INSTALLATION - SERVICE INSTRUCTIONS

765 South Pierce Avenue, Louisville, CO 80027 (303) 665-6901 / 800-525-1963 www.markwilliams.com

Bulletin NO. SB0114
PAGE 1 OF 4
March
2020

Part Numbers:

JAG-1000 .....Jaguar Rear Yoke-Axle and Hub Assembly, 31 Spline.

Parts Included:

See the parts list on page two of all the items included in the kit. The kit has all the parts required with the exception of the tapered bearings and seals that are the same as the original parts.

Assembly Features:

This kit improves the Yoke-Shaft torsion capability by increasing the spline to a more modern and stronger 31 tooth involute profile. The yoke shaft is made from a 300M aircraft alloy forging that has been heat-treated and shot peened for improved cycle life. The Yoke-Shaft features removable caps that simplify installation. The universal joint cap attachment fasteners are drilled for safety wire locking. The Yoke-Shaft features a 1”-20 thread that increases strength. The hub is produced from 4340 steel that is thru-hardened heat treated with our austempering process. Wheel studs are an ARP product with a quick start nut-aligning feature. They are installed by a threaded connection in the hub.

Primary Applications:

Road racing applications of the XK type Jaguar requiring extra strength for the outboard rear axle flange and drive yoke assembly.

Installation Overview:

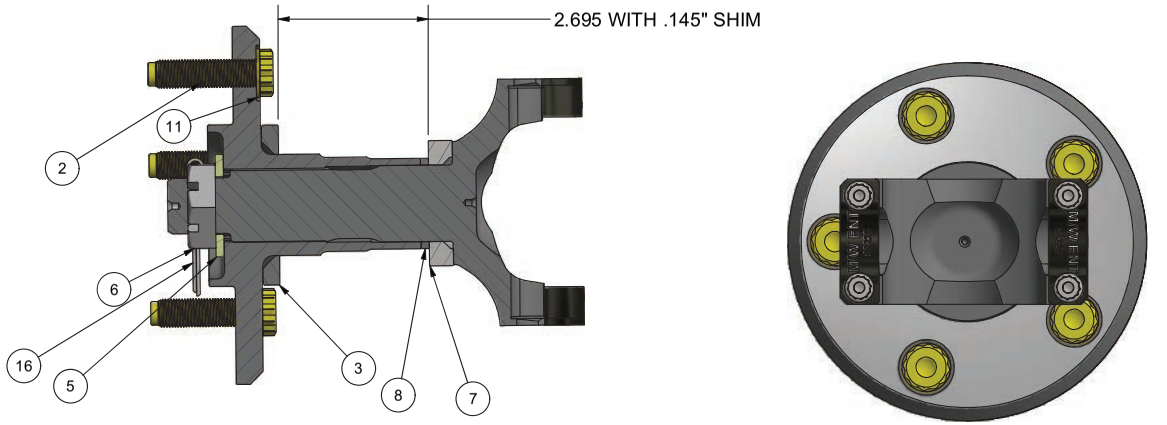
The assembly is designed to be a bolt-in conversion replacement for the original parallel spline driving yoke and hub. It utilizes the original bearings and seals. The kit includes several thicknesses of the preload shims for the proper tapered roller bearing pre-load. The Yoke-Shaft features removable caps that simplify the installation. We recommend setting the bearing preload without the seal being installed. Step by step instructions are on pages 3 and 4.

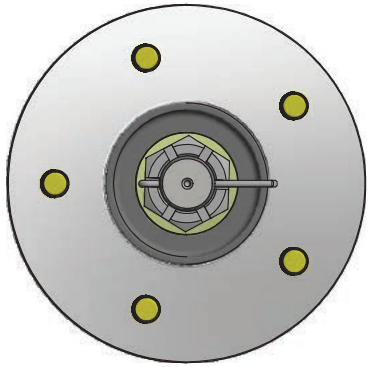
Torque Specs:

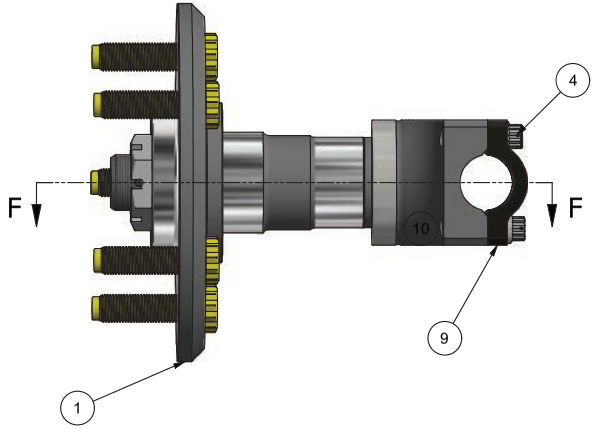
The wheel stud-bolts are factory installed utilizing #621 Loctite and torque to 110 foot-pounds. If the wheel stud bolts should require removal pre-heat the flange with a heat gun to soften the locking compound prior to removing. The 1”-20 castle nut (6) with a cotter key and hardened washer (5) is used to secure the assembly. Torque to 200-225 ft pounds. Torque the 50226-1(9) billet cap with 5/16-24 12-Point Bolts (4) to 17-20 foot-pounds. Over torque will cause damage to the roller bearings including brinelling, and cracking, causing the universal joint to prematurely fail. We recommend using safety wire on the cap bolts.

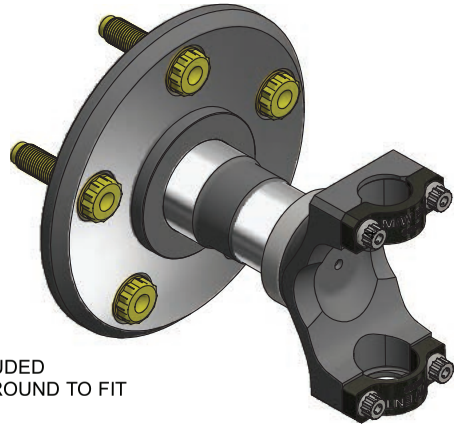
INSTALLATION - SERVICE INSTRUCTIONS
Mark Williams Enterprises

Bulletin NO. SB0114









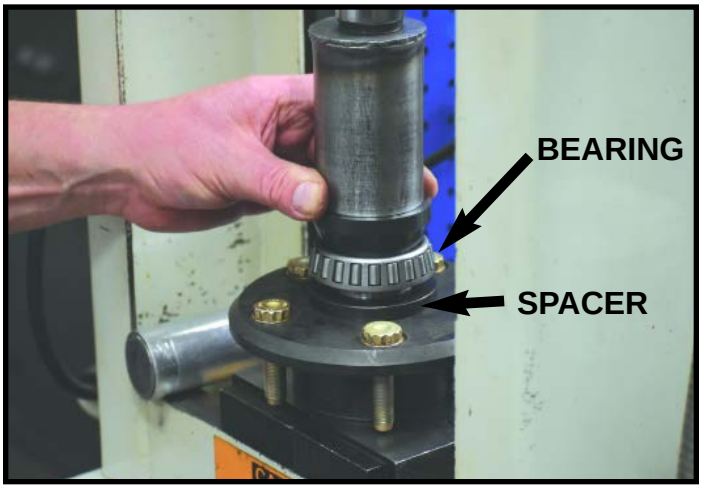
Parts List				
ITEM	QTY	PART NUMBER	DESCRIPTION	FILE NAME
1	1	JAG-1002	AXLE FLANGE, JAG 31 SPLINE	004984IN.ipt
2	5	51250-1	BOLT, 1/2-20 X 2 WHEEL STUD (ARP-MW)	51250-1.ipt
3	1	JAG-1003	SPACER JAG 31 SPLINE HUB	004985IN-3.ipt
4	4	215.05.13.6NF	BOLT, 12 POINT 5/16-24 X .85" LG A.R.P	215.05.13.6NF.ipt
5	1	WA-1000	WASHER, 1" BOLT1.032 X1.845 X .148	WA-1000.ipt
6	1	16-74-11	NUT, 1-20 EXTRA FINE CASTLE	16-74-11.ipt
7	1	JAG-1004	SPACER, JAJ-1000 YOKE INNER	004985IN-2.ipt
8	7	JAG-1005	SPACER, PRELOAD JAG-1000 ASSEMBLIE .145"	004985IN-5.ipt
9	2	50226-1	CAP, FOR MW STANDARD YOKE 5/16 BOLT	004986IN.ipt
10	1	JAG-1001	YOKE-AXLE JAG 31 SPLINE, 1410 UNIVERSAL	004988IN(DRILL 5).ipt
11	5	AN960-816	WASHER, 1/2" AIRCRAFT	AN960-816.ipt
16	1	0202440	1/8 X 2.5 COTTER PIN	1_8 X 2 COTTER PIN.ipt

PRELOAD SPACERS INCLUDED
.145 OVERSIZE CAN BE GROUND TO FIT
.134 RED
.132 GREEN
.130 BLUE
.128 WHITE
.126 BROWN
.124 BLACK
ITEM #5 CAN BE SURFACE GROUND
THINNER CHANGE SPACERS RANGE

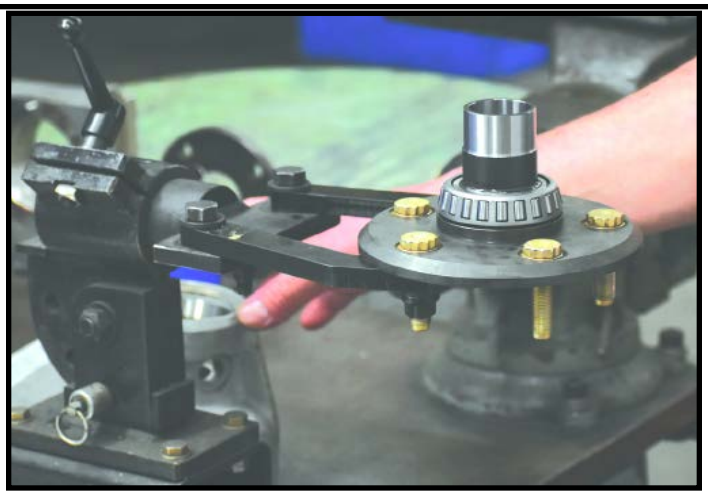
MATERIAL	HEAT TREAT				
	PROTECTIVE FINISH				
Z:\Inventor Files\Assembly_Files\AS004984IN-(1).iam					
STOCK INFORMATION	MACHINING TOLERANCES				
BAR LENGTH: WEIGHT:	.XX	.XXX	.XXXX	X°	
YIELDS PER BAR:	.015	.005	.0005	1/2°	
GROSS WEIGHT (PART):	SURFACE FINISH UNLESS NOTED				

Mark Williams Enterprises
765 SOUTH PIERCE AVE, LOUISVILLE, CO 80027

DWG NO.	AS004984IN.idw
DRAWN BY:	mwilliams
DATE	2-6-20
TITLE	Jag Rear Hub ASSEMBLIE 31 SPLINE-1410
SAVED DATE/USER	mwilliams 04/02/2020 10:46 AM
PART NUMBER	JAG-1000
CHANGE	
S	1



1) The spacer is placed on the flange and the bearing is pressed on,



2) The hub flange with the studs and bearing are placed in a work holding Bench Mule. This tool allows you to rotate the assembly.

3) Install the housing with both races over the hub flange. The outboard seal doesn't need to be installed at this point. The inboard seal and bearing cone are not in the housing at this point.

4) The inner bearing is placed in the housing and the yoke with the inner spacer and the thickest preload (trialshim no color .145"), is placed into the hub splines thru the housing.

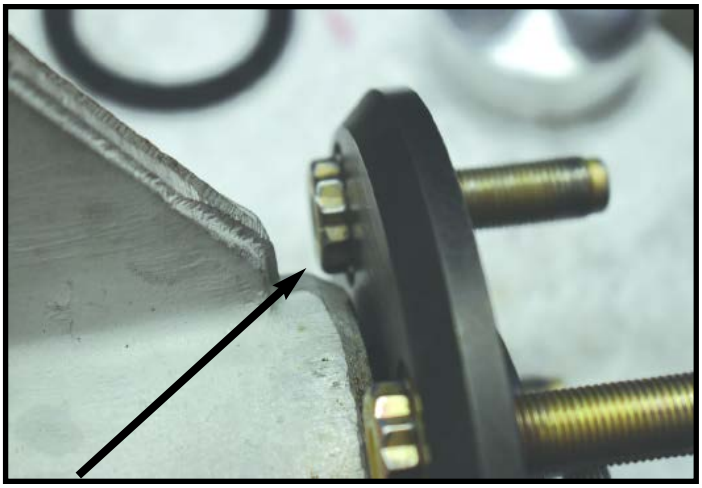
5) The 1" castellated nut and washer is installed.

6) Torque the castellated nut to 200-220 ft lbs. When tightening this nut it will draw the outer bearing cone on to the hub.

7) A dial indicator is clamped to the housing and the amount of movement is noted. With the .145” trial shim in the assembly it will be replaced with one that is thinner. The shim required can be calculated by the indicator movement minus .003-.004” for the bearing pre load. Example: if using the .145” thick shim, with .008” indicator movement would call for a .134” shim. This is on based on Timken preload suggestions. You might want to have a different preload based on your experience. The .145” shim can be ground for special thickness as required.

9) After the housing is installed the car, install the prop shaft and retain the caps with the 12 Point ARP fasteners. We recommend safety wiring the fasteners as shown in this illustration. We strongly recommend after the installation is complete placing the car on stands rotate wheel observing the clearance to the mating universal joint to the caps and shaft yoke This should be done at the limits of the up and down suspension travel..

8) The preload can be checked with an indicating torque wrench. Normal for tapered bearing of this size is 10-15 inch pounds. After verifying the preload re-assemble with the greased bearings and the seals installed.



NOTE 1) Check this point for clearance. It should have approximately 1/16” gap. Due to manufacturing variationsCheck this point for clearance. It should have approximately 1/16” gap. Due to manufacturing variations

NOTE 2) To remove the rear bearing it will be necessary to remove the wheel stud bolts and use a sharp edge bearing splitter that wedges between the flange and spacer.