

## Marmon-Herrington CT16N Series Parts Manual

Pro Gear's Marmon-Herrington CT16N Series Parts Manual to assist in identifying your Marmon-Herrington unit.

If you need any assistance identifying the correct axle unit for your truck and equipment, contact your Marmon-Herrington replacement part specialists at Pro Gear and Transmission.

Pro Gear Transmission has same day shipping and 1000's of products in stock and ready to ship internationally for your next project.

For parts or service contact the Hendrickson specialists at Pro Gear & Transmission, Inc.

1 (877) 776-4600  
(407) 872-1901  
parts@eprogear.com



# **PARTS MANUAL**

## **FOR**

# **CT16N/H/HX SERIES**

### **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](mailto:info@marmon-herrington.com)

*Visit our web site to view Repair & Parts Manuals*  
**[www.marmon-herrington.com](http://www.marmon-herrington.com)**

PM06/06

# TABLE OF CONTENTS

## FORWARD

WARRANTY POLICY AND PROCEDURE ..... 3-5

## CT16N/H/HX SERIES

DIFFERENTIAL CARRIER HOUSING CT16N/H/HX ..... 6-7

DIFFERENTIAL CT16N/H/HX ..... 8-9

AXLE HOUSING CT16N/H/HX ..... 10-11

PLANETARY CT16N/H/HX ..... 12-13

WHEEL HUB, BRAKE DRUM CT16N/H/HX ..... 14-15

BRAKE CT16N/H/HX ..... 16-17

TIE-ROD CT16N/H/HX ..... 18-19



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PM06/06

# 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 tradition of engineering excellence.

## MISCELLANEOUS ISSUES

### Tires and Gear Ratios

When vehicles are still in the specification stage prior to construction, a great deal of thought and calculation goes into determining what tires and gear ratios will be best suited to the engine and transmission combination being used. This is especially true of AWD (all-wheel-drive) type vehicles because front and rear drive axles are interconnected through the transfer case, and therefore vulnerable to the adverse effects of differential tire speed. The most prominent of these adverse conditions is called "wind-up" which is caused by "ratio mis-match."

Effectively, this means that by virtue of different tire sizes or gear ratios from front to rear, one set of tires is trying to turn faster than the other. This generates excessive amounts of torque (wind-up) which is transmitted through the drive train. These extreme torsional loads can cause damage to differential gears, transfer cases, even engines and transmissions.

With the preceding in mind, the owner or operator should feel compelled to seek expert advice when considering alternative gear ratios or tires.

### Operations

#### 1) USE OF AWD MODE

Your Marmon-Herrington transfer case or axle may find itself paired with a front drive axle in an AWD application as previously described. If so, there are a few points of operational practice that will ensure a long, trouble free service life. In the tire and ratio discussion we demonstrated one source of drive train wind-up, and some of the undesirable effects. The same consequences may be experienced through yet a different mode of abuse.

As close as engineers try to match gear ratios and tires for a given application, the reality is that there will always be some degree of mis-match between front and rear axles. When a vehicle is operated on a hard, dry surface with the front axle engaged (AWD, 4x4, 6x6, etc.), the tires are not able to slip and relieving the torsional forces being generated.

As such, Marmon-Herrington equipped vehicles are designed for "as needed" AWD operation only, in "off-road" conditions. They are not intended to be driven in AWD mode on hard, dry surfaces.

#### 2) SHIFTING OF AXLE OR TRANSFER CASE

Marmon-Herrington Axles and Transfer Cases use no clutching devices, and therefore should only be shifted when the vehicle is at a full stop. This applies to front axle engagement, high and low ranges, and locking differentials. The only exceptions are those vehicles equipped with Marmon-Herrington's **SAFE-T-SHIFT** system, which are calibrated to shift up to 4 mph.

### SAFE-T-SHIFT

Marmon-Herrington Transfer Cases do not employ any clutching device, and therefore are not of a class that may be shifted "on the fly", or when the vehicle is in motion. This applies to shifting between HIGH and LOW ranges as well as engaging the front axle. Shifting on the fly results in two different types of internal and external damage. The first is degradation of the engagement teeth due to relative rotation of drive gears and shift collars. This type of damage can prevent the case from shifting normally, as the teeth become burred and cannot mesh.

The second condition imparts excessive shock loading throughout the entire drive train. This occurs when a shift is attempted at the precise moment of tooth alignment (gears meshing), and the shift is actually completed at excessive speed. This results in high torque loading that is transmitted through the transfer case, drive shafts, and axles. The extent of the damage possible increases proportionately with the vehicle speed.

Over the years we have tried to protect end users from this mode of failure with operational placards, audible warnings, and light signals. Despite these efforts, we have yet to fully discourage this destructive practice.

In December 2003 Marmon-Herrington developed an electronic management system called **SAFE-T-SHIFT** to help prevent shift on the fly events. 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.

The actual completion of a shift still relies on tooth alignment of the gear sets, and the vehicle may need to roll a few feet before the transfer case can shift. Because the system becomes active at first motion and maintains air pressure thereafter, it is possible to accelerate rapidly to a speed greater than 4 mph before tooth alignment occurs, completing the shift. In this case, the shift may occur at a speed great enough to cause shock damage. For this reason, it is essential that the operator let the vehicle "walk" or idle forward until the shift is complete before accelerating normally.

### 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. 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, Freightliner factory conversions, and any with Rockwell 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 conversion 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 front of this certificate. 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.

- 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.
- 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 ID tag, fixed to the transfer case or axle.
- The Axle or Transfer Case Model and Serial Number, also located on the ID 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

- 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.
- All repairs must comply with any or all state and DOT requirements.
- 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.
- 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.
- 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 ALL-WHEEL DRIVE** installations, the following information should be given:

- 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.)
- Component for which parts are required, i.e. front drive axle or transfer case/drop box.
- Model of axle and/or transfer case/drop box, i.e. MT10, MVG 750, MDB500.
- 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.
- 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 ID 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](http://www.marmon-herrington.com)) for the latest versions of our parts and service manuals, as well as new products and contact information.

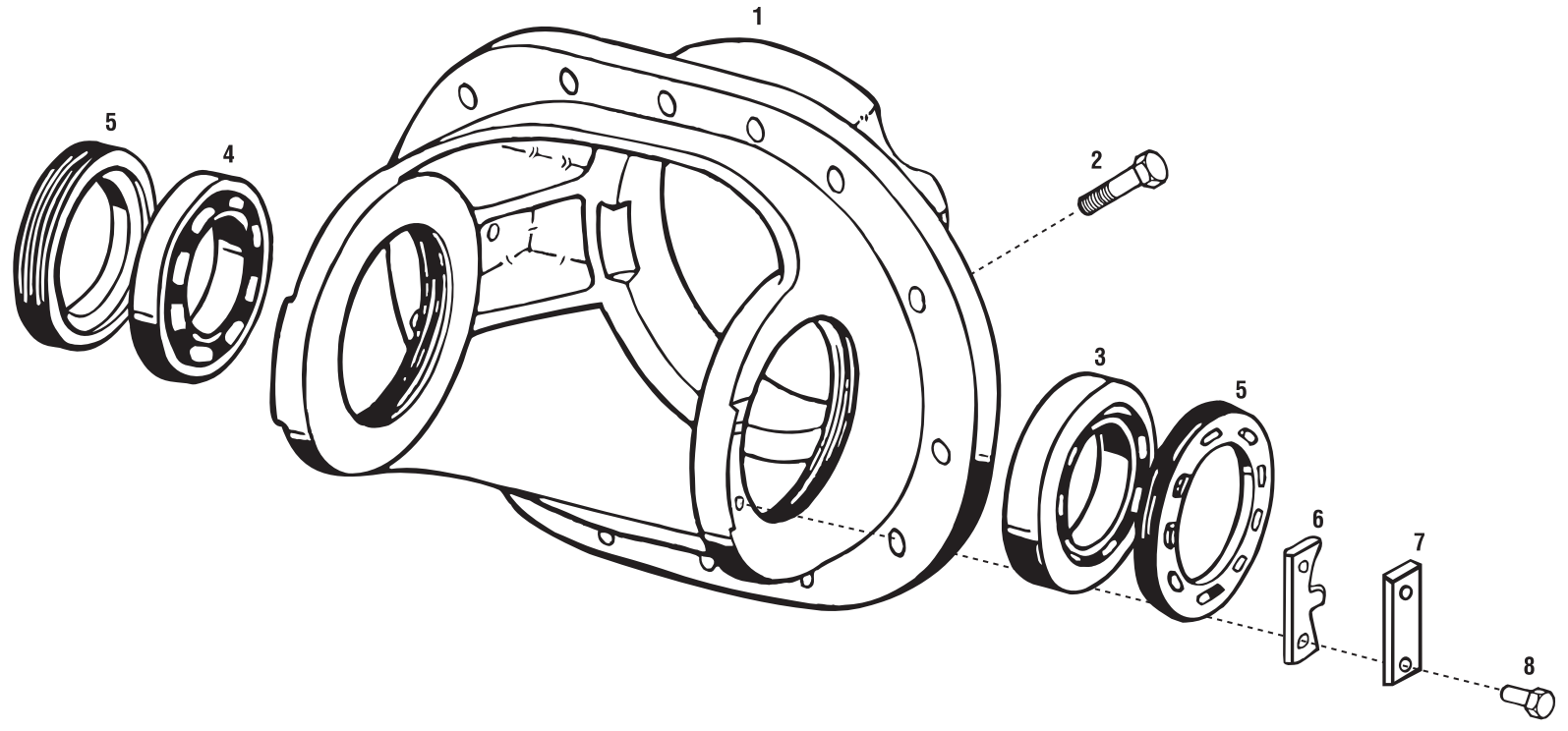
**The information necessary for replacement parts and/or warranty claim procedures will be found on either plate design.**

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

<b>MARMON-HERRINGTON</b>	
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.	

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

# DIFFERENTIAL CARRIER HOUSING CT16N/H/HX



Pro Gear and Transmission • 906 W. Gore St. Orlando, FL 32805 • 1 (877) 776-4600 / (407) 872-1901 • parts@progear.com



ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT22-1076	Differential Carrier Housing Assy.	1				
2	MT22-1077	Flanged Bolt, Special	14				
3	MT22-1078	Differential Side Bearing Assy.	1				
4	MT22-1212	Differential Side Bearing Assy.	1				
5	MT22-1079	Bearing Adjuster	2				
6	MT22-1080	Lock Plate	2				
	MT22-1080A	Lock Plate	2				
7	MT22-1081	Lock Plate	2				
8	11500773	Hex Bolt, M8x16-1.25	4				



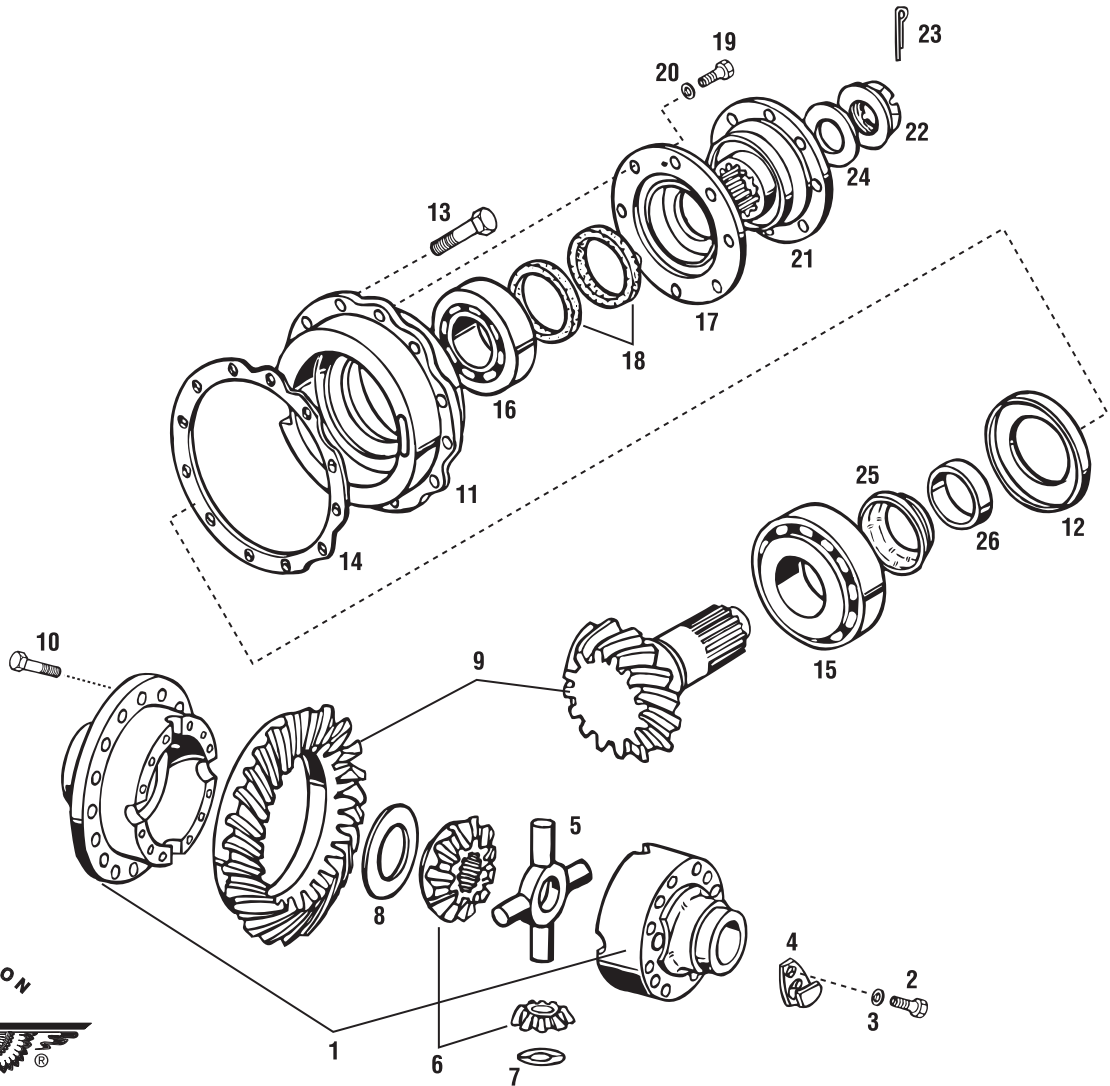
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# DIFFERENTIAL CT16N/H/HX



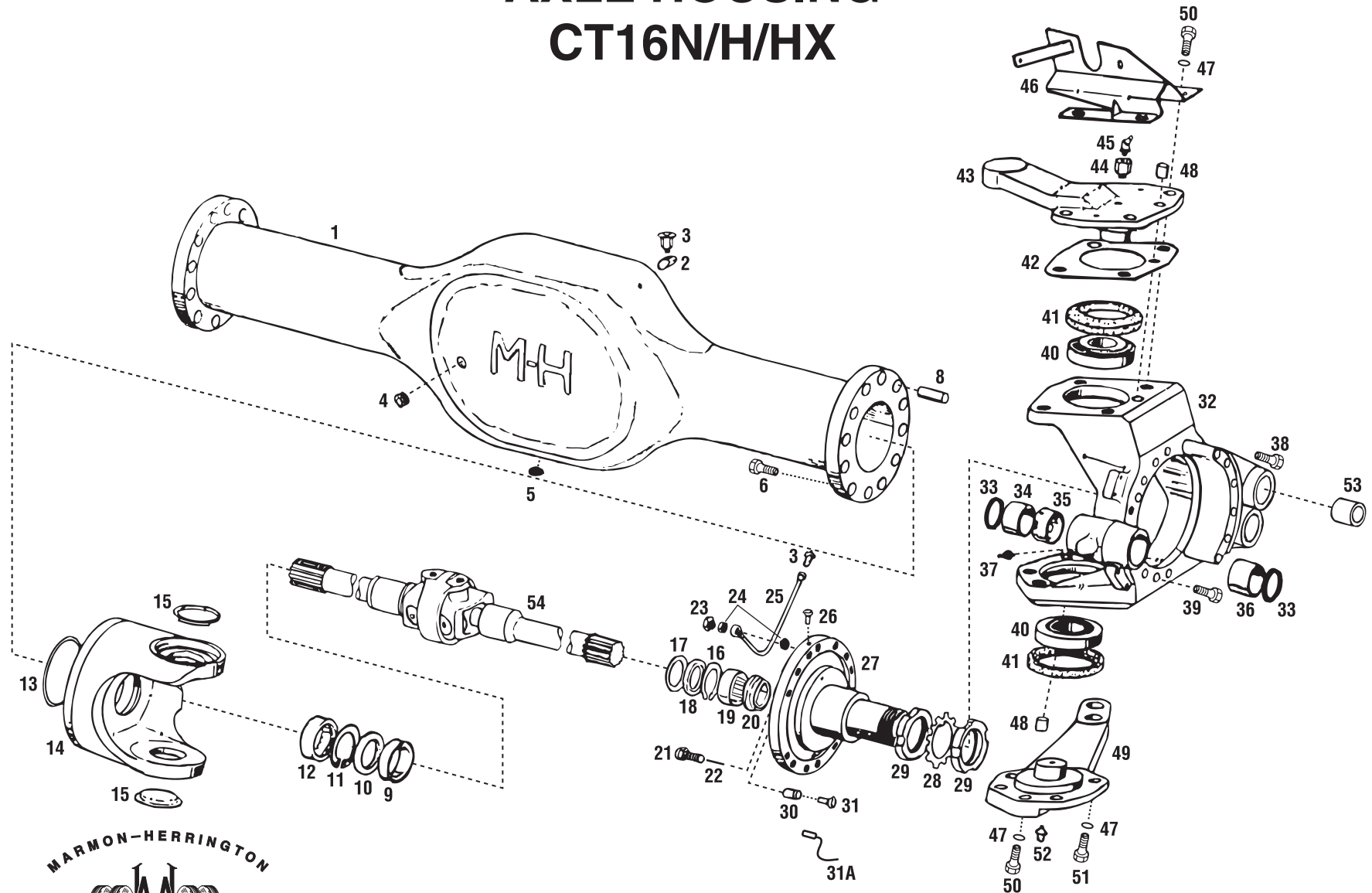
COMPLETE CARRIER ASSEMBLY							ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
CARRIER P/N	PINION & RING GEAR RATIO	FINAL RATIO	DIFFERENTIAL CASE							
MT23-1001	1.227	4.25	MT22-1051	10	MT22-1250	Hex Bolt, Special	16			
MT23-1002	1.318	4.56	MT22-1051	11	MT22-1068	Bearing Cage Assy.	1			
MT23-1003	1.422	4.92	MT22-1052	12	MT14-1078	Oil Baffle Plate	1			
MT23-1004	1.526	5.29	MT22-1052	13	MT22-1077	Flanged Bolt, Special	12			
MT23-1016	1.553	5.38	MT22-1052	14	MT22-1067A	Shim, 1.0 MM	AR			
MT23-1005	1.632	5.65	MT22-1052		MT22-1067B	Shim, .50 MM	AR			
MT23-1020	1.684	5.83	MT22-1052		MT22-1067C	Shim, .30 MM	AR			
MT23-1017	1.765	6.11	MT22-1052		MT22-1067D	Shim, .25 MM	AR			
MT23-1006	1.812	6.27	MT22-1052	15	MT22-1067E	Shim, .20 MM	AR			
MT23-1007	1.929	6.68	MT22-1052	16	MT14-1075	Pinion Bearing, Inner	1			
MT23-1008	2.077	7.14	MT22-1445	17	MT14-1079	Pinion Bearing, Outer	1			
MT23-1009	2.231	7.72	MT22-1445	18	MT22-1070	Cover	1			
MT23-1018	2.415	8.36	MT22-1445	19	MT22-1069	Oil Seal Kit, Pinion	1			
MT23-1019	2.462	8.52	MT22-1445	20	11500713	Hex Bolt, M8x22	8			
				21	11500191	Flat Lock Washer, M8	8			
1	MT22-1051	Diff. Case Halves, Assy. (4.25-4.56)	1	22	MT17-1050	Companion Flange, 1610 Series	1			
	MT22-1052	Diff. Case Halves, Assy. (4.92-6.68)	1	23	MT22-1073	Companion Flange, 1710 Series	1			
	MT22-1445	Diff. Case Halves, Assy. (7.14-8.52)	1	24	MT14-1082	Pinion Castle Nut	1			
2	MT22-1066	Hex Bolt, Special	12	25	103422	Cotter Pin	1			
3	MT22-1065	Washer, Special	2	26*	MT22-1074	Washer, Special	1			
4	MT23-1064	Oil Baffle Plate	2		MT14-1076	Distance Sleeve	1			
5	MT22-1061	Differential Cross	1		MT14-1077A	Bearing Distance Ring, 6.90 MM	AR			
6	MT22-1193	Nest Kit	1		MT14-1077B	Bearing Distance Ring, 7.00 MM	AR			
7	MT22-1063	Washer, Differential Pinion Gear	4		MT14-1077C	Bearing Distance Ring, 7.02 MM	AR			
8	MT22-1059	Washer, Differential Side Gear	2		MT14-1077D	Bearing Distance Ring, 7.04 MM	AR			
9	MT23-1054	Ring Gear and Pinion (1.227) 4.25	1		MT14-1077E	Bearing Distance Ring, 7.06 MM	AR			
	MT23-1053	Ring Gear and Pinion (1.318) 4.56	1		MT14-1077F	Bearing Distance Ring, 7.08 MM	AR			
	MT23-1056	Ring Gear and Pinion (1.422) 4.92	1		MT14-1077G	Bearing Distance Ring, 7.10 MM	AR			
	MT23-1057	Ring Gear and Pinion (1.526) 5.29	1		MT14-1077H	Bearing Distance Ring, 7.20 MM	AR			
	MT23-1043	Ring Gear and Pinion (1.553) 5.38	1		MT14-1077I	Bearing Distance Ring, 7.32 MM	AR			
	MT23-1055	Ring Gear and Pinion (1.632) 5.65	1		MT14-1077J	Bearing Distance Ring, 7.44 MM	AR			
	MT23-1047	Ring Gear and Pinion (1.684) 5.83	1		MT14-1077K	Bearing Distance Ring, 7.56 MM	AR			
	MT23-1046	Ring Gear and Pinion (1.765) 6.11	1		MT14-1077L	Bearing Distance Ring, 7.68 MM	AR			
	MT23-1058	Ring Gear and Pinion (1.812) 6.27	1		MT14-1077M	Bearing Distance Ring, 7.80 MM	AR			
	MT23-1040	Ring Gear and Pinion (1.929) 6.68	1		MT14-1077N	Bearing Distance Ring, 7.92 MM	AR			
	MT23-1041	Ring Gear and Pinion (2.077) 7.14	1			AR = As Required				
	MT23-1042	Ring Gear and Pinion (2.231) 7.72	1			*Note: Choose 2 to produce proper bearing preload.				
	MT23-1044	Ring Gear and Pinion (2.415) 8.36	1							
	MT23-1045	Ring Gear and Pinion (2.462) 8.52	1							

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## DIFFERENTIAL CT16N/H/HX



# AXLE HOUSING CT16N/H/HX



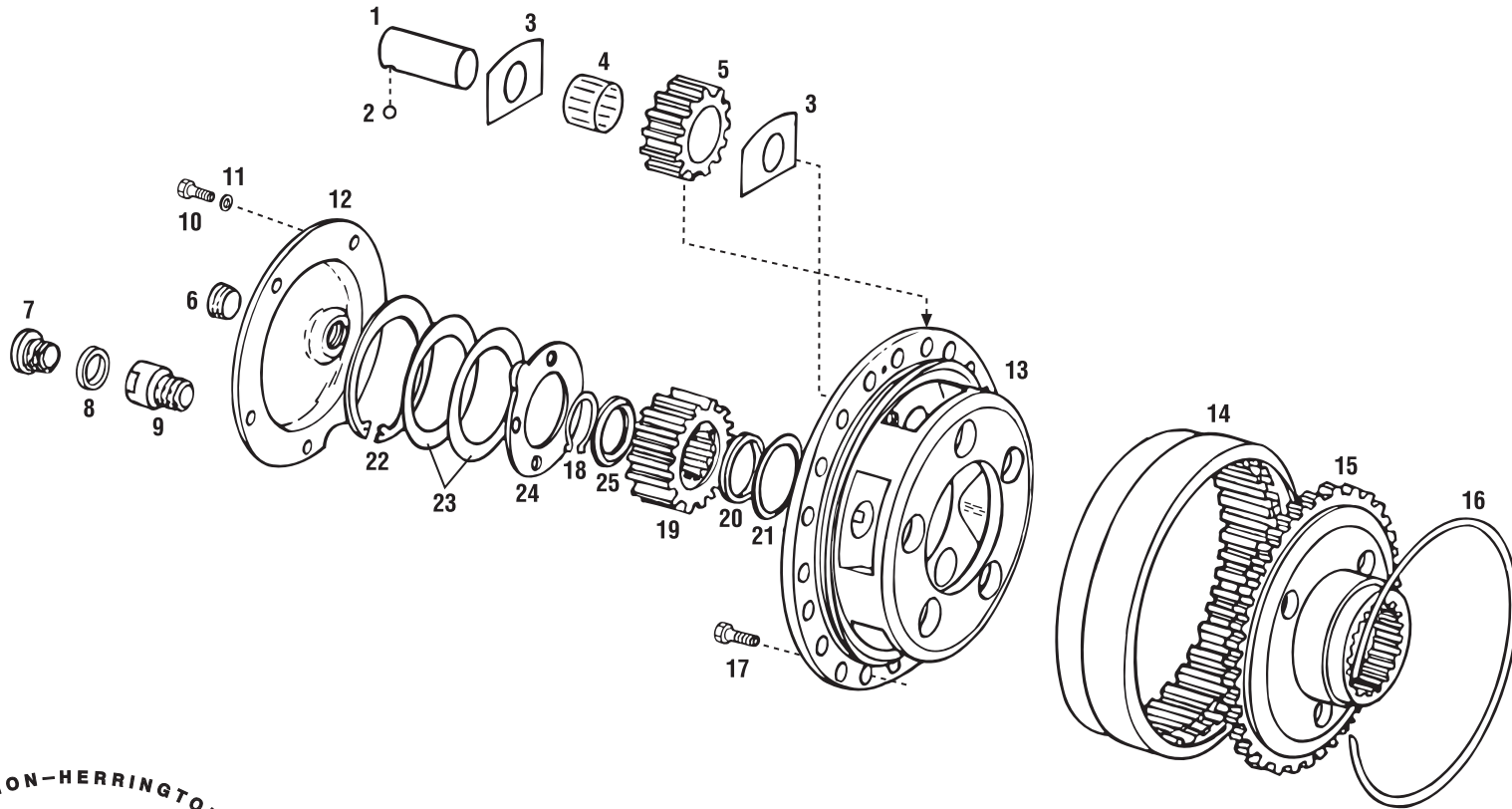
ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	CT16-1049	Axle Housing	1	31A	MT93-1282	ABS Sensor (Wabco)	2
2	MT22-1214	Threaded Extension	1		MT93-2035	ABS Sensor (Bendix)	2
3	MT14-1068	Vent	3		MT93-1283	ABS Sensor Spring Clip	2
4	MT14-1070	Fill Plug, Carrier	1	32	MT17-1110	Knuckle Hsg. Assy, L.H.	1
5	MT14-1071	Drain Plug, Carrier	1		MT17-1111	Knuckle Hsg. Assy, R.H. (Not Shown)	1
6	MT14-1072	Hex Bolt, M20x1.5x60	20	33	MT14-1109	Sealing Ring	4
8	MT14-1222	Dowel Pin	4	34	MT14-1110	Brake Spanner Bushing	2
9	MT10-1079	Oil Seal Support Assy.	2	35	MT14-1111	Distance Ring	2
	MT10-1080	Felt Wiper	2	36	MT14-1112	Brake Spanner Bushing	2
10	MT22-1116	Oil Seal, Axle Shaft, Inner	2	37	191758	Grease Fitting	4
11	MT22-1115	Snap Ring	2	38	MT17-1105	Hex Bolt, M14x1.5x102	12
12	MT22-1114	Bearing, Axle Shaft, Inner	2	39	MT17-1106	Hex Bolt, M14x1.5x55	16
13	MT14-1088	Sealing Ring, Housing to Yoke, 119x5	2	40	MT14-1114	Trunnion Bearing Assy, 050/110x29.25	4
14	MT17-1024	Yoke Housing, L.H.	1	41	MT14-1115	Gasket	4
15	MT17-1025	Yoke Housing, R.H. (Not Shown)	1	42	MT14-1117A	Shim, Trunnion, 2.05 MM	AR
	MT14-1089	Lock Cap	4		MT14-1117B	Shim, Trunnion, 2.00 MM	AR
16	MT14-1090	Snap Ring	2		MT14-1117C	Shim, Trunnion, 0.50 MM	AR
17	MT10-1080	Felt Wiper	2		MT14-1117D	Shim, Trunnion, 0.30 MM	AR
18	MT14-1092	Oil Seal, Axle Shaft, Outer	2		MT14-1117E	Shim, Trunnion, 0.20 MM	AR
19	MT14-1093	Needle Roller Bearing, 50x65x22	2	43	MT17-1009	Steering Arm, L.H.	1
20	MT14-1094	Distance Sleeve	2		MT17-1008	Cover for Right Steering Support Housing	1
21	MT14-1095	Turn Stop Bolt	2	44	MT14-1118	Extension, Fitting	2
22	MT14-1096	Jam Nut	2	45	271285	Grease Fitting	2
23	MT14-1098	Hollow Screw	2	46	MT14-1120	Brake Chamber Brk., L.H.	1
24	MT14-1099	Bushing	4		MT14-1121	Brake Chamber Brk., R.H. (Not Shown)	1
25	MT14-1100	Vent Tube	2	47	85T-23	Lockwire	AR
26	MT14-1101	Screw	2	48	MT-14-1124	Dowel Pin, 20m6x20-10.9	4
27	MT17-1018	Spindle, L.H.	1	49	MT17-1022	Tie-Rod Arm, L.H.	1
	MT17-1019	Spindle, R.H. (Not Shown)	1		MT17-1023	Tie-Rod Arm, R.H.	1
28	MT17-1133	Locking Plate	2	50	MT14-1125	Hex Bolt, M22x1.5x50	16
29	MT17-1132	Spindle Nut, M70x2	4	51	MT14-1126	Hex Bolt, M22x1.5x32	4
30	MT17-1112	Bushing	2	52	191758	Grease Fitting	2
31	MT17-1113	Anti-dust Plug	2	53	MT22-1241	Bushing	4
				54	CT16-1151	Axle Shaft Assy, L.H., Long	1
					CT16-1152	Axle Shaft Assy, R.H., Short	1
						AR = As Required	

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## AXLE HOUSING CT16N/H/HX



# PLANETARY CT16N/H/HX



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 Assembly	20				
5	MT14-1028	Planet Gear	10				
6	MT14-1070	Fill Plug, Planetary Hub	2				
7	MT17-1213	Drain Plug, Planetary Hub	2				
8	MT14-1212	Sealing Ring	2				
9	MT14-1211	Threaded Stud	2				
10	11500773	Hex Bolt, M8x16-10.9	10				
11	11500191	Lockwasher, M8	10				
12	MT14-1029	End Cover	2				
13	MT17-1128	Planetary Gear Carrier (MT17N/H / CT16N/H/HX)	2				
14	MT14-1025	Planetary Ring Gear	2				
15	MT14-1026	Ring Gear Support Hub	2				
16	MT14-1207	Retaining Ring	2				
17	11500722	Hex Bolt, M10x25-1.5	8				
18	MT22-1154	Snap Ring	2				
19	MT14-1024	Sun Gear	2				
20	MT17-1156	Distance Ring	2				
21	MT17-1157	Friction Disc	2				
22	MT22-1157	Snap Ring	2				
23	MT22-1158A	Shim, .25 MM	AR				
	MT22-1158B	Shim, .50 MM					
	MT22-1158C	Shim, 2.00 MM					
24	MT22-1159	Friction Disc	2				
25	MT22-1153	Spacer	2				
		AR = As Required					

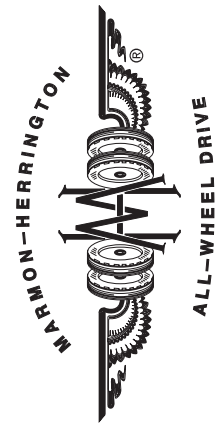
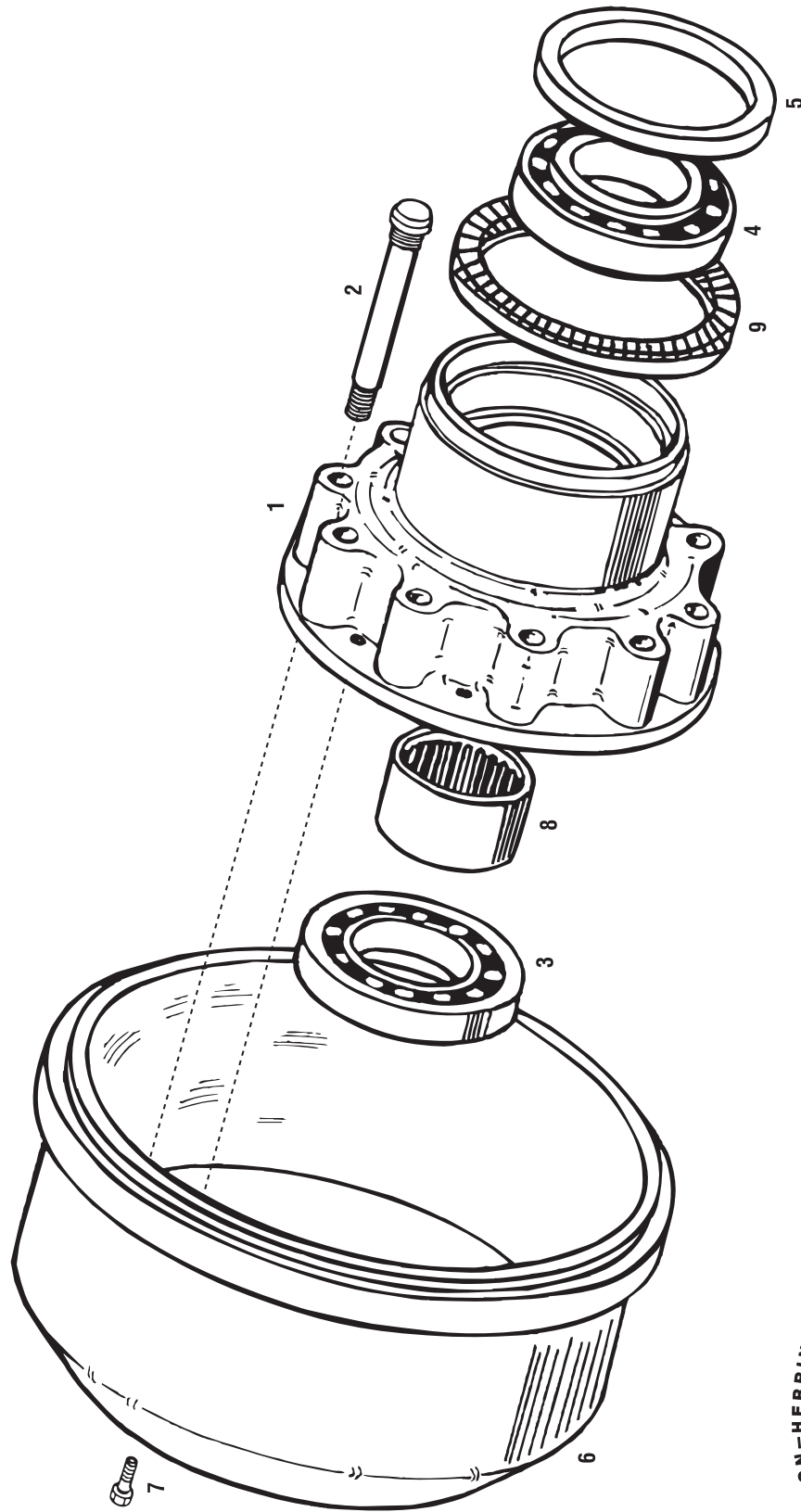


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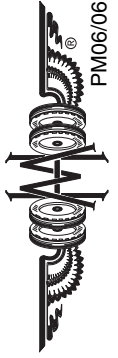
**PLANETARY  
CT16N/H/HX**

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# WHEEL HUB, BRAKE DRUM CT16N/H/HX



ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT17-1229	Wheel Hub Assembly, Left (MT17N / CT16N)	1				
	MT17-1230	Wheel Hub Assembly, Right (MT17N / CT16N)	1				
	MT17-1231	Wheel Hub Assembly (MT17H / CT16H)	1				
2	MT17-1026	Wheel Bolt, Left	10				
	MT17-1027	Wheel Bolt, Right	10				
	T15372	Nut, L.H.	10				
	T15371	Nut, R.H.	10				
	MT93-1251	Wheel Stud (ISO) Hub Mount (MT17H / CT16H)	20				
	MT93-1197	Flange Nut (ISO)	20				
	MT93-1631	Wheel Stud (ISO) Aluminum Wheel (MT17HX / CT16HX)	20				
	MT93-1838	Flange Nut (ISO) Aluminum Wheel (MT17HX / CT16HX)	20				
3	MT14-1206	Taper Roller Bearing	2				
4	MT14-1202	Taper Roller Bearing	2				
5	MT14-1201	Oil Seal	2				
6	MT17-1016W	Brake Drum	2				
7	11500725	Hex Bolt, M10x35-10.9	8				
8	MT14-1204	Distance Sleeve	2				
9	MT75-9625	Exciter Ring (ABS)	2				
		AR = As Required					

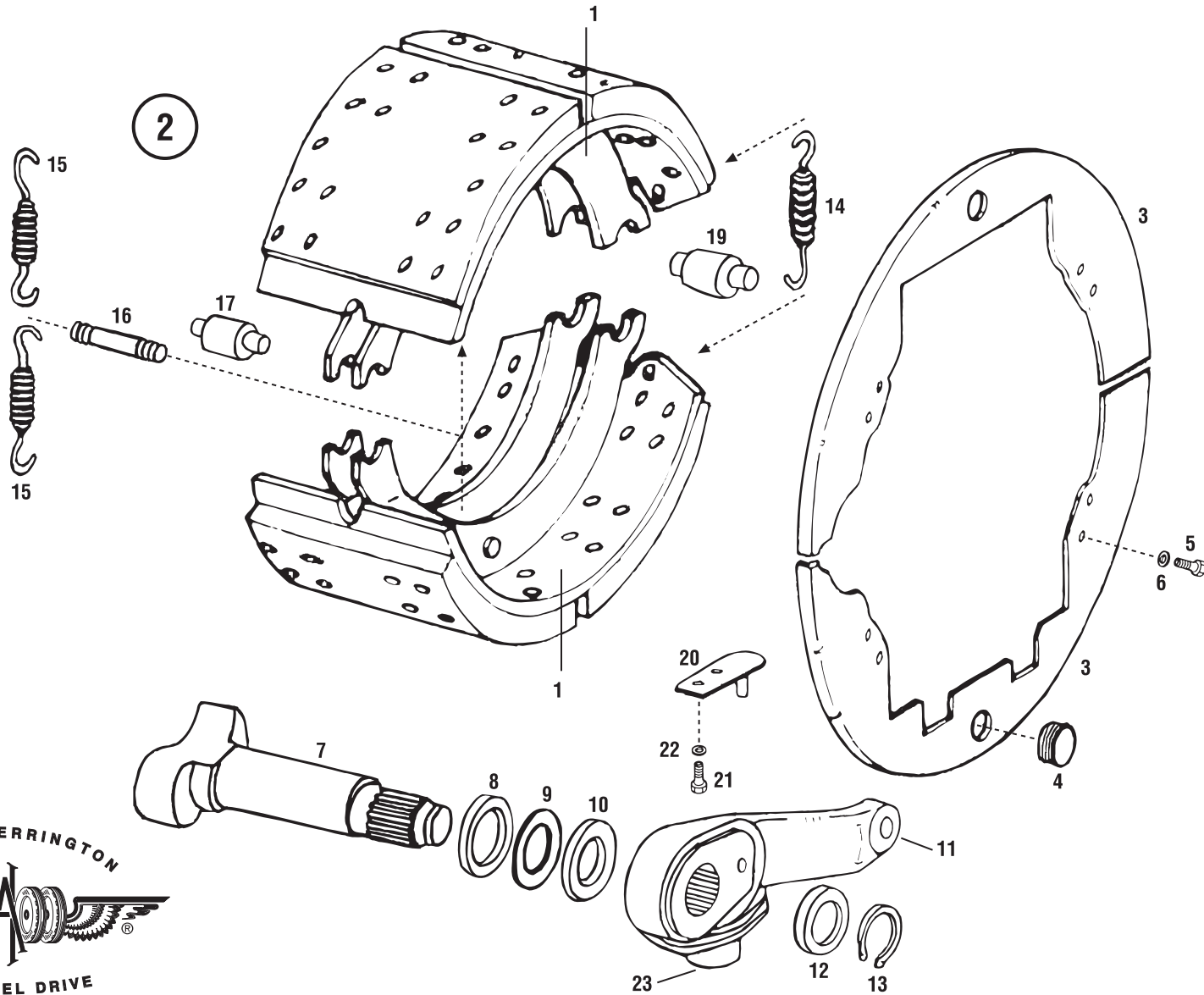


**WHEEL HUB, BRAKE DRUM  
CT16N/HX**

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# BRAKE CT16N/H/HX



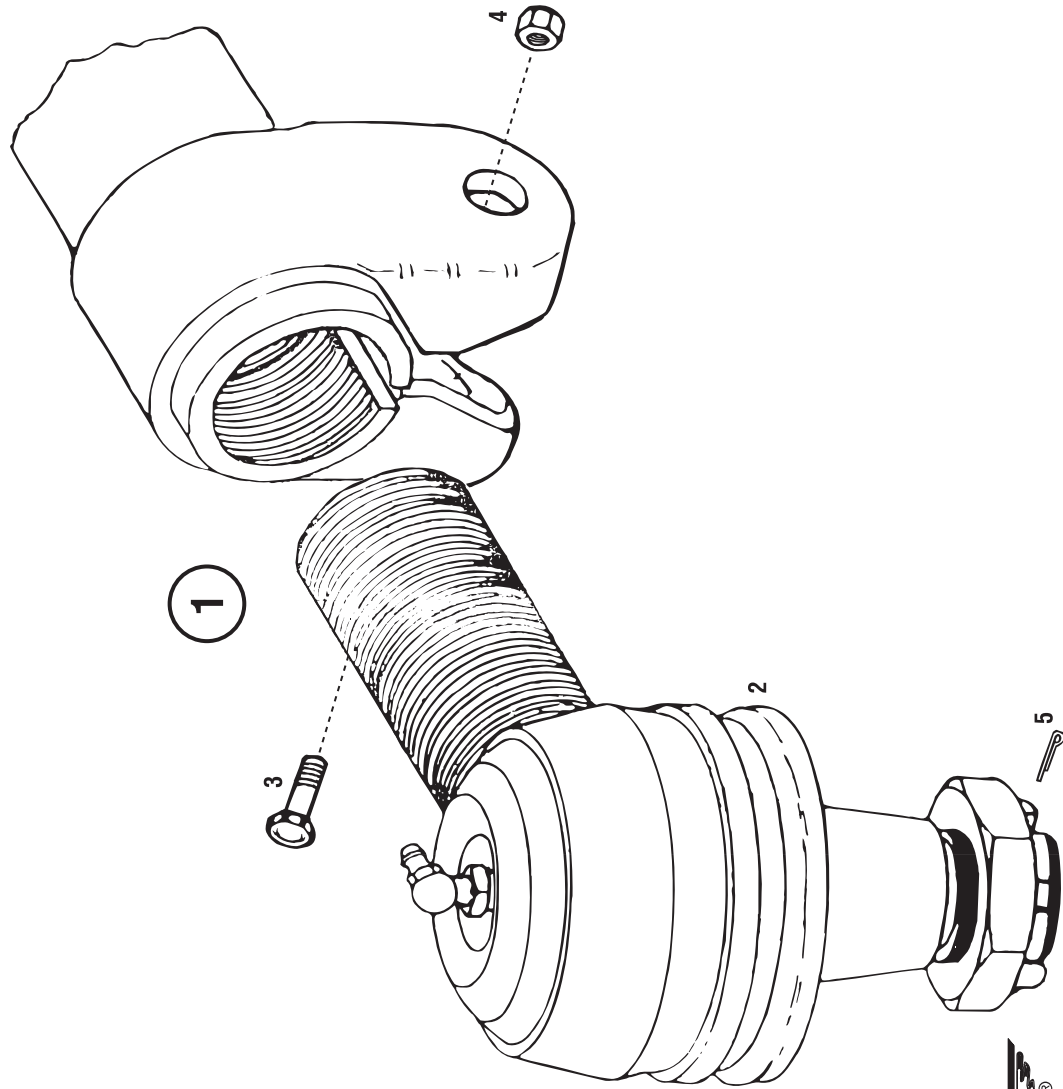
ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT17-1255	Brake Shoe Kit (Includes Item #2)	2				
2	MT17-1251	Brake Spring and Roller Kit (Includes Item #'s 14, 15, 17, 19)	2				
3	MT17-1148	Dust Shield, L.H. Set	1				
	MT17-1149	Dust Shield, R.H. Set	1				
4	MT14-1150	Rubber Plug	4				
5	11500777	Hex Bolt, M10x15-5.6	16				
6	11500192	Flat Lock Washer	16				
7	MT17-1146	Brake Spanner, Left	1				
	MT17-1147	Brake Spanner, Right (Not Shown)	1				
8	MT14-1145	Spacer	2				
9	MT14-1143	Washer	2				
10	MT22-1199	Shim, 0.5 mm	AR				
11	MT22-1237	Slack Adj., Left	1				
	MT22-1238	Slack Adj., Right (Not Shown)	1				
12	MT17-1142	Washer	4				
13	MT17-1141	Snap Ring	2				
14	MT22-1177	Brake Shoe Spring, Long	4				
15	MT14-1157	Brake Shoe Return Spring, Short	2				
16	MT14-1158	Spring Support Pin	4				
17	MT22-1178	Brake Shoe Roller	4				
19	MT22-1243	Brake Shoe Pin	4				
20	MT17-1143	Stop, Left	1				
	MT17-1144	Stop, Right	1				
21	11500773	Hex Bolt, M8x16-1.25	4				
22	11500191	Flat Lock Washer	4				
23	MT22-1246	Adjusting Cap, L.H.	1				
	MT22-1247	Adjusting Cap, R.H.	1				
		AR = As Required					

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**BRAKE  
 CT16N/H/HX**



# TIE-ROD CT16N/H/HX



ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.	ITEM NO.	MH PART NO.	DESCRIPTION	QTY. REQ.
1	MT10-1127A	Tie-Rod Assembly	1				
2	MT10-1128	Ball Joint Head, Left	1				
	MT10-1129	Ball Joint Head, Right	1				
3	11500735	Hex Bolt, M12x1.75x65-10.9	2				
4	11500756	Self-locking Nut, M12x1.75	2				
5	103411	Cotter Pin, 3/16x2	2				



**TIE-ROD  
CT16N/H/HX**

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