



Imo Delaval Inc.

**INSTRUCTIONS and PARTS LIST**

**SERIES A3JK**

**WARNING**

**READ THIS INSTRUCTION BOOK AND CA-1 BEFORE  
INSTALLATION, OPERATION OR MAINTENANCE**

This manual now is  
identified as part no.  
SRM00039

Instructions A3JK (R-2)

Imo Delaval Inc.

**IMO Pump Division**

Airport Road

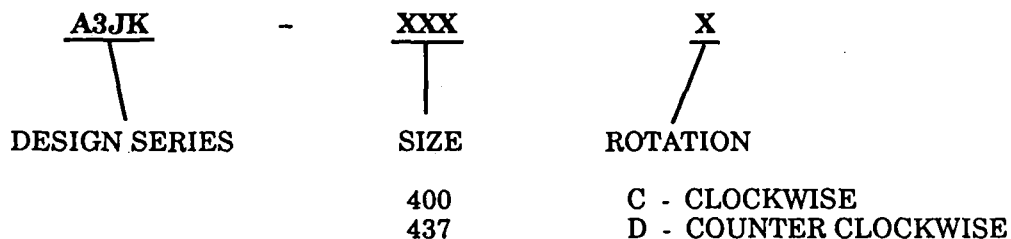
P.O. Box 5020

Monroe, NC 28110-0527

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## FOREWORD

This manual covers all basic models of the A3JK Series IMO pumps. The model of a particular pump may be found on the nameplate. Basic types of pumps are identified as follows:



This unit is furnished as a cartridge for incorporation in a customer furnished case for attached mounting. The unit is not equipped with a mechanical seal and provision must be made for draining oil used to lubricate the anti-friction bearing from the coupling area.

## SPECIAL INSTALLATION INSTRUCTIONS

### Mounting

The unit is designed for horizontal mounting. Other mountings must receive specific approval from IMO Delaval, Inc. Units should be driven directly through a flexible coupling. Gear drive arrangements must be submitted to IMO Delaval, Inc. for approval.

### Cartridge Installation

Before installing cartridge in case, wash the unit with clean solvent to remove preservative. Flush ball bearing with clean lubricating oil.

After cleaning and flushing the ball bearing with lube oil, pour lube oil into top of cartridge and rotate rotors. Unit should rotate freely and smoothly.

## OPERATIONAL SAFETY PRECAUTIONS

### Structural Limits

Operating conditions, such as speed, fluid viscosity, inlet pressure, discharge pressure, temperature, filtration, duty cycle, mounting, drive type, etc. are interrelated. Due to these variable conditions, the specific application limitations may be different from that of the structural limitations. This equipment must not be operated without verification that operating requirements are within published capabilities as shown in the appropriate pump data book (available from local IMO Pump Division offices and representatives).

Under no circumstances are the following structural limitations to be exceeded.

Maximum Discharge Pressure - 150 PSIG

Maximum Inlet Pressure - 10 PSIG

Maximum Fluid Temperature - 180°F

## DISASSEMBLY AND ASSEMBLY PROCEDURES

### Disassembly

- Step 1 - Disconnect suction and discharge piping. Remove pump from drive mounting. Place on suitable work area.
- Step 2 - Loosen set screw (023) and remove check nut (022). Remove coupling hub.
- Step 3 - Remove bearing retainer (012) by removing socket head cap screws (014) and lock washer (013). The power rotor (008) may now be removed from the pump.
- Step 4 - If the ball bearing (010) is to be replaced, remove retaining ring (011) and press bearing (010) from shaft.
- Step 5 - To continue with pump disassembly, remove bolts holding cartridge to case. Slide cartridge from case. Place cartridge on suitable work table.
- Step 6 - Remove thrust plate (019) by removing hex head bolts (020) and lock washers (005). When the bolts (020) are removed, the spacers (018) will drop from their positions. NOTE - If more than one pump is disassembled at one time, the spacers (018) must be kept in original sets.
- Step 7 - The idler rotors (016) may now be removed from their bores.
- Step 8 - With the idler rotors (016) and power rotor (008) removed, the housing bores may be inspected.
- Step 9 - By removing bolts (006) and their lock washers (005), the balance piston housing (002) can be removed from the housing (001). The balance piston bushing (003) fits loosely in its bore in the balance piston housing (002) and can be easily removed.
- Step 10 - Remove retaining ring (004) from balance piston housing (002). There is no retaining ring on the A3JK-437.

### Assembly

- Step 1 - Install a new retaining ring (004) in balance piston housing (002) (on 3JK-400s only).
- Step 2 - Install balance piston bushing (003) in balance piston housing (002) and mount to housing (001) using socket head cap screws (006) and lock washers (005).
- Step 3 - Press bearing (010) on power rotor (008). Seat bearing firmly against balance piston to clear retaining ring groove. Install retaining ring (011). Note - Do not open bearing package until ready to install bearing. Protect bearing from dirt.
- Step 4 - Lubricate threads of power rotor (008) with light lubricating oil. Slide power rotor into balance piston bushing (003) and housing (001).
- Step 5 - Install bearing retainer plate (012) using socket head cap screws (014) and lockwashers (013). Torque cap screws (014) lightly. High torque will overload the retaining ring in the 3JK-400 units. Setting torque 20 foot-pounds  $\pm 2$ .
- Step 6 - Lubricate idler rotors (016) lightly with oil and slide into bores in housing (001).
- Step 7 - Mounting lock washers (005) on hex head bolts (020) and feed through mounting holes on thrust plate (019). Slide spacers (018) on bolts (020). Engage bolts (020) in threaded holes in housing (001). Note - Spacers (018) are ground to length in sets. Do not mix spacers from two or more sets together. Torque bolts (020) uniformly.
- Step 8 - Rotate power rotor by hand. Unit should turn freely and smoothly. If unit does not turn smoothly, unit must be disassembled to determine source of interference and interference must be removed.
- Step 9 - Install new O-ring (021). Lubricate outside diameter of housing (001) lightly with oil and slide into case.

PARTS LIST  
A3JK-400 & 437

<u>Pt. No.</u>	<u>Name</u>	<u>Pt. No.</u>	<u>Name</u>
001	Housing XX	013	Lockwasher (6)
002	Balance Piston Housing	014	Cap screw (6)
003	Balance Piston Bushing	016	Idle Rotor Assembly XX (2)
004	Retaining Ring* XX	017	Thrust Shoe ++
005	Lock Washer (10)	018	Spacer
006	Cap Screw (6)	019	Thrust Plate XX
008	Power Rotor Assembly XX	020	Bolt, Hex Hd. (4)
009	Balance Piston†	021	"O" Ring X
010	Ball Bearing X	022	Check Nut
011	Retaining Ring X	023	Set Screw
012	Bearing Retainer	024	Key

+Part of Power Rotor assembly and not serviced separately

++Part of Idle Rotor assembly and not serviced separately

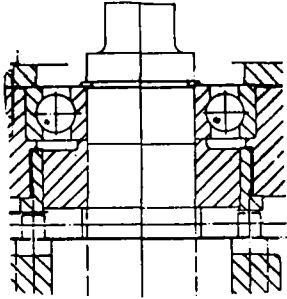
\*Used on A3JK-400 units only

RECOMMENDED SPARE PARTS

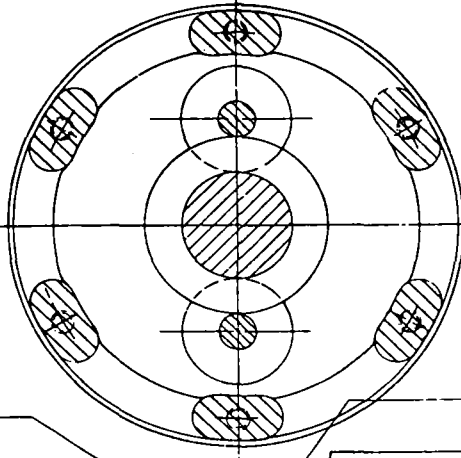
All parts marked X make up a mirror repair kit.

All parts marked X and XX make up a major repair kit.

All quantities are one except when noted in parentheses.



BALANCE PISTON AREA FOR AJJK 437  
BEARING SHOULDERED - NO RETAINING  
RING



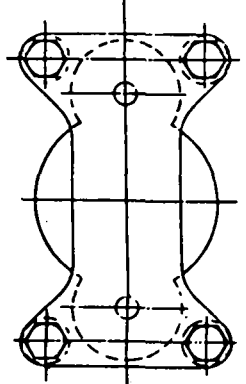
SECTION A-A

NOTE: USE OF TECHNIQUE TYPE OF  
AND X-RAY, IN THIS SURFACE

022  
023  
005 013 014

THESE PARTS FURNISHED BY CUSTOMER 006

OUTLET



VIEW IN DIRECTION OF  
ARROW X

017

019

017

020

005

INLET

024

011

010

012

002

004

003

009

004

016

021

016

008

001

021

016

003

009

004

002

012

010

011

024

018