






# A.Y. McDonald Mfg. Co. Stainless Steel Submersible Pump Assembly Guide

## Assembly Guide for 400/500 GPM Pumps w/6" Motor

### PUMP ASSEMBLY TOOLS

KIT	PICTURE	ITEM #	DESCRIPTION
TORQUE WRENCH KIT		TRQWRN60-300NM	TORQUE WRENCH
		INSTTRQWRNCH	INSERT FOR TORQUE WRENCH
CLEARANCE KIT		FXSSTRAP8-10PE	FIXTURE FOR STRAP
		STRPSCT8-10PE	SOCKET FOR STRAP
		SHFTDPTCAL8-10PE	DEPTH CALIPER
		SHFTOPTHTOOL8-10PE	DEPTH TOOL
FIXTURE SEAT KIT		FXS46810PE	FIXTURE SEAT
		LHEXALLENFIXST	HEXAGONAL ALLEN TOOL FIXST

KIT	PICTURE	ITEM #	DESCRIPTION
JIG SET KIT		JIG6PEX6MOT	JIG 6" MOTOR
		LHEXALLEN6PEX6MOT	6" HEXAGONAL ALLEN TOOL
ASSEMBLY KIT		LHEXALLENCOUP	HEAXAGONAL ALLEN TOOL COUP
		WRN8PE400-500	WRENCH FOR IMPELLER NUT
		TRQTSTNUT400-500	TORQUE TESTING NUT
		JIGNSR400	JIG FOR STOP RING
		JIGNSR500	JIG FOR STOP RING



**WARNING:** It is unlawful in CALIFORNIA & VERMONT (effective 1/1/2010); MARYLAND (effective 1/1/2012); LOUISIANA (effective 1/1/2013) and the UNITED STATES OF AMERICA (effective 1/4/2014) to use any product in the installation or repair of any public water system or any plumbing in a facility or system that provides water for human consumption if the wetted surface area of the product has a weighted average lead content greater than 0.25%. This prohibition does not extend to service saddles used in California, Louisiana or under USA Public Law 111-380. **WARNING:** This product can expose you to chemicals including lead, which is known to the State of CALIFORNIA to cause cancer and birth defects or other reproductive harm. For more information go to: [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).



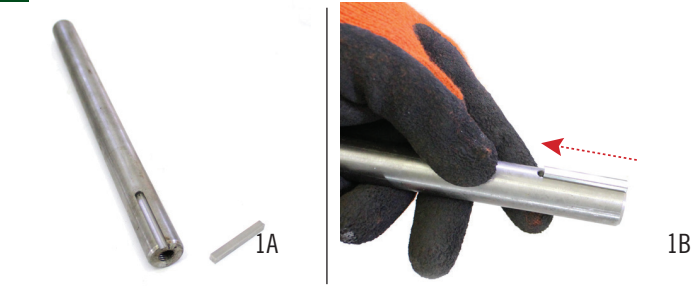
**PUMP COMPONENTS**

KIT	PICTURE	DESCRIPTION
STANDARD ASSEMBLY KIT		COUPLING WITH KEY
		DISCHARGE
		TOP STAGE DIFFUSER
		TOP STAGE IMPELLER
		INTERCONNECTOR
MIDDLE STAGE ASSEMBLY KIT		MIDDLE STAGE DIFFUSER
		MIDDLE STAGE IMPELLER
BOTTOM STAGE ASSEMBLY KIT		BOTTOM STAGE DIFFUSER
		BOTTOM STAGE IMPELLER
		STOP RING

KIT	PICTURE	DESCRIPTION
SPECIFIC COMPONENTS (MOD)		STRAPS
		CABLE GUARDS
		SHAFT
		NUTS
PLATES KIT		PLATE FOR MODEL & DOE INFORMATION
BOLTS AND NUTS KIT		BOLTS FOR 6" MOTORS

# Stainless Steel Submersible Pump Assembly Guide

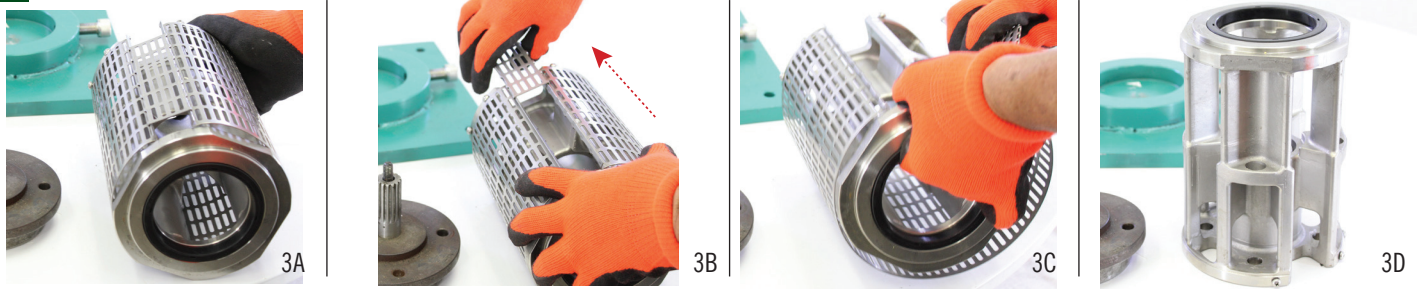
## 1 Fit KEY on SHAFT



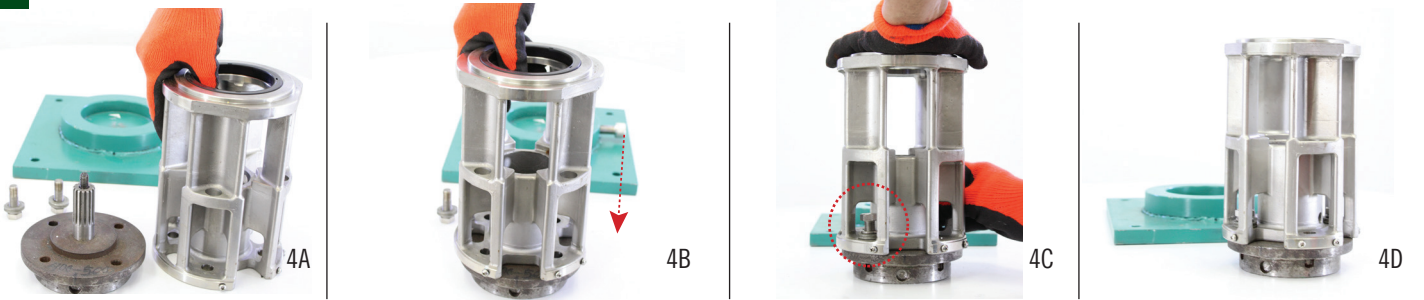
## 2 Fit COUPLING on SHAFT and tighten using HEXAGONAL ALLEN TOOL COUP (clockwise)



## 3 Remove metallic filter grid from INTERCONNECTOR



## 4 Place INTERCONNECTOR on JIG; place screws and tighten securely



## 5 Fit SHAFT on INTERCONNECTOR and tighten using HEXAGONAL ALLEN TOOL (clockwise)



## 6 Set down FIXTURE SEAT and tighten using HEXAGONAL ALLEN TOOL FIXST (clockwise)



**7** Place **BOTTOM STAGE IMPELLER** on Shaft



7A



7B



7C

**8** Slide **JIG FOR STOP RING** on top and use **WRENCH FOR IMPELLER NUT** to tighten (clockwise)



8A



8B



8C



8D

**9** Place **TORQUE TESTING NUT** and use **TORQUE WRENCH WITH INSERT** to tight at correct torque (clockwise)



9A



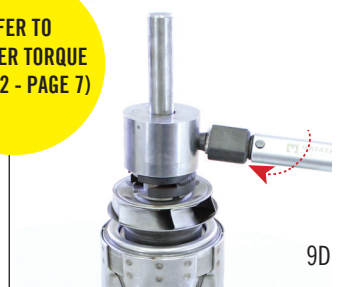
9B



REFER TO  
 IMPELLER TORQUE  
 (CHART 2 - PAGE 7)

ZOOM VIEW

9C



9D

**10** Place **STOP RING**



10A

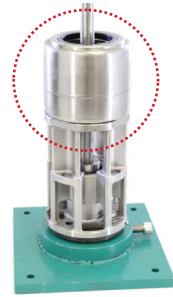


10B

**11** Place **BOTTOM STAGE DIFFUSER**



11A



11B

**12** Place **MIDDLE STAGE IMPELLER**



12A

Use **WRENCH FOR IMPELLER NUT TOOL** to tighten (clockwise)



12B

Use **TORQUE TESTING NUT** and **WRENCH** to tight at correct torque (clockwise) (Step 9)



12C

**13** Place **MIDDLE STAGES DIFFUSER**



13A

**14** Add as many MIDDLE STAGES as required



14A



14B

Repeat steps 12 and 13 for every MIDDLE STAGE that you need to add to the wet end of the pump

Stages below a torqued IMPELLER should not rotate.

**15** Place TOP STAGE IMPELLER



15A

Use WRENCH FOR IMPELLER NUT TOOL to tighten (clockwise)



15B

Use TORQUE TESTING NUT and WRENCH to tight at correct torque (clockwise) (Step 9)



15C

**16** Add TOP STAGE DIFFUSER



16A

**17** Place DISCHARGE



17A



17B

**18** Make sure bolts on discharge are aligned with bolts in INTERCONNECTOR



18A

**19** Attach STRAPS to pump and fit at the bottom and at the top



19A



19B



19C

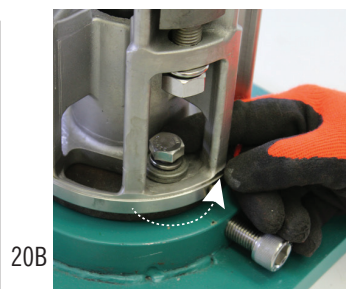


19D

**20** Place NUTS on STRAPS and remove screws to loosen JIG



20A



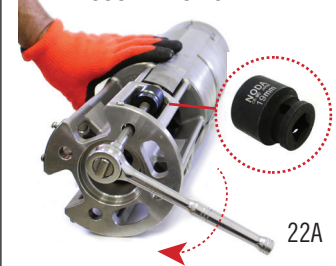
20B

**21** Remove JIG using HEXAGONAL ALLEN TOOL



21A

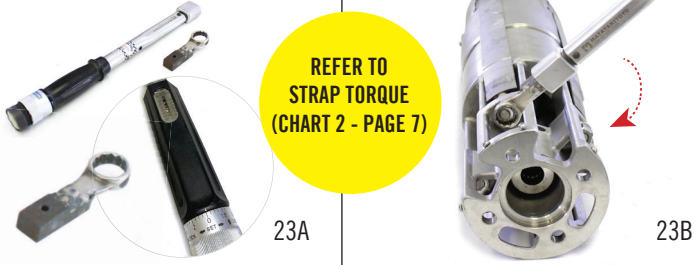
**22** Tighten STRAPS using SOCKET FOR STRAP



22A



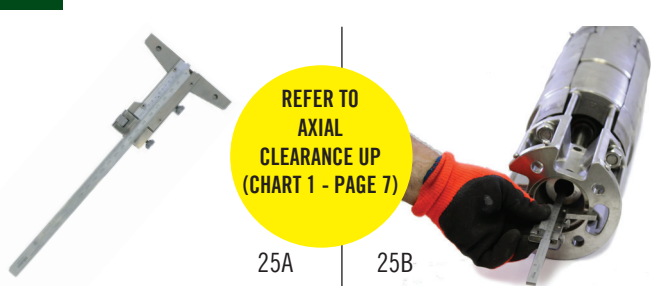
**23** Use **TORQUE WRENCH** and **FIXTURE FOR STRAP** to tight at correct torque (clockwise)



**24** Push in **SHAFT** using **DEPTH TOOL**



**25** Use **Depth Caliper** to check shaft clearance



**26** Pull out **SHAFT** using **DEPTH TOOL**



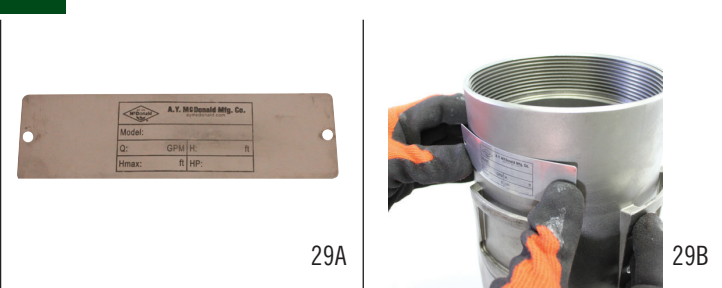
**27** Use **Depth Caliper** to check shaft clearance



**28** Place back the **metallic filter grid** on **INTERCONNECTOR**



**29** Add **PLATE FOR MODEL INFORMATION**





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## SHAFT TOLERANCES (CHART 1)

## AXIAL CLEARANCE - H(MM)

MOTOR DIAMETER	MEASUREMENT REFERENCE	DOWN	UP
4"	SHAFT/COUPLING	36.5	39.5-40
6"		71-71.5	75-77
8"		100	MIN 103
10" FRANKLIN		100	MIN 103
10" HITACHI		125.5	MIN 129

## TORQUE FOR IMPELLER ASSEMBLY (CHART 2)

### TORQUE

MODEL	STRAP (N.M)	IMPELLER (N.M)	
90 GPM SERIES	6"	45	45
90 GPM SERIES	6" x 4"		
150 GPM SERIES	6"	80	80
150 GPM SERIES	6" x 4"		
230 GPM SERIES	6"	80	80
230 GPM SERIES	6" x 4"		
300 GPM SERIES	6"	80	80
300 GPM SERIES	6" x 4"		
400 GPM SERIES	100	100	100
500 GPM SERIES	100	100	100
650 GPM SERIES	100	160	160
800 GPM SERIES	100	160	160
1100 GPM SERIES	100	250	250

