

Manually Operated Variable Speed Compound Drive

Installation & Maintenance Manual

P-5063-TBW
Form 648B



CONTENTS

INSTALLATION and OPERATION

Installing Compound Drive	1
Making Speed Adjustments	2
Changing the Belt	2
Operating Maintenance	2
Trouble Shooting	3

MAINTENANCE

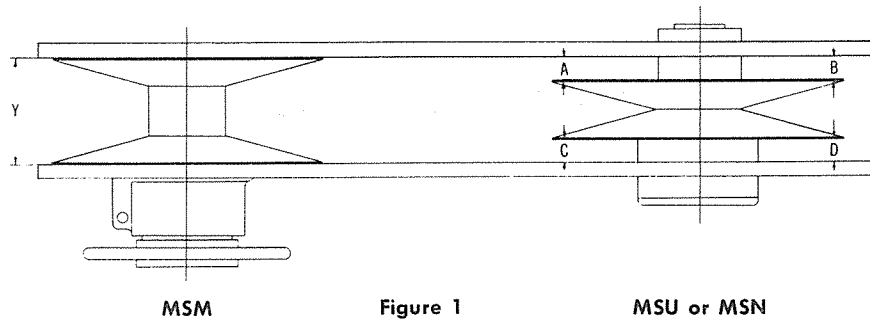
MSM Sheave	3
Disassembly	4
Replacement of Outboard Bearing	5
Replacement of Inboard Bearing	6
Reassembly	7
MSU Sheave	9
Disassembly	10
Inspection	11
Reassembly	11
MSN Sheave	12
Disassembly	13
Inspection	14
Reassembly	15
Replacement Parts	16

INSTALLATION INSTRUCTIONS

- Before installing drive, insure that center distance between shafts is that required for drive. Correct centers are listed below. Variation will result in a change of anticipated speeds.

MSM-97			MSM-127		
Belt No.	MSN-97 Companion	MSU-107 Companion	Belt No.	MSN-127 Companion	MSU-137 Companion
2926V471	12.9	12.0	4430V578	15.2	14.2
2926V486	13.7	12.8	4430V610	16.8	15.9
2926V521	15.5	14.6	4430V630	17.9	16.9
2926V546	16.8	15.8	4430V660	19.4	18.5
2926V574	18.4	17.3	4430V670	19.9	19.0
2926V586	18.8	17.9	4430V690	20.9	20.0
2926V606	19.9	18.9	4430V700	21.5	20.6
2926V616	20.4	19.5	4430V730	23.0	22.1
2926V636	21.4	20.4	4430V790	26.0	25.1
2926V646	21.8	21.0	4430V850	29.1	28.2
2926V666	22.9	22.0	4430V910	32.1	31.2
2926V686	23.9	22.3	4430V970	35.1	34.3

- The motor should be in place and secured. Place the MSM on the motor shaft. Tighten the clamp hub capscrew to 50 ft. lb. torque to secure MSM to the shaft. Place the MSU or MSN on the driven shaft, but do not secure it yet.
- Open MSM to minimum pitch diameter ($Y = 5-1/4''$ for MSM-127; $Y = 3-9/16''$ for MSM-97). Refer to Figure 1 below.



- Locate MSU or MSN so that points A, B, C and D on Figure 1 are equal.
- Using a wooden wedge, force the flanges of the MSU or MSN open. Place belt over both sheaves. Remove the wedge. Rotate drive by hand so that belt is flush with O.D. of MSU or MSN.
- Check alignment as in Figure 1 and locate MSU or MSN so that points A, B, C and D are equal. Secure the MSU or MSN to the shaft with the two setscrews on the MSU or the clamp screw on the MSN. Apply 50 ft.lb. torque to the clamp screw.

7. The control hub of the MSM must be tied down to keep it from rotating (Figure 2).
8. For installation of Sight-Lube, see Bulletin 571G.

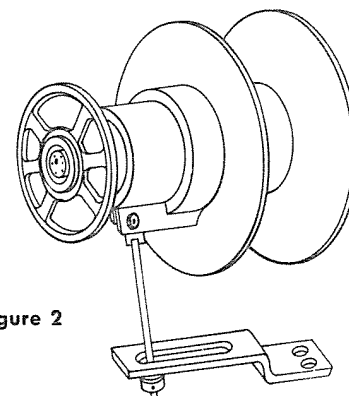


Figure 2

MAKING SPEED ADJUSTMENTS

With the drive in motion, loosen thumbscrew and turn the handwheel of MSM to adjust speed. **When desired speed is reached, tighten thumbscrew in control hub.** The positive clamping action will keep handwheel from moving and eliminate speed drift. **Before making additional speed adjustments, loosen thumbscrew.** **Note:** Thumbscrew is not used when the MSM is equipped with a sprocket.

CHANGING THE BELT

1. Adjust the drive to the fastest safe operating speed. Stop the drive. Turn handwheel to open MSM adjustable flange to widest setting. See Figure 1.
2. Remove the tie down assembly from the MSM. Disassemble Sight-Lube hose from each sheave if present.
3. Remove belt from MSM. Pull belt out of groove of MSN or MSU companion sheave.
4. Using a wooden wedge, force the flanges of the companion sheave open. Place new belt over both sheaves. Remove the wedge. Rotate drive by hand so that belt is flush with O.D. of MSU or MSN.
5. Reassemble tie down assembly and connect Sight-Lube hose if used. Drive is ready to operate.

OPERATING MAINTENANCE

The MSM, MSU, and MSN incorporate the patented, well-proven Wood's oil lubrication system. To insure proper lubrication, it is necessary to observe the following:

Oil Checks—Check oil reservoir every 500 hours. To do this, rotate sheave until oil fill plug is at highest elevation (12 o'clock position). Remove plug. If no oil appears, fill with Wood's oil until oil overflows. Wood's oil is available in pint cans from Wood's distributors or Wood's factory. Equivalent oils are as follows:

Amoco Oil Company	Amogear EP-460
Ashland Oil Company	Valvoline Gear Oil 831, SAE 80-85-90
Continental Oil Company	Conoco Gear Oil No. 460
Exxon Corporation	Spartan EP-460
Chevron, USA	Chevron Ultra Gear SAE 85W-140

Damage caused by a non-recommended oil is not covered under Wood's warranty.

Grease ball bearings - Each MSM sheave contains two precision ball bearings. These should be regreased every 1000 hours of operation with dry good grade general purpose Lithium base grease.

TROUBLE SHOOTING

1. The flanges of both the MSM and the companion heat up.
 - a. Check belt alignment. Misalignment can cause belt to slip in one flange.
 - b. Check load conditions. Is horsepower rating of drive being exceeded?
2. The full speed range cannot be obtained.
 - a. Check center distance. Centers must be within $\pm 1/16$ " from value given in table under Step 1.
 - b. Was belt installed with sheaves in a position as outlined in Step 3?
 - c. Make sure that the threads on the MSM handwheel are not damaged.
3. The control hub or handwheel of the MSM is extremely hot.
 - a. If this occurs after regreasing, too much grease was pumped into bearing. After several hours, this should correct itself.
 - b. If this occurs and bearings have not been regreased, grease bearings with a general purpose Lithium grease.
 - c. Disassemble MSM and check for possible bearing failure.
4. The MSM makes a low pitched buzz saw type sound.
 - a. Regrease bearings. If this does not correct the problem, replace MSM bearings.
5. The handwheel of the MSM rotates or drifts during operation.
 - a. Tighten thumbscrew per instructions. Refer to "Making Speed Adjustments."
6. The handwheel will not turn or is extremely difficult to turn.
 - a. Loosen the thumbscrew per instructions. Refer to "Making Speed Adjustments."
 - b. Check the threads on the control hub to see if they might be damaged.
 - c. Check the tie down assembly to assure adequate play in the components so that the control hub can traverse. There should be no binding in this assembly.
7. The MSM, MSU, or MSN is leaking oil.
 - a. Consult the maintenance manual and replace the o-ring seals or plugs required.
8. The adjustable flange will not move.
 - a. Check the oil reservoir. If empty, the sheave might be frozen. Consult the maintenance manual.

MAINTENANCE INSTRUCTIONS

MSM FEATURES

Wood's MSM sheave is designed to provide infinitely adjustable speeds over a wide range. The MSM and its MSU or MSN companion make up a compound variable speed drive where both units adjust. The MSM is manually adjusted by the handwheel or sprocket. The MSU or MSN is spring-loaded and is a "slave" to the MSM.

Precision ball bearings are employed to allow the MSM's flanges to rotate while the control hub and handwheel remain stationary.

Oil from the central reservoir is forced to the unobstructed bearing surfaces, where a continuous film of oil separates the cast components. Every revolution of the sheave re-oils the contacting surfaces to eliminate all possibilities of freezing from fretting corrosion. Two o-ring seals prevent the oil from escaping the bearing area.

Minor maintenance instructions are given in the "Installation Instructions," Page 2. Minor maintenance includes oil level checks, and greasing of the sheave's two ball bearings.

MAJOR MAINTENANCE

As part of your preventive maintenance program, Wood's recommends that you disassemble the MSM every two years of operation (10,000 hours) and replace o-ring seals, gaskets, and ball bearings. To do this you'll need an MSM-97 or MSM-127 seal kit and a bearing kit. See Page 16 for ordering parts.

DISASSEMBLY

1. Remove the MSM from the shaft by loosening the clamp hub capscrew and removing the tie down assembly. **Do not** pry on the flanges while removing the sheave from the shaft. If there is a label on the end of the sheave, remove it with a knife or a screwdriver.
2. Remove the six capscrews which hold the end cap. If the sheave is equipped with the "Sight-Lube" oiling system, there may be three screws thru the Sight-Lube adapter and three screws under the adapter.
3. Hold the control hub and turn the handwheel or sprocket until the flanges are closed to the maximum pitch diameter position. Continue to turn until the threads are free. Remove the handwheel hub and the torsion bar (Figure 5). Drain oil from reservoir into a cup and discard. Using a felt or paint marker, index the flanges as shown in Figure 3 to facilitate correct reassembly.

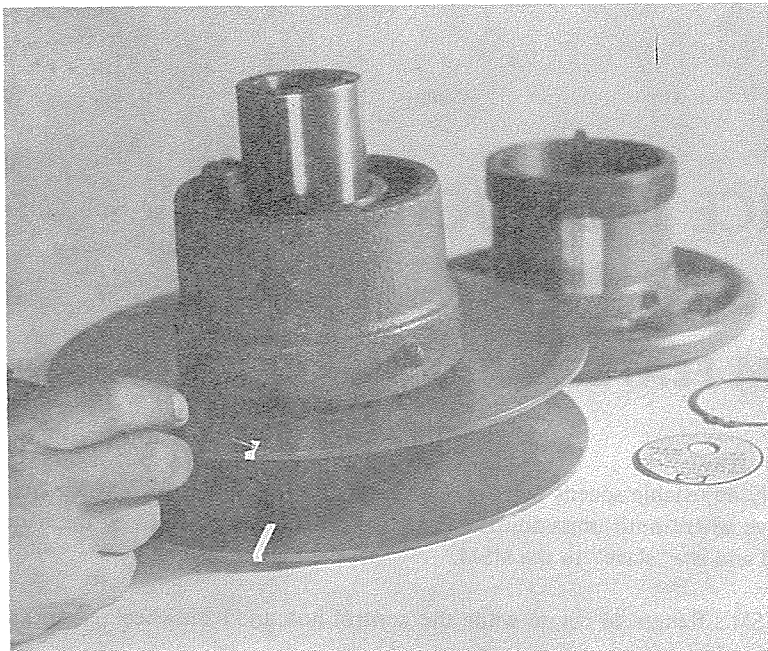


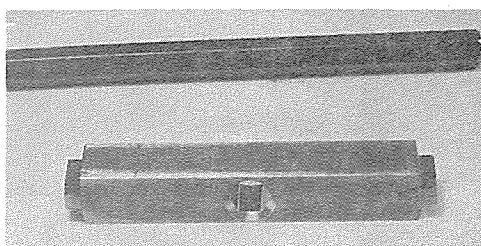
Figure 3

4. Holding the inboard flange firmly, grasp the adjustable flange and pull it up quickly with force. This will force the retaining ring which holds the inboard o-ring out of the flange and allow removal of the flange. **Note:** This will destroy the o-ring. See Figure 4. Remove the torsion key.



Figure 4

5. Remove and discard the o-rings. Clean o-ring grooves in the adjustable flange and the o-ring retainer with solvent. Being careful not to scratch the polished bearing surface of the inboard flange, clean the flanges with a solvent-soaked rag and wipe dry.
6. Inspect the polished surface of the inboard flange's sleeve for nicks and scratches and signs of fretting corrosion (galling). If the MSM was run at any time without oil, there is a possibility that this surface will be fretted or that the flanges will have frozen together. If the flanges are badly fretted or frozen, the MSM is not repairable and must be replaced. **Note: Wood's will not furnish these cast iron parts for replacement in the field.**
7. Check the torsion key for signs of wear on each end or for any rounding of the hexagonal hole in the center. If it is damaged, it should be replaced. (See Figure 5 to identify torsion key and bar; refer to Page 16 for ordering information.)
8. Inspect the ends of the torsion bar for rounding or other damage. Replace if necessary.



(Torsion Bar, top; Torsion Key, bottom)

Figure 5

REPLACEMENT OF BEARINGS

Outboard Bearing

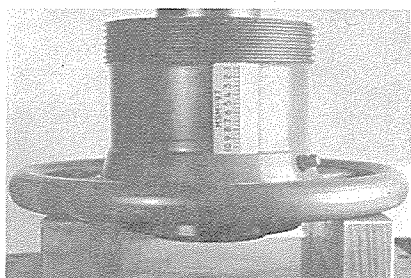


Figure 6

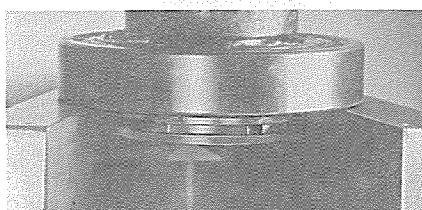


Figure 7

1. Place handwheel hub assembly under arbor press with its outboard face down and supported by blocks approximately 2" thick. Be sure blocks are clear of bearing.
2. Using a piece of shafting or pipe slightly smaller than the bore of the handwheel hub, press the bearing and brass seal ring from the hub as in Figure 6.
3. Remove the brass seal ring from the rear of the bearing and discard.
4. Support the bearing and press end cap out of it (Figure 7).

5. Wipe I.D. of handwheel hub clean.
6. Pack replacement bearing approximately one half full using a Lithium grease if it is not pregreased.
7. With its shielded side up, support BOTH races of the new bearing and press end cap into the inner race tightly against the snap ring or lip of the hub (Figure 8).
8. Place the handwheel hub, outboard face up, under the press. Insert new brass seal ring with its grooved face up. IT IS IMPORTANT THAT THE SLOT BE IN LINE WITH THE GREASE FITTING IN THE HUB. See Figure 9.
9. Set the replacement bearing assembly handwheel on the hub with its shielded side up. Exerting pressure ONLY on the outer race of the bearing, press it into the hub until it is fully seated. See Figure 10.

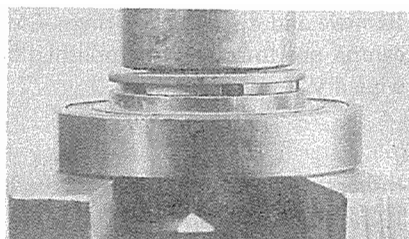


Figure 8



Figure 9

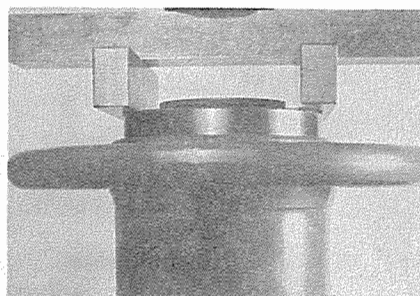


Figure 10

REPLACEMENT OF BEARINGS

Inboard Bearing

1. Place two tapered wedges 180 degrees apart, between the control hub and the adjustable flange assembly. See Figure 11. Tapping the wedges lightly and alternately, wedge the control hub and the bearing from the flange. Make sure that both the hub and the bearing are being removed.
2. Support the inboard end of the control hub and press the bearing and brass seal ring from the hub (Figure 12).
3. Remove the brass seal ring and discard. Wipe grease from the control hub and the hub of the adjustable flange.
4. With the control hub standing on its threaded end, place the new brass seal ring in the counterbore of the hub. Make sure that the grease groove in the brass ring is in line with the grease passage in the hub. (Refer to Figure 9.)

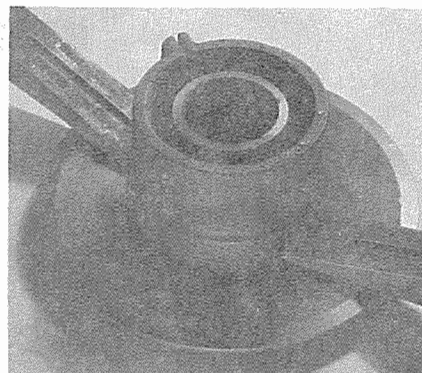


Figure 11

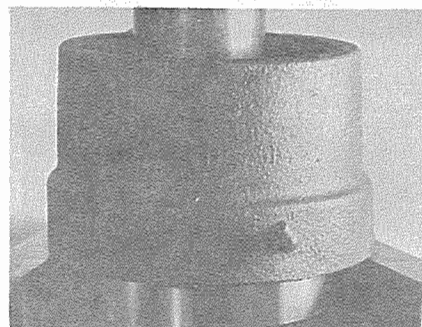


Figure 12

5. Pack replacement bearing approximately one half full using a Lithium grease if it is not pregreased.
6. Position the replacement bearing on the hub, with its shielded side up. Press **only** on the **outer** race to seat the bearing fully in the hub. See Figure 13.
7. Lower the control hub assembly over the adjustable flange, making sure that it is even and not cocked. Carefully press the control hub assembly onto the adjustable flange until the bearing is fully seated (Figure 14).

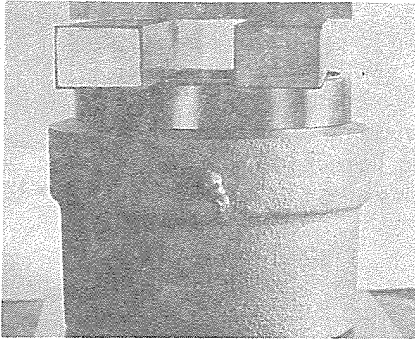


Figure 13

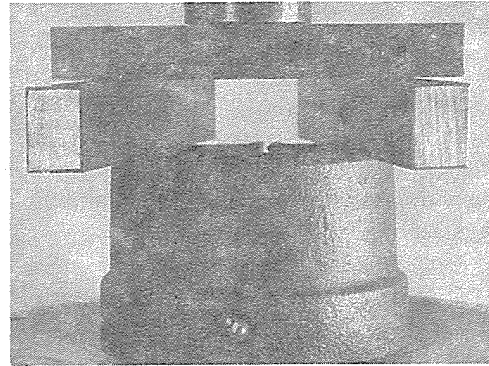


Figure 14

REASSEMBLY

1. Apply a liberal coat of the Loctite® hydraulic sealant supplied to the O.D. of the steel retaining ring. Place the retaining ring and one new o-ring, in that order, over the sleeve of the inboard flange, making sure that the o-ring is seated in the counterbore of the steel ring completely. See Figure 15.
2. Replace torsion key, centering it in the milled slot. The hexagonal hole must face up (Figure 16).



Figure 15

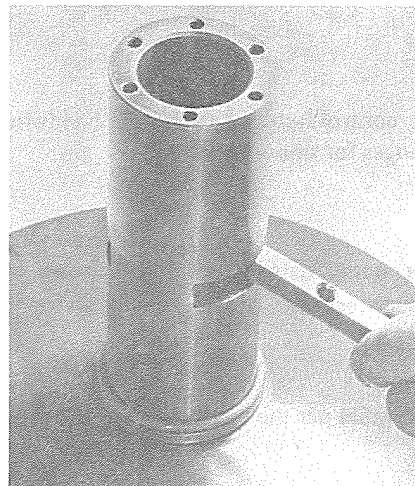


Figure 16

3. Moisten the remaining o-ring with oil. Spread oil around the bore of the adjustable flange and the outboard o-ring groove. Place the new o-ring in this groove as shown in Figure 17.

4. Align the index marks of the flanges and carefully slide the outboard flange over the sleeve of the inboard flange (Figure 18). **Do not** pinch the o-ring while feeding it over the sleeve. Guide the ends of the torsion key into the keyways in the adjustable flange. **Do not** lower the flange all the way.

5. Be sure that the o-ring is completely on the steel ring. Guide the ring into the flange, taking care to keep it straight. Press the adjustable flange assembly over the steel ring (Figure 19) until the adjustable flange is seated on the steel ring.

6. Place the torsion bar into its hole in the torsion key. Fill the oil reservoir with Wood's oil. For approved oils, see Page 2.

7. Place the new plastic gasket over its pilot on the inner face of the end cap. Two or three light dabs of grease on the face of the gasket will help to keep it in place. Align holes.

8. Insert the end of the torsion bar into its hole in the end cap and thread the handwheel hub assembly into the control hub (Figure 20). Turn the handwheel until the end cap is seated on the sleeve, and align capscrew holes.

9. Spread two or three drops of Loctite® retaining compound on the threads of the capscrew and into the capscrew holes into the sheave. Insert capscrews and tighten them evenly and in rotation to 175 in.-lbs. torque on the MSM-97 or MSM-127. Use 45 in.-lbs. torque on a MSM-72 or MSM-77.

10. Hold the control hub and rotate the handwheel to check the adjustment of the flanges for smoothness.

11. Scribe or stamp date of repair on sheave for reference and preventive maintenance records.

12. Install the MSM per the instructions in the front of this manual.

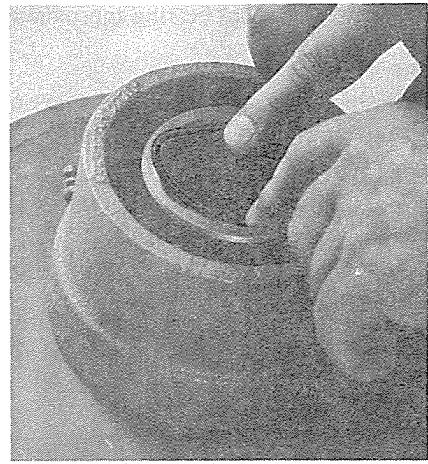


Figure 17

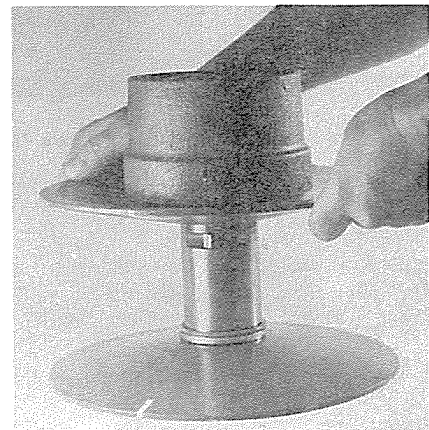


Figure 18

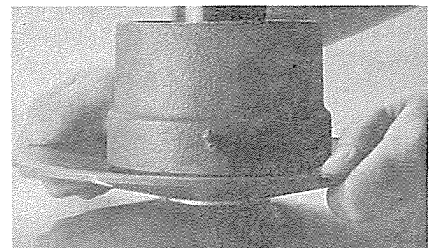


Figure 19

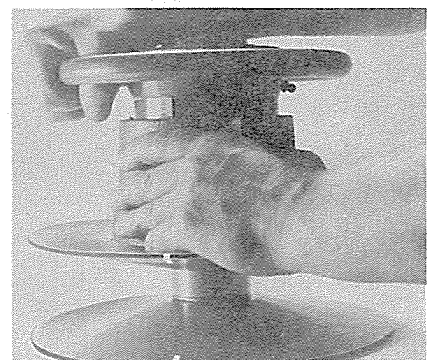


Figure 20

MAINTENANCE INSTRUCTIONS

MSU FEATURES

Wood's MSU variable speed sheaves incorporate the same unique lubrication system which is found in all Wood's variable speed sheaves. A series of resilient keys, located outside the bearing surfaces, is used to drive the adjustable flange. This permits a continuous, unobstructed flow of oil over the entire bearing area between the flange and sleeve. Two o-ring seals are used to prevent the escape of oil from these surfaces. The MSU is designed for use with a mechanically adjusted driveR sheave (MSM), and is for driveN service only. It is designed so that the inboard flange adjusts to maintain belt alignment when run on a "U"-type mounting, where the driving unit and the driven machine are on the same side of the drive.

Essentially, the only maintenance required for the sheave is a periodic oil level check every 500 operating hours. If required, Wood's oil is added through the oil fill hole in the outboard end cap of the sheave. (Equivalent oils listed on Page 2.)

MAINTENANCE REQUIREMENTS

Wood's recommends that each MSU sheave be disassembled for inspection either: (1) after three years of operation, as a preventive maintenance procedure; or (2) when the sheave starts using an excessive amount of oil. An "excessive amount" would be a decrease of 50% of the oil in the reservoir during one 500-hour period. At the time of disassembly, replace the o-ring seals and gaskets. MSU Kit #1 is required for this. See Page 16 for ordering parts kits.

TOOLS REQUIRED

The following items are needed for disassembly and inspection:

1. Wood's MSU Kit #1 (Seal Replacement Kit)
2. Arbor press
3. Allen hex wrench
4. Cup to hold drained oil
5. External snap ring pliers
6. Three pieces of steel to form press stand-off. See Figure 23.

DISASSEMBLY

1. With the drive in operation, adjust the MSM handwheel until the belt is in the minimum pitch diameter position on the MSU. Stop the drive and adjust the MSM until there is enough slack in the belt to permit removal.
2. Loosen the setscrews in the MSU and remove the unit from the shaft. A small amount of penetrating oil in the setscrew holes is usually sufficient to free the sheave from the shaft. If force is required, pry against the hub only. **Do not** apply any more force to the flanges than may be applied with the hands.
3. Use a marking pen or quick-drying enamel to reference all parts of the sheave as shown in Figure 21. This is important, as it allows all parts to be reassembled in their original positions in order to maintain correct balance.
4. Remove **only** the small outboard end cap (containing the oil fill plug). See Figure 22. Drain the oil from the reservoir into a cup, discard oil and wipe reservoir dry with a rag. **Note:** **Do not** remove outer circle of cap screws on end plate.
5. Invert sheave. Remove both setscrews completely.
6. Place press stand-off blocks as shown in Figure 23. These must be placed to allow removal of the snap ring. Lower press.
7. Remove snap ring from around sleeve. Slowly release press, allowing collar and dust cover to ride up under spring pressure. When all pressure is off spring, remove collar and dust cover without disturbing spring position. Mark reference line on spring (Figure 24).
8. Grasp upper flange and remove from sheave (Figure 25). Remove o-rings from this flange (Figure 26).

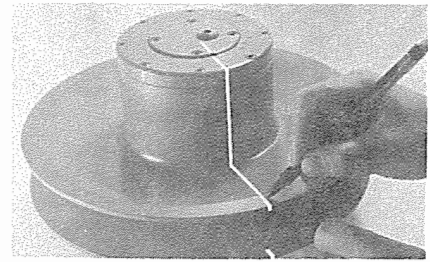


Figure 21

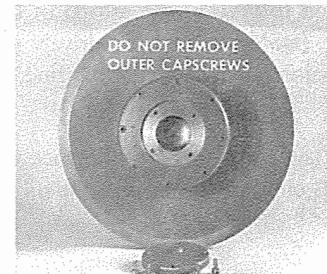


Figure 22

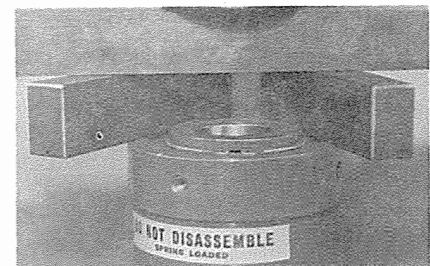


Figure 23

DO NOT DISASSEMBLE THIS SHEAVE FURTHER.



Figure 25



Figure 26

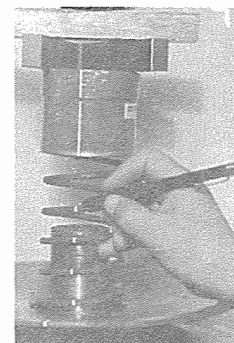


Figure 24

INSPECTION

1. Check the resilient pads. If any are worn or deformed, replace the entire set. Replacement sets are available as MSU Kit #2 (Pad Kit).
2. If any leakage of oil has been observed in the bore, replace the bore plug seal. See replacement parts list for correct size. Replace as follows:
 - a. Using a piece of shafting approximately 1" in diameter (1/8" smaller than the bore for bores 1" and under), punch the bore plug out through the oil reservoir. **Note:** On bores 1-3/8" and larger, the plug is protected by a snap ring. Be careful that you do not damage this snap ring when punching out the plug.
 - b. Turn the sheave over and clear the oil reservoir thoroughly, making sure that the shoulder at the end of the reservoir is clean and dry.
 - c. Place the new bore plug into the reservoir with its dished end up. Using the piece of shafting used in Step "a," seat the plug on the shoulder and expand it by hitting the shaft with a hammer. A slight dimple will appear on the plug when it is expanded properly.
3. Clean and degrease all surfaces with solvent. Wipe dry with a clean, soft rag. Take care not to scratch or mar polished surfaces.
4. Carefully inspect the polished surfaces of the sleeve and the bore of the adjustable flange for signs of wear, fretting corrosion or pitting. If at any time the MSU was run without oil, there is a possibility that serious fretting corrosion may have taken place. If it has, the sheave is no longer fit for service, and should be replaced.
5. Inspect the faces of the flanges for wear. If one flange is worn more than the other, it is an indication of improper drive alignment. If deeply grooved, the sheave should be replaced. Check flanges and hubs for cracks or dents due to abuse. If any parts are damaged enough to affect operation, they should be replaced. **The entire sheave should be returned to Wood's for repair if any cast part needs replacement. Wood's does not supply cast parts for field replacement.**

REASSEMBLY

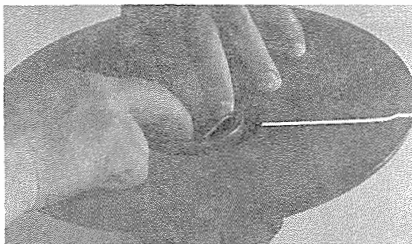


Figure 27

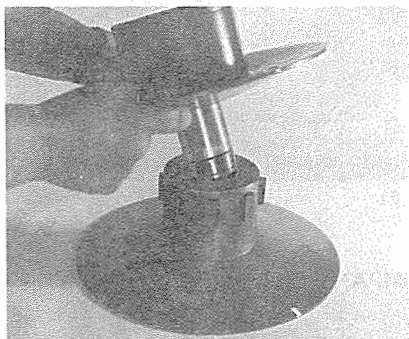


Figure 28

1. Moisten the I.D. of the adjustable flange with oil. Moisten the two new o-rings with oil and place in their grooves, making sure that they are seated completely (Figure 27).
2. Place the resilient pads in their seats on the adjustable flange.
3. Line up the alignment marks on the two flanges. Taking care not to pinch the o-rings, lower the adjustable flange over the sleeve (Figure 28), piloting the resilient pads into their keyways. **Do not** bounce or cock the flange on the sleeve, as it may damage the o-rings.
4. Replace spring and align marks. Place collar/dust cover assembly over spring and align.

5. Place under press and set stand-off blocks as in disassembly. See Figure 29. Lower press, maintaining alignment of parts until collar is seated completely. Spread snap ring and place it in its groove in sleeve. Be sure that it is completely seated.
6. Release press and remove sheave. Insert both setscrews.
7. Invert sheave and fill oil reservoir with Wood's oil. Replace new end cap gasket and end cap. Tighten securely.
8. Remove the oil fill plug and washer. Replace with a new washer. Replace the plug.
9. Scribe or stamp date of repair on end cap for preventive maintenance purposes. Sheave is now ready to return to service.

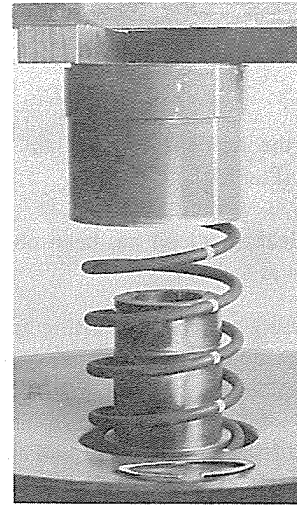


Figure 29

MSN FEATURES

Wood's MS-type motion control variable speed sheaves incorporate a unique and proven lubrication system that eliminates the freezing and sticking of movable parts due to fretting corrosion. There are no keys between the flange and its sleeve to establish point contact and obstruct lubrication. Instead, the load is transmitted from the stationary flange to the adjustable flange through a series of torsionally resilient keys, which are located outside the bearing surfaces. These resilient keys assure a continuous, rotational pumping action of the adjustable flange on the sleeve which, along with centrifugal force, results in a constantly renewed and evenly distributed film of oil on the bearing surfaces. Two o-ring seals prevent the oil from escaping from the bearing surfaces.

Because of this positive lubrication, the only maintenance required for the sheave is a periodic check of the oil in the reservoir every 500 hours. Oil is added if needed through the oil fill plug in the end cap or the external Sight-Lube reservoir.

IDENTIFICATION

Do not disassemble this sheave unless you are certain that it is of the spring cartridge type, as shown in the photographs (Figures 30 and 31) and described following. If in doubt, contact your nearest T. B. Wood's Sons Company office.

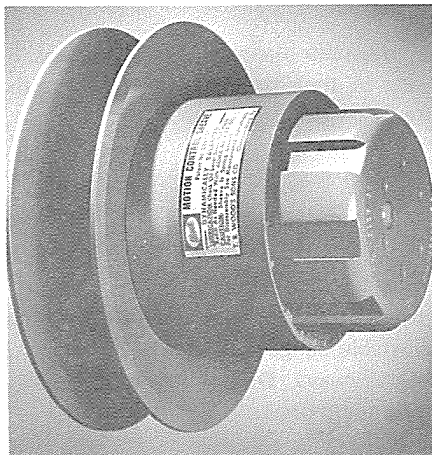


Figure 30

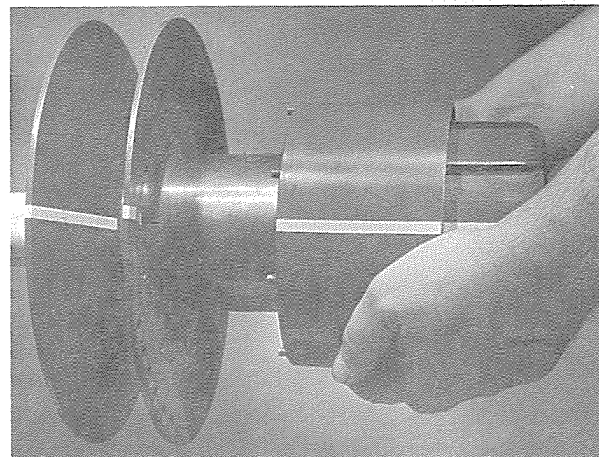


Figure 31

The spring cartridge type MS sheave is identified by the legend T. B. WOOD'S SONS COMPANY CHAMBERSBURG, PA die cast into the end of the spline cap in raised letters.

TOOLS AND MATERIALS NEEDED

1. Wood's MS seal replacement kit (MS Kit #1). See Page 16.
2. Allen hex wrench.
3. A cup or can to hold drained oil.
4. 1 pint Wood's oil.

DISASSEMBLY

After making sure that your sheave is of the spring cartridge type, proceed with the disassembly. The sheave may be easily disassembled for inspection and service without removing it from the shaft. In extremely dirty atmospheres or poorly lighted areas, however, better service could be given if the sheave is removed and taken to a better work area. In either case, the work area should be clean, and care should be taken to keep dirt from the machined parts of the sheave and the o-ring seals.

1. With the drive in motion, adjust the MSM handwheel until the belt is in the minimum P.D. position on the MSN. Adjust the MSM until there is enough slack in the belt to remove it.
2. If you wish to remove the sheave from the shaft for service, loosen the clamp screw in the inboard hub. **Do not** apply force to the flanges other than that which can be applied with the bare hands. If you remove the sheave, it is not necessary to drain the sheave as in Step 3 unless it is fitted with Sight-Lube.

For Standard MSN Sheaves

3. Remove the oil fill plug and drain the oil into a cup. Rotate the sheave until the oil fill hole is in its lowest position to drain as much as possible.

4. Use a marking pen or quick-drying paint to reference all parts as shown in Figure 32. **This is important, as all parts must be reassembled in their original positions to maintain the sheave's balance.**

For MSN Sheaves with Sight-Lube

- 3A. Disconnect the Sight-Lube hose from the sheave and drain the reservoir and hose into a cup. Turn the elbow on the sheave downward, and holding it in this position, rotate the sheave slowly to drain it.

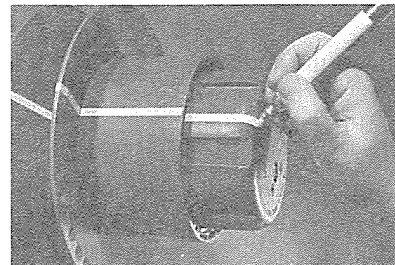


Figure 32

For Standard MSN Sheaves

5. Remove all socket head capscrews from the spline cap. The cartridge made up of the spline cap, spring and splined rim may now be removed. See Figure 33.

For MSN Sheaves with Sight-Lube

- 5A. Remove the three capscrews which hold the Sight-Lube adapter in place, and remove the adapter and rubber gasket. Wipe the end dry and remove the remaining three capscrews. The cartridge may now be removed.

CAUTION: Do not disassemble the spring cartridge. It is unnecessary for routine maintenance. The cartridge contains a spring under high pressure, which could be dangerous if disassembled improperly.

If your sheave is an MSN-127, do not remove the flat head socket capscrew from the cartridge assembly.

6. If you have removed the sheave from its shaft for service, hold both flanges together and pour the oil in it into a cup.
7. Slide the adjustable flange from the stationary flanged hub.
8. Remove the old o-rings from the bore of the adjustable flange and discard them. Discard the gasket from the inside of the cartridge assembly. Using a degreaser-soaked rag, clean the inside of the oil reservoir, the bore of the adjustable flange and the sleeve portion of the stationary flanged hub. Flush out the inside of the spring cartridge with cleaning solvent and dry it thoroughly. Take care not to scratch the ground surface of the stationary flanged hub, as this could damage the new o-ring seals and cause leakage.

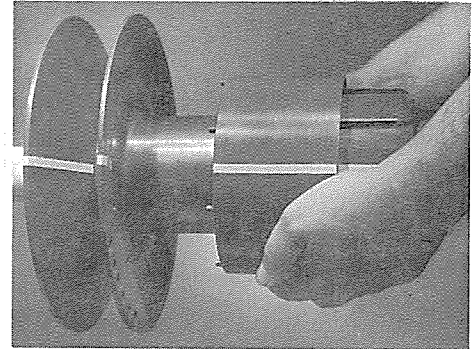


Figure 33

INSPECTION

Carefully inspect the bore of the adjustable flange and the ground portion of the sleeve of the stationary flanged hub for wear or pitting. If the sheave was operated at any time without oil, there is a possibility that these bearing surfaces will show signs of fretting corrosion. If the adjustable flange is frozen to the stationary flange, or if they are badly corroded, the sheave should be replaced. If the pegs on the bottom of the spring can are worn or partially sheared, order a new spring cartridge assembly (Kit #3).

Bore Plug Seal Replacement

If any leakage of oil from the bore was observed, the bore plug should be replaced. See Replacement Parts List for the correct size. To replace:

- a. Remove the stationary flanged hub from the shaft as in Step 2, Page 13.
- b. Stand the flanged hub with its flanged end up. Using a bar or large screwdriver, punch the plug out of the oil reservoir. **Note:** MS sheaves with bores 1-3/8" and larger have a snap ring in the bore to protect the plug. **Do not** damage this while removing the plug.
- c. Stand the flanged hub on its flange. Place the new plug in the oil reservoir with its concave face down. Using a piece of shafting or a round bar 1/8" smaller than the plug, push the plug down until it is seated. With a sharp hammer blow, expand the plug until the upper face is dimpled slightly. Plug is now seated properly.

Resilient Key Replacement

Check the resilient keys in the spring cartridge. If they are worn or deformed the entire set should be replaced (MS Kit#2). To replace:

- a. Place spring cartridge under an arbor press and press the splined cap into the splined rim slightly.
- b. Remove the snap ring from the splined rim with a screwdriver.
- c. Release the ram of the press just enough to expose the keys.
- d. Remove old keys and replace with new ones.
- e. Press the cap back into the rim and install the snap ring.
- f. Slowly release arbor press; checking the snap ring as you do.

REASSEMBLY

1. Moisten the bore of the adjustable flange with a light coat of oil. Spread a light coat of oil on the o-rings. Insert the two new o-rings into the grooves in the bore, as in Figure 34.
2. Place the adjustable flange over the stationary flanged hub, taking care not to pinch the o-rings. **Do not** bounce the adjustable flange on the sleeve to start it. Line up the location marks.
3. If the sheave was removed from the shaft for service, fill the oil reservoir to within 1/2" of the top with fresh oil.
4. Place the new plastic gasket over its pilot inside the spring cartridge, and align the holes. It is helpful to spread two or three dabs of grease on the gasket to hold it in place.
5. Place spring cartridge over the adjustable flange and align all location marks. Guide the studs on the bottom of the cartridge into the holes in the adjustable flange, as in Figure 35.

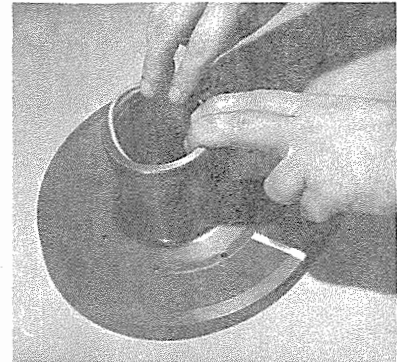


Figure 34

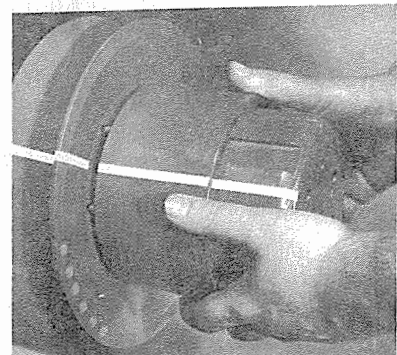


Figure 35

For Standard MSN Sheaves

6. Spread two or three drops of the Loctite® locking compound supplied with the kit on the threads of the capscrews. Insert them and tighten them to the torque values below.
7. Using a pump-type oil can, fill the sheave with oil, with the oil fill hole in the uppermost position.
8. Remove and discard the old oil fill plug gasket with the new one in the repair kit. Replace and tighten the oil fill plug.

For MSN Sheaves with Sight-Lube

- 6A. Spread Loctite® locking compound on the threads of the **short** capscrews. Insert and tighten them to the values given below.
- 8A. Place the rubber gasket and Sight-Lube adapter on the end of the sheave. Loctite the long capscrews, insert to the values below.

Note: Capscrews must be tightened with a torque wrench to 175 in.-lb. torque.

9. For preventative maintenance record, scribe or stamp the date of repair on the spline cap. Apply the new pressure-sensitive label.
10. Sheave is now ready to be returned to service.

REPLACEMENT PARTS

When ordering parts, specify the sheave number and modification **letter**. The modification numbers will be stamped in the outboard end cap along with a two or three digit number. The other stamped numbers are assembly codes and are not required. **Note: On the MSM sheaves the sheave numbers are located under the label in the center of the handwheel and under the Sight-Lube adapter where used.**

Example: MSM-127

MSM-72 & MSM-77 Repair Kits

- MSM-72 Kit #1 (Seal Kit). Includes o-rings and gaskets.
- MSM-72 Kit #2 (Bearing Kit). Includes bearings and seal rings.
- MSM-72 Kit #3 (Torsion Bar Kit). Includes torsion cap, torsion bar, and torsion key.

MSM-97 Repair Kits

- MSM-97 Kit #1 (Seal Kit). Includes o-rings and gaskets.
- MSM-97 Kit #2 (Bearing Kit). Includes bearings and seal rings.
- MSM-97 Kit #3 (Torsion Bar Kit). Includes torsion cap, torsion bar, and torsion key.

MSM-127 Repair Kits

- MSM-127 Kit #1 (Seal Kit). Includes o-rings and gaskets.
- MSM-127 Kit #2 (Bearing Kit). Includes bearings and seal rings.
- MSM-127 Kit #3 (Torsion Bar Kit). Includes torsion cap, torsion bar, and torsion key.

MSU-107 Repair Kits

- MSU-107 Kit #1 (Seal Kit). Includes o-rings and gaskets.
- MSU-107 Kit #2 (Pad Kit). Pad.

MSU-137 Repair Kits

- MSU-137 Kit #1 (Seal Kit). Includes o-rings and gaskets.
- MSU-137 Kit #2 (Pad Kit). Pad.
- Bore Plug Seals: MSU-107 — Part #M-302
- MSU-137 — Part #M-303

MSN Repair Kits

- | | |
|---------------------------------|---|
| MS-97 Kit #1 or MS-127 Kit #1 | SEAL REPLACEMENT KIT — Contains two o-rings, one gasket, one oil fill plug washer, one nameplate and one 2cc tube of Loctite® locking compound. |
| MS-97 Kit #2 or MS-127 Kit #2 | RESILIENT KEYS. Contains six or eight keys, depending on the sheave size. Not needed for new Design 2 spring cartridge sheaves. |
| MSN-97 Kit #3 or MSN-127 Kit #3 | SPRING CARTRIDGE ASSEMBLY. |
| | M302 Bore Plug Seal for MSN-97 sheaves |
| | M303 Bore Plug Seal for MSN-127 sheaves |

Wood's supplies no cast parts for field replacement, as this would affect the balance of the sheave greatly. If it is necessary to replace these parts, the sheave should be returned to the factory for repair. The above parts are sold as kits only. O-rings, gaskets, etc. are not sold separately.

This page intentionally left blank.

TB Wood's Facilities

North America

USA

440 North Fifth Avenue
Chambersburg, PA 17201 - USA
888-829-6637 * 717-264-7161
Belted Drives and Elastomeric Couplings

Customer Service

1-888-829-6637 (Press #5)

For Application Support

1-888-829-6637 (Press #7)

2000 Clovis Barker Road
San Marcos, TX 78666 - USA
1-888-449-9439
General Purpose Disc Couplings

Customer Service

1-888-449-9439

4970 Joule St
Reno, NV 89502 - USA
775-857-1800

Canada

9779 45 Ave NW
Edmonton, AB T6E 5V8 - Canada
+1 780-439-7979

6305 Danville Road
Mississauga, ON L5T 2H7 - Canada
1-800-829-6631

1073 Rue Bégin
Saint-Laurent, QC H4R 1V8 - Canada
+1 514-332-4812

Mexico

Comisión Federal de Electricidad 850,
Industrial San Luis,
San Luis, S.L.P., 78395 - Mexico
+52 444 137 1500

Europe

Merchant Drive, Hertford
Hertfordshire SG13 7BL - England
+44(0)1992 501900
Elastomeric Couplings

The Brands of Altra Motion

Couplings

Ameridrives
www.ameridrives.com

Bibby Turboflex
www.bibbyturboflex.com

Guardian Couplings
www.guardiancouplings.com

Huco
www.huco.com

Lamiflex Couplings
www.lamiflexcouplings.com

Stromag
www.stromag.com

TB Wood's
www.tbwoods.com

Linear Systems

Thomson
www.thomsonlinear.com

Warner Linear
www.warnerlinear.com

Geared Cam Limit Switches

Stromag
www.stromag.com

Engineered Bearing Assemblies

Kilian
www.kilianbearings.com

Electric Clutches & Brakes

Matrix
www.matrix-international.com

Stromag
www.stromag.com

Warner Electric
www.warnerelectric.com

Deltran
www.thomsonlinear.com

Belted Drives
TB Wood's
www.tbwoods.com

Heavy Duty Clutches & Brakes

Twiflex
www.twiflex.com

Stromag
www.stromag.com

Svendborg Brakes
www.svendborg-brakes.com

Wichita Clutch
www.wichitaclutch.com

Gearing & Specialty Components

Bauer Gear Motor
www.bauergears.com

Boston Gear
www.bostongear.com

Delevan
www.delevan.com

Delroyd Worm Gear
www.delroyd.com

Nuttall Gear
www.nuttallgear.com

Engine Braking Systems

Jacobs Vehicle Systems
www.jacobsvehiclesystems.com

Precision Motors & Automation

Kollmorgen
www.kollmorgen.com

Miniature Motors

Portescap
www.portescap.com

Overrunning Clutches

Formsprag Clutch
www.formsprag.com

Marland Clutch
www.marland.com

Stieber
www.stieberclutch.com

Neither the accuracy nor completeness of the information contained in this publication is guaranteed by the company and may be subject to change in its sole discretion. The operating and performance characteristics of these products may vary depending on the application, installation, operating conditions and environmental factors. The company's terms and conditions of sale can be viewed at <http://www.altramotion.com/terms-and-conditions/sales-terms-and-conditions>. These terms and conditions apply to any person who may buy, acquire or use a product referred to herein, including any person who buys from a licensed distributor of these branded products.

©2019 by TB Wood's LLC. All rights reserved. All trademarks in this publication are the sole and exclusive property of TB Wood's LLC or one of its affiliated companies.



www.tbwoods.com

2000 Clovis Barker Road
San Marcos, TX 78666
512-353-4000