SERVICE INSTRUCTIONS #0049

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

MARK WILLIAMS DRIVESHAFTS

January 21,2004

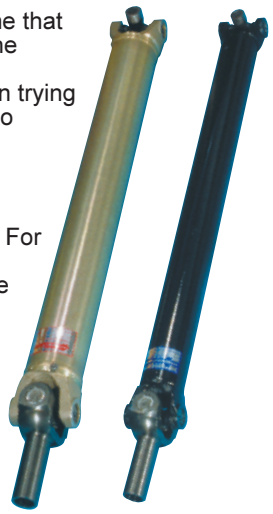
PART NUMBERS :

ML-600 3" x .083" mild steel driveshaft
39500 4" x .083" Duralcan driveshaft
39640 4" x .083" mild steel driveshaft
39650 3.5" x .065" mild steel driveshaft
39800 3"x .083" 4130 steel driveshaft
39850 3.5" x .083" 4130 steel driveshaft
39935 3.562" x .110" Duralcan shaft
ML-39200 3-1/2" 6061 Alm Shaft
ML-39300 4" 6061 Alm. Shaft

INSTALLATION NOTES :

1)Chromoly and aluminum driveshafts with solid universal joints are pre-lubed so no grease is required.Masterline Driveshafts with grease joints require lubrication every 3000 miles.

2) Check to make sure that the universal joint operating angles are the same (see figure 1). The Centerline that runs through the engine-transmission must be parallel to the centerline of the pinion. If both are parallel the universal joint operating angles will be the same.
Adjust the four link or ladder bars to achieve this condition. Four link bars are superior to ladder bars when trying to maintain operating angles over the travel range of the suspension. The practice of lowering the pinion to compensate for spring windup does not apply to cars with four link or ladder bar suspensions. If there is deflection due to worn rod ends or under sized tubes, slight compensation can be made, this however is a questionable practice.



3) Check to make sure that the universal joint angles are less than the maximum angle shown in figure 2. For most drag racing applications, the maximum operating angle should be less than 2 degrees. However, a minimum operating angle of a 1/2" degree will prevent brinnelling of the roller bearings and in turn increase the life of the universal joint.

4) Examine the amount of slip that the driveshaft front yoke has with the transmission. Move the rear axle through the full range of motion allowed by the suspension. Make sure that the yoke has 3/8" clearance from bottoming out, with the rear axle in the furthermost forward position. Conversely, the transmission slip yoke must also be fully engaged into the transmission tail shaft bushing when the axle is at the most rearward position.

5) torque the rear "U" bolts to 15 to 20 ft. lb.. ***Over torquing will only distort the bearing cups and bind the u-joints.***

MAINTENANCE REQUIREMENTS :

Check the torque of the "U" bolts (see step 5 above). Visually inspect the shaft for cracks, dents, or scratches that might lead to a failure. Check to make sure that the operation of the universal joints is smooth. If a knocking movement is present, the universal joints should be replaced. Joints with lube fittings should be serveced every 3000 miles.

VIBRATION CONTROL:

In order to avoid vibrations in the driveshaft, it must be operated below the critical speed. The critical speed is the rotational speed that coincides with the natural vibration frequency of the shaft. At this speed the shaft becomes dynamically unstable and vibrations are likely to occur. The critical speed of a MW driveshaft can be determined given the driveshaft length (see figure 1 & table 1). 6061 Aluminun shafts sgould be calculated at 85% of the MMC ratings.

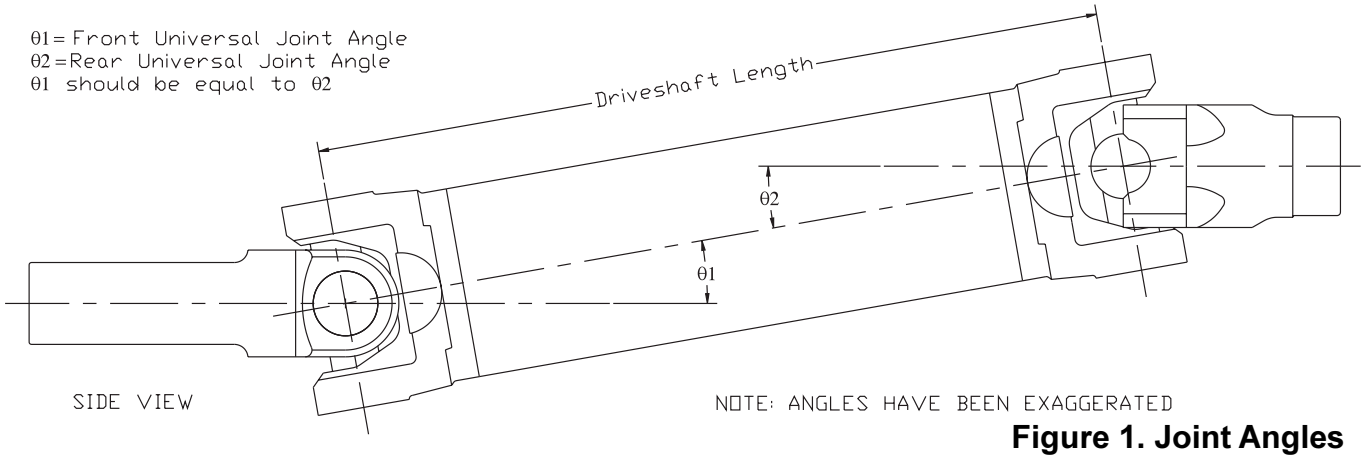


Figure 1. Joint Angles

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Figure 2.

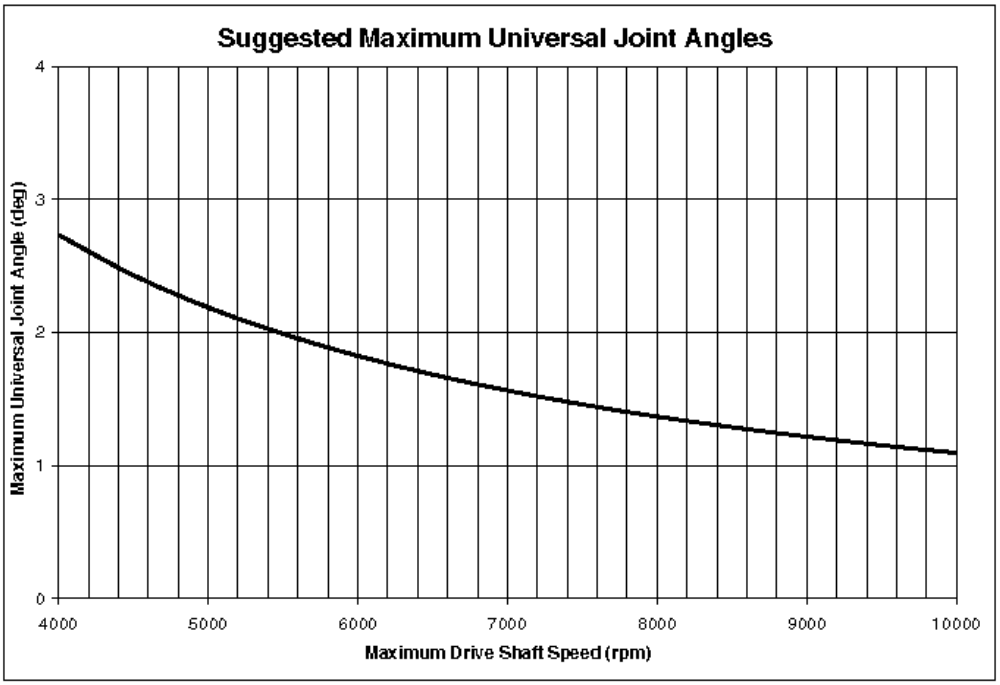

Table 1. Critical Speeds of MW driveshafts (rpm)

Length	3" 4130 STEEL 39800	3-1/2" STEEL 39650	4" STEEL 39640	3-1/2" MMC ALUMINUM 39900	4" MMC ALUMINUM 39400	3-3/4" Carbon Fiber 39100
44"	7,476	8,804	10,038	9,969	11,320	13,425
45"	7,147	8,418	9,569	9,531	10,823	12,836
46"	6,840	8,055	9,183	9,122	10,357	12,284
47"	6,552	7,716	8,797	8,738	9,921	11,761
48"	6,282	7,398	8,434	8,377	9,512	11,280
49"	6,028	7,099	8,094	8,039	9,128	10,820
50"	5,790	6,818	8,055	7,720	8,766	10,397
51"	5,565	6,553	7,471	7,421	8,439	9,988
52"	5,352	6,303	7,186	7,138	8,105	9,612
53"	5,152	6,068	6,918	6,871	7,802	9,248
54"	4,963	5,845	6,664	6,619	7,515	8,913
55"	4,785	5,634	6,423	6,381	7,245	8,585
56"	4,615	5,435	6,196	6,155	6,988	8,288
57"	4,455	5,246	5,981	5,940	6,745	7,996
58"	4,302	5,067	5,776	5,737	6,515	7,727
59"	4,158	4,896	5,582	5,544	6,296	7,463
60"	4,020	4,734	5,397	5,361	6,087	7,220