1965-72 GENERAL MOTORS 5200-7200 LB.

DESCRIPTION

Full floating hypoid gear type with two piece, four pinion differential. Differential is mounted in removable housing for easier servicing.

AXLE RATIO & IDENTIFICATION

Axle ratio code is stamped on upper, front part of differential carrier. Code identifies ratio and whether differential is of conventional or locking type. Other information stamped on carrier includes build date codes and assembly plant code.

AXLE RATIO CODES

CHEVROLET & GMC

1965

Axle Ratio	Conventional	Locking
4.11-1	HW	
4.57-1	HU,HX,HZ,IA	HV,HY,IB
5.14-1	IC,ID,IH	IE,IF,II

1966

Axle Ratio	Conventional	Locking
4.57-1	HU,HX,HZ,IA JN,JS,JT,LW	HV,HY,IB
5.14-1	IC,ID,IG IH,LU,LV	IE,IF,II

1967

Axle Ratio	Conventional	Locking
4.11-1	MZ,NA,NB	JQ
4.57-1	HU,HX,HZ,IA JN,JS,LW,MC MP,MW,MY,ND	HV,HY,IB
5.14-1	IC,ID,IG,LU,LV MO,MR,MS,MV	IE,IF,II MQ,MT,MU

1968

Axle Ratio	Conventional	Locking
3.73-1	MT	MU
4.10-1	OT,TM,TN,TP	
4.11-1	HW,IH,JU,LJ,LN MC,MW,MZ, NZ	IE,LX,LZ,MM
4.57-1	HU,HX,HZ,IA IG,JS,JT,LW MC,MV,ND,NW OU,TJ,TK,TL	HV,HY,IB,VL VM,VN,VO

1969

Axle Ratio	Conventional	Locking
3.73-1	MT	MU
4.10-1	HW,IE,IH,JU,LJ,LX LZ,MW,MZ,NA,NB,NZ OT,OW,OY,TM,TN,TP	
4.11-1	LN,ML	MM
4.57-1	HU,HV,HX,HY,HZ,IA IB,IG,JS,JT,LW,MC MV,ND,NW,OU,TJ,TK TL,UN,VC,VL,VM	
5.14-1	ID,IF,LV,LY TO,TX,TY,VS	

1970

Axle Ratio	Conventional	Locking
4.10-1	TAA,THU,THW TIH,TJU,TLJ TMW,TMZ,TNA TNB,TNZ,TOT TPW,TRN,TTM TTP	TIE,TLN,TLX TLZ,TMR,TPB TPX,TTF,TTN TWI
4.56-1	TYS	TVO
4.57-1	TGA,THX,TIA TIG,TJS,TJT TLW,TML,TMV TMY,TNW,TOU TPA,TPZ,TTJ TTK	TGB,THV,THY TIB,TPC,TTL TVL,TVN
5.14-1	TID,TLV TTO,TVT	TIF,TLY,TVF TVI,TVS

1971

Axle Ratio	Conventional	Locking
3.54-1	TKD,TKH,TKP	TKG,TKJ,TKR
4.10-1	TDB,TGB,TGG TJB,TJH,TJP TJS,TKK,TKS TPZ	TJA,TJJ,TJK TKL,TPY
4.56-1	TKW,TRA,TRC TRD,TRG	
4.57-1	TDA,TDC,TGA TGH,TGJ,TGK TGL,TJC,TJD TJR,TJT,TJW	THR,TJG,TPX
5.14-1	TGP	TJL

1972

Axle Ratio	Conventional	Locking
3.54-1	RKD,RKH,RKP,RKR	RKG,RKJ
4.10-1	RAJ,RAK,RAP RGB,RGK,RJB RJH,RJK,RJP RJS ,RKB,RKK RKS,RPZ	RAH,RAL,RGG RJA,RJJ,RKC RKL,RKT,RPY
4.11-1	RKY	RKZ
4.56-1	RGH,RKW,RKX RRA,RRC,RRG	RRB,RRD,RRH
4.57-1	RAC,RAG,RDA RDC,RGA,RGJ RGL,RHR,RJC RJD,RJG,RJR RJT,RJW	RAB,RAD RHP,RPX
5.14-1	RAR,RGP,RGW,RRL	RJL
5.43-1	RRY	

REMOVAL & INSTALLATION

AXLE SHAFTS

Remove axle shaft attaching bolts from wheel hub and install two ½"-13 bolts in holes provided in axle flange. Tighten these bolts alternately and evenly to begin axle shaft removal, then withdraw shaft from housing and hub. To install, reverse removal procedure, using new gasket and tightening attaching bolts to 85-95 ft. lbs.

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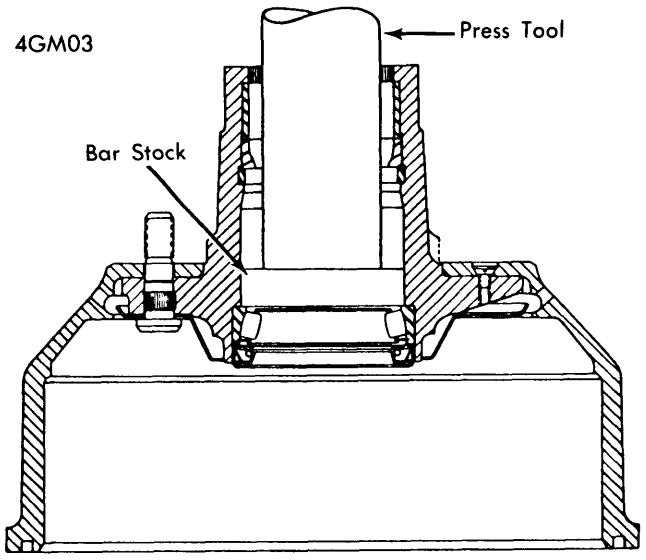
WHEEL HUB & SEAL

Remove axle shaft, then remove lock nut, tanged nut lock, adjusting nut and thrust washer from axle housing. Pull hub and drum assembly straight off axle housing. Pry old oil seal from wheel hub, using care not to damage bore surface. Thoroughly clean seal contact area, then pack cavity between seal lips with high melting point wheel bearing lubricant. Position seal in hub bore, then carefully press seal into hub bore using suitable tool (J-22351) until seal is flush with end of hub. Install hub onto axle housing and install axle shaft.

NOTE — Hub oil seal should be replaced whenever hub is removed from axle housing.

WHEEL BEARINGS

Using suitable length of ½ inch bar stock as press-out tool, place tool behind inner bearing cup, index tool in notches in hub, then press out cup using an arbor press. To install inner bearing, place bearing cup in hub with thick edge of cup toward shoulder in hub. Using suitable tool (J-8114 & J-8092), press cup into hub until it is fully seated against shoulder in hub without being cocked in bore. *NOTE — Inner bearing must be removed in order to replace outer bearing.* Use a punch to drive outer cup away from bearing retaining ring, then remove retaining ring from hub. Drive bearing out of hub using a brass drift. To install, place retaining ring into hub and press cup into hub until it is in full contact with ring. Install hub onto axle housing, then using suitable tool (J-2222), tighten adjusting nut to 50-60 ft. lbs. Back off adjusting nut ⅛ turn and install tanged nut lock such that short tang of nut lock engages nearest slot on adjusting nut. Install outer lock nut and tighten to 175 ft. lbs.



INNER WHEEL BEARING REMOVAL

PINION FLANGE & SEAL

Disconnect propeller shaft and tie it out of way. Mark pinion flange for reassembly reference, then remove pinion flange and deflector. Remove oil seal retainer attaching bolts and oil seal retainer. Pry oil seal from retainer bore, clean seal contact area, and pack cavity between seal lips with high melting point bearing lubricant. Position seal on suitable installer (J-22281) such that seal shoulders against installer drive surface. Press seal into retainer until it bottoms against shoulder. Install retainer, pinion flange, and propeller shaft by reversing removal procedure.

DIFFERENTIAL CARRIER

Drain lubricant, then remove axle shafts and axle housing cover. Remove trunnion bearing "U" bolts and split universal joint. Tie propeller shaft out of way and remove carrier-to-housing attaching bolts, then carefully remove carrier assembly from axle housing. To install, reverse removal procedure.

OVERHAUL

DISASSEMBLY

NOTE — Before disassembling differential assembly, check and record ring gear backlash, and side bearing preload.

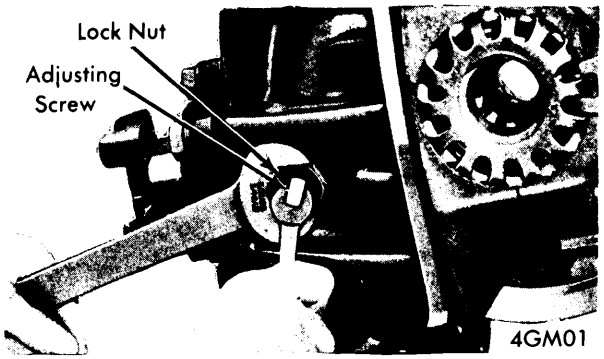
1) Remove side bearing cap bolts, caps, and adjusting nuts. Remove differential case from carrier, making sure outer cups, bearing caps and adjusting nuts from each side are kept together. Remove ring gear and side bearings from differential case. Split differential case and remove differential spider, differential pinion gears, side gears and thrust washers from case.

2) Remove pinion oil seal retainer and pinion gear and bearing assembly from carrier. Remove shims from carrier and note number and thickness of shims removed. Use a soft drift or punch to drive rear pinion bearing from its seat in carrier.

REASSEMBLY & ADJUSTMENT

Case Assembly — 1) Lubricate differential pinion gears, side gears and thrust washers, then place pinion gears and thrust washers on differential spider. Install side gears and spider assembly into left half of differential case, then assemble two havlves of case, making sure alignment marks on both halves are together.

2) Install two guide pins in ring gear, directly opposite each other. Start guide pins through holes in case flange and tap ring gear lightly with soft face hammer until ring gear attaching bolts can be started. Tighten bolts evenly until ring gear is flush with case flange. Remove two guide pins and tighten all ring gear bolts alternately and evenly.



RING GEAR THRUST PAD ADJUSTMENT

Pinion Depth — 1) Place selected pinion shim in bore in carrier and install pinion and retainer assembly. Install pinion seal retainer bolts and tighten evenly. *NOTE — If original gears are used, use new shims of same thickness as those removed. If new gears used, use .021" shim for standard starting set up.*

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2) Lubricate differential bearing rollers with engine oil and place outer races over bearings. Install differential assembly and adjusting nuts in carrier, then install differential bearing caps. Adjust ring gear backlash, then make tooth contact pattern test.

3) Examine contact pattern carefully. If pattern not satisfactory, remove pinion and retainer assembly and change shims as necessary. Repeat adjustment procedure until a satisfactory pattern is obtained. *NOTE — Changing pinion depth will change ring gear backlash, therefore it is necessary to readjust backlash whenever pinion shim is changed.*

Backlash & Final Assembly — 1) Install differential case assembly, side bearing caps and bearing adjusting nuts in carrier. With bearing caps loosened to permit turning of adjusting nuts, adjust bearings to remove all backlash from ring gear and pinion.

2) Loosen left adjusting nut one or two notches to a locking position, then tighten right adjusting nut to force differential against left adjusting nut. Back off right adjusting nut slightly, then retighten snugly against bearing. Tighten right nut additional one or two notches to a locking position. *NOTE This adjustment provides for proper side bearing preload.*

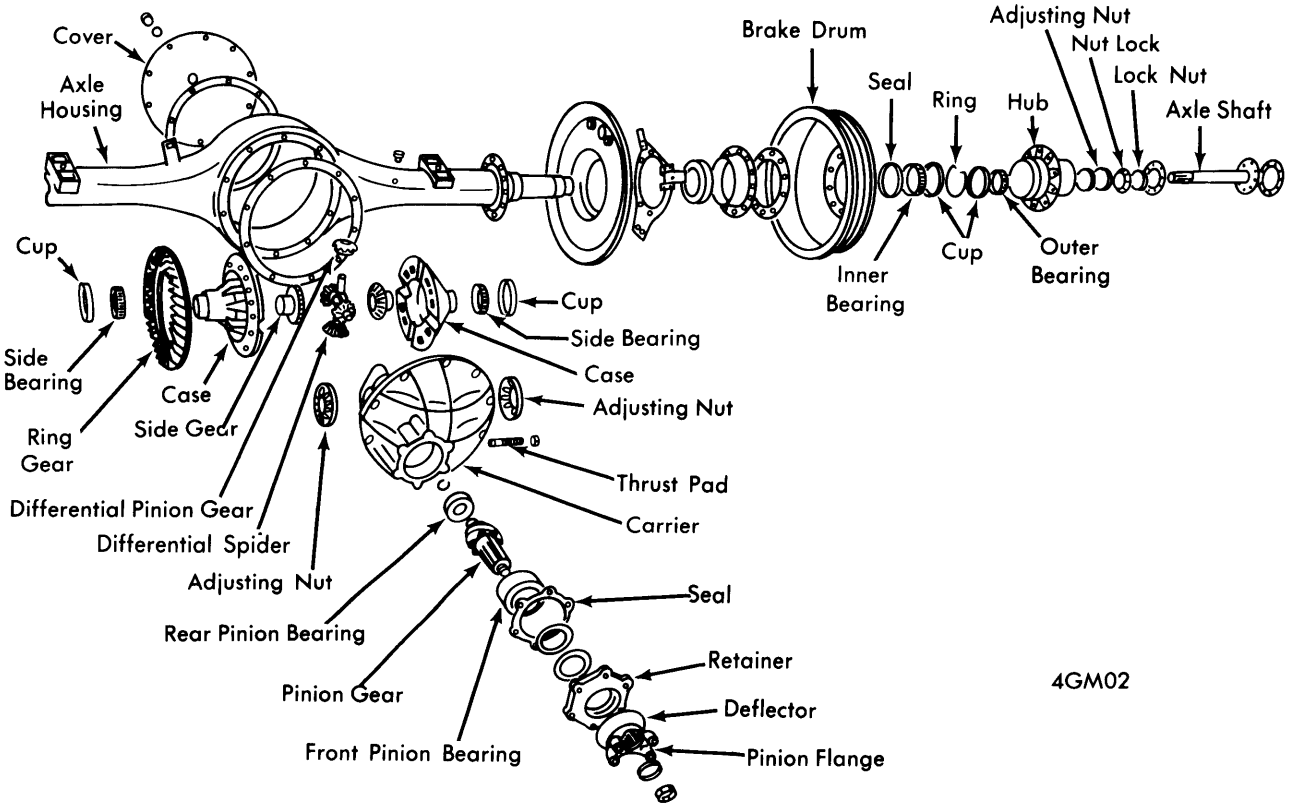
3) Mount dial indicator to carrier and check backlash at four locations around ring gear. Adjust backlash to specifications and tighten bearing cap bolts. Install side bearing adjusting nut locks and check tooth contact pattern. Install Ring Gear Thrust Pad and tighten until pad just touches back face of ring gear while rotating gear. Back off screw 1/12 turn and tighten lock nut.

AXLE ASSEMBLY SPECIFICATIONS

Ring Gear Backlash	
Preferred	.005-.008"
Acceptable	.003-.012"
Thrust Pad Clearance	.005-.007"
Nominal Pinion Shim Thickness	.021"

TIGHTENING SPECIFICATIONS

Application	Torque (Ft. Lbs.)
Ring Gear	110
Side Bearing Cap	100
Drive Pinion Nut	220
Carrier	45
Differential Bearing Adjusting Lock	15
Thrust Pad Lock Nut	135
Housing Cover	18



GENERAL MOTORS CORP. SEPARATE HOUSING AXLE ASSEMBLY