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ITEMPARTDESCRIPTIONQTYBRONZE P/NCOMMENTS

1077-2750-01-05100-275 RETAINING RING4

2077-5000-00-079S5000 RETAINING RING1

3046-5060-00-0GASKET QL-W4291

4250-9550-00-0GEARBOX BEARING2

5DRIVE GEAR1

6018-8340-00-0G GEARBOX SHIFTING FORK SCREW1

7GEARSHIFT FORK1

8507-0110-03-0VPS POWER SHIFTER1

9008-0571-00-0FRONT BEARING CAP1

10296-2540-00-0QHD OIL SEAL2

11537-1740-00-0SLIDING GEAR SHAFT1

12250-0214-06-0214KG BEARING2

13142-0160-00-0SLINGER1

14046-5130-01-0GEARBOX BEARING COVER GASKET1

15018-1812-25-0SCREW, 7/16-14 X 1.25, GR88

16001-0601-00-0MG VOLUTE1

17DefaultIMPELLER KEY1

18DefaultZS-274 NUT-IMPELLER1

19DefaultKEY1

20016-1080-00-0INDUCER1

21037-1133-03-0PUMP SHAFT1

22296-5023-00-0MECHANICAL SEAL1

23321-0361-00-0CLEARANCE RING2

24016-0761-00-0IMPELLER1

254429K314PLUG, SQU, 1/2 NPT1

26040-1700-00-0O-RING1

27046-0440-00-0GASKET HP-W3231

28217-0801-00-0PLUG, 1-1/2 NPT M.I.1

29110-1800-25-0NUT, HEX, 7/16-14, GR8, ZINC PL4

30018-8040-00-0STUD 7/16-14 X 1.75 LG PLTD STL4

31296-2610-00-0OIL SEAL1

32250-0208-26-0208 BEARING1

33GEARBOX HOUSINGGEARBOX HOUSING1

34PUMP SHAFT GEARPUMP SHAFT GEAR1

35046-5340-00-0PUMP HEAD GASKET2

36SHAFT KEYSHAFT KEY1

37250-0307-20-0307 BEARING1

38159-0540-00-0SPACER1

39INTERMEDIATE GEARINTERMEDIATE GEAR1

40BEARING306 BEARING2

41077-1180-04-0RETAINING RING2

42INTERMEDIATE SHAFTSHAFT1

43SHIMSHIMAR

44046-5131-00-0GASKET1

45008-0561-00-0G REAR BEARING CAP1

46250-0214-00-0214K BEARING1

47537-1750-00-0SLIDING GEAR SHAFT1

48250-8010-00-0NEEDLE ROLLER BEARING1

49046-5270-01-0GASKET, COVER, DRIVE UNIT1

50217-0101-00-0PLUG - 1/8 NPT M.I. SQ1

51044-0260-00-0VENT, AIR 1/8 MPT1

52018-1806-25-0CSW HH 7/16-14X .75L G8 ZINC4

53097-1070-00-0WASHER, 7/16 ZINC PLT STEEL FLAT4

54044-0880-00-0BEARING COVER1

55002-0211-02-0PUMP HEAD1

56217-0201-00-01/4 NPT SQUARE HEAD STEEL PLUG7

57018-1810-25-0CSW HH 7/16-14X1L G8 ZINC18

58101-0082-00-0SERIAL NUMBER PLATE1

59SHAFT PLATEINTERMEDIATE SHAFT PLATE2

60046-6390-00-0INTERMEDIATE SHAFT GASKET2

63217-0501-00-0PLUG-3/4 NPT M.I.1

62018-1810-08-0SCREW 7/16-14 X 1.00 SOC HD CAP2

63008-0053-02-0GEARSHIFT SHAFT CAP1

64217-0501-08-03/4 NPT MAGNETIC DRAIN PLUG1

65018-2104-61-0SCREW-1/2-20 X 1/2 PLATED SET1

66042-0060-00-0SHAFT LOCK SPRING1

67039-0050-00-0GEARSHIFT SHAFT LOCK BALL1

68200-2450-00-0GEARSHIFT SWITCH2

69040-8210-00-0SEAL RING2

70082-0513-00-0BUSHING, 3/4 MNPT X 1/4 FNPT2

71082-0210-01-0NIPPLE, 1/4 NPT CLOSE, GALVANIZED STEEL1

72082-0209-01-0TEE, 1/4 FNPT1

73082-0206-02-0FITTING, 1/4 MNPT X 3/8 TUBE CPRN1

74082-3028-00-0FITTING 3/8 HOSE BARB x 3/8 TUBE4

75018-1422-25-0SCREW 5/16-18 X 2-1/4, GR86

76044-0601-01-0MANIFOLD1

77340-0490-00-0COOLING HOSE1

78048-0070-00-0ZSF-118 SPEEDCOUNTER BUSHING1

79031-0170-00-0ZSF-204 S'COUNTER DRIVE GEAR1

80040-0180-00-0O-RING1

81007-0040-00-0ZSF-425 SPEEDCOUNTER ADAPTER1

82082-0203-02-0ELBOW 1/4 NPT x 3/8 COMPRESSION - 90°3

83340-0490-00-0COOLING HOSE1

84217-0501-00-0PLUG-3/4 NPT M.I.1

85217-0301-00-0PLUG-3/8 NPT SQUARE HEAD5

86101-1730-00-0DRIVELINE FLANGE CAUTION STICKER2

87101-0310-00-0TAG WATER/OIL/FUEL DRAINED1

88BENTPIN-5/32X2L SST COTTER1

001-0601-03-0

217-0801-01-0

002-0211-03-0

217-0201-01-0

018-1810-12-0

082-0513-02-0

082-0210-02-0

082-0209-02-0

044-0601-02-0

217-0501-01-0

217-0301-01-0

HALE TYPE MG SERIES PUMP ASSEMBLY

855

567

823

744

831

862

855

841

871

567

823

744

811

801

791

781

771

567

761

756

744

823

702

154

744

731

721

711

702

567

SAE REGULAR DRIVE CONNECTION
5.21 [.205] - 5.33 [.210] ROUND DRIVE
7/8-18 THREAD

GEARBOX COOLER STANDARD ON
1000 GPM RATED PUMPS,
OPTIONAL ON 500 & 750 GPM
RATED PUMPS.

A DRAIN VALVE MUST BE PROVIDED
AT THIS POINT TO DRAIN COOLER IN
FREEZING WEATHER - VERTICAL
GEARBOX ONLY (HORIZONTAL
GEARBOX USES 082-0203-02-0
ELBOW IN PLACE OF TEE.)

SEE NOTE 5 FOR
HEAD ORIENTATION

551

541

534

524

511

501

491

567

5712

581

592

576

602

631

622

631

641

651

661

671

FOR WIRING SCHEMATIC,
SEE PL746

682

692

232

241

221

232

261

271

281

294

304

311

321

331

341

191

211

201

171

881

181

161

251

154

141

131

122

111

102

111

14

91

81

42

71

61

51

14

42

31

21

14

352

361

371

381

391

402

412

421

43AR

441

451

461

122

471

102

481

102

91

81

42

71

61

51

14

42

31

21

14

SEE TABLE "B" FOR
INTERNAL RETAINING RING.

SECTION A-A

PROJECTION:

NOTES:
1. CAUTION: ALL FASTENERS ON THIS UNIT HAVE BEEN SELECTED PER THEIR APPLICATION. HALE PRODUCTS DOES NOT RECOMMEND REPLACING FASTENERS WITH ANYTHING OTHER THAN HALE PART NUMBERS PROVIDED. REPLACING WITH A WEAKER ALTERNATIVE POSES A SAFETY RISK.
2. ALL FASTENERS SHALL BE INSTALLED WITH A THREAD LOCKING ANAEROBIC ADHESIVE/SEALANT: LOCKTITE #243 HIGH TEMPERATURE THREADLOCKER OR EQUIVALENT.
3. MECHANICAL SEALS ARE TO BE INSTALLED USING PAC-EASE RUBBER LUBRICANT EMULSION OR EQUIVALENT, A SOFT, CLEAN PUSHER TUBE, AND A SEAL RAMP.
4. FOR MOUNTING DIMENSIONS AND GEARBOX/VOLUTE ORIENTATIONS, SEE LATEST REVISION OF PL865.
5. PUMP HEAD TO BE ORIENTATED SO THAT THE TWO RECESSED FINS FACE TOWARD THE INDICATED MOUNTING FACE AS SHOWN. WITH A HORIZONTAL GEARBOX, THE PUMP HEAD WILL ROTATE ACCORDINGLY.
6. GEAR BOX COOLER STANDARD ON 1000 GPM RATED PUMPS, OPTIONAL ON 500 & 750 GPM PUMPS.

TABLE "D" - TORQUE TABLE

SCREW SIZE	GRADE 5		GRADE 8	
	LB-FT	N-m	LB-FT	N-m
1/4-20	8	11	12	16
5/16-18	17	22	25	33
3/8-16	30	41	45	61
7/16-14	50	67	70	94
1/2-20	90	122	120	162
3/4-10	260	352	380	514

SEE PL914 SHEET 2 FOR
SHIM INSTRUCTIONS.

TABLE "C" - SHIMS

PART NO.	THICKNESS, MM [IN]
048-1580-02-0	.051 [.002]
048-1580-05-0	.127 [.005]
048-1580-07-0	.191 [.0075]
048-1580-20-0	.508 [.020]

TABLE "B" - PARTS BASED ON RATIO VARIATIONS

DESCRIPTION	ITEM NO	PUMP RATIO (NUMBER OF GEAR TEETH IN PARENTHESES)							
		1.00	1.27	1.71	1.92	2.18	2.67	3.00	
GEARBOX HOUSING	34	004-0371-04-0	004-0371-04-0	004-0371-05-0	004-0371-02-0	004-0371-03-0	004-0371-02-0	004-0371-03-0	
SHAFT PLATE	61	005-0680-01-0	005-0680-01-0	005-0680-01-0	005-0680-00-0	005-0680-00-0	005-0680-00-0	005-0680-00-0	
SHAFT KEY	37	017-0020-00-0	017-0020-00-0	017-0020-00-0	017-0020-00-0	017-0020-00-0	017-0020-00-0	017-0520-00-0	
PUMP SHAFT GEAR	35	031-1060-00-0 (28)	031-0461-00-0 (22)	031-1060-00-0 (28)	031-0481-00-0 (25)	031-0461-00-0 (22)	031-1050-00-0 (18)	031-0471-00-0 (16)	
INTERMEDIATE GEAR	40	031-1430-00-0 (43)	031-1430-00-0 (43)	031-1090-00-0 (37)	031-1090-00-0 (37)	031-1090-00-0 (37)	031-1090-00-0 (37)	031-1090-00-0 (37)	
DRIVE GEAR	5	031-1070-00-0 (28)	031-1070-00-0 (28)	031-1080-00-0 (48)	031-1080-00-0 (48)	031-1080-00-0 (48)	031-1080-00-0 (48)	031-1080-00-0 (48)	
GEARSHIFT FORK	7	028-0041-03-0	028-0041-03-0	028-0041-02-0	028-0041-02-0	028-0041-02-0	028-0041-02-0	028-0041-02-0	
INTERMEDIATE SHAFT	43	037-3010-00-0	037-3010-00-0	037-0530-00-0	037-0530-00-0	037-0530-00-0	037-0530-00-0	037-0530-00-0	
BEARING	41	250-8170-00-0	250-8170-00-0	250-0306-06-0	250-0306-06-0	250-0306-06-0	250-0306-06-0	250-0306-06-0	
RETAINING RING		077-2810-00-0	077-2810-00-0	N/A	N/A	N/A	N/A	N/A	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
[INCHES ARE FOR REFERENCE, ONLY]
TOLERANCE FOR MILLIMETER DIMENSIONS:
X: ±1
X.X: ±0.5
X.XX: ±0.25
X.XXX: ±0.125
ANGLES: ±0.25°
SURFACE TEXTURE IN µm Ra
REMOVE ALL SHARP EDGES, 0.25MAX

FSG OF
IDEX
IDEX CORPORATION

HALE

GODIVA

Class1

MATERIAL

MADE FROM

FINISH

PROJECT

TITLE

HALE TYPE MG SERIES PUMP

DRAWN

WFM

APPROVED

RET

DATE

19JAN1993

SIZE

D

SCALE

1:4

DRAWING NUMBER

PL649

REV

L

SHEET

1 OF 2

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MAKE OTHER DRAWINGS OR MACHINERY

REVISIONS

ECN	REV	ZONE	CHANGED FROM	BY	DATE	APVD
CFL3326	J	--	REDRAWN IN SOLIDWORKS; REDRAWN ON FSG BORDER; ADDED INDUCER TO ALL RATINGS	JRH	15DEC2014	JRP
3552	K	---	GASKET 046-5131-01-0 CHANGED TO 046-5130-00-0 ON PTO DRAWING VIEW (SHEET 2)	JSJ	12AUG2015	JRH
3729	L		ADDED COOLER NOTE	DMB	06/29/2016	AJG

