RIGHT ANGLE PLANETARY GEARHEADS — MRA 065

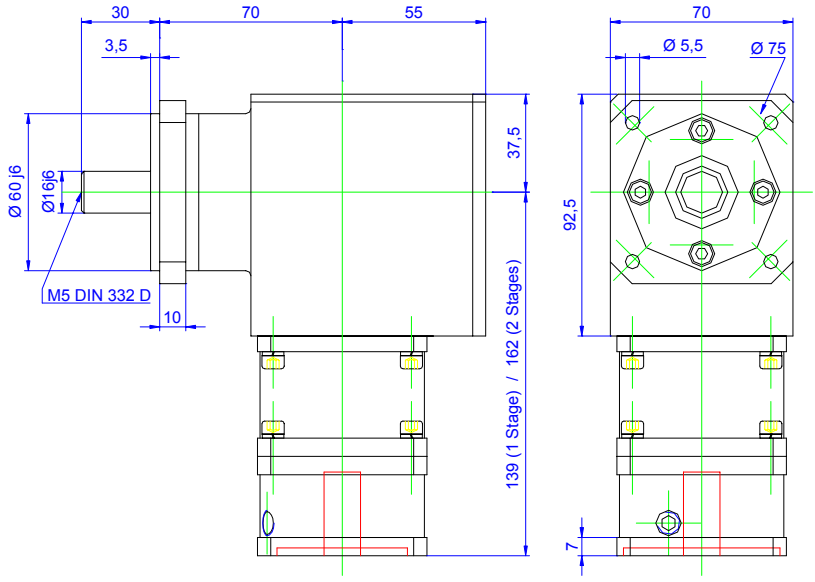
Characteristics

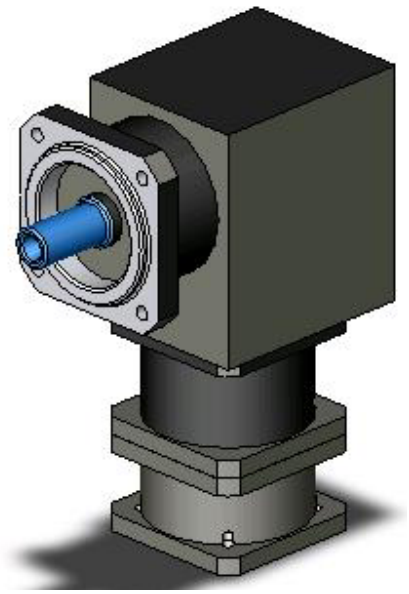
No. of stages		1 - Stage					2 - Stages						
Ratio (1)		3	4	5	7	10	16	20	25	35	50	70	100
INPUT													
Rated speed / Max speed	rpm	4,000 / 6,000											
Rated Power	Kw	1.05	0.78	0.78	0.55	0.39	0.47	0.39	0.31	0.23	0.16	0.11	0.08
Rated torque	Nm	**2.50**	**1.88**	**2.0**	**1.3**	**0.94**	**1.13**	**0.95**	**0.76**	**0.57**	**0.38**	**0.28**	**0.19**
Accel torque.	**Nm** (2)	**2.34**	**2.34**	**2.35**	**1.7**	**1.2**	**2.31**	**1.79**	**1.46**	**1.04**	**0.76**	**0.57**	**0.28**
OUTPUT													
Rated Speed	rpm	1333	1000	800	571	400	250	200	160	114	80	57	40
Rated Torque	Nm	**7.2**	**7.2**	**9.00**	**9.00**	**9.0**	**16.3**	**17.0**	**17.0**	**17.9**	**16.7**	**17.9**	**17.0**
Accel Torque	**Nm** (2)	**9.00**	**9.00**	**11.3**	**11.3**	**11.3**	**33.3**	**32.3**	**32.9**	**32.7**	**33.3**	**35.7**	**25.5**
GENERAL DATA													
Inertia	Kg-m^{2}x10 $^{-5}$ (3)	0.50	0.50	0.30	0.10	0.10	0.40	0.40	0.30	0.30	0.10	0.70	0.70
Max. Backlash	arc-mins	15 or 5											
Efficiency	% (4)	96					91						
Rated Life	H	10,000											
Weight	Kg	3					4						
Radial Load	N (5)	750											
Axial Load	N	300											

(1) Please inquire if a desired ratio is not shown.
(2) S5 duty service.
(3) On the motor side.
(4) Theoretical gear efficiency value.
(5) Load applied in the middle of the output shaft at 300 rpm.

NOTE-- Emergency Stop Torque is 2.5 times Rated Output Torque for 1000 times max during the service life of the gearhead.

Dimensions [mm]





16 MM MAX MOTOR INPUT SHAFT DIAMETER

M105 - 05/2004

* Depends on gear ratio and / or on motor dimension

Specifications are subject to change without notice

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RIGHT ANGLE PLANETARY GEARHEADS — MRA 080

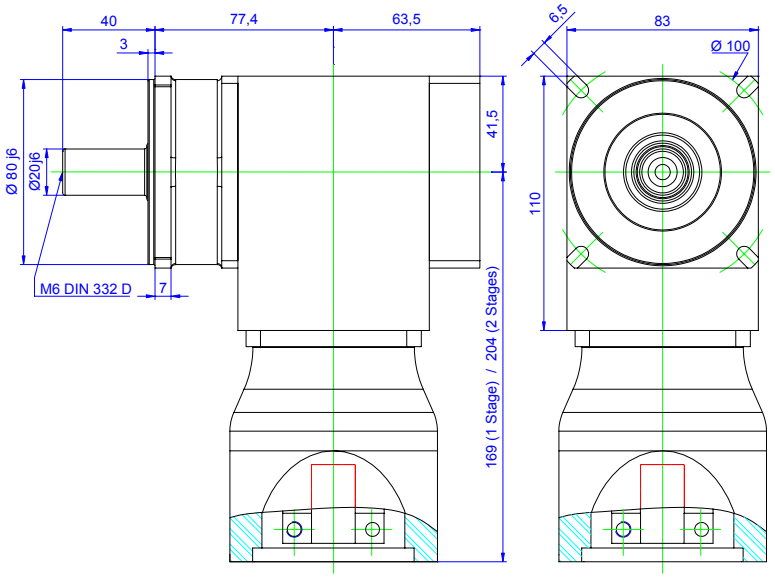
Characteristics

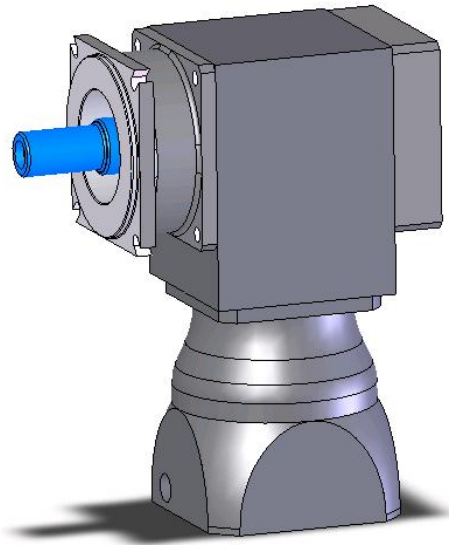
No. Of Stages		1 - Stage					2 – Stages							3-Stages	
Ratio[1]		3	4	5	7	10	16	20	25	35	50	70	100	125	175
INPUT															
Rated speed / Max speed	Tr / mn	4,000 / 6,000													
Rated Power	Kw	9.6	9.6	7.4	3.7	2	2.5	2.0	1.6	1.1	0.79	0.54	0.2	0.33	0.25
Rated torque	Nm	**23**	**23**	**18**	**9**	**5**	**5.9**	**4.7**	**3.7**	**2.7**	**1.9**	**1.3**	**0.5**	**0.8**	**0.6**
Accel torque.	**Nm** [2]	**30**	**30**	**20**	**11**	**6**	**9**	**7**	**6**	**4**	**3**	**2**	**1**	**1**	**1**
OUTPUT															
Rated speed	rpm	1333	1000	800	571	400	250	200	160	114	80	57	40	32	23
Rated torque	Nm	**85**	**85**	**85**	**65**	**50**	**86**	**85**	**85**	**86**	**85**	**50**	**50**	**90**	**84**
Accel torque.	**Nm** [2]	**110**	**110**	**90**	**70**	**55**	**125**	**126**	**130**	**134**	**100**	**100**	**70**	**150**	**154**
GENERAL DATA															
Inertia	$Kg\text{-}m^2x10^{-5}$ [3]	11.3	11.3	10.4	9.6	9.3	10.8	10.7	10	9.4	10.8	10.8	10.7	10	9.4
Max. Backlash	arc-min.	10 or 5													
Efficiency	% [4]	96					91							86	
Rated Life	H	15,000													
Weight	Kg	5					6							7	
Radial Load	N [5]	1,600													
Axial Load	N	650													

(1) Please inquire if a desired ratio is not shown.
(2) S5 duty service.
(3) On the motor side.
(4) Theoretical gear efficiency value.
(5) Load applied in the middle of the output shaft at 300 rpm.

NOTE-- Emergency Stop Torque is 2.5 times Rated Output Torque for 1000 times max during the service life of the gearhead.

Dimensions [mm]





19 MM MAX MOTOR INPUT SHAFT DIAMETER

M107 - 05/2004

* Depends on gear ratio and / or on motor dimension

Specifications are subject to change without notice

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RIGHT-ANGLE PLANETARY GEARHEADS — MRA 115

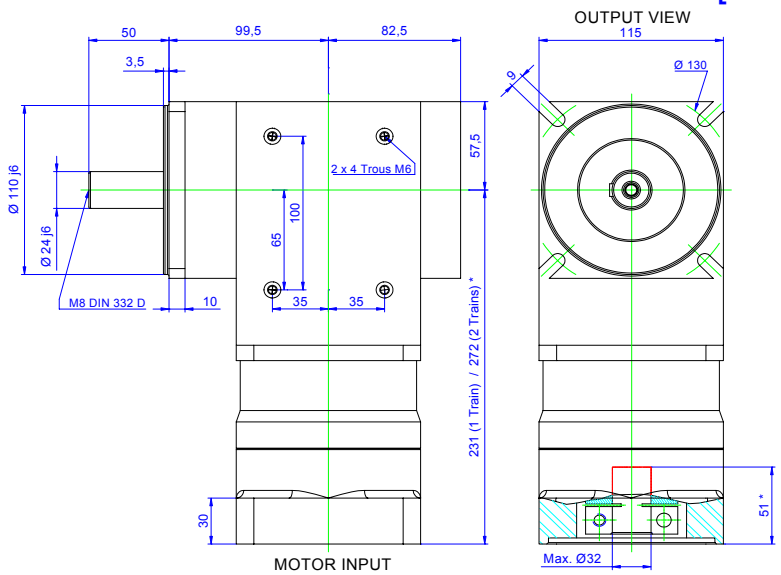
Characteristics

No. of Stages		1 - Stage					2 – Stages							3 - Stages	
Ratio (1)		3	4	5	7	10	16	20	25	35	50	70	100	125	175
INPUT															
Rated speed / Max speed	rpm	4,000 / 6,000													
Rated Power	Kw	26	20	16	11	6.3	5	4.2	3.4	2.1	1.5	0.92	0.84	0.63	0.46
Rated torque	Nm	**62**	**47**	**38**	**27**	**15**	**12**	**10**	**8**	**5**	**3.5**	**2.2**	**2**	**1.5**	**1.1**
Accel torque.	**Nm** (2)	**86**	**65**	**52**	**29**	**20**	**17**	**13**	**11**	**7**	**5.2**	**4**	**3**	**2**	**2**
OUTPUT															
Rated Speed	rpm	1333	1000	800	571	400	250	200	160	114	80	57	40	32	23
Rated Torque	Nm	**178**	**181**	**182**	**182**	**144**	**175**	**182**	**182**	**160**	**160**	**137**	**172**	**162**	**162**
Accel Torque	**Nm** (2)	**250**	**250**	**250**	**195**	**195**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**
GENERAL DATA															
Inertia	Kg-m^{2}x10 $^{-5}$ (3)	44.4	44.4	40.4	36.8	35.1	42.3	42	38.9	36	42.1	42.1	41.9	38.8	36
Max. Backlash	arc-min.	10 or 5													
Efficiency	% (4)	96					91							86	
Rated Life	H	15,000													
Weight	Kg	23					25							28	
Radial Load	N (5)	2,400													
Axial Load	N	1,000													

(1) Please inquire if a desired ratio is not shown.
(2) S5 duty service.
(3) On the motor side.
(4) Theoretical gear efficiency value.
(5) Load applied in the middle of the output shaft at 300 rpm.

NOTE-- Emergency Stop Torque is 2.5 times Rated Output Torque for 1000 times max during the service life of the gearhead.

Dimensions [mm]



GEARHEAD OUTPUT SHAFT DIA. OF 32 MM AVAILABLE AT ADDITIONAL CHARGE

M104 - 05/2004

* Depends on gear ratio and / or motor dimension

Specifications are subject to change without notice.

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RIGHT ANGLE PLANETARY GEARHEADS

MRA 140

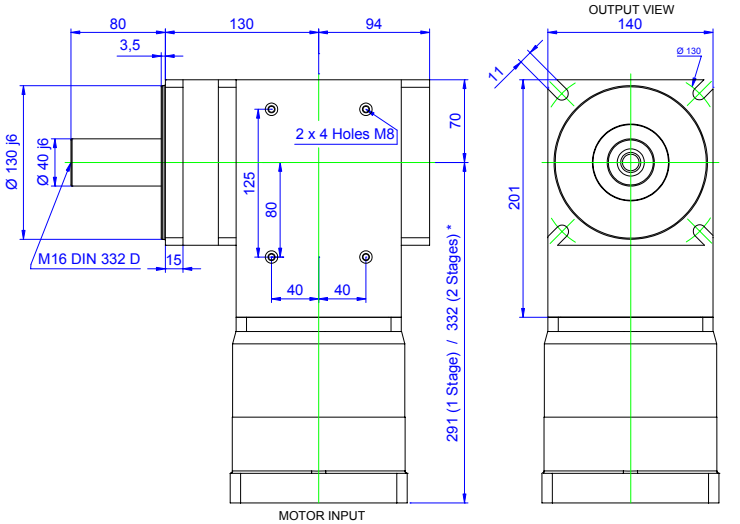
Characteristics

No. of Stages		1 - Stage					2 - Stages							3 -Stages	
Ratio (1)		3	4	5	7	10	16	20	25	35	50	70	100	125	175
INPUT															
Rated speed / Max speed	Tr / mn	4,000 / 6,000													
Rated power	Kw	33	25	20	14	10	6.7	5.5	4.2	3	2.1	1.5	1	0.84	0.63
Rated torque	Nm	**80**	**60**	**48**	**34**	**24**	**16**	**13**	**10**	**7**	**5**	**3.5**	**2.5**	**2**	**1.5**
Accel torque.	**Nm** (2)	**138**	**104**	**83**	**44**	**31**	**27**	**22**	**17**	**12**	**8**	**6**	**4**	**3**	**3**
OUTPUT															
Rated speed	rpm	1333	1000	800	571	400	250	200	160	114	80	57	40	32	23
Rated torque	Nm	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**
Accel torque.	**Nm** (2)	**400**	**400**	**400**	**300**	**300**	**400**	**400**	**400**	**400**	**400**	**400**	**400**	**400**	**400**
GENERAL DATA															
Inertia	Kg-m^{2}x10 $^{-5}$ (3)							117							
Max. Backlash	arc-min.	10 or 5													
Efficiency	% (4)	96					91							86	
Rated Life	H	15,000													
Weight	Kg	25					33							41	
Radial Load	N (5)	6,000													
Axial Load	N	3,000													

(1) Please inquire if a desired ratio is not shown.
(2) S5 duty service.
(3) On the motor side.
(4) Theoretical gear efficiency value.
(5) Load applied in the middle of the output shaft at 300 rpm.

NOTE-- Emergency Stop Torque is 2.5 times Rated Output Torque for 1000 times max during the service life of the gearhead.

Dimensions [mm]



32 MM MAX MOTOR INPUT SHAFT DIAMETER

M103 - 05/2004

* Depends on gear ratio and / or on motor dimension

Specifications are subject to change without notice

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RIGHT ANGLE PLANETARY GEARHEADS

MRA 180

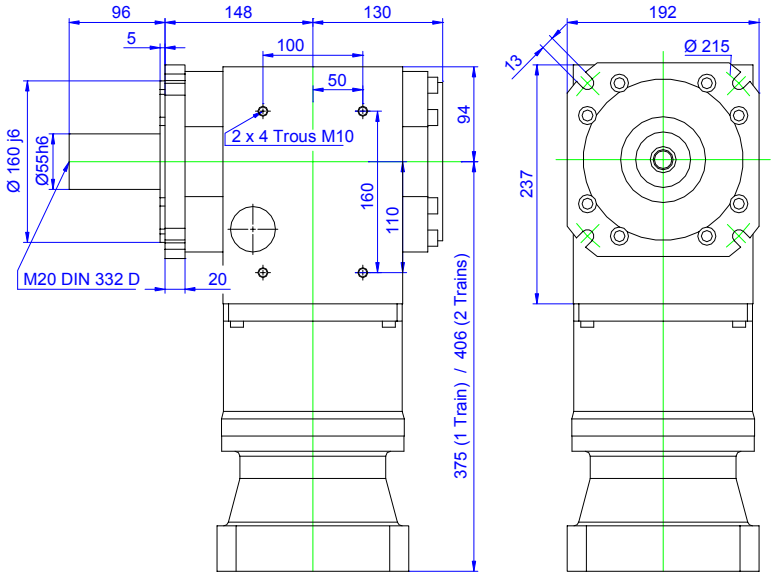
Characteristics

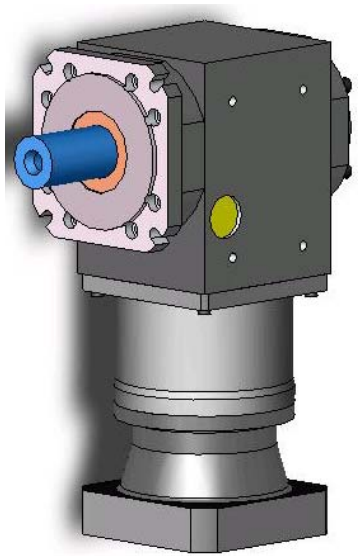
No. of Stages		1 - Stage					2 - Stages							3 - Stages	
Ratio[1]		3	4	5	7	10	16	20	25	35	50	70	100	125	175
INPUT															
Rated speed / Max speed	Tr / mn	4,000 / 6,000													
Rated power	Kw	51	38	31	22	15	10	8	6.3	4.6	3	2.5	1.7	1.3	1
Rated torque	Nm	**121**	**91**	**73**	**52**	**36**	**24**	**19**	**15**	**11**	**8**	**6**	**4**	**3**	**2.3**
Accel torque.	**Nm** [2]	**139**	**104**	**83**	**59**	**41**	**27**	**22**	**18**	**13**	**9**	**7**	**5**	**4**	**2.8**
OUTPUT															
Rated speed	rpm	1333	1000	800	571	400	250	200	160	114	80	57	40	32	23
Rated torque	Nm	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**
Accel torque.	**Nm** [2]	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**
GENERAL DATA															
Inertia	Kg-m^{2}x10 $^{-5}$ [3]														
Max. Backlash	arc-min.	10 or 5													
Efficiency	% [4]	96					91							86	
Rated Life	H	15,000													
Weight	Kg	60					90							105	
Radial Load	N [5]	9,000													
Axial Load	N	5,000													

(1) Please inquire if a desired ratio is not shown.
(2) S5 duty service.
(3) On the motor side.
(4) Theoretical gear efficiency value.
(5) Load applied in the middle of the output shaft at 300 rpm.

NOTE-- Emergency Stop Torque is 2.5 times Rated Output Torque for 1000 times max during the service life of the gearhead.

Dimensions [mm]





48 MM MAX MOTOR INPUT SHAFT DIAMETER

M102 - 05/2004

* Depends on gear ratio and / or on motor dimension

Specifications are subject to change without notice

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ASSEMBLY INSTRUCTIONS: MRA 065 - 080 - 115 - 140

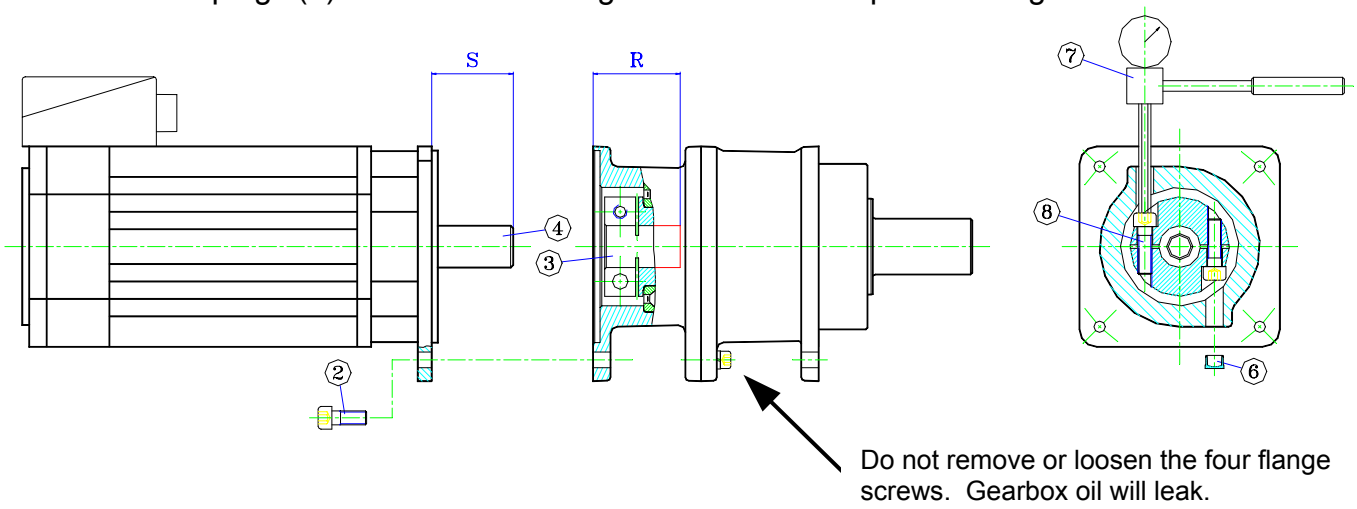
The MRA (Right-Angle) gearhead procedure is the same as that of the MNT.

1. The drawing below depicts an In-line gearhead, but coupling to the motor is the same for Right-Angle. For each motor-gearhead assembly, first check that the hole depth {R} is longer than dimension {S}. Dimension {R} is the depth of the input pinion shaft bore (3).
2. Remove the two access hole plugs (6) from the gearhead adaptor flange to enable insertion of a long hexagonal wrench. See the drawing below showing item 7 connecting to item 8 for location of these access plugs. (Caution--Do not remove the oil fill and drain plugs—these have hex socket heads and are located flush to the surface, in the center of the round body, of the in-line portion of the gearhead). Next, manually rotate the input pinion to align the clamping screws (8) such that the hexagonal wrench can fit into the screw head sockets.
3. Degrease the motor shaft and input pinion bore with an appropriate solvent.
4. Slip the gearhead onto the motor shaft. (See the helpful hint below.)
5. Fasten the gearhead to the motor using 4 screws (2). Apply a low tightening torque for this initial fitting.
6. By means of a torque wrench (7) inserted in the flange access holes, tighten the 2 input pinion clamping screws (8) with a torque of :

   (16 Nm or 142 Lb-in for **MRA** 065 and **MRA** 080)

   (39 Nm or 345 Lb-in for **MRA** 115 and **MRA** 140)

   (70 Nm or 620 Lb-in for **MRA** 180 and **MRA** 210)
7. Loosen the 4 screws (2) connecting the motor and the gearbox and then final-tighten them (important for alignment).
8. Insert the 2 plugs (6) into the radial flange holes of the adapter housing.



Do not remove or loosen the four flange screws. Gearbox oil will leak.

HELPFUL HINT : It may be easier to assemble with the motor and gearhead in a vertical position. Use CAUTION to prevent the assembly from tipping on its side.

1 / 2002

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