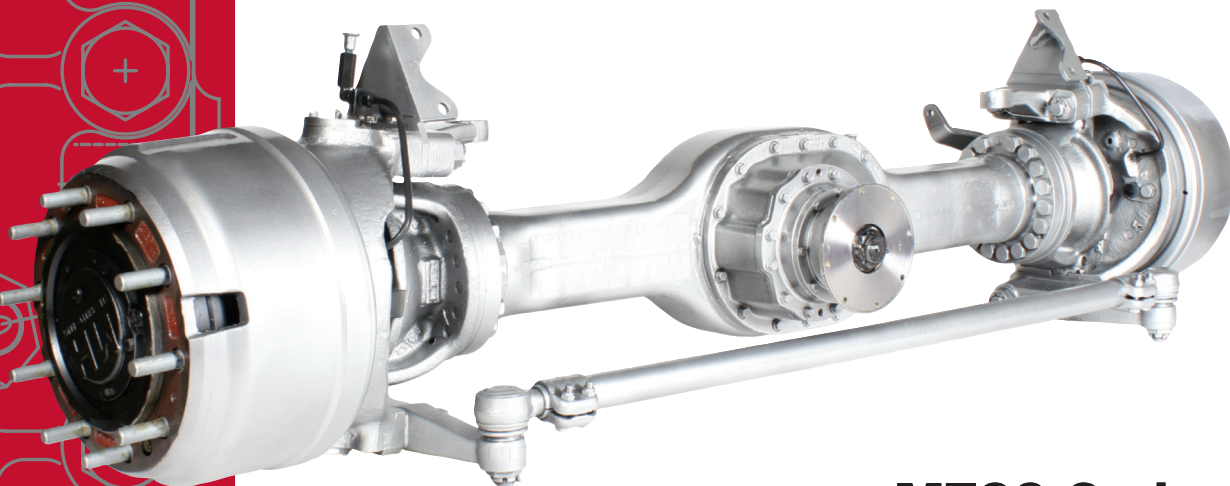
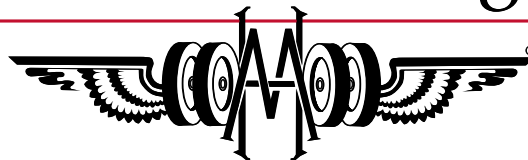


Marmon-Herrington



MT22 Series
Parts Manual

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Marmon-Herrington



13001 Magisterial Drive • Louisville, KY 40223
(502) 253-0277 • (800) 227-0727 • Fax (502) 253-0317
E-mail: info@marmon-herrington.com
www.marmon-herrington.com

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

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FORWARD

GENERAL

This manual has been prepared for operators and service personnel working with the Marmon-Herrington series of transfer cases and front drive axles. For further technical assistance, please contact Marmon-Herrington Customer Service.

Please observe and follow all procedural and maintenance guidelines to ensure reliable operation and optimum service life. The Marmon-Herrington basic service schedule will integrate seamlessly with most preventative maintenance programs.

Marmon-Herrington shall not be liable for component failures or damages caused by operational abuse or neglect. Please review the Warranty Statement for a detailed explanation of coverage and claim reporting procedures.

We thank you for your investment in Marmon-Herrington equipment, and look forward to serving your needs in the best tradition of engineering excellence.

MISCELLANEOUS ISSUES

Marmon-Herrington equipped vehicles are designed for “as needed” AWD operation only, in off-road conditions.

Due to issues associated with torque, drive line wind-up and ratio mis-match, Marmon-Herrington axles and transfer cases must never be operated in AWD mode or while engaged on hard, dry surfaces.

Owner/Operators should seek expert assistance when considering alternative gear ratios and/or tire sizes.

Marmon-Herrington Axles and Transfer Cases should only be shifted when at a full stop. “Shifting on the Fly” or shifting while in motion are prohibited modes of operation. This applies to front axle engagement, high and low transfer case ranges, and locking differentials. The only exceptions are those vehicles equipped with Marmon-Herrington’s **SAFE-T-SHIFT system**.

SAFE-T-SHIFT

In 2003, Marmon-Herrington developed an electronic management system to help prevent “shift on the fly” damage. It consists of a microprocessor that receives speed information from a remote sensor in the transfer case. The system is calibrated to activate the shift solenoids at the first detection of motion, and then cancel control functions at 4 mph.

Relative rotation speeds of the gear sets may require that the vehicle be rolled a few feet before the shift will complete.

Axle and transfer case shifting can generally be heard and felt inside the cab. Indicator lights on the dash will also illuminate when the shift is complete. **DO NOT ACCELERATE UNTIL APPROPRIATE POSITION IS INDICATED ON DASH LIGHT OR CONTROL SWITCH.**

Shift Procedure

1. With the vehicle at a complete stop, select the desired range or front axle position.
2. Place the main transmission in gear.
3. Allow the vehicle to idle forward (or backwards) at walking speed until shift is completed.
4. Verify proper position indication.
5. Accelerate normally.

In the case of a manual transmission, ease the clutch out in low gear, allowing the vehicle to “walk” until shift is completed.

Some possible exclusions to the Safe-T-Shift program are those vehicles fitted with a transfer case mounted PTO, OEM factory installations, and any with non-Marmon-Herrington transfer cases.



MARMON-HERRINGTON WARRANTY

This is to certify that we, Marmon-Herrington Company, Louisville, Kentucky, warrant each new chassis remanufactured, or assembly or part furnished for the remanufacture of a truck chassis against defects in material and workmanship under normal use and service. Marmon-Herrington's obligation under this warranty is limited to replacement of, at our factory, any part or parts thereof which shall, within one (1) year after delivery of such vehicle to the final user after installation of the all-wheel drive installation kit, be returned to us with transportation charges prepaid, and which our examination shall disclose to our satisfaction to have been thus defective.

Marmon-Herrington will warrant covered components against defects in material and workmanship under normal use and service for the specified period. This warranty includes all internal components with the following exceptions: Exceptions include, but are not limited to wear items such as brake linings and drums, oil seals and bearings, which will be covered for a period of 12 months or 12,000 miles, whichever ever occurs first.

Failure to follow designated maintenance procedures and schedules, maintain required lubrication levels, or any form of operational abuse or misuse will void all warranty coverage expressed or implied.

Failure reporting and claims submission procedures are to be followed as outlined in the standard warranty guidelines

Service parts are manufactured to the same standards as production installed parts. However, since the installation thereof, as well as the age and condition of the receiving vehicle are beyond the control of Marmon-Herrington, Service Parts are warranted for a period of ninety (90) days or five thousand (5,000) miles whichever first occurs. All other regular warranty conditions apply.

On vehicles operating OVERSEAS, the determination of defects will be made at Marmon-Herrington Company, Louisville, Kentucky, from complete information supplied in writing by overseas distributors or recognized acting distributors. Complete information is defined to mean: vehicle serial number, user's name, date of delivery, mileage at time of breakage, date of breakage, type of service, nature of break or fault, distributor's recommendation (for our guidance only), and any other pertinent information. After determination of our obligation, any parts to be replaced will be shipped to distributor or acting distributor in accordance with his instructions.

This warranty is in lieu of all other warranties expressed or implied and of all other obligations or liabilities incurred by Marmon-Herrington. Marmon-Herrington neither assumes nor authorizes any other person to assume any other liability in connection with this sale, including but not limited to indirect or consequential damages.

This warranty shall not apply to any vehicle which shall have been repaired or altered in any way so as in our judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence, or accident, nor which shall have been operated at a speed exceeding the factory rated speed or loaded beyond the factory rated load capacity or operated in violation of Marmon-Herrington's instructions.

Marmon-Herrington makes no warranty whatever on components of the original manufacturer's chassis not related

to the modification work. Also, no warranty is made on tires, rims, ignitions, or other parts usually warranted separately by their respective manufacturers.

The manufacturers reserve the right to make changes in design, and changes or improvements upon their product, without notice, and without incurring any obligation to install such changes or improvements upon their products theretofore manufactured.

This warranty shall become effective only when the Warranty Certificate has been returned to Marmon-Herrington and validated by the same.

In the case of vehicles operating in extreme conditions such as corrosive material mines, deep- water zones or areas of hostile aggression, the following warranty limitations apply:

Marmon-Herrington shall not be responsible for damage caused by chemical corrosion, internal water damage due to total immersion, or explosive impact. These conditions constitute severe duty and are not covered by Marmon-Herrington standard warranty.

WARRANTY REPAIR AND CLAIM PROCEDURE

Initial Failure Reporting

1. Operator must call Marmon-Herrington Customer Service prior to performing any repairs and receive a Repair Authorization Number to be eligible for reimbursement. The work authorization number does not guarantee payment but is an acknowledgement that the vehicle is within the warranty period in terms of date and mileage, and that a claim has been activated. **It will be the responsibility of the operator to ensure that their repair facility is aware of, and complies with, the guidelines of this policy.**
2. To expedite the authorization process, you will need the Sales Order Number or "S" number found on the component I.D. tag. You will also need the Vehicle Identification Number or the last six digits of the "VIN", the date the vehicle was placed in service, and the current mileage. Please note the following:
 - This Warranty Registration should have been submitted at the time of delivery. If our records do not include a warranty registration, you must complete one before any authorization for repair can be issued. We will make them available by mail or fax upon request.
3. Marmon-Herrington will pre-approve .5 hours diagnosis/inspection time prior to your call for repair authorization. If the the diagnosis/inspection complaint does not reveal a warrantable failure, or result in a warrantable repair, the customer will be responsible for all charges including diagnosis/inspection time.
4. The Operators Manual contains information covering proper equipment use and maintenance schedules. Operators must adhere to these guidelines to be eligible for reimbursement, and service records must be provided upon request.

Pre-Repair Requirements

1. Authorization for repairs will require a written estimate/repair order of costs after determination that a warrantable condition is found to exist.

2. Estimates must contain the following information:
 - A list of all parts necessary for specific job and if applicable, all parts that will be invoiced back to Marmon-Herrington.
 - The cost of disassembly, inspection and diagnosis of any portion of the vehicle to determine extent of repairs needed.
 - Current labor costs, reflecting both hourly rate and number of hours to effect repairs must be listed.
 - Miscellaneous charges such as “shop supplies” must be defined. Actual dollar amounts must be listed, as percentages will not be accepted.
 - Sublet repairs must also be defined and included in the estimate at their actual dollar amount.
 - NOTE: If it becomes necessary to exceed the original estimate in terms of parts or labor, the repair facility must call Marmon-Herrington Customer Service for additional authorization.
3. Only the use of Marmon-Herrington supplied parts will constitute reimbursement unless prior approval has been obtained.

Parts Ordering

While Marmon-Herrington operates a full Service Parts Department, replacement parts needed to effect Warranty repairs must be acquired through Customer Service to be eligible for reimbursement.

Post Repair Requirements

The final invoice or work order must include the following:

- Customer's name, address, and phone number.
- The Vehicle Identification number.
- The Sales Order Number or “S” number, which the customer can provide or can be located on the I.D. tag, fixed to the transfer case or axle.
- The Axle or Transfer Case Model and Serial Number, also located on the I.D. tag.
- Mileage In / Mileage Out.
- The Cause and Correction of the repair including detailed description of repairs and parts replaced.
- The date the repair order was open and the date the repairs were completed.
- The Work Authorization Number obtained from Customer Service.

Notes to Repair Facilities

1. Miscellaneous charges such as “shop supplies” must be listed as separate line items and shown on the final invoice as stated in “Pre-Repair Requirements.” Invoices for sublet repairs must be made available upon request.
2. All repairs must comply with any or all state and DOT requirements.
3. Downtime of vehicle and incurred costs associated due to the delay of parts shipments or any other condition beyond our control is not reimbursable and should not be listed on the invoice.
4. All failed parts that are required to be returned to Marmon-Herrington must be received before payment will be made. The Return Authorization will be sent with the replacement parts when shipped from Marmon-Herrington.
5. All Claims must be submitted within 60 days of completion of repairs to be eligible for reimbursement.

For Work Authorization call: (800) 227-0727, Ext. 282
 To Submit Claims by Fax: (502) 253-0317

Submit Claims by Mail to:

Marmon-Herrington Company, Customer Service Department,
 13001 Magisterial Drive, Louisville, KY 40223.

REPLACEMENT PARTS

When ordering replacement parts for **MARMON-HERRINGTON** installations, the following information should be given:

1. **FACTORY ORDER NUMBER** (found on I.D. Plate or small plate affixed to axle housing). This will be a six (6) digit number. (See illustrations this page.)
2. Component for which parts are required, i.e. front drive axle or transfer case/drop box.
3. Model of axle and/or transfer case/drop box, i.e. MT10, MVG 750, MDB500.
4. Give quantity and part number required. **NOTE:** Drivelines, shift linkage, etc., can be found on the computer printout of Bill of Material, which is included in the Service Manual.
5. Give complete billing and shipping address.

CALL IN PROCEDURE

Before proceeding with repairs or ordering parts that you feel may be covered under warranty, you must first contact Marmon-Herrington Customer Service Department to obtain a Repair Authorization Number.

(800) 227-0727, Ext. 282 8am-5pm EST
 (502) 693-1129 5pm-8pm EST

Please be prepared to supply the following information:

Factory Order Number or “S-Number” This is located on an I.D. plate fixed to either the driver's door panel or the component (axle or transfer case) itself. This plate will also show the component's model and serial number. Example: S-7777-05

Component Model and Serial Number

Vehicle Year, Make and Model

Vehicle Identification Number

Mileage

In Service Date

Please refer to our website (www.marmon-herrington.com) for the latest versions of our parts and service manuals, as well as new products and contact information.

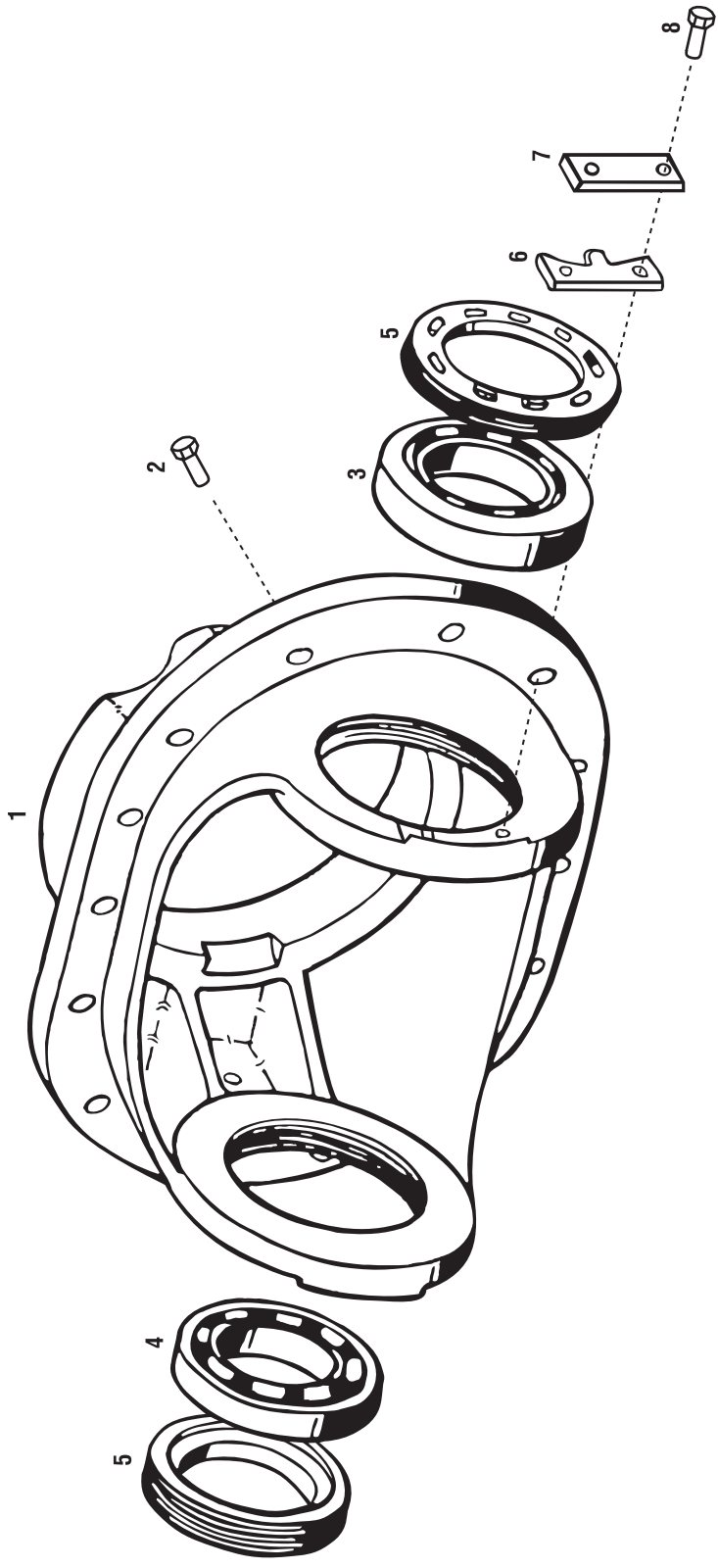
The information necessary for replacement parts and/or warranty claim procedures will be found on either plate design.

MARMON-HERRINGTON	
SALES ORDER	0000-00 RATIO
S/N	TYPE
CUST P/N	

MARMON-HERRINGTON	
SALES ORDER	0000-00
S/N	TYPE
CUST P/N	
COVERED BY ONE OR MORE OF THE FOLLOWING PATENTS: U.S. PATENTS 4,878,691; 4,934,733; 5,016,912; 5,275,430; 5,839,750; AND 6,398,251; AND CA PATENT 1,316,185, OTHER U.S. AND FOREIGN PATENTS PENDING.	

 ALL-WHEEL DRIVE LOUISVILLE, KENTUCKY U.S.A.	
FACTORY ORDER NO. 0000-00	
INSTALLED BY	
FRONT DRIVING AXLE	
MODEL	
CAPACITY	
SERIAL NO.	
RATIO	
TRANSFER CASE	
MODEL	
SERIAL NO.	

DIFFERENTIAL CARRIER HOUSING MT22/R/N/H



Marmon-Herrington


[illegible]

MARMON-HERRINGTON ALL-WHEEL DRIVE
13001 Magisterial Drive • Louisville, KY 40223
(502) 253-0277 • (800) 227-0727 • Fax (502) 253-0317
E-mail: info@marmon-herrington.com

DIFFERENTIAL CARRIER HOUSING

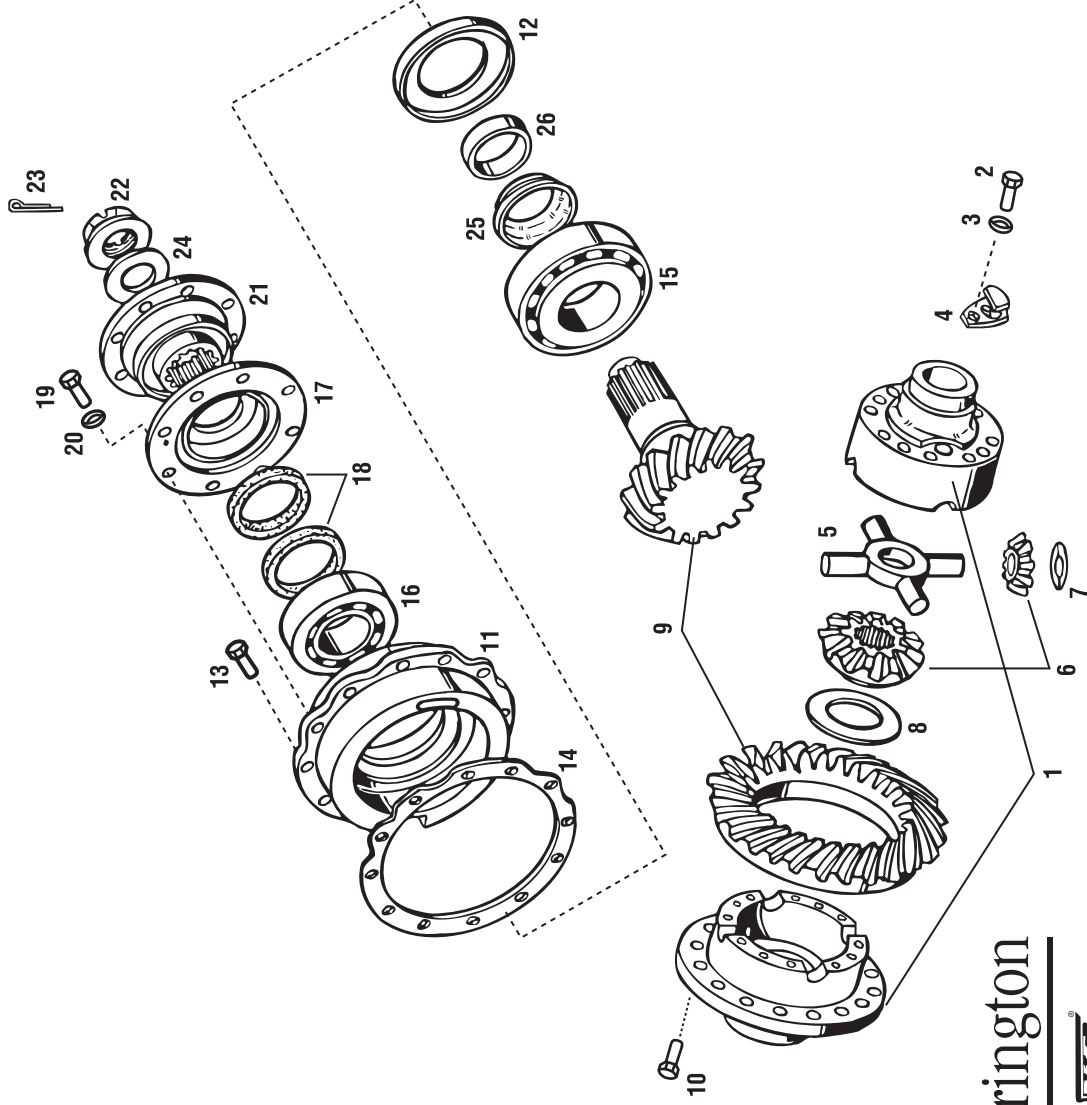
MT22/R/N/H

Marmon-Herrington



PM01/18

DIFFERENTIAL MT22/R/N/H



Marmon-Herrington



COMPLETE CARRIER ASSEMBLY					ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
CARRIER P/N	PINION & RING GEAR RATIO	FINAL RATIO	DIFFERENTIAL CASE		10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26*	MT22-1250 MT22-1068 MT14-1078 MT22-1077 MT22-1067A MT22-1067B MT22-1067C MT22-1067D MT22-1067E MT14-1075 MT14-1079 MT22-1070 MT22-1069 11500713 11500191 MT17-1050 MT22-1073 MT22-1075 MT14-1082 103422 MT22-1074 MT14-1076 MT14-1077A MT14-1077B MT14-1077C MT14-1077D MT14-1077E MT14-1077F MT14-1077G MT14-1077H MT14-1077I MT14-1077J MT14-1077K MT14-1077L MT14-1077M MT14-1077N AR = As Required *Note: Choose 2 to produce proper bearing preload.	Flanged S/L Ring Gear Bolt Bearing Cage Assy. Oil Baffle Plate Flanged Bolt, Special Shim, 1.0 MM Shim, .50 MM Shim, .30 MM Shim, .25 MM Shim, .20 MM Pinion Bearing, Inner Pinion Bearing, Outer Cover Oil Seal Kit, Pinion Hex Bolt, M8 X 22 Flat Lock Washer, M8 Companion Flange, 1610 Series Companion Flange, 1710 Series Pinion Lock Nut, 1991 and Older Pinion Castle Nut Cotter Pin Washer, Special Distance Sleeve Bearing Distance Ring, 6.90 MM Bearing Distance Ring, 7.00 MM Bearing Distance Ring, 7.02 MM Bearing Distance Ring, 7.04 MM Bearing Distance Ring, 7.06 MM Bearing Distance Ring, 7.08 MM Bearing Distance Ring, 7.10 MM Bearing Distance Ring, 7.20 MM Bearing Distance Ring, 7.32 MM Bearing Distance Ring, 7.44 MM Bearing Distance Ring, 7.56 MM Bearing Distance Ring, 7.68 MM Bearing Distance Ring, 7.80 MM Bearing Distance Ring, 7.92 MM AR 	

MARMON-HERRINGTON ALL-WHEEL DRIVE

13001 Magisterial Drive • Louisville, KY 40223

(502) 253-0277 • (800) 227-0727 • Fax (502) 253-0317

E-mail: info@marmon-herrington.com

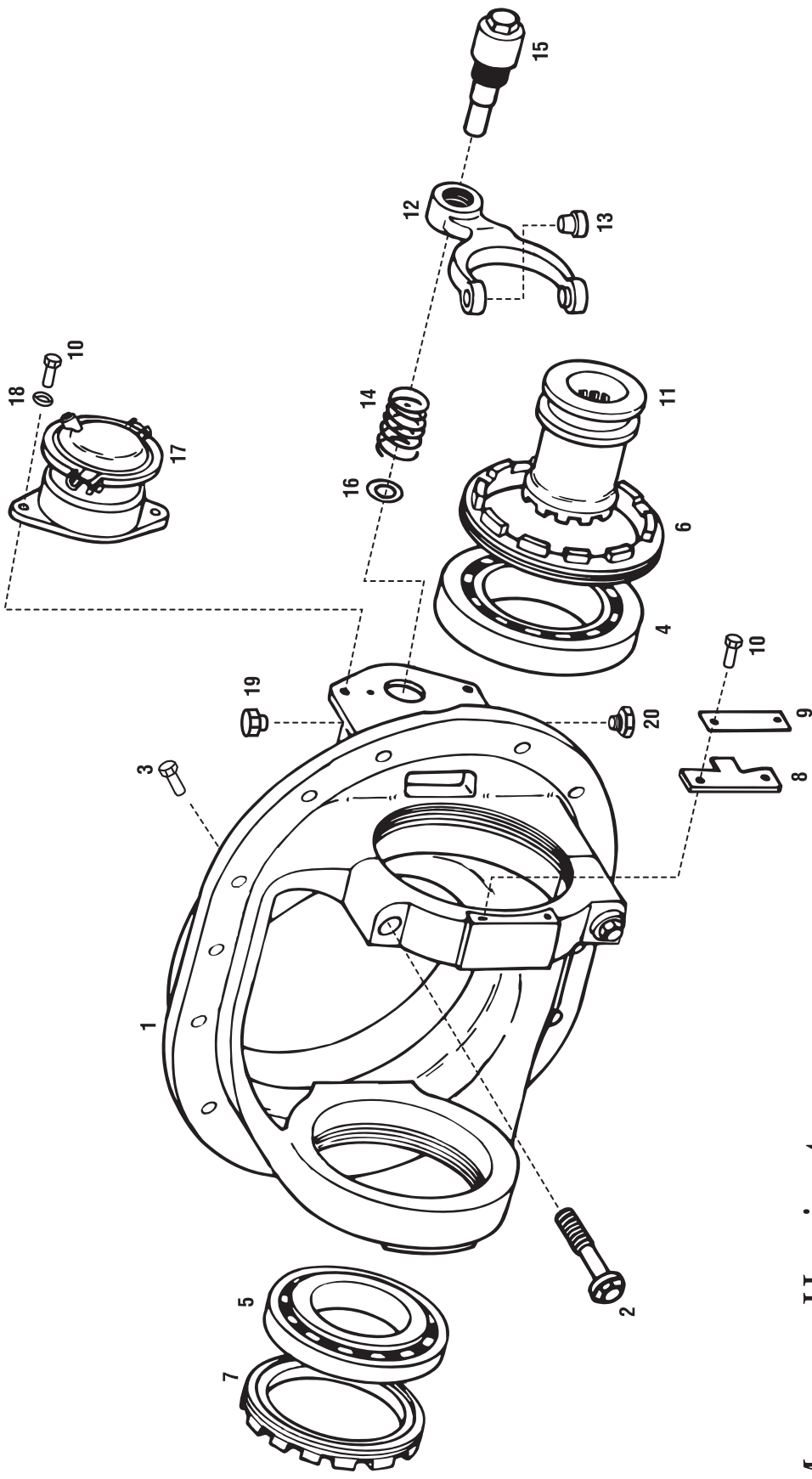
**DIFFERENTIAL
MT22/R/N/H**

Marmon-Herrington



PM01/18

DIFFERENTIAL CARRIER HOUSING MTL22

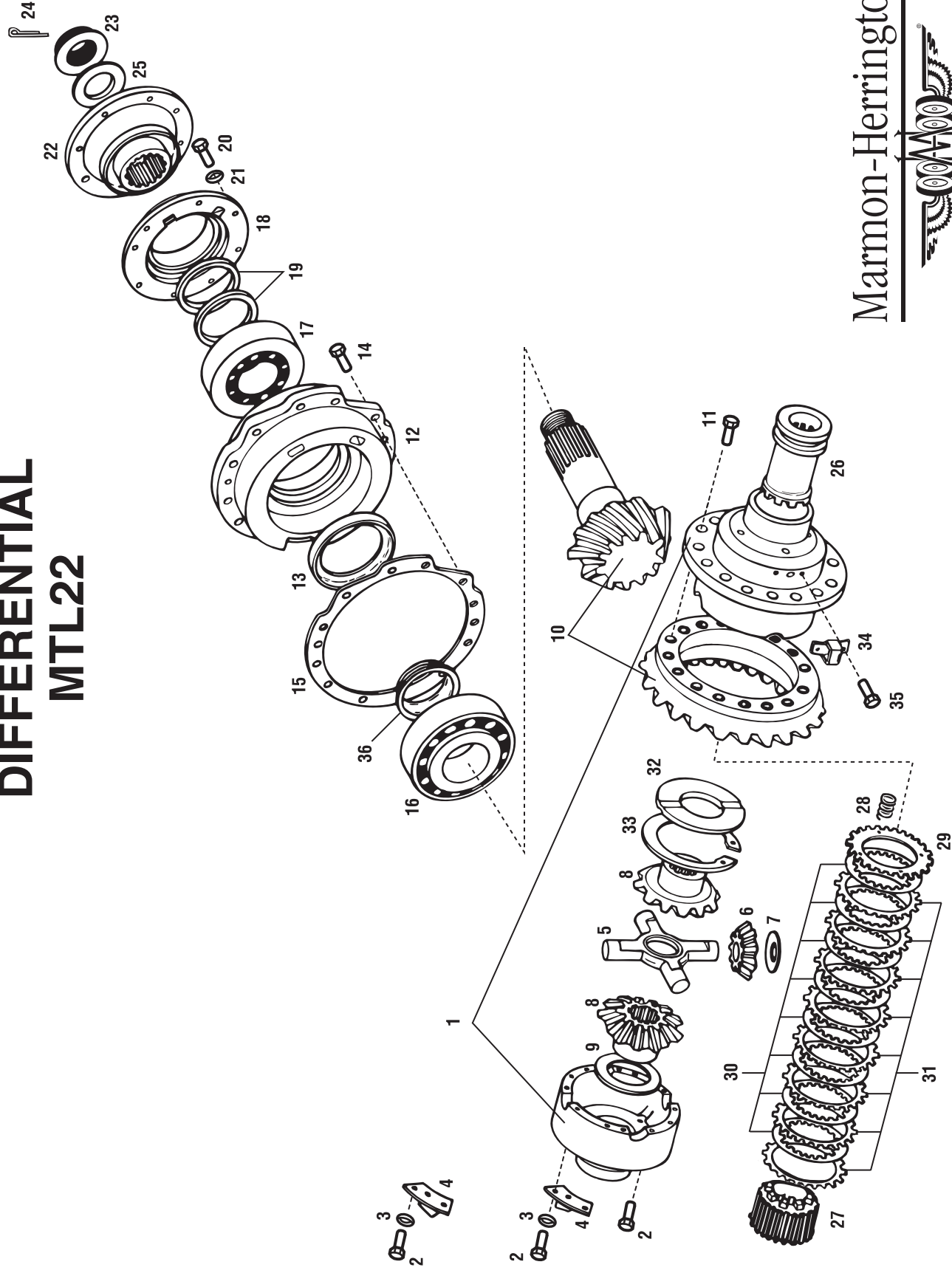


Marmon-Herrington



ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	R22-1030	Differential Carrier Housing Assy.	1				
2	R22-1028	Hex Bolt, M16x85-1.5	2				
3	MT22-1077	Flanged Bolt, Special	14				
	MT22-1277	Flanged Bolt (Use Lock Washer)	14				
4	MT14-1053	Taper Roller Bearing	1				
5	MT22-1078	Taper Roller Bearing	1				
6	MT14-1052	Bearing Adjuster, M142x1.5	1				
7	MT22-1079	Bearing Adjuster, M133x2	1				
8	MT22-1080	Adjuster Lock Plate	2				
9	MT22-1081	Lock Plate	2				
10	11500773	Hex Bolt, M8x16	6				
11	MTL17-1027	Clutch Sleeve	1				
12	R22-1058	Shift Fork Assy. (Includes Item #13)	1				
13	R22-1059	Shift Fork Pin	2				
14	R22-1015	Spring	1				
15	R22-1016	Push Rod	1				
16	R22-1017	Washer	AR				
17	R22-1021	Differential Lock Actuating Air Chamber Assy.	1				
18	11500191	Lock Washer, M8	2				
19	3152X2	Plug	1				
20	R22-1060	Plug with Sealant	2				
21	MT93-5866	Washer, Lock (Nord-Lock)	14				
		AR = As Required					

DIFFERENTIAL MTL22



Marmon-Herrington



COMPLETE CARRIER ASSEMBLY							ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
CARRIER P/N	PINION & RING GEAR RATIO		FINAL RATIO	DIFFERENTIAL CASE						
MTL17-1001	1.227		4.25	MTL17-1022			16	MT14-1075	Pinion Bearing, Inner	1
MTL17-1002	1.318		4.56	MTL17-1022			17	MT14-1079	Pinion Bearing, Outer	1
MTL17-1003	1.422		4.92	MTL17-1023			18	MT22-1070	Cover	1
MTL17-1004	1.526		5.29	MTL17-1023			19	MT22-1069	Oil Seal Kit, Pinion	1
MTL17-1010	1.553		5.38	MTL17-1023			20	11500713	Hex Bolt, M8x20-1.25	8
MTL17-1005	1.632		5.65	MTL17-1023			21	11500191	Lock Washer, M8	8
MTL17-1014	1.684		5.83	MTL17-1023			22	MT22-1073	Companion Flange, 1710 Series	1
MTL17-1013	1.765		6.11	MTL17-1023			23	MT14-1082	Pinion Castle Nut, M42x1.5	1
MTL17-1006	1.812		6.27	MTL17-1023			24	103422	Cotter Pin	1
MTL17-1015	1.929		6.68	MTL17-1023			25	MT22-1074	Washer, Special	1
							26	MTL17-1027	Clutch Sleeve	1
							27	MTL17-1028	Toothed Hub	1
							28	MTL17-1029	Spring	12
1	MTL17-1023		Diff. Case Halves, Assy. (4.92-6.68)				29	MTL17-1030	Backing Disk	1
2	MT22-1066		Diff. Case Halves, Assy. (4.25-4.56)				30	MTL22-1053	Inner Clutch Plate	13
3	MT22-1065		Hex Bolt, M10x75-1.25				31	MTL22-1052	Outer Clutch Plate	13
4	MTL17-1025		Washer				32	MTL17-1032	Differential Side Washer	1
5	MT22-1061		Oil Slinger				33	MTL17-1033	Lock Ring	1
6	MT22-1062		Differential Cross				34	MTL17-1034	Oil Scoop	2
7	MT22-1063		Washer, Differential Pinion Gear				35	MTL17-1035	Countersunk Screw	2
8	MTL17-1026		Differential Gear							
9	MT22-1059		Washer, Differential Side Gear				36		Pinion Bearing Spacer:*	
10	MT22-1054		Ring Gear and Pinion (1.227) 4.25						MT22-1400	34.225 MM
	MT22-1053		Ring Gear and Pinion (1.318) 4.56						MT22-1401	34.200 MM
	MT22-1056		Ring Gear and Pinion (1.422) 4.92						MT22-1402	34.175 MM
	MT22-1057		Ring Gear and Pinion (1.526) 5.29						MT22-1403	34.150 MM
	MT22-1043		Ring Gear and Pinion (1.553) 5.38						MT22-1404	34.125 MM
	MT22-1055		Ring Gear and Pinion (1.632) 5.65						MT22-1405	34.100 MM
	MT22-1047		Ring Gear and Pinion (1.684) 5.83						MT22-1406	34.075 MM
	MT22-1046		Ring Gear and Pinion (1.765) 6.11						MT22-1407	34.050 MM
	MT22-1058		Ring Gear and Pinion (1.812) 6.27						MT22-1408	34.025 MM
	MT22-1040		Ring Gear and Pinion (1.929) 6.68						MT22-1409	34.000 MM
11	MT22-1250		Flanged, Self-Locking Ring Gear Bolt						MT22-1410	33.975 MM
12	MT22-1068		Bearing Cage Assy.						MT22-1411	33.950 MM
13	MT14-1078		Oil Baffle Plate						MT22-1412	33.925 MM
14	MT22-1077		Flanged Bolt, Special						MT22-1413	33.900 MM
15	MT22-1067A		Shim, 1.0 MM						MT22-1414	33.875 MM
	MT22-1067B		Shim, .50 MM						MT22-1415	33.850 MM
	MT22-1067C		Shim, .30 MM						MT22-1416	33.825 MM
	MT22-1067D		Shim, .25 MM							
	MT22-1067E		Shim, .20 MM							

AR = As Required

***Note:**

As Required.

Choose 1 to produce proper bearing preload.

MARMON-HERRINGTON ALL-WHEEL DRIVE

13001 Magisterial Drive • Louisville, KY 40223

(502) 253-0277 • (800) 227-0727 • Fax (502) 253-0317

E-mail: info@marmon-herrington.com

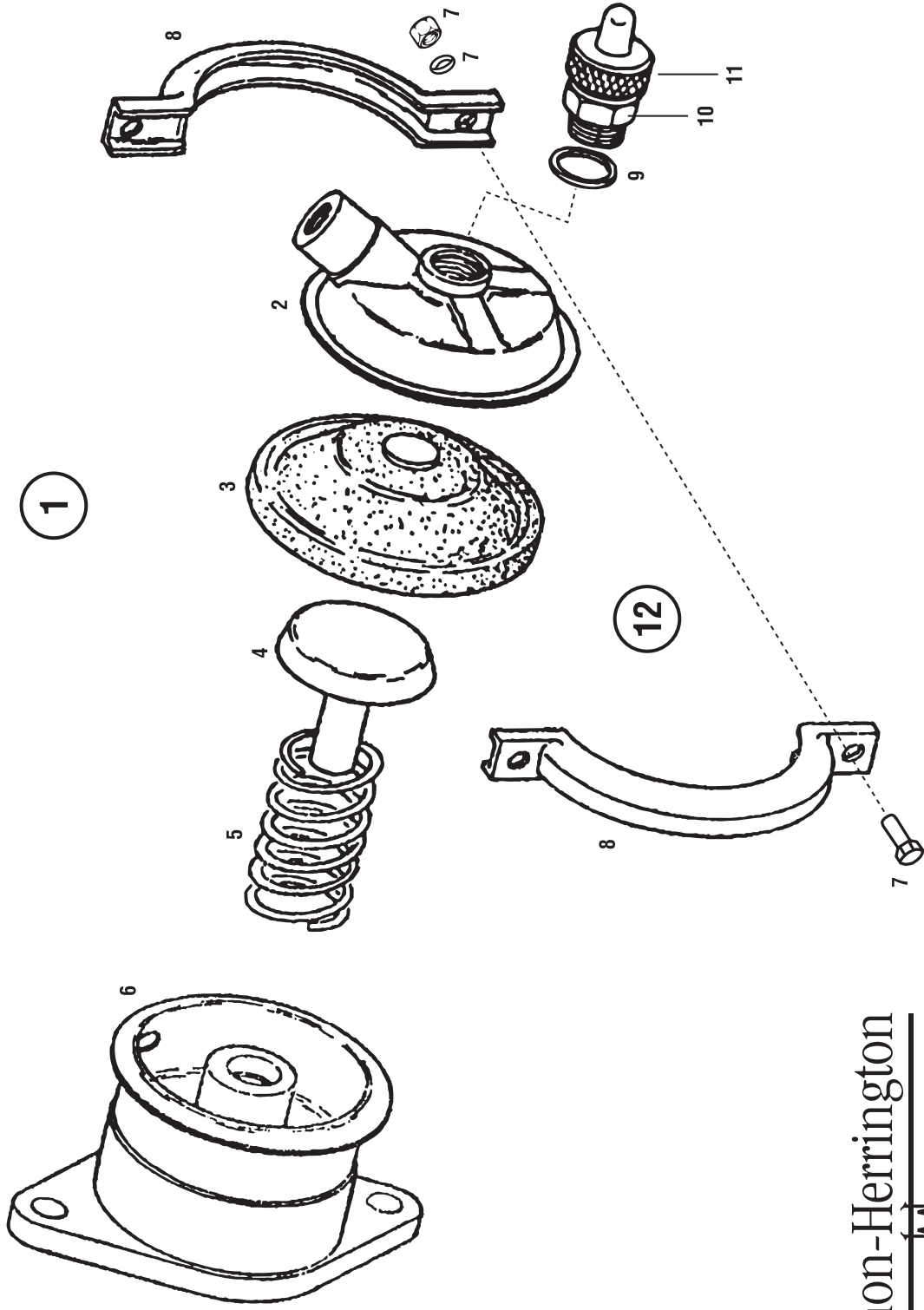
**DIFFERENTIAL
MTL22**

Marmon-Herrington



PM01/18

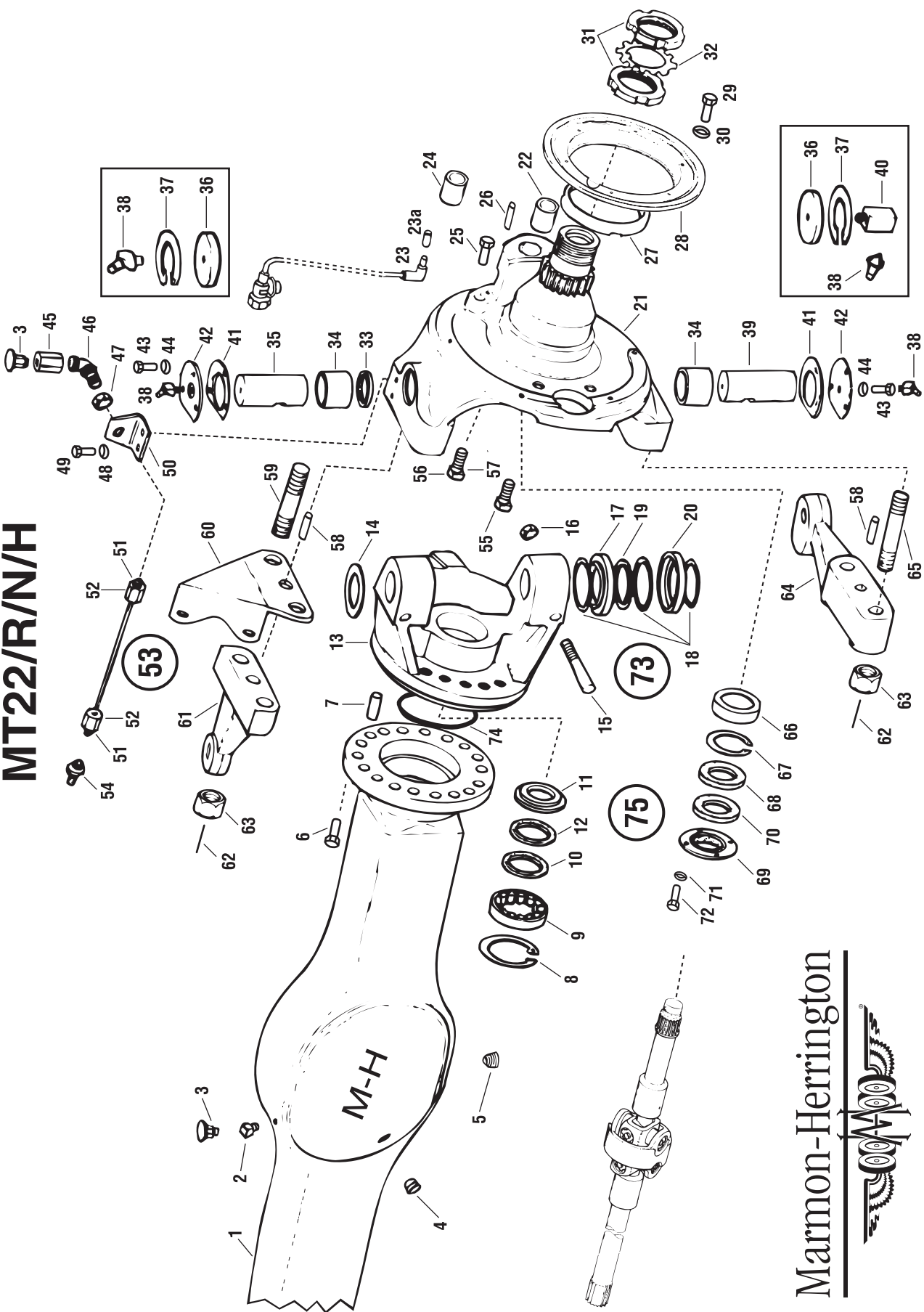
DIFFERENTIAL LOCK AIR CHAMBER MTL22



Marmon-Herrington


ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	R22-1021	Differential Lock Actuating Air Chamber Assy. (Includes Items #2, 3, 4, 5, 6, 7, and 8)	2				
2	R22-1022	Cap*	1				
3	R22-1023	Diaphragm	1				
4	R22-1024	Spring Cap*	1				
5	R22-1025	Spring*	1				
6	R22-1026	Housing*	1				
7	R22-1032	Clamp, Bolt Kit*	1				
8	R22-1029	Clamp*	2				
9	MVG12-1040	Washer (Non-Military Only)	1				
10	MVG12-1041	Reporting Switch (Non-Military Only)	1				
11	MT75-7750	Connecting (Non-Military Only)	1				
12	R22-1023K	Diaphragm Kit (Includes Items #3, 7, 8)	1				
		*Not Sold Separately					

AXLE HOUSING MT22/R/N/H



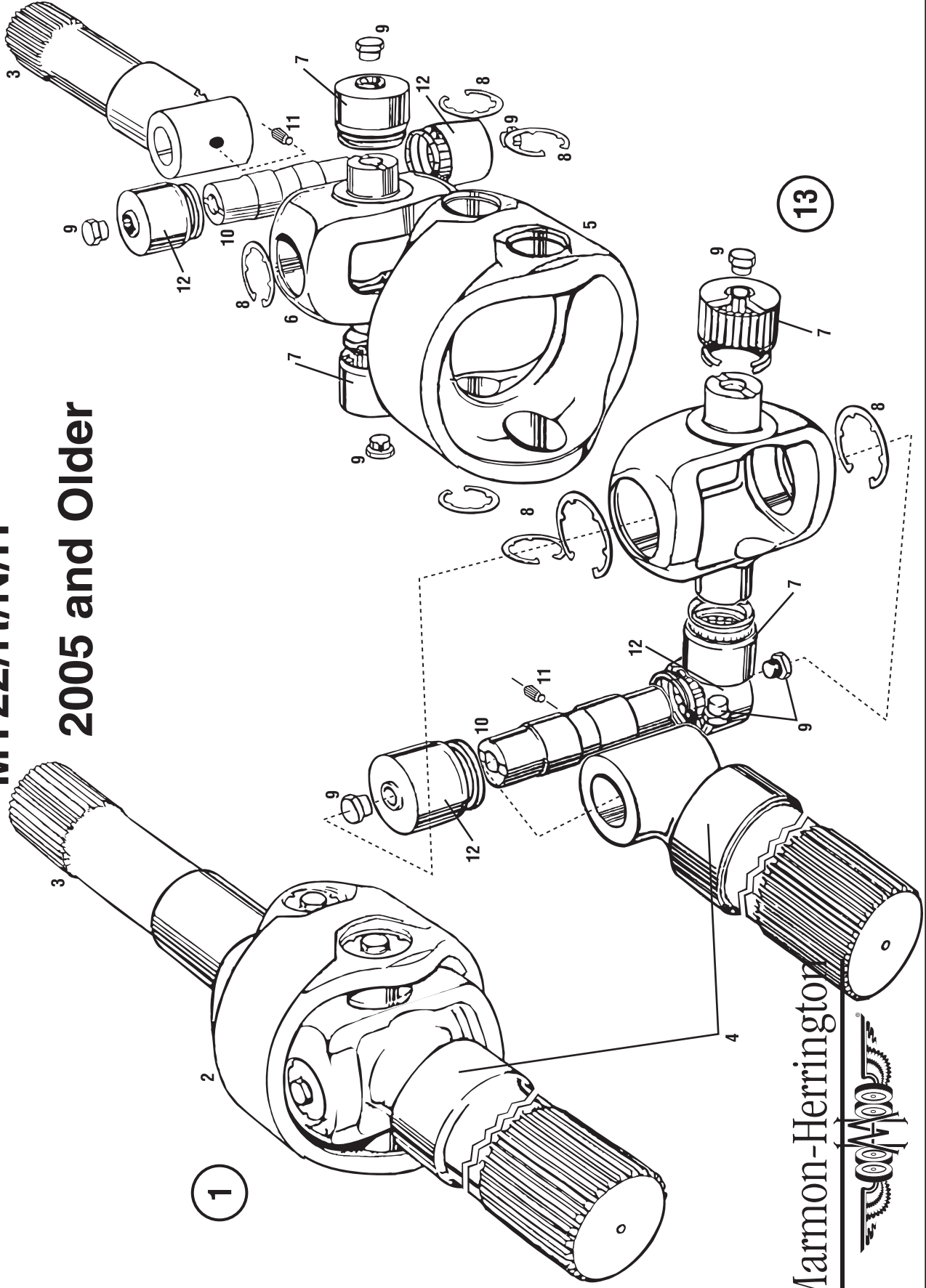
Marmon-Herrington


ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT22-1083	Axle Housing (MT22 Only)	1	37	MT22-1109	Snap Ring 1991 and older	4
2	MT22R-1038	Axle Housing (MT22R/N/H Only)	1	38	271285	Grease Fitting 45°	4
	MT22-1214	Vent Extension	1	39	MT22-1111	Trunnion Pin, Lower (Long)	2
3	MT14-1068	Vent	3	40	MT22-1113	Adapter	2
4	MT14-1070	Fill Plug	1	41	MT22-1108G	Trunnion Cover Gasket MT22N/H	4
5	MT14-1071	Drain Plug, Magnetic	1	42	MT22-1108A	Trunnion Cover MT22N/H	4
6	MT22-1084	Hex Bolt, Special	36	43	11500713	Bolt M8 X 20 - 1.25	12
7	MT14-1222	Dowel Pin	2	44	11500191	Lock Washer M8	12
8	MT22-1087	Snap Ring	2	45	MT22-1139	Adapter Fitting	2
9	MT22-1088	Roller Bearing, Axle Shaft, Inner	2	46	MT22-1138	Elbow Fitting, Vent	2
10	MT22-1089	Oil Seal, Axle Shaft, Inner See item 75	2	47	MT22-1140	Jam Nut	2
11	MT22-1090	Seal Holder See item 75	2	48	11500192	Lock Washer, M10	4
12	MT22-1090F	Felt Wiper See item 75	2	49	11500778	Hex Bolt, M10 X 25	4
13	MT22-1085	Yoke Housing, L.H.	1	50	MT22-1135	Bracket, Vent, L.H.	1
	MT22-1086	Yoke Housing, R.H. (Not Shown)	1	51	MT22-1136	Bracket, Vent, R.H. (Not Shown)	1
14	MT22-1091A	Shim, Trunnion, 1.00 MM	AR	51	MT22-1141	Retaining Ring	4
	MT22-1091B	Shim, Trunnion, 1.20 MM	AR	52	MT22-1142	Union Nut	4
	MT22-1091C	Shim, Trunnion, 0.40 MM	AR	53	MT22-1143A	Tube Vent, L.H. (Includes Items #51 and 52)	1
	MT22-1091D	Shim, Trunnion, 0.60 MM	AR		MT22-1143B	Tube Vent, R.H. (Includes Items #51 and 52)	1
	MT22-1091E	Shim, Trunnion, 1.40 MM	AR	54	MT22-1144	Pipe Fitting	2
15	MT22-1092	Lock Pin	4	55	MT22-1110	Bolt M20 X 60 - 1.5	2
16	MT22-1093	Hex Nut, Fine Thread, M16 X 1.5	4	56	MT22-1125	Bolt, Turn Stop M20 X 47 - 1.5	2
17	MT22-1097	Bearing Case, Upper See item 73	2		MT93-5854	Bolt, Turn Stop M20 X 80 - 1.5	2
18	MT22-1095	O Ring	2	57	MT22-1126	Hex Nut, Special	2
19	MT22-1096	Thrust Disk	2	58	MT22-1103	Dowel Pin	4
20	MT22-1094	Bearing Case, Lower See item 73	2	59	MT22-1127	Stud, Steering Arm	4
21	MT22-1098	Knuckle - Spindle Assy., L.H. Obsolete	1	60	MT22-1128	Brake Chamber Bracket, L.H.	1
	MT22-1099	Knuckle - Spindle Assy., R.H. (Not Shown) (OBS)	1		MT22-1129	Brake Chamber Bracket, R.H.	1
21a	MT22R-1098	Knuckle Assy., L.H. (MT22R Only) (OBS)	1	61	MT22-1130	Steering Arm, L.H.	1
	MT22R-1099	Knuckle Assy., R.H. (MT22R Only) (OBS)	1		MT22-1131	Steering Arm, R.H. (Not Shown)	1
21b	MT22N-1098	Knuckle Assy., L.H. (MT22N Only) /H	1	62	85T23	Lock Wire	AR
	MT22N-1099	Knuckle Assy., R.H. (MT22N Only) /H	1	63	MT22-1124	Castle Nut	8
22	MT22-1082	Pin, Brake Shoe (MT22/R Only)	2	64	MT22-1120	Tie Rod Arm, L.H.	1
23	MT93-1282	ABS Sensor (Wabco)	2		MT22-1320	Tie Rod Arm, L.H. (0000, 11, 06)	1
	MT93-2035	ABS Sensor (Bendix)	2		MT22-1121	Tie Rod Arm, R.H. (Not Shown)	1
23a	MT93-1283	Sensor Spring Clip	2		MT22-1321	Tie Rod Arm, R.H. (Not Shown) (0000, 11, 06)	1
24	MT22-1241	Bushing, Brake Shoe Pin (MT22N Only)	4	65	MT22-1122	Stud, Tie Rod Arm	4
25	MT22-1105	Hex Bolt, Special	4		MT22-1127	Stud, Steering Arm/Tie Rod Arm (0000, 11, 06)	4
26	MT22-1106	Dowel Pin	4	66	MT22-1114	Roller Bearing, Axle Shaft, Outer	2
27	MT22-1104	Wear Sleeve Hub Seal (MT22 Only) 1991 and older	2	67	MT22-1115	Snap Ring	2
28	MT22-1176	Dust Shield	2	68	MT22-1116	Oil Seal, Axle Shaft, Outer	2
29	11500773	Hex Bolt, M8 X 16	12	69	MT22-1117	Dust Shield, Axle Shaft includes item 70	2
30	11500191	Lock Washer, M8	12	70	MT10-1080	Felt	2
31	MT22-1132	Nut, Wheel Bearing	4	71	11500190	Lock Washer, M6	8
32	MT22-1133	Lock Ring, Wheel Bearing	2	72	11503946	Hex Bolt, M6 X 12	8
33	MT22-1101	Oil Seal, Trunnion Pin	2	73	MT22-1215	Thrust Bearing Kit (Incl. Items #17, 18, 19, 20)	2
34	MT22-1102	Trunnion Pin Bushing	4	74	MT22-1285	O-Ring (119 X 5)	2
35	MT22-1107	Trunnion Pin, Upper (Short)	2	75	MT22-1205	Seal Holder Assembly (Incl. Items #10, 11, 12)	2
36	MT22-1108	Cover, Trunnion Pin 1991 and older	4			AR = As Required	

AXLE HOUSING — MT22/R/N/H

AXLE SHAFT ASSEMBLY MT22/R/N/H

2005 and Older



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ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT22-1146	Axle Shaft Assy., Complete (MT22 Only) 1991 and older	2				
	MT22R-1177	Axle Assy., Short Spline (MT22R/N/H Only)* Replaced by MT221206	1				
	MT22R-1178	Axle Assy., Long Spline (MT22R/N/H Only)* Replaced by MT221207	1				
	MT22-1206	Axle Shaft Assy., Short Spline** See page 20	1				
	MT22-1207	Axle Shaft Assy., Long Spline** See page 20	1				
2	MT22-1147	Double Cardan Steering Joint* (OBS)	2				
3	MT22-1148	Outer Axle Shaft* (OBS)	2				
4	MT22-1149	Inner Axle Shaft (MT22 Only)* (OBS)	2				
	MT22R-1145	Axle Shaft Inner, Short Spline (MT22R/N/H Only)* (OBS)	1				
	MT22R-1149	Axle Shaft Inner, Long Spline (MT22R/N/H Only)* (OBS)	1				
5	MT22-1225	Couple Housing, Cardan Joint* (OBS)	2				
6	MT22-1226	Cross Shaft* (OBS)	NSS				
7	MT22-1227	Bearing Cup Assy., Cross Shaft* (OBS)	NSS				
8	MT22-1228	Snap Ring*	16				
9	MT22-1229	Plug, Bearing Cup, M12 X 1.5* (OBS)	16				
10	MT22-1230	Pin, Axle Shaft* (OBS)	NSS				
11	MT22-1231	Set Screw, Axle Pin* (OBS)	4				
12	MT22-1232	Bearing Cup Assy., Axle Pin* (OBS)	NSS				
13	MT10-1134	Cardan Steering Joint Kit* (OBS) (Includes Items #7, 8, 9, 10, 11, 12)	4				
		NSS = Not Sold Separately * Fits axles with serial #9999-05-02 or less. ** Fits all MT22R/N/H axles.					

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AXLE SHAFT ASSEMBLY MT22/R/N/H

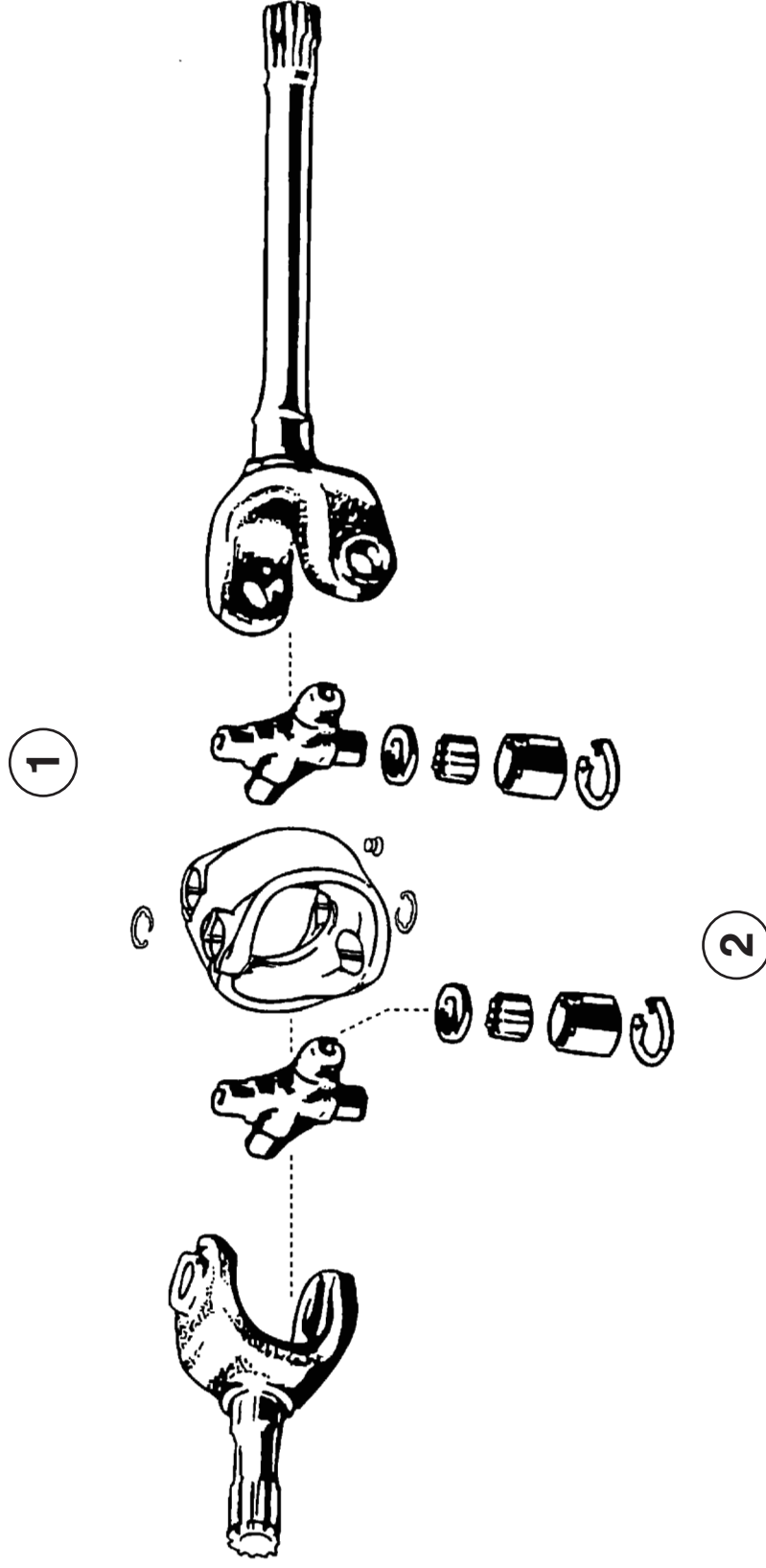
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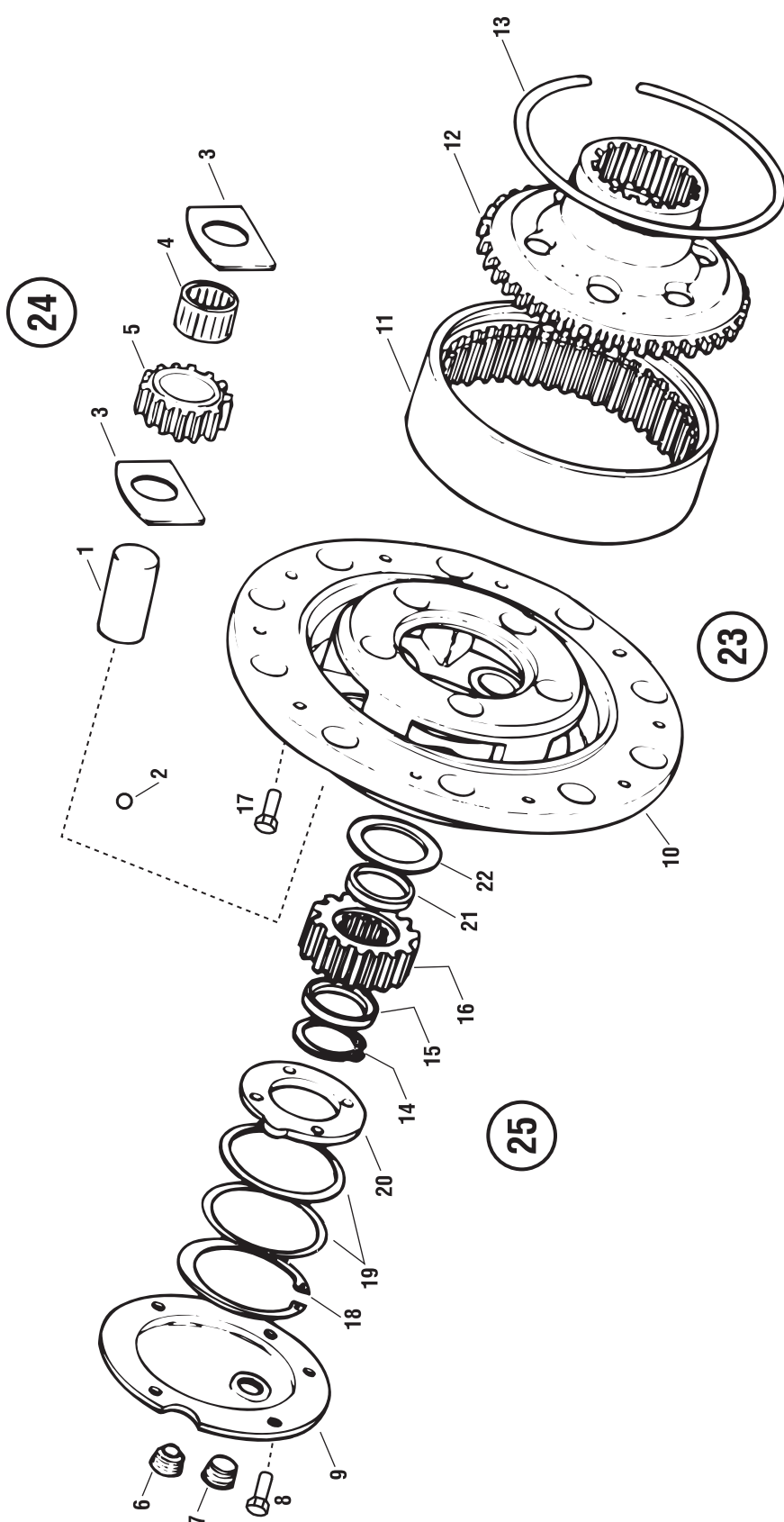
2005 and Newer



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PLANETARY MT22/R/N/H



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ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT14-1217	Planet Gear Pin	10				
2	MT14-1218	Steel Ball	10				
3	MT14-1219	Distance Plate	20				
4	MT14-1220	Roller Bearing Assy.	10				
5	MT14-1028	Planet Gear	10				
6	MT14-1071	Magnetic Drain Plug	2				
7	MT14-1070	Fill Plug	2				
8	11500723	Hex Bolt, M10 X 20	10				
9	MT22-1156	End Cover	2				
10	MT22-1161	Planet Gear Carrier MT22, MT22N/R	2				
	MT22H-1161	Planet Gear Carrier Hub Pilot (MT22H Only)	2				
11	MT22-1162	Planetary Ring Gear	2				
12	MT22-1163	Ring Gear Support Hub	2				
13	MT14-1207	Retaining Ring	2				
14	MT22-1154	Snap Ring	2				
15	MT22-1153	Spacer	2				
16	MT22-1152	Sun Gear	2				
17	11500724	Hex Bolt, M10 X 30	12				
18	MT22-1157	Snap Ring	2				
19	MT22-1158A	Shim, 0.25 MM	AR				
	MT22-1158B	Shim, 0.50 MM	AR				
	MT22-1158C	Shim, 2.00 MM	AR				
20	MT22-1159	Friction Disk	2				
21	MT22-1151	Distance Ring	2				
22	MT22-1150	Friction Disk	2				
23	MT22-1200	Planet Gear Carrier Assy. (MT22/R/N Only) (Includes Items #1, 2, 3, 4, 5 and 10)	2				
	MT22H-1200	Planet Gear Carrier Assy. (MT22H Only) (Includes Items #1, 2, 3, 4, 5 and 10)	2				
24	MT14-1223	Planet Gear Kit (Includes Items #1, 2, 3, 4 and 5)	2				
25	MT22-1252	Sun Gear/Friction Disk Kit (Includes Items #14, 15, 16, 18, 19, 20, 21, 22) AR = As Required	2				

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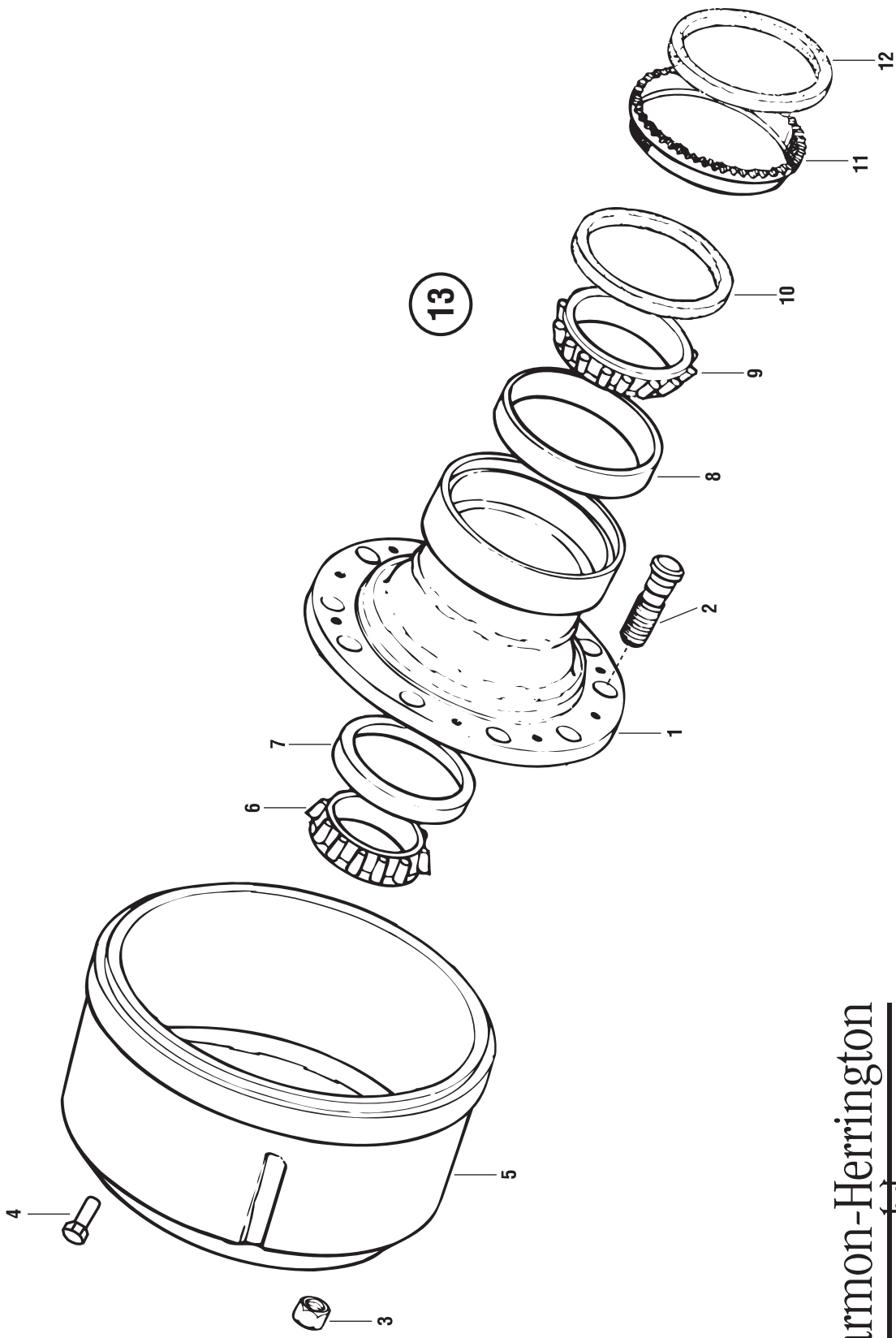
PLANETARY MT22/R/N/H

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PM01/18

WHEEL HUB, BRAKE DRUM MT22/R/N/H



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ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT22-1168	Hub Assy. (MT22 Only) 1991 and older (Includes Items #2, 7, 8, 9, 10)	2				
	MT22R-1168	Hub Assy. (MT22R/N Only)	2				
	MT22H-1168	(Includes Items #2, 6, 7, 8, 9, 11, 12) Hub Assy. (MT22H Only)	2				
	MT22N-1168	(Includes Items #2, 6, 7, 8, 9, 11, 12) Hub Assy., L.H. (MT22N Only)	1				
2	MT93-2931	(Includes Items #2, 6, 7, 8, 9, 11, 12) Wheel Stud, L.H., Long (MT22N Only)	10				
	MT93-2932	Wheel Stud, R.H., Long (4.625)	20				
	MT22-1134	Wheel Stud Hub Pilot (MT22H Only)	20				
3	67011	Wheel Nut, R.H. (MT22N Only)	20				
	67012	Wheel Nut, L.H. (MT22N Only)	10				
	MT93-1197	Flange Wheel Nut (MT22H Only)	20				
4	11500779	Hex Bolt, M10 X 40	4				
5	MT22-1165	Brake Drum	2				
	MT22-1165W	Brake Drum	2				
6	MT22-1166	Wheel Bearing, Cone, Outer	2				
7	MT22-1167	Wheel Bearing, Cup, Outer	2				
8	MT22-1170	Wheel Bearing, Cup, Inner	2				
9	MT22-1171	Wheel Bearing, Cone, Inner	2				
10	MT22-1172	Oil Seal, Hub (MT22 Only) 1991 and older	2				
11	MT22R-1164	Exciter Ring (MT22R/N/H Only)	2				
12	MT22R-1172	Hub Seal (MT22R/N/H Only)	2				
13	MT22-1216	Bearing Kit Hub (Includes Items #6, 7, 8, 9 & 12)	1				
		AR = As Required					

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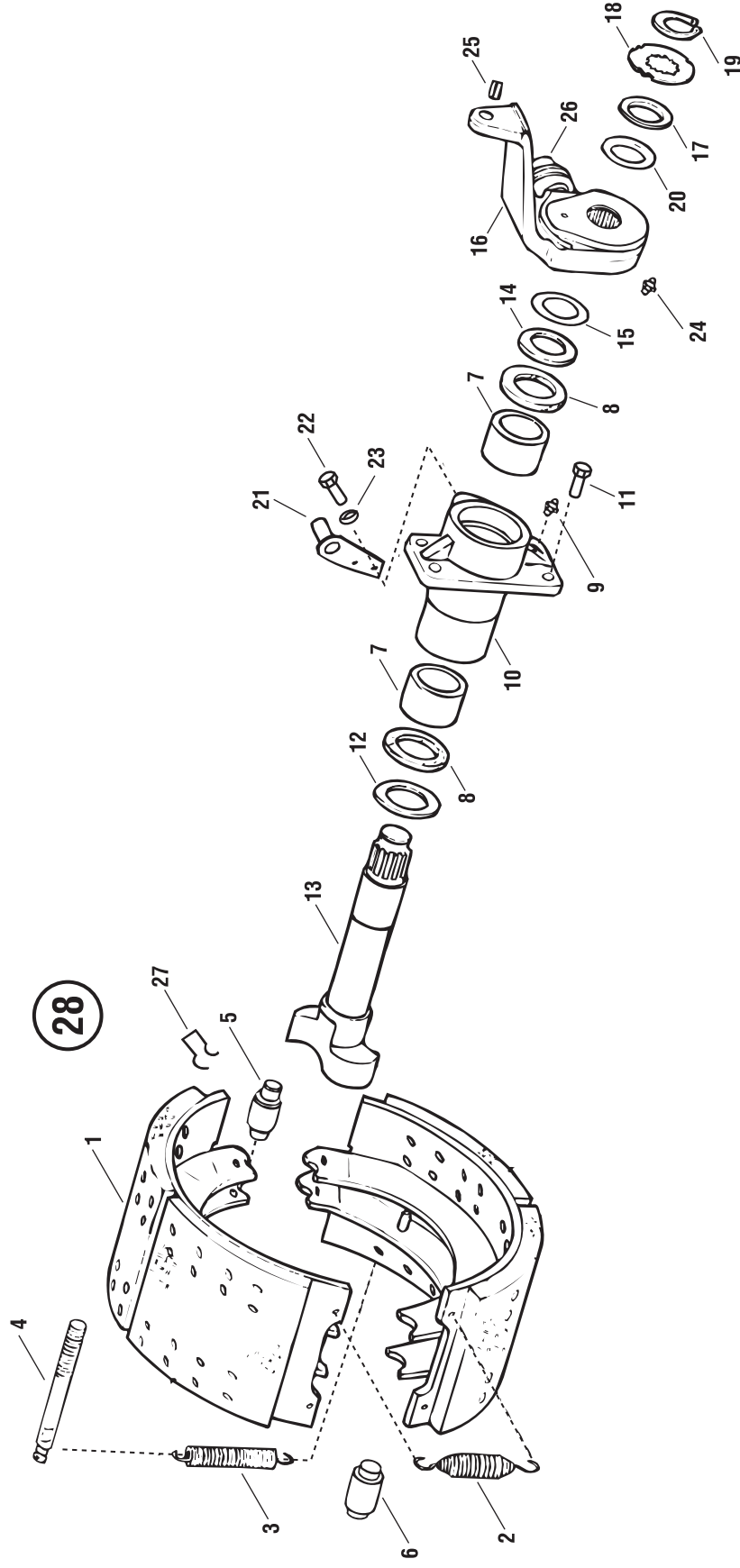
WHEEL HUB, BRAKE DRUM MT22/R/N/H

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PM01/18

BRAKE MT22/R/N/H



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ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT14-1155 MT22-1164 MT22-1255	Brake Shoe Assy. (MT22/R Only) Brake Shoe Assy. (MT22N/H Only) Brake Shoe Kit (MT22N/H Only) (Includes Item #28)	4 4 2	17 18 19	MT17-1142 MT22-1187 MT17-1141	Spacer Wear Indication Disk Snap Ring	2 2 2
2	MT14-1156 MT22-1177 MT14-1157	Return Spring, Long (MT22/R Only) Brake Shoe Return Spring (MT22N/H Only) Return Spring, Short	4 4 4	20 21 22	MT14-1128 MT22-1239 MT22-1240	Snap Ring Bumper Assy., L.H. (MT22N/H Only) Bumper Assy., R.H. (MT22N/H Only)	4 1 1
3	MT22-1173 MT22-1178 MT22-1243	Pin, Spring Support Brake Shoe Roller (MT22N/H Only) Brake Shoe Pin (MT22N/H Only)	4 4 4	23 24 25	11500866 11500191 191758 191759	Bolt M8 X 14 - 1.25 (MT22N/H Only) Lock Washer M8 Grease Fitting, 1/8 Grease Fitting, M8 X 1.00	4 4 2 2
4	MT22-1180 MT22-1179 191758	Bushing Oil Seal Grease Fitting, 1/8	4 4 2	25 26	MT14-1131 MT22-1246 MT22-1247	Bushing Cap, Automatic Slack Adj., L.H. MT22N/H Cap, Automatic Slack Adj., R.H. MT22N/H	2 1 1
5	MT22-1181 MT22-1182	Spanner Housing Assy., L.H. (Includes Items #7, 8 and 9) Spanner Housing Assy., R.H. (Includes Items #7, 8 and 9)	1 1	11500773 11503950	Bolt, M8 X 16 - 1.25 Bolt, M6 X 20 - 1.00	Bolt, M8 X 16 - 1.25 Bolt, M6 X 20 - 1.00	2 2
6	MT22-1183 MT14-1142 MT22-1197 MT22-1198 MT22-1174 MT22-1175	Hex Bolt Special Washer, Special Cam Shaft, L.H. (MT22N/H Only) Cam Shaft, R.H. (MT22N/H Only) Brake Spanner, L.H. (MT22/R Only) Brake Spanner, R.H. (MT22/R Only) (Not Shown)	8 2 1 1 1 1	27 28	MT22-1242 MT22-1251	Roller Spring (Optional) Brake Spring and Roller Kit (MT22N/H Only) (Includes Items #2, 3, 5, 6, 27)	4 2
7	MT22-1201 MT22-1184 MT22-1199 MT14-1144	Spacer (MT22N/H Only) Spacer Shim, .50 MM (MT22N/H Only) Shim, .50 MM	2 2 AR AR			AR = As Required	
8	MT22-1237 MT22-1238 MT22-1203 MT22-1204	Automatic Slack Adj., L.H. (MT22N/H Only) Automatic Slack Adj., R.H. (MT22N/H Only) Slack Adjuster, L.H. (MT22/R Only) (OBS) Slack Adjuster, R.H. (MT22/R Only) (OBS)	1 1 1 1				

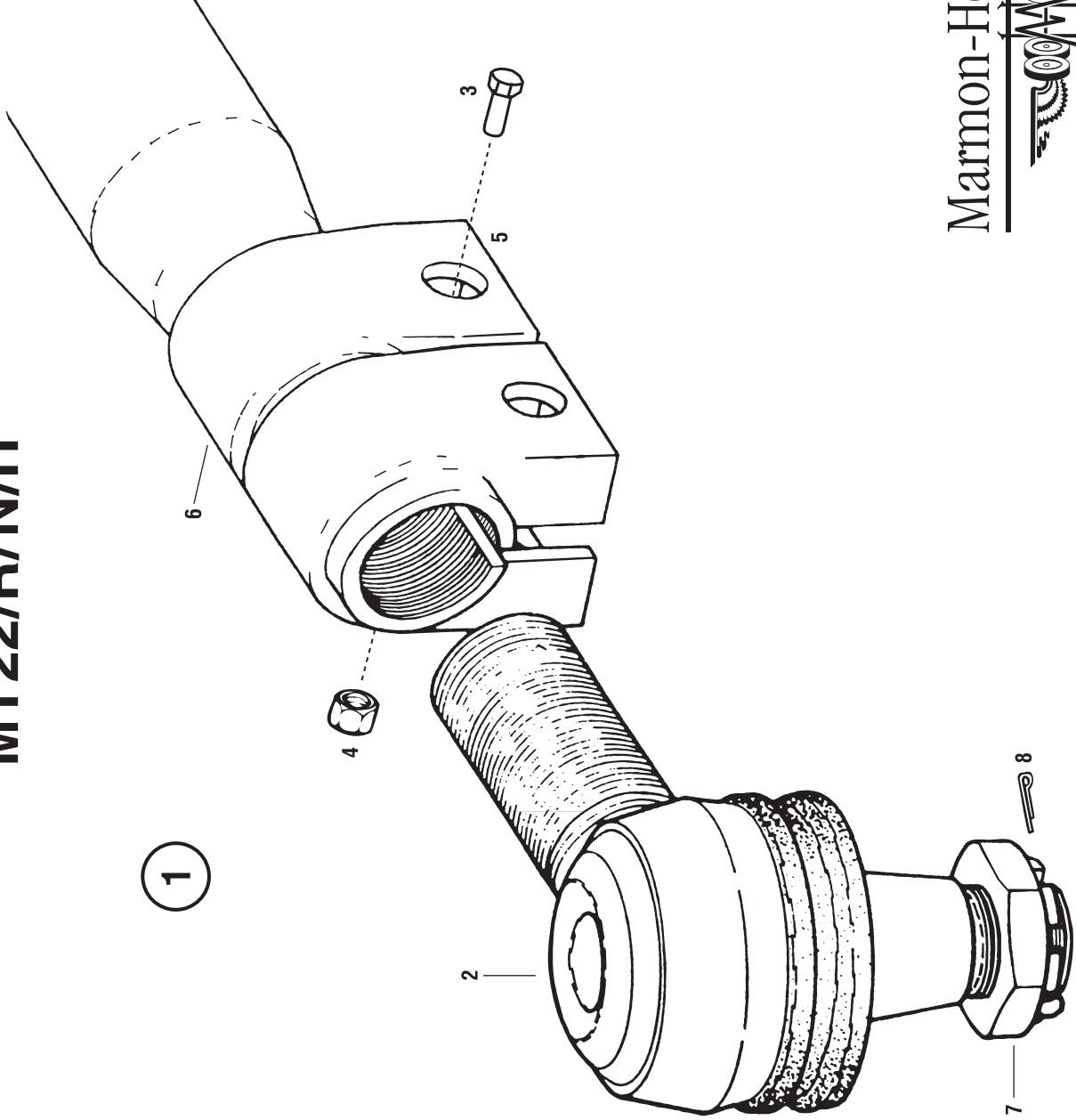
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BRAKE **MT22/R/N/H**

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TIE-ROD MT22/R/N/H



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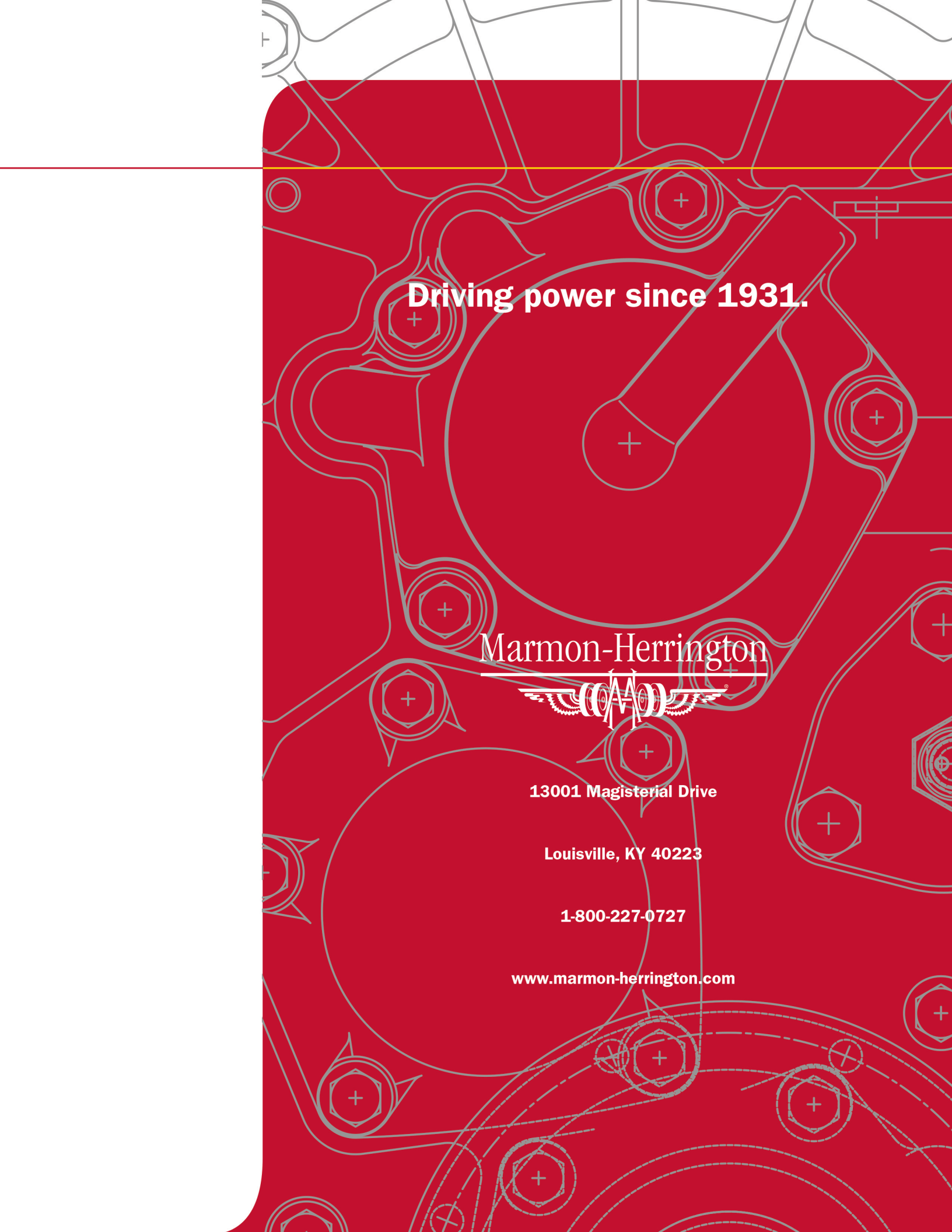


ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT22-1188	Tie Rod Assembly	1				
2	MT22-1189	Ball Stud Assy., R.H.	1				
	MT22-1190	Ball Stud Assy., L.H.	1				
3	MT22-1191	Hex Bolt, Special	4				
4	MT22-1192	Castle Nut, M16 X 1.5	4				
5	103387	Cotter Pin, 1/8" X 1-1/2"	4				
6	MT22-1194	Tie Rod	1				
7	MT22-1195	Castle Nut	2				
8	103422	Cotter Pin, 1/4" X 2"	2				

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A detailed technical line drawing of an engine block, showing various ports, valves, and mounting points. The drawing is rendered in white lines on a red background. The engine block is oriented vertically, with the cylinder head at the top. The main body of the block is rectangular with rounded corners. There are several circular openings, likely for valves or ports, and numerous hexagonal bolt holes. The drawing is a top-down or side view, showing the internal structure and external features of the engine block.

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