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**TERMS** C.O.D. or Credit Card. Axles and special built products require a deposit as do items requiring shipment by methods other than UPS. Credit Card usage will expedite order processing. We accept money orders, certified checks or official bank checks only for C.O.D. orders. UPS will no longer accept cash for C.O.D. shipments. If a C.O.D. delivery is refused we will not ship C.O.D. on future orders; prepayment will be required. We accept Visa, Master Card, American Express and Discover. All credit card orders must be shipped to the billing address of the card only.

**AXLE ORDERING** In the catalog there is a sample of the dimensions needed to place an axle order. Before phoning, read this carefully and familiarize yourself with the terminology and how measurements are to be taken. This will allow us to accurately complete your order, and lessen the chance of a costly mistake.

**SHIPMENTS** F.O.B. Louisville, Colorado (Denver-Boulder Metro Area). Unless otherwise specified UPS will be utilized.

**FOREIGN SHIPMENTS** Unless restricted by law, MW will ship to foreign customers. Full purchase price (in U.S. currency) must accompany order. No C.O.D. shipments. Name of desired freight carrier, and shipping method must be included with order. Unless specified UPS World Ship will be used.

**CLAIMS** Claims for damages, open or concealed, or shortages must be made within five (5) days of receiving an order. Damage claims should be made with the freight company first and shortage claims with Mark Williams Enterprises. In the event of a damaged package, keep all packaging boxes and materials. All shipments are accurately weighed before shipping. If there is a part shortage check the shipment weight to see if it matches the shipping weight. This is the first step to determining if parts were lost in transit.

**RETURNS** Axles, driveshafts, housings and specially produced parts cannot be returned! Other merchandise requires permission and is subject to a 15% handling charge. Shipping charges on returned items must be prepaid. MWE does not allow returns after 90 days.

**ORDERING** All orders are processed on an in-house computer. Customer numbers are generated from your zip code plus 2 computer assigned numbers. If possible, please use catalog part numbers and your customer number. Toll free order lines are open weekdays from 8:00 AM to 5:00 PM mountain time. Parts can be ordered 24 hours per day on line at <a href="https://www.markwilliams.com">www.markwilliams.com</a>.

**BACK ORDERS** All back orders will be shipped as soon as the item is restocked. If a back order is no longer wanted please call 1-800-525-1963 or 303-665-6901 and cancel the item(s).

**PRICES** Prices are subject to change without notice.

**WARNING** Modification of your car's chassis or driveline to enhance performance with the parts identified in this catalog may create a dangerous condition which could cause serious bodily injury. The buyer hereby expressly assumes all risks associated with any such modifications.

**DISCLAIMER OF WARRANTY** Seller disclaims any warranty express or implied with respect to the parts sold hereby whether as to merchantability, fitness for particular purpose, or any other matter.

**SPECIFICATIONS** Non-critical specifications are subject to change without notice.

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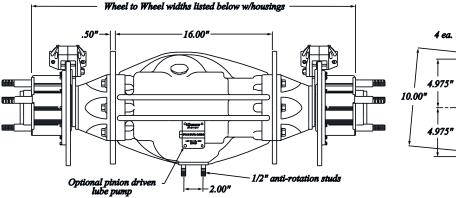
## 9" FULL FLOATER

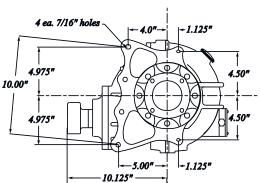


MW's full floater 9" Ford Aluminum Modular assemblies meet the requirements of classes that must have full floating hubs. Complete assemblies, including a MW aluminum thirdmember, offer reliability and provide improved performance due to precise component alignment. Being a thirdmember type rear, it's a snap to change gear ratios. With the 9", 9-1/2" and 10" ring and pinions, the Modular is suited for Top Dragster, Competition and Bracket Class applications. Thirdmembers are now available with 9-1/2" and 10" diameter ring gear (in select ratios) for added strength.

The MW floater unit incorporates sealed ball bearings (self lubricating) for minimum drag. The Floater hubs are available with a 5" or 5-1/2" bolt circle. Complete rears include full floater assemblies with a one-piece axle, (standard width only) and a large pinion third-member. Steel or Carbon/Carbon Disc Brakes are available for superior stopping power along with substantial weight savings.







## **MODULAR 9" FLOATER HOUSINGS**

94700-31 Modular Floating Housing w/Spindles . . .2819.00 Housing with Series II spindles and 1/2" thick pocket-milled brackets (31 1/8" wheel to wheel).

94700-33 Modular Floating Housing w/Spindles . . .2855.00 Housing with Series II spindles and 1/2" thick pocket-milled brackets (33 1/8" wheel to wheel). 50 lbs.

94700-37 Modular Floating Housing w/Spindles . . .2890.00 Housing with Series II spindles and 1/2" thick pocket-milled brackets (37 1/8" wheel to wheel).

## **MODULAR 9" FLOATER ASSEMBLIES**

91750 Full Floating Mod. Aluminum Rear . . . . . 10,996.00 Same as 91700 but with MW carbon/carbon brakes, assembly weight 152 lbs.

\*See pages 54 & 55 for components to make non-standard width housings. Or call 800-525-1963!

All Modular Housings accept thirdmembers with 10" ring gears without modifications!

toll free 800-525-1963 on the web

# Modular

97000 Pro-4-Link 9" Assembly

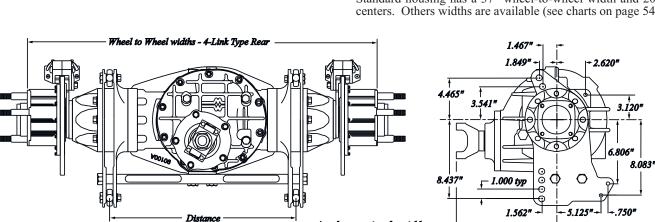
## Pro 4-Link

The MW Modular 9" Pro 4-link housing is an outstanding choice for the suspended rear racecar. All 4 link brackets are CNC machined from 7075

aircraft alloy aluminum. The layout of the 4-link attachment points is the same as used by the leading pro stock chassis builders.

Units are available in both floater and flange type axle configurations. Unique design features include indexing lugs on each 4-link bracket that positively lock inner and outer brackets to each other and to the housing. This insures perfect alignment of all components and eliminates the possibility of the housing and thirdmember shifting between the brackets. To further strengthen the assembly, aluminum cross tie bar is used to secure the 4-link brackets to the bottom of the housing. The housing

also has provisions for either upper or lower wishbone attachment along with shock and wheelie bar mounts. Holes in the 4-link brackets accommodate rod ends with 5/8" cross-holes. Standard housing has a 37" wheel-to-wheel width and 20" 4 link centers. Others widths are available (see charts on page 54 & 55).



Attachment points for wishbone

on both top and bottom of housing

#### Modular Pro 4-Link Housings

Modular housing, aluminum 4-link brackets 37" wheel to wheel, 20" 4-link centers for flange type axles. See chart on pages 54-55 for other 4 link centers and wheel to wheel widths. (Other widths avail with extra charge).

98700 Modular Floater housing, aluminum 4-link brackets, 36-5/8" wheel to wheel. 20" 4-link centers for Full Floater kit. Call for other 4 link centers and wheel widths. (Other widths available with extra charge)

10.875"

#### Modular Pro 4-Link Assemblies

97000 Complete Modular 4-Link Flange Rear . .11,732.00 3.812 bore H-D 10" ring gear aluminum thirdmember with 40 spline steel spool. Pro-gears, 50500 gun-drilled 40 spline flange axles, MW brakes with lightened rotors, 37" wheel to wheel and 20" 4 link centers standard. (Other widths available at extra charge) 160 Lbs.

97050 Complete Modular 4-Link Flange Rear . .13,662.00 Same as 97000 but with MW carbon/carbon brakes.

99700 Complete Modular 4-Link Floater Rear . .12,389.00 Large bore H-D aluminum 10" thirdmember with 40 spline steel spool, Pro-gears, gun drilled 40 spline axles, MW brakes with lightened rotors, 36-5/8" wheel to wheel and 20" aluminum 4-link brackets. (Other widths available at extra charge) 185 Lbs

Same as 99700 but with MW carbon/carbon brakes.

The models listed are typical assemblies. We can build you a rear to suite your individual requirements with a different thirdmember and axle\brake combinations. We can supply a drawing of the available 4-link bolt patterns upon request. Different configurations are available. Call for a quotation on a rear with the options that meets your requirements.



#### 9" Pro 4-Link

99785 Pro-4-Link 9" Assembly



The MW Modular 9" 4-link housing is available with 4130 steel 4-link suspension mounts. The steel

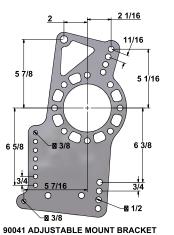
brackets feature the key alignment lugs for extra strength. The result is a 17-1/4" 4-link center distance

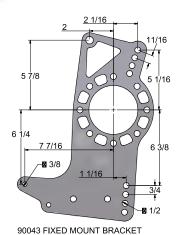
plus the added durability of steel 90039 Coil Over brackets.

Shock Mount

Available with coil-over spring mounts, that are fixed or adjustable with aluminum shock mounting brackets. Housings accept the 4.00" Bore MW thirdmembers without modifications. The complete rears are available with the 10" ring

and pinion that can include the 100% angular contact ball bearing assembly. 4-link centers can be as narrow as 16" with an optional modified (14-3/8") center housing.







## 9" Modular Pro Steel 4-Link Housings

96780 Mod Steel 4-Link Flange Axle Housing . . .4025.00 Modular housing, Fixed 4130 steel brackets 34" wheel to wheel, 17-1/4" 4-link centers for flange type axles. See chart on page 53 wheel to wheel widths.(Other widths available with extra charge).

#### 9" Modular Pro Steel 4-Link Assemblies

97780 Complete Steel 4-Link Flange Rear . . . . 10,696.00 4.00 bore H-D aluminum thirdmember all ball bearings with 40 spline steel spool, 10" Pro-gears, 50500 gun drilled 40 spline flange axles, MW brakes with lightened rotors, 34" wheel to wheel with 17-1/4" Steel 4 link centers standard. (Other widths available at extra charge)

97785 Complete Steel 4-Link Flange Rear . . . . 13,506.00 Same as 97780 but with MW carbon/carbon brakes.

All Modular Housings accept thirdmembers with 10" ring gears without modifications!

99780 Complete Modular 4-Link Floater Rear . .11,946.00 Large bore 10" H-D aluminum thirdmember with 40 spline steel spool, 10" Pro-gears, gun drilled 40 spline floater axles, Steel disc brakes with lightened rotors, 34-5/8" wheel to wheel with 17-1/4" Steel 4 link centers standard. (Other widths available at extra charge)

90039 Adjustable Coil Over Shock Mounts brackets and mounts add \$117.59

toll free 800-525-1963 on the web



## 9" STEEL TUBE

The versatility of the MW 9" Ford aluminum modular rear is truly amazing, and we keep expanding the possible combinations. All steel tube modular rears use the same cast aluminum center, and either steel end bells or special aluminum end bells attached to 3" chromoly axle tubes. Steel tubes allow installation of 4 link or ladder bar brackets, spring pads, or any other combination available with a traditional housing. In addition, steel tubes allow for much wider housing widths than the aluminum configurations. This opens up many new applications for the MW modular housing. Using steel end bells, 4-link housings can be built with MW laser cut 4-link brackets made from 1/4"" thick steel plate. The 4-link attachment points on these brackets are similar to our aluminum brackets and accommodate 5/8" cross-hole rod end. Other mounting holes for the adjustable

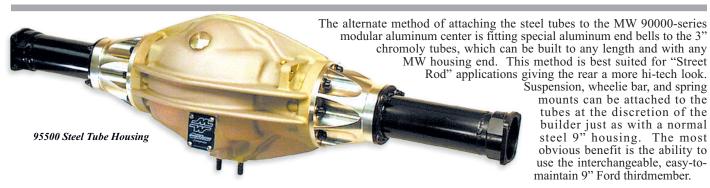
shock mounts and wheelie bar mounts are 3/8" diameter. 4 link centers can be as narrow as 21". To add rigidity to the 4 link mounts, a 1" X 3" steel cross tube is used to tie the 4-link brackets to the bottom of the housing.



## **MODULAR 9" STEEL TUBE 4-LINK HOUSINGS**

97400 Steel Tube Modular 4-Link Assembly . . . . . 8160.00 Complete with Aluminum thru bolt case, 40 spline axles, lightweight steel spool, 9" Pro Gear, Steel 4-Link brackets, with tie bar, MW disc brakes, drive studs, 1350 series pinion yoke, any housing width, any width 4-Link centers (21" minimum).

## MODULAR 9" STEEL TUBE ASSEMBLIES



95000 Steel Tube Modular Street Assembly . . . . .6150.00 With aluminum end bells and 4130 tubes, your spring/suspension mounts. Any make housing ends. Pro-Street axles with Timken wheel bearings. Includes lightweight aluminum third-member and 31 spline posi, minimum of 38" housing width (less brakes).

The models listed are typical assemblies. We can build you a rear to suite your individual requirements with a different thirdmember and axle\brake combinations. We can supply a drawing of the available 4-link bolt patterns upon request. Different configurations are available. Call for a quotation on a rear with the options that meets your requirements.



# Meduler Meduler

93012 Modular 12 Bolt Econo/Comp Assembly

## 12 BOLT ECONO/COMP

MW's 12 bolt Econo/Comp modular aluminum housing is ideal for many dragster/altered applications. The center casting is only 14" wide. When used with standard end bells the housing width is 24". This gives a wheel to wheel width of 30 1/8" allowing for the narrow rear tread width that is popular today with a number of dragster chassis builders. Other widths are available. See page 54&55 for choices. This is easily done through the use of different end bells. The 12 Bolt ring and pinion has also become popular due to its reduced internal friction. This improved efficiency frees up horsepower

and becomes more
beneficial in lightweight cars or
lower horsepower cars.

For suspended dragsters we offer the Econo/Comp 4 link housing (shown at left). It incorporates special steel 4 link brackets and aluminum spacers along with a tubular lower tie bar. These new components make it easier than ever to convert a MW modular solid mount dragster

housing to a 4-link set-up. Another important factor is the weight of the assembly. At 122 lbs. with drilled steel rotors, the Modular 12 Bolt can easily save 10 lbs. over a 9" Ford. For the super weight conscience racer, additional weight savings of roughly 15 lbs. is possible through the use of an aluminum spool, lightened gear, and MW carbon/carbon disc brakes.

93412 Econo/Comp 4-Link Housing shown without axles

## 12 BOLT ECONO/COMP ASSEMBLIES

93052 12 Bolt Pro Econo/Comp Assembly . . . . . .9134.00 Same as 93012 but with MW carbon/carbon brakes. Assembled weight 112 lbs.



93412 12 Bolt Econo/Comp 4-Link Assembly . . . . 7062.00 35 spline aluminum spool, lightened Richmond Pro ring and pinion gears, MW axles (gun drilled), bearings, drive studs, MW disc brake kit with drilled rotors, 4 link housing. Assembled weight 138 lbs.

93452 12 Bolt Mod Econo/Comp Assembly . . . . . .9862.00 Same as 93412 but with MW carbon/carbon brakes. Assembled weight 128 lbs.

The 12 Bolt Modular center section is available as a ridged-mount center section featuring CV stub axles for independent rear suspension applications. Call an MW Technical representative for more information.

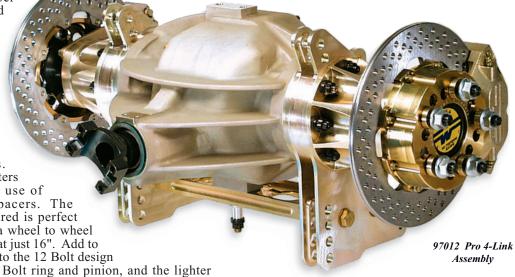
toll free 800-525-1963 on the web

# Møduler

#### 12 BOLT PRO 4-LINK

With the current trend in Super Comp toward suspended dragsters and altereds, the MW Modular 12 Bolt Pro 4 Link housing is the answer. The Pro 4 link housing offers many benefits over mounting a steel 12 bolt housing with suspension brackets.

MW's innovative modular design allows for a wide range of housing configurations. Housing width and 4 link centers can be adjusted through the use of different end bells and/or spacers. The housing in the assembly pictured is perfect for dragster applications with a wheel to wheel width of 33" and 4 link centers at just 16". Add to this all of the MW refinements to the 12 Bolt design increased efficiency of the 12 Bolt ring and pinion, and the lighter assembly weight vs a 9" Ford and it's easy to see that the MW Modular 12 Bolt really meets the needs of light weight race cars.





Pro 4-Link 12 Bolt Housing for fanged Axles

# INSPECTION/FILL PLUG IN COVER, A DRAIN HOLE/PLUG IN BOTTOM OF HOUSING

THREADED SPOOL-CARRIER ADJUSTMENT

COVER LOCKS ON INSIDE EDGE AND USES AN O-RING SEAL TO ELIMINATE GASKETS AND LEAKS.

THRU BOLTS INTO COVER

CAPS SUPPORTED BY HOUSING WALL

#### **DESIGN FEATURES:**

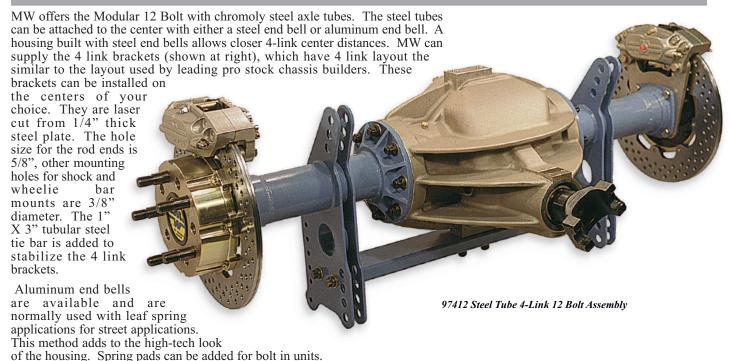


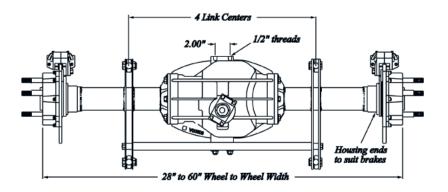
#### 12 BOLT PRO 4-LINK ASSEMBLIES

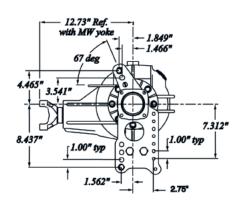
See pages 54 & 55 for a complete list of the housing widths and 4 link center combinations available using different end bells and/or spacers.

#### **12 BOLT STEEL TUBE REARS**









## 12 BOLT STEEL TUBE ASSEMBLIES

Mark Williams can also install customers supplied ladder bar or 4 link brackets, shock mounts, wheelie bar mounts, spring pads etc. on steel tube housings. Call for pricing and more information on a housing to fit your exact needs.

**toll free** 800-525-1963

on the web

## **CONFIGURATIONS**



## FLANGE AXLE END BELLS













	90110	90118	90122	90124	90140	90150
9" OR 12" SOLID MOUNT REAR	32 1/8" WHEEL TO WHEEL	32 1/8" WHEEL TO WHEEL	31 1/8" WHEEL TO WHEEL	30 1/8" WHEEL TO WHEEL	34 1/8" WHEEL TO WHEEL	36 1/8" WHEEL TO WHEEL
9" OR 12" 4 LINK 17-1/4" CENTERS	34" WHEEL TO WHEEL	34" WHEEL TO WHEEL	33" WHEEL TO WHEEL	32" WHEEL TO WHEEL	36" WHEEL TO WHEEL	38" WHEEL TO WHEEL
9" OR 12" 4 LINK REAR 18" CENTERS	35" WHEEL TO WHEEL	35" WHEEL TO WHEEL	34" WHEEL TO WHEEL	33" WHEEL TO WHEEL	37" WHEEL TO WHEEL	39" WHEEL TO WHEEL
9" OR 12" 4 LINK REAR 19" CENTERS	36" WHEEL TO WHEEL	36" WHEEL TO WHEEL	35" WHEEL TO WHEEL	34" WHEEL TO WHEEL	38" WHEEL TO WHEEL	40" WHEEL TO WHEEL
9" OR 12" 4 LINK REAR 20" CENTERS	37" WHEEL TO WHEEL	37" WHEEL TO WHEEL	36" WHEEL TO WHEEL	35" WHEEL TO WHEEL	39" WHEEL TO WHEEL	41" WHEEL TO WHEEL
9" OR 12" 4 LINK REAR 21" CENTERS	38" WHEEL TO WHEEL	38" WHEEL TO WHEEL	37" WHEEL TO WHEEL	36" WHEEL TO WHEEL	40" WHEEL TO WHEEL	42" WHEEL TO WHEEL
9" OR 12" 4 LINK REAR 22" CENTERS	39" WHEEL TO WHEEL	39" WHEEL TO WHEEL	38" WHEEL TO WHEEL	37" WHEEL TO WHEEL	41" WHEEL TO WHEEL	43" WHEEL TO WHEEL
12 BOLT SOLID MOUNT REAR	30 1/8" WHEEL TO WHEEL	30 1/8" WHEEL TO WHEEL	<b>29 1/8</b> " WHEEL TO WHEEL	28 1/8" WHEEL TO WHEEL	32 1/8" WHEEL TO WHEEL	34 1/8" WHEEL TO WHEEL
12 BOLT 4 LINK REAR 16" CENTERS	33" WHEEL TO WHEEL	33" WHEEL TO WHEEL	32" WHEEL TO WHEEL	31" WHEEL TO WHEEL	35" WHEEL TO WHEEL	37" WHEEL TO WHEEL
12 BOLT 4 LINK REAR 17" CENTERS	34" WHEEL TO WHEEL	34" WHEEL TO WHEEL	33" WHEEL TO WHEEL	32" WHEEL TO WHEEL	36" WHEEL TO WHEEL	38" WHEEL TO WHEEL
12 BOLT 4 LINK REAR 18" CENTERS	35" WHEEL TO WHEEL	35" WHEEL TO WHEEL	34" WHEEL TO WHEEL	33" WHEEL TO WHEEL	37" WHEEL TO WHEEL	39" WHEEL TO WHEEL
12 BOLT 4 LINK REAR 19" CENTERS	36" WHEEL TO WHEEL	36" WHEEL TO WHEEL	35" WHEEL TO WHEEL	34" WHEEL TO WHEEL	38" WHEEL TO WHEEL	40" WHEEL TO WHEEL
12 BOLT 4 LINK REAR 20" CENTERS	37" WHEEL TO WHEEL	37" WHEEL TO WHEEL	36" WHEEL TO WHEEL	35" WHEEL TO WHEEL	39" WHEEL TO WHEEL	41" WHEEL TO WHEEL

THE MW Modular rear can be configured for flange axles or floater hubs to meet any requirement. These charts list the most popular configurations. In addition some of the modular rears used for front motor applications can use spacers between the housing and the mounting brackets to align the attachment point closer to the chassis rails.

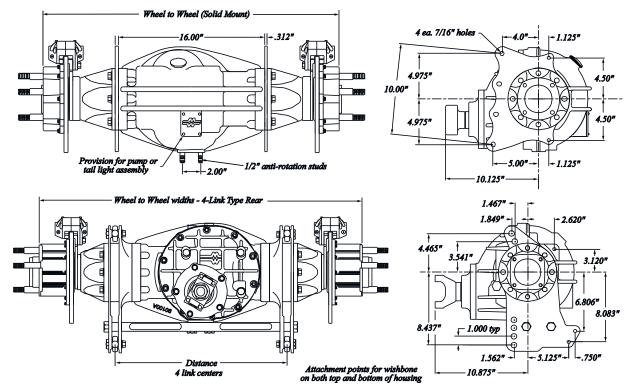


## **CONFIGURATIONS**



90323	90322	90320	90324	90321	
31-1/8 WHEEL TO WHEEL	32-1/8 WHEEL TO WHEEL	33-1/8 WHEEL TO WHEEL	35-1/8 WHEEL TO WHEEL	37-1/8 WHEEL TO WHEEL	9" or 12" SOLID MOUNT REAR
32-5/8 WHEEL TO WHEEL	33-5/8 WHEEL TO WHEEL	34-5/8 WHEEL TO WHEEL	36-5/8 WHEEL TO WHEEL	38-5/8 WHEEL TO WHEEL	9" OR 12" 4 LINK 17-1/4" CENTERS
33-5/8 WHEEL TO WHEEL	34-5/8 WHEEL TO WHEEL	35-5/8 WHEEL TO WHEEL	37-5/8 WHEEL TO WHEEL	39-5/8 WHEEL TO WHEEL	9" OR 12" 4 LINK REAR 18" CENTERS
34-5/8 WHEEL TO WHEEL	35-5/8 WHEEL TO WHEEL	36-5/8 WHEEL TO WHEEL	38-5/8 WHEEL TO WHEEL	40-5/8 WHEEL TO WHEEL	9" OR 12" 4 LINK REAR 19" CENTERS
35-5/8 WHEEL TO WHEEL	36-5/8 WHEEL TO WHEEL	37-5/8 WHEEL TO WHEEL	39-5/8 WHEEL TO WHEEL	41-5/8 WHEEL TO WHEEL	9" OR 12" 4 LINK REAR 20" CENTERS
36-5/8 WHEEL TO WHEEL	37-5/8 WHEEL TO WHEEL	38-5/8 WHEEL TO WHEEL	40-5/8 WHEEL TO WHEEL	42-5/8 WHEEL TO WHEEL	9" OR 12" 4 LINK REAR 21" CENTERS
37-5/8 WHEEL TO WHEEL	38-5/8 WHEEL TO WHEEL	39-5/8 WHEEL TO WHEEL	41-5/8 WHEEL TO WHEEL	43-5/8 WHEEL TO WHEEL	9" OR 12" 4 LINK REAR 22" CENTERS

All dimensions are in inches. Solid mount widths are shown with 1/2" brackets.. 17-1/4" 4-Link centers is with 1/4" steel brackets. Call for special widths.



toll free 800-525-1963

on the web



#### **COMPONENTS**



## **SOLID MOUNT AND 4-LINK BRACKETS**

All modular brackets for solid mount applications are CNC machined from 7075-T6 billet aluminum plate. 1/2" brackets are pocket milled on both sides. Steel 4 link brackets are laser cut 1/4" 4130 and NC milled to mate to keyed spacers.

90012	1/2" Mount Bracket (12" Mod) (ea.)175.00
90115	5/16" Mount Bracket (ea.)166.00
90116	1/2" Mount Bracket (9" Mod.) (ea.)162.00
90117 14" X 1	1/2" Mount Bracket, Blank (ea.)155.00 2", hole center is 3" in, semi-finished plate

90041 4-Link Bracket Adjustable Height (ea) ...175.00 For 90039 shock mount , 1/4" thick 4130 material

90043-I 4-Link Bracket Fixed Height (ea) . . . . . . 175.00 1/4" 4130 material for 17-1/4" narrow 4-link centers



90039

#### FLUID PUMP ASSEMBLY

Mark Williams 9" and 12" Modular rears are set up to accept a fluid pump to circulate rear end lubricant from the back of the housing forward to the pinion bearings and the gear contact area to extend bearing and ring and pinion life. Pump is driven off the rear of the pinion shaft. Pump assembly includes pump shaft, required fittings, braided hose, and fasteners.

91100	Pressure Lubrication Pump Assembly	.645.00
Pump	drive requires 3/8 hex in pinion shaft (see below).	



#### 91100

## SPACERS, SEALS & TAIL LIGHT

90108 Rear Cover for Tail Light
90127 End Bell Axle Seal
96020 1/2" Thick Keyed Spacer (ea.)
96022 1" Thick Keyed Spacer (ea.)
96022-XXX Special Thick Outboard Spacer (ea.) POA





## **FULL FLOATER HUB KITS**



The MW Full Floater assembly is required by most sanctioning bodies for Fuel, Alcohol, and Pro Modified racecars. In the event of an axle failure, the floating hub will prevent wheel loss. An added performance advantage is that the wheel alignment is maintained under high acceleration load situations, preventing a "toe in" condition. The Series II floater assemblies feature a handful of new improvements. A larger inside bearing allows thicker spindle cross-section preventing crack propagation under severe tire-shake conditions. The forged aluminum hub has improved stud retention with deeper counter-bores and longer threads engagement. Hubs are available with either 4-3/4", 5" or 5-1/2" X 5 hole bolt circle. Spindles are produced from forged 4340 chrome-nickel-molybdenum steel and heat-treated. Floater axles are available in the standard 4340 or 300M, solid or gun-drilled. Drive plates are 40-spline and heat-treated alloy steel or aluminum drive pates with steel spline insert as a option.

Kits are available with conventional steel rotors or carbon-carbon setups that feature our Slot-Drive<sup>TM</sup> rotor attachment technology. Upgrade options include ceramic wheel bearings and four caliper brake kits. The floater kits are also available with long spindles, or without spindles to fit modular housings already equipped with spindles.

#### STANDARD FLOATER KITS

Kits Without Spindles 95475 Full Floater Hub Assembly	Complete Kits 95470 Full Floater Hub Assembly
95750 Full Floater Hub Assembly	95700 Full Floater Hub Assembly
95850 Full Floater Hub Assembly	95800 Full Floater Hub Assembly
CA	RBON/CARBON FLOATER KITS
95485 Full Floater Hub Assembly, Carbon	95480 Full Floater Hub Assembly, Carbon
95450 Full Floater Hub Assembly, Carbon	95400 Full Floater Hub Assembly, Carbon7308.00 40 spline axles, 5" x 5 hole bolt pattern.
95570 Full Floater Hub Assembly, Carbon	95555 Full Floater Hub Assembly, Carbon7308.00 40 spline axles, 5 x 5" bolt pattern.
	FLOATER KIT OPTIONS
11-3/8" Diameter Disc for 15" WheelsP.O.A.	Floater Axles (non-standard lengths*)P.O.A.
Dual Caliper Option (4 Caliper)P.O.A.	Long Spindle UpgradeP.O.A.
Titanium Wheel Studs	Ceramic Bearing upgrade
Aluminum Lug NutsP.O.A.	Aluminum Drive Plates upgrade
300M Material Axle Shafts gun drilledP.O.A.	* Stocked axle lengths are for 32" to 38" wheel to wheel

toll free 800-525-1963

on the web

## **FLOATER COMPONENTS**

The MW unique ball bearing floater design, is easily identified by the large snap ring that retains the hub. This is a very successful drag race design and is race proven. We stock most everything you need for repair and/or replacement, or to update your current floater assembly.

55066 MW Floater Hub for Steel Rotor (ea)575.00 5" bolt circle, less bearings and wheel studs Series II design.	55008CG Floater Axle Shafts G 4340 material gun drilled custom len
55068 MW Floater Hub for Steel Rotor (ea) 595.00 5-1/2" bolt circle, less bearings and wheel studs Series II design.	55008M Floater Axle Shafts, (pr 300M material solid (custom made)
55080 MW Floater Hub for Steel Rotor (ea) 595.00 4-3/4" bolt circle, less bearings and wheel studs Series II design.	55008MG Floater Axle Shafts, ( 300M material 7/8" Gun drilled (custo
55067 MW Carbon/Carbon Floater Hub (ea)630.00 5" bolt circle, less bearings and wheel studs Series II design .	55010 Floater Hub Bearing, O Double sealed ball bearing, 1 per hu
55090 MW Carbon/Carbon Floater Hub (ea)630.00 4-3/4" bolt circle, less bearings and wheel studs Series II design .	55070 Floater Hub Bearing, In Series II large inner, double sealed E
55069 MW Carbon/Carbon Floater Hub (ea)630.00	55018 40 Spline Drive Plate C
5 1/2" bolt circle, less bearings and wheel studs Series II design .  90304 Floater Spindle, Short Series II (ea)540.00	93061 Floater Wheel Stud (ea 5/8-18 thd. 4.2" over all, 2" shoulder
Short spindle 7-7/16" over all length 3-1/32" length from flange.  90337 Floater Spindle, Long Series II (ea)	71010 Brake Rotor Steel(ea) Slot drive mounting pattern, 11-3/4"
Long spindle 12-916" over all length, 8-1/8" length from flange.	90305 Single Caliper Mount B
55005 40 Spline Drive Plate Steel 5" BC (ea(ea)265.00	For Series II spindle, 11 3/4" rotor wi
55085 40 Spline Drive Plate Steel 4-3/4" BC (ea) .265.00	95023 Dual Caliper Mount Bra
55031 40 Spline Drive Plate, Steel 5 1/2" BC (ea) .265.00	For Series II spindle, 11 3/4" rotor wi
55025 40 Spline Drive Plate Alum 5" BC (ea)345.00	95029 Dual Caliper Mount Bra For Series II spindle, 11 3/8" rotor wi
55026 40 Spline Drive Plate Alum 5-1/2" BC (ea) .345.00	76X6261 40 Spline Drive Plate
55008-40-XX Floater Axle Shafts, std. lengths (pr) .632.00 Fits range widths from 32" to 38" wheel to wheel 4340 gun drilled	3100-255 Spindle Retaining Rin
	The parts listed are for current kits Co

55008CG Floater Axle Shafts Gun-Drilled (pr)722.00 4340 material gun drilled custom lengths
55008M Floater Axle Shafts, (pr)
55008MG Floater Axle Shafts, (pr)
55010 Floater Hub Bearing, Outer (ea)84.25 Double sealed ball bearing, 1 per hub.
55070 Floater Hub Bearing, Inner (ea)
55018 40 Spline Drive Plate Cover (ea)
93061 Floater Wheel Stud (ea)
71010 Brake Rotor Steel(ea)
90305 Single Caliper Mount Bracket (ea)
95023 Dual Caliper Mount Bracket (ea)
95029 Dual Caliper Mount Bracket (ea)
76X6261 40 Spline Drive Plate Seal (ea)
3100-255 Spindle Retaining Ring (ea)
The parts listed are for current kits. Call for help with older parts'.

#### **BILLET WHEEL SPACERS**

7304 1/4" Wheel Spacers (pr)	70.00
7308 1/2" Wheel Spacers (pr)	.98.00
7314 1/4" Wheel Spacers for Floater (pr) 4-3/4", 5" & 5 1/2" x 5 hole patterns, for 11/16" drive studs.	76.00
7318 1/2" Wheel Spacers for Floater (pr) 4-3/4", 5" & 5 1/2" x 5 hole patterns, for 11/16" drive studs.	98.00

MW wheel spacers are available in 1/4" and 1/2" thicknesses and are produced from billet aircraft grade aluminum (not cast). All \_ spacers are drilled for use with 11/16" diameter drive studs. All popular wheel bolt patterns are available. The 7304 and 7308 center hole clears a 3-1/16" register. The 7314 and 7318 clears a 3-1/2" floater drive plate.



7318

## FILLER CAPS AND BUNGS

MW offers two sizes of filler caps and weld bungs. Either suitable for many different applications, including rear end, valve cover, fuel tanks, etc. Filler cap weld bungs are available in steel or aluminum. Popular size fuel line aluminum weld bungs, drain plug w/bung and screw-in housing vents are also available.

2403	-6 Tank Weld Bung, (Aluminum), (3/8) 10.30
2404	-8 Tank Weld Bung, (Aluminum), (1/2) 11.64
5014	Rear Drain Fitting (3/8" pipe thread)12.36
5015	Rear Filler Cap, Gold, (Alum)
5016	Rear Filler Weld Bung, (Steel)
5018	Rear Filler Weld Bung, (Aluminum)11.50
5019	Vent Plug Rear Housing (1/4" pipe thread)8.50
5020	Fuel Tank Weld Bung, (Aluminum)12.25



5021	Vent Plug Rear Housing (1/8" pipe thread)8.10
5022	-16 Fuel Line Weld Bung (Aluminum)17.50
5030	Fuel Tank Cap (Aluminum)
5040	Fuel Tank Filler Weld Bung, (Steel)14.00
Also us	sed for a large rear axle filler/inspection port.

#### HOUSING ENDS & RETAINERS

MW manufactures a full line of weld on housing ends. Most of our housing ends are CNC machined from 4130 heat treated forgings and are designed to butt weld to the housing tube. The bolt patterns match the most popular brake assemblies. All MW housing ends are 2" long and have provisions for inboard seals that eliminates the possible gear oil leakage through the axle bearings. This extra length also reduces distortion problems of the bearing bore from final welding.



All Pro Street Housing ends use Timken® bearings and special outboard seals. Alignment tools are available to properly install the housing ends (page 59).

58599 for 3.346 85mm Bearing

NOTE: WE RECOMMEND USING THE SYMMETRICAL 58580 OR 58599 HOUSING ENDS FOR ALL DRAG RACE APPLICATIONS USING AFTERMARKET DISC BRAKES.

#### SYMMETRICAL

58599	Symmetrical Ends (pr)	135.00
For 3.34	46 85 mm O.D. 58509 bearings.	This is the hous-
ing end	and bearing combination used by	the top Chassis
	s. With the inboard seal it eliminate	•
issues.	The mating bearing is a standard i	industrial bearing
	stronger the common 3.150 Ford-0	Olds type
bearing	.2" long fig. A	

For all 3.150 O.D. bearings.with a .826 (31mm) wide outer race, internal seal provision2" long. fig. A

58585 Pro-Street Symmetrical Ends,(pr) .160.00 For 58506S Timken® unit bearings with that with 58516 outer seal and uses 58515 internal seal 2" Long fig. A

Ends for 85mm Wide bearing (pr)...232.00

For 58508 Double Row wide bearing 2.25" for seal

58500 Olds/Pontiac (pr) ......124.00

For all 3.150 O.D. bearings. fig. B 2" Long

**OLDS/PONTIAC** 

58501

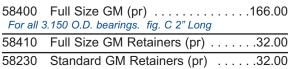
Olds/Pontiac Retainers (pr) .....29.00

# -3.072

-2.828

3 398

#### CHEVROLET



For all 3.150 O.D. bearings. fig. D 2" Long

58560 Standard GM Pro Street (pr) . . . . . 175.96 For 58506 Timken® unit bearings. fig. D 2" Long



#### FORD

	Small Ford (pr)	.124.00
57801	Small Ford Retainers (pr)	29.00
57802	New Style Ford Retainers (pr)	29.00
57804	Large Ford Retainers (pr)	29.00
57805	Lincoln Retainer (pr)	29.00
	Small Ford Pro Street (pr)	.124.00
57820	Large Ford 1/2" Holes Pro Street	.124.00

57830	Large Ford 1/2" Holes (pr) 130.00
For all 3.	150 O.D. bearings. fig. F 2" Long
57840	Lincoln 3/8" Holes (pr) 160.00

For all 3.150 O.D. bearings. fig. F2" Long

57850 Lincoln 3/8" Holes Pro Street (pr) 140.00 For 58506 Timken® unit bearings. fig. F 2" Long

New Style Ford (pr) ......130.00 57860 For all 3.150 O.D. bearings. fig. G 2" Long

For all 3.150 O.D. bearings. Includes 3/8" backing plate studs. fig. H2" Long



Mopar 58511 

53188 For 58506 Timken® unit bearings. fig. I 2" Long 

For 58506 Timken® unit bearings. Pair fig. F 2" Long

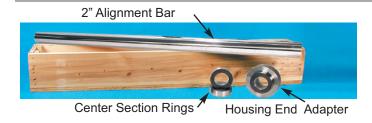
56501 Mopar Retainers (pr) ..........32.00



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For all 3.150 O.D. bearings. fig. I 2" Long

#### **Housing Narrowing Tools**



300F Housing End Alignment Ford/Ford Kit	.698.00
300M Housing End Alignment Ford/Mopar Kit	.698.00
300S Housing End Alignment 85mm 3.349 Brng. Kit	.698.00

The basic kit contains an alignment bar 39-1/2" long (one), a pair of differential centering rings and one housing end aligning sleeve. The kits are supplied with a choice of different bar centering rings (one pair) and housing end adapters (one). Extra rings and sleeves can be purchased to allow narrowing and truing all popular differentials.

Housing End adapters			
302 3.150" and 2.875" Diameters	3.00		
303 3.150" and 2.834" Diameters25  Large Ford Olds-Pontiac (80mm) and Mustang (72mm)	3.00		
310 3.349" and 3.150" Diameters			

The MW housing alignment tools are the most accurate way to narrow a rear end housing. It is the tool of choice for all the prominent chassis builders. The alignment bar has a large 2" diameter that is heat treated, hard chromed, and precision ground for durability and precise fit to the mating components. By utilizing a hard-chromed surface we can have a close clearance to the rings without a problem of galling to the mating parts. Alignment sleeves and center rings are produced from thru hardening steel, heat treated, honed, then outside diameters are ground on precision arbors. The quality of this tool will allow many years of accurate performance.

As a added feature, one end of the housing end tool has a 2-1/2" diameter to align the end of a 3" x 1/4 wall housing tube, for tack welding. Kits are shipped in a wooden container that is ideal for storage.

304 Floater Alignment Sleeve
Bar Centering Rings
305 Center Section Alignment Rings 210.00 Dana 60, 3.812" O.D.
306 Center Section Alignment Rings210.00

12-bolt, 8.8" Ford and Ford 9", 3.062" O.D. 308 Center Section Alignment Rings ......210.00 Mopar 8-3/4", 3.265" O.D.

Center Section Alignment Rings ......210.00

## Unit Hub Brake Kits



Mark Williams Enterprises now has a high quality front brake kit available for the Generation 5 GM cars that utilize a Unit Front Hub design. Kit features Slot-Drive TM disc attachment system that is produced from rust resistant stainless steel. This design allows components to thermally expand and contract without creating warping stress common in other systems. This precision kit features heat-treated large diameter steel alloy rotors. The lightening holes reduce rotating weight and create a fresh friction surface on the brake pads ensuring optimal stopping surfaces. All brackets are made from 7075 grade aircraft aluminum alloy and feature a gold finish. The MW brake kit maintains the original track width to preserve the original steering geometry. Our kit features four piston MW calipers with internal porting.

Requires spindle modifications for caliper and rotor hat clearance. See service Bulletin # SB0090 for modifications required.

75530 Disc Kit with 75538 Hub and Spindle Modifications

#### SUPER LIGHT GEN 5 CAMARO HUB

For the COPO cars. This is a direct replacement for the heavy and high drag OEM unit bearing hub. Designed for maximum weight savings and reduction of drag, this unit features triple low drag bearings, an aircraft aluminum housing, and a lightened, heat treated aircraft alloy hub. The rotating torque is 75% less than the OEM assemblies. Our alloy steel hub features an extensive internal tulip profile for maximum weight reduction. A weight savings of 6 pounds per vehicle is obtained.

4-3/5 x 5 Pattern, Choice of 1/2-20 x 2" or 3" long wheel studs







#### FRONT DISC BRAKE KITS

The integral hub design incorporates a one piece hub/brake hat and is produced from aircraft alloy aluminum. The larger mounting diameter utilizes the Slot-Drive<sup>TM</sup> attachment system that reduces rotor distortion. The integral hub design directs the heat from the brake rotor to the wheel, the largest heat sink. The hubs are double drilled with 4-1/2" and 4-3/4" bolt patterns to fit the most popular wheels. 1/2"-20 X 2" (3" available) wheel studs are standard as are the billet aluminum dust caps with o-ring seals. The special alloy 10-1/2" diameter steel rotors are stress relieved, double disc ground in MW's facility and features cleaning grooves that act to clean the surface of the brake pads.

The heart of all Mark Williams brake kits is the MW quick-change caliper. The bridge strength of the MW caliper is superior to every other caliper on the market today due to the use of large 7/16" fasteners connecting the caliper halves and the use of a bridge bolt on the 4-piston caliper. Internal fluid porting eliminates external lines and allows calipers to be used on either side. Each kit includes Timken® tapered roller bearings, CR® inner seal, spindle nut and washer and all of the required fasteners. Timken® Hi-Temp Grease is recommended.



#### **GENERAL MOTORS INTEGRAL HUB KITS**

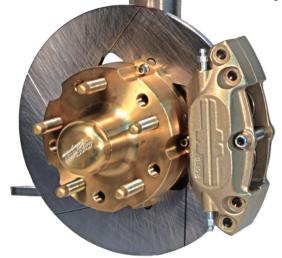
75150 Early Camaro/Chevelle 4 Piston Kit 1813 .00 '67-'69 Camaro/Firebird '67-'72 Chevelle '68-'74 Nova (all drum spin-	75860 Corvette 4 Piston Kit
dles, spindle modifications required).  75250 Late GM "F" Body 4 Piston Kit	75870 Corvette 4 Piston Kit
'93-'00 Camaro/Firebird Includes MW spindle  75840 Camaro/Chevelle 4 Piston Kit	75950 GM "G" Body/S-10 4 Piston Kit
75850 3rd Generation Camaro 4 Piston Kit 1746.00 '82-'92 Camaro/Firebird	Ford Kits
75350 Late Pinto/Mustang II 4 Piston Kit 1668.00 '74-'78 Mustang II '74-'80 Pinto	75655 '64 Fairlane T/B 4 Piston Kit
75450 Early Pinto 4 Piston Kit	75750 Late Mustang 4 Piston Kit*
75460 Mustang 4 Piston Kit	75760 '78-81 Mustang 4 Piston Kit
75650 Early Mustang 4 Piston Kit	75770 '87-'92 Mustang 4 Piston Kit
	75000-S Special Application Brake kits
	Mopar Kits
75500 "A" Body 4 Piston Kit	75550 "A" Body 4 Piston Kit
75540 Challenger 4 Piston Kit	75570 "E" Body 4 Piston Kit

Note: To assure the proper fit we require the spindles for Mopar Kits to be sent for variation and factory installation. We have found there are so many variations, this method is the only way we can assure a proper installation.

#### RACING STRUT INTEGRAL HUB KITS

75010 on a Stanthuff Strut

MW front Brake kit for Drag Race Struts that utilize bolt on wheels. This superior design eliminates using a heavy factory hub. The one-piece design incorporates the brake adaptor in the hub. The heat path from the rotor is directed to the wheel that is a large energy absorbing mass. The disc is attached with the exclusive MW Slot drive method. This feature reduces the Disc warping common to one piece steel disc-adaptor and ridged bolted methods. Integral hub is design with 4-3/4" and 4-/1/2" x 5 hole bolt pattern, 1/2-20 threads for screw in wheel studs. Adequate wheel clearance is allowed with a 10-1/2" diameter steel disc. All kit come with 4 piston MW Calipers.



75000	Strange Sportsman Strut 2 Piston Kit1488.00
75010	Santhuff Strut 4 Piston Kit
75030	Bickel Super Stock Strut 4 Piston Kit
75040	Bickel Strut 2 Piston Kit
75050	Strange Sportsman Strut 4 Piston Kit1513.00
75070	Art Morrison Strut 4 Piston Kit

73300

## SPINDLE MOUNT WHEEL KITS

MW's floating brake rotor solves the installation problems associated with fixed rotor kits. Mark Williams now offers several kits that are direct bolt-on to aftermarket style front struts. Also included are kits designed for MW Anglia/P&S style front spindles, plus the Strange adjustable Dragster/FC spindle.

All kits feature designs that use a solid mounted billet aluminum two piston caliper, billet aluminum rotor adapter, and unique, patented, USP 6,988,598 B2, floating brake rotor (available in steel or carbon fiber). With this design, run-out on the back of the wheel is not critical. Please note that your MW dragster spindles must be sent to the factory for bracket installation or are available new with the mounting tabs installed.

73000 Spindle Mount Kit	
73100 Carbon Spindle Mount Kit	
73200 Strange Spindle Mount Kit	76.00
73300 Lamb/JBRC Strut Kit	340.00

	Santhuff Strut Kit	.1340.00
	Carbon Kit Lamb/JBRC Strut Kit JBRC struts with carbon rotors and pads.	.3327.00
	Carbon Kit Santhuff Strut	.3327.00
	Carbon Kit Strange F/C Spindle Adjustable F/C Spindles with carbon rotors and pad	
	Install Tabs On MW Spindle install caliper mounting tabs on MW spindles	135.00

Use the Disc Brake Calculator to calculate the pressures and master cylinder sizes petal ratios required to optimize your Disc Brake system. The calculators are at <a href="https://www.markwilliams.com/calculators.html">www.markwilliams.com/calculators.html</a> OR click on Technical/Calculators



## **REAR DISC BRAKE KITS**



MW calipers are exceptionally strong, compact, with superior bridge strength over similar products. The material used in MW calipers is stronger than common 6061 aluminum billet calipers. All MW calipers use four 7/16" diameter body fasteners plus a 5/16" diameter bridge bolt in an effort to maximize the calipers rigidity. MW calipers utilize a 3/8" hex bleeder screws in each end, no right and left hand calipers. Internal fluid passages eliminating external damage prone lines.



Caliper mounts are billet 7075-T6 aluminum, Adapter rotor "hats" are proprietary alloy aluminum, triple drilled with 4-1/2", 4-3/4 and 5" X 5 holes drilled to accept 5/8" (11/16" shoulder) drive studs. The brake rotors are abrasive resistant steel that is double disc ground to be flat and parallel. All the required mounting hardware and MW calipers with linings are included. The Slot Drive<sup>TM</sup> rotor attachment system is a major improvement for prolonging brake rotor life. Disc cupping is eliminated with this exclusive attachment method.



Slot-Drive<sup>TM</sup> System

#### FORD BRAKE KITS

71525 Solid Steel Disc Brake Kit	71850 Drilled Steel Disc Brake Kit
71550 Drilled Steel Disc Brake Kit	71325 Solid Steel Disc Brake Kit
71825 Solid Steel Disc Brake Kit	71350 Drilled Steel Disc Brake Kit
	CHEVROLET KITS
71725 Solid Steel Disc Brake Kit	71925 Solid Steel Disc Brake Kit
71750 Drilled Steel Disc Brake Kit	71950 Drilled Steel Disc Brake Kit
	OLDS/PONTIAC KITS
71125 Solid Steel Disc Brake Kit	71150 Drilled Steel Disc Brake Kit
	Mopar Kits
71625 Solid Steel Disc Brake Kit	71650 Drilled Steel Disc Brake Kit
	SYMMETRICAL END KITS
71225 Solid Steel Disc Brake Kit	71290 Drilled Steel Disc Brake Kit
71250 Drilled Steel Disc Brake Kit	4 CALIPER BRAKE KITS
71230 Solid Steel Disc Brake Kit	71260 Solid Steel Disc Brake Kit, 4 Caliper 2018.00 MW 58580 Symmetrical housing ends. Four calipers.
71280 Drilled Steel Disc Brake Kit	71270 Drilled Steel Disc Brake Kit, 4 Caliper2043.00 MW 58580 Symmetrical housing ends. Four calipers.
71270 Dual Caliper Kit with	71275 Drilled Steel Disc Brake Kit, 4 Caliper 2043.00 MW 58580 Symmetrical housing ends. Four calipers. for 15" Beadlock wheel applications.
Cross Drilled Rotor, Fits MW 58580 Symmetrical	Some kits are available with a dual caliper configuration. Those

Fits MW 58580 Symmetrical Housing Ends



configurations are designed to give extra holding power at the starting line. For information on brake performance, master cylinder size requirements with pedal rations calculations go to:www.markwilliams.com click on Technical/Brake Tech

oll free 800-525-1963

## **CARBON/CARBON BRAKES**

MW Carbon/Carbon brakes offer the advantage of an extremely light-weight rotor with superior stopping ability. When compared to a standard kit with drilled steel rotors, a Carbon/Carbon brake kit can save you as much as 10 lbs of rotating weight. Carbon/Carbon brakes are unique because both the disc and friction pad are made of the same material, and do not suffer brake fade at elevated operating temperatures. The square drive lug system allows for the expansion of the aluminum mounting hat without applying pressure to the rotor. MW brakes are produced from

mounting hat without applying pressure to the rotor. MW brakes are produced from 2D PAN knit Carbon Fiber MW Carbon/Carbon kits include MW race proven 4 piston calipers with hard Teflon-Anodized pistons, Carbon brake pads with Titanium heat shields, billet aluminum mounting brackets, and all the required fasteners.

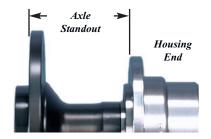
Brake Technology has changed dramatically over the past few years and Mark Williams Enterprises is in the forefront.



### Brake System Tech

#### CALIPER ALIGNMENT, CLEARANCE & POSITION

Axle stand out controls the alignment of the brake system and as a result is very critical. To check stand out first verify that the housing ends are perfectly aligned. Install axles and check axle standout (face of axle flange to face of housing end) as accurately as possible. See the chart below for stand out dimensions for MW brake kits. Stand out should be + .015 of the dimension listed. Shims are available to correct the alignment. 71009 shim goes between the axle flange and brake hat that will move the disc outward ols." 71018 shim goes between the caliper and mount and will move the caliper inboard .015". Misalignment can cause caliper mount deflection, and is one of the causes of a "spongy" pedal. Install wheels to make sure caliper to wheel clearance is adequate on the diameter and face of the wheel. To bleed, the calipers they must be positioned at 3:00 or 9:00 o'clock. This allows the bleeder to be at the highest point of the piston cavity, ensuring that all air is removed from system.



 Symmetrical ends
 2.834"

 Olds ends
 2.834"

 Large Ford ends
 2.500"

 Small Ford ends
 2.500"

 GM 10-12 Bolt ends
 2.812"

 Mopar ends
 2.500"

## PEDAL RATIO & MASTER CYLINDER

The master cylinder bore size influences the obtainable brake line pressure. Recommended master cylinder size when using two typical 4-piston using two typical 4-piston calipers only in the rear is a single outlet, 7/8" bore master cylinder. If single piston front brakes are used in conjunction with two 4piston calipers in the rear a dual outlet, tandem 1" bore master cylinder is recommended. When using 4-piston calipers front and rear a dual outlet, 1-1/32" bore master cylinder is recommended. Mounting the master cylinder to a frame rail or roll bar is recommended to ensure a solid mount. With the correct master cylinder in place the pedal ratio must be great enough to produce 1200-psi system pressure under severe braking conditions. A pedal ratio verses line pressure calculator is available on the Mark Williams website, www.markwilliams.com. We recommend using a pressure gauge connected to the system to verify the maximum available pressure before running the car. If the desired pressure cannot be easily attained the pedal ratio must be increased until the minimum pressure of 1000 psi is easily reached.

#### BRAKE LINES &

Aircraft AN-3 brake lines and fittings are recommended. Only stainless steel braided teflon hose, stainless or seamless steel tubing (3/16" x .028") should be used for brake lines. Lines should be secured to chassis rails to resist vibration and routed in such a way to avoid possible contact with wheels, tires and other moving parts. Joining hard line and braided line or "T"s should be done using a bulkhead fitting and a small tab welded to the chassis. Long runs should be done with hard tubing to avoid expansion of flexible line. The amount of flexible braided hose in the system should be kept to a minimum. See page 64 for AN -3 fittings and brake line. Use of DOT 4 or 5.1 fluid with a high boiling point and lubrication for seals and pistons is recommended. Do not use (DOT5) silicone fluids

#### **TROUBLE SHOOTING**

#### **Spongy Pedal Poor Stopping:**

- **A)** Air in system. Bleed brakes, making sure that the bleed valve is the highest point.
- **B)** Disc warped (saucer shaped). Replace.
- C) Calipers not square with disc. Check housing end alignment, both concentricity and squareness.
- **D)** Linings worn on taper. Make sure that caliper is centered over the rotor and the caliper bracket is not deflecting.
- E) Master cylinder bore too small. Match master cylinder to the system. Check the line pressure.
- F) Master cylinder deflection. Stiffen master cylinder mounts
- **G)** Pedal ratio wrong, low or high pressure

#### Brakes are locked up after run:

The piston in the master cylinder is not being allowed to return to the start location. The pressure relief hole is exposed to zero the line pressure. Re-adjust the linkage so that the piston completely returns. Make sure there is a positive stop on the pedal or lever. Do not rely on the retaining ring in the master cylinder for the pedal stop.

## Excessive pad wear, disc shows excess heat:

- A) System pressure is too low causing a longer pressure applied time to stop. Pressure needs to be high enough to allow wheel lock at any time. Check the ability of the system to generate 1200 PSI.
- **B)** Pistons sticking in caliper, clean and overhaul calipers. Annual maintenance is required.



#### **BRAKE KIT COMPONENTS**

All of the components that make up Mark Williams brake kits are available individually. The main components are listed below and on the following page. If there is a part that is not shown please call and a MW tech will help you find the parts.

## 2 & 4 Piston Calipers

MW calipers are all manufactured in house and are cast from the same alloy as the MW 9" Ford cases that has a higher tensile strength than 6061 used in most billet calipers on the market. Pistons are machined from billet aluminum and are Teflon-Hard coat anodized.



81100PR MW Quick Change 4 Piston Calipers (pr) .520.00 For 5/16" to 3/8" thick rotor, with non-asbestos 81133 linings.

82100 MW Quick Change 4 Piston Caliper (ea) . . .214.00 For .812" thick vented rotor, no lining.



82100PR MW Quick Change Calipers (pr)			
83100	MW Single Piston Caliper (ea)		
For 5/16" to 3/8" thick rotor, no linings.			

83100PR MW Single Piston Calipers (pr) . . . . . . . For 5/16" to 3/8" thick rotor, with linings.

#### Brake Hats & Rotors

MW brake hats are CNC machined in house from a special aircraft alloy. All hats clear a 3.062 register and are machined to accept MW 5/8" drive studs. Hats locate on a 6.248" maximum axle flange diameter.



71022 Brake Disc Hat (ea)
81001 Carbon Brake Disc Hat (ea)
71010 Steel Brake Rotor Slot-Drive (ea)
71030 Steel Brake Rotor Slot-Drive (ea)
71009 0.015" Rotor Shim
To move disc out for fine adjustments. 4-3/4" & 4-1/2" x 5 patterns 71034 Front Brake Slot Drive Hardware Kit



2101	Carbon Floating Proke Poter (ca)	002.00
	Carbon Floating Brake Rotor (ea)	
For 731	00 & 73400 brake kits. (Not shown)	

75009

73311

81034

75009	Steel Brake Front Rotor Slot-Drive(ea)	156.00
With cle	aning grooves. For 75000 series kit with slot`drive	e attachment.
81034	Carbon Brake Rotor (ea)	1379.00

For 810	00 series	brake kit	, flangè	axle a	and	floater kits, .	437 thick.
81033	Carbon	Brake I	Rotor (	ea) .			1379.00

For 15" bra	ike kits , flange	axle and floater kit	s, .437 thick.	
01122 D	raka Dad for	15" kito	2.	2 00

01132	DIAKE FAU IOI	IJ KIL	5

71018 0.015" Caliper Shim ......0.60 To move caliper out for fine adjustments. Goes between caliper and mounting bracket.

#### BRAKE LININGS

71010



73004 Lining, MW Front Caliper (ea) ...... .24.36 For MW 2 piston billet front caliper in spindle mount kits.

For MW 73002 floating front caliper. (Not shown)

81035 Carbon/Carbon Lining (ea)
81133 Ferodo Hi-Friction DS3000 Lining (ea)23.00 For MW 81100,82100 caliper, Ferodo non-asbestos high friction this ir the normal lining shipped with brake kits.
81136 Bushing for 81133 Linings, (ea)

00-525-1963



#### **BRAKE SYSTEM COMPONENTS**



B3360	1 1/32" Dual Master Cylinder
81105 Recomme troublesho	Caliper Pressure Test Gauge
9-888 2 lb. Lamb	Residual Pressure Valve
	3/4" Tilton Master Cylinder Kit104.90 de or flange mounting with remote or fixed reservoir and -3
- Outlet Iltilii	g.
74-875U	7/8" Tilton Master Cylinder Kit104.90
74-875U	
74-875U 74-100U	7/8" Tilton Master Cylinder Kit104.90
74-875U 74-100U	7/8" Tilton Master Cylinder Kit

#### CALIPER & MASTER CYLINDER PARTS

6446	Bleed Screw, 1/4" Thread (ea)1.65
9400	Bleed Screw, 3/8" Thread (ea)1.65
75099	Dust Cap Socket (ea) (Front Brake) 59.64
75002	Front Hub Dust Cap (ea) (Front Brake)46.00
81101	MW Caliper Half, Inboard
811EX	Rebuilt MW Caliper (Exchange)
81102	MW Caliper Half, Outboard96.00
81104	MW Caliper Bridge Bushing (ea)7.92
81103	Piston, For MW Caliper (ea)

81103	81102	83102		1208811	1
26			I www		
9				0 = 0	
75099	81101	83101	75002	81104	9402
81170	O-Ring Kit for One	MW Caliper		3	3.50
83101	MW Caliper Half, I	Inboard		62	2.00
83102	MW Caliper Half, (	Outboard		62	2.00
1208811	Overhaul Kit-3/4" Ai	rheart Cylind	er	46	6.80

01102

### **BRAKE LINES AND FITTINGS**



Correctly plumbing your brake system is very important to brake performance. Quality components are the first step in doing it right. AN-3 is the recommended size for a brake system and MW stocks everything you will need. (Note flares must be 37°)

02102

2815	2769	2808	2060	2187	3750	366
	028 -3 Sta ( .028" tub					.22
0300 3/16" F	-3 Sta PTFE brai			t) oot	4	.75
1100	-3 Sti	raight H	lose En	d	9	.90
1110	-3 45	Degree	e Hose	End	12	.75
1120	-3 90	Degree	e Hose	End	18	.70
2048	-4 to	-3 Strai	ght Uni	on	3	.75
2050	-3 Sti	raight U	lnion .		2	.75
2060	-3 Ur	ion Tee			7	.55
2083	1/8" F	Pipe Nip	ple		2	.53
2187 3/16" t	-3 Te ee with 1/			 de	8	.50
2511 3/16" F	-3 Str			er fitting		.25
2513 -4 JIC	-4 Sti to 1/4" NI		dapter		1.	.40
	-3 90 nose to 1/			er	4	.75
2769	-3 Bu	lkhead	Straigh	t	4	.50

	10324-03
2808	-3 Bulkhead Tee15.50
2815 Bulkhe	-3 Bulkhead Tee12.95 ad on the run.
2921	-3 Bolt For Banjo 4.05
2949	-3 Banjo Brake Adapter7.50
3554	-3 Tube Flair Nut, (6)4.95
3556	-3 Bulkhead Nut, (2)3.25
3642	-3 Banjo Gasket, (2) 0.75
3669	-3 Tube Sleeve, (6) 4.45
3750 for sta	Line Clamp-Hose 3/16 (6)1.86 sinless steel tube pack of 6
3755 for Te	Line Clamp-Tubing 1/4 (6) 1.80 flon Braded hose pack of 6
	O3 Inverted Flare Adapter6.25 to 3/16" inverted flare. For OEM lines
	03 Inverted Flare Adapter8.65 to 10mm inverted flare. For OEM lines.
FBM29	45 -3 to Fe. 10mm Concave14.00
FM103	24-03 Invert. Flare Adapter8.25



Order Line with (dash) end fitting for each end. Base line is 12" long add \$4.75 for each additional foot length.

0300-1-1 Straight X Straight	26.50
0300-1-2 Straight X 45°	29.00
0300-1-3 Straight X 90°	32.00
0300-2-2 45° X 45°	34.50
0300-2-3 45° X 90°	34.50
0300-3-3 90° X 90°	10.12
FFRE II	

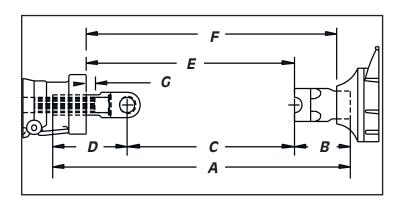


Clean it up with 3750-3755 clamps

#### **DRIVESHAFT ASSEMBLIES**

Many of the nation's leading drag racers rely on Mark Williams's driveshafts and for good reason. MW has been building race-winning driveshafts for over 50 years and offers a driveshaft for nearly every application. From the 4130 chromoly shafts capable of handling Pro Mod/Nitro Coupe power to the lightweight 7075 aluminum shafts for Pro Stock, Comp, Super Stock or any application where rotating weight is a concern. All work, from fabrication to balancing, is done in-house at MW's plant and you can be assured of unmatched quality and prompt delivery. Most MW Driveshafts meet the SFI 43.1 specifications.

When placing an order for Mark Williams driveshaft assemblies please refer to the diagram below for the required dimensions. The "E" dimension is the preferred measurement but remember your 1350 or 1480 series pinion yoke must be in place when measuring, (our pinion yoke might not the same length as stock yokes). If ordering by the "C" dimension, the MW transmission yoke should be used. Our trans yoke lengths may not be the same as a stock yoke. The "E" dimension can be used but make sure you have the pinion yoke you will utilize.



- **A** End of trans yoke to end of pinion yoke.
- **B** End of pinion yoke to U joint center.
- **c** U joint center to U joint center.
- **D** End of trans yoke to U joint center.
- **E** Trans seal to U joint center.
- **F** Trans seal to pinion seal.
- **G** Trans seal to end of output shaft.

#### CHROMOLY & MILD STEEL

When it comes to a bulletproof driveline the Mark Williams chromoly driveshaft is the strongest. A chromoly shaft is 75% stronger than commonly used 1020 DOM material. To ensure the quality of the material, the 4130 condition HT tubing used is manufactured by domestic mills to meet the MIL-6736-B-HT-125 specification. The perfect companion to MW's chromoly tubing is the MW produced, 4130 forged weld yokes used in each assembly. These weld yokes are produced in-house to exacting tolerances to provide the proper press fit in the chromoly tube. MW weld yokes and chromoly tubing are assembled using a specially built alignment/assembly fixture, then carefully joined using an automated cold wire TIG process. Precision 1350 or 1480 series U-joints are then installed along with the forged, 100% machined 4340 heat-treated transmission yoke. Each assembly is High-Speed electronically spin balanced at a RPM that represents operating speed, to G30 industry

The finished product is a driveline capable of handling today's most powerful vehicles. (Prices are less transmission yoke.) All 4130 Chromoly driveshafts meets and exceeds the SFI Spec 43.1.

39800 3" Chromoly Driveshaft Assembly ........577.00 3" O.D. x .083 4130 chromoly shaft. MW 4130 forged steel weld yokes and lubed for life 1350 series U-joints. SFI 43.1

Driveshaft
Steel Shafts

39850 Chromoly

For many applications shaft weight is not a factor. For most bracket cars consistency is the goal so the performance advantage of lighter materials is usually not important.



39880 3-1/2" Chromoly Driveshaft 1480 Joint . . . . 730.00 3-1/2" .083" wall 4130 HT Tube, Precision U-Joints for high Powered applications. SFI 43.1.

**Caution:** Steel with the smaller diameters has the lowest critical speed properties. For long shafts it is necessary to use a large diameter for high RPM requirements. Check the speed chart page 74 before ordering

toll free 800-525-1963 on the web

## ALUMINUM ACCU-BOND<sup>TM</sup> DRIVESHAFTS

Mark Williams Accu-Bond™ aluminum driveshafts are custom built with the super tough 7075 or 6061 aluminum tubing and fitted with special MW forged or Billet 7075-T6 end yokes. The end yokes are mated to the tubing using our patented, (USPS 7,485,045 B2) Accu-Bond™ bonding process. This allows the end fittings to be produced from high-grade 7075 aluminum, increasing the strength (the normal weak link of any aluminum driveshaft). In addition, the use of aluminum allows a 50% weight reduction compared to a steel shaft.

All shafts are high-speed balanced to G30 specifications in relation to the actual operating speeds on MW's high-speed balancer. Balance weights are attached with our unique system of bolt-on balance weights. Accu-Bond<sup>TM</sup> shafts are available in both 3 1/2" and 4" diameters. The 4" diameter should be used for longer shafts to avoid critical speed limitations (the rpm at which the shaft wants to "jump rope"). The combination of the larger diameter and high strength of 7075 materials allow for a thinner wall thickness, resulting in a very light assembly. The 7075 shaft is ideal for applications where weight and critical speed are an issue. The 6061 Accu-Bond<sup>TM</sup> driveshaft is an economical alternative to the 7075-bonded shaft. This shaft has slightly lower operating speeds and ultimate strength compared to the 7075 shaft, but is adequate for most high-powered applications. Prices are less transmission yoke, which is required for proper balancing. All Accu-Bond 7075 and 6061 driveshafts are SFI 43.1 certified.

39550 7075 Aluminum Driveshaft



39560 Accu-Bond™ SSG, 1350 joint Driveshaft . .852.00 4" O.D. x .100" SSG 6062 aluminum tube, billet 7075-T6 end yokes and cold forged precision 1350 series U-joints.

#### **CARBON FIBER DRIVESHAFTS**

In keeping with the advances in driveline technology, Mark Williams Enterprises offers a carbon fiber driveshaft assembly. The special Mark Williams aluminum end yokes are manufactured to extremely tight tolerances for a precise fit into to the carbon fiber tube. The end yokes are then installed in the carbon fiber tube using a proprietary, patented bonding system. A custom built assembly fixture ensures perfect alignment or "phasing" of the end yokes during this process. MW's precision 1350 series U-joints, are installed along with the transmission yoke and the assembly is electronically balanced using the race proven bolt-on weight system. The stiffness of the carbon fiber material allows for higher critical speeds thus making it ideal for longer applications such as Pro Stock Trucks etc. Price is less transmission yoke. MW carbon fiber driveshafts are SFI 43.1 certified when using a MW Yoke.

SFI FOUNDATION INC.
SFI SPEC 43.1

39100 Carbon Fiber Driveshaft

#### Carbon Fiber Shafts

- 1) Higher critical speed rating over aluminum shafts
- 2) Can be used for extremely long shafts at high RPM.
- 3) Best power to shaft weight rating.

Our torsion testing ability is unparalleled in the industry. We are involved in special design and manufacturing processes for all types of driveline applications. Our in house torsion testing machine allows testing of all types of maximum torsion and cycle load tests.

Each Accu-Bonded<sup>™</sup> shaft is load and cycle tested to assure performance quality before shipping. A certificate of test accompanies each shaft. As a support service we will perform proof testing for any MW produced driveshaft free of charge.

#### **DRIVESHAFT TESTING**

