



FREEWHEEL BOOK

INDEX

ACURA

Page 1 of 4

MPYA, M5DA, M5HA, - 1ST GEAR ONE-WAY	6
MPYA, M5DA, M5HA, - 2ND GEAR ONE-WAY	7
G4, L5, PL5X, MR9A, - LOW ONE-WAY	8
M1WA, MPWA, - LOW ONE-WAY	9
CA, P1, RO, MPR4, S4XA, SP7A, - LOW ONE-WAY	10
THM 4L30-E, - LOW ONE-WAY	11
THM 4L30-E, - OVERDRIVE	12

AUDI/VOLKSWAGEN

003, 010, 087, 089, - LOW ONE-WAY	13
095, 096, 097, 098, - LOW ONE-WAY	14
ZF4HP-18, ZF5HP-19, - LOW ONE-WAY	15
ZF4HP-18, - INTERMEDIATE ONE-WAY	16
ZF4HP-24/EH, - LOW ONE-WAY	17
ZF4HP-24/EH, - INTERMEDIATE ONE-WAY	18
ZF4HP-24/EH, - OVERDRIVE ONE-WAY	19

BMW

ZF3HP-22, ZF4HP-22/EH, ZF4HP-24/EH, - LOW ONE-WAY	17
ZF3HP-22, ZF4HP-22/EH, ZF4HP-24/EH, - INTERMEDIATE ONE-WAY	18
ZF4HP-22/EH, ZF4HP-24/EH, - OVERDRIVE ONE-WAY	19
ZF5HP-18, - LOW ONE-WAY	15
ZF5HP-18, - INTERMEDIATE ONE-WAY	16
ZF5HP-24, - LOW ONE-WAY	20
ZF5HP-30, - LOW ONE-WAY (FrF)	22
ZF5HP-30, - 2ND ONE-WAY (FrE)	23
THM 4L30-E, - LOW ONE-WAY	11
THM 4L30-E, - OVERDRIVE ONE-WAY	12

CHRYSLER

A404, A413, A670 SERIES, - LOW ROLLER	24
ALL "KM" SERIES FRONT WHEEL DRIVE	25
ZF4HP-18, - LOW ONE-WAY	15
ZF4HP-18, - INTERMEDIATE ONE-WAY	16
ALL REAR DRIVE TORQUEFLITE, - LOW ROLLER	26
ALL REAR DRIVE TORQUEFLITE, - OVERDRIVE ROLLER	27
ALL 45RFE, - LOW ROLLER	28
A40 SERIES, - LOW ONE-WAY	29
A40 SERIES, - 2ND GEAR ONE-WAY	30
A40 SERIES, - OVERDRIVE ONE-WAY	31
AW4, - LOW ONE-WAY	102
AW4, - 2ND GEAR ONE-WAY	103
AW4, - OVERDRIVE ONE-WAY	104

FORD MOTOR COMPANY

ATX ROLLER CLUTCH	32
AXOD, AXODE (AX4S), AX4N, - LOW ONE-WAY	33
AXOD, AXODE (AX4S), AX4N, - 3RD ROLLER CLUTCH	34
AX4N, - 1-2 ROLLER CLUTCH	35
CD4E, LA4A-EL, - LOW ROLLER CLUTCH	36
CD4E, LA4A-EL, - FORWARD SPRAG	37
CAST IRON FORD, BW12, FMX, - LOW ONE-WAY	38
C4, C5, - LOW ROLLER CLUTCH	39
C6, E4OD, 4R100, - LOW ROLLER CLUTCH	40
E4OD, 4R100, - INTERMEDIATE SPRAG	41
E4OD, 4R100, - OVERDRIVE ONE-WAY	42
C3, A4LD, 4R44E, 4R55E, 5R55E, 5R55N, - LOW ONE-WAY	43
A4LD, 4R44E, 4R55E, 5R55E, 5R55N, - OVERDRIVE SPRAG	44
5R55N, - SUN SHELL SPRAG	45
AOD, AODE, 4R70W, - LOW ROLLER CLUTCH	46
AOD, AODE, 4R70W, - INTERMEDIATE ONE-WAY	47
F3A, KF100, - LOW ONE-WAY	74
F4EAT, F4A-EL, - FORWARD ONE-WAY	75
F4EAT, F4A-EL, G4A-HL, G4A-EL, GF4A-EL, - LOW ROLLER CLUTCH	76
G4A-HL, G4A-EL, GF4A-EL, - FORWARD ONE-WAY	77
4F20E, - LOW ONE-WAY	81
4F20E, - FORWARD SPRAG	82
L3N71B, - LOW ONE-WAY	83
ZF4HP-22, - LOW ONE-WAY	17
ZF4HP-22, - INTERMEDIATE ONE-WAY	18
ZF4HP-22, - OVERDRIVE ONE-WAY	19



FREEWHEEL BOOK

INDEX

Page 2 of 4

GENERAL MOTORS

THM 125, 125C, 325, 325-4L, - LOW ROLLER CLUTCH	48
THM 180, 4L30-E, - LOW ONE-WAY	11
THM 4L30-E, - OVERDRIVE	12
THM 200, 200-4R, - LOW ROLLER CLUTCH	49
THM 200-4R, 325-4L, - OVERRUN ROLLER CLUTCH	50
THM 250, 250C, 350, 350C, 700-R4, 4L60E, - LOW ROLLER CLUTCH	51
THM 350, 350C, - INTERMEDIATE ROLLER CLUTCH	52
THM 700-R4, 4L60E, - INPUT SPRAG	53
THM 425, - LOW ROLLER CLUTCH	54
THM 425, - INTERMEDIATE ONE-WAY CLUTCH	55
THM 400, 4L80E, 4L80EHD, - LOW ROLLER CLUTCH	56
THM 400, 4L80E, 4L80EHD, - INTERMEDIATE ONE-WAY CLUTCH	57
THM 4L80E, 4L80EHD, - OVERDRIVE ROLLER CLUTCH	58
THM 4T40E, - INPUT SPRAG	59
THM 4T40E, - LOW ROLLER CLUTCH	60
THM 4T40E, - INTERMEDIATE ROLLER CLUTCH	61
THM 4T60, 4T60E, 4T65E, - INPUT SPRAG AND 3RD ONE-WAY CLUTCH	62
THM 4T60E, 4T65E, - 1-2 ROLLER CLUTCH	63
THM 4T80E, - INPUT SPRAG	64
THM 4T80E, - LOW ROLLER CLUTCH	65
THM 4T80E, - INTERMEDIATE ONE-WAY CLUTCH	66
SATURN TAAT, MP6/MP7, - LOW ONE-WAY CLUTCH	67
SPECTRUM F3A, KF100, - LOW ONE-WAY CLUTCH	74
SPRINT MX17, - LOW ONE-WAY CLUTCH	95
TILTMASER TRUCK JR403E, - LOW ONE-WAY CLUTCH	85
TILTMASER TRUCK JR403E, - FORWARD ONE-WAY CLUTCH	86
GEO METRO MX17, - LOW ONE-WAY CLUTCH	95
GEO TRACKER A44-DE, - LOW ONE-WAY CLUTCH	99
GEO TRACKER A44-DE, - 2ND ONE WAY CLUTCH	100
GEO TRACKER A44-DE, - OVERDRIVE ONE-WAY CLUTCH	101
GEO TRACKER THM 180, - LOW ONE-WAY CLUTCH	11
GEO STORM JF403E, - LOW ONE-WAY CLUTCH	81
GEO STORM JF403E, - FORWARD ONE-WAY CLUTCH	82
GEO PRIZM A130, A131, - LOW ONE-WAY CLUTCH	95
GEO PRIZM A130, A131, - 2ND ONE-WAY CLUTCH	96
GEO PRIZM A240 SERIES, - LOW ONE-WAY CLUTCH	95
GEO PRIZM A240 SERIES, - 2ND ONE-WAY CLUTCH	96
GEO PRIZM A240 SERIES, - UNDERDRIVE ONE-WAY CLUTCH	98

HONDA

AK, AS, CA, F4, K4, L4, S5, A4RA, A24A, B4RA, M4RA, M4TA, M24A, MDLA, MDMA, MPSA, MY8A, PY8A, S24A, SDMA, - LOW ONE-WAY CLUTCH	68
AOYA, APX4, MP1A, MPJA, MPOA, PX4B, - LOW ONE-WAY CLUTCH	69
MPZA, - LOW ONE-WAY CLUTCH	70
THM 4L30-E, - LOW ONE-WAY	11
THM 4L30-E, - OVERDRIVE	12

ISUZU

F3A, KF100, - LOW ONE-WAY CLUTCH	74
JF403E, - LOW ONE-WAY CLUTCH	81
JF403E, - FORWARD ONE-WAY CLUTCH	82
AW3, - LOW ONE-WAY	99
AW3, - 2ND GEAR ONE-WAY	100
AW30-80LE, - LOW ONE-WAY	102
AW30-80LE, - INTERMEDIATE ONE-WAY	103
AW30-80LE, - OVERDRIVE ONE-WAY	104
THM 4L30-E, - LOW ONE-WAY	11
THM 4L30-E, - OVERDRIVE	12
THM 4L60E, - LOW ROLLER CLUTCH	51
THM 4L60E, - INPUT SPRAG	53
JR403E, - LOW ONE-WAY CLUTCH	85
JR403E, - FORWARD ONE-WAY CLUTCH	86
AI SIN SEIKI, - LOW ONE-WAY CLUTCH	71
AI SIN SEIKI, - OVERDRIVE ONE-WAY CLUTCH	72

JAGUAR

BORG-WARNER 65, BW-66, - LOW ONE-WAY CLUTCH	73
THM 400, 4L80E, - LOW ROLLER CLUTCH	56
THM 400, 4L80E, - INTERMEDIATE ONE-WAY CLUTCH	57
THM 4L80E, - OVERDRIVE ROLLER CLUTCH	58



FREEWHEEL BOOK

INDEX

Page 3 of 4

JAGUAR (Continued)

ZF4HP-22/EH, ZF4HP-24/EH, - LOW ONE-WAY	17
ZF4HP-22/EH, ZF4HP-24/EH, - INTERMEDIATE ONE-WAY	18
ZF4HP-22/EH, ZF4HP-24/EH, - OVERDRIVE ONE-WAY	19
ZF5HP-24, - LOW ONE-WAY	20
ZF5HP-30, - LOW ONE-WAY (FrF)	22
ZF5HP-30, - 2ND ONE-WAY (FrE)	23

KIA

F4A-EL, - LOW ROLLER CLUTCH	76
F4A-EL, - FORWARD ONE-WAY CLUTCH	75
A44-DE SERIES, - LOW ONE-WAY	99
A44-DE SERIES, - 2ND GEAR ONE-WAY	100
A44-DE SERIES, - OVERDRIVE ONE-WAY	101

LAND ROVER

ZF4HP-22/EH, ZF4HP-24/EH, - LOW ONE-WAY	17
ZF4HP-22/EH, ZF4HP-24/EH, - INTERMEDIATE ONE-WAY	18
ZF4HP-22/EH, ZF4HP-24/EH, - OVERDRIVE ONE-WAY	19

MAZDA

F3A, KF100, - LOW ONE-WAY CLUTCH	74
F4EAT, F4A-EL, FB4A-EL, - FORWARD ONE-WAY CLUTCH	75
F4EAT, F4A-EL, FB4A-EL, G4A-HL, G4A-EL, GF4A-EL, - LOW ROLLER CLUTCH	76
G4A-HL, G4A-EL, GF4A-EL, - FORWARD ONE-WAY CLUTCH	77
CD4E, LA4A-EL, - LOW ROLLER CLUTCH	36
CD4E, LA4A-EL, - FORWARD SPRAG	37
LJ4A-EL, - LOW ONE-WAY CLUTCH	81
LJ4A-EL, - FORWARD ONE-WAY CLUTCH	82
A44-DE SERIES, - LOW ONE-WAY	99
A44-DE SERIES, - 2ND GEAR ONE-WAY	100
A44-DE SERIES, - OVERDRIVE ONE-WAY	101
L3N71B, L4N71B, N4A-HL, N4A-EL, - LOW ONE-WAY CLUTCH	83
L4N71B, N4A-HL, N4A-EL, - OVERDRIVE ONE-WAY CLUTCH	84
R4A-EL, - LOW ONE-WAY CLUTCH	85
R4A-EL, - FORWARD ONE-WAY CLUTCH	86
A4LD, 4R44E, 4R55E, 5R55E, - LOW ONE-WAY	43
A4LD, 4R44E, 4R55E, 5R55E, - OVERDRIVE SPRAG	44

MERCEDES

722.1, 722.2, - LOW ONE-WAY CLUTCH	78
722.3, 722.4, - LOW ONE-WAY CLUTCH	79
722.5, - LOW ONE-WAY CLUTCH	79
722.5, - OVERDRIVE ONE-WAY CLUTCH	80

MITSUBISHI

ALL KM SERIES, F3A20, F4A20, F4A30, W4A30, - LOW ONE-WAY CLUTCH	25
V4AW2 (A44-DL), - LOW ONE-WAY CLUTCH	99
V4AW2 (A44-DL), - 2ND ONE-WAY CLUTCH	100
V4AW2 (A44-DL), - OVERDRIVE ONE-WAY CLUTCH	101
V4AW3 (A340F), - LOW ONE-WAY CLUTCH	102
V4AW3 (A340F), - 2ND ONE-WAY CLUTCH	103
V4AW3 (A340F), - OVERDRIVE ONE-WAY CLUTCH	104
R4AC1 (A500), - LOW ONE-WAY CLUTCH	26
R4AC1 (A500), - OVERDRIVE ONE-WAY CLUTCH	27

NISSAN/INFINITY

RL3FO1A, RN3FO1A, RL4FO2A, RE4FO2A, RE4FO3A, RL4FO4A, RE4FO4A, - LOW ONE-WAY CLUTCH	81
RL4FO3A, RE4FO3A, RL4FO4A, RE4FO4A, - FORWARD ONE-WAY CLUTCH	82
L3N71B, L4N71B, E4N71B, - LOW ONE-WAY CLUTCH	83
L4N71B, E4N71B, - OVERDRIVE ONE-WAY CLUTCH	84
RL4RO1A, RE4RO1A, RE4RO3A, RE5RO1A, - LOW ONE-WAY CLUTCH	85
RL4RO1A, RE4RO1A, RE4RO3A, RE5RO1A, - FORWARD ONE-WAY CLUTCH	86
RE5RO1A, - OVERDRIVE ONE-WAY CLUTCH	87

PEUGEOT

ZF4HP-14, - LOW ONE-WAY	15
ZF4HP-14, - INTERMEDIATE ONE-WAY	16
ZF4HP-22, - LOW ONE-WAY	17
ZF4HP-22, - INTERMEDIATE ONE-WAY	18
ZF4HP-22, - OVERDRIVE ONE-WAY	19



FREEWHEEL BOOK

INDEX

Page 4 of 4

SAAB

TB-35, TB-37, - LOW ONE-WAY CLUTCH	88
ZF4HP-18, - LOW ONE-WAY	15
ZF4HP-18, - INTERMEDIATE ONE-WAY	16
AW50-40, AW50-42LE, - LOW ONE-WAY CLUTCH	89
AW50-40, AW50-42LE, - INTERMEDIATE ONE-WAY CLUTCH	90
AW50-40, AW50-42LE, - UNDERDRIVE ONE-WAY CLUTCH	91

SUBARU

3 SPEED (Gunma), - LOW ONE-WAY CLUTCH	92
4 SPEED (4EAT), - LOW ONE-WAY CLUTCH	85
4 SPEED (4EAT), - FORWARD ONE-WAY CLUTCH	86

SUZUKI

MX17 (A210), - LOW ONE-WAY CLUTCH	95
AW60-40LE (AF13), - LOW ONE-WAY CLUTCH	93
AW60-40LE (AF13), - FORWARD ONE-WAY CLUTCH	94
THM 180, - LOW ONE-WAY CLUTCH	11
A44-DE SERIES, - LOW ONE-WAY	99
A44-DE SERIES, - 2ND GEAR ONE-WAY	100
A44-DE SERIES, - OVERDRIVE ONE-WAY	101

TOYOTA/LEXUS

A130, A140, A540 SERIES, - LOW ONE-WAY CLUTCH	95
A130, A140, A540 SERIES, - 2ND ONE-WAY CLUTCH	96
A140, A540 SERIES, - OVERDRIVE ONE-WAY CLUTCH	97
A240 SERIES, - LOW ONE-WAY CLUTCH	95
A240 SERIES, - 2ND ONE-WAY CLUTCH	96
A240 SERIES, - UNDERDRIVE ONE-WAY CLUTCH	98
A55 SERIES, - LOW ONE-WAY CLUTCH	99
A55 SERIES, - 2ND ONE-WAY CLUTCH	100
A40 SERIES, - LOW ONE-WAY	99
A40 SERIES, - 2ND GEAR ONE-WAY	100
A40 SERIES, - OVERDRIVE ONE-WAY	101
A340, A350 SERIES, - LOW ONE-WAY	102
A340, A350 SERIES, - 2ND GEAR ONE-WAY	103
A340, A350 SERIES, - OVERDRIVE ONE-WAY	104
A440 SERIES, - LOW ONE-WAY	106
A440 SERIES, - OVERDRIVE ONE-WAY	107
A650 SERIES, - LOW ONE-WAY CLUTCH	108
A650 SERIES, - 3RD ONE-WAY CLUTCH	109
A650 SERIES, - OVERDRIVE ONE-WAY CLUTCH	110

VOLVO

AW70 (A40), - LOW ONE-WAY	99
AW70 (A40), - 2ND ONE-WAY	100
AW70 (A40), - OVERDRIVE ONE-WAY	101
AW40 (A341E), - LOW ONE-WAY	102
AW40 (A341E), - 2ND GEAR ONE-WAY	103
AW40 (A341E), - OVERDRIVE ONE-WAY	104
ZF4HP-22, - LOW ONE-WAY	17
ZF4HP-22, - INTERMEDIATE ONE-WAY	18
ZF4HP-22, - OVERDRIVE ONE-WAY	19
AW50-40, AW50-42LE, - LOW ONE-WAY CLUTCH	89
AW50-40, AW50-42LE, - INTERMEDIATE ONE-WAY CLUTCH	90
AW50-40, AW50-42LE, - UNDERDRIVE ONE-WAY CLUTCH	91
THM 4T65E, - INPUT SPRAG AND 3RD ONE-WAY CLUTCH	62
THM 4T65E, - 1-2 ROLLER CLUTCH	63



FREEWHEEL BOOK

Published
July, 2000

INTRODUCTION

The long awaited **Freewheel Manual** has finally arrived. ATSG has spent many long hours compiling, drawing, verifying and illustrating the proper freewheel and holding direction of virtually every freewheel device found in North America today. This manual is an absolute necessity for every serious transmission technician in todays working environment. These clear illustrations remove all possibilities of an incorrect installation, which prevents the second removal and disassembly of the unit. Even the Index has been laid out to be as user friendly as we can make it.

Special thanks go out to **Greg Catanzaro and Allen Byington of TransOnLine®**, for providing us with some of the photographs that were used to produce the line drawings that made this manual possible.

No part of any ATSG publication may be reproduced, stored in any retrieval system or transmitted in any form or by any means, including but not limited to electronic, mechanical, photocopying, recording or otherwise, without **written** permission of Automatic Transmission Service Group. This includes all text illustrations, tables and charts.

"Portions of materials contained herein have been reprinted with permission of General Motors Corp, Service Technology Group."

The information and part numbers contained in this booklet have been carefully compiled from industry sources known for their reliability, but ATSG does not guarantee its accuracy.

Copyright © ATSG 2000

ROBERT D. CHERRNAY
TECHNICAL DIRECTOR

WAYNE COLONNA
TECHNICAL SUPERVISOR

PETER LUBAN
TECHNICAL CONSULTANT

JON GLATSTEIN
TECHNICAL CONSULTANT

JERRY GOTT
TECHNICAL CONSULTANT

GERALD CAMPBELL
TECHNICAL CONSULTANT

DALE ENGLAND
FIELD SERVICE CONSULTANT

JIM DIAL
TECHNICAL CONSULTANT

ED KRUSE
TECHNICAL CONSULTANT

GREGORY LIPNICK
TECHNICAL CONSULTANT

DAVID CHALKER
TECHNICAL CONSULTANT

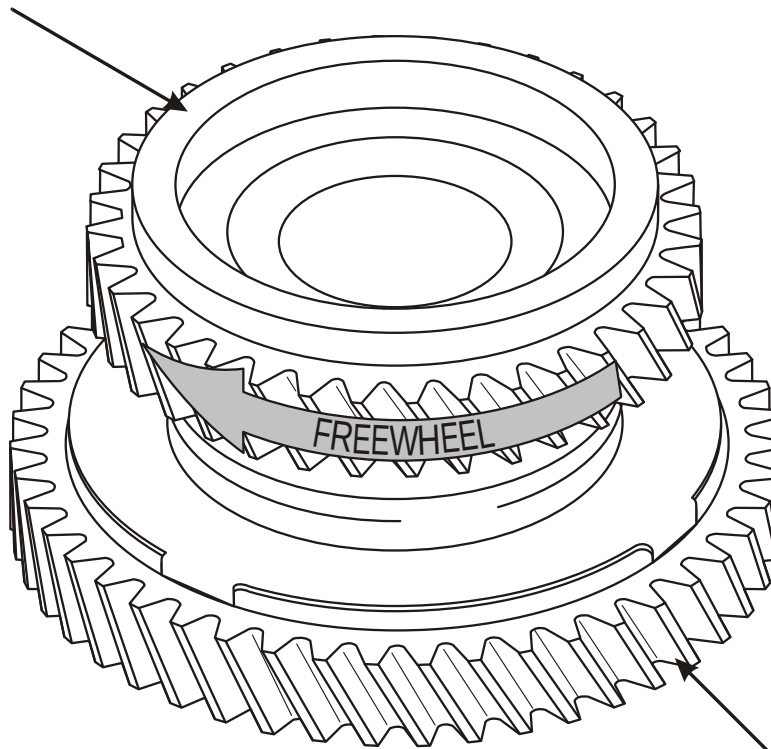
MIKE SOUZA
TECHNICAL CONSULTANT

AUTOMATIC TRANSMISSION SERVICE GROUP
18639 SW 107TH AVENUE
MIAMI, FLORIDA 33157
(305) 670-4161

ACURA MPYA, M5DA, M5HA 1ST GEAR ONE-WAY CLUTCH

***THE COUNTERSHAFT 2ND GEAR MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE***

**FREEWHEEL
COUNTERSHAFT
2ND GEAR**

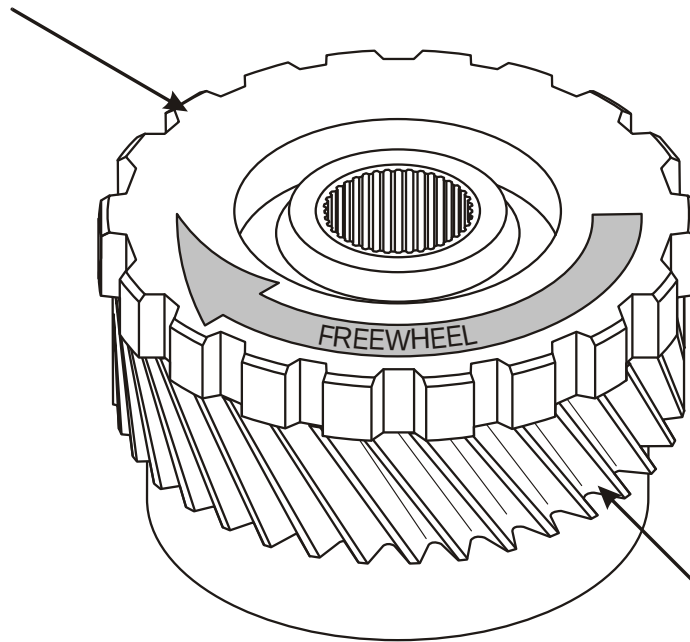


**HOLD
COUNTERSHAFT
1ST GEAR**

ACURA
MPYA, M5DA, M5HA
2ND GEAR ONE-WAY CLUTCH

***THE PARKING GEAR MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE***

**FREEWHEEL
PARKING GEAR**

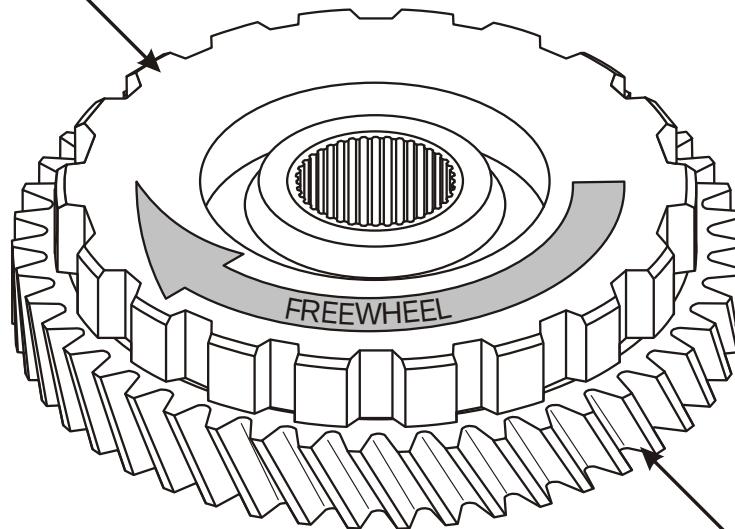


**HOLD
COUNTERSHAFT
2ND GEAR**

ACURA G4, L5, PL5X, MR9A LOW ONE-WAY CLUTCH

***THE PARKING GEAR MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE***

**FREEWHEEL
PARKING GEAR**

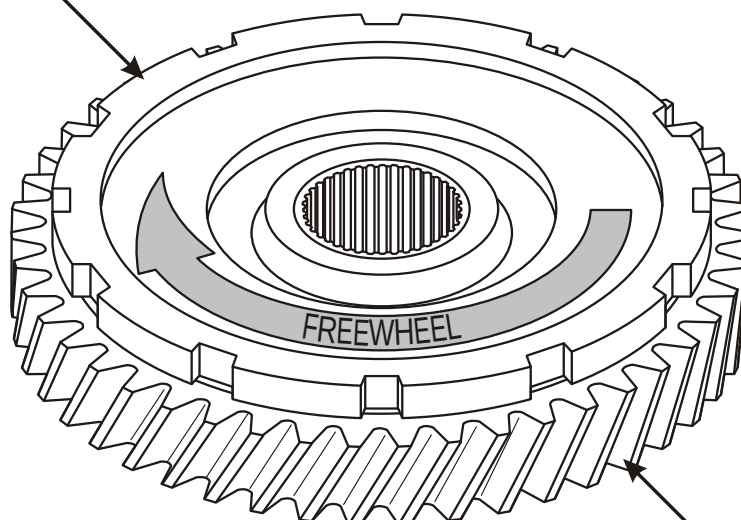


**HOLD
COUNTERSHAFT
1ST GEAR**

ACURA MPWA, M1WA, LOW ONE-WAY CLUTCH

***THE PARKING GEAR MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE***

**FREEWHEEL
PARKING GEAR**

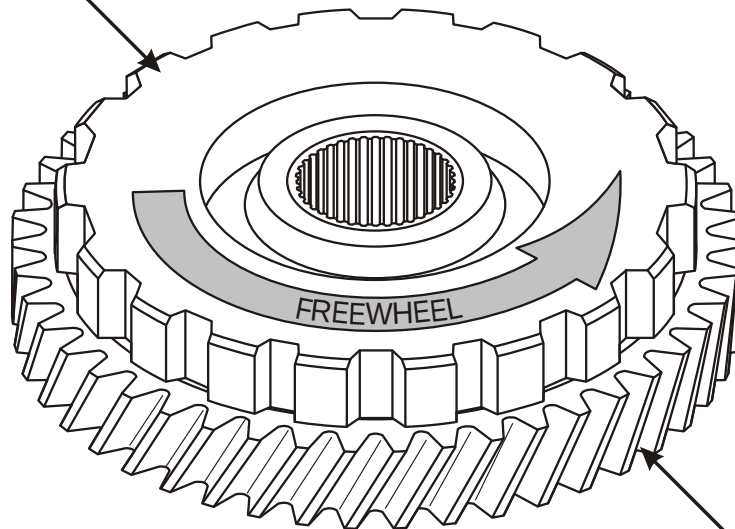


**HOLD
COUNTERSHAFT
1ST GEAR**

ACURA CA, P1, RO, MPRA, S4XA, SP7A LOW ONE-WAY CLUTCH

***THE PARKING GEAR MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE***

**FREEWHEEL
PARKING GEAR**

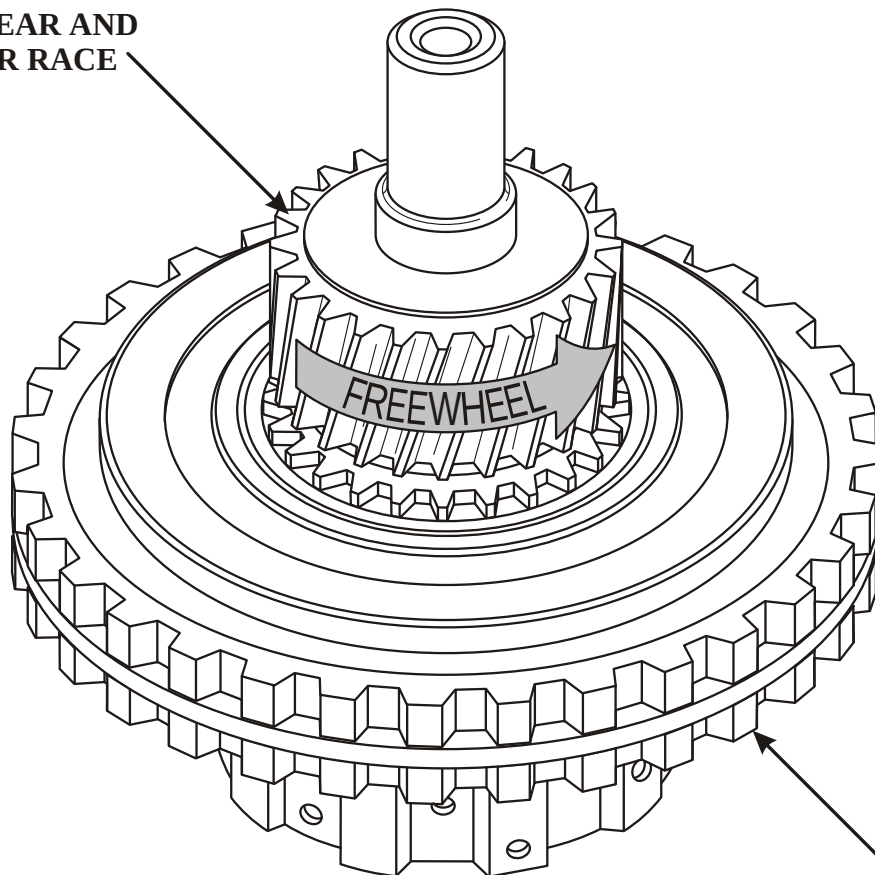


**HOLD
COUNTERSHAFT
1ST GEAR**

THM 180 AND 4L30-E

***THE SUN GEAR AND INNER RACE MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE***

**FREEWHEEL
SUN GEAR AND
INNER RACE**

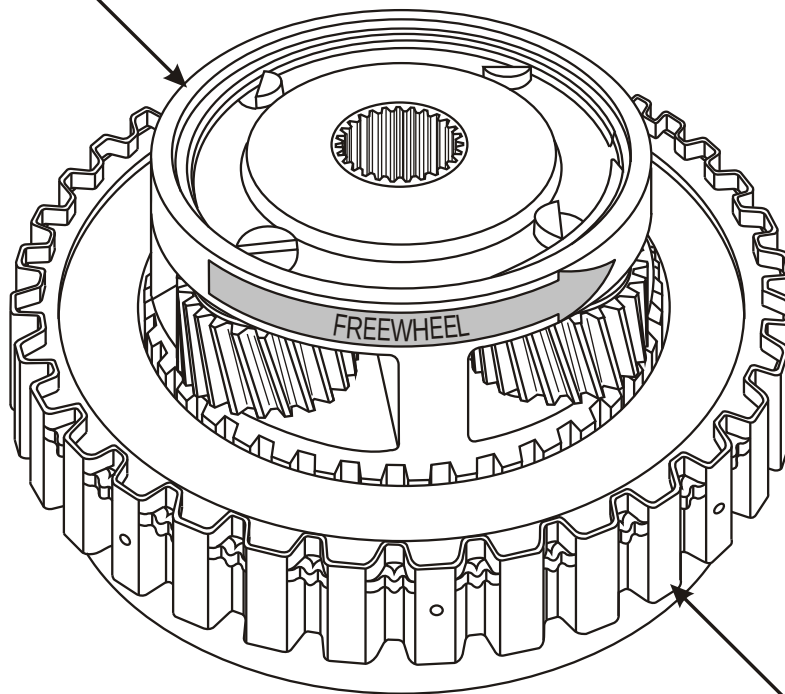


**HOLD
OUTER RACE**

THM 4L30-E OVERDRIVE ROLLER CLUTCH

***THE OVERDRIVE PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN OVERRUN CLUTCH DRUM IS HELD***

**FREEWHEEL
OD CARRIER**



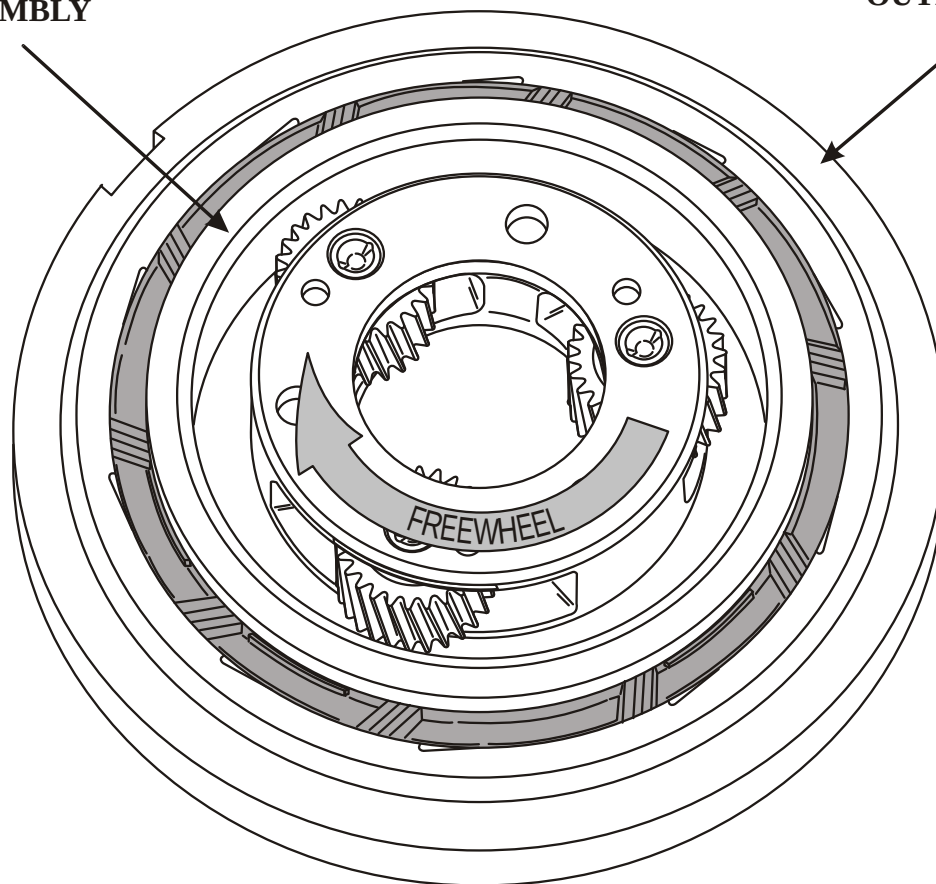
**HOLD
OVERRUN CLUTCH
HOUSING**

AUDI/VOLKSWAGEN 003, 010, 087, 089 LOW ONE-WAY CLUTCH

***THE PLANETARY ASSEMBLY MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE OUTER RACE***

**FREEWHEEL
PLANETARY
ASSEMBLY**

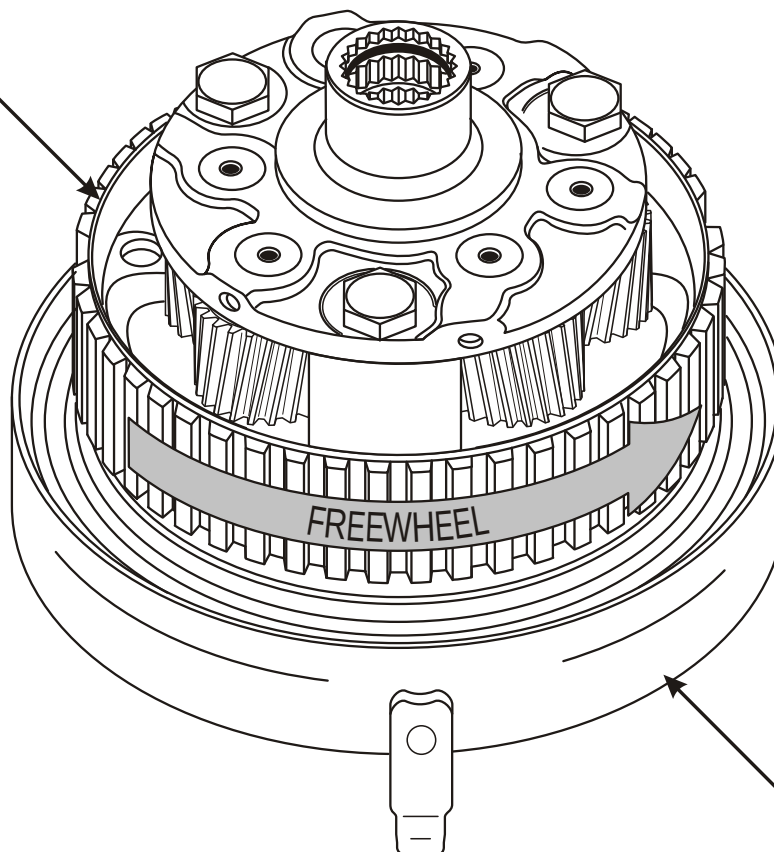
**HOLD
OUTER RACE**



AUDI/VOLKSWAGEN, 095, 096, 097, 098 LOW ROLLER

***THE PLANETARY ASSEMBLY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHILE HOLDING THE B1 CLUTCH HOUSING***

**FREEWHEEL
PLANETARY
ASSEMBLY**

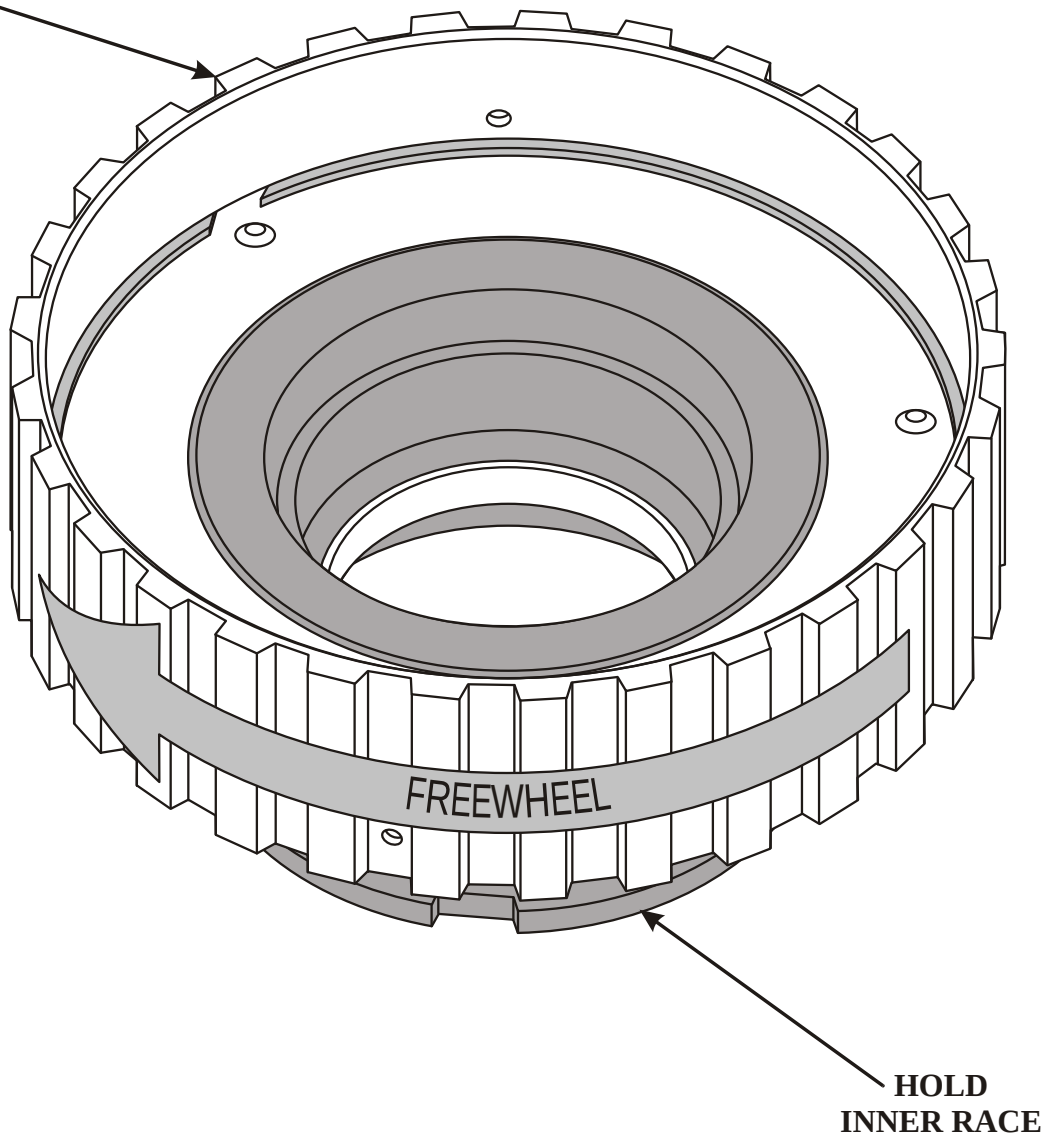


**HOLD
B1 CLUTCH
HOUSING**

ZF4HP-14, ZF4HP-18, ZF5HP-18 AND ZF5HP-19 LOW SPRAG

***THE LOW AND REVERSE CLUTCH HUB MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE***

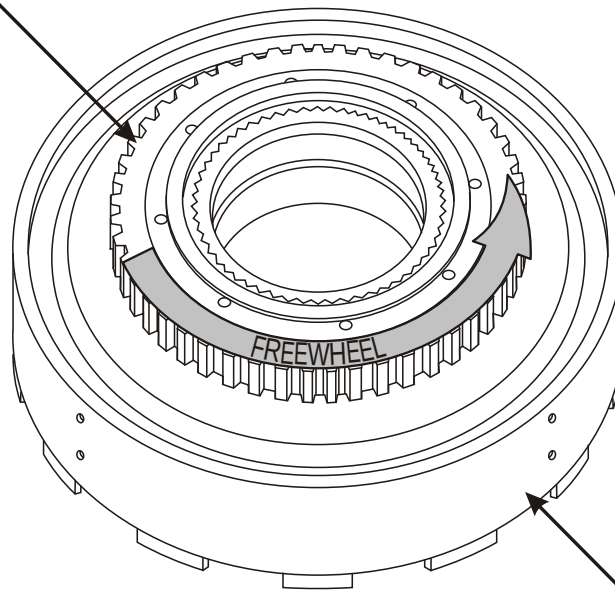
**FREEWHEEL
OUTER RACE**



ZF4HP-14, ZF4HP-18 AND ZF5HP-18 INTERMEDIATE SPRAG

***THE INTERMEDIATE SPRAG OUTER RACE MUST FREEWHEEL COUNTER
CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING
THE REVERSE INPUT DRUM***

**FREEWHEEL
INTERMEDIATE SPRAG
OUTER RACE**

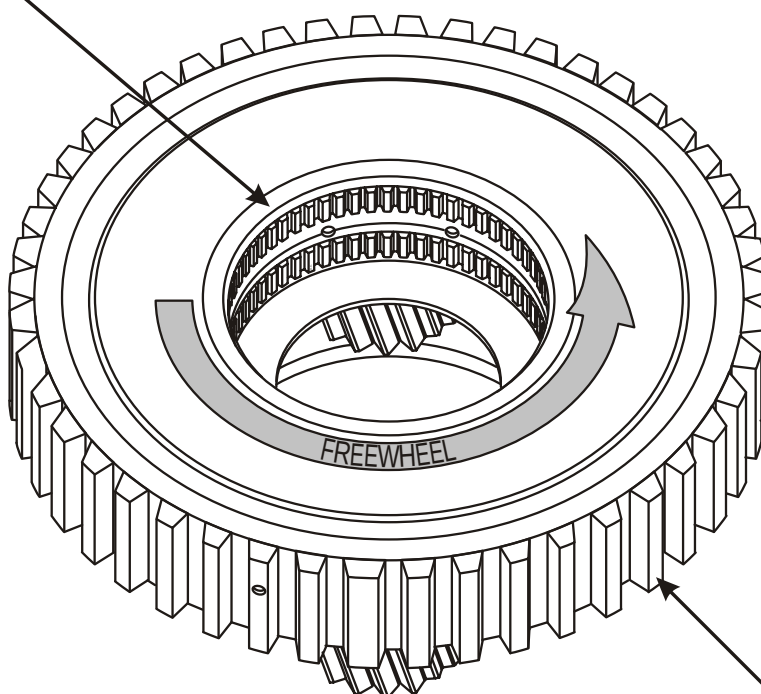


**HOLD
REVERSE INPUT
CLUTCH DRUM**

ZF3HP-22, ZF4HP-22/EH AND ZF4HP-24/EH LOW SPRAG

***THE INNER SPRAG RACE MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE PLANETARY CARRIER***

**FREEWHEEL
INNER RACE**



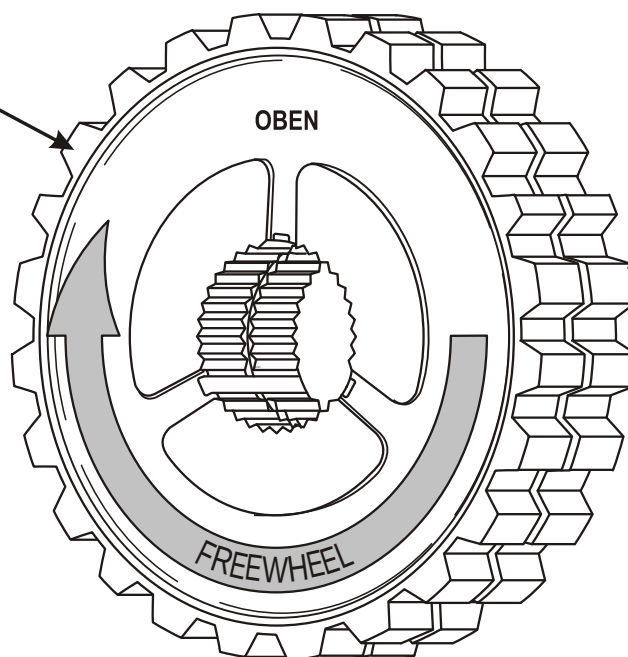
**HOLD
PLANETARY
CARRIER**

ZF3HP-22, ZF4HP-22/EH AND ZF4HP-24/EH INTERMEDIATE ROLLER CLUTCH

THE FRONT CLUTCH HUB MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE REAR CLUTCH HUB

**FREEWHEEL FRONT
CLUTCH HUB**

**HOLD REAR
CLUTCH HUB**



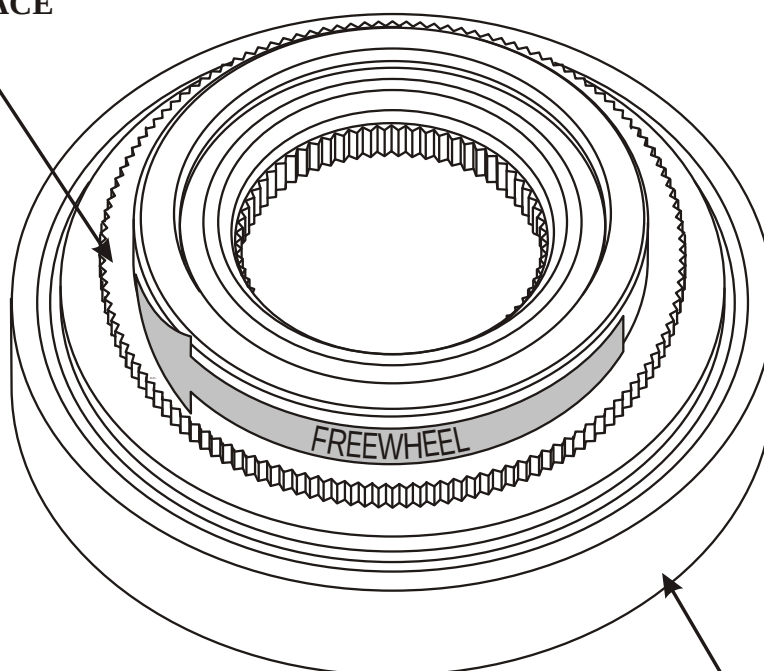
NOTE: THE WORD "OBEN" MUST FACE THE BELLHOUSING

NOTE: SPRAG ROTATION MUST BE CHECKED IN THE VERTICAL POSITION, AS SHOWN, OR IT WILL NOT CHECK PROPERLY

ZF4HP-22/EH AND ZF4HP-24/EH OVERDRIVE SPRAG

THE FREEWHEEL OUTER RACE MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE RING GEAR ASSEMBLY

**GRASP TEETH
AND FREEWHEEL
OUTER RACE**

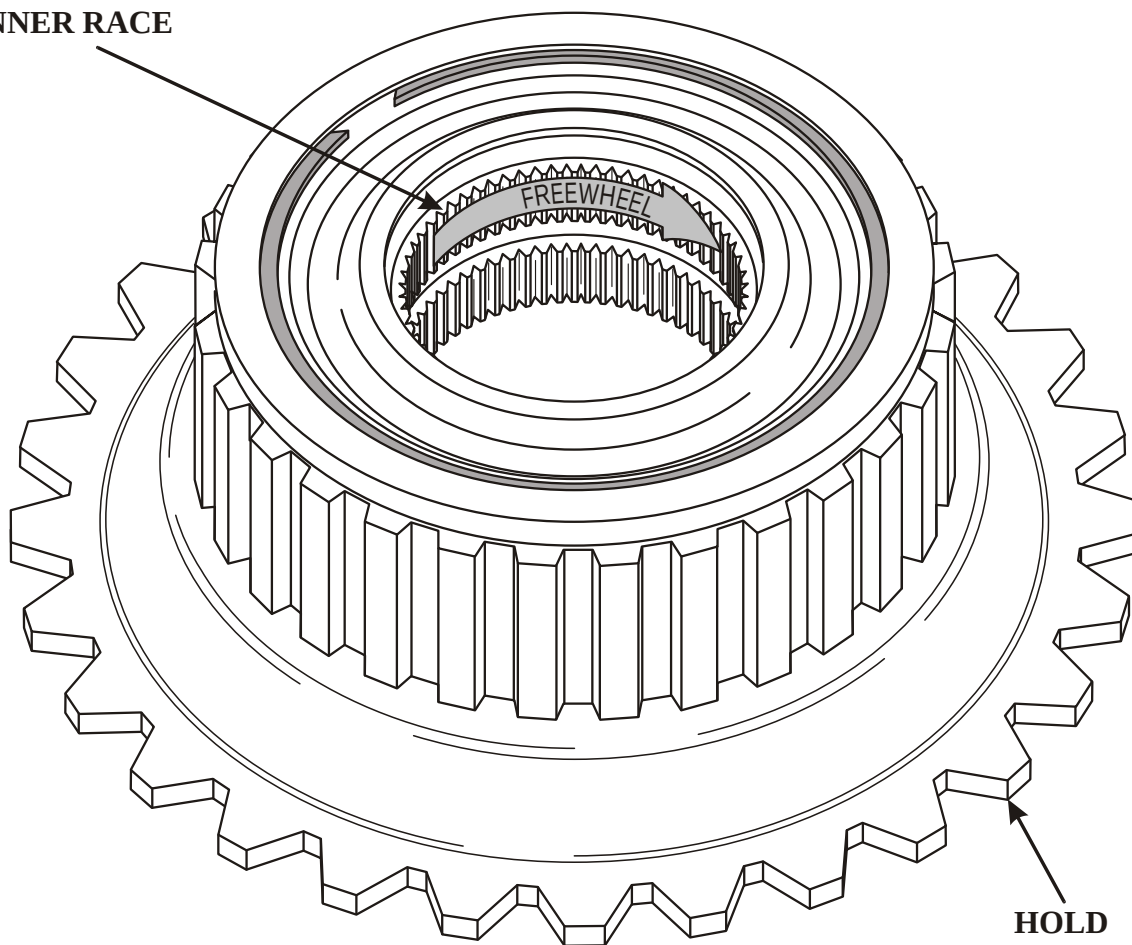


**HOLD
RING GEAR
ASSEMBLY**

BMW ZF5HP-24 LOW SPRAG (FrF)

***THE LOW SPRAG INNER RACE MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN OUTER RACE***

**FREEWHEEL
INNER RACE**

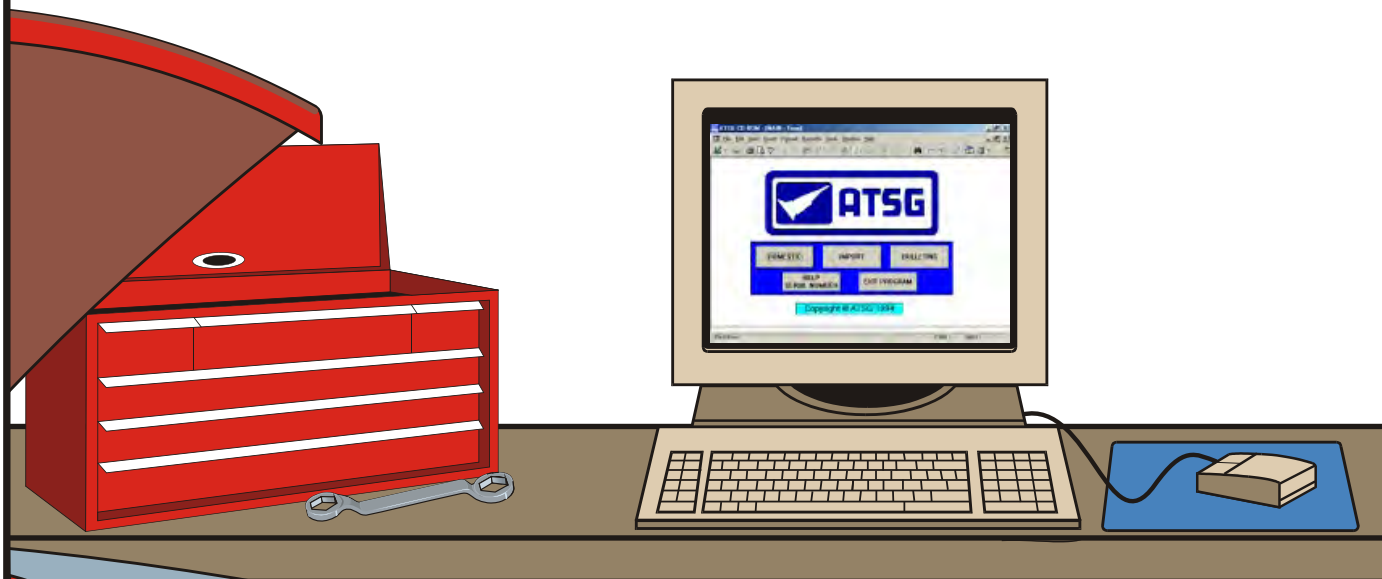


**HOLD
OUTER RACE**



ATSG BULLETINS
AND MANUALS ON CD

THE BEST THING NEXT TO YOUR TOOL BOX
IS A COMPLETE LIBRARY OF TECH AT YOUR
FINGER TIPS...



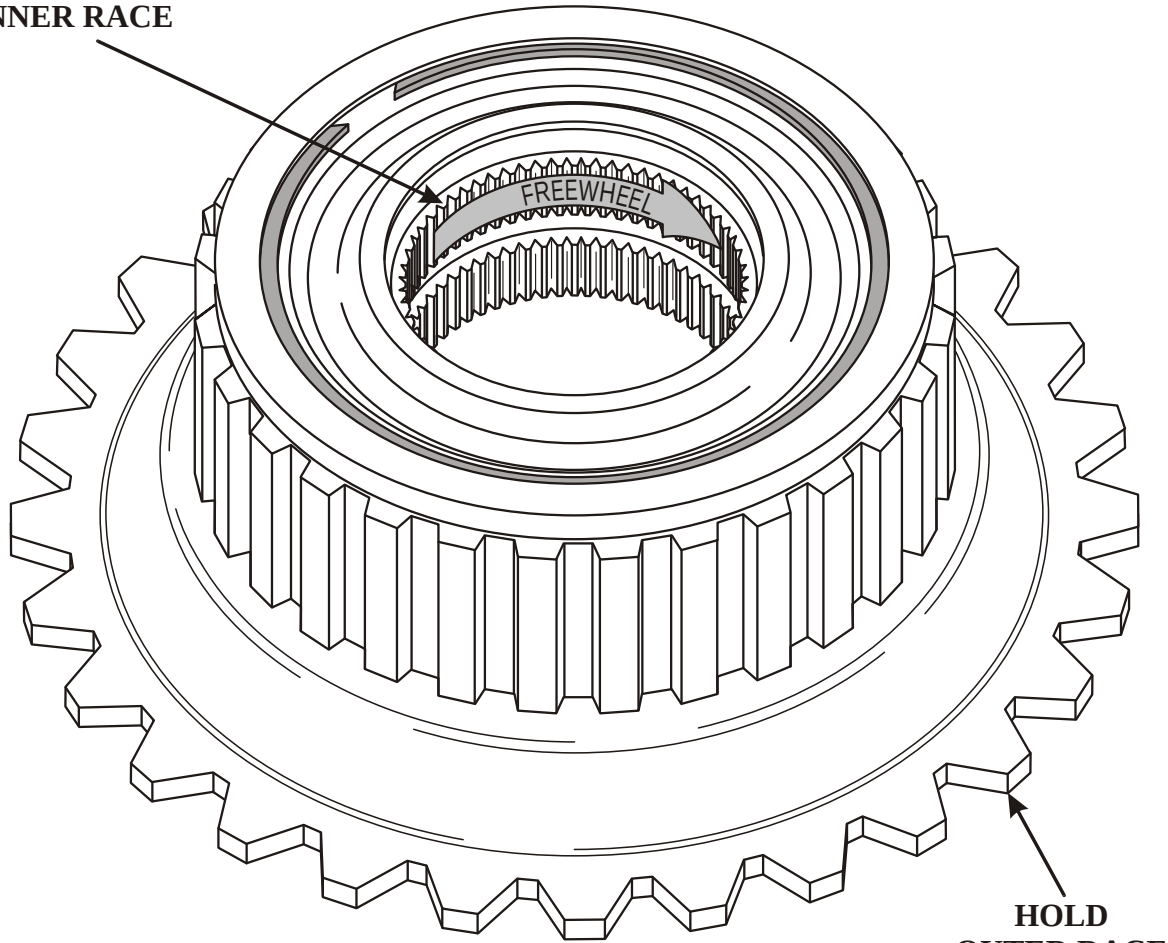
THE TECH YOU NEED...
WHEN YOU NEED IT FAST...

FOR MORE INFORMATION
CALL
(800) 245-7722

ZF5HP-30 LOW SPRAG (FrF)

***THE LOW SPRAG INNER RACE MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN OUTER RACE***

**FREEWHEEL
INNER RACE**

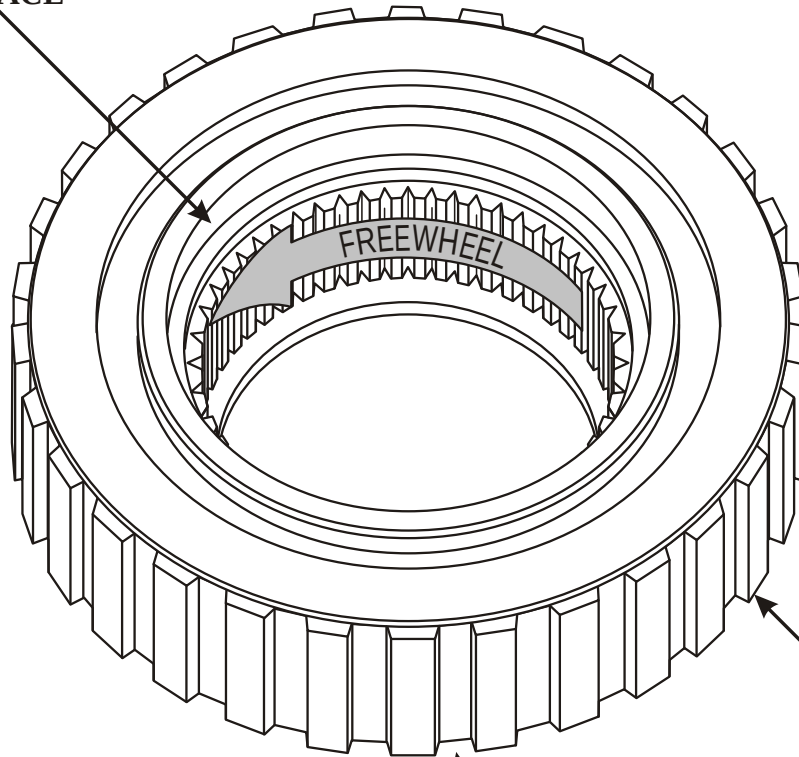


**HOLD
OUTER RACE**

ZF5HP-30 2ND SPRAG (FrE)

THE 2ND SPRAG INNER RACE MUST FREEWHEEL COUNTER CLOCKWISE AND LOCK CLOCKWISE WHEN INSTALLED IN OUTER RACE

**FREEWHEEL
INNER RACE**

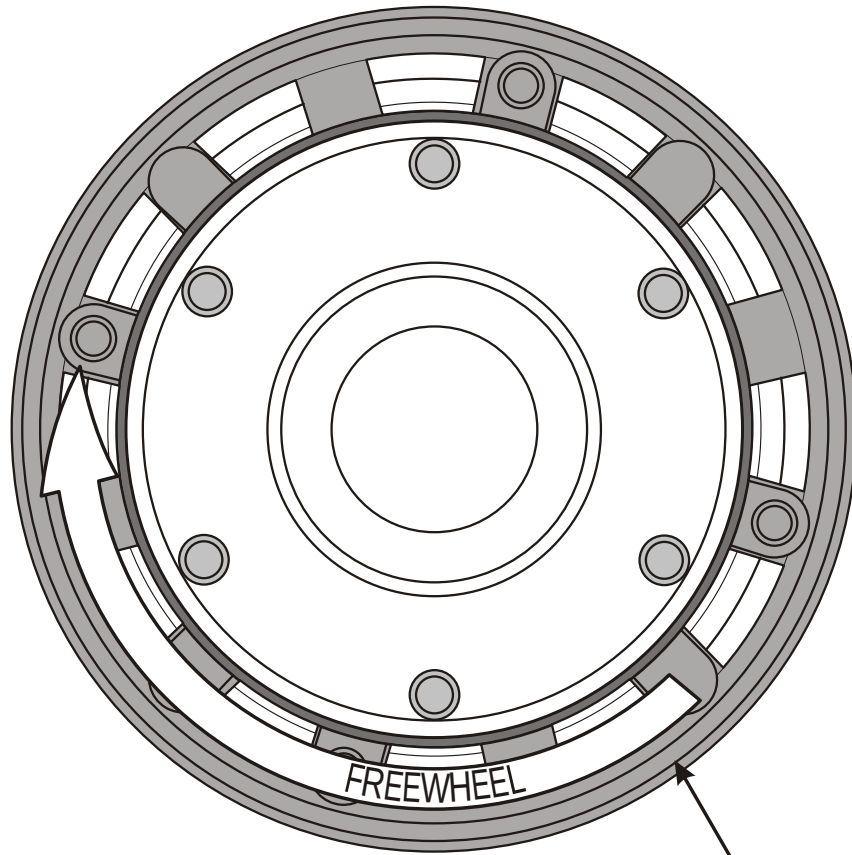


**HOLD
OUTER RACE**

**SNAP RING SIDE
FACING DOWN**

CHRYSLER 404, 413, 670 SERIES LOW ROLLER

***THE LOW AND REVERSE DRUM MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN THE CASE***

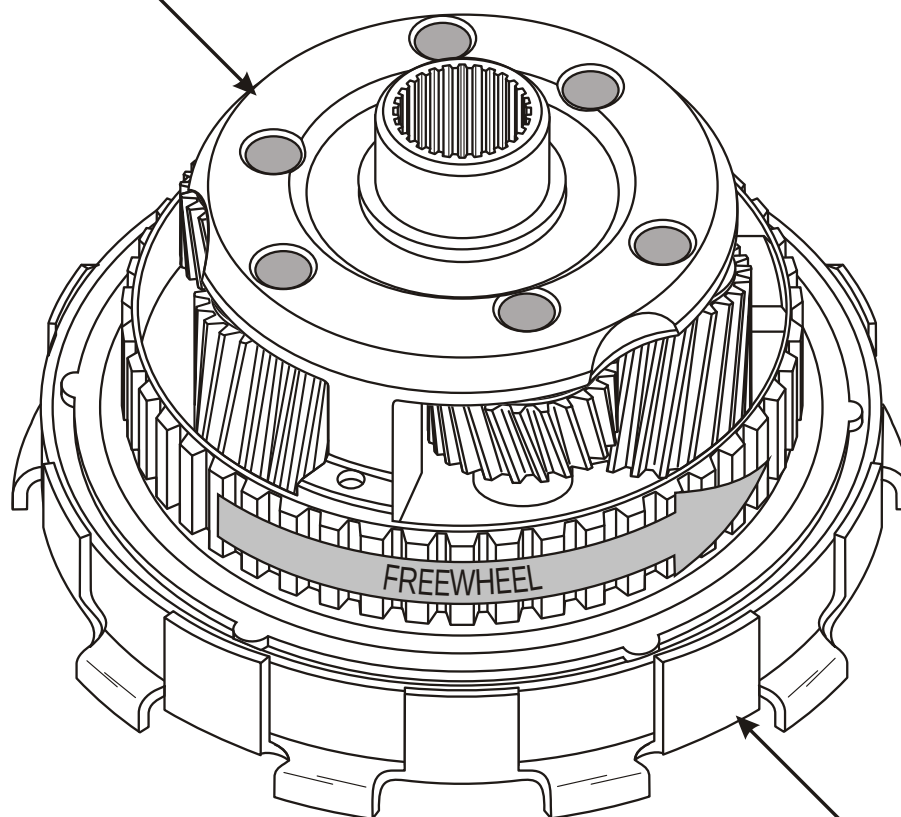


**FREEWHEEL
LOW/REVERSE DRUM**

MITSUBISHI AND HYUNDAI ALL KM FRONT WHEEL DRIVE, F3A20, F4A20, F4A30 AND W4A30 SERIES

***THE PLANETARY ASSEMBLY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHILE HOLDING THE CENTER SUPPORT***

**FREEWHEEL
PLANETARY CARRIER
ASSEMBLY**



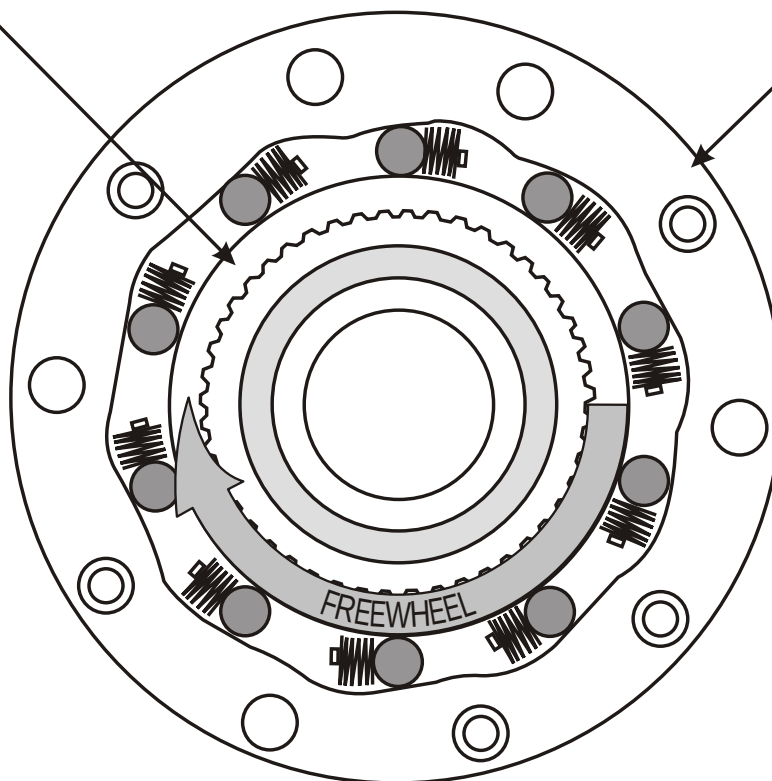
**HOLD
CENTER
SUPPORT**

TORQUEFLITE REAR WHEEL DRIVE LOW ROLLER CLUTCH

***THE LOW ROLLER CLUTCH INNER RACE MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE
WHEN INSTALLED INTO THE OUTER CAM***

**FREEWHEEL
LOW ROLLER CLUTCH
INNER RACE**

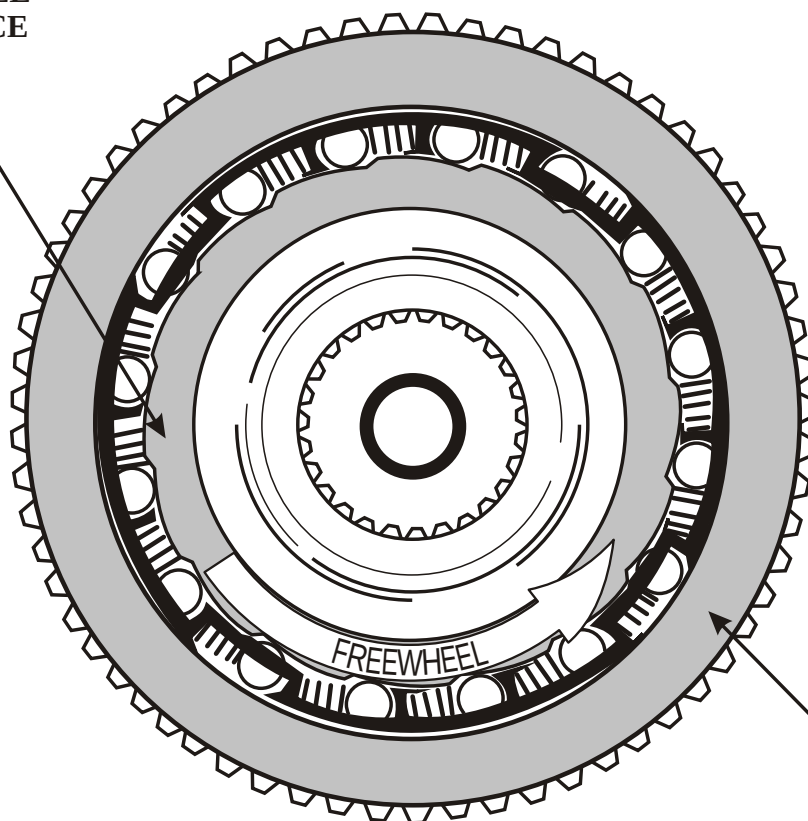
**OUTER CAM
HELD IN CASE**



TORQUEFLITE REAR WHEEL DRIVE OVERDRIVE ROLLER CLUTCH

***THE OVERDRIVE ROLLER CLUTCH INNER RACE MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE
WHEN HOLDING THE OUTER RACE***

FREEWHEEL
INNER RACE



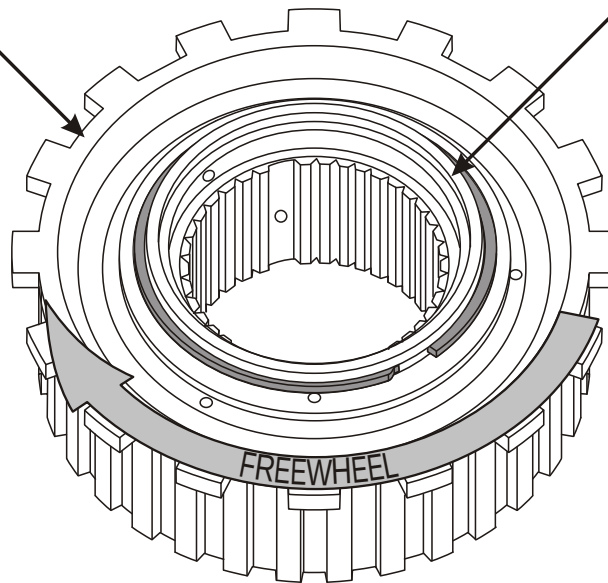
HOLD
OUTER RACE

CHRYSLER 45RFE LOW ROLLER CLUTCH

***THE LOW ROLLER OUTER RACE MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE INNER RACE***

**FREEWHEEL
OUTER RACE**

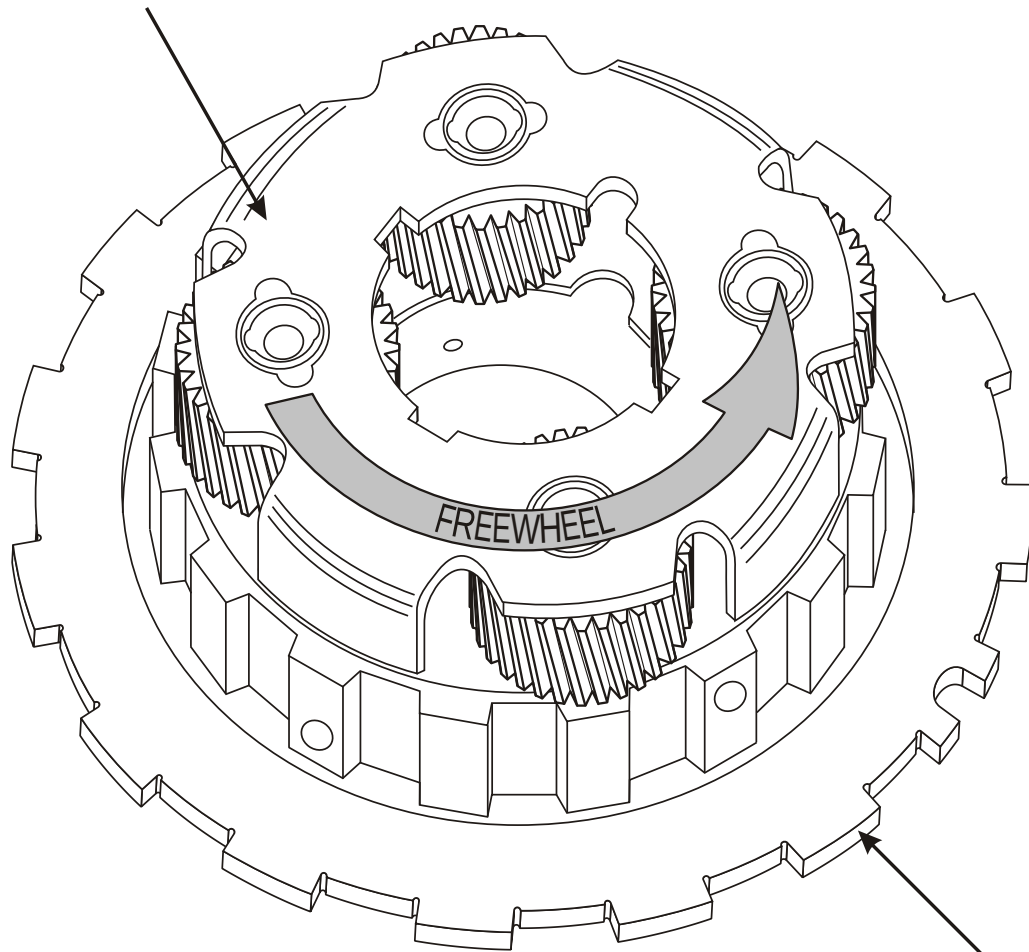
**HOLD
INNER RACE**



AW3, A40 SERIES, A55, LOW (NO. 2) ONE WAY CLUTCH

***THE PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE INNER RACE IS HELD***

**FREEWHEEL
PLANETARY CARRIER**

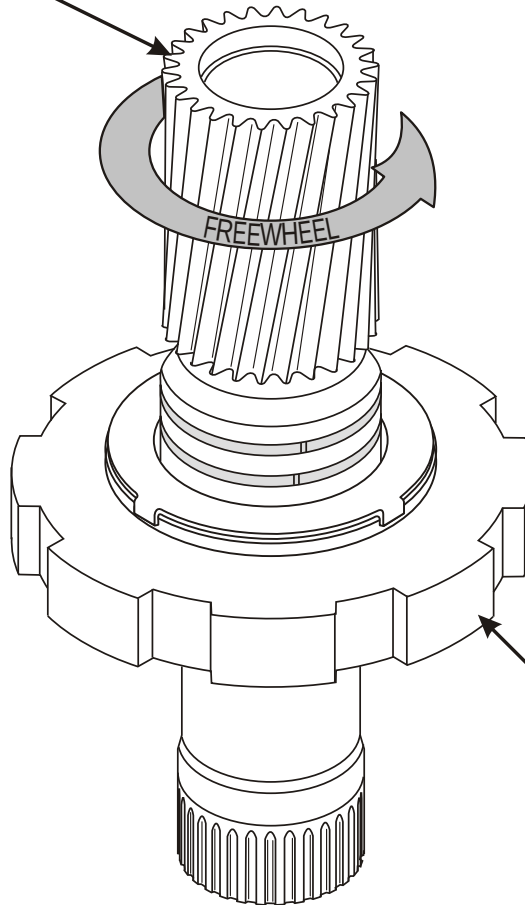


**HOLD
INNER RACE**

AW3, A40 SERIES, A55, 2ND GEAR (NO. 1) ONE WAY CLUTCH

***THE SUN GEAR MUST FREEWHEEL COUNTER CLOCKWISE AND
LOCK CLOCKWISE WHEN THE ONE-WAY CLUTCH OUTER RACE IS HELD***

FREEWHEEL
SUN GEAR

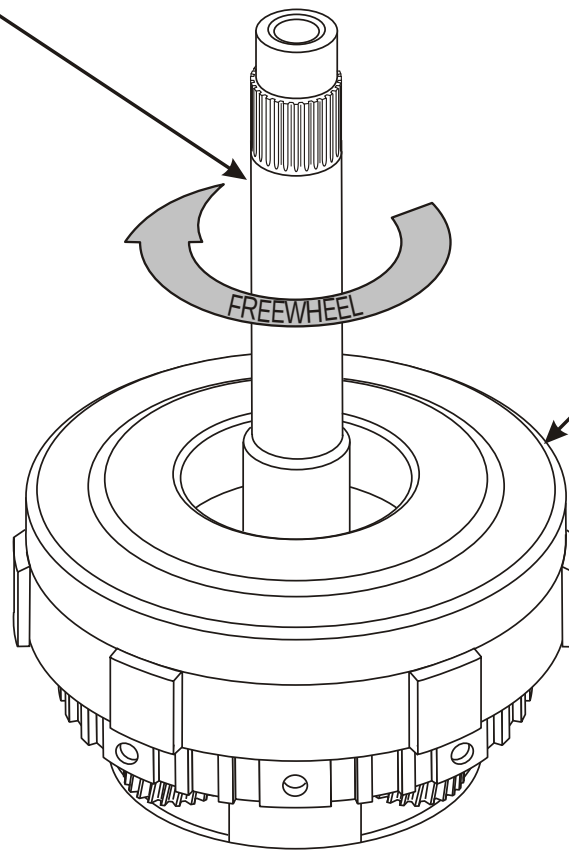


HOLD
OUTER RACE

A40 SERIES OVERDRIVE ONE WAY CLUTCH

THE INPUT SHAFT MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN THE OVERDRIVE / DIRECT DRUM IS HELD

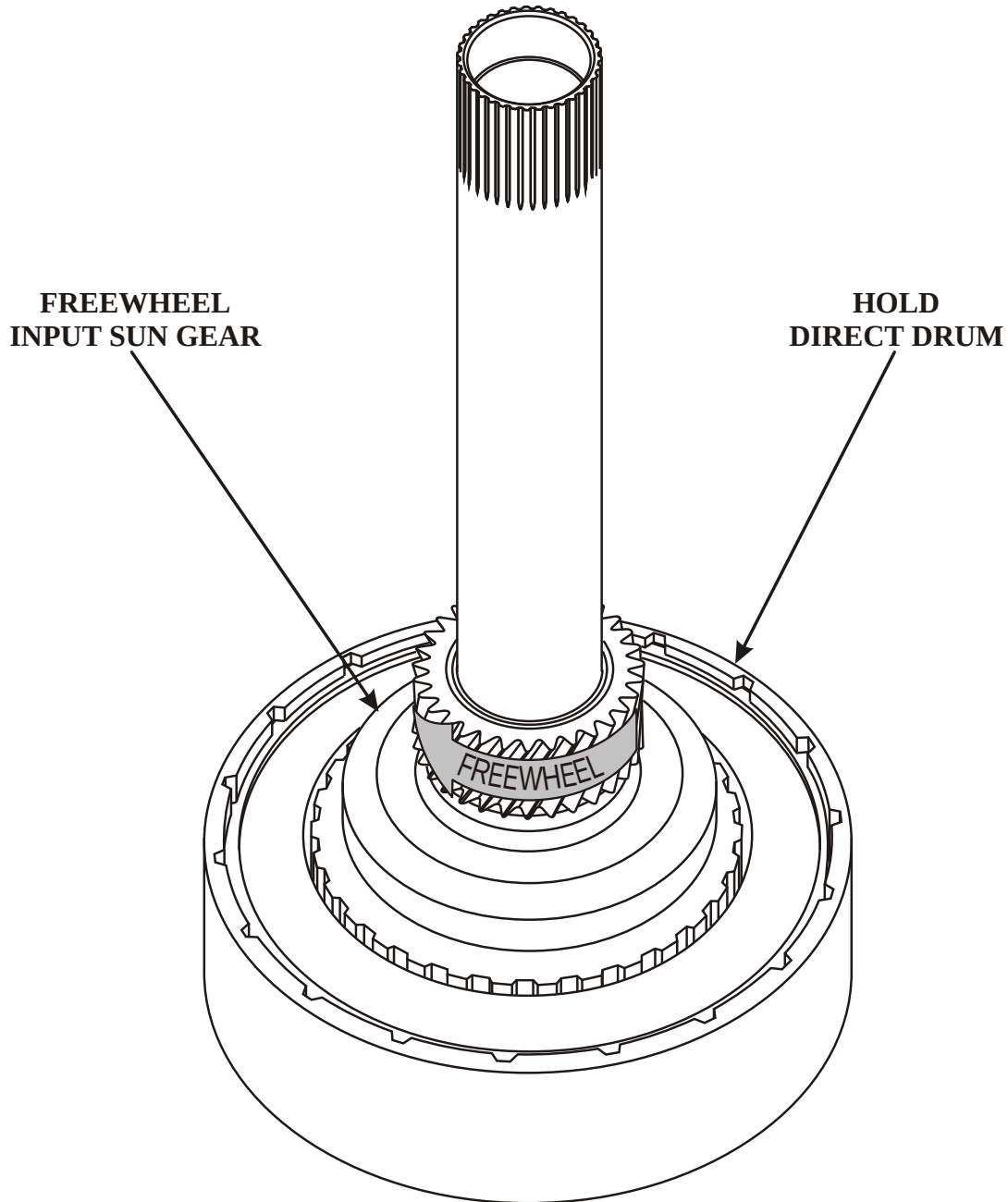
**FREEWHEEL
INPUT SHAFT**



**HOLD
OD/DIRECT
DRUM**

ATX ROLLER CLUTCH

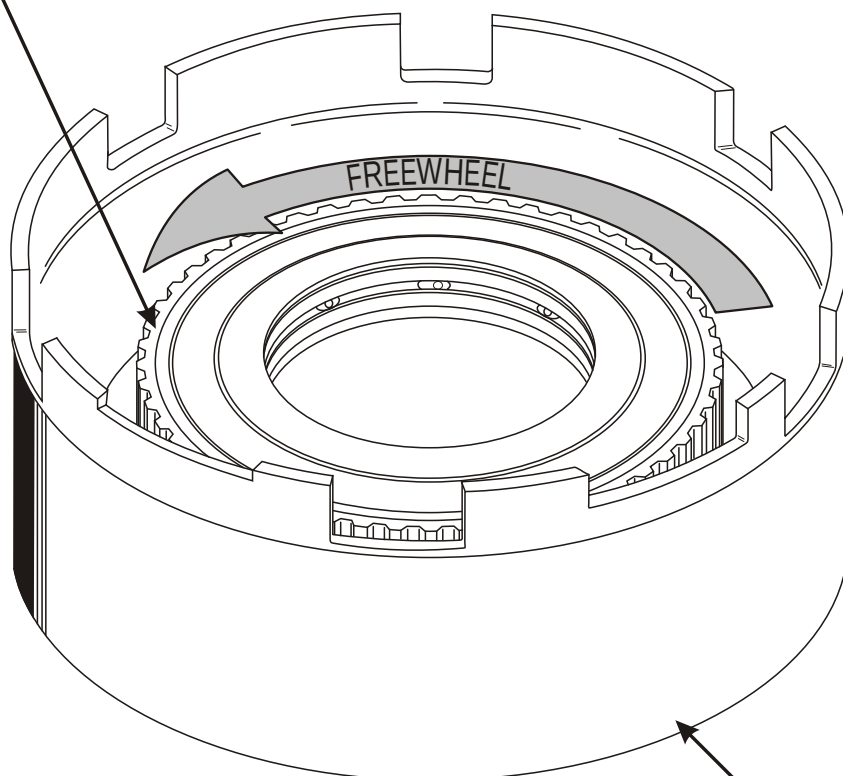
***THE INPUT SUN GEAR MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN DIRECT DRUM IS HELD***



AXOD, AXODE (AX4S), AX4N, LOW SPRAG

***THE LOW SPRAG OUTER RACE MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE OVERDRIVE DRUM***

**FREEWHEEL
LOW SPRAG
OUTER RACE**

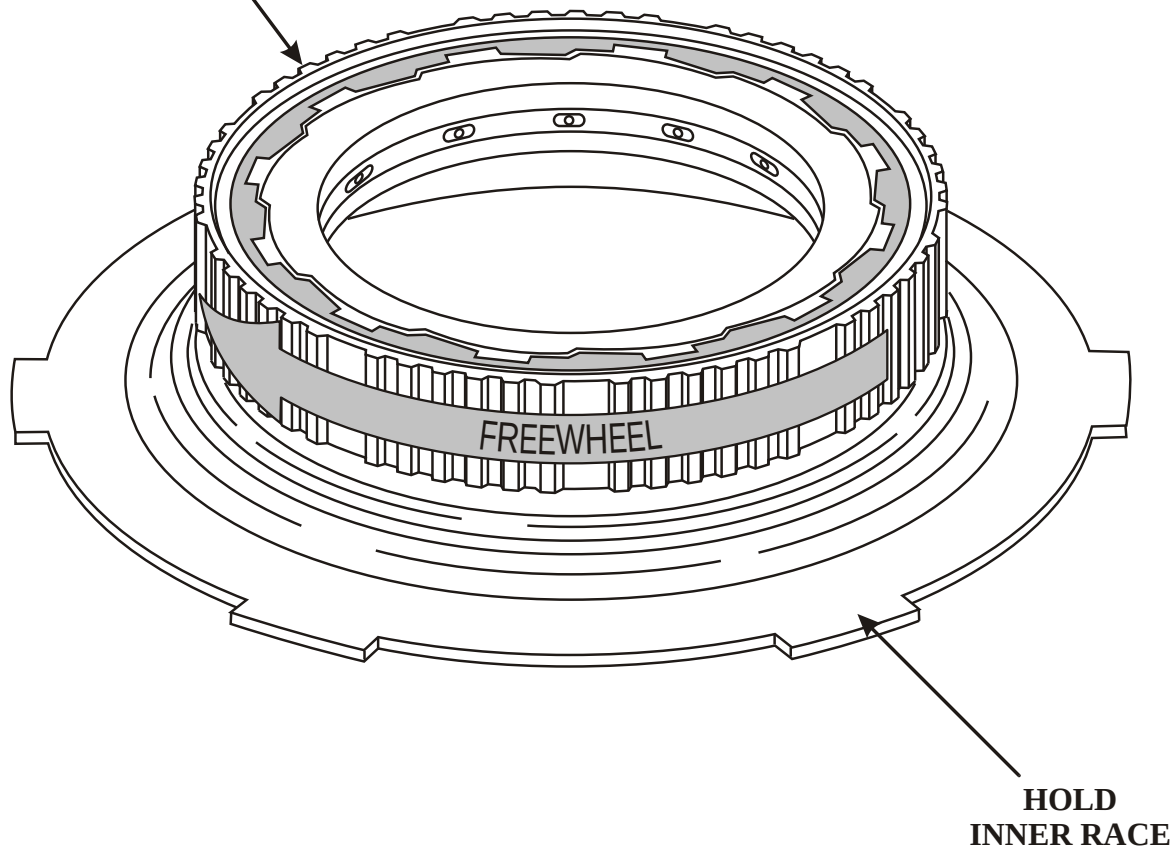


**HOLD
OVERDRIVE DRUM**

AXOD, AXODE (AX4S), AX4N 3RD ROLLER CLUTCH

***THE 3RD ROLLER CLUTCH OUTER RACE MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN THE
3RD ROLLER CLUTCH INNER RACE IS HELD***

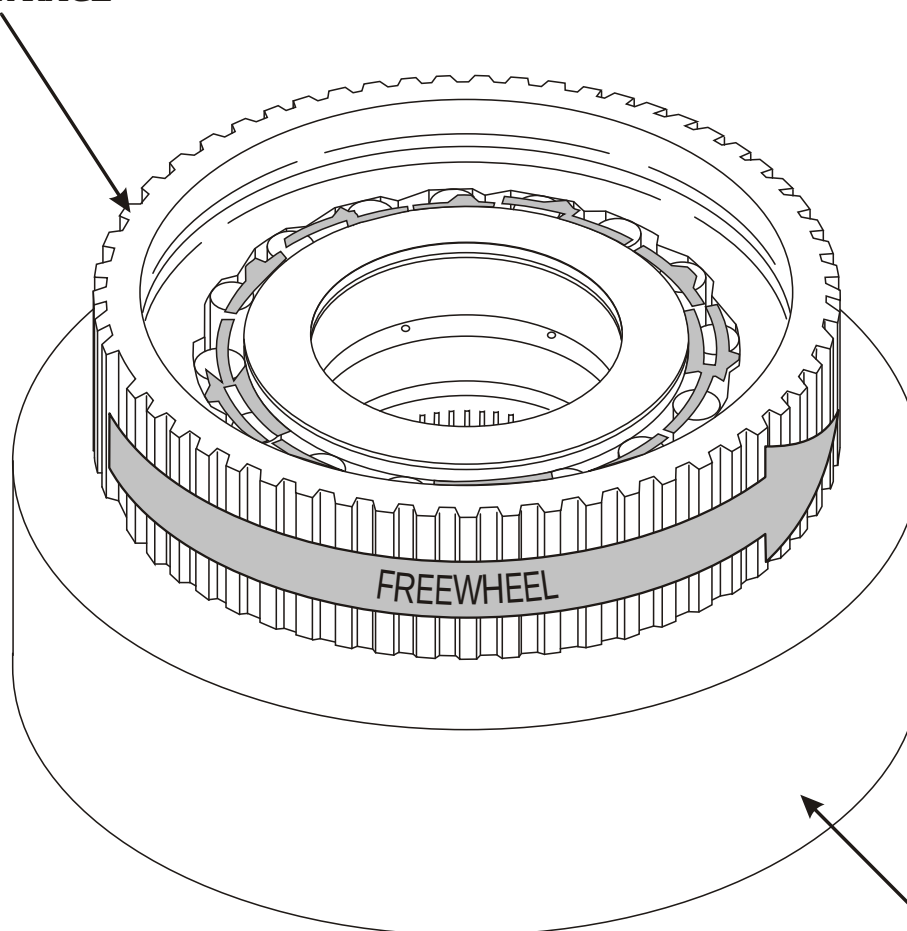
**FREEWHEEL
OUTER RACE**



AX4N 1-2 ROLLER CLUTCH

THE 1-2 ROLLER CLUTCH OUTER RACE MUST FREEWHEEL COUNTER CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING THE REAR SUN GEAR ASSEMBLY

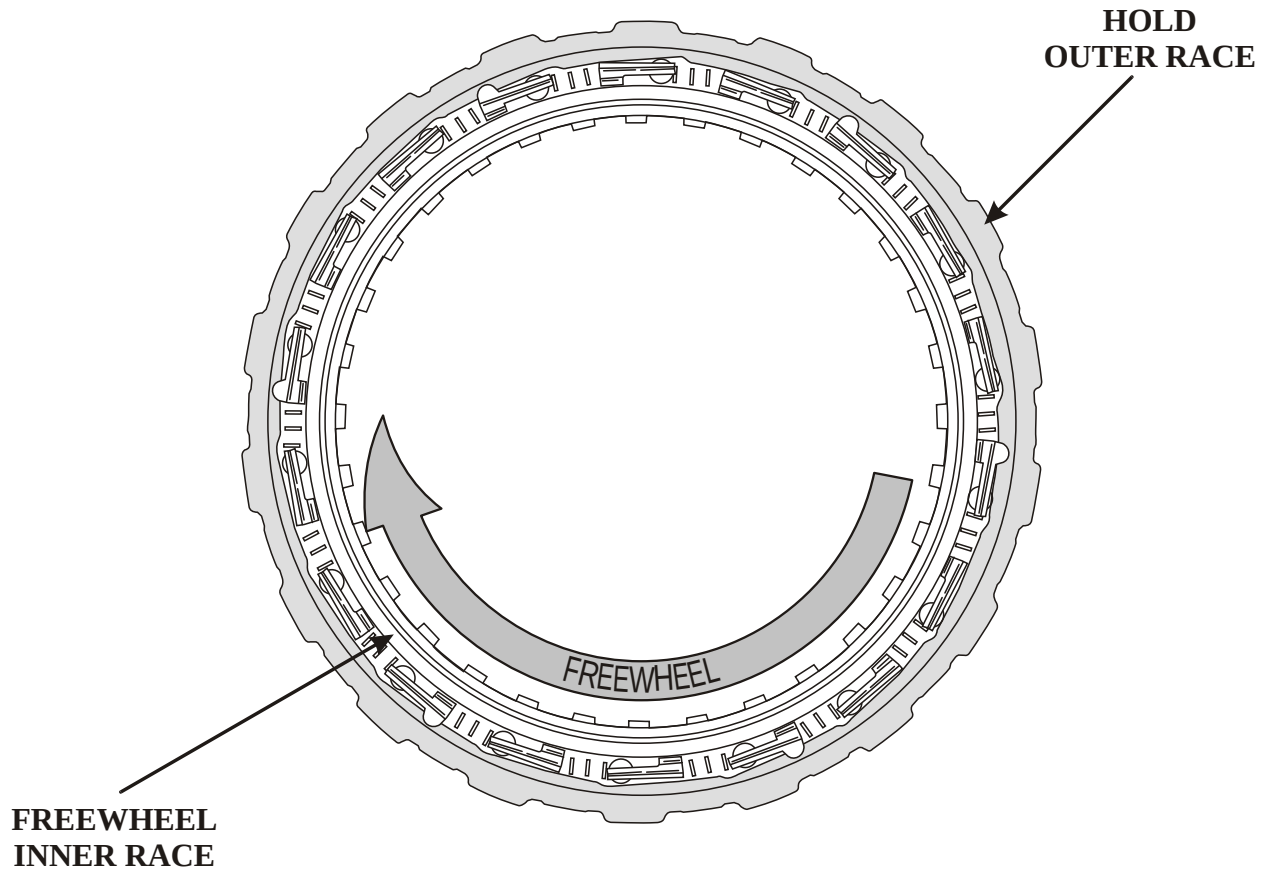
**FREEWHEEL
1-2 ROLLER CLUTCH
OUTER RACE**



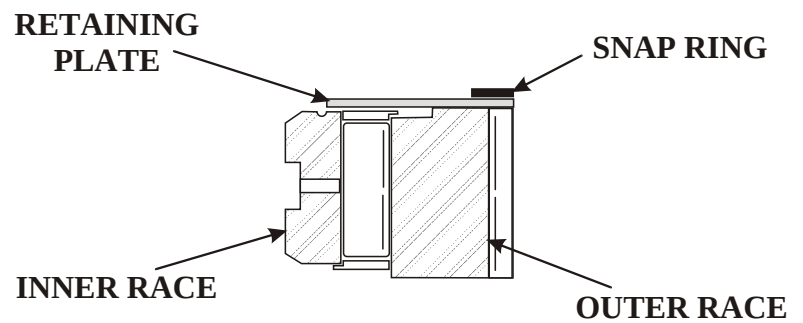
**HOLD
REAR SUN
GEAR ASSEMBLY**

FORD CD4E, MAZDA LA4A-EL LOW ROLLER CLUTCH

THE INNER RACE MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE, WHEN THE OUTER RACE IS HELD STATIONARY



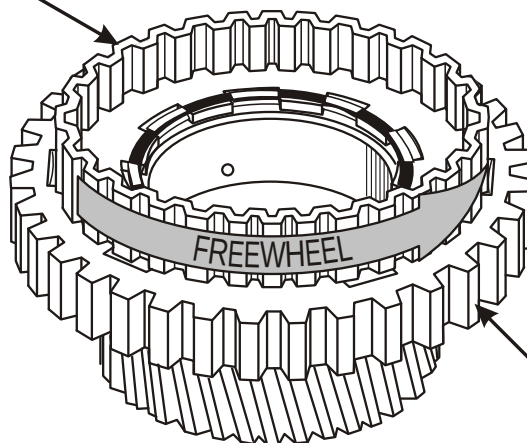
INSTALLED IN THE CASE



FORD CD4E, MAZDA LA4A-EL FORWARD SPRAG

***THE OVERRUN CLUTCH HUB MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE FORWARD CLUTCH HUB***

**FREEWHEEL
OVERRUN
CLUTCH HUB**

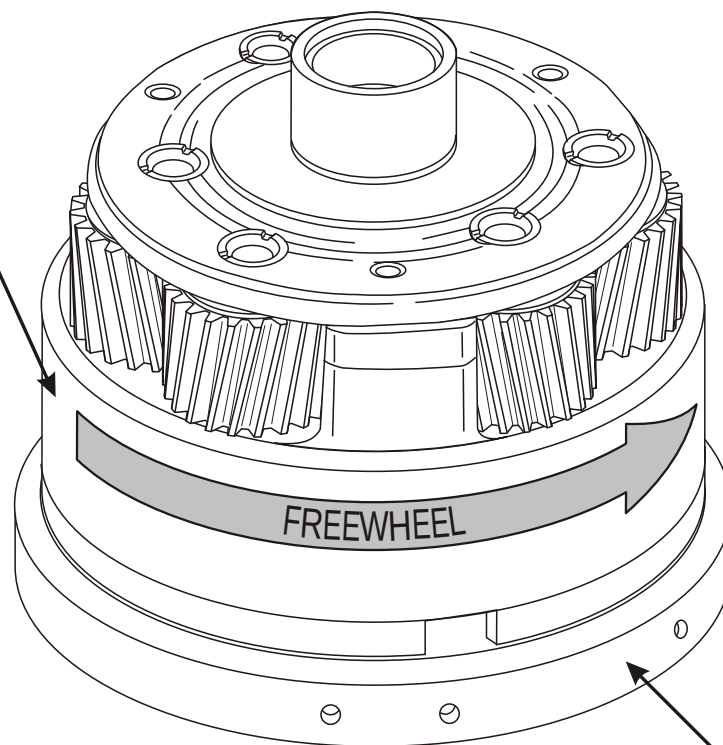


**HOLD
FORWARD
CLUTCH HUB**

CAST IRON FORD, BORG WARNER 12, FMX, LOW ROLLER CLUTCH

***THE REAR PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE AND
LOCK CLOCKWISE WHEN HOLDING THE INNER RACE***

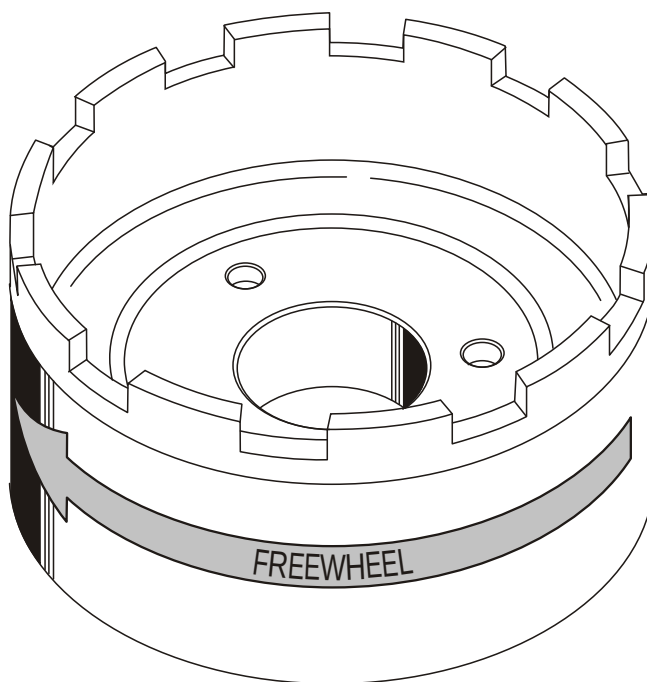
**FREEWHEEL
PLANETARY
CARRIER**



**HOLD
INNER RACE
(CENTER SUPPORT)**

C-4 AND C-5 LOW ROLLER CLUTCH

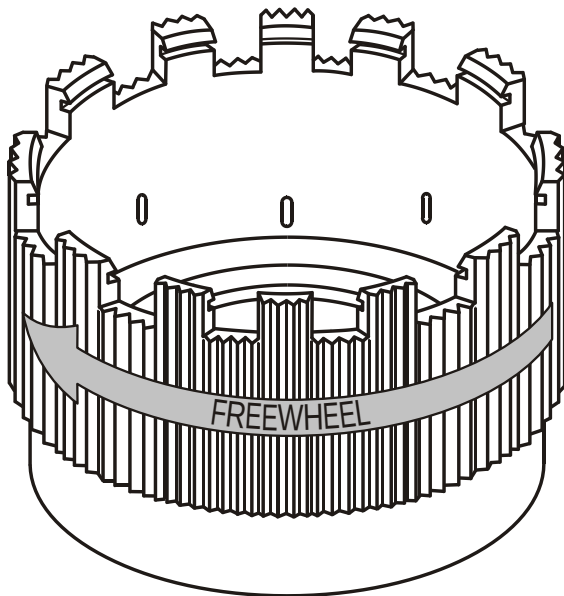
***THE LOW AND REVERSE DRUM MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN THE CASE***



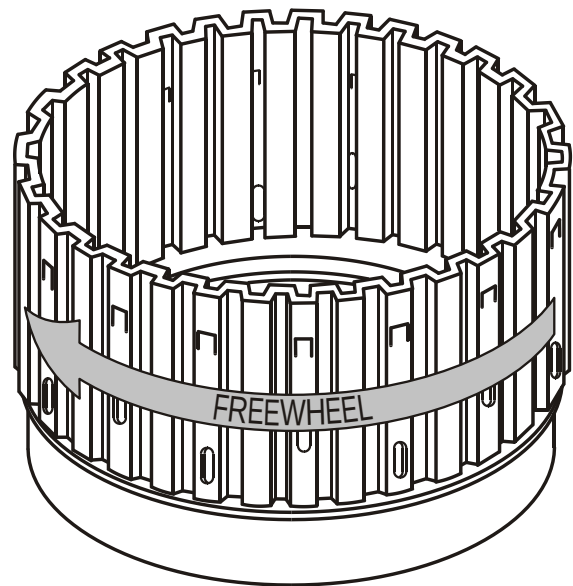
C-6, E40D, 4R100, LOW ROLLER CLUTCH

***THE LOW AND REVERSE CLUTCH HUB MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN THE CASE***

**C-6 AND E40D
1989-1996
LOW/REVERSE HUB**



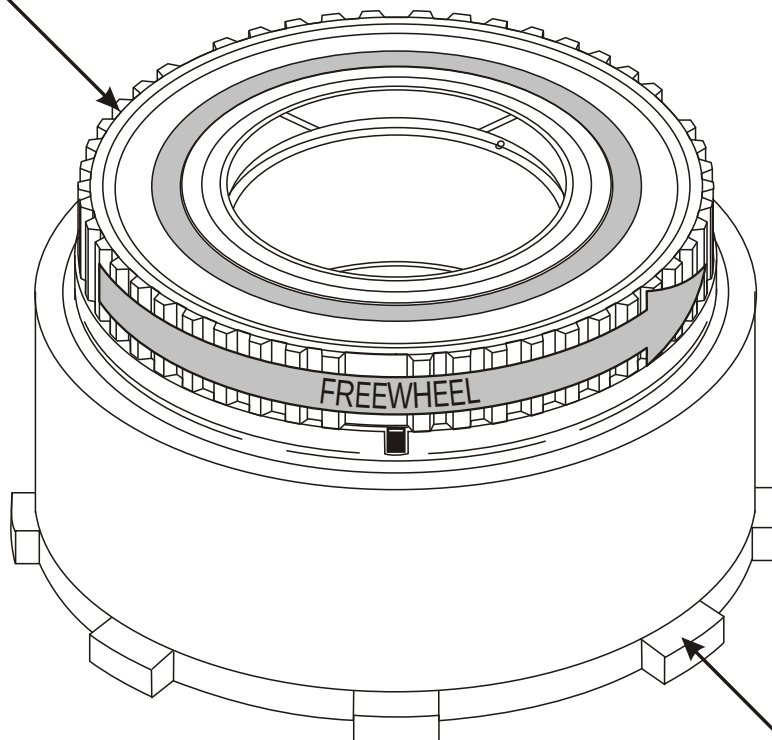
**1997 AND LATER
E40D AND 4R100
LOW/REVERSE HUB**



E40D AND 4R100 INTERMEDIATE SPRAG

***THE INTERMEDIATE OUTER SPRAG RACE MUST FREEWHEEL
COUNTERCLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING
THE DIRECT CLUTCH DRUM***

**FREEWHEEL
INTERMEDIATE SPRAG
OUTER RACE**

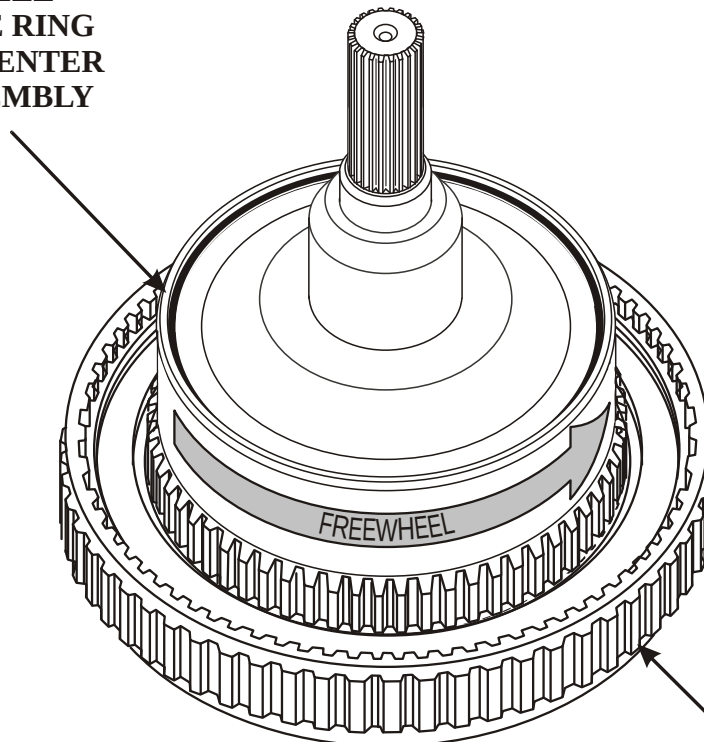


**HOLD
DIRECT CLUTCH
HOUSING**

E40D AND 4R100 OVERDRIVE ONE-WAY CLUTCH

***THE OVERDRIVE RING GEAR AND CENTER SHAFT ASSEMBLY MUST
FREEWHEEL COUNTER CLOCKWISE AND LOCK CLOCKWISE
WHEN HOLDING THE COAST CLUTCH DRUM***

**FREEWHEEL
OVERDRIVE RING
GEAR AND CENTER
SHAFT ASSEMBLY**



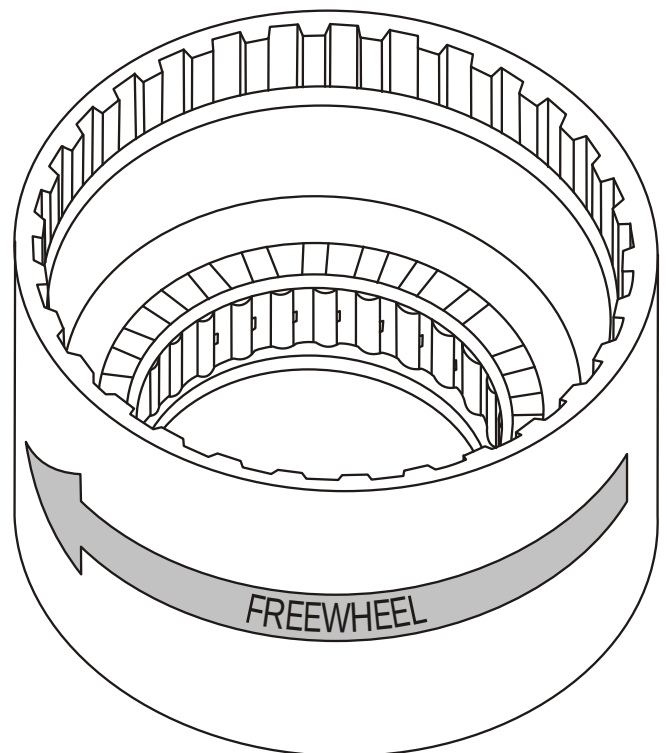
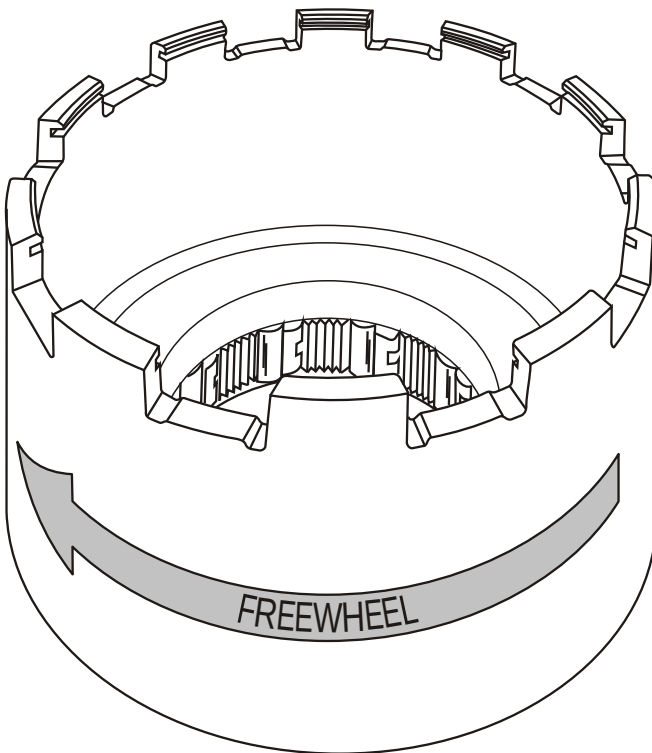
**HOLD
COAST CLUTCH
HOUSING**

C3, A4LD, 4R44E, 4R55E, 5R55E, 5R55N, LOW ONE WAY CLUTCH

***THE LOW AND REVERSE DRUM MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN THE CASE***

**C3, A4LD,
LOW/REVERSE DRUM**

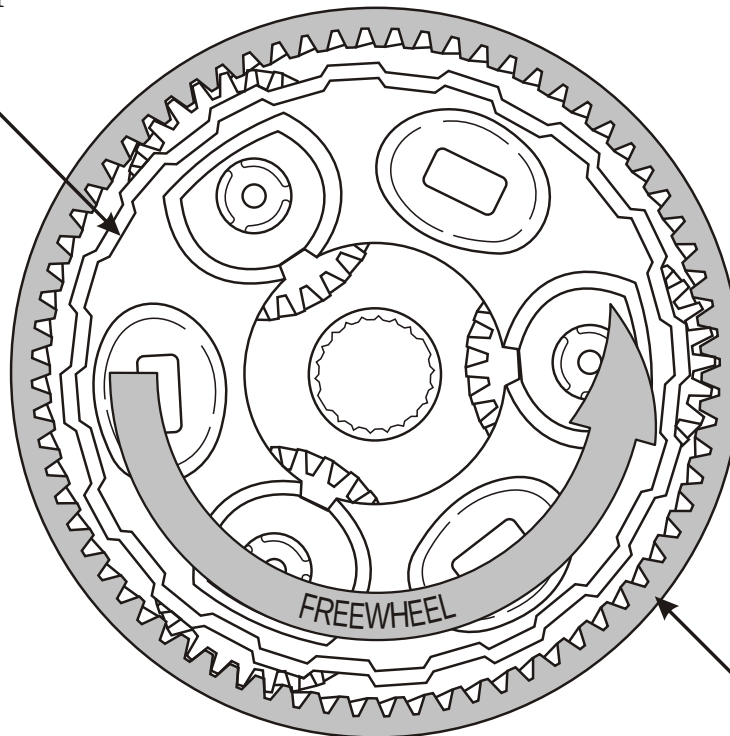
**A4LD, 4R44E, 4R55E, 5R55E, 5R55N,
LOW/REVERSE DRUM**



A4LD, 4R44E, 4R55E, 5R55E, 5R55N, OVERDRIVE SPRAG

***THE OVERDRIVE PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE RING GEAR IS HELD***

**FREEWHEEL
OVERDRIVE
PLANETARY**

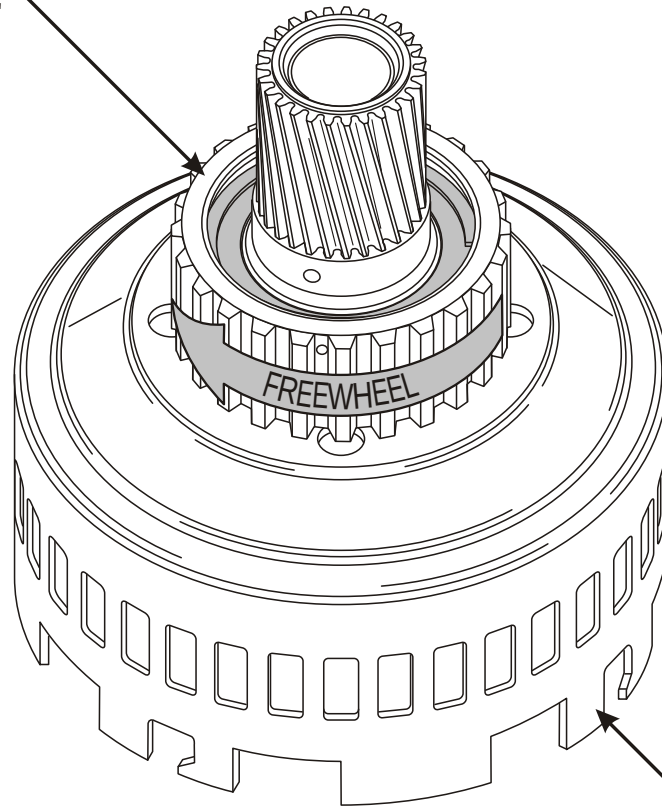


**HOLD
RING GEAR**

5R55N SUN GEAR SHELL SPRAG

THE OUTER SPRAG RACE MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN HOLDING SUN GEAR AND SHELL ASSEMBLY

**FREEWHEEL
OUTER SPRAG
RACE**

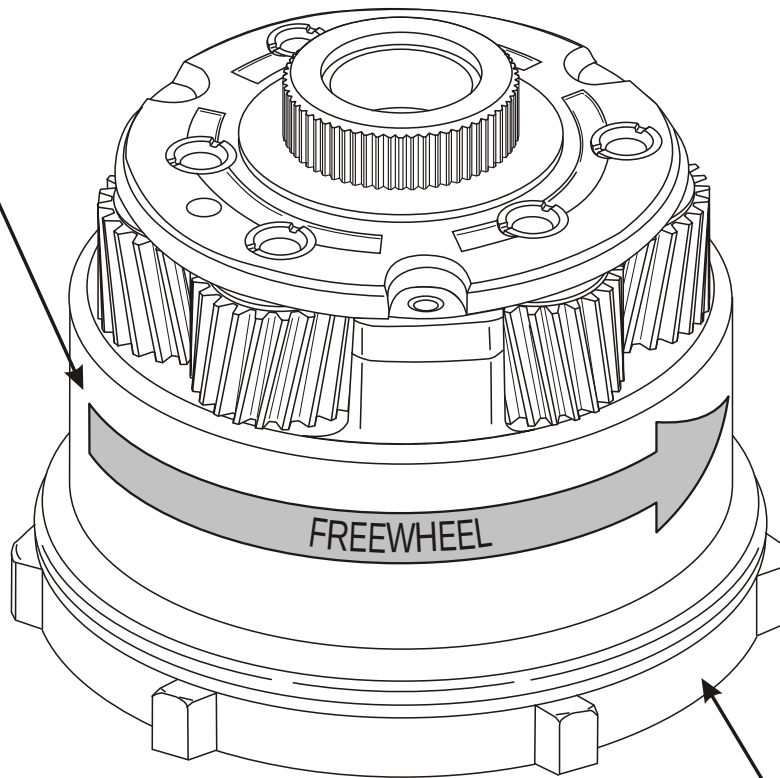


**HOLD
SUN GEAR AND
SHELL ASSEMBLY**

AOD, AODE, 4R70W, LOW ROLLER CLUTCH

THE REAR PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING THE LOW ROLLER CLUTCH INNER RACE

**FREEWHEEL
REAR PLANETARY**

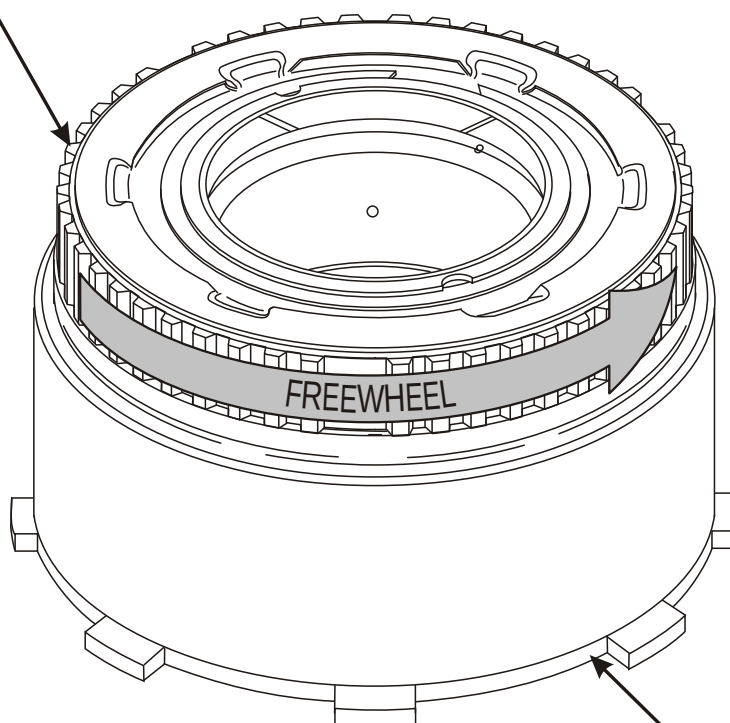


**HOLD
LOW ROLLER
CLUTCH INNER RACE**

AOD, AODE, 4R70W, INTERMEDIATE ONE-WAY CLUTCH

THE INTERMEDIATE ONE-WAY OUTER RACE MUST FREEWHEEL COUNTERCLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING THE REVERSE INPUT CLUTCH DRUM

**FREEWHEEL
INTERMEDIATE
ONE-WAY
OUTER RACE**

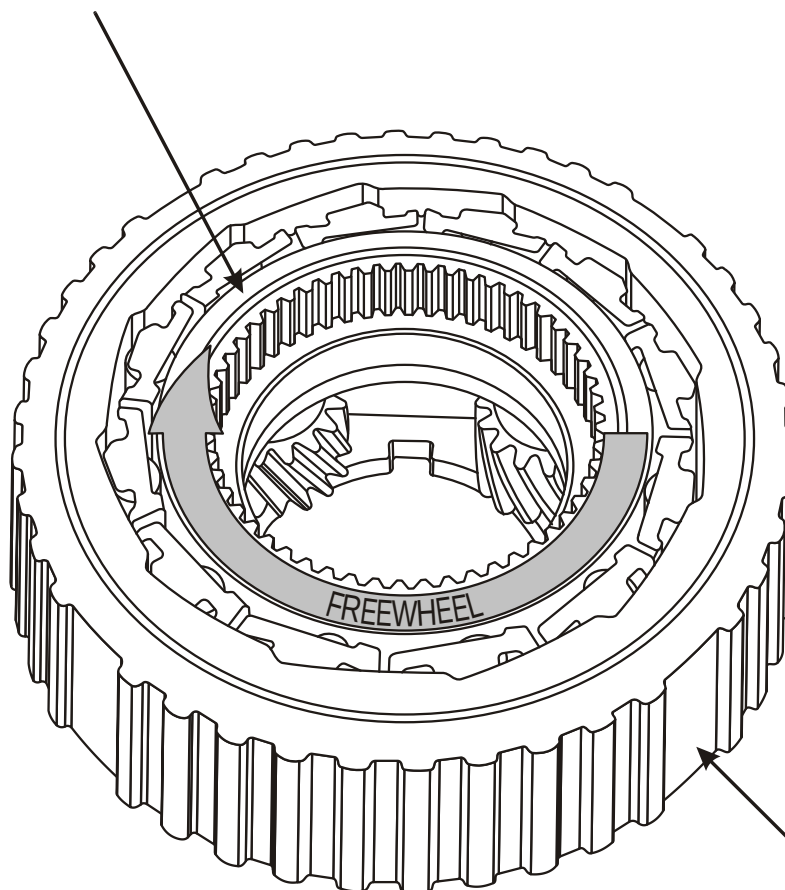


**HOLD
REVERSE INPUT
HOUSING**

THM 125, 125C, 325, 325-4L LOW ROLLER CLUTCH

***THE INNER RACE MUST FREEWHEEL CLOCKWISE AND LOCK
COUNTER CLOCKWISE WHEN THE PLANETARY CARRIER IS HELD***

**FREEWHEEL
INNER RACE**

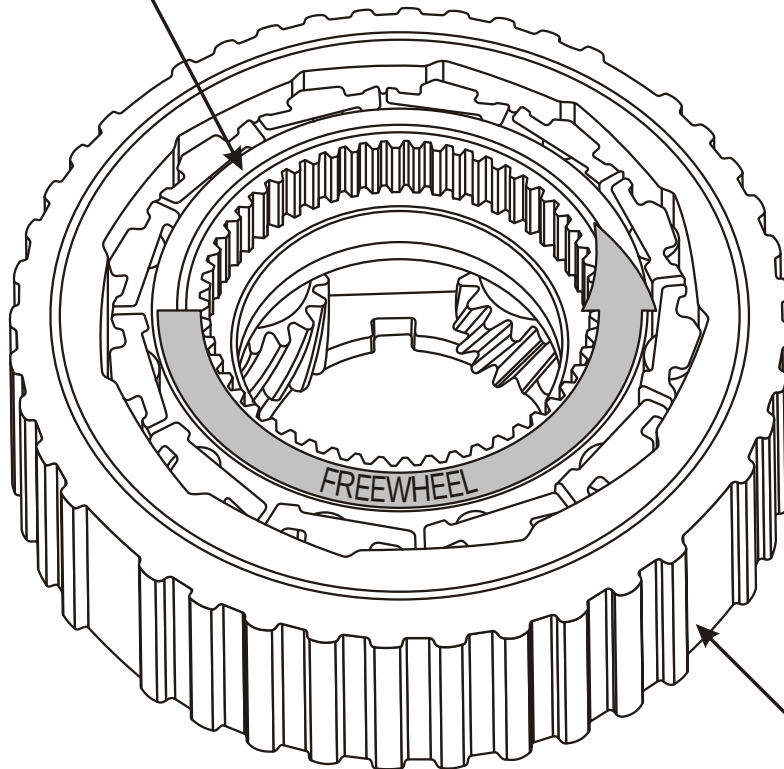


**HOLD
PLANETARY
CARRIER**

THM 200, 200-4R, LOW ROLLER CLUTCH

***THE INNER RACE MUST FREEWHEEL COUNTER CLOCKWISE AND
LOCK CLOCKWISE WHEN THE PLANETARY CARRIER IS HELD***

**FREEWHEEL
INNER RACE**

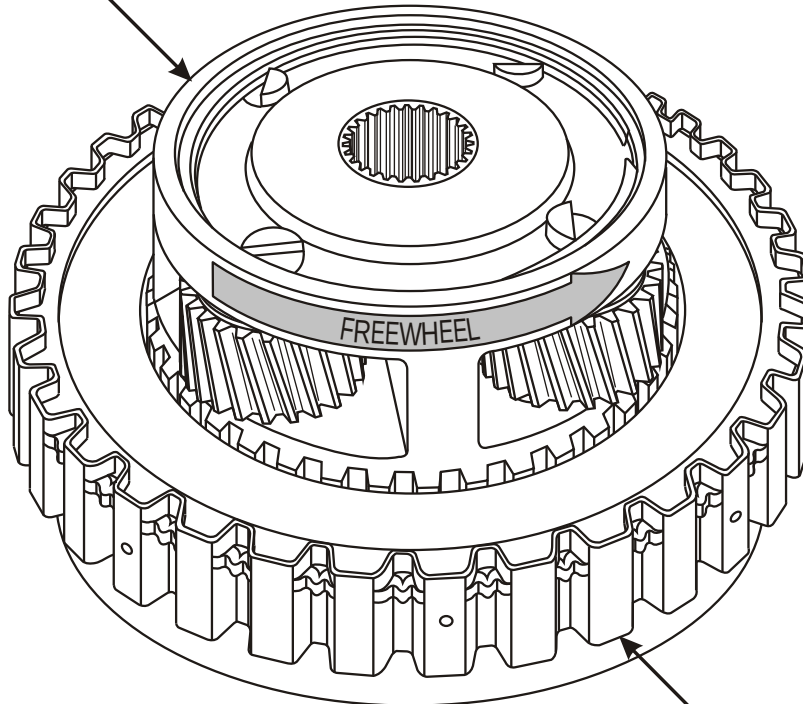


**HOLD
PLANETARY
CARRIER**

THM 200-4R, 325-4L, OVERRUN ROLLER CLUTCH

***THE OVERDRIVE CARRIER MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING OVERRUN CLUTCH HOUSING***

**FREEWHEEL
OVERDRIVE
CARRIER**

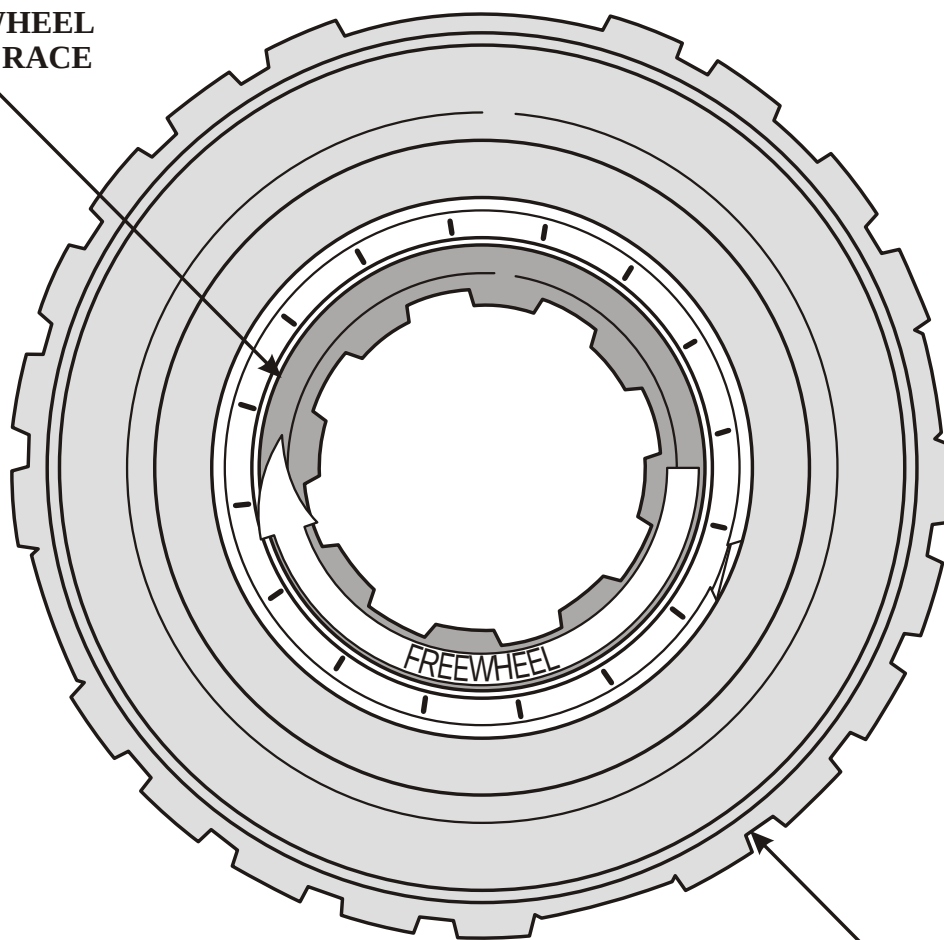


**HOLD
OVERRUN
CLUTCH DRUM**

THM 250, 250C, 350, 350C, 700-R4, 4L60-E LOW ROLLER CLUTCH

***THE INNER RACE MUST FREEWHEEL CLOCKWISE AND LOCK
COUNTER CLOCKWISE WHEN HOLDING THE CENTER SUPPORT***

**FREEWHEEL
INNER RACE**

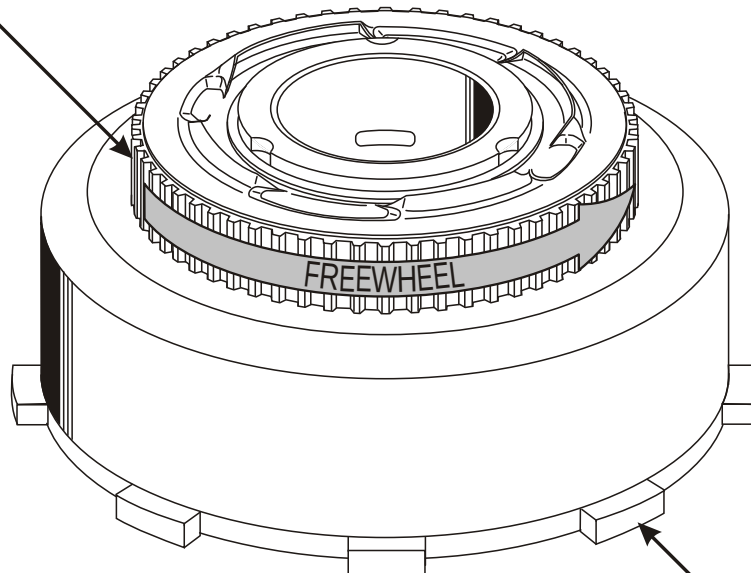


**HOLD
CENTER SUPPORT**

THM 350, 350C, INTERMEDIATE ROLLER CLUTCH

***THE INTERMEDIATE ROLLER CLUTCH OUTER RACE MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING
THE DIRECT CLUTCH DRUM***

**FREEWHEEL
INTERMEDIATE ROLLER
CLUTCH OUTER RACE**



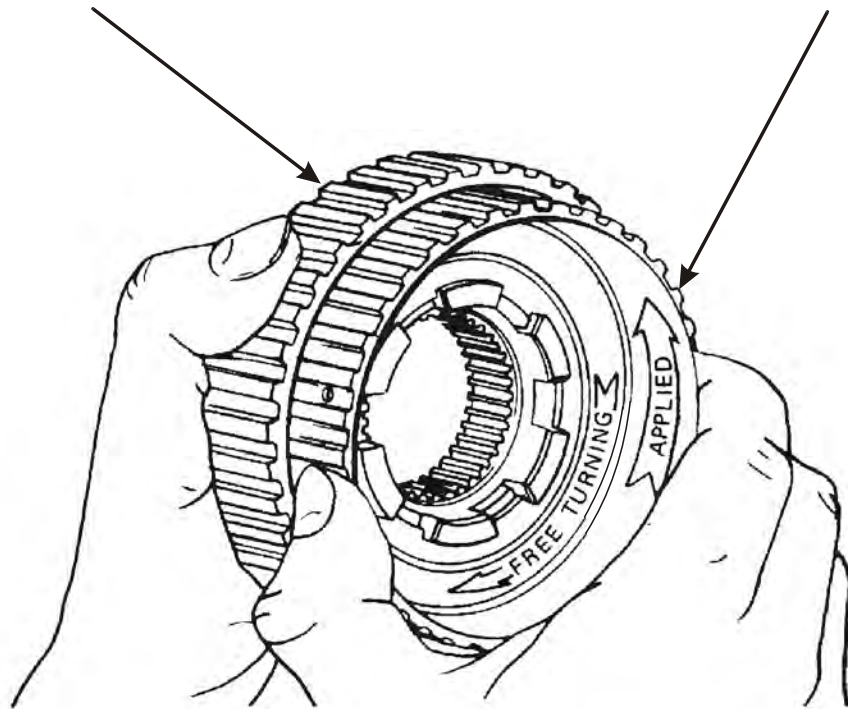
**HOLD
DIRECT CLUTCH
HOUSING**

THM 700-R4, 4L60-E, INPUT SPRAG

THE OVERRUN CLUTCH HUB MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN THE FORWARD HUB IS HELD

**HOLD
FORWARD
CLUTCH HUB**

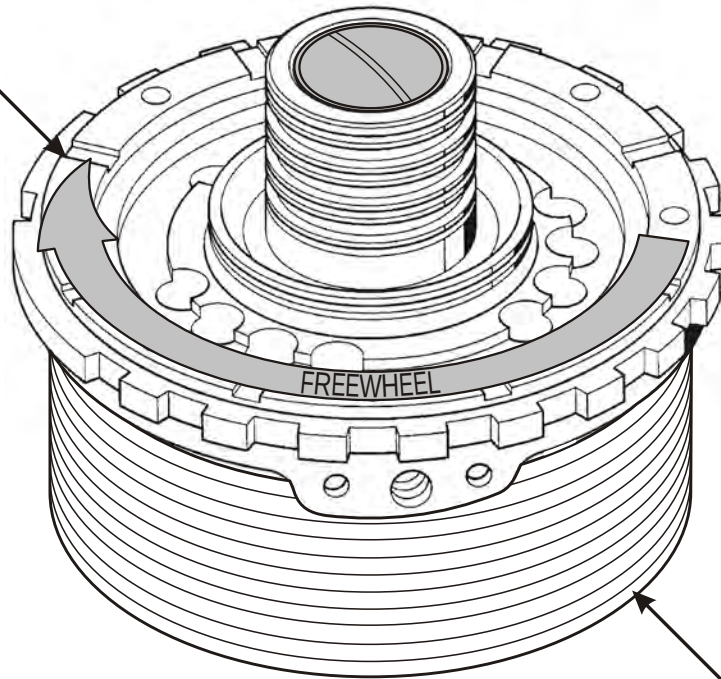
**FREEWHEEL
OVERRUN
CLUTCH HUB**



THM 425, LOW ROLLER CLUTCH

***THE CENTER SUPPORT MUST FREEWHEEL CLOCKWISE AND
LOCK COUNTER CLOCKWISE WHEN HOLDING THE REACTION CARRIER***

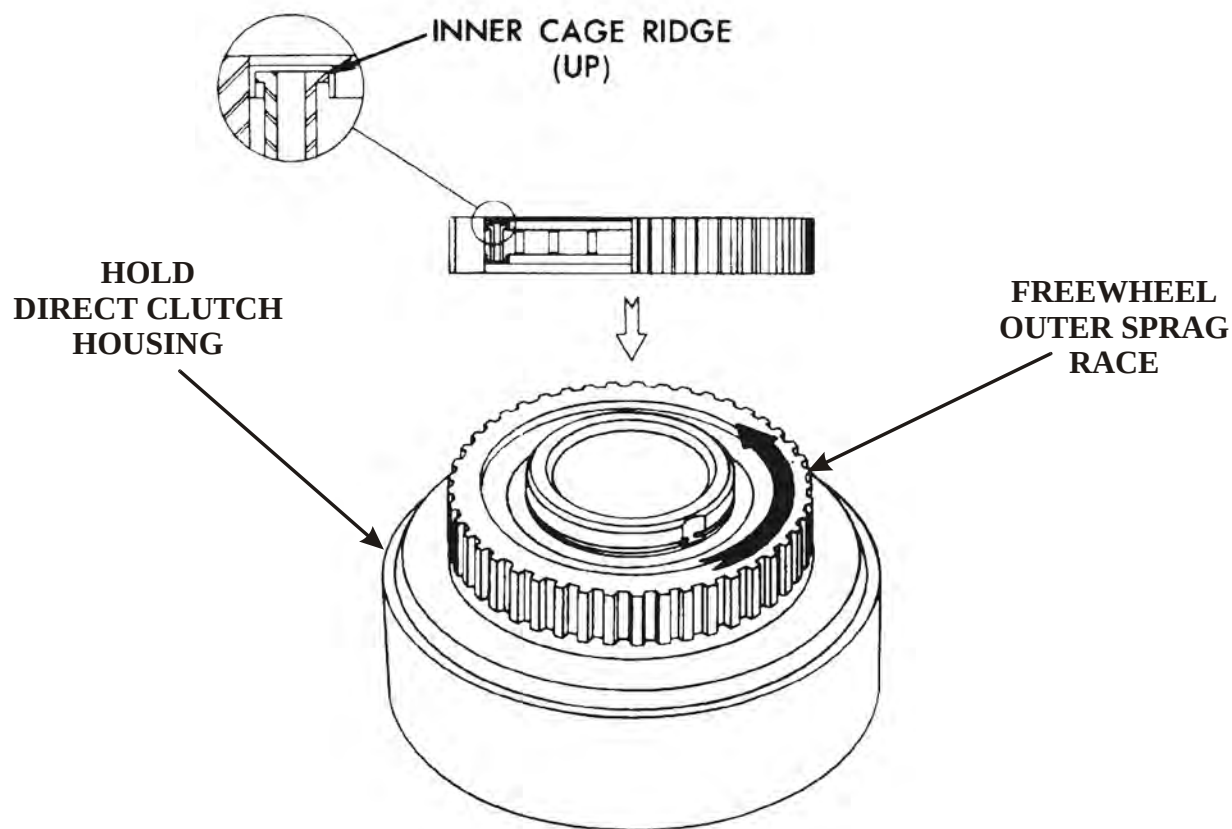
**FREEWHEEL
CENTER SUPPORT**



**HOLD
REACTION
CARRIER**

THM 425, INTERMEDIATE ONE-WAY CLUTCH

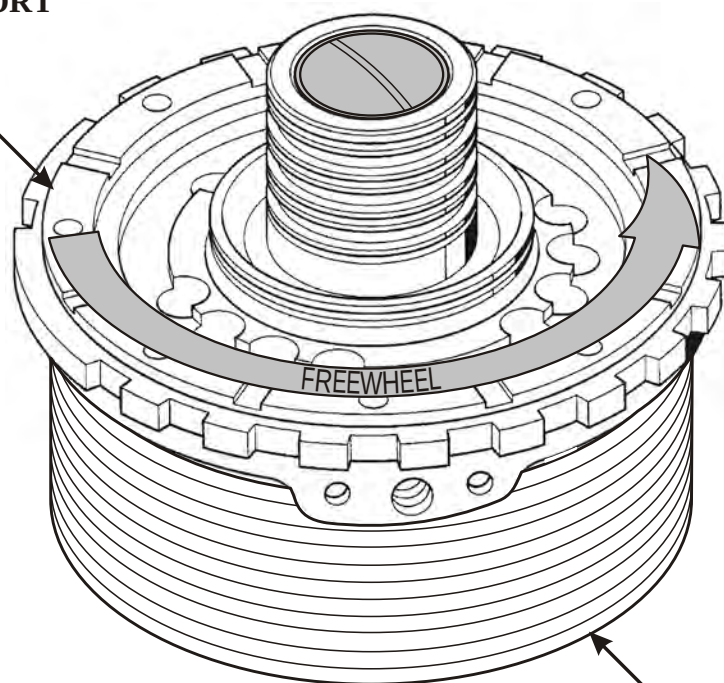
***THE OUTER SPRAG RACE MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE DIRECT DRUM***



THM 400, 4L80-E, 4L80-EHD LOW ROLLER CLUTCH

***THE CENTER SUPPORT MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE REACTION CARRIER***

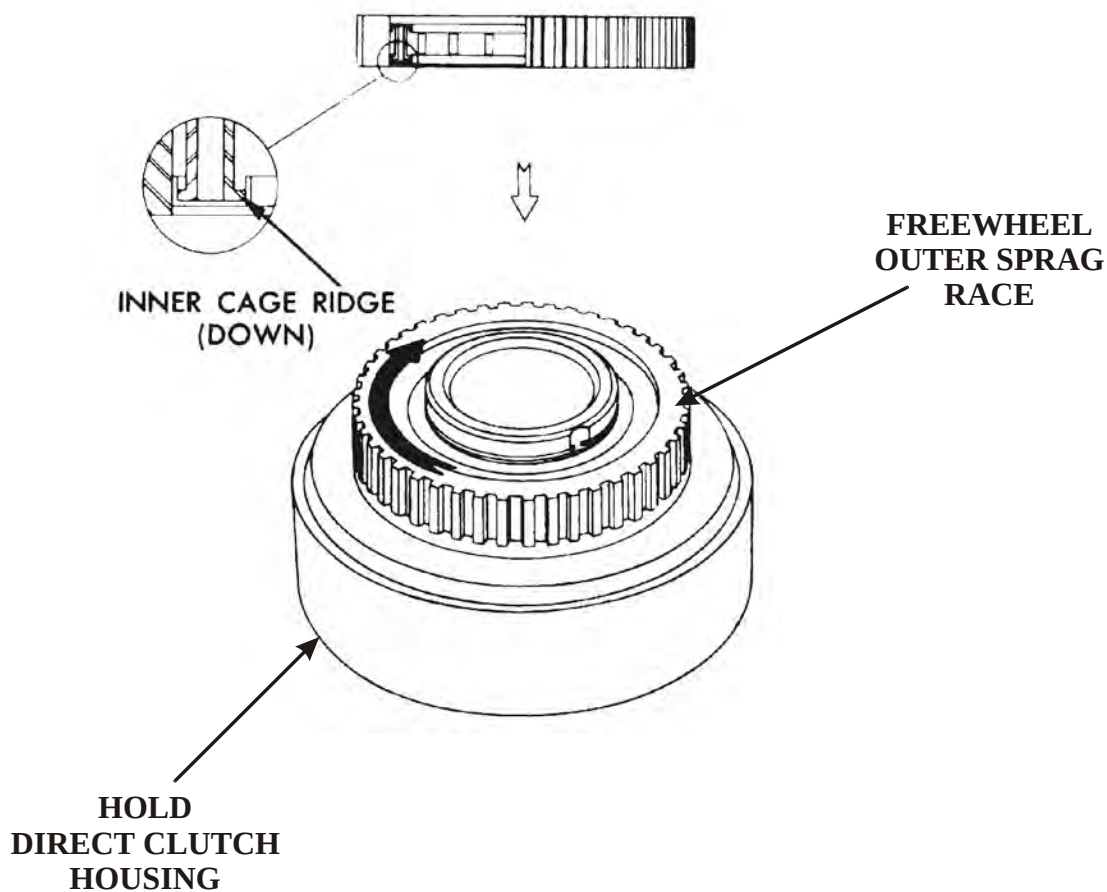
**FREEWHEEL
CENTER SUPPORT**



**HOLD
REACTION
CARRIER**

THM 400, 4L80-E, 4L80-EHD INTERMEDIATE ONE-WAY CLUTCH

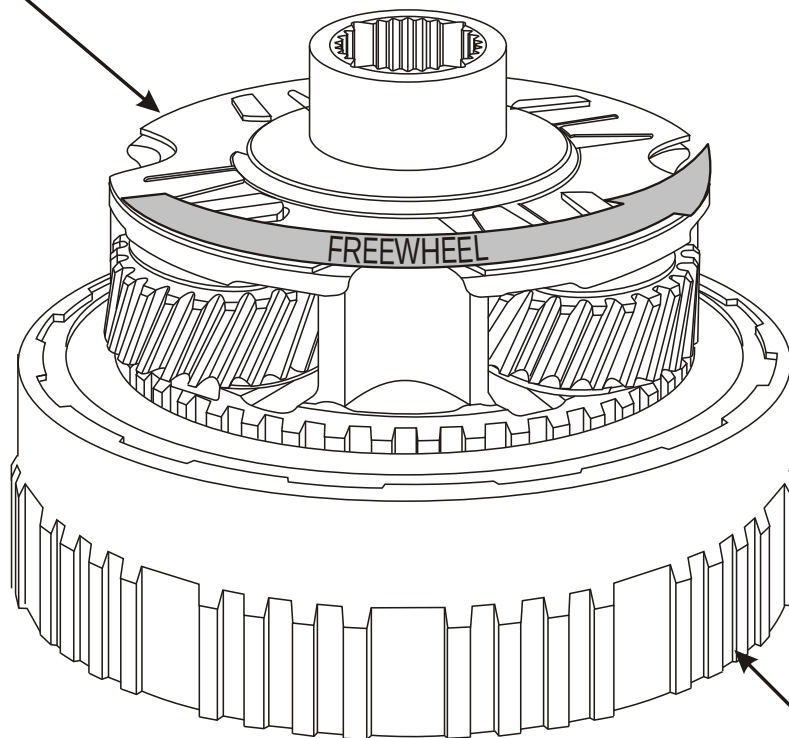
THE OUTER SPRAG RACE MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE DIRECT DRUM



THM 4L80-E, 4L80-EHD, OVERDRIVE ROLLER CLUTCH

***THE OVERDRIVE PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE OVERRUN CLUTCH DRUM IS HELD***

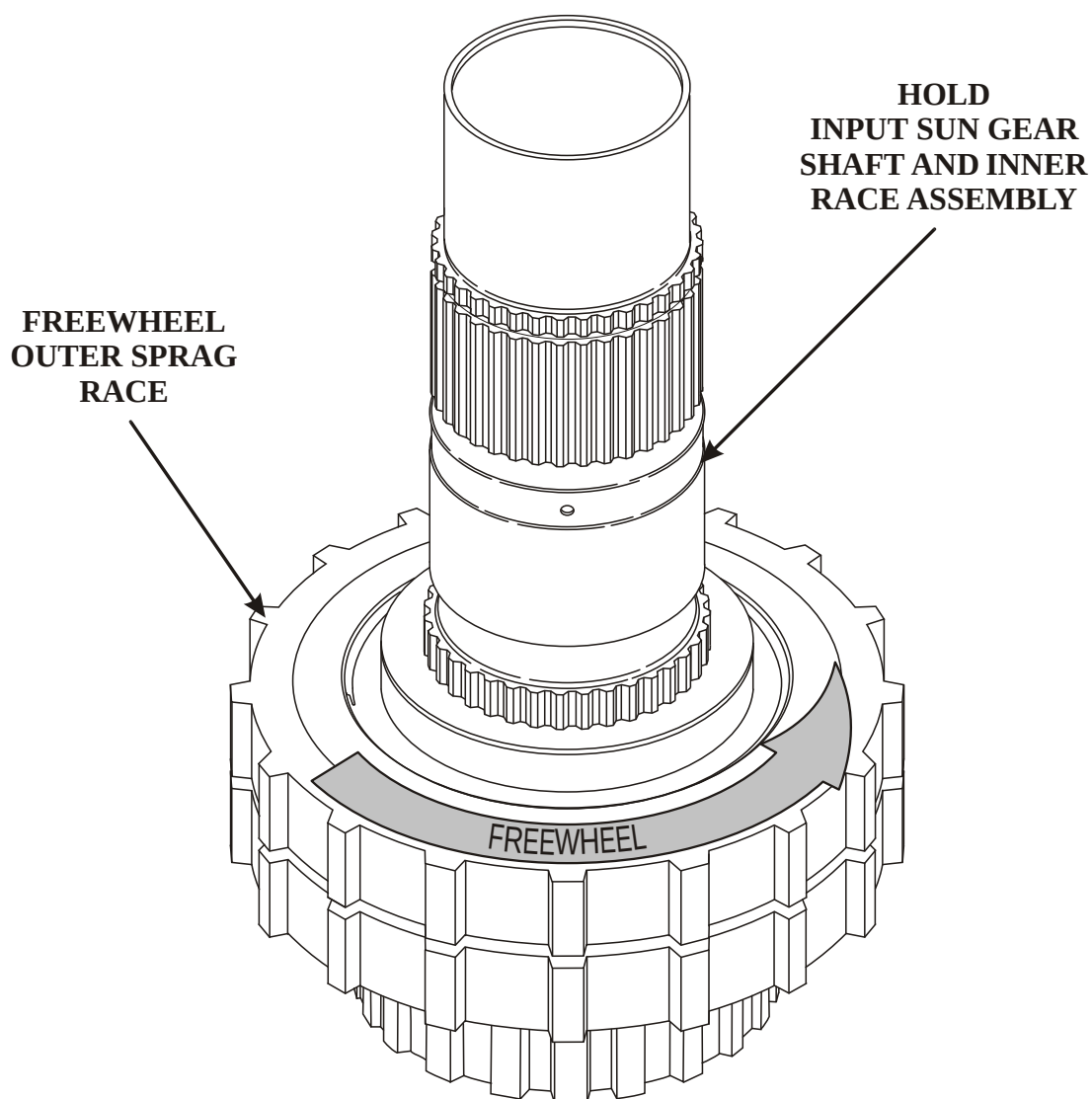
**FREEWHEEL
OVERDRIVE
PLANETARY**



**HOLD
OVERRUN
CLUTCH DRUM**

THM 4T40-E, INPUT SPRAG

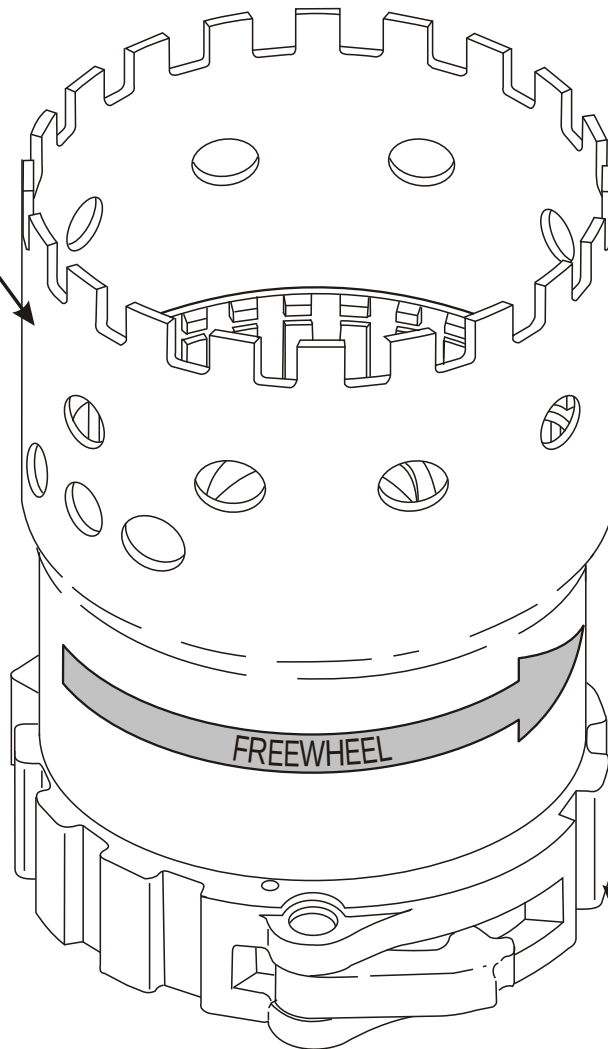
***THE INPUT SPRAG OUTER RACE MUST FREEWHEEL COUNTER
CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING
THE INPUT SUN GEAR SHAFT***



THM 4T40E, LOW ROLLER CLUTCH

***THE FORWARD CLUTCH HOUSING MUST FREEWHEEL COUNTER
CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING
THE FORWARD CLUTCH SUPPORT***

**FREEWHEEL
FORWARD CLUTCH
HOUSING**

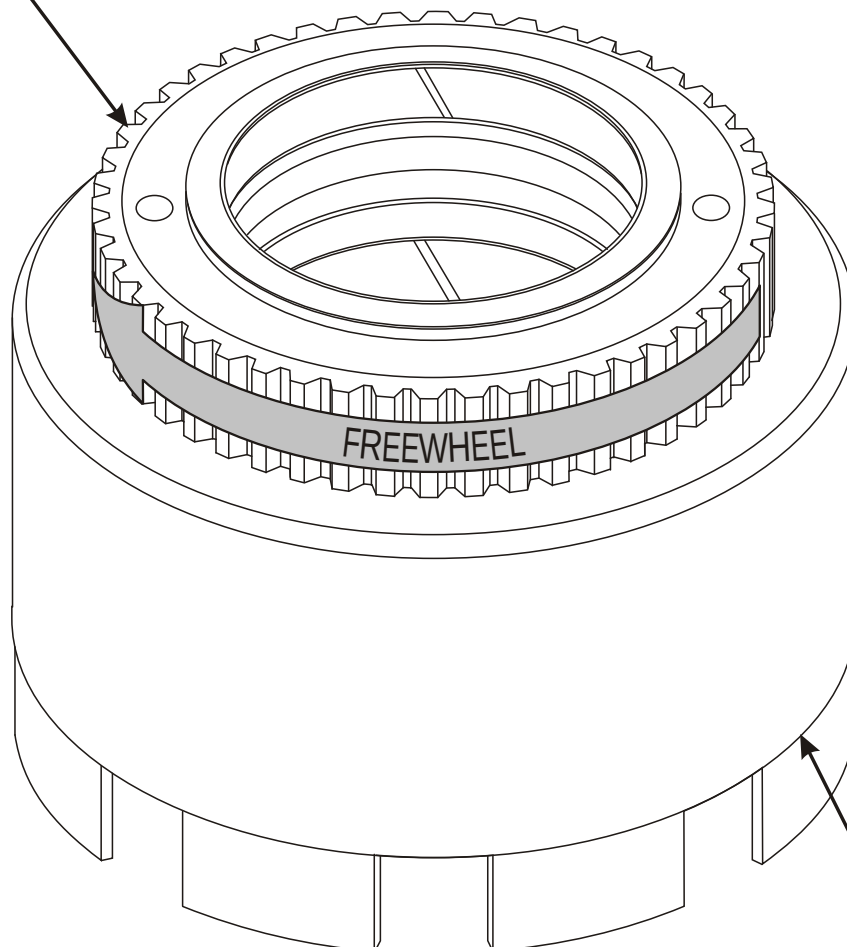


**HOLD
FORWARD CLUTCH
SUPPORT**

THM 4T40E, 2ND ROLLER CLUTCH

***THE ROLLER CLUTCH OUTER RACE MUST FREEWHEEL CLOCKWISE AND
LOCK COUNTER CLOCKWISE WHEN HOLDING
THE REVERSE CLUTCH HOUSING***

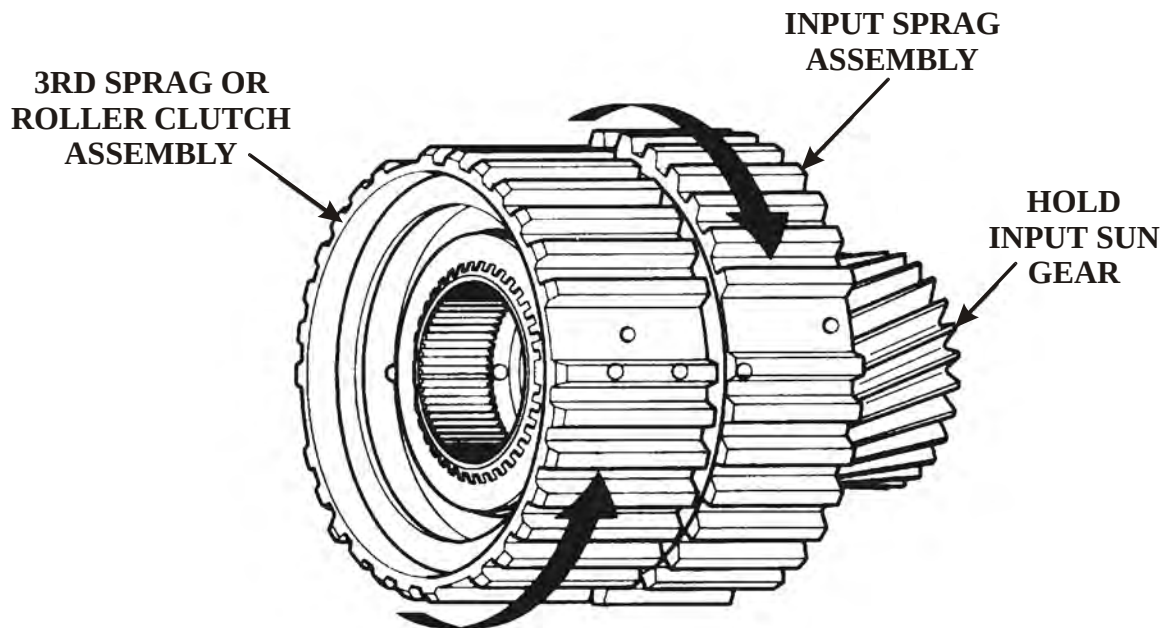
**FREEWHEEL
ROLLER CLUTCH
OUTER RACE**



**HOLD
REVERSE CLUTCH
HOUSING**

THM 4T60, 4T60E, 4T65E, INPUT AND 3RD SPRAG ASSEMBLY

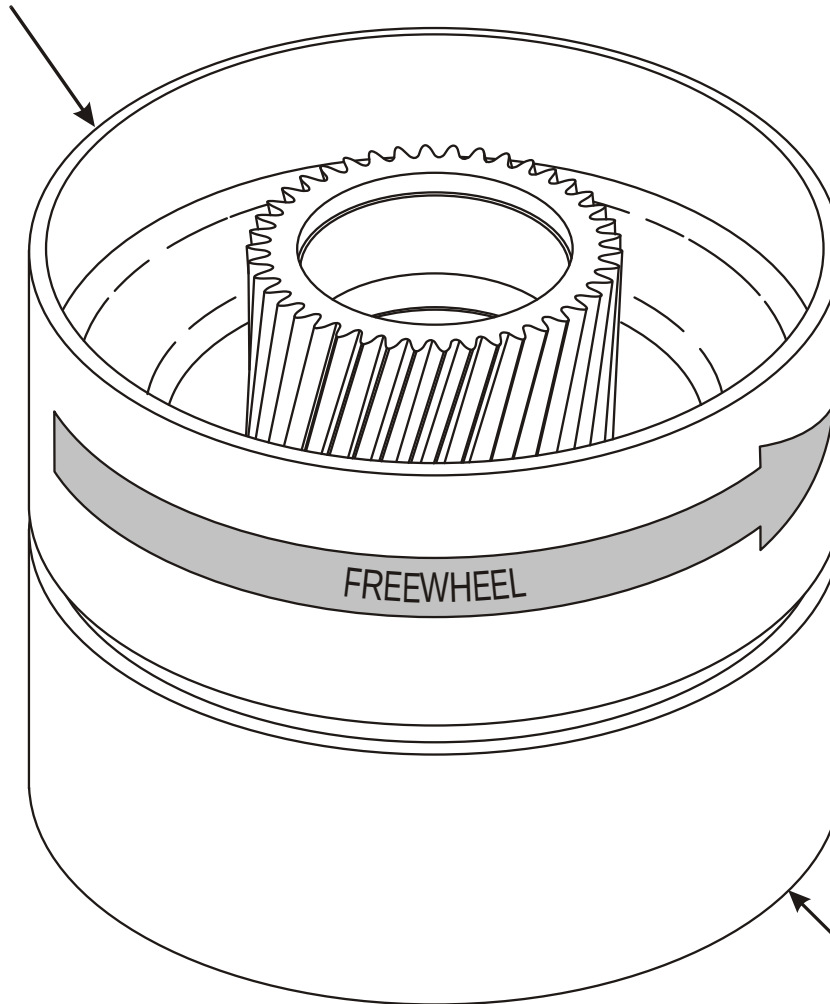
***THE SPRAG/ROLLER CLUTCH ASSEMBLIES MUST FREEWHEEL IN
DIRECTION OF ARROWS, AND HOLD IN OPPOSITE DIRECTION
WHILE HOLDING SUN GEAR AND SHAFT ASSEMBLY***



THM 4T60E, 4T65-E, 1-2 ROLLER CLUTCH

**REACTION SUN GEAR DRUM MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE 1-2 ROLLER CLUTCH ASSEMBLY IS HELD**

**FREEWHEEL
REACTION
SUN GEAR DRUM**

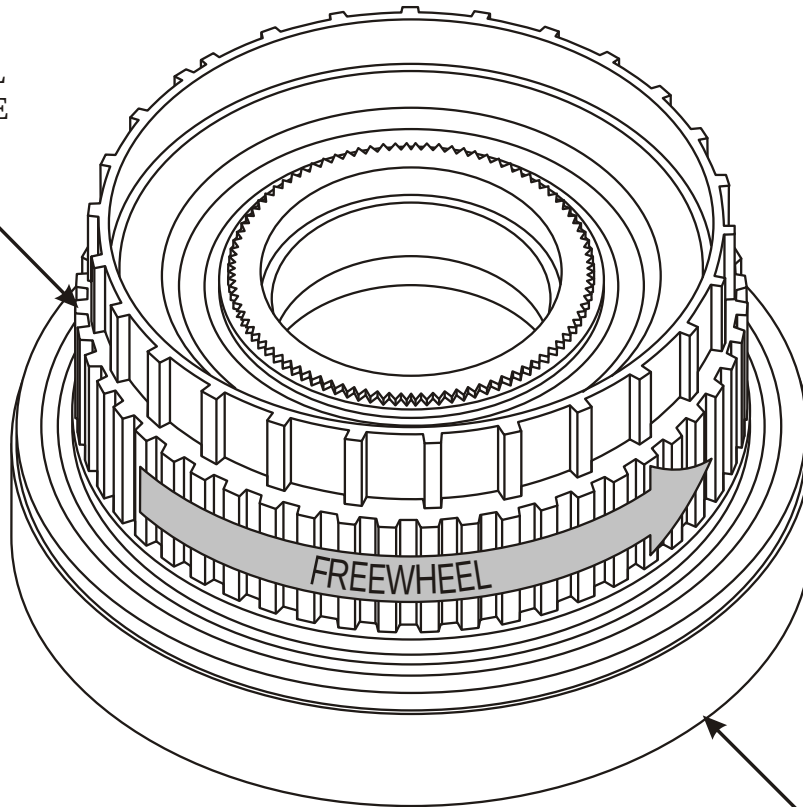


**HOLD
1-2 ROLLER
CLUTCH ASSEMBLY**

THM 4T80E, INPUT SPRAG

**THE OUTER RACE/CLUTCH HUB MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE
WHEN HOLDING RING GEAR**

**FREEWHEEL
OUTER RACE**

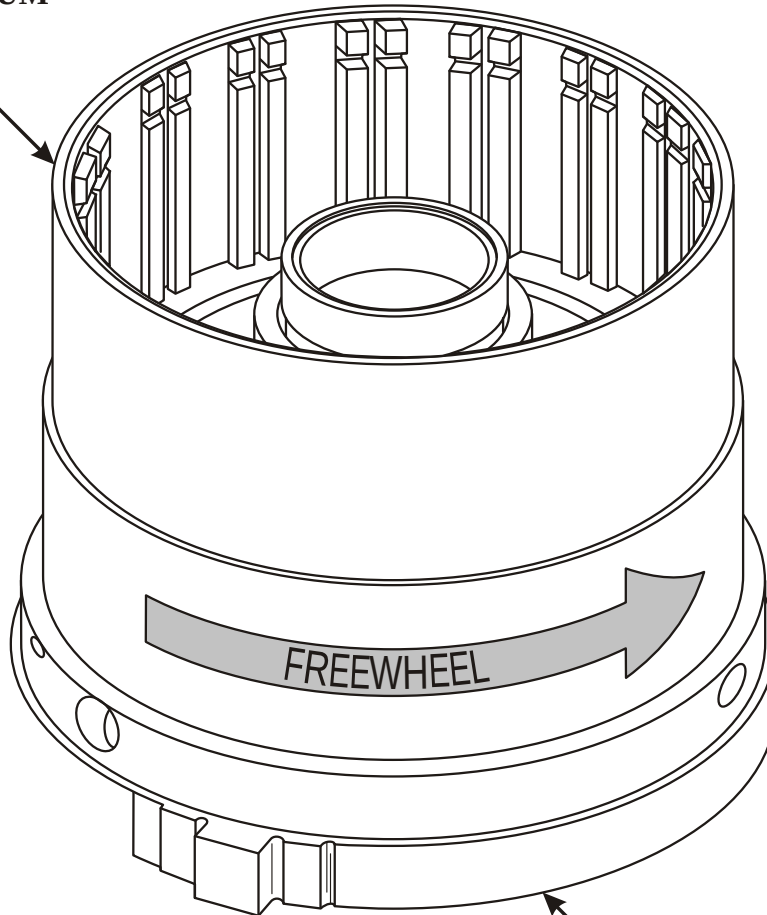


**HOLD
RING GEAR**

THM 4T80E, LOW ROLLER CLUTCH

***THE FORWARD/COAST CLUTCH DRUM MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE ON SUPPORT***

**FREEWHEEL
FORWARD DRUM**

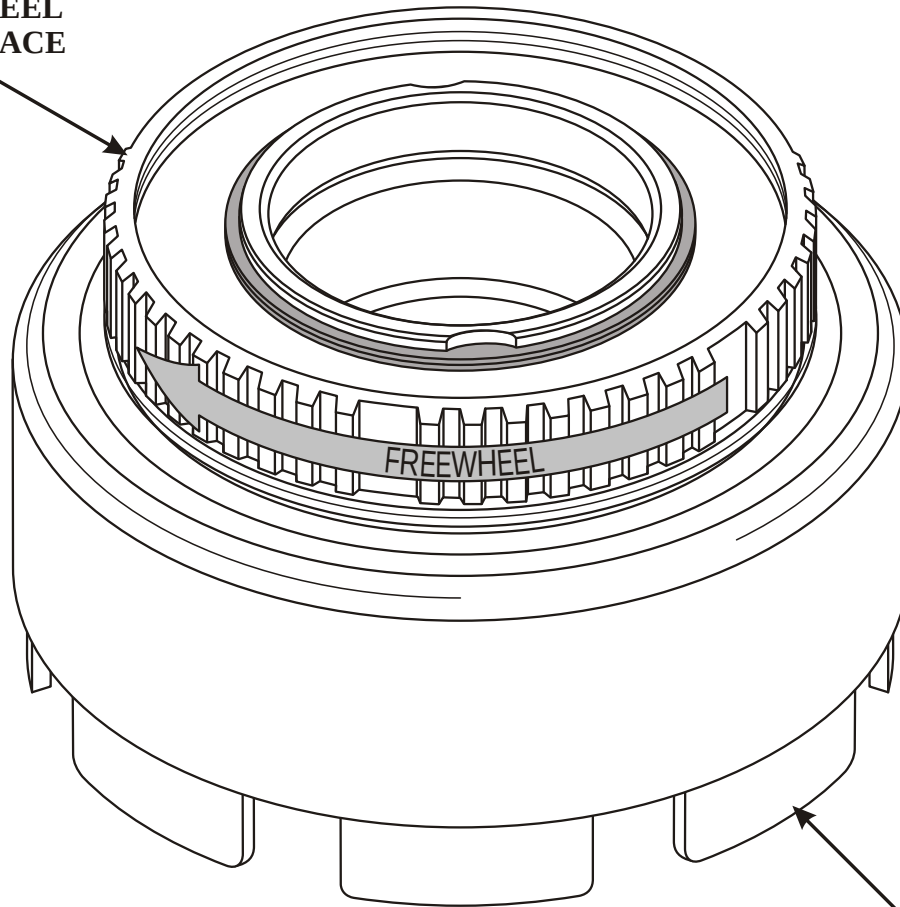


**HOLD
SUPPORT**

THM 4T80-E, INTERMEDIATE SPRAG

***THE OUTER RACE MUST FREEWHEEL CLOCKWISE AND
LOCK COUNTER CLOCKWISE WHEN HOLDING REVERSE DRUM***

**FREEWHEEL
OUTER RACE**



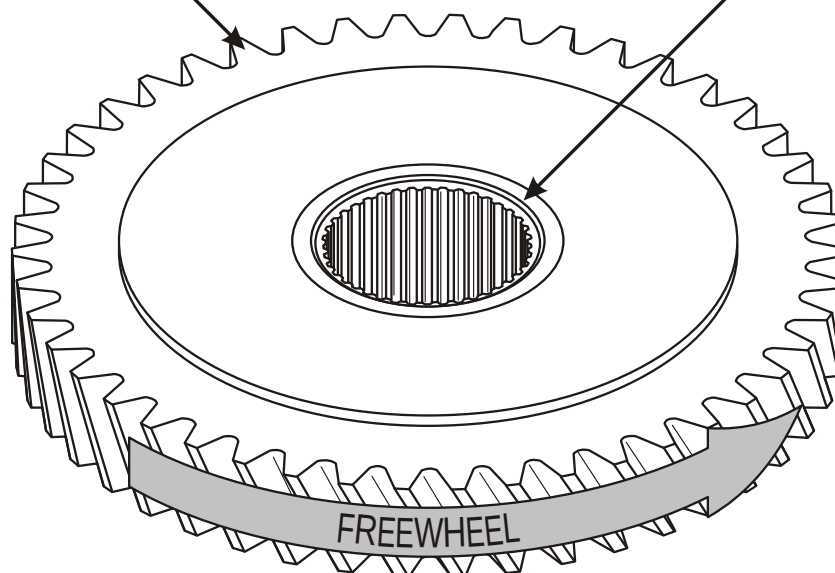
**HOLD
REVERSE DRUM**

SATURN TAAT

***THE 1ST DRIVEN GEAR MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHILE HOLDING INNER HUB***

**FREEWHEEL
1ST DRIVEN
GEAR**

**HOLD
INNER HUB**

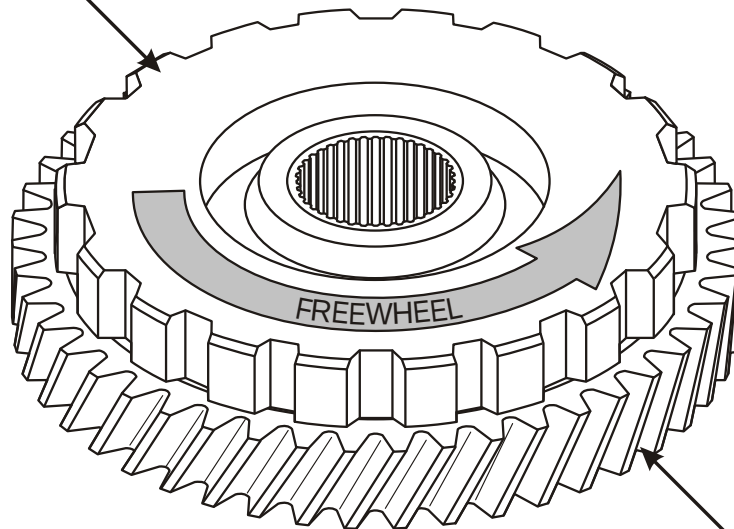


HONDA

**AK, AS, CA, F4, K4, L4, S5, A4RA, A24A, B4RA, M4RA, M4TA,
M24A, MDLA, MDMA, MPSA, MY8A, PY8A, S24A, SDMA,
LOW ONE-WAY CLUTCH**

***THE PARKING GEAR MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE***

**FREEWHEEL
PARKING GEAR**

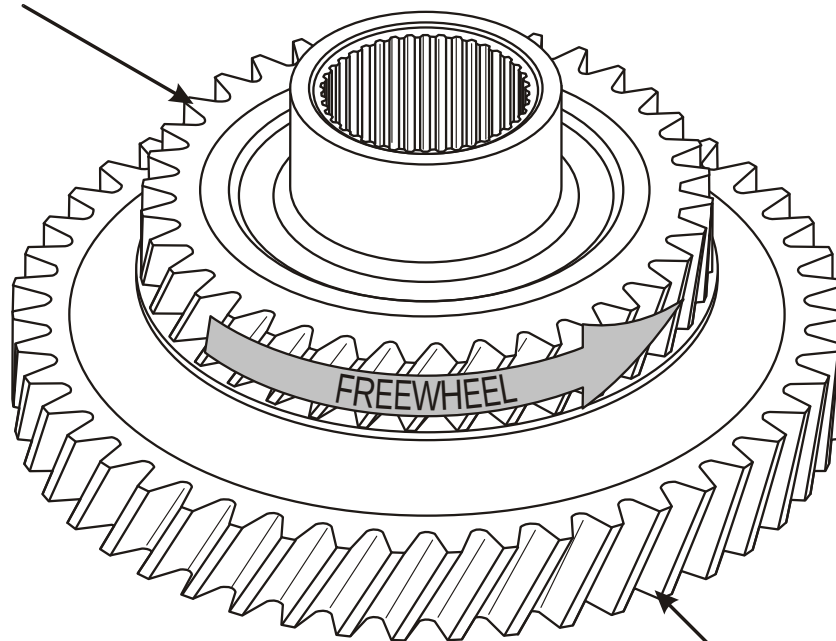


**HOLD
COUNTERSHAFT
1ST GEAR**

HONDA AOYA, APX4, MP1A, MPJA, MPOA, PX4B, LOW ONE-WAY CLUTCH

***COUNTERSHAFT 3RD GEAR MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING COUNTERSHAFT 1ST GEAR***

**FREEWHEEL
COUNTERSHAFT
3RD GEAR**

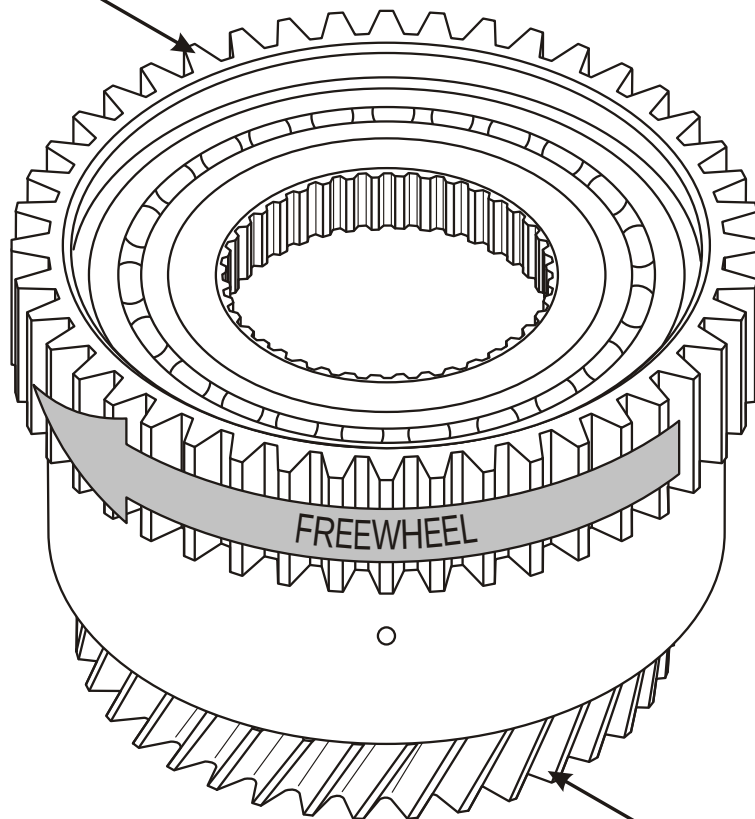


**HOLD
COUNTERSHAFT
1ST GEAR**

HONDA MPZA LOW ONE-WAY CLUTCH

***THE SECONDARY SHAFT 1ST CLUTCH HUB MUST
FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE***

**FREEWHEEL
SECONDARY SHAFT
1ST CLUTCH HUB**

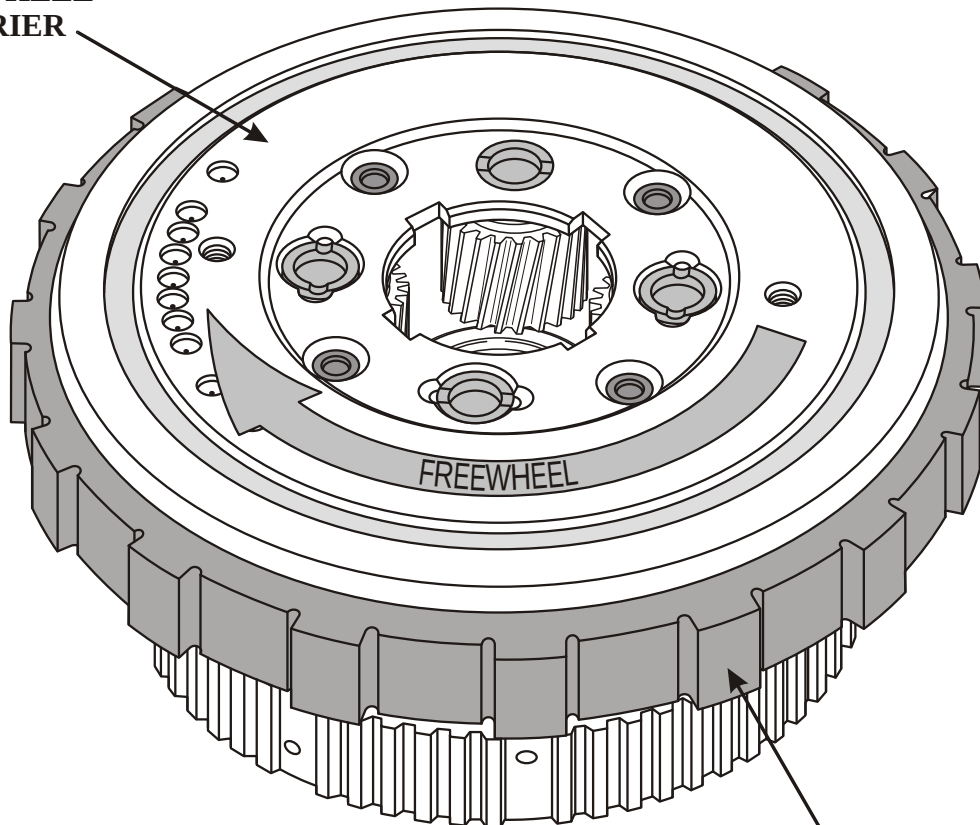


**HOLD
SECONDARY SHAFT
1ST GEAR**

AISIN SEIKI LOW SPRAG

***THE PLANETARY CARRIER MUST FREEWHEEL CLOCKWISE AND
 LOCK COUNTER CLOCKWISE WHEN HOLDING OUTER RACE***

FREEWHEEL
 CARRIER

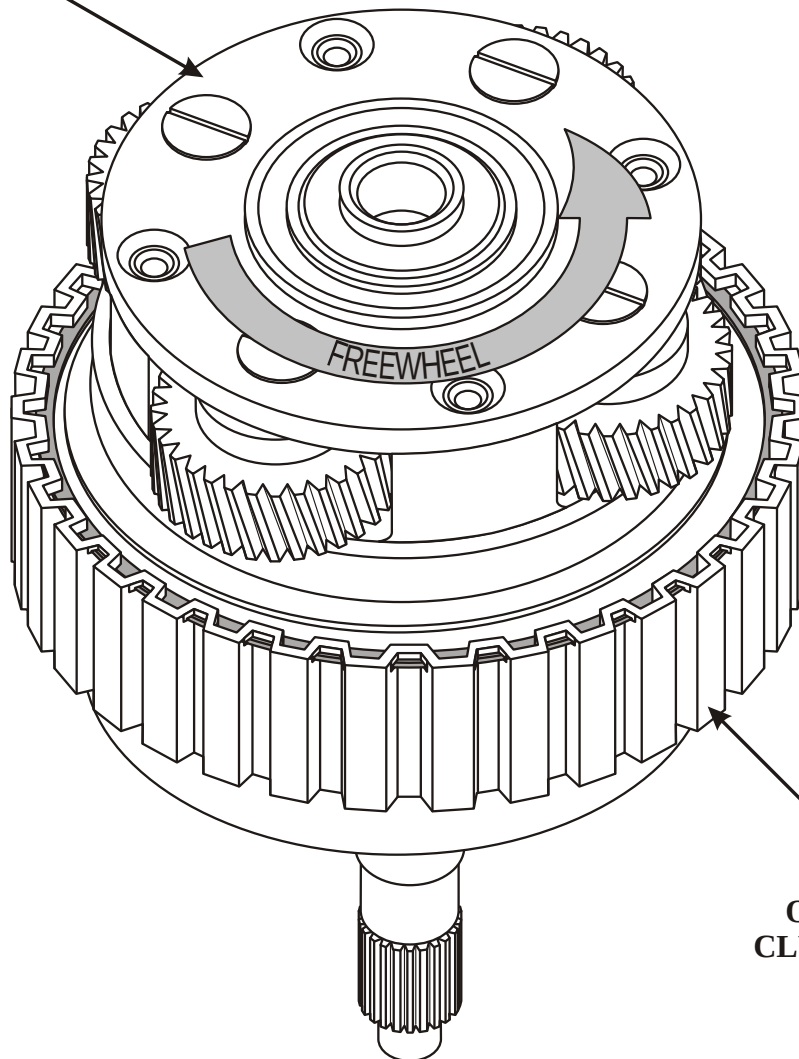


HOLD
 OUTER RACE

AISIN SEIKI OVERDRIVE SPRAG

***THE OVERDRIVE CARRIER MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE***

**FREEWHEEL
O.D. CARRIER**

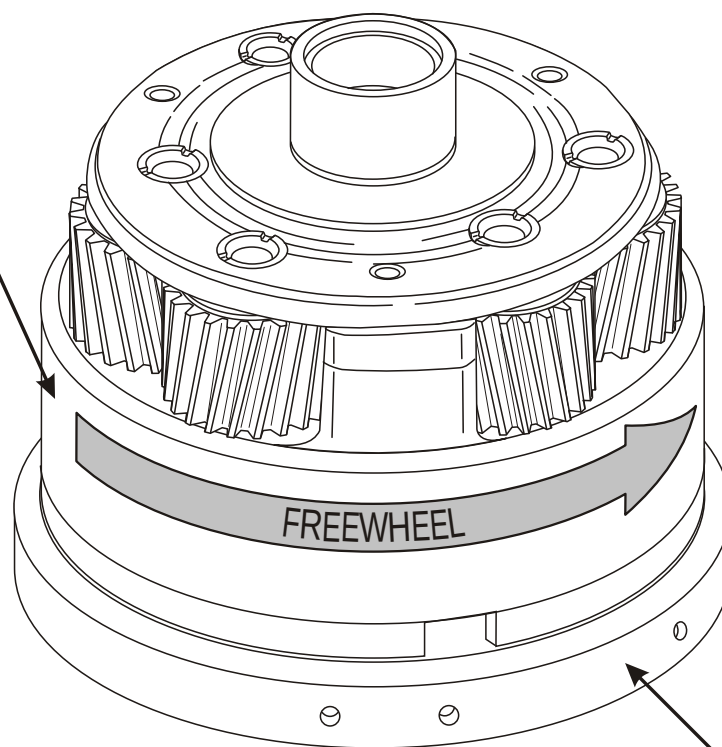


**HOLD
OD DIRECT
CLUTCH DRUM**

JAGUAR BORG WARNER-65, BW-66, LOW ROLLER CLUTCH

***THE REAR PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE AND
LOCK CLOCKWISE WHEN HOLDING THE INNER RACE***

**FREEWHEEL
PLANETARY
CARRIER**

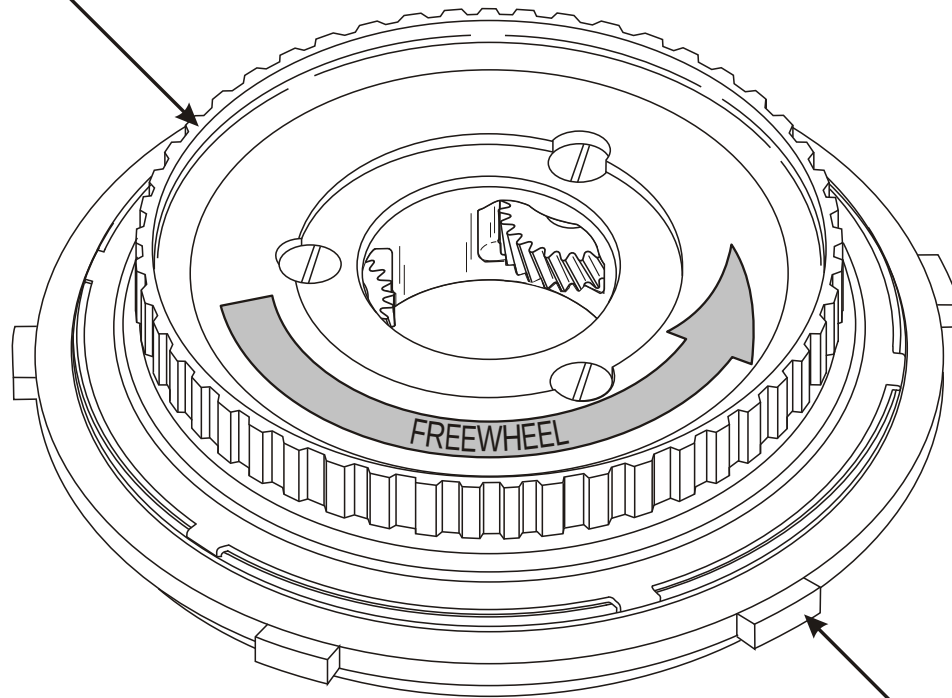


**HOLD
INNER RACE
(CENTER SUPPORT)**

F3A, KF100, LOW SPRAG

***THE PLANETARY ASSEMBLY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE OUTER RACE***

**FREEWHEEL
PLANETARY
ASSEMBLY**

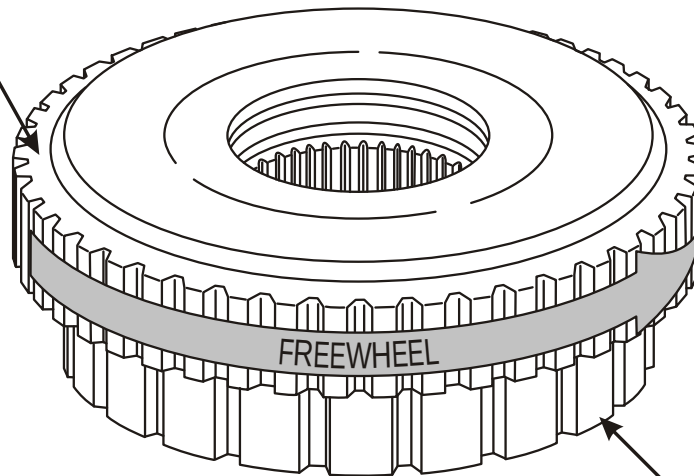


**HOLD
OUTER SPRAG
RACE**

FORD/MAZDA F4EAT, F4A-EL, FB4A-EL, FORWARD ONE WAY SPRAG

***THE FORWARD CLUTCH HUB MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE OVERRUN CLUTCH HUB***

**FREEWHEEL
FORWARD
CLUTCH HUB**

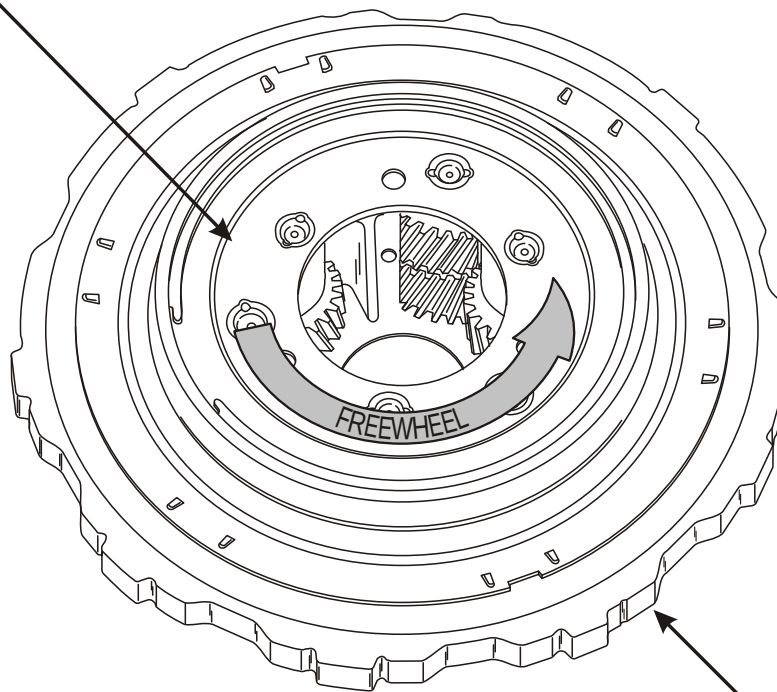


**HOLD
OVERRUN
CLUTCH HUB**

FORD/MAZDA F4EAT, F4A-EL, FB4A-EL G4A-HL, G4A-EL, GF4A-EL LOW ROLLER CLUTCH

PLANETARY CARRIER MUST FREEWHEEL COUNTER CLOCKWISE AND LOCK CLOCKWISE, WHEN THE ROLLER CLUTCH IS HELD STATIONARY

**FREEWHEEL
PLANETARY
CARRIER**

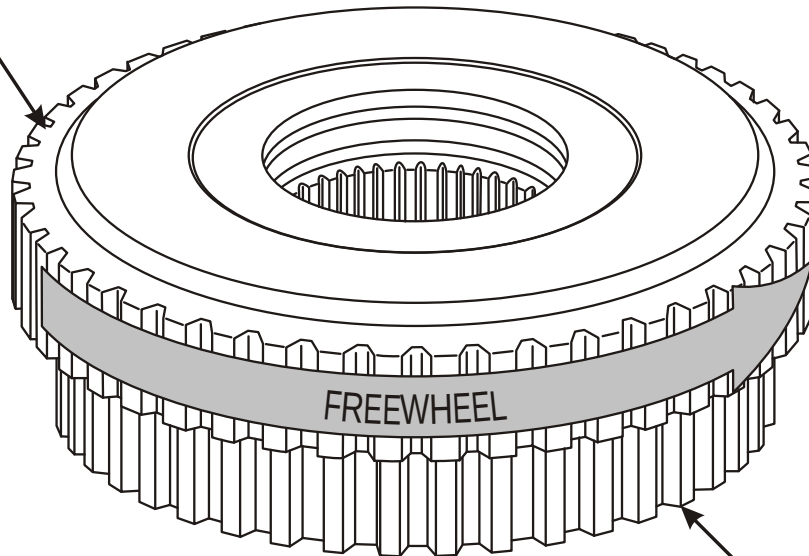


**HOLD
ROLLER CLUTCH**

FORD/MAZDA G4A-HL, G4A-EL, GF4A-EL FORWARD ONE WAY SPRAG

***THE FORWARD CLUTCH HUB MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE OVERRUN CLUTCH HUB***

**FREEWHEEL
FORWARD
CLUTCH HUB**

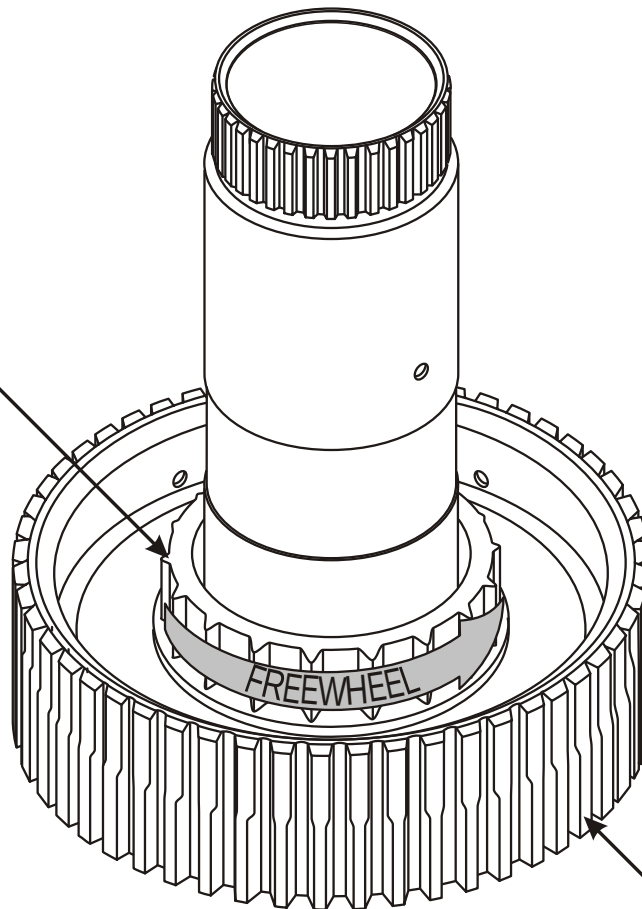


**HOLD
OVERRUN
CLUTCH HUB**

MERCEDES 722.1, 722.2 LOW SPRAG

***THE INNER RACE OF THE LOW SPRAG MUST FREEWHEEL COUNTER
CLOCKWISE AND LOCK CLOCKWISE WHEN HOLDING THE OUTER RACE***

**FREEWHEEL
INNER RACE**

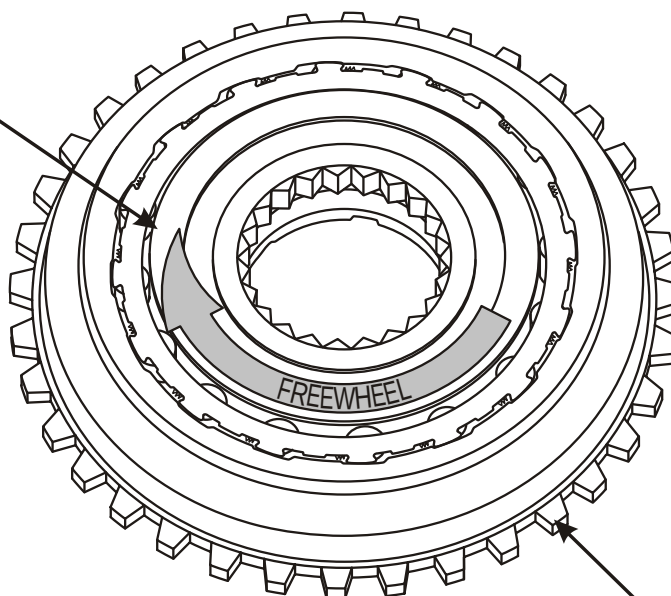


**HOLD
OUTER RACE**

MERCEDES 722.3, 722.4, 722.5 LOW ROLLER CLUTCH

**LOW ROLLER CLUTCH INNER RACE MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE
WHEN HOLDING THE OUTER RACE AND
VIEWED AS SHOWN BELOW**

**FREEWHEEL
INNER RACE**



**HOLD
OUTER RACE**

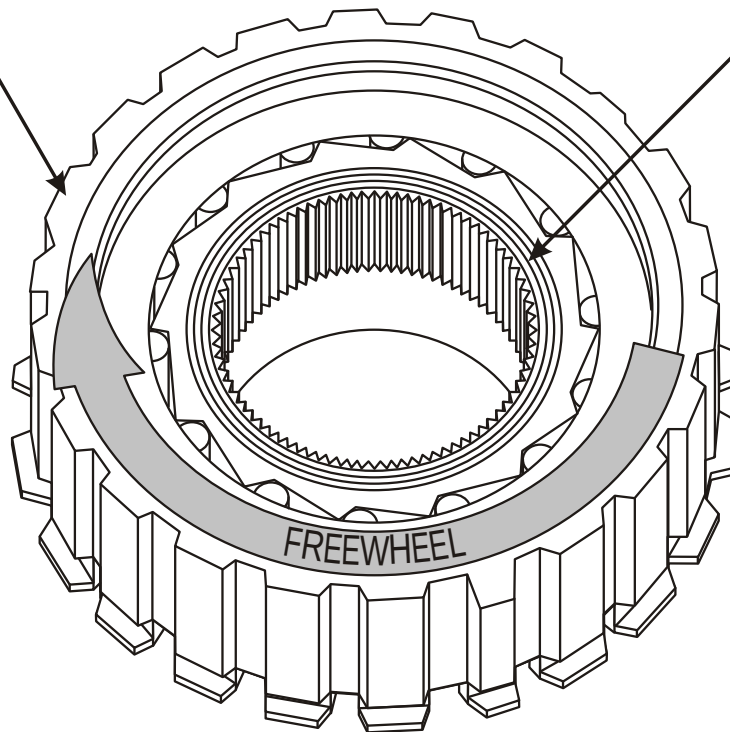
NOTE: Illustration shows REAR view.

MERCEDES 722.5 OVERDRIVE ONE-WAY CLUTCH

***THE CLUTCH HUB/OUTER RACE MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING INNER RACE***

**FREEWHEEL
OUTER RACE**

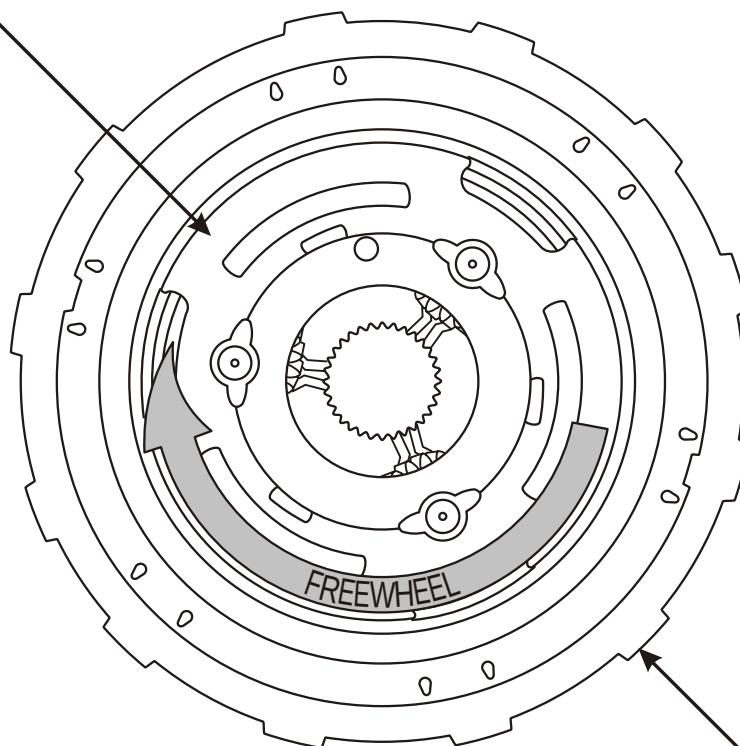
**HOLD
INNER RACE**



RL3FO1A, RN3FO1A, RL4FO2A, RE4FO2A, RE4FO3A, RL4FO4A, RE4FO4A, 4F20E, JF403E, LJ4A-EL, LOW ONE-WAY ROLLER CLUTCH

***THE PLANETARY CARRIER MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING
THE LOW ONE WAY ROLLER CLUTCH***

**FREEWHEEL
PLANETARY
CARRIER**

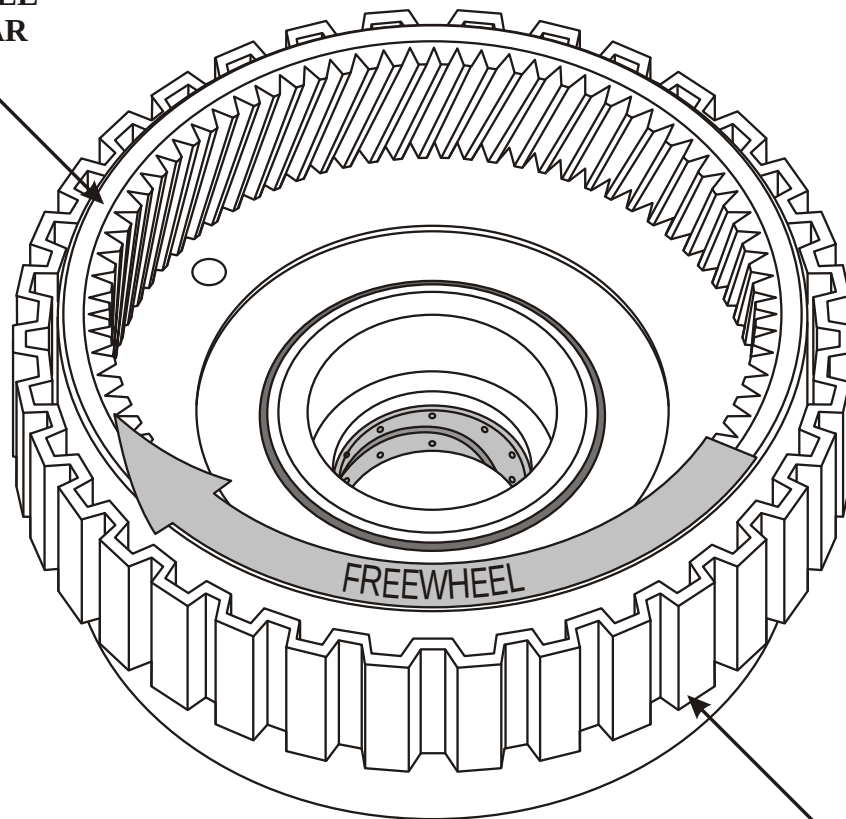


**HOLD
LOW ONE WAY
ROLLER CLUTCH**

RL4FO3A, RE4FO3A, RL4FO4A, RE4FO4A, 4F20E, JF403E, LJ4A-EL, FORWARD SPRAG

***THE REAR INTERNAL RING GEAR MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING FORWARD HUB***

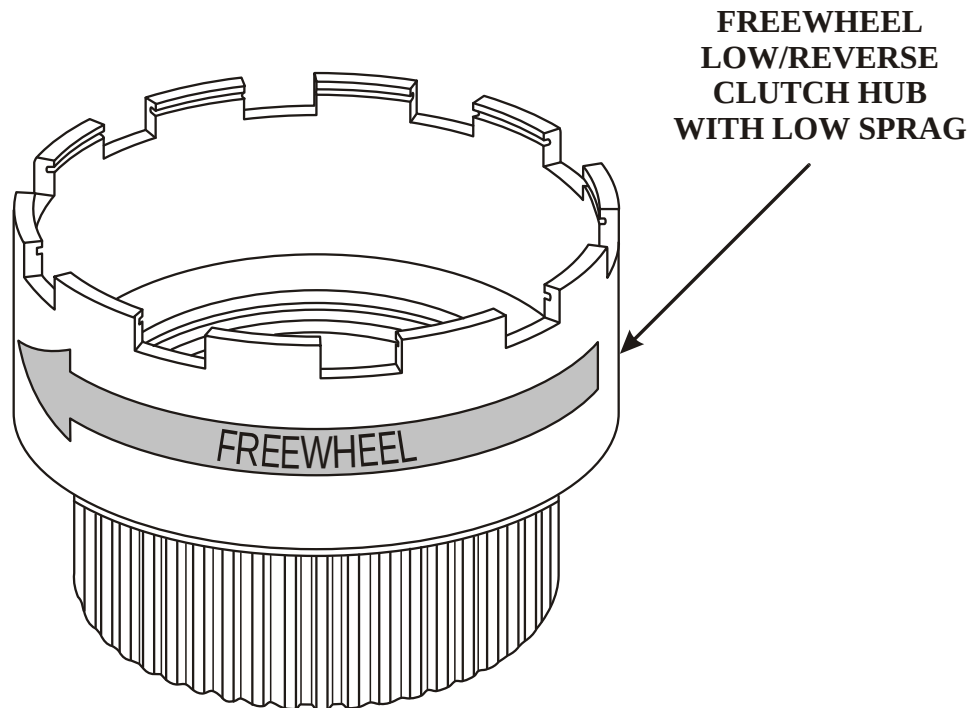
**FREEWHEEL
RING GEAR**



**HOLD
FORWARD
CLUTCH HUB**

L3N71B, L4N71B, E4N71B, N4A-EL LOW ONE-WAY CLUTCH

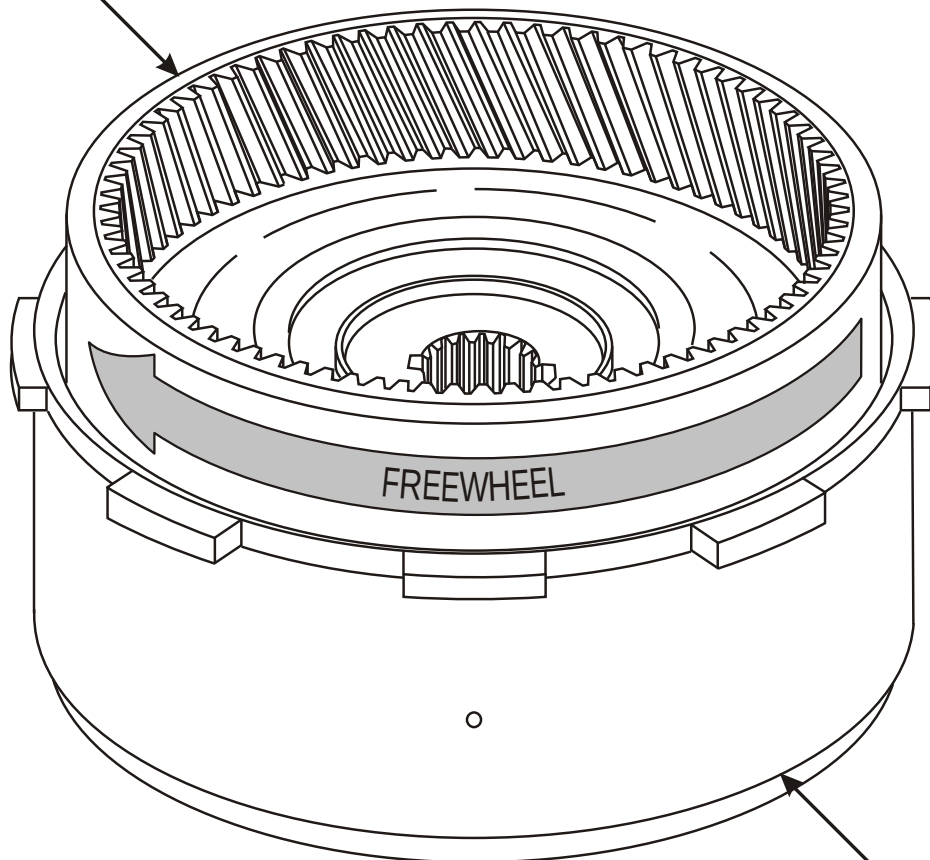
***THE LOW/REVERSE CLUTCH HUB WITH LOW SPRAG
MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE
WHEN INSTALLED IN CASE***



L4N71B, E4N71B, N4A-EL OVERDRIVE SPRAG

***THE RING GEAR MUST FREEWHEEL CLOCKWISE AND LOCK
COUNTER-CLOCKWISE WHEN DIRECT DRUM IS HELD***

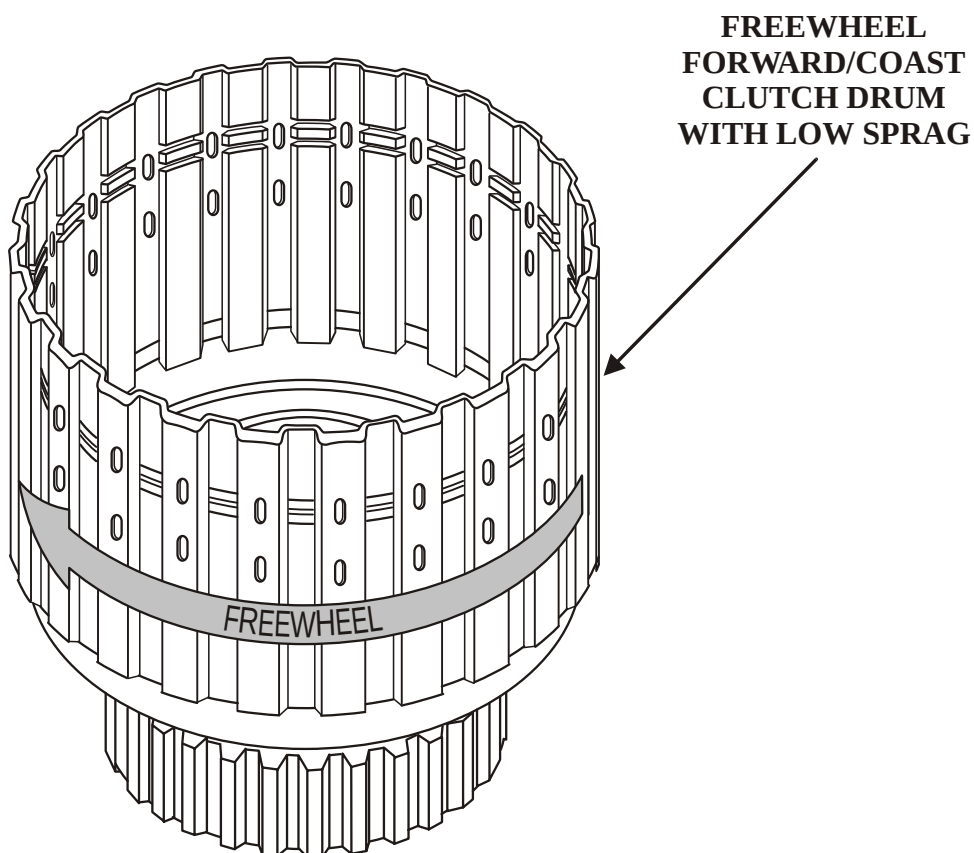
**FREEWHEEL
RING GEAR**



**HOLD
DIRECT DRUM**

RL4R01A, RE4R01A, RE4R03A, RE5R01A, JR403E, R4A-EL, SUBARU 4 SPEED, LOW ONE-WAY CLUTCH

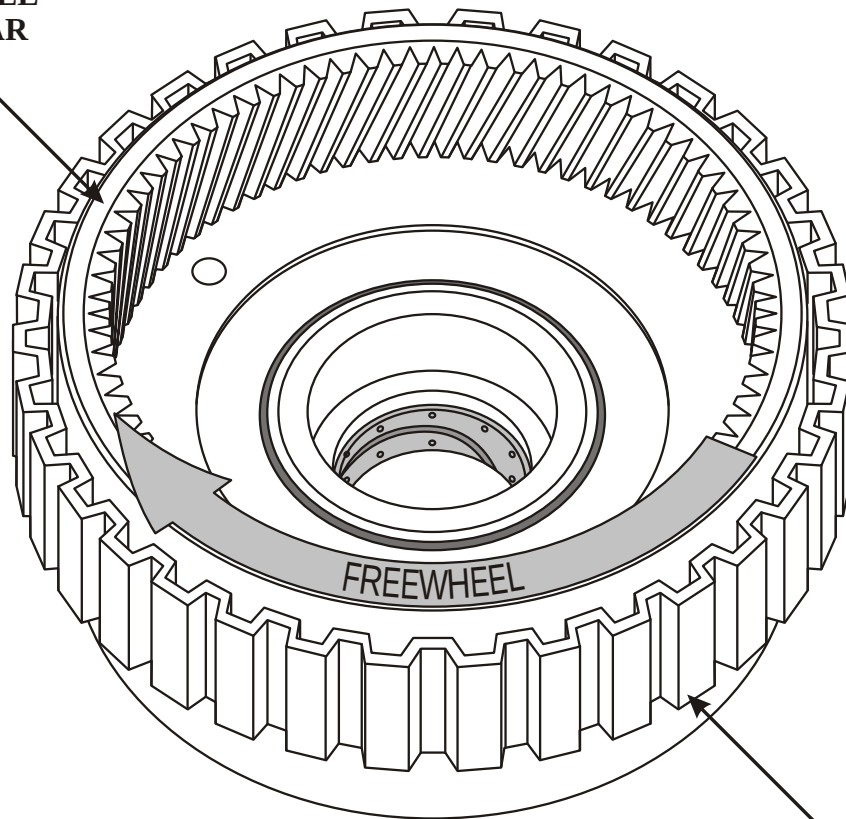
***THE FORWARD/COAST CLUTCH DRUM WITH LOW SPRAG
MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE
WHEN INSTALLED IN CASE***



RL4R01A, RE4R01A, RE4R03A, RE5R01A, JR403E, R4A-EL, SUBARU 4 SPD FORWARD SPRAG

***THE REAR INTERNAL RING GEAR MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING FORWARD HUB***

**FREEWHEEL
RING GEAR**

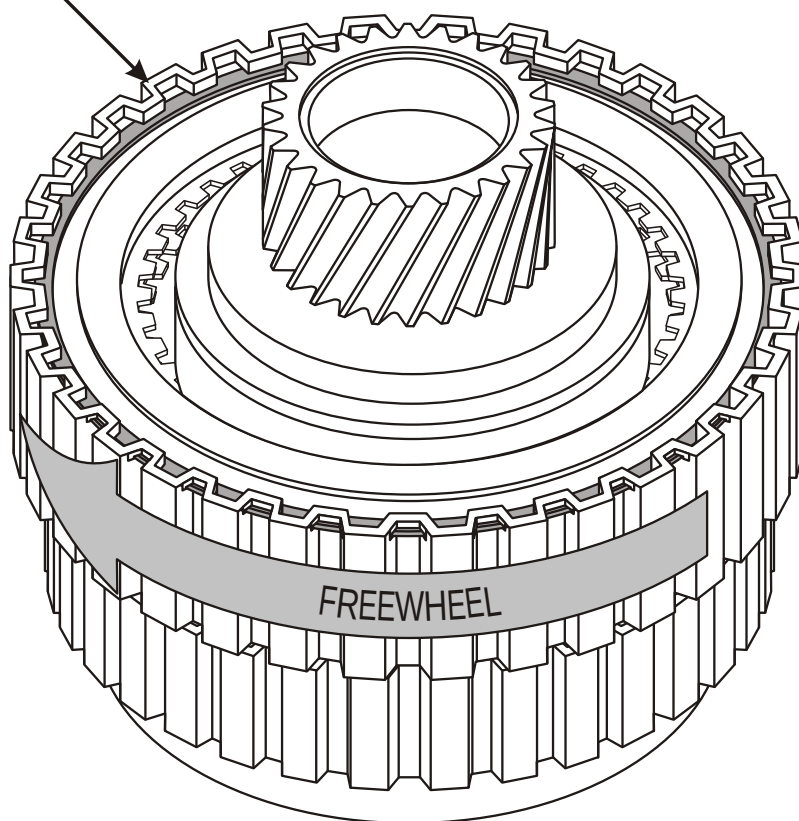


**HOLD
FORWARD
CLUTCH HUB**

NISSAN RE5R01A OVERDRIVE ONE-WAY CLUTCH

***THE DIRECT CLUTCH DRUM MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN INSTALLED IN THE CASE***

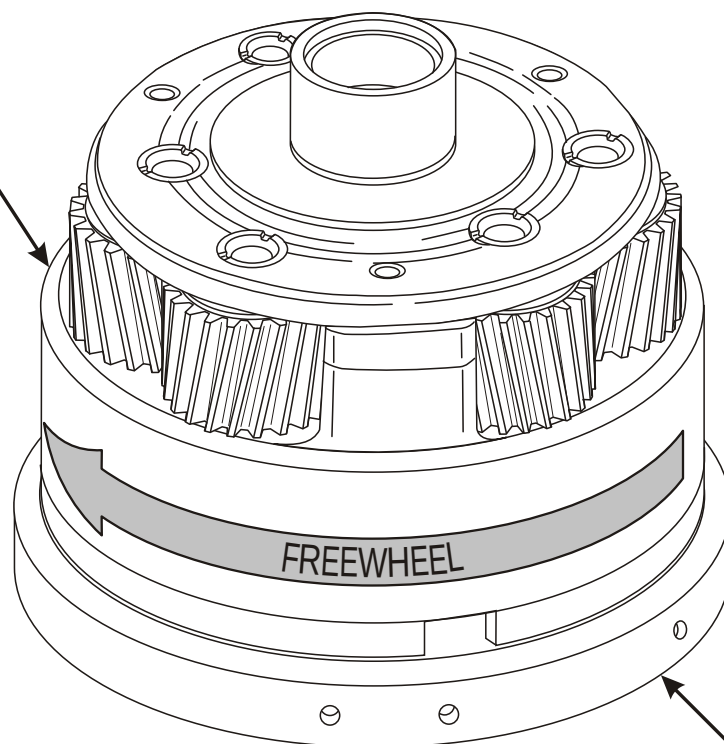
**FREEWHEEL
DIRECT CLUTCH
HOUSING**



SAAB TB35, TB37 LOW ONE-WAY CLUTCH

***THE REAR PLANETARY MUST FREEWHEEL CLOCKWISE AND
LOCK COUNTER CLOCKWISE WHEN HOLDING THE INNER RACE***

**FREEWHEEL
PLANETARY**

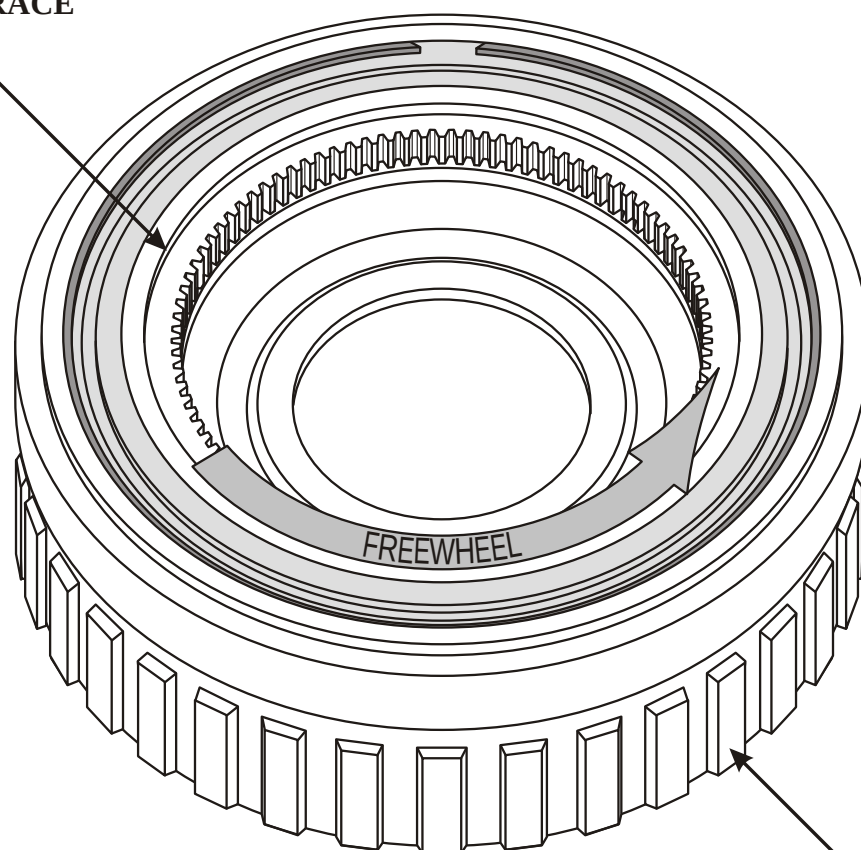


**HOLD
INNER RACE**

SAAB/VOLVO AW50-40, AW50-42LE LOW ONE-WAY CLUTCH

***THE INNER RACE MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE***

**FREEWHEEL
INNER RACE**

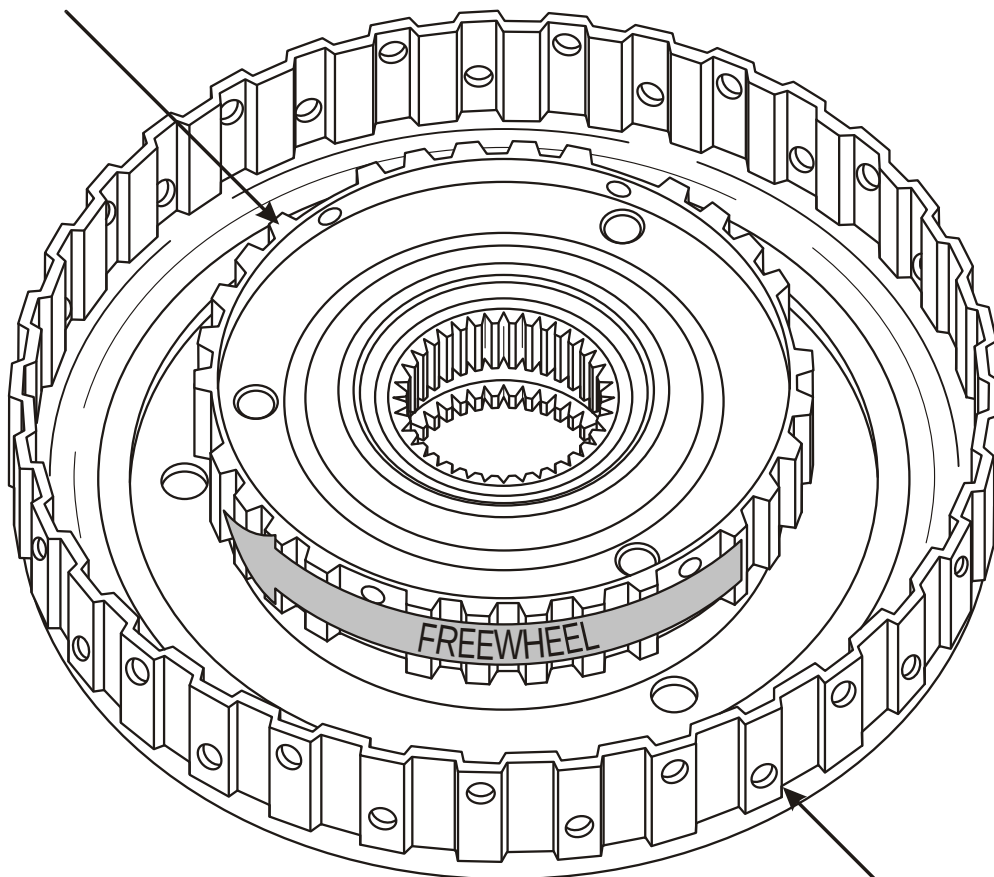


**HOLD
CLUTCH HUB**

SAAB/VOLVO AW50-40, AW50-42LE INTERMEDIATE SPRAG

***THE OUTER SPRAG RACE MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE***

**FREEWHEEL
OUTER RACE**

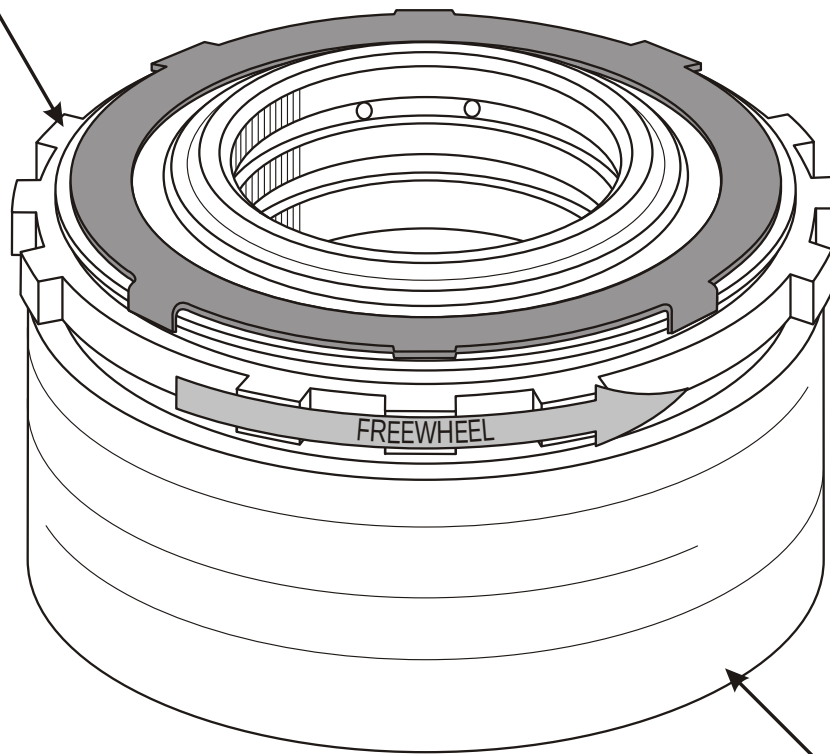


**HOLD
HUB/INNER RACE**

SAAB/VOLVO AW50-40, AW50-42LE UNDERDRIVE SPRAG

***THE OUTER RACE MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE, AS SHOWN BELOW***

**FREEWHEEL
OUTER RACE**

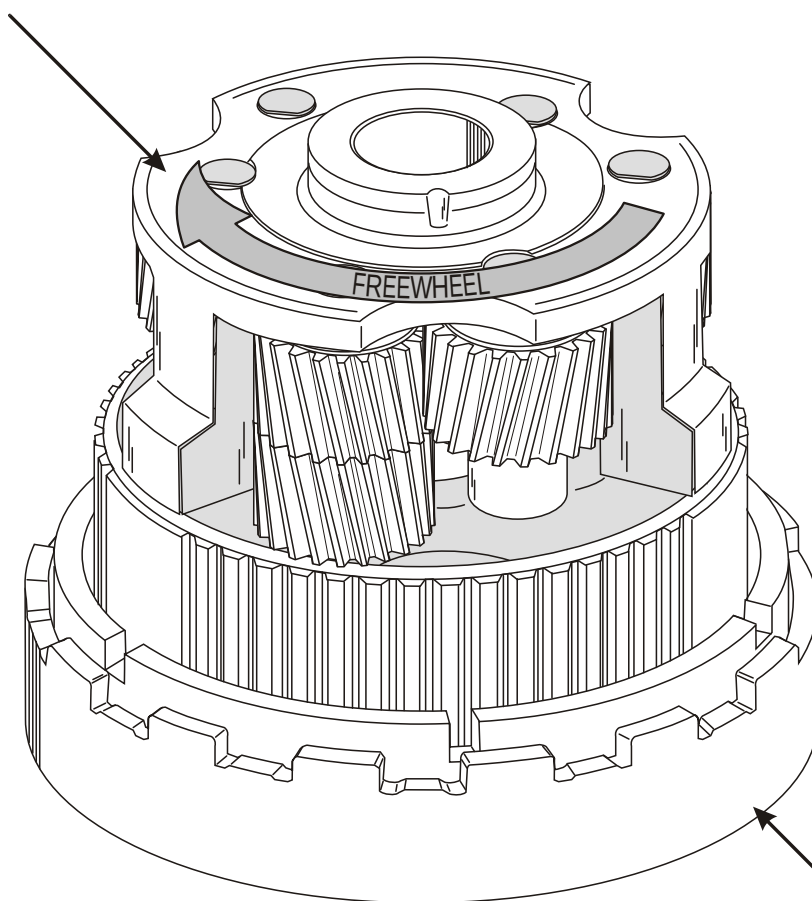


**HOLD
UNDERDRIVE
DRUM**

SUBARU 3 SPEED LOW ONE-WAY CLUTCH

***THE PLANETARY ASSEMBLY MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE CENTER SUPPORT***

**FREEWHEEL
PLANETARY
ASSEMBLY**

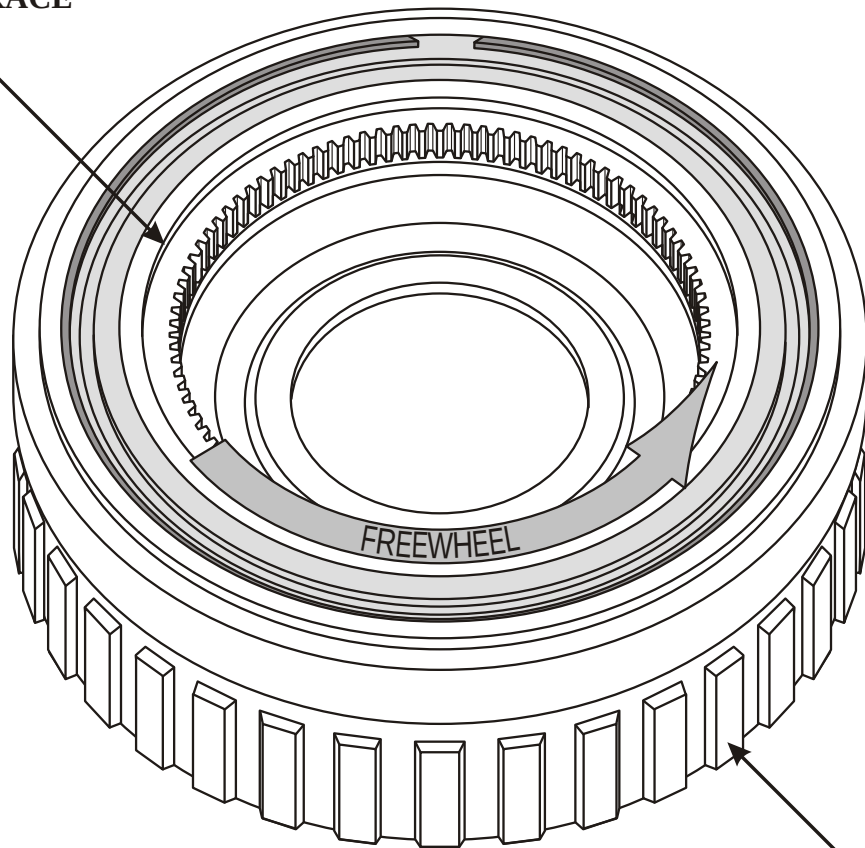


**HOLD
CENTER
SUPPORT**

SUZUKI ESTEEM AW 60-40 LOW ONE-WAY CLUTCH

*THE INNER RACE MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE*

FREEWHEEL
INNER RACE

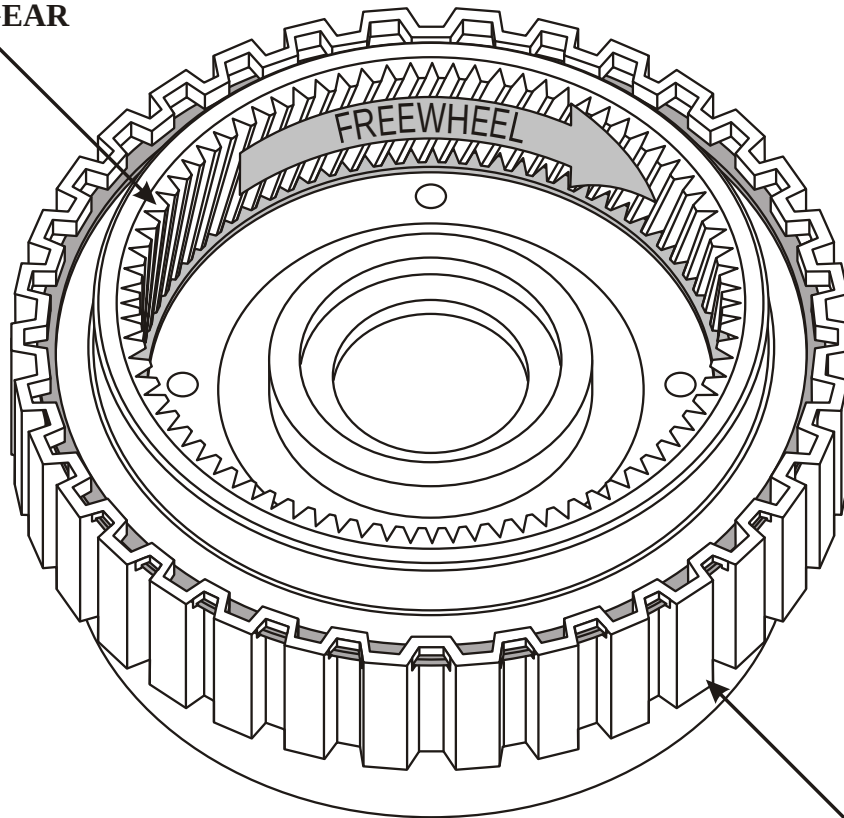


HOLD
CLUTCH HUB

SUZUKI ESTEEM AW 60-40 FORWARD SPRAG

***THE REAR INTERNAL RING GEAR MUST FREEWHEEL
CLOCKWISE AND LOCK COUNTER CLOCKWISE***

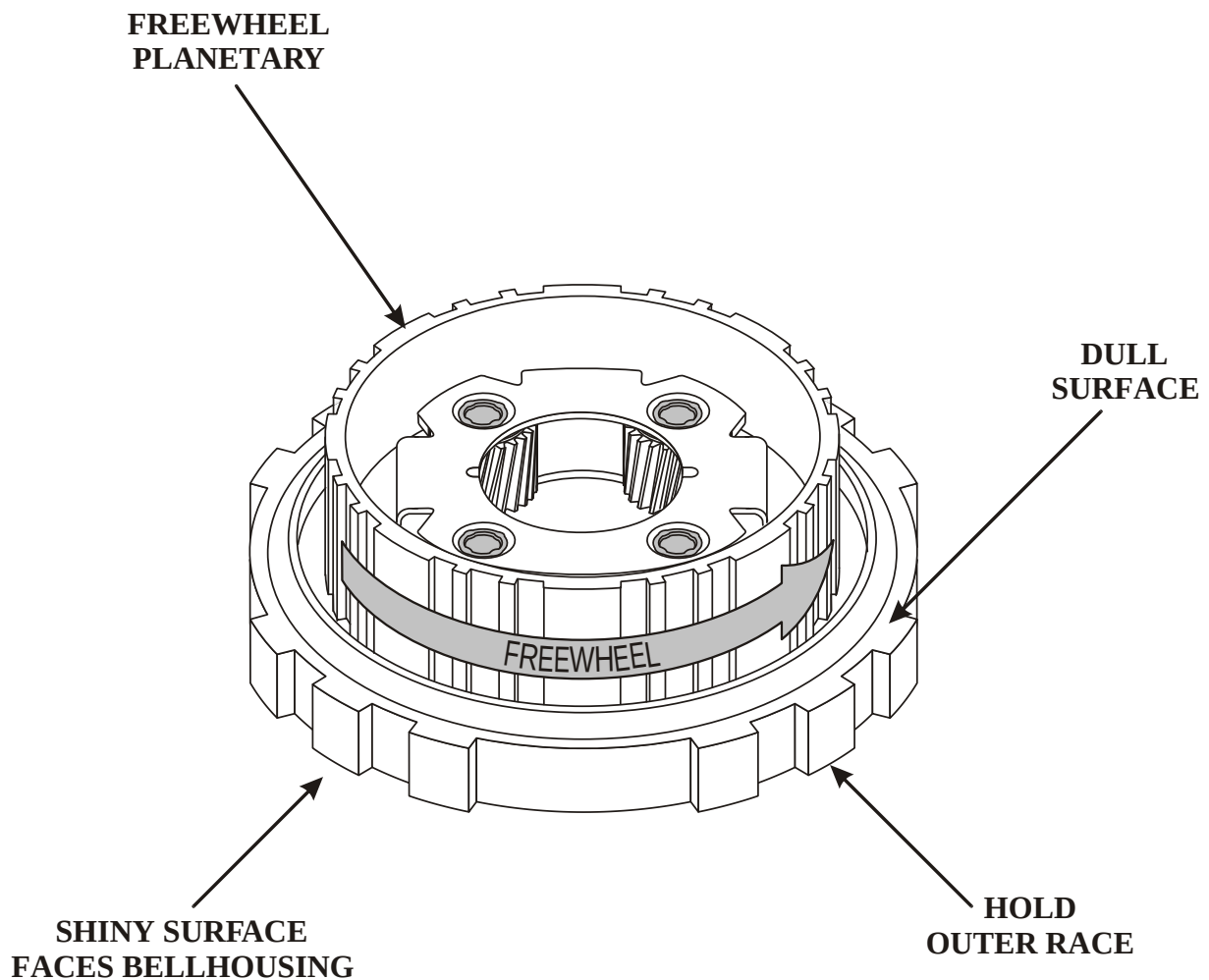
**FREEWHEEL
RING GEAR**



**HOLD
OVERDRIVE
COAST DRUM**

TOYOTA A130, A140, A240, A540 SERIES AND MX17 LOW ONE-WAY CLUTCH

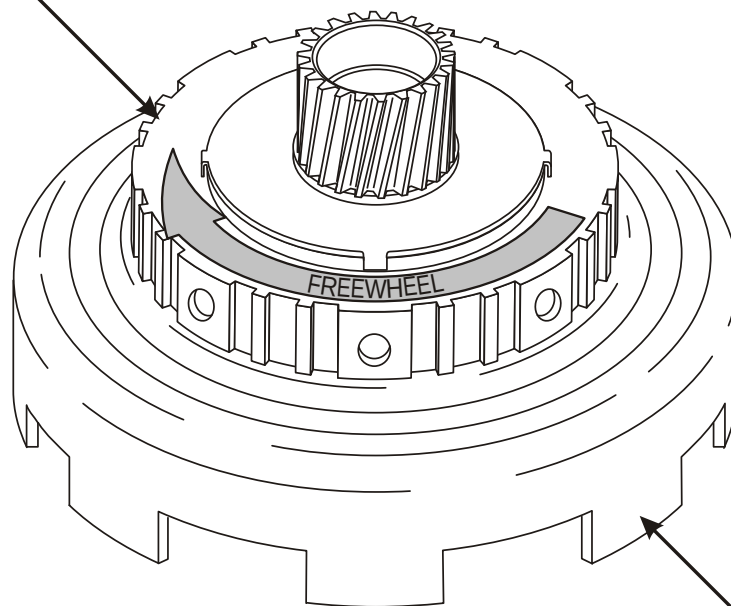
***THE PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE OUTER RACE IS HELD***



TOYOTA A130, A140, A240, A540 SERIES INTERMEDIATE ONE-WAY CLUTCH

***THE CLUTCH HUB MUST FREEWHEEL CLOCKWISE AND LOCK
COUNTER CLOCKWISE WHEN THE SUN SHELL IS HELD***

**FREEWHEEL
CLUTCH HUB**



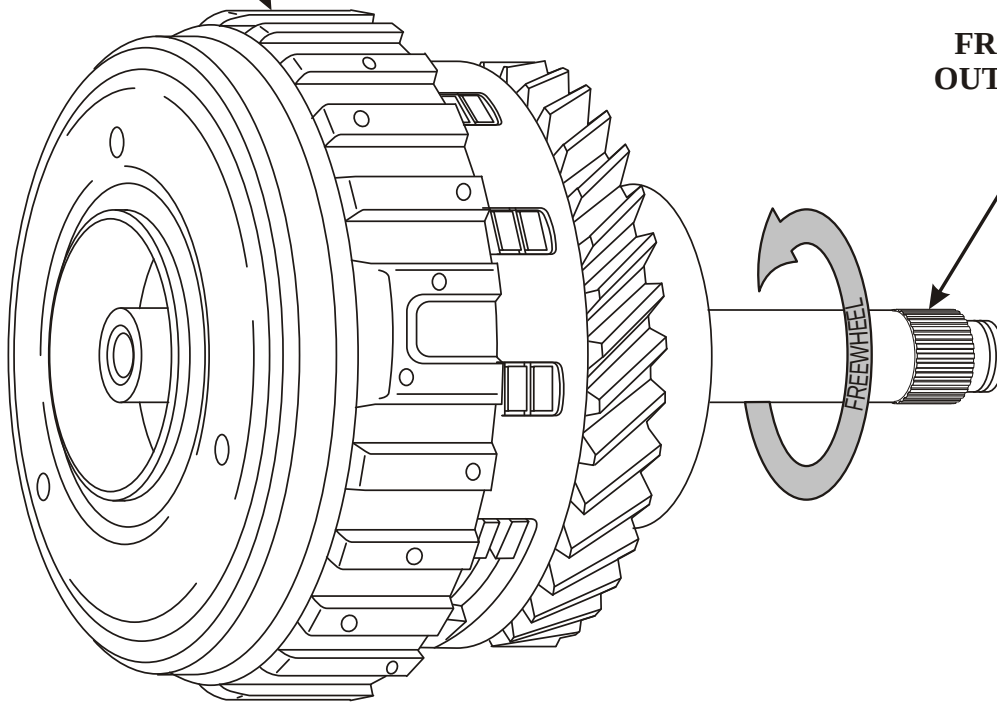
**HOLD
SUN SHELL**

TOYOTA A140, A540 SERIES OVERDRIVE ONE-WAY CLUTCH

***THE SHAFT MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER
CLOCKWISE WHEN THE OVERDRIVE DIRECT DRUM IS HELD***

**HOLD
OVERDRIVE
DIRECT DRUM**

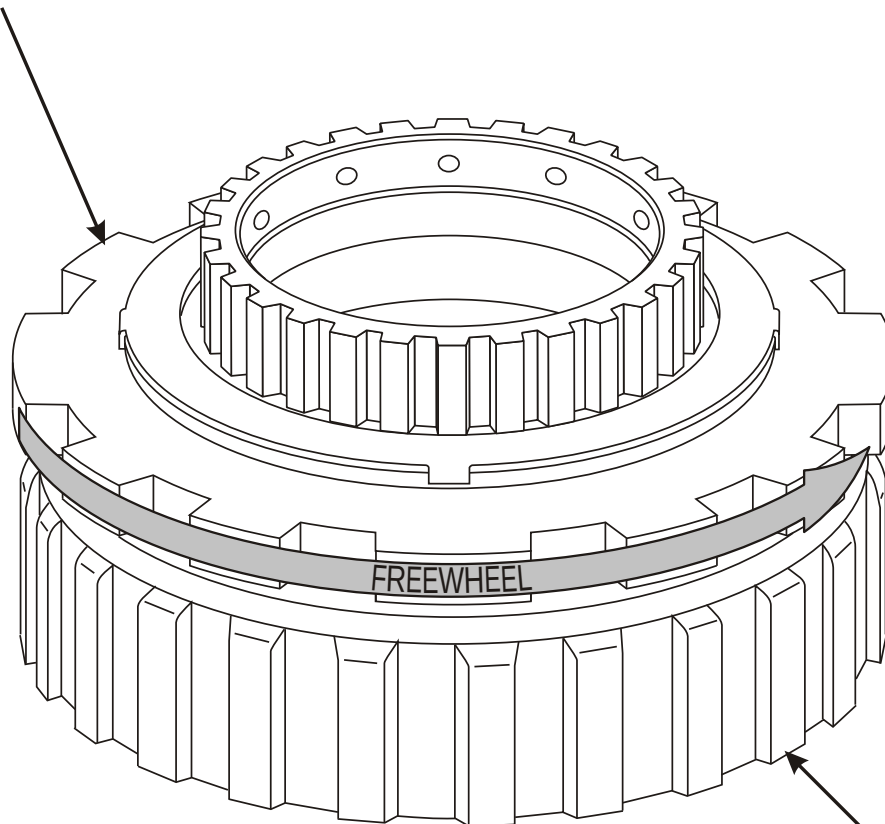
**FREEWHEEL
OUTPUT SHAFT**



TOYOTA A240 SERIES UNDERDRIVE (F3) SPRAG

***THE UNDERDRIVE SPRAG OUTER RACE MUST FREEWHEEL
COUNTER CLOCKWISE AND LOCK CLOCKWISE
WHEN UNDERDRIVE HOUSING IS HELD***

**FREEWHEEL
UNDERDRIVE SPRAG
OUTER RACE**

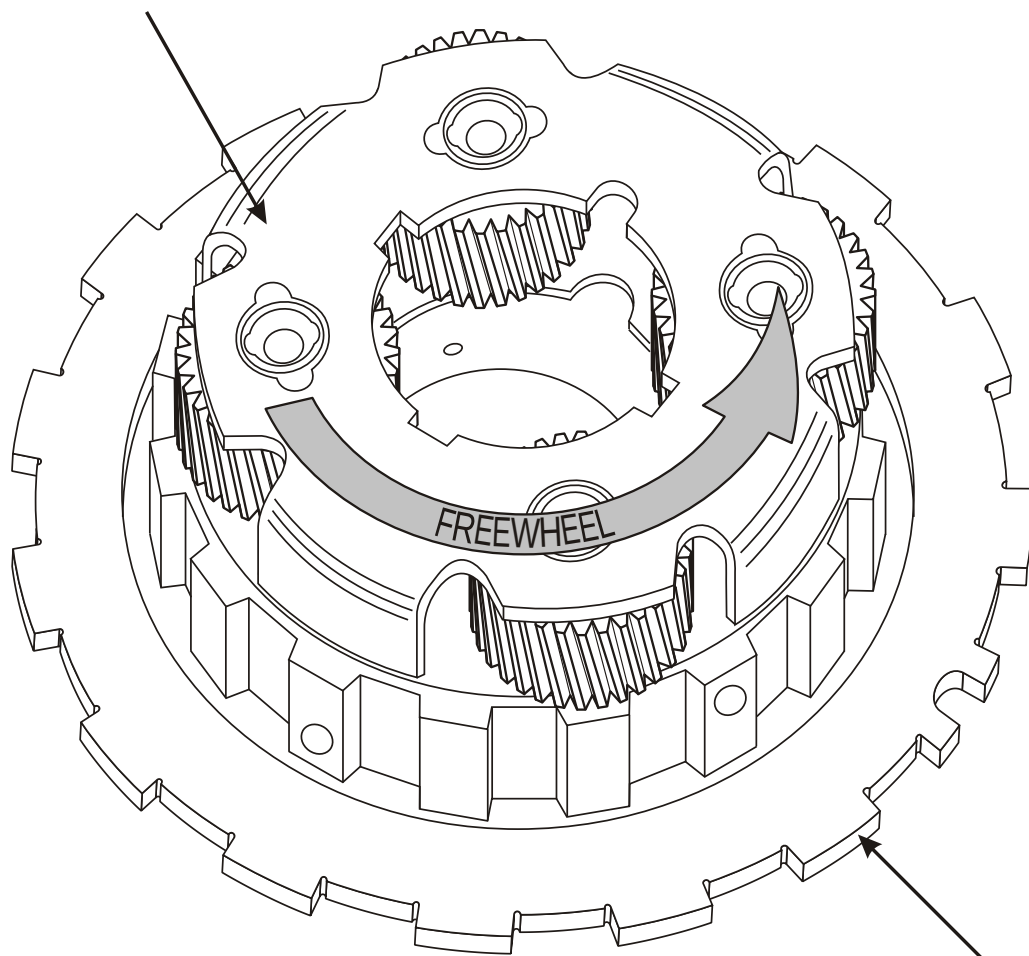


**HOLD
UNDERDRIVE
HOUSING**

AW3, A40 SERIES, A55, LOW (NO. 2) ONE WAY CLUTCH

***THE PLANETARY MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE INNER RACE IS HELD***

**FREEWHEEL
PLANETARY CARRIER**

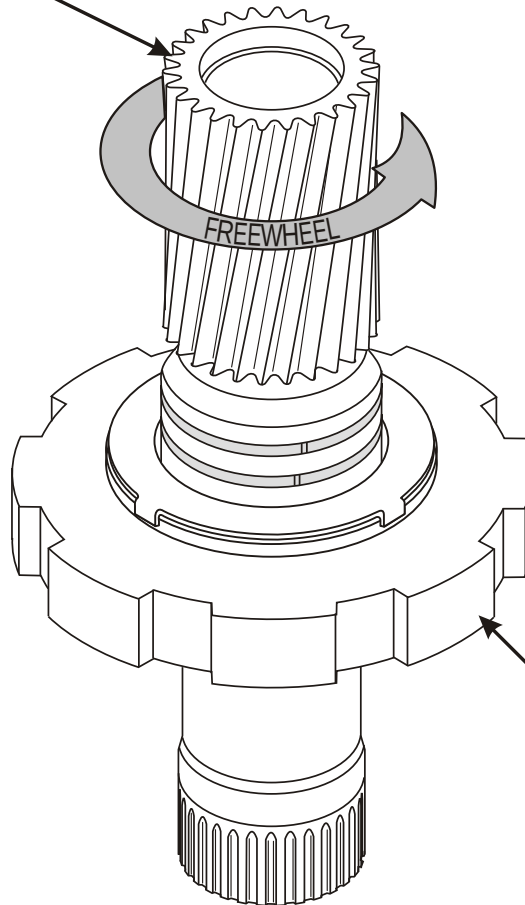


**HOLD
INNER RACE**

AW3, A40 SERIES, A55, 2ND GEAR (NO. 1) ONE WAY CLUTCH

***THE SUN GEAR MUST FREEWHEEL COUNTER CLOCKWISE AND LOCK
CLOCKWISE WHEN THE ONE-WAY CLUTCH OUTER RACE IS HELD***

**FREEWHEEL
SUN GEAR**

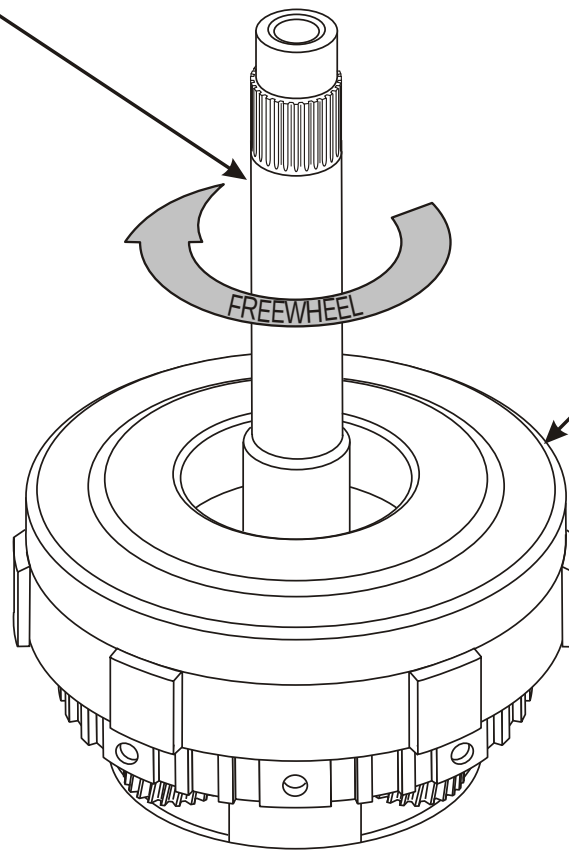


**HOLD
OUTER RACE**

A40 SERIES OVERDRIVE ONE WAY CLUTCH

THE INPUT SHAFT MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN THE OVERDRIVE / DIRECT DRUM IS HELD

**FREEWHEEL
INPUT SHAFT**

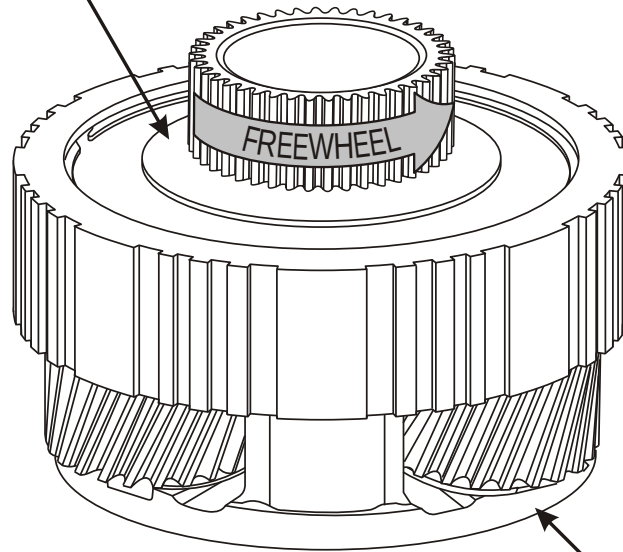


**HOLD
OD/DIRECT
DRUM**

TOYOTA A340E, A340F, A340H, A341E, A350E, AW30-40LE, AW30-80LE, AW4, LOW (No. 2) ONE-WAY CLUTCH

***THE INNER RACE MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN THE PLANETARY CARRIER IS HELD***

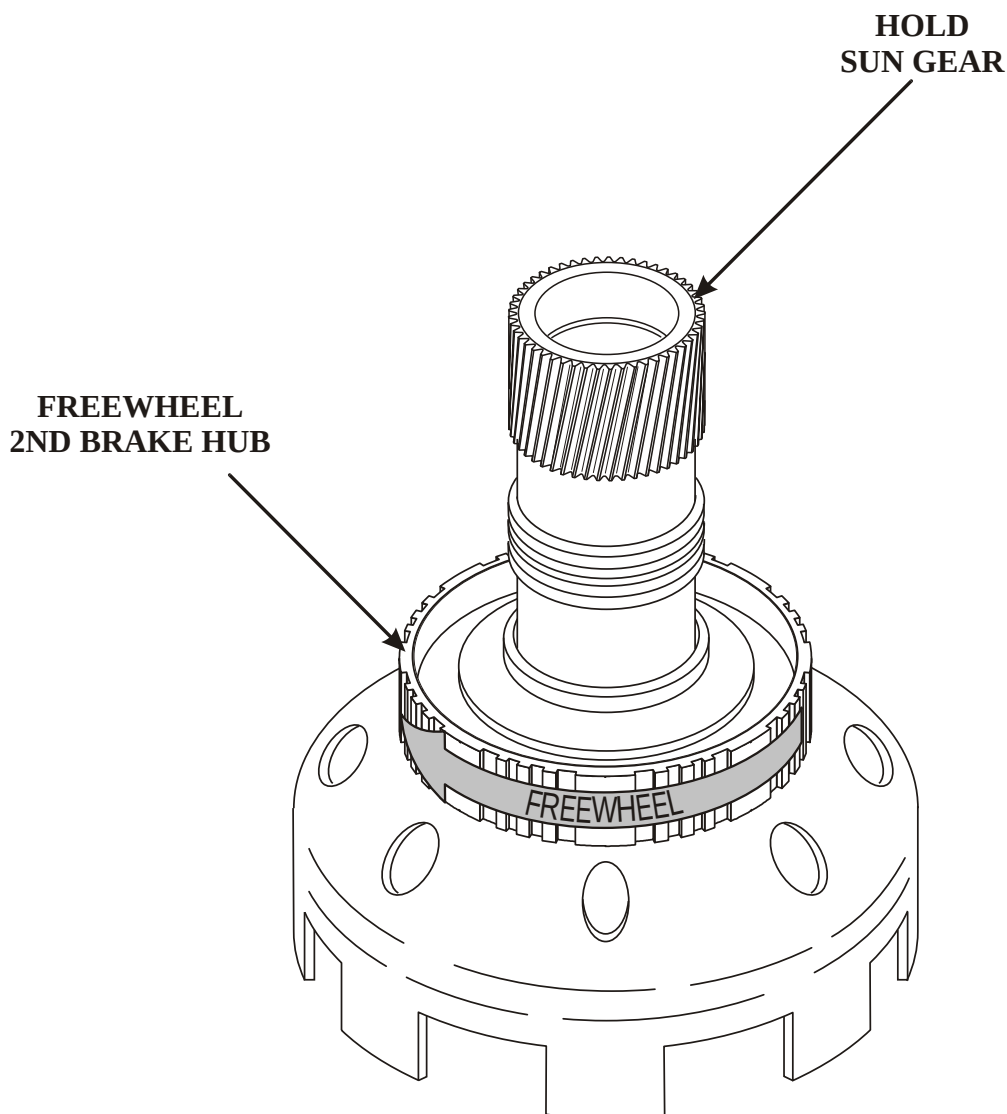
**FREEWHEEL
INNER RACE**



**HOLD
PLANETARY
CARRIER**

TOYOTA A340E, A340F, A340H, A341E, A350E, AW30-40LE, AW30-80LE, AW4, 2ND GEAR (No. 1) ONE-WAY CLUTCH

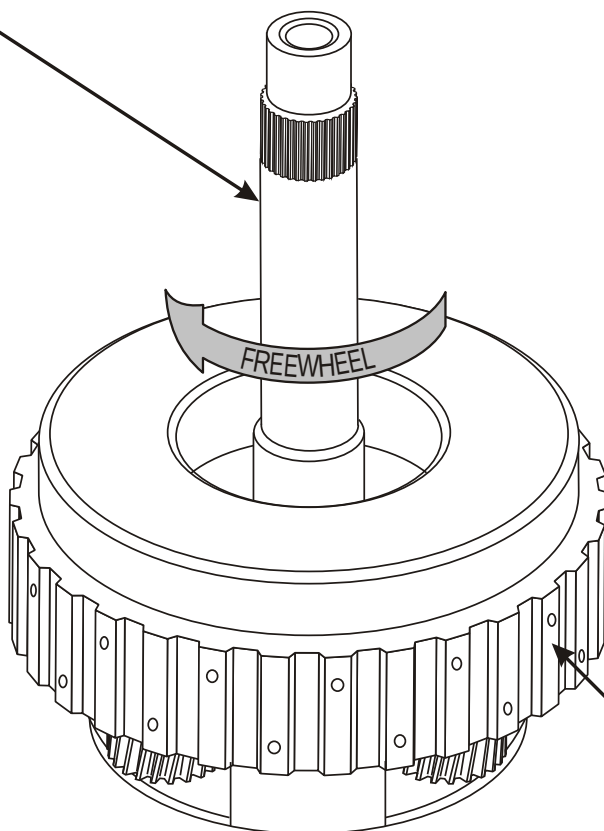
***THE 2ND BRAKE HUB MUST FREEWHEEL CLOCKWISE AND
LOCK COUNTER CLOCKWISE WHEN HOLDING THE SUN GEAR***



TOYOTA A340E, A340F, A340H, A341E, A350E, AW30-40LE, AW30-80LE, AW4, OVERDRIVE ONE-WAY CLUTCH

***THE INPUT SHAFT MUST FREEWHEEL CLOCKWISE AND LOCK
COUNTER CLOCKWISE WHEN THE O/D DIRECT DRUM IS HELD***

**FREEWHEEL
INPUT SHAFT**



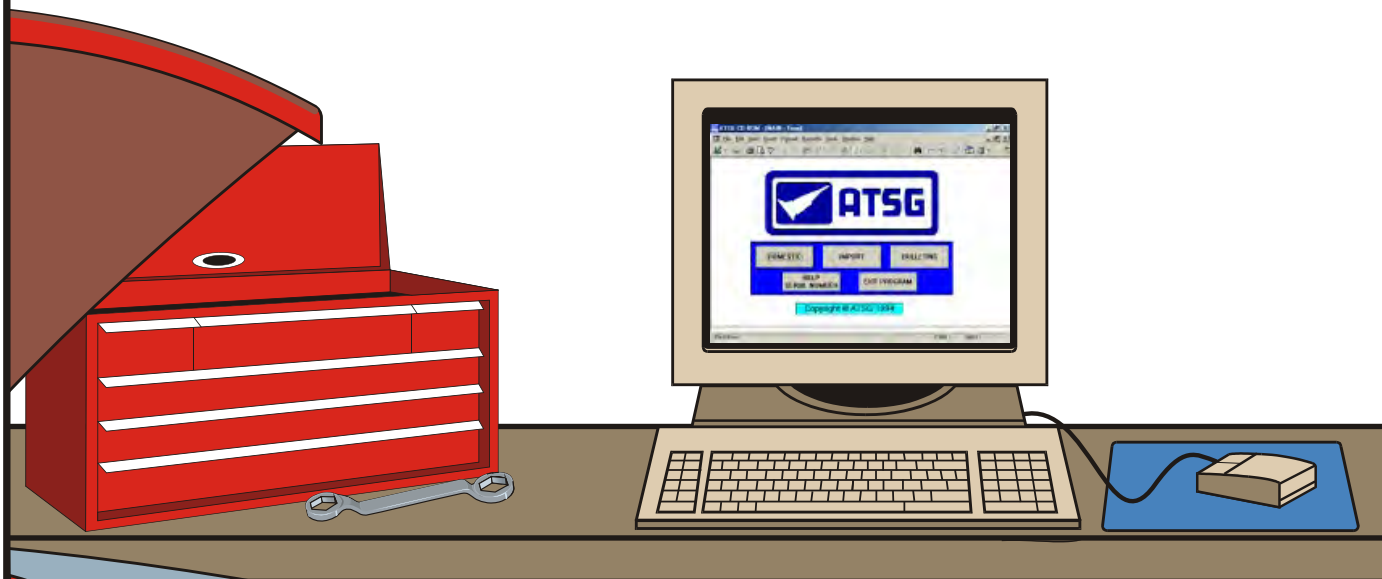
**HOLD
OVERDRIVE
DIRECT DRUM**



ATSG BULLETINS
AND MANUALS ON CD

THE BEST THING NEXT TO YOUR TOOL BOX
IS A COMPLETE LIBRARY OF TECH AT YOUR
FINGER TIPS...

ProCarManuals.com



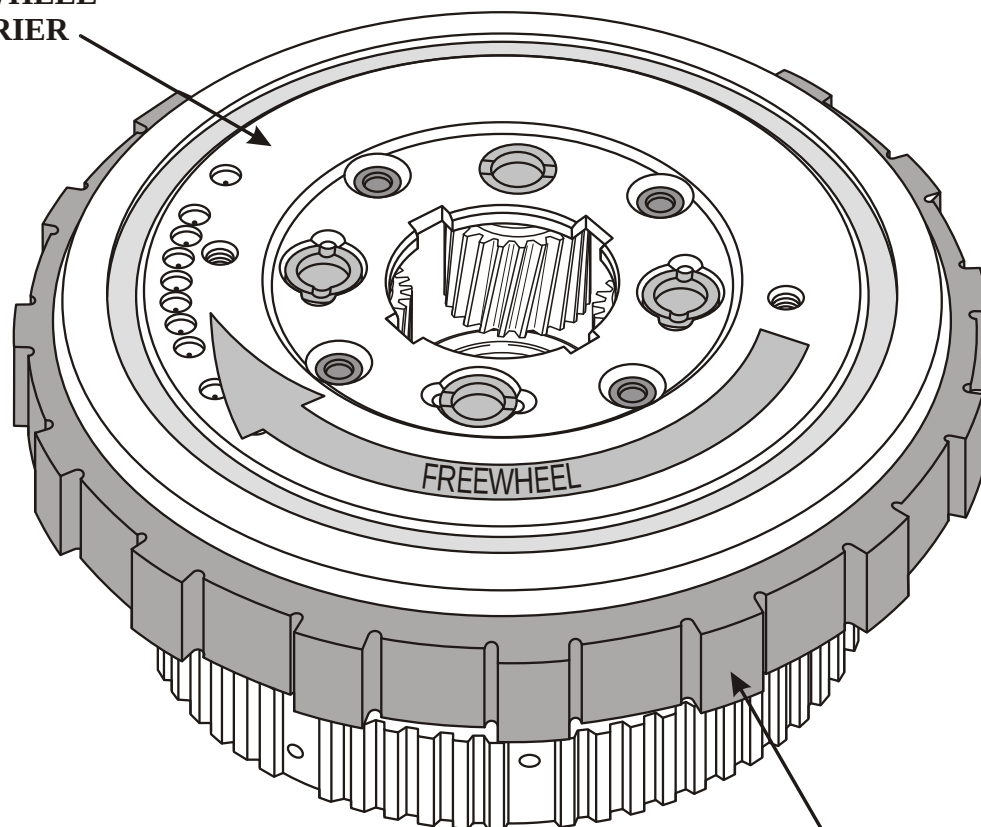
THE TECH YOU NEED...
WHEN YOU NEED IT FAST...

FOR MORE INFORMATION
CALL
(800) 245-7722

TOYOTA A440 SERIES LOW ONE-WAY CLUTCH

***THE PLANETARY CARRIER MUST FREEWHEEL CLOCKWISE AND
LOCK COUNTER CLOCKWISE WHEN HOLDING OUTER RACE***

**FREEWHEEL
CARRIER**

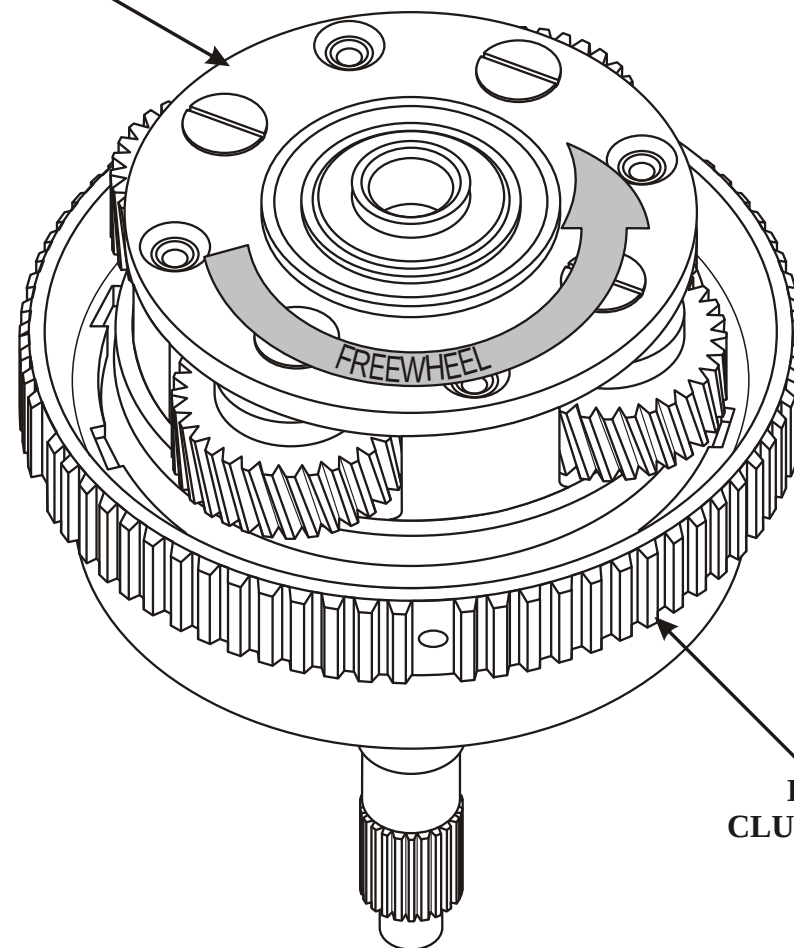


**HOLD
OUTER RACE**

TOYOTA A440 SERIES OVERDRIVE SPRAG

**OVERDRIVE CARRIER MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING CLUTCH HUB**

**FREEWHEEL
O.D. CARRIER**

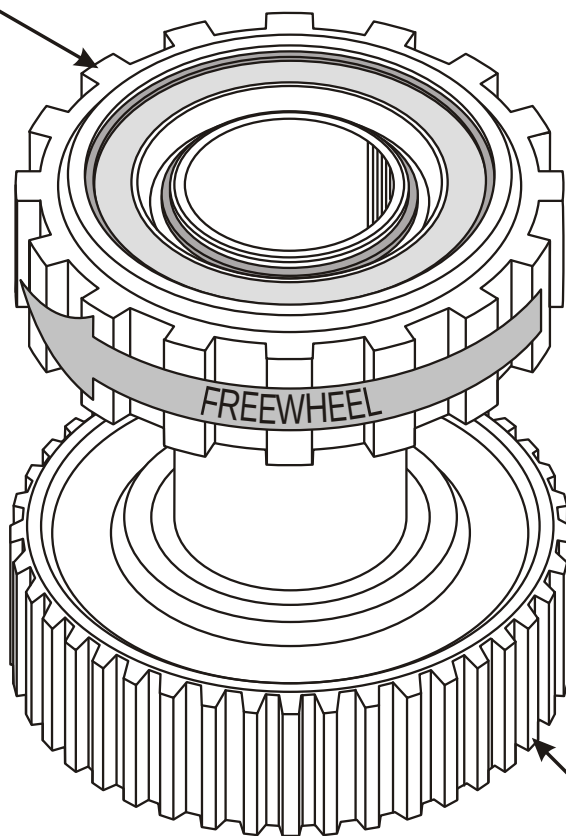


**HOLD
CLUTCH HUB**

LEXUS A650E LOW (No. 2) ROLLER CLUTCH

***THE LOW ROLLER OUTER RACE MUST FREEWHEEL CLOCKWISE
AND LOCK COUNTER CLOCKWISE WHEN HOLDING THE INNER RACE***

**FREEWHEEL
OUTER RACE**

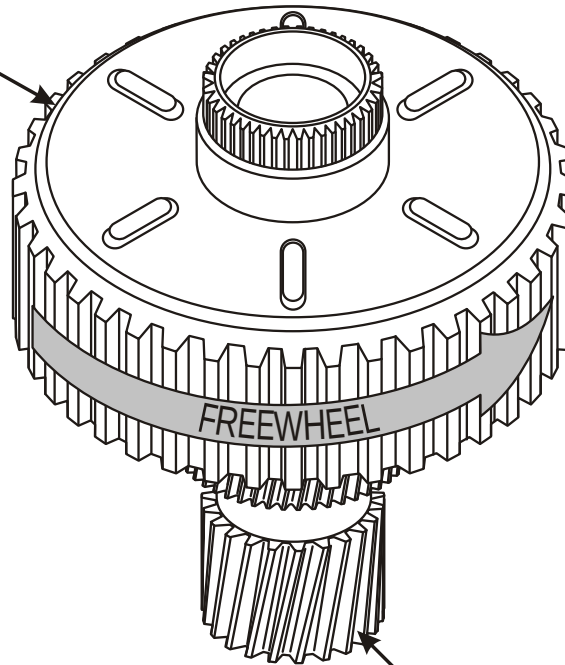


**HOLD
CLUTCH HUB THAT IS
SPLINED TO INNER RACE**

LEXUS A650E 3RD GEAR (No. 1) ONE-WAY CLUTCH

***THE 3RD GEAR OUTER RACE MUST FREEWHEEL COUNTER CLOCKWISE
AND LOCK CLOCKWISE WHEN HOLDING THE INNER RACE (SUN GEAR)***

**FREEWHEEL
OUTER RACE**

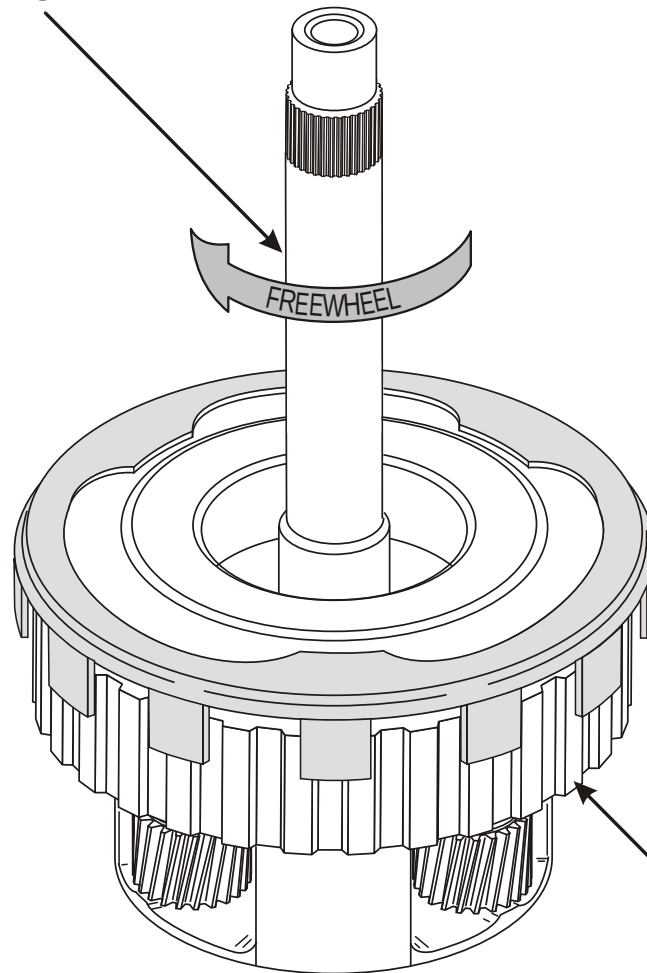


**HOLD
SUN GEAR AND
INNER RACE**

LEXUS A650E OVERDRIVE SPRAG

THE INPUT SHAFT MUST FREEWHEEL CLOCKWISE AND LOCK COUNTER CLOCKWISE WHEN THE O/D DIRECT DRUM IS HELD

**FREEWHEEL
INPUT SHAFT**



**HOLD
OVERDRIVE
DIRECT DRUM**



FREEWHEEL BOOK

*N*otes



FREEWHEEL BOOK

Notes