

INTRODUCTION

The following instructions apply to Mercury, Mars, Venus, Atlas, Luna, Earth, Polaris, Delta, Neptune, Neptune Plus, Orion Plus, Saturn Plus and Titan Plus Planetgear™ 7000 speed reducers, (single, double, triple and quad reductions). Instructions for Orion Plus, Saturn Plus, and Titan Plus are also valid for Orion, Saturn and Titan, respectively. To assure long life and performance of the Planetgear 7000 speed reducer, these instructions should be followed. The instructions outline a step-by-step procedure to assemble the above mentioned speed reducers. If an accessory is to be attached to the reducer, please refer to the appropriate Planetgear 7000 Bulletin for installation procedures.

Bulletin Number	Description
88-PG10	Installation of Internal Backstop - Mercury / Mars
88-PG12	Scoop Mount Installation - Mercury / Mars
88-PG13	Scoop Mount Installation - Venus thru Jupiter Plus
88-PG14	Motor Mount Installation - Mercury / Mars
88-PG15	Motor Mount Installation - Venus thru Jupiter Plus
88-PG16	Base Plate Installation - Venus thru Jupiter Plus
88-PG18	Slide Base Installation - Mercury thru Jupiter Plus

Table of Contents

Application Information	1
Component Part Identification	1
Cleaning	1
Reducer Assembly	1 - 4
Bolt Sizes & Torques	3
Shroud Clip Installation	4
Fan & Shroud Component Parts & Part Numbers	4
Fan Installation	5
Fan Shroud Installation	5
Remote Grease Line Installation	5
Nameplate Information	6
Speed Reducer Assembly Sequence	7 - 11
Reducer Model Number	12
Gear Codes	13
Reducer Oil Capacity	14

APPLICATION INFORMATION

Prior to assembly, check application information to insure that the correct reducer size and ratio have been selected. Refer to Planetgear 7000 catalog for the exact selection procedure. Also, this information will be necessary to make the reducer nameplate following assembly of the reducer.

COMPONENT PART IDENTIFICATION

Once the application data is confirmed, gather all reducer parts to the work area. Refer to the exploded view drawing for a breakdown of the component parts required for assembly. If an exploded view drawing is not available, contact a Rexnord representative and one will be supplied.

All gears are packaged with identification labels when shipped from Rexnord. If one has been removed from its container, the gear can be identified by the part number stamped on it. Note, the last two digits in all external gearing represents the number of gear teeth.

If the carrier assembly is not labeled, it can be identified by the base part number that is stamped on the planet carrier housings. This part number is the same as the carrier assembly part number without the suffix "A" (i.e. SRC200531 planet carrier belongs to a SRC200531A carrier assembly).

The ring gears can be identified by the part number stamped on the outside surface. If unlabeled, the input and output sub-assemblies can be identified by shaft size, refer to a catalog for shaft sizes. Also, if not labeled, the main cases can be identified by mounting bolt size and spacing, refer to a catalog for reducer size.

CLEANING

Prior to assembly, all parts should be reviewed for cleanliness. Each part should be free from dirt and rust. If any part exhibits dirt, clean part with brush and solvent. Once the part is cleaned, spray a light coat of rust preventative oil on the external surfaces to protect it from the elements. If any reducer parts are rusted, except for gearing, remove rust with medium to fine abrasive paper. Once rust is removed, clean parts and spray with rust preventative oil.

CAUTION: If rust is found on gear teeth, replace, do not use. Rust on gear profiles may lead to reduced service life.

REDUCER ASSEMBLY

Once all parts have been identified and cleaned, the reducer is ready for assembly. A set of standard mechanic's tools along with sealing compound will be required. Note, the larger units may require a hoist to install the heavy parts and to move the finished reducer assembly. If possible a mounting base should be made so that the reducer can be assembled in the vertical position.

Each reducer assembly sequence is defined in Table 4 (pages 7 thru 11). Select the pertinent table based on the reducer size and reduction (i.e. Earth-triple reduction). Use these tables and the following instructions to assemble Mercury through Titan (single, double, triple and quad) speed reducers.

1. **MOUNTING OUTPUT SUB-ASSEMBLY TO MAINCASE.**
 - a. Clean the output hub and maincase machined sealing surfaces, wipe both with solvent. Reference Figure 1.

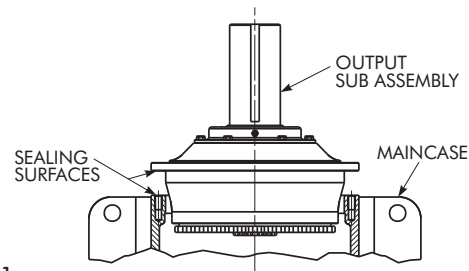


FIGURE 1

- b. Once the solvent has evaporated, apply sealing compound (Loctite® 515™ gasket eliminator or equivalent) to either the output hub or maincase sealing surfaces. Note, maintain a full film of sealant around the seal surface inboard of the bolt holes; reference Figure 2.

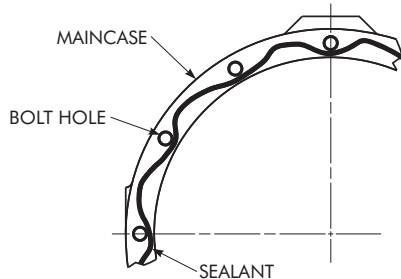


FIGURE 2

- c. Mount output sub-assembly to maincase.
 - 1c. Align bolt holes of output hub with maincase threaded holes.
 - 2c. Locate output assembly seal grease fitting in 12 o'clock position. Reference Figure 3.

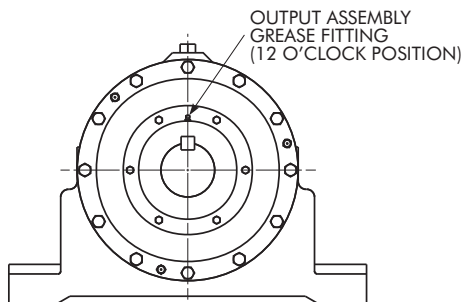


FIGURE 3

- d. Once output sub-assembly is in place, install bolts with lock washers, reference Table 1, Page 3 for bolt size, and tighten to bolt torque requirements listed in Table 2, Page 3.
- e. Orient output sub-assembly/maincase in vertical position so that gearing and input sub-assembly can be installed; reference Figure 4.

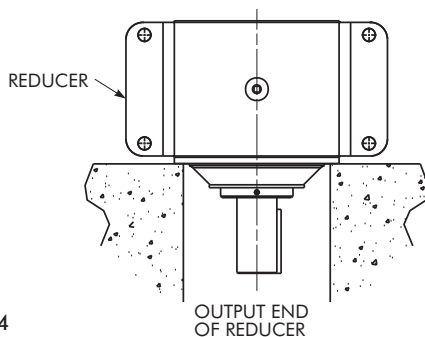


FIGURE 4

Note: If necessary, remove bolts (but not all) that attach the output assembly to the maincase. This is done so that when the reducer is positioned vertically on the mounting base, it is not resting on the bolt heads. These bolts will need to be replaced when reducer assembly is completed.

2. INSTALLING CARRIER ASSEMBLY

- a. Lightly tap each planet shaft to insure it is fixed and unable to move axially.
- b. Prior to installing the carrier assembly, puddle oil on the top of the output shaft or sun gear of preceding element. This will insure that the carrier splines are fully lubricated during initial reducer start up.
- c. Lower carrier assembly on to the output shaft or sun gear spline. The carrier housing should come to a rest on the retain ring mounted to the shaft or gear; reference Figure 5.

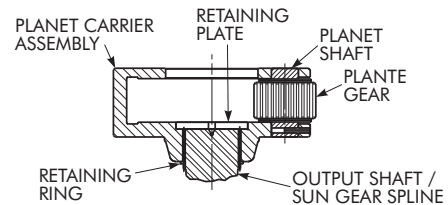


FIGURE 5

WARNING: Make sure retainer plate is in place before adding next set of gearing. If not in place, axial clearances will exceed requirements and may cause damage to internal gearing.

Note: If the ring is installed, the carrier assembly may need to be rotated clockwise/counter clockwise to engage planet gear teeth with corresponding ring gear teeth.

3. Installing Input/Sun Gears

- a. Prior to installing the sun or input gear check if carrier assembly retainer plate is seated properly.
- b. Puddle oil on top of carrier assembly retaining plate.
- c. Lower input/sun gear into the carrier assembly until it rests on the retainer plate; reference Figure 6.

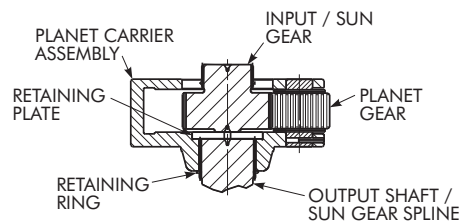
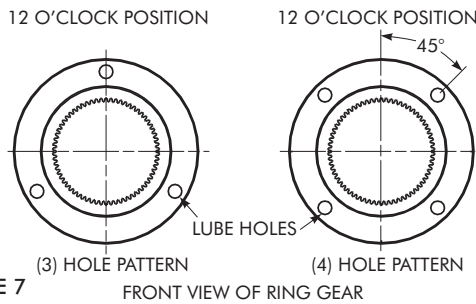


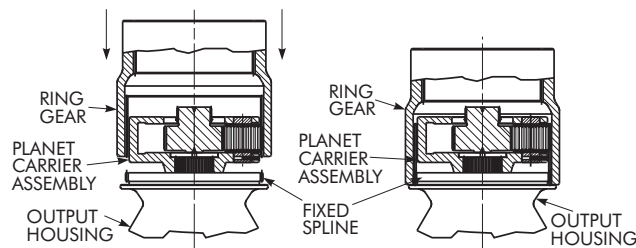
FIGURE 6

4. INSTALLING RING GEARS
(Does not apply to Mercury or Mars units)

- a. If the ring gear is to be mounted after a carrier assembly, insert the input/sun gear to align planet gear teeth. Note, input/sun gear may have to be removed before the ring gear can be installed.
- b. When installed the ring gear the lube holes should be oriented as shown in Figure 7.


FIGURE 7

- c. Gently lower ring gear over carrier assembly and then onto fixed splines until it bottoms on output housing; reference Figure 8.


FIGURE 8

- d. The ring gear may require clockwise/counter clockwise rotation in order to engage planet gear teeth and fixed splines. **NOTE:** The fixed splines are used to keep the ring gear from rotating.

5. Installing Quad Adapter
(Does not apply to Mercury or Mars Units)

- a. Clean the adapter and maincase sealing surfaces, wipe clean with solvent.
- b. Once the solvent has evaporated, apply sealing compound (Loctite 515 gasket eliminator or equivalent) to either the adapter or maincase sealing surfaces. Note, maintain a full film of sealant around the seal surface inboard of the bolt holes.
- c. Mount adapter to maincase so that the bolt holes are aligned.
- d. Insert the bolts with lock washers that are specified in Table 1 and tighten to torque requirements listed in Table 2.

TABLE 1 — Bolt Sizes

Reducer	Reducer Sub-Assy	Bolt Qty	Bolt Description	Lock Washer
Mercury/Mars	Input	8	5/16-18 x 1 1/4 Hex Hd Cap Screw Gr 5	(8) 5/16
	Output	8	7/16-24 x 2 3/4 Soc Hd Cap Screw Gr 5	NA
Venus/Atlas/Luna Earth/Polaris/Delta	Input	24	1/2-13 x 1 1/2 Hex Hd Cap Screw Gr 5	(24) 1/2
	Output			
Neptune/Neptune Plus Orion Plus/Saturn Plus Titan Plus	Input	32	1/2-13 x 1 3/4 Hex Hd Cap Screw Gr 5	(32) 1/2
	Output			

TABLE 2 — Torque Requirements For Dry Fasteners ★

		Inch													
SAE	Dia	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2
General Purpose Grade 2	Torque (ft-lbs)	6	12	21	34	52	75	104	178	184	265	380	530	700	930
High Strength Grade 5	Torque (ft-lbs)	9	18	33	53	80	116	160	285	460	690	850	120	157	208
Alloy Steel Grade 8	Torque (ft-lbs)	13	26	47	74	114	164	225	400	650	970	137	194	254	337
		Metric													
Grade	Nom Dia Standard Pitch	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
8.8	Torque (Nm)	6.15	10.5	17.5	26	51	89	141	215	295	420	570	725	107	145
10.9	Torque (Nm)	8.65	15	25	36	72	125	198	305	420	590	800	102	151	205
12.9	Torque (Nm)	10.4	18	29	43	87	150	240	365	500	710	960	122	181	245

★ The torques shown produce a clamp load of 80% of proof load. They assume clean, dry threads with a torque coefficient of 0.2, and a coefficient of friction of 0.14. Plated threads, need only 3/4 torque shown. Well lubricated threads need only 1/2 torque shown.
Source: Rexnord Eng. Specification: GES8-19, 04/10/79.

6. MOUNTING INPUT SUB-ASSEMBLY TO MAINCASE/ADAPTER; REFERENCE FIGURE 9.

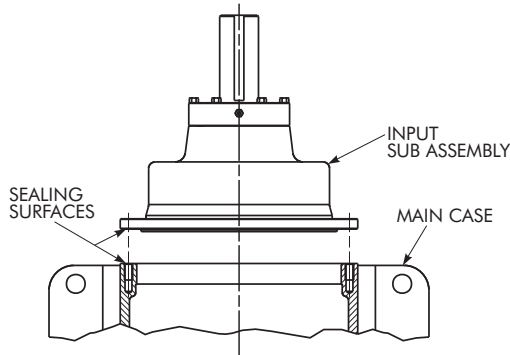


FIGURE 9

- a. Clean the input hub and maincase/adapter sealing surfaces, wipe both with solvent.
- b. Once the solvent has evaporated, apply sealing compound (Loctite 515 gasket eliminator or equivalent) to either the input hub or maincase sealing surfaces. Note, maintain a full film of sealant around the seal surface inboard of the bolt hole; reference Figure 10.

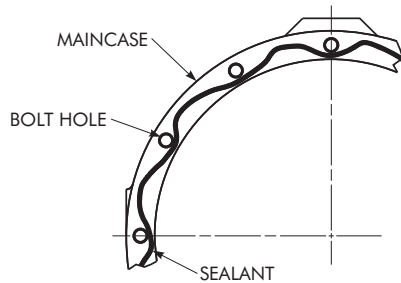


FIGURE 10

- c. Mount input sub-assembly to maincase.
 - 1c. Engage the input shaft spline to the input gear.
 - 2c. Align bolt holes of input hub to the maincase threaded holes.
 - 3c. Locate input seal grease fitting in 12 o'clock position.
- d. Once input sub-assembly is in place, insert bolts and lock washers, (see Table 1 for sizes), tighten bolts to torque requirements listed in Table 2.

- e. After the input sub-assembly has been fastened to the maincase/adapter, rotate the input shaft. The input shaft should be able to rotate freely, if unable to rotate by hand disassemble unit and check the gear train stack up.

7. FAN AND SHROUD INSTALLATION

- a. From Table 3, select the component parts required for shroud clip installation.

SHROUD CLIP INSTALLATION

- a. Remove mounting bolts from input sub-assembly/maincase in the following locations and install shroud clips; reference Figure 11.

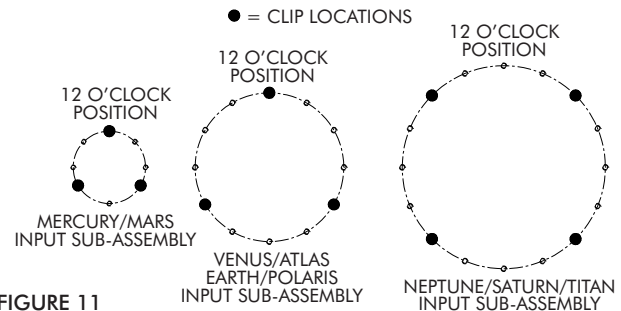


FIGURE 11

- b. Align shroud clip with center of reducer and tighten bolts to torque requirements of Table 2; reference Figure 12.

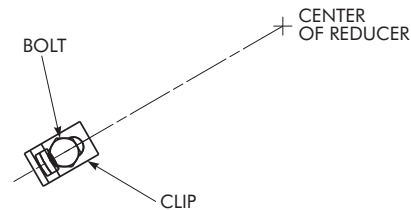


FIGURE 12

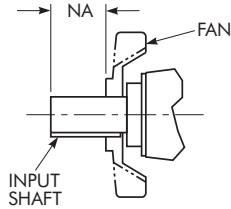
TABLE 3 — Fan & Shroud Component Parts and Part Numbers

Reducer Series	Fan/Shroud Kit Part No.	Fan Part No.	Shroud Part No.	Clip Part No. (Qty)	Remote Grease Line Part No.	Bolt Kit Part No.
Mercury	XFS	3882000101	5884002680	5882000480 (3)	...	M008
	YFS	3882000102	5884002680	5882000480 (3)	...	M008
Venus/Atlas/Luna	VFS	3882000103	5884003180	5882000280 (3)	RGLV	V007
	EFS	3882000104	5884003280	5882000280 (3)	RGLE	E007
Polaris/Delta	PFS	3882000107	5884004180	5882000580 (3)	RGLE	E007
	NFS	3882000105	5884001980	5882000380 (4)	RGLN	N006
Neptune/Neptune Plus/Orion Plus	SFS	3882000106	5884002080	5882000380 (4)	RGLS	S006

FAN INSTALLATION

- a. From Figure 13, determine the distance from the end of the input shaft to the front edge of the fan.

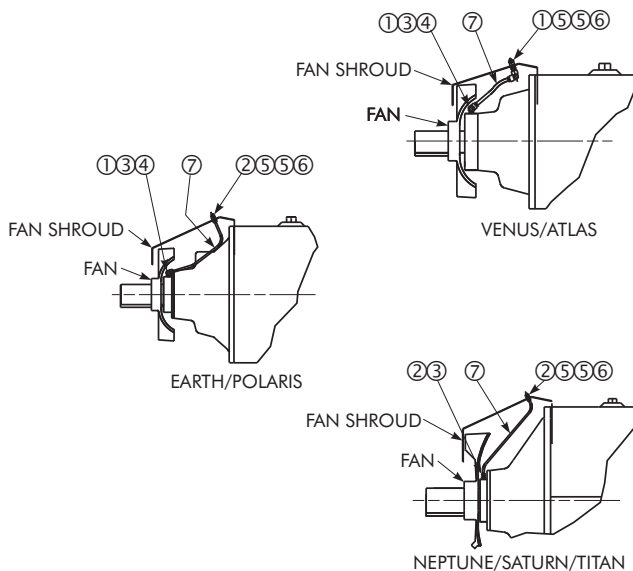
Reducer Size	NA
Mercury	1.88
Mars	2.38
Venus	2.88
Atlas	2.88
Luna	2.88
Earth	3.25
Polaris	2.88
Delta	2.88
Neptune	4.00
Neptune Plus	4.00
Orion Plus	4.00
Saturn Plus	4.69
Titan Plus	4.69


FIGURE 13

- b. With key in place, position the fan on the input shaft to the determined "NA" distance.
- c. With fan in place, tighten set screw that is located 90° from the keyway so that it makes a mark on the shaft.
- d. Remove fan.
- e. With 1/8" drill, make a small indentation on the surface of the shaft at the set screw mark.
- f. With a 5/16" drill, enlarge the indentation made by the 1/8" drill (approximately 1/16" to 1/8" deep).
- g. Place fan on shaft.
- h. Locate the set screw which is 90° from the keyway to the spotting hole on the shaft.
- i. Tighten set screws (2).

REMOTE GREASE LINE INSTALLATION

(Does not apply to Mercury or Mars units)



- a. Per preceding drawings, install grease fitting hardware at seal carrier and fill grease tube (item 7). Note, fill grease tube prior to installation.
- b. Assemble grease fitting hardware into pre-drilled 7/16 diameter hole in fan shroud.
- c. The grease line (item 7) will be inserted into the grease fitting hardware in the fan shroud when the shroud is assembled to the speed reducer.

TABLE A

Item	Description
1	1/8 NPT x 1/4 O.D. Tube 90° QD Brass Fitting
2	1/8 NPT x 1/4 O.D. Tube Straight QD Brass Fitting
3	1/4-28 Male x 1/8 NPT Female Adapter
4	1/4-28 90° Grease Lubrication Fitting
5	3/8 Steel Washer
6	1/8 NPT Grease Fitting
7	1/4 O.D. x 16° (400 mm) Tube (Cut to Fit, See Table B)

TABLE B

Reducer	Tube Length - Inches
Venus/Atlas/Luna	6
Earth/Polaris/Delta	7 3/4
Neptune/Neptune Plus/Orion Plus	9
Saturn Plus/Titan Plus	12

FAN SHROUD INSTALLATION

- a. Position the fan shroud so that it fits tight over the shroud clips. Check to insure that when the input shaft is rotated, the fan does not interfere with the shroud. Gently bend the shroud clips to position the shroud.
NOTE: the fan shroud should be predrilled for the shroud clips and the remote grease line (RGL).
- b. Insert RGL grease tube into shroud grease fitting hardware.
- c. Using bolts and washers supplied in fan/shroud bolt kit, fasten the shroud to the shroud clips. Once fastened rotate input shaft to insure no interference with fan.

Rexnord® Planetgear™ 7000
Speed Reducers

REXNORD INDUSTRIES, LLC
WWW.REXNORD.COM

(A) MODEL NO.

(B) SERIAL NO.

(C) CUST. PO.

(D) SIZE

(E) RPM IN

(F) RATIO

(G) RPM OUT

REDUCER ONLY

MAX. TORQUE OUT LB. IN.

SERVICE HP

SERVICE FACTOR

MOTORIZED REDUCER

MOTOR HP

SERVICE CLASS

DATE

OIL CAP. APPROX. U.S. GAL.

OUTPUT SPEED RPM	AMBIENT TEMPERATURES	
	15F-60F (-9C-16C)	50F-125F (10C-52C)
BELOW 20	ISO-VG 100	AGMA 150
20 RPM AND ABOVE	ISO-VG 3	AGMA 4

OUTPUT SPEED RPM	AMBIENT TEMPERATURES			
	15F-60F (-9C-16C)	AGMA	ISO-VG	AGMA
BELOW 20	150 EP	4 EP	320 EP	6 EP
20 RPM AND ABOVE	150 EP	4 EP	220 EP	5 EP

IMPORTANT: FILL TO THE LEVEL INDICATED WITH A PREMIUM QUALITY INDUSTRIAL TYPE PETROLEUM EXTREME PRESSURE LUBRICANT (SULFER-PHOSPHORUS TYPE) CONTAINING OXIDATION, RUST AND FOAM INHIBITORS. FOR DETAILED LUBRICATION INSTRUCTIONS, SEE LUBRICATION BULLETIN. UNDER NORMAL CONDITIONS, THE INITIAL LUBRICANT CHANGE SHOULD BE PERFORMED AFTER 250 HOURS. ALL CHANGES THEREAFTER SHOULD BE PERFORMED EVERY 2500 HOURS OR EVERY SIX MONTHS WHICHEVER COMES FIRST.

P/N 1886026201

Stamp the following information on the nameplate and mount to the reducer. Four drive screws will be required for mounting.

ITEM GENERAL INFORMATION

- (A) Model Number - (reference Table 5, Page 12)
 - (B) Serial Number
 - (C) Customer Purchase Order Number
 - (D) Size
 - (E) RPM Input
 - (F) Ratio
 - (G) RPM Output
 - (H) Date (Month/Year)
 - (I) Oil Capacity - (reference Table 7, Page 14)
- } Reference Planetgear Catalog

ITEM FOR REDUCER ONLY

- (J) Torque
 - (K) Service HP
 - (L) Service Factor
- } Reference Planetgear Catalog

ITEM FOR MOTORIZED REDUCERS (SCOOP & C-FACE)

- (M) Motor HP
- (N) Service Class

NOTE: Fill out the log sheet. The best time is immediately after the reducer is assembled as all pertinent information is available.

TABLE 4 — Mercury - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
MRC Carrier Assembly	MRC Carrier Assembly	MRC Carrier Assembly	MRC Carrier Assembly
Input Gear (Single)	MRC Sun Gear	MRC Sun Gear	MRC Sun Gear
Input Sub-Assembly To Maincase	MRC Carrier Assembly	MRC Carrier Assembly	MRC Carrier Assembly
	Input Gear (Double)	MRC Sun Gear	MRC Sun Gear
	Input Sub-Assembly To Maincase	MRC Carrier Assembly	MRC Carrier Assembly
		Input Gear (Triple)	MRC Sun Gear
		Input Sub-Assembly To Maincase	MRC Carrier Assembly
		Input Gear (Quad)	MRC Sun Gear
			Input Sub-Assembly To Maincase

TABLE 4 — Mars - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
MRD Carrier Assembly	MRD Carrier Assembly	MRD Carrier Assembly	MRD Carrier Assembly
Input Gear (Single)	MRD Sun Gear	MRD Sun Gear	MRD Sun Gear
Input Sub-Assembly To Maincase	MRC Carrier Assembly	MRC Carrier Assembly	MRC Carrier Assembly
	Input Gear (Double)	MRC Sun Gear	MRC Sun Gear
	Input Sub-Assembly To Maincase	MRC Carrier Assembly	MRC Carrier Assembly
		Input Gear (Triple)	MRC Sun Gear
		Input Sub-Assembly To Maincase	MRC Carrier Assembly
		Input Gear (Quad)	MRC Sun Gear
			Input Sub-Assembly To Maincase

TABLE 4 — Venus - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRB Carrier Assembly	SRB Carrier Assembly	SRB Carrier Assembly	SRB Carrier Assembly
Input Gear (Single)	SRB Sun Gear	SRB Sun Gear	SRB Sun Gear
Ring Gear	Ring Gear	Ring Gear	Ring Gear
Input Sub-Assembly To Maincase	SRA Carrier Assembly	SRA Carrier Assembly	SRA Carrier Assembly
	Input Gear (Double)	SRA Sun Gear	SRA Sun Gear
	Input Sub-Assembly To Maincase	SRA Carrier Assembly	SRA Carrier Assembly
	Input Gear (Triple)	SRA Sun Gear	SRA Sun Gear
	Input Sub-Assembly To Maincase	Quad Adapter To Maincase	Quad Adapter To Maincase
		MRC Carrier Assembly	MRC Carrier Assembly
		Input Gear (Quad)	Input Gear (Quad)
		Input Sub-Assembly To Maincase	Input Sub-Assembly To Maincase

TABLE 4 — Atlas/Luna - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRK Carrier Assembly	SRK Carrier Assembly	SRK Carrier Assembly	SRK Carrier Assembly
Input Gear (Single)	SRK Sun Gear	SRK Sun Gear	SRK Sun Gear
Ring Gear	Ring Gear	Ring Gear	Ring Gear
Input Sub-Assembly To Maincase	SRJ Carrier Assembly	SRJ Carrier Assembly	SRJ Carrier Assembly
	Input Gear (Double)	SRJ Sun Gear	SRJ Sun Gear
	Input Sub-Assembly To Maincase	SRA Carrier Assembly	SRA Carrier Assembly
	Input Gear (Triple)	SRA Sun Gear	SRA Sun Gear
	Input Sub-Assembly To Maincase	Quad Adapter To Maincase	Quad Adapter To Maincase
		MRC Carrier Assembly	MRC Carrier Assembly
		Input Gear (Quad)	Input Gear (Quad)
		Input Sub-Assembly To Maincase	Input Sub-Assembly To Maincase

TABLE 4 — Earth - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRC Carrier Assembly	SRC Carrier Assembly	SRC Carrier Assembly	SRC Carrier Assembly
Input Gear (Single)	SRC Sun Gear	SRC Sun Gear	SRC Sun Gear
Ring Gear	SRB Carrier Assembly	SRB Carrier Assembly	SRB Carrier Assembly
Input Sub-Assembly To Maincase	Input Gear (Double)	SRB Sun Gear	SRB Sun Gear
	Ring Gear	Ring Gear	Ring Gear
	Input Sub-Assembly To Maincase	SRA Carrier Assembly	SRA Carrier Assembly
		Input Gear (Triple)	SRA Sun Gear
		Input Sub-Assembly To Maincase	Quad Adapter To Maincase
			SRA Carrier Assembly
			Input Gear (Quad)
Input Sub-Assembly To Maincase	Input Sub-Assembly To Maincase		

TABLE 4 — Polaris/Delta - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRL Carrier Assembly	SRL Carrier Assembly	SRL Carrier Assembly	SRL Carrier Assembly
Input Gear (Single)	SRL Sun Gear	SRL Sun Gear	SRL Sun Gear
Ring Gear	SRK Carrier Assembly	SRK Carrier Assembly	SRK Carrier Assembly
Input Sub-Assembly To Maincase	Input Gear (Double)	SRK Sun Gear	SRK Sun Gear
	Ring Gear	Ring Gear	Ring Gear
	Input Sub-Assembly To Maincase	SRJ Carrier Assembly	SRJ Carrier Assembly
		Input Gear (Triple)	SRJ Sun Gear
		Input Sub-Assembly To Maincase	Quad Adapter To Maincase
			SRA Carrier Assembly
			Input Gear (Quad)
Input Sub-Assembly To Maincase	Input Sub-Assembly To Maincase		

TABLE 4 — Neptune/Neptune Plus - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRE Carrier Assembly	SRE Carrier Assembly	SRE Carrier Assembly	SRE Carrier Assembly
Ring Gear	SRE Sun Gear	SRE Sun Gear	SRE Sun Gear
Input Gear (Single)	Ring Gear	Ring Gear	Ring Gear
Input Sub-Assembly To Maincase	SRC Carrier Assembly	SRC Carrier Assembly	SRC Carrier Assembly
	Input Gear (Double)	SRC Sun Gear	SRC Sun Gear
	Input Sub-Assembly To Maincase	Ring Gear (Triple)	SRB Carrier Assembly
		SRB Carrier Assembly	SRB Sun Gear
		Input Gear (Triple)	Ring Gear (Quad)
		Input Sub-Assembly To Maincase	SRA Carrier Assembly
			Input Gear (Quad)
			Quad Housing Adapter To Maincase
			Input Sub-Assembly To Quad Housing Adapter

TABLE 4 — Saturn Plus - Speed Reducer Assembly Sequence

Single	Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRF Carrier Assembly	SRF Carrier Assembly	SRF Carrier Assembly	SRF Carrier Assembly
Ring Gear	SRF Sun Gear	SRF Sun Gear	SRF Sun Gear
Input Gear (Single)	Ring Gear	Ring Gear	Ring Gear
Input Sub-Assembly To Maincase	SRE Carrier Assembly	SRE Carrier Assembly	SRE Carrier Assembly
	Input Gear (Double)	SRE Sun Gear	SRE Sun Gear
	Input Sub-Assembly To Maincase	Ring Gear (Triple)	SRC Carrier Assembly
		SRC Carrier Assembly	SRC Sun Gear
		Input Gear (Triple)	Ring Gear (Quad)
		Input Sub-Assembly To Maincase	SRB Carrier Assembly
			Input Gear (Quad)
			Quad Housing Adapter To Maincase
			Input Sub-Assembly To Quad Housing Adapter

TABLE 4 — Titan Plus - Speed Reducer Assembly Sequence

Double	Triple	Quadruple
Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase	Output Sub-Assembly To Maincase
SRH Carrier Assembly	SRH Carrier Assembly	SRH Carrier Assembly
Ring Gear	Ring Gear	Ring Gear
SRH Sun Gear	SRH Sun Gear	SRH Sun Gear
SRE Carrier Assembly	SRE Carrier Assembly	SRE Carrier Assembly
Input Gear (Double)	SRE Sun Gear	SRE Sun Gear
Input Sub-Assembly To Maincase	Ring Gear (Triple)	SRC Carrier Assembly
	SRC Carrier Assembly	SRC Sun Gear
	Input Gear (Triple)	Ring Gear (Quad)
	Input Sub-Assembly To Maincase	SRB Carrier Assembly
		Input Gear (Quad)
		Quad Housing Adapter To Maincase
		Input Sub-Assembly To Quad Housing Adapter

TABLE 5 - REDUCER MODEL NUMBER
(1-2-3-4) (5-6-7-8) — (9-10-11-12-13)

1 REDUCER SERIES	2 REDUCER DESCRIPTION	3 ACCESSORIES	4 SHAFT OPTION	5-8 GEAR CODE	9-13 SERIAL NUMBER
X—Mercury MX—Mercury (metric)	A—Standard	A—No Accessory	A—Input/Output Standard	000X—Single	—XXXXX
Y—Mars MY—Mars (metric)	B—Backstop	B—Scoop Mount	B—Input/Output Std. w/Fan & Shrd.	00XX—Double	
V—Venus MV—Venus (metric)	C—Non-Horizontal	C—Baseplate	C—Input Modified	0XXX—Triple	
A—Atlas MA—Atlas (metric)	D—Non-Horizontal w/Backstop	D—Slidebase (SB)	D—Input Mod. w/Fan & Shrd.	XXXX—Quad	
ME—Earth (metric)	E—Integral C-Face [IEC-Flange Adapter]	E—Motor Mount	E—Output Modified		
P—Polaris MP—Polaris (metric)	F—Non-Horizontal Integral C-Face [IEC-Flange Adapter]	F—Scoop & SB	F—Output Mod. w/Fan & Shrd.		
N—Neptune MN—Neptune (metric)	G—Right Angle	G—Baseplate & SB	G—Input/Output Modified		
W—Orion MW—Orion (metric)	H—X/Y No Feet	H—Motor Mount & SB	H—Input/Output Mod. w/Fan & Shrd.		
S—Saturn MS—Saturn (metric)	I—X/Y Double Reduction Housing	K-Special			
T—Titan MT—Titan (metric)	J—X/Y Double Reduction Housing - No Feet				
J—Jupiter r MJ—Jupite (metric)	K—X/Y Double Reduction Housing - Integral C-Face - No Feet [IEC-Flange Adapter]				
	L—X/Y Double Reduction Housing - Integral C-Face [IEC-Flange Adapter]				
	M—X/Y Integral C-Face- No Feet [IEC-Flange Adapter]				
	N—X/Y Non-Horizontal - Double Reduction Housing - Integral C-Face [IEC-Flange Adapter]				
	O—X/Y Non-Horizontal - Integral C-Face- No Feet [IEC-Flange Adapter]				
	Z—Special				

* [] - Brackets indicate metric equivalent or option

TABLE 6 — GEAR CODES

Red	Nom Ratio	Actual Ratio - Gear Code																							
		Mercury		Mars		Venus		Atlas		Earth		Polaris		Neptune		Orion		Saturn		Titan		Jupiter			
SNG	3.53	3.75	4	3.75	4	3.32	3			3.32	3	3.32	3	3.32	3	3.32	3	3.32	3						
	4.39	4.67	5	4.67	5	4.11	4	4.11	4	4.11	4	4.11	4	4.11	4	4.11	4	4.11	4						
	6.12	6.50	7	6.50	7	5.74	6	5.74	6	5.74	6			5.74	6			5.74	6						
DBL	9.30			9.41	23			9.45	32	9.45	32	9.45	23	9.45	23										
	11.02	10.24	33	10.24	33	11.02	33	11.02	33	11.02	33	11.02	33	11.02	33	11.02	33	11.02	33	11.02	33				
	13.85	14.06	44	14.06	44	13.66	43	13.66	43	13.66	43	13.66	43	13.66	43	13.66	43	13.66	43	13.66	43	12.80	34		
	17.21	17.50	54	17.50	54	16.93	44	16.93	44	16.93	44	16.93	44	16.93	44	16.93	44	16.93	44	16.93	44				
	20.41	21.78	55	21.78	55	19.05	63	19.05	63	19.05	63	19.05	63	19.05	63	19.05	63	19.05	63	19.05	63	19.08	45		
	24.00	24.38	74	24.38	74	23.61	64	23.61	64	23.61	64	23.61	64	23.61	64	23.61	64	23.61	64	23.61	64	24.69	46		
	31.63	30.33	75	30.33	75	32.94	66	32.94	66	32.94	66			32.94	66			32.94	66	30.49	84	28.55	56		
TRP	36.56	38.40	433	38.40	433	36.57	333	36.57	333	36.57	333	36.57	333	36.57	333	36.57	333	35.27	85	36.57	333	34.43	66		
	43.78	42.25	77	42.25	77	45.33	433	45.33	433	45.33	433	45.33	433	45.33	433	45.33	433	42.54	86	45.33	433	42.49	334		
		45.00	443	45.00	443													45.33	433						
	54.45	52.73	444	52.73	444	56.18	443	56.18	443	56.18	443	56.18	443	56.18	443	56.18	443	56.18	443	56.18	443	51.08	335		
	64.42	65.63	544	65.63	544	63.23	633	63.23	633	63.23	633	63.23	633	63.23	633	63.23	633	63.23	633	63.23	633	63.31	435		
	69.63	69.69	553	69.69	553	69.64	444	69.64	444	69.64	444	69.64	444	69.64	444	69.64	444	69.64	444	69.64	444	65.29	444		
	80.01	81.67	554	81.67	554	78.37	643	78.37	643	78.37	643	78.37	643	78.37	643	78.37	643	78.37	643	78.37	643	78.48	445		
	91.41	91.41	744	91.41	744			93.79	662	93.79	662			93.79	626			90.65	635			88.32	635		
	99.38	101.63	555	101.63	555	97.15	644	97.15	644	97.15	644	97.15	644	97.15	644	97.15	644	97.15	644	97.15	644	101.56	446		
																							94.89	834	
	111.5	113.75	754	113.75	754	109.32	663	109.32	663	109.32	663	109.32	663	109.32	663	109.32	663	109.32	663	109.32	663	109.48	645		
	121.4	122.88	4333	122.88	4333	117.01	3333	117.01	3333	121.37	3333	121.37	3333	121.37	3333	121.37	3333	121.37	3333	121.37	3333	121.37	3333	127.05	664
									117.64	4332															
	138.5	141.56	755	141.56	755	135.51	664	135.51	664	135.51	664	135.51	664	135.51	664	135.51	664	135.51	664	135.51	664	141.67	646		
						137.12	4333	137.12	4333														136.04	854	
159.8	158.44	774	158.44	774	170.64	5333	170.64	5333	150.44	4333	150.44	4333	150.44	4333	150.44	4333	156.74	665	150.44	4333	152.71	665			
																		150.44	4333						
193.1	197.17	775	197.17	775	189.03	666	189.03	666	189.03	666			189.03	666			189.03	666	186.48	4433	197.63	666			
									186.48	4433	186.48	4433	186.48	4433	186.48	4433	186.48	4433	186.48	4433		202.21	3354		
QD	206.2	197.75	4444	197.75	4444	211.52	5433	211.52	5433	209.86	6333	209.86	6333	209.86	6333	209.86	6333	209.86	6333	209.86	6333	210.15	4335		
	238.2	246.09	5444	246.09	5444	237.68	7333	237.68	7333	231.16	4443	231.16	4443	231.16	4443	231.16	4443	231.16	4443	231.16	4443	243.87	6334		
	265.4	274.63	777	274.63	777	262.19	5443	262.19	5443	260.13	6433	260.13	6433	260.13	6433	260.13	6433	260.13	6433	260.13	6433	260.49	4435		
		261.33	5543	261.33	5543																	268.63	4444		
	295.7	306.25	5544	306.25	5544	294.62	7433	294.62	7433	286.54	4444	286.54	4444	286.54	4444	286.54	4444	286.54	4444	286.54	4444	293.14	6335		
	330.1	342.77	7444	342.77	7444	325.01	5444	325.01	5444	322.45	6443	322.45	6443	322.45	6443	322.45	6443	322.45	6443	322.45	6443	322.89	4445		
	369.8	381.11	5554	381.11	5554	365.20	7443	365.20	7443	362.87	6633	362.87	6633	362.87	6633	362.87	6633	362.87	6633	362.87	6633	363.37	6435		
	412.1	426.56	7544	426.56	7544	410.97	7633	410.97	7633	399.70	6444	399.70	6444	399.70	6444	399.70	6444	399.70	6444	399.70	6444	374.71	6444		
	459.0	474.27	5555	474.27	5555	452.69	7444	452.69	7444	449.79	6643	449.79	6643	449.79	6643	449.79	6643	449.79	6643	449.79	6643	450.41	6445		
	532.5	530.83	7554	530.83	7554	509.43	7643	509.43	7643	557.55	6644	557.55	6644	557.55	6644	557.55	6644	557.55	6644	557.55	6644	506.87	6635		
	617.9	594.14	7744	594.14	7744	631.46	7644	631.46	7644	627.43	6663	627.43	6663	627.43	6663	627.43	6663	627.43	6663	627.43	6663	628.30	6645		
	660.6	660.59	7555	660.59	7555					676.79	73332	676.79	73323	676.79	73323	658.21	44423	696.55	63333	658.21	44243	658.21	44243	655.95	6636
																							671.16	33354	
	741.2	739.38	7754	739.38	7754	710.61	7663	710.61	7663	777.74	6664	777.74	6664	777.74	6664	777.74	6664	777.74	6664	777.74	6664	728.21	33336		
																							729.13	6664	
	900.3	920.11	7755	920.11	7755	880.85	7664	880.85	7664	925.44	54442	925.44	54424	918.16	64423	863.42	64333	918.16	64243	918.16	64243	876.43	6665		
	1057	1029.84	7774	1029.84	7774	1080.19	6666	1080.19	6666	1084.89	6666	1039.89	74423	1084.89	6666	1070.26	64433	1033.24	66233	1033.24	66233	1071.74	44435		
1255	1281.58	7775	1281.58	7775	1228.72	7666	1228.72	7666	1289.00	74442	1289.00	74424	1280.77	66423	1204.40	66333	1280.77	66243	1280.77	66243	1243.73	64434			
									1212.15	74433	1212.15	74433													
1785	1785.06	7777	1785.06	7777					1798.07	76442	1798.07	76424	1786.58	66623	1850.58	66443	1786.58	66263	1786.58	66263	1734.92	66434			
									1784.15	36644															



TABLE 7 — Reducer Oil Capacity Gallons

Reducer Series	Reduction Type				
	Single	Double	Triple	Quadruple	Quintuple
Mercury	0.25 (0.50)	0.25 (0.50)	0.25 (0.50)	0.38 (0.61)	...
Mars	0.25 (0.50)	0.25 (0.50)	0.25 (0.50)	0.38 (0.61)	...
Venus	3.8 (5.0)	3.8 (5.0)	3.8 (5.0)	3.8 (4.5)	...
Atlas/Luna	3.8 (5.0)	3.8 (5.0)	3.8 (5.0)	3.8 (4.5)	...
Earth	5.0 (7.0)	5.0 (7.0)	5.0 (7.0)	5.0 (7.0)	5.0 (7.0)
Polaris/Delta	6.8 (8.8)	6.8 (8.8)	6.8 (8.8)	6.8 (8.8)	6.8 (8.8)
Neptune/Neptune Plus	7.8 (14.0)	7.8 (14.0)	7.8 (14.0)	8.5 (15.5)	8.3 (15.7)
Orion Plus	12.0 (19.0)	12.0 (19.0)	12.0 (19.0)	12.7 (20.0)	12.8 (21.0)
Saturn Plus	13.0 (22.5)	13.0 (22.5)	13.0 (22.5)	15.0 (25.5)	...
Titan Plus	...	15.5 (22.5)	15.5 (34.0)	17.5 (38.0)	...