

**HALE**

HALE PRODUCTS, INC.  
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5856

DATE: August 24, 1994

TO: All Midship, Light Truck Customers, and Service Centers

FROM: Joe Costello, Service Manager

SUBJECT: MIDSHIP GEARBOX DRIVE FLANGE DESIGN

Our Midship gearbox design incorporates a one piece shaft and flange design on the input and output shafts of the gearbox on the current Models QSG, QSMG, QLG, QG, DSD, and MG.

This shaft and flange design, now over ten years old, features a multi-piloted and multi-drilled flange in order to accommodate compatibility with drive line companion flanges of 1600, 1700, or 1800 Series.

The following chart is provided for your review and future reference. This chart has been provided on all Hale installation drawings for the aforementioned pump models and indicates pilot diameters, bolt quantities, grade, sizes, and when Hale-provided spacers are required. It is absolutely essential that the spacers provided be utilized, as designed, to ensure a solid, concentric mating of the companion flanges.

#### FRONT & REAR COMBINATION FLANGES

SPICER SERIES	1600	1700	1800
FEMALE PILOT DIAMETER	6-5/8	7-3/4	7-3/4
QUANTITY & SIZE GRADE 8 SCREWS	(8) 3/8	(8) 3/8 WITH HOLE SPACER	(12) 7/16
BOLT CIRCLE DIAMETER	6-1/8	7-1/4	7-1/4

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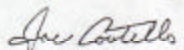
SERVICE BULLETIN #56  
August 24, 1994

Unfortunately, it has come to our attention that in some applications the spacers required for use with 1700 Series companion flanges are being omitted and further, that Grade 8 bolts are not being used to secure the companion flanges. Either violation of the above creates a potential for serious problems.

This bulletin reiterates the information provided on our reference drawings, that only Grade 8, drive line bolts, of the proper size, should be used on all companion flanges and always use spacers when they are required. Failure to comply with the above recommendations can cause serious problems; vibrations, loosening of bolts and possibly, loosening of flanges.

In addressing the potential to omit inserting the spacers, we advise you of a change in the method of supplying the eight (8) spacers with each pump flange at time of shipment. Effective immediately the eight (8) spacers required for use in 1700 Series applications will no longer be shipped loose. Since the 1700 Series drive line is used most frequently, we will be inserting the eight (8) spacers in the appropriate position in our Drive Flanges. For 1800 Series flanges they can easily be tapped out and discarded. (See the attached drawings.)

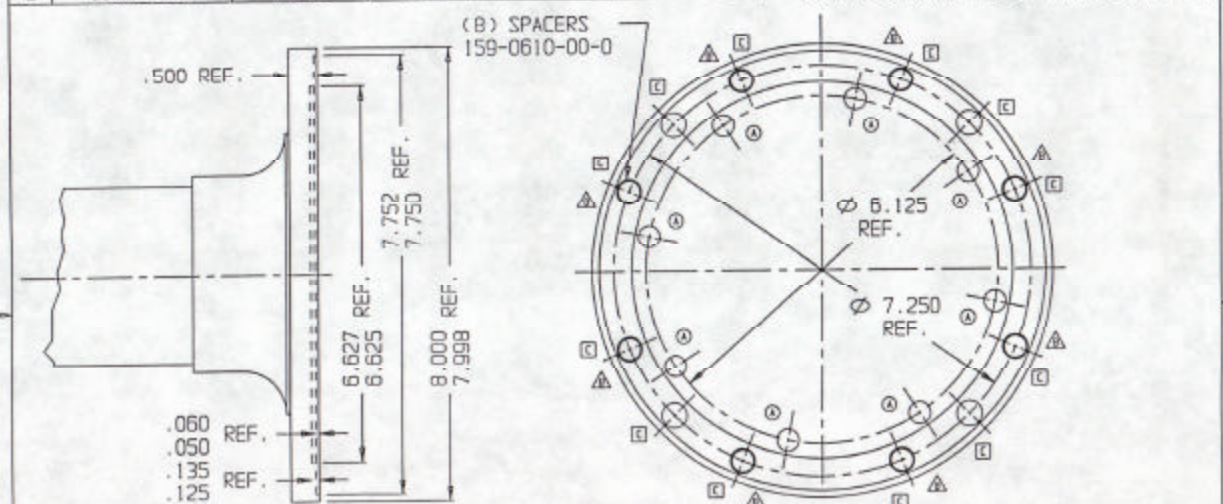
As always, should you have any further questions or need additional information or assistance, do not hesitate to contact us.

  
Joe Costello  
Service Manager

Attachment  
jc/SVCBUL56



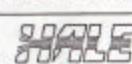


SPICER COMPANION FLANGE SERIES	BOLT CIRCLE DIAMETER	NUMBER OF HOLES	HOLE SIZE	SIZE OF SCREWS USED	INSTRUCTIONS TO ADAPT TO AN 1800/1810 SERIES SPICER COMPANION FLANGE:
A 1600/1610	6.125	8	.377-.386	3/8	1) TO UTILIZE THE 1800/1810 COMPANION FLANGE HOLES, INSERT A 7/16 SCREW INTO THE HOLES MARKED $\Delta$ AND KNOCK-OUT THE (8) PRE-INSERTED SPACERS (HALE P/N 159-0610-00-0).
B 1650/1710	7.250	8	.377-.380	3/8	
C 1800/1810	7.250	12	.4375-.4405	7/16	



THESE INSTRUCTIONS ARE USED FOR DRIVE SHAFTS PART NUMBERS: 037-1320-00-0, 037-1320-01-0, 037-1330-00-0, 037-1330-01-0.

REV	CHANGED FROM	BY	DATE	APVD	REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.	FIRE PUMP COMPANY CONSHOHOCKEN, PA 19428	
	101-0850-00-0	JDR	7-27-94	ROD	TOLERANCE ON: DECIMALS .XX $\pm$ .030 .XXX $\pm$ .015	TITLE FLANGE INSTRUCTIONS	
					ANGLES $\pm$ 1/2"	SIZE FIRST USED ON DWG NO. 101-0851-00-0	
					COPYRIGHT NOT TO BE REPRODUCED OR USED TO MAKE OTHER DRAWINGS OR MACHINERY.	SCALE: 1:2	
					DRAWN JDR CHECKED ROD	SHEET 1 of 1	
					DATE 7-27-94	REV	

		<p align="center"><b>WARNING</b></p> <p>USE ONLY GRADE 8 SCREWS IN THE FOLLOWING SERIES FLANGE HOLES:</p> <table border="1"> <thead> <tr> <th>FLANGE SERIES</th> <th>QTY</th> <th>SIZE</th> </tr> </thead> <tbody> <tr> <td>1600, 1610, 1650, 1700, 1710</td> <td>(8)</td> <td>3/8</td> </tr> <tr> <td>1760, 1800, 1810</td> <td>(12)</td> <td>7/16</td> </tr> </tbody> </table>		FLANGE SERIES	QTY	SIZE	1600, 1610, 1650, 1700, 1710	(8)	3/8	1760, 1800, 1810	(12)	7/16
		FLANGE SERIES	QTY	SIZE								
1600, 1610, 1650, 1700, 1710	(8)	3/8										
1760, 1800, 1810	(12)	7/16										
<p align="center">OVER</p>												
<p align="center">FRONT</p>												
		<p>TO USE 1760, 1800, 1810 SERIES HOLES, KNOCK-OUT THE PRE-INSERTED SPACERS AND USE (12) 7/16 GRADE 8 SCREWS</p>										
		<p align="center">OVER</p>										
<p align="center">REAR</p>		<p align="center"><b>MATERIAL</b></p> <p># 2 SIZE (3-1/4 X 1-5/8) WHITE "CHESTER" STOCK WITH RED LETTERS AND 12" LG. X 26 GA. STEEL WIRE DOUBLED TO 8" TOTAL LENGTH &amp; ATTACHED TO TAG</p>										
		<p align="center">SEE NOTE</p>										
<p>ITEM NO.</p>		<p>PART NUMBER</p>										
<p>MATERIAL SPECIFICATION</p>		<p>NOMINAL STOCK SIZE</p>										
REV	CHANGED FROM	BY	DATE	APVD	REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		FIRE PUMP COMPANY					
	101-0940-00-0	JDR	7-27-94	ROT	TOLERANCE ON:		CONSHOHOCKEN, PA 19428					
					DECIMALS .XX ± .030 .XXX ± .015	<p align="center">TITLE</p> <p align="center">INSTRUCTION TAG</p>						
					ANGLES ± 1/2"							
					COPYRIGHT © NOT TO BE REPRODUCED OR USED TO MAKE OTHER DRAWINGS OR MACHINERY.	<p>SIZE FIRST USED ON DWG NO. 101-0941-00-0</p>	REV					
					DATE 7-27-94							
					DRAWN FOR CHECKED ROT	SCALE: 1:1	LEVEL:	SHEET of				