as practical and be certain that it is properly aligned.
2. Do not make shaft extensions a tight fit in broached spline of the crankshaft. An outboard bearing cannot be perfectly aligned with the crank bearings and therefore, the splined fit must serve to a limited extent as a flexible coupling.
3. Motor shaft must be supported in such a manner that no end trust will be transferred to the crank.
4. Maintain motor in the horizontal position unless a special vertical cam pump and housing assembly is included designated by "V" on motor tag after model number.
5. Oil is drained from the motor prior to shipping from the factory. After hooking the motor up to the application, remove the level pipe plug and fill through the vent cap in the top, #24 on BOM list, until oil comes out of level plug hole, approximately 1 quart of oil. After replacing pipe plug fill motor with another ounce to top off prior to rotating the motor at slow rpm (50-100rpm) under air power. After initial start up allow motor to continue to rotate slowly under air power, remove vent cap and pipe plug and top off motor again as mentioned prior and replace cap and plug once performed.
6. New motors are run and tested at GMS prior to arrival at your worksite or factory although; rings pistons and cylinders may NOT be fully broken in or seated. Be sure that after hook up that the motor is not leaking any oil and power up the air motor slowly and under low PSI for up to 5 minutes as indicated above prior to putting the motor under "work load" type stress.
7. Be certain that your air supply is hooked up to an air dryer.
8. The air supply to the motor must be filtered with a strainer and lubricated with a line oiler within 9 feet of a throttle controlled AMP 94 motor or within 3 feet of the motor air inlet on continuously operated motors.
9. Air supply lines should be of 1 ¼" minimum size as hooked to a compressor large enough to generate 580 CFM at the motor inlet. This CFM as checked at the inlet will allow the motor to develop its rated horsepower in order to meet specifications.
10. Check oil levels frequently by topping off oil, allowing to settle and pouring off any water that has accumulated. IMPORTANT: Listen for any abnormal knocking sounds.

THROTTLE CONTROL:

In some applications a throttle valve is used to control the reversing operation of the air motor. For best performance, air supply must be adequate to provide 100 PSIG to the motor inlet at all times during operation. The operation is controlled by pushing the throttle handle forward to operate under normal directional rotation of the motor and pulling it back to reverse the motors rotation.

EXHAUST MUFFLER:

An exhaust muffler will substantially reduce the operating area noise, however it will also reduce the performance of the air motor. When a muffler is used it should be piped as close to the motor as possible, preferably in a horizontal position and directly into a closed nipple. The muffler should be cleaned frequently by washing in a solvent and blowing dry.

AIR STRAINER:
An air strainer should be placed at low points in the air line as frequent as needed based on the distance from the compressor to the motor. At minimum one should be placed near the air inlet to prevent passage of dirt and moisture from the air line into the Pistonair motor. It should be cleaned occasionally by removing the pipe plug and turning on the air for a few minutes. This will blow out any dirt, pipe scale, etc. the strainer has accumulated. The air screen should be removed, inspected and cleaned as often as necessary. Clean the screen by letting air blow through the opened strainer, holding the screen in the air stream. A dirty or plugged air strainer will cause loss of power and sluggish operation. It important to place the strainer before the line lubricator as required.

LINE LUBRICATOR:
A drip feed ine lubricator or venturi-type line oiler should be placed on the air line to the air motor to properly lubricate the rotary valve and rotary valve bushing assembly especially for those motors that will be operating continuously. Optimally it should be placed immediately after the air strainer and within 3 feet of the motor.

AIR DRYER:
An air dryer should be placed on the air line going to the air motor to ensure that there is not excessive build up of moisture inside the unit. An air dryer is not to be used as an alternative to regular maintenance requirements of the air motor or the winch itself. Also note that an air strainer and line lubricator are required for the longevity of the motor life.

GENERAL OPERATING CARE:

- Check the motor daily for loose connection, loose capscrews, loose filler, level, drain plugs or cocks, evidence of lubricant leakage and security of mounting.
- Always remember to blow out the air hose before connecting it to the air inlet of the motor. This will eject water and dirt from the air line.
- Always use the correct grade and same type of lubricant as instructed on the lubrication instruction. Do not deviate from the type and brand of oil until you clean and re-oil all parts.
- Should anything go wrong with the motor have it repaired at once. It is more economical to take time for minor maintenance repairs at the first sign of need than to risk excessive downtime for major repairs later.
- When a motor will be inoperative for a long period of time, service the motor thoroughly with oil and light grease to prevent rusting and deterioration while in storage. Use a strap wrench to frequently turn motor in both directions to prevent seizing up and rusting tight.

MAINTENANCE:

First and most important rule to be followed when making repairs are cleanliness and careful handling. Pistonair motors are precision machines designed and constructed to close tolerances and must be protected against damage by the use of correct maintenance practices. Careful attention to the instructions found in the section will help to reduce maintenance costs and insure long and trouble free operation.

REMOVING & CHECKING THE ROTARY VALVE ASSEMBLY & REASSEMBLY: Ensure the air supply is turned off, then remove the 2 capscrews from the exhaust plate and set aside. Inspect the exhaust plate for wear to ensure the valve has not walked back into the cast iron plate and worn. If it is visibly worn it should be replaced. Remove the valve from the valve housing and measure with a micrometer the OD of the valve. Remove the valve chest (it may be a tight fit and may require benching the motor to remove if not lubricated properly) and with an ID gage check the ID of the bronze bushing. If the total clearance between the 2 parts exceeds .010 they must be replaced. Ensure that a line lubricator is located within 3 feet of the inlet and a strainer is located at the lowest point on the line and is cleaned out frequently. This will allow longer life span for these parts. To reassembly install in the reverse order of the above ensuring that the valve is pushed all the way back in the valve chest prior to installing the exhaust cap. This will ensure the three drive pins are located properly into the crankshaft and prevent the valve from walking back against the exhaust cap. The three drive pins should fit into the holes of the crankshaft without any appreciable play. If the holes are elongated the crankshaft should be replaced. The motor cannot develop its rated power if the porting in the rotary valve does not match the timing of the piston strokes.

CHECKING PISTON RINGS, PISTONS & CYLINDERS: The motor must be benched to perform the following check and repair (unlike the valve and valve chest replacement where field repairs are possible). Place the motor on a table with the crankshaft slinger facing the technician. Remove the 4 capscrews that hold on one of the cylinders. Rotate the crankshaft to “push out” the cylinder so it extends as far out as possible from the head of the motor. Remove the cylinder and pull the wrist pin out of the piston from the bottom allowing the piston to be free from the connecting rod. Do this for all 5 cylinders one at a time being careful not to mix up the sets. Remove all rings with a ring spreader being careful not to damage the pistons. Check the ring gaps with a feeler gage. If the ring gap exceeds .020 when installed in the cylinder it must be replaced. During routine maintenance or anytime the motor is benched it is recommended to change the compression rings. Oil rings can carry longer lifespans and can be checked by the above method. When reinstalling the rings note the location of the oil ring goes nearest the skirt of the piston (see holes in piston ring) and the compression ring should be spread and placed with the bevel facing the pressure. Ring joints should be staggered and so as not to coincide with the wrist pin openings.

CHECKING THE PISTONS & CYLINDERS FOR COMPRESSION: Each cylinder and piston should be checked for compression. Place the cylinder upside down on the bench and seal off the air port into the cylinder. Remove the rings from the piston, then drop the piston into the cylinder. The piston should move slowly into the cylinder. If it falls into the cylinder, the piston and/or cylinder are worn excessively and should be replaced.

CHECKING CONNECTING ROD, BUSHING, SLEEVE, & RETAINING RINGS: Connecting rod rings must be replaced if cracked or worn excessively. The steel connecting rod bushing will wear over time and once it is worn over .035 total clearance between the connecting rods it and/or the connecting rods should be replaced. The brass crankshaft bushing also is recommended to be replaced any time the motor is benched but only if worn beyond its tolerance. Contact GMS for more information.

PREVENTATIVE MAINTENANCE TIPS: Regular attention to lubrication and elimination of moisture and debris in the air lines are the two most important factors governing part replacements and length of service between overhauls. Observe the following suggestions:

1. Drain off accumulated water daily, then level-check the oil supply. Water which accumulates in the motor crankshaft will raise the oil level and anything above the normal oil level will be blown out through the filler cap during operation. Conceivably, this can replace all of the motor oil completely with water, resulting in wear and damage to the motor parts.
2. Drain the air receiver and strainer daily or as often as possible. Air laden with moisture will condense into water in the air receiver and should be drained off frequently. Moisture traps/strainers installed at low points in the transmission lines also aid in reducing the amount of water which may reach the motor.
3. Keep the strainer in the filler cap free of debris. This should be checked each time the motor is serviced with oil. If the screen becomes plugged, air pressure will build up in the crankcase and will cause a reduction in power and may even rupture the oil seals in the sealed bearing located on the crankshaft end.
4. Always use a line lubricator with motors on continuous duty such as in the refinery decoking rotary joint application. Fit as close to the motor as possible yet after the air strainer and within 3 feet of the air inlet to the motor. This assures that the rotary

valve and bushing will receive adequate lubrication and the oil vapor carried into the motor will help to lubricate the cylinder walls.

5. In some installations, due to atmospheric conditions or because moisture has not been eliminated in the supply lines, fogging or freezing may occur at exhaust ports. Fogging can be corrected by attaching a length of hose or pipe to the rotary valve exhaust port to carry the exhaust air away from the motor. Freezing can generally be eliminated by insuring that the air supply is as dry as possible before it is used by the motor.

LUBRICATION & MAINTENANCE POINTS & SCHEDULE

GMS AMP Series Lubrication Instructions	For GMS 3.8HP, 9.4HP, 18HP & 20HP Piston Air Motors

LUBRICATION & MAINTAINANCE:

Lubrication is the most important factor in maintaining an efficient, safe and long lasting motor. The long term longevity of the unit will depend mostly on the frequency of changing or removing moisture buildup within your oil (read more below), and servicing the seals and gaskets to minimizing oil leakage from the unit. "Topping up" the oil levels will require frequent checking of the oil level in the motor to ensure proper lubrication.

GMS does not ship the air motor with motor oil or lubrication/grease! Read installation section below for proper filling and lubricating instructions.

The Motor is splash lubricated as the crankshaft turns the "slinger" in the motor housing. The motor has no other means of lubrication so it is important to ensure that levels (filled to the level of the pipe plug in the motor housing) are maintained to ensure the best performance, longevity of the motor's life, and minimize repairs.

BELOW 32F (0C)	*32F to 72F (0 - 21C)*	*ABOVE 72F (21C)*
ISO VG32 - SAE 10W	*ISO VG68 - SAE 20W*	*ISO VG100 - SAE 30W*

Oil Level Checking:

At temperatures above 32F (freezing level) operator should shut off motor for an extended period of time to adequately allow oil temperature and motor components to cool effectively. Once cooled (typically after several hours), loosen pipe plug on the side of the motor housing and allow accumulated water to drain from the housing. When the motor is operating water condenses from the forced air to generate the power for the motor. Water is thus heavier than oil and separates leaving the water on the top layer allowing for the water to be poured off through the pipe plug.

At temperatures below 32F (freezing level) operator should follow the above instructions but allow the motor to cool off just long enough for the water to separate from oil but not long enough for it to freeze. At this point one should drain the water and top up the oil level.

Based upon usage it is recommended that the oil be changed frequently. As moisture enters the air motor it collects over the total time that the motor runs which will determine the frequency of service required:

Heavy Useage - 3-4 week oil changes
Medium Useage - 5-6 Weeks
Light Useage - Every 6 weeks or more as required.

NOTE:

-It may be necessary to turn over the crank at low RPM's when draining oil so as to push the remaining oil out of the lower cylinders. Be careful not to run the motor too long without oil.
-If motor casing is not drained in temperatures below freezing, water may eventually accumulate and cause the motor to freeze tight. If this occurrs it is recommended that it be brought into a warm room to thaw out and serviced with an oil change and inspected for any structural damage to the housing and contents.
-Once the oil has been changed it is recommmended that the motor be cranked over at low RPMs upon restart up.
-Be sure to grease lubricate the female spline

GMS AMP Series Inspection Instructions	For GMS 3.8HP, 9.4HP, 18HP & 20HP Piston Air Motors

INSPECTION:

There are two types of inspection, the first type involves the frequent inspection by the air motor operator and the second type is the periodic inspections performed by someone who is trainied in the operation and repair of the air motor. It is important that inspections are followed routinely and documented to avoid potentially dangerous conditions that can arise from improper regular or irregular (should be avoided) uses of the air motor. When a problem is recognized it is important that the documentation is followed up with proper protocol to fix the assessed problem before operation of the unit can continue. For these reasons spare parts are strongly recommended to be kept on hand for quick replacement. Contact GMS for a spare parts list for your unit which will be based on usage and frequency of other factors outlined in this section.. It can also be routine to replace certain components regularly to avoid more serious damage in the future.

A- Frequent Inspection

Any time an operator turns on the motor he or she should be listening for anything out of the ordinary regarding the operation of the air motor. Out of the ordinary may include but is not limited to; abnormal sounds like grinding or scrapping, visual signs like "knocking" or more subtle signs such as unusual amounts of oil leakage from the unit. Furthermore, the operator should take care in monitoring the effectiveness of the controls and note any changes in the operations manual or unit log sheet for evaluation to be performed during the periodic inspection period. In cases of extreme operational issues this periodic inspection may need to be scheduled ahead of normal scheduling and operation of the unit may need to be halted until a trained inspection can be performed. Frequently, the unit fittings and gaskets should be checked for tightness and leakage for oil and air. As necessary, all hoses and fittings should be changed to prevent air leakage immediately when noted and observed.

B- Periodic Inspection

The most important part of periodic inspection is to evaluate and maintain excellent unit log sheets to identify changes in the unit's performance that may require attention during the periodic inspection. Furthermore, it is important that log sheets of periodic inspection are maintained as a basis for continuing evaluation and as a record for replacement part needs.
*Frequency of periodic inspection depends on severity of usage and the environment in which the unit is exposed. Use the below tables to determine how often you should conduct periodic inspections on air motor units.

USAGE

NORMAL USAGE	HEAVY USAGE	SEVERE USAGE
Yearly Periodic Inspection	6 Month Periodic Inspection	Quarterly Periodic Inspection

ENVIRONMENT

BELOW 32F & UNCOVERED EXPOSURE	32F to 45F & UNCOVERED EXPOSURE	45F to 68F & UNCOVERED EXPOSURE	68F to 80F & UNCOVERED EXPOSURE	ABOVE 80F & UNCOVERED EXPOSURE
BELOW 32F & PROTECTED ENVIRONMENT	32F to 80F & PROTECTED ENVIRONMENT			ABOVE 80F & PROTECTED ENVIRONMENT

Legend	Requirement
EXTREME ENVIRONMENT (blue)	*EXTREME REQUIRES QUARTERLY PERIODIC INSPECTION*
EXTREME ENVIRONMENT (red)	
HARSH ENVIRONMENT (orange)	*HARSH REQUIRES 6 MONTH PERIODIC INSPECTION*
HARSH ENVIRONMENT (light blue)	
NORMAL ENVIRONMENT (yellow)	*NORMAL REQUIRES ANNUAL PERIODIC INSPECTION*

**** NOTE: Disassembly may be required during periodic inspection based on usage and environment for cleaning and maintainance of unit performance.***

****** Air motors should never be used to lift or lower people ******

GMS

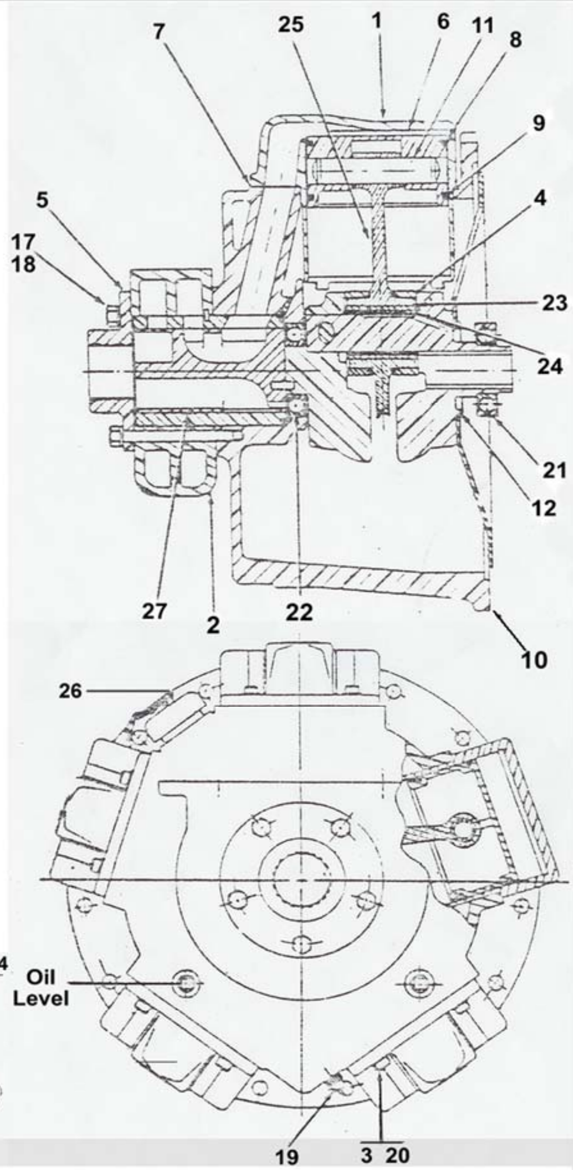
GMS INDUSTRIES
PO BOX 167
807 West 4th Street
Buchanan, MI 49107

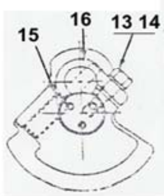
OEM: GMS INDUSTRIES
269-695-2244
www.joywinch.com

Bill of Material Number: 502019-133

AMP-200 AIR MOTOR ASSEMBLY

REF #		DESCRIPTION	QTY
		502019-133 AMP-200R Piston Air Motor Assembly	
1	155882	CYLINDER	5
2	A154950	VALVE HOUSING	1
		502019-134 AMP-200L Piston Air Motor Assembly	
1	155882	CYLINDER	5
2	3157383-2	VALVE HOUSING	1
		502019-135 AMP-200R Piston Air Motor Assembly (Beebe)	
1	1157105-29	CYLINDER	5
2	A154950	VALVE HOUSING	1
		502019-136 AMP-200L Piston Air Motor Assembly (Beebe)	
1	1157105-29	CYLINDER	5
2	3157383-2	VALVE HOUSING	1
		PARTS COMMON TO AMP-200 AIR MOTOR ASSEMBLY	
3	150502	WASHER	20
4	154800	RING, for Connecting Rod	2
5	155550	CAP, for Exhaust (Screw Type)	1
6	1157251-27	PISTON	5
7	155825	CYLINDER GASKET	5
8	155881	COMPRESSION RING	5
9	155882	OIL RING	5
10	A154798	HOUSING, Motor	1
11	A154926	WRIST PIN	5
12	A155856	CRANKSHAFT ASSEMBLY - Includes:	1
13	900235-53	Capscrew	1
14	900302-4	Lockwasher	1
15	900502-173	Setscrew	1
16	900583-147	Taper Pin	1
*	155855	Oil Slinger	1
*	154958	Crankshaft Body	1
*	1157095-3	Counterweight	1
17	900020-123	CAPSCREW	5
18	900302-3	LOCKWASHER, Spring	5
19	901204-2	PIPE PLUG	3
20	902224-73	CAPSCREW, Knurled	20
21	940016-208	BALL BEARING	1
22	940021-208	BALL BEARING	1
23	1157062-33	BUSHING	1
24	1157331-11	SLEEVE	1
25	1157525-6	CONNECTING ROD	5
26	3157067-32	CAP, Vent Assembly	1
27	3157524-38	VALVE, Rotary	1





GMS Air Winch

GMS Industries Inc.

GMS's AMP Series Air Motors –

Options

- Flange Mounted
- Gearbox – Reduction and 1:1 Mounted
- Foot Mounted
- Specialty made bracket adapters to mount our air motors to other manufacturer's equipment such as IR.

*For additional maintenance, options and accessories, inspection, assembly and disassembly, spare parts questions please contact GMS at 269.695.2244.

Thank you for choosing GMS products.

Air motors should never be used to lift or lower people