BRAWN MIXER®

AN NBE COMPANY

OPERATION

AND

MAINTENANCE

MANUAL

--- SERIES

SERIAL NUMBER

1-----

CUSTOMER: ---

SALES REP.: ---

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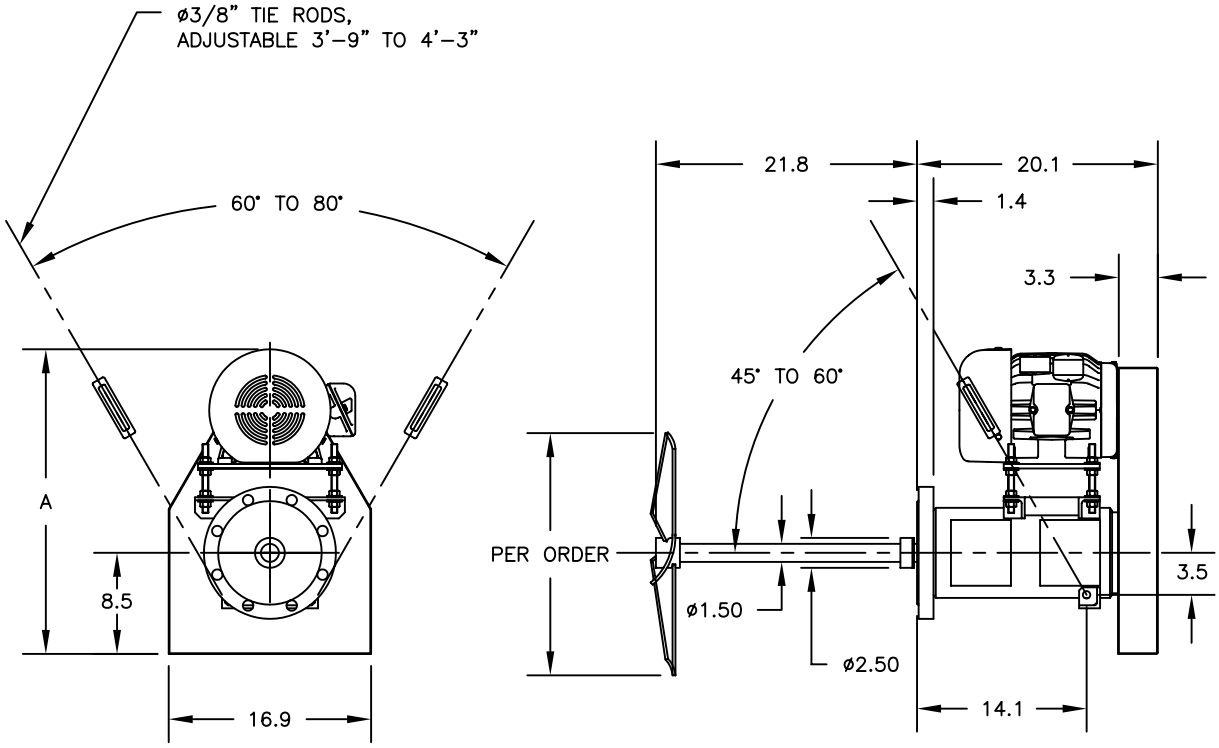

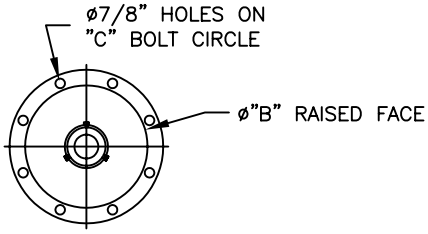

OUTPUT RPM	HP	MOTOR FRAME	WEIGHT (LBS.)	A
420	1	143T	350	24.6
	2	145T	360	
	3	182T	395	25.7
	5	184T	415	
350	1	143T	360	24.6
	2	145T	375	
	3	182T	410	25.7
	5	215T	490	25.8
280	1	145T	355	24.6
	2	184T	420	25.7
	3	213T	480	26.5
	5	215T	500	

MOUNTING FLANGE ORIENTATION

ANSI FLANGE SIZE	B	C
6"–150# 8 HOLES STRADDLE CENTERLINE	8.5	9.50
8"–150# 8 HOLES STRADDLE CENTERLINE	10.63	11.75

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. WEIGHT INCLUDES TYPICAL TEFC MOTOR. MOTOR WEIGHTS VARY BY MANUFACTURER AND ENCLOSURE.
3. LARGER FLANGE SIZES ARE OPTIONALLY AVAILABLE.
4. IN–TANK SHUTOFF IS STANDARD FOR MECHANICAL SEAL AND OPTIONAL FOR STUFFING BOX.
5. STANDARD IMPELLER IS 3 BLADE AF3S HYDROFOIL. OTHER STYLES OPTIONALLY AVAILABLE.

DRAWN BY: GMc | DATE: 7–17–01 |

CERTIFIED BY: | DATE:

BRAWN MIXER, INC.™
3389 128th AVENUE
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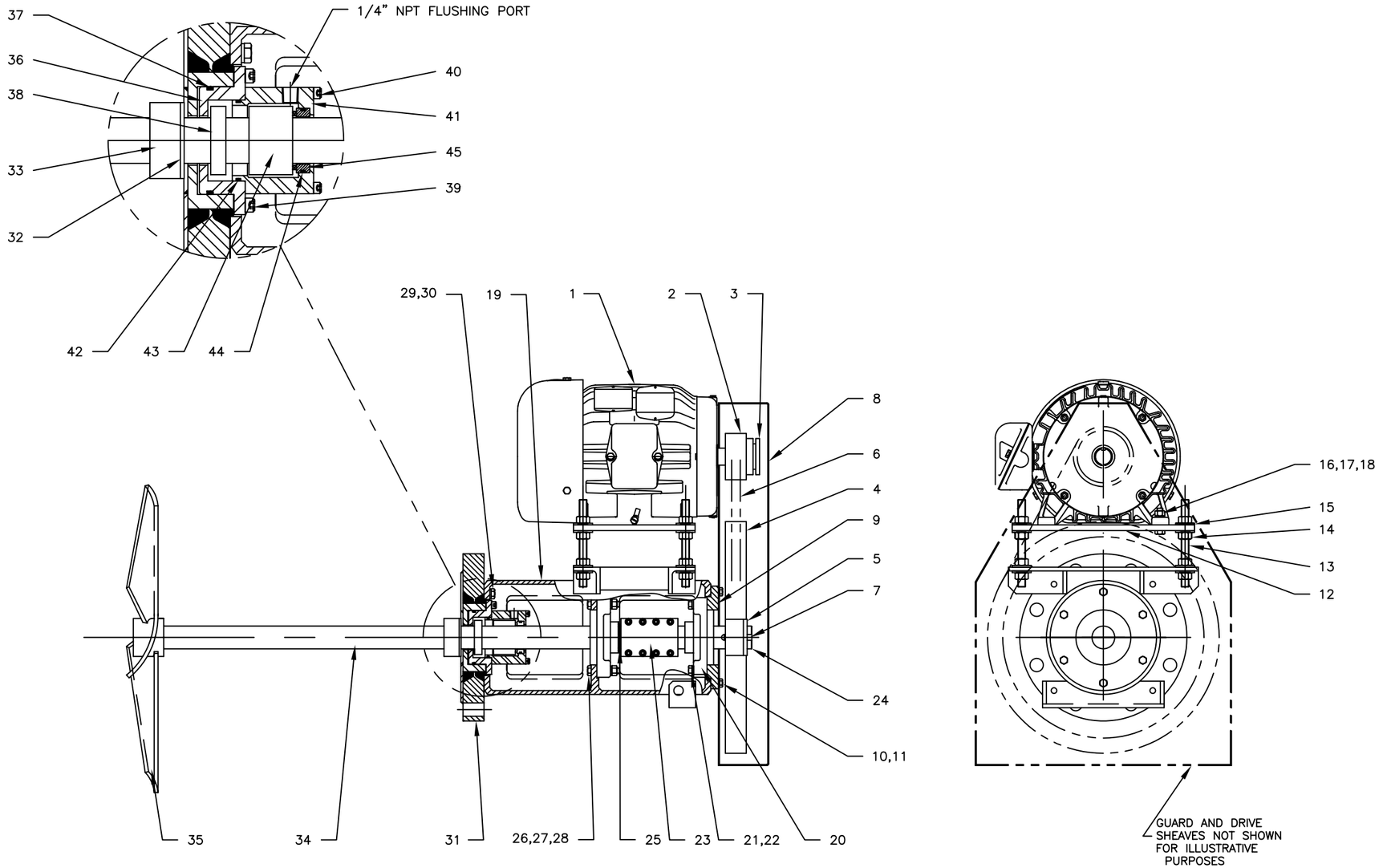
PH. 616–399–5600
FAX 616–399–3084

MIXER MODEL SBVSE SIDE ENTRY MIXER

V BELT DRIVE
WITH STUFFING BOX OR MECHANICAL SEAL

DIMENSION DRAWING

DWG. NO. TK0115 | REV.



ITEM NO.	QTY.	PART NAME	RECOMMENDED SPARE PARTS
46	2	COVER PLATE (NOT SHOWN)	
45	1	SEAL STATIONARY SEAT	*
44	1	O–RING	*
43	1	ROTARY SEAL HEAD	*
42	1	O–RING	*
41	1	SEAL HOUSING	
40	4	SOCKET HEAD CAP SCREW	
39	4	SOCKET HEAD CAP SCREW	
38	1	SHAFT COLLAR	
37	1	O–RING	*
36	1	SHAFT RETAINING PLATE	
35	1	IMPELLER	
34	1	MIXER SHAFT	
33	1	SHUT–OFF COLLAR	
32	1	SHUT–OFF GASKET	*
31	1	SEAL FLANGE	
30	6	LOCKWASHER	
29	6	HEX HEAD CAP SCREW	
28	4	HEX NUT	
27	4	LOCKWASHER	
26	4	HEX HEAD CAP SCREW	
25	2	RETAINING RING	*
24	1	DRIVESHAFT	
23	1	SPLIT COUPLING	
22	4	LOCKWASHER	
21	4	HEX HEAD CAP SCREW	
20	2	CARTRIDGE BEARING ASSEMBLY	*
19	1	HOUSING	
18	4	HEX NUT	
17	4	LOCKWASHER	
16	4	HEX HEAD CAP SCREW	
15	16	FLAT WASHER	
14	16	HEX NUT	
13	4	STUD	
12	1	MOTOR PLATE	
11	6	LOCKWASHER	
10	6	HEX HEAD CAP SCREW	
9	1	BEARING ADAPTER	
8	1	BELT GUARD ASSEMBLY	
7	1	KEY	
6	#	DRIVE BELT	*
5	1	DRIVEN BUSHING	
4	1	DRIVEN SHEAVE	
3	1	DRIVE BUSHING	
2	1	DRIVE SHEAVE	
1	1	MOTOR	

QUANTITY OF V–BELTS REQUIRED DEPENDS ON SPECIFIC MOTOR AND OUTPUT SPEED SELECTION.

DRAWN BY: GMc | DATE: 8–13–01 | ©2001

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MIXER MODEL

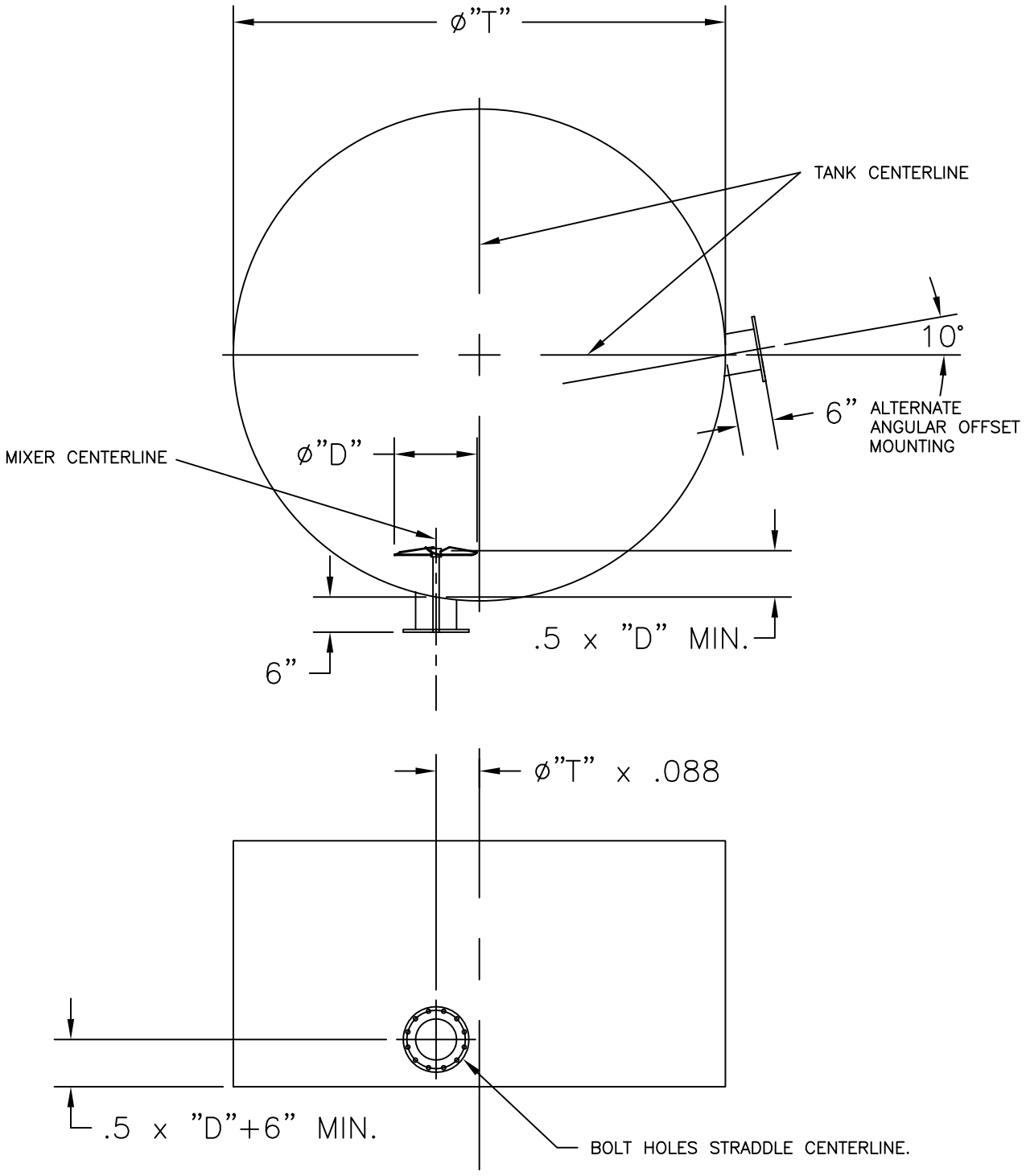
SBVSE SIDE ENTRY MIXER

WITH SINGLE MECHANICAL SEAL

INSTALLATION DRAWING

DWG. NO. B– TK0116

REV.



FOR REFERENCE ONLY

DRAWN BY: GMc	DATE: 1-17-02	© 2002
APPROVED BY: GM	DATE: 1-17-02	

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MIXER MODEL
SIDE ENTRY MOUNTING

DIMENSION AND ASSEMBLY DRAWING

DWG. NO.	REV.
A- TK0120	

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CONTENTS

Mixer Installation / Assembly / Dimension Drawings

SAFETY

The precautions mentioned in this manual are not intended to cover all hazards that may exist in a plant or on this equipment. Using safety mechanisms requires the constant attention of everyone in the vicinity of this (or any) equipment.

A plant and the related equipment are only as safe as the personnel are safety-minded. Proper equipment maintenance and the use of personal safety devices will contribute as much toward safety as will any number of mechanical safety devices.

WARNING

- To assure maximum safety, optimum performance, and to gain knowledge of the product, it is essential that you or any other operator of this equipment read and understand the contents of this manual before the mixer is operated.
- Installation, operation and maintenance must be performed only by qualified personnel.
- Do not operate this equipment unless all safety devices are installed and working properly. Check all devices prior to starting the equipment.
- Disconnect and lock out electrical power before installing or servicing the mixer.
- Do not touch rotating parts (keep all guards and safety devices installed while operating).
- Develop a safety checklist for this equipment and perform regular maintenance to ensure continued and proper operation.
- Do not make any field changes or modifications without reviewing the change with your BRAWN sales representative or the BRAWN Customer Service Department.

CUSTOMER SERVICE

Mixer Model #..... **SBVSE-SERIES**
Mixer Serial # _____
Contact:

- Customer Service 616/399-5600

You have received a quality engineered and manufactured BRAWN Mixer. We value your business, and we will strive to provide you with the proper service and equipment to meet your needs.

The information contained in this BRAWN Mixer Operator's Manual is designed to assist you in putting your BRAWN Mixer into operation without further delay. **Please read the entire manual before attempting to start your mixer.** If you have any further questions or if, by some chance, there are some missing components, contact your BRAWN Mixer Representative or the factory immediately.

We welcome your comments and suggestions concerning any BRAWN Mixer product. Please direct these comments in writing to the National Sales Manager at BRAWN Mixer, located in Holland, Michigan. To expedite troubleshooting service, please make your initial contact through your BRAWN Mixer Representative. If, for whatever reason, your representative cannot be reached and you have an emergency condition, please call us directly at 616/399-5600 and ask for the Customer Service Department.

Remember, you are backed by your BRAWN Mixer Technical representative and the factory support team. We are here to assist you; let us know how we can be of help.

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GENERAL INFORMATION

- The Model SBVSE side-entering mixer is designed to be mounted horizontally through the side of a tank. Because the mixer operates under a head of liquid, it is necessary that the mixer have a shaft sealing device at the point of tank entry. This sealing device is most commonly a packed stuffing box or a single mechanical seal.
- Though constructed in accordance with strict industrial standards, it is important to adhere to a few precautions so as to avoid difficulties resulting from improper handling, installation, and operating procedures.

INITIAL INSPECTION

- Upon receipt of your BRAWN Mixer, check for possible shipping damage. Report any damage immediately to the carrier and to BRAWN Mixer.
- Mixers must be handled with appropriate care. Careless handling may result in permanent damage. Field modifications should never be made without prior consultation with your BRAWN Mixer Representative or the factory.

INSTALLATION

The mixer is shipped ready for installation on the tank. When lifting the mixer, sling the unit around the outboard motor support angles and near the mounting flange to balance the unit and prevent damage or injury to personnel or equipment.

1. Before installing the mixer, place a flange gasket of suitable composition (compatible with tank contents) on the tank mixer mounting nozzle.
2. If mixer was shipped with impeller (35) installed, remove it and carefully insert the mixer shaft through the tank nozzle.
3. Align the mixer flange bolt holes with the gasket and tank flange holes and install and tighten the mounting hardware (not provided by BRAWN).
4. Before disconnecting the handling equipment from the mixer, install and adjust the tie rod supports to evenly distribute the mixer weight.
5. From inside the tank, install the impeller on the mixer shaft with the mounting components provided with the mixer.
6. Wire the mixer motor in accordance with the nameplate wiring diagram and with local and national electric codes. Before starting the mixer, jog the motor to check for proper mixer shaft rotation. Rotation should be clockwise as viewed from the belt drive end of mixer. If rotation is incorrect, reverse any two of the three power supply leads from the motor starter to obtain proper rotation.

START-UP

1. Check all hardware for adequate tightness prior to startup of mixer.
2. Check to see that drive belts are adequately tensioned.
3. Do not start the mixer with the impeller buried in solids or solidified liquids.

MAINTENANCE

The mixer was shipped ready for installation and startup. To prolong the life of your mixer, a good, routine preventive maintenance program should be established and adhered to.

1. The mixer bearings were packed at the factory with an NLGI #2 lithium base EP (extreme pressure) grease. These bearings should be re-greased every 2 months with approximately 1 ounce of fresh grease.
2. Routinely inspect drive belts for proper tension and wear. Adjust or replace as required. Because belts stretch over time, it is not good practice to mix old and new belts. If belt replacement is required, replace all belts at the same time as a matched set.
3. Check all hardware for tightness.
4. Inspect mechanical seal or stuffing box for indications of wear and excessive leakage. Adjust, repack, repair or replace as required.
5. For stuffing box units, during initial operation, the packing gland should be adjusted to allow proximately two drops per minute leakage. Adjust periodically to maintain this leakage rate. Be careful not to over tighten the packing gland nuts as this will cause excessive friction and will result in premature wear or failure.

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MIXER DISASSEMBLY

Refer to Mixer Assembly Drawing TK0116 or TK0117.

1. Disconnect and lockout power supply prior to performing any maintenance.
2. To activate shut-off (if mixer is so equipped), first remove belt guard (8) and cover plates (46).
3. Slacken drive belts (6) by loosening motor plate (12) adjustment nuts (14) to lower the motor.
4. Remove drive belts and driven sheave (4).
5. Loosen cartridge bearing (20) set screws in outboard bearing inner ring so that shaft (24) can slide.
6. Loosen the inboard bearing mounting hardware (26, 27 & 28) to allow approximately 5/16" axial movement of the shaft. Remove two of the cap screws (26) and thread into the two jacking screw holes provided.
7. Tighten the two jacking screws to actuate the shut-off. The shaft will move axially approximately ¼" before the shut-off gasket contacts the flange face to form a seal. Stuffing box units may now be repacked and returned to service (skip to MIXER ASSEMBLY section).
8. Verify the shut-off gasket has sealed properly by removing the seal flush line or pipe plug from the seal housing (41). Some leakage may occur but the sealing chamber should not be pressurized at this point.
9. Remove the four socket head cap screws (39) in the shaft retaining plate (36) and thread into the four jacking screw holes provided. Tighten until the shaft retaining plate contacts the shaft collar (38) thus supporting the mixer shaft (34) for disassembly.
10. Disassemble and remove the split coupling (23) with its related components. Slide driveshaft (24) out of the bearing.
11. Remove retaining ring (25). Remove remaining hardware and loosen the set screws from the inboard cartridge bearing (20) and remove from shaft. Remove remaining retaining ring from shaft.
12. Remove the four socket head cap screws (40) from the seal housing (41) and slide off from shaft.
13. Before removing the rotary seal head (43) from the shaft, first scribe a line on the mixer shaft at the location of the back face of the seal case. This will aid in locating the seal at reassembly. Loosen set screws and remove the seal head assembly.

MIXER ASSEMBLY

Prior to assembly, thoroughly clean and inspect all components and their mating surfaces, shaft and sleeve bores and surfaces for evidence of surface damage (nicks, scratches, burrs, etc.) or excess wear. Repair or replace any damaged components.

To assemble the mixer, reverse the MIXER DISASSEMBLY steps 1 through 13. Lightly lubricate the mixer shaft to aid in installation of the mechanical seal assembly. Protect the mechanical seal o-rings from cuts or nicks by covering the keyway and retaining ring grooves with shim stock or cellophane tape, well lubricated, to aid in sliding the seal components onto the mixer shaft. Slide the rotary seal head (43) onto the shaft until the back face of the seal case is flush with the line previously scribed on the shaft and tighten the set screws.

When assembling a mixer or any of its components, it is advisable to use new gaskets, seals and o-rings as the cost of premature equipment failure far outweighs the expense of these items.

SEAL DISASSEMBLY

! CAUTION

If the mechanical seal is to be disassembled for repair, handle the components with care as the sealing faces are delicate and easily damaged.

1. Press the stationary seat (45) from the seal housing (41). The seat is retained by an o-ring (44) and can be pressed out by hand. Be careful not to damage the sealing face.
2. Carefully inspect the stationary and rotary sealing faces for evidence of wear or damage. Worn sealing faces can usually be renewed by re-lapping. If chipped or fractured, the faces will need replacing.

SEAL ASSEMBLY

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! CAUTION

Clean and inspect all seal components for wear and damage prior to assembly. Repair or replace any defective components. The stationary and rotary sealing faces are precision lapped and are very delicate. Take precaution to avoid damaging these surfaces as even fingerprints on these surfaces may cause the seal to not function properly.

1. Lubricate stationary seat bore in seal housing (41) to aid in installation of stationary seat (45).
2. Install new o-ring on stationary seat and carefully press seat, by hand, into seal housing bore. Be certain that the lapped surface (sealing face) of the stationary seat is facing so that it will be in contact with the rotary seal face.
3. Install new o-ring in rotary seal head (43) and lubricate the I.D. to facilitate installation.
4. Carefully install rotary seal head assembly (43) onto the mixer shaft (34) using the procedures and precautions outlined in the MIXER ASSEMBLY section.
5. Install a new o-ring (42) onto the seal housing (41) spigot. Lubricate the o-ring and slide onto shaft and into the shaft retaining plate (36). Be certain that the seal flushing port is oriented properly.
6. Install the four socket head cap screws (40) in the seal housing and proceed with assembly (reference MIXER ASSEMBLY section).

STORAGE

! CAUTION

Units shipped from BRAWN Mixer are intended to be used within 30 days after receipt and presumed to be stored indoors in a heated building. If you intend storing units under adverse conditions or for a long period of time, special storage precautions will be necessary.

1. Store mixers as packaged by the factory in a sheltered area away from chemical vapors or steam.
2. Cover.
3. Do not store in sunlight or near high heat.
4. Spray oil on exposed shafts and seals. Remove oil on start-up.
5. Rotate output shaft 360 every 3-4 weeks.
6. Do not store near vibrating equipment to avoid damage to the bearings.
7. If electric motors have been subjected to humid conditions, check the insulation resistance between phase and mass and between the different phases. The resistance should not be less than 100 megohms. If the resistance is less, please consult the factory.

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WARRANTY

WARRANTY: All equipment or parts covered by this manual are guaranteed free from defective material and workmanship for a period of twelve (12) months from date of shipment, under normal use and service. This warranty does not cover failure of normal wear parts unless the failure of such part has resulted from defective material and workmanship. BRAWN Mixer will repair or replace, at its option, any equipment which has been found to be defective and is within the warranty period, provided that the equipment is shipped, with previous factory authorization, freight prepaid, to BRAWN's plant in Holland, Michigan, USA. All return shipments are made FOB BRAWN's factory. BRAWN is not responsible for removal, installation, or any other incidental expenses incurred in shipping the equipment to or from BRAWN. In the case of components purchased by BRAWN Mixer and incorporated in the equipment, the component manufacturer's guarantee shall apply. NOTE: Any modifications or corrective work done to the equipment which were not specifically authorized in writing by BRAWN Mixer shall void this limited warranty, and BRAWN Mixer shall accept no liability for any of the corrective work or expenditures which were conducted without their prior, written authorization. BRAWN Mixer shall not be held liable for any further cost, expense, or labor to replace equipment or replaceable parts, or indirect or consequential damages.

With the exceptions of the limited warranty set out above, there are no other understandings, agreements, representatives, or warranties implied (including any regarding the merchantability or fitness for a particular purpose), not specified herein, respecting this agreement or equipment, hereunder. This contract states the entire obligation of BRAWN Mixer in connection with this transaction.

SHOULD WE MAKE A MISTAKE...

BRAWN MIXER'S Direct Return Policy

To ensure proper handling of your return, please take a moment to read the following:

- **ALL** returns require a **RETURN GOODS AUTHORIZATION (RGA) NUMBER**. We are unable to process your return or issue proper credit without an approved **RGA** number.
- **ALL** returns must be **COMPLETE**, including all original warranties, manuals, documentation and packaging.
- **ALL** product must be received within 14 days of issuing an **RGA** number.

How to Return Product

You must have a **RETURN GOODS AUTHORIZATION (RGA)** number before you return any product to BRAWN Mixer. To obtain this number, call **616/399-5600** and ask for Customer Service. Be sure to have available the following information:

- ✓ your **order number**
- ✓ the BRAWN product **serial number**
- ✓ the **part number** and description of the product
- ✓ the **reason** for the return

! Important !

The Return Goods Authorization number must be written clearly on all boxes being returned. C.O.D. shipments will not be accepted.

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