









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

Assembly Guide for 90 GPM Pumps w/6" Motor

PUMP ASSEMBLY TOOLS

KIT	PICTURE	ITEM #	DESCRIPTION
TORQUE WRENCH KIT		TRQWRN20-110NM	TORQUE WRENCH
		INSTTRQWRNCH	INSERT FOR TORQUE WRENCH
CLEARANCE KIT		FXSSTRAP6PE	FIXTURE FOR STRAP
		STRPSCKT6PEX6MOT	SOCKET FOR STRAP
		SHFTDPTCAL6PE	DEPTH CALIPER
		SHFTDPHTOOL6PEX6MOT	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
		TOOL6PE90	IMPELLER NUT TOOL
		SKTTL90	SOCKET FOR TOOL
		TRQTSTNUT90	TORQUE TESTING NUT



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.

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PUMP COMPONENTS

KIT	PICTURE	DESCRIPTION
STANDARD ASSEMBLY KIT		COUPLING WITH KEY
		DISCHARGE
		CHECK VALVE
		TOP STAGE DIFFUSER
		TOP STAGE IMPELLER
		INTERCONNECTOR FOR 6" MOTOR
MIDDLE STAGE ASSEMBLY KIT		MIDDLE STAGE DIFFUSER
		MIDDLE STAGE IMPELLER
BOTTOM STAGE ASSEMBLY KIT		BOTTOM STAGE DIFFUSER
		BOTTOM STAGE IMPELLER
		STOP RING

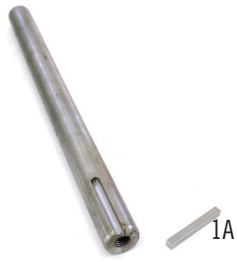
KIT	PICTURE	DESCRIPTION
SPECIFIC COMPONENTS (MOD)		STRAPS
		CABLE GUARDS
		SHAFT
		NUTS
PLATES KIT		PLATE FOR MODEL & DOE INFORMATION
BOLTS AND NUTS KIT		NUTS FOR 6" MOTORS



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1 Fit KEY on SHAFT



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



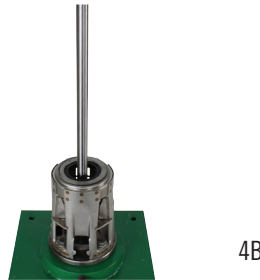
RECOMMENDED TO USE LOCTITE. NOT INCLUDED IN KIT*



3 Fit Interconnector and Coupling/Shaft on Jig 6" Motor using 19mm wrench and allen wrench (clockwise)



4 Set down on Fixture Seat and tighten Using Hexagonal Allen tool (clockwise)



5 Place BOTTOM STAGE IMPELLER on Shaft



6 Place SOCKET FOR TOOL on top and use IMPELLER TOOL to tighten (clockwise)



7 Place TORQUE TESTING NUT and use TORQUE WRENCH with INSERT to tight at correct torque (clockwise)



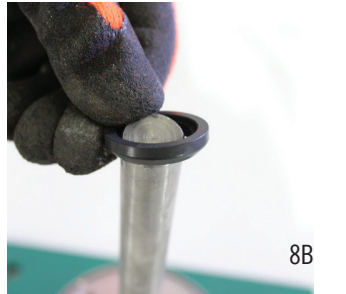
REFER TO IMPELLER TORQUE (CHART 2 - PAGE 6)



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8 Place STOP RING



9 Place BOTTOM STAGE DIFFUSER



10 Place MIDDLE STAGE IMPELLER



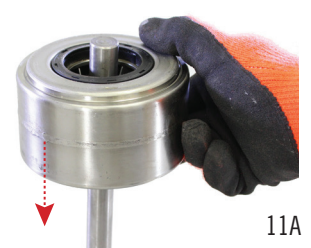
Place SOCKET FOR TOOL on top and use IMPELLER NUT TOOL to tighten (clockwise)



Use TORQUE TESTING NUT and WRENCH to tight at correct torque (clockwise) (Step 7)



11 Place MIDDLE STAGES DIFFUSER



12 Add as many MIDDLE STAGES as required



Repeat steps 10 and 11 for every MIDDLE STAGE that you need to add to the wet end of the pump

Stages below a torqued IMPELLER should not rotate.

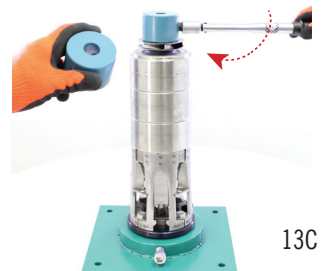
13 Place TOP STAGE IMPELLER



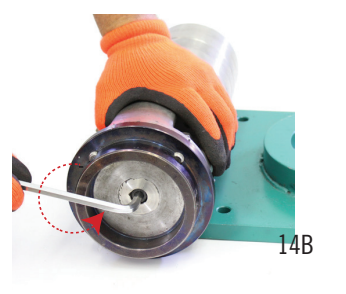
Use WRENCH FOR IMPELLER NUT to tighten (clockwise)



Use TORQUE TESTING NUT and WRENCH to tight at correct torque (clockwise) (Step 7)



14 Loosen with Allen Tool, remove from Fixture Seat. Remove 6" Jig with Allen Tool from Assembly





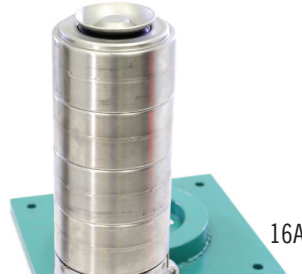
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15 Add TOP STAGE DIFFUSER and CHECK VALVE



16 Place DISCHARGE



17 Attach STRAPS to pump and fit at the bottom



Use "food grade never seize" on threads of straps to prevent galling

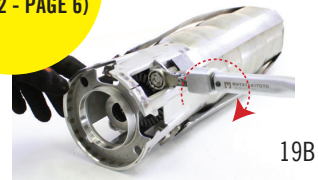
18 Place NUTS to tighten STRAPS using SOCKET FOR STRAP



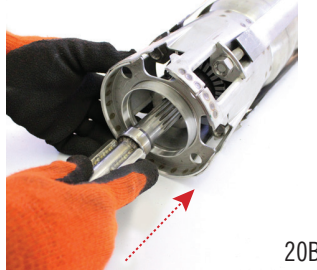
19 Use TORQUE WRENCH and FIXTURE FOR STRAP to tight at correct torque (clockwise)



REFER TO STRAP TORQUE (CHART 2 - PAGE 6)



20 Pull out SHAFT using DEPTH TOOL



21 Use DEPTH CALIPER to check shaft clearance



REFER TO AXIAL CLEARANCE UP (CHART 1 - PAGE 6)



22 Pull out SHAFT using DEPTH TOOL



23 Use DEPTH CALIPER to check shaft clearance

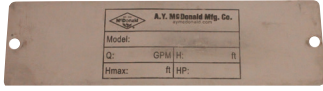


REFER TO AXIAL CLEARANCE UP (CHART 1 - PAGE 6)

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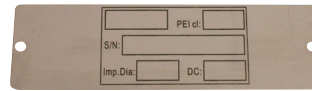
24 Add PLATE FOR MODEL INFORMATION



24A



24



24C



24D

SHAFT TOLERANCES (CHART 1)

MOTOR DIAMETER	MEASUREMENT REFERENCE	AXIAL CLEARANCE - H(MM)	
		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"	35	
150 GPM SERIES	6"	45	80
150 GPM SERIES	6" x 4"	35	
230 GPM SERIES	6"	45	80
230 GPM SERIES	6" x 4"	35	
300 GPM SERIES	6"	45	80
300 GPM SERIES	6" x 4"	35	
400 GPM SERIES		100	100
500 GPM SERIES		100	100
650 GPM SERIES		100	160
800 GPM SERIES		100	160
1100 GPM SERIES		100	250



DOE CHART

MODEL	90S	150S	230S	300S
PEI	0.87	0.90	0.88	0.90
IMP. DIA. (IN)	3.5	3.7	4.14	4.14

