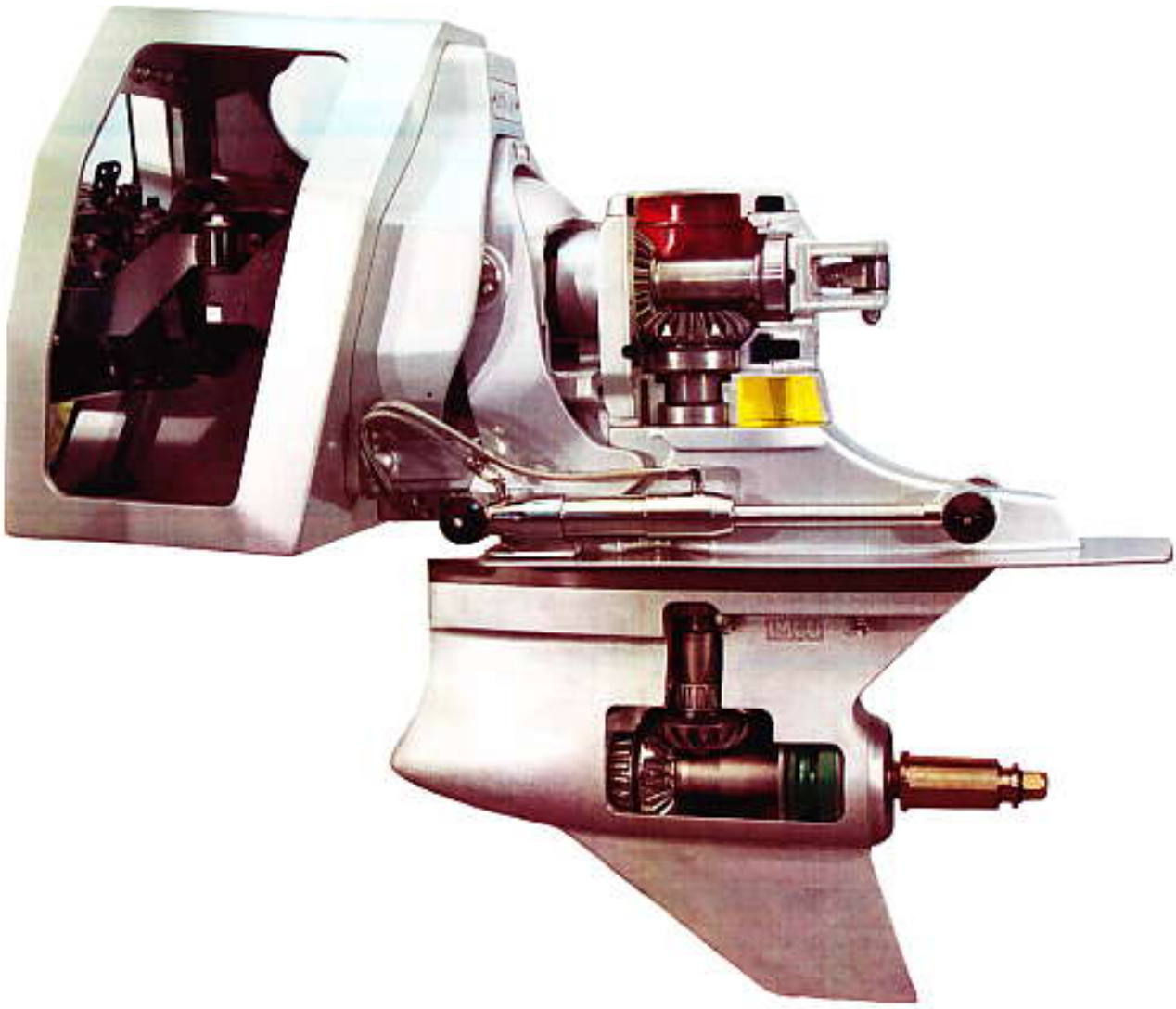
XTREME ADVANTAGE SCT

Parts and Service Manual



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Serial Number _____

Date of Purchase _____

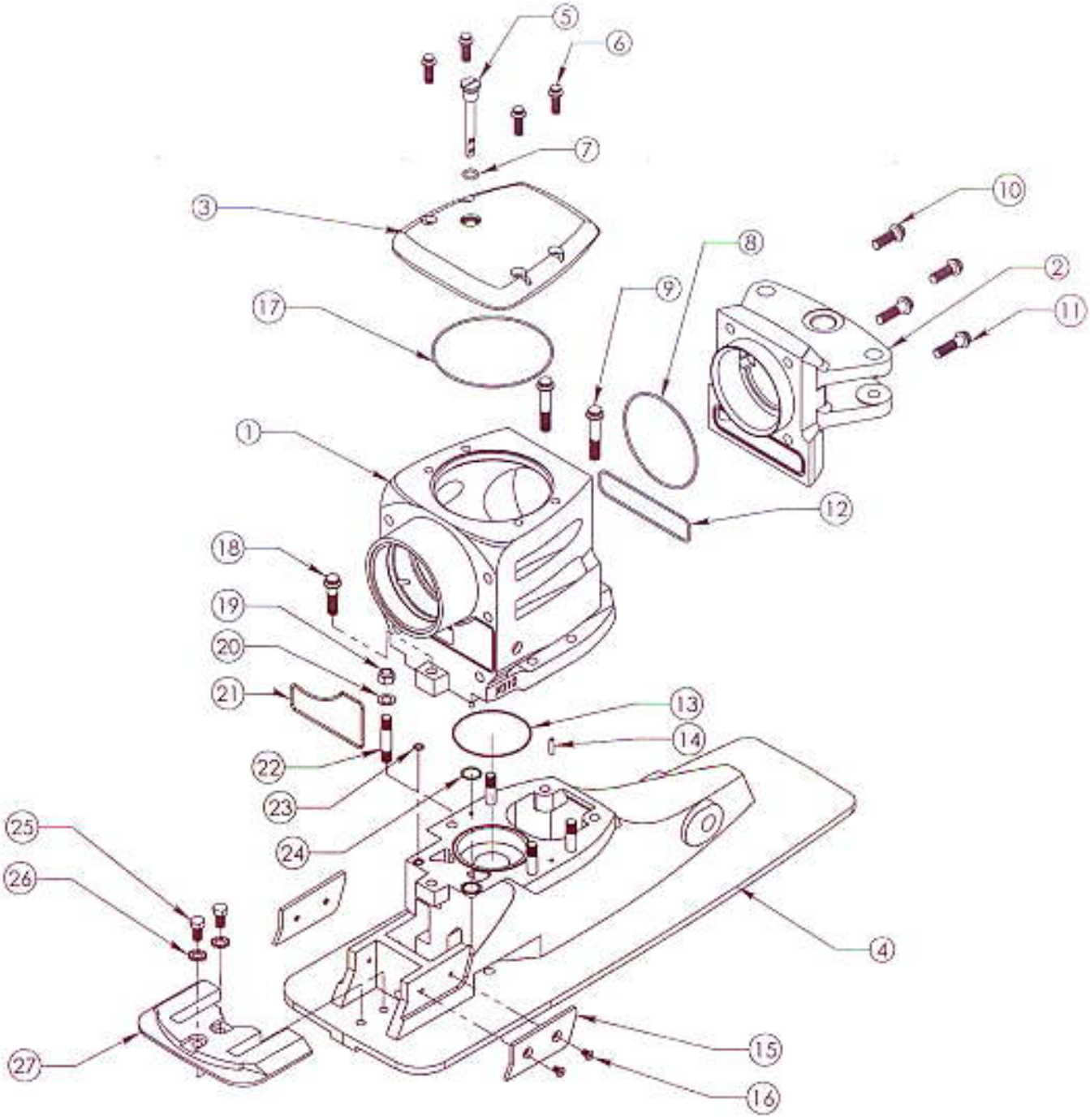
Purchased From _____

UPPER GEARHEAD – DISASSEMBLY

NOTE: The following instructions assume that the drive has been removed from the transom assembly. The lower unit has also been removed, along with the drive shaft, center socket, and U-joints. Brackets following the part name represent the drawing figure # and Item #.

1. Remove the upper cap [1-3] and steering cap [1-2].
2. Remove the upper case [1-1] from midsection[1-4].
3. Remove the pinion gear nut [2-1]
4. Remove the pinion gear spacer [2-6] and bearing assembly (right hand) or the pinion gear and pinion bearing [2-16, 2-18] and pinion gear spacer [2-6] (left hand). Slide out pinion shaft.
5. Remove the pinion retainer nut [2-21], pinion bearing [2-18], pinion gear (right hand) or pinion bearing cup (left hand).
6. Remove driven gear nut [2-15], driven gear washer [2-14] and upper driven gear bearing [2-13].
7. Remove driven gear [2-7].

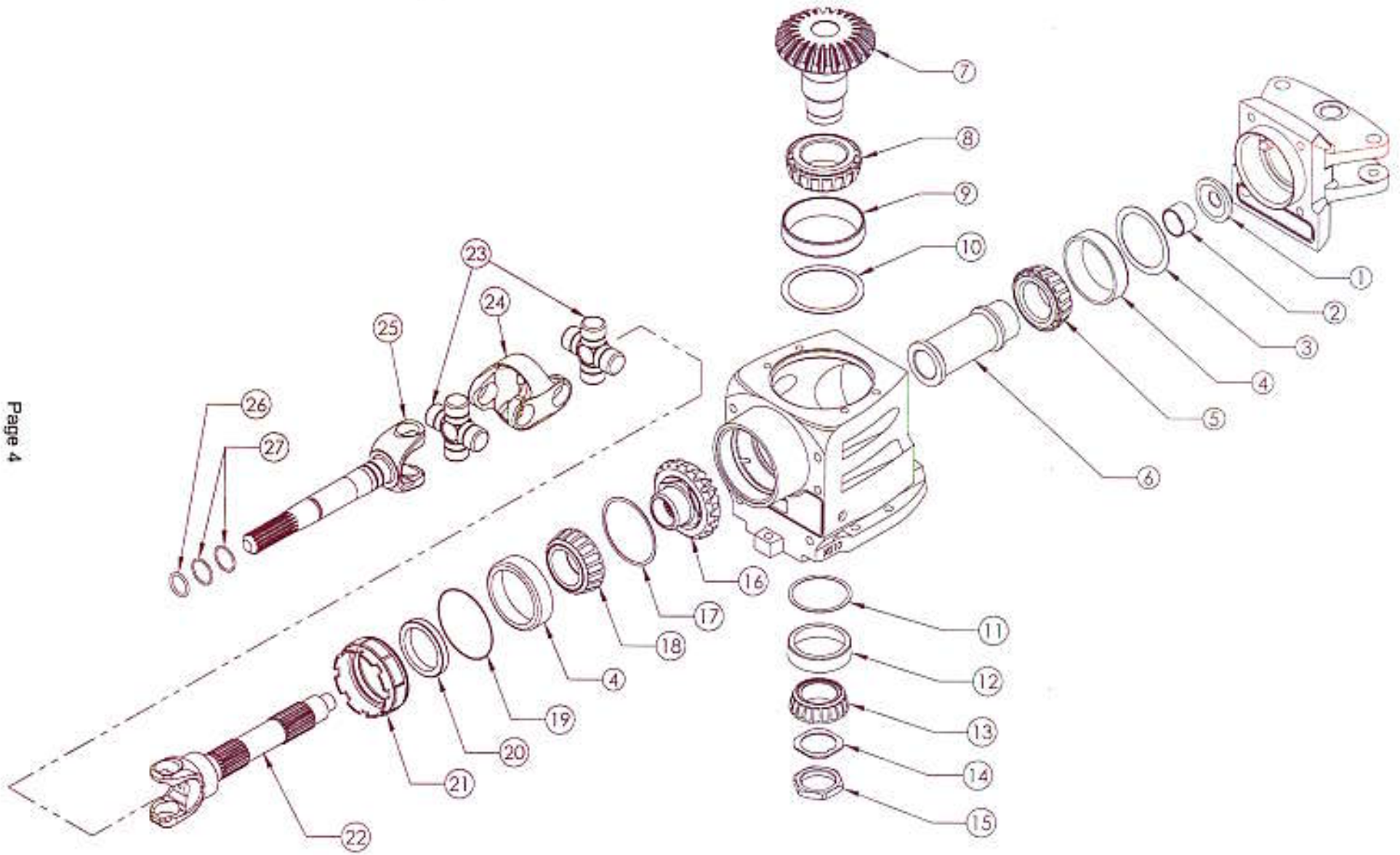
Upper Case Assembly
Figure-1



Upper Case Assembly
Figure-1

Item	Description	Qty	Part Number
1	Upper Case	1	01-1407
2	Steering Cap	1	01-1408
3	Upper Cap	1	01-1409
4	Mid Section	1	01-1410
5	Dip Stick	1	01-2493
6	Screw (3/8-16 x 1" S/S 12 Point)	4	08-070806081
7	"O" Ring (Dip Stick)	1	11-2112
8	"O" Ring (Steering Cap-Oil)	1	11-2156
9	Screw (7/16-14 x 2 1/4" 12 Point)	2	08-070907141
10	Screw (7/16-14 x 1 1/4" 12 Point)	2	08-070907091
11	Screw (7/16-14 x 1 3/4" 12 Point)	2	08-07097111
12	"O" Ring (Steering Cap-Water)	1	11-2154
13	"O" Ring (Vertical Shaft-Upper to Mid Section)	1	11-2042
14	Dowel Pin 3/16" x 3/4")	2	01-2113
15	Wear Pad Kit (Right & Left)	1	01-2471
16	Screw (1/4-20 x 7/16" Flat Head Undercut)	4	08-020604041
17	"O" Ring (Top Cap)	1	11-2159
18	Screw (7/16-14 x 1 1/2" 12 Point)	1	08-070907101
19	Lock Nut (7/16" Nylock)	4	08-080904001
20	Flat Washer (7/16" AN)	4	08-100900001
21	Gimbal Water Seal	1	11-4021
22	Stud (7/16 x 2 1/4" SS)	4	08-130904131
23	"O" Ring (Oil Passage-Upper to Mid Section)	1	11-4011
24	"O" Ring (Water Passage-Upper to Mid Section)	1	11-2018
25	Screw (3/8-16 x 3/4" HH)	2	08-010706061
26	Washer (3/8" Star)	2	08-110800001
27	Anode	1	01-2067

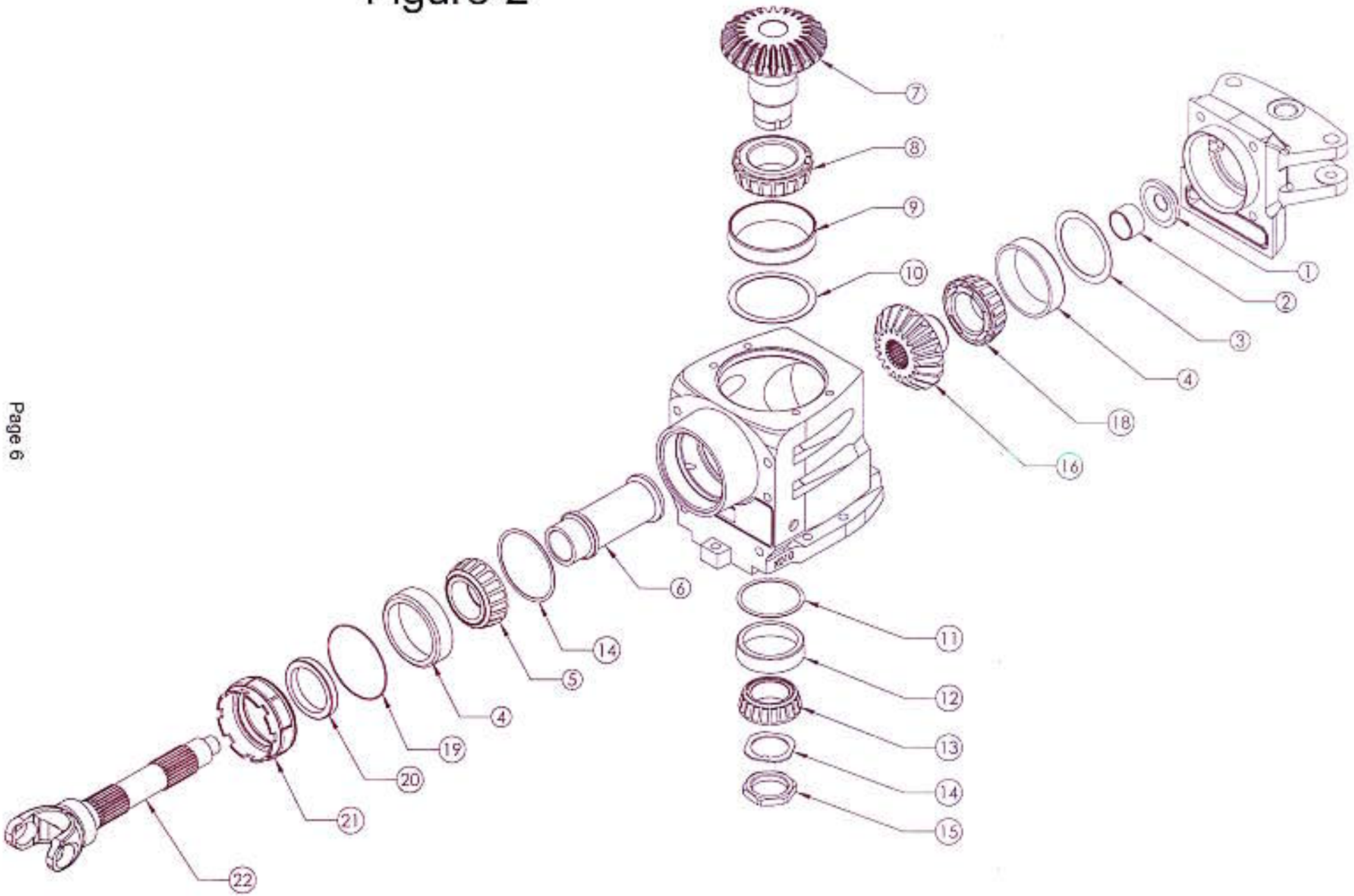
Upper Gear Asembly (Right Hand Rotation)
Figure-2



Upper Gear Assembly
Figure-2

Item	Description	Qty	Part Number
1	Pinion Gear Nut	1	01-2414
2	Pinion Shaft Bushing	1	01-2417
3	Shim (Pinion Bearing-Steering Cap)	Kit	01-2420
4	Bearing Cup (Pinion Bearing)	1	10-2029
5	Bearing Cone (Pinion Bearing No Slots)	1	10-1029
6	Pinion Gear Spacer	1	01-2415
7	Upper Driven Gear (19-23 Combination)	1	01-4533
8	Bearing Cone (Driven Gear Top Bearing)	1	10-1030
9	Bearing Cup (Driven Gear Top Bearing)	1	10-2031
10	Shim (Upper Driven Gear Bearing, Large)	Kit	01-2418
11	Shim (Upper Driven Gear Bearing, Small)	Kit	01-2419
12	Bearing Cup (Driven Gear Lower Bearing)	1	10-2035
13	Bearing Cone (Driven Gear Lower Bearing)	1	10-1032
14	Driven Gear Washer	1	01-2438
15	Driven Gear Nut	1	01-2416
16	Upper Pinion Gear (19-23 Combination)	1	01-4532
17	Shim (Pinion Gear)	Kit	01-2421
18	Bearing Cone (Pinion Bearing With Slots)	1	10-1028
19	"O" Ring (Pinion Retainer Nut)	1	11-2044
20	Pinion Shaft Seal 23655	1	11-3036
21	Pinion Retainer Nut	1	01-2413
22	Pinion Shaft	1	01-3412
23	Cross & Bearing XR	2	01-2086
24	Center Socket XR	1	01-2087
25	Yoke Coupler End XR	1	01-2088
26	"O" Ring (U-Joint Assembly)	1	11-2215
27	"O" Ring (U-Joint Assembly)	2	11-2119

Upper Gear Asembly (Left Hand Rotation)
Figure-2



UPPER GEARHEAD ASSEMBLY (RIGHT HAND ROTATION)

1. Install shim [2-11], bearing cup [2-12], shim [2-10] and bearing cup [2-9].
2. Measure upper driven gear from mounting face to gear surface. (Refer to "Upper gear height instruction sheet" Fig 3).
3. Install upper driven gear with upper driven gear bearing installed.
4. Install lower driven gear bearing [2-13]
5. Install driven gear washer [2-14].
6. Install driven gear nut [2-15], torque to 175 ft lbs.
7. Set rolling preload (8-12 in lbs.) of upper driven gear by adjusting shims [2-10 or 2-11].

   Note: it is important to have proper rolling preload before adjusting gear height.
8. Measure upper driven gear height according to "Upper gear height instruction sheet" and adjust height, using shims [2-10 or 2-11] while maintaining correct rolling preload.
9. Install upper pinion gear through top of case [2-16].
10. Install upper pinion bearing [2-18].
11. Install upper pinion shims [2-17].
12. Install upper pinion bearing cup [2-4].
13. Install pinion retainer nut [2-21] torque to 200 ft lbs.
14. Install pinion shaft [2-22].
15. Install pinion gear spacer with upper pinion bearing [2-6 and 2-5].
16. Install pinion shaft bushing [2-2].
17. Install and torque pinion gear nut [2-1] to 150 ft lbs.
18. Install steering cap [1-2] with bearing cup [2-4] installed.
19. Adjust rolling preload for upper pinion gear bearings (8-12 in lbs plus the driven gear rolling preload). (Without seal installed, add 2-4 in lbs with new seal installed).

    Note: it is important to have proper rolling preload before adjusting gear height.
20. Set backlash to an average of .012 plus or minus .001. Using shims [2-3 or 2-17].
21. Final assembly use red locktite 262 on the driven gear nut and the pinion gear nut. Make sure all seals and "O" rings are installed, lubed and in good condition.

UPPER GEARHEAD-ASSEMBLY (LEFT HAND ROTATION)

1. Install shim [2-11], bearing cup [2-12], shim [2-10] and bearing cup 2-9].
2. Measure upper driven gear from mounting face to gear surface. (Refer to "Upper gear height instruction sheet" Fig 3).
3. Install upper driven gear with upper driven gear bearing installed.
4. Install lower driven gear bearing [2-13].
5. Install driven gear washer [2-14].
6. Install driven gear nut [2-15, torque to 175 ft lbs.
7. Set rolling preload (8-12 in lbs.) of upper driven gear by adjusting shims [2-10 or 2-11].

   Note: it is important to have proper rolling preload before adjusting gear height.
8. Measure upper driven gear height according to "Upper gear height instruction sheet" and adjust height, using shims [2-10 or 2-11] while maintaining correct rolling preload.
9. Install pinion shims [2-14]
10. Install pinion bearing cup [2-4]
11. Install pinion retainer nut [2-21] torque to 200 ft lbs.
12. Install pinion gear spacer with upper pinion bearing [2-6 and 2-5].
13. Install pinion gear and pinion bearing [2-16 and 2-18].
14. Install pinion shaft [2-22].
15. Install pinion shaft bushing [2-2].
16. Install and torque pinion gear nut [2-1] to 150 ft lbs.
17. Install steering cap [1-2] with bearing cup installed.
18. Adjust rolling preload for upper pinion gear bearings (8-12 in lbs plus the driven gear rolling preload). (Without seal installed, add 2-4 in lbs with new seal installed).

    Note: it is important to have proper rolling preload before adjusting gear height.
19. Set backlash to an average of .012 plus or minus .001. Using shims [2-3 or 2-14].
20. Final assembly use red locktite 262 on the driven gear nut and the pinion gear nut.
21. Make sure all seals and "O" rings are installed, lubed and in good condition.

Setup Diagram
Figure-3

Customer _____ Serial Number _____ Date _____

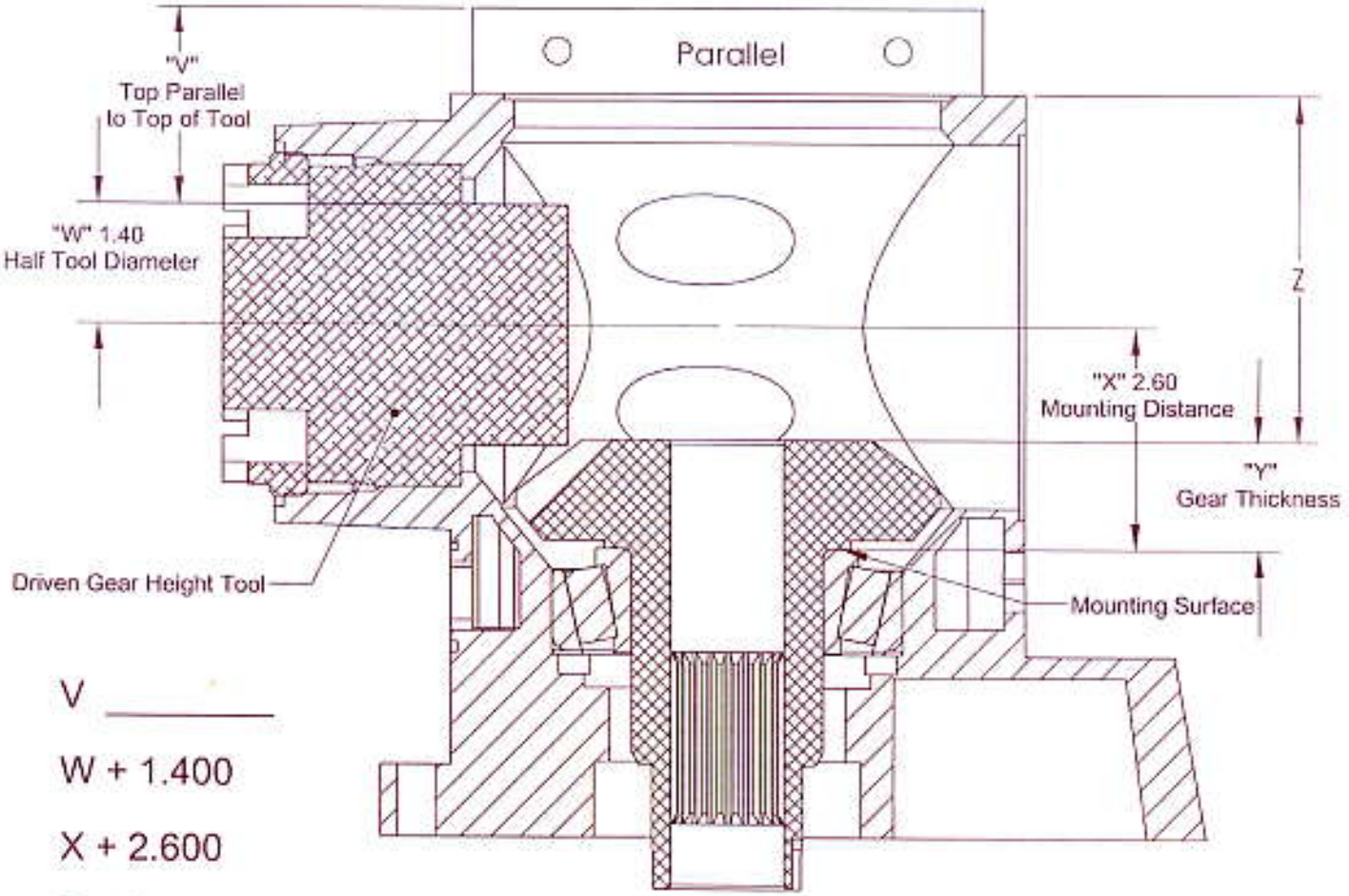
Builder _____ Condition _____ Rotation _____ Lower # _____

Shims

Upper Driven Gear: Top Cup _____ Bottom Cup _____ Rolling Preload _____ In/Lbs

Head _____ Steering Cap _____ Rolling Preload _____ In/Lbs

Average Backlash _____ High Backlash _____ Low Backlash _____



V _____

W + 1.400

X + 2.600

Total _____

Y - _____

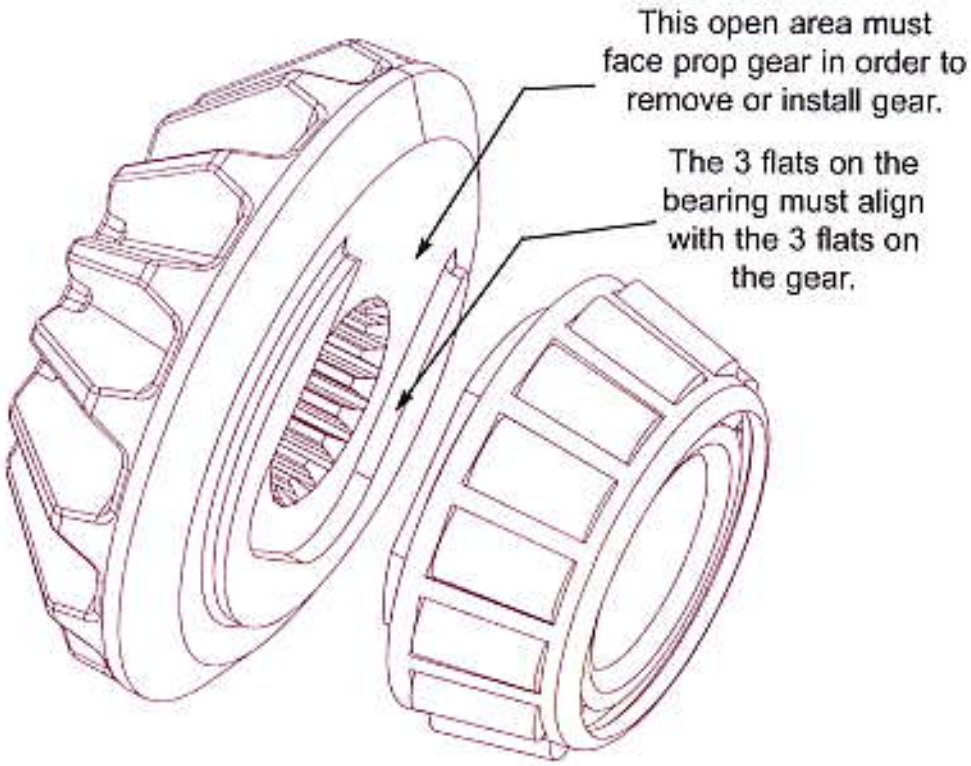
Z = _____

Notes: _____

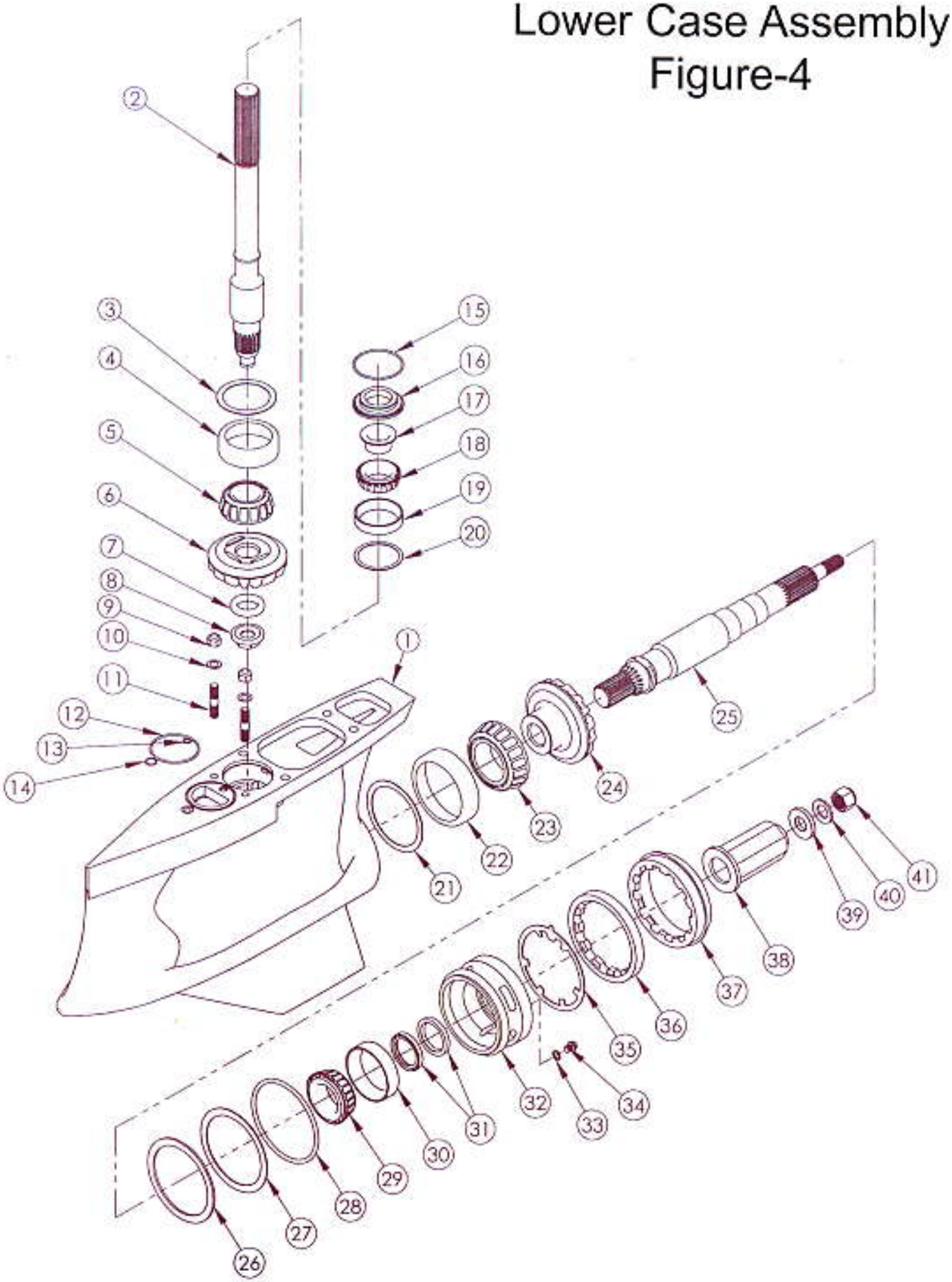
LOWER GEAR CASE-DISASSEMBLY

NOTE; The following instructions assume that the lower gear case has already been separated from the upper gear case. Brackets following the part name represent the drawing figure # and item #.

1. Remove prop adaptor ring [4-37]
2. Bend the tabs of the bearing carrier tab washer [4-35] away from the cover nut [4-36].
3. Remove cover nut [4-36]
4. Remove bearing carrier [4-32]
5. Remove bearing carrier thrust washer [4-26], bearing carrier shims [4-27] & bearing carrier "O" ring [4-28].
6. Align flats on prop shaft [4-25] to clear pinion gear nut [4-8] remove prop shaft.
7. Remove pinion gear nut [4-8] & pinion gear spud washer [4-7].
8. Remove vertical shaft [4-2].
9. Rotate pinion gear to align bearing driver lugs on pinion gear to align with flats on pinion bearing (see detail below) and remove pinion gear [4-6].
10. Remove prop gear [4-24].



Lower Case Assembly
Figure-4



Lower Case Assembly Figure-4

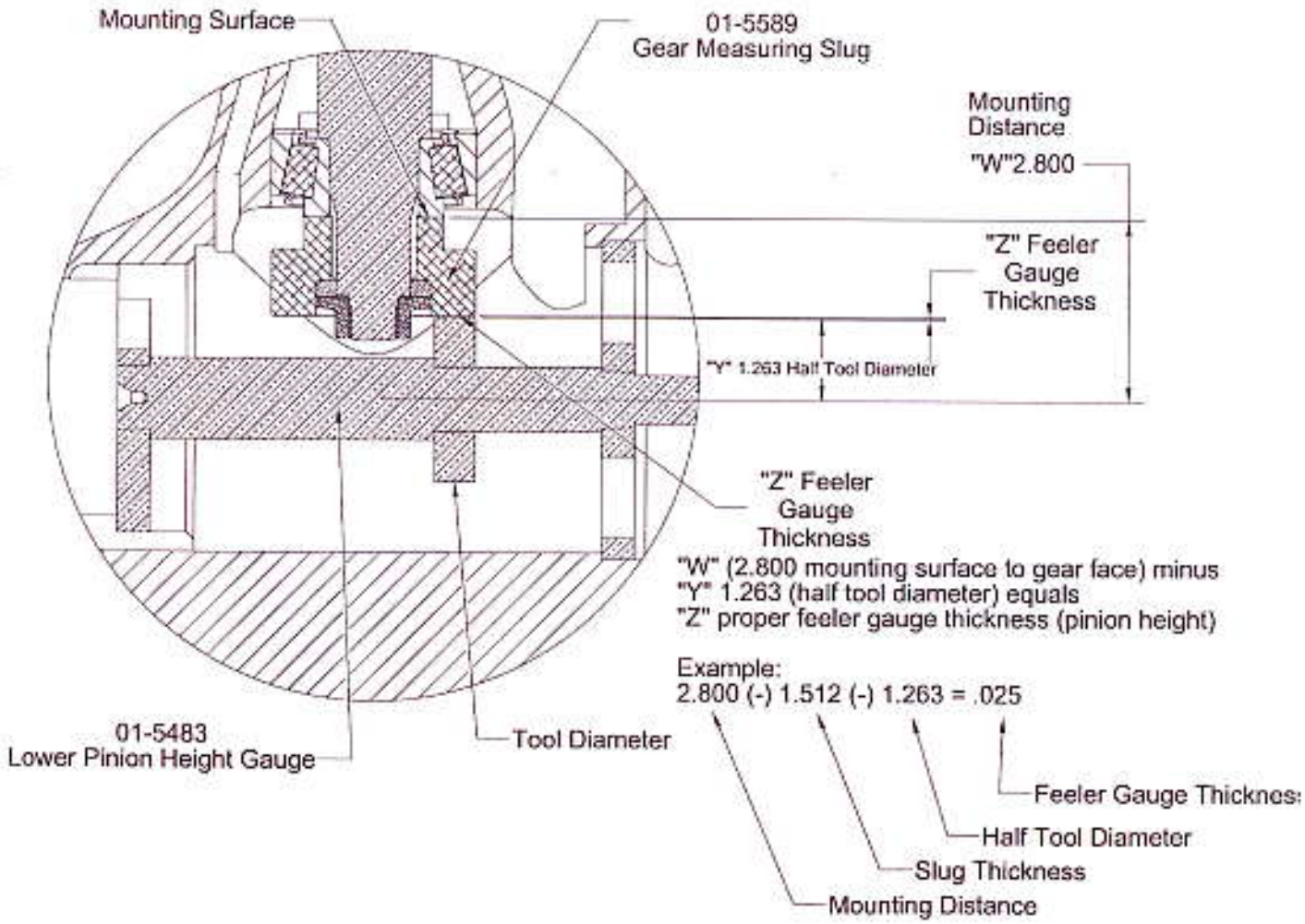
Item	Description	Qty	Part Number
1	Lower Case	1	01-5511
2	Vertical Shaft	1	01-3422
3	Shim (Pinion Gear)	Kit	01-2394-X
4	Cup (Pinion Gear)	1	10-2037
5	Bearing Cone (Pinion Gear Modified)	1	10-1036
6	Pinion Gear (1:50)	1	01-4563
6A	Pinion Gear (1:34)		01-4565
6B	Pinion Gear (1:25)		01-4597
7	Pinion Gear Spud Washer	1	01-2404
8	Nut (Pinion Gear)	1	01-2397
9	Nut (7/16-20 Nylock S/S)	2	08-080904001
10	Washer (7/16" AN S/S)	2	08-100900001
11	Stud (7/16 x 2" S/S)	2	08-130904121
12	"O" Ring (Water Passage)	1	11-2143
13	"O" Ring (PTFE Oil Passage)	1	11-4011
14	"O" Ring (Cooling Water Passage)	1	11-2014
15	"O" Ring (Alignment Spacer)	1	11-2144
16	Alignment Spacer	1	01-2401
17	Vertical Shaft Bearing Sleeve (2 halves)	1set	01-2400
18	Bearing Cone (Vertical Shaft)	1	10-1034
19	Bearing Cup (Vertical Shaft)	1	10-2036
20	Shim (Vertical Shaft)	Kit	01-2396-X
21	Shim (Prop Gear)	Kit	01-2395-X
22	Bearing Cup (Prop Gear)	1	10-2031
23	Bearing Cone (Prop Gear)	1	10-1030
24	Prop Gear (1:50)	1	01-4564
24A	Prop Gear (1:34)		01-4566
24B	Prop Gear (1:25)		01-4598
25	Prop Shaft 1 7/16"	1	01-3571
25A	Prop Shaft #6		01-3446
26	Bearing Carrier Thrust Washer	1	01-2392
27	Shim (Bearing Carrier)	Kit	01-2393-X
28	"O" Ring (Bearing Carrier)	1	11-2349
29	Bearing Cone (Bearing Carrier)	1	10-1035
29A	Bearing Cone (Bearing Carrier #6)		10-1038
30	Bearing Cup (Bearing Carrier)	1	10-2035
30A	Bearing Cup (Bearing Carrier #6)		10-2040
31	Seal (Prop Shaft 1 7/16")	2	11-3037
31A	Seal (Prop Shaft #6)		11-3038
32	Bearing Carrier (1 7/16" Prop Shaft)	1	01-2398
32A	Bearing Carrier (#6 Prop Shaft)		01-2447
33	Drain Screw Sealing Washer	1	11-1017
34	Drain Screw	1	01-2504
35	Tab Washer (1 7/16" Prop Shaft)	1	01-2403
35A	Tab Washer (#6 Prop Shaft)		01-2498
36	Cover Nut (1 7/16" Prop Shaft)	1	01-2402
36A	Cover Nut (#6 Prop Shaft)		01-2492
37	Prop Adaptor Ring	1	01-2399
38	Prop Adaptor (1 7/16" Prop Shaft	1	01-3569
39	Thrust Washer (3/4" Heavy)	1	01-6579
40	Washer (3/4" Spring)	1	08-221300001
40A	Washer (1" Spring, #6 Shaft)		08-221700001
41	Nut (3/4-16 Nylock, Brass)	1	08-081306003
41A	Nut (1-12 Nylock, Brass #6 Shaft)		08-081712003

LOWER GEAR CASE-ASSEMBLY

Note: Optimum performance of lower gears requires pinion height setup, use "lower pinion gear height instruction sheet" fig 5.

1. Install pinion gear bearing cup [4-4] with pinion gear shim [4-3] and vertical shaft bearing cup [4-19] with vertical shaft shim [4-20] in case.
2. Install modified pinion gear bearing [4-5] into cup.
3. Install pinion gear Measuring slug (01-5589) onto pinion gear bearing.
4. Install vertical shaft with vertical shaft bearing sleeves [4-17], and vertical shaft bearing [4-18] (preinstalled).
5. Install pinion gear spud washer [4-7] into pinion gear.
6. Install pinion gear nut [4-8] and torque to 150 ft/lbs.
7. Set rolling preload of pinion gear by adjusting shim [4-3], and [4-20], (8-10 in/lbs.)
8. Once preload is set adjust pinion height by either removing or adding shim to upper bearing cup [4-19] and removing or adding equal shim to lower bearing cup [4-4]. Pinion height is set using feeler gauges and "Lower Pinion Height Gauge 01-5483 and "Gear Measuring Slug" 01-5589 as shown in fig 5.
9. Once preload and pinion height is correct, remove pinion gear measuring slug and vertical shaft.
10. Install prop gear shim [4-21] and prop gear bearing cup [4-22].
11. Install prop gear [4-24], with bearing installed [4-23].
12. Reinstall pinion gear bearing with flats aligned to accept pinion gear (see page 10), pinion gear, spud washer and nut. Torque to 150 ft/lbs.
13. Temporarily install prop shaft [4-25], bearing carrier thrust washer [4-26] bearing carrier [4-32], tab washer [4-35], and cover nut [4-36], torque to 150 ft/lbs for backlash testing.
14. Check backlash and adjust by changing prop gear shim to achieve .006-.008 average.
15. Once backlash is established, remove cover nut, tab washer, bearing carrier, thrust washer, and prop shaft.
16. Remove pinion nut, clean and reinstall with Loctite 262, torque to 150 ft/lbs.
17. Reinstall prop shaft, thrust washer, bearing carrier shims [4-27], (install enough shims to insure there is "prop shaft end play"), install bearing carrier, tab washer, and cover nut (torque cover nut to 200 ft/lbs, apply oil to threads to avoid galling).
18. Measure "end play" and remove enough shims to achieve 24-26 in/lbs total rolling preload with seals installed in bearing carrier. (Be very careful not to remove too many shims and get a false preload reading).
19. Once rolling preload is achieved, remove cover nut, tab washer, and bearing carrier.
20. Install "O" ring [4-28], bearing carrier (apply "Perfect Seal" around "O" ring, outside of bearing carrier, and threads of cover nut),
21. Install tab washer, and cover nut.
22. Torque cover nut to 200 ft/lbs.
23. Bend one tab on tab washer to engage with one of the slots in the cover nut.
24. Install prop adaptor ring [4-37] (apply "Perfect Seal" to threads) and torque to 200 ft/lbs.

Lower Pinion Height Measurements
Fig-5



W 2.800

X- _____

Y- _____

Z= _____