1965-74 GENERAL MOTORS 2400-3600 LB.

DESCRIPTION

Semi-floating overhung hypoid gear type with one piece, two pinion differential. Axle housing is integral (Salisbury-Type) with semi-floating axle shafts.

AXLE RATIO & IDENTIFICATION

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

AXLE RATIO CODES

CHEVROLET & GMC

1965

Axle Ratio	Conventional	Locking
3.07-1	HB	
3.36-1	HI	HM
3.55-1	AV, AX	AW, AY
3.73-1	HA, HE, HF HJ, HQ, HT	HG, HN, HS
4.11-1	HD, HH, HK HL, HR	HO, HP

1966

Axle Ratio	Conventional	Locking
3.07-1	HB	
3.36-1	HI	HM
3.73-1	HA, HF, HJ, HQ, HT	HC, HG HN, HS
4.11-1	HD, HH, HK, HL, HR	HO, HP, JQ

1967

Axle Ratio	Conventional	Locking
3.07-1	HB	
3.36-1	HI	HM, MH
3.73-1	HA, HJ, HQ HT, MD, ME	HC, HN HS, MJ
4.11-1	HD, HK, HL HR, MF, MG	HO, HP MI, MK

1968

Axle Ratio	Conventional	Locking
3.07-1	HB, LL, RA, TR, TT	
3.36-1	HI, MD	HM, MH
3.73-1	HA, HJ, HQ MF, TQ	HC, HN MJ, TU
4.11-1	HK, HL, HR ME, MG, TS	HO, HP, JQ MI, MK, TV

1969

Axle Ratio	Conventional	Locking
3.07-1	HB, LL, RA, TR, TT	
3.36-1	HI, MD	HM, MH
3.73-1	HA, HJ, HQ ME, TQ	HC, HN MJ, TU
4.11-1	HL, HR, MF MG, TS	HO, HP, JQ JU, MI, MK

1970

Axle Ratio	Conventional	Locking
3.07-1	TCA, TDC, TDD TDE, TDI, TJX TJY, TPD, TPL	TDG, TDS, TPE TPH, TPI, TPJ TPO, TPP, TPR
3.08-1	TDK	TDL
3.36-1	TDM, TDV	TDN, TDW
3.73-1	TDA, TDF, TDH TDO, TDT	TDP, TDU, TPF TPK, TPM
4.11-1	TDB, TDJ, TDQ	TDR, TPG, TPN

1971

Axle Ratio	Conventional	Locking
3.07-1	TDD, THA, THH THS, TPG TRR, TRT	TDG, THB, THJ THT, TPH TRS, TRW
3.36-1	TPR	TPS
3.54-1	TJX, TJZ	TJY, TKA
3.73-1	TAA, THC, THK THW, TPJ TPT, TPW	THL, THX, TPK
4.11-1	THD, THY, TPL	THG, THZ, TPP
4.57-1		TAB, THP

1972

Axle Ratio	Conventional	Locking
3.07-1	RAY, RGR, RHA RHS, RRR, RRT	RAZ, RGS, RHB RHT, RRS, RRW
3.40-1	RGC	
3.73-1	RAW, RHC RHW, RPT	RAA,RAX RHX, RPW
4.11-1	RHD, RHY, RHZ	RHG

1973

Axle Ratio	Conventional	Locking
3.07-1	TAA, TAC TAH, RGR	RGS, RPG, RPH TAB, TAD, TAJ
3.40-1	RGC, RGX TAM, TAS	RGD, RGY TAR, TAT
3.73-1	RPT, TBA TBC, TBH	RJX, RJY, RPW TBB, TBD, TBJ
4.11-1	RPL, TBS TBT, TBZ	RPP, TBU, TCA

1974

Axle Ratio	Conventional	Locking
3.07-1	KAC, KAH, KAK KAX, TAA, TAH	KAD, KAJ, KAS KAU, KAZ, TAB TAJ
3.40-1	KDC, KDS, KDU KDX, TAM	KDT, KDW, TAR
3.73-1	KBC, KBH, KBJ KBK, KBR, KBY TBA, TBH	KBD, KBJ, KBM KBS, KBU, KBZ TBB, TBJ
4.11-1	KCB, KCC, KCE KCM, KCW TBT, TBZ	KCA, KCD, KCU TBU, TCA

REMOVAL & INSTALLATION

AXLE SHAFTS & BEARINGS

Raise vehicle on hoist and remove wheel and tire assembly and brake drum. Drain lubricant and remove housing cover.

1965-74 GENERAL MOTORS 2400-3600 LB. (Cont.)

Remove differential pinion shaft lock screw and pinion shaft, then push flanged end of axle shaft toward center of vehicle and remove "C" lock from splined end of axle shaft. Remove axle shaft. Insert suitable tool (J-8119) into bore in axle housing and position behind bearing such that tool engages bearing outer race. Remove bearing, using slide hammer attached to tool (J-8119). To install, seat new bearing against shoulder in housing bore and reverse removal procedure.

PINION FLANGE & SEAL

1) Raise rear of vehicle and allow axle assembly to hang free. Disconnect rear universal joint and tie propeller shaft out of way. Note and record pinion bearing preload by rotating pinion shaft through several revolutions using an INCH lb. torque wrench, then mark relationship of pinion flange and shaft for reassembly. Remove pinion nut, washer, and flange, then pry seal out of housing. If deflector is being replaced, tap deflector from flange, clean stake points, and stake new deflector at three equally spaced locations around flange.

2) Pack seal lip cavity with lithium-base extreme pressure lubricant and install seal squarely into housing until seal seats against internal shoulder. Install companion flange, washer, and NEW pinion nut. Tighten nut until end play is removed, then tighten in small increments, while checking bearing preload, until preload is same as noted before removal. Connect propeller shaft.

CAUTION — Do not attempt to hammer flange onto pinion shaft, as it will damage ring gear and pinion.

AXLE ASSEMBLY REMOVAL

Raise vehicle and support axle assembly so that tension is relieved on springs, tie rod and shock absorbers. Disconnect propeller shaft and tie out of way. Disconnect tie rod, shock absorbers, axle vent hose, parking brake cables and hydraulic brake hose. On vehicles with coil springs, compress springs. Remove axle "U" bolt nuts, "U" bolts, spacers and clamp plates. Lower axle assembly and roll out from under vehicle. To install, reverse removal procedure, and tighten all bolts fully after weight of vehicle is supported by suspension components.

OVERHAUL

DISASSEMBLY

NOTE — Check and record ring gear backlash and pinion bearing preload before disassembly.

Remove axle shafts, differential pinions, side gears and thrust washers. Mark side bearing caps for reassembly reference, remove caps and pry differential case from housing. Remove differential bearing cups and shims and place with correct bearing cap. Remove ring gear from case. Remove pinion nut, pinion flange, and seal, then remove pinion shaft and front bearing. Remove pinion bearing cups from housing with suitable drift or punch. Press pinion shaft out of rear bearing and note thickness of depth shim pack.

REASSEMBLY & ADJUSTMENT

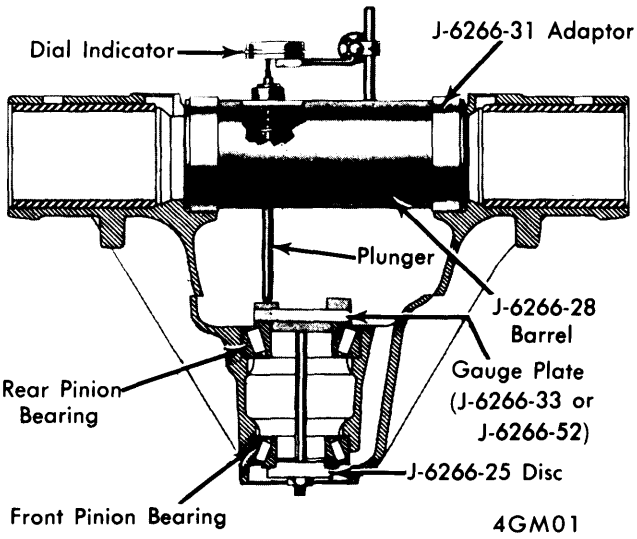
Case Assembly — Install ring gear squarely (use guide pins if necessary) onto case and tighten ring gear bolts evenly and alternately. Install side gears, differential pinions and thrust washers into case. Install differential pinion shaft and lock screw and tighten lock screw.

Pinion Depth & Bearing Preload (1965-72) — If original parts are being reinstalled, use original shim pack and complete installation as described below. If new parts are being installed, proceed as follows:

1) Install bearing cups squarely against housing shoulders. Lubricate bearings, install in housing, and assemble suitable tool set (J-6266) as shown in illustration, using gauge plate (J-6266-33) for 1965-67 axles or (J-6266-52) for 1968-72 axles.

2) Tighten tool clamp screw to obtain pinion bearing preload of 20 in. lbs. Barrel plunger must be adjusted to rest on lowest step of gauge plate. With barrel plunger away from gauge plate, zero dial indicator, then move plunger across gauge plate and note reading. Subtract indicator reading from mark on pinion gear (Example - mark of 46 is .046"). *NOTE — If no markings are found on shim, it is considered "nominal" and is therefore .045".*

3) Install appropriate shim pack onto pinion shaft, and press rear bearing into place. Install pinion shaft and front bearing into carrier, using a NEW collapsible spacer between bearings. Install seal, pinion flange and nut and tighten nut to remove end play. Continue to tighten nut in small increments until specified preload is obtained. *CAUTION — Do not back off nut to obtain proper preload.*



PINION DEPTH TOOL SET J-6266 (INSTALLED)

Pinion Depth & Bearing Preload (1973-74) — 1) Drive pinion rear bearing shim thickness, controlling pinion depth of mesh with ring gear, must be determined whenever a new axle housing, ring and pinion set, or pinion bearings and cups are installed. Depth of mesh is determined by using suitable gauging tool (J-21777).

2) If removed, install pinion bearing cups into housing, then place lubricated pinion bearings into cups. Position gauge plate (J-21777-36) and rear pinion bearing pilot (if used) on preload stud, then install through rear pinion bearing and through front pinion bearing and front pinion bearing disc (J-21777-42). Install hex nut until snug, then rotate bearings to insure proper seating. Hold preload stud stationary with a wrench on flats, then tighten hex nut until 20 in. lbs. are required to rotate bearings.

1965-74 GENERAL MOTORS 2400-3600 LB. (Cont.)

3) Mount side bearing gauging discs (J-21777-45) on ends of arbor, then place arbor into carrier making sure discs are properly seated. Install side bearing caps and bolts, then tighten bolts to avoid movement. Position dial indicator on mounting post of arbor, with contact button resting on top surface of plunger. Preload dial indicator ½ revolution, then tighten in this position.

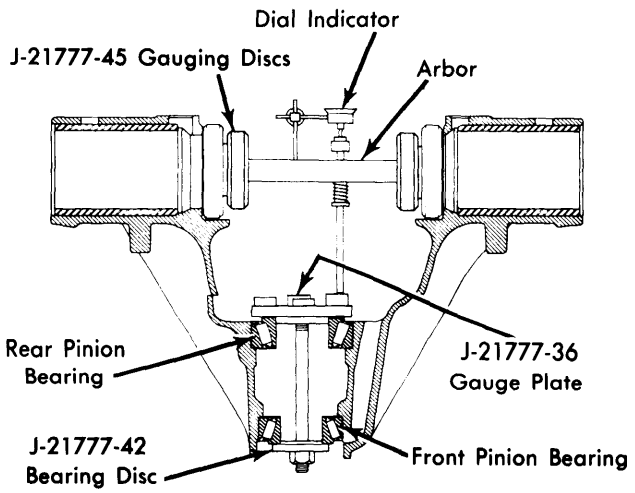
4) Place plunger onto gauging area of gauge plate. Rock plunger rod slowly back and forth across gauging area until dial indicator reads greatest deflection, then set indicator to zero. Repeat rocking action several times to verify setting. Once zero reading is obtained, swing plunger until it is removed from gauging area. Dial indicator will now read required pinion shim thickness for a "nominal pinion". Record this reading.

5) Check drive pinion for painted or stamped markings on pinion stem, or a stamped code number on small end of pinion gear. If marking is found to be plus or minus number (for example, +2 or −5) add or subtract that many thousandths from indicator reading. This will then be thickness of rear pinion bearing shim pack. *NOTE − If no markings are found on pinion, use dial indicator reading as shim thickness.*

6) If marking is found to be a code number, see following chart, then add or subtract correct number of thousandths from dial indicator reading. *NOTE − All production pinions are "nominal" pinions and may not be marked "45".*

Pinion Code	Correction Required
40	Subtract .005"
41	Subtract .004"
42	Subtract .003"
43	Subtract .002"
44	Subtract .001"
45	No Correction
46	Add .001"
47	Add .002"
48	Add .003"
49	Add .004"
50	Add .005"

7) Remove bearing caps and gauging tool from housing. Place selected shim pack on pinion gear, then install lubricated pinion bearing onto pinion gear shaft using suitable press.



PINION DEPTH TOOL SET J21777 (INSTALLED)

8) Install a new collapsible spacer over pinion gear shaft, then position pinion assembly in housing. While holding pinion forward, carefully drive front pinion bearing onto pinion gear shaft until a few threads are exposed. Install seal, pinion flange, washer and nut, and tighten until all end play is removed. Rotate pinion several times to seat bearings, then check preload using an INCH lb. torque wrench. Continue tightening nut and checking preload until specified preload is obtained. *CAUTION − Do not back off nut to lessen preload. If preload is exceeded, a new collapsible spacer must be installed and nut retightened until proper preload is obtained.*

Side Bearing Preload − Install differential assembly into housing. If original bearings and differential case are reused, use a shim pack .002" thicker (each side) than original shim pack. *NOTE − Always replace production shims with .170" service spacer and appropriate additional shims.* If new parts are being installed, determine correct preload as follows: Select two shims whose total thickness will permit a feeler gauge at least .010" thick to be inserted between shim and cup and install these shims between right bearing cup and carrier cup seat. Loosely install left bearing cap. With left bearing cup and differential case against left cup seat, measure distance between right side shims and cup seat (insert progressively larger feeler gauges until there is a snug, not tight, fit). Add .008" to total of both shim pack and feeler gauge thickness. This is total shim pack necessary for correct bearing preload. Divide shims equally between both sides and install. With bearing caps in place, tighten bolts alternately and evenly.

Backlash & Final Assembly − Check backlash at four locations around ring gear, using a dial indicator mounted to axle housing. Variation should not exceed .001". If backlash is not within specifications, adjust side bearing shims as necessary. *CAUTION − Total shim pack thickness must not be changed. If a shim is removed from one side, the same thickness shim must be added to other side.* After adjustment is completed, make a tooth contact pattern test and make any necessary corrections. Install axle shafts, wheels and housing cover.

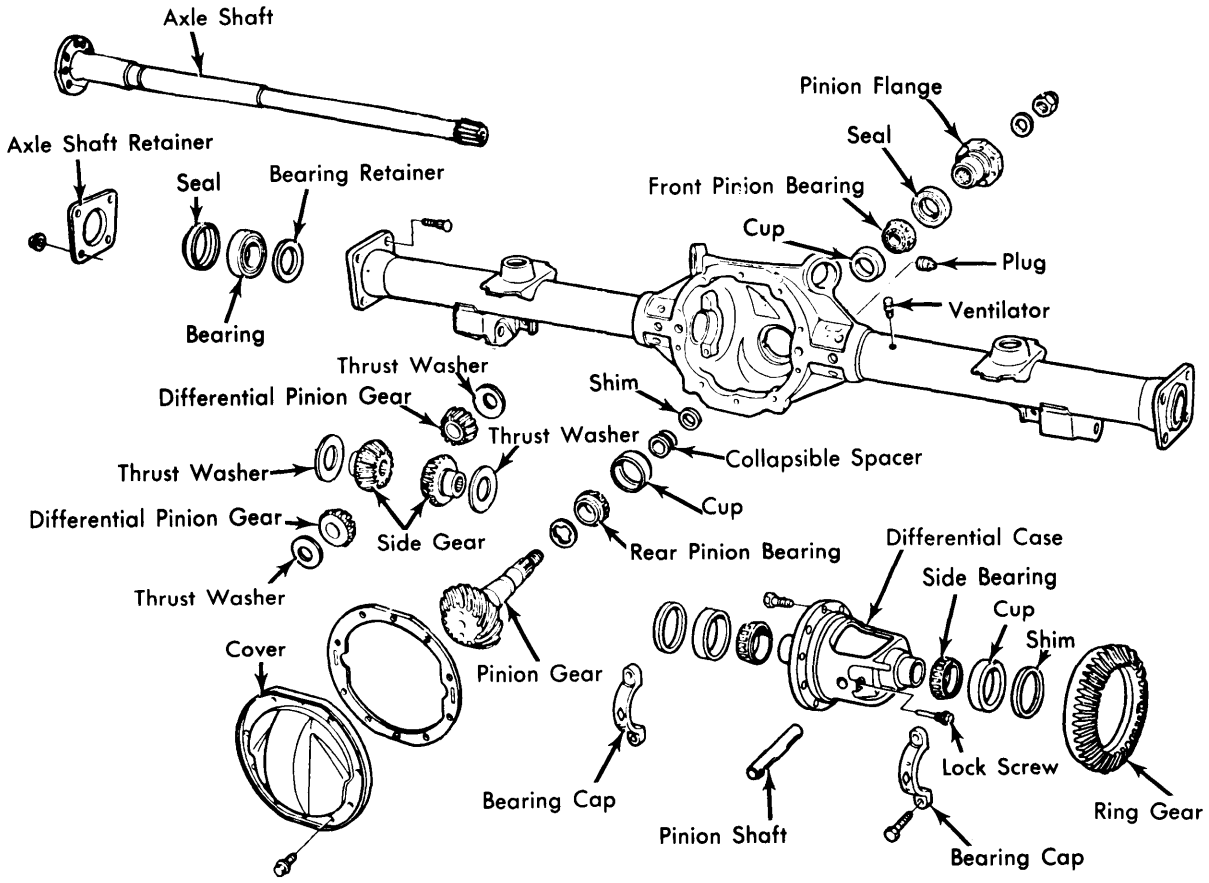
AXLE ASSEMBLY SPECIFICATIONS

Ring Gear Backlash	
Preferred	.005-.008"
Suitable	.003-.010"
Side Bearing Preload	Slip Fit Plus .008"
Pinion Bearing Preload	
New Bearings	20-25 in. lbs.
Used Bearings	5-15 in. lbs.

TIGHTENING SPECIFICATIONS

Application	Torque (Ft. Lbs.)
Ring Gear	50
Side Bearing Cap	55-60
Pinion Shaft Lock Bolt	20-25
Housing Cover	20-23

1965-74 GENERAL MOTORS 2400-3600 LB. (Cont.)



4GM03

GENERAL MOTORS CORP. INTEGRAL HOUSING AXLE ASSEMBLY