



SERVICE INSTRUCTIONS

V-BELT DRIVEN SIDE ENTERING MIXERS
MODEL HV
MANUAL NO. 05-49022
SEAL NO. 05-49779

CUSTOMER:

P.O. NO.:

ITEM NO:

MIXER MODEL NO.:

MIXER SERIAL NO.:

DATE:

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FOREWORD

The information contained in this manual covers MixMor Model HV, V-belt driven side entering mixers.

This model is furnished with different types of shaft seals. The front page of this manual and the certified drawing lists the seal number, which corresponds with the type of seal furnished on your mixer.

GENERAL INFORMATION

When apparent or suspected damage has been found on equipment, during transport from factory to user, both the carrier and MixMor must be notified immediately.

When receiving equipment, a check should be made to determine whether all inventoried parts are still in the shipment. Any discrepancy should immediately be reported to both the carrier and MixMor, if claim is to be made.

MixMor mixers do not require the service of a factory engineer upon installation. This service is not included in the price of the unit; therefore, if it is to be furnished, it must be agreed upon, in writing, between MixMor and the purchaser.

MixMor warranty becomes void if the unit sold is not operated within the rating and mixing service conditions for which it was specifically sold. The purchaser shall take all necessary precautions to eliminate all external destructive conditions, including unusual variable loads affecting the critical speeds of the system, severe shock loading, mechanical or thermal overloads and other conditions of which MixMor was not fully advised. The mixer must be installed and maintained in accordance with this service manual.

MixMor must be informed within thirty days, for warranty to cover the mixer in the event of any malfunction during the warranty period.

All personnel directly responsible for operation of equipment must be instructed on proper installation, maintenance and safety procedures.

Design improvements are implemented on a continuous basis. Therefore, we reserve the right to make changes without notice. If any questions arise regarding the data or information in this manual, please contact MixMor in Los Angeles, California.

HANDLING INSTRUCTIONS

SAFETY

When handling or working on a MixMor mixer, safety precautions must always be remembered and followed. The proper tools, clothing and methods of handling should be used to prevent any accidents.

This manual lists a number of safety precautions. Follow them. Insist that your employees do the same. Safety precautions and equipment have been developed from past accidents. Follow and use them for your protection.

HANDLING

Do not support or lift the mixer in a manner, which could create excessive stress on parts or shaft extensions. Never allow shafting to support any weight of the drive assembly. A slightly bent shaft will cause extreme mixer vibration. Support the mixer with a lifting sling to prevent damaging of any external mixer parts.

INSTALLATION INSTRUCTIONS

STORAGE

If installation of the mixer and/or operation is to be delayed for more than one month after factory shipment, special rust preventative precautions should be taken. The precautions may be taken by the user or by the factory if full information concerning storage conditions is provided at the time of ordering.

LOCATION

The mounting location of the mixer has a definite effect on the flow pattern within the tank. The recommended location has been made with regard to your particular application and should be carefully followed to obtain optimum results.

MOUNTING

Remove the impeller and mount the mixer on the tank flange as outlined in the HANDLING INSTRUCTIONS. Tighten the flange bolts and replace the impeller. Properly adjust the tie rods and turnbuckles or pipe pedestal mount until the mixer is level.

V-BELT DRIVE

The mixer is shipped with the V-belts installed. However, they must be properly adjusted before the mixer is put into service.

Because of the higher horsepower ratings of narrow belts, they must be operated at higher tensions than classical belts. However, due to flexibility of the smaller cross section, they may not feel as tight as would be expected for the tension they carry.

1. Disconnect power to the motor. Be certain that the mixer cannot be remotely or automatically started.
2. Remove the pulley guard and adjust the belts so that the slack in each belt is on the same side of the drive. Adjust take-up until the belts are seated in the sheaves.
3. Start the mixer. When it is operating at full load and full speed, adjust the take-up screw until only a slight bow appears on the slack side. Shut off the mixer.
4. Apply the force, perpendicular to the center of the span, (refer to Figure 1) required to deflect the belt the distance shown on Chart 1. The force can be applied by means of a simple spring scale or a commercially available V-belt tension tester. The tension tester will provide scales for reading both the required force and the distance of belt deflection.

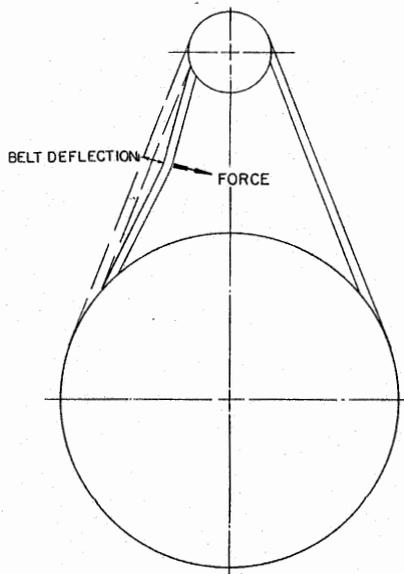


FIGURE 1

MixMor Model	Shaft Speed					
	420 RPM			280 RPM		
	Defl.	Force/Lbs.		Defl.	Force/Lbs.	
Min.		Max.	Min.		Max.	
HV-1	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-1.5	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-2	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-3	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-5	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-7.5	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-10	1/4"	3.7	5.6	1/4"	3.7	5.6
HV-15	1/4"	5.1	7.5	9/32"	5.1	7.5
HV-20	1/4"	5.1	7.5	9/32"	5.1	7.5
HV-25	9/32"	5.1	7.5	9/32"	5.1	7.5
HV-30	9/32"	5.1	7.5	5/16"	5.5	8.4
HV-40	9/32"	5.1	7.5	5/16"	5.5	8.4
HV-50	5/16"	5.5	8.4	5/16"	5.5	8.4
HV-60	5/16"	5.5	8.4			

CHART 1

5. The force required in step 4 should be within the limitations given in Chart 1. If it is not, adjust the tension accordingly. The new belts can initially be tightened to 120% of maximum force. Subsequent running will reduce the tension to within specified tolerances.
6. Recheck tension of new belts several times in the first 50 hours of operation and adjust if necessary. Thereafter, check the belt tension periodically.

SHAFT SEAL

The mixer shaft seal must be checked before the mixer is started and/or the tank filled. Most seals are installed when shipped from the factory. Refer to the SHAFT SEAL section for detailed instructions.

LUBRICATION

SHAFT BEARINGS

The mixer shaft runs on two heavy-duty ball bearings. These bearings are supplied with grease fittings and should be relubricated periodically, depending upon operating conditions, on a regular schedule. The bearings should contain as much grease as practical, since a full bearing with consequent slight leakage is the best protection against entrance of foreign material. When establishing a relubrication schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals. A good starting point to establish a relubrication schedule is to relubricate the bearings weekly. If the mixer is operated in a clean, dry environment, the bearings will have to be relubricated less frequently.

Abnormal bearing temperatures may indicate faulty lubrication. Normal temperatures may range from "cool to warm to the touch" up to a point "too hot to touch for more than a few seconds", depending upon the bearing size and surrounding conditions. High temperature with no grease showing at the seals, particularly if the bearing seems noisy, usually indicates too little grease. Unusually high temperature accompanied by excessive leakage of grease indicates too much grease. Normal temperature and a slight showing of grease at the seals indicates proper lubrication.

Many ordinary cup greases are not suitable for lubrication. The bearings have been lubricated at the factory with No. 2 consistency lithium base grease, which is suitable for normal operating conditions. Relubricate with lithium base grease or grease, which is compatible with original lubricant and suitable for ball bearing service. In unusual or doubtful cases, consult with a reputable grease manufacturer.

LIVE LOAD PACKING SYSTEM INSTRUCTIONS
Dwg. No. 05-49779

GENERAL INFORMATION

This packing system is designed for near leak free performance. Good equipment condition and following these instructions will produce successful results. Mixers are shipped with the systems installed.

The set contains the following items:

- (2) Spring Sets
- (3) Containment Packing Rings – Skive cut
- (2) Sealer Packing Rings – Skive Cut

START-UP INSTRUCTIONS

The packing system has been installed at the factory. Prior to initial operation, the following procedure should be followed to assure a long seal life.

1. Evenly tighten the adjustment screws (4) to a compressed spring (1) length of 1 5/16".
2. Start the mixer and during the first eight hours of operation check for leakage and the compressed spring dimension, tighten the adjustment screws as required.
3. Packing will consolidate most during the initial break-in period. Check the stuffing box daily for the next week. Never allow the stuffing box to leak more than just a drip. Allowing the product to leak heavily will result in premature packing wear.
4. Check the stuffing box weekly for the next four weeks and tighten the adjustment screws as required.
5. Check the stuffing box every two weeks and adjust for normal packing wear.
6. Once the gland follower (3) is approximately 1/4" before full insertion, pull back the gland follower and add another packing ring (10). In each set there is a ring for later addition to the original set. Add only this product. Re-tighten the adjustment screws to the compressed spring length. Start the mixer and check for leakage.

LUBRICATION INSTRUCTIONS

This packing is self-lubricating and does not require additional lubricant.

SEAL-OFF INSTRUCTIONS (Refer to Dwg. #05-50444, page 8)

The stuffing box is designed so that the shaft can be sealed off and the packing replaced with a full tank.

1. Disconnect the power to the motor. Be certain that the mixer cannot be remotely or automatically started. Loosen the socket head set screws (16 & 21) in bearing (13 & 22).
2. Loosen lock nuts (29 & 38), lower motor with adjustment screw (28 & 39).
3. Remove hex nuts (19) from jack screws (27) and evenly and sequentially screw jack screws (27) against puller plate (17) until the shaft is pulled back approximately 1/8" and 'O' ring (5) is compressed between seal off collar (45) and the stuffing box face.
4. The packing can now be replaced as described in the following REPACKING PROCEDURE instructions.
5. Return the shaft to its' original position by removing the jack screws from the shaft puller's tapped holes, inserting them through the puller's clearance holes and into the tapped holes in the puller plate. Screw in the jack screws until the shaft puller is 1/4" from the puller plate (17). Re-install jack screws in tapped holes locking them in place with the nuts. Tighten bearing set screw (16 & 21).

REPACKING PROCEDURE

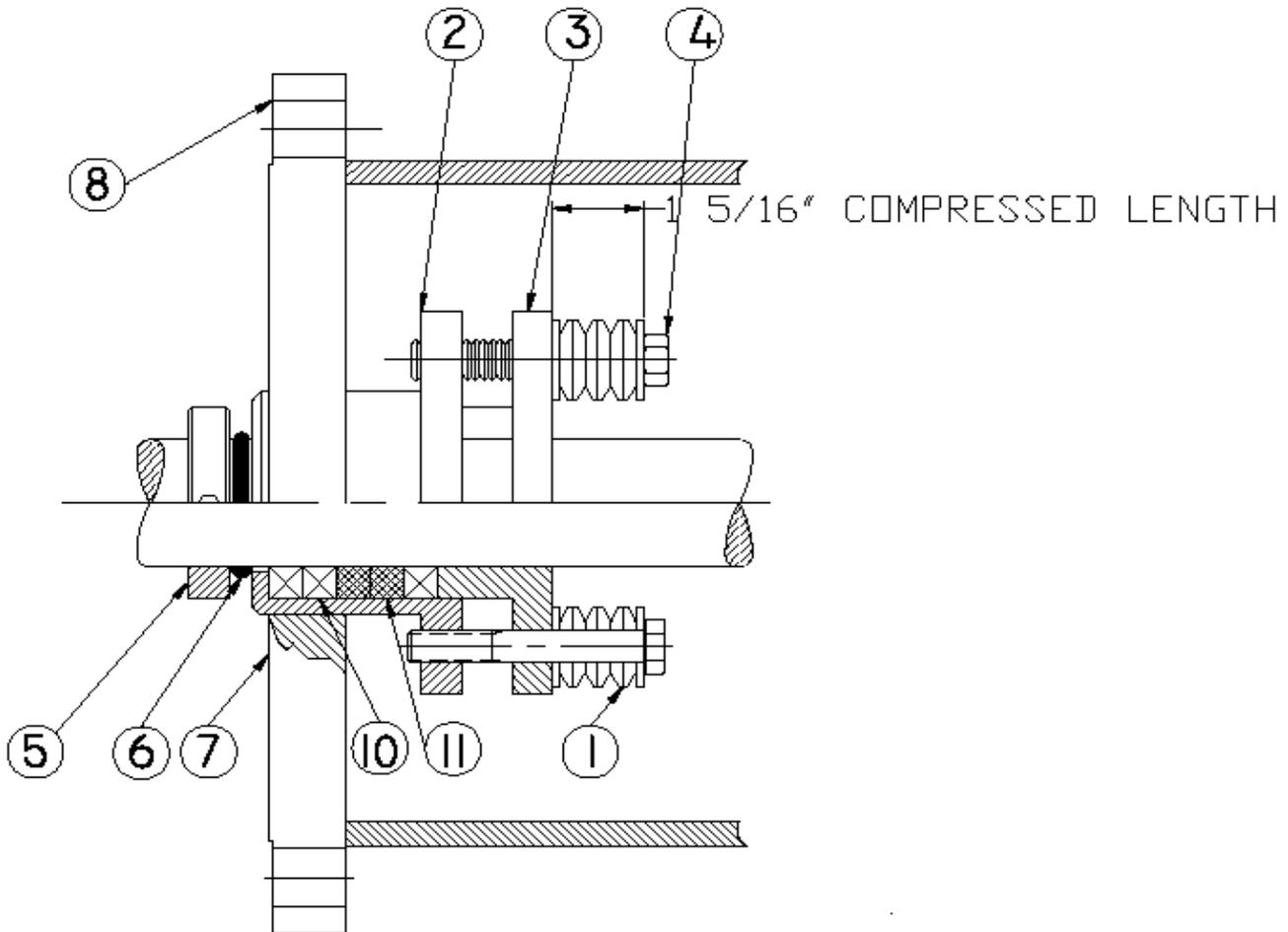
You will need any tools normally used during the repacking.

1. Remove all of the old packing (10&11) from the stuffing box.
2. Clean and prepare sealing area.
3. Inspect the shaft and stuffing box area for signs of wear. Replace worn parts. The shaft needs to be in good condition in order to achieve leak free results.

4. Install five packing rings (10 & 11). Seat and compress each ring, stagger the splits @ 90°, using the gland follower and a split spacer. Tighten and then back off the adjustment screw after each ring. This takes time but is a critical step.
5. Install the gland follower, tighten adjustment nuts, and then remove them.
6. Install the spring sets, if an assembly separates during installation; reassemble using the other set as a model.
7. Tighten the adjustment screws to a compressed spring length of 1 5/16".
8. Start mixer and follow the start-up instructions.

LIVE LOAD PACKING SYSTEM

Dwg. No.: 05-49779



PART NO.	DESCRIPTION
01	SPRING SETS (2)
02	STUFFING BOX
03	FOLLOWER
04	ADJUSTMENT NUTS (2)
05	SEAL OFF COLLAR
06	"O" RING
07	FLANGE FACING
08	FLANGE
10	CONTAINMENT RINGS (3)
11	SEALER RINGS (2)

START-UP INSTRUCTIONS

When starting up any new piece of equipment, it is wise to proceed cautiously. Even though the best installation practices are followed, the possibilities of errors or omissions always exist. MixMor recommends that before the initial start-up, the following checklist should be followed:

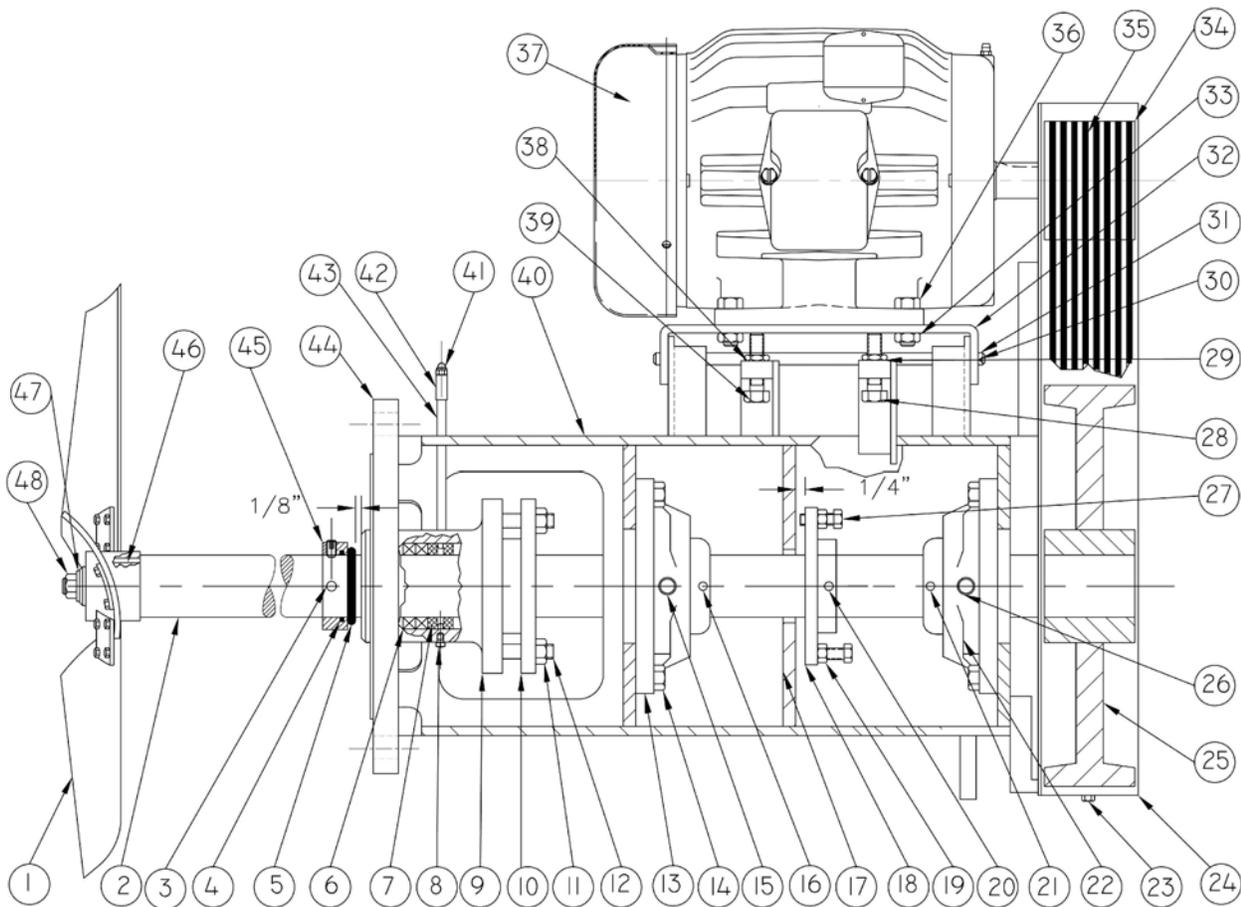
1. Has all accessory equipment such as: level indicators, pressure gauges, switches, etc., been mounted? It is often necessary to box these items separately to prevent damage or loss in shipment.
2. Are mounting bolts tight? Check all external bolts, screws, accessories, etc., to make sure they have not become loose in shipping and handling.
3. Have bearings been greased?
4. Have couplings been tightened properly? Have necessary guards and safety devices been installed at all hazardous locations?
5. Has the V-belt drive been properly adjusted as shown in the INSTALLATION INSTRUCTIONS section?
6. Have required electrical connections been made? Units should be wired in accordance with motor manufacturers' wiring diagram on the motor.
7. Have required piping connections been made?
8. Have mixer shaft seal instructions been followed?

Mixers are test run at the factory. However, during start-up, the following procedures are recommended:

1. Start unit slowly under as light a load as possible. Check rotation of the shaft against rotation arrow on the mixer housing. If necessary, reverse electrical leads on motors to have shaft rotation conform to direction shown on mixer.
2. Prime mover electrical starting equipment should be arranged to start unit as slowly as possible to avoid severe impact loads.
3. As the mixer is brought up to normal operating speed, it should be checked continuously for unusual sounds, excessive vibrations, excessive heat or leakage. If any of these develop, the unit should be shut down immediately and the cause determined and corrected.
4. After the first 48 hours of operation, all external housing and mounting fasteners should be checked for tightness. Loose fasteners can cause alignment problems and excessive wear.
5. Re-check tension of the V-belts several times in the first 50 hours of operation and adjust as outlined in the INSTALLATION INSTRUCTIONS, if necessary. Thereafter, check the belt tension periodically.

MODEL HV PARTS

Dwg. No. 05-50444



PART NO.	DESCRIPTION	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
1	IMPELLER	13	BEARING +	25	DRIVEN SHEAVE	37	MOTOR
2	SHAFT	14	HEX HEAD CAP SCREW (4)	26	GREASE FITTING	38	LOCKING NUT
3	SET SCREW (2)	15	GREASE FITTING	27	JACK SCREW (3)	39	ADJUSTMENT SCREW
4	'O' RING +	16	SET SCREW (2)	28	ADJUSTMENT SCREW	40	HOUSING
5	'O' RING +	17	PULLER PLATE	29	LOCKING NUT	41	GREASE FITTING
6	PACKING +	18	SHAFT PULLER	30	COTTER PIN (2)	42	COUPLING
7	LANTERN RING +	19	HEX NUT (3)	31	MOTOR BASE SHAFT	43	PIPE NIPPLE
8	PIPE PLUG	20	SET SCREW (2)	32	MOTOR BASE PLATE	44	FLANGE
9	STUFFING BOX	21	SET SCREW (2)	33	HEX NUT (4)	45	SEAL-OFF COLLAR
10	FOLLOWER	22	BEARING +	34	MOTOR SHEAVE	46	KEY
11	HEX NUT	23	HEX HEAD CAP SCREW	35	'V' BELT SET +	47	WASHER
12	STUD	24	BELT GUARD	36	CAP SCREW (4)	48	NUT

+ RECOMMENDED SPARE PARTS

Note: Mixer shown is with #05-00549 shaft seal. Refer to the manual content page for the supplied shaft seal design.

